IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF ALABAMA
EASTERN DIVISION

AUBURN UNIVERSITY,	)	
	)	
Plaintiff,	)	
v.	)	CASE NO. 3:09-cv-694-MEF
	)	(WO)
INTERNATIONAL BUSINESS MACHINES, CORP.,	)	
	)	
Defendant.	)	

ORDER AND MEMORANDUM OPINION

This cause is before the Court on IBM's Motion for Summary Judgment of Noninfringement (Doc. #261.) For the reasons set forth below, this motion is due to be GRANTED.

I. Background

On June 17, 2010, Auburn filed its First Amended Complaint for Correction of Inventorship and Patent Infringement. Auburn's complaint alleges that IBM infringes two patents owned by Auburn: U.S. Patent No. 7,194,366 ("the '366 Patent" or "'366") and U.S. Patent No. 7,409,306 ("the '306 Patent" or "'306") (collectively "the Auburn Patents"). The Auburn Patents describe a "system and method for estimating [the] reliability of components for testing and quality optimization." (Auburn Patents, Docs. #261-1, 261-2.)[1] Auburn contends that IBM's methods of testing various of its products

[1] Throughout this opinion the Court will refer to the Court-assigned page numbers appearing at the top of all docketed materials.

("components")[2] infringe the Auburn Patents. The Court laid out the background of the Auburn Patents in its Claim Construction Order ("CCO") (Doc. #193 at 7-10) and incorporates that discussion here.

Per this Court's Amended Scheduling Order, (Doc. #207), IBM filed its motion for summary judgment of noninfringement on October 28, 2011. The motion came under submission on December 14, 2011. The Court has considered the arguments contained in IBM's motion, Auburn's response, and IBM's reply, and is fully apprised of the issues contained therein.

Auburn alleges that, by performing certain testing methods on certain IBM components, IBM infringes claims 1, 8, 10-13, 15, and 17-20 of '366, and claims 1, 2, 6, 7, 14, and 16 of '306.

A. The accused IBM products

For purposes of deciding this Motion, the accused IBM components can be grouped into three general product categories:[3]

> **(1) The P/Z products:** Auburn alleges that IBM infringes the asserted claims of the '366 Patent during the actual manufacture/post-production testing of certain IBM microprocessor chips referred to by Auburn collectively as "the P/Z products." The accused P/Z products are the Power5+,

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[2] Throughout this opinion, the Court will use the word "component" to refer to all of IBM's accused products, which include various electronic components, integrated circuits, and die (Doc. #261 at 4.)

[3] When this motion was originally filed, there was a fourth group of products, "the Sony products." However, during the pendency of this motion, all claims regarding the Sony products have been resolved. (Doc. #370, Doc. #375.)

> Power6, Power7, Z6 (EP), Z6 (ES), Z7 (CP), and Z7 (SC) microprocessors.
>
> **(2) The Corona/Trimaran products:** Auburn also alleges that IBM infringes the asserted claims of the ‘366 Patent during the actual manufacture/post-production testing of two L3 (Level 3) cache memory chips referred to as Trimaran and Corona.
>
> **(3) The Dreadnaught/DDP223O products**: Regarding the ‘306 Patent, Auburn alleges that IBM infringes the asserted ‘306 Patent claims during IBM’s actual manufacture/postproduction testing of two Application Specific Integrated Circuit (ASIC) chips referred to as the Dreadnaught and DDP2230 products.

(Doc. #261, at 10.)

B. The Auburn Patents and the CCO

Between ‘366 and ‘306, there are three independent claims: ‘366 claims 1 and 13, and ‘306 claim 1. Each of these independent claims sets out a similar three-step method for testing components.

(1) The ‘366 patent

Auburn alleges that IBM’s P/Z and Trimaran/Corona products infringe on claims 1, 8, 10-13, and 17-20 of ‘366.

As mentioned above, only claims 1 and 13 of ‘366 are independent; IBM cannot infringe the dependent claims of ‘366 if it does not infringe the independent claims. *Wahpeton Canvas Co., Inc. v. Frontier, Inc.*, 870 F.2d 1546, 1552 n.9 (Fed Cir. 1989).

Claim one of ‘366 sets out:

> A method of [determining] the post-production reliability of a repairable integrated circuit die component, said method comprising:

> performing an initial post-production test on the component to identify repairable defects in the component; and
>
> classifying the component into a classification of a plurality of reliability probability classifications based on the number of repairable defects identified by the initial test; and
>
> estimating the reliability of the component based on the classification.

('366 Patent, Doc. #261-1, at 21.)

Claim thirteen of'366 sets out:

> A method for predicting the post-production reliability of an integrated circuit die component, said method comprising:
>
> performing an initial post-production test to identify a number of killer defects;
>
> classifying a component into one of a plurality of reliability probability classifications based on the number of killer defects identified by the initial test; and
>
> optimizing further testing of the component to identify the presence of latent defects, based on the classification thereof.

(*Id*.)

The Court has construed the relevant language of claims one and thirteen of'366 as follows:

Independent Claim	Disputed Claim Term	Court's Construction
'366, Claim 1	"estimating the reliability of the component based on the classification"	"either simultaneously with or after the 'classifying' step, statistically calculating a numerical value of the reliability of the component based on the classification"
'366, Claim 13	"predicting the post-production reliability"	"statistically calculating a numerical value of the reliability"
'366, Claim 13	"optimizing further testing of the component to identify the presence of latent defects, based on the classification thereof."	"either simultaneously with or after the 'classifying' step, optimizing further testing of the component to identify the presence of latent defects, based on the classifications thereof"
'366, Claims 1 and 13	"a plurality of reliability probability classifications"	"at least two classifications of components associated with respective levels of expected reliability"

(CCO, Doc. #193, at 46-47.)

(2) The '306 patent

Auburn alleges that IBM's Dreadnaught/DDP2230 products infringe claims 1, 2, 6, 7, 14, and 16 of'306, though claim 1 is the only independent claim of the '306 patent. Therefore, to infringe claims 2, 6, 7, 14, and 16, IBM must first be held to infringe claim 1. *Wahpeton Canvas*, 870 F.2d at 1552 n.9.

Claim 1 of '306 sets out

> A method of determining the reliability of a component, the method comprising:
>
> classifying the component based on an initial determination of a number of fatal defects; and
>
> estimating a probability of latent defects present in the component based on the classification, by integrating yield information based on the initial determination of a number of fatal defects using a statistical-defect clustering model.

(‘306 Patent, Doc. #261-2, at 21.)

The Court construed the relevant language in claim 1 of the ‘306 patent as follows:

Disputed Claim Term	**Court’s Construction**
“estimating a probability of latent defects in the component based on the classification”	“either simultaneously with or after the ‘classifying’ step, quantifying the probability of latent defects in the component with a numerical value based on the classification.”
“determining the reliability”	“quantifying the reliability with a numerical value.”

(CCO, Doc. #193, at 30, 32.)

D. Factual Background

The facts at issue center on IBM’s method of testing its accused products. In lieu of an “Undisputed Facts” section as might typically be found in a motion for summary judgment, IBM bases its factual allegations on the expert report and testimony of Auburn’s expert, Dr. F. Joel Ferguson (Doc. #261, at 20 n.29.) Auburn alleges that IBM mischaracterizes “Auburn’s factual allegations and legal contentions, as well as the expert opinions of Dr. Ferguson in numerous instances.” (Doc. #276, at 7). However, the Court accepts Dr. Ferguson's description of IBM's processes, construed in the light most favorable to Auburn, as the underlying factual basis for IBM's motion.

(1) The P/Z products

To infringe claims 1 and 13 of '366, IBM would have to apply the following three step process to its P/Z products:

> (1) performing an "initial post production test" to identify repairable ('366, claim 1) or killer ('366, claim 13) defects;
>
> (2) "classifying" the chips based on the number of defects as determined by the initial post-production test ('366 claim 1, 13); and
>
> (3) "estimating" ('366, claim 1) or "predicting" ('366 claim 13) the reliability of a component "based on the classification."

(Doc. #261-1, at 21.)

IBM's actual manufacture/post-production testing process for its P/Z products involves three phases: the wafer test, the package test, and the stress test/burn-in phases (Doc. #261, at 26.)[4] Prior to this three-stage actual manufacture/post-production testing process, IBM also tests selected components during what IBM refers to as its "qualification process" (*Id.*) Auburn alleges that IBM performs the three steps indicated above, as instructed by '366, on the accused products through a combination of IBM's pre-production qualification and actual manufacture/post-production testing processes.

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[4] Dr. Ferguson explains that during stress testing and burn-in, "integrated circuits are subjected to various non-optimal conditions to precipitate failures caused by latent defects. However, stress testing may damage the die, and also involves time and expense." (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17 at 9.)

(a) Description of IBM's pre-manufacture "qualification" process

Prior to any actual manufacture/post-production testing (the wafer-test, package-test, and stress-test/burn-in processes) of IBM's components, IBM puts selected P/Z components through what IBM refers to as its "T2 Qualification Process" (the "qualification process"). In the qualification process, IBM selects a "representative sample of die" (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 52.) The purpose of the qualification process is to project reliability targets for the products that will later be fully manufactured and tested. (*Id.* at 52-53.) This section will detail IBM's qualification process.

(i) Selection of Components for the Qualification Process

As part of IBM's qualification process, components are subjected to the actual manufacture/post-production testing processes, *supra* Part I.D.1, to which all chips will later be subjected. To survive qualification, components must successfully pass the "various functional and parametric tests applied during wafer-level and package-level testing." (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 52.) This includes a "repair-count threshold" or "repair-screen" that serves to optimize testing by classifying components into "good" or "bad" categories based on the number of defects found in those components. The "good" components continue through the process, while the "bad" components are scrapped. "The goal is to perform T2 evaluations on die populations that are representative of the die populations produced during full-scale manufacturing [i.e. chips that have survived the wafer- and package-level testing], as the common basis permits the extrapolation of the reliability estimates from the qualification context to the manufacturing context." (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 52*; see infra* note 11 and accompanying text.)

(ii) Testing of the Components Selected for the Qualification Process

After selecting components within the parameters described above, IBM then subjects this "representative sample" to "'various kinds of stress testing.'" (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 53.) The selected components are tested to the point of total failure in order to "observe failures throughout an accelerated version of the useful life of the P/Z products and potentially beyond . . . and this stress testing results in a time-to-fail distribution over the expected life of the P/Z products.'" (*Id.*)

(iii) Creating "Reliability Failure-inTime Targets" From the Results of the Qualification process

The results of the stress testing done in the qualification process are input to a statistical model to estimate the reliability of the P/Z products. IBM's microelectronics division then sends the failure rates produced by the reliability models to the IBM server group in documents called "T2 letters." These letters contain the reliability estimates produced by the reliability models, expressed in "failures-in-time" ("FIT") units. (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 57-59.)[5]

(iv) Application of Reliability FIT Targets

[5] FIT measures "the number of failed parts per million per thousand hours." (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 57.) The fewer failures in time a given component has—i.e. the lower its FIT rate—the more reliable that component is.

Fit targets contained in the T2 letters apply only to components that pass all necessary actual manufacture and post-production testing, including burn-in. (Deposition of Dr. F. Joel Ferguson, Doc. #261-6 at 36-45.) It is only after the qualification process is completed on a select number of components that IBM begins its actual manufacture/post-production testing process in order to produce customer-ready P/Z products. *Infra* Part I.D.1.d.

(b) IBM's Initial Post-Production Test

As discussed above IBM performs an "initial post-production test" or "repair-count screen" on the P/Z products during both the qualification and actual manufacture/post-production testing phases. IBM also applies the repair-count screen during wafer and package testing. During the wafer test phase, before each die has been separated from the other die on a given wafer, IBM counts the number of necessary repairs within each P/Z die. (Doc. #261-17 at 41-43.) Then**,** during the package-test phase, IBM separates each P/Z die from the remainder of the die that make up a given wafer, mounts the die on a "carrier made of ceramic, plastic, or some other similarly-suited material" (*id.* at 7), and counts the number of required repairs to an individual P/Z die (*id*. at 50-51).

At both of these stages, IBM's repair-count test compares the number of required repairs (the "repair count") to a pre-determined threshold number of repairs, with the threshold being less than the maximum number of repairs that can be accommodated by the redundant circuitry. (*Id.* at 43.)

(c) IBM's "Classification" Process[6]

After the repair count is performed, IBM classifies each chip as either "good"—"if the number of required repairs is below the predetermined 'repair count threshold'"—or bad—"if the number of required repairs exceeds the predetermined 'repair count threshold.'" The "bad" chips are scrapped, and the "good" chips continue to the next phase of the manufacture and testing process. (*Id.* at 43-48.)

(d) "Predicting" or "Estimating" a Numerical Value

After classification, the components are put through the stress-test/burn-in phase, during which the die are subjected to additional testing that components must pass before they are deemed ready for shipment to the customer. Once the finished components are otherwise customer-ready, the numerical FIT targets derived from the qualification process are applied to the finished components. (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 52-53, 58-59.) The result is that IBM has a numerical value of reliability for its finished product, which IBM may then, for example, compare with the FIT target desired by a customer, allowing IBM to ship to its customer only the components that meet or exceed the desired FIT Target.

(2) Trimaran/Corona Products

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[6] IBM also refers to classifying components as "binning" or "sorting." (*Id.*)

As with the P/Z products, to infringe claims 1 and 13 of ‘366, IBM would have to apply the following three step process to its Trimaran/Corona products:

> (1) performing an “initial post production test” to identify repairable (‘366, Claim 1) or killer (‘366, Claim 13) defects;
>
> (2) “classifying” the chips based on the number of defects as determined by the initial post-production test (‘366 Claim 1, 13); and
>
> (3) “estimating” (‘366, Claim 1) or “predicting” (‘366 Claim 13) the reliability of a component “based on the classification.”

(Doc. #261-1, at 21.)

The processes used to test and manufacture IBM’s accused Trimaran/Corona products are largely the same as the process laid out above, *supra* Part. I.D.1, for the P/Z products. (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17 at 62 (“The general set of manufacturing tests that IBM performs on the Trimaran and Corona are largely similar to the P/Z products . . . . The same is true for the hardware and software implementation of these test processes.”).) This section will detail only the differences between the P/Z process and the Trimaran/Corona process. Despite these slight differences, the Trimaran/Corona process and the P/Z process are sufficiently similar so that the same legal conclusions apply to both sets of accused products.

(a) Description of IBM’s Pre-Manufacture “Qualification” Process

IBM uses the same qualification process, and derives FIT targets from the qualification process in much the same way, in its testing of the P/Z and Trimaran/Corona products. Specifically, IBM uses the same "reliability model" on the Trimaran/Corona products as it does on the P/Z products. (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17 at 67-69.)

(b) IBM's Initial Post-Production Test

The initial post-production test, or repair-count screen, is applied to the Trimaran/Corona products in much the same way as it is applied to the P/Z products. A repair-count screen is applied, and the components are classified as a result of the number of defects in each component, as revealed by the repair-count screen (Doc. #261-17, at 62-63.)

(c) IBM's "Classification" Process

IBM's classification of the Trimaran/Corona products results in greater nuance and more categories of components than does the classification process for the P/Z products. At different points in time, IBM has (1) classified Trimaran/Corona components into "good" and "bad" classifications, scrapping the "bad" chips, (2) differentiated the amount of subsequent burn-in testing certain components will receive based on the number of defects revealed by the repair-count screen, and (3) directed components to "lower or higher reliability applications" based on the number of repairable defects. (Deposition of

Dr. F. Joel Ferguson, Doc. #261-6, at 22-28; Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 62-67.)

(d) "Predicting" or "Estimating" a Numerical Value

The methods IBM uses to predict or estimate the numerical value of the Trimaran/Corona products is insufficiently distinguishable from the method used on the P/Z components as to make any difference in the Court's legal analysis. (*See* Expert Report of Dr. F. Joel Ferguson, Doc. #261-17 at 67-68.)

(3) Dreadnaught/DDP2230 Products

To infringe claim 1 of '306, IBM would have to apply the following three step process to its Dreadnaught/DDP2230 products:

> (1) classifying the component based on an initial determination of a number of fatal defects;
>
> (2) estimating a probability of latent defects present in the component based on the classification, by
>
> (3) integrating yielded information based on the initial determination of a number of fatal defects using a statistical defect-clustering model.

('306 patent, Doc. #261-2, at 21.)

As is the production process for IBM's accused Trimaran/Corona products, the production process for the Dreadnaught/DDP2230 products is very similar to the process laid out above, *supra* Part I.D.1, for the P/Z products. (*See* Expert Report of Dr. F. Joel Ferguson, Doc. #261-17 at 70-76.) This section will detail only the differences between the P/Z process and the Dreadnaught/DDP2230 process. Despite these slight differences, as discussed, *infra* Part I.D.3.a-c, the Dreadnaught/DDP2230 process and the P/Z process are sufficiently similar so that the same legal conclusions apply to both sets of accused products.

(a) Description of IBM's pre-manufacture "qualification" process

IBM uses the same qualification process, and derives FIT targets from the qualification process in much the same way in its testing of the P/Z and Dreadnaught/DDP2230 products (Doc. #261-17 at 76-78.)

(b) IBM's initial post-production test and classification process

During the wafer test phase, IBM performs a "nearest neighbor threshold test" on the Dreadnaught/DDP2230 products:

> During a nearest neighbor test, the number of defective die surrounding a given die . . . is counted. The surrounding die, called "neighboring die" or simply "neighbors," are tested to see how many of those die contain certain types of defects. . . . Once the neighboring die are counted at wafer test, IBM categorizes a given central Dreadnaught/DDP2230 die that passed wafer testing into "good" or "bad" . . . categories based on the number of defective neighbors surrounding that die.

(Doc. #261-17. at 71-72.)

The parties dispute *when* IBM performed the nearest neighbor test on the Dreadnaught/DDP2230 products. Specifically, IBM argues that it ran the T2 qualification process on Dreadnaught/DDP2230 products before ever implementing a nearest neighbor threshold test on those products and therefore could not have "estimated a probability of latent defects . . . *based on* the classification" (Doc. #261, at 47 (emphasis original)) where the classification would have been based on the results of a nearest-neighbor test that IBM was not yet performing.[7] Auburn argues that IBM did run the nearest-neighbor test during qualification of the Dreadnaught/DDP2230 products and therefore classified those products based on the results of the nearest-neighbor test. (Doc. #276, at 36-37.) Accepting the facts in the light most favorable to Auburn, the Court finds that IBM did use a nearest neighbor test to classify the Dreadnaught/DDP2230 products during qualification.

(c) "Predicting" or "estimating" a numerical value

The methods IBM uses to estimate or determine the numerical value of the Dreadnaught/DDP2230 products is insufficiently distinguishable from the method used on the P/Z and Trimaran/Corona chips as to make any difference in the Court's legal analysis. (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17 at 76 ("IBM estimates the reliability of the Dreadnaught and DDP2230 products in a manner similar to the P/Z products discussed above. In particular, IBM uses a reliability model to produce a statistical estimate of the failures-in-time (FITs) and failed parts-per-million (PPM) for the Dreadnaught and DDP2230 products.")

II. Standard of Review

A. Legal standard governing patent infringement

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[7] Despite hinging on the same language, the "based on" argument IBM makes with regard to the Dreadnaught/DDP2230 is different from the one which the Court uses to draw its non-infringement conclusion for all three of the accused product classes. *See infra* Part III.A.2.

The patent owner bears the burden of proof to "present evidence sufficient to establish that one or more patent claims are infringed." *Jazz Photo Corp., v. Int'l Trade Comm'n*, 264 F.3d 1094, 1102 (Fed. Cir. 2001). "[T]he burden remains with the patentee to prove infringement, not on the defendant to disprove it." *Welker Bearing Co. v. PHD, Inc.*, 550 F. 3d 1090, 1095 (Fed. Cir. 2008). A determination of patent infringement requires a two-step analysis: (1) claim construction; and (2) comparison of the properly construed patent claims to the accused method or process. *Mars, Inc. v. H.J. Heinz Co., L.P.*, 377 F.3d 1369, 1373 (Fed. Cir. 2004). In this opinion the Court will undertake the second step of the analysis by comparing the accused IBM test methods to the properly construed patent claims to determine if Auburn can meet its burden to prove infringement of the claims. *Id.*

(1) Literal Infringement

A claim is literally infringed "when each of the claim limitations reads on, or in other words is found in, the accused device." *Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1345 (Fed. Cir. 2002) (internal quotation marks and citation omitted); *see also Techsearch, L.L.C. v. Intel Corp.*, 286 F.3d 1360, 1372 (Fed. Cir. 2002) ("To establish literal infringement, all elements of the claim, as correctly construed, must be present in the accused system.") (citation omitted). There can be no infringement as a matter of law if even a single claim limitation is absent in the accused device or method. *Phonometrics, Inc. v. Northern Telecom, Inc.*, 133 F.3d 1459, 1467 (Fed. Cir. 1998).

(2) Infringement under the doctrine of equivalents

When there is no literal infringement, a patentee may attempt to prove infringement under the doctrine of equivalents. *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997). An infringement analysis under the doctrine of equivalents requires an element-by-element correspondence between the accused product or method and the patent claims to determine if the differences are only insubstantial. *Id*. at 29, 40. The doctrine of equivalents may not be applied when doing so would vitiate a claim limitation. *Id*. at 29.

B. Summary judgment standard

"Summary judgment is appropriate if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show there is no genuine issue of material fact and that the moving party is entitled to judgment as a matter of law." *Greenberg v. BellSouth Telecomms., Inc.*, 498 F.3d 1258, 1263 (11th Cir. 2007) (citation and internal quotation marks omitted); *see also* Fed. R. Civ. P. 56(a) ("The court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.").

"[A] party seeking summary judgment always bears the initial responsibility of informing the district court of the basis for its motion, and identifying those portions of [the record] which it believes demonstrate the absence of a genuine issue of material fact." *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986) (quotation omitted). The movant can meet this burden by presenting evidence showing there is no dispute of material fact, or by showing the non-moving party has failed to present evidence in support of some element of its case on which it bears the ultimate burden of proof. *Id.* at 322-23.

If the movant satisfies its evidentiary burden, the non-moving party must then establish, with evidence beyond the pleadings, that a genuine issue material to each of its claims for relief exists. *Clark v. Coats & Clark, Inc.*, 929 F.2d 604, 608 (11th Cir. 1991); Fed. R. Civ. P. 56(c). What is material is determined by the substantive law applicable to the case. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986); *see also Lofton v. Sec'y of the Dep't of Children & Family Servs.*, 358 F.3d 804, 809 (11th Cir. 2004) ("Only factual disputes that are material under the substantive law governing the case will preclude entry of summary judgment."). Furthermore, "[t]he mere existence of some factual dispute will not defeat summary judgment unless that factual dispute is material to an issue affecting the outcome of the case." *McCormick v. City of Ft. Lauderdale*, 333 F.3d 1234, 1243 (11th Cir. 2003) (citation and internal quotation marks omitted).

A genuine dispute as to a material fact can be found only "if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Anderson*, 477 U.S. at 248; *see also Greenberg*, 498 F.3d at 1263. However, if the evidence on which the nonmoving party relies "is merely colorable, or is not significantly probative, summary judgment may be granted." *Anderson*, 477 U.S. at 242 (citations omitted). Likewise, "[a] mere scintilla of evidence in support of the nonmoving party will not suffice to overcome a motion for summary judgment[,]" *Young v. City of Palm Bay*, 358 F.3d 859, 860 (11th Cir. 2004), and the nonmoving party "must do more than simply show that there is some metaphysical doubt as to the material facts," *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 586 (1986). Furthermore, a nonmoving party's "conclusory allegations . . . in the absence of supporting evidence, are insufficient to withstand summary judgment." *Holifield v. Reno*, 115 F.3d 1555, 1564 n.6 (11th Cir. 1997); *see also Cordoba v. Dillard's, Inc.*, 419 F.3d 1169, 1181 (11th Cir. 2005) ("Speculation does not create a *genuine* issue of fact . . . .") (emphasis in original).

When a nonmovant fails to set forth specific facts supported by appropriate evidence sufficient to establish the existence of an element essential to his case and on which the nonmovant will bear the burden of proof at trial, summary judgment is due to be granted in favor of the moving party. *Celotex Corp.*, 477 U.S. at 323 ("[F]ailure of proof concerning an essential element of the nonmoving party's case necessarily renders all other facts immaterial.").

In the patent context, infringement is properly decided at the summary judgment stage only when no reasonable jury could find that every limitation recited in the properly construed claim either is or is not found in the accused device, either literally or under the doctrine of equivalents. *Gart v. Logitech, Inc.*, 254 F.3d 1334, 1339 (Fed. Cir. 2001).

III. Discussion

A. IBM does not literally infringe the '366 patent with regard to the P/Z products

IBM makes four arguments as to why it does not infringe with regard to the P/Z Products. IBM argues that:

> (1) IBM never performs a step of "classifying" the P/Z products into a "plurality of reliability probability classifications." (IBM's Motion, Doc. #261 at 27.)
>
> (2) The numerical reliability targets from IBM's qualification process relied upon by Auburn are inapplicable to the actual manufacture/post-production P/Z components that Auburn alleges are classified into "reliability probability classifications." (Doc. #261 at 29.)
>
> (3) Auburn's infringement theory for the P/Z products fails as a matter of law because IBM's sequence does not satisfy the Court's claim construction ruling (Doc. #26, at 31.)
>
> (4) Auburn is improperly reading the '366 patent claims to cover methods for testing the P/Z products that the Court has ruled were "already being performed" in the prior art. (Doc. #261 at 32.)

IBM's second and third arguments lead the Court to conclude that IBM does not infringe with regard to the P/Z products because IBM does not estimate or predict a numerical value of reliability "based on" the classification of its components as required to infringe claims 1 and 13 of '366.[8]

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[8] On its face, claim 13 of '366 does not appear to include the limiting step of "statistically calculating a numerical value of the reliability" in the same way claim 1 of '366 does. *Compare* CCO, Doc. #193, at 46 (construing the third claimed step of '366 claim 1, "estimating the reliability of the component based on the classification" to mean, in relevant part. "statistically calculating a numerical value of the reliability of the component based on the classification") *with* CCO, Doc. #193, at 46 (construing the term "predicting the post-production reliability" from the *preamble* of '366 claim 13, to mean "statistically calculating a numerical value of the reliability").) The Court found that "the term 'predicting the post-production reliability' of claim 13 is the essence of the invention and, therefore, a limitation on the claim." (*Id.* at 39.) The Court went on to find that "[u]sing statistical modeling to numerically predict or estimate reliability is not merely a preferred embodiment of claim 1, it is the invention in claim 1" and that "[s]imilarly, a reading of the whole '366 Patent reveals that the invention of claim 13 is the extension of this improved method to repairable integrated circuit dies[.]" (*Id.* at 44.) The Court concluded that the methods detailed in claims 1 and 13 involved "statistically calculating a numerical value of the reliability of the component." (*Id.* at 45.) To the extent necessary, the Court here clarifies that claim 13 of the Auburn patent requires the statistical calculation of a numerical value of reliability *based on the classification*, as does claim 1. Therefore, the same analysis applies to determine

(1) A reasonable juror could conclude that IBM, through its "qualification process," classifies the P/Z Products into a "plurality of reliability probability classifications" as that term was construed by this Court

IBM first argues that it does not perform the required step of "classifying" its P/Z Products into a "plurality of reliability classifications." Based on IBM's own description of its chip-testing methods, however, a reasonable juror could find that IBM does in fact classify these products into a plurality of reliability probability classifications.

The Court construed the term "a plurality of reliability probability classifications[,]" as used in claims 1 and 13 of the '366 patent, to mean "at least two classifications of components associated with respective levels of expected reliability." IBM argues that it does not classify its P/Z components into a plurality of reliability classifications because it does not statistically quantify the reliability of the components that are designated as "bad" during the repair-count test. (Doc. #261, at 27-28.) This argument relies on a misinterpretation of the CCO.

IBM interprets the Court's construction to mean that "each of the 'respective levels of expected reliability' must be statistically quantified because that is 'the true invention' of '366 claims 1 and 13 and the statistical calculation of a numerical value of the reliability of components in different bins is what distinguishes the claims from the admitted prior art[.]" (Doc. #261 at 27 (quoting CCO, Doc. #193 at 45-46) (citing Doc. #193 at 28 n.20).)

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whether the testing methods used on the P/Z and Trimaran/Corona products constitute infringement of either claim 1 or claim 13 of '366.

IBM misconstrues the CCO in arguing that the CCO requires statistical quantification of the expected levels of reliability for all component classifications in order to achieve a "plurality of reliability probability classifications." The language of the CCO instead supports Auburn's contention that "the Court expressly rejected any requirement of statistically quantifying reliability as part of the ***classifying step*** [and] instead permitted classifying simply based on 'relative probability.'" (Doc. #276, at 10) (emphasis original).)

First, the CCO states that "It is only by considering *how* the patented inventions predict or determine the reliability that [the] invention's boundaries can be defined." (Doc. #193 at 43 (emphasis original).) The Court determined the scope of the inventions contained in Auburn's patents based on how those inventions predicted or determined reliability; that is, based on the means of accomplishing the *third* step of Auburn's patented methods (estimating/predicting), rather than the *second* step of the methods (classification). *Supra,* Part I.D.1. The implication of this statement, made more explicit later in the CCO and discussed below, is that one could practice Auburn's patent even by performing the classification stage just as it had been performed in the prior art, as it is not the classification stage that serves to distinguish Auburn's inventions from the prior art.

The CCO goes on to state that "[g]iven the entire specification, including the known models already in use and the need identified by the '366 patent, it is clear that the invention of Claim 1 must call for statistical modeling in the *third* step of Auburn's patented process, *the numerical estimation or prediction of reliability*." (Doc. #193, at 44 (emphasis added).) The CCO does *not* explicitly state that the invention of either claim 1 or claim 13 of '366 calls for statistical modeling in the second step, the classification stage.

Finally, the CCO notes that "the parties disputed whether 'reliability probability classifications' must be 'statistically calculated' or need merely be 'respective levels of expected reliability,'" concluding that "[a] person performing the patented method in claims 1 and 13 could classify the components and then sort them into bins based upon *relative probability* because the claimed methods improve upon this known method by statistically quantifying the reliability of the component." (*Id.* at 45-46 (emphasis original).) In other words, one could practice the Auburn patent even by classifying components based on relative probability, a practice already known in the art, as long as the reliability of the component was statistically quantified during the next step of the process.

Therefore, it is not necessary that IBM statistically calculate the reliability of its P/Z components during the classification stage in order to meet the court's definition of "classifying the component into a classification of a plurality of reliability probability classifications." IBM performs the classification step of claims 1 and 13 of '366 by classifying components into categories of "good" and "bad." However, for the reasons discussed below, IBM's statistical analysis is not "based on" this non-quantitative classification, and IBM is therefore not practicing Auburn's patented method.

(2) The FIT targets from IBM's qualification process are inapplicable to the actual manufacture/post-production P/Z components

IBM argues that "The Numerical Reliability Targets From The Qualification Process . . . Are Entirely Inapplicable To The Actual Manufacture/Post-Production P/Z Components" and that "The Sequence [of IBM's testing and manufacture process] Does Not Satisfy The Court's Claim Construction Ruling" (Doc. #261, at 29, 32.) In its reply brief, IBM puts a finer point on these arguments, stating that "Auburn's infringement theory fails because the numerical reliability 'estimates' it relies upon (from qualification) do not apply to the 'classification' it relies upon (resulting from a 'repair count threshold' applied during actual manufacture/post-production testing." (Doc. #300, at 11.) The facts of IBM's processes necessitate the conclusion that the statistically calculated numerical value of a component, derived from the qualification FIT targets, is not "based on" the classification, as instructed by '366.

Auburn, however, argues that

> [a]pplying the proper constructions, IBM does exactly what the Auburn patents contemplate and what the Court allowed them to cover: IBM first estimates the reliability of the classification of "good" components (using its reliability model during qualification) and then estimates the reliability of each "good" component as it is classified (by the repair count screen during manufacturing).

(Doc. #276 at 19-20 (citing IBM's Motion for Summary Judgment, Doc. #261, at 24).) Auburn's argument, however, misconstrues the interaction between IBM's qualification and actual manufacture/post-production testing processes.

In determining exactly what Auburn's patents cover, it is useful to consider the temporal limitations ascribed to Auburn's patents by the CCO. These temporal limitations make clear what processes are covered by '366. In construing the "estimating" term of '306,[9] the Court noted that:

> [n]othing in the claim language itself dictates when the probability of latent defects *for the classification* must be done. If the probability of latent defects for the classification is estimated first, then the probability of latent defects for the component in that classification is estimated simultaneously with the act of classifying. If the probability of latent defects for the classification is not estimated first, then the probability of latent defects for the component must logically be done after the act of classifying. In other words . . . the appropriate temporal limitation for this term claim is "either simultaneously with or after the 'classifying step.'"

(Doc. #193 at 31-32 (emphasis original).)

Given this temporal limitation, '366 would cover a process wherein statistical values for a given number of classifications, or "bins" (Expert Report of Dr. F. Joel Ferguson, Doc. #161-17, at 9) were calculated prior to the sorting of individual components into those classifications, and where the pre-determined statistical value for those classifications was then applied, at the classification stage, to the components in those bins. This is the process the Court contemplated in construing the "estimating" and "optimizing" terms of '366 to allow for "calculation of a numerical value of the

[9] The Court later concluded that "[u]sing the same reasoning as discussed with the claims of the '306 Patent, the Court finds that the 'estimating' and 'optimizing' terms must logically have the given temporal limitation." (Doc. #193, at 47 n.26)

component based on the classification "simultaneously with . . . the 'classifying' step." (Doc. #193, at 46.)

The '366 patent would also cover a process wherein components were binned based on a numerical calculation of reliability for a given number of classifications where said calculation was done "after the 'classifying step.'" As contemplated by the CCO, such a process would involve binning the individual components, at the classification stage, into two or more bins based on relative levels of reliability—at this point the classification would have to be based on relative reliability, as no numerical estimates of reliability had yet been calculated—*and then statistically calculating a numerical value of reliability for each of those bins* (i.e. each classification). This in turn would produce a numerical value of reliability—a value *based on* the classification—for the components in each bin. This is what the Court contemplated in construing "a plurality of reliability classifications" to mean "at least two classifications of components associated with respective levels of expected reliability." (Doc. #193, at 46.)

Based on this analysis, and for the reasons stated above, *supra* Part III.A.1, IBM was incorrect in arguing that, because it did not calculate a numerical value of reliability for its "bad" components, it was not performing the "classification" step of '366. As the Court has made clear, one can classify components using two bins based on relative levels of reliability and still be practicing Auburn's patent, so long as one later calculates a numerical value of the components "based on the classification."

However, IBM does not perform the estimating/predicting step "based on" its classification of components as "good" and "bad." In its actual manufacture/post-production testing process, IBM eventually calculates a numerical value of reliability for its "good" components, but, significantly, *IBM does not calculate the numerical reliability of its "good" components by calculating a numerical value of reliability for the "good" classification*. After classification, and after additional stress-testing and burn-in,[10] a numerical value of reliability is extrapolated from the results of the pre-production qualification process and the results of the stress test/burn-in phase and applied to the otherwise customer-ready components.[11] Because this numerical value of reliability is

[10] IBM argues that "[b]urn-in is not . . . merely one step among many that can be taken into account in an estimate of reliability. Burn-in fundamentally alters the probability of latent defects present in the die, such that an estimation that applies **after** burn-in, such as the FIT targets produced during . . . qualification . . . would be **inapplicable** to a classification that takes place **before** burn-in." (Doc. #300 at 12 (emphasis original).) Because the Court finds that IBM's statistical calculation of a numerical value of reliability is not "based on" IBM's classification process, the Court need not determine whether additional burn-in testing would vitiate the correlation between the FIT target produced during qualification and the application of that number to a finished product.

[11] At the conclusion of the actual manufacture/post production process, when IBM's P/Z components are otherwise customer-ready, IBM extrapolates the results of the qualification process and applies the FIT targets derived from that process to its finished components. (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17 at 50).) Despite IBM's contention that "Auburn has not identified, and cannot identify, any statistical calculation of reliability that takes place 'simultaneously with or after' the alleged 'classifying' step," (Doc. #261, at 32,) the assignment of a numerical value of reliability to a finished component based on the results of the qualification process constitutes a statistical calculation of reliability for those components, and this calculation occurs after the classification stage, as provided for by the CCO (Doc. #193, at 46; Deposition of Dr. Richard Fair, Doc. #276-3; Deposition of Phillip Nigh, Doc. #276-8.) This statistical calculation may result in further "binning"—i.e. an additional "classification"—of the customer-ready die, but this later classification would not infringe Auburn's patent, as it would not be "based on" the number of defects identified in the initial post-production test. Rather, this latter classification would be based on the results of IBM's qualification process combined with the results of IBM's post-production testing.

not "based on" the classification of "good" derived from the initial post-production test, Auburn's patent does not cover this activity.

While classification as "good" is a necessary precondition for eventual application of the FIT targets from qualification (Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 48, 178) and is part of the process through which FIT targets are derived (*Id.* at 52-59) IBM's estimate/prediction of reliability is not "based on" the "good" classification, as it would be if a numerical value was calculated for the entire "good" classification and that number was applied to all components classified as "good."[12] Put as simply as possible, Auburn's patented method does not cover IBM's process.

If IBM calculated a numerical value of reliability for both its "good" and "bad" classifications, at the classification stage, this would infringe Auburn's patent. It is likely that even if IBM calculated a numerical value of reliability for the "good" classification alone, and that value were in turn assigned to individual "good" components, that too would infringe Auburn's patent. However, IBM does not perform either of these

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[12] Auburn makes two related arguments based on the language of its patent:

First, Auburn urges that IBM would have the Court read "comprising" out of '366's preamble (Doc. #276, at 21.) Auburn argues that, because comprising is an open-ended term, IBM is wrong to read '366's claims to "exclude other types of testing." (Doc. #276, at 21 (citing *CIAS, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1360 (Fed. Cir. 2007).) It is true that some of IBM's noninfringement arguments rely on IBM's performance of additional testing—particularly additional burn-in testing—between classification and application of the FIT target to IBM's finished product (IBM's Reply, Doc. #300, at 7-8; *see also* note 10 and accompanying text).) However, the Court does not rely on the additional testing performed by IBM in reaching its conclusion that the P/Z products do not infringe '366. If the alleged infringer does not perform, literally or under the doctrine of equivalents, all of the claimed steps of the method there can be no infringement, regardless of what additional steps are added to the patented method. *Techsearch, L.L.C. v. Intel Corp.*, 286 F.3d 1360, 1372 (Fed. Cir. 2002). Even if IBM performed no additional testing, its estimate/prediction of a numerical value of reliability would not be "based on" the classification, because IBM does not perform all of the claimed steps.

Second, Auburn contends that "by excluding the possibility of other testing, IBM would have the Court ignore the plain and ordinary meaning of 'based on' by having it read that phrase to mean 'solely based on.'" (Doc. #271 at 22.) The Court, however, does not reach its holding that IBM's qualification numbers are inapplicable to the components at the classification stage (i.e. that the calculation is not "based on" the classification) as a result of reading "based on" to mean "solely based on." Rather, the Court's holding derives from the multi-factor process IBM uses to statistically calculate the numerical reliability value of its finished components and the most logical understanding of the term "based on" in this context.

While it is necessary that a given component be classified as "good" as a precondition to the eventual application of the qualification-derived reliability targets to that component, that X is a necessary precondition for Y does not necessarily mean that Y is "based on" X. Take, for example, an aspiring law student. We'll call him Barry. As are all aspiring law students, Barry was born. Barry later took the LSAT in preparation for his application to law school. Barry was given a score on his LSAT, a numerical calculation of his aptitude for the study of law. Had Barry not been born, Barry would not have received that score on his LSAT. No one would argue, however, that Barry's LSAT score was "based on" his birth. For the same reason, the Court finds that IBM's statistical calculation of a numerical value of reliability for a component is not "based on" the classification of that component.

calculations at the classification stage; rather, the "good" and "bad" classifications are based solely on the fact that "good" components had fewer defects than the cut-point threshold, and the "bad" components had more.[13] Applying one FIT target to all "good" components, without further differentiation amongst the "good" components would serve no purpose. IBM further differentiates the "good" components through the portion of IBM's actual manufacture/post-production testing process that takes place after classification. Therefore, the final application of the FIT targets to the components that have completed this process is not "based on" the classification.

Because the Court has concluded that IBM does not infringe Auburn's '366 patent because it does not statistically calculate a numerical estimate of reliability "based on" the classification, the Court need not address IBM's contention that it does not infringe because Auburn is improperly reading the patent to cover methods already being performed in the prior art.

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[13] At the classification stage, IBM's components are divided into "good" and "bad" classifications according to a comparison of the number of defects in a given component to the number of defects that component's circuitry can accommodate. This is a pre-determined threshold value unrelated to the statistically calculated FIT target arrived at through the qualification process: "If the number of repairable defects exceeds the number of available redundancies, then IBM's tester machine software assigns a 'sort code.' IBM will scrap the die *if the number of repairs exceeds a predefined numerical threshold* which IBM sometimes refers to as a 'cut point.'" (Ferguson Report, Doc. #261-17, at 43 (emphasis added); *see also* Deposition of James M. Crafts, Doc. #276-4 at 4 (Q: "if you find more . . . bad elements than redundant elements . . . the part can't be repaired, correct?" A: "That's right.") In short, if a component has more defects than can be repaired through the use of redundant circuitry, that component is classified as "bad" and is scrapped. Otherwise, the component is classified as "good" and is allowed to continue through the rest of the manufacture and testing process. Therefore, only chips that are classified as good and survive the remainder of the testing process are ever assigned a statistically calculated numerical value of reliability.

B. IBM does not literally infringe the '366 patent with regard to the Trimaran/Corona products

IBM makes four arguments, almost identical to those it makes regarding the P/Z products, as to why it does not infringe with regard to the Trimaran/Corona products. IBM argues that:

> (1) IBM does not "classify" the Trimaran/Corona products into a "plurality of reliability probability classifications" when it applies a "repair count threshold limit (IBM's Motion, Doc. #261, at 38.)
>
> (2) The numerical reliability targets from IBM's qualification process relied upon by Auburn are inapplicable to the post-production Trimaran/Corona components that Auburn alleges are "classified" into "reliability probability classifications." (Doc. #261, at 40.)
>
> (3) Auburn's infringement theory for the Trimaran/Corona products fails as a matter of law because IBM's sequence does not satisfy the Court's claim construction ruling (Doc. #261, at 41.)
>
> (4) Auburn is improperly reading the '366 patent claims to cover methods for testing the Trimaran/Corona products that the Court has ruled were "already being performed" in the prior art. (Doc. #261 at 42.)

Considering IBM's second and third arguments, above, and applying the same reasoning as it did to the P/Z products, the Court holds that IBM does not infringe with regard to the Trimaran/Corona products. *Supra* Part III.A. In short, the Court concludes that, while IBM does classify the Trimaran/Corona components as instructed by '366 and the CCO, IBM does not statistically calculate a numerical value of the reliability *based on* that classification. As discussed above, *supra* I.D.2, the slight variation between the testing procedure for the P/Z products and the Trimaran/Corona products does not warrant a different holding for the two sets of accused products. The Court will address in detail only the most potentially significant difference between the testing of the Trimaran/Corona products and the P/Z products.

IBM classifies or has classified the Trimaran/Corona products differently than the P/Z products. At different points in time, IBM (1) classified Trimaran/Corona components into "good" and "bad" classifications and scrapped the bad chips, (2) differentiated the amount of subsequent burn-in testing certain components will receive based on the number of defects revealed by the repair-count screen, and (3) directed components to "lower or higher reliability applications" based on the number of repairable defects. (Deposition of Dr. F. Joel Ferguson, Doc. #261-6, at 22-28; Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 62-67.)

Based on these classification processes, the Court, as it did with regard to the P/Z products, finds that IBM does classify its components into at least two classifications of components associated with respective levels of expected reliability. *Supra*, Part III.A.1. However, all of these classifications stem from the number of defects revealed by the repair-count screen, and are based on relative levels of reliability. (Deposition of Dr. F. Joel Ferguson, Doc. #261-6, at 22-28; Expert Report of Dr. F. Joel Ferguson, Doc. #261-17, at 62-67; *see, supra*, note 13) IBM does not predict or estimate a numerical value of reliability "based on" these classifications.

Auburn alleges that, in addition to using the classifying scheme set out above, "IBM also ***statistically calculates a numerical value of the reliability of each grade*** using the same reliability model discussed . . . with respect to the P/Z products." (Doc. #276, at 32 (emphasis original).) The Court finds that the application of IBM's statistical model to these different classifications of components does not change the infringement analysis in Part III.A of this opinion. Therefore, for the same reasons as discussed above with regard to the P/Z products, IBM must be held not to infringe with regard to the Trimaran/Corona products.

C. IBM does not infringe the '366 patent with regard to the Dreadnaught/DDP2230 products

IBM makes four arguments as to why it does not infringe with regard to the Dreadnaught/DDP2230 products:

> (1) There is no evidence that any "nearest neighbor" test was used to "classify" die during the qualification process. (IBM's Motion, Doc. #261, at 47.)
>
> (2) Auburn's infringement theory for the Dreadnaught/DDP2230 products fails as a matter of law because IBM's sequence does not satisfy the Court's claim construction ruling. (Doc. #261, at 48.)
>
> (3) The numerical reliability targets from IBM's qualification process relied upon by Auburn are inapplicable to the post-production Dreadnaught/DDP2230 components that Auburn alleges are classified in the "classifying step. (Doc. #261, at 49.)
>
> (4) Auburn is improperly reading the '366 patent claims to cover methods for testing the Dreadnaught/DDP2230 products that the Court has ruled were "already being performed" in the prior art. (Doc. #261 at 51.)

Considering IBM's second and third arguments, above, and applying the same reasoning as it did to the P/Z products and the Trimaran/Corona products, the Court holds that IBM does not infringe with regard to the Dreadnaught/DDP2230 products. *Supra* Part III.A. In short, the Court concludes that, while IBM does classify the Dreadnaught/DDP2230 components using the results of a nearest-neighbor test performed on those products, as instructed by '306 and the CCO, IBM does not statistically calculate a numerical value of the reliability based on the resulting "good" and "bad" classifications. As discussed above, *supra*, the slight variations between the testing procedures' various accused products does not warrant a different holding for the two sets of accused products.

D. IBM does not infringe either the '366 patent or the '306 patent under the doctrine of equivalents

Equivalence is a question of fact. *Graver Tank and Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (1950). While neither party makes arguments under the doctrine of equivalents, the Court's analysis on the issue of literal infringement, *supra* Part III.A-C, make clear that no reasonable juror could find that IBM infringes under the doctrine of equivalents. Therefore, summary judgment in favor of IBM on Auburn's doctrine of equivalent claim is appropriate. *Ethicon Endo-Surgery, Inc. v. U.S. Surgical Corp.*, 149 F.3d 1309, 1318 (Fed. Cir. 1998) (collecting cases where Federal Circuit held that there could be no infringement under the doctrine of equivalents because no reasonable fact-finder could have found equivalence).

There are two principal legal limitations on the doctrine of equivalents, and these two limitations "are to be determined by the court, either on a dispositive pretrial motion or on a motion for judgment as a matter of law at the close of evidence and after the jury verdict." *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n.8 (1997). The Court must determine whether the patentee surrendered equivalent subject matter from the claimed invention during patent prosecution. If so, the patentee is precluded from recapturing any of that subject matter through a doctrine of equivalents theory of infringement. *Id.* at 30. A court may also rule on a doctrine of equivalents theory by performing an *element-by-element* correspondence between the accused product or method and the patent claims to determine if the differences are only insubstantial. *Id*. at 29, 40. This is also known as the "all-elements rule." *Kustom Signals, Inc. v. Applied Concepts, Inc.*, 264 F.3d 1326, 1333 (Fed. Cir. 2001). Here, the Court finds that Auburn's doctrine of equivalents theory fails under the all-elements rule.

"The all-elements rule is that an accused device must contain every claimed element of the invention or the equivalent of every claimed element. . . . No claimed element, or an equivalent thereof, can be absent if the doctrine of equivalents is invoked." *Id.* In other words, "[t]he doctrine of equivalents does not apply where a claim limitation is completely missing, and thus not met equivalently, from the accused device." *Arndt v. Mokai Mfg., Inc.*, No. Civ. 03-1240-HA, 2006 WL 758539, at *5 (D. Or Mar. 2, 2006).

Here, the Court has already concluded that the patented method requires the performance of three specific steps, and that IBM does not perform all of those steps.

Specifically, IBM does not estimate or predict a numerical value of the reliability of the component based on the classification. Therefore, IBM cannot be found to infringe Auburn's patents under the doctrine of equivalents.

For the reasons stated above, it is hereby ORDERED that

(1) IBM's Motion for Summary Judgment of Noninfringement (Doc. #261) is GRANTED and the claims contained in Counts III and IV of Auburn's First Amended Complaint (Doc. #87) are DISMISSED WITH PREJUDICE.[14]

(2) IBM's Motion for Summary Judgment of No Willful Infringement (Doc. #257) is DENIED as MOOT.

(3) Auburn's Motion for Summary Judgment on IBM's 35 U.S.C. Section 273 Affirmative Defense (Doc. #258) is DENIED as MOOT.

(4) The Court RESERVES RULING on Auburn's Motion for Partial Summary Judgment of No Invalidity of Claims (Doc. #260).

DONE this the 2nd day of August, 2012.

/s/ Mark E. Fuller
UNITED STATES DISTRICT JUDGE

[14] The Court acknowledges that, based on the facts of this case, whether or not IBM's processes infringe Auburn's patents is a close question. The Court is confident in its opinion. However, the Court believes that the technical expertise of the Federal Circuit may be useful in distinguishing between the methods employed by IBM and Auburn. For this reason, the Court is wiling to entertain a motion for an interlocutory appeal of this order.