TEST REPORT

Applicant:	CUSTOM ACCESSORIES INC
Address of Applicant:	5900 AMI DRIVE, RICHMOND, Illinois 60071, United States
Manufacturer/Factory:	Aoedi Technology (Huizhou) Co., Ltd.
Address of Manufacturer/Factory:	The 2nd and 5th floor of the factory building in the Hanyabei area of Ganpi Village, Zhenlong Town, Huiyang District, Huizhou City, China

Equipment Under Test (EUT)

Product Name:	Car Bluetooth FM Transmitter
Model No.:	24642
Trade Mark:	GOXT
FCC ID:	2ADMQ-24642
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.239
Date of sample receipt:	July 24, 2023
Date of Test:	July 25, 2023-August 16, 2023
Date of report issued:	August 16, 2023
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

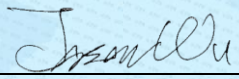
Authorized Signature:

Robinson Luo
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	*August 16, 2023*	*Original*

Tested By:  ***Date:*** *August 16, 2023*

Project Engineer

Check By:  ***Date:*** *August 16, 2023*

Reviewer

3 Contents

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4 Test Summary

Test Item	Section	Result
Antenna requirement	47 CFR Part 15, Subpart C 15.203	Pass
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C 15.207	N/A
Field strength of the fundamental signal	47 CFR Part 15, Subpart C 15.239(b)	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.209 & 15.239 (c)	Pass
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C 15.239(a)	Pass

Remarks:

1. *Test according to ANSI C63.10:2013.*
2. *Pass: The EUT complies with the essential requirements in the standard.*
3. *N/A: Not applicable*

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

5 General Information

5.1 General Description of EUT

Product Name:	Car Bluetooth FM Transmitter
Model No.:	24642
Test sample(s) ID:	GTS2023070290-1
Sample(s) Status:	Engineer sample
S/N:	077341638131
Operation Frequency:	88.1MHz~107.9MHz
Channel numbers:	199
Channel Separation:	100KHz
Modulation Type:	FM
Antenna Type:	Integral antenna
Antenna Gain:	1dBi(declare by applicant)
Power Supply:	Input: 12V-24V DC 2A USB-A Output: 5V DC 2.1A

Remark:
1. Antenna gain information provided by the customer
2. The relevant information of the sample is provided by the entrusting company, and the laboratory is not responsible for its authenticity.

Operation Frequency each of Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	88.1MHz	46	92.6MHz	96	97.6MHz	146	102.6MHz
2	88.2MHz	47	92.7MHz	97	97.7MHz	147	102.7MHz
3	88.3MHz	48	92.8MHz	98	97.8MHz	148	102.8MHz
4	88.4MHz	49	92.9MHz	99	97.9MHz	149	102.9MHz
5	88.5MHz	50	93.0MHz	100	98.0MHz	150	103.0MHz
6	88.6MHz	51	93.1MHz	101	98.1MHz	151	103.1MHz
7	88.7MHz	52	93.2MHz	102	98.2MHz	152	103.2MHz
8	88.8MHz	53	93.3MHz	103	98.3MHz	153	103.3MHz
9	88.9MHz	54	93.4MHz	104	98.4MHz	154	103.4MHz
10	89.0MHz	55	93.5MHz	105	98.5MHz	155	103.5MHz
11	89.1MHz	56	93.6MHz	106	98.6MHz	156	103.6MHz
12	89.2MHz	57	93.7MHz	107	98.7MHz	157	103.7MHz
13	89.3MHz	58	93.8MHz	108	98.8MHz	158	103.8MHz
…….	……	……	……	……	……	……	……
45	92.5MHz	95	97.5MHz	145	102.5MHz	199	107.9MHz

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test Channel:

Channel	Frequency
The lowest channel	88.1MHz
The middle channel	98.0MHz
The Highest channel	107.9MHz

5.2 Test mode

Mode 1	Keep transmit mode

Per-test mode:

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	X	Y	Z
Field Strength(dBuV/m)	33.16	35.50	34.48

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
GS	Lead–acid battery	S5D26R-MFZ	9442804454
SanDisk	TF disk	16GB	N/A

5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC —Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

● **ISED—Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of ISED for radio equipment testing.

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102
Tel: 0755-27798480
Fax: 0755-27798960

5.6 Other Information Requested by the Customer

None.

6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	June 23, 2021	June 22, 2024
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 14, 2023	April 13, 2024
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 19, 2023	March 18, 2025
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	April 17, 2023	April 16, 2025
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Coaxial Cable	GTS	N/A	GTS213	April 21, 2023	April 20, 2024
8	Coaxial Cable	GTS	N/A	GTS211	April 21, 2023	April 20, 2024
9	Coaxial cable	GTS	N/A	GTS210	April 21, 2023	April 20, 2024
10	Coaxial Cable	GTS	N/A	GTS212	April 21, 2023	April 20, 2024
11	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 14, 2023	April 13, 2024
12	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 29, 2022	Nov. 28, 2023
13	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 14, 2023	April 13, 2024
14	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 14, 2023	April 13, 2024
15	Horn Antenna (18-26.5GHz)	/	UG-598A/U	GTS664	Oct. 30, 2022	Oct. 29, 2023
16	Horn Antenna (26.5-40GHz)	A.H Systems	SAS-573	GTS665	Oct. 30, 2022	Oct. 29, 2023
17	FSV·Signal Analyzer (10Hz-40GHz)	Keysight	FSV-40-N	GTS666	March 13, 2023	March 12, 2024
18	Amplifier	/	LNA-1000-30S	GTS650	April 14, 2023	April 13, 2024
19	CDNE M2+M3-16A	HCT	30MHz-300MHz	GTS668	Dec. 20, 2022	Dec.19, 2023
20	Thermo meter	JINCHUANG	GSP-8A	GTS643	April 19, 2023	April 18, 2024

RF Conducted Test:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	April 14, 2023	April 13, 2024
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 14, 2023	April 13, 2024
3	PSA Series Spectrum Analyzer	Agilent	E4440A	GTS536	April 14, 2023	April 13, 2024
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	April 14, 2023	April 13, 2024
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	April 14, 2023	April 13, 2024
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	April 14, 2023	April 13, 2024
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	April 14, 2023	April 13, 2024
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	April 14, 2023	April 13, 2024
9	Thermo meter	JINCHUANG	GSP-8A	GTS641	April 19, 2023	April 18, 2024

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Barometer	KUMAO	SF132	GTS647	April 19, 2023	April 18, 2024

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	47 CFR Part 15, Subpart C 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. The use of a antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
E.U.T Antenna:	
The antenna is integral antenna, reference to the appendix II for details.	

7.2 Radiated Emission Method

Test Requirement:	47 CFR Part 15, Subpart C 15.209 & 15.239 (c)
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 1000MHz

Receiver setup:

Frequency	Detector	RBW	VBW	Remark
9kHz-150kHz	Quasi-peak	200Hz	300Hz	Quasi-peak Value
150kHz-30MHz	Quasi-peak	9kHz	10kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

Limit:
(Field strength of the fundamental signal)

Frequency	Limit (dBuV/m @3m)	Remark
88.1MHz-107.9MHz	48.0	Average Value
	68.0	Peak Value

Limit:
(Spurious Emissions)

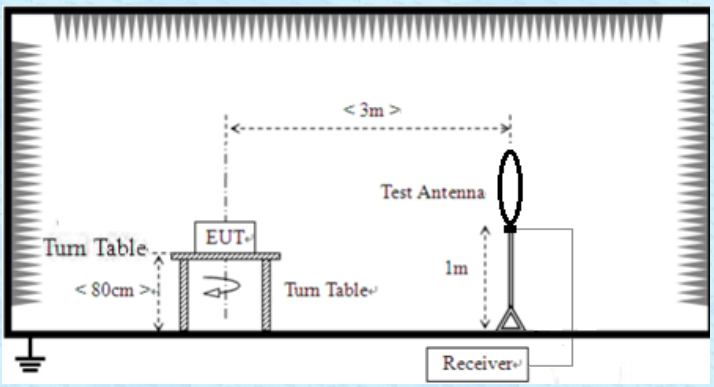
Frequency	Limit (uV/m)	Remark
0.009MHz-0.490MHz	2400/F(kHz) @300m	Quasi-peak Value
0.490MHz-1.705MHz	24000/F(kHz) @30m	Quasi-peak Value
1.705MHz-30.0MHz	30 @30m	Quasi-peak Value
30MHz-88MHz	100 @3m	Quasi-peak Value
88MHz-216MHz	150 @3m	Quasi-peak Value
216MHz-960MHz	200 @3m	Quasi-peak Value
960MHz-1GHz	500 @3m	Quasi-peak Value
Above 1GHz	500 @3m	Average Value
	5000 @3m	Peak Value

Limit:
(band edge)

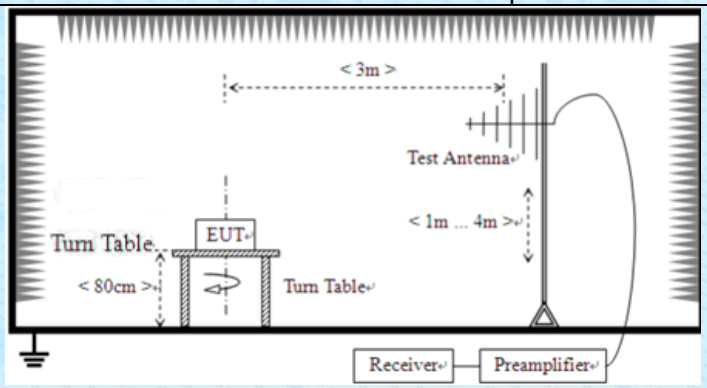
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

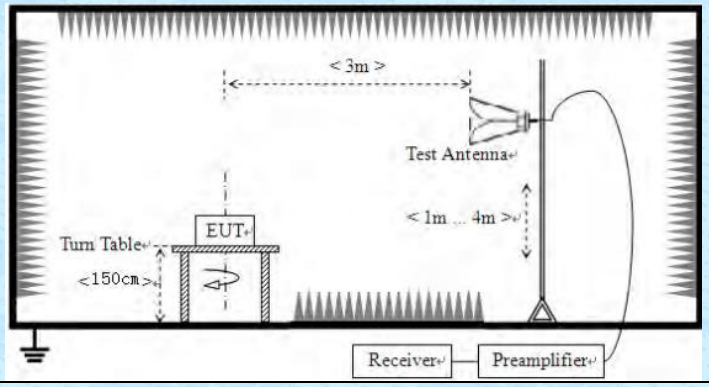
Test setup:

For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz

<table>
<tr><td></td><td> 

For radiated emissions above 1GHz

</td></tr>
<tr><td>Test Procedure:</td><td>1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height 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.
4. 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 rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6.0 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test voltage:</td><td>DC 12V</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Measurement data:

7.2.1 Field Strength of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
88.10	51.00	8.66	1.09	30.00	30.75	48.00	-17.25	Horizontal
88.10	49.26	8.66	1.09	30.00	29.01	48.00	-18.99	Vertical
98.10	47.89	9.50	1.18	30.00	28.57	48.00	-19.43	Horizontal
98.10	54.82	9.50	1.18	30.00	35.50	48.00	-12.50	Vertical
107.90	50.28	10.30	1.26	30.00	31.84	48.00	-16.16	Horizontal
107.90	49.51	10.32	1.26	30.00	31.09	48.00	-16.91	Vertical

Note:
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
PK Value under AV limit, then pass for AV value.

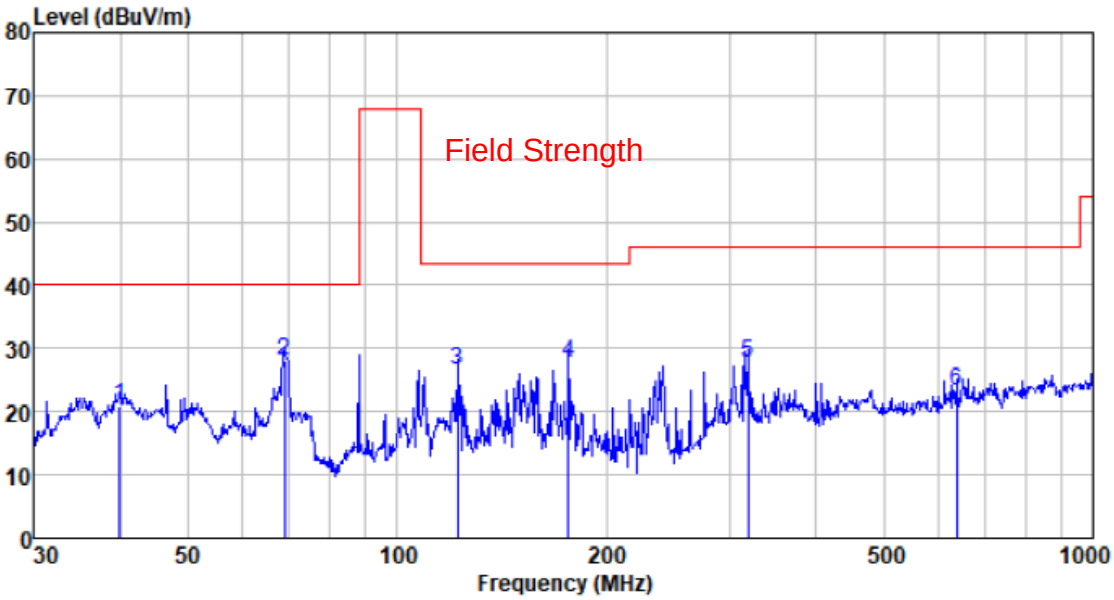
7.2.2 Radiated Spurious Emissions

■ **9kHz~30MHz**

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

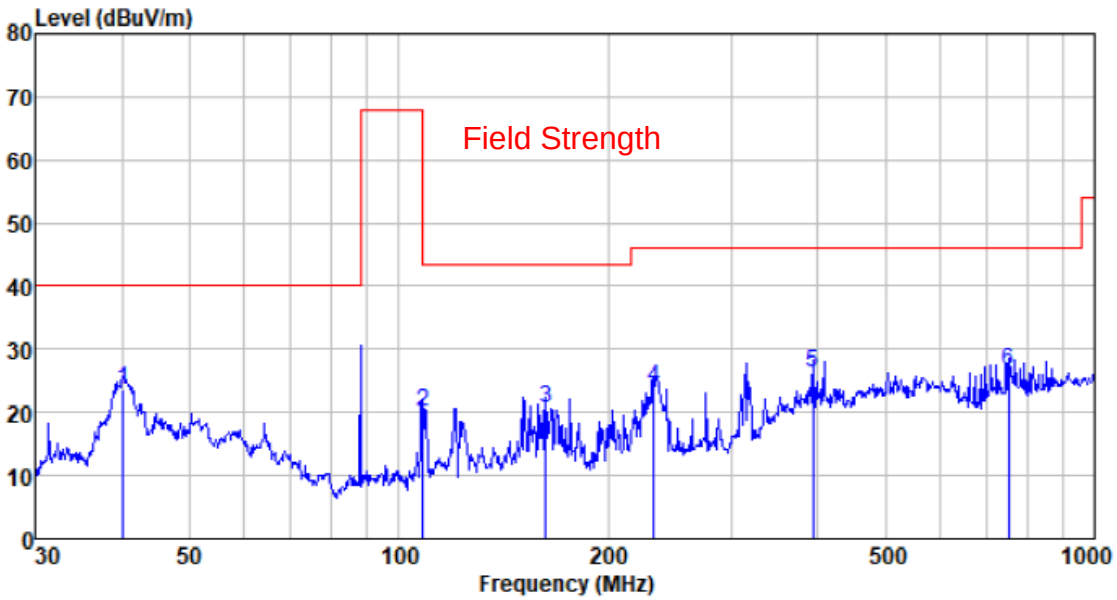
■ **30MHz~1GHz**

Test channel:	Lowest channel	Polarization:	Vertical



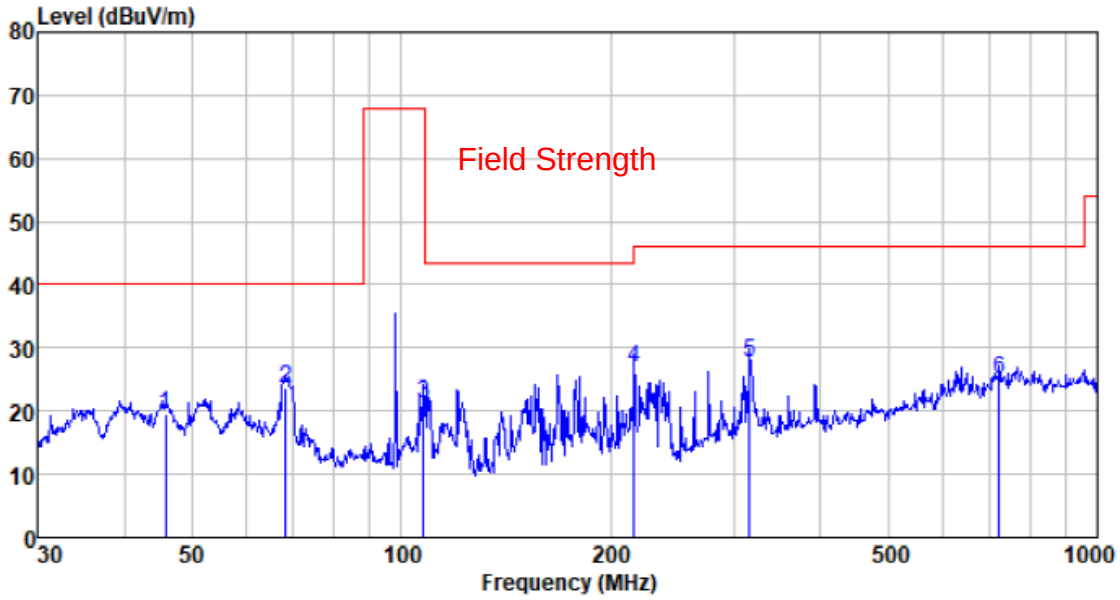
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
39.854	36.77	13.48	0.66	30.00	20.91	40.00	-19.09	QP
68.872	46.33	10.72	0.93	30.00	27.98	40.00	-12.02	QP
121.976	43.77	11.33	1.38	30.00	26.48	43.50	-17.02	QP
176.269	45.30	10.71	1.72	30.00	27.73	43.50	-15.77	QP
318.817	42.13	13.10	2.46	30.00	27.69	46.00	-18.31	QP
636.134	29.48	19.87	3.86	30.00	23.21	46.00	-22.79	QP

Test channel:	Lowest channel	Polarization:	Horizontal



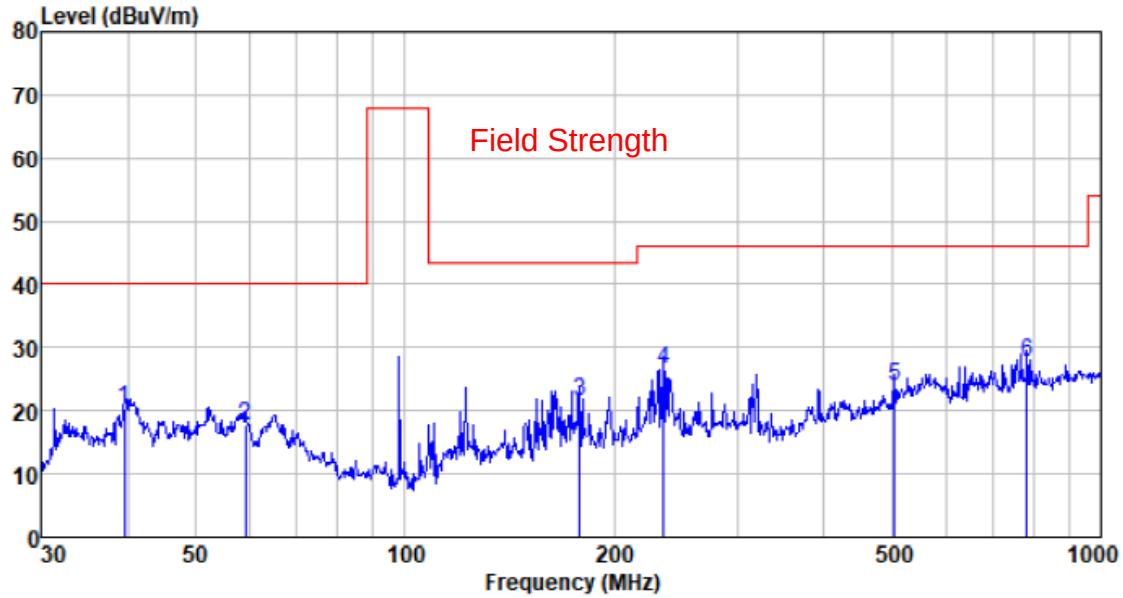
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
40.135	39.54	13.50	0.66	30.00	23.70	40.00	-16.30	QP
108.267	38.57	10.35	1.26	30.00	20.18	43.50	-23.32	QP
162.611	36.62	12.28	1.65	30.00	20.55	43.50	-22.95	QP
232.532	40.64	11.13	2.03	30.00	23.80	46.00	-22.20	QP
393.472	37.88	15.51	2.82	30.00	26.21	46.00	-19.79	QP
752.743	30.56	21.83	4.28	30.00	26.67	46.00	-19.33	QP

Test channel:	Middle channel	Polarization:	Vertical



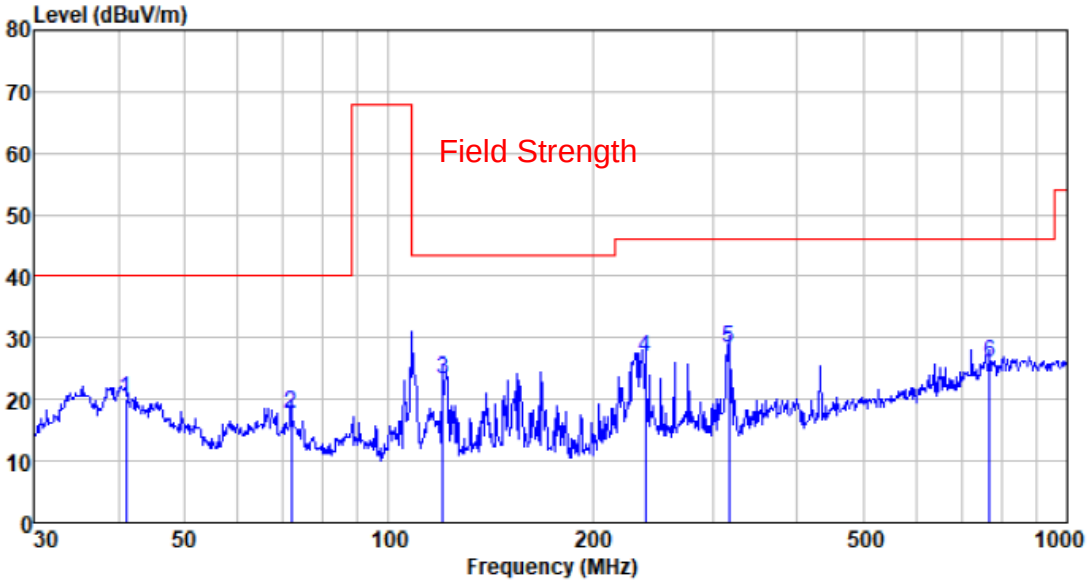
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
45.855	35.54	13.32	0.73	30.00	19.59	40.00	-20.41	QP
68.151	41.74	10.86	0.93	30.00	23.53	40.00	-16.47	QP
107.510	39.56	10.30	1.26	30.00	21.12	68.00	-46.88	QP
216.024	44.88	10.09	1.93	30.00	26.90	46.00	-19.10	QP
316.589	42.21	13.02	2.45	30.00	27.68	46.00	-18.32	QP
721.726	29.79	21.23	4.17	30.00	25.19	46.00	-20.81	QP

Test channel:	Middle channel	Polarization:	Horizontal



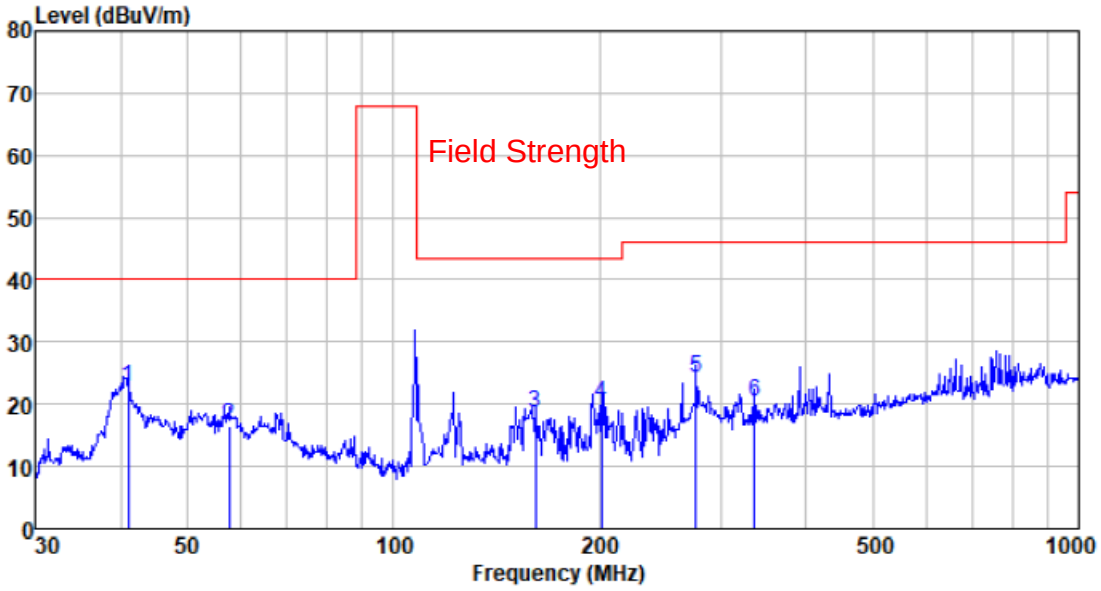
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
39.576	36.20	13.44	0.66	30.00	20.30	40.00	-19.70	QP
59.025	34.16	12.65	0.85	30.00	17.66	40.00	-22.34	QP
178.133	39.40	10.50	1.73	30.00	21.63	43.50	-21.87	QP
234.991	43.27	11.28	2.05	30.00	26.60	46.00	-19.40	QP
504.706	32.77	17.69	3.33	30.00	23.79	46.00	-22.21	QP
782.345	30.88	22.38	4.40	30.00	27.66	46.00	-18.34	QP

Test channel:	Highest channel	Polarization:	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
40.988	35.97	13.47	0.67	30.00	20.11	40.00	-19.89	QP
71.832	36.60	10.19	0.96	30.00	17.75	40.00	-22.25	QP
120.277	40.76	11.22	1.36	30.00	23.34	43.50	-20.16	QP
239.147	43.23	11.55	2.06	30.00	26.84	46.00	-19.16	QP
317.701	42.75	13.06	2.45	30.00	28.26	46.00	-17.74	QP
768.748	29.59	22.13	4.35	30.00	26.07	46.00	-19.93	QP

Test channel:	Highest channel	Polarization:	Horizontal

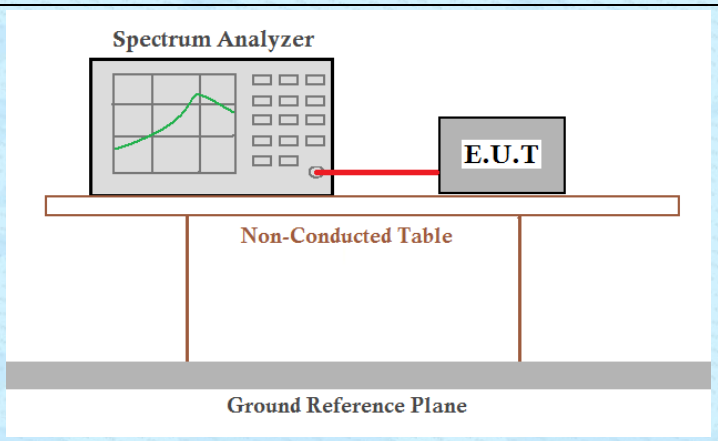


Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
40.988	38.57	13.47	0.67	30.00	22.71	40.00	-17.29	QP
57.594	32.84	12.73	0.84	30.00	16.41	40.00	-23.59	QP
160.909	34.57	12.49	1.63	30.00	18.69	43.50	-24.81	QP
201.393	38.86	9.28	1.85	30.00	19.99	43.50	-23.51	QP
276.124	39.46	12.60	2.25	30.00	24.31	46.00	-21.69	QP
336.035	34.13	13.70	2.55	30.00	20.38	46.00	-25.62	QP

Remark:

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

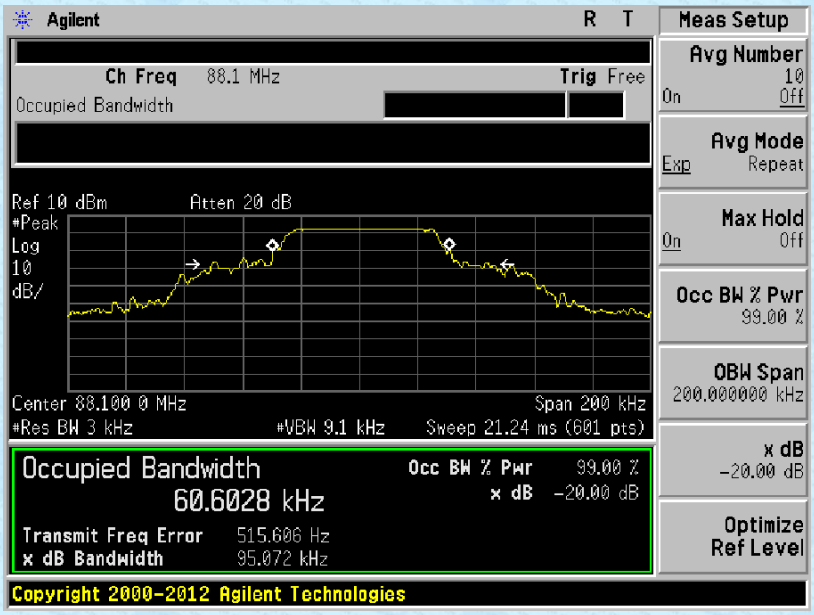
7.3 20dB Occupy Bandwidth

Test Requirement:	47 CFR Part 15, Subpart C 15.239(a)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=1KHz, VBW=3KHz, detector: Peak
Limit:	<200 kHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

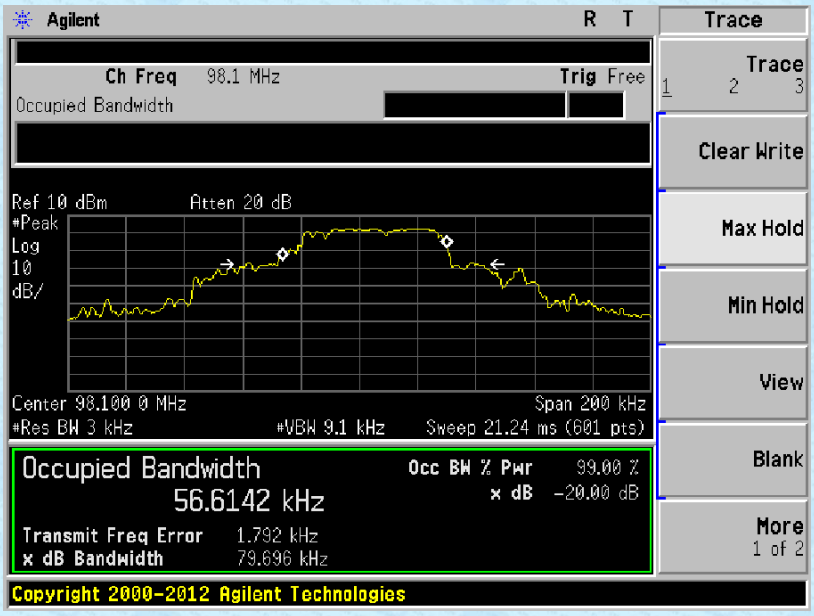
Measurement Data:

Test channel	20dB bandwidth(kHz)	Limit(kHz)
Lowest	95.072	200
Middle	79.696	
Highest	99.977	

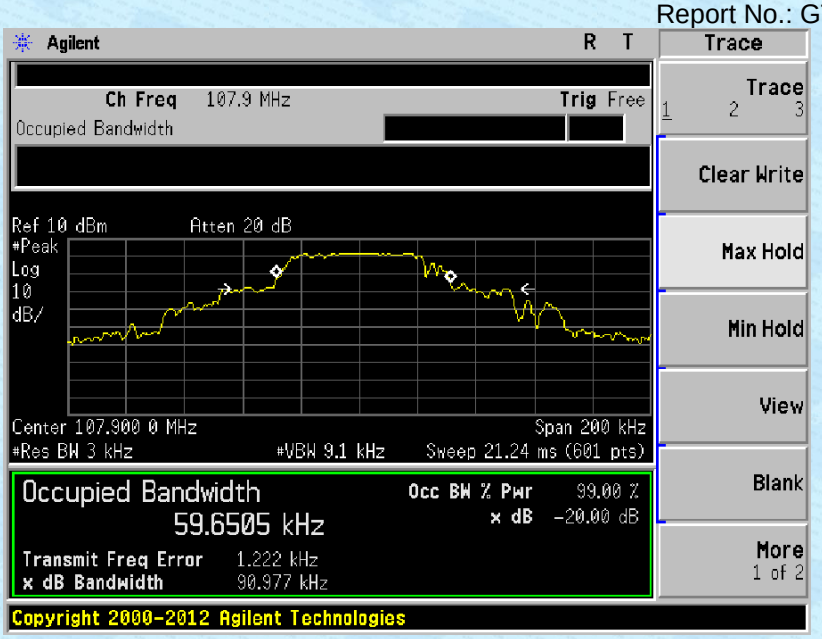
Test plot as follows:



Lowest channel



Middle channel



Highest channel

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

------ End ------