Xiamen Linkpower Tech. Co., Ltd.

RF TEST REPORT

REPORT TYPE:
FCC Part 15.225 RF Report

MODEL:
DSxxx-x/xxA/xx/xxC/xx
(See details in page 6 of this report)

REPORT NUMBER:
2406B1389SHA-001

ISSUE DATE:
January 2, 2025

DOCUMENT CONTROL NUMBER:
TTRF15.225_V1

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

Telephone: 86 21 6127 8200
www.intertek.com

Total Quality. Assured.

TEST REPORT

Report no.: 2406B1389SHA-001

Applicant:	Xiamen Linkpower Tech. Co., Ltd 4th Floor, Building 3, No.29 Xinle Road, Haicang District, Xiamen, Fujian, 361026, China
Manufacturer:	Xiamen Linkpower Tech. Co., Ltd 4th Floor, Building 3, No.29 Xinle Road, Haicang District, Xiamen, Fujian, 361026, China
Factory:	Xiamen Linkpower Tech. Co., Ltd 4th Floor, Building 3, No.29 Xinle Road, Haicang District, Xiamen, Fujian, 361026, China
FCC ID:	2BBSV-LD48

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

PREPARED BY:	**REVIEWED BY:**
Project Engineer Scout Gong	Reviewer Eric Li

Total Quality. Assured.

TEST REPORT

Content

TEST REPORT

Revision History

Report No.	Version	Description	Issued Date
2406B1389SHA-001	Rev. 01	Initial issue of report	January 2, 2025

TEST REPORT

Measurement Result Summary

TEST ITEM	FCC REFERENCE	RESULT
Fundamental emission	15.225(a) (b) (c)	Pass
Spurious emission	15.225(d)	Pass
Frequency stability	15.225(e)	Pass
Conducted emissions	15.207	Pass
99% and 20dB Bandwidth	15.215(c)	Pass
Antenna requirement	15.203	Pass

Notes:

1. *NA =Not Applicable*
2. *The 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:	Electric Vehicle AC Charger
Type/Model:	DS×××-×/×××/××/××C/×× "×××" denotes Appearance, can be 308=308type, 306=306 type "×" denotes Plug, can be S=single plug, D=dual plugs "×××" denotes Wattage, can be 32=32A, 40=40A, 48=48A, 64=64A, 80=80A, 96= 96A "××" denotes Functions, can be 01=WiFi, 02=WiFi+4G, 03=WiFi+ISO15118, 04=WiFi+4G+ISO15118 "××C" denotes Outlet type, can be 18C=18ft, 25C=25ft "××" denotes Colour, can be BK=Black, WT=White, BL=Blue, SR=Sliver, GR=Grey
Description of EUT:	The EUT is an electric vehicle AC charger with RFID function, it supports Wi-Fi and LTE function. DS308-96A0425CBK was tested as a representative. For the Wi-Fi module, FCC ID is 2ATPO-AIWB2. For the LTE module, FCC ID is XMR201909EC25AFX.
Rating:	208-240VAC, 60Hz
EUT type:	☒ Tabletop ☐ Floor standing
Software Version:	/
Hardware Version:	/
Serial numbers:	A240807-23-001
Sample received date:	December 2, 2024
Date of test:	December 2, 2024, to January 2, 2025

1.2 Technical Specification

Frequency Range:	13.56 MHz ~ 13.56 MHz
Modulation:	AM 100%

1.3 Description of Test Facility

Name:	Intertek Testing Services (Shanghai FTZ) Co., Ltd.
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 L21189
	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

2 TEST SPECIFICATIONS

2.1 Standards or specification

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

2.2 Mode of operation during the test

While testing, the internal modulation and continuous transmission was applied.

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	SKET Auto EMC Test Software	Keleto	V3.0
Radiated emission	SKET Auto EMC Test Software	Keleto	V3.0

2.4 Test peripherals list

Item No	Description	Band and Model	S/No
1	Resistor Load	-	-

2.5 Test environment condition:

Test items	Temperature	Humidity
Radiated emission	26°C	53% RH
Power line conducted emission	27°C	53% RH

2.6 Instrument list

Conducted Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESR7	EC 6194	2025-08-27
☒	A.M.N.	R&S	ESH2-Z5	EC 3119	2025-07-23
☒	Attenuator	Hua Xiang	Ts5-10db-6g	EC 6194-1	2025-12-06
☒	Shielded room	Zhongyu	-	EC 2838	2026-01-09
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESIB 26	EC 3045	2025-08-18
☒	Bilog Antenna	TESEQ	CBL 6112B	EC 6411	2025-09-11
☒	Active loop antenna	Schwarzbeck	FMZB1519	EC 5345	2025-08-10
☒	Semi-anechoic chamber	Albatross project	-	EC 3048	2026-07-11
RF test					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Spectrum Analyzer	Keysight	N9030B	EC 6078	2025-09-18
☒	Climate chamber	GWS	MT3065	EC 6021	2025-09-07
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Thermo-Hygrograph	Testo	175h1	EC 6640	2025-08-29
☒	Thermo-Hygrograph	Testo	175h1	EC 6643	2025-08-29

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	3.06 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.02 dB
	6GHz ~ 18GHz	5.28 dB

3 Fundamental Emission

Test result: **PASS**

3.1 Limit

Frequencies (MHz)	Limit at 30m (dBuV/m)	Limit at 3m (dBuV/m)
13.110 – 13.410	40.50	80.50
13.410 – 13.553	50.50	90.50
13.553 – 13.567	84.00	124.00
13.567 – 13.710	50.50	90.50
13.710 – 14.010	40.50	80.50

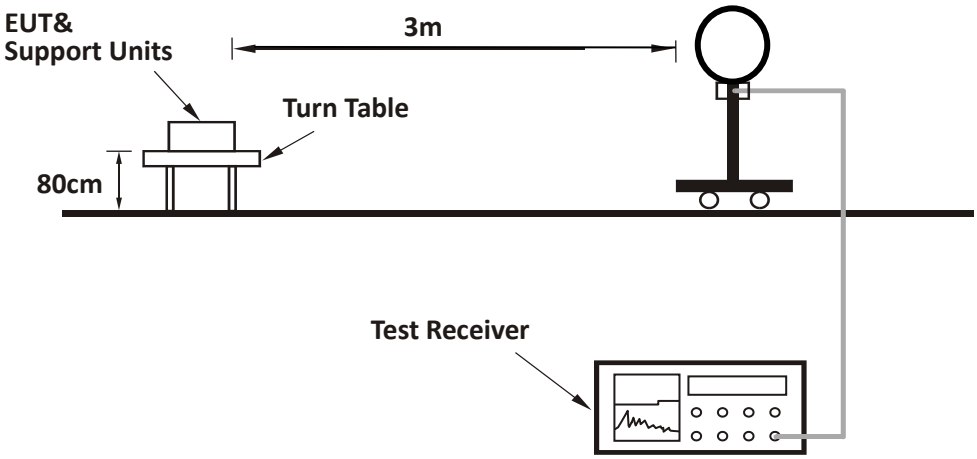
3.2 Measurement Procedure

a) The EUT was placed on a 0.8m plank above the ground at a 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) 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 PK Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

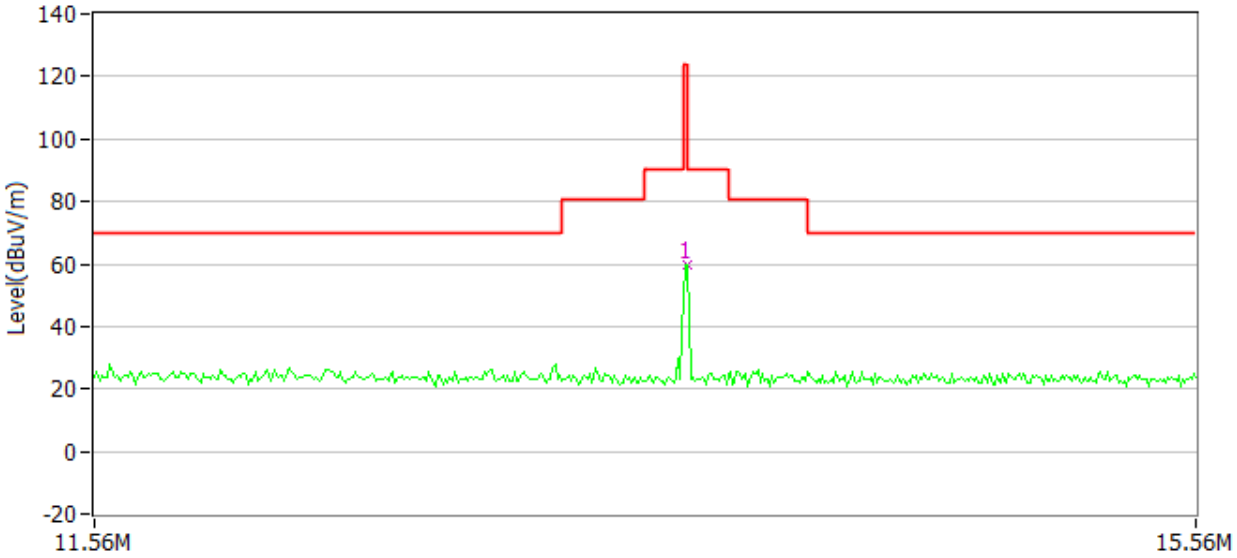
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

3.3 Test Configuration

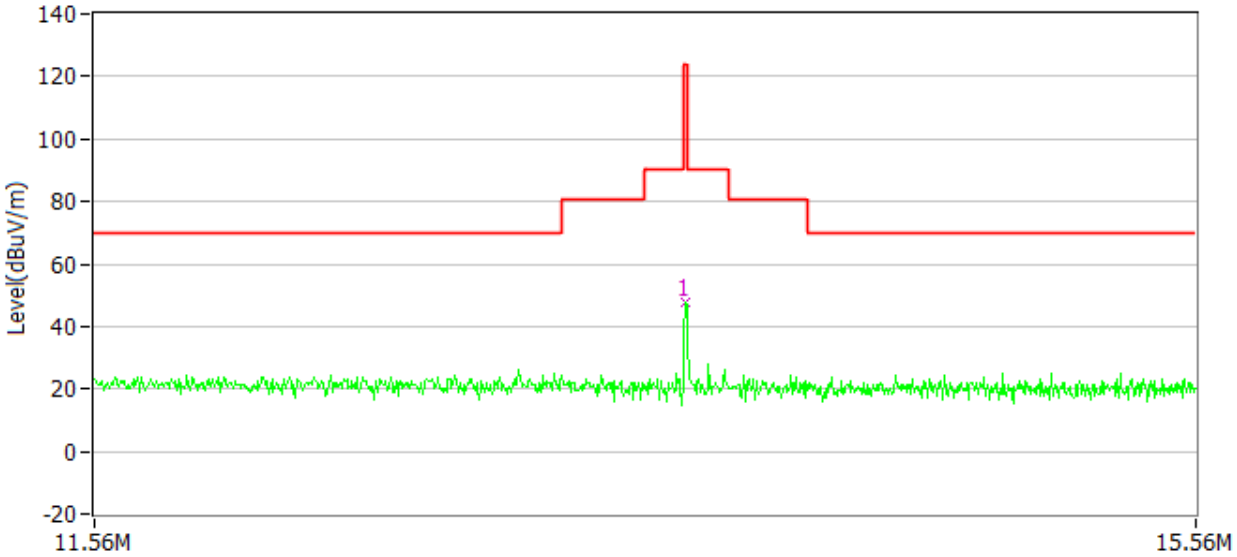


3.4 Test Results of Fundamental Emissions

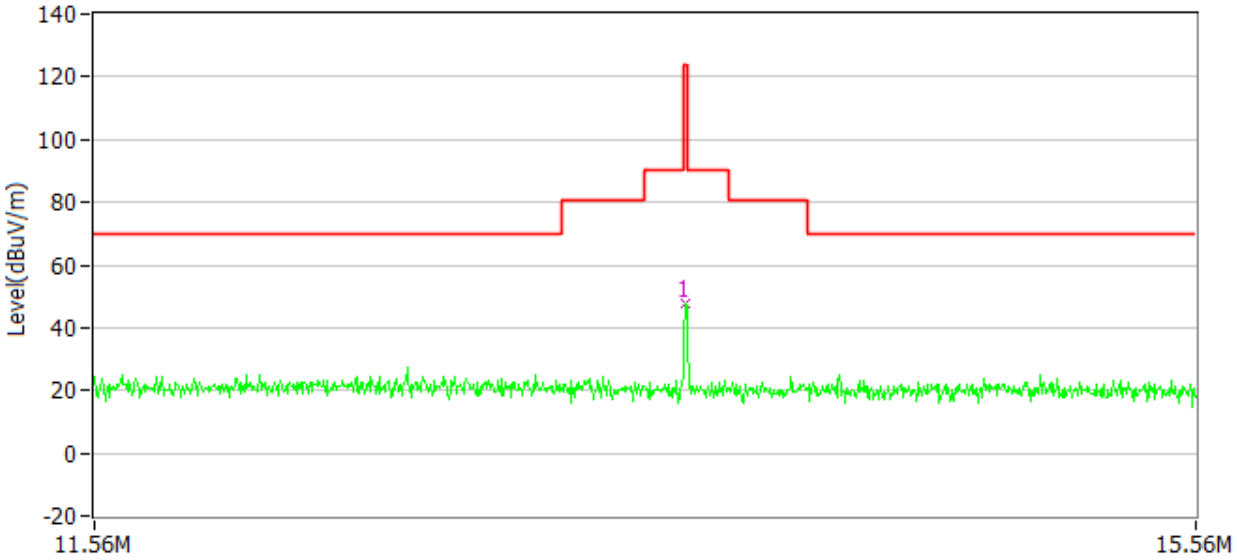
Antenna Polarization: X axis



Antenna Polarization: Y axis



Antenna Polarization: Z axis



Antenna Polarization	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Detector
X	13.56	**60.20**	20.50	124.00	63.80	PK
Y	13.56	47.80	20.50	124.00	76.20	PK
Z	13.56	47.60	20.50	124.00	76.40	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*

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 = 0.20dB/m
Corrected Reading = 10dBuV + 0.20dB/m = 10.20dBuV/m
Margin = 40.00dBuV/m - 10.20dBuV/m = 29.80dB

4 Spurious Emission

Test result: **PASS**

4.1 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

4.2 Measurement Procedure

For Radiated emission below 30MHz:

f) The EUT was placed on a 0.8m plank above the ground at a 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
g) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
h) Both X and Y axes of the antenna are set to make the measurement.
i) 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.
j) The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

2. 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 a 0.8m plank above the ground at a 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.

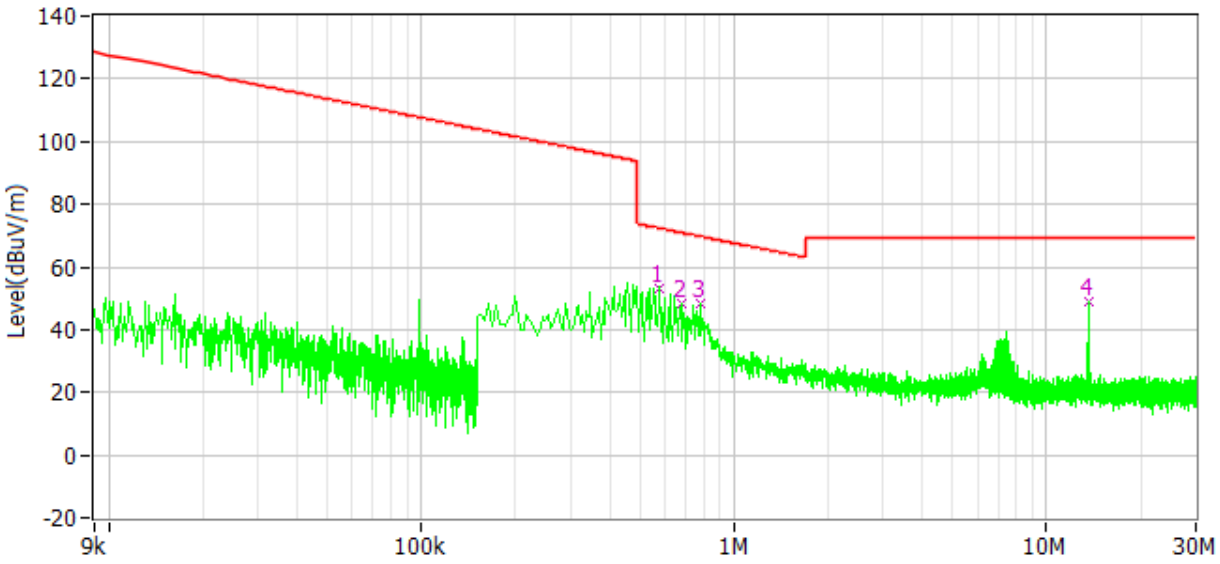
Note:

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

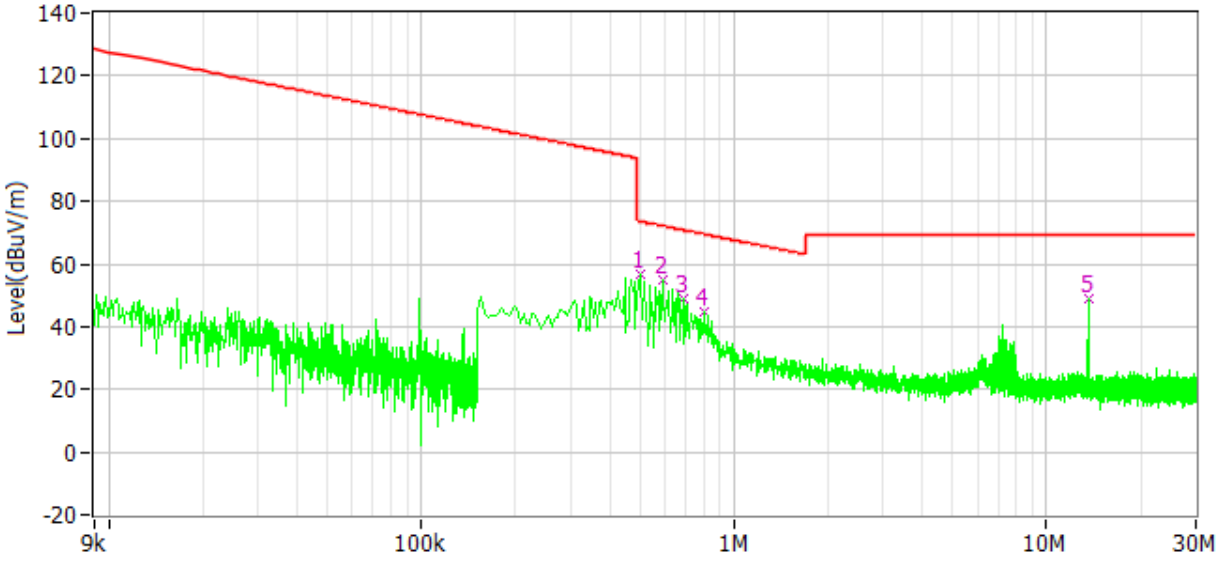
4.3 Test Results of Radiated Emissions

Test Curve (below 30MHz):

Antenna Polarization: X axis

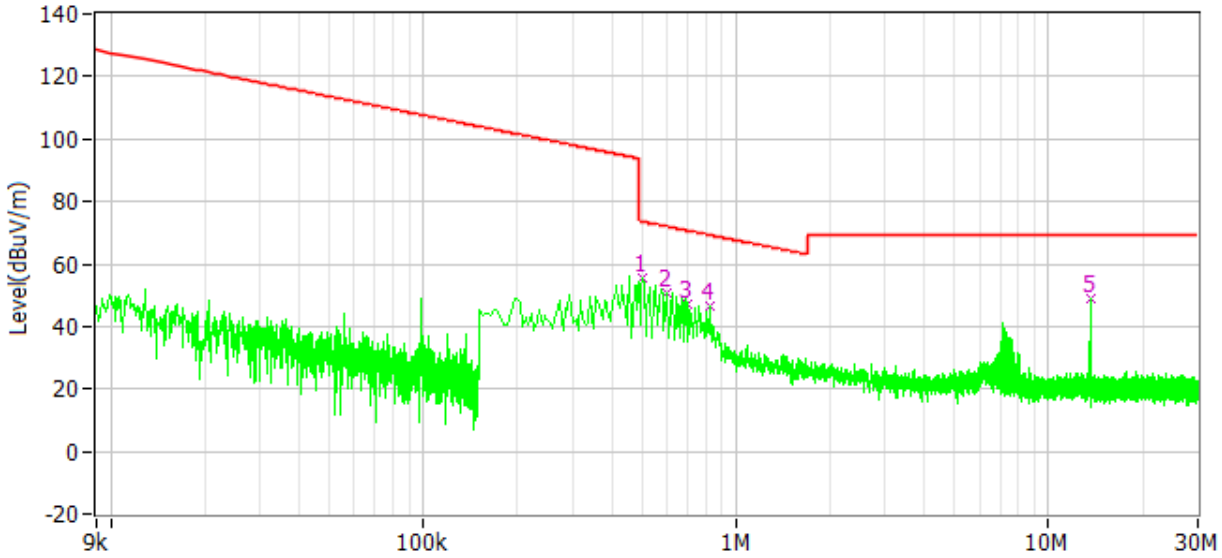


Antenna Polarization: Y axis



TEST REPORT

Antenna Polarization: Z axis



Test data below 30MHz:

Frequency	Limit (dBuV/m)	Corrected Reading (dBuV/m)	Margin (dB)	Reading (dBuV)	Factor (dB/m)	Detector	Polarity
577.500kHz	72.40	53.40	19.00	33.20	20.20	PK	X
676.500kHz	71.00	48.60	22.40	28.40	20.20	PK	X
784.500kHz	69.70	48.10	21.60	28.00	20.10	PK	X
501.000kHz	73.60	56.70	16.90	36.50	20.20	PK	Y
591.000kHz	72.20	54.70	17.50	34.50	20.20	PK	Y
690.000kHz	70.80	48.90	21.90	28.70	20.20	PK	Y
798.000kHz	69.60	44.70	24.90	24.60	20.10	PK	Y
501.000kHz	73.60	55.30	18.30	35.10	20.20	PK	Z
604.500kHz	72.00	51.00	21.00	30.80	20.20	PK	Z
699.000kHz	70.70	47.40	23.30	27.20	20.20	PK	Z
829.500kHz	69.20	46.40	22.90	26.30	20.10	PK	Z

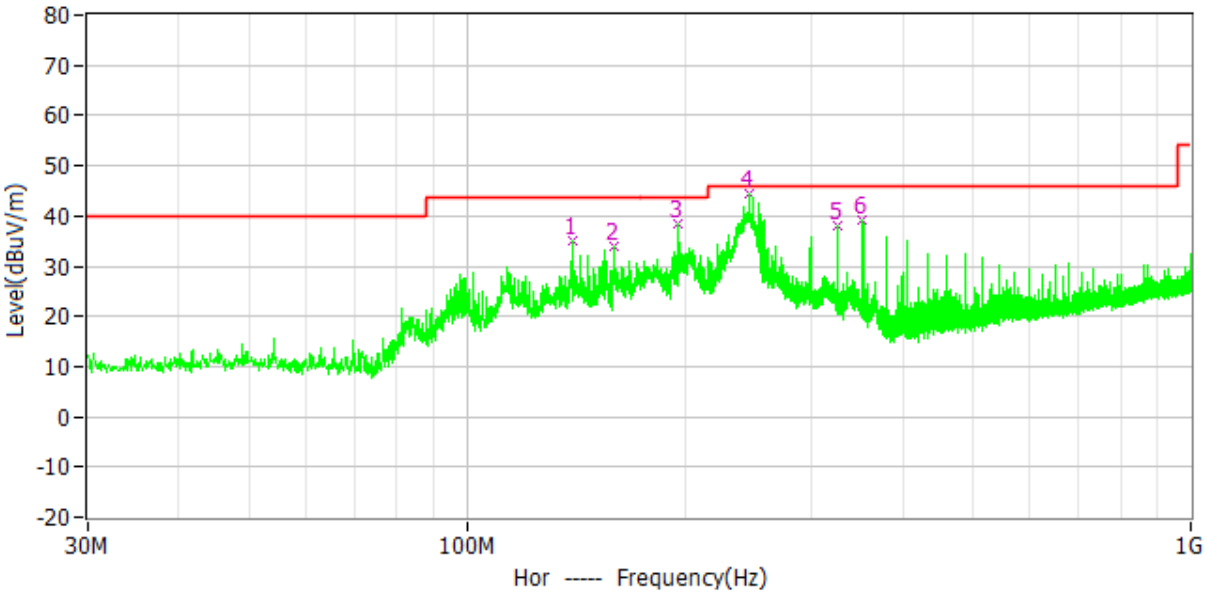
Remark:

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.

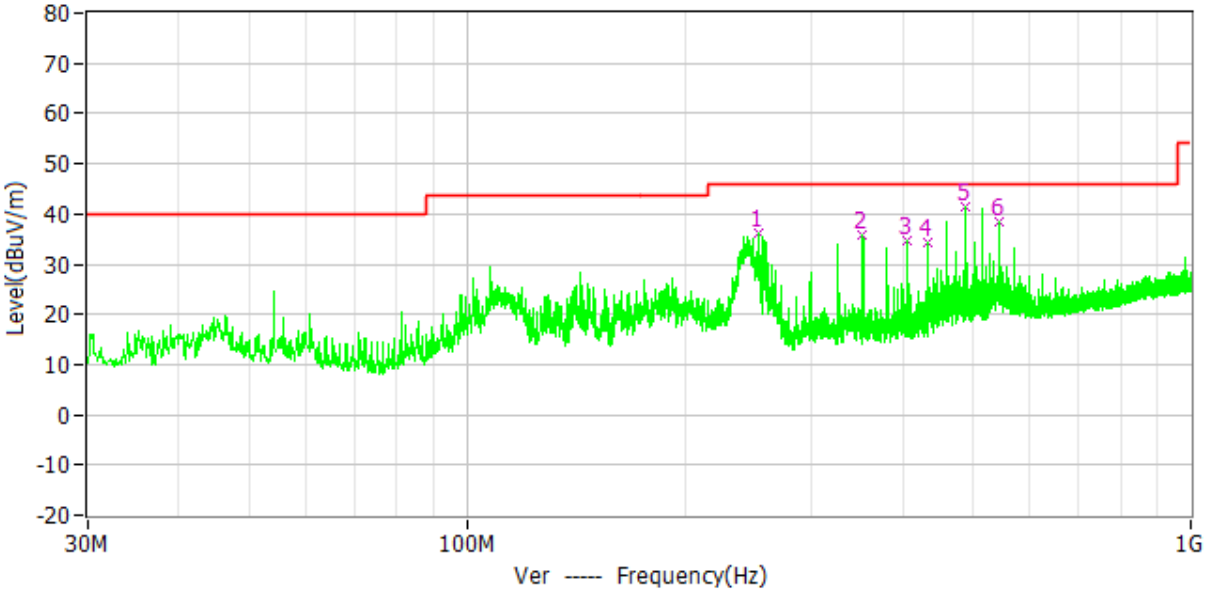
TEST REPORT

Test Curve (30MHz to 1000MHz):

Horizontal



Vertical



TEST REPORT

Test data (30MHz to 1000MHz)

Frequency (MHz)	Limit (dBuV/m)	Corrected Reading (dBuV/m)	Margin (dB)	Original Reading (dBuV)	Correct Factor (dB/m)	Detector	Polar
139.998	43.50	35.08	8.42	20.93	14.15	PK	Hor
159.786	43.50	34.10	9.40	19.27	14.83	PK	Hor
195.870	43.50	38.45	5.05	26.57	11.88	PK	Hor
246.019	46.00	44.36	1.64	30.93	13.43	PK	Hor
325.462	46.00	37.95	8.05	21.95	16.00	PK	Hor
352.525	46.00	39.06	6.94	22.44	16.62	PK	Hor
252.809	46.00	36.24	9.76	22.54	13.70	PK	Ver
352.525	46.00	35.85	10.15	19.23	16.62	PK	Ver
406.748	46.00	34.76	11.24	16.63	18.13	PK	Ver
433.908	46.00	34.47	11.53	15.63	18.84	PK	Ver
488.131	46.00	41.52	4.48	21.26	20.26	PK	Ver
542.451	46.00	38.59	7.41	17.15	21.44	PK	Ver

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 = 0.20dB/m;
Corrected Reading = 10dBuV + 0.20dB/m = 10.20dBuV/m;
Margin = 40.00dBuV/m - 10.20dBuV/m = 29.80dB.

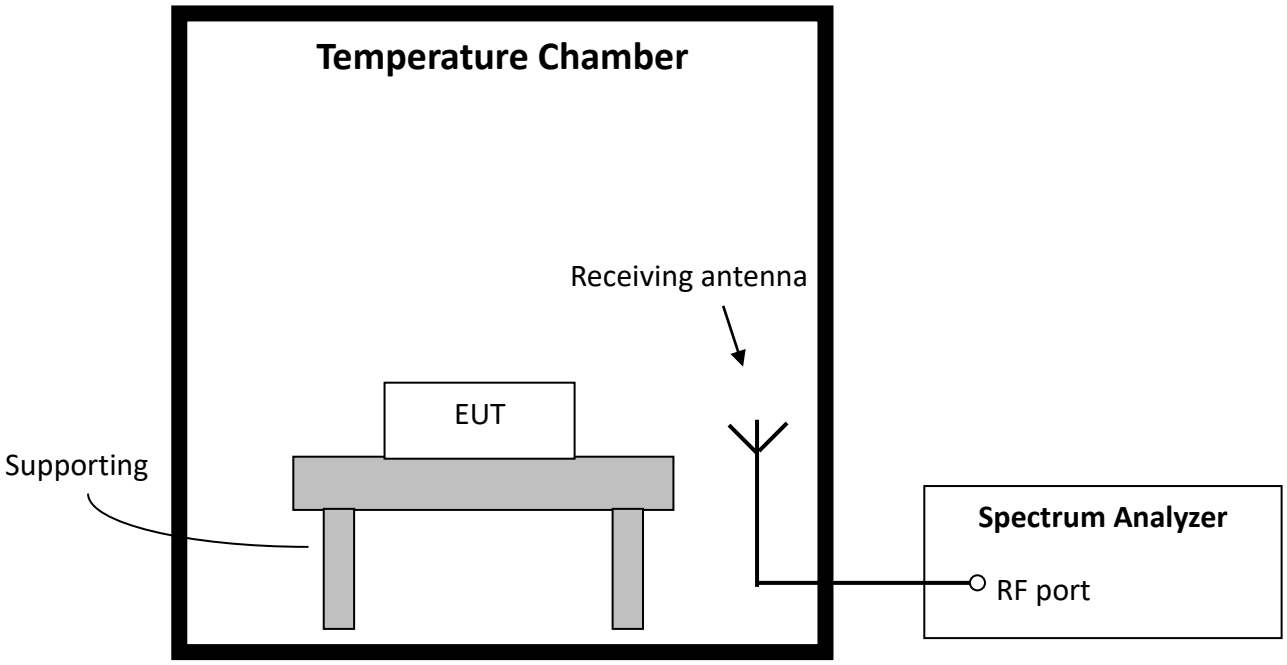
5 Frequency Stability (Temperature Variation)

Test result: **PASS**

5.1 Test limit

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage.

5.2 Test Configuration



5.3 Test procedure and test setup

Test Procedure as per ANSI 63.10 clause 6.8.1.

5.4 Test protocol

Voltage (V)	Temp (ºC)	Freq Measured (MHz)	Freq Nominal (MHz)	Tolerance (%)	Limit (%)
240	-20	13.5602	13.5600	0.0015	± 0.0100
	-10	13.5602		0.0015	
	0	13.5601		0.0007	
	10	13.5599		-0.0007	
	20	13.5599		-0.0007	
	30	13.5598		-0.0015	
	40	13.5601		0.0007	
	50	13.5599		-0.0007	

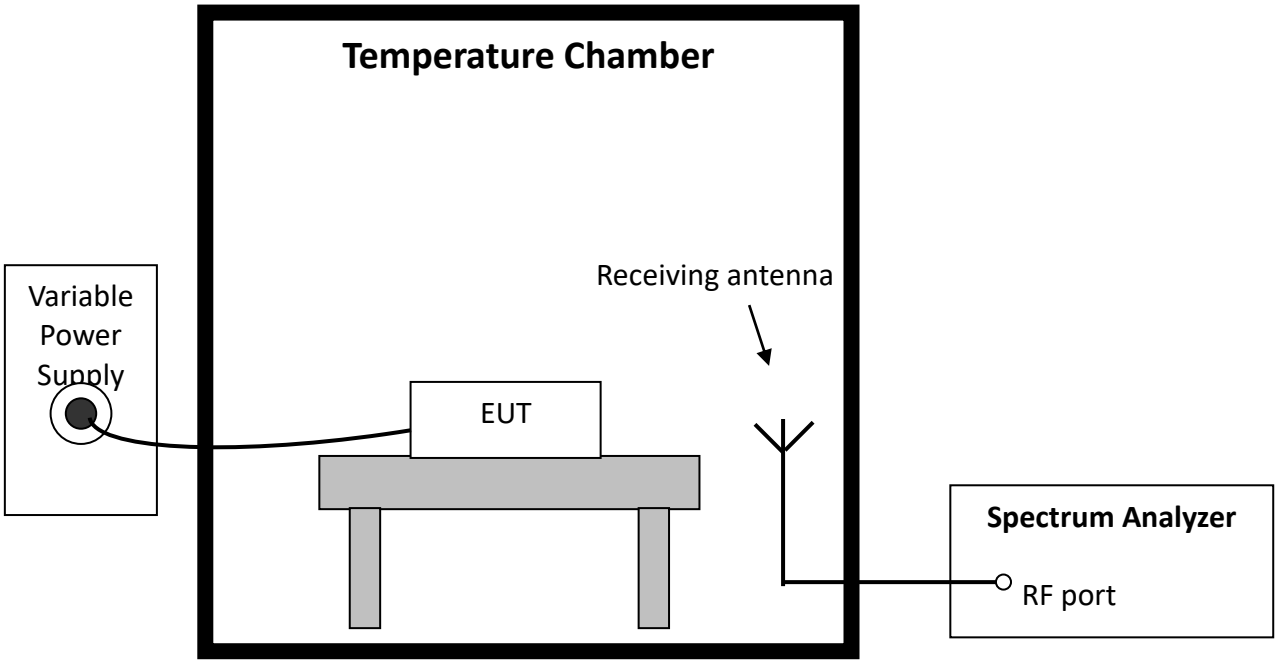
6 Frequency Stability (Voltage Variation)

Test result: **PASS**

6.1 Test limit

The frequency tolerance of the carrier signal shall be maintained within ±0.01% for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

6.2 Test Configuration



6.3 Test procedure and test setup

Test Procedure as per ANSI 63.10 clause 6.8.2.

6.4 Test protocol

Temp (ºC)	Voltage (V)	Freq Measured (MHz)	Freq nominal (MHz)	Tolerance (%)	Limit (%)
20	204	13.5601	13.5600	0.0007	± 0.0100
	240	13.5600		0.0000	
	276	13.5601		0.0007	

7 Conducted emissions

Test result: **PASS**

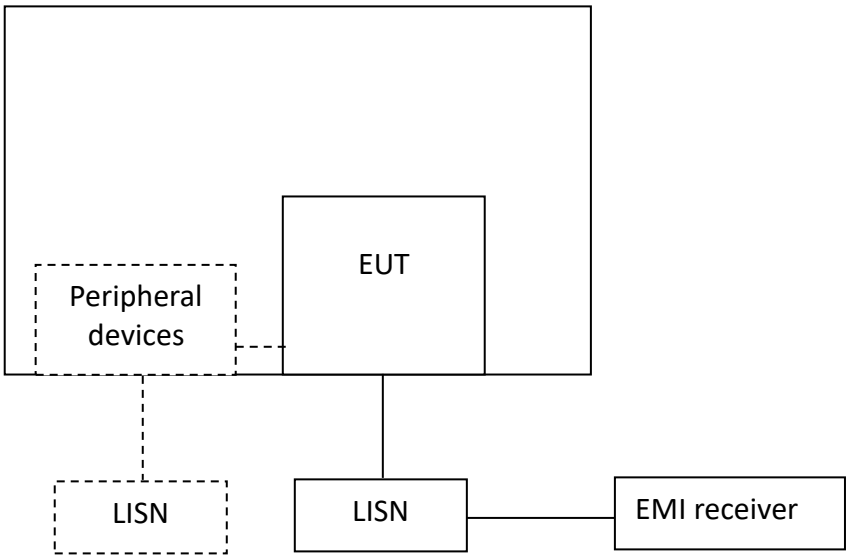
7.1 Limit

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

Note:

1. * Means the limit decreasing linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz
2. If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

7.2 Test Configuration



7.3 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.

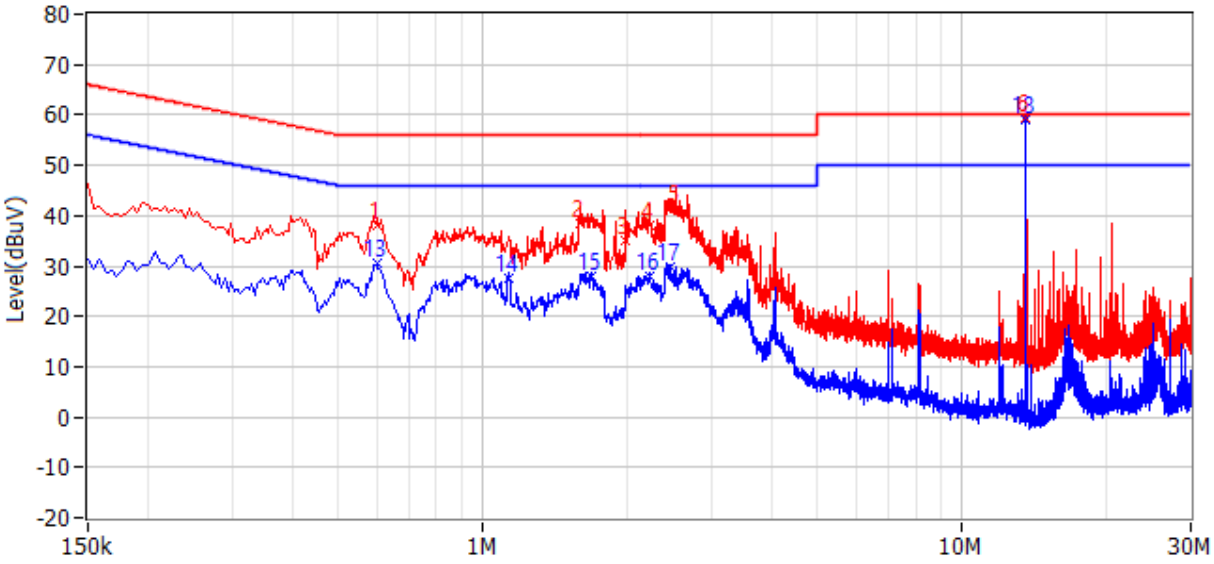
Tabletop devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on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

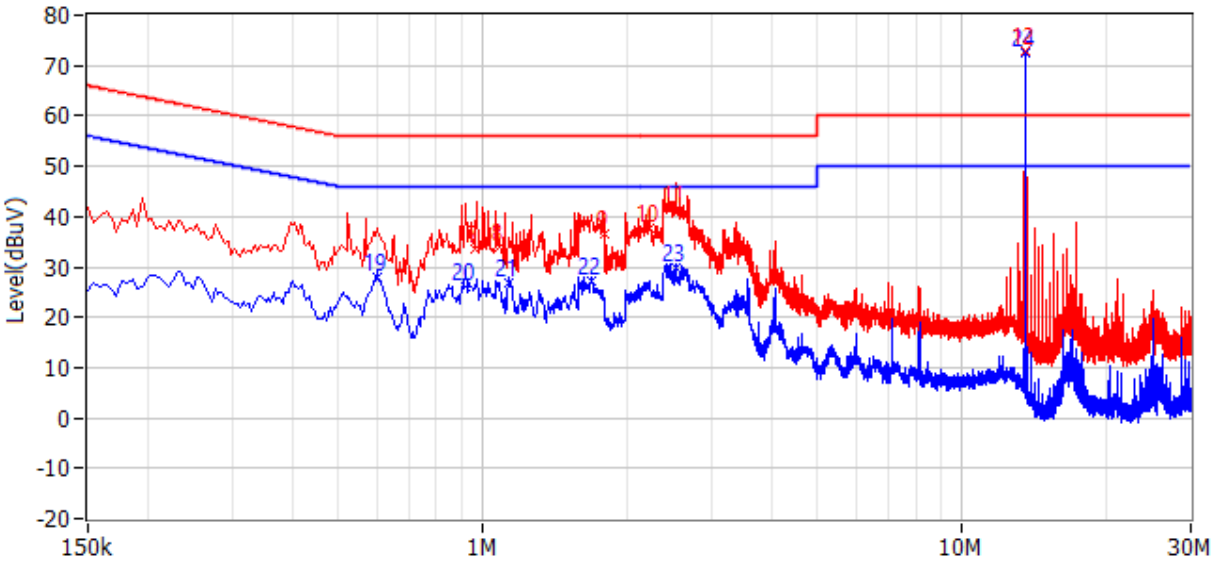
TEST REPORT

7.4 Test Results of Conducted Emissions

Test Curve:



Line L1



Line L2

TEST REPORT

Frequency	Limit (dBuV)	Level (dBuV)	Delta (dB)	Original Receiver Reading (dBuV)	Correct Factor (dB)	Detector	Phase
600.000kHz	56.00	37.90	-18.10	31.70	6.20	QP	L1
1.595MHz	56.00	38.30	-17.70	32.10	6.20	QP	L1
1.991MHz	56.00	35.10	-20.90	28.90	6.20	QP	L1
2.229MHz	56.00	38.10	-17.90	31.90	6.20	QP	L1
2.531MHz	56.00	41.60	-14.40	35.40	6.20	QP	L1
13.560MHz	-	59.50	-	52.70	6.80	QP	L1
960.000kHz	56.00	33.50	-22.50	27.30	6.20	QP	L2
1.082MHz	56.00	34.10	-21.90	27.90	6.20	QP	L2
1.788MHz	56.00	36.60	-19.40	30.40	6.20	QP	L2
2.234MHz	56.00	37.70	-18.30	31.50	6.20	QP	L2
2.522MHz	56.00	41.40	-14.60	35.20	6.20	QP	L2
13.560MHz	-	72.70	-	65.90	6.80	QP	L2
604.500kHz	46.00	30.60	-15.40	24.40	6.20	CAV	L1
1.136MHz	46.00	27.60	-18.40	21.40	6.20	CAV	L1
1.680MHz	46.00	28.00	-18.00	21.80	6.20	CAV	L1
2.229MHz	46.00	28.00	-18.00	21.80	6.20	CAV	L1
2.454MHz	46.00	29.80	-16.20	23.60	6.20	CAV	L1
13.560MHz	-	59.20	-	52.40	6.80	CAV	L1
600.000kHz	46.00	28.10	-17.90	21.90	6.20	CAV	L2
924.000kHz	46.00	26.10	-19.90	19.90	6.20	CAV	L2
1.136MHz	46.00	26.90	-19.10	20.70	6.20	CAV	L2
1.689MHz	46.00	27.10	-18.90	20.90	6.20	CAV	L2
2.526MHz	46.00	30.00	-16.00	23.80	6.20	CAV	L2
13.560MHz	-	72.40	-	65.60	6.80	CAV	L2

Note: The signal of 13.56MHz was caused by the RFID module. It is a wanted signal.
Remark:

1. *Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.*
2. *Level = Original Receiver Reading + Correct Factor*
3. *Delta = Level – Limit*
4. *If the PK Level is lower than AV limit, the AV test can be elided.*
5. *the emissions of 13.56MHz are the product's RF signal.*

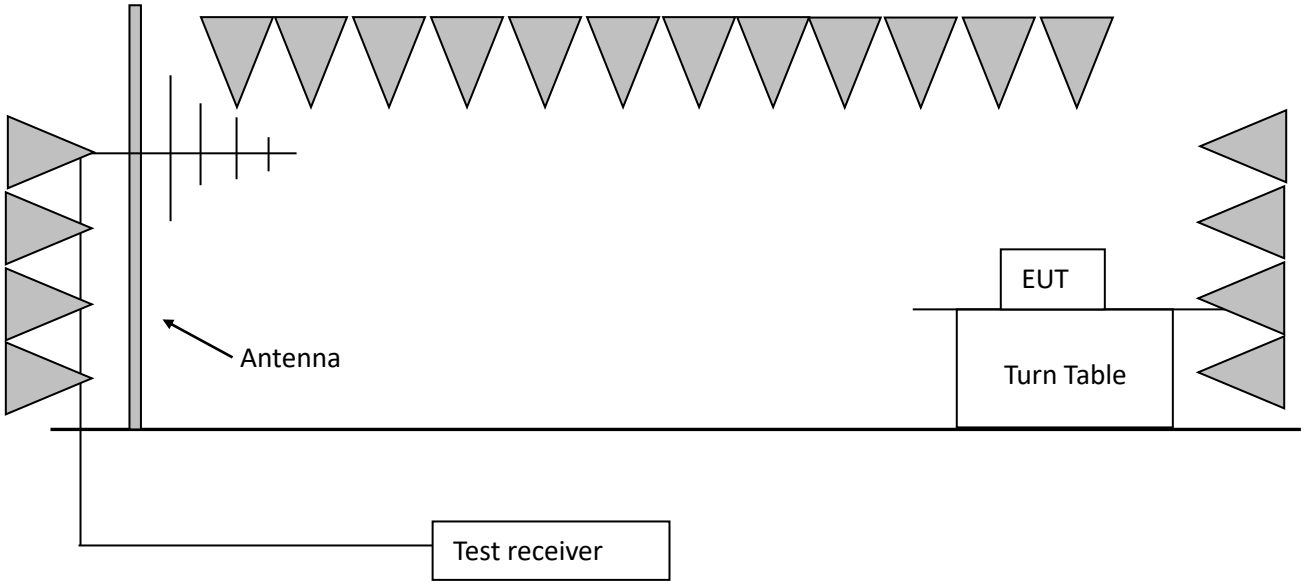
8 20dB Bandwidth

Test result: **PASS**

8.1 Limit

The 20dB bandwidth should be fallen in the allocated operating frequency range.
No limit for 99% bandwidth.

8.2 Test configuration



8.3 Test procedure and test set up

The measurement was applied in a 3m semi-anechoic chamber.

The center of the loop antenna shall be 1 m above the horizontal metal ground plane.

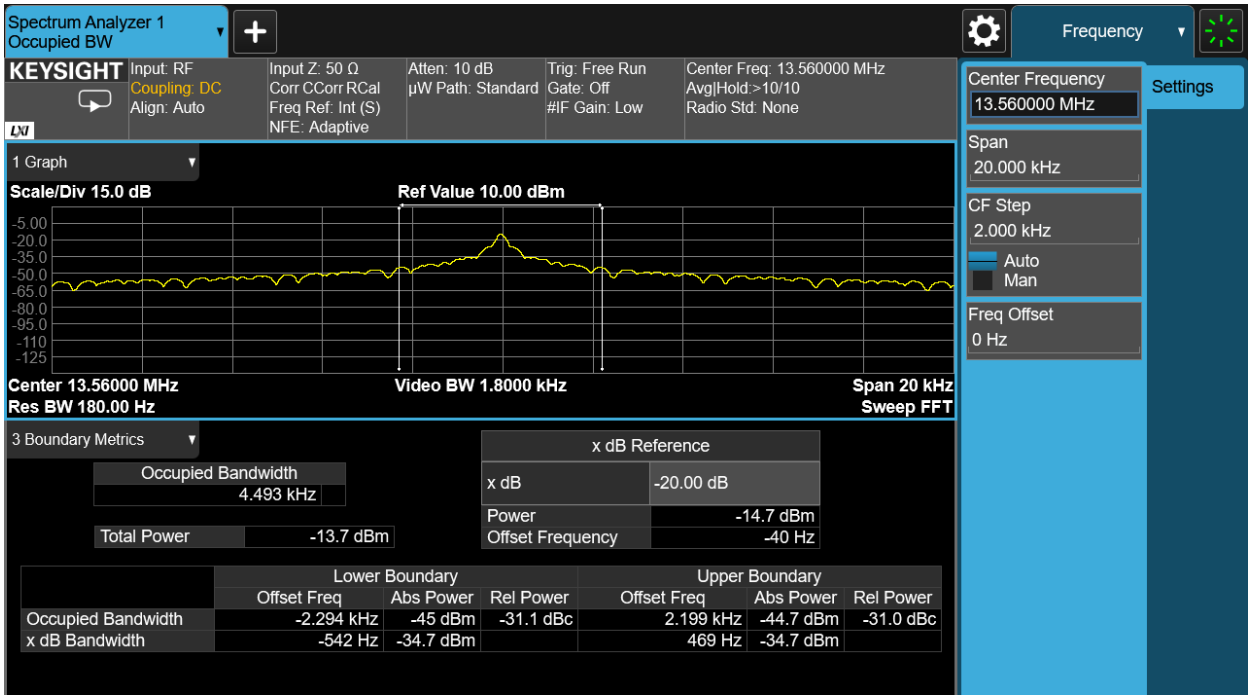
The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set RBW = 1 % to 5 % of the OBW
3. Set VBW ≥ 3 · RBW
4. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall

   be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
5. Use the 99 % power bandwidth function of the instrument (if available).
6. the 20dB bandwidth is also measured with the same setting.

8.4 Test protocol

	Lower point (MHz)	Higher point (MHz)	Bandwidth (kHz)	Allocated bandwidth (MHz)
20dB Bandwidth	13.559458	13.560469	1.011	13.553 ~ 13.567
Occupied bandwidth	13.557706	13.562199	4.493	13.553 ~ 13.567



9 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 **********