EXHIBIT 14

RADIATED SPURIOUS EMISSIONS MEASUREMENTS

Measurements of DTSA radiated spurious emissions were performed in accordance with the requirements and conditions of § 24.238 and § 2.1053; requirements, procedures and results are described in this exhibit.

Requirements

Broadband PCS equipment operating under the authority of Part 24, Subpart E, must comply with the emissions limits given in § 24.238(a): "On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB."

Section 2.1053(a) of the FCC Rules specifies that measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified. Furthermore, § 2.1057 requires that measurements be made from the lowest radio frequency generated in the equipment up to at least the 10^{th} harmonic of the carrier frequency (approximately 20 GHz for PCS-1900 terminals).

Per § 2.1053(a), the allowable field strength of radiated spurious emissions is found by referencing the relative radiated power of each emissions to the rated RF output power of the DTSA, assuming that each is radiated from a halfwave dipole antenna. At a distance R from an ideal dipole antenna, the electric field strength is (see, for example, Antennas, John D. Kraus, 2^{nd} Edition, pg. 49):

$$E = \frac{1}{R} \times \sqrt{30 \times P_T \times G}$$

Where: E = Field Strength in Volts/meter
R = Measurement distance in meters
P_T = Transmitter Rated Power in Watts (30 dBm nominal = 1 W)
G = Gain of an Ideal Dipole (1.64x or 2.15 dBi)

Therefore, at a distance of 3 m from the transmitter / dipole:

$$E = \frac{1}{3} \times \sqrt{30 \times 1.0 \times 1.64}$$

$$E = 2.34 \ \frac{V}{m} \ \ or \ \ 127.34 \ \ dB\mu\frac{V}{m}$$

As required by § 24.238(a), spurious emissions must be attenuated by at least 43+10log(P) dB; for a rated RF output power of 1 W, the required attenuation is thus 43 dB. Therefore, at 3 meters from the device, the radiated spurious emissions field strength limit is:

$$E = 127.34 - 43.0 \quad dB\mu\frac{V}{m}$$

$$E = 84.4 \quad dB\mu\frac{V}{m}$$

Note that, for any rated transmitter output power P, the absolute level of spurious emissions is found to be –13 dBm (the same absolute power level requirement for conducted spurious emissions). At a distance of 3 meters, a power of -13 dBm into an ideal dipole produces an equivalent field strength of 84.4 dBμV/m, giving the same result using the field strength equation previously presented.

Additionally, because Part 24 applies only to PCS transmissions, only transmitter and transmitter-related spurious emissions are subject to the limits given in § 24.238. Radiated spurious emissions from receivers which operate above 960 MHz are not regulated, per § 15.101(b). All other emissions, including those originating from digital control, processing, and other circuitry, and power supplies, and whether radiated or conducted onto the AC powerline, are regulated as unintentional emissions by Part 15 of the FCC rules. In accordance with the guidance given in § 15.101, this category of emissions is subject to the verification process.

Measurement Procedure and Results Summary

Measurements of radiated spurious emissions were performed at and by Criterion Technology of Rollinsville, CO. Criterion Technology is accredited with the national Voluntary Laboratory Accreditation Program (NVLAP) and a description of its open air test site (OATS) has been filed with the FCC. Measurement procedures and results are described in the test report prepared by Criterion Technology, which is included in its entirety in this exhibit.

Measurements of DTSA radiated spurious emissions performed by Criterion Technologies were performed in accordance with the procedures given in ANSI C63.4-1992, "*Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz*" over the frequency range of 30 MHz to 20 GHz.

The Criterion Test Report indicates that the DTSA meets the transmitter radiated emissions requirements and limit given in §§ 24.238 and 2.1053. Furthermore, all other emissions, both radiated and conducted, and from all sources excluding the DTSA transmitter (i.e., receiver, digital, power supply, etc.) comply with FCC Part 15, Class B limits.

Representative values for the field strength of transmitter spurious radiated emissions are presented in Table E14.1. For these measurements, the transmitter was tuned to GSM (PCS-1900) channel 661, 1880.0 MHz. Similar results were measured with the transmitter tuned to the low (channel 512, 1850.2 MHz) and high (channel 810, 1909.8 MHz) PCS-1900 channels in the licensed PCS spectrum.

Table E14.1. Representative radiated spurious emissions results (< 20 dB margin).

Frequency (MHz)	Field Strength at 3 m (dBμV/m)	Limit at 3 m (dBμV/m)	Margin (dB)
1880.0	53.3	82.2	NA-fundamental
3760.14	50.6	82.2	31.6
5640.18	52.1	82.2	30.1
7520.27	61.5	82.2	20.7
9400.32	65.2	82.2	17.0
11280.41	65.1	82.2	17.1

Measurement Equipment

Table E15.2 presents the equipment used by Criterion Technology to make all measurements of radiated spurious emissions, including transmitter and receiver spurious, as well as unintentional radiated and AC powerline conducted emissions below 1 GHz.

Table E15.2. Criterion Technology equipment for RE measurements.

Make/Model	Cal Due
HP 8566B Spectrum Analyzer	990712
HP 85650A QP Adapter	991217
Rhode & Schwarz ESHS-30 Receiver	990826
Rhode & Schwarz ESVS-30 Receiver	990901
Rhode & Schwarz ESH2-Z5 LISN	990724
Minicircuits Pre-amp	NA
Chase BiLog Antenna, Model 1121	990530
Antenna Research Horn, Model 1181A	990615
AMP3 and high frequency cable set	990930