

Exhibit 12. Transmitter Description -----47 CFR. 2.983-(d)-1,2,3,4,5

12.1. Transmitter Technical Characteristics -- Pursuant 47 CFR 2.983 (d)

This handheld trunked radio transceiver is of the receive first type, meaning it must first find, acquire and lock onto a control channel from a predefined set of control channel frequencies assigned to a compatible base station. Transmission is not possible until acquisition and lock has been achieved, then it is limited to transmission of service request bursts on the digitally modulated reverse control channel. Upon recognition of a proper request, the control channel base station transmitter will then assign the transceiver a traffic channel for transmission of digital voice, circuit-switched data, or packet-switched data from the set of frequencies for which the trunking system is licensed.

The technical capability of the transceiver exceeds FCC emissions requirements for the 806 - 821 MHz range for which companion base stations are authorized in the United States as it is expected that this handheld transceiver marketed in the United States will also be used for itinerant roaming operation outside the United States with companion base stations that may operate anywhere within the broader frequency range 806 - 825 MHz. It is also expected that this transceiver type will be marketed outside the United States and brought into the United States for itinerant "roaming" operation on compatible 806 - 821 MHz base stations located in the United States. Thus performance data is provided to substantiate FCC compliant operation with a companion base station over the broader international 806 to 825 MHz band expected in use of this handheld transceiver outside the United States.

In addition to controlling the assigned frequency to which the transceiver will be slaved, the compatible base station frequency serves as an accurate, stable reference for the transceiver local reference oscillator by virtue of a transceiver AFC function inherent in the acquisition and lock process.

The trunking system protocol uses a 90ms frame divided into six 15ms time slots. The base station allocates the number of 15ms time division multiplex (TDM) time slots in which the transceiver transmits, depending on the user requested transmission mode. These slot allocations are summarized in Table 12-1.

Table 12-1: TDM Time Slot Allocation

Transmission Service Mode	Time Slots Allocated per six slot frame
1.) Dispatch (push-to-talk)	1
2.) Telephone Interconnect	1 or 2 (base station preset)
3.) Circuit-Switched Data [*]	2
4.) Packet-Switched Data ^{*#}	1 to 6 in any particular frame (up to a maximum of 94 slots in 16 contiguous frames)

^{*} via a peripheral serial port at an input rate of 19,600 bps maximum for circuit-switched data and 115,200 bps maximum for packet-switched data.

[#] via an internal world wide web browser

The RF output power of the transceiver also is controlled by the base station receiver which senses the received signal strength and, via control channel commands, adjusts active transmitter output power in approximately 1dB steps over the range from rated power to approximately 35 dB cutback.

Table 12-2: RF Output Power per Radio Multiplex Factor

94/96 MULTIPLEXING	1/3 MULTIPLEXING	1/6 MULTIPLEXING	COMMENTS
0.20 to 600 milliwatt pulse mean power (variable under base station control)	0.20 to 600 milliwatt pulse mean power (variable under base station control)	0.20 to 600 milliwatt pulse mean power (variable under base station control)	During a 15 ms transmission slot. at the standard input test voltage of 5.4 volts DC

A. Frequency Range	<u>806 - 825 MHz</u> #
B. Frequency Stability	<u>≤ 1.9 PPM</u> # *
C. Emission Designator	<u>20K0D7W</u>
D. Spurious Emissions	<u>≤ -15 dBm nominal</u>
E. DC Voltage and Current into the final RF amplifier stage/stages at standard test voltage	<u>4.8 Volts DC</u> <u>250 mA mean current at 1/6 Multiplexing</u> <u>500 mA mean current at 1/3 Multiplexing</u> <u>1470mA mean current at 92/96 Multiplexing</u>

See Transmitter Technical Characteristics descriptive text in preceding paragraphs

* See Exhibit 6.6

12.2. Transmitter Application

The radio is characterized by the following features, options, and accessories.

A. Power Supply Available:

Two types of rechargeable secondary batteries are optionally available:

1. Nickel Metal Hydride (NiMH).
2. This radio contains a built in battery charger which charges an attached battery via an external AC line powered switched mode power supply. Additional battery chargers are available in which the radio may be operated:
 - a) Desk Top Charger, AC line powered
 - b) Vehicular Battery Charger
 - c) Soft Install Car Kit Vehicular Adapter

B. Antenna Available

Retractable antenna, 1/4 wave whip (extended), 1/4 wave helical (retracted)

C. Microphones Available

1. Internal
2. External via an optional Audio Connector

D. Data Cables Available

- | | |
|------------|--------------------------------------|
| 1. | RS232 Data Cable |
| 2. | Palm Pilot Cable with Connector |
| 3. | Generic PDA adapter |
| 4. | Desktop Stand with Data and Charging |
| Capability | |
| 5. | Enhanced "Y" Cable |
| 6. | MAC Interface Cable |
| 7. | iDEN Organizer |

E. Other Accessories Available

- | | |
|----|-----------------------------------|
| 1. | Audio Connector |
| 2. | Lightweight Headset |
| 3. | Adjustable Headset |
| 4. | Over the Earpiece with Microphone |

F. Housing

The transmitter will be housed in the housing shown in the accompanying photographs.

12.3. Transmitter Programmability

The subject transmitter complies with 47 CFR 90.203 because the operator cannot manually program or select the transmission frequency.

12.4. Environmental Evaluation for RF Exposure.

The subject transmitter complies with the limits of 47 CFR 2.1093(d).