

Human Active Technology, LLC

RF TEST REPORT

Report Type:
FCC Part 15C RF report

Model:
PWR-ACC-WRLS, PWR-ACC-WRLS-STRP

REPORT NUMBER:
240300858SHA-001

ISSUE DATE:
June 27, 2024

DOCUMENT CONTROL NUMBER:
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Factory : Shanghai Arex Electronics Co., Ltd
No. 789 Jiaxin Road Jiading District Shanghai , China | 201818

FCC ID : 2BGFH-PWRWRLS

SUMMARY:

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

47CFR Part 15 (2023): Radio Frequency Devices (Subpart C)

ANSI C63.10 (2020): American National Standard of Procedures for Compliance Testing of
Unlicensed Wireless Devices

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Reviewer

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TEST REPORT**Revision History**

Report No.	Version	Description	Issued Date
240300858SHA-001	Rev. 01	Initial issue of report	June 27, 2024

TEST REPORT**Measurement result summary**

TEST ITEM	FCC REFERENCE	RESULT
Radiated emissions	15.209	Pass
Conducted emissions	15.207	Pass

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.

TEST REPORT**1 GENERAL INFORMATION****1.1 Description of Equipment Under Test (EUT)**

Product name:	FPDU
Type/Model:	PWR-ACC-WRLS, PWR-ACC-WRLS-STRP
Description of EUT:	The EUT is a smart socket outlet which supports Wireless Charger function. There are two models in all. Their electrical structure is the same, the only difference is that one of the products with an additional direct plug check. We test model PWR-ACC-WRLS-STRP and list the wors data in this report.
Rating:	PWR-ACC-WRLS: 125V,15A,60Hz, total:65W max, USB-C1 output:5V3A,9V3A,12V3A15V3A,20V3.25A;65W max, USB-C2 output:5V3A,9V2.22A,12V1.67A;20W max, USB-A output:5V3A,9V2A,12V1.5A;18W max Wireless charging: QI 5W,7.5W,15W(max) PWR-ACC-WRLS-STRP: PWR-STR-125V,15A,60Hz;PWR-ACC-125V,12A,60Hz, USB-C1 output:5V3A,9V3A,12V3A,15V3A,20V3.25A;65W max, USB-C2 output:5V3A, 9V2.22A, 12V1.67A;20W max, USB-A output: 5V3A, 9V2A, 12V1.5A; 18W Wireless charging: QI 5W, 7.5W, 15W(max) Total:65W max
Category of EUT:	Class B
EUT type:	<input checked="" type="checkbox"/> Tabletop <input type="checkbox"/> Floor standing
Software Version:	/
Hardware Version:	/
Sample number:	A240319-22
Sample received date:	March 19, 2024
Date of test:	April 10-April 26, 2024

1.2 Technical Specification

Frequency Range:	111kHz – 205kHz
Modulation:	FSK
Antenna:	Coil 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 CAB identifier.: CN0014
	VCCI Registration Lab Member No: 3598 (Registration No.: R-14243, G-10845, C-14723, T-12252)
	A2LA Accreditation Lab Certificate Number: 3309.02

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

47CFR Part 15 (2023)
ANSI C63.10 (2020)

2.2 Mode of operation during the test

Within this test report, EUT was tested under all available operation modes and tested under its rating voltage and frequency. Other voltage and frequency are specified if used.

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	Brand and Model	Description
1	Wireless load	iphone 15	100% power level
2	Wireless load	iphone 15	50% power level
3	Wireless load	iphone 15	0% power level

2.5 Test environment condition:

Test items	Temperature	Humidity
Radiated emission	25°C	54% RH
Power line conducted emission	24°C	54% 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	ESR7	EC 6194	2024-08-08
<input checked="" type="checkbox"/>	A.M.N.	R&S	ESH2-Z5	EC 3119	2024-11-08
<input checked="" type="checkbox"/>	Shielding room	Zhongyu	-	EC 2838	2024-10-11
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Test Receiver	R&S	ESIB 26	EC 3045	2024-07-18
<input checked="" type="checkbox"/>	Bilog Antenna	TESEQ	CBL 6112B	EC 6411	2024-08-23
<input type="checkbox"/>	Horn antenna	Tonscend	bha9120d	EC 6432-2	2024-08-15
<input type="checkbox"/>	Pre-amplifier	Tonscend	tap01018050	EC 6432-1	2024-12-07
<input checked="" type="checkbox"/>	Active loop antenna	Schwarzbeck	FMZB1519	EC 5345	2024-09-15
<input checked="" type="checkbox"/>	Semi-anechoic chamber	Albatross project	-	EC 3048	2024-10-08
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
<input checked="" type="checkbox"/>	Thermo-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3783	2024-09-24
<input checked="" type="checkbox"/>	Pressure meter	YM3	Shanghai Mengde	EC 4620	2024-09-12

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.

Measurement	Frequency	Expanded Uncertainty (k=2)
Conducted emission at mains ports	9kHz ~ 150kHz	3.52 dB
	150kHz ~ 30MHz	3.19 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.90 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.02 dB
	6GHz ~ 18GHz	5.28 dB

TEST REPORT**3 Radiated emissions.****Test result:** **Pass****3.1 Limit**

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

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

- a) The EUT was placed on the top of a rotating table 0.1 meters above the ground at a 3 meters 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.

For Radiated emission above 30MHz:

- a) The EUT was placed on the top of a rotating table 0.1 meters above the ground at 3 meters 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.

TEST REPORT

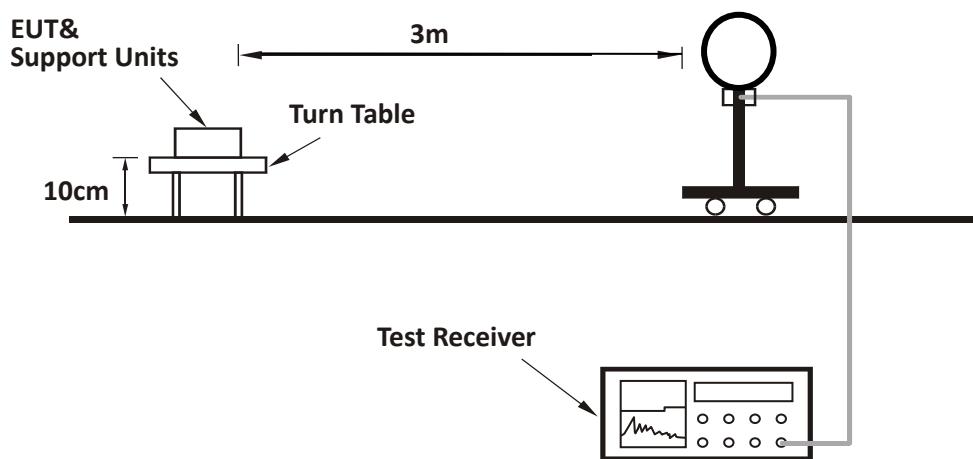
- d) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e) The test-receiver system was set to quasi-peak detect function 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.

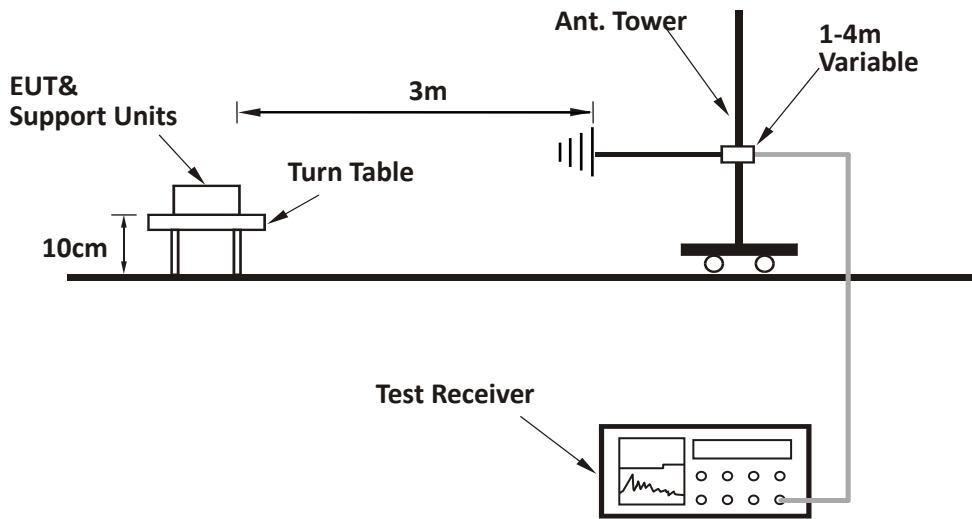
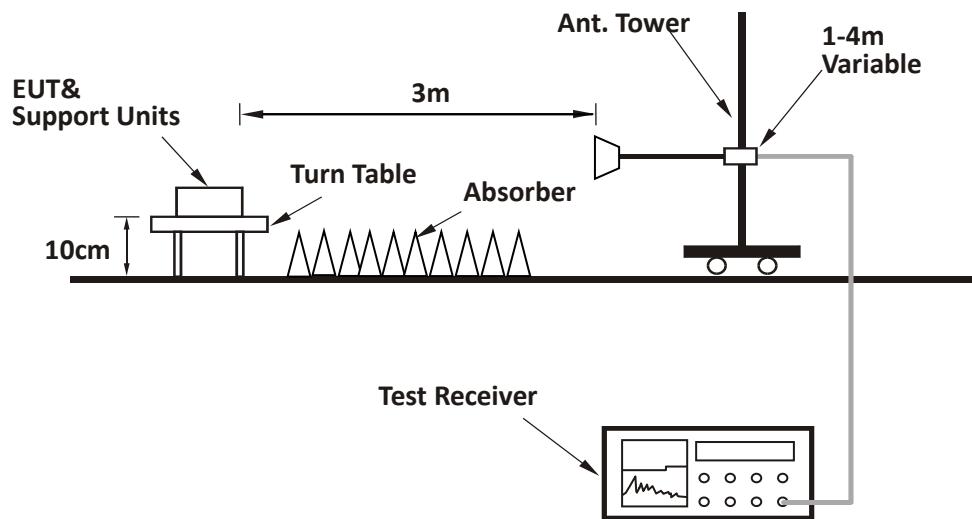
Note:

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. All modes of operation were evaluated and the worst-case emissions were reported

3.3 Test Configuration

For Radiated emission below 30MHz:



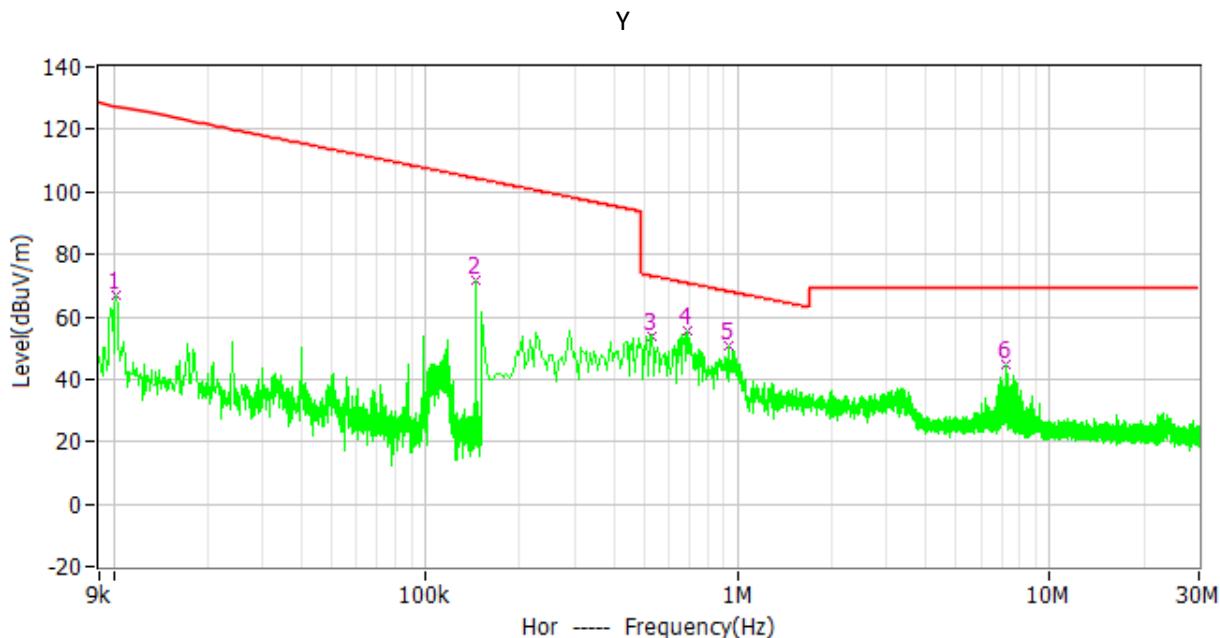
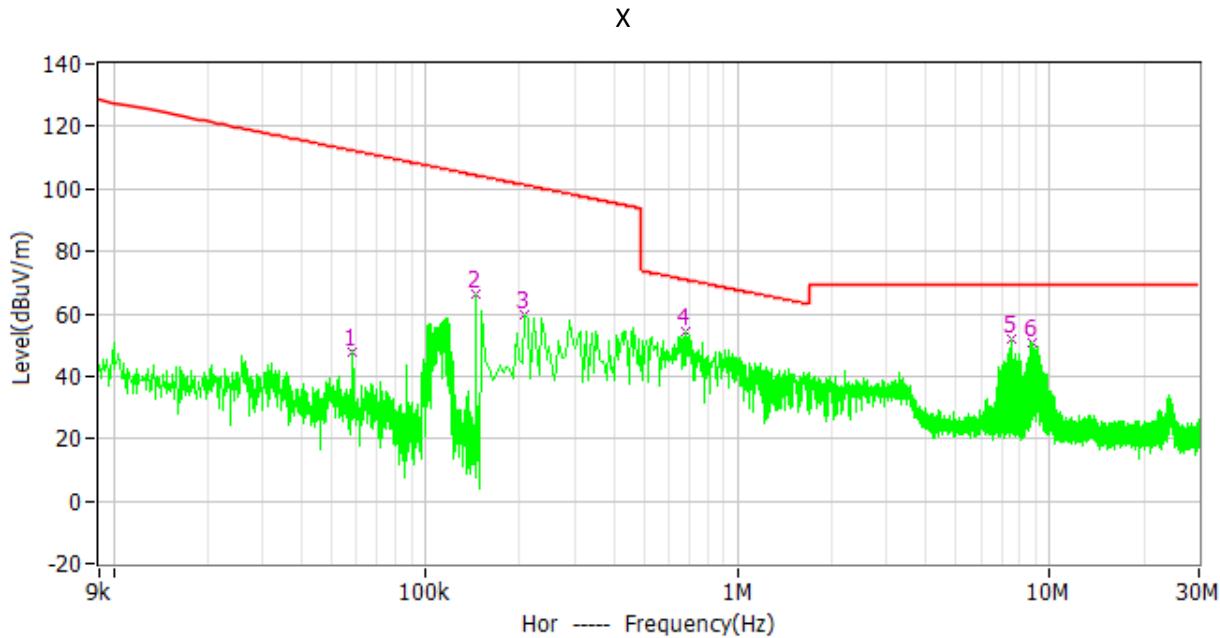
TEST REPORT
For Radiated emission 30MHz to 1GHz:

For Radiated emission above 1GHz:


TEST REPORT**3.4 Test Results of Radiated Emissions**

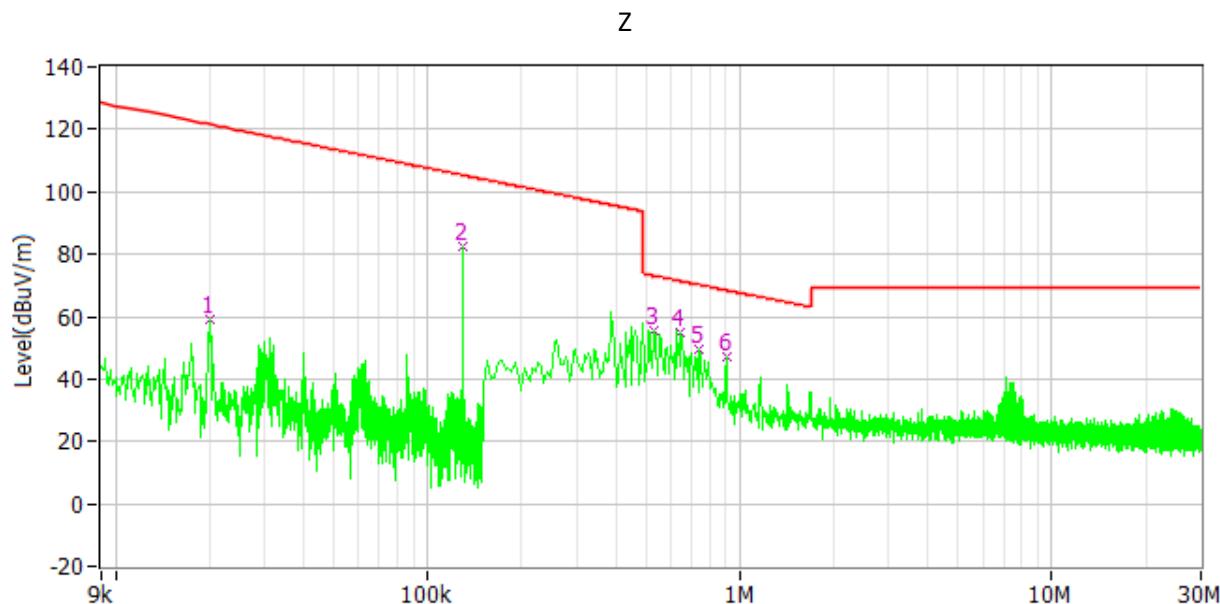
EUT was tested with empty load, half load and full load, the full load is the worst case and we listed the results in the report.

Below 30MHz:

Test Curve:



TEST REPORT

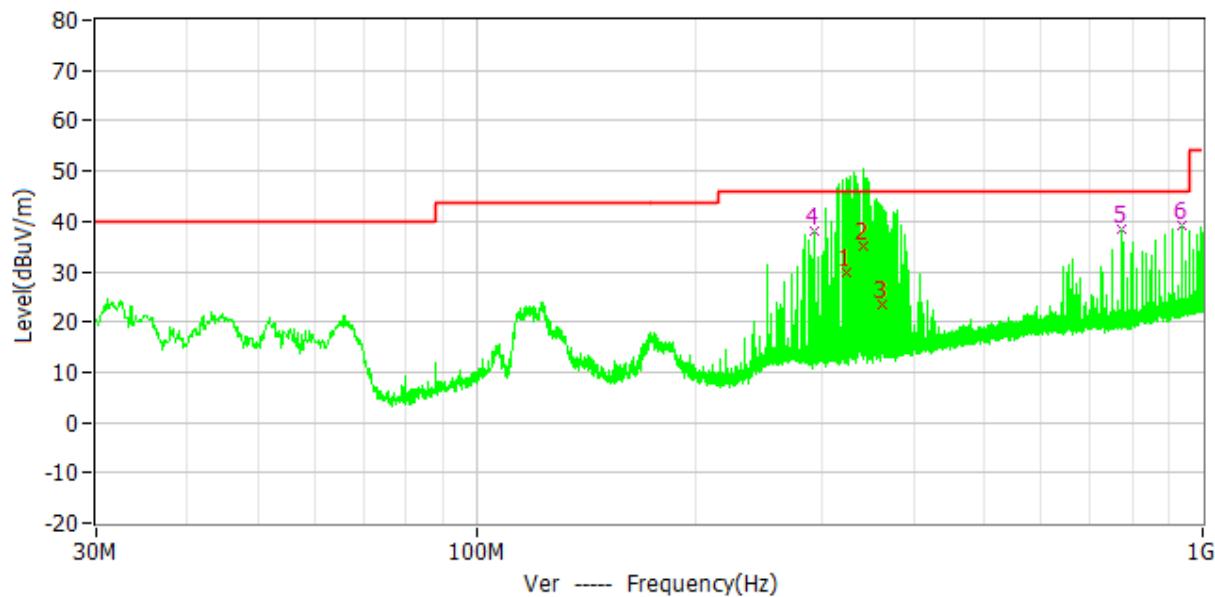
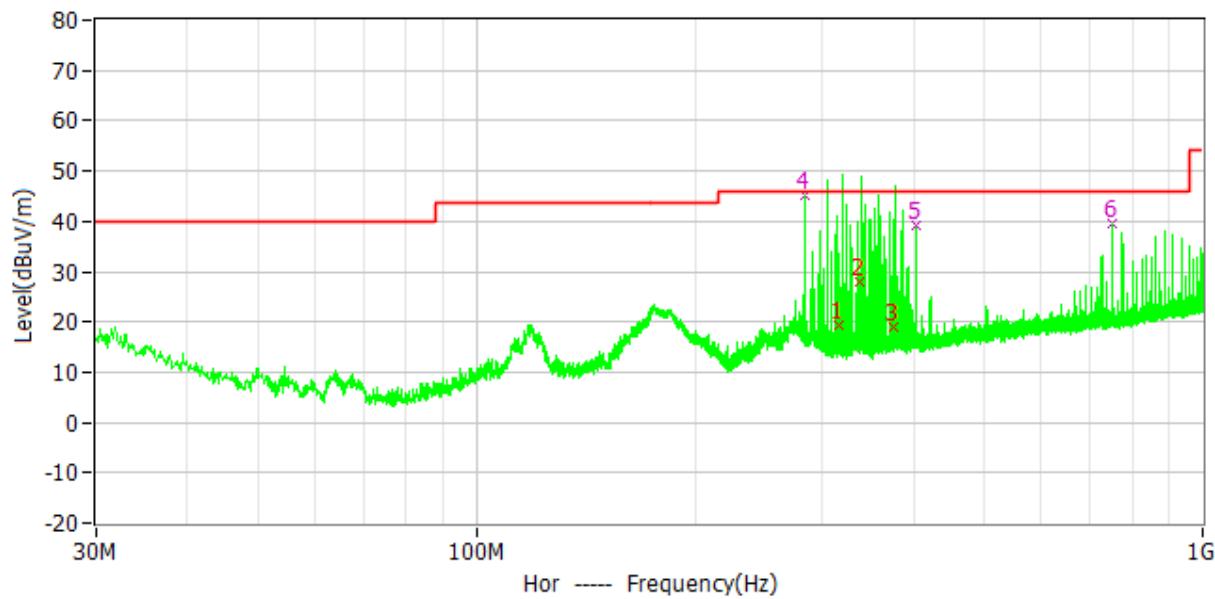


Test Data:

Antenna Polarization	Frequency (kHz)	Limit (dBµV/m)	Level (dBµV/m)	Delta	Factor (dB)	Detector	Remark
X	58.30	112.3	48.0	64.2	20.1	PK	Spurious
X	144.70	104.4	66.1	38.3	20.1	PK	Fundamental
X	208.50	101.2	59.9	41.4	20.0	PK	Spurious
X	676.50	71.0	54.6	16.4	20.2	PK	Spurious
X	7539.00	69.5	52.1	17.4	20.4	PK	Spurious
X	8714.00	69.5	50.8	18.7	20.4	PK	Spurious
Y	10.20	127.4	66.9	60.5	20.1	PK	Spurious
Y	144.70	104.4	71.9	32.5	20.1	PK	Fundamental
Y	528.00	73.2	54.0	19.1	20.2	PK	Spurious
Y	685.50	70.9	55.8	15.1	20.2	PK	Spurious
Y	937.50	68.2	51.0	17.2	20.1	PK	Spurious
Y	7251.00	69.5	44.9	24.6	20.4	PK	Spurious
Z	10.10	127.5	53.6	73.9	20.1	PK	Spurious
Z	117.80	106.2	59.8	46.3	20.1	PK	Spurious
Z	144.70	104.4	70.3	34.1	20.1	PK	Fundamental
Z	451.50	94.5	59.5	35.0	20.1	PK	Spurious
Z	7445.00	69.5	51.4	18.1	20.4	PK	Spurious
Z	8808.00	69.5	51.7	17.8	20.4	PK	Spurious

TEST REPORT**30MHz to 1000MHz:**

Test Curve:



TEST REPORT

Test Data:

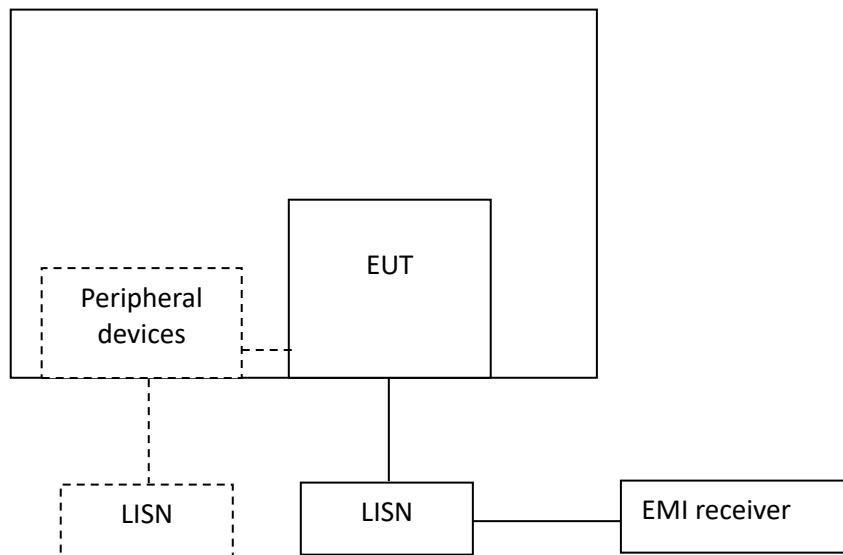
Frequency (MHz)	Limit dBuV/m	Level dBuV/m	Delta dB	Reading dBuV	Factor dB/m	Detector	Polar
316.06	46.0	19.4	26.6	3.8	15.6	QP	Hor
336.40	46.0	27.9	18.1	11.7	16.2	QP	Hor
375.10	46.0	18.8	27.2	1.5	17.3	QP	Hor
284.04	46.0	45.0	1.0	30.0	15.0	PK	Hor
402.48	46.0	39.0	7.0	20.9	18.1	PK	Hor
750.71	46.0	39.7	6.3	17.4	22.3	PK	Hor
322.81	46.0	30.0	16.0	14.1	15.9	QP	Ver
340.95	46.0	34.9	11.1	18.6	16.3	QP	Ver
362.58	46.0	23.6	22.4	6.6	17.0	QP	Ver
292.68	46.0	38.1	7.9	23.0	15.1	PK	Ver
775.25	46.0	38.3	7.7	15.8	22.5	PK	Ver
935.11	46.0	39.2	6.8	14.8	24.4	PK	Ver

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

TEST REPORT**4 Conducted emissions.**Test result: **Pass****4.1 Limit**

Frequency of Emission (MHz)	Conducted Emissions Limit (dB _{UV})	
	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.

4.2 Test Configuration

TEST REPORT**4.3 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.

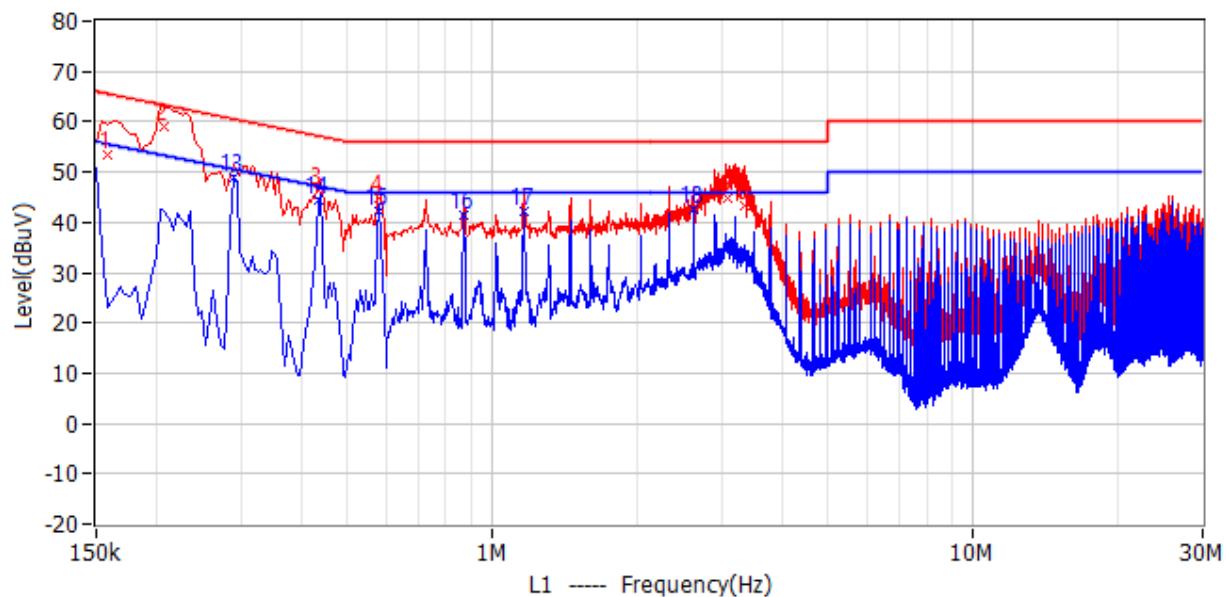
Tabletop devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on 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.

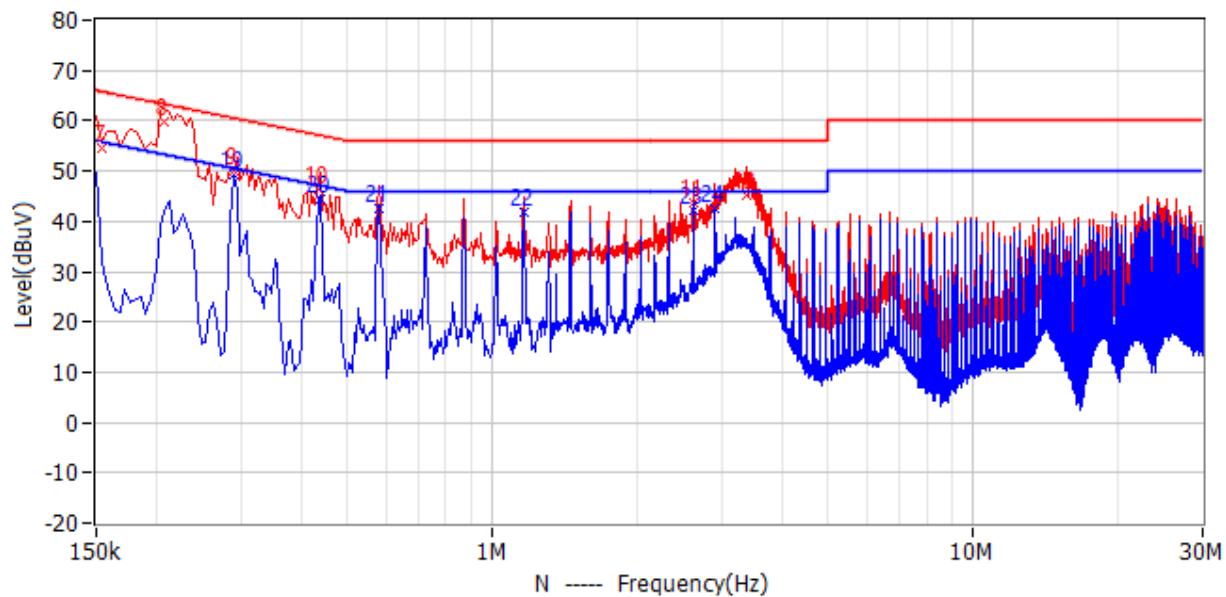
TEST REPORT**4.4 Test Results of Conducted Emissions**

Test Curve:

L-Line



N-Line



TEST REPORT
Test Data:

No.	Frequency	Limit dBuV	Level dBuV	Delta dB	Reading dBuV	Factor dB	Detector	Phase
1	159.000kHz	65.5	53.3	12.2	47.1	6.2	QP	L1
2	208.500kHz	63.3	58.9	4.4	52.7	6.2	QP	L1
3	433.500kHz	57.2	46.4	10.7	40.2	6.2	QP	L1
4	582.000kHz	56.0	44.7	11.3	38.5	6.2	QP	L1
5	3.084MHz	56.0	44.9	11.1	38.6	6.3	QP	L1
6	3.345MHz	56.0	43.4	12.6	37.1	6.3	QP	L1
7	154.500kHz	65.8	54.6	11.1	48.4	6.2	QP	N
8	208.500kHz	63.3	59.6	3.7	53.4	6.2	QP	N
9	289.500kHz	60.5	49.9	10.6	43.8	6.1	QP	N
10	433.500kHz	57.2	46.2	11.0	40.0	6.2	QP	N
11	2.616MHz	56.0	43.7	12.3	37.5	6.2	QP	N
12	3.390MHz	56.0	45.2	10.8	38.9	6.3	QP	N
13	289.500kHz	50.5	48.9	1.6	42.7	6.2	CAV	L1
14	433.500kHz	47.2	44.5	2.7	38.3	6.2	CAV	L1
15	582.000kHz	46.0	42.1	3.9	35.9	6.2	CAV	L1
16	870.000kHz	46.0	41.6	4.4	35.4	6.2	CAV	L1
17	1.163MHz	46.0	42.2	3.8	36.0	6.2	CAV	L1
18	2.612MHz	46.0	42.5	3.5	36.3	6.2	CAV	L1
19	289.500kHz	50.5	49.4	1.2	43.3	6.1	CAV	N
20	438.000kHz	47.1	44.4	2.7	38.2	6.2	CAV	N
21	582.000kHz	46.0	42.5	3.5	36.3	6.2	CAV	N
22	1.163MHz	46.0	41.9	4.1	35.7	6.2	CAV	N
23	2.616MHz	46.0	42.3	3.7	36.1	6.2	CAV	N
24	2.904MHz	46.0	42.4	3.6	36.1	6.3	CAV	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. Delta = Limit - Level
4. If the PK Level is lower than AV limit, the AV test can be elided.

***** END *****