

FCC Test Report

FCC EVALUATION REPORT FOR CERTIFICATION	
Project Reference No.	239671
Product	Tablet PC
Brand Name	HANNspree
Model	HSG1279
Alternate Model	N/A
Tested according to	FCC Rules and Regulations Part 15 Subpart B 2013, ANSI C63.4-2009

Tested in period	2013-07-05 to 2013-07-11		
Issued date	2013-08-02		
Name and address of the Test House	 Nemko Shanghai Ltd. 7F, No.1 Building, No. 2007 Hong Mei Road, Xuhui district, Shanghai, China Phone : +86 21 5072 0988 Fax : +86 21 5072 0950		
Tested by			2013-08-02
	Susan Zhou		date
Verified by			2013-08-02
	Daria Liu		date

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1. Client Information

1.1 Applicant

Company Name:	Hannstar Display Corp.
Company Address:	4F, No.48, Wuquan Rd, Wugu Dist, New Taipei City 248, Taiwan

1.2 Manufacturer

Company Name:	Foxda Technology Industrial (Shenzhen) Co., Ltd.
Company Address:	G/F, Block 1 and G/F to 2/F, Block 2, Foxda Industrial Park, Lanzhu Road, Foxda Industrial Zone, Pingshan New District, Shenzhen, CHINA

1.3 Scope

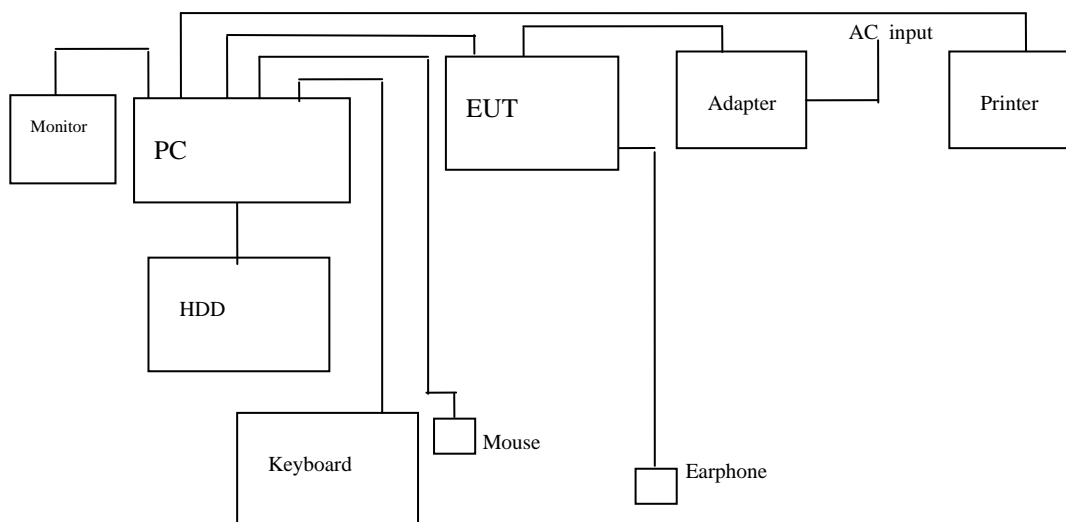
- Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC part 15B.

2. Equipment under Test (EUT)

2.1 Identification of EUT

Category: **Tablet PC**
 Model Name: **HSG1279**
 Alternate model: N/A
 Brand name: **HANNspree**
 Technical data (Rating, etc.): Adapter: SYS1357-1305
 Input: 1.0A, 100-240V~, 50-60Hz, Class II
 Output: 5Vdc, 2.6A

2.2 Setup drawing



2.3 Additional Information Related to Testing

TM 1	120V AC 60Hz	WiFi working mode
TM 2	120V AC 60Hz	Bluetooth working mode
TM 3	120V AC 60Hz	PC connection & SD card mode
TM 4	120V AC 60Hz	Video playing & HDMI connection mode
TM 5	120V AC 60Hz	Camera working mode

Remark: all modes are tested and only list worse case result in report.

3. General Test Conditions

3.1 Location

AUDIX Technology (Shenzhen) Co., Ltd-ELA 135
No.6, Ke Feng Rd.,52 Block ,Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China
FCC Registration No.:90454
Industry Canada Registration No.: 5183
Note: all test are witnessed by NEMKO engineer

3.2 Operating Environment

All tests and measurements were performed in a shielded enclosure or a controlled environment suitable for the tests conducted. The climatic conditions in the test area are automatically controlled and recorded continuously.

Parameters	Recording during test	Accepted deviation
Ambient temperature	20-25°C	15 – 35 °C
Relative humidity	45-55%	30 - 60%
Atmospheric pressure	101.2 kPa -101.3kPa	86-106kPa

3.3 Operating During Test

- AC 120V 60Hz, DC 5V from adapter.
- EUT connect to adapter(DC input), PC(USB port), monitor(HDMI port) or earphone.

3.4 Test Equipment

The test equipments used in testing are calibrated on a regular basis. For most of the testing equipments accredited calibration is conducted once a year. For certain equipment the calibration interval is longer. Between the calibrations all test equipment are controlled and verified on a regular basis. The test equipments used are defined in each test section of this report.

AE Equipment:

VGA Cable : Shielded, Detachable, 1.8m(Bonded two ferrite cores) X1
HDMI Cable : Shielded, Detachable, 1.8m(Bonded two ferrite cores) X1
USB Cable: Shielded, Detachable, 1.8m(Bonded two ferrite cores) X1
Power Cord : Unshielded, Detachable, 1.8m (3pins) X2

Manufacturer	Description	Model	Serial Number	Approval
DELL	PC	Vostro	G2945W1	FCC DOC
Dell	LCD monitor	U3011t	CN-OPH5NY-744 45-097-505L	FCC DOC
HP	Printer	C9079A	N/A	FCC DOC
Terasys	HDD	F12-UF	A0100215- 5390031	FCC DOC
Dell	USB Keyboard	SK-8115	CN-ORH656- 65890-686-007J	FCC DOC
dell	USB Mouse	M056UO	512022645	FCC DOC

4. Measurement Uncertainty

The Measurement Uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 with the confidence level of 95 %.

No.	Item	Uncertainty		Remark
1	Conducted Emission Test	0.15~30MHz	3.45dB	
2	Radiated Emission Test	30MHz~1000MHz	4.50dB	3m chamber
		1GHz-18GHz	4.70dB	

5. Conducted Emission (150 KHz to 30 MHz)

5.1 Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network. This provided a 50-ohm coupling impedance for the EUT (Please refer to the test setup photographs). The other peripheral devices power cord connected to the power mains through another line impedance stabilization network.

Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2009 on conducted Emission test.

The bandwidth of test receiver is set at 9kHz. The frequency range from 150kHz to 30MHz is checked. The test result are reported as below.

5.2 Measurement Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Oct.31, 12	1 Year
2.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Oct.31, 12	1 Year
3.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 13	1 Year
4.	Terminator	Hubersuhner	50Ω	No. 1	May.08, 13	1 Year
5.	Terminator	Hubersuhner	50Ω	No. 2	May.08, 13	1 Year
6.	RF Cable	Fujikura	3D-2W	No.1	May.08, 13	1Year
7.	Coaxial Switch	Anritsu	MP59B	M50564	May.08, 13	1 Year
8.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 13	1 Year
9.	Oscilloscope	Tektronix	TDS3052B	B026036	May.20, 13	1 Year

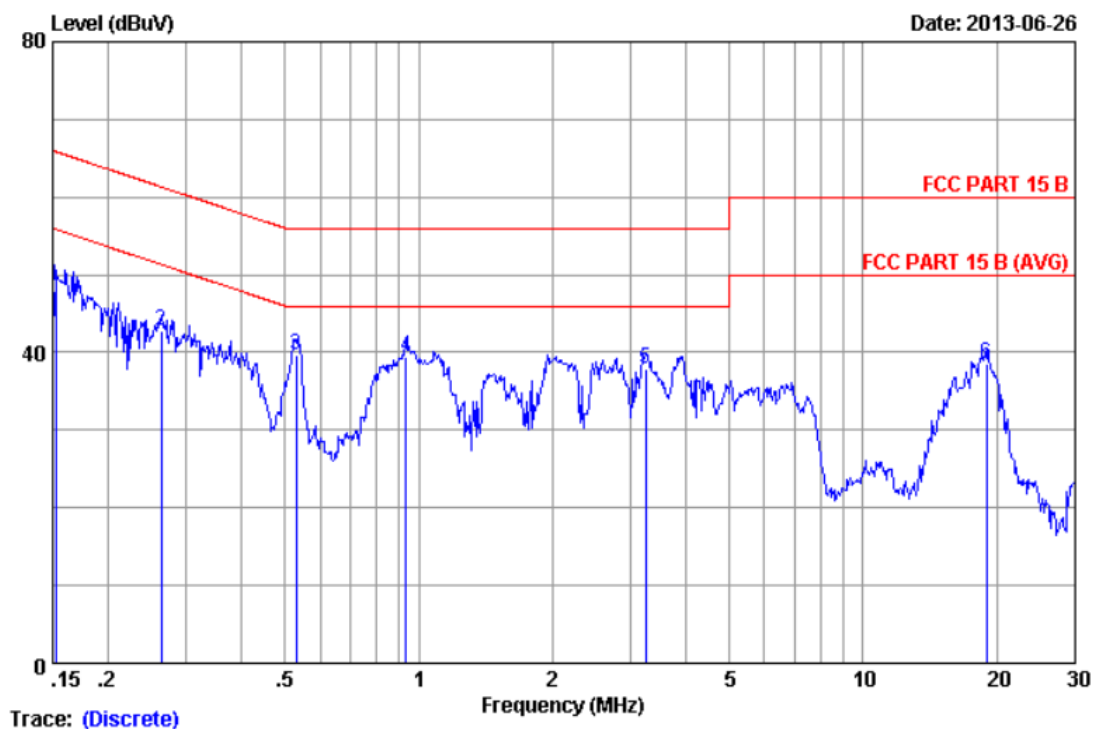
5.3 Test Result

Connect mode	Power Line	Test Data	Test Result
TM3	Line	Diagram 001	Pass
	Neutral	Diagram 002	Pass
TM4	Line	Diagram 003	Pass
	Neutral	Diagram 004	Pass
TM5	Line	Diagram 005	Pass
	Neutral	Diagram 006	Pass
Remark	TM1~ TM5 is pre-scan, and only list the worse result in the report		

NOTES:

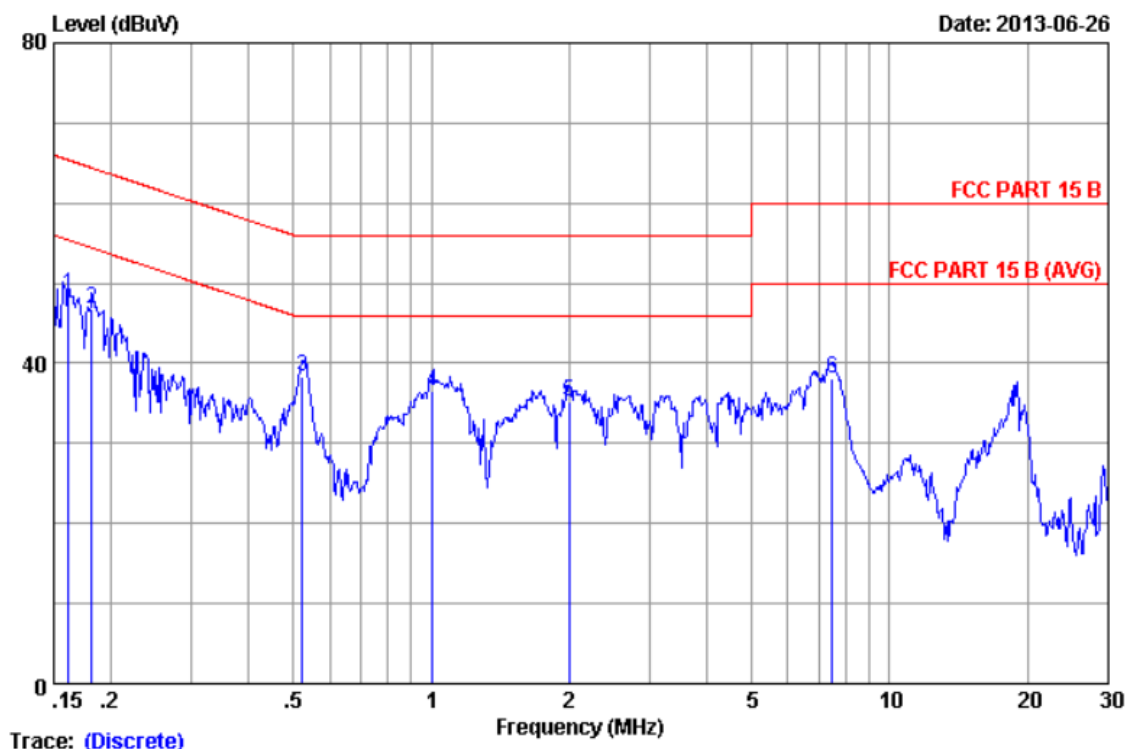
1. Measurements using CISPR quasi-peak mode & average mode.
2. All modes of operation were investigated and the worst -case emission are reported. See attached Plots.
3. Emission level = LISN Factor + Cable Loss + Reading
4. LINE: L1 =Line, N = Neutral
5. The limit for Class B device is on the FCC Part section 15.107.
- 6: If PK value is lower than AV limit then no reading value listed in report .If QP value is Lower than AV limit ,then AV value don't listed in report.

5.3.1 Diagram 001



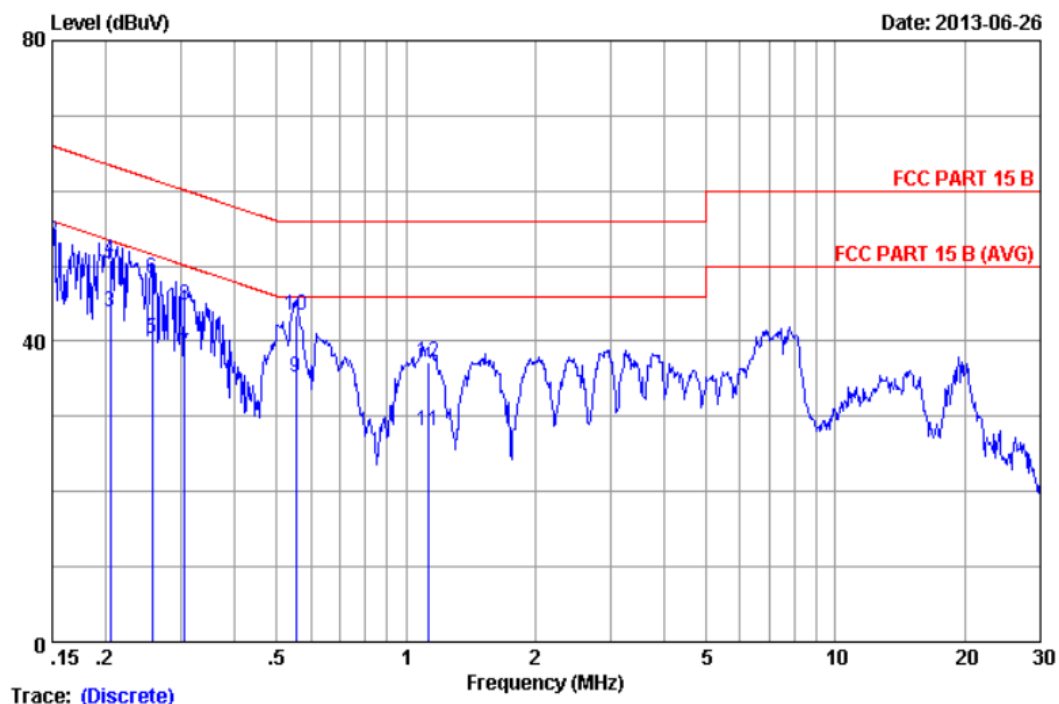
No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15240	0.19	0.01	48.32	48.52	65.87	17.35	QP
2	0.26303	0.19	0.01	42.65	42.85	61.34	18.49	QP
3	0.52934	0.19	0.02	39.50	39.71	56.00	16.29	QP
4	0.93810	0.21	0.03	39.11	39.35	56.00	16.65	QP
5	3.241	0.27	0.05	37.48	37.80	56.00	18.20	QP
6	18.920	1.07	0.14	37.34	38.55	60.00	21.45	QP

5.3.2 Diagram 002



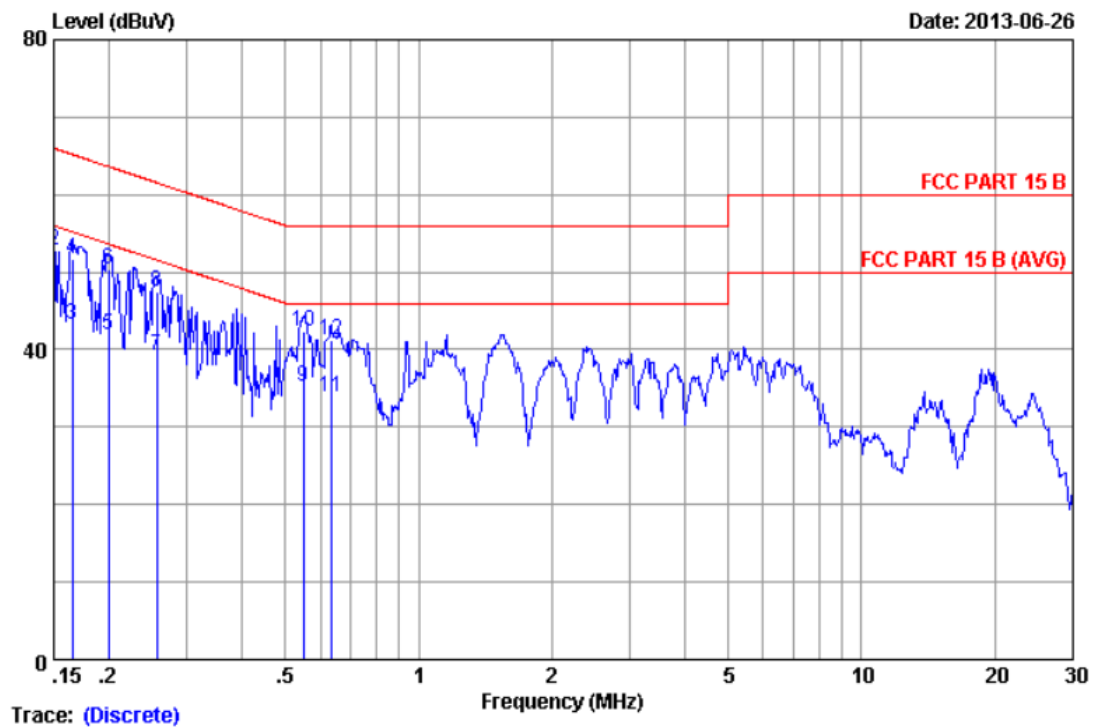
No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.16155	0.21	0.01	48.26	48.48	65.38	16.90	QP
2	0.18152	0.21	0.01	46.54	46.76	64.42	17.66	QP
3	0.52376	0.23	0.02	38.14	38.39	56.00	17.61	QP
4	1.005	0.24	0.03	36.25	36.52	56.00	19.48	QP
5	2.001	0.28	0.04	34.98	35.30	56.00	20.70	QP
6	7.486	0.41	0.08	37.56	38.05	60.00	21.95	QP

5.3.3 Diagram 003



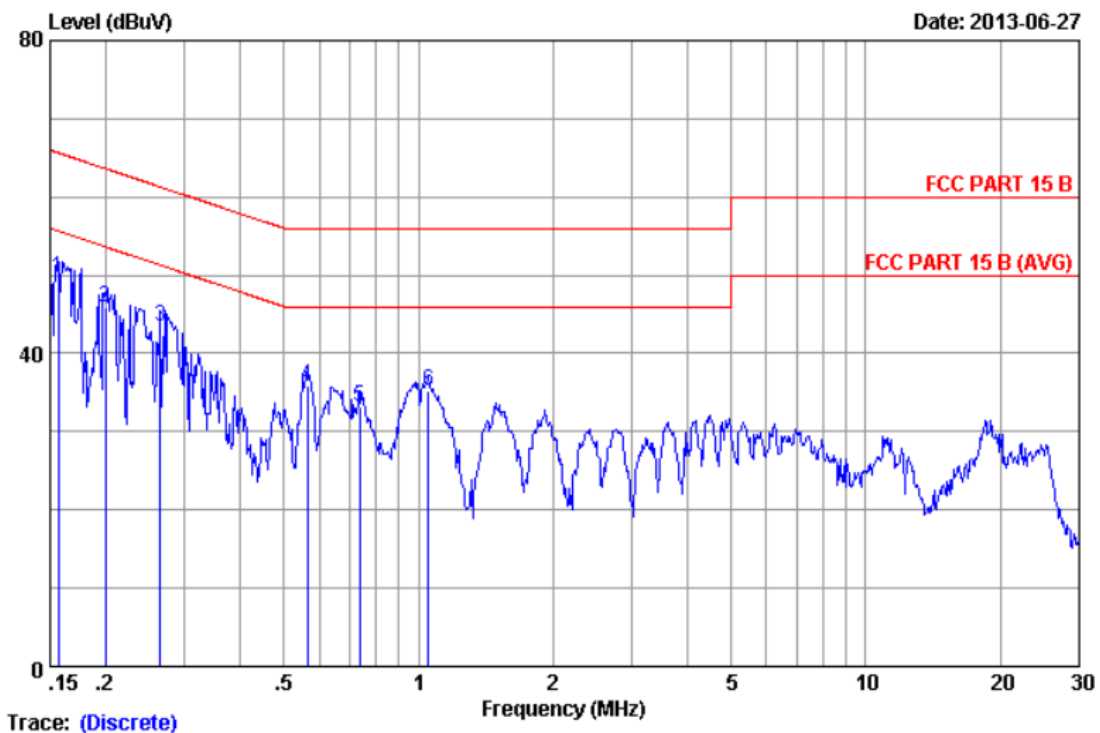
No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.21	0.01	44.86	45.08	56.00	10.92	Average
2	0.15000	0.21	0.01	53.14	53.36	66.00	12.64	QP
3	0.20505	0.21	0.01	43.76	43.98	53.40	9.42	Average
4	0.20505	0.21	0.01	50.65	50.87	63.40	12.53	QP
5	0.25615	0.22	0.01	40.07	40.30	51.56	11.26	Average
6	0.25615	0.22	0.01	48.02	48.25	61.56	13.31	QP
7	0.30509	0.22	0.01	38.13	38.36	50.10	11.74	Average
8	0.30509	0.22	0.01	44.55	44.78	60.10	15.32	QP
9	0.55520	0.23	0.02	34.89	35.14	46.00	10.86	Average
10	0.55520	0.23	0.02	43.25	43.50	56.00	12.50	QP
11	1.123	0.25	0.03	27.86	28.14	46.00	17.86	Average
12	1.123	0.25	0.03	36.96	37.24	56.00	18.76	QP

5.3.4 Diagram 004



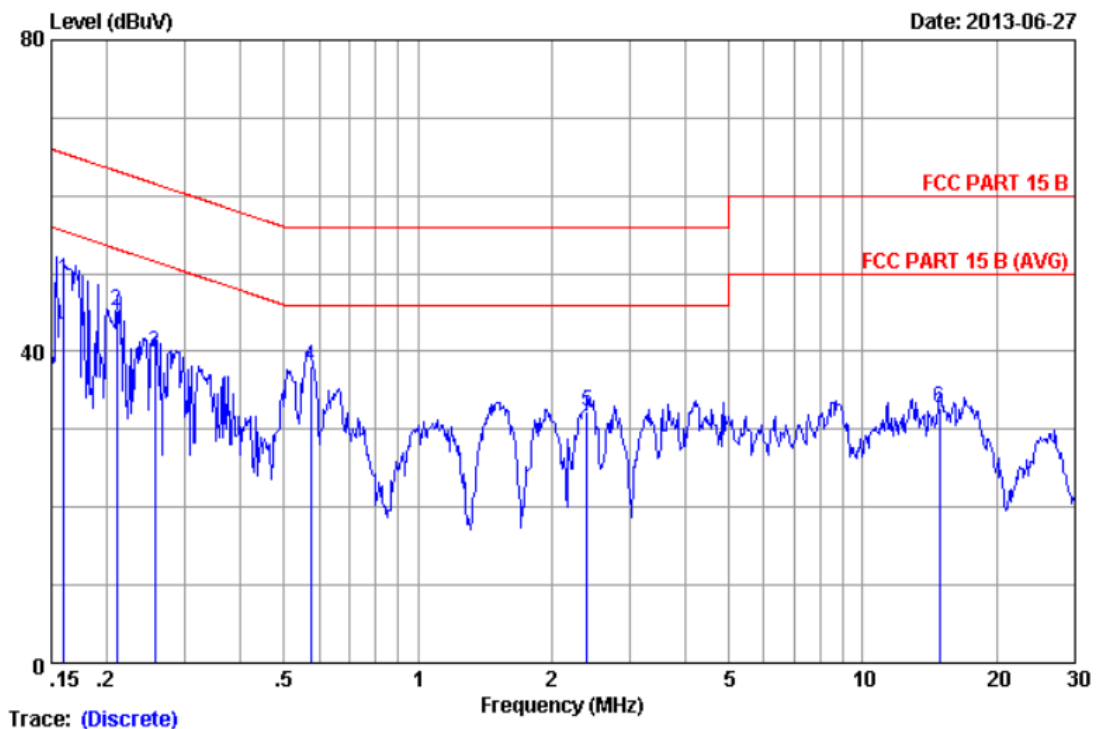
No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.19	0.01	43.98	44.18	56.00	11.82	Average
2	0.15000	0.19	0.01	52.58	52.78	66.00	13.22	QP
3	0.16501	0.19	0.01	42.98	43.18	55.21	12.03	Average
4	0.16501	0.19	0.01	51.50	51.70	65.21	13.51	QP
5	0.19969	0.19	0.01	41.76	41.96	53.62	11.66	Average
6	0.19969	0.19	0.01	50.17	50.37	63.62	13.25	QP
7	0.25615	0.19	0.01	38.96	39.16	51.56	12.40	Average
8	0.25615	0.19	0.01	47.28	47.48	61.56	14.08	QP
9	0.54934	0.19	0.02	34.89	35.10	46.00	10.90	Average
10	0.54934	0.19	0.02	42.11	42.32	56.00	13.68	QP
11	0.63383	0.20	0.02	33.76	33.98	46.00	12.02	Average
12	0.63383	0.20	0.02	41.04	41.26	56.00	14.74	QP

5.3.5 Diagram 005



No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15649	0.21	0.01	49.39	49.61	65.65	16.04	QP
2	0.19969	0.21	0.01	45.72	45.94	63.62	17.68	QP
3	0.26442	0.22	0.01	43.25	43.48	61.29	17.81	QP
4	0.56409	0.23	0.02	35.57	35.82	56.00	20.18	QP
5	0.73910	0.24	0.03	32.86	33.13	56.00	22.87	QP
6	1.054	0.24	0.03	34.89	35.16	56.00	20.84	QP

5.3.6 Diagram 006



No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15985	0.19	0.01	48.96	49.16	65.47	16.31	QP
2	0.21055	0.19	0.01	44.98	45.18	63.18	18.00	QP
3	0.25615	0.19	0.01	39.67	39.87	61.56	21.69	QP
4	0.57313	0.19	0.02	37.90	38.11	56.00	17.89	QP
5	2.396	0.25	0.04	32.01	32.30	56.00	23.70	QP
6	14.907	0.74	0.12	31.90	32.76	60.00	27.24	QP

6. Radiated Electromagnetic Disturbances

6.1 Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m or 10m from the EUT on an adjustable mast.

The EUT were rotated 0 to 360 degree and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. The test result are reported as below.

For below 1GHz

RBW=120 kHz; VBW=300KHz. QP detector. The frequency range from 30MHz to 1000MHz is checked.

For above 1GHz, The frequency range from 1GHz to 18GHz is checked.

RBW=1MHz ; VBW=1MHz, PK detector for peak emissions measurement above 1GHz

RBW=1MHz ; VBW=10Hz, PK detector for average emissions measure above 1GHz

6.2 Measurement Equipment

For below 1GHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3# Chamber	AUDIX	N/A	N/A	Nov.24,12	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 13	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 13	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 13	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Dec.26, 12	2.0 Year
6	RF Cable	MIYAZAKI	CFD400-NL	3# Chamber No.1	May.08, 13	1 Year
7	Coaxial Switch	Anritsu	MP59B	M74389	May.08, 13	1 Year

For above 1GHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	May.08, 13	1 Year
2	Horn Antenna	EMCO	3115	9510-4580	June.05, 13	1 Year
3	Amplifier	Agilent	8449B	3008A00863	May.08, 13	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX106	77980/6	May.08, 13	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX106	77977/6	May.08, 13	1 Year

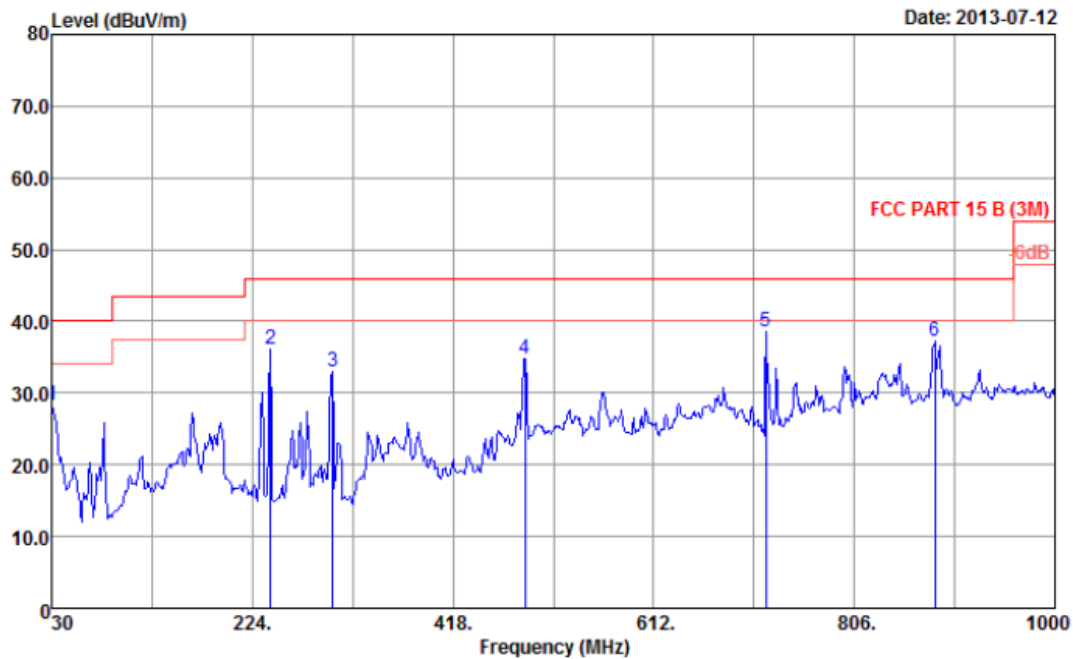
6.3 Test Result

Connect mode	Antenna Polarity	Test Data	Test Result
TM3 (below 1GHz) 3m test distance	Horizontal	Diagram 007	Pass
	Vertical	Diagram 008	Pass
TM4 (below 1GHz) 3m test distance	Horizontal	Diagram 009	Pass
	Vertical	Diagram 010	Pass
TM5 (below 1GHz) 3m test distance	Horizontal	Diagram 011	Pass
	Vertical	Diagram 012	Pass
TM3 (above 1GHz) 3m test distance	Horizontal	Diagram 013	Pass
	Vertical	Diagram 014	Pass
Remark :	TM1~ TM5 is pre-scan, and only list the worse result in the report		

NOTES:

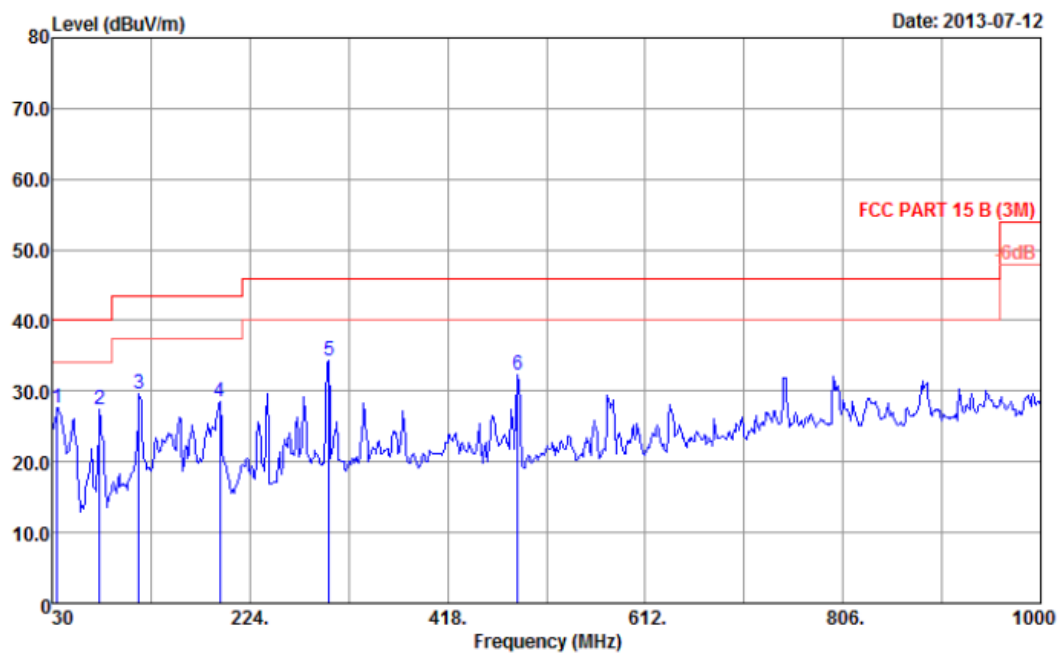
- 1.All modes were measured and the worst case emission was reported.
- 2.Measurements using CISPR quasi-peak mode for below 1GHz.
- 3.The limit for Class B device is on the FCC Part section 15.109.
4. For Above 1GHz , if Pk value is lower than AV limit , then AV reading is not listed in report .

6.3.1 Diagram 007



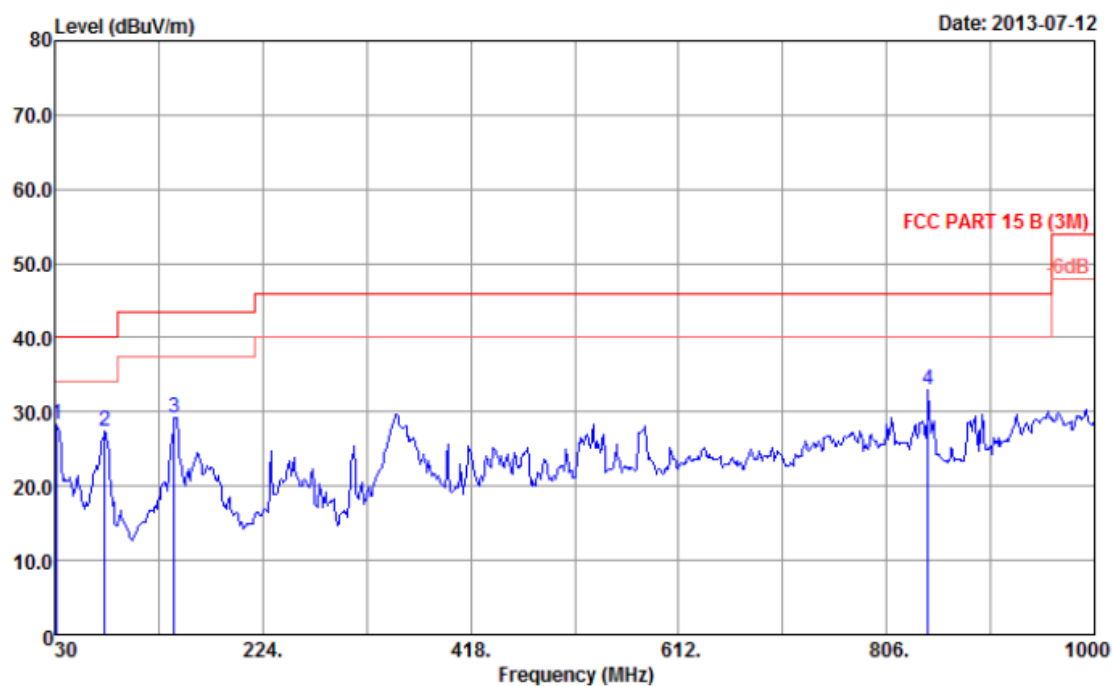
No	Freq (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.000	19.90	0.83	7.53	28.26	40.00	11.74	QP
2	241.460	11.92	1.95	22.12	35.99	46.00	10.01	QP
3	301.600	13.63	2.17	17.19	32.99	46.00	13.01	QP
4	487.840	17.96	2.71	14.04	34.71	46.00	11.29	QP
5	720.640	21.23	3.38	13.95	38.56	46.00	7.44	QP
6	883.600	22.73	3.87	10.56	37.16	46.00	8.84	QP

6.3.2 Diagram 008



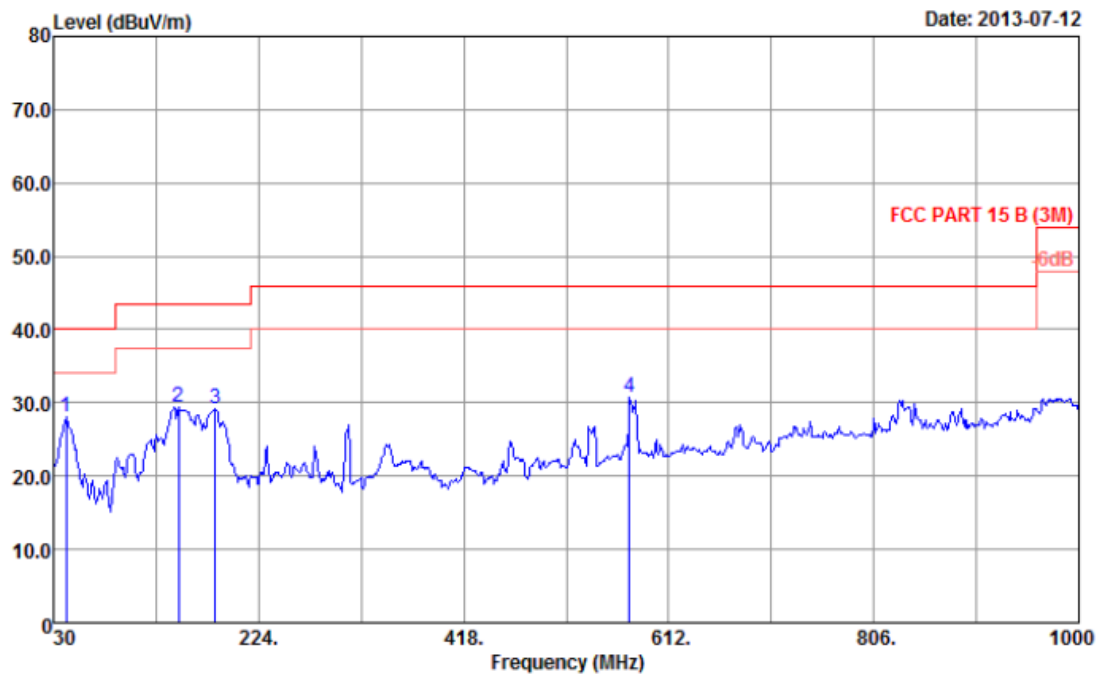
No	Freq (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	34.850	17.13	0.92	9.69	27.74	40.00	12.26	QP
2	76.560	7.93	1.31	18.18	27.42	40.00	12.58	QP
3	115.360	11.94	1.47	16.34	29.75	43.50	13.75	QP
4	194.900	9.59	1.77	17.14	28.50	43.50	15.00	QP
5	301.600	13.63	2.17	18.51	34.31	46.00	11.69	QP
6	486.870	17.94	2.71	11.63	32.28	46.00	13.72	QP

6.3.3 Diagram 009



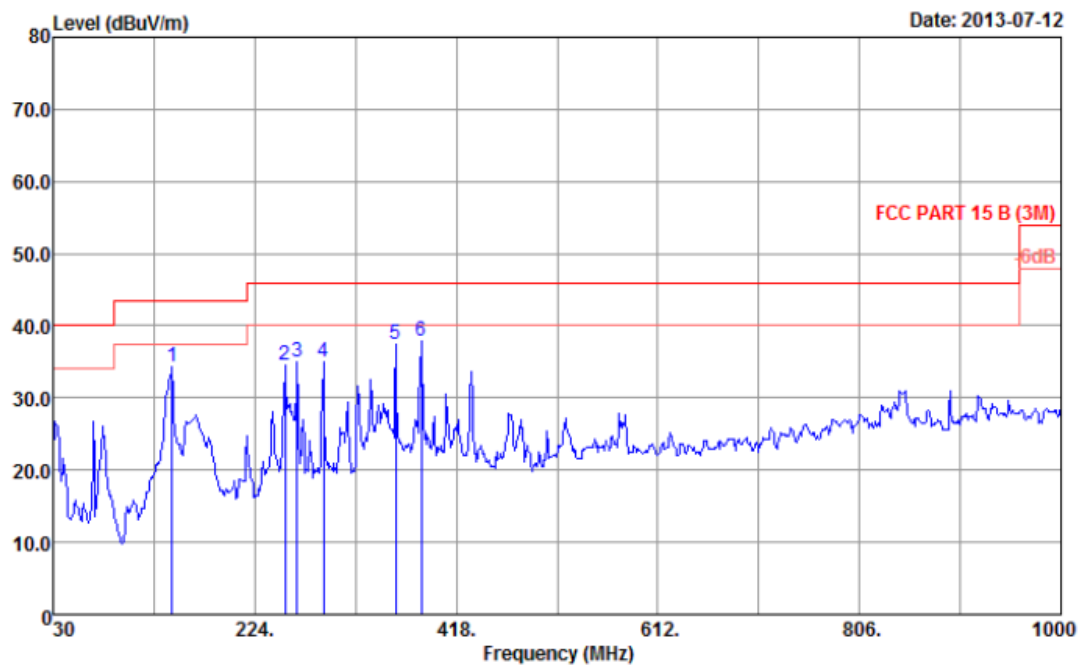
No	Freq (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	31.940	18.93	0.86	8.60	28.39	40.00	11.61	QP
2	76.560	7.93	1.31	18.08	27.32	40.00	12.68	QP
3	141.550	12.20	1.57	15.41	29.18	43.50	14.32	QP
4	844.800	22.90	3.75	6.25	32.90	46.00	13.10	QP

6.3.4 Diagram 010



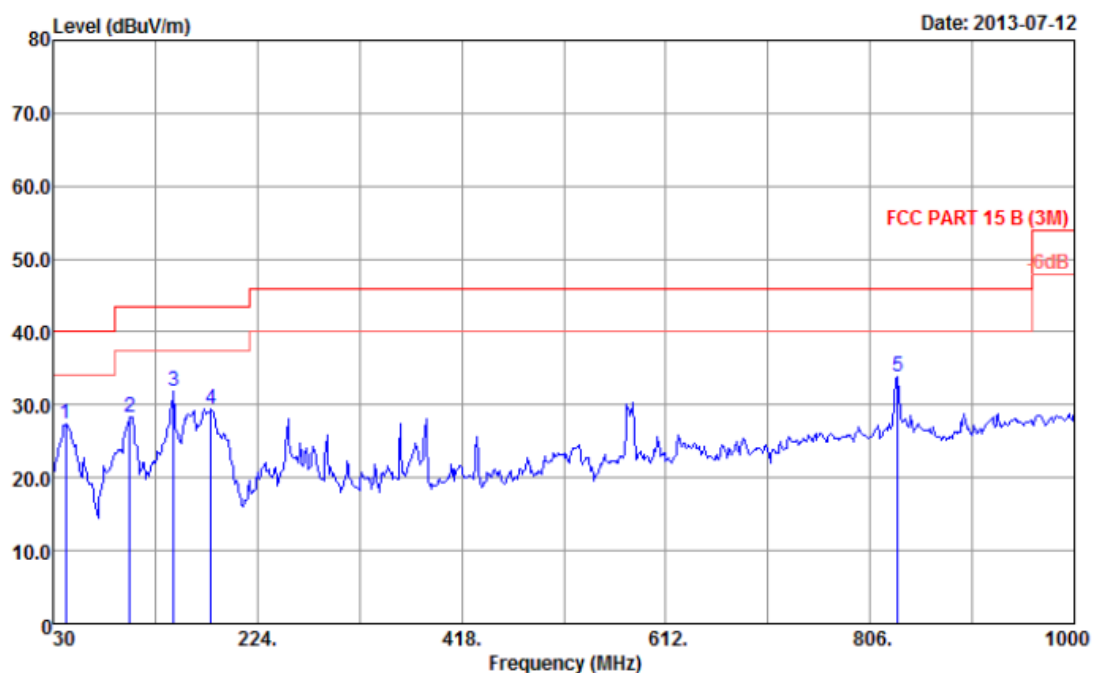
No	Freq (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	41.640	13.28	1.04	13.83	28.15	40.00	11.85	QP
2	148.340	11.88	1.59	15.98	29.45	43.50	14.05	QP
3	183.260	9.24	1.73	18.17	29.14	43.50	14.36	QP
4	575.140	19.60	2.97	8.20	30.77	46.00	15.23	QP

6.3.5 Diagram 011



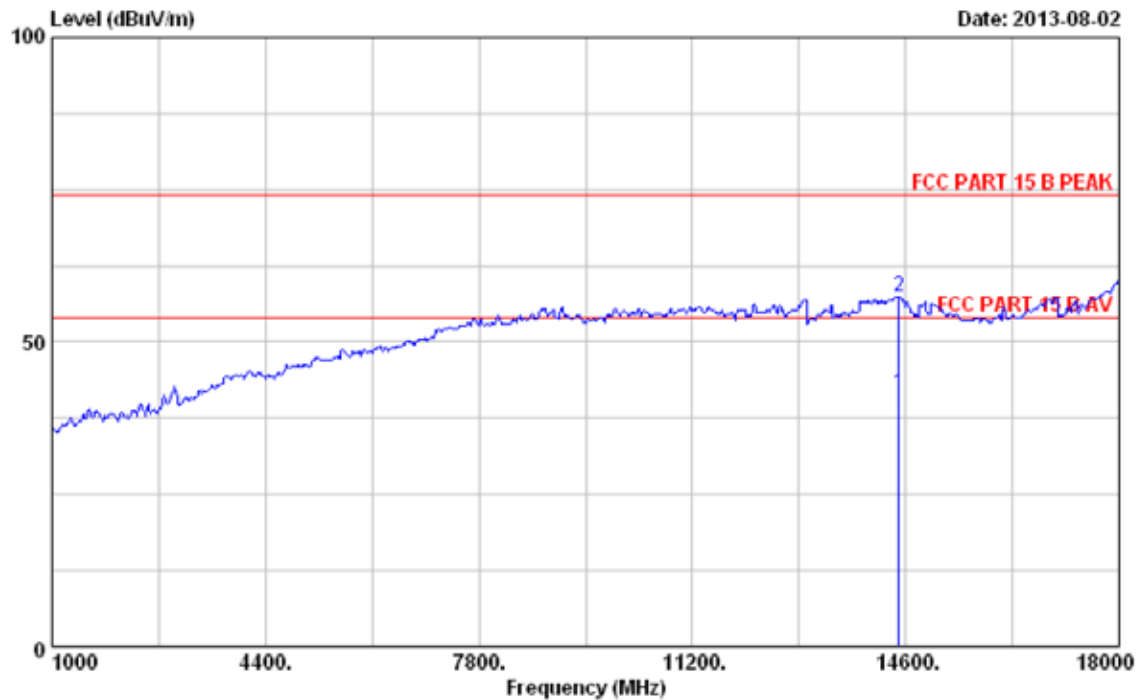
No	Freq (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	144.460	12.10	1.58	20.56	34.24	43.50	9.26	QP
2	253.100	13.01	1.99	19.54	34.54	46.00	11.46	QP
3	264.740	13.61	2.04	19.30	34.95	46.00	11.05	QP
4	289.960	13.50	2.13	19.30	34.93	46.00	11.07	QP
5	359.800	15.39	2.34	19.61	37.34	46.00	8.66	QP
6	384.050	15.78	2.41	19.60	37.79	46.00	8.21	QP

6.3.6 Diagram 012



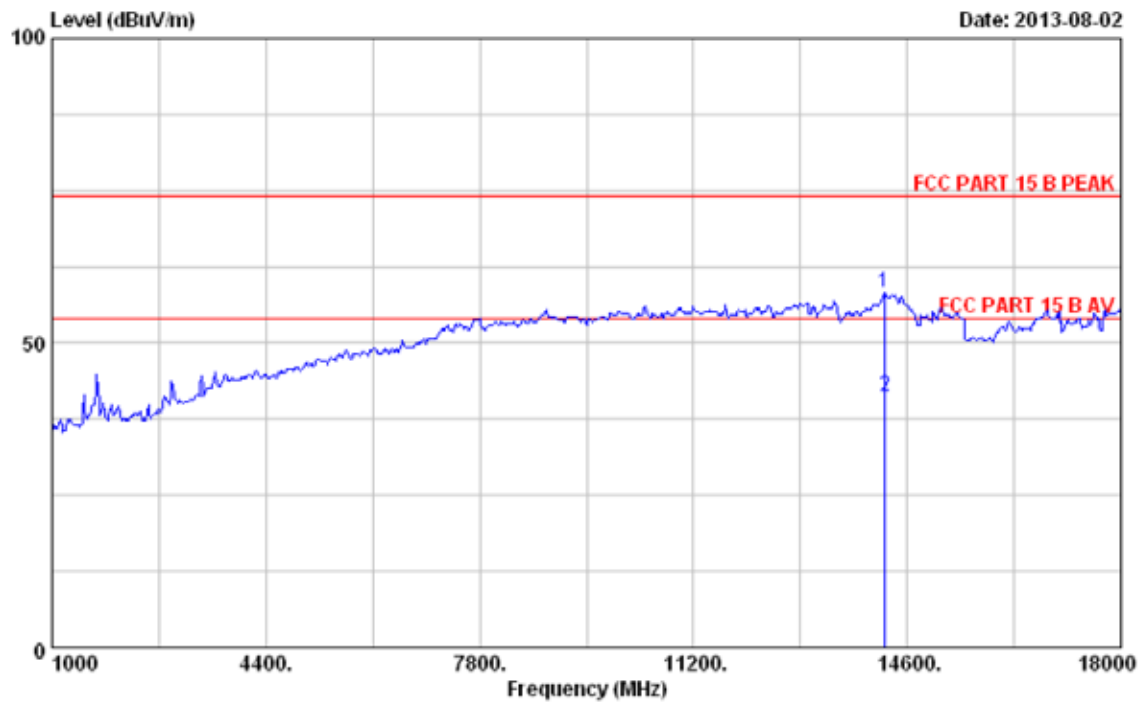
No	Freq (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	41.640	13.28	1.04	13.05	27.37	40.00	12.63	QP
2	102.750	10.71	1.42	16.25	28.38	43.50	15.12	QP
3	144.460	12.10	1.58	18.24	31.92	43.50	11.58	QP
4	180.350	9.38	1.72	18.34	29.44	43.50	14.06	QP
5	832.190	22.74	3.71	7.48	33.93	46.00	12.07	QP

6.3.7 Diagram 013



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	14498.190	41.80	7.86	30.55	22.49	41.60	54.00	12.40	Average
2	14498.360	41.80	7.86	30.55	38.32	57.43	74.00	16.57	Peak

6.3.8 Diagram 014



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	14243.230	41.44	7.79	30.55	39.63	58.31	74.00	15.69	Peak
2	14243.260	41.44	7.79	30.55	22.52	41.20	54.00	12.80	Average



FCC ID : 2AADR-HSG1279
Reference No.: 239671

Appendix A Sample Label

Labelling Requirements

The sample label shown shall be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.

*** The following paragraph specified in the label.

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Appendix B Test Setup Photographs of EUT

B.1 Conducted Emission Test Setup Photographs (Front view)



B.2 Conducted Emission Test Setup Photographs (Rear view)



B.5 Radiated Emission (Below 1GHz)Test Setup Photographs (Front view)



B.6 Radiated Emission (Below 1GHz)Test Setup Photographs (Rear view)



*****END OF REPORT*****