

FCC Radio Test Report**FCC ID: 2AZ92-MZF20SABC****The report concerns: Original Grant**

Report Reference No.....: 22EFSS02033 01371

Date Sample(s) Received.....: 2022-02-17

Date of Tested.....: From 2022-02-17 to 2022-03-07

Date of issue.....: 2022-03-07

Testing Laboratory: DongGuanShuoXin Electronic Technology Co., Ltd.

Address.....: Zone A, 1F, No. 6, XinGang Road YuanGang Street,
XinAn District, ChangAn Town, DongGuan City,
GuangDong, China

Applicant's name: ShenZhen MaiZhan Technology Co.,Ltd

Address.....: Room801, Building H, Chuangxin Yungu, No. 48, PaoTai
Road, LiSongLang No.1 Industrial Zone,
GongMing Street, GuangMing District, ShenZhen

Manufacturer.....: ShenZhen MaiZhan Technology Co.,Ltd

Equipment.....: Wireless Charge Dock

Trade Mark: N/A

Model: MZF20,MZF20S,MZF20G,MZF20A,MZF20B,MZF20C,
MZF20D,MZF20E

Ratings.....: I/P: DC12V ---2A/9V ---2A/5V ---3A
O/P: 15W/10W/7.5W/5W+5W/3W+3W

Test Engineer:


Blue Qiu

Responsible Engineer :


Smile Wang

Authorized Signatory:

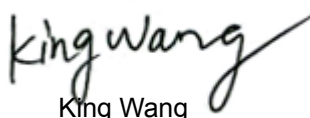

King Wang

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1. TEST REPORT DECLARE

Applicant	ShenZhen MaiZhan Technology Co.,Ltd
Address	MZF15,MZF16,MZF17,MZF16A,MZF16B,MZF16C,MZF16D,MZF16E
Manufacturer	Same as applicant
Address	Same as applicant
Factory	Same as applicant
Address	Same as applicant
Equipment Name	Wireless Charge Dock
Model No.	MZF20,MZF20S,MZF20G,MZF20A,MZF20B,MZF20C, MZF20D,MZF20E
Trade Mark	N/A
Standard	FCC Part15, Subpart C

We Declare:

The equipment described above is tested by DongGuan ShuoXin Electronic Technology Co., Ltd(ATT). and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and DongGuan ShuoXin Electronic Technology Co., Ltd.(ATT) is assumed of full responsibility for the accuracy and completeness of these tests.

ATT is not responsible for the sampling stage, so the results only apply to the sample as received.

ATT's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. ATT shall have no liability for any declarations, inferences or generalizations drawn by the client or others from ATT issued reports.

2. SUMMARY OF TEST RESULTS

The EUT have been tested according to the applicable standards as referenced below:

Standard(s) Section		Test Item	Judgment	Remark
FCC	ISED			
15.207	-	AC Power Line Conducted Emissions	PASS	-----
15.209(a)	-	Radiated Emissions	PASS	-----
15.203	-	Antenna Requirement	PASS	Note(2)
15.215	-	20dB Bandwidth	PASS	

Note:

- (1) "N/A" denotes test is not applicable to this device.
- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.

2.1 MEASUREMENT UNCERTAINTY

Test Item	Uncertainty
Uncertainty for Conduction emission test (9kHz-150kHz)	3.7 dB
Uncertainty for Conduction emission test (150kHz-30MHz)	3.3 dB
Uncertainty for Radiation Emission test (30MHz-200MHz)	4.60 dB (Polarize: V)
	4.60 dB (Polarize: H)
Uncertainty for Radiation Emission test (200MHz-1GHz)	6.10 dB (Polarize: V)
	5.08 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz-6GHz)	5.01 dB (Polarize: V)
	5.01 dB (Polarize: H)
Uncertainty for Radiation Emission test (6GHz-18GHz)	5.26 dB (Polarize: V)
	5.26 dB (Polarize: H)
Uncertainty for Radiation Emission test (18GHz-40GHz)	5.06 dB (Polarize: V)
	5.06 dB (Polarize: H)
Uncertainty for radio frequency	$\pm 0.048\text{kHz}$
Uncertainty for conducted RF Power	$\pm 0.32\text{dB}$

Note:

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless Charge Dock	
Brand Name	N/A	
Test Model	MZF20,MZF20S,MZF20G,MZF20A,MZF20B,MZF20C, MZF20D,MZF20E	
Series Model	/	
Model Difference(s)	/	
Hardware Version	V1.0	
Software Version	V1.0	
PowerSource	DC12V ---2A/9V ---2A/5V ---3A	
Operation Frequency	110kHz-205kHz	
Modulation Technology	FSK	
Antenna Information	Antenna Type:Coil	Maximum Peak Gain: 0dBi

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

3.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	Charging

Following mode(s) as (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test	
Final Test Mode	Description
Mode 1	Charging

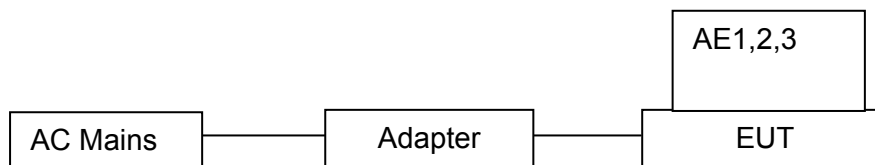
Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 1	Charging

Conducted test	
Final Test Mode	Description
Mode 1	Charging

Note:

(1) The measurements are performed at the high, middle, low available channels.

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
AE1	iphone 11	Apple	/	/
AE2	iwatch	Apple	/	/
AE3	Airpors Pro	Apple	/	/

3.5 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage
AC Power Line Conducted Emissions	25°C	53%	DC 9V
Radiated Emissions-9K-30MHz	25°C	60%	DC 9V
Radiated Emissions-30 MHz to 1GHz	24°C	68%	DC 9V
Bandwidth	24.8°C	40.9%	DC 9V

4.AC POWER LINE CONDUCTED EMISSIONS TEST

4.1LIMIT

Frequency of Emission (MHz)	Limit (dB μ V)	
	Quasi-peak	Average
0.15 -0.50	66 to 56*	56 to 46*
0.50 -5.0	56	46
5.0 -30.0	60	50

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

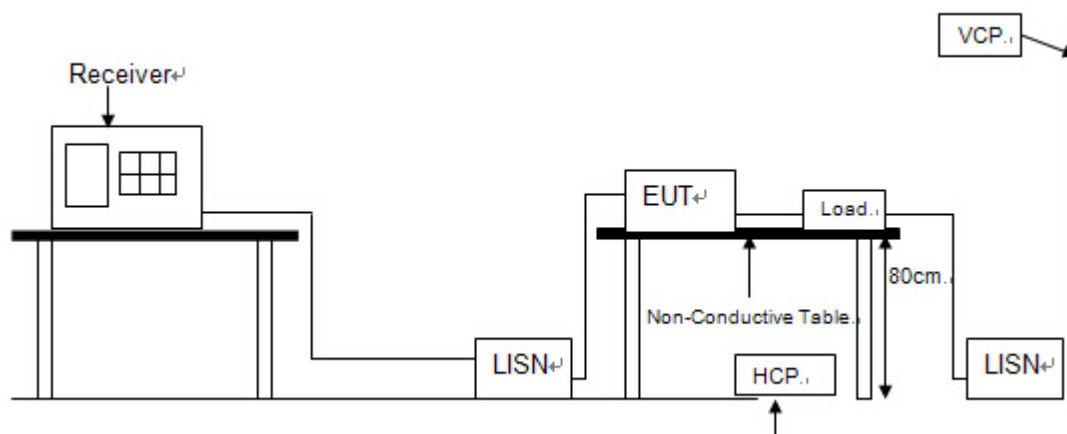
4.2TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the groundplane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. 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.
- d. LISN at least 80 cm from nearest part of EUT chassis.

4.3MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Pulse Limiter	MTS-systemtechnik	MTS-IMP-136	261115-010-0024	12/19/2022
2	EMI Test Receiver	R&S	ESCI	101308	12/17/2022
3	LISN	AFJ	LS16	16011103219	06/09/2022
4	LISN	Schwarzbeck	NSLK 8127	8127-432	12/17/2022
5	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

4.4 TEST SETUP

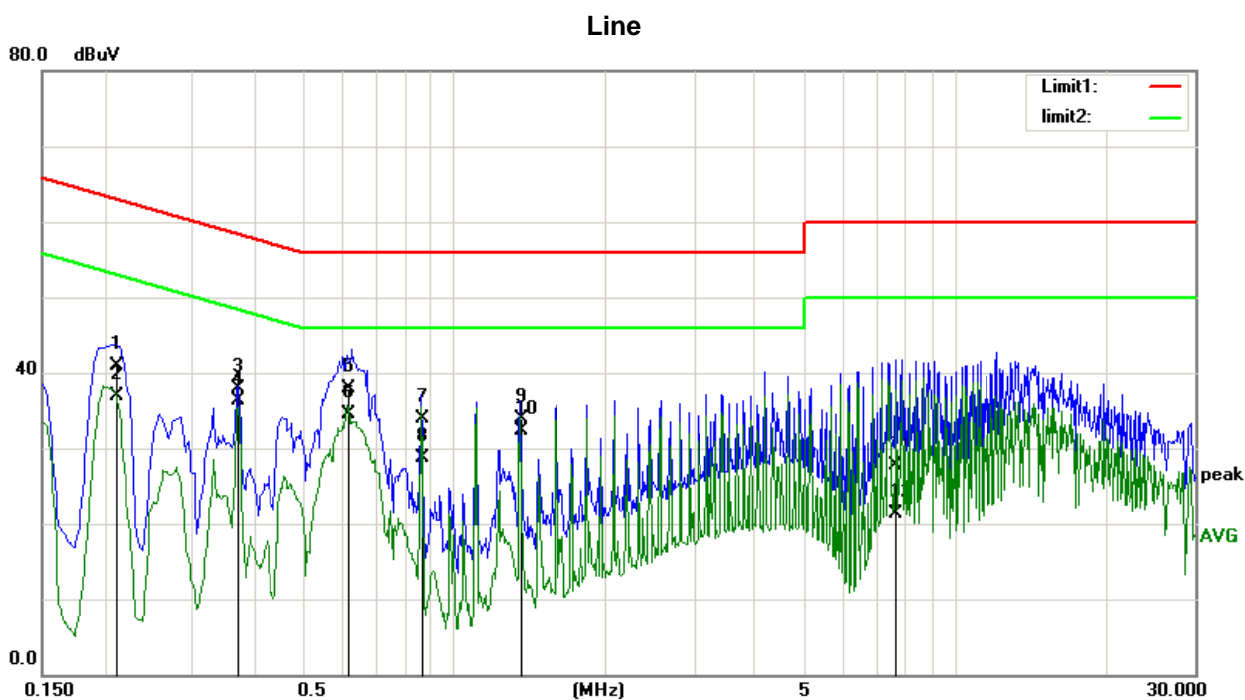


4.5 EUT OPERATING CONDITIONS

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.

4.6 TEST RESULTS

Test Mode:	Charging
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No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2110	29.69	11.12	40.81	63.16	-22.35	QP
2	0.2110	25.87	11.12	36.99	53.16	-16.17	AVG
3	0.3695	27.45	10.44	37.89	58.51	-20.62	QP
4	0.3695	25.88	10.44	36.32	48.51	-12.19	AVG
5	0.6170	27.55	10.26	37.81	56.00	-18.19	QP
6	0.6170	24.26	10.26	34.52	46.00	-11.48	AVG
7	0.8645	23.76	10.21	33.97	56.00	-22.03	QP
8	0.8645	18.52	10.21	28.73	46.00	-17.27	AVG
9	1.3646	23.74	10.21	33.95	56.00	-22.05	QP
10	1.3646	22.09	10.21	32.30	46.00	-13.70	AVG
11	7.5849	17.58	10.20	27.78	60.00	-32.22	QP
12	7.5849	11.09	10.20	21.29	50.00	-28.71	AVG

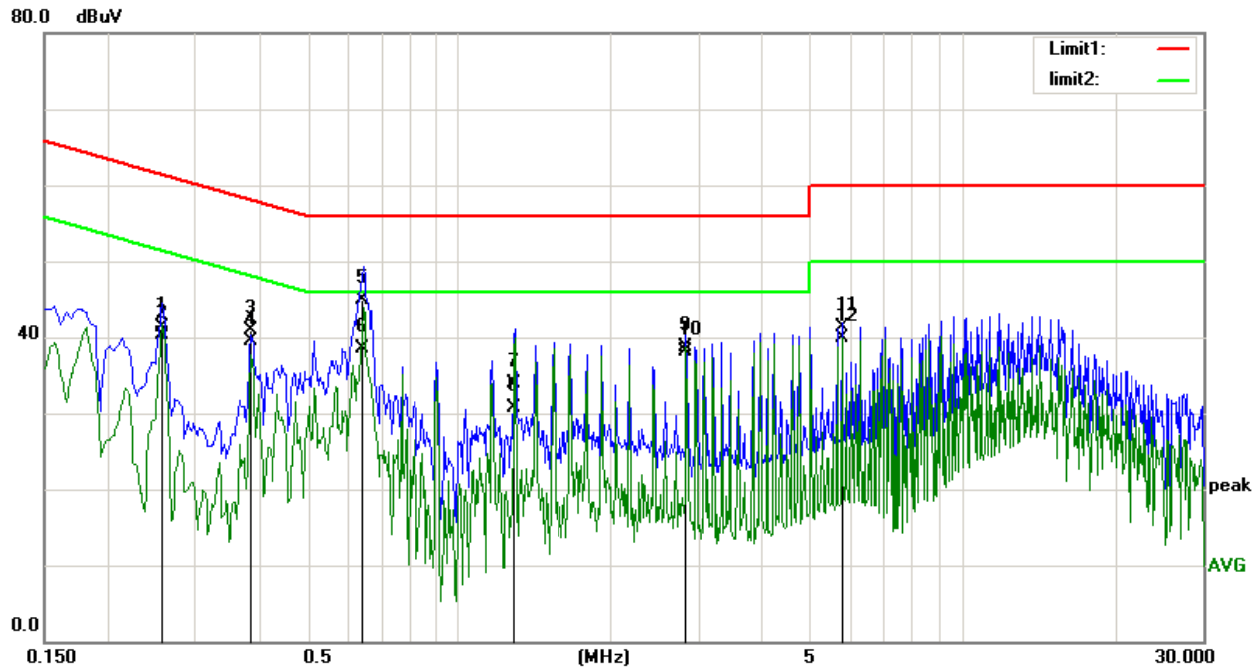
Remarks:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode: Charging

Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2565	30.44	10.81	41.25	61.54	-20.29	QP
2	0.2565	29.52	10.81	40.33	51.54	-11.21	AVG
3	0.3845	30.52	10.42	40.94	58.18	-17.24	QP
4	0.3845	29.01	10.42	39.43	48.18	-8.75	AVG
5	0.6417	34.58	10.26	44.84	56.00	-11.16	QP
6	0.6417	28.15	10.26	38.41	46.00	-7.59	AVG
7	1.2803	23.64	10.21	33.85	56.00	-22.15	QP
8	1.2803	20.52	10.21	30.73	46.00	-15.27	AVG
9	2.8241	28.47	10.23	38.70	56.00	-17.30	QP
10	2.8241	27.91	10.23	38.14	46.00	-7.86	AVG
11	5.7659	31.09	10.22	41.31	60.00	-18.69	QP
12	5.7659	29.59	10.22	39.81	50.00	-10.19	AVG

Remarks:
 (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

5. RADIATED EMISSION TEST

5.1 LIMIT

In case the emission fall within the restricted band specified onn the 15.209(a) in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-1000MHz)

Frequency (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

LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-30 MHz)

Frequency (MHz)	Magnetic field strength (H-Field) (μ A/m)	Measurement Distance (meters)
0.009-0.490	6.37/F(kHz)	300
0.490-1.705	6.37/F(kHz)	30
1.705-30.0	0.08	30

LIMITS OF RADIATED EMISSION MEASUREMENT (30 MHz-1000MHz)

Frequency (MHz)	Field Strength (μ V/m at 3m)
30-88	100
88-216	150
216-960	200
Above 960	500

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

Frequency (MHz)	(dBuV/m at 3 m)	
	Peak	Average
Above 1000	74	54

Note:

- (1) The limit for radiated test was performed according to FCC PART 15C
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (μ V/m).

5.2 TEST PROCEDURE

- a. The measuring distance of 3 m 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.(below 1GHz)
- b. The measuring distance of 3 m or 1.5m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 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.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. 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 find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
(below 1GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
- i. Measurement Value = Reading Level + Correct Factor.
Margin Level = Measurement Value - Limit Value.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	RBW 1MHz VBW 3MHz peak detector for Pk value RMS detector for AV value

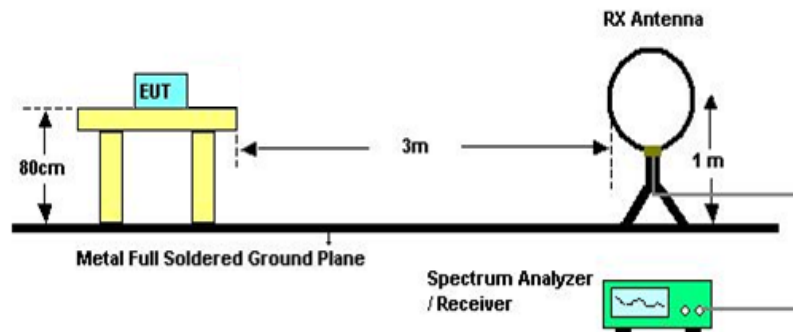
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

5.3 MEASUREMENT INSTRUMENTS LIST

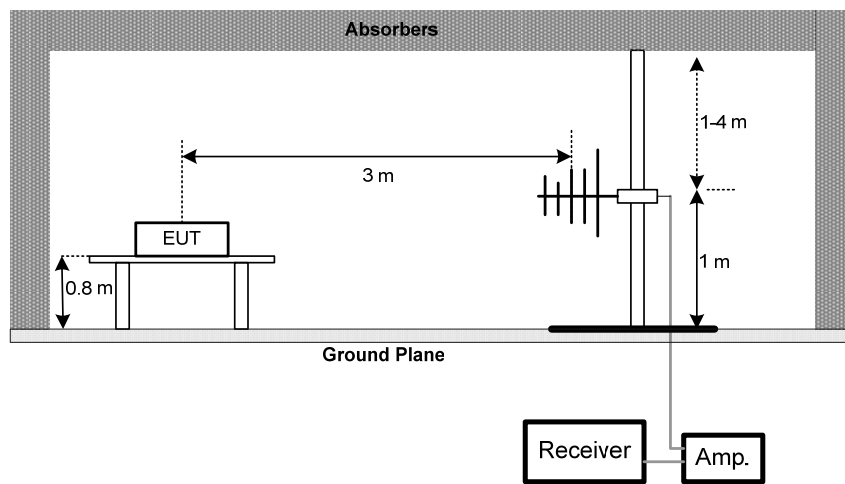
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	101307	12/19/2022
2	Spectrum Analyzer	Agilent	E4407B	US40240708	11/16/2022
3	Loop antenna	SCHWARZBECK K	FMZB1519	1519-062	12/14/2022
4	Broadband antenna	SCHWARZBECK	VULB9168	VULB9168-192	08/05/2022
5	HORN ANTENNA	SCHWARZBECK	BBHA9120D	9120D 1065	04/21/2022
6	Preamplifier Amplifier	HP	8447F	3113A05680	12/19/2022
7	PRE-AMPLIFIER	CY	EMC011830	980136	04/19/2022
8	RF Cable	R&S	Test Cable 4	4	12/19/2022
9	RF Cable	R&S	Test Cable 5	5	12/19/2022
10	RF Cable	R&S	Test Cable 9	9	04/21/2022
11	RF Cable	R&S	Test Cable 10	10	12/19/2022
12	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

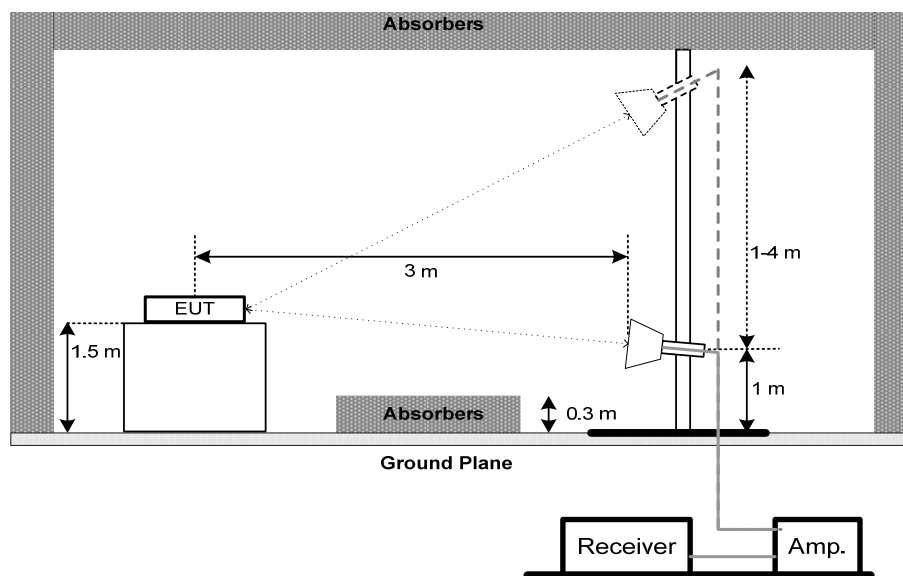
5.4 TEST SETUP

9 kHz-30 MHz



30 MHz to 1 GHz



Above 1 GHz**5.5 EUT OPERATING CONDITIONS**

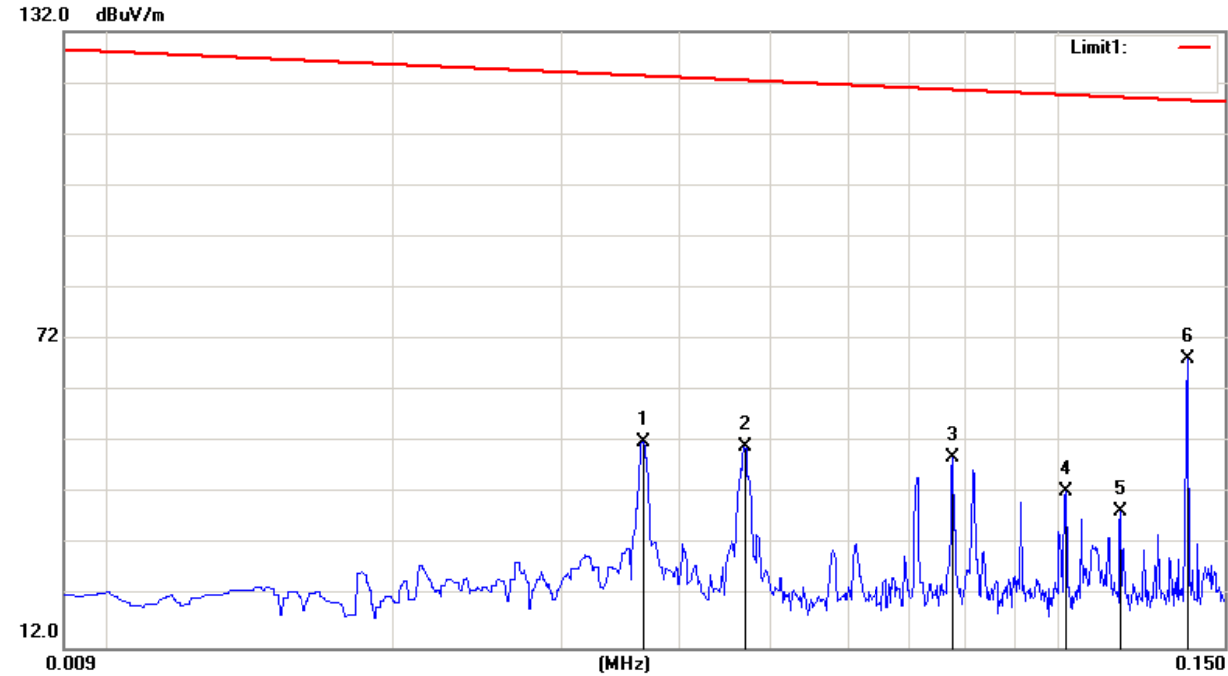
The EUT was programmed to be in continuously transmitting mode.

Remark: The test result is calculated as the following:

- (1) Result = Reading + Correct Factor
- (2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
- (3) Margin = Result - Limit

5.6 TEST RESULT- 9kHz TO 30MHz

Test Mode :	TX Mode Ant 0°
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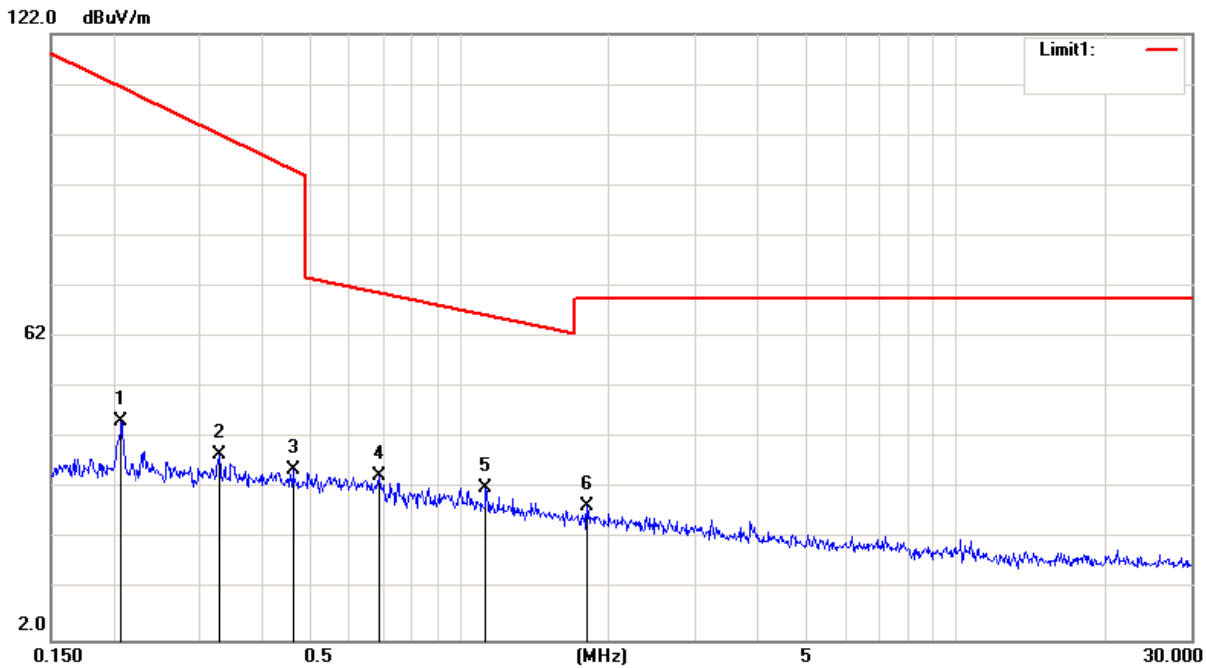
No.	Frequency (KHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0366	31.70	20.33	52.03	126.49	-74.46	peak
2	0.0469	30.70	20.38	51.08	125.75	-74.67	peak
3	0.0777	28.30	20.76	49.06	123.53	-74.47	peak
4	0.1021	21.44	20.98	42.42	121.77	-79.35	peak
5	0.1164	17.73	20.68	38.41	120.74	-82.33	peak
6	0.1372	48.00	20.15	68.15	119.24	-51.09	peak

Note:

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuV) + distance extrapolation factor

Test Mode : TX Mode Ant 0°



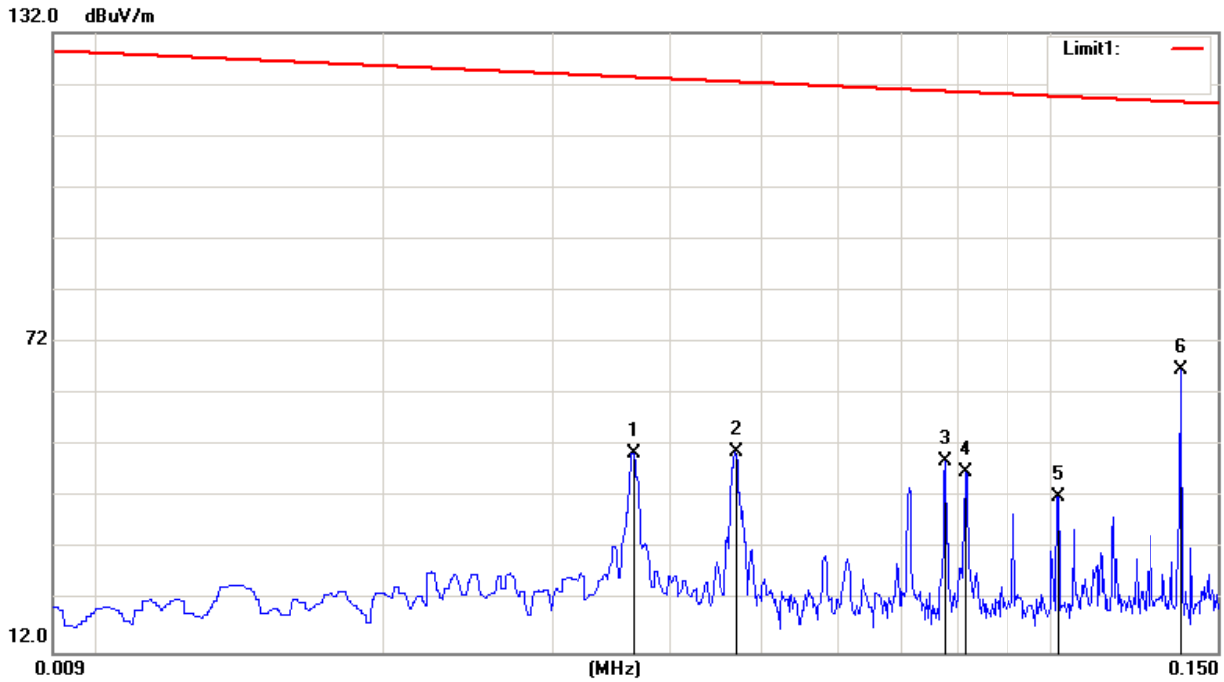
No.	Frequency (KHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.2072	24.67	20.65	45.32	114.19	-68.87	peak
2	0.3268	18.20	20.62	38.82	105.57	-66.75	peak
3	0.4612	15.10	20.59	35.69	95.88	-60.19	peak
4	0.6863	13.80	20.64	34.44	72.04	-37.60	peak
5	1.1292	11.26	20.76	32.02	68.07	-36.05	peak
6	1.8096	7.74	20.93	28.67	69.50	-40.83	peak

Note:

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuV) + distance extrapolation factor

Test Mode : TX Mode Ant 90°



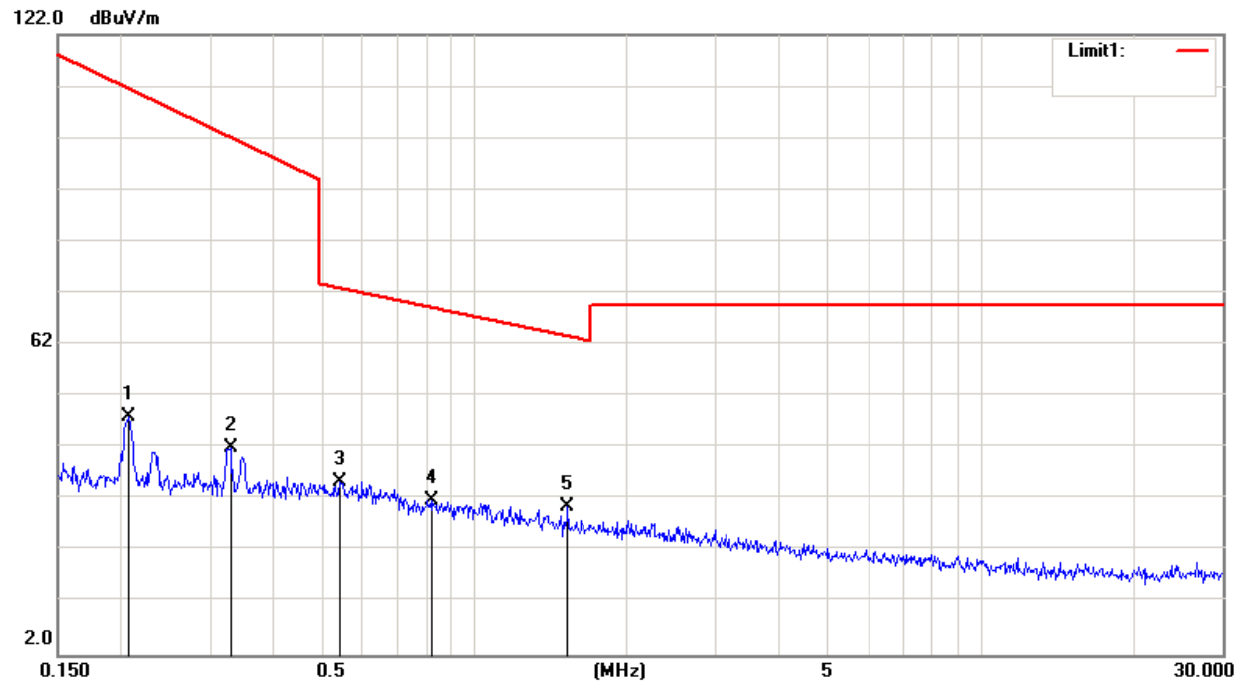
No.	Frequency (KHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0365	30.15	20.33	50.48	126.50	-76.02	peak
2	0.0469	30.50	20.38	50.88	125.75	-74.87	peak
3	0.0777	28.41	20.76	49.17	123.53	-74.36	peak
4	0.0816	26.09	20.74	46.83	123.25	-76.42	peak
5	0.1021	21.30	20.98	42.28	121.77	-79.49	peak
6	0.1372	46.58	20.15	66.73	119.24	-52.51	peak

Note:

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuV) + distance extrapolation factor

Test Mode : TX Mode Ant 90°



No.	Frequency (KHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.2061	27.28	20.65	47.93	114.27	-66.34	peak
2	0.3286	21.52	20.62	42.14	105.44	-63.30	peak
3	0.5407	14.88	20.59	35.47	73.34	-37.87	peak
4	0.8174	11.29	20.67	31.96	70.86	-38.90	peak
5	1.5193	9.77	20.86	30.63	64.57	-33.94	peak

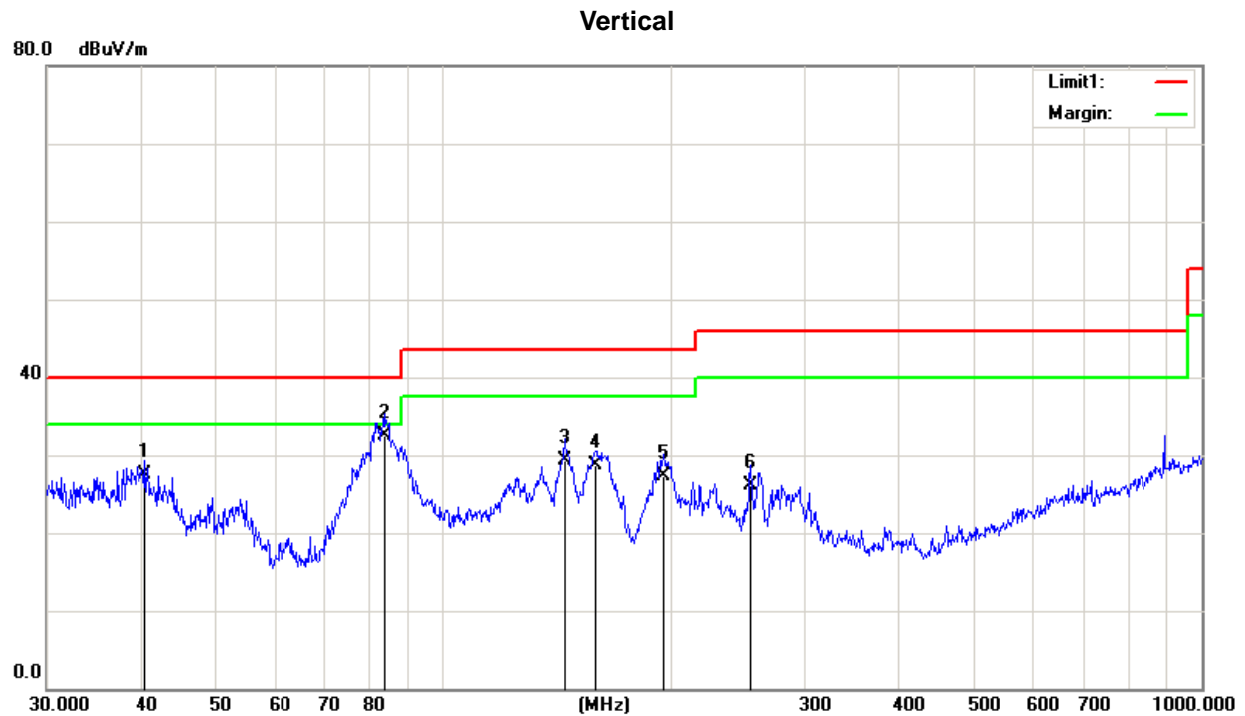
Note:

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuV) + distance extrapolation factor

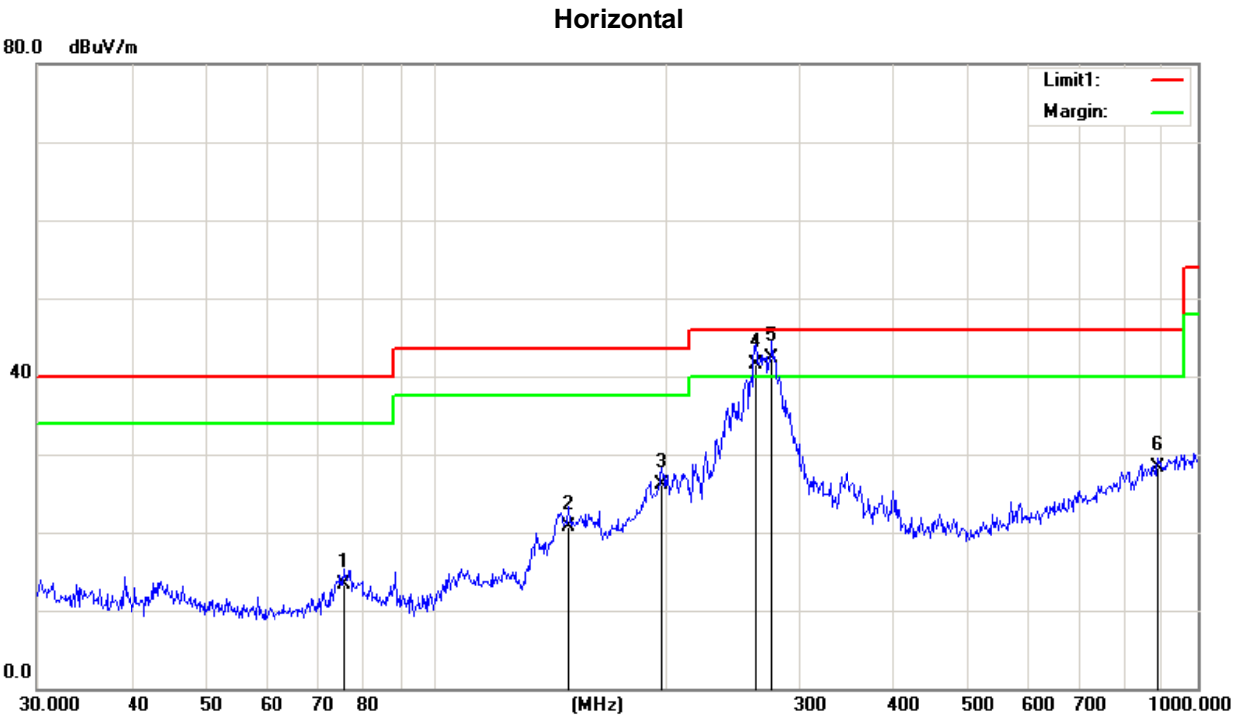
5.7 TEST RESULT- 30MHz TO 1000MHz

Test Mode :	TX Mode Channel 0
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	40.4172	40.36	-12.94	27.42	40.00	-12.58	QP
2	83.5222	47.96	-15.40	32.56	40.00	-7.44	QP
3	144.3348	41.18	-11.78	29.40	43.50	-14.10	QP
4	158.6677	40.54	-11.86	28.68	43.50	-14.82	QP
5	195.1365	39.06	-11.69	27.37	43.50	-16.13	QP
6	254.7284	34.22	-8.05	26.17	46.00	-19.83	QP

Test Mode : TX Mode Channel 0



6.20DB BANDWIDTH TEST**6.1LIMIT**

The field strength of any emission appearing between the band edges and out of band shall be attenuated at least 20DdB below the level of the unmodulated carrier or to the general limits in Section 15.209

6.2TEST PROCEDURE AND SETTING

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting : RBW= 300Hz, VBW=1 kHz, Sweep time = Auto.

6.3MEASUREMENT INSTRUMENTS LIST

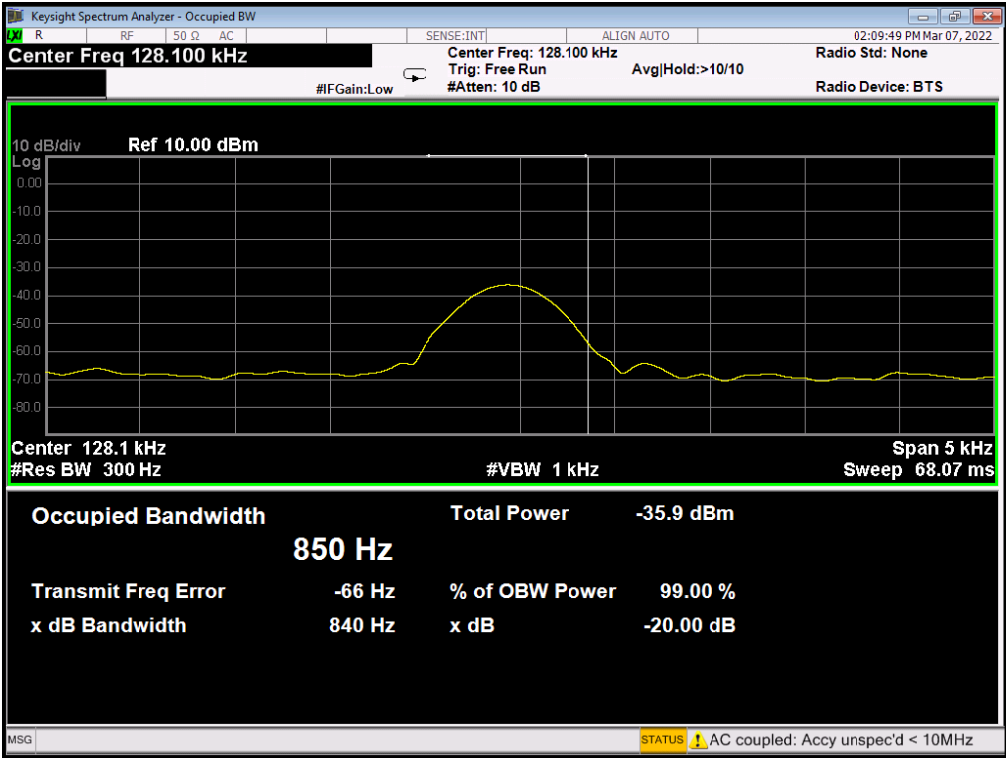
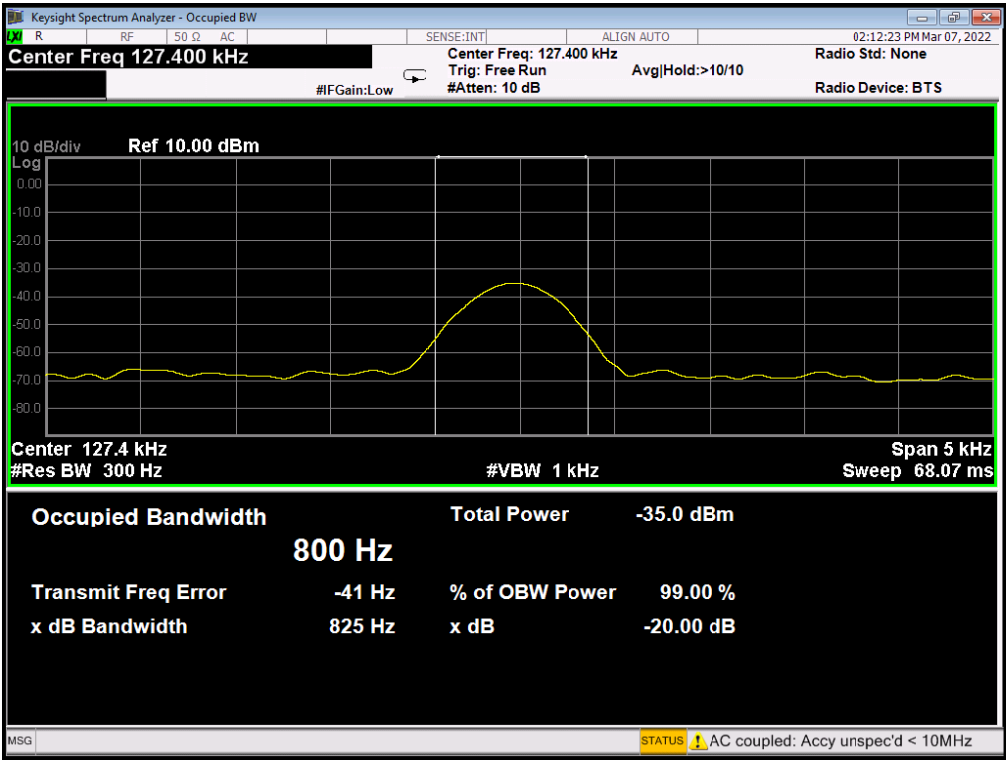
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2022/05/28
2	Attenuator	Mini-Circuits	BW-S10W2	101109	N/A
3	RF Cable	Mi-cable	C10-01-01-1	100309	N/A

6.4TEST SETUP**6.5EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

6.6TESTRESULTS

CHARGING MODE FOR IPHONE			
Frequency (kHz)	20 dB bandwidth (kHz)	99%OBW (kHz)	Result
127.4	0.825	0.800	PASS
128.1	0.840	0.850	PASS



END OF TEST REPORT