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TEST REPORT

Application No.:	SZEM2011011114CR
Applicant:	Wyze Labs, Inc.
Address of Applicant:	3933 Lake Washington Blvd NE Suite 350, Kirkland, Washington 98033 United States
Manufacturer:	Wyze Labs, Inc.
Address of Manufacturer:	3933 Lake Washington Blvd NE Suite 350, Kirkland, Washington 98033 United States
Equipment Under Test (EUT	¯):
EUT Name:	Wyze Watch 47
Model No.:	WW3
Trade mark:	WYZE
FCC ID:	2AUIUWW3
Standard(s) :	47 CFR Part 15, Subpart C 15.247
Date of Receipt:	2020-11-05
Date of Test:	2020-11-06 to 2020-11-17
Date of Issue:	2020-11-17
Test Result:	Pass*

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

Keny. Ku

Keny Xu EMC Laboratory Manager



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	Revision Record					
Version	Chapter	Date	Modifier	Remark		
01		2020-11-17		Original		

Authorized for issue by:		
	Vincent Chen	
	Vincent Chen/Project Engineer	
	Evic Fu	
	Eric Fu/Reviewer	



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Test Summary 2

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(b)(4)	Pass	

Radio Spectrum Matter Part					
Item	Standard	Method	Requirement	Result	
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass	
Conducted Peak	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Output Power	Subpart C 15.247	Section 11.9.1	C 15.247(b)(3)		
Minimum 6dB	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Bandwidth	Subpart C 15.247	Section 11.8.1	C 15.247a(2)		
Power Spectrum	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Density	Subpart C 15.247	Section 11.10.2	C 15.247(e)		
Conducted Band	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Edges Measurement	Subpart C 15.247	Section 11.13.3.2	C 15.247(d)		
Conducted Spurious	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Emissions	Subpart C 15.247	Section 11.11	C 15.247(d)		
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	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Emissions	Subpart C 15.247	Section 6.4,6.5,6.6	C 15.205 & 15.209		



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4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 3.8V Lithium-ion rechargeable battery which can be charged from USB port.
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.0 LE
Data Rate:	Support 1M and 2M/bit
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	Loop Antenna
Antenna Gain:	-6dBi

4.2 Cable

Cable	Length	Shielding	Core
USB charging cable	65cm	Unshielded	Non-Core

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.	
The EUT has been tested as an independent unit.				

4.4 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	± 3.0dB (150kHz to 30MHz)
Conducted Peak Output Power	± 0.75dB
Minimum 6dB Bandwidth	± 3%
Power Spectrum Density	± 2.84dB
Conducted Band Edges Measurement	± 0.75dB
Conducted Spurious Emissions	± 0.75dB
Radiated Emissions which fall in the restricted bands	± 4.5dB (Below 1GHz);± 4.8dB (Above 1GHz)
Radiated Spurious Emissions	± 4.5dB (Below 1GHz);± 4.8dB (Above 1GHz)

Remark:

The U_{lab} (lab Uncertainty) is less than U_{cispr} (CISPR Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;

- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.



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4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.6 Test Facility

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

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC – Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None



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Equipment List 5

Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2019-06-13	2022-06-12
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2020-03-24	2021-03-23
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2020-07-10	2021-07-09
LISN	Rohde&Schwarz	ENV216	SEM007-01	2020-09-23	2021-09-22
LISN	ETS-LINDGREN	3816/2	SEM007-02	2020-04-01	2021-03-31

Conducted Peak Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2020-04-01	2021-03-31
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2020-09-23	2021-09-22
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2020-07-10	2021-07-09
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2020-05-21	2021-05-20

Minimum 6dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2020-09-23	2021-09-22
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2020-07-10	2021-07-09
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2020-09-23	2021-09-22
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2020-09-23	2021-09-22
Electric and Magnetic Field Analyzer	Narda	EHP-50F	SEM022-05	2019-11-28	2020-11-27

Power Spectrum Density					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23



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Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2020-09-23	2021-09-22
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2020-07-10	2021-07-09
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2020-09-23	2021-09-22
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2020-09-23	2021-09-22
Electric and Magnetic Field Analyzer	Narda	EHP-50F	SEM022-05	2019-11-28	2020-11-27

Conducted Band Edges Measurement					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2020-04-01	2021-03-31
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2020-09-23	2021-09-22
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2020-07-10	2021-07-09
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2020-05-21	2021-05-20

Conducted Spurious Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2020-04-01	2021-03-31
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2020-09-23	2021-09-22
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2020-07-10	2021-07-09
Attenuator	Huber+Suhner	6620_SMA-50- 1	SEM021-09	2020-05-21	2021-05-20

Radiated Emissions which fall in the restricted bands					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12



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Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2020-09-23	2021-09-22
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09
	Coburgetsback	BBHA 9170	0510000 45	2017-10-17	2020-10-16
Horn Antenna	Schwarzbeck		SEM003-15	2020-10-16	2021-10-15
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2020-04-01	2021-03-31

Radiated Spurious Emis	ssions				
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2020-11-02	2021-11-01
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2020-04-01	2021-03-31
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2020-07-10	2021-07-09

General used equipmen	t				
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2020-09-15	2021-09-14
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2020-09-15	2021-09-14
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06



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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(b)(4)

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 -6dBi.

Antenna location: Refer to Internal photos.



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7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement:	47 CFR Part 15, Subpart C 15.207
Test Method:	ANSI C63.10 (2013) Section 6.2

Limit:

Execution of omission (MHz)	Conducted limit(dBµV)				
Frequency of emission(MHz)	Quasi-peak	Average			
0.15-0.5	66 to 56*	56 to 46*			
0.5-5	56	46			
5-30	60	50			
*Decreases with the logarithm of the frequency.					
Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz					

7.1.1 E.U.T. Operation

Operating Enviro	nment:					
Temperature:	21.3 °C	Humidity:	43.5 % RH	Atmospheric Pressure:	1015	mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	02	Charge + TX mode(1Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	Charge + TX mode(2Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.



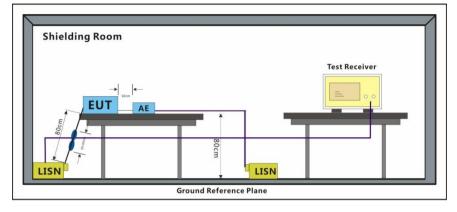
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7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50 μ H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

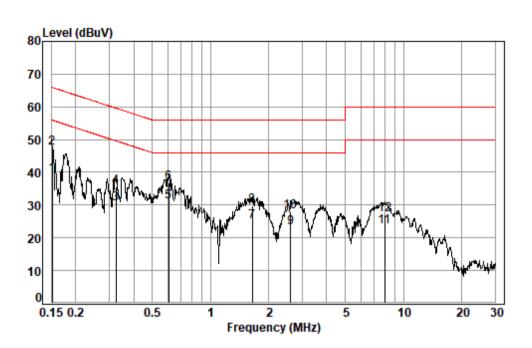


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Test Mode: 03: Line: Live line

Site :	Shielding	Room
Condition:	Line	
Job No. :	11114CR	
Test mode:	03	

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 2 3 4 5 6 7 8	0.1516 0.3234 0.3234 0.6075 0.6075 1.6450 1.6450	0.01 0.04 0.04 0.07 0.07 0.14 0.14	9.70 9.70 9.74 9.74 9.77 9.77 9.80 9.80	29.42 37.80 20.69 25.87 21.15 26.93 14.94 19.97	39.13 47.51 30.47 35.65 30.99 36.77 24.88 29.91	65.91 49.62 59.62 46.00 56.00 46.00	-18.40 -19.15 -23.97 -15.01 -19.23	Average QP Average QP Average
9 10 11 12	2.6082 2.6082 8.0198 8.0198	0.14 0.16 0.16 0.17 0.17	9.82 9.82 10.09 10.09	13.24 18.06 13.07 16.68	23.22 28.04 23.33 26.94	46.00 56.00 50.00	-22.78 -27.96	Average QP Average



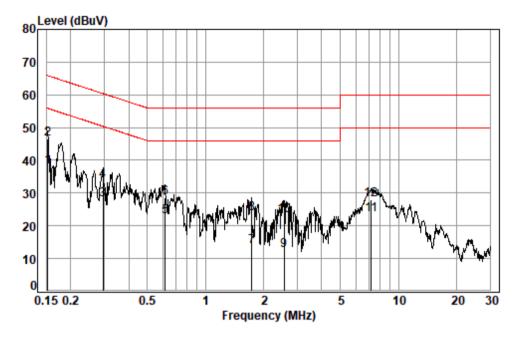
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Test Mode: 03: Line: Neutral Line

Site :	Shielding	Room
Condition:	Neutral	
Job No. :	11114CR	
Test mode:	03	

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1524	0.01	9.71	28.37	38.09	55.87	-17.78	Average
2	0.1524	0.01	9.71	36.83	46.55	65.87	-19.32	QP
3	0.2940	0.04	9.74	18.30	28.08	50.41	-22.33	Average
4	0.2940	0.04	9.74	23.88	33.66	60.41	-26.75	QP
5	0.6173	0.07	9.77	12.89	22.73	46.00	-23.27	Average
6	0.6173	0.07	9.77	18.68	28.52	56.00	-27.48	QP
7	1.7345	0.15	9.80	3.75	13.70	46.00	-32.30	Average
8	1.7345	0.15	9.80	13.70	23.65	56.00	-32.35	QP
9	2.5535	0.16	9.82	2.44	12.42	46.00	-33.58	Average
10	2.5535	0.16	9.82	13.22	23.20	56.00	-32.80	QP
11	7.2135	0.17	10.05	13.21	23.43	50.00	-26.57	Average
12	7.2135	0.17	10.05	17.79	28.01	60.00	-31.99	QP



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7.2 Conducted Peak Output Power

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

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
	1 for ≥50 hopping channels
902-928	0.25 for 25≤ hopping channels <50
	1 for digital modulation
	1 for ≥75 non-overlapping hopping channels
2400-2483.5	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: 25.1 °C Humidity: 48.7 % RH Atmospheric Pressure: 1015 mbar

7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	Charge + TX mode(1Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	Charge + TX mode(2Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.



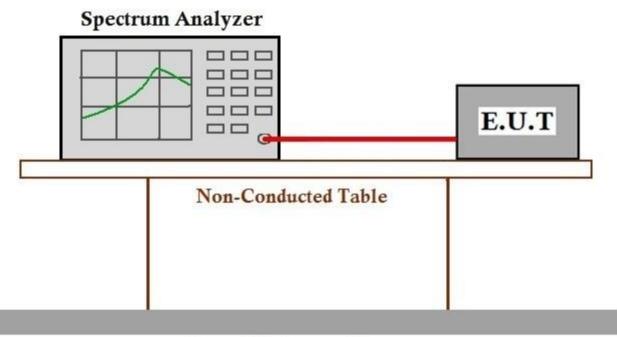
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7.2.4 Test Setup Diagram



Ground Reference Plane

7.2.5 Measurement Procedure and Data

Please Refer To Appendix For Details



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7.3 Minimum 6dB Bandwidth

Test Requirement	47 CFR Part 15, Subpart C 15.247
Test Method:	ANSI C63.10 (2013) Section 11.8.1

Limit: ≥500 kHz

7.3.1 E.U.T. Operation

Operating Environment: Temperature: 25.1 °C

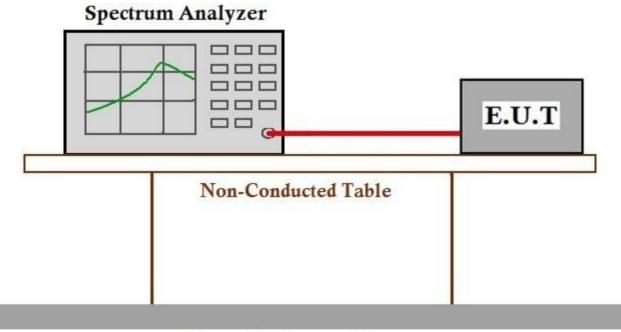
Humidity: 48.7 % RH

Atmospheric Pressure: 1015 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	Charge + TX mode(1Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	Charge + TX mode(2Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.3.3 Test Setup Diagram



Ground Reference Plane

7.3.4 Measurement Procedure and Data

Please Refer To Appendix For Details



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7.4 Power Spectrum Density

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

7.4.1 E.U.T. Operation

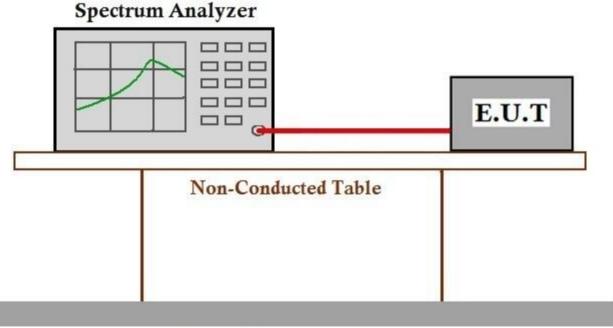
Operating Environment:

Temperature:	24.9 °C	Humidity:	49.1 % RH	Atmospheric Pressure:	1015	mbar
•		•		•		

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	Charge + TX mode(1Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	Charge + TX mode(2Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.4.3 Test Setup Diagram



Ground Reference Plane

7.4.4 Measurement Procedure and Data

Please Refer To Appendix For Details





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7.5 Conducted Band Edges Measurement

Test Requirement	47 CFR Part 15, Subpart C 15.247
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 §15.205(c).

7.5.1 E.U.T. Operation

Operating Environment:

•	0						
Tempe	erature:	24.8 °C	Humidity:	49.2 % RH	Atmospheric Pressure:	1015	mbar

Pre-scan / Final test	Mode Code	Description
Final test	02	Charge + TX mode(1Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	Charge + TX mode(2Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.5.2 Test Mode Description



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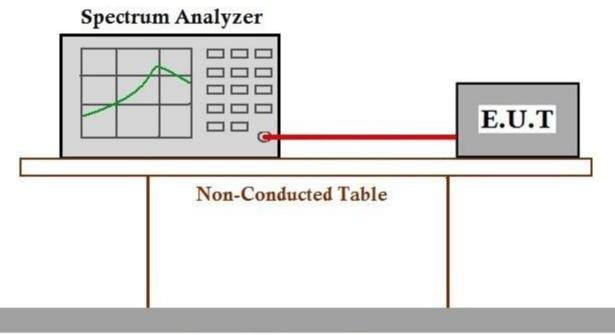
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7.5.3 Test Setup Diagram



Ground Reference Plane

7.5.4 Measurement Procedure and Data

Please Refer To Appendix For Details



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7.6 Conducted Spurious Emissions

Test Requirement	47 CFR Part 15, Subpart C 15.247
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 §15.205(c).

7.6.1 E.U.T. Operation

Operating Environment:

Temperature:	24.8 °C	Humidity:	49.3 % RH	Atmospheric Pressure:	1015	mbar
i omporataro.	2.1.0 0	riannaity.				moai

Pre-scan / Final test	Mode Code	Description
Final test	02	Charge + TX mode(1Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.
Final test	03	Charge + TX mode(2Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.

7.6.2 Test Mode Description



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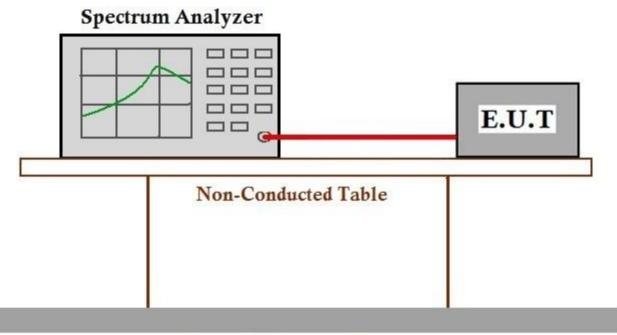
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7.6.3 Test Setup Diagram



Ground Reference Plane

7.6.4 Measurement Procedure and Data

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7.7 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

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.

7.7.1 E.U.T. Operation

Operating Enviror	nment:					
Temperature:	23.5 °C	Humidity:	55.3 % RH	Atmospheric Pressure:	1015	mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description	
Pre-scan	00	TX mode(1Mb/s)_Keep the EUT in continuously transmitting mode with GFSK modulation.	
Pre-scan	01	TX mode(2Mb/s)_Keep the EUT in continuously transmitting mode with GFSK modulation.	
Final test	02	Charge + TX mode(1Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.	
Final test	03	Charge + TX mode(2Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.	



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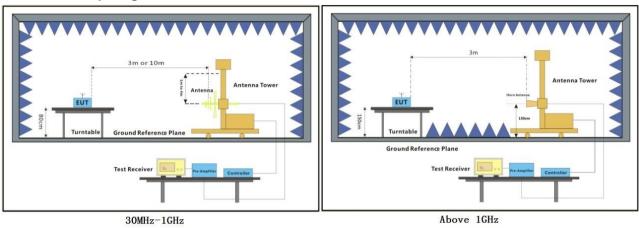
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7.7.3 Test Setup Diagram



7.7.4 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.

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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.



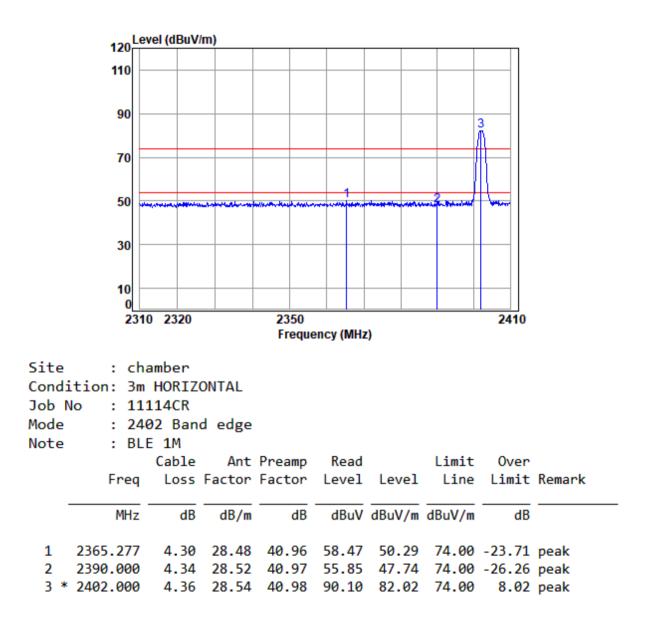
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Test Mode: 02; Polarity: Horizontal; Modulation:GFSK; Channel:Low





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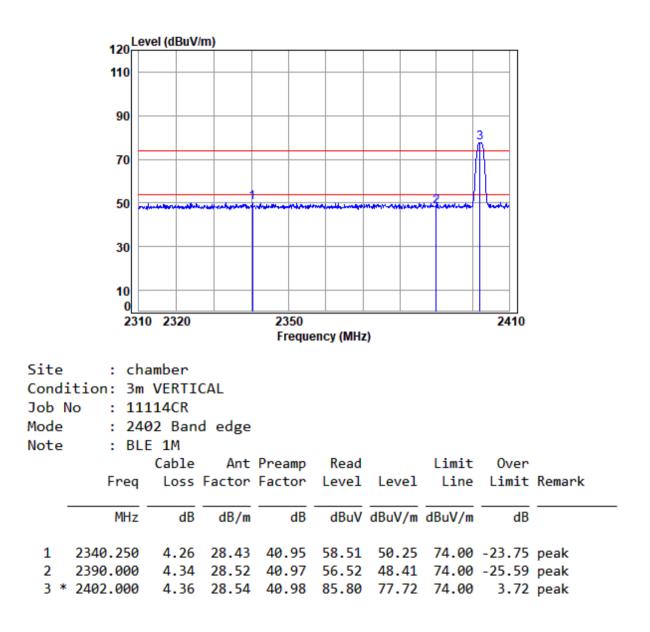
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Test Mode: 02; Polarity: Vertical; Modulation:GFSK; Channel:Low





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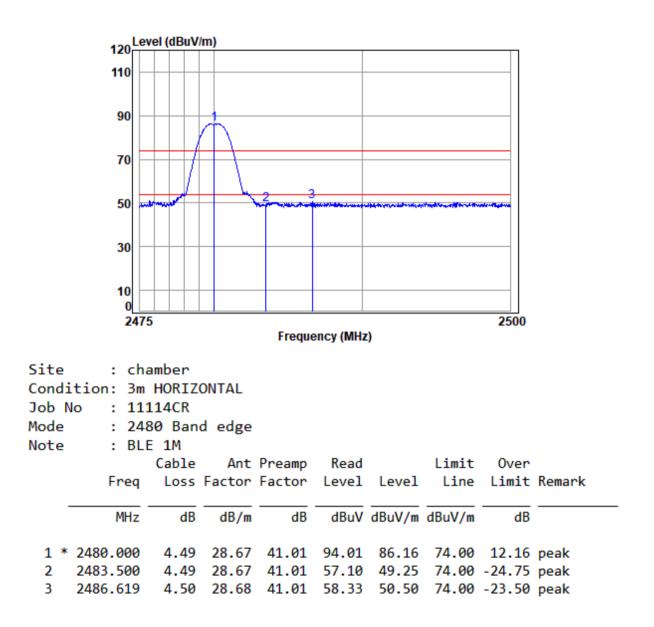
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Test Mode: 02; Polarity: Horizontal; Modulation:GFSK; Channel:High





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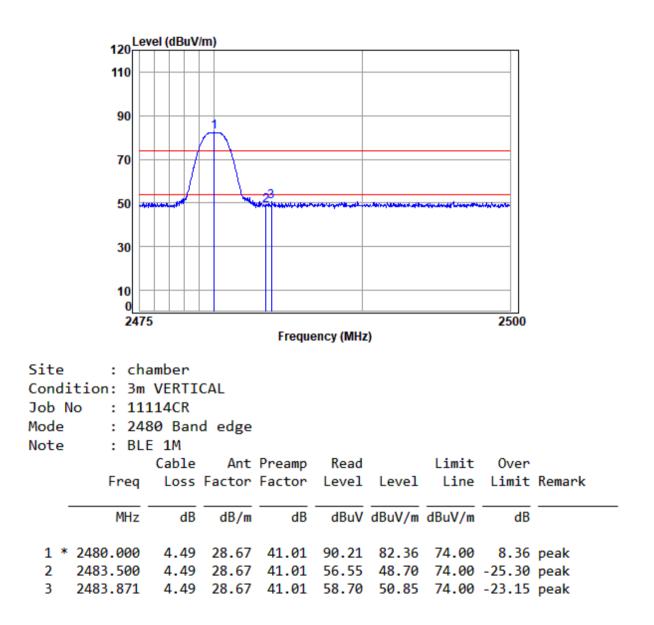
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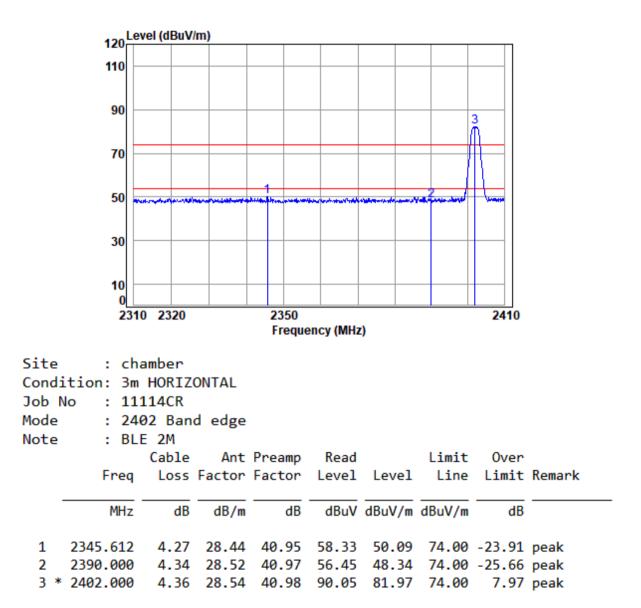
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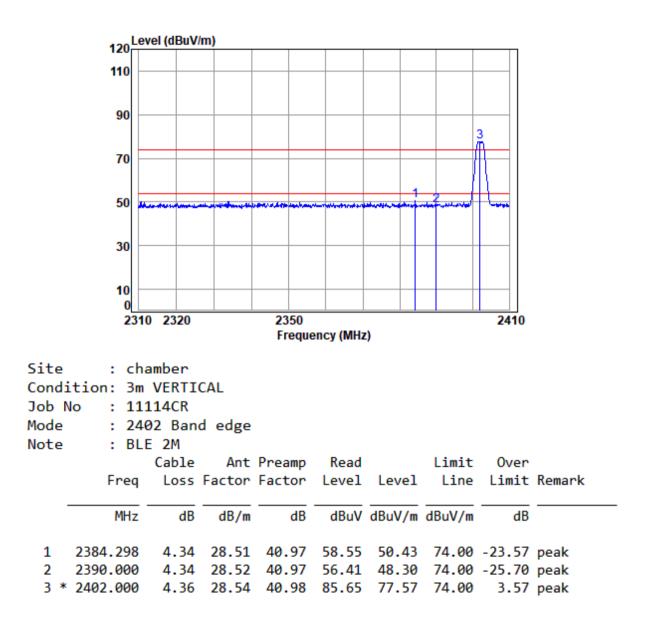
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Test Mode: 03; Polarity: Vertical; Modulation:GFSK; Channel:Low





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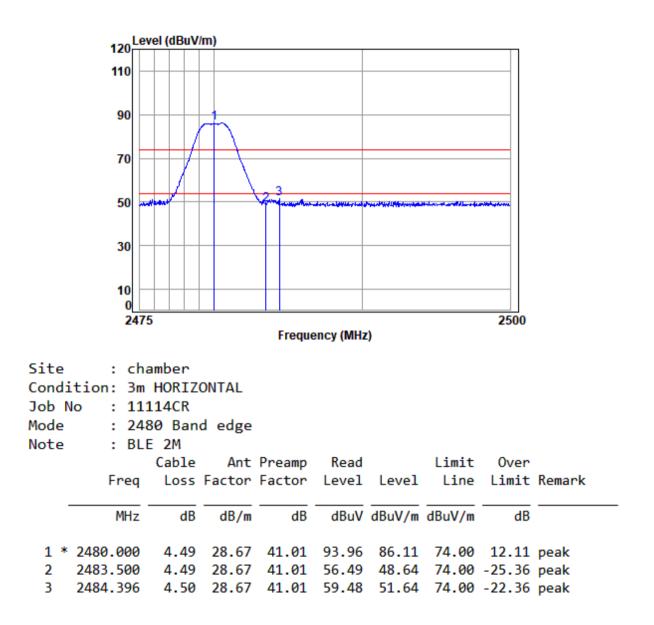
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Test Mode: 03; Polarity: Horizontal; Modulation:GFSK; Channel:High





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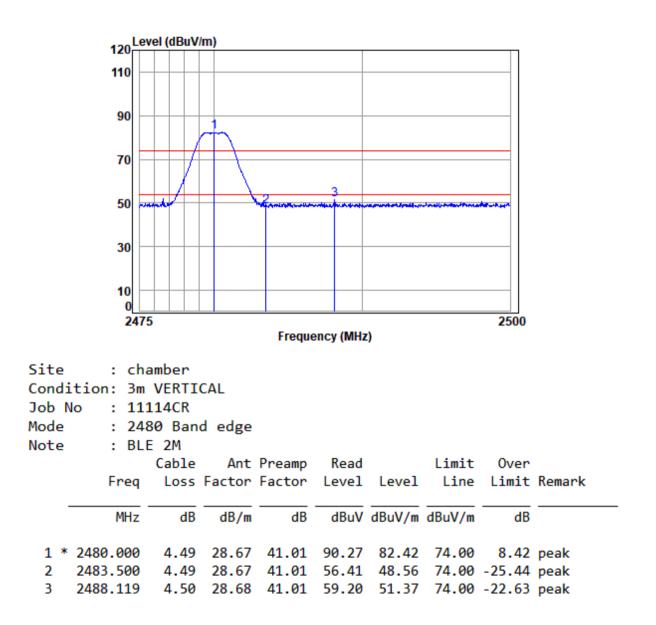
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Test Mode: 03; Polarity: Vertical; Modulation:GFSK; Channel:High





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7.8 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

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.

7.8.1 E.U.T. Operation

Operating Environment:						
Temperature:	25.6 °C	Humidity:	55.4 % RH	Atmospheric Pressure:	1015	mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description	
Pre-scan	00	TX mode(1Mb/s)_Keep the EUT in continuously transmitting mode with GFSK modulation.	
Pre-scan	01	TX mode(2Mb/s)_Keep the EUT in continuously transmitting mode with GFSK modulation.	
Final test	02	² Charge + TX mode(1Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.	
Final test	03	Charge + TX mode(2Mb/s)_Keep the EUT in charging and continuously transmitting mode with GFSK modulation.	



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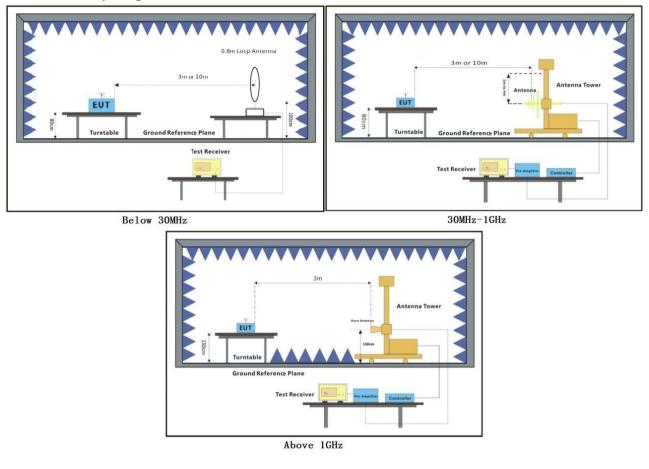
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7.8.3 Test Setup Diagram







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7.8.4 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 in the report.



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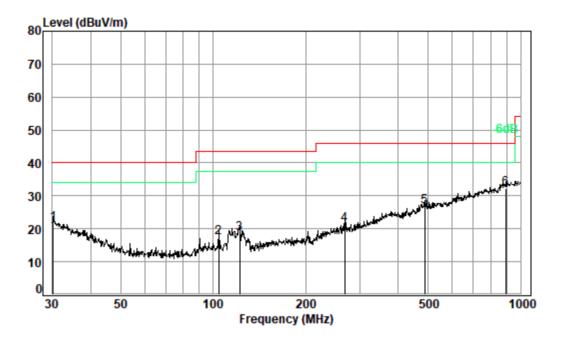
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Below 1GHz:

Test Mode: 02; Polarity: Horizontal;



Condition: 3m HORIZONTAL Job No. : 1114CR Test Mode: 02

	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	30.21	0.60	22.84	27.73	25.98	21.69	40.00	-18.31	QP
2	104.17	1.11	13.87	27.58	29.92	17.32	43.50	-26.18	QP
3	121.98	1.13	12.90	27.48	32.01	18.56	43.50	-24.94	QP
4	267.55	1.77	18.48	26.95	27.95	21.25	46.00	-24.75	QP
5	487.32	2.48	24.30	27.75	27.70	26.73	46.00	-19.27	QP
6 pp	893.86	3.49	28.96	27.20	27.09	32.34	46.00	-13.66	QP



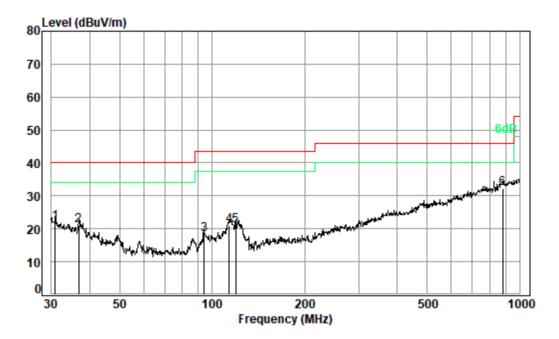
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Test Mode: 02; Polarity: Vertical;



Condition: 3m VERTICAL Job No. : 1114CR Test Mode: 02

	Freq			Preamp Factor					Remark
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	30.85	0.61	22.35	27.73	26.52	21.75	40.00	-18.25	QP
2	36.77	0.67	19.51	27.71	28.38	20.85	40.00	-19.15	QP
3	94.10	1.22	13.51	27.62	31.11	18.22	43.50	-25.28	QP
4	113.71	1.12	13.43	27.52	33.83	20.86	43.50	-22.64	QP
5	119.44	1.13	13.04	27.49	34.26	20.94	43.50	-22.56	QP
6 pp	881.41	3.46	29.09	27.27	27.03	32.31	46.00	-13.69	QP



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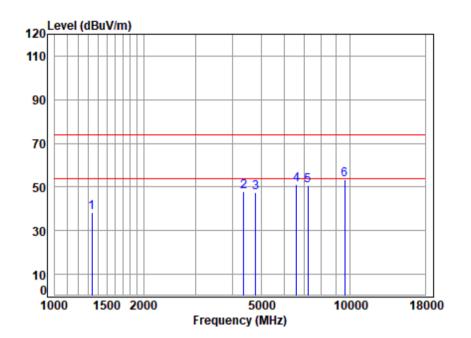
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Above 1GHz:

Test Mode: 02; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Cond: Job I Mode	Site : chamber Condition: 3m HORIZONTAL Job No : 11114CR Mode : 2402 TX SE Note : BLE 1M										
		Cable	Ant	Preamp	Read		Limit	0ver			
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark		
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB			
1	1335.141	3.00	25.17	40.39	50.63	38.41	74.00	-35.59	peak		
2	4367.058	6.64	33.37	42.45	50.17	47.73	74.00	-26.27	peak		
3	4804.000	7.10	33.97	42.77	49.05	47.35	74.00	-26.65	peak		
4	6583.209	8.32	35.65	41.91	49.03	51.09	74.00	-22.91	peak		
5	7206.000	8.74	36.07	41.58	47.29	50.52	74.00	-23.48	peak		
6	9608.000	10.81	37.67	38.57	43.49	53.40	74.00	-20.60	peak		



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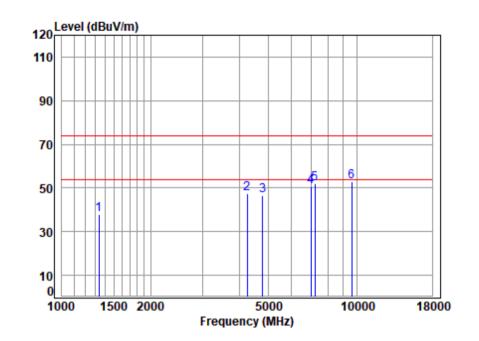
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Test Mode: 02; Polarity: Vertical; Modulation:GFSK; Channel:Low



Site : chamber Condition: 3m VERTICAL Job No : 11114CR Mode : 2402 TX SE Note : BLE 1M										
		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	1335.141	3.00	25.17	40.39	50.17	37.95	74.00	-36.05	peak	
2	4254.921	6.53	33.17	42.36	49.92	47.26	74.00	-26.74	peak	
3	4804.000	7.10	33.97	42.77	48.05	46.35	74.00	-27.65	peak	
4	6974.982	8.53	35.89	41.70	47.90	50.62	74.00	-23.38	peak	
5	7206.000	8.74	36.07	41.58	48.58	51.81	74.00	-22.19	peak	
6	9608.000	10.81	37.67	38.57	42.91	52.82	74.00	-21.18	peak	



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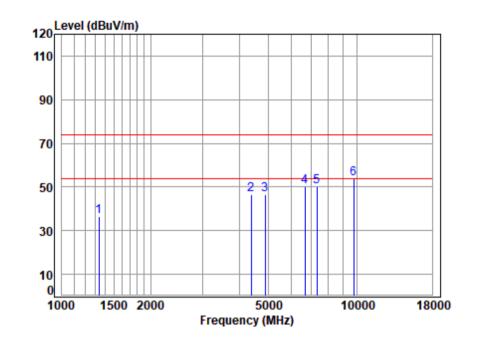
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Test Mode: 02; Polarity: Horizontal; Modulation:GFSK; Channel:middle



Site : chamber Condition: 3m HORIZONTAL Job No : 11114CR Mode : 2440 TX SE Note : BLE 1M										
		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	1335.141	3.00	25.17	40.39	48.64	36.42	74.00	-37.58	peak	
2	4392.376	6.66	33.42	42.47	49.09	46.70	74.00	-27.30	peak	
3	4880.000	7.18	34.06	42.82	48.10	46.52	74.00	-27.48	peak	
4	6659.763	8.37	35.70	41.86	48.17	50.38	74.00	-23.62	peak	
5	7320.000	8.84	36.16	41.52	46.72	50.20	74.00	-23.80	peak	
6	9760.000	10.76	37.76	38.35	43.68	53.85	74.00	-20.15	peak	



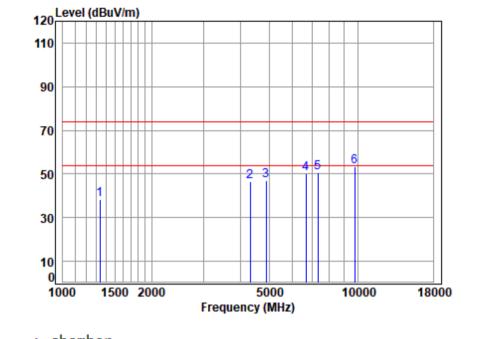
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Report No.: SZEM201101111402 Page: 42 of 74

Test Mode: 02; Polarity: Vertical; Modulation:GFSK; Channel:middle



: cha	amber									
ition: 3m	VERTI	CAL								
No : 111	114CR									
Mode : 2440 TX SE										
Note : BLE 1M										
	Cable	Ant	Preamp	Read		Limit	0ver			
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB			
4335 444		05 47	40.00	50.44	20.00	74.00	25 70			
1335.141	3.00	25.17	40.39	50.44	38.22	74.00	-35./8	реак		
4316.859	6.59	33.28	42.41	49.19	46.65	74.00	-27.35	peak		
4880.000	7.18	34.06	42.82	48.46	46.88	74.00	-27.12	peak		
6659.763	8.37	35.70	41.86	48.07	50.28	74.00	-23.72	peak		
7320.000	8.84	36.16	41.52	47.01	50.49	74.00	-23.51	peak		
	ition: 3m No : 11: : 244 : BLN Freq MHz 1335.141 4316.859 4880.000	No : 11114CR : 2440 TX : BLE 1M Cable Freq Loss MHz dB 1335.141 3.00 4316.859 6.59 4880.000 7.18	ition: 3m VERTICAL No : 11114CR : 2440 TX SE : BLE 1M Cable Ant Freq Loss Factor MHz dB dB/m 1335.141 3.00 25.17 4316.859 6.59 33.28 4880.000 7.18 34.06	ition: 3m VERTICAL No : 11114CR : 2440 TX SE : BLE 1M Cable Ant Preamp Freq Loss Factor Factor MHz dB dB/m dB 1335.141 3.00 25.17 40.39 4316.859 6.59 33.28 42.41 4880.000 7.18 34.06 42.82	ition: 3m VERTICAL No : 11114CR : 2440 TX SE : BLE 1M Cable Ant Preamp Read Freq Loss Factor Factor Level MHz dB dB/m dB dBuV 1335.141 3.00 25.17 40.39 50.44 4316.859 6.59 33.28 42.41 49.19 4880.000 7.18 34.06 42.82 48.46	ition: 3m VERTICAL No : 11114CR : 2440 TX SE : BLE 1M Cable Ant Preamp Read Freq Loss Factor Factor Level Level MHz dB dB/m dB dBuV dBuV/m 1335.141 3.00 25.17 40.39 50.44 38.22 4316.859 6.59 33.28 42.41 49.19 46.65 4880.000 7.18 34.06 42.82 48.46 46.88	ition: 3m VERTICAL No : 11114CR : 2440 TX SE : BLE 1M Cable Ant Preamp Read Limit Freq Loss Factor Factor Level Level Line MHz dB dB/m dB dBuV dBuV/m dBuV/m 1335.141 3.00 25.17 40.39 50.44 38.22 74.00 4316.859 6.59 33.28 42.41 49.19 46.65 74.00 4880.000 7.18 34.06 42.82 48.46 46.88 74.00	ition: 3m VERTICAL No : 11114CR : 2440 TX SE : BLE 1M Cable Ant Preamp Read Limit Over Freq Loss Factor Factor Level Level Line Limit MHz dB dB/m dB dBuV dBuV/m dBuV/m dB 1335.141 3.00 25.17 40.39 50.44 38.22 74.00 -35.78 4316.859 6.59 33.28 42.41 49.19 46.65 74.00 -27.35 4880.000 7.18 34.06 42.82 48.46 46.88 74.00 -27.12		



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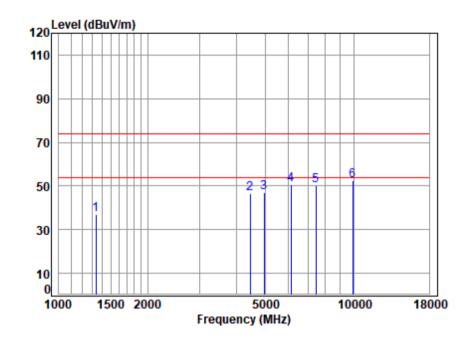
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Test Mode: 02; Polarity: Horizontal; Modulation:GFSK; Channel:High



Site : chamber Condition: 3m HORIZONTAL Job No : 11114CR Mode : 2480 TX SE Note : BLE 1M										
Cable Ant Preamp Read Limit Over										
Freq Loss Factor Factor Level Level Line Limit Remark										
MHz dB dB/m dB dBuV dBuV/m dBuV/m dB										
1 1335.141 3.00 25.17 40.39 49.04 36.82 74.00 -37.18 peak										
2 4456.315 6.72 33.53 42.52 49.03 46.76 74.00 -27.24 peak										
3 4960.000 7.26 34.15 42.87 48.60 47.14 74.00 -26.86 peak										
4 6124.292 8.27 35.23 42.17 49.41 50.74 74.00 -23.26 peak										
5 7440.000 8.96 36.25 41.46 46.55 50.30 74.00 -23.70 peak										
6 9920.000 10.71 37.85 38.12 42.13 52.57 74.00 -21.43 peak										



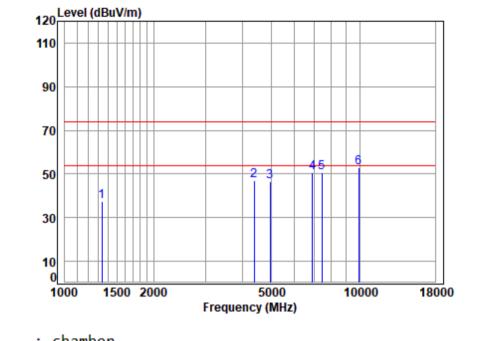
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Report No.: SZEM201101111402 Page: 44 of 74

Test Mode: 02; Polarity: Vertical; Modulation:GFSK; Channel:High



Site	: chamber										
Cond	ition: 3m	VERTI	CAL								
Job I	No : 111	L14CR									
Mode : 2480 TX SE											
Note : BLE 1M											
		Cable	Ant	Preamp	Read		Limit	0ver			
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark		
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB			
1	1335.141	3.00	25.17	40.39	49.45	37.23	74.00	-36.77	peak		
2	4379.699	6.65	33.39	42.46	49.26	46.84	74.00	-27.16	peak		
3	4960.000	7.26	34.15	42.87	47.87	46.41	74.00	-27.59	peak		
4	6914.763	8.50	35.85	41.73	47.98	50.60	74.00	-23.40	peak		
5	7440.000	8.96	36.25	41.46	46.78	50.53	74.00	-23.47	peak		
6	9920.000	10.71	37.85	38.12	42.54	52.98	74.00	-21.02	peak		



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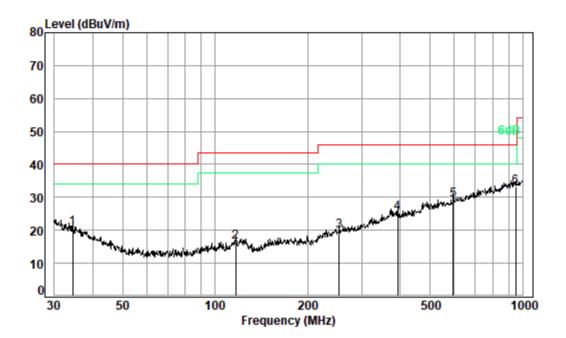
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Below 1GHz:

Test Mode: 03; Polarity: Horizontal



Condition: 3m HORIZONTAL Job No. : 1114CR Test Mode: 03

				Preamp					
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	34.40	0.65	20.66	27.72	27.21	20.80	40.00	-19.20	QP
2	116.54	1.12	13.24	27.51	29.50	16.35	43.50	-27.15	QP
3	252.95	1.66	18.17	26.98	26.78	19.63	46.00	-26.37	QP
4	392.10	2.28	22.17	27.36	28.22	25.31	46.00	-20.69	QP
5	595.13	2.69	25.70	28.12	29.06	29.33	46.00	-16.67	QP
6 pp	948.76	3.55	29.33	26.91	27.08	33.05	46.00	-12.95	QP



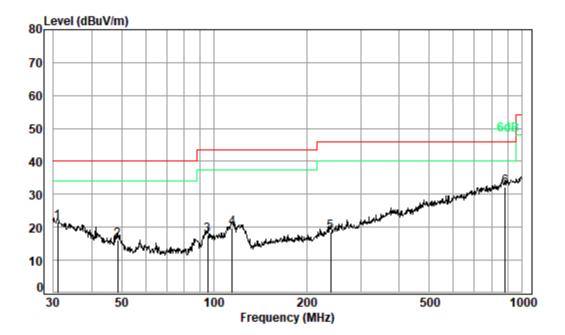
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Test Mode: 03; Polarity: Vertical;



Condition: 3m VERTICAL Job No. : 1114CR Test Mode: 03

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
-									
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	30.96	0.61	22.27	27.73	26.34	21.49	40.00	-18.51	QP
2	48.67	0.70	14.43	27.69	28.67	16.11	40.00	-23.89	QP
3	95.43	1.19	13.71	27.61	30.35	17.64	43.50	-25.86	QP
4	114.51	1.12	13.38	27.52	32.71	19.69	43.50	-23.81	QP
5	239.15	1.55	17.76	27.02	26.26	18.55	46.00	-27.45	QP
6 pp	884.50	3.47	29.05	27.25	27.10	32.37	46.00	-13.63	QP



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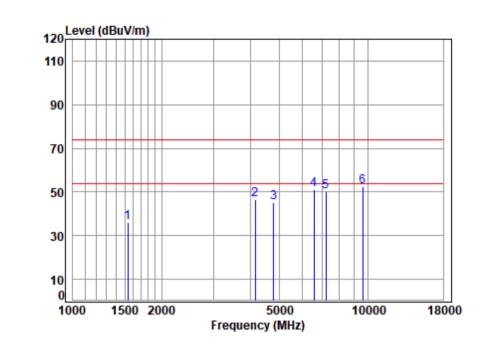
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Above 1GHz:

Test Mode: 03; Polarity: Horizontal; Modulation:GFSK; Channel:Low



Site	e : chamber										
Cond	ition: 3m	HORIZ	ONTAL								
Job I	No : 111	114CR									
Mode	Mode : 2402 TX SE										
Note : BLE 2M											
		Cable	Ant	Preamp	Read		Limit	0ver			
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark		
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB			
1	1538.281	3.29	25.98	40.53	47.50	36.24	74.00	-37.76	peak		
2	4145.664	6.43	32.97	42.28	49.59	46.71	74.00	-27.29	peak		
3	4804.000	7.10	33.97	42.77	47.03	45.33	74.00	-28.67	peak		
4	6564.209	8.31	35.64	41.92	49.07	51.10	74.00	-22.90	peak		
5	7206.000	8.74	36.07	41.58	46.98	50.21	74.00	-23.79	peak		
6	9608.000	10.81	37.67	38.57	42.34	52.25	74.00	-21.75	peak		



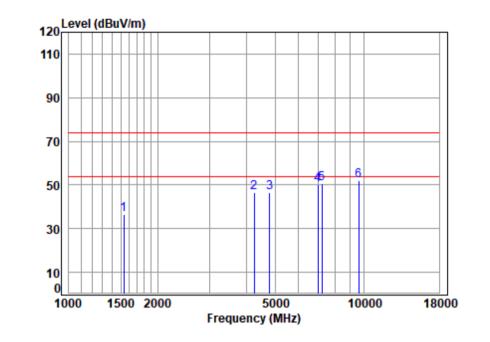
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Test Mode: 03; Polarity: Vertical; Modulation:GFSK; Channel:Low



Site : chamber Condition: 3m VERTICAL Job No : 11114CR Mode : 2402 TX SE Note : BLE 2M										
		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	1533.841	3.29	25.96	40.53	47.72	36.44	74.00	-37.56	peak	
2	4254.921	6.53	33.17	42.36	49.07	46.41	74.00	-27.59	peak	
3	4804.000	7.10	33.97	42.77	48.04	46.34	74.00	-27.66	peak	
4	6974.982	8.53	35.89	41.70	47.66	50.38	74.00	-23.62	peak	
5	7206.000	8.74	36.07	41.58	47.21	50.44	74.00	-23.56	peak	
6	9608.000	10.81	37.67	38.57	42.33	52.24	74.00	-21.76	peak	



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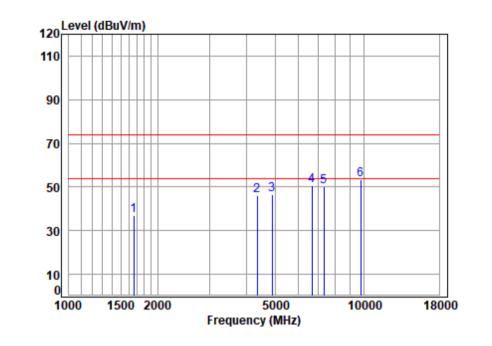
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Test Mode: 03; Polarity: Horizontal; Modulation:GFSK; Channel:middle



Site	te : chamber										
Condition: 3m HORIZONTAL											
Job No : 11114CR											
Mode	Mode : 2440 TX SE										
Note	: BLI	E 2M									
		Cable	Ant	Preamp	Read		Limit	0ver			
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark		
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB			
1	1658.337	3.40	26.50	40.61	47.48	36.77	74.00	-37.23	peak		
2	4354.454	6.63	33.35	42.44	48.70	46.24	74.00	-27.76	peak		
3	4880.000	7.18	34.06	42.82	48.05	46.47	74.00	-27.53	peak		
4	6659.763	8.37	35.70	41.86	48.62	50.83	74.00	-23.17	peak		
5	7320.000	8.84	36.16	41.52	46.81	50.29	74.00	-23.71	peak		
6	9760.000	10.76	37.76	38.35	43.17	53.34	74.00	-20.66	peak		



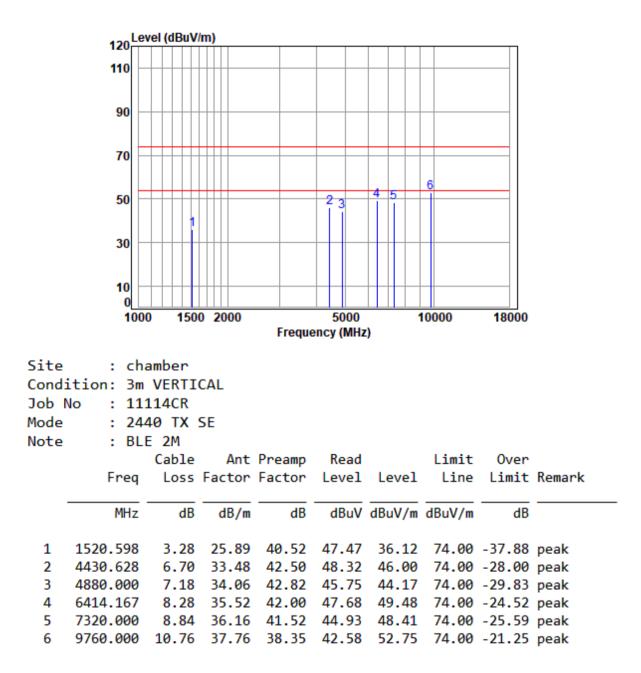
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Test Mode: 03; Polarity: Vertical; Modulation:GFSK; Channel:middle





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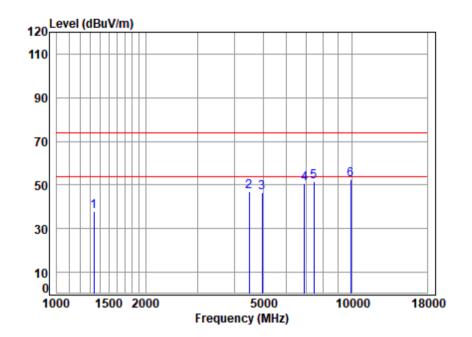
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Test Mode: 03; Polarity: Horizontal; Modulation:GFSK; Channel:High



Site : chamber Condition: 3m HORIZONTAL Job No : 11114CR Mode : 2480 TX SE Note : BLE 2M									
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1335.141	3.00	25.17	40.39	50.19	37.97	74.00	-36.03	peak
2	4482.150	6.74	33.57	42.54	49.13	46.90	74.00	-27.10	peak
3	4960.000	7.26	34.15	42.87	48.19	46.73	74.00	-27.27	peak
4	6894.806	8.49	35.84	41.74	48.02	50.61	74.00	-23.39	peak
5	7440.000	8.96	36.25	41.46	47.70	51.45	74.00	-22.55	peak
6	9920.000	10.71	37.85	38.12	42.16	52.60	74.00	-21.40	peak



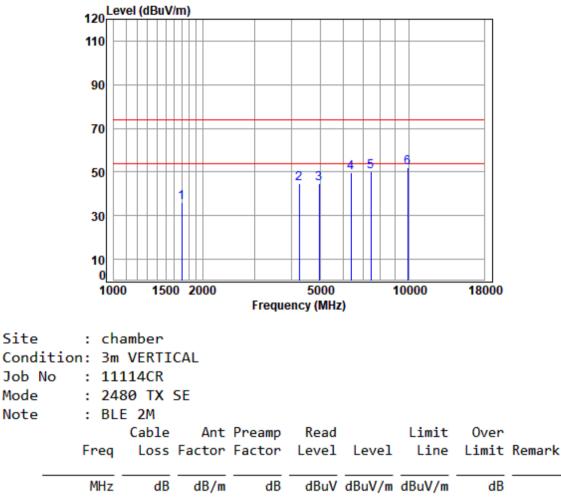
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Test Mode: 03; Polarity: Vertical; Modulation:GFSK; Channel:High



1	1702.042	3.43	26.68	40.63	46.39	35.87	74.00 -38.13 peak
2	4254.921	6.53	33.17	42.36	47.34	44.68	74.00 -29.32 peak
3	4960.000	7.26	34.15	42.87	46.33	44.87	74.00 -29.13 peak
4	6358.789	8.27	35.46	42.03	47.83	49.53	74.00 -24.47 peak
5	7440.000	8.96	36.25	41.46	46.26	50.01	74.00 -23.99 peak
6	9920.000	10.71	37.85	38.12	41.75	52.19	74.00 -21.81 peak



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8 Test Setup Photo

8.1 Test Setup

Please refer to setup photos.

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for SZEM2011011114CR



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10 Appendix

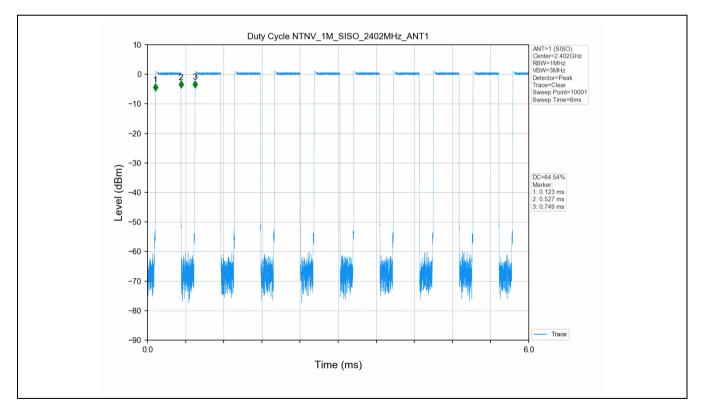
Appendix for 15.247

1. Duty Cycle

1.1 Test Result

Test Mode	Channel Frequency(MHz)	ТХ Туре	ANT No.	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
1M	2402	SISO	1	0.404	0.626	64.54	1.90
	2440	SISO	1	0.404	0.626	64.54	1.90
	2480	SISO	1	0.403	0.625	64.48	1.91
	2402	SISO	1	0.219	0.625	35.04	4.55
2M	2440	SISO	1	0.219	0.624	35.10	4.55
	2480	SISO	1	0.219	0.625	35.04	4.55

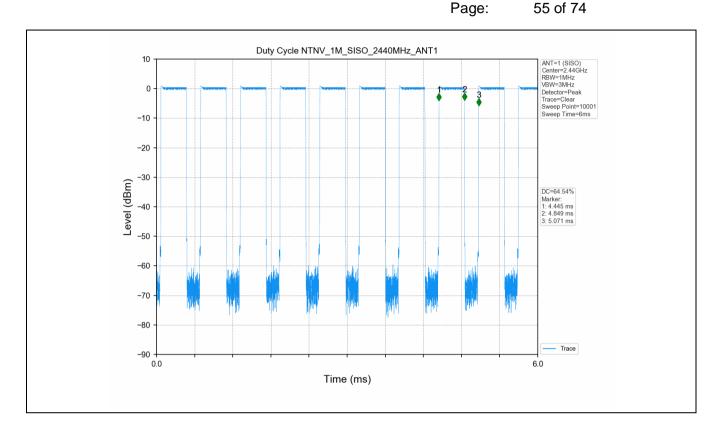
1.2 Test Graph

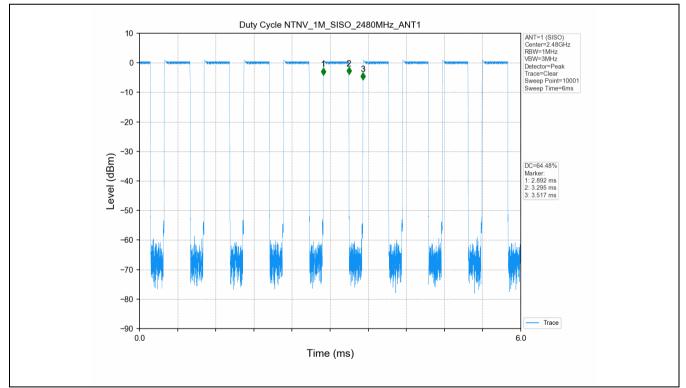






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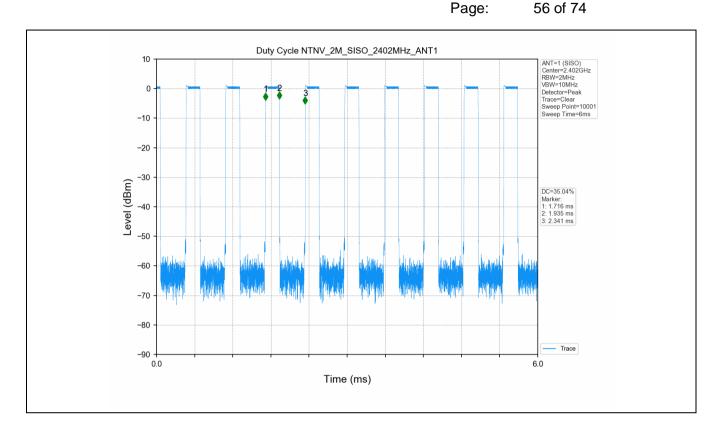
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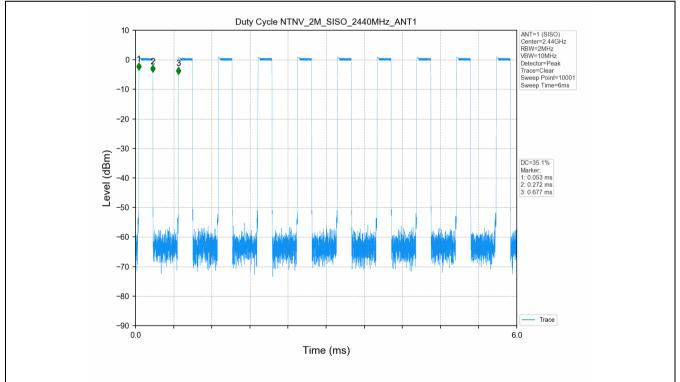
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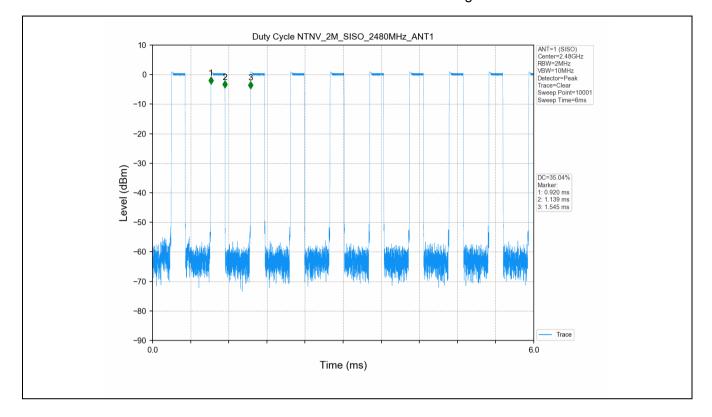
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2. Bandwidth

2.1 Test Result

Test Mede	Frequency			6dB Bandwidth	Vordiot	
Test Mode	(MHz)	ТХ Туре	ANT No.	Test Result (MHz)	Verdict	
	2402	SISO	1	0.678	PASS	
1M	2440	SISO	1	0.674	PASS	
	2480	SISO	1	0.679	PASS	
	2402	SISO	1	1.132	PASS	
2M	2440	SISO	1	1.139	PASS	
	2480	SISO	1	1.130	PASS	



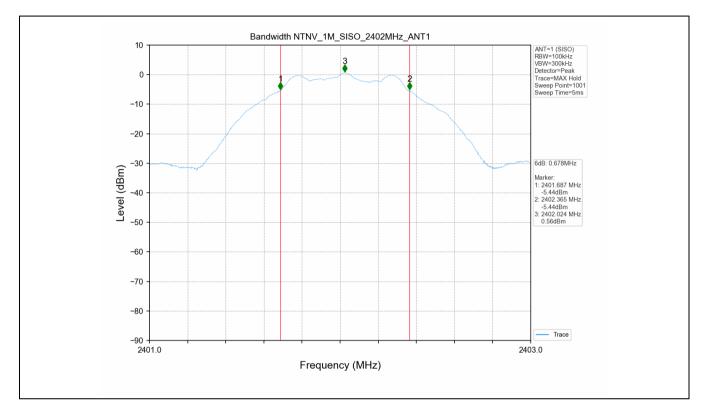
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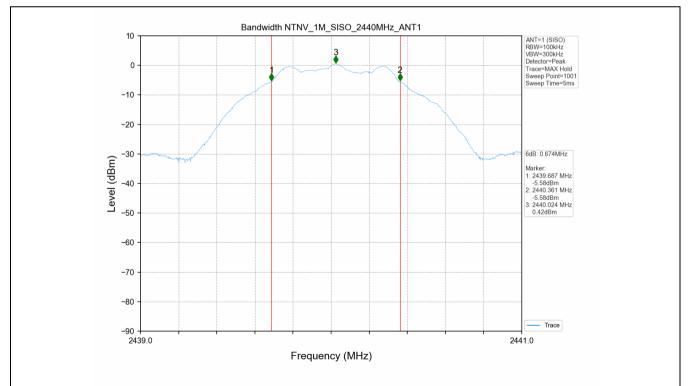
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2.2 Test Graph - 6dB Bandwidth





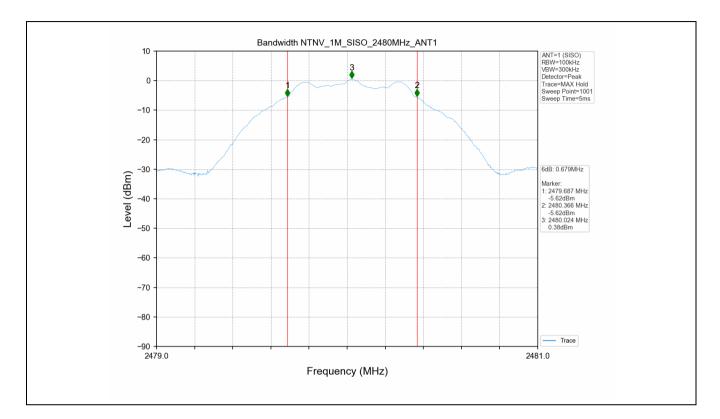
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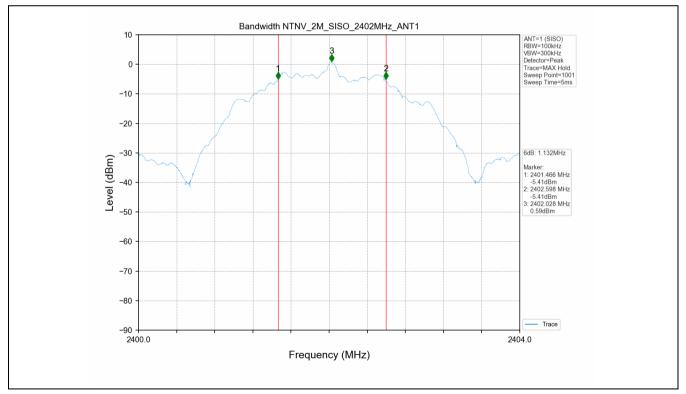
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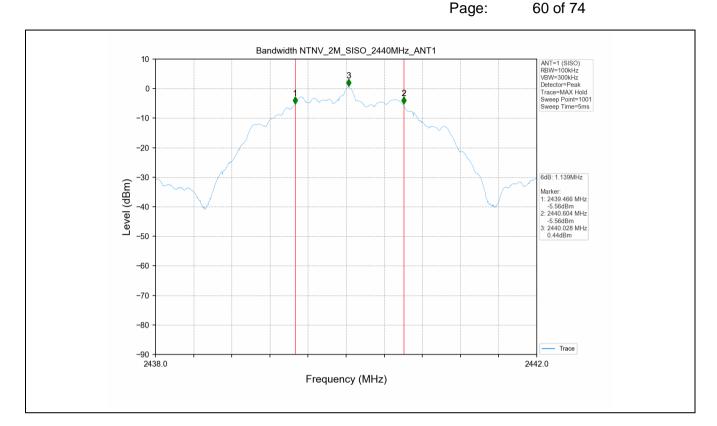
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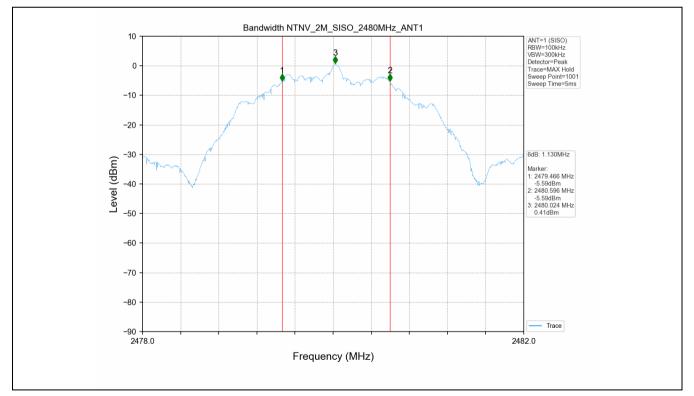
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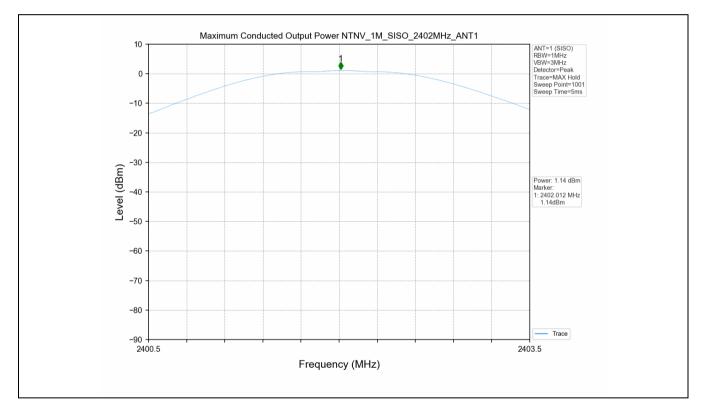
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3. Maximum Conducted Output Power

3.1 Test Result

Test Mode	Frequency (MHz)	Тх Туре	Measured Peak Output Power (dBm) Ant 1	Limits (dBm)	Verdict
	2402	SISO	1.14	30	PASS
1M	2440	SISO	1.01	30	PASS
	2480	SISO	0.98	30	PASS
	2402	SISO	1.23	30	PASS
2M	2440	SISO	1.08	30	PASS
	2480	SISO	1.04	30	PASS

3.2 Test Graph



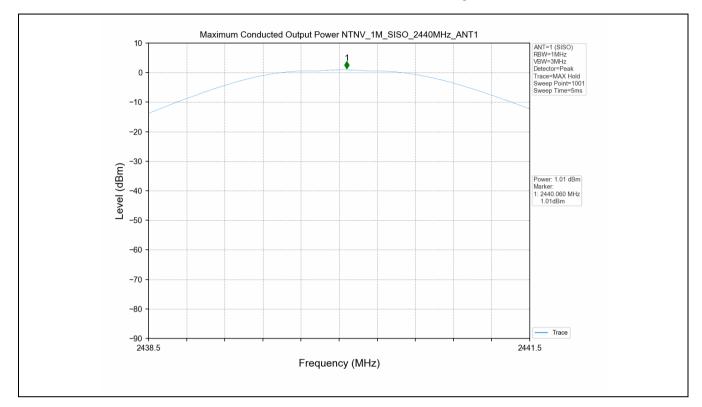


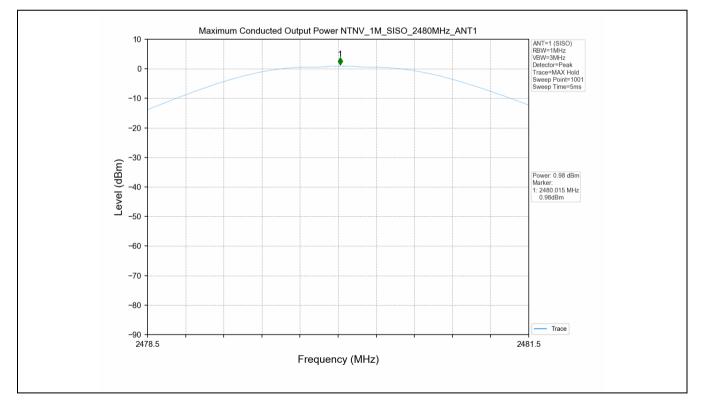


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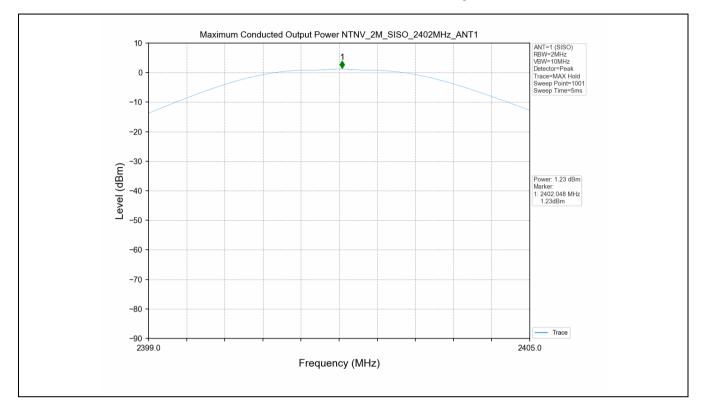
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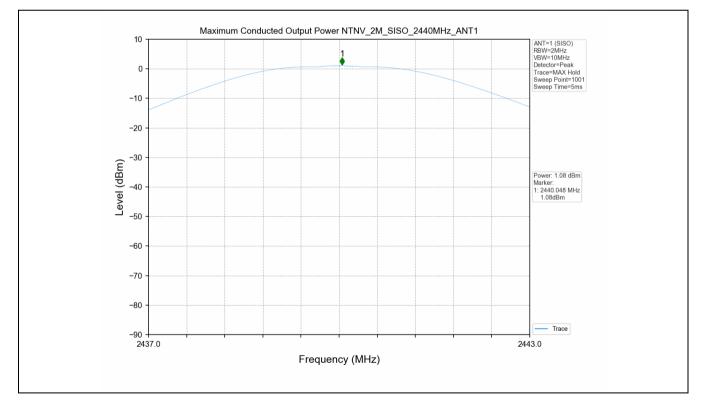


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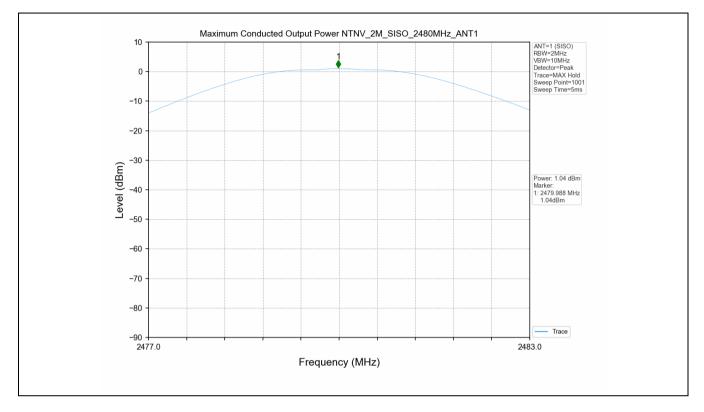
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4. Maximum Power Spectral Density (PSD)

4.1 Test Result

Test Mode	Frequency (MHz)	Тх Туре	Maximum Power Spectral Density (dBm/3KHz)	Limits (dBm/3kHz)	Verdict	
			Ant 1			
	2402	SISO	-15.09	≤8	PASS	
1M	2440	SISO	-15.15	≤8	PASS	
	2480	SISO	-15.16	≤8	PASS	
	2402	SISO	-15.41	≤8	PASS	
2M	2440	SISO	-15.54	≤8	PASS	
	2480	SISO	-15.54	≤8	PASS	



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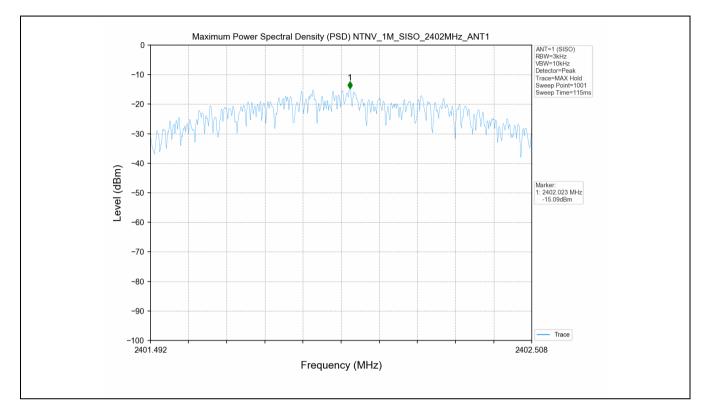
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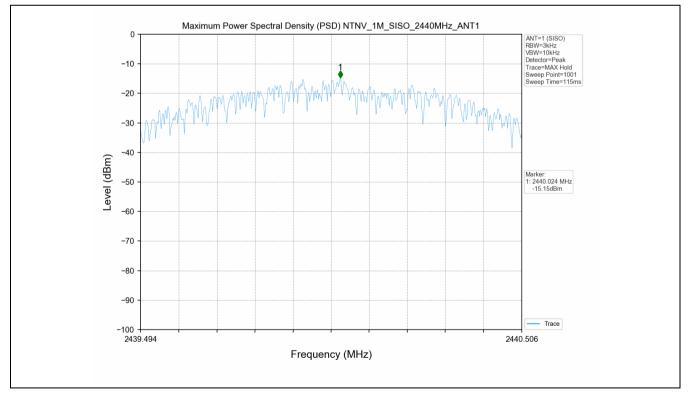
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4.2 Test Graph







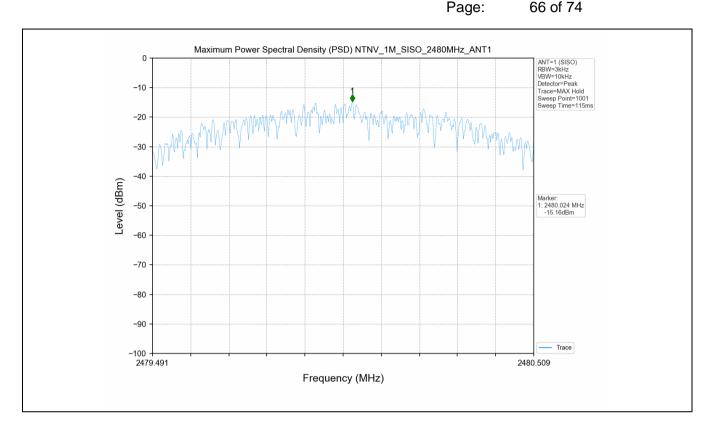
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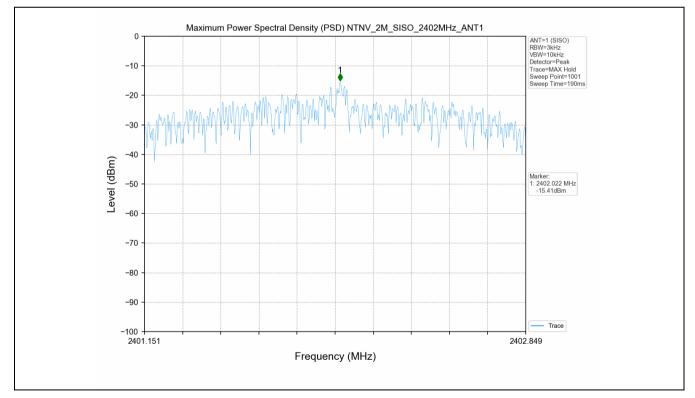
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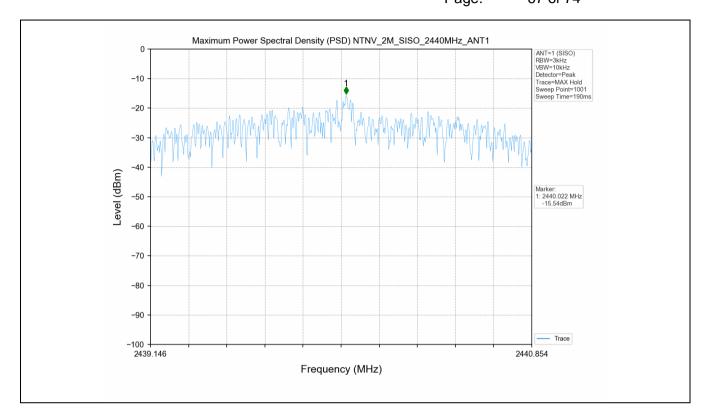
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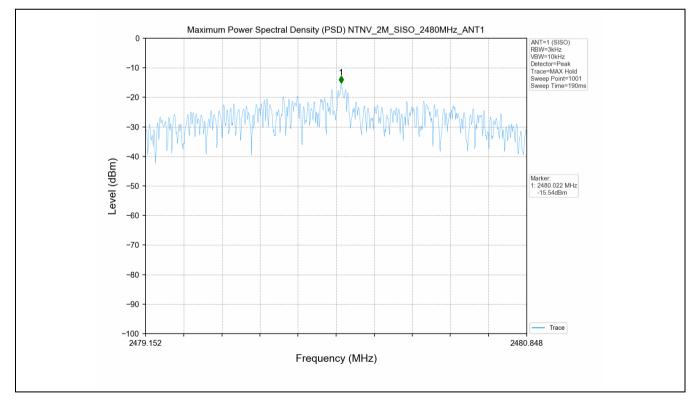
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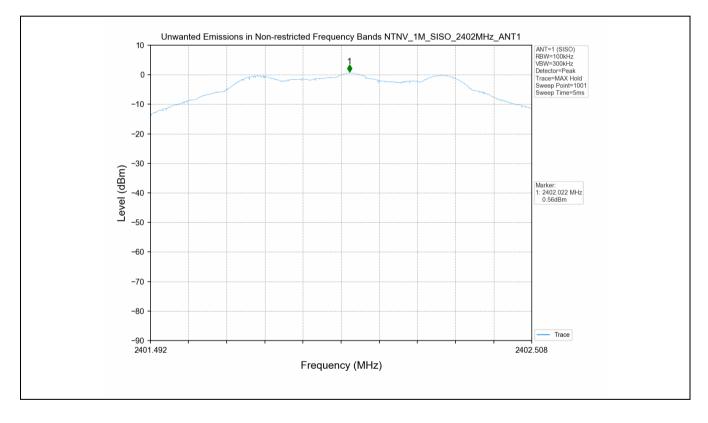
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5. Unwanted Emissions in Non-restricted Frequency Bands

5.1 Test Result

Test Mode	Frequency (MHz)	ТХ Туре	ANT No.	Spurious Conducted Emission (dBm)	Limits (dBm)	Verdict
	2402	SISO	1	Refer to test graph	-19.44	PASS
1M	2440	SISO	1	Refer to test graph	-19.44	PASS
	2480	SISO	1	Refer to test graph	-19.44	PASS
	2402	SISO	1	Refer to test graph	-19.41	PASS
2M	2440	SISO	1	Refer to test graph	-19.41	PASS
	2480	SISO	1	Refer to test graph	-19.41	PASS

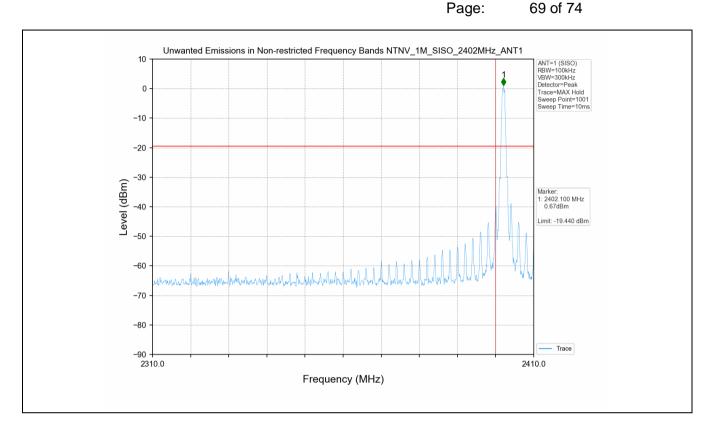
5.2 Test Graph

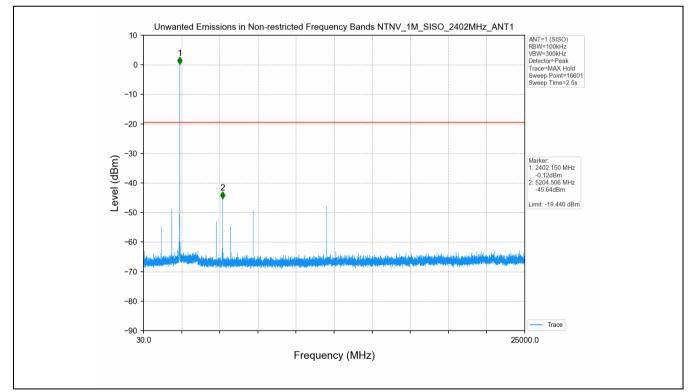






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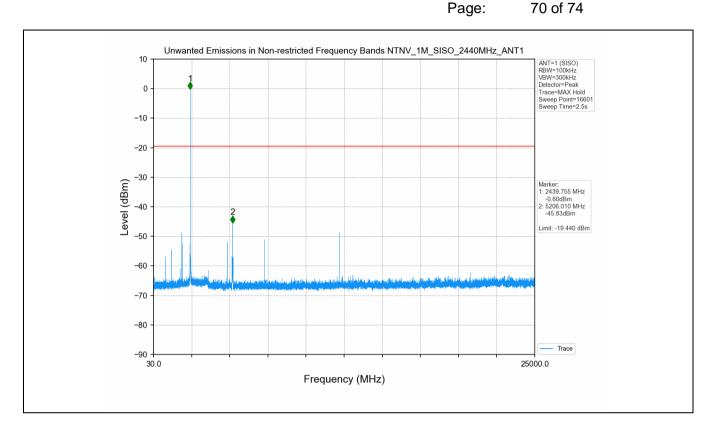
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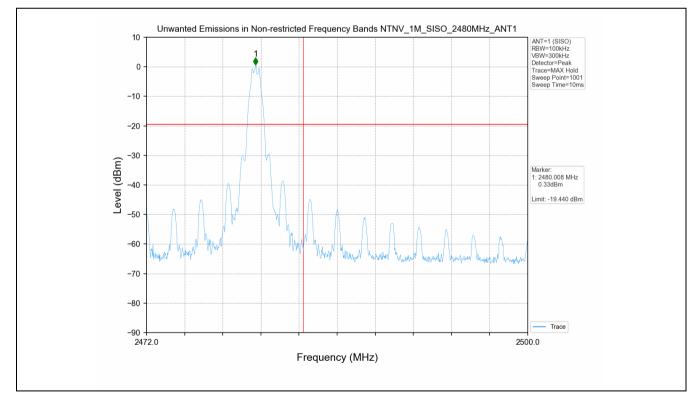
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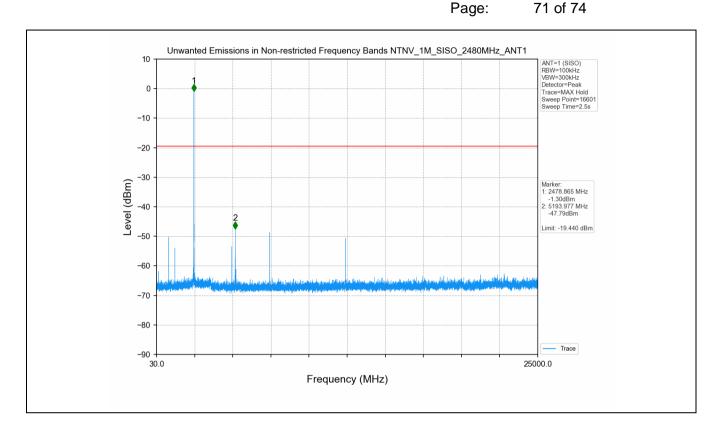
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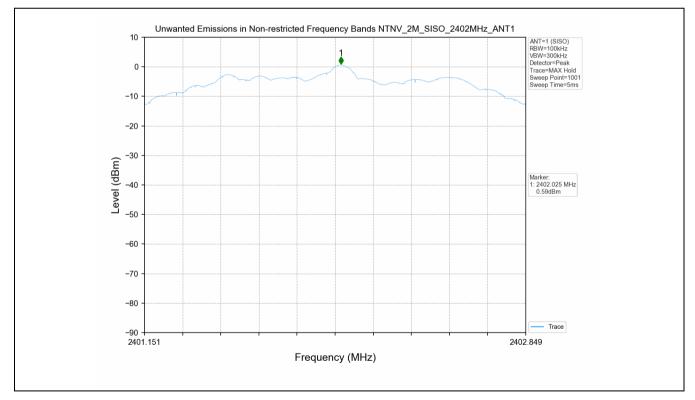
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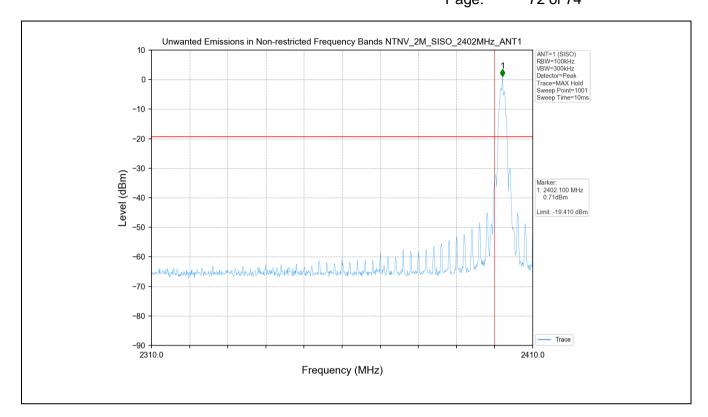
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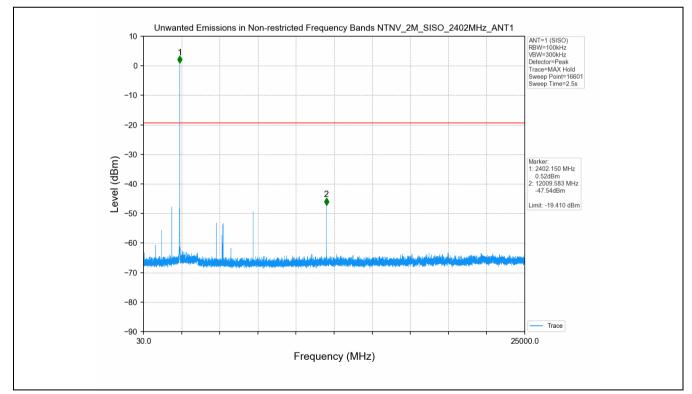
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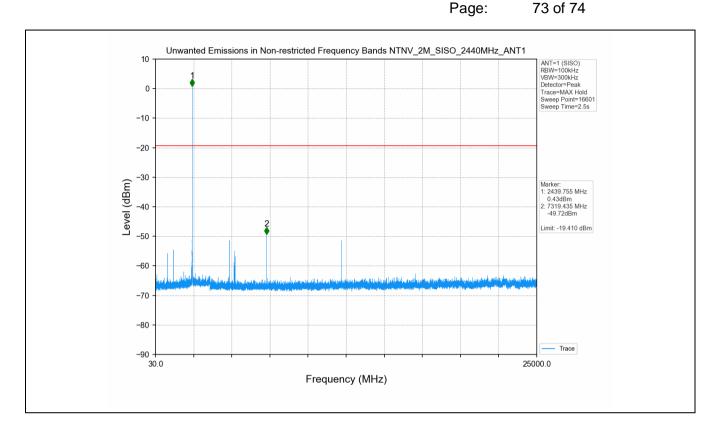
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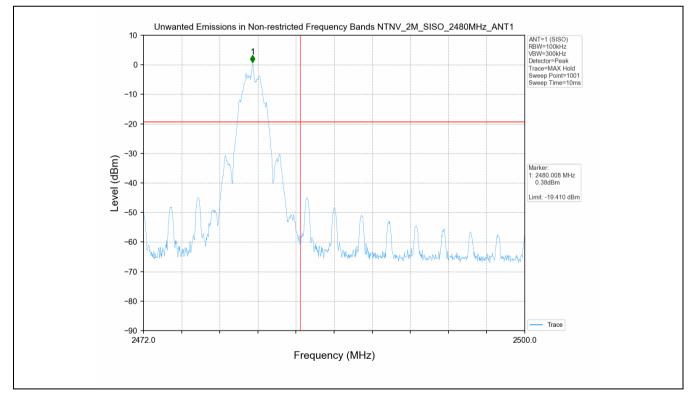
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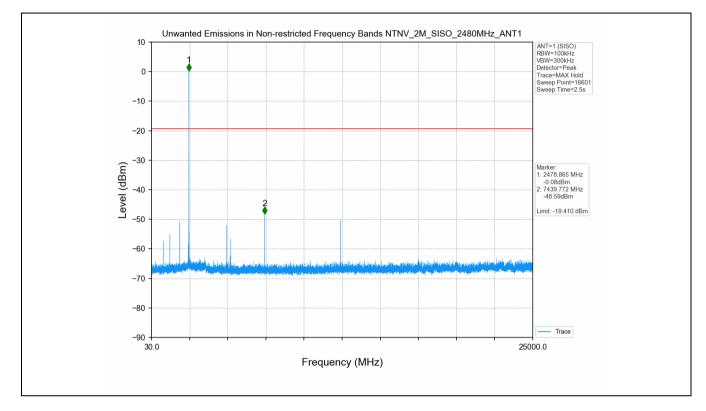
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