

TEST REPORT

Application No.: GZEM2011016810CR
Applicant: Guilin Gemred Sensor Technology Co., Ltd
Address of Applicant: No. D-08, Information Industrial Park, Chaoyang Road Qixing District, Guilin City, Guangxi Zhuang Autonomous Region
Manufacturer: The same as applicant
Address of Manufacturer: The same as applicant
Factory: The same as applicant
Address of Factory: The same as applicant
Equipment Under Test (EUT):
FCC ID: 2AGE384103
EUT Name: Digital Body Tape Measure
Model No.: 84103
Trade Mark: Gemred
Standard(s): 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2020-11-26
Date of Test: 2020-12-14 to 2020-12-15
Date of Issue: 2021-01-27

Test Result:	Pass*
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* 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		2021-01-27		Original

Authorized for issue by:			
Tested By			
	Lily_Kuang /Project Engineer		
			2020-12-14 to 2020-12-15
			Date
Checked By			
	Ricky_Liu/Reviewer		
			2021-01-27
			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 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass



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3 Contents

	Page
1 Cover Page.....	1
2 Test Summary.....	3
3 Contents.....	4
4 General Information.....	6
4.1 Details of E.U.T.....	6
4.2 Description of Support Units.....	6
4.3 Measurement Uncertainty.....	6
4.4 Test Location.....	7
4.5 Test Facility.....	8
4.6 Deviation from Standards.....	9
4.7 Abnormalities from Standard Conditions.....	9
4.8 Duty cycle of the EUT.....	9
5 Equipment List.....	10
6 Radio Spectrum Technical Requirement.....	13
6.1 Antenna Requirement.....	13
6.1.1 Test Requirement:.....	13
6.1.2 Conclusion.....	13
7 Radio Spectrum Matter Test Results.....	14
7.1 Minimum 6dB Bandwidth.....	14
7.1.1 E.U.T. Operation.....	14
7.1.2 Test Setup Diagram.....	14
7.1.3 Measurement Procedure and Data.....	14
7.2 Conducted Peak Output Power.....	15
7.2.1 E.U.T. Operation.....	15
7.2.2 Test Setup Diagram.....	15
7.2.3 Measurement Procedure and Data.....	15
7.3 Power Spectrum Density.....	16
7.3.1 E.U.T. Operation.....	16
7.3.2 Test Setup Diagram.....	16
7.3.3 Measurement Procedure and Data.....	16
7.4 Conducted Band Edges Measurement.....	17
7.4.1 E.U.T. Operation.....	17
7.4.2 Test Setup Diagram.....	17
7.4.3 Measurement Procedure and Data.....	17
7.5 Conducted Spurious Emissions.....	18
7.5.1 E.U.T. Operation.....	18
7.5.2 Test Setup Diagram.....	18
7.5.3 Measurement Procedure and Data.....	18
7.6 Radiated Emissions which fall in the restricted bands.....	19
7.6.1 E.U.T. Operation.....	19
7.6.2 Test Setup Diagram.....	19



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7.6.3	Measurement Procedure and Data	20
7.7	Radiated Spurious Emissions	25
7.7.1	E.U.T. Operation.....	26
7.7.2	Test Setup Diagram.....	26
7.7.3	Measurement Procedure and Data	27
8	Appendix 15.247.....	36
8.1	Appendix A: DTS Bandwidth.....	36
8.1.1	Test Result.....	36
8.1.2	Test Graphs.....	36
8.2	Appendix B: Maximum conducted output power.....	38
8.2.1	Test Result.....	38
8.2.2	Test Graphs.....	38
8.3	Appendix C: Maximum power spectral density	40
8.3.1	Test Result.....	40
8.3.2	Test Graphs.....	40
8.4	Appendix D: Band edge measurements	42
8.4.1	Test Result.....	42
8.4.2	Test Graphs.....	43
8.5	Appendix E: Conducted Spurious Emission.....	44
8.5.1	Test Result.....	44
8.5.2	Test Graphs.....	44
8.6	Appendix F: Duty Cycle.....	49
8.6.1	Test Result.....	49
8.6.2	Test Graphs.....	49



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4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 3V
Test Voltage:	DC 3V
Antenna Gain:	0dBi declared by applicant
Antenna Type:	Integrated antenna
Channel Spacing:	2MHz
Modulation Type:	GFSK
Number of Channels:	40
Operation Frequency:	2402MHz to 2480MHz
Hardware Version:	GR4103 GNB
Firmware Version:	V1.2
S/N:	RP-20200601
Test Software Version:	BT_Tool V1.1
Function:	Digital Body Tape Measure with BLE function
Power setting level	-2 dBm for BLE can not be changed by user
BT Version:	BT5.0_1M only

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	IBM	T30	S/N78-3VMLX 06/01
BT test board	SGS EMC	RF 07	RF 07

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	$\pm 3\%$



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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.



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4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Duty cycle of the EUT

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percent.

Formula:

$$\text{Duty Cycle} = \text{Ton}/(\text{Ton}+\text{Toff})$$

Measurement Procedure:

1. Set span = Zero
2. RBW=8MHz
3. VBW=8MHz
4. Detector=Peak

Mode	Channel(MHz)	Duty Cycle(%)	Correction Factor(dB)*
BLE	2402	67.41	1.71
	2440	67.60	1.70
	2480	67.60	1.70

*Correction Factor(dB) =10log(1/Duty Cycle)

Please refer to appendix 15.247 for details.



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5 Equipment List

Minimum 6dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2020-09-17	2021-09-16
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

Conducted Peak Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2020-09-17	2021-09-16
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

Power Spectrum Density					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2020-09-17	2021-09-16
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

Conducted Band Edges Measurement					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2020-09-17	2021-09-16
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

Conducted Spurious Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2020-09-17	2021-09-16
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



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Radiated Emissions which fall in the restricted bands					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2020-01-10	2021-01-09
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2020-01-10	2021-01-09
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Bi-log Type Antenna	Schaffner Chase	CBL6143	EMC0519	2020-06-08	2023-06-07
Horn Antenna	SCHWARZBECKME SS-ELEKTRONIK	BBHA 9120D	EMC2016	2019-09-25	2022-09-24
Horn Antenna 1GHz-18GHz	Rohde & Schwarz	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2020-01-10	2021-01-09
Amplifier	HP	8447F	EMC2065	2020-05-26	2021-05-25
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2020-11-13	2021-11-12
Active Loop Antenna	EMCO	6502	EMC0523	2018-03-05	2021-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2020-01-10	2021-01-09
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2020-01-10	2021-01-09
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2020-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-09-17	2021-09-16
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A



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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
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2020-01-10	2021-01-09
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Trilog Broadband Antenna 25MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	EMC2174	2018-09-06	2021-09-05
Bi-log Type Antenna	Schaffner Chase	CBL6143	EMC0519	2020-06-08	2023-06-07
Horn Antenna	SCHWARZBECKME SS-ELEKTRONIK	BBHA 9120D	EMC2016	2019-09-25	2022-09-24
Horn Antenna 1GHz-18GHz	Rohde & Schwarz	HF906	EMC0518	2018-09-02	2021-09-01
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2020-01-10	2021-01-09
Amplifier	HP	8447F	EMC2065	2020-05-26	2021-05-25
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2020-11-13	2021-11-12
Active Loop Antenna	EMCO	6502	EMC0523	2018-03-05	2021-03-04
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2020-01-10	2021-01-09
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2020-01-10	2021-01-09
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-12-19	2020-12-18
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-09-17	2021-09-16
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
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



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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 & 15.247(c)

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 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.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi. Please refer to appendix A for details.



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7 Radio Spectrum Matter Test Results

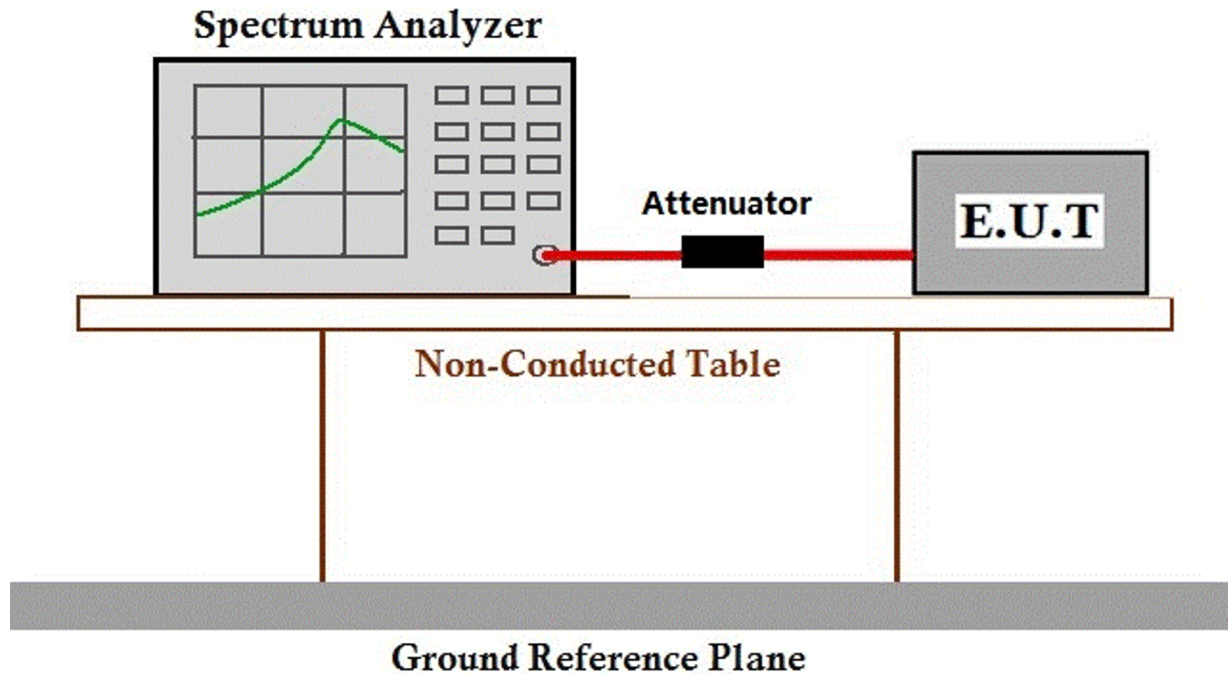
7.1 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)
 Test Method: ANSI C63.10 (2013) Section 11.8.1
 Limit: ≥ 500 kHz

7.1.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.6 °C Humidity: 53.3 % RH Atmospheric Pressure: 1020 mbar
 Test Mode: a: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.1.2 Test Setup Diagram



7.1.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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7.2 Conducted Peak Output Power

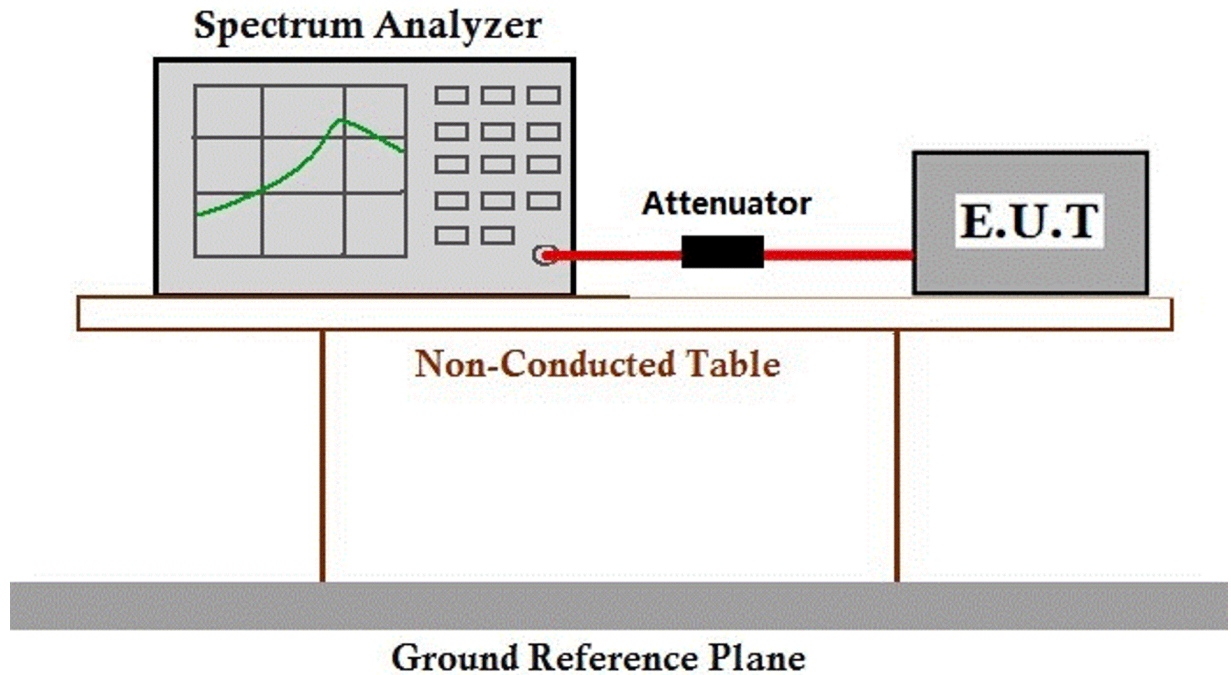
Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)
 Test Method: ANSI C63.10 (2013) Section 11.9.1
 Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

7.2.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.6 °C Humidity: 53.3 % RH Atmospheric Pressure: 1020 mbar
 Test Mode: a: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.2.2 Test Setup Diagram



7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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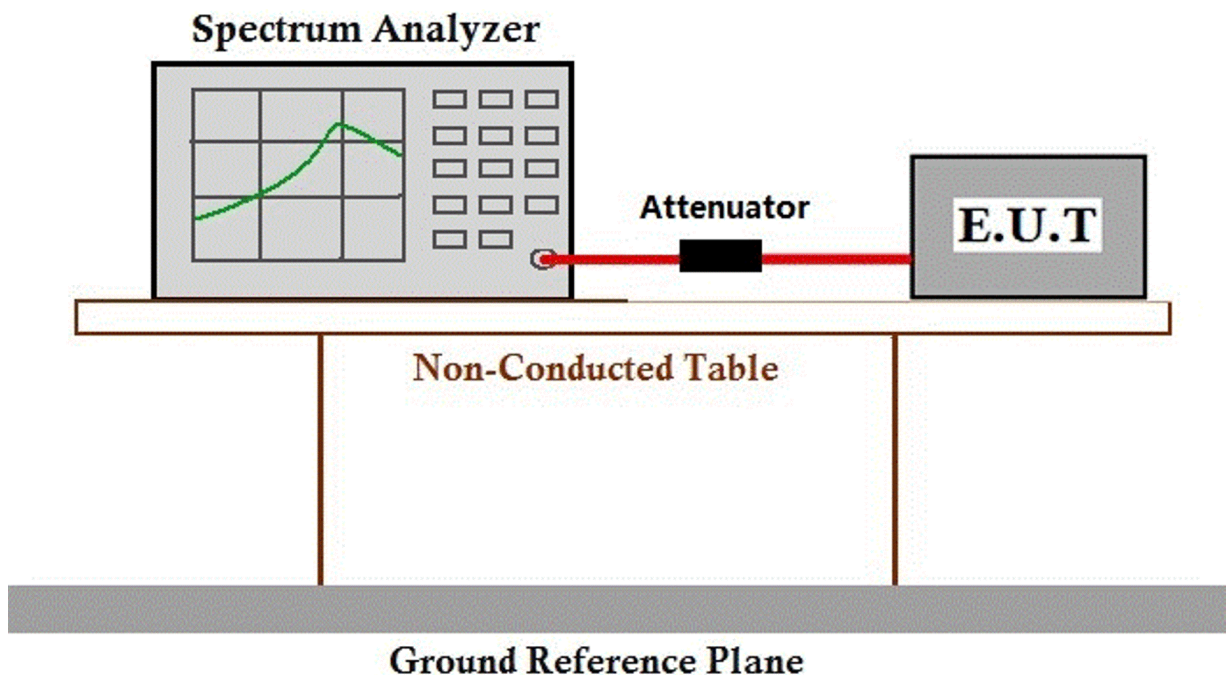
7.3 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)
 Test Method: ANSI C63.10 (2013) Section 11.10.2
 Limit: ≤8dBm in any 3 kHz band during any time interval of continuous transmission

7.3.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.6 °C Humidity: 53.3 % RH Atmospheric Pressure: 1020 mbar
 Test Mode: a: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.3.2 Test Setup Diagram



7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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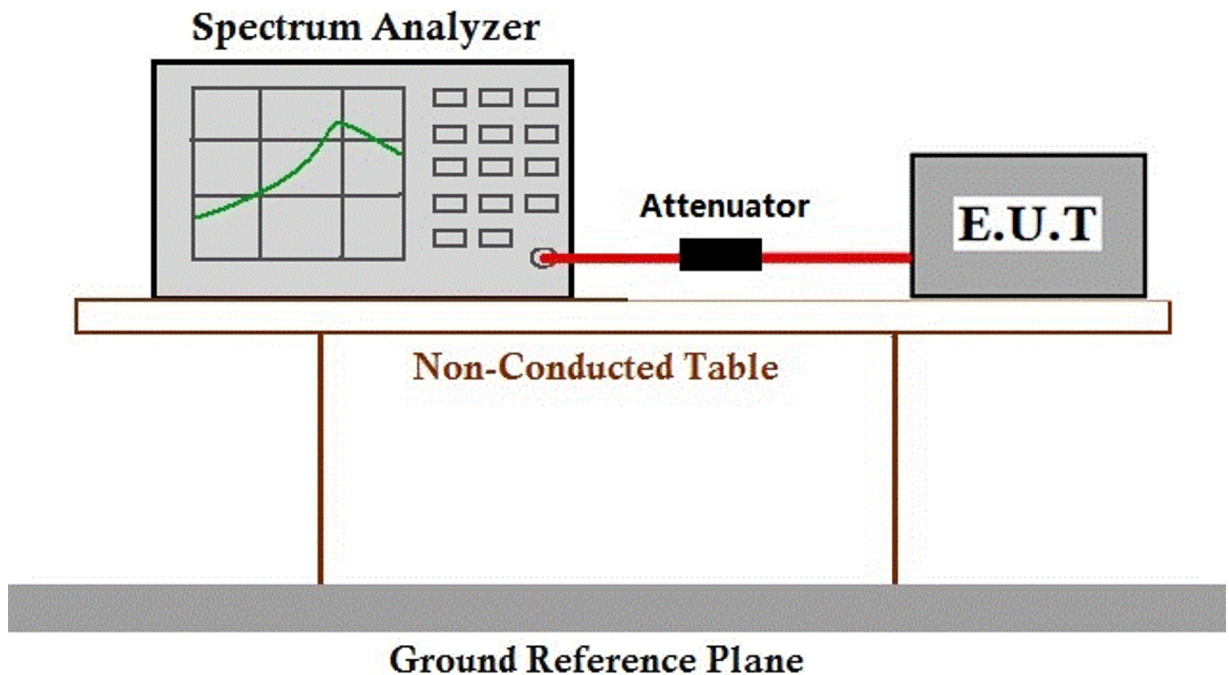
7.4 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)
 Test Method: ANSI C63.10 (2013) Section 11.13.3.2
 Limit: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))

7.4.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.6 °C Humidity: 53.3 % RH Atmospheric Pressure: 1020 mbar
 Test Mode: a: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.4.2 Test Setup Diagram



7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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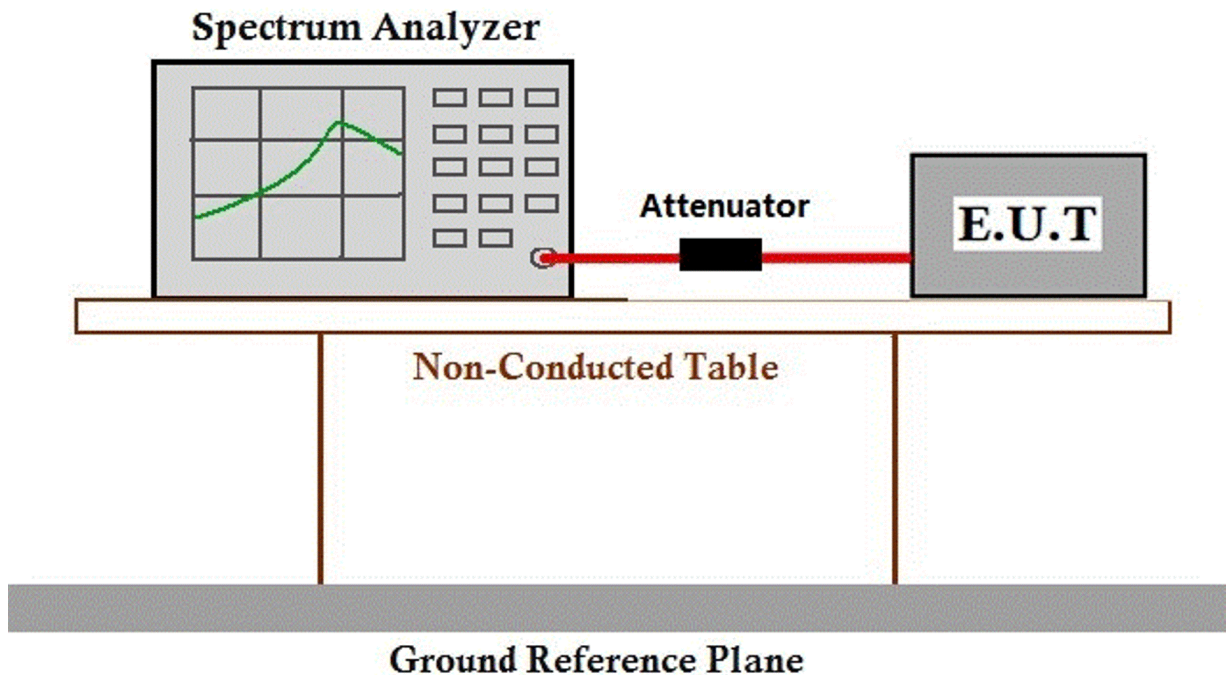
7.5 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)
 Test Method: ANSI C63.10 (2013) Section 11.11
 Limit: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))

7.5.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.6 °C Humidity: 53.3 % RH Atmospheric Pressure: 1020 mbar
 Test Mode: a: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.5.2 Test Setup Diagram



7.5.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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7.6 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
 Test Method: ANSI C63.10 (2013) Section 6.10.5
 Measurement Distance: 3m
 Limit:

Frequency(MHz)	Field strength (microvolts/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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

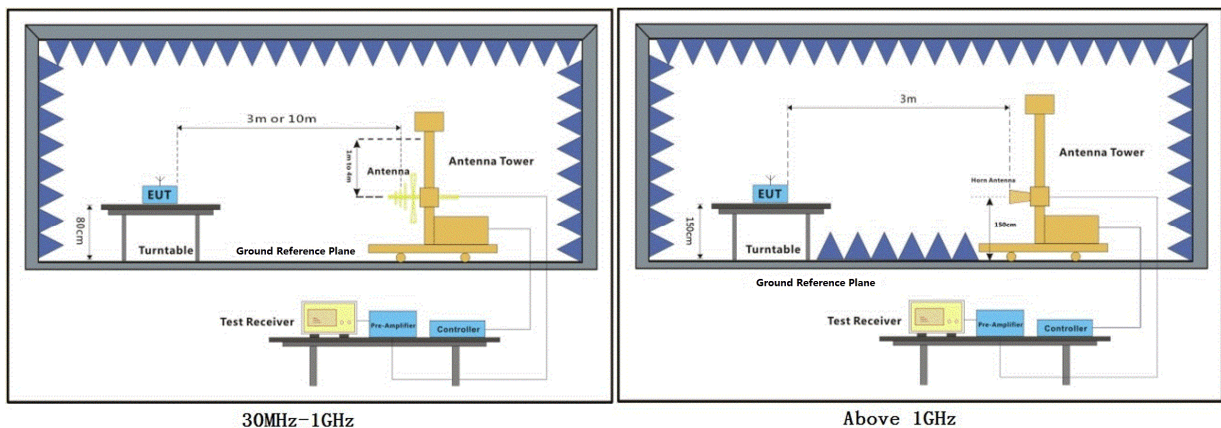
7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 22.8 °C Humidity: 59 % RH Atmospheric Pressure: 1020 mbar

Test Mode: a: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.6.2 Test Setup Diagram



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7.6.3 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. 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.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

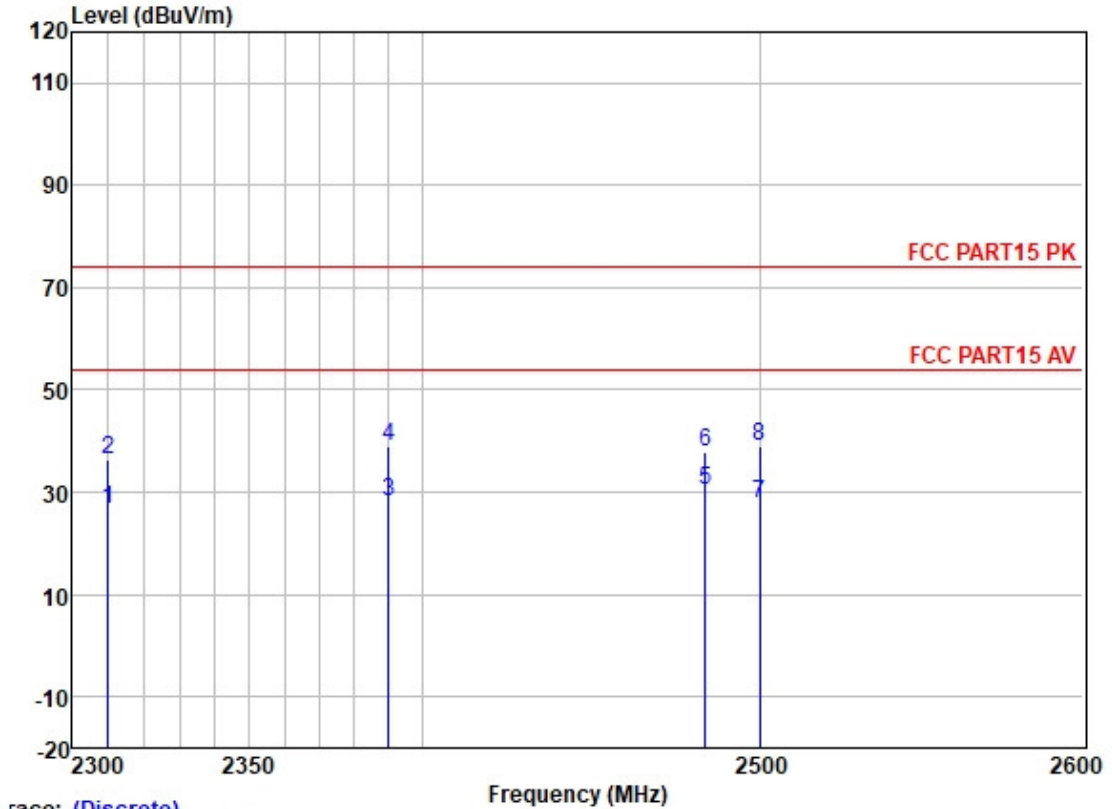
Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

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



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Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low



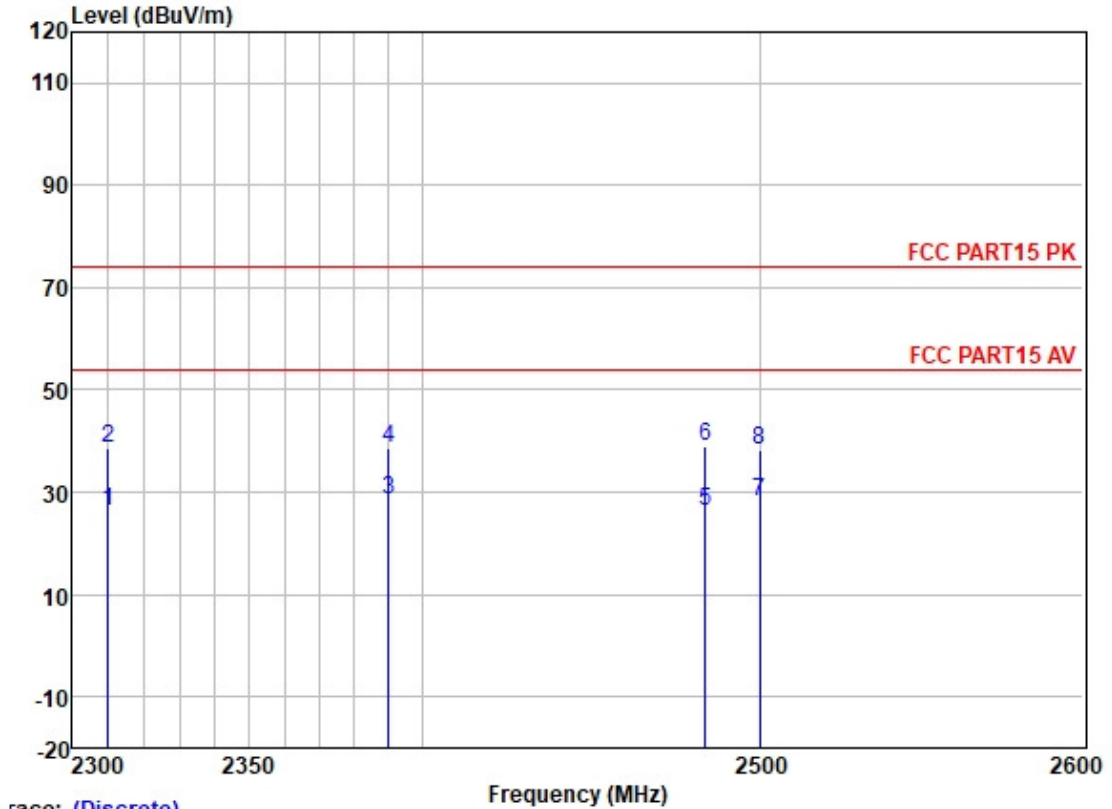
Trace: (Discrete)

	Read	Antenna	Cable	Preamp	Level	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	2310.000	33.98	27.15	3.32	37.62	26.83	54.00	-27.17	HORIZONTAL Average
2	2310.000	43.44	27.15	3.32	37.62	36.29	74.00	-37.71	HORIZONTAL Peak
3	2390.000	35.02	27.33	3.48	37.59	28.24	54.00	-25.76	HORIZONTAL Average
4	2390.000	45.77	27.33	3.48	37.59	38.99	74.00	-35.01	HORIZONTAL Peak
5	2483.500	36.82	27.48	3.53	37.57	30.26	54.00	-23.74	HORIZONTAL Average
6	2483.500	44.52	27.48	3.53	37.57	37.96	74.00	-36.04	HORIZONTAL Peak
7	2500.000	34.63	27.50	3.40	37.56	27.97	54.00	-26.03	HORIZONTAL Average
8	2500.000	45.57	27.50	3.40	37.56	38.91	74.00	-35.09	HORIZONTAL Peak



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Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:Low



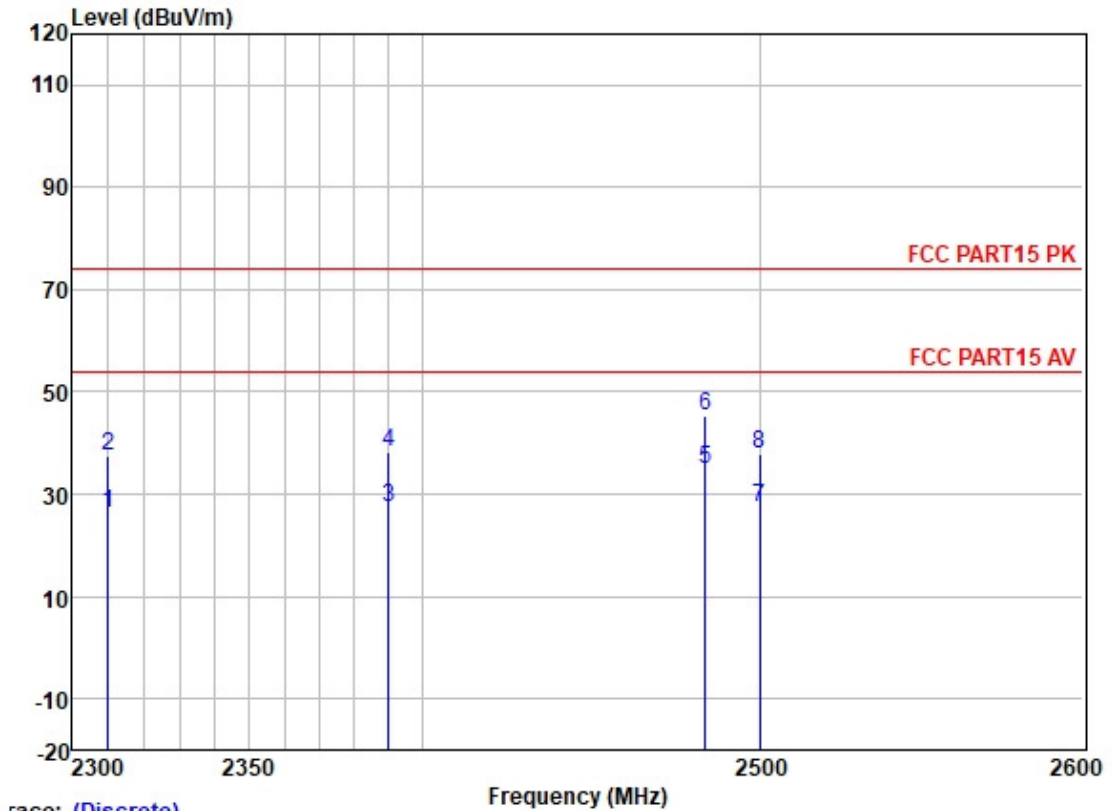
Trace: (Discrete)

	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	2310.000	33.28	27.15	3.32	37.62	26.13	54.00	-27.87	VERTICAL Average
2	2310.000	45.77	27.15	3.32	37.62	38.62	74.00	-35.38	VERTICAL Peak
3	2390.000	35.26	27.33	3.48	37.59	28.48	54.00	-25.52	VERTICAL Average
4	2390.000	45.44	27.33	3.48	37.59	38.66	74.00	-35.34	VERTICAL Peak
5	2483.500	32.91	27.48	3.53	37.57	26.35	54.00	-27.65	VERTICAL Average
6	2483.500	45.63	27.48	3.53	37.57	39.07	74.00	-34.93	VERTICAL Peak
7	2500.000	34.96	27.50	3.40	37.56	28.30	54.00	-25.70	VERTICAL Average
8	2500.000	44.84	27.50	3.40	37.56	38.18	74.00	-35.82	VERTICAL Peak



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Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:High



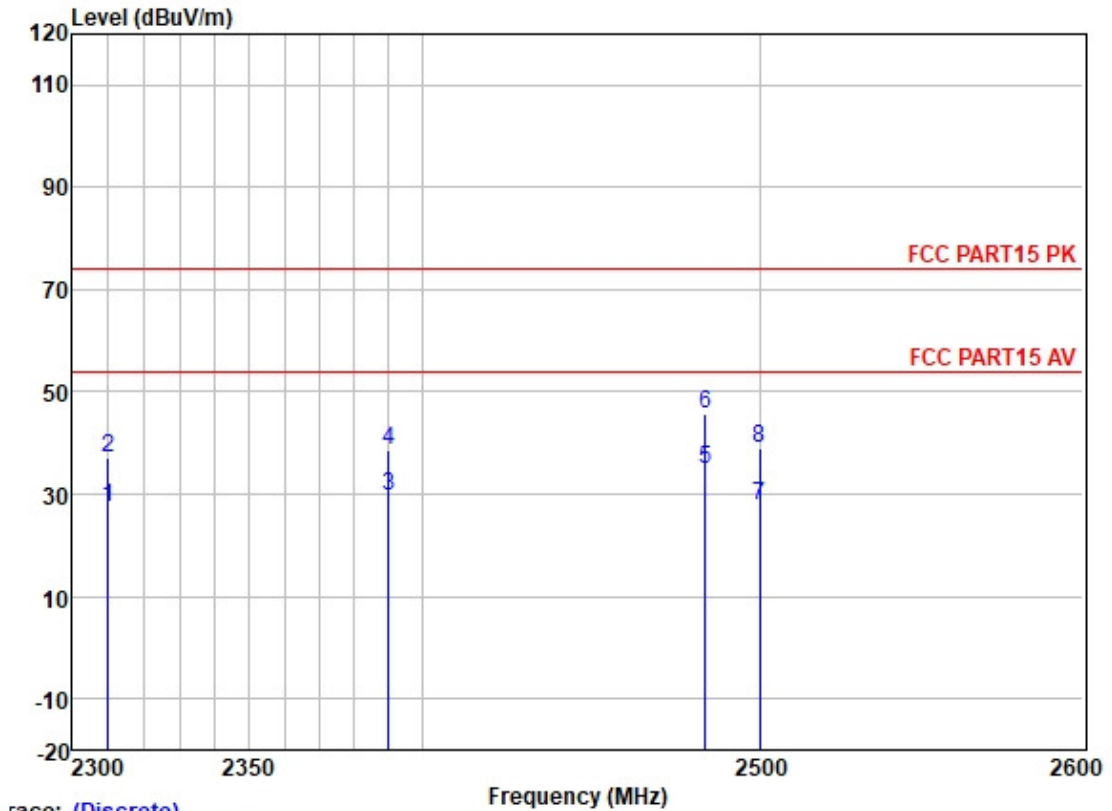
Trace: (Discrete)

	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	2310.000	33.51	27.15	3.32	37.62	26.36	54.00	-27.64	HORIZONTAL Average
2	2310.000	44.76	27.15	3.32	37.62	37.61	74.00	-36.39	HORIZONTAL Peak
3	2390.000	34.31	27.33	3.48	37.59	27.53	54.00	-26.47	HORIZONTAL Average
4	2390.000	44.95	27.33	3.48	37.59	38.17	74.00	-35.83	HORIZONTAL Peak
5	2483.500	41.41	27.48	3.53	37.57	34.85	54.00	-19.15	HORIZONTAL Average
6	2483.500	51.95	27.48	3.53	37.57	45.39	74.00	-28.61	HORIZONTAL Peak
7	2500.000	34.05	27.50	3.40	37.56	27.39	54.00	-26.61	HORIZONTAL Average
8	2500.000	44.52	27.50	3.40	37.56	37.86	74.00	-36.14	HORIZONTAL Peak



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Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:High



Trace: (Discrete)

	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	2310.000	34.54	27.15	3.32	37.62	27.39	54.00	-26.61	VERTICAL Average
2	2310.000	44.36	27.15	3.32	37.62	37.21	74.00	-36.79	VERTICAL Peak
3	2390.000	36.30	27.33	3.48	37.59	29.52	54.00	-24.48	VERTICAL Average
4	2390.000	45.50	27.33	3.48	37.59	38.72	74.00	-35.28	VERTICAL Peak
5	2483.500	41.37	27.48	3.53	37.57	34.81	54.00	-19.19	VERTICAL Average
6	2483.500	52.41	27.48	3.53	37.57	45.85	74.00	-28.15	VERTICAL Peak
7	2500.000	34.49	27.50	3.40	37.56	27.83	54.00	-26.17	VERTICAL Average
8	2500.000	45.79	27.50	3.40	37.56	39.13	74.00	-34.87	VERTICAL Peak



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7.7 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
 Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6
 Measurement Distance: 3m
 Limit:

Frequency(MHz)	Field strength (microvolts/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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.



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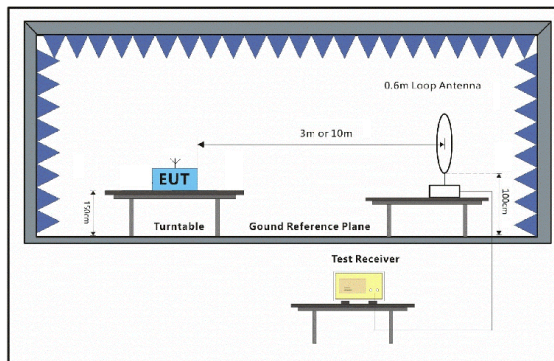
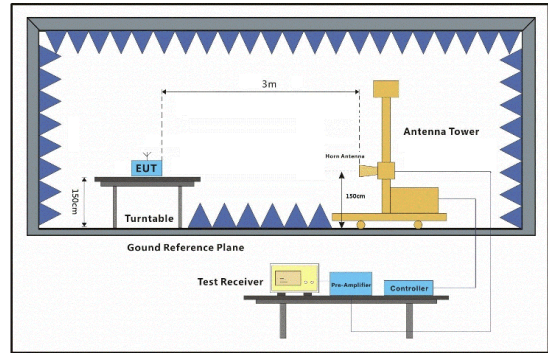
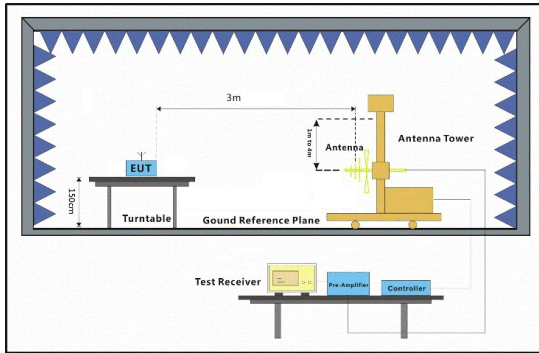
7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 22.8 °C Humidity: 59 % RH Atmospheric Pressure: 1020 mbar

Test Mode: a: TX mode_Keep the EUT in continuously transmitting mode with GFSK modulation.

7.7.2 Test Setup Diagram



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7.7.3 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. 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.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

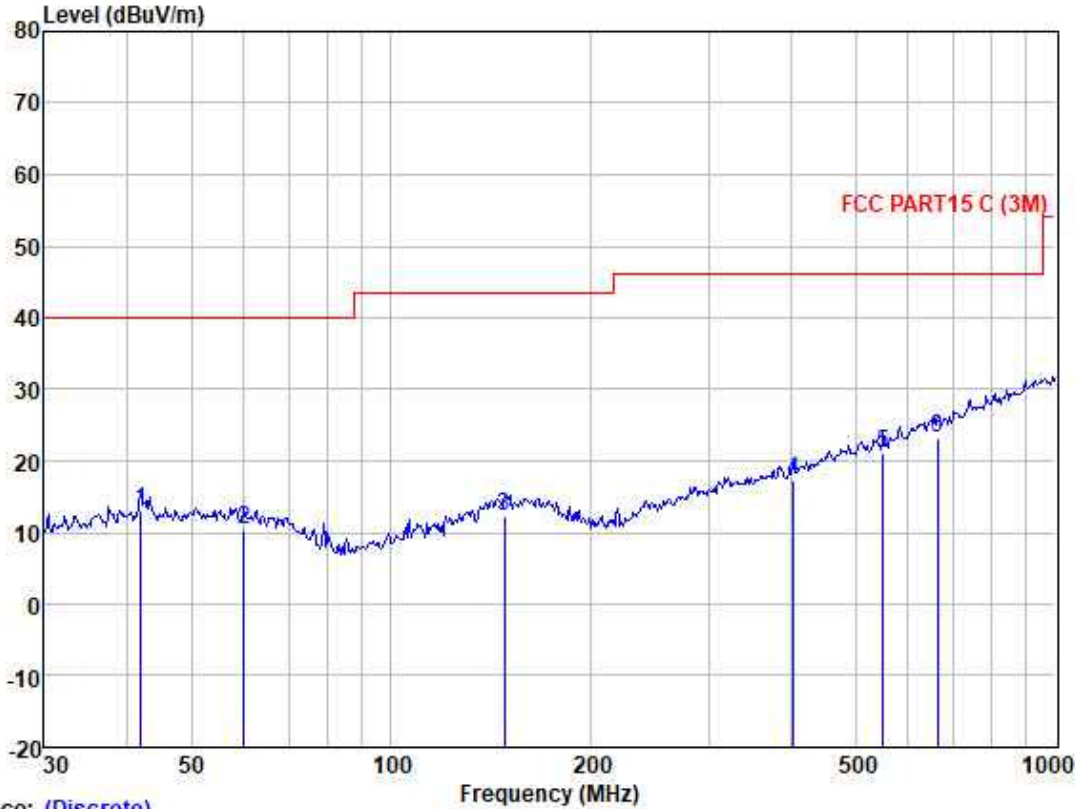
Remark:

- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
 Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown



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Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low



Trace: (Discrete)

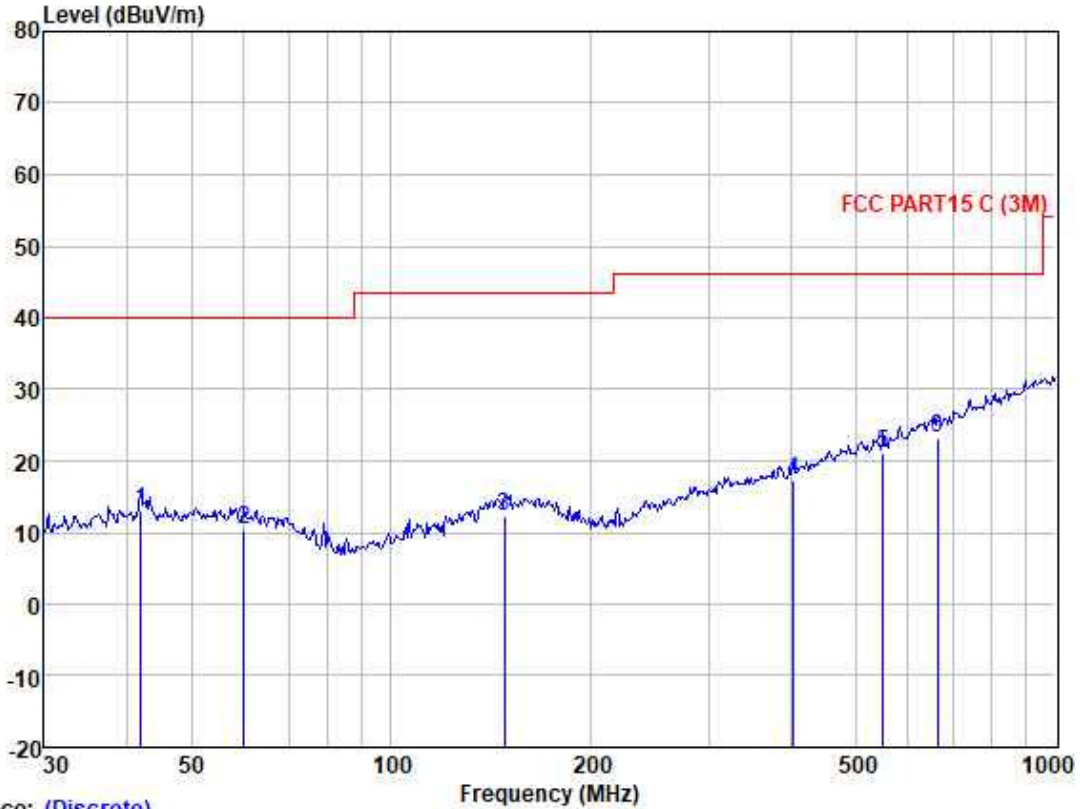
Site : SGS
 Condition : FCC PART15 C (3M) VERTICAL
 Job :
 Model :
 Power :
 Test Mode :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dBuV		
1	42.01	25.41	13.70	1.11	27.17	13.05	40.00	-26.95	VERTICAL	QP
2	60.07	22.80	13.40	1.26	27.16	10.30	40.00	-29.70	VERTICAL	QP
3	147.92	23.19	13.70	2.22	26.85	12.26	43.50	-31.24	VERTICAL	QP
4	403.25	24.92	15.77	3.95	27.34	17.30	46.00	-28.70	VERTICAL	QP
5	550.95	25.57	18.70	4.83	28.11	20.99	46.00	-25.01	VERTICAL	QP
6	665.80	25.08	20.65	5.61	28.17	23.17	46.00	-22.83	VERTICAL	QP



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Mode:b; Polarization: Vertical; Modulation:GFSK; ; Channel:Low



Trace: (Discrete)

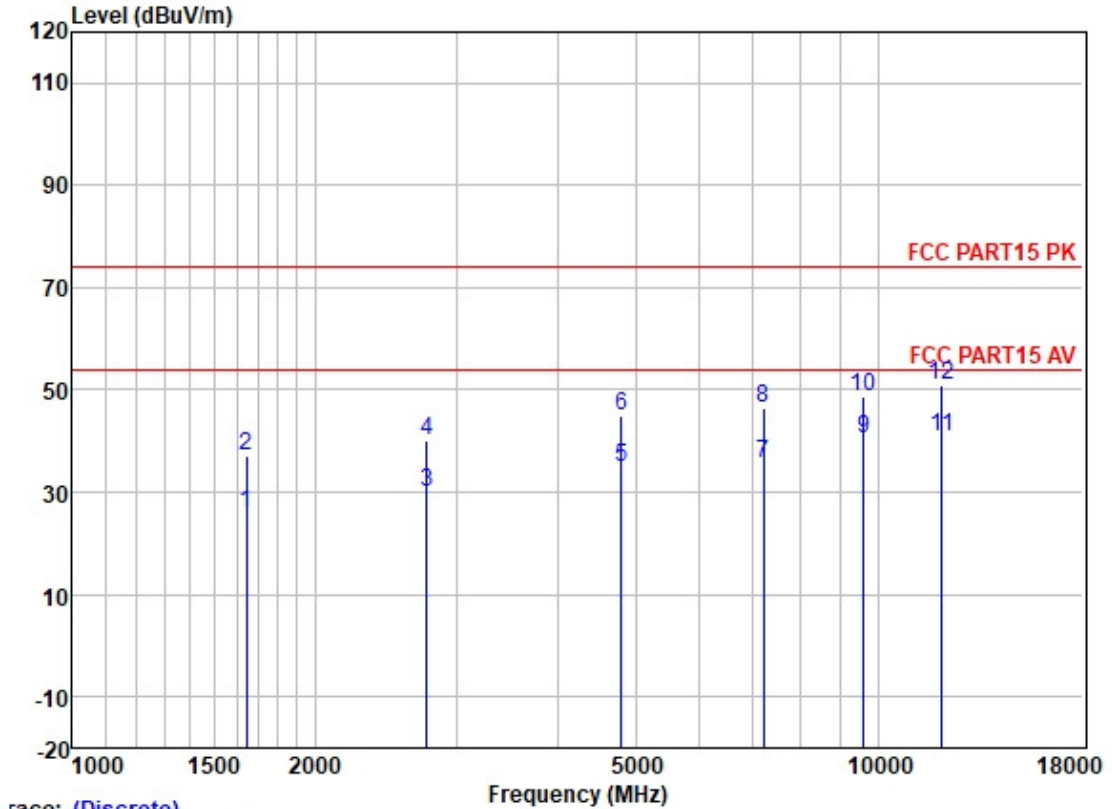
Site : SGS
 Condition : FCC PART15 C (3M) VERTICAL
 Job :
 Model :
 Power :
 Test Mode :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dBuV		
1	42.01	25.41	13.70	1.11	27.17	13.05	40.00	-26.95	VERTICAL	QP
2	60.07	22.80	13.40	1.26	27.16	10.30	40.00	-29.70	VERTICAL	QP
3	147.92	23.19	13.70	2.22	26.85	12.26	43.50	-31.24	VERTICAL	QP
4	403.25	24.92	15.77	3.95	27.34	17.30	46.00	-28.70	VERTICAL	QP
5	550.95	25.57	18.70	4.83	28.11	20.99	46.00	-25.01	VERTICAL	QP
6	665.80	25.08	20.65	5.61	28.17	23.17	46.00	-22.83	VERTICAL	QP



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Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low



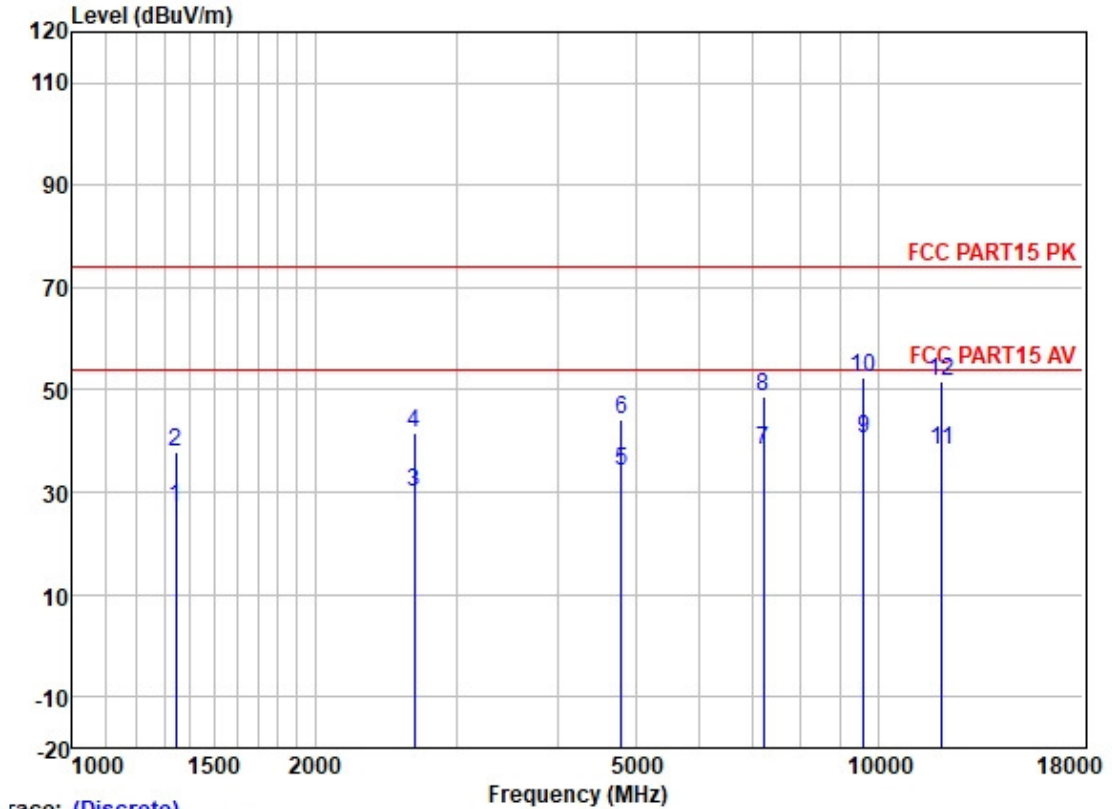
Trace: (Discrete)

	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	1644.019	35.29	25.63	2.80	37.93	25.79	54.00	-28.21	HORIZONTAL Average
2	1644.019	46.49	25.63	2.80	37.93	36.99	74.00	-37.01	HORIZONTAL Peak
3	2750.080	35.71	28.01	3.65	37.44	29.93	54.00	-24.07	HORIZONTAL Average
4	2750.080	45.75	28.01	3.65	37.44	39.97	74.00	-34.03	HORIZONTAL Peak
5	4804.245	35.04	31.42	5.40	36.83	35.03	54.00	-18.97	HORIZONTAL Average
6	4804.245	45.11	31.42	5.40	36.83	45.10	74.00	-28.90	HORIZONTAL Peak
7	7206.890	31.53	35.54	5.98	37.38	35.67	54.00	-18.33	HORIZONTAL Average
8	7206.890	42.30	35.54	5.98	37.38	46.44	74.00	-27.56	HORIZONTAL Peak
9	9608.860	32.37	38.37	7.07	37.42	40.39	54.00	-13.61	HORIZONTAL Average
10	9608.860	40.70	38.37	7.07	37.42	48.72	74.00	-25.28	HORIZONTAL Peak
11	12010.850	30.80	38.90	8.19	37.10	40.79	54.00	-13.21	HORIZONTAL Average
12	12010.850	40.81	38.90	8.19	37.10	50.80	74.00	-23.20	HORIZONTAL Peak



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Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:Low



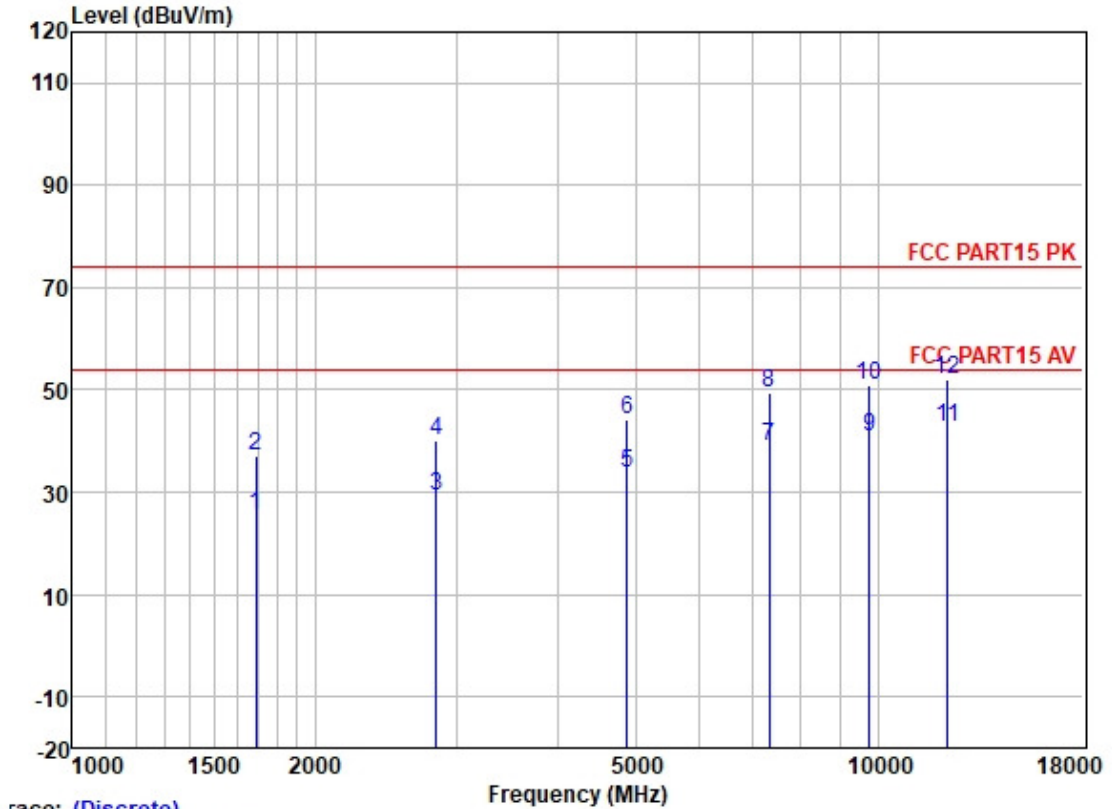
Trace: (Discrete)

	Read	Antenna	Cable	Preamp	Limit	Over				
Freq	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark		
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	1342.882	37.53	25.30	2.60	38.27	27.16	54.00	-26.84	VERTICAL	Average
2	1342.882	48.37	25.30	2.60	38.27	38.00	74.00	-36.00	VERTICAL	Peak
3	2656.331	36.18	27.73	3.55	37.49	29.97	54.00	-24.03	VERTICAL	Average
4	2656.331	47.73	27.73	3.55	37.49	41.52	74.00	-32.48	VERTICAL	Peak
5	4804.888	34.32	31.42	5.40	36.83	34.31	54.00	-19.69	VERTICAL	Average
6	4804.888	44.38	31.42	5.40	36.83	44.37	74.00	-29.63	VERTICAL	Peak
7	7206.461	34.15	35.54	5.98	37.38	38.29	54.00	-15.71	VERTICAL	Average
8	7206.461	44.43	35.54	5.98	37.38	48.57	74.00	-25.43	VERTICAL	Peak
9	9608.717	32.37	38.37	7.07	37.42	40.39	54.00	-13.61	VERTICAL	Average
10	9608.717	44.48	38.37	7.07	37.42	52.50	74.00	-21.50	VERTICAL	Peak
11	12010.100	28.12	38.90	8.19	37.10	38.11	54.00	-15.89	VERTICAL	Average
12	12010.100	41.66	38.90	8.19	37.10	51.65	74.00	-22.35	VERTICAL	Peak



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Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:middle



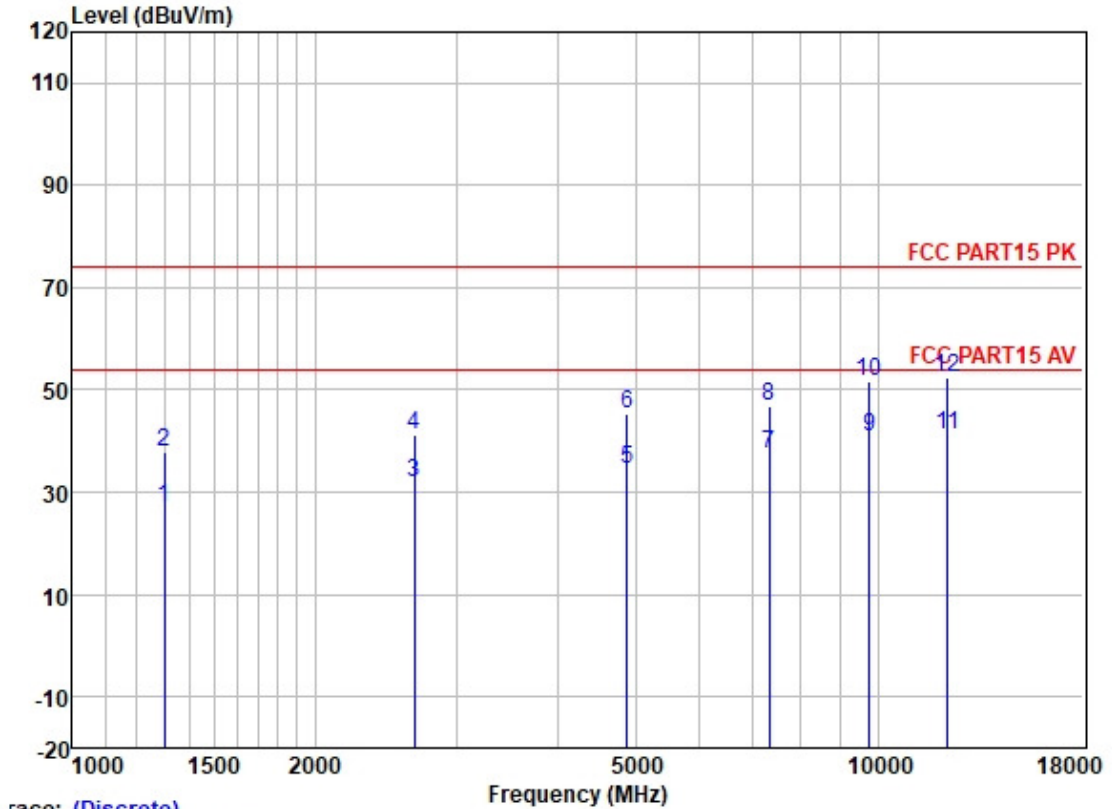
Trace: (Discrete)

	Freq	ReadAntenna Level	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	1692.231	35.09	25.70	2.80	37.89	54.00	-28.30	HORIZONTAL	Average
2	1692.231	46.37	25.70	2.80	37.89	74.00	-37.02	HORIZONTAL	Peak
3	2830.728	34.64	28.20	3.70	37.40	54.00	-24.86	HORIZONTAL	Average
4	2830.728	45.56	28.20	3.70	37.40	74.00	-33.94	HORIZONTAL	Peak
5	4884.181	33.48	31.56	5.52	36.84	54.00	-20.28	HORIZONTAL	Average
6	4884.181	43.85	31.56	5.52	36.84	74.00	-29.91	HORIZONTAL	Peak
7	7326.038	34.24	36.00	6.13	37.43	54.00	-15.06	HORIZONTAL	Average
8	7326.038	44.68	36.00	6.13	37.43	74.00	-24.62	HORIZONTAL	Peak
9	9768.603	32.73	38.53	7.01	37.41	54.00	-13.14	HORIZONTAL	Average
10	9768.603	42.96	38.53	7.01	37.41	74.00	-22.91	HORIZONTAL	Peak
11	12210.310	32.94	38.74	8.08	37.00	54.00	-11.24	HORIZONTAL	Average
12	12210.310	42.41	38.74	8.08	37.00	74.00	-21.77	HORIZONTAL	Peak



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Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:middle



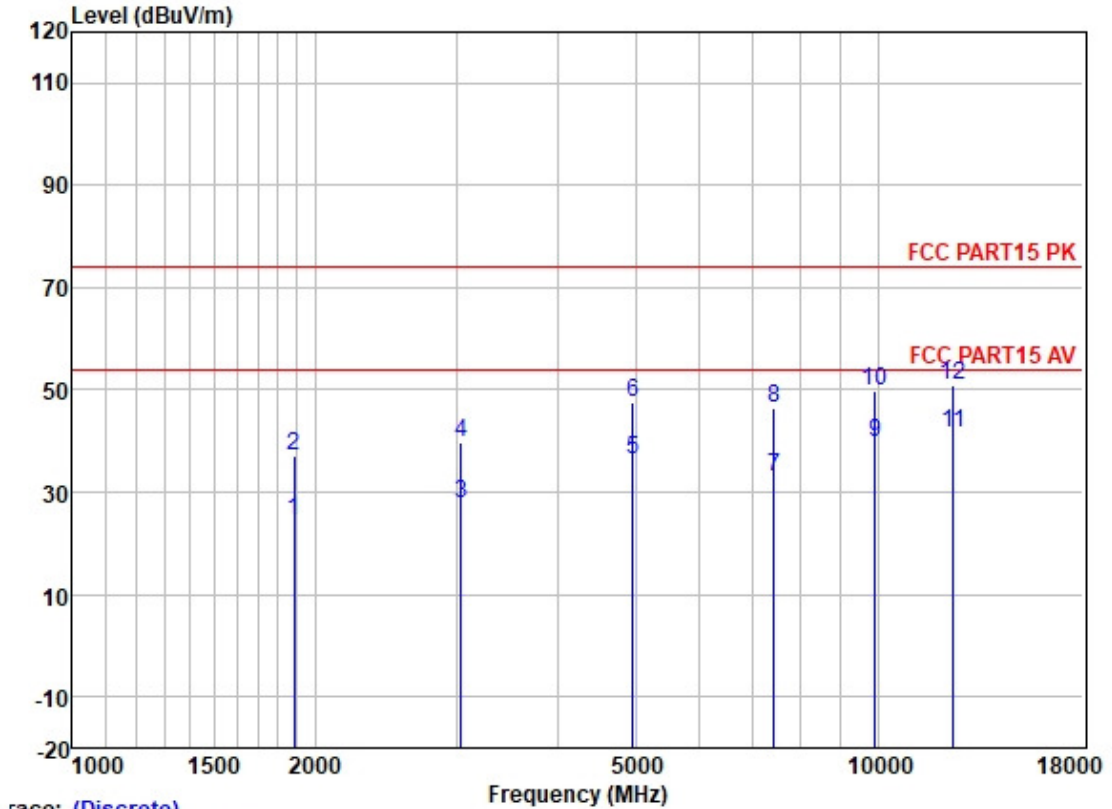
Trace: (Discrete)

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1300.858	37.56	25.20	2.60	38.31	27.05	54.00	-26.95	VERTICAL	Average
2	1300.858	48.34	25.20	2.60	38.31	37.83	74.00	-36.17	VERTICAL	Peak
3	2656.331	37.95	27.73	3.55	37.49	31.74	54.00	-22.26	VERTICAL	Average
4	2656.331	47.32	27.73	3.55	37.49	41.11	74.00	-32.89	VERTICAL	Peak
5	4884.993	34.42	31.56	5.52	36.84	34.66	54.00	-19.34	VERTICAL	Average
6	4884.993	45.27	31.56	5.52	36.84	45.51	74.00	-28.49	VERTICAL	Peak
7	7326.999	32.75	36.00	6.13	37.43	37.45	54.00	-16.55	VERTICAL	Average
8	7326.999	42.03	36.00	6.13	37.43	46.73	74.00	-27.27	VERTICAL	Peak
9	9768.230	32.81	38.53	7.01	37.41	40.94	54.00	-13.06	VERTICAL	Average
10	9768.230	43.42	38.53	7.01	37.41	51.55	74.00	-22.45	VERTICAL	Peak
11	12210.700	31.58	38.74	8.08	37.00	41.40	54.00	-12.60	VERTICAL	Average
12	12210.700	42.48	38.74	8.08	37.00	52.30	74.00	-21.70	VERTICAL	Peak



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Mode:a; Polarization:Horizontal; Modulation:GFSK; ; Channel:High



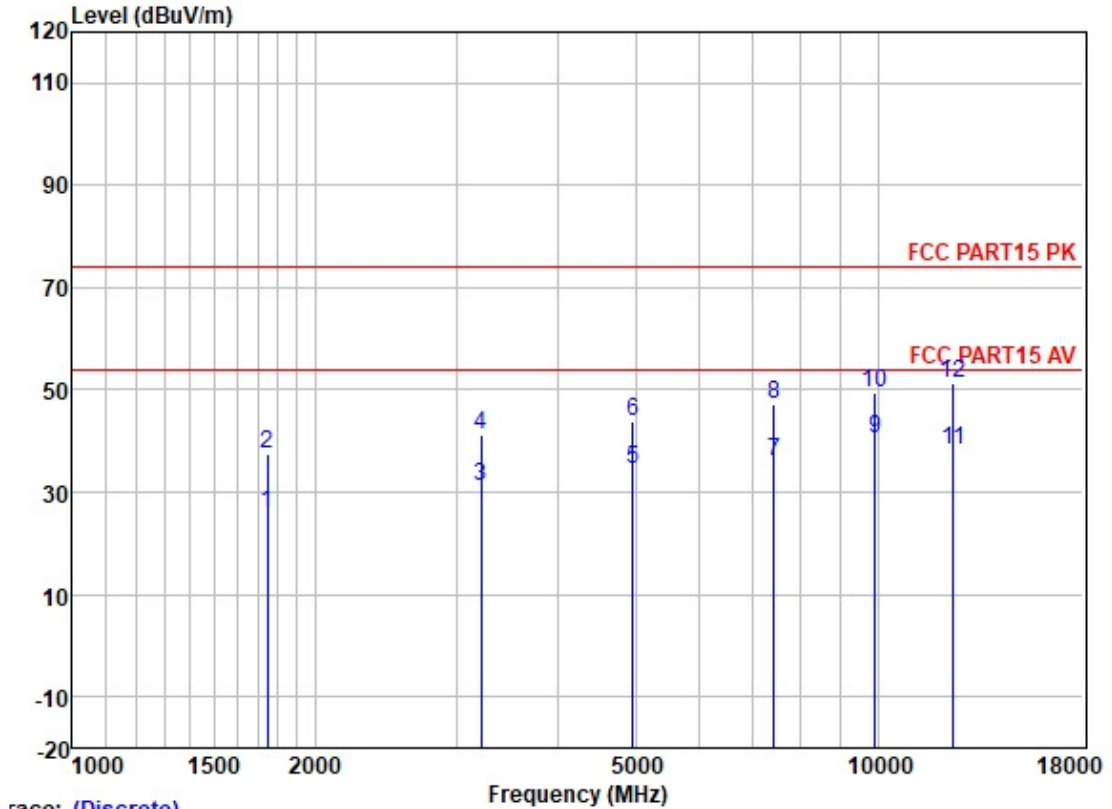
Trace: (Discrete)

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1883.236	33.08	26.03	2.91	37.77	24.25	54.00	-29.75	HORIZONTAL	Average
2	1883.236	46.03	26.03	2.91	37.77	37.20	74.00	-36.80	HORIZONTAL	Peak
3	3034.063	32.83	28.42	3.83	37.22	27.86	54.00	-26.14	HORIZONTAL	Average
4	3034.063	44.81	28.42	3.83	37.22	39.84	74.00	-34.16	HORIZONTAL	Peak
5	4960.993	35.83	31.65	5.65	36.84	36.29	54.00	-17.71	HORIZONTAL	Average
6	4960.993	47.05	31.65	5.65	36.84	47.51	74.00	-26.49	HORIZONTAL	Peak
7	7440.375	28.12	36.27	6.22	37.47	33.14	54.00	-20.86	HORIZONTAL	Average
8	7440.375	41.59	36.27	6.22	37.47	46.61	74.00	-27.39	HORIZONTAL	Peak
9	9920.214	31.39	38.65	6.96	37.40	39.60	54.00	-14.40	HORIZONTAL	Average
10	9920.214	41.70	38.65	6.96	37.40	49.91	74.00	-24.09	HORIZONTAL	Peak
11	12400.510	32.09	38.57	7.97	36.88	41.75	54.00	-12.25	HORIZONTAL	Average
12	12400.510	41.42	38.57	7.97	36.88	51.08	74.00	-22.92	HORIZONTAL	Peak



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Mode:a; Polarization:Vertical; Modulation:GFSK; ; Channel:High



Trace: (Discrete)

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1746.898	34.89	25.84	2.89	37.85	25.77	54.00	-28.23	VERTICAL	Average
2	1746.898	46.45	25.84	2.89	37.85	37.33	74.00	-36.67	VERTICAL	Peak
3	3214.623	35.74	28.61	4.01	37.07	31.29	54.00	-22.71	VERTICAL	Average
4	3214.623	45.62	28.61	4.01	37.07	41.17	74.00	-32.83	VERTICAL	Peak
5	4960.058	34.17	31.65	5.65	36.84	34.63	54.00	-19.37	VERTICAL	Average
6	4960.058	43.57	31.65	5.65	36.84	44.03	74.00	-29.97	VERTICAL	Peak
7	7440.542	30.83	36.27	6.22	37.47	35.85	54.00	-18.15	VERTICAL	Average
8	7440.542	42.05	36.27	6.22	37.47	47.07	74.00	-26.93	VERTICAL	Peak
9	9920.456	32.22	38.65	6.96	37.40	40.43	54.00	-13.57	VERTICAL	Average
10	9920.456	41.19	38.65	6.96	37.40	49.40	74.00	-24.60	VERTICAL	Peak
11	12400.820	28.46	38.57	7.97	36.88	38.12	54.00	-15.88	VERTICAL	Average
12	12400.820	41.79	38.57	7.97	36.88	51.45	74.00	-22.55	VERTICAL	Peak



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8 Appendix 15.247

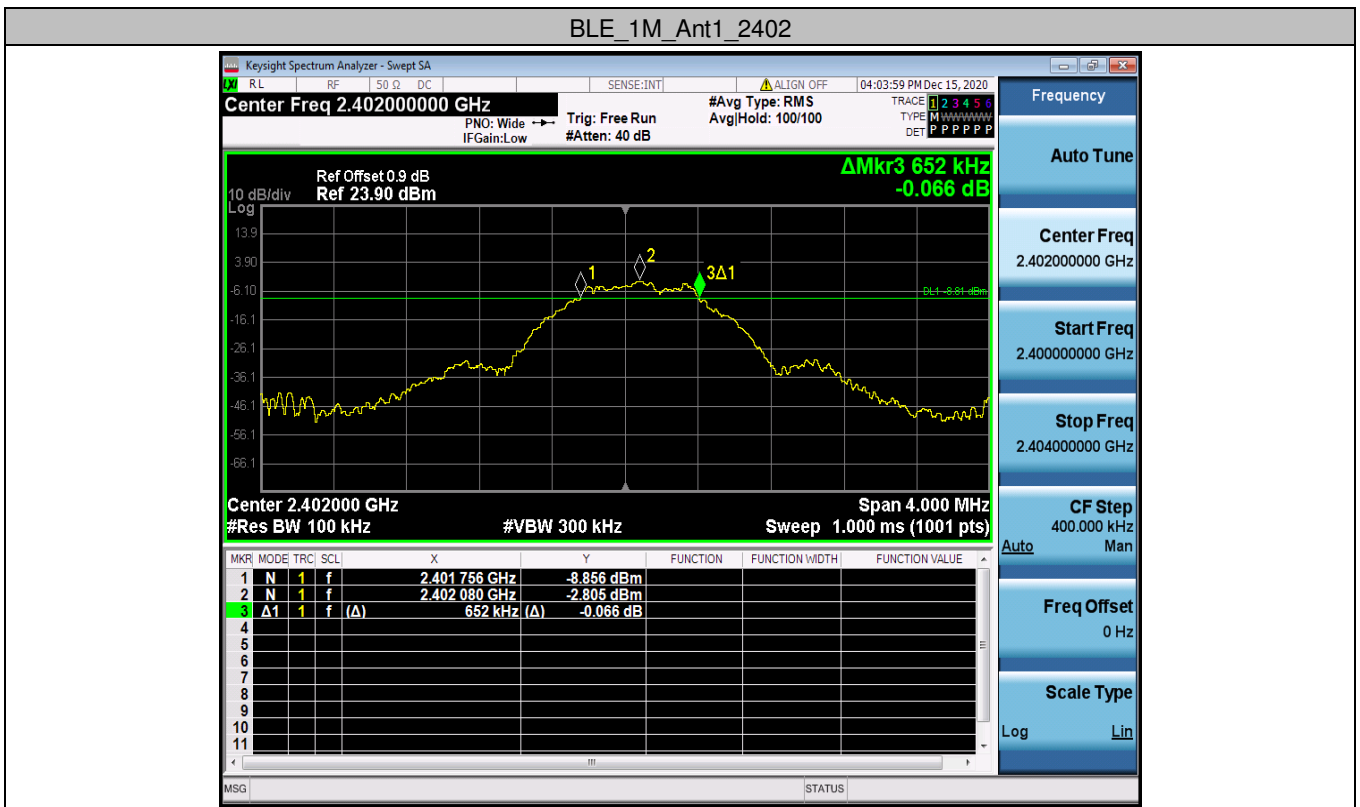
Cable Loss=0.9 dB for all the test data

8.1 Appendix A: DTS Bandwidth

8.1.1 Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.652	2401.756	2402.408	0.5	PASS
		2442	0.676	2441.740	2442.416	0.5	PASS
		2480	0.660	2479.748	2480.408	0.5	PASS

8.1.2 Test Graphs



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BLE_1M_Ant1_2442



BLE_1M_Ant1_2480



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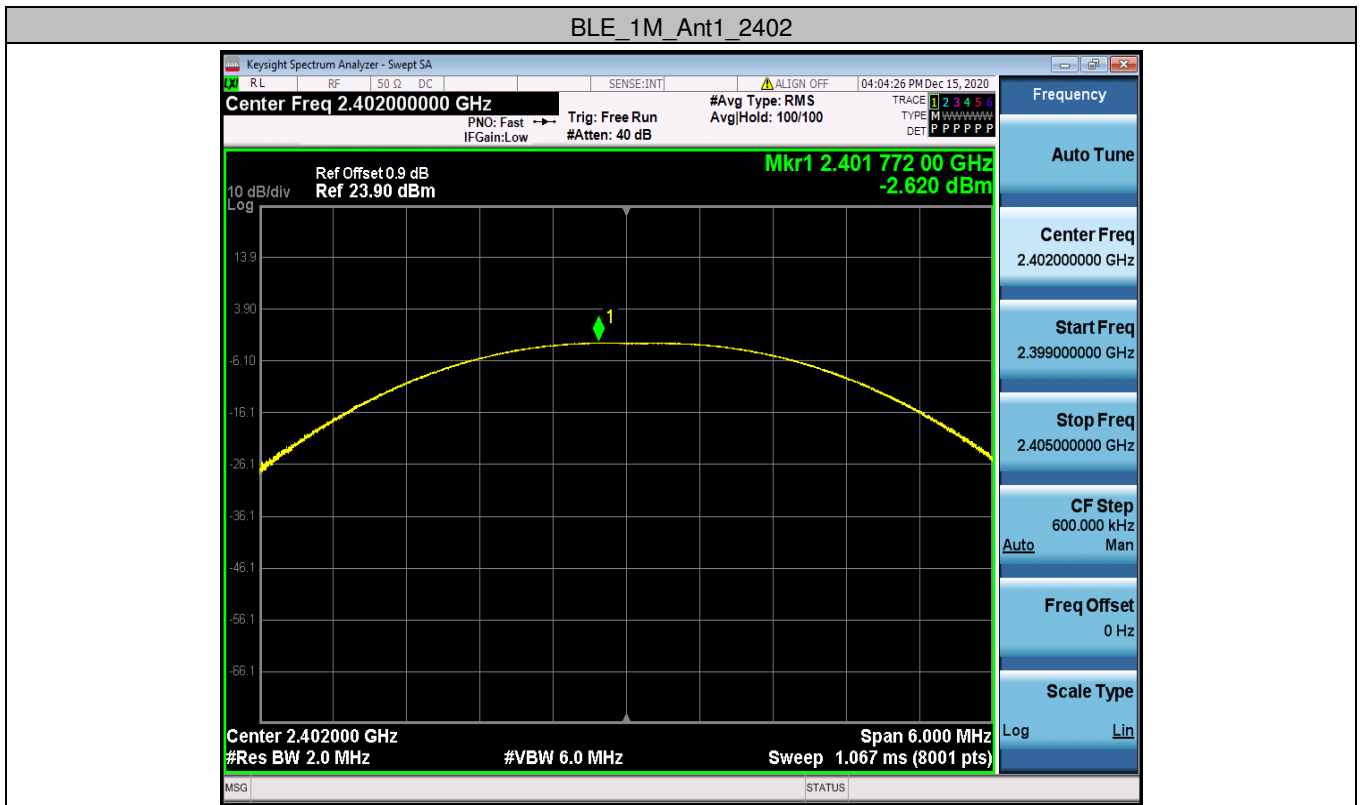
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8.2 Appendix B: Maximum conducted output power

8.2.1 Test Result

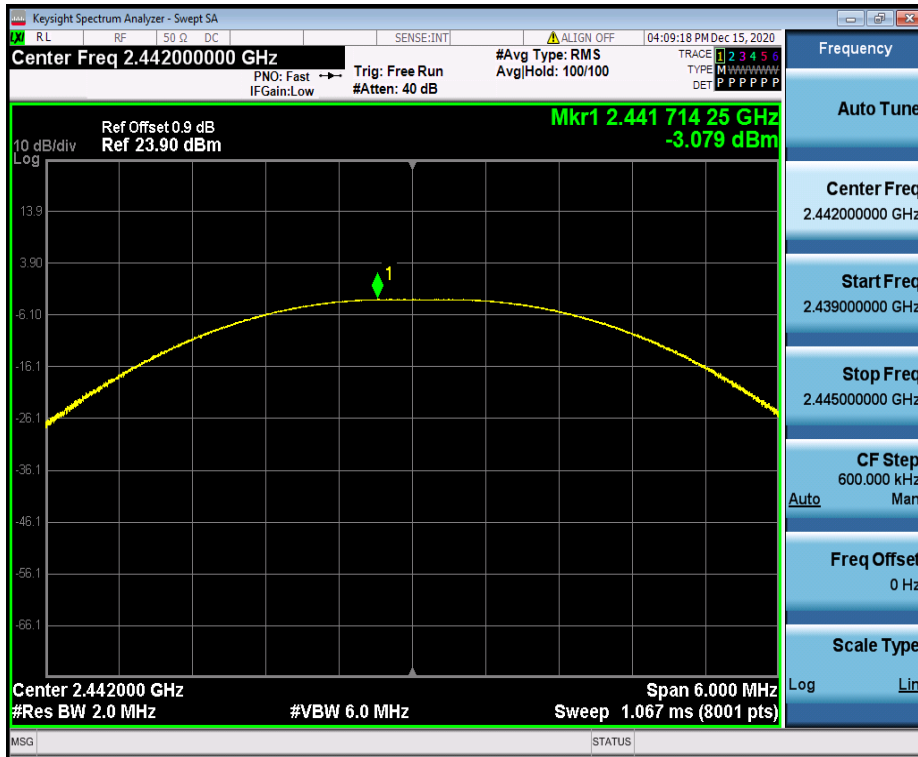
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-2.62	<=30	PASS
		2442	-3.08	<=30	PASS
		2480	-3.56	<=30	PASS

8.2.2 Test Graphs

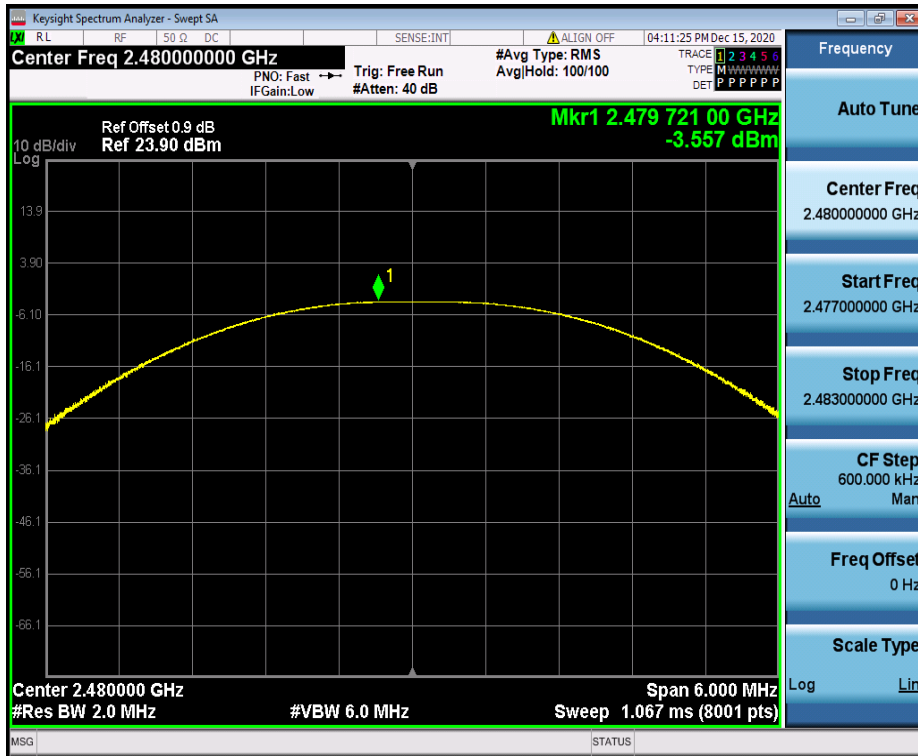


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BLE_1M_Ant1_2442



BLE_1M_Ant1_2480



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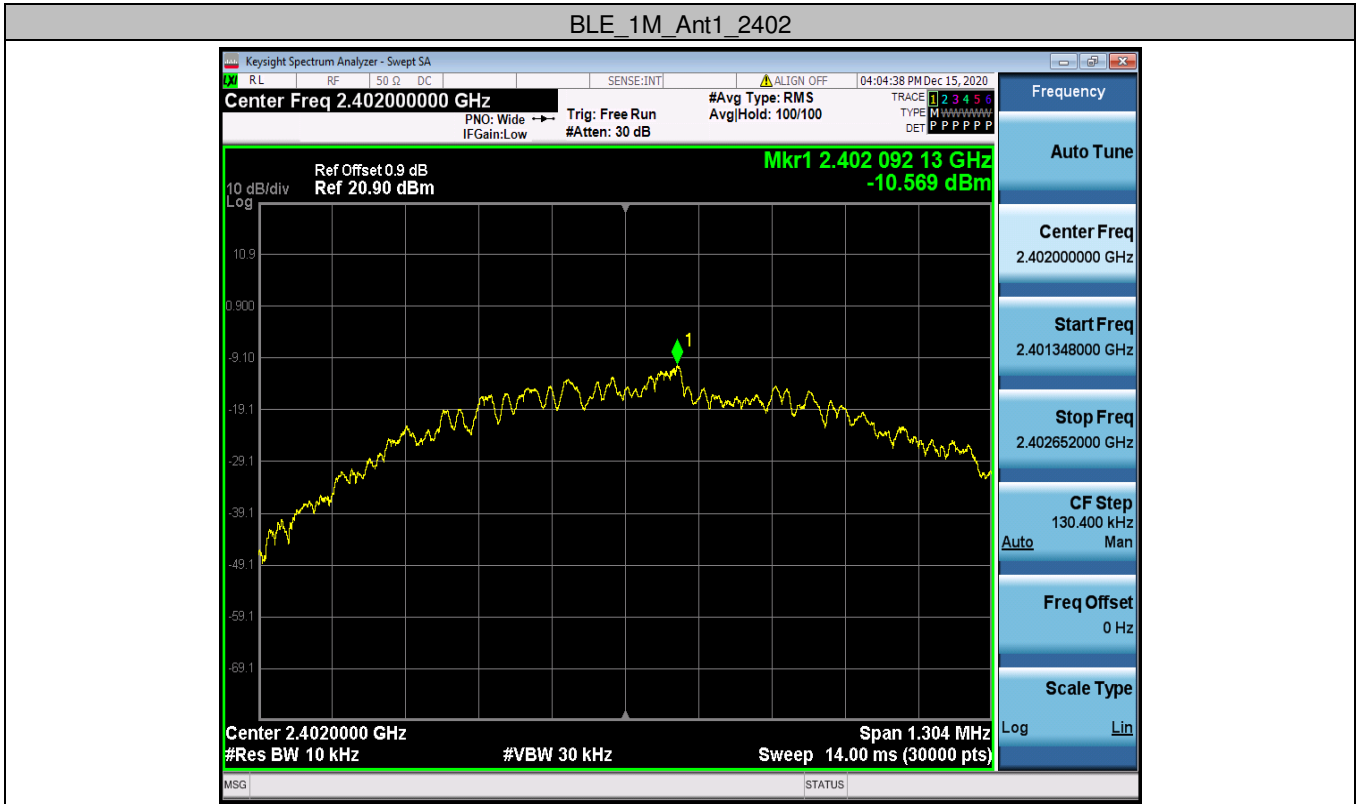
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8.3 Appendix C: Maximum power spectral density

8.3.1 Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-10.57	<=8	PASS
		2442	-10.6	<=8	PASS
		2480	-9.92	<=8	PASS

8.3.2 Test Graphs



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BLE_1M_Ant1_2442



BLE_1M_Ant1_2480



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8.4 Appendix D: Band edge measurements

8.4.1 Test Result

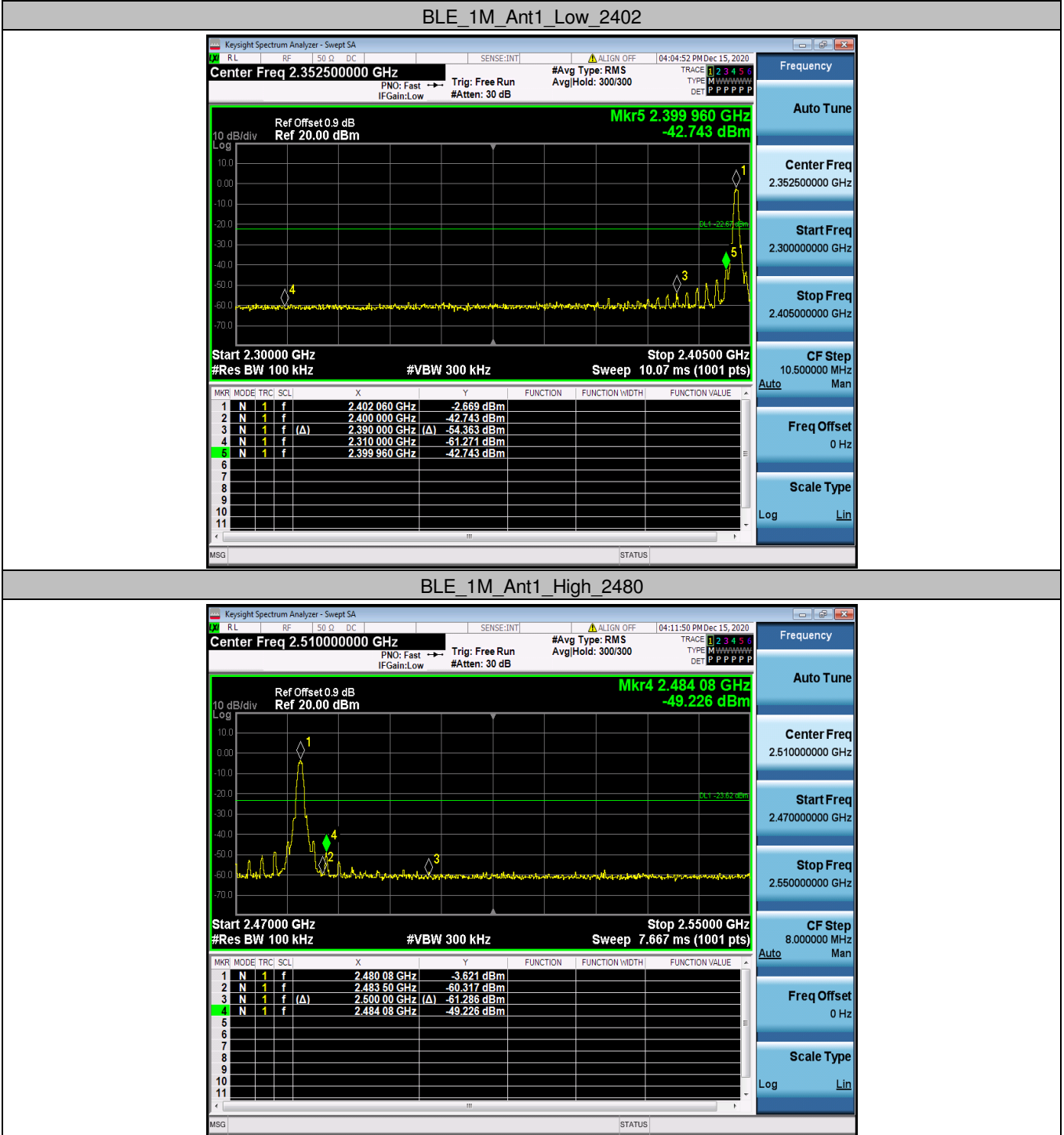
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-2.67	-42.74	<=-22.67	PASS
		High	2480	-3.62	-49.23	<=-23.62	PASS



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8.4.2 Test Graphs



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8.5 Appendix E: Conducted Spurious Emission

8.5.1 Test Result

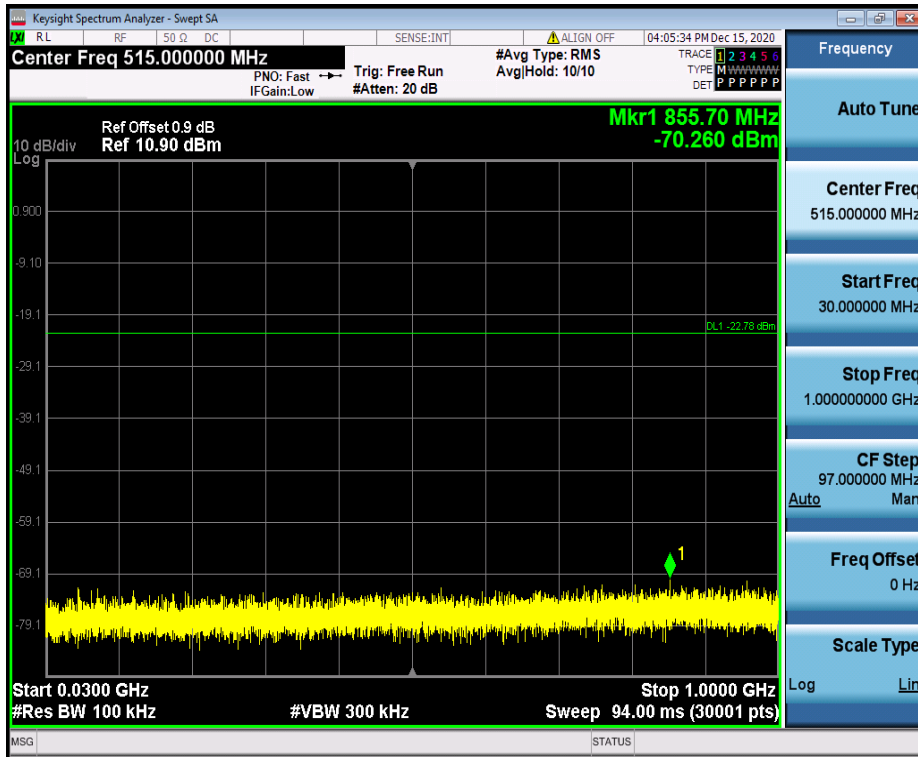
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-2.78	-2.78	---	PASS
			30~1000	30~1000	-70.26	<=-22.775	PASS
			1000~26500	1000~26500	-50.217	<=-22.775	PASS
		2442	Reference	-3.24	-3.24	---	PASS
			30~1000	30~1000	-70.286	<=-23.237	PASS
			1000~26500	1000~26500	-48.843	<=-23.237	PASS
		2480	Reference	-3.78	-3.78	---	PASS
			30~1000	30~1000	-70.161	<=-23.775	PASS
			1000~26500	1000~26500	-49.834	<=-23.775	PASS

8.5.2 Test Graphs

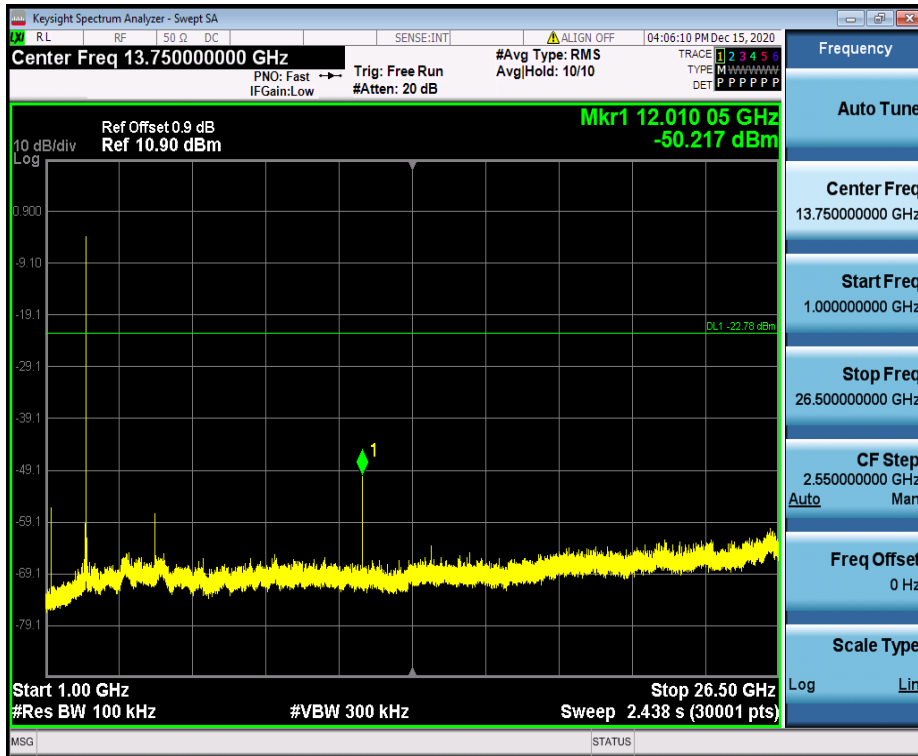


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BLE_1M_Ant1_2402_30~1000



BLE_1M_Ant1_2402_1000~26500



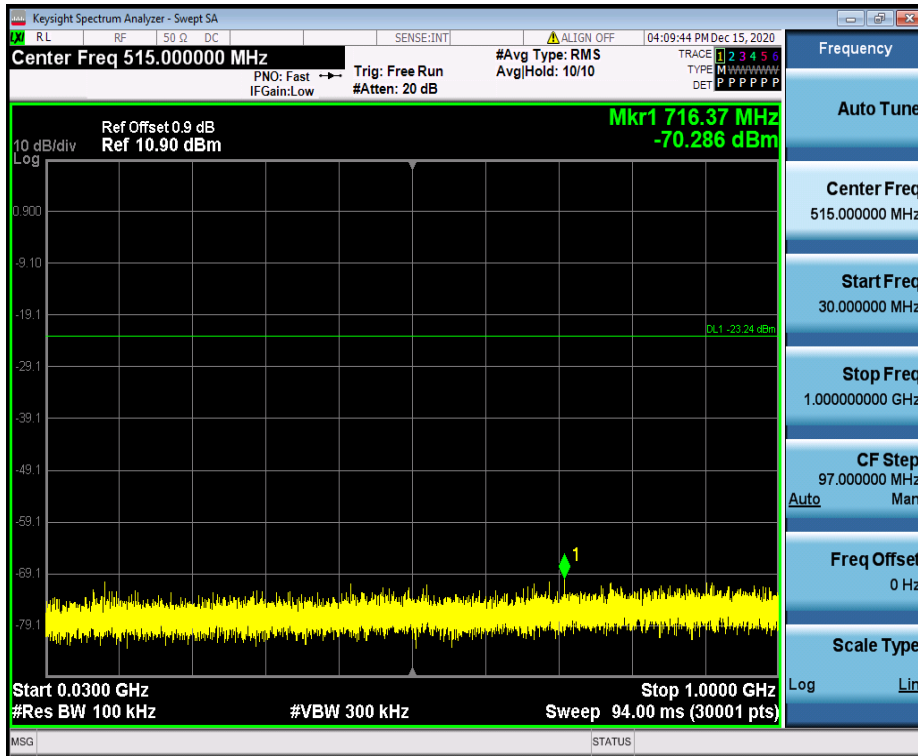
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BLE_1M_Ant1_2442_0~Reference



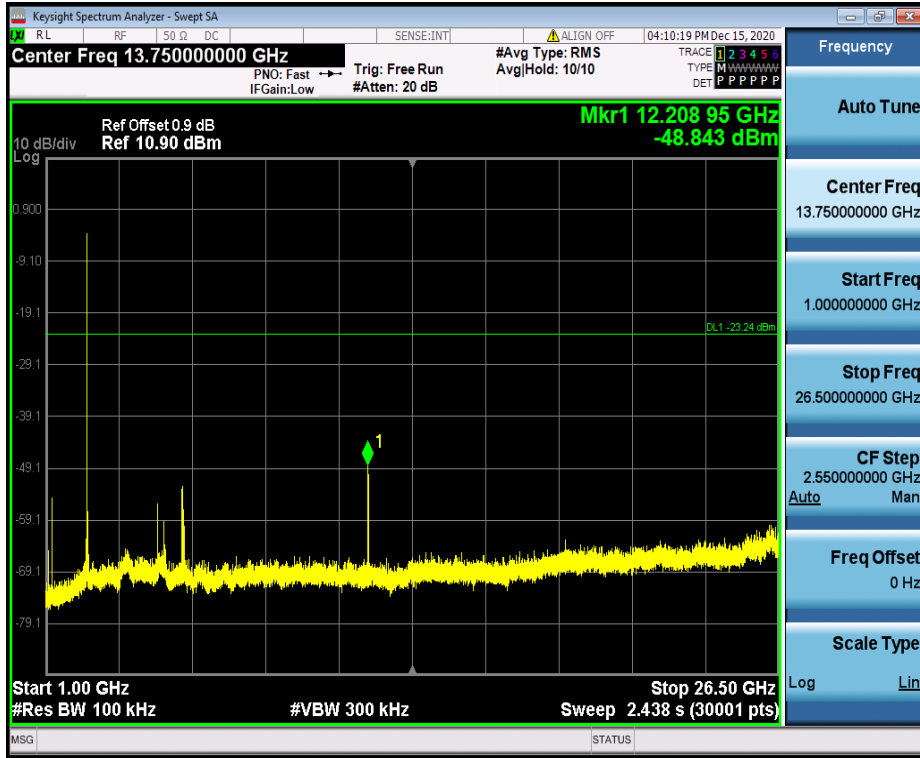
BLE_1M_Ant1_2442_30~1000



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BLE_1M_Ant1_2442_1000~26500



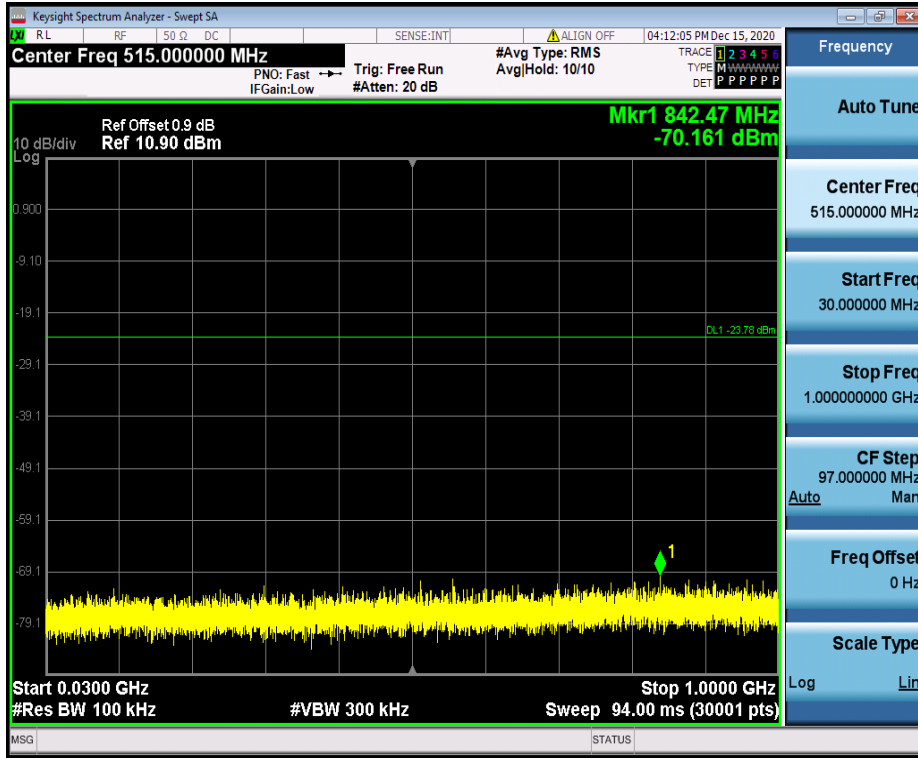
BLE_1M_Ant1_2480_0~Reference



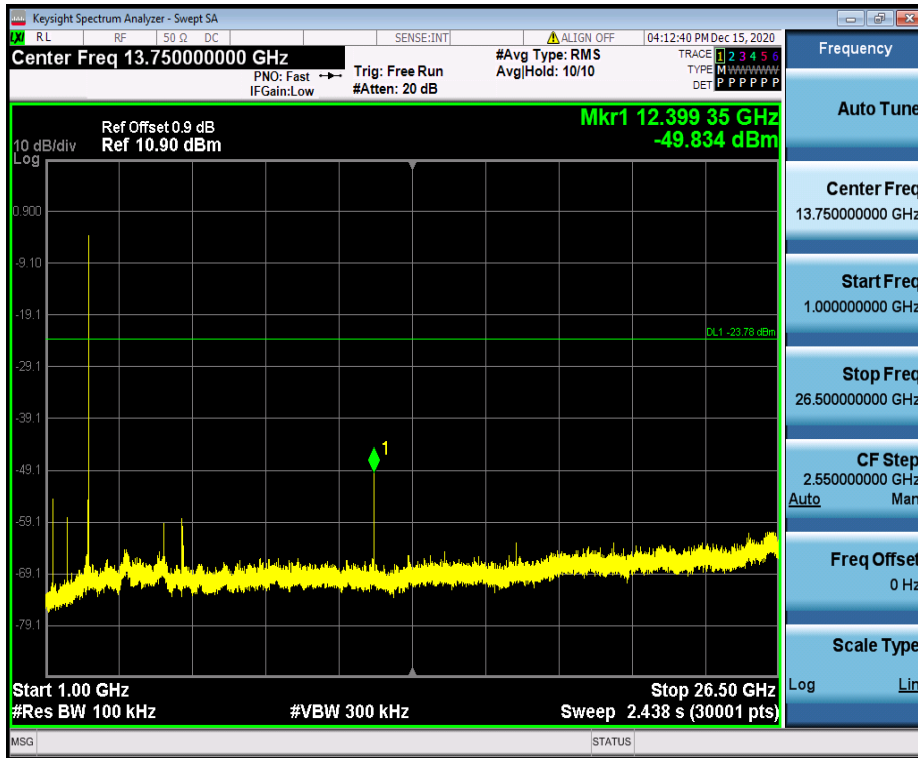
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BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



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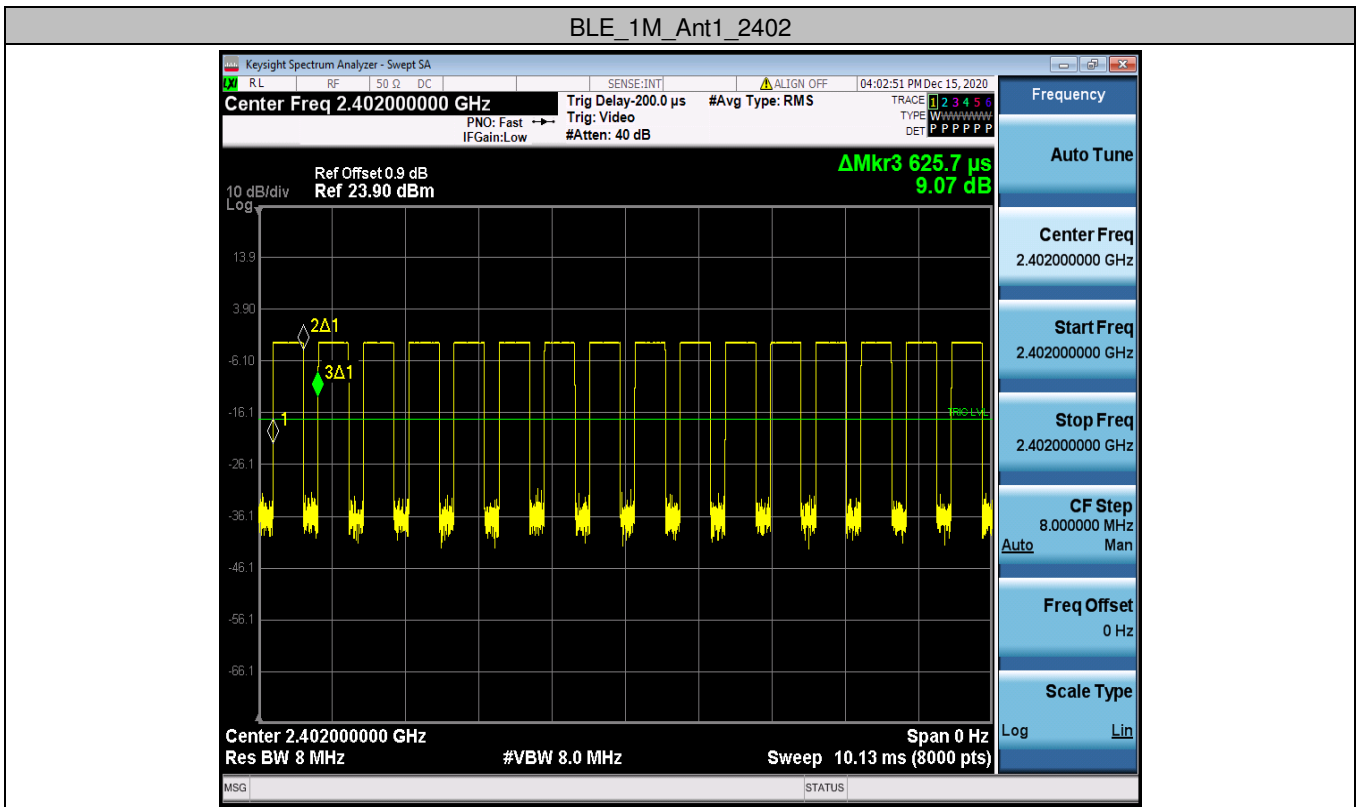
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8.6 Appendix F: Duty Cycle

8.6.1 Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
BLE_1M	Ant1	2402	0.42	0.63	67.41
		2442	0.42	0.63	67.60
		2480	0.42	0.63	67.60

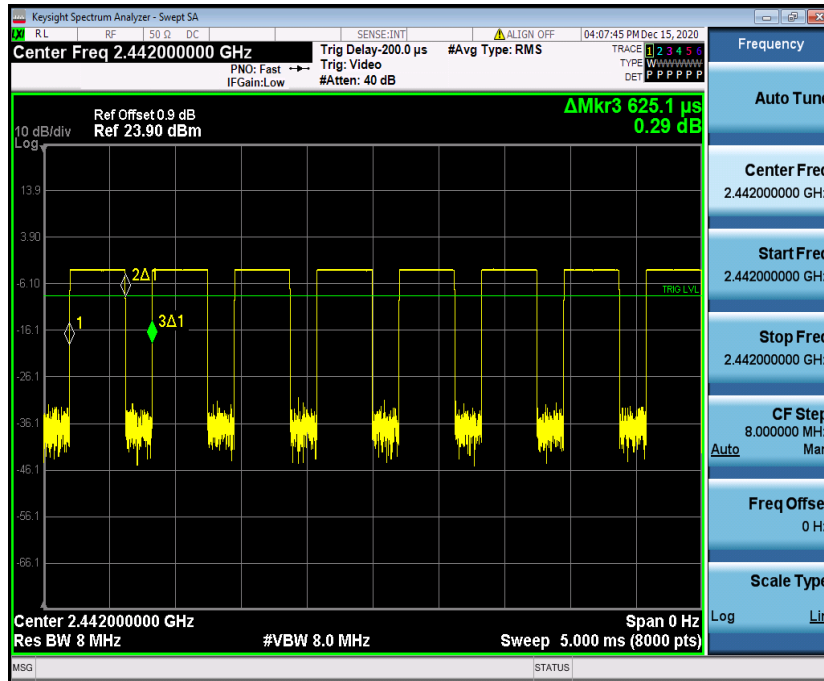
8.6.2 Test Graphs



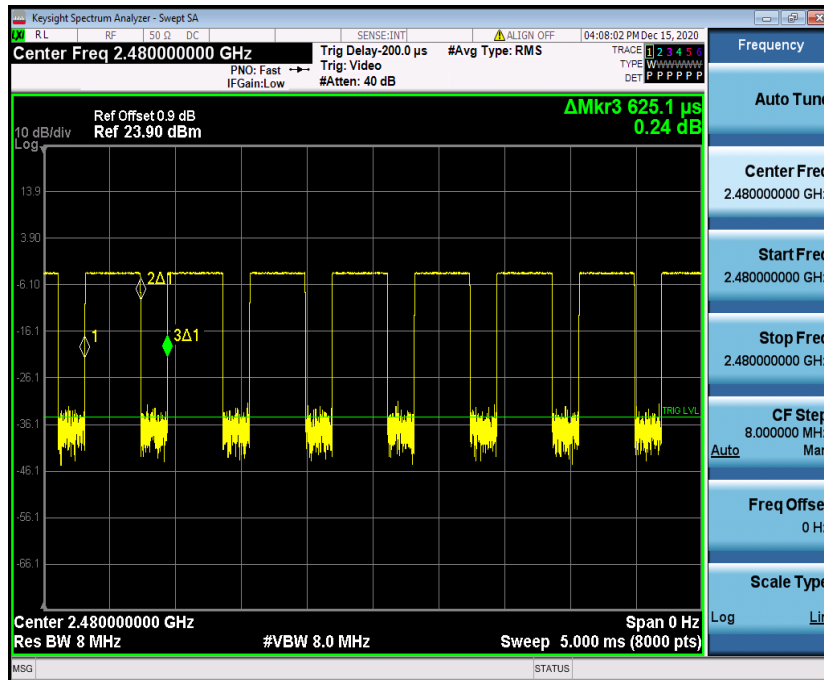
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BLE_1M_Ant1_2442



BLE_1M_Ant1_2480



--End of Report--



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