

# **DESCRIPTIVE INFORMATION**

## **FCC FILING FOR MICROBTS TYPE B SYSTEM**

The information in this exhibits is in accordance with the FCC Rules and Regulations, Vol.II, Part 2, Subpart J. Sections 2.983 through 2.999 are addressed.

### **Section 2.983(d) Technical Description of the equipment.**

#### **Section 2.983(d)(1) Type or types of emission**

The emission designator is 1M25G7W(per FCC Part 2.201, Subpart C).

#### **Section 2.983(d)(2) Frequency Range**

This transmitter operates within the 1930 to 1990 MHz Band(per FCC Part 24). This Base Station will support CDMA operations on channel numbers 25 through 1175 as defined ANSI J-STD-008(1931.25MHz – 1988.75MHz).

#### **Section 2.983(d)(3) Range of Operating Power Levels**

The rated maximum average power out of the Front End Filter is 10Watt(40dBm). However, in PCS the actual power output is based on the number of traffic channels in operation. The minimum power occurs when only a pilot signal is present. The maximum power occurs when a pilot along with synchronization, paging, and traffic channels are present.

#### **Section 2.983(d)(4) Maximum Output Power Rating**

The maximum output power is 10 Watts(40dBm)

#### **Section 2.983(d)(5) Final RF Amplifying Device Power Consumption**

The power consumption of the Powerwave High Power Amplifier is 162Watt( 27volts , 6 amps)

#### **Section 2.983(d)(6) Function of Each Active Device**

[Refer to Exhibit #XX](#)

#### **Section 2.983(d)(7) Complete Circuit Diagrams**

[Refer to Exhibit #XX](#)

#### **Section 2.983(d)(8) Instruction/Installation Manual**

[Refer to Exhibit #XX](#)

### **Section 2.983(d)(9) Tune-up Procedure**

All frequency adjustments are set by X-terminal.

[Refer to Exhibit #XX](#)

### **Section 2.983(d)(10) Circuit Description for Frequency Determining and Stabilizing.**

GPS(Global Positioning Systems) Receiver in BTS System provides highly accurate Frequency output signal(10MHz), synchronized to UTC(Coordinated Universal Time) signals transmitted by the GPS satellites. This GPS is optimized for synchronization of wireless base stations. Frequency output signal are subjected temperature conditions of 0 to 50 °C. The stability of 10 MHz output is not more than  $5 \times 10^{-11}$ .

### **Section 2.983(d)(11) Circuit Description for suppression of spurious radiation**

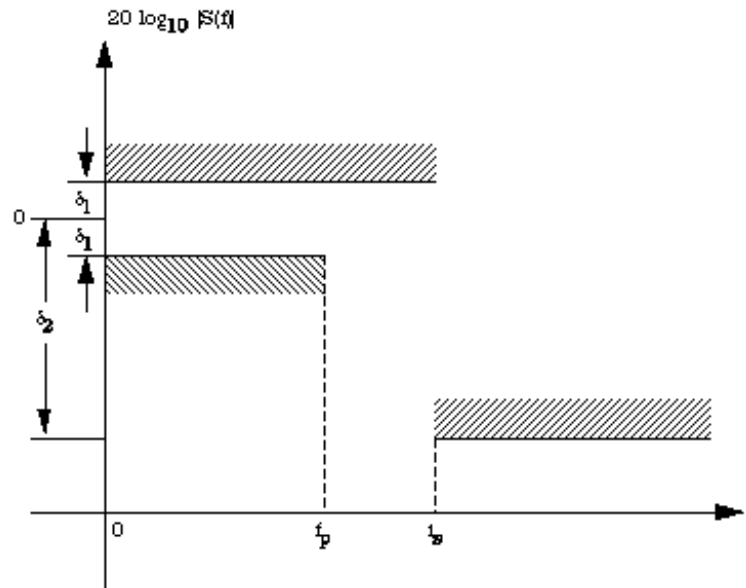
The transmi front end filter provides filtering of the RF signal in order to meet FCC Specifications.

Fot Radiated spurious suppression proper design techniques ans the use of proper shielding techniques reduced the emission levels well below the permissible FCC limits.

### **Section 2.983(d)(12) Description of Modulation Limiting Circuits and Modulation Characteristics**

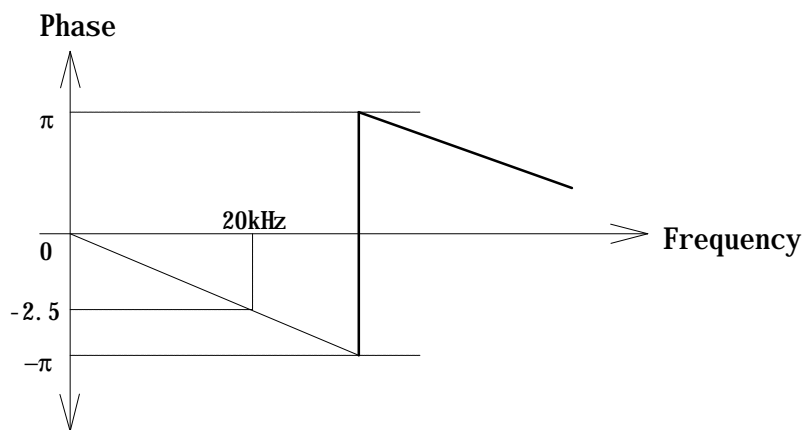
#### 1)Baseband Filtering(FIR Filter) for Modulation Limiting

Following the spreading operation, the I and Q impulses are applied to the inputs of the I and Q baseband filters . The baseband filters shall have a frequency response  $S(f)$  that satisfies the limits given in Figure 1. Specifically, the normalized frequency response of the filter shall be contained within  $\pm\delta_1$  in the passband  $0 \leq f \leq f_p$  and shall be less than or equal to  $-\delta_2$  in the stopband  $f \geq f_s$ . The numerical values for the parameters are  $\delta_1 = 1.5$  dB,  $\delta_2 = 40$  dB,  $f_p = 590$  kHz, and  $f_s = 740$  kHz.



**Figure 1. a Baseband Filters Frequency Response**

2) Phase Response Characteristic of FIR Filter

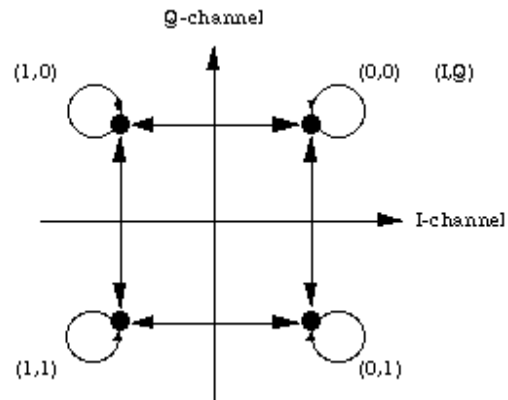


**Figure 1.b Baseband Filters Phase Response**

3) After baseband filtering , the binary data ('0's and '1's), I and Q mapped into phase according to Table 1. The resulting signal constellation and phase transition are shown in Figure 2.

**Table 1. Forward CDMA Channel I and Q Mapping**

I	Q	Phase
0	0	$c/4$
1	0	$3\pi/4$
1	1	$-3\pi/4$
0	1	$-\pi/4$



**Figure 2 Forward CDMA Channel Signal Constellation and Phase Transition**

## **Section 2.983(e) Standard Test Conditions**

The following conditions and procedures were followed during testing of this transmitter:

Room temperature : +25 °C

Room Humidity : 50%

AC Supply Voltage : +208VAC(Nominal)

Prior to testing, the unit was tuned up according the tune up procedure(Exhibit #xx). All data presented represents the worst case parameter being measured. All test data required by section 2.985 through 2.997 can be found in Exhibits #xx through #XX.