



Licensed Devices Recent Rule Interpretations and Updates

**Andy Leimer & Steve Dayhoff
Equipment Authorization Branch**

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



Low Power Auxiliary Station Operations in the 698-806 MHz Band

● NOTICE OF PROPOSED RULE MAKING AND ORDER (FCC 08-188 Effective August 20, 2008)

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-188A1.pdf

– Reminders:

- Imposes a freeze on granting equipment authorization requests for low power auxiliary station devices that would operate in Part 74, 698-806 MHz.
- Applications may be filed with the FCC but will not be acted upon until the conclusion of the proceeding.



Biennial Regulatory Review – Amendment of Parts 24 and 27

- NOTICE OF PROPOSED RULE MAKING AND ORDER (FCC 08-85 Effective June 2, 2008)
http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-85A1.pdf
 - Power measurements, for transmitters authorized under these sections, may be made either in accordance with a Commission-approved average power technique, or using peak power measurements.
 - If an average power technique is used, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
 - Affects (Part 24) 1850-1915 / 1930-1995 MHz - PCS bands, and (Part 27) 1710-1755 / 2110-2155 MHz -AWS bands.
 - Power measurements techniques need to be finalized. FCC developing 13 dB PAR test method using CCDF analyzer function.



4.9 GHz Public Safety Radio – Part 90Y RF Testing

- Channel Plan clarifications for 90.1213:
 - Transmitter tests should be performed on channel frequencies listed in the table, for the specific emission bandwidth of the device (either 1 or 5 MHz channels as listed).
 - If channel aggregation is used, the tests would be performed with the transmitter tuned to the center frequency of the aggregated channels rather than frequencies listed in the table of 90.1213.

- Power Measurement (FCC 09-29):

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-09-29A1.pdf

- Section 90.1215(e) - Peak Excursion method



4.9 GHz Public Safety Radio – Part 90Y RF Testing (Cont.)

- L and M masks in Part 90.210:
 - The rule indicates using a minimum RBW of 1% of the fundamental emission to determine the zero dB reference level, and also to determine the mask skirts. The mask plot should be developed using the same resolution bandwidth throughout, for the zero dB reference level and the mask skirts.
 - Section 90.210(l)7 and (m)7 lists average; therefore average is used to measure the L and M masks.



Part 25 Equipment Authorization Requirements

- For earth stations in all Part 25 earth-to-satellite services (KDB 273109):
 - All Portable transceivers require certification per 25.129.
 - C and Ku band non-portable earth terminals require verification per 25.132a).
 - Certification is optional for mobile Part 25 earth-station transmitters that do not fall in the portable category.



Part 25 Equipment Authorization Requirements (Cont.)

- For Part 25 ATC services (terrestrial to terrestrial):
 - All Mobile Terminals (MT) and Base Stations require certification per 25.149 C.
 - Satellite Digital Audio Radio Service (SDARS) and GPS repeaters/boosters should not be certified.



Part 95I – MedRadio

- MedRadio – body worn & implanted devices (FCC 09-23)
 - http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-09-23A1.pdf
 - Erratums (Released March 20, 2009 & July 15, 2009)
 - http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-290160A1.pdf
 - http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-290607A1.pdf
 - NOI/NPRM (FCC 06-103) open proceeding for future technologies (FCC 06-103)
 - http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-103A1.pdf
 - MICS 402-405 MHz (core band)
 - Additional 2 MHz spectrum (wing bands)
 - 401 – 402 MHz & 405 – 406 MHz
 - Not channelized
- Frequency Monitoring requirements – Section 95.628(a)



Part 95I – MedRadio (Cont.)

- Max EIRP 25 μ Watts
- Devices NOT requiring frequency monitoring
 - Max EIRP 100 nanowatts in the 402 – 405 MHz band
 - 250 nanowatts in the 401-401.85 MHz and 405-406 MHz bands
 - 25 nanowatts in the 401.85-402 MHz band
- Authorized BW
 - 300 kHz in the 402-405 MHz band
 - 100 kHz in the 401-401.85 MHz and 405-406 MHz bands
 - 150 kHz in the 401.85-402 MHz band
- Voice communications prohibited
- Frequency stability of +/-100 ppm
- Tested in tissue equivalent liquid



Part 80 Maritime Services EPIRB – 121.5 MHz

- Satellite Monitoring of 121.5 MHz ended February 1, 2009
- User's must switch to 406.1 MHz EPIRBS
- 121.5 MHz still permitted for man-overboard systems and homing TXs
 - Waiver Required (Note: Part 95 PLBs do not require a waiver for 121.5 MHz)

http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-33A1.pdf



Part 80 Maritime Services EPIRBs – Equip. Authorization

- Approved Test Laboratories Updated
 - Updated list of approved test lab for 406 MHz devices:
<http://www.cospas-sarsat.org/Beacons/beaconTypeApprovalLabs.htm>
- All EPIRBs require US Coast Guard approval letter
- COSPAS – SARSAT Certificate for 406.1 MHz



Part 80 Maritime Services - AIS Classes

- **Class A**
 - Shipborne mobile equipment intended for vessels meeting the requirements of IMO AIS carriage requirement
- **Class B (Mainly for pleasure craft)**
 - Shipborne mobile equipment provides facilities not necessarily in full accord with IMO AIS carriage requirements
- **Differences**
http://www.navcen.uscg.gov/enav/ais/AIS_ClassA_B_Comparisons.pdf
- **Recommend AIS Class in Grant comment**



Questions and Answers

Thanks!