Updates to Mobile and Portable Device RF Exposure Equipment Authorization Procedures

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Overview

Discuss highlights of update being prepared for Mar. 2004 Mobile and Portable Device RF Exposure Equipment Authorization Procedures\(^1\) (aka KDB RFx)

Final updated document(s) to be distributed after this FCC-TCB session

Due to ongoing rulemaking proceedings and other activities, some topics remain deferred for separate future update or procedures documents, e.g., various co-location and module items

NOTE: Because of cross-reference scheme used herein, please have existing Mar. 2004 Procedures¹ document at hand for context when viewing this presentation

Overview (cont.)

- Adjustments for errata identified in previous FCC-TCB notes
  - VHF PTT SAR exclusion
  - Multiple-host procedure & threshold
- Incorporate additional uniform procedures, based on questions received and issues identified in past few years
  - Co-location – network-handovers, network-gateway mobile products
  - SAR – 3-6 GHz SAR, tablet PCs, VoWLAN devices, handset used with earpiece, hand etc SAR for portables
- Preliminary new uniform procedures – see other Harrington presentation this meeting
List numbers in { } herein are items in Mar04 KDB RFx

Underlines are revised, replaced, or amended text

{rev}, {amd} are preliminary placeholders for updates – numbering or placement may change in final version(s)

For some items, only abbreviated excerpts but not complete unchanged existing text is shown

NOTE: When released, final update document(s)
  – May have some wordings changed slightly
  – May have other minor updates not discussed herein


Portable Push-to-Talk {1}

{1 amd} FCC and TCB filings do not request SAR for typical VHF portable PTT (walkie-talkie) devices (e.g., 150 MHz band)

- SAR data if voluntarily submitted can be considered and reviewed by FCC not TCB
- For VHF portable PTT with $P \geq 7$ W, please contact FCC Lab for guidance
15.247, 15.407 Portable Devices {3}

{3)b)ii) rev} TCB SAR evaluation f > 3 GHz
- TCB – SAR requested for devices with P > (low threshold) in TCB Exclusion List
- TCB filings must apply Oct06 FCC 3-6 GHz SAR procedures

NOTE: SAR routine evaluation is required for 15.407 (e.g., 802.11a) devices for any power level
- TCB Exclusion List thresholds do not apply for devices subject to SAR routine evaluation
PCMCIA cards and similar integral-antenna packages tested in three representative host products may be used in multiple notebooks and lap-held or body-worn PDAs

- (1) 3-host tests requested for licensed-service devices, e.g., parts 22H, 24E, 27, 90-SMR
- (2) 3-host tests requested for 15.247 with $f < 3$ GHz and with output power $> 100$ mW; no test is requested if output $< $ low thresholds in the July02 TCB Exclusion List; otherwise test in one host
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{4)b)i) rev} cont.

– {(3)} 3-host tests are requested for 15.247 devices operating at frequencies > 3 GHz and with output power > 50 mW; no test is requested if output < low thresholds in the July02 TCB Exclusion List; otherwise test in one host

– {(4)} 3-host tests are requested for 15.407, 90Y devices (routine evaluation) with output power > 50 mW; otherwise test in one host; for 1-host test, if output power < low thresholds in the July02 TCB Exclusion List, for each frequency band test only the channel with maximum averaged output power
Co-location/co-transmission \{5\}

\{5\)d\) amd1\} TCBs may approve co-located mobile devices
  - in accordance with \{5\)b\}, \{5\)c\}, except for the following new \{5\)d\) amd2\}

\{5\)d\) amd2\} For WLAN-to-WWAN network gateway (backbone) desktop, wall-mount, etc., products
  - Contains one built-in part 15 transmitter (WLAN)
  - Intended to always be used with one end-user plug-in integral-antenna licensed-service radio card, e.g., part 22/24 PCMCIA (WWAN)
  - Grantee for the part 15 gateway-product is responsible to ensure compliance with FCC rules for intended and expected end-use co-located multi-transmitter product
Gateway-product certification filings to include:
- Detailed intended end-use configuration conditions
- Specific intended radio cards (or at least typical)
- Measurement data where appropriate, to ensure compliance with applicable part 15, licensed-service, and RF exposure requirements, e.g., for specified card(s)

End-user plug-in card used in gateway-product:
- Most integral-antenna PCMCIA-type cards can be used in portable RF exposure conditions when certified using procedures described elsewhere in this document
- For the radio card and final product configurations described in this procedure, FCC Lab is not requesting permissive change filings to amend certification contents and grant remarks
Co-location/co-transmission \{5\}

\{5\(e\) \(\text{ amd1}\}\} TCBs may process co-located portable device final-product configurations as listed in 5\(e\)\(i\)-\(iii\); see also \{5\(e\) \(\text{ amd2}\}\}

\{5\(e\) \(\text{ amd2}\)^2\} TCBs may process multi-transmitter final products with highest output transmitter (dominant) subject to SAR routine evaluation, and other (non-dominant) transmitter with \(P > 5\) mW, for conditions:

- Co-transmission has relatively short duration (\(<\!< 30\) seconds), serving as handover (handoff) between two networks
- Filing must include details about maximum handover time, and how handover co-transmission time is restricted

SAR Test Procedures \{6\}

\{6\}a) \textit{rev} Equipment certification for portable devices operating at:

- Frequencies < 300 MHz are submitted to the FCC if SAR evaluation is required; TCBs may process equipment certifications when SAR evaluation is not required.
- Frequencies > 3 GHz may be processed by TCBs when SAR evaluation has applied Oct06 FCC 3-6 GHz SAR Procedures.
Portable Devices \{7\}

\{7\}d)ii) \textbf{SAR test procedures for tablet computers}

\begin{itemize}
\item For both one-section (slate) and two-section-hinged (convertible) types
\item Tablets may have up to four user-selectable display orientations – 0deg-portrait, 0deg-landscape, 180deg-portrait, 180deg-landscape
\item Similarly as for notebooks with antenna(s) in the keyboard section, for lap-held use configuration SAR is tested with tablet bottom-face against a flat phantom
\end{itemize}
Portable Devices \{7\}

\{(7)d\}ii\} rev\} cont.

- SAR is tested with edges of the tablet computer in direct contact against a flat phantom (display face perpendicular to phantom) for:
  - Each edge containing antenna(s), unless final-product firmware prevents radio transmissions for position having antenna-edge in contact with phantom and 0\(^{\circ}\) relative-to-phantom display orientation
  - Each edge not containing antenna(s) that is adjacent to an edge containing antenna(s), where adjacent-edge antenna(s) are within 10 cm from the phantom
Portable Devices {7}

(7)d)iv) amd} For PDAs with voice-over-WLAN (VoWLAN, VoFi) capabilities, and product features supporting held-to-ear and body-worn configurations
  
  - SAR is tested using applicable Supplement C procedures
  
  - TCBs and/or applicants should contact FCC Lab to request review & approval guidance before processing applications

(7)d)v) amd} SAR data is requested for handsets designed to be used with a headset or wireless earpiece while worn next to the body using a neck-strap or lanyard; device should be tested with front and back sides in contact with a flat phantom.
Concerning SAR in hands, wrists, feet, and ankles:

- Compliance issues are not expected, and SAR testing is not requested, for most present handsets and transmitters in consumer notebook and tablet computers
  - Higher SAR limit
  - Devices typically have SAR compliance info for other normal-use positions
- Uniform SAR test and TCB review & approval procedures have not been established for hands, wrists, feet, ankles exposures
  - TCBs and/or applicants should contact FCC Lab before submitting new or evolved types of product configurations and technologies which have only hands, wrists, feet, or ankles normal-use position
Wrap-up

- Jul02 TCB Excl List still in effect
- Updated *KDB RFx* document planned to be released soon after this FCC-TCB session
- TCBs continue to use practices and procedures described in existing documents
  - For example, most filings that include RF exposure info still use some type of grant remark/note
- For best consistency, before completing device reviews and approvals, please review recent or applicable previous grants for similar devices
- Please ask for guidance from OET/Lab whenever anything is unclear, whatever the issue

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3 47 CFR 2.962(c)(4), 2.962(f)(1), 2.962(f)(5)(i)