328.6-335.4 MHz

1. Band Introduction

The band 328.6-335.4 MHz is used extensively for aeronautical radionavigation systems for the terminal instrument approach and landing of aircraft. The Federal Aviation Administration (FAA) and military operate the Instrument Landing System (ILS) Glideslope system in the band to provide aeronautical radionavigation to military, commercial, and general aviation private aircraft in the National Air Space (NAS). Such aeronautical radionavigation usage is critical to air safety. The ILS is a ground-based instrument approach system that provides precision guidance to an aircraft approaching and landing on a runway. The use of the band for aeronautical radionavigation follows international treaty obligations.

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

United States Table

Federal Table	Non-Federal Table	FCC Rule Part(s)
328.6-335.4 AERONAUTICAL RADIONAVIGATION 5.258		Aviation (87)

2b. Additional Allocation Table Information

5.258 The use of the band 328.6-335.4 MHz by the aeronautical radionavigation service is limited to Instrument Landing Systems (glide path).

3. Federal Agency Use

3a. Federal Agency Frequency Assignment Table

The following table identifies the frequency band, type(s) of allocations(s), types of application, and the number of frequency assignments by agency.

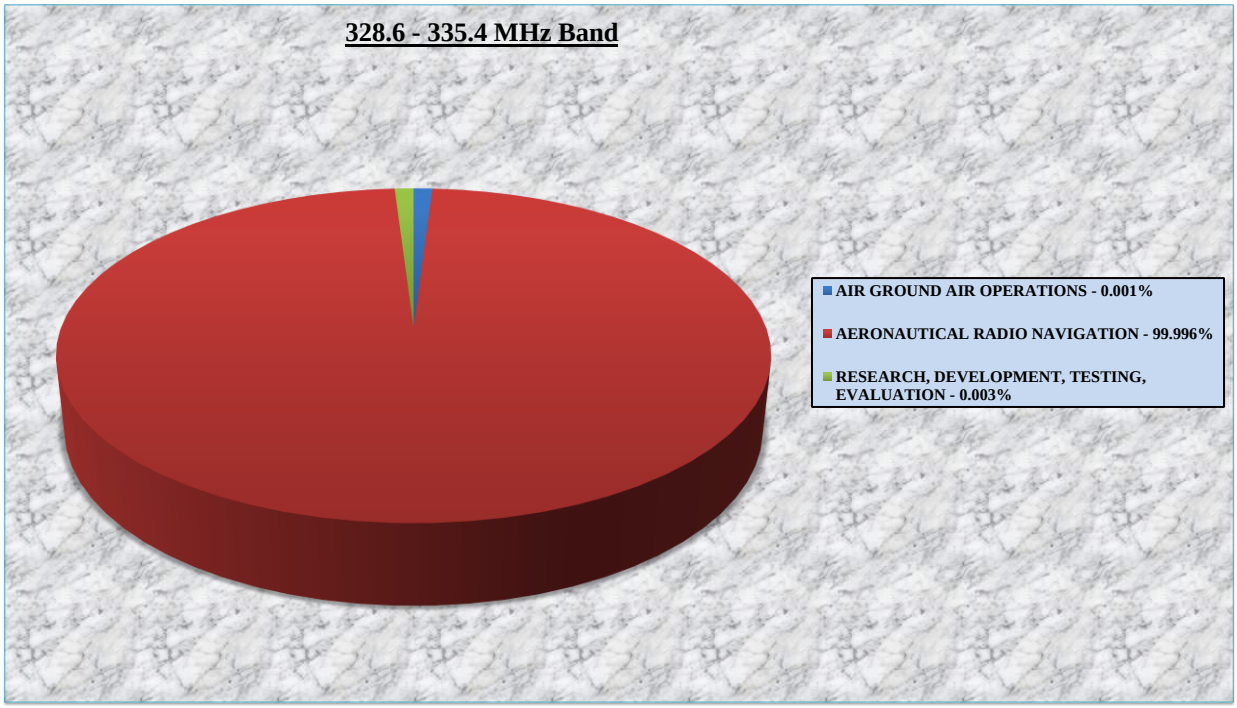
Federal Frequency Assignment Table

328.6-335.4 MHz Band					
SHARED BAND					
	AERONAUTICAL RADIONAVIGATION				
	TYPE OF APPLICATION				
AGENCY	AIR GROUND AIR OPERATIONS	AERONAUTICAL RADIONAVIGATION		RESEARCH DEVELOPMENT TESTING EVALUATION	TOTAL
AF	1	121			122
AR		12			12
CG		2			2
FAA		1162		3	1165
MC		3			3
N		16		1	17
NASA		1			1
TOTAL	1	1317		4	1322

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 authnorization. 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 328.6–335.4 MHz.



4. Frequency Band Analysis by Application

4a. Aeronautical Radionavigation

The FAA and military operate ILS Glideslope systems in the band 328.6-335.4 MHz to provide aeronautical radionavigation to military, commercial, and general aviation private aircraft in the National Air Space (NAS). The ILS provides aircraft with precision vertical and lateral navigation guidance information during approach and landing.

The ILS system consists of two independent sub-systems, one providing lateral guidance (localizer), the other vertical guidance (glide slope) to aircraft approaching a runway. The airborne localizer receiver and ground station transmitter operate in narrow channels across the 108.1-111.95 MHz frequency range, and the glide slope airborne equipment and ground station transmitter operate in narrow channels across the 329.15-335 MHz frequency range. Federal

regulations require that all air-carrier aircraft be equipped with ILS avionics. Furthermore, there is international agreement within the International Civil Aviation Organization (ICAO) establishing the ILS as a standard landing system, and the ILS is used extensively worldwide.[2]

The ILS systems are deployed in the airport areas, with each landing approach having its own system. A runway that can be used for landing from two directions would have two ILS systems. For example, the Dulles International Airport near Reston, VA has eight ILS systems operating in the immediate area.

4b. Other Uses

NASA uses this band to provide differential Global Positioning System (GPS) for mission support, and equipment calibration. The systems operate at Edwards AFB, CA; White Sands Space Harbor, NM; and at the Kennedy Space Center, FL.

5. Planned Use

The FAA and military will continue to operate and support ground-based ILS aeronautical radionavigation services, and it is expected that both the FAA and military will continue to procure and deploy new and replacement ILS equipment for the foreseeable future. Therefore, the planned Federal use of the band 328.6-335.4 MHz in the foreseeable future will essentially remain the same as the current usage.

[2] ICAO is a specialized treaty agency of the United Nations that develops among other things, international standards and procedures for aircraft radionavigation.