EXHIBIT 9

Occupied Bandwidth

Exhibit Summary:

EXHIBIT 9 contains measurement data pertaining to occupied bandwidth. For each carrier frequency measured the plots show the modulation spectrum of the carrier measured by two methods; the 99% power bandwidth, and the -26 dBC bandwidth. The following figures illustrate the results of both bandwidth definitions as measured using a Hewlett Packard spectrum analyzer.

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Measurement Procedure:

This section describes the procedures used to measure occupied bandwidth. A theoretical occupied bandwidth of approximately 246.0 Khz was determined as described in EXHIBIT 7.

1. Determine the measurement bandwidth: Part 24.238 (a) requires a measurement bandwidth of at least 1% of the occupied bandwidth. For 245.0 Khz, this equates to a resolution bandwidth of at least 2.46 Khz, for this testing a resolution bandwidth 3.0 Khz was used.

2. Outline measurement frequencies: Table 9.1 below lists the measurement frequencies for the bottom, middle, and top of the PCS frequency band. For each frequency at which an occupied bandwidth measurement is made a transmitter output power of the +30 dBm maximum was used.

USPCS Channel	Transmitter Frequency
512	1850.2 MHz
661	1880.0 MHz
810	1909.8 MHz

Table 9.1: Occupied bandwidth measurement frequencies.

3. Connect test set-up: Employing the same filter, cable and attenuator configuration that was used for conducted emissions, see EXHIBIT 10, connect the mobile station to a spectrum analyzer (HP 8563E).

4. Configure the mobile station: Set TX frequency, power level and activate internal pseudo random data sequence. The sequence used in the radio is a part of the CCIT sequence defined by GSM recs. The sequence is stored in RAM and each timeslot that a pseudo random modulation stream is desired, a seed is generated for this table that will pick the byte to start with. The next 116 data bits are then used for the data to be transmitted. The bit rate of the internal test signal is equivalent to the GSM specification of 270.833 kbits/s.

5. Use the built in Power Bandwidth function of the spectrum analyzer to create a measured plot of the spectrum yielding the 99% occupied bandwidth.

6. Repeat for all required frequencies adjusting the spectrum analyzer as necessary.

7. Set the markers to the points above and below the carrier frequency that are 26dB down from the peak level and record the bandwidth between the markers.

8. Repeat for all required frequencies adjusting the spectrum analyzer as necessary.

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Occupied Bandwidth Results

Similar to conducted emissions, occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the USPCS frequency band. Table 9.2 below lists the measured 99% power and -26dBC occupied bandwidths. Spectrum analyzer plots are included on the following pages.

Frequency	99% Occupied BW	-26dBC Bandwidth
1850.2 MHz	246.7 KHz	327.0 KHz
1880.0 MHz	250.0 KHz	320.0 KHz
1909.8 MHz	246.7 KHz	317.0 KHz

Table 9.2: Occupied bandwidth results.

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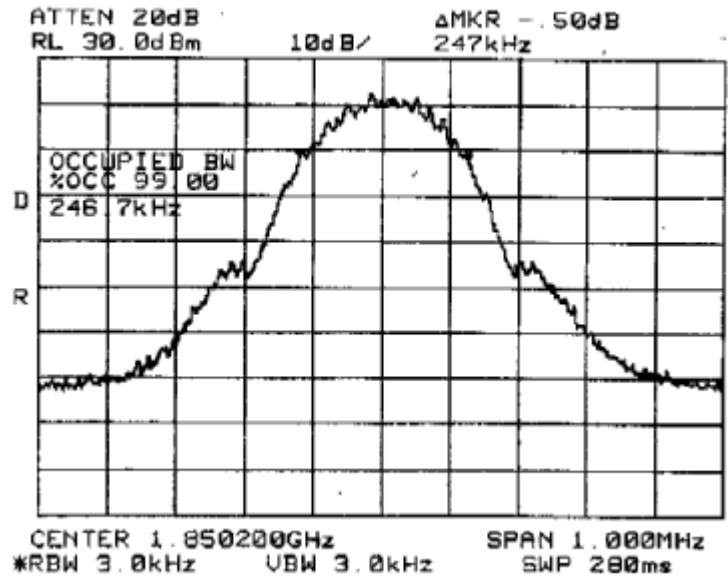
Figure 9.1: Channel 512, 99% Power Bandwidth
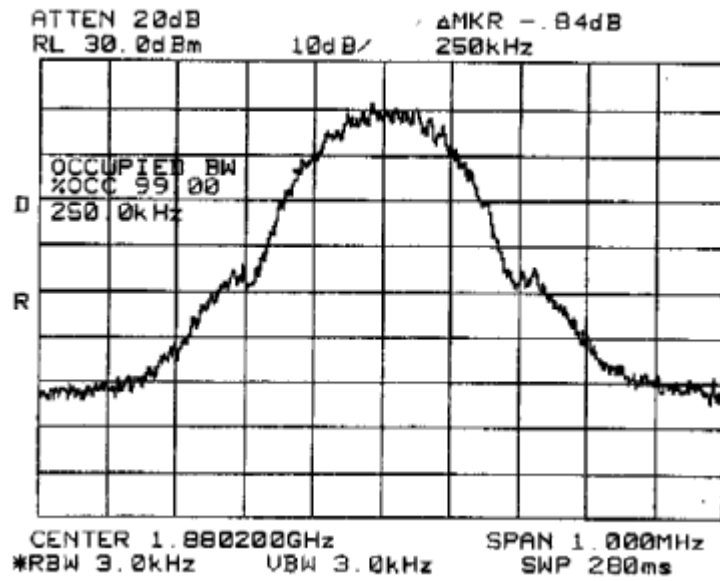
Figure 9.2: Channel 661, 99% Power Bandwidth

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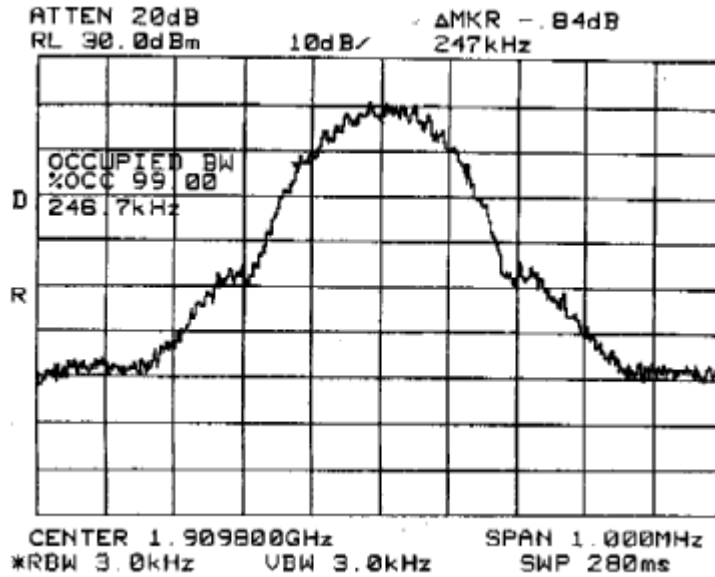
Figure 9.3: Channel 810, 99% Power Bandwidth
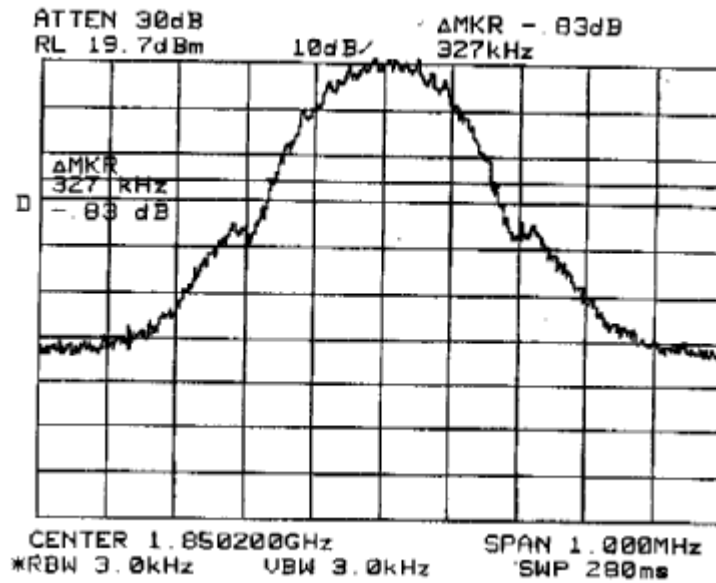
Figure 9.4: Channel 512, -26dBC Bandwidth

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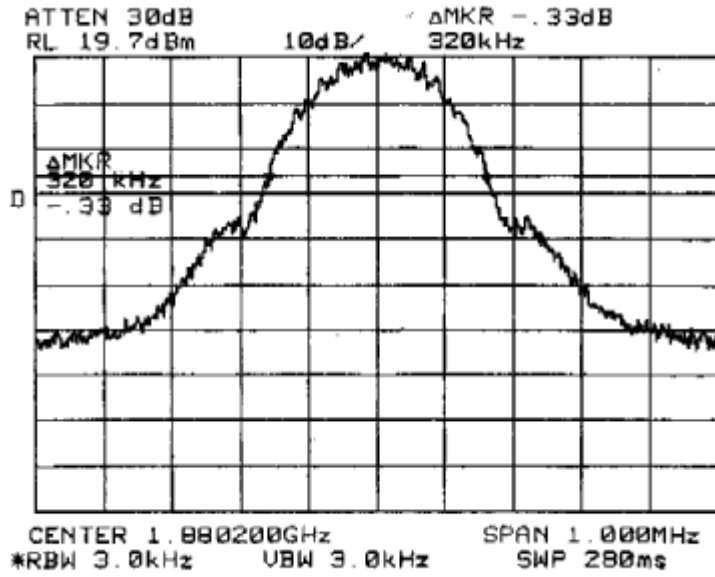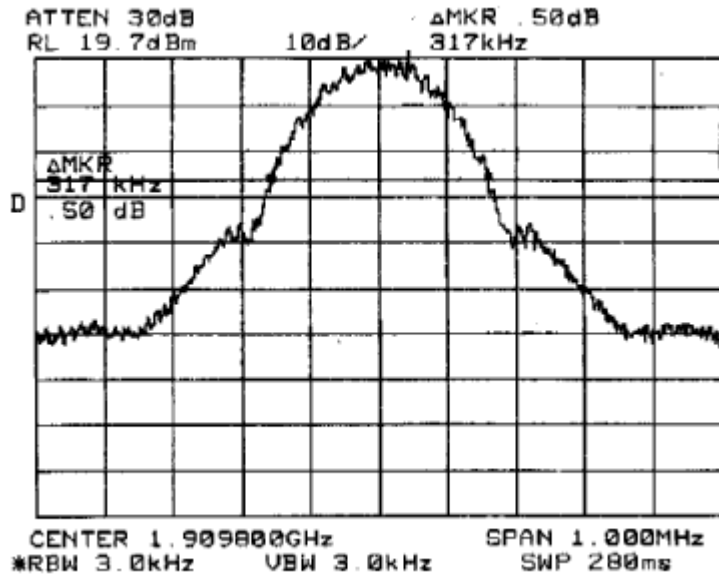**Figure 9.5**: Channel 661, -26dBC Bandwidth

Figure 9.6: Channel 810, -26dBC Bandwidth

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