TEST REPORT

Application No.:	SZCR2312004277AT
Applicant:	WASION S DE R.L. DE C.V.
Address of Applicant:	AV. MINA DE GUADALUPE 930. PUERTO INTERIOR, SILAO 36275, Mexico
Manufacturer:	WASION S DE R.L. DE C.V.
Address of Manufacturer:	AV. MINA DE GUADALUPE 930. PUERTO INTERIOR, SILAO 36275, Mexico
Factory:	WASION S DE R.L. DE C.V.
Address of Factory:	AV. MINA DE GUADALUPE 930. PUERTO INTERIOR, SILAO 36275, Mexico
Equipment Under Test (EUT):	
EUT Name:	Wi-SUN NIC
Model No.:	TRLZ6V3.2
FCC ID:	2BEBA0101TRLZ6V32
Standard(s) :	47 CFR Part 15, Subpart C 15.247
Date of Receipt:	2023-12-27
Date of Test:	2023-12-28 to 2024-01-03
Date of Issue:	2024-01-03
Test Result:	**Pass***

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

Keny Xu
EMC Laboratory Manager

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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2024-01-03		Original

Authorized for issue by:				
		Frank Chen **Frank Chen/Project Engineer**		
		Eric Fu **Eric Fu/Reviewer**		

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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(b)(4)	Pass
Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence		N/A	47 CFR Part 15, Subpart C 15.247(a)(1),(g),(h)	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 Output Power		ANSI C63.10 (2013) Section 7.8.5	47 CFR Part 15, Subpart C 15.247(b)(2)	Pass
20dB Bandwidth		ANSI C63.10 (2013) Section 7.8.7	47 CFR Part 15, Subpart C 15.247(a)(1)	Pass
Carrier Frequencies Separation		ANSI C63.10 (2013) Section 7.8.2	47 CFR Part 15, Subpart C 15.247a(1)	Pass
Hopping Channel Number		ANSI C63.10 (2013) Section 7.8.3	47 CFR Part 15, Subpart C 15.247a(1)(i)	Pass
Dwell Time		ANSI C63.10 (2013) Section 7.8.4	47 CFR Part 15, Subpart C 15.247a(1)(i)	Pass
Conducted Band Edges Measurement		ANSI C63.10 (2013) Section 7.8.6	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions		ANSI C63.10 (2013) Section 7.8.8	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2013) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 5V powered by meter
Cable Loss (for RF conducted test):	0.6dB
Operation Frequency:	For 50kbps: 902.2MHz to 927.8MHz; For 150kbps: 902.4MHz to 927.6MHz;
Modulation Type:	FSK
Number of Channels:	For 50kbps: 129 Channels; For 150kbps: 64 Channels;
Channel Spacing:	For 50kbps: 200KHz; For 150kbps: 400KHz
Antenna Type:	PIFA Antenna
Antenna Gain:	-2.25dBi

Remark:The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Meter	Provided by Client	CFE GWH00-34 Libra 1C V3 FM1S 120V 15(100)A Kh1.0 Exac. 0.5%	N/A

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	± 3.1dB
Conducted Peak Output Power	± 0.75dB
20dB Bandwidth	± 3%
Carrier Frequencies Separation	± 7.25 x 10-8
Hopping Channel Number	± 7.25 x 10-8
Dwell Time	± 0.37%
Conducted Band Edges Measurement	± 0.75dB
Conducted Spurious Emissions	± 0.75dB
Radiated Emissions which fall in the restricted bands	± 6.0dB (Below 1GHz);± 4.6dB (Above 1GHz)
Radiated Spurious Emissions Below 1GHz	± 6.0dB for 3m; ± 5.0dB for 10m
Radiated Spurious Emissions Above 1GHz	± 4.6dB (1-18GHz);± 4.8dB (18-40GHz)
Remark: The U_{lab} (lab Uncertainty) is less than $U_{cispr/ETSI}$ (CISPR/ETSI 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.	

4.4 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, Nanshan District, Shenzhen, Guangdong, China. 518057.

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

No tests were sub-contracted.

4.5 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 (Member No. 1937)

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. Shenzhen EMC laboratory 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: CN1336

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

Designation Number: CN1336. Test Firm Registration Number: 787754.

• 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.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

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	2022-05-14	2025-05-13
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2023-03-20	2024-03-19
Measurement Software	AUDIX	e3 V8.2014-6-27a	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2023-07-07	2024-07-06
LISN	Rohde&Schwarz	ENV216	SEM007-01	2023-09-19	2024-09-18
LISN	ETS-LINDGREN	3816/2	SEM007-02	2023-03-20	2024-03-19

Conducted Peak Output Power					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Power Sensor	TST PASS	TSPS2023R	SEM009-26	2023-04-01	2024-03-31
Power Sensor	KEYSIGHT	U2021XA	SEM009-16	2023-03-21	2024-03-20
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2023-10-19	2024-10-18
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

20dB Bandwidth					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2023-10-19	2024-10-18
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

Carrier Frequencies Separation					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2023-10-19	2024-10-18
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

Hopping Channel Number					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2023-10-19	2024-10-18
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

Dwell Time					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2023-10-19	2024-10-18
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

Conducted Band Edges Measurement					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2023-10-19	2024-10-18
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

Conducted Spurious Emissions					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2023-10-19	2024-10-18
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

Radiated Emissions which fall in the restricted bands					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Fully-Anechoic Chamber	AUDIX	N/A	SEM001-02	2023-04-01	2026-03-31
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2023-03-20	2024-03-19
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2023-07-23	2025-07-22
Microwave system amplifier	Agilent	83017A	SEM005-25	2023-09-19	2024-09-18
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2023-07-07	2024-07-06
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2022-08-10	2024-08-09
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2023-03-20	2024-03-19

Radiated Spurious Emissions Below 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Loop Antenna	ETS-Lindgren	6502	SEM003-08	2023-11-20	2025-11-19
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2023-06-19	2026-06-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2023-10-19	2024-10-18
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-01	2023-09-16	2025-09-15
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2023-03-20	2024-03-19
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2023-07-07	2024-07-06

Radiated Spurious Emissions Above 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Fully-Anechoic Chamber	AUDIX	N/A	SEM001-02	2023-04-01	2026-03-31
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2023-03-20	2024-03-19
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2023-07-23	2025-07-22
Microwave system amplifier	Agilent	83017A	SEM005-25	2023-09-19	2024-09-18
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2023-07-07	2024-07-06
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2022-08-10	2024-08-09
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2023-03-20	2024-03-19

General used equipment					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2023-07-28	2024-07-27
Humidity/ Temperature Indicator	deli	8838	SEM002-33	2023-07-28	2024-07-27
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2023-03-23	2024-03-22

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)

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 -2.25dBi.

Antenna location: Refer to external photo.

6.2 Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence

6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.247(a)(1),(g),(h)

6.2.2 Conclusion

Standard Requirement:

The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

Compliance for section 15.247(a)(1):

According to Technical Specification, each frequency used equally on the average by each transmitter. The MAC protocol of module implemented frequency hopping mechanisms.The frequency hopping equally (on average) use all available channels in a pseudo-random sequence，a hop dwell is 200 msec. A “channel function” defines a method used to determine, from the list of available PHY channels, the specific channel upon which a node is operating at a given time.

Direct Hash Channel Function (DH1CF) is used as channel function. The function to determine the current channel in the sequence uses a direct hash of time and node address or BSI to select the next channel from the list of channels in use. When using the DH1CF, the pseudorandom hopping sequence is comprised of 2^16 slots (numbered 0 to 2^16-1). The total sequence duration is thus 2^16 * dwell interval. The current slot number is the current position in the hopping sequence.

According to Technical Specification, the receivers are designed to have input and IF bandwidths that match the hopping channel bandwidths of any transmitters and shift frequencies in synchronization with the transmitted signals.

Compliance for section 15.247(g):

According to Technical Specification, the system transmits the packet with the pseudorandom hopping frequency with a continuous data and the short burst transmission from the system is also transmitted under the frequency hopping system with the pseudorandom hopping frequency system.

Compliance for section 15.247(h):

According to Technical specification, the system incorporates with an adaptive system to detect other user within the spectrum band so that it individually and independently to avoid hopping on the

occupied channels.

The system is designed not have the ability to coordinated with other FHSS System in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitter.

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:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	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

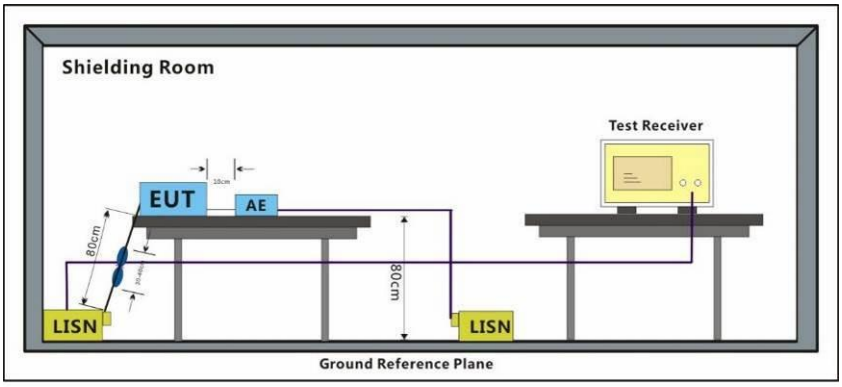
Operating Environment:

Temperature: 23.4 °C Humidity: 47.3 % RH Atmospheric Pressure: 1000 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX_non-Hop mode_Keep the EUT in continuously transmitting mode with FSK modulation.

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/50μH + 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.

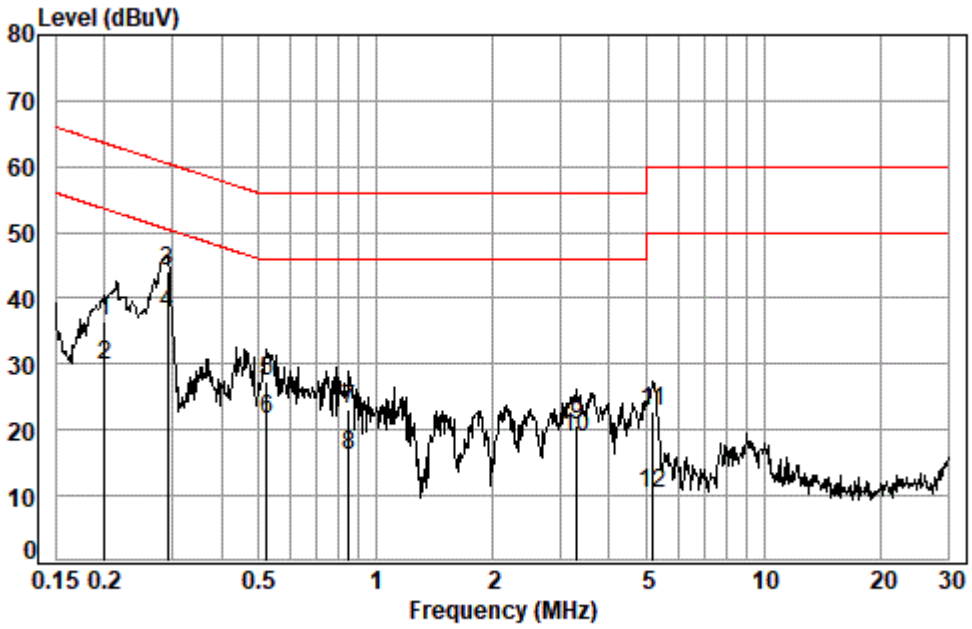
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.

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: Level=Read Level+ Cable Loss+ LISN Factor

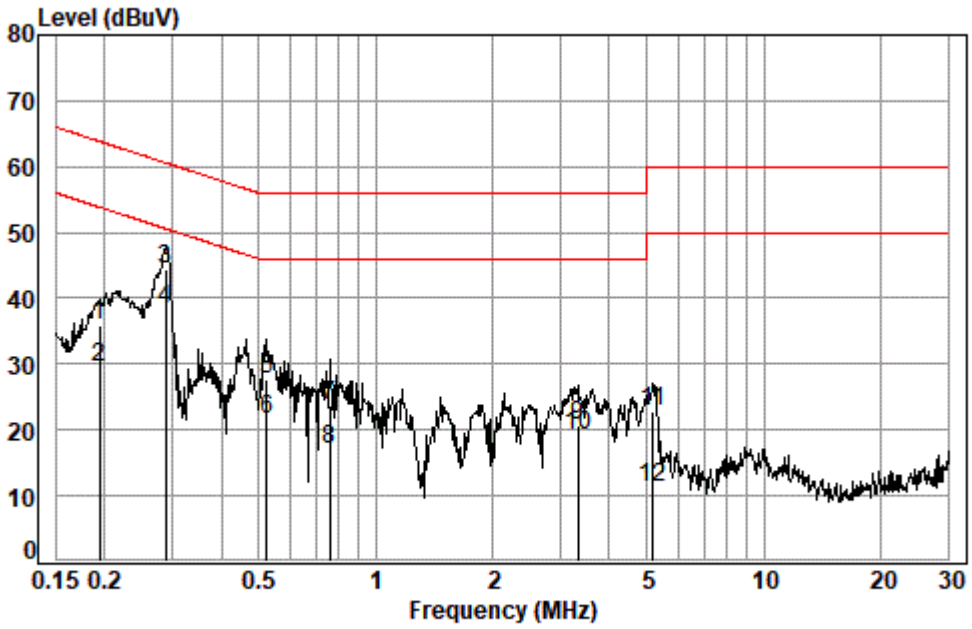
Test Mode: 02; Line: Live line



Site : Shielding Room
Condition: Line
Job No. : 04277AT
Test mode:

		Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1		0.1997	0.02	9.93	26.40	36.35	63.62	-27.27	QP
2		0.1997	0.02	9.93	19.71	29.66	53.62	-23.96	Average
3	*	0.2909	0.03	10.00	33.97	44.00	60.50	-16.50	QP
4	*	0.2909	0.03	10.00	27.78	37.81	50.50	-12.69	Average
5		0.5238	0.04	9.99	17.38	27.41	56.00	-28.59	QP
6		0.5238	0.04	9.99	11.56	21.59	46.00	-24.41	Average
7		0.8528	0.05	10.03	13.01	23.09	56.00	-32.91	QP
8		0.8528	0.05	10.03	6.08	16.16	46.00	-29.84	Average
9		3.2930	0.08	10.03	10.46	20.57	56.00	-35.43	QP
10		3.2930	0.08	10.03	8.77	18.88	46.00	-27.12	Average
11		5.1937	0.09	10.04	12.59	22.72	60.00	-37.28	QP
12		5.1937	0.09	10.04	0.32	10.45	50.00	-39.55	Average

Test Mode: 02; Line: Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 04277AT
Test mode:

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1945	0.02	9.92	25.96	35.90	63.84	-27.94	QP
2	0.1945	0.02	9.92	19.64	29.58	53.84	-24.26	Average
3 *	0.2878	0.03	9.91	34.47	44.41	60.59	-16.18	QP
4 *	0.2878	0.03	9.91	28.42	38.36	50.59	-12.23	Average
5	0.5238	0.04	9.93	17.76	27.73	56.00	-28.27	QP
6	0.5238	0.04	9.93	11.58	21.55	46.00	-24.45	Average
7	0.7630	0.05	9.95	13.73	23.73	56.00	-32.27	QP
8	0.7630	0.05	9.95	7.12	17.12	46.00	-28.88	Average
9	3.3281	0.08	9.98	10.70	20.76	56.00	-35.24	QP
10	3.3281	0.08	9.98	9.07	19.13	46.00	-26.87	Average
11	5.1937	0.09	10.02	12.63	22.74	60.00	-37.26	QP
12	5.1937	0.09	10.02	0.99	11.10	50.00	-38.90	Average

7.2 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(2)

Test Method: ANSI C63.10 (2013) Section 7.8.5

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥50 hopping channels
	0.25 for 25≤ 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

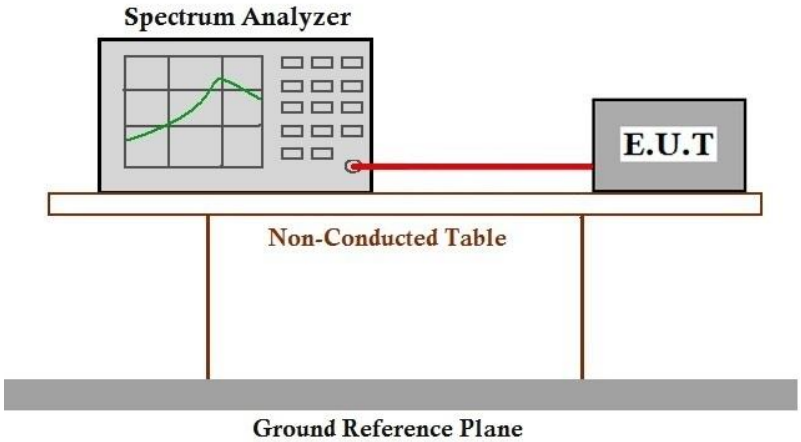
Operating Environment:

Temperature: 23.5 °C Humidity: 43.8 % RH Atmospheric Pressure: 1000 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX_non-Hop mode_Keep the EUT in continuously transmitting mode with FSK modulation.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

Please Refer to Appendix for Details

7.3 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247(a)(1)

Test Method: ANSI C63.10 (2013) Section 7.8.7

Limit:

20 dB bandwidth of the hopping channel	Hopping frequencies	Average time of occupancy
less than 250 kHz	least 50 hopping frequencies	shall not be greater than 0.4 seconds within a 20 second period
250 kHz to 500kHz	least 25 hopping frequencies	shall not be greater than 0.4 seconds within a 10 second period.

7.3.1 E.U.T. Operation

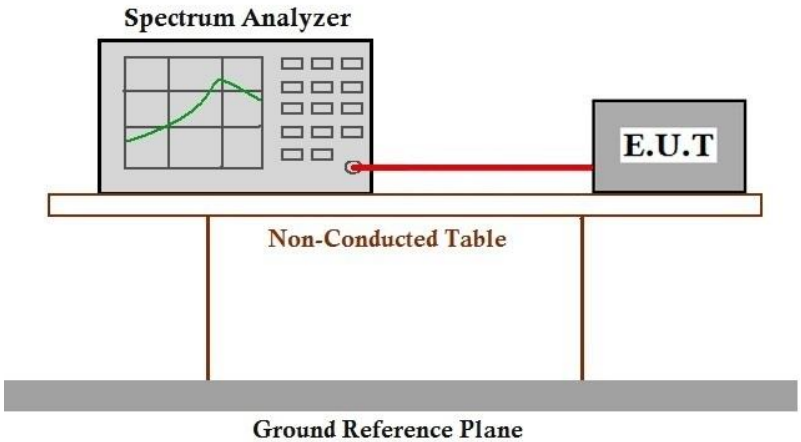
Operating Environment:

Temperature: 23.5 °C Humidity: 43.8 % RH Atmospheric Pressure: 1000 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX_non-Hop mode_Keep the EUT in continuously transmitting mode with FSK modulation.

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.4 Carrier Frequencies Separation

Test Requirement 47 CFR Part 15, Subpart C 15.247a(1)

Test Method: ANSI C63.10 (2013) Section 7.8.2

Limit:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

7.4.1 E.U.T. Operation

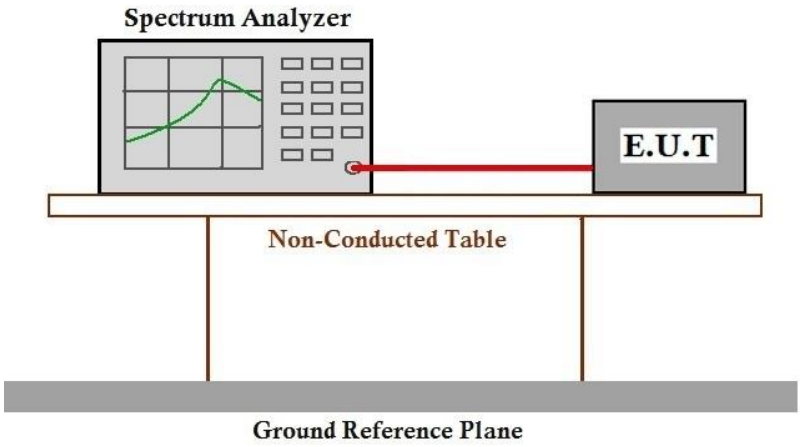
Operating Environment:

Temperature: 23.5 °C Humidity: 43.8 % RH Atmospheric Pressure: 1000 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX_Hop mode_Keep the EUT in frequency hopping mode with FSK modulation.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.5 Hopping Channel Number

Test Requirement 47 CFR Part 15, Subpart C 15.247a(1)(i)
Test Method: ANSI C63.10 (2013) Section 7.8.3

Limit:

Frequency range(MHz)	Number of hopping channels (minimum)
902-928	50 for 20dB bandwidth <250kHz
	25 for 20dB bandwidth ≥250kHz
2400-2483.5	15
5725-5850	75

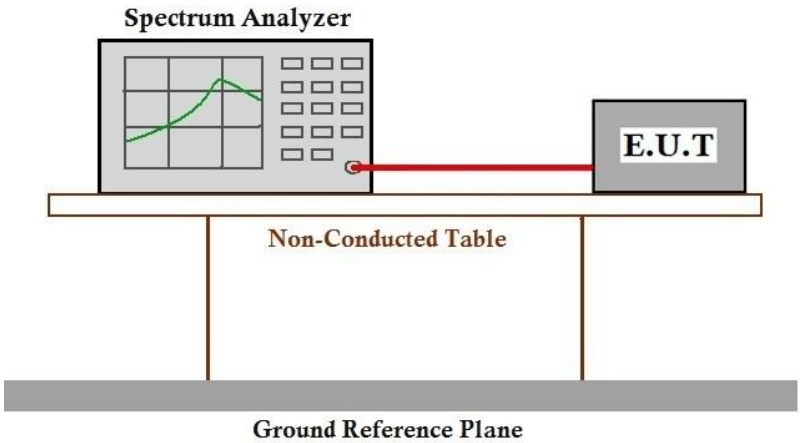
7.5.1 E.U.T. Operation

Operating Environment:
Temperature: 23.5 °C Humidity: 43.8 % RH Atmospheric Pressure: 1000 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX_Hop mode_Keep the EUT in frequency hopping mode with FSK modulation.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.6 Dwell Time

Test Requirement 47 CFR Part 15, Subpart C 15.247a(1)(i)
Test Method: ANSI C63.10 (2013) Section 7.8.4

Limit:

Frequency(MHz)	Limit
902-928	0.4S within a 20S period(20dB bandwidth<250kHz)
	0.4S within a 10S period(20dB bandwidth≥250kHz)
2400-2483.5	0.4S within a period of 0.4S multiplied by the number of hopping channels
5725-5850	0.4S within a 30S period

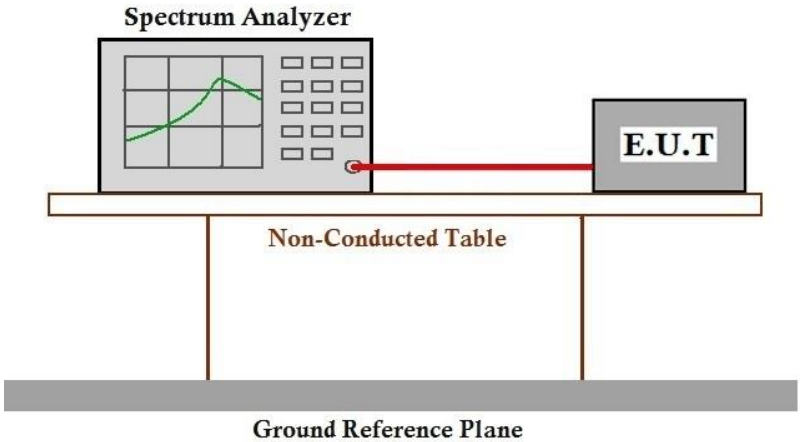
7.6.1 E.U.T. Operation

Operating Environment:
Temperature: 23.5 °C Humidity: 43.8 % RH Atmospheric Pressure: 1000 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX_Hop mode_Keep the EUT in frequency hopping mode with FSK modulation.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.7 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 7.8.6

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).

7.7.1 E.U.T. Operation

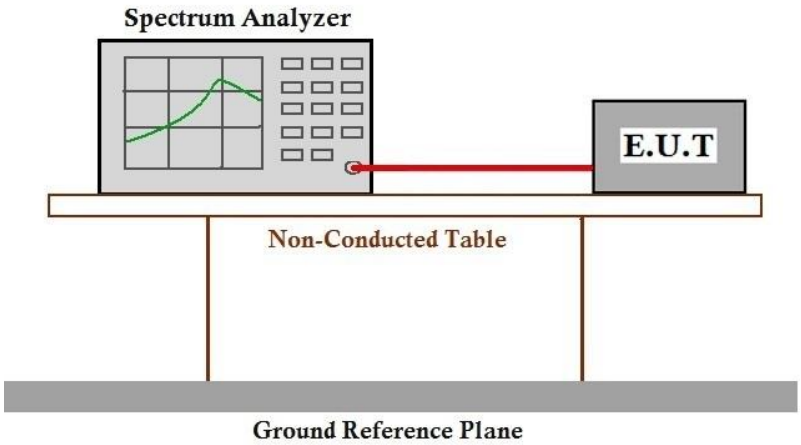
Operating Environment:

Temperature: 23.5 °C Humidity: 43.8 % RH Atmospheric Pressure: 1000 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX_Hop mode_Keep the EUT in frequency hopping mode with FSK modulation.
Final test	02	TX_non-Hop mode_Keep the EUT in continuously transmitting mode with FSK modulation.

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.8 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 7.8.8

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).

7.8.1 E.U.T. Operation

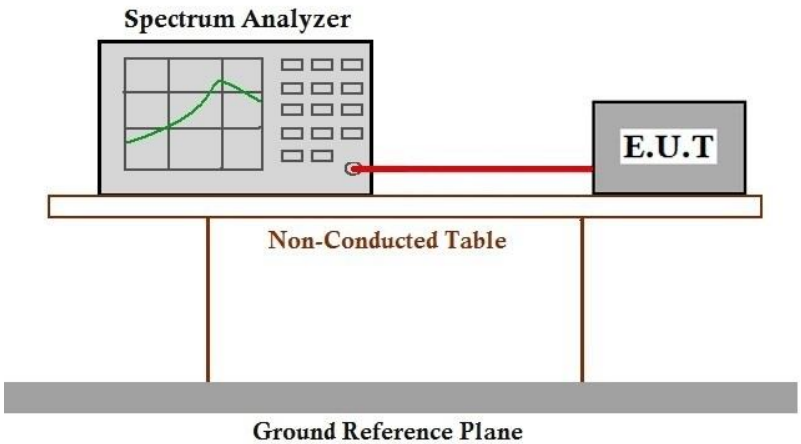
Operating Environment:

Temperature: 23.5 °C Humidity: 43.8 % RH Atmospheric Pressure: 1000 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX_non-Hop mode_Keep the EUT in continuously transmitting mode with FSK modulation.

7.8.3 Test Setup Diagram



7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.9 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.		

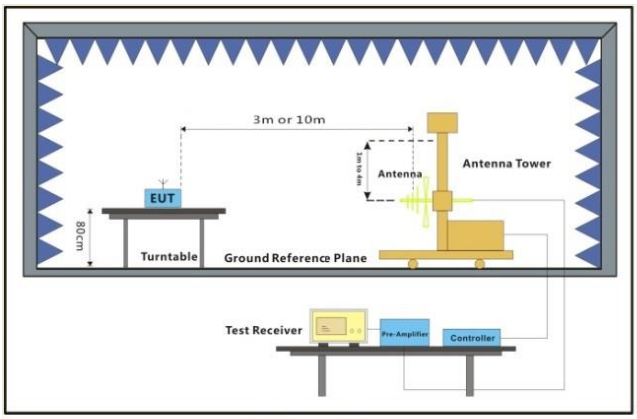
7.9.1 E.U.T. Operation

Operating Environment:
Temperature: 23.5 °C Humidity: 47.5 % RH Atmospheric Pressure: 1000 mbar

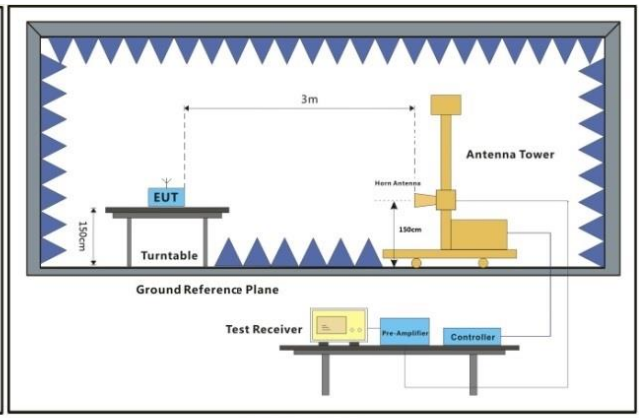
7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX_non-Hop mode_Keep the EUT in continuously transmitting mode with FSK modulation.

7.9.3 Test Setup Diagram



30MHz-1GHz



Above 1GHz

7.9.4 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.

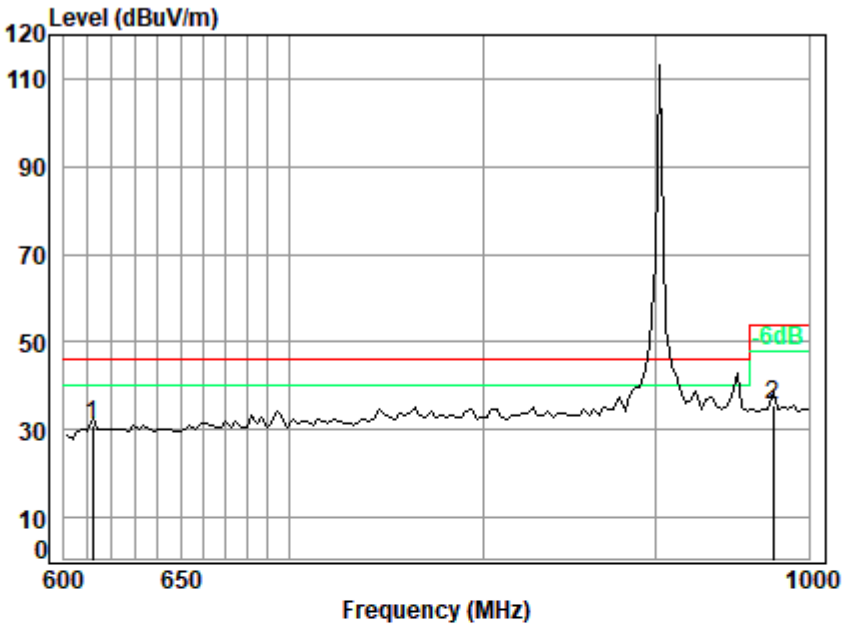
h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

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.

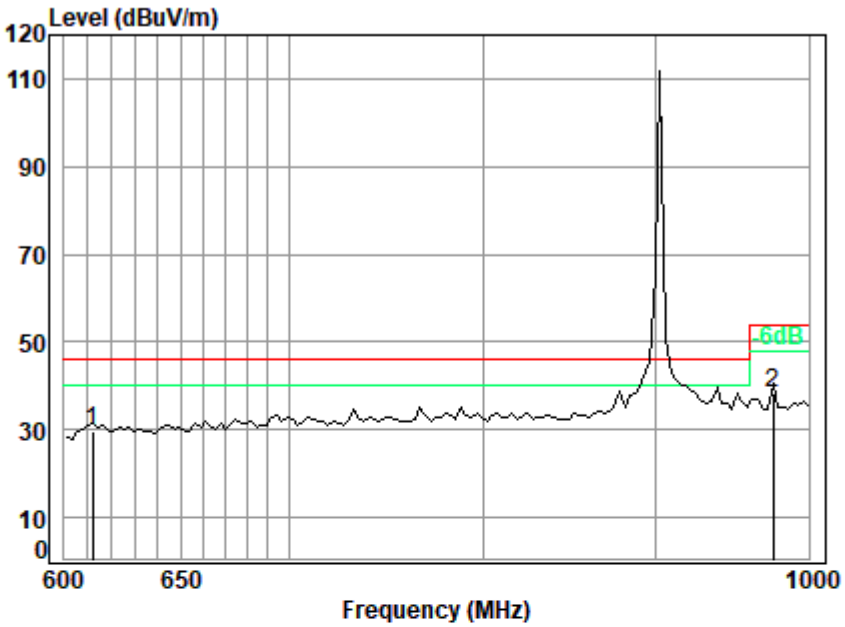
Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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.



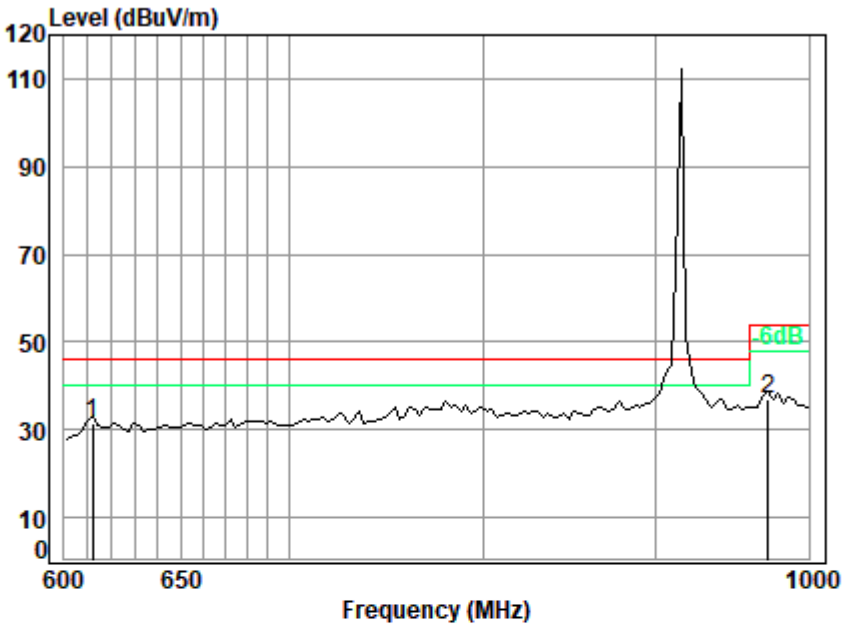
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 902.2MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	612.064	24.81	3.25	28.19	30.94	30.81	46.00	-15.19	QP
2	975.753	28.06	4.29	26.77	30.19	35.77	54.00	-18.23	QP



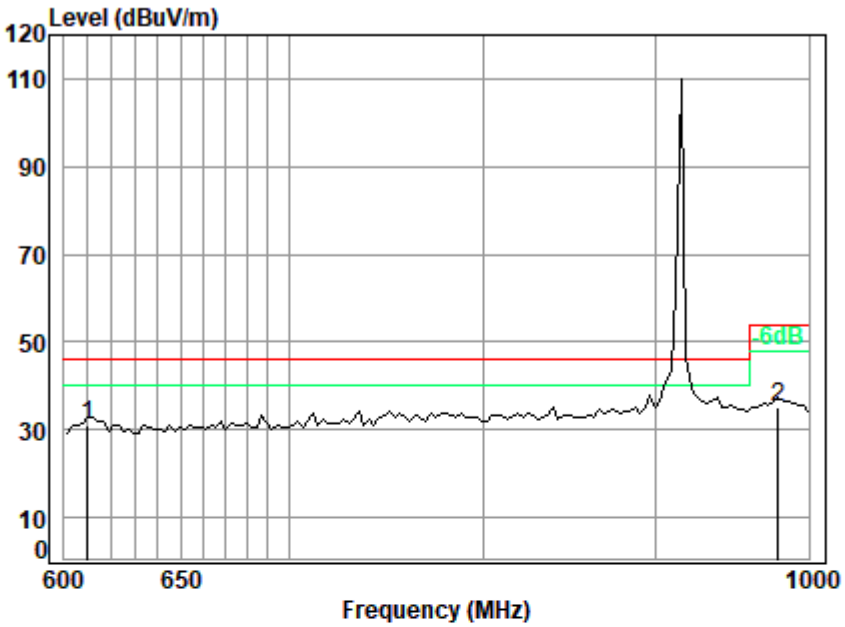
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 902.2MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	612.064	24.81	3.25	28.19	29.59	29.46	46.00	-16.54	QP
2 q	975.753	28.06	4.29	26.77	32.82	38.40	54.00	-15.60	QP



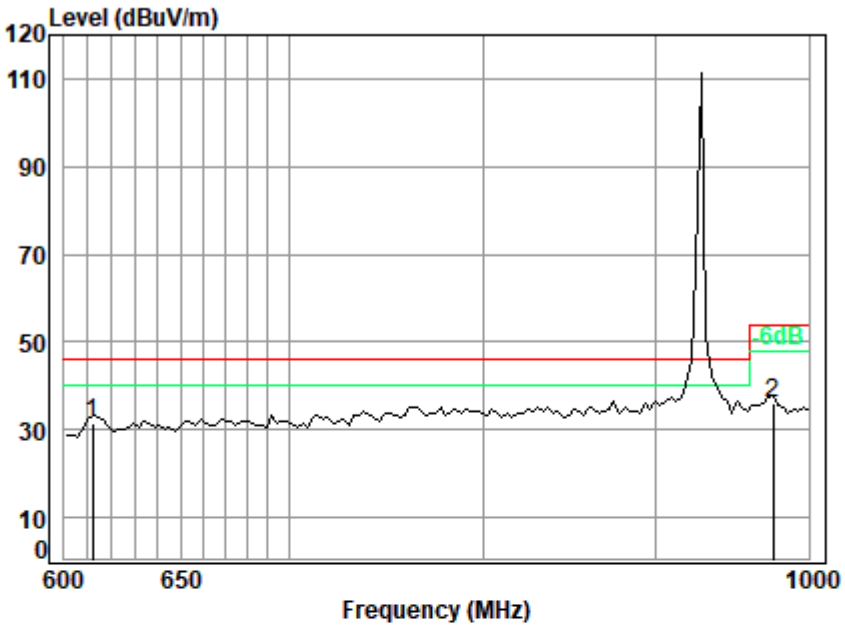
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 915MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	612.064	24.81	3.25	28.19	31.46	31.33	46.00	-14.67	QP
2	972.337	28.16	4.28	26.78	31.09	36.75	54.00	-17.25	QP



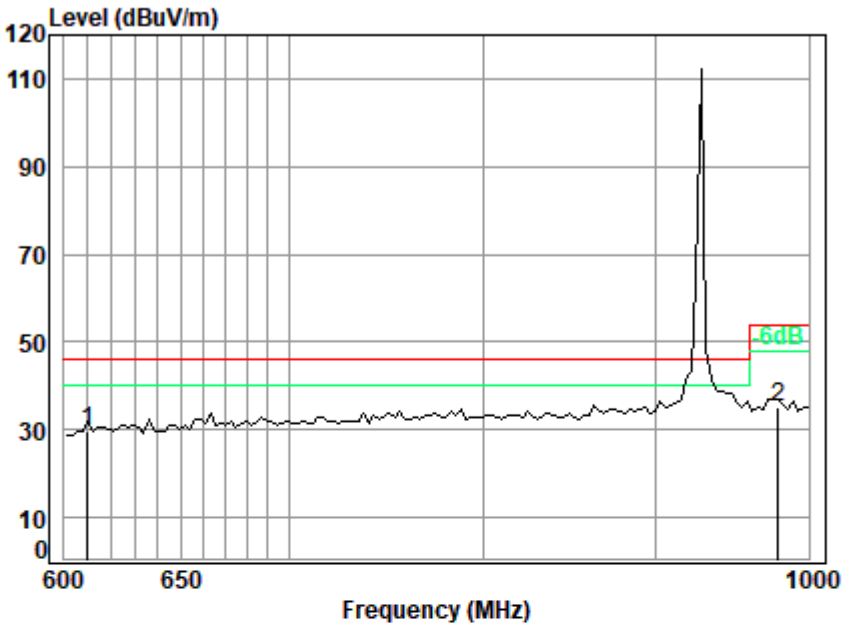
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 915MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	609.922	24.71	3.24	28.20	31.14	30.89	46.00	-15.11	QP
2	979.180	28.01	4.30	26.75	29.76	35.32	54.00	-18.68	QP



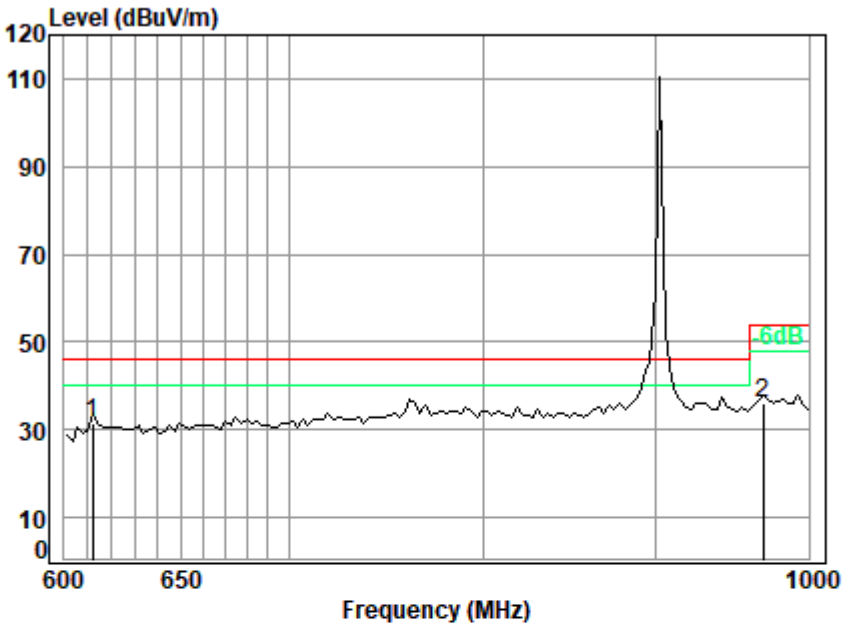
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 927.8MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	612.064	24.81	3.25	28.19	31.64	31.51	46.00	-14.49	QP
2	975.753	28.06	4.29	26.77	30.25	35.83	54.00	-18.17	QP



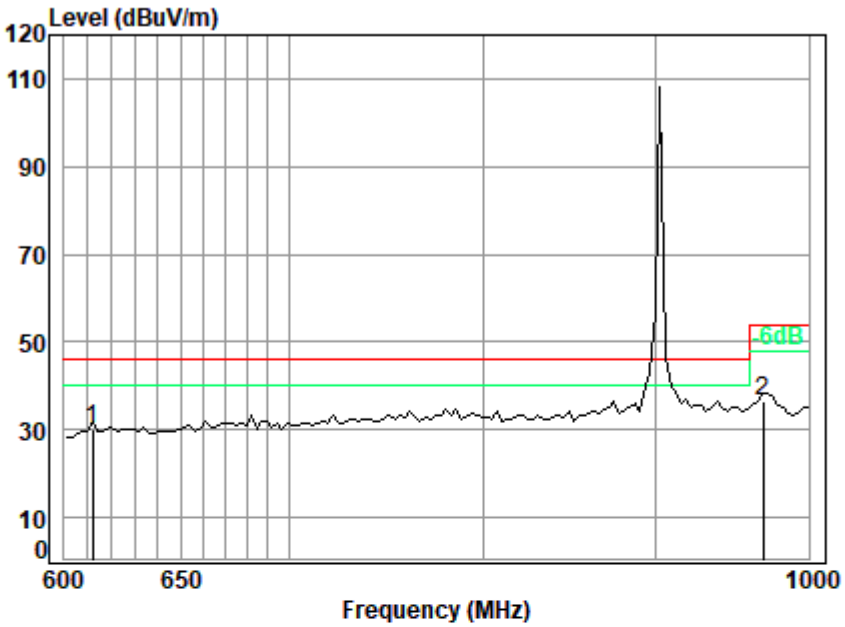
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 927.8MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	609.922	24.71	3.24	28.20	30.10	29.85	46.00	-16.15	QP
2	979.180	28.01	4.30	26.75	29.54	35.10	54.00	-18.90	QP



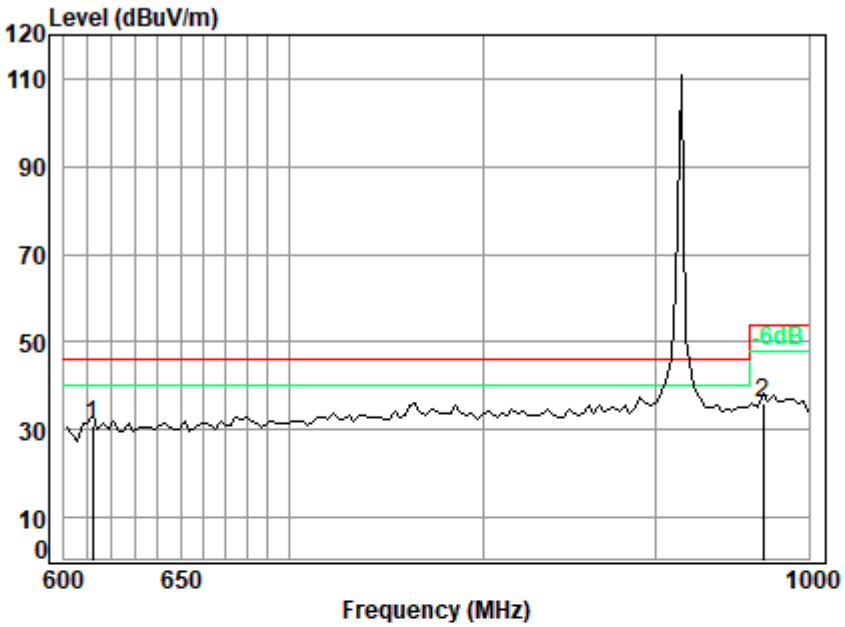
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 902.4MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	612.064	24.81	3.25	28.19	31.83	31.70	46.00	-14.30	QP
2	968.934	28.23	4.27	26.80	30.26	35.96	54.00	-18.04	QP



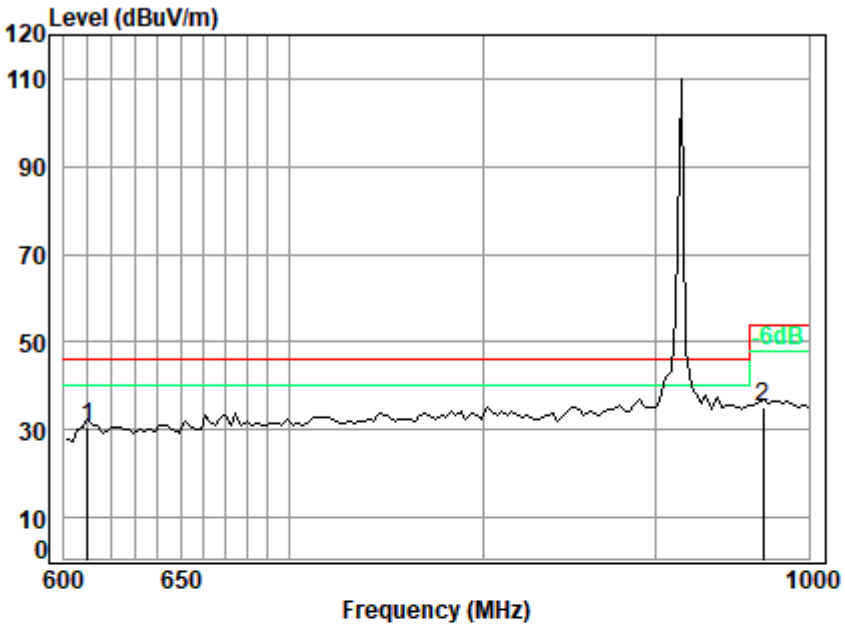
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 902.4MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	612.064	24.81	3.25	28.19	30.15	30.02	46.00	-15.98	QP
2	968.934	28.23	4.27	26.80	30.72	36.42	54.00	-17.58	QP



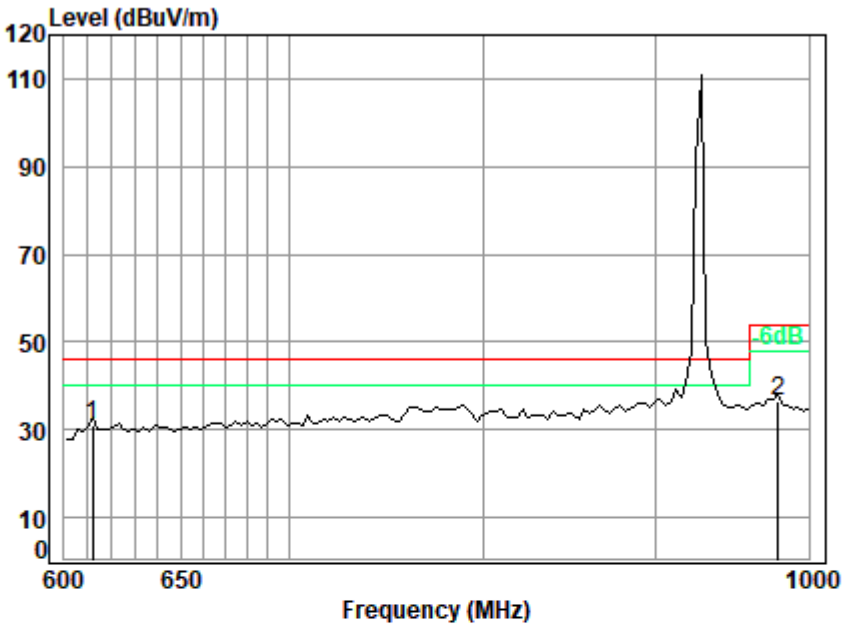
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 914.8MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	612.064	24.81	3.25	28.19	31.22	31.09	46.00	-14.91	QP
2	968.934	28.23	4.27	26.80	30.53	36.23	54.00	-17.77	QP



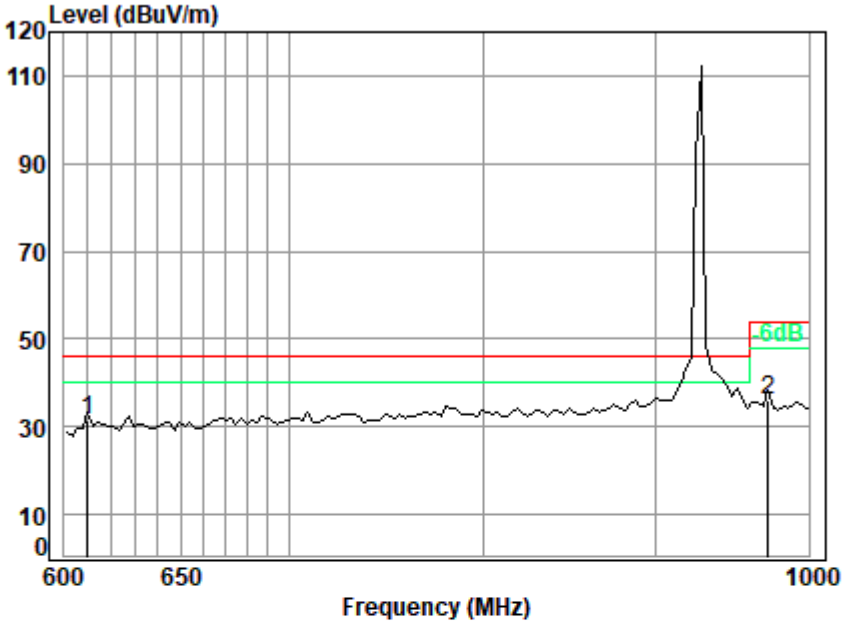
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 914.8MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	609.922	24.71	3.24	28.20	30.67	30.42	46.00	-15.58	QP
2	968.934	28.23	4.27	26.80	29.43	35.13	54.00	-18.87	QP



Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 927.6MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	612.064	24.81	3.25	28.19	30.99	30.86	46.00	-15.14	QP
2	979.180	28.01	4.30	26.75	30.72	36.28	54.00	-17.72	QP



Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 927.6MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	609.922	24.71	3.24	28.20	31.68	31.43	46.00	-14.57	QP
2	972.337	28.16	4.28	26.78	30.45	36.11	54.00	-17.89	QP

7.10 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method: ANSI C63.10 (2013) Section 6.4,6.5
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
960-1000	500	3

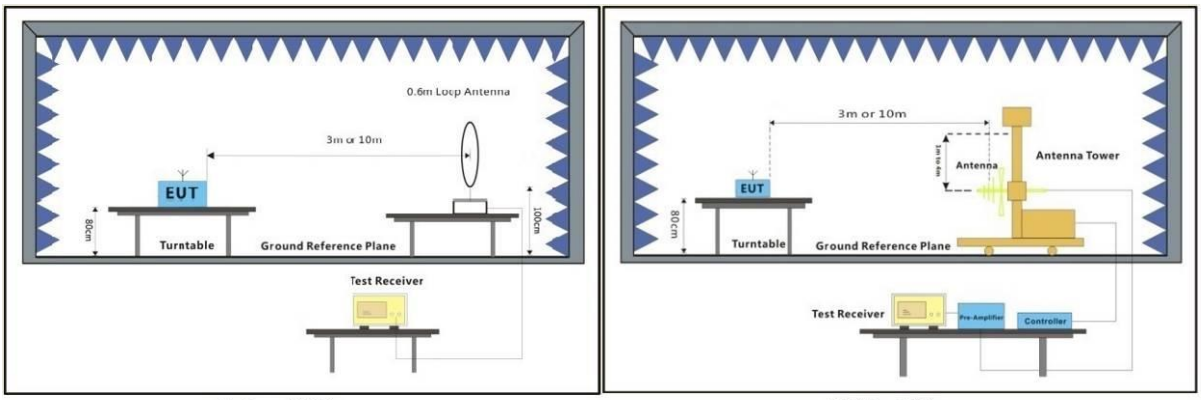
7.10.1 E.U.T. Operation

Operating Environment:
Temperature: 23.5 °C Humidity: 47.3 % RH Atmospheric Pressure: 1000 mbar

7.10.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX_non-Hop mode_Keep the EUT in continuously transmitting mode with FSK modulation.

7.10.3 Test Setup Diagram



Below 30MHz 30MHz-1GHz

7.10.4 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. 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.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. 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.

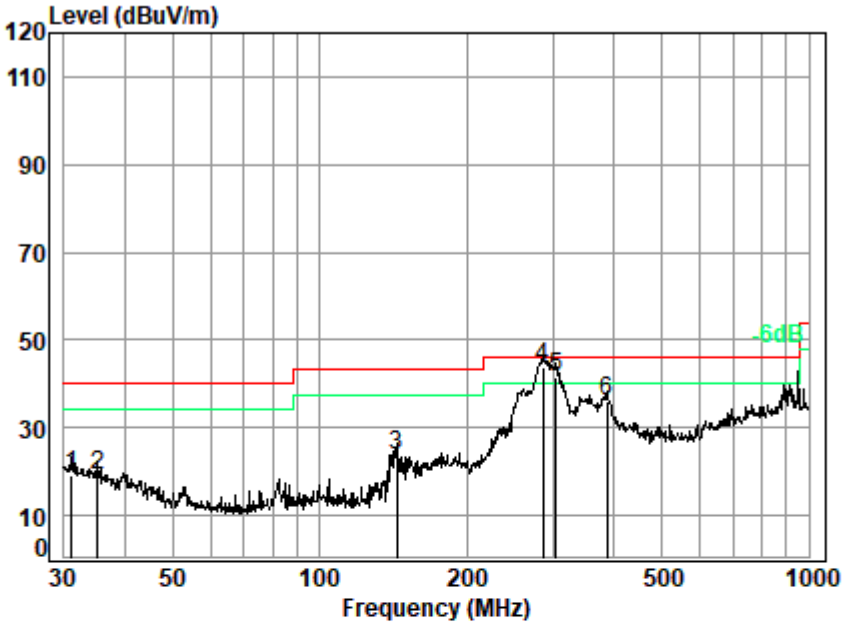
i. Repeat above procedures until all frequencies measured was complete.

Remark:

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

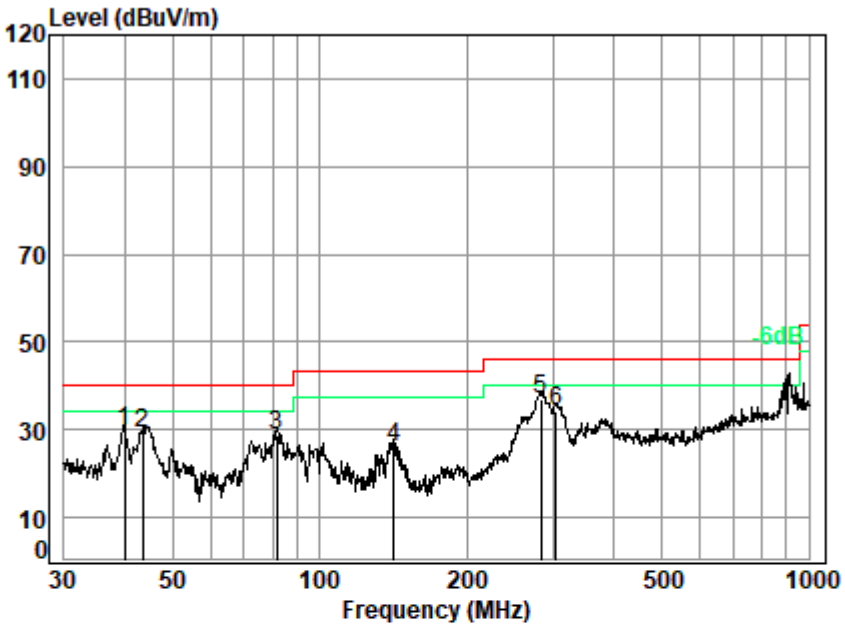
2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



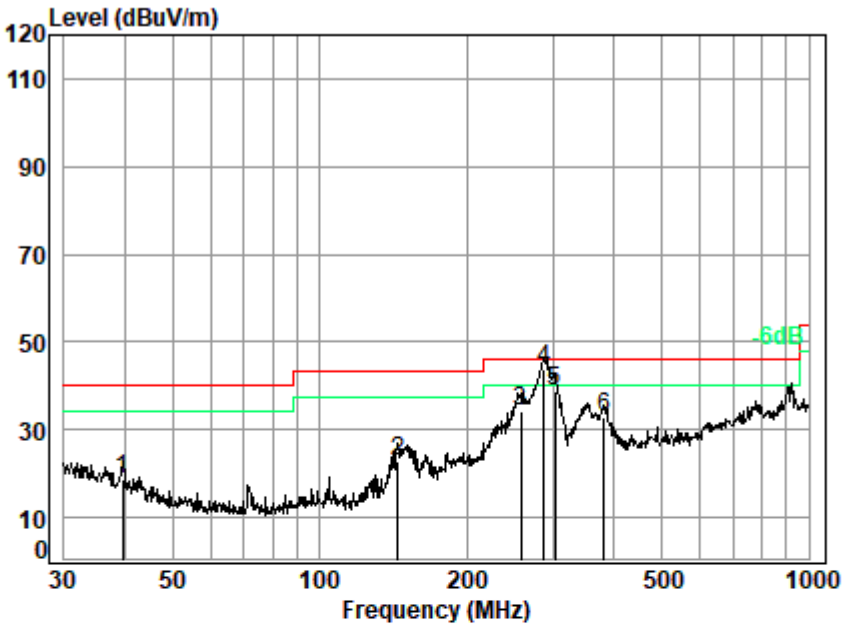
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 902.2MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	31.071	20.70	0.65	27.80	25.67	19.22	40.00	-20.78	QP
2	35.128	18.80	0.70	27.79	27.45	19.16	40.00	-20.84	QP
3	143.830	12.25	1.43	27.45	37.28	23.51	43.50	-19.99	QP
4 q	285.978	16.91	2.11	26.94	51.89	43.97	46.00	-2.03	QP
5	304.610	18.40	2.19	26.91	47.99	41.67	46.00	-4.33	QP
6	386.634	20.85	2.50	27.28	40.15	36.22	46.00	-9.78	QP



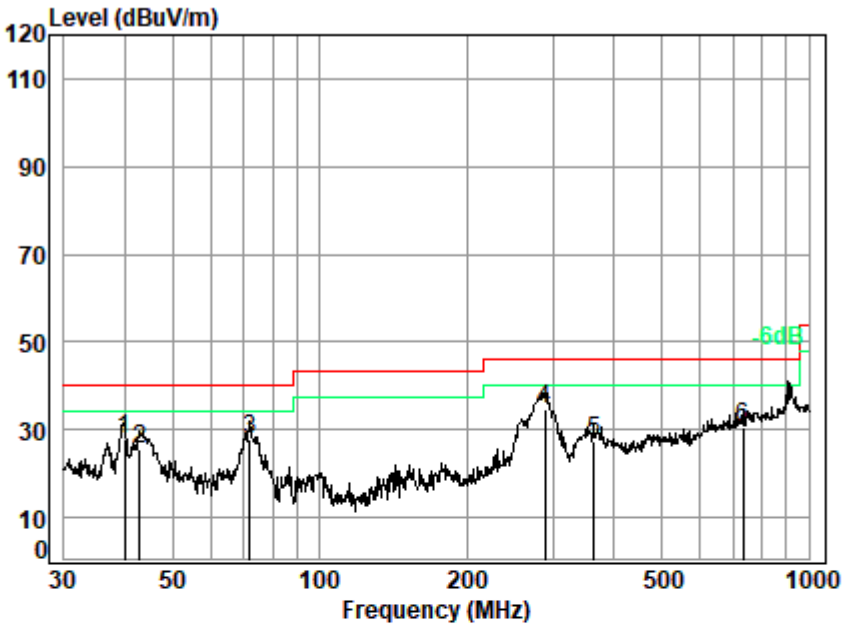
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 902.2MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	39.854	16.48	0.75	27.78	40.02	29.47	40.00	-10.53	QP
2	43.506	14.76	0.78	27.77	41.35	29.12	40.00	-10.88	QP
3	81.783	10.60	1.07	27.66	44.74	28.75	40.00	-11.25	QP
4	141.826	12.01	1.42	27.46	40.01	25.98	43.50	-17.52	QP
5 q	282.985	16.88	2.10	26.95	44.97	37.00	46.00	-9.00	QP
6	303.544	18.35	2.18	26.91	40.39	34.01	46.00	-11.99	QP



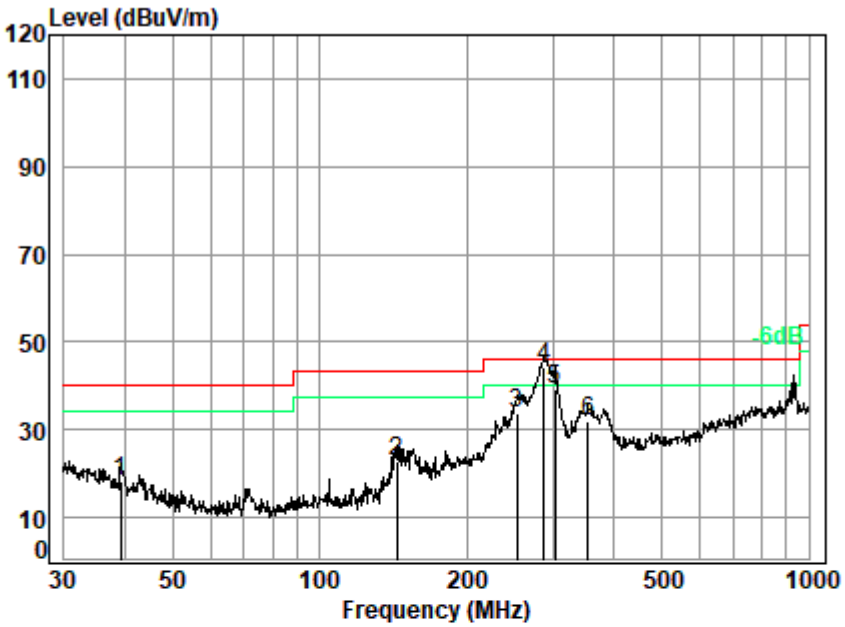
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 915MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	39.576	16.60	0.75	27.78	29.36	18.93	40.00	-21.07	QP
2	144.335	12.32	1.43	27.45	36.58	22.88	43.50	-20.62	QP
3	257.422	17.29	1.98	27.04	42.15	34.38	46.00	-11.62	QP
4 q	286.982	16.93	2.11	26.94	51.88	43.98	46.00	-2.02	QP
5	302.481	18.28	2.18	26.90	45.36	38.92	46.00	-7.08	QP
6	381.249	20.93	2.48	27.25	36.49	32.65	46.00	-13.35	QP



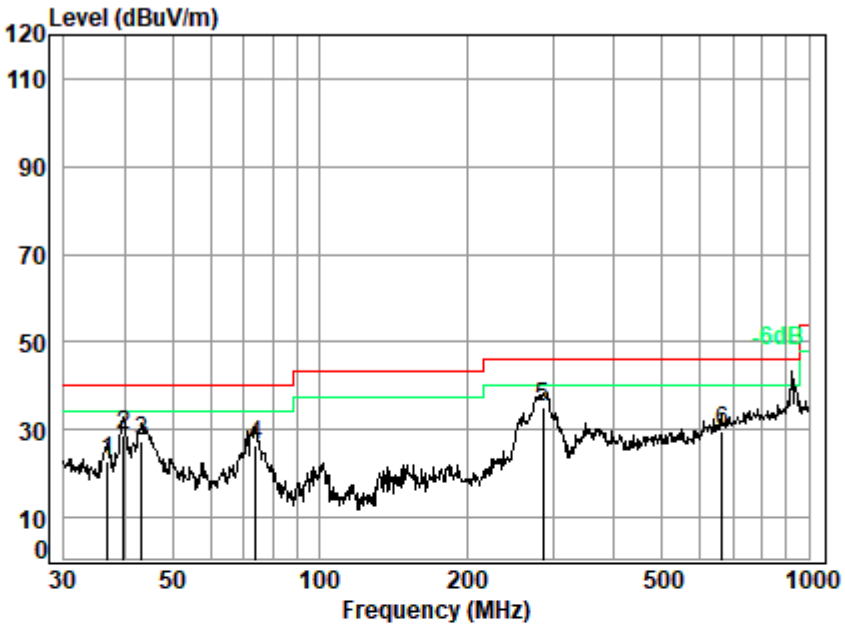
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 915MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	39.854	16.48	0.75	27.78	38.36	27.81	40.00	-12.19	QP
2	42.900	15.02	0.77	27.77	37.52	25.54	40.00	-14.46	QP
3	71.832	10.50	1.00	27.69	44.20	28.01	40.00	-11.99	QP
4 q	289.002	17.00	2.12	26.93	42.30	34.49	46.00	-11.51	QP
5	364.260	20.28	2.41	27.18	31.69	27.20	46.00	-18.80	QP
6	734.491	26.13	3.62	27.81	28.49	30.43	46.00	-15.57	QP



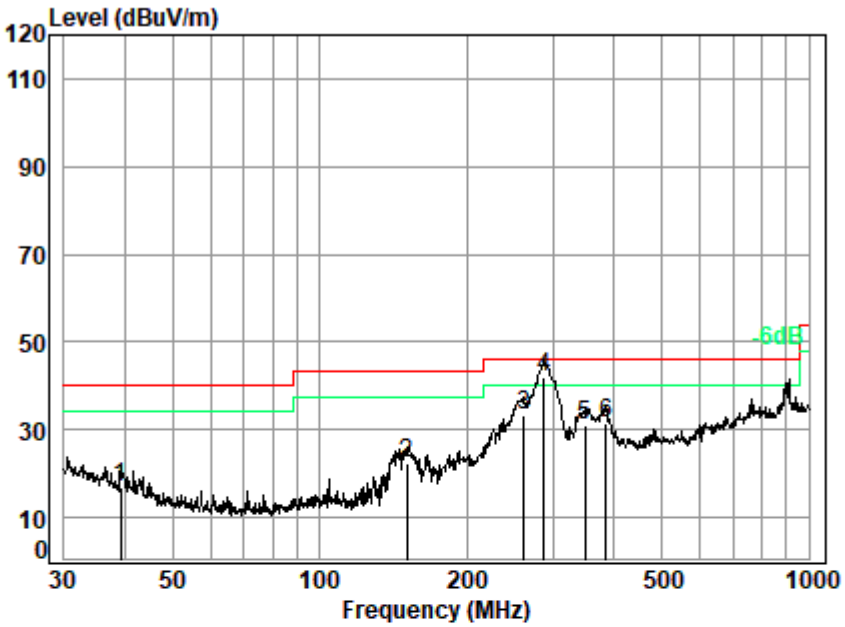
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 927.8MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	39.162	16.78	0.74	27.78	28.46	18.20	40.00	-21.80	QP
2	143.830	12.25	1.43	27.45	36.38	22.61	43.50	-20.89	QP
3	252.948	17.28	1.96	27.06	41.37	33.55	46.00	-12.45	QP
4 q	287.990	16.95	2.12	26.93	52.10	44.24	46.00	-1.76	QP
5	302.481	18.28	2.18	26.90	45.61	39.17	46.00	-6.83	QP
6	352.943	20.04	2.37	27.13	36.52	31.80	46.00	-14.20	QP



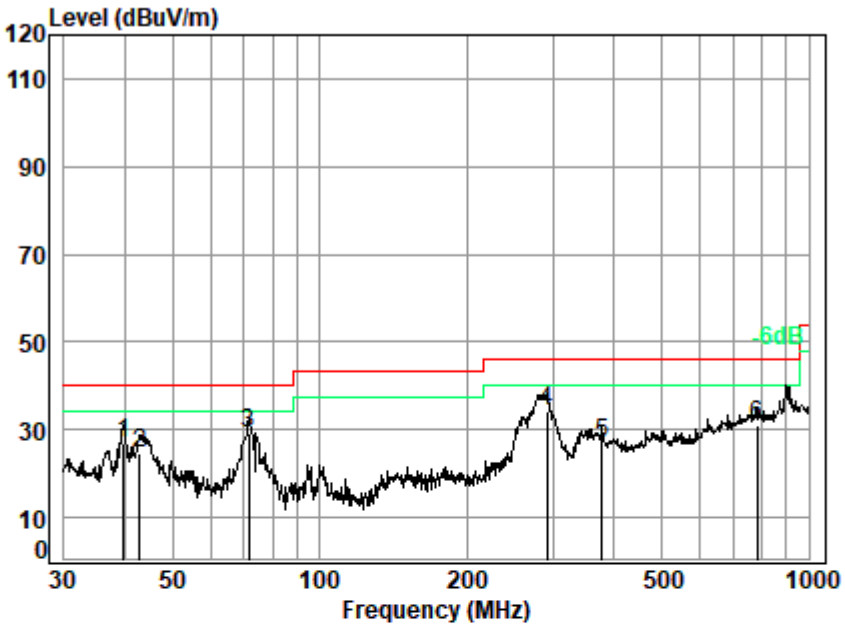
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 50kbps 927.8MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	36.895	17.85	0.72	27.79	32.18	22.96	40.00	-17.04	QP
2	39.715	16.54	0.75	27.78	39.23	28.74	40.00	-11.26	QP
3	43.202	14.89	0.78	27.77	39.53	27.43	40.00	-12.57	QP
4	74.135	10.39	1.02	27.68	42.88	26.61	40.00	-13.39	QP
5 q	285.978	16.91	2.11	26.94	43.27	35.35	46.00	-10.65	QP
6	663.473	25.32	3.40	28.03	29.14	29.83	46.00	-16.17	QP



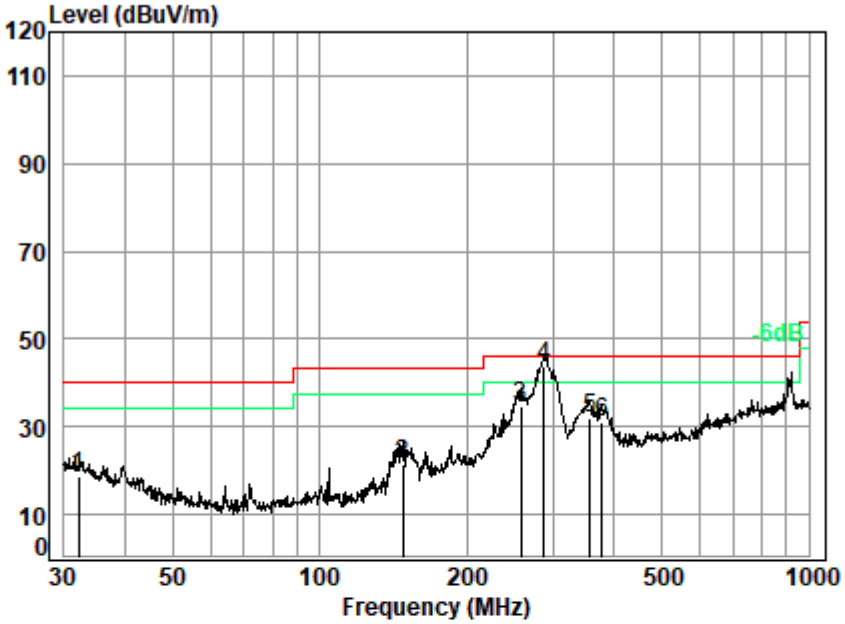
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 902.4MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	39.162	16.78	0.74	27.78	27.08	16.82	40.00	-23.18	QP
2	150.538	13.10	1.46	27.43	35.10	22.23	43.50	-21.27	QP
3	261.058	17.19	2.00	27.03	41.22	33.38	46.00	-12.62	QP
4 q	287.990	16.95	2.12	26.93	49.84	41.98	46.00	-4.02	QP
5	348.027	19.80	2.35	27.10	35.99	31.04	46.00	-14.96	QP
6	385.281	20.89	2.49	27.27	35.41	31.52	46.00	-14.48	QP



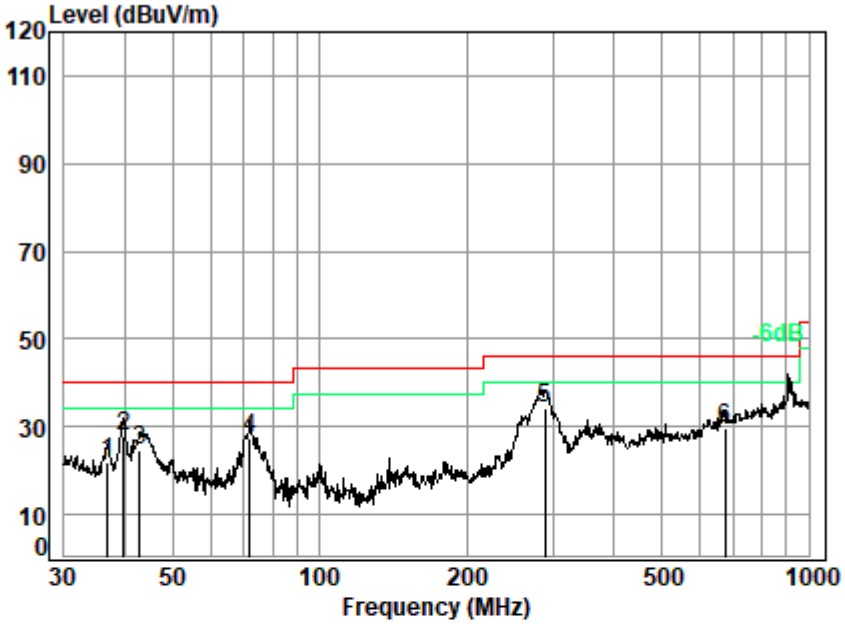
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 902.4MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	39.715	16.54	0.75	27.78	37.37	26.88	40.00	-13.12	QP
2	42.750	15.09	0.77	27.77	36.47	24.56	40.00	-15.44	QP
3 q	71.581	10.52	1.00	27.69	45.40	29.23	40.00	-10.77	QP
4	292.058	17.16	2.14	26.92	41.78	34.16	46.00	-11.84	QP
5	378.584	20.87	2.47	27.24	30.66	26.76	46.00	-19.24	QP
6	785.093	27.15	3.78	27.66	27.58	30.85	46.00	-15.15	QP



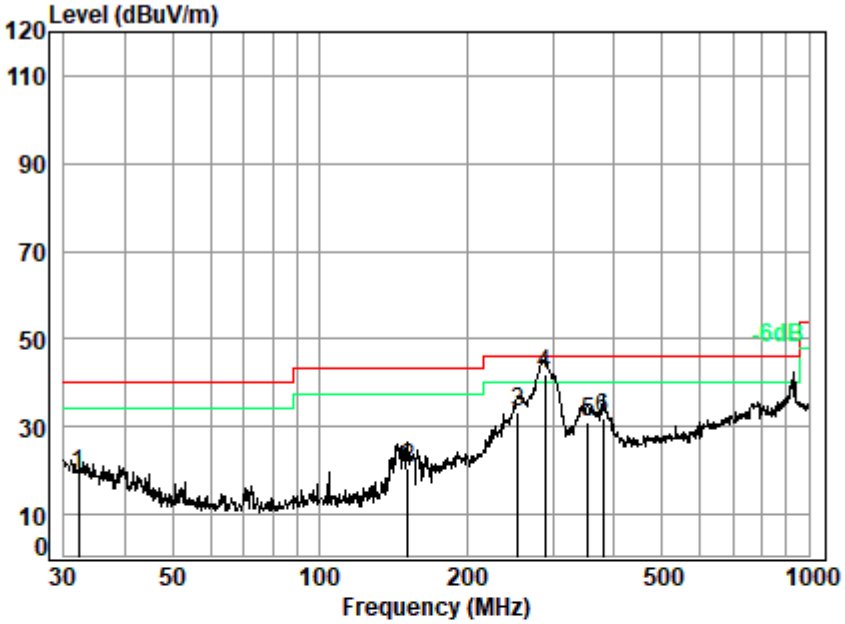
Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 914.8MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	32.179	20.19	0.66	27.80	25.87	18.92	40.00	-21.08	QP
2	147.921	12.79	1.45	27.44	34.60	21.40	43.50	-22.10	QP
3	257.422	17.29	1.98	27.04	42.43	34.66	46.00	-11.34	QP
4 q	287.990	16.95	2.12	26.93	51.52	43.66	46.00	-2.34	QP
5	356.676	20.13	2.39	27.14	36.62	32.00	46.00	-14.00	QP
6	378.584	20.87	2.47	27.24	35.05	31.15	46.00	-14.85	QP



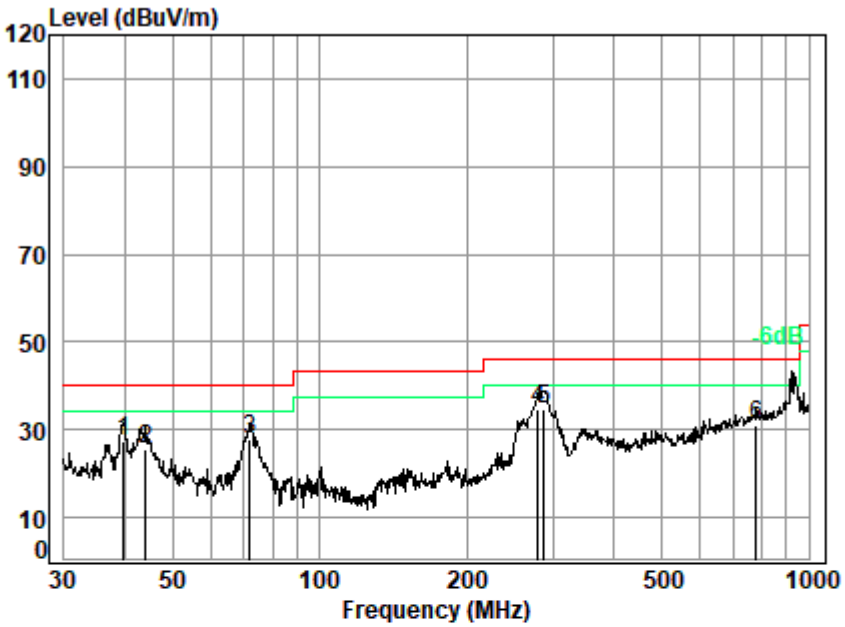
Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 914.8MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	36.895	17.85	0.72	27.79	31.29	22.07	40.00	-17.93	QP
2	39.715	16.54	0.75	27.78	38.39	27.90	40.00	-12.10	QP
3	42.900	15.02	0.77	27.77	36.83	24.85	40.00	-15.15	QP
4	72.084	10.49	1.00	27.69	43.64	27.44	40.00	-12.56	QP
5 q	289.002	17.00	2.12	26.93	42.25	34.44	46.00	-11.56	QP
6	675.208	25.71	3.44	28.00	28.61	29.76	46.00	-16.24	QP



Site : chamber
Condition: 3m HORIZONTAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 927.6MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	32.179	20.19	0.66	27.80	26.21	19.26	40.00	-20.74	QP
2	151.597	13.22	1.47	27.42	33.28	20.55	43.50	-22.95	QP
3	253.837	17.30	1.97	27.06	40.88	33.09	46.00	-12.91	QP
4 q	289.002	17.00	2.12	26.93	49.60	41.79	46.00	-4.21	QP
5	352.943	20.04	2.37	27.13	35.62	30.90	46.00	-15.10	QP
6	379.914	20.91	2.47	27.25	35.84	31.97	46.00	-14.03	QP



Site : chamber
Condition: 3m VERTICAL
Job No. : 04277AT
Test Mode: 02
: 150kbps 927.6MHz

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	39.715	16.54	0.75	27.78	37.85	27.36	40.00	-12.64	QP
2	44.120	14.51	0.78	27.77	37.85	25.37	40.00	-14.63	QP
3	72.084	10.49	1.00	27.69	43.90	27.70	40.00	-12.30	QP
4	279.044	16.94	2.08	26.97	42.45	34.50	46.00	-11.50	QP
5 q	286.982	16.93	2.11	26.94	42.72	34.82	46.00	-11.18	QP
6	779.607	27.02	3.76	27.67	27.69	30.80	46.00	-15.20	QP

7.11 Radiated Spurious Emissions Above 1GHz

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

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

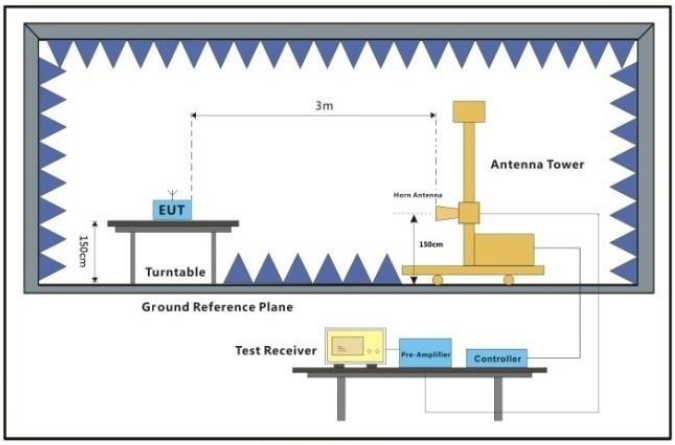
7.11.1 E.U.T. Operation

Operating Environment:
Temperature: 19.3 °C Humidity: 50.8 % RH Atmospheric Pressure: 1000 mbar

7.11.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX_non-Hop mode_Keep the EUT in continuously transmitting mode with FSK modulation.

7.11.3 Test Setup Diagram



Above 1GHz

7.11.4 Measurement Procedure and Data

a. 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.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. 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.

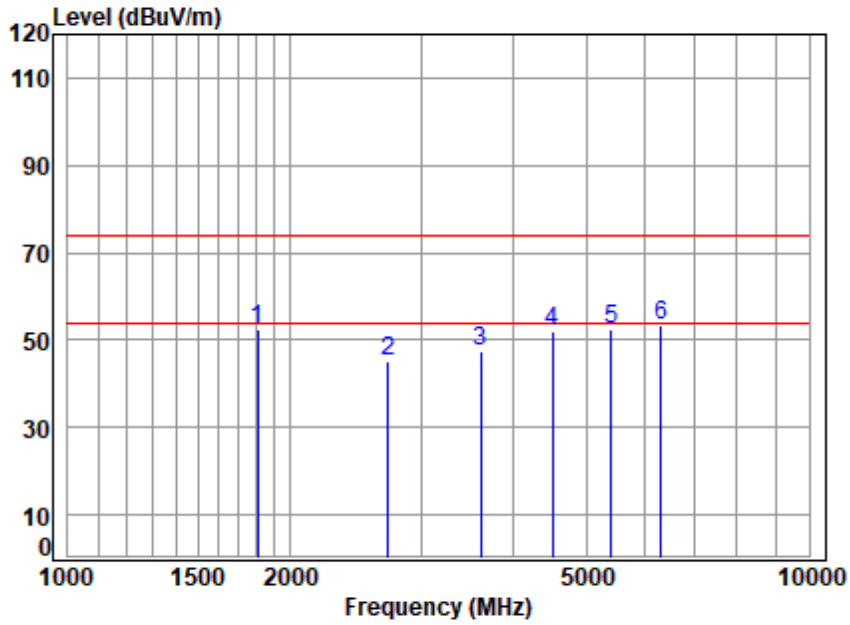
i. Repeat above procedures until all frequencies measured was complete.

Remark:

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

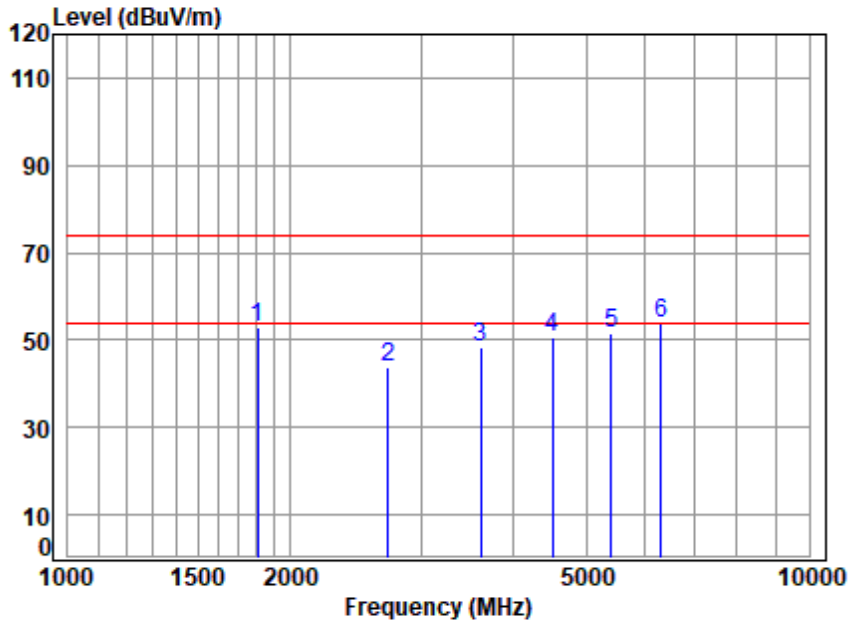
2. Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. As shown in this section, 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.



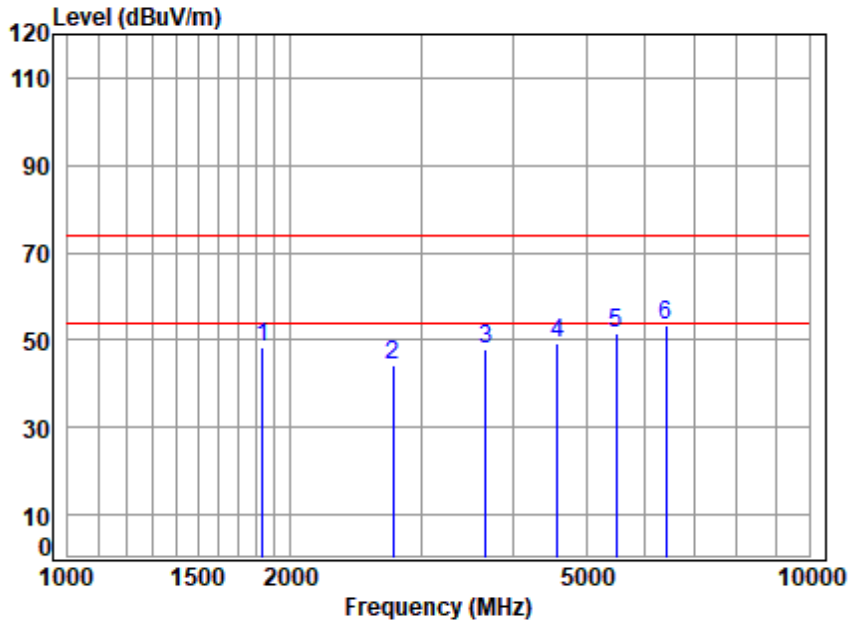
Site : chamber
Condition: 3m HORIZONTAL
Job No : 04277AT
Mode : 902.2 TX RSE
: 50kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1804.400	4.46	27.00	38.43	59.56	52.59	74.00	-21.41	Peak
2	2706.600	5.35	29.70	36.73	46.87	45.19	74.00	-28.81	Peak
3	3608.800	6.35	32.21	36.11	45.21	47.66	74.00	-26.34	Peak
4	4511.000	7.13	33.53	35.72	47.03	51.97	74.00	-22.03	Peak
5	5413.200	7.75	34.63	35.18	45.09	52.29	74.00	-21.71	Peak
6 q	6315.400	8.42	34.97	35.12	45.03	53.30	74.00	-20.70	Peak



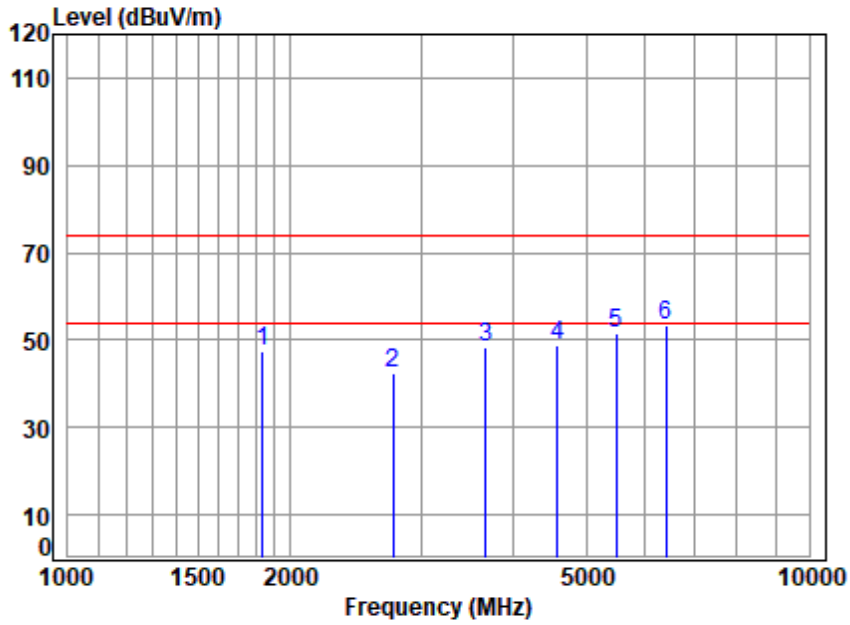
Site : chamber
Condition: 3m VERTICAL
Job No : 04277AT
Mode : 902.2 TX RSE
: 50kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1804.400	4.46	27.00	38.43	59.99	53.02	74.00	-20.98	Peak
2	2706.600	5.35	29.70	36.73	45.65	43.97	74.00	-30.03	Peak
3	3608.800	6.35	32.21	36.11	45.74	48.19	74.00	-25.81	Peak
4	4511.000	7.13	33.53	35.72	45.79	50.73	74.00	-23.27	Peak
5	5413.200	7.75	34.63	35.18	44.39	51.59	74.00	-22.41	Peak
6 q	6315.400	8.42	34.97	35.12	45.63	53.90	74.00	-20.10	Peak



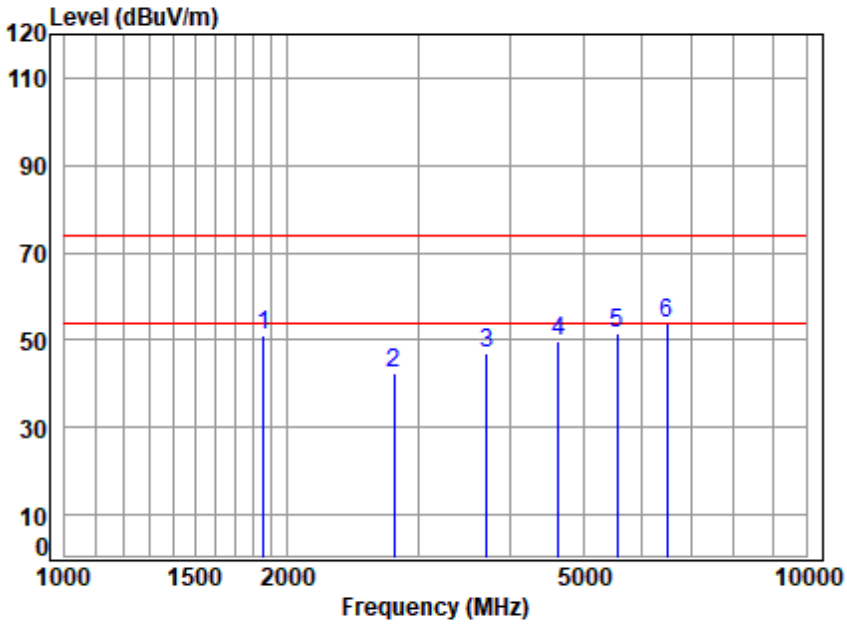
Site : chamber
Condition: 3m HORIZONTAL
Job No : 04277AT
Mode : 915 TX RSE
: 50kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1830.000	4.49	27.00	38.43	55.30	48.36	74.00	-25.64	Peak
2	2745.000	5.38	29.70	36.65	45.74	44.17	74.00	-29.83	Peak
3	3660.000	6.41	32.76	36.11	44.80	47.86	74.00	-26.14	Peak
4	4575.000	7.17	33.30	35.67	44.56	49.36	74.00	-24.64	Peak
5	5490.000	7.81	34.54	35.14	44.19	51.40	74.00	-22.60	Peak
6 q	6405.000	8.49	35.23	35.18	44.74	53.28	74.00	-20.72	Peak



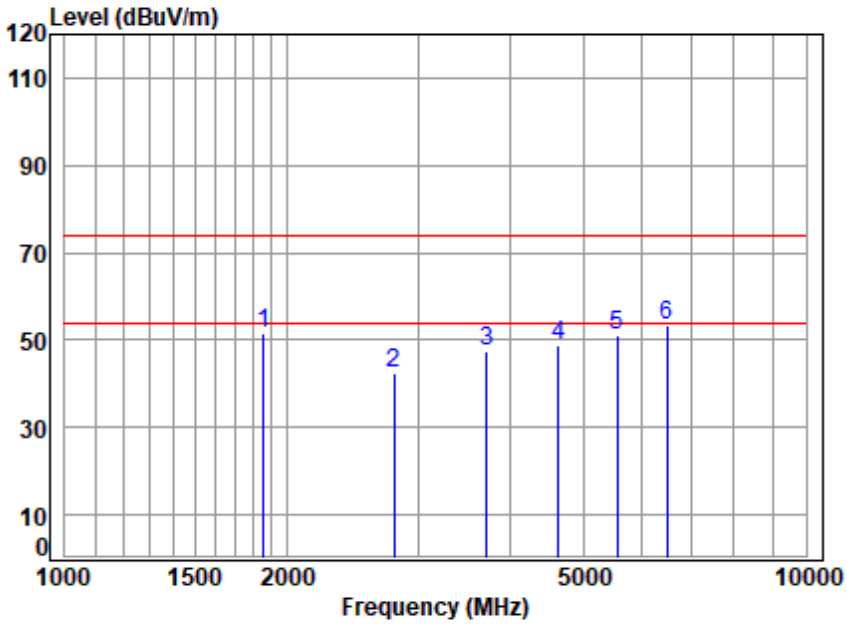
Site : chamber
Condition: 3m VERTICAL
Job No : 04277AT
Mode : 915 TX RSE
: 50kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1830.000	4.49	27.00	38.43	54.46	47.52	74.00	-26.48	Peak
2	2745.000	5.38	29.70	36.65	43.99	42.42	74.00	-31.58	Peak
3	3660.000	6.41	32.76	36.11	45.10	48.16	74.00	-25.84	Peak
4	4575.000	7.17	33.30	35.67	43.82	48.62	74.00	-25.38	Peak
5	5490.000	7.81	34.54	35.14	44.31	51.52	74.00	-22.48	Peak
6 q	6405.000	8.49	35.23	35.18	44.96	53.50	74.00	-20.50	Peak



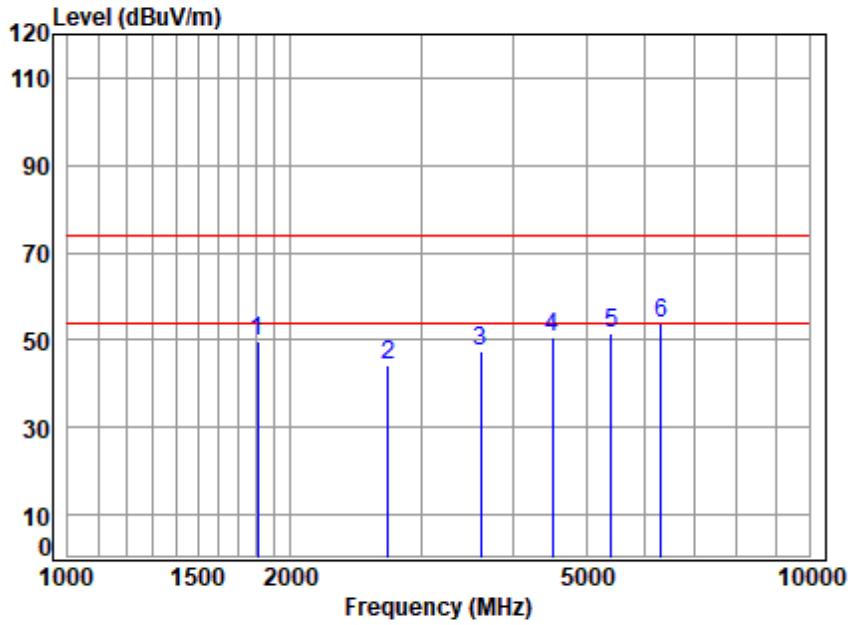
Site : chamber
Condition: 3m HORIZONTAL
Job No : 04277AT
Mode : 927.8 TX RSE
: 50kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1855.600	4.52	27.04	38.43	57.81	50.94	74.00	-23.06	Peak
2	2783.400	5.41	29.77	36.57	43.90	42.51	74.00	-31.49	Peak
3	3711.200	6.47	32.98	36.11	43.86	47.20	74.00	-26.80	Peak
4	4639.000	7.21	33.38	35.63	44.90	49.86	74.00	-24.14	Peak
5	5566.800	7.87	34.70	35.10	43.89	51.36	74.00	-22.64	Peak
6 q	6494.600	8.56	35.59	35.24	45.06	53.97	74.00	-20.03	Peak



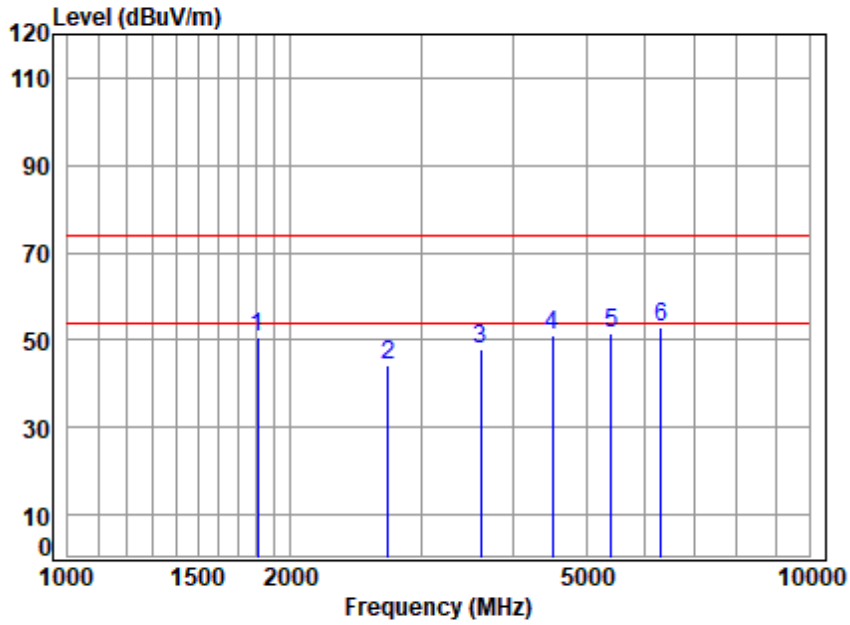
Site : chamber
Condition: 3m VERTICAL
Job No : 04277AT
Mode : 927.8 TX RSE
: 50kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1855.600	4.52	27.04	38.43	58.51	51.64	74.00	-22.36	Peak
2	2783.400	5.41	29.77	36.57	43.98	42.59	74.00	-31.41	Peak
3	3711.200	6.47	32.98	36.11	44.23	47.57	74.00	-26.43	Peak
4	4639.000	7.21	33.38	35.63	43.69	48.65	74.00	-25.35	Peak
5	5566.800	7.87	34.70	35.10	43.84	51.31	74.00	-22.69	Peak
6 q	6494.600	8.56	35.59	35.24	44.48	53.39	74.00	-20.61	Peak



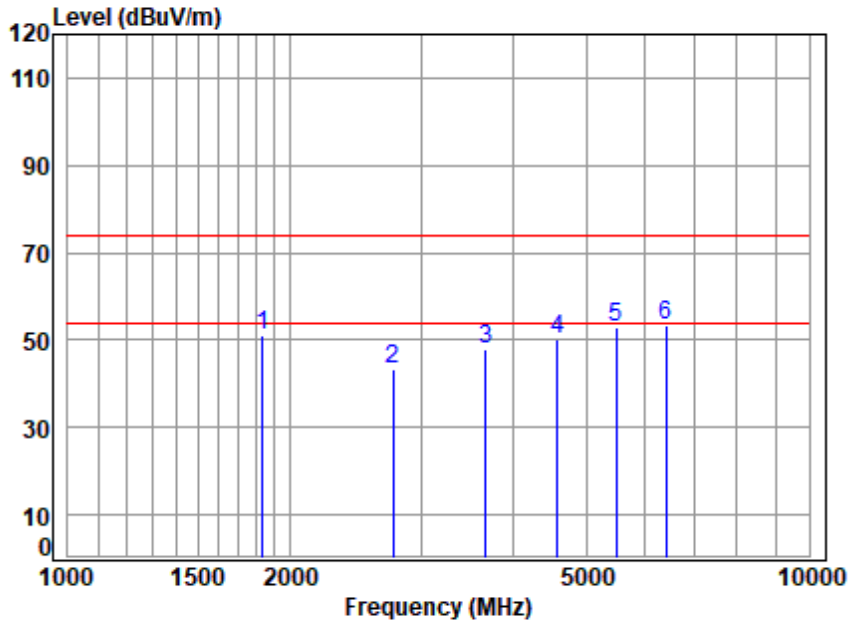
Site : chamber
Condition: 3m HORIZONTAL
Job No : 04277AT
Mode : 902.4 TX RSE
: 150kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1804.800	4.46	27.00	38.43	56.92	49.95	74.00	-24.05	Peak
2	2707.200	5.35	29.70	36.73	45.90	44.22	74.00	-29.78	Peak
3	3609.600	6.35	32.22	36.11	45.07	47.53	74.00	-26.47	Peak
4	4512.000	7.13	33.53	35.72	45.62	50.56	74.00	-23.44	Peak
5	5414.400	7.75	34.63	35.18	44.53	51.73	74.00	-22.27	Peak
6 q	6316.800	8.42	34.97	35.12	45.49	53.76	74.00	-20.24	Peak



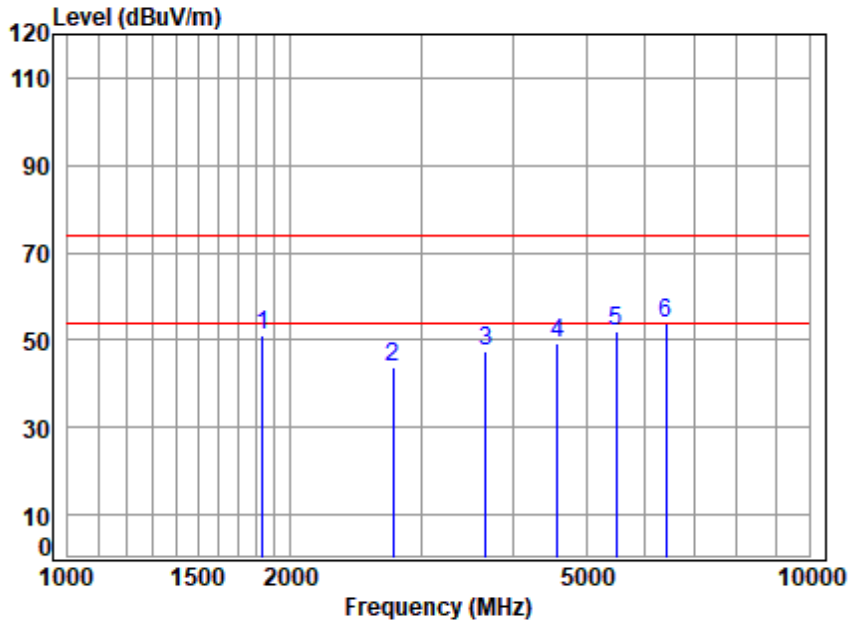
Site : chamber
Condition: 3m VERTICAL
Job No : 04277AT
Mode : 902.4 TX RSE
: 150kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1804.800	4.46	27.00	38.43	57.60	50.63	74.00	-23.37	Peak
2	2707.200	5.35	29.70	36.73	45.72	44.04	74.00	-29.96	Peak
3	3609.600	6.35	32.22	36.11	45.38	47.84	74.00	-26.16	Peak
4	4512.000	7.13	33.53	35.72	46.07	51.01	74.00	-22.99	Peak
5	5414.400	7.75	34.63	35.18	44.47	51.67	74.00	-22.33	Peak
6 q	6316.800	8.42	34.97	35.12	44.75	53.02	74.00	-20.98	Peak



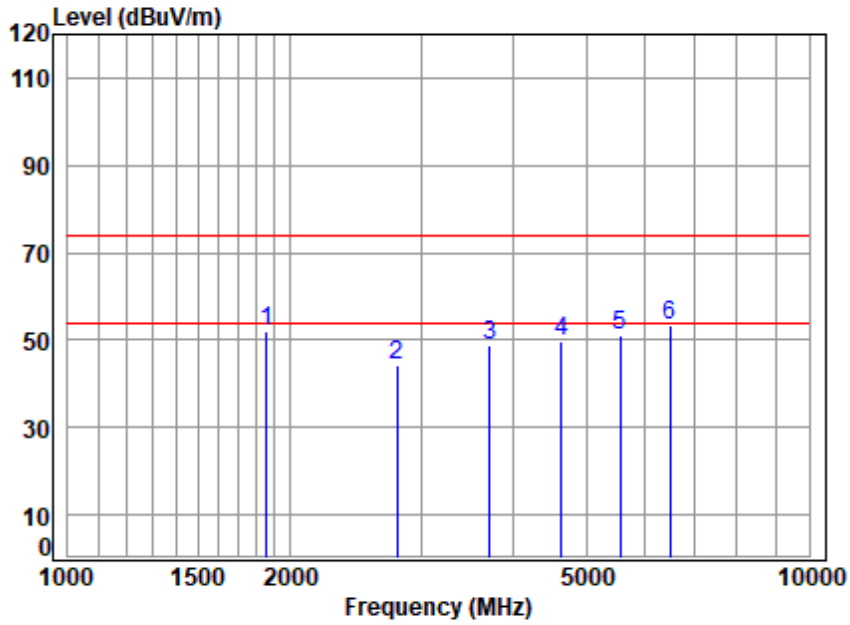
Site : chamber
Condition: 3m HORIZONTAL
Job No : 04277AT
Mode : 914.8 TX RSE
: 150kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1829.600	4.49	27.00	38.43	58.19	51.25	74.00	-22.75	Peak
2	2744.400	5.38	29.70	36.65	44.88	43.31	74.00	-30.69	Peak
3	3659.200	6.41	32.76	36.11	44.94	48.00	74.00	-26.00	Peak
4	4574.000	7.17	33.30	35.67	45.48	50.28	74.00	-23.72	Peak
5	5488.800	7.81	34.54	35.14	45.87	53.08	74.00	-20.92	Peak
6 q	6403.600	8.49	35.22	35.18	44.96	53.49	74.00	-20.51	Peak



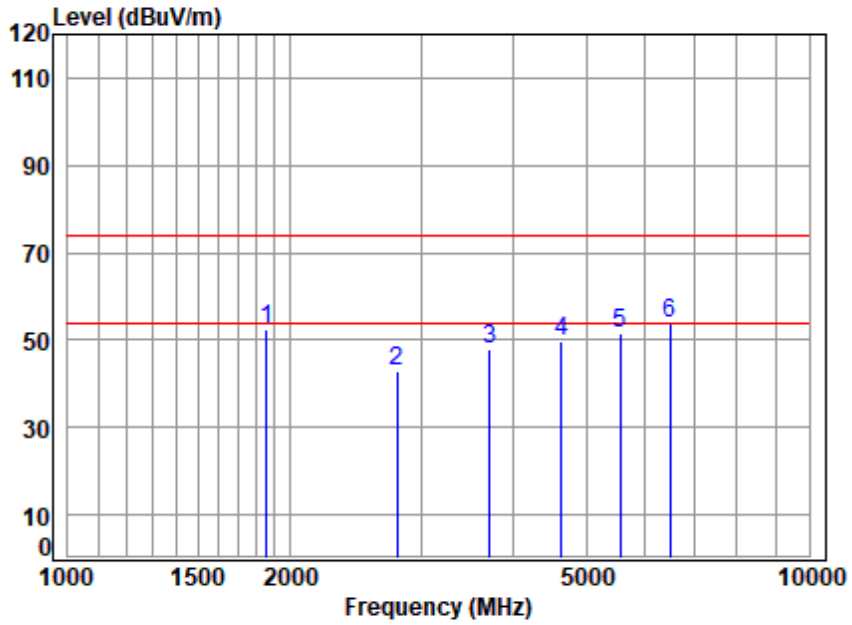
Site : chamber
Condition: 3m VERTICAL
Job No : 04277AT
Mode : 914.8 TX RSE
: 150kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1829.600	4.49	27.00	38.43	58.17	51.23	74.00	-22.77	Peak
2	2744.400	5.38	29.70	36.65	45.21	43.64	74.00	-30.36	Peak
3	3659.200	6.41	32.76	36.11	44.62	47.68	74.00	-26.32	Peak
4	4574.000	7.17	33.30	35.67	44.52	49.32	74.00	-24.68	Peak
5	5488.800	7.81	34.54	35.14	44.75	51.96	74.00	-22.04	Peak
6 q	6403.600	8.49	35.22	35.18	45.23	53.76	74.00	-20.24	Peak



Site : chamber
Condition: 3m HORIZONTAL
Job No : 04277AT
Mode : 927.6 TX RSE
: 150kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1855.200	4.52	27.04	38.43	58.89	52.02	74.00	-21.98	Peak
2	2782.800	5.41	29.77	36.57	45.48	44.09	74.00	-29.91	Peak
3	3710.400	6.47	32.98	36.11	45.30	48.64	74.00	-25.36	Peak
4	4638.000	7.21	33.38	35.63	44.73	49.69	74.00	-24.31	Peak
5	5565.600	7.86	34.70	35.10	43.48	50.94	74.00	-23.06	Peak
6 q	6493.200	8.55	35.59	35.24	44.36	53.26	74.00	-20.74	Peak



Site : chamber
Condition: 3m VERTICAL
Job No : 04277AT
Mode : 927.6 TX RSE
: 150kbps

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1855.200	4.52	27.04	38.43	59.20	52.33	74.00	-21.67	Peak
2	2782.800	5.41	29.77	36.57	44.14	42.75	74.00	-31.25	Peak
3	3710.400	6.47	32.98	36.11	44.64	47.98	74.00	-26.02	Peak
4	4638.000	7.21	33.38	35.63	44.55	49.51	74.00	-24.49	Peak
5	5565.600	7.86	34.70	35.10	44.11	51.57	74.00	-22.43	Peak
6 q	6493.200	8.55	35.59	35.24	44.97	53.87	74.00	-20.13	Peak

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SZCR2312004277AT

9 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZCR2312004277AT

10 Appendix

1. Bandwidth

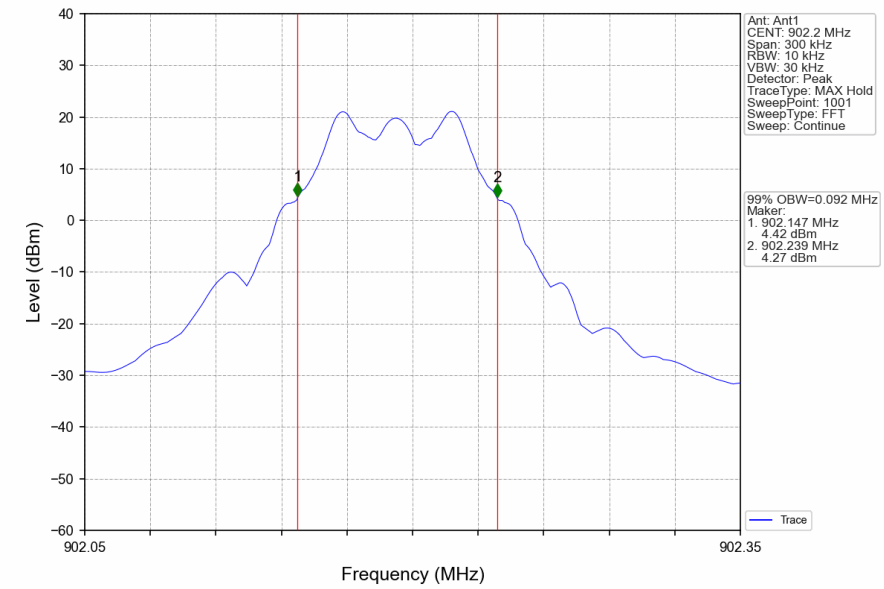
1.1 OBW

1.1.1 Test Result

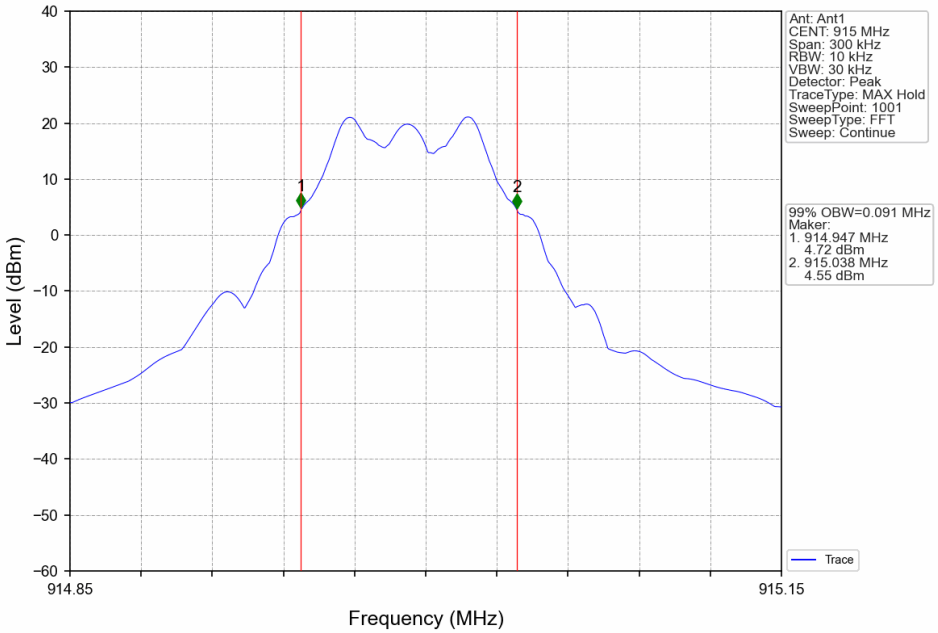
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
50kbps	SISO	902.2	1	0.092	/	Pass
		915	1	0.091	/	Pass
		927.8	1	0.091	/	Pass
150kbps	SISO	902.4	1	0.159	/	Pass
		914.8	1	0.159	/	Pass
		927.6	1	0.159	/	Pass

1.1.2 Test Graph

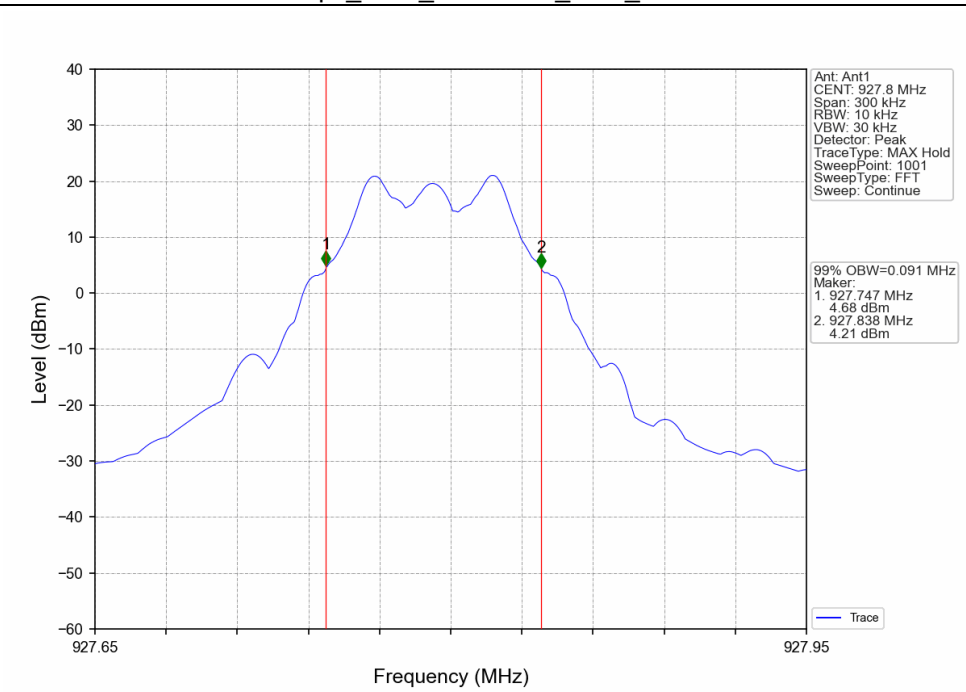
50kbps_LCH_902.2MHz_Ant1_NTNV



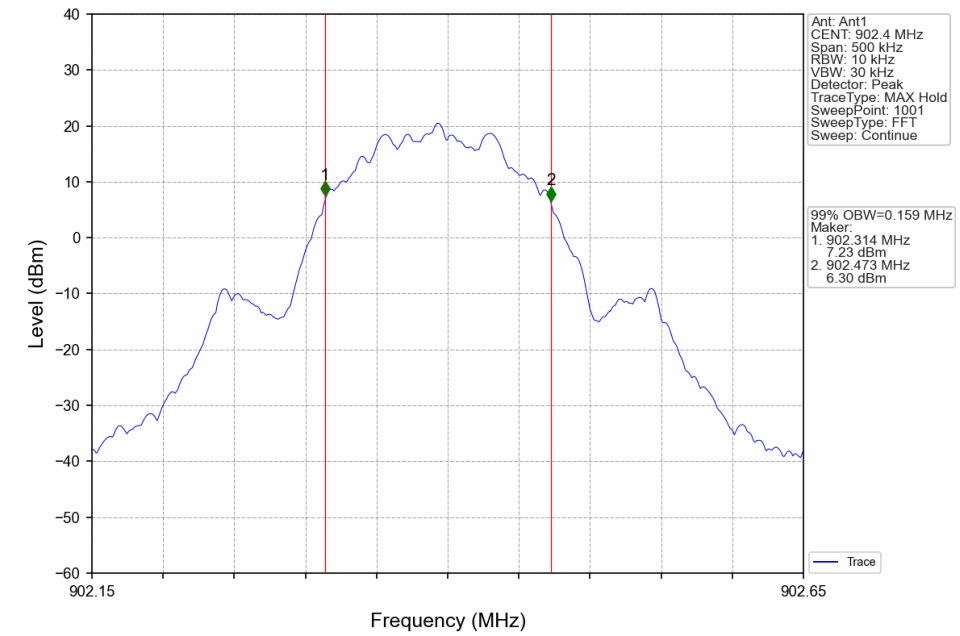
50kbps_MCH_915MHz_Ant1_NTNV



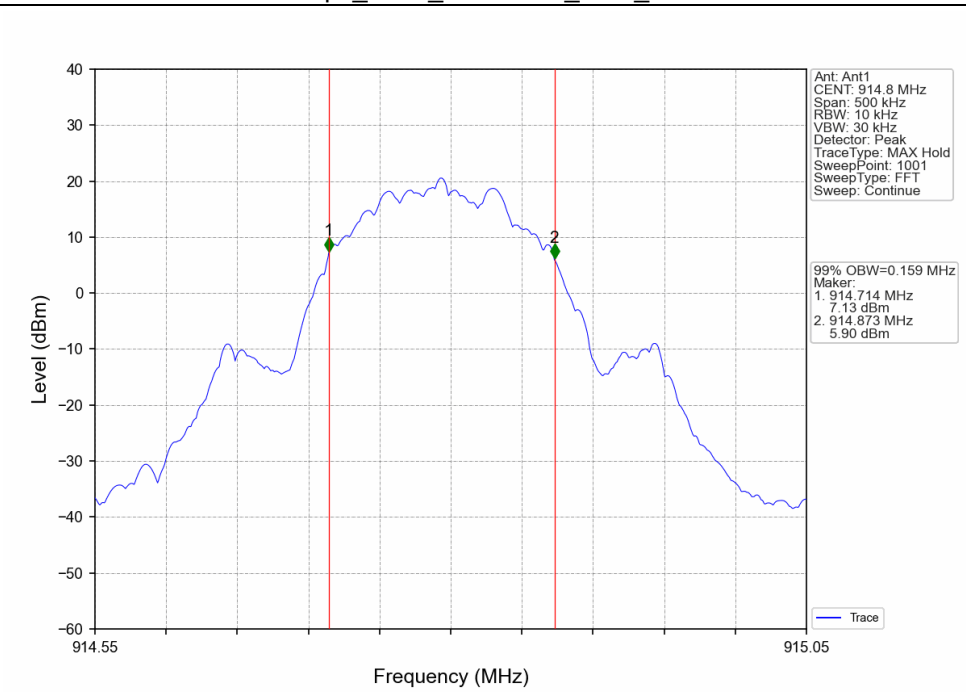
50kbps_HCH_927.8MHz_Ant1_NTNV



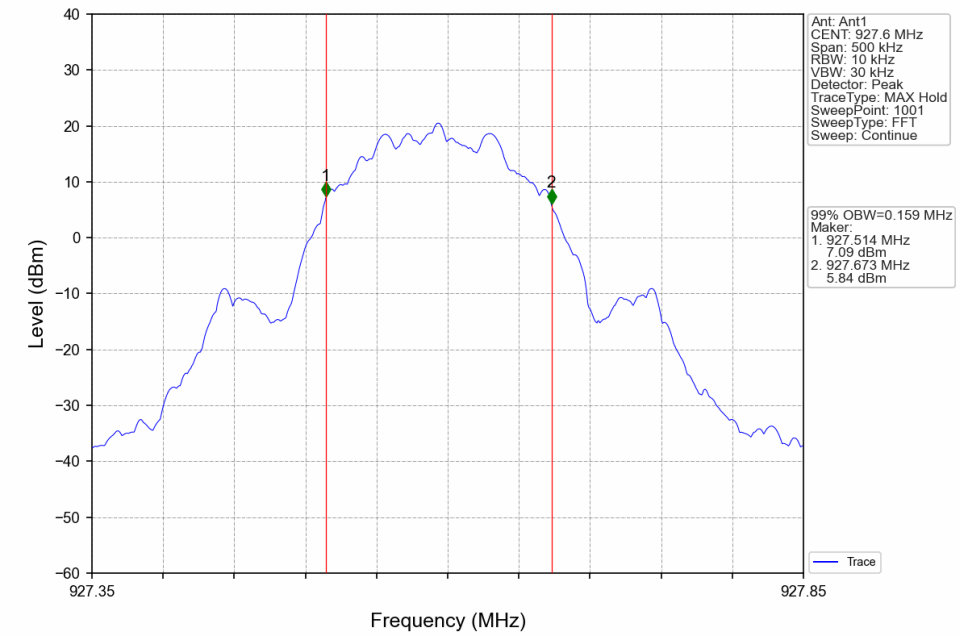
150kbps_LCH_902.4MHz_Ant1_NTNV



150kbps_MCH_914.8MHz_Ant1_NTNV



150kbps_HCH_927.6MHz_Ant1_NTNV



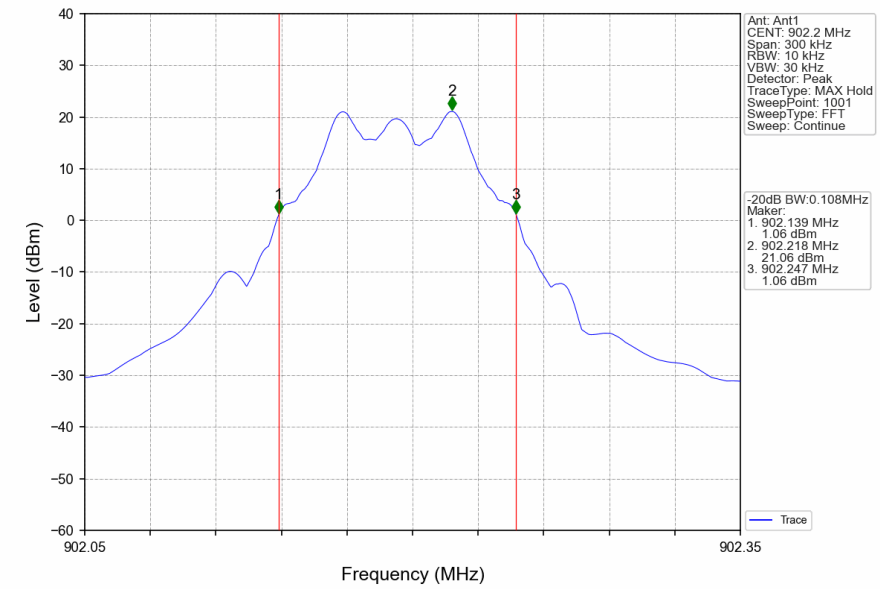
1.2 20dB BW

1.2.1 Test Result

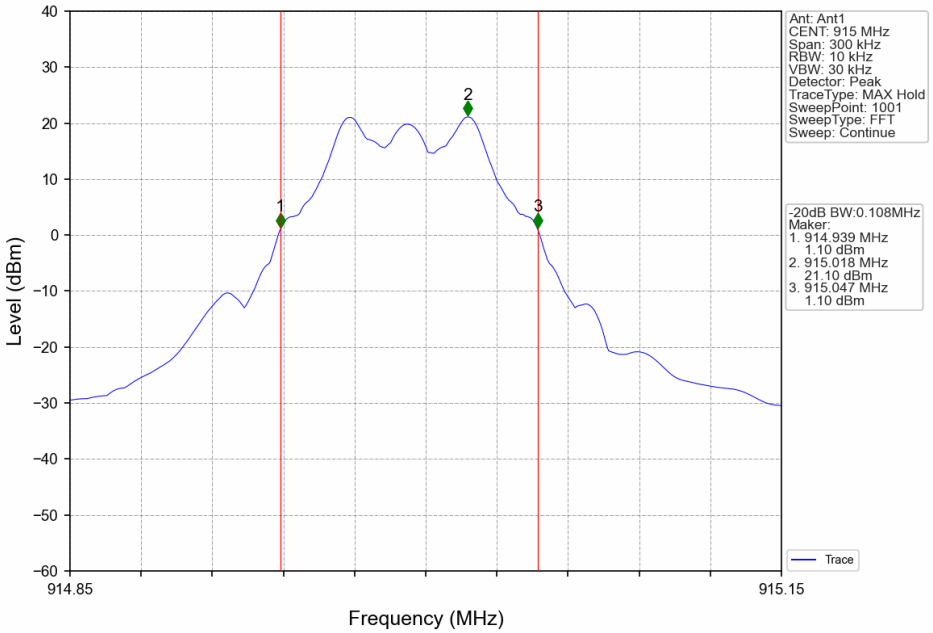
Mode	TX Type	Frequency (MHz)	ANT	20dB Bandwidth (MHz)		Verdict
				Result	Limit	
50kbps	SISO	902.2	1	0.108	<0.25	Pass
		915	1	0.108	<0.25	Pass
		927.8	1	0.108	<0.25	Pass
150kbps	SISO	902.4	1	0.177	<0.25	Pass
		914.8	1	0.174	<0.25	Pass
		927.6	1	0.177	<0.25	Pass

1.2.2 Test Graph

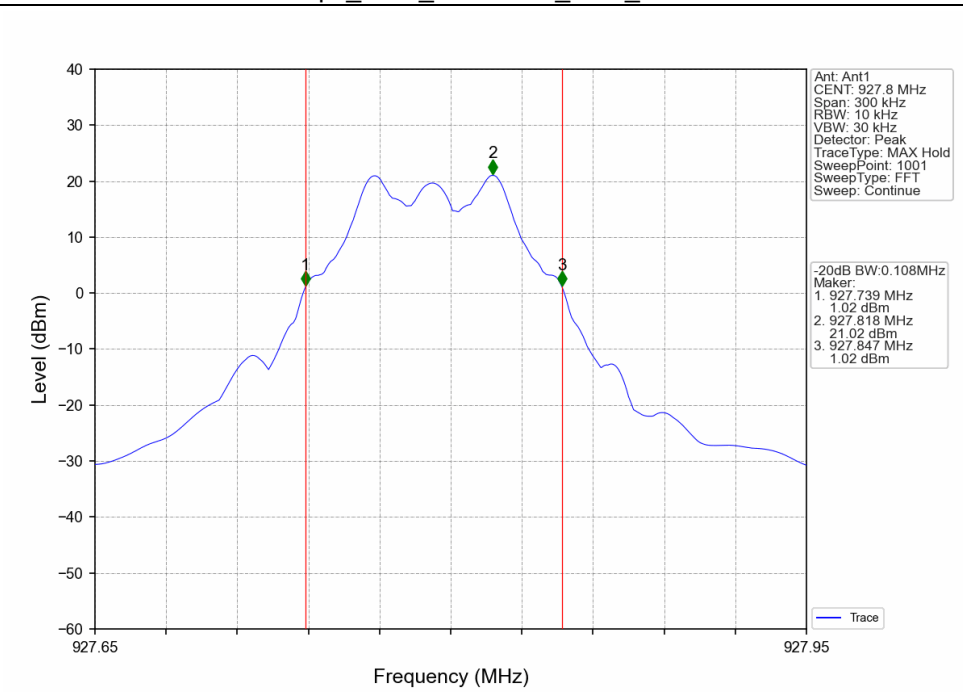
50kbps_LCH_902.2MHz_Ant1_NTNV



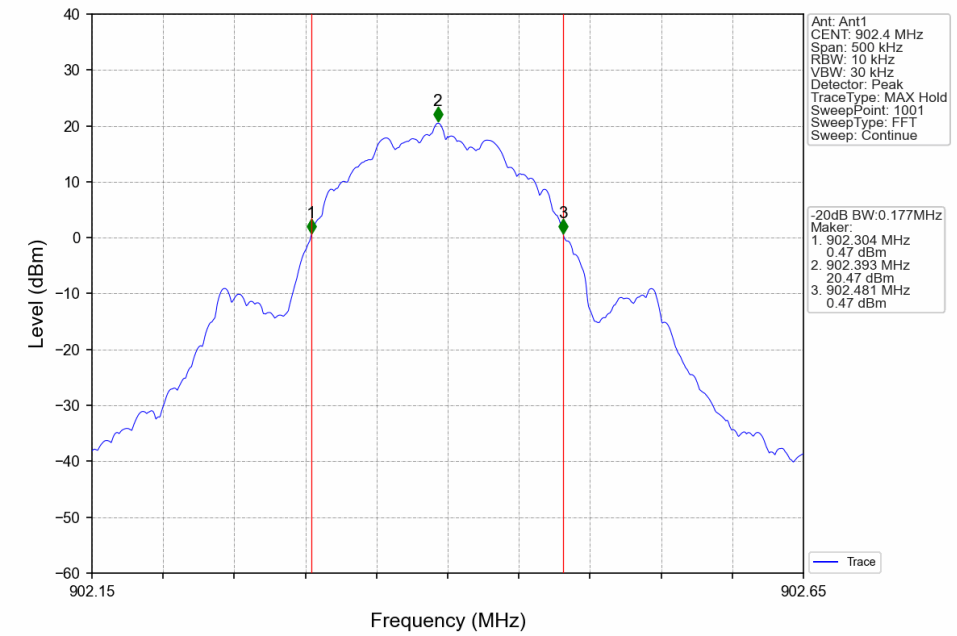
50kbps_MCH_915MHz_Ant1_NTNV



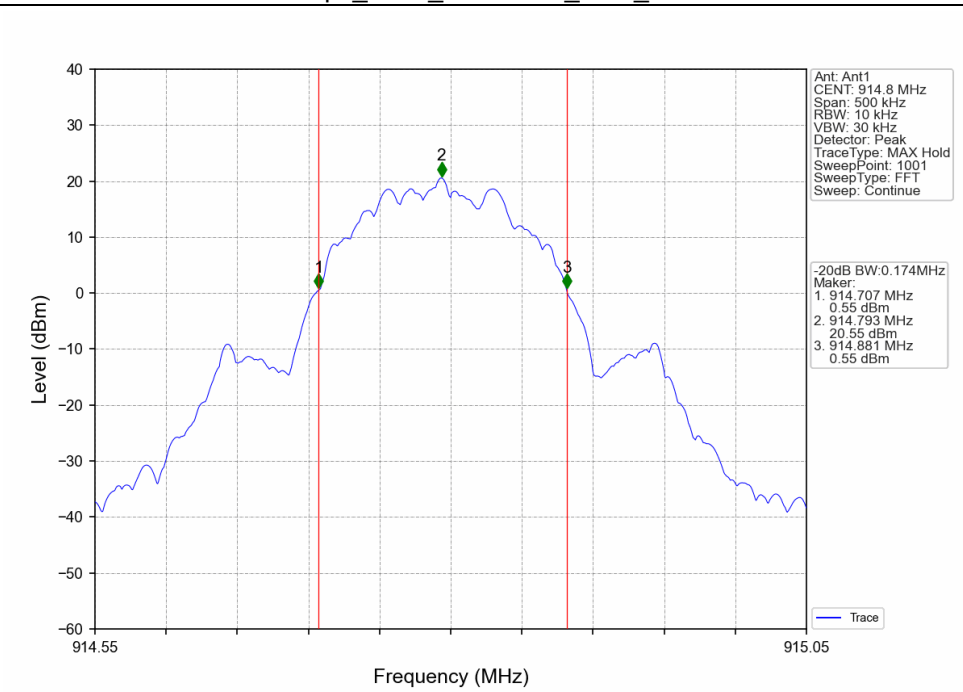
50kbps_HCH_927.8MHz_Ant1_NTNV



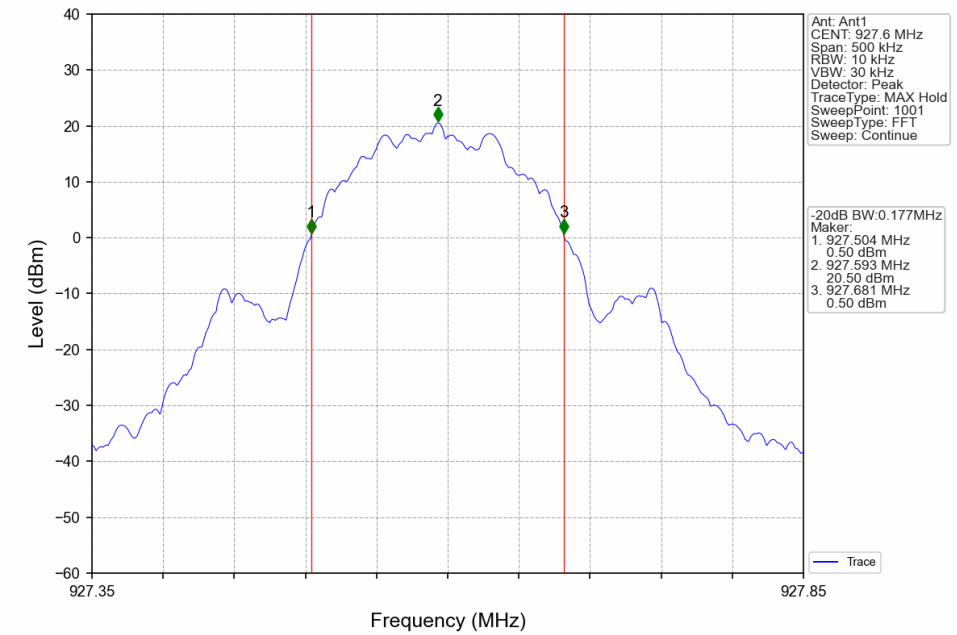
150kbps_LCH_902.4MHz_Ant1_NTNV



150kbps_MCH_914.8MHz_Ant1_NTNV



150kbps_HCH_927.6MHz_Ant1_NTNV



2. Maximum Conducted Output Power

2.1 Power

2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
50kbps	SISO	902.2	27.96	<=30	Pass
		915	28.09	<=30	Pass
		927.8	28.05	<=30	Pass
150kbps	SISO	902.4	28.08	<=30	Pass
		914.8	28.14	<=30	Pass
		927.6	28.07	<=30	Pass
Note1: Antenna Gain: Ant1: -2.25dBi;					

3. Carrier Frequency Separation

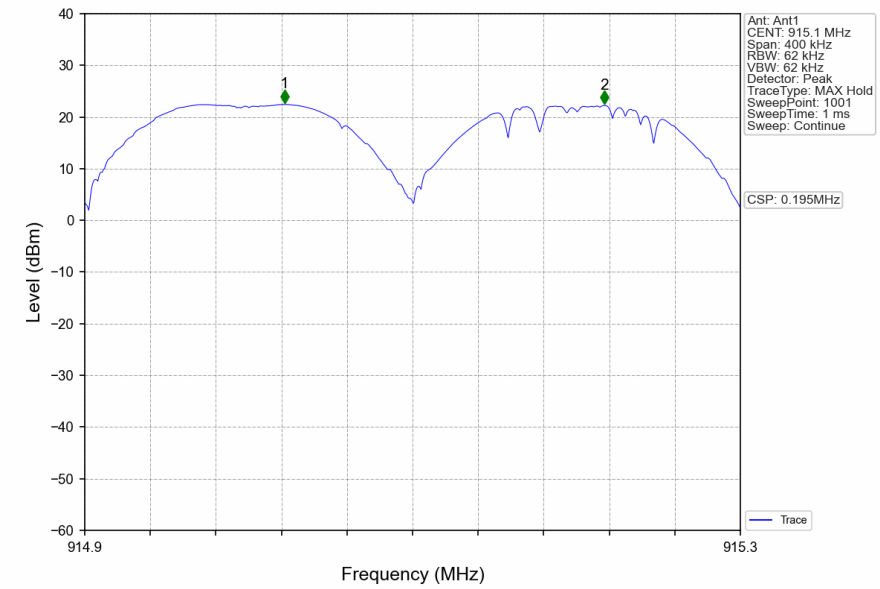
3.1 Ant1

3.1.1 Test Result

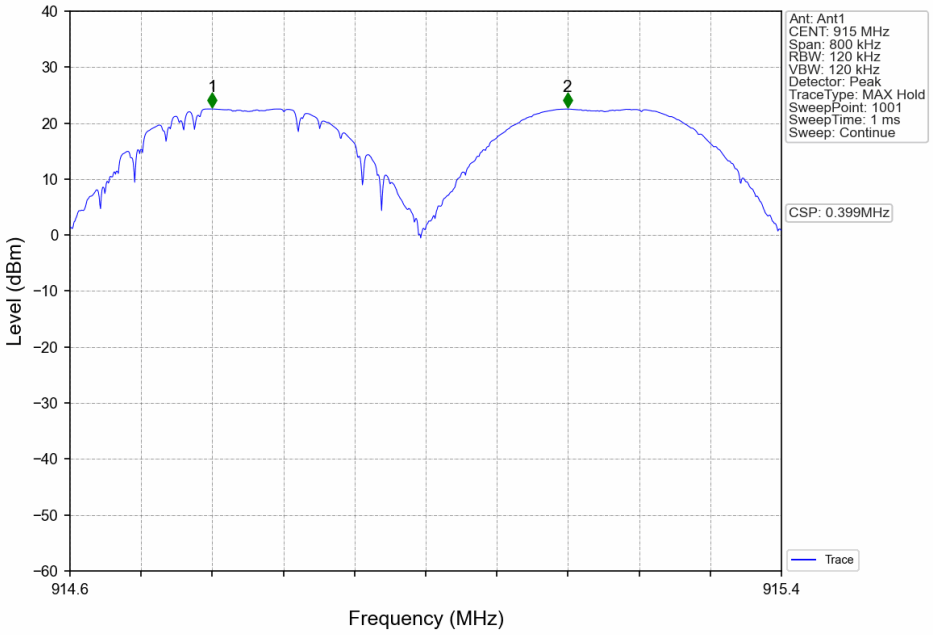
Ant1						
Mode	TX Type	Frequency (MHz)	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz)	Verdict
50kbps	SISO	HOPP	0.195	0.108	>=0.108	Pass
150kbps	SISO	HOPP	0.399	0.177	>=0.177	Pass

3.1.2 Test Graph

50kbps_HOPP_Ant1_NTNV



150kbps_HOPP_Ant1_NTNV



4. Number of Hopping Frequencies

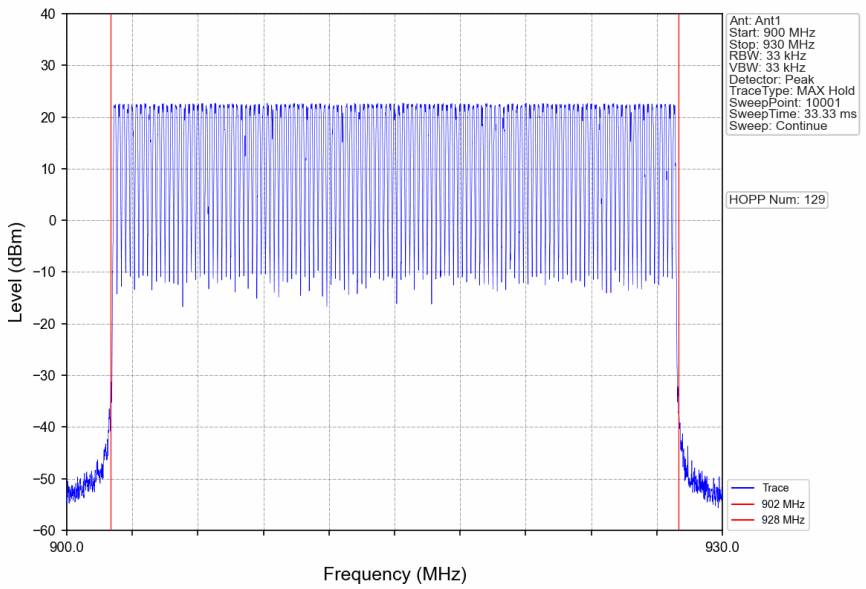
4.1 HoppNum

4.1.1 Test Result

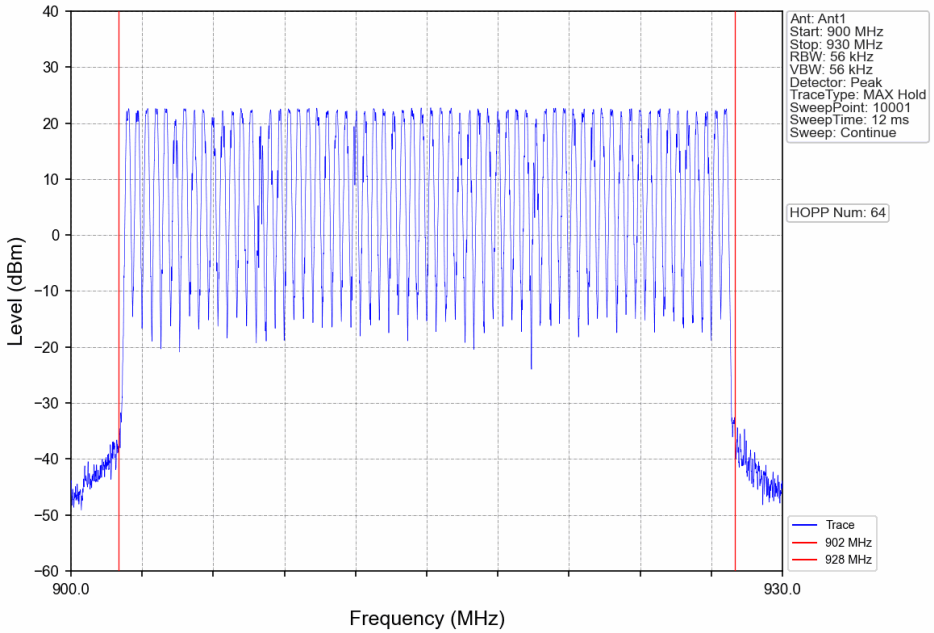
Mode	TX Type	Frequency (MHz)	Num of Hopping Frequencies		Verdict
			ANT1	Limit	
50kbps	SISO	HOPP	129	>=50	Pass
150kbps	SISO	HOPP	64	>=50	Pass

4.1.2 Test Graph

50kbps_HOPP_Ant1_NTNV



150kbps_HOPP_Ant1_NTNV



5. Time of Occupancy (Dwell Time)

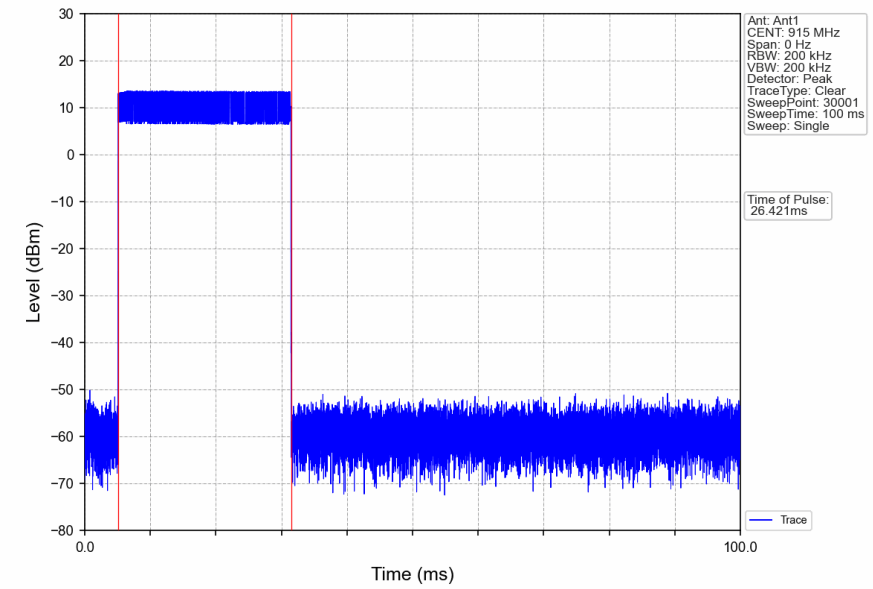
5.1 Ant1

5.1.1 Test Result

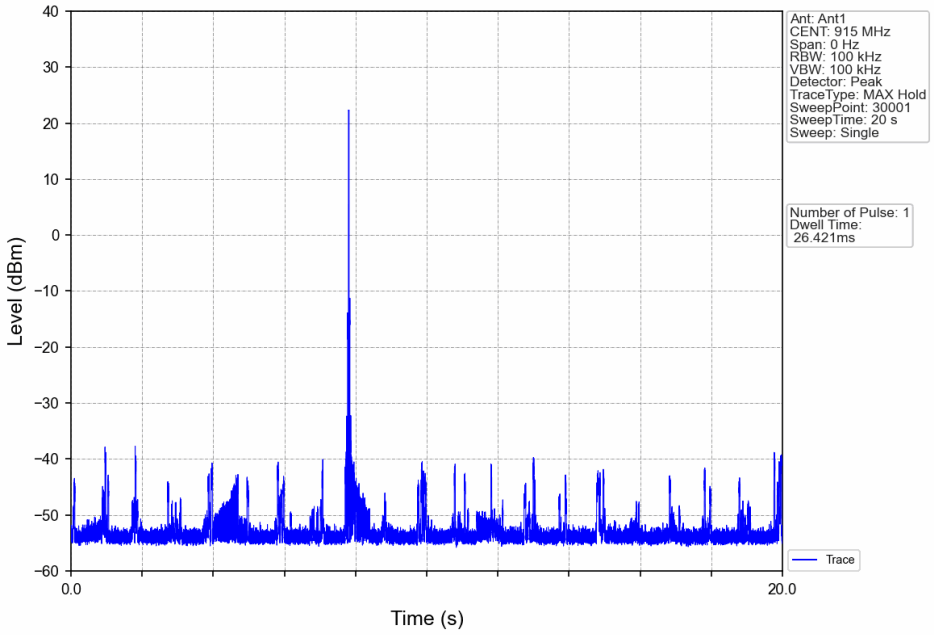
Ant1								
Mode	TX Type	Frequency (MHz)	Duration of Single Pulse (ms)	Observation Period (s)	Num of Pulse in Observation Period	Dwell Time (ms)	Limit (ms)	Verdict
50kbps	SISO	HOPP	26.421	20.000	1	26.421	<=400	Pass
150kbps	SISO	HOPP	8.876	20.000	1	8.876	<=400	Pass

5.1.2 Test Graph

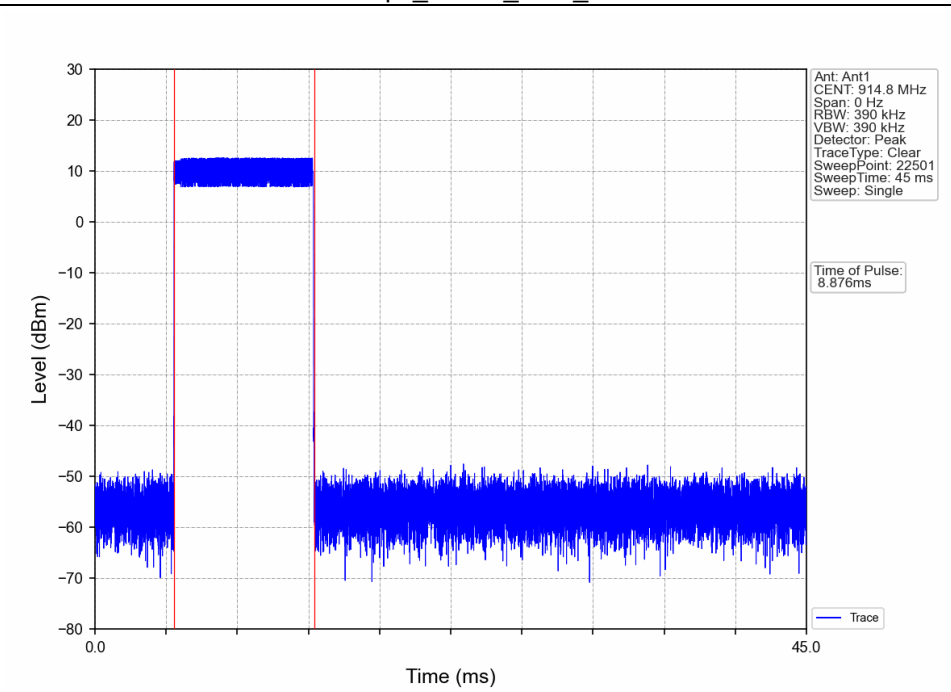
50kbps_HOPP_Ant1_NTNV



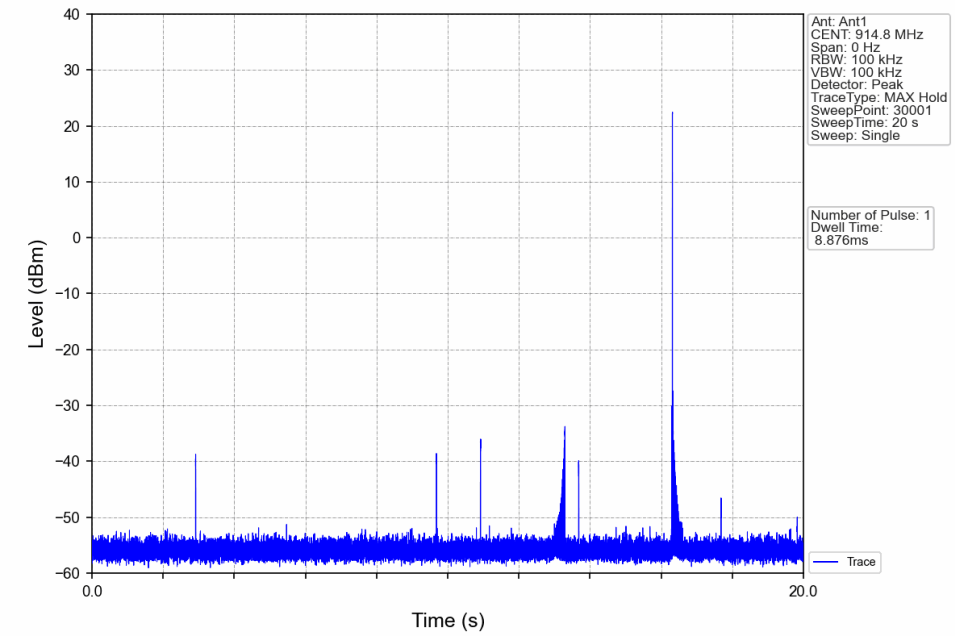
50kbps_HOPP_Ant1_NTNV



150kbps_HOPP_Ant1_NTNV



150kbps_HOPP_Ant1_NTNV



6. Unwanted Emissions In Non-restricted Frequency Bands

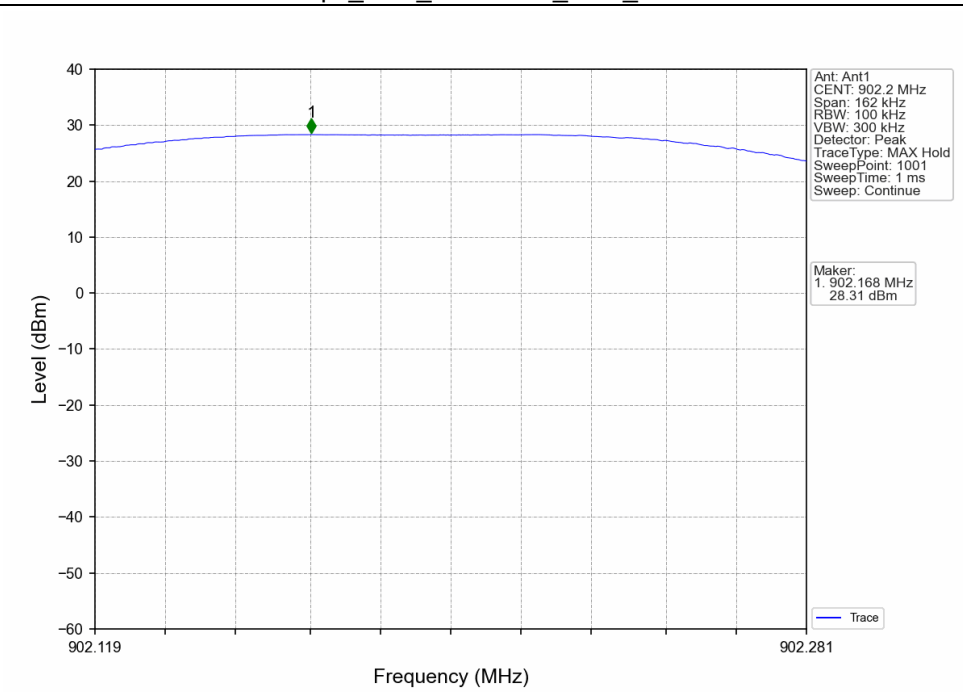
6.1 Ref

6.1.1 Test Result

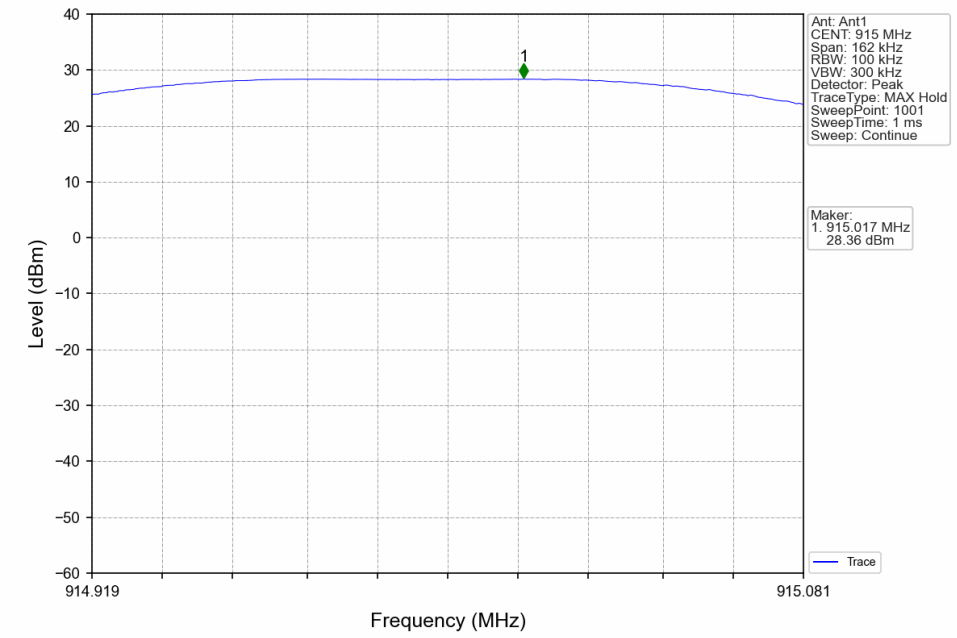
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
50kbps	SISO	902.2	1	28.31
		915	1	28.36
		927.8	1	27.80
150kbps	SISO	902.4	1	28.12
		914.8	1	28.18
		927.6	1	28.10
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.				

6.1.2 Test Graph

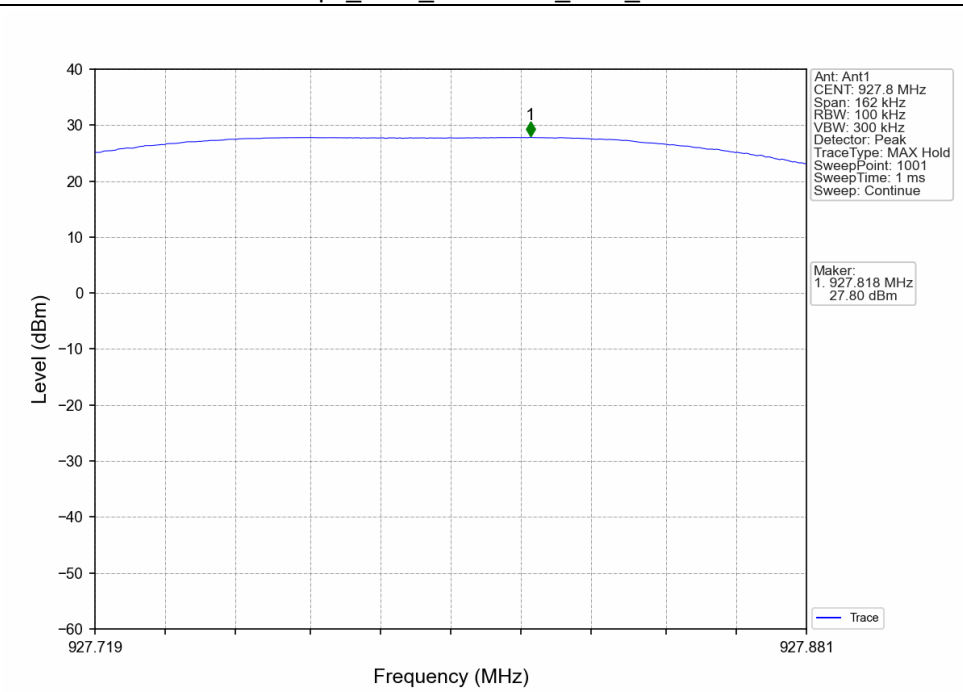
50kbps_LCH_902.2MHz_Ant1_NTNV



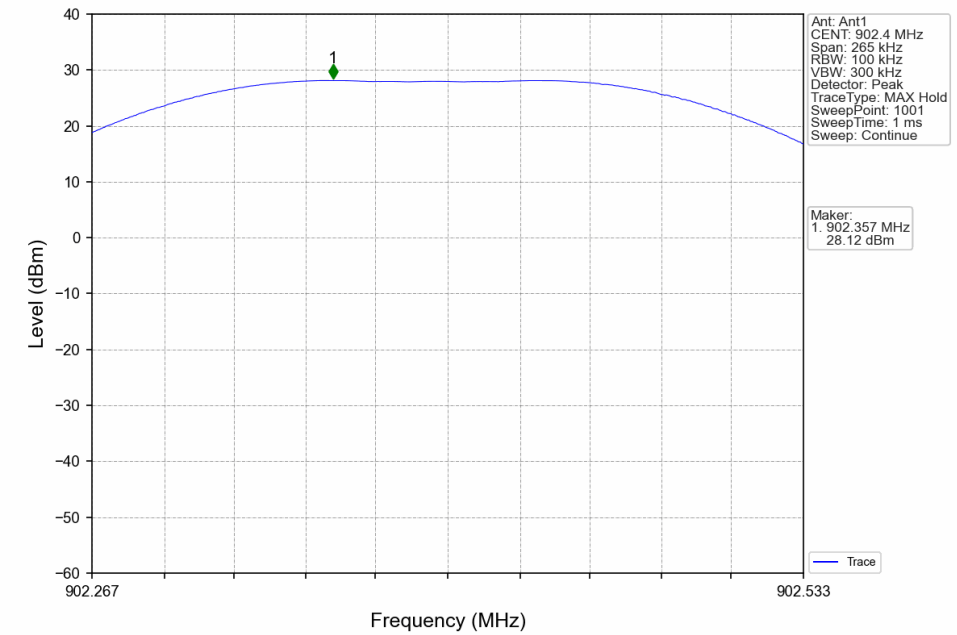
50kbps_MCH_915MHz_Ant1_NTNV



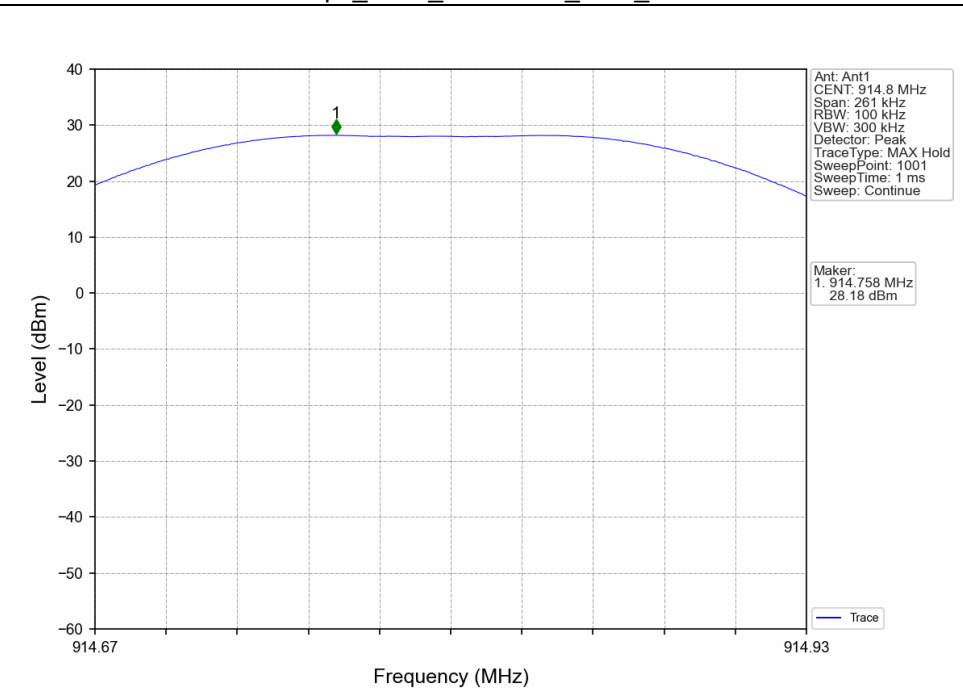
50kbps_HCH_927.8MHz_Ant1_NTNV



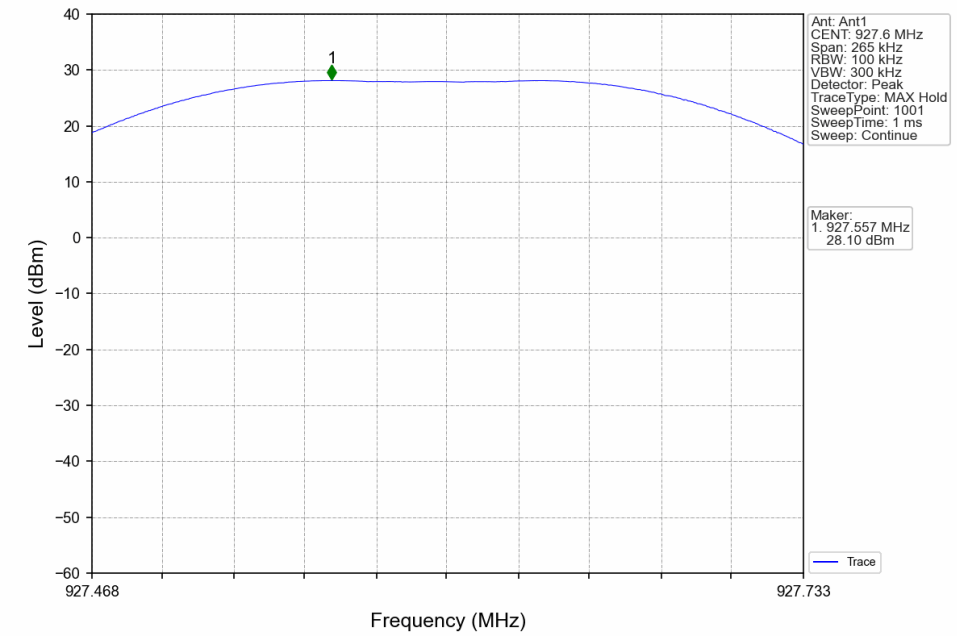
150kbps_LCH_902.4MHz_Ant1_NTNV



150kbps_MCH_914.8MHz_Ant1_NTNV



150kbps_HCH_927.6MHz_Ant1_NTNV



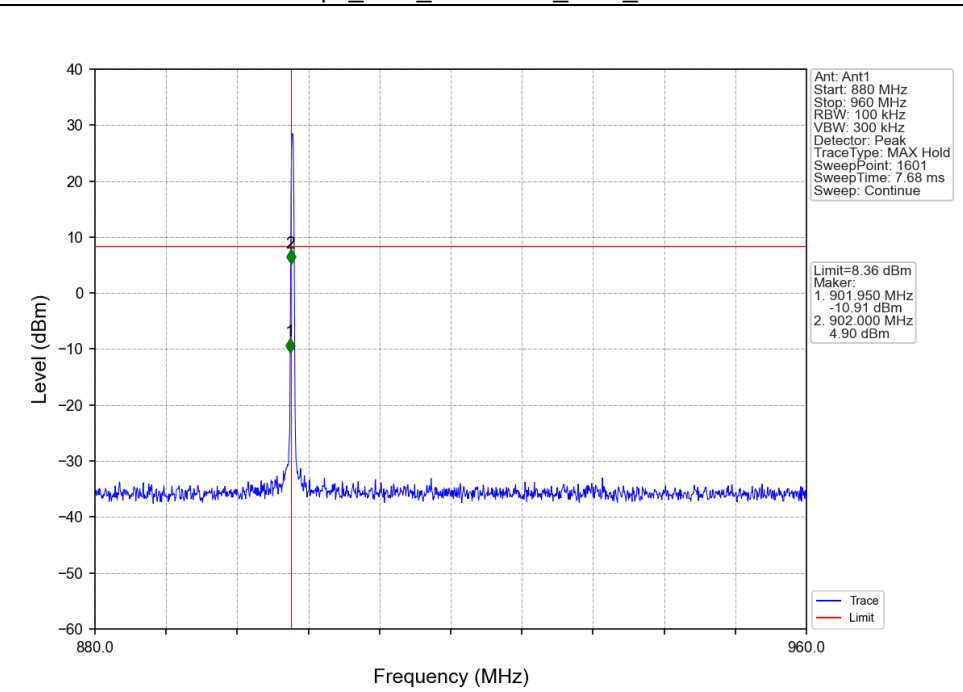
6.2 CSE

6.2.1 Test Result

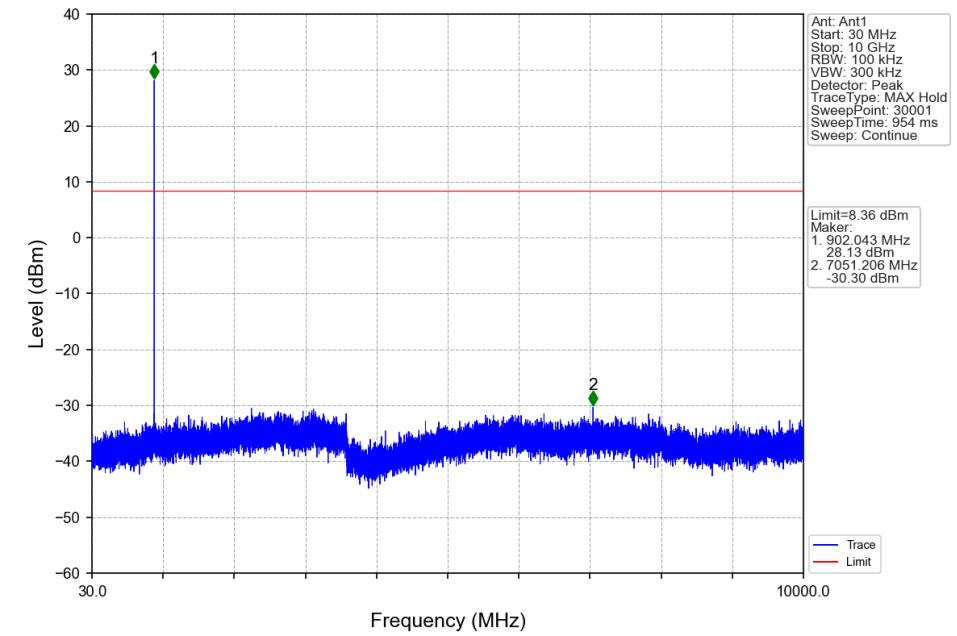
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
50kbps	SISO	902.2	1	28.36	8.36	Pass
		915	1	28.36	8.36	Pass
		927.8	1	28.36	8.36	Pass
		HOPP	1	28.36	8.36	Pass
				28.36	8.36	Pass
150kbps	SISO	902.4	1	28.18	8.18	Pass
		914.8	1	28.18	8.18	Pass
		927.6	1	28.18	8.18	Pass
		HOPP	1	28.18	8.18	Pass
				28.18	8.18	Pass
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.						

6.2.2 Test Graph

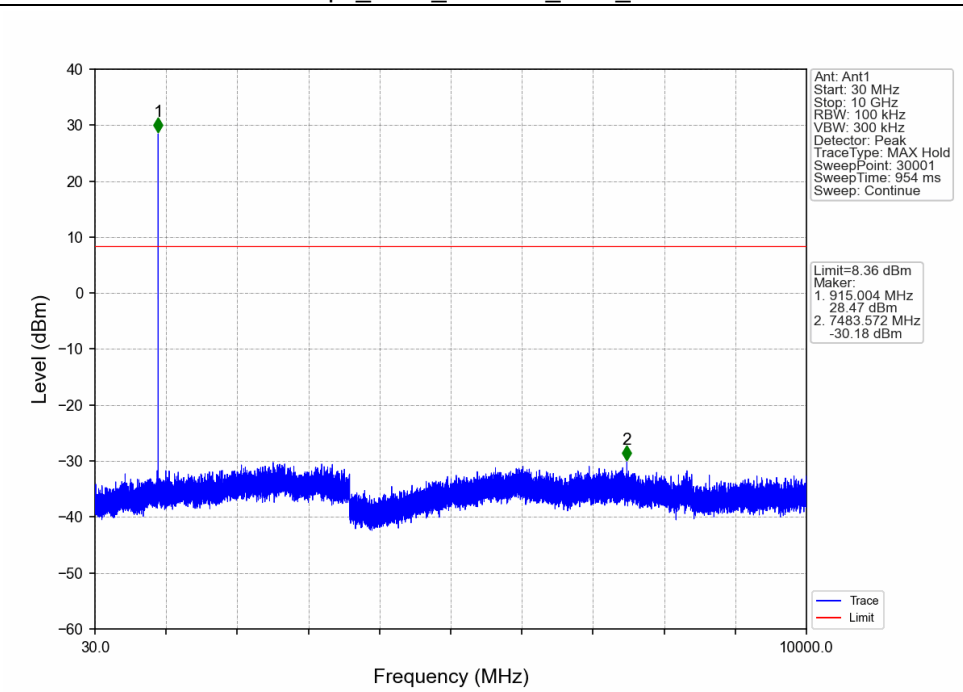
50kbps_LCH_902.2MHz_Ant1_NTNV



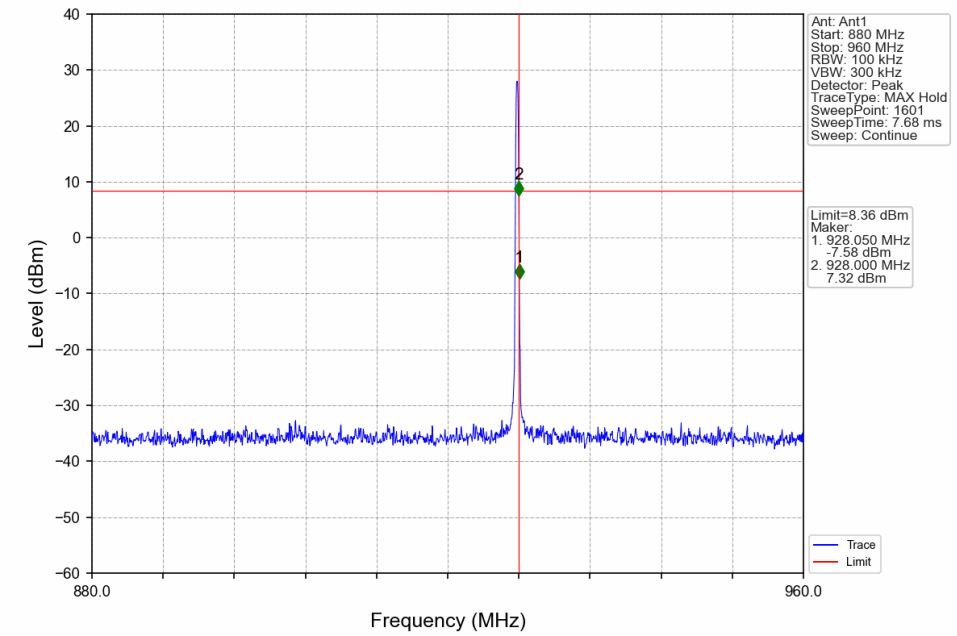
50kbps_LCH_902.2MHz_Ant1_NTNV



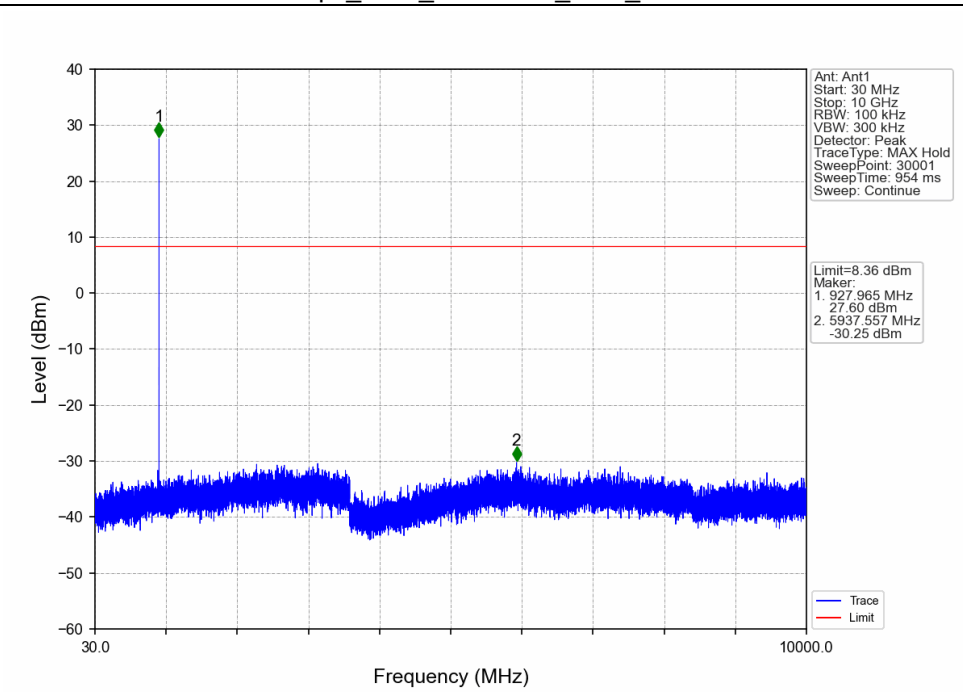
50kbps_MCH_915MHz_Ant1_NTNV



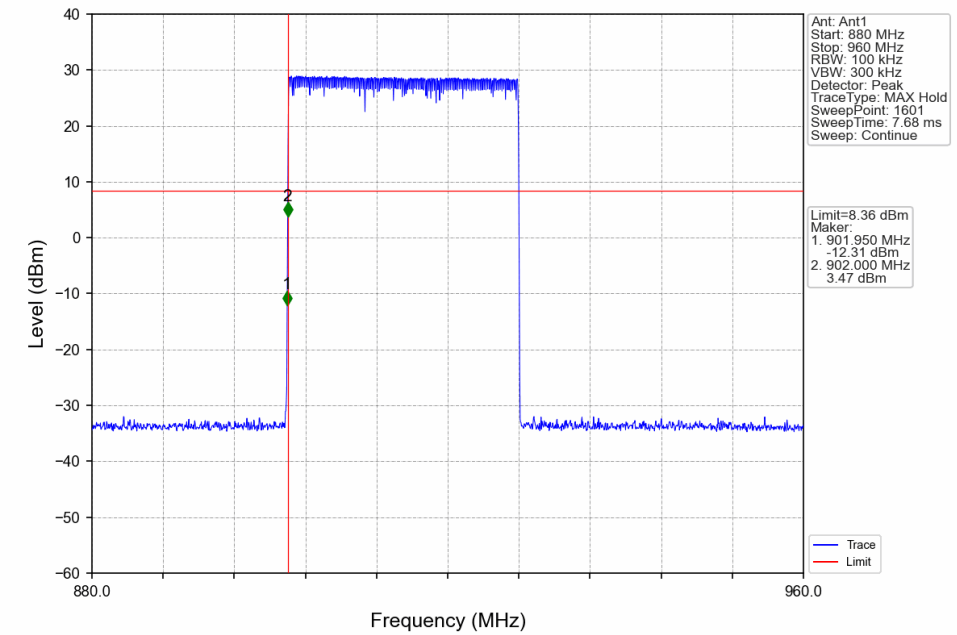
50kbps_HCH_927.8MHz_Ant1_NTNV



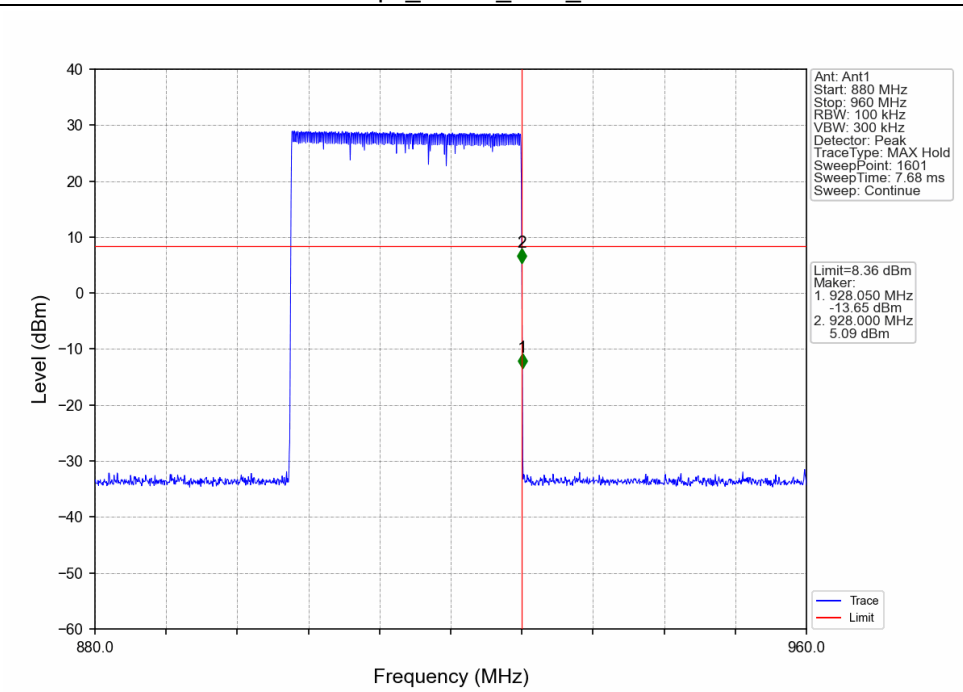
50kbps_HCH_927.8MHz_Ant1_NTNV



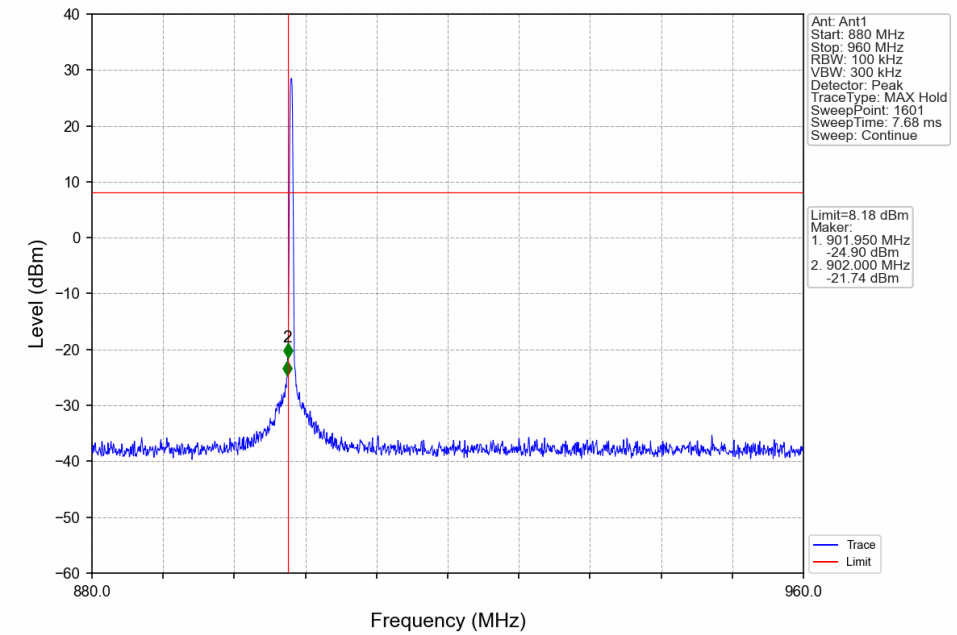
50kbps_HOPP_Ant1_NTNV



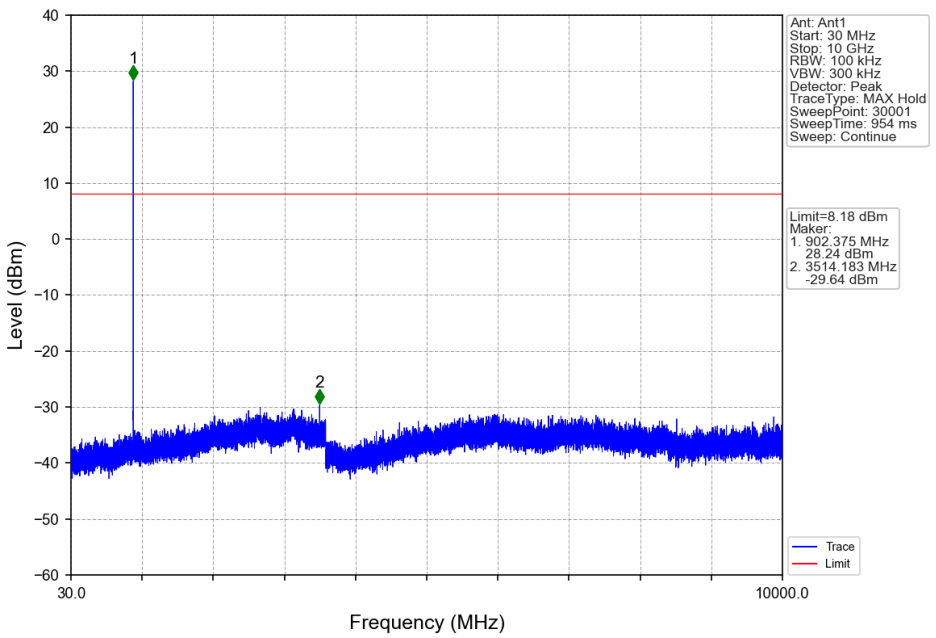
50kbps_HOPP_Ant1_NTNV



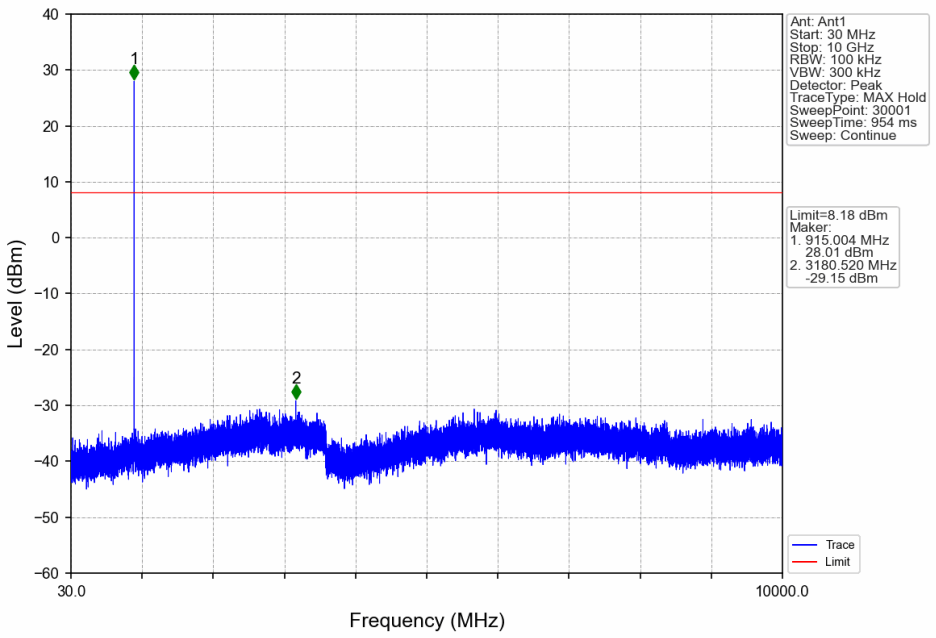
150kbps_LCH_902.4MHz_Ant1_NTNV



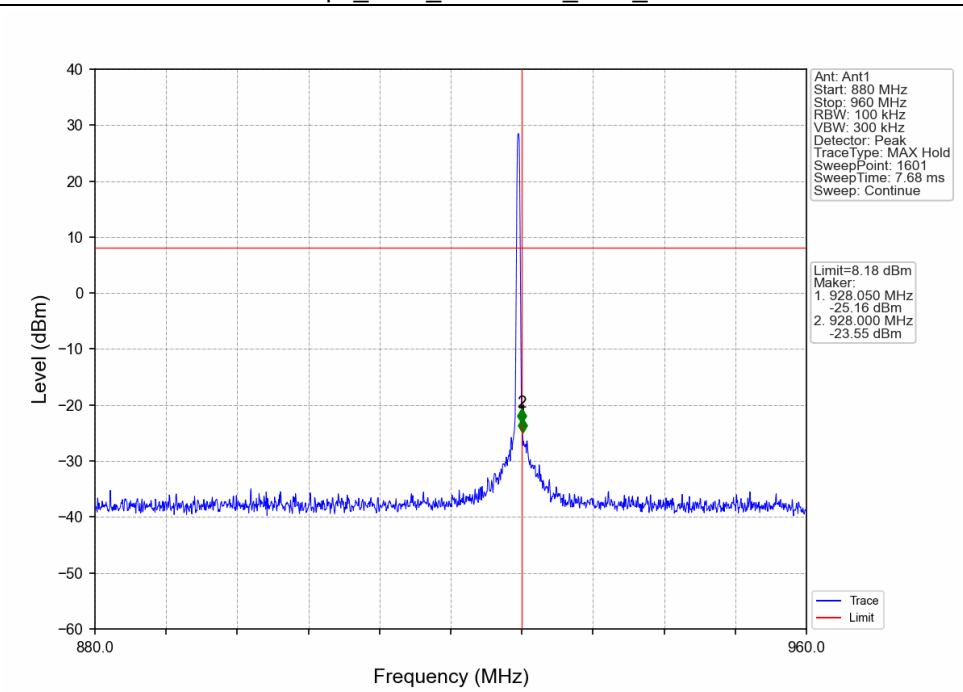
150kbps_LCH_902.4MHz_Ant1_NTNV



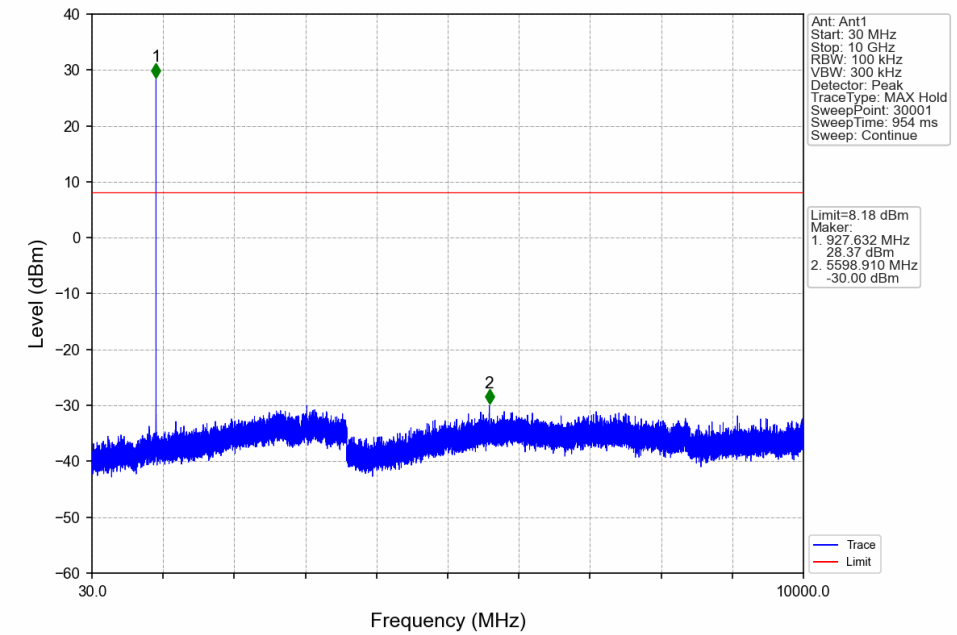
150kbps_MCH_914.8MHz_Ant1_NTNV



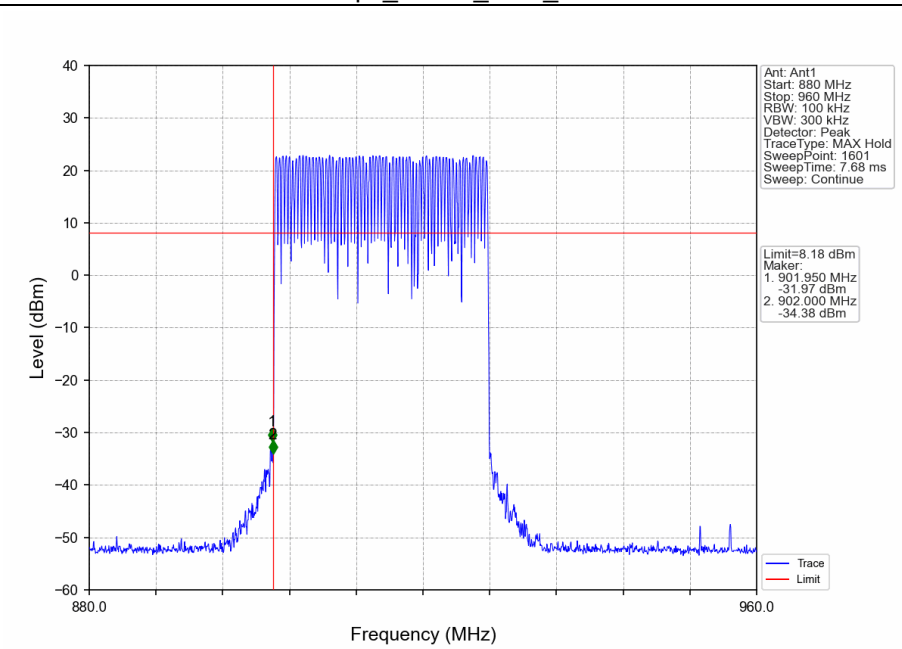
150kbps_HCH_927.6MHz_Ant1_NTNV



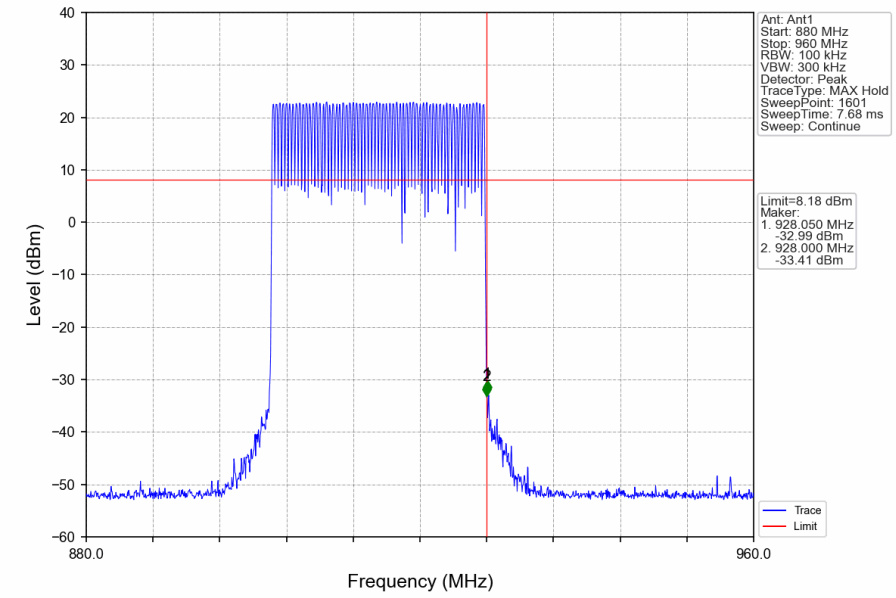
150kbps_HCH_927.6MHz_Ant1_NTNV



150kbps_HOPP_Ant1_NTNV



150kbps_HOPP_Ant1_NTNV



- End of the Report -