Partial FCC RF Test Report

APPLICANT	:	Sony Corporation
EQUIPMENT	:	Notebook
BRAND NAME	:	Sony
MODEL NAME	:	PCG-213xxL (x:0-9,A-Z,blank), PCG-21313L
FCC ID	:	AK8PCG21313L
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	Digital Transmission System (DTS)

This is a partial report which is only valid combined with the integrated WLAN module (Model Name: Ralink C980, FCC ID : VQF-RT3090-1T1R) report.

The product was received on Nov. 18, 2009 and completely tested on Dec. 23, 2009. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Roy Wu / Manager

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.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR9N1814-01A	Rev. 01	Initial issue of report	Jan. 14, 2010

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(d)	A8.5	Frequency Band Edges	≤ 20dBc	Pass	-
3.2	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 15.2 dB at 0.158 MHz
3.3	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 6.04 dB at 2385.81 MHz
3.4	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Sony Corporation
1-7-1 Konan Minato-ku, Tokyo, 108-0075 Japan

1.2 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Notebook
Brand Name	Sony
Model Name	PCG-213xxL (x:0-9,A-Z,blank), PCG-21313L
FCC ID	AK8PCG21313L
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Channel Spacing	5 MHz
Antenna Type	PIFA Antenna with gain 1.62 dBi
HW Version	Foxconn : ML194V-0 HannStar J : MV-6
SW Version	Window 7 start
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.

2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).

HD Vender	HD size (GB)	Memory Vendor	Memory size (GB)
Seagate	250	**Hynix**	1
WDC	250	**Samsung**	1
HGST	250	**PQI**	1
Samsung	250	**Hynix**	2
Seagate	320	**Samsung**	2
WDC	320	**PQI**	2
HGST	320		
Samsung	320		

List of Accessory:

Specification of Accessory		
AC Adapter	**Brand Name**	Liteon
	Model Name	AC19V39
	Power Rating	I/P:100-240Vac, 50-60Hz, 1000mA; O/P: 19.5Vdc, 2000mA
	DC Power Cord Type	1.8 meter shielded cable without ferrite core
Battery	**Brand Name**	Sony
	Model Name	VGP-BPS13B
	Power Rating	11.1Vdc, 4400mAh
	Type	Li-ion
LCD Panel	**Brand Name**	Hannstar
	Model Name	10.1/SD_HDAR/EEBR_BentLED
Camera	**Brand Name**	KYE
	Model Name	Builtin Camera
WLAN Module	**Model Name**	Ralink C980
Bluetooth Module	**Model Name**	T77H114
CPU	**Brand Name**	Intel
	Model Name	Pine view-MN450
	Specification	1.66GHz

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

2. For accessories equipped with this EUT, please refer to the appendix of the external photo.

1.3 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC / IC Registration No.
	CO05-HY	03CH07HY	TW1022 / 4086B-1

1.4 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 7

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

1.5 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
4.	Earphone	Ergotech	ET-E200	FCC DoC	Unshielded, 1.8 m	N/A
5.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0 m	N/A
6.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

802.11b RF Power (dBm)					
Channel	Frequency (MHz)	Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	**20.92**	20.78	20.27	20.63
CH 06	2437 MHz	20.51	20.51	20.11	20.40
CH 11	2462 MHz	20.04	19.92	19.47	19.95

802.11g RF Power (dBm)									
Channel	Frequency (MHz)	Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	18.56	17.46	18.30	17.57	18.49	17.82	17.55	**18.89**
CH 06	2437 MHz	18.35	17.12	18.09	17.01	18.18	17.50	17.31	18.69
CH 11	2462 MHz	18.68	17.49	18.30	17.65	18.53	17.83	17.72	18.87

802.11n (BW 20MHz) RF Power (dBm)									
Channel	Frequency (MHz)	Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
		MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
CH 01	2412 MHz	18.67	18.86	19.11	19.08	18.93	18.98	19.10	18.93
CH 06	2437 MHz	18.24	18.57	18.81	18.98	18.78	18.64	18.97	18.66
CH 11	2462 MHz	18.10	18.38	18.94	18.85	18.57	18.38	18.82	18.65
Channel	Frequency (MHz)	Data Rate							
		13 Mbps	26 Mbps	39 Mbps	52 Mbps	78 Mbps	10 Mbps	117 Mbps	130 Mbps
		MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
CH 01	2412 MHz	18.63	18.77	19.05	19.11	18.93	18.76	18.95	**19.12**
CH 06	2437 MHz	18.24	18.52	18.87	19.03	18.59	18.52	18.81	18.89
CH 11	2462 MHz	18.06	18.39	18.72	18.85	18.47	18.41	18.66	18.74

802.11n (BW 40MHz) RF Power (dBm)									
Channel	Frequency (MHz)	Data Rate							
		6.5M bps	13M bps	19.5M bps	26M bps	39M bps	52M bps	58.5M bps	65M bps
		MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
CH 03	2422 MHz	**18.26**	17.83	18.02	17.88	18.03	18.23	17.72	17.92
CH 06	2437 MHz	18.03	17.43	17.56	17.67	17.62	18.04	17.37	17.38
CH 09	2452 MHz	17.82	17.27	17.44	17.49	17.39	17.63	16.99	17.11
Channel	Frequency (MHz)	Data Rate							
		13M bps	26M bps	39M bps	52M bps	78M bps	104M bps	117M bps	130M bps
		MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
CH 03	2422 MHz	17.74	17.67	17.97	17.91	18.14	18.24	18.23	17.87
CH 06	2437 MHz	17.41	17.34	17.74	17.77	17.56	18.02	18.03	17.67
CH 09	2452 MHz	17.15	17.19	17.3	17.37	17.41	17.62	17.74	17.48

Remark: The EUT is programmed to transmit signals continuously for all testing.

2.2 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following table is showing the total pre-scanned test modes, and the worst modes are recorded in this report only.

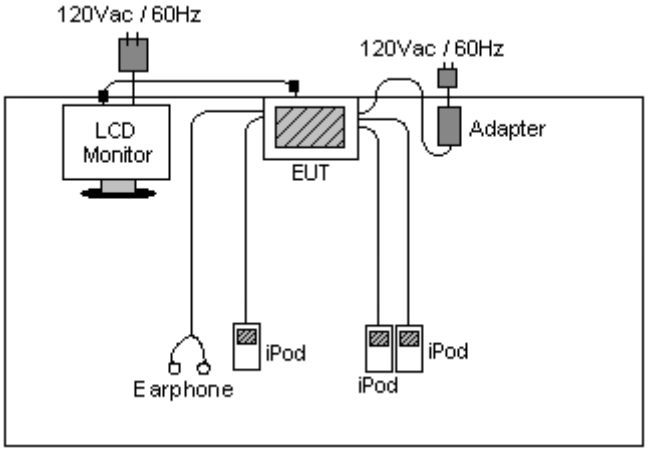
Test Cases	
Test Item	**802.11b (Modulation : DSSS)** **802.11g/n (Modulation : OFDM)**
Radiated TCs	Mode 1: 802.11b_CH01_2412 MHz Mode 2: 802.11b_CH06_2437 MHz Mode 3: 802.11b_CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n_CH01_2412 MHz (BW 20M) Mode 8: 802.11n_CH06_2437 MHz (BW 20M) Mode 9: 802.11n_CH11_2462 MHz (BW 20M) Mode 10: 802.11n_CH03_2422 MHz (BW 40M) Mode 11: 802.11n_CH06_2437 MHz (BW 40M) Mode 12: 802.11n_CH09_2452 MHz (BW 40M)
AC Conducted Emission	Mode 1 : WLAN Link + Bluetooth Link + HD (WDC 320GB) + Memory (Hynix 1GB) + Adapter + TC

Remark:

1. HD (WDC 320GB) and Memory (Samsung 1GB) were the EUT combination for radiation test in this report.
2. TC stands for Test Configuration, and consists of iPod, earphone, monitor, RJ-45 and adapter.
3. Mode 4~6 and Mode10~12 of radiated emission only verify bandedge.
4. Only the radiated emission and AC conducted emission tests of the WLAN module on this Notebook Computer was performed in this report and the conducted test results can be referred to the integrated WLAN module (Model Name : Ralink C980 / FCC ID : VQF-RT3090-1T1R) report.

2.3 Connection Diagram of Test System

<Radiated Emission Test>



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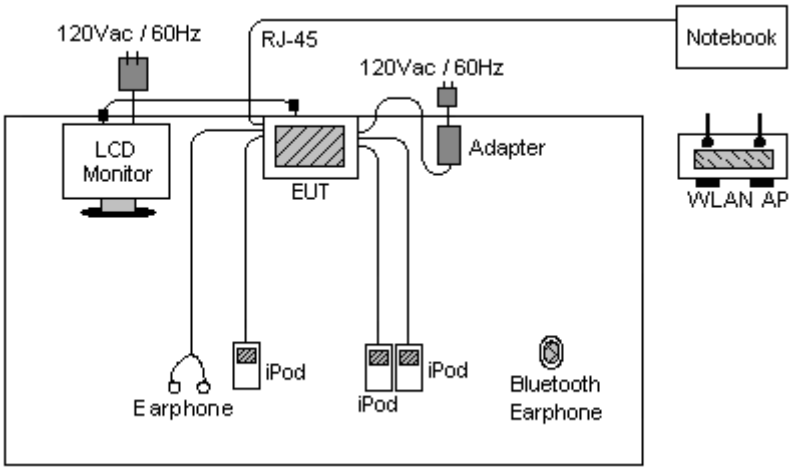


2.4 RF Utility

The programmed RF utility “QA”, is installed in EUT to provide channel selection, power level, data rate and the application type. RF utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 Band Edges Measurement

3.1.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

3.1.2 Measuring Instruments

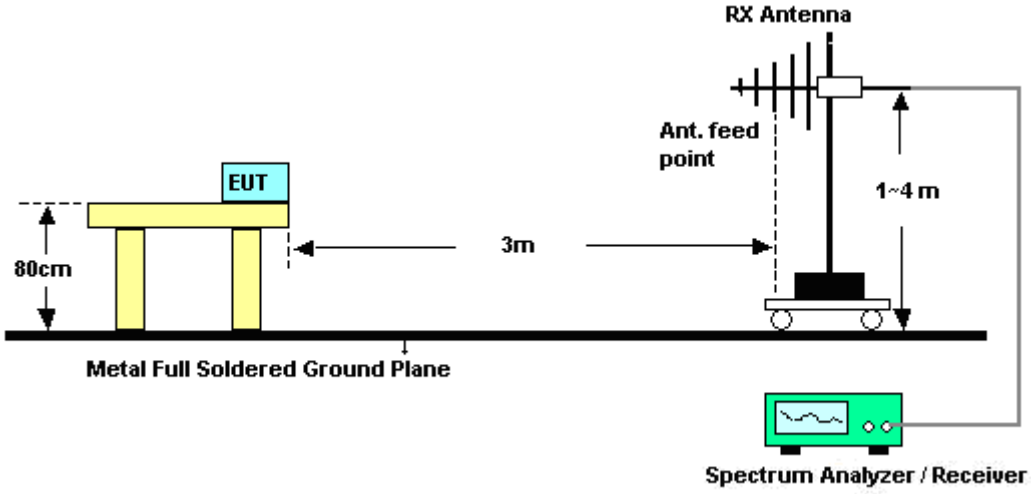
See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.1.4 Test Setup

<Radiated Band Edges>



3.1.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	**Temperature :**	21~22°C
Test Band :	802.11b	**Relative Humidity :**	47~48%
Test Channel :	01	**Test Engineer :**	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	**Level (dBuV/m)**	**Over Limit (dB)**	**Limit Line (dBuV/m)**	**Read Level (dBuV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2385.81	57.19	-16.81	74.00	53.75	32.13	5.46	34.15	100	358	Peak
2385.81	47.96	-6.04	54.00	44.52	32.13	5.46	34.15	100	358	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	**Level (dBuV/m)**	**Over Limit (dB)**	**Limit Line (dBuV/m)**	**Read Level (dBuV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2385.81	51.73	-22.27	74.00	48.29	32.13	5.46	34.15	100	219	Peak
2385.81	42.25	-11.75	54.00	38.81	32.13	5.46	34.15	100	219	Average

Test Mode :	Mode 3	**Temperature :**	21~22°C
Test Band :	802.11b	**Relative Humidity :**	47~48%
Test Channel :	11	**Test Engineer :**	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	**Level (dBuV/m)**	**Over Limit (dB)**	**Limit Line (dBuV/m)**	**Read Level (dBuV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2483.5	54.14	-19.86	74.00	50.68	32.27	5.38	34.19	100	21	Peak
2483.5	42.01	-11.99	54.00	38.55	32.27	5.38	34.19	100	21	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	**Level (dBuV/m)**	**Over Limit (dB)**	**Limit Line (dBuV/m)**	**Read Level (dBuV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2484.61	51.88	-22.12	74.00	48.42	32.27	5.38	34.19	187	9	Peak
2484.61	40.06	-13.94	54.00	36.6	32.27	5.38	34.19	187	9	Average

Test Mode :	Mode 4	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2359.21	51.72	-22.28	74.00	48.29	32.08	5.49	34.14	130	360	Peak
2359.21	40.70	-13.30	54.00	37.27	32.08	5.49	34.14	130	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2359.21	49.34	-24.66	74.00	45.91	32.08	5.49	34.14	100	148	Peak
2359.21	37.87	-16.13	54.00	34.44	32.08	5.49	34.14	100	148	Average

Test Mode :	Mode 6	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	55.73	-18.27	74.00	52.27	32.27	5.38	34.19	183	360	Peak
2483.66	38.42	-15.58	54.00	34.96	32.27	5.38	34.19	183	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	55.73	-18.27	74.00	52.27	32.27	5.38	34.19	156	150	Peak
2483.50	37.72	-16.28	54.00	34.26	32.27	5.38	34.19	156	150	Average

Test Mode :	Mode 7	**Temperature :**	21~22°C
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	47~48%
Test Channel :	01	**Test Engineer :**	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	**Level (dBuV/m)**	**Over Limit (dB)**	**Limit Line (dBuV/m)**	**Read Level (dBuV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2389.99	57.14	-16.86	74.00	53.71	32.13	5.46	34.16	101	360	Peak
2389.99	42.69	-11.31	54.00	39.26	32.13	5.46	34.16	101	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	**Level (dBuV/m)**	**Over Limit (dB)**	**Limit Line (dBuV/m)**	**Read Level (dBuV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2389.99	53.01	-20.99	74.00	49.58	32.13	5.46	34.16	100	149	Peak
2389.99	39.01	-14.99	54.00	35.58	32.13	5.46	34.16	100	149	Average

Test Mode :	Mode 9	**Temperature :**	21~22°C
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	47~48%
Test Channel :	11	**Test Engineer :**	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	**Level (dBuV/m)**	**Over Limit (dB)**	**Limit Line (dBuV/m)**	**Read Level (dBuV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2483.85	59.26	-14.74	74.00	55.8	32.27	5.38	34.19	183	360	Peak
2483.85	40.59	-13.41	54.00	37.13	32.27	5.38	34.19	183	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	**Level (dBuV/m)**	**Over Limit (dB)**	**Limit Line (dBuV/m)**	**Read Level (dBuV)**	**Antenna Factor (dB)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Ant Pos (cm)**	**Table Pos (deg)**	**Remark**
2483.50	57.80	-16.2	74.00	54.34	32.27	5.38	34.19	157	150	Peak
2483.50	39.73	-14.27	54.00	36.27	32.27	5.38	34.19	157	150	Average

Test Mode :	Mode 10	Temperature :	21~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	47~48%
Test Channel :	03	Test Engineer :	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	56.80	-17.20	74.00	53.37	32.13	5.46	34.16	185	360	Peak
2389.99	42.38	-11.62	54.00	38.95	32.13	5.46	34.16	185	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2385.81	54.18	-19.82	74.00	50.74	32.13	5.46	34.15	100	148	Peak
2385.81	41.35	-12.65	54.00	37.91	32.13	5.46	34.15	100	148	Average

Test Mode :	Mode 12	Temperature :	21~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	47~48%
Test Channel :	09	Test Engineer :	Kay Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2487.65	61.16	-12.84	74.00	57.68	32.3	5.37	34.19	125	359	Peak
2487.65	46.44	-7.56	54.00	42.96	32.3	5.37	34.19	125	359	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.22	57.80	-16.2	74.00	54.32	32.3	5.37	34.19	158	149	Peak
2488.22	43.37	-10.63	54.00	39.89	32.3	5.37	34.19	158	149	Average

3.2 AC Conducted Emission Measurement

3.2.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (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 the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

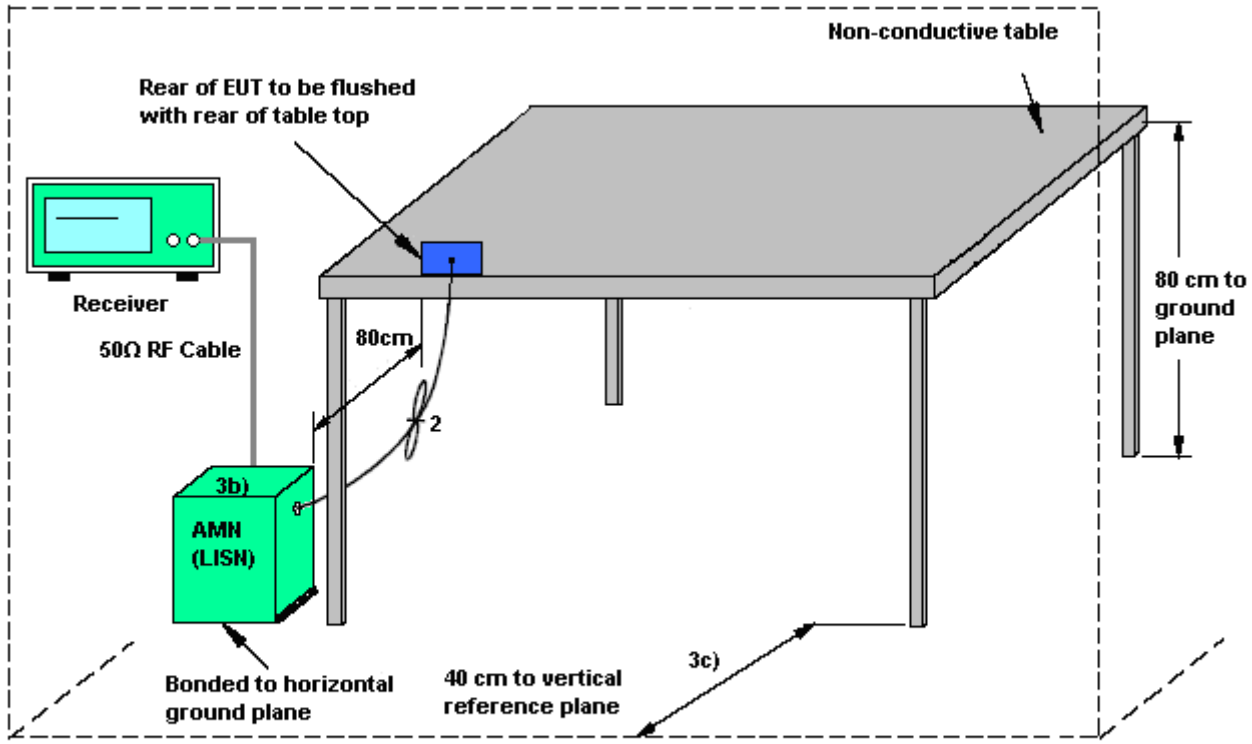
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

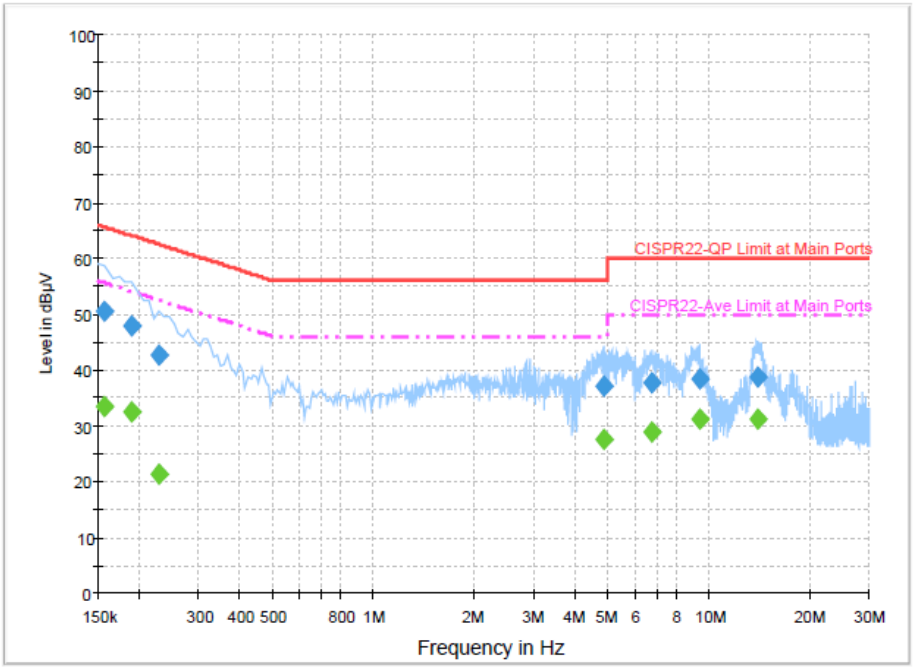
3.2.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.2.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Hayden Wu	**Relative Humidity :**	38~41%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN Link + Bluetooth Link + HD (WDC 320GB) + Memory (Hynix 1GB) + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



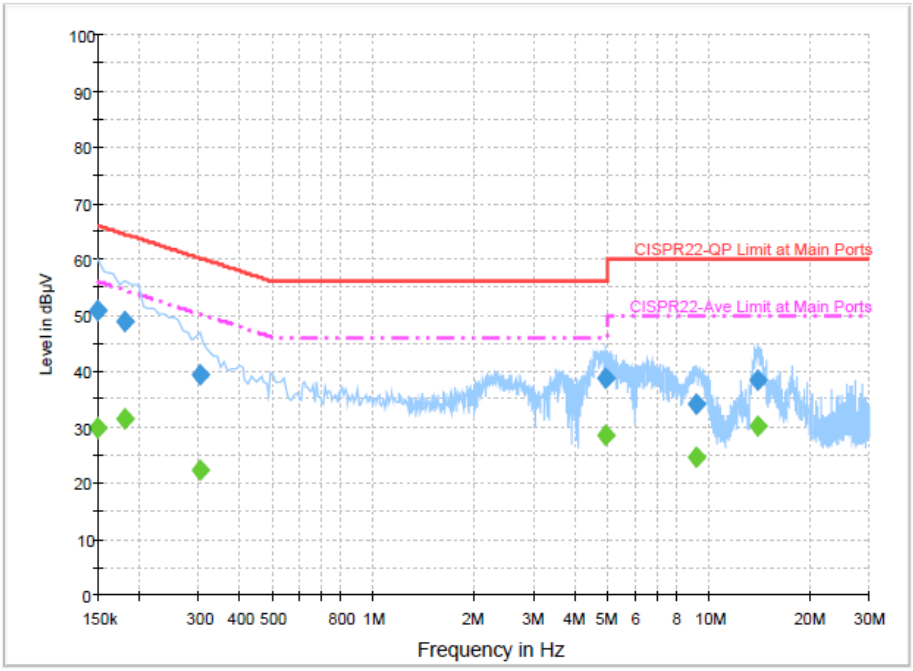
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	50.4	Off	L1	19.5	15.2	65.6
0.190000	47.8	Off	L1	19.6	16.2	64.0
0.230000	42.5	Off	L1	19.5	19.9	62.4
4.862000	37.2	Off	L1	19.5	18.8	56.0
6.766000	37.6	Off	L1	19.6	22.4	60.0
9.390000	38.2	Off	L1	19.6	21.8	60.0
14.046000	38.8	Off	L1	19.7	21.2	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	33.5	Off	L1	19.5	22.1	55.6
0.190000	32.6	Off	L1	19.6	21.4	54.0
0.230000	21.4	Off	L1	19.5	31.0	52.4
4.862000	27.5	Off	L1	19.5	18.5	46.0
6.766000	28.8	Off	L1	19.6	21.2	50.0
9.390000	31.1	Off	L1	19.6	18.9	50.0
14.046000	31.1	Off	L1	19.7	18.9	50.0

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Hayden Wu	**Relative Humidity :**	38~41%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	WLAN Link + Bluetooth Link + HD (WDC 320GB) + Memory (Hynix 1GB) + Adapter + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	50.8	Off	N	19.5	15.2	66.0
0.182000	48.7	Off	N	19.5	15.7	64.4
0.302000	39.5	Off	N	19.4	20.7	60.2
4.934000	38.7	Off	N	19.6	17.3	56.0
9.166000	34.0	Off	N	19.6	26.0	60.0
13.942000	38.4	Off	N	19.7	21.6	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	29.9	Off	N	19.5	26.1	56.0
0.182000	31.4	Off	N	19.5	23.0	54.4
0.302000	22.3	Off	N	19.4	27.9	50.2
4.934000	28.5	Off	N	19.6	17.5	46.0
9.166000	24.6	Off	N	19.6	25.4	50.0
13.942000	30.2	Off	N	19.7	19.8	50.0

3.3 Radiated Emission Measurement

3.3.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

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

3.3.2 Measuring Instruments

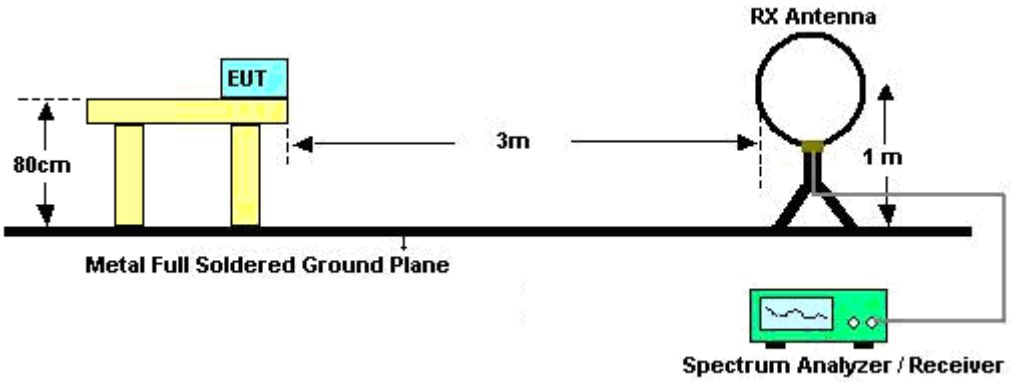
See list of measuring instruments of this test report.

3.3.3 Test Procedures

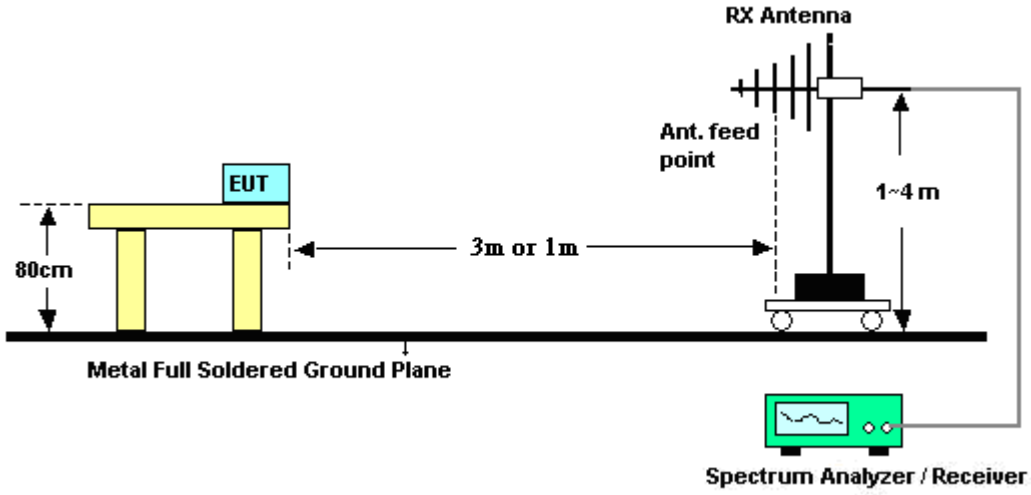
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
   (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
   Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB)
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.3.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



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

Test Engineer :	Kay Wu	Temperature :	21~22°C
		Relative Humidity :	47~48%

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

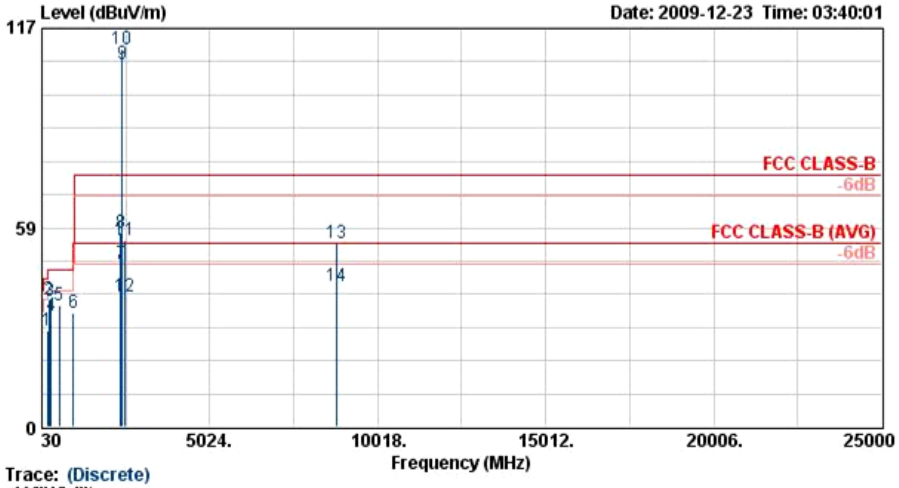
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

3.3.6 Test Result of Radiated Emission

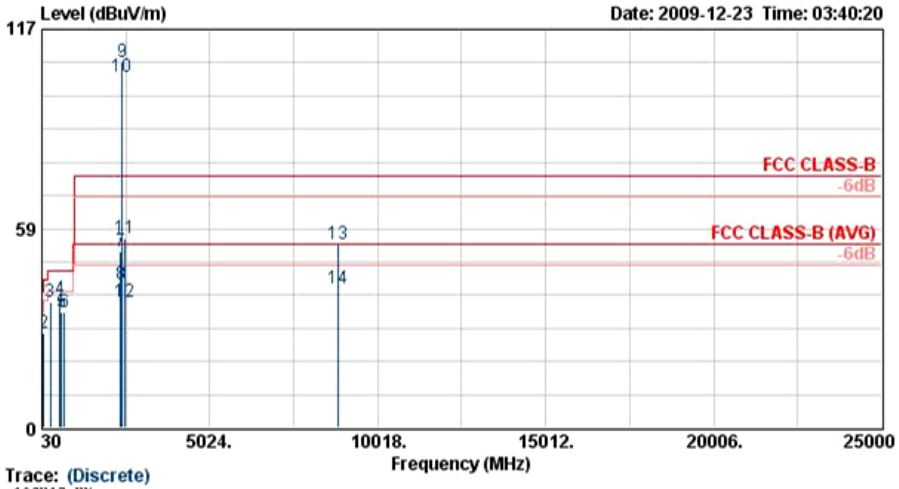
Test Mode :	Mode 1	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 HORIZONTAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	203.34	28.07	-15.43	43.50	49.08	8.87	1.72	31.59	---	---	Peak
2	229.53	37.24	-8.76	46.00	56.62	10.32	1.84	31.54	100	132	Peak
3	286.50	36.89	-9.11	46.00	52.99	13.27	2.06	31.43	---	---	Peak
4	304.20	32.65	-13.35	46.00	48.30	13.59	2.15	31.39	---	---	Peak
5	556.90	35.49	-10.51	46.00	44.18	19.24	3.11	31.04	---	---	Peak
6	960.10	33.47	-20.53	54.00	35.73	24.09	4.29	30.64	---	---	Peak
7	2385.81	47.96	-6.04	54.00	44.52	32.13	5.46	34.15	100	358	Average
8	2385.81	57.19	-16.81	74.00	53.75	32.13	5.46	34.15	100	358	Peak
9 @	2412.00	106.63			103.19	32.16	5.44	34.16	100	358	Average
10 X	2412.00	110.78			107.34	32.16	5.44	34.16	100	358	Peak
11	2484.00	54.93	-19.07	74.00	51.47	32.27	5.38	34.19	100	358	Peak
12	2484.00	38.46	-15.54	54.00	34.99	32.27	5.38	34.19	100	358	Average
13	8781.00	53.90	-20.10	74.00	42.61	36.17	10.27	35.16	100	198	Peak
14	8781.00	41.40	-12.60	54.00	30.11	36.17	10.27	35.16	100	198	Average

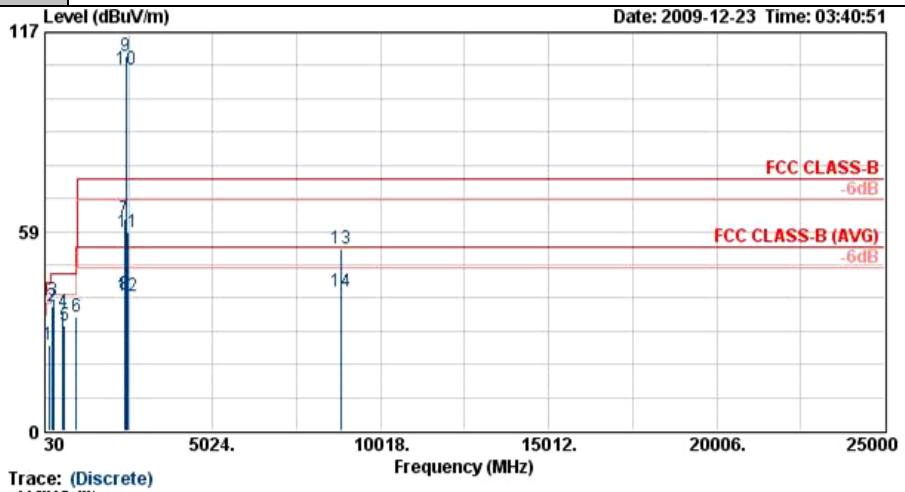
Test Mode :	Mode 1	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 VERTICAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		35.13	29.96	-10.04	40.00	44.25	16.73	0.68	31.70	---	---	Peak
2		94.53	27.96	-15.54	43.50	48.92	9.61	1.14	31.70	---	---	Peak
3		279.21	36.97	-9.03	46.00	53.21	13.18	2.02	31.44	---	---	Peak
4		559.00	37.69	-8.31	46.00	46.34	19.28	3.12	31.04	100	85	Peak
5		610.10	34.13	-11.87	46.00	41.69	20.14	3.28	30.99	---	---	Peak
6		710.20	33.90	-12.10	46.00	40.23	20.97	3.58	30.88	---	---	Peak
7		2385.81	51.73	-22.27	74.00	48.29	32.13	5.46	34.15	100	219	Peak
8		2385.81	42.25	-11.75	54.00	38.81	32.13	5.46	34.15	100	219	Average
9	X	2412.00	107.39			103.94	32.16	5.44	34.16	100	219	Peak
10	@	2412.00	103.20			99.76	32.16	5.44	34.16	100	219	Average
11		2484.00	55.61	-18.39	74.00	52.14	32.27	5.38	34.19	100	219	Peak
12		2484.00	36.89	-17.11	54.00	33.42	32.27	5.38	34.19	100	219	Average
13		8826.00	54.05	-19.95	74.00	42.75	36.19	10.28	35.17	100	137	Peak
14		8826.00	40.98	-13.02	54.00	29.67	36.19	10.28	35.17	100	137	Average

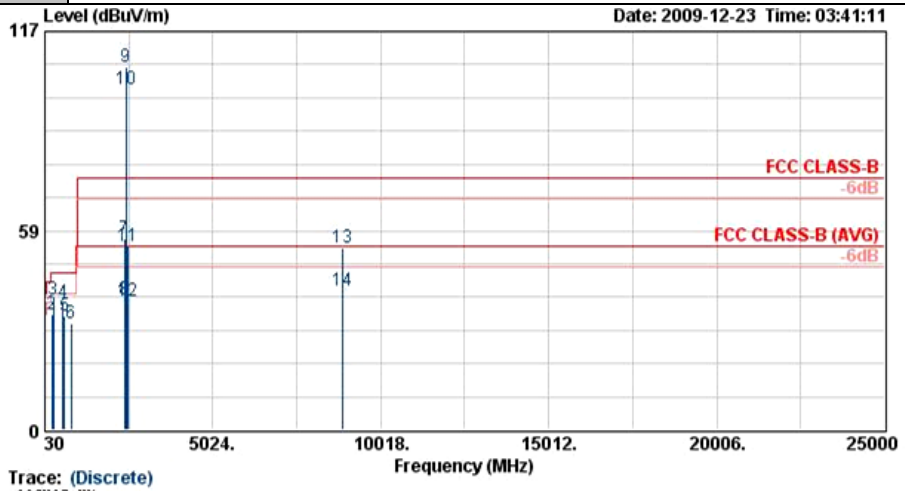
Test Mode :	Mode 2	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 HORIZONTAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		143.94	25.13	-18.37	43.50	43.84	11.52	1.43	31.66	---	---	Peak
2		230.34	36.69	-9.31	46.00	55.95	10.43	1.84	31.54	---	---	Peak
3		291.90	38.19	-7.81	46.00	54.17	13.35	2.09	31.42	100	137	Peak
4		559.00	34.76	-11.24	46.00	43.40	19.28	3.12	31.04	---	---	Peak
5		607.30	31.08	-14.92	46.00	38.68	20.12	3.27	30.99	---	---	Peak
6		960.10	33.41	-20.59	54.00	35.68	24.09	4.29	30.64	---	---	Peak
7		2390.00	62.35	-11.65	74.00	58.91	32.13	5.46	34.16	187	7	Peak
8		2390.00	39.81	-14.19	54.00	36.38	32.13	5.46	34.16	187	7	Average
9	X	2437.00	109.87			106.43	32.19	5.43	34.17	187	7	Peak
10	@	2437.00	106.07			102.61	32.22	5.41	34.17	187	7	Average
11		2484.00	58.09	-15.91	74.00	54.63	32.27	5.38	34.19	187	7	Peak
12		2484.00	39.38	-14.62	54.00	35.91	32.27	5.38	34.19	187	7	Average
13		8829.00	53.55	-20.45	74.00	42.23	36.20	10.29	35.17	121	320	Peak
14		8829.00	40.79	-13.21	54.00	29.47	36.20	10.29	35.17	121	320	Average

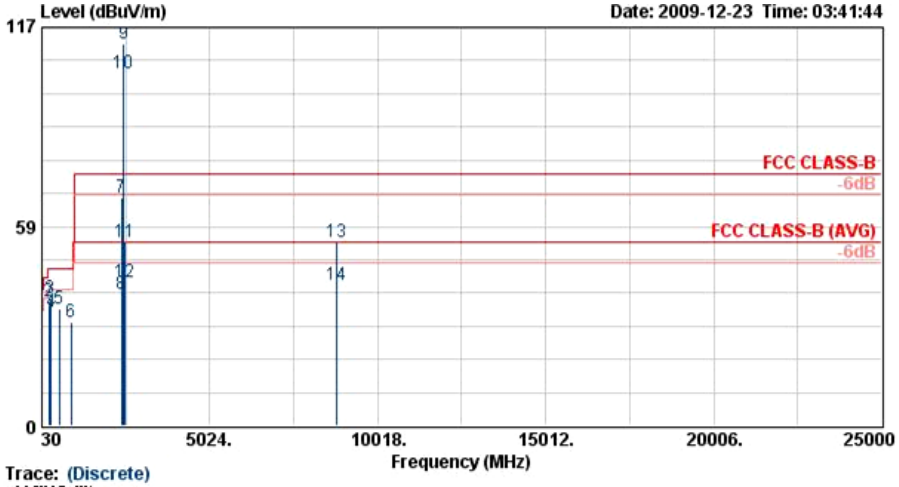
Test Mode :	Mode 2	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 VERTICAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		35.13	30.33	-9.67	40.00	44.62	16.73	0.68	31.70	---	---	Peak
2		229.53	34.07	-11.93	46.00	53.45	10.32	1.84	31.54	---	---	Peak
3		278.94	38.14	-7.86	46.00	54.39	13.18	2.02	31.44	100	121	Peak
4		559.00	37.42	-8.58	46.00	46.07	19.28	3.12	31.04	---	---	Peak
5		609.40	33.63	-12.37	46.00	41.21	20.14	3.28	30.99	---	---	Peak
6		811.70	31.42	-14.58	46.00	35.91	22.33	3.88	30.70	---	---	Peak
7		2390.00	56.25	-17.75	74.00	52.82	32.13	5.46	34.16	102	230	Peak
8		2390.00	38.43	-15.57	54.00	35.00	32.13	5.46	34.16	102	230	Average
9	X	2437.00	106.50			103.05	32.19	5.43	34.17	102	230	Peak
10	@	2437.00	100.03			96.57	32.22	5.41	34.17	102	230	Average
11		2484.00	54.00	-20.00	74.00	50.54	32.27	5.38	34.19	102	230	Peak
12		2484.00	38.01	-15.99	54.00	34.54	32.27	5.38	34.19	102	230	Average
13		8886.00	53.60	-20.40	74.00	42.25	36.23	10.30	35.18	100	35	Peak
14		8886.00	41.04	-12.96	54.00	29.68	36.23	10.30	35.18	100	35	Average

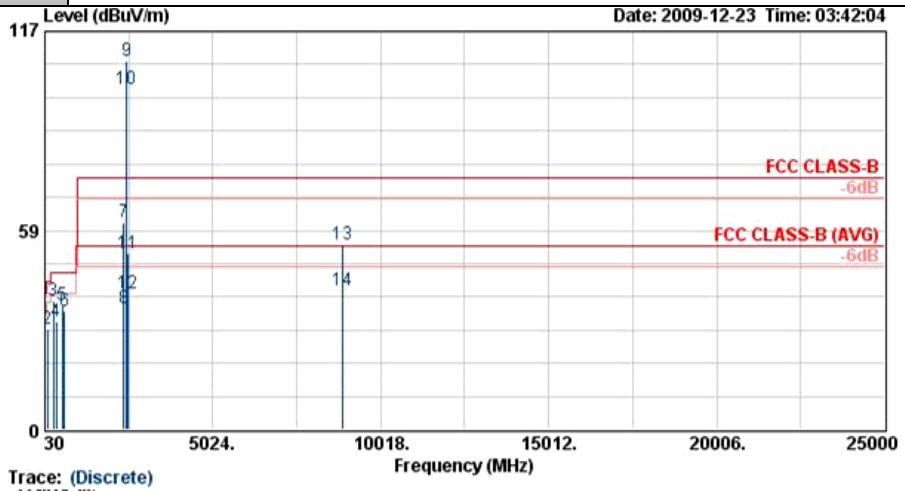
Test Mode :	Mode 3	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 HORIZONTAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		30.00	22.52	-17.48	40.00	34.07	19.51	0.64	31.70	---	---	Peak
2		230.34	36.58	-9.42	46.00	55.84	10.43	1.84	31.54	---	---	Peak
3		284.61	37.22	-8.78	46.00	53.36	13.24	2.05	31.43	100	174	Peak
4		304.20	33.65	-12.35	46.00	49.30	13.59	2.15	31.39	---	---	Peak
5		556.90	34.39	-11.61	46.00	43.08	19.24	3.11	31.04	---	---	Peak
6		890.10	30.33	-15.67	46.00	33.82	23.09	4.12	30.70	---	---	Peak
7		2390.00	66.98	-7.02	74.00	63.55	32.13	5.46	34.16	100	21	Peak
8		2390.00	38.69	-15.31	54.00	35.26	32.13	5.46	34.16	100	21	Average
9	X	2462.00	112.03			108.56	32.24	5.40	34.18	100	21	Peak
10	@	2462.00	103.45			99.99	32.24	5.40	34.18	100	21	Average
11		2483.50	54.14	-19.86	74.00	50.67	32.27	5.38	34.19	100	21	Peak
12		2483.50	42.01	-11.99	54.00	38.54	32.27	5.38	34.19	100	21	Average
13		8805.00	53.84	-20.16	74.00	42.54	36.18	10.28	35.16	100	25	Peak
14		8805.00	41.41	-12.59	54.00	30.11	36.18	10.28	35.16	100	25	Average

Test Mode :	Mode 3	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		

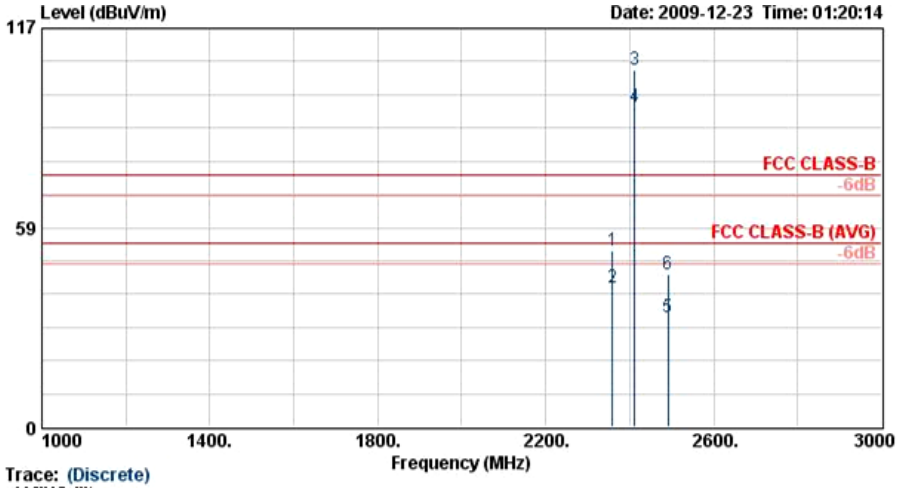


Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 VERTICAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		35.13	30.58	-9.42	40.00	44.87	16.73	0.68	31.70	---	---	Peak
2		97.50	29.53	-13.97	43.50	50.03	10.05	1.15	31.70	---	---	Peak
3		277.86	38.01	-7.99	46.00	54.28	13.16	2.02	31.44	---	---	Peak
4		372.10	31.95	-14.05	46.00	45.36	15.39	2.46	31.25	---	---	Peak
5		556.90	36.71	-9.29	46.00	45.40	19.24	3.11	31.04	100	195	Peak
6		610.10	34.92	-11.08	46.00	42.48	20.14	3.28	30.99	---	---	Peak
7		2380.00	61.08	-12.92	74.00	57.66	32.11	5.47	34.15	187	9	Peak
8		2380.00	35.86	-18.14	54.00	32.43	32.11	5.47	34.15	187	9	Average
9	X	2462.00	108.40			104.93	32.24	5.40	34.18	187	9	Peak
10	@	2462.00	99.87			96.41	32.24	5.40	34.18	187	9	Average
11		2484.61	51.88	-22.12	74.00	48.41	32.27	5.38	34.19	187	9	Peak
12		2484.61	40.06	-13.94	54.00	36.59	32.27	5.38	34.19	187	9	Average
13		8862.00	54.34	-19.66	74.00	43.01	36.21	10.29	35.17	100	195	Peak
14		8862.00	40.69	-13.31	54.00	29.36	36.21	10.29	35.17	100	195	Average

Test Mode :	Mode 4	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

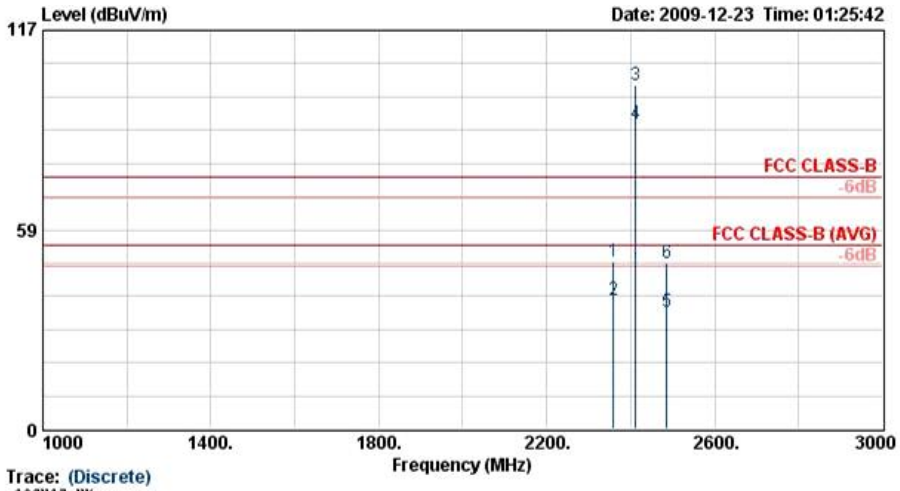


Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 HORIZONTAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2359.21	51.72	-22.28	74.00	48.29	32.08	5.49	34.14	130	360	Peak
2	2359.21	40.70	-13.30	54.00	37.27	32.08	5.49	34.14	130	360	Average
3 X	2412.00	104.79			101.34	32.16	5.44	34.16	130	360	Peak
4 @	2412.00	94.09			90.65	32.16	5.44	34.16	130	360	Average
5	2492.00	32.40	-21.60	54.00	28.93	32.30	5.37	34.20	130	360	Average
6	2492.00	44.62	-29.38	74.00	41.15	32.30	5.37	34.20	130	360	Peak

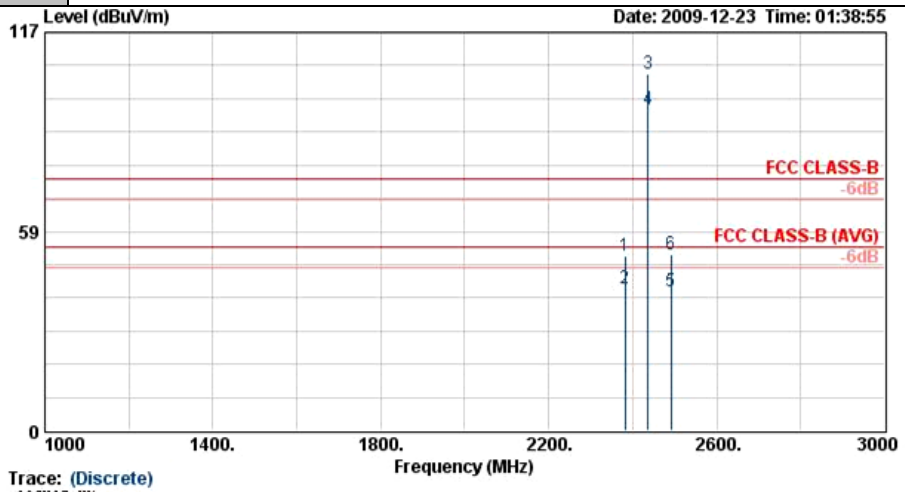
Test Mode :	Mode 4	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 VERTICAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2359.21	49.34	-24.66	74.00	45.91	32.08	5.49	34.14	100	148	Peak
2	2359.21	37.87	-16.13	54.00	34.44	32.08	5.49	34.14	100	148	Average
3 X	2412.00	100.80			97.36	32.16	5.44	34.16	100	148	Peak
4 @	2412.00	89.62			86.18	32.16	5.44	34.16	100	148	Average
5	2486.00	34.22	-19.78	54.00	30.75	32.27	5.38	34.19	100	148	Average
6	2486.00	48.74	-25.26	74.00	45.27	32.27	5.38	34.19	---	---	Peak

Test Mode :	Mode 5	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

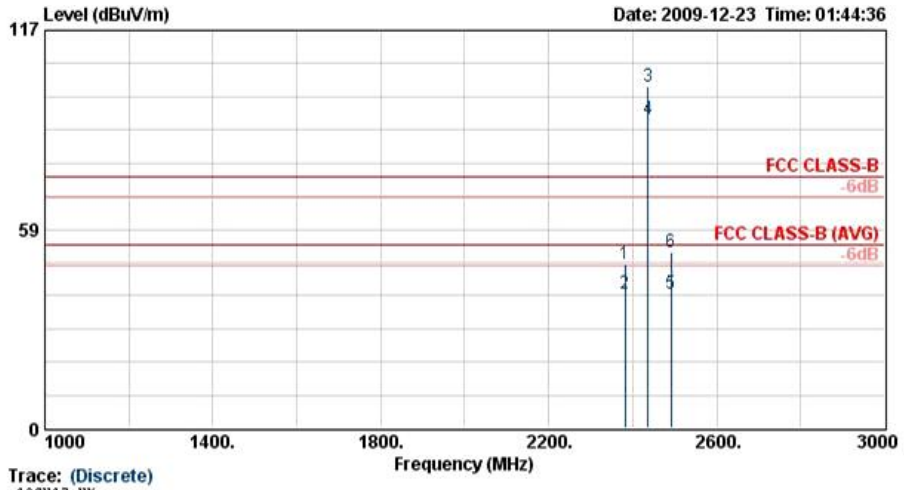


Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 HORIZONTAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2382.00	51.50	-22.50	74.00	48.08	32.11	5.47	34.15	128	360	Peak
2	2382.00	41.59	-12.41	54.00	38.16	32.11	5.47	34.15	128	360	Average
3 X	2437.00	104.73			101.28	32.22	5.41	34.18	128	360	Peak
4 @	2437.00	94.54			91.08	32.22	5.41	34.17	128	360	Average
5	2492.00	40.91	-13.09	54.00	37.44	32.30	5.37	34.20	128	360	Average
6	2492.00	51.96	-22.04	74.00	48.49	32.30	5.37	34.20	128	360	Peak

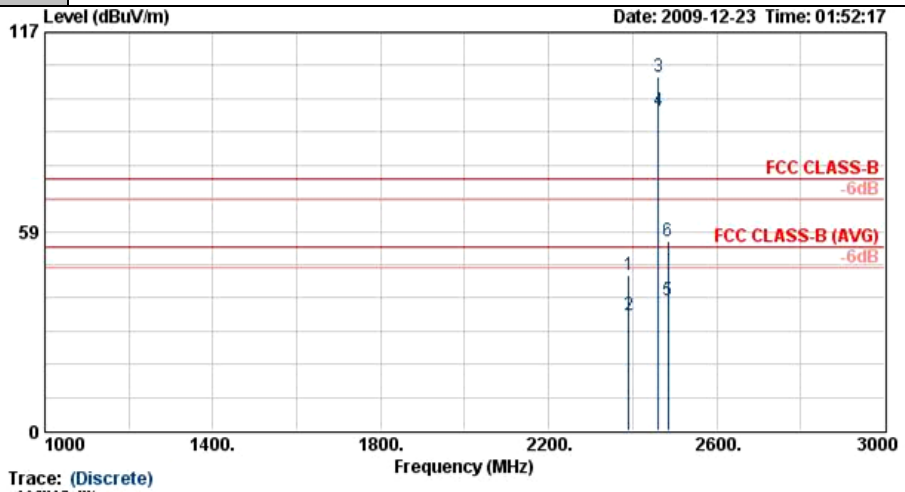
Test Mode :	Mode 5	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 VERTICAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2382.00	48.33	-25.67	74.00	44.90	32.11	5.47	34.15	100	149	Peak
2	2382.00	39.38	-14.62	54.00	35.95	32.11	5.47	34.15	100	149	Average
3 X	2437.00	100.42			96.97	32.19	5.43	34.17	100	149	Peak
4 X	2437.00	90.70			87.24	32.22	5.41	34.17	100	149	Average
5	2492.00	39.63	-14.37	54.00	36.16	32.30	5.37	34.20	100	149	Average
6	2492.00	51.82	-22.18	74.00	48.35	32.30	5.37	34.20	100	149	Peak

Test Mode :	Mode 6	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

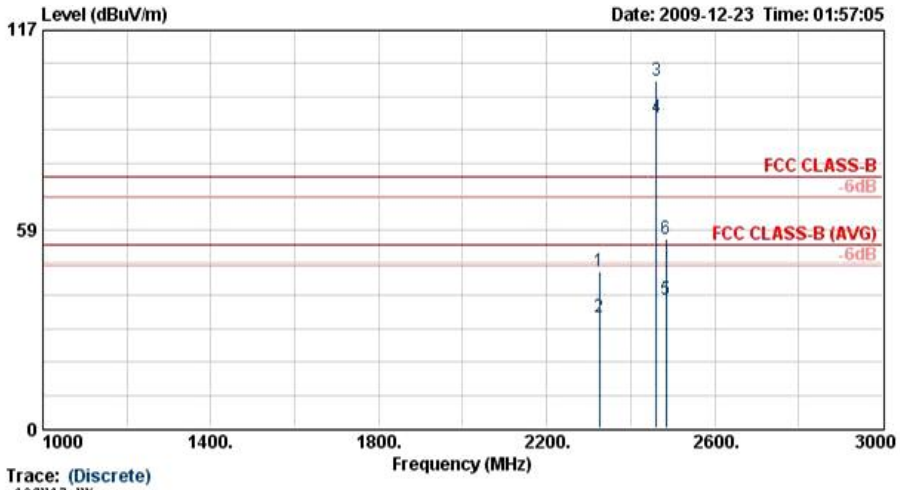


Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 HORIZONTAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	45.49	-28.51	74.00	42.06	32.13	5.46	34.16	183	360	Peak
2	2390.00	33.94	-20.06	54.00	30.51	32.13	5.46	34.16	183	360	Average
3 X	2462.00	104.03			100.56	32.24	5.40	34.18	183	360	Peak
4 @	2462.00	93.74			90.28	32.24	5.40	34.18	183	360	Average
5	2483.66	38.42	-15.58	54.00	34.95	32.27	5.38	34.19	183	360	Average
6	2483.66	55.73	-18.27	74.00	52.26	32.27	5.38	34.19	183	360	Peak

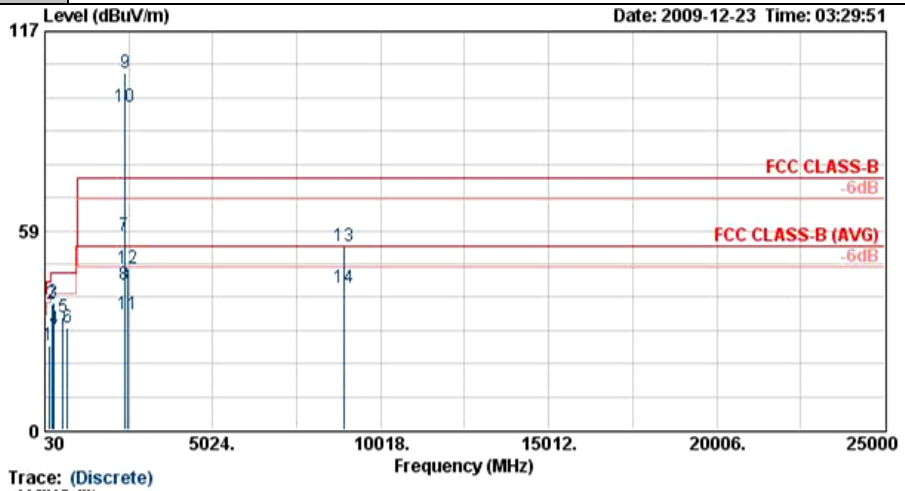
Test Mode :	Mode 6	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 VERTICAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2326.00	45.96	-28.04	74.00	42.55	32.02	5.51	34.13	156	150	Peak
2	2326.00	32.65	-21.35	54.00	29.24	32.02	5.51	34.13	156	150	Average
3 X	2462.00	102.24			98.78	32.24	5.40	34.18	156	150	Peak
4 @	2462.00	91.31			87.85	32.24	5.40	34.18	156	150	Average
5	2483.50	37.72	-16.28	54.00	34.25	32.27	5.38	34.19	156	150	Average
6	2483.50	55.73	-18.27	74.00	52.26	32.27	5.38	34.19	156	150	Peak

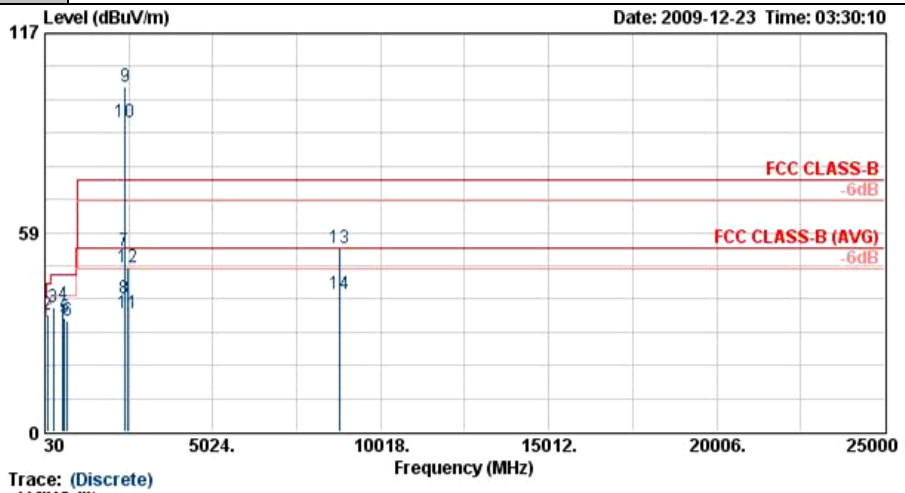
Test Mode :	Mode 7	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 HORIZONTAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		143.94	24.64	-18.86	43.50	43.35	11.52	1.43	31.66	---	---	Peak
2		230.34	37.16	-8.84	46.00	56.42	10.43	1.84	31.54	---	---	Peak
3		283.53	37.57	-8.43	46.00	53.73	13.23	2.04	31.43	100	174	Peak
4		304.20	29.53	-16.47	46.00	45.19	13.59	2.15	31.39	---	---	Peak
5		559.00	33.06	-12.94	46.00	41.71	19.28	3.12	31.04	---	---	Peak
6		710.20	29.83	-16.17	46.00	36.16	20.97	3.58	30.88	---	---	Peak
7		2389.99	57.14	-16.86	74.00	53.71	32.13	5.46	34.16	101	360	Peak
8		2389.99	42.69	-11.31	54.00	39.26	32.13	5.46	34.16	101	360	Average
9	X	2412.00	105.03			101.59	32.16	5.44	34.16	101	360	Peak
10	@	2412.00	94.80			91.36	32.16	5.44	34.16	101	360	Average
11		2484.00	34.13	-19.87	54.00	30.66	32.27	5.38	34.19	101	360	Average
12		2484.00	47.38	-26.62	74.00	43.91	32.27	5.38	34.19	101	360	Peak
13		8910.00	53.79	-20.21	74.00	42.42	36.24	10.31	35.18	100	37	Peak
14		8910.00	41.54	-12.46	54.00	30.17	36.24	10.31	35.18	100	37	Average

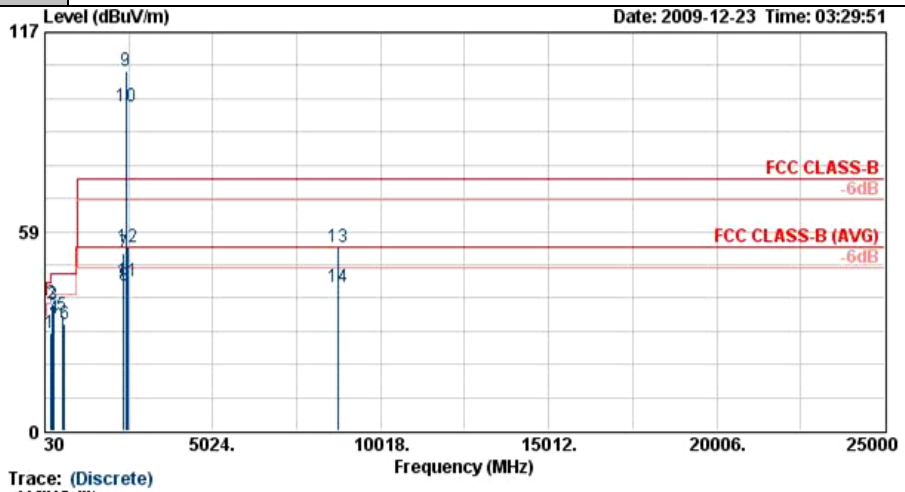
Test Mode :	Mode 7	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 VERTICAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		35.13	28.96	-11.04	40.00	43.25	16.73	0.68	31.70	---	---	Peak
2		98.58	34.42	-9.08	43.50	54.77	10.19	1.16	31.70	---	---	Peak
3		278.13	36.35	-9.65	46.00	52.62	13.16	2.02	31.44	---	---	Peak
4		559.00	37.39	-8.61	46.00	46.03	19.28	3.12	31.04	100	214	Peak
5		610.10	33.67	-12.33	46.00	41.23	20.14	3.28	30.99	---	---	Peak
6		710.90	32.59	-13.41	46.00	38.90	20.99	3.58	30.88	---	---	Peak
7		2389.99	53.01	-20.99	74.00	49.58	32.13	5.46	34.16	100	149	Peak
8		2389.99	39.01	-14.99	54.00	35.58	32.13	5.46	34.16	100	149	Average
9	X	2412.00	101.36			97.91	32.16	5.44	34.16	100	149	Peak
10	@	2412.00	90.76			87.32	32.16	5.44	34.16	100	149	Average
11		2486.00	34.79	-19.21	54.00	31.32	32.27	5.38	34.19	100	149	Average
12		2486.00	48.17	-25.83	74.00	44.70	32.27	5.38	34.19	100	149	Peak
13		8793.00	53.88	-20.12	74.00	42.60	36.17	10.27	35.16	100	344	Peak
14		8793.00	40.66	-13.34	54.00	29.38	36.17	10.27	35.16	100	344	Average

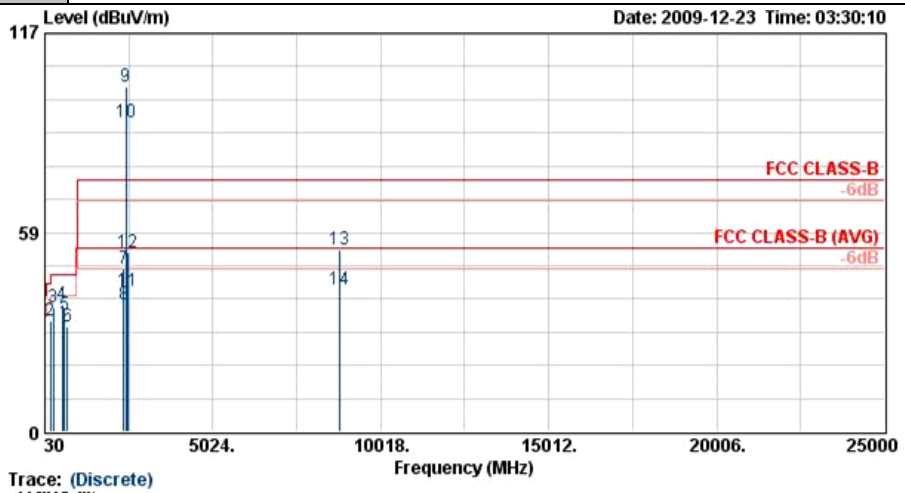
Test Mode :	Mode 8	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 HORIZONTAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		203.34	28.68	-14.82	43.50	49.69	8.87	1.72	31.59	---	---	Peak
2		229.53	37.21	-8.79	46.00	56.59	10.32	1.84	31.54	100	101	Peak
3		283.53	37.14	-8.86	46.00	53.30	13.23	2.04	31.43	---	---	Peak
4		304.20	33.04	-12.96	46.00	48.69	13.59	2.15	31.39	---	---	Peak
5		556.90	33.99	-12.01	46.00	42.68	19.24	3.11	31.04	---	---	Peak
6		609.40	31.19	-14.81	46.00	38.77	20.14	3.28	30.99	---	---	Peak
7		2382.00	52.39	-21.61	74.00	48.96	32.11	5.47	34.15	127	360	Peak
8		2382.00	42.78	-11.22	54.00	39.35	32.11	5.47	34.15	127	360	Average
9	X	2437.00	105.60			102.15	32.19	5.43	34.17	127	360	Peak
10	@	2437.00	95.06			91.60	32.22	5.41	34.17	127	360	Average
11		2486.00	43.82	-10.18	54.00	40.35	32.27	5.38	34.19	127	360	Average
12		2486.00	53.80	-20.20	74.00	50.33	32.27	5.38	34.19	127	360	Peak
13		8733.00	53.74	-20.26	74.00	42.49	36.14	10.25	35.15	100	175	Peak
14		8733.00	41.99	-12.01	54.00	30.74	36.14	10.25	35.15	100	175	Average

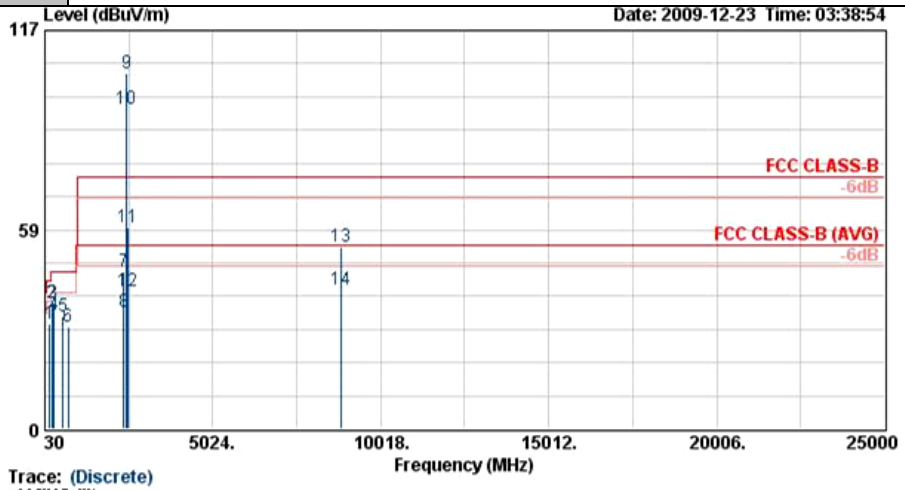
Test Mode :	Mode 8	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 VERTICAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		35.13	31.23	-8.77	40.00	45.52	16.73	0.68	31.70	---	---	Peak
2		202.53	32.83	-10.67	43.50	53.86	8.85	1.71	31.59	---	---	Peak
3		278.13	36.73	-9.27	46.00	52.99	13.16	2.02	31.44	---	---	Peak
4		556.90	37.25	-8.75	46.00	45.94	19.24	3.11	31.04	100	274	Peak
5		609.40	34.26	-11.74	46.00	41.84	20.14	3.28	30.99	---	---	Peak
6		710.90	31.09	-14.91	46.00	37.40	20.99	3.58	30.88	---	---	Peak
7		2382.00	47.73	-26.27	74.00	44.31	32.11	5.47	34.15	160	151	Peak
8		2382.00	37.19	-16.81	54.00	33.76	32.11	5.47	34.15	160	151	Average
9	X	2437.00	101.33			97.88	32.19	5.43	34.17	160	151	Peak
10	@	2437.00	90.70			87.24	32.22	5.41	34.17	160	151	Average
11		2486.00	41.34	-12.66	54.00	37.87	32.27	5.38	34.19	160	151	Average
12		2486.00	52.61	-21.39	74.00	49.14	32.27	5.38	34.19	160	151	Peak
13		8805.00	53.72	-20.28	74.00	42.42	36.18	10.28	35.16	100	47	Peak
14		8805.00	41.71	-12.29	54.00	30.41	36.18	10.28	35.16	100	47	Average

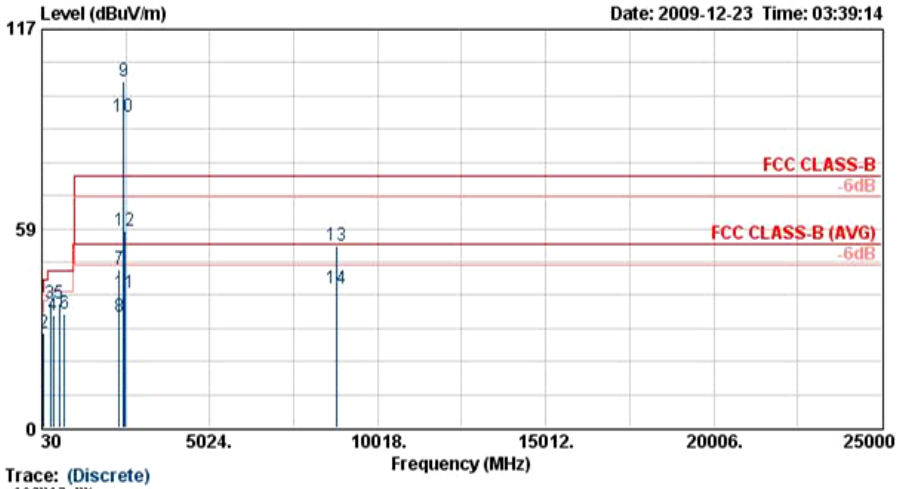
Test Mode :	Mode 9	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 HORIZONTAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		166.89	31.09	-12.41	43.50	51.30	9.89	1.54	31.63	---	---	Peak
2		230.34	36.88	-9.12	46.00	56.14	10.43	1.84	31.54	---	---	Peak
3		292.98	36.96	-9.04	46.00	52.92	13.37	2.09	31.41	100	222	Peak
4		304.20	33.67	-12.33	46.00	49.32	13.59	2.15	31.39	---	---	Peak
5		559.00	32.95	-13.05	46.00	41.60	19.28	3.12	31.04	---	---	Peak
6		713.00	30.14	-15.86	46.00	36.41	21.01	3.59	30.87	---	---	Peak
7		2382.00	46.12	-27.88	74.00	42.69	32.11	5.47	34.15	183	360	Peak
8		2382.00	34.20	-19.80	54.00	30.77	32.11	5.47	34.15	183	360	Average
9	X	2462.00	104.31			100.86	32.24	5.40	34.19	183	360	Peak
10	@	2462.00	93.89			90.43	32.24	5.40	34.18	183	360	Average
11		2483.85	59.26	-14.74	74.00	55.79	32.27	5.38	34.19	183	360	Peak
12		2483.85	40.59	-13.41	54.00	37.12	32.27	5.38	34.19	183	360	Average
13		8826.00	53.51	-20.49	74.00	42.21	36.19	10.28	35.17	100	19	Peak
14		8826.00	40.98	-13.02	54.00	29.67	36.19	10.28	35.17	100	19	Average

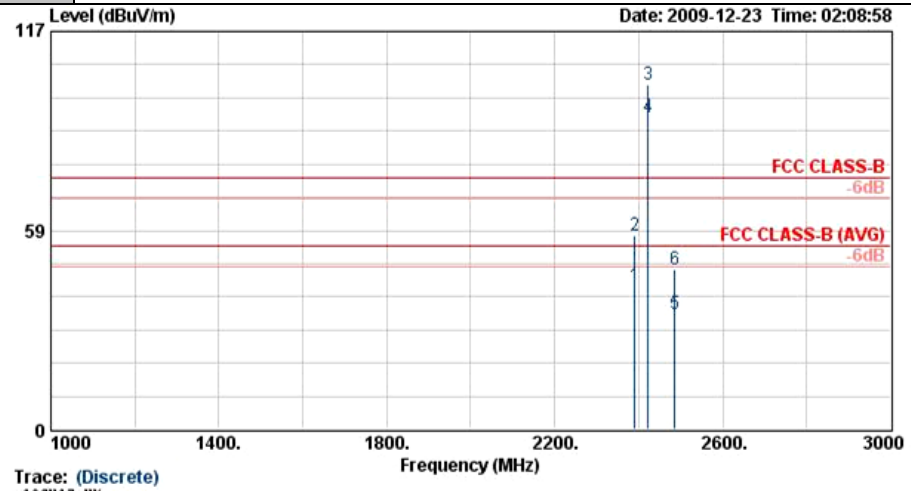
Test Mode :	Mode 9	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#9 and #10 are Fundamental Signals which can be ignored.		



Site : 03CH07-HY
Condition : FCC CLASS-B SHF-EHF HORN_091208 VERTICAL
Project : FR 9N1814

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		35.13	31.98	-8.02	40.00	46.27	16.73	0.68	31.70	100	111	Peak
2		94.53	27.83	-15.67	43.50	48.78	9.61	1.14	31.70	---	---	Peak
3		279.21	36.48	-9.52	46.00	52.73	13.18	2.02	31.44	---	---	Peak
4		371.40	32.99	-13.01	46.00	46.43	15.36	2.45	31.26	---	---	Peak
5		556.90	36.51	-9.49	46.00	45.19	19.24	3.11	31.04	---	---	Peak
6		710.90	33.32	-12.68	46.00	39.63	20.99	3.58	30.88	---	---	Peak
7		2326.00	46.40	-27.60	74.00	42.99	32.02	5.51	34.13	157	150	Peak
8		2326.00	32.73	-21.27	54.00	29.32	32.02	5.51	34.13	157	150	Average
9	X	2462.00	101.61			98.15	32.24	5.40	34.19	157	150	Peak
10	@	2462.00	91.27			87.81	32.24	5.40	34.18	157	150	Average
11		2483.50	39.73	-14.27	54.00	36.26	32.27	5.38	34.19	157	150	Average
12		2483.50	57.80	-16.20	74.00	54.33	32.27	5.38	34.19	157	150	Peak
13		8814.00	53.36	-20.64	74.00	42.05	36.19	10.28	35.16	100	27	Peak
14		8814.00	40.98	-13.02	54.00	29.67	36.19	10.28	35.16	100	27	Average

Test Mode :	Mode 10	Temperature :	21~22°C
Test Channel :	03	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

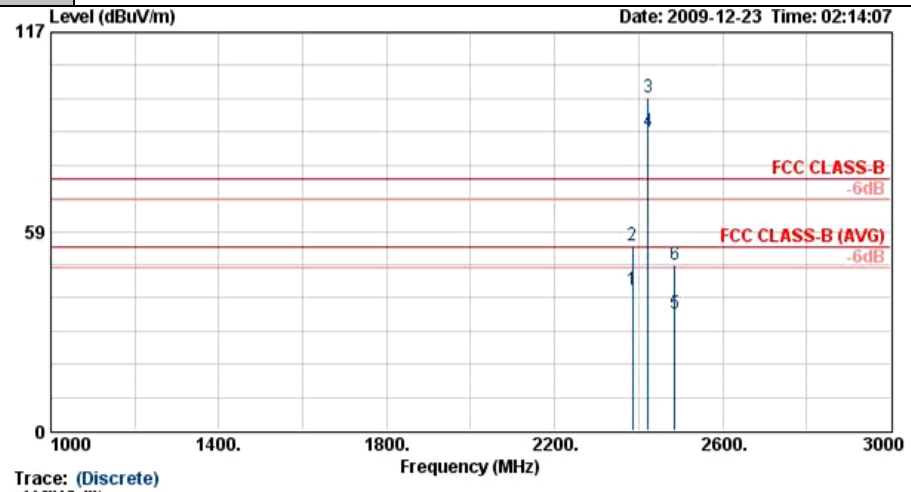


Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 HORIZONTAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2389.99	42.38	-11.62	54.00	38.95	32.13	5.46	34.16	185	360	Average
2	2389.99	56.80	-17.20	74.00	53.37	32.13	5.46	34.16	185	360	Peak
3 X	2422.00	101.49			98.04	32.19	5.43	34.17	185	360	Peak
4 @	2422.00	91.78			88.33	32.19	5.43	34.17	185	360	Average
5	2486.00	34.01	-19.99	54.00	30.54	32.27	5.38	34.19	185	360	Average
6	2486.00	47.18	-26.82	74.00	43.71	32.27	5.38	34.19	185	360	Peak

Test Mode :	Mode 10	Temperature :	21~22°C
Test Channel :	03	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

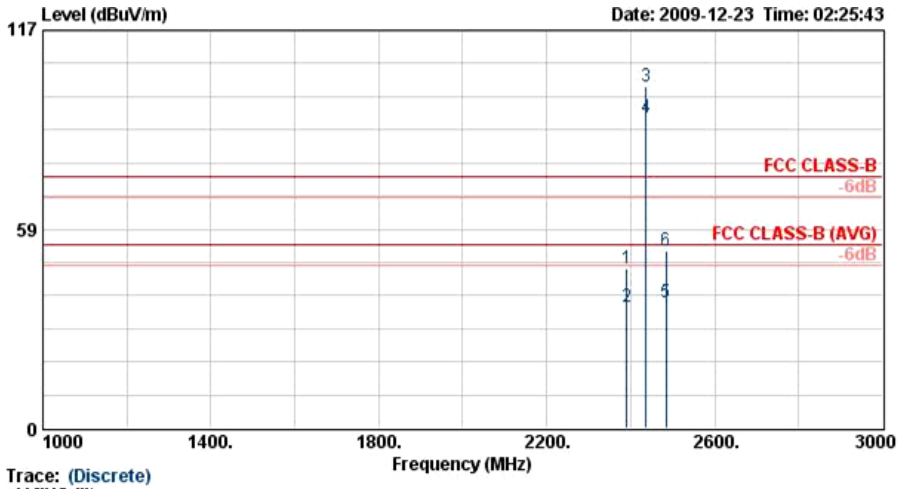


Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 VERTICAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2385.81	41.35	-12.65	54.00	37.91	32.13	5.46	34.15	100	148	Average
2	2385.81	54.18	-19.82	74.00	50.74	32.13	5.46	34.15	100	148	Peak
3 X	2422.00	97.69			94.24	32.19	5.43	34.17	100	148	Peak
4 @	2422.00	88.04			84.59	32.19	5.43	34.17	100	148	Average
5	2486.00	34.48	-19.52	54.00	31.01	32.27	5.38	34.19	100	148	Average
6	2486.00	48.84	-25.16	74.00	45.37	32.27	5.38	34.19	100	148	Peak

Test Mode :	Mode 11	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

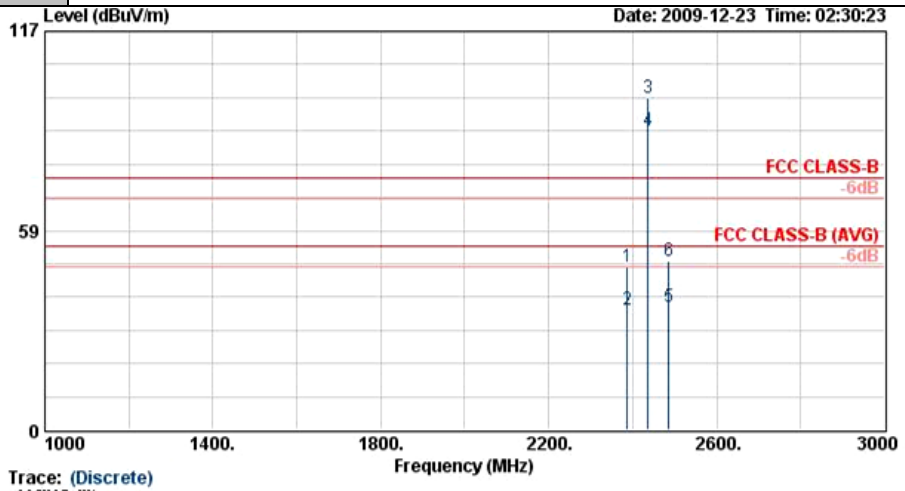


Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 HORIZONTAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	47.04	-26.96	74.00	43.61	32.13	5.46	34.16	185	360	Peak
2	2390.00	35.46	-18.54	54.00	32.03	32.13	5.46	34.16	185	360	Average
3 X	2437.00	100.53			97.08	32.19	5.43	34.17	185	360	Peak
4 @	2437.00	91.52			88.06	32.22	5.41	34.17	185	360	Average
5	2484.00	36.95	-17.05	54.00	33.48	32.27	5.38	34.19	185	360	Average
6	2484.00	52.20	-21.80	74.00	48.73	32.27	5.38	34.19	185	360	Peak

Test Mode :	Mode 11	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

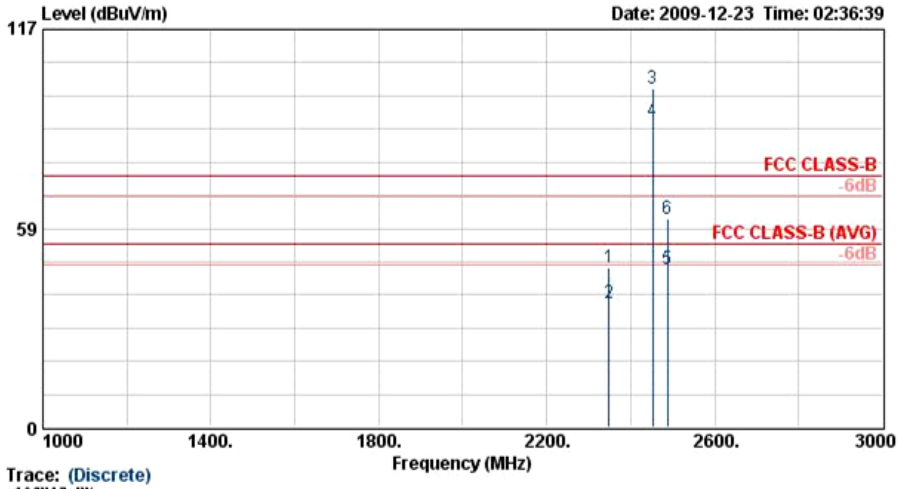


Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 HORIZONTAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2388.00	47.68	-26.32	74.00	44.24	32.13	5.46	34.15	100	148	Peak
2	2388.00	35.44	-18.56	54.00	32.00	32.13	5.46	34.15	100	148	Average
3 X	2437.00	97.21			93.77	32.19	5.43	34.17	100	148	Peak
4 @	2437.00	87.94			84.48	32.22	5.41	34.17	100	148	Average
5	2486.00	36.25	-17.75	54.00	32.78	32.27	5.38	34.19	100	148	Average
6	2486.00	49.41	-24.59	74.00	45.94	32.27	5.38	34.19	100	148	Peak

Test Mode :	Mode 12	Temperature :	21~22°C
Test Channel :	09	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Horizontal
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		

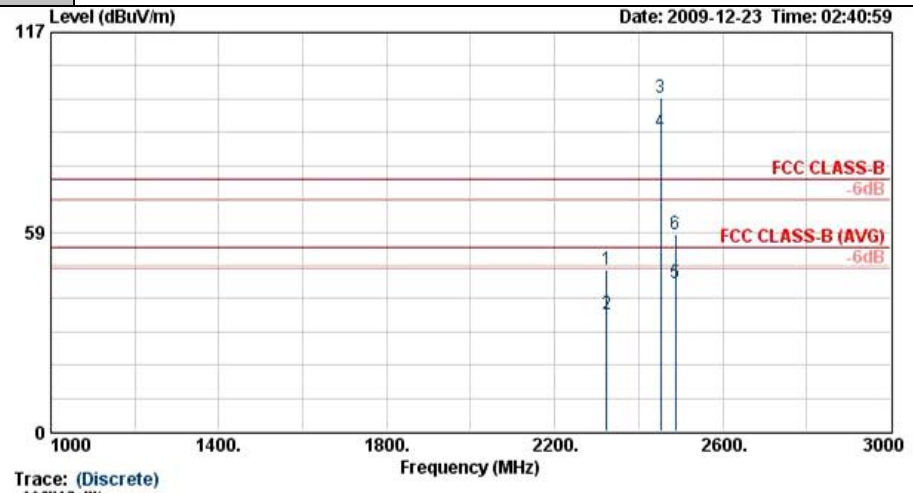


Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 HORIZONTAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2348.00	47.12	-26.88	74.00	43.70	32.05	5.50	34.14	125	359	Peak
2	2348.00	36.45	-17.55	54.00	33.04	32.05	5.50	34.14	125	359	Average
3 X	2452.00	99.69			96.22	32.24	5.40	34.18	125	359	Peak
4 @	2452.00	90.07			86.62	32.22	5.41	34.18	125	359	Average
5	2487.65	46.44	-7.56	54.00	42.96	32.30	5.37	34.19	125	359	Average
6	2487.65	61.16	-12.84	74.00	57.68	32.30	5.37	34.19	125	359	Peak

Test Mode :	Mode 12	Temperature :	21~22°C
Test Channel :	09	Relative Humidity :	47~48%
Test Engineer :	Kay Wu	Polarization :	Vertical
Remark :	#3 and #4 are Fundamental Signals which can be ignored.		



Trace: (Discrete)

Site : 03CH07-HY
Condition : FCC CLASS-B HF-ANT_090824 VERTICAL
Project : FR 9N1814

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2324.00	47.62	-26.38	74.00	44.21	32.02	5.51	34.13	158	149	Peak
2	2324.00	34.46	-19.54	54.00	31.05	32.02	5.51	34.13	158	149	Average
3 X	2452.00	97.74			94.27	32.24	5.40	34.18	158	149	Peak
4 @	2452.00	87.73			84.28	32.22	5.41	34.18	158	149	Average
5	2488.22	43.37	-10.63	54.00	39.89	32.30	5.37	34.19	158	149	Average
6	2488.22	57.80	-16.20	74.00	54.32	32.30	5.37	34.19	158	149	Peak

3.4 Antenna Requirements

3.4.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

3.4.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna and it is considered to meet antenna requirement.

3.4.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2009	Oct. 30, 2010	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 04, 2009	Dec. 03, 2010	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 20, 2009	Aug. 19, 2010	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 14, 2009	Oct. 13, 2010	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec.09,2009	Dec. 08, 2010	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 27, 2009	Mar. 26, 2010	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 KHz~30 MHz	May 22, 2008	May 21, 2010	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**		

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

6 Certification of TAF Accreditation

Certificate No. : L1190-090417

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 Accreditation Program for BSMI Mutual Recognition Arrangment with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : April 17, 2009

P1, total 20 pages

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

Appendix A. Photographs of EUT

Please refer to Sporton report number EP9N1814-01 as below.