614-902 MHz

1. Band Introduction

The 614-902 MHz band is divided into a number of sub-bands allocated exclusively to non-Federal users for the following radio services: aeronautical mobile, broadcasting, fixed, land mobile and mobile. Federal agency use of the band is subject to mutual agreement and coordination with non-Federal users. The Federal agencies use this band for land mobile communication systems that are shared with State and local public safety partnering agencies for mutual aid responses such as fire fighting, emergency response, and law enforcement operations. Radio astronomy research via observations of spectral lines is performed in this band by the National Science Foundation. Navy radar systems are also permitted to operate in the 890-902 MHz portion of the band on a non-interference basis.

2. Allocations

2a. Allocation Table

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

Geotab Exhibit 1117
Geotab v. Fractus
IPR2025-01027

Table of Frequency Allocations
United States Table

Federal Table	Non-Federal Table	FCC Rule Part(s)
614-902	614-698 BROADCASTING NG115 NG128 NG142 NG149	Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	698-763 FIXED MOBILE BROADCASTING NG115 NG128 NG142 NG159	Wireless Communications (27) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	763-775 FIXED MOBILE NG115 NG128 NG142 NG158 NG159	LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H) Private Land Mobile (90R)
	775-793 FIXED MOBILE BROADCASTING NG115 NG128 NG142 NG159	Wireless Communications (27) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	793-805 FIXED MOBILE NG115 NG128 NG142 NG158 NG159	LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H) Private Land Mobile (90R)
	805-806 FIXED MOBILE BROADCASTING NG115 NG128 NG142 NG159	Wireless Communications (27) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	806-809 LAND MOBILE	Private Land Mobile (90)
	809-849 FIXED LAND MOBILE	Public Mobile (22) Private Land Mobile (90)
	849-851 AERONAUTICAL MOBILE	Public Mobile (22)
	851-854 LAND MOBILE	Private Land Mobile (90)
	854-894 FIXED LAND MOBILE US116 US268	Public Mobile (22) Private Land Mobile (90)
	894-896 AERONAUTICAL MOBILE US116 US268	Public Mobile (22)
	896-901 FIXED LAND MOBILE US116 US268	Private Land Mobile (90)
US116 US268 G2	901-902 FIXED MOBILE US116 US268	Personal Communications (24)

2b. Additional Allocation Table Information

G2 In the bands 216-217 MHz, 220-225 MHz, 420-450 MHz (except as provided by US217 and G129), 890-902 MHz, 928-942 MHz, 1300-1390 MHz, 2310-2390 MHz, 2417-2450 MHz, 2700-2900 MHz, 3300-3500 MHz (except as provided by footnote US108), 5650-5925 MHz, and 9000-9200 MHz, the Federal radiolocation service is limited to the military services.

NG115 In the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz, and 614-806 MHz, wireless microphones and wireless assist video devices may be authorized on a non-interference basis, subject to the terms and conditions set forth in 47 CFR part 74, subpart H.

NG128 In the band 535-1705 kHz, AM broadcast licensees or permittees may use their AM carrier on a secondary basis to transmit signals intended for both broadcast and non-broadcast purposes. In the band 88-108 MHz, FM broadcast licensees or permittees are permitted to use subcarriers on a secondary basis to transmit signals intended for both broadcast and non-broadcast purposes. In the bands 54-72, 76-88, 174-16, 470-608 and 614-806 MHz, TV broadcast licensees or permittees are permitted to use subcarriers on a secondary basis for both broadcast and non-broadcast purposes.

NG142 TV broadcast stations authorized to operate in the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz, and 614-806 MHz may use a portion of the television vertical blanking interval for the transmission of telecommunications signals, on the condition that harmful interference will not be caused to the reception of primary services, and that such telecommunications services must accept any interference caused by primary services operating in these bands.

NG149 The bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-512 MHz, 512-608 MHz, and 614-698 MHz are also allocated to the fixed service to permit subscription television operations in accordance with 47 CFR part 73.

NG158 The bands 763-775 MHz and 793-805 MHz are available for assignment to the public safety services, as described in 47 CFR part 90.

NG159 Any full-power television licensee that holds a television broadcast license to operate between 698 and 806 megahertz (TV channels 52-69) shall be entitled to protection from harmful interference through February 17, 2009, and may not operate at that frequency after February 17, 2009. Auxiliary broadcast stations (i.e., low power TV stations, translator stations, booster stations, TV auxiliary (backup) facilities, and low power auxiliary stations) may continue to operate indefinitely in the band 698-806 MHz on a secondary basis to all other stations operating in that band.

US116 In the bands 890-902 MHz and 935-941 MHz, no new assignments are to be made to Federal radio stations after July 10, 1970, except on case-by-case basis, to experimental stations. Federal assignments existing prior to July 10, 1970, shall be on a secondary basis to stations in the non-Federal land mobile service and shall be subject to adjustment or removal from the bands 890-902 MHz, 928-932 MHz, and 935-941 MHz at the request of the FCC.

US268 The bands 890-902 MHz and 928-942 MHz are also allocated to the radiolocation service for Federal ship stations (off-shore ocean areas) on the condition that harmful interference is not caused to non-Federal land mobile stations. The provisions of footnote US116 apply.

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 in the Government Master File (GMF) by agency.

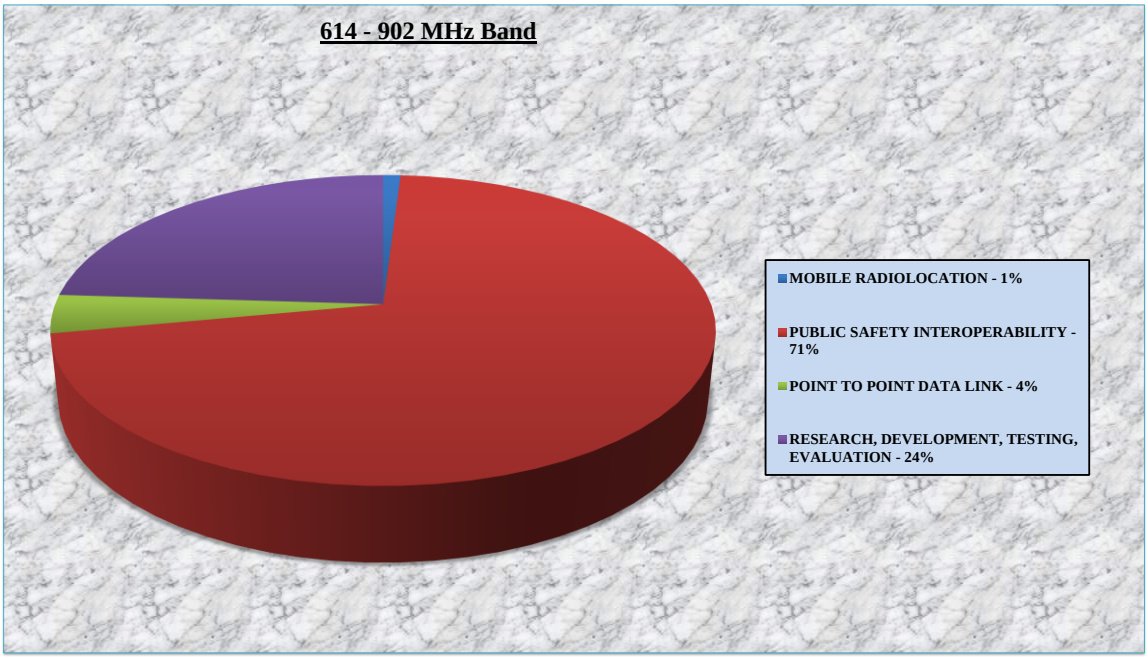
Federal Frequency Assignment Table

614-902 MHz Band					
NON-FEDERAL EXCLUSIVE BAND					
	AERONAUTICAL MOBILE BROADCASTING FIXED LAND MOBILE MOBILE				
AGENCY	PUBLIC SAFETY INTEROPERABILITY	POINT TO POINT OPERATIONS	MOBILE RADIOLOCATION	RESEARCH DEVELOPMENT TESTING EVALUATION	TOTAL
A	1				1
AF	14			107	121
AR		2			2
CG	1				1
DHS	50				50
DOC				22	22
DOE	82	8			90
DOJ	259				259
N	13		6	22	41
NASA	32	12			44
S	1				1
T	2				2
USCP	1				1
TOTAL	456	22	6	151	635

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 applications operating in the chart below for the frequency band 614-902 MHz.



4. Frequency Band Analysis By Application

4a. Public Safety Interoperability

The majority of the use of this band by Federal agencies is for public safety interoperability (primarily in the 800 MHz portion of this band)[1] with State and local partners (e.g., by the Departments of Homeland Security DHS, Justice, Energy), and is subject to coordination and cooperation (for example, through a Memorandum of Understanding) with State and local partners. Federal agencies help ensure the Nation's safety every day. They partner with State, local, and tribal public safety and law enforcement responders, stand ready to intervene in the case of extraordinary natural and man-made disasters, and fulfill unmet public safety needs in carrying out their primary

[1] Public safety radio systems (such as those used by police, firefighters and emergency medical technicians) operate in several portions of the 800 MHz band, which consists of spectrum at 806-824 MHz paired with spectrum at 851-869 MHz.

duties. Therefore, these operations occur geographically where their non-Federal partners are already operating.

There are a few agencies that have assignments for mutual aid purposes with State and local governments in the public safety 700 MHz band. The FCC has designated the 769-775 and 799-805 MHz bands for interoperable narrowband voice communications. Additionally, there is available 20 MHz of spectrum at 758-768 MHz and 788-798 MHz available for broadband communications licensed through Firstnet for the Public Safety Broadband Network.[2] Federal agencies will have access to this spectrum for data and video applications.

4b. Fixed Point-to-Point

Over one-third of the Federal assignments in this band are used by the Army for fixed point-to-point data applications. These assignments support range data measurement systems for training Department of Defense personnel. These systems have multiple fixed transmitters and receivers operating at various locations within the authorized area of operation.

4c. Radiolocation

The Navy operates a major long range two-dimensional air surveillance radar system in the 850-902 MHz band, which is installed on most medium to large naval ships. Operation in this band is important because this frequency range offers unique propagation characteristics that permit the detection of targets over water. Radar systems operating in other frequency bands are less effective over water because the sea surface reflects energy back to the radar receiver, causing errors in determination of speed and distance of the target. This radar is used at various naval installations in Southern California, Hawaii, and Puerto Rico to conduct training exercises in coastal waters.[3] Generally, the emissions from the radar are directed seaward to reduce interference to shore locations. During training exercises in littoral waters (typically conducted outside of 46 kilometers from the coast), radar systems may be used closer to coastal areas (i.e., launching and/or recovering aircraft). Based on past operational experience, a distance separation of 56 kilometers inland from coastal areas has been found to be sufficient for sharing with

[2] For more information on the Public Safety Broadband Network and Firstnet, See http://www.ntia.doc.gov/category/firstnet .

[3] Specific operational areas are identified in *FCC Wireless Telecommunications Bureau Announces Revised Pre-Auction Deadlines for the Auction of 528 Multilateration Location and Monitoring Service Licenses*,Public Notice, DA 98-239 released November 25, 1998.

other services.[4] The radar operates throughout the 850-928 MHz band in 3 MHz channels, with a peak output power of 300 kilowatts, pulse widths of 2 and 125 microseconds, pulse repetition frequencies of 285, 833, 1000 pulses per second, and a mainbean antenna gain of 28 dBi.

5. Planned Use

With the need for better coordination efforts between all levels of government, increased emphasis on homeland and border security protection, and a more effective and efficient response and recovery, Federal agency use of the 700/800 MHz band ─ in coordination and cooperation with State and local partners ─ is expected to continue for the foreseeable future.

The 700 MHz broadband portion of this band will present a unique opportunity for public safety agencies to deliver not only voice communications, but high-speed data such as video imagery. Federal agencies shoulder a number of public safety roles which will continue in a broadband environment. As State, local, and tribal systems adopt broadband capabilities, their Federal counterparts must be able to do the same. The goals of the public safety community can only be met through partnerships involving all levels of government. The public safety broadband spectrum at 700 MHz will enable public safety agencies to communicate high speed imagery and video on a nationwide network in which all levels of government interoperate.

The Navy requirements for shipborne air search and surveillance radar systems operating in this band are expected to continue for at least the next ten years. Further, the Army's use of this band for fixed point-to-point data links is expected to continue.

[4] *Id.*