

Versa Networks

RF TEST REPORT

Report Type:

FCC Part 15.247 RF report

Model:

CSGXXX-YYY-ZZZ

REPORT NUMBER:

220900385SHA-001

ISSUE DATE:

October 15, 2022

DOCUMENT CONTROL NUMBER:

TTRF15.247-02_V1 © 2018 Intertek





Total Quality. Assured.

TEST REPORT

Intertek Testing Services Shanghai
Building No.86, 1198 Qinzhou Road (North)
Caohejing Development Zone
Shanghai 200233, China

Telephone: 86 21 6127 8200
www.intertek.com

Report no.: 220900385SHA-001

Applicant: Versa Networks
2550 GREAT AMERICA WAY SUITE 350 SANTA CLARA, CA 95054

Manufacturer: Versa Networks
2550 GREAT AMERICA WAY SUITE 350 SANTA CLARA, CA 95054

Product Name: Cloud Services Gateway

Type/Model: CSGXXX-YYY-ZZZ

FCC ID: 2ARF9CSG-BT

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

47CFR Part 15 (2017): Radio Frequency Devices (Subpart C)

ANSI C63.10 (2013): American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

PREPARED BY:

Project Engineer
Dylan Tang

REVIEWED BY:

Reviewer
Wakeyou Wang

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

TEST REPORT**Content**

REVISION HISTORY	4
MEASUREMENT RESULT SUMMARY	5
1 GENERAL INFORMATION	6
1.1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	6
1.2 TECHNICAL SPECIFICATION	7
1.3 DESCRIPTION OF TEST FACILITY	8
2 TEST SPECIFICATIONS	9
2.1 STANDARDS OR SPECIFICATION	9
2.2 MODE OF OPERATION DURING THE TEST.....	9
2.3 TEST SOFTWARE LIST	10
2.4 TEST PERIPHERALS LIST	10
2.5 TEST ENVIRONMENT CONDITION:.....	10
2.6 INSTRUMENT LIST	11
2.7 MEASUREMENT UNCERTAINTY	12
3 MINIMUM 6DB BANDWIDTH	13
3.1 LIMIT	13
3.2 MEASUREMENT PROCEDURE	13
3.3 TEST CONFIGURATION	13
3.4 TEST RESULTS OF MINIMUM 6DB BANDWIDTH	13
<i>Test Graphs</i>	14
4 MAXIMUM CONDUCTED OUTPUT POWER AND E.I.R.P.	15
4.1 LIMIT	15
4.2 MEASUREMENT PROCEDURE	15
4.3 TEST CONFIGURATION	16
4.4 TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER.....	16
<i>Test Graphs Peak</i>	16
5 RADIATED EMISSIONS IN RESTRICTED FREQUENCY BANDS	18
5.1 LIMIT	18
5.2 MEASUREMENT PROCEDURE	18
5.3 TEST CONFIGURATION	20
5.4 TEST RESULTS OF RADIATED EMISSIONS	22
6 POWER LINE CONDUCTED EMISSION	25
6.1 LIMIT	25
6.2 TEST CONFIGURATION	25
6.3 MEASUREMENT PROCEDURE	26
6.4 TEST RESULTS OF POWER LINE CONDUCTED EMISSION.....	27
7 ANTENNA REQUIREMENT	29

TEST REPORT**Revision History**

Report No.	Version	Description	Issued Date
220900385SHA-001	Rev. 01	Initial issue of report	October 15, 2022

TEST REPORT**Measurement result summary**

TEST ITEM	FCC REFERANCE	RESULT
Minimum 6dB Bandwidth	15.247(a)(2)	NA
Maximum conducted output power and e.i.r.p.	15.247(b)(3)	Verified
Power spectrum density	15.247(e)	NA
Emission outside the frequency band	15.247(d)	Pass
Radiated Emissions in restricted frequency bands	15.247(d), 15.205&15.209	Pass
Power line conducted emission	15.207(a)	Pass
Occupied bandwidth	-	NA
Antenna requirement	15.203	Verified

Notes:

- 1: NA =Not Applicable
2. Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.
- 3: Additions, Deviations and Exclusions from Standards: None.
4. Verified= This report is based on the previous report. For specific changes, need to verified power.

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Cloud Services Gateway
Type/Model:	CSGXXX-YYY-ZZZ XXX=750,770 YYY= WLA, 2LA, W, LA, or blank ZZZ= 4GP-120W, 4GF, 8GE, 4DS, or blank
Description of EUT:	The EUT is an Cloud Services Gateway, with Bluetooth function. the EUT provide two slots for optional wireless modules. Maximum two LTE modules can be equipped. There have series models and they used the same main board PCB are electric identical. We choose CSG750-2LA-4GP-120W to test as representative.
Rating:	DC 12V 5A Switching Power Adapter Model No.: FSP060-DHAN3 AC Input:100 -240V~, 1.8A 50-60Hz DC Output:12V---5.0A 60.0W
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	21.2.2
Hardware Version:	V1.0
Serial numbers:	0221019-45-003(for radiation sample), 0221019-45-004(for conduction sample)
Sample received date:	September 2, 2022
Date of test:	September 5, 2022 ~ October 15, 2022

Note:

1. ALL models are listed as below. Model CGS750 is the representative for final test.

Brand	Versa	
Series Models	CSGXXX-YYY-ZZZ XXX=750,770 YYY= WLA, 2LA, W, LA, or blank ZZZ= 4GP-120W, 4GF, 8GE, 4DS, or blank	
Series	CSG750	CGS770
CPU	ATOM C3558 2.2GHz/ 4 cores/FC-BGA 16W	ATOM C3708 1.7GHz/ 8 cores/FC-BGA 17W
LTE Module	Band: Sierra, Model: MC7455, FCC ID :N7NMC7455	
WLAN Module	Band: VERSA NETWORKS, Model: CSG-W1, FCC ID :2ARF9CSG-W1	
BT Module	Band: Qualcomm, Model: CSR8811A12-IQOD-R	
NIC Card	4 ports* 1G RJ45 for NIC-4GP-120W 4 ports* 1G SFP for 4GF	

TEST REPORT

	4 ports* RJ45(T1) for 4DS 8 ports* 1G RJ45 for 8EG
RAM	SODIM DDR4 ECC 4GB SODIM DDR4 ECC 8GB SODIM DDR4 ECC 16GB

2. The EUT consumes power from the following adapter.

Adapter	
Brand	FSP GROUP INC.
Model	FSP060-DHAN3
Input Power	100-240Vac, 1.8A, 50-60Hz
Output Power	12.0Vac, 5.0A 60W
Power Line	1.15m non-shielded power cable with one core

POE Module Adapter	
Brand	DELTA ELECTRONICS, INC.
Model	ADP-150AR B
Input Power	100-240Vac, 2A, 50-60Hz
Output Power	54VDC, 2.78A
Power Line	1.45m DC cable

1.2 Technical Specification

Frequency Range:	2402-2480MHz
Support Standards:	IEEE 802.15.1
Type of Modulation:	GFSK
Channel Number:	40
Data Rate:	1Mbps, 2Mbps
Channel Separation:	2MHz
Antenna Information:	-1.86dBi, PCB antenna

TEST REPORT**1.3 Description of Test Facility**

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab Registration code No.: 2042B-1
	VCCI Registration Lab Registration No.: R-4243, G-845, C-4723, T-2252
	NVLAP Accreditation Lab NVLAP LAB CODE: 200849-0
	A2LA Accreditation Lab Certificate Number: 3309.02

TEST REPORT**2 TEST SPECIFICATIONS****2.1 Standards or specification**

47CFR Part 15 (2017)

ANSI C63.10 (2013)

KDB 558074 (v05)

2.2 Mode of operation during the test

The lowest, middle and highest channel were tested as representatives.

Frequency Band (MHz)				2402 ~ 2480			
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

Data rate VS Power:

The test setting software is offered by the manufactory. The pre-scan for the conducted power with all rates in each modulation and bands was used, and the worst case was found and used in all test cases.

Test software and Power Setting parameter			
Test Software	CSR BlueSuite		
Working Mode	BLE		
Test Channel	2402MHz	2440MHz	2480MHz
Power Setting	default	default	default

TEST REPORT

While testing transmitting mode of EUT, the internal modulation and continuously transmission was applied.

Radiated test mode: EUT transmitted signal with BT antenna;

Conducted test mode: EUT transmitted signal from BT RF port connected to SPA directly;

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

2.4 Test peripherals list

Item No.	Name	Band and Model	Description
1	Laptop computer	DELL 5480	-
2	RF cable	/	0.2m length; 0.5dB loss

2.5 Test environment condition:

Test items	Temperature	Humidity
Minimum 6dB Bandwidth	23°C	52% RH
Maximum conducted output power and e.i.r.p.		
Power spectrum density		
Emission outside the frequency band		
Occupied bandwidth		
Radiated Emissions in restricted frequency bands	22°C	55% RH
Power line conducted emission	21°C	52% RH

TEST REPORT
2.6 Instrument list

Conducted Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESCS 30	EC 2107	2023-07-18
<input checked="" type="checkbox"/>	A.M.N.	R&S	ESH2-Z5	EC 3119	2022-11-09
<input type="checkbox"/>	A.M.N.	R&S	ENV4200	EC 3558	2023-06-04
<input checked="" type="checkbox"/>	Attenuator	Huaxiang	TS5-10dB-6G-B	21062303	2023-04-24
<input checked="" type="checkbox"/>	Shielded room	Zhongyu	-	EC 2838	2023-01-12
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESIB 26	EC 3045	2022-10-19
<input checked="" type="checkbox"/>	Test Receiver	Keysight	N9030A	EC 5338	2023-03-14
<input checked="" type="checkbox"/>	Bilog Antenna	TESEQ	CBL 6112B	EC 6411	2023-08-23
<input checked="" type="checkbox"/>	Horn antenna	R&S	HF 906	EC 3049	2023-01-17
<input checked="" type="checkbox"/>	Horn antenna	ETS	3117	EC 4792-1	2023-06-27
<input checked="" type="checkbox"/>	Horn antenna	TOYO	HAP18-26W	EC 4792-3	2023-07-29
<input checked="" type="checkbox"/>	Pre-amplifier	R&S	AFS42-00101800-25-S-42	EC 5262	2023-06-04
<input checked="" type="checkbox"/>	Semi-anechoic chamber	Albatross project	-	EC 3048	2023-07-13
RF test					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	PXA Signal Analyzer	Keysight	N9030A	EC 5338	2023-03-14
<input checked="" type="checkbox"/>	PXA Signal Analyzer	Keysight	N9030B	EC 6078	2023-06-04
<input checked="" type="checkbox"/>	Power sensor	Agilent	U2021XA	EC 5338-1	2023-03-14
<input checked="" type="checkbox"/>	Vector Signal Generator	Agilent	N5182B	EC 5175	2023-03-14
<input checked="" type="checkbox"/>	MXG Analog Signal Generator	Agilent	N5181A	EC 5338-2	2023-03-14
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESCI 7	EC 4501	2022-12-09
<input type="checkbox"/>	Universal Radio Communication Tester	R&S	CMW500	EC5944	2023-01-20
<input type="checkbox"/>	Universal Radio Communication Tester	R&S	CMW500	Ec6209	2023-01-20
<input checked="" type="checkbox"/>	Signal generator	Agilent	N5182A	Ec6172	2023-08-18
<input checked="" type="checkbox"/>	Signal generator	Agilent	N5181A	Ec6171	2023-08-18
<input checked="" type="checkbox"/>	Climate chamber	GWS	MT3065	EC 6021	2023-03-06
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3783	2023-03-24
<input checked="" type="checkbox"/>	Pressure meter	YM3	Shanghai Mengde	EC 4620	2023-09-13

TEST REPORT**2.7 Measurement uncertainty**

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

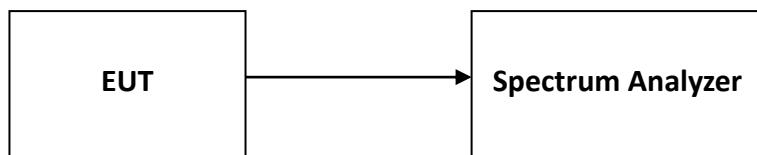
Test item	Measurement uncertainty
Maximum peak output power	
Minimum 6dB bandwidth	
Power spectrum density	± 0.74dB
Emission outside the frequency band	
Occupied bandwidth	
Radiated Emissions in restricted frequency bands below 1GHz	± 4.90dB
Radiated Emissions in restricted frequency bands above 1GHz	± 5.02dB
Emission outside the frequency band	± 2.89dB
Power line conducted emission	± 3.19dB

TEST REPORT**3 Minimum 6dB bandwidth****Test result:** **Pass****3.1 Limit**

For systems using digital modulation techniques that may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz bands, the minimum 6 dB bandwidth shall be at least 500 kHz.

3.2 Measurement Procedure

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.3 Test Configuration**3.4 Test Results of Minimum 6dB bandwidth**

Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.692	2401.676	2402.368	0.5	PASS
		2440	0.700	2439.652	2440.352	0.5	PASS
		2480	0.692	2479.656	2480.348	0.5	PASS

TEST REPORT

Test Graphs



TEST REPORT**4 Maximum conducted output power and e.i.r.p.**

Test result: Pass

4.1 Limit

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 W. (The e.i.r.p. shall not exceed 4 W)

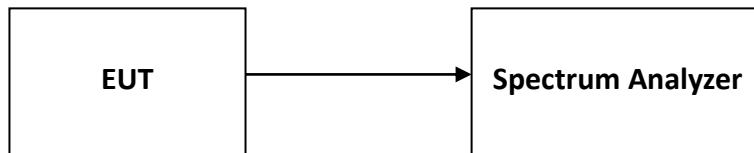
If the transmitting antenna of directional gain greater than 6dBi is used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. If there have a beam forming type, the limit should be the minimum of 30dBm and 30+ (6 –antenna gain-beam forming gain).

4.2 Measurement Procedure

- a) Set the RBW \geq DTS bandwidth.
- b) Set VBW $\geq 3 \times$ RBW.
- c) Set span $\geq 3 \times$ RBW
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

TEST REPORT

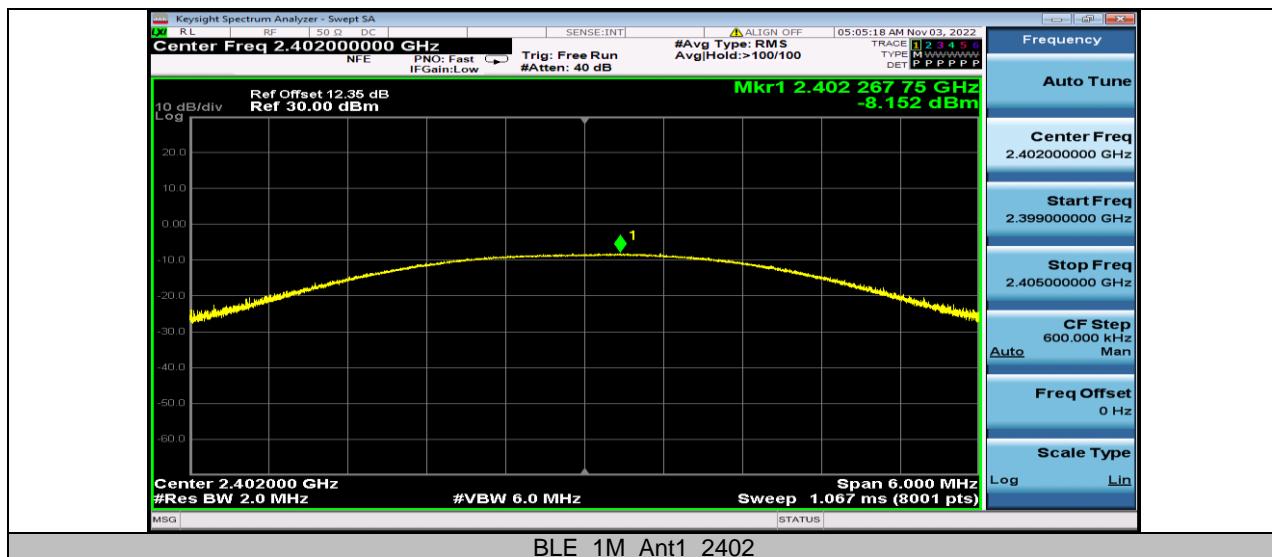
4.3 Test Configuration



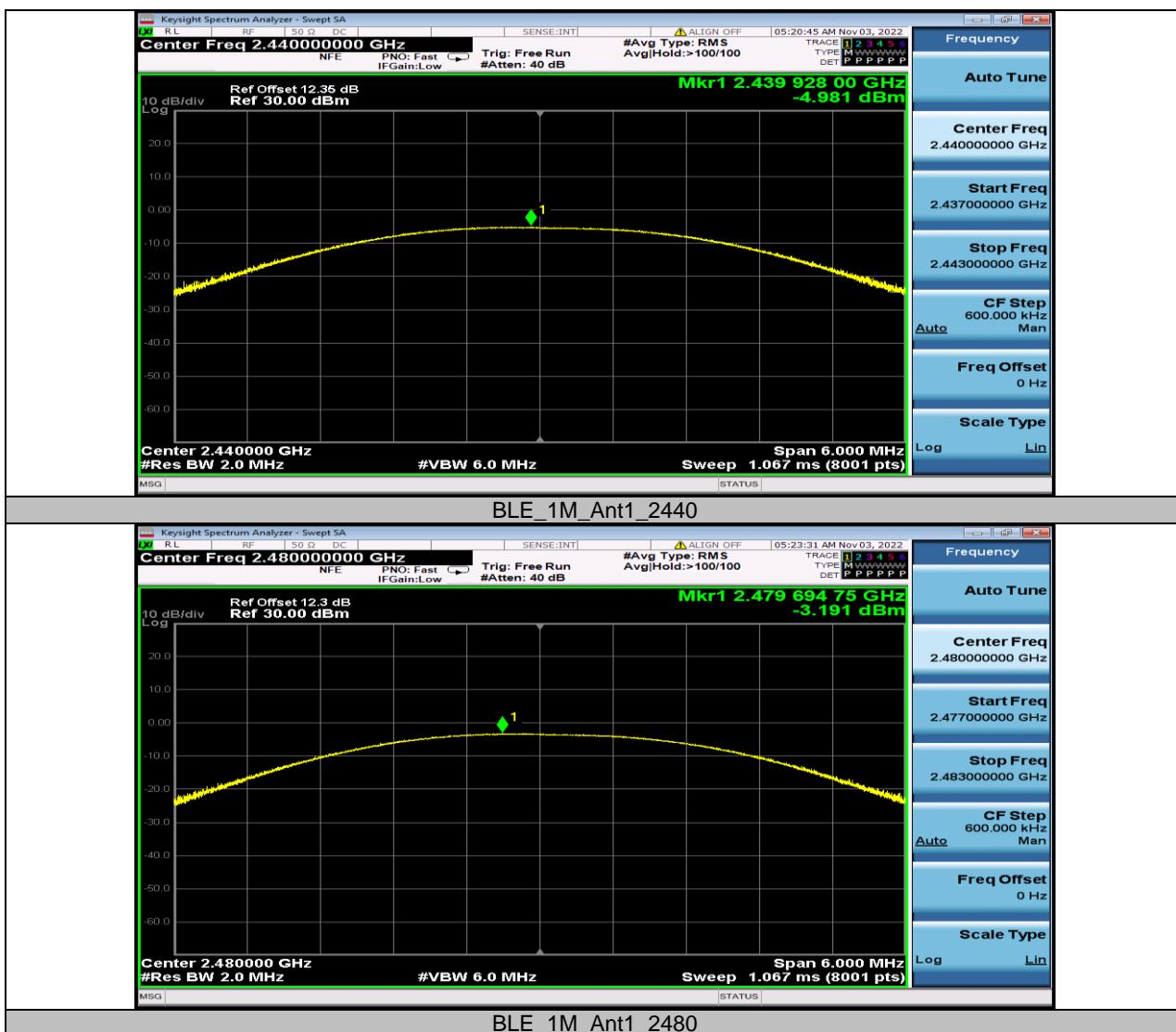
4.4 Test Results of Maximum conducted output power

Test Mode	Antenna	Frequency [MHz]	Conducted Peak Power [dBm]	Conducted Limit [dBm]	Verdict
BLE_1M	Ant1	2402	-8.15	≤30	PASS
		2440	-4.98	≤30	PASS
		2480	-3.19	≤30	PASS

Test Graphs Peak



TEST REPORT



TEST REPORT**5 Radiated Emissions in restricted frequency bands****Test result:** Pass**5.1 Limit**

The radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified showed as below:

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

5.2 Measurement Procedure**For Radiated emission below 30MHz:**

- a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) Both X and Y axes of the antenna are set to make the measurement.
- d) For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e) The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

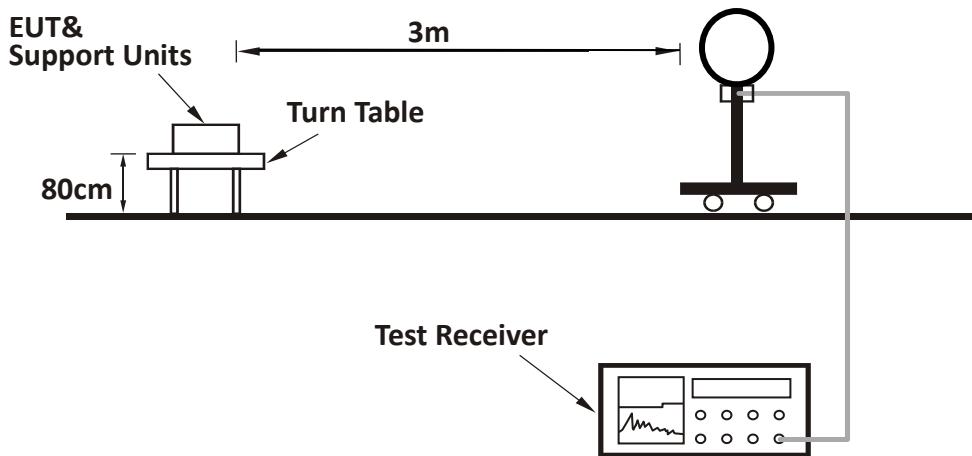
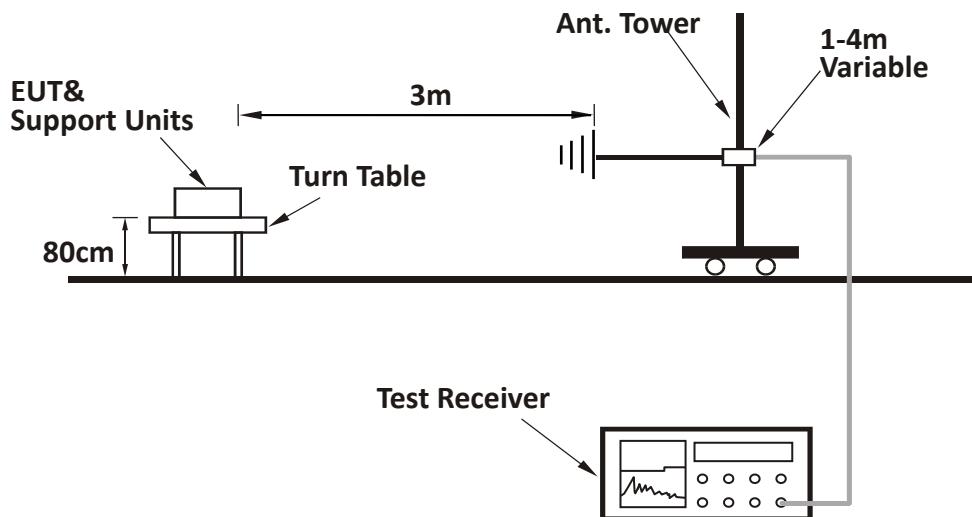
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

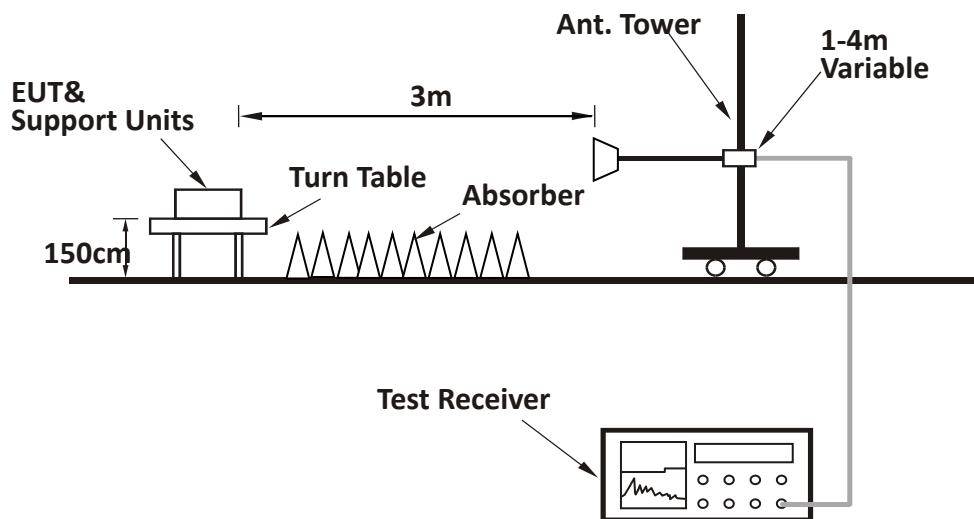
TEST REPORT**For Radiated emission above 30MHz:**

- a) The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d) 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.
- e) The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f) The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or $3 \times RBW$ (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported

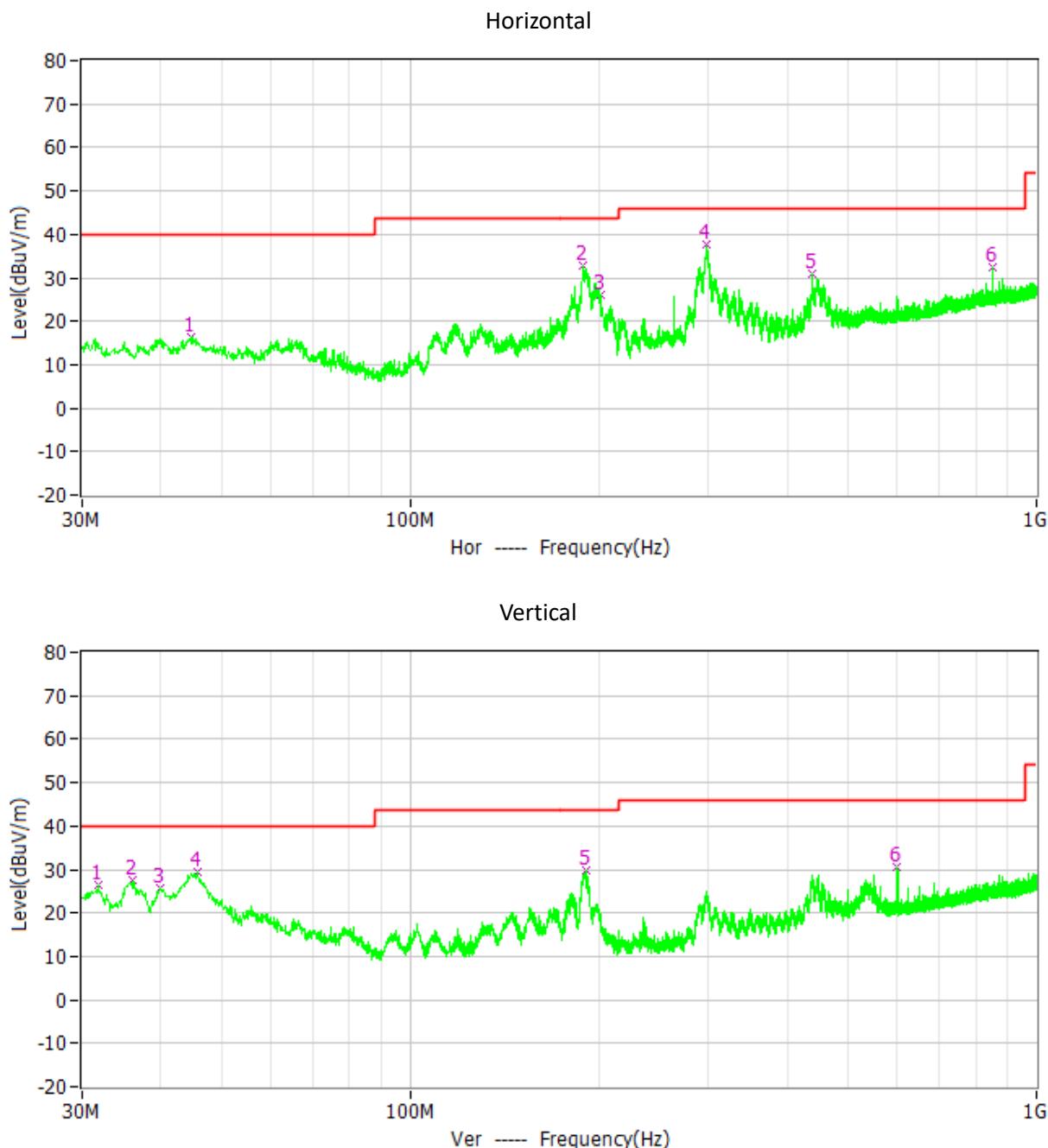
TEST REPORT**5.3 Test Configuration****For Radiated emission below 30MHz:****For Radiated emission 30MHz to 1GHz:**

TEST REPORT**For Radiated emission above 1GHz:**

TEST REPORT**5.4 Test Results of Radiated Emissions**

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

The worst waveform from 30MHz to 1000MHz is listed as below:



TEST REPORT**Test data below 1GHz**

Antenna	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector
H	44.647	16.3	14.1	40.0	23.7	PK
H	189.371	32.7	12.3	43.5	10.8	PK
H	201.496	26.0	11.4	43.5	17.5	PK
H	297.720	37.5	15.1	46.0	8.5	PK
H	437.497	30.8	18.5	46.0	15.2	PK
H	850.038	32.5	25.9	46.0	13.5	PK
V	31.843	26.3	13.0	40.0	13.7	PK
V	36.014	27.4	13.4	40.0	12.6	PK
V	39.991	25.6	13.8	40.0	14.4	PK
V	45.714	29.4	14.2	40.0	10.6	PK
V	190.632	29.8	12.2	43.5	13.7	PK
V	599.972	30.7	22.2	46.0	15.3	PK

TEST REPORT
Test result above 1GHz:

The emission was conducted from 1GHz to 25GHz

CH	Antenna	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector
L	H	2402.00	84.4	32.5	Fundamental	/	PK
	V	2402.00	83.1	32.5	Fundamental	/	PK
	H	2390.00	47.0	32.5	74.00	27.0	PK
	V	2390.00	47.9	32.5	74.00	26.1	PK
	H	4782.00	49.0	-14.3	74.00	25.0	PK
	H	7206.00	39.6	-8.7	74.00	34.4	PK
	V	4782.00	50.9	-14.3	74.00	23.1	PK
	V	7206.00	41.6	-8.7	74.00	32.4	PK
M	H	4880.00	50.1	-14.0	74.00	23.9	PK
	H	7320.00	42.4	-8.5	74.00	31.6	PK
	V	4880.00	51.9	-14.0	74.00	22.1	PK
	V	7320.00	45.4	-8.5	74.00	28.6	PK
H	H	2480.00	95.7	32.8	Fundamental	/	PK
	V	2480.00	96.4	32.8	Fundamental	/	PK
	H	2483.50	51.9	32.9	74.00	22.1	PK
	V	2483.50	52.5	32.9	74.00	21.5	PK
	H	4952.00	54.2	-13.7	74.00	19.8	PK
	H	7440.00	41.7	-8.2	74.00	32.3	PK
	V	4952.00	55.0	-13.7	74.00	19.0	PK
	V	7440.00	44.1	-8.2	74.00	29.9	PK

Remark:

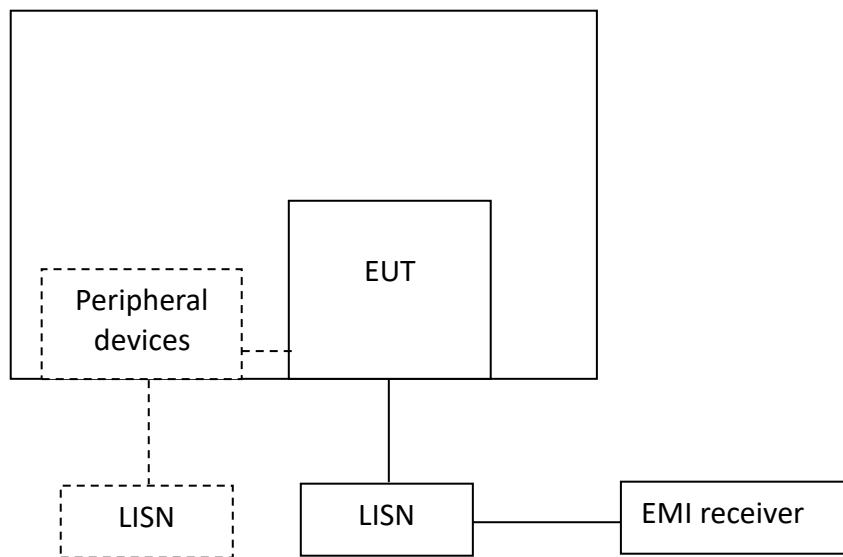
1. Correct Factor = Antenna Factor + Cable Loss (- Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,
 Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10.00dBuV,
 Limit = 40.00dBuV/m.
 Then Correct Factor = $30.20 + 2.00 - 32.00 = 0.20$ dB/m;
 Corrected Reading = $10\text{dBuV} + 0.20\text{dB/m} = 10.20\text{dBuV/m}$;
 Margin = $40.00\text{dBuV/m} - 10.20\text{dBuV/m} = 29.80\text{dB}$.

TEST REPORT**6 Power line conducted emission**Test result: **Pass****6.1 Limit**

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

* Decreases with the logarithm of the frequency.

6.2 Test Configuration

TEST REPORT**6.3 Measurement Procedure**

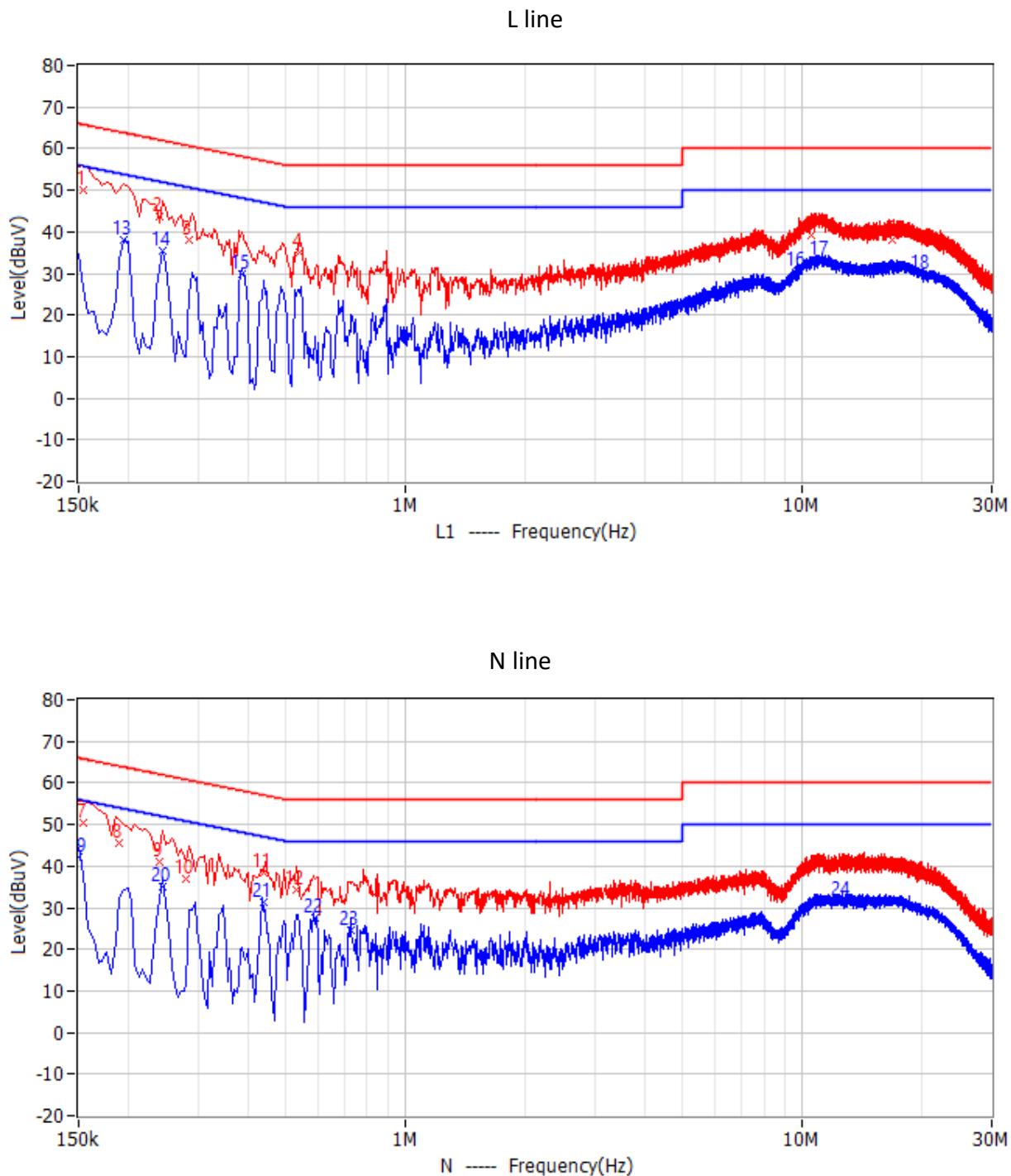
Measured levels of ac power-line conducted emission shall be the emission voltages from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), where permitted, terminated into a 50 Ω measuring instrument. All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer. For those measurements using a LISN, the 50 Ω measuring port is terminated by a measuring instrument having 50 Ω input impedance. All other ports are terminated in 50 Ω loads.

Tabletop devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on the reference ground-plane or on insulating material as described in ANSI C63.4. All other surfaces of tabletop or floor-standing EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs.

The bandwidth of the test receiver is set at 9 kHz.

TEST REPORT**6.4 Test Results of Power line conducted emission**

Test Voltage: 120V/60Hz



TEST REPORT
Test Data:

No.	Frequency	Limit dBuV	Level dBuV	Margin dB	Reading dBuV	Factor dB	Detector	Phase
1	154.500kHz	65.8	50.2	15.5	44.0	6.2	QP	L1
2	240.000kHz	62.1	43.8	18.3	37.6	6.2	QP	L1
3	285.000kHz	60.7	37.9	22.7	31.7	6.2	QP	L1
4	541.500kHz	56.0	35.0	21.0	28.8	6.2	QP	L1
5	10.554MHz	60.0	39.3	20.7	33.0	6.3	QP	L1
6	16.881MHz	60.0	37.9	22.1	31.5	6.4	QP	L1
7	154.500kHz	65.8	50.5	15.2	44.2	6.3	QP	N
8	190.500kHz	64.0	45.7	18.3	39.5	6.2	QP	N
9	240.000kHz	62.1	41.0	21.1	34.8	6.2	QP	N
10	280.500kHz	60.8	37.0	23.8	30.8	6.2	QP	N
11	438.000kHz	57.1	38.3	18.8	32.0	6.3	QP	N
12	532.500kHz	56.0	34.2	21.8	27.9	6.3	QP	N
13	195.000kHz	53.8	37.9	15.9	31.7	6.2	AV	L1
14	244.500kHz	51.9	35.5	16.4	29.3	6.2	AV	L1
15	388.500kHz	48.1	29.8	18.3	23.6	6.2	AV	L1
16	9.749MHz	50.0	30.6	19.4	24.3	6.3	AV	L1
17	11.090MHz	50.0	33.0	17.0	26.7	6.3	AV	L1
18	19.982MHz	50.0	29.8	20.2	23.4	6.4	AV	L1
19	150.000kHz	56.0	42.1	13.9	35.9	6.2	AV	N
20	244.500kHz	51.9	35.2	16.8	29.0	6.2	AV	N
21	438.000kHz	47.1	31.2	15.9	24.9	6.3	AV	N
22	591.000kHz	46.0	27.5	18.5	21.2	6.3	AV	N
23	726.000kHz	46.0	24.6	21.4	18.3	6.3	AV	N
24	12.602MHz	50.0	31.6	18.4	25.2	6.4	AV	N

Remark:

1. Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.
2. Level = Reading + Factor
3. Margin = Limit - Level
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

TEST REPORT**7 Antenna requirement****Requirement:**

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

Result:

EUT uses permanently attached antenna to the intentional radiator, so it can comply with the provisions of this section.

***** END *****