



# 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 inquires 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
<b>RF exposure evaluation/SAR required</b>	Not Applicable	For situations to address RF exposure.		Permissive Change
<b>Limited/Split Module</b>	Not Applicable	For situations to address limited/Split module		Permissive Change
<b>Simultaneous Transmission</b>	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<sup>†</sup> 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

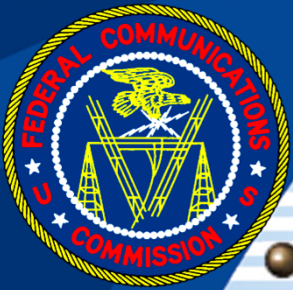
<sup>†</sup> § 2.1091 mobile device; § 2.1093 portable device





# 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<sup>®</sup> Standards Activities**

**October 28, 2015**

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



## Incorporation of Recent ANSI C63<sup>®</sup> Standards by Reference in FCC Rules

- Two revised C63<sup>®</sup> 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<sup>®</sup> Standard Pending Publication

- The following new standard has been approved by C63<sup>®</sup> 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!**