

**NTIA**



# **Federal Receiver Standards**

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## Federal Receiver Standards

- The NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management (NITA Manual) provides receiver standards for mobile systems, fixed systems below 15 GHz, and radar systems.
- Generally the standards include requirements for receiver parameters such as selectivity, spurious response rejection, and intermodulation rejection.
- Industry developed standards (e.g., Telecommunication Industry Association) are used when available.
- These receiver standards cover a large percentage of the authorized frequency assignments in the Government Master File.

## Federal Fixed and Mobile Receiver Standards

<b>NTIA Manual Section</b>	<b>Frequency Band</b>	<b>Radio Service</b>	<b>Receiver Parameters</b>
3.9.7	162-174 MHz	Very High Frequency Inter-National Boundary and Water Commission	Selectivity, Intermodulation Rejection, Spurious and Image Rejection
5.3.1	3-30 MHz	Fixed and Mobile	Selectivity
5.3.3	406.1-420 MHz 935-935/941-944 MHz 1.71-15.35 GHz	Fixed	Spurious Rejection and Selectivity
5.3.5.1	29.7-50 MHz 162-174 MHz 406.1-420 MHz	Fixed and Mobile (Wideband)	Spurious Rejection, Adjacent Channel Rejection, and Intermodulation Rejection
5.3.5.2	138-150.8 MHz 162-174 MHz 406.1-420 MHz	Fixed and Mobile (Narrowband)	Spurious Rejection, Adjacent Channel Rejection, Intermodulation Rejection
8.2.29	156-162 MHz	Maritime Mobile	Adjacent Channel Selectivity and Spurious Rejection

## Federal Radar Receiver Standards

NTIA Manual Section	Frequency Band	Radio Service	Receiver Parameters
5.5.2	2.9-40 GHz	Radiolocation Radiodetermination (Group B)	Selectivity, Spurious Rejection, and Stability
5.5.3	All Radiolocation and Radiodetermination Frequency Bands	Radiolocation Radiodetermination (Group C)	Selectivity, Spurious Rejection, Image Rejection, and Stability
5.5.4	2.7-2.9 GHz	Radiolocation Radiodetermination (Group D)	Selectivity, Spurious Rejection, Image Rejection, Stability, and Interference Suppression Circuitry
5.5.5	449 MHz	Radiolocation (Group E)	Selectivity, Spurious Rejection, Image Rejection, and EMC Provision

## Other Receiver Standards Used by Federal Agencies

- The Federal Aviation Administration publishes Technical Standard Orders that refer to RTCA standards for aviation receivers.
- The Coast Guard uses maritime receiver standards developed by the International Electrotechnical Commission (IEC).
- The Department of Transportation uses American Society for Testing and Materials (ASTM) International standard for Intelligent Transportation Service Dedicated Short Range Communications Service in the 5850-5925 MHz band.

## NTIA Receiver Reports

- The following is a list of NTIA receiver reports:
  - NTIA Report 90-260 Ground-Based Weather Radar Compatibility with Digital Radio-Relay Microwave System
  - NTIA Report 94-313 Analysis of Electromagnetic Compatibility Between Radar Stations and 4 GHz Fixed-Satellite Earth Stations
  - NTIA TR-97-343 Assessment of Compatibility Between 25 and 12.5 kHz Channelized Marine VHF Radios
  - NTIA TR-99-361 Technical Characteristics of Radiolocation Systems Operating in the 3.1-3.7 GHz Band and Procedures for Assessing EMC with Fixed Earth Station Receivers
  - NTIA Report 02-393 Measurements of Pulsed Co-Channel Interference in a 4 GHz Digital Earth Station Receiver
  - NTIA Report 03-404 Receiver Spectrum Standards Phase 1 – Summary of Research into Existing Standards

## Summary

- The NTIA Manual is available at <http://www.ntia.doc.gov/page/2011/manual-regulations-and-procedures-federal-radio-frequency-management-redbook>
- The RTCA standards are available at [www.rtca.org](http://www.rtca.org)
- The IEC standards are available at [www.iec.ch](http://www.iec.ch)
- NTIA reports are available at <http://www.ntia.doc.gov/technical-reports>