

FIELD STRENGTH OF SPURIOUS RADIATION
SECTION 2.1053

MEASUREMENT: 5

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The preliminary field strength measurements were made at Lucent Technologies 10 meter Absorber Lined FCC approved Compliance Chamber at Nurnberg, Germany. Final field strength measurements of radiated spurious emissions were made at a ten meter Open Area Test Site (OATS) 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 File 31040/SIT).

The TRX19s were assembled in a Flexent GSM indoor Macrocell Cabinet. Each TRX19's were operating on different frequency blocks. The TRX19's were operating at a RF output level of 29 watts. The following configurations were tested.

(a) 4x4x4, (b) 3x3x3, (c) 2x2x2 and (d) 1x1x1. The output terminals (J4) were terminated with 50 ohm load. 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(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.

$$E = [(30 * P)^{1/2}] / R$$

$$20 \log (E * 10^6) - (43 + 10 \log P) = 71.8 \text{ dB}\mu\text{V/meter}$$

E = Field Intensity in Volts/meter

P = Transmitted Power in Watts

R = Distance in meters = 10 m

RESULTS:

For this particular test, the field strength of any spurious radiation is required to be less than 71.8 dBμV/meter. Reportable measurements are equal to or greater than 51.8 dBμV/meter. Over the spectrum investigated, 10 MHz to 10th of the carrier, no reportable spurious emissions were detected. This demonstrates that the "Flexent GSM 1900 Transceiver (TRX19)", a single Radio Frequency Unit the subject of this application, complies with Sections 2.1053, 24.238 and 2.1057 of the Rules.