

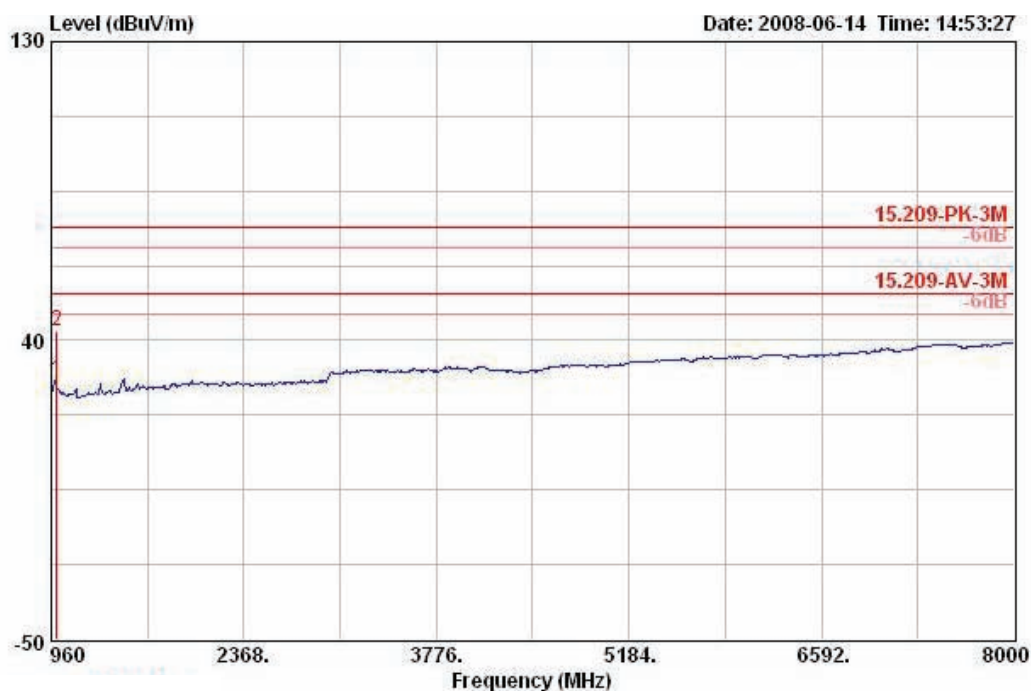
Radiated Emissions with terminated antenna port (960MHz~8GHz)

Temperature	26℃	Humidity	58%
Test Engineer	Sam Chen	Configurations	ALL BAND / Ant. 2

The distance: 3m

Horizontal

Terminated antenna port:

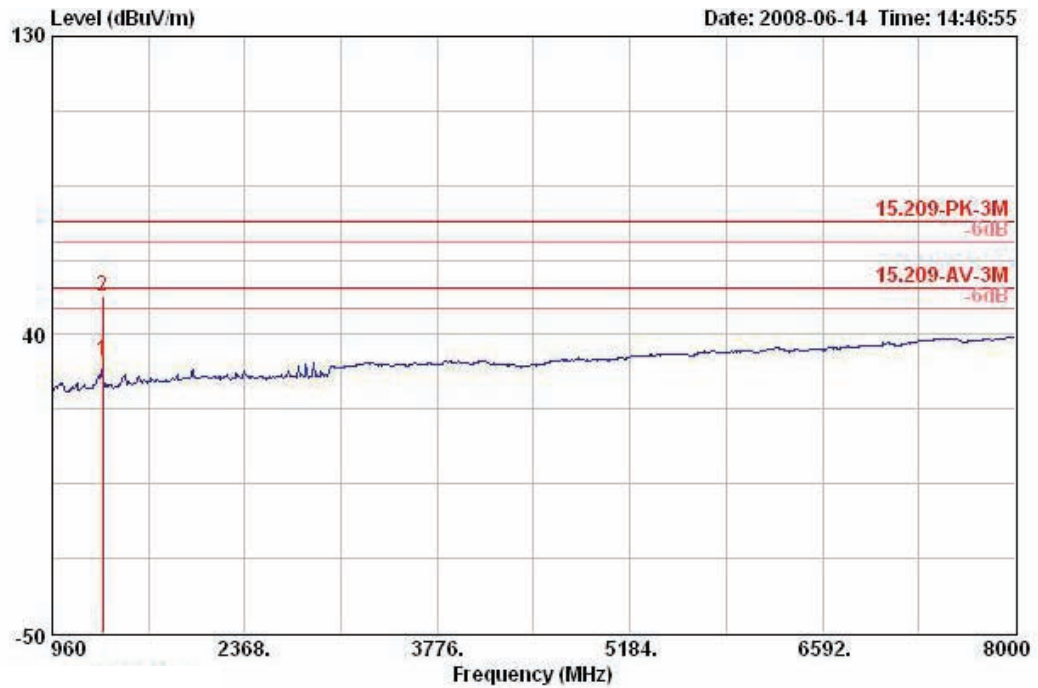


	Freq	Level	Over	Limit	ReadAntenna	Preamp	Cable		Table	Ant
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB	deg	cm
1	998.360	27.87	-26.13	54.00	38.58	23.64	36.17	1.83	198	100
2	999.160	42.71	-31.29	74.00	53.41	23.64	36.17	1.83	198	100

The distance: 3m

Vertical

Terminated antenna port:

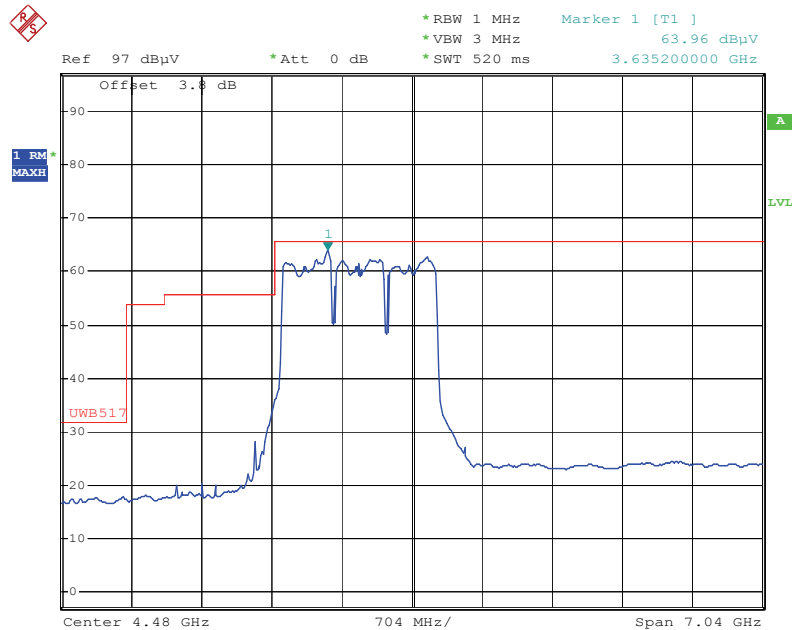


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark	Table Pos	Ant Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB		deg	cm	
1 @	1331.220	32.23	-21.77	54.00	40.48	24.84	35.28	2.18 AVERAGE	234	100	VERTICAL
2 @	1332.060	51.33	-22.67	74.00	59.59	24.84	35.28	2.18 PEAK	234	100	VERTICAL

Conducted Antenna Port Emissions (960MHz~8GHz)

Temperature	26°C	Humidity	58%
Test Engineer	Sam Chen	Configurations	ALL BAND / Ant. 2

Conducted antenna port:



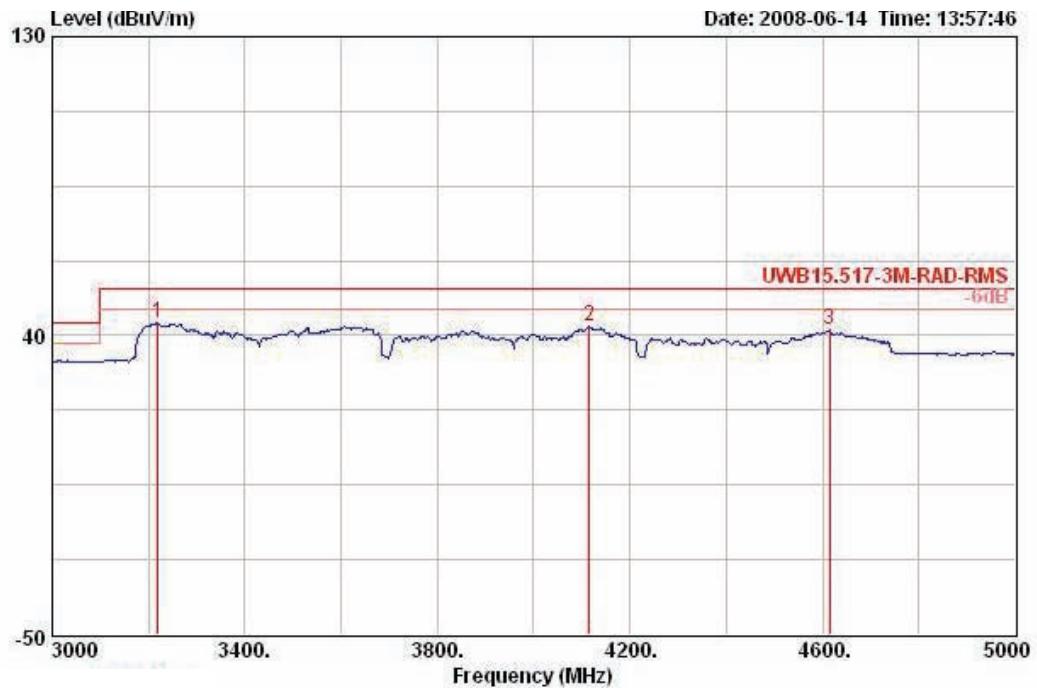
Date: 14.JUN.2008 09:51:11

Note: Conducted antenna port measurements made with 1 MHz RBW/3MHz VBW (RMS detector) at 50 ohm impedance. 1 msec averaging time were used for these frequencies per bin point measurements.

The distance: 3m

Horizontal

UWB Radiated Emissions 3 GHz to 5 GHz



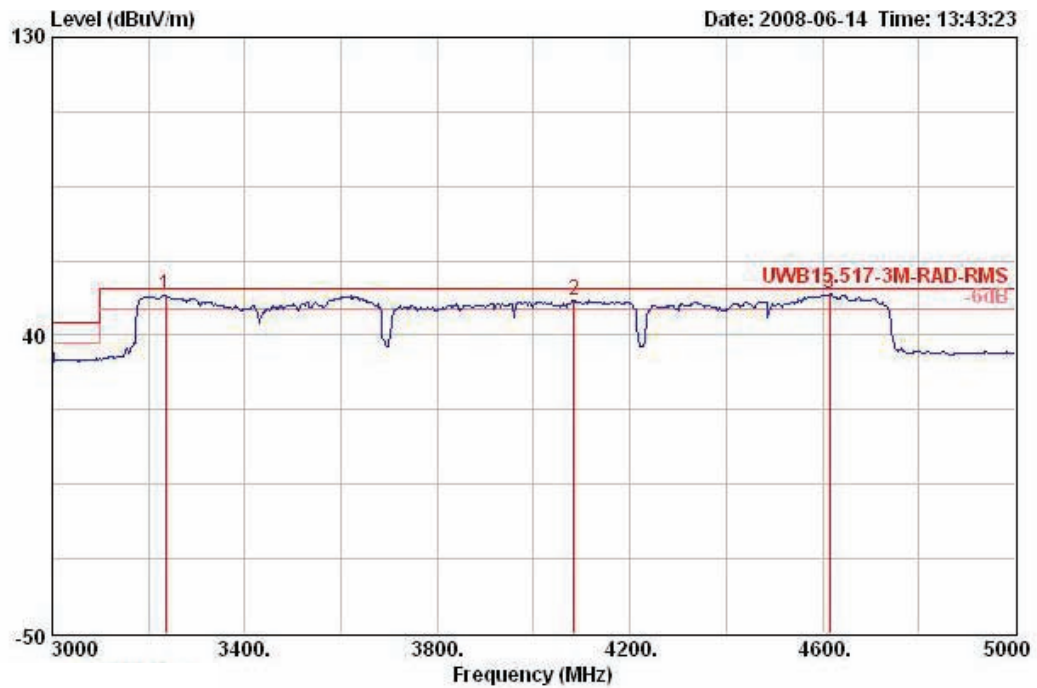
	Freq	Level	Over	Limit	ReadAntenna	Preamp	Cable		Table	Ant
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	deg	cm
1	3220.000	43.76	-10.14	53.90	45.63	29.74	34.96	3.35	23	110
2	4116.000	42.66	-11.24	53.90	42.85	31.67	35.28	3.42	102	100
3	4614.000	41.59	-12.31	53.90	41.17	32.09	35.67	4.00	156	100

Note: Measurements made with 1 MHz RBW/3MHz VBW (RMS detector) at 3m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

The distance: 3m

Vertical

UWB Radiated Emissions 3 GHz to 5 GHz



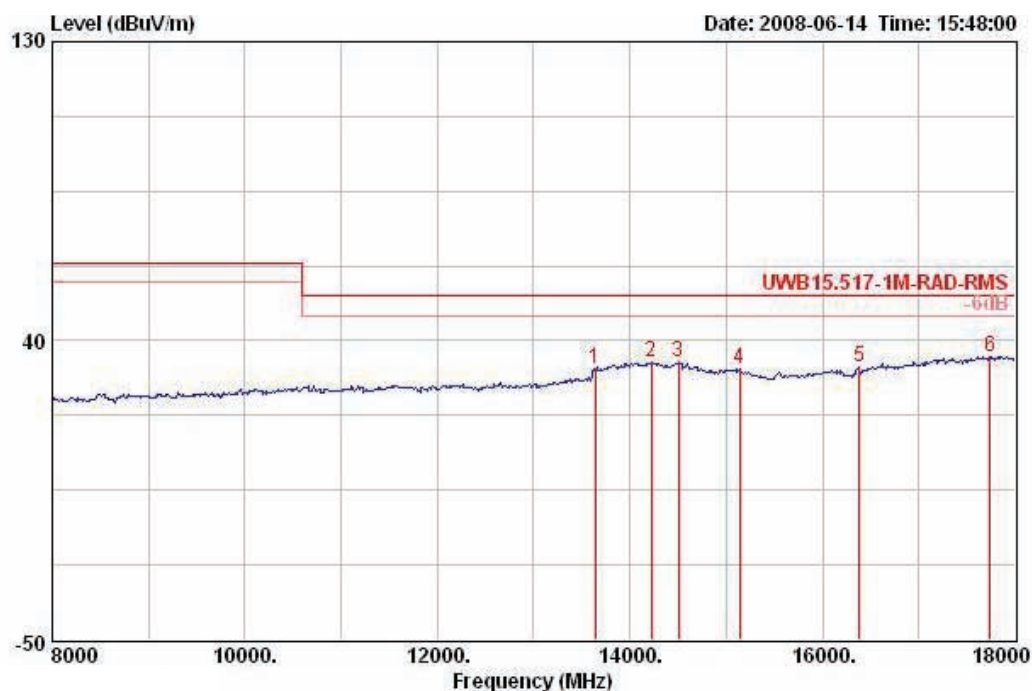
	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable		Table	Ant
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		deg	cm
1	3236.000	52.03	-1.87	53.90	53.84	29.78	34.96	3.37	Peak	79	100 VERTICAL
2	4084.000	50.61	-3.29	53.90	50.80	31.65	35.23	3.40	Peak	102	100 VERTICAL
3	4614.000	52.59	-1.31	53.90	52.17	32.09	35.67	4.00	Peak	269	100 VERTICAL

Note: Measurements made with 1 MHz RBW/3MHz VBW (RMS detector) at 3m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

The distance: 1m

Horizontal

UWB Radiated Emissions 8 GHz to 18 GHz



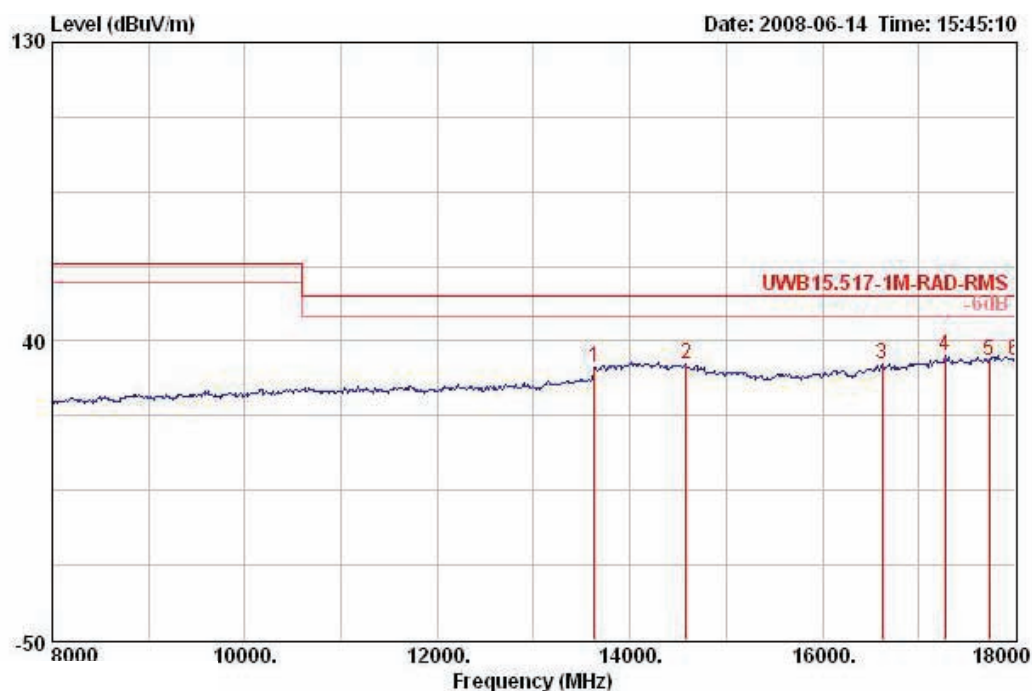
	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Table	Ant	
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pos	Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	deg	cm	
1	13640.000	31.44	-22.00	53.44	16.44	40.50	33.22	7.72	0	100	HORIZONTAL
2	14220.000	33.42	-20.02	53.44	17.67	40.82	33.24	8.17	0	100	HORIZONTAL
3	14500.000	33.34	-20.10	53.44	17.92	40.54	33.39	8.27	0	100	HORIZONTAL
4	15140.000	31.59	-21.85	53.44	18.72	38.82	34.22	8.26	0	100	HORIZONTAL
5	16380.000	32.20	-21.24	53.44	18.97	39.12	34.88	9.00	0	100	HORIZONTAL
6	17740.000	35.08	-18.36	53.44	17.48	42.39	33.84	9.05	0	100	HORIZONTAL

Note: Measurements made with 1 MHz RBW/3MHz VBW (RMS detector) at 1m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

The distance: 1m

Vertical

UWB Radiated Emissions 8 GHz to 18 GHz



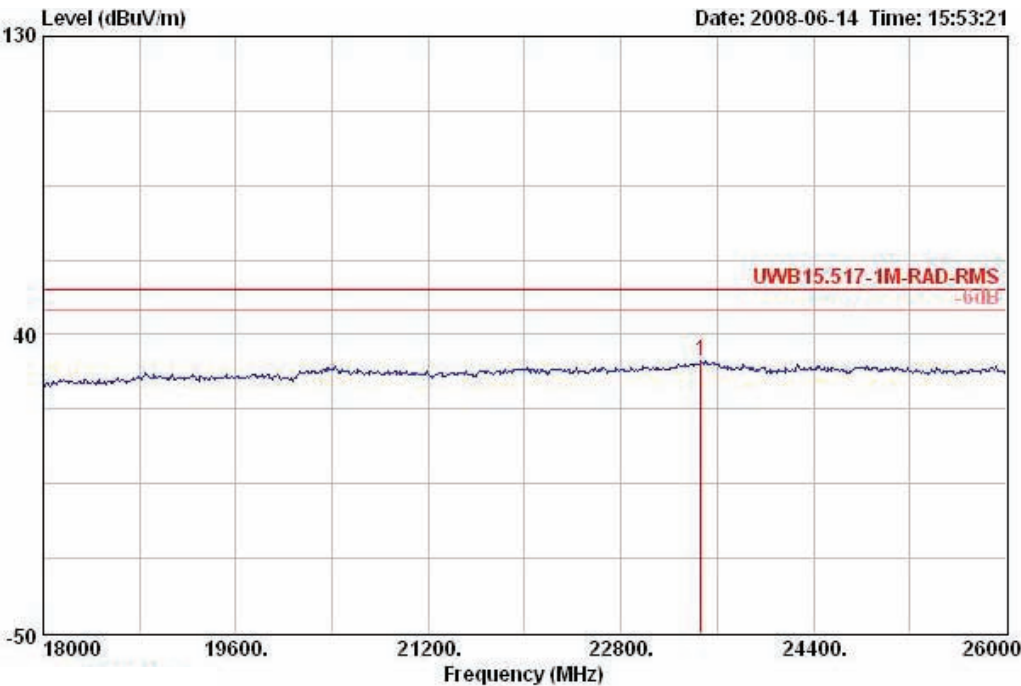
	Freq	Level	Over Limit	Limit Line	ReadAntenna	Preamp	Cable	Remark	Table Pos	Ant Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	deg	cm	
1	13630.000	32.14	-21.30	53.44	17.17	40.47	33.22	7.72 Peak	360	100	VERTICAL
2	14580.000	33.09	-20.35	53.44	17.95	40.35	33.49	8.28 Peak	360	100	VERTICAL
3	16620.000	32.99	-20.45	53.44	18.79	39.86	34.70	9.04 Peak	360	100	VERTICAL
4	17270.000	35.44	-18.00	53.44	18.50	41.87	33.98	9.05 Peak	360	100	VERTICAL
5	17730.000	34.23	-19.22	53.44	16.65	42.37	33.85	9.05 Peak	360	100	VERTICAL
6	18000.000	34.15	-19.29	53.44	16.16	42.70	33.77	9.05 Peak	360	100	VERTICAL

Note: Measurements made with 1 MHz RBW/3MHz VBW (RMS detector) at 1m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

The distance: 1m

Horizontal

UWB Radiated Emissions 18 GHz to 26 GHz



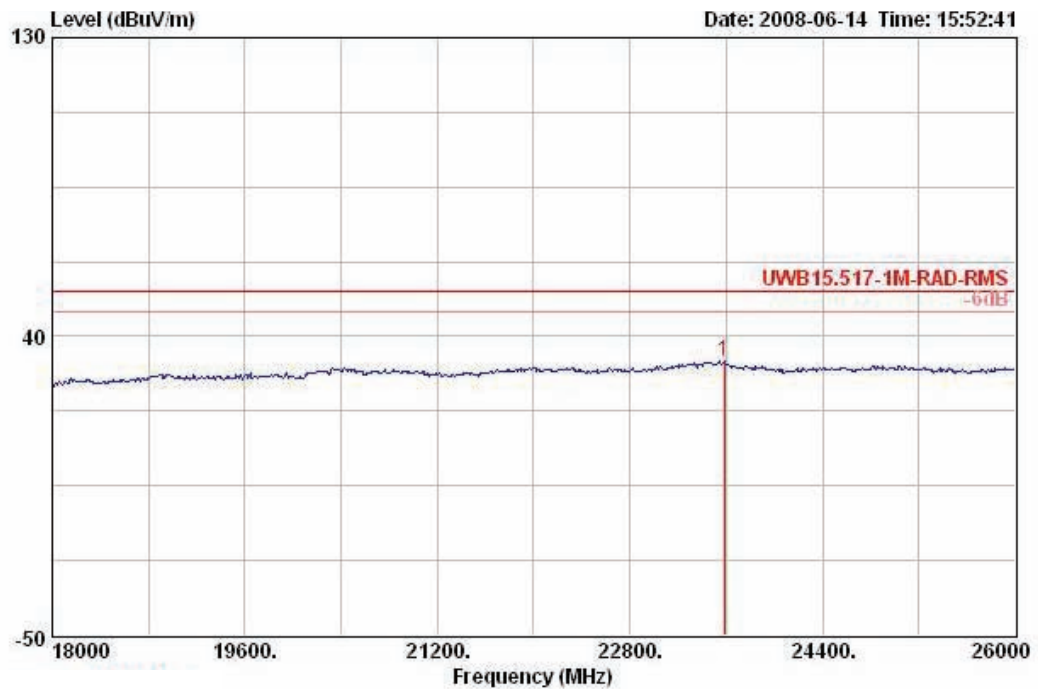
	Freq	Level	Over	Limit	ReadAntenna	Preamp	Cable		Table	Ant
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB		deg	cm
1	23464.000	32.07	-21.37	53.44	14.12	39.60	33.76	12.12 Peak	61	100 HORIZONTAL

Note: Measurements made with 1 MHz RBW/3MHz VBW (RMS detector) at 1m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

The distance: 1m

Vertical

UWB Radiated Emissions 18 GHz to 26 GHz



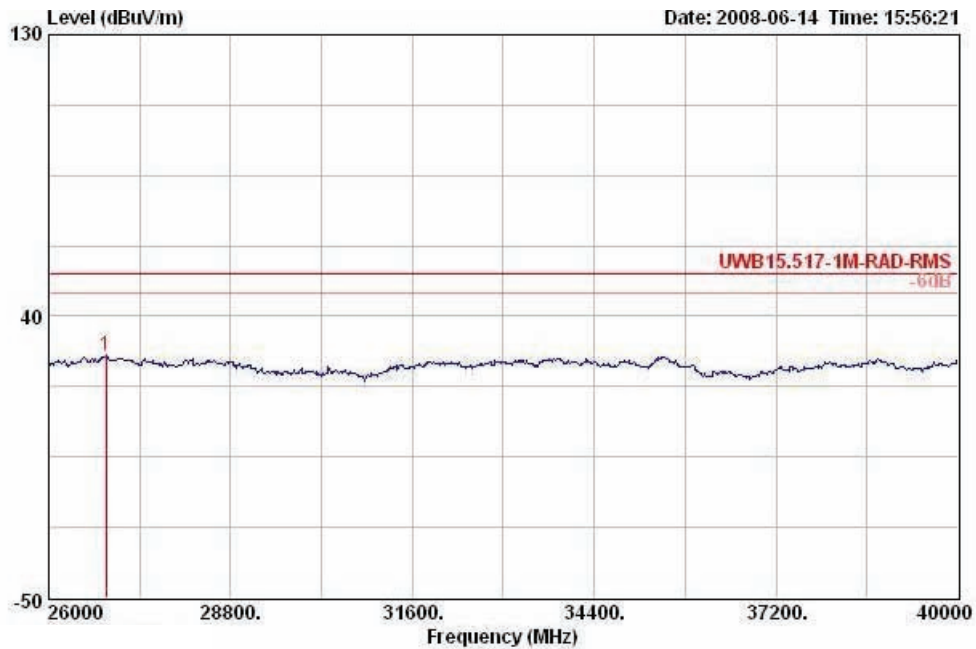
	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Table	Ant
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB	deg	cm
1	23584.000	32.48	-20.96	53.44	14.56	39.60	33.79	12.11	191	100
								Peak		VERTICAL

Note: Measurements made with 1 MHz RBW/3MHz VBW (RMS detector) at 1m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

The distance: 1m

Horizontal

UWB Radiated Emissions 26 GHz to 40 GHz



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Preamp Factor	Cable Loss	Remark	Table Pos	Ant Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB		deg	cm	
1	26882.000	27.34	-26.10	53.44	18.62	39.54	30.82	14.56 Peak	144	100	HORIZONTAL

Note: Measurements made with 1 MHz RBW/3MHz VBW (RMS detector) at 1m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

The distance: 1m

Vertical

UWB Radiated Emissions 26 GHz to 40GHz



	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable		Table	Ant
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		deg	cm
1	26938.000	28.45	-24.99	53.44	19.64	39.55	30.73	16.16	Peak	83	100 VERTICAL

Note: Measurements made with 1 MHz RBW/3MHz VBW (RMS detector) at 1m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

4.5. Radiated Emissions in GPS Bands Measurement

4.5.1. Limit

In addition to the radiated emission limits specified in the table in paragraph 4.5.1 of this report, UWB transmitters operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of no less than 1 kHz.

Freq. (MHz)	EIRP (dBm)	E- Field (dB μ V/m) at 3m	E- Field (dB μ V/m) at 1m	E- Field (dB μ V/m) at 0.5m
1164-1240	-85.3	9.9	19.44	25.46
1559-1610	-85.3	9.9	19.44	25.46

Note 1: This may be converted to a peak field strength level at 3 meters using $E(\text{dB}\mu\text{V/m}) = P(\text{dBm EIRP}) + 95.2 \text{ dB}$.

Note 2: Above 960MHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m. Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB); Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB]. from 3m to 0.5m. Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [0.5m]})$ (dB); Limit line = specific limits (dBuV) + distance extrapolation factor [15.56 dB].

4.5.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	0 dB
RB / VB	10 kHz / 10kHz for RMS for Average, 1 msec averaging time were used for these measurement frequencies

4.5.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Measurements frequencies were maximized using a spectrum analyzer with RMS detector capabilities. A spectrum analyzer was used for the final measurements utilizing an RMS detector at

the frequencies with the largest amplitudes. The prescribed RBW of 10 kHz and VBW of 10 kHz, and a 1 msec averaging time were used for these measurements.

6. Per 47 CFR, Part 15, Subpart F, §15.521(c) (§15.209) all digital emissions from the transmitter not intended to be radiated from the antenna port meet the 15.209 subpart C limits.

4.5.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.4.4.

4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

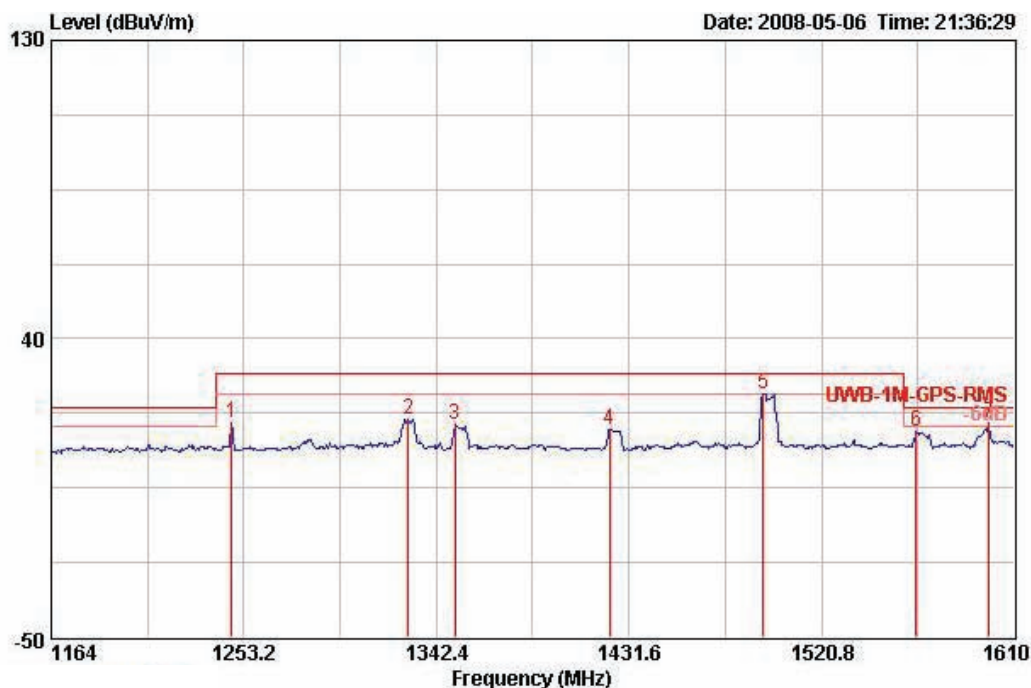
The EUT was programmed to be in continuously transmitting mode.

4.5.7. Results for Radiated Emissions in GPS Bands

Temperature	26°C	Humidity	58%
Test Engineer	Sam Chen	Configurations	ALL BAND / Ant. 1

The distance: 1m

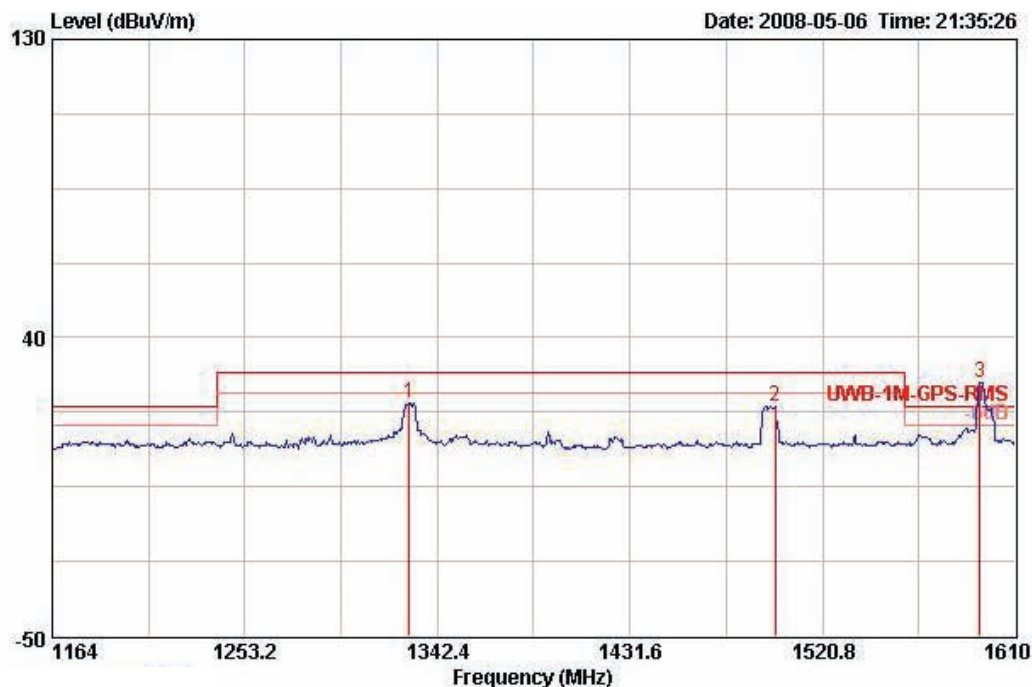
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Table Pos	Ant Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		deg	cm	
1	1247.402	14.81	-14.63	29.44	23.77	24.52	35.55	2.07	Peak	360	100	HORIZONTAL
2	1329.466	15.45	-13.99	29.44	23.71	24.84	35.28	2.18	Peak	360	100	HORIZONTAL
3	1350.874	14.26	-15.18	29.44	22.45	24.91	35.28	2.18	Peak	360	100	HORIZONTAL
4	1422.680	12.39	-17.05	29.44	19.96	25.26	35.08	2.26	Peak	360	100	HORIZONTAL
5	1493.594	23.33	-6.11	29.44	30.35	25.55	34.89	2.32	Peak	360	100	HORIZONTAL
6	1564.508	12.10	-7.34	19.44	18.68	25.90	34.80	2.31	Peak	360	100	HORIZONTAL
7	1598.404	14.70	-4.74	19.44	21.13	26.10	34.84	2.31	Peak	360	100	HORIZONTAL

The distance: 1m

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna	Preamp	Cable	Table	Ant	
	MHz	dBUV/m	dB	dBUV/m	Level	Factor	Loss	Pos	Pos	Pol/Phase
					dBuV	dB/m	dB	deg	cm	
1	1329.466	20.36	-9.08	29.44	28.61	24.84	35.28	2.18	100	VERTICAL
2	1498.946	19.44	-10.00	29.44	26.46	25.55	34.89	2.32	100	VERTICAL
3	1593.498	26.31			32.73	26.10	34.84	2.31	100	VERTICAL

Note: Measurements made with 10KHz RBW/10KHz VBW (RMS detector) at 1m distance. 1 msec averaging time were used for these frequencies per bin point measurements. Emissions (Mark 3) from digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in 47 CFR, Part 15, Subpart C, §15.209.

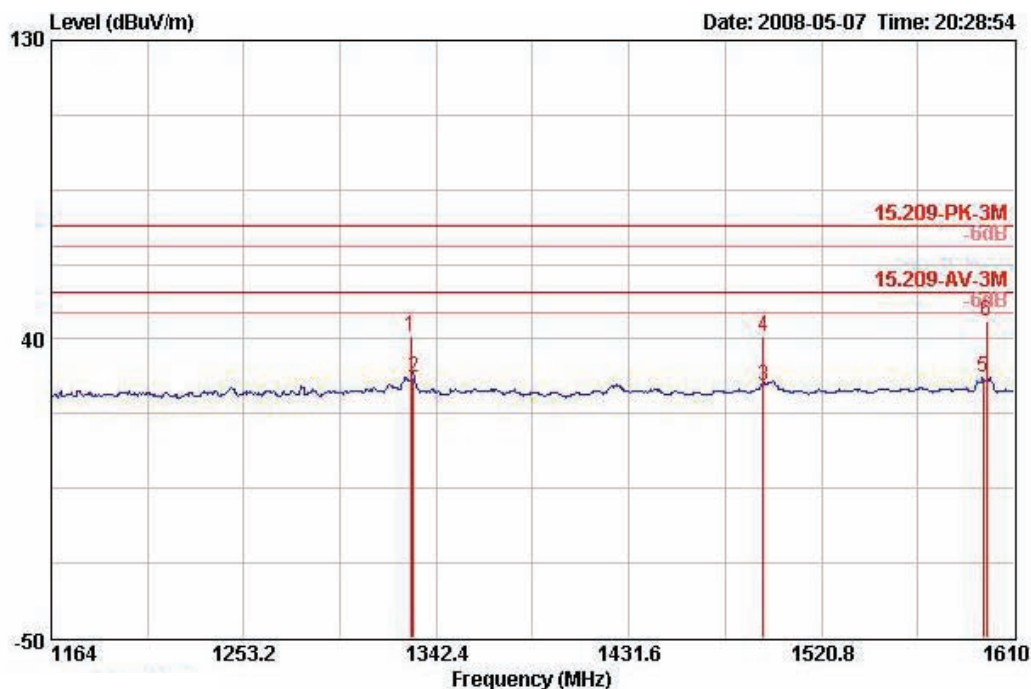
Radiated Emissions in GPS Bands with terminated antenna port

Temperature	26°C	Humidity	58%
Test Engineer	Sam Chen	Configurations	All Band / Ant. 1

The distance: 3m

Horizontal

Terminated antenna port:



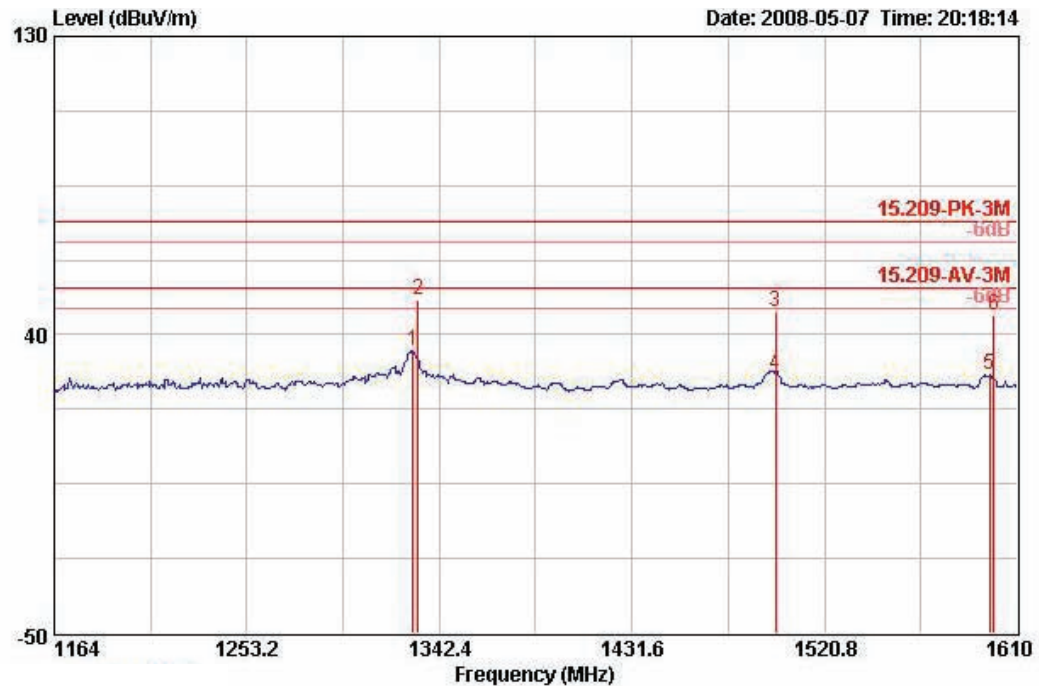
	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Table	Ant	
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pos	Pos	Pol/Phase
			dB	dBuV/m	dBuV	dB/m	dB	dB	deg	cm	
1	1330.576	40.68	-33.32	74.00	48.93	24.84	35.28	2.18	91	100	HORIZONTAL
2	1331.776	28.57	-25.43	54.00	36.82	24.84	35.28	2.18	91	100	HORIZONTAL
3	1493.720	25.68	-28.32	54.00	32.70	25.55	34.89	2.32	335	100	HORIZONTAL
4	1493.880	40.64	-33.36	74.00	47.66	25.55	34.89	2.32	335	100	HORIZONTAL
5	1595.728	28.29	-25.71	54.00	34.71	26.10	34.84	2.31	243	100	HORIZONTAL
6	1597.320	45.24	-28.76	74.00	51.67	26.10	34.84	2.31	243	100	HORIZONTAL

Note: Digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in 47 CFR, Part 15, Subpart C, §15.209.

The distance: 3m

Vertical

Terminated antenna port:



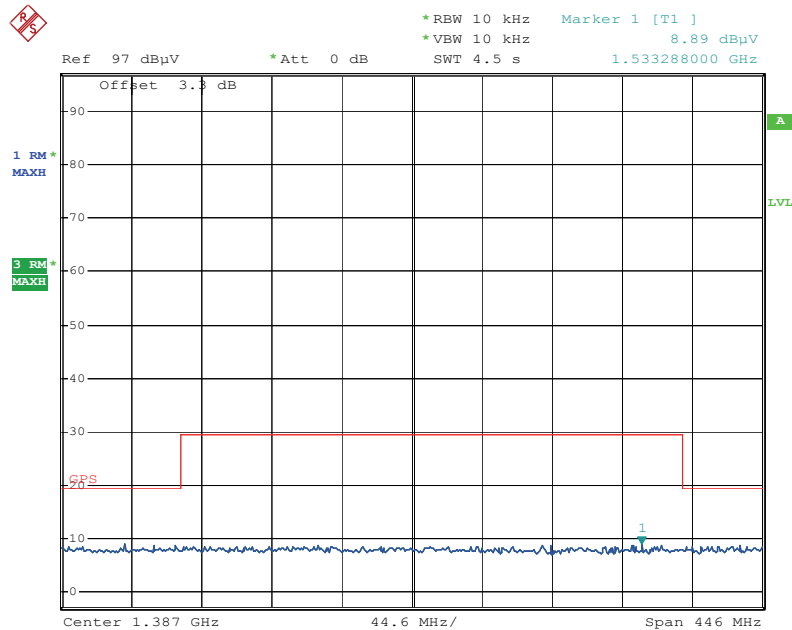
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Preamp Factor	Cable Loss	Remark	Table Pos	Ant Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB		deg	cm	
1 ☒	1330.112	34.97	-19.03	54.00	43.22	24.84	35.28	2.18 AVERAGE	350	100	VERTICAL
2 ☒	1332.572	50.44	-23.56	74.00	58.69	24.84	35.28	2.18 PEAK	350	100	VERTICAL
3 ☒	1498.052	46.98	-27.02	74.00	54.00	25.55	34.89	2.32 PEAK	197	115	VERTICAL
4 ☒	1498.292	28.16	-25.84	54.00	35.18	25.55	34.89	2.32 AVERAGE	197	115	VERTICAL
5 ☒	1597.320	27.95	-26.05	54.00	34.38	26.10	34.84	2.31 AVERAGE	333	115	VERTICAL
6	1599.120	45.71	-28.29	74.00	52.14	26.10	34.84	2.31 PEAK	333	115	VERTICAL

Note: Digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in 47 CFR, Part 15, Subpart C, §15.209.

Conducted Antenna Port Emissions

Temperature	26°C	Humidity	58%
Test Engineer	Sam Chen	Configurations	All Band / Ant. 1

Conducted antenna port:



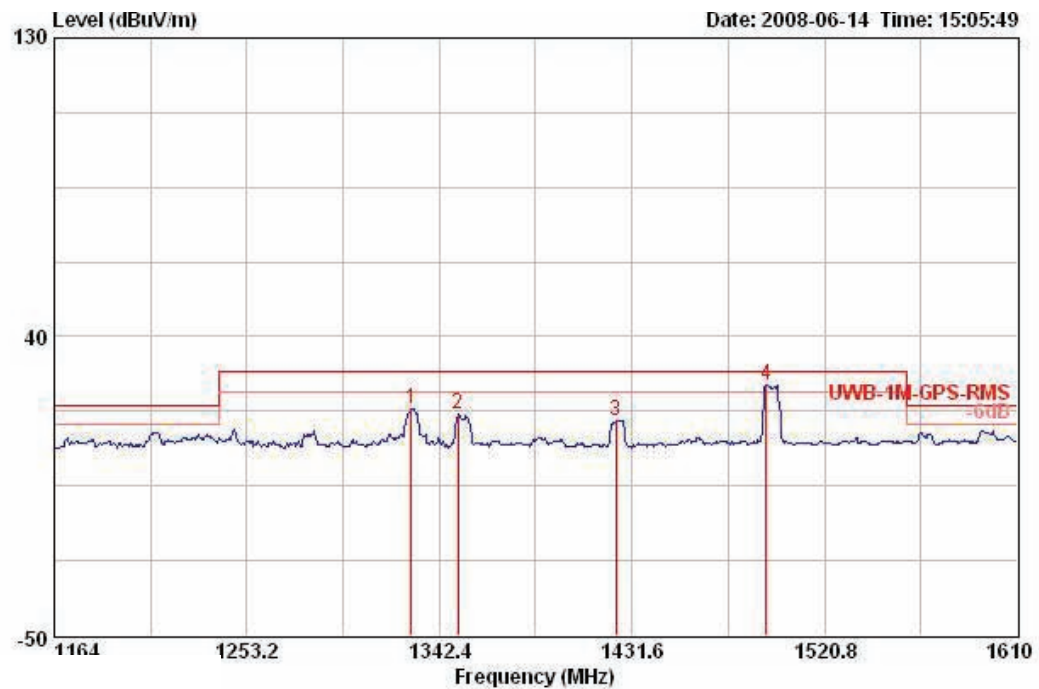
Date: 6.MAY.2008 15:28:36

Note: Conducted antenna port measurements made with 10 kHz RBW at 1m distance, 1 msec averaging time were used for these frequencies per bin point measurements.

Temperature	26°C	Humidity	58%
Test Engineer	Sam Chen	Configurations	All Band / Ant 2

The distance: 1m

Horizontal

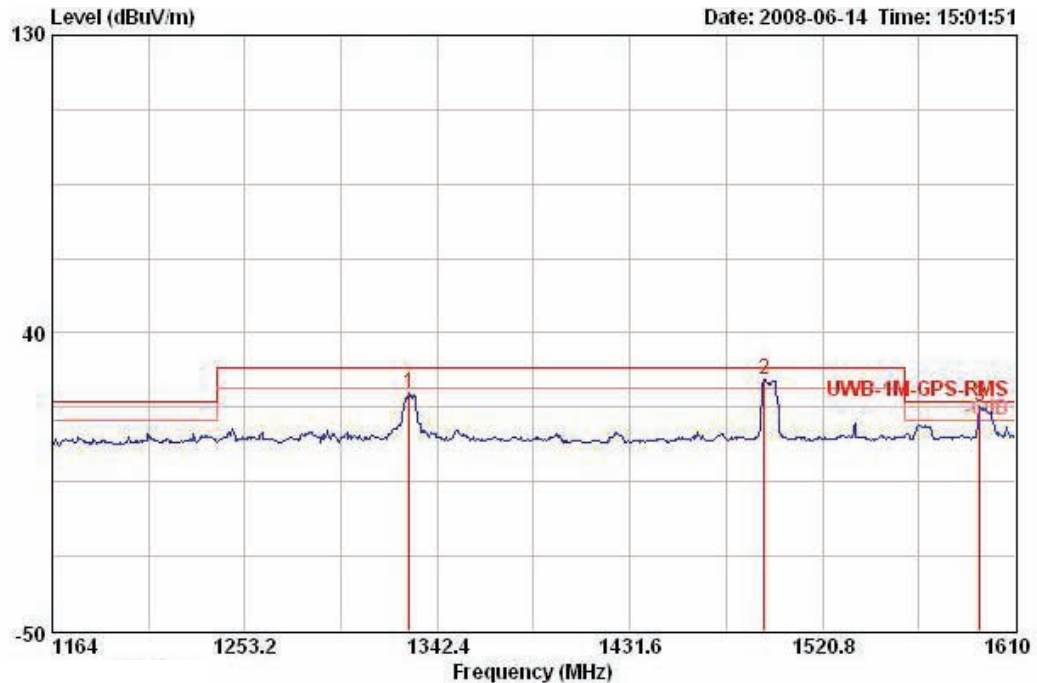


	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Table	Ant
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB	deg	cm
1	1329.466	18.10	-11.34	29.44	26.36	24.84	35.28	2.18 Peak	0	100 HORIZONTAL
2	1350.874	16.84	-12.60	29.44	25.03	24.91	35.28	2.18 Peak	0	100 HORIZONTAL
3	1424.018	14.79	-14.65	29.44	22.35	25.26	35.08	2.26 Peak	0	100 HORIZONTAL
4	1493.594	25.46	-3.98	29.44	32.48	25.55	34.89	2.32 Peak	0	100 HORIZONTAL

Note: Measurements made with 10kHz RBW/10kHz VBW (RMS detector) at 1m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

The distance: 1m

Vertical



	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable		Table	Ant	
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Remark	Pos	Pos	Pol/Phase
			dB	dBuV/m	dBuV	dB/m	dB	dB		deg	cm	
1	1329.466	21.82	-7.62	29.44	30.07	24.84	35.28	2.18	Peak	0	100	VERTICAL
2	1493.594	26.12	-3.32	29.44	33.15	25.55	34.89	2.32	Peak	0	100	VERTICAL
3	1593.498	17.60	-1.84	19.44	24.02	26.10	34.84	2.31	Peak	0	100	VERTICAL

Note: Measurements made with 10kHz RBW/10KHz VBW (RMS detector) at 1m distance. 1 msec averaging time were used for these frequencies per bin point measurements.

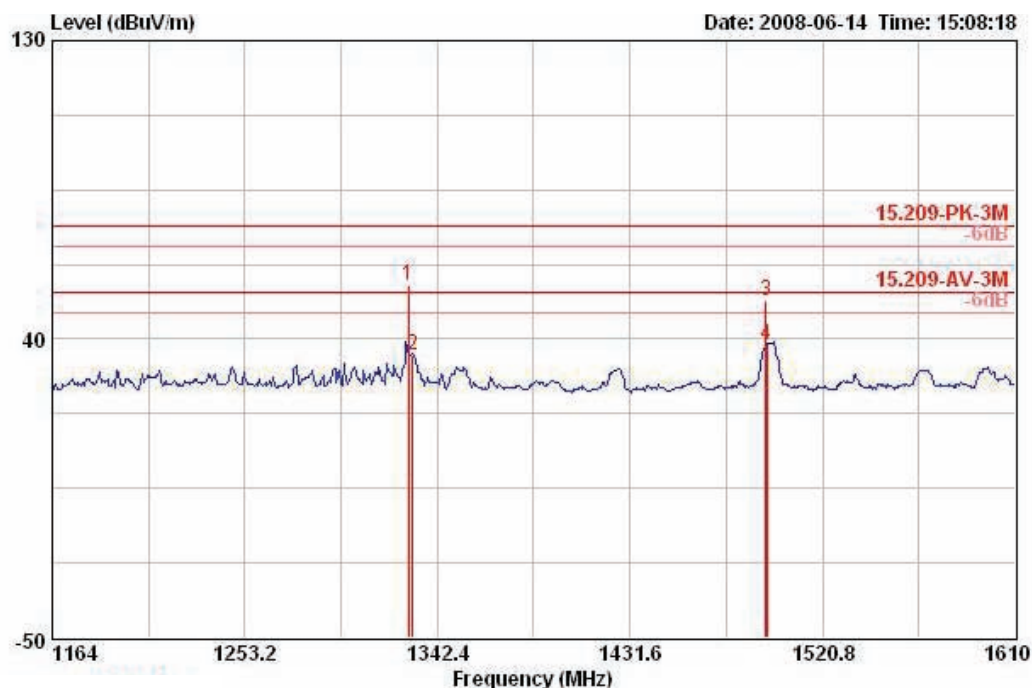
Radiated Emissions in GPS Bands with terminated antenna port

Temperature	26°C	Humidity	58%
Test Engineer	Sam Chen	Configurations	All Band / Ant. 2

The distance: 3m

Horizontal

Terminated antenna port:



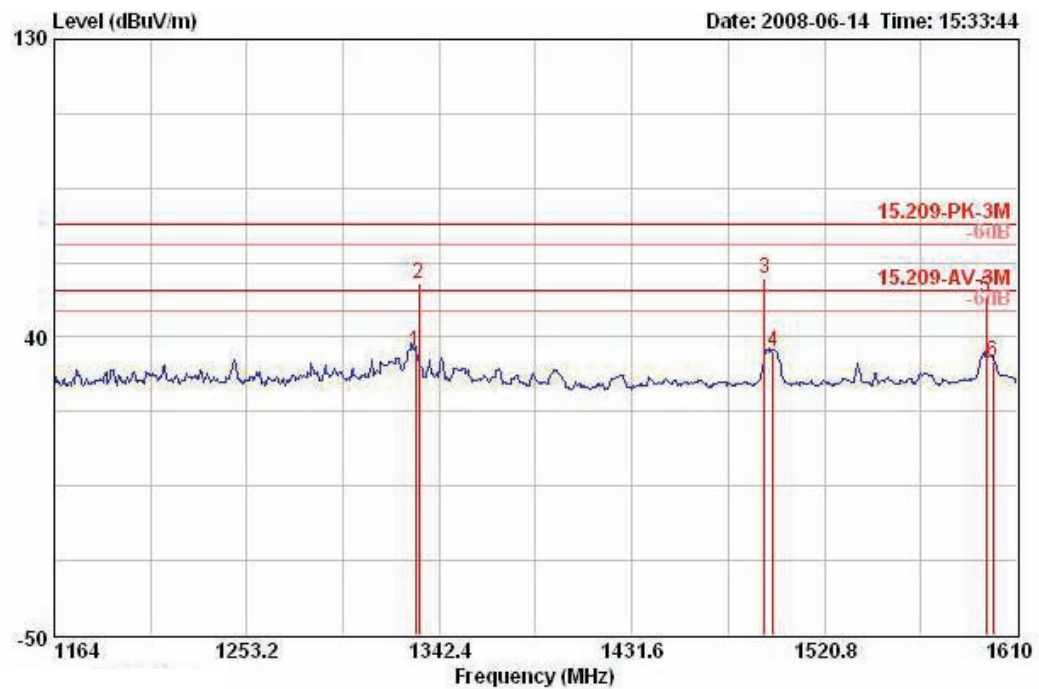
	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable	Table	Ant	
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pos	Pos	Pol/Phase
			dB	dBuV/m	dBuV	dB/m	dB	dB	deg	cm	
1	1329.048	56.02	-17.98	74.00	64.28	24.84	35.28	2.18	146	100	HORIZONTAL
2	1330.808	35.07	-18.93	54.00	43.33	24.84	35.28	2.18	146	100	HORIZONTAL
3	1494.372	51.63	-22.37	74.00	58.70	25.50	34.89	2.32	162	100	HORIZONTAL
4	1494.892	38.07	-15.93	54.00	45.14	25.50	34.89	2.32	162	100	HORIZONTAL

Note: Digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in 47 CFR, Part 15, Subpart C, §15.209.

The distance: 3m

Vertical

Terminated antenna port:



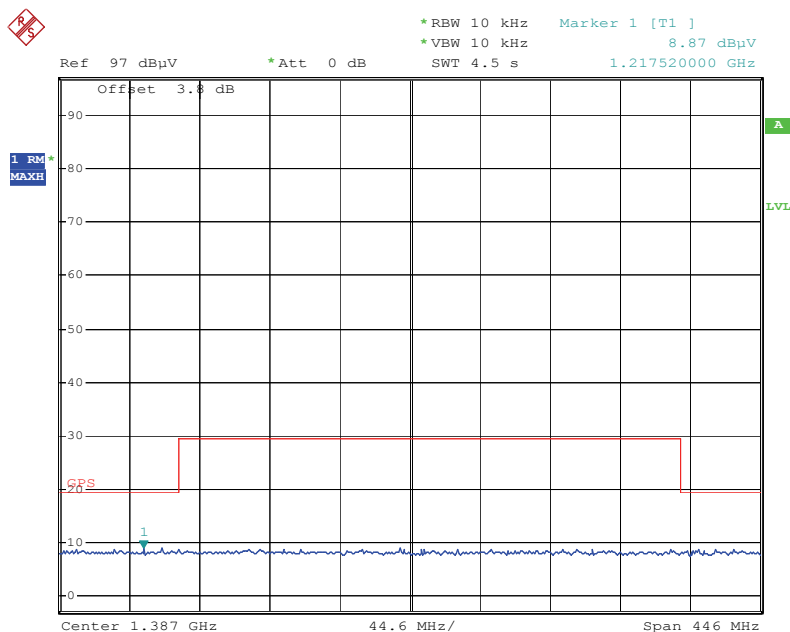
	Freq	Level	Over Limit	Limit Line	ReadAntenna	Preamp	Cable	Table	Ant	
	MHz	dBuV/m	dB	dBuV/m	Level	Factor	Loss	Pos	Pos	Pol/Phase
					dBuV	dB/m	dB	deg	cm	
1	1331.156	35.39	-18.61	54.00	43.64	24.84	35.28	2.18	169	100 VERTICAL
2	1333.036	55.99	-18.01	74.00	64.17	24.91	35.28	2.18	169	100 VERTICAL
3	1492.904	57.78	-16.22	74.00	64.85	25.50	34.89	2.32	110	108 VERTICAL
4	1496.904	35.83	-18.17	54.00	42.90	25.50	34.89	2.32	110	108 VERTICAL
5	1595.708	51.95	-22.05	74.00	58.37	26.10	34.84	2.31	240	118 VERTICAL
6	1598.628	32.56	-21.44	54.00	38.98	26.10	34.84	2.31	240	118 VERTICAL

Note: Digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in 47 CFR, Part 15, Subpart C, §15.209.

Conducted Antenna Port Emissions

Temperature	26°C	Humidity	58%
Test Engineer	Sam Chen	Configurations	All Band / Ant. 2

Conducted antenna port:



Date: 14.JUN.2008 09:52:31

Note: Conducted antenna port measurements made with 10 kHz RBW/ 1kHz VBW at 1m distance, 1 msec averaging time were used for these frequencies per bin point measurements.

4.6. Peak Emissions within a 50 MHz Bandwidth Measurement

4.6.1. Limit

There is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs, fM. That limit is 0 dBm EIRP. It is acceptable to employ a different resolution bandwidth, and a correspondingly different peak emission limit, EIRP limit has to be adjusted by the resolution bandwidth ratio of $20\log(\text{RBW}/50)$ dB, where RBW is the resolution bandwidth used for the measurement expressed in MHz. In addition, This may be converted to a peak field strength level at 3 meters using $E(\text{dB}\mu\text{V/m}) = P(\text{dBm EIRP}) + 95.2 \text{ dB}$. And Peak emission shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m. Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB); Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB]

Peak EIRP limit dBm (RB / VB : 50MHz)	Peak EIRP limit dBm (RB / VB: 10MHz)	E- Field (dB μ V/m) at 3m (RB / VB: 10MHz)	E- Field (dB μ V/m) at 1m (RB / VB: 10MHz)
0	-13.97	81.23	90.77

4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Sweep Time	Auto
RB / VB	10MHz / 10MHz for Peak

4.6.3. Test Procedures

1. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. The horn receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
3. For maximum peak emission amplitude, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading and was used to determine the frequency at which the highest radiated emission occurs, fM.
4. The individual UWB bandwidths were measured for each BAND_ID (n_b) of the UWB spectrum. Both horizontal and vertical polarizations were taken into account to determine the full UWB BW on the maximized (in azimuth and elevation) signals.
5. A spectrum analyzer was used for the final measurement utilizing a peak detector at the frequency with the largest amplitude. The prescribed resolution bandwidth of 50 MHz was not supported by the spectrum analyzer. However, when a peak measurement is required, The resolution bandwidth for

this measurement was set to 10 MHz, and the measurement was centered on the frequency at which the highest radiated emission occurred, fM. The video bandwidth was 10 MHz.

4.6.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.3.4.

4.6.5. Test Deviation

There is no deviation with the original standard.

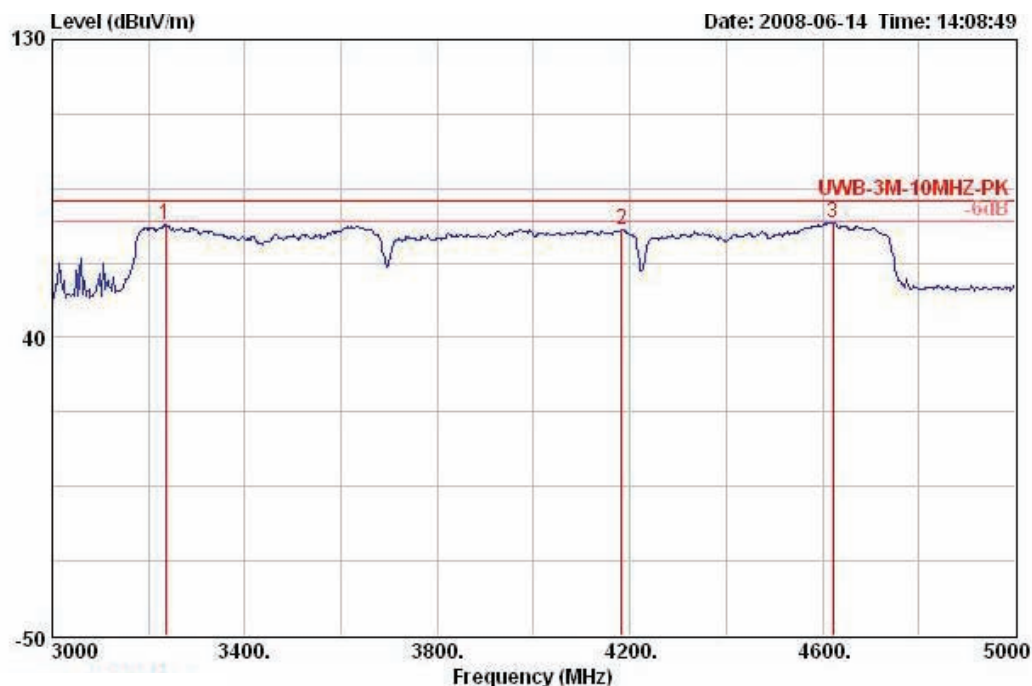
4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Test Result of Peak Emissions within a 50 MHz Bandwidth

Temperature	26°C	Humidity	28%
Test Engineer	Sam Chen	Configurations	All Band / Ant. 1

Vertical

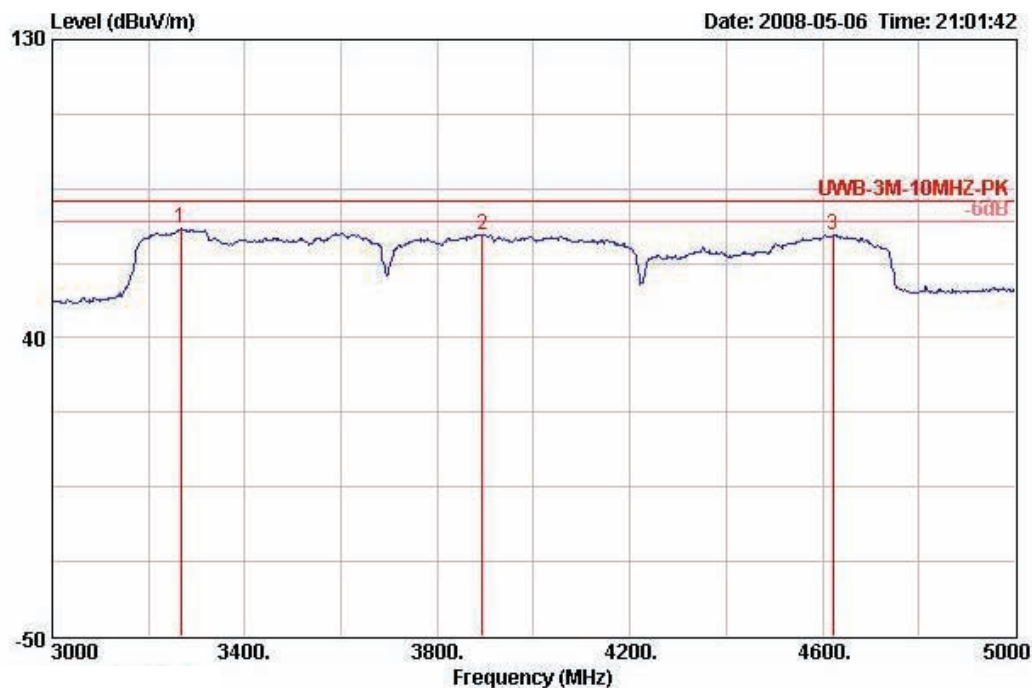


	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable		Table	Ant
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		deg	cm
1	3236.000	74.15	-7.08	81.23	75.95	29.78	34.96	3.37	Peak	80	100 VERTICAL
2	4182.000	72.66	-8.57	81.23	72.91	31.71	35.43	3.47	Peak	256	100 VERTICAL
3	4622.000	74.68	-6.55	81.23	74.23	32.12	35.67	4.00	Peak	270	100 VERTICAL

Note: Test distance: 3m, both vertical and horizontal polarization has been investigated, and vertical is the worse case.

Temperature	26°C	Humidity	28%
Test Engineer	Sam Chen	Configurations	All Band / Ant. 2

Vertical



	Freq	Level	Over	Limit	Read	Antenna	Preamp	Cable		Table	Ant
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		deg	cm
1	3268.000	72.88	-8.35	81.23	74.62	29.82	34.94	3.39	Peak	255	103
2	3894.000	71.06	-10.17	81.23	71.40	31.35	35.04	3.35	Peak	255	103
3	4622.000	71.11	-10.12	81.23	70.66	32.12	35.67	4.00	Peak	255	103

Note: Test distance: 3m, both vertical and horizontal polarization has been investigated, and vertical is the worse case.

4.7. Labeling and Instruction Manual Requirements

UWB systems operating under the provisions of this section shall bear the following or similar statement in a conspicuous location on the device or in the instruction manual supplied with the device.

"This equipment may only be operated indoors. Operation outdoors is in violation of 47 U.S.C. 301 and could subject the operator to serious legal penalties."

In addition to the above requirements, a UWB device subject to certification shall be labeled as followed in a conspicuous location on the device:

"This device complied with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

(1) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified directly above this section is required to be affixed only to the main control unit.

(2) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

The users' manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

4.8. Antenna Requirements

4.8.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.8.2. Antenna Connector Construction

Please refer to section 3.1 in this test report, antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	Mar. 03, 2008	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Mar. 31, 2008	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 22, 2008	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2008	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN T400	21653	9kHz – 30MHz	Mar. 27, 2008	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 14, 2007	Radiation (03CH03-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 13, 2008	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	COA9231A	18667	9 kHz - 2 GHz	Jan. 14, 2008	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jun. 07, 2007	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jun. 06, 2008	Radiation (03CH03-HY)
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5 GHz - 40 GHz	Jan. 22, 2007*	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP40	100305	9 kHz - 40 GHz	Sep. 27, 2007	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	May 23, 2006*	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz – 1 GHz	Jul. 21, 2007	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	Mar. 04, 2008	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	Jan. 18, 2008	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Dec. 03, 2007	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Dec. 03, 2007	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 – 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100023	9kHz ~ 30GHz	Jan. 10, 2008	Conducted (TH01-HY)
Power Meter	R&S	NRVS	100444	DC ~ 40GHz	Jun. 27, 2007	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z51	100458	DC ~ 30GHz	Jun. 27, 2007	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z32	100057	30MHz ~ 6GHz	Jun. 27, 2007	Conducted (TH01-HY)
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	May 04, 2007*	Conducted (TH01-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Mar. 13, 2008	Conducted (TH01-HY)
Temp. and Humidity Chamber	KSON	THS-C3L	612	N/A	Oct. 01, 2007	Conducted (TH01-HY)
RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz ~ 7GHz	Dec. 01, 2007	Conducted (TH01-HY)
RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 01, 2007	Conducted (TH01-HY)
Vector Signal Generator	R&S	SMU200A	102098	100kHz ~ 6GHz	Nov. 14, 2007	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Mar. 10, 2008	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

Note: Calibration Interval of instruments listed above is two year.

6. TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
LINKOU	ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777
JHUBEI	ADD : No.8, Lane 728, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

7. TAF CERTIFICATE OF ACCREDITATION



Certificate No. : LI190-070110

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory



Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

PI, total 9 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.