Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of Parts 0, 1, 2, 15 and 18 of the Commission's Rules regarding Authorization of Radiofrequency Equipment	)	ET Docket No. 15-170
	)	
	)	
	)	
Request for the Allowance of Optional Electronic Labeling for Wireless Devices	)	RM-11673
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To: The Commission

COMMENTS OF CISCO SYSTEMS, INC.

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EXECUTIVE SUMMARY

Cisco commends the Commission for initiating this proceeding and supports the vast majority of the rule modifications proposed in the *Notice*, in particular those that will streamline the equipment authorization and certification process, provide greater clarity to industry, and enhance the Commission's flexibility to rapidly adapt to changes in technology.

While the Commission's equipment authorization program has served the nation well in controlling interference and allowing innovation to flourish, the *Notice* correctly recognizes that today's RF devices are evolving more rapidly than ever before. Instead of codifying rules based on current technologies, which can only be adjusted after lengthy Federal Register notice-and-comment rulemaking proceedings, the Commission should future-proof new rules by limiting them to high-level requirements. The Commission then should rely on the Office of Engineering and Technology ("OET") to fine-tune the equipment authorization procedures and criteria through the Knowledge Database ("KDB") process.

If the Commission goes forward with its proposal to unify the verification and Declaration of Conformity ("DoC") procedures into a single self-approval procedure, the Commission should make clear that it retains the distinction between Class A digital devices (digital devices marketed for use in a commercial, industrial or business environment) and Class B digital devices (digital devices marketed for use in a residential environment, notwithstanding use in a commercial, industrial or business environment).

Cisco opposes the Commission's proposal not to require the use of an accredited laboratory for the testing of equipment authorized under self-approval procedures. The reliability and confidence that results from testing by laboratories accredited in accordance with international standards is important in today's global market.

The *Notice* asks whether any categories of equipment currently covered by the DoC and verification procedures should be made subject to the more rigorous certification procedure. The answer is no. Enumerating the categories of equipment subject to mandatory certification in a KDB rather than the rules will allow the OET staff more flexibility to move categories of equipment from certification to SDoC self-approvals or vice versa.

The Commission's equipment certification rules warrant updating. The Commission should consider removing the Section 15.203 requirement for a unique antenna for intentional radiators as being antiquated and impractical. Manufacturer attempts to design unique connectors for each device are fruitless, short of hard-wiring the antenna to the device.

Cisco supports moving the module approval requirements to Part 2 to account for host devices that contain both licensed and unlicensed certified modular transmitters. The FCC, however, should update the modular rules as proposed by Cisco to reflect current technology.

The Commission should adopt its proposal to simplify the rules by removing the software defined radio ("SDR") designation from grants of certification and incorporating any necessary requirements for software control of RF parameters and software security for all devices in the

general certification rules and KDB guidance. The use of software upgrades to change RF operating parameters of certified devices has proven beneficial to both manufacturers and consumers, as it allows manufacturers to obtain approval of products with an initially limited set of capabilities and then enable new frequency bands, functions and transmission formats to be added to already-approved equipment. With the elimination of the SDR certification category, however, the FCC should continue to clarify via KDB the conditions under which an unlicensed Part 15 device may utilize configuration schemes to select country settings based on location awareness methods and ensure that the device operates only within U.S. bands and power limits.

Cisco supports the proposed modifications to the Class I permissive change rules to the extent they are intended to provide manufacturers' more flexibility. The Commission also should adopt its proposal to allow certification of a "family of products" under a single FCC ID. Through the KDB process, OET should provide guidance to facilitate obtaining family approvals, both for previously certified and new products.

Cisco does not support allowing a third party to alter a certified product without the original manufacturer's approval. If a third party's modifications are found not to be compliant with the FCC's rules, the original manufacturer should be held harmless.

Cisco opposes the Commission's proposal to replace the references in Section 15.33(a) regarding the frequency range of measurements because retaining the references eliminates any potential ambiguity regarding what frequency range must be tested. Cisco supports adopting the ANSI C63.26 standard being developed to address measurement procedures for compliance testing of transmitters used in licensed radio services; but it recommends that the Commission delegate authority to OET to update references to new measurement standards as they evolve, rather than codifying them into rules.

The Commission should adopt its proposed rule changes to make certain exhibits in applications for equipment certification automatically confidential either for short-term or long-term confidentiality. Rather than granting short-term confidentiality for a series of 45-day periods only upon four separate requests of the manufacturer, the Commission should afford all applications an automatic 90-day short-term confidentiality period, with the potential for a single 90-day renewal request.

Finally, Cisco supports the Commission's proposals to codify electronic labeling, to eliminate FCC Form 740 for imported RF devices, and to issue provisional grants of certification to facilitate legal importation (and distribution through the supply chain) of devices prior to sale to end users.

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To: The Commission

COMMENTS OF CISCO SYSTEMS, INC.

Cisco Systems, Inc. ("Cisco") submits these comments in response to the Commission's *Notice of Proposed Rulemaking* ("*Notice*") in the above-captioned proceeding that proposes to modify and update the Commission's rules for authorizing radiofrequency ("RF") equipment and to codify rules for optional electronic labeling.[1]

Cisco is the worldwide leader in the design and manufacture of networking and other products used to transport data, video and voice within buildings, across campuses and around the world. As such, Cisco makes extensive use of the Commission's equipment authorization programs for both intentional radiators (such as Wi-Fi access points and small cell base stations) and unintentional radiators (including routers and switches). Cisco also has actively participated in many Commission rulemakings focused on technical rules or equipment authorization

[1] *Amendment of Parts 0, 1, 2, 15 and 18 of the Commission's Rules regarding Authorization of Radiofrequency Equipment; Request for the Allowance of Optional Electronic Labeling of Wireless Devices*, Notice of Proposed Rulemaking, 30 FCC Rcd 7725 (2015) ("*Notice*").

processes.[2] Cisco has supported the FCC in adopting industry-developed standards and commends the FCC for working with industry to develop such standards.

As discussed below, Cisco supports the vast majority of the rule modifications proposed in the *Notice*, in particular those that will streamline the equipment authorization and certification process, provide greater clarity to industry, and enhance the Commission's flexibility to rapidly adapt to changes in technology. While Cisco proposes certain changes to the rules proposed by the Commission, it does so in the same spirit that underscores the *Notice* – a desire to streamline and modernize the equipment authorization process to the greatest extent possible without risking the introduction of harmful interference into the operating environment.

I. WHILE MOST OF THE PROPOSED RULE CHANGES ARE WELCOME STREAMLINING IMPROVEMENTS, THE FCC SHOULD LEAVE MANY OF THE DETAILS TO THE MORE FLEXIBLE KDB PROCESS

Cisco applauds the Commission's successful implementation of its equipment authorization rules over the years. The Commission has succeeded in meeting the ever-increasing demand for device approval — up from about 3,000 in 1999 to more than 21,000 in 2014 — by developing an efficient, streamlined equipment authorization process that relies on Telecommunication Certification Bodies ("TCBs") and a relatively small Commission staff. The equipment authorization procedures have been implemented with a high degree of transparency through the FCC's knowledge database ("KDB") implemented by the Office of Engineering and Technology ("OET"). The KDB process, which allows both searches of key phrases and permits inquiries from the public, has greatly improved the ability of equipment manufacturers and the

[2] *See, e.g.*, Comments of Cisco Systems Inc., ET Docket No. 15-105 (LTE-Unlicensed/License Assisted Access (LTE-U/LAA)) (June 11, 2015); Comments of Cisco Systems Inc., ET Docket No. 13-44, RM-11652 (Telecommunications Certification Bodies) (June 17, 2013); Comments of Cisco Systems Inc., IB Docket No. 13-213, RM-11685 (Terrestrial Use of the 2473-2495 MHz Band) (May 5, 2014); Comments of Cisco Systems, Inc., RM-11673 (E-labeling) (Oct. 1, 2012); Comments of Cisco Systems Inc., MB Docket No. 10-91, CS Docket No. 97-80, PP Docket No. 00-67 (Video Navigation Devices) (July 13, 2010).

TCBs to understand and comport with the policies being applied during the equipment authorization process.

While the Commission's equipment authorization program has served the nation well in controlling interference and allowing innovation to flourish, the *Notice* correctly recognizes that today's RF devices are evolving more rapidly than ever before and that new RF devices do not always fit neatly within the Commission's past ways of classifying and approving devices.[3] The review of the program in this proceeding is thus warranted, as several FCC rules are antiquated and should be removed or modified. Cisco appreciates that the Commission is exploring rule modifications that can increase efficiency, while improving interference prevention and fostering continued innovation.

In crafting revised equipment authorization rules, the Commission must take into account that, with RF technology rapidly evolving, overly-detailed rules will soon become obsolete. Instead of codifying rules based on current technologies, which can only be adjusted after lengthy Federal Register notice-and-comment rulemaking proceedings, the Commission should future-proof new rules by limiting them to high-level requirements. The Commission then should rely on OET to fine-tune the equipment authorization procedures and criteria through the issuance of public notices, requests for comment on draft KDBs, updates to the KDB, and responses to KDB inquiries. The KDB inquiry process has allowed OET staff to provide guidance on an individualized basis regarding test or configuration requirements not found or defined in the rules, while the development of generalized, posted KDBs allows all manufacturers and test labs to develop and test products for compliance along the same guidelines. The KDB process also reduces delay -- where technical test standards or regulations

[3] *Notice* ¶ 14.

are still being drafted, the KDB process allows manufacturers to move forward with development and certification of products utilizing new technologies not yet fully addressed in the codified rules. In sum, the FCC's equipment authorization program should remain subject to the flexibility of OET's delegated authority to adapt to new developments, while affording parties the opportunity to seek full Commission review when necessary.

II. UNIFYING THE SELF-APPROVAL PROCEDURES WILL STREAMLINE THE AUTHORIZATION OF UNINTENTIONAL RADIATOR DEVICES, BUT SUCH DEVICES SHOULD CONTINUE TO BE TESTED BY TEST LABS SUBJECT TO SOME FCC OVERSIGHT.

Cisco commends the Commission's ongoing efforts to streamline its equipment authorization processes. The Commission previously reduced the number of separate equipment authorization processes from five to three by merging type acceptance into certification and eliminating the notification process,[4] and now it proposes to unify the verification and Declaration of Conformity ("DoC") equipment self-approval procedures into a single procedure. Since 1998 – when the Commission last investigated the possibility of combining verification and DoC – significant testing expertise and new electromagnetic compatibility ("EMC") measurement procedures have been developed to ensure that devices are properly evaluated and are in compliance with Commission standards. With the growing maturity of testing procedures, it is appropriate to streamline the self-approval process into a single procedure. Cisco has no objection to calling the unified procedure a Supplier's Declaration of Conformity or "SDoC." If the SDoC unification proposal is adopted, a modified FCC logo requirement should be required on the device to signify SDoC compliance. If the device is very small, however, the logo should be allowed to be placed in the product manual.

[4] *Amendment of Parts 2, 15, 18 and Other Parts of the Commission's Rules to Simplify and Streamline the Equipment Authorization Process for Radio Frequency Equipment*, Report and Order, 13 FCC Rcd 11415 (1998).

In unifying DoC and verification into SDoC, however, the Commission should make clear that it retains the distinction between Class A digital devices (digital devices marketed for use in a commercial, industrial or business environment) and Class B digital devices (digital devices marketed for use in a residential environment, notwithstanding use in a commercial, industrial or business environment). As the Commission has recognized since 1979, conducted and radiated emission limits can be less restrictive for Class A digital equipment marketed exclusively for the commercial, industrial or business environment where the potential for causing interference is much less than it would be for a device sold to the general public for operation in the home.[5]

Cisco opposes the Commission's proposal to eliminate the requirement for use of an accredited laboratory for the testing of equipment authorized as SDoC.[6] Devices currently authorized under the DoC process must be tested at a testing laboratory that is recognized as accredited by OET.[7] Less than a year ago, the FCC tightened the process by which foreign-manufactured equipment would be reviewed, by requiring the use of accredited labs.[8] The Commission should retain that requirement and extend it to all SDoC equipment. The added reliability and confidence that results from testing by laboratories accredited in accordance with international standards is especially important in today's global market. With RF equipment increasingly being manufactured overseas, the FCC rules should require some traceability and

[5] *Amendment of Part 15 to redefine and clarify the rules governing restricted radiation devices and low power communication devices*, First Report and Order, 79 FCC 2d 28, 47 (1979).

[6] *Notice* ¶ 31.

[7] *Amendment of Parts 0, 1, 2, and 15 of the Commission's Rules regarding Authorization of Radiofrequency Equipment*, Report and Order, 29 FCC Rcd 16335, 16352 ¶ 39 (2014) ("TCB Order").

[8] *Id.* ¶ 45.

accountability to ensure that devices self-authorized under SDoC are supported by test reports that can be attributed to an accredited lab.

The *Notice* asks whether any categories of equipment currently covered by the DoC and verification procedures should be made subject to the more rigorous certification procedure.[9] The answer is no. Until a specific problem with a category of devices is identified, the Commission should default to SDoC self-approvals supported by tests by accredited labs. The FCC should implement this by allowing all devices to be authorized as SDoC, except for specified categories listed in a KDB. Enumerating the categories of equipment subject to mandatory certification in a KDB rather than the rules will allow the OET staff more flexibility to move categories of equipment from certification to SDoC self-approvals or *vice versa*.

Cisco supports eliminating the option to use the certification process in lieu of SDoC self-approval for most unintentional radiators.[10] Some receivers, such as scanning receivers and certain radar detectors, need to be certified. For host devices that contain radio modules, in some cases the host integrator may wish to have the whole device certified under their FCC ID for a number of reasons. Therefore, Cisco sees no problem with allowing these devices to remain under the certification scheme. The following unintentional radiators, therefore, should be allowed to obtain certification:

- When the device is a radio receiver subject to certification (*see* 47 C.F.R. § 15.101(a));
- When the device is a host device with a radio module installed and the host manufacturer wants its own FCC ID for product.

[9] *Notice* ¶ 32.

[10] *Id.*

III. THE FCC'S EQUIPMENT CERTIFICATION PROCEDURES WARRANT UPDATING.

The *Notice* explains that traditionally most equipment "certifications were granted for complete devices (*i.e.*, devices that do not require additional equipment to be capable of functioning)."[11] Such devices typically were manufactured entirely by one entity. Today's RF equipment, however, increasingly uses components manufactured by different parties, including modular transmitters. The FCC proposes to adopt a new rule stating that certification may be obtained for three types of RF devices: a device capable of independent operation (the traditional type of device that is already addressed by the existing certification rules), a modular transmitter that is designed for installation into a host device or as a peripheral to another device, and a host device consisting of one or more modular transmitters certified by other parties. Cisco supports this proposal, and it also supports the proposed modifications to Section 2.1033 of the rules listing the information required to be included in an application for certification.[12] The Commission also should provide clear guidance on which categories of radio receiver require certification, which categories require SDoC, and which categories have an option (consistent with Cisco's proposal in the preceding section).

Another area that warrants updating is the Section 15.203 requirement for a unique antenna for intentional radiators. Manufacturer attempts to design unique connectors for each device are fruitless, short of hard-wiring the antenna to the device. As new antennas are developed their designs quickly become widely available on the Internet. The Commission should consider removing the "unique" antenna requirement as being antiquated and impractical.

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[11] *Id.* ¶ 36.

[12] *Id.* ¶¶ 77-79. Because proposed Section 2.1033 is over 4 and half pages long, it is not easy to follow and may benefit from internal headings.

As industry has advised in the past, Section 15.203 needs to be revisited to reflect that equipment should be certified with all the potential antennas proposed to be used with the device.

IV. THE RULES FOR MODULAR TRANSMITTERS SHOULD BE MOVED TO PART 2, AS PROPOSED, BUT SHOULD BE MODIFIED AS DESCRIBED BELOW.

Section 15.212 of the rules currently contains requirements for modular transmitters that ultimately are integrated into an unlicensed host device,[13] but no FCC rule addresses modular transmitters in RF devices that are used in licensed services. In the latter case, OET has provided guidance in KDB Publication 996369 for the certification of licensed modular transmitters. The FCC now proposes to relocate the rule governing certification of modular transmitters from Part 15, which covers only unlicensed device operation, to a new Section 2.1042 that will broadly apply to all RF devices regulated by the Commission.[14] Cisco supports the proposal to move the module approval requirements to Part 2 because a single Part 2 rule will better account for host devices that contain both licensed and unlicensed certified modular transmitters.[15] Cisco, however, strongly encourages OET to continue to update KDB 996369 from time to time as industry develops proposals for licensed modules and unlicensed modules that may require additional guidance.

Section 15.212 currently specifies eight requirements for modular transmitter approval that the Commission proposes moving to the new Section 2.1042. In implementing the move to

[13] 47 C.F.R. § 15.212.

[14] *Notice* ¶ 39.

[15] New Section 2.1042 is titled "Certified modular transmitters." Because the *Notice* also refers to "modular devices" (*e.g.*, Sections 2.907(c) and 2.1043(f)), it is not clear whether a distinction is intended. In Section 2.1043(f), it also is not clear whether the term "the original grant of certification" refers to "modular devices" or "additional devices authorized as permissive changes."

new Section 2.1042, however, the FCC should update the requirements to reflect current technology. Specifically, proposed Sections 2.1042(b)(1),(2), and (3) should be eliminated and be replaced with a general requirement that manufacturers developing radio modules must use good engineering practices so that the module is capable of meeting all regulatory requirements, such as spurious emissions and OOBE rules, and must comply with any regulations that apply to installation in a host device. Radio modules should be tested to the recommended test requirements as referenced in ANSI C63.10 and C63.26. This requires testing the module outside a host device using control cables of 10 cm in length or longer, as to reduce the effect of shielding or interaction from the host. Power supply regulation is unnecessary because radio modules are generally engineered with on-board power supply regulation built into the chips.

Cisco also proposes that Section 2.1042(b)(5) be revised to require the manufacturer to provide in the instructions all necessary information on installing and operating the module in a host device. The information should include all restrictions listed in the certification grant. Information also should be provided on the possible need to perform a RF exposure study, or in the case of a portable device a SAR test, to ensure compliance with the FCC's RF exposure limits. Additionally, if the device can operate in the U-NII II and III bands, the manufacturer should be required to provide information to the installer or OEM on the minimum antenna gain that is required to comply with dynamic frequency selection ("DFS") detection criteria.

Regarding proposed Section 2.1042(b)(7), Cisco agrees that the use of an antenna etched on the board meets the intent of Section 15.203; but as explained above the Section 15.203 requirement should be re-examined, as there no longer are "unique" antenna connectors.

With respect to limited module approval, Cisco endorses the current definition that a module not fully meeting the requirements of the proposed Section 2.1042 module requirements,

or not being tested as a standalone module, can be classified as a limited module. If a manufacturer chooses to limit which hosts can use the module or confines the use to its own internal products, the device should be certified as a limited module. The manufacturer should be required to provide information to the installer or OEM regarding the additional testing or other procedures must be done in order to incorporate the module.

The *Notice* also anticipates the possible development of devices that are nothing more than physical platforms (form factors) into which individual modular transmitter components can be inserted in an almost limitless variety of combinations.[16] To ensure compliance of the final device, the FCC proposes that an applicant for certification of a modular device or a form factor that includes its own RF characteristics provide information that would guarantee that a module can operate on the form factor only with other modules whose collective RF emissions meet the rules' requirements. Cisco supports the concept of requiring design guidelines, interface specifications and authentication requirements to ensure that finished radios composed of multiple modules comply with the technical rules. While Cisco does not have suggested answers at this time to the important questions about what kind of guidance will enable industry to comply with this proposed rule, it urges OET to make liberal use of the KDB process to address these issues.

V. THE RULES ON DEVICES WITH SOFTWARE-BASED CAPABILITIES SHOULD BE REVISED AS PROPOSED

In recognition of the fact that radio transmitters were increasingly relying upon software to set their operating parameters, the Commission in 2001 adopted rules for the authorization and

[16] *Notice* ¶ 42.

use of software defined radios ("SDRs").[17] SDR transmitters are those in which software is capable of changing various operating parameters of the device (*e.g.,* frequency range, modulation type, or maximum output power). Cisco strongly supported the SDR process when it was first implemented,[18] and it worked closely with the FCC not only to help evolve SDR here in the U.S. but to support the concept internationally in forums such as CITEL and ITU. As the *Notice* states, however, many manufacturers were discouraged from choosing to certify devices as SDRs.[19] Until 2014, equipment for which SDR certification was sought could only be reviewed by the FCC Lab, and not by a Telecommunications Certification Body ("TCB"). This extra layer of review added seven to eight weeks to the equipment certification cycle for unlicensed devices, a period of time that is sufficiently large so as to discourage a manufacturer from seeking an SDR certification. In 2014, OET allowed TCBs to certify SDR devices but only via the Permit But Ask ("PBA") process. This cut the approval time in half, but PBA review still adds delay.

The Commission proposes to simplify the rules by removing the SDR designation from grants of certification and incorporating any necessary requirements for software control of RF parameters and software security for all devices in the general certification rules and KDB guidance.[20] Cisco supports this proposal. Radios have greatly evolved since the first SDR

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[17] *See Authorization and Use of Software Defined Radios*, First Report and Order, 16 FCC Rcd 17373 (2001).

[18] *See, e.g., Comments of Cisco Systems, Inc*., ET Docket No. 03-108 (May 3, 2004).

[19] *Notice* ¶ 44. The relatively low number of products approved officially as SDR may be misleading. Even as the number of radios essentially satisfying the requirements for SDRs has increased, the FCC grant note of being approved as a SDR remains infrequently used.

[20] *Id.* ¶ 45.

approvals,[21] and eliminating the separate SDR approval process is appropriate. Even if not designated as SDR, equipment subject to Commission approval is regularly updated and upgraded over time through software changes that unlock new features or change functionalities. The use of software upgrades to change RF operating parameters of certified devices has proven beneficial to both manufacturers and consumers, as it allows manufacturers to obtain approval of products with an initially limited set of capabilities and then enable new frequency bands, functions and transmission formats to be added to already-approved equipment. To the extent the FCC retains the PBA process for certification applications, the Commission should eliminate the PBA requirement for TCB certification of equipment with software-based capabilities. The Commission should treat applications for devices with software capability no differently than other certification applications.

Cisco endorses the *Notice's* proposal to modify the Part 2 rules to "require that *all* manufacturers of devices that have software-based control of RF parameters must provide specific information about the software capabilities of their devices."[22] To minimize the potential for unauthorized modification to the software that controls the RF parameters of the device, grantees should implement well-defined measures to ensure that certified equipment is not capable of operating with RF-controlling software for which it has not been approved. Warnings should be required in the product manual about loading unauthorized software that could modify the device and adversely affect its compliance.

With the elimination of the SDR certification category, however, the FCC should continue to clarify via the SDR KDB the conditions under which a Part 15 master device

[21] Cisco received the second SDR FCC approval ever issued and the first for an 802.11 Part 15 device.

[22] *Notice* ¶ 46.

authorized under Section 15.202 of the rules, or any unlicensed Part 15 device, may utilize configuration schemes to select country settings based on location awareness methods and ensure that the device operates only within U.S. bands and power limits. As the FCC is aware, the device market is global, and manufacturers need to be able to include in their devices mechanisms to ensure country-specific compliance with RF emissions. As the industry moves toward cloud-based architectures, and devices become capable of connecting to more than one network, new solutions to country configuration will evolve. It is important that manufacturers be able to offer up secure and simplified mechanisms for country configuration, and to have flexibility under the KDB process to improve the techniques used to comply.

VI. THE PROPOSED RULES ON CHANGES TO CERTIFIED EQUIPMENT AND ON CLARIFYING THE IDENTITY OF THE RESPONSIBLE PARTY SHOULD BE ADOPTED WITH MINOR REVISIONS

The FCC rules currently authorize three broad classes of permissive changes that do not require a change in FCC ID.[23] Class I permissive changes are characterized by equipment modifications that do not "degrade" the characteristics reported by the manufacturer upon which the initial certification was granted. Class II permissive changes are certain modifications that degrade the performance characteristics as reported in the initial certification application but still comply with FCC technical specifications. Class III changes are software changes to SDR grants of certification, a category proposed to be deleted along with the proposed elimination of SDR certifications. Class I permissive changes do not require prior approval from a TCB, while Class II and Class III changes require prior TCB approval.

The *Notice* proposes to reorganize the change rules. First, it proposes to retain Class I permissive changes but modify the wording of the rule. Cisco supports the proposed

[23] *See* 47 C.F.R. § 2.1043(b).

modifications to the Class I rules to the extent they are intended to provide manufacturers' more flexibility, especially as devices become more likely to utilize multiple spectrum bands.[24] In particular, certification grants typically do not specify the maximum gain of the antenna tested. In such cases, the addition of antennas of different family types to Part 15 devices, where the gain is less than the maximum antenna gain already approved, should be allowed as a Class I permissive change, provided that the manufacturer updates the antenna information provided in the user manual and the relevant test data are kept on file.[25]

Second, the *Notice* proposes to delete Class III permissive changes because they relate only to devices authorized formally as SDR (a formal category proposed to be eliminated) and treat them as Class II permissive changes. As the Commission explains, the current rules "do not permit Class III changes to an SDR that has been modified by an approved Class II change, which limits the advantages of the existing SDR classification."[26] Cisco supports this proposal to the extent that it would allow software upgrades to an SDR device that previously had Class II hardware changes without requiring a new FCC ID.

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[24] The Commission should modify Section 2.1043(b)(1) as follows to clarify that changes that reduce power or emissions or otherwise do not degrade reported characteristics should be treated as Class I permissive changes: "A grantee of certification does not need to obtain an updated grant of certification from a TCB for changes to a certified device that do not cause the fundamental emissions to increase, the spurious emissions to deteriorate (*i.e.*, increase in amplitude), or RF exposure to increase; that otherwise do not degrade ~~changes~~ any other characteristics to be reported to the Commission; or that do not add new capabilities such as new frequency bands or transmission formats."

[25] An exception to allowing a Class I permissive change of an antenna for a Part 15 radio would be if the radio operates in the bands subject to DFS and the antenna gain is lower than the minimum antenna gain needed to comply with the DFS detection requirements and thus would be subject to Class II changes or if the antenna gain is higher than previously approved in the application.

[26] *Notice* ¶ 48 n.98.

Cisco also urges the Commission to adopt its proposal to allow certification of a "family of products" under a single FCC ID.[27] Under this proposal, a group of devices that are essentially similar, based upon the overall design of the devices, their functions, components and layout, could be viewed simply as variations of a single device. The manufacturer could create a family of products under the same FCC ID without having to obtain distinct approval from a TCB for each device that falls within the family classification. For example, a manufacturer should be permitted to obtain a certification for a board with numerous components and then sell under the same FCC ID variations of the board with different components turned off or removed, as long as the manufacturer confirms through testing each variation's compliance with the rules. Industry Canada's family approval regulations provide a useful starting point;[28] and through the KDB process OET should provide guidance to facilitate obtaining family approvals, both for previously certified and new products.

With respect to modification of certified equipment by third parties, Cisco does not support allowing a third party to alter a certified product without the original manufacturer's approval.[29] Unauthorized modification does not affect only RF compliance but also raises issues of warranty and repairs, trademark, and the reputation of the underlying manufacturer. Third party vendors doing repairs or refurbishing products without the authorization/approval of the manufacturer of record should be required to verify compliance.

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[27] *Id.* ¶ 55.

[28] *See* Industry Canada, Certification of Radio Apparatus RSP-100, Section 4.2 (Nov. 2014), https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/rsp-100-i10-nov2014-v3.pdf/$FILE/rsp-100-i10-nov2014-v3.pdf.

[29] The FCC may want to clarify whether the terms "assembler" and "integrator" in proposed Section 2.1043(g) are interchangeable or are meant to distinguish between two different types of entities.

Third parties making modifications to certified equipment should be required to comply with all restrictions included in the original FCC grant, and if integrating new modules they should be required to conduct new testing under the FCC's' RF exposure rules. If the third party modifications are found not to be compliant with the FCC's rules, the original manufacturer should be held harmless.

The Commission also should clarify that with respect to the installation of wireless devices, although the equipment vendor is responsible for general product compliance, the third party installer is responsible for any and all modifications to the installed system and is responsible for maintaining compliance of such an installation. OET should provide further clarification in a KDB that a third party installer is required to document any changes in set up that are not in conformance with the product guidance.

Cisco generally supports the proposed changes in paragraphs 60-68 of the *Notice* regarding end products incorporating certified modular transmitters, with the following proposed clarifications:

- When a certified modular transmitter is placed in a host which meets the specification of the module but other radio modules are added, an RF exposure study must be conducted; but, if the system tests as compliant, it can be treated as a Class I permissive change with no requirement to file for TCB approval. The integrator, however, must include any updated RF exposure information in the user manual, if the overall system SAR is higher than listed on the FCC grant of the module.

- That the host device is subject only to EMC testing for the FCC Part 15 Subpart B requirements as specified by the host manufacturer (that is, Class A or Class B)

- The Commission should clarify that a host device that a manufacturer chooses to be certified with several modules can be covered by a family approval in order to allow the removal of one or more of the approved radio modules as a Class I permissive change. If, however, other radios not covered by the FCC grant for a host that was certified are added to the product, then a Class II permissive change or new FCC ID is required.

VII. THE COMMISSION SHOULD ADOPT INDUSTRY-DEVELOPED MEASUREMENT STANDARDS BUT RETAIN IN THE RULES CLEAR REFERENCES TO THE FREQUENCIES COVERED.

The *Notice* seeks comment on whether the measurement procedures in Sections 15.31-15.35 can be revised to remove any redundancy.[30] Generally, Cisco supports streamlining of the rules. In this case, however, Cisco opposes the Commission's proposal to replace the text in Section 15.33(a) regarding the frequency range of measurements for an intentional radiator with a reference to ANSI C63.10-2013 clause 5.5, which provides the same procedure as currently in the rules.[31] Cisco opposes this because a lab testing to an alternate procedure or even a FCC KDB possibly might not have access to ANSI C63.10-2013. Retaining the references to frequency ranges in Section 15.33(a), on the other hand, eliminates any potential ambiguity regarding which frequency range must be tested. Additionally, the FCC does not control ANSI C63.10-2013.[32] Because the proposed removal from Section 15.33(a) of the reference to the frequency range of measurements de-links the ANSI C63.10-2013 standard from the rule, there may be a mis-alignment in the future if ANSI C63.10-2013 is modified.

The *Notice* also seeks comment on a new standard being developed to address measurement procedures for compliance testing of transmitters used in licensed radio services, namely ANSI C63.26.[33] Cisco supports adoption of this standard for testing devices within the

[30] *Notice* ¶ 109.

[31] *Id.*

[32] Removal of ANSI C63.10-2013 clause 5.5, in favor of simply relying on the FCC rule, at one time was discussed within ANSI.

[33] *Notice* ¶ 111.

limited scope of the standard,[34] but recommends that the Commission delegate authority to OET to update references to new measurement standards as they evolve, rather than codifying them into rules. In adopting the ANSI C63.26 standard, the Commission should provide an 18-month transition period to allow test labs to incorporate the standard into the scope of their accreditation. The FCC, however, should be cautious in making a blanket change to Part 2 test procedures or removing other test standards such as TIA / EIA 603, or TSB-10.

The *Notice* also seeks comment on whether changes are needed to clarify the measurement procedures in Part 2, "such as a modification to § 2.1053 to provide for the direct measurement method of radiated emissions or, as an alternative, the use of the substitution test method."[35] Because the issue of whether the direct method should be the main procedure or the alternate has been the subject of much discussion within the standards forum, Cisco urges the Commission to move forward with this based on industry consensus from ANSI C63.[36] This recommendation is consistent with Cisco's continued support of the FCC in adopting industry-developed test standards.

VIII. THE CONFIDENTIALITY PROVISIONS OF THE CERTIFICATION APPLICATION RULES SHOULD BE MADE AUTOMATIC AND UPDATED

Applications for certification must include many exhibits and test reports about the equipment under test. The FCC's current rules provide, upon request, for either short-term or long-term confidentiality for some of these materials. Cisco supports the Commission's

[34] ANSI C63.26 does not cover all licensed transmitters, such as some land mobile service ("LMS"), fixed services ("FS"), satellite systems, TV Broadcast, etc. *See* Scope C of ANSI C63.26.

[35] *Notice* ¶ 111.

[36] While Cisco notes that ANSI C63 does not have a consensus view at this time, it appears possible that the group will have reached consensus prior to Commission adoption of a Report and Order in this docket.

proposals for making certain materials in each category automatically confidential.[37] A manufacturer may inadvertently neglect to request confidentiality for certain materials; or the TCB may inadvertently neglect to implement the request for confidentiality. Automatic confidentiality eliminates these risks.

For this same reason – potential human error – the Commission should modify its current practice of requiring manufacturers to repeatedly request 45-day renewals of short-term confidentiality until the device is subject to the maximum total of 180 days of short-term confidentiality. Rather than granting short-term confidentiality for a series of 45-day periods only upon four separate requests of the manufacturer, the Commission should afford all applications an automatic 90-day short-term confidentiality period, with the potential for a single 90-day renewal request. This approach retains the maximum 180-day short-term confidentiality period but relieves the manufacturer in two ways: eliminates the burden of filing for the initial request and requires only a single renewal request (instead of three) to reach the maximum 180-day period. Challenges to a certification grant should be allowed for the 30-day period after materials subject to short-term confidentiality are posted on the OET website.

In addition to receiving confidentiality automatically for certain materials, manufacturers also should be allowed to request short-term or long-term confidentiality for other documents. Such requests should be evaluated by the TCBs in consultation with OET on a case-by-case basis.

[37] *Notice* ¶¶ 85 (short-term), 88 (long-term).

IX. E-LABELING AND OTHER MISCELLANEOUS PROPOSED RULE CHANGES SHOULD BE ADOPTED.

Although most Cisco RF devices do not include electronic display capability, Cisco reiterates its support for the codification of the proposed e-labeling rules.[38] Physical labeling is costly to maintain in today's global supply chains where equipment is being manufactured for sale in multiple jurisdictions. Once an item is physically labeled, manufacturers must consider the need to physically re-label product if there is a need to change the shipping destination. Modern form factors and the electronic displays on radio devices also are better suited to electronic labeling than physical labeling because as RF devices shrink in size, physical labeling becomes more difficult and expensive. Manufacturers also should have the option of displaying other required FCC compliance statements, such as those under Section 15.19 of the rules, solely by e-labeling.

Finally, Cisco briefly addresses other rule changes proposed in the Notice:

- Form 740 should be eliminated. As the *Notice* explains,[39] the form is antiquated and overlaps with information collected by the U.S. Customs and Border Protection ("CBP"). FCC should coordinate with CBP to assure that as CBP's processes are revised in light of the elimination of Form 740, importers of RF devices are not inadvertently subjected to new regulatory burdens.

- The proposal for provisional certification grants should be adopted for purposes of facilitating legal importation and distribution through the supply chain of devices prior to sale.[39] As noted previously, the Commission should codify a 30-day review and comment period triggered by OET's posting on its website of all short-term confidential information associated with the relevant certification grant.

- As proposed, the number of uncertified devices allowed to be imported for trade shows, either solely for licensed services or for other operations, should be

[38] *See Comments of Cisco Systems, Inc.*, RM-11673 (Oct. 1, 2012).

[39] *Notice* ¶¶ 118-119.

[39] *Id.* ¶ 92.

increased to 400.[40] Because production of most devices occurs overseas, the proposed increase to 400 units for all types of device will allow manufacturers to import the number of units needed for trade shows without additional paperwork.

X. CONCLUSION

Cisco appreciates the Commission's attention to the need for continued updates and revisions to its equipment authorization rules in light of technological innovations and ongoing developments. Cisco generally supports the proposals in the N*otice* with the limited exceptions noted herein.

Respectfully submitted,

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[40] The text of proposed Section 2.1204 does not conform to the Commission's proposal, as the proposed rule does not include the 400 device limit for "other" devices.