

1700-1710 MHz

1. Band Introduction

The Polar Operational Environmental Satellite (POES) series of satellites operate in this band transmitting weather and other meteorological data to earth station receivers for further processing and distribution. There is also limited use of tactical point-to-point communication systems in this band.

2. Allocations

2a. Allocation Table

The frequency allocation table shown below is extracted from the Manual of Regulations and Procedures for Federal Radio Frequency Management, Chapter 4 – Allocations, Allotments and Plans.

Table of Frequency Allocations

Federal Table	<i>United States Table</i> Non-Federal Table	FCC Rule Part(S)
1700-1710 FIXED G118 METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341	1700-1710 METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed 5.289 5.341	

2b. Additional Allocation Table Information

5.289 Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460-470 MHz and 1690-1710 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table.

5.341 In the bands 1 400-1 727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

G118 Federal fixed stations may be authorized in the band 1700-1710 only if spectrum is not available in the band 1755-1850 MHz.

3. Federal Agency Use

3a. Federal Agency Frequency Assignments Table

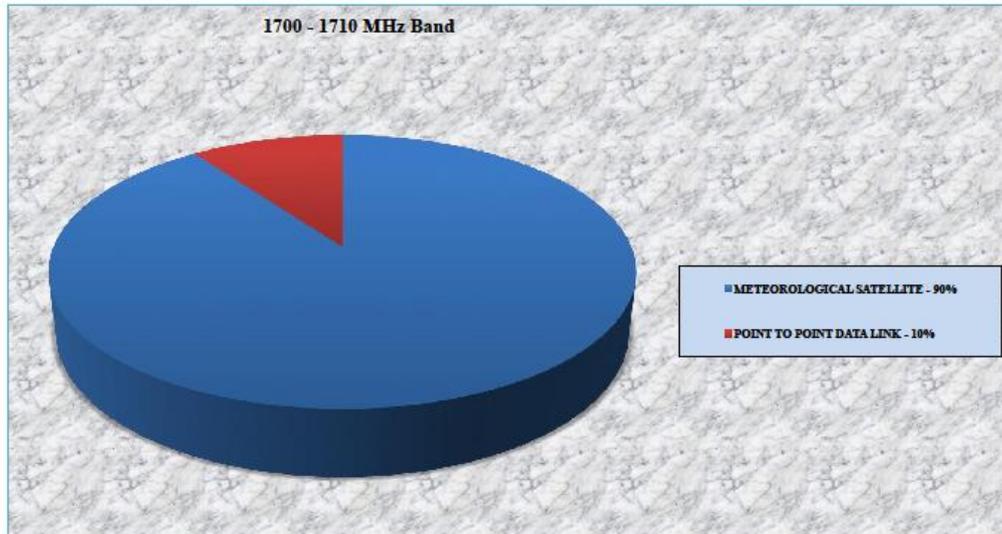
The following table identifies the frequency band, types of allocations, types of applications, and the number of frequency assignments by agency.

Federal Frequency Assignment Table

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SHARED BAND					
AGENCY	FIXED				
	METEOROLOGICAL-SATELLITE (space-to-Earth)				
	TYPE OF APPLICATION				
	METEOROLOGICAL-SATELLITE	POINT-TO-POINT DATA LINK			TOTAL
DOC	28				28
MC		2			2
N		1			1
TOTAL	28	3			31
The number of actual systems, or number of equipments, may exceed and sometimes far exceed, the number of frequency assignments in a band. Also, a frequency assignment may represent, a local, state, regional, or nationwide authorization. Therefore, care must be taken in evaluating bands strictly on the basis of assignment counts or percentages of assignments.					

3b. Percentage of Frequency Assignments Chart

The following chart displays the percentage of frequency assignments for the systems operating in the frequency band 1700-1710 MHz.



4. Frequency Band Analysis by Application

4a. Meteorological-Satellite Operations

The Commerce's National Oceanic and Atmospheric Administration (NOAA) operates non-geostationary, polar-orbiting meteorological-satellites (POES) to provide environmental research and weather data to NOAA, the Department of Defense (DOD), the National Aeronautics and Space Administration (NASA), and various Federal/non-Federal entities. The raw data from these satellites is transmitted in the space-to-Earth direction to receiving NOAA earth stations in Fairbanks, AK, and Wallops Island, VA. The raw data is processed at the NOAA Satellite Operations Facility (NSOF) in Suitland, MD. The processed data including the High Resolution

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Picture Transmission (HRPT) is transmitted by these earth stations back to the satellites and broadcast to Federal/non-Federal receiving earth stations. The data is also received directly from the satellite by various Federal/non-Federal entities. The HRPT is used daily in the generation of weather reports that are broadcast over television and radio stations throughout the country. Various military, Federal/non-Federal earth stations also receive raw data from the NOAA meteorological satellites and process this data for their own weather related uses. The POES operate at the center frequencies of 1702.5 and 1707 MHz in the 1700-1710 MHz band.

4b. POES Meteorological Transmission Downlink Signals

High Resolution Picture Transmission

The HRPT data from the NOAA polar-orbiting satellites provides regional data for the assessment of agricultural and forestry vegetation, the determination of sea and land surface temperatures, identification of snow and clouds and aerosol detection. The HRPT data stream also includes non-imagery data from other instruments on board the spacecraft. Due to the higher resolution of the HRPT imagery (1.1 kilometer in visible band), and additional spectral channels of information, direct readout users often prefer this data stream, particularly where quantitative analysis is involved. The HRPT data is critical for volcanic ash detection. The National Hurricane Center uses this service and part of the regional operations when a tropical storm is approaching landfall. The NOAA oceanographic centers rely on the HRPT for critical data about the ocean surface to support marine research.

The HRPT data provides sea surface temperatures vital to the fishing industry and seafarers. The HRPT data is vital for monitoring ice flows or ice sheets. Mariners require this data to navigate ice sheet on the Great Lakes and other navigable water ways. These real-time data are critical to forecasts and warnings, whether on land or at sea. HRPT data also contains satellite telemetry data and is used to track the satellite when it is within sight of the Climate Data Assimilation System (CDAS) sites at Wallops Island, Virginia and Fairbanks, Alaska. Once the CDAS acquires the satellite, the mission science data stored on-board the satellites are downlinked in the 1700-1710 MHz band. The downloaded data includes low-resolution imagery data known as Global Area Coverage (GAC) and high-resolution imagery data known as Local Area Coverage (LAC).¹ The satellite is in view of the earth station for approximately 12 to 15 minutes. The CDAS records the GAC and LAC imagery data and then re-distributes it to NOAA's NOAA Satellite Operations Facility (NSOF) post contact. The satellite transmits HRPT data in real-time during its contact with NSOF, because it contains telemetry data which is essential for

¹ GAC is the 4-kilometer low-resolution data and LAC is the higher 1.1 kilometer resolution data. An entire orbit of GAC (115 minutes) can be stored by a single recorder. Only 11.5 minutes of high-resolution image LAC can be stored on a single recorder.

monitoring and commanding the satellite. The high-resolution HRPT data is available to direct readout users in real-time via their own receive terminals. NOAA acquires HRPT data from the five protected sites in Wallops Island, Virginia; Fairbanks, Alaska; Suitland, Maryland; Miami, Florida and Kaena Point, Hawaii. Table 1 and Figures 1-3 depict locations for Federal agencies meteorological operations in the 1700-1710 MHz band.

Table 1. Federal Locations for Meteorological-Satellite Earth Stations (1700-1710 MHz Band Segment)

Agency	Center Frequency (MHz)	Earth Station Location	Latitude	Longitude	Function (Receiver)
DOC	1702.5, 1707	Wallops Island, VA	375645N	0752745W	HRPT ¹
DOC	1702.5, 1707	Fairbanks, AK	644814N	1475234W	HRPT
DOC	1702.5, 1707	Suitland, MD	384900N	0765100W	HRPT
DOC	1702.5, 1707	Miami, FL	254700N	0801900W	HRPT
DOC/DOD	1702.5, 1707	Kaena Point/Hickam Air Force Base, Pearl Harbor, HI	211907N	1575521W	HRPT
DOI	1702.5, 1707	Sioux Falls, SD	433409N	0963733W	HRPT
DOD	1702.5, 1707	Cincinnati, OH	390608N	0843036W	DCPR ² /DRGS ³
DOD	1702.5, 1707	Rock Island, IL	413104N	0903346W	DCPR/DRGS
DOD	1702.5, 1707	St. Louis, MO	383526N	0901225W	DCPR/DRGS
DOD	1702.5, 1707	Vicksburg, MS	322123N	0905129W	DCPR/DRGS
DOD	1702.5, 1707	Omaha, NE	411532N	0955520W	DCPR/DRGS
DOD	1702.5, 1707	Sacramento, CA	383459N	1212939W	DCPR/DRGS
DOD	1702.5, 1707	Elmendorf Air Force Base, AK	610859N	1492812W	HRPT/International Polar
DOD	1702.5, 1707	Anderson Air Force Base, GUM	133452N	1445528E	HRPT/International Polar
DOD	1702.5, 1707	Monterey, CA	363600N	1215400W	HRPT/International Polar
DOD	1702.5, 1707	Stennis Space Center, MS	302359N	0893559W	HRPT/International Polar
DOD	1702.5, 1707	Twenty-Nine Palms, CA	341746N	1160944W	HRPT
DOD	1702.5, 1707	Yuma, AZ	323924N	1143622W	HRPT
¹ High Resolution Picture Transmission					
² Data Collection Platform Report					
³ Direct Readout Ground Stations					

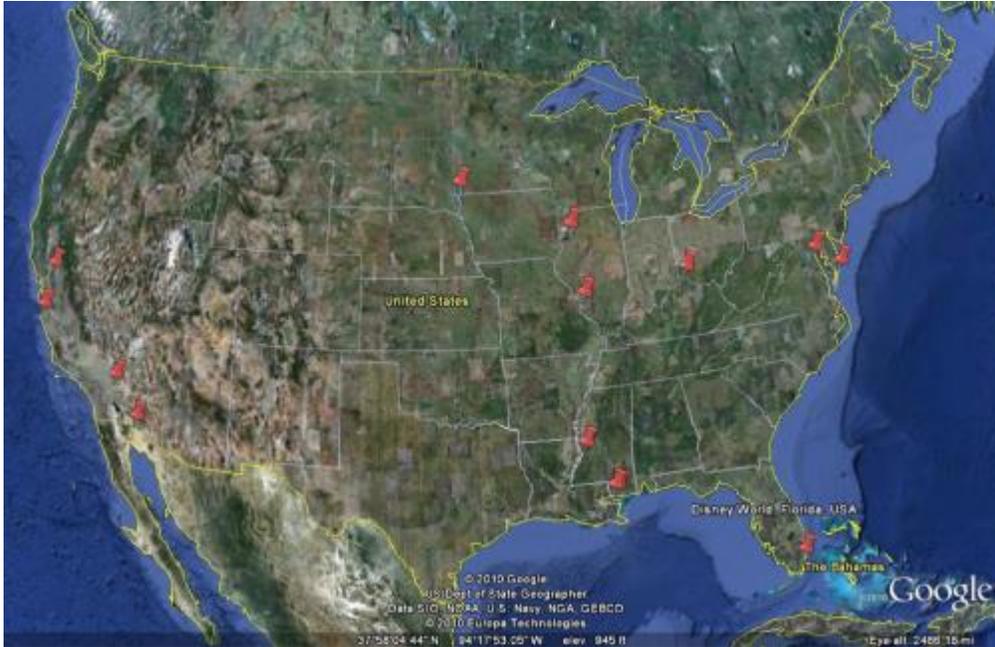


Figure 1. Federal Meteorological-Satellite Receiving Earth Stations, Continental United States

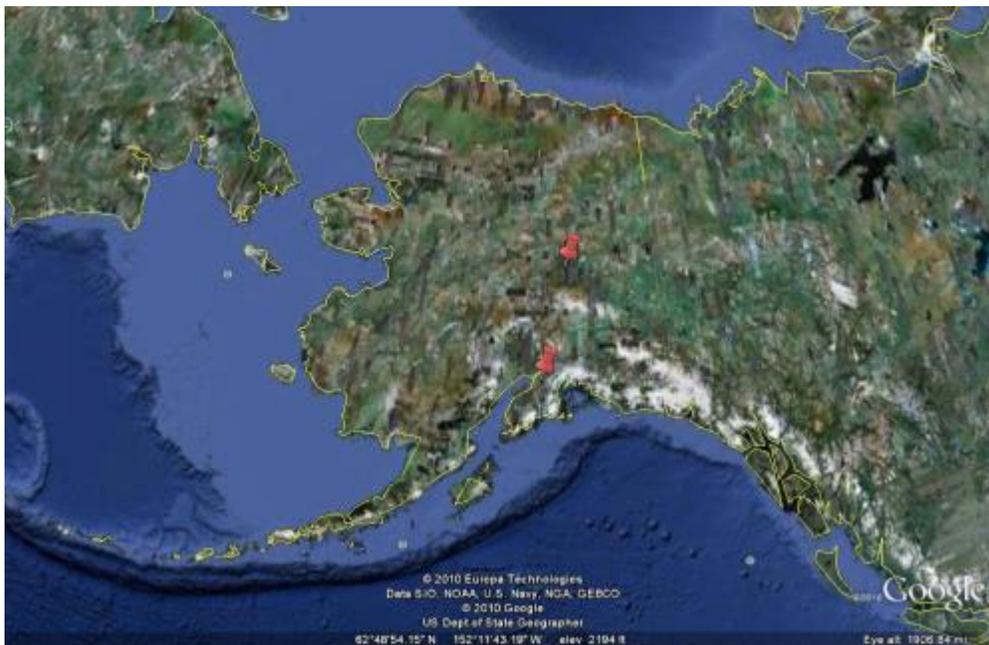


Figure 2. Federal Meteorological-Satellite Receiving Earth Stations, Alaska



Figure 3. Federal Meteorological Satellite Receiving Earth Station, Hawaii

4c. Joint Polar Satellite System (JPSS)

The JPSS is NOAA's portion of the restructured National Polar-Orbiting Operational Environmental Satellite System (NPOESS) program as announced on February 1, 2010 by the Executive Office of the President. NOAA will be responsible for management and procurement of the satellites and instruments associated with collecting data during the afternoon orbit, which is most critical to analysis of weather and climate. NOAA will contract with NASA to accomplish some of these tasks. The European Organization for the Exploration of Meteorological-Satellites (EUMETSAT) will be responsible for the mid-morning orbit while NOAA will continue to operate in the afternoon orbit. The DOD will be responsible for the morning orbit that is critical to national defense.

The restructured Joint Polar Satellite System (JPSS) will continue to address NOAA's requirements to provide global environmental data used in numerical weather prediction models for forecasts, as well as provide space weather observations, search and rescue detection capabilities, and direct read-out and data collection products and services to Federal and non-Federal users. Data and imagery obtained from the JPSS

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will increase timeliness, accuracy, and cost-effectiveness of public warnings and forecasts of climate and weather events, thus reducing the potential loss of human life and property and advancing the national economy.

4d. Point-to-Point Data Links

The band 1700-1710 MHz is also used for a very limited military fixed point-to-point multi-channel microwave links in support of DOD training activities. These links are used to connect switching nodes to other nodes related to high capacity line-of sight radios (HCLOS) used for tactical systems in support of combat operations.

5. Planned Use

NOAA will continue to operate the POES meteorological-satellite systems in the 1700-1710 MHz band for the foreseeable future.

Federal agencies will operate fixed and portable meteorological earth station receivers in the 1700-1710 MHz band for the foreseeable future. NTIA identified the 1695-1710 MHz band as a candidate frequency band for wireless broadband systems, taking into account exclusion zones protecting significant Federal earth station receivers within the U.S.²

The JPSS, as its predecessor the NPOESS, is expected to operate in the 1695-1710 MHz bands for the foreseeable future.

² National Telecommunications and Information Administration, *An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, and 4200-4220 MHz, 4380-4400 MHz Bands*, (October 2010), , available at http://www.ntia.doc.gov/files/ntia/publications/fasttrackevaluation_11152010.pdf.