EXHIBIT 11

RF OUTPUT POWER MEASUREMENTS

This exhibit describes the procedures employed and presents results of measurements of output power, as required by and performed in accordance with § 2.1046.

Requirements

Section 24.232 of the FCC Rules and Regulations governing operation of PCS equipment provides power limitations for base and mobile/portable stations. Per § 24.232(a), base (fixed) stations are limited to 1640 W peak equivalent isotropically radiated power (e.i.r.p.) with an antenna height up to 300 meters HAAT (height above average terrain). In no case may peak output power exceed 100 W. In § 24.232(b), mobile/portable stations are limited to 2 W e.i.r.p. peak output power.

Measurements of transmitter RF output power are described in § 2.1046 and are necessary to obtain a Certification grant of equipment authorization. For all measurements of RF output power, the RF output port of the Core Engine was terminated into a matched 50   load impedance.

Measurement Procedure

Measurements of Core Engine output power were performed using an HP8563E Spectrum Analyzer, with a resolution bandwidth set large enough to integrate the power in the entire transmitted burst. Prior to the measurement, signal path loss of the diagnostic system (cables, splitter and attenuator) was characterized at all frequencies at which output power was measured; this loss was then used to correct the raw readings to obtain precise measurements of EUT RF output power. Measurements were made at the lowest (channel 512, 1850.2 MHz), middle (channel 661, 1880.0), and highest (channel 810, 1909.8 MHz) PCS 1900 defined channels in the licensed PCS spectrum.

Specific procedures followed during measurements of RF output power were as follows:

1. Configure the Core Engine:
   - Input Voltage   3.7 VDC
   - Mode   Transmit, random data pattern selected using the CMD-55
   - RF Output Power   Maximum level (step 0, 30 dBm nominal) and minimum level (step 15, 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) selected using the CMD-55

2. Configure the HP8563E Spectrum Analyzer:
   - Center Frequency   Center of selected channel
   - Span   1kHz
   - RBW   1 MHz
   - Sweep Time   5 sec
   - Display   Max Hold
3. Record peak RF output power, correcting for diagnostic system losses
4. Perform measurement at all three channels
5. Perform measurement at maximum (Step 0, 30.0 dBm nominal) and minimum power level (Step 15, 0.0 dBm nominal)

Measurement Results

Core Engine output power measurement results are given in Table E11.1. All results have been corrected to account for diagnostic system losses.

Table E11.1. RF output power measurement results.

PCS 1900 Channel	Measurement Frequency (MHz)	Maximum Output Power (dBm)	Minimum Output Power (dBm)
512	1850.2	28.67	0.15
661	1880.0	29.5	0.5
810	1909.8	29.19	0.17

As the results in Table E11.1 indicate, the measured maximum RF peak output power of the Core Engine is 29.5 dBm, or 0.89 W. The nominal maximum RF output power of the Core Engine is 30.0 dBm or 1.0 W.

The peak RF output power of the Core Engine complies with the 100 W maximum for fixed applications given in § 24.232(a); peak e.i.r.p. will not exceed 1640 W (i.e., antenna gain will not exceed 32 dBi). Maximum antenna system gain (antenna gain minus RF interconnect cable loss) for fixed applications is limited to 7 dBi, thus ensuring that peak output power levels are well below the maximum allowable. For mobile applications, compliance with the 2 W e.i.r.p. limit given in § 24.232(b) is ensured by limiting antenna system gain (antenna gain minus RF interconnect cable loss) to 3 dBi. Note that in all applications, Core Engine output power is controlled by the GSM network to minimize transmit power while maintaining the quality of the link. Furthermore, detailed instructions are provided to ensure compliance with FCC requirements addressing human exposure to radiofrequency radiation in every allowable usage.