comsearch
an ANDREW company

ASHE
Optimizing health care facilities

WMTS

Wireless Medical Telemetry Service

Frequency Coordination System

User Information Guide
Version 11.0

April 2025

Table of Contents

1. Introduction

In response to growing concerns about interference resulting from new digital television transmitters, low power television transmitters, paging stations, and greater use of private land mobile radio equipment, the Federal Communications Commission (FCC) has done the following:

- Established the Wireless Medical Telemetry Service (WMTS), dedicating bands of frequencies to promote interference-free operation of medical telemetry systems,
- Appointed ASHE as the Frequency Coordinator for the WMTS bands,
- Mandated that all transmitters operating in the WMTS bands must be registered with ASHE to ensure interference-free operation. Section 95.1111(a) of the FCC's rules states, "Prior to operation, authorized health care providers who desire to use wireless medical telemetry devices must register all devices with a designated frequency coordinator."

ASHE has selected Comsearch as their technical partner in providing frequency coordination services in the WMTS bands. Comsearch will provide a broad range of services to ASHE and its members including development of a WMTS device database and device registration capabilities.

In this guide, you will find out why WMTS is important to hospitals and how the WMTS Frequency Coordination Database can help you protect your patients.

2. Why Use WMTS?

In the US, wireless medical telemetry can be found in the following spectrum blocks:

- Wireless Medical Telemetry Service (WMTS)
- TV, Private Land Mobile Radio Service (PLMRS), Paging and the Personal Radio Service
- Industrial, Scientific and Medical (ISM)

So, why use WMTS? The considerations for use of each band are listed below. **WMTS (608-614 MHz, 1395-1400 MHz, 1427-1432 MHz)**

- This is the only designated frequency spectrum for medical telemetry systems
- You are protected from interference due to other wireless devices
- There are comparatively fewer interference sources
- Both the FCC and FDA encourage use of WMTS
- New FCC-approved equipment permitted (the FCC will not approve new equipment for use in the TV & PLMRS bands)
- Frequencies are coordinated to ensure interference-free operation

TV and PLMRS (174-216 MHz, 450-608 MHz, 614-668 MHz)

- No interference protection. Hospitals must accept interference or shut down if causing interference
- Hundreds of thousands of existing PLMRS devices such as mobile radios or walkie-talkies used by policemen, firemen, taxicabs, and delivery trucks (see Figure 1)
- Tens of thousands more PLMRS devices expected in the future
- High power operations already permitted in portions of the PLMRS spectrum with more high power operations permitted in the future
- Interference from mobile operations is unpredictable
- New Digital TV stations commencing operation daily
- The FCC will not approve equipment after October 2002
- Frequencies are not coordinated

Figure 1: Typical PLMRS device, a Walkie-Talkie

ISM (2400-2483 MHz)

- No interference protection. Hospitals must accept interference
- Millions of existing operations including wireless LANs and microwave ovens (see Figure 2)
- Increased interference potential with popularity of wireless networking technologies
- Frequencies are not coordinated

Figure 2: Wireless LAN Components

3. Update on WMTS

Your medical telemetry system is sharing spectrum with other wireless systems.

Know what's out there
Statistics on non-telemetry operations are listed in the table below.

Primary Users of Medical Telemetry Spectrum

BAND	PRIMARY USERS	NATIONWIDE STATISTICS (As of November 2002)
174-216 MHz, 470-608 MHz, 614-668 MHz	TV Channels 7-36 & 38-46 PLMRS Paging Auxiliary Broadcast	643 licensed DTV stations 1045 potential future DTV stations 28,000 PLMRS licenses
450-460 MHz	PLMRS Paging Auxiliary Broadcast Maritime Mobile Personal Radio Service	230,000 PLMRS licenses 4,000 Paging licenses Note: The average number of PLMRS license grants per year is 41,000
460-470 MHz	PLMRS Personal Radio Service	622,000 PLMRS licenses Note: The average number of PLMRS license grants per year is 102,000
608-614 MHz	**WMTS** Radio Astronomy	13 Radio Astronomy Sites
1395-1400 MHz	**WMTS**	
1427-1432 MHz	**WMTS** Utility Telemetry	40+ Utility Telemetry Licenses

4. Register with ASHE

WMTS is the **only** frequency spectrum designated exclusively for medical telemetry systems. Telemetry systems operating within this spectrum **and** registered with ASHE can be protected from harmful interference. Hospitals and equipment vendors deploying product in the WMTS bands **must** ensure that device registration has been completed before the equipment is commissioned.

Facility Registration – Step 1 of 2
In order to access the WMTS Frequency Coordination Database, you must first establish an account at www.wmtssearch.com. You will need to provide information on the hospital or main facility where medical telemetry equipment will be installed. You must also pay a one-time administrative fee to establish an account.

Device Registration – Step 2 of 2
After an account is established, you must register your WMTS devices in the WMTS Frequency Coordination Database. You can access the database from ASHE's website or through www.wmtssearch.com. Once in the WMTS database, you will be prompted to do the following: enter site and equipment information, perform a frequency search, select frequencies and download a certificate of coordination. See the WMTS Deployment Form section of this guide for specific information required to enter the deployment. There is no charge to perform a frequency search. However, once you select frequencies, your deployment will be entered into the database and you will be charged a device registration fee (please see the Pricing Summary section). The registration fee will be charged for each deployment.

You have two payment options: Credit Card or Purchase Order. A credit card transaction is processed immediately and you receive a certificate for your deployment right away. A purchase order transaction is also processed immediately BUT your certificate will become invalid if Comsearch does not receive a fax with the PO number within two days of the transaction. The purchase order should be made out to Comsearch. If you need any additional information for payment, please contact wmtssupport@comsearch.com or call Comsearch at 1-800-318-1234.

SO WHY REGISTER?

RISK - Protect your patients' vital telemetry data from being corrupted due to interference from other telemetry systems and from digital TV systems. Data corruption due to interference can cause entire telemetry systems to fail, leaving your critically ill patients with no monitoring at all. Registration with ASHE helps to ensure that your telemetry units are protected from harmful interference.

IT'S THE LAW - The FCC requires that all WMTS transmitters be registered with ASHE. See Section 95.1111 of the FCC Rules. If you don't register, not only are you subject to being interfered with, *the FCC can also shut your system down*.

WIRELESS PLANNING - Registration is a key part of wireless planning, which is essential for proper interference-free operation of any wireless investment, especially a WMTS system.

PROTECTION - The operating frequencies of registered telemetry units will be considered in other hospitals' analyses, thus providing a greater margin of interference protection.

INVENTORY MANAGEMENT - Use the database to help keep an inventory of your WMTS deployments. This can also help to manage Electromagnetic Interference and Compliance (EMI/EMC) issues throughout the hospital.

MONITOR OTHER WMTS ACTIVITY - Users can get equipment manufacturer and model information as well as hospital contact information for any WMTS system that could affect a particular deployment.

SUPPORT - You get immediate access to specialists who can help to better understand the FCC rules and explain this process.

5. WMTS Frequency Coordination Database

Please enter the URL below to access the WMTS Frequency Coordination Database:

www.wmtssearch.com

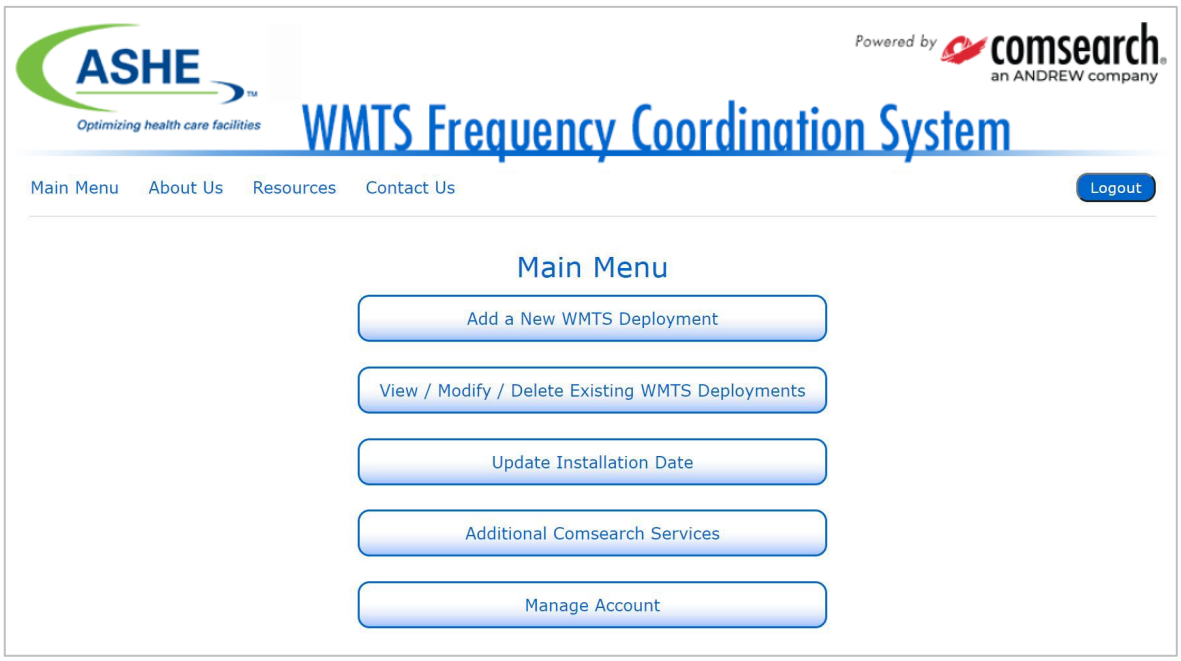

Figure 3: Main Menu in the WMTS Frequency Coordination Database

Using the WMTS Frequency Coordination Database

Performing a search and selecting frequencies is simple. Based upon your login information, the software knows your associated hospitals. Then, using a feature in the database called the "Facility Finder", you can display all hospitals registered under your login. Simply select the hospital where the deployment is to be installed, and the software will return the hospital's address. Next, select the WMTS frequency band (608-614 MHz, 1395-1400 MHz, or 1427-1432 MHz) where equipment will operate. *Note*: If your equipment will operate in multiple bands, you will need to enter each band separately. From here you provide specific information regarding the deployment – see the WMTS Deployment Form section for a list of the specific fields.

Assuming all the information is correct, you can then click a button to perform the frequency search. The results of the frequency search will indicate what other systems are operating within the search radius. Depending on the frequency band, the search results return information on other WMTS systems, adjacent channel TV stations, radio astronomy receivers, and utility telemetry stations. You can change search parameters if you like and rerun the search.

When ready to select frequencies, you can click a button that takes you to a list of frequencies. The frequencies are labeled as being available or having potential conflicts. In most cases all frequencies will be available; however, in some instances, some of the frequencies may be indicated as having potential conflicts. This will happen if one of the following is found within the search radius:

- Existing co-channel WMTS deployment
- Radio astronomy facility
- Channel 36 or 38 television station
- Utility telemetry (fixed & mobile) station

In the unlikely event that there are potential conflicts, you can select those frequencies that do not have conflicts. If all frequencies show conflicts, you can still select a conflicted frequency, but you should also contact your equipment vendor or another third party to perform a thorough assessment of the interference potential. However, if the conflicts result from proximity to radio astronomy or utility telemetry devices, there are some additional steps.

Radio Astronomy Coordination

The 608 – 614 MHz band is shared by radio astronomy in several remote areas of the country. Radio astronomy sites such as the one shown in Figure 4 are used to map the radio energy coming from the distant reaches of the universe. Consequently, these sites are highly sensitive to energy that could come from a nearby transmitter such as those used for WMTS. Thus, the FCC requires that ASHE coordinate WMTS usage with radio astronomy for deployments that fall within these areas. Figure 5 shows the locations of the thirteen radio astronomy sites in the US, as well as a protected area around each site. A detailed list of the radio astronomy sites can be found at the end of this user guide.

Figure 4: Typical radio astronomy site located in Socorro, NM
(Image courtesy of NRAO/AUI)

Figure 5: Radio astronomy sites in the 608 – 614 MHz band

There is a fee for radio astronomy coordination, and it is charged only if the deployment falls within one of these protected areas (please see the Pricing Summary section). This type of coordination requires acknowledgement from the radio astronomy site that there will be no interference from the proposed WMTS deployment. Therefore, no such WMTS deployments are allowed to proceed without approval from the spectrum manager at the radio astronomy site. ASHE performs this coordination with the appropriate spectrum manager and will let you know immediately once approval is received.

Utility Telemetry Coordination

The 1427-1432 MHz band requires unique frequency coordination because of existing licensed utility telemetry devices in the band. The FCC devised a band-segmentation scheme to accommodate both WMTS and utility telemetry deployments. The key aspect of the new band segmentation rules is a band-flip in 7 geographic areas where there is Automated Meter Reading (AMR) or other Critical Infrastructure Industry Telemetry (CII Telemetry) users. These areas, defined by counties, are listed below.

	COUNTIES
Pittsburgh, PA	Allegheny, Beaver, Butler, Washington, Westmoreland
Washington, DC	Arlington, Fairfax, Loudoun, Prince William, Montgomery, Charles, Prince George's, and Fauquier counties; cities of Alexandria, Fairfax, Falls Church, Manassas, Manassas Park and the District of Columbia
Richmond - Norfolk, VA	Chesterfield, Goochland, Hanover, Henrico, Powhatan, Charles City, Dinwiddie, Isle of Wight, James City, New Kent, Prince George, Southhampton, Surrey, Sussex, and York counties; cities of Richmond, Norfolk, Newport News, Hampton, Virginia Beach, Chesapeake, Portsmouth, Suffolk, Colonial Heights, Franklin, Hopewell, Petersburg, Poquoson, and Williamsburg
Austin - Georgetown, TX	Williamson and Travis
Battle Creek, MI	Calhoun
Detroit, MI	Oakland, Wayne, Washtenaw, Macomb, Livingston
Spokane, WA	Spokane, WA and Kootenai, ID

The WMTS Frequency Coordination Database will let you know if your hospital lies within one of the 7 "carve-out" areas. If your hospital is within one of the 7 areas, you will still have WMTS frequencies to select. However, those frequencies will be different from the frequencies used in other areas of the United States. See below for a detailed depiction of the 1427 – 1432 MHz band plan. As you can see from Figure 6, non-WMTS telemetry devices (licensed under Part 90 of the FCC rules) can share the same spectrum as WMTS, but they will be operating on a secondary basis. Secondary devices must not interfere with primary devices and must accept interference.

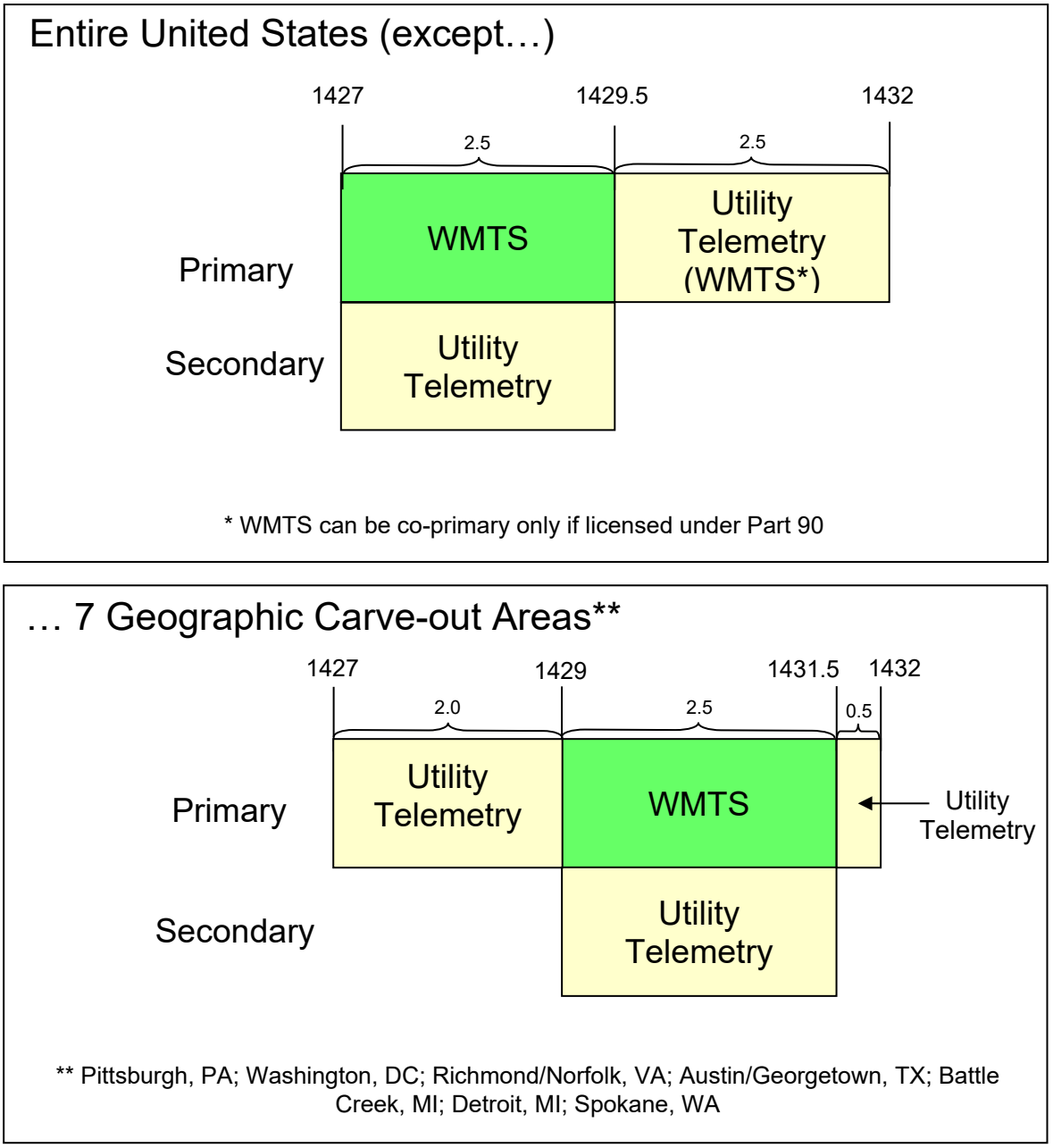

Figure 6: 1427 – 1432 MHz Band Plan

Final Steps

Once you are satisfied with the frequencies you've selected, the next steps are to commit the frequencies to the database, pay the coordination fees, generate the coordination certificate, and update your Installation Date. The coordination certificate contains all the specific information for the deployment, including the specific deployment data and the frequencies selected. The certificate confirms that you have used the WMTS Frequency Coordination Database to select frequencies for the deployment, and that those frequencies have been entered into the database. Please note that the FCC requires you to have the coordination certificate before you activate the system.

Frequently Asked Questions

Who can use the system?
Authorized healthcare providers or equipment vendors can access the database and enter new medical telemetry systems, view their own deployments or modify existing ones.

Who is an authorized healthcare provider?
The FCC has defined an authorized healthcare provider as "A physician or other individual authorized under state or federal law to provide health care services, or any other health care facility operated by or employing individuals authorized under state or federal law to provide health care services, or any trained technician operating under the supervision and control of an individual or health care facility authorized under state or federal law to provide health care services."

What is a healthcare facility?
The FCC has defined a healthcare facility as "…hospitals and other establishments that offer services, facilities and beds for use beyond a 24 hour period in rendering medical treatment, and institutions and organizations regularly engaged in providing medical services through clinics, public health facilities, and similar establishments, including government entities and agencies such as Veterans Administration hospitals; except the term health care facility does not include an ambulance or other moving vehicle."

What constitutes a deployment?
A deployment is defined as a single manufacturer's telemetry system within the healthcare facility. Therefore, a hospital may have multiple deployments that are entered as separate records in the database if they have multiple equipment vendors. The number of medical telemetry transmitters determines the size of a deployment.

6. Pricing Summary

The following prices have been established for WMTS frequency coordination services. Please note that these prices are subject to change without notice.

Effective March 15, 2022:

- Account setup: $300
- 608-614 MHz WMTS Frequency Coordination: $25 per transmitter/access point[1]
- 1395-1400 MHz WMTS Frequency Coordination: $25 per transmitter/access point[2]
- 1427-1432 MHz WMTS Frequency Coordination: $35 per transmitter/access point[3]
- Coordination with Radio Astronomy: $750 per deployment

1 Minimum $600; Maximum $2000 per deployment
2 Minimum $600; Maximum $2000 per deployment
3 Minimum $600; Maximum $2800 per deployment

7. WMTS Deployment Form

On the following pages, we have provided a WMTS Deployment Form that contains the information required for entering a deployment into the database. Please contact your vendor if you are uncertain of any field on the form. We have also included definitions for each deployment field.

WMTS Deployment Form

(www.wmtssearch.com)

a. Facility / Hospital Name: _____

b. Street Address 1: _____

c. Street Address 2 (optional): _____

d. City: _____

e. State: _____

f. ZIP Code: _____

g. County: _____

h. Clinical Unit(s): _____

i. Deployment Type: ☐ Permanent ☐ Trial

j. Latitude (NAD83): _____° _____′ _____″

k. Longitude (NAD83): _____° _____′ _____″

l. Radius of Deployment (m): _____ [Note: Min=50 / Max=1000]

m. Highest Floor W/ Transmitter: _____

n. Height of Deployment (optional) (m): _____

o. Number of Transmitters: _____

p. Number of Access Points: _____

q. Equipment Manufacturer: _____

r. Equipment Model: _____

s. Frequency Range (MHz): (select all that apply)

- ☐ 608.0 – 609.5
- ☐ 609.5 – 611.0
- ☐ 611.0 – 612.5
- ☐ 612.5 – 614.0
- ☐ 1400.0 –1395.0
- ☐ 1427.0 – 1429.0
- ☐ 1429.0 – 1429.5
- ☐ 1429.5 – 1431.5
- ☐ 1431.5– 1432.0

WMTS Deployment Form Definitions

(www.wmtssearch.com)

a. Facility / Hospital Name

The Facility / Hospital Name is the unique name for the facility where your WMTS deployment will be installed.

b. – g. Location of the facility

h. Clinical Unit

The Clinical Unit is a brief descriptive name for the deployment site (Ward name, Floor #, Building name, e.g.)

i. Deployment Type

Your deployment type is "Trial" if the proposed WMTS deployment is a temporary or test system that will only be in the facility for a short time, i.e. less than three months. The Trial deployments must be removed or converted to Permanent at the end of this time period. Your deployment type is "Permanent" if the proposed WMTS deployment is a permanent system that will be installed in the hospital and remain there for more than three months.

j. Latitude (NAD83)

The latitude coordinate is specified using the center point of the WMTS deployment, in NAD83 DMS (Degrees, Minutes, Seconds, Hemisphere). The hemisphere is "North" for all deployments in the United States.

k. Longitude (NAD83)

The longitude coordinate is specified using the center point of the WMTS deployment, in NAD83 DMS (Degrees, Minutes, Seconds, Hemisphere). The hemisphere is "West" for all deployments in the United States.

l. Radius of Deployment (m)

The Radius of Deployment (in meters) is the maximum radius of the WMTS deployment around the specified Latitude and Longitude.

m. Highest Floor with Transmitter

The Highest Floor with Transmitter is the highest floor in the facility that the WMTS deployment will be operating on. If the highest floor is below ground (basement, e.g.), then the Highest Floor with Transmitter should be zero.

n. Height of Deployment (m)

The Height of Deployment (in meters) is the maximum height of the WMTS deployment (corresponds to the highest floor, thus it is optional).

o. Number of Transmitters

The Number of Transmitters is the total number of WMTS transmitter devices in the deployment.

WMTS Deployment Form Definitions

(www.wmtssearch.com)

p. Number of Access Points

The Number of Access Points is the total number of WMTS fixed access points in the deployment.

q. Equipment Manufacturer

Your Equipment Manufacturer is the name of the company producing the WMTS transmitter.

r. Equipment Model

Your Equipment Model is the model name of the WMTS transmitter.

s. Frequency Range (MHz)

The Frequency Range (in MHz) is the operational range of frequencies that the WMTS equipment is using to transmit (or receive).

8. Radio Astronomy

The following table contains the location and protected radius of the co-channel radio astronomy sites.

Radio Astronomy Sites (608 – 614 MHz)			
Sites (13 total)	**Latitude** (D-M-S: North)	**Longitude** (D-M-S: West)	**Radius** (km)
Arecibo, PR	18-20-38	66-45-09	80
Socorro, NM	34-04-43	107-37-04	80
Green Bank, WV	38-25-59	79-50-23	80
Pie Town, NM	34-18-00	108-07-00	32
Kitt Peak, AZ	31-57-00	111-37-00	32
Los Alamos, NM	35-47-00	106-15-00	32
Fort Davis, TX	30-38-00	103-57-00	32
North Liberty, IA	41-46-00	91-34-00	32
Brewster, WA	48-08-00	119-41-00	32
Owens Valley, CA	37-14-00	118-17-00	32
Saint Croix, VI	17-46-00	64-35-00	32
Mauna Kea, HI	19-49-00	155-28-00	32
Hancock, NH	42-56-00	71-59-00	32

9. Contact Us

For questions or information regarding the WMTS registration process and the Frequency Coordination Database, contact:

ASHE
Jonathan Flannery
312-422-3825
jflannery@aha.org

COMSEARCH
Joanna Lynch
703-726-5711
jlynch@comsearch.com