



Picture 2. The GeoScope with its power supply unit placed beside the test area.

3.3 Operation of EUT during tests

The EUT was gathering data like in normal operation. The data was presented on the PC.



Picture 3. Measurement setup.

5.1.4 Deviations from ANSI C63.4

The test site was arranged according to FCC 02-48 with a flat sand bed located in the ground plane.

5.1.5 Environmental conditions

Temperature (inside test facility): 14 to 20 °C

The emission was measured with an RMS detector in the frequency range 960 MHz to 18 GHz. The number of sweep points for the whole frequency range was 34 080 and the total sweep time was 34 s. Thus the dwell time was 1 ms.

The following resolution bandwidths, video bandwidths and sweep times were used during the measurements.

Frequency range	RBW	VBW	Sweep points	Total sweep time
960 MHz – 18 GHz	1 MHz	5 MHz	34 080	34 s
1164 MHz – 1240 MHz	1 kHz	5 MHz	152 000	152 s
1559 MHz – 1610 MHz	1 kHz	5 MHz	102 000	102 s



Picture 4. Measurement setup.

Measurements were performed with the EUT rotated in 16 different positions on the sand bed and with two antenna polarizations resulting in a total of 32 sweeps.

Measurement software was used to add antenna factors and cable attenuation and the resulting maximum field strength level were plotted.

After the sweeps field strength levels above the limit were checked manually due to the high number of ambient signals.

The device shall operate with stepped frequency modulation in 2 MHz steps between 140 MHz and 3 GHz with a scan/cycle rate of approximately 3 ms. The system may not use any single frequency longer than 2 μ s in any 3 ms period of time.

5.3.3 Procedures

The setup was made so that the EUT antenna was tilted and pointing directly towards the measurement antenna. The measuring distance was 3 m.

To determine the spectrum parameters measurements were performed with peak detector with 1 MHz bandwidth.

If f_M was above 960 MHz, an additional peak detector was used during the measurements described in Section 5.2. Measurements were performed at 1 m distance and with a measurement bandwidth of 1 MHz. The limit (0 dBm EIRP at 3 m and 50 MHz measurement bandwidth) was recalculated according to:

$$E \text{ (dB}\mu\text{V/m)} = 0 + 95.2 + 20\log(1\text{MHz}/50\text{MHz}) + 9.5 = 70.7.$$

Measurement software added antenna factors and cable attenuation.



Picture 5. Measurement setup, 30 MHz – 1 GHz.



Picture 6. Measurement setup, 1 GHz – 4 GHz.

5.3.4 Environmental conditions

Temperature (inside test facility): 14 to 20 °C

5.3.5 Results

Results are valid for the described arrangement and operation of the tested EUT.

The EUT fulfilled the definition of an UWB transmitter according to FCC 15.503 (d) and IC RSS-220. The EUT complied with the requirement in FCC 15.509 (a, f) and IC RSS-220 (6.2.1).

The EUT also fulfils the requirements of pulse parameters in the FCC Waiver DA 12-41, dated January 11, 2012.

The requirements that the radar device not shall be sold in any hand-held configurations, and that the device shall operate with stepped frequency modulation in 2 MHz steps, were confirmed by manufacturer statement, but were not verified by measurements.