

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

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

**NOKIA COMMENTS**

1. Nokia USA is pleased to provide comments in response to Public Notice , DA 16-348, released on April 1, 2016, entitled, *Comments sought on newly published ANSI C63.26-2015<sup>1</sup> – Standard in conjunction with ongoing equipment authorization rulemaking proceeding ET Docket No. 15-170.*<sup>2</sup> Specifically, the Notice seeks comments on two questions: (1) Whether the FCC should incorporate C63.26-2015 into the FCC Rules by reference; and, (2) what to do with the current measurement procedures now in Part 2 and other various sections of the Rules. These comments, filed on behalf of NOKIA USA, are in addition to the Alcatel-Lucent USA (now Nokia USA) comments submitted in this proceeding on December 16, 2015 and October 9, 2015.

---

<sup>1</sup> ANSI C63.26-2015, entitled, “*American National Standard for Compliance Testing of Licensed Transmitters*,” was adopted by the America National Standards Institute in December 11, 2015 and published on January 15, 2016. IEEE/ANSI C63.26-2015 may be purchased at website: <http://www.techstreet.com/searches/11408794>.

<sup>2</sup> Published in Federal Register at 81 FR 23267, 4/20/16. Comments and reply comments requested by 15 and 25 days after publication in Federal Register.

2. NOKIA is a major manufacturer of telecommunication equipment and has manufacturing, marketing and test facilities in the United States. Nokia commends and supports the Proposal in this second recent proceeding to updated and modernize the FCC equipment authorization program. The Equipment Authorization (EA) proceedings in this rulemaking have a direct and important impact on NOKIA. We applaud the Commission’s efforts to modernize and update the EA Rules. As the record in this proceeding shows, NOKIA and others (e.g., The American Standard Committee C63®, CISCO Systems, Alcatel-Lucent, and Telecommunications Industry Association/TRPC) support and encourage the adoption of volunteer industry standards like C63.26 into the FCC Rules by reference, similar to what has been done with C63.4-2014 and C63.10-2013. All three of these standards were developed by a collaboration of manufacturers, test laboratories, certification bodies and government entities (including the FCC and Industry Canada) and represents the latest methods for consistent compliance testing of transmitters operating in one of the licensed radio services and transmitters operating without an individual license under Part 15 of FCC Rules. All three standards have been approved by the American Standard Committee, C63®, on Electro-magnetic Compatibility and the American National Standards Institute by an open and transparent processes.
  
3. Accordingly, NOKIA urges the Commission to adopt the immediate use of C63.26 for the testing of licensed transmitter at the earliest possible date. Adoption of this new standard, by “incorporation by reference” will provide for more consistent compliance testing and reports of test results of licensed transmitters. It should also be mentioned that Industry Canada has already adopted the use of C63.26.<sup>3</sup>

---

<sup>3</sup> See Industry Canada website at <http://www.ic.gc.ca/eic/site/mra-arm.nsf/eng/nj00139.html>

4. The Public Notice also seeks comments to determine the proper implementation of C63.26 into the existing measurement procedures for licensed transmitters in the FCC Rules. The current measurement procedures were adopted over an extended period of time and are scattered throughout the Rules and other documents. The development of C63.26 was an attempt to pull together many of the procedures in the Rules, Knowledge Data Base (KDB) interpretations and similar documents containing measurement procedures. Each of the procedures were vetted and discussed by the C63® committee. For practical reasons, the scope of C63.26-2015 was limited to licensed transmitters using digital techniques. Measurement procedures for broadcast transmitters, ground base radars, fixed microwave equipment, satellite communication equipment, and marine and aviation equipment are not included in the scope of the current edition of C63.26.<sup>4</sup>
  
5. A short list of applicable measurement procedures in the FCC Rules, which are essentially updated by C63.26-2015, include, but not limited to: §2.910, §2.947, §2.1041, §§2.1046-2.1057, §22.359, §22.917, §24.232(d), §24.238, §27.50(d)(5), §27.53(a)(5), (h)(3) & (m)(6), § 24.238, § 90.543, and §90.1215(d). Some or parts of these procedures were incorporated into the ANSI standard. However, there is a concern that it may be premature to rescind, delete or revise some of the existing FCC measurement procedures, since as mentioned above C63.26 does not cover all licensed equipment.

---

<sup>4</sup> See subclause 1.1 of C63.26-2015.

6. While it may be difficult to revise, delete or update measurement procedures currently in the FCC Rules, Nokia nevertheless requests the eventual replacement or cross-referencing of the following FCC Rule sections:

- a. **§2.910 Incorporation by reference** – add a new subsection (c)(3) to read: “ANSI C63.26-2015, *American National Standard of Procedures for Compliance Testing of Transmitters Used in Licensed Radio Services*, ANSI approved December 11, 2015, IBR approved for §2.950(i).” (Transition time has to be added in §2.950)
- b. **§2.947 Measurement procedure** – revise subsection (a)(2) by adding at the end of the sentence: “See §2.910 for standards incorporated by reference, or list of standards and KDB publications located on the FCC Office of Engineering and Technology website for guidance on acceptable measurement procedures .” Also add a new subsection (f) to read: (f) “For each technical requirement in this Chapter, the test report shall provide adequate test data to demonstrate compliance for the requirement, or in absence of data, justification acceptable to the Commission as to why test data is not required to show compliance.” This addition is consider necessary to ensure some consistency of test data and/or justifications, when there may be good and reasonable justification for reducing the amount test data to be reported. For example, how much testing is required for a device capable of operating in multiple modes and multiple frequencies, as described in the example in the attached annex? The Commission may want to provide guidance on when justification is acceptable in a KDB. The Knowledge Data Base the Commission’s system for providing guidance to the public for testing and approval of equipment subject to the FCC Rules. See <https://apps.fcc.gov/oetcf/kdb/index.cfm>.

- c. **2.1041 Measurement procedure** – at the end of the 1<sup>st</sup> sentence add: “(See §2.910 for procedures incorporated by reference).” At the end of the 2<sup>nd</sup> sentence add: “(See §§2.910 and 2.947 for acceptable procedures incorporated by reference).”
- d. **2.1046 Measurements required: RF power output** – add a new subsection (d) to read: (d) “In lieu of the above, where appropriate, use the procedures in C63.26, incorporated by reference in §2.910”.
- e. **§2.1047 Measurements required: Modulation characteristics** – add a new subsection (e) to read: (e) “In lieu of the above, where appropriate, use the procedures in C63.26, incorporated by reference in §2.910”. It should be noted that C63.26-2015 does not adequately cover all modulation technologies and guidance needs to be provided for these new modulation schemes.
- f. **§2.1049 Measurements required: Occupied bandwidth** – add a new subsection (j) to read: (j) “In lieu of the above, where appropriate, use the procedures in C63.26, incorporated by reference in §2.910”.
- g. **§2.1051 Measurements required: Spurious emissions at antenna terminals** – add the following sentence at the end of the first paragraph to read: “...“In lieu of the above, where appropriate, use the procedures in C63.26, incorporated by reference in §2.910”.
- h. **§2.1053 Measurements required: Field strength of spurious radiation** – add a new subsection (c) to read: (c) “In lieu of the above, where appropriate, use the procedures in C63.26, incorporated by reference in §2.910”.

**i. §2.1055 Measurements required: Frequency stability** – add a new subsection (f) to read: (f) “In lieu of the above, where appropriate, use the procedures in C63.26, incorporated by reference in §2.910”.

**j. §2.1057 Frequency spectrum to be investigated** – add a new subsection (d) to read: (d) “Where appropriate, use the procedures in C63.26, incorporated by reference in §2.910”.

7. In summary, NOKIA commends the Commission on this well thought-out proposal and respectfully requests that its comments be considered in this proceeding.

Respectfully submitted by,

Art Wall, President  
Radio Regulatory Consultants, Inc.  
506 Bay Drive  
Stevensville, MD 21666

Submitted on behalf of:

NOKIA USA  
600-700 Mountain Avenue  
Murray Hill, NJ 07974

## Annex to Nokia USA comments

The following is an example showing the complexity of measuring radiated emissions (per §2.1051) from equipment with multiple operating modes and frequencies. The question is: “How much testing is needed to demonstrate compliance?”

The device under test has following physical design variations: RF filter Model-1, RF Filter Model-2, Power Amplifier Model-1, Power Amplifier Model-2. The device is capable of operating in the following electrical modes: LTE QPSK 10 MHz, LTE 64QAM 20MHz, WCDMA 5MHz. The device can be configured to operate on the following frequencies: AWS Band: Block A: 10MHz (2110 MHz-2120 MHz), Block B: 10MHz (2120 MHz-2130 MHz), and aggregated contiguous channels Blocks (A+B): 20MHz (2110 MHz-2130MHz), non-contiguous Blocks (A +E):15 MHz (2110MHz-2120 MHz and (2140MHz-2145MHz)

Nokia would like to list (tabulate) all physical configurations, and Electrical mode of operations and frequency bands for which tests were performed and data submitted to TCB together with reasonable justification for the combinations of physical configuration, and Electrical mode of operation and frequency bands for which tests were not performed.

For above listed device, the test physical configuration-1 could be: RF filter Model-1 and Power Amplifier Model -1; and the test physical configuration -2 could be: RF filter Model-1 and Power Amplifier-Model-2

After completing complete suites tests for physical configuration-1 for all electrical modes listed above and all above listed frequency bands. If physical configuration-2, AWS Band A 10 MHz (2110 MHz-2120 MHz) and LTE QPSK 10MHz test data resemble to data measured for physical configuration-1 within the normal Analyzer measurement variations (+/-1 dB), Nokia would like justify that test for other electrical modes and frequency bands are not necessary.

This is just one example of the decisions that have to be made by the manufacturer and test laboratory. Nokia would like to request FCC guidance on the degree of testing and justification needed to ensure that all manufacturers and test laboratories are consistent in supplying test data, which can be very costly.