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MDS Orbit Series, using the LN700 module

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ORBIT LN7 and the “A Block” 700MHz spectrum

Introduction

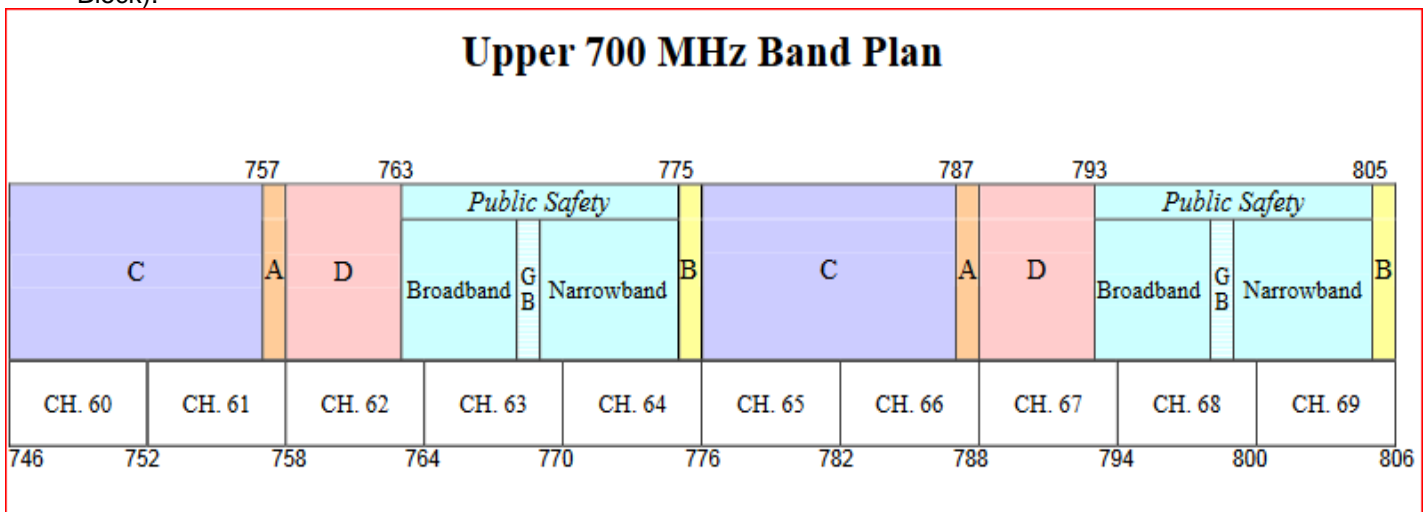
This document describes the FCC’s “A Block” spectrum allocation and the associated FCC rules.

Scope

GE MDS LLC provides the Orbit LN7 modular certified wireless transceiver for the 700MHz “A Block”. This module can be installed in the MDS Orbit MCR, ECR, and the MDS Orbit Master Station. The LN7 was created through a slight design change to the LN9 module; it has been passively tuned to operate in the 757-758 MHz and 787-788 MHz bands.

LN7 modem operation is identical to the LN9, offering QAM modulation and varying channel bandwidths of 6.25 KHz, 12.5 KHz & 25KHz. Specifically, the modem is capable of QPSK, 16QAM, or 64QAM modulation.

This module operates in the FCC’s, “A Block” spectrum only. The A Block is a paired, 1x1 MHz block of spectrum (757-758, 787-788 MHz) in the Upper 700 MHz band. The **A Block**, as shown below, is located between the C Block (Verizon Wireless) and FirstNet’s public safety broadband (which includes the D Block).



The "A Block" (once considered a guard band) is currently available in all 50 states in 52 MEAs (Major Economic Areas). It is subject to the same technical rules and interference protections that apply to Verizon Wireless's C Block. **No set channel spacing is required as long as the emission limits in part 27 are met for each respective 1MHz allocation.**

FCC licensing is required and coordinated with the FCC for interference purposes. *The 700MHz band can be treated much like how 900MHz SCADA licenses are handled, with the exception that the 700MHz band utilizes 2, 1MHz bands, separated by a 30MHz split.* <http://wireless.fcc.gov/uls/index.htm?job=home>

Licensees will still use the same emission designator classifications for licensing. http://wireless.fcc.gov/services/index.htm?job=licensing_2&id=industrial_business&page=1

Note that 700MHz offers superior propagation characteristics (building penetration and rural coverage) relative to 900MHz and higher frequency bands.

The A block is governed by FCC part 27 rules and provides ample bandwidth for many industrial applications. The rules permit a wide range of technologies and applications (voice, SCADA, telemetry, and other data applications) <http://www.ecfr.gov/cgi-bin/text-idx?node=pt47.2.27&rgn=div5>

The user of the radio equipment is responsible to meet all FCC criteria of their spectrum license, including proper use and installation.

LN700 FCC module grant for reference

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: E5MDS-LN700
Name of Grantee: GE MDS LLC
Equipment Class: Licensed Non-Broadcast Station Transmitter
Notes: Industrial Radio Module
Modular Type: Limited Single Modular

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
20 BB	27	757.0 - 758.0	12.0	0.1 PM	5K20D1D
20 BB	27	757.0 - 758.0	12.0	0.1 PM	10K3D1D
20 BB	27	757.0 - 758.0	12.0	0.1 PM	10K8D1D
20 BB	27	757.0 - 758.0	12.0	0.1 PM	17K1D1D
20 BB	27	757.0 - 758.0	12.0	0.1 PM	21K5D1D
20 BB	27	787.0 - 788.0	10.2	0.1 PM	5K18D1D
20 BB	27	787.0 - 788.0	10.2	0.1 PM	10K4D1D
20 BB	27	787.0 - 788.0	10.2	0.1 PM	10K7D1D
20 BB	27	787.0 - 788.0	10.2	0.1 PM	17K1D1D
20 BB	27	787.0 - 788.0	10.2	0.1 PM	21K5D1D

Output power listed is conducted. The antenna(s) used for this transmitter must be fixed-mounted on outdoor permanent structures. RF exposure compliance is addressed at the time of licensing, as required by the responsible FCC Bureau(s), including antenna co-location requirements of §1.1307 (b)(3). End-Users must be provided with transmitter operation conditions for satisfying RF exposure compliance. OEM integrators must insure that the end user has no manual instructions to remove or install this module. Under no conditions may an antenna gain be used that would exceed the ERP limits as specified in Part 27. The Grantee is responsible for providing the documentation required for modular use.

End of application bulletin.