



Radio Test Report

Report No.: STS2510006W02

Issued for

Tsingoal (Beijing) Technology Co., Ltd.

Room A1002-1, Block A, 10th Floor, Building 1, Yard 1,
Zhongguancun East Road, Haidian District, Beijing, China

Product Name: Positioning device

Brand Name: N/A

Model Name: U5000-ID

Series Model(s): N/A

FCC ID: 2BK5RU5000-ID

Test Standards: Title 47 of the CFR, Part 15. Subpart F

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

**TEST RESULT CERTIFICATION**

Applicant's Name: Tsinggoal (Beijing) Technology Co., Ltd.
Address.....: Room A1002-1, Block A, 10th Floor,Building 1, Yard 1,
Zhongguancun East Road, Haidian District, Beijing, China
Manufacture's Name: Tsinggoal (Beijing) Technology Co., Ltd.
Address.....: Room A1002-1, Block A, 10th Floor,Building 1, Yard 1,
Zhongguancun East Road, Haidian District, Beijing, China

Product Description

Product Name: Positioning device
Brand Name: N/A
Model Name.....: U5000-ID
Series Model: N/A

Test Standards.....: Title 47 of the CFR, Part 15. Subpart F

Test Procedure: ANSI C63.10-2020

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test.....:
Date of receipt of test item.....: 09 Oct. 2025
Date of performance of tests ..: 09 Oct. 2025~29 Oct. 2025
Date of Issue: 29 Oct. 2025
Test Result: **Pass**

Testing Engineer :

Aaron Bu

(Aaron Bu)

Technical Manager :

Skylar Li

(Skylar Li)

Authorized Signatory :

Bovey Yang

(Bovey Yang)





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Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	29 Oct. 2025	STS2510006W02	ALL	Initial Issue



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part 15. Subpart F			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Conducted Emission	Pass	
15.203	Antenna Requirement	Pass	
15.209 15.517(c)	Radiated Spurious Emission	Pass	
15.209 15.517(d)	Radiated Spurious Emission in GPS Band	Pass	
15.517(e)	Peak Emissions within a 50MHz Bandwidth	Pass	
15.517(b)	UWB Bandwidth	Pass	

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report.
- (2) All tests are according to ANSI C63.10-2020.



1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %**.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.751\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.888\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 2.48\text{dB}$
4	All emissions, radiated 30M-1GHz	$\pm 2.52\text{dB}$
5	All emissions, radiated 1G-6GHz	$\pm 3.48\text{dB}$
6	All emissions, radiated >6G	$\pm 4.18\text{dB}$
7	Conducted Emission (9KHz-30MHz)	$\pm 2.48\text{dB}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Positioning device								
Trade Name	N/A								
Model Name	U5000-ID								
Series Model	N/A								
Model Difference	N/A								
Product Description	The EUT is a Positioning device <table><tr><td>Operation Frequency:</td><td>7987.3MHz</td></tr><tr><td>Modulation Type:</td><td>BPSK</td></tr><tr><td>Antenna Type:</td><td>PCB antenna</td></tr><tr><td>Antenna Gain(Peak):</td><td>3dBi</td></tr></table> Based on the application, features, or specification exhibited in User Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User Manual.	Operation Frequency:	7987.3MHz	Modulation Type:	BPSK	Antenna Type:	PCB antenna	Antenna Gain(Peak):	3dBi
Operation Frequency:	7987.3MHz								
Modulation Type:	BPSK								
Antenna Type:	PCB antenna								
Antenna Gain(Peak):	3dBi								
Channel List	Please refer to the Note 3.								
Rating	Input: DC 48V 0.5A form POE adapter								
Adapter	N/A								
Battery	N/A								
Hardware version number	N/A								
Software version number	N/A								
Connecting I/O Port(s)	Please refer to the Note 1.								

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
2. The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.

3.

Test channel	Frequency(MHz)	Test channel	Frequency(MHz)
01	7987.3	--	--



2.2 DESCRIPTION OF THE TEST MODES

For Radiated spurious emissions

Each of these EUT operation mode(s) or test configuration mode(s) mentioned below was evaluated respectively.

Pretest Mode	Description	Modulation
Mode 1	TX CH01	BPSK

Note:

(1) All above mode have been measurement, only worst data was reported.

(2) We have be tested for all avaiable U.S. voltage and frequencies(For 120V,50/60Hz and 240V, 50/60Hz) for which the device is capable of operation, and the worst case of 120V,50/60Hz is shown in the report.

For AC Conducted Emission

Test Case	
AC Conducted Emission	Mode 2 : Keeping TX

2.3 TEST SOFTWARE AND POWER LEVEL

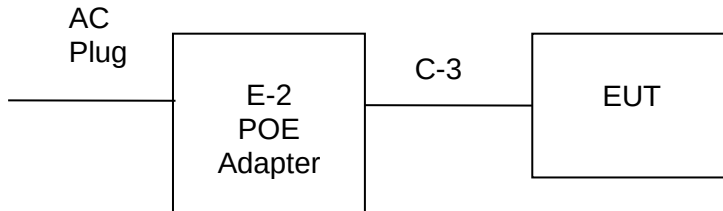
During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
UWB	7987.3MHz	BPSK	3	Default	The EUT enter the receiving state when it is powered on

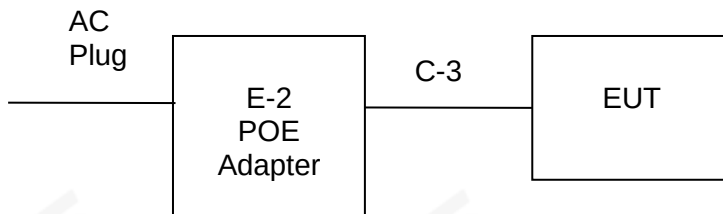
2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. 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 power parameters.

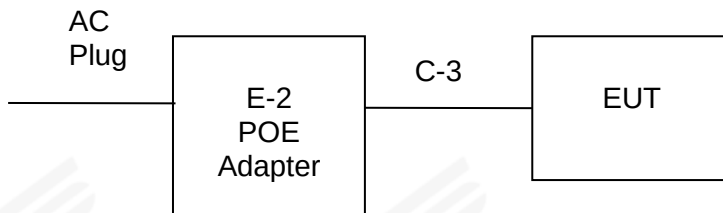
Radiated Spurious Emission Test



AC Conducted Emission Test



RF Conducted Test





2.5 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Note
E-2	Adapter	ZTC	NB-A515A	N/A
C-3	Network cable	ZTC	NB-A515A	N/A

Support units

Item	Equipment	Mfr/Brand	Length	Note
C-3	Shielded	NO	150cm	N/A

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

RF Radiation Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2025.02.24	2026.02.23
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2025.02.22	2026.02.21
Pre-Amplifier(1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2025.09.25	2026.09.24
Pre-Amplifier(18G-40GHz)	SKET	LNPA_1840-50	SK2018101801	2025.02.22	2026.02.21
Active loop Antenna	ZHINAN	ZN30900C	16035	2025.02.25	2027.02.24
Bilog Antenna	TESEQ	CBL6111D	34678	2025.09.27	2027.09.26
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2025.09.27	2027.09.26
Horn Antenna	A-INFOMW	LB-180400-KF	J211020657	2025.09.27	2027.09.26
Positioning Controller	MF	MF-7802	MF-780208587	N/A	N/A
Signal Analyzer	R&S	FSV 40-N	101823	2025.09.26	2026.09.25
Switch Control Box	N/A	N/A	N/A	N/A	N/A
Filter Box	BALUN Technology	SU319E	BL-SZ1530051	N/A	N/A
Antenna Mast	MF	MFA-440H	N/A	N/A	N/A
Turn Table	MF	SC100_1	60531	N/A	N/A
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A
DC power supply	HONGSHENGFENG	DPS-305AF	17064939	2025.09.22	2026.09.21
Test SW	EZ-EMC	Ver.STSLAB-03A1 RE			
Conduction Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2025.09.25	2026.09.24
Limtter	CYBERTEK	EM5010	N/A	2025.09.25	2026.09.24
LISN	R&S	ENV216	101242	2025.09.25	2026.09.24
LISN	EMCO	3810/2NM	23625	2025.09.25	2026.09.24
Temperature & Humidity	SW-108	SuWei	N/A	2025.02.24	2026.02.23
Test SW	EZ-EMC	Ver.STSLAB-03A1 CE			
RF Connected Test					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Signal Analyzer	Agilent	N9020A	MY51510623	2025.02.22	2026.02.21
Temperature& Humidity test chamber	Safety test	AG80L	171200018	2025.02.22	2026.02.21
Switch control box	MW	MW100-RFCB	N/A	N/A	N/A
Temperature & Humidity	SW-108	SuWei	N/A	2025.02.24	2026.02.23
Test SW	MW	MTS 8310_2.0.0.0			



3. EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 15.207 limit in the table below has to be followed.

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of “ * ” marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

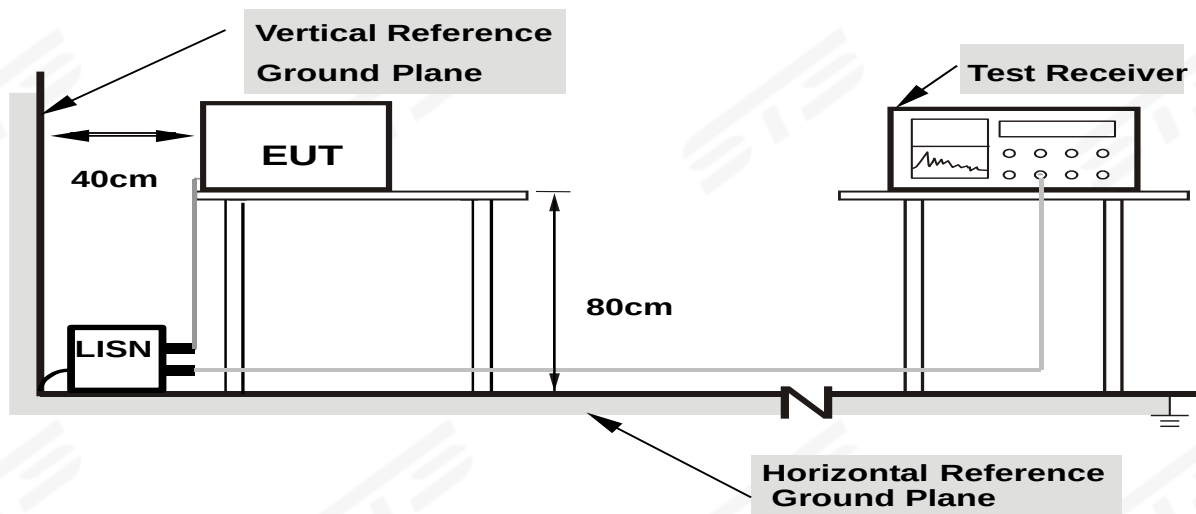
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

- The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



3.1.5 TEST RESULT

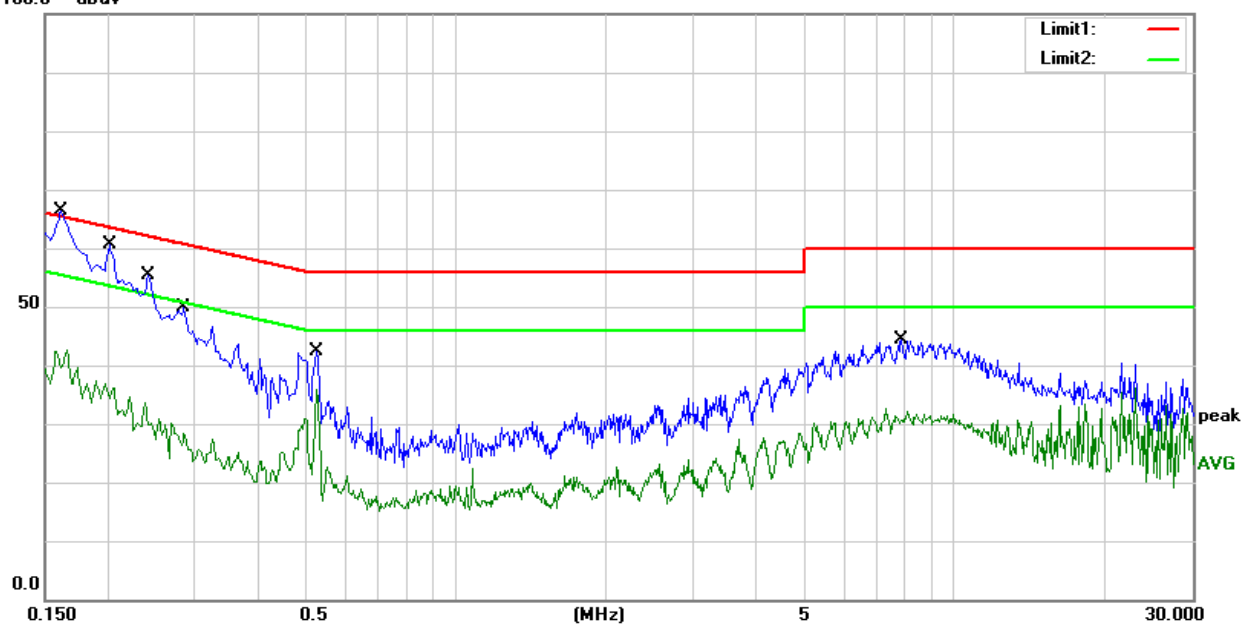
Temperature:	25.1°C	Relative Humidity:	59%
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	Mode 2		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1620	41.47	19.83	61.30	65.36	-4.06	QP
2	0.1620	22.73	19.83	42.56	55.36	-12.80	AVG
3	0.2020	40.69	19.82	60.51	63.53	-3.02	QP
4	0.2020	17.44	19.82	37.26	53.53	-16.27	AVG
5	0.2420	35.55	19.80	55.35	62.03	-6.68	QP
6	0.2420	13.71	19.80	33.51	52.03	-18.52	AVG
7	0.2860	30.12	19.78	49.90	60.64	-10.74	QP
8	0.2860	10.25	19.78	30.03	50.64	-20.61	AVG
9	0.5260	22.54	19.80	42.34	56.00	-13.66	QP
10	0.5260	16.00	19.80	35.80	46.00	-10.20	AVG
11	7.8300	24.47	19.83	44.30	60.00	-15.70	QP
12	7.8300	16.35	19.83	36.18	50.00	-13.82	AVG

Remark:

1. All readings are Quasi-Peak and Average values
2. Margin = Result (Result = Reading + Factor) – Limit
3. Factor = LISN factor + Cable loss + Limiter (10dB)

100.0 dBuV





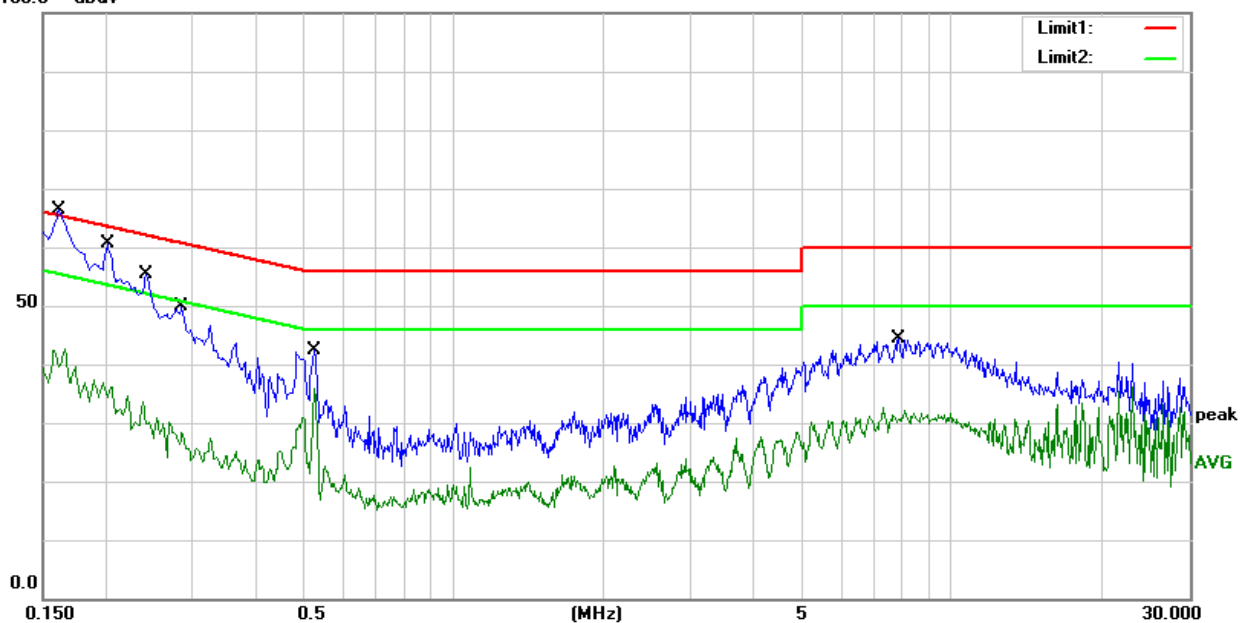
Temperature:	25.1°C	Relative Humidity:	59%
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	Mode 4		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1620	41.47	19.83	61.30	65.36	-4.06	QP
2	0.1620	22.73	19.83	42.56	55.36	-12.80	AVG
3	0.2020	40.69	19.82	60.51	63.53	-3.02	QP
4	0.2020	17.44	19.82	37.26	53.53	-16.27	AVG
5	0.2420	35.55	19.80	55.35	62.03	-6.68	QP
6	0.2420	13.71	19.80	33.51	52.03	-18.52	AVG
7	0.2860	30.12	19.78	49.90	60.64	-10.74	QP
8	0.2860	10.25	19.78	30.03	50.64	-20.61	AVG
9	0.5260	22.54	19.80	42.34	56.00	-13.66	QP
10	0.5260	16.00	19.80	35.80	46.00	-10.20	AVG
11	7.8300	24.47	19.83	44.30	60.00	-15.70	QP
12	7.8300	16.35	19.83	36.18	50.00	-13.82	AVG

Remark:

1. All readings are Quasi-Peak and Average values
2. Margin = Result (Result = Reading + Factor) – Limit
3. Factor = LISN factor + Cable loss + Limiter (10dB)

100.0 dBuV





3.2 RADIATED EMISSION MEASUREMENT (FOR 15.517(c))

3.2.1 RADIATED EMISSION LIMITS

The radiated emissions at or below 960MHz from a device operating under the provisions of this section shall not exceed the emission levels in Section 15.209.

Frequencies (MHz)	Field Strength (micorvolts/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

Note: 1. The lower limit shall apply at the transition frequencies.

2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

The radiated emissions above 960MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1MHz:

Frequency of Emission (MHz)	EIRP (dBm)	Field Strength (dBuV/m@3m)	Field Strength (dBuV/m@1m)
960~1610	-75.3	19.9	29.44
1610~1990	-53.3	41.9	51.44
1990~3100	-51.3	43.9	53.44
3100~10600	-41.3	53.9	63.44
Above 10600	-51.3	43.9	53.44

Notes: 1. Transfer rules follow 15.521(g),15.31(f)(1).

2. 15.521(c) Emissions from digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in Section 15.209 of this chapter, rather than the limits specified in this subpart.

3. $E(\text{dBuV/m})@3\text{m} = P(\text{dBm EIRP}) + 95.2$;

$E(\text{dBuV/m})@1\text{m} = E(\text{dBuV/m})@3\text{m} + 20 \cdot \log(3/1)$



Spectrum Parameter	Setting
Detector	RMS
Attenuation	Auto
Start Frequency	960 MHz
Stop Frequency	10th of the highest fundamental frequency or to 40 GHz, whichever is lower
RB	1MHz
VB	3MHz
Sweep Point	1001
SweepTime	1s

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
	90kHz~110kHz / RB 200Hz for QP
	110kHz~490kHz / RB 200Hz for PK & AV
	490kHz~30MHz / RB 9kHz for QP
	30MHz~960MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

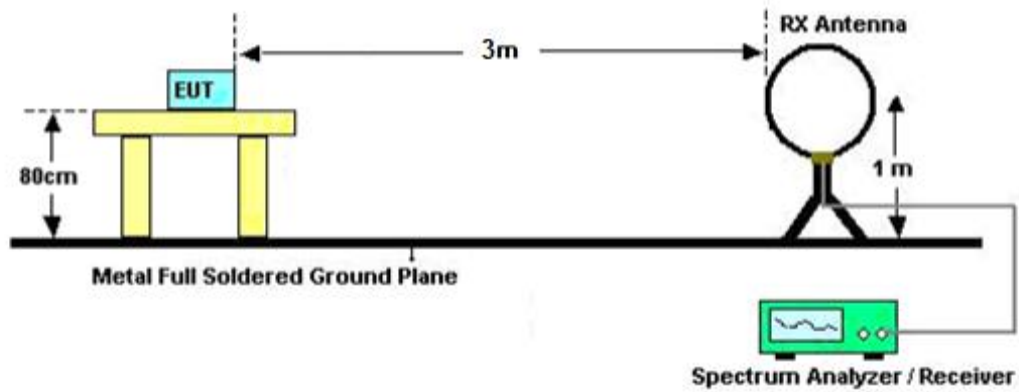
- The measuring distance of 1m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8meter (above 1GHz is 1.5 m) above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarization of the antenna are set to make the measurement.
- The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform (Below 960MHz)
- All readings are RMS mode value, for each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. (Above 960MHz)
- For the actual test configuration, please refer to the related Item –EUT Test Photos.
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.3 DEVIATION FROM TEST STANDARD

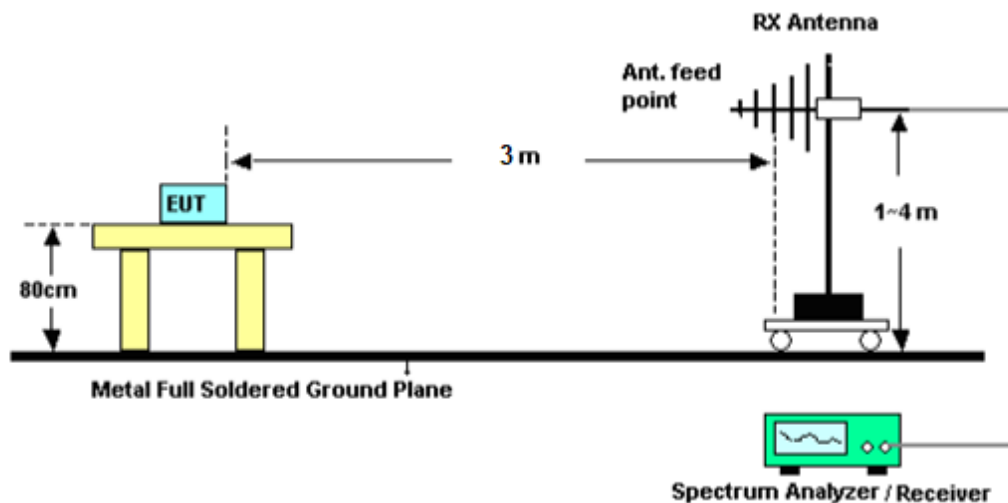
No deviation

3.2.4 TEST SETUP

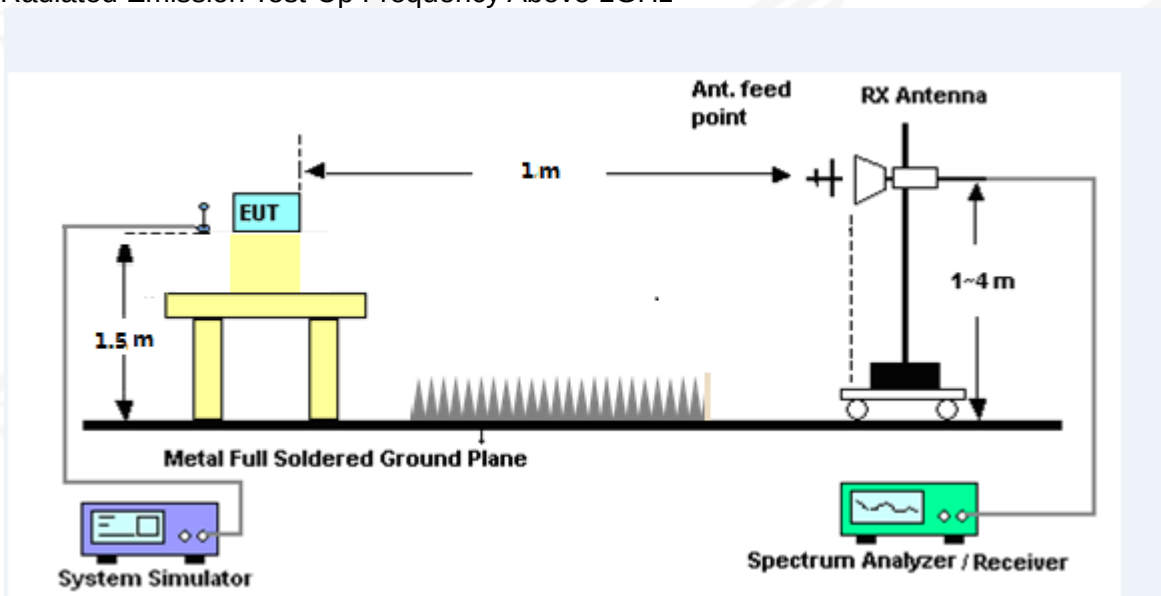
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz





3.2.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

Margin=PL-PK L or AL- AV L; Margin only shown the worst case.

Where

PR = Peak Reading

AR = Average Reading

PL = Peak Level

AL = Average Level

AF = Antenna Factor

PK L = Peak Limit

AV L = AV Limit

For example

Frequency	PR	AR	AF	PL	AL	PK L	AV L	Margin
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dBμV/m)	(dB)
2178	40.23	30.31	9.83	50.06	40.14	74.00	54.00	-13.86

3.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



3.2.7 TEST RESULTS

Below 30MHz

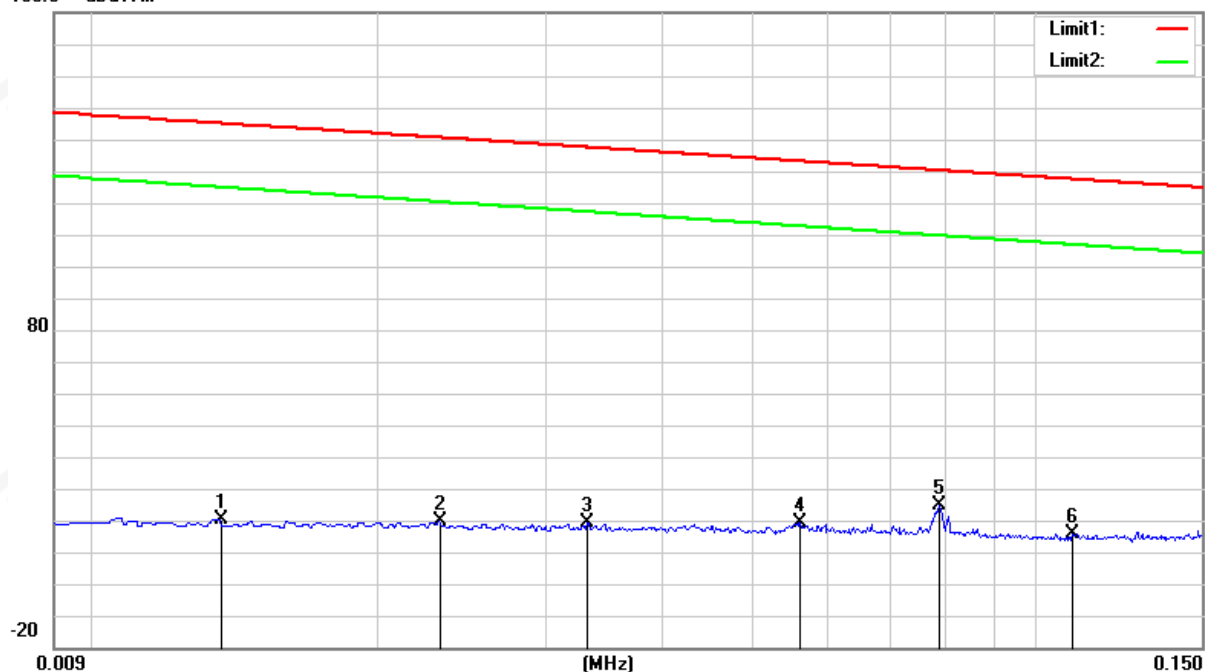
Temperature:	23.1°C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	CH 1(9KHz - 150KHz)
Test distance:	3m		

No.	Frequency (KHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0135	0.72	19.63	20.35	145.10	-124.75	peak
2	0.0231	-0.52	20.04	19.52	140.57	-121.05	peak
3	0.0331	-0.36	19.84	19.48	137.54	-118.06	peak
4	0.0560	-0.11	19.33	19.22	133.11	-113.89	peak
5	0.0788	5.98	18.62	24.60	130.23	-105.63	peak
6	0.1091	-1.61	17.58	15.97	127.48	-111.51	peak

Remark:

- Margin = Result (Result =Reading + Factor)-Limit
- Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

180.0 dBuV/m





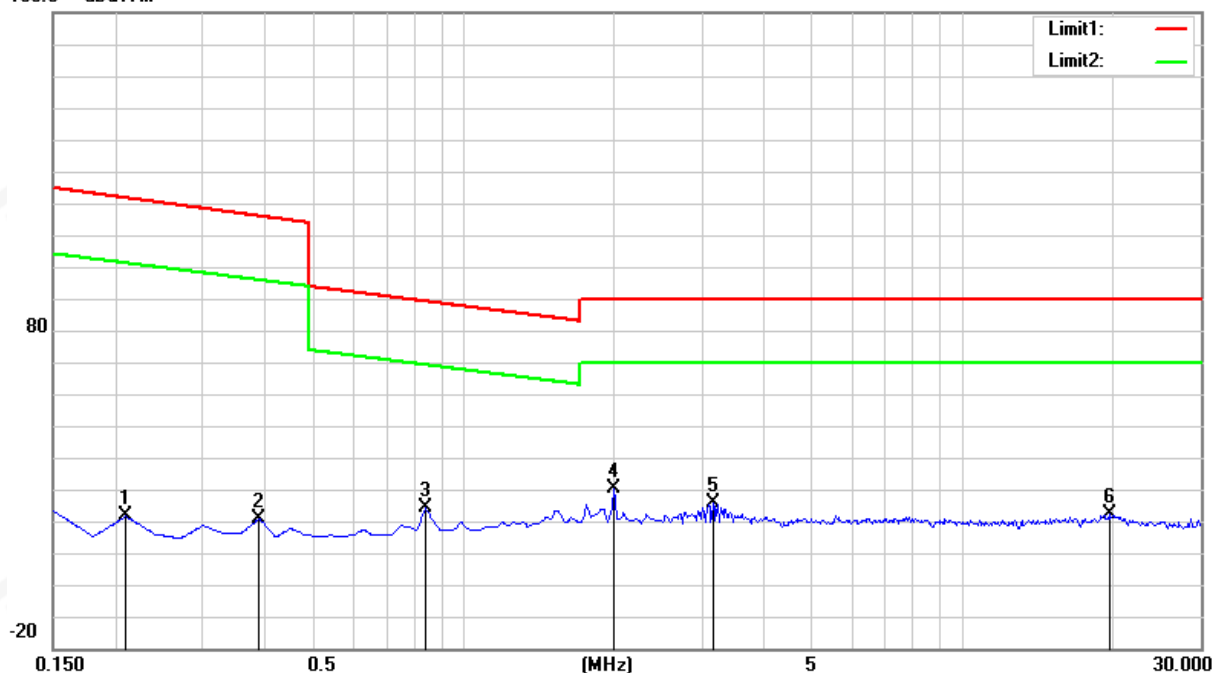
Temperature:	23.1°C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	CH 1(150KHz – 30MHz)
Test distance:	3m		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.2097	2.46	19.05	21.51	121.69	-100.18	peak
2	0.3888	0.72	20.16	20.88	115.95	-95.07	peak
3	0.8366	3.90	20.27	24.17	89.15	-64.98	peak
4	2.0007	9.92	20.40	30.32	89.54	-59.22	peak
5	3.1648	5.52	20.15	25.67	89.54	-63.87	peak
6	19.7018	-0.05	22.43	22.38	89.54	-67.16	peak

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

180.0 dBuV/m



Note: The position of the measurement polarization (Horizontal / Face-on / Face-off) all has been tested, only shown the worst mode of Horizontal position.



30MHz – 960MHz Radiation Spurious

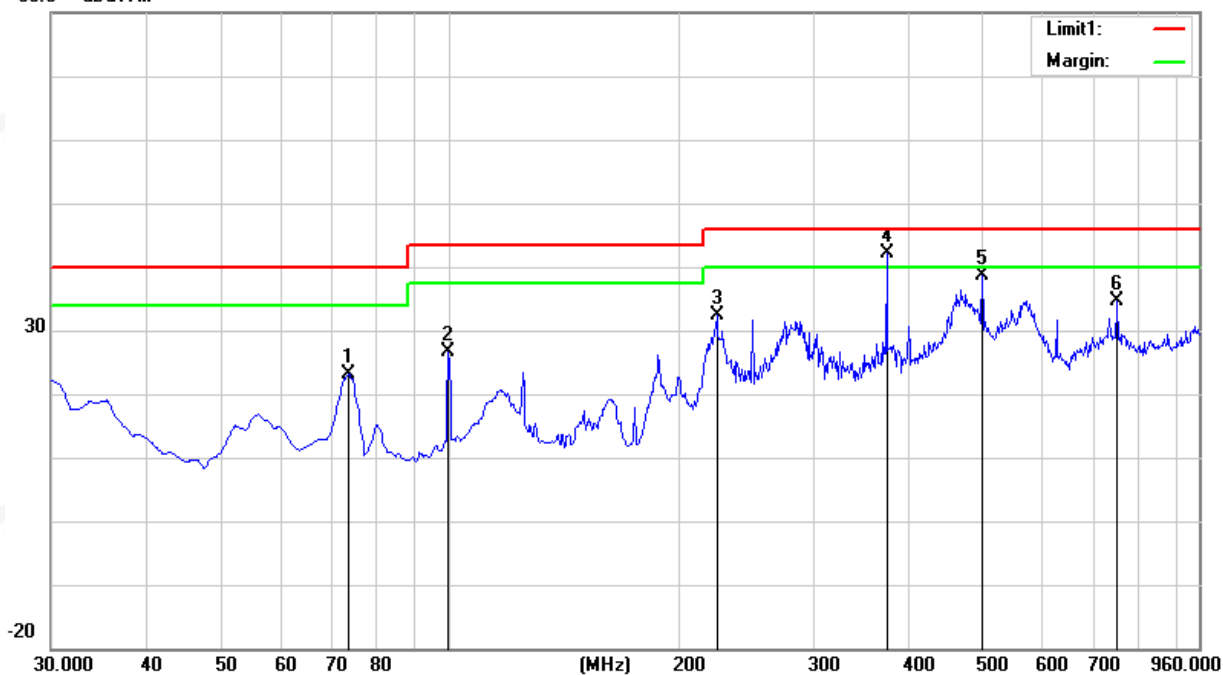
Temperature:	23.1°C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	CH 1	Test distance:	3m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	73.7100	47.33	-24.19	23.14	40.00	-16.86	peak
2	99.7500	46.68	-20.17	26.51	43.50	-16.99	peak
3	224.3700	51.80	-19.35	32.45	46.00	-13.55	peak
4	375.0300	54.55	-12.38	42.17	46.00	-3.83	peak
5	499.6500	46.74	-8.01	38.73	46.00	-7.27	peak
6	750.7500	36.90	-2.16	34.74	46.00	-11.26	peak

Remark:

- Margin = Result (Result = Reading + Factor) – Limit
- Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

80.0 dBuV/m





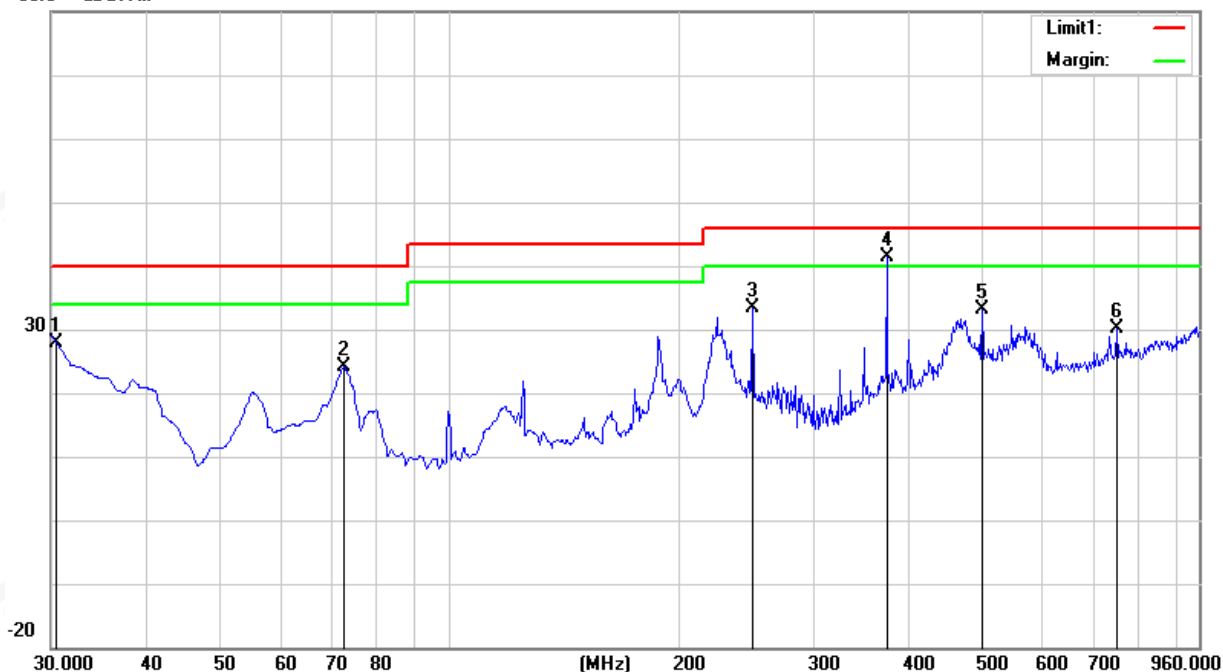
Temperature:	23.1°C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	CH 1	Test distance:	3m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.5244	41.08	-13.12	27.96	40.00	-12.04	peak
2	72.7800	48.60	-24.36	24.24	40.00	-15.76	peak
3	249.4800	49.55	-16.21	33.34	46.00	-12.66	peak
4	375.0300	53.88	-12.38	41.50	46.00	-4.50	peak
5	499.6500	41.10	-8.01	33.09	46.00	-12.91	peak
6	749.8200	32.23	-2.16	30.07	46.00	-15.93	peak

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





Above 960MHz Radiation Spurious

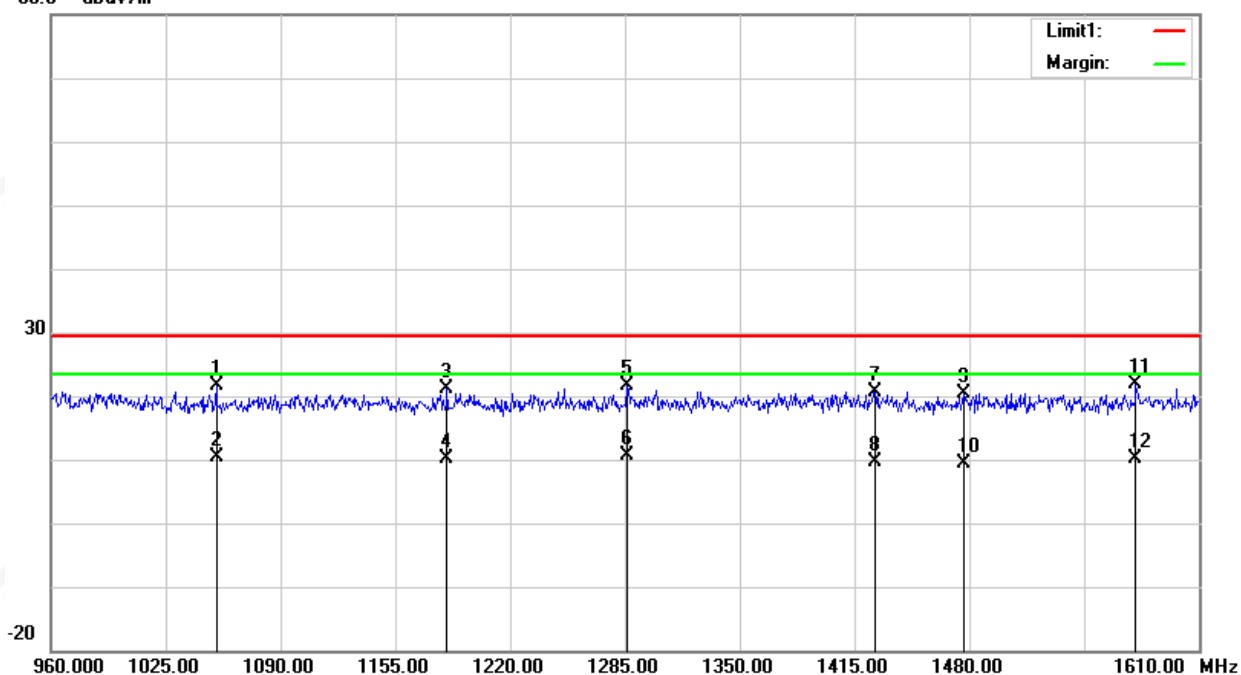
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Horizontal
Test Mode:	CH 1(960MHz -1610MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1053.600	24.94	-3.38	21.56	29.44	-7.88	peak
2	1053.600	13.82	-3.38	10.44	29.44	-19.00	RMS
3	1184.250	24.11	-3.01	21.10	29.44	-8.34	peak
4	1184.250	13.10	-3.01	10.09	29.44	-19.35	RMS
5	1286.300	24.55	-2.89	21.66	29.44	-7.78	peak
6	1286.300	13.43	-2.89	10.54	29.44	-18.90	RMS
7	1426.700	23.38	-2.73	20.65	29.44	-8.79	peak
8	1426.700	12.28	-2.73	9.55	29.44	-19.89	RMS
9	1476.750	23.10	-2.68	20.42	29.44	-9.02	peak
10	1476.750	12.06	-2.68	9.38	29.44	-20.06	RMS
11	1574.250	24.58	-2.66	21.92	29.44	-7.52	peak
12	1574.250	12.74	-2.66	10.08	29.44	-19.36	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





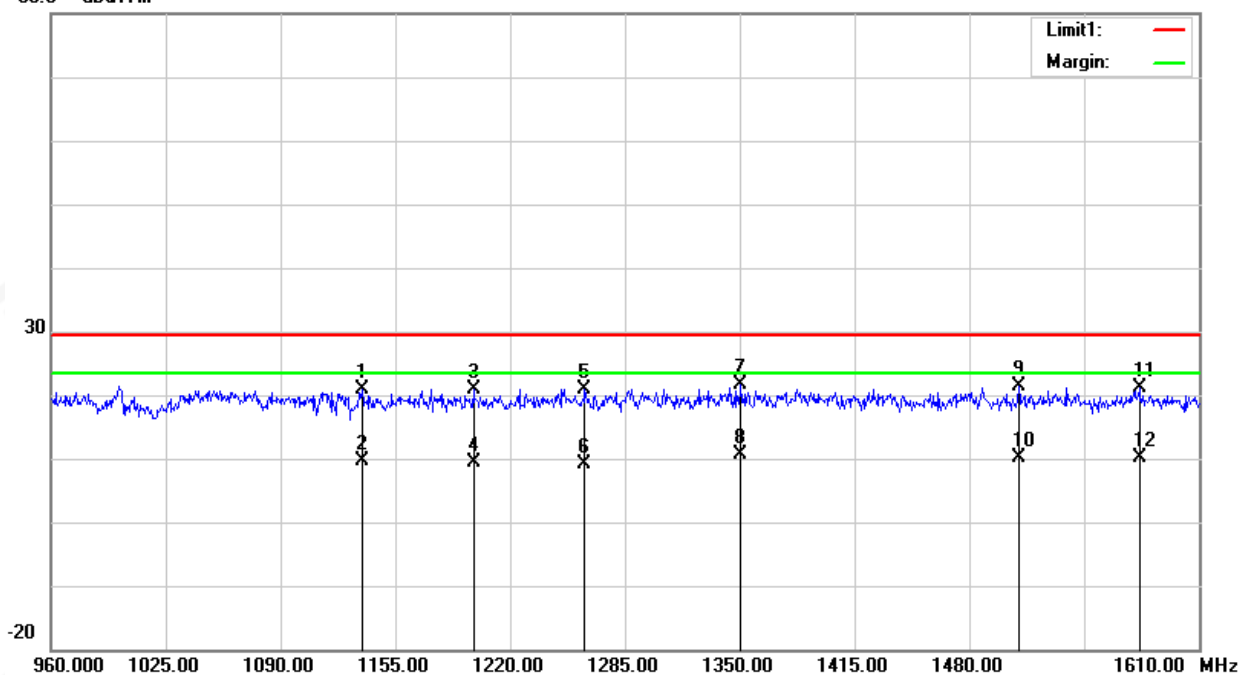
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Vertical
Test Mode:	CH 1(960MHz -1610MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1136.150	23.90	-3.14	20.76	29.44	-8.68	peak
2	1136.150	12.77	-3.14	9.63	29.44	-19.81	RMS
3	1199.200	23.80	-2.97	20.83	29.44	-8.61	peak
4	1199.200	12.24	-2.97	9.27	29.44	-20.17	RMS
5	1262.250	23.90	-2.91	20.99	29.44	-8.45	peak
6	1262.250	11.92	-2.91	9.01	29.44	-20.43	RMS
7	1350.650	24.51	-2.82	21.69	29.44	-7.75	peak
8	1350.650	13.33	-2.82	10.51	29.44	-18.93	RMS
9	1507.950	23.94	-2.66	21.28	29.44	-8.16	peak
10	1507.950	12.78	-2.66	10.12	29.44	-19.32	RMS
11	1576.200	23.76	-2.66	21.10	29.44	-8.34	peak
12	1576.200	12.75	-2.66	10.09	29.44	-19.35	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





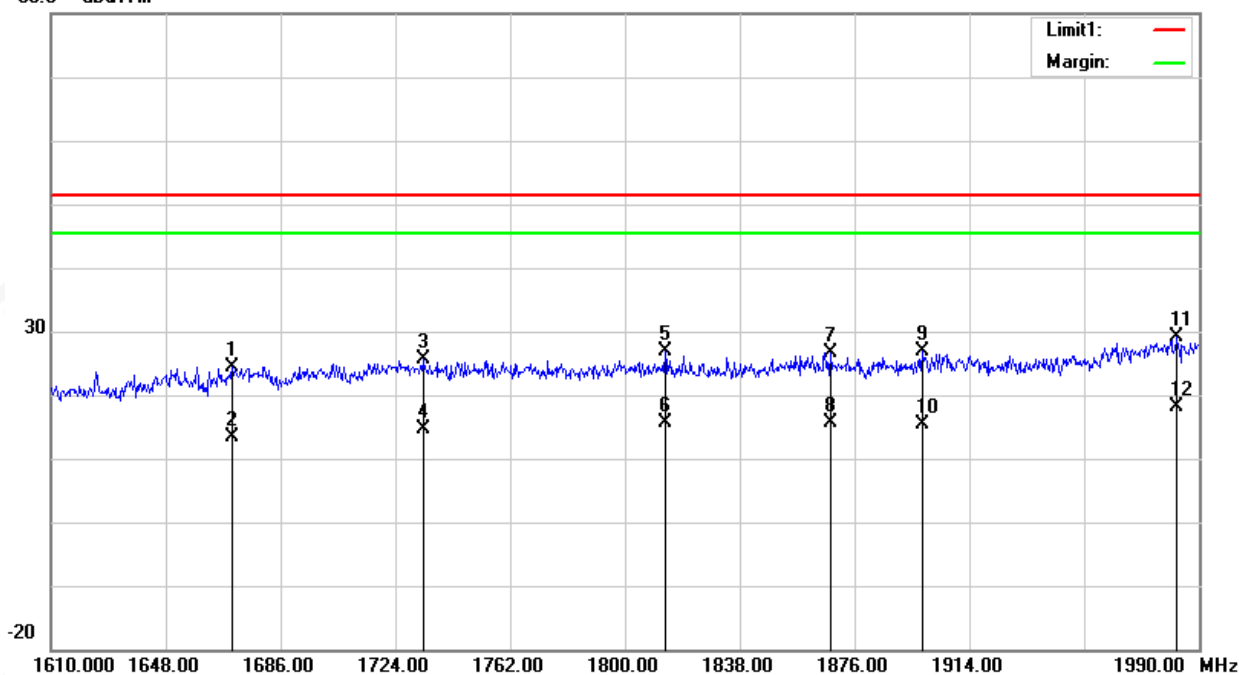
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Horizontal
Test Mode:	CH 1(1610MHz – 1990MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1670.040	27.20	-2.71	24.49	51.44	-26.95	peak
2	1670.040	16.02	-2.71	13.31	51.44	-38.13	RMS
3	1733.120	28.36	-2.68	25.68	51.44	-25.76	peak
4	1733.120	17.20	-2.68	14.52	51.44	-36.92	RMS
5	1813.300	29.24	-2.48	26.76	51.44	-24.68	peak
6	1813.300	18.11	-2.48	15.63	51.44	-35.81	RMS
7	1868.020	28.85	-2.13	26.72	51.44	-24.72	peak
8	1868.020	17.81	-2.13	15.68	51.44	-35.76	RMS
9	1898.420	28.76	-1.95	26.81	51.44	-24.63	peak
10	1898.420	17.24	-1.95	15.29	51.44	-36.15	RMS
11	1982.780	30.79	-1.59	29.20	51.44	-22.24	peak
12	1982.780	19.74	-1.59	18.15	51.44	-33.29	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





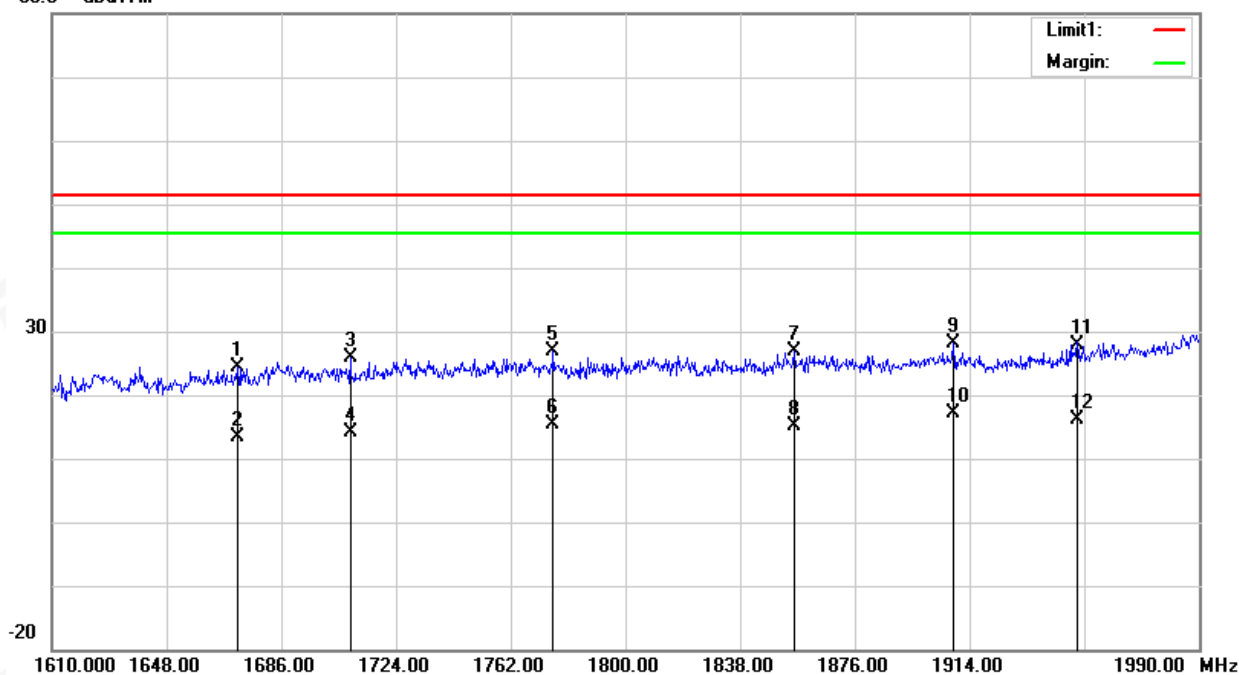
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Vertical
Test Mode:	CH 1(1610MHz – 1990MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1671.560	27.13	-2.71	24.42	51.44	-27.02	peak
2	1671.560	16.09	-2.71	13.38	51.44	-38.06	RMS
3	1708.800	28.65	-2.73	25.92	51.44	-25.52	peak
4	1708.800	16.81	-2.73	14.08	51.44	-37.36	RMS
5	1776.060	29.36	-2.60	26.76	51.44	-24.68	peak
6	1776.060	17.94	-2.60	15.34	51.44	-36.10	RMS
7	1855.860	29.09	-2.22	26.87	51.44	-24.57	peak
8	1855.860	17.45	-2.22	15.23	51.44	-36.21	RMS
9	1908.680	29.97	-1.90	28.07	51.44	-23.37	peak
10	1908.680	19.03	-1.90	17.13	51.44	-34.31	RMS
11	1949.720	29.61	-1.73	27.88	51.44	-23.56	peak
12	1949.720	17.85	-1.73	16.12	51.44	-35.32	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





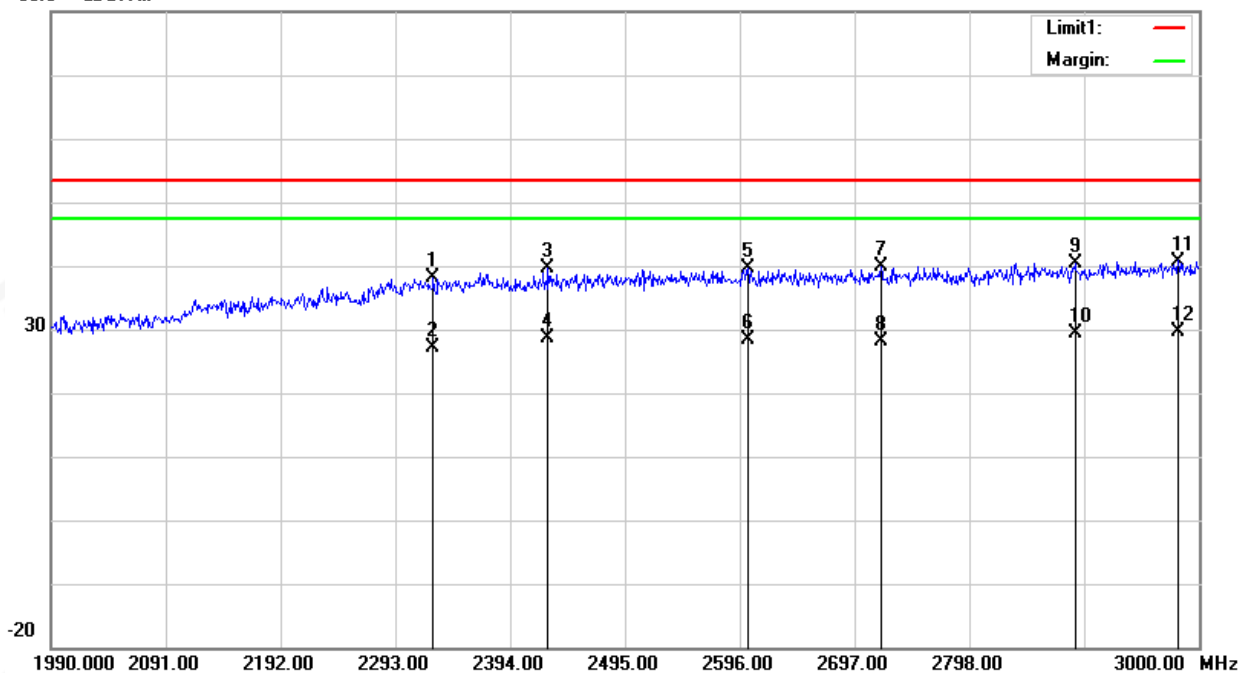
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Horizontal
Test Mode:	CH 1(1990MHz – 3000MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2326.330	37.90	0.34	38.24	53.44	-15.20	peak
2	2326.330	26.82	0.34	27.16	53.44	-26.28	RMS
3	2427.330	38.78	0.92	39.70	53.44	-13.74	peak
4	2427.330	27.75	0.92	28.67	53.44	-24.77	RMS
5	2603.070	38.25	1.31	39.56	53.44	-13.88	peak
6	2603.070	27.13	1.31	28.44	53.44	-25.00	RMS
7	2720.230	38.01	1.86	39.87	53.44	-13.57	peak
8	2720.230	26.37	1.86	28.23	53.44	-25.21	RMS
9	2890.920	37.81	2.64	40.45	53.44	-12.99	peak
10	2890.920	26.71	2.64	29.35	53.44	-24.09	RMS
11	2981.820	37.72	3.03	40.75	53.44	-12.69	peak
12	2981.820	26.62	3.03	29.65	53.44	-23.79	RMS

Remark:

1. $\text{Margin} = \text{Result} (\text{Result} = \text{Reading} + \text{Factor}) - \text{Limit}$
2. $\text{Factor} = \text{Antenna factor} + \text{Cable attenuation factor}(\text{cable loss}) - \text{Amplifier gain}$

80.0 dBuV/m





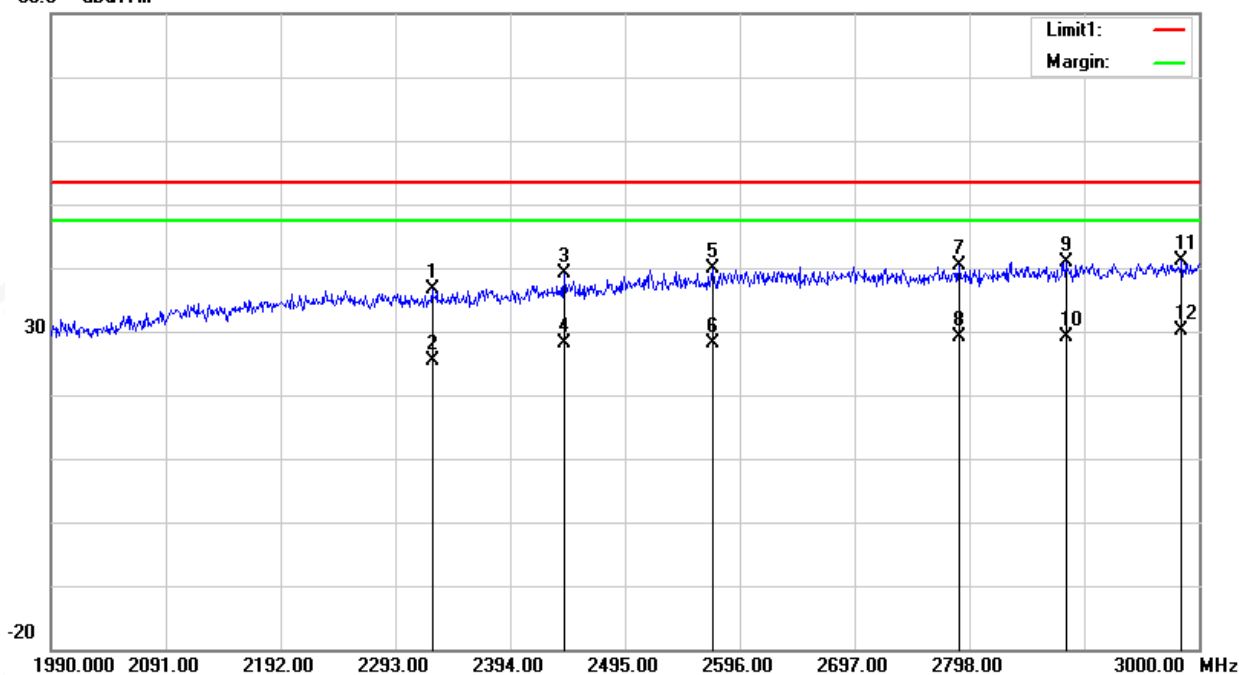
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Vertical
Test Mode:	CH 1(1990MHz – 3000MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2325.320	36.18	0.34	36.52	53.44	-16.92	peak
2	2325.320	25.14	0.34	25.48	53.44	-27.96	RMS
3	2441.470	38.18	0.95	39.13	53.44	-14.31	peak
4	2441.470	27.12	0.95	28.07	53.44	-25.37	RMS
5	2571.760	38.73	1.23	39.96	53.44	-13.48	peak
6	2571.760	26.81	1.23	28.04	53.44	-25.40	RMS
7	2788.910	38.00	2.35	40.35	53.44	-13.09	peak
8	2788.910	26.90	2.35	29.25	53.44	-24.19	RMS
9	2882.840	38.26	2.62	40.88	53.44	-12.56	peak
10	2882.840	26.40	2.62	29.02	53.44	-24.42	RMS
11	2984.850	38.06	3.04	41.10	53.44	-12.34	peak
12	2984.850	27.05	3.04	30.09	53.44	-23.35	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





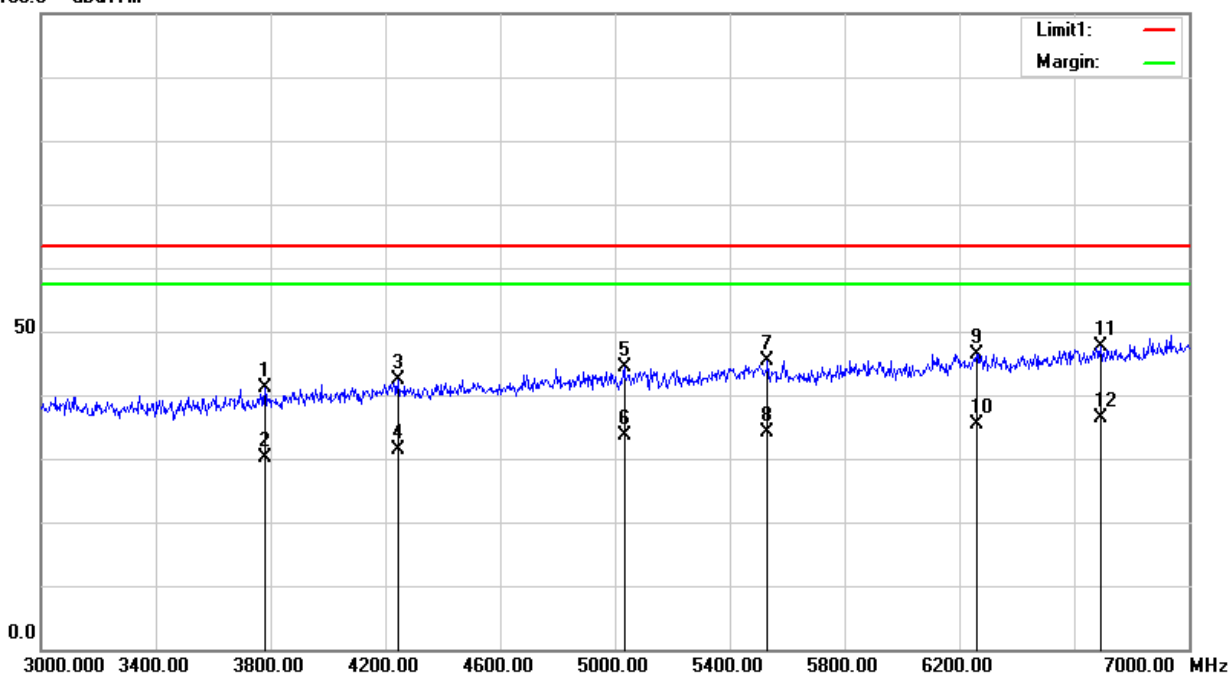
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Horizontal
Test Mode:	CH 1(3000 MHz -7000MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3780.000	51.79	-10.62	41.17	63.44	-22.27	peak
2	3780.000	40.65	-10.62	30.03	63.44	-33.41	RMS
3	4244.000	50.87	-8.44	42.43	63.44	-21.01	peak
4	4244.000	39.81	-8.44	31.37	63.44	-32.07	RMS
5	5032.000	50.18	-5.78	44.40	63.44	-19.04	peak
6	5032.000	39.39	-5.78	33.61	63.44	-29.83	RMS
7	5532.000	49.98	-4.71	45.27	63.44	-18.17	peak
8	5532.000	38.84	-4.71	34.13	63.44	-29.31	RMS
9	6260.000	48.60	-2.11	46.49	63.44	-16.95	peak
10	6260.000	37.42	-2.11	35.31	63.44	-28.13	RMS
11	6692.000	48.08	-0.53	47.55	63.44	-15.89	peak
12	6692.000	36.98	-0.53	36.45	63.44	-26.99	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

100.0 dBuV/m





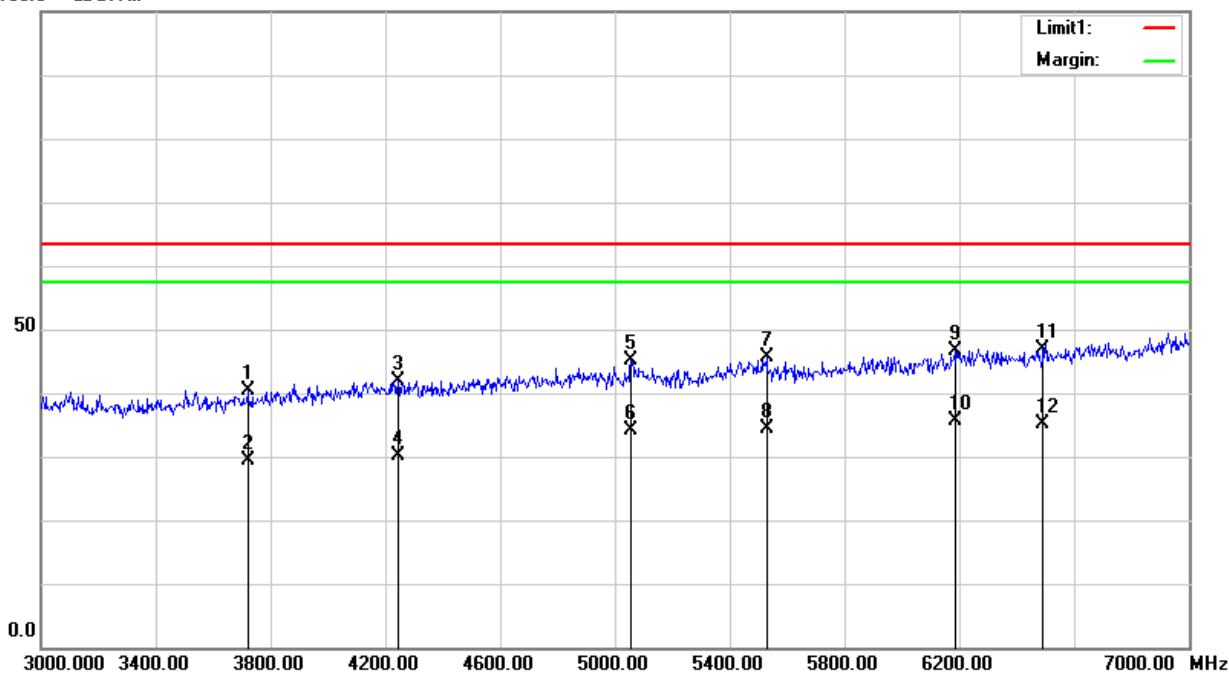
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Vertical
Test Mode:	CH 1(3000 MHz -7000MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3720.000	51.14	-10.67	40.47	63.44	-22.97	peak
2	3720.000	40.00	-10.67	29.33	63.44	-34.11	RMS
3	4244.000	50.43	-8.44	41.99	63.44	-21.45	peak
4	4244.000	38.45	-8.44	30.01	63.44	-33.43	RMS
5	5056.000	50.69	-5.67	45.02	63.44	-18.42	peak
6	5056.000	39.75	-5.67	34.08	63.44	-29.36	RMS
7	5528.000	50.41	-4.71	45.70	63.44	-17.74	peak
8	5528.000	38.99	-4.71	34.28	63.44	-29.16	RMS
9	6184.000	49.16	-2.42	46.74	63.44	-16.70	peak
10	6184.000	38.08	-2.42	35.66	63.44	-27.78	RMS
11	6492.000	48.19	-1.22	46.97	63.44	-16.47	peak
12	6492.000	36.25	-1.22	35.03	63.44	-28.41	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

100.0 dBuV/m





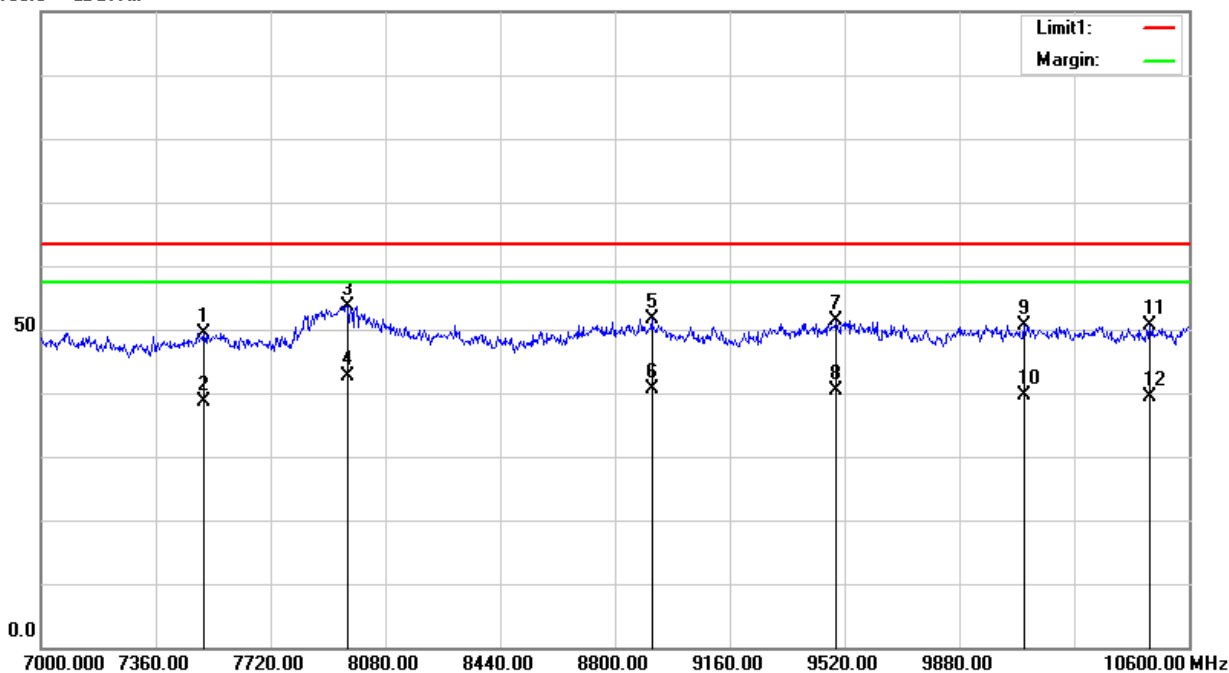
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Horizontal
Test Mode:	CH 1(7000MHz –10600MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7511.200	50.49	-1.03	49.46	63.44	-13.98	peak
2	7511.200	39.57	-1.03	38.54	63.44	-24.90	RMS
3	7961.200	54.70	-0.96	53.74	63.44	-9.70	peak
4	7961.200	43.62	-0.96	42.66	63.44	-20.78	RMS
5	8915.200	50.30	1.39	51.69	63.44	-11.75	peak
6	8915.200	39.12	1.39	40.51	63.44	-22.93	RMS
7	9494.800	49.80	1.52	51.32	63.44	-12.12	peak
8	9494.800	38.76	1.52	40.28	63.44	-23.16	RMS
9	10081.600	50.31	0.42	50.73	63.44	-12.71	peak
10	10081.600	39.25	0.42	39.67	63.44	-23.77	RMS
11	10477.600	49.43	1.11	50.54	63.44	-12.90	peak
12	10477.600	38.34	1.11	39.45	63.44	-23.99	RMS

Remark:

1. $\text{Margin} = \text{Result} (\text{Result} = \text{Reading} + \text{Factor}) - \text{Limit}$
2. $\text{Factor} = \text{Antenna factor} + \text{Cable attenuation factor}(\text{cable loss}) - \text{Amplifier gain}$

100.0 dBuV/m





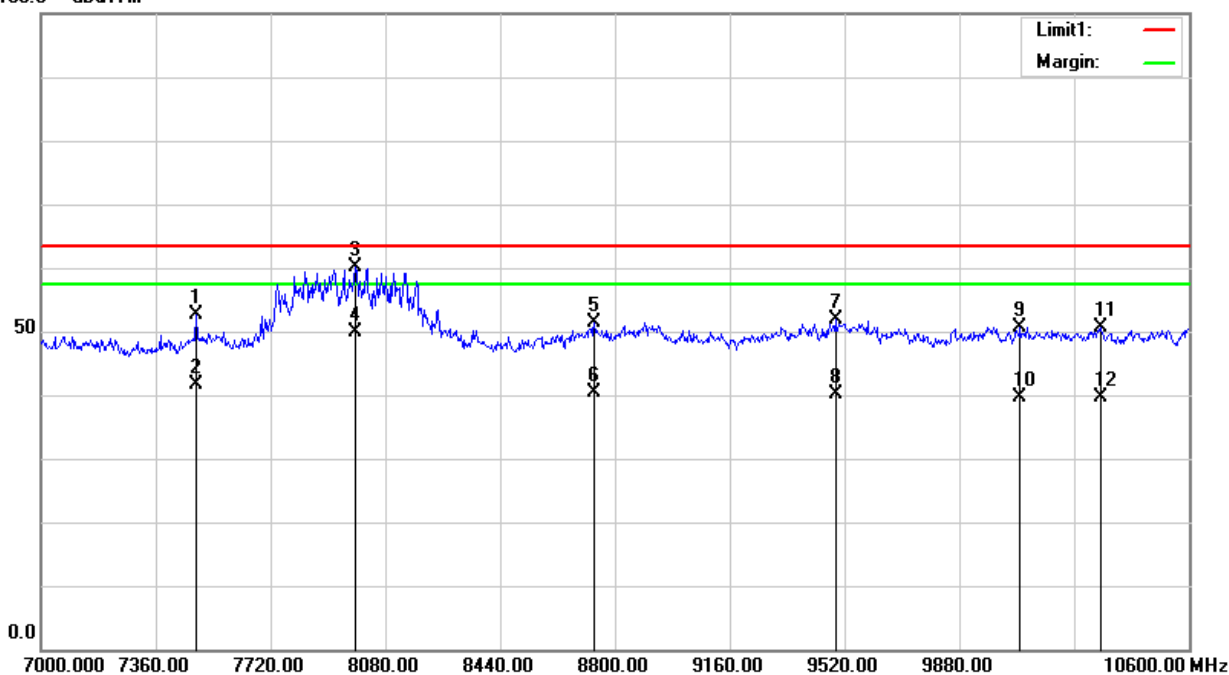
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Vertical
Test Mode:	CH 1(7000MHz –10600MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7486.000	53.82	-1.12	52.70	63.44	-10.74	peak
2	7486.000	42.81	-1.12	41.69	63.44	-21.75	RMS
3	7986.400	60.81	-0.77	60.04	63.44	-3.40	peak
4	7986.400	50.73	-0.77	49.96	63.44	-13.48	RMS
5	8735.200	51.27	0.22	51.49	63.44	-11.95	peak
6	8735.200	40.09	0.22	40.31	63.44	-23.13	RMS
7	9491.200	50.48	1.49	51.97	63.44	-11.47	peak
8	9491.200	38.64	1.49	40.13	63.44	-23.31	RMS
9	10070.800	50.20	0.53	50.73	63.44	-12.71	peak
10	10070.800	39.14	0.53	39.67	63.44	-23.77	RMS
11	10322.800	50.26	0.45	50.71	63.44	-12.73	peak
12	10322.800	39.23	0.45	39.68	63.44	-23.76	RMS

Remark:

1. $\text{Margin} = \text{Result} (\text{Result} = \text{Reading} + \text{Factor}) - \text{Limit}$
2. $\text{Factor} = \text{Antenna factor} + \text{Cable attenuation factor}(\text{cable loss}) - \text{Amplifier gain}$

100.0 dBuV/m





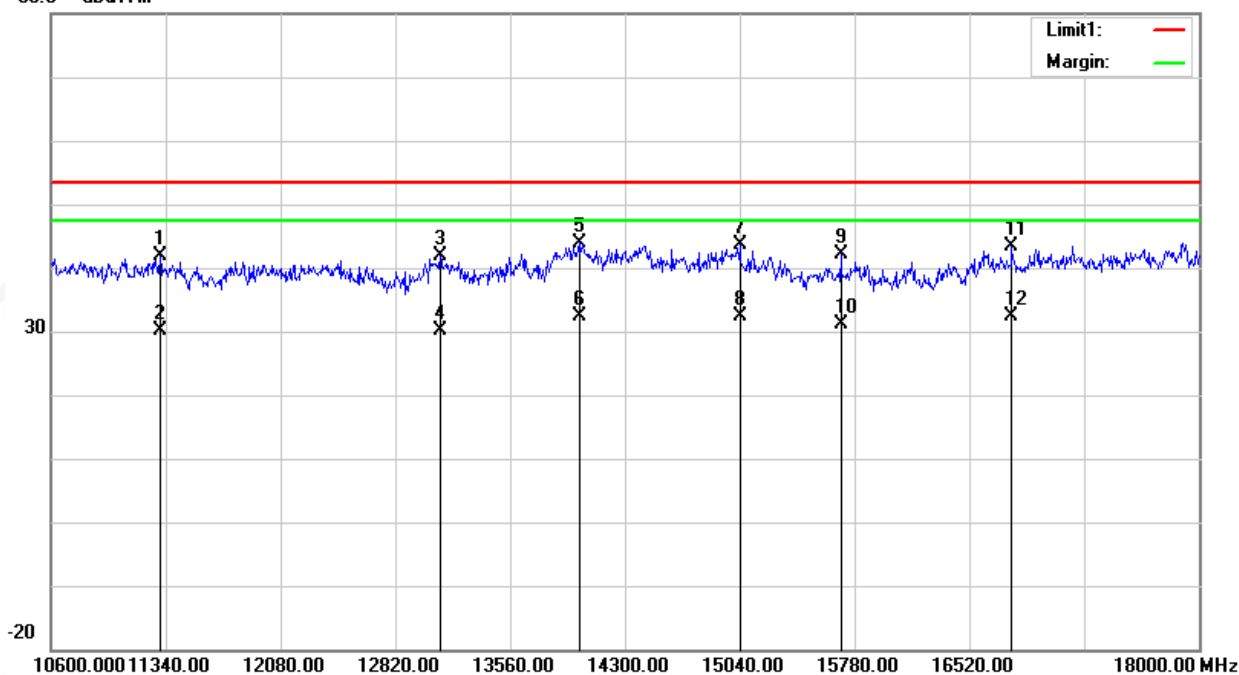
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Horizontal
Test Mode:	CH 1(10600MHz – 18000MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11303.000	39.65	2.27	41.92	53.44	-11.52	peak
2	11303.000	27.91	2.27	30.18	53.44	-23.26	RMS
3	13108.600	37.37	4.55	41.92	53.44	-11.52	peak
4	13108.600	25.56	4.55	30.11	53.44	-23.33	RMS
5	14004.000	35.39	8.38	43.77	53.44	-9.67	peak
6	14004.000	23.95	8.38	32.33	53.44	-21.11	RMS
7	15040.000	38.29	5.27	43.56	53.44	-9.88	peak
8	15040.000	27.17	5.27	32.44	53.44	-21.00	RMS
9	15691.200	38.90	3.30	42.20	53.44	-11.24	peak
10	15691.200	27.85	3.30	31.15	53.44	-22.29	RMS
11	16793.800	38.56	4.93	43.49	53.44	-9.95	peak
12	16793.800	27.38	4.93	32.31	53.44	-21.13	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





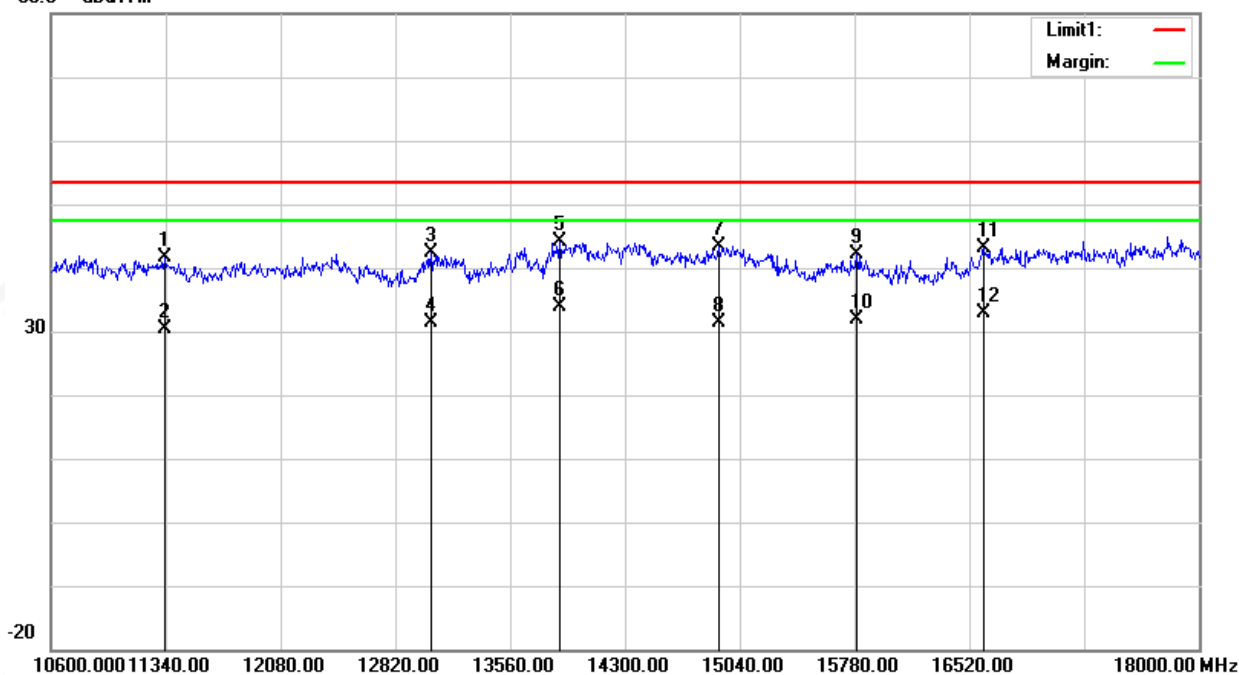
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Vertical
Test Mode:	CH 1(10600MHz – 18000MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	11332.600	39.39	2.17	41.56	53.44	-11.88	peak
2	11332.600	28.27	2.17	30.44	53.44	-23.00	RMS
3	13049.400	38.03	4.28	42.31	53.44	-11.13	peak
4	13049.400	27.01	4.28	31.29	53.44	-22.15	RMS
5	13878.200	37.16	6.88	44.04	53.44	-9.40	peak
6	13878.200	27.08	6.88	33.96	53.44	-19.48	RMS
7	14906.800	38.12	5.36	43.48	53.44	-9.96	peak
8	14906.800	25.96	5.36	31.32	53.44	-22.12	RMS
9	15794.800	39.08	3.11	42.19	53.44	-11.25	peak
10	15794.800	28.88	3.11	31.99	53.44	-21.45	RMS
11	16608.800	38.06	5.08	43.14	53.44	-10.30	peak
12	16608.800	27.89	5.08	32.97	53.44	-20.47	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Horizontal
Test Mode:	CH 1(18000 MHz -40000MHz)	Test distance:	1m

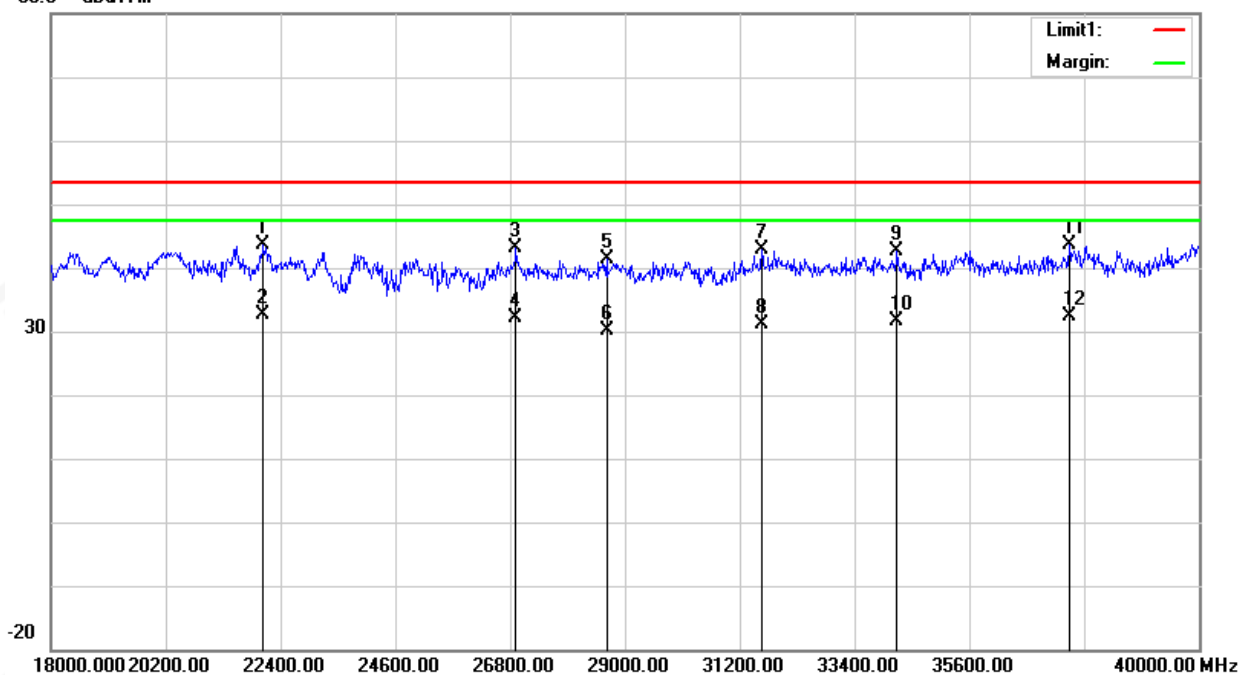
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	22070.000	40.31	3.42	43.73	53.44	-9.71	peak
2	22070.000	29.25	3.42	32.67	53.44	-20.77	RMS
3	26910.000	36.27	6.76	43.03	53.44	-10.41	peak
4	26910.000	25.41	6.76	32.17	53.44	-21.27	RMS
5	28648.000	32.78	8.59	41.37	53.44	-12.07	peak
6	28648.000	21.64	8.59	30.23	53.44	-23.21	RMS
7	31618.000	33.63	9.35	42.98	53.44	-10.46	peak
8	31618.000	21.67	9.35	31.02	53.44	-22.42	RMS
9	34214.000	32.98	9.67	42.65	53.44	-10.79	peak
10	34214.000	21.88	9.67	31.55	53.44	-21.89	RMS
11	37514.000	33.70	9.84	43.54	53.44	-9.90	peak
12	37514.000	22.62	9.84	32.46	53.44	-20.98	RMS

Remark:

3. Margin = Result (Result =Reading + Factor)-Limit

4. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

80.0 dBuV/m





Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Vertical
Test Mode:	CH 1(18000 MHz -40000MHz)	Test distance:	1m

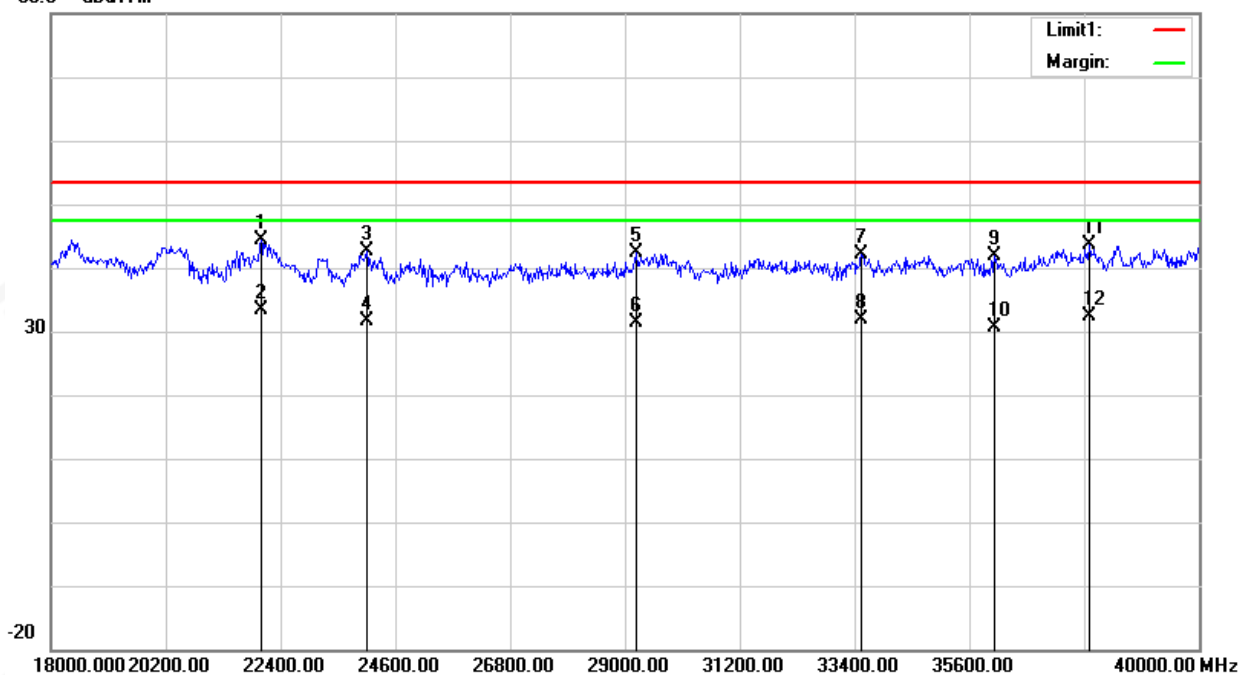
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	22026.000	41.09	3.39	44.48	53.44	-8.96	peak
2	22026.000	29.93	3.39	33.32	53.44	-20.12	RMS
3	24050.000	38.02	4.70	42.72	53.44	-10.72	peak
4	24050.000	26.98	4.70	31.68	53.44	-21.76	RMS
5	29220.000	33.14	9.17	42.31	53.44	-11.13	peak
6	29220.000	22.12	9.17	31.29	53.44	-22.15	RMS
7	33532.000	32.70	9.33	42.03	53.44	-11.41	peak
8	33532.000	22.54	9.33	31.87	53.44	-21.57	RMS
9	36084.000	31.86	9.91	41.77	53.44	-11.67	peak
10	36084.000	20.72	9.91	30.63	53.44	-22.81	RMS
11	37888.000	33.69	9.90	43.59	53.44	-9.85	peak
12	37888.000	22.51	9.90	32.41	53.44	-21.03	RMS

Remark:

3. $\text{Margin} = \text{Result} (\text{Result} = \text{Reading} + \text{Factor}) - \text{Limit}$

4. $\text{Factor} = \text{Antenna factor} + \text{Cable attenuation factor} (\text{cable loss}) - \text{Amplifier gain}$

80.0 dBuV/m





3.3 RADIATED EMISSION MEASUREMENT (FOR 15.517(d))

3.3.1 RADIATED EMISSION LIMITS

Frequency of Emission (MHz)	EIRP (dBm)	Field Strength (dBuV/m@3m)	Field Strength (dBuV/m@1m)
1164~1240	-85.3	10	19.54
1559~1610	-85.3	10	19.54

Notes: 1. Transfer rules follow 15.521(g),15.31(f)(1).

2. 15.521(g) converted to a peak field strength level at 3 meters using $E(\text{dBuV/m}) = P(\text{dBmEIRP}) + 95.2$.

3. $\text{dBuV/m@1m} = \text{dBuV/m@3m} + 20 \cdot \log(3/1)$

UWB transmitters operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of no less than 1 kHz:

Frequency Range	RBW	VBW	Detector	Measurement Distance
1164~1240	1kHz	3kHz	RMS	1 Meter
1559~1610	1kHz	3kHz	RMS	1 Meter

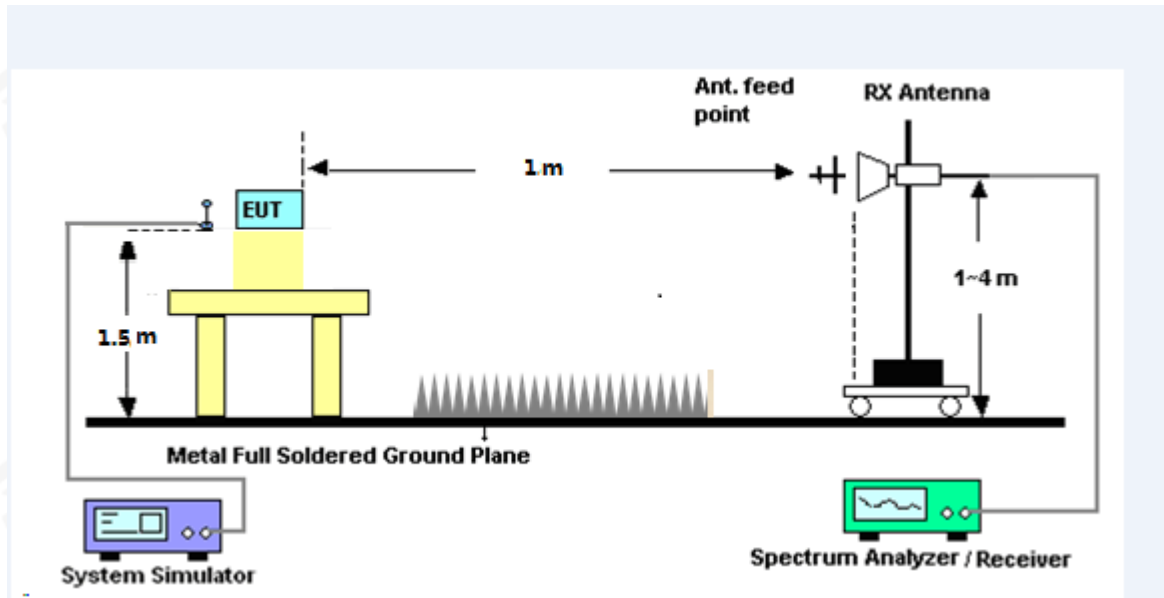
3.3.2 TEST PROCEDURE

- The measuring distance of 1m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarization of the antenna are set to make the measurement.
- All readings are RMS mode value, for each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
(Above 960MHz)
- For the actual test configuration, please refer to the related Item –EUT Test Photos.
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP



3.3.5 FIELD STRENGTH CALCULATION

Same as 3.2.5

3.3.6 EUT OPERATING CONDITIONS

Same as 3.2.6



3.3.7 TEST RESULTS

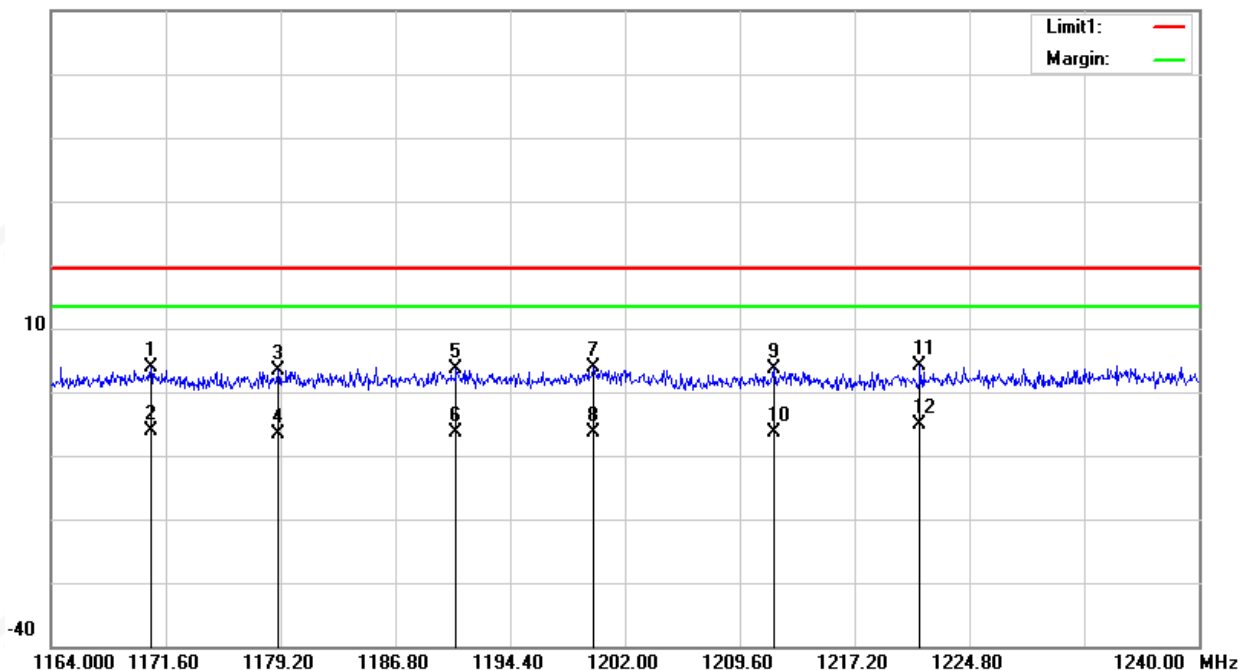
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	CH 1(1164Hz – 1240MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1170.612	6.91	-3.05	3.86	19.44	-15.58	peak
2	1170.612	-3.19	-3.05	-6.24	19.44	-25.68	RMS
3	1179.048	6.40	-3.03	3.37	19.44	-16.07	peak
4	1179.048	-3.70	-3.03	-6.73	19.44	-26.17	RMS
5	1190.828	6.51	-3.00	3.51	19.44	-15.93	peak
6	1190.828	-3.49	-3.00	-6.49	19.44	-25.93	RMS
7	1199.948	6.75	-2.97	3.78	19.44	-15.66	peak
8	1199.948	-3.35	-2.97	-6.32	19.44	-25.76	RMS
9	1211.880	6.71	-2.96	3.75	19.44	-15.69	peak
10	1211.880	-3.39	-2.96	-6.35	19.44	-25.79	RMS
11	1221.532	6.99	-2.95	4.04	19.44	-15.40	peak
12	1221.532	-2.11	-2.95	-5.06	19.44	-24.50	RMS

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

60.0 dBuV/m





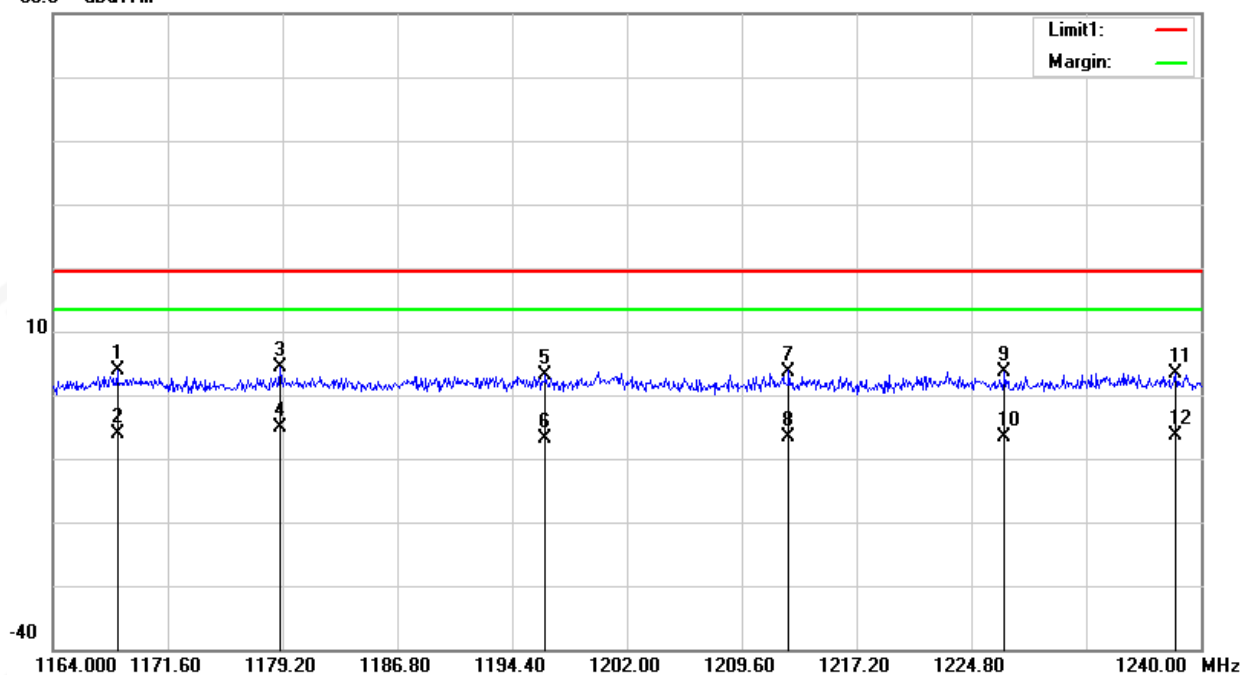
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	CH 1(1164Hz – 1240MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1168.256	7.00	-3.06	3.94	19.44	-15.50	peak
2	1168.256	-3.00	-3.06	-6.06	19.44	-25.50	RMS
3	1179.048	7.53	-3.03	4.50	19.44	-14.94	peak
4	1179.048	-2.06	-3.03	-5.09	19.44	-24.53	RMS
5	1196.604	6.11	-2.98	3.13	19.44	-16.31	peak
6	1196.604	-3.99	-2.98	-6.97	19.44	-26.41	RMS
7	1212.716	6.71	-2.96	3.75	19.44	-15.69	peak
8	1212.716	-3.69	-2.96	-6.65	19.44	-26.09	RMS
9	1227.004	6.63	-2.94	3.69	19.44	-15.75	peak
10	1227.004	-3.57	-2.94	-6.51	19.44	-25.95	RMS
11	1238.328	6.41	-2.93	3.48	19.44	-15.96	peak
12	1238.328	-3.39	-2.93	-6.32	19.44	-25.76	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

60.0 dBuV/m





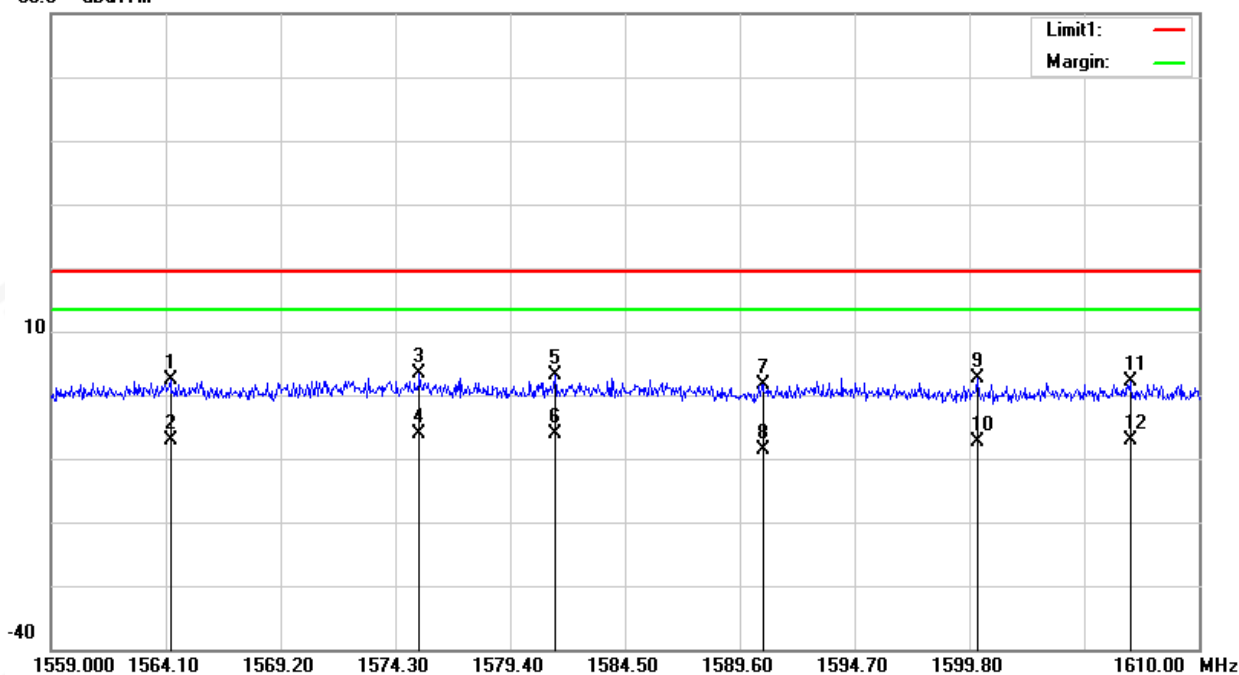
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	CH 1(1559Hz – 1610MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1564.304	4.94	-2.66	2.28	19.44	-17.16	peak
2	1564.304	-4.46	-2.66	-7.12	19.44	-26.56	RMS
3	1575.371	6.04	-2.66	3.38	19.44	-16.06	peak
4	1575.371	-3.56	-2.66	-6.22	19.44	-25.66	RMS
5	1581.389	5.71	-2.66	3.05	19.44	-16.39	peak
6	1581.389	-3.39	-2.66	-6.05	19.44	-25.49	RMS
7	1590.620	4.31	-2.66	1.65	19.44	-17.79	peak
8	1590.620	-5.89	-2.66	-8.55	19.44	-27.99	RMS
9	1600.157	5.19	-2.66	2.53	19.44	-16.91	peak
10	1600.157	-4.81	-2.66	-7.47	19.44	-26.91	RMS
11	1606.940	4.78	-2.67	2.11	19.44	-17.33	peak
12	1606.940	-4.42	-2.67	-7.09	19.44	-26.53	RMS

Remark:

1. $\text{Margin} = \text{Result} (\text{Result} = \text{Reading} + \text{Factor}) - \text{Limit}$
2. $\text{Factor} = \text{Antenna factor} + \text{Cable attenuation factor}(\text{cable loss}) - \text{Amplifier gain}$

60.0 dBuV/m





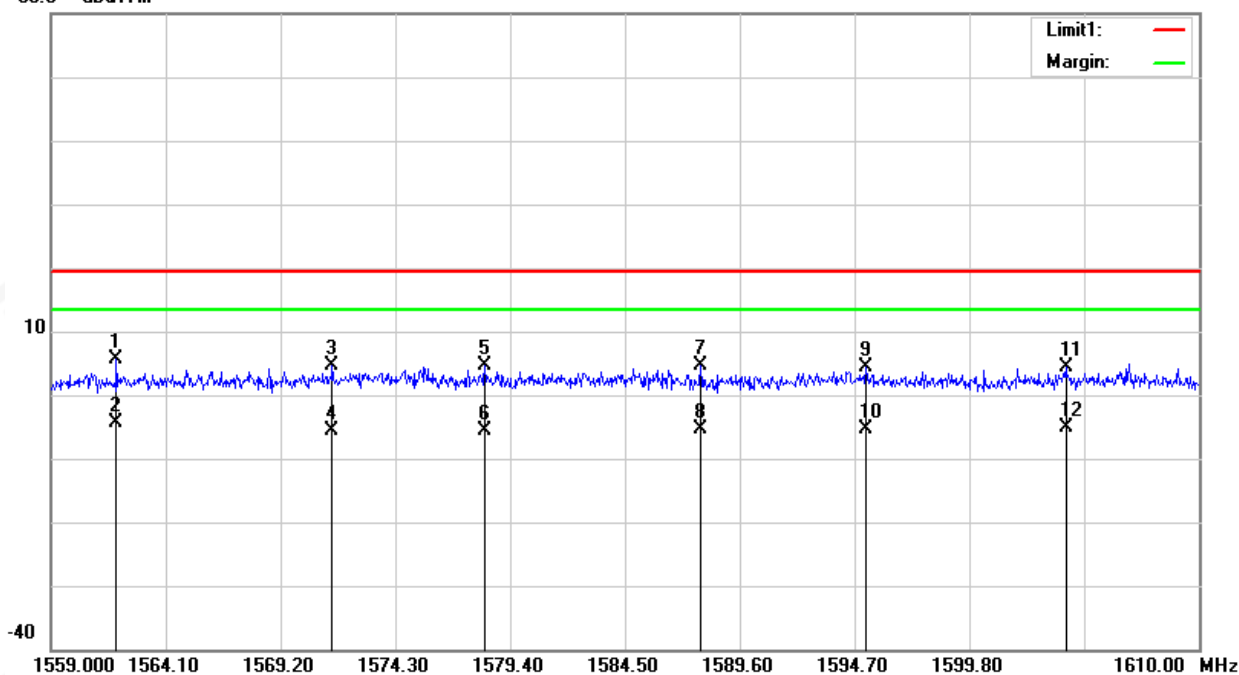
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	CH 1(1559Hz – 1610MHz)	Test distance:	1m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1561.907	8.24	-2.66	5.58	19.44	-13.86	peak
2	1561.907	-1.76	-2.66	-4.42	19.44	-23.86	RMS
3	1571.495	7.27	-2.66	4.61	19.44	-14.83	peak
4	1571.495	-2.93	-2.66	-5.59	19.44	-25.03	RMS
5	1578.278	7.31	-2.66	4.65	19.44	-14.79	peak
6	1578.278	-2.89	-2.66	-5.55	19.44	-24.99	RMS
7	1587.866	7.26	-2.66	4.60	19.44	-14.84	peak
8	1587.866	-2.82	-2.66	-5.48	19.44	-24.92	RMS
9	1595.210	7.15	-2.66	4.49	19.44	-14.95	peak
10	1595.210	-2.65	-2.66	-5.31	19.44	-24.75	RMS
11	1604.084	6.95	-2.67	4.28	19.44	-15.16	peak
12	1604.084	-2.45	-2.67	-5.12	19.44	-24.56	RMS

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

60.0 dBuV/m





4. UWB BANDWIDTH

4.1 LIMITS OF UWB BANDWIDTH MEASUREMENT

The UWB bandwidth of a UWB system operating under the provisions of this section must be contained between 3100 MHz and 10,600 MHz.

At any point in time, has a fractional bandwidth equal to or greater than 0.20 or has a UWB bandwidth equal to or greater than 500 MHz, regardless of the fractional bandwidth.

4.2 INSTRUMENT SETUP VALUE AND MEASUREMENT DISTANCE

Frequency Range	RBW	VBW	Detector	Measurement Distance
3100~10600	1MHz	1MHz	PEAK	1 Meter

4.3 TEST PROCEDURE

- The measuring distance of 1m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarization of the antenna are set to make the measurement.
- All readings are RMS mode value, for each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.
- The Spectrum Analyzer system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- The UWB Bandwidth is measured at the 10 dB point (FL, FH).

Note: Both horizontal and vertical antenna polarities were tested. The worst case emissions were reported.

4.4 TEST SETUP

Same as 3.3.4

4.5 EUT OPERATION CONDITIONS

Same as 3.2.6

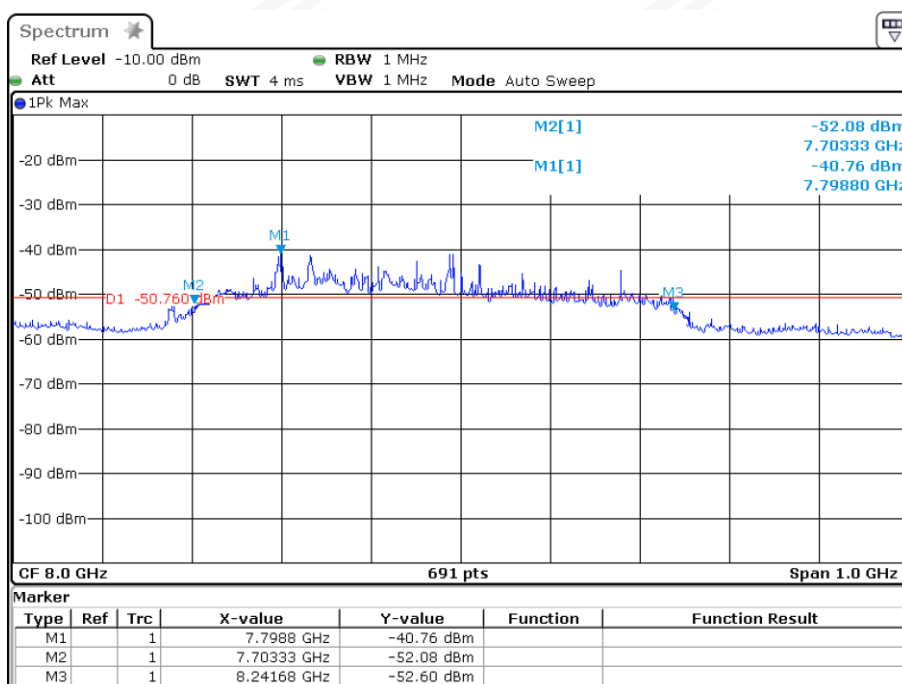


4.6 TEST RESULTS

Temperature:	25 °C	Relative Humidity:	50%
Test Voltage:	AC 120V/60Hz		

Test Channel	fM (MHz)	fL (MHz)	fH (MHz)	-10dB Bandwidth (MHz)	fC (MHz)	Fractional Bandwidth (MHz)	Limit	Result
CH1	7798.8	7703.3	8241.7	538.35	7972.5	0.07	-10dB Bandwidth≥500MHz or Fractional Bandwidth≥0.2	Pass

CH 1





5 PEAK EMISSION WITHIN A 50MHZ BANDWIDTH (FOR 15.517(e))

5.1 LIMITS OF PEAK EMISSION

The Maximum Peak Output Power Measurement is 0dBm(RBW=50MHz).

If a resolution bandwidth other than 50 MHz is Employed, the peak EIRP limit shall be $20 \log (RBW/50)$ dBm where RBW is the resolution bandwidth in megahertz that is employed. The resolution bandwidth used to make the peak measurement was 1MHz, resulting in a limit of -34dBm.

This may be converted to a peak field strength level at 3 meters using

$$E(\text{dBuV/m}) = P(\text{dBm EIRP}) + 95.2 = -34 + 95.2 = 61.2 \text{ dBuV/m}$$

Note: $\text{EIRP}_{1\text{MHz}} = \text{EIRP}_{50\text{MHz}} + 20\log(1\text{MHz} / 50 \text{ MHz}) = 0 \text{ dBm} + -34 \text{ dB} = -34 \text{ dBm}$

5.2 INSTRUMENT SETUP VALUE AND MEASUREMENT DISTANCE

Frequency Range	RBW	VBW	Detector	Measurement Distance
3100~10600	1MHz	3MHz	PEAK	3 Meter

5.3 TEST PROCEDURE

Same as 3.3.2

5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5 TEST SETUP

Same as 3.3.4

5.6 FIELD STRENGTH CALCULATION

Same as 3.2.5

5.7 EUT OPERATING CONDITIONS

Same as 3.2.5



5.8 TEST RESULTS

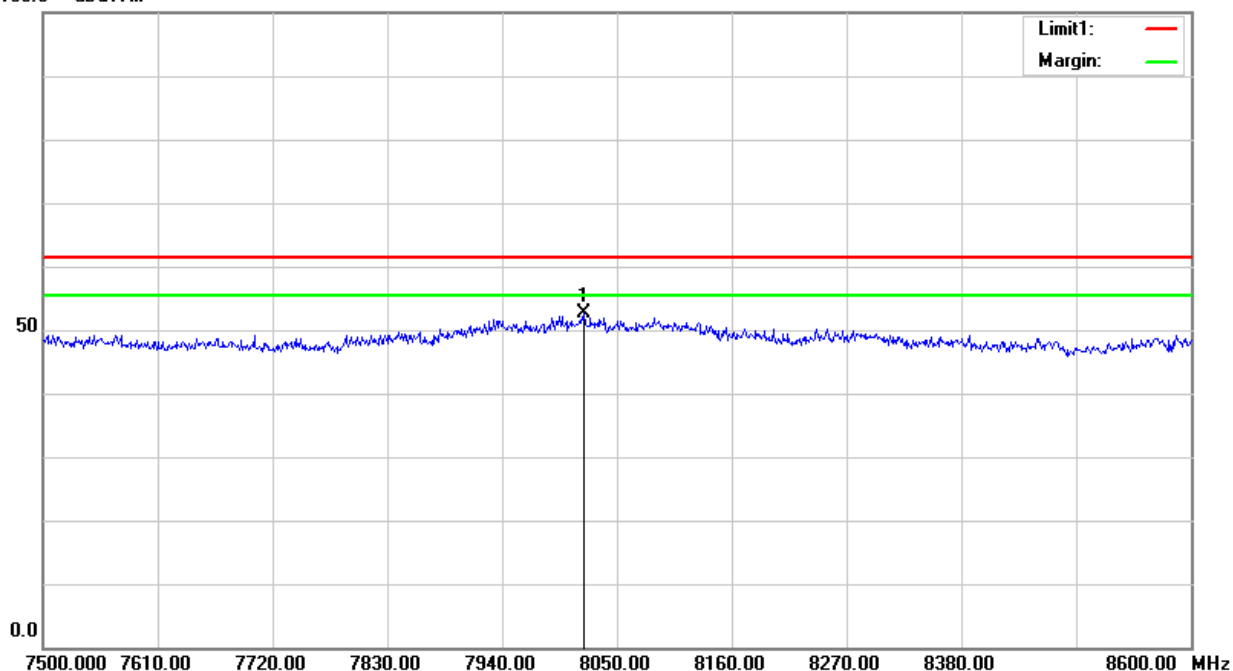
Temperature:	23.4℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	CH 1	Test distance:	3m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7987.300	53.27	-0.54	52.73	61.30	-8.57	peak

Remark:

- Margin = Result (Result = Reading + Factor) – Limit
- Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

100.0 dBuV/m





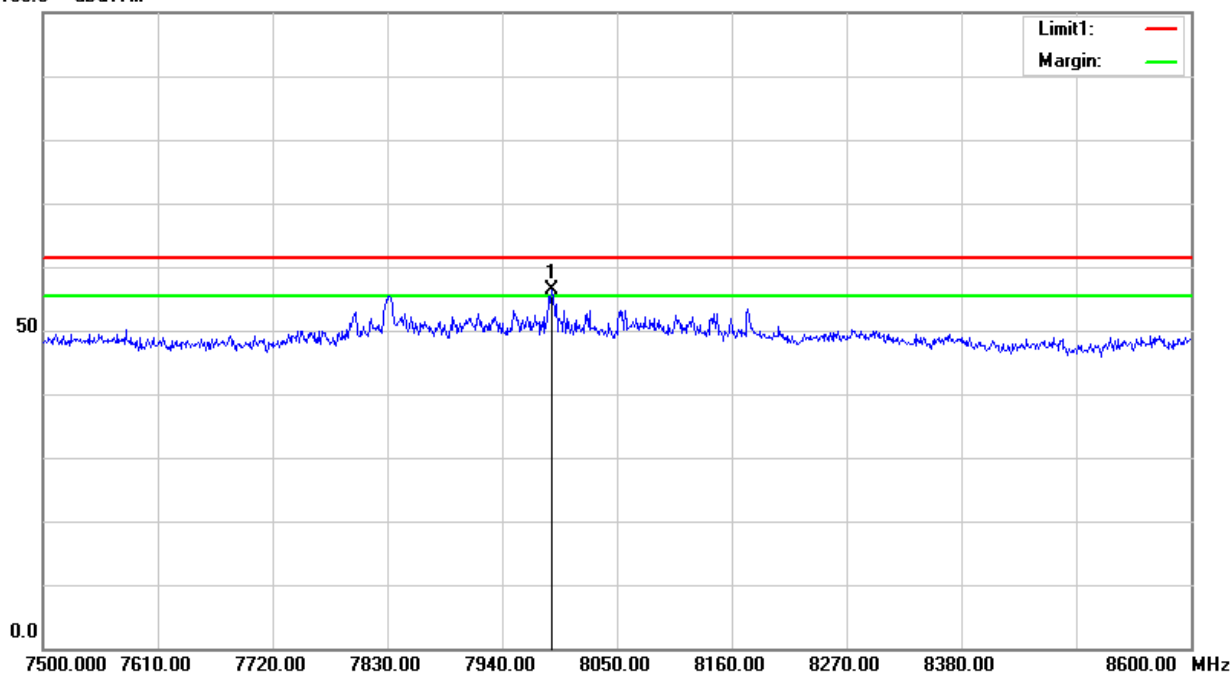
Temperature:	23.1℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60HZ	Phase:	Vertical
Test Mode:	CH 1	Test distance:	3m

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7987.300	57.19	-0.77	56.42	61.30	-4.88	peak

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

100.0 dBuV/m





6. ANTENNA REQUIREMENT

6.1 STANDARD REQUIREMENT

According to the FCC Part 15 Paragraph 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

6.2 EUT ANTENNA

The EUT antenna is PCB Antenna. It conforms to the standard requirements.



APPENDIX- PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

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