



Test Report

FCC ID:2A9ZQ-S90V2

IC:29970-S90V2

Applicant: Sentinel NV

Address: Kempische steenweg 303 Bus 200 Hasselt Belgium

Manufacturer: Sentinel Intelligent Technology (Wuxi) Co., Ltd.

Address: G1-301, China Internet of Things International Innovation Park, Linghu Road, Xinwu District, Wuxi City

EUT: Smart Bicycle Lock

Trade Mark: N/A

Model Number: S90-V2

Date of Receipt: Jan. 04, 2025

Test Date: Jan. 04, 2025 - Jan. 17, 2025

Date of Report: Jan. 17, 2025

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

Applicable Standards: FCC PART 15 C 15.225
ANSI C63.10:2013
RSS-210 Issue 11, June 25, 2024
RSS-GEN Issue 5, Amendment 2, February 2021

Test Result: Pass

Report Number: DL-250104029ER

Prepared (Test Engineer): Alisa Song

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.225) , Subpart C RSS-210 Issue 11, June 25, 2024 RSS-GEN Issue 5, Amendment 2, February 2021			
Standard Section	Test Item	Judgment	Remark
15.207&RSS-Gen Section 8.8	Conducted Emission	PASS	
15.209,15.225 (a)-(d)& RSS-210 Annex B.6 RSS-Gen Section 8.9	Fundamental &Radiated Spurious Emission Measurement	PASS	
15.215(c)&RSS-Gen Section 6.7	20dB Bandwidth&99% Bandwidth	PASS	
15.203&RSS-Gen Section 6.8	Antenna Requirement	PASS	
15.225(e)& RSS210 Annex B B.6 (b)	Frequency Stability	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

Test lab: Shenzhen DL Testing Technology Co., Ltd.

101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1

Address: Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

FCC Test Firm Registration Number: 854456

Designation Number: CN1307

IC Registered No.: 27485

CAB ID.: CN0118

1.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 2.56\text{dB}$
2	RF power,conducted	$\pm 0.42\text{dB}$
3	Spurious emissions,conducted	$\pm 2.76\text{dB}$
4	All emissions,radiated(<1G)	$\pm 3.65\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$
8	20dB Bandwidth	$\pm 0.2\text{MHz}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	Smart Bicycle Lock
Trademark	N/A
Model No.:	S90-V2
Model Difference	N/A
S/N:	20250104001
Sample number:	20250104-01
Operation Frequency:	13.56MHz
Channel numbers:	1 Channels
Modulation technology:	FSK
Antenna Type:	PCB Antenna
Antenna gain:	0dBi
Power supply:	DC 3.7V from battery DC 5V from charger

Note:

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

2.The EUT's all information provided by client.

3.

Channel List	
Channel	Frequency (MHz)
00	13.56



2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description	
Mode 1	CH00	FSK

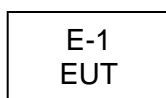
For Conducted & Radiated Emission		
Final Test Mode	Description	
Mode 1	CH00	FSK

Note:

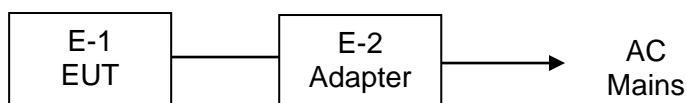
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) A new fully charged battery was used for testing during the test.

2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Power line conducted emission Test





2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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	Model/Type No.	Series No.	Note
E-1	Smart Bicycle Lock	S90-V2	N/A	EUT
E-2	Adapter	HW-0501000E	N/A	Adapter (Provide by test lab): Manufacturer: HAIWEI Model: HW-0501000E I/P: AC 100-240V 50/60Hz O/P: DC 5V 1A S/N:HW0501000

Item	Shielded Type	Ferrite Core	Length	Note

Note:

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

2.5 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the end product.

Test software Version	Test program: FCC_test
Frequency	13.56MHz
Power Setting of Software	10



2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation test, Band-edge test and 20db bandwidth test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4408B	MY50140780	Nov. 01, 2024	Oct. 31, 2025
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Nov. 01, 2024	Oct. 31, 2025
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Nov. 01, 2024	Oct. 31, 2025
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Nov. 01, 2024	Oct. 31, 2025
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Nov. 01, 2024	Oct. 31, 2025
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Nov. 01, 2024	Oct. 31, 2025
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Nov. 01, 2024	Oct. 31, 2025
8	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Nov. 01, 2024	Oct. 31, 2025
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Nov. 01, 2024	Oct. 31, 2025
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Nov. 01, 2024	Oct. 31, 2025
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Nov. 01, 2024	Oct. 31, 2025
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Nov. 01, 2024	Oct. 31, 2025
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Nov. 01, 2024	Oct. 31, 2025
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Nov. 01, 2024	Oct. 31, 2025
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Nov. 01, 2024	Oct. 31, 2025
16	D.C. Power Supply	LongWei	PS-305D	010964729	Nov. 01, 2024	Oct. 31, 2025

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	YIHENG	843 Room	843	Nov. 05, 2023	Nov. 04, 2026
2	EMI Receiver	R&S	ESR	101421	Nov. 01, 2024	Oct. 31, 2025
3	LISN	R&S	ENV216	102417	Nov. 01, 2024	Oct. 31, 2025
4	843 Cable 1#	ChengYu	CE Cable	001	Nov. 01, 2024	Oct. 31, 2025

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ_EMCC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ_EMCC	FA-03A2
3	RF test system	MAIWEI	MTS8310	2.0.0.0
4	RF communication test system	MAIWEI	MTS8200	2.0.0.0



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC&RSS
0.50 -5.0	56.00	46.00	FCC&RSS
5.0 -30.0	60.00	50.00	FCC&RSS

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

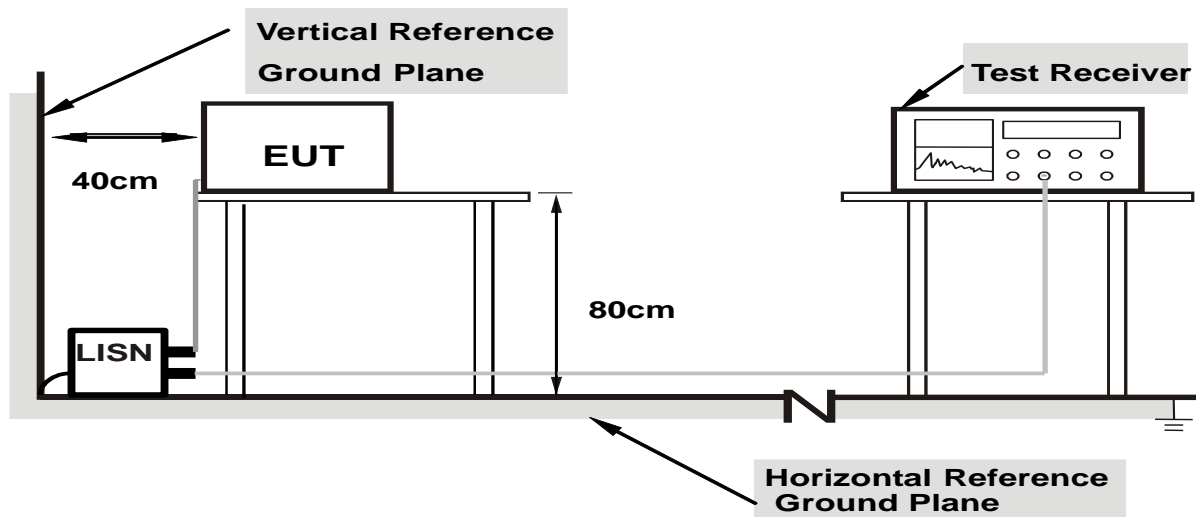
3.1.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

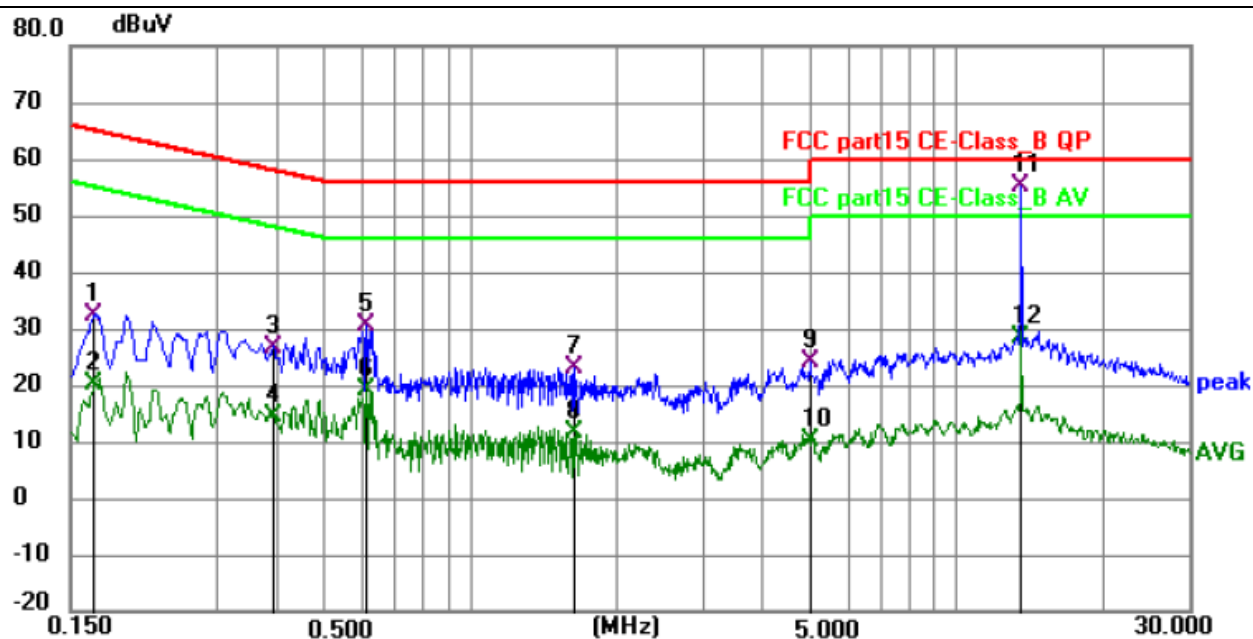
3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 1



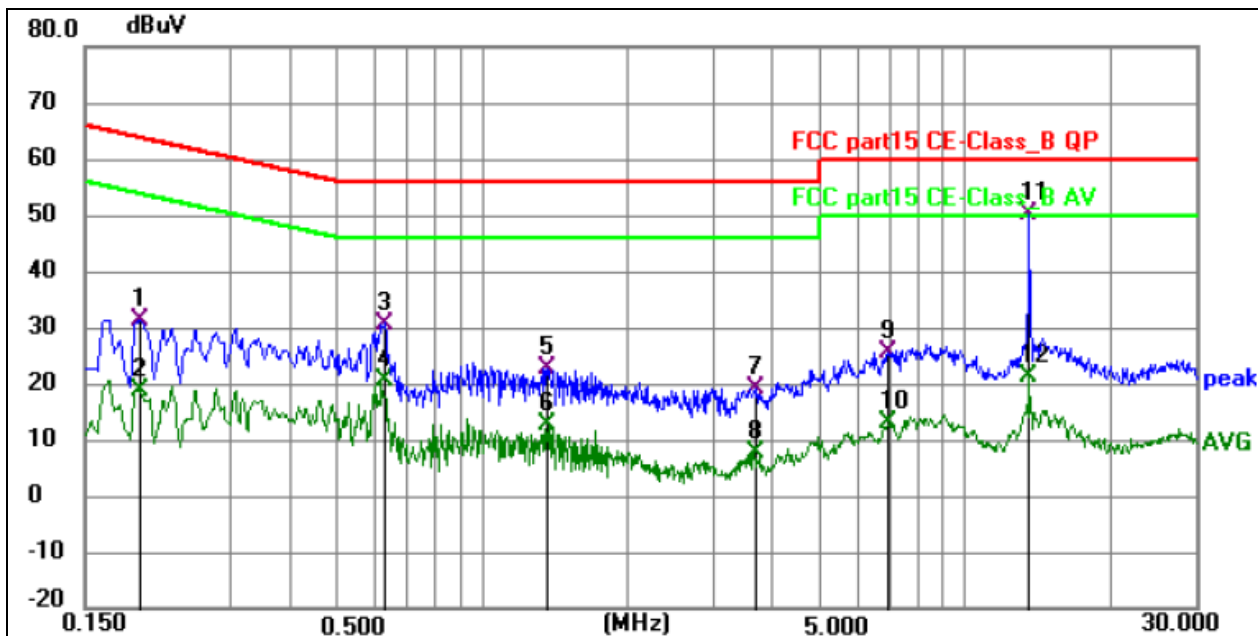
Remark:

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

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1680	22.44	10.03	32.47	65.06	-32.59	QP	P	
2	0.1680	10.11	10.03	20.14	55.06	-34.92	AVG	P	
3	0.3930	16.20	10.26	26.46	58.00	-31.54	QP	P	
4	0.3930	4.30	10.26	14.56	48.00	-33.44	AVG	P	
5	0.6090	20.34	10.13	30.47	56.00	-25.53	QP	P	
6	0.6090	9.09	10.13	19.22	46.00	-26.78	AVG	P	
7	1.6305	13.07	10.06	23.13	56.00	-32.87	QP	P	
8	1.6305	1.57	10.06	11.63	46.00	-34.37	AVG	P	
9	4.9875	13.67	10.38	24.05	56.00	-31.95	QP	P	
10	4.9875	-0.06	10.38	10.32	46.00	-35.68	AVG	P	
11 *	13.5555	43.66	11.55	55.21	60.00	-4.79	QP	P	
12	13.5555	16.90	11.55	28.45	50.00	-21.55	AVG	P	



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 1



Remark:

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

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1949	21.10	10.16	31.26	63.83	-32.57	QP	P	
2	0.1949	8.58	10.16	18.74	53.83	-35.09	AVG	P	
3	0.6270	20.39	10.15	30.54	56.00	-25.46	QP	P	
4	0.6270	10.35	10.15	20.50	46.00	-25.50	AVG	P	
5	1.3605	12.60	10.09	22.69	56.00	-33.31	QP	P	
6	1.3605	2.59	10.09	12.68	46.00	-33.32	AVG	P	
7	3.6735	8.93	10.12	19.05	56.00	-36.95	QP	P	
8	3.6735	-2.58	10.12	7.54	46.00	-38.46	AVG	P	
9	6.9270	14.81	10.71	25.52	60.00	-34.48	QP	P	
10	6.9270	2.35	10.71	13.06	50.00	-36.94	AVG	P	
11 *	13.5600	38.64	11.47	50.11	60.00	-9.89	QP	P	
12	13.5600	9.83	11.47	21.30	50.00	-28.70	AVG	P	



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on RSS-210&15.225, then the RSS-210&15.209(a) limit in the table below has to be followed.

Frequency (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency of Emission (MHz)	Field Strength (μV/m)at 30m	Field Strength (dBμV/m)at 30m
1.705~13.110	30	29.5
13.110~13.410	106	40.5
13.410~13.553	334	50.5
13.553~13.567	15848	84
13.567~13.710	334	50.5
13.710~14.010	106	40.5
14.010~30.00	30	29.5

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&RSS-210.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).



Receiver setup:

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

3.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

- 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.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.

Above 1GHz test procedure as below:

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber.
- Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

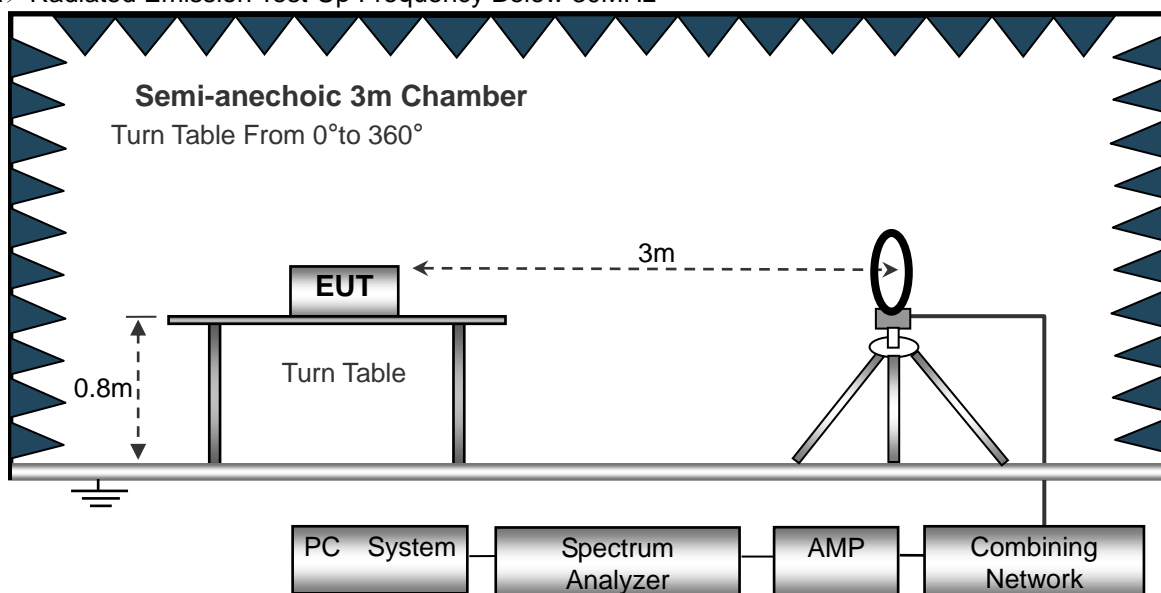
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

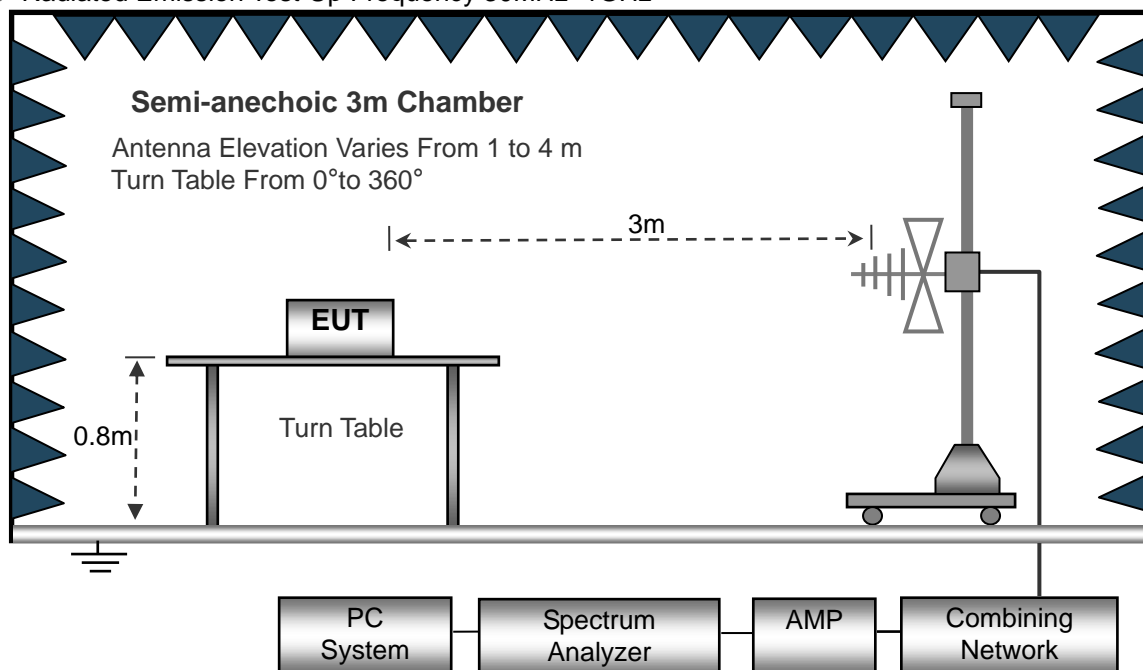
No deviation

3.2.4 TEST SETUP

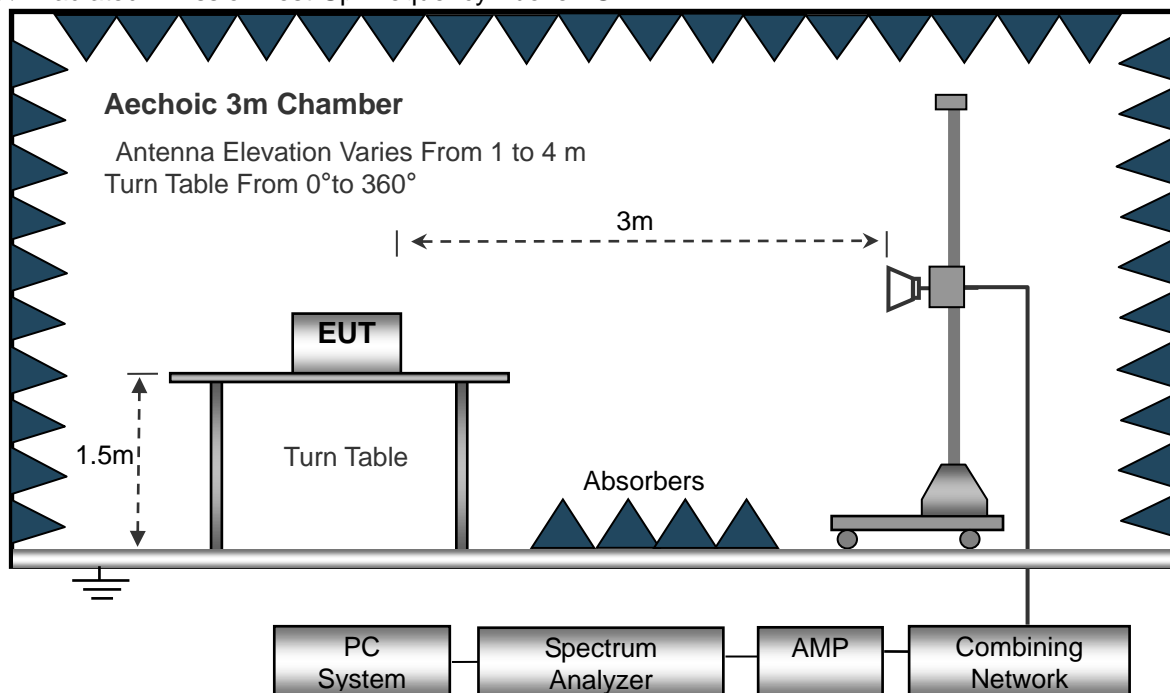
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz

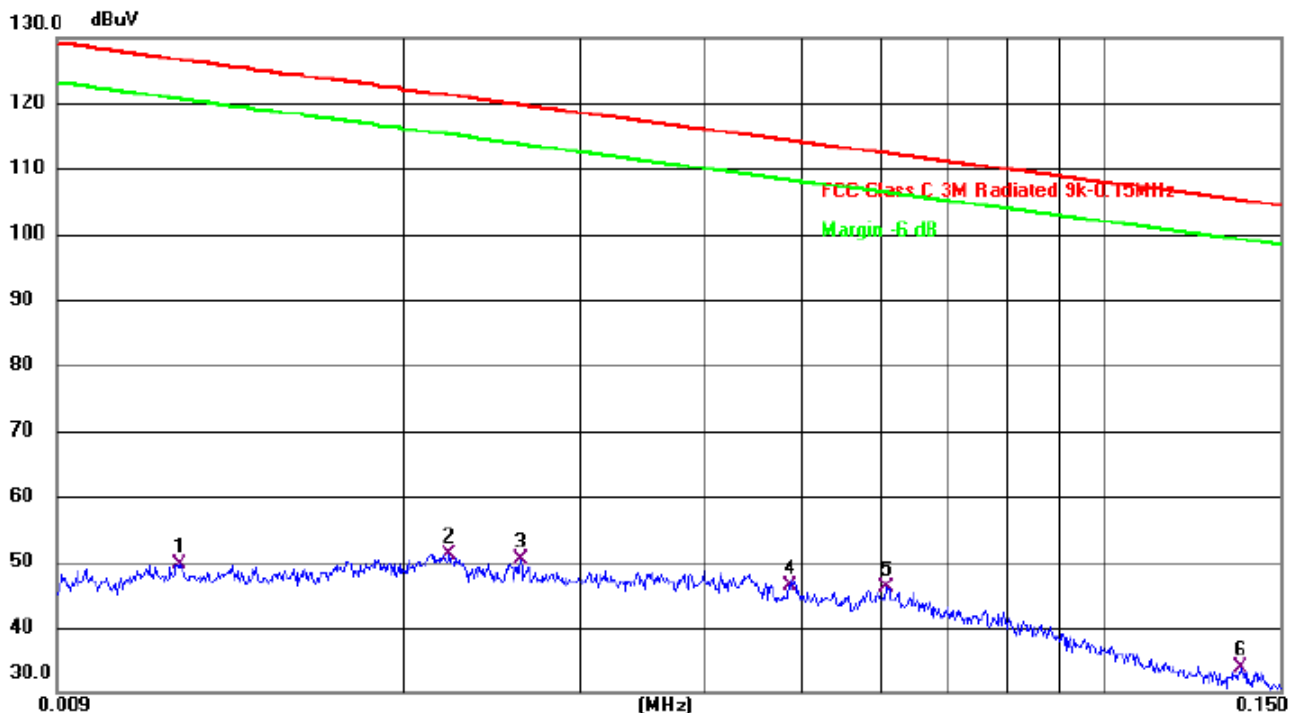


3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

**3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)**

Radiation Emission Test Data 9 kHz~0.15MHz			
Temperature:	24.5 °C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	/
Test Voltage:	DC 3.7V	Test Mode:	Mode 2



Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
0.0119	49.55	2.03	51.58	126.55	-74.97	AVG
0.0222	51.03	2.10	53.13	121.09	-67.96	AVG
0.0261	50.28	2.25	52.53	119.67	-67.14	AVG
0.0485	46.38	2.31	48.69	114.24	-65.55	AVG
0.0606	45.96	2.47	48.43	112.29	-63.86	AVG
0.1365	33.44	2.49	35.93	105.18	-69.25	AVG

Note:

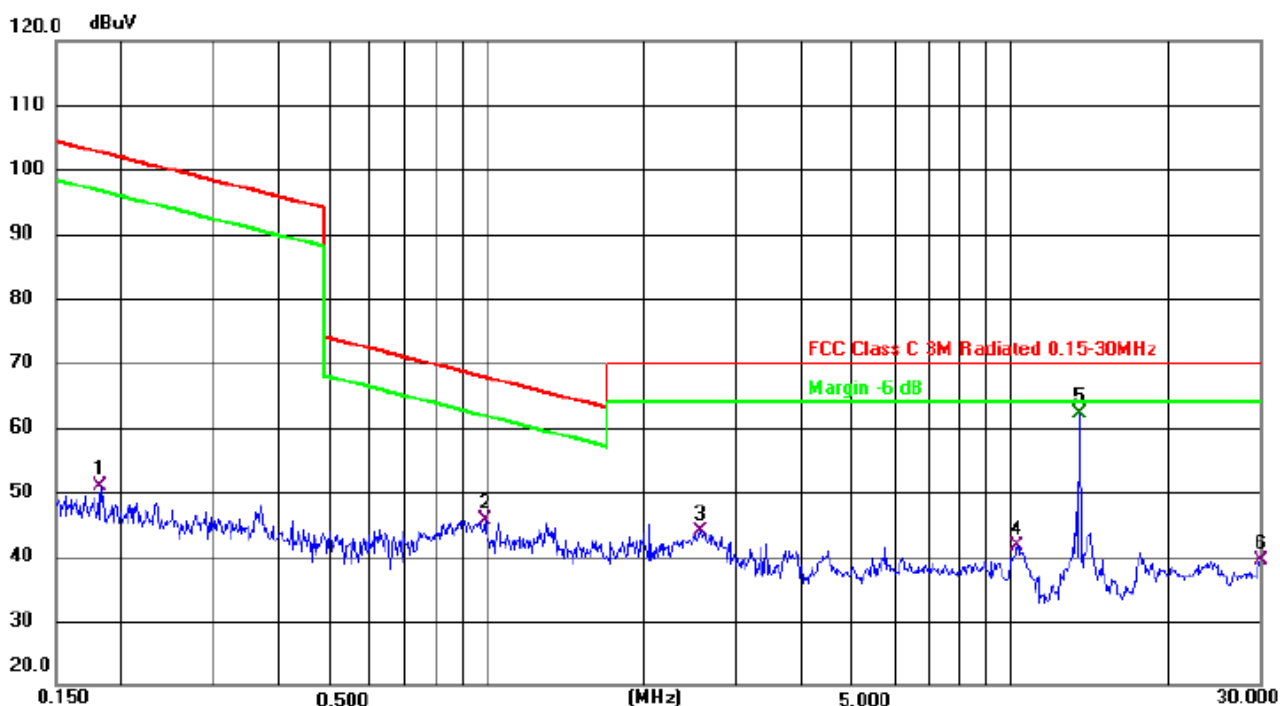
Pre-scan in the all of mode, the worst case in of was recorded.

Factor = antenna factor + cable loss – pre-amplifier.

Margin = Emission Level(Meter Reading+ Factor) - Limit.



Radiation Emission Test Data 0.15MHz~30 MHz			
Temperature:	24.5 °C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	/
Test Voltage:	DC 3.7V	Test Mode:	Mode 2



Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
0.1833	50.32	2.15	52.47	102.6	-50.13	QP
0.9889	45.72	2.72	48.44	67.81	-19.37	AVG
2.5535	45.94	2.31	48.25	70	-21.75	AVG
10.2873	43.90	2.36	46.26	70	-23.74	AVG
13.5600	62.15	2.44	64.59	70	-5.41	AVG
30.0000	39.28	2.52	41.80	70	-28.20	AVG

Note:

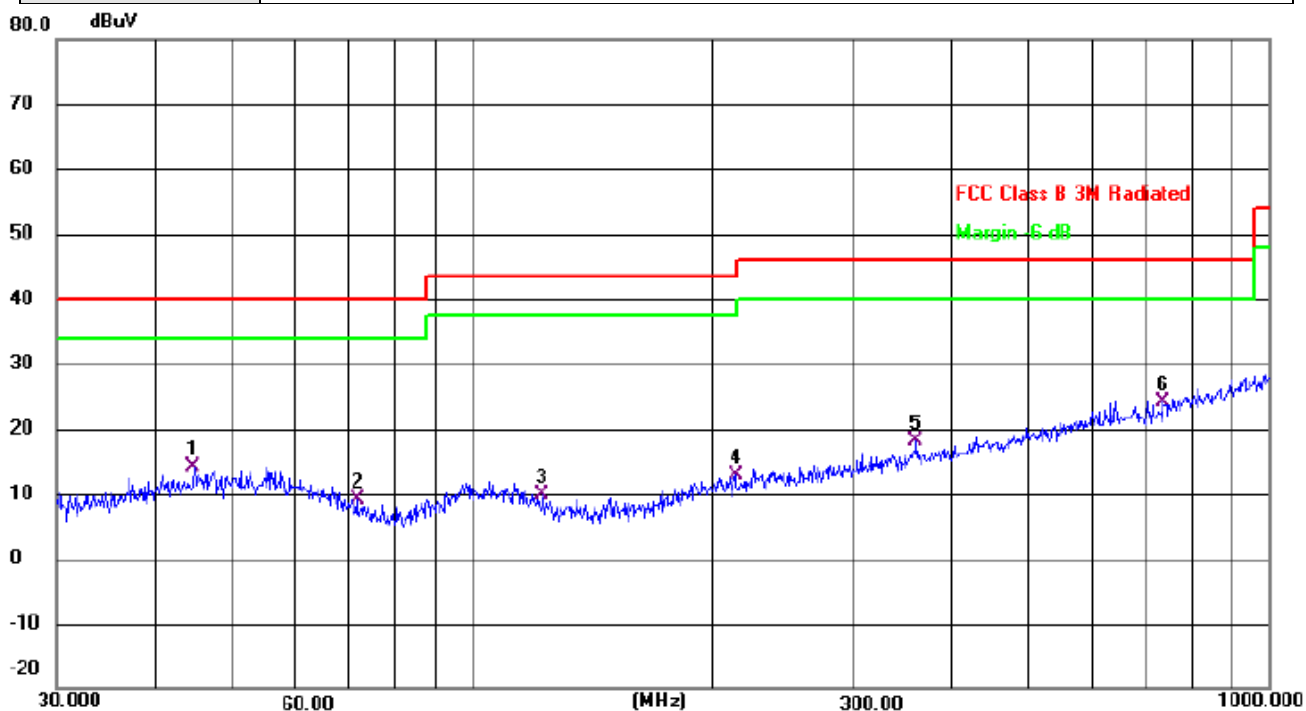
Pre-scan in the all of mode, the worst case in of was recorded.

Factor = antenna factor + cable loss – pre-amplifier.

Margin = Emission Level(Meter Reading+ Factor) - Limit.

**3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)**

Temperature:	26℃	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Horizontal
Test Voltage :	DC 3.7V		
Test Mode :	Mode 2		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	
		MHz	dBuV	dB	dBuV	dB	dB	Detector
1		44.7433	27.42	-13.18	14.24	40.00	-25.76	QP
2		71.5806	26.38	-17.35	9.03	40.00	-30.97	QP
3		122.4040	26.80	-16.88	9.92	43.50	-33.58	QP
4		213.7634	27.09	-14.32	12.77	43.50	-30.73	QP
5		360.4476	28.53	-10.30	18.23	46.00	-27.77	QP
6	*	737.0714	27.30	-3.15	24.15	46.00	-21.85	QP

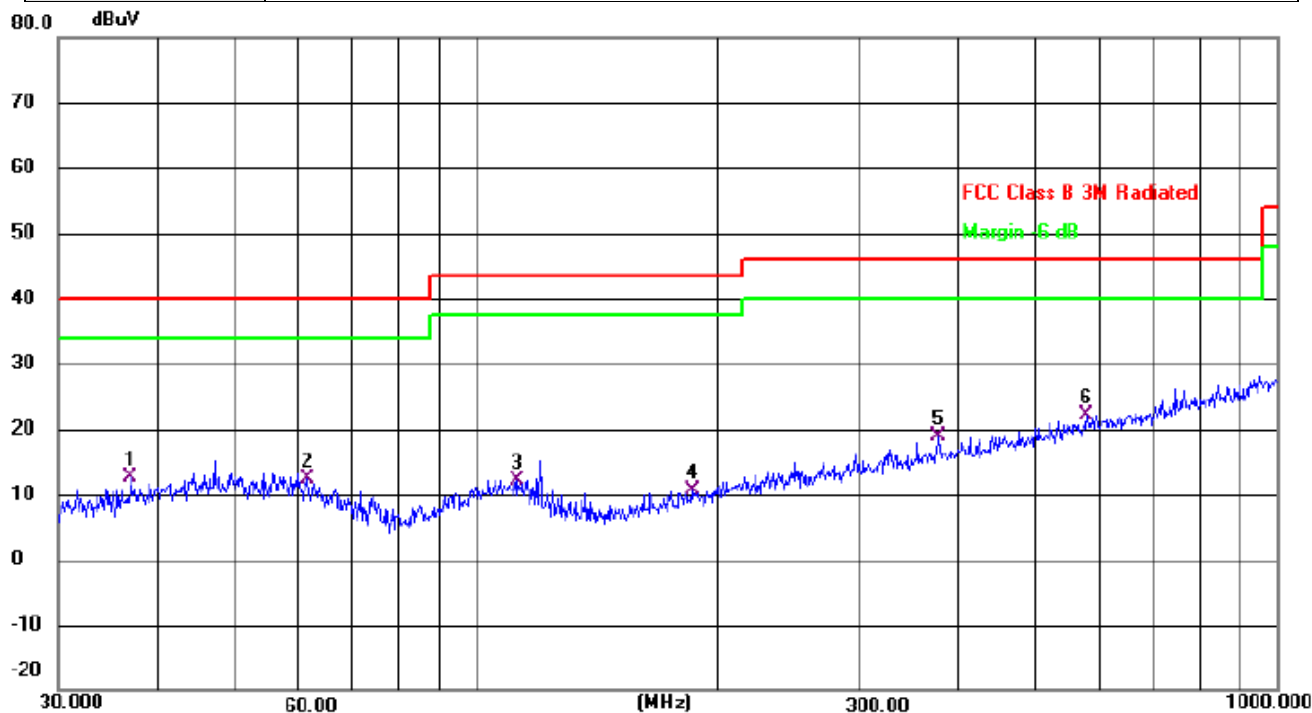
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Level - Limit;



Temperature:	26°C	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Vertical
Test Voltage :	DC 3.7V		
Test Mode :	Mode 2		



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV	dB	dB	
1		37.0248	27.32	-14.75	12.57	40.00	-27.43	QP
2		61.5618	26.48	-14.18	12.30	40.00	-27.70	QP
3		112.5244	27.87	-15.62	12.25	43.50	-31.25	QP
4		185.7882	26.74	-16.01	10.73	43.50	-32.77	QP
5		377.2591	28.67	-9.86	18.81	46.00	-27.19	QP
6	*	578.6699	27.99	-5.74	22.25	46.00	-23.75	QP

Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Level - Limit;

**3.2.8 FIELD STRENGTH OF FUNDAMENTAL**

Frequency	Emission	Limits	Margin	Detector
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	
13.56	64.59	124.0	-59.41	QP

3.2.9 FIELD STRENGTH WITHIN THE BANDS 13.410-13.553 MHZ AND 13.567-13.710 MHZ

Frequency	Emission Level		Limits	Result
(MHz)	(dBuV/m@3m)	(dBuV/m@30m)	dBuV/m@30m	
13.460	47.69	7.69	50.47	PASS
13.685	49.51	9.51	50.47	PASS

3.2.10 FIELD STRENGTH WITHIN THE BANDS 13.110-13.410 MHZ AND 13.710-14.010

Frequency	Emission Level		Limits	Result
(MHz)	(dBuV/m@3m)	(dBuV/m@30m)	dBuV/m@30m	
13.272	47.29	7.29	40.50	PASS
13.980	48.87	8.87	40.50	PASS



3.3 FREQUENCY STABILITY

3.3.1 Applicable Standard

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.

Carrier frequency stability shall be maintained to $\pm 0.01\%$ (± 100 ppm).

For licence-exempt radio apparatus, the frequency stability shall be measured at temperatures of -20°C (-4°F), $+20^{\circ}\text{C}$ ($+68^{\circ}\text{F}$) and $+50^{\circ}\text{C}$ ($+122^{\circ}\text{F}$).

3.3.2 Measurement Procedure

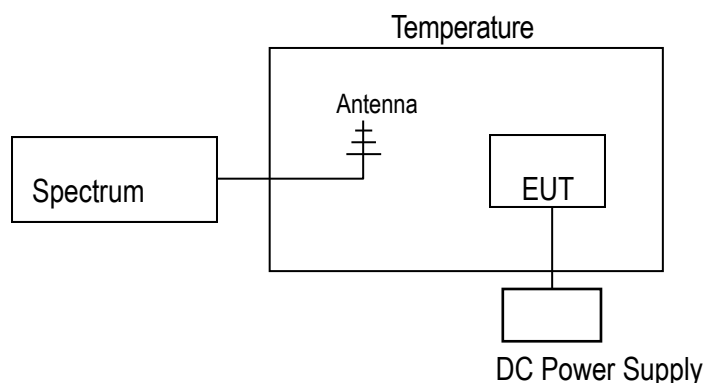
The EUT was placed on a turn table which is 0.8m above ground plane.

Set EUT as normal operation

Set SPA Center Frequency = fundamental frequency, RBW, VBW= 10kHz, Span=100kHz.

Set SPA Max hold. Mark peak.

3.3.3 Test SET-UP (Block Diagram of Configuration)





3.3.4 Measurement Results

Temperature Variation

Power Supply	Environment	Frequency	Delta (kHz)	Limit (kHz)
Vdc	Temperature (°C)	(MHz)		
3.7	-20	13.5599524	-0.04760	+/- 1.356
3.7	-10	13.5599672	-0.03280	+/- 1.356
3.7	0	13.559966	-0.03400	+/- 1.356
3.7	10	13.5599559	-0.04410	+/- 1.356
3.7	20	13.559958	-0.04200	+/- 1.356
3.7	30	13.5599584	-0.04160	+/- 1.356
3.7	40	13.5599492	-0.05080	+/- 1.356
3.7	50	13.559965	-0.03500	+/- 1.356

Supply Voltage Variation

Power Supply	Environment	Frequency	Delta (kHz)	Limit (kHz)
Vdc	Temperature (°C)	(MHz)		
4.07	20	13.5599522	-0.04780	+/- 1.356
3.7	20	13.559958	-0.04200	+/- 1.356
3.33	20	13.5599603	-0.03970	+/- 1.356



4. BANDWIDTH TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.215) , Subpart C RSS-210 Issue 11, June 25, 2024	
Section	Test Item
15.215	Bandwidth

4.1.1 TEST PROCEDURE

1. Set RBW = 20 kHz.
2. Set the video bandwidth (VBW) \geq RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

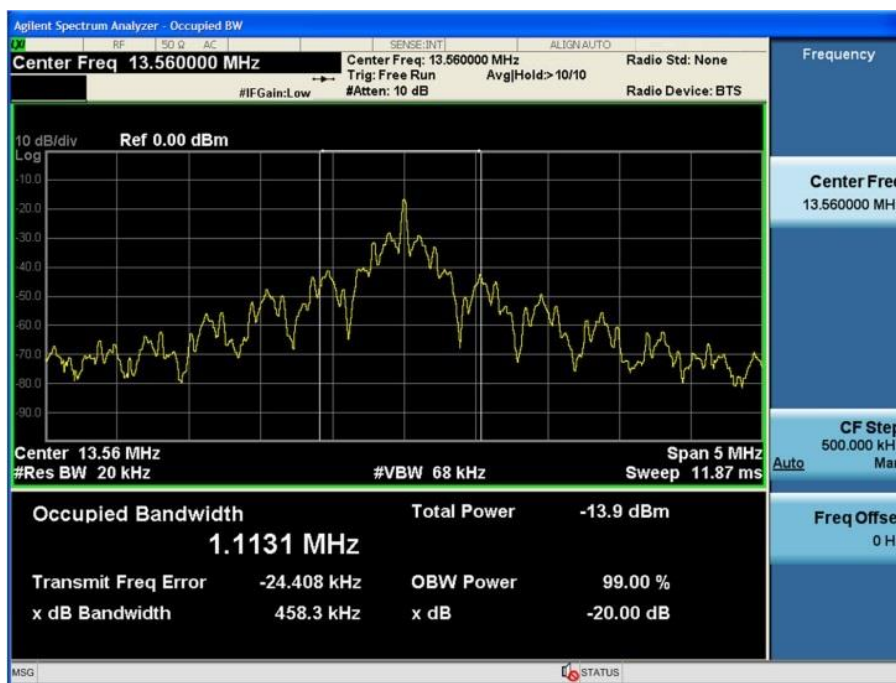


4.1.5 TEST RESULTS

Temperature:	25°C	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Mode /CH00		

	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)	Result
FSK	13.56	0.4583	1.1131	Pass

FSK



13.56MHz



5. ANTENNA REQUIREMENT

5.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 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.

RSS-Gen requirement: The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

5.2 EUT ANTENNA

The EUT antenna is PCB Antenna, It comply with the standard requirement.

6. TEST SEUUP PHOTO

Reference to the appendix I for details.

7. EUT PHOTO

Reference to the appendix II for details.

***** END OF REPORT *****