

TEST REPORT

Product : AMS HT
Trade mark : bambulab
Model/Type reference : SA008
Serial Number : N/A
Report Number : EED32R80174601
FCC ID : 2A6J8-SA008
Date of Issue : Apr. 21, 2025
Test Standards : 47 CFR Part 15, Subpart C
Test result : PASS

Prepared for:

Shenzhen Tuozhu Technology Co., Ltd.
Room 201, Building A, No. 1 First Qianwan Road, Qianhai Shengang
Cooperation Zone, Shenzhen

Prepared by:

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Apr. 21, 2025

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Check No.: 6757170225



1 Version

Version No.	Date	Description
00	Apr. 21, 2025	Original

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3 Test Summary

Test Item	FCC Test Requirement	Test Method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 2013	Pass
Conducted Emission (150KHz to 30MHz)	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	Pass
Electric Field Strength of Fundamental and Outside the Allocated bands	47 CFR Part 15, Subpart C Section 15.225(a)/(b)/(c)	ANSI C63.10 2013	Pass
Radiated Emission	47 CFR Part 15, Subpart C Section 15.225(d)/15.209	ANSI C63.10 2013	Pass
Frequency Tolerance	47 CFR Part 15, Subpart C Section 15.225(e)	ANSI C63.10 2013	Pass
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215	ANSI C63.10 2013	Pass

4 General Information

4.1 Client Information

Applicant:	Shenzhen Tuozhu Technology Co., Ltd.
Address of Applicant:	Room 201, Building A, No. 1 First Qianwan Road, Qianhai Shengang Cooperation Zone, Shenzhen
Manufacturer:	Shenzhen Tuozhu Technology Co., Ltd.
Address of Manufacturer:	Room 201, Building A, No. 1 First Qianwan Road, Qianhai Shengang Cooperation Zone, Shenzhen
Factory:	Shenzhen Zhuhe Technology Co.,Ltd
Address of Factory:	Building M, No.28 Dayang Road, Rentian Community, Fuhai Street, Bao'an District, Shenzhen City, Guangdong Province

4.2 General Description of E.U.T.

Product Name:	AMS HT
Model No.(EUT):	SA008
Trade Mark:	bambulab
Product Type:	☐ Mobile ☐ Portable ☒ Fixed Location
Operation Frequency:	13.56MHz
Modulation Type:	ASK
Test Power Grade:	Default
Test Software of EUT:	RF Test
Antenna Type:	Coil antenna
Power Supply:	AC input: 100-240V~, 150W, 50/60Hz; DC input: 24VDC, 1A
Test voltage:	DC 24V
Sample Received Date:	Feb. 25, 2025
Sample tested Date:	Feb. 25, 2025 to Apr. 07, 2025

4.3 Test Environment & Test Mode

Operating Environment:	
Radiated Emissions:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010mbar
Conducted Emissions:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010mbar
Test Mode:	
Test mode:	Keep EUT working in continuous transmitting mode with 100% duty cycle.

4.4 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
3D printer	bambulab	PF003-M	/	Client

4.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 3368 3668 Fax: +86 (0) 755 3368 3385

No tests were sub-contracted.

IC-Registration No.: 7408A, CAB identifier number: CN0037

4.6 Deviation from Standards

None.

4.7 Abnormalities from Standard Conditions

None.

4.8 Other Information Requested by the Customer

None.

4.9 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	3.3dB (9kHz-30MHz)
		4.3dB (30MHz-1GHz)
		4.5dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

4.10 Equipment List

RF test system					
Equipment	Manufacturer	Model No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Communication test set	R&S	CMW500	107929	06-26-2024	06-25-2025
Signal Generator	R&S	SMBV100A	1407.6004K02- 262149-CV	09-02-2024	09-01-2025
Spectrum Analyzer	R&S	FSV40	101200	07-18-2024	07-17-2025
RF control unit(power unit)	MWRF-test	MW100-RFCB	MW220620CTI-42	06-25-2024	06-24-2025
High-low temperature test chamber	Dong Guang Qin Zhuo	LK-80GA	QZ20150611879	11-30-2024	11-29-2025
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	05-29-2024	05-28-2025
BT&WI-FI Automatic test software	MWRF-test	MTS 8310	V2.0.0.0	---	---
Spectrum Analyzer	R&S	FSV3044	101509	02-14-2025	02-13-2026

Conducted disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date	Cal. Due date
				(mm-dd-yyyy)	(mm-dd-yyyy)
Receiver	R&S	ESCI	100435	04-18-2024	04-17-2025
Temperature/ Humidity Indicator	Defu	TH128	/	04-25-2024	04-24-2025
LISN	R&S	ENV216	100098	09-19-2024	09-18-2025
Barometer	changchun	DYM3	1188	05-21-2024	05-20-2025
Test software	Fara	EZ-EMC	EMC-CON 3A1.1	---	---
Capacitive voltage probe	Schwarzbeck	CVP 9222C	00124	06-18-2024	06-17-2025
ISN	TESEQ	ISN T800	30297	12-05-2024	12-04-2025

3M Semi-anechoic Chamber (2)- Radiated disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date	Cal. Due date
				(mm-dd-yyyy)	(mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	05/22/2022	05/21/2025
Receiver	R&S	ESCI7	100938-003	09/07/2024	09/06/2025
Spectrum Analyzer	R&S	FSV40	101200	07/18/2024	07/17/2025
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	9163-618	05/22/2022	05/21/2025
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04/16/2024	04/15/2025
Microwave Preamplifier	Tonscend	EMC051845SE	980380	12/05/2024	12/04/2025
Horn Antenna	A.H.SYSTEMS	SAS-574	374	07/02/2023	07/01/2026
Horn Antenna	ETS-LINGREN	BBHA 9120D	9120D-1869	04/16/2024	04/15/2025
Preamplifier	Agilent	11909A	12-1	03/22/2024 03/03/2025	03/21/2025 03/02/2026
Preamplifier	CD	PAP-1840-60	6041.6042	06/19/2024	06/18/2025
Test software	Fara	EZ-EMC	EMEC-3A1-Pre	---	---

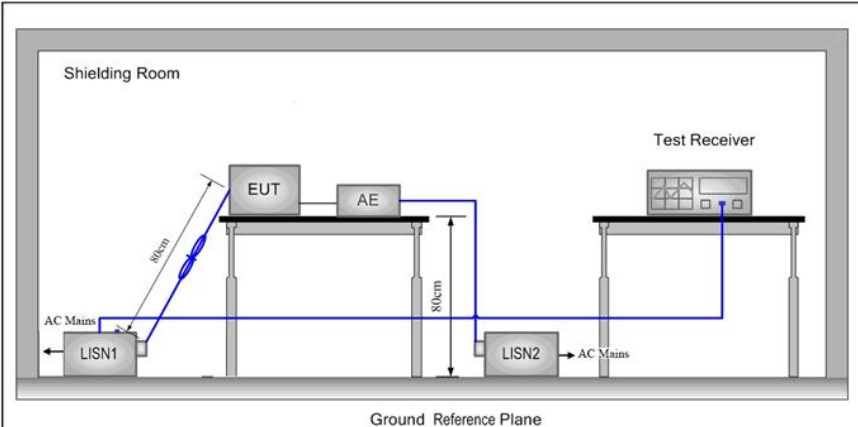
Cable line	Fulai(7M)	SF106	5219/6A	05/22/2022	05/21/2025
Cable line	Fulai(6M)	SF106	5220/6A	05/22/2022	05/21/2025
Cable line	Fulai(3M)	SF106	5216/6A	05/22/2022	05/21/2025
Cable line	Fulai(3M)	SF106	5217/6A	05/22/2022	05/21/2025

5 Test Result and Measurement Data

5.1 Antenna Requirement

Standard requirement:	47 CFR Part15 C Section 15.203
15.203 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
EUT Antenna:	
The antenna is coil antenna.	

5.2 Conducted Emissions

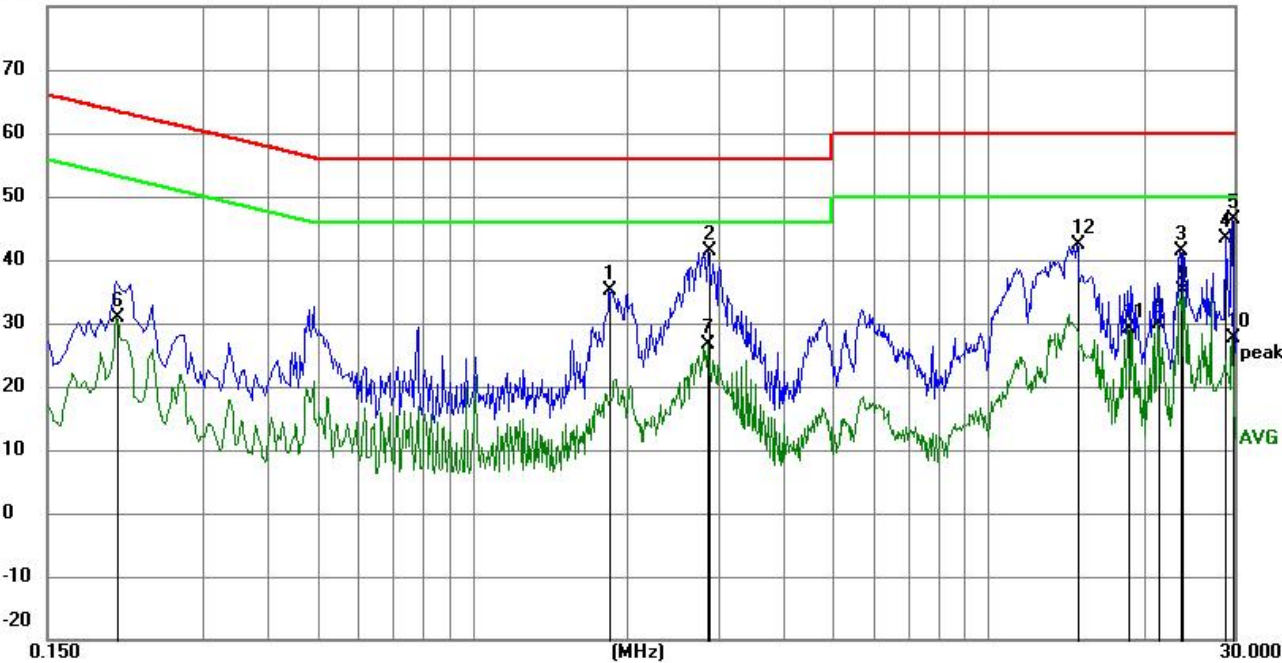
Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane. 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.		
Test Setup:			

Test Mode:	Transmitting with ASK modulation.
Test Results:	Pass

Measurement Data

Mode a:

Live line:
80.0 dBuV



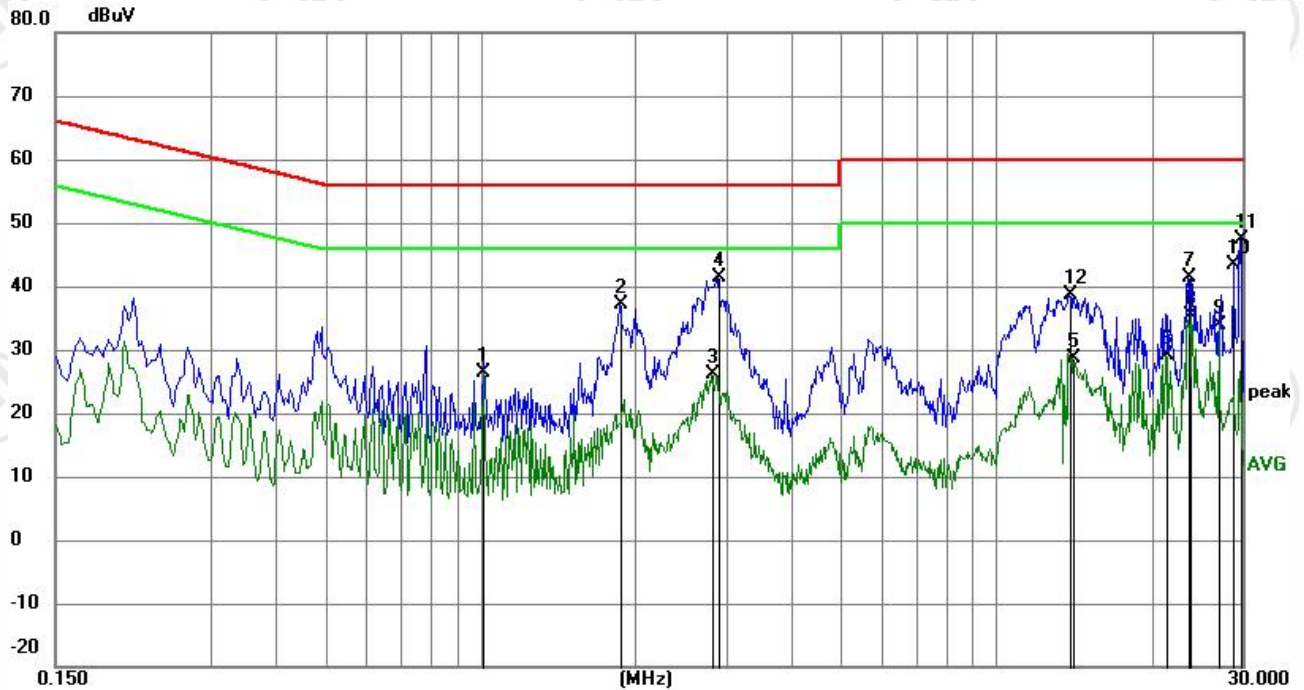
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1		1.8465	25.00	10.17	35.17	56.00	-20.83	QP	
2		2.8770	31.24	10.14	41.38	56.00	-14.62	QP	
3		23.6355	31.67	9.81	41.48	60.00	-18.52	QP	
4		28.8645	33.55	9.82	43.37	60.00	-16.63	QP	
5	*	29.6880	36.55	9.82	46.37	60.00	-13.63	QP	
6		0.2040	20.73	10.21	30.94	53.45	-22.51	AVG	
7		2.8680	16.43	10.14	26.57	46.00	-19.43	AVG	
8		21.3630	20.01	9.80	29.81	50.00	-20.19	AVG	
9		23.8650	25.25	9.81	35.06	50.00	-14.94	AVG	
10		29.6880	17.79	9.82	27.61	50.00	-22.39	AVG	
11		18.6360	19.26	9.82	29.08	50.00	-20.92	AVG	
12		14.8425	32.52	9.86	42.38	60.00	-17.62	QP	

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

Mode a:

Neutral line:

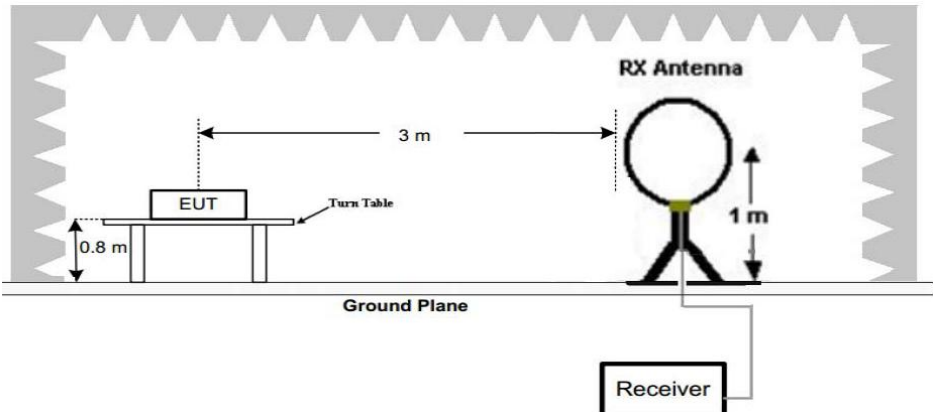


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		1.0140	16.08	10.18	26.26	46.00	-19.74	AVG	
2		1.8600	26.89	10.17	37.06	56.00	-18.94	QP	
3		2.8230	15.88	10.14	26.02	46.00	-19.98	AVG	
4		2.8905	31.29	10.14	41.43	56.00	-14.57	QP	
5		14.0910	18.66	9.88	28.54	50.00	-21.46	AVG	
6		21.3630	19.43	9.80	29.23	50.00	-20.77	AVG	
7		23.6355	31.47	9.81	41.28	60.00	-18.72	QP	
8		23.8650	25.59	9.81	35.40	50.00	-14.60	AVG	
9		27.1185	24.05	9.81	33.86	50.00	-16.14	AVG	
10		28.9050	33.62	9.82	43.44	60.00	-16.56	QP	
11	*	29.6880	37.54	9.82	47.36	60.00	-12.64	QP	
12		13.8659	28.75	9.88	38.63	60.00	-21.37	QP	

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

5.3 Electric Field Strength of Fundamental and Outside the Allocated bands

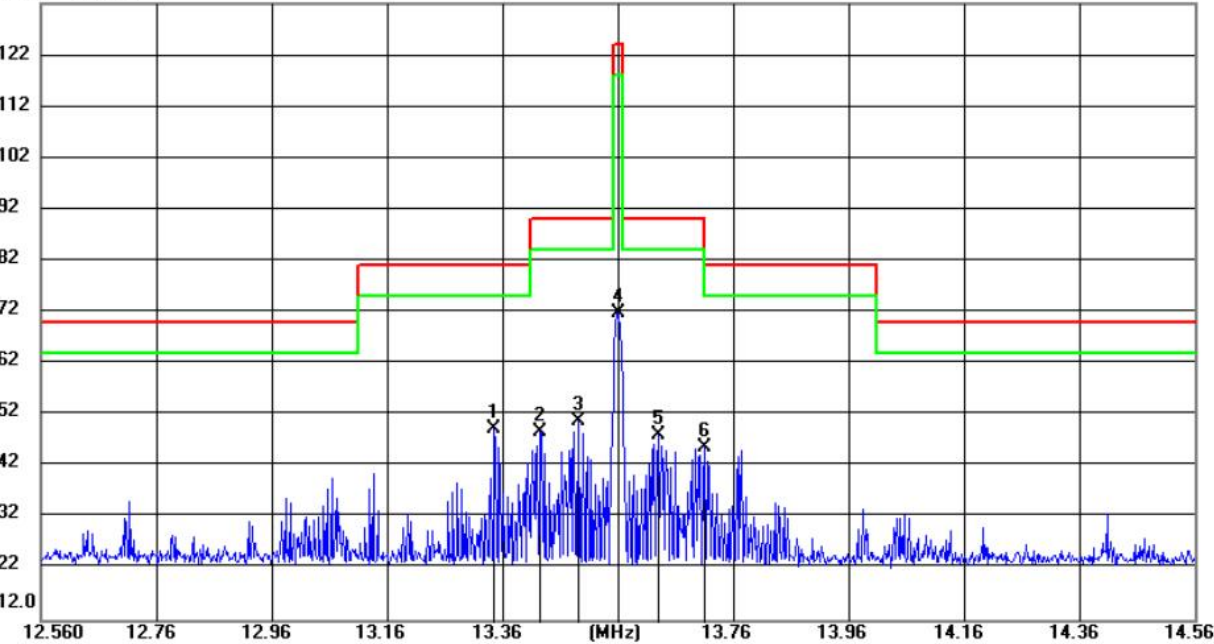
Test Requirement:	47 CFR Part 15, Subpart C Section 15.225(a)/(b)/(c)				
Test Method:	ANSI C63.10: 2013				
Test Site:	3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
Limit:	Frequency Range(MHz)	E-field Strength Limit @ 30 m (μV/m)	E-field Strength Limit @ 3 m (dBμV/m)		
	13.560 ± 0.007	15848	124		
	13.410 to 13.553 13.567 to 13.710	334	90		
	13.110 to 13.410 13.710 to 14.010	106	81		
Note: Where the limits have been defined at one distance, and a signal level measured at another, the limits have been extrapolated using the following formula: Extrapolation(dB)=40log ₁₀ (Measurement Distance/Specification Distance)					
Test Setup:	 Figure 1. Below 30MHz				
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable 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. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.
Test Mode:	Transmitting with ASK modulation.
Test Result:	Pass

Measurement Data

X axis positioning

132.0 dBuV/m



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	13.3460	28.81	20.50	49.31	81.00	-31.69	peak	100	82
2		13.4260	28.30	20.50	48.80	90.00	-41.20	peak	100	82
3		13.4920	30.34	20.50	50.84	90.00	-39.16	peak	100	89
4		13.5600	51.46	20.50	71.96	124.00	-52.04	peak	100	89
5		13.6300	27.76	20.50	48.26	90.00	-41.74	peak	100	265
6		13.7100	25.40	20.50	45.90	81.00	-35.10	peak	100	69

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

5.4 Radiated Emissions

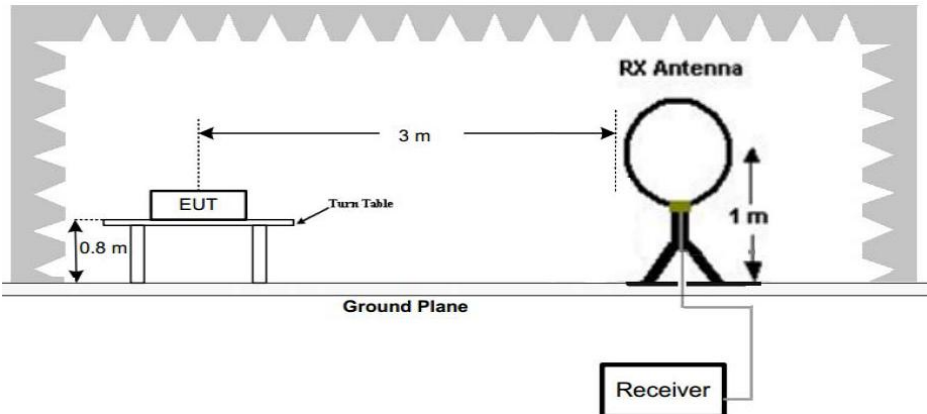
Test Requirement:	47 CFR Part 15C Section 15.209 and 15.225(d),				
Test Method:	ANSI C63.10: 2013				
Test Site:	3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Peak	100 kHz	300kHz	Peak
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m) @ 3 m	Remark	
	0.009MHz-0.490MHz	2400/F(kHz) @300m	128.5-93.8	Quasi-peak	
	0.490MHz-1.705MHz	24000/F(kHz) @30m	73.8-63	Quasi-peak	
	1.705MHz-30MHz	30 @30m	70	Quasi-peak	
	30MHz-88MHz	100 @3m	40.0	Quasi-peak	
	88MHz-216MHz	150 @3m	43.5	Quasi-peak	
	216MHz-960MHz	200 @3m	46.0	Quasi-peak	
	960MHz-1GHz	500 @3m	54.0	Quasi-peak	
Note: Where the limits have been defined at one distance, and a signal level measured at another, the limits have been extrapolated using the following formula: Extrapolation(dB)=40log ₁₀ (Measurement Distance/Specification Distance)					
Test Setup:					

Figure 1. Below 30MHz

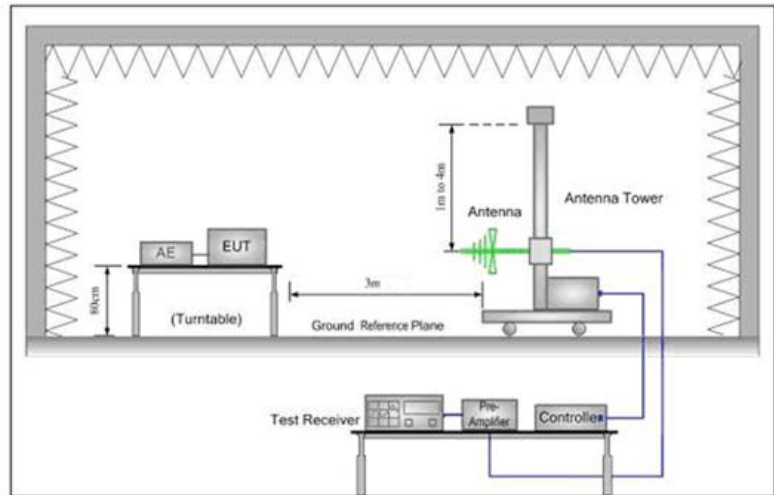


Figure 2. 30MHz to 1GHz

Test Procedure:

5. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
6. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
7. 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.
8. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable 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.
7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Test Mode:

Transmitting with ASK modulation.

Test Result:

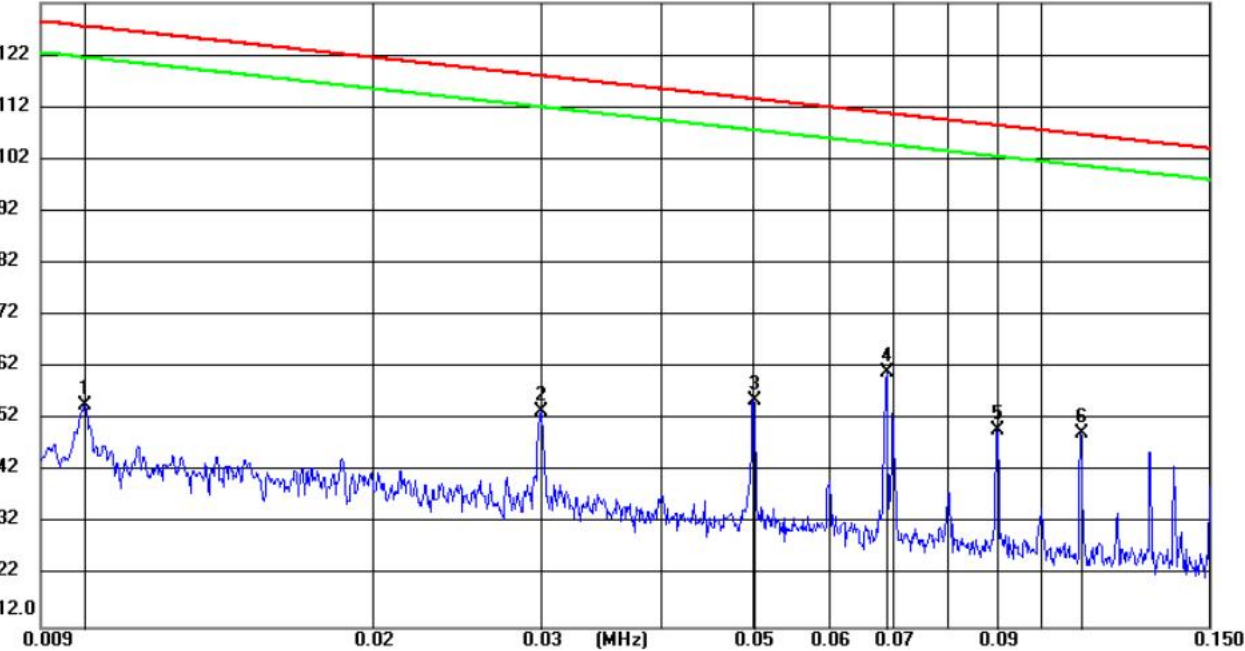
Pass

Measurement Data

X axis positioning

9kHz – 150KHz:

132.0 dBuV/m



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		0.0100	33.38	21.30	54.68	127.49	-72.81	peak	100	222
2		0.0300	32.50	20.92	53.42	117.98	-64.56	peak	100	352
3		0.0501	34.73	20.90	55.63	113.54	-57.91	peak	100	352
4	*	0.0690	40.14	20.83	60.97	110.77	-49.80	peak	100	251
5		0.0899	29.16	20.85	50.01	108.48	-58.47	peak	100	352
6		0.1101	28.64	20.84	49.48	106.72	-57.24	peak	100	352

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

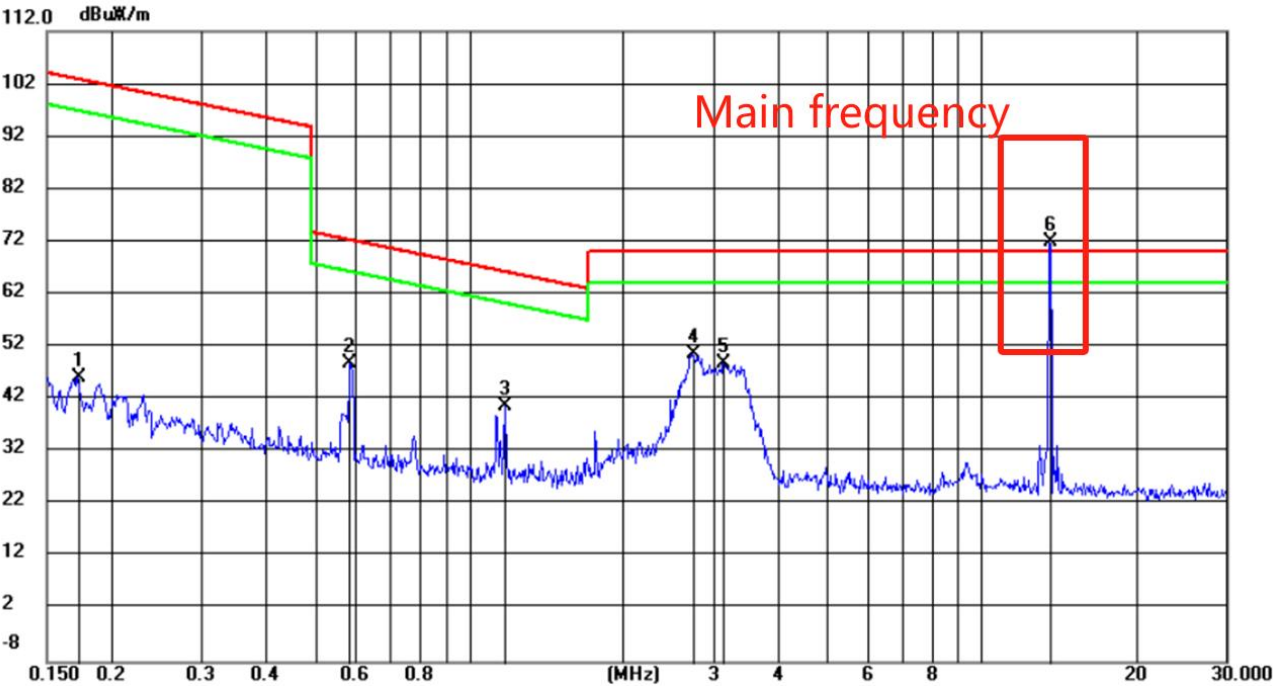
Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

X axis positioning

150KHz-30MHz:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		0.1722	25.26	20.94	46.20	102.85	-56.65	peak	100	202
2		0.5854	28.38	20.54	48.92	72.26	-23.34	peak	100	101
3		1.1719	20.16	20.49	40.65	66.25	-25.60	peak	100	108
4		2.7212	30.22	20.42	50.64	70.00	-19.36	peak	100	129
5		3.1231	28.57	20.41	48.98	70.00	-21.02	peak	100	267
6	*	13.5509	51.50	20.50	72.00	70.00	2.00	peak	100	101

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

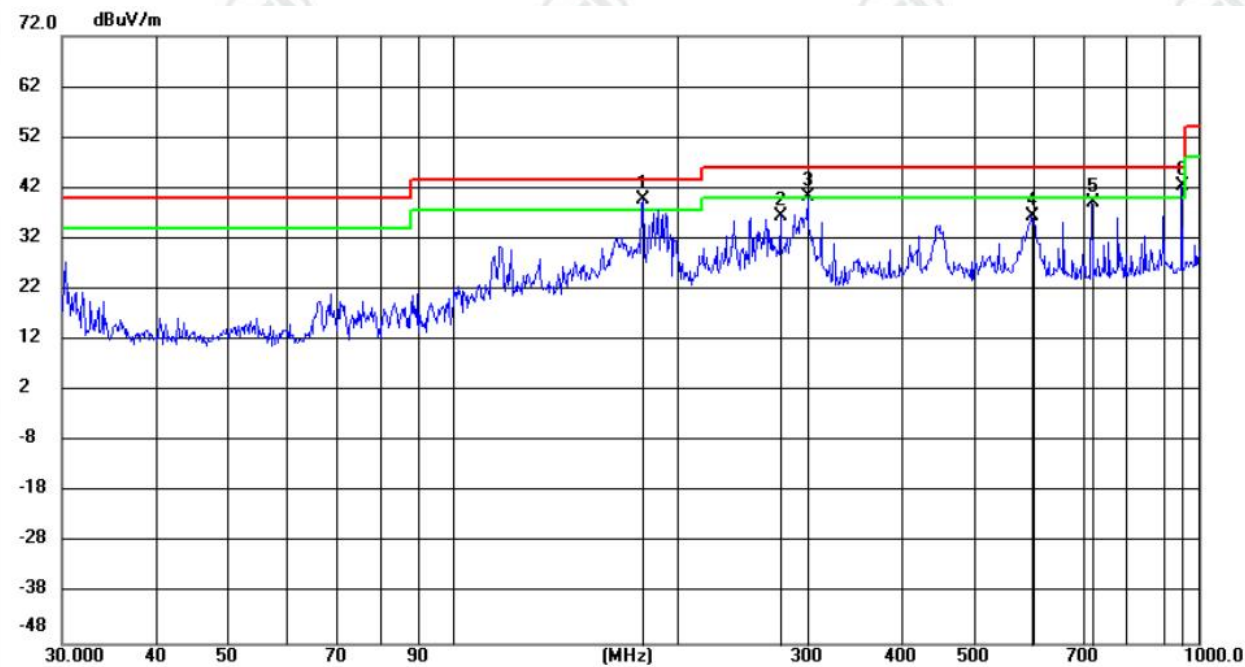
Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

30MHz-1GHz

Horizontal



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	Comment
			dBuV	dB/m	dBuV/m	dBuV/m	dB	cm	degree	
1	!	180.0164	28.50	11.30	39.80	43.50	-3.70	QP	100	215
2		275.7364	21.12	15.24	36.36	46.00	-9.64	QP	100	310
3	!	300.2093	24.06	16.15	40.21	46.00	-5.79	QP	100	268
4		597.8520	14.24	22.21	36.45	46.00	-9.55	QP	199	205
5		720.0827	15.98	23.30	39.28	46.00	-6.72	QP	100	184
6	*	950.0926	16.23	26.21	42.44	46.00	-3.56	QP	199	194

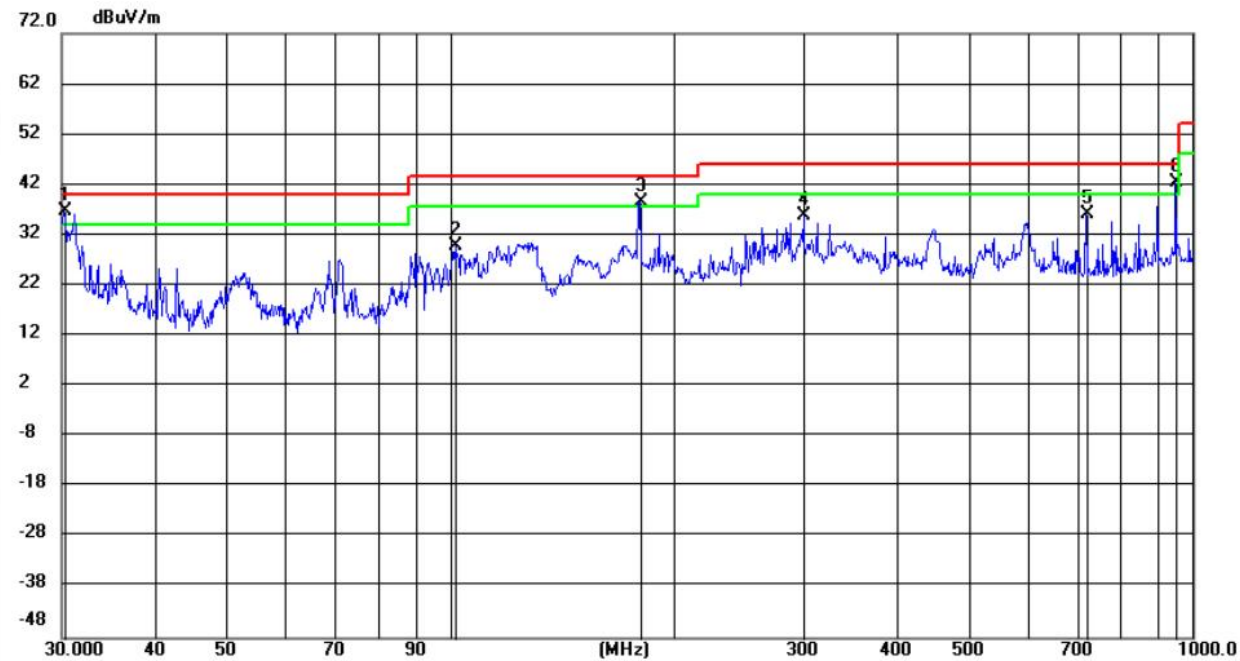
Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,
Over Limit=Level-Limit Line.

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	30.3066	24.56	12.27	36.83	40.00	-3.17	QP	200	347
2		101.7870	16.80	13.13	29.93	43.50	-13.57	QP	100	149
3	!	180.0165	27.33	11.30	38.63	43.50	-4.87	QP	200	167
4		300.1041	19.67	16.15	35.82	46.00	-10.18	QP	100	159
5		720.0827	12.99	23.30	36.29	46.00	-9.71	QP	200	177
6	!	950.0927	16.24	26.21	42.45	46.00	-3.55	QP	100	202

Remark:

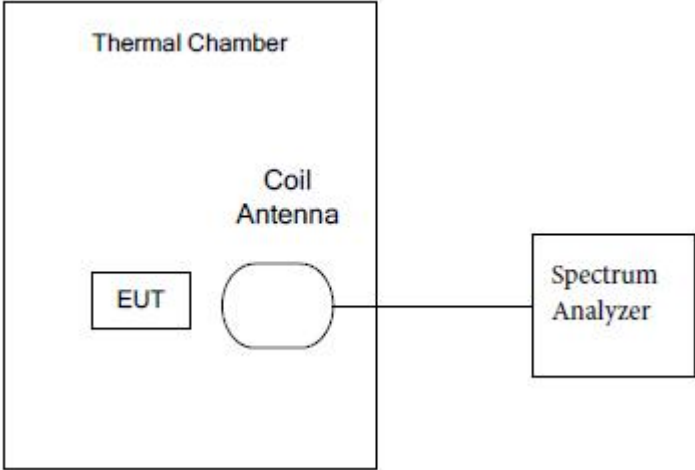
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

5.5 Frequency Stability

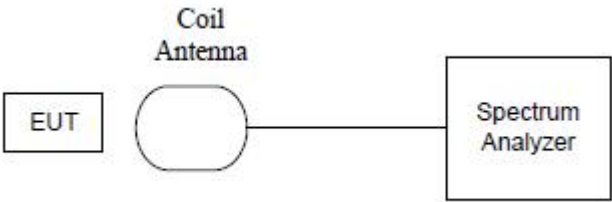
Test Requirement:	47 CFR Part 15 C Section 15.225(e)
Test Method:	ANSI C63.10: 2013
Test Setup:	 The diagram illustrates the test setup. A large rectangular box labeled 'Thermal Chamber' contains two components: a smaller box labeled 'EUT' (Equipment Under Test) and a circle labeled 'Coil Antenna'. A line connects the 'Coil Antenna' to a box labeled 'Spectrum Analyzer' located outside the 'Thermal Chamber'.
Frequency Range:	Operation within the band 13.110-14.010 MHz
Requirements:	The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and 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.
Method of Measurement:	The EUT was placed in an environmental test chamber and powered such that control element received normal voltage and the transmitter provided maximum RF output.
Test Result:	The unit does meet the FCC Part 15 C Section 15.225(e) requirements.

Test Frequency: 13.56MHz			Temperature:20°C	
Supply Voltage (V) DC	Test Result (MHz)	Deviation (kHz)	Limit ±0.01% (kHz)	Result
24	13.56001	0.01	1.3560	Pass
26.4	13.55999	-0.01	1.3560	Pass
21.6	13.55995	-0.05	1.3560	Pass

Test Frequency: 13.56MHz			Normal Voltage:3.7Vdc	
Temperature (°C)	Test Result (MHz)	Deviation (kHz)	Limit ±0.01% (kHz)	Result
10	13.55988	-0.12	1.3560	Pass
30	13.55990	-0.1	1.3560	
24	13.55998	-0.02	1.3560	
10	13.55989	-0.11	1.3560	
20	13.55991	-0.09	1.3560	
30	13.55993	-0.07	1.3560	

Note: Deviation (KHz) = (Test Result-13.56MHz)*1000

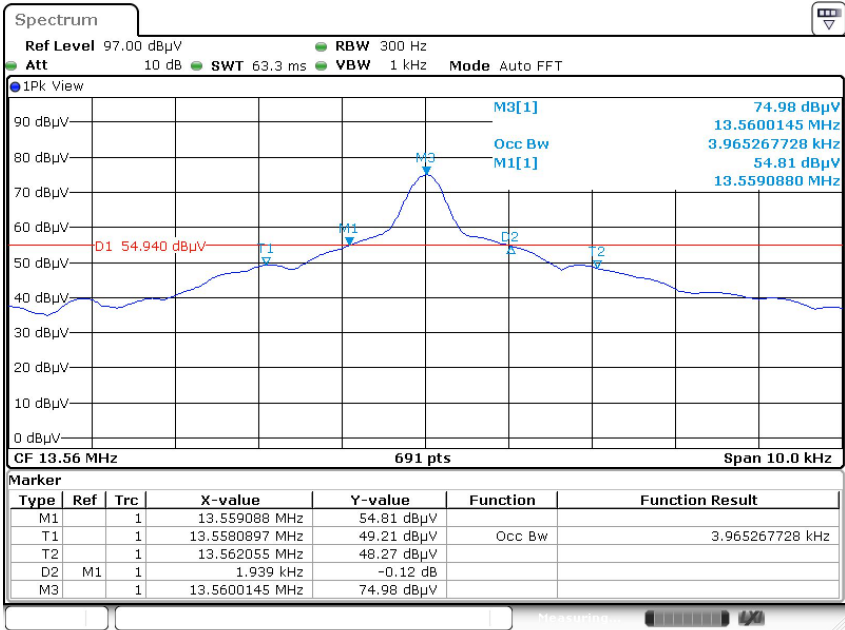
5.6 20dB Occupied Bandwidth

Test Requirement:	47 CFR Part 15 C Section 15.215 (C)
Test Method:	ANSI C63.10: 2013
Test Setup:	
Frequency Range:	Operation within the band 13.110 – 14.010 MHz
Requirements:	Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §15.217 through §15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the 20 dB bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.
Limit:	For 13.56 MHz the permitted frequency band is 14kHz, so the limit is 11.2 kHz.

Test Data:

20dB bandwidth (kHz)	FL (MHz)	FH (MHz)	Limit(MHz)	Result
1.939	13.559088	13.561027	13.110 – 14.010	Pass

Test plot as follows:



Date: 3 APR.2025 08:33:37

Statement

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule stated in ILAC-G8:09/2019/CNAS-GL015:2022;
5. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***