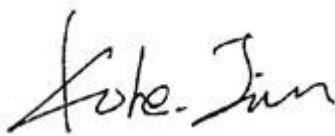


TEST REPORT

Application No.: GZEM2012017013CR
Applicant: ZHUHAI MITALY INNOVATIONS TECHNOLOGY CO., LTD
Address of Applicant: 5F BLOCK 2, No.321 PINGBEI YI Rd., NANPING TECHNOLOGY PARK, XIANGZHOU DISTRICT, ZHUHAI GUANGDONG, CHINA
Manufacturer: ZHUHAI MITALY INNOVATIONS TECHNOLOGY CO., LTD
Address of Manufacturer: 5F BLOCK 2, No.321 PINGBEI YI Rd., NANPING TECHNOLOGY PARK, XIANGZHOU DISTRICT, ZHUHAI GUANGDONG, CHINA
Factory: ZHUHAI MITALY INNOVATIONS TECHNOLOGY CO., LTD
Address of Factory: 5F BLOCK 2, No.321 PINGBEI YI Rd., NANPING TECHNOLOGY PARK, XIANGZHOU DISTRICT, ZHUHAI GUANGDONG, CHINA
Equipment Under Test (EUT):
FCC ID: 2AYPQKP
EUT Name: DIGITAL LOCK
Model No.: M1-103, M1-112, M1-119, M1-129, M1-121, M1-130, HT-22, HT-23, HTY-600, HT-L1, HT-L2, RF-203, RF-212, RF-219, RF-229, RF-221, RF-230, NF-21T, N3T
 Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: KEYPLUS
Standard(s): 47 CFR Part 15, Subpart C 15.225
Date of Receipt: 2020-12-07
Date of Test: 2020-12-16 to 2020-12-24
Date of Issue: 2020-12-30

Test Result:	Pass*
---------------------	--------------

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



Kobe Jian

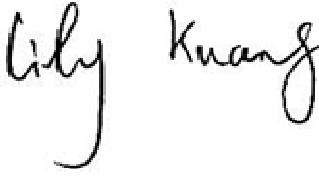
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-12-30		Original

Authorized for issue by:			
Tested By	 Lily_Kuang /Project Engineer	2020-12-16 to 2020-12-24 Date	
Checked By	 Ricky_Liu /Reviewer	2020-12-30 Date	



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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.225	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
20dB Bandwidth	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass
Emission Mask	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.4	47 CFR Part 15, Subpart C 15.225(a)&(b)&(C)	Pass
Frequency tolerance	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.225(e)	Pass
Radiated Emissions (9kHz-30MHz)	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.225(d) & 15.209	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart C 15.225	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.225(d) & 15.209	Pass

✧ Declaration of EUT Family Grouping:

Model No.: M1-103, M1-112, M1-119, M1-129, M1-121, M1-130, HT-22, HT-23, HTY-600, HT-L1, HT-L2, RF-203, RF-212, RF-219, RF-229, RF-221, RF-230, NF-21T, N3T.

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference on the outer color.

Therefore only one model M1-119 was tested in this report.



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4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 6.0V =4 x DC 1.5V size of "AAA" batteries
Antenna Gain:	0 dBi
Modulation Type	ASK declared by applicant
Antenna Type:	Integrated antenna
Operation Frequency:	13.56MHz
Hardware Version:	HT-A-MAIN M1 V1.0
Firmware Version:	V1.C
S/N:	9700650
Power setting level	Default and can not be changed by user

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
RFID Card	Offered by client	none	none

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 5.5 \times 10^{-8}$
2	Duty cycle	$\pm 0.57\%$
3	Occupied Bandwidth	$\pm 3\%$
4	RF Conducted power	0.68dB
5	RF Power Density	1.50dB
6	Conducted Spurious Emissions	1.04dB
7	RF Radiated Power	4.5dB (below 1GHz)
		4.8dB (above 1GHz)
8	Radiated Spurious Emission Test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
9	Temperature	$\pm 0.4^{\circ}\text{C}$
10	Humidity	$\pm 1.3\%$
11	Supply Voltages	$\pm 1.5\%$
12	Time	$\pm 3\%$

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.



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4.5 Test Facility

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

● NVLAP (Lab Code: 200611-0)

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

● ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

● SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● CNAS (Lab Code: L0167)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

● FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)

SGS-CSTC Standards Technical Services Co., Ltd., 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 our files. Registration 282399, May 31, 2002.

● FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818, Jul 13, 2017.

● Industry Canada (Registration No.: 4620B, CAB identifier: CN0052)

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

● VCCI (Registration No.: R-12460, C-12584, G-10449 and T-11179)

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-10449 and T-11179 respectively.

● CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 Equipment List

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer	AgilentTechnologies	N9020A	SEM004-10	2020-03-02	2021-03-01
ESG Vector Signal Generator	Keysight	E4438C	SEM006-03	2020-03-31	2021-03-30
EXG Analog Signal Generator	AgilentTechnologies	N5171B	SEM006-04	2020-07-15	2021-07-14
Power Meter	AgilentTechnologies	U2021XA_Ch2	SEM009-02	2020-05-26	2021-05-25
Power Meter	AgilentTechnologies	U2021XA_Ch3	SEM009-03	2020-05-26	2021-05-25
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01

Frequency tolerance					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer	AgilentTechnologies	N9020A	SEM004-10	2020-03-02	2021-03-01
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
Temperature Chamber	GZ GongWen Co.Ltd.	GDJW-100	EMC0039	2020-07-01	2021-06-30

Emission Mask & Radiated Spurious Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2020-01-10	2021-01-09
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Amplifier	HP	8447F	EMC2065	2020-05-26	2021-05-25
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2020-11-18	2021-11-17
Active Loop Antenna	ETS-Lindgren	6502	EMC2190	2019-12-27	2021-12-26
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2020-07-09	2021-07-08
DMM	Fluke	73	EMC0007	2020-07-09	2021-07-08



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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

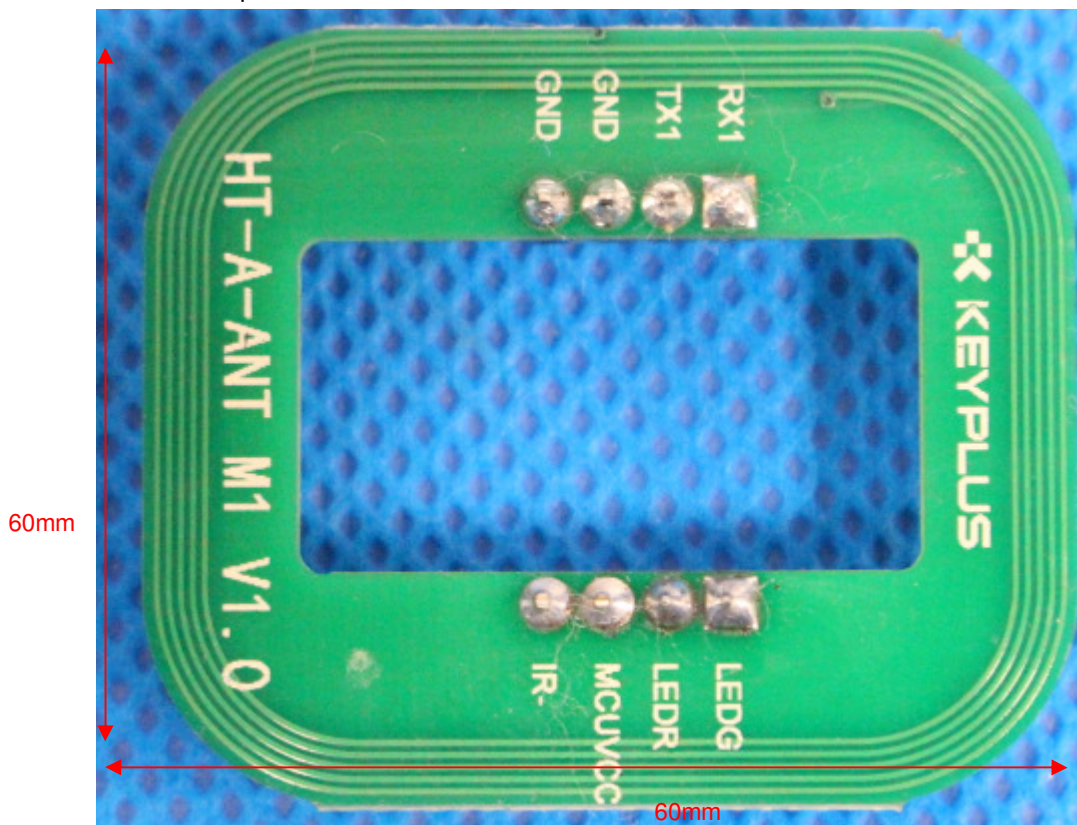
6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

Standard 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 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.



EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.



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 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

7 Radio Spectrum Matter Test Results

7.1 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215
Test Method: ANSI C63.10 (2013) Section 6.9
Limit: N/A

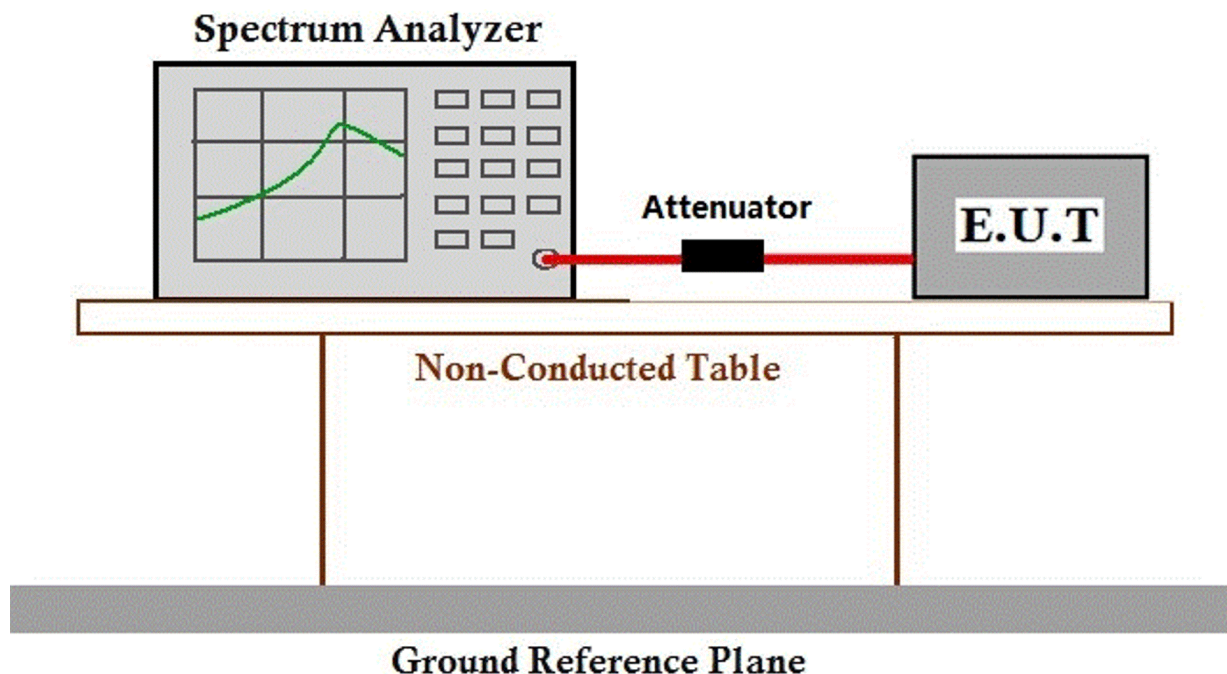
7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C Humidity: 55.1 % RH Atmospheric Pressure: 1020 mbar

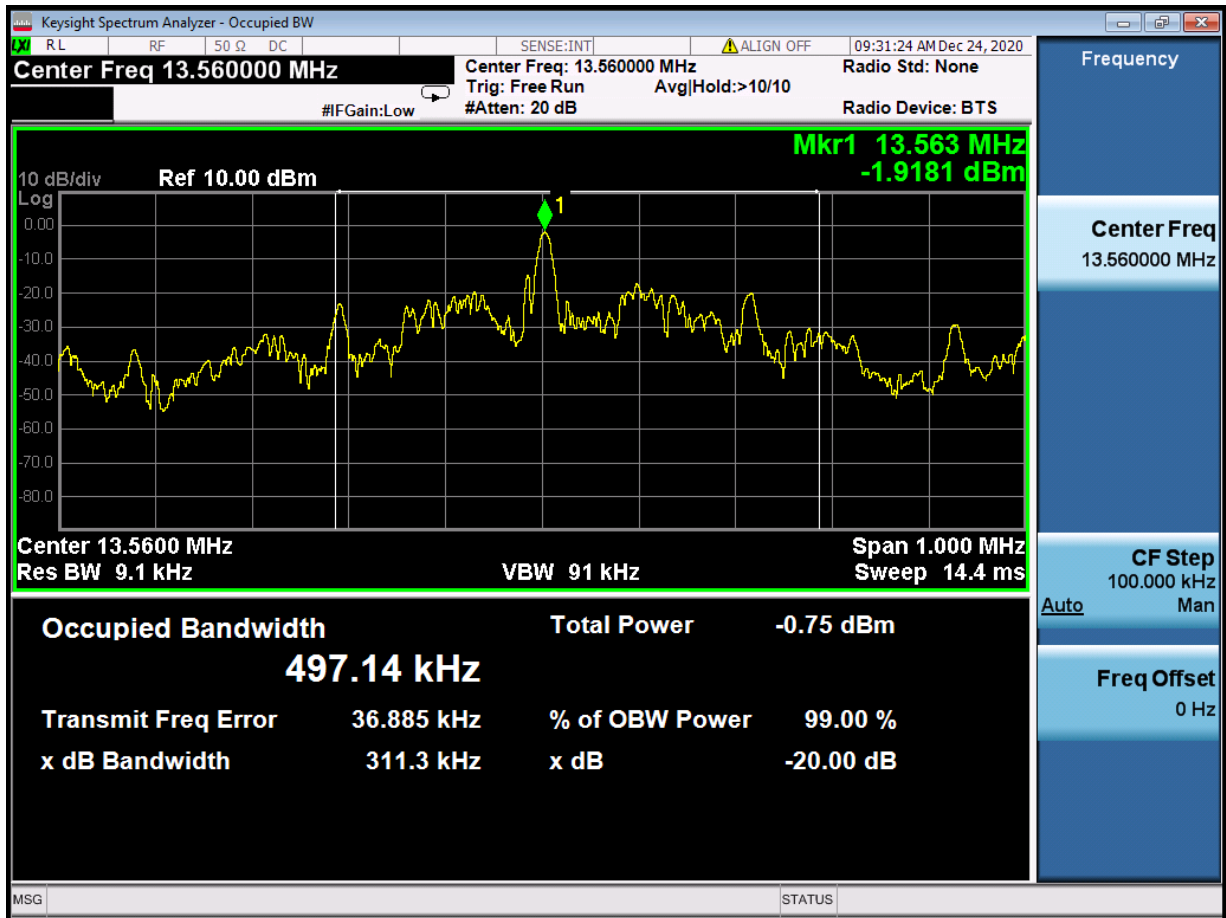
Test Mode: b:TX mode_Keep the EUT in transmitting with modulation mode.

7.1.2 Test Setup Diagram



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7.1.3 Measurement Procedure and Data



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 Guangzhou Branch Testing Center EEC Laboratory. 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

7.2 Emission Mask

Test Requirement 47 CFR Part 15, Subpart C 15.225(a)&(b)&(C)

Test Method: ANSI C63.10 (2013) Section 6.4

Limit:

The field strength of any emission shall not exceed the following limits:

(a) 15848 millivolts/m (84 dB μ V/m) at 30 m, within the band 13.553-13.567 MHz.

(b) 334 microvolts/m (50.5 dB μ V/m) at 30 m, within the bands 13.410-13.553 MHz and 13.567-13.710 MHz.

(c) 106 microvolts/m (40.5 dB μ V/m) at 30 m, within the bands 13.110-13.410 MHz and 13.710-14.010 MHz.

(d) 30 microvolts/m (29.5 dB μ V/m) at 30 m, outside the band 13.110-14.010 MHz.

According to ANSI C63.10 Section 6.4, the test data shall convert by below formula:

If both the single point and the limit distance are equal to or closer to the EUT than $\lambda/2\pi$, then extrapolation to the limit distance shall be calculated using Equation (4):

$$FS_{\text{limit}} = FS_{\text{max}} - 40 \log \left(\frac{d_{\text{limit}}}{d_{\text{measure}}} \right) \quad (4)$$

where

FS_{limit} is the calculation of field strength at the limit distance, expressed in dB μ V/m
 FS_{max} is the measured field strength, expressed in dB μ V/m
 $d_{\text{near field}}$ is the $\lambda/2\pi$ distance
 d_{measure} is the distance of the measurement point from the EUT
 d_{limit} is the reference distance or the distance of the $\lambda/2\pi$ point

Table 5—Relationship of frequency and wavelength (informative)

Frequency (MHz)	λ (m)	0.625λ (m)	$\lambda/2\pi$
0.009	33333.3	20833.3	5305.2
0.1	3000.0	1875.0	477.5
0.3	1000.0	625.0	159.2
1	300.0	187.5	47.7
4.76	63.0	39.4	10.0
16	18.8	11.7	3.0
30	10.0	6.3	1.6

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C Humidity: 55.1 % RH Atmospheric Pressure: 1020 mbar

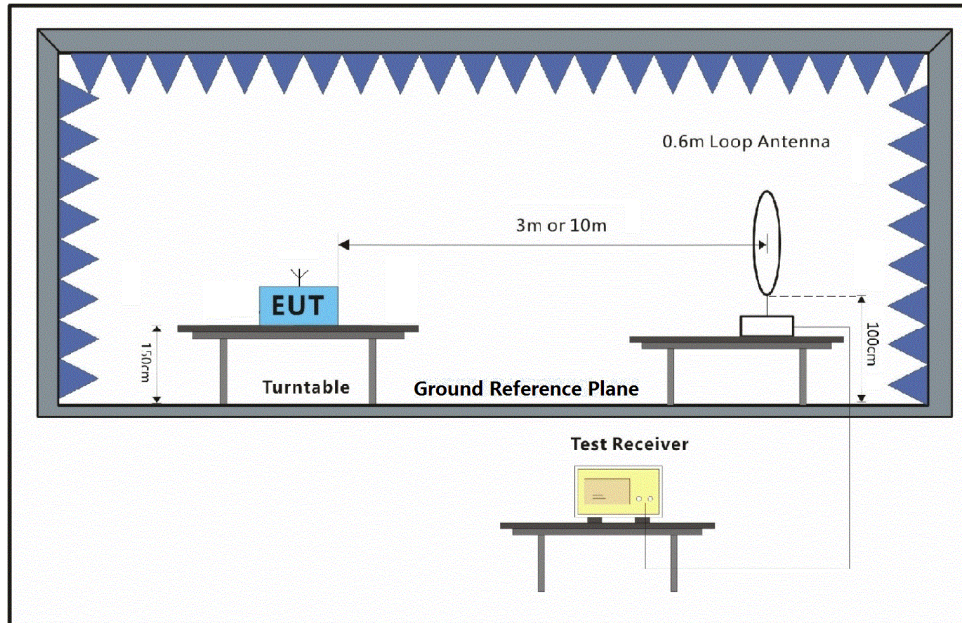
Test Mode: b:TX mode_Keep the EUT in transmitting with modulation mode.



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7.2.2 Test Setup Diagram

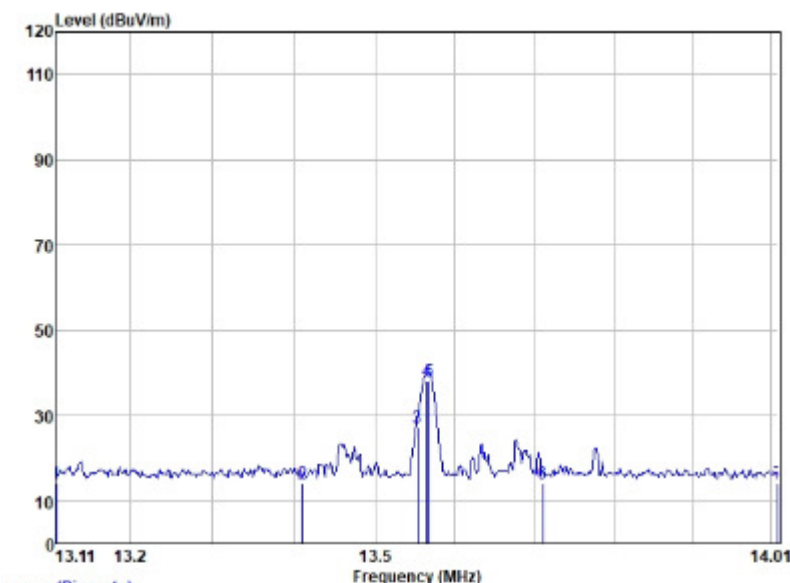


7.2.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

Measured Level $L = \text{Read Level} + \text{Antenna Factor} + \text{Cable Loss} - \text{Preamplifier Factor}$

Mode:b



Trace: (Discrete)
Site : SGS
Condition: 10m VERTICAL
Job :
Model :
Power :
Test Mode:

		ReadAntenna	Cable	Preamp		Limit	Over
	Freq	Level	Factor	Loss	Factor	Level	Line
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	13.110	33.85	9.07	0.57	29.25	14.24	-----
2	13.410	33.92	8.99	0.58	29.25	14.24	-----
3	13.553	46.95	8.96	0.58	29.25	27.24	-----
4	13.564	57.95	8.96	0.58	29.25	38.24	-----
5	13.567	57.95	8.96	0.58	29.25	38.24	-----
6	13.710	33.98	8.93	0.58	29.25	14.24	-----
7	14.010	34.03	8.87	0.59	29.25	14.24	-----

Frequency (MHz)	Level (dBUV/m) @10m	Convert Factor (dB)	Level (dBUV/m) @ 30m	Limit (dBUV/m) @30m	Over limit (dB)
13.110	14.24	19.08	-4.84	29.54	-34.38
13.410	14.24	19.08	-4.84	40.51	-45.35
13.553	27.24	19.08	8.16	50.47	-42.31
**13.564	38.24	19.08	19.16	84.00	-64.84
13.567	38.24	19.08	19.16	50.47	-31.31
13.710	14.24	19.08	-4.84	40.51	-45.35
14.010	14.24	19.08	-4.84	29.54	-34.38

**Remark: This is the main operating frequency of the EUT.



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7.3 Frequency tolerance

Test Requirement 47 CFR Part 15, Subpart C 15.225(e)
 Test Method: ANSI C63.10 (2013) Section 6.8
 Limit: $\pm 0.01\%$ (100ppm)

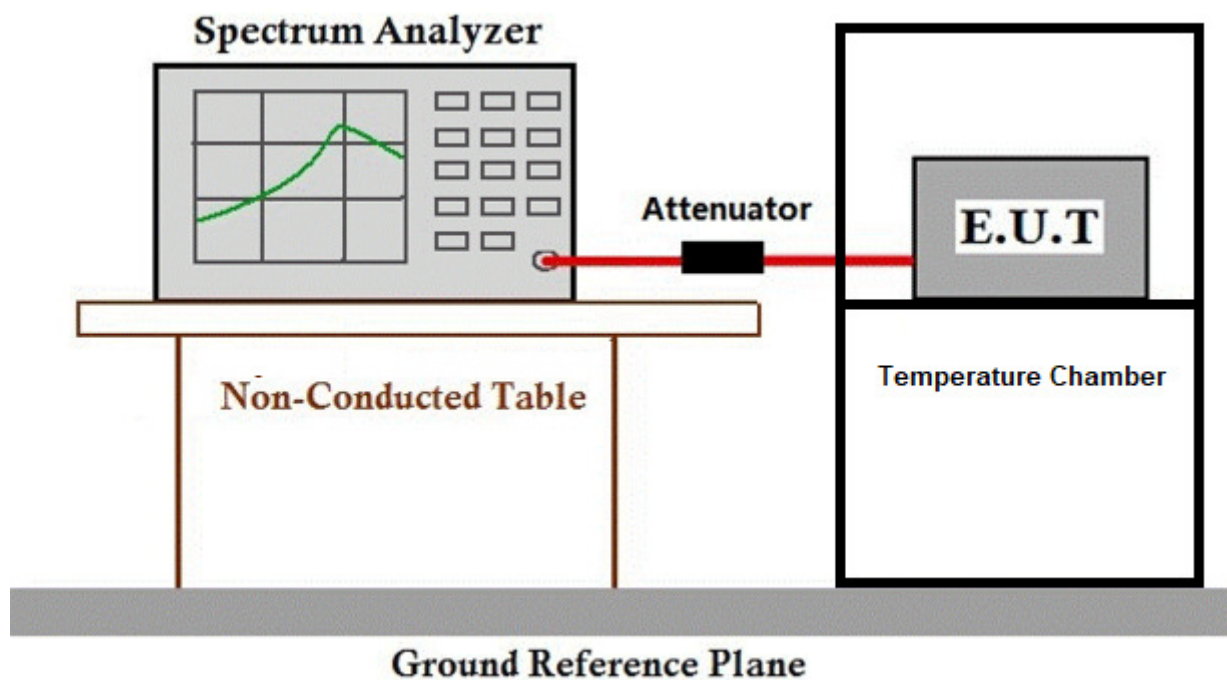
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.4 °C Humidity: 55.1 % RH Atmospheric Pressure: 1020 mbar

Test Mode: b:TX mode_Keep the EUT in transmitting with modulation mode.

7.3.2 Test Setup Diagram



7.3.3 Measurement Procedure and Data



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7.3.4 Measurement Procedure and Data

At startup:

Measurement Conditions		Limit: $\pm 100\text{ppm}$		Verdict
Voltage (V DC)	Temperature ($^{\circ}\text{C}$)	Frequency Measured (MHz)	Test data (ppm)	
$V_{\text{norm}} : 6$	-20	13.564127	-0.66	PASS
	-10	13.564132	-0.30	PASS
	0	13.564123	-0.96	PASS
	+10	13.564120	-1.18	PASS
	$T_{\text{normal}} : +20$	13.564136	Ref	PASS
	+30	13.564124	-0.89	PASS
	+40	13.564126	-0.74	PASS
	+50	13.564121	-1.11	PASS
$V_{\text{max}} : 6.6$	$T_{\text{normal}} : +20$	13.564119	-1.25	PASS
$V_{\text{min}} : 5.4$		13.564128	-0.59	PASS

At 2 minutes later:

Measurement Conditions		Limit: $\pm 100\text{ppm}$		Verdict
Voltage (V DC)	Temperature ($^{\circ}\text{C}$)	Frequency Measured (MHz)	Test data (ppm)	
$V_{\text{norm}} : 6$	-20	13.564124	-0.59	PASS
	-10	13.564135	-0.22	PASS
	0	13.564127	-0.37	PASS
	+10	13.564122	-0.74	PASS
	$T_{\text{normal}} : +20$	13.564132	Ref	PASS
	+30	13.564128	-0.30	PASS
	+40	13.564127	-0.37	PASS
	+50	13.564120	-1.11	PASS
$V_{\text{max}} : 6.6$	$T_{\text{normal}} : +20$	13.564116	-0.88	PASS
$V_{\text{min}} : 5.4$		13.564123	-0.66	PASS



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At 5 minutes later:

Measurement Conditions		Limit: $\pm 100\text{ppm}$		Verdict
Voltage (V DC)	Temperature ($^{\circ}\text{C}$)	Frequency Measured (MHz)	Test data (ppm)	
$V_{\text{norm}} : 6$	-20	13.564129	-0.81	PASS
	-10	13.564132	-0.59	PASS
	0	13.564127	-0.96	PASS
	+10	13.564135	-0.37	PASS
	$T_{\text{normal}} : +20$	13.564140	Ref	PASS
	+30	13.564126	-1.03	PASS
	+40	13.564122	-1.32	PASS
	+50	13.564118	-1.62	PASS
$V_{\text{max}} : 6.6$	$T_{\text{normal}} : +20$	13.564116	-1.77	PASS
$V_{\text{min}} : 5.4$		13.564124	-0.18	PASS

At 10 minutes later:

Measurement Conditions		Limit: $\pm 100\text{ppm}$		Verdict
Voltage (V DC)	Temperature ($^{\circ}\text{C}$)	Frequency Measured (MHz)	Test data (ppm)	
$V_{\text{norm}} : 6$	-20	13.564132	-0.89	PASS
	-10	13.564135	-1.10	PASS
	0	13.564127	-0.96	PASS
	+10	13.564129	-5.16	PASS
	$T_{\text{normal}} : +20$	13.564120	Ref	PASS
	+30	13.564128	-0.59	PASS
	+40	13.564133	-0.96	PASS
	+50	13.564136	-1.18	PASS
$V_{\text{max}} : 6.6$	$T_{\text{normal}} : +20$	13.564123	2.21	PASS
$V_{\text{min}} : 5.4$		13.564125	0.37	PASS



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7.4 Radiated Emissions(9kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.225(d) & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4&6.5

Measurement Distance: 10m

Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Limit (dBuV/m)	Detector	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	-	300
0.490-1.705	24000/F(kHz)	-	-	30
1.705-30	30	-	-	30
30-88	100	40.0	QP	3
88-216	150	43.5	QP	3
216-960	200	46.0	QP	3
960-1000	500	54.0	QP	3
Above 1000	500	54.0	AV	3

According to ANSI C63.10 Section 6.4, the test data shall convert by below formula:

If both the single point and the limit distance are equal to or closer to the EUT than $\lambda/2\pi$, then extrapolation to the limit distance shall be calculated using Equation (4):

$$FS_{\text{limit}} = FS_{\text{max}} - 40 \log \left(\frac{d_{\text{limit}}}{d_{\text{measure}}} \right) \quad (4)$$

where

FS_{limit} is the calculation of field strength at the limit distance, expressed in dBuV/m
 FS_{max} is the measured field strength, expressed in dBuV/m
 $d_{\text{near field}}$ is the $\lambda/2\pi$ distance
 d_{measure} is the distance of the measurement point from the EUT
 d_{limit} is the reference distance or the distance of the $\lambda/2\pi$ point

Table 5—Relationship of frequency and wavelength (informative)

Frequency (MHz)	λ (m)	0.625λ (m)	$\lambda/2\pi$
0.009	33333.3	20833.3	5305.2
0.1	3000.0	1875.0	477.5
0.3	1000.0	625.0	159.2
1	300.0	187.5	47.7
4.76	63.0	39.4	10.0
16	18.8	11.7	3.0
30	10.0	6.3	1.6



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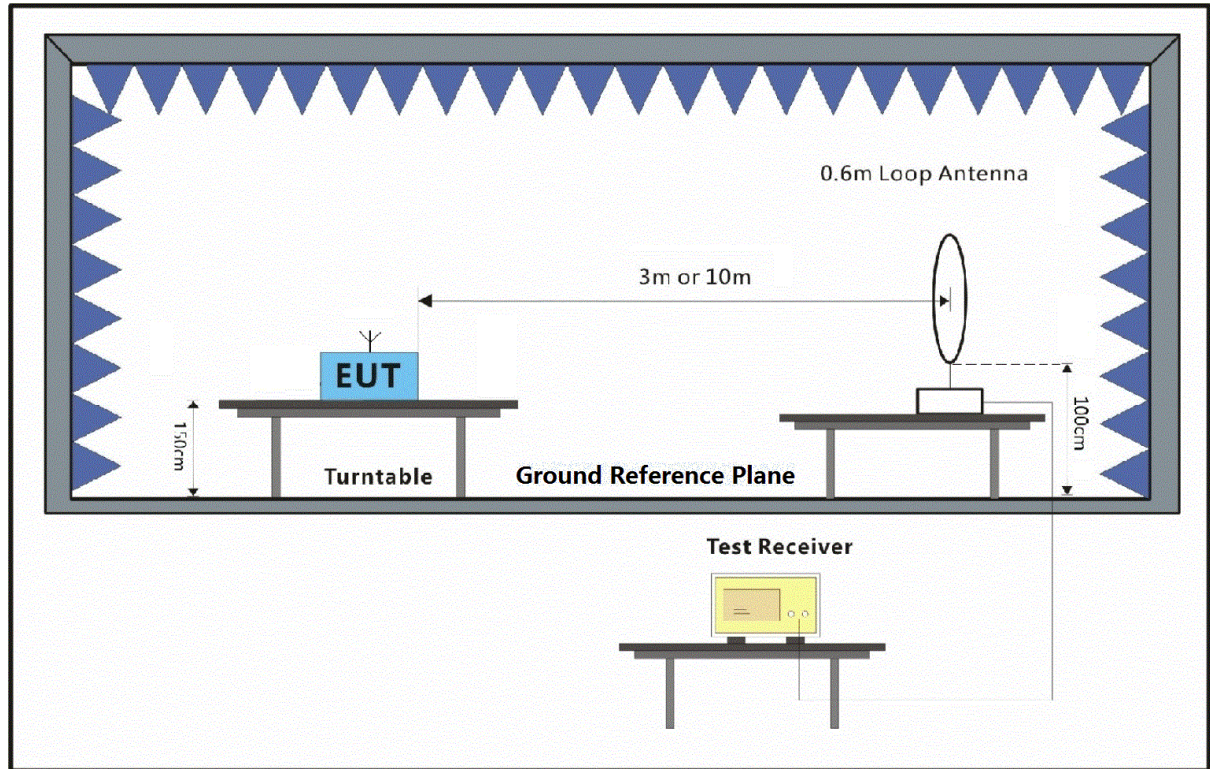
7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 52 % RH Atmospheric Pressure: 1020 mbar

Test Mode: b:TX mode_Keep the EUT in transmitting with modulation mode.

7.4.2 Test Setup Diagram



7.4.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

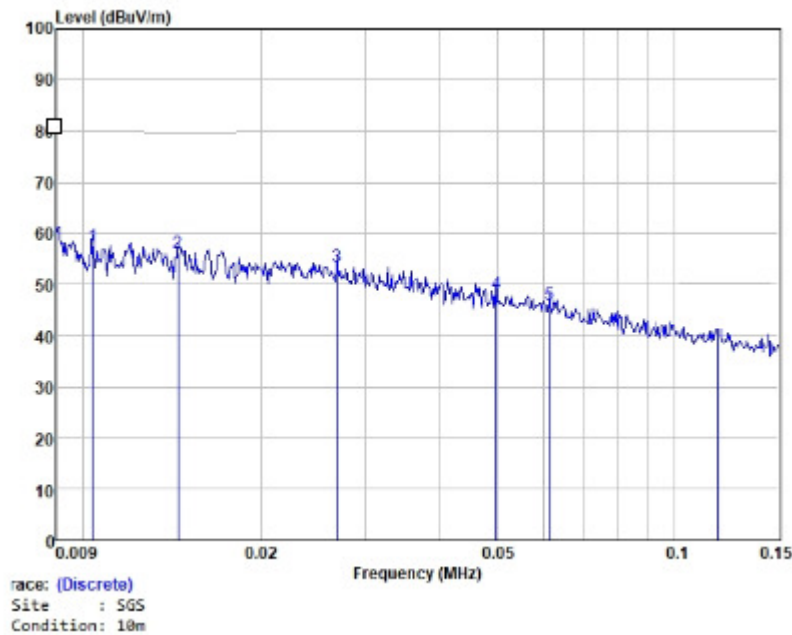
Measured Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor



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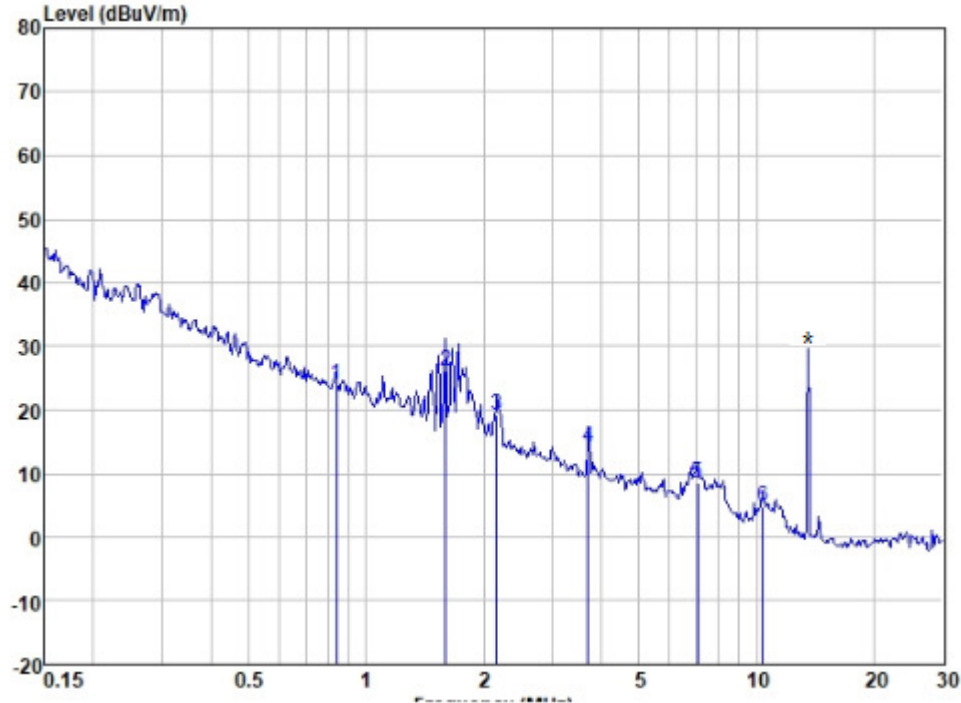
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Mode:b; Polarization:X



All the test data below the background of emissions in the frequency band. So, no measurement data was shown.

Mode:b; Polarization:X



*: The point is the main operating frequency of the EUT and refer to section 7.3 for details.

All the test data below the background of emissions in the frequency band. So, no measurement data was shown.



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7.5 Radiated Emissions(30MHz-1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.225(d) & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4&6.5

Measurement Distance: 3m

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3

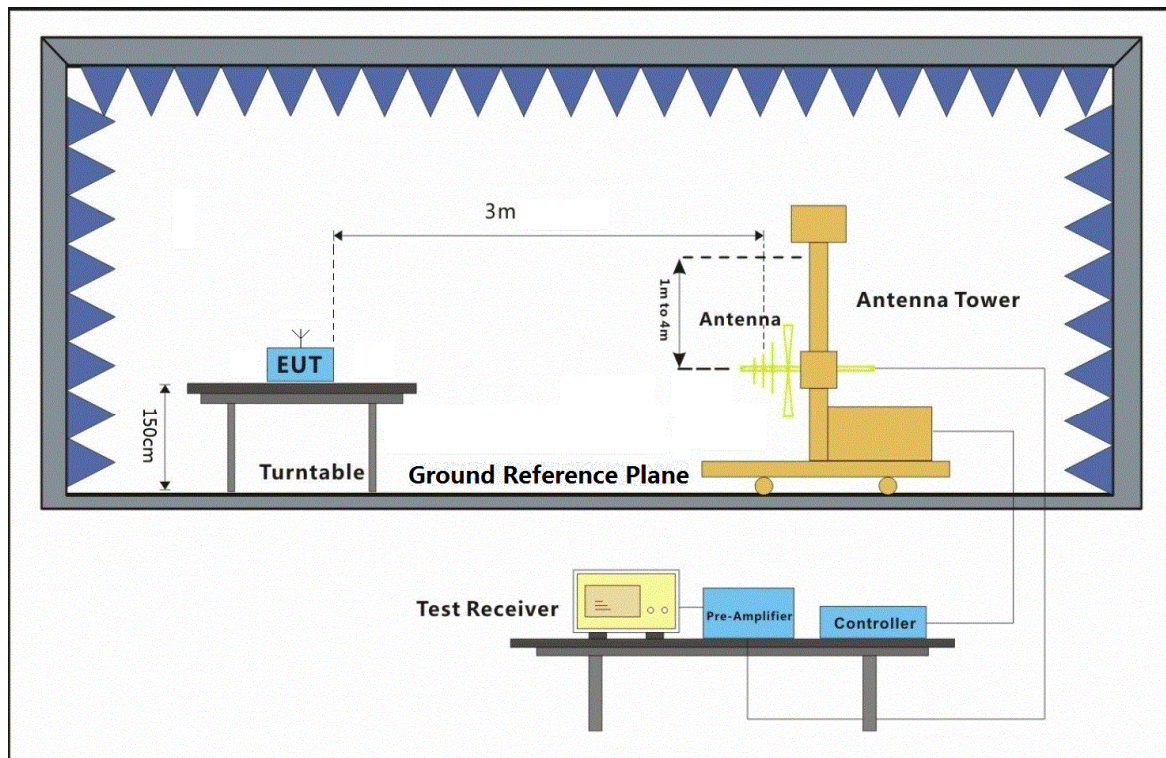
7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 52 % RH Atmospheric Pressure: 1020 mbar

Test Mode: b:TX mode_Keep the EUT in transmitting with modulation mode.

7.5.2 Test Setup Diagram



7.5.3 Measurement Procedure and Data

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. 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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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.
- g. 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.

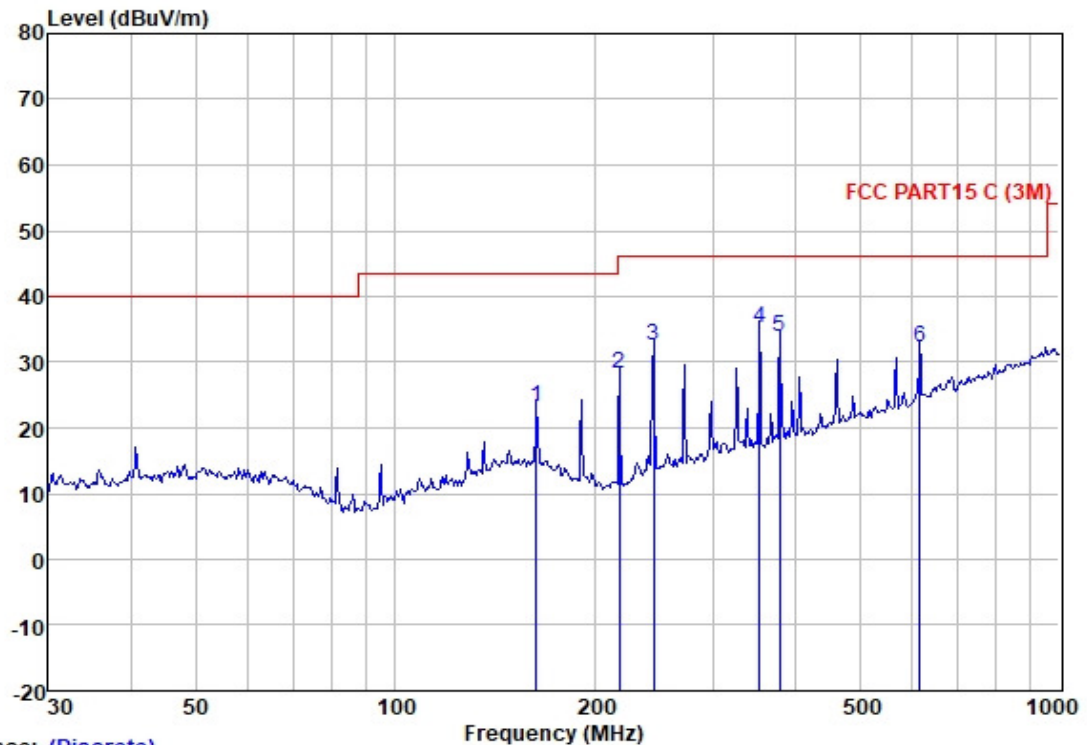
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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Mode:b; Polarization:Horizontal



Trace: (Discrete)

Site : SGS

Condition: FCC PART15 C (3M) 3m HORIZONTAL

Job :

Model :

Power :

Test Mode:

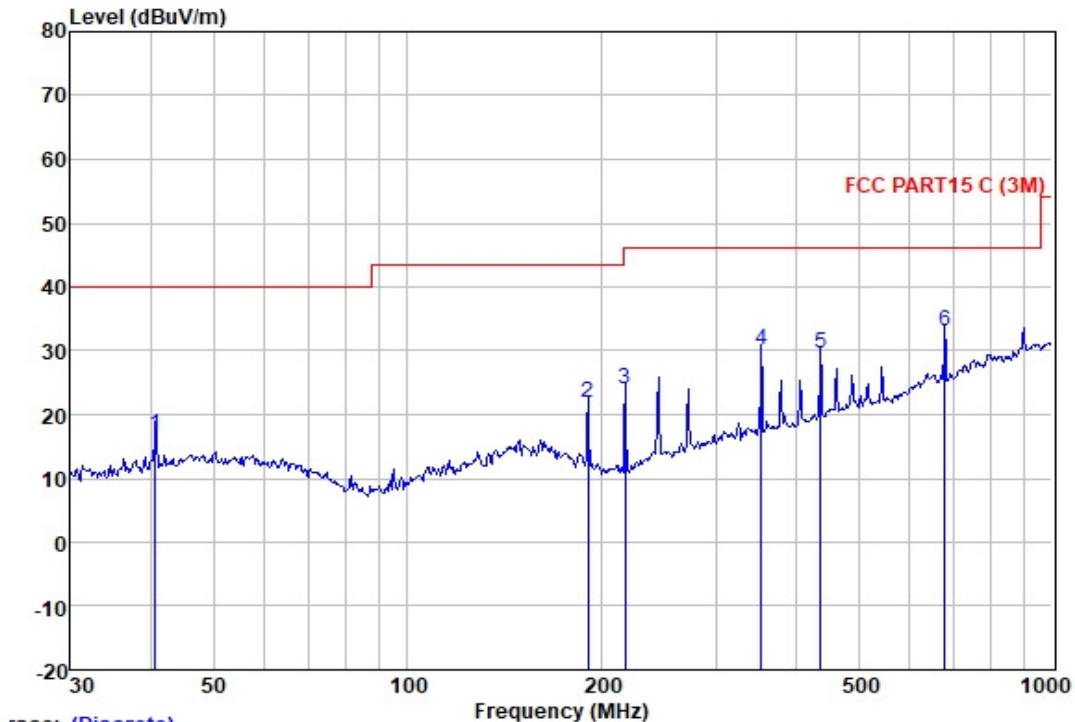
		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	163.182	34.13	13.53	2.35	26.79	23.22	43.50	-20.28	HORIZONTAL	QP
2	217.544	42.53	9.80	2.63	26.71	28.25	46.00	-17.75	HORIZONTAL	QP
3	245.090	44.25	12.00	2.87	26.64	32.48	46.00	-13.52	HORIZONTAL	QP
4	352.943	44.05	14.55	3.63	27.04	35.19	46.00	-10.81	HORIZONTAL	QP
5	378.584	41.74	15.48	3.82	27.24	33.80	46.00	-12.20	HORIZONTAL	QP
6	616.372	34.98	20.35	5.23	28.20	32.36	46.00	-13.64	HORIZONTAL	QP



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Mode:b; Polarization:Vertical



Trace: (Discrete)

Site : SGS

Condition: FCC PART15 C (3M) 3m VERTICAL

Job :

Model :

Power :

Test Mode:

	ReadAntenna	Cable Preamp	Limit	Over					
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	40.559	29.33	13.55	1.10	27.18	16.80	40.00	-23.20	VERTICAL QP
2	190.405	35.01	10.97	2.49	26.74	21.73	43.50	-21.77	VERTICAL QP
3	217.544	38.40	9.80	2.63	26.71	24.12	46.00	-21.88	VERTICAL QP
4	352.943	38.86	14.55	3.63	27.04	30.00	46.00	-16.00	VERTICAL QP
5	437.120	36.16	16.93	4.13	27.54	29.68	46.00	-16.32	VERTICAL QP
6	679.960	34.83	20.80	5.70	28.17	33.16	46.00	-12.84	VERTICAL QP

--End of Report--



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