Test specification:	Section 2.1091, RF radiation exposure evaluation		
Test procedure:	47 CFR, Section 1.1307(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	11/2/2006		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

7.2 RF exposure

7.2.1 General

This test was performed to determine the minimum safe distance between the transmitter antenna and human to avoid public exposure in excess of limits for general population (uncontrolled exposure). Specification test limits are given in Table 7.2.1.

Table 7.2.1 RF exposure limits

Frequency range, MHz	Power density*		Electric field strength**, V/m
	mW/cm^2	W/m^2	
824 – 849	0.55	5.5	45.5
1850 – 1910	1.00	10.0	61.4

* - Power density limit within 300 - 1500 MHz was calculated according to the following equation: S = F / 1500, where S is power density in mW/cm^2 and F is frequency in MHz

** - Electric field strength limit was calculated from power density as follows: E = sqrt (S×120×π), where E is electric field strength in V/m and S is power density in W/m^2

7.2.2 Test procedure

7.2.2.1 The EUT, connected to the antenna providing the maximum directional gain, was set up as shown in Figure 7.2.1.

7.2.2.2 The E-field probe was pointed to the EUT antenna zero azimuth at a 3 m distance, the maximum field strength reading was recorded in Table 7.2.2.

7.2.2.3 The E-field probe was slowly moved toward the EUT until E-field equivalent to the maximum permitted power density was measured.

7.2.2.4 The obtained antenna to probe distance was recorded in Table 7.2.2 as a minimum separation distance.

7.2.2.5 The test was repeated at the rest of test distances according to Table 7.2.2.

7.2.2.6 The test was repeated for the second band according to Table 7.2.3.

7.2.2.7 The test was repeated for EUT with external according to Table 7.2.4, Table 7.2.5.

Test specification:	Section 2.1091, RF radiation exposure evaluation		
Test procedure:	47 CFR, Section 1.1307(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	11/2/2006		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

Table 7.2.2 Maximum permissible exposure (MPE) measurement in 800 MHz band with internal antenna

Test distance, m	Field strength, V/m	Equivalent power density, mW/cm^2	Limit, mW/cm^2	Margin, mW/cm^2	Verdict
3.0	0.8	0.00016985	0.55	-0.54983	Pass
2.5	1.2	0.00038217	0.55	-0.54962	Pass
2.0	1.3	0.00044851	0.55	-0.54955	Pass
1.5	1.3	0.00044851	0.55	-0.54955	Pass
1.0	1.6	0.00067941	0.55	-0.54932	Pass
0.5	2.2	0.0012845	0.55	-0.54872	Pass
0.3	3.0	0.00238854	0.55	-0.54761	Pass
0.2	4.1	0.00446125	0.55	-0.54554	Pass
0.1	6.1	0.00987527	0.55	-0.54012	Pass

* - Equivalent power density was calculated from electric field strength as follows: $S = 0.1 \times E^2/(120 \times \pi)$, where E is electric field strength in V/m and S is power density in mW/cm^2

Table 7.2.3 Maximum permissible exposure (MPE) measurement in 1900 MHz band with internal antenna

Test distance, m	Field strength, V/m	Equivalent power density, mW/cm^2	Limit, mW/cm^2	Margin, mW/cm^2	Verdict
3.0	0.7	0.00013004	1.0	-0.99987	Pass
2.5	1.0	0.00026539	1.0	-0.99973	Pass
2.0	1.3	0.00044851	1.0	-0.99955	Pass
1.5	1.5	0.00059713	1.0	-0.9994	Pass
1.0	2.0	0.00106157	1.0	-0.99894	Pass
0.5	3.7	0.00363323	1.0	-0.99637	Pass
0.3	5.0	0.00663482	1.0	-0.99337	Pass
0.2	5.2	0.00717622	1.0	-0.99282	Pass
0.1	7.5	0.01492834	1.0	-0.98507	Pass

* - Equivalent power density was calculated from electric field strength as follows: $S = 0.1 \times E^2/(120 \times \pi)$, where E is electric field strength in V/m and S is power density in mW/cm^2

Test specification:	Section 2.1091, RF radiation exposure evaluation		
Test procedure:	47 CFR, Section 1.1307(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	11/2/2006		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

Table 7.2.4 Maximum permissible exposure (MPE) measurement in 800 MHz band with external antenna

Test distance, m	Field strength, V/m	Equivalent power density, mW/cm^2	Limit, mW/cm^2	Margin, mW/cm^2	Verdict
3.0	0.9	0.00021497	0.55	-0.54979	Pass
2.5	1.0	0.00026539	0.55	-0.54973	Pass
2.0	1.2	0.00038217	0.55	-0.54962	Pass
1.5	1.3	0.00044851	0.55	-0.54955	Pass
1.0	1.5	0.00059713	0.55	-0.54940	Pass
0.5	1.5	0.00059713	0.55	-0.54940	Pass
0.3	2.1	0.00117038	0.55	-0.54883	Pass
0.2	3.2	0.00271762	0.55	-0.54728	Pass
0.1	4.1	0.00446125	0.55	-0.54554	Pass

* - Equivalent power density was calculated from electric field strength as follows: $S = 0.1 \times E^2/(120 \times \pi)$, where E is electric field strength in V/m and S is power density in mW/cm^2

Table 7.2.5 Maximum permissible exposure (MPE) measurement in 1900 MHz band with external antenna

Test distance, m	Field strength, V/m	Equivalent power density, mW/cm^2	Limit, mW/cm^2	Margin, mW/cm^2	Verdict
3.0	0.7	0.00013004	1.0	-0.99987	Pass
2.5	0.9	0.00021497	1.0	-0.99979	Pass
2.0	1.2	0.00038217	1.0	-0.99962	Pass
1.5	1.5	0.00059713	1.0	-0.99940	Pass
1.0	2.0	0.00106157	1.0	-0.99894	Pass
0.5	2.5	0.0016587	1.0	-0.99834	Pass
0.3	2.5	0.0016587	1.0	-0.99834	Pass
0.2	4.5	0.0053742	1.0	-0.99463	Pass
0.1	5.1	0.00690287	1.0	-0.99310	Pass

* - Equivalent power density was calculated from electric field strength as follows: $S = 0.1 \times E^2/(120 \times \pi)$, where E is electric field strength in V/m and S is power density in mW/cm^2

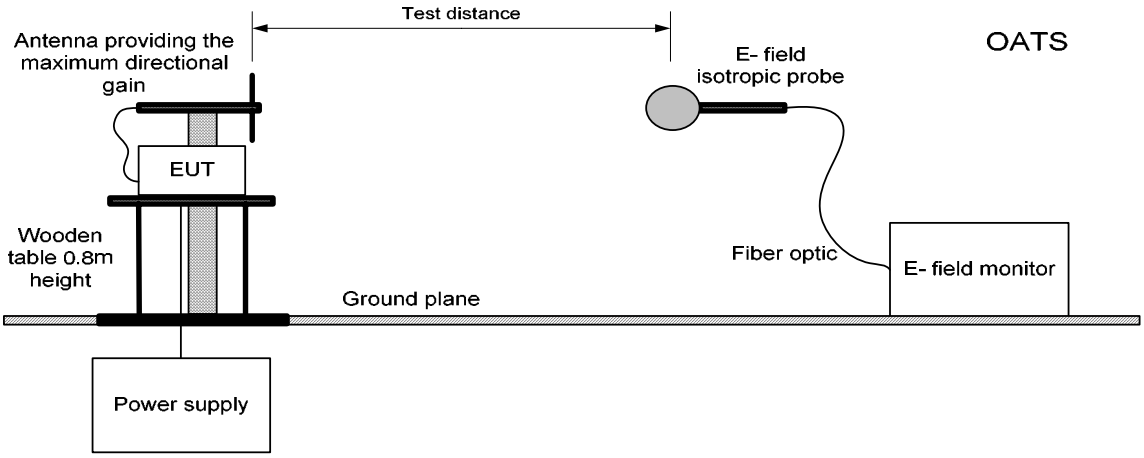
Reference numbers of test equipment used

HL 2976							

Full description is given in Appendix A.

Test specification:	Section 2.1091, RF radiation exposure evaluation		
Test procedure:	47 CFR, Section 1.1307(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	11/2/2006		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

Figure 7.2.1 Maximum permissible exposure (MPE) measurement set up



Test specification:	Section 2.1091, RF radiation exposure evaluation		
Test procedure:	47 CFR, Section 1.1307(b)		
Test mode:	Compliance	Verdict:	PASS
Date:	11/2/2006		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 40 %	Power Supply: 120 VAC
Remarks:			

Photograph 7.2.1 Maximum permissible exposure (MPE) measurement set up, EUT with internal antenna

Photograph 7.2.2 Maximum permissible exposure (MPE) measurement set up, EUT with external antenna