FCC RADIO TEST REPORT

according to

47 CFR FCC Part 15 Subpart C § 15.249

Equipment	:	**GPS SPORTS WATCH**
Brand Name	:	**bryton**
Model No.	:	**Cardio 40, Cardio 60**
Filing Type	:	**New Application**
Applicant	:	**Bryton Incorporation** 6F., No. 100, Zhouzi St., Neihu Dist., Taipei City 11493, Taiwan (R.O.C)
FCC ID	:	**YDM-BA1204**
Manufacturer		**TAI YONG ELECTRONICS (SHANGHAI) CORP.** 4F., NO. 168, MEI SHENG RD., WAI GAO QIAO FTZ, PU DONG SHANGHAI CHINA. POST CODE:200131
Received Date	:	Jan. 16, 2014
Final Test Date	:	Jan. 29, 2014

Statement

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart C**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

Table of Contents

1. SUMMARY OF THE TEST RESULT 2

2. GENERAL INFORMATION 3

2.1 Product Details 3
2.2 Table for Test Modes 3
2.3 Table for Testing Locations 4
2.4 Test Mode 4
2.5 Table for Supporting Units 4
2.6 Test Configurations 5

3. TEST RESULT 6

3.1 AC Power Line Conducted Emissions Measurement 6
3.2 20dB and & 99% Occupied Bandwidth 11
3.3 Field Strength of Fundamental Emissions 13
3.4 Radiated Spurious Emissions 19
3.5 Antenna Requirements 26

4. LIST OF MEASURING EQUIPMENT 27

5. TEST LOCATION 28

6. TAF CERTIFICATE OF ACCREDITATION 29

APPENDIX A. SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR411661	Rev. 01	Initial issue of report	Feb. 05, 2014
FR411661	Rev. 02	Updated the report for add SHF-EHF Horn Antenna in section 4	Feb. 06, 2014

CERTIFICATE OF COMPLIANCE

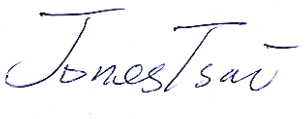
according to

47 CFR FCC Part 15 Subpart C § 15.249

Equipment	:	**GPS SPORTS WATCH**
Brand Name	:	**bryton**
Model No.	:	**Cardio 40, Cardio 60**
Applicant	:	**Bryton Incorporation** 6F., No. 100, Zhouzi St., Neihu Dist., Taipei City 11493, Taiwan (R.O.C)

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jan. 16, 2014 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager

SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

1. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C					
Part	**FCC Rule**	**IC Rule**	**Description of Test**	**Result**	**Under Limit**
3.1	15.207	RSS-GEN 7.2.4	AC Power Line Conducted Emissions	Complies	6.20dB at 0.158MHz
3.2	2.1049	RSS-GEN 4.6.1	20dB & 99% Occupied Bandwidth	Complies	-
3.3	15.249(a)	RSS-210 A2.9	Field Strength of Fundamental Emissions	Complies	35.75dB at 2457.220MHz
3.4	15.249(a)(d)	RSS-210 A2.9	Radiated Spurious Emissions	Complies	9.59dB at 64.020MHz
3.5	15.203	-	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Field Strength of Fundamental Emissions	±0.8dB	Confidence levels of 95%
Bandwidth	$\pm 8.5\times10^{-8}$	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7℃	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%

2. GENERAL INFORMATION

2.1 Product Details

For more detailed features description, please refer to the manufacturer's specifications or user's manual.

Items	Description
Power Type	4Vdc from Li-ion Battery
Modulation	GFSK
Channel Bandwidth (99%)	1.060MHz
Max. Field Strength	78.25dBμV/m
Test Frequency	2457 MHz
Antenna	PIFA Antenna (Without any antenna connector)
Sample 1 (Cardio 40)	EUT with Battery 1 (220mAh)
Sample 2 (Cardio 60)	EUT with Battery 2 (450mAh) and Vibrators

2.2 Table for Test Modes

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode
AC Power Line Conducted Emissions	CTX
Field Strength of Fundamental Emissions	CTX
Bandwidth	CTX
Radiated Emissions	CTX

Note:

1, TX= transmitting.

2, The EUT choose "Setting", then choose the Sensors, Cadence, and Rescan Carrier. Then, the EUT will get into the engineering modes to continuously transmit at 2457MHz

2.3 Table for Testing Locations

Test Site No.	Site Category	Location
CO05-HY	Conduction	Hwa Ya
TH02-HY	OVEN Room	Hwa Ya
03CH07-HY	SAC	Hwa Ya

Semi Anechoic Chamber (SAC).

2.4 Test Mode

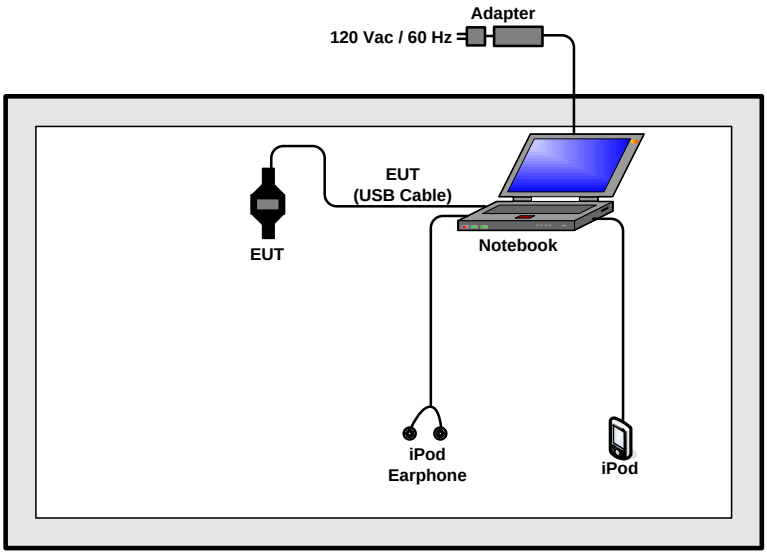
Test Cases	
AC Conducted Emission	Mode 1 : EUT + USB Cable (Data Link with Notebook) for Sample 1 Mode 2 : EUT + USB Cable (Data Link with Notebook) for Sample 2
Conducted TCs	20dB & 99% Occupied Bandwidth
Field Strength of Fundamental Emissions	Mode 1 : EUT Tx (2457 MHz) Mode for Sample 1 Mode 2 : EUT Tx (2457 MHz) Mode for Sample 2
Radiated Spurious Emissions	Mode 1 : EUT Tx (2457 MHz) Mode for Sample 1 Mode 2 : EUT Tx (2457 MHz) Mode for Sample 2
Remark: The worst case of conducted emission is mode 1; only the test data of it was reported.	

2.5 Table for Supporting Units

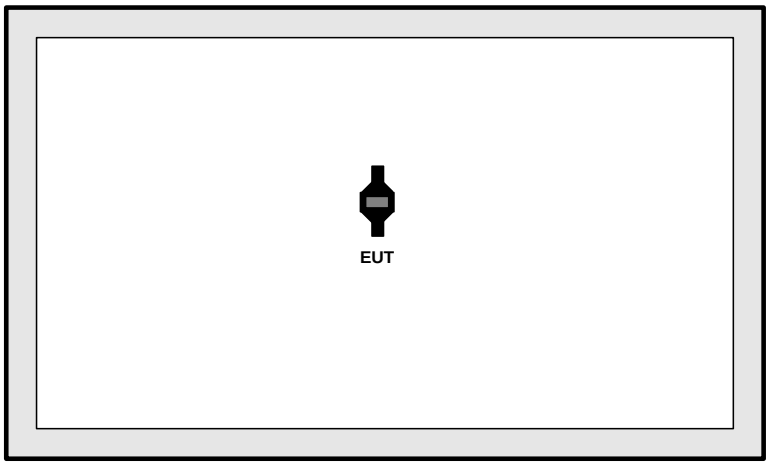
Support Unit	Manufacturer	Model	FCC ID
iPod Earphone	Apple	N/A	Verification
iPod	Apple	A1285	FCC DoC
Notebook	DELL	Latitude E6320	FCC DoC

2.6 Test Configurations

<AC Conducted Emissions>



<Radiated Spurious Emissions>



3. TEST RESULT

3.1 AC Power Line Conducted Emissions Measurement

3.1.1 Limit

For a Low-power Radio-frequency device which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBμV)	AV Limit (dBμV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

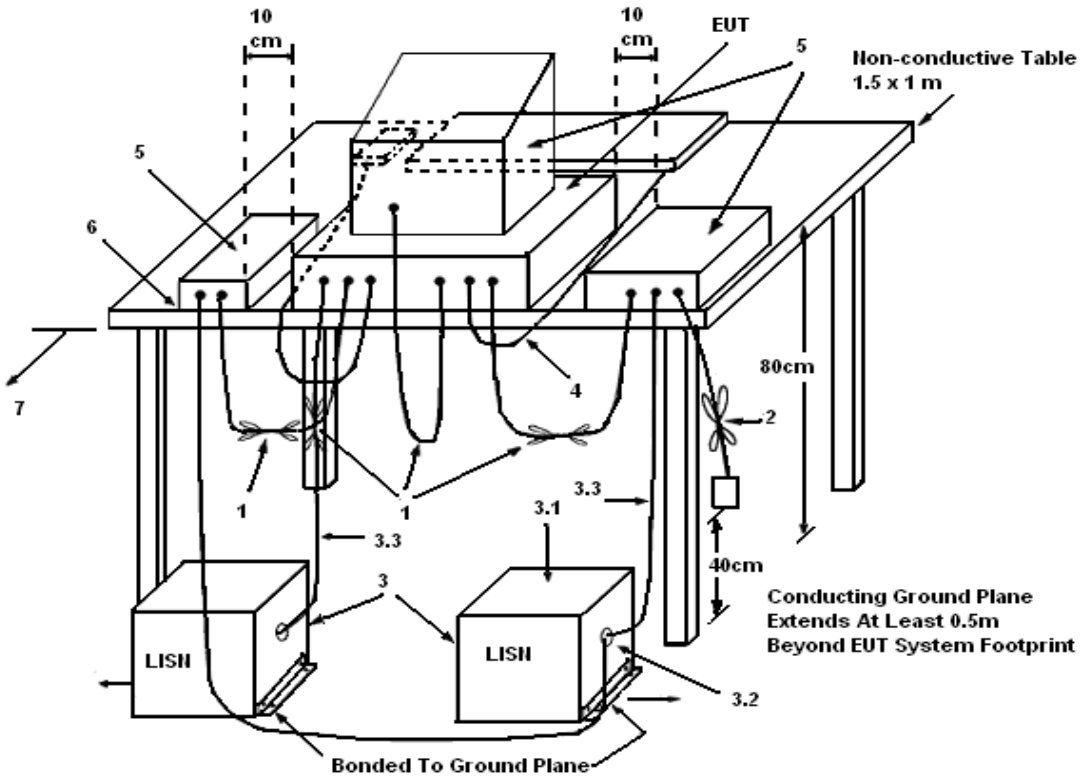
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

3.1.4 Test Setup Layout



LEGEND:

(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

(3.1) All other equipment powered from additional LISN(s).

(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

(3.3) LISN at least 80 cm from nearest part of EUT chassis.

(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

(5) Non-EUT components of EUT system being tested.

(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

3.1.5 Test Deviation

There is no deviation with the original standard.

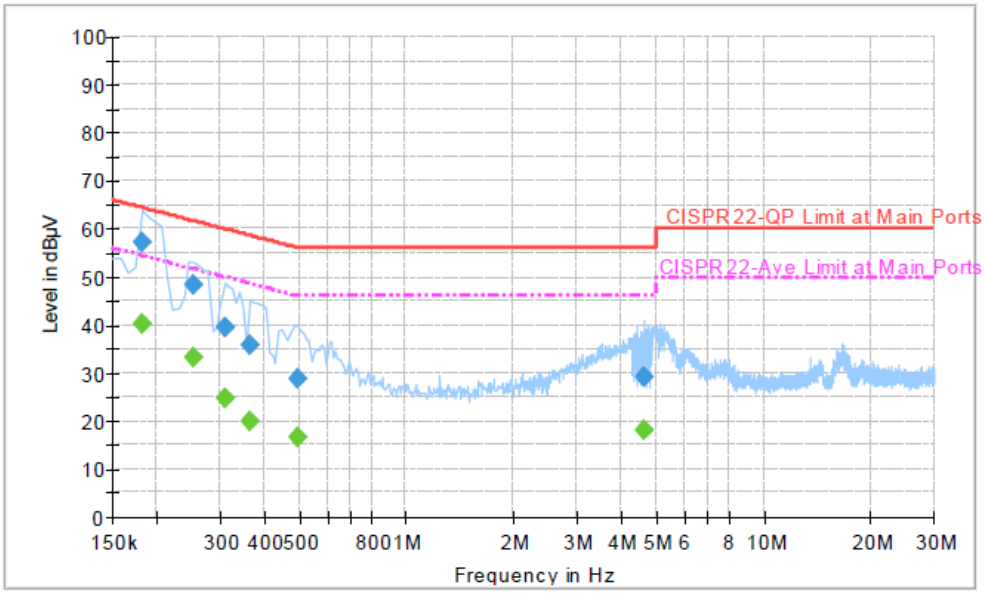
3.1.6 EUT Operation during Test

The EUT was placed on the test table and programmed in transmitting function.

3.1.7 Results of AC Power Line Conducted Emissions Measurement

Final Test Date	Jan. 22, 2014	Test Site No.	CO05-HY
Temperature	20~22°C	Humidity	46~48%
Test Engineer	Kai-Chun Chu	Configuration	Transmitting Mode (2457MHz)
Mode	EUT + USB Cable (Data Link with Notebook) for Sample 1		

Line



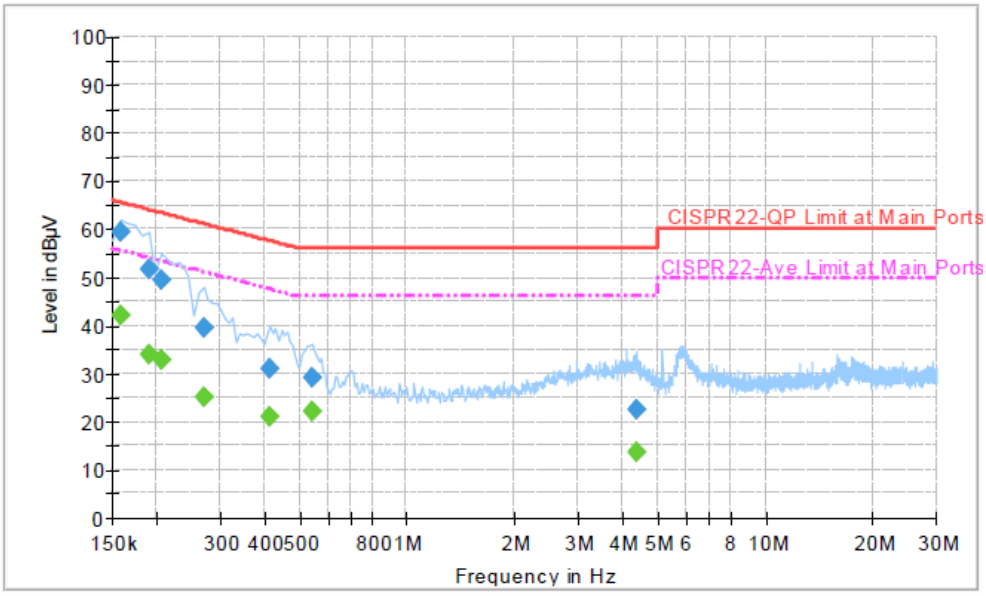
Final Result: Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	57.2	Off	L1	19.4	7.2	64.4
0.254000	48.4	Off	L1	19.5	13.2	61.6
0.310000	39.5	Off	L1	19.4	20.5	60.0
0.366000	35.9	Off	L1	19.4	22.7	58.6
0.494000	28.9	Off	L1	19.3	27.2	56.1
4.646000	29.2	Off	L1	19.6	26.8	56.0

Final Result: Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	40.3	Off	L1	19.4	14.1	54.4
0.254000	33.2	Off	L1	19.5	18.4	51.6
0.310000	24.8	Off	L1	19.4	25.2	50.0
0.366000	19.9	Off	L1	19.4	28.7	48.6
0.494000	16.6	Off	L1	19.3	29.5	46.1
4.646000	18.0	Off	L1	19.6	28.0	46.0

Neutral



Final Result: Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	59.4	Off	N	19.3	6.2	65.6
0.190000	51.6	Off	N	19.4	12.4	64.0
0.206000	49.4	Off	N	19.4	14.0	63.4
0.270000	39.7	Off	N	19.4	21.4	61.1
0.414000	31.1	Off	N	19.4	26.5	57.6
0.542000	29.3	Off	N	19.4	26.7	56.0
4.390000	22.4	Off	N	19.7	33.6	56.0

Final Result: Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	42.1	Off	N	19.3	13.5	55.6
0.190000	34.1	Off	N	19.4	19.9	54.0
0.206000	32.7	Off	N	19.4	20.7	53.4
0.270000	25.0	Off	N	19.4	26.1	51.1
0.414000	20.9	Off	N	19.4	26.7	47.6
0.542000	22.0	Off	N	19.4	24.0	46.0
4.390000	13.7	Off	N	19.7	32.3	46.0

3.2 20dB and & 99% Occupied Bandwidth

3.2.1 Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emissions in the specific band.

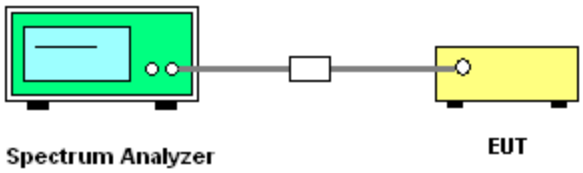
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The transmitter output port was connected to the spectrum analyzer.
2. Measured the spectrum width with highest power setting.

3.2.4 Test Setup Layout



3.2.5 Test Deviation

There is no deviation with the original standard.

3.2.6 EUT Operation during Test

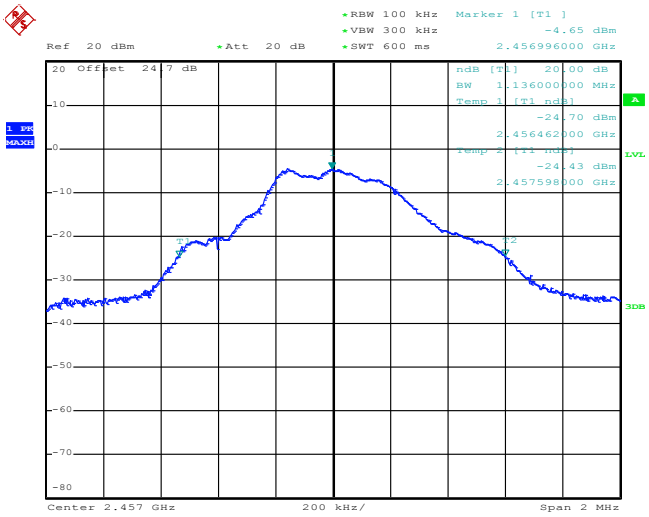
The EUT was programmed to be in continuously transmitting mode.

3.2.7 Test Result of 20dB Spectrum Bandwidth

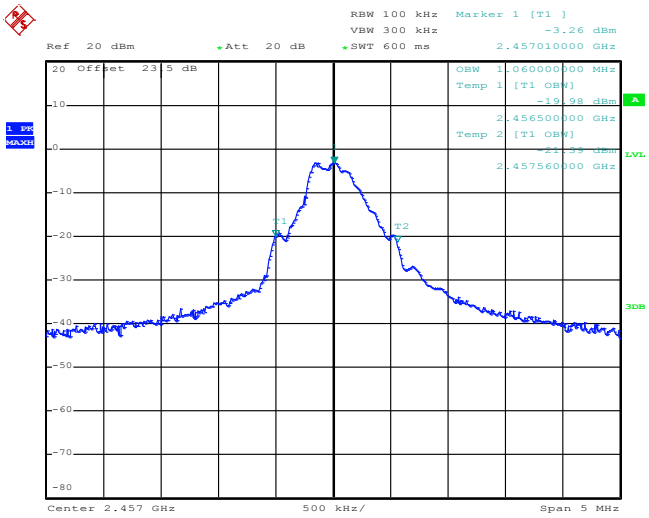
Final Test Date	Jan. 22, 2014 ~ Jan. 29, 2014	Test Site No.	TH02-HY
Temperature	22~23°C	Humidity	42~44%
Test Engineer	Stuart Lin		

Frequency	20dB BW (MHz)	99% OBW (MHz)
2457MHz	1.136	1.060

20 dB Bandwidth Plot on 2457MHz



99% Bandwidth Plot on 2457MHz



3.3 Field Strength of Fundamental Emissions

3.3.1 Limit

The field strength measured at 3 meters shall not exceed the limits in the following table:

Fundamental Frequencies (MHz)	Field Strength (millivolts/m)	
	Fundamental	Harmonics
902-928	50	0.5
2400-2483.5	50	0.5
5725-5875	50	0.5

Note: The limits shown in the above table are based on measurements using an average detector, except for the fundamental emission in the frequency band 902-928 MHz, which is based on measurements using a CISPR quasi-peak detector.

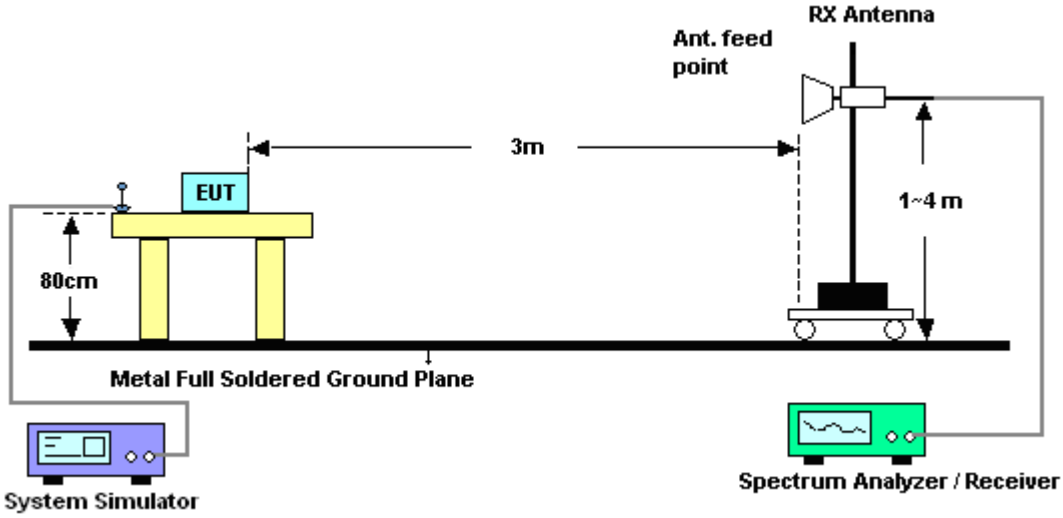
3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.3.4 Test Setup Layout



3.3.5 Test Deviation

There is no deviation with the original standard.

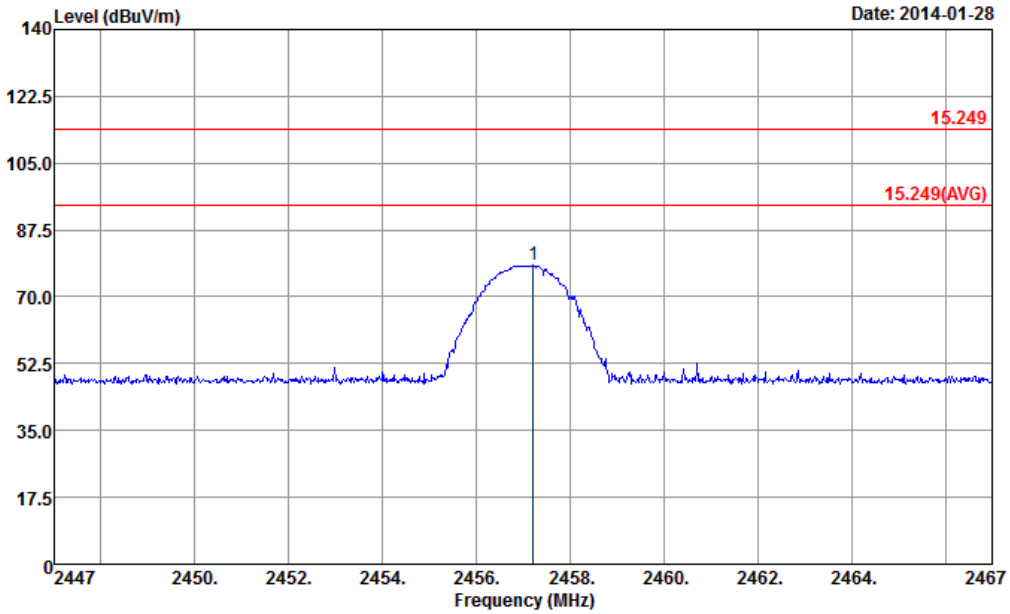
3.3.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.3.7 Test Result of Field Strength of Fundamental Emissions

Final Test Date	Jan. 28, 2014	Test Site No.	03CH07-HY
Temperature	21~23°C	Humidity	46~48%
Test Engineer	Eric Shih		
Mode	EUT Tx (2457 MHz) Mode for Sample 1		

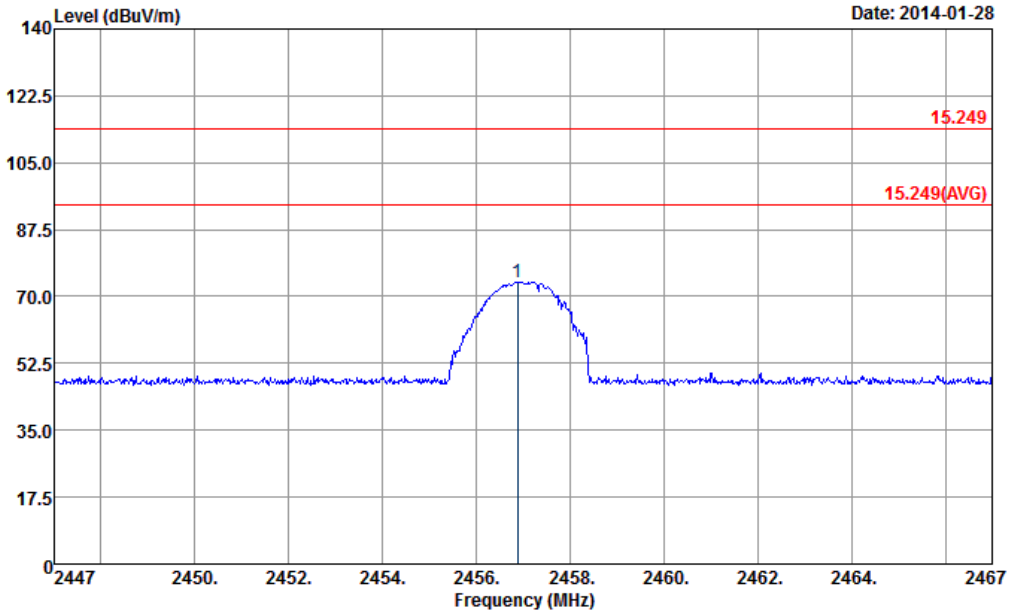
Horizontal



Site : 03CH07-HY
Condition : 15.249 3m HF-ANT_120823 HORIZONTAL
Project : FR 411661
Mode : 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2457.22	78.25	-35.75	114.00	97.83	32.37	7.02	58.97	106	152	Peak

Vertical

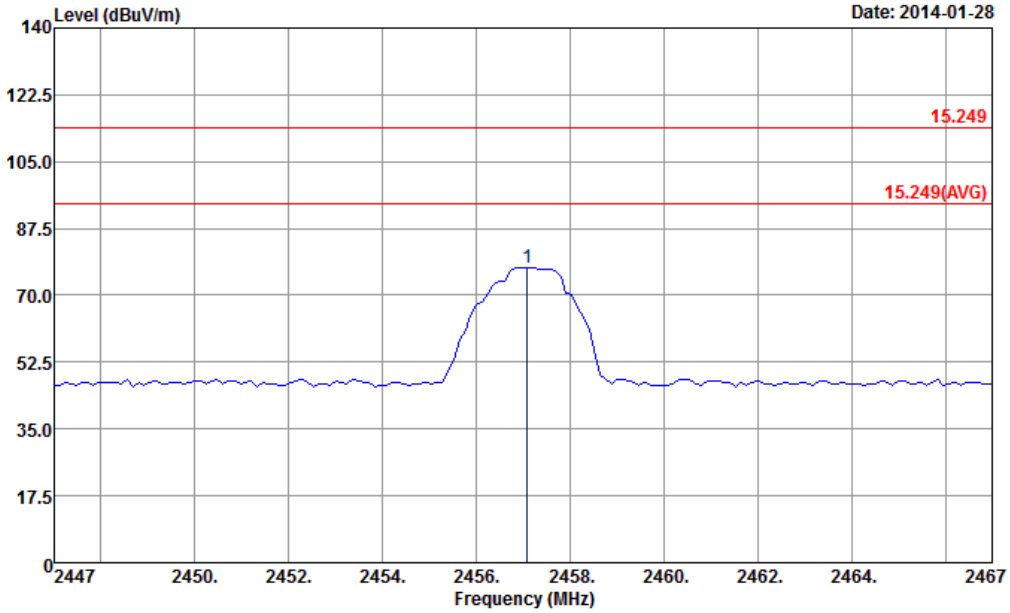


Site : 03CH07-HY
Condition : 15.249 3m HF-ANT_120823 VERTICAL
Project : FR 411661
Mode : 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2456.88	73.68	-40.32	114.00	93.26	32.37	7.02	58.97	142	55	Peak

Final Test Date	Jan. 28, 2014	Test Site No.	03CH07-HY
Temperature	21~23°C	Humidity	46~48%
Test Engineer	Eric Shih		
Mode	EUT Tx (2457 MHz) Mode for Sample 2		

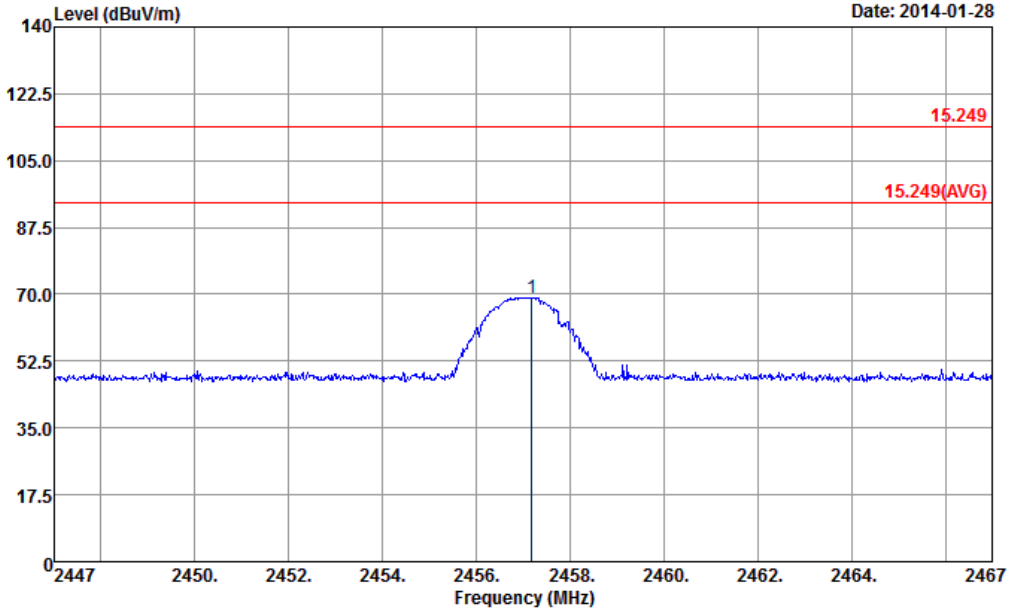
Horizontal



Site : 03CH07-HY
Condition : 15.249 3m HF-ANT_120823 HORIZONTAL
Project : FR 411661
Mode : 2

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2457.08	77.24	-36.76	114.00	96.82	32.37	7.02	58.97	100	46	Peak

Vertical



Site : 03CH07-HY
Condition : 15.249 3m HF-ANT_120823 VERTICAL
Project : FR 411661
Mode : 2

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2457.18	69.16	-44.84	114.00	88.74	32.37	7.02	58.97	101	98	Peak

3.4 Radiated Spurious Emissions

3.4.1 Limit

The field strength measured at 3 metres shall not exceed the limits in the following table:

Fundamental Frequencies (MHz)	Field Strength (millivolts/m)	
	Fundamental	Harmonics
902-928	50	0.5
2400-2483.5	50	0.5
5725-5875	50	0.5

Note: The limits shown in the above table are based on measurements using an average detector, except for the fundamental emission in the frequency band 902-928 MHz, which is based on measurements using a CISPR quasi-peak detector.

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general field strength limits listed in 15.209 as below, whichever is less stringent.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.4.2 Measuring Instruments and Setting

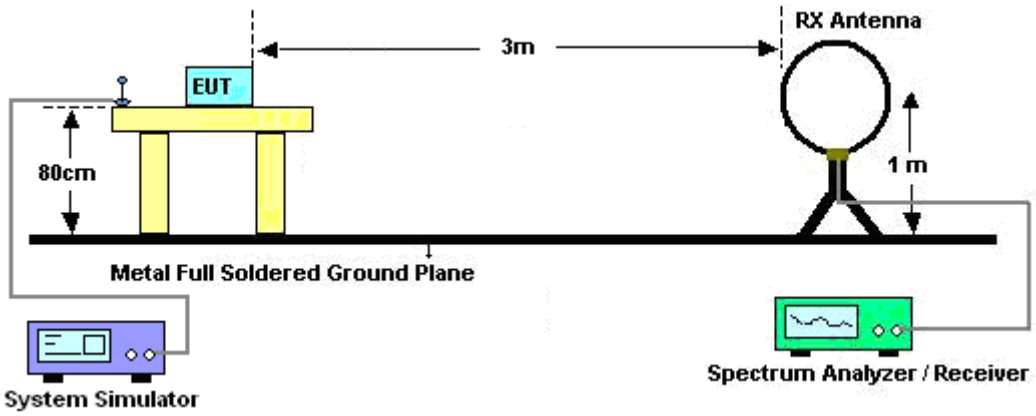
The measuring equipment is listed in the section 4 of this test report. The following table is the setting of receiver.

3.4.3 Test Procedures

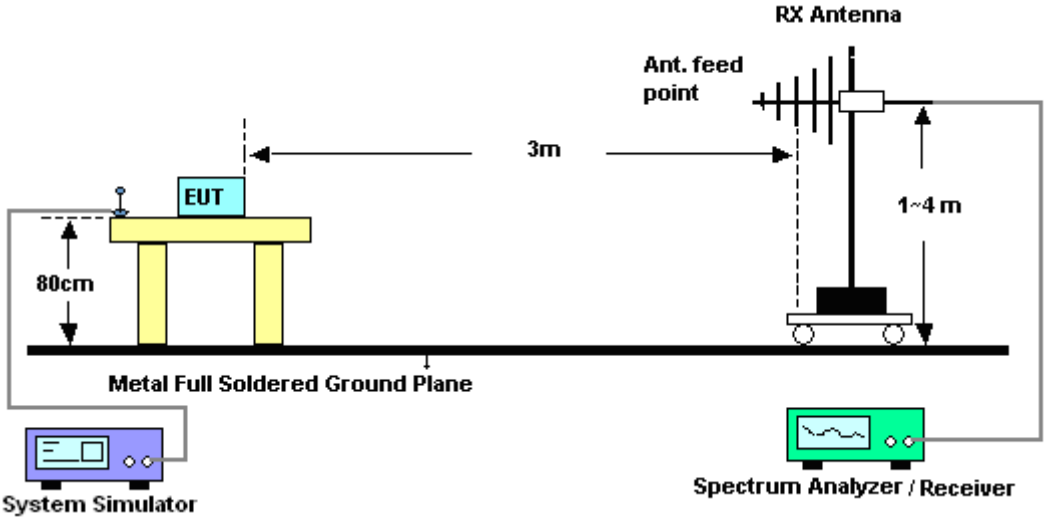
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.4.4 Test Setup Layout

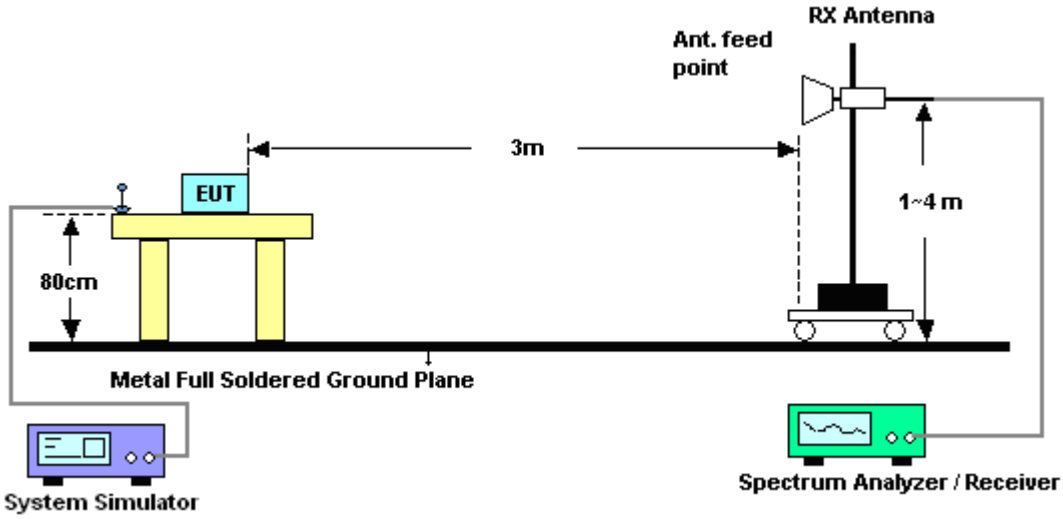
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Deviation

There is no deviation with the original standard.

3.4.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

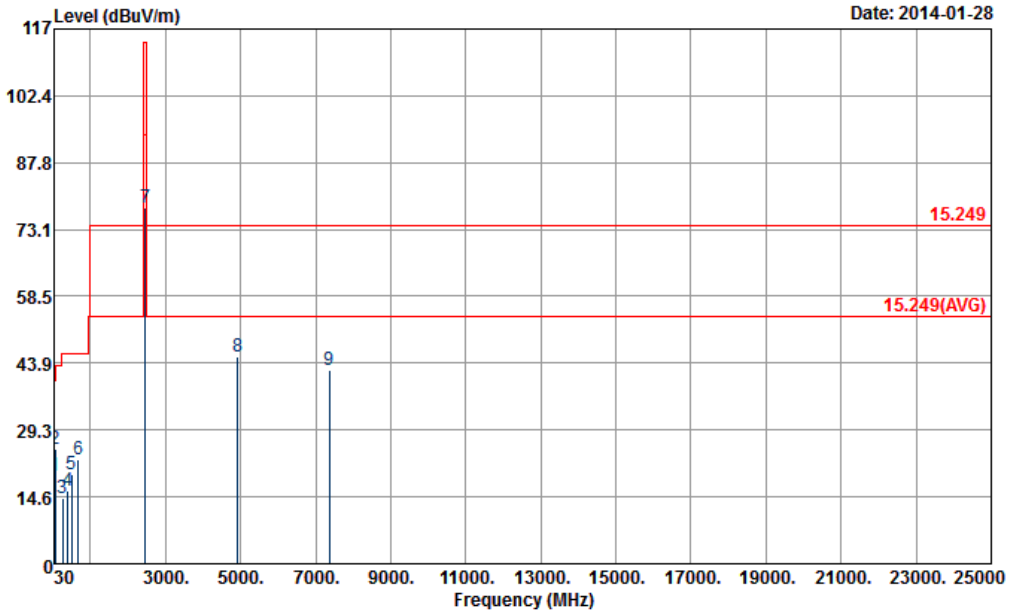
3.4.7 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.4.8 Results for Radiated Spurious Emissions

Final Test Date	Jan. 28, 2014	Test Site No.	03CH07-HY
Temperature	21~23°C	Humidity	46~48%
Test Engineer	Eric Shih		
Mode	EUT Tx (2457 MHz) Mode for Sample 1		

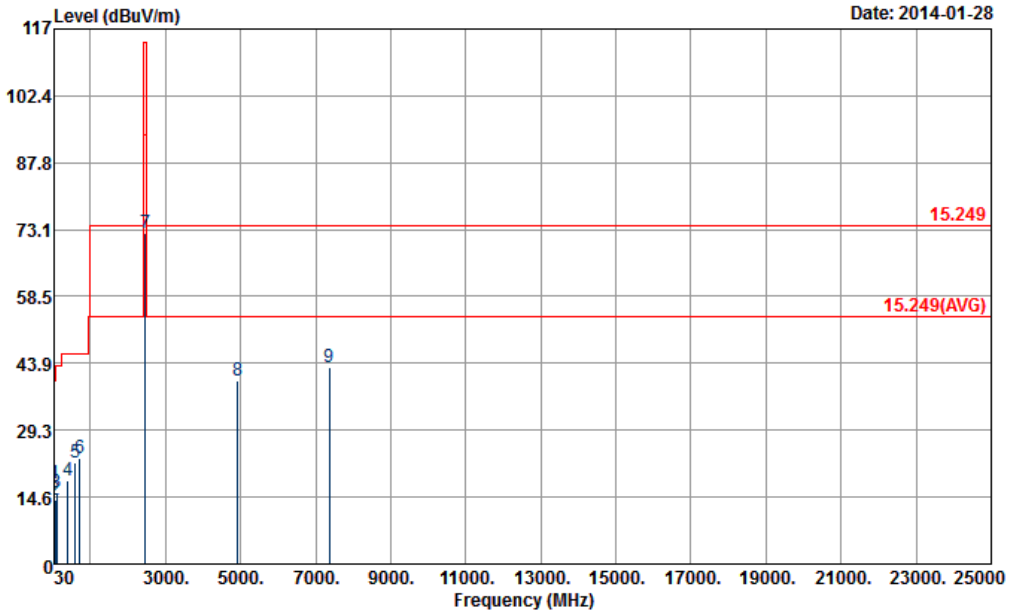
Horizontal



Site : 03CH07-HY
Condition : 15.249 3m SHF-EHF_131029 HORIZONTAL
Project : FR 411661
Mode : 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	34.05	19.09	-20.91	40.00	33.14	16.72	0.57	31.34	---	---	Peak
2	51.33	25.17	-14.83	40.00	47.66	8.00	0.71	31.20	100	33	Peak
3	256.53	14.41	-31.59	46.00	30.32	13.52	1.57	31.00	---	---	Peak
4	388.90	15.98	-30.02	46.00	29.36	15.46	2.12	30.96	---	---	Peak
5	502.30	19.44	-26.56	46.00	29.58	18.02	2.45	30.61	---	---	Peak
6	684.30	22.67	-23.33	46.00	29.69	20.50	2.91	30.43	---	---	Peak
7	2458.00	78.04			97.62	32.37	7.02	58.97	100	0	Peak
8	4914.00	45.38	-28.62	74.00	61.34	33.93	8.87	58.76	100	0	Peak
9	7371.00	42.31	-31.69	74.00	565.09	-500.00	10.96	33.74	100	0	Peak

Vertical



Site : 03CH07-HY
Condition : 15.249 3m SHF-EHF_131029 VERTICAL
Project : FR 411661
Mode : 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	34.86	17.54	-22.46	40.00	32.06	16.20	0.58	31.30	---	---	Peak
2	55.11	13.94	-26.06	40.00	38.01	6.40	0.73	31.20	---	---	Peak
3	99.39	15.48	-28.02	43.50	35.19	10.40	0.99	31.10	---	---	Peak
4	397.30	18.18	-27.82	46.00	31.13	15.82	2.14	30.91	---	---	Peak
5	587.70	22.07	-23.93	46.00	30.55	19.52	2.65	30.65	---	---	Peak
6	722.10	23.18	-22.82	46.00	29.03	21.56	2.99	30.40	153	225	Peak
7	2458.00	72.28			91.86	32.37	7.02	58.97	100	0	Peak
8	4914.00	40.08	-33.92	74.00	56.04	33.93	8.87	58.76	100	0	Peak
9	7371.00	42.97	-31.03	74.00	54.28	35.52	10.96	57.79	100	0	Peak

Note:

Remark 7 is fundamental signal which can be ignored.

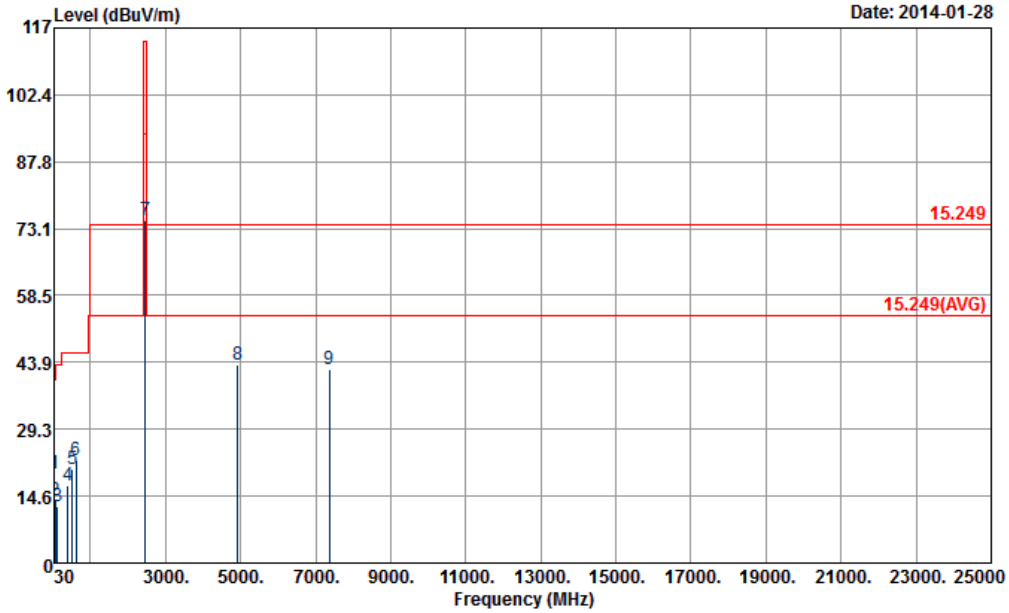
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBμV/m) = 20 log Emission level (μV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor= Level.

Final Test Date	Jan. 28, 2014	Test Site No.	03CH07-HY
Temperature	21~23°C	Humidity	46~48%
Test Engineer	Eric Shih		
Mode	EUT Tx (2457 MHz) Mode for Sample 2		

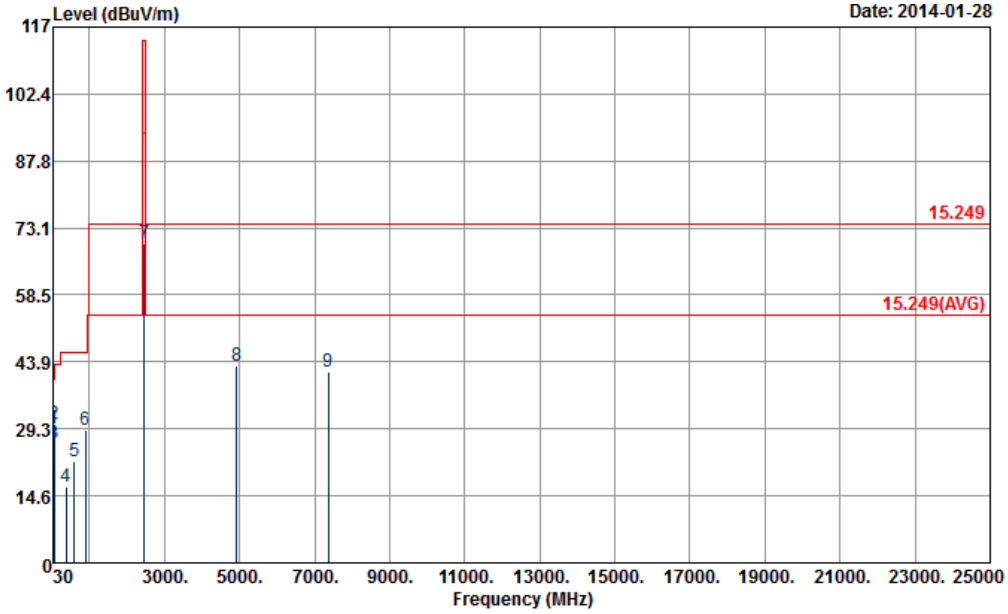
Horizontal



Site : 03CH07-HY
Condition : 15.249 3m SHF-EHF_131029 HORIZONTAL
Project : FR 411661
Mode : 2

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.89	19.69	-20.31	40.00	32.80	17.76	0.55	31.42	---	---	Peak
2	59.43	13.66	-26.34	40.00	38.11	6.08	0.75	31.28	---	---	Peak
3	126.93	12.47	-31.03	43.50	30.68	11.76	1.13	31.10	---	---	Peak
4	392.40	17.10	-28.90	46.00	30.29	15.62	2.13	30.94	---	---	Peak
5	516.30	20.46	-25.54	46.00	30.55	18.10	2.48	30.67	---	---	Peak
6	613.60	22.54	-23.46	46.00	30.36	20.02	2.73	30.57	103	10	Peak
7	2458.00	75.02			94.60	32.37	7.02	58.97	100	0	Peak
8	4914.00	43.23	-30.77	74.00	59.19	33.93	8.87	58.76	100	0	Peak
9	7371.00	42.24	-31.76	74.00	53.55	35.52	10.96	57.79	100	0	Peak

Vertical



Site : 03CH07-HY
Condition : 15.249 3m SHF-EHF_131029 VERTICAL
Project : FR 411661
Mode : 2

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	34.32	29.27	-10.73	40.00	43.28	16.72	0.57	31.30	---	---	Peak
2	64.02	30.41	-9.59	40.00	54.84	6.00	0.79	31.22	157	77	Peak
3	68.61	26.22	-13.78	40.00	50.35	6.32	0.83	31.28	---	---	Peak
4	379.10	16.76	-29.24	46.00	30.58	15.08	2.10	31.00	---	---	Peak
5	598.20	22.03	-23.97	46.00	30.38	19.58	2.68	30.61	---	---	Peak
6	902.70	28.99	-17.01	46.00	32.66	23.29	3.35	30.31	---	---	Peak
7	2458.00	69.74			89.32	32.37	7.02	58.97	100	0	Peak
8	4914.00	42.89	-31.11	74.00	58.85	33.93	8.87	58.76	100	0	Peak
9	7371.00	41.71	-32.29	74.00	53.02	35.52	10.96	57.79	100	0	Peak

Note:

Remark 7 is fundamental signal which can be ignored.

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBμV/m) = 20 log Emission level (μV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor= Level.

3.5 Antenna Requirements

3.5.1 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.

3.5.2 Antenna Connector Construction

Enbedded in Antenna.

4. LIST OF MEASURING EQUIPMENT

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 07, 2013	Jan. 22, 2014 ~ Jan. 29, 2014	Jun. 06, 2014	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-930701	N/A	Jul. 19, 2013	Jan. 22, 2014 ~ Jan. 29, 2014	Jul. 18, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 15, 2013	Jan. 22, 2014	Nov. 14, 2014	Conduction (CO05-HY)
Two-LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2013	Jan. 22, 2014	Dec. 11, 2014	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 04, 2013	Jan. 22, 2014	Dec. 03, 2014	Conduction (CO05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jan. 22, 2014	N/A	Conduction (CO05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9KHz ~ 30GHz	Nov. 20, 2013	Jan. 28, 2014	Nov. 19, 2014	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9K~7G	Sep. 06, 2013	Jan. 28, 2014	Sep. 05, 2014	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/0001	9kHz~30MHz	Jul. 03, 2012	Jan. 28, 2014	Jul. 03, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1 GHz~18 GHz	Aug. 22, 2013	Jan. 28, 2014	Aug. 21, 2014	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15 GHz- 40 GHz	Oct. 03, 2013	Jan. 28, 2014	Oct. 02, 2014	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Jan. 28, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	30MHz ~ 1GHz	Feb. 26, 2013	Jan. 28, 2014	Feb. 25, 2014	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1 GHz~26.5 GHz	Nov. 29, 2013	Jan. 28, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Jan. 28, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	ChainTek 3000	N/A	N/A	N/A	Jan. 28, 2014	N/A	Radiation (03CH07-HY)

5. TEST LOCATION

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

6. TAF CERTIFICATE OF ACCREDITATION

Certificate No. : L1190-130110

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, 2013 to January 09, 2016
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 Accreditation Program for BSMI Mutual Recognition Arrangment with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date:January 10, 2013

P1, total 20 pages

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