TEST REPORT

Product	:	Smart Terminal
Trade mark	:	N/A
Model/Type reference	:	CR100FR, CR100, CR200, CR300, CR400, CR500, CR600, CR700, CR800, CR900, CR100RW, CR200RW, CR300RW, CR400RW, CR500RW, CR600RW, CR700RW, CR800RW, CR900RW, CR200FR, CR300FR, CR400FR, CR500FR, CR600FR, CR700FR, CR800FR, CR900FR, CR30, CR30M, FCR30, CR100M, FCR30, FCR30M, FCR100, FCR100M
Serial Number	:	N/A
Report Number	:	EED32S80280201
FCC ID	:	2AJ9T-86101
Date of Issue	:	Mar. 31, 2026
Test Standards	:	47 CFR Part 15, Subpart C
Test result	:	PASS

Prepared for:

ZKTECO CO., LTD.
No.32,Pingshan Industrial Avenue,Tangxia Town,Dongguan City,Guangdong Province,China 523728

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Park, Zone 70, Bao'an District,
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Compiled by:	Frazer.Li	Reviewed by:	Keven Tan
Approved by:	Aaron Ma	Date:	Mar. 31, 2026

Check No.:6750020226

1 Contents

2 Test Summary

Test Item	FCC Test Requirement	Test Method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 2020	Pass
Conducted Emission (150KHz to 30MHz)	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2020	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 2020	Pass
Radiated Emission	47 CFR Part 15, Subpart C Section 15.225(d)/15.209	ANSI C63.10 2020	Pass
Frequency Tolerance	47 CFR Part 15, Subpart C Section 15.225(e)	ANSI C63.10 2020	Pass
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215	ANSI C63.10 2020	Pass

Remark:

Model No.: CR100FR, CR100, CR200, CR300, CR400, CR500, CR600, CR700, CR800, CR900, CR100RW, CR200RW, CR300RW, CR400RW, CR500RW, CR600RW, CR700RW, CR800RW, CR900RW, CR200FR, CR300FR, CR400FR, CR500FR, CR600FR, CR700FR, CR800FR, CR900FR, CR30, CR30M, FCR30, CR100M, FCR30, FCR30M, FCR100, FCR100M
Only the model CR100FR was tested, since the electrical circuit design, PCB layout, electrical components used , internal wiring and function were identical for the above models, only the model name different.

3 General Information

3.1 Client Information

Applicant:	ZKTECO CO., LTD.
Address of Applicant:	No.32,Pingshan Industrial Avenue,Tangxia Town,Dongguan City,Guangdong Province,China 523728
Manufacturer:	ZKTECO CO., LTD.
Address of Manufacturer:	No.32,Pingshan Industrial Avenue,Tangxia Town,Dongguan City,Guangdong Province,China 523728

3.2 General Description of E.U.T.

Product Name:	Smart Terminal
Model No.(EUT):	CR100FR, CR100, CR200, CR300, CR400, CR500, CR600, CR700, CR800, CR900, CR100RW, CR200RW, CR300RW, CR400RW, CR500RW, CR600RW, CR700RW, CR800RW, CR900RW, CR200FR, CR300FR, CR400FR, CR500FR, CR600FR, CR700FR, CR800FR, CR900FR, CR30, CR30M, FCR30, CR100M, FCR30, FCR30M, FCR100, FCR100M
Test Model No.:	CR100FR
Trade Mark:	N/A
Product Type:	☐ Mobile ☐ Portable ☒ Fix Location
Operation Frequency:	13.56MHz
Modulation Type:	ASK
Antenna Type:	Coil Antenna
Antenna Gain:	0dBi
Power Supply:	USB port: DC 5V
Test voltage:	DC 5V
Sample Received Date:	Feb. 03, 2026
Sample tested Date:	Feb. 03, 2026 to Mar. 27, 2026

3.3 Test Environment & Test Mode

Operating Environment:	
Radiated Emissions:	
Temperature:	22.0 °C
Humidity:	55 % RH
Atmospheric Pressure:	1010mbar
Conducted Emissions:	
Temperature:	22.0 °C
Humidity:	55 % RH
Atmospheric Pressure:	1010mbar
Test Mode:	
Test mode:	Keep EUT working in continuous transmitting mode with 100% duty cycle.

3.4 Description of Support Units

The EUT has been tested independently.

3.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Park, Zone 70, Bao'an District, Shenzhen, Guangdong, China

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

No tests were sub-contracted.

FCC Designation No.: CN1164, Test Firm Registration No.: 260439

3.6 Deviation from Standards

None.

3.7 Abnormalities from Standard Conditions

None.

3.8 Other Information Requested by the Customer

None.

3.9 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%

3.10 Equipment List

RF test system					
Equipment	**Manufacturer**	**Mode No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Communication tset set	R&S	CMW500	107929	06-16-2025	06-15-2026
Signal Generator	R&S	SMBV100A	262454	08-11-2025	08-10-2026
Spectrum Analyzer	R&S	FSV40	101200	08-11-2025	08-10-2026
RF control unit(power unit)	MWRF-test	MW100-RFCB	MW220620CTI-42	06-16-2025	06-15-2026
high-low temperature test chamber	Dong Guang Qin Zhuo	LK-80GA	QZ20150611879	11-13-2025	11-12-2026
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	05-26-2025	05-15-2026
BT&WI-FI Automatic test software	MWRF-test	MTS 8310	2.0.0.0	---	---
Digital multimeter	FLUKE	17B MAX	59545050WS	10-15-2025	10-14-2026

Conducted disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Receiver	R&S	ESCI	100435	04-08-2025	04-07-2026
Temperature/ Humidity Indicator	Defu	TH128	/	03-31-2025	03-30-2026
LISN	R&S	ENV216	100098	09-13-2025	09-12-2026
Barometer	changchun	DYM3	1188	---	---
Test software	Fara	EZ-EMC	EMC-CON 3A1.1	---	---
Capacitive voltage probe	Schwarzbeck	CVP 9222C	00124	06-07-2025	06-06-2026
ISN	TESEQ	ISN T800	30297	11-24-2025	11-23-2026

3M Semi-anechoic Chamber (2)- Radiated disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	01/13/2024	01/12/2027
Receiver	R&S	ESCI7	100938-003	09/03/2025	09/02/2026
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	9163-618	05/14/2025	05/13/2026
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04/07/2025	04/06/2026
Microwave Preamplifier	Tonscend	EMC051845SE	980380	11/25/2025	11/24/2026
Horn Antenna	A.H.SYSTEMS	SAS-574	374	07/02/2023	07/01/2026
Horn Antenna	ETS-LINGREN	BBHA 9120D	9120D-1869	04/07/2025	04/06/2026
Preamplifier	Agilent	11909A	12-1	03/03/2025 02/06/2026	03/02/2026 02/07/2027
Preamplifier	CD	PAP-1840-60	6041.6042	05/26/2025	05/25/2026
Test software	Fara	EZ-EMC	EMEC-3A1-Pre	---	---
Cable line	Fulai(7M)	SF106	5219/6A	01/13/2024	01/12/2027
Cable line	Fulai(6M)	SF106	5220/6A	01/13/2024	01/12/2027
Cable line	Fulai(3M)	SF106	5216/6A	01/13/2024	01/12/2027
Cable line	Fulai(3M)	SF106	5217/6A	01/13/2024	01/12/2027

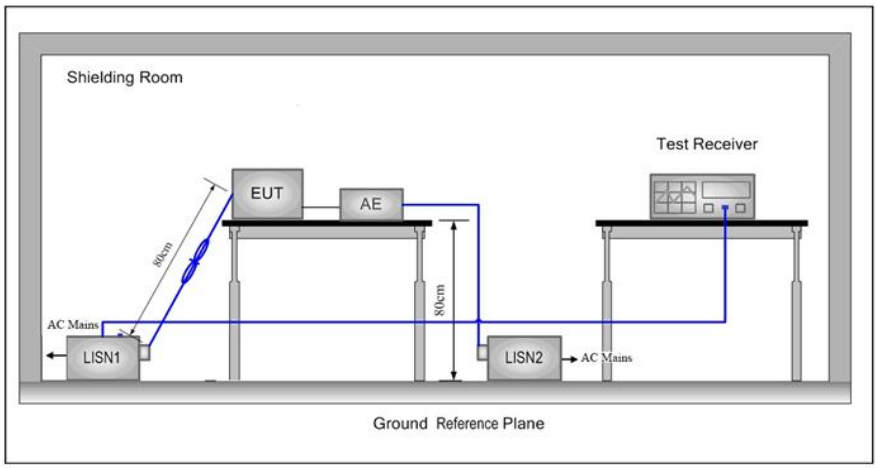
3M full-anechoic Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Fully Anechoic Chamber	TDK	FAC-3	---	01-29-2024	01-28-2027
Receiver	Keysight	N9038A	MY57290136	12-22-2025	12-21-2026
Spectrum Analyzer	Keysight	N9020B	MY57111112	12-21-2025	12-20-2026
Spectrum Analyzer	Keysight	N9030B	MY57140871	12-21-2025	12-20-2026
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-12-2025	04-11-2026
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-12-2025	04-11-2026
Horn Antenna	ETS-LINDGREN	3117	57407	06-29-2025	06-28-2026
Preamplifier	EMCI	EMC001330	980563	03-03-2025 02-06-2026	03-02-2026 02-05-2027
Preamplifier	EMCI	EMC051845SE	980380	11-25-2025	11-24-2026
Preamplifier	Tonscend	TAP-011858	AP21B806112	07-07-2025	07-06-2026
Communication test set	R&S	CMW500	104466	11-25-2025	11-24-2026
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	03-31-2025	03-30-2026
RSE Automatic test software	JS Tonscend	JS36-RSE	V5.0.0.1	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	01-29-2024	01-28-2027
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	01-29-2024	01-28-2027
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	01-29-2024	01-28-2027
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	01-29-2024	01-28-2027
Cable line	Times	EMC104-NMNM-1000	SN160710	01-29-2024	01-28-2027
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	01-29-2024	01-28-2027
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	01-29-2024	01-28-2027
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	01-29-2024	01-28-2027
Cable line	Times	HF160-KMKM-3.00M	393493-0001	01-29-2024	01-28-2027

4 Test Result and Measurement Data

4.1 Antenna Requirment

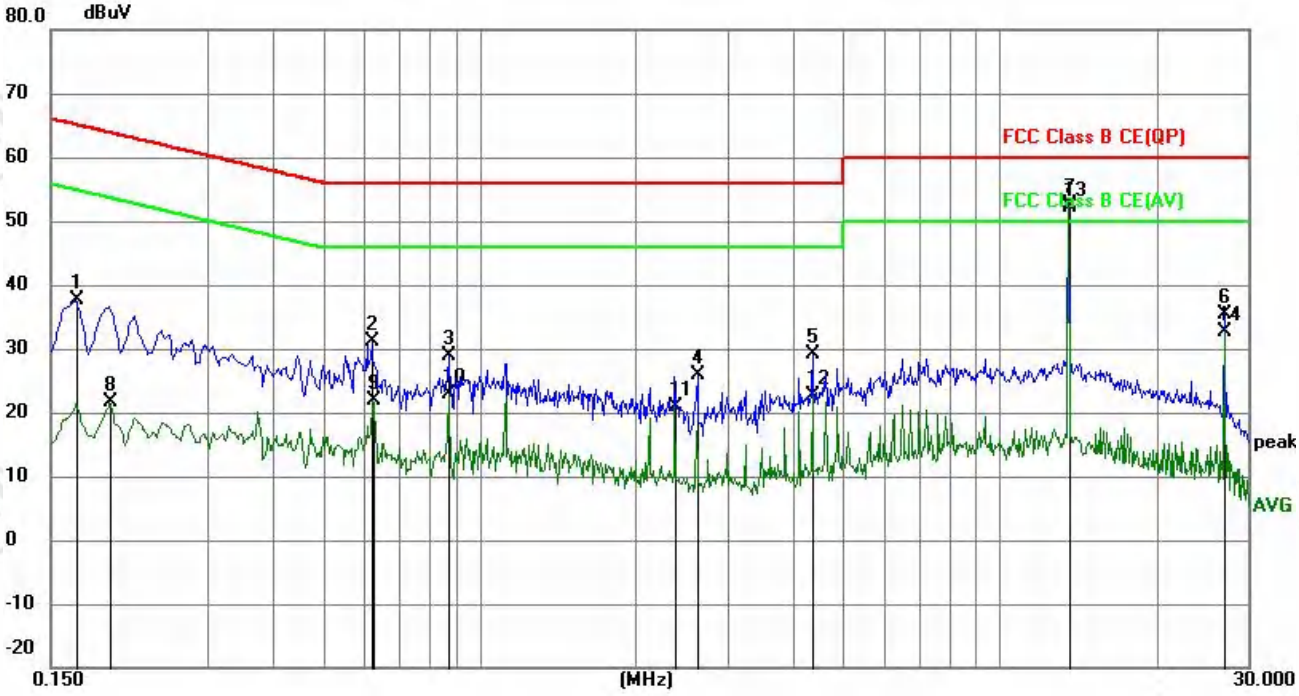
Standard requirement:	47 CFR Part15 C Section 15.203
15.203 requirement:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique 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. The best case gain of the antenna is 0dBi.	

4.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207
Test Method:	ANSI C63.10: 2020
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 50Ω/50μH + 5Ω 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: 2020 on conducted measurement.
Test Setup:	
Test Mode:	Transmitting with ASK modulation.
Test Results:	Pass

Measurement Data

Live line:

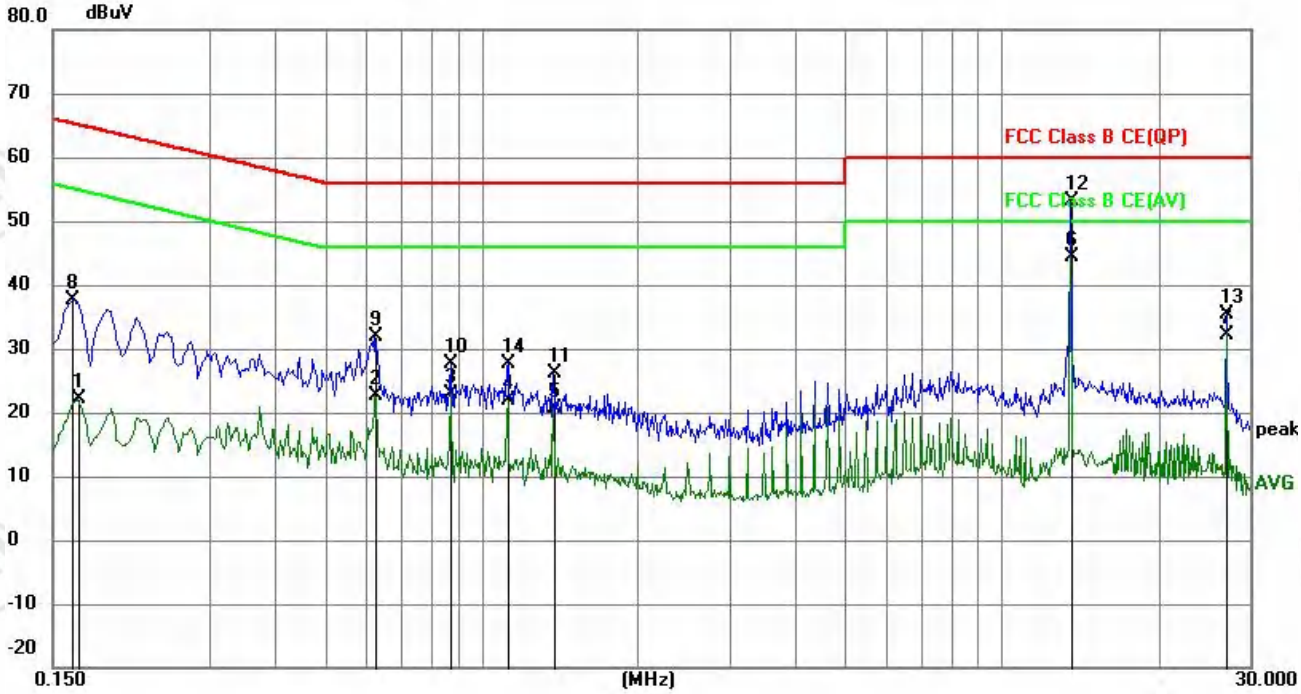


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1680	27.33	10.26	37.59	65.06	-27.47	QP	
2		0.6225	21.05	10.11	31.16	56.00	-24.84	QP	
3		0.8745	18.65	10.17	28.82	56.00	-27.18	QP	
4		2.6250	15.71	10.15	25.86	56.00	-30.14	QP	
5		4.3755	19.15	10.08	29.23	56.00	-26.77	QP	
6		27.1185	25.49	9.81	35.30	60.00	-24.70	QP	
7		13.5600	42.69	9.89	52.58	60.00	-7.42	QP	
8		0.1949	11.38	10.22	21.60	53.83	-32.23	AVG	
9		0.6270	11.67	10.11	21.78	46.00	-24.22	AVG	
10		0.8745	12.81	10.17	22.98	46.00	-23.02	AVG	
11		2.3730	10.73	10.16	20.89	46.00	-25.11	AVG	
12		4.3755	12.56	10.08	22.64	46.00	-23.36	AVG	
13	*	13.5600	42.21	9.89	52.10	50.00	2.10	AVG	
14		27.1185	22.84	9.81	32.65	50.00	-17.35	AVG	

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.

Neutral line:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1680	11.75	10.26	22.01	55.06	-33.05	AVG	
2		0.6270	12.54	10.11	22.65	46.00	-23.35	AVG	
3		0.8745	12.61	10.17	22.78	46.00	-23.22	AVG	
4		1.1265	11.62	10.18	21.80	46.00	-24.20	AVG	
5		1.3740	10.53	10.18	20.71	46.00	-25.29	AVG	
6	*	13.5555	34.58	9.89	44.47	50.00	-5.53	AVG	
7		27.1185	22.44	9.81	32.25	50.00	-17.75	AVG	
8		0.1635	27.30	10.26	37.56	65.28	-27.72	QP	
9		0.6270	21.69	10.11	31.80	56.00	-24.20	QP	
10		0.8745	17.47	10.17	27.64	56.00	-28.36	QP	
11		1.3740	16.05	10.18	26.23	56.00	-29.77	QP	
12		13.5555	43.12	9.89	53.01	60.00	-6.99	QP	
13		27.1185	25.49	9.81	35.30	60.00	-24.70	QP	
14		1.1265	17.40	10.18	27.58	56.00	-28.42	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.

4.3 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: 2020
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:

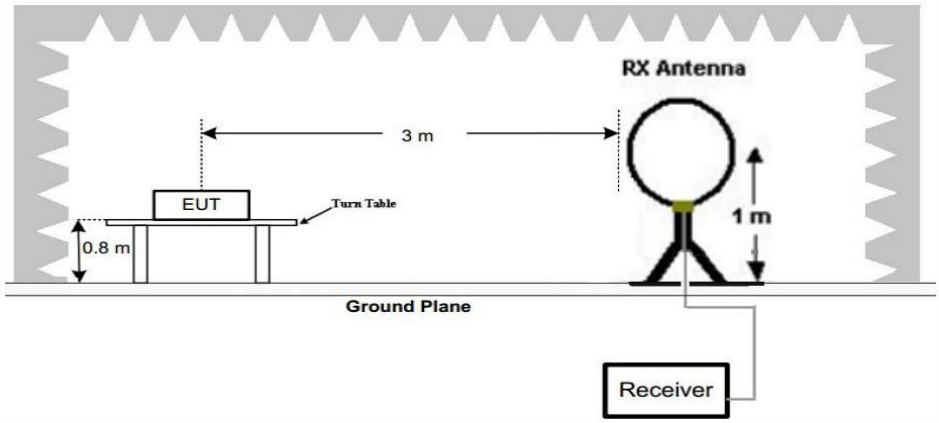


Figure 1. Below 30MHz

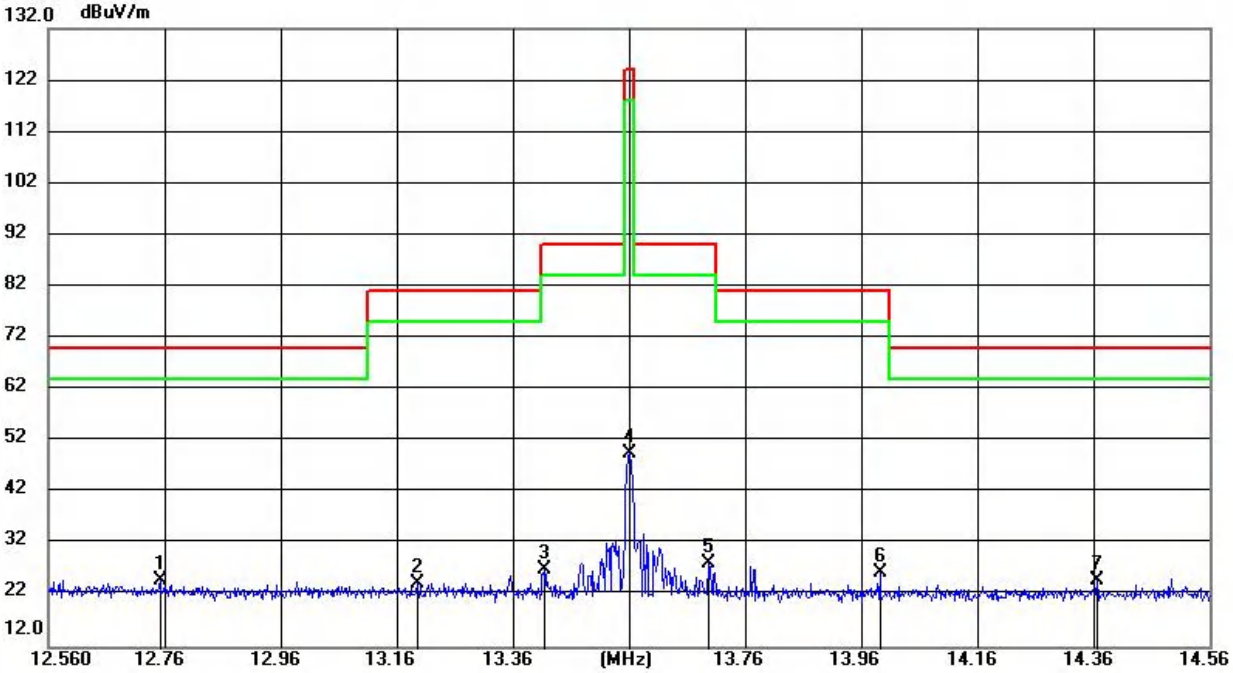
Test Procedure:

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

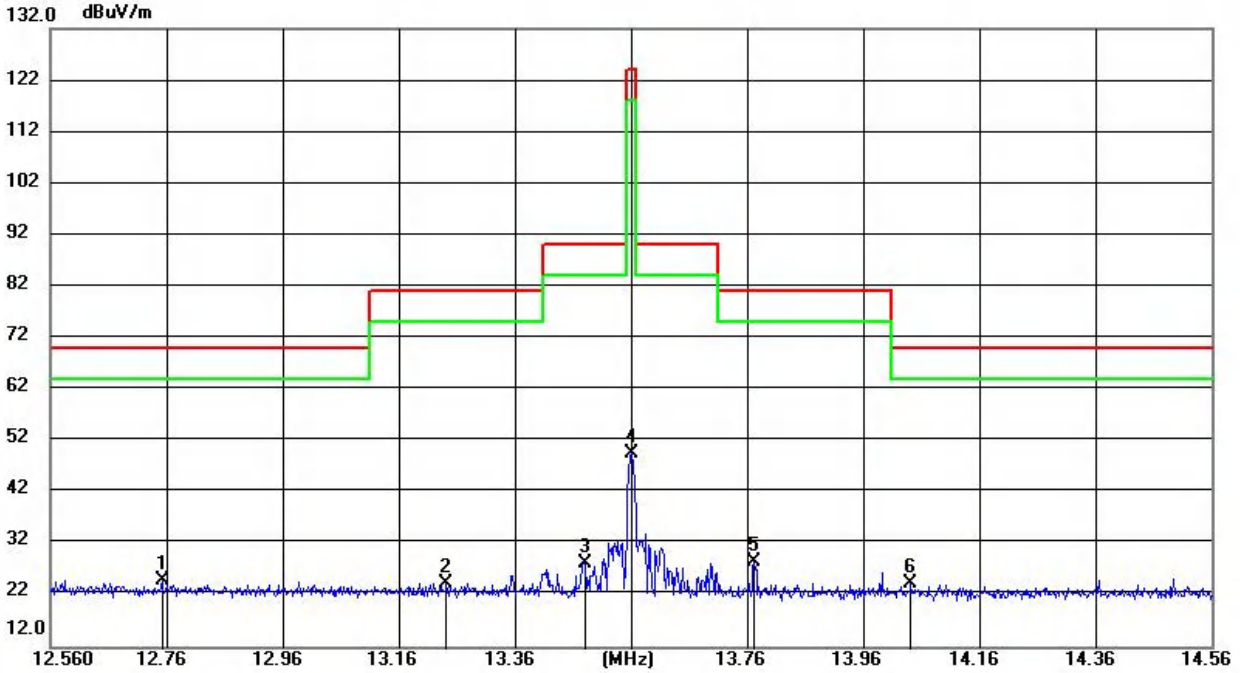
Measurement Data

X axis positioning



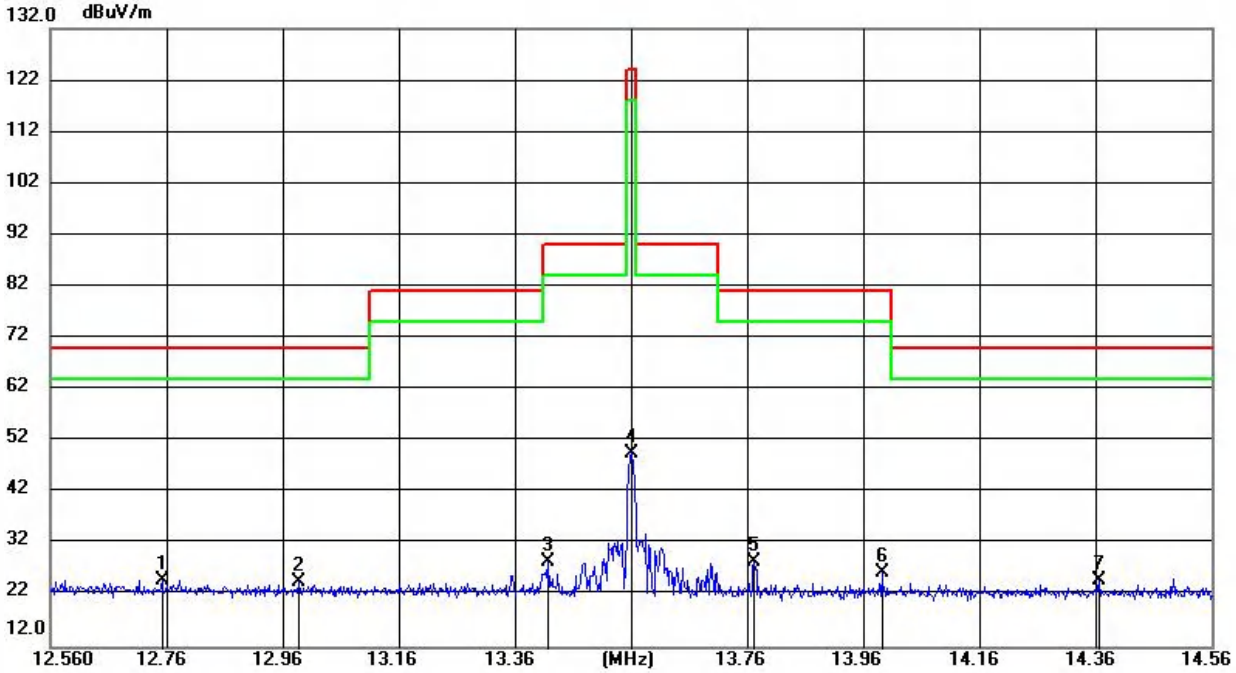
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	12.7520	5.62	19.55	25.17	70.00	-44.83	peak			
2		13.1960	5.00	19.53	24.53	81.00	-56.47	peak			
3		13.4140	7.75	19.51	27.26	90.00	-62.74	peak			
4		13.5600	30.24	19.49	49.73	124.00	-74.27	peak			
5		13.6960	8.81	19.48	28.29	90.00	-61.71	peak			
6		13.9920	7.03	19.45	26.48	81.00	-54.52	peak			
7		14.3660	5.69	19.41	25.10	70.00	-44.90	peak			

Y axis positioning



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	12.7520	5.62	19.55	25.17	70.00	-44.83	peak			
2		13.2420	5.06	19.53	24.59	81.00	-56.41	peak			
3		13.4820	8.98	19.50	28.48	90.00	-61.52	peak			
4		13.5600	30.24	19.49	49.73	124.00	-74.27	peak			
5		13.7720	9.07	19.47	28.54	81.00	-52.46	peak			
6		14.0420	4.87	19.45	24.32	70.00	-45.68	peak			

Z axis positioning



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	12.7520	5.62	19.55	25.17	70.00	-44.83	peak			
2		12.9880	5.12	19.54	24.66	70.00	-45.34	peak			
3		13.4180	9.22	19.51	28.73	90.00	-61.27	peak			
4		13.5600	30.24	19.49	49.73	124.00	-74.27	peak			
5		13.7720	9.07	19.47	28.54	81.00	-52.46	peak			
6		13.9920	7.03	19.45	26.48	81.00	-54.52	peak			
7		14.3660	5.69	19.41	25.10	70.00	-44.90	peak			

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.

4.4 Radiated Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.225(d),
Test Method:	ANSI C63.10: 2020
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:

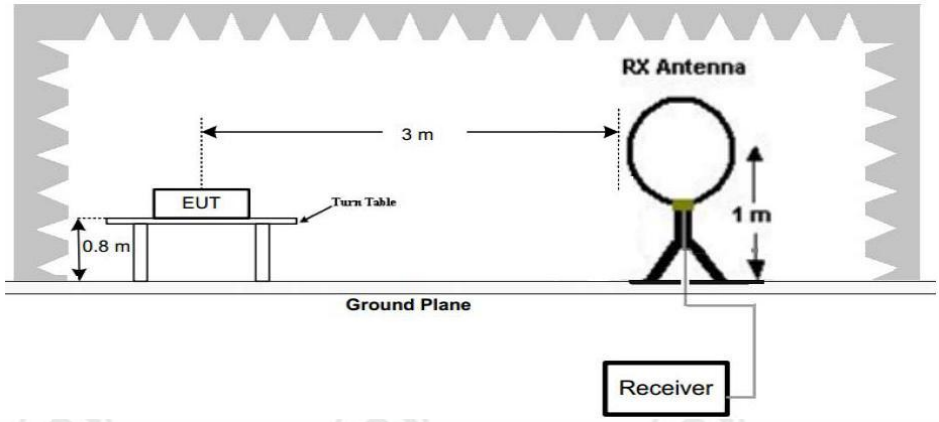


Figure 1. Below 30MHz

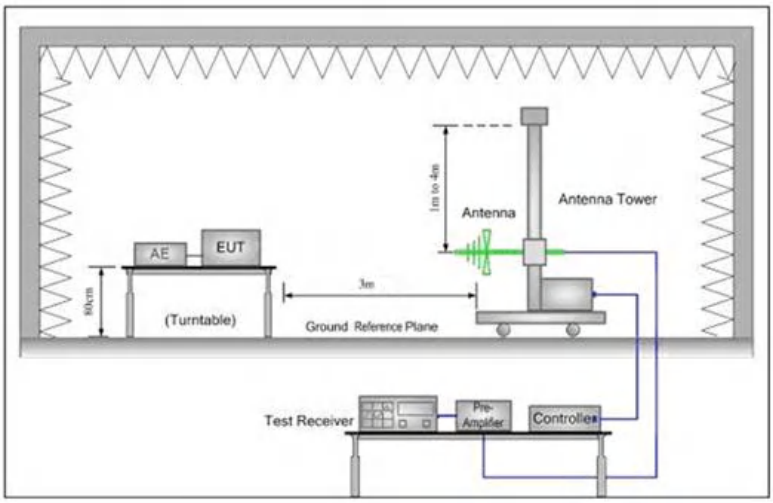


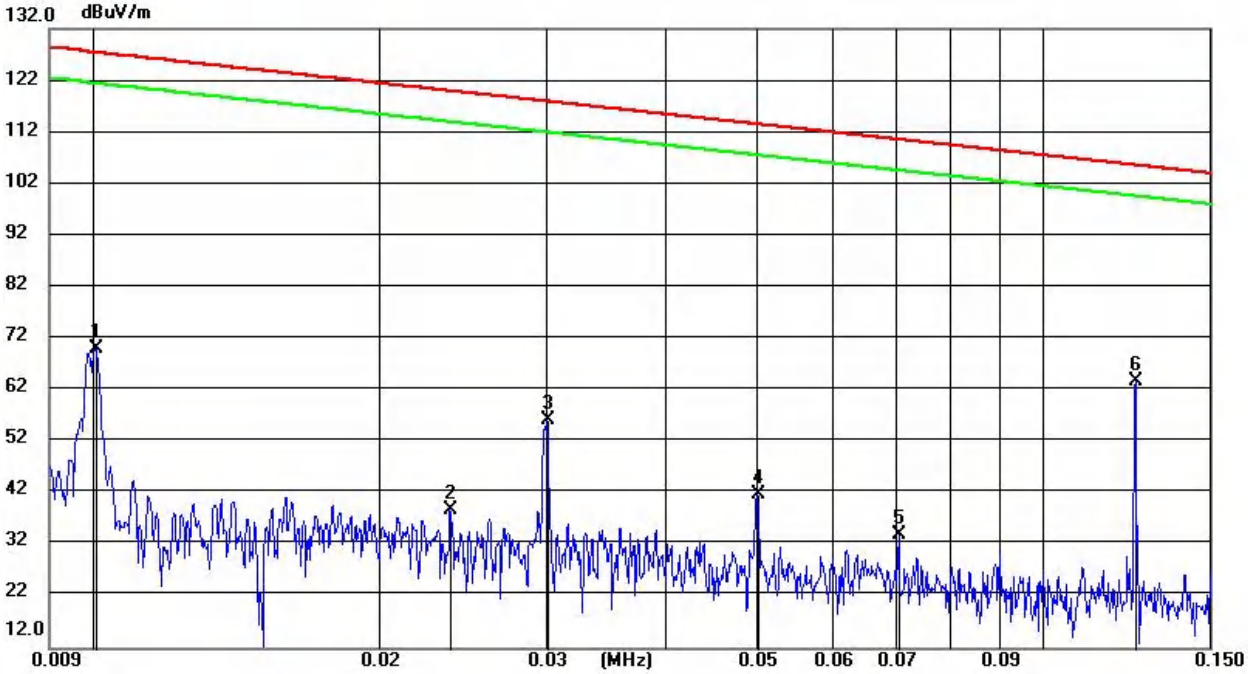
Figure 2. 30MHz to 1GHz

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 camber. 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

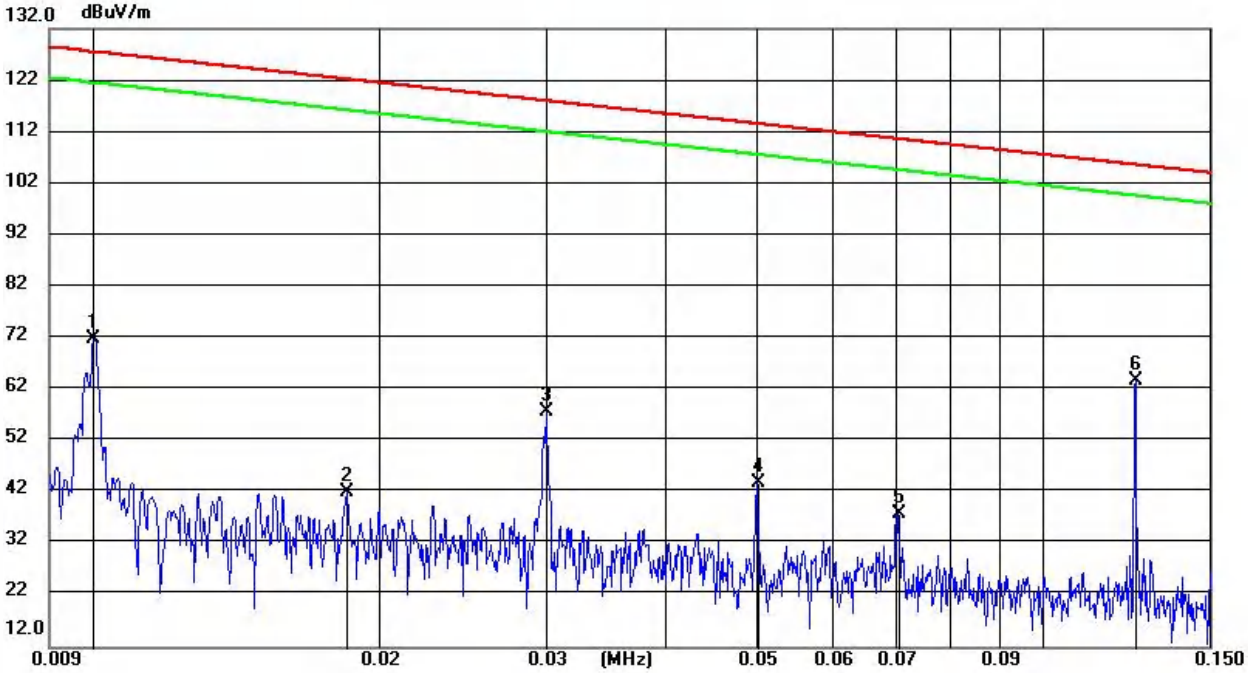
9kHz – 150KHz:

X axis positioning



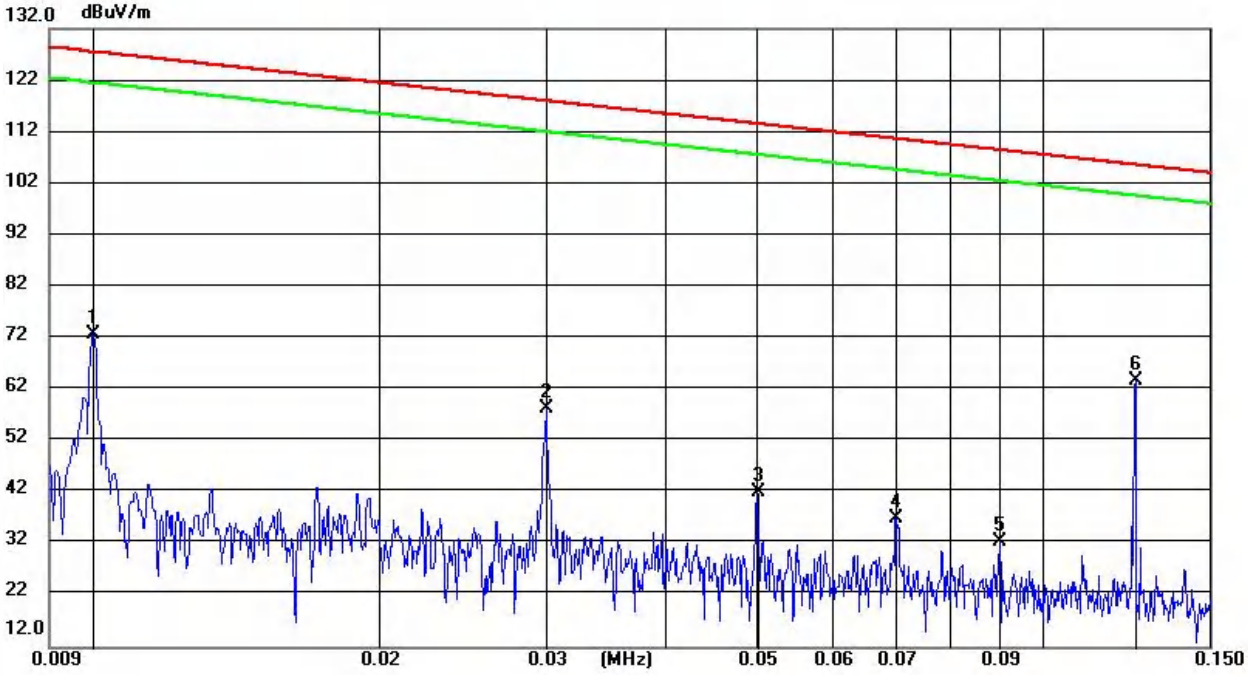
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.0101	49.54	20.43	69.97	127.31	-57.34	peak			
2		0.0238	18.21	20.51	38.72	119.91	-81.19	peak			
3		0.0301	35.75	20.55	56.30	117.88	-61.58	peak			
4		0.0501	21.24	20.68	41.92	113.49	-71.57	peak			
5		0.0706	13.42	20.59	34.01	110.52	-76.51	peak			
6	*	0.1253	43.34	20.47	63.81	105.57	-41.76	peak			

Y axis positioning



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.0100	51.27	20.43	71.70	127.49	-55.79	peak			
2		0.0185	21.64	20.48	42.12	122.17	-80.05	peak			
3		0.0300	37.06	20.55	57.61	117.98	-60.37	peak			
4		0.0501	23.18	20.68	43.86	113.54	-69.68	peak			
5		0.0704	17.33	20.59	37.92	110.60	-72.68	peak			
6	*	0.1253	43.33	20.47	63.80	105.61	-41.81	peak			

Z axis positioning



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.0100	52.23	20.43	72.66	127.49	-54.83	peak			
2		0.0300	37.74	20.55	58.29	117.98	-59.69	peak			
3		0.0501	21.45	20.68	42.13	113.54	-71.41	peak			
4		0.0700	16.55	20.59	37.14	110.65	-73.51	peak			
5		0.0901	12.13	20.54	32.67	108.46	-75.79	peak			
6	*	0.1253	43.32	20.47	63.79	105.61	-41.82	peak			

Remark:

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

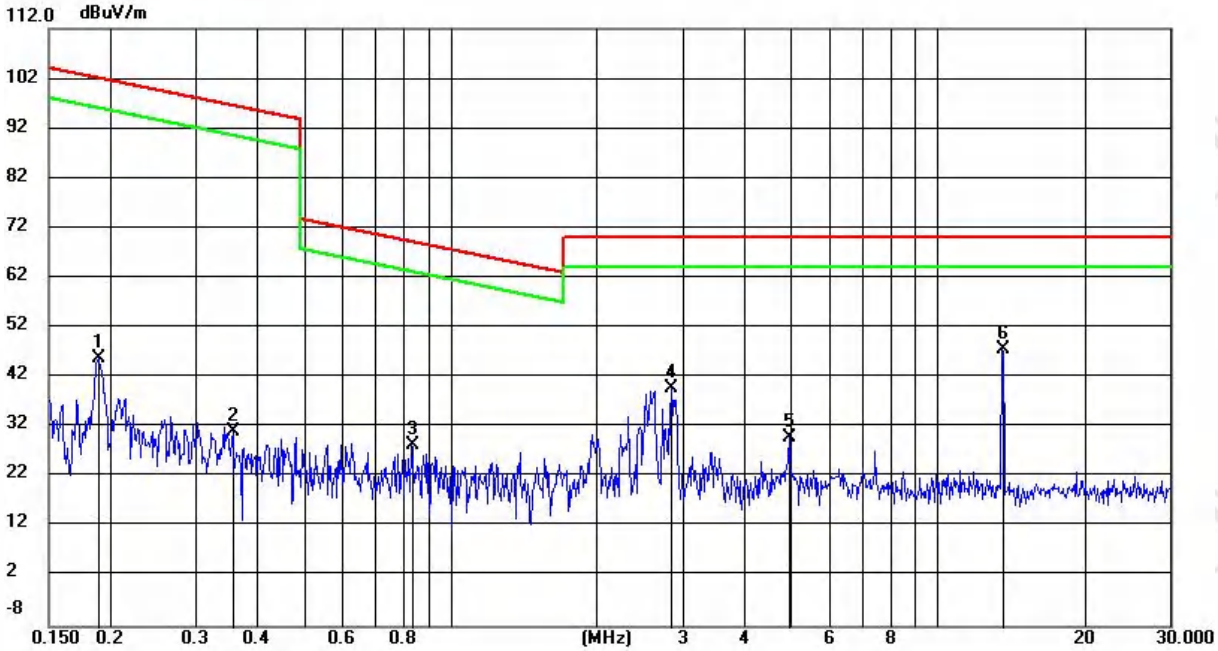
Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

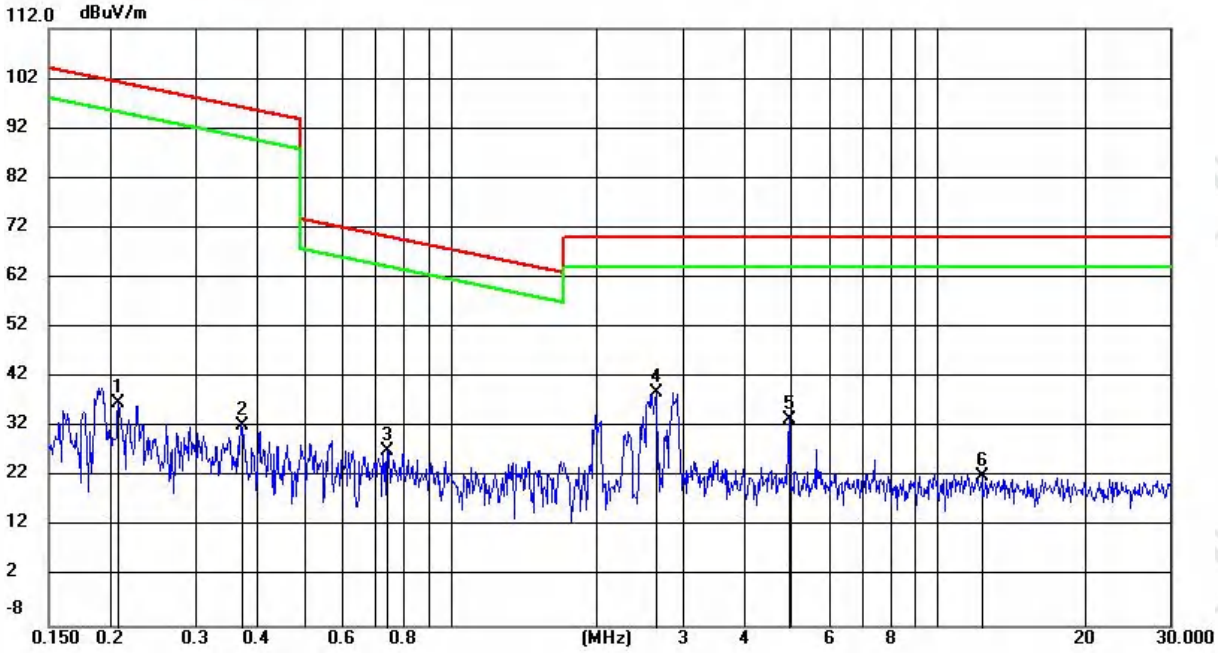
150KHz-30MHz:

X axis positioning



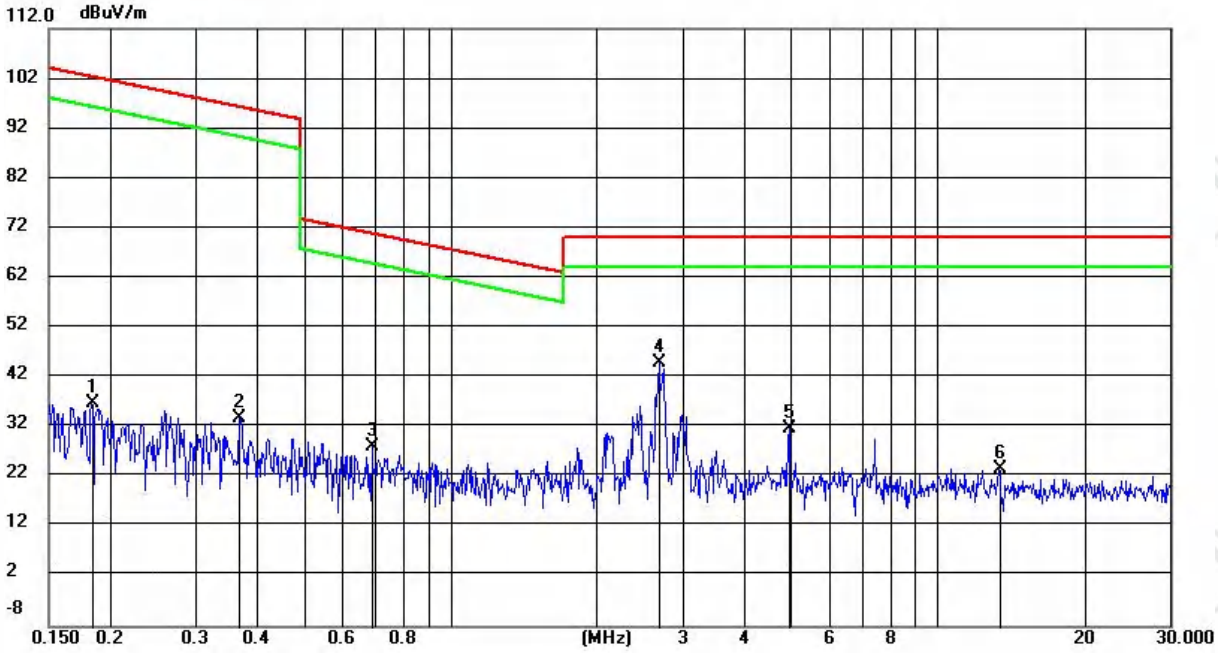
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.1894	25.64	20.21	45.85	102.03	-56.18	peak			
2		0.3577	11.06	20.07	31.13	96.52	-65.39	peak			
3		0.8305	8.69	19.79	28.48	69.23	-40.75	peak			
4		2.8389	20.32	19.66	39.98	70.00	-30.02	peak			
5		4.9519	10.45	19.62	30.07	70.00	-39.93	peak			
6	*	13.5509	28.11	19.49	47.60	70.00	-22.40	peak			

Y axis positioning



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.2083	16.54	20.23	36.77	101.21	-64.44	peak			
2		0.3712	12.42	20.05	32.47	96.20	-63.73	peak			
3		0.7430	7.34	19.80	27.14	70.19	-43.05	peak			
4	*	2.6500	19.31	19.68	38.99	70.00	-31.01	peak			
5		4.9519	13.97	19.62	33.59	70.00	-36.41	peak			
6		12.3182	2.53	19.57	22.10	70.00	-47.90	peak			

Z axis positioning



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		0.1835	16.75	20.20	36.95	102.30	-65.35	peak			
2		0.3692	13.82	20.05	33.87	96.25	-62.38	peak			
3		0.6899	8.25	19.80	28.05	70.84	-42.79	peak			
4	*	2.6783	25.14	19.67	44.81	70.00	-25.19	peak			
5		4.9519	12.00	19.62	31.62	70.00	-38.38	peak			
6		13.3372	4.02	19.52	23.54	70.00	-46.46	peak			

Remark:

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

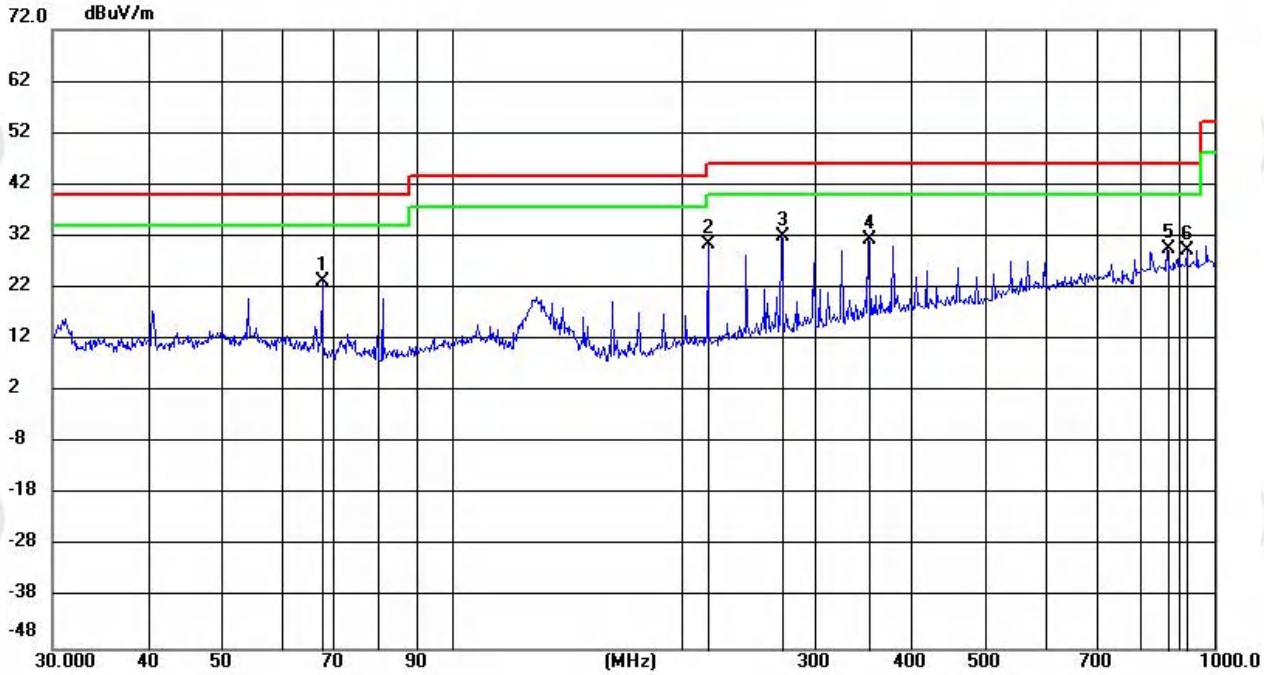
Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

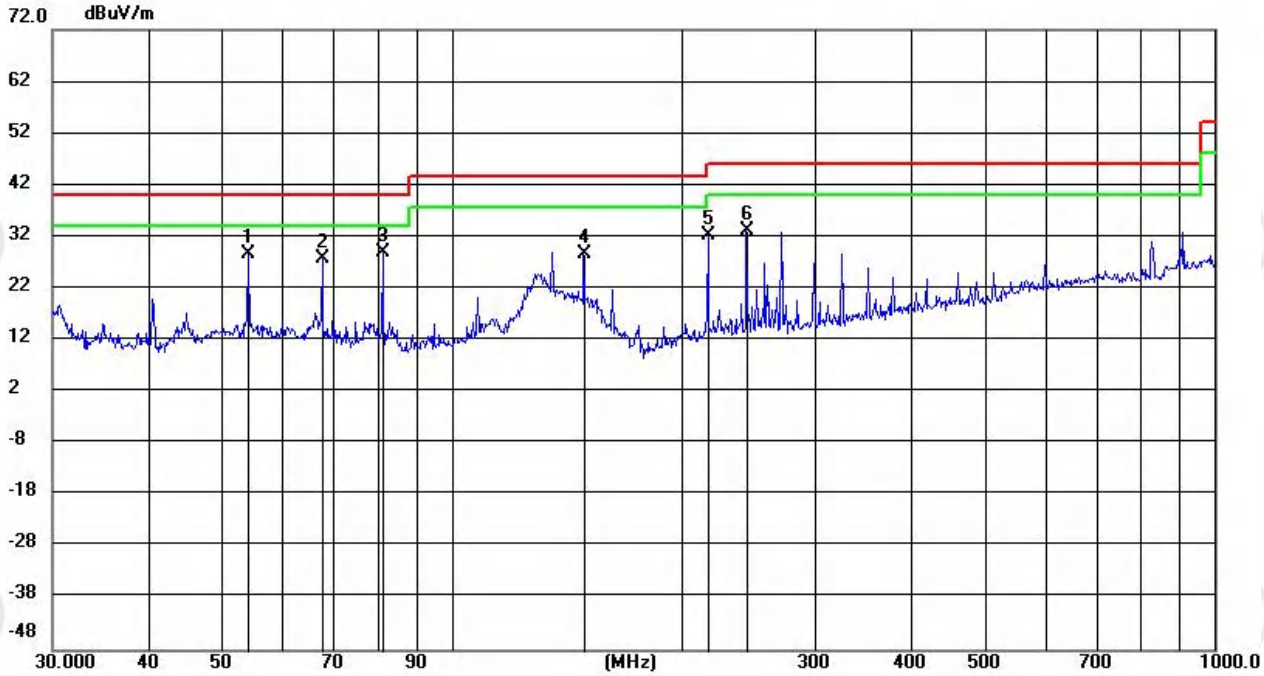
30MHz-1GHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		67.8057	11.68	11.57	23.25	40.00	-16.75	QP	199	202	
2		216.9729	17.31	13.12	30.43	46.00	-15.57	QP	100	254	
3	*	271.2294	16.56	15.29	31.85	46.00	-14.15	QP	100	88	
4		352.5721	13.31	18.03	31.34	46.00	-14.66	QP	100	113	
5		867.9120	3.36	26.20	29.56	46.00	-16.44	QP	100	55	
6		922.1923	2.18	27.15	29.33	46.00	-16.67	QP	100	138	

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		54.2325	14.59	14.17	28.76	40.00	-11.24	QP	200	333	
2		67.8058	16.33	11.57	27.90	40.00	-12.10	QP	100	277	
3	*	81.3685	18.91	9.99	28.90	40.00	-11.10	QP	100	354	
4		149.1715	18.44	10.26	28.70	43.50	-14.80	QP	100	80	
5		216.9729	19.04	13.12	32.16	46.00	-13.84	QP	200	249	
6		244.1037	18.93	14.30	33.23	46.00	-12.77	QP	100	192	

Remark:

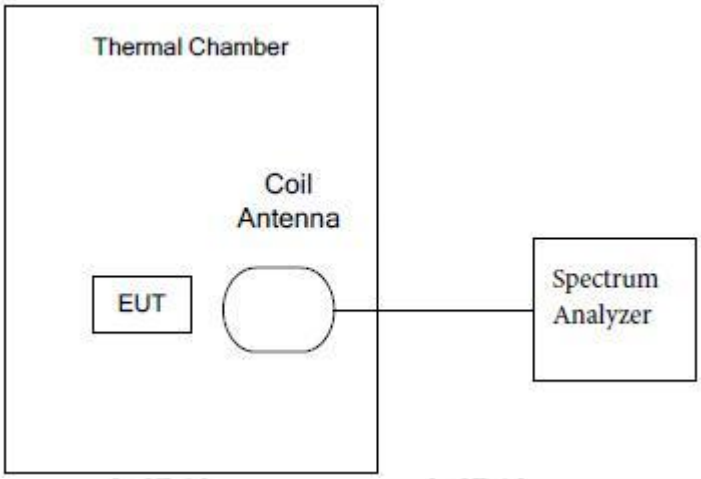
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

4.5 Frequency Stability

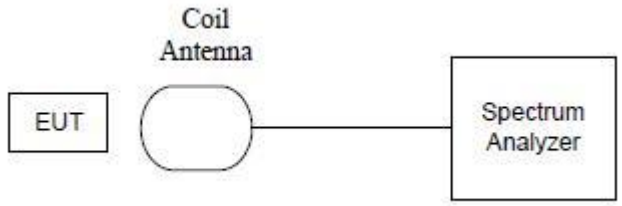
Test Requirement:	47 CFR Part 15 C Section 15.225(e)
Test Method:	ANSI C63.10: 2020
Test Setup:	
Frequency Range:	Operation within the band 13.110-14.010 MHz
Requirements:	The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of –20 degrees to +50 degrees C at normal supply voltage, 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℃	
Supply Voltage （V）DC	Test Result (MHz)	Deviation (kHz)	Limit ±0.01% (kHz)	Result
5.0	13.55973	-0.27	1.3560	Pass
5.5	13.55975	-0.25	1.3560	Pass
4.5	13.55979	-0.21	1.3560	Pass

Test Frequency: 13.56MHz			Normal Voltage:5.0Vdc	
Temperature （℃）	Test Result (MHz)	Deviation (kHz)	Limit ±0.01% (kHz)	Result
-10	13.55972	-0.28	1.3560	Pass
0	13.55971	-0.29	1.3560	
10	13.55977	-0.23	1.3560	
20	13.55973	-0.27	1.3560	
30	13.55979	-0.21	1.3560	
40	13.55978	-0.22	1.3560	
50	13.55976	-0.24	1.3560	
55	13.55974	-0.26	1.3560	

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

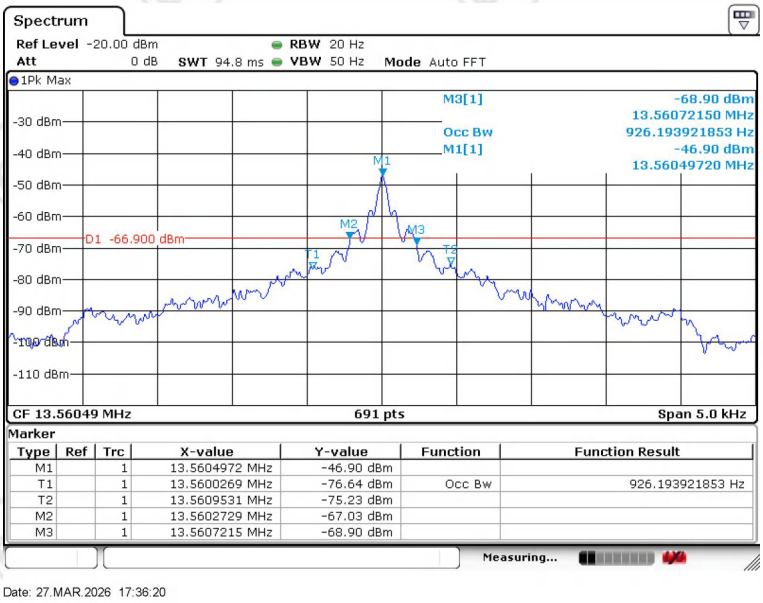
4.6 20dB Occupied Bandwidth

Test Requirement:	47 CFR Part 15 C Section 15.215 (C)
Test Method:	ANSI C63.10: 2020
Test Setup:	
Frequency Range:	Operation within the band 13.553 – 13.567 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 13.5488MHz to 13.5712MHz.

Test Data:

20dB bandwidth (kHz)	FL (MHz)	FH (MHz)	Limit(MHz)	Result
0.4486	13.5602729	13.5607215	13.5488- 13.5712	Pass

Test plot as follows:



Note:
During the test, RBW has been set as close to 1% of OBW as possible.

5 PHOTOGRAPHS

Refer to Appendix Photographs of Report No. EED32S80280201.

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 ***