FCC TEST REPORT
FCC ID: 2BFZP-C79

Product	:	**Car FM Transmitter**
Model Name	:	**C79, CS15, C60, C61, C62, C63, K29, K30, K40, K42, K43, K44, K45, K46, K49**
Brand	:	**N/A**
Report No.	:	**MAX250422210P02-R02**

Prepared for

Dongguan KWD Technology Co.,Ltd
9F, Building B, Caiqiao Industrial Park, Puxinhu, Tangxia Town, Dongguan City, Guangdong Province, P.R.C

Prepared by

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1 TEST RESULT CERTIFICATION

Applicant's name	:	Dongguan KWD Technology Co.,Ltd
Address	:	9F, Building B, Caiqiao Industrial Park, Puxinhu, Tangxia Town, Dongguan City, Guangdong Province, P.R.C
Manufacture's name	:	Dongguan KWD Technology Co.,Ltd
Address	:	9F, Building B, Caiqiao Industrial Park, Puxinhu, Tangxia Town, Dongguan City, Guangdong Province, P.R.C
Product name	:	Car FM Transmitter
Model name	:	C79, CS15, C60, C61, C62, C63, K29, K30, K40, K42, K43, K44, K45, K46, K49
Standards	:	FCC CFR47 Part 15 Section 15.239
Test procedure	:	ANSI C63.10:2020
Date of test	:	Apr. 21, 2025 to May 08, 2025
Date of Issue	:	May 09, 2025

This device described above has been tested by MAXLAB, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Test Engineer: Cindy zheng

Engineer/ Cindy Zheng

Technical Manager:

RF Manager/ Vivian Jiang

Contents

Page

1 TEST RESULT CERTIFICATION **2**

2 TEST SUMMARY **5**

2.1 TEST SITE 6

3 GENERAL INFORMATION **7**

3.1 GENERAL DESCRIPTION OF E.U.T. 7

3.2 CHANNEL LIST 8

3.3 TEST SETUP CONFIGURATION 9

3.4 TEST MODE 9

4 EQUIPMENT DURING TEST **10**

4.1 EQUIPMENTS LIST 10

4.2 MEASUREMENT UNCERTAINTY 12

4.3 DESCRIPTION OF SUPPORT UNITS 12

5 CONDUCTED EMISSION **13**

5.1 E.U.T. OPERATION 13

5.2 EUT SETUP 13

5.3 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 14

5.4 MEASUREMENT PROCEDURE 14

5.5 CONDUCTED EMISSION LIMIT 14

5.6 MEASUREMENT DESCRIPTION 14

5.7 CONDUCTED EMISSION TEST RESULT 14

6 RADIATED SPURIOUS EMISSIONS **17**

LIMITS OF RADIATED EMISSION MEASUREMENT (ABOVE 1000MHZ) 17

6.1 EUT OPERATION 18

6.2 TEST SETUP 19

6.3 SPECTRUM ANALYZER SETUP 20

6.4 TEST PROCEDURE 21

6.5 SUMMARY OF TEST RESULTS 22

7 BANDWIDTH MEASUREMENT **28**

7.1 TEST PROCEDURE 28

7.2 TEST RESULT 28

8 ANTENNA APPLICATION **31**

8.1 ANTENNA REQUIREMENT 31

8.2 RESULT 31

9 EUT PHOTO AND TEST SETUP PHOTO 32

2 Test Summary

Test Items	Test Requirement	Result
Conduct Emission	FCC Part 15.207	PASS
Fundamental & Radiated / Conducted Spurious Emission Measurement	FCC Part 15.209 & 15.239 c	PASS
Band edge	FCC Part 15.239 c	PASS
Bandwidth	FCC Part 15.239 a	PASS
Antenna Requirement	FCC Part 15.203	PASS

Remark:

1. “N/A” denotes test is not applicable in this Test Report.

2.1 Test Site

Site Description

EMC Lab.:	FCC-Registration No:562200 Designation Number: CN1338 MAXLAB Testing Co., Ltd.has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. A2LA-Lab Cert.No:4707.01 MAXLAB Testing Co, Ltd.has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement. Industry Canada Registration Number.Is:11093A CAB identifier: CN0019 The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.
Name of Firm:	MAXLAB Testing Co, Ltd.
Site Location:	1/F, Building B, Xinshidai GR Park, Shiyan Street, Bao'an District, Shenzhen, Guangdong, 518052, People's Republic of China

3 General Information

3.1 General Description of E.U.T.

Product Name	:	Car FM Transmitter
Model Name	:	C79
Sample ID	:	25017598-001#
Sample(s) Status:	:	Engineer sample
Series Model	:	CS15, C60, C61, C62, C63, K29, K30, K40, K42, K43, K44, K45, K46, K49
Model Different.:	:	All the same except the model number.
Operating frequency	:	88.1-107.9MHz
Number of Channels	:	199 channels
Type of Modulation	:	FM
Antenna installation	:	External antenna
Antenna Gain	:	0dBi
Power supply	:	DC 5V From Adapter Input AC120V 60Hz
Hardware Version	:	N/A
Software Version	:	N/A
Remark：the Antenna gain is provided by customer from Antenna spec. and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.		

3.2 Channel List

The EUT has been tested under its typical operating condition. Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting. Only the worst case data were reported.

The EUT has been associated with peripherals pursuant to ANSI C63.10-2020 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The details of test channels and bandwidth were for RF conductive measurement.

Channel List:

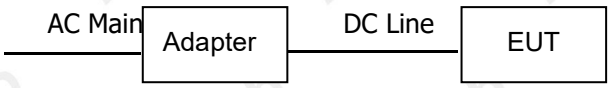
Channel	Frequency (MHz)
01	88.1
02	88.2
~	~
100	98.0
~	~
198	107.8
199	107.9

Note:

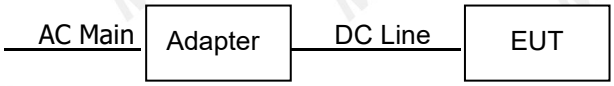
1. Test of channel was included the lowest, middle and highest frequency in highest data rate and to perform the test, then record on this report.

3.3 Test Setup Configuration

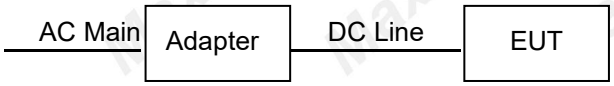
Conducted Emission



Radiated Emission(30MHz-1GHz)



Radiated Emission(above 1GHz)



Conducted Spurious

3.4 Test Mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

Channel	Frequency(MHz)
01	88.1
100	98.0
199	107.9

4 Equipment During Test

4.1 Equipments List

Conducted Emission					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	MAX252	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2024-10-27	2025-10-26
Coaxial Switch	ANRITSU CORP	MP59B	MAX225	2024-10-27	2025-10-26
ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	MAX226	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX227	N/A	N/A
Thermo meter	KTJ	TA328	MAX233	2024-10-27	2025-10-26
Absorbing clamp	Elektronik-Feinmechanik	MDS21	MAX229	2024-10-27	2025-10-26
LISN	R&S	ENV216	308	2024-10-27	2025-10-26
LISN	R&S	ENV216	314	2024-10-27	2025-10-26

Radiation Test equipment					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)*6.4(H)	MAX250	2024-10-27	2025-10-26
Control Room	ZhongYu Electron	6.2(L)*2.5(W)*2.4(H)	MAX251	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESU26	MAX203	2024-10-27	2025-10-26
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	MAX214	2024-10-27	2025-10-26
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	MAX208	2024-10-27	2025-10-26
Horn Antenna	ETS-LINDGREN	3160	MAX217	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX213	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX211	2024-10-27	2025-10-26
Coaxial cable	MAX	N/A	MAX210	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX212	2024-10-27	2025-10-26
Amplifier(100kHz-3GHz)	HP	8347A	MAX204	2024-10-27	2025-10-26
Amplifier(2GHz-20GHz)	HP	84722A	MAX206	2024-10-27	2025-10-26
Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	MAX218	2024-10-27	2025-10-26
Band filter	Amindeon	82346	MAX219	2024-10-27	2025-10-26
Power Meter	Anritsu	ML2495A	MAX540	2024-10-27	2025-10-26
Power Sensor	Anritsu	MA2411B	MAX541	2024-10-27	2025-10-26
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	MAX575	2024-10-27	2025-10-26
Splitter	Agilent	11636B	MAX237	2024-10-27	2025-10-26
Loop Antenna	ZHINAN	ZN30900A	MAX534	2024-10-27	2025-10-26
Breitband hornantenne	SCHWARZBECK	BBHA 9170	MAX579	2024-10-27	2025-10-26
Amplifier	TDK	PA-02-02	MAX574	2024-10-27	2025-10-26
Amplifier	TDK	PA-02-03	MAX576	2024-10-27	2025-10-26

PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	MAX578	2024-10-27	2025-10-26

RF Conducted Test:					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
MXA Signal Analyzer	Agilent	N9020A	MAX566	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2024-10-27	2025-10-26
Spectrum Analyzer	Agilent	E4440A	MAX533	2024-10-27	2025-10-26
MXG vector Signal Generator	Agilent	N5182A	MAX567	2024-10-27	2025-10-26
ESG Analog Signal Generator	Agilent	E4428C	MAX568	2024-10-27	2025-10-26
USB RF Power Sensor	DARE	RPR3006W	MAX569	2024-10-27	2025-10-26
RF Switch Box	Shongyi	RFSW3003328	MAX571	2024-10-27	2025-10-26
Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	MAX572	2024-10-27	2025-10-26

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	EZ	EZ-EMC	EMC-CON 3A1.1+
2	EMC radiation test system	EZ	EZ-EMC	FA-03A2 RE+
3	RF test system	TACHOY	RFTest	V1.0.0
4	RF communication test system	TACHOY	RFTest	V1.0.0

4.2 Measurement Uncertainty

Parameter	Uncertainty
RF output power, conducted	±1.0dB
Power Spectral Density, conducted	±2.2dB
Radio Frequency	± 1 x 10^{-6}
Bandwidth	± 1.5 x 10^{-6}
Time	±2%
Duty Cycle	±2%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emissions (150kHz~30MHz)	±3.64dB
Radiated Emission(9KHz~30MHz)	±4.51dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~25GHz)	±4.74dB
Radiated Emission(25GHz~40GHz)	±3.38dB
Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%	

4.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Car FM Transmitter	N/A	C79	N/A	EUT
E-2	QUICK CHARGE	HUAWEI	HW-090200CH0	B98787L5E00423	Auxiliary

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

5 Conducted Emission

Test Requirement	:	FCC CFR 47 Part 15 Section 15.207
Test Method	:	ANSI C63.10: 2020
Test Result	:	PASS
Frequency Range	:	150kHz to 30MHz
Class/Severity	:	Class B

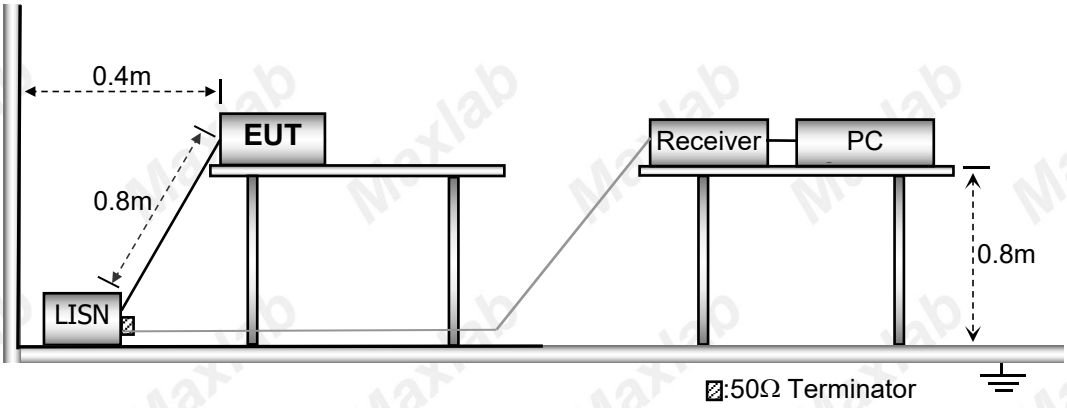
5.1 E.U.T. Operation

Operating Environment :

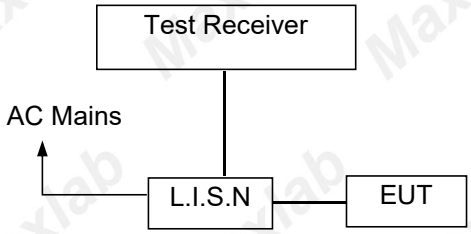
Temperature	:	25.5 °C
Humidity	:	51 % RH
Atmospheric Pressure	:	101.2kPa

5.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10:2020.



5.3 Test SET-UP (Block Diagram of Configuration)



5.4 Measurement Procedure

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

5.5 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:

1. The lower limit shall apply at the transition frequencies
2.The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.6 Measurement Description

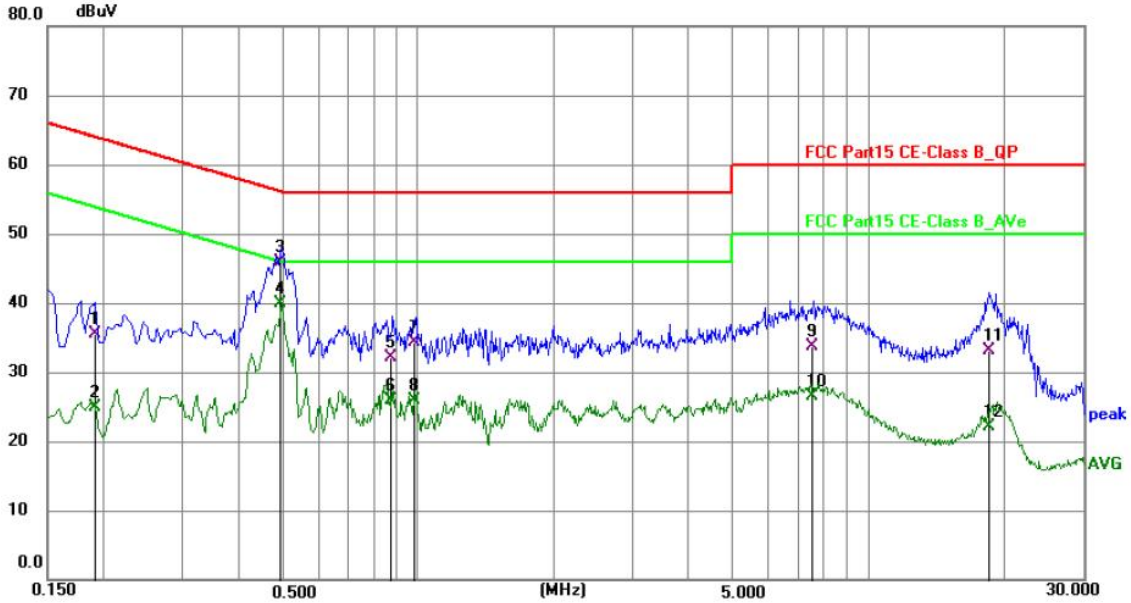
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

5.7 Conducted Emission Test Result

Pass.

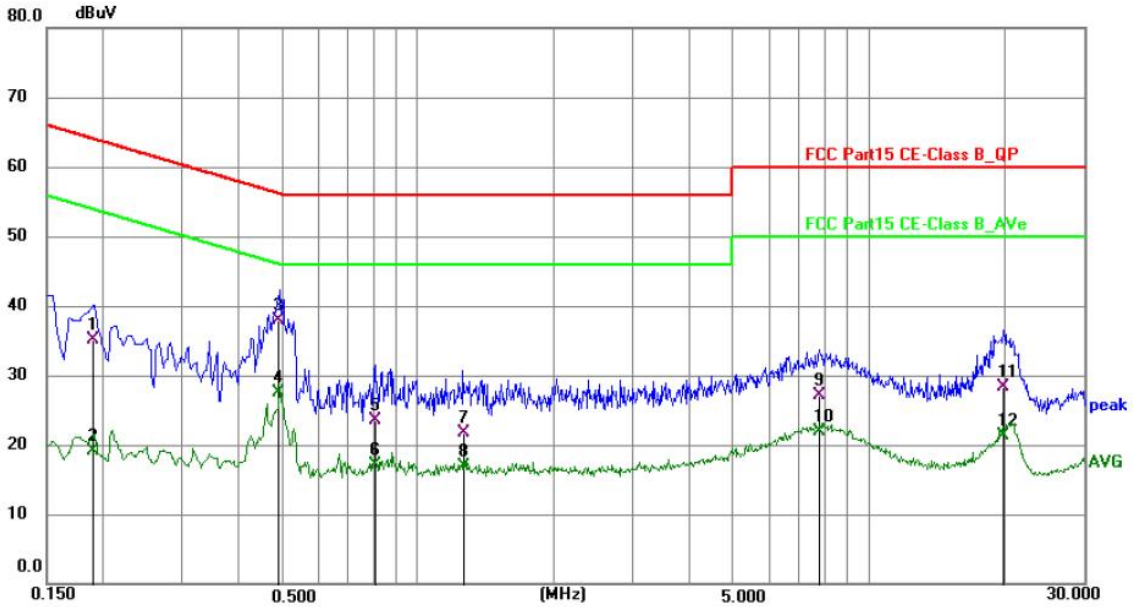
Conducted emission at both 120V & 240V is assessed, and emission at 120V represents the worst case. All the modulation modes were tested the data of the worst test mode (CH01: 88.1MHz) are recorded in the following pages and the others modulation methods do not exceed the limits.

Temperature:	25 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1905	16.02	19.50	35.52	64.01	-28.49	QP
2	0.1905	5.50	19.50	25.00	54.01	-29.01	AVG
3	0.4938	26.39	19.48	45.87	56.10	-10.23	QP
4 *	0.4938	20.35	19.48	39.83	46.10	-6.27	AVG
5	0.8733	12.61	19.49	32.10	56.00	-23.90	QP
6	0.8733	6.38	19.49	25.87	46.00	-20.13	AVG
7	0.9851	14.82	19.50	34.32	56.00	-21.68	QP
8	0.9851	6.37	19.50	25.87	46.00	-20.13	AVG
9	7.5503	13.97	19.66	33.63	60.00	-26.37	QP
10	7.5503	6.91	19.66	26.57	50.00	-23.43	AVG
11	18.5350	13.18	19.99	33.17	60.00	-26.83	QP
12	18.5350	2.06	19.99	22.05	50.00	-27.95	AVG

Temperature:	25 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1901	15.70	19.50	35.20	64.03	-28.83	QP
2	0.1901	-0.30	19.50	19.20	54.03	-34.83	AVG
3 *	0.4915	18.43	19.49	37.92	56.14	-18.22	QP
4	0.4915	7.93	19.49	27.42	46.14	-18.72	AVG
5	0.8056	3.93	19.50	23.43	56.00	-32.57	QP
6	0.8056	-2.34	19.50	17.16	46.00	-28.84	AVG
7	1.2720	2.28	19.52	21.80	56.00	-34.20	QP
8	1.2720	-2.58	19.52	16.94	46.00	-29.06	AVG
9	7.7789	7.39	19.67	27.06	60.00	-32.94	QP
10	7.7789	2.29	19.67	21.96	50.00	-28.04	AVG
11	19.9423	8.23	20.12	28.35	60.00	-31.65	QP
12	19.9423	1.19	20.12	21.31	50.00	-28.69	AVG

Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

6 Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209 & 15.239

Test Method : ANSI C63.10:2020

Test Result : PASS

Measurement Distance : 3m

Limit : See the follow table

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.209&15.239 limit in the table below has to be followed.

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(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 (uV/m).

FUNDAMENTAL AND HARMONICS EMISSION LIMITS

The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in § 15.35 for limiting peak emissions apply.

FREQUENCY RANGE OF RADIATED MEASUREMENT (For intentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

6.1 EUT Operation

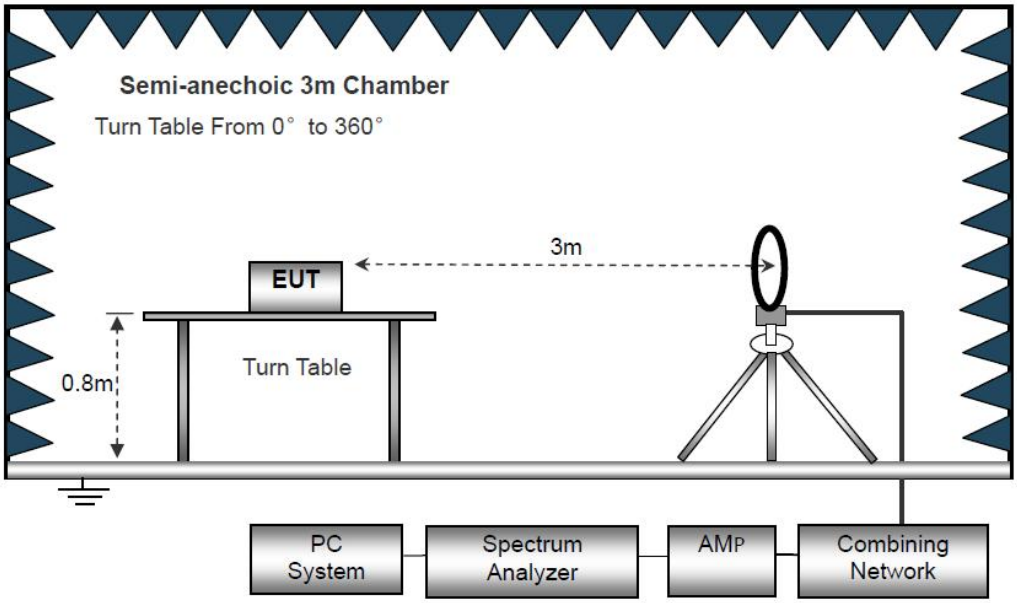
Operating Environment :

Temperature	:	23.5 °C
Humidity	:	51.1 % RH
Atmospheric Pressure	:	101.2kPa

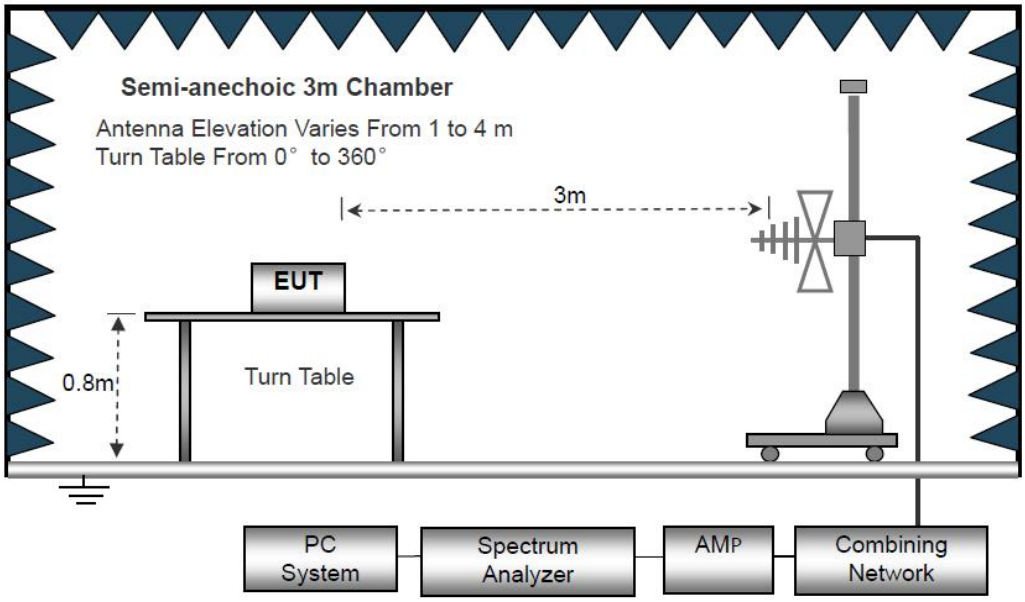
6.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

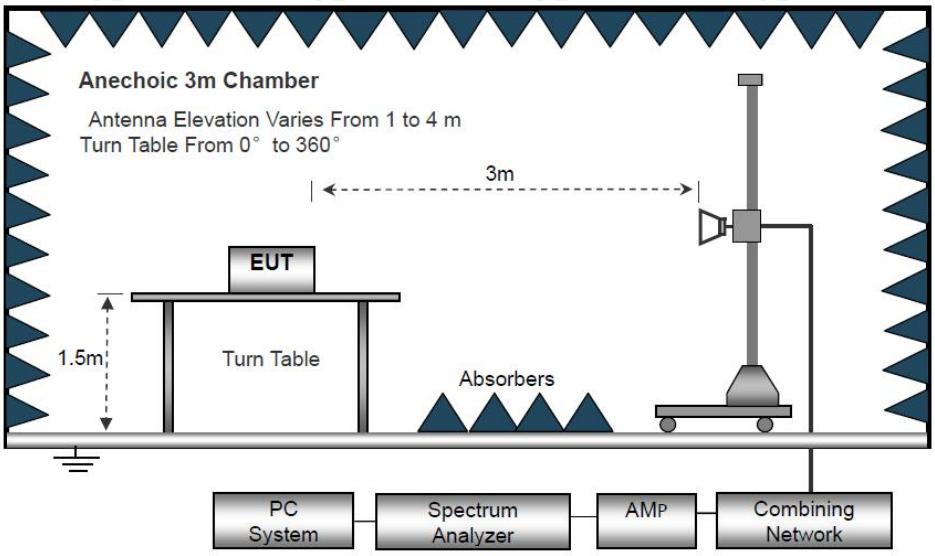
The test setup for emission measurement below 30MHz



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz



6.3 Spectrum Analyzer Setup

	Frequency	Detector	RBW	VBW	Remark
Receiver Setup	Below 30MHz	--	10kHz	10kHz	--
	30MHz ~ 1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value

6.4 Test Procedure

1. The testing follows the guidelines in Spurious Radiated Emissions of ANSI C63.10-2020.

2. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.

3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degree) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.

5. Set to the maximum power setting and enable the EUT transmit continuously.

6. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.

7. Test Procedure of measurement (For Above 1GHz):

1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).

2) Change the antenna polarization and repeat 1) with vertical polarization.

3) Make a hardcopy of the spectrum.

4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.

5) Change the analyser mode to Clear/ Write and found the cone of emission.

6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.

7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.

8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.

8. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

6.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
--	--	--	--	>20

Note:

The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

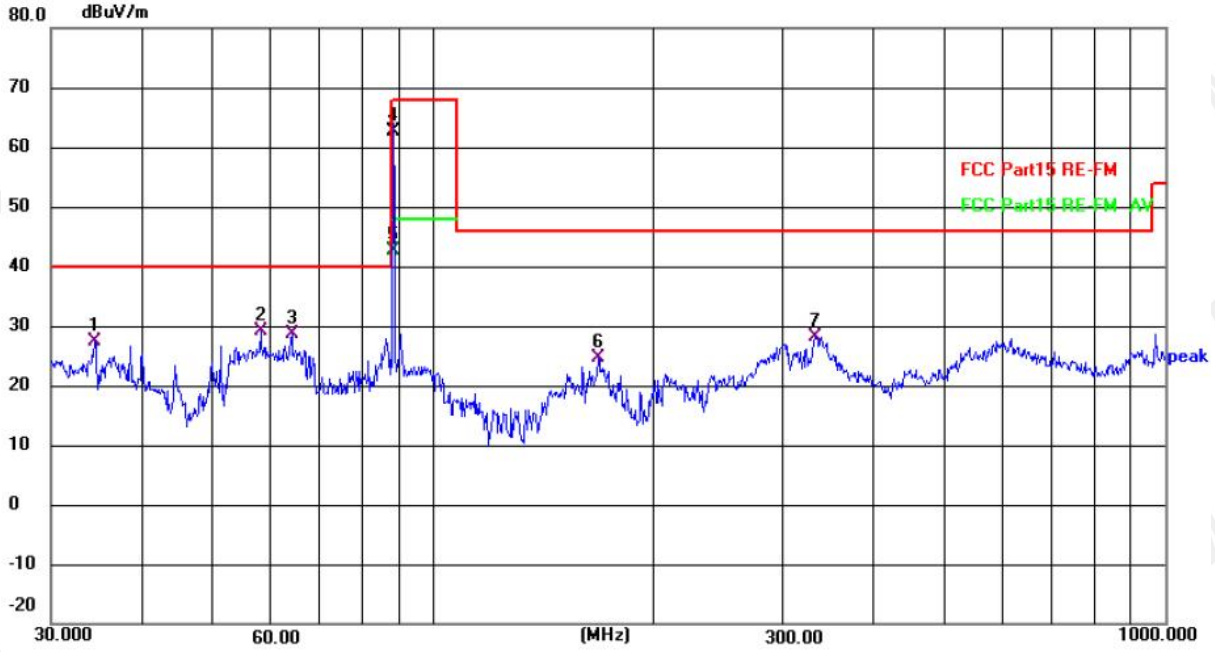
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

Test Frequency: 30MHz ~ 1GHz

Pass.

Please refer to the following test plots for the worst test mode (CH01: 88.1MHz).

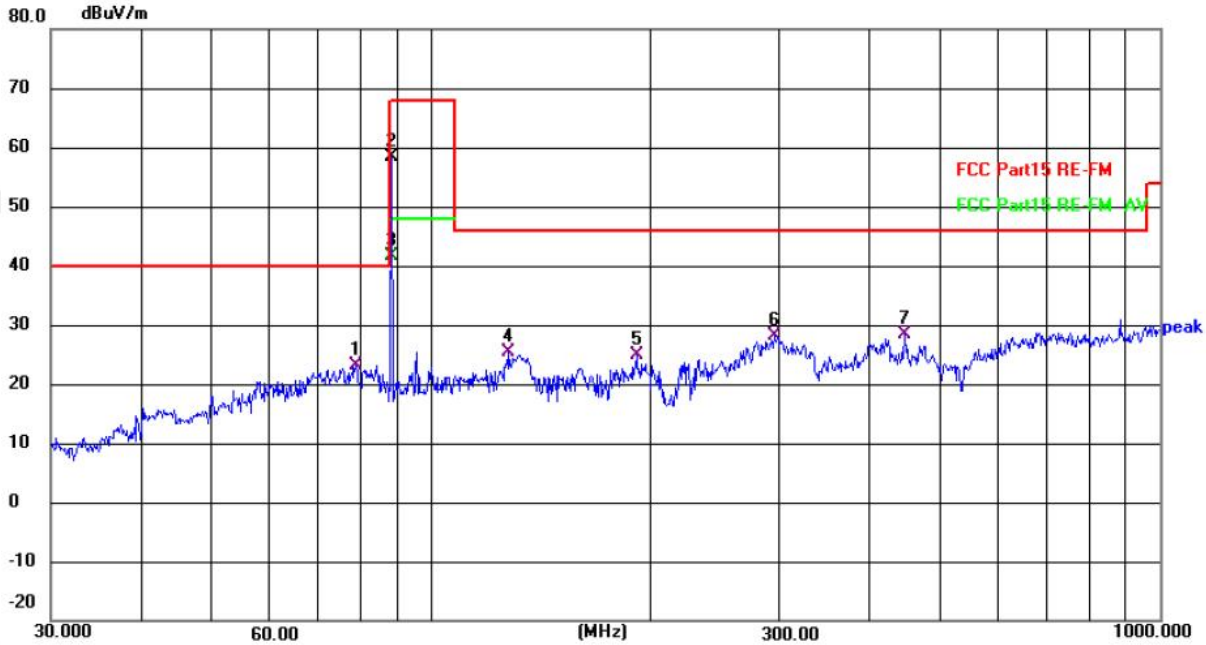
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Vertical
Test Voltage:	DC 5V from Adapter Input AC120V 60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	34.3962	43.73	-16.32	27.41	40.00	-12.59	QP
2	57.9992	44.02	-14.86	29.16	40.00	-10.84	QP
3	63.9827	44.93	-16.24	28.69	40.00	-11.31	QP
4	88.1030	81.20	-18.62	62.58	68.00	-5.42	peak
5	88.1030	61.25	-18.62	42.63	48.00	-5.37	AVG
6	167.8240	43.25	-18.67	24.58	46.00	-21.42	QP
7	332.5187	41.37	-13.14	28.23	46.00	-17.77	QP

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 5V from Adapter Input AC120V 60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	78.6885	42.91	-19.81	23.10	40.00	-16.90	QP
2	88.1030	76.98	-18.62	58.36	68.00	-9.64	peak
3	88.1030	60.30	-18.62	41.68	48.00	-6.32	AVG
4	127.6645	43.85	-18.58	25.27	46.00	-20.73	QP
5	191.0738	41.67	-16.82	24.85	46.00	-21.15	QP
6	296.1836	41.73	-13.51	28.22	46.00	-17.78	QP
7	446.4140	38.74	-10.45	28.29	46.00	-17.71	QP

Remark:Emission Level=Reading+Cable Loss+ANT Factor-AMP Factor

FIELD STRENGTH CALCULATION

Frequency	Emission Level	Limits	Margin	Horizontal / Vertical	Detector Type
MHz	dBµV/m	dBµV/m	dBµV/m		
88.10	56.06	68.00	-11.94	H	PK
88.10	42.02	48.00	-5.98	H	AV
88.10	56.15	68.00	-11.85	V	PK
88.10	42.63	48.00	-5.37	V	AV
98.00	44.91	68.00	-23.09	H	PK
98.00	28.62	48.00	-19.38	H	AV
98.00	43.82	68.00	-24.18	V	PK
98.00	35.22	48.00	-12.78	V	AV
107.99	42.18	68.00	-25.82	H	PK
107.99	29.87	48.00	-18.13	H	AV
107.99	43.94	68.00	-24.06	V	PK
107.99	28.92	48.00	-19.08	V	AV

Test Frequency 1GHz-6GHz:

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
V	1057.20	42.7	39.55	7.77	25.66	36.58	74.00	-37.42	Pk
V	1057.20	34.67	39.55	7.77	25.66	28.55	54.00	-25.45	AV
V	1176.00	43.6	38.33	7.3	24.55	37.12	74.00	-36.88	Pk
V	1176.00	34.35	38.33	7.3	24.55	27.87	54.00	-46.13	AV
V	1294.80	42.19	35.23	7.6	26.38	40.94	74.00	-33.06	Pk
V	1294.80	34.3	35.23	7.6	26.38	33.05	54.00	-40.95	AV
H	1145.30	45.49	38.34	7.32	24.46	38.93	74.00	-35.07	Pk
H	1145.30	33.19	38.34	7.32	24.46	26.63	54.00	-47.37	AV
H	1274.00	42.53	35.12	7.51	26.31	41.23	74.00	-32.77	Pk
H	1274.00	33.58	35.12	7.51	26.31	32.28	54.00	-41.72	AV
H	1402.70	42.97	35.45	7.68	23.81	39.01	74.00	-34.99	Pk
H	1402.70	32.19	35.45	7.68	23.81	28.23	54.00	-45.77	AV

Note: 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,

Margin= Emission Level - Limit

2. If peak below the average limit, the average emission was no test.

3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Spurious Emission in Restricted Band

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
88.1MHz							
V	75.05	30.14	-19.55	10.59	40.00	-29.41	Pk
V	88.00	35.24	-19.58	15.66	40.00	-24.34	AV
V	75.05	30.72	-19.55	11.17	40.00	-28.83	Pk
V	88.00	29.65	-19.58	10.07	40.00	-29.93	AV
107.90MHz							
H	108.00	38.34	-16.67	21.67	43.5	-21.83	Pk
H	109.24	37.72	-16.69	21.03	43.5	-22.47	AV
H	108.00	33.6	-16.67	16.93	43.5	-26.57	Pk
H	109.24	32.5	-16.69	15.81	43.5	-27.69	AV

Note: 1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,

Factor= Antenna Factor + Cable Loss – Pre-amplifier

Margin= Emission Level - Limit

2. If peak below the average limit, the average emission was no test.

3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

7 Bandwidth Measurement

Test Requirement	:	FCC CFR47 Part 15 Section 15.239
Test Method	:	ANSI C63.10:2020
Test Limit	:	Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency.

7.1 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 2kHz, VBW ≥ 3*RBW

7.2 Test Result

Channel number	Channel frequency (MHz)	Measurement level (KHz)	Required Limit (KHz)
01	88.10	7.053	200
100	98.00	6.247	200
199	107.90	6.476	200

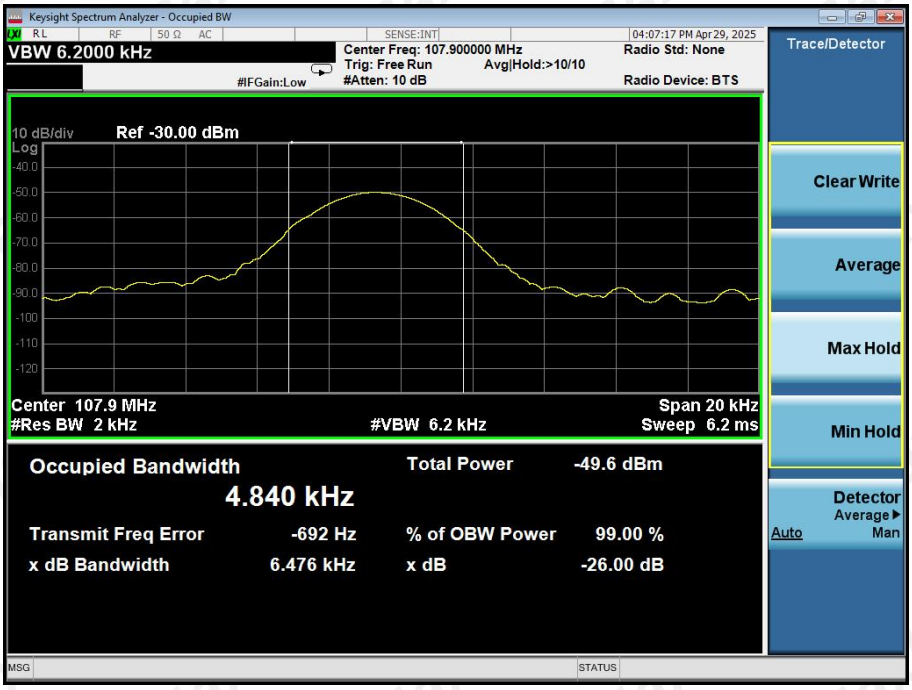
CH01

Keysight Spectrum Analyzer - Occupied BW
Span 20.000 kHz
Center Freq: 88.100000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
04:11:06 PM Apr 29, 2025
Trace/Detector
10 dB/div
Ref -30.00 dBm
Log
Center 88.1 MHz
#Res BW 2 kHz
#VBW 6.2 kHz
Span 20 kHz
Sweep 6.2 ms
Clear Write
Average
Max Hold
Min Hold
Occupied Bandwidth
5.058 kHz
Total Power -54.9 dBm
Transmit Freq Error -500 Hz
% of OBW Power 99.00 %
x dB Bandwidth 7.053 kHz
x dB -26.00 dB
Detector
Average
Auto
Man
File <1.png> saved

CH100

Keysight Spectrum Analyzer - Occupied BW
Span 20.000 kHz
Center Freq: 98.000000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
04:03:57 PM Apr 29, 2025
Trace/Detector
10 dB/div
Ref -30.00 dBm
Log
Center 98 MHz
#Res BW 2 kHz
#VBW 6.2 kHz
Span 20 kHz
Sweep 6.2 ms
Clear Write
Average
Max Hold
Min Hold
Occupied Bandwidth
4.625 kHz
Total Power -50.7 dBm
Transmit Freq Error -605 Hz
% of OBW Power 99.00 %
x dB Bandwidth 6.247 kHz
x dB -26.00 dB
Detector
Average
Auto
Man

CH199


Keysight Spectrum Analyzer - Occupied BW
VBW 6.2000 kHz
Center Freq: 107.900000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
04:07:17 PM Apr 29, 2025
#IFGain:Low
10 dB/div
Ref -30.00 dBm
Log
Center 107.9 MHz
#Res BW 2 kHz
#VBW 6.2 kHz
Span 20 kHz
Sweep 6.2 ms
Occupied Bandwidth
4.840 kHz
Total Power -49.6 dBm
Transmit Freq Error -692 Hz
% of OBW Power 99.00 %
x dB Bandwidth 6.476 kHz
x dB -26.00 dB
Trace/Detector
Clear Write
Average
Max Hold
Min Hold
Detector
Average
Auto
Man
MSG
STATUS

8 Antenna Application

8.1 Antenna Requirement

For intentional device, according to FCC 47 CFR Section 15.203, 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

8.2 Result

The antenna is external antenna, the best case gain of the antennas is 0 dBi, reference to the appendix for details.

9 EUT Photo and Test Setup Photo

Please see the attachment for details.

******THE END REPORT******