RADIO TEST REPORT

Applicant	:	BioSenseTek Corp.
Address	:	6541 S.W. 127th Path Miami, FL 33183
Equipment	:	Wireless Vital Sign Transducer
Model No.	:	VM2B9D
Trade Name	:	BST
FCC ID.	:	2ADB6-VM2B9D

I HEREBY CERTIFY THAT :

The sample was received on Nov. 11, 2016 and the testing was carried out on Nov. 20, 2016 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by: Tested by:

Ray Chou / Assistant Manager

Spree Yei / Engineer

Laboratory Accreditation:

☒ Cerpass Technology Corporation Test Laboratory

☐ Cerpass Technology(SuZhou) Co., Ltd.

Contents

History of this test report

Report No.	Issue Date	Description
TEFC1610135	Nov. 22, 2016	Original.

1. Summary of Test Procedure and Test Results

1.1. Applicable Standards

ANSI C63.4:2014

FCC Rules and Regulations Part 15 Subpart C §15.249

FCC Rule	Description of Test	Result
15.207	Conducted Emission	N/A
15.209 15.249	Radiated Emission	Pass

2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

Modulation Type	SRD
Operating Frequency	902MHz ~ 928MHz
Antenna Type/ gain	Monopole Antenna / -8dBi

2.2. Carrier Frequency of Channels

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*1	922.8	*2	927.2

Note: Channels remarked **"*"** are selected to perform test.

2.3. Test Mode and Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
b. The complete test system included Notebook and EUT for RF test.
c. An executive program, "VM PER Test V2.5_2" under WIN 8 was executed to transmit and receive data via SRD.
c. The test modes of conduction test as follow:
Test Mode 1. CH 922.8MHz, USB Mode
Test Mode 2. CH 927.2MHz, USB Mode
d. The test modes of radiation fundamental test as follow:
Test Mode 1. CH 922.8MHz, USB Mode
Test Mode 2. CH 927.2MHz, USB Mode
d. The test modes of radiation (30MHz ~ 1GHz) test as follow:
Test Mode 1. CH 922.8MHz, USB Mode
Test Mode 2. CH 927.2MHz, USB Mode
Test Mode 3. CH 922.8MHz, Battery Mode
Test Mode 4. CH 927.2MHz, Battery Mode
e. The test modes of radiation (1GHz ~ 10GHz) test as follow:
Test Mode 1. CH 922.8MHz, USB Mode
Test Mode 2. CH 927.2MHz, USB Mode

2.4. Description of Test System

Device	Manufacturer	Model No.	Description
Notebook	DELL	LatitudeE5450/5450	Power Cable, Unshielding, 1.8m

2.5. General Information of Test

☒	Test Site	**Cerpass Technology Corporation Test Laboratory** Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582
	FCC	TW1079, TW1061,390316, 228391, 641184
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-4218 for Radiated emission test G-812, G-813 for radiated disturbance above 1GHz
☐	Test Site	**Cerpass Technology (Suzhou) Co., Ltd** Address: No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China Tel: +86-512-6917-5888 Fax: +86-512-6917-5666
	FCC	916572, 331395
	IC	7290A-1, 7290A-2
	VCCI	T-1945 for Telecommunication Test C-2919 for Conducted emission test R-2670 for Radiated emission test G-227 for radiated disturbance above 1GHz
Frequency Range Investigated:		Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 10,000MHz
Test Distance:		The test distance of radiated emission from antenna to EUT is 3 M.

2.6. Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	Line / Neutral	±2.9076 dB
Radiated Emission	9 kHz ~ 25,000 MHz	Vertical / Horizontal	±0.948 dB
Bandwidth	-	-	74.224Hz

3. Test Equipment and Ancillaries Used for Tests

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI3	100443	2016/03/28	2017/03/27
LISN	Schwarzbeck	NSLK 8127	8127-740	2016/08/30	2017/08/29
LISN	Schwarzbeck	NSLK 8127	8127-516	2016/09/06	2017/09/05
Pulse Limiter	R&S	ESH3-Z2	101934	2016/03/09	2017/03/08
Bilog Antenna	Schwarzbeck	VULB9168	369	2016/03/22	2017/03/21
Active Loop Antenna	EMCO	6507	40855	2016/05/11	2017/05/10
Horn Antenna	EMCO	3115	31601	2016/09/05	2017/09/04
Horn Anrenna	EMCO	3116	31970	2016/03/18	2017/03/17
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200207	2016/03/16	2017/03/15
Preamplifier	EM	EM330	60660	2016/03/16	2017/03/15
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2016/09/13	2017/09/12
Preamplifier	Agilent	8449B	3008A01954	2016/03/04	2017/03/03
Preamplifier	MITEQ	AMF-7D-001010 0-30-10P	1860212	2016/03/16	2017/03/15
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2016/11/04	2017/11/03
MXG MW Analog Signal Generator	KEYSIGHT	N5183A	MY50142931	2016/03/18	2017/03/17
Spectrum Analyzer	R&S	FSP40	100219	2016/09/01	2017/08/31
BLUETOOTH TESTER	R&S	CBT	101133	2016/03/18	2017/03/17
Attenuator	KEYSIGHT	8491B	MY39250703	2016/03/07	2017/03/06
Rotary Attenuator	Agilent	8494B	MY42154466	2016/03/08	2017/03/07
Rotary Attenuator	Agilent	8495B	MY42146680	2016/03/08	2017/03/07
Temp & Humi chamber	T-MACHINE	TMJ-9712	T-12-040111	2016/09/05	2017/09/04
Series Power Meter	Anritsu	ML2495A	1224005	2016/03/03	2017/03/02
Power Sensor	Anritsu	MA2411B	1207295	2016/03/03	2017/03/02
Cable	HUBER SUHNER	SUCOFLEX 102	28422/2	2016/03/15	2017/03/14
Cable	HUBER SUHNER	SUCOFLEX 102	28418/2	2016/03/16	2017/03/15
Cable	HUBER SUHNER	SUCOFLEX 102	28417/2	2016/03/04	2017/03/03
Software	Farad	Ez-EMC	ver.ct3a1	N/A	N/A
Software	AUDIX	E3	V8.2014-8-6	N/A	N/A
Software	Keysight	N7607B Signal Studio	v2.0.0.1	N/A	N/A
Software	Keysight	Inservice MonitorUtility	N/A	N/A	N/A

4. Test of Conducted Emission

4.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.4-2014. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

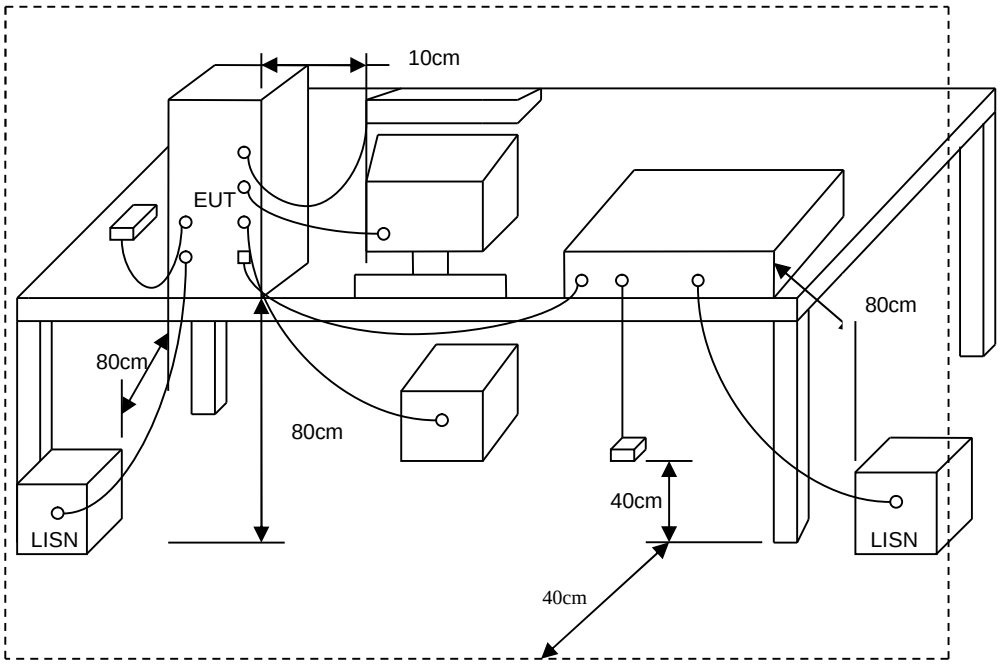
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

4.2. Test Procedures

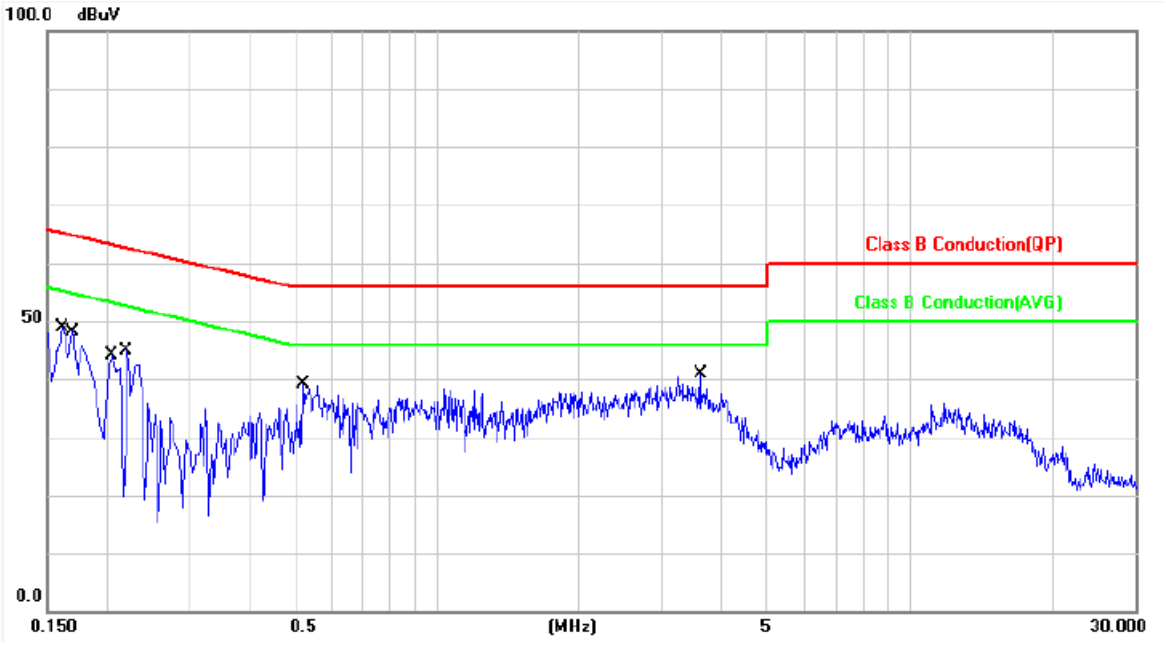
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

4.3. Typical Test Setup



4.4. Test Result and Data

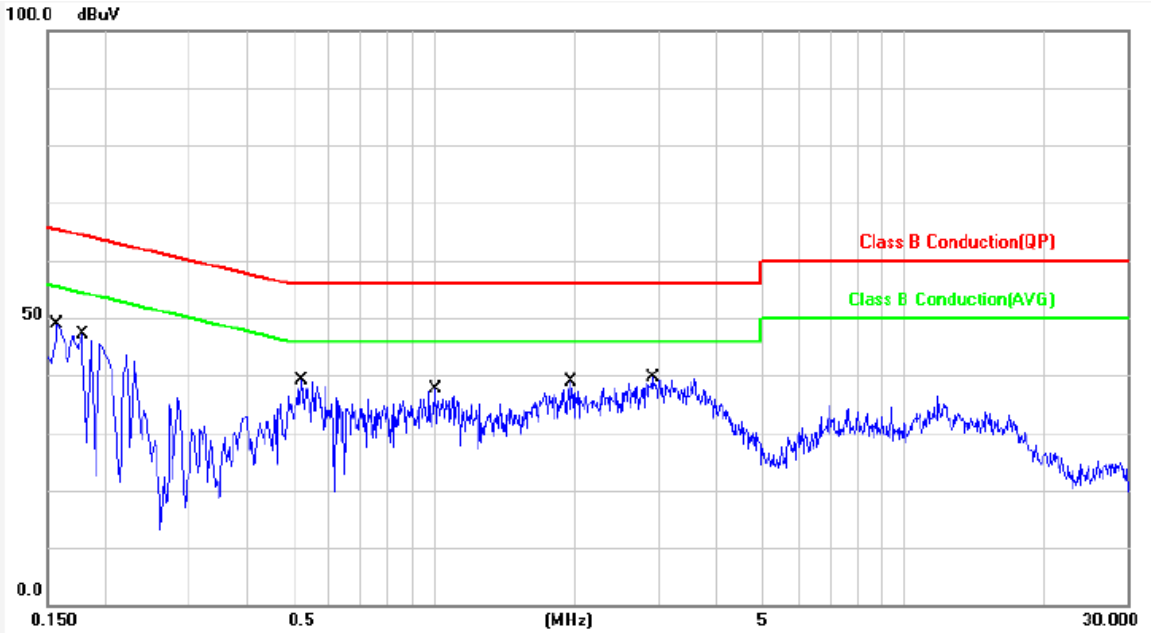
Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode	:	Mode 1	Temperature	:	23 °C
Test Date	:	Nov. 18, 2016	Humidity	:	53 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1620	9.98	35.13	45.11	65.36	-20.25	QP	P
2	0.1620	9.98	16.83	26.81	55.36	-28.55	AVG	P
3	0.1700	9.98	33.87	43.85	64.96	-21.11	QP	P
4	0.1700	9.98	13.24	23.22	54.96	-31.74	AVG	P
5	0.2060	9.97	31.50	41.47	63.36	-21.89	QP	P
6	0.2060	9.97	9.54	19.51	53.36	-33.85	AVG	P
7	0.2220	9.97	29.69	39.66	62.74	-23.08	QP	P
8	0.2220	9.97	10.74	20.71	52.74	-32.03	AVG	P
9	0.5220	9.98	24.39	34.37	56.00	-21.63	QP	P
10	0.5220	9.98	10.13	20.11	46.00	-25.89	AVG	P
11	3.6140	10.14	22.80	32.94	56.00	-23.06	QP	P
12	3.6140	10.14	15.27	25.41	46.00	-20.59	AVG	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss

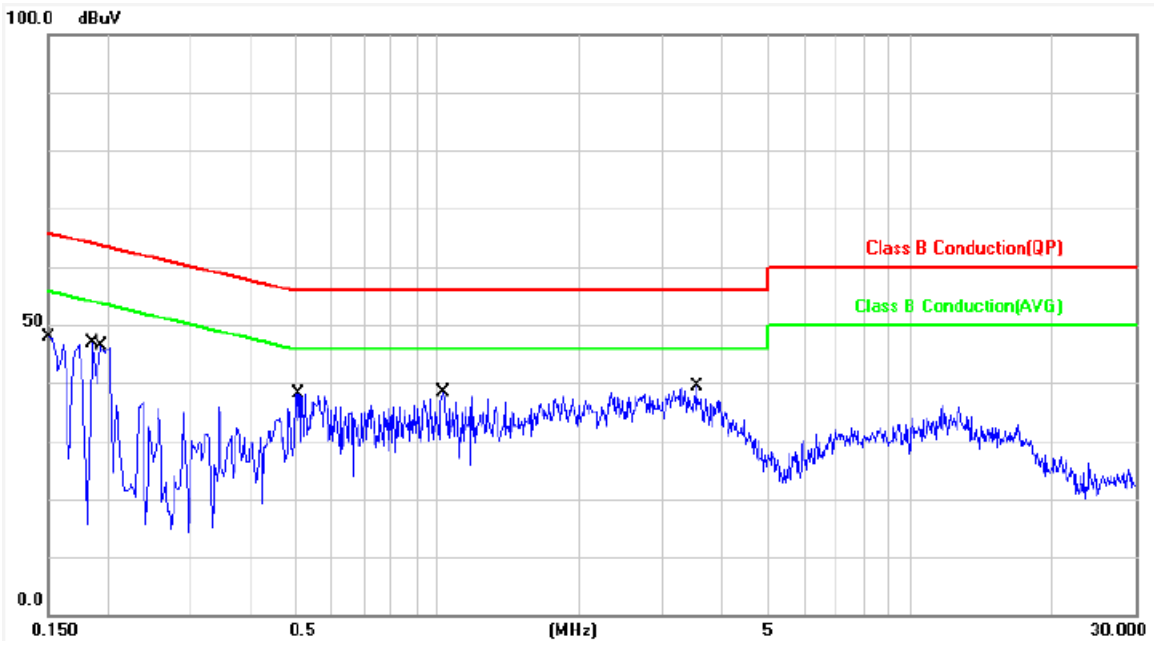
Power	:	AC 120V	Pol/Phase	:	NEUTRAL
Test Mode	:	Mode 1	Temperature	:	23 °C
Test Date	:	Nov. 18, 2016	Humidity	:	53 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1580	9.98	35.92	45.90	65.56	-19.66	QP	P
2	0.1580	9.98	17.74	27.72	55.56	-27.84	AVG	P
3	0.1780	9.98	32.87	42.85	64.57	-21.72	QP	P
4	0.1780	9.98	10.78	20.76	54.57	-33.81	AVG	P
5	0.5220	9.95	24.04	33.99	56.00	-22.01	QP	P
6	0.5220	9.95	9.42	19.37	46.00	-26.63	AVG	P
7	1.0060	9.99	21.78	31.77	56.00	-24.23	QP	P
8	1.0060	9.99	9.89	19.88	46.00	-26.12	AVG	P
9	1.9500	10.04	21.66	31.70	56.00	-24.30	QP	P
10	1.9500	10.04	12.37	22.41	46.00	-23.59	AVG	P
11	2.9180	10.08	22.83	32.91	56.00	-23.09	QP	P
12	2.9180	10.08	14.71	24.79	46.00	-21.21	AVG	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss

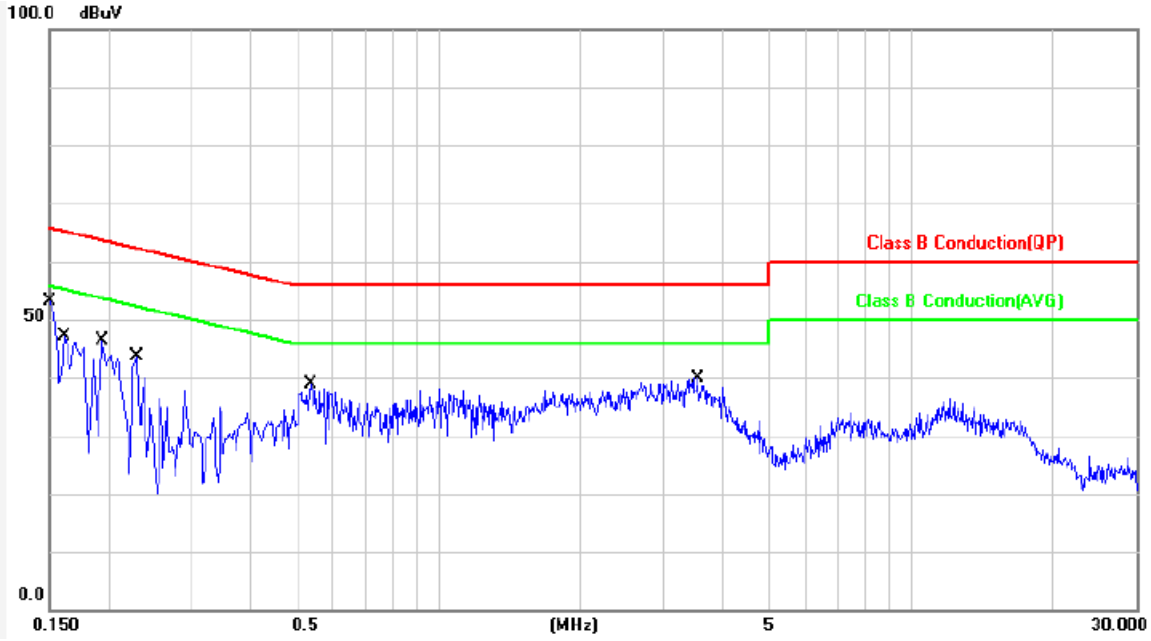
Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode	:	Mode 2	Temperature	:	23 °C
Test Date	:	Nov. 18, 2016	Humidity	:	53 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	9.98	37.26	47.24	65.99	-18.75	QP	P
2	0.1500	9.98	17.08	27.06	55.99	-28.93	AVG	P
3	0.1860	9.97	33.22	43.19	64.21	-21.02	QP	P
4	0.1860	9.97	16.19	26.16	54.21	-28.05	AVG	P
5	0.1940	9.97	32.69	42.66	63.86	-21.20	QP	P
6	0.1940	9.97	15.79	25.76	53.86	-28.10	AVG	P
7	0.5100	9.98	24.24	34.22	56.00	-21.78	QP	P
8	0.5100	9.98	9.99	19.97	46.00	-26.03	AVG	P
9	1.0300	10.03	22.24	32.27	56.00	-23.73	QP	P
10	1.0300	10.03	9.44	19.47	46.00	-26.53	AVG	P
11	3.5340	10.14	22.65	32.79	56.00	-23.21	QP	P
12	3.5340	10.14	15.41	25.55	46.00	-20.45	AVG	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss

Power	:	AC 120V	Pol/Phase	:	NEUTRAL
Test Mode	:	Mode 2	Temperature	:	23 °C
Test Date	:	Nov. 18, 2016	Humidity	:	53 %



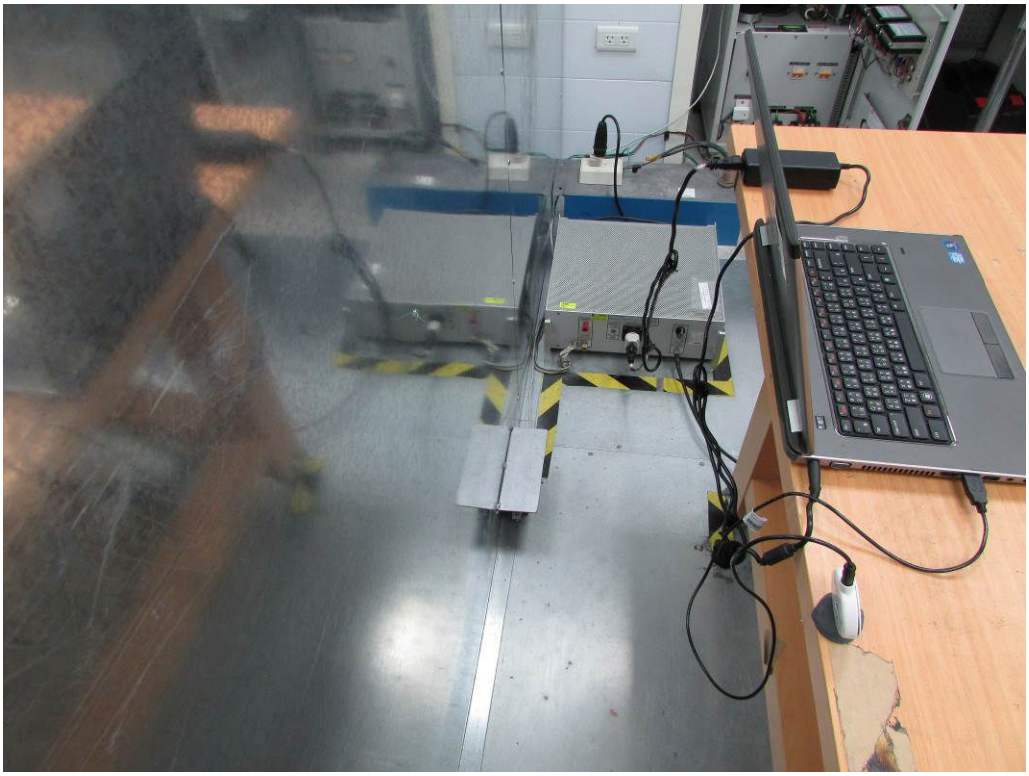
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	9.98	38.01	47.99	65.99	-18.00	QP	P
2	0.1500	9.98	17.62	27.60	55.99	-28.39	AVG	P
3	0.1624	9.98	34.99	44.97	65.34	-20.37	QP	P
4	0.1624	9.98	16.42	26.40	55.34	-28.94	AVG	P
5	0.1940	9.98	33.06	43.04	63.86	-20.82	QP	P
6	0.1940	9.98	10.50	20.48	53.86	-33.38	AVG	P
7	0.2300	9.97	29.08	39.05	62.45	-23.40	QP	P
8	0.2300	9.97	10.60	20.57	52.45	-31.88	AVG	P
9	0.5380	9.95	24.91	34.86	56.00	-21.14	QP	P
10	0.5380	9.95	11.45	21.40	46.00	-24.60	AVG	P
11	3.5420	10.13	22.77	32.90	56.00	-23.10	QP	P
12	3.5420	10.13	15.15	25.28	46.00	-20.72	AVG	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss

4.5. Test Photographs

Front View

Rear View



5. Test of Radiated Emission

5.1. Test Limit

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 radiated emission limits in § 15.209, whichever is the lesser attenuation.

Frequency (MHz)	Distance	Limit (μV/ m)
0.09 ~ 0.490	300m	2400/F(kHz)
0.490 ~ 1.705	30m	24000/ F(kHz)
1.705 ~ 30	30m	30
30 ~ 88	3m	100
88 ~ 216	3m	150
216 ~ 960	3m	200
Above 960	3m	500

Fundamental Frequency:

Fundamental Frequency (MHz)	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

15.215 Additional provisions to the general radiated emission limitations.:

(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

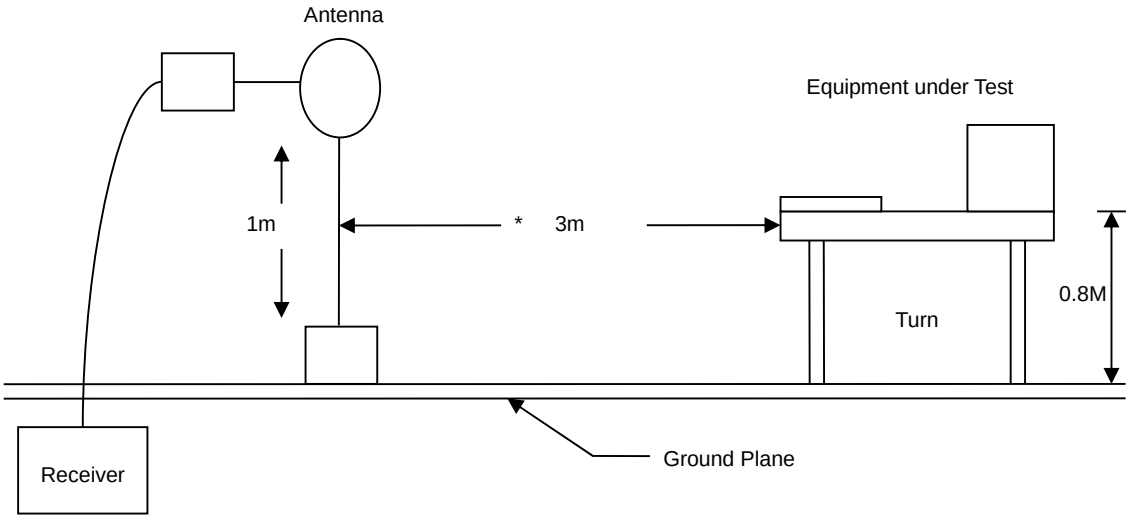
5.2. Test Procedures

a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
e. 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 turn table (from 0 degree to 360 degrees) to find the maximum reading.
f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
i. "Cone of radiation" has been considered to be 3dB beamwidth of the measurement antenna.

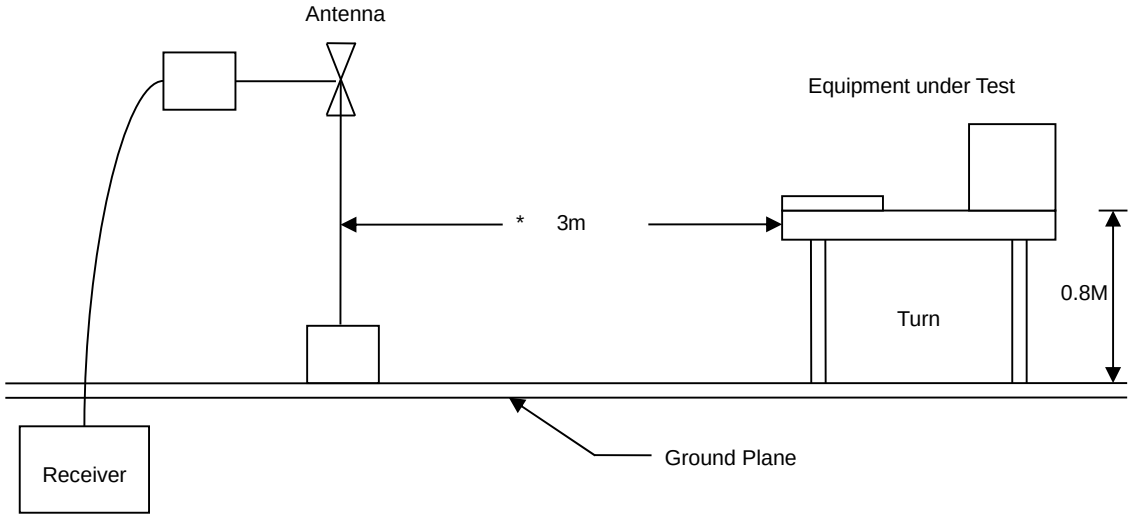
NOTE:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

5.3. Typical Test Setup Layout of Radiated Emission

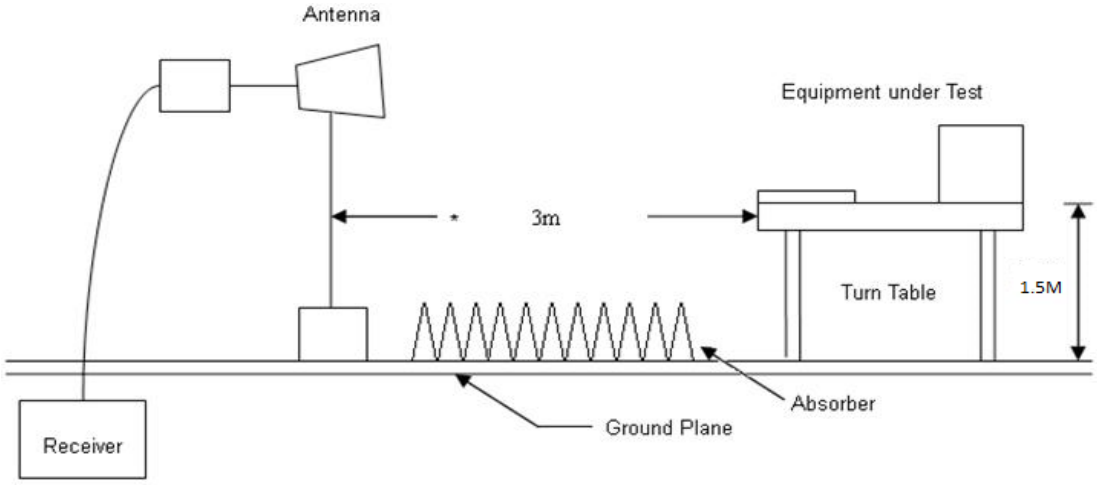
Below 30MHz test setup



30MHz- 1GHz Test Setup



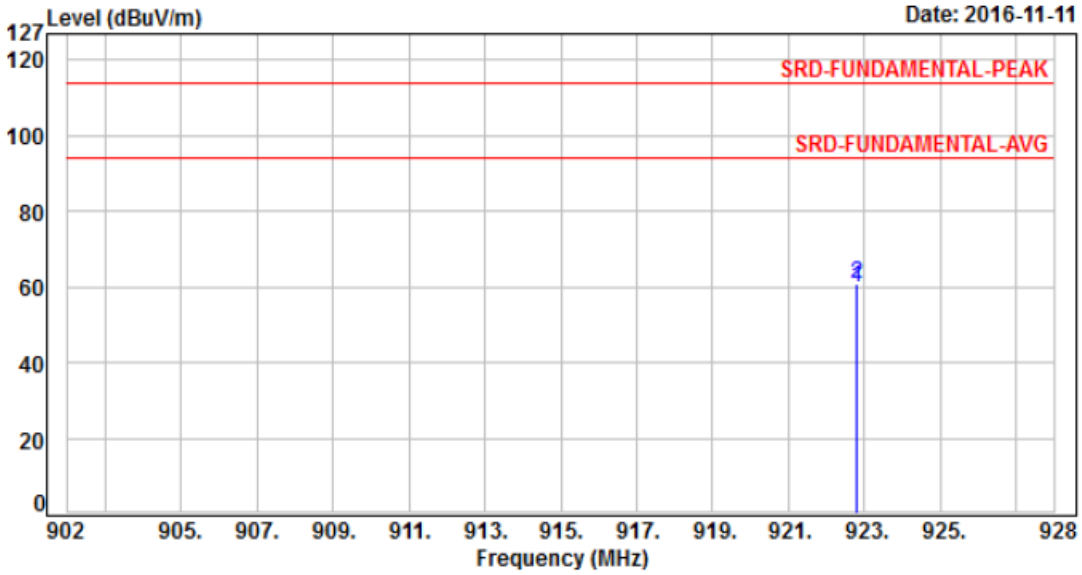
Above 1GHz Test Setup



5.4. Test Result and Data

5.4.1. Test Result of Fundamental Emission

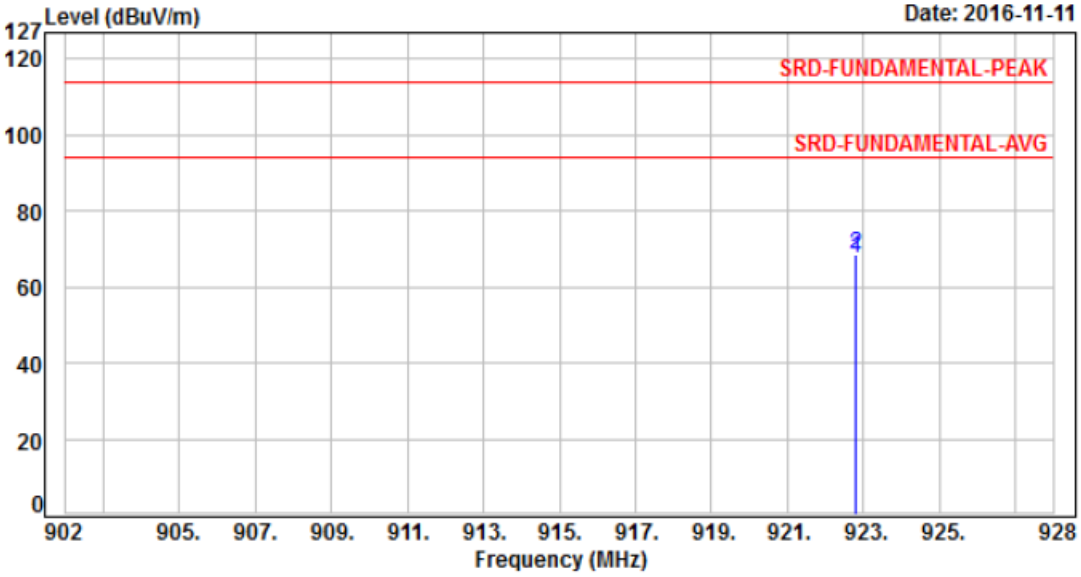
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1	Temperature	:	24°C
Test Date	:	Nov. 11, 2016	Humidity	:	62 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	922.80	2.58	57.48	60.06	94.00	-33.94	Average	174	206	P
2	922.80	2.58	58.36	60.94	114.00	-53.06	Peak	174	206	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

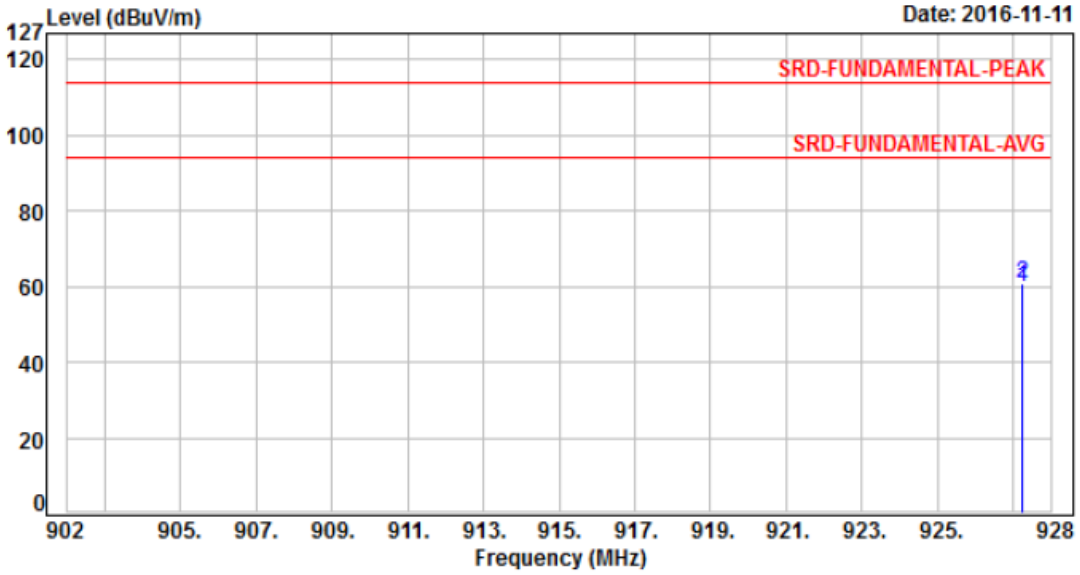
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1	Temperature	:	24°C
Test Date	:	Nov. 11, 2016	Humidity	:	62 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	922.80	2.58	64.99	67.57	94.00	-26.43	Average	100	149	P
2	922.80	2.58	65.87	68.45	114.00	-45.55	Peak	100	149	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

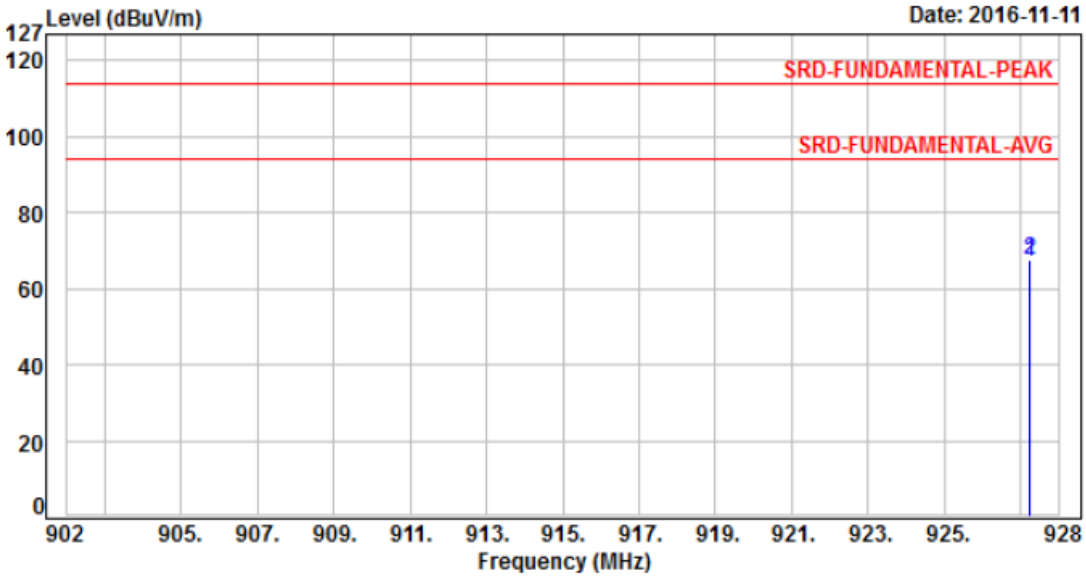
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2	Temperature	:	24°C
Test Date	:	Nov. 11, 2016	Humidity	:	62 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	927.20	2.66	57.19	59.85	94.00	-34.15	Average	280	208	P
2	927.20	2.66	58.07	60.73	114.00	-53.27	Peak	280	208	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2	Temperature	:	24°C
Test Date	:	Nov. 11, 2016	Humidity	:	62 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	927.20	2.66	64.26	66.92	94.00	-27.08	Average	100	146	P
2	927.20	2.66	65.14	67.80	114.00	-46.20	Peak	100	146	P

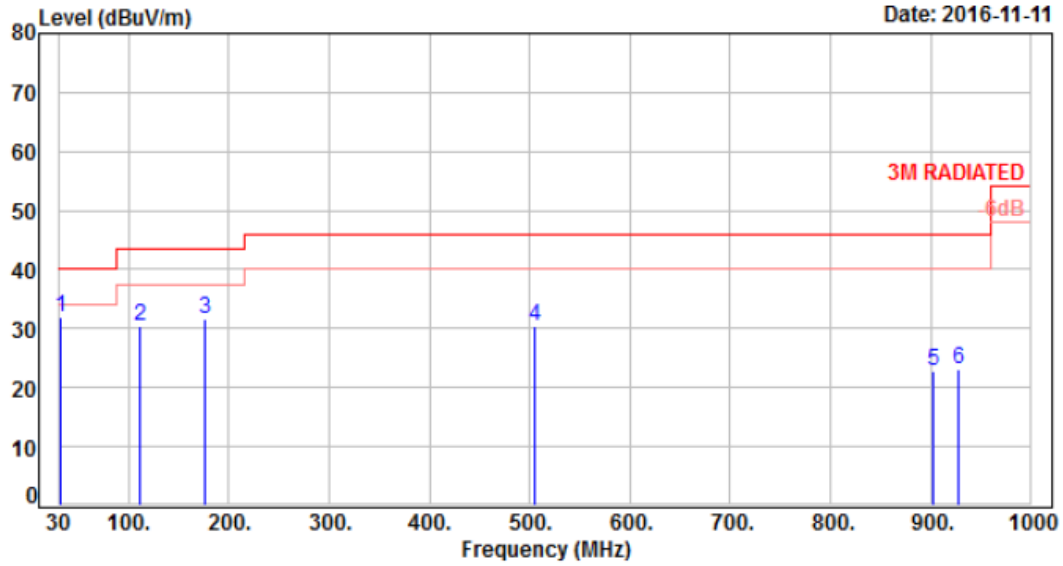
Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

5.4.2. Test Result of 9KHz ~ 30MHz

The 9kHz - 30MHz spurious emission is under limit 20dB more.

5.4.3. Test Result of Unwanted Spurious emission (30MHz ~ 1GHz)

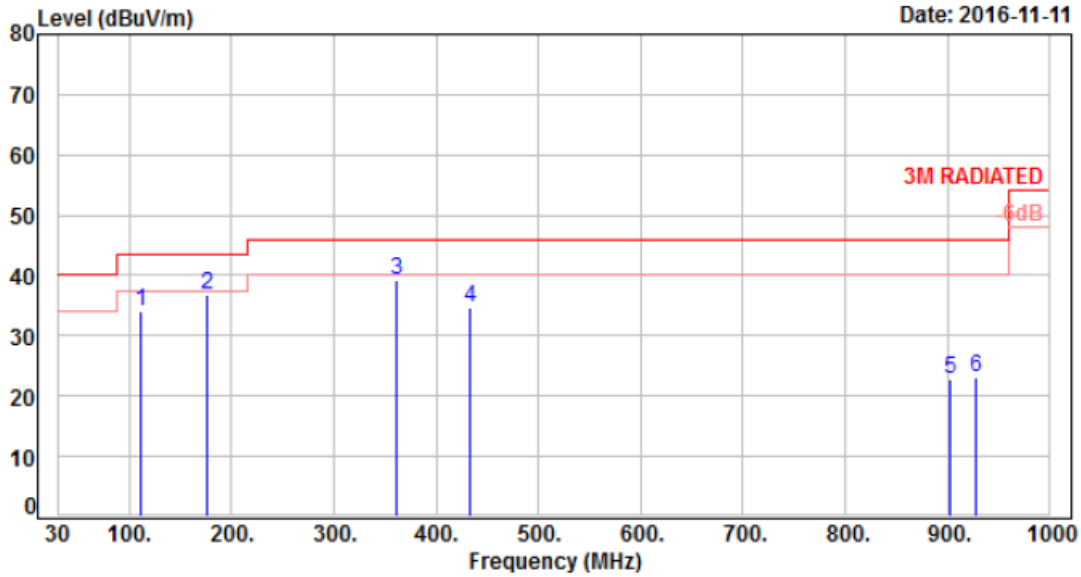
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	31.94	-10.66	42.64	31.98	40.00	-8.02	Peak	100	0	P
2	110.51	-12.93	43.26	30.33	43.50	-13.17	Peak	100	0	P
3	175.50	-10.86	42.40	31.54	43.50	-11.96	Peak	100	0	P
4	505.30	-4.09	34.44	30.35	46.00	-15.65	Peak	100	0	P
5	902.00	2.17	20.58	22.75	46.00	-23.25	QP	174	206	P
6	928.00	2.68	20.55	23.23	46.00	-22.77	QP	174	206	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

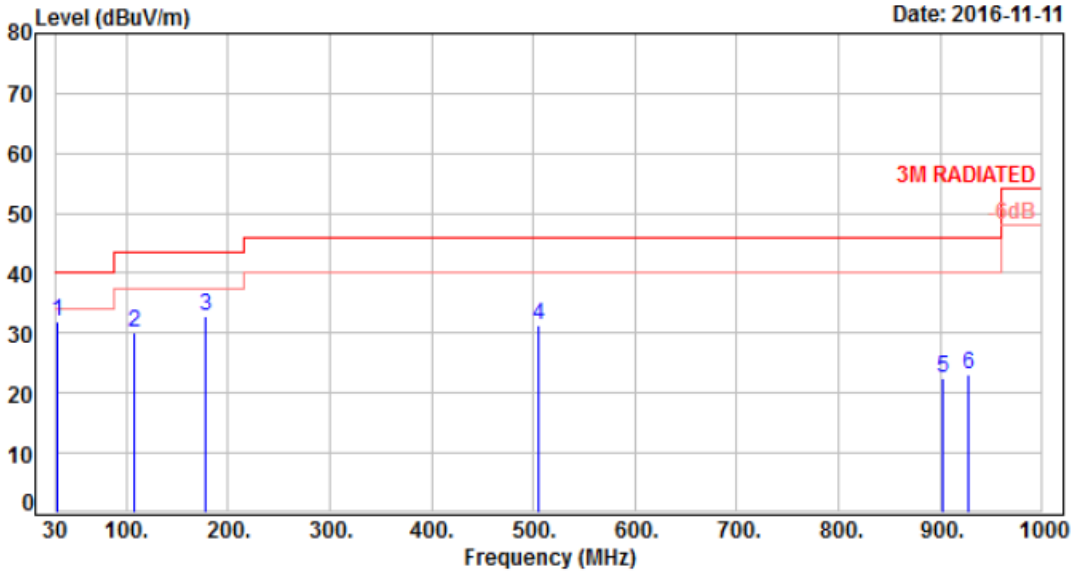
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	111.48	-12.89	46.85	33.96	43.50	-9.54	Peak	100	0	P
2	175.50	-10.86	47.52	36.66	43.50	-6.84	Peak	100	0	P
3	361.74	-7.44	46.53	39.09	46.00	-6.91	Peak	100	0	P
4	433.52	-5.41	39.95	34.54	46.00	-11.46	Peak	100	0	P
5	902.00	2.17	20.59	22.76	46.00	-23.24	QP	100	149	P
6	928.00	2.68	20.45	23.13	46.00	-22.87	QP	100	149	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

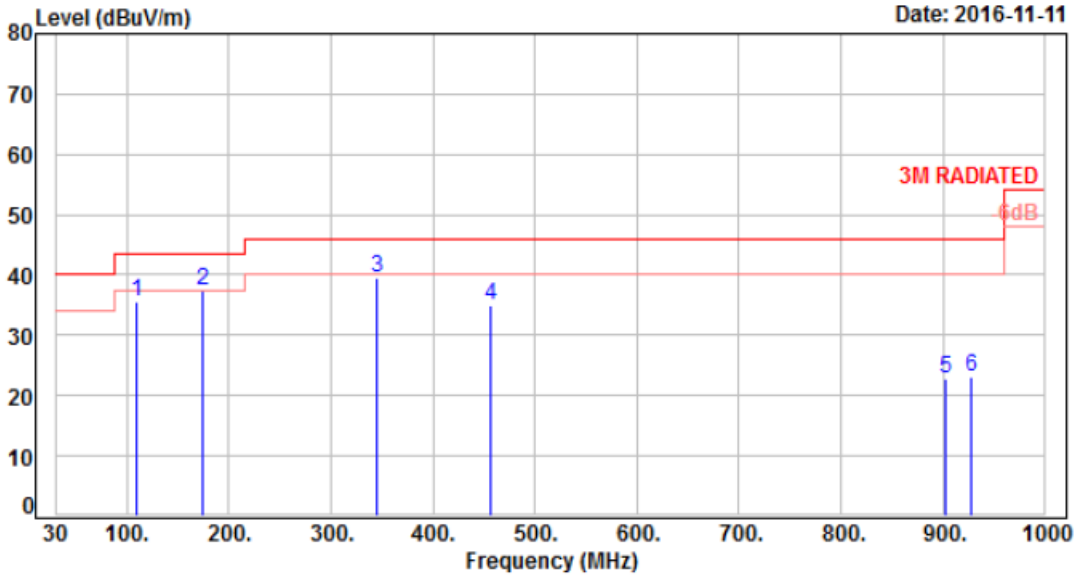
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	31.94	-10.66	42.74	32.08	40.00	-7.92	Peak	100	0	P
2	107.60	-13.42	43.62	30.20	43.50	-13.30	Peak	100	0	P
3	177.44	-11.08	43.81	32.73	43.50	-10.77	Peak	100	0	P
4	505.30	-4.09	35.50	31.41	46.00	-14.59	Peak	100	0	P
5	902.00	2.17	20.47	22.64	46.00	-23.36	QP	280	208	P
6	928.00	2.68	20.38	23.06	46.00	-22.94	QP	280	208	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

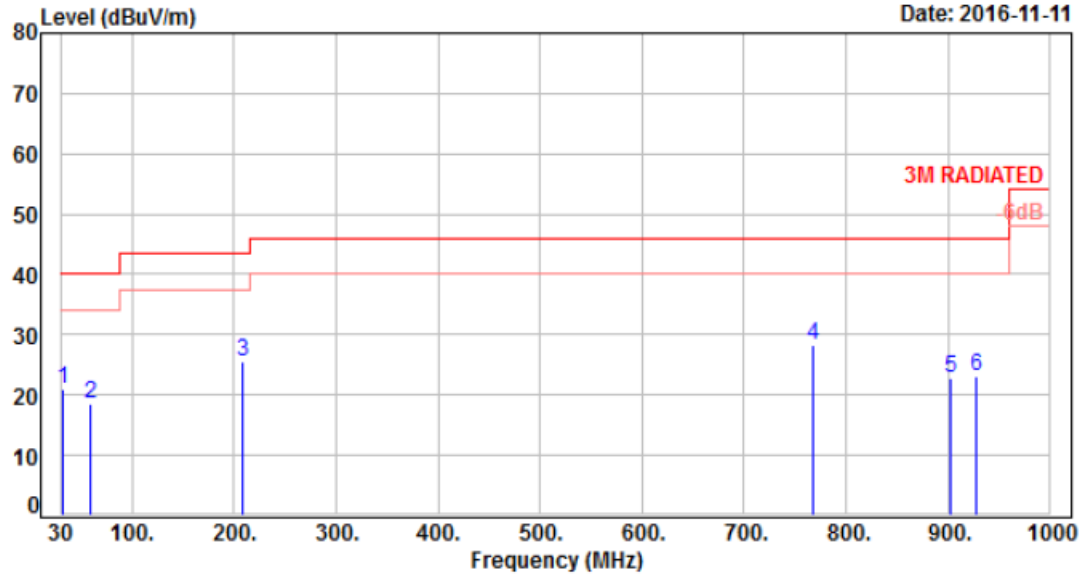
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	109.54	-13.04	48.73	35.69	43.50	-7.81	Peak	100	0	P
2	173.56	-10.64	48.00	37.36	43.50	-6.14	Peak	100	0	P
3	344.28	-7.91	47.46	39.55	46.00	-6.45	Peak	100	0	P
4	456.80	-4.83	39.93	35.10	46.00	-10.90	Peak	100	0	P
5	902.00	2.17	20.53	22.70	46.00	-23.30	QP	100	146	P
6	928.00	2.68	20.45	23.13	46.00	-22.87	QP	100	146	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

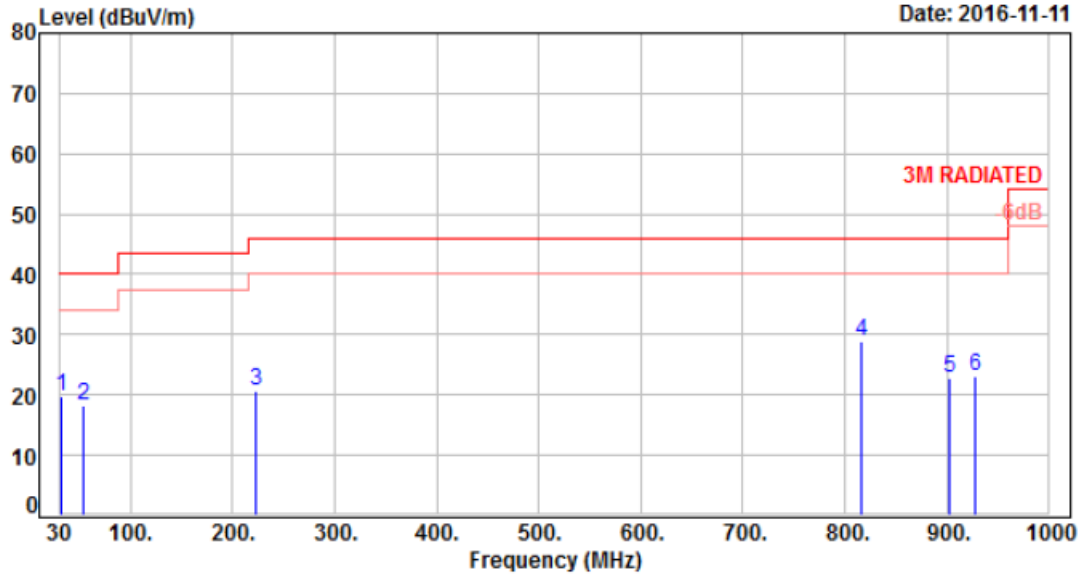
Power	:	From Battery	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	31.94	-10.66	31.61	20.95	40.00	-19.05	Peak	100	0	P
2	59.10	-10.39	29.03	18.64	40.00	-21.36	Peak	100	0	P
3	208.48	-12.63	38.03	25.40	43.50	-18.10	Peak	100	0	P
4	767.20	0.53	27.89	28.42	46.00	-17.58	Peak	100	0	P
5	902.00	2.17	20.58	22.75	46.00	-23.25	QP	174	206	P
6	928.00	2.68	20.55	23.23	46.00	-22.77	QP	174	206	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

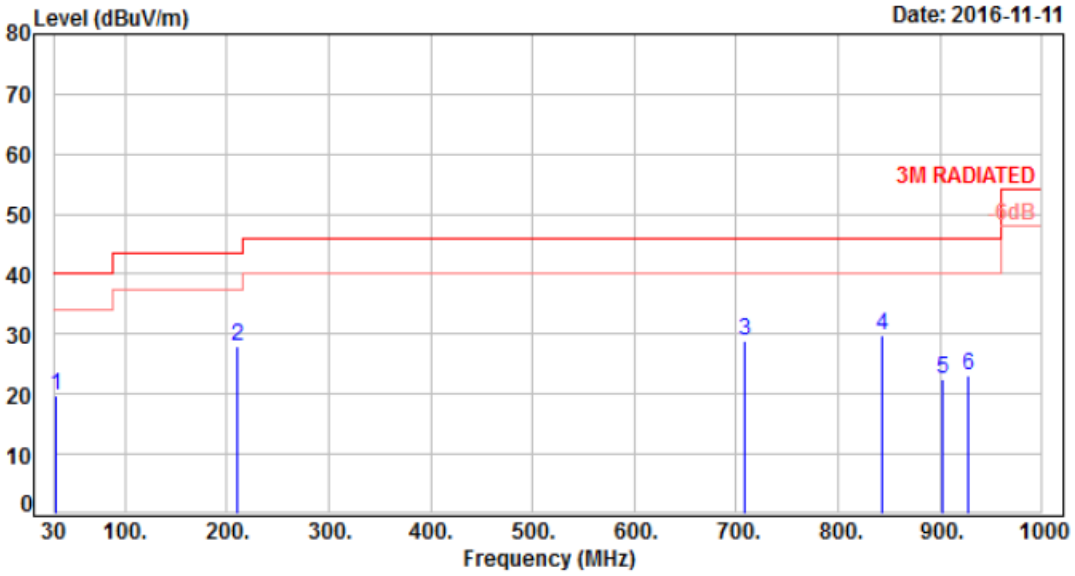
Power	:	From Battery	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	31.94	-10.66	30.42	19.76	40.00	-20.24	Peak	100	0	P
2	53.28	-9.96	28.20	18.24	40.00	-21.76	Peak	100	0	P
3	222.06	-12.56	33.37	20.81	46.00	-25.19	Peak	100	0	P
4	815.70	1.05	27.86	28.91	46.00	-17.09	Peak	100	0	P
5	902.00	2.17	20.59	22.76	46.00	-23.24	QP	100	149	P
6	928.00	2.68	20.45	23.13	46.00	-22.87	QP	100	149	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

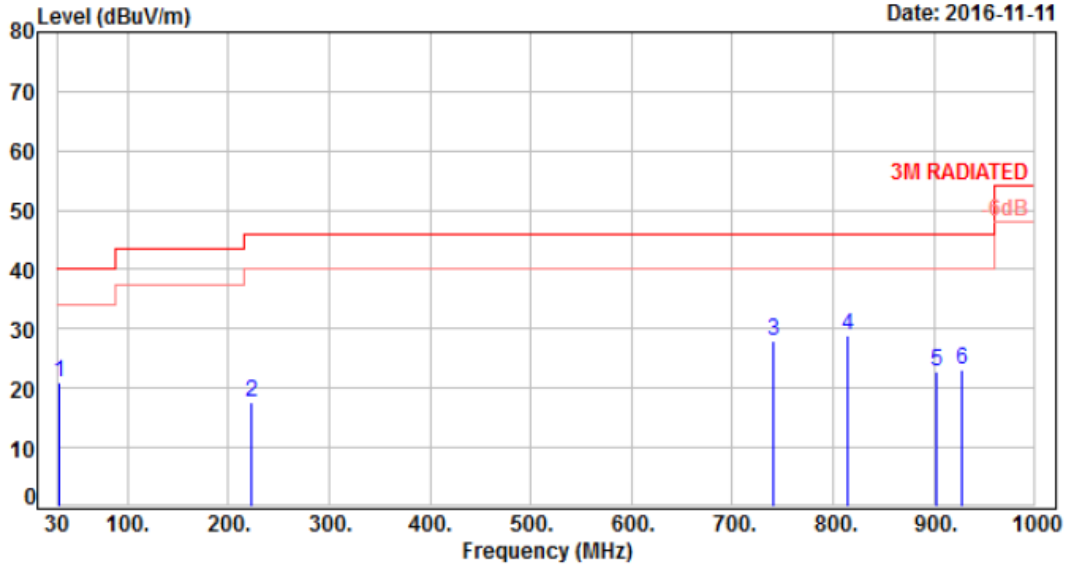
Power	:	From Battery	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	31.94	-10.66	30.45	19.79	40.00	-20.21	Peak	100	0	P
2	210.42	-12.65	40.77	28.12	43.50	-15.38	Peak	100	0	P
3	709.00	-0.48	29.27	28.79	46.00	-17.21	Peak	100	0	P
4	842.86	1.47	28.28	29.75	46.00	-16.25	Peak	100	0	P
5	902.00	2.17	20.47	22.64	46.00	-23.36	QP	280	208	P
6	928.00	2.68	20.38	23.06	46.00	-22.94	QP	280	208	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

Power	:	From Battery	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %

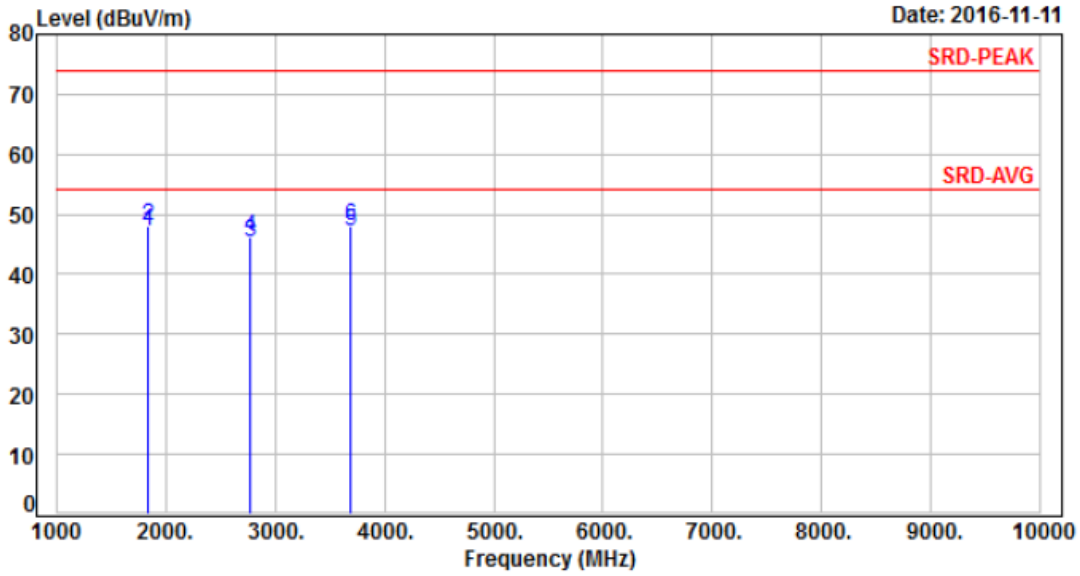


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	31.94	-10.66	31.80	21.14	40.00	-18.86	Peak	100	0	P
2	222.06	-12.56	30.30	17.74	46.00	-28.26	Peak	100	0	P
3	740.04	0.18	27.69	27.87	46.00	-18.13	Peak	100	0	P
4	813.76	1.02	27.92	28.94	46.00	-17.06	Peak	100	0	P
5	902.00	2.17	20.53	22.70	46.00	-23.30	QP	100	146	P
6	928.00	2.68	20.45	23.13	46.00	-22.87	QP	100	146	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

5.4.4. Test Result of Unwanted Spurious emission (1GHz ~ 10GHz)

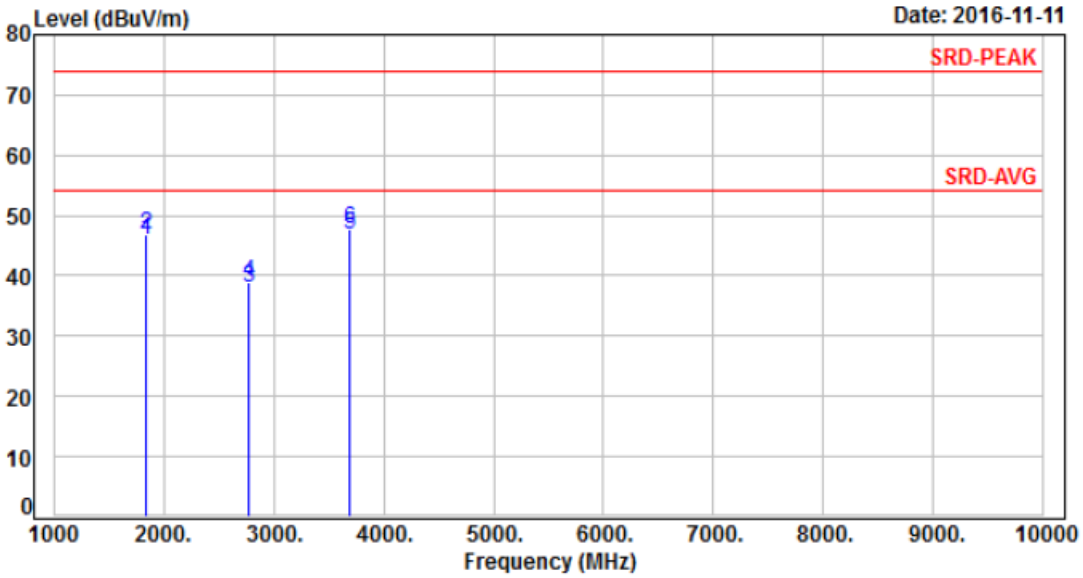
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1845.60	-17.82	64.98	47.16	54.00	-6.84	Average	208	330	P
2	1845.60	-17.82	65.86	48.04	74.00	-25.96	Peak	208	330	P
3	2768.40	-14.04	59.43	45.39	54.00	-8.61	Average	220	345	P
4	2768.40	-14.04	60.31	46.27	74.00	-27.73	Peak	220	345	P
5	3691.20	-10.39	57.67	47.28	54.00	-6.72	Average	185	345	P
6	3691.20	-10.39	58.55	48.16	74.00	-25.84	Peak	185	345	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

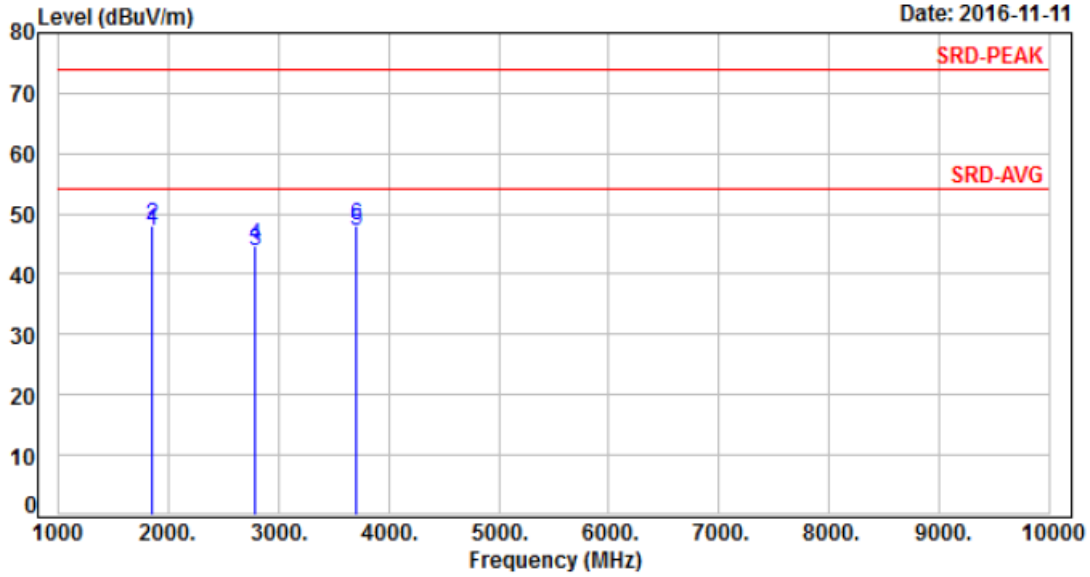
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1845.60	-17.82	63.78	45.96	54.00	-8.04	Average	120	5	P
2	1845.60	-17.82	64.66	46.84	74.00	-27.16	Peak	120	5	P
3	2768.40	-14.04	52.07	38.03	54.00	-15.97	Average	248	164	P
4	2768.40	-14.04	52.96	38.92	74.00	-35.08	Peak	248	164	P
5	3691.20	-10.39	57.13	46.74	54.00	-7.26	Average	275	160	P
6	3691.20	-10.39	58.01	47.62	74.00	-26.38	Peak	275	160	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

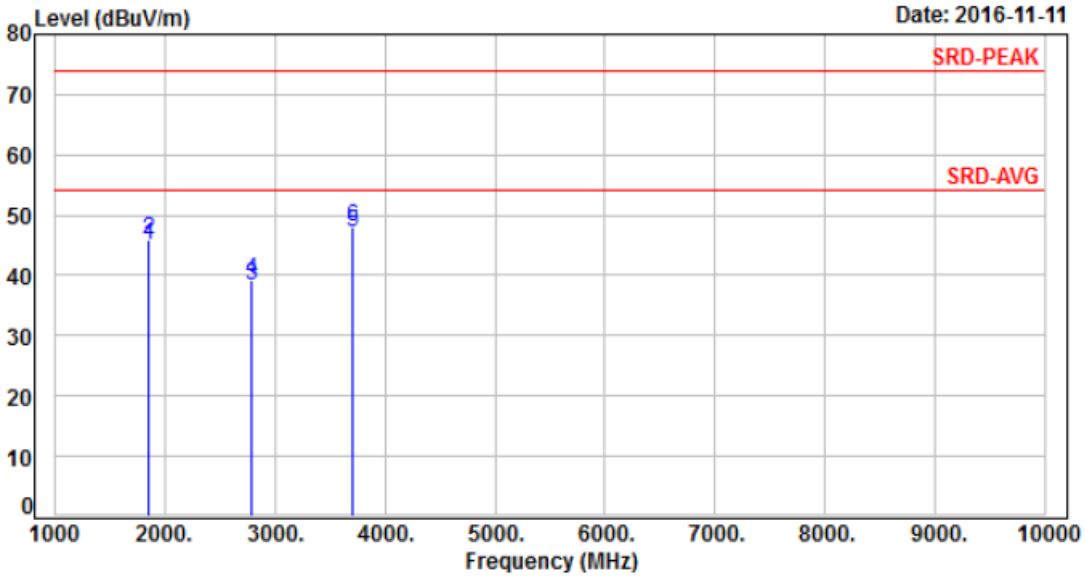
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1855.40	-17.76	64.83	47.07	54.00	-6.93	Average	321	189	P
2	1855.40	-17.76	65.71	47.95	74.00	-26.05	Peak	321	189	P
3	2781.60	-13.98	57.91	43.93	54.00	-10.07	Average	100	0	P
4	2781.60	-13.98	58.79	44.81	74.00	-29.19	Peak	100	0	P
5	3708.80	-10.32	57.59	47.27	54.00	-6.73	Average	100	0	P
6	3708.80	-10.32	58.47	48.15	74.00	-25.85	Peak	100	0	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2	Temperature	:	25°C
Test Date	:	Nov. 11, 2016	Humidity	:	68 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1854.40	-17.76	62.85	45.09	54.00	-8.91	Average	126	10	P
2	1854.40	-17.76	63.73	45.97	74.00	-28.03	Peak	126	10	P
3	2781.60	-13.98	52.27	38.29	54.00	-15.71	Average	176	141	P
4	2781.60	-13.98	53.15	39.17	74.00	-34.83	Peak	176	141	P
5	3708.80	-10.32	57.38	47.06	54.00	-6.94	Average	188	145	P
6	3708.80	-10.32	58.26	47.94	74.00	-26.06	Peak	188	145	P

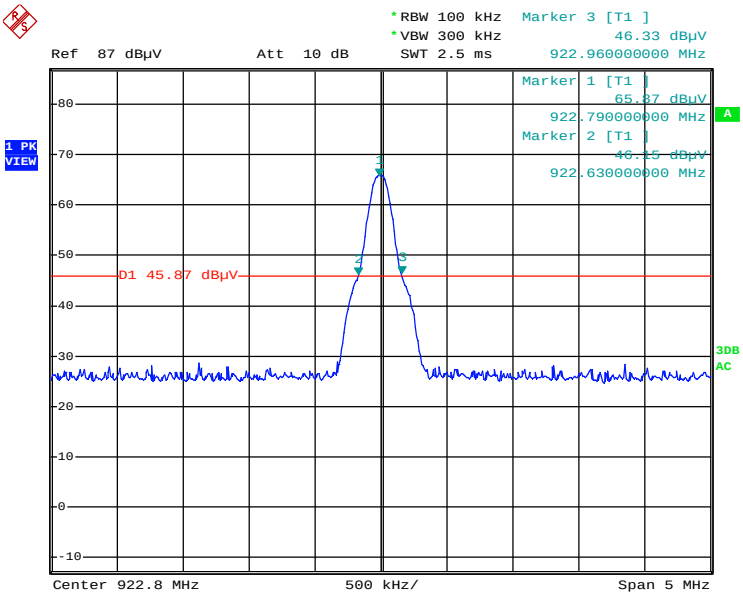
Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

5.4.5. 20dB Bandwidth & 99% Occupied BW

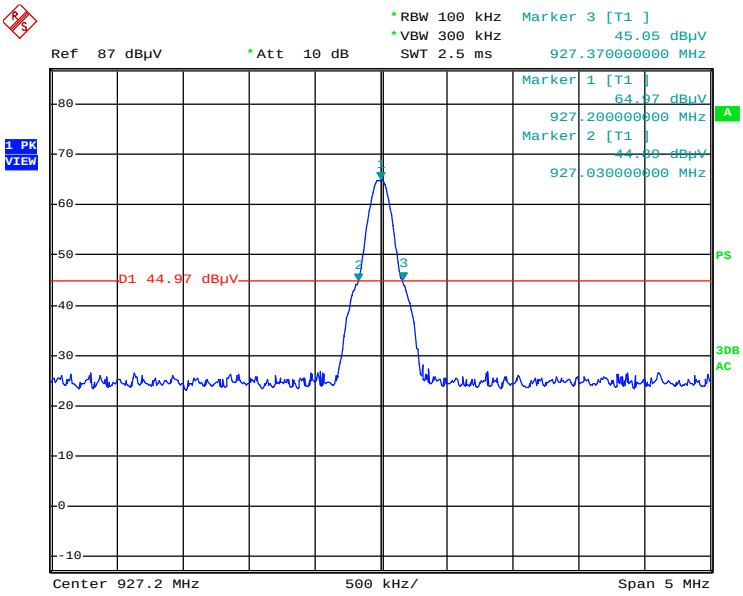
Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Frequency range MHz (20dB Down) fL ＞ 902 MHz	Frequency range MHz (20dB Down) fH ＜ 928 MHz
922.800	0.33	0.35	922.6300	-
927.200	0.34	0.35	-	927.3700

20dB Bandwidth

922.8 MHz

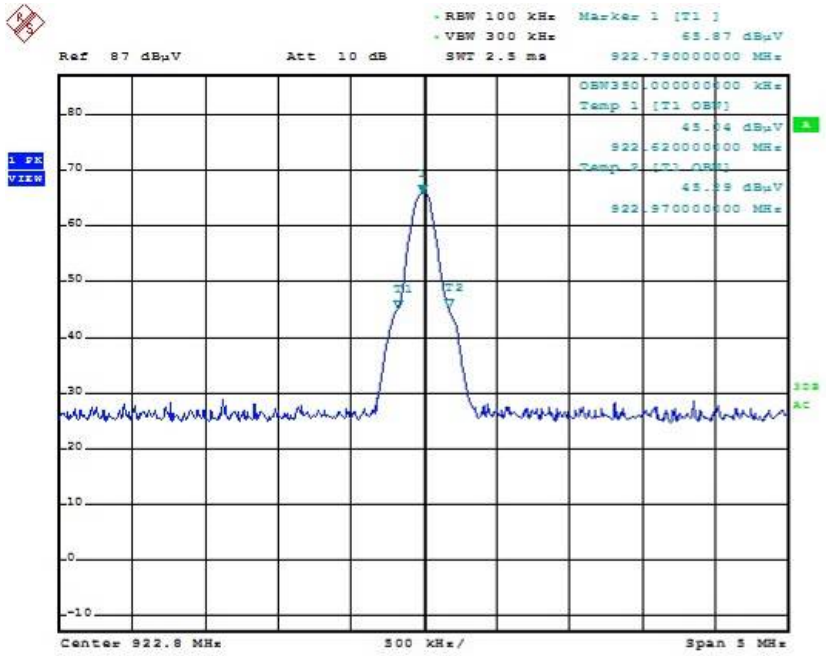


927.2 MHz

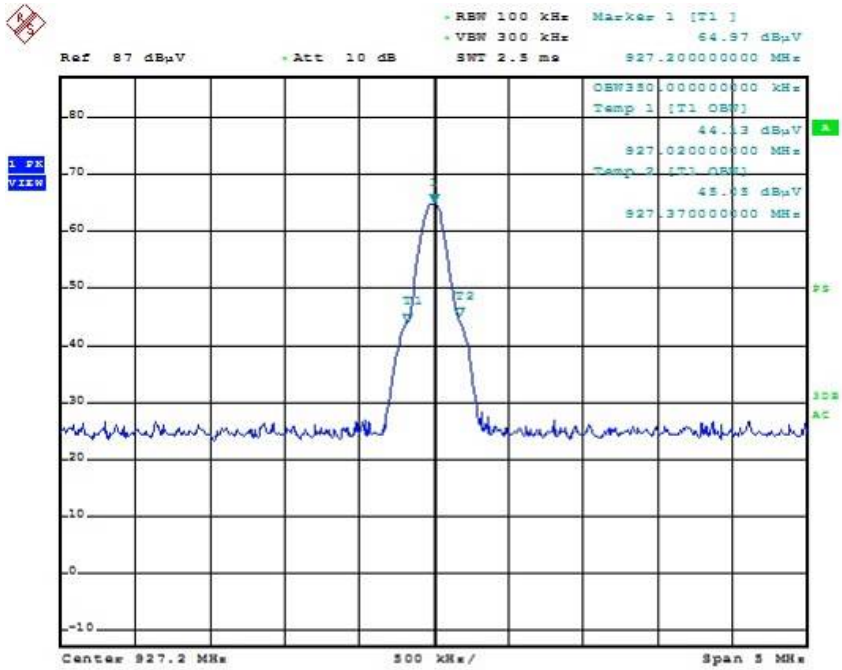


99% Occupied BW

922.8 MHz



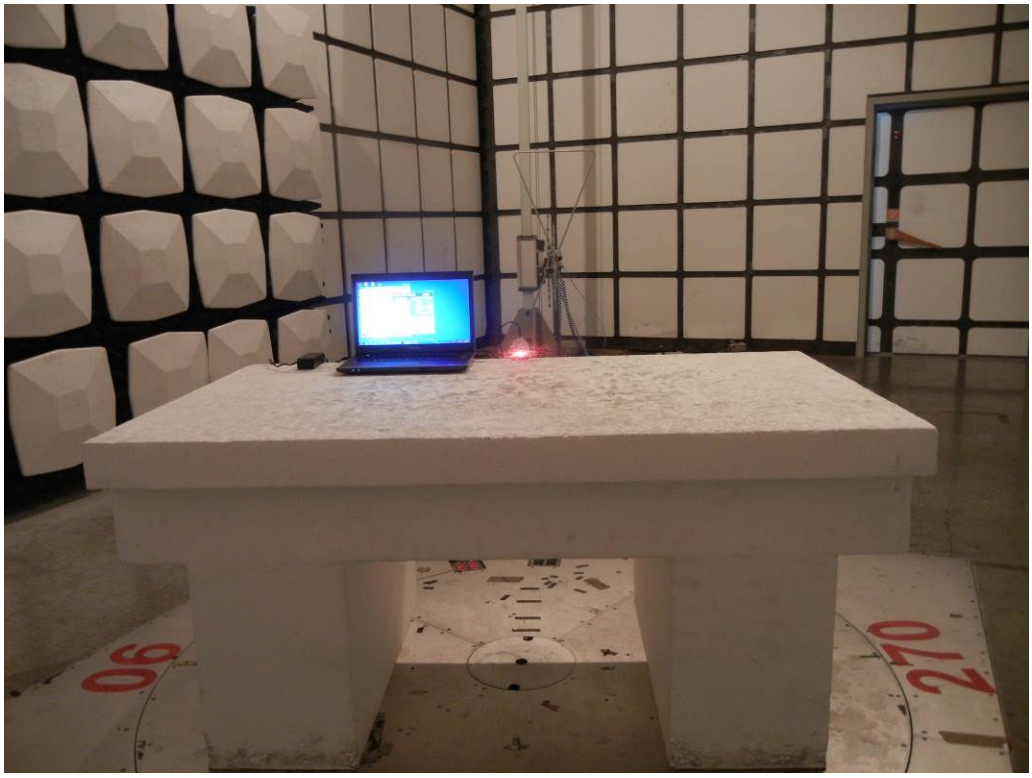
927.2 MHz



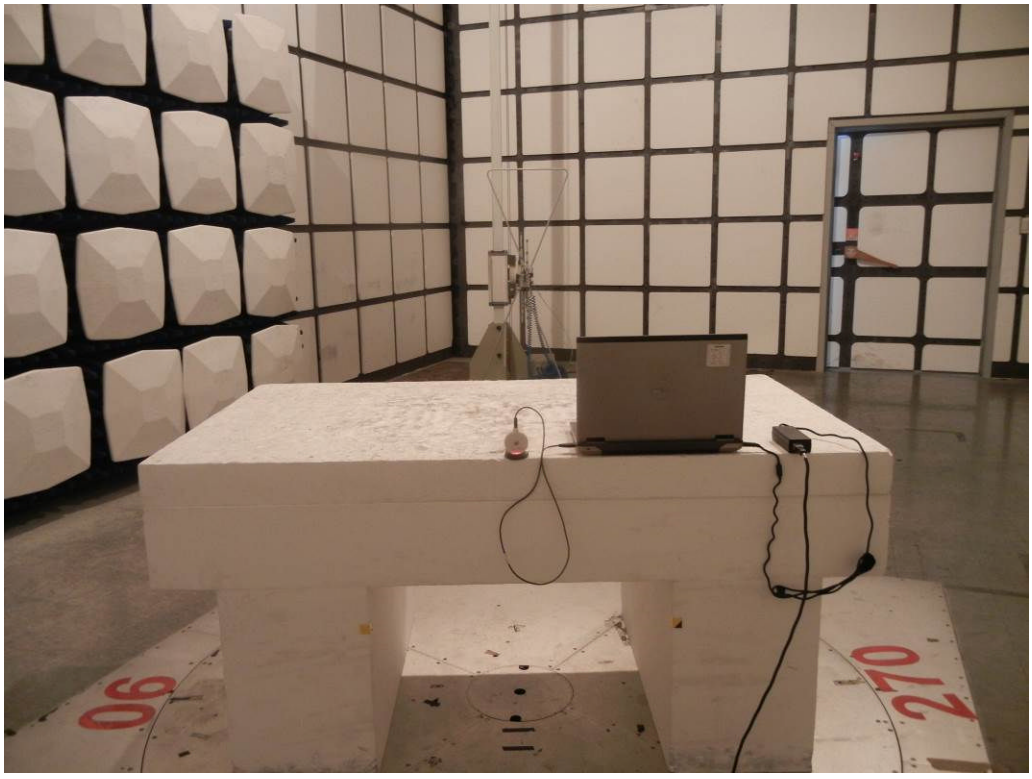
5.5. Test Photographs (30MHz ~ 1GHz)

Mode 1 ~ Mode 2

Front View



Rear View



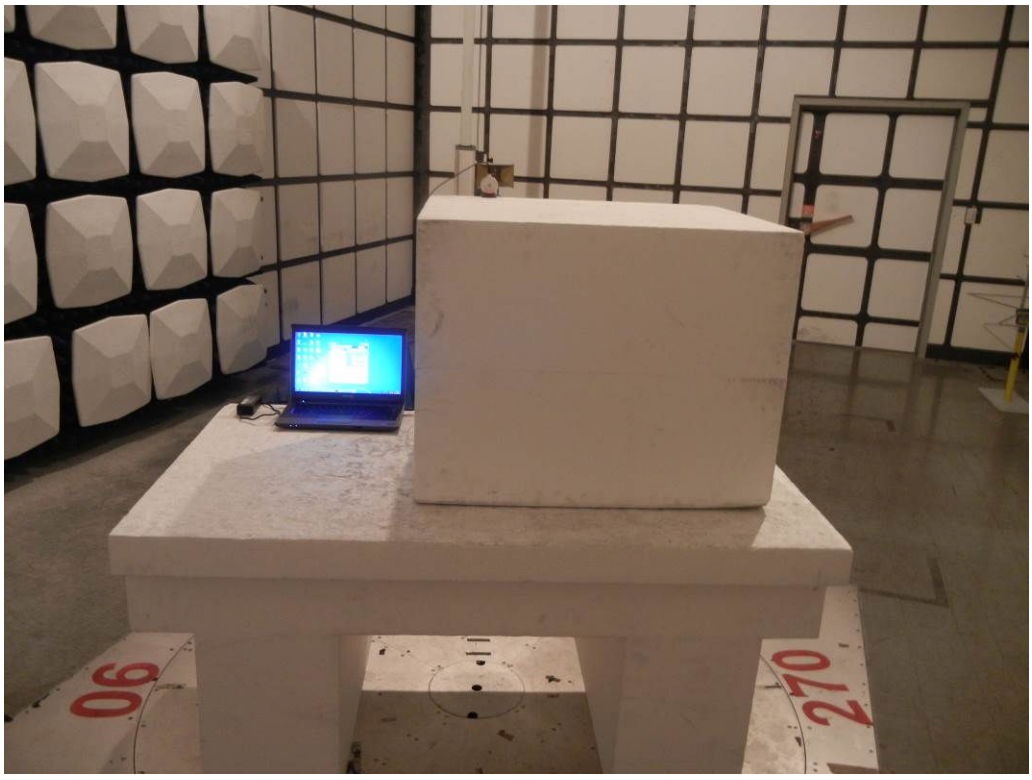
Mode 3 ~ Mode 4

Front View

Rear View

5.6. Test Photographs (1GHz ~ 10GHz)

Front View



Rear View