



TCB Training RFx Interpretations and Review

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Scope

- Review certain existing TCB RFx (RF exposure) review/approval procedures
- Review recent RFx review/approval questions
- TCB RFx review/approval procedures and policies continue to be under consideration and subject to change, also related to at least ET Dockets 03-201, 03-137



Rule Parts & RFx Routine Eval.

● Part 15

- Renumbered: 15.247(i) = former 15.247(b)(4) [categ. excl., but info to support RFx compliance may be requested/reviewed for expediting and for TCB filings]
- 15.407(f) [=NII], 15.319(i) [=UPCS]
- Millimeter wave (mmw) bands
 - 15.257(g) 92-95 GHz
 - 15.253(f) 47,77 GHz, 15.255(g) 57-64 GHz
 - 15.249 24 GHz [categ. excl., but info to support RFx compliance may be requested/reviewed for expediting and for TCB filings]
- Part 15 fixed (e.g., 15.247, 15.407, mmw)



Fixed Device Review/Approval Procedures - Review

- In general a generic grant note applies: Device is approved for use in fixed RF exposure conditions as defined in 1.1307(b).
- Use grant note that collocation addressed per 1.1307(b)(3)
- Some close-approach configurations, e.g., micro-BTS, may need RFx compliance info in filing and distance in grant notes
- FCC RFx rules and Suppl. C consider some devices used in “mobile/portable” exposure conditions – contact FCC if needed for devices used in “fixed/portable” conditions
 - Example “fixed/portable” devices may include some wall-mount utility meters, some storefront RFID pillars



KDB RFx Parts 80,90 PTT - Review

- TCB filings for categ. excl. devices require SAR evaluation if output power is greater than low thresholds of July02 TCB Excl. List
- For PTT distance d is from phantom to back of device (like Part 22/24 handset body-worn test configuration)
- FCC and TCB filings do not request SAR for typical VHF (e.g., 150 MHz f_c) PTT devices
 - Standard testing and review/approval procedures are still not defined
 - SAR data if voluntarily submitted can be considered and reviewed by FCC not TCB

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KDB RFx Parts 80,90 PTT (cont)

- RF exposure training instructions and labeling info is required for most Part 90 PTT portables, and Part 80 where applicable, to satisfy occupational criteria
 - Alternatively SAR data for compliance showing with general population limit may be submitted (to FCC not TCB if 150 MHz band)
- RFx evaluation for body-worn transmit modes usually needed for devices having:
 - Headset jack
 - Remote speaker/mic control unit (e.g., at shoulder-strap)

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RFx for Parts 90,80 PTT with Other Rule Parts on Grant

- Part 22
 - Allowed for fixed (base station) only, for grants applying occupational RFx limits
 - Do NOT list on grants for mobile/portable devices that qualify for and use occupational limits
- Some 95A (GMRS) w/ Part 90 occup. have been allowed - make sure that device will not be marketed for general population use

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Mobile Routine Eval. - Review

- Filings for rule parts listed in 2.1091 with output $ERP > 1.5W @ f \leq 1.5GHz$ or $ERP > 3W @ f > 1.5GHz$ must include at least one:
 - MPE test (TCB or FCC filings)
 - Numerical model (FCC filings)
 - Other methods based on sound engineering practice (may be considered for FCC filings)
- Besides MPE, ensure antenna configurations comply with service-rule ERP/EIRP limits, if any
- 2.1033(c)(3) requires device operating and installation instructions to be submitted during equipment certification, which is requested to include antenna installation info, to support FCC RF exposure compliance

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Mobile Routine Eval. - Review (cont)

- Instructions should include the minimum separation distance and other constraints required for the device and its antenna(s) to meet MPE limits
 - Minimum separation distance of 20 cm is required in normal use
 - Distance may be established in routine eval. (see above)
 - For categ. excl. devices most TCB and some FCC filings are requested to include MPE estimation (e.g., OET 65 eqn 4, or circular aperture eqns with dish antennas)
 - Separation distance based on MPE evaluation (measurement or computer modeling) smaller than the estimated MPE distance may be used if it is applicable for the antenna installation conditions
- Antenna installation conditions should maintain the estimated minimum MPE separation distance

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Misc. RFx Grant Notes - Review

- Consistent grant notes are used for uniformity in application processing, and may be updated as part of ongoing Lab policy reviews and concurrent with docket 03-137
- Example: 15.247 desktop 100mW or less
 - Either can be used:
 - “The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons ...”
 - “This device is approved as a mobile device with respect to RF exposure compliance.”
 - Mobile device grants should list other distance for FCC RF exposure compliance when greater than 20cm

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USB Dongle

- “Direct-connected” USB (without integral cable) differs from most PCMCIA in that port alignment may be horizontal (H), vertical (V), and 180 degrees H or V, with respect to a notebook computer host
- Grantee is responsible for SAR compliance in all such intended use positions
- 1-host SAR testing is accepted for many Part 15 and some licensed-service USB-dongle transmitters
 - 3-host SAR test results have been filed for some licensed-service devices
 - IDB/KDB Mar04 webpost RFx Procedures 7)b), 7)c) are applicable
- Review & Approval Procedures for portable devices and modules are subject to revision as part of RFx and Modular rule proceedings (03-137, 03-201)

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User Manual RFx Info - Review

- Layman’s description of RF exposure and general or specific means to comply with FCC RFx limits
- User-instruction separation distances differing from those used in evaluation should be appropriate and explained
- General colocation definition and restrictions

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User Manual RfX Info - Review

- Clearly describe intended and approved host(s) for generic module grants
 - Example: laptop only if that is how tested
- Body-worn/accessory instructions, if applicable, consistent with test configurations
 - Example: see Suppl. C & previous TCB training notes
- Other instructions specific to a device needed for user to operate in compliance with FCC rules
 - Example: indoor-only use for NII 5.2 GHz band

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The End

Please contact FCC Lab for guidance
unclear or undefined review & approval
procedures are encountered