The Wiremold Company

RF TEST REPORT

Report Type:
FCC Part 15.225 RF report

Model:
LNA-EVC1-YY-ZZA, LNA-EVC2-YY-ZZA, LNA-EVC3-YY-ZZA

REPORT NUMBER:
220801575SHA-001

ISSUE DATE:
November 20, 2022

DOCUMENT CONTROL NUMBER:
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TEST REPORT

Report no.: 220801575SHA-001

Applicant:	The Wiremold Company 60 Woodlawn Street,West Hartford,CT,06110,USA
Manufacturer:	The Wiremold Company 60 Woodlawn Street,West Hartford,CT,06110,USA
Manufacturing Site:	Xiamen Joint Tech. Co., Ltd Building #1, No. 268 HouXiang Rd,Xinyang Industrial Park, Haicang District, XIAMEN Fujian
Product Name:	Electric Vehicle AC Charger
Type/Model:	LNA-EVC1-YY-ZZA, LNA-EVC2-YY-ZZA, LNA-EVC3-YY-ZZA
FCC ID:	O73-ACEVC

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:
47CFR Part 15 (2019): Radio Frequency Devices (Subpart C) **ANSI C63.10 (2013):** American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

PREPARED BY:	**REVIEWED BY:**
Project Engineer Dylan Tang	Reviewer Wakeyou Wang

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Revision History

Report No.	Version	Description	Issued Date
220801575SHA-001	Rev. 01	Initial issue of report	November 20, 2022

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Measurement result summary

TEST ITEM	FCC REFERANCE	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: Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Electric Vehicle AC Charger
Type/Model:	LNA-XXXX-YY-ZZA "XXXX" denotes Shell, can be EVC1, EVC2, EVC3. "YY" denotes Wattage, can be 16=16A,32=32A,40=40A,48=48A. "ZZ" denotes Colour, can be SR=Silver, RD=Red, BK=Black,BU=Blue or other colour. "A" denotes Function, can be 0=Standard,1= RFID+4G, 2=RFID+WIFI, 3=4G,4=WIFI+BT
Description of EUT:	The EUT is Electric Vehicle AC Charger with RFID Function, it supports WIFI or LTE function, the wireless modular FCC ID is 2AC7Z-ESPWROOM32D and XMR201909EC25AFX. Both module are selectable, but cannot be used at same. there have two models and they are same except the appearance and display screen. So choose LNA-EVC2-YY-ZZA to test as representative.
Rating:	200-240V ~ 60Hz
EUT type:	☒ Table top ☐ Floor standing
Software Version:	V2.0
Hardware Version:	V200
Sample received date:	October 10, 2022
Date of test:	October 10, 2022 ~ November 5, 2022

1.2 Technical Specification

Frequency Range:	13.56 MHz ~ 13.56 MHz
Antenna Type	Onboard antenna
Modulation:	ASK
Antenna gain:	3dBi

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 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 (2019)
ANSI C63.10 (2013)

2.2 Mode of operation during the test

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

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	Description	Band and Model	S/No
-	-	-	-

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/Disturbance Power/Tri-loop Test/CDN method					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☑	Test Receiver	R&S	ESCS 30	EC 2107	2023-07-18
☑	A.M.N.	R&S	ESH2-Z5	EC 3119	2022-11-09
☐	A.M.N.	R&S	ENV 216	EC 3393	2023-07-17
☐	A.M.N.	R&S	ENV4200	EC 3558	2023-06-04
☐	Absorbing clamp	R&S	MDS 21	EC 2108	2023-06-04
☐	CDN	Frankonia	CDN M2M316	EC 5969	2023-02-10
☐	CDN	Schaffner	CDN M316	EC 2113-1	2023-09-19
☑	Attenuator	Weinschel	68-6-44	EC 3043-9	2023-02-08
☐	Tri-loop	Schwarzbeck	HXYZ 9170	EC 3384	2023-01-20
☐	Voltage Probe	Schwarzbeck	TK9420	EC 4888	2022-10-10
☐	Current probe	R&S	EZ-17	EC 3221	2022-12-22
☐	I.S.N.	FCC	FCC-TLISN -T2-02	EC 3754	2023-02-08
☐	I.S.N.	FCC	FCC-TLISN -T4-02	EC 3755	2023-02-08
☐	I.S.N.	FCC	FCC-TLISN -T8-02	EC 3756	2023-02-08
Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☑	Test Receiver	R&S	ESIB 26	EC 3045	2023-07-18
☑	Bilog Antenna	TESEQ	CBL 6112B	EC 6411	2023-08-23
☐	Pre-amplifier	Tonscend	tap01018050	EC 6432-1	2022-12-26
☐	Horn antenna	Tonscend	bha9120d	EC 6432-2	2023-01-09
☐	Horn antenna	ETS	3117	EC 4792-1	2023-08-28
☐	Horn antenna	TOYO	HAP18-26W	EC 4792-3	2023-07-29
☑	Active loop antenna	Schwarzbeck	FMZB1519	EC 5345	2023-06-15
		EM TEST	NETWAVE-30-400	EC 5383-2	2023-06-17

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Tet Site					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☑	Shielded room	Zhongyu	-	EC 2838	2023-01-11
☐	Shielded room	Zhongyu	-	EC 2839	2023-01-11
☑	Semi-anechoic chamber	Albatross project	-	EC 3048	2023-07-08
☐	Fully-anechoic chamber	Albatross project	-	EC 3047	2023-07-08
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☑	Spectrum analyzer	Agilent	E7402A	EC 2254	2023-07-17
☑	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3783	2023-03-24
☐	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 2122	2023-03-08
☑	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 5198	2023-01-03
☐	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3326	2023-03-08
☐	Pressure meter	YM3	Shanghai Mengde	EC 3320	2023-09-13

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

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

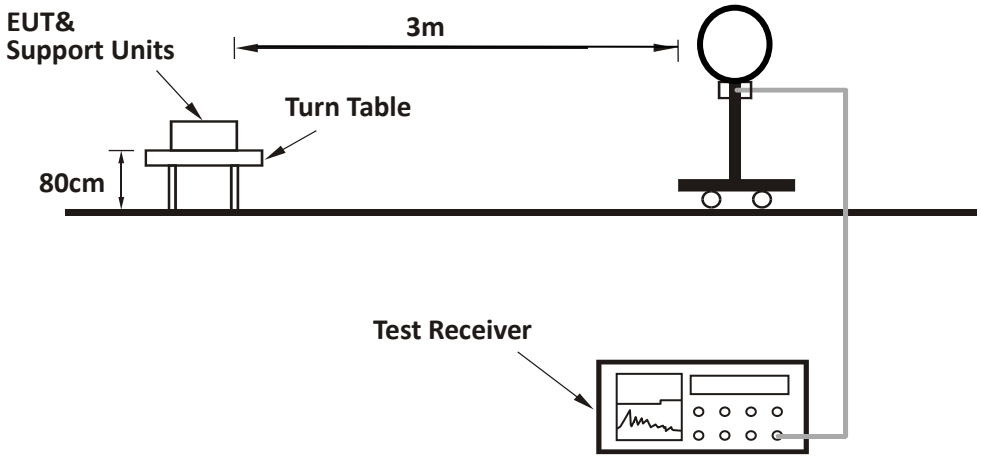
3.2 Measurement Procedure

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.

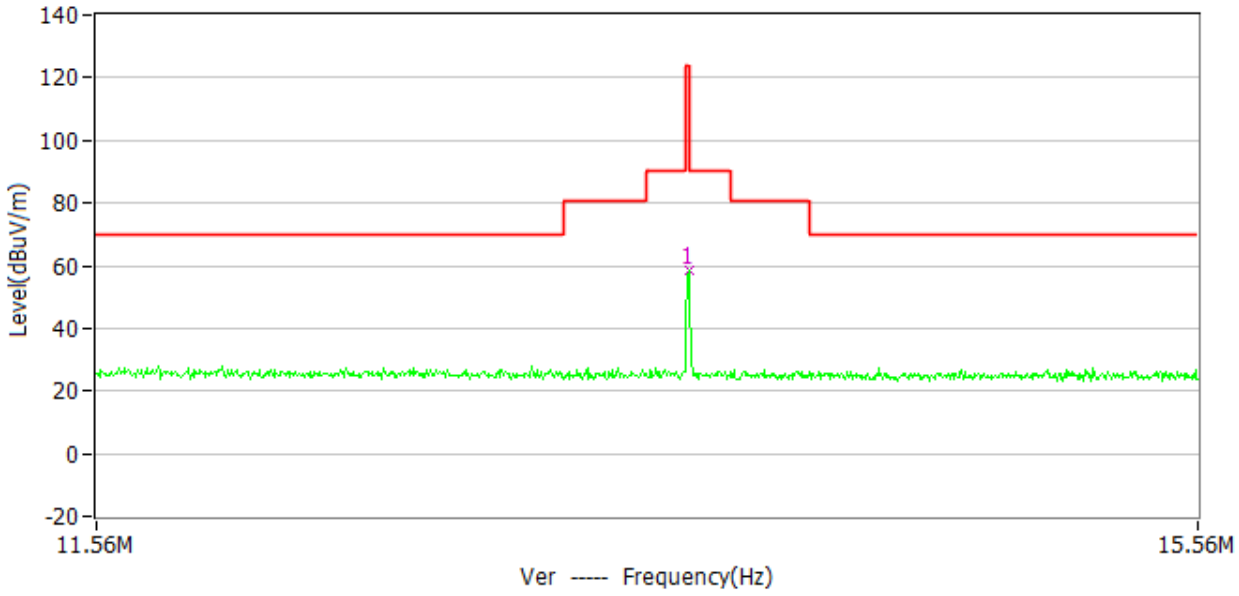
NOTE:

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	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin	Detector
X	13.56	52.5	20.4	124.00	71.5	PK
Y	13.56	50.3	20.4	124.00	73.7	PK
Z	13.56	49.5	20.4	124.00	74.5	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.

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

The EUT has been tested in all three orthogonal planes, it has the worst case when it is in horizontal position for both below 30MHz & above 30MHz.

Test data below 30MHz:

Antenna Polarization	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin	Detector	Remark
X	0.329459	50.40	10.6	74.5	24.1	PK	Spurious
X	1.466032	25.70	11.6	48.6	22.9	PK	Spurious
X	8.345291	38.30	11.8	59.1	20.8	PK	Spurious
Y	0.329459	50.00	10.6	74.5	24.5	PK	Spurious
Y	1.645491	23.70	11.6	46.6	22.9	PK	Spurious
Y	8.345291	35.90	11.8	59.1	23.2	PK	Spurious
Z	0.269639	51.30	10.6	78.0	26.7	PK	Spurious
Z	1.585671	25.30	11.6	47.2	21.9	PK	Spurious
Z	8.524749	22.40	11.8	59.1	36.7	PK	Spurious

Test data from 30MHz to 1000MHz:

RFID+WIFI

Antenna Polarization	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin	Detector
H	30.00	42.5	25.2	49.0	6.5	QP
H	35.832	44.8	22.0	49.0	4.2	QP
H	45.551	44.7	17.2	49.0	4.3	QP
H	99.980	43.2	18.2	53.5	10.3	QP
H	121.363	42.5	19.5	53.5	11.0	QP

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H	315.752	48.2	21.2	56.5	8.3	QP
V	30.00	43.3	25.2	49.0	5.7	QP
V	39.719	48.1	19.9	49.0	1.9	QP
V	84.429	46.0	14.9	49.0	3.0	QP
V	99.980	48.8	18.2	53.5	4.7	QP
V	399.339	47.7	23.3	56.5	8.8	QP
V	442.104	50.1	24.4	56.5	6.4	QP

RFID+LTE

Antenna Polarization	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin	Detector
H	43.607	29.2	18.1	40.0	10.8	QP
H	84.429	32.2	14.9	40.0	7.8	QP
H	119.419	35.3	19.5	43.5	8.2	QP
H	327.415	39.9	21.5	46.0	6.1	QP
H	395.451	42.5	23.2	46.0	3.5	QP
H	482.926	41.2	25.3	46.0	4.8	QP
V	30.00	36.7	13.5	40.0	3.3	QP
V	35.832	37.0	17.0	40.0	3.0	QP
V	84.429	36.9	24.0	40.0	3.1	QP
V	119.419	38.4	20.9	43.5	5.1	QP
V	269.098	38.8	20.1	46.0	7.2	QP
V	515.972	40.7	16.8	46.0	5.3	QP

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.

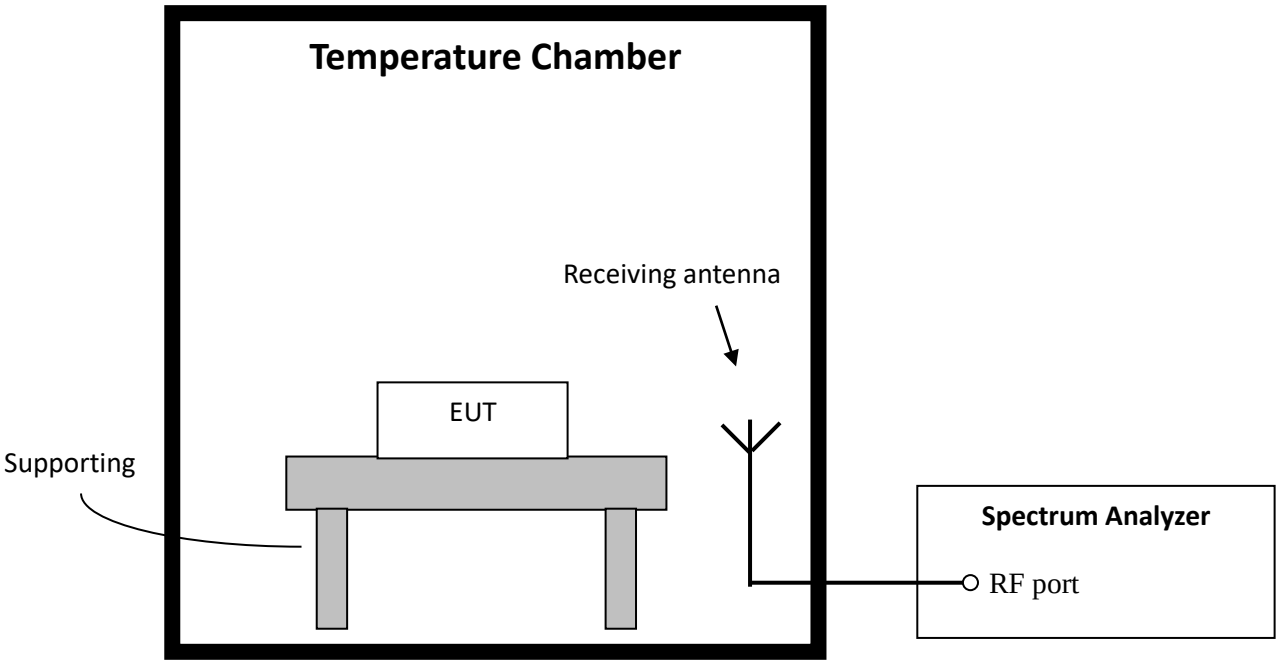
5 Frequency Stability (Temperature Variation)

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	13.552	13.560	0.008	0.01
	-10	13.550		0.010	
	0	13.560		0	
	10	13.560		0	
	20	13.560		0	
	30	13.560		0	
	40	13.551		0.009	
	50	13.550		0.010	

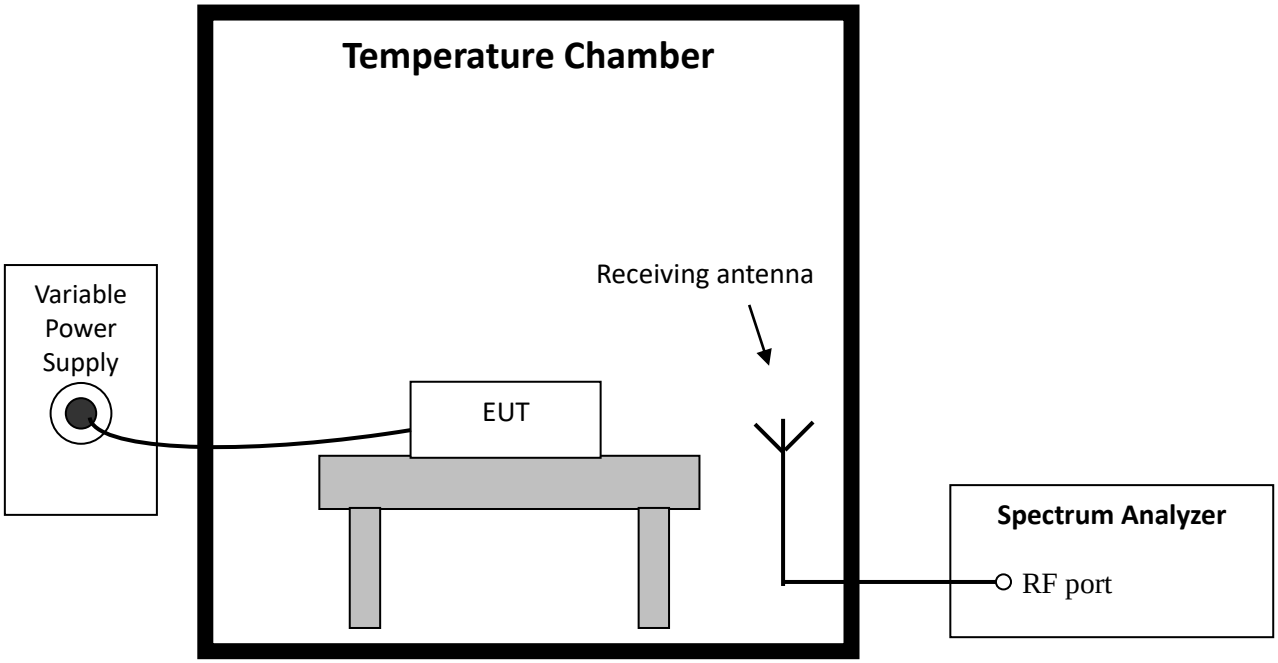
6 Frequency Stability (Voltage Variation)

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	240	13.560	13.560	0	0.01
	204	13.550		0.01	
	276	13.548		0.012	

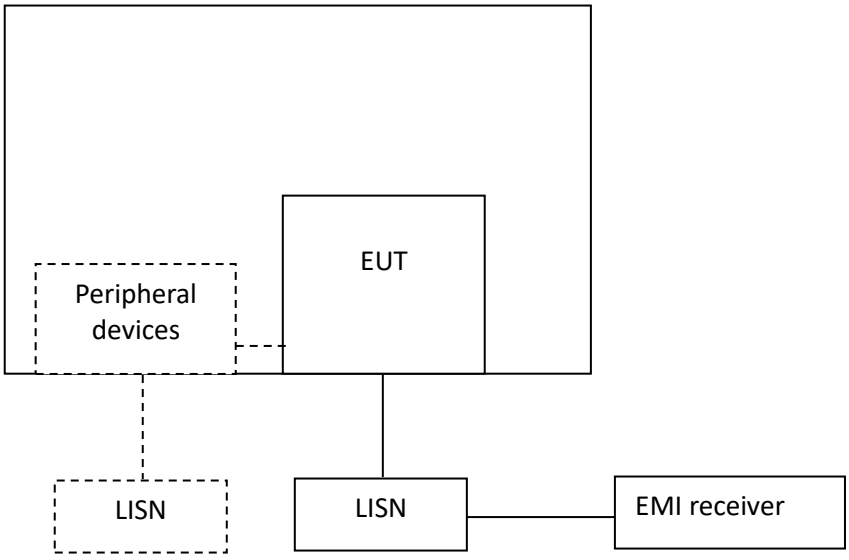
7 Conducted emissions

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
* Decreases with the logarithm of the frequency.		

7.2 Test Configuration



7.3 Measurement Procedure

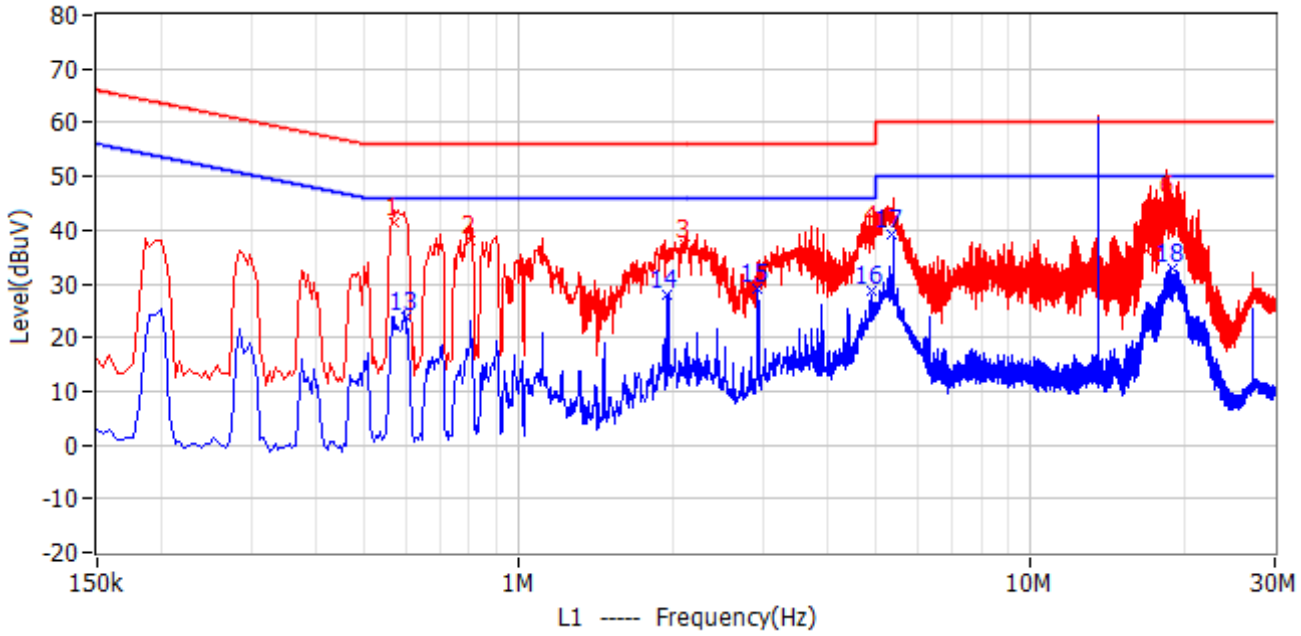
Measured levels of ac power-line conducted emission shall be the emission voltages from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), where permitted, terminated into a 50 Ω measuring instrument. All emission voltage and current measurements shall be 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.

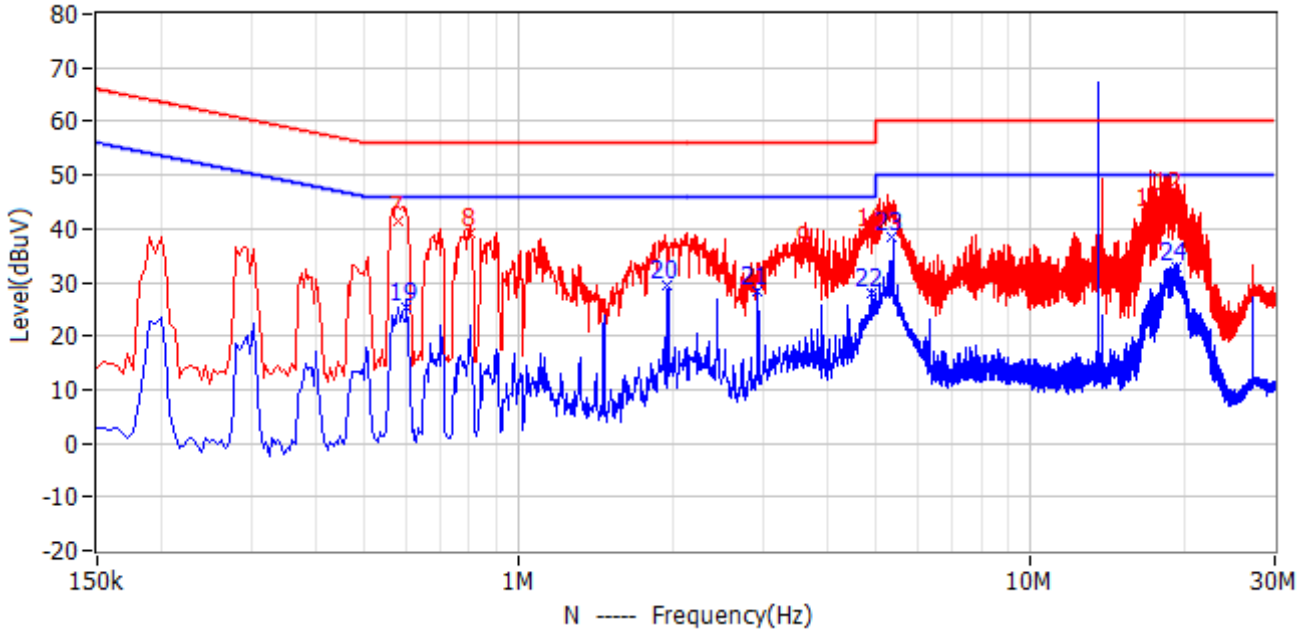
Tabletop devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on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

7.4 Test Results of Conducted Emissions

Test Curve:
RFID+WIFI





No.	Frequency	Limit dBuV	Level dBuV	Delta dB	Reading dBuV	Factor dB	Detector	Phase
1	568.500kHz	56.0	41.3	-14.7	30.9	10.4	QP	L
2	802.500kHz	56.0	38.2	-17.8	27.6	10.6	QP	L
3	2.121MHz	56.0	37.4	-18.6	26.9	10.5	QP	L
4	4.952MHz	56.0	40.0	-16.0	29.6	10.4	QP	L
5	16.890MHz	60.0	36.3	-23.7	25.2	11.1	QP	L

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No.	Frequency	Limit dBuV	Level dBuV	Delta dB	Reading dBuV	Factor dB	Detector	Phase
6	18.600MHz	60.0	45.4	-14.6	34.1	11.3	QP	L
7	582.000kHz	56.0	41.3	-14.7	30.9	10.4	QP	N
8	807.000kHz	56.0	39.3	-16.7	28.7	10.6	QP	N
9	3.638MHz	56.0	35.9	-20.1	25.5	10.4	QP	N
10	4.952MHz	56.0	39.1	-16.9	28.6	10.5	QP	N
11	17.291MHz	60.0	42.9	-17.1	31.9	11.0	QP	N
12	18.708MHz	60.0	45.9	-14.1	34.7	11.2	QP	N
13	604.500kHz	46.0	23.8	-22.2	13.4	10.4	AV	L
14	1.955MHz	46.0	28.0	-18.0	17.5	10.5	AV	L
15	2.931MHz	46.0	29.2	-16.8	18.7	10.5	AV	L
16	4.884MHz	46.0	28.6	-17.4	18.2	10.4	AV	L
17	5.375MHz	50.0	39.1	-10.9	28.6	10.5	AV	L
18	18.902MHz	50.0	32.9	-17.1	21.6	11.3	AV	L
19	604.500kHz	46.0	25.4	-20.6	15.0	10.4	AV	N
20	1.955MHz	46.0	29.6	-16.4	19.2	10.4	AV	N
21	2.931MHz	46.0	28.2	-17.8	17.8	10.4	AV	N
22	4.884MHz	46.0	28.1	-17.9	17.7	10.4	AV	N
23	5.375MHz	50.0	38.4	-11.6	27.9	10.5	AV	N
24	19.194MHz	50.0	32.7	-17.3	21.5	11.2	AV	N
!25*	**13.560MHz**	-	-	-	-	-	PK	L
!26*	**13.560MHz**	-	-	-	-	-	PK	N

Remark: 1. Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.

2. Corrected Reading = Original Receiver Reading + Correct Factor

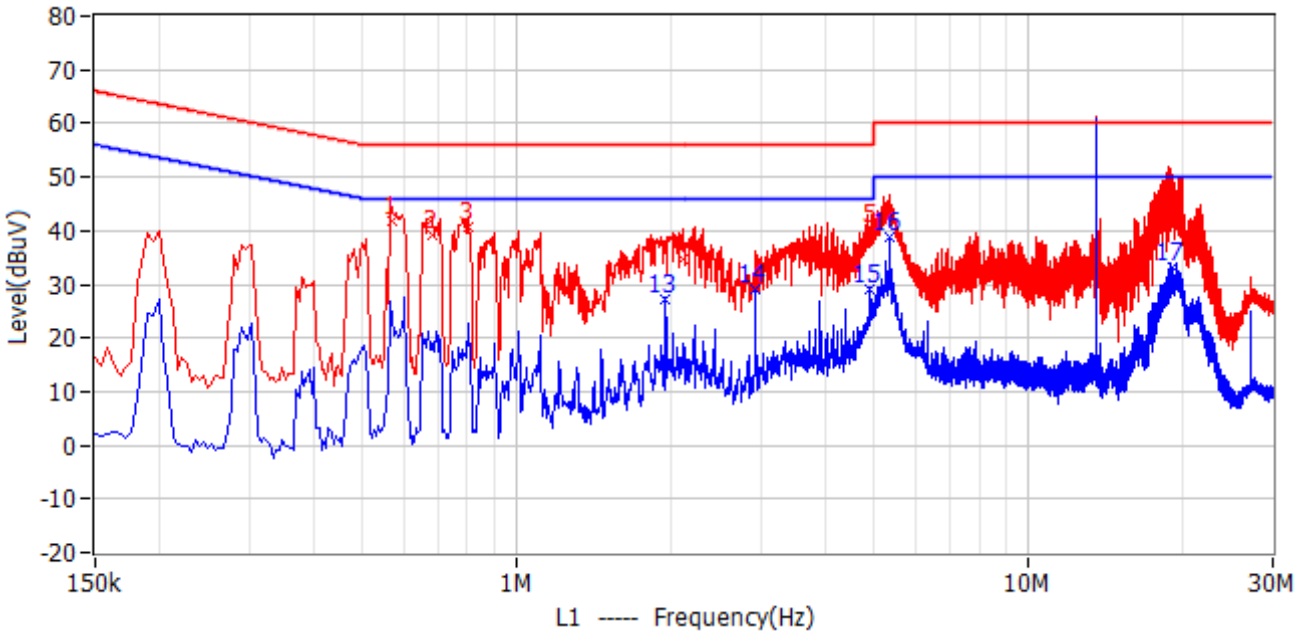
3. Margin = Limit - Corrected Reading

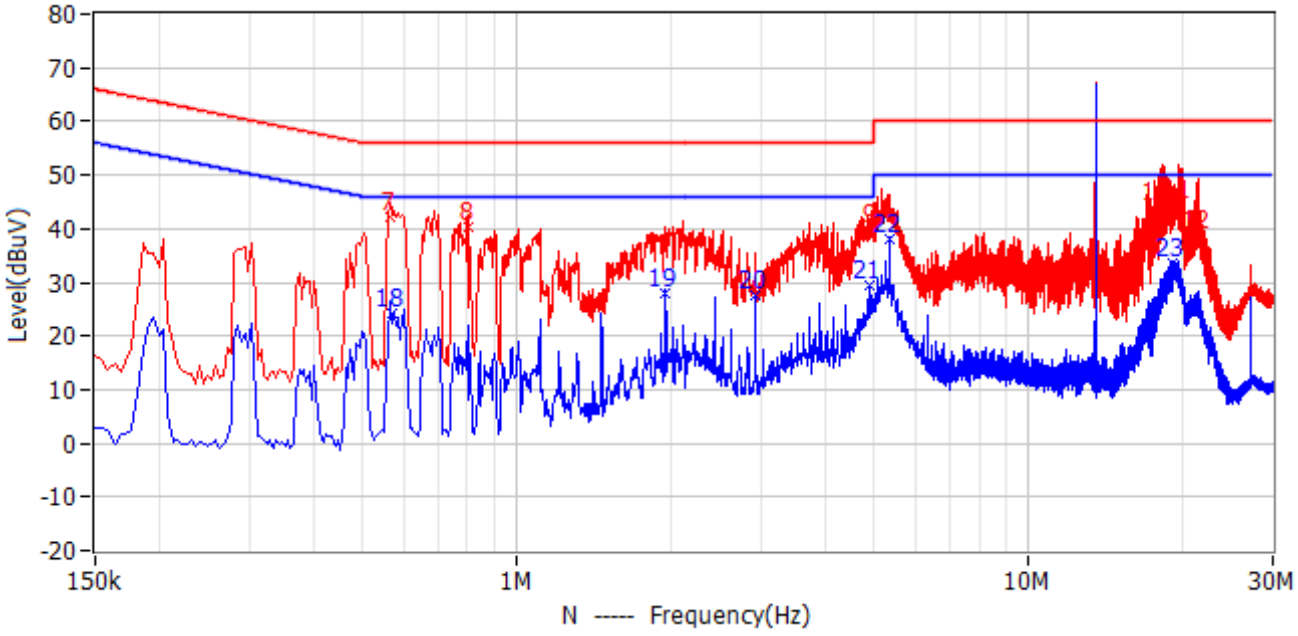
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

5. the emissions of number 25 and 26 are the product's RF signal.

TEST REPORT

RFID+LTE





No.	Frequency	Limit dBuV	Level dBuV	Delta dB	Reading dBuV	Factor dB	Detector	Phase
1	568.500kHz	56.0	41.7	-14.3	31.3	10.4	QP	L
2	685.500kHz	56.0	39.0	-17.0	28.5	10.5	QP	L
3	807.000kHz	56.0	40.6	-15.4	30.0	10.6	QP	L
4	2.112MHz	56.0	34.8	-21.2	24.3	10.5	QP	L
5	4.947MHz	56.0	40.4	-15.6	30.0	10.4	QP	L
6	18.668MHz	60.0	43.3	-16.7	32.0	11.3	QP	L

TEST REPORT

No.	Frequency	Limit dBuV	Level dBuV	Delta dB	Reading dBuV	Factor dB	Detector	Phase
7	564.000kHz	56.0	42.2	-13.8	31.8	10.4	QP	N
8	807.000kHz	56.0	40.4	-15.6	29.8	10.6	QP	N
9	4.947MHz	56.0	39.8	-16.2	29.3	10.5	QP	N
10	17.876MHz	60.0	44.2	-15.8	33.1	11.1	QP	N
11	19.793MHz	60.0	44.6	-15.4	33.3	11.3	QP	N
12	21.399MHz	60.0	38.7	-21.3	27.3	11.4	QP	N
13	1.950MHz	46.0	27.1	-18.9	16.6	10.5	CAV	L
14	2.927MHz	46.0	29.0	-17.0	18.5	10.5	CAV	L
15	4.880MHz	46.0	29.0	-17.0	18.6	10.4	CAV	L
16	5.366MHz	50.0	38.8	-11.2	28.3	10.5	CAV	L
17	19.077MHz	50.0	33.0	-17.0	21.7	11.3	CAV	L
18	568.500kHz	46.0	24.2	-21.8	13.8	10.4	CAV	N
19	1.950MHz	46.0	27.8	-18.2	17.4	10.4	CAV	N
20	2.927MHz	46.0	27.6	-18.4	17.2	10.4	CAV	N
21	4.880MHz	46.0	29.5	-16.5	19.1	10.4	CAV	N
22	5.370MHz	50.0	38.0	-12.0	27.5	10.5	CAV	N
23	19.185MHz	50.0	33.6	-16.4	22.4	11.2	CAV	N
!24*	**13.560MHz**	-	-	-	-	-	PK	L
!25*	**13.560MHz**	-	-	-	-	-	PK	N

Remark: 1. Correct Factor = LISN Factor + Cable Loss, 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.

5. the emissions of number 24 and 25 are the product's RF signal.

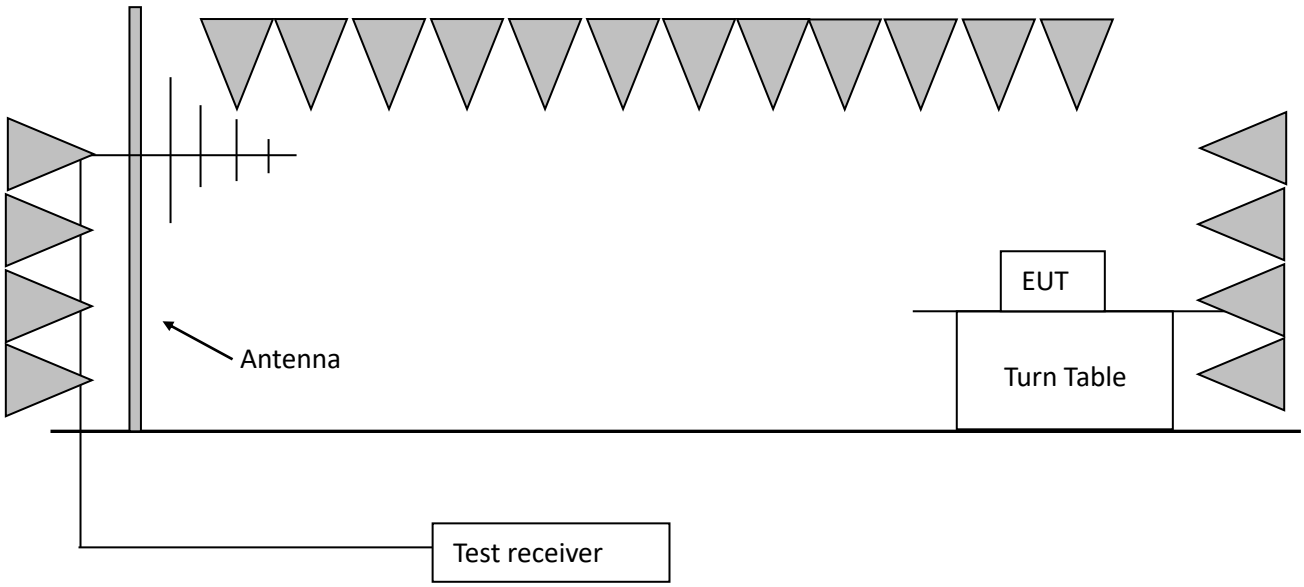
8 20dB Bandwidth

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	13.559902	13.562401	2.499	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 **********