

TEST REPORT

Application No.: GZEM2009015129CR
Applicant: Harman International Industries, Incorporated
Address of Applicant: 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Manufacturer: Harman International Industries, Incorporated
Address of Manufacturer: 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Factory: 1. Guoguang Electric Co., Ltd.
 2. GUOGUANG ELECTRIC (VIET NAM) COMPANY LIMITED
Address of Factory: 1. No.8 Jinghu Road, Xinya Street, Huadu Reg, Guangzhou, China
 2. Lot No.12 in Dien Nam-Dien Ngoc Industrial Zone, Dien Ban Town, Quang Nam Province, Vietnam

Equipment Under Test (EUT):

FCC ID: APIBASSPROGO

EUT Name: IN-VEHICLE BLUETOOTH SPEAKER

Model No.: BASSPRO GO

Trade Mark: JBL

Standard(s): 47 CFR Part 15, Subpart C 15.247

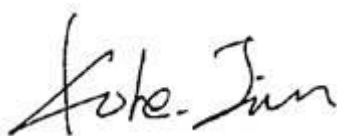
Date of Receipt: 2020-09-16

Date of Test: 2020-09-25 to 2020-09-28

Date of Issue: 2020-10-15

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		2020-10-15		Original

Authorized for issue by:			
Tested By	 Curry_Wu /Project Engineer	2020-09-25 to 2020-09-28	Date
Checked By	 Ricky Liu /Reviewer	2020-10-15	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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4 General Information

4.1 Details of E.U.T.

Power Supply: DC 10.8V rechargeable battery as below:
 Model: HFR-SC42300C09H210
 Rated: DC 10.8 V, 2900 mAh

Test Voltage: DC 10.8V

Antenna Gain: 2.28dBi

Antenna Type: Integral Antenna

Channel Spacing: 2MHz

Modulation Type: GFSK

Number of Channels: 40

Operation Frequency: 2402MHz to 2480MHz

Sample No.: A1

Test software: Bluetest 3

Power setting: Default

Hardware version: REV:0.6

Software version: V1.4

4.2 Environment Parameter

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Value	Temperature(°C)	Voltage(V)
TNVN	25	10.8
TLVN	-20	10.8
THVN	55	10.8

Note:

VN: Normal Voltage

TN: Normal Temperature

TL: Low Extreme Test Temperature

TH: High Extreme Test Temperature



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Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

Using test software was control EUT work in continuous transmitter and receiver mode and select test channel as below:

Channel	Frequency
The lowest channel (CH0)	2402MHz
The middle channel (CH20)	2442MHz
The highest channel (CH39)	2480MHz



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4.3 Description of Support Units

The EUT has been tested as an independent unit.

4.4 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	$\pm 3\%$

4.5 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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4.6 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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4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None



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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	2019-11-18	2020-11-17
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

Conducted Peak Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2019-11-18	2020-11-17
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

Power Spectrum Density					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2019-11-18	2020-11-17
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

Conducted Band Edges Measurement					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2019-11-18	2020-11-17
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

Conducted Spurious Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2019-11-18	2020-11-17
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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MI CABLE	SGS-EMC	0.8M	EMC2137	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	2019-11-18	2020-11-17
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	2019-11-18	2020-11-17
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2019-11-18	2020-11-17
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

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



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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	2019-11-18	2020-11-17
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	2019-11-18	2020-11-17
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2019-11-18	2020-11-17
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
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 & 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 2.28dBi.

Antenna photo please refer to integral photo.



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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

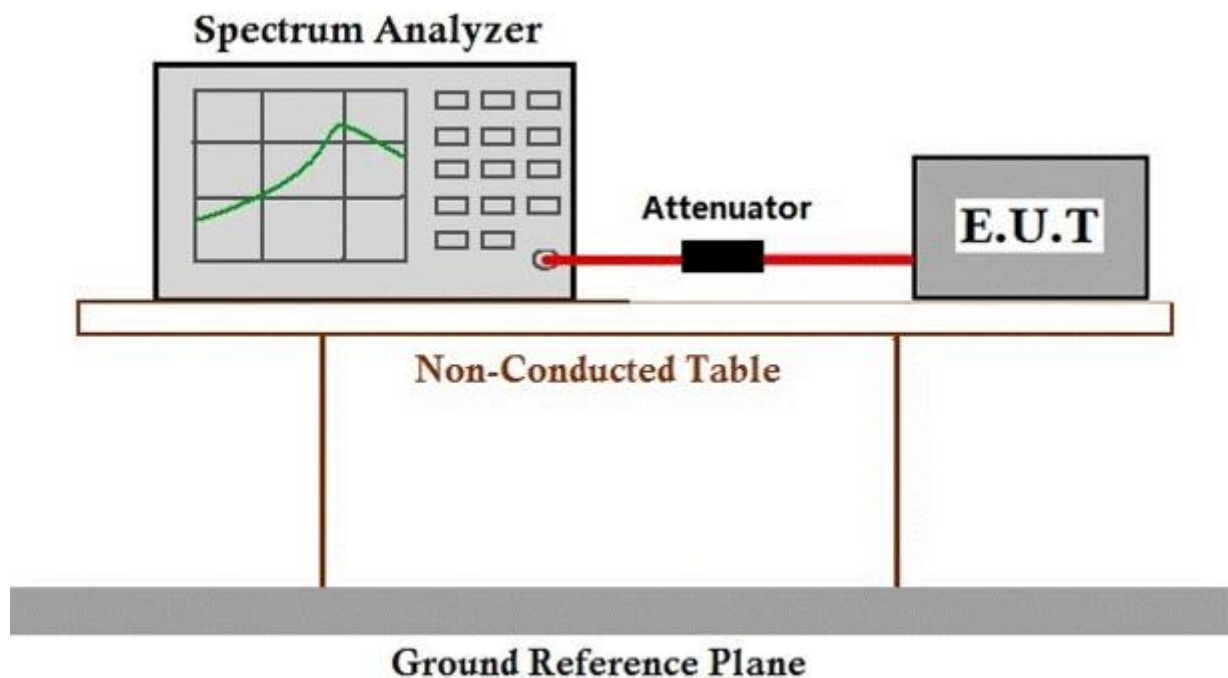
7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C Humidity: 65.7 % RH Atmospheric Pressure: 1020 mbar

Test Mode: d: 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



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

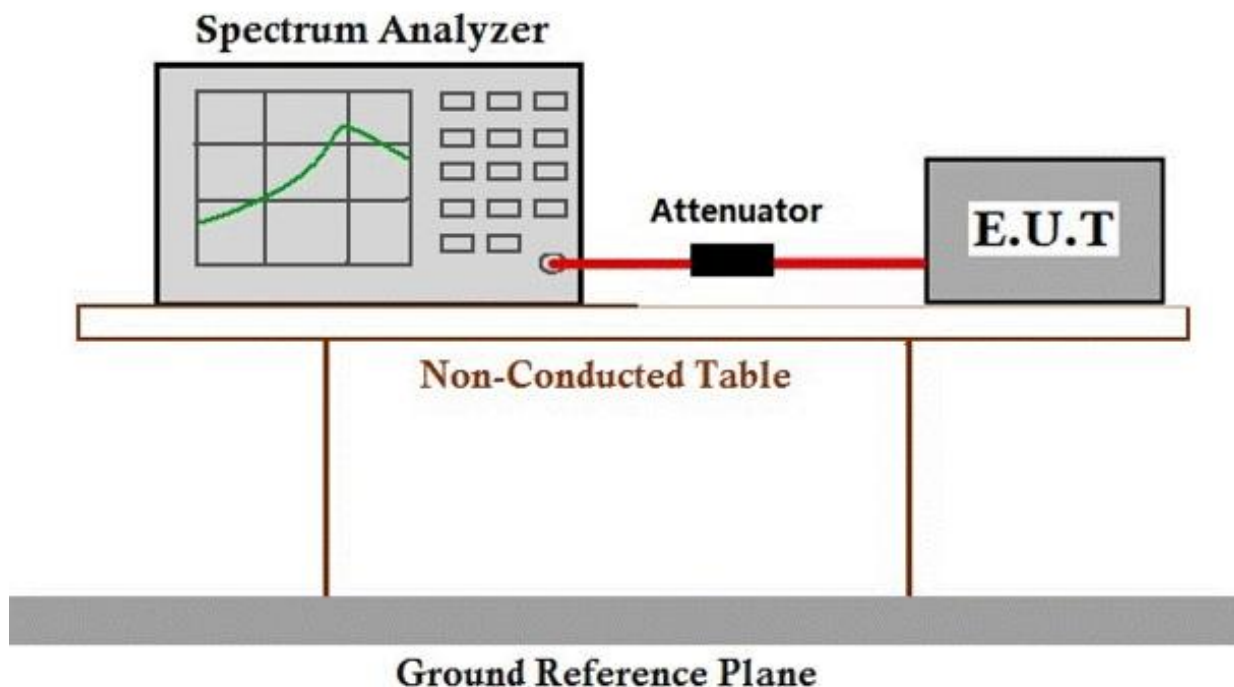
7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C Humidity: 65.7 % RH Atmospheric Pressure: 1020 mbar

Test Mode: d: 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: $\leq 8\text{dBm}$ in any 3 kHz band during any time interval of continuous transmission

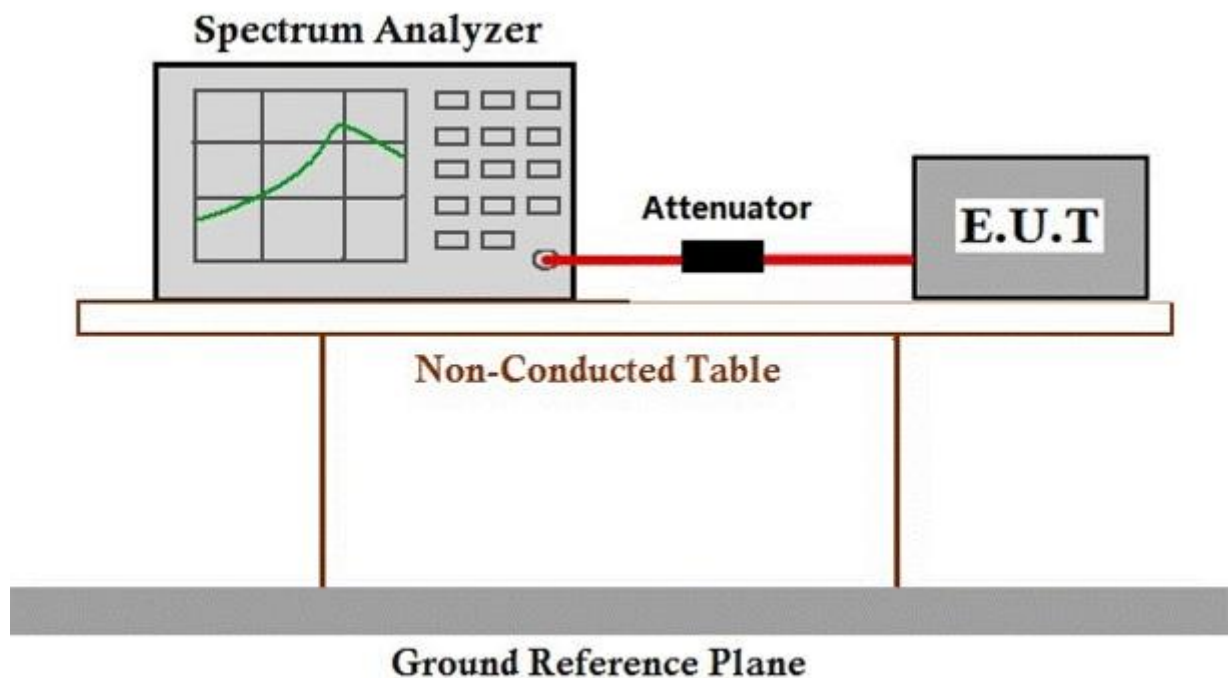
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C Humidity: 65.7 % RH Atmospheric Pressure: 1020 mbar

Test Mode: d: 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

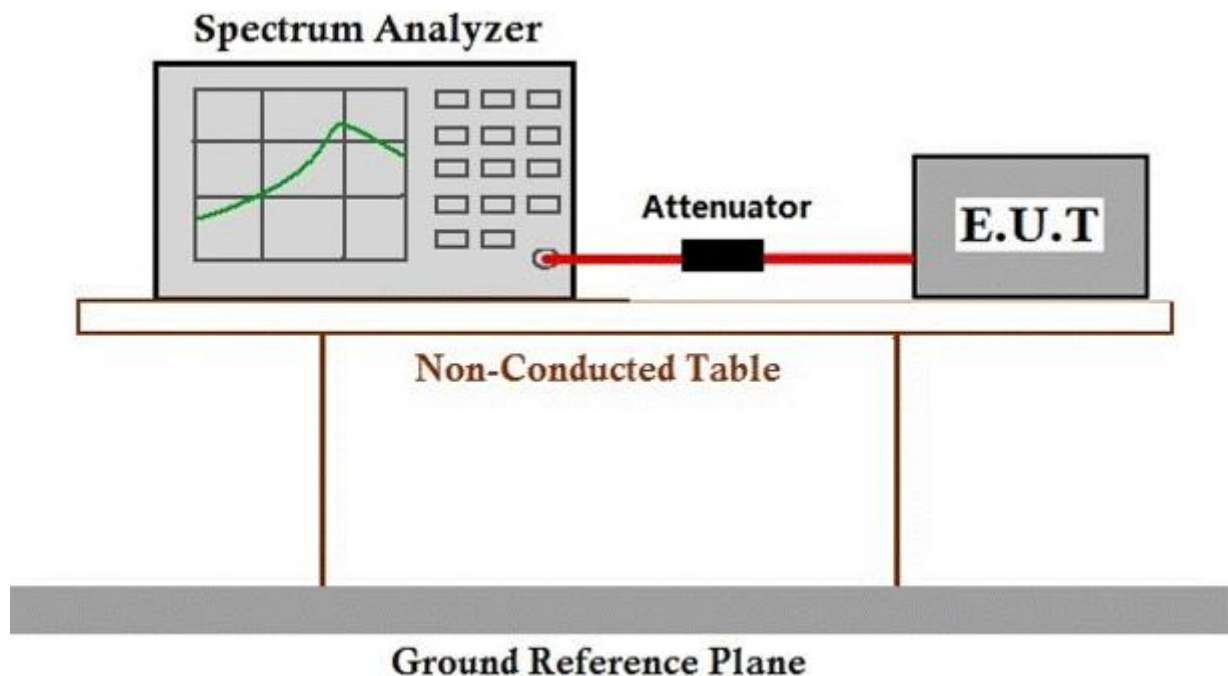
7.4 Conducted Band Edges Measurement

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: 24.6 °C **Humidity:** 65.7 % RH **Atmospheric Pressure:** 1020 mbar
Test Mode: d: 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))

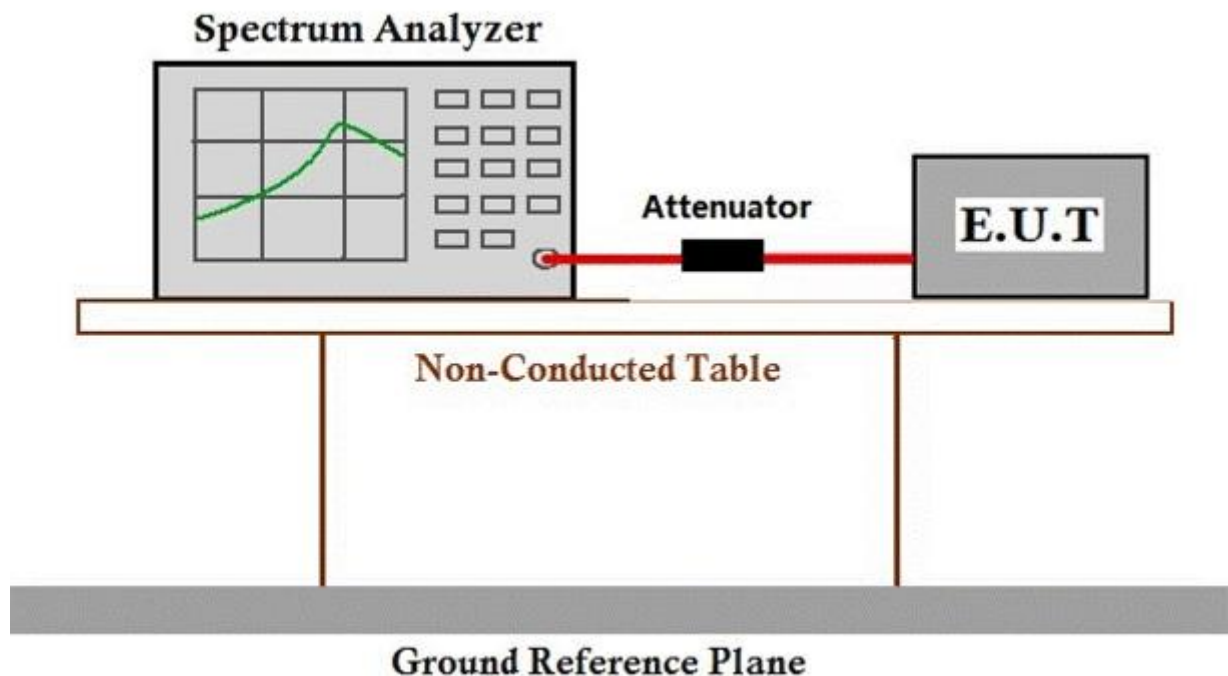
7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C Humidity: 65.7 % RH Atmospheric Pressure: 1020 mbar

Test Mode: d: 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.

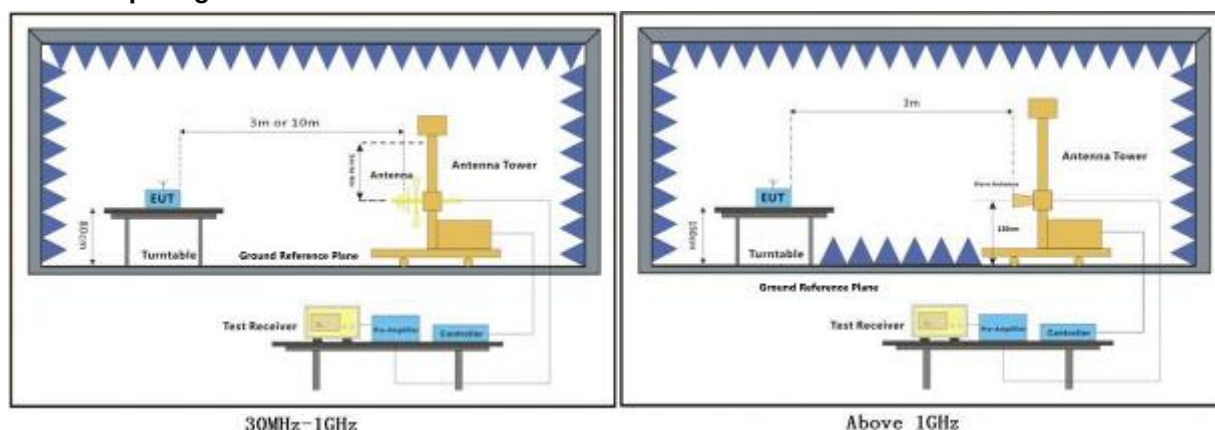
7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C Humidity: 63.3 % RH Atmospheric Pressure: 1020 mbar

Test Mode: d: 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.

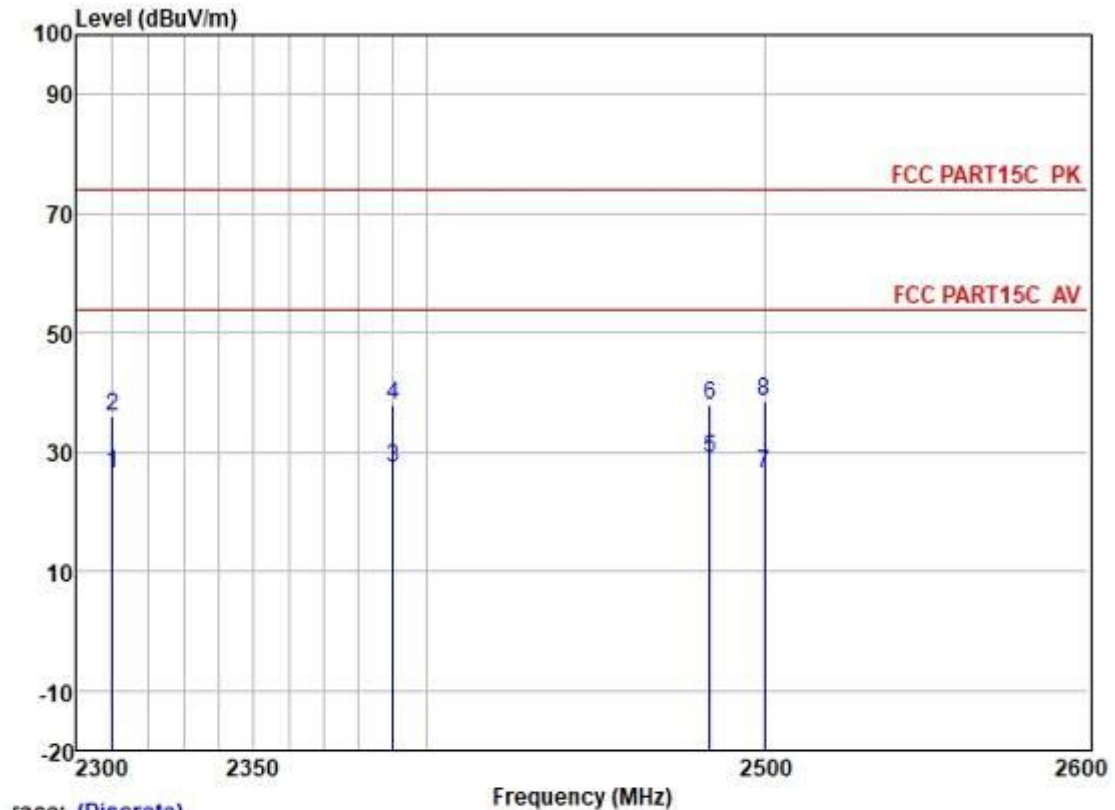
Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor



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



Trace: (Discrete)

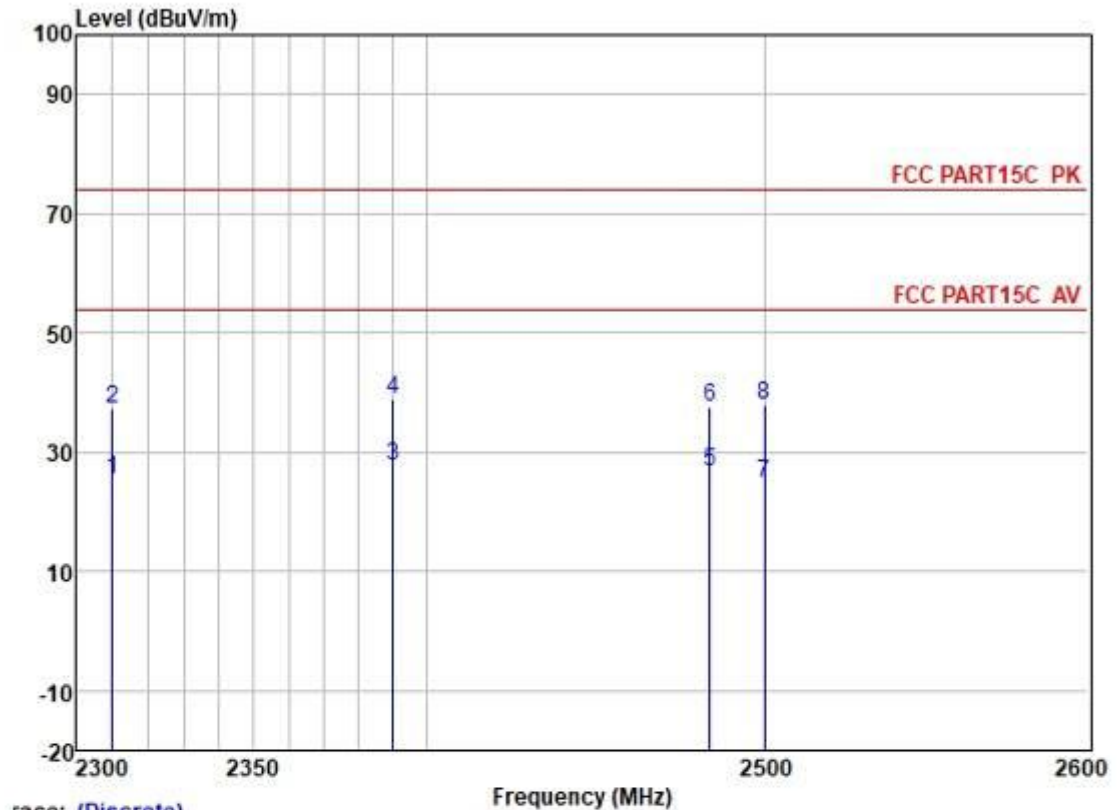
	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2310.000	33.43	27.15	3.32	37.62	26.28	54.00	-27.72	HORIZONTAL Average
2	2310.000	43.30	27.15	3.32	37.62	36.15	74.00	-37.85	HORIZONTAL Peak
3	2390.000	34.12	27.33	3.48	37.59	27.34	54.00	-26.66	HORIZONTAL Average
4	2390.000	44.72	27.33	3.48	37.59	37.94	74.00	-36.06	HORIZONTAL Peak
5	2483.500	35.45	27.48	3.53	37.57	28.89	54.00	-25.11	HORIZONTAL Average
6	2483.500	44.53	27.48	3.53	37.57	37.97	74.00	-36.03	HORIZONTAL Peak
7	2500.000	33.20	27.50	3.40	37.56	26.54	54.00	-27.46	HORIZONTAL Average
8	2500.000	45.31	27.50	3.40	37.56	38.65	74.00	-35.35	HORIZONTAL Peak



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



Trace: (Discrete)

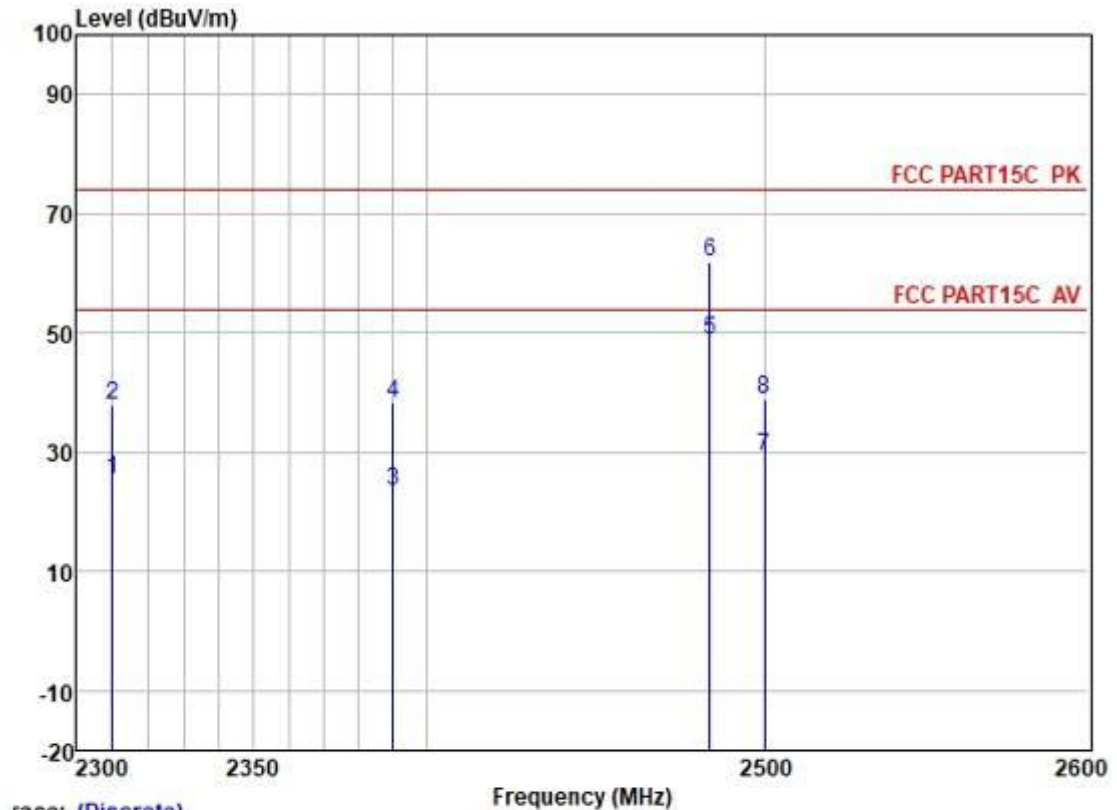
	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2310.000	32.71	27.15	3.32	37.62	25.56	54.00	-28.44	VERTICAL Average
2	2310.000	44.50	27.15	3.32	37.62	37.35	74.00	-36.65	VERTICAL Peak
3	2390.000	34.41	27.33	3.48	37.59	27.63	54.00	-26.37	VERTICAL Average
4	2390.000	45.71	27.33	3.48	37.59	38.93	74.00	-35.07	VERTICAL Peak
5	2483.500	33.41	27.48	3.53	37.57	26.85	54.00	-27.15	VERTICAL Average
6	2483.500	44.16	27.48	3.53	37.57	37.60	74.00	-36.40	VERTICAL Peak
7	2500.000	31.56	27.50	3.40	37.56	24.90	54.00	-29.10	VERTICAL Average
8	2500.000	44.43	27.50	3.40	37.56	37.77	74.00	-36.23	VERTICAL Peak



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



Trace: (Discrete)

	Read	Antenna	Cable	Preamplifier	Level	Limit	Over		
	Freq	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2310.000	32.51	27.15	3.32	37.62	25.36	54.00	-28.64	HORIZONTAL Average
2	2310.000	45.09	27.15	3.32	37.62	37.94	74.00	-36.06	HORIZONTAL Peak
3	2390.000	30.29	27.33	3.48	37.59	23.51	54.00	-30.49	HORIZONTAL Average
4	2390.000	44.97	27.33	3.48	37.59	38.19	74.00	-35.81	HORIZONTAL Peak
5	2483.500	55.27	27.48	3.53	37.57	48.71	54.00	-5.29	HORIZONTAL Average
6	2483.500	68.36	27.48	3.53	37.57	61.80	74.00	-12.20	HORIZONTAL Peak
7	2500.000	36.08	27.50	3.40	37.56	29.42	54.00	-24.58	HORIZONTAL Average
8	2500.000	45.59	27.50	3.40	37.56	38.93	74.00	-35.07	HORIZONTAL Peak



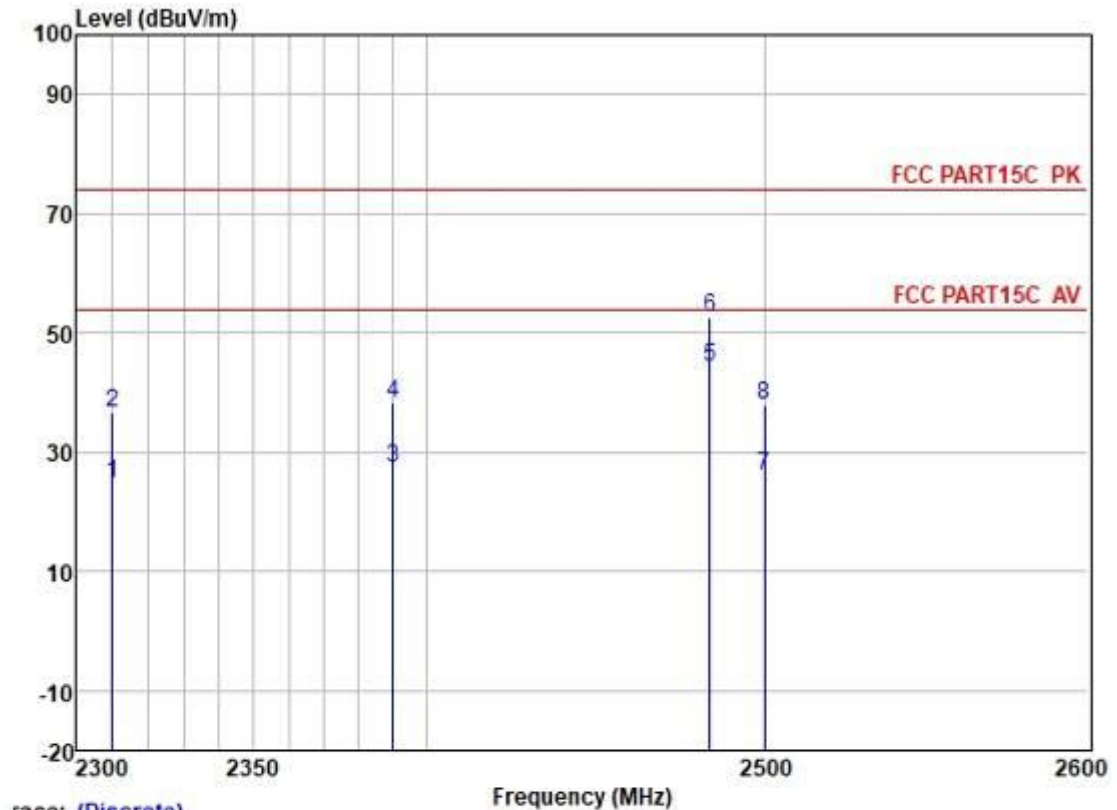
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Mode:d; Polarization:Vertical; Modulation:GFSK; ; Channel:High



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2310.000	31.37	27.15	3.32	36.94	24.90	54.00	-29.10	VERTICAL Average
2	2310.000	43.06	27.15	3.32	36.94	36.59	74.00	-37.41	VERTICAL Peak
3	2390.000	33.55	27.33	3.48	36.92	27.44	54.00	-26.56	VERTICAL Average
4	2390.000	44.44	27.33	3.48	36.92	38.33	74.00	-35.67	VERTICAL Peak
5	2483.500	50.21	27.48	3.53	36.90	44.32	54.00	-9.68	VERTICAL Average
6	2483.500	58.47	27.48	3.53	36.90	52.58	74.00	-21.42	VERTICAL Peak
7	2500.000	31.93	27.50	3.40	36.89	25.94	54.00	-28.06	VERTICAL Average
8	2500.000	43.98	27.50	3.40	36.89	37.99	74.00	-36.01	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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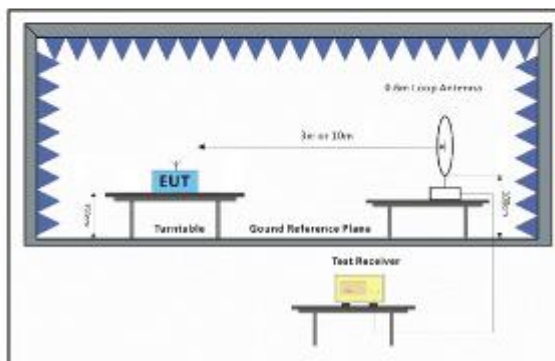
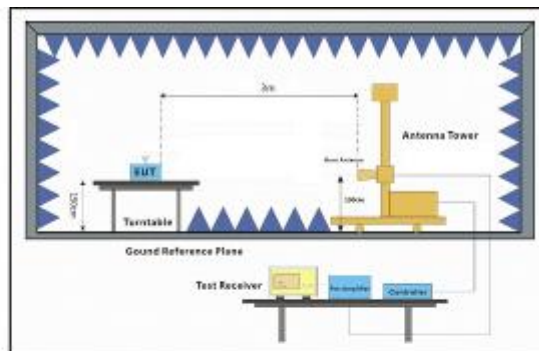
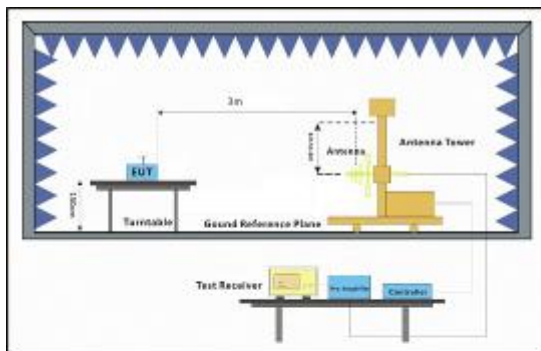
7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C Humidity: 63.2 % RH Atmospheric Pressure: 1020 mbar

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

7.7.2 Test Setup Diagram



7.7.3 Measurement Procedure and Data

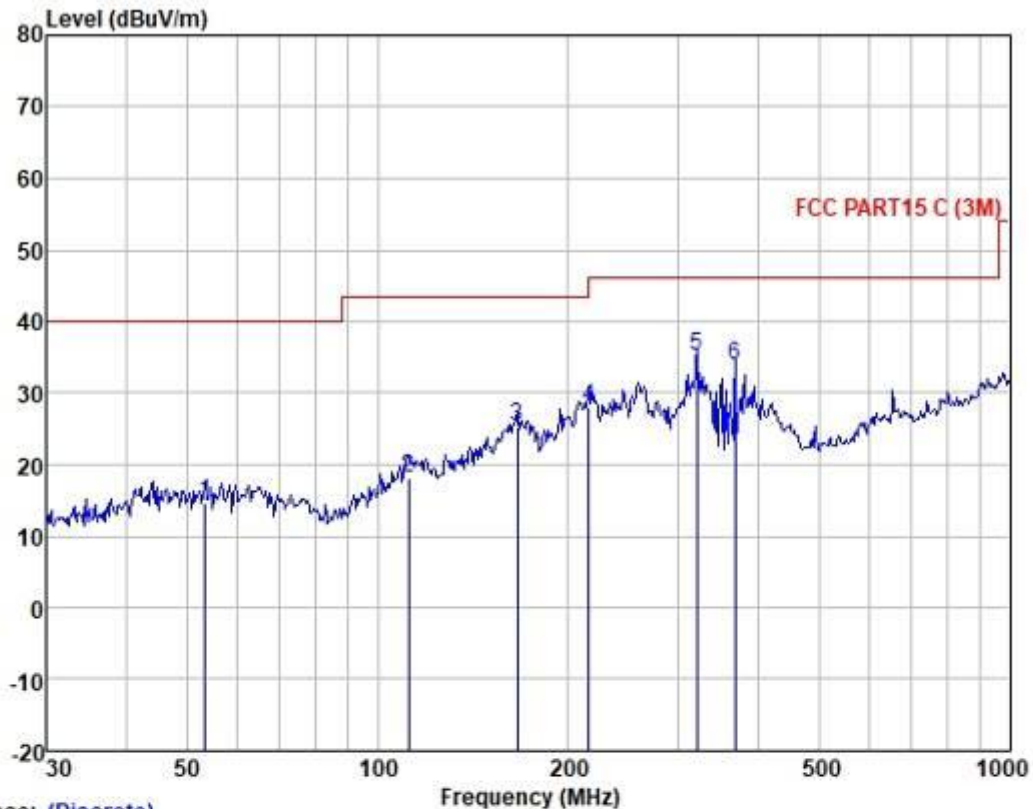
- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 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



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



Trace: (Discrete)

Site : SGS

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

Job :

Model :

Power :

Test Mode: BT

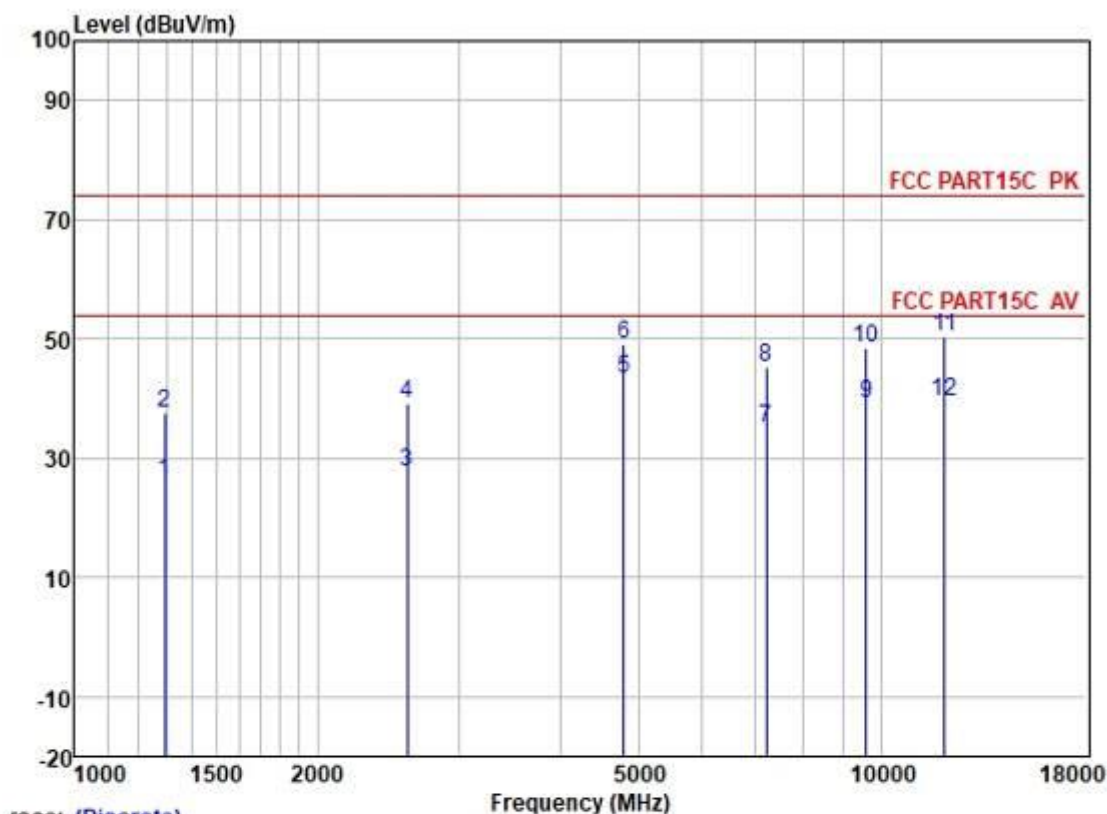
		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	53.318	26.67	13.86	1.25	27.17	14.61	40.00	-25.39	HORIZONTAL	QP
2	111.738	33.06	10.48	1.72	27.05	18.21	43.50	-25.29	HORIZONTAL	QP
3	166.651	36.54	13.37	2.21	26.78	25.34	43.50	-18.16	HORIZONTAL	QP
4	216.024	42.34	9.80	2.58	26.71	28.01	46.00	-17.99	HORIZONTAL	QP
5	319.937	44.64	14.30	3.01	26.66	35.29	46.00	-10.71	HORIZONTAL	QP
6	368.112	42.58	15.13	3.36	27.18	33.89	46.00	-12.11	HORIZONTAL	QP



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



Trace: (Discrete)

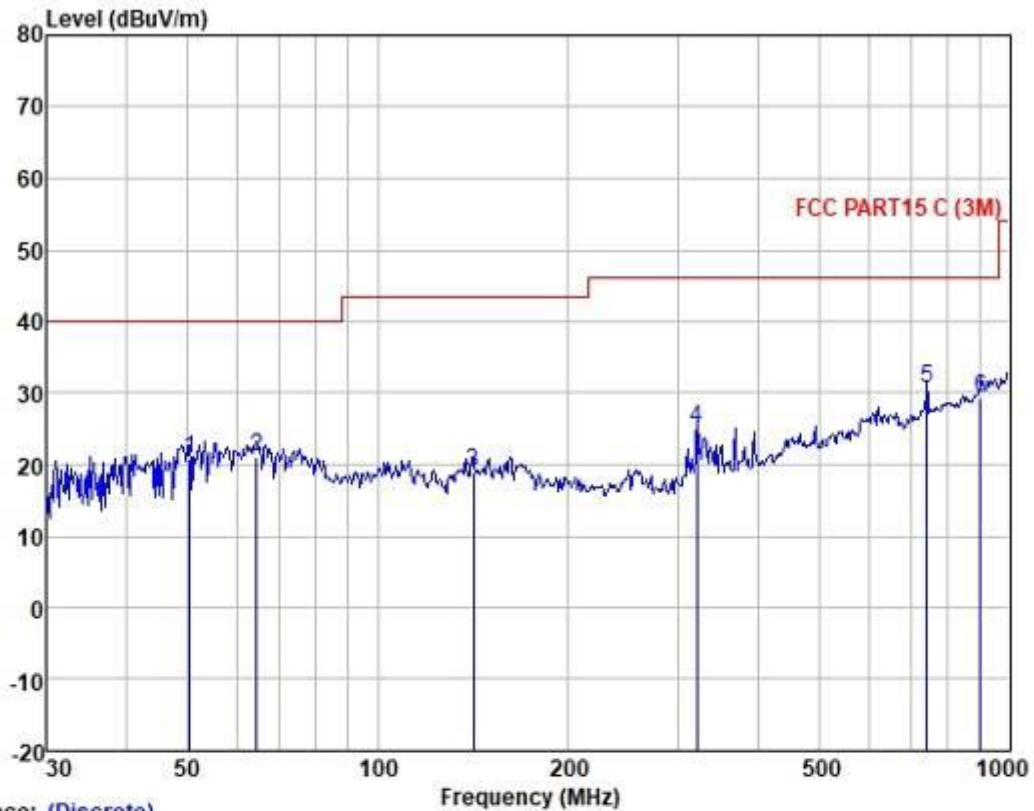
	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1293.359	36.58	25.18	2.57	38.31	26.02	54.00	-27.98	HORIZONTAL Average
2	1293.359	48.04	25.18	2.57	38.31	37.48	74.00	-36.52	HORIZONTAL Peak
3	2588.122	34.01	27.61	3.49	37.52	27.59	54.00	-26.41	HORIZONTAL Average
4	2588.122	45.61	27.61	3.49	37.52	39.19	74.00	-34.81	HORIZONTAL Peak
5	4804.419	43.24	31.42	5.40	36.83	43.23	54.00	-10.77	HORIZONTAL Average
6	4804.419	48.97	31.42	5.40	36.83	48.96	74.00	-25.04	HORIZONTAL Peak
7	7206.427	30.80	35.54	5.98	37.38	34.94	54.00	-19.06	HORIZONTAL Average
8	7206.427	41.10	35.54	5.98	37.38	45.24	74.00	-28.76	HORIZONTAL Peak
9	9608.524	31.05	38.37	7.07	37.42	39.07	54.00	-14.93	HORIZONTAL Average
10	9608.524	40.57	38.37	7.07	37.42	48.59	74.00	-25.41	HORIZONTAL Peak
11	12010.500	40.40	38.90	8.19	37.10	50.39	74.00	-23.61	HORIZONTAL Peak
12	12010.500	29.44	38.90	8.19	37.10	39.43	54.00	-14.57	HORIZONTAL Average



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



Trace: (Discrete)

Site : SGS

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

Job :

Model :

Power :

Test Mode: BT

	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	50.409	32.79	13.91	1.20	27.17	20.73	40.00	-19.27 VERTICAL	QP
2	64.433	34.20	12.83	1.29	27.15	21.17	40.00	-18.83 VERTICAL	QP
3	141.826	30.36	13.50	1.99	26.90	18.95	43.50	-24.55 VERTICAL	QP
4	319.937	34.52	14.30	3.01	26.66	25.17	46.00	-20.83 VERTICAL	QP
5	739.661	31.47	22.00	5.24	28.11	30.60	46.00	-15.40 VERTICAL	QP
6	900.147	27.63	23.30	6.25	27.85	29.33	46.00	-16.67 VERTICAL	QP



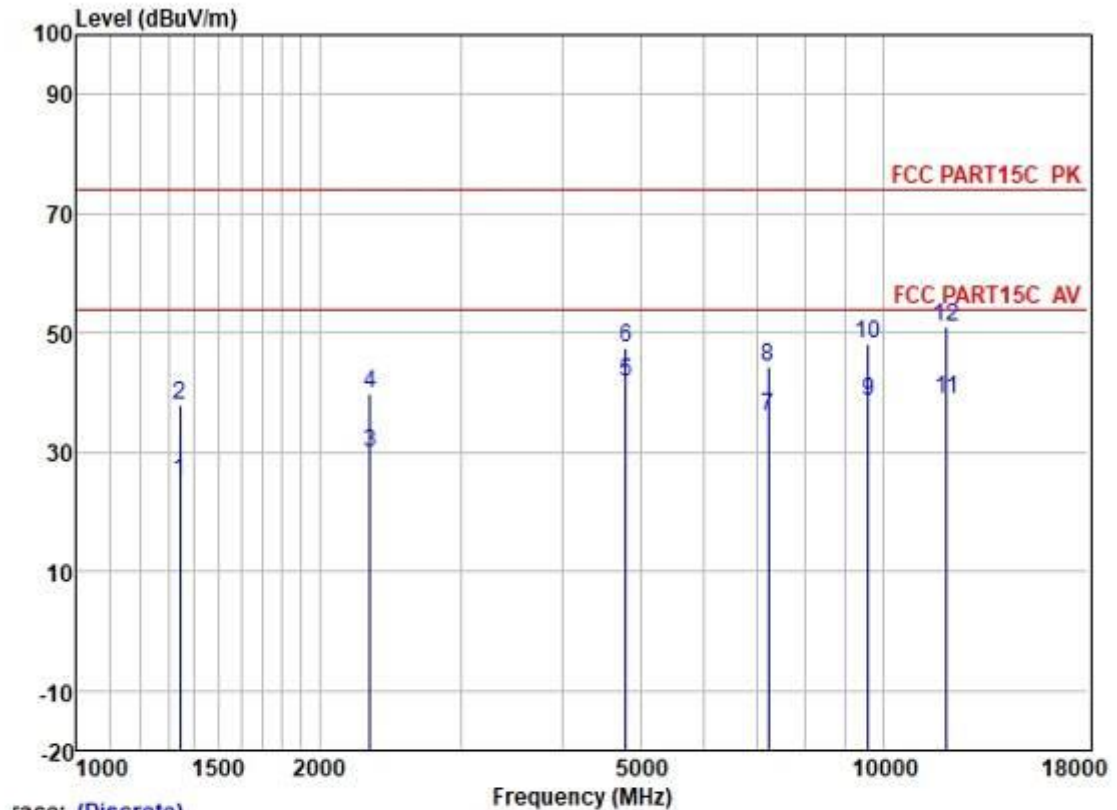
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Mode:d; Polarization:Vertical; Modulation:GFSK; ; Channel:Low



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	Pol/Phase	Remark
	MHz	Level	Factor	Loss	Factor	Line	Limit		
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1342.882	35.40	25.30	2.60	38.27	25.03	54.00	-28.97	VERTICAL Average
2	1342.882	48.25	25.30	2.60	38.27	37.88	74.00	-36.12	VERTICAL Peak
3	2312.219	36.95	27.15	3.32	37.62	29.80	54.00	-24.20	VERTICAL Average
4	2312.219	46.83	27.15	3.32	37.62	39.68	74.00	-34.32	VERTICAL Peak
5	4804.946	41.73	31.42	5.40	36.83	41.72	54.00	-12.28	VERTICAL Average
6	4804.946	47.55	31.42	5.40	36.83	47.54	74.00	-26.46	VERTICAL Peak
7	7206.396	31.84	35.54	5.98	37.38	35.98	54.00	-18.02	VERTICAL Average
8	7206.396	40.26	35.54	5.98	37.38	44.40	74.00	-29.60	VERTICAL Peak
9	9608.244	30.48	38.37	7.07	37.42	38.50	54.00	-15.50	VERTICAL Average
10	9608.244	40.09	38.37	7.07	37.42	48.11	74.00	-25.89	VERTICAL Peak
11	12010.310	28.80	38.90	8.19	37.10	38.79	54.00	-15.21	VERTICAL Average
12	12010.310	41.19	38.90	8.19	37.10	51.18	74.00	-22.82	VERTICAL Peak



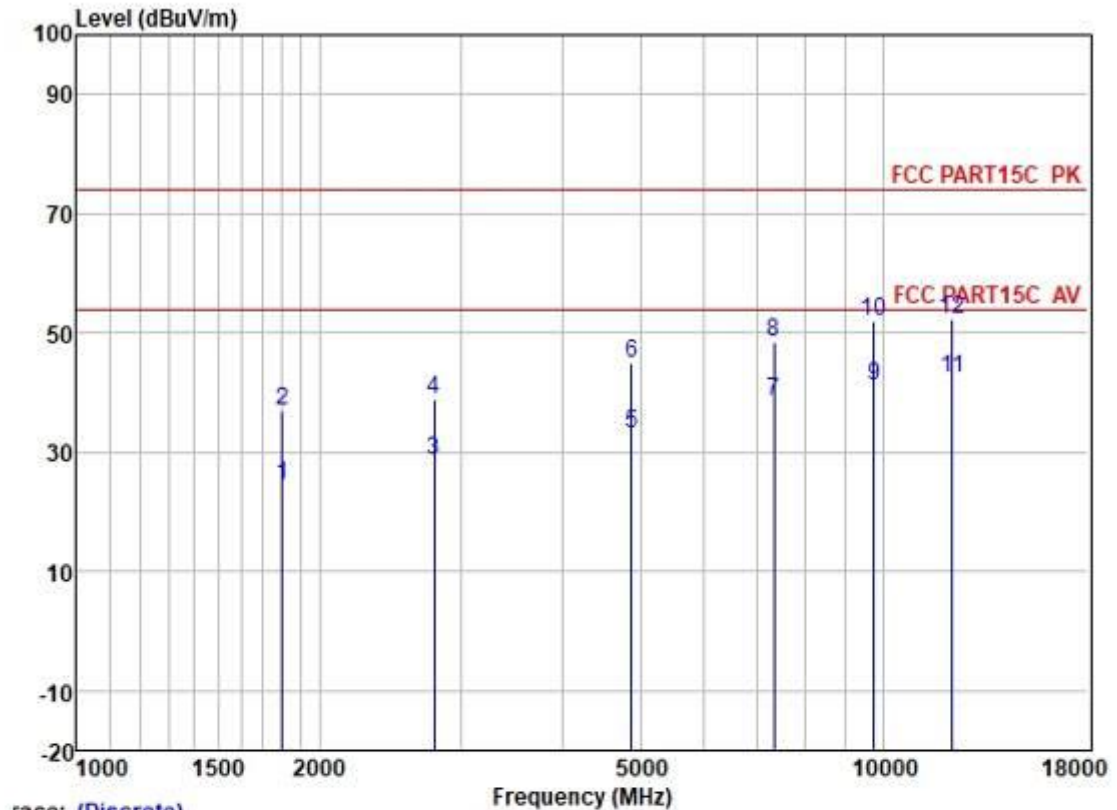
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Mode:d; Polarization:Horizontal; Modulation:GFSK; ; Channel:middle



Trace: (Discrete)

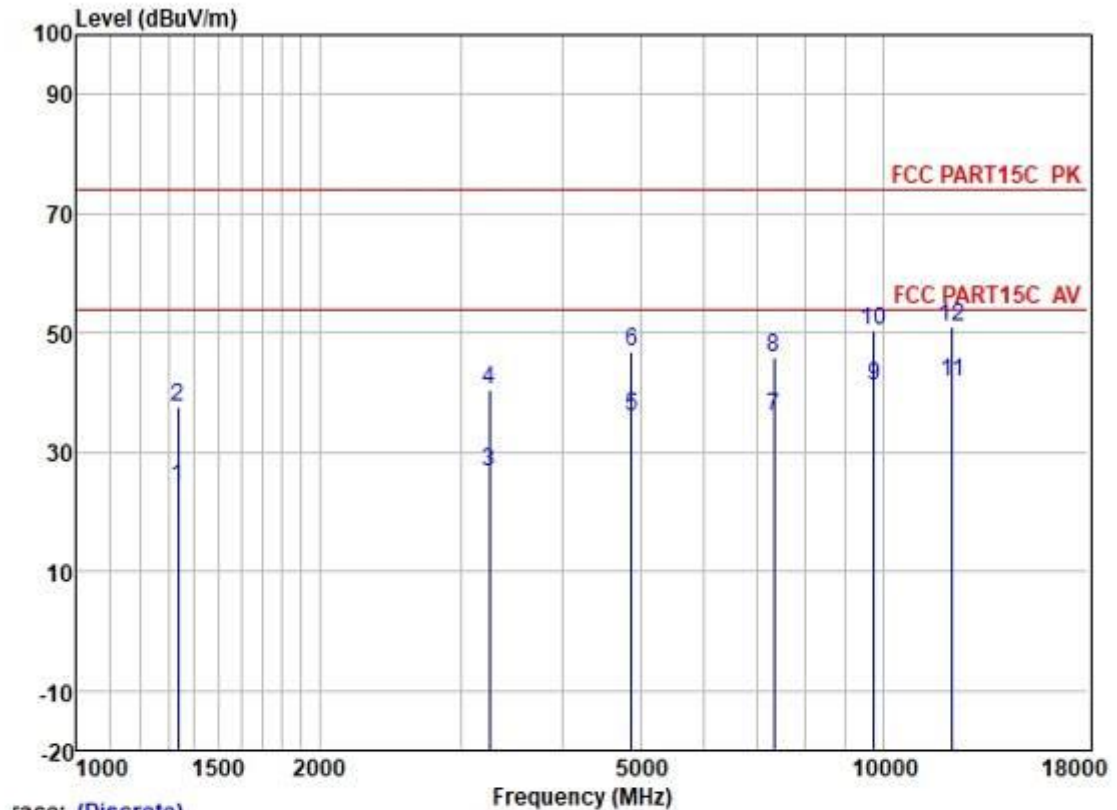
	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	Pol/Phase	Remark
	MHz	Level	Factor	Loss	Factor	Line	Limit		
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1798.127	33.28	25.94	3.00	37.81	24.41	54.00	-29.59	HORIZONTAL Average
2	1798.127	45.87	25.94	3.00	37.81	37.00	74.00	-37.00	HORIZONTAL Peak
3	2774.030	34.33	28.08	3.68	37.43	28.66	54.00	-25.34	HORIZONTAL Average
4	2774.030	44.71	28.08	3.68	37.43	39.04	74.00	-34.96	HORIZONTAL Peak
5	4884.885	32.87	31.56	5.52	36.84	33.11	54.00	-20.89	HORIZONTAL Average
6	4884.885	44.57	31.56	5.52	36.84	44.81	74.00	-29.19	HORIZONTAL Peak
7	7326.833	33.89	36.00	6.13	37.43	38.59	54.00	-15.41	HORIZONTAL Average
8	7326.833	43.68	36.00	6.13	37.43	48.38	74.00	-25.62	HORIZONTAL Peak
9	9768.972	33.05	38.53	7.01	37.41	41.18	54.00	-12.82	HORIZONTAL Average
10	9768.972	43.73	38.53	7.01	37.41	51.86	74.00	-22.14	HORIZONTAL Peak
11	12210.800	32.68	38.74	8.08	37.00	42.50	54.00	-11.50	HORIZONTAL Average
12	12210.800	42.50	38.74	8.08	37.00	52.32	74.00	-21.68	HORIZONTAL Peak



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



Trace: (Discrete)

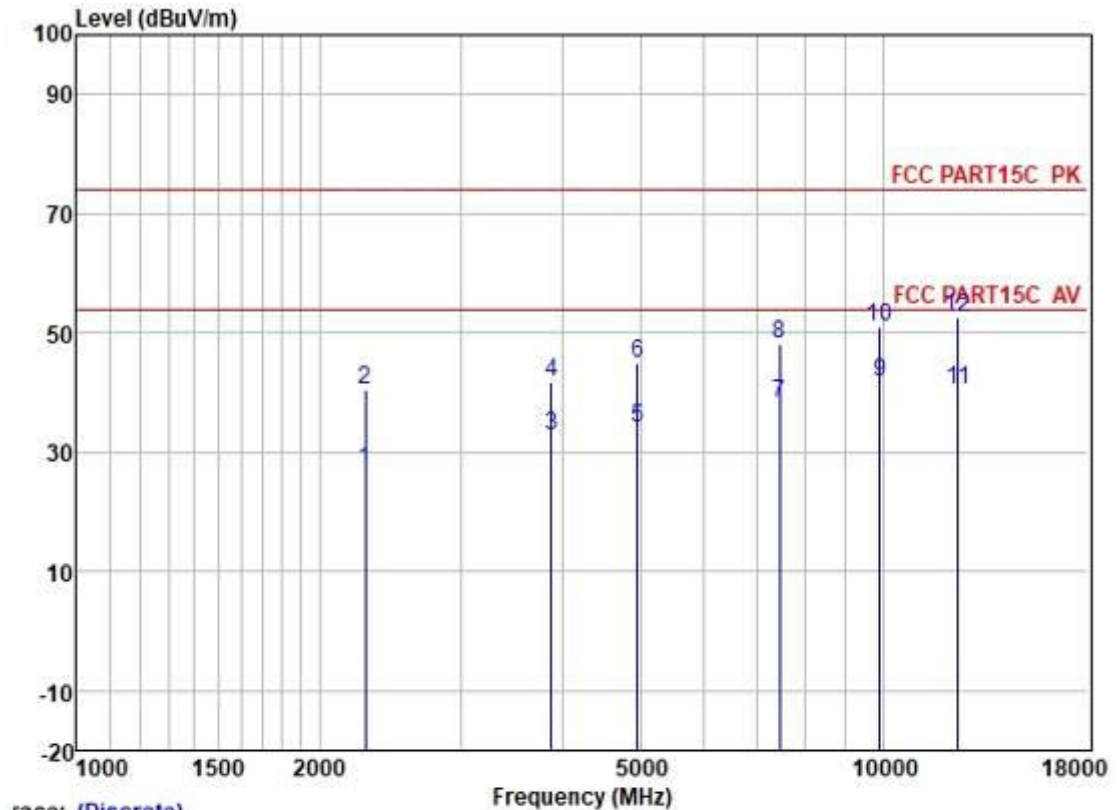
	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	Pol/Phase	Remark
	MHz	Level	Factor	Loss	Factor	Line	Limit		
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1335.141	34.56	25.28	2.60	38.29	24.15	54.00	-29.85	VERTICAL Average
2	1335.141	48.01	25.28	2.60	38.29	37.60	74.00	-36.40	VERTICAL Peak
3	3252.005	31.21	28.68	4.03	37.06	26.86	54.00	-27.14	VERTICAL Average
4	3252.005	44.91	28.68	4.03	37.06	40.56	74.00	-33.44	VERTICAL Peak
5	4884.975	35.84	31.56	5.52	36.84	36.08	54.00	-17.92	VERTICAL Average
6	4884.975	46.79	31.56	5.52	36.84	47.03	74.00	-26.97	VERTICAL Peak
7	7326.265	31.20	36.00	6.13	37.43	35.90	54.00	-18.10	VERTICAL Average
8	7326.265	41.21	36.00	6.13	37.43	45.91	74.00	-28.09	VERTICAL Peak
9	9768.852	32.96	38.53	7.01	37.41	41.09	54.00	-12.91	VERTICAL Average
10	9768.852	42.28	38.53	7.01	37.41	50.41	74.00	-23.59	VERTICAL Peak
11	12210.530	32.04	38.74	8.08	37.00	41.86	54.00	-12.14	VERTICAL Average
12	12210.530	41.25	38.74	8.08	37.00	51.07	74.00	-22.93	VERTICAL Peak



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



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2279.044	34.41	27.03	3.28	37.63	27.09	54.00	-26.91	HORIZONTAL Average
2	2279.044	47.76	27.03	3.28	37.63	40.44	74.00	-33.56	HORIZONTAL Peak
3	3879.027	35.24	29.66	4.60	36.83	32.67	54.00	-21.33	HORIZONTAL Average
4	3879.027	44.25	29.66	4.60	36.83	41.68	74.00	-32.32	HORIZONTAL Peak
5	4960.041	33.47	31.65	5.65	36.84	33.93	54.00	-20.07	HORIZONTAL Average
6	4960.041	44.61	31.65	5.65	36.84	45.07	74.00	-28.93	HORIZONTAL Peak
7	7440.788	33.29	36.27	6.22	37.47	38.31	54.00	-15.69	HORIZONTAL Average
8	7440.788	43.06	36.27	6.22	37.47	48.08	74.00	-25.92	HORIZONTAL Peak
9	9920.164	33.68	38.65	6.96	37.40	41.89	54.00	-12.11	HORIZONTAL Average
10	9920.164	42.94	38.65	6.96	37.40	51.15	74.00	-22.85	HORIZONTAL Peak
11	12400.800	30.66	38.57	7.97	36.88	40.32	54.00	-13.68	HORIZONTAL Average
12	12400.800	42.98	38.57	7.97	36.88	52.64	74.00	-21.36	HORIZONTAL Peak



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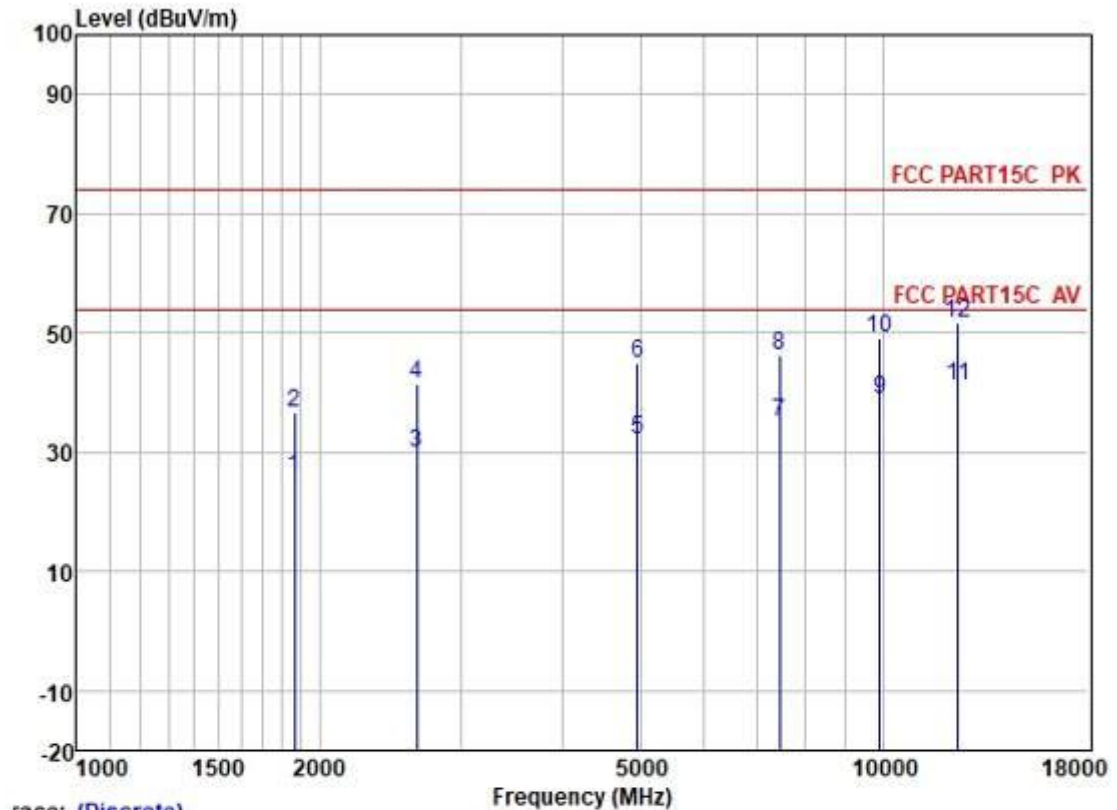
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Mode:d; Polarization:Vertical; Modulation:GFSK; ; Channel:High



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	Pol/Phase	Remark
	MHz	Level	Factor	Loss	Factor	Line	Limit		
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1866.977	34.66	26.01	2.93	37.77	25.83	54.00	-28.17	Average
2	1866.977	45.57	26.01	2.93	37.77	36.74	74.00	-37.26	Peak
3	2641.019	36.21	27.70	3.53	37.49	29.95	54.00	-24.05	Average
4	2641.019	47.59	27.70	3.53	37.49	41.33	74.00	-32.67	Peak
5	4960.668	31.82	31.65	5.65	36.84	32.28	54.00	-21.72	Average
6	4960.668	44.45	31.65	5.65	36.84	44.91	74.00	-29.09	Peak
7	7440.763	30.08	36.27	6.22	37.47	35.10	54.00	-18.90	Average
8	7440.763	41.34	36.27	6.22	37.47	46.36	74.00	-27.64	Peak
9	9920.475	30.74	38.65	6.96	37.40	38.95	54.00	-15.05	Average
10	9920.475	40.76	38.65	6.96	37.40	48.97	74.00	-25.03	Peak
11	12400.450	31.33	38.57	7.97	36.88	40.99	54.00	-13.01	Average
12	12400.450	42.11	38.57	7.97	36.88	51.77	74.00	-22.23	Peak



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8 Appendix

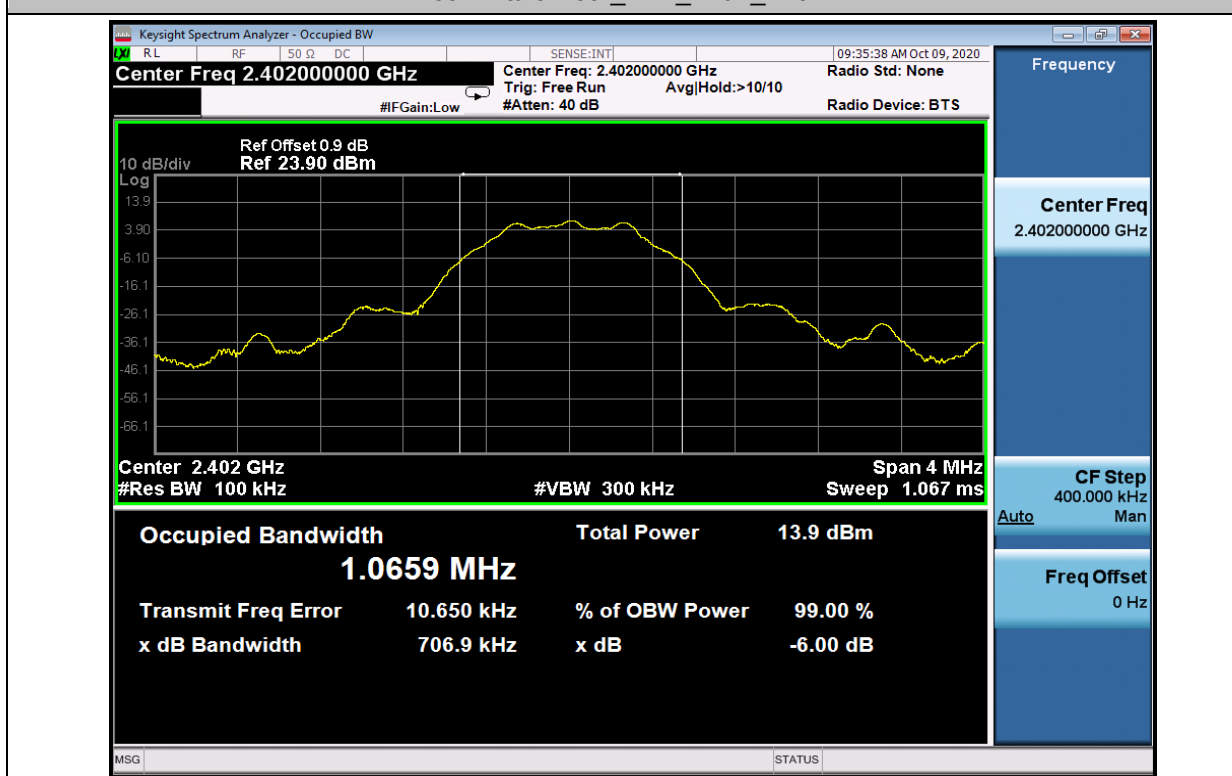
8.1 Appendix 15.247

(Cable loss =0.9dB)

1.6dB Bandwidth

Test Mode	Test Channel	Ant	OBW[MHz]	EBW[MHz]	Limit	Verdict
BLE	2402	Ant1	1.0659	0.7069	0.5	PASS
BLE	2442	Ant1	1.0619	0.7101	0.5	PASS
BLE	2480	Ant1	1.0616	0.7133	0.5	PASS

6dB Bandwidth_BLE_2402_Ant1



6dB Bandwidth_BLE_2442_Ant1



6dB Bandwidth_BLE_2480_Ant1



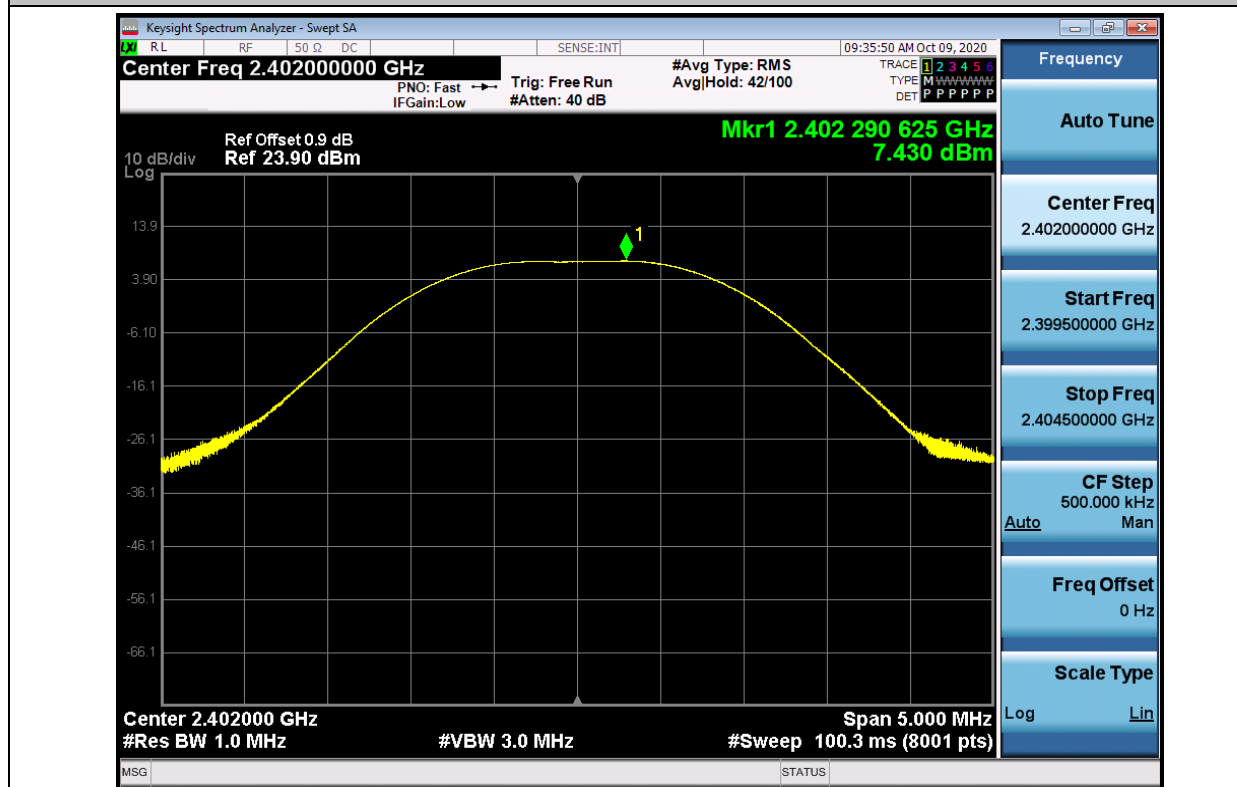
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2.Maximum peak conducted output power

Test Mode	Test Channel	Ant	Power[dBm]	Limit[dBm]	Verdict
BLE	2402	Ant1	7.43	30	PASS
BLE	2442	Ant1	8.209	30	PASS
BLE	2480	Ant1	8.048	30	PASS

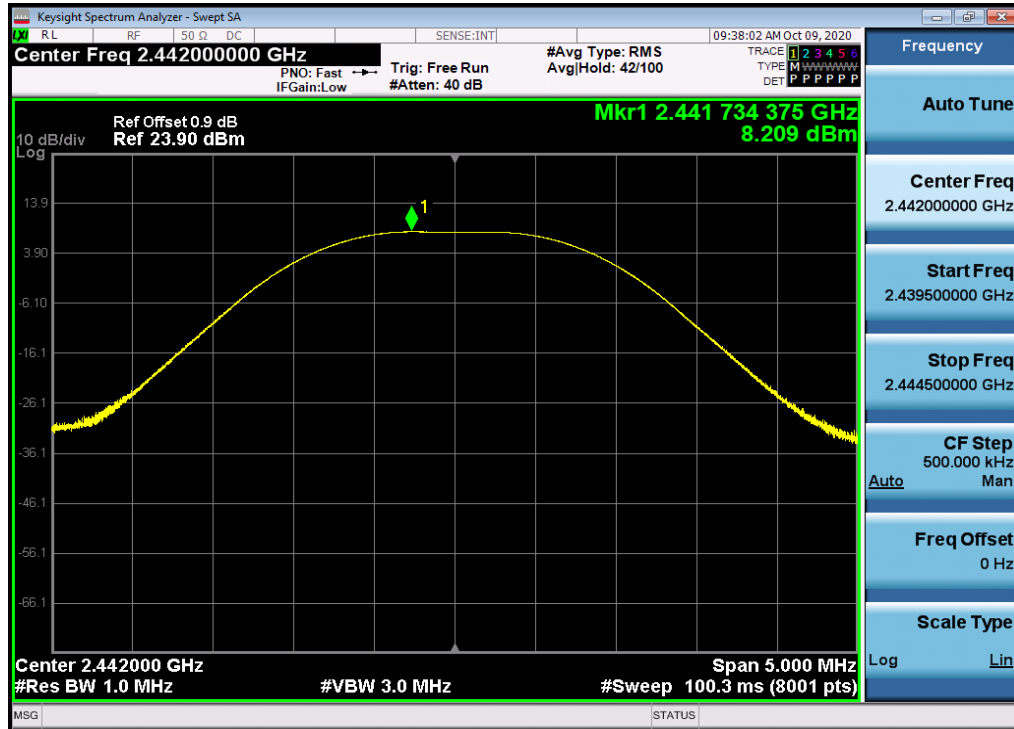
Maximum peak conducted output power_BLE_2402_Ant1



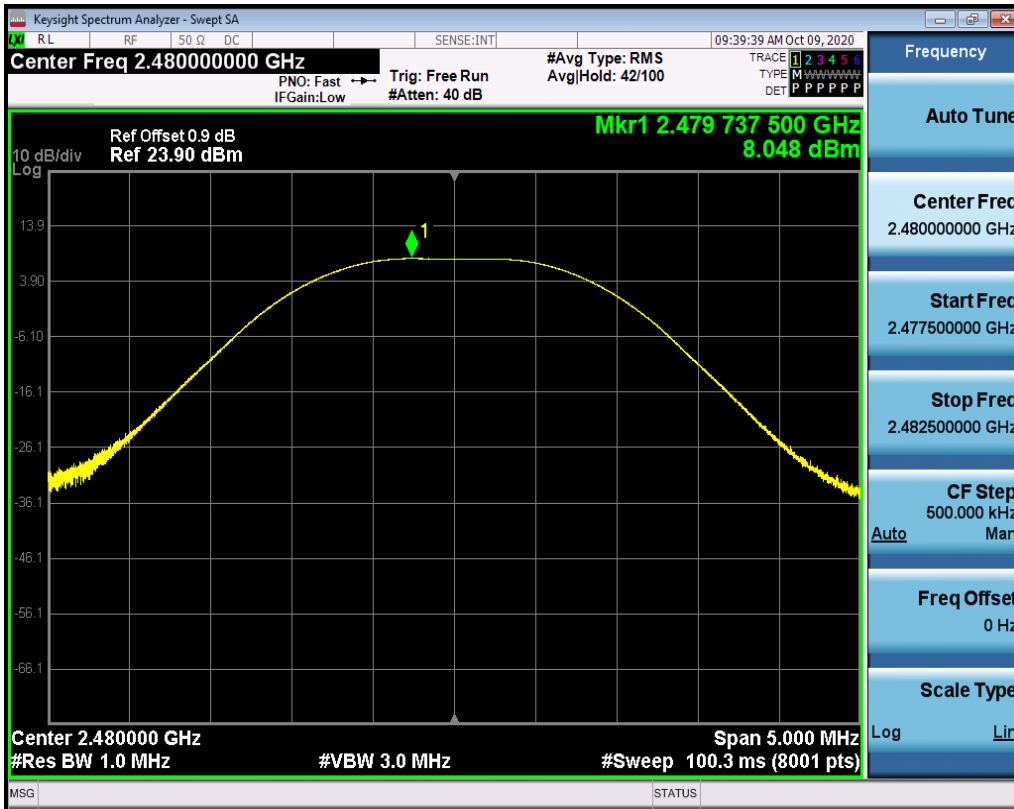
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Maximum peak conducted output power_BLE_2442_Ant1



Maximum peak conducted output power_BLE_2480_Ant1



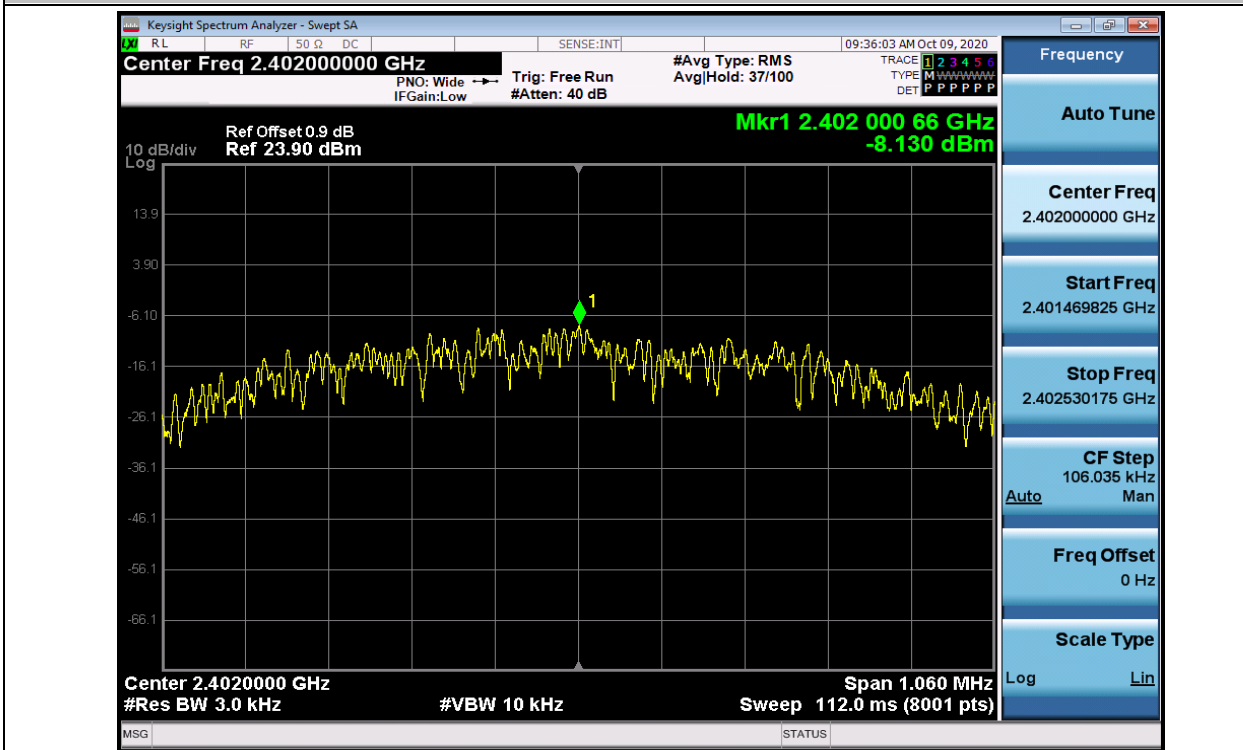
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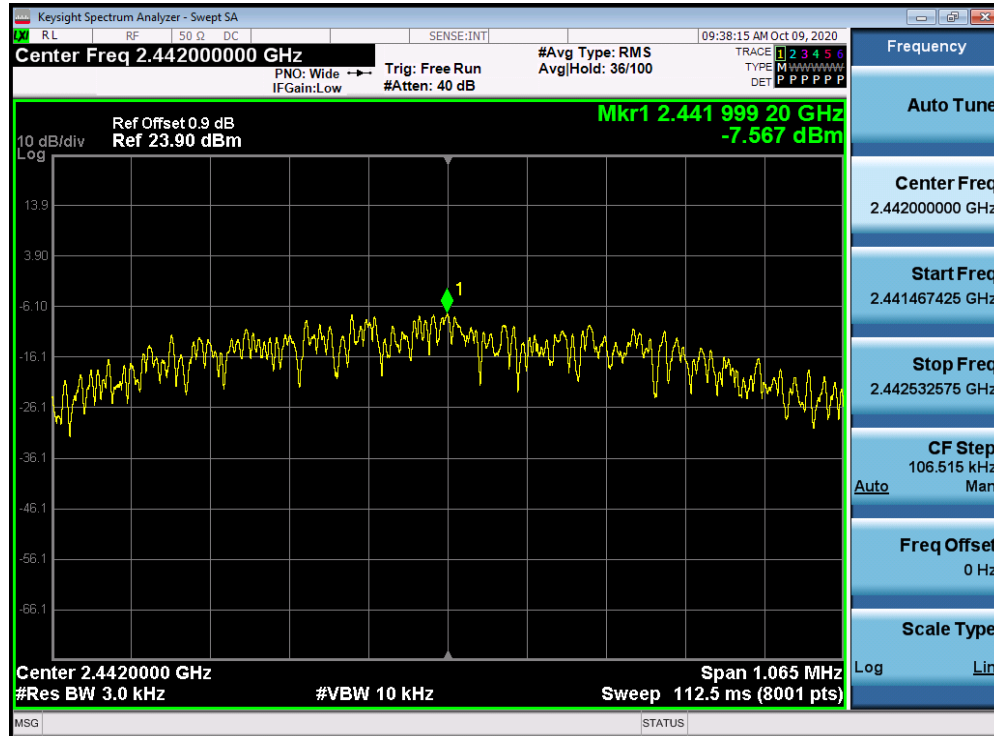
3.Maximum Peak power spectral density

Test Mode	Test Channel	Ant	Result	Limit[dBm/3kHz]	Verdict
BLE	2402	Ant1	-8.13	8.00	PASS
BLE	2442	Ant1	-7.567	8.00	PASS
BLE	2480	Ant1	-7.655	8.00	PASS

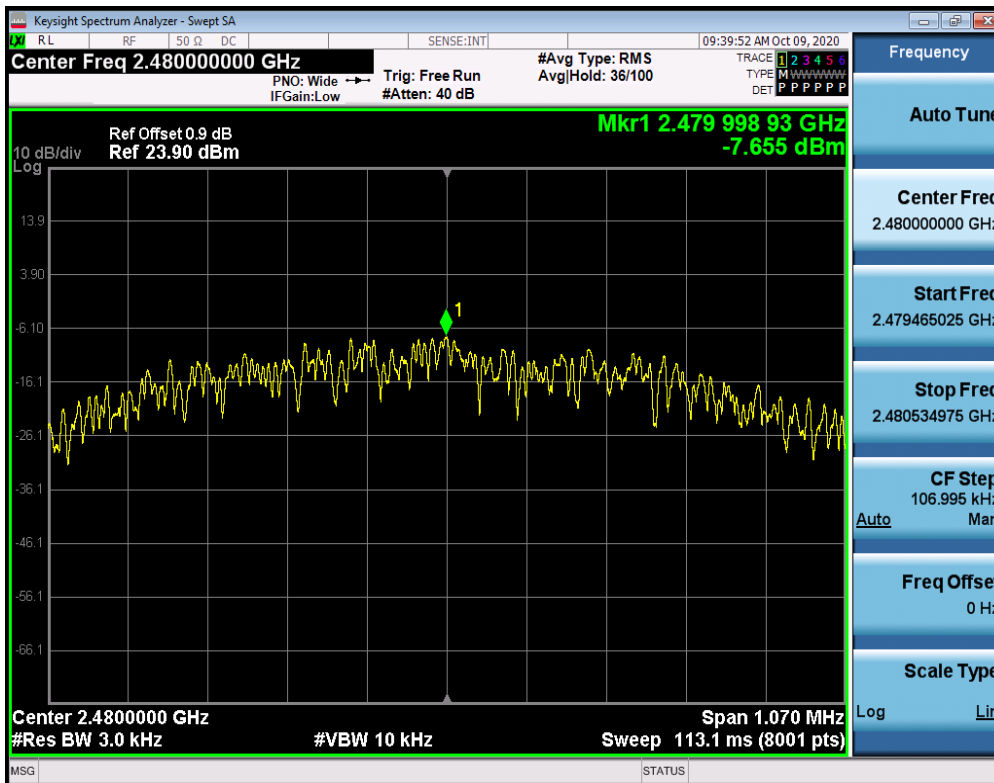
Maximum Peak power spectral density_BLE_2402_Ant1



Maximum Peak power spectral density_BLE_2442_Ant1



Maximum Peak power spectral density_BLE_2480_Ant1



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4. Band-edge for RF Conducted Emissions

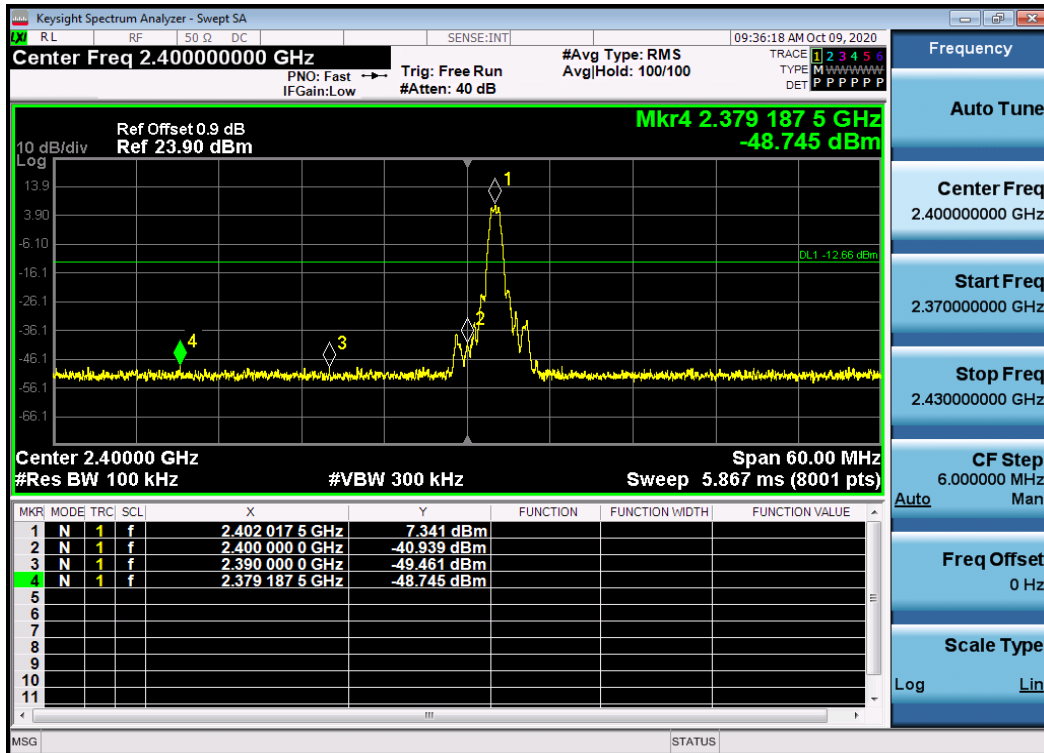
Test Mode	Test Channel	Ant	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
BLE	2402	Ant1	7.341	-48.745	-12.66	PASS
BLE	2480	Ant1	7.942	-48.056	-12.06	PASS



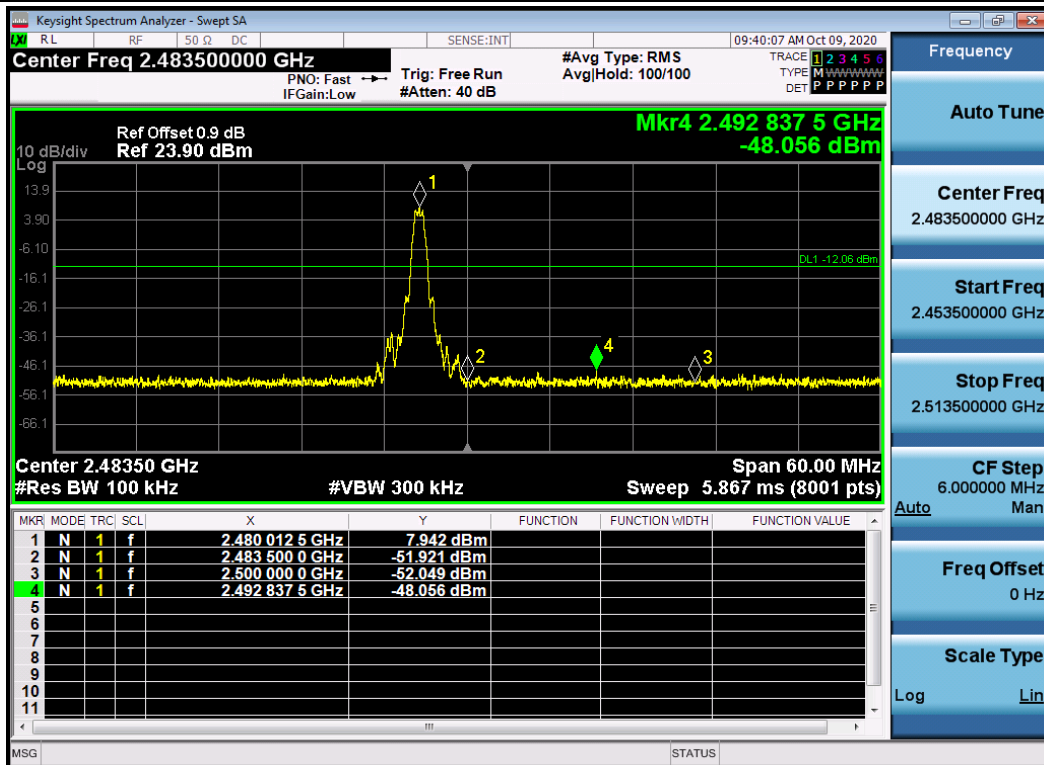
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Band-edge for RF Conducted Emissions_BLE_2402_Ant1



Band-edge for RF Conducted Emissions_BLE_2480_Ant1



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5.RF Conducted Spurious Emissions

Test Mode	Test Channel	Ant	StartFre [MHz]	StopFre [MHz]	RBW [kHz]	VBW [kHz]	Pref[dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BLE	2402	Ant1	30	10000	100	300	7.262	-47.866	<-12.738	PASS
BLE	2402	Ant1	10000	26000	100	300	7.262	-51.113	<-12.738	PASS
BLE	2442	Ant1	30	10000	100	300	8.051	-46.997	<-11.949	PASS
BLE	2442	Ant1	10000	26000	100	300	8.051	-52.455	<-11.949	PASS
BLE	2480	Ant1	30	10000	100	300	7.893	-47.057	<-12.107	PASS
BLE	2480	Ant1	10000	26000	100	300	7.893	-50.514	<-12.107	PASS



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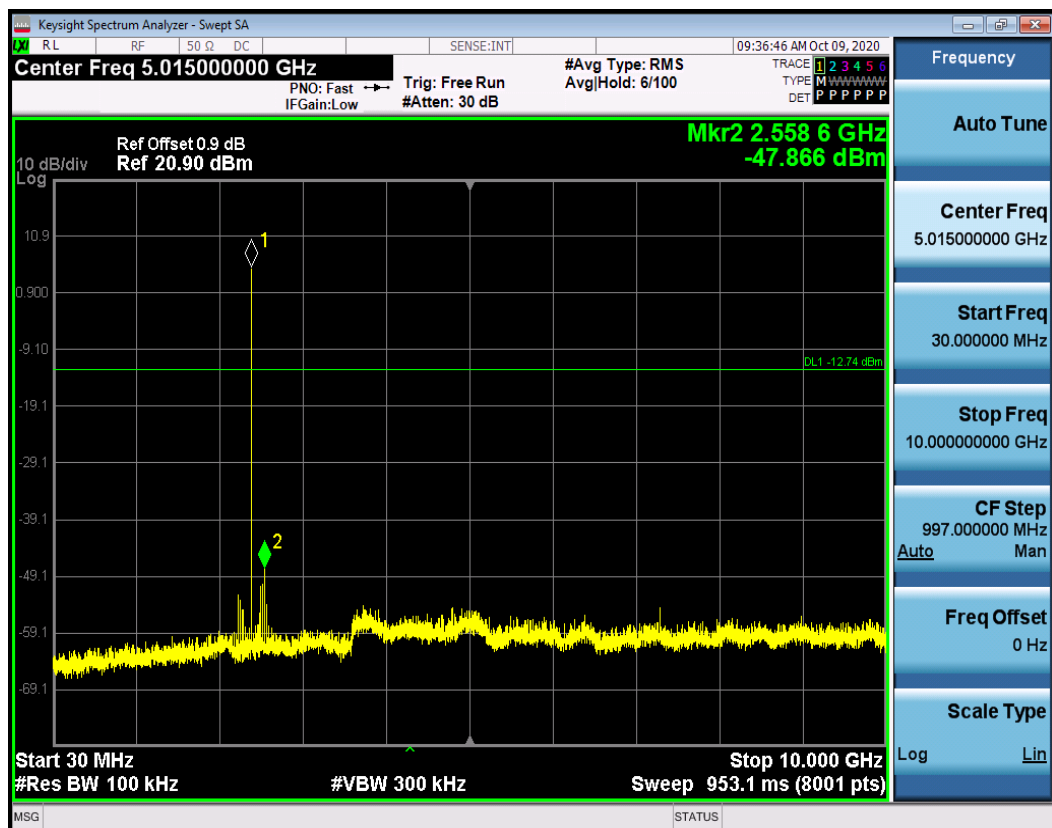
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RF Conducted Spurious Emissions_BLE_2402_Ant1

Pref



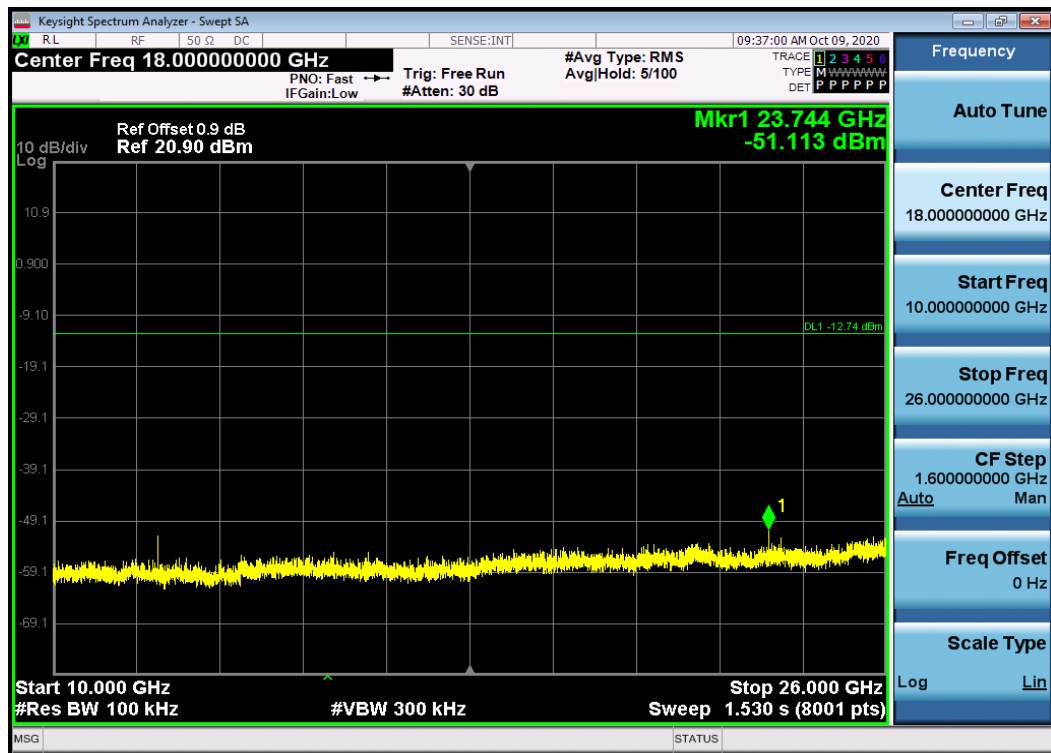
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CSE_2



RF Conducted Spurious Emissions_BLE_2442_Ant1

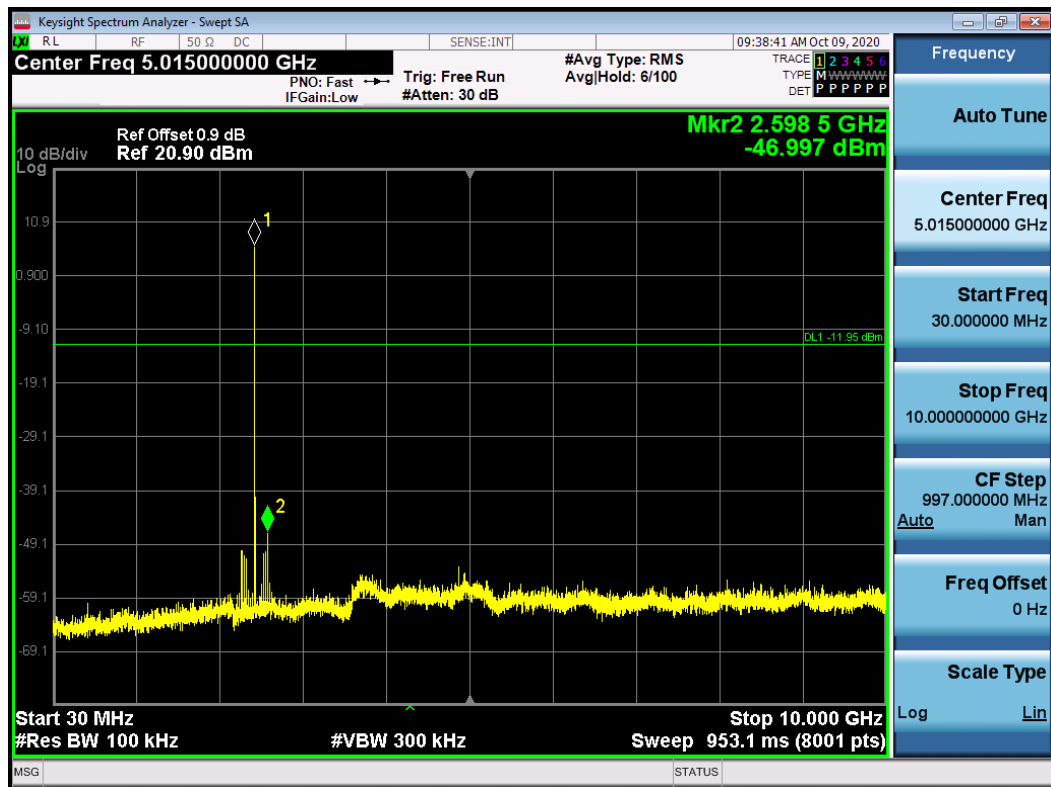
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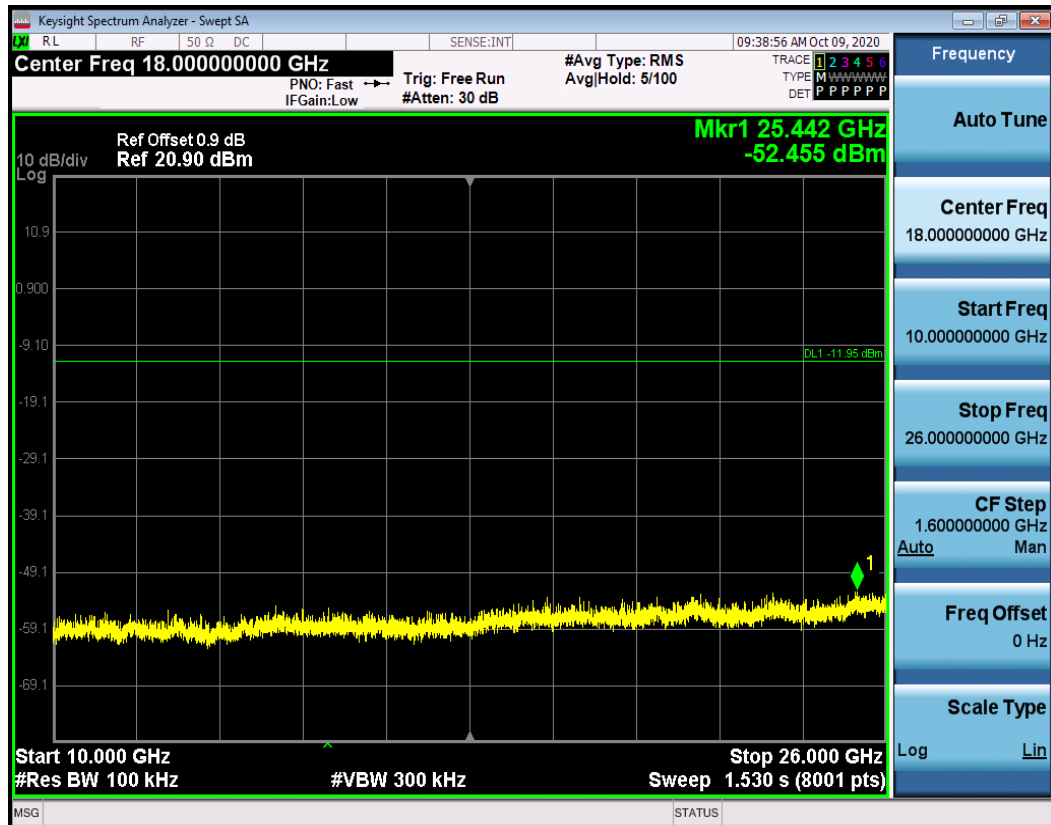
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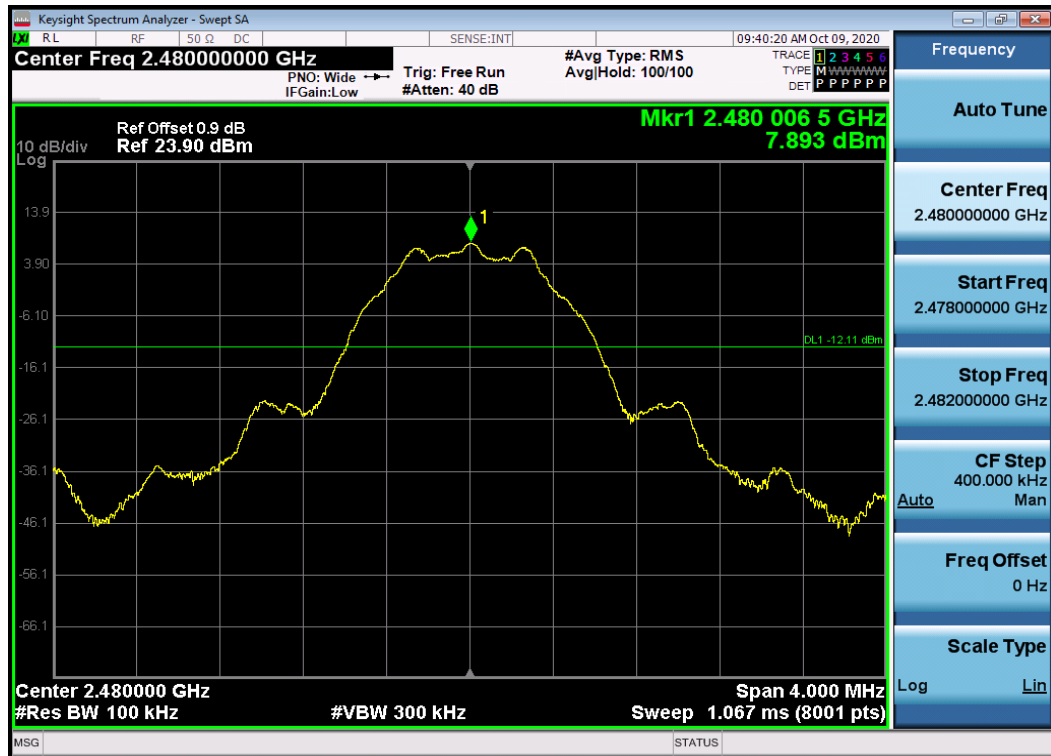
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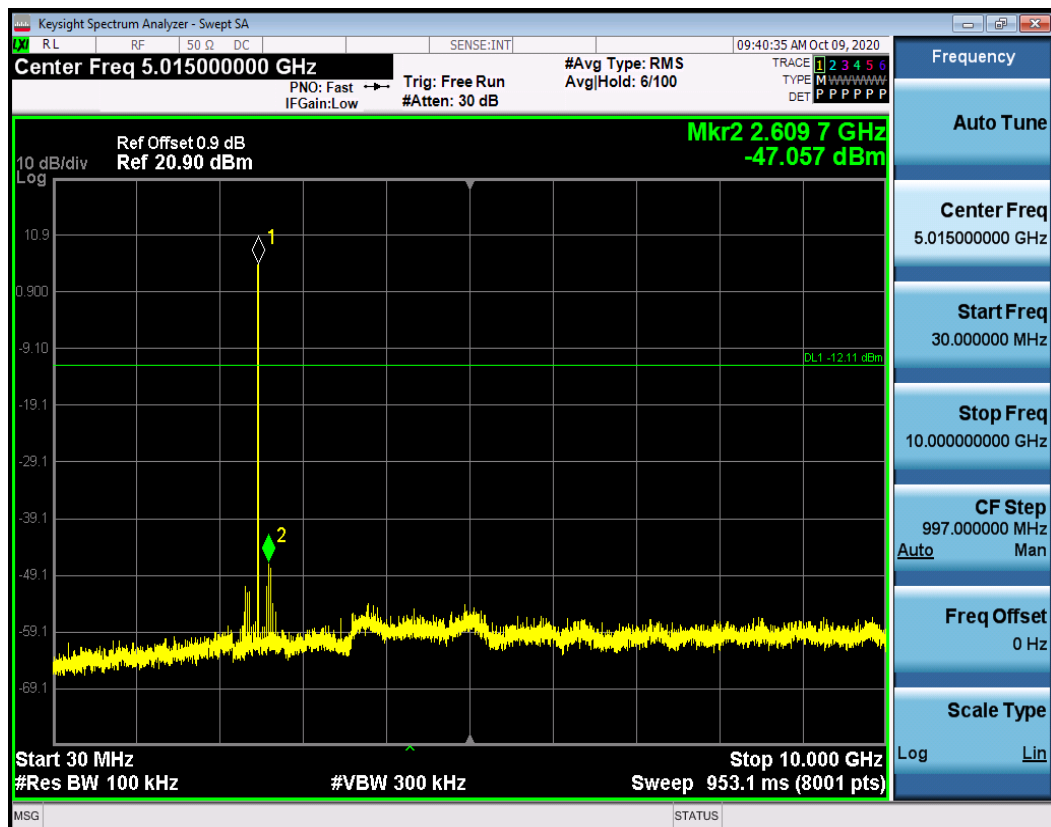
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RF Conducted Spurious Emissions_BLE_2480_Ant1

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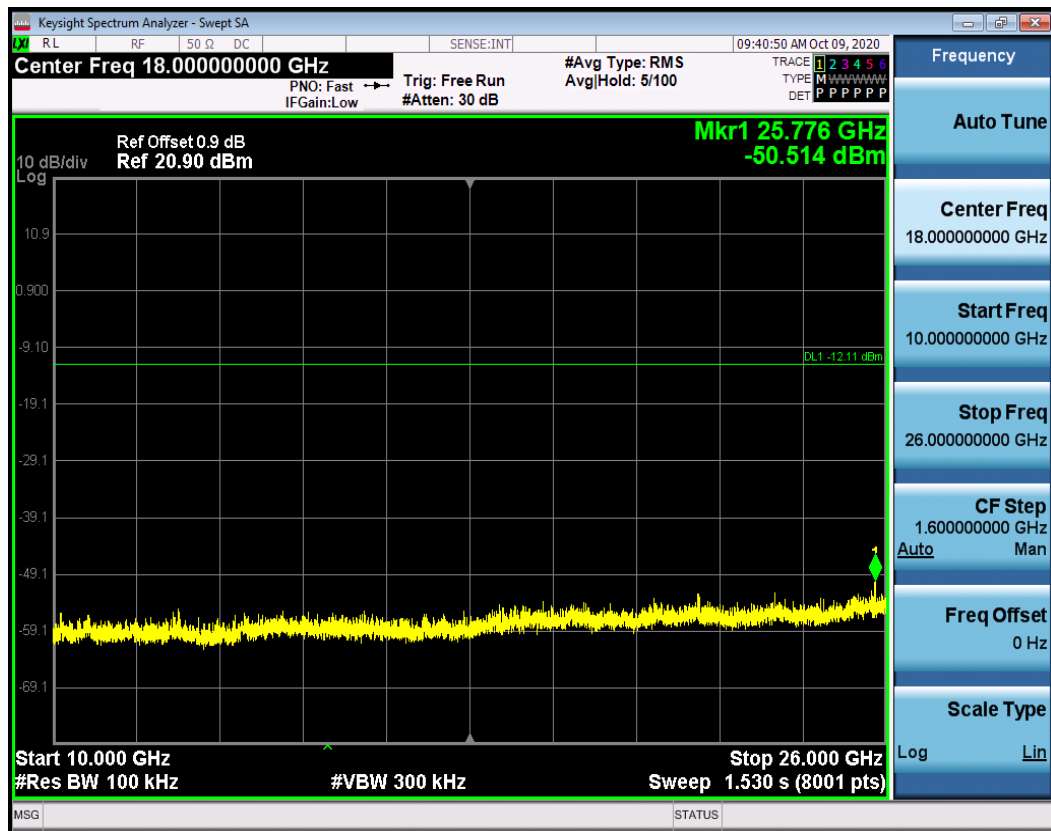
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--End of Report--



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