

# **INELIGIBILITY CONTENTIONS: APPENDIX A**

**DEFENDANTS' INVALIDITY CONTENTIONS FOR U.S. PATENT NO. 9,122,965**  
**APPENDIX A: SUBJECT-MATTER INELIGIBILITY<sup>1</sup>**

As demonstrated in the claim charts below, claims 1–20 (the “Asserted Claims”) of U.S. Patent No. 9,122,965 (“the ’965 patent”) are invalid under 35 U.S.C. § 101. Defendants provide these Subject-Matter Ineligibility Contentions in light of Defendants’ current understanding of the Asserted Claims and Plaintiff’s apparent construction of those claims, as reflected in their Infringement Contentions. Defendants’ contentions may reflect alternative positions as to claim construction and scope, and do not represent any admissions or agreement by Defendants as to the construction, meaning, scope, definiteness, function, structure, written description support for, or enablement of any claim contained herein. Defendants’ contentions herein are not, and should in no way be seen as, any admission that Defendants’ accused technology meets any limitations of the claims. Defendants incorporate by reference Exhibits A1–A5 and Exhibit A, as if fully set forth herein.

Claims of the ’965 patent, including the Asserted Claims, are not directed to patent-eligible subject matter because they are directed to one or more abstract ideas and fail to recite any additional features that transform the abstract idea(s) into an inventive concept.

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<sup>1</sup> Because the ’722 and ’053 patents have identical specifications and the claims of those patents are directed to the same abstract ideas with similar conventional components, Defendants incorporate the other appendices into this document, as if fully set forth herein.

**U.S. Patent No. 9,122,965: Ineligibility Chart A<sup>2</sup>**

Pursuant to Judge Gilstrap’s Standing Order Regarding Subject Matter Eligibility Contentions, Samsung provides the following chart identifying each exception to eligibility (e.g., abstract idea, law of nature, and natural phenomenon) to which each Challenged Claim is directed and the factual and legal basis therefor.

Asserted Claims	Factual and Legal Basis for Invalidity Under 35 U.S.C. § 101
<p>Claims 1-20 of the '965 patent.</p>	<p>The Asserted Claims of the '965 patent are directed to an abstract idea and/or natural phenomenon/law. For example, the claim language and specification indicate that the Asserted Claims are directed to patent-ineligible concepts generally relating to receiving and transmitting information. <i>See, e.g.</i>, '965 patent, cl. 13 (“an amplifier . . . amplif[ies] a signal received at the antenna” and “a driver circuit drive[s] the antenna with data”), cls. 1-20, Fig. 15, 15:6–10, 15:16–27, 16:33–46; <i>see also ChargePoint, Inc. v. SemaConnect, Inc.</i>, 920 F.3d 759, 767 (Fed. Cir. 2019) (“While ‘[t]he § 101 inquiry must focus on the language of the Asserted Claims themselves,’ the specification may nonetheless be useful in illuminating whether the claims are ‘directed to’ the identified abstract idea.” (alteration in original) (citation omitted)).</p> <p>Courts have found similar claims directed to receiving and/or transmitting signals (and even with additional processing steps not specified in the claims here) to be directed to a patent-ineligible abstract idea. <i>See, e.g., Blue Spike, LLC v. Google, Inc.</i>, No. 14-cv-01650-YGR, 2015 WL 5260506 (N.D. Cal. Sept. 8, 2015) at *6 (finding patent-ineligible claims reciting (1) receiving and inputting a reference signal to a processor; (2) receiving and inputting a query signal to the processor; and (3) comparing the query signal to the reference signal), <i>aff’d</i> 669 F. App’x 575 (Fed. Cir. 2016); <i>Va. Innovation Scis. Inc. v. Amazon.com, Inc.</i>, 227 F. Supp. 3d 582, 595, 604 (E.D. Va. 2021) (finding patent-ineligible claims reciting (1) receiving a video signal and (2) converting the video signal to a display format), <i>aff’d sub nom. Va. Innovation Scis., Inc. v. HTC Corp.</i>, 718 F. App’x 988 (Fed. Cir. 2018); <i>Morales v. Square, Inc.</i>, 75 F. Supp. 3d 716, 722–23 (W.D. Tex. 2014) (finding patent-ineligible claims reciting (1) receiving a signal and (2) combining the signal with a unique identifier).</p>

<sup>2</sup> Pursuant to the Court’s Standing Order Regarding Subject Matter Eligibility Contentions, Paragraph (a)(2)(A), Defendants incorporate by reference Ineligibility Chart B of the Invalidity Contentions into this chart, as if fully set forth herein.

Asserted Claims	Factual and Legal Basis for Invalidity Under 35 U.S.C. § 101
	<p>Courts have similarly found claims directed to receiving and processing data to be directed to an abstract idea. <i>See, e.g., Yu v. Apple</i>, 1 F.4th 1040, 1045 (Fed. Cir. 2021) (finding circuitry claims for receiving and processing image data are directed to an abstract idea); <i>3d Eye Surveillance, LLC v. United States</i>, 140 Fed. Cl. 39, 56 (2018) (finding claims that recite receiving and processing image data are directed to an abstract idea); <i>Elec. Power Grp., LLC v. Alstom S.A.</i>, 830 F.3d 1350, 1356 (Fed. Cir. 2016) (finding claims for receiving and processing power grid data are directed to an abstract idea); <i>Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.</i>, 758 F.3d 1344, 1351 (Fed. Cir. 2014) (finding claims for processing image data are directed to an abstract idea); <i>Trinity Info Media, LLC v. Covalent, Inc.</i>, 72 F.4th 1355, 1359, 1361-63 (Fed. Cir. 2023) (finding claims for poll-based networking system directed to abstract idea where claims recited two “receiving” steps and additional “providing,” “displaying,” and “comparing” steps); <i>Hawk Tech. Sys., LLC v. Castle Retail, LLC</i>, 60 F.4th 1349, 1357-58 (Fed. Cir. 2023) (finding claims directed to abstract idea where claims include “receiving, displaying, converting, storing, and transmitting digital video”). At best, the Asserted Claims relate to the abstract idea of amplifying a signal from an antenna, providing it to a smartcard controller, and driving the antenna with a signal from the smartcard controller. But again, receiving a signal and transmitting a signal is abstract. <i>See, e.g., Va. Innovation Scis. Inc. v. Amazon.com, Inc.</i>, 227 F. Supp. 3d at 604 (finding patent-ineligible claims directed to (1) converting a received video signal to a display format signal and (2) driving a display terminal with the display format signal); <i>Morales</i>, 75 F. Supp. 3d at 722–23 (finding patent-ineligible claims directed to (1) combining a received signal with a unique identifier and (2) communicating the signal from a response unit).</p> <p>The claimed circuitry configuration in the Asserted Claims does not transform the abstract idea into patent-eligible matter. Though the Asserted Claims recite “performance enhancement circuits,” these circuits are merely recited in highly generalized, result-oriented language, further confirming their ineligibility. <i>See, e.g.,</i> ’965 patent, cl. 1 (reciting “performance enhancement circuits”). <i>See also,</i> ’965 patent, cls. 2–20. The claims recite that the “performance enhancement circuits include an amplifier” and a “load modulation circuit” or “driver circuit,” but these are well-known, generic components used to process a signal in a generic, conventional manner, and do not specify how any “performance enhancement” is achieved. <i>See</i> ’965 patent, 15:8–9 (stating that “Amplifier 1510” is used, not in a purportedly inventive manner, but merely to “amplif[y] the voltage received at antenna”), 15:42–45 (“Load modulation circuits are generally known.”), 17:41–44 (explaining that</p>

Asserted Claims	Factual and Legal Basis for Invalidity Under 35 U.S.C. § 101
	<p>“the term ‘driver’” as used in the ’965 patent, may refer to “any . . . method of driving output data” rather than a purportedly inventive method for driving a circuit). Though the claims recite that the “amplifier” and “driver circuit” “amplify a signal received from the antenna” provided “to the smartcard controller” and “drive the antenna with data provided by the smartcard controller” respectively, the claims do not specify how this effectuates a “performance enhancement.” <i>See</i> ’965 patent, cls. 1, 13. Amplifying a signal and driving an antenna with a signal are generic signal reception and transmission techniques that do not, in themselves, indicate any circuit characteristic that is enhanced by these techniques. They merely assert that they constitute “performance enhancement circuits.” <i>Id.</i></p> <p>Without more, purporting to enhance circuit performance with generic signal reception and transmission is within the realm of abstract ideas. <i>See, e.g., Maxell, Ltd. v. Vizio, Inc.</i>, No. cv 21-6758-GW-DFMX, 2022 WL 2167619 (C.D. Cal. Mar. 9, 2022) at *12 (finding claims directed to an apparatus for “improv[ing] image processing” are directed to an abstract idea), appeal dismissed, No. 2023-2026, 2023 WL 5424766 (Fed. Cir. Aug. 23, 2023); <i>Yu</i>, 1 F.4th at 1043 (finding claims that recite “Only conventional camera components . . . to effectuate the resulting ‘enhance[ment]’” are directed to an abstract idea). As such, the ’965 patent claims amount to no more than the abstract idea of processing a received signal and driving an antenna with an output signal using conventional components operating according to their well-understood, intended manner. <i>See Yu</i>, 1 F.4th at 1043.</p> <p>Indeed, courts have repeatedly rejected such result-focused claims as patent-ineligible. <i>Two-Way Media</i>, 874 F.3d at 1337 (“We look to whether the claims in the patent focus on a specific means or method, or are instead directed to a result or effect that itself is the abstract idea and merely invokes generic processes and machinery.”); <i>Yu</i>, 1 F.4th at 1042–43 (holding claims that are “directed to a result or effect that itself is the abstract idea and merely invoke[s] generic processes and machinery” are patent ineligible). <i>See, e.g., Affinity Labs of Texas, LLC v. DIRECTV, LLC</i>, 838 F.3d 1253, 1269 (Fed. Cir. 2016) (“The purely functional nature of the claim confirms that it is directed to an abstract idea, not to a concrete embodiment of that idea.”); <i>Elec. Power</i>, 830 F.3d at 1356 (“Indeed, the essentially result-focused, functional character of claim language has been a frequent feature of claims held ineligible under § 101, especially in the area of using generic computer and network</p>

Asserted Claims	Factual and Legal Basis for Invalidity Under 35 U.S.C. § 101
	<p>technology to carry out economic transactions.”); <i>Am. Axle &amp; Mfg., Inc. v. Neapco Holdings LLC</i>, 967 F.3d 1285, 1296 n.7 (Fed. Cir. 2020) (collecting cases).</p> <p>The fact that the Asserted Claims recite generic signal processing components to achieve a generic result does not transform the claims into a patent eligible application. As the Federal Circuit has explained, a claim directed to an abstract idea is not patent eligible where “generic hardware limitations [of the claims] merely serve as conduit for the abstract idea.” <i>Yu</i>, 1 F.4th at 1045 (citation omitted). Here, the Asserted Claims recite generic signal processing components to obtain the generic result of (1) amplifying a received signal and (2) driving an antenna with a transmit signal. The claimed “controller,” “antenna,” “amplifier,” “load modulation,” and “driver circuit” are generic signal processing components and any further limitations that merely recite the generic processes executed by these components, <i>e.g.</i>, “the amplifier is coupled to amplify a signal,” do not render them any less generic. <i>See</i> ’965 patent, cls. 1, 7; <i>Smart Sys. Innovations, LLC v. Chicago Transit Auth.</i>, 873 F.3d 1364, 1371 (Fed. Cir. 2017) (“We . . . look to whether the claims . . . focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.”). Moreover, the fact that the device claims specify a “smartcard controller” that receives the received data or that provides the transmitted data is of no moment. The claims do not specify that the smartcard controller does anything with the data it receives or provides, and they provide no details of how to implement the smartcard controller; the smartcard controller is nothing more than a generic component. <i>See</i> ’965 patent, cls. 1-20.</p> <p>Nor does limiting the abstract idea of receiving and/or transmitting signals to a mobile device and/or smartcard environment render the Asserted Claims patent-eligible. Courts have explained on numerous occasions that limiting an abstract idea to a particular technological environment does not render the claims any less abstract. <i>See, e.g., Affinity Labs</i>, 838 F.3d at 1259 (“The Supreme Court and this court have repeatedly made clear that merely limiting the field of use of the abstract idea to a particular existing technological environment does not render the claims any less abstract.”); <i>ChargePoint, Inc. v. SemaConnect, Inc.</i>, 920 F.3d 759, 770 (Fed. Cir. 2019) (noting that “whether a device is ‘a tangible system’ . . . is not dispositive” because “[r]esolving the § 101 inquiry based on such an argument would make the determination of patent eligibility ‘depend simply on the draftsman’s art’” (internal quotation marks omitted)); <i>In re TLI Commc’ns LLC Pat. Litig.</i>, 823 F.3d</p>

Asserted Claims	Factual and Legal Basis for Invalidity Under 35 U.S.C. § 101
	<p>607, 612 (Fed. Cir. 2016) (“[A] relevant inquiry at step one is to ask whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea. . . . [T]he claims here are not directed to a specific improvement to computer functionality. Rather, they are directed to the use of conventional or generic technology in a nascent but well-known environment, without any claim that the invention reflects an inventive solution to any problem presented by combining the two.”). Although the Asserted Claims recite a “smartcard controller,” neither the Asserted Claims nor the ’965 patent specification provide a functional distinction between the claimed smartcard controller and a generic controller. <i>See</i> ’965 patent, cls. 1–20. At best, the ’965 patent specification indicates a smartcard controller may be a controller “capable of implementing both ISO 7816 and ISO 14445 standards for contact/contactless requirements.” ’965 patent, 8:44–61. But the ’965 patent does not purport to relate the controller’s compatibility with known contactless communication standards with any purported improvement. Nor does the specification recite anything but a generic mobile device that comprises the smartcard controller. And to be sure, courts have reiterated that implementing generic, conventional components in a mobile device and/or smartcard environment do not save claims from being abstract. <i>See, e.g., Samsung Elecs. Co. v. Blaze Mobile, Inc.</i>, 673 F. Supp. 3d 1066, 1076–78 (N.D. Cal. 2023) (holding claims directed to “facilitating secure transactions” but in an “NFC-enabled” environment deployed with “smartcard internals and application platforms” are still directed to an abstract idea); <i>Universal Secure Registry LLC v. Apple, Inc.</i>, 10 F. 4th 1342, 1352–53 (Fed. Cir. 2021) (holding claims directed to “authentica[ing] a user’s identity” but in a “smart card” environment are still directed to an abstract idea); <i>In re TLI Commc’ns</i>, 823 F.3d at 613 (“[A]lthough the claims limit the abstract idea to a particular environment—a mobile telephone system—that does not make the claims any less abstract for the step 1 analysis.”).</p> <p>The failure of the Asserted Claims to provide any meaningful bounds on the ineligible concept is particularly problematic in this case because of the danger of preemption. <i>Athena Diagnostics, Inc. v. Mayo Collaborative Servs., LLC</i>, 915 F.3d 743, 752 (Fed. Cir. 2019) (“Preemption is sufficient to render a claim ineligible under § 101, but it is not necessary.”). Because the Asserted Claims are drafted to cover a result, they would preempt any modification, alternative, or improvement on what the named inventors allegedly contributed to the art.</p>

Asserted Claims	Factual and Legal Basis for Invalidity Under 35 U.S.C. § 101
	<p>Independent claims 1, 7, and 13 are substantially similar and directed to the same abstract idea. Claim 13 recites a “driver circuit,” whereas claim 1 requires “a load modulation circuit” and claim 7 requires “an active transmit driver circuit.” ’965 patent, cls. 1, 7, 13. But these components are well-known, generic signal processing components that modify or form signals for transmission. <i>See</i> ’965 patent, 15:42–45 (recognizing “Load modulation driver circuits are generally well known”), 16:37–40 (explaining active driver circuits merely “actively transmit a signal”), 17:41–44 (noting that “the term ‘driver’” as used in the specification may refer to “any . . . method driving output data” to a transmit antenna).</p> <p>The ’965 dependent claims do not recite any additional features that transform the abstract idea into patent-eligible matter. For example, dependent claims 2, 3, 8, 9, 18, and 19 merely further limit the abstract idea to a conventional RFID environment. <i>See</i> claims 2, 8, 18 (“antenna” is “tuned to operate at 13.56 MHz”), claims 3, 9, and 19 (reciting that the “antenna comprises an inductive element too small to draw enough power sufficient to operate the smartcard controller from an interrogating radio frequency (RF) field”); ’965 patent, 5:25–28 (“In various embodiments of the present invention, the RFID functionality . . . is accessed by mobile computing device.”), 8:44–61 (explaining “smartcard controller 330 is compatible with passive RFID tag readers in NFC applications” and may be “capable of implementing” known RFID standards such “ISO 7816 and ISO 14443 standards for contact/contactless requirements”); <i>Automated Tracking Sols., LLC v. Coca-Cola Co.</i>, 223 F. Supp. 3d 1278, 1289–90 (N.D. Ga. 2016) (holding that claims reciting “RFID ‘transponder,’ ‘reader,’ and antenna” merely recite “conventional or generic” components “in a nascent environment” and the RFID environment, therefore, “does not make the claims any less abstract”), <i>aff’d</i>, 723 F. App’x 989 (Fed. Cir. 2018); <i>Affinity Labs</i>, 838 F.3d at 1259 (“The Supreme Court and this court have repeatedly made clear that merely limiting the field of use of the abstract idea to a particular existing technological environment does not render the claims any less abstract.”).</p> <p>The limitation (recited in claims 2, 8, and 18) that the antenna “is tuned to operate at 13.56 MHz” attempts to claim a common resonant frequency for RFID applications known in the prior art. <i>See</i> ’965 patent, 8:50–57 (“These [prior art] controllers provide RFID functionality at 13.56 MHz.”). The limitation (recited in claims 3, 9, and 19) that “the antenna comprises an inductive element too small to draw enough power sufficient to operate the smartcard controller from an interrogating</p>

Asserted Claims	Factual and Legal Basis for Invalidity Under 35 U.S.C. § 101
	<p>radio frequency (RF) field” does little more than attempt to capture, in the claims, a well-known problem identified in the specification, rather than a technological solution that makes the abstract idea non-abstract. <i>See</i> ’965 patent, 2:16–19 (“[T]he size of antennas are proving to be a barrier to further miniaturization of passive RFID tags.”). Dependent claims 4–5, 10–11, and 16–17 recite the claimed generic signal processing components are “powered by the mobile device.” As suggested in the ’965 patent’s discussion of the prior art, powering signal processing components with a local power source is a generic implementation of RFID signal processing. <i>See</i> ’965 patent, 1:14–18 (“Active tags are characterized by a local power source such as a battery. . . . Active tags are typically used to transmit over long distances.”) Finally, dependent claims 6, 12, and 20 require that the mobile device “comprises a mobile phone.” A mobile phone is a generic embodiment of a mobile device and the integration of RFID functionality into mobile phones was contemplated prior to the ’965 patent. <i>See</i> ’965 patent, 1:61–2:3 (describing prior art mobile phone and “Example mobile applications includ[ing] . . . ticketing and mobile payments.”). Furthermore, limiting the abstract idea to a mobile phone and/or smartcard environment does not render the otherwise abstract claims patent-eligible. <i>See, e.g., In re TLI Commc’ns</i>, 823 F.3d at 613 (“[A]lthough the claims limit the abstract idea to a particular environment—a mobile telephone system—that does not make the claims any less abstract for the step 1 analysis.”).</p> <p>At step two of the <i>Alice</i> inquiry—the search for an inventive concept—none of the additional elements of the Asserted Claims, considered individually or as an ordered combination, supplies an inventive concept that is significantly more than the patent ineligible concept itself. To supply an inventive concept, the additional features “must be more than ‘well-understood, routine, conventional activity.’” <i>Affinity Labs</i>, 838 F.3d at 1262 (quoting <i>Mayo Collaborative Servs. v. Prometheus Lab’ys, Inc.</i>, 566 U.S. 66, 79 (2012)); <i>Mayo</i>, 566 U.S. at 82 (2012) (“simply appending conventional steps, specified at a high level of generality, to laws of nature, natural phenomena, and abstract ideas cannot make those laws, phenomena, and ideas patentable”). Here, the Asserted Claims simply append well-understood, routine, and conventional signal processing means to the patent ineligible concept, so they do not pass muster under <i>Alice</i> step 2. <i>See</i> ’965 patent: Ineligibility Chart B. Moreover, additional limitations that are themselves abstract cannot save a patent from being found ineligible.</p>

Asserted Claims	Factual and Legal Basis for Invalidity Under 35 U.S.C. § 101
	<p>The Asserted Claims are directed to the same abstract idea, and they further do not add an inventive concept. As discussed above, the Asserted Claims do not recite inventive features, but rather recite additional generic, conventional components and techniques that are used to perform the abstract idea of receiving and transmitting information in a particular technological environment. <i>Affinity Labs of Texas, LLC v. DIRECTV, LLC</i>, 838 F.3d 1253, 1259 (Fed. Cir. 2016). Given this significant overlap, and the lack of any distinguishing features that impact whether the claims are abstract or have an inventive concept, any of the asserted claims is representative of all other asserted claims.</p> <p><i>See also</i> Ineligibility Chart A for the '722 and '053 patents (Appendices B, C).</p>

**2(A). DESCRIPTION OF THE INDUSTRY, AT THE RELEVANT TIME, IN WHICH THE ASSERTED CLAIMS ARE ALLEGED TO BE WELL UNDERSTOOD, ROUTINE, AND CONVENTIONAL, AND THE FACTUAL AND LEGAL BASIS THEREFOR**

**2(B). DESCRIPTION OF HOW EACH ELEMENT OF EACH CHALLENGED CLAIM WAS WELL-UNDERSTOOD, ROUTINE, AND CONVENTIONAL IN THE RELEVANT INDUSTRY AT THE RELEVANT TIME, AND THE FACTUAL AND LEGAL BASIS THEREFOR**

### U.S. Patent No. 9,122,965: Ineligibility Chart B<sup>3</sup>

Pursuant to Judge Gilstrap’s Standing Order Regarding Subject Matter Eligibility Contentions, Samsung provides the following description of the industry, at the relevant time, in which the Asserted Claims are alleged to be well understood, routine, and conventional, and the factual and legal basis therefor; and a description of how each element of each Challenged Claim, both individually and in combination with the other elements of that claim, was well understood, routine, and conventional, in the relevant industry at the relevant time, and the legal and factual basis therefor.<sup>4</sup>

#### **A. Description of the Industry**

As of August 8, 2008, the claimed priority date, circuitry effectuating smartcard functionality, like the type recited in the Asserted Claims, were far from new. The ’965 patent itself identifies a number of prior art smartcard implementations, including smartcards implementing RFID, that deploy smartcard controllers and antennas. *See, e.g.*, ’965 patent, 2:20–21 (“Fig. 14 shows a prior art smartcard controller and antenna in combination.”), Fig. 14, 2:39–41 (“Examples of smartcard controllers are the ‘SmartMX’ controllers sold by NXP Semiconductors.”), 1:33–37 (“One example of a loop antenna is shown in U.S. Pat. No. 6,568,600, issued to Carpier et al. on May 27, 2003 (the ’600 patent). The device described in the ’600 patent is recognizable as a ‘credit card sized’ passive RFID card (more specifically, a card that conforms to ISO 7816 size requirements).”), 1:50–60 (discussing “Antenna design” described in “Microchip Technology, Inc. application note entitled ‘Antenna Circuit Design for RFID Applications’ by Youbok Lee, Ph.D, published in 2003”).

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<sup>3</sup> Pursuant to the Court’s Standing Order Regarding Subject Matter Eligibility Contentions, Paragraph (a)(2)(A), Defendants incorporate by reference Ineligibility Chart A of the Invalidity Contentions into this chart, as if fully set forth herein.

<sup>4</sup> Samsung notes that under Supreme Court and Federal Circuit precedent, the Court need not, and should not, consider whether each and every element of each Challenged Claim was well understood, routine, and conventional. Rather, the only elements which should be considered under *Alice* step 2 are the elements that fall outside the scope of the abstract idea. *See Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 221-224 (2014); *BSG Tech LLC*, 899 F.3d at 1290 (“It has been clear since *Alice* that a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.”); *see also Supercell Oy v. GREE, Inc.*, PGR2018-00029, Paper 45 at 21-22 (explaining that the Federal Circuit has instructed that “the inquiry under *Alice* step two is to determine whether claim limitations *other than the steps for executing the formulated concept* are ‘well-understood, routine, and conventional.’”), at 44 (“In *Alice*, the Supreme Court did not go through how each claim limitation was ‘well-understood, routine, conventional.’ Instead, the Supreme Court took only those additional elements not accounted for by the abstract idea . . . . The Federal Circuit has since confirmed this approach.” (citations omitted)).

Moreover, the '965 patent explains that RFID functionality was “seeing widespread use in many applications,” including integration into mobile devices. '965 patent, 1:61–64 (“Passive tags are seeing widespread use in many applications. For example, mobile device manufacturers are embedding passive RFID tags in mobile devices for NFC applications.”). *See, e.g.* '965 patent, 1:64–2:3 (“U.S. Pat. No. 7,333,062 issued to Leizerovich et al. on Feb. 19, 2008 (the '062 patent) shows a mobile phone with an integrated loop antenna for an NFC device.”), 2:4–16 (“There have been attempts to implement passive tags in smaller mobile devices” including “a secure digital (SD) memory card manufactured by Wireless Dynamics, Inc. of Calgary, Alberta Canada” and “U.S. Patent Application Publication No.: US 2006/0124755 show[ing] a memory card having a passive tag.”).

Other prior art confirms the claimed smartcard circuitry components and integrating them into a mobile device were well-known. *See, e.g.*, U.S. Patent Pub. No. 2009/0040022 at ¶¶ 28, 91; U.S. Patent Pub. No. 2010/0112941 at ¶ 6. For example, smartcard controllers coupled to an antenna for receiving and transmitting signals were well-known. *See, e.g.*, U.S. Patent Pub. No. 2009/0040022 at ¶¶ 11, 91; Dachs, C., *NFC — the intuitive contactless technology becomes reality*, 122 E & I ELEKTROTECHNIK UND INFORMATIONSTECHNIK 466, 468; U.S. Patent Pub. No. 2008/0245851 at ¶ 12. Employing load modulation circuitry and/or active transmission circuitry to transmitting signals from a controller was well-known. *See, e.g.*, U.S. Patent Pub. No. 2009/0040022 U.S. Patent Pub. No. 2009/0040022 at ¶ 65; U.S. Patent Pub. No. 2010/0112941 at ¶ 53. Moreover, amplifying a signal received from the antenna and provided to a controller was well-known. *See, e.g.*, U.S. Patent Pub. No. 2008/0093454 at ¶¶ 5, 80, Fig. 31; U.S. Patent Pub. No. 2009/0040022 at ¶¶ 109–10.

Because RFID was in use for years before the claimed priority date, there were many well-understood, routine, and conventional features of RFID circuitry, including those effectuating smartcard functionality. The next section provides additional details on how the elements of the claim were well understood, routine, and conventional.

## **B. Description of How Each Element was Well Understood, Routine, and Conventional**

Samsung incorporates by reference its Invalidity Contentions, served simultaneously with these contentions, as further evidence of “how each element of each Challenged Claim, both individually and in combination with other elements of the claim, was well understood, routine, and conventional.” Specifically, Samsung incorporates by reference the cover pleading to its P.R. 3-3 Invalidity Contentions, including its invalidity charts set forth in Exhibits A1-A5 and Exhibit A, which contain further evidence of how each element of the Asserted Claims was well understood, routine, and conventional. Samsung also incorporates by reference the prior art communication systems and other prior art identified in the '965 patent, the prosecution history of the '965 patent, and related patents and their prosecution histories. Samsung further incorporates by reference expert reports that will be provided according to the schedule provided by the Court’s Docket Control Order. Below, Samsung provides additional bases showing how the elements of the Asserted Claims were well understood, routine, and conventional or otherwise not inventive.

U.S. Patent No. 9, 122,965 Claim 1	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
1[pre] A mobile device comprising: <sup>5</sup>	<p>To the extent the preamble is limiting, a mobile phone was well understood, routine, and conventional. The '965 patent explains that mobile devices and integrating RFID applications, such as smartcard functionality, into mobile devices was well-understood, routine, and conventional. <i>See, e.g.</i>, '965 patent, 4:41–48 (“[A] mobile computing device 110 may be a personal digital assistant (PDA), a smartphone, a mobile phone, a handheld computer, a desktop computer, or any other device capable of operating as described herein.”), 1:62–2:3 (“[M]obile device manufacturers are embedding passive RFID tags into mobile devices for NFC applications.”). The '965 patent specification admits RFID functionality implementing smartcards was well-known. '965 patent, 2:20–41 (describing “a prior art smartcard controller and antenna in combination” that is “inductively coupled to another device . . . in the presence of an interrogating RF field”), 1:61–62 (noting RFID tags’ “widespread use in many applications”), 8:44–46 (“Smartcard controller 330 . . . includ[es] RFID functionality.”). <i>See also id.</i> at 1:13–14. It was further well-known to integrate such functionality into mobile devices, such as mobile telephones. '965 patent, 1:61–62 (“Passive tags are seeing widespread use in many applications.”). The '965 patent specification even admits and describes “attempts” to implement RFID tags in mobile devices. '965 patent, 2:4–5, 1:62–2:3 (describing a prior art “mobile phone with an integrated loop antenna for an NFC device” disclosed in U.S. Pat. No. 7,333,062 as an example of “mobile device manufacturers . . . embedding passive RFID tags into mobile devices for NFC applications”), 2:6–14 (describing a prior art “RFID tag implementation in a secure digital (SD) memory card manufactured by Wireless Dynamics, Inc. of Calgary, Alberta Canada. Card 1300” and another prior art “memory card having a passive tag” disclosed in U.S. Patent Pub. No.: US 2006/0124755).</p> <p>The prosecution history of the '965 patent further demonstrates the abstract nature of claim 1. For example, during prosecution of the '965 patent, the claims were ultimately allowed only after adding the limitation of “wherein the amplifier is coupled to amplify a signal received from the antenna and to provide an amplified signal to the smartcard controller.” '965 File History</p>

<sup>5</sup> Defendants do not take a position on whether the preambles are limiting. Claim elements have been numbered for convenience, and the numbering should not be understood to contend that an element is or is not part of the preamble of a claim. Defendants reserve the right to propose their constructions, if applicable, in accordance with the Court’s schedule.

U.S. Patent No. 9, 122,965 Claim 1	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>Amendment 5/18/2015 at 2–3. The Applicant even admitted that “a cellular telephone . . . with a smartcard logic function” was known in the prior art. ’965 File History Response dated 5/18/2015 at 5. The Examiner further noted that smartcard controllers, antennae, “performance circuits includ[ing] an amplifier . . . and a load modulation circuit” and operating such circuits “at the conventional ISO standard of 13.56 MHz” were disclosed in the prior art. ’965 File History Non-Final Rejection dated 11/19/2014 at 2–3. The Applicant agreed with the Examiner that at least a smartcard controller and antenna were well-known, conventional components in the prior art. ’965 File History Response dated 5/18/2015 at 5.</p> <p>The prosecution history of the related patents further demonstrates that this claim was well-known, routine, and conventional. For example, during prosecution of the related ’722 patent, U.S. Pat. No. 9,489,608 (the “’608 patent”), and U.S. Pat. No. 9,117,152 (the “’152 patent”), each Examiner noted that a mobile device comprising a smartcard controller, an antenna, and transmit circuits “coupled between the smartcard controller and the antenna” were known in the art. ’722 File History Non-Final Rejection dated 12/2/2015 at 4–5 (“Kowalski [U.S. Pat. No. 8,260,199] discloses a mobile phone comprising a smartcard controller (311); an antenna (AC3); and at least one active circuit (LCT2b) coupled between the smartcard controller and the antenna.”); ’608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (same); ’152 File History Non-Final Rejection dated 11/20/2014 at 2–3 (“Fox [U.S. 5,943,624] discloses mobile device comprising: a smartcard controller (42); an antenna (18); and performance enhancement circuits coupled between the smartcard controller and the antenna, wherein the performance enhancement circuits include an amplifier (134) and a load modulation circuit (142).”).</p> <p>At best, the element simply represents a narrowing of the abstract idea to a particular mobile environment, which is not patent-eligible. <i>See, e.g., BSG Tech.</i>, 899 F.3d at 1287; <i>In re TLI Comme’ns</i>, 823 F.3d at 611, 614 (“In other words, the telephone unit simply provides the environment in which the abstract idea of classifying and storing digital images in an organized manner is carried out.”); <i>Affinity Labs</i>, 838 F.3d at 1258–59; <i>buySAFE, Inc. v. Google, Inc.</i>, 765 F.3d 1350, 1355 (Fed. Cir. 2014). In this regard, the mobile phone works as expected, and only has</p>

U.S. Patent No. 9, 122,965 Claim 1	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>the add-on functionality of the smartcard, and this does not add an inventive concept. <i>In re TLI Commc'ns LLC Pat. Litig.</i>, 823 F.3d at 614.</p> <p>Extrinsic evidence also shows that the recited components and processes were generic and conventional at the time. <i>See Invalidation Contentions.</i></p> <p><i>See also</i> Exhibits A1-A5 and Exhibit A at Element 1[pre].</p>
1[a] a smartcard controller;	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See, e.g.</i>, '965 patent, 2:20–41 (describing “a prior art smartcard controller” and providing other “Examples of smartcard controllers” in the prior art). This claim element merely recites a generic component, for which the specification provides prior art examples of but does not describe any distinctions over the examples, which means a smartcard controller was generic and known at the time. <i>See</i>, '965 patent, 8:53–56 (“The ‘SmartMX’ family of controllers available from NXP Semiconductors N.V. of The Netherlands are examples of suitable dual interface smartcard controllers.”), 8:44–61 (explaining “smartcard controller 330 is compatible with passive RFID tag readers in NFC applications” and may be “capable of implementing” known RFID standards such “ISO 7816 and ISO 14443 standards for contact/contactless requirements”), 2:20–41.</p> <p>The prosecution history of the '965 patent further indicates that a smartcard controller was a well-understood, routine and conventional component. The Applicant admitted during prosecution that the prior art disclosed a smartcard controller. '965 File History Response dated 5/18/2015 at 6 (“The office action alleges that Fox [U.S. 5,943,624] shows a smartcard controller at 42. Applicant agrees.”). <i>See also</i> '965 File History Non-Final Rejection dated 11/19/2014 at 2, Response dated 5/18/2015 at 7–8.</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related '722, '608 and '152 patents, each Examiner found that the prior art “discloses a mobile phone comprising a smartcard controller.” '722 File History Non-Final Rejection dated 12/2/2015 at 4–5 (“Kowalski [U.S. Pat.</p>

U.S. Patent No. 9, 122,965 Claim 1	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>No. 8,260,199] discloses a mobile phone comprising a smartcard controller (311).”); ’608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (same); ’152 File History Non-Final Rejection dated 11/20/2014 at 2–3 (“Fox [U.S. 5,943,624] discloses mobile device comprising: a smartcard controller (42)”). And during prosecution of related U.S. Patent No. 8,451,122 (the “’122 patent”), the Examiner similarly found that the prior art “discloses an electronic transaction device comprising a smart card controller.” ’122 File History Non-Final Rejection dated 1/29/2013 at 2–4 (“Pitroda [U.S. 6,705,520] discloses an electronic transaction device comprising a smart card controller.”).</p> <p>At best, the element simply represents a narrowing of the abstract idea to a particular environment, which is not patent-eligible. <i>SAP Am.</i>, 898 F.3d at 1169 (dependent claims merely represent “further narrowing of what are still” abstract ideas); <i>BSG Tech.</i>, 899 F.3d at 1287; <i>In re TLI Commc’ns</i>, 823 F.3d at 611; <i>Affinity Labs</i>, 838 F.3d at 1258–59; <i>buySAFE, Inc.</i>, 765 F.3d at 1355. Thus, implementing the abstract idea in a smartcard environment does not render the claims patent-eligible. <i>See, e.g., Samsung Elecs.</i>, 673 F. Supp. at 1076–78 (holding claims directed to the abstract idea of “facilitating secure transactions” are not rendered any less abstract when recited in an “NFC-enabled” environment deployed with “smartcard internals and application platforms”).</p> <p><i>See also</i> 1[pre] above; Exhibits A1-A5 and Exhibit A at Element 1[a].</p>
1[b] an antenna; and	<p>The intrinsic record, including the specification of the ’965 patent, establishes that this element was well-understood, routine, and conventional. <i>See, e.g.,</i> ’965 patent, 2:20–41, 1:18–20, 1:21–28 (describing “prior art smartcard controller[s] and antenna” used in combination in RFID tags). This claim element merely recites a generic component that the specification admits was known in the art and indeed, discloses examples of prior art antennae. <i>See</i> ’965 patent, 1:32–40 (explaining RFID tags are “typically connected to ‘loop antennas” and identifying “One example of a loop antenna” in a “recognizable . . . ‘credit card sized” RFID tag provided in U.S. Pat. No. 6,568,600), 1:50–60 (discussing prior art “Antenna design for RFID applications” described in Lee, Y., (2003) Antenna Circuit Design for RFID Applications, Microchip Technology Inc., Microchip AN 710c).</p>

U.S. Patent No. 9, 122,965 Claim 1	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>The prosecution history of the '965 patent further indicates that an antenna was a well-understood, routine and conventional component. The Applicant admitted during prosecution that the prior art disclosed an antenna. '965 File History Response dated 5/18/2015 at 6 (“The office action alleges that Fox shows an antenna at 18. Applicant agrees.”). <i>See also</i> '965 File History Non-Final Rejection dated 11/19/2014 at 2, Response dated 5/18/2015 at 7.</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related '722,'608, and '152 patents, each Examiner found that the prior art “discloses a mobile phone comprising . . . an antenna.” '722 File History Non-Final Rejection dated 12/2/2015 at 4–5 (“Kowalski [U.S. Pat. No. 8,260,199] discloses a mobile phone comprising . . . an antenna (AC3).”); '608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (same); '152 File History Non-Final Rejection dated 11/20/2014 at 2–3 (“Fox [U.S. 5,943,624] discloses mobile device comprising . . . an antenna (18)).”).</p> <p><i>See also</i> 1[pre] above; Exhibits A1-A5 and Exhibit A at Element 1[b].</p>
1[c] performance enhancement circuits coupled between the smartcard controller and the antenna, wherein the performance enhancement circuits include an amplifier and a load modulation circuit, and wherein the amplifier is coupled to amplify a signal received from the antenna and to provide an amplified signal to the smartcard controller.	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. For example, the background discussion in the '965 specification describes “a prior art smartcard controller and antenna” coupled to a “load modulation driver circuit 1410.” '965 patent at 2:20–41. The specification further explains load modulation was “generally well known” and used in prior art RFID tags “to transmit response codes by . . . modulating the signal reflected back to the reader antenna.” '965 patent at 1:21–28, 15:40–48 (“Load modulation driver circuits are generally well known.”). Moreover, the additional elements this claim element recites are generic components used in a conventional way. <i>See</i> Elements 1[a] (discussing the claimed “smartcard controller”), 1[b] (discussing the claimed “antenna”). The recited amplifier merely “amplif[ies] a signal . . . to provide an amplified signal to the smartcard controller.” '965 patent, Claim 1. The specification also only describes a generic amplifier performing generic functions. <i>See</i> '965 patent, 15:6–15 (“Amplifier 1510 amplifies the voltage received at antenna 1542, and the amplified voltage is provided to the smartcard controller.”).</p>

U.S. Patent No. 9, 122,965 Claim 1	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>The prosecution history of the '965 patent further indicates that this element recites well-understood, routine and conventional components. During prosecution, the Examiner found that the prior art disclosed “performance enhancement circuits coupled between the smartcard controller and the antenna, wherein the performance enhancement circuits include an amplifier (134) and a load modulation circuit (142).” ’965 File History Non-Final Rejection dated 11/19/2014 at 2–3 (“Fox [U.S. 5,943,624] discloses the load modulation circuit.”). Indeed, the Applicant agreed with the Examiner that the prior art discloses at least an amplifier and modulator. ’965 File History Response dated 5/18/2015 at 6.</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related ’152 patent, the Examiner found that the prior art discloses “mobile device comprising . . . performance enhancement circuits . . . wherein the performance enhancement circuits include an amplifier (134) and a load modulation circuit (142).” ’152 File History Non-Final Rejection dated 11/20/2014 at 2–3. And during prosecution of the related ’722 and ’608 patents, each Examiner similarly found that the prior art discloses “an amplifier” and a “load modulation circuit . . . coupled between the smartcard controller and the antenna.” ’722 File History Non-Final Rejection dated 12/2/2015 at 4–5 (“Kowalski [U.S. Pat. No. 8,260,199] discloses . . . an amplifier coupled between the smartcard controller and the antenna” and “the load modulation circuit (RFM) coupled between the smartcard controller and the antenna”); ’608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (same). During prosecution of the ’122 patent, the Examiner similarly found that the prior art “discloses the transmit circuit includes a load modulation driver circuit.” ’122 File History Non-Final Rejection dated 1/29/2013 at 2–4 (“Staufer [U.S. 6,606,025] discloses the transmit circuit includes a load modulation driver circuit.”).</p> <p>During prosecution of both the related ’722 and ’122 patents, each Examiner further found that an amplifier coupled to amplify a signal received from the antenna and provide the amplified signal to the smartcard controller was known in the art. ’722 File History Final Rejection dated 4/29/2016 at 2–3 (“Park et al. (US 2005/0224589) discloses a smartcard with an amplifier to amplify the received signal to provide an amplified signal to the smartcard controller.”); ’122 File History Non-</p>

U.S. Patent No. 9, 122,965 Claim 1	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>Final Rejection dated 1/29/2013 at 2–4 (“Staufer [U.S. 6,606,025] discloses . . . an amplifier coupled to receive a signal from the antenna and to drive the contactless interface.”). According to each Examiner, “It would have been obvious at the time of the invention to amplify the received signal so that the received data may be enhanced for better [reception].” ’722 File History Final Rejection dated 4/29/2016 at 2. <i>See also</i> ’122 File History Non-Final Rejection dated 1/29/2013 at 2–4 (“At the time of the invention, it would have been obvious to utilize the amplifier as taught by Staufer [U.S. 6,606,025] in a circuit . . . to provide the appropriate signal for improving the communication technique.”).</p> <p>Further, reciting “performance enhancement circuits . . . include an amplifier and a load modulation circuit” to “to provide an amplified signal to the smartcard controller” is no more than result-based functional language that merely recites the abstract idea itself. <i>BSG Tech</i>, 899 F.3d at 1290 (“[A] claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.”). This limitation fails to recite how the claimed conventional components effectuate the claimed “performance enhancement[.]” and thus, it fails provide an inventive concept. <i>See Trinity Info Media</i>, 72 F.4<sup>th</sup> at 1367 (holding the ordered combination of claim elements was not inventive because they were “organized in an expected way— receiving user information, asking that user questions, receiving answers, identifying and displaying a match based on those answers”); <i>iLife Techs., Inc. v. Nintendo of Am., Inc.</i>, 839 F. App’x 534, 538 (Fed. Cir. 2021) (finding a claim patent ineligible under step 2 because the claim “did not recite any unconventional means for configuring [the system of acceleration sensors] or processing that information”).</p> <p>At best, the element simply represents a narrowing of the abstract idea to a particular environment, which fails to provide an inventive concept and is thus not patent-eligible. <i>SAP Am.</i>, 898 F.3d at 1169 (dependent claims merely represent “further narrowing of what are still” abstract ideas); <i>BSG Tech.</i>, 899 F.3d at 1287; <i>In re TLI Commc’ns</i>, 823 F.3d at 611; <i>Affinity Labs</i>, 838 F.3d at 1258–59; <i>buySAFE, Inc.</i>, 765 F.3d at 1355. Thus, implementing the abstract idea in a mobile phone and/or smartcard environment cannot, in itself, render the claims patent-eligible. <i>See, e.g., Samsung Elecs.</i>, 673 F. Supp. at 1076–78 (holding claims directed to the abstract idea of “facilitating secure transactions” are not rendered any less abstract when recited in an “NFC-enabled” environment</p>

U.S. Patent No. 9, 122,965 Claim 1	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>deployed with “smartcard internals and application platforms”); <i>In re TLI Commc 'ns</i>, 823 F.3d at 613 (“[A]lthough the claims limit the abstract idea to a particular environment—a mobile telephone system—that does not make the claims any less abstract for the step 1 analysis.”).</p> <p><i>See also</i> 1[pre] above; Exhibits A1-A5 and Exhibit A at Element 1[pre], 1[a], 1[b], and 1[c].</p>

U.S. Patent No. 9,122,965 Claim 2	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
<p>2. The mobile device of claim 1 wherein the antenna is tuned to operate at 13.56 MHz.</p>	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. For example, the '965 specification states that prior art antenna circuits are “typically tuned to create a resonant circuit at the frequency of interest (e.g., 13.56 MHz).” '965 patent at 2:20–41. The specification further provides examples of prior art antenna tuned to operate at 13.56 MHz. <i>See, e.g.</i>, '965 patent, 1:50–60 (describing prior art “RFID tag antenna” designed “to operate at 13.56 MHz” disclosed in Lee, Y., (2003) Antenna Circuit Design for RFID Applications, Microchip Technology Inc., Microchip AN 710c), 1:62–2:3 (describing a prior art “integrated loop antenna for an NFC device” “implement[ed] . . . at 13.56 MHz” disclosed in U.S. Pat. No. 7,333,062), 8:53–57 (describing prior art “smartcard controllers” that “provide RFID functionality at 13.56 MHz”).</p> <p>The prosecution history of the '965 patent further indicates that operation at a resonant frequency of 13.56 MHz was a well-understood, routine and conventional way of implementing an RFID antenna circuit. During prosecution, the Examiner characterized 13.56MHz as “the conventional ISO standard” resonant frequency and found that “it would have been obvious to utilize the standard operating frequency [in smartcard devices] so that other smartcard reader may conveniently communicate at the same conventional frequency.” '965 File History Non-Final Rejection dated 11/19/2014 at 3.</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related '608 patent, the Examiner found that the prior art discloses “the antenna is tuned to operate at 13.56 MHz.” '608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (“Kowalski [U.S. 8,260,199] discloses the antenna is tuned to operate at 13.56 MHz.”). During prosecution of the related '152 patent, the Examiner explained “It would have been obvious to utilize the standard operating frequency so that other smartcard reader may conveniently communicate at the same conventional frequency.” '152 File History Non-Final Rejection dated 11/20/2014 at 2–3.</p>

U.S. Patent No. 9,122,965 Claim 2	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>Thus, this claim element merely represents a narrowing of the abstract idea to a particular environment, that is, the standardized resonant frequency used in RFID applications such as smartcards. <i>See</i> '965 patent, 1:29–31 (noting that “passive tags operating at 13.56 MHz are typically designed to communicate with RFID readers a few centimeters away”), 2:20–41 (further noting that RFID antenna circuits are “typically tuned to create a resonant circuit at the frequency of interest (e.g., 13.56 MHz)”). Limitations that simply narrow the abstract idea to a particular environment do not render the claims patent-eligible. <i>SAP Am.</i>, 898 F.3d at 1169 (dependent claims merely represent “further narrowing of what are still” abstract ideas); <i>BSG Tech.</i>, 899 F.3d at 1287; <i>In re TLI Commc’ns</i>, 823 F.3d at 611; <i>Affinity Labs</i>, 838 F.3d at 1258–59; <i>buySAFE, Inc.</i>, 765 F.3d at 1355.</p> <p><i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Claim 2.</p>

U.S. Patent No. 9,122,965 Claim 3	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
<p>3. The mobile device of claim 1 wherein the antenna comprises an inductive element too small to draw enough power sufficient to operate the smartcard controller from an interrogating radio frequency (RF) field.</p>	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. The background discussion in the '965 specification characterizes the size of an RFID's inductive loop antenna as a well-known "barrier" to miniaturization of RFID tags. '965 patent, 2:6–19, 2:4–6 (“[A]ttempts to implement passive tags in smaller mobile devices . . . have met with limited success due in part to the size of the loop antenna.”). Namely, the '965 patent explains that passive tags “derive the energy needed to power the tag from an interrogating RF field.” '965 patent, 1:21–27. “Below a certain antenna size, the power supply voltage may never reach the critical value, and the tag may never power up.” '965 patent, 1:41–49. <i>See also</i> '965 patent, 14:55–65 (“As the antenna shrinks in size, the RFID card needs to be closer to the device producing the interrogating RF field in order to produce a large enough voltage to overcome the bridge rectifier diode drops, thereby reducing the maximum usable distance.”), 1:45–49 (“As the antenna size is reduced, it takes longer for the power supply voltage to reach the critical value, and the tag operation may not meet response time specifications. Below a certain antenna size, the power supply voltage may never reach the critical value, and the tag may never power up.”). Thus, this claim element attempts to claim a technological problem that even the '965 patent admits was well-known and already being addressed in the prior art. '965 patent, 2:4–6 (“There have been attempts to implement passive tags in smaller mobile devices.”). The '965 patent even provides an example prior art discussion of “determin[ing] size requirements for a passive RFID tag antenna to operate at 13.56 MHz.” '965 patent, 1:50–60. <i>See also</i>, '965 patent, 2:6–19 (describing prior art implementations of RFID tags in mobile devices and identifying “significantly oversized” antennae and having to “access a loop antenna on a different device” as practical barriers).</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related '722 and '608 patents, each Examiner found that the prior art discloses an “antenna comprises an inductive element too small to draw enough power sufficient to operate the smartcard controller from an interrogating radio frequency (RF) field,” further explaining that “the inductive coupling of the antennas are</p>

U.S. Patent No. 9,122,965 Claim 3	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>maximize after bringing them together; thus, they are small by themselves.” ’722 File History Non-Final Rejection dated 12/2/2015 at 5–6 (“Kowalski [U.S. Pat. No. 8,260,199] discloses the antenna comprises an inductive element too small to draw enough power sufficient to operate the smartcard controller from an interrogating radio frequency (RF) field.”); ’608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (same).</p> <p>Moreover, reciting that the antenna includes “an inductive element too small to draw enough power sufficient to operate the smartcard controller from an interrogating radio frequency (RF) field,” without explaining how the antenna operates based on this structure is the recitation of an abstract idea itself, and thus, does not add an inventive concept. <i>See, e.g., Internet Pats. Corp. v. Active Network, Inc.</i>, 790 F.3d 1343, 1345, 1348 (Fed. Cir. 2015) (finding claims directed to “maintaining [a user interface in a state determined by a user] . . . without loss of said state” while the user activates other interface functionalities are patent-ineligible because “The mechanism for maintaining the state is not described” in the claims).</p> <p>In view of the above, this element merely recites conventional functionality that is incidental to the purported claimed abstract idea of receiving and transmitting information in a mobile environment. <i>See Ultramercial, Inc. v. Hulu, LLC</i>, 772 F.3d 709, 716 (Fed. Cir. 2014) (“insignificant ‘pre-resolution activity’” is “not sufficient to transform an otherwise patent-ineligible abstract idea into patent-eligible subject matter”); <i>Parker v. Flook</i>, 437 U.S. 584, 591 (1978).</p> <p><i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Claim 2.</p>

U.S. Patent No. 9,122,965 Claim 4	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
<p>4. The mobile device of claim 1 wherein the smartcard controller is coupled to be powered by the mobile device.</p>	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See, e.g.</i>, '965 patent, 1:14–15 (explaining that prior art active RFID tags are powered “by a local power source”). This claim element merely recites generic components used in a conventional way. <i>See</i> Element 1[a] (discussing the claimed “smartcard controller”). For example, the '965 patent specification provides the host mobile device’s “battery” is a local power source. '965 patent, 6:21–41. The battery is coupled, in conventional way, <i>e.g.</i>, “through [a] host interface,” to the smartcard controller to power the controller. '965 patent, 9:7–10, Fig. 3A, 8:62–63, 13:41–52.</p> <p>The prosecution history of the '965 patent further indicates that coupling a smartcard controller to the host device’s power source was well-understood, routine and conventional. During prosecution, the Examiner found that the prior art “discloses the smartcard controller is coupled to be powered by the mobile device.” '965 File History Non-Final Rejection dated 11/19/2014 at 2.</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related '722,'608, and '152 patents, each Examiner found that the prior art “discloses the smartcard controller is coupled to be powered by the mobile device.” '722 File History Non-Final Rejection dated 12/2/2015 at 5–6 (“Kowalski [U.S. Pat. No. 8,260,199] discloses the smartcard controller is coupled to be powered by the mobile device.”); '608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (same); '152 File History Non-Final Rejection dated 11/20/2014 at 2–3 (“Fox [U.S. 5,943,624] discloses the smartcard controller is coupled to be powered by the mobile device (54) (Fig. 4).”).</p> <p>At best, the element simply represents a narrowing of the abstract idea to a particular environment, which fails to provide an inventive concept and is thus not patent-eligible. <i>SAP Am.</i>, 898 F.3d at 1169 (dependent claims merely represent “further narrowing of what are still” abstract ideas); <i>BSG Tech.</i>, 899 F.3d at 1287; <i>In re TLI Commc’ns</i>, 823 F.3d at 611; <i>Affinity Labs</i>, 838 F.3d at 1258–59; <i>buySAFE, Inc.</i>, 765 F.3d at 1355. Thus, implementing the abstract idea in a mobile and/or smartcard environment cannot, in itself, render the claims patent-eligible. <i>See, e.g., Samsung</i></p>

U.S. Patent No. 9,122,965 Claim 4	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p><i>Elecs.</i>, 673 F. Supp. at 1076–78 (holding claims directed to the abstract idea of “facilitating secure transactions” are not rendered patent eligible when recited in an “NFC-enabled” environment deployed with “smartcard internals and application platforms”).</p> <p>In view of the above, this element merely recites conventional functionality that is incidental to the purported claimed abstract idea of receiving and transmitting information in a mobile and/or smartcard environment. <i>See Ultramercial, Inc. v. Hulu, LLC</i>, 772 F.3d 709, 716 (Fed. Cir. 2014) (“insignificant ‘pre-solution activity’” is “not sufficient to transform an otherwise patent-ineligible abstract idea into patent-eligible subject matter”); <i>Parker</i>, 437 U.S. at 591 (“The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance.”).</p> <p><i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Claim 4.</p>

U.S. Patent No. 9,122,965 Claim 5	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
<p>5. The mobile device of claim 1 wherein the performance enhancement circuits are coupled to be powered by the mobile device.</p>	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See, e.g.</i>, '965 patent, 1:14–15 (explaining that prior art active RFID tags are powered “by a local power source”). This claim element merely recites generic components used in a conventional way. <i>See</i> Element 1[c] (discussing the claimed “performance enhancement circuits” comprise generic components). For example, the '965 patent specification provides the host mobile device’s “battery” is a local power source and the RFID card comprising the purported performance enhancement circuits is powered by the host device. '965 patent, 6:21–41, 15:16–27, 16:32–46. The active transmit driver circuit and amplifier “make use of power available on the RFID card” through conventional coupling, <i>e.g.</i>, the RFID card’s “electrical contacts . . . part of a host interface that communicates with [the host device].” '965 patent, 5:11–12. This coupling enables powering the RFID card in a conventional manner, <i>e.g.</i>, by “Cycling power” “between the hosting computer device . . . to the RFID card.” '965 patent, 16:44–46, 14:15–24.</p> <p>The prosecution history of the '965 patent further indicates that coupling RFID card circuitry to the host device’s power source was well-understood, routine and conventional. During prosecution, the Examiner found that the prior art “discloses the performance enhancement circuits are coupled to be powered by the mobile device.” '965 File History Non-Final Rejection dated 11/19/2014 at 2. The Examiner further noted that the prior art “discloses the amplifier is coupled to be powered by the mobile device.” '965 File History Non-Final Rejection dated 11/19/2014 at 3.</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related '152 patent, the Examiner found that the prior art “discloses the performance enhancement circuits are coupled to be powered by the mobile device.” '152 File History Non-Final Rejection dated 11/20/2014 at 2–3 (“Fox [U.S. 5,943,624] discloses the performance enhancement circuits are coupled to be powered by the mobile device.”). And during prosecution of the related '722 and 608 patents, each Examiner found that the prior art discloses “the amplifier is coupled to be powered by the mobile device” and “the at least one active circuit is coupled to be powered by the mobile device.” '722 File History Non-</p>

U.S. Patent No. 9,122,965 Claim 5	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>Final Rejection dated 12/2/2015 at 5–7 (“Kowalski [U.S. Pat. No. 8,260,199] discloses . . . the amplifier is coupled to be powered by the mobile device” and “the at least one active circuit is coupled to be powered by the mobile device.”); ’608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (same). The performance enhancement circuits claimed here in claims 1 and 7 comprise an amplifier, a load modulation circuit, and/or an active transmit circuit.</p> <p>In view of the above, this element merely recites conventional functionality that is incidental to the purported claimed abstract idea of receiving and transmitting information in a mobile environment. <i>See Ultramercial, Inc. v. Hulu, LLC</i>, 772 F.3d 709, 716 (Fed. Cir. 2014) (“insignificant ‘pre-resolution activity’” is “not sufficient to transform an otherwise patent-ineligible abstract idea into patent-eligible subject matter”); <i>Parker</i>, 437 U.S. at 591 (“The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance.”).</p> <p><i>See also</i> claim 4 above; Exhibits A1-A5 and Exhibit A at Claim 5.</p>

U.S. Patent No. 9,122,965 Claim 6	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
6. The mobile device of claim 1 wherein the mobile device comprises a mobile phone.	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See, e.g.</i>, '965 patent, 1:62–2:3 (describing a prior art “mobile phone” implemented as “an NFC device” disclosed in U.S. Pat. No. 7,333,062). The prosecution history of the '965 patent further indicates that mobile phones were well-understood, routine and conventional. The Applicant admitted during prosecution that the prior art discloses a mobile phone. '965 File History Response dated 5/18/2015 at 6. <i>See also</i> '965 File History Non-Final Rejection dated 11/19/2014 at 2.</p> <p>This claim element merely recites implementing the abstract idea in a particular environment, which fails to provide an inventive concept and is thus not patent-eligible. <i>See SAP Am.</i>, 898 F.3d at 1169 (dependent claims merely represent “further narrowing of what are still” abstract ideas); <i>BSG Tech.</i>, 899 F.3d at 1287; <i>In re TLI Commc 'ns</i>, 823 F.3d at 611; <i>Affinity Labs</i>, 838 F.3d at 1258–59; <i>buySAFE, Inc.</i>, 765 F.3d at 1355. Indeed, the '965 patent identifies “a mobile phone” as just one of <i>several</i> suggested computing environments in which an RFID card may be implemented. '965 patent, 4:41-48 (also listing “a personal digital assistant (PDA), a smartphone,” “a handheld computer, a desktop computer, or any other device” as host devices). The description of the claimed mobile phone environment as interchangeable with other well-known, conventional mobile devices underscores that the limitation fails to provide an inventive concept. Therefore, implementing the abstract idea in a mobile phone communicating with its smartcard cannot, in itself, render the claims patent-eligible. <i>See, e.g., In re TLI Commc 'ns</i>, 823 F.3d at 613 (“[A]lthough the claims limit the abstract idea to a particular environment—a mobile telephone system—that does not make the claims any less abstract for the step 1 analysis.”).</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related '722, '608, and '152 patents, each Examiner found that the prior art “discloses the mobile device comprises a mobile phone.” '722 File History Non-Final Rejection dated 12/2/2015 at 5–7 (“Kowalski [U.S. Pat. No. 8,260,199] discloses the mobile device comprises a mobile phone.”); '608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (same); '152 File History Non-Final Rejection dated 11/20/2014</p>

U.S. Patent No. 9,122,965 Claim 6	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>at 2–3 (“Fox [U.S. 5,943,624] discloses the mobile device comprises a mobile phone (10).”). During prosecution of the related ’122 patent, the Examiner further explained “it would have been obvious that mobile phones are used for verbal communication as well as contactless communication . . . . Thus, utilizing a mobile phone to provide contactless communication is not new but rather well-known in the art.” ’122 File History Non-Final Rejection dated 1/29/2013 at 2–4.</p> <p>In view of the above, this element merely recites conventional functionality that is incidental to the purported claimed abstract idea of receiving and transmitting information in a mobile environment. <i>See Ultramercial, Inc. v. Hulu, LLC</i>, 772 F.3d 709, 716 (Fed. Cir. 2014) (“insignificant ‘pre-solution activity’” is “not sufficient to transform an otherwise patent-ineligible abstract idea into patent-eligible subject matter”); <i>Parker</i>, 437 U.S. at 591 (“The notion that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process exalts form over substance.”).</p> <p><i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Claim 6.</p>

U.S. Patent No. 9,122,965 Claim 7	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
7[pre] A mobile device comprising:	To the extent the preamble is limiting, a mobile device was well understood, routine, and conventional. <i>See</i> Element 1[pre] above.  <i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Element 7[pre].
7[a] a smartcard controller;	The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Element 1[a] above.  <i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Element 7[a].
7[b] an antenna; and	The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Element 1[b] above.  <i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Element 7[b].
7[c] performance enhancement circuits coupled between the smartcard controller and the antenna, wherein the performance enhancement circuits include an amplifier and an active transmit driver circuit, and wherein the amplifier is coupled to amplify a signal received from the antenna and to provide an amplified signal to the smartcard controller.	The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Element 1[c] (discussing the claimed “performance enhancement circuits coupled between the smartcard controller and the antenna, wherein the performance enhancement circuits include an amplifier . . . wherein the amplifier is coupled to amplify a signal received from the antenna and to provide an amplified signal to the smartcard controller”). For example, the background discussion in the '965 specification explains that RFID tags implementing active transmission, that is, “locally generated RF carrier” signals, were known in the art. '965 patent, 1:14–18. Thus, the “active transmit” characteristic of the claimed transmit circuit is provided by the well-understood, routine, and conventional technique of “form[ing]” an outgoing RF carrier rather than load modulating an interrogating RF carrier. '965 patent, 16:32–46. <i>See</i> '965 patent, 1:14–18 (“Active tags generally transmit information . . . using a locally generated RF carrier.”).

U.S. Patent No. 9,122,965 Claim 7	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>Moreover, the additional elements this claim elements recites are generic components used in a conventional way. For example, the recited amplifier merely “amplif[ies] a signal . . . to provide an amplified signal to the smartcard controller.” ’965 patent, Claim 7. The specification also describes an amplifier performing only generic amplifying functions. <i>See, e.g.</i>, ’965 patent, 15:6–15 (“Amplifier 1510 amplifies the voltage received at antenna 1542, and the amplified voltage is provided to the smartcard controller.”). The ’965 specification further does not describe how a driver circuit operates nor purports to disclose any inventive aspect of a driver circuit. <i>See generally</i>, ’965 patent. Rather, the ’965 specification provides that a “driver circuit” may implement “any . . . method of driving the transmit output data.” ’965 patent, 17:40–44. Indeed, any discussion of driving a circuit component is provided in non-specific and non-limiting language. <i>See, e.g.</i>, ’965 patent, 17:41–44 (“[T]he term ‘driver’ as used herein refers to an active transmit driver or a load modulation driver or any other method of driving the transmit output data.”), 7:13–15 (identifying generic components of host interface circuitry include “drivers, receivers, terminations, and the like”). The language presumes that the reader will understand without further technical detail because driving a circuit component was well-understood, routine, and conventional. <i>See generally id.</i> Courts have held that such generic descriptions are not inventive. <i>Ultramercial, Inc. v. Hulu, LLC</i>, 772 F.3d 709, 715–16 (Fed. Cir. 2014) (holding the claims insufficient to supply an inventive concept because they did not “do significantly more than simply describe [the] abstract method,” but rather are simply “conventional steps, specified at a high level of generality”).</p> <p>The prosecution history of the ’965 patent further indicates that this element recites well-understood, routine and conventional components. During prosecution, the Examiner found that the prior art discloses “performance enhancement circuits coupled between the smartcard controller and the antenna” and “the transmit driver circuit.” ’965 File History Non-Final Rejection dated 11/19/2014 at 2–3. Indeed, the Applicant agreed with the Examiner that the prior art taught an amplifier and modulator. ’965 File History Response dated 5/18/2015 at 7.</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related ’152 patent, the Examiner</p>

U.S. Patent No. 9,122,965 Claim 7	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>found that the prior art “discloses the transmit driver circuit.” ’152 File History Non-Final Rejection dated 11/20/2014 at 2–3 (“Fox [U.S. 5,943,624] discloses the transmit driver circuit (136) (Fig. 4).”). During prosecution of the related ’722 and ’608 patents, each Examiner found that the prior art discloses “an amplifier” and “at least one active circuit . . . coupled between the smartcard controller and the antenna.” ’722 File History Non-Final Rejection dated 12/2/2015 at 4–5 (“Kowalski [U.S. Pat. No. 8,260,199] discloses . . . at least one active circuit (LCT2b) coupled between the smartcard controller and the antenna” and “an amplifier coupled between the smartcard controller and the antenna.”); ’608 File History Non-Final Rejection dated 12/2/2015 at 4–7 (same). During prosecution of the related ’122 patent, the Examiner similarly found that the prior art discloses “an amplifier” and “the transmit circuit includes an active transmit driver circuit.” ’122 File History Non-Final Rejection dated 1/29/2013 at 2–4 (“Staufer [U.S. 6,606,025] discloses the transmit circuit includes an active transmit driver circuit.”).</p> <p>During prosecution of the ’722 patent, the Examiner found that the prior art discloses an amplifier amplifying a signal received from the antenna and providing the amplified signal to the smartcard controller. ’722 File History Final Rejection dated 4/29/2016 at 2–3 (“Park et al. (US 2005/0224589) discloses a smartcard with an amplifier to amplify the received signal to provide an amplified signal to the smartcard controller.”). According to the Examiner, “It would have been obvious at the time of the invention to amplify the received signal so that the received data may be enhanced for better [reception].” ’722 File History Final Rejection dated 4/29/2016 at 2.</p> <p>Further, reciting “performance enhancement circuits . . . include an amplifier and an active transmit driver circuit” to “provide an amplified signal to the smartcard controller” is no more than result-based functional language that merely recites the abstract idea itself. <i>BSG Tech</i>, 899 F.3d at 1290 (“[A] claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.”). This limitation fails to recite how the claimed conventional components effectuate the claimed “performance enhancement[.]” and thus, it fails to provide an inventive concept. <i>See Trinity Info Media</i>, 72 F.4th at 1367 (holding the ordered combination of claim elements was not inventive because they were “organized in an expected way— receiving user information, asking that user</p>

U.S. Patent No. 9,122,965 Claim 7	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>questions, receiving answers, identifying and displaying a match based on those answers”); <i>iLife Techs., Inc. v. Nintendo of Am., Inc.</i>, 839 F. App’x 534, 538 (Fed. Cir. 2021) (finding a claim patent ineligible under step 2 because the claim “did not recite any unconventional means for configuring [the system of acceleration sensors] or processing that information”).</p> <p>At best, the element simply represents a narrowing of the abstract idea to a particular environment, which fails to provide an inventive concept and is thus not patent-eligible. <i>SAP Am.</i>, 898 F.3d at 1169 (dependent claims merely represent “further narrowing of what are still” abstract ideas); <i>BSG Tech.</i>, 899 F.3d at 1287; <i>In re TLI Commc’ns</i>, 823 F.3d at 611; <i>Affinity Labs</i>, 838 F.3d at 1258–59; <i>buySAFE, Inc.</i>, 765 F.3d at 1355. Therefore, implementing the abstract idea in a mobile and/or smartcard environment cannot, in itself, render the claims patent-eligible. <i>See, e.g., Samsung Elecs.</i>, 673 F. Supp. at 1076–78 (holding claims directed to the abstract idea of “facilitating secure transactions” are not rendered any less abstract when recited in an “NFC-enabled” environment deployed with “smartcard internals and application platforms”); <i>In re TLI Commc’ns</i>, 823 F.3d at 613 (“[A]lthough the claims limit the abstract idea to a particular environment—a mobile telephone system—that does not make the claims any less abstract for the step 1 analysis.”).</p> <p><i>See also</i> 1[pre] above; Exhibits A1-A5 and Exhibit A at Element 1[c] and 7[c].</p>

U.S. Patent No. 9,122,965 Claim 8	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
8. The mobile device of claim 7 wherein the antenna is tuned to operate at 13.56 MHz.	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Claim 2 above.</p> <p><i>See also</i> claim 7 above; Exhibits A1-A5 and Exhibit A at Claim 8.</p>

U.S. Patent No. 9,122,965 Claim 9	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
<p>9. The mobile device of claim 7 wherein the antenna comprises an inductive element too small to draw enough power sufficient to operate the smartcard controller from an interrogating radio frequency (RF) field.</p>	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Claim 3 above.</p> <p><i>See also</i> claim 7 above; Exhibits A1-A5 and Exhibit A at Claim 9.</p>

U.S. Patent No. 9,122,965 Claim 10	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
10. The mobile device of claim 7 wherein the smartcard controller is coupled to be powered by the mobile device.	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Claim 4 above.</p> <p><i>See also</i> claim 7 above; Exhibits A1-A5 and Exhibit A at Claim 10.</p>

<b>U.S. Patent No. 9,122,965 Claim 11</b>	<b>Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time</b>
<p>11. The mobile device of claim 7 wherein the performance enhancement circuits are coupled to be powered by the mobile device.</p>	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Claim 5 above (discussing “The active transmit driver circuit and amplifier,” comprising the claimed performance enhancement circuits, are coupled to be powered by the mobile device).</p> <p><i>See also</i> claim 7 above; Exhibits A1-A5 and Exhibit A at Claim 11.</p>

U.S. Patent No. 9,122,965 Claim 12	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
12. The mobile device of claim 7 wherein the mobile device comprises a mobile phone.	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Claim 6 above.</p> <p><i>See also</i> claim 7 above; Exhibits A1-A5 and Exhibit A at Claim 12.</p>

U.S. Patent No. 9,122,965 Claim 13	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
13[pre] A mobile device comprising:	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Element 1[pre] above.</p> <p><i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Element 13[pre].</p>
13[a] a smartcard controller;	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Element 1[a] above.</p> <p><i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Element 13[a].</p>
13[b] an antenna;	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Element 1[b] above.</p> <p><i>See also</i> claim 1 above; Exhibits A1-A5 and Exhibit A at Element 13[b].</p>
13[c] an amplifier coupled to amplify signals received at the antenna and drive the smartcard controller; and	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Elements 1[a] (discussing the claimed “smartcard controller”), 1[b] (discussing the claimed “antenna”). The additional recited amplifier element is a generic component used in a conventional way. The amplifier merely “amplif[ies] a signal . . . and drive[s]” a controller. '965 patent, Claim 13. The specification also describes an amplifier performing generic functions and fails to explain how it amplifies a signal or drives a controller, which means those functions must have been generic or known at the time. '965 patent, 15:6–15 (“Amplifier 1510 amplifies the voltage received at antenna 1542, and the amplified voltage is provided to the smartcard controller.”). Indeed, any discussion of driving a circuit component is provided in non-specific and non-limiting language. <i>See, e.g.</i>, '965 patent, 17:41–44 (“[T]he term ‘driver’ as used herein refers to an active transmit driver or a load modulation driver or any other method of driving the transmit output data.”), 7:13–15 (identifying generic components of host interface circuitry include “drivers, receivers, terminations, and the like”). The language presumes that the reader will understand without further technical detail because driving a circuit component was well-understood, routine, and conventional. <i>See generally id.</i> Courts have held that such generic descriptions are not inventive. <i>Ultramercial, Inc. v. Hulu, LLC</i>, 772 F.3d 709, 715–16</p>

U.S. Patent No. 9,122,965 Claim 13	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>(Fed. Cir. 2014) (holding the claims insufficient to supply an inventive concept because they did not “do significantly more than simply describe [the] abstract method,” but rather are simply “conventional steps, specified at a high level of generality”).</p> <p>The prosecution history of the ’965 patent further indicates that an amplifier was a well-understood, routine and conventional component. The Applicant admitted during prosecution that the prior art discloses an amplifier. ’965 File History Response dated 5/18/2015 at 6. <i>See also</i> ’965 File History Response dated 5/18/2015 at 7, Non-Final Rejection dated 11/19/2014 at 2.</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related ’722 patent, the Examiner found that the prior art discloses an amplifier amplifying a signal received from the antenna and providing the amplified signal to the smartcard controller. ’722 File History Final Rejection dated 4/29/2016 at 2–3 (“Park et al. (US 2005/0224589) discloses a smartcard with an amplifier to amplify the received signal to provide an amplified signal to the smartcard controller.”). According to the Examiner, “It would have been obvious at the time of the invention to amplify the received signal so that the received data may be enhanced for better [reception].” ’722 File History Final Rejection dated 4/29/2016 at 2.</p> <p>Further, reciting “amplify[ing] signals received at the antenna and driv[ing] the smartcard controller” is no more than result-based functional language that merely recites the abstract idea itself. <i>BSG Tech</i>, 899 F.3d at 1290 (“[A] claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.”). This limitation fails to provide an inventive concept. <i>See Trinity Info Media</i>, 72 F.4<sup>th</sup> at 1367 (holding the ordered combination of claim elements was not inventive because they were “organized in an expected way— receiving user information, asking that user questions, receiving answers, identifying and displaying a match based on those answers”); <i>iLife Techs., Inc. v. Nintendo of Am., Inc.</i>, 839 F. App’x 534, 538 (Fed. Cir. 2021) (finding a claim patent ineligible under step 2 because the claim “did not recite any unconventional means for configuring [the system of acceleration sensors] or processing that information”).</p>

U.S. Patent No. 9,122,965 Claim 13	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>At best, the element simply represents a narrowing of the abstract idea to a particular environment, which fails to provide an inventive concept and is thus not patent-eligible. <i>SAP Am.</i>, 898 F.3d at 1169 (dependent claims merely represent “further narrowing of what are still” abstract ideas); <i>BSG Tech.</i>, 899 F.3d at 1287; <i>In re TLI Commc’ns</i>, 823 F.3d at 611; <i>Affinity Labs</i>, 838 F.3d at 1258–59; <i>buySAFE, Inc.</i>, 765 F.3d at 1355. Therefore, implementing the abstract idea in a mobile and/or smartcard environment does not render the claims patent-eligible. <i>See, e.g., Samsung Elecs.</i>, 673 F. Supp. at 1076–78 (holding claims directed to the abstract idea of “facilitating secure transactions” are not rendered any less abstract when recited in an “NFC-enabled” environment deployed with “smartcard internals and application platforms”); <i>In re TLI Commc’ns</i>, 823 F.3d at 613 (“[A]lthough the claims limit the abstract idea to a particular environment—a mobile telephone system—that does not make the claims any less abstract for the step 1 analysis.”).</p> <p><i>See also</i> 1[pre] above; Exhibits A1-A5 and Exhibit A at Element 13[c].</p>
<p>13[d] a driver circuit to drive the antenna with data provided by the smartcard controller.</p>	<p>The intrinsic record, including the specification of the ’965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Elements 1[c] (discussing various driver circuits), 7[c] (discussing “driver circuit”) and 13[c] above. This claim element merely recites generic components used in a conventional way. And the specification does not describe how to drive the antenna with data nor purport to disclose any inventive aspect of a driver circuit, which means that driver circuits must have been generic or known at the time. <i>See generally</i>, ’965 patent. Rather, the ’965 specification provides that a “driver circuit” may implement “any . . . method of driving the transmit output data.” ’965 patent, 17:40–44.</p> <p>The prosecution history of the ’965 patent further indicates that a driver circuit was a well-understood, routine and conventional component. During prosecution, the Examiner found that the prior art “discloses the transmit driver circuit.” ’965 File History Non-Final Rejection dated 11/19/2014 at 3.</p> <p>Further, reciting “drive the antenna with data provided by the smartcard controller” is no more than result-based functional language that merely recites the abstract idea itself. <i>BSG Tech.</i>, 899 F.3d at 1290 (“[A] claimed invention’s use of the ineligible concept to which it is directed cannot supply</p>

U.S. Patent No. 9,122,965 Claim 13	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
	<p>the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.”). This limitation fails to provide an inventive concept. <i>See Trinity Info Media</i>, 72 F.4<sup>th</sup> at 1367 (holding the ordered combination of claim elements was not inventive because they were “organized in an expected way— receiving user information, asking that user questions, receiving answers, identifying and displaying a match based on those answers”); <i>iLife Techs., Inc. v. Nintendo of Am., Inc.</i>, 839 F. App’x 534, 538 (Fed. Cir. 2021) (finding a claim patent ineligible under step 2 because the claim “did not recite any unconventional means for configuring [the system of acceleration sensors] or processing that information”).</p> <p>At best, the element simply represents a narrowing of the abstract idea to a particular environment, which fails to provide an inventive concept and is thus not patent-eligible. <i>SAP Am.</i>, 898 F.3d at 1169 (dependent claims merely represent “further narrowing of what are still” abstract ideas); <i>BSG Tech.</i>, 899 F.3d at 1287; <i>In re TLI Commc’ns</i>, 823 F.3d at 611; <i>Affinity Labs</i>, 838 F.3d at 1258–59; <i>buySAFE, Inc.</i>, 765 F.3d at 1355. Therefore, implementing the abstract idea in a mobile and/or smartcard environment does not render the claims patent-eligible. <i>See, e.g., Samsung Elecs.</i>, 673 F. Supp. at 1076–78 (holding claims directed to the abstract idea of “facilitating secure transactions” are not rendered any less abstract when recited in an “NFC-enabled” environment deployed with “smartcard internals and application platforms”); <i>In re TLI Commc’ns</i>, 823 F.3d at 613 (“[A]lthough the claims limit the abstract idea to a particular environment—a mobile telephone system—that does not make the claims any less abstract for the step 1 analysis.”).</p> <p><i>See also</i> 1[pre] above; Exhibits A1-A5 and Exhibit A at Element 13[d].</p>

U.S. Patent No. 9,122,965 Claim 14	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
<p>14. The mobile device of claim 13 wherein the driver circuit comprises a load modulation circuit.</p>	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Elements 1[c] (discussing “load modulation circuit”) and 13[d] (discussing the “driver circuit”). The '965 specification itself states that “Load modulation driver circuits are generally well known.” '965 patent, 15:40–48. Thus, this claim element merely recites a generic component used in a conventional way. Indeed, the specification identifies “a load modulation driver” as one of multiple “method[s] of driving the transmit output data.” '965 patent, 17:41–44. Such language presumes that the reader will understand without further technical detail because a driver circuit comprising a load modulation circuit was well-understood, routine, and conventional. <i>See generally id.</i> Courts have held that such generic descriptions are not inventive. <i>Ultramercial, Inc. v. Hulu, LLC</i>, 772 F.3d 709, 715–16 (Fed. Cir. 2014) (holding the claims insufficient to supply an inventive concept because they did not “do significantly more than simply describe [the] abstract method,” but rather are simply “conventional steps, specified at a high level of generality”).</p> <p>The prosecution history of the '965 patent further indicates that load modulation circuitry was a well-understood, routine and conventional component. During prosecution, the Examiner found that the prior art “discloses the load modulation circuit.” '965 File History Non-Final Rejection dated 11/19/2014 at 3.</p> <p>The prosecution history of related patents demonstrates that the limitation was well-understood, routine, and conventional. For example, during prosecution of the related '722 patent, the Examiner found that the prior art discloses a “load modulation circuit.” '722 File History Non-Final Rejection dated 12/2/2015 at 5 (“Kowalski [U.S. Pat. No. 8,260,199] discloses the load modulation circuit (RFM).”).</p> <p><i>See also</i> Claim 13 above; Exhibits A1-A5 and Exhibit A at Claim 14.</p>

U.S. Patent No. 9,122,965 Claim 15	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
15. The mobile device of claim 13 wherein the driver circuit comprises an active transmit driver circuit.	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> 1[c], 7[c] above (discussing “active transmit driver circuit”).</p> <p><i>See also</i> Claim 13 above; Exhibits A1-A5 and Exhibit A at Claim 15.</p>

U.S. Patent No. 9,122,965 Claim 16	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
<p>16. The mobile device of claim 15 wherein the active transmit driver circuit is coupled to be powered by the mobile device.</p>	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Elements 7[c], [15] (discussing the claimed “active transmit driver circuit”), [5], [11] (discussing “The active transmit driver circuit” is coupled to be powered by the mobile device).</p> <p><i>See also</i> Claim 15 above; Exhibits A1-A5 and Exhibit A at Claim 16.</p>

U.S. Patent No. 9,122,965 Claim 17	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
17. The mobile device of claim 13 wherein the amplifier is coupled to be powered by the mobile device.	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See, e.g.</i>, '965 patent, 1:14–15 (explaining that prior art active RFID tags are powered “by a local power source”). This claim element merely recites generic components used in a conventional way. <i>See</i> Elements 1[c] (discussing the claimed “amplifier”), [5] (discussing “the amplifier” is coupled to be powered by the mobile device).</p> <p><i>See also</i> Claim 13 above; Exhibits A1-A5 and Exhibit A at Claim 17.</p>

U.S. Patent No. 9,122,965 Claim 18	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
18. The mobile device of claim 13 wherein the antenna is tuned to operate at 13.56 MHz.	The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Claim 2 above.  <i>See also</i> claim 13 above; Exhibits A1-A5 and Exhibit A at Claim 18.

U.S. Patent No. 9,122,965 Claim 19	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
<p>19. The mobile device of claim 13 wherein the antenna comprises an inductive element too small to draw enough power sufficient to operate the smartcard controller from an interrogating radio frequency (RF) field.</p>	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Claim 3 above.</p> <p><i>See also</i> claim 13 above; Exhibits A1-A5 and Exhibit A at Claim 19.</p>

U.S. Patent No. 9,122,965 Claim 20	Factual and Legal Basis for How Each Element of Each Challenged Claim Was Well-Understood, Routine, and Conventional in the Relevant Industry at the Relevant Time
20. The mobile device of claim 13 wherein the mobile device comprises a mobile phone.	<p>The intrinsic record, including the specification of the '965 patent, establishes that this element was well-understood, routine, and conventional. <i>See</i> Claim 6 above.</p> <p><i>See also</i> claim 13 above; Exhibits A1-A5 and Exhibit A at Claim 20.</p>