

GENERAL INFORMATION

1. Production Plans---Pursuant 2.983 (c)

Quantity production is planned.

2. Application References---Pursuant 2.1061

Reference is made to the following Motorola "Application References" on file with the Commission:

None

3. Data Submittal Procedure:

Data is supplied in accordance with Part 2, Sub-part J of the Commission's rules.

Standard used on measurements supplied are J-STD-008.

4. Similar to "Currently Type Accepted Transmitter Type(s)"

FCC ID: IHDT6XB1

This transceiver is based on the same design as FCC ID: IHDT6YN1, (type acceptance granted IHDT6YN1). The primary difference is that this device has been repackaged mechanically to be inserted into an IRIDIUM® communications system handset (see Exhibits 7 and 11) and can function as a self contained RF transceiver module to provide alternative terrestrial cellular service to the handset. All power and user interface functions (transmit and receive audio, keypad operations and display) are provided by the IRIDIUM® handset

5. Report of measurements pertaining to types of emission, frequency range, maximum output power and modulation techniques for Digital Mode Operation (per paragraphs 31 and 32 of the Report and Order in FCC GEN. Docket No. 87-390).

A. Types of emission

The equipment is designed to provide emissions consistent with emission designator **1M25F9W** as determined as explained in paragraph 6 of this exhibit. Reference is also made to J-STD-008.

Actual measurements of Occupied Bandwidth for the Digital CDMA Mode are shown in Exhibit 9B.

Spurious Emissions (Conducted and Radiated) reported in Exhibits 9C1, 9C2, and 9D are the worst (highest level) of Digital and Analog Modes.

B. Frequency range

The frequency range of the equipment is the Domestic Public Personal Communications Service bands, 1850 - 1910 MHz (transmit) and 1930 - 1990 (receive) MHz.

Frequency Stability versus Temperature and Voltage measurements are shown in Exhibits 9E and 9F. This equipment uses Automatic Frequency Control (AFC) to lock to within ± 150 Hz of the received frequency from the Land Station system for Digital Mode. Also refer to Exhibit 8A.

C. Maximum output power

In Digital CDMA Mode, the maximum radio frequency power allowed per the standard ranges from 0.2 Watts to 1.0 Watt. The mobile maximum output power during a power control group is within the specified limits and is controlled by commands from a land station system. The maximum nominal power setting for this equipment is 0.280 Watts.

R. F. Output Power measurement results are shown in Exhibit 9A.

D. Modulation techniques

Modulation is OQPSK (Offset Quaternary Phase Shift Keying). Reference is made to the J-STD-008, Section 2.1.3.

Exhibits 8C and 8D further discuss details of the modulating circuitry.

Exhibit 9B show the results of modulation related testing.

6. Determination of Emission Designator for Digital (CDMA) Operation (per Part 2 - Subpart C of the commission's rules)

A. Emission, modulation and transmission characteristics (per section 2.201)

a. First Symbol - Type of modulation of the main carrier.

The main carrier is Offset Quaternary Phase Shift Keyed (OQPSK) and has both amplitude and angle modulation characteristics during the digital mode of operation. OQPSK in and of itself does not necessarily produce amplitude modulation characteristics, however, the In-Phase (I) channel and the Quadrature (Q) channel modulating signals are filtered by a 47 tap FIR filter specified in TIA/EIA IS-95-A, section 6 before being applied to a quadrature modulator. The filtering produces amplitude variation on the main carrier. In addition, the carrier is gated on and off at a rate determined by the transmission data rate as specified in TIA/EIA IS-95-A, section 6. Therefore, the main carrier is not a constant envelope signal, but is both amplitude and angle-modulated.

This corresponds to the symbol D, defined as "Emissions in which the main carrier is amplitude and angle-modulated either simultaneously or in a preestablished sequence."

b. Second Symbol - nature of signal(s) modulating the main carrier.

One Digital Signal representing sampled, quantized voice or other audio information or data modulates the main carrier using direct sequence CDMA techniques during the digital mode of operation.

This corresponds to symbol 1, defined as "A single channel containing quantized or digital information without the use of a modulating sub-carrier, excluding time division multiplex."

c. Third symbol - Type of information to be transmitted.

The information transmitted in the digital mode of operation is a combination of data transmission (command data) and telephony (sampled quantized voice or other audio signals).

This corresponds to symbol W, defined as “combination of above” which would be the combination of symbol D, “Data transmission, telemetry, telecommand,” and symbol E, “Telephony (including sound broadcasting).”

B. Bandwidths (per section 2.202)

Bandwidth is primarily determined by a 47 tap FIR filter used to filter the I channel and Q channel modulating signals. Per TIA/ EIA IS-95-A Section 6.1.3.1.10, the filter is defined to have a one-sided 1.5 dB ripple bandwidth of 590 kHz minimum and a 40dB minimum stopband at 740 kHz maximum. Computer simulations show that the occupied bandwidth as defined in paragraph 2.202(a) is 1.25MHz.

Based on these considerations, the bandwidth used is 1.25 MHz. Converting this result to the format indicated in paragraph 2.202(a), yields 1M25.

The resulting complete emission designator for the digital mode of operation is then 1M25F9W.