



Updated WPT Guidance KDB Publication 680106 D01

TCB Workshop
October 2015

Laboratory Division
Office of Engineering and Technology
Federal Communications Commission



Overview & EMC Notes

- No major modifications to Publication 680106 D01
 - Proposed revisions to RF exposure analysis, EMC procedures, and limits interpretation are under discussion

- EMC Clarifications:
 - Uncontained far-field radiative wireless power transfer at distance is not considered to generate and use locally RF energy, as discussed in 18.107.
 - EMC radiated measurements must provide sufficient data to qualify for extrapolation factors other than those prescribed in 15.31(40dB/dec) and 18.305 (20dB/dec)
 - Such procedures prescribed in 15.31(f)(2) and MP-5.
 - Must be consistent with rule part of authorization.



RF Exposure Notes

- Desktop style WPT systems operating at $F > 1.34$ MHz are likely to require simulation to show compliance due to exponential decrease in MPE limits at that frequency, as specified in 1.1310.
 - Low power systems may meet MPE limits when form factor and use-case merit longer distance testing than what is specified in Paragraph 3(3) of KDB Publication 680106.
 - OEMs responsible for justifying such test cases.

- RF exposure testing, as discussed in Paragraph 3(3) of KDB Publication 680106 D01 should be conducted using an isotropic field probe
 - Loop measurements are not considered satisfactory to show compliance with the limits prescribed in 1.1310 for most WPT devices.



Moving Forward

- Understood that existing rule parts are not explicitly designed for novelty and breadth of WPT device entering market.
- Should existing rule parts be deemed insufficient or disagreeable to OEMs or interested parties, it is recommended that such parties file a Petition for Rule Making with the FCC in lieu of submitting general comments or critiques through the KDB system.
 - Includes RF exposure limits below 100/300 kHz
- ANSI C63.30 committee is working on radiated EMC measurement procedures for WPT devices. Upon adoption by ANSI, incorporation into guidance will be considered.



Module Update

October 2015
TCB Workshop
Jim Szeliga

FCC/OET
Laboratory Division



996369 Module Publication

- The module Q&A section of D01 has been moved to a separate attachment D02 Module Q&A .
- We added guidance for host manufactures for integrating multiple modules transmitting simultaneously for EMC and RF exposure.
 - This guidance was based on TCB conference presentations of Apr 2013 – Jim Szeliga & Modular Apr 2015 – Jim Szeliga
 - After the apr 2015 presentation inquiries were submitted asking that this r clarification be updated in the Module publication.
 - We added to D01 a section IX.GUIDANCE FOR HOST MANUFACTURERS USING MODULES
 - Added a new Question 12 to D02 for multiple transmitters, transmitting simultaneously for EMI considerations (i.e. no RF exposure evaluation/SAR)
 - Added a new Question 13 to D02: Guidance for combining or co-locating transmitters, for RF exposure evaluation/SAR.
 - Added a new Question 14: Can a host manufacturer integrate a non-modular approved transmitter
- Various edits have been made for clarification



996369 Module Publication

Options for Host Manufacture to Modify Conditions of Use				
	Evaluation Approach *	Change in ID/ Class II Permissive Change**	NEW FCC ID**	Request Grantee do a Permissive Change
RF exposure evaluation/SAR required	Not Applicable	For situations to address RF exposure.		Permissive Change
Limited/Split Module	Not Applicable	For situations to address limited/Split module		Permissive Change
Simultaneous Transmission	If no additional filling is required, Host Mfr. Can use an evaluation approach	For situations to address RF exposure or when additional filling is required.		Permissive Change

* New Guidance in D01: IX.GUIDANCE FOR HOST MANUFACTURERS USING MODULES

**Based on Q&A Question 1 now in D02



PAG & Q&A 12

- A multi-carrier base station not supporting carrier aggregation (CA) (e.g., 3GPP LTE) is not subject to PAG
 - Filing must attest CA not supported; grant condition that C2pc applies to activate CA
- Any multi-carrier base station supporting carrier aggregation (e.g., 3GPP LTE) is subject to PAG
- For an example end product supporting LTE, GSM, WCDMA, WLAN, and BT (standalone and/or using modules), submission of EMC/radio-parameter test data with all technologies active is per Q&A 12. (i.e. no additional emissions generated ..., it is not necessary to file)



Questions and Answers

Thanks!



Grant Certificate Notes and Comments Publication Review Draft 551693 DR02

Office of Engineering and Technology
Laboratory Division



Draft 551693 DR02 Structure

- Review Draft 551693 DR02 published 10/23/2015 for 30-day commenting (end 11/27/2015)
 - Updates and replaces the preceding Review Draft 821551 DR01 (Nov. 2011; expired, not published)
- Subsequent publication KDB tracking number 551693 will have two attachments D01 and D02
 - 551693 D01 v1, *Comments and Notes on FCC OET Equipment Authorization Grant Certificates*
 - Discuss background, purpose, concepts, for promoting consistent grant notes use
 - Recap KDB 447498 standalone and simultaneous transmission device approvals framework, and permissive change considerations
 - Distances for mobile and portable RF exposure
 - 551693 D02 v1, *Selected Grant Comments Elements Categories, Statements Examples, and System Note Codes*
 - Compile general and specific grant comments and use guidance for various device types
 - Update system note codes numbering and content



Grant Comments Concepts

- Notes, comments, conditions, and remarks on a grant of certification are only a summary of any special conditions that need specific notice
- The exhibits filed with an application for certification must provide a clear description of scope of authorization and allowed uses for a device, as well as demonstrate compliance through representations including:
 - Test data
 - Installation/operating instructions
 - Detailed operational description
- Draft note code AT:
 - Device approved for use in accordance with the representations and conditions indicated in attestation exhibit(s) in this filing.



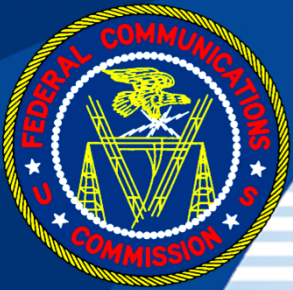
Grant Comments Concepts

- Comments and notes listed on grants do not replace proper conformity with TCB review and approval procedures and policies
- Compliance must be addressed for intended and reasonably expected operating configurations without relying on grant conditions and notes
 - Example: WLAN and WWAN modules intended for use in laptop computers should contain RF exposure measurements and/or test exclusion analyses and installation instructions to avoid collocation and mobile-device grant restrictions conditions



Single-, Multi-radio Considerations

- “No-collocation” (*syns*: collocation, co-location) grant comment has been used while technologies, policies, and procedures continue to evolve since start of TCB program
- No-collocation comment has been used for:
 - Single module devices
 - Stand-alone single-transmitter equipment
 - Specific-combination (composite system) multi-transmitter and multi-module end products
- No-collocation comment present on grants may be too restrictive in instances where test exclusions may have been applied (with supporting info. in filing)
- Absence of no-collocation comment on grant does not always mean device end use in simultaneous transmission multi-radio product configurations is authorized



Single-, Multi-radio Products

- No-collocation comment indicates:
 - Additional compliance info may be needed to support device use in some multi-transmitter simultaneous transmission configurations within a single end product
 - Representations and test data for only stand-alone single transmitter operations are in the FCC ID record
- Real purpose of no-collocation comment
 - Is not to restrict device usage options
 - Instead is to obligate compliance of multi-radio simultaneous transmission operations within a single end product:
 - In cases where that is not already evaluated in the applications, or
 - For use outside parameters/scope for which the device was already evaluated



Single-, Multi-radio Framework

- For most or all mobile and portable devices[†] the application filing framework described in KDB 447498 should be used:
 - Stand-alone and simultaneous transmission use conditions for mobile and portable RF exposure conditions are established per intended host platform and product operating configuration requirements
 - Transmitters approved only for use in stand-alone operations cannot be used in some simultaneous transmission operations without further evaluation
 - Further evaluation using test exclusion provisions or specific configurations approval

[†] § 2.1091 mobile device; § 2.1093 portable device



Single-, Multi-radio Framework

- Transmitters and modules must be approved for host platform RF exposure conditions (per KDB 447498)
 - In terms of product configurations tested or evaluated for subsequent host product use
 - Mobile-device exposure host platform
 - Portable-device exposure host platform
 - Mixed mobile-device and portable-device exposure host platform
- Approved host platform exposure condition(s) must be identified on grants



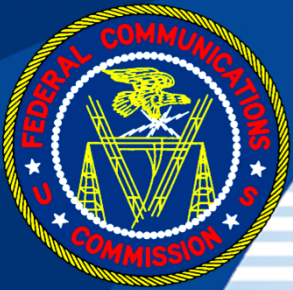
Single-, Multi-radio Framework

- Example grant comment:
 - i) The antenna(s) used for this transmitter must not transmit simultaneously with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures
- The preceding statement i) must be used with:
 - ii) *Grantee must provide installation and operating instructions for complying with FCC multi-transmitter product procedures*
- In place of “no collocation,” a combined grant comment including i) and ii) qualifies when:
 - A device is intended and/or reasonably expected to operate with simultaneous transmission in a multi-radio end product
 - Grantee provides installation instructions on how to address compliance issues
 - As supported by test data and/or test exclusion provisions for host platform configurations



Distances for Mobile & Portable Devices

- 20 cm mobile-device exposure grant comment
 - Introduced and used for first generation of TCB approval procedures
 - Before TCBs were doing SAR reviews
 - Simply identifies that device compliance is addressed for MPE limit not SAR limit
- As TCB review and approval policies and procedures have evolved
 - 20 cm grant comment no longer strictly necessary or appropriate
 - Use KDB 447498 grant listings framework
 - Similarly, distances not listed for portables
- KDB Pub. 690793 (SAR listings) will be reviewed and updated as appropriate



Example Grant Conditions

- § 2.915(b) provides that special condition(s) may be identified with grants of certification
- Examples of grant comments that identify special conditions:
 - This device must be professionally installed.
 - The marketing and sale of these devices shall be limited to federal, state, local public safety and law enforcement officials only; and state and local law enforcement agencies must advance coordinate with the FBI the acquisition and use of the equipment authorized under this authorization.



Looking Forward



- **Stakeholders are requested please to submit constructive comments on Review Draft 551693**
 - **Tell us grant comments and device types that should be added and why**
 - **Tell us grant comments that should be omitted or are better covered by filing contents (attestation, etc.)**
- Goal is final publication of 551693 soon after the comment period ends, as a dynamic document with pertinent updates based on experience and practice done expeditiously



ANSI-ASC C63[®] Standards Activities

October 28, 2015

**Federal Communications Commission
Office of Engineering and Technology
Laboratory Division**



Incorporation of Recent ANSI C63[®] Standards by Reference in FCC Rules

- Two revised C63[®] standards incorporated by reference in §15.31(a) of the FCC rules by a Report and Order (FCC 14-208) adopted on December 30th, 2014:
 - **C63.4-2014**, *American National Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz*
 - Provides accepted measurement procedures and methods for performing the requisite compliance measurements for unintentional radiators under the FCC's Part 15 rules.
 - **C63.10-2013**, *American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices*
 - Provides accepted measurement procedures and methods for performing compliance tests related to intentional radiating devices that are authorized on an unlicensed basis under the Part 15 rules.



New C63[®] Standard Pending Publication

- The following new standard has been approved by C63[®] and is in the ANSI review process with an estimated publication date of 12/15-1/16:
 - **C63.26-201x**, *American National Standard of Procedures for Compliance Testing of Transmitters Operating in Licensed Radio Services* will provide accepted measurement guidance for performing compliance tests relative to specific FCC rule requirements pertaining to licensed radio services (e.g., Parts 20, 22, 24, 27, 90, and 95).
- FCC currently seeking comment on whether to incorporate C63.26 by reference into the Part 2 rules
 - see paragraph 111 of most recent Notice of Proposed Rulemaking (NPRM) in ET Docket No. 15-170.



Continuing and Planned C63® Standards Efforts

- Work continues on the following two draft standards:
 - **C63.29** *Draft American National Standard for Compliance Testing of Lighting Products*
 - **C63.30** *Draft American National Standard for Compliance Testing of Wireless Power Transfer Products*
- Project Initiation Notification System (PINS) under development for next revisions to C63.10 and C63.26 standards.
- Next meeting of the Main Committee scheduled for November 12, 2015 at the UL facility in Research Triangle Park, NC.



Questions and Answers

Thanks!