

WMTS

User Information Guide



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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.

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

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



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.

WMTS Registration

In order to access the WMTS Frequency Coordination Database, you must first contact ASHE to establish an account either by phone (312-422-3805) or through the online registration form at www.ashe.org/currentevent/wmts/online/registration.html. You must 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 their account (please see the Pricing Summary section). Once ASHE receives the registration information and processes the payment, they will set up an account to use the WMTS Frequency Coordination Database. ASHE will contact you with the appropriate account information including login and password.

Equipment and Frequency Registration

After an account is established, the WMTS deployment must be entered into the WMTS Frequency Coordination Database. You can access the database from ASHE's website or through www.wmtsssearch.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 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. 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.

WMTS Frequency Coordination Database

If you have registered your facility with ASHE and have received your login and password, you can access the WMTS Frequency Coordination Database and enter medical telemetry deployments. Please enter the URL below to access the WMTS Frequency Coordination Database:

www.wmtssearch.com

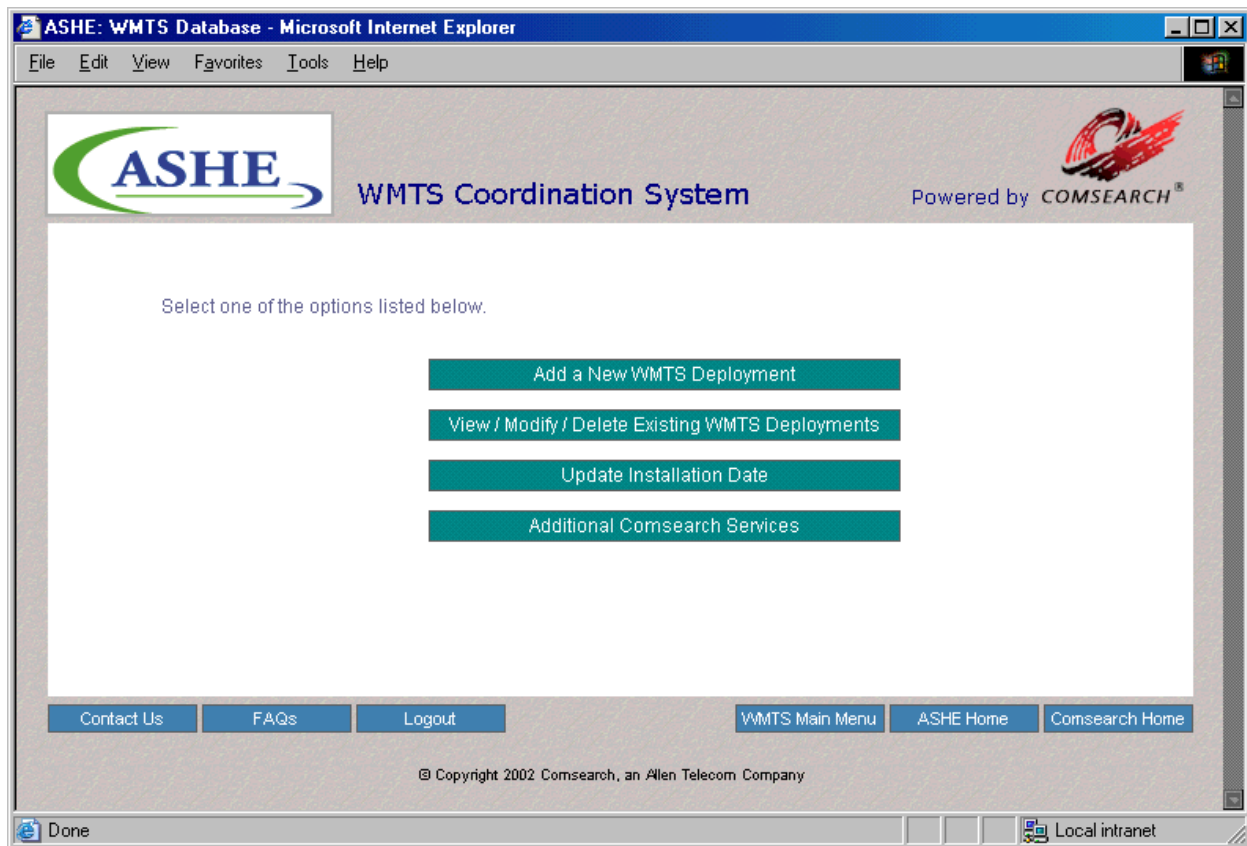


Figure 3: Main Menu in the WMTS Frequency Coordination Database

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. Then, 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 perform separate coordinations. 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 are not conflicted. 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 are 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. You may also look at the end of the user guide for a list of hospitals that could be affected by the carve-out situation¹. 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.

¹ Comsearch believes the underlying data to be accurate; however, Comsearch assumes no liability for inaccuracies in the data. Please use county location as the final determining factor on whether your hospital is affected.

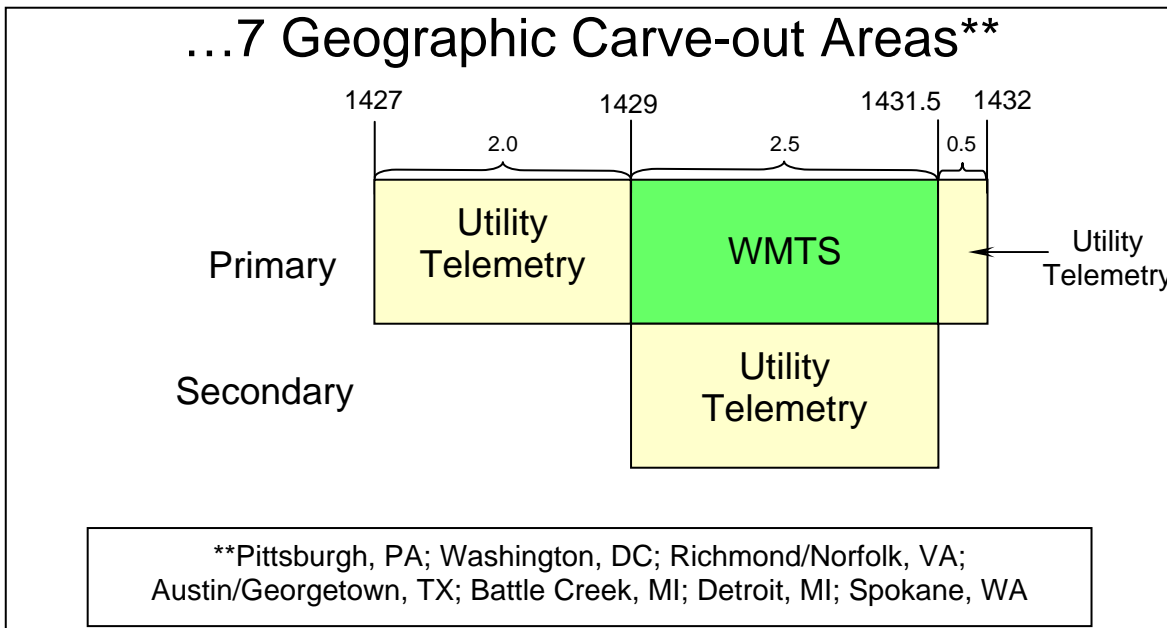
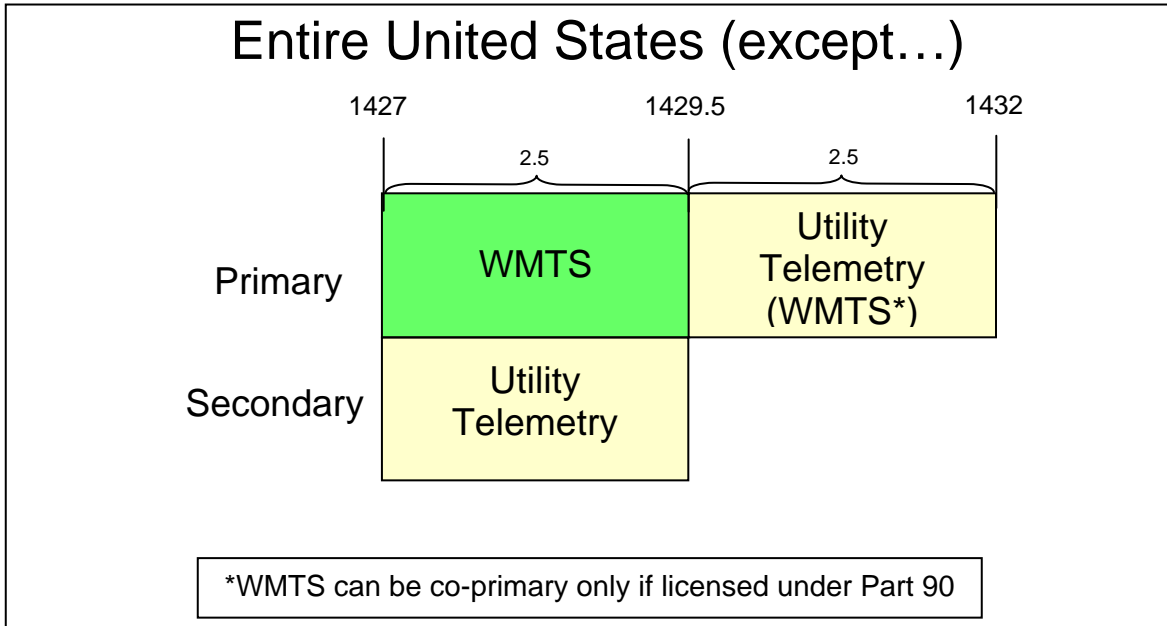


Figure 6: 1427 – 1432 MHz Band Plan

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, and generate the coordination certificate. 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.

Pricing Summary

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

Paid to ASHE:

- Account setup: \$200 (as of December 1, 2006)

Paid to Comsearch:

- 608-614 MHz WMTS Frequency Coordination: \$20 per transmitter/access point²
- 1395-1400 MHz WMTS Frequency Coordination: \$20 per transmitter/access point²
- 1427-1432 MHz WMTS Frequency Coordination: \$30 per transmitter/access point³
- Coordination with Radio Astronomy: \$500 per deployment

ASHE's remittance address:

American Society for Healthcare Engineering
One North Franklin, 28th Floor
Chicago, IL 60606

Comsearch's remittance address:

Comsearch
19700 Janelia Farm Blvd.
Ashburn, VA 20147

² Minimum \$250; Maximum \$1500 per deployment

³ Minimum \$300; Maximum \$2000 per deployment



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 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.

WMTS Deployment Form Definitions

(www.wmtssearch.com)

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.

p. Number of Access Points

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

q. ERP (mW)

The ERP is the Effective Radiated Power (in milliwatts). This is a power figure that consists of the WMTS equipment transmitter power plus the maximum antenna gain. To convert from dBm to mW, use the following equation:

$$10 \log (\text{ERP in mW}) = \text{ERP in dBm}$$

Thus 0 dBm = 1 mW and 6.9897 dBm = 5 mW.

r. Equipment Manufacturer

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

s. Equipment Model

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

t. Frequency Range (MHz)

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

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

Hospitals Affected by Carve-out Areas

Hospital Name	City	ST
CHILDREN'S NATIONAL MED CENTER	WASHINGTON	DC
COLUMBIA HOSPITAL FOR WOMEN	WASHINGTON	DC
DISTRICT OF COLUMBIA GEN HOSP	WASHINGTON	DC
GEORGE WASHINGTON UNIV HOSP	WASHINGTON	DC
GEORGETOWN UNIVERSITY HOSPITAL	WASHINGTON	DC
GREATER SOUTHEAST COMM HOSPITAL	WASHINGTON	DC
HADLEY MEMORIAL HOSPITAL	WASHINGTON	DC
HOSPITAL FOR SICK CHILDREN	WASHINGTON	DC
HOWARD UNIVERSITY HOSPITAL	WASHINGTON	DC
MEDLINK HOSPITAL	WASHINGTON	DC
NATIONAL REHABILITATION HOSPITAL	WASHINGTON	DC
PROVIDENCE HOSPITAL	WASHINGTON	DC
PSYCHIATRIC INST OF WASHINGTON	WASHINGTON	DC
SIBLEY MEMORIAL HOSPITAL	WASHINGTON	DC
ST ELIZABETHS HOSPITAL	WASHINGTON	DC
VETERANS AFFAIRS MED CENTER	WASHINGTON	DC
WALTER REED ARMY MED CENTER	WASHINGTON	DC
WASHINGTON HOSPITAL CENTER	WASHINGTON	DC
INLAND BEHAVIORAL HEALTH INST	COEUR D'ALENE	ID
KOOTENAI MEDICAL CENTER	COEUR D'ALENE	ID
MALCOLM GROW MEDICAL CENTER	ANDREWS AFB	MD
NATIONAL NAVAL MEDICAL CENTER	BETHESDA	MD
SUBURBAN HOSPITAL	BETHESDA	MD
WARREN G MAGNUSON CLIN CTR	BETHESDA	MD
Gladys Spellman Specialty Hospital and Nursing Center	CHEVERLY	MD
PRINCE GEORGE'S HOSPITAL CENTRR	CHEVERLY	MD
SOUTHERN MARYLAND HOSPITAL	CLINTON	MD
FORT WASHINGTON HOSPITAL	FORT WASHINGTON	MD
CIVISTA MEDICAL CENTER	LA PLATA	MD
DOCTORS COMMUNITY HOSPITAL	LANHAM	MD
LAUREL REGIONAL HOSPITAL	LAUREL	MD
MONTGOMERY GENERAL HOSPITAL	OLNEY	MD
CHESTNUT LODGE HOSPITAL	ROCKVILLE	MD
POTOMAC RIDGE BEHAVIORAL HEALTH SYSTEM	ROCKVILLE	MD
SHADY GROVE ADVENTIST HOSPITAL	ROCKVILLE	MD
Eastern Neuro Rehabilitation Hospital	SILVER SPRING	MD
HOLY CROSS HOSPITAL	SILVER SPRING	MD
SAINT LUKE INSTITUTE	SILVER SPRING	MD

Hospital Name	City	ST
WASHINGTON ADVENTIST HOSPITAL	TAKOMA PARK	MD
TRILLIUM HOSPITAL	ALBION	MI
ST JOSEPH MERCY HEALTH SYSTEM	ANN ARBOR	MI
UNIV OF MICHIGAN HOSPITALS	ANN ARBOR	MI
VETERANS AFFAIRS MED CENTER	ANN ARBOR	MI
HAVENWYCK HOSPITAL	AUBURN HILLS	MI
BATTLE CREEK ADVENTIST HOSP	BATTLE CREEK	MI
BATTLE CREEK HEALTH SYSTEM	BATTLE CREEK	MI
SOUTHWESTERN MICH REHAB HOSP	BATTLE CREEK	MI
VETERANS AFFAIRS MED CENTER	BATTLE CREEK	MI
BRIGHTON HOSPITAL	BRIGHTON	MI
CHELSEA COMMUNITY HOSPITAL	CHELSEA	MI
ST JOSEPH'S MERCY HOSPS & HLTH	CLINTON TOWNSHIP	MI
HURON VALLEY-SINAI HOSPITAL	COMMERCE TOWNSHIP	MI
OAKWOOD HOSP & MED CENTER	DEARBORN	MI
AURORA HOSPITAL FOR CHILDREN	DETROIT	MI
CHILDREN'S HOSP OF MICHIGAN	DETROIT	MI
DETROIT PSYCHIATRIC INSTITUTE	DETROIT	MI
DETROIT RECEIVING HOSPITAL	DETROIT	MI
HARPER HOSPITAL	DETROIT	MI
HENRY FORD HOSPITAL	DETROIT	MI
HUTZEL HOSPITAL	DETROIT	MI
JOHN D DINGELL VA MEDICAL CENTER	DETROIT	MI
MERCY HOSPITAL	DETROIT	MI
MICHIGAN HOSP & MEDICAL CENTER	DETROIT	MI
NEW CENTER HOSPITAL	DETROIT	MI
REHABILITATION INST OF MICH	DETROIT	MI
SINAI HOSPITAL	DETROIT	MI
SINAI/GRACE HOSPITAL	DETROIT	MI
ST JOHN DETROIT RIVERVIEW HOSPITAL	DETROIT	MI
ST JOHN HLTH SYSTEM-SARATOGA	DETROIT	MI
ST JOHN HOSPITAL & MEDICAL CTR	DETROIT	MI
ST JOHN NORTHEAST COMM HOS	DETROIT	MI
BOTSFORD GENERAL HOSPITAL	FARMINGTON HILLS	MI
KINGSWOOD HOSPITAL	FERNDALE	MI
GARDEN CITY HOSPITAL	GARDEN CITY	MI
BON SECOURS COTTAGE HEALTH SYSTEM	GROSSE POINTE	MI
BON SECOURS COTTAGE HLTH SERVICES	GROSSE POINTE FARMS	MI
ST JOHN HOSPITAL-MACOMB CENTER	HARRISON TOWNSHIP	MI
MCPHERSON HOSPITAL	HOWELL	MI
OAKWOOD HOSP DOWNRIVER CTR	LINCOLN PARK	MI
VENCOR HOSPITAL-DETROIT	LINCOLN PARK	MI

Hospital Name	City	ST
ST MARY MERCY HOSPITAL	LIVONIA	MI
MADISON COMMUNITY HOSPITAL	MADISON HEIGHTS	MI
ST JOHN OAKLAND HOSPITAL	MADISON HEIGHTS	MI
OAKLAWN HOSPITAL	MARSHALL	MI
MOUNT CLEMENS GENERAL HOSPITAL	MOUNT CLEMENS	MI
HARBOR OAKS HOSPITAL	NEW BALTIMORE	MI
HAWTHORN CENTER	NORTHVILLE	MI
NORTHVILLE PSYCHIATRIC HOSP	NORTHVILLE	MI
CLINTON VALLEY CENTER	PONTIAC	MI
NORTH OAKLAND MEDICAL CENTERS	PONTIAC	MI
PONTIAC OSTEOPATHIC HOSPITAL	PONTIAC	MI
ST JOSEPH MERCY OAKLAND	PONTIAC	MI
CRITTENTON HOSPITAL	ROCHESTER	MI
WILLIAM BEAUMONT HOSPITAL	ROYAL OAK	MI
SALINE COMMUNITY HOSPITAL	SALINE	MI
GREAT LAKES REHAB HOSPITAL	SOUTHFIELD	MI
PROVIDENCE HOSP & MED CTRS	SOUTHFIELD	MI
STRAITH HOSP FOR SPECIAL SURG	SOUTHFIELD	MI
OAKWOOD HOSPITAL-HERITAGE CTR	TAYLOR	MI
OAKWOOD HOSPITAL SEAWAY CENTER	TRENTON	MI
RIVERSIDE OSTEOPATHIC HOSPITAL	TRENTON	MI
WILLIAM BEAUMONT HOSPITAL-TROY	TROY	MI
ARBORVIEW HOSPITAL	WARREN	MI
BI-COUNTY COMMUNITY HOSPITAL	WARREN	MI
KERN HOSPITAL	WARREN	MI
MACOMB HOSPITAL CENTER	WARREN	MI
OAKWOOD ANNAPOLIS HOSPITAL	WAYNE	MI
WALTER P REUTHER PSYCH HOSP	WESTLAND	MI
HENRY FORD WYANDOTTE HOSPITAL	WYANDOTTE	MI
FOREST HEALTH MEDICAL CENT	YPSILANTI	MI
UNIV OF PITTSBURGH MED CENTER - BEAVER VALLEY	ALIQIPPA	PA
THE MEDICAL CENTER	BEAVER	PA
UNIV OF PITTSBURGH MED CENTER - BRADDOCK	BRADDOCK	PA
MAYVIEW STATE HOSPITAL	BRIDGEVILLE	PA
BUTLER HEALTH SYSTEM	BUTLER	PA
Veterans Affairs Medical Center	BUTLER	PA
CANONSBURG GENERAL HOSPITAL	CANONSBURG	PA
LAKEWOOD PSYCHIATRIC HOSPITAL	CANONSBURG	PA
WESTMORELAND REGIONAL HOSPITAL	GREENSBURG	PA
JEANNETTE DISTRICT MEM HOSP	JEANNETTE	PA
MONSOUR MEDICAL CENTER	JEANNETTE	PA
LATROBE AREA HOSPITAL	LATROBE	PA

Hospital Name	City	ST
OHIO VALLEY GENERAL HOSPITAL	MCKEES ROCKS	PA
UNIV OF PITTSBURGH MED CENTER - MCKEESPORT	MCKEESPORT	PA
MONONGAHELA VALLEY HOSPITAL	MONONGAHELA	PA
FORBES REGIONAL HOSPITAL	MONROEVILLE	PA
HEALTHSOUTH GRTR PITTS REHAB	MONROEVILLE	PA
FRICK HOSP & COMM HLTH CENTER	MOUNT PLEASANT	PA
ALLEGHENY VALLEY HOSPITAL	NATRONA HEIGHTS	PA
CITIZENS GENERAL HOSPITAL	NEW KENSINGTON	PA
KINDRED HOSPITAL-PITTSBURGH	OAKDALE	PA
ALLEGHENY GENERAL HOSPITAL	PITTSBURGH	PA
CHILDREN'S HOME OF PITTSBURGH	PITTSBURGH	PA
CHILDREN'S HOSP OF PITTSBURGH	PITTSBURGH	PA
FORBES METROPOLITAN HOSPITAL	PITTSBURGH	PA
HEALTHSOUTH HARMARVILLE HOSP	PITTSBURGH	PA
MAGEE-WOMENS HOSPITAL	PITTSBURGH	PA
MERCY HOSPITAL OF PITTSBURGH	PITTSBURGH	PA
MERCY PROVIDENCE HOSPITAL	PITTSBURGH	PA
PODIATRY HOSP OF PITTSBURGH	PITTSBURGH	PA
REHAB INSTITUTE OF PITTSBURGH	PITTSBURGH	PA
SOUTH HILLS HEALTH SYSTEM	PITTSBURGH	PA
SOUTHWOOD PSYCHIATRIC HOSPITAL	PITTSBURGH	PA
ST CLAIR MEMORIAL HOSPITAL	PITTSBURGH	PA
ST FRANCIS CENTRAL HOSPITAL	PITTSBURGH	PA
ST FRANCIS MEDICAL CENTER	PITTSBURGH	PA
STATE CORRECTIONAL INST HOSP	PITTSBURGH	PA
SUBURBAN GENERAL HOSPITAL	PITTSBURGH	PA
UNIV OF PITTSBURGH MED CENTER - PASSAVANT	PITTSBURGH	PA
UNIV OF PITTSBURGH MED CENTER - PRESBYTERIAN	PITTSBURGH	PA
UNIV OF PITTSBURGH MED CENTER - SHADYSIDE	PITTSBURGH	PA
UNIV OF PITTSBURGH MED CENTER - SOUTH SIDE	PITTSBURGH	PA
UNIV OF PITTSBURGH MED CENTER - ST MARGARET	PITTSBURGH	PA
UNIV OF PITTSBURGH MED CENTER - WESTERN PSYCHIATRIC	PITTSBURGH	PA
Veterans Affairs Pittsburgh Healthcare System	PITTSBURGH	PA
WESTERN PENNSYLVANIA HOSPITAL	PITTSBURGH	PA
D T WATSON REHAB HOSPITAL	SEWICKLEY	PA
SEWICKLEY VALLEY HOSPITAL	SEWICKLEY	PA
TORRANCE STATE HOSPITAL	TORRANCE	PA
WASHINGTON HOSPITAL	WASHINGTON	PA
AUSTIN STATE HOSPITAL	AUSTIN	TX
Austin Surgical Hospital	AUSTIN	TX
BHC SHOAL CREEK HOSPITAL	AUSTIN	TX
BRACKENRIDGE HOSPITAL	AUSTIN	TX

Hospital Name	City	ST
Brown Schools Rehabilitation Center	AUSTIN	TX
CHARTER BEHAVIORAL HEALTH SYSTEM	AUSTIN	TX
CHRISTOPHER HOUSE	AUSTIN	TX
HEALTHSOUTH REHAB HOSPITAL	AUSTIN	TX
HEALTHSOUTH SURGICAL HOSPITAL	AUSTIN	TX
HEART HOSPITAL OF AUSTIN	AUSTIN	TX
North Austin Medical Center	AUSTIN	TX
OAKS PSYCHIATRIC HEALTH SYSTEM	AUSTIN	TX
SETON MEDICAL CENTER	AUSTIN	TX
South Austin Hospital	AUSTIN	TX
SPECIALTY HOSPITAL OF AUSTIN	AUSTIN	TX
ST DAVID'S MEDICAL CENTER	AUSTIN	TX
ST DAVID'S PAVILION	AUSTIN	TX
ST DAVID'S REHAB CENTER	AUSTIN	TX
SUMMIT HOSPITAL OF CENTRAL	AUSTIN	TX
Georgetown Healthcare System	GEORGETOWN	TX
MERIDELL ACHIEVEMENT CENTER	LIBERTY HILL	TX
Round Rock Medical Center	ROUND ROCK	TX
JOHNS COMMUNITY HOSPITAL	TAYLOR	TX
INOVA ALEXANDRIA HOSPITAL	ALEXANDRIA	VA
INOVA MOUNT VERNON HOSPITAL	ALEXANDRIA	VA
ARLINGTON HOSPITAL	ARLINGTON	VA
HOSPICE OF NORTHERN VIRGINIA	ARLINGTON	VA
NATIONAL HOSPITAL MEDICAL CTR	ARLINGTON	VA
NORTHERN VIRGINIA COMMUNITY HOSPITAL	ARLINGTON	VA
CHESAPEAKE GENERAL HOSPITAL	CHESAPEAKE	VA
INOVA FAIR OAKS HOSPITAL	FAIRFAX	VA
DOMINION HOSPITAL	FALLS CHURCH	VA
INOVA FAIRFAX HOSPITAL	FALLS CHURCH	VA
NO VIRGINIA MENTAL HEALTH INST	FALLS CHURCH	VA
DEWITT ARMY COMMUNITY HOSPITAL	FORT BELVOIR	VA
SOUTHAMPTON MEMORIAL HOSPITAL	FRANKLIN	VA
PENINSULA BEHAVIORAL CENTER	HAMPTON	VA
SENTARA HAMPTON GEN HOSPITAL	HAMPTON	VA
U S AIR FORCE HOSPITAL	HAMPTON	VA
VETERANS AFFAIRS MED CENTER	HAMPTON	VA
JOHN RANDOLPH MEDICAL CENTER	HOPEWELL	VA
CHARTER BEHAVIORAL HEALTH SYST	LEESBURG	VA
GRAYDON MANOR	LEESBURG	VA
LOUDOUN HOSPITAL CENTER	LEESBURG	VA
PIEDMONT BEHAVIORAL HEALTH CENTER	LEESBURG	VA
PRINCE WILLIAM HOSPITAL	MANASSAS	VA

Hospital Name	City	ST
MEMORIAL REGIONAL MEDICAL	MECHANICSVILLE	VA
SHELTERING ARMS REHAB HOSP	MECHANICSVILLE	VA
CUMBERLAND HOSP FOR CHILDREN	NEW KENT	VA
COLONIAL HOSPITAL	NEWPORT NEWS	VA
MARY IMMACULATE HOSPITAL	NEWPORT NEWS	VA
MCDONALD ARMY COMMUNITY HOSP	NEWPORT NEWS	VA
NEWPORT NEWS GENERAL HOSPITAL	NEWPORT NEWS	VA
RIVERSIDE REGIONAL MED CENTER	NEWPORT NEWS	VA
RIVERSIDE REHAB INSTITUTE	NEWPORT NEWS	VA
BON SECOURS-DEPAUL MEDICAL CTR	NORFOLK	VA
CHILDREN'S HOSPITAL	NORFOLK	VA
LAKE TAYLOR HOSPITAL	NORFOLK	VA
NORFOLK COMMUNITY HOSPITAL	NORFOLK	VA
NORFOLK PSYCHIATRIC CENTER	NORFOLK	VA
SENTARA LEIGH HOSPITAL	NORFOLK	VA
SENTARA NORFOLK GEN HOSP	NORFOLK	VA
ST MARY'S HOME FOR CHILDREN	NORFOLK	VA
CENTRAL STATE HOSPITAL	PETERSBURG	VA
POPLAR SPRINGS HOSPITAL	PETERSBURG	VA
SOUTHSIDE REGIONAL MEDICAL CTR	PETERSBURG	VA
MARYVIEW MEDICAL CENTER	PORTSMOUTH	VA
NAVAL MEDICAL CENTER	PORTSMOUTH	VA
PORTSMOUTH GENERAL HOSPITAL	PORTSMOUTH	VA
RESTON HOSPITAL CENTER	RESTON	VA
BON SECOURS-RICHMOND COMM HOSP	RICHMOND	VA
BON SECOURS-STUART CIRCLE	RICHMOND	VA
CAPITOL MEDICAL CENTER	RICHMOND	VA
CHARTER WESTBROOK HLTH SYST	RICHMOND	VA
CHILDREN'S HOSPITAL	RICHMOND	VA
CHIPPENHAM MEDICAL CENTER	RICHMOND	VA
HEALTHSOUTH MEDICAL CENTER	RICHMOND	VA
HEALTHSOUTH REHAB HOSP OF VIRGINIA	RICHMOND	VA
HENRICO DOCTORS' HOSPITAL	RICHMOND	VA
HUNTER HOLMES MCGUIRE VA CNTR	RICHMOND	VA
MED COLLEGE OF VIRGINIA HOSPS	RICHMOND	VA
RETREAT HOSPITAL	RICHMOND	VA
RICHMOND EYE & EAR HOSPITAL	RICHMOND	VA
RICHMOND MEMORIAL HOSPITAL	RICHMOND	VA
ST MARY'S HOSPITAL	RICHMOND	VA
VALUEMARK BEHAVIORAL HEALTH	RICHMOND	VA
LOUISE OBICI MEMORIAL HOSPITAL	SUFFOLK	VA
SENTARA BAYSIDE HOSPITAL	VIRGINIA BEACH	VA



Hospital Name	City	ST
Sentara Virginia Beach General Hospital	VIRGINIA BEACH	VA
FAUQUIER HOSPITAL	WARRENTON	VA
EASTERN STATE HOSPITAL	WILLIAMSBURG	VA
WILLIAMSBURG COMM HOSPITAL	WILLIAMSBURG	VA
POTOMAC HOSPITAL	WOODBIDGE	VA
DEER PARK HLTH CTR AND HOSP	DEER PARK	WA
U S AIR FORCE HOSPITAL	FAIRCHILD AFB	WA
EASTERN STATE HOSPITAL	MEDICAL LAKE	WA
DEACONESS MEDICAL CTR-SPOKANE	SPOKANE	WA
HOLY FAMILY HOSPITAL	SPOKANE	WA
SACRED HEART MEDICAL CENTER	SPOKANE	WA
SHRINERS HOSPS FOR CHILDREN	SPOKANE	WA
ST LUKES REHAB INSTITUTE	SPOKANE	WA
VALLEY HOSPITAL AND MED CENTER	SPOKANE	WA
VETERANS AFFAIRS MED CENTER	SPOKANE	WA



Contact Us

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

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