Measurement Procedures and Data

RF POWER OUTPUT

Measurement Procedure

The RF output port of the equipment under test is directly coupled to the input of a HPE4406A Vector Signal Analyzer through a 10dB passive attenuator, adaptor (if needed), and specialized RF connector. The peak power output is measured for all channels.

CFR Part 2.1046

Measurement Results

GSM 850

Frequency (MHz)	Power (dBm)
824.20	31.41
836.60	31.24
848.80	31.01

GSM 1900

Frequency (MHz)	Power (dBm)
1850.20	29.95
1880.00	30.01
1909.80	30.01

WCDMA

Frequency (MHz)	Power (dBm)
1852.40	21.16
1880.00	22.19
1907.60	21.09

RADIATED (ERP)

Measurement Procedure

The phone was tested in a 16' anechoic chamber with a 2-axis position system that permits taking complete spherical scans of the EUT's radiation patterns. For all tests, the phone was supported in a free space type environment, vertically oriented in the chamber. Tests were done for GSM 850 three frequencies (824.2, 836.6, and 848.8 MHz), GSM 1900 three frequencies (1850.2, 1880.00, and 1909.80 MHz) and WCDMA three frequencies (1852.4, 1880.0 and 1907.6 MHz) with antenna stubby.

Measurements were made with the phone placed in a call using a mobile station test set. The phone was weakly coupled to the test set and configured to transmit in full data rate mode. Radiated power was measured at each 15 degree step. The radiated power was measured using a Gigatronics 8542C power meter in "Burst Avg" mode for GSM and "Mod Avg" for WCDMA. From these measurements, the software calculates the angle at which maximum radiated power occurs for each case, and the radiated power at this angle was extracted from the data. The max radiated power results for the IHDT56EJ1 follows, as EIRP in dBm. To get ERP (effective radiated power referenced to a half-wave dipole), subtract 2.1 dB from these numbers.

Measurement Results

* Data not supplied by EMC Lab

GSM 850:
824.22 MHz: 30.35 dBm
836.66 MHz: 30.65 dBm
848.88 MHz: 30.85 dBm

GSM 1900
1850.2 MHz: 32.02 dBm
1880.0 MHz: 32.15 dBm
1909.8 MHz: 31.55 dBm

WCDMA
1852.4 MHz: 23.82 dBm
1880.0 MHz: 23.05 dBm
1907.6 MHz: 22.31 dBm

For all measurements, calibration was performed via gain substitution with a half-wave dipole.

Max EIRP in GSM 850 is 30.85 dBm **(max ERP is 28.75dBm)**.
Max EIRP in GSM 1900 is 32.15 dBm (max ERP is 30.05 dBm).
Max EIRP in WCDMA is 23.82 dBm (max ERP is 21.72 dBm).