



# **TCB Workshop**

## **General Technical Issues**

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# General Technical Issues

- Permissive Changes
- SDR related Issues
- Modular approvals
- Grant Frequency Policy
- Grant Filing Corrections



## Miscellaneous Permissive Changes

- Permissive change rules are in Section 2.1043.
- See attached permissive change document on miscellaneous permissive change policies
- All changes must be considered to determine filing requirement.
  - Radio parameters
  - Software and Hardware
  - HAC, EMC, RFE changes.
  - Authorization changes.



# Software-Defined Radios

- SDR for the purposes of the new regulation are:
  - Radios whose operating parameters (frequency range, modulation type or maximum output power), or the circumstances under which the transmitter operates in accordance with Commission rules, can be changed, at least in part, through software changes alone



# FCC Rules for SDRs

- If the manufacturer maintains complete control of the software, the device does not have to be declared SDR
- If 3<sup>rd</sup> party or end-user can modify the operation or download software that controls the RF parameters:
  - Device **must** be declared SDR
  - TCBs are not permitted to authorize such radios
  - Professional installers or Qualified Personnel are considered 3<sup>rd</sup> parties
  - Part 15 client devices operating under control of a master are exempted under certain circumstances



## SDRs in Master – Client devices

- Master Devices – (capable of transmitting without receiving an enabling signal)
  - Must operate in U.S. solely in Part 15 frequencies and power limits
  - If software used to configure country of operation by 3<sup>rd</sup> party, must certify as SDR
- Client Devices – capable of transmitting only under control of master device that limits to Part 15 frequencies do not need to be certified as SDR
  - However, if 3<sup>rd</sup> party software changes can be made to power or other operating parameters, must certify as SDR
- Applies to various Wi-Fi devices, Cordless phones (UPCS), other similar systems



# SDR Applications – Additional Requirements

- Software Description
  - The way different software versions are put into service.
  - The security procedures used to ensure only authorized changes are made to the software that controls RF parameters
  - Statement on how open source is the development system, etc
  
- Description of the security procedures used to distribute the different software versions to third parties.
  - Security method used: licensing procedures; encrypted key authentication procedures; embedded hardware based authentication, virtual private networks, etc.
  
- Description of the repair process by authorized third parties that can also load or re-load the different software versions



## SDR or not SDR?

- Review the Operations Manual and Users Manual to determine if the SDR rules apply
- If not sure, question the Grantee
  - Do not assume
- If in doubt, ask the FCC prior to issuing a grant
  - Do not interpret



# Modular approvals

- Complete transmitters are authorized.
- Filing must be clear on what is being authorized.
  - Antennas?
  - Hosts?
  - Clear installation instructions?
- Grantee is always responsible for module.
- Testing, user manual, OEM installation must agree with grant conditions and user manual information



# Modular approval

- OEM installed modules
  - OEM manual instructions can be confidential.
    - Submit attestation from grantee indicating that the OEM manual will not be available to the general public.
  - OEM instructions need to have proper instructions to ensure installation is in accordance with compliance requirements in filing and grant conditions.



# Modular approvals

- This is a reminder that modules must be tested standalone (e.g on an extender card) or tested in an unmodified host for Limited Modular Approval(LMA). LMA approvals must be conditioned accordingly (e.g. This LMA must be installed in a host as indicated in the Certification filing.)



## Modular approval

- - All DFS UNII modular approvals need to be Limited Modular Approvals. Most likely these would be approved as limited to hosts with external antennas. For modular approvals with internal antennas, it is important to understand that the different hosts will affect DFS compliance. Therefore, the module would be limited to the specific host used for the DFS tests. If different hosts are applied for with a Class II permissive change, DFS testing is required if the new host provides more attenuation of the signal compared to the approved host.

\* Reminder: that DFS testing is required when any new antenna with lower gain than the original is used.



## Modular approval

- For user installed radios used with integrated antennas in laptops, authentication for intended laptop is required to ensure compliance with the applicable requirements.
- Authentication method must ensure module is not used in unintended laptops.



# Modular approvals

- Reminders for applications for modules in final product shall contain:
  - External photos show final-product and antenna(s) if external
  - Internal photos or diagrams show as-installed antenna(s) [e.g. for 2.1033(b)(7), 15.204(c)(3), RFX]
  - 15.204(c)(3) summary list all antennas & specs under FCC ID
  - User manual for final-product describing wireless function, installation/operation, other final-product operations, etc.
  - DoC info or status for digital portions
  - List of all modules to be installed in final product, if any



# Grant frequency policy



KDB 634817.

## Frequency Range Listings For Certification Grants

### Part 15 Unlicensed transmitters

- 1) Frequency ranges for unlicensed devices must agree with the applicable Part 15 rule applied for.
- 2) Do not list restricted bands in Section 15.205.
- 3) List the center frequency of the lowest channel to the center frequency of the highest channel.

### Licensed transmitters

List only allowed frequencies in rule part applied for.

-Check rule part applied for and allocation chart in 2.106

### Otherwise

Extended frequencies allowed under certain conditions.

- **All Certification grants with extended frequencies must have justification letter and have the "EF" grant note**
- Justification letter makes clear what frequencies are allowed.



# Grant Filing Corrections

- Exhibits
  - Follow supercede procedures to submit corrected exhibits. TCBs may not supercede exhibits
  - Missing exhibits
    - <30 days, TCBs can add missing exhibits
    - >30 days, Send request to [EASADMIN@fcc.gov](mailto:EASADMIN@fcc.gov)
- Grant authorization corrections
  - <30 days, TCBs make correction
  - >30 days, Contact [easadmin@fcc.gov](mailto:easadmin@fcc.gov)
- Grant corrections to authorization and corresponding exhibit(s) that are not supported by information in the filing, requires permissive change filing or new FCC submission with new FCC identifier



# The End

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