
EXHIBIT 12
OCCUPIED BANDWIDTH MEASUREMENTS

This exhibit describes the procedures employed and presents results of the occupied bandwidth measurements performed in accordance with the requirements of § 2.1049.

Requirements

Modulation requirements are not defined in Part 24, Subpart E--Broadband PCS, although measurements of occupied bandwidth are required to obtain a certification grant of equipment authorization. Occupied bandwidth is defined in § 2.1049 as "the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission." In other words, 99% of the total mean power radiated is found within the occupied bandwidth of the transmission.

Measurement Procedure

To measure the occupied bandwidth of the EUT, the built-in "Occupied Bandwidth" function of the HP8563E Spectrum Analyzer was utilized. Measurements were made at the PCS-1900 channels closest to the bottom (channel 512, 1850.2 MHz), middle (channel 661, 1880.0 MHz), and top (channel 810, 1909.8 MHz) of the licensed PCS spectrum in which the EUT operates. Specific procedures followed during measurements of occupied bandwidth were as follows:

1. Configure the Core Engine:
 - Input Voltage 3.7 VDC
 - Mode Transmit, random data pattern selected using CMD-55
 - RF Output Power Maximum level (step 0, 30.0 dBm nominal) selected using the CMD-55
 - Frequencies Channel 512 (1850.2 MHz), Channel 661 (1880.0 MHz), and Channel 810 (1909.8 MHz)
2. Configure the HP8563E Spectrum Analyzer:
 - Center Frequency Center of selected channel
 - Span 1 MHz
 - RBW 3 kHz
 - Sweep Time 5 sec
 - Display Max Hold
3. Use the internal capabilities of the HP8563E to measure the 99% emission bandwidth of the transmitted pulse visible on the analyzer's display
4. Perform measurement at all three channels.

Measurement Results

A tabular summary of the 99% occupied bandwidth measurement results reported by the HP8563E Spectrum Analyzer at each of the three specified channels is given in Table E12.1.

Table E12.1. Occupied bandwidth measurement results.

PCS 1900 Channel	Measurement Frequency (MHz)	Occupied BW (kHz)
512	1850.2	243.3
661	1880.0	241.7
81	1909.8	246.7

As the results in Table E12.1 indicate, the occupied bandwidth of the EUT over all PCS license blocks is approximately 250 kHz. A HP8563E spectral plot of the transmitted pulse taken during a measurement of occupied bandwidth (at Channel 661, 1880.0 MHz), is shown Figure E12.1.

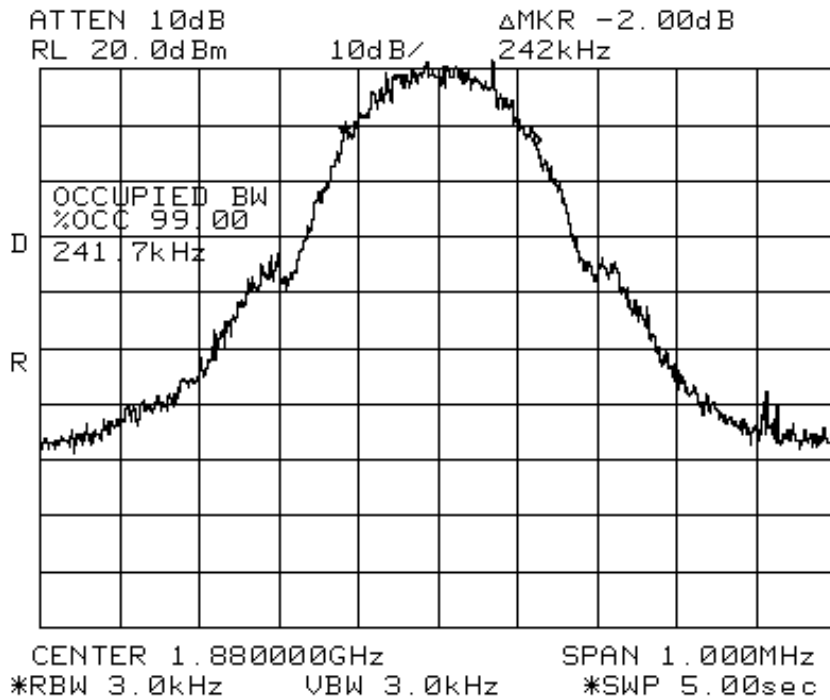


Figure E12.1. Occupied bandwidth measurement result, channel 661(1880.0MHz).