

**Measurement: 1**

**MEASUREMENT OF RADIO FREQUENCY  
POWER OUTPUT**  
**Section 2.1046**

**SECTION 2.1046****Measurement: 1****MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT**

The test arrangements used to measure the radio frequency power output of the UMTS CDMA Radio (PCS) (UCR) FCC ID: **AS5ONEBTS-04**, is on the following page. Required measurements were made respectively for single, two and three carriers (channels) where occupied Bandwidth measurements must be performed. The use of the UCR is for a single or multiple CDMA carriers. This requires that the RF power output level be calibrated for the specific channels of use. The test configuration, Figure 1A, allowed the measurement of RF output power for channels investigated for Occupied Bandwidth. These included the upper, and lower band edges and at the center channels for 15MHz wide frequency blocks and upper, and lower band edge channels for 5 MHz wide frequency blocks. The IS-97 channel allocations are listed below:

**IS 97 channel allocation consists of following channel Blocks:**

Block	Frequency Bands Per FCC 24.229  MHz	Valid CDMA Channel s & Frequency Range	
		Channel No.	MHz
A (15 MHz)	1930.000 – 1945.000	25 – 275	1931.250 – 1943.750
D (5 MHz)	1945.000 – 1950.000	325 – 375	1946.250 – 1948.750
B (15 MHz)	1950.000 – 1965.000	425 – 675	1951.250 – 1963.750
E (5 MHz)	1965.000 – 1970.000	725 – 775	1966.250 – 1968.750
F (5 MHz)	1970.000 – 1975.000	825 – 875	1971.250 – 1973.750
C (15 MHz)	1975.000 – 1990.000	925 – 1175	1976.250 – 1988.750

The edge channels are 25 and 1175.

The UCR has a maximum RF power output of 0.01 Watts (10dBm) +2/-4 dB, it also has a minimum power output at the antenna terminals of 0.003mWatts (-25dBm) +2/-4 dB, across the PCS band (1930-1990 MHz). The signal applied to the PCBR is defined in Table 1.1. The power was reset to 10dBm at each measurement frequency to verify the spectral performance at that power level. The attenuation range was also verified. The specific Frequencies and channels and set power level was documented on each “Occupied Bandwidth” sheet. (see Measurement-3)

Type	Number of Channels	Fraction of Power (Linear)	Fraction of Power (dB)	Comments
Pilot	1	0.2000	-7.0	Walsh 0
Sync	1	0.0471	-13.3	Walsh 32, always 1/8 rate
Paging	1	0.1882	-7.3	Walsh 1, full rate only
Traffic	6	0.09412 each	-10.3 each	Variable Walsh Assignments, full rate only

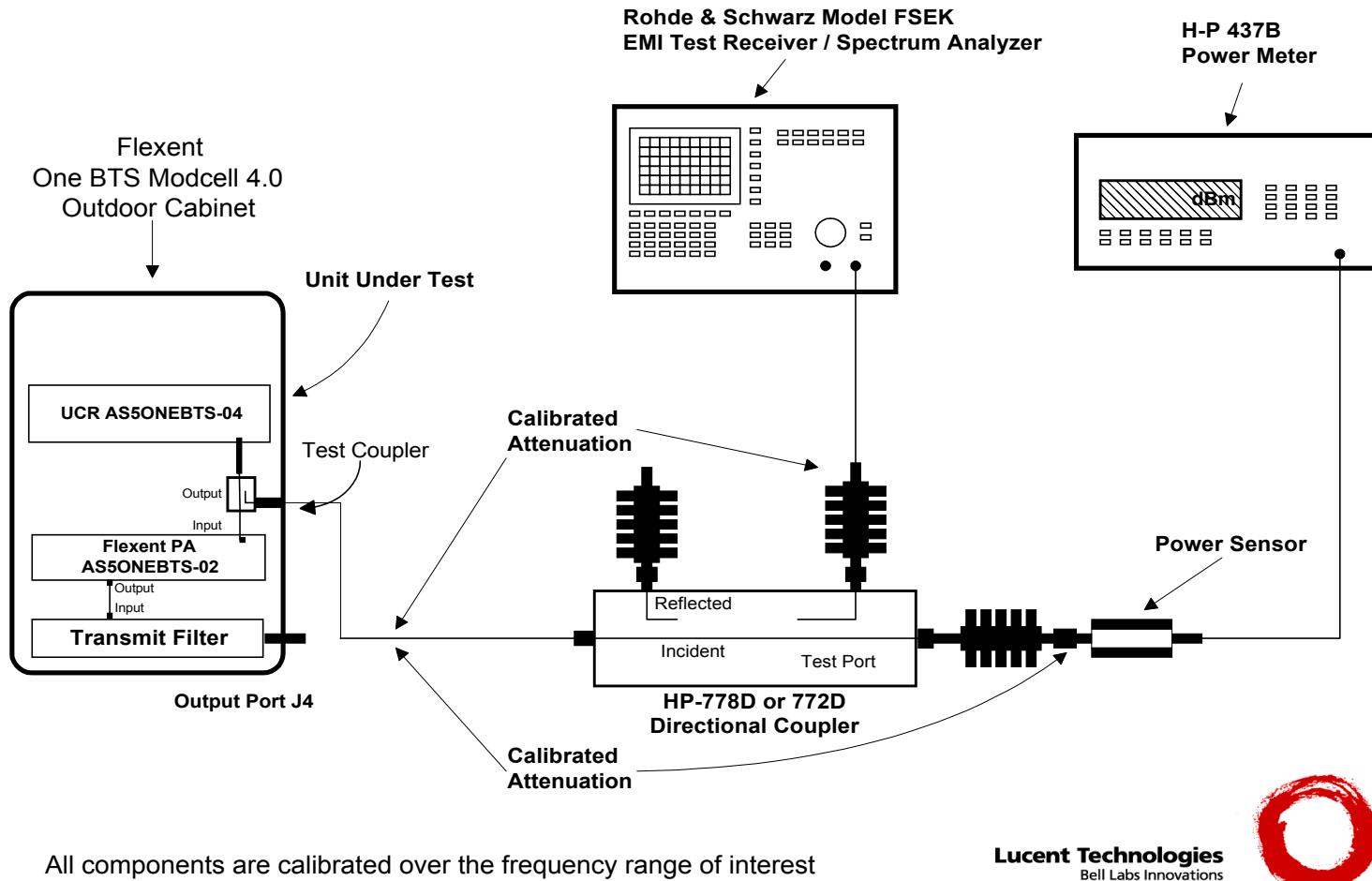
**TABLE 1.1 BASE STATION TEST MODEL, NOMINAL****TEST SETUP FOR MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT****EQUIPMENT:**

Cabinet	<b>Flexent One BTS Modcell 4.0 Outdoor</b>
UCR:	<b>UMTS CDMA Radio (PCS)</b> <b>(FCCID:AS5ONEBTS-04)</b>
Flexent PA	<b>Power Amplifier (FCCID: AS5ONEBTS-02)</b>
Transmit Filter:	<b>PCS Band Transmit Filter appropriate for the investigated Band</b>
Directional Coupler:	<b>HP 778D Dual Directional Coupler</b>
Power Meter:	<b>HP 437B with HP 8481A Power Head</b>
Plotter:	<b>HP Model 520 DeskJet</b>
Spectrum Analyzer:	<b>Rohde &amp; Schwarz FSEK EMI Test Receiver</b>

**RESULTS:**

The UMTS CDMA Radio (PCS) (UCR) (FCCID:AS5ONEBTS-04) was configured in the test setup shown in Figure 1A. For each of the PCS channel and channel groups tested the UCR delivered a 10 dBm when measured at the RF output connection. This data is recorded on the Occupied Bandwidth Data Sheets (see Measurement : 3).

## Figure 1A. TEST CONFIGURATION FOR RF POWER OUTPUT



**Lucent Technologies**  
Bell Labs Innovations

