

Measurement -5

FIELD STRENGTH OF SPURIOUS RADIATION

SECTION 2.1053

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Field strength measurements of radiated spurious emissions were made at a three meter compliance Absorber-lined shielded room maintained by Lucent Technologies Bell Laboratories Global Product Compliance Laboratory in Holmdel, New Jersey. A complete description and full measurement data for the site is on file with the Commission. (FCC Registration number: 99340)

The UMTA CDMA Radios (PCS) (UCR) were assembled with Flexent Power Amplifiers (AS5ONEBTS-02) and all other associated equipment in an **FLEXENT®** CDMA One BTS Modcell 4.0 Outdoor cabinet. Each test was performed with all amplifiers operating at full power with single carriers, two carriers and three carriers. For each tests six UCRs, six power amplifiers and six filters were used. The tests were repeated for all RF filters that will be used in the system installed between antenna port terminal and Flexent Power Amplifier RF Power output port. The Flexent CDMA One BTS Modcell 4.0 cabinet can be powered either from a +24VDC or 208V 3 ph/240V 1ph. The cabinet was investigated for both DC and AC power input. The spectrum from 10 MHz to the 10th harmonic of the carrier was searched for spurious radiation. Measurements were made according to ANSI C63.4. All emissions more than 20 dB below the specification limit were considered not reportable (Section 2.1057(a) (c)).

The calculated emission levels were found by:

$$\text{Measured level (dB}\mu\text{V)} + \text{Cable Loss(dB)} + \text{Antenna Factor(dB)} = \text{Field Strength (dB}\mu\text{V/m)}$$

Section 24.238 and 2.1053 contains the requirements for the levels of spurious radiation as a function of the level of the unmodulated carrier. The reference level for the unmodulated carrier is calculated as the field produced by an ideal isotropic antenna excited by the transmitter output power according to the following relation taken from Reference Data for Radio Engineers, page 27-7 6th edition, IT&T Corp.

$$\begin{aligned} E &= [(30*P)^{1/2}]/R \\ 20 \log (E*10^6) - (43 + 10 \log P) &= 82.2 \text{ dB } \mu\text{V/meter} \end{aligned}$$

E = Field Intensity in Volts/meter

P = Transmitted Power in Watts

R = Distance from the ideal isotropic antenna in meters = 3 m

RESULTS:

For this particular test, the field strength of any spurious radiation is required to be less than 82.2dB μ V/meter. Reportable measurement levels are equal to or greater than 62.2dB μ V/meter. Over the spectrum investigated, 10 MHz to 10th harmonic of the carrier, no reportable spurious emissions were detected. This demonstrates that the UMTA CDMA Radio (PCS)(UCR), the subject of this application, complies with Sections 2.1053, 22.917 and 2.1057 of the Rules.