

## 2360-2390 MHz

### 1. Introduction

The principal Federal operations in the 2360-2390 MHz band are for aeronautical mobile telemetry (AMT) systems used to support flight testing of aircraft, missiles, or major components thereof on a primary basis. Federal agencies also perform other telemetry activities in this band.

The Air Force uses this band to support video link operations from the land mobile robot to the human control station, thus dealing with unexploded ordnance safely for explosive ordnance disposal. The military and the Department of Justice operate fixed stations in this band for point-to-point data communications links.

### 2. Allocations

#### 2a. Allocations Table

The frequency allocations 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*

*United States Table*

Federal Table	Non-Federal Table	FCC Rule Part(s)
2360-2390 MOBILE US276 RADIOLOCATION G2 G120 Fixed	2360-2390 MOBILE US276	Aviation (87)

#### 2b. Additional Allocations Table Information

**US276** Except as otherwise provided for herein, use of the band 2360-2395 MHz by the mobile service is limited to aeronautical telemetering and associated telecommand operations for flight testing of aircraft, missiles or major components thereof. The following three frequencies are shared on a co-equal basis by Federal and non-Federal stations for telemetering and associated telecommand operations of expendable and reusable launch vehicles, whether or not such operations involve flight testing: 2364.5 MHz, 2370.5 MHz, and 2382.5 MHz. All other mobile telemetering uses shall not cause harmful interference to, or claim protection from interference from, the above uses.

**G2** In the bands 216.965-216.995 MHz, 420-450 MHz (except as provided for in 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 for in US108), 5650-5925 MHz,

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and 9000-9200 MHz, use of the Federal radiolocation service is restricted to the military services.

**G120** Development of airborne primary radars in the band 2360-2390 MHz with peak transmitter power in excess of 250 watts for use in the United States is not permitted.

### 3. Federal Agency Use

#### 3a. Federal Agency Frequency Assignments Table

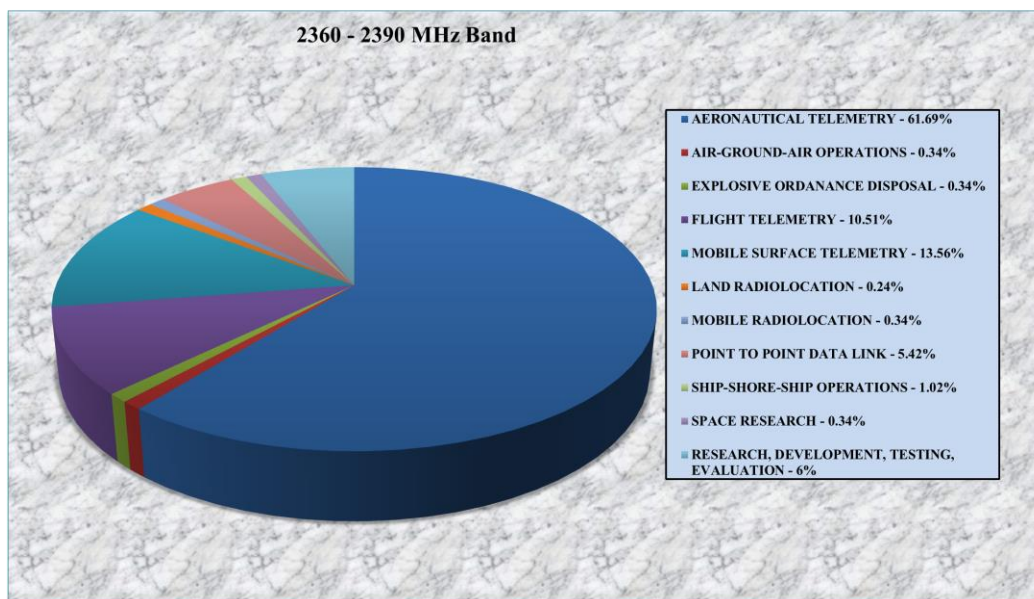
The following table identifies the frequency band, types of allocations, types of applications, and the number of frequency assignments by agency.

*Federal Frequency Assignment Table*

2360-2390 MHz Band												
SHARED BAND												
AGENCY	FIXED											
	MOBILE (except aeronautical mobile)											
	RADIOLOCATION											
	TYPE OF APPLICATION											
	AERONAUTICAL TELEMETRY	AIR-GROUND-AIR OPERATIONS	EXPLOSIVE ORDNANCE DISPOSAL	FLIGHT TELEMETRY	MOBILE SURFACE TELEMETRY	LAND RADIOLOCATION	MOBILE RADIOLOCATION	POINT TO POINT DATA LINK	SHIP-SHORE-SHIP OPERATIONS	SPACE RESEARCH	RESEARCH DEVELOPMENT TESTING EVALUATION	TOTAL
AF	81		1	4	3						14	103
AR	2	1		2				13			1	19
CG											2	2
DOE	9			4	37							50
DOJ								1				1
MC								2				2
N	90			7			1		3		1	102
NASA				14						1		15
NSF						1						1
TOTAL	182	1	1	31	40	1	1	16	3	1	18	295
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 various types of Federal systems operating in the 2360-2390 MHz band.



## 3. Frequency Band Analysis by Application

### 4a. Aeronautical Telemetry

The Air Force operates aeronautical mobile telemetry (AMT) systems in this band for the flight-testing of manned and unmanned aircraft, missiles, and space launch vehicles. The Air Force uses this band to support developmental and operational tests of military flight systems. The AMT systems are used to transfer real-time data to multiple receive locations while the flight system is either on the ground or during airborne testing.

The Navy uses this band for air-to-ground telemetry systems in support of missile/weapon testing and evaluation at test ranges. This band has a 30-MHz allocation bandwidth, thus allowing greater frequency availability for multiple range users.

The Department of Energy uses this band for reentry vehicle telemetry in support of the National Missile Defense Program, Integrated Flight Test series over the Pacific Ocean.

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The military services have established Area Frequency Coordinators that are responsible for coordination of all frequency use in the fixed and mobile services that are used to support research and development, except for the radiolocation service, with the Aerospace and Flight Test Radio Coordinating Council (AFTRCC) Coordinator. NTIA and the FCC recognize AFTRCC as the Frequency Coordinating Advisory Committee for non-Federal flight test telemetry station assignments in the 2360-2390 MHz band.

### **4b. Flight Telemetry**

The Air Force's GPS metric tracking system transmits telemetry from missiles flying over the Pacific Ocean to ground stations at Vandenberg Air Force Base, California. The Navy's missile telemetry system transmits video imagery of environmental data to ground station at Point Mugu, California.

The Department of Energy uses this band to provide telemetry support for various test programs at test ranges. The Department of Energy also uses this band in support of test activities performed by Sandia National Laboratory over the Pacific Ocean, to the west of the Kauai Test Facility in Hawaii.

The National Aeronautics and Space Administration (NASA) uses this band for occasional data and video telemetry links from sounding rocket vehicles. The NASA missions include multiple wideband telemetry links that cannot be accommodated in the lower band 2200-2290 MHz because of spectrum congestion. The assigned frequency will be used for ground checks prior to launch. Transmitters using the assigned frequency will be airborne once the rocket launches.

### **4c. Point-to-Point Data Link**

The Department of Justice operates fixed stations on a secondary basis in this band for video surveillance links. The video equipment is capable of being tuned to five discrete frequencies in this band to mitigate interference conflicts with other users of spectrum. Multiple frequencies in this band are used due to numerous operations going on at the same time by multiple units within the Federal Bureau of Investigation (FBI).

The military uses this band on a secondary basis for fixed point-to-point link to support training operations. The military coordinates operations of fixed link with the AFTRCC.

### **4d. Research, Development, Testing and Evaluation**

The Air Force uses this band to test the Pacific wind video system that is installed onboard any aircraft as an experimental system.

The Air Force plans to test airborne radar in the entire 2360-2390 MHz band for research and development purposes, using a center frequency of 2375 MHz, a necessary bandwidth of 30 MHz, and a peak power of 100 watts. The Air Force will not deploy the one-of-a-kind airborne radar as an operational system.

#### **4e. Mobile Surface Telemetry**

The Air Force operates a high speed test track that uses telemetry data transmission from rocket propelled sleds and groundside sources to a receiving ground station at Holloman Air Force Base, New Mexico.

#### **4f. Radiolocation**

The National Science Foundation (NSF) operates major planetary research radar at Arecibo, Puerto Rico. The NSF research contributes knowledge of the solar system for objects beyond distance of Moon by mapping the surface of Venus. The planetary research radar operates on the center frequency 2380 MHz with a 20-MHz necessary bandwidth. The AFTRCC coordination is not required because of the operating location outside the Continental USA (CONUS).

### **5. Planned Use**

The Federal Government use of this band is expected to remain the same for the foreseeable future.