Spec	CR	rev	Phase	Cat	SUBJECT	TDoc	Status	NEW_VERS
'strategic'	A010		R96	F	Alignment of the compact notation with the way it is used	97-987	approved	5.3.0
04.08	**Mobile Radio Interface - Layer 3 Specification**							
'strategic'	A181	5	R97	C	System information type 10	97-941	approved	5.8.0
	A206	5	R97	B	Network Alerting in the MS: Consequential CR - A new Information El	97-971	approved	5.8.0
'strategic'	A245		R96	F	Inconsistency of user rate in IE bearer capability	97-986	approved	5.8.0
'strategic'	A246		R96	F	Frequency redefinition procedure for multislot configuration	97-941	approved	5.8.0
'strategic'	A247	2	R96	F	Clarification to SACCH procedures for multislot configuration	97-941	approved	5.8.0
'strategic'	A248	2	R96	A	Clarification on audio connection	97-986	approved	5.8.0
'strategic'	A249	2	2	F	Clarification on audio connection	97-991	approved	4.21.0
'strategic'	A251	1	R97	B	Mobile assisted frequency allocation	97-942	approved	5.8.0
'strategic'	A253		R97	D	Multiple allocation of IEs within on protocol	97-986	approved	5.8.0
'strategic'	A255		R96	F	Alignment of the compact notation with the way it is used	97-987	approved	5.8.0
04.21	**Rate Adaption on the Mobile Station - Base Station System (MS-BSS) Interface.**							
	A009		R96	F	Removal of 2*14.4=19.2 Transparent configuration	97-921	approved	5.4.0
	A010		R96	F	Update of the protocol stack models in Annex A	97-921	approved	5.4.0
04.64								
	A001	1	R97	C	Various corrections and alignments with other specifications	97-938	approved	5.1.0
	A002	2	R97	C	NACK/SACK procedure	97-938	approved	5.1.0
	A003		R97	C	T200 default values	97-938	approved	5.1.0
	A004		R97	B	Introduction of new primitive	97-938	approved	5.1.0
	A005		R97	C	Frame reject response	97-938	approved	5.1.0
	A006	1	R97	C	Minimum value for N201	97-938	approved	5.1.0
	A007	1	R97	C	Cipher parameter input	97-938	approved	5.1.0
	A008	1	R97	B	Introduction of data mode parameter in LLC	97-938	approved	5.1.0
	A009		R97	B	Separate N201 parameter for I and U-UI frames	97-938	approved	5.1.0
	A010	1	R97	C	Cell update procedure	97-938	approved	5.1.0
	A011	1	R97	F	ABM SAPIs	97-938	approved	5.1.0
	A012	1	R97	F	Update of service primitive names	97-938	approved	5.1.0
	A013	1	R97	C	Maximum number of octets in an information field, N201	97-938	approved	5.1.0
	A014		R97	C	Removal of the length indicator field	97-938	approved	5.1.0
04.65								
	A001	1	R97	B	Introduction of new primitive	97-990	approved	5.1.0
	A003	1	R97	B	Introduction of header compression for SN-UNITDATA	97-990	approved	5.1.0
	A004	1	R97	B	Introduction of data compression for SN-UNITDATA	97-990	approved	5.1.0
	A005	1	R97	C	SNDCP XID negotiation	97-990	approved	5.1.0
	A007		R97	B	Update of service primitives	97-990	approved	5.1.0

Spec	CR	rev	Phase	Cat	SUBJECT	TDoc	Status	NEW_VERS
	A008		R97	C	Separation of N201-I and N201-U	97-990	approved	5.1.0
	A010	1	R97	D	1st editorial changes	97-990	approved	5.1.0
	A011	2	R97	F	2nd editorial changes	97-990	approved	5.1.0
	A012	1	R97	F	Various corrections	97-990	approved	5.1.0
04.80	**Mobile Radio Interface Layer 3 - Supplementary Services Specification Formats and Coding**							
	A007	2	R97	B	Calling Name Presentation	97-1081	approved	5.1.0
	A007	2	R97	B	Changes due to Calling Name Presentation	97-1048	approved	5.1.0
04.88	**Call Barring (CB) Supplementary Services - Stage 3.**							
	A004		R97	C	Call Barring after reconnection	97-1047	approved	5.1.0
05.01	**Physical Layer on the Radio Path (General Description)**							
'strategic'	A010	1	R97	B	Introduction of GPRS	97-1002	approved	6.0.0
05.02	**Multiplexing and Multiple Access on the Radio Path**							
'strategic'	A020	1	R97	F	Corrections and clarifications to GPRS	97-1003	approved	6.0.0
'strategic'	A021		R97	B	Multislot classes for GPRS	97-1003	approved	6.0.0
'strategic'	A022	1	R97	B	System information for GPRS on BCCH	97-1003	approved	6.0.0
'strategic'	A023	2	R97	C	Alignment of 51- and 52-multiframe PCCCH	97-1003	approved	6.0.0
05.05	**Radio Transmission and Reception**							
'strategic'	A058	1	2	C	Improvement to DCS MS sensitivity	97-1004	approved	4.21.0
'strategic'	A059	1	R96	A	Improvement to DCS MS sensitivity	97-1004	approved	5.7.0
'strategic'	A063	2	R97	B	Reference performance for GPRS	97-1004	approved	6.0.0
05.08	**Radio Subsystem Link Control**							
'strategic'	A039		2	F	Allowed time to decode BCCH data	97-1005	approved	4.21.0
'strategic'	A040		R96	A	Allowed time to decode BCCH data	97-1005	approved	5.6.0
'strategic'	A041		R96	C	Dual band MS cell re-selection enhancement	97-1005	approved	5.6.0
'strategic'	A042	2	R97	B	Mobile Assisted Frequency Allocation	97-1144	approved	5.6.0
'strategic'	A042	3	R97	B	Mobile Assisted Frequency Allocation	97-1005	rejected	5.6.0
'strategic'	A043		R97	B	Channel Quality Report in GPRS	97-1005	approved	6.0.0
05.50	**Background for RF Requirements.**							
'strategic'	A005	1	R97	B	Introduction of simulation results for GPRS receiver performance	97-1006	approved	6.0.0
07.01	**General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)**							
	A027		R96	D	Editorial Modification for HSCSD	97-921	approved	5.7.0
	A028		R96	F	Valid combinations of HSCSD parameters	97-921	approved	5.7.0
	A029		R96	C	LLC Handling in GBS	97-921	approved	5.7.0

Spec	CR	rev	Phase	Cat	SUBJECT	TDoc	Status	NEW_VERS
07.02	**Terminal Adaptation Functions (TAF) for Services Using Asynchronous Bearer Capabilities**							
	A011		R96	F	Clarification to L2R	97-921	approved	5.5.0
07.03	**Terminal Adaptation Functions (TAF) for Services Using Synchronous Bearer Capabilities**							
	A009		R96	F	Clarification to L2R	97-921	approved	5.4.0
07.05	**Use of Data Terminal Equipment - Data Circuit Terminating Equipment (DTE-DCE) Interface for Short Message Services (SMS) and Cell Bro**							
	A037		R96	F	Unnecessary conversion in Annex A	97-922	approved	5.5.0
07.07	**Digital cellular telecommunications System (Phase 2) AT Command set for GSM Mobile Equipment (ME)**							
	A044		R96	D	Update of alternating call figures	97-922	approved	5.5.0
	A045		R96	F	V.120/RDI correction	97-922	approved	5.5.0
	A046		2	F	AT+CPIN or AT+CKPD must be mandatory in some cases (phase 2)	97-922	approved	4.2.0
	A047		R96	A	AT+CPIN or AT+CKPD must be mandatory in some cases (phase 2+)	97-922	approved	5.5.0
'strategic'	A048		R97	B	MUX 07.10 AT commands	97-1031	approved	5.5.0
07.08	**GSM Application Programming Interface**							
'strategic'	A002		R96	F	Correction of references	97-1029	approved	5.2.0
07.60	**General Packet Radio Service (GPRS); Mobile Station (MS) supporting GPRS**							
	A002		R97	F	IP configuration parameters and PPP clarifications	97-1030	approved	5.1.0
08.08	**Mobile Switching Centre - Base Station system (MSC-BSS) Interface Layer 3 Specification**							
'strategic'	A090		R96	F	Correction of Circuit Pool Description	97-940	approved	5.8.0
'strategic'	A092	1	R96	F	Clean-up for work item Improved Transcoder Handling	97-940	approved	5.8.0
08.20	**Rate Adaptation on the Base Station System - Mobile Service Switching Centre (BSS-MSC) Interface.**							
	A004		R96	F	Removal of 2*14.4=19.2 Transparent configuration	97-921	approved	5.3.0
08.58	**Base Station Controler - Base Transceiver Station (BCS-BTS) Interface Layer 3 Specification**							
'strategic'	A022	1	R97	B	Mobile assisted frequency allocation	97-942	approved	5.6.0
09.02	**Mobile Application Part (MAP) Specification**							
	A084	3	R97	B	Network's indication of alerting	97-971	approved, on hold	6.0.0
	A094	2	R97	B	Modifications due to ASCI phase 2	97-989	approved, on hold	6.0.0
	A103	6	R97	B	Introduction of SIWFS	97-912	approved, on hold	6.0.0
	A106	4	R96	F	Corrections	97-917	approved	5.8.0
	A107	2	R96	F	Addition of a context specific TAG for SendRoutingInfoRes	97-917	approved	5.8.0
	A108		R96	F	object identifier values for proprietary extensions	97-917	approved	5.8.0
	A112		R96	F	Correction due to GAD	97-915	approved	5.8.0
09.07	**General Requirements on Interworking between the Public Land Mobile Network (PLMN) and the Intergrated Services Digital Network (ISD**							
	A036		R96	F	Correction of V.120 and RDI interworking	97-922	approved	5.6.0

Spec	CR	rev	Phase	Cat	SUBJECT	TDoc	Status	NEW_VERS
	A037		R96	C	LLC Modification	97-921	approved	5.6.0
09.78	**CAMEL Application Part phase 1 (stage 3)**							
	A019		R96	F	Removal of CallingPartyNumber from Connect	97-915	approved	5.3.0
	A020		R96	F	Removal of the transparent mode monitoring	97-915	approved	5.3.0
	A021		R96	F	Update the SCCP class requirements in 09.78	97-915	approved	5.3.0
	A022		R96	F	Remove mapping of CalledPartyBCD number and order sequence in A	97-915	approved	5.3.0
11.10-1	**Conformance Specification**							
	A328		2	F	CR to 11-10-1,Editorial correction to Section 26.10.2.5.3	97-924	approved	4.21.0
	A329		R96	F	CR to 11-10-1,Editorial correction to Section 26.10.2.5.3	97-925	approved	5.4.0
	A330		2	D	CR to 11.10-1 Editorial modifications to section 3.2.2, table 3.1 Applic	97-924	approved	4.21.0
	A331		R96	D	CR to 11.10-1 Editorial modifications to section 3.2.2, table 3.1 Applic	97-925	approved	5.4.0
	A334		2	D	CR to 11.10-1 Editorial modifications to section 26.12.2.2	97-924	approved	4.21.0
	A335		R96	D	CR to 11.10-1 Editorial modifications to section 26.12.2.2	97-925	approved	5.4.0
	A336		2	D	CR to 11.10-1 Editorial modifications to section 26.12.2.1.3	97-924	approved	4.21.0
	A337		R96	D	CR to 11.10-1 Editorial modifications to section 26.12.2.1.3	97-925	approved	5.4.0
	A338		2	D	CR to 11.10-1 Editorial modifications to section 31.6.2.4	97-924	approved	4.21.0
	A339		R96	D	CR to 11.10-1 Editorial modifications to section 31.6.2.4	97-925	approved	5.4.0
	A340		R96	D	CR to 11.10-1 Phase 2+ Addition of HSCSD test cases in Table 3.1: A	97-925	approved	5.4.0
	A341		2	F	CR to 11.10-1 Phase 2 Addition of a test purpose in 26.11.3 to test L2	97-924	approved	4.21.0
	A343		2	F	CR to 11.10-1 Correction of 26.7.4.3.4	97-924	approved	4.21.0
	A344		R96	F	CR to 11.10-1 Correction of 26.7.4.3.4	97-925	approved	5.4.0
	A345		R96	F	CR to 11-10-1 Phase 2+ Addition of a test purpose in 26.11.3 to test L	97-925	approved	5.4.0
	A346		2	D	CR to 11.10-1 Editorial modifications to Annex 3.2.3.1/3/4 removal of	97-924	approved	4.21.0
	A347		R96	D	CR to 11.10-1 Editorial modifications to Annex 3.2.3.1/3/4 removal of	97-925	approved	5.4.0
	A348		R96	F	CR to 11.10-1 Phase 2+HSCSD test case 26.13.1.1.2 Multislot Signalli	97-925	approved	5.4.0
	A349		R96	F	CR to 11.10-1 Phase 2+ HSCSD test case 26.13.1.2.1 Multislot signalli	97-925	approved	5.4.0
	A350		R96	F	CR to 11.10-1 Phase 2+ HSCSD test case 26.13.1.3.4 Multislot signalli	97-925	approved	5.4.0
	A351		2	F	CR to 11.10-1 Section 26.10.2.3 Incorrect Frequencies Specified	97-924	approved	4.21.0
	A352		R96	F	CR to 11.10-1 Phase 2+Section 26.10.2.3 Incorrect Frequencies Speci	97-925	approved	5.4.0
	A353		R96	F	CR to 11.10-1 Phase 2+-HSCSD test case 26.13.1.1.1 Multislot signall	97-925	approved	5.4.0
	A354		2	D	CR to 11.10-1 Editorial modifications to section 22.5	97-926	approved	4.21.0
	A355		R96	D	CR to 11.10-1 Editorial modifications to section 22.5	97-927	approved	5.4.0
	A356		2	B	CR to 11.10-1 Allow use of artificial ear type 3.2 for speech teleservice	97-926	approved	4.21.0
	A357		R96	B	CR to 11.10-1 Allow use of artificial ear type 3.2 for speech teleservice	97-927	approved	5.4.0
	A358		2	D	CR to 11.10-1 Phase 2- Section 14 - incorrect references to Phase 1	97-926	approved	4.21.0
	A359		R96	D	CR to 11.10-1 Phase 2+-Section 14 - incorrect references to Phase 1	97-927	approved	5.4.0
	A360		2	E	CR to 11.10-1 Phase 2- section 20.8 Cell reselection when C1 (servin	97-926	approved	4.21.0

Spec	CR	rev	Phase	Cat	SUBJECT	TDoc	Status	NEW_VERS
	A361		R96	F	CR to 11.10-1 Phase 2+- Section 20.8 Cell reselection when C1 (servin	97-927	approved	5.4.0
	A362		2	F	CR to 11.10-1 Phase 2- section 20.20.2 Multiband cell selection and r	97-926	approved	4.21.0
	A363		R96	F	CR to 11.10-1 Phase 2+- section 20.20.2 Multiband cell selection and	97-927	approved	5.4.0
	A364		2	F	CR to 11.10-1 Phase 2- section 30.6.1 Echo loss	97-926	approved	4.21.0
	A365		R96	F	CR to 11.10-1 Phase 2+- Section 30.6.1 Echo loss	97-927	approved	5.4.0
	A366		2	D	CR to 11.10-1 Phase 2-Editorial modifications to section 12.1.1.4.2	97-926	approved	4.21.0
	A367		R96	D	CR to 11.10-1 Phase 2+-Editorial modifications to section 12.1.1.4.2	97-927	approved	5.4.0
	A368		2	F	CR to 11.10-1 Phase2 Editorial modifications to section 20.1.4.1 & 20.	97-926	approved	4.21.0
	A369		R96	F	CR to 11.10-1 Phase2+ Editorial modifications to section 20.1.4.1 & 2	97-927	approved	5.4.0
	A370		2	B	CR to 11-10-1 Section 30 and section 2 Allow use of artificial ear type	97-926	approved	4.21.0
	A371		R96	B	CR to 11-10-1 Section 30 and section 2 Allow use of artificial ear type	97-927	approved	5.4.0
	A372		2	D	CR to 11-10.1 Addition of test case references	97-926	approved	4.21.0
	A373		R96	D	CR to 11-10.1 Addition of test case references	97-927	approved	5.4.0
	A374		2	D	CR to 11-10.1 Editorial modification of section 22.2	97-926	approved	4.21.0
	A375		R96	D	CR to 11-10.1 Editorial modification of section 22.2	97-927	approved	5.4.0
	A376		R96	B	CR to 11.10-1 Phase 2+Transmitter: Output RF spectrum in multislot c	97-927	approved	5.4.0
	A377		R96	B	CR to 11.10-1 Phase 2+Reference sensitivity - full rate data channels in	97-927	approved	5.4.0
	A378		R96	B	CR to 11.10-1 Phase 2+Transmit power control timing and confirmatio	97-927	approved	5.4.0
	A379		R96	B	CR to 11.10-1 Phase 2+Transmitter: Frequency error and phase error i	97-927	approved	5.4.0
	A380		2	D	CR to 11.10-1 Phase 2+Transmitter: Frequency error and phase error i	97-926	approved	4.21.0
	A381		R96	D	CR to 11.10-1 Phase 2+Transmitter: Frequency error and phase error i	97-927	approved	5.4.0
	A382		2	F	CR to 11.10-1 Section 29.3.1.2.2 Total loss of UA frame	97-1122	approved	4.21.0
	A383		R96	F	CR to 11.10-1 Section 29.3.1.2.2 Total loss of UA frame	97-1123	approved	5.4.0
	A384		2	F	CR to 11.10-1 Section 29.3.2.2.2 Transmission Window	97-1122	approved	4.21.0
	A385		R96	F	CR to 11.10-1 Section 29.3.2.2.2 Transmission Window	97-1123	approved	5.4.0
	A386		2	F	CR to 11.10-1 Section 29.3.2.6.1 SS in checkpoint recovery mode	97-1122	approved	4.21.0
	A387		R96	F	CR to 11.10-1 Section 29.3.2.6.1 SS in checkpoint recovery mode	97-1123	approved	5.4.0
	A388		2	F	CR to 11.10-1 Section 29.3.2.6.2 End of a window	97-1122	approved	4.21.0
	A388		R96	F	CR to 11.10-1 Section 29.3.2.6.2 End of a window	97-1123	approved	5.4.0
	A390		2	F	CR to 11.10-1 Section 29.3.2.6.3 End of a sequence	97-1122	approved	4.21.0
	A391		R96	F	CR to 11.10-1 Section 29.3.2.6.3 End of a sequence	97-1123	approved	5.4.0
	A392		2	F	CR to 11.10-1 Section 29.3.2.6.5 No response to checkpointing	97-1122	approved	4.21.0
	A393		R96	F	CR to 11.10-1 Section 29.3.2.6.5 No response to checkpointing	97-1123	approved	5.4.0
	A394		2	F	CR to 11.10-1 Section 29.3.2.6.7 Total loss of response to checkpointi	97-1122	approved	4.21.0
	A395		R96	F	CR to 11.10-1 Section 29.3.2.6.7 Total loss of response to checkpointi	97-1123	approved	5.4.0
11.10-3	**Layer3 (L3) Abstract Test Suite (ATS)**							
	312		2	F	Correction of 2nd TMSI-Reallocation in TC 26 7 1	97-891	approved	4.21.0

Spec	CR	rev	Phase	Cat	SUBJECT	TDoc	Status	NEW_VERS
	313		2	F	Cell Selection Implementation Errors	97-892	approved	4.21.0
	314		2	F	Corrections to handover test case 26 6 5 7	97-891	approved	4.21.0
	315		2	F	Corrections to handover test case 26 6 5 6	97-891	approved	4.21.0
	316		2	F	Corrections to handover test case 26 6 5 5 1	97-891	approved	4.21.0
	317		2	F	Corrections to TC 26 10 3 1	97-891	approved	4.21.0
	318		2	F	Corrections to handover test case 26 6 5 9	97-891	approved	4.21.0
	319		2	F	Corrections to handover test case 26 6 5 8	97-891	approved	4.21.0
	320		2	F	TTCN modifications to C 26 8 1 4 5 1, TC 26 8 1 4 4 1, Setup	97-891	approved	4.21.0
	321		2	F	Corrections to handover test case 26 6 5 5 2	97-891	approved	4.21.0
	322		2	F	Problem with test case TC 26 6 5 4 2	97-891	approved	4.21.0
	323		2	F	Naming collision with FullRateCh B 1 & Est MO Call init in EFR	97-891	approved	4.21.0
	324		2	F	Simplification for checking of Mobile Time Difference IE in TCs 26 6	97-891	approved	4.21.0
	325		2	F	Implementation problems with TC 26 6 5 3 2	97-891	approved	4.21.0
	326		2	F	Test case 26 8 2 1 problems	97-891	approved	4.21.0
	327		2	F	Test case 26 8 1 4 3 2 problems	97-891	approved	4.21.0
	328		2	F	Problems with TC 26 6 4 2 2	97-891	approved	4.21.0
	329		2	F	Problem with use of lists as parameters	97-891	approved	4.21.0
	331		2	F	Problems with TC 26 10 2 5	97-891	approved	4.21.0
	332		2	F	TTCN modifications to TC 26 9 6 1 1	97-891	approved	4.21.0
	333		2	F	Problems with TC 26 10 2 2	97-891	approved	4.21.0
	334		2	F	Use correct channels in TC 26 5 7 1 4	97-891	approved	4.21.0
	335		2	F	New Test Step (InitCM) Needed In-Order Use Custom Call Initiation	97-891	approved	4.21.0
	336		2	F	Problems with TC 26 10 2 3	97-891	approved	4.21.0
	337		2	F	Problem with use of lists as parameters	97-891	approved	4.21.0
	338		2	F	CS ATS implementation errors	97-892	approved	4.21.0
	340		2	F	CS ATS implementation errors (Modification of TC 20 6 suitable for	97-892	approved	4.21.0
	341		2	F	Adjusting RF power levels in TC 26 7 4 3 1	97-891	approved	4.21.0
11.11	**Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) Interface.**							
	a052	2	R97	b	Introduction of UCS2	97-886	approved	5.8.0
	a057		R97	c	MO SMS control by SIM	97-886	approved	5.8.0
	a058		R97	b	addition of GPRS data field	97-889	information	5.8.0
11.14	**Specification of Subscriber Identity Module - Mobile Equipment (SIM - ME) Interface for SIM Application Toolkit**							
	A044		R96	F	high priority of DISPLAY TEXT	97-1124	approved	5.6.0
	a045		R97	B	new type of DISPLAY TEXT and SET UP CALL	97-886	approved	5.6.0
	a047	1	R97	D	Extension of informative Annex on help information feature.	97-886	approved	5.6.0
	a048		R97	C	Enhancement to PROVIDE LOCAL INFORMATION	97-886	approved	5.6.0
	a049		R96	F	GET INPUT - Hidden text	97-886	approved	5.6.0

Spec	CR	rev	Phase	Cat	SUBJECT	TDoc	Status	NEW_VERS
	a050		R97	B	Default choice possibility for Get Input	97-886	approved	5.6.0
	a051	2	R97	B	Improvement of the dialogue with the user	97-886	approved	5.6.0
	a052		R97	C	cell identity available in call control by SIM	97-886	approved	5.6.0
	a053		R96	F	Profile download	97-886	approved	5.6.0
	a054		R97	B	send USSD	97-886	approved	5.6.0
	a055		R97	B	MO SMS control by SIM	97-886	approved	5.6.0
22.01	**Universal Mobile Telecommunications System (UMTS): Service aspects; Service principles**							
	A004		UMTS	D	Comparing UMTS 22.01 V3.1.1 distributed at SMG#23 with UMTS	97-965	approved	3.2.0
	A005		UMTS	D	UMTS 22.01 Multiple Subscriptions: Restructuring of sections 8,9 an	97-966	approved	3.2.1
	A006		UMTS	D	UMTS 22.01 Numbering Principles: Improving the accuracy of text on	97-967	approved	3.2.1
30.20								
	A001		UMTS	B	Characteristics of Satellite Systems	97-1055	approved	3.1.0
TBR 19								
	A009		2	F	CR to TBR 19 Reduction of test cases for EFR TC 26 12 2 1 AND	97-928	approved, on hold	
	A010		2	B	CR to TBR 19 Inclusion of HSCSD Multislot test cases	97-928	postponed	
TBR 31								
	A003		R96	F	CR to TBR 31 Reduction of test cases for EFR TC 26 12 2 1 AND	97-928	approved, on hold	
	A004		R96	B	CR to TBR 31 Inclusion of HSCSD Multislot test cases	97-928	postponed	

LIST OF SMG DOCUMENTS

SORTED BY DOCUMENT NUMBER DRAFT No.4

SMG#24 MEETING No 5/97 - MADRID 15-19 DECEMBER, 1997

NUMBER	TITLE	AGENDA ITEM	SOURCE	*REPLACED BY TDOC*
880/97	Agenda and Schedule of SMG#24	2	TC SMG Chairman	*885/97*
881/97	Involvement of Asia Pacific GSM MoU Members in the UMTS terrestrial Radio Access (UTRA) Decision	4.1	TC SMG Chairman	
882/97	GSM-UMTS Core Network definition pivoting GSM Core Network evolution	4.1	TC SMG Chairman	
883/97	Procedure for voting on UTRA	4.1	TC SMG Chairman & ETSI's Legal Adviser	*995/97*
884/97	SMG-CG 23bis 30/10/97 in Bonn Meeting Report	4.3	PT SMG Co-Ordinator	
885/97	Agenda and Schedule of SMG#24 (revised TDoc 880/97)	2	TC SMG Chairman	*1020/97*
886/97	Non strategic CRs to GSM 11.11 and GSM 11.14 (see missing CR in TDoc 1124/97)	5.5	SMG9	
887/97	New Work item - Auxiliary device access using SIM application toolkit	5.5	SMG9	
888/97	GSM 03.48 (SIM toolkit secure messaging), v2.0.1 - for approval	5.5	SMG9	
889/97	Status and summary of SMG9 related GPRS issues and CR to GSM 11.11	5.5	SMG9	
890/97	UMTS 21.06 (Network and service management requirements for UMTS	5.5	SMG6	
891/97	Non-strategic CRs 312 to 329 and 331 to 337 and 341 to GSM 11.10-3 Phase 2	5.5	SMG7	
892/97	Non strategic CRs 313, 338 and 340 to GSM 11.10-3 Phase 2	5.5	SMG7	
893/97	Summary of the UTRA definition procedure in SMG2	4.1	SMG2	
894/97	Summary of the concept description of the Beta concept	4.1	SMG2	
895/97	Summary of the concept evaluation of the Beta concept	4.1	SMG2	
896/97	Concept Group Beta OFDMA : System Description Performance Evaluation	5.3	SMG2	
897/97	Concept Group Delta WB-TDMA/CDMA: System Description Summary	4.1	SMG2	
898/97	Concept Group Delta WB-TDMA/CDMA: Evaluation Summary	4.1	SMG2	
899/97	Concept Group Delta WB-TDMA/CDMA: System Description Performance Evaluation	5.3	SMG2	
900/97	Concept Group Gamma - WB-TDMA: System Description Summary	4.1	SMG2	
901/97	Concept Group Gamma - WB-TDMA: Evaluation Summary	4.1	SMG2	
902/97	Concept Group Gamma: Wideband TDMA: Evaluation document	5.3	SMG2	
903/97	Concept Group Alpha: Wideband Direct-Sequence CDMA: System Description Summary	4.1	SMG2	

NUMBER	TITLE	AGENDA ITEM	SOURCE	*REPLACED BY TDOC*
904/97	Concept Group Alpha: Wideband Direct-Sequence CDMA: Evaluation Summary	4.1	SMG2	
905/97	Concept Group Alpha: Wideband Direct-Sequence CDMA (WCDMA) Evaluation Document	5.3	SMG2	
906/97	Current Situation and Principle Attitude of Standardization Activities on Radio Transmission Technology for IMT-2000 in ARIB	4.1	ARIB	
907/97	Co-ordination of ITU Work in ETSI, ETSI/B10(97)09	4.6	TC SMG Chairman	
908/97	Information copy of Ericsson IPR Statement	4	Ericsson	
909/97	Stage 2 of CAMEL Phase 2 (CR 03.78 A008r8)	5.4	SMG3	
910/97	GSM 09.60 v.2.0.0 GPRS Tunnelling Protocol (GTP)	5.4	SMG3	
911/97	CR A007r2 to GSM 03.18 v.5.1.0	5.4	SMG3	
912/97	CR A011r1 to GSM 03.18 and A103r5 to GSM 09.02	5.4	SMG3	
913/97	Changes to GSM 03.18, GSM 03.78 & GSM 03.79 to ease the documentation for further services	5.4	SMG3	
914/97	DEN/SPS-03052-1 - INAP; Part 1: Protocol specification for CAMEL Phase 1	5.4	SMG3	
915/97	CRs to GSM 03.18, 03.78 and 09.02: Corrections for CAMEL Phase 1 (R96)	5.4	SMG3	
916/97	GSM 10.78 v.1.5.0 Project scheduling and open issues: CAMEL	5.4	SMG3	
917/97	CRs A106r4 A107r2 and A108 to GSM 09.02	5.4	SMG3	
918/97	Non strategic CRs A064 and A065 to GSM 03.40 v.5.7.0	5.5	SMG4	
919/97	CRs A045 to A052 to GSM 03.41 v.5.7.0 and A026 to A031 to GSM 03.49 v.5.6.0	5.5	SMG4	
920/97	Non strategic CRs A004 to A007 to GSM 03.54 v.5.1.0	5.5	SMG4	
921/97	Non strategic CRs for HSCSD and 14.4 kbit/s	5.5	SMG4	
922/97	Non strategic CRs to GSM 07.05, 07.07 and on work item V.120/RDI interworking	5.5	SMG4	
923/97	SMG7 STATUS REPORT	5.5	SMG7 Chairman	
924/97	Non strategic CRs A328, A330, A332, A334, A336, A338, A342, A343, A346, A348, A351 to GSM 11.10-1 Phase 2 (SIG)	5.5	SMG7	
925/97	Non strategic CRs A329, A331, A333, A335, A337, A339, A340, A344, A345, A347, A349, A350, A352, A353 to GSM 11.10-1 Phase 2+ (SIG)	5.5	SMG7	
926/97	Non strategic CRs A354, A356, A358, A360, A362, A364, A366, A368, A370, A372, A374, A380 to GSM 11.10-1 Phase 2 (RF)	5.5	SMG7	
927/97	Non strategic CRs A355, A357, A359, A361, A363, A365, A367, A369, A371, A373, A375, A376, A377, A378, A379, A381 to GSM 11.10-1 Phase 2+ (RF)	5.5	SMG7	
928/97	Non strategic CRs A009, A010 to TBR 19 and Strategic CRs A003, A004 to TBR 31	5.5	SMG7	
929/97	GSM 03.53 v.1.0.0 for information	5.4	SMG3	*1113/97*
930/97	Questions on IPR issues	4.1	Siemens	
931/97	Withdrawn	5.5	Vodafone	
932/97	IMT 2000 Family of Systems Concept	4.1	TC SMG Chairman	*1132/97*
933/97	PT SMG Job Description - Version 3.13	3.2	PT SMG	
934/97	PT SMG 1997 budget	3.2	PT SMG	

NUMBER	TITLE	AGENDA ITEM	SOURCE	*REPLACED BY TDOC*
935/97	PT SMG 1998 budget	3.2	PT SMG	
936/97	Summary of telephone conferences TIA - SMG/T1P1	4.6	PT SMG	*1109/97*
937/97	CRs to 03.60 (electronic copy only)	5.4	SMG3	
938/97	CRs to 04.64 (electronic copy only)	5.4	SMG3	
939/97	Performance comparison WCDMA vs TD - CDMA	4.1	ERICSSON	
940/97	Strategic CRs A090 and A092r1 on 08.08	5.3	SMG2	
941/97	Strategic CRs A246, A247r2 and A181r5 to GSM 04.08	5.3	SMG2	
942/97	Strategic CRs A022r1 to GSM 08.58 and A251r1 to GSM 04.08	5.3	SMG2	
943/97	GSM 08.14 v.2.0.0 - BSS - Serving GPRS Support Node (SGSN) interface; Gb interface Layer 1	5.3	SMG2	
944/97	GSM 08.16 v.2.0.0 - BSS -- Serving GPRS Support Node (SGSN) interface; Network Service	5.3	SMG2	
945/97	GSM 08.18 v.2.0.0 - BSS - Serving GPRS Support Note (SGSN) BSS GPRS Protocol (BSSGP)	5.3	SMG2	
946/97	Strategic CRs A005r2 to GSM 04.03 and A001r2 to GSM 04.04	5.3	SMG2	
947/97	GSM 04.60 V.1.0.0 - MS - BSS interface; Radio Link Control/Medium Access Control (RL/MAC) protocol	5.3	SMG2	
948/97	Not allocated			
949/97	Non Strategic CRs A009 to GSM 03.50 v. 4.2.0 and A011 to GSM 03.50 v.5.0.2	5.5	SMG11	
950/97	Non Strategic CR A001 to GSM 02.53 v.5.0.0	5.5	SMG11	
951/97	TS 04.53 v.1.0.0 - Inband Tandem Free Operation (TFO) of Speech Codecs; Service Description; Stage 3	5.5	SMG11	*1007/97*
952/97	Extension to Work Item Description for TFO	5.5	SMG11	
953/97	AMR performance requirements (AMR-3)	5.5	SMG11	
954/97	Draft LS to ITU-R TG8/1 on speech codecs	4.6	SMG11	
955/97	UMTS TS 22.05 v.1.4.1 - Services and Service Capabilities	4.2	SMG1	
956/97	UMTS 22.07 v.1.0.0 - Terminal and smart card concepts	5.2	SMG1	
957/97	UMTS 22.15 v.1.2.2 - Service aspects; Charging and Billing	4.2	SMG1	
958/97	UMTS TR 22.24 v.1.2.2 - New Charging and Accounting Mechanisms	4.2	SMG1	
959/97	UMTS TR 22.25 v.2.0.0 - Quality of Service and Network Performance	4.2	SMG1	
960/97	UMTS TR 22.60 v.1.0.0 - Mobile multimedia services including mobile Intranet and Internet services	4.2	SMG1	
961/97	UMTS 22.70 v.1.0.0 - Virtual Home Environment	4.2	SMG1	
962/97	UMTS TR 22.71 v.1.1.1 - Automatic Establishment of Roaming Relationships	4.2	SMG1	
963/97	UMTS 22.75 v.1.0.0 - Service aspects; Advanced Addressing	4.2	SMG1	
964/97	UMTS TR 22.80 V.2.0.1 - Relationship to other Standards	4.2	SMG1	
965/97	Non strategic CR A004 to UMTS 22.01 v.3.1.1	4.2	SMG1	
966/97	Non strategic CR A005 to UMTS 22.01 v.3.2.0	4.2	SMG1	

NUMBER	TITLE	AGENDA ITEM	SOURCE	*REPLACED BY TDOC*
967/97	Non strategic CR A006 to UMTS 22.01 v.3.2.0	4.2	SMG1	
968/97	SMG1-UMTS Meeting report Dec. 2-4, 1997 in Helsinki	4.2	SMG1	
969/97	UMTS 22.01 v.3.2.0 - Service Aspects; Services principles	4.2	SMG1	
970/97	Non strategic CRs A006 and A007 to GSM 02.01 v.5.2.0	5.2	SMG1	
971/97	Strategic CRs A015 to GSM 02.07, A004 to GSM 03.18 and A084 to GSM 09.02 Non strategic CR A206 to GSM 04.08	5.2	SMG1	
972/97	Strategic CRs A002 to GSM 02.42 v.5.0.1 and A016 to GSM 02.07 v.5.3.1	5.2	SMG1	
973/97	Non strategic CR A009 to GSM 02.11 v.5.0.0	5.2	SMG1	
974/97	Non strategic CR A021 to GSM 02.30 v.5.6.0	5.2	SMG1	*1149/97*
975/97	Non strategic CR A008 to GSM 02.41 v.5.1.0	5.2	SMG1	
976/97	Non strategic CRs A002 and A003 to GSM 02.60	5.2	SMG1	
977/97	Non strategic CR A014 to GSM 02.78 v.5.3.0	5.2	SMG1	
978/97	Strategic CRs A006 and A007 to GSM 02.81 and non strategic CRs A008 and A009 to GSM 02.81	5.2	SMG1	
979/97	Non strategic CRs A017 and A018 to GSM 02.93 v.5.4.0	5.2	SMG1	
980/97	Support of Private Numbering Plan (SPNP); Service Description, Stage 1	5.2	SMG1	
981/97	GSM 02.66 v.1.4.0 Support of Mobile Number Portability (MNP); Service Description; Stage 1	5.2	SMG1	
982/97	GSM 02.96 v.2.0.0 - Name Identification Supplementary Services; Stage 1	5.2	SMG1	
983/97	SMG1 Progress Summary Report on GSM & UMTS	5.2	SMG1	
984/97	Not allocated			
985/97	Strategic CR A031r1 to GSM 03.64 v.5.1.0	5.3	SMG2	
986/97	Strategic CRs A245, A248r1, A253 to GSM 04.08	5.4	SMG3	
987/97	Strategic CRs A010 to GSM 04.07 and A255 to GSM 04.08	5.4	SMG3	
988/97	Non strategic CR A008r5 to GSM 04.07 v.5.2.0	5.4	SMG3	
989/97	Non strategic CRs on 03.68, 03.69, 09.02 for ASCI, agreed by SMG3, Phase 2+, Release '97	5.4	SMG3	
990/97	Non strategic CRs on 04.65, agreed by SMG3, Phase 2+, Release '97	5.4	SMG3	
991/97	Strategic CR A249r2 to GSM 04.08 v.4.19.1	5.4	SMG3	
992/97	Contribution to the document UMTS 30.01 version 3.1.0 " UMTS Baseline Document"	4.2	UMTS Forum Market Aspects Group	
993/97	ETSI Status List	3.2	I. Doig, ETSI ECS Dept	
994/97	ETSI Membership List	4	I. Doig, ETSI ECS Dept	
995/97	Procedure of vote for indication of intent on UTRA in SMG#24 (Revision of TD 883/97)	4.1	SMG Chairman and ETSI's Legal Adviser	
996/97	Update of work item 184: Improved Data Rates through Optimised Modulation	5.6	Ericsson, Nokia, Airtouch	
997/97	Comments on TDoc SMG 1011/97	4.6	FRANCE TELECOM	
998/97	IPR Licensing Declaration - UTRA IPR	4.1	NEC	
999/97	ETSI/ARIB Cooperation Joint Statement NEC-PANA	4.1	NEC/PANASONIC	

NUMBER	TITLE	AGENDA ITEM	SOURCE	*REPLACED BY TDOC*
1000/97	Selection of Wideband CMDA on UTRA concept	4.1	NEC	
1001/97	GSM 10.60 v5.3.0 GPRS Project Management	5.1	PT80V	
1002/97	Strategic CR A010 to GSM 05.01 v. 5.2.0	5.3	SMG2	
1003/97	Strategic CRs A020 to A023 to GSM 05.02	5.3	SMG2	
1004/97	Strategic CRs A058, A059, A063 to GSM 05.05	5.3	SMG2	
1005/97	Strategic CRs A039 to A043 to GSM 05.08	5.3	SMG2	
1006/97	Strategic CR A005 to GSM 05.50 v. 5.1.0	5.3	SMG2	
1007/97	Inband Tandem Free Operation (TFO) of Speech Codecs; Service Description; Stage 3 (Revision of TD 951/97)	5.5	SMG11	
1008/97	Comments on CR to TS 22.01 Service Principles regarding multiple subscriptions	4.2	TELIA	
1009/97	Proposed changes to UMTS 30.01 v.3.0.0	4.4	TELIA	
1010/97	Workplan for SMG contributions to ITUCo-ordinator	4.6	ITU-T Co-ordinator, ITU-R	*1129/97*
1011/97	Contribution to ITU-T SG11 CR for Q-FIN	4.6	D. Williams, ITU-T Co-ordinator	
1012/97	Contribution to ITU-T SG11 CR for Q-FIN	4.6	D. Williams, ITU-T Co-ordinator	*1125/97*
1013/97	Contribution to ITU-T SG11 CR for Q-FIN	4.6	D. Williams, ITU-T Co-ordinator	
1014/97	Contribution to ITU-T SG11 and ITU-R TG 8/1	4.6	D. Williams, ITU-T Co-ordinator	
1015/97	EDGE Feasibility Study WI 184 - Improved Data Rates through Optimised Modulation v.1.0	5.3	SMG2	
1016/97	EDGE Standardization schedule	5.3	SMG2	
1017/97	SMG2 STATUS REPORT	5.3	SMG2	
1018/97	GSM 04.14 v.1.0.0 Individual equipment type requirements and interworking Special conformance testing functions	5.3	SMG2	
1019/97	Technical Analysis and Comparison of UTRA concept	4.1	FRANCE TELECOM	
1020/97	SMG#24 Agenda and Schedule	2	PT SMG	
1021/97	Chairman's report	1	TC SMG Chairman	
1022/97	Alpha concept evaluation - An alternative view	4.1	Motorola	
1023/97	Enhanced Delta	4.1	Motorola	
1024/97	Enhanced Delta - Questions and answers	4.1	Motorola	*1076/97*
1025/97	IMT-2000 Standardisation and Family Concept	4.6	Lucent Technologies	
1026/97	Proposed changes to Q.FIN and Two Tier Roaming	4.6	Lucent Technologies	
1027/97	Operator interest group	4.1	Operator interest group	
1028/97	Information on ODMA	4.1	Vodafone - Siemens - Ericsson	
1029/97	Strategic CR A002 to GSM 07.08 v.5.1.0	5.5	SMG4	
1030/97	Non strategic CR A002 to GSM 07.60 v.5.0.0	5.5	SMG4	
1031/97	GSM 07.10 Multiplexing protocol	5.5	SMG4	
1032/97	Proposed Liaison statements and project schedule for MEXE	5.5	SMG4	
1033/97	Justifications for TBR 19 and TBR 31 updates	5.5	PT SMG	
1034/97	Phase 2+ MS Testing	5.5	PT SMG	
1035/97	A letter from Georges Schmidt - Omnipoint for information	TC SMG Chairman		
1036/97	The answer to the letter from Georges Schmidt for information	TC SMG Chairman		

NUMBER	TITLE	AGENDA ITEM	SOURCE	*REPLACED BY TDOC*
1037/97	Letter from NTT DOCOMO for information	TC SMG Chairman		
1038/97	PT SMG Status Report	3.2	PT SMG Co-ordinator	
1039/97	Satellite Network Standardisation in SMG	PT SMG		
1040/97	Not allocated			
1041/97	SMG1 UMTS Text for Chapter 9 of UMTS 30.01	4.2	SMG1 UMTS	
1042/97	France Telecom position on UTRA concept	4.1	France Telecom	
1043/97	Migration and Evolution from GSM	4.2	Ericsson	
1044/97	Virtual Home Environment	4.2	SMG1 UMTS	
1045/97	Strategic CRs A004r3 to GSM 03.81 Phase 2 and Rel.96	5.4	SMG3	
1046/97	Side Events during SMG#24	1	TC SMG Chairman	
1047/97	Non strategic CR A004 to GSM 04.88 v.5.0.0	5.4	SMG3	
1048/97	Strategic CR A007r2 to GSM 04.80 v.5.0.1	5.4	SMG3	
1049/97	Operators' Requirements for UTRA (UMTS Terrestrial Radio	4.1	UMTSF Operators Group	
	Access)			
1050/97	SMG4 Issues at SMG#24	5.5	SMG4	
1051/97	SMG-CG 23ter summary	5.6	PT SMG	
1052/97	Withdrawal of some UMTS documents	4.5	PT SMG	
1053/97	UMTS Work Programme, draft UMTS 30.00 v.3.3.0	4.5	PT SMG	
1054/97	UMTS Baseline document, draft UMTS 30.01 v.3.2.0	4.5	PT SMG	
1055/97	Strategic CR A001 to UMTS 30.20 v.3.0.0	4.5	PT SMG	
1056/97	Not allocated			
1057/97	Availability of UMTS documents on DOCBOX	4.5	PT SMG	
1058/97	IMT-2000 co-ordination	4.2	TC SMG Chairman	*1110/97*
1059/97	GSM-API for SIM Toolkit applications based on JAVA	T-Mobil		
1060/97	Not allocated			
1061/97	UTRA Decision - IPR Statements	4.1	T-Mobil, Mannesmann Mobilfunk, E-Plus Mobilfunk	
1062/97	Future Organisation for GSM and UMTS Standardization	4.1	T-Mobil, Mannesmann Mobilfunk, E-Plus Mobilfunk	*1154/97*
1063/97	Proposed Work Item: GSM-API for SIM-Toolkit	5.5	T-Mobil	
1064/97	Letter of 09/12/97 - T1P1 document 97-213	4.1	T1P1 Chairman	
1065/97	Stage 1 of CNAP	5.2	Lucent Technologies	
1066/97	Report on Essential IPRs declared in relation to the work of SMG#24	4.1	ETSI	
1067/97	TD-CDMA (delta), the best of both worlds	4.1	Alcatel, Bosch, Italtel, Motorola, Nortel, Siemens and Sony	
1068/97	Handling of WI 184 (Improved Data Rates through Optimized Modulation)	5.3	DeTeMobil, Mannesmann, Bosch, Sony, Siemens	
1069/97	Dual Mode GSM/UMTS Terminal Complexity	4.2	Nokia, Ericsson	
1070/97	Not allocated			
1071/97	Radio Interface Selection for UMTS - WDCMA	4.1	Nokia	

NUMBER	TITLE	AGENDA ITEM	SOURCE	*REPLACED BY TDOC*
1072/97	Aspects on selecting Radio Access Technology for the 21st Century	4.1	Ericsson	
1073/97	UMTS Deployment by Private Operators	4.1	Philips	
1074/97	UMTS Radio Access for cost efficiency and consumer features of UMTS terminal	4.1	Philips Consumer Communications	
1075/97	CR Database	5.6	PT SMG	*1158/97*
1076/97	A summary of Enhanced TD-CDMA (Revision of Tdoc 1024/97)	4.1	Motorola	
1077/97	SMG2 Presentation	4.1	SMG2 Chairman	
1078/97	LS - WRC-99 Agenda Item on Global Radio Control Channel	4.1	CEPT ERC Task Group 1 on UMTS	
1079/97	ETNO FMC Group discussion on UMTS Radio aspects	4.1	ETNO FMC Chairman	
1080/97	Approval of specification GSM 07.10 TE-MS Multiplexer	5	France Telecom	
1081/97	LS on Calling Name Presentation (CNAP) Specifications	5.2	T1P1	
1082/97	Process Refinements	5.2	T1P1	
1083/97	T1P1 Harmonization Workplan	5.2	T1P1	
1084/97	Revised Work Plan for PCS 1900 Service Provider Number Portability	5.5	T1P1	
1085/97	Letter from T. IIDA, TTC for information	1	TC SMG Chairman	
1086/97	Non strategic CR on 03.02, agreed by SMG3, Phase 2+, Release '97	5.3	SMG3	
1087/97	TD-CDMA Performance Degradation with the New OQPSK Spreading	4.1	Fujitsu	
1088/97	Simulation Results on the Detectability of WB-BCCH Pilot Signal of the Delta concept	4.1	Fujitsu	
1089/97	Proposed way of collaboration EP SMG/TC TMN	4.3	TC TMN/WG5	
1090/97	UMTS Network Management Deliverables	4.3	TC TMN/WG5	
1091/97	SFR Statement regarding UMTS	4.2	SFR	
1092/97	Report to SMG#24 from STF SMG Funding Task Force meeting #1	3.3	Per Björndahl	
1093/97	Clarification with Respect to the documents on TD-CDMA Performance Tdoc 1087/97 and Tdoc 1088/97 by Fujitsu	4.1	Nortel, Motorola	
1094/97	ITU-T contributions table	4.6	ITU-T	
1095/95	Results of the vote	4.1	TC SMG Chairman	
1096/97	AMR Performances Specification	5.5	Bellsouth Mobility DCS	
1097/97	Draft LS to ERC TG1 in response to TG1 LS Tdoc 1078/97 - WRC-99 Agenda item on Global Radio Control Channel	4.1	ETSI SMG	*1163/97*
1098/97	Not allocated			
1099/97	Procedure for voting on UTRA in SMG#24bis	4.1	SMG Chairman and ETSI's Legal Adviser	*1157/97*
1100/97	SMG3 STATUS REPORT	5.4	SMG3	
1101/97	LS from WAP Management Board to ETSI	5.6	Nokia, Ericsson, Motorola and Unwired Planet	
1102/97	UMTS 30.06 (electronic copy only)	4.2	PT SMG	
1103/97	Fujitsu IPR statement	4.1	Fujitsu	
1104/97	Criteria of China Telecom to evaluate the Third Generation Cellular System	4.1	MPT PR. China	
1105/97	Some Comments on AMR	5.5	France Telecom	
1106/97	Voting representatives for Full ETSI members, at UTRA vote of indication; 16/12/1997	4.1	ETSI	

NUMBER	TITLE	AGENDA ITEM	SOURCE	*REPLACED BY TDOC*
1107/97	Enhanced Data rates for GSM Evolution (EDGE)	5.3	Motorola	
1108/97	GPRS Schedule	5.1	Motorola	
1109/97	Draft Summaries of two telephone conferences TIA/SMG (Revision of TD 936/97)	4.6	Ansgar Bergmann	
1110/97	IMT-2000 Co-ordination (Revision of TD 1058/97)	4.6	SMG Chairman	*1159/97*
1111/97	Proposed SMG Contribution to TG8/1 on IMT-2000 Family	4.6	On behalf of SMG PT ITU-R Co-ordinator	*1128/97*
1112/97	GSM UMTS WI Description Sheet	4.5	SMG3 Chairman	
1113/97	Withdrawn			
1114/97	Response to LS from WAP Consortium	Alcatel, Nortel, Siemens	*1161/97*	
1115/97	SMG9 SIM Aspects at SMG#24	5.5	SMG9 Chairman	
1116/97	IPR Policy of ARIB	4.1	ARIB	
1117/97	The meeting Schedule of IMT-2000 Stury Committee in ARIB	4	ARIB	
1118/97	NTTDoCoMo's View for the Development of Evolved GSM CN	4.1	NTTDoCoMo	
1119/97	Not allocated			
1120/97	LS on CNAP 02.96 v.2.0.0	5.2	T1P1.5	
1121/97	Requirements for UMTS/UTRA as Expressed by the DECT Community	4.3	DECT Forum Chairman	
1122/97	CRs to GSM 11.10-1 Phase 2 (RLP)	5.5	SMG7	
1123/97	CRs to GSM 11.10-1 Phase 2+ (RLP)	5.5	SMG7	
1124/97	Non strategic CR A044 to GSM 11.14 (Missing in TDoc 886/97)	5.5	SMG9	
1125/97	Contribution to ITU-T SG11 CR for Q-FIN (Revision of TD 1012/97)	4.6	Ericsson	
1126/97	Dataservices and SMS applicability for CTS phase 1	5.2	Ericsson	
1127/97	Status report of the CTS work item at SMG#24	5.2	CTS Work Item Rapporteur	
1128/97	Proposed SMG contribution to TG8/1 on IMTS-2000 Family (revision of TDoc 1111/97)	4.6	On behalf of SMG PT ITU-R Co-ordinator	
1129/97	Workplan for SMG Contributions to ITU (revision of TDoc 1010/97)	4.6	ITU-T Co-ordinator, ITU-R Co-ordinator	
1130/97	Not allocated			
1131/97	Not allocated			
1132/97	IMT-2000 Family of systems (Revision of Tdoc 932/97)	SMG#24		
1133/97	UMTS Policy	4	GSM MoU Chairman	
1134/97	Approval of GSM TS 07.10 Multiples protocol	Ericsson, Siemens		
1135/97	Report on implementation of Version Management decided by SMG#23 version 6.0	5.6	PT SMG	
1136/97	SMG's Plenary and Steering Group Dates 1998/1999	6	SMG Co-ordination Group	*1155/97*
1137/97	Draft agenda SMG#24 Bis	6	SMG Co-ordination Group	*1156/97*
1138/97	Draft Voting procedure for UTRA	6	SMG Co-ordination Group	*1157/97*
1139/97	Not allocated			
1140/97	LS MS/TE Infra Red interface and the IrDA Special Interest Group	5.5	SMG4	

NUMBER	TITLE	AGENDA ITEM	SOURCE	*REPLACED BY TDOC*
1141/97	Vodafone Position on UMTS Radio Interface Standard Selection	4.2	Vodafone Ltd	
1142/97	Future Organisation for GSM and UMTS Standardization E-Plus Mobilfunk	4.1	T-Mobil, Mannesmann Mobilfunk,	*1154/97*
1143/97	CTS Stage 1 Phase 1	5.2	Alcatel	
1144/97	CR A042r2 to GSM 05.08 R97	5.3	SMG2	
1145/97	LS to T1P1 - Response to Letter of process refinements	SMG		
1146/97	MoU TWG/ECTEL Activities on Handset Antenna and Battery Life Measurements	Chairman Ad Hoc Group		
1147/97	WI Description for EDGE-NSS	5.3	EDGE WI Drafting Group	
1148/97	WI Description for EDGE-BSS	5.3	EDGE WI Drafting Group	
1149/97	Non strategic CR affecting GSM 02.30 (Revision of TD 974/97)	5.2	SMG1 Chairman	
1150/97	Road map and Work item data base version 24.0	5.6	PT SMG	
1151/97	Summary of SMG Co-ordination Meeting #24	6	PT SMG	
1152/97	Proposed changes to UMTS 30.01 v.3.0.0	4.4	Telia	
1153/97	Meeting dates of SMG3 meetings and request for hosts	5.4	SMG3	
1154/97	Future Organisation for GSM and UMTS Standardization (Revision of TD 1142/97)	4.1	SMG	
1155/97	SMG's Plenary and Steering Group Dates 1998/1999 (Revision of TD 1136/97)	6	SMG Co-ordination Group	
1156/97	Draft Agenda SMG#24BIS (Revision of TD 1137/97)	6	TC SMG Chairman	
1157/97	Procedure for voting on UTRA in SMG#24 bis (Revision of TD 1138/97)	6	SMG	
1158/97	CR Database (Revision of TD 1075/97)	PT SMG		
1159/97	IMT-2000 Co-ordination (Revision of TD 1110/97)	4.6	SMG Chairman	
1160/97	LS to IrDA Group on GSM 07.10	SMG		
1161/97	Response to LS from WAP Consortium (Revision of TD 1114/97)	Alcatel, Nortel, Siemens		
1162/97	Preliminary announcement of EDGE Workshop	Nokia		
1163/97	LS to ERC TG1 in response to TG1 LS Tdoc 1078/97 - WRC-99 Agenda item on Global Radio Control Channel (Revision of TD 1097/97)	PT SMG		
1164/97	Information on TTA visit to ETSI	PT SMG		

GSM/DCS STATUS LIST AFTER SMG#24

GSM NUMBER AND TITLE / CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
01.00 Working procedures for SMG and PT12				
5.1.1	AB STF12	n.a.	---none---	
01.02 General Description of a GSM Public Land Mobile Network (PLMN).				
4.0.2	RT SMG1 STF12 SMG2 SMG3	#7: 4.0.1 #8: 4.0.2	N.Jörgensen Tele Denmark	ETR 099
5.0.0	RT SMG1 STF12 SMG2 SMG3	#17: 5.0.0	N.Jörgensen Tele Denmark	GTS
01.04 Abbreviations and Acronyms.				
4.1.2	RT STF12 SMG1-4 SMG6-8	#8: 4.0.1 #9: 4.0.3 #10: 4.0.4 #11: 4.1.0 #12: 4.1.1 #14: 4.1.2	R.Tarazi ETSI PT12	ETR 100
5.0.1	RT STF12 SMG1-4 SMG6-8	#17: 5.0.0 #20: 5.0.1	R.Tarazi ETSI PT12	GTS
REP 3.0.1	RT STF12 SMG1 SMG2 SMG3 SMG4		--- none ---	- -
01.05 Definitions.				
4.0.0	RT STF12 SMG1 SMG2 SMG3 SMG4	n.a.	--- none ---	ETR
01.48 ISDN-based DECT/GSM interworking; Feasibility study				
5.0.1	RT SMG1	#19: 5.0.0 #20: 5.0.1	I.Graetz Siemens	GTS
02.01 Principles of Telecommunication Services Supported by a GSM Public Land Mobile Network(PLMN).				
3.2.0	RT SMG1		--- none ---	- -
4.6.0	RT SMG1	#7: 4.2.1 #8: 4.3.0 #10: 4.4.0 #11: 4.4.1 #12: 4.5.0 #15: 4.6.0	--- none ---	300 500
5.3.0	RT SMG1	#16: 5.0.0 #17: 5.1.0 #20: 5.2.0 #24: 5.3.0	--- none ---	GTS

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
02.02 Bearer Services (BS) Supported by a GSM Public Land Mobile Network (PLMN)				
3.2.0 RT	SMG1		D.Richards AT&T NSI	- -
4.2.2 RT	SMG1	#7: 4.1.1 #8: 4.2.0	D.Richards AT&T NSI	300 501
5.3.0 RT	SMG1	#16: 5.0.0 #18: 5.1.0 #20: 5.2.0. #22: 5.3.0	D.Richards AT&T NSI	GTS
02.03 Teleservices Supported by a GSM Public Land Mobile Network (PLMN).				
3.4.0 RT	SMG1		G.Schmidt T-Mobil	- -
4.3.1 RT	SMG1	#7: 4.2.2 #11: 4.3.0	G.Schmidt T-Mobil	300 502
5.3.0 RT	SMG1	#17: 5.0.0 #19: 5.1.0 #20: 5.1.1 #21: 5.2.0 #22: 5.3.0	G.Schmidt T-Mobil	300 905
02.04 General on Supplementary Services				
3.7.1 RT	SMG1		D.Richards AT&T NSI	- -
4.9.1 RT	SMG1	#7: 4.5.1 #8: 4.6.0 #10: 4.7.0 #12: 4.8.0 #15: 4.9.0 #16: 4.9.1	D.Richards AT&T NSI	300 503
5.7.0 RT	SMG1	#16: 5.0.0 #17: 5.1.0 #18: 5.2.0 #19: 5.3.0 #20: 5.4.0 #21: 5.5.0 #22: 5.6.0 #23: 5.7.0	D.Richards AT&T NSI	300 908
02.06 Types of Mobile Stations (MS).				
3.2.0 RT	SMG1		N.Hodgson Vodafone I.Crawford	- -
4.5.0 RT	SMG1	#7: 4.1.1 #8: 4.2.0 #14: 4.3.0 #16: 4.4.0 #22: 4.5.0	I.Crawford Vodafone	300 504
5.1.0 RT	SMG1	#20: 5.0.0 #21: 5.1.0	I.Crawford Vodafone	300 919
DCS 3.0.0 RT	SMG1		--- none ---	- -
02.07 Mobile Station (MS) Features.				
3.4.1 RT	SMG1		I.Crawford Vodafone	- -
4.8.0 RT	SMG1	#7: 4.4.1 #8: 4.4.2 #10: 4.5.0 #11: 4.6.0 #15: 4.7.0 #22: 4.8.0	I.Crawford Vodafone	300 505
5.4.0 RT	SMG1	#17: 5.0.0 #18: 5.1.0 #20: 5.2.0 #22: 5.3.0 #24: 5.4.0	I.Crawford Vodafone	300 906

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GSM NUMBER AND TITLE / CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR
02.08 (Quality of Service). WITHDRAWN					
n.a. RT	SMG1 SMG2 SMG3 SMG4	WITHDRAWN	--- none ---		ETR 101
02.09 Security Aspects.					
3.0.1 PA	SMG10 SMG1	#6b: 3.1.0	N.Renaud	France Telecom	- -
4.4.0 PA	SMG10 SMG1 SMG3	#7: 4.2.1 #12: 4.3.0 #22: 4.4.0	N.Renaud	France Telecom	300 506
5.1.0 PA	SMG10 SMG1	#20: 5.0.0 #22: 5.1.0	N.Renaud	France Telecom	300 920
02.11 Service Accessibility.					
3.7.0 RT	SMG1 SMG3 SMG2	#4: 3.7.0	P.Gaskell	One2One	- -
4.9.0 RT	SMG1 SMG3 SMG2	#7: 4.5.1 #10: 4.6.0 #16: 4.8.0 #17: 4.9.0	P.Gaskell	One2One	300 507
5.0.1 RT	SMG1 SMG3 SMG2	#20: 5.0.0	N.Renaud	France Telecom	300 921
DCS 3.0.1 RT	SMG1 SMG3 SMG2	#4: 3.1.0	--- none ---		- -
02.16 International Mobile Station Equipment Identities (IMEI).					
3.0.1 RT	SMG1		N.Renaud	France Télécom	- -
4.5.0 RT	SMG1	#7: 4.3.1 #12: 4.4.0 #13: 4.5.0	N.Renaud	France Telecom	300 508
5.0.0 RT	SMG1	#20: 5.0.0	N.Renaud	France Telecom	GTS
02.17 Subscriber Identity Modules, Functional Characteristics					
3.2.0 RT	SMG1 SMG9		K.Vedder	GAO	- -
4.3.3 RT	SMG1 SMG9	#7: 4.2.0 #8: 4.3.1	K.Vedder	GAO	300 509
5.0.1 RT	SMG1 SMG9	#20: 5.0.0	K.Vedder	GAO	300 922
02.22 Stage 1 for Personalisation of GSM ME					
5.3.0 RT	SMG1	#17: 5.0.0 #19: 5.1.0 #20: 5.2.0 #23: 5.3.0	P.Gaskell	One2One	GTS

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
02.24	**Description of Charge Advice Information (CAI).**			
4.5.0 RT	SMG1	#7: 4.1.1 #8: 4.2.0 #9: 4.2.1 #10: 4.3.0 #11: 4.4.0	I.Crawford Vodafone	300 510
5.0.1 RT	SMG1	#20: 5.0.0	I.Crawford Vodafone	300 923
02.30	**Man-machine Interface (MMI) of the Mobile Station (MS).**			
3.9.0 RT	SMG1 SMG3		I.Crawford Vodafone	v.3.9.0 300 068
4.13.0 RT	SMG1 SMG3	#7: 4.9.1 #8: 4.10.0 #10: 4.11.0 #12: 4.12.0 #13: 4.13.0	I.Crawford Vodafone	300 511
5.7.0 RT	SMG1	#16: 5.0.0 #17: 5.1.0 #18: 5.2.0 #19: 5.3.0 #20: 5.3.1 #21: 5.4.0 #22: 5.5.0 #23: 5.6.0 #24: 5.7.0	I.Crawford Vodafone	300 907
02.34	**High Speed Circuit Switched Data (HSCSD) - Stage 1**			
5.1.0 RT	SMG1	#21: 5.1.0	I.Crawford Vodafone	
02.40	**Procedures for Call Progress Indications**			
3.2.0 RT	SMG1 SMG3		I.Crawford Vodafone	- -
4.5.0 RT	SMG1 SMG3	#7: 4.2.1 #9: 4.3.0 #10: 4.4.0	I.Crawford Vodafone	300 512
5.0.0 RT	SMG1 SMG3	#20: 5.0.0	I.Crawford Vodafone	GTS
02.41	**Operator Determined Barring**			
4.5.2 RT	SMG1	#7: 4.4.1 #8: 4.5.0	I.Crawford Vodafone	300 513
5.2.0 RT	SMG1	#16: 5.0.0 #21: 5.1.0 #24: 5.2.0	I.Crawford Vodafone	GTS
02.42	**Network Identity and Timezone (NITZ); Service Description, Stage 1**			
5.1.0 RT	SMG1	#19: 5.0.0 #24: 5.1.0	L.Giles BRT	GTS
02.53	**Tandem Free Operation (TFO); Service description; Stage 1**			
5.1.0 PU	SMG11	#24: 5.1.0		

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
02.60	**General Packet Radio Service Stage 1 Description**			
5.2.0 RT	SMG1	#21: 5.0.0 #23: 5.1.0 #24: 5.2.0	A.Conrad T-Mobil	
02.63	**Packet Data on Signalling channels Service (PDS) - Stage 1**			
5.0.0 RT	SMG1	#19: 5.0.0	A.Conrad T-Mobil	GTS
02.67	**Enhanced Multi-Level Precedence and Pre-emption Service (eMLPP) - Stage 1**			
5.0.4 PA	SMG1	#16: 5.0.0 #19: 5.0.1 #20: 5.0.2 #22: 5.0.4	D.Münning Detecon	300 924
02.68	**Voice Group Call Service (VGCS) - Stage 1**			
5.1.3 PA	SMG1	#16: 5.0.0 #17: 5.1.0 #20: 5.1.1 #21: 5.1.2 #22: 5.1.3	D.Münning Detecon	300 926
02.69	**Voice Broadcast Service (VBS) - Stage 1**			
5.1.3 PA	SMG1	#16: 5.0.0 #17: 5.1.0 #20: 5.1.1 #21: 5.1.2 #22: 5.1.3	D.Münning Detecon	300 926
02.72	**Call Deflection Service description, Stage 1**			
5.0.0 RT	SMG1	#19: 5.0.0	S.Habermann T-Mobil	GTS
02.78	**Customized Applications for Mobile network Enhanced Logic (CAMEL); Service definition (Stage 1)**			
5.4.0 RT	SMG1	#19: 5.0.0 #20: 5.1.0 #21: 5.1.1 #22: 5.2.0 #23: 5.3.0 #24: 5.4.0	P.Waerleus Telia Mobitel	GTS
02.79	**Support of Optimal Routeing (SOR); Service definition (Stage 1)**			
5.1.0 RT	SMG1	#19: 5.0.0 #20: 5.1.0	S.Frey SFR	GTS
02.81	**Line Identification Supplementary Services - Stage 1.**			
4.6.0 RT	SMG1	#7: 4.3.1 #10: 4.4.0 #11: 4.4.1 #12: 4.5.0 #16: 4.5.1 #24: 4.6.0	L.Larsson Swedish Telecom	300 514
5.1.0 RT	SMG1	#20: 5.0.0 #24: 5.1.0	L.Larsson Swedish Telecom	GTS

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR
02.82	**Call Forwarding (CF) Supplementary Services - Stage 1**				
3.6.1	RT SMG1		N.Renaud	France Telecom	- -
4.5.2	RT SMG1	#7: 4.4.2 #10: 4.5.0 #16: 4.5.2	N.Renaud	France Telecom	300 515
5.0.0	RT SMG1	#16: 5.0.0	L.Larson	Swedish Telecom	GTS
02.83	**Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 1**				
4.6.7	RT SMG1	#7: 4.6.3 #10: 4.6.5 #16: 4.6.7	N.Jörgensen	Tele Denmark Mobil	300 516
5.0.0	RT SMG1	#20: 5.0.0	N.Jörgensen	Tele Denmark Mobil	GTS
02.84	**MultiParty (MPTY) Supplementary Services - Stage 1**				
4.4.7	RT SMG1	#7: 4.4.2 #11: 4.4.5 #16: 4.4.7	E.Postmann	Siemens	300 517
5.0.0	RT SMG1	#20: 5.0.0	E.Postmann	Siemens	GTS
02.85	**Closed User Group (CUG) Supplementary Services - Stage 1.**				
4.2.6	RT SMG1	#7: 4.2.2 #16: 4.2.6	L.Larsson	Swedish Telecom	300 518
5.0.0	RT SMG1	#20: 5.0.0	L.Larsson	Swedish Telecom	GTS
02.86	**Advice of Charge (AoC) Supplementary Services - Stage 1**				
4.1.5	RT SMG1	#7: 4.1.1 #16: 4.1.5	I.Crawford	Vodafone	300 519
5.0.0	RT SMG1	#20: 5.0.0	I.Crawford	Vodafone	GTS
02.87	**User-to-User Signalling (UUS) Service Description, Stage 1**				
5.3.0	RT SMG1	#18: 5.0.0 #20: 5.1.0 #21: 5.2.0 #23: 5.3.0	S.Habermann	T-Mobil	GTS
02.88	**Call Barring (CB) Supplementary Services - Stage 1.**				
3.6.1	RT SMG1		G.Schmidt	T-Mobil	- -
4.4.3	RT SMG1	#7: 4.3.0 #8: 4.4.0 #16: 4.4.3	G.Schmidt	T-Mobil	300 520
5.0.0	RT SMG1	#20: 5.0.0	G.Schmidt	T-Mobil	GTS

(*) For Phase 1 : 1992 Release

GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR
02.90	**Stage 1 Decision of Unstructured Supplementary Service Data (USSD)**				
4.1.0	RT SMG1	#8: 4.0.1 #21: 4.1.0	A.Conrad	T-Mobil	300 625
5.1.0	RT SMG1	#20: 5.0.0 #21: 5.1.0	A.Conrad	T-Mobil	GTS
02.91	**Explicit Call Transfer (ECT)**				
5.1.1	RT SMG1	#16: 5.0.0 #17: 5.0.1 #19: 5.1.0 #21: 5.1.1	E.Postmann	Siemens	GTS
02.93	**Completion of Calls to Busy Subcriber (CCBS) Service Description - Stage 1**				
5.5.0	RT SMG1	#16: 5.0.0 #19: 5.1.0 #20: 5.2.0 #22: 5.3.0 #23: 5.4.0 #24: 5.5.0	N. Jörgenen	Tele Danmark Mobile	GTS
02.95	**Digital cellular telecommunications system (Phase 2+); Support of Private Numbering Plan (SPNP); Service description, Stage 1**				
5.2.0	RT SMG1	#16: 5.0.0 #18: 5.1.0 #19: 5.2.0	T. Sundbye		GTS
02.97	**Multile Subscriber Profile (MSP) Service description, Stage 1**				
5.2.0	RT SMG1	#19: 5.0.0 #22: 5.1.0 #23: 5.2.0	S.Manning	Vodafone	GTS
03.01	**Network Functions**				
3.1.1	FP SMG3		P.Gaasvik	Comviq GSM AB	- -
4.0.4	FP SMG3	#7: 4.0.1	P.Gaasvik	Comviq GSM AB	300 521
5.1.0	FP SMG3	#17: 5.0.0 #18: 5.1.0	P.Gaasvik	Comviq GSM AB	GTS
03.02	**Network Architecture**				
3.1.4	FP SMG3 SMG4		P.Gaasvik	Comviq GSM AB	- -
4.2.1	FP SMG3 SMG4	#7: 4.0.1 #17: 4.1.0 #18: 4.2.1	P.Gaasvik	Comviq GSM AB	300 522
5.3.0	FP SMG3 SMG4	#17: 5.0.0 #18: 5.1.0 #23: 5.2.0 #24: 5.3.0	P.Gaasvik	Comviq GSM AB	GTS

(*) For Phase 1 : 1992 Release

GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR
03.03 Numbering, Addressing and Identification					
3.6.0	SA SMG3 SMG4	#8: 3.6.0	P.Gaasvik	Comviq GSM AB	- -
4.9.0	SA SMG3 SMG4	#7: 4.5.0 #8: 4.6.0 #9: 4.8.0 #12: 4.9.0	P.Gaasvik	Comviq GSM AB	300 523
5.0.2	SA SMG3 SMG4	#17: 5.0.0 #20: 5.0.1	P.Gaasvik	Comviq GSM AB	300 927
03.04 Signalling Requirements Relating to Routing of Calls to Mobile Subscribers					
3.1.0	SA SMG3 SMG4 SPS		C.Vernhes	France Telecom	- -
4.0.4	SA SPS SMG3 SMG4	#7: 4.0.1	--- none ---		300 524
5.0.0	SA SPS SMG3 SMG4	#20: 5.0.0	--- none ---		GTS
03.05 Technical Performance Objectives					
3.2.0	SA SMG3		--- none ---		- -
4.1.0	SA SMG3	#7: 4.0.0 #19:4.1.0	--- none ---		ETR 102
5.0.0	SA SMG3	#20: 5.0.0	--- none ---		ETR 351
03.07 Restoration Procedures					
3.2.1	SA SMG3		I.Park	Vodafone	- -
4.3.1	SA SMG3	#7: 4.2.0 #10: 4.3.0	I.Park	Vodafone	300 525
5.1.0	SA SMG3	#20: 5.0.0 #23: 5.1.0	I.Park	Vodafone	GTS
03.08 Organization of Subscriber Data					
3.7.0	SA SMG3		R.Bauer	Alcatel Sel	- -
4.8.0	SA SMG3	#7: 4.5.0 #8: 4.5.1 #9: 4.6.0 #10: 4.7.0 #18: 4.8.0	R.Bauer	Alcatel Sel	300 526
5.2.0	SA SMG3	#18: 5.0.0 #21: 5.1.0 #23: 5.2.0	R. Bauer	Alcatel Sel	GTS

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GSM NUMBER AND TITLE / CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
03.09 Handover Procedures				
3.2.1 FP	SMG3 SMG2		--- none ---	- -
4.6.0 FP	SMG3 SMG2	#7: 4.1.0 #8: 4.2.0 #9: 4.2.1 #10: 4.3.0 #11: 4.4.0 #12: 4.5.0 #17: 4.6.0	Ian Sayers Wavelink Communications	300 527
5.1.0 FP	SMG3 SMG2	#18: 5.0.0 #22: 5.1.0	I. Sayers Wavelink Communications	GTS
03.10 GSM Public Land Mobile Network (PLMN) Connection Types.				
3.3.0 SA	SMG4 SMG1 SMG2 SMG3		M.Valo Nokia	- -
4.3.1 SA	SMG4 SMG1 SMG2 SMG3	#7: 4.2.1 #8: 4.3.0	M.Valo Nokia	300 528
5.4.0 SA	SMG1	#16: 5.0.0 #21: 5.1.0 #22: 5.2.0 #23: 5.3.0 #24: 5.4.0	M.Valo Nokia	GTS
03.11 Technical Realization of Supplementary Services - General Aspects				
3.1.1 PA	SMG3		S.Habermann T-Mobil	- -
4.10.1 PA	SMG3	#7: 4.4.0 #9: 4.5.0 #10: 4.6.0 #11: 4.7.0 #12: 4.8.0 #14: 4.9.0 #18: 4.10.1	S.Habermann T-Mobil	300 529
5.0.1 PA	SMG3	#20: 5.0.0	S.Habermann T-Mobil	300 928
03.12 Location Registration Procedures				
3.3.0 SA	SMG3		P.Gaasvik Comviq GSM AB	- -
4.4.2 SA	SMG3	#7: 4.3.0 #8: 4.4.0	P.Gaasvik Comviq GSM AB	300 530
5.0.0 SA	SMG3	#20: 5.0.0	P.Gaasvik Comviq GSM AB	GTS
DCS 3.0.1 SA	SMG3		--- none ---	- -
03.13 Discontinuous Reception (DRX) in the GSM System				
3.0.2 PU	SMG2		M.Dolan AT&T	- -
4.0.4 PU	SMG2	#7: 4.0.1	---none---	300 531
5.0.0 PU	SMG2	#17: 5.0.0	---none---	GTS

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GSM NUMBER AND TITLE / CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR
03.14 Support of Dual Tone Multi-Frequency Signalling (DTMF) via the GSM System					
3.0.2	FP SMG3		--- none ---		- -
4.1.1	FP SMG3	#7: 4.0.0 #10: 4.1.0	---none---		300 532
5.0.0	FP SMG3	#20: 5.0.0	---none---		GTS
03.15 Technical Realization of Operator Determined Barring					
4.3.1	SA SMG3	#7: 4.2.0 #10: 4.3.0	I.Park	Vodafone	300 533
5.1.0	SA SMG3	#16: 5.0.0 #21: 5.1.0	I. Park	Vodafone	GTS
03.16 Subscriber Data Management					
4.2.1	PA SMG3	#14: 4.1.0 #16: 4.1.1 #18: 4.2.1	H.Dettner	Siemens	300 629
5.2.0	PA SMG3	#18: 5.0.0 #21: 5.1.0 #23: 5.2.0	H. Dettner	Siemens	GTS
03.18 Basic Call Handling					
5.3.0	SA SMG3	#21: 5.0.0 #22: 5.1.0 #23: 5.2.0 #24: 5.3.0	I.Park	Vodafone	
03.20 Security-related Network Functions					
3.3.2	PA SMG10 SMG3 SMG2		R.Thomas	France Telecom	- -
4.4.0	PA SMG10 SMG3 SMG2	#7: 4.2.1 #10: 4.3.0 #17: .3.2 #21: 4.4.0	R.Thomas	France Telecom	300 534
5.2.0	PA SMG10 SMG3 SMG2	#20: 5.0.0 #21: 5.1.0 #23: 5.2.0	R.Thomas	France Telecom	300 929
EXT 3.0.0	PA SMG10 SMG3 SMG2	#7: 3.0.0	R.Thomas	France Telecom	
03.22 Functions Related to Mobile Station (MS)in Idle Mode.					
4.11.0	PU SMG2 SMG3	#7: 4 .4.0 #9: 4.5.0 #10: 4.6.0 #11: 4.7.0 #12: 4.8.0 #14: 4.9.0 #16: 4.10.0 #17: 4.11.0	---none---		300 535
5.2.0	PU SMG2 SMG3	#20: 5.0.0 #21: 5.1.0 #22: 5.2.0	---none---		300 930

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR
03.26	**Multiband operation of GSM/DCS 1800 by a single operator**				
4.3.0 PU	SMG2 SMG3	#18: 4.1.0 #22: 4.2.0 #23: 4.3.0			TC-TR 005
5.1.0 PU	SMG2 SMG3	#20: 5.0.0 #22: 5.1.0			ETR 366
03.30	**Radio Network Planning Aspects.**				
4.3.0 PU	SMG2	#7: 4.2.0 #9: 4.2.1 #13: 4.3.0	P.Stevens	One2One	ETR 103
5.0.0 PU	SMG2	#20: 5.0.0	P.Stevens	One2One	ETR 364
03.32	**Universal Geographical Area Description (GAD)**				
5.0.0 SA	SMG3	#23: 5.0.0			
03.34	**GSM 03.34 HSCSD Stage 2**				
5.0.1 FP	SMG3	#21: 5.0.0			
03.38	**Alphabets and Language Specific Information for GSM**				
4.0.1 SA	SMG4	#10: 4.0.0	I.Harris	Vodafone	300 628
5.6.0 SA	SMG4	#16: 5.0.0 #17: 5.1.0 #18: 5.2.0 #19: 5.3.0 #20: 5.4.0 #21: 5.5.0 #22: 5.6.0	I.Harris	Vodafone	300 900
03.39	**Digital Cellular Telecommunications System (Phase 2) Interface Protocols for the Connection of Short Message Service Centers (SMSCs) to Short Message Entities (SMEs)**				
4.0.0 SA	SMG4	#16: 4.0.0	---none---		ETR 243
5.0.0 SA	SMG4	#20: 5.0.0	---none---		ETR 365
03.40	**Technical Realization of the Short Message Service (SMS) Point-to-point(PP)**				
3.6.0 SA	SMG4 SMG3	#8: 3.6.0 #9: 3.7.0	K.Holley	BT	- -
4.13.0 SA	SMG4 SMG3	#7: 4.6.0 #8: 4.7.0 #10: 4.8.1 #11: 4.9.0 #15: 4.11.0 #16: 4.12.0 #18: 4.13.0	K.Holley	BT	300 536
5.8.0 SA	SMG4	#16: 5.0.0 #17: 5.1.0 #18: 5.2.0 #19: 5.3.0 #20: 5.4.0 #21: 5.5.0 #22: 5.6.0 #23: 5.7.0 #24: 5.8.0	K. Holley	BT	300 901

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
03.41 Technical Realization of Short Message Service Cell Broadcast (SMSCB).				
3.4.0	SA SMG4 SMG2		D.Richards AT&T	v.3.4.0 300 069
4.11.0	SA SMG4 SMG2	#7: 4.4.1 #8: 4.5.0 #9: 4.6.0 #10: 4.7.0 #11: 4.8.0 #12: 4.9.0 #13: 4.10.0 #16: 4.11.0	E.Daniel AT&T NSI	300 537
5.8.0	SA SMG4 SMG2	#16: 5.0.0 #17: 5.1.0 #18: 5.2.0 #19: 5.3.0 #20: 5.4.0 #21: 5.5.0 #22: 5.6.0 #23: 5.7.0 #24: 5.8.0	P. Pike Lucent Technologies	300 902
03.42 SMS Compression				
5.2.0	SA SMG4	#21: 5.0.0 #22: 5.1.0 #23: 5.2.0		
03.43 Support of Videotex.				
3.0.1	SA SMG4		Di Tria CSELT	- -
4.1.2	SA SMG4	#7: 4.1.1	Di Tria CSELT	ETR 104
5.0.0	SA SMG4	#20: 5.0.0	Di Tria CSELT	ETR 352
03.44 Support of Teletex in a GSM Public Land Mobile Network (PLMN).				
3.0.1	SA SMG4		--- none ---	- -
4.0.1	SA SMG4	#7: 4.0.0	--- none ---	ETR 105
5.0.0	SA SMG4	#20: 5.0.0	--- none ---	ETR 353
03.45 Technical Realization of Facsimile Group 3 Service - transparent				
3.1.0	SA SMG4	#5: 3.2.0 #6: 3.3.0	Di Tria CSELT	v.3.3.0 300 070
4.5.0	SA SMG4	#7: 4.2.1 #8: 4.3.0 #9: 4.3.1 #10: 4.4.0 #11: 4.4.1 #14: 4.5.0	Di Tria CSELT	300 538
5.2.0	SA SMG4	#20: 5.0.0 #21: 5.1.0 #5.2.0	Di Tria CSELT	300 931

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR	
03.46	**Technical Realization of Facsimile Group 3 Service - non transparent**					
3.2.1	SA SMG4	#5: 3.2.1	G.Baumann	T-Mobil	v.3.2.1	300 071
4.1.2	SA SMG4	#7: 4.0.1 #8: 4.0.2 #11: 4.1.0	G.Baumann	T-Mobil		300 539
5.0.0	SA SMG4	#20: 5.0.0	G.Baumann	T-Mobil		GTS
03.47	**Example Protocol Stacks for Interconnecting Service Centre(s) (SC) and Mobile Services Switching Centre(s) (MSC).**					
4.4.0	SA SMG4	#7: 4.1.0 #8: 4.2.0 #12: 4.2.1 #18: 4.4.0				ETR 106
5.0.0	SA SMG4	#20: 5.0.0				ETR 354
03.49	**Example Protocol Stacks for Interconnecting Cell Broadcast Centre (CBC) and Base Station Controler (BSC)**					
4.6.0	SA SMG4	#7: 4.1.0 #8: 4.2.0 #11: 4.3.0 #12: 4.4.0 #13: 4.5.0 #16:4.6.0	E.Daniel	AT&T NSI		ETR 107
5.7.0	SA SMG4	#16: 5.0.0 #18: 5.1.0 #19: 5.2.0 #20: 5.3.0 #21: 5.4.0 #22: 5.5.0 #23: 5.6.0 #24: 5.7.0	P. Pike	Lucent Technologies		GTS
03.50	**Transmission Planning Aspects of the Speech Service in the GSM Public Land Mobile Network (PLMN) System.**					
3.4.0	PU SMG11	#4: 3.2.2 #8: 3.3.0 #11: 3.4.0	P.Usai	ETSI		- -
4.3.0	PU SMG11	#8: 4.0.0 #9: 4.1.0 #15: 4.2.0 #24: 4.3.0	P.Usai	ETSI		300 540
5.0.3	PU SMG11	#17: 5.0.0 #20: 5.0.1 #24: 5.0.3	P.Usai	ETSI		300 903
03.54	**High Speed Circuit Switched Data (HSCSD) - Stage 2**					
5.2.0	FP SMG3	#23: 5.1.0 #24: 5.2.0				
03.60	**General Packet Radio Service (GPRS) Service description; Stage 2**					
5.2.0	FP SMG3	#23: 5.1.0 #24: 5.2.0				
03.63	**Packet Data on Signalling channels service (PDS) Service description, Stage 21**					
5.1.0	FP SMG3	#16: 5.0.0 #18: 5.1.0	J.Baumann	T-Mobil		GTS

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
03.64	**Overall description of the GPRS radio interface; Stage 2**			
5.2.0	FP SMG3	#23: 5.1.0 #24: 5.2.0		
03.67	**Enhanced Multi-Level Precedence and Preemption Service (EMLPP) - Stage 2**			
5.1.1	PA SMG3	#16: 5.0.0 #20: 5.1.0	D. Münning Detecon	300 932
03.68	**Voice Group Call Service (VGCS) - Stage 2**			
5.4.0	PA SMG3	#16: 5.0.0 #18: 5.1.0 #20: 5.1.1 #21: 5.2.0 #23: 5.3.0 #24: 5.4.0	D. Münning Detecon	300 933
03.69	**Voice Broadcast service (VBS) - Stage 2**			
5.3.0	PA SMG3	#16: 5.0.0 #18: 5.1.0 #20: 5.1.1 #21: 5.2.0 #23: 5.3.0	D. Münning Detecon	300 934
03.70	**Routeing of Calls to/from Public Data Networks (PDN).**			
3.0.0	SA SMG4		--- none ---	- -
4.0.3	SA SMG4	#7: 4.0.0 #8: 4.0.1	--- none ---	300 541
5.0.0	SA SMG4	#20: 5.0.0	--- none ---	GTS
03.78	**CAMEL Phase 1 (stage 2)**			
5.3.0	SA SMG3	#21: 5.0.0 #22: 5.1.0 #23: 5.2.0 #24: 5.3.0		
03.79	**Support of Optimal Routing phase 1 (stage 2)**			
5.2.0	SA SMG3	#21: 5.0.0 #22: 5.1.0 #24: 5.2.0	I.Park Vodafone	
03.81	**Line Identification Supplementary Services - Stage 2.**			
4.7.0	PA SMG3	#7: 4.1.0 #9: 4.2.0 #10: 4.3.0 #11: 4.4.0 #12: 4.5.0 #19: 4.6.0 #24: 4.7.0	--- none ---	300 542
5.1.0	PA SMG3	#20: 5.0.0 #24: 5.1.0	--- none ---	GTS

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
03.82	**Call Forwarding (CF) Supplementary Services - Stage 2.**			
4.8.1	PA SMG3	#7: 4.5.0 #8: 4.5.1 #10: 4.6.0 #12: 4.7.0 #18: 4.8.0	A.Poths MMO	300 543
5.0.0	PA SMG3	#20: 5.0.0	A.Poths MMO	GTS
3.2.1	PA SMG3		A.Poths MMO	- -
03.83	**Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 2.**			
4.4.1	PA SMG3	#7: 4.3.0 #11: 4.3.2 #12: 4.4.0	I.Sharp Northern Telecom	300 544
5.0.0	PA SMG3	#20: 5.0.0	I.Sharp Northern Telecom	GTS
03.84	**Multi Party (MPTY) Supplementary Services - Stage 2.**			
4.4.1	PA SMG3	#7: 4.1.0 #9: 4.2.0 #10: 4.3.0 #12: 4.4.0	S.Habermann T-Mobil	300 545
5.0.0	PA SMG3	#20: 5.0.0	S.Habermann T-Mobil	GTS
03.85	**Closed user Group (CUG) Supplementary Services - Stage 2.**			
4.2.1	PA SMG3	#7: 4.0.0 #8: 4.1.0 #15: 4.2.0	S.Frew Vodafone	300 546
5.0.0	PA SMG3	#20: 5.0.0	S.Frew Vodafone	GTS
03.86	**Advice of Charge (AoC) Supplementary Services - Stage 2.**			
4.6.1	PA SMG3	#7: 4.1.0 #8: 4.2.0 #9: 4.3.0 #10: 4.4.0 #11: 4.5.0 #12: 4.6.0	S.Frew Vodafone	300 547
5.0.1	PA SMG3	#20: 5.0.0	S.Frew Vodafone	300 935
03.88	**Call Barring (CB) Supplementary Services - Stage 2.**			
4.6.1	PA SMG3	#7: 4.4.0 #10: 4.5.0 #12: 4.6.0	L.Letellier France Telecom	300 548
5.0.0	PA SMG3	#20: 5.0.0	L.Letellier France Telecom	GTS
3.2.1	PA SMG3		L.Letellier France Telecom	- -

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GSM NUMBER AND TITLE / CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR
03.90	**Unstructured Supplementary Service Data (USSD)**				
4.1.1	PA SMG3	#8: 4.0.0 #16: 4.1.0	S.Chotai	BT	300 549
5.0.0	PA SMG3	#20: 5.0.0	S.Chotai	BT	GTS
03.91	**Explicit Call Transfer (ECT) Supplementary Service - Stage 2**				
5.0.2	PA SMG3	#16: 5.0.0 #18: 5.0.1 #19: 5.0.2	S.Dzuban	Siemens	GTS
04.01	**Mobile Station - Base Station System (MS - BSS) Interface General Aspects and Principles.**				
3.0.1	FP SMG3		R.Thomas	France Telecom	- -
4.0.4	FP SMG3	#7: 4.0.1	R.Thomas	France Telecom	300 550
5.0.0	FP SMG3	#20: 5.0.0	R.Thomas	France Telecom	GTS
04.02	**GSM Public Land Mobile Network (PLMN) Access Reference Configuration.**				
3.0.2	FP SMG3 SMG2		P.Simmons	Nortel Matra Cellular	- -
4.0.4	FP SMG3 SMG2	#7: 4.0.1	P.Simmons	Nortel Matra Cellular	300 551
5.0.0	FP SMG3 SMG2	#18: 5.0.0	P. Simmons	Nortel Matra Cellular	GTS
04.03	**Mobile Station - Base Station System (MS - BSS) Interface Channel Structures and Access Capabilities.**				
3.0.3	PU SMG2		R.Thomas	France Telecom	- -
4.1.1	PU SMG2	#7: 4.0.1 #10: 4.1.0	R.Thomas	France Telecom	300 552
5.2.0	PU SMG2	#18: 5.0.0 #21: 5.1.0 #22: 5.2.0 #24: 5.3.0	R. Thomas	France Telecom	GTS
04.04	**Layer 1 - General Requirements.**				
4.0.4	PU SMG2	#7: 4.0.1	R.Thomas	France Telecom	300 553
5.1.0	PU SMG2	#20: 5.0.0 #24: 5.1.0	R.Thomas	France Telecom	300 936
3.3.4	PU SMG2		R.Thomas	France Telecom	v.3.3.4 300 078

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04.05 Data Link (DL) Layer General Aspects.				
4.0.3	PU SMG2	#7: 4.0.0	M.Sollner PKI	300 554
5.0.0	PU SMG2	#20: 5.0.0	M.Sollner PKI	300 937
3.1.5	PU SMG2		M.Sollner PKI	- -
04.06 Mobile Station - Base Stations System (MS - BSS) Interface Data Link (DL) Layer Specification.				
4.4.0	PU SMG2	#7: 4.2.0 #8: 4.3.0 #11: 4.4.0	M.Sollner PKI	300 555
5.1.0	PU SMG2	#20: 5.0.0 #21: 5.1.0	M.Sollner PKI	300 938
3.9.0	PU SMG2		M.Sollner PKI	v.3.9.0 300 021
04.07 Mobile Radio Interface Signalling Layer 3 - General Aspects				
3.3.3	FP SMG3		A.Bergmann T-Mobil	- -
4.3.1	FP SMG3	#7: 4.1.1 #10: 4.2.0 #12: 4.3.0	A.Bergmann T-Mobil	300 556
5.3.0	FP SMG3	#16: 5.0.0 #17: 5.1.0 #20: 5.1.1 #21: 5.2.0 #24: 5.3.0	A. Bergmann ETSI PT12	300 939
04.08 Mobile Radio Interface - Layer 3 Specification				
3.14.0	FP SMG3 SMG2		A.Bergmann T-Mobil France F.Courau Telecom R.Thomas	v.3.13.0 300 022-1
4.21.0	FP SMG3 SMG2	#7: 4.5.0 #8: 4.6.0 #9: 4.7.0 #10: 4.8.0 #11: 4.9.0 #12: 4.10.0 #14: 4.11.0 #15: 4.12.0 #16: 4.13.0 #17: 4.14.0 #18: 4.15.0 #19:4.16.0 #20: 4.17.0 #21: 4.18.0 #23: 4.20.1 #24: 4.21.0	A.Bergmann T-Mobil France F.Courau Telecom R.Thomas	300 557
5.8.0	FP SMG3 SMG2	#16: 5.0.0 #17: 5.1.0 #18: 5.2.0 #19: 5.3.0 #20: 5.4.0 #21: 5.5.0 #22: 5.6.0 #23: 5.7.0 #24: 5.8.0	A. Bergmann ETSI PT12 France F.Courau Telecom R.Thomas	300 940
DCS 3.1.0	FP SMG3 SMG2		--- none ---	v.3.1.0 31.12.91
EXT 3.0.0	FP SMG3 SMG2	#7: 3.0.0	n.a.	v.3.0.0 300 022-3

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04.10	**Mobile Radio Interface Layer 3 - Supplementary Services Specification - General Aspects**				
3.2.3	PA SMG3		I.Sharp	Northern Telecom	- -
4.10.1	PA SMG3	#7: 4.4.0 #8: 4.5.0 #9: 4.6.0 #10: 4.7.0 #11: 4.8.0 #13: 4.9.0 #14: 4.10.0	I.Sharp	Northern Telecom	300 558
5.0.1	PA SMG3	#20: 5.0.0	I.Sharp	Northern Telecom	300 941
04.11	**Point-to-Point (PP) Short Message Service (SMS) Support on Mobile Radio Interface**				
3.3.0	FP SMG3 SMG4	#5:3.3.0	P.Simmons	Nortel Matra Cellular v.3.3.0	300 023
4.10.0	FP SMG3 SMG4	#7: 4.3.0 #8: 4.4.0 #10: 4.5.0 #11: 4.6.0 #12: 4.7.0 #14: 4.8.0 #16: 4.9.0 #17: 4.10.0	P.Simmons	Nortel Matra Cellular	300 559
5.2.0	FP SMG3 SMG4	#16: 5.0.0 #17: 5.1.0 #20: 5.1.1 #21: 5.2.0	P.Simmons	Nortel Matra Cellular	300 942
04.12	**Short Message Service Cell Broadcast (SMSCB) Support on the Mobile Radio Interface**				
3.2.1	FP SMG3 SMG4		C.Pudney	Vodafone v.3.2.1	300 024
4.6.0	PU SMG2 SMG4	#7: 4.1.1 #10: 4.2.0 #11: 4.3.0 #12: 4.4.0 #16: 4.6.0	C.Pudney	Vodafone	300 560
5.0.2	PU SMG2 SMG4	#19: 5.0.0 #20: 5.0.1	C.Pudney	Vodafone	300 943
04.13	**Performance Requirements on Mobile Radio Interface**				
4.2.0	FP SMG3 SMG2	#10: 4.0.0 #14: 4.0.2 #15: 4.1.0 #16: 4.2.0	C.Pudney	Vodafone	300 561
5.1.0	FP SMG3 SMG2	#18: 5.0.0 #20: 5.1.0	C. Pudney	Vodafone	300 944
04.21	**Rate Adaption on the Mobile Station - Base Station System (MS-BSS) Interface.**				
3.4.0	SA SMG4		M.Valo	Nokia v.3.4.0	300 025
4.6.0	SA SMG4	#7: 4.2.1 #8: 4.3.0 #11: 4.4.0 #13: 4.5.0 #14: 4.6.0	M.Valo	Nokia	300 562
5.4.0	SA SMG4	#20: 5.0.0 #21: 5.1.0 #22: 5.2.0 #23: 5.3.0 #24: 5.4.0	M.Valo	Nokia	300 945

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
04.22	**Radio Link Protocol (RLP) for Data and Telematic services on the (MS-BSS) Interface and the Base Station System-Mobile-Services Switching Centre (BSS-MSC) Interface**			
5.3.0	SA SMG4	#16: 5.0.0 #20: 5.0.1 #21: 5.1.0 #22: 5.2.0 #23: 5.3.0	N.Klehn Siemens	300 946
4.4.0	SA SMG4	#7: 4.2.2 #8: 4.3.0 #13: 4.4.0	N.Klehn Siemens	300 563
3.7.0	SA SMG4		N. Klehn Siemens	v.3.7.0 300 026
04.63	**Packet Data on Signalling channels Service (PDS) Service Description, Stage 3**			
5.0.0	FP SMG3	#18: 5.0.0	Nazemann T-Mobil	GTS
04.64	**Mobile Station - Serving GPRS Support Node (MS-SGSN) Logical Link Control (LLC) Layer Specification**			
5.1.0	FP SMG3	#24: 5.1.0		
04.65	**Mobile Station (MS) - Serving GPRS Support Node (SGSN); Subnetwork Dependent Convergence Protocol (SNDCP)**			
5.1.0	FP SMG3	#24: 5.1.0		
04.67	**Enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 3**			
5.0.1	PA SMG3	#20: 5.0.0	D.Munning Detecon	300 947
04.68	**Group Call Control (GCC) Protocol**			
5.0.2	PA SMG3	#18: 5.0.0 #20: 5.0.1	A.Bergmann ETSI PT12	300 948
04.69	**Broadcast Call Control (BCC) protocol**			
5.0.1	PA SMG3	#20: 5.0.0	A.Bergmann ETSI PT12	300 949
04.80	**Mobile Radio Interface Layer 3 - Supplementary Services Specification Formats and Coding**			
3.2.0	PA SMG3		--- none ---	v.3.2.0 300 027
4.11.1	PA SMG3	#7: 4.7.0 #8: 4.7.1 #9: 4.9.0 #12: 4.9.1 #16: 4.10.0 #17: 4.11.0	--- none ---	300 564
5.1.0	PA SMG3	#18: 5.0.0 #20: 5.0.1 #24: 5.1.0	--- none ---	300 950

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
04.81	**Line Identification Supplementary Services - Stage 3.**			
4.4.1	PA SMG3	#7: 4.2.0 #10: 4.3.0 #12: 4.4.0	--- none ---	300 565
5.0.1	PA SMG3	#20: 5.0.0	--- none ---	300 951
04.82	**Call Forwarding (CF) Supplementary Services - Stage 3.**			
4.9.1	PA SMG3	#7: 4.6.0 #11: 4.7.0 #12: 4.8.0 #17: 4.9.0	A.Poths MMO	300 566
5.0.1	PA SMG3	#20: 5.0.0	A.Poths MMO	300 952
3.1.3	PA SMG3		A.Poths MMO	v.3.1.3 300 028
04.83	**Call Waiting (CW) and Call Hold (HOLD) Supplementary Services - Stage 3.**			
4.6.1	PA SMG3	#7: 4.4.0 #9: 4.5.0 #17: 4.6.0	I.Sharp Northern Telecom	300 567
5.0.1	PA SMG3	#20: 5.0.0	I.Sharp Northern Telecom	300 953
04.84	**Multi Party (MPTY) Supplementary Services - Stage 3.**			
4.3.2	PA SMG3	#7: 4.2.0 #9: 4.3.0	S.Habermann T-Mobil	300 568
5.0.1	PA SMG3	#20: 5.0.0	S.Habermann T-Mobil	300 954
04.85	**Closed User Group (CUG) Supplementary Services - Stage 3.**			
4.1.1	PA SMG3	#7: 4.0.0 #18: 4.1.0	S.Frew Vodafone	300 569
5.0.0	PA SMG3	#20: 5.0.0	S.Frew Vodafone	GTS
04.86	**Advice of Charge (AoC) Supplementary Services - Stage 3.**			
4.5.2	PA SMG3	#7: 4.2.0 #8: 4.4.0 #11: 4.5.0	S.Frew Vodafone	300 570
5.0.1	PA SMG3	#20: 5.0.0	S.Frew Vodafone	300 955

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GSM NUMBER AND TITLE / CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
04.88 Call Barring (CB) Supplementary Services - Stage 3.				
4.7.1	PA SMG3	#7: 4.6.0 #17: 4.7.0	L.Letellier France Telecom	300 571
5.1.0	PA SMG3	#20: 5.0.0 #24: 5.1.0	L.Letellier France Telecom	300 956
3.1.3	PA SMG3		L. Letellier France Telecom	v.3.1.3 300 029
04.90 Unstructured Supplementary Service Data (USSD)				
4.1.1	PA SMG3	#8: 4.0.0 #12: 4.1.0	J.Bruss Ericsson	300 572
5.0.1	PA SMG3	#20: 5.0.0	J.Bruss Ericsson	300 957
04.91 Explicit Call Transfer (ECT) Supplementary Service - Stage 3				
5.1.1	PA SMG3	#16: 5.0.0 #17: 5.1.0 #20: 5.1.1	S. Dzuban Siemens	300 958
05.01 Physical Layer on the Radio Path (General Description)				
3.3.2	PU SMG2		N.Andersen Tele Danmark	- -
4.6.0	PU SMG2	#7: 4.1.0 #8: 4.2.0 #10: 4.3.0 #13: 4.4.0 #14: 4.5.0 #16: 4.6.0	N.Andersen Tele Danmark	300 573
5.3.0	PU SMG2	#18: 5.0.0 #20: 5.1.0 #21: 5.2.0 #22: 5.3.0	N.Andersen Tele Danmark	GTS
DCS 3.0.0	PU SMG2		--- none ---	- -
6.0.0	PU SMG2	#24: 6.0.0	N.Andersen Tele Danmark	
05.02 Multiplexing and Multiple Access on the Radio Path				
3.6.1	PU SMG2	#15: 3.7.0 #16: 3.8.0	D.Freeman Motorola	v.3.7.0 300 030
4.9.0	PU SMG2	#7: 4.3.0 #9: 4.4.0 #15: 4.5.0 #16: 4.6.0 #17: 4.7.0 #20: 4.8.0 #22: 4.9.0	D.Freeman Motorola	300 574
5.4.0	PU SMG2	#18: 5.0.0 #19: 5.1.0 #20: 5.2.0 #21: 5.3.0 #23: 5.4.0	D. Freeman Motorola	300 908
6.0.0	PU SMG2	#24: 6.0.0	D. Freeman Motorola	

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
05.03 Channel Coding				
3.6.1	PU SMG2	#12: 3.6.1	--- none ---	v.3.6.1 300 031/A1
4.5.0	PU SMG2	#7: 4.1.0 #13: 4.2.0 #15: 4.3.0 #21: 4.4.0 #22: 4.5.0	--- none ---	300 575
5.4.0	PU SMG2	#17: 5.0.0 #18: 5.1.0 #19: 5.2.0 #20: 5.2.1 #21: 5.3.0 #23: 5.4.0	--- none ---	300 909
05.04 Modulation				
3.1.2	PU SMG2		M.Reiner AEG Mobile Com.	v.3.1.2 300 032
4.0.3	PU SMG2	#7: 4.0.0	M.Reiner AEG Mobile Communication	300 576
5.0.1	PU SMG2	#20: 5.0.0	M.Reiner AEG Mobile Communication	300 959
05.05 Radio Transmission and Reception				
3.13.0	PU SMG2	#4: 3.14.0 #6b: 3.15.0 #8: 3.16.0	J.P.Charles France Télécom	v.3.16.0 300 033-1/A1
4.21.0	PU SMG2	#7: 4.6.0 #8: 4.7.0 #9: 4.8.0 #10: 4.9.0 #13: 4.10.0 #14: 4.11.0 #16: 4.13.0 #17: 4.14.0 #18: 4.15.0 #19: 4.16.0 #20: 4.17.0 #21: 4.18.0 #22: 4.19.0 #23: 4.20.0 #24: 4.21.0	J.P.Charles France Telecom	300 577
5.7.0	PU SMG2	#17: 5.0.0 #18: 5.1.0 #19: 5.2.0 #20: 5.3.0 #21: 5.4.0 #22: 5.5.0 #23: 5.6.0 #24: 5.7.0	J.P.Charles France Telecom	300 910
DCS 3.1.0	PU SMG2	#4: 3.2.0 #8: 3.3.0	--- none ---	v.3.3.0 31.12.91
6.0.0	PU SMG2	#24: 6.0.0	J.P.Charles France Telecom	

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GSM NUMBER AND TITLE / CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR	
05.08 Radio Subsystem Link Control						
3.7.0	PU SMG2	#16: 3.8.0	P.White	Vodafone	v.3.7.0	300 034-1
4.21.0	PU SMG2	#7: 4.6.0 #8: 4.7.0 #9: 4.8.0 #10: 4.9.0 #11: 4.10.0 #12: 4.11.0 #13: 4.12.0 #14: 4.13.0 #15: 4.14.0 #16: 4.15.0 #17: 4.16.0 #18: 4.17.0 #19: 4.18.0 #19: 4.18.1 #21: 4.18.2 #22: 4.19.0 #23: 4.20.0 #24: 4.21.0	P.White	Vodafone		300 578
5.6.0	PU SMG2	#18: 5.0.0 #19: 5.1.0 #20: 5.2.0 #21: 5.3.0 #22: 5.4.0 #23: 5.5.0 #24: 5.6.0	P. White	Vodafone		300 911
DCS 3.0.0	PU SMG2		--- none ---		v.3.0.0	31.12.91
6.0.0	PU SMG2	#24: 6.0.0	P. White	Vodafone		
05.10 Radio Subsystem Synchronization						
3.5.1	PU SMG2	#4: 3.5.1	H.Benn	Motorola	v.3.5.1	300 035
4.9.0	PU SMG2	#7: 4.2.0 #8: 4.3.0 #9: 4.4.0 #13: 4.5.0 #14: 4.6.0 #16: 4.7.0 #17: 4.8.0 #18: 4.9.0	H.Benn	Motorola		300 579
5.2.0	PU SMG2	#18: 5.0.0 #20: 5.1.0 #23: 5.2.0	H. Benn	Motorola		300 912
05.22 Radio link management in hierarchical networks						
5.0.0	PU SMG2	#20: 5.0.0				ETR 355
05.50 Background for RF Requirements.						
4.2.0	PU SMG2	#8: 4.0.0 #13: 4.1.0 #17: 4.2.0	--- none ---			TC-TR
5.1.1	PU SMG2	#20: 5.0.0 #21: 5.1.0 #23: 5.1.1	--- none ---			ETR 356
6.0.0	PU SMG2	#24: 6.0.0	--- none ---			
05.90 GSM Electro Magnetic Compatibility (EMC) Considerations.						
4.3.0	PU SMG2	#7: 4.1.0 #8: 4.2.0 #15: 4.3.0	--- none ---			ETR 108
5.0.0	PU SMG2	#20: 5.0.0	--- none ---			ETR 357

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR
06.01	**Full Rate Speech Processing Functions.**				
4.0.6	PU SMG11	#7: 4.0.2 #23: 4.0.6	P.Usai	CSELT	300 580-1
5.1.0	PU SMG11	#20: 5.0.0 #23: 5.1.0	P.Usai	CSELT	300 960
3.0.0	PU SMG11		P. Usai	CSELT	- -
06.02	**Half Rate Speech Processing Functions.**				
4.0.2	PU SMG11	#13: 4.0.0	S.Aftelak	Motorola	300 581-1
5.0.1	PU SMG11	#20: 5.0.0	S.Aftelak	Motorola	300 966
06.06	**Digital Telecommunications System Half Rate Speech - Part 7: ANSI-C Code for GSM Half Rate Speech Codec**				
4.2.0	PU SMG11	#13: 4.0.0 #16: 4.0.2 #17: 4.1.0 #23: 4.2.0	S.Aftelak	Motorola	300 581-7
5.1.0	PU SMG11	#20: 5.0.0 #23: 5.1.0	S.Aftelak	Motorola	300 967
06.07	**Digital Cellular Telecommunications Systems Half Rate Speech - Part 8: Test Sequence for GSM Half Rate Speech Codec**				
4.2.0	PU SMG11	#13: 4.0.0 #16: 4.0.2 #20: 4.1.0 #23: 4.2.0	S.Aftelak	Motorola	300 581-8
5.2.0	PU SMG11	#20: 5.0.0 #22: 5.1.0 #23: 5.2.0	S.Aftelak	Motorola	300 968
06.08	**Digital Cellular Telecommunications System; Half Rate Speech; Performance Characterization of the GSM half rate speech codec**				
4.0.0	PU SMG11	#16: 4.0.0	T.Salem	T-Mobil	ETR 229
5.0.0	PU SMG11	#20: 5.0.0	T.Salem	T-Mobil	ETR 358
06.10	**Full Rate Speech Transcoding**				
3.2.0	PU SMG11		D.Lorent	Philips Semi Conductors	v.3.2.0 300 036
4.1.0	PU SMG11	#7: 4.0.0 #23: 4.1.0	D.Lorenz	Philips Semi Conductors	300 580-2
5.1.0	PU SMG11	#20: 5.0.0 #23: 5.1.0	D.Lorenz	Philips Semi Conductors	300 961

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR	
06.11	**Substitution and Muting of Lost Frames for Full Rate Speech Channels.**					
3.0.1	PU SMG11		W.Navarro	Matra	v.3.0.1	300 037
4.0.5	PU SMG11	#7: 4.0.1 #23: 4.0.5	W.Navarro	Matra		300 580-3
5.0.1	PU SMG11	#20: 5.0.0 #23: 5.0.1	W.Navarro	Matra		300 962
06.12	**Comfort Noise Aspects for Full Rate Speech Traffic Channels**					
3.0.1	PU SMG11		D.Sereno	CSELT	v.3.0.1	300 038
4.0.4	PU SMG11	#7: 4.0.1	D.Sereno	CSELT		300 580-4
5.0.1	PU SMG11	#20: 5.0.0	D.Sereno	CSELT		300 963
06.20	**Half Rate Speech Transcoding.**					
4.3.0	PU SMG11	#13: 4.0.0 #14: 4.1.0 #17: 4.3.0	S.Aftelak	Motorola		300 581-2
5.1.0	PU SMG11	#20: 5.0.0 #22: 5.1.0	S.Aftelak	Motorola		300 969
06.21	**Substitution and Muting of Lost Frames for Half Rate Speech Traffic Channels.**					
4.0.2	PU SMG11	#13: 4.0.0	S.Aftelak	Motorola		300 581-3
5.0.1	PU SMG11	#20: 5.0.0	S.Aftelak	Motorola		300 970
06.22	**Comfort Noise Aspects for Half Rate Speech Traffic Channels.**					
4.1.1	PU SMG11	#13: 4.0.0 #15: 4.1.0	S.Aftelak	Motorola		300 581-4
5.1.0	PU SMG11	#20: 5.0.0 #22: 5.1.0	S.Aftelak	Motorola		300 971
06.31	**Discontinuous Transmission (DTX) for Full Rate Speech Traffic Channels**					
3.1.0	PU SMG11		L.Vetrano	Italtel	v.3.1.0	300 039
4.0.5	PU SMG11	#7: 4.0.1 #23: 4.0.5	L.Vetrano	Italtel		300 580-5
5.0.1	PU SMG11	#20: 5.0.0 #23: 5.0.1	L.Vetrano	Italtel		300 964

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR
06.32	**Voice Activity Detection (VAD).**				
3.0.0	PU SMG11		P.Barrett	BT	v.3.0.0 300 040
4.3.0	PU SMG11	#7: 4.0.1 #9: 4.0.3 #13: 4.1.0 #17: 4.2.0 #20: 4.2.1 #23: 4.3.0	P.Barrett	BT	300 580-6
5.0.2	PU SMG11	#20: 5.0.0 #23: 5.0.2	P.Barrett	BT	300 965
06.41	**Discontinuous Transmission (DTX) for Half Rate Speech Traffic Channels.**				
4.0.2	PU SMG11	#13: 4.0.0	L.Vetrano	Italtel	300 581-5
5.1.0	PU SMG11	#20: 5.0.0 #23: 5.1.0	L.Vetrano	Italtel	300 972
06.42	**Voice Activity Detection (VAD) for Half Rate Speech Traffic Channels.**				
4.1.1	PU SMG11	#13: 4.0.0 #15: 4.1.0	P.Barrett	BT	300 581-6
5.0.1	PU SMG11	#20: 5.0.0 #22: 5.0.1	P.Barrett	BT	300 973
06.51	**Enhanced full rate speech processing functions: General description**				
4.0.0	PU SMG11	#22: 4.0.0	K.Jarvinen	Nokia	301 243
5.1.2	PU SMG11	#17: 5.0.0 #19: 5.1.0 #20: 5.1.1	K.Jarvinen	Nokia	300 723
06.53	**ANSI-C code for the enhanced full rate speech codec**				
4.0.1	PU SMG11	#23: 4.0.1	K.Jarvinen	Nokia	301 244
5.1.3	PU SMG11	#17: 5.0.0 #19: 5.1.0 #20: 5.1.1 #23: 5.1.3	K.Jarvinen	Nokia	300 724
06.54	**Test sequences for the GSM Enhanced Full Rate (EFR)**				
4.0.0	PU SMG11	#22: 4.0.0	K.Jarvinen	Nokia	301 250
5.1.0	PU SMG11	#20: 2.0.0 #22: 5.1.0	K.Jarvinen	Nokia	300 725
06.55	**Performance characterisation of the GSM EFR Speech Codec**				
4.0.0	PU SMG11	#22: 4.0.0	T.Salem	T-Mobil	TR 010 085
5.0.0	PU SMG11	#19: 5.0.0	T.Salem	T-Mobil	ETR 305

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
06.60 Enhanced full rate speech transcoding				
4.0.1	PU SMG11	#23: 4.0.1	K.Jarvinen Nokia	301 245
5.1.3	PU SMG11	#17: 5.0.0 #19:5.1.0 #20: 5.1.1 #23: 5.1.3	K.Jarvinen Nokia	300 726
06.61 Substitution and muting of lost frames for encanced full rate speech traffic channels				
4.0.0	PU SMG11	#22: 4.0.0	K.Jarvinen Nokia	301 246
5.1.2	PU SMG11	#17: 5.0.0 #19: 5.1.0 #20: 5.1.1	K.Jarvinen Nokia	300 727
06.62 Comfort noise aspects for Enhanced Full Rate (EFR) speech traffic channels				
4.0.1	PU SMG11	#23: 4.0.1	K.Jarvinen Nokia	301 247
5.1.3	PU SMG11	#17: 5.0.0 #19: 5.1.0 #20: 5.1.1 #23: 5.1.2	K.Jarvinen Nokia	300 728
06.81 Discontinuous Transmission (DTX) for encanced full rate speech traffic channels				
4.0.0	PU SMG11	#22: 4.0.0	K.Jarvinen Nokia	301 248
5.1.2	PU SMG11	#17: 5.0.0 #19: 5.1.0 #20: 5.1.1 #22: 5.1.2	K.Jarvinen Nokia	300 729
06.82 Voice Activity Detection (VAD) for encanced full rate speech traffic channels				
4.0.0	PU SMG11	#22: 4.0.0	K.Jarvinen Nokia	301 249
5.0.3	PU SMG11	#17: 5.0.0 #20: 5.0.2 #22: 5.0.3	K.Jarvinen Nokia	300 730
07.01 General on Terminal Adaptation Functions (TAF) for Mobile Stations (MS)				
4.10.0	SA SMG4	#7: 4.5.0 #8: 4.6.0 #9: 4.6.1 #10: 4.7.0 #13: 4.8.0 #15: 4.9.0 #16: 4.10.0	J.Varaldi Alcatel	300 582
5.7.0	SA SMG4	#16: 5.0.0 #17: 5.0.1 #18: 5.1.0 #19: 5.2.0 #20: 5.3.0 #21: 5.4.0 #22: 5.5.0 #23: 5.6.0 #24: 5.7.0	J.Varaldi Alcatel	300 913
3.13.0	SA SMG4	#2: 3.14.0	J.Varaldi Alcatel	v.3.14.0 300 041

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY		ETS VERSION + NR	
07.02	**Terminal Adaptation Functions (TAF) for Services Using Asynchronous Bearer Capabilities**					
3.8.0	SA SMG4	#2: 3.8.0	P.Bertin	France Telecom	v.3.8.0	300 042
4.5.1	SA SMG4	#7: 4.4.0 #9: 4.4.2 #11: 4.5.0	P.Bertin	France Telecom		300 583
5.5.0	SA SMG4	#16: 5.0.0 #18: 5.1.0 #20: 5.1.1 #21: 5.2.0 #22: 5.3.0 #23: 5.4.0 #24: 5.5.0	P.Bertin	France Telecom		300 914
07.03	**Terminal Adaptation Functions (TAF) for Services Using Synchronous Bearer Capabilities**					
3.4.0	SA SMG4	#5: 3.4.0	P.Edlund	Ericsson	v.3.4.0	300 043
4.5.1	SA SMG4	#7: 4.4.0 #9: 4.5.0	P.Edlund	Ericsson		300 584
5.4.0	SA SMG4	#18: 5.0.0 #20: 5.0.1 #21: 5.1.0 #22: 5.2.0 #23: 5.3.0 #24: 5.4.0	P. Edlund	Ericsson		300 915
07.05	**Use of Data Terminal Equipment - Data Circuit Terminating Equipment (DTE-DCE) Interface for Short Message Service (SMS) and Cell Broadcast Services (CBS).**					
4.8.1	SA SMG4	#7: 4.2.1 #8: 4.3.0 #12: 4.4.0 #16: 4.5.0 #17: 4.6.0 #18: 4.7.0 #20: 4.8.0	I.Harris	Vodafone		300 585
5.5.0	SA SMG4	#19: 5.0.0 #20: 5.1.0 #21: 5.2.0 #22: 5.3.0 #23: 5.4.0 #24: 5.5.0	I.Harris	Vodafone		GTS
07.06	**Use of the V Series Data Terminal Equipment - Data Circuit Terminating Equipment (DTE-DCE) Interface at the Mobile Station (MS) for Mobile Termination (MT) configuration.**					
4.2.0	SA SMG4	#7: 4.1.0 #13: 4.2.0 #16: WITHDRAWN	I.Harris	Vodafone		300 586
07.07	**Digital cellular telecommunications System (Phase 2) AT Command set for GSM Mobile Equipment (ME)**					
4.2.0	SA SMG4	#16: 4.0.0 #18: 4.1.0 #24: 4.2.0	P.Heinonen	Nokia		300 642
5.5.0	SA SMG4	#19: 5.0.0 #20: 5.1.0 #21: 5.2.0 #22: 5.3.0 #23: 5.4.0 #24: 5.5.0	P.Heinonen	Nokia		300 916
07.08	**GSM Application Programming Interface**					
5.2.0		#20: 5.0.0 #21: 5.1.0 #24: 5.2.0				300 917
07.60	**General Packet Radio Service (GPRS); Mobile Station (MS) supporting GPRS**					
5.1.0		#24: 5.1.0				

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GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
08.01 Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface General Aspects.				
4.0.3	SA SMG3	#7: 4.0.0	R.Davies Motorola	300 587
5.0.0	SA SMG3	#20: 5.0.0	R.Davies Motorola	GTS
3.0.1	SA SMG3		R.Davies Motorola	- -
08.02 Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface - Interface Principles.				
4.2.0	SA SMG3	#7: 4.0.0 #10: 4.1.0 #13: 4.2.0	R.Davies Motorola	300 587
5.1.0	SA SMG3	#20: 5.0.0 #21: 5.1.0	R.Davies Motorola	GTS
3.3.1	SA SMG3		R.Davies Motorola	- -
08.04 Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface Layer 1 Specification.				
3.0.3	PU SMG2		R.Davies Motorola	- -
4.0.3	PU SMG2	#7: 4.0.0	R.Davies Motorola	300 588
5.0.0	PU SMG2	#20: 5.0.0	R.Davies Motorola	GTS
08.06 Signalling Transport Mechanism Specification for the Base Station System - Mobile Services Switching Centre (BSS-MSC) Interface.				
3.5.2	PU SMG2		R.Davies Motorola	- -
4.5.0	PU SMG2	#7: 4.1.0 #8: 4.2.0 #9: 4.3.0 #10: 4.4.0	R.Davies Motorola	300 589
5.1.0	PU SMG2	#17: 5.0.0 #18: 5.1.0	R.Davies Motorola	GTS
08.08 BSS-MSC Layer 3 Specification				
3.10.1	PU SMG2		R.Davies Motorola	- -
EXT 3.0.0	PU SMG2	#7: 3.0.0	n.a.	
4.12.0	PU SMG2	#7: 4.4.0 #8: 4.5.0 #9: 4.6.0 #10: 4.7.0 #13: 4.8.0 #15: 4.9.0 #16: 4.10.0 #17: 4.11.0 #23: 4.12.0	R.Davies Motorola	300 590
5.8.0	PU SMG2	#16: 5.0.0 #17: 5.1.0 #18: 5.2.0 #19: 5.3.0 #20: 5.4.0 #21: 5.5.0 #23: 5.7.0 #24: 5.8.0	R.Davies Motorola	GTS

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08.20	**Rate Adaptation on the Base Station System - Mobile Service Switching Centre (BSS-MSC) Interface.**				
4.2.3	SA SMG4	#7: 4.2.1 #13: 4.2.3	P.Bertin	France Telecom	300 591
5.3.0	SA SMG4	#20: 5.0.0 #21: 5.1.0 #22: 5.2.0 #24: 5.3.0	P.Bertin	France Telecom	GTS
3.1.2	SA SMG4		P.Bertin	France Telecom	- -
08.51	**Base Station Controller - Base Tranceiver Station (BSC-BTS) Interface General Aspects.**				
4.1.0	PU SMG2	#7: 4.0.1 #13: 4.1.0	E.Lycksell	Televerket	300 592
5.0.0	PU SMG2	#20: 5.0.0	E.Lycksell	Televerket	GTS
3.0.2	PU SMG2		E.Lycksell	Televerket	- -
08.52	**Base Station Controller - Base Tranceiver Station (BSC-BTS) Interface - Interface Principles.**				
4.2.0	PU SMG2	#7: 4.0.1 #13: 4.1.0	E.Lycksell	Televerket	300 593
5.0.0	PU SMG2	#20: 5.0.0	E.Lycksell	Televerket	GTS
3.0.2	PU SMG2		E.Lycksell	Televerket	- -
08.54	**Base Station Controler - Base Transceiver Station (BSC-BTS) Interface Layer 1 Structure of Physical Circuits**				
5.0.0	PU SMG2	#16: 5.0.0	E. Lycsell	Televerket	GTS
4.1.0	PU SMG2	#7: 4.0.1 #13: 4.1.0	E.Lycksell	Televerket	300 594
3.0.1	PU SMG2		E.Lycksell	Televerket	- -
08.56	**Base Station Controller - Base Tranceiver Station (BSC-BTS) Interface Layer 2 Specification.**				
4.0.2	PU SMG2	#8: 4.0.0	---none---		300 595
5.0.0	PU SMG2	#20: 5.0.0	---none---		GTS
3.1.1	PU SMG2		H.Andersen	Ericsson Telecom	- -

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08.58 Base Station Controler - Base Transceiver Station (BCS-BTS) Interface Layer 3 Specification					
5.6.0	PU SMG2	#16: 5.0.0 #17: 5.1.0 #19: 5.2.0 #21: 5.3.0 #22: 5.4.0 #23: 5.5.0 #24: 5.6.0	E. Lycsell	Televerket	GTS
EXT 3.0.0	PU SMG2	#7: 3.0.0	n.a.		
4.9.0	PU SMG2	#7: 4.3.0 #8: 4.4.0 #9: 4.5.0 #10: 4.6.0 #13: 4.7.0 #15: 4.8.0 #16: 4.9.0	E.Lycksell	Televerket	300 596
3.6.0	PU SMG2	#10: 3.6.0	E.Lycksell	Televerket	- -
DCS 3.0.0	PU SMG2		--- none ---		- -
08.59 BSC-BTS O&M Signalling Transport					
3.1.0	MS SMG6 SMG2		--- none ---		- -
08.60 Inband Control of Remote Transcoders and Rate Adaptors					
3.3.1	PU SMG2		L.Cruchant	Alcatel MC	- -
5.1.0	PU SMG2	#17: 5.0.0 #19: 5.0.1 #20: 5.0.2 #22: 5.1.0	A. Katle	Norwegian Telecom Mobile	300 737
4.4.0	PU SMG2	#7: 4.1.0 #13: 4.2.0 #22: 4.3.0 #23: 4.4.0	L. Cruchant	Alcatel	300 597
08.61 Inband Control of Remote Transcoder and Rate Adaptors;(Half Rate)					
4.0.2	PU SMG2 SMG3	#13: 4.0.0	P.Jacob	Siemens	300 598
5.0.1	PU SMG2 SMG3	#20: 5.0.0	P.Jacob	Siemens	300 979
09.01 General Network Interworking Scenarios					
3.0.1	SA SMG3		--- none ---		- -
4.0.1	SA SMG3	#8: 4.0.0 #9: 4.0.1	--- none ---		ETR 109
5.0.0	SA SMG3	#20: 5.0.0	--- none ---		ETR 359

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09.02	**Mobile Application Part (MAP) Specification**			
5.8.0	SA SMG3 SPS2	#16: 5.0.0 #17: 5.1.0 #18: 5.2.0 #19: 5.3.0 #20: 5.4.0 #21: 5.5.0 #22: 5.6.0 #23: 5.7.0 #24: 5.8.0	JMEG	300 974
6.0.0	SA SMG3 SPS2	#24: 6.0.0	JMEG	
4.18.0	SA SMG3 SPS2	#7: 4.4.0 #8: 4.5.0 #9: 4.6.0 #10: 4.7.0 #11: 4.8.0 #12: 4.9.0 #13: 4.10.0 #14: 4.11.0 #16: 4.12.0 #17: 4.13.0 #19: 4.14.0 #20: 4.15.0 #21: 4.16.0 #22: 4.17.0 #23: 4.18.0	JMEG	300 599
3.8.0	SA SMG3 SPS2	#9: 3.9.0 #12: 3.10.0 #14: 3.11.0	JMEG	v.3.11.0 300 044-1
DCS 3.0.0	SA SMG3 SPS2		JMEG	v.3.0.0 31.12.91
09.03	**Requirements on Interworking between the ISDN or PSTN and the PLMN**			
3.0.1	SA SPS1 SMG3 SMG4		--- none ---	- -
4.0.3	SA SMG3 SMG4 SPS1	#8: 4.0.0 #9: 4.0.1	--- none ---	300 600
5.0.0	SA SMG3 SMG4 SPS1	#20: 5.0.0	--- none ---	GTS
09.04	**Interworking between the PLMN and the CSPDN**			
3.0.1	SA SMG4		--- none ---	- -
4.0.2	SA SMG4	#7: 4.0.0 #8: 4.0.1 #9: 4.0.2	--- none ---	300 601
5.0.0	SA SMG4	#20: 5.0.0	--- none ---	GTS
09.05	**Interworking between the PLMN and the PSPDN for PAD Access**			
3.2.2	SA SMG4		--- none ---	- -
4.4.2	SA SMG4	#7: 4.3.0 #8: 4.4.0 #9: 4.4.1	--- none ---	300 602
5.0.0	SA SMG4	#20: 5.0.0	--- none ---	GTS
09.06	**Interworking between a Public Land Mobile Network (PLMN) and a Packet Switched Public Data Network/Integrated**			
5.0.2	SA SMG4	#19: 5.0.0 #20: 5.0.1	A.Braun Alcatel SEL	300 975
4.5.0	SA SMG4	#7: 4.3.0 #9: 4.4.0 #12: 4.5.0	A.Braun Alcatel SEL	300 603

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09.07	**General Requirements on Interworking between the Public Land Mobile Network (PLMN) and the Intergrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)**				
3.7.1	SA SMG4 SMG3	#5: 3.8.0 #9: 3.9.0 #14: 3.10.0	N.Klehn	Siemens	- -
4.12.1	SA SMG4 SMG3	#7: 4.4.0 #8: 4.5.0 #9: 4.6.0 #10: 4.7.0 #13: 4.8.0 #14: 4.9.0 #16: 4.10.0 #18: 4.11.0 #20: 4.12.0	N.Klehn	Siemens	300 604
5.6.0	SA SMG4 SMG3	#16: 5.0.0 #17: 5.0.1 #18: 5.1.0 #19: 5.2.0 #20: 5.2.1 #21: 5.3.0 #22: 5.4.0 #23: 5.5.0 #24: 5.6.0	N.Klehn	Siemens	300 976
09.08	**Application of the Base Station System Application Part (BSSAP) on the E-Interface.**				
4.1.1	PU SMG2 SMG3	#9: 4.0.0 #13: 4.1.0	R.Bodin	Ericsson	300 626
5.1.0	FP SMG3	#20: 5.0.0 #21: 5.1.0	R.Bodin	Ericsson	GTS
09.09	**Detailed Signalling Interworking within the PLMN and with the PSTN/ISDN**				
REP 3.0.0	PA SMG3		J.Vainikka	Nokia	- -
09.10	**Information Element Mapping between Mobile Station - Base Station System (MS - BSS) and Base Station System - Mobile-services Switching Centre (BSS - MCS) Signalling Procedures and the Mobile Application Part (MAP)**				
4.4.0	SA SMG3 SMG2	#8: 4.0.0 #9: 4.1.0 #10: 4.2.0 #17: 4.3.0 #23: 4.4.0	--- none ---		300 605
5.2.0	SA SMG3 SMG2	#17: 5.0.0 #18: 5.1.0 #23: 5.2.0	--- none ---		GTS
3.0.2	SA SMG3 SMG2		--- none ---		- -
DCS 3.0.0	SA SMG3 SMG2		--- none ---		- -
09.11	**Signalling Interworking for Supplementary Services**				
3.0.1	PA SMG3		L.Letellier	France Telecom	- -
4.6.1	PA SMG3	#7: 4.1.0 #8: 4.2.0 #9: 4.3.0 #12: 4.4.0 #13: 4.5.0 #19: 4.6.0	L.Letellier	France Telecom	300 606
5.1.0	PA SMG3	#18: 5.0.0 #19: 5.1.0	L. Letellier	France Telecom	GTS
09.12	**Application of ISUP Version 2 for the ISDN-PLMN (GSM)Signalling**				
4.1.0	PA SPS1 SMG3	#17: 4.0.0	P.Haendig	Telia Mobitel AB	

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09.78	**CAMEL Application Part phase 1 (stage 3)**			
5.3.0	SA SMG3	#21: 5.0.0 #22: 5.1.0 #23: 5.2.0 #24: 5.3.0		
09.90	**Interworking between Phase 1 Infrastructure and Phase 2 Mobile Stations (MS).**			
4.9.0	FP STF12	#7: 4.0.0 #8: 4.1.0 #9: 4.2.0 #10: 4.3.0 #11: 4.4.0 #15: 4.5.0 #16: 4.6.0 #18: 4.7.0 #19: 4.8.0 #22: 4.9.0	n.a.	ETR 111
5.0.0	FP STF12	#17: 5.0.0	n.a.	GTS
09.91	**Interworking Aspects of the SIM/ME Interface Between Phase 1 and Phase 2**			
4.0.1	RT SMG9	#10: 4.0.0	K.Vedder GAO	ETR 174
5.0.0	RT SMG9	#20: 5.0.0	K.Vedder GAO	ETR 360
09.94	**Recommended Infrastructure Measures to Overcome Specific Phase 1 Mobile Stations Faults**			
4.4.0	FP STF12	#14: 4.0.0 #15: 4.1.0 #16: 4.2.0 #19: 4.3.0 #23: 4.4.0	---none---	ETR 200
5.0.0	FP STF12	#20: 5.0.0	---none---	ETR 361
10.00	**Digital Cellular Telecommunication System Feature Description**			
5.2.0	AB STF12	#19: 5.0.0 & 5.1.0 #20: 5.2.0		ETR 362
10.20	**Lawful Interception requirements for GSM**			
5.0.1	PA SMG10	#19: 5.0.0 #20: 5.0.1		ETR 363
11.10	**Mobile Station Conformity Specification (DCS 1800)**			
DCS 3.1.0	JJD STF12 SMG2 SMG3	#2: 3.2.0 #3: 3.3.0 #4b: 3.4.0 #5: 3.5.0 #6: 3.6.0 #7: 3.7.0 #8: 3.8.0 #9: 3.9.0 #10: 3.10.0 #11: 3.11.0 #12: 3.12.0 #13: 3.13.0	W.Legrand Hutchison-Microtel	v.3.14.1 - -
3.7.0	JJD STF12 SMG2 SMG3	#2: 3.8.0 #3: 3.9.0 #4b:3.10.0 #5: 3.11.0 #6: 3.12.0 #7: 3.13.0 #8: 3.14.0 #8: 3.15.0 #9: 3.16.0 #10: 3.17.0 #11: 3.18.0 #12: 3.19.0 #13: 3.20.0 #15: 3.21.0 #16: 3.22.0	--- none ---	v.3.18.0 300 020-1

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11.10-1 Conformance Specification				
4.21.0	JJD SMG7 PT48V STF12 SMG2 SMG3	#16: 4.13.0 #17: 4.14.0 #18: 4.15.0 #19: 4.16.0 #20: 4.17.0 #21: 4.18.0 #22: 4.19.0 #23: 4.20.0 #24: 4.21.0	---none---	300 607-1
5.4.0	JJD SMG7 PT48V STF12 SMG2 SMG3	#18: 5.0.0 #21: 5.1.0 #22: 5.2.0 #23: 5.3.0 #24: 5.4.0		GTS
11.10-2 Protocol Implementation Conformance Statement Proforma Specification				
4.15.0	JJD SMG7 PT48V STF12 SMG2 SMG3	#16: 4.13.0 #17: 4.14.0 #18: 4.15.0	---none---	300 607-2
11.10-3 Layer3 (L3) Abstract Test Suite (ATS)				
4.21.0	JJD SMG7 PT48V STF12 SMG2 SMG3	#16: 4.13.0 #17: 4.14.0 #18: 4.15.0 #19: 4.16.0 #20: 4.17.0 #21: 4.18.0 #22: 4.19.0 #23: 4.20.0 #24: 4.21.0	---none---	300 607-3
5.0.0	JJD SMG7 PT48V STF12 SMG2 SMG3	#18: 5.0.0		GTS
11.11 Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) Interface.				
3.10.0	MS SMG9	#2: 3.11.0 #3: 3.12.0 #8: 3.13.0 #9: 3.14.0 #11: 3.15.0 #12: 3.16.0	K.Vedder Giesecke & Devrient	v.3.16.0 300 045-1/A1
4.19.0	MS SMG9	#7: 4.8.0 #8: 4.9.0 #9: 4.10.0 #10: 4.11.0 #11: 4.12.0 #12: 4.13.0 #13: 4.14.0 #15: 4.15.0 #16: 4.16.0 #18: 4.17.0 #19: 4.18.0 #20: 4.18.1 #21: 4.18.2 #22: 4.19.0	K.Vedder Giesecke & Devrient	300 608
5.8.0	MS SMG9	#16: 5.0.0 #17: 5.1.0 #18: 5.2.0 #19: 5.3.0 #20: 5.4.0 #21: 5.5.0 #23: 5.7.0 #24: 5.8.0	K.Vedder Giesecke & Devrient	300 977
DCS 3.1.3	MS SMG1 SMG9	#2: 3.2.0 #4: 3.3.0 #8: 3.3.1 #9: 3.3.2 #11: 3.3.3 #12: 3.3.4	--- none ---	v.3.3.1 31.12.91
11.12 Specification of the 3 Volt Subscriber Identity Module Equipment (SIM-ME) Interface				
5.0.0	MS SMG9	#16: 5.0.0 WITHDRAWN	R.Lindholm Nokia	300 978
4.2.0	MS SMG9	#15: 4.0.0 #17: 4.1.0 #19: 4.1.2 #21: 4.2.0	R.Lindholm Nokia	300 641
11.14 Specification of Subscriber Identity Module - Mobile Equipment (SIM - ME) Interface for SIM Application Toolkit				
5.6.0	MS SMG9	#18: 5.0.0 #19: 5.1.0 #20: 5.2.0 #21: 5.3.0 #22: 5.4.0 #23 5.5.0 #24: 5.6.0		GTS

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11.20	**GSM DCS 1800 Base Station Specification**					
DCS	3.1.0	JJD STF12 SMG2 SMG3	#2: 3.2.0 #3: 3.3.0 #4: 3.4.0 #5: 3.5.0 #6: 3.6.0 #7: 3.7.0 #8: 3.8.0 #9: 3.9.0 #10: 3.10.0 #11: 3.11.0 #12: 3.12.0 #17: 3.13.0	--- none ---		- -
	3.6.0	MS SMG8 SMG2 SMG3	#2: 3.7.0 #3: 3.8.0 #4: 3.9.0 #5: 3.10.0 #6: 3.11.0 #7: 3.12.0 #8: 3.13.0 #9: 3.14.0 #10: 3.15.0 #11: 3.16.0 #12: 3.17.0 #14: 3.18.0 #17: 3.19.0	A. Howell	Motorola	- -
11.21	**GSM Radio Aspects Base Station System Equipment Specification**					
	4.9.0	MS SMG8	#11: 4.0.0 #12: 4.1.0 #13: 4.2.0 #15: 4.3.0 #16: 4.4.0 #17: 4.5.0 #18: 4.6.0 #20: 4.7.0 #22: 4.8.0 #23: 4.9.0	S.Pike	Lucent Technologies	300 609-2
	5.1.0	MS SMG8	#23: 5.1.0	S.Pike	Lucent Technologies	
11.22	**GSM Base Station and Ancillary Equipment, Physical and Electronical Parameters, Application of Standards and Guidance Notes**					
	4.1.3	MS SMG8	#11: 4.0.0 #14: 4.1.0 #18: 4.1.1 #20: 4.1.2 #21: 4.1.3	M.Perry	Motorola	300 609-3
11.23	**GSM Signalling Aspects Base Station System equipment Specification**					
	4.8.0	MS SMG8	#11: 4.0.0 #14: 4.1.0 #15: 4.1.0 #16: 4.2.0 #17: 4.3.0 #18: 4.4.0 #19: 4.5.0 #21: 4.6.0 #22: 4.7.0 #23: 4.8.0	---none---		300 609-4
11.24	**GSM Transcoding and Rate Adaptation: Base Station System Equipment Specification**					
	4.1.0	MS SMG8	#14: 400 #20: 4.1.0	V.Fernandez	Motorola	300 609-5
11.26	**GSM Repeater Equipment Specification**					
	4.2.2	MS SMG8	#15: 4.0.0 #17: 4.1.0 #18: 4.2.0 #20: 4.2.2			300 609
	5.1.0	MS SMG8	#23: 5.1.0			
11.30	**Mobile Services Switching Centre**					
REP	3.2.1	PA STF12 SMG3 SMG1		--- none ---		- -
11.31	**Home Location Register Specification**					
REP	3.2.1	PA STF12 SMG3 SMG1		--- none ---		- -

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11.32	**Visitor Location Register Specification**			
REP 3.2.1	PA STF12 SMG3 SMG1		--- none ---	- -
11.40	**DCS 1800 System Simulator Conformity Specification**			
DCS 3.1.0	JJD STF12 SMG2 SMG3	#4: 3.2.0 #11: 3.3.0	--- none ---	- -
3.5.0	JJD STF12 SMG2 SMG3	#2: 3.6.0 #11: 3.7.0	P.Zollman Vodafone	v.3.7.0 300 020-2
12.00	**Objectives and Structure of GSM Public Land Mobile Network (PLMN) Management.**			
4.6.0	MS SMG6	#7: 4.0.0 #8: 4.1.0 #11: 4.2.0 #15: 4.3.0 #16: 4.4.0 #17: 4.5.0 #23: 4.6.0	---none---	300 612-1
12.01	**Common Aspects of Public Land Mobile Network (PLMN) Management.**			
4.4.1	MS SMG6 SMG3	#7: 4.0.0 #8: 4.1.0 #9: 4.1.1 #10: 4.2.0 #11: 4.3.0 #17: 4.4.0	---none---	300 612-2
12.02	**Subscriber, Mobile Equipment (ME) and Services Data Administration.**			
4.6.1	MS SMG6 SMG1	#7: 4.0.0 #8: 4.1.0 #9: 4.2.0 #11: 4.3.0 #15: 4.4.0 #16: 4.5.0 #17: 4.6.0	---none---	300 613
5.0.0	MS SMG6 SMG3	#22: 5.0.0	---none---	
12.03	**Security Management.**			
4.2.1	MS SMG6 SMG1 SMG3	#11: 4.0.0 #14: 4.1.0 #17: 4.2.0	---none---	300 614
12.04	**Performance Management and Measurements for a GSM Public Land Mobile Network (PLMN).**			
4.3.1	MS SMG6 SMG1 SMG3	#8: 4.0.0 #11: 4.1.0 #13: 4.2.0 #17: 4.3.0	---none---	300 615
12.05	**Subscriber Related Call and Event Data.**			
4.3.0	MS SMG6 SMG1	#8: 4.0.0 #11: 4.1.0 #15: 4.1.1 #17: 4.2.0 #22: 4.3.0	---none---	300 616
5.0.0	MS SMG6 SMG1	#23: 5.0.0		
12.06	**Network Configuration Management and Administration.**			
4.1.1	MS SMG6 SMG3	#11: 4.0.0 #12: 4.0.1 #17: 4.1.0	---none---	300 617

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12.07	**Public Land Mobile Network (PLMN) Quality of Service.**			
n.a.	MS SMG6 SMG1 SMG3	work stopped	---none---	300 612
12.08	**Subscriber and Equipment trace**			
4.5.0	MS SMG6 SMG3	#12: 4.0.0 #14: 4.1.0 #16: 4.2.1 #18: 4.3.0 #20: 4.4.0 #22: 4.5.0	B.Szelazek Lucent	300 627
5.0.0	MS SMG6 SMG3	#23: 5.0.0	B.Szelazek Lucent	
12.11	**Maintenance of the Base Station System (BSS).**			
4.1.0	MS SMG6 SMG1 SMG2	#22: 4.1.0	M.Cataldo Lucent	300 619
12.20	**Base Station System (BSS) Management Information.**			
4.2.1	MS SMG6 SMG3	#9: 4.0.0 #11: 4.1.0 #13: 4.1.1 #17: 4.2.0	---none---	300 622
12.21	**Network Management (NM) Procedures and Messages on the A-bis Interface.**			
4.6.0	MS SMG6 SMG2	#7: 4.1.0 #8: 4.2.0 #9: 4.3.0 #11: 4.4.0 #13: 4.5.0 #16: 4.5.2 #21: 4.6.0	A.Yuhan Omnipoint	300 623
5.0.0	MS SMG6 SMG2	#21: 5.0.0	A.Yuhan Omnipoint	
12.22	**Interworking of GSM Network Management (NM) Procedures and Messages at the Base Station Controller (BSC).**			
4.1.4	MS SMG6	#11: 4.0.0 #13: 4.1.0 #16: 4.1.2	A.Yuhan Omnipoint	300 624
12.30	**ETSI Object Identifier Tree; Mobile Domain O&M**			
4.2.0	MS SMG6	#10: 4.0.0 #11: 4.1.0 #15: 4.2.0	---none---	ETR 128
22.01	**Universal Mobile Telecommunications System (UMTS): Service aspects; Service principles**			
3.3.0		#22: 3.1.0 #24: 3.3.0		
30.03	**Selection procedures for the choice of radio transmission technologies of the UMTS**			
3.1.0	PU SMG2	#23: 3.1.0		

(*) For Phase 1 : 1992 Release

GSM NUMBER AND TITLE CURRENT VERSION (*)	RESPONSIBLE PT SMG / STCs	HISTORY	RAPPORTEUR + COMPANY	ETS VERSION + NR
33.20 Security principles for the UMTS				
3.1.0		#24: 3.1.0		
TBR 5 General Attachment Requirements for GSM Mobile Stations				
3.0.0	JJD SMG7 SMG1 SMG2 SMG3 SMG4	#4: 1.0.0 #4b: 3.0.0 #8: Ed1 #12: Ed2	D.Freeman Motorola	- -
TBR 9 Attachment Requirements for GSM Terminal Equipment (Telephony)				
3.0.0	JJD SMG7 SMG1 SMG2 SMG3 SMG4	#4: 1.0.0 #4b: 3.0.0 #8: Ed1 #12: Ed2	D.Freeman Motorola	- -
TBR19 General Attachment Requirements for GSM Mobile Stations				
4.2.1	JJD SMG7 SMG1 SMG2 SMG3 SMG4	#14: Ed1 #16: 4.0.0 #17: 4.1.0 #18: 4.2.0	H.Banken Sigos PT64V	TBR 19
TBR20 Attachment Requirements for GSM Terminal Equipment (Telephony)				
4.0.2	JJD SMG7 SMG1 SMG2 SMG3 SMG4	#14: Ed1 #16: 4.0.0 #17: 4.0.1	H.Banken Sigos PT64V	TBR 20
TBR31 General Attachment Requirements for DCS Mobile Stations				
4.0.2	JJD SMG2	#17: 4.0.0	---none---	TBR 31
TBR32 Attachment Requirements for DCS Terminal Equipment (Telephony)				
4.0.2	JJD SMG2	#17: 4.0.0	---none---	TBR32

ETSI TC SMG ETSI/SMG(97)5 Part B Annex 9
Meeting n°24
Madrid, 15 - 19 December, 1997

Source: **PT SMG**
Title: **PT SMG Status Report to SMG#24**
Status: **Approved**

Main activities-1: Maintenance of specifications

- *SMG2 request to prepare major specifications within 1 week after a plenary*
  - *? Priority STC support <-> new versions of specifications*
  - *? When are specifications requested after SMG#24? Proposal: Some days before the first WP meeting*

Main activities - 2:

- *Support of SMG#22bis and SMG#23*
- *Preparation of SMG#24*
- *Support for STCs*
- *Support for SMG-CG*
- *Program management GSM*
- *Program management UMTS*

Main activities - 3: Interface to ETSI secretariat

- *New severe problems arising every 1-2 months*
  - *New travel rules August 97*
  - *Proposal to reduce the payment for STF contracts*
  - *Limitation of experts' contracts to 18 months*
- *Negotiation on conditions pf GSM MoU funding for GPRS security algorithms*

Main activities - 4: Type approval matters

- *Preparation of consultation meeting with EC on type approval issues early 98*
- *Letter to ACTE for justification of phase 2+ test efforts: see Tdoc SMG 1033/97*
- *Project plan fo phase 2+ MS type approval: see Tdoc SMG 1034 (Agenda Item 5.5)*

Main activities - 5: Special funded work

- *Funded work on ASCI: test purposes were discussed in SMG7; some development for ASCI phase 2; see SMG3 report*

→ *BSS half-rate tests: Outstanding are the signalling tests. Test purposes have been discussed in SMG8.*

Main activities - 6: Information

- *Newsletter: After SMG#22. Next one after SMG#24*
- *CD ROM: see annex 1*

→ *Earlier SMG plenary documents: Are available in electronic form from Tdoc SMG 175/94 onwards*

- *Participation in Seminar for GA#29*

Main activities -6: liaisons - 1

- *Liaison with American T1P1: Preparation of working procedures which were approved in October 1997*
- *Support of meetings/radio workshop with Japanese TTC/ARIB*
- *Meetings with Chinese MPT before and during SMG#23*
- *Information exchange with Korean MPT*
- *Telephone Conferences with American TIA*

Main activities - 7: liaisons - 2

- *Liaison to GSM MoU: discussions with GSM MoU officials on co-operation on GSM and UMTS*
- *Organisation and co-ordination of ITU contributions*
- *Meeting with SES on Mobile Satellite Systems standardisation:*
  see Tdoc SMG 1039/97 (agenda item 5.6)

Main activities - 8: ITU co-ordination

- *Co-ordination of contributions in SMG3 and SMG1*
- *Updated ITU work program for SMG*
- *See agenda item 4.6*

Status of specifications

- *SMG specifications status list (to be distributed with the meeting report)*
- ➔ *Actions for OAP and TAP: Tdoc SMG 993/97*

Status of work items

- *GSM work items: New version of GSM 10.00 will be distributed after SMG#24*
- *GSM roadmap and the WI data base: Tdoc SMG 1150/97 (WI data base only in electronic form)*
- *UMTS work items: UMTS 30.00*

Version management of specifications

- *Discussions in the STCs and WPs*
- *Progress report in Tdoc SMG 1135/97 - to be discussed under AI 5.6*

Resources

- ***Budget usage 1997, budget plan 1998:***
  See Tdoc SMG 934/97, Tdoc SMG 935/97
- ***Additional full time members needed.***
  See Annex 2

Annex 1: CD Rom

- *Trade-off between time and availability of most recent information*
  - *How many new versions of specifications?*
  - *Meeting report: Proposal: Only 1 week after availability on the server for comments; 3 days after availability on the server for severe corrections to final draft*

Source: SMG Chairman

IMT-2000 co-ordination

Background

In continuation of the meeting SMG - TTC/ARIB in August 1997, it was agreed in SMG#23 to have a meeting SMG - ARIB/TTC in February 1998, followed by a multilateral meeting SMG - T1P1 - ARIB/TTC - TIA. Also it was agreed to have a meeting SMG(3) - TTC on IMT-2000 network issues; it was originally planned for October 1997, but this schedule was impossible due to work overload.

Korean TTA has also expressed their wish to participate in the inter-region co-ordination activities.

Telephone conferences SMG/T1P1/TIA have taken place, see Tdoc SMG 936/97.

Planned activities:

4 February 1998: Proposed for meeting TTC - SMG on network issues.

5-6 February 1998: SMG - ARIB/TTC. Draft agenda: see Annex 2.

8 February 1998 (18:00): meeting SMG - T1P1 - TIA. Draft agenda: see Annex 1.

9-10 February 1998: meeting SMG - T1P1 - ARIB - TIA - TTA. Draft agenda: see Annex 3.

UMTS delegation: representatives from SMG, UMTS Forum, GSM MoU 3GIG, ECTEL TMS

Tdoc SMG 8/98, Annex 1

Meeting T1P1, TIA, UMTS Delegation[1]

8 February 1998

Japan

3rd Generation co-ordination

Proposed agenda items

1 Standardisation status in UMTS community

1.1 Air interface

1.2 Core network

2 Standardisation status in T1P1

2.1 Air interface

2.2 Core network

3 Standardisation status in TIA

3.1 Air interface

3.2 Core network

4 Status in ITU

4.1 ITU-R

4.2 ITU-T

4.3 Spectrum issues

5 Identification of commonalities

6 Cooperation methods

7 Way forward

[1] UMTS Delegation: SMG, UMTS Forum, GSM MoU 3GIG, ECTEL TMS

Tdoc SMG 8/98 Annex 2

Meeting ARIB/TTC - UMTS Delegation[2]

5-6 February 1998

Japan

3rd Generation co-ordination

Proposed agenda items

1. Standardisation status in SMG

1.1. Air interface

1.2. Core network

2. Standardisation status in ARIB and TTC

2.1. Air interface

2.2. Core network

3. Status in ITU

3.1. ITU-R

3.2. ITU-T

3.3. Spectrum issues

4. Identification of commonalities

5. Cooperation methods

6. Way forward

[2]UMTS Delegation: SMG, UMTS Forum, GSM MoU 3GIG, ECTEL TMS

Tdoc SMG 8/98 Annex 3

Meeting with ARIB - TTC - T1P1 - TIA - TTA - UMTS Delegation[3]

9-10 February 1998

Japan

3rd Generation co-ordination

Proposed agenda items

1. Standardisation status in Japan

1.1. Air interface

1.2. Core network

2. Standardisation status in SMG

2.1. Air interface

2.2. Core network

3. Standardisation status in T1P1

3.1. Air interface

3.2. Core network

4. Standardisation status in TIA

4.1. Air interface

4.2. Core network

5. Standardisation status in TTA

5.1. Air interface

5.2. Core network

6. Status in ITU

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[3]UMTS Delegation: SMG, UMTS Forum, GSM MoU 3GIG, ECTEL TMS

6.1. ITU-R

6.2. ITU-T

6.3. Spectrum issues

7. Identification of commonalities

8. Way forward

Exhibit C

TDoc SMG/TG/GPRS 7/94

Tdoc SMG 2/3 6/94

Source:
Ansgar Bergmann
DeTeMobil

Categories of General Packet Radio Services GPRS and Possible Realizations in GSM

Abstract

This paper gives a survey on the different catgories of GPRS on the air interface, and then discusses solutions for broadcast information, point-to-point unidirectional data transmission; finally two complete solutions for a quasi-permanent connection type and a stand-by mode are presented.

0. Introduction

General packet radio services provide means to exchange data between the mobile station and a packet agent (cf. [1], [2]) with certain service characteristics, that are those of packet data services. The packet agent may be connected e.g. to BSC or MSC.

Still, GPRS are to be realized in specific ways on the air interface. Firstly, it is not self-evident that on the Um interface e.g. an ALOHA like method is the most suitable one; secondly, the air interface solutions have to be as flexible and efficient as possible, and should even take into account typical characteristics of GPRS applications. It turns out, that a lot of different issues are hidden in the general term of GPRS:

- The data transfer on the air interface may be acknowledged or not;
- close to GPRS are (possibly) short application dialogues, possibly with relatively long pauses between question and answer;
- GPRS requires the unidirectional data transfer, uplink or downlink, with high or low data volume, and possibly with bursty nature.

Further related aspects are provision of

- broadcast information, of
- quasi-permanent connections, and of
- data transfer during a speech connection.

1. Broadcast information

Increasing demand will require broadcast facilities in addition to the BCCH and CBCH in GSM. In idle mode the main problem of a data broadcast channel DBCH is that a PCH subgroup should not hide the DBCH, and that reading the serving and neighbour BCCHs should not force the MS to loose DBCH information.

The simplest solution is: to use the 4 blocks per 51-frame multiframe channel structure, and to keep the information stable for at least 2 multiframes (this gives a rate of ca. 46 octets per second). The BCCH describes where to find the DBCH.

In connected mode, it seems natural to use the SACCH; the data rate can hardly be much higher than 20 octets per second.

2. Unidirectional data transfer point-to-point

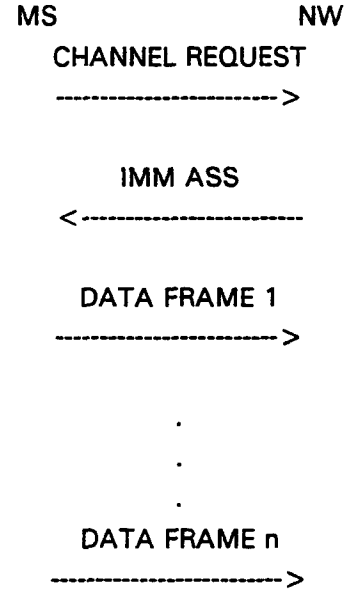
2.1 Unidirectional data transfer point-to-point - high data volume

The main aspect is the re-use of the physical channel in the non-used direction. For instance, a combination TCH (1 direction) + SACCHs (both directions) may be used. [Ffs]

2.2 Unidirectional data transfer point-to-point - low data volume

2.2.1 Unidirectional data transfer point-to-point - low data volume - uplink

Solution 1:



The CHANNEL REQUEST message specifies a new establishment cause "packet data". Use of this cause is allowed by the network by an indication on the BCCH. THE CHANNEL REQUEST may optionally (either to be decided in the specification or option of the cell indicated on BCCH) contain the preferred number of blocks (8 values might be possible, e.g. 1, 2, 5, 8, 13, 21, 34, 55).

The IMM ASS message specifies a channel description of an SDCCH (but the method may also be applied to a TCH- or other multiframe structure), a request reference, timing advance as usual, furthermore block-no-1 and block-no-2, where 0 < = block-no-1 < block-no-2 < 64. The first block on which the MS is allowed to send is (block-no-1) later than the next possible block, the last block on which the MS is allowed to send is (block-no-2) later than the first one.

The duration of the connection must guarantee tolerable changes of the radio conditions during the connection. In the special case described above, the maximum duration is less than 16 s; this corresponds to 800 m at 50m/s - acceptable for the timing advance in cells with a simple morphology.

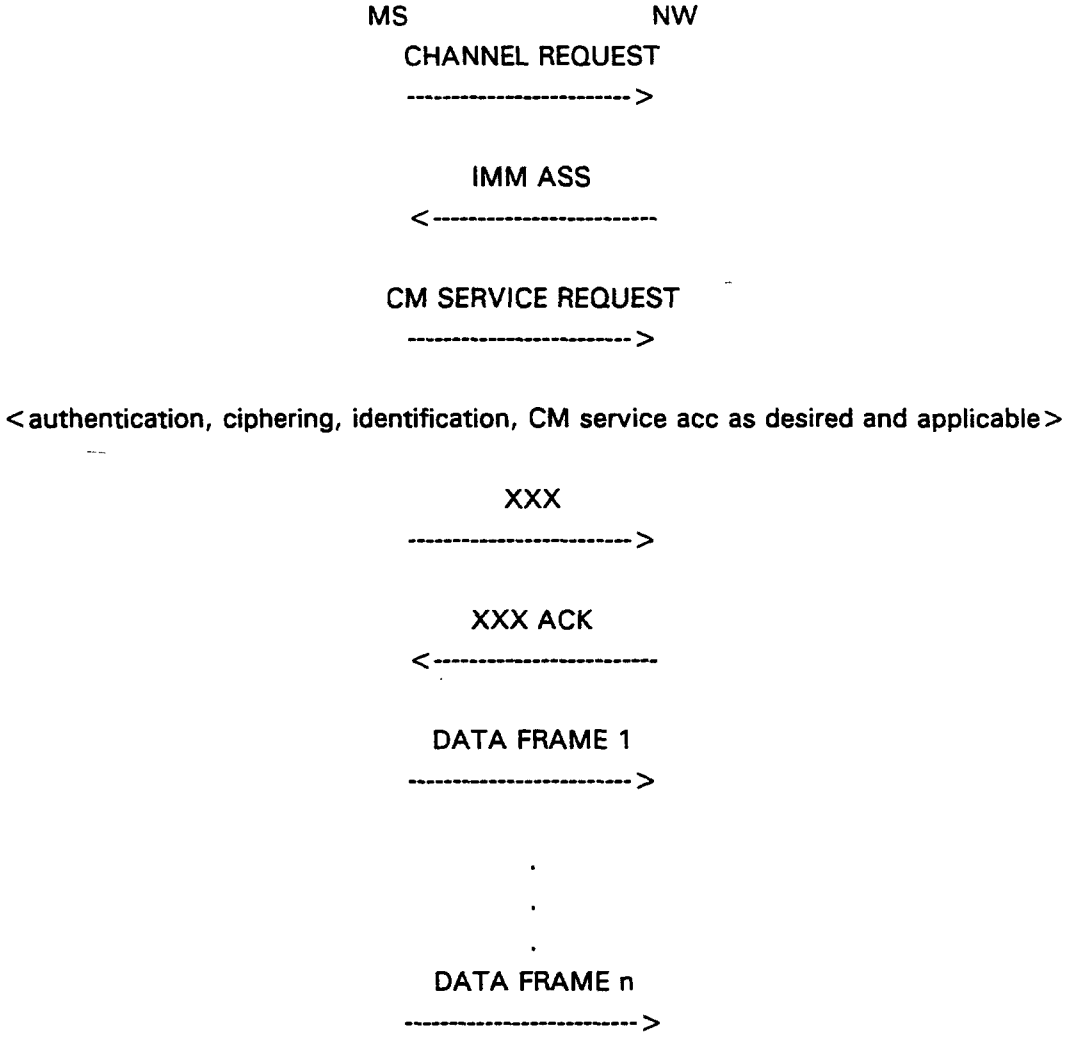
The MS transfers data using the coding scheme of SDCCH signalling (this gives less frame error protection than other GSM coding schemes but gives more architectural freedom). No L2 information is provided. The only

control information is address information in each message (format to be defined; *each* message because all earlier frames may have been lost). The remaining part of the 23 octets can be used for the application.

Contention is not resolved in this method; there is no acknowledgement and re-transmission by lower layers.

In the special case described above, the downlink and SACCH resources corresponding to the SDCCH may be used for other purposes.

Solution 2:



The first part of the connection establishment is the classical one.

The CM SERVICE REQUEST message specifies a new service "packet data". Use of this cause is allowed by the network by an indication on the BCCH. It also contains the preferred number of blocks. The XXX message specifies the allowed number of blocks, whether the SACCHes are to be used and whether L2 acknowledgement will be used for the following data transfer. Data transfer uses the same method as in solution 1.

Alternatively, the XXX message may be an assignment command or hand-over command e.g. to a data TCH, again with a last 26-frame multiframe indication. In this case the solution consists only in an accelerated establishment and release.

2.2.2 Unidirectional data transfer point-to-point - low data volume - downlink

Solution 1

The MS is paged, an SDCCH is assigned in the classical method, then a L3 message is sent indicating the end of the transmission and the unidirectionality of the channel.

Solution 2

A broadcast channel is used, addressing and data confidentiality (if necessary) are provided with known means.

3. Quasi-Permanent connections

A quasi-permanent connection allows the users to exchange data as if there was a permanent connection. However due to capacity reasons and/or frequency efficiency, resources may be released when they are not used. This may lead to delays in the data exchange.

Applications:

- Interactive applications, e.g. terminal access to a host computer, cf. [2]
- Dialogues with longer reaction times of the applications

Options and variants:

- GSM-ciphering and GSM-authentication may be applied or not; note that the application may still use its own authentication and encryption. GSM-authentication might be reserved to guaranteeing correct charging of subscribers.
  the data transfer may be acknowledged in layer 2 or not;
- there seem to be no requirements for multiparty connections;
- data transfer during a speech call seems to exclude the application of a quasi-permanent connection. Note that the quasi-permanent connection is different from a connection with DTX, the intentions of the latter being e.g. reduction of interference etc.

Realization:

As a conclusion, when restricting to the air interface, it seems that the following features are sensible and sufficient in order to realize quasi-permanent connections:

1 data transfer using a bearer service

2 fast call set-up

3 fast call clearing

4 release of the suitable radio resource (i.e.

4a) disconnection of the radio connection or
4b) switching to a low rate channel)

when nothing has to be sent

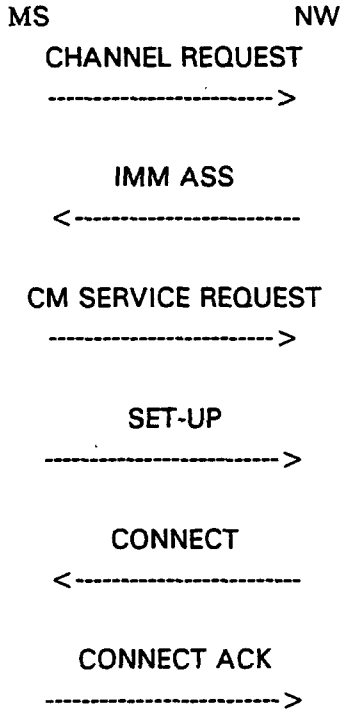
5 re-assignment of a suitable resource when the quasi-connection has to be used again

6 retrieval of the context after release and re-assignment of a suitable radio resource.

Solutions:

Solutions for feature 2:

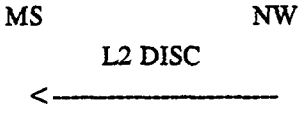
If we take an orthodox approach, the minimum signalling for a mobile originating establishment of a new connection is on the air interface:



if we change the specification to allow a premature SET-UP (i.e. that the acceptance of the MM connection, possibly including authentication etc., by the NW may be delayed). The resulting time for (initial) establishment on the air interface at ideal conditions could hence be slightly shorter than one second (with some disturbance of the initial period of the data transmission).

Solutions for feature 3

The fastest dialogue to release a radio link is on the air interface



L2 UA

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and that takes less than 150 ms in the best case, and some seconds in the worst case. This method might need some changes on the Abis interface.

If the CM layer wants to give additional information (in the solutions discussed below it would be necessary to distinguish between a release of the radio link due to suspension from release of the radio link due to end of connection), we need an additional message (RELEASE COMPLETE) at the beginning of the message sequence.

Solutions for feature 4a) ff

In order to realize 4a, 5, 6, a modification of the call re-establishment procedure seems to be the best candidate, if the re-activation is initiated by the MS. If we assume a system architecture as in [2], i.e. a "packet agent" is connected to the MSC, this solution means that the connection from MSC to the agent and the context at the agent are kept until the quasi-permanent connection has been cleared (e.g. by a CM message RELEASE COMPLETE) or until supervisory functions indicate that the quasi-permanent connection has been lost. The necessary dialogue for call re-establishment on the air interface (taking circa 500 ms at the minimum) is

MS NW

CHANNEL REQUEST

---------->

IMM ASS

<----------

CM SERVICE REQUEST

---------->

The call re-establishment function in the MS would have to be modified. Call re-establishment works with the phase 2 specifications only in an MSC area, however with some extension of the MAP, it would also work after the MS has entered a new MSC area. Interactions with handover do not need a specific treatment, but certainly there might be optimizations when to exclude handovers etc.

For the case that the agent wants to resume the connection, there are two ways:

- Either the MS has to be paged: Then interaction with the VLR is necessary, and if the MS has left the VLR area, also interaction with the HLR. There might be loss of paging while the MS is performing cell (re-)selection and location updating, with significantly higher probability than in normal GSM service.
- Or, the application requires that the MS has to resume after a (possibly indicated) time.

Solutions for feature 4b) ff

4b), 5, and 6) is even easier to implement (but also with less gain), the orthodox solution being to switch from TCH to SDCCH, that is to say to an eighth (from TCH/F) or fourth (from TCH/H) of the used resource.

4. Stand-by GPRS channel (Pernice's solution)

During a classical connection establishment the MS indicates in the CM SERVICE REQUEST, that it wants to use GPRS stand-by mode. It may further indicate the intended packet rate and the intended maximum delay between transmission request and transmission begin.

By an assignment procedure the MS is ordered to a 26-frame multiframe channel. The assignment command also contains a ticket number identifying the MS and possibly control information about the mode how to use the channel.

The downlink channel uses depth 4 interleaving (no diagonal interleaving) and the signalling encoding; it is organized in 6 blocks à 4 frames and two idle frames. The frames of the 6 blocks are interleaved, e.g. in the following way:

B1 B2 B1 B2 B1 B2 B1 B2 B3 B4 B3 B4 B3 B4 B3 B4 B5 B6 B5 B6 B5 B6 B5 B6 - -

In a block, an information or control frame may be transported.

The uplink is organized in N blocks à 4 frames and 26-4*N random access slots. The 4 frame blocks use the same encoding as the downlink, the random access slots use the random access format. For n = 3, the structure might e.g. be

R B1 R B1 R B1 R B1 R B2 R B2 R B2 R B2 R B3 R B3 R B3 R B3 R R

A pool of MSes uses the same resource. When the MS wants to transfer data, it sends a random access containing its ticket number. The network will then assign one or more blocks by use of a control frame. The number of MS that can use the pool in uplink direction is limited by the random access length.

The network may send information to an MS, addressing it with its ticket number. It uses a control frame in order to grant access, to push an MS back to idle mode, or to cause an MS to leave the pool and ask for an SDCCH. There is also an indication of the MSes that the NW considers to be present in the pool (if an MS is not mentioned in due time after having reported back, it has to leave).

Functions for power control, DRX and acknowledged data transfer may be added. A call re-establishment like procedure may replace hand-overs.

References:

[1] "Liaison ... on GPRS", Tdoc SMG4 346/93

[2] J. Hämäläinen et al: "Packet Data Over GSM Network"

Exhibit D

DeTeMobil

Deutsche Telekom Mobilfunk GmbH,
Postfach 30 04 63, 53184 Bonn

GPRS Task Group Participants

Ansprechpartner Philip Gilchrist
Direkt Tel: (0228) 936-2701 Fax: (0228) 936-2709
Datum 23. November 1994
Thema Re-organisation of GSM 03.60 (Stage 2)

Dear Delegates,

After our last meeting in Helsinki, a number of updates were made to GSM 03.60 (stage 2). These latest contributions brought our work significantly further on.

However, as the editor of the document and the one to blame, I had the impression that the information contained within the document was not being communicated as clearly as it could be. This showed itself by people asking a number of questions the answers to which should have been obvious from the Stage 2. More tellingly, people outside of the GPRS Task Group to whom I have showed the Stage 2 all said, roughly, the same thing; that the necessary information is in the Stage 2 but it is difficult to find and a little dis-jointed. This was a little depressing but since they all said it, impossible to argue with.

This led me to conclude that the specification had to be re-visited since its purpose is not only to hold information but it must communicate that information clearly and concisely. It was obviously failing this task.

With this in mind I have re-structured the *form* of the Stage 2. I say "form" because I have done my very best not to make any *semantic* changes to the Stage 2. If I have please point them out and I will reverse them.

There were a number of possible frameworks that could be used to explain GPRS's functionality. The important thing is that only one could be used within the Stage 2. I used the movement of the GPRS MS/GSN context between the IDLE, STANDBY and ACTIVE operating states as the best way to communicate ***how*** GPRS works. In doing this I did not add anything new, I just re-focused and summarised what was already present in the text.

I have also normalised the text a little (grammar, spelling and so on). I moved the two functions "Scheduling" and "Geographical Routing" out of GSM 03.60 since GPRS ptm is now the

responsibility of SMG4. Note that this certainly does not assume that ptm and ptp are forever separated.

I am sending this draft version to you as early as possible in order that you have time to read it and make considered comments before our next meeting here in Bonn. Hopefully, your comments can be incorporated before Bonn.

Naturally, all changes are subject to approval during our official meeting and nothing has been presumed.

I hope all this puts the Stage 2 on firmer ground. The goal is only to effectively communicate to others our significant progress. I hope you approve of what I have done.

Wishing you a happy Christmas and prosperous New Year,

Regards,

P. Gilchrist

Philip Gilchrist.

Agenda Item: Stage 2 Matters

ETSI STC TG -GPRS #6

Tdoc 7 /95

GSM 03.60

Bonn, Germany

10-12th January, 1994
Source ETSI STC TG-GPRS

Work Item Title and No: Packet Radio GSM 03.60

Key words: GSM, GPRS Service description, service features

(GSM - Phase 2+)

Stage 2 Service Description Of The General Packet Radio Service (GPRS)

v0.5.0

Not Official

subject to change.

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Table Of Contents

1. Scope

This document proposes a stage 2 service description for a ***General Packet Radio Service (GPRS) On GSM.***

In analogy with CCITT Recommendations I.130 [refer to annex A] and with reference to CCITT Recommendations VI.1 Q.65 [Stage 2 OF THE METHOD FOR THE CHARACTERISATION OF SERVICES SUPPORTED BY AN ISDN], the second stage of the following three level structure is derived from a stage 1 service description.

– Stage 1 : is an overall service description, from the service subscriber's and user's standpoints, that views the network as a single entity which provides services to the user [Ref 1].

– **Stage 2 : identifies the functional capabilities and information flows needed to support the service described in stage 1. Furthermore, it identifies various possible physical locations for the functional capabilities. The output of Stage 2, which is signalling system independent, is used as an input to Stage 3, the design of signalling system and switching Recommendations.**

– Stage 3 : defines the signalling system protocols and switching functions needed to implement the service described in stage 2.

2. Normative References

1] Stage 1 Service Description Of The GPRS, Tdoc SMG1 - 47/94

2] Requirements of GPRS, TR SMG /TG/GPRS 01/94

3] Tentative GPRS System Concepts, Tdoc SMG/TG/GPRS 17/94

4] The GSM System for Mobile Communications, M. Mouly, M.B. Pautet, 1992

5] WD GPRS Definitions, ETSI SMG-TG-GPRS, Version 0.1.1

6] "Universal Geographical Area Definition for PTM Service Types" Tdoc SMG-TG-GPRS 29/94, Stockholm Sweden, 16-17 June 1994, DeTeMobil, ETSI SMG-TG-GPRS#2

3. Definitions and Abbreviations

Refer to: Terms and Definitions WD-GPRS Definitions
PDP: The term "PDP" is used to refer to any given packet data protocol , e.g. IP, or X.25.

4. Main Concepts

4.1. Overview Of Requirements

GPRS shall provide packet mode transfer for applications that exhibit the following data traffic patterns.

- Frequent transmission of small volumes.
- Infrequent transmissions of small or medium volumes.

The PLMN Operator who offers GPRS shall be responsible for transferring data between the service access points at the fixed side, or mobile side, and at the mobile side. The flow of data shall be possible in three scenarios.

- Packets sent from a mobile access point to a fixed network access point.
- Packets sent from a fixed network access point to a mobile access point.
- Packets sent from a mobile access point to a mobile access point via the GSM PLMN infrastructure. This does not exclude an implementation in which MO-MT packets are transferred using the previous two modes.

GPRS shall be distinguished from existing services in two ways.

Firstly, it is required to efficiently use network resources for packet mode applications.

Secondly, the selection of the QoS parameters should be possible.

GPRS shall not prevent the user's operation of existing GSM services.

GPRS shall not be used as a basis for packetised speech.

GPRS shall not be used as a basis for services that duplicate, in terms of performance and cost requirements, existing GSM services.

GPRS is composed of three service types: point-to-point connectionless (PTP-CL), point-to-point connection-oriented (PTP-CO) and point-to-multipoint (PTM) [Ref 5].

These service types should conform to a set of "common requirements". The different types of service are distinguished from one another by their "specific requirements". This relationship is presented in figure 4.1.

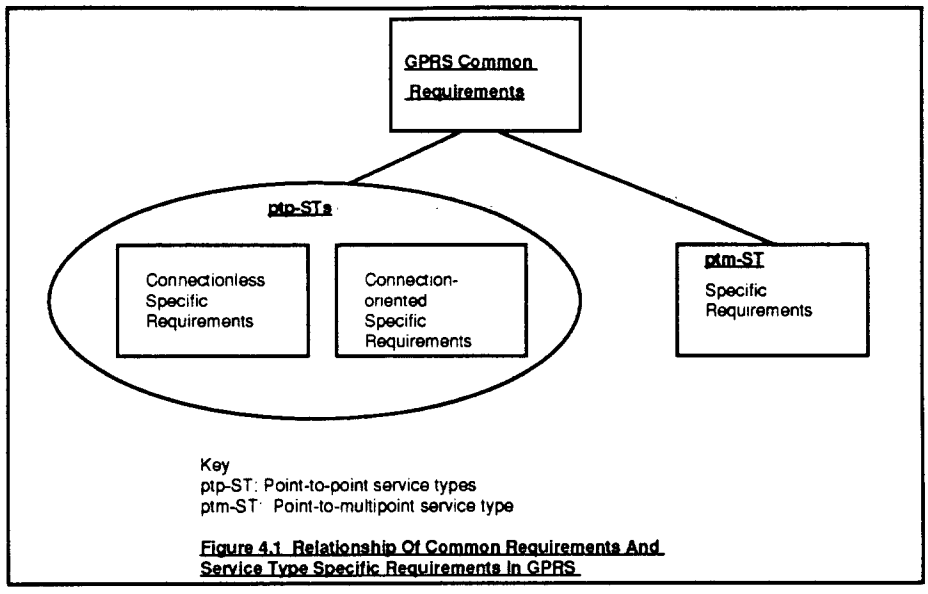


Figure 4.1 Relationship Of Common Requirements And Service Type Specific Requirements In GPRS

Figure 4.2 presents the spread of requirements over the service common part and service specific parts.

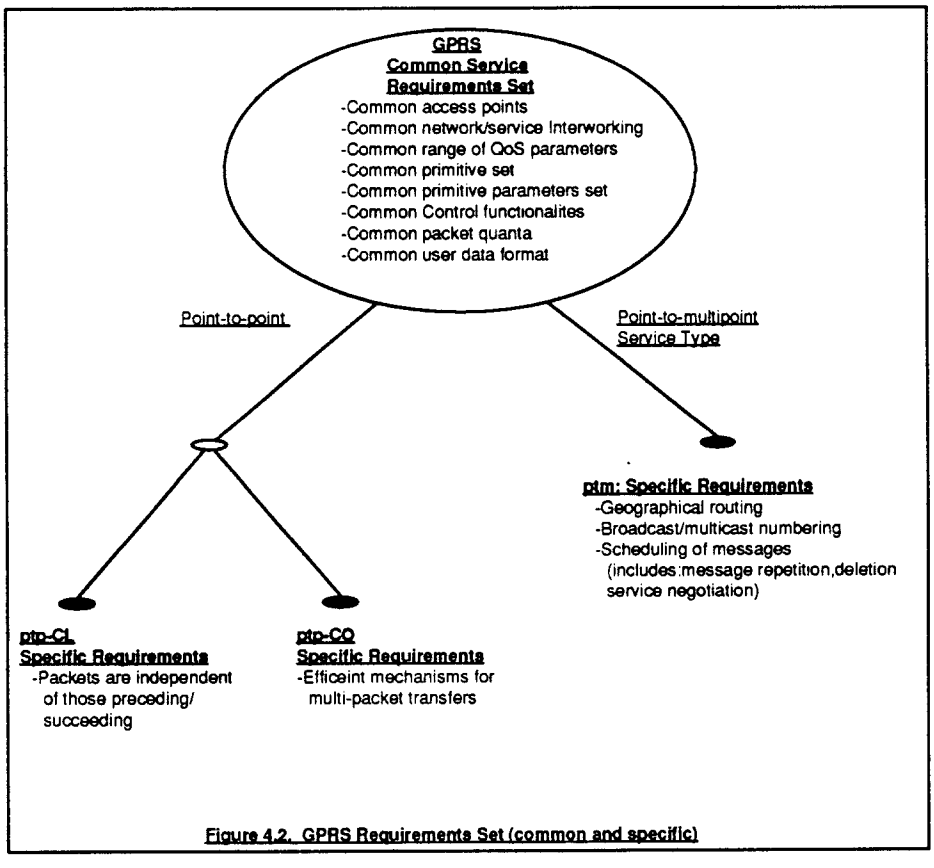


Figure 4.2. GPRS Requirements Set (common and specific)

4.2. Comparison between circuit switched and packet data services

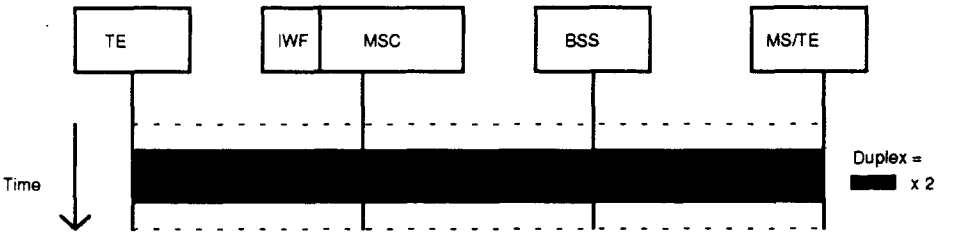
At present, GSM operates in a circuit-switched "End to end" transmission mode in which circuits are dedicated across the NSS and BSS for the sole use of a single communication [Figure 4.3a]. GPRS allows "Link by link" transmission of packets across the BSS and the network part containing the GPRS Support Node

and NIWs, in separate, distinct stages [Figure 4.3b]. For example, once a packet has been transmitted across the Um interface, Um resources can be released for other subscribers. The packet then travels out of the BSS towards its final destination. This can be defined in terms of "Context Reservation" and "Resource Reservation".

Context Reservation is the preservation of network information necessary to support a service request in ACTIVE mode and to continue a service request from the in active state.

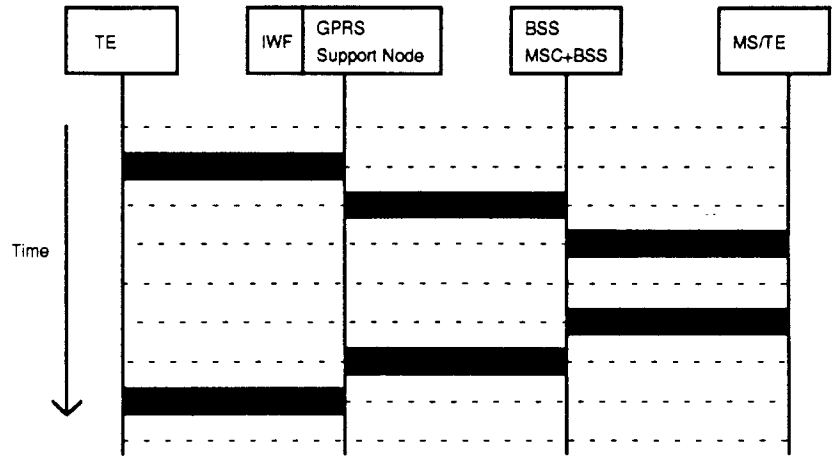
Resource Reservation is the dedication of physical communication resources during a service request.

In GSM's circuit-switched "End to end" transmission mode, both Context Reservation and Resource Reservation occur for the life-time of the call. In GPRS's "Link by link" packet transmission mode, only the Context Reservation lasts for the life-time of the call. Resource Reservation occurs on demand when there is data to send.



Key
: Communication resource is not in use. It is free for other service requests to use.
:Single communication resource is in use.

Figure 4.3a. Circuit Switched Nature Of Present GSM Transmission "End To End" Dedication Of Resources



Key
- - Communications resource is not in use. It is free for other service requests to use.
Single communications resource is in use.

Figure 4.3b. "Link by link" Nature Of GPRS Packet Transmission
No "End To End" Dedication Of Resources

5. General GPRS Architecture and Transmission Mechanism

5.1. GPRS External Interfaces and Reference Points

Each GPRS PLMN has three external reference points. Figure 5.1 depicts these interfaces and the reference points between the MT and the TE in the MS.

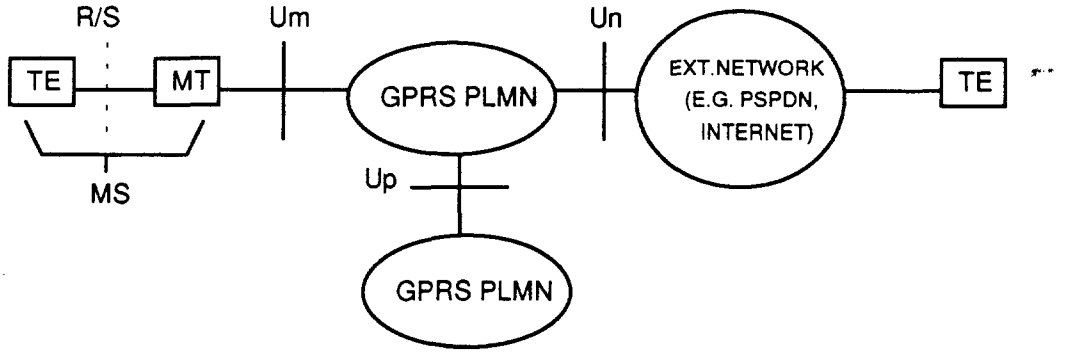


Figure 5.1 GPRS External Interfaces and Reference Points

- Um: The interface between the MS and the GPRS PLMN.
  The Um interface is the GPRS PLMN's interface for providing packet data services over the air to the MSs. MSs use MTs to access GPRS PLMN services through this interface.
- Un: The interface between the GPRS PLMN and an External Network.
- Up: The interface between two co-operating GPRS PLMNs.
  The Up interface allows support of GPRS network services across areas served by the co-operating GPRS PLMNs.
- R: The reference point between a non- ISDN compatible TE and the MT. Typically, this reference point will support a standard serial interface or a standard application program interface (API)
- S: The reference point between an ISDN compatible TE and the MT.

5.2. General Transmission Mechanism For GPRS

The mechanism described below is one of several possible scenarios FFS.

The general mechanism for GPRS data communication is shown in figure 5.2. It will support many external PSPDN networks. Internally, GPRS will encapsulate external PDUs and then transport these throughout the Home or Non-Home PLMN towards the PLMN's interface with the destination TE. At this interface, de-encapsulation of PSPDN PDUs will occur.

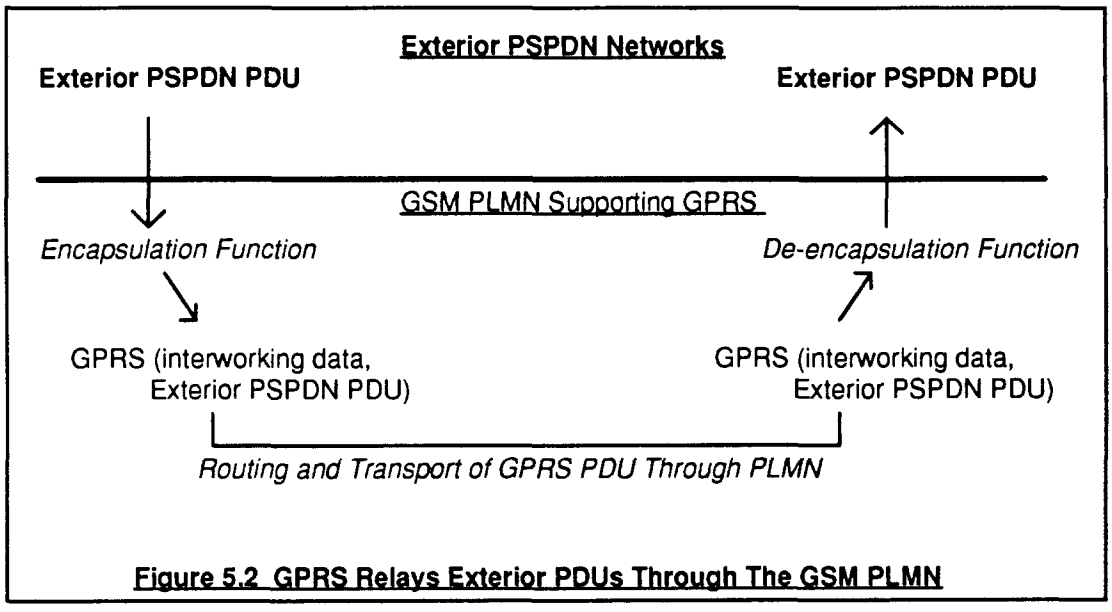
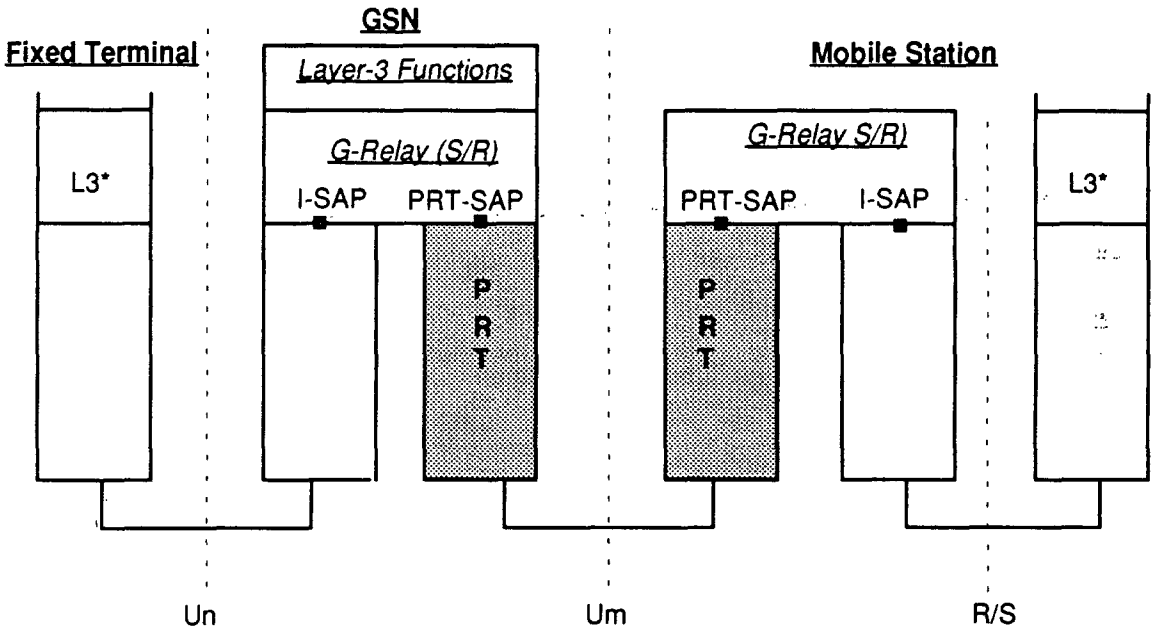


Figure 5.2 GPRS Relays Exterior PDUs Through The GSM PLMN

This general model is further decomposed. This is shown in figure 5.3.



Where, I-SAP is the Interworking Service Access Point
and PRT-SAP is the Packet Routing and Transport Service Access Point

Figure 5.3 Detailed GPRS Data Communication Model

For definition of "GSN", see below.

This model can be interpreted in the following way.

- Layer-3 Equivalent functions: This includes localisation (classic/new GPRS/ hybrid schemes) functions (FFS).
- G-Relay: This function manages interconnection/interworking to exterior networks. It encapsulates PDUs at the source side of the communication and de-encapsulates PDUs at the destination side of the communication.
- GPRS-PRT (Packet Routing and Transfer): This function reliably transports the encapsulated PDUs, i.e. the output of G-Relay, across the GSM PLMN *(Refer to Packet Routing and Transfer function).*

5.2.1. GPRS Support Node

This node is defined as the location of functionality, but not necessarily all the functionality, required to support GPRS (FFS). In one PLMN, there may be more than one GPRS Support Nodes [Ref 3].

The **Home GPRS Support Node (HSN)** is the node which is accessed by the packet data network due to evaluation of the PDP (Packet Data Protocol) address . It can retrieve routing information and relate the MS's network address to a unique mobile identity (e.g. IMSI).

The **Visitor GPRS Support Node (VSN)** is the node that is serving the MS.

Aspects of integration with the HLR are FFS.

5.2.2. GPRS Register

The GPRS Register contains a mapping

(PDP-type. PDP-address) -------> IMSI

(where PDP-type is an identification of the PDP type [or: of the address type, FFS].)

Note: The mapping may be n-to-1.

6. Functional model

A ptp GPRS Subscriber/GPRS Support Node context (hereafter termed "ptp GPRS context") exists in one of three operating states. These are defined as follows;

- IDLE: As defined in classic GSM.
- STANDBY: The subscriber has logged onto GPRS but is not sending or receiving PDUs.
- ACTIVE: The subscriber is sending or receiving PDUs.

The movement of a ptp GPRS context between these states in driven by the current state and the functions invoked in that state. These state transitions are summarised below in Figure 6.1.

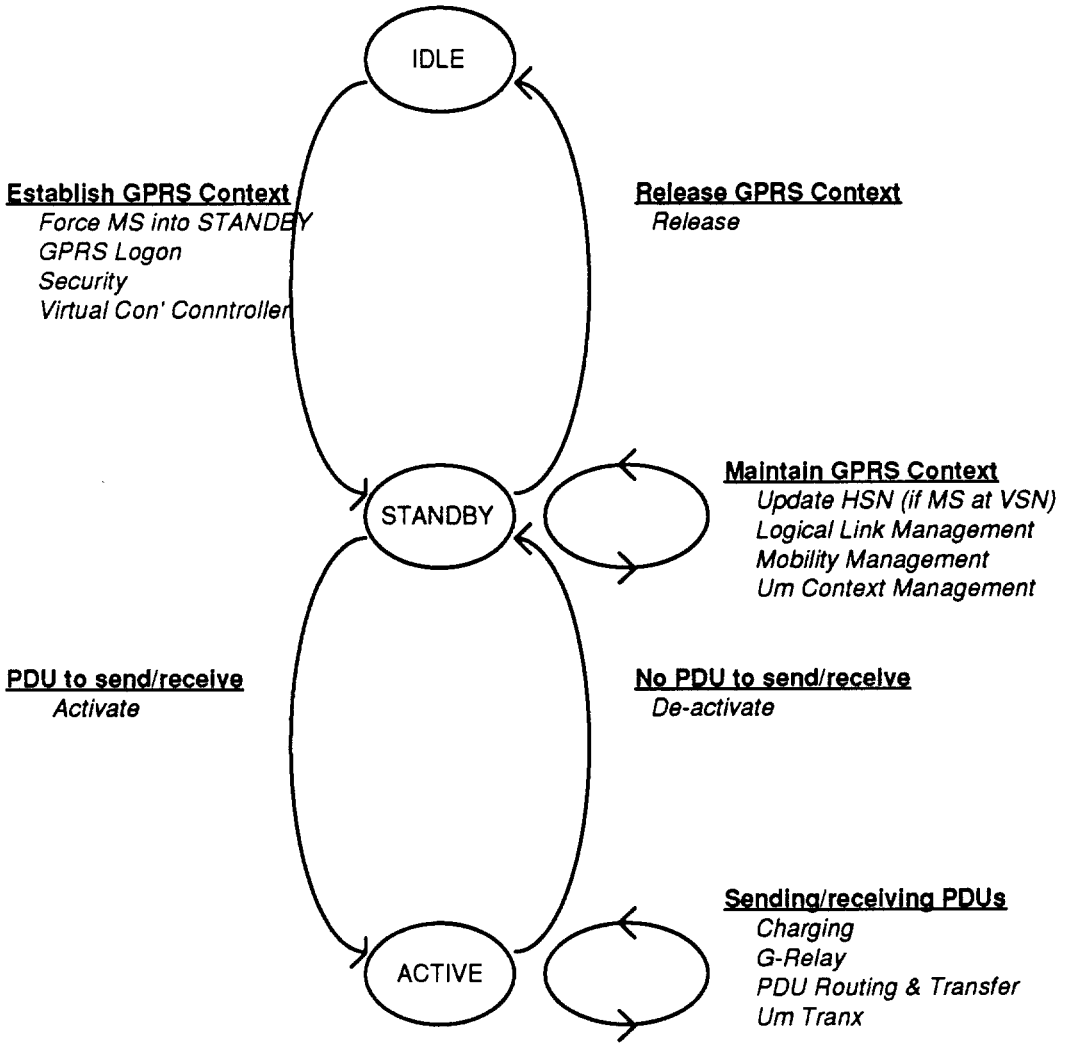


Figure 6.1 GPRS Context: Functional Model in Terms of States and Functions

Figure 6.1 can be read as follows;

Moving from IDLE to STANDBY (Establish GPRS Context)

- Force MS into STANDBY. The PLMN "pages" forcing the MS to access.

- GPRS Logon. The MS requests access. Provides its identity.
- Security. Network initiates Authentication and ciphering.
- Virtual Connection Controller (VCC). A ptp context is established.

Moving from STANDBY to IDLE (Release GPRS Context)
- Release. MS terminates GPRS context or PLMN loses MS.

Remaining in STANDBY (Maintain GPRS Context)
- Update Home GPRS Support Node (if MS is at a VSN)
- Logical Link Management (LLM). Establishes logical link management
- Mobility Management Support. The localisation of the MS is maintained.
- Um Management. Maintenance and retrieval of Um context

Moving from STANDBY to ACTIVE (Data to send/receive)
- Activation. MS asks PLMN to transmit data.

Remaining in ACTIVE (Sending / Receiving)
- Charging. Collects information necessary for billing.
- G-Relay. PDUs are ciphered (opt), compressed (opt) and encapsulated in GPRS PDU.
- Packet Routing & Transfer. GPRS PDUs from G-Relay are transport through the PLMN.
- Um-Tranx. PDU are transmitted over the Um interface.

Moving from ACTIVE to STANDBY (No more data to send/receive)
- De-activation. MS or PLMN has no more data to send.

6.1. Moving from IDLE to STANDBY (Establish GPRS Context)

The functions invoked are :

6.1.1. Description of Force MS into STANDBY function

This is invoked when a PDP PDU has arrived at the HSN addressed to an MS for whom no GPRS STANDBY context yet exists. This is executed in the following way.

1. The HSN interrogates the GPRS register and retrieves the IMSI (assuming that the user has registered, see "Registration" below).

2. The HSN detects that no STANDBY relation exists for the IMSI.

3. The MS is paged for GPRS and asked to enter STANDBY mode (in a way similar to paging and MT SMS data transfer). The MS then tries to access the network (see GPRS Logon).

6.1.2. Description of GPRS Logon function

The MS originates the request to move to STANDBY by "logging on". This includes;

- accessing the network and
- making its identity (the IMSI) known to the serving GPRS Support Node (which maybe a Home or Visited SN).

6.1.3. Description of Security (Sec) function

The Security function will:

a) guard against unauthorised GPRS service usage (authentication and service request validation).

b) provide user identity confidentiality (temporary identification and encryption)

c) provide user data confidentiality (encryption).

6.1.3.1. Authentication Of Subscriber

Authentication procedures already defined in classic GSM will be used. However, the RR resources used to transfer authentication information are FFS.

6.1.3.2. Identity Confidentiality (temporary id's)

FFS.

6.1.3.3. User Data Confidentiality (ciphering)

6.1.3.3.1. Scope Of Ciphering

In contrast to the scope of ciphering in classical GSM (a single logical channel between BTS and MS), the scope of GPRS ciphering is from the ciphering function at the GPRS Support Node to the ciphering function in the MS.

From the perspective of the classic GSM MS-BTS radio path, a GPRS PDU is transmitted as plain text.

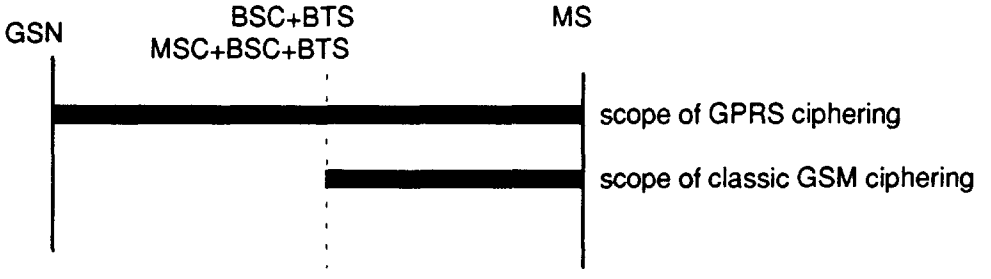


Figure 6.2 Scope Of GPRS Ciphering

6.1.3.3.2. Setting Of Cipher Mode

Control of the invocation of the ciphering function will remain with the network. The GSN and MS will exchange ciphering information. This will be transparent to the BSS (or MSC + BSS).

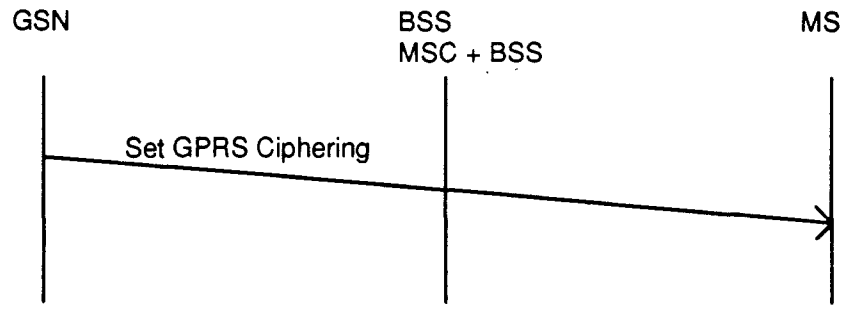


Figure 6.3 Setting of GPRS Cipher Mode

6.1.3.3.3. Ciphered Data Transmission

For the transmission of PDUs a distinction between GPRS signalling information and the subscriber data should be made. On a common communication resource a MS must be able to interpret all signalling information while at the same time the privacy of an individual subscribers data should be preserved (optionally).

Therefore, in principle, the GPRS protocol header should not be ciphered and the external PDU should be ciphered (FFS).

6.1.3.3.4. GPRS Ciphering Algorithm

The classic ciphering algorithm (A5) uses the frame number (22bits) and Kc (64bits) as inputs and outputs (114bits) -- the length of a radio burst. This is unsuitable for GPRS since the frame number will not be known at the GSN and the ciphering function may have to be at a higher level than the burst structure since, for example, both plain and ciphered text will be transmitted in the same PDU. A new ciphering algorithm will be required (FFS).

In order to reduce key management complexity the algorithm should use the already defined Kc.

6.1.4. Description of Virtual Connection Controller (VCC) function

The PTP-CO Virtual Connection Controller function will:

a) establish a virtual connection context between a calling party and the called party during set-up and to then remove it on clear-down. The exact contents of the context is *FFS.*

b) Maintain and update routing information for both the calling and called parties and provide this information in a format suitable for the packet relay functions.

6.1.5. Description of Registration function

The function may be invoked "on-line" or "off-line".

An MS is identified by an IMSI. An external Packet Data Standard (PDS) address will be associated with this IMSI, either temporarily or permanently. More than one PDS address may be associated with the same IMSI at the same time.

The relationship will be stored in the GPRS Register. It will contain the mapping;

(PDP-type. PDP-address) -------> IMSI (*PDP=Packet Data Protocol*)

(where PDP-type is an identification of the PDP type [or: of the address type, FFS].)

Note: The mapping may be n-to-1.

The registration procedures are FFS. However their definition is uncritical.

6.2. Moving from STANDBY to IDLE (Release GPRS Context)

The functions invoked are:

6.2.1. Description of Release function

The Visitor GPRS Support Node or the mobile station may explicitly ask for termination of the STANDBY mode. At least the network must apply further means to terminate STANDBY mode when the mobile station is probably lost.

6.3. Remaining in STANDBY (Maintain GPRS Context)

The functions invoked are:

6.3.1. Description of Update Home GPRS Support Node function

This function is only meaningful at the Network Subsystem (NSS) level and does not directly involve the MS or BSS.

The addresses of PDP packets coming into the PLMN from an exterior network will be evaluated and routed to the HSN. However, the MS may have a GPRS STANDBY context at a VSN. In order to receive the PDUs arriving at the HSN, the VSN has to provide routing information to the HSN informing it of the MSs serving VSN. The PDUs at the HSN may then be routed to the MS via the VSN. This task is achieved by;

- the VSN determining the HSN
- the VSN informing the HSN

6.3.1.1. Description of VSN Determining The HSN function

Three possible alternatives can be distinguished for a roaming MS to inform the Visitor GPRS Support Node (VSN) about the identity and address of the Home GPRS Support Node (HSN). These need not be mutually exclusive. However, the choice has an impact on the subsequent packet transmission scheme.

1. The IMSI is used to determine the address of the HSN (the IMSI may be explicitly transferred to the VSN or, e.g. fetched from the VLR).

2. The Packet Data Protocol address is used to determine the address of the HSN. The MS can be requested to transmit its PDP address to the VSN, if necessary.

3. The HSN address shall be transmitted from the HSN to the MS once and is then stored (on the SIM - FFS). It can be transmitted to the VSN, if necessary.

Note that in method 2, the PDP address(es) attached to a STANDBY session must be known to the VSN.

6.3.1.2. Description of VSN Informing The HSN function

The VSN informs the HSN of the presence of the IMSI; this information includes a "tunnelling description". The tunnelling description defines how (by which protocols, to which address) the HSN shall forward PDP-data to the VSN.

This is partially dependent from the method used in "VSN Determining The HSN". Two possibilities exist:

1. A very simple additional protocol is inserted, which contains the IMSI and an identification of the PDP. The HSN encapsulates PDP PDUs into this new protocol (or, for non-methodologists: adds PDP identification and IMSI to each PDU) and forwards the resulting PDU as the data part of the tunnelling protocol.

2. The VSN knows the relation between PDP-address(es) of the MS PDP user and the STANDBY context. In this case it is sufficient to directly encapsulate the PDP PDUs as data into the tunnelling protocol.

Example of method 1: The tunnelling information might say: "Use X.25 to a given VSN address". The PDP might be IP. The HSN adds the IMSI and identification "IP to be used" to every IP PDU it routes to the mobile IP user. The resulting [IMSI+IP Flag+PDP PDU] is encapsulated into X.25 as user data, sent via X.25 ports to the VSN. It is then de-encapsulated. It is then determined that the IP data is to be forwarded to the indicated IMSI and the STANDBY context is retrieved and moved to the ACTIVE state.

Example of method 2: The tunnelling information might say: "For transport of IP PDUs, use X.25 to this VSN address". The HSN encapsulates incoming IP packets into X.25, they are sent via X.25 ports to the VSN and there de-encapsulated. It is known that IP data is to be forwarded, the IP address is evaluated, the STANDBY context is retrieved, ...)

[The protocol for the VSN to inform the HSN should belong to the GSM Standard. Usage of MAP is recommended.]

6.3.2. Description of Logical Link Management (LLM) function

A specific Logical Link connection is identified by a Temporary Logical Link Identity (TLLI) allocated to the MS by the serving GSN when entering STANDBY.

The Logical Link Management function will:

a) establish, maintain, and release a logical link layer connection between the GSN and MS,

b) handle transfer of logical link PDUs between the GSN and MS.

c) supervise the MS activity on the logical link.

Establishment of a logical link layer connection may be a part of the establishment of the STANDBY allowing an MS access to the GPRS services subscribed to.

6.3.3. Description of Mobility Management Support (MMS) function

6.3.3.1. Description of Roaming (Roam) function

[Open issue]

The Roaming function will:

a) enable GPRS subscribers to roam regionally.

b) enable GPRS subscribers to roam nationally.

c) enable GPRS subscribers to roam internationally

Where "roaming" is the use of the subscriber-specific part of the mobile station (i.e. the SIM) in visited regions or networks. This type of roaming is independent of the radio characteristics of a mobile station and PLMN. In the case of GPRS, this definition could be reinforced to explicitly include all data telecommunications (e.g. PSPDN/ISDN-PS), whether these be "wire-accessed or radio-accessed, since the network aspects of the roaming issue do not depend on the access scheme used [Ref 4]".

6.3.3.2. Description of Location Management (LocM) function

The Location Management Support function will:

a) provide mechanisms for cell and PLMN selection

b) provide the location of the subscriber to an area with sufficient accuracy, that a packet may be directed at that area (in a manner similar to the *paging* procedure). The trade-off between managing subscriber mobility to the level of the cell, or viewing the entire network as a single cell should be studied further. The suitability of using Location Areas, already defined in *The Technical Specifications,* as the compromise between the given extremes should be studied further.

6.3.4. Description of Um Management (UmM) functions

The following functions are defined during the GPRS-standby mode:

- Establishment
- Maintenance
- Retrieval
- Release
- Activation
- Optimisation functions like DRX (FFS.).
- Data link function (FFS)

Establishment:

Different solutions are possible and may co-exist e.g.:

- The mobile station establishes STANDBY mode when an RR-connection exists by logging in.
- The mobile station establishes STANDBY mode by accessing the GPRS channel, logging in. It then listens to the GPRS channel.

Maintenance:

When the quality in a cell becomes too poor and other (GPRS capable) cells are preferable (FFS) and the mobile "wants to stay" in STANDBY mode, a "STANDBY re-establishment"/"STANDBY reselection" is applied. This process may differ from the normal cell re-selection in order to avoid oscillation and too frequent cell changes.

When the mobile is in STANDBY mode, the network has to be informed about every change of cell/BSS-area/MSC-area (depending on the solution) by the mobile station (the assumption is made that network controlled hand-overs are not used for GPRS transmission phases). It is FFS whether the re-routing information is only passed to the first node which has physical means to re-rout (typically the BSC) or to the Visitor GPRS Support Node (probable solution).

Retrieval:

When the mobile station in STANDBY mode looses and re-gains radio coverage, the way to retrieve the STANDBY mode, if wanted, may differ from the process described for maintenance, this is FFS.

6.4. Moving from STANDBY to ACTIVE (Data to send/receive)

The functions invoked are :

6.4.1. Description of Activation function

The MS may ask for permission to transfer data. It enters ACTIVE mode when permission is granted by the network. The network may also instruct the MS to enter ACTIVE mode in order that data may be received. The extent of ACTIVE mode to cover functions like fast delivery, DRX, and so on, is for further study.

The following subfunction(s) have to be defined for the GPRS-ACTIVE mode:

- Data protection (HDLC, ARQ) against transmission errors (FFS)
- De-activation, continuation, etc. (FFS)
- Transmission between mobile PDP user and VSN

6.5. Remaining in ACTIVE (Sending / Receiving)

The functions invoked are :

6.5.1. Description of Charging (Chg) function

The Charging function will:

a) collect data to support,

- Subscription fees. Subscribers pay a regular fee for a fixed period.

- Traffic fees. In contrast to traditional telephony traffic fees, traffic fees in GPRS are a function of the volume of data, the type of service request and the QoS. Techniques to measure data volumes to be studied should include simple byte counting and advanced statistical sampling of data traffic. It should be possible to tariff GPRS use in the same manner as public packet switched data networks.

Reverse charging should be provided as an option.

6.5.2. Description of G-Relay function

The following 5 functional steps are invoked in the G-Relay.

Step 1
An exterior PDU is received from the SAP corresponding to the packet data standard used by the interworked PDN. This exterior PDU becomes an SDU. There will be a SAP per protocol standard (e.g. an X.25-SAP, an Internet-SAP and so on). In this way, the PLMN infrastructure is protected from changes in external standards or the addition of new networks to the suite of interoperable PSPDNs.

It should noted that it is possible for an MS to have more than one SAP active at one time (e.g. parallel transactions using an X.25-SAP and IP-SAP),

Step 2
The SDU received from the SAP corresponding to the PDU's protocol is processed. This has been called "Sending G-Relay function (figure 6.4a)". Processing will include;

- Interpretation of SDU's header in order that a GPRS header is produced. The invocation of specific functionality in dependent upon the operating context. The exact functionality invoked depends upon whether it is invoked in the GSN (e.g. Subscription check, obtaining routing info) or in the MS (e.g. default routing to GSN);
- Compression the SDU if required and possible;
- Ciphering of SDU if required; and
- Construction of a GPRS PDU containing GPRS Header Info and the (un)compressed, (un)ciphered SDU.

Step 3
The GPRS PDU is passed to the Packet Routing and Transfer SAP. The PRT will deliver the GPRS PDU to the peer entity.

Step 4
The GPRS-PDU is received from the PRT SAP. The "Receiving G-Relay function (figure 6.4b)" is invoked to process the PDU. Processing includes;

- Interpretation of GPRS PDU header;
- (De)ciphering of SDU part if required;
- (De) compression the SDU if required and possible and;
- De-encapsulation (Recovery) of the original SDU.

Step 5
The SDU is sent to the SAP corresponding to the packet data standard (e.g. X.25-SAP , IP-SAP) contained in the SDU and thereby to the I/O port. Beyond this SAP the SDU becomes the exterior PDU. Note that more than one SAP may be active at the same time during parallel transactions.

Figure 6.4a
Sending G-Relay Functionality

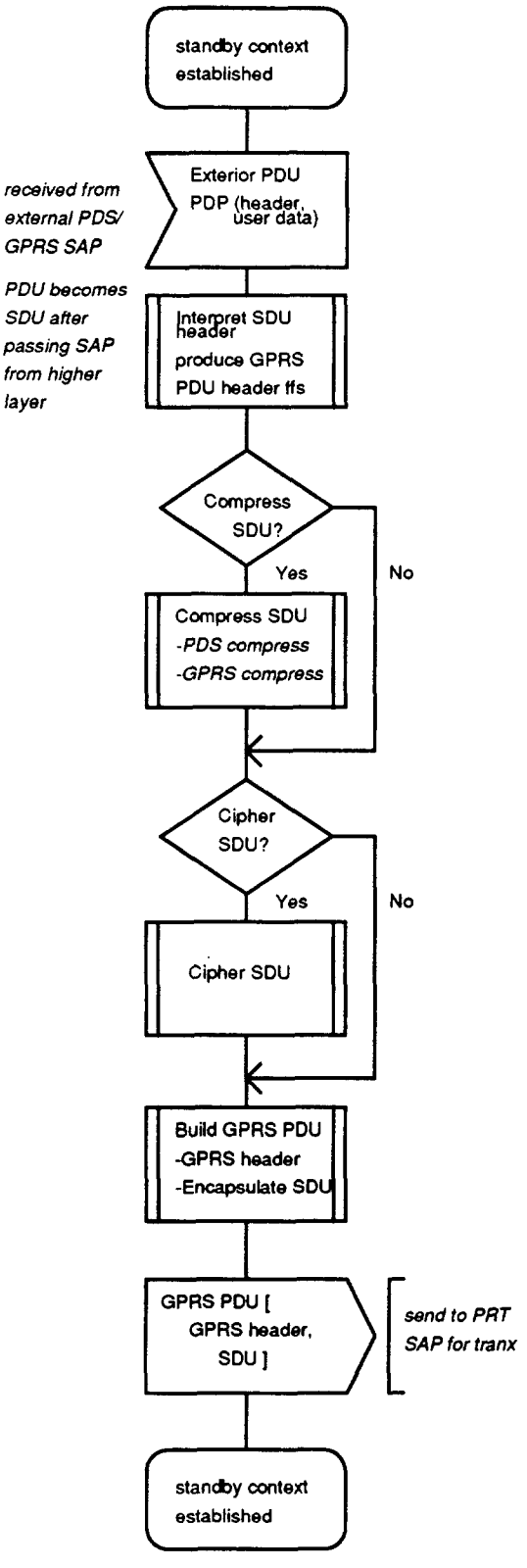
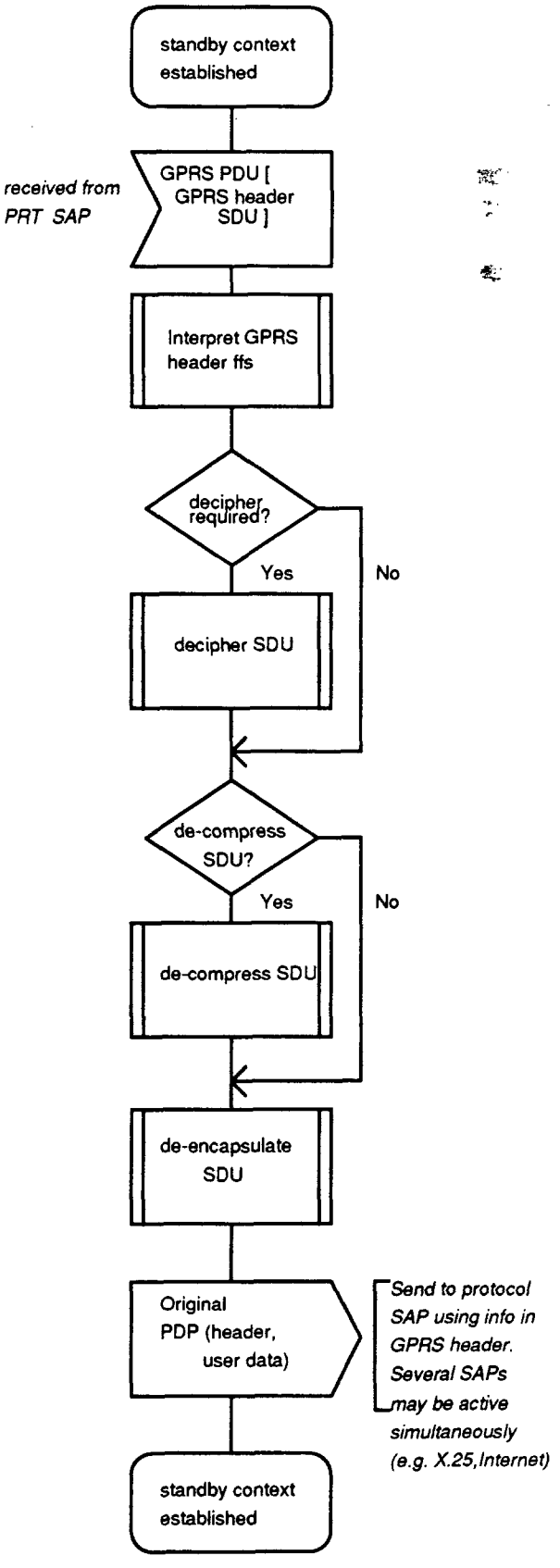


Figure 6.4b
Receiving G-Relay Functionality



6.5.3. Description of Packet Routing and Transfer (PRT) function

The Packet Routing and Transfer function will :

a) route and transfer packets between mobile TE and external network, i.e. between the reference points "R" or "S" and interface Un in figure 5.1.

PDUs are routed directly routed to/from VSN (or HSN) to destination. (Note: A variant would be that the VSN tunnels the uplink data to the HSN.)

b) route and transfer packets between mobile TE and other GPRS PLMN, i.e. between the reference points "R" or "S" and interface Up in figure 5.1.

c) route and transfer packets between TEs within the same GPRS PLMN, i.e. between the "R" or "S" interface in different MSs in figure 5.1.

6.5.4. Description of Um-Tranx (UmT) function

The Um-Tranx (Um management/interface) function will:

a) provide radio resources for packet transfer;

b) multiplex several packet transfers over common physical radio resources. The multiplexing of packet transfers should be possible over many logical channel types whether these exhibit low capacity/high delay (signalling channels), high capacity/low delay (traffic channels) or future channels of very high capacity/very low delay (from one time-slot upto an entire 200kHz carrier).

c) handle the medium access control and physical layer functions on the Um air interface including Random access, Paging, Channel reservation (e.g. ARQ), Channel (De)Coding, (De)Interleaving, Burst Formatting, and (De) Modulation. The details of this are *FFS*.

d) filter out packets, within the MS's Mobile Termination, not intended for the subscriber at the lowest possible level.

6.6. Un-assigned Functions

In the re-structuring of this document, no suutable place was found for these functions.

6.6.1. Description of Packet Terminal Adaptation (PTA) function

The Packet Terminal Adaption function will:

a) adapt packets received/transmitted from/to Terminal Equipment to a form suitable for transmission within GSM.

A range of MT versions providing different standard interfaces towards TE will be used (FFS), e.g.

- *MT with asynchronous serial interface and PAD (Packet Assembly/Disassembly) support (e.g. AT command set PAD, X.28/X.29/X.3 PAD).*
- *"Integrated MT" with industry standard Application Program Interface (API).*
- *MT with synchronous serial interface (e.g. IP, X.25)*

6.6.2. Description of Network Management (NM) function

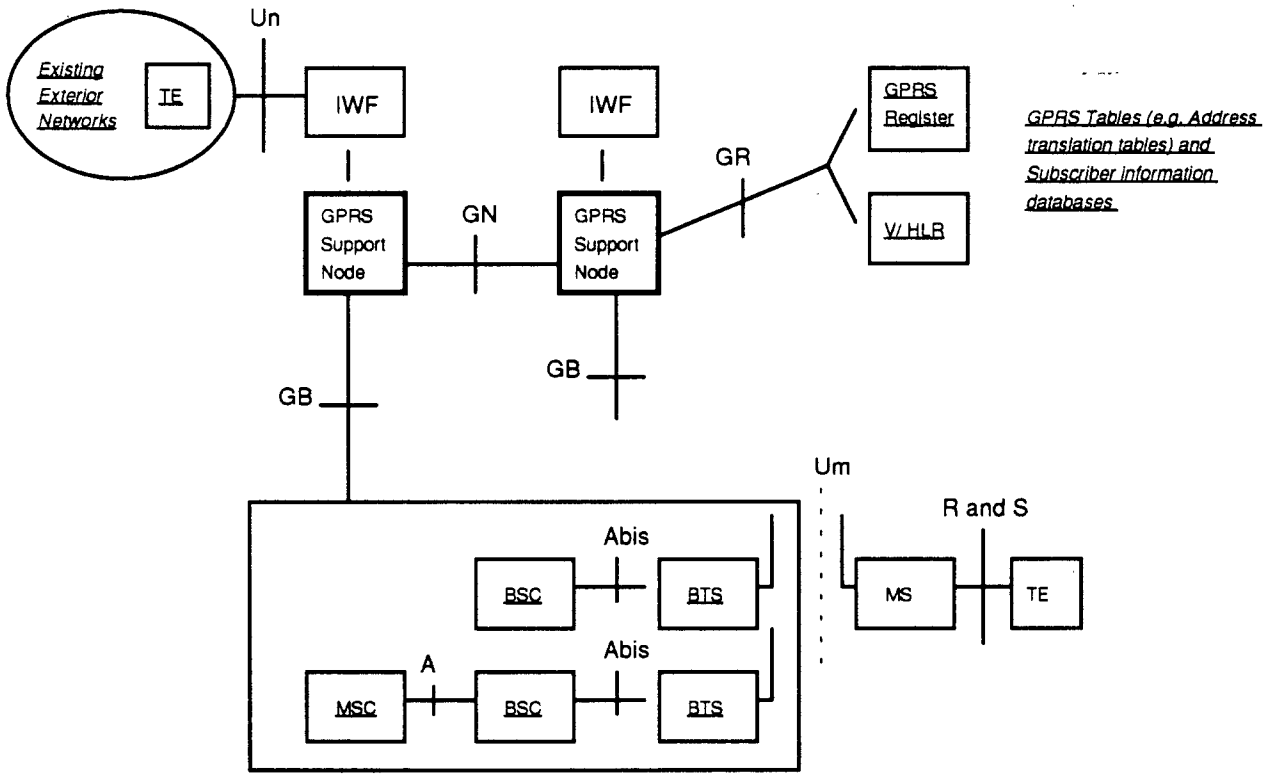
The Network Management function will:

a) provide mechanisms to support O&M functions related to GPRS

6.7. Logical Architecture

GPRS is logically implemented on the classic GSM structure through the addition of two network entities, the **GPRS Support Node** and the **GPRS Register** [Figure 6.5]. In support of these entities, it is necessary to name four new interfaces. No inference should be drawn about the physical configuration of an interface from this figure.

- GN: The interface between GPRS Support Nodes.
- GR: The interface between a GPRS Support Node and the GPRS register and existing location registers.
- GB: The interface between a GPRS Support Node and either an MSC+ BSS configuration or a BSS only configuration supporting GPRS[1].
- Un: The GPRS user-network interface between the NIW and the Terminal Equipment (TE)



Key

< : Represents two possibilities. These may not be mutually exclusive.

Figure 6.5, Overview Of GPRS Logical Architecture

[1] Some functionality found in the MSC may be utalised for the GPRS. This is FFS.

6.8. Assignment Of Functional Entities To General Logical Architecture

The functionalities identified in the functional model will be assigned to the logical architecture. Figure 6.6 represents one scenario. There will be serveral possible scenarios.

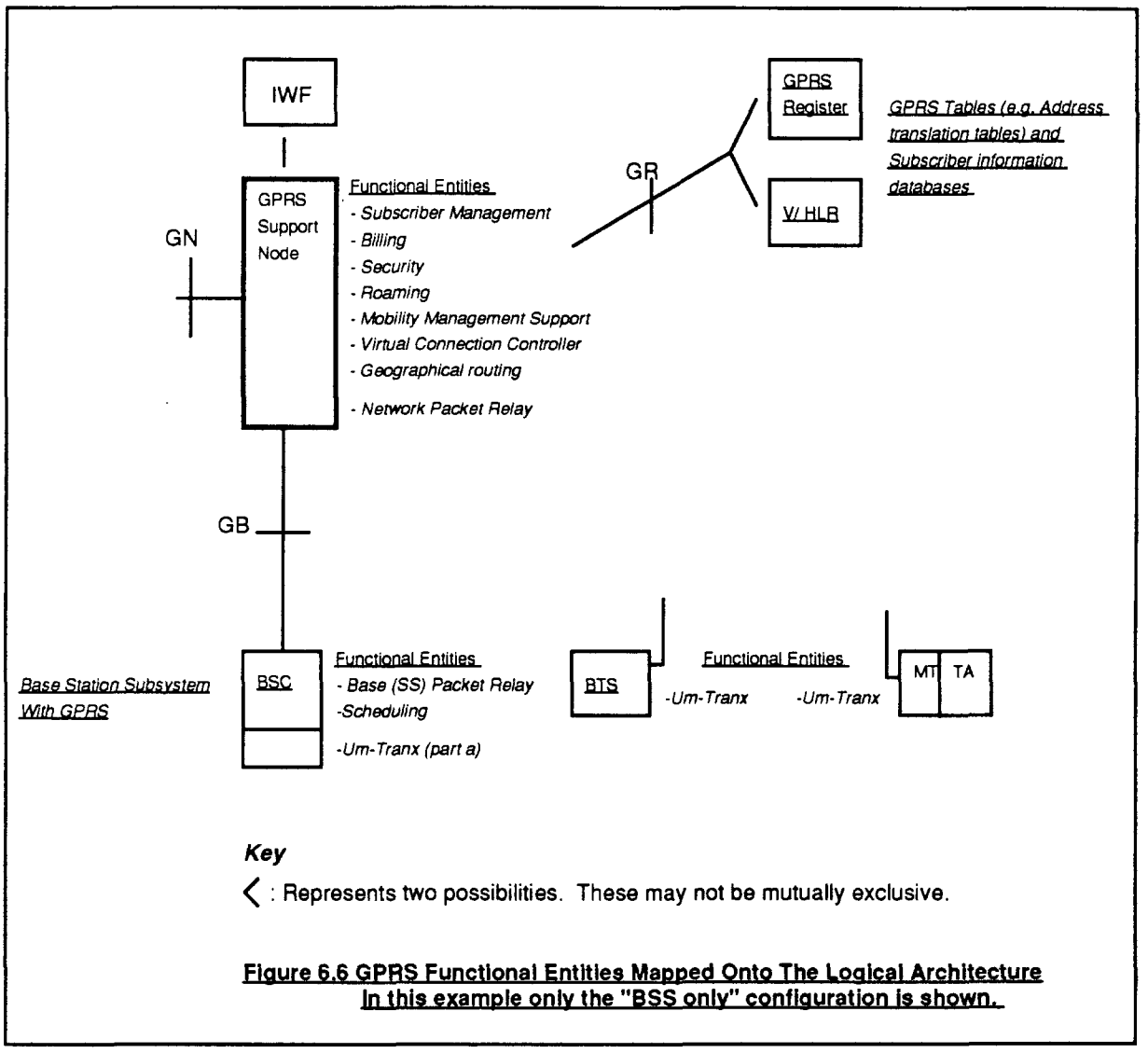


Figure 6.6 GPRS Functional Entities Mapped Onto The Logical Architecture
In this example only the "BSS only" configuration is shown.

7. Compatibility Issues

FFS

8. Transmission

8.1. GPRS Protocol

The GPRS Protocol is meaningful between the GPRS Support Node and the MS. It supports the operation of the Sending and Receiving G-Relay functions. GPRS PDUs are divided into two general sets; GPRS command PDUs (e.g. "logging on" when the MS moves from "ACTIVE" to "STANDBY" mode) and data transfer (when the MS is in "STANDBY" mode) .

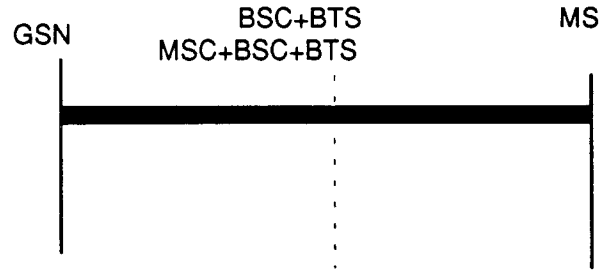


Figure 7. 5 Scope Of GPRS Protocol

The GPRS Protocol has been called the "GPRS Header".

8.1.1. GPRS Protocol Structure

A GPRS PDU will contain the following information.

- A new protocol discriminator (PD = GPRS)
- Message Type (two possible sets: commands and data transfer)
- Mobile Id (over the radio interface a temporary logical link identity is used).
- Type of PDS (e.g. X.25, Internet)*(Note 1)*
- Exterior PDU carried as user data (i.e. becomes an GPRS PDU's SDU)

Note 1, This is necessary in order that the PDU can be passed to the correct Packet Data Standard -SAP in the case of parallel transactions (e.g. a X.25 connection and IP connection is established).

8.2. Information transfer protocol model

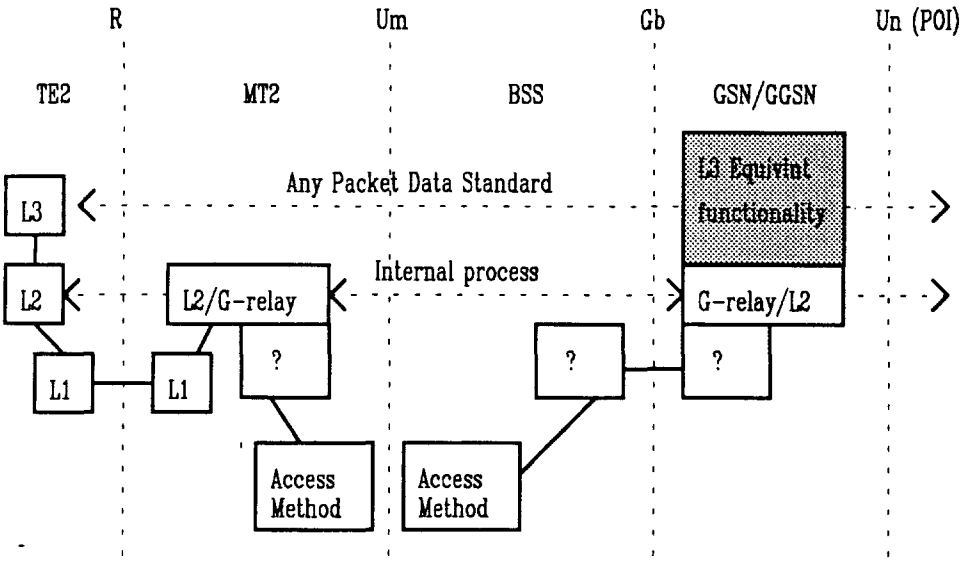


Figure 7.5 Information Transfer Protocol Model For GPRS PLMN Connection

8.3. Example information flow

These figures present one example of how an exterior PDU could be transported through GPRS.

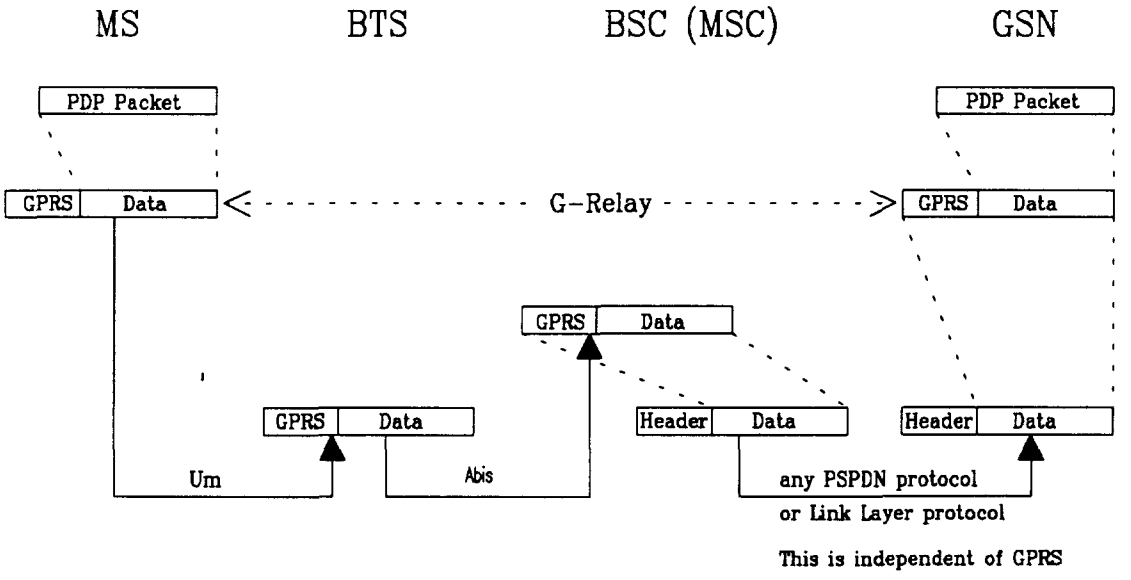


Figure 8.1. Mobile Originated Data Transport

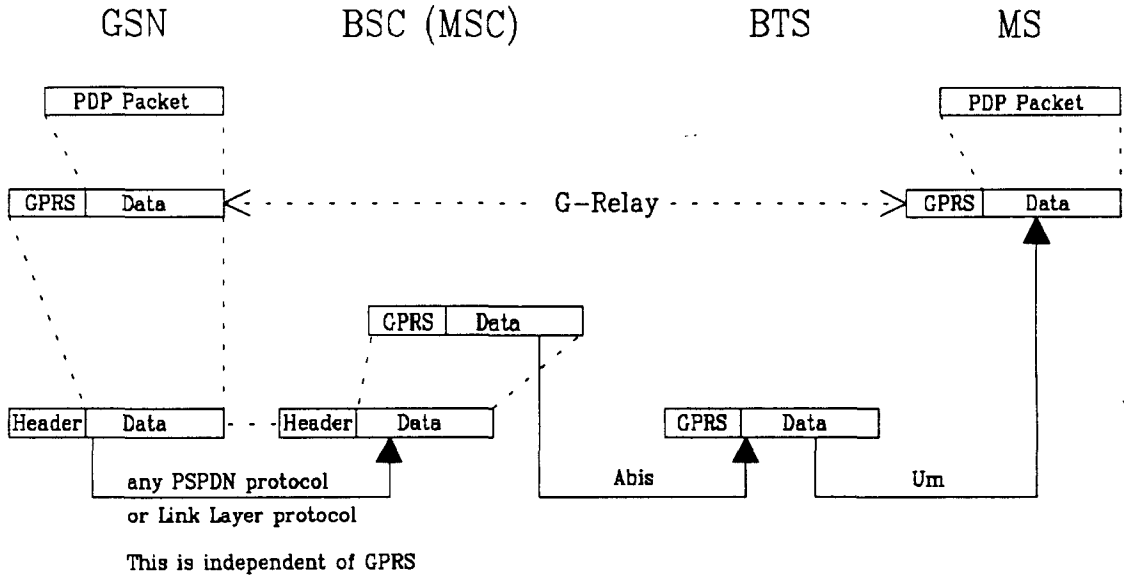


Figure 8.2. Mobile Terminated Data Transport

9. Information Storage

FFS

10. Identities

FFS

11. Operation aspects

FFS

12. Functions and Information Flows

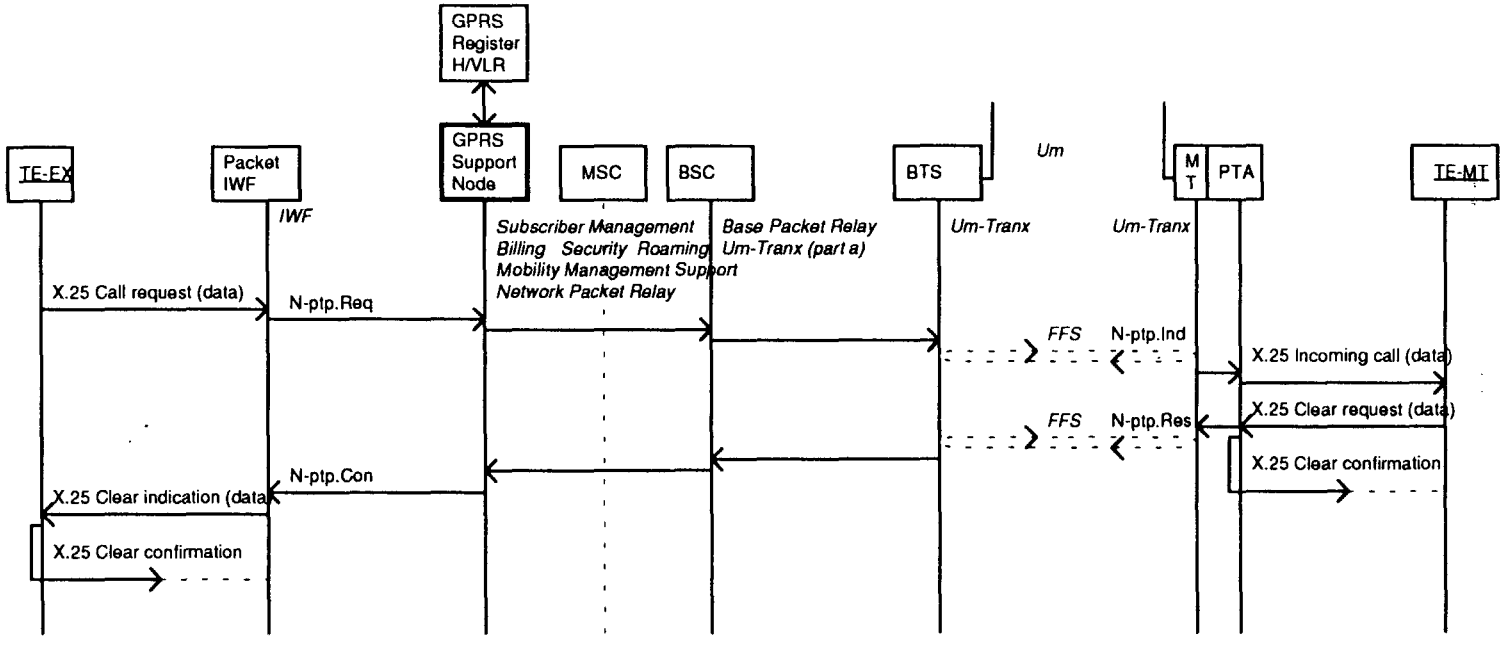
See Annex A .

13. Interactions with other features

FFS

Key

TE: Terminal Equipment
BSC: Base Station Controller
GPRS Register: Database forming integral part of GPRS
GPRS Support Node: Functionality forming integral part of GPRS
BTS: Base Transceiver Station
Packet IWF: Packet Interworking Function
MT: Mobile Termination
MSC: Mobile Switching Centre
PTA: Packet Terminal Adaptation



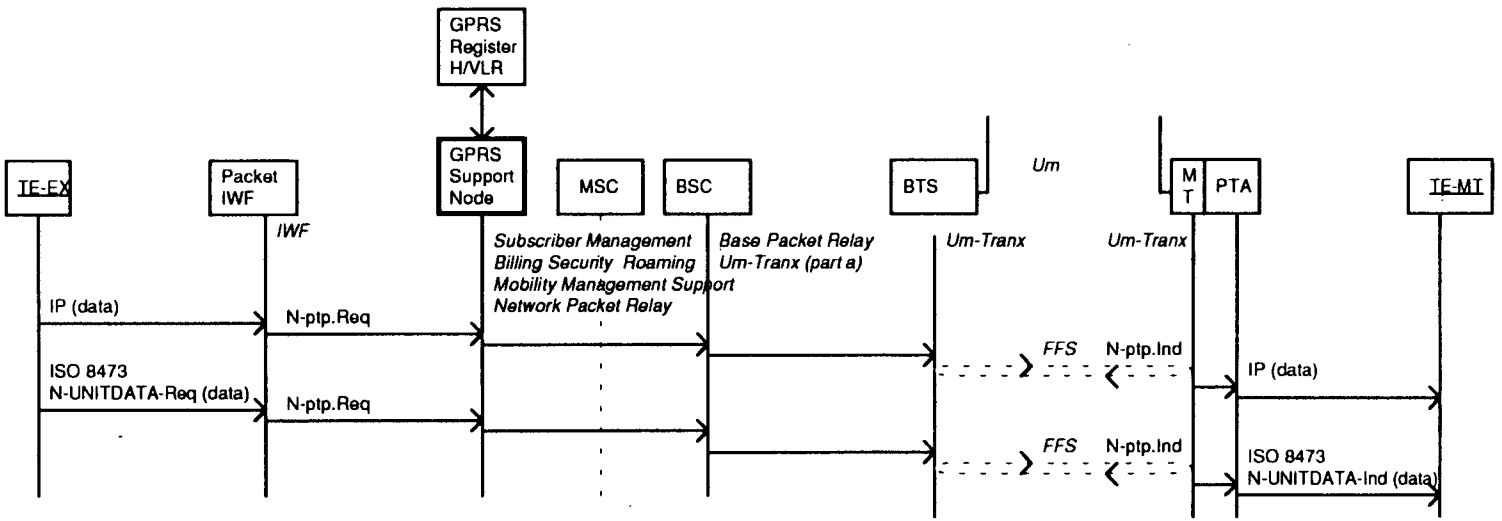
Functional Entities

As defined in section , "Functional Model".

Figure 1. Externally Originated/Mobile Terminated Point-to-point (Non-dialogue) Service
Example 1. Interworking With X.25's Fast Select With Restriction On Response

Key

TE: Terminal Equipment
BSC: Base Station Controller
GPRS Register: Database forming integral part of GPRS
GPRS Support Node: Functionality forming integral part of GPRS
BTS: Base Transceiver Station
Packet IWF: Packet Interworking Function
MT: Mobile Termination
MSC: Mobile Switching Centre
PTA: Packet Terminal Adaptation



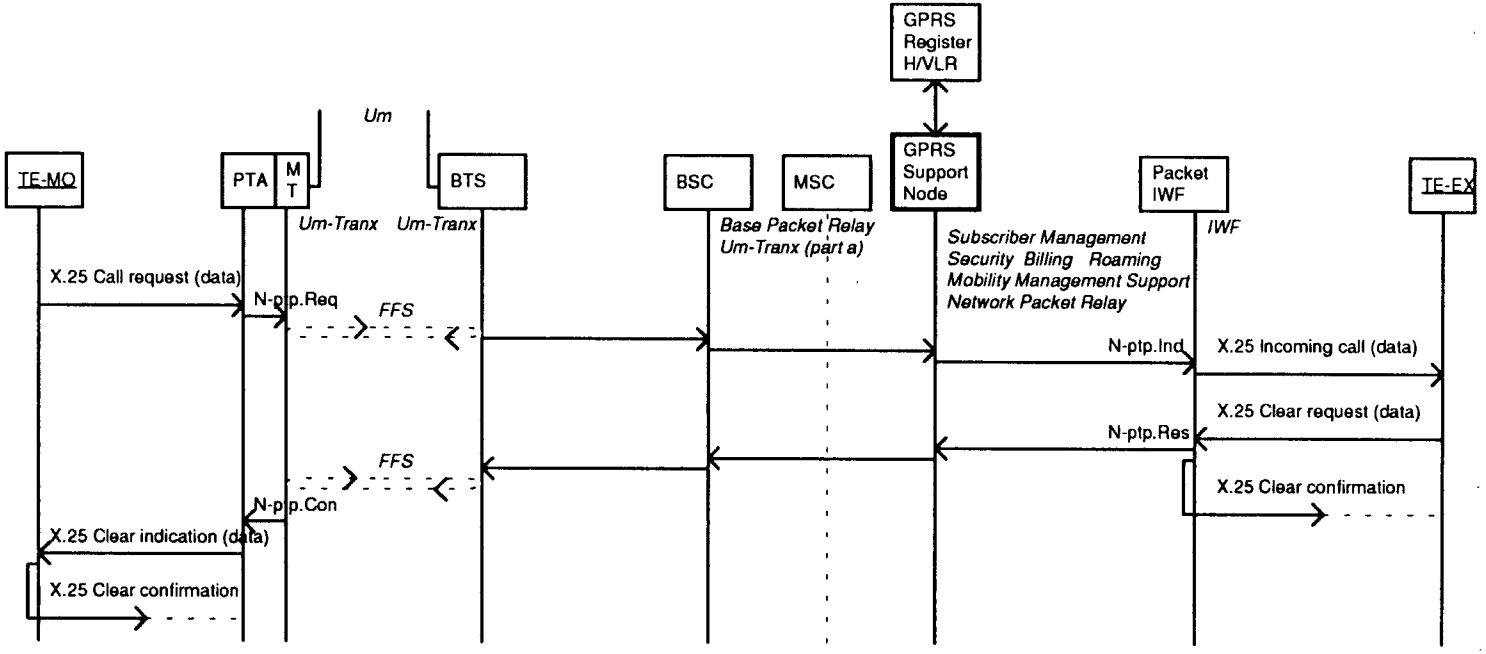
Functional Entities

As defined in section, "Functional Model".

Figure 2. Externally Originated/Mobile Terminated Point-to-point (Non-dialogue) Service
Example 2. Interworking With Internet (IP)
Example 3. Interworking With ISO 8473 Connectionless-mode Network Service

Key

TE: Terminal Equipment
BSC: Base Station Controller
GPRSRegister: Database forming integral part of GPRS
GPRS Support Node: Functionality forming integral part of GPRS .
BTS: Base Transceiver Station
Packet IWF: Packet Interworking Function
MT: Mobile Termination
MSC: Mobile Switching Centre
PTA: Packet Terminal Adaptation



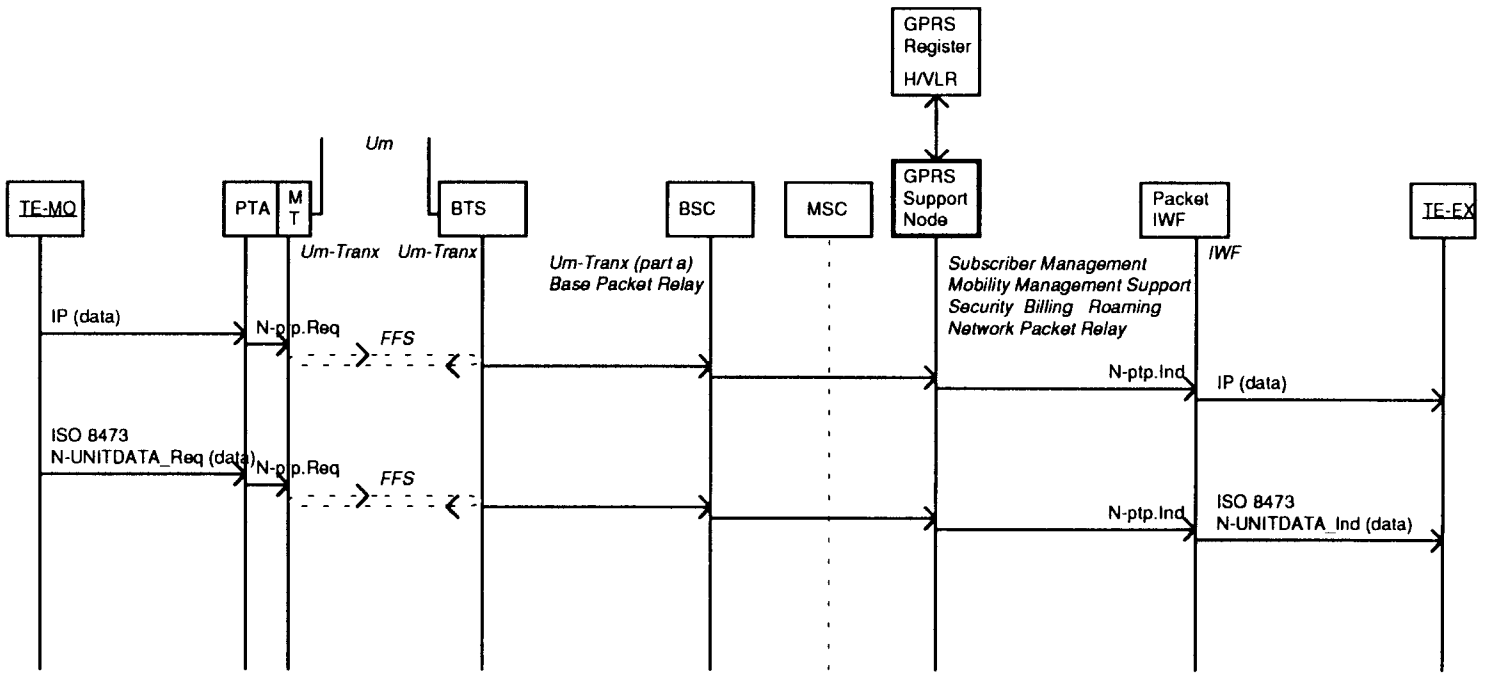
Functional Entities

As defined in section, "Functional Model".

Figure 3. Mobile Originated/Externally Terminated Point-to-point (non-dialogue) Service Example 1. Interworking With X.25's Fast Select With Restriction On Response

Key

TE: Terminal Equipment
BSC: Base Station Controller
GPRS Register: Database forming an integral part of GPRS
GPRS Support Node: Functionality forming an integral part of GPRS
BTS: Base Transceiver Station
Packet IWF: Packet Interworking Function
MT: Mobile Termination
MSC: Mobile Switching Centre
PTA: Packet Terminal Adaptation



Functional Entities

As defined in section, "Functional Model".

Figure 4. Mobile Originated/Externally Terminated Point-to-point (Non-dialogue) Service
Example 2. Interworking With Internet (IP)
Example 3. Interworking With ISO 8473 Connectionless-mode Network Service

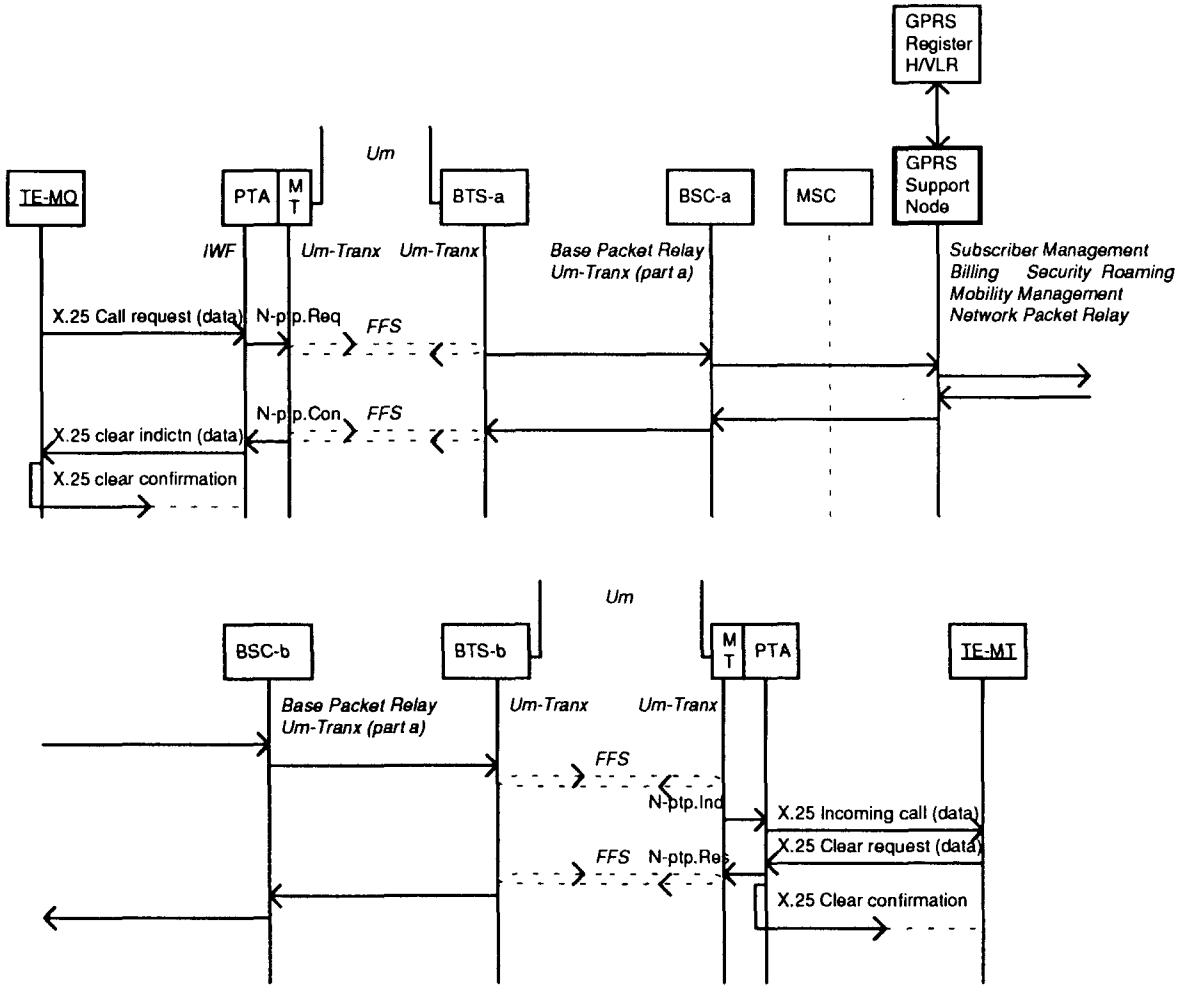


Figure 5. Mobile Originated /Terminated Point-to-point (non-dialogue) Service Example 1. Interworking With X.25's Fast Select With Restriction On Response

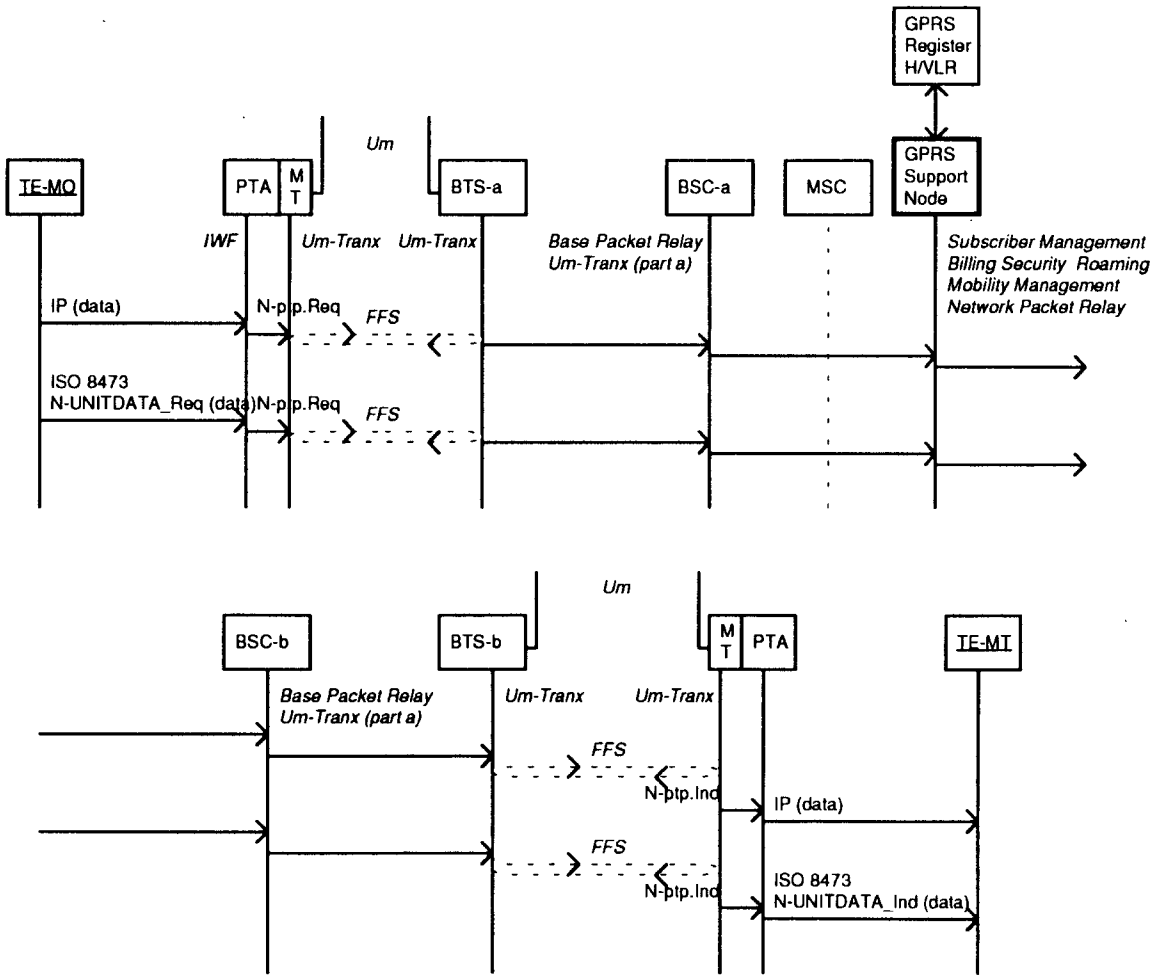
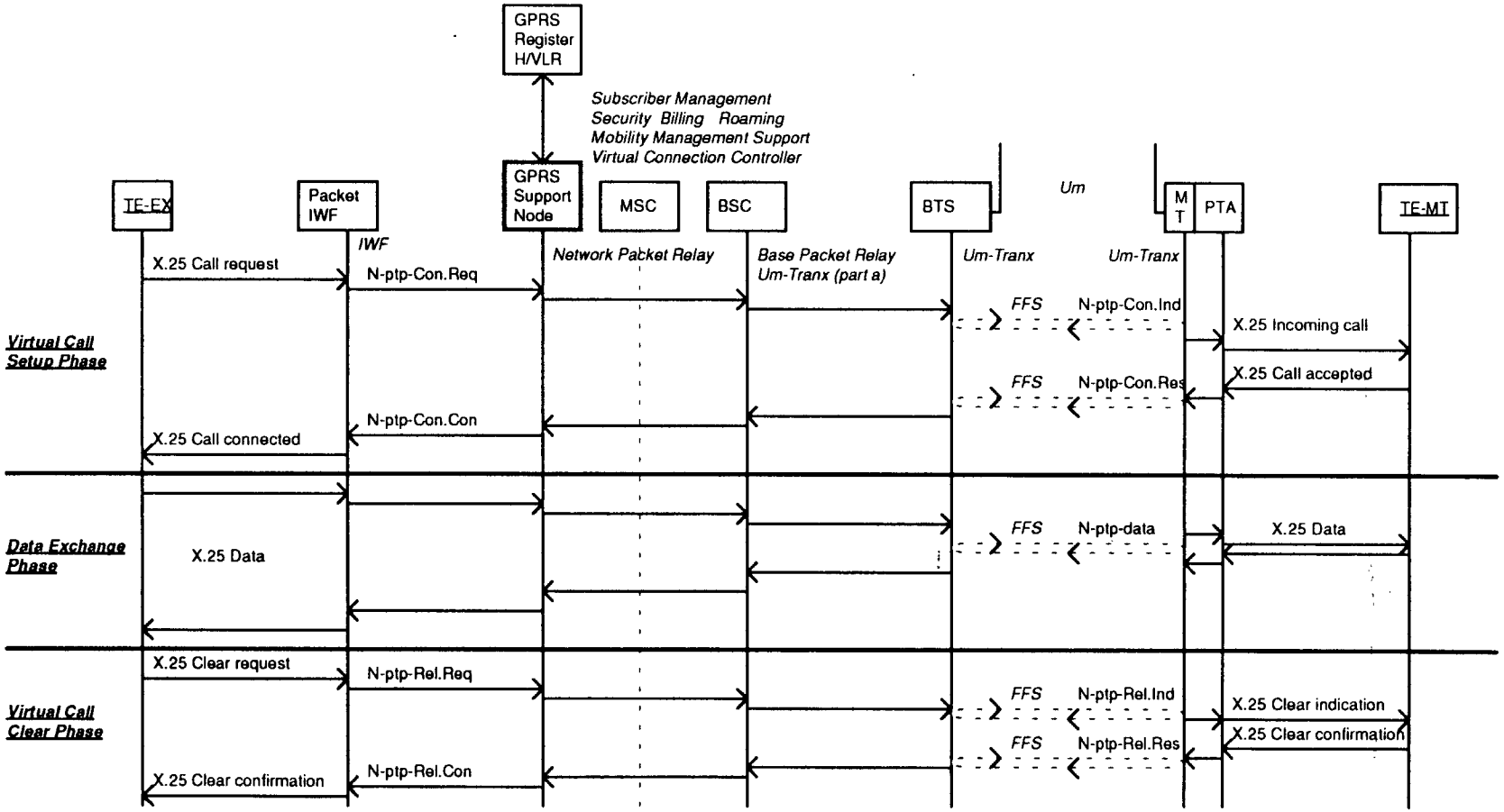


Figure 6. Mobile Originated /Terminated Point-to-point (non-dialogue) Service
Example 2. Interworking With Internet (IP)
Example 3. Interworking With ISO 8473 Connectionless-mode Network Service

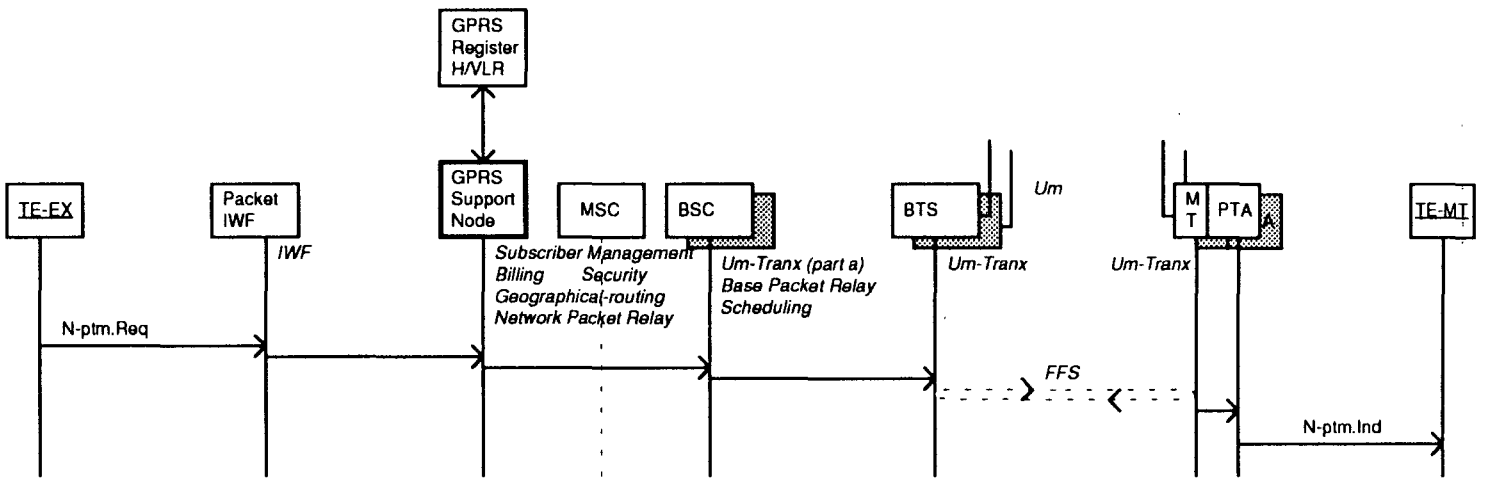


Functional Entities
As defined in section, "Functional Model".

Figure 7. Externally Originated/Mobile Terminated Point-to-point (Dialogue) Service Example 1. Interworking With X.25's Virtual Call

Key

TE: Terminal Equipment
GPRS Support Node: Functionality forming integral part of GPRS.
Packet IWF: Packet Interworking Function
MSC: Mobile Switching Centre
BSC: Base Station Controller
BTS: Base Transceiver Station
MT: Mobile Termination
PTA: Packet Terminal Adaptation
GPRS Register: Database forming integral part of GPRS.



Functional Entities

As defined in section, "Functional Model".

Figure 8. Externally Originated/Mobile Terminated Point-to-multipoint Service

Protective Order

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

NOKIA CORPORATION Plaintiff, v. APPLE INC. Defendant.	C.A. No. 09-791-GMS
APPLE INC. Counterclaim-Plaintiff, v. NOKIA CORPORATION and NOKIA INC., Counterclaim-Defendants.	

[PROPOSED] JOINT PROTECTIVE ORDER

1. PURPOSES AND LIMITATIONS

This Protective Order (the "Order") governs the production or exchange of documents and other discovery materials in connection with the above-captioned action (the "Action") by or between the Parties and any third parties, either through the formal discovery process or informally. If discovery is sought from third parties in connection with this litigation between the Parties, and this discovery would require a third party to disclose and/or produce Confidential or Highly Confidential Information, that third party may gain the protections of this Order through a written agreement by that third party to produce documents or information pursuant to this Order and to be bound by it. Under such agreement, the Parties hereto will be bound by this Order with respect to all Confidential or Highly Confidential Information produced by that third party.

11. FILING PROTECTED MATERIAL

Without written permission from the Designating Party or a court order secured after appropriate notice to all interested persons, a Party may not publicly file in this Action any Protected Material. With regard to filing Protected Material under seal in accordance with Local Rule 5.1.3, the parties submit and the Court finds that there will be documents filed in this case that include confidential, proprietary and commercially sensitive information that can only be protected by sealing the documents and those portions of the memoranda that discuss the documents. The Court finds that this information is of a private business nature and is not of great public interest.

In the event that any "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" information is included with, or the contents thereof are in any way disclosed in any pleading, motion, deposition, transcript or other paper filed with the Clerk of this Court, such information shall be filed with the Clerk of the Court, without need of a motion, in sealed envelopes or containers marked with the caption of the case, a general description of the contents of the envelope or container and a legend substantially in the following form:

"UNDER SEAL – SUBJECT TO PROTECTIVE ORDER – CONTAINS CONFIDENTIAL OR HIGHLY CONFIDENTIAL MATERIAL – TO BE OPENED ONLY BY OR AS DIRECTED BY THE COURT."

Notwithstanding the foregoing, however, "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" documents or testimony introduced into evidence at trial shall not be sealed or otherwise treated as confidential by the Court except pursuant to a further order of the Court at the request of either party during pretrial proceedings or at trial.

2. DEFINITIONS

2.1 Party: any party to this Action, including all of its officers, directors, employees, consultants, retained experts, and in-house counsel (and their support staff).

2.2 Discovery Material: all items or information, regardless of the medium or manner generated, stored, or maintained (including, among other things, testimony, transcripts, or tangible things) that are produced in discovery in this Action.

2.3 "CONFIDENTIAL" Information or Items: information (regardless of how generated, stored or maintained) or tangible things the Designating Party believes in good faith is not generally known to others, and that the Designating Party (i) would not normally reveal to third parties except in confidence, or has undertaken with others to maintain in confidence; or (ii) believes in good faith is protected by a right to privacy under federal or state law, or any other applicable privilege or right related to confidentiality or privacy.

2.4 "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY" Information or Items: highly sensitive "Confidential Information or Items," the disclosure of which to another Party or non-party would create a risk of competitive injury to the Producing Party. Highly Confidential Information designations should be used only for sensitive technical, financial, competitive, or personnel information, which is not generally known by third parties and that the Producing Party would not normally reveal to third parties or would require third parties to maintain in confidence either by agreements, policies, or procedures. For example, Highly Confidential Information may include, but is not limited to, materials such as design files, design drawings, design specifications, manufacturing techniques, laboratory notebooks, prototypes, materials submitted to regulatory agencies, financial and accounting information that is not made publicly available, business and marketing plans or analyses, licenses, surveys,

customer communications, meeting minutes, employment records, training materials, information obtained from a third party pursuant to a current Non-Disclosure Agreement, and similar information provided that the materials meet the foregoing requirements.

2.5 "HIGHLY CONFIDENTIAL – SOURCE CODE" Information or Items: include human-readable programming language text that defines software, firmware, or electronic hardware descriptions. HIGHLY CONFIDENTIAL – SOURCE CODE includes, without limitation, computer code; scripts; assembly; object code; source code listings and descriptions of source code; object code listings and descriptions of object code; Hardware Description Language (HDL); Register Transfer Level (RTL) files that describe the hardware design of any ASIC or other chip; similarly sensitive implementation details; files containing text written in "C," "C++," assembler, VHDL, Verilog, and digital signal processor (DSP) programming languages; ".include files;" "make" files; link files; and other human-readable text files used in the generation and/or building of software directly executed on a microprocessor, microcontroller, or DSP. The restrictions herein on HIGHLY CONFIDENTIAL – SOURCE CODE do not apply to publicly-available source code available as open source source code.

2.6 Receiving Party: a Party that receives Discovery Material from a Producing Party.

2.7 Producing Party: a Party or non-party that produces Discovery Material in this Action.

2.8 Designating Party: a Party or non-party that designates information or items that is produced in disclosures or in responses to discovery as "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE."

2.9 Challenging Party: a Party that elects to initiate a challenge to a Designating Party's confidentiality designation.

2.10 Protected Material: any Discovery Material that is designated as "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE."

2.11 Outside Counsel: attorneys who are not employees of a Party, but who are retained to represent or advise a Party in this Action.

2.12 In-house Counsel: attorneys who are employees of a Party.

2.13 Counsel (without qualifier): Outside Counsel and In-house Counsel (as well as their necessary support staff).

2.14 Outside Consultant: a person with specialized knowledge or experience in a matter pertinent to the Action who has been retained by, or at the direction of, a Party or its Counsel to serve as an expert witness or as a consultant in this Action, and who is not a current employee or non-litigation consultant of a Party or of a competitor of a Party and who, at the time of retention, is not anticipated to become an employee or non-litigation consultant of a Party or of a competitor of a Party.

2.15 Professional Vendors: persons or entities that provide litigation support services (*e.g.*, photocopying, videotaping, translating, preparing exhibits or demonstrations, organizing, storing, retrieving data in any form or medium etc.) and their employees and subcontractors, and who are not current employees of a Party or of a competitor of a Party, and who, at the time of retention, are not anticipated to become employees of a Party or of a competitor of a Party. This definition includes ESI vendors, professional jury or trial consultants retained in connection with this Action, and mock jurors retained by such consultants to assist

them in their work. Professional Vendors do not include consultants who fall within the definition of Outside Consultant.

3. SCOPE AND APPLICABILITY

All documents, materials, items, testimony or information designated as "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," and "HIGHLY CONFIDENTIAL – SOURCE CODE," regardless of whether stored in electronic or paper form, produced or filed with the Court, submitted to the Court in connection with a hearing or trial, or produced or served either by a Party or a third party, to or for any of the other Parties, shall be governed by this Protective Order and used only for the purposes of this Action and not for any business, patent prosecution, competitive or governmental purpose or function, and shall not be disclosed to anyone except as provided in this Protective Order, absent a specific order by the Court.

The protections conferred by this Order cover not only Protected Material (as defined above), but also any information copied or extracted therefrom, as well as all copies, excerpts, summaries, or compilations thereof. Nothing herein shall alter or change in any way the discovery provisions of the Federal Rules of Civil Procedure. Identification of any individual pursuant to this Protective Order does not make that individual available for deposition or any other form of discovery outside of the restrictions and procedures of the Federal Rules of Civil Procedure or the Local Rules of the United States District Court for the District of Delaware.

4. DURATION

The confidentiality obligations imposed by this Order shall remain in effect until a Designating Party agrees otherwise in writing or a court order otherwise directs.

5. DESIGNATING PROTECTED MATERIAL

5.1 Manner and Timing of Designations. Except as otherwise provided in this Order, or as otherwise stipulated or ordered, Discovery Material that qualifies for protection under this Order must be clearly so designated before being disclosed or produced. Designation in conformity with this Order:

(a) for information in documentary form (apart from transcripts of depositions or other pretrial or trial proceedings), the Producing Party shall affix the legend "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" on each document that contains Protected Material. Unless otherwise indicated, the designation of confidentiality shall apply to the entire document. If only a portion or portions of the document qualifies for protection, the Producing Party also must clearly identify the protected portion(s) and must specify, for each portion, the level of protection being asserted "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE".

(b) for testimony given in deposition or in other pretrial or trial proceedings, the Party or non-party offering or sponsoring the testimony shall identify on the record all Protected Material and further specify any portions of the testimony that qualify as "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE." When impractical to identify separately each portion of testimony that is entitled to protection, and when substantial portions of the testimony may qualify for protection, the Party or non-party that sponsors, offers, or gives the testimony may invoke on the record a right to designate the entire testimony or particular topic thereof "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or

"HIGHLY CONFIDENTIAL – SOURCE CODE." Testimony in a deposition may also be designated "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" by notifying the deposing party in writing within fourteen (14) calendar days of the conclusion of the deposition. No deposition may be read or produced to anyone other than the deponent, Outside Counsel, and those qualified to see "HIGHLY CONFIDENTIAL – SOURCE CODE" material under Paragraph 7 during the fourteen (14) calendar day period following a deposition unless otherwise agreed upon among the Outside Counsel. Upon being informed that certain portions of a deposition disclose either "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" information, each party must cause each copy of the transcript in its custody or control to promptly be marked with the appropriate designation.

Transcript pages containing Protected Material must contain on each page the legend "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE," as instructed by the Party or non-party offering or sponsoring the witness or presenting the testimony.

(c) for electronic documents and other electronic files, the Producing Party shall affix the legend "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" as appropriate to the media containing the documents, or by indicating in writing those documents designated as "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE."

(d) for information produced in some form other than documentary, and for any other tangible items, the Producing Party shall affix in a prominent place on the

exterior of the container or containers in which the information or item is stored the legend "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE." If only portions of the information or item warrant protection, the Producing Party, to the extent practicable, shall identify the protected portions, specifying whether they qualify as "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE."

5.2 Inadvertent Failure to Designate. The inadvertent or unintentional production by the Producing Party, or any third party subject to an obligation of confidentiality, of confidential material or information without designating such material or information as "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" shall not be deemed a waiver in whole or in part of a party's claim of confidentiality, either as to that specific information or as to any other information. In the event that the Producing Party discovers that it or a third party subject to an obligation of confidentiality inadvertently or unintentionally provided Confidential Information without designation or with an improper designation, that party shall, within ten (10) business days of learning of the disclosure, by letter sent to opposing counsel, designate all documents or portions thereto containing such information "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" subject to the protections of this Order, and the Receiving Party shall make all reasonable efforts to assure that the material is treated in accordance with the provisions of this Order. If inadvertently or unintentionally provided Confidential Information has been disclosed by a Receiving Party in any filing, motion, hearing, trial or proceeding, then the Receiving Party, after being duly notified by letter, shall, to the extent necessary, designate all documents or portions

containing such information as "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE." To the extent this Confidential Information was submitted in a filing or motion, the party submitting the filing shall cooperate in any motion or request to the Court to seal such information, in accordance with the Court's rules and procedures. If inadvertently or unintentionally provided Confidential Information has been disclosed by the Receiving Party to any person (including employees of the Receiving Party) that would not be entitled pursuant to Paragraph 7 to receive the Confidential Information as designated pursuant to this Paragraph, the Requesting Party shall (a) use its best efforts to retrieve all copies of the Confidential Information; (b) inform the person or persons to whom the disclosures were made of all the terms of this Order, and (c) request that such person or persons execute the "Acknowledgment and Agreement to Be Bound By Protective Order" that is attached hereto as Exhibit A. Nothing herein shall prevent the Receiving Party from challenging the propriety of the designation of the documents by submitting a written challenge to the Court.

5.3 Inadvertent Production of Work Product or Privileged Information. Any inadvertent disclosure or production of document(s) shall not be deemed a waiver of, nor prejudice to, any privilege or immunity with respect to such information or document(s) or of any work product doctrine or other immunity that may attach thereto, including without limitation the attorney-client privilege, the joint defense privilege, and the work product doctrine, provided that the producing party notifies the receiving party in writing promptly after discovery of such inadvertent production. All copies of such document(s) shall be returned to the Producing Party or destroyed within five (5) calendar days of such notice. Also within five (5) calendar days of such notice, the Producing Party shall serve a privilege log for the document(s).

The Producing Party shall maintain the referenced document(s) until the parties resolve any dispute concerning the privileged nature of such documents or the Court rules on any motion to compel such documents. If a dispute arises concerning the privileged nature of the document(s) demanded or returned, the parties shall meet and confer in good faith in an effort to resolve the dispute. If the parties are unable to resolve the dispute, the receiving party may file a motion to compel the production of such document(s). In the event of such a motion to compel, the Producing Party shall have the burden to demonstrate the claimed privilege, work product immunity or other immunity. However, in no case will the return of any demanded document be delayed or refused by reason of a party's objection to the demand or by the filing of a motion to compel, nor may a party assert the fact of the inadvertent production as a ground for any such motion. The responding party shall not use or refer to any information contained within the document(s) at issue, including in deposition or at trial or in any Court filing, unless and until such a motion to compel that document is granted by a Court, except as such information may appear in any applicable privilege log.

6. CHALLENGING CONFIDENTIALITY DESIGNATIONS

6.1 Objections to Confidentiality Designations and Judicial Intervention. Any party may object to the designation of particular "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" information by identifying the information to which the objection is made in a written notice to the party designating the disputed information. However, a Party shall not be obligated to challenge the propriety of such designations at the time made, and the failure to do so shall not preclude a subsequent challenge thereto. If the parties cannot resolve the objection, it shall be the obligation of the party challenging the "CONFIDENTIAL," "HIGHLY

CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" designation to file and serve a motion in compliance with Local Rule 5.1.3, if applicable, that identifies the challenged material and sets forth in detail the basis for the challenge.

6.2 Meet and Confer. A Party that elects to initiate a challenge to a Designating Party's confidentiality designation, or Challenging Party, must do so in good faith and must begin the process by conferring with the Designating Party. In conferring, the Challenging Party must explain the basis for its belief that the confidentiality designation was not proper and must give the Designating Party an opportunity to review the designated material, to reconsider the circumstances, and, if no change in designation is offered, to explain the basis for the chosen designation. The Designating Party must cooperate in scheduling such conference. If the Designating Party is unavailable to meet and confer within a reasonable amount of time or fails to cooperate in scheduling the conference, the Challenging Party may proceed to file its motion with the Court.

6.3 Judicial Intervention. A Party that elects to initiate a challenge to a confidentiality designation after considering the justification offered by the Designating Party may file and serve a motion in compliance with Local Rule 5.1.3, if applicable, that identifies the challenged material and sets forth in detail the basis for the challenge. Each such motion must be accompanied by a competent declaration that affirms that the movant has complied with the meet and confer requirements imposed in the preceding paragraph and that sets forth with specificity the justification for the confidentiality designation that was given by the Designating Party in the meet and confer dialogue. The burden of persuasion in any such challenge proceeding shall be on the Designating Party to establish that the information is, in fact, properly designated . Until

the Court rules on the challenge, all parties shall continue to afford the material in question the level of protection to which it is entitled under the Designating Party's designation.

7. PRESERVATION AND USE OF PROTECTED MATERIAL

7.1 Basic Principles. A Receiving Party may use Protected Material that is disclosed or produced by another Party or by a non-party in connection with this case only for the purposes of this Action and not for any business, patent prosecution, competitive or governmental purpose or function, and shall not be disclosed to anyone except as provided in this Order absent a specific order by the Court. When the Action has been terminated, a Receiving Party must comply with the provisions of Section 12 below (FINAL DISPOSITION).

Except as otherwise provided in Paragraph 8, all "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" material or information shall be maintained under the control of Outside Counsel, who shall make best efforts to prevent any disclosure thereof except in accordance with the terms of this Order.

7.2 Disclosure of "CONFIDENTIAL" Information or Items. Unless otherwise ordered by the Court or permitted in writing by the Designating Party, a Receiving Party may disclose information or items designated "CONFIDENTIAL" only to:

(a) the Receiving Party's Outside Counsel, as well as employees of said Outside Counsel to whom it is reasonably necessary to disclose the information for this Action;

(b) In-house Counsel of the Receiving Party to whom disclosure is reasonably necessary for this Action, who have signed the "Agreement To Be Bound By Protective Order" (Exhibit A);

(c) Outside Consultants (as defined in this Order) (1) to whom disclosure is reasonably necessary for this Action, (2) who have signed the "Agreement to Be Bound by Protective Order" (Exhibit A), and (3) as to whom the procedures set forth in Section 7.6 below, have been followed;

(d) the Court and its personnel;

(e) court reporters, their staffs, and Professional Vendors to whom disclosure is reasonably necessary for this Action;

(f) any designated mediator who is assigned to hear this matter, or who has been selected by the Parties, and his or her staff, who have signed the "Agreement To Be Bound by Protective Order" (Exhibit A);

(g) during their depositions, witnesses in the Action who are current officers or employees of the Producing Party and to whom disclosure is reasonably necessary for this Action;

(h) each person the document or information identifies as an author, source or recipient of such document or information; and

(i) any person that evidence demonstrates to have already viewed the information or document or been told of its content, provided that the party desiring such disclosure first provides five (5) calendar days advanced written notice to the Designating Party of the planned disclosure describing precisely what is to be disclosed, to whom it will be disclosed, and the evidentiary basis for believing the document or information has already been disclosed to such person. Should the Designating Party object to such disclosure within the five (5) calendar days, disclosure shall not be made under this provision.

7.3 Disclosure of "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY" Information or Items. Unless otherwise ordered by the Court or permitted in writing by the Designating Party, a Receiving Party may disclose information or items designated "HIGHLY CONFIDENTIAL — ATTORNEYS' EYES ONLY" only to:

(a) The Receiving Party's Outside Counsel, as well as employees of said Outside Counsel to whom it is reasonably necessary to disclose the information for this Action;

(b) Outside Consultants (as defined in this Order) (1) to whom disclosure is reasonably necessary for this Action, (2) who have signed the "Agreement to Be Bound by Protective Order" (Exhibit A), and (3) as to whom the procedures set forth in Section 7.6 below, have been followed;

(c) the Court and its personnel;

(d) court reporters, their staffs, and Professional Vendors to whom disclosure is reasonably necessary for this Action;

(e) any designated mediator who is assigned to hear this matter, or who has been selected by the Parties, and his or her staff, who have signed the "Agreement To Be Bound by Protective Order" (Exhibit A);

(f) each person the document or information identifies as an author, source or recipient of such document or information; and

(g) any person that evidence demonstrates to have already viewed the information or document or been told of its content, provided that the party desiring such disclosure first provides five (5) calendar days advanced written notice to the Designating Party of the planned disclosure describing precisely what is to be disclosed, to whom it will be

disclosed, and the evidentiary basis for believing the document or information has already been disclosed to such person. Should the Designating Party object to such disclosure within the five (5) calendar days, disclosure shall not be made under this provision.

7.4 Disclosure of "HIGHLY CONFIDENTIAL – SOURCE CODE" Information and Items. Unless otherwise ordered by the Court or permitted in writing by the Designating Party, a Receiving Party may disclose, subject to the provisions of Paragraph 7.5 and 8, information or items designated "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY" only to:

(a) Outside Counsel for the Receiving Party, as well as employees of said Outside Counsel to whom it is reasonably necessary to disclose the information for this Action, except that, unless otherwise agreed, no outside counsel who is involved in competitive decision-making, as defined by *U.S. Steel v. United States*, 730 F.2d 1465, 1468 n.3 (Fed. Cir. 1984), shall have access to "HIGHLY CONFIDENTIAL – SOURCE CODE" Information or Items;

(b) Outside Consultants (as defined in this Order) retained by the Receiving Party for purposes of this Action who (a) have signed the "Agreement to Be Bound by Protective Order" (Exhibit A), and (b) as to whom the procedures set forth in Section 7.6 below, have been followed, provided that disclosure is only to the extent necessary to perform that consultant's work in this Action and such expert or consultant is not involved in competitive decision-making, as defined by *U.S. Steel v. United States*, 730 F.2d 1465, 1468 n.3 (Fed. Cir. 1984), on behalf of a party or a competitor of a party in the technical subject matter of the "HIGHLY CONFIDENTIAL – SOURCE CODE" Information or Items;

(c) the Court and its personnel;

(d) court reporters, stenographers, and videographers retained to record testimony taken in this Action;

(e) any persons who are witnesses during a deposition, court hearing, or trial where specific documentary or testimonial evidence establishes that the "HIGHLY CONFIDENTIAL – SOURCE CODE" Information or Items or portion of the "HIGHLY CONFIDENTIAL – SOURCE CODE" Information or Items was authored or received by the witness;

(f) any mediator who is assigned to hear this matter, and his or her staff, subject to their agreement to maintain confidentiality to the same degree as required by this Order;

(g) any other person with the prior written consent of the Producing Party.

7.5 Limits on Disclosure of "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY" and "HIGHLY CONFIDENTIAL – SOURCE CODE" Material, Information or Items.

(a) For avoidance of doubt, Receiving Parties shall not disclose "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY" or "HIGHLY CONFIDENTIAL – SOURCE CODE" Material, Information or Items to any of its In-house attorneys or employees. Outside Counsel for the Receiving Party may give advice and opinions to his or her client regarding this litigation based on his or her evaluation of designated "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY" or "HIGHLY CONFIDENTIAL – SOURCE CODE" Material, Information or Items – provided that such rendering of advice and opinions

shall not reveal the content of such Protected Material or any information contained therein except by prior written agreement with Outside Counsel for the Producing Party.

(b) Each person to whom Protected Material may be disclosed, and who is required to sign the "Agreement To Be Bound By Protective Order" attached hereto as Exhibit A, shall do so prior to the time such Protected Material is disclosed to him or her. Outside Counsel for a Party who makes any disclosure of Protected Material shall retain each original executed agreement and, upon written request, shall provide copies to counsel to all other Parties at the termination of this action.

(c) At the request of the Designating Party, persons not permitted access to Protected Material under the terms of this Protective Order shall not be present at depositions while the Designating Party's Protected Material is discussed or otherwise disclosed. Pre-trial and trial proceedings shall be conducted in a manner, subject to the supervision of the Court, to protect Protected Material from disclosure to persons not authorized to have access to such Material. Any Party intending to disclose or discuss Protected Material at pretrial or trial proceedings must give advance notice to assure the implementation of the terms of this Protective Order.

(d) Any consultant or expert retained on behalf of a Receiving Party who is to be given access to a Producing Party's "HIGHLY CONFIDENTIAL – SOURCE CODE" Material, Information or Items — whether in electronic form or otherwise — must agree in writing not to use the accessed code to write source code directly intended for commercial purposes relating to wireless communications and user interface technology for a period of six (6) months after the issuance of a final, non-appealable decision resolving all issues in this Action. This shall not preclude such consultants and experts from any academic work or

consulting in future litigation, so long as such consulting does not involve writing source code directly intended for commercial purposes relating to the technology at issue in this Action.

(e) Absent the written consent of the Disclosing Party, any person who receives access to Protected Material shall not be involved in the prosecution of patents or patent applications relating to the subject matter of the patents-in-suit, before any foreign or domestic agency, including the United States Patent and Trademark Office. For purposes of this paragraph, "prosecution" includes, without limitation: (i) the drafting or amending of patent claims, or the supervising of the drafting or amending of patent claims; (ii) participating in or advising on any reexamination or reissue proceeding; and (iii) advising any client concerning strategies for obtaining or preserving patent rights in the above-listed field before the United States Patent and Trademark Office or other similar foreign government or agency. Notwithstanding the preceding, for purposes of this paragraph, "prosecution" does not include (i) any acts taken to discharge the duty of candor and good faith in any proceeding related to the asserted patents or the technical subject matter of the asserted patents; (ii) participating in or advising on any reexamination or reissue proceeding by Nokia's lawyers with respect to any patents in which Apple has any interest, or participating in or advising on any reexamination or reissue proceeding (except for participating in or advising on, directly or indirectly, claim drafting or amending claims) by Apple's lawyers with respect to any patents in which Apple has any interest; (iii) participating in or advising on any reexamination or reissue proceeding by Apple's lawyers with respect to any patents in which Nokia has any interest, or participating in or advising on any reexamination or reissue proceeding (except for participating in or advising on, directly or indirectly, claim drafting or amending claims) by Nokia's lawyers with respect to any patents in which Nokia has any interest. This prohibition on patent prosecution shall begin

when an individual obtains access to the Protective Material and shall end two (2) years after the final resolution of this Action, including all appeals. This prosecution bar is personal to the person receiving Protected Material in this Action and shall not be imputed to any other person or entity.

7.6 Procedures for Approving Disclosure of "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," and "HIGHLY CONFIDENTIAL – SOURCE CODE" Information or Items to "Outside Consultants"

(a) Unless otherwise ordered by the Court or agreed in writing by the Designating Party, a Receiving Party that seeks to disclose to an Outside Consultant (as defined in this Order) any Protected Material first must notify the Designating Party at least ten (10) business days before the first of such disclosure. The notification must include: (i) the name of the Outside Consultant, (ii) and the name of his or her employer(s) during the last five (5) years, (iii) a current copy of the Outside Consultant's resume or CV, (iv) if an Outside Consultant for Nokia, whether he or she has done any work for, or been adverse to, Apple, Inc. in the last five (5) years, and if an Outside Consultant for Apple, whether he or she has done any work for, or been adverse to, Nokia, Inc., Nokia, Corp. or Nokia Seimens Network in the last five (5) years, and (v) a list of any clients for whom the Outside Consultant has done any consulting in the area of wireless telecommunications during the last five (5) years. If any Outside Consultant is unable to comply fully with the requirements of this paragraph due to confidentiality restrictions, the Receiving Party must so state in the notification, and the parties must confer in good faith to address any reasonable concerns of the Designating Party.

(b) A Receiving Party that makes a request and provides to the Designating Party the information specified in Section 7.4 (a) above may disclose Protected

Material to the identified Outside Consultant unless, within ten (10) business days of making the notification, the Receiving Party receives a written objection from the Designating Party. Any such objection must be made for good cause and set forth in detail the grounds on which it is based.

(c) A Receiving Party that receives a timely written objection must meet and confer with the Designating Party to try to resolve the matter by agreement. If no agreement is reached within five (5) business days, the Party challenging the disclosure to the Outside Consultant may file a motion in compliance with Local Rule 5.1.3, if applicable, seeking a Protective Order from the Court to prohibit the disclosure to the Outside Consultant. Any such notice must describe the circumstances with specificity, set forth in detail the reasons for the challenge, assess the risk of harm from the use of the Designating Party's Protected Material for purposes other than this Action, and may suggest any additional means that might be used to reduce that risk. In addition, any such motion must be accompanied by a competent declaration in which the movant describes the Parties' efforts to resolve the matter by agreement. The Designating Party shall have the burden of proof by a preponderance of the evidence on the issue of the sufficiency of the objection(s). If the Party challenging the disclosure files a timely motion for Protective Order, Protected Material shall not be disclosed to the challenged individual until and unless a final ruling allowing such disclosure is made by this Court, or by the consent of the Producing Party, whichever occurs first. If the Party challenging the disclosure fails to file a proper motion within five (5) business days of having met and conferred, the Receiving Party may disclose the Protected Material to the Outside Consultant. Disagreement by the Designating Party that the Outside Consultant is competent to render an admissible opinion in this Action is not a valid basis for refusing disclosure. Likewise, the disclosure of designated

material to an Outside Consultant under the terms of this Order may not be used as evidence that the Producing Party acquiesced to the expertise or qualifications of the Outside Consultant.

8. PRODUCTION OF HIGHLY CONFIDENTIAL – SOURCE CODE MATERIALS.

8.1 To the extent that a party wishes to obtain access to HIGHLY CONFIDENTIAL – SOURCE CODE, the following procedures may apply at the option of the Producing Party. Nothing in this Order shall be construed as a representation or admission by a party that HIGHLY CONFIDENTIAL – SOURCE CODE is properly discoverable in this Action, or to obligate any party to produce HIGHLY CONFIDENTIAL – SOURCE CODE.

8.2 The following provisions apply to the production of HIGHLY CONFIDENTIAL – SOURCE CODE unless otherwise agreed by the Producing Party:

(a) All HIGHLY CONFIDENTIAL – SOURCE CODE shall be made available by the Producing Party to the Receiving Party in a secure room, the domestic location and facility of which the Producing Party shall select, on at least two secured, stand-alone computers (running a reasonably current version of the Microsoft Windows operating system) per software platform produced (in the case of Nokia HIGHLY CONFIDENTIAL – SOURCE CODE, for example, produced software platforms may include S60, S40, Qt, and Maemo), without Internet access or network access to other computers, as necessary and appropriate to prevent and protect against any unauthorized copying, transmission, removal, or other transfer of any HIGHLY CONFIDENTIAL – SOURCE CODE outside or away from the computer on which the HIGHLY CONFIDENTIAL – SOURCE CODE is provided for inspection (hereinafter "HIGHLY CONFIDENTIAL – SOURCE CODE Computer"). If it should be necessary, the HIGHLY CONFIDENTIAL – SOURCE CODE Computer may be configured by the Producing

Party to run other mutually agreed upon operating systems. No more than a total of 25 individuals indentified by the receiving party shall have access to the secure room in which the Producing Party produces its HIGHLY CONFIDENTIAL – SOURCE CODE.

(b) The Producing shall install tools that are sufficient for viewing and searching the code produced, on the platform produced, if such tools exist and are presently used in the ordinary course of the Producing Party's business. The Receiving Party's Outside Counsel and/or Outside Consultants may request that commercially available software tools for viewing and searching HIGHLY CONFIDENTIAL – SOURCE CODE be installed on the secured computer, provided, however, that such other software tools are reasonably necessary for the Receiving Party to perform its review of the HIGHLY CONFIDENTIAL – SOURCE CODE consistent with all of the protections herein. Specific tools may include — but are not limited to: Visual Slick Edit, Source-Navigator, PowerGrep, and ExamDiff Pro, or other similar programs. The Receiving Party must provide the Producing Party with the CD or DVD containing such licensed software tool(s) at least five (5) days in advance of the date upon which the receiving party wishes to have the additional software tools available for use on the HIGHLY CONFIDENTIAL – SOURCE CODE Computer. The Receiving Party shall not at any time use any compilers, interpreters or simulators in connection with the Producing Party's HIGHLY CONFIDENTIAL – SOURCE CODE.

(c) The Producing Party shall make the HIGHLY CONFIDENTIAL – SOURCE CODE available electronically and in text searchable form in a secure room at the offices of the Producing Party's Outside Counsel or any other location mutually agreed by the parties.

(d) In order to verify that its HIGHLY CONFIDENTIAL – SOURCE CODE has not later been altered, the Producing Party may benchmark the materials before and after they are provided but shall not install any keystroke or other monitoring software on the HIGHLY CONFIDENTIAL – SOURCE CODE Computer.

(e) The HIGHLY CONFIDENTIAL – SOURCE CODE Computer shall be made available from 9 am to 7 pm local time, Monday through Friday (excluding holidays), and other days and/or times, including weekends, upon reasonable request until the close of discovery in this Action. Access on weekends or after hours shall be permitted only on three days advanced written notice.

(f) Prior to the first inspection of any requested piece of HIGHLY CONFIDENTIAL – SOURCE CODE, the Requesting Party shall provide fourteen (14) days notice of the HIGHLY CONFIDENTIAL – SOURCE CODE that it wishes to inspect. The requesting party shall provide two (2) days notice prior to any additional inspections of the same HIGHLY CONFIDENTIAL – SOURCE CODE, although the parties will be reasonable in accommodating requests of less than two (2) days. The Receiving Party shall identify any individual who will be given access to the HIGHLY CONFIDENTIAL – SOURCE CODE at least ten (10) days prior to the first time any such individual is given access to the HIGHLY CONFIDENTIAL – SOURCE CODE, after which time the Producing Party may object to providing access to any persons so identified. The Receiving Party shall provide two (2) days notice any time each such individual is given access to the HIGHLY CONFIDENTIAL – SOURCE CODE after the first time, although the parties will be reasonable in accommodating notice of less than two (2) days. If an objection to an individual is made by the Producing Party,

it will be the burden of the Producing Party to prove that the individual should not be authorized to inspect the Producing Party's HIGHLY CONFIDENTIAL – SOURCE CODE.

(g) Proper identification of all authorized persons shall be provided prior to any access to the secure room or the HIGHLY CONFIDENTIAL – SOURCE CODE Computer. Proper identification requires showing, at a minimum, a photo identification card sanctioned by the government of any State of the United States, by the government of the United States, or by the nation state of the authorized person's current citizenship. Access to the secure room or the HIGHLY CONFIDENTIAL – SOURCE CODE Computer may be denied, at the discretion of the Producing Party, to any individual who fails to provide proper identification.

(h) The HIGHLY CONFIDENTIAL – SOURCE CODE Computer shall be equipped with a printer (with commercially reasonable printing speeds) to print copies of the HIGHLY CONFIDENTIAL – SOURCE CODE on watermarked pre-Bates numbered paper, which shall be provided by the Producing Party. The Receiving Party may print limited portions of the HIGHLY CONFIDENTIAL – SOURCE CODE only when reasonably necessary to facilitate the Receiving Party's preparation of court filings, expert reports, and trial exhibits, and shall print only such portions as are relevant to the claims and defenses in the case and are reasonably necessary for such purpose. The Receiving Party shall not print HIGHLY CONFIDENTIAL – SOURCE CODE in order to review blocks of HIGHLY CONFIDENTIAL – SOURCE CODE elsewhere in the first instance, i.e., as an alternative to reviewing that HIGHLY CONFIDENTIAL – SOURCE CODE electronically on the HIGHLY CONFIDENTIAL – SOURCE CODE Computer, as the parties acknowledge and agree that the purpose of the protections herein would be frustrated by printing portions of code for review and analysis elsewhere. If the Producing Party objects that the printed portions are excessive and/or not done

for a permitted purpose, the Producing Party shall make such objection known to the receiving party within five (5) days. Printed portions which exceed 50 continuous pages or 10% or more of a specific software release shall be presumed excessive and not done for a permitted purpose. If, after meeting and conferring, the Producing Party and the Receiving Party cannot resolve the objection, the Producing Party shall be entitled to seek the Court's resolution of whether the printed HIGHLY CONFIDENTIAL – SOURCE CODE in question is narrowly tailored and was printed for a permitted purpose. The burden shall be on the Receiving Party to demonstrate that such printed portions are no more than is reasonably necessary for a permitted purpose and not merely printed for the purposes of review and analysis elsewhere. No more than a total of 30 individuals indentified by the receiving party shall have access to the printed portions of HIGHLY CONFIDENTIAL – SOURCE CODE (except insofar as such code appears in any filing with the Court or expert report in this Action).

(i) The printed HIGHLY CONFIDENTIAL – SOURCE CODE shall be labeled with "[PRODUCING PARTY'S NAME] HIGHLY CONFIDENTIAL – SOURCE CODE – SUBJECT TO PROTECTIVE ORDER." Outside Counsel for the Producing Party will keep the originals of these printed documents, and copies shall be made for Outside Counsel for the Receiving Party on watermarked paper within 48 hours. The Receiving Party's Outside Counsel may make no more than ten (10) additional paper copies of any portions of the HIGHLY CONFIDENTIAL – SOURCE CODE received from a Producing Party, not including copies attached to court filings or used at depositions.

(j) In addition to other reasonable steps to maintain the security and confidentiality of the Producing Party's HIGHLY CONFIDENTIAL – SOURCE CODE, printed copies of the HIGHLY CONFIDENTIAL – SOURCE CODE maintained by the Receiving Party

must be kept in a locked storage container when not in use. No electronic copies of the HIGHLY CONFIDENTIAL – SOURCE CODE shall be provided by the Producing Party beyond the HIGHLY CONFIDENTIAL – SOURCE CODE Computer.

(k) Except as provided herein, absent express written permission from the Producing Party, the Receiving Party may not create electronic images, or any other images, or make electronic copies, of the HIGHLY CONFIDENTIAL – SOURCE CODE from any paper copy of HIGHLY CONFIDENTIAL – SOURCE CODE for use in any manner (including, by way of example only, the Receiving Party may not scan the HIGHLY CONFIDENTIAL – SOURCE CODE to a PDF or photograph the code). Images or copies of HIGHLY CONFIDENTIAL – SOURCE CODE shall not be included in correspondence between the parties (references to production numbers shall be used instead), and shall be omitted from pleadings and other papers whenever possible. If a party reasonably believes that it needs to submit a portion of HIGHLY CONFIDENTIAL – SOURCE CODE as part of a filing with the Court, the Parties shall meet and confer as to how to make such a filing while protecting the confidentiality of the HIGHLY CONFIDENTIAL – SOURCE CODE and such filing will not be made absent agreement from the Producing Party that the confidentiality protections will be adequate. If a Producing Party agrees to produce an electronic copy of all or any portion of its HIGHLY CONFIDENTIAL – SOURCE CODE or provide written permission to the receiving party that an electronic or any other copy needs to be made for a Court filing, the Receiving Party's communication and/or disclosure of electronic files or other materials containing any portion of HIGHLY CONFIDENTIAL – SOURCE CODE (paper or electronic) shall at all times be limited to solely individuals who are expressly authorized to view HIGHLY CONFIDENTIAL – SOURCE CODE under the provisions of this Order, and all such individuals

must be identified on the log as reviewers and/or recipients of paper copies in accordance with paragraph 8.2(p). In the case where the Producing Party has provided the express written permission required under this provision for a receiving party to create electronic copies of HIGHLY CONFIDENTIAL – SOURCE CODE, the electronic copies shall be included on the log required by paragraph 8.2(p) and any other information required by paragraph 8.2(p) shall be included on the log. Additionally, any such electronic copies must be labeled "[PRODUCING PARTY'S NAME] HIGHLY CONFIDENTIAL – SOURCE CODE – SUBJECT TO PROTECTIVE ORDER" as provided for in this Order.

(l) For depositions, the Receiving Party shall not bring copies of any printed HIGHLY CONFIDENTIAL – SOURCE CODE. Rather, at least five (5) days before the date of the deposition, the Receiving Party shall notify the Producing Party about the specific portions of HIGHLY CONFIDENTIAL – SOURCE CODE it wishes to use at the deposition, and the Producing Party shall bring printed copies of those portions to the deposition for use by the receiving party. Copies of HIGHLY CONFIDENTIAL – SOURCE CODE that are marked as deposition exhibits shall not be provided to the court reporter or attached to deposition transcripts; rather, the deposition record will identify the exhibit by its production numbers. All paper copies of HIGHLY CONFIDENTIAL – SOURCE CODE brought to the deposition shall be securely destroyed in a timely manner following the deposition.

(m) Other than the HIGHLY CONFIDENTIAL – SOURCE CODE Computer and printer provided by the Producing Party, no electronic devices, including but not limited to laptops, floppy drives, zip drives, or other hardware shall be permitted in the secure room. Nor shall any cellular telephones, personal digital assistants, Blackberries, cameras, voice recorders, Dictaphones, telephone jacks, or other devices be permitted inside the secure room. No non-

electronic devices capable of similar functionality shall be permitted in the secure room. The Receiving Party shall be entitled to take notes relating to the HIGHLY CONFIDENTIAL – SOURCE CODE but may not copy the HIGHLY CONFIDENTIAL – SOURCE CODE into the notes and may not take such notes electronically on the HIGHLY CONFIDENTIAL – SOURCE CODE Computer itself or any other computer. No copies of all or any portion of the HIGHLY CONFIDENTIAL – SOURCE CODE may leave the room in which the HIGHLY CONFIDENTIAL – SOURCE CODE is inspected except as otherwise provided herein. Further, no other written or electronic record of the HIGHLY CONFIDENTIAL – SOURCE CODE is permitted except as otherwise provided herein. The Producing Party may visually monitor the activities of the Receiving Party's representatives during any HIGHLY CONFIDENTIAL – SOURCE CODE review, but only to ensure that no unauthorized electronic records of the HIGHLY CONFIDENTIAL – SOURCE CODE and that no information concerning the HIGHLY CONFIDENTIAL – SOURCE CODE are being created or transmitted in any way.

(n) Other than as provided 8.1(i), the Receiving Party will not copy, remove, or otherwise transfer any HIGHLY CONFIDENTIAL – SOURCE CODE from the HIGHLY CONFIDENTIAL – SOURCE CODE Computer including, without limitation, copying, removing, or transferring the HIGHLY CONFIDENTIAL – SOURCE CODE onto any recordable media or recordable device, including without limitation sound recorders, computers, cellular telephones, peripheral equipment, cameras, CDs, DVDs, or drives of any kind. The Receiving Party will not transmit any HIGHLY CONFIDENTIAL – SOURCE CODE in any way from the Producing Party's facilities or the offices of its outside counsel.

(o) Unless otherwise agreed in advance by the parties in writing, following each day on which inspection is done under this Order, the Receiving Party's Outside Counsel

and/or Outside Consultants shall remove all notes, documents, and all other materials from the secure room. The Producing Party shall not be responsible for any items left in the room following each inspection session, and the receiving party shall have no expectation of confidentiality for any items left in the room following each inspection session without a prior agreement to that effect.

(p) The Receiving Party shall maintain a HIGHLY CONFIDENTIAL – SOURCE CODE Access Log identifying each hard copy (or electronic copy as permitted by paragraph 8.2(k)) of HIGHLY CONFIDENTIAL – SOURCE CODE that it has in its possession and, for each and every time the hard copy (or electronic copy as permitted by paragraph 8.2(k)) of the HIGHLY CONFIDENTIAL – SOURCE CODE is viewed: (i) the name of each person who viewed the HIGHLY CONFIDENTIAL – SOURCE CODE; (ii) the date and time of access; (iii) the length of time of access; and (iv) whether any, and if so what, portion of the HIGHLY CONFIDENTIAL – SOURCE CODE was copied. The Producing Party shall be entitled to a copy of the log upon one (1) day's advance notice to the receiving party. Within thirty (30) days after the issuance of a final, non-appealable decision resolving all issues in the Action, the Receiving Party must serve upon the Producing Party the HIGHLY CONFIDENTIAL – SOURCE CODE Access Log. All persons to whom the paper copies of the HIGHLY CONFIDENTIAL – SOURCE CODE were provided must certify in writing that all copies of the HIGHLY CONFIDENTIAL – SOURCE CODE were returned to Outside Counsel for the Producing Party and that they will make no use of the HIGHLY CONFIDENTIAL – SOURCE CODE or of any knowledge gained from the HIGHLY CONFIDENTIAL – SOURCE CODE in any future endeavor.

8.3. Access to and review of the HIGHLY CONFIDENTIAL – SOURCE CODE shall be strictly for the purpose of investigating the claims and defenses at issue in this Action. No person shall review or analyze any HIGHLY CONFIDENTIAL – SOURCE CODE for purposes unrelated to this Action, nor may any person use any knowledge gained as a result of reviewing HIGHLY CONFIDENTIAL – SOURCE CODE in this Action in any other pending or future dispute, proceeding, patent prosecution, or litigation.

8.4. Nothing herein shall be deemed a waiver of a party's right to object to the production of HIGHLY CONFIDENTIAL – SOURCE CODE. Absent a subsequent and specific court or agency order, nothing herein shall obligate a party to breach any non-party license agreement relating to such HIGHLY CONFIDENTIAL – SOURCE CODE.

8.5. The parties further acknowledge that some or all of the HIGHLY CONFIDENTIAL – SOURCE CODE may be owned by non-parties and outside a party's possession, custody or control. Nothing herein shall be deemed a waiver of any non-party's right to object to the production of HIGHLY CONFIDENTIAL – SOURCE CODE or object to the manner of any such production.

9. PROTECTED MATERIAL SUBPOENAED OR ORDERED PRODUCED IN OTHER LITIGATION

9.1 If a Receiving Party is served with a subpoena or an order issued in other litigation that would compel disclosure of any information or items designated in this action as "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE," the Receiving Party must so notify the Designating Party, in writing, promptly and in no event more than ten (10) business days after

receiving the subpoena or order. Such notification must include a copy of the subpoena or court order.

9.2 The Receiving Party also must immediately inform in writing the party who caused the subpoena or order to issue in the other litigation that some or all the material covered by the subpoena or order is the subject of this Order. In addition, the Receiving Party must deliver a copy of this Order promptly to the party in the other action that caused the subpoena or order to issue.

9.3 The purpose of imposing these duties is to alert the interested parties to the existence of this Order and to afford the Designating Party in this case an opportunity to try to protect its confidentiality interests in the court from which the subpoena or order issued. The Designating Party shall bear the burdens and the expenses of seeking protection in that court of its confidential material, and nothing in these provisions should be construed as authorizing or encouraging a Receiving Party in this action to disobey a lawful directive from another court.

10. UNAUTHORIZED DISCLOSURE OF PROTECTED MATERIAL

If a Receiving Party learns that, by inadvertence or otherwise, it has disclosed Protected Material to any person or in any circumstance not authorized under this Order, the Receiving Party must immediately (a) notify in writing the Designating Party of the unauthorized disclosures, (b) use its best efforts to retrieve all copies of the Protected Material, (c) inform the person or persons to whom unauthorized disclosures were made of all the terms of this Order, and (d) request that such person or persons execute the "Acknowledgment and Agreement to Be Bound By Protective Order" that is attached hereto as Exhibit A.

12. DISCOVERY FROM OUTSIDE CONSULTANTS

(a). The Parties agree that they will not seek drafts of expert reports, declarations, affidavits, or notes taken by experts retained to testify in this Investigation, whether those reports, declarations, affidavits, or notes relate to this Action, to any prior investigation, litigation or proceeding which was disclosed to the parties under paragraph 7.6 of the Protective Order, or to any currently pending investigation, litigation or proceeding involving any of the Parties to this Action.[1] The Parties further agree that they will not seek documents relating to communications between such experts and counsel, including e-mail communications, whether generated in connection with this Action, a prior litigation, or any currently pending investigation, litigation or proceeding involving any of the Parties to this Action, except for documents, information and things included in or attached to such communications that are directly relied upon by the expert in his or her expert report, declaration, affidavit, or testimony.

(b). The Parties agree not to inquire at deposition or trial as to the contents of drafts of expert reports, declarations or affidavits, nor notes pertaining thereto, whether drafted in connection with this Action, a prior litigation, or any currently pending investigation, litigation or proceeding involving two or more of the Parties to this Action, and that the Parties will not inquire at deposition or at trial as to the expert's communications, written or oral, with counsel, whether generated in connection with this Action, a prior litigation, or any currently pending investigation, litigation or proceeding involving two or more of the Parties to this Action, except

[1] For purposes of this Paragraph, "any currently pending investigation, litigation or proceeding involving two or more of the Parties in this Action" includes: *In the Matter of Certain Electronic Devices, Including Mobile Phones, Portable Music Players, and Computers*, 337-TA-701; *In the Matter of Certain Mobile Communications and Computer Devices and Components Thereof*, 337-TA-704; Nokia v. Apple, Case No. 10-cv-00249 (W.D. Wis.) *Nokia v. Apple*, Case No. 09-cv-791 (D. Del.); and *Nokia v. Apple*, Case No. 09-cv-1002 (D. Del.).

to the extent that the expert explicitly references or cites information from counsel in his or her expert report, declaration, affidavit, or testimony.

(c). The Parties will, however, identify and produce copies of any documents referenced or cited by the expert in his or her expert report. Furthermore, nothing in this Paragraph is intended to restrict the Parties' ability to (i) inquire into the basis of any of the opinions expressed by any experts in his or her report, declaration, or affidavit, including the manner by which such opinions were reached, and information considered in reaching such opinions; (ii) otherwise inquire into the process by which an expert report, affidavit or declaration was drafted, provided that, in so doing, the Parties may not discover the contents of any such drafts of expert reports, declarations or affidavits, nor notes pertaining thereto; or (iii) obtain reports, testimony, or other discovery or evidence produced in any prior litigation or any currently pending investigation, litigation or proceeding involving two or more of the Parties to this Investigation.

13. COMMUNICATIONS BETWEEN PARTY AND COUNSEL

The parties agree that privileged or protected communications occurring on or after October 22, 2009 need not be recorded on the Party's privilege log in this case.

14. FINAL DISPOSITION

Unless otherwise ordered or agreed in writing by the Producing Party, within 90 calendar days after the final termination of this Action, each Receiving Party must return all Protected Material to the Producing Party. As used in this subdivision, "all Protected Material" includes all copies, abstracts, compilations, summaries or any other form of reproducing or capturing any of the Protected Material. In lieu of returning to the Producing Party, counsel for a Receiving Party may destroy any Protected Material that is intertwined with attorney work product or

privileged communications. With permission in writing from the Designating Party, the Receiving Party may destroy some or all of the remaining Protected Material instead of returning it. Whether the Protected Material is returned or destroyed, the Receiving Party must submit a written certification to the Producing Party (and, if not the same person or entity, to the Designating Party) by the 90 calendar day deadline that verifies all the Protected Material was returned or destroyed and that affirms that the Receiving Party has not retained any copies, abstracts, compilations, summaries or other forms of reproducing or capturing any of the Protected Material. Notwithstanding this provision, Counsel are entitled to retain an archival copy of all pleadings, expert reports, motion papers, deposition and hearing transcripts, legal memoranda, correspondence and attorney work product, even if such materials contain Protected Material. Any such archival copies that contain or constitute Protected Material remain subject to this Order as set forth in Section 4 (DURATION) above.

15. MISCELLANEOUS

15.1 Right to Further Relief. Nothing in this Order abridges the right of any person to seek its modification by the Court in the future. The Parties may by stipulation provide for exceptions to this Order, provided that such stipulation is presented to the Court as a Consent Order, and any Party may seek an order of this Court modifying or interpreting this Order.

15.2 Right to Assert Other Objections. By stipulating to the entry of this Order, no Party waives any right it otherwise would have to object to disclosing or producing any information or item on any ground not addressed in this Order or from asserting that certain discovery materials should receive greater confidentiality protection than that provided herein, in accordance with Rule 26(c) of the Federal Rules of Civil Procedure. Similarly, no Party waives any right to object on any ground to use in evidence of any of the material covered by this Order.

15.3 Waiver of Notice. Any of the notice requirements herein may be waived, in whole or in part, but only by a writing signed by Counsel for the Party against whom such waiver will be effective.

15.4 Enforcement. The United States District Court for the District of Delaware is responsible for the interpretation and enforcement of this Order. All disputes concerning Protected Material produced under the protection of this Order shall be resolved by this Court. In the event anyone shall violate or threaten to violate the terms of this Order, subject to meet and confer obligations in the Court's Local Rules, the aggrieved party may apply to obtain injunctive relief against any such person, and in such event, the respondent, subject to the terms of this Order, shall not employ as a defense thereto the claim that the aggrieved party possesses an adequate remedy at law. The parties and any other person subject to the terms of this Order agree that they will subject themselves to the jurisdiction of this Court for the purpose of any proceedings related to performance under, compliance with, or violation of this Order.

15.5 No Waiver. Nothing in this Order, or the taking of any action in accordance with the provisions of this Order, or the failure to object thereto, shall be construed as a waiver or admission of any claim or defense in the Action. The failure to object to a designation shall not constitute an admission by the Receiving Party that the designated information is in fact trade secret or proprietary information. This Order shall not in any way limit what a party may do or disclose with its own documents or information. Nothing in this Order shall be deemed to preclude a party from seeking and obtaining, on an appropriate showing, different or additional protections or relief regarding matter designated as containing "CONFIDENTIAL," "HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY," or "HIGHLY CONFIDENTIAL – SOURCE CODE" information.

MORRIS, NICHOLS, ARSHT & TUNNELL LLP

/s/ Jack B. Blumenfeld

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Attorneys for Apple Inc.

Dated: June 1, 2010

SO ORDERED this ___ day of _____ 2010.

United States District Court Judge

EXHIBIT A

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

NOKIA CORPORATION Plaintiff, v. APPLE INC. Defendant.	C.A. No. 09-791-GMS
APPLE INC. Counterclaim-Plaintiff, v. NOKIA CORPORATION and NOKIA INC., Counterclaim-Defendants.	

Agreement To Be Bound By Protective Order

I have read and understand the terms and restrictions of the Joint Protective Order entered in the above-captioned action by the Court. I understand the provisions of the Joint Protective Order, and I understand the responsibilities and obligations the Joint Protective Order imposes on persons viewing the litigation material which is subject to the Joint Protective Order (the "Protected Material"). I understand that any violation of the terms of the Joint Protective Order may constitute contempt of a court order. In accordance with the Joint Protective Order, so as to permit me to view the Protected Material, or produce the Protected Material, which is subject to the Joint Protective Order, I hereby agree to be bound by all of its provisions and terms, and I hereby submit to the jurisdiction of the District Court for the District of Delaware for the purposes of enforcement of the Joint Protective Order.

I shall not use or disclose to others, except in accordance with the Joint Protective Order, any Protected Material. I understand that, if I fail to abide by the terms of the Joint Protective Order, I may be subject to sanctions by way of contempt of Court, separate legal and equitable recourse by the adversely affected Producing Party, or other appropriate relief.

Dated: _____

By: _____
Name: _____
Title: _____

MEDIATION-LPS, PATENT

U.S. District Court
District of Delaware (Wilmington)
CIVIL DOCKET FOR CASE #: 1:09-cv-00791-GMS

Nokia Corporation v. Apple Inc.
Assigned to: Judge Gregory M. Sleet
Related Cases: 1:09-cv-01002-GMS
1:10-cv-00544-GMS
Cause: 35:271 Patent Infringement

Date Filed: 10/22/2009
Jury Demand: Both
Nature of Suit: 830 Patent
Jurisdiction: Federal Question

Plaintiff

Nokia Corporation

represented by **Rodger Dallery Smith , II**
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(302) 658-9200
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LEAD ATTORNEY
ATTORNEY TO BE NOTICED

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PRO HAC VICE
ATTORNEY TO BE NOTICED

V.

		Gregory M. Sleet on 5/11/2010. (ctd) (Entered: 05/11/2010)
05/12/2010	43	STIPULATION TO EXTEND TIME Proposed Protective Order to May 25, 2010 - filed by Apple Inc.. (Horwitz, Richard) (Entered: 05/12/2010)
05/14/2010		SO ORDERED, re 43 STIPULATION TO EXTEND TIME Proposed Protective Order to May 25, 2010 filed by Apple Inc. Ordered by Chief Judge Gregory M. Sleet on 5/14/2010. (asw) (Entered: 05/14/2010)
05/14/2010	44	ORDER Setting Mediation Teleconference: Telephone Conference set for 6/2/2010 10:00 AM before Judge Leonard P. Stark. Signed by Judge Leonard P. Stark on 5/14/10. (ntl) (Entered: 05/17/2010)
05/14/2010		CASE REFERRED to Mediation. (Notice is for court administrative purposes only). (rpg) (Entered: 05/25/2010)
05/24/2010	45	Joint STIPULATION TO EXTEND TIME to submit a proposed protective order to June 1, 2010 - filed by Apple Inc., Nokia Corporation, Nokia Inc.. (Blumenfeld, Jack) (Entered: 05/24/2010)
05/24/2010	46	NOTICE of Appearance by Richard K. Herrmann on behalf of Apple Inc. (Herrmann, Richard) (Entered: 05/24/2010)
05/24/2010	47	MOTION to Consolidate Cases *09-791; 09-1002; 10-166; and 10-167* - filed by Apple Inc.. (Herrmann, Richard) (Entered: 05/24/2010)
05/24/2010	48	OPENING BRIEF in Support re 47 MOTION to Consolidate Cases *09-791; 09-1002; 10-166; and 10-167* filed by Apple Inc..Answering Brief/Response due date per Local Rules is 6/10/2010. (Herrmann, Richard) (Entered: 05/24/2010)
05/24/2010	49	DECLARATION re 47 MOTION to Consolidate Cases *09-791; 09-1002; 10-166; and 10-167* by Apple Inc.. (Herrmann, Richard) (Entered: 05/24/2010)
05/25/2010		SO ORDERED, re 45 Joint STIPULATION TO EXTEND TIME to submit a proposed protective order to June 1, 2010 filed by Nokia Inc., Nokia Corporation, Apple Inc. Ordered by Chief Judge Gregory M. Sleet on 5/25/2010. (asw) (Entered: 05/25/2010)
05/26/2010		ORAL ORDER CHANGING TIME OF TELECONFERENCE: The TIME of the Teleconference, to discuss the pending Motion to Dismiss (D.I. 25) and scheduling, currently set for Thursday, June 3, 2010, at 2:30 PM with the Honorable Gregory M. Sleet HAS BEEN CHANGED to 2:00 PM. Ordered by Chief Judge Gregory M. Sleet on 5/26/2010. (ctd) (Entered: 05/26/2010)
05/26/2010	50	ORDER Cancelling Mediation Telephone Conference set for 6/2/2010 10:00 AM and Resetting Mediation Telephone Conference: (Mediation Telephone Conference reset for 6/2/2010 03:45 PM before Judge Leonard P. Stark). Signed by Judge Leonard P. Stark on 5/26/2010. (rpg) (Entered: 05/26/2010)
06/01/2010	51	Joint PROPOSED ORDER Protective by Apple Inc., Nokia Corporation, Nokia Inc.. (Attachments: # 1 Exhibit A)(Blumenfeld, Jack) (Entered: 06/01/2010)
06/02/2010		SO ORDERED, re 51 Joint Proposed Protective Order filed by Nokia Inc.,