

TEST REPORT

Application No.: KSCR2606001325AT
FCC ID: XMR2026KGM100XB
Applicant: Quectel Wireless Solutions Co., Ltd.
Address of Applicant: No. 8 Waipojing Road, Sijing Town, Songjiang District, Shanghai 201601, China
Manufacturer: Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer: No. 8 Waipojing Road, Sijing Town, Songjiang District, Shanghai 201601, China
Equipment Under Test (EUT):
EUT Name: Wireless Module for Amazon Sidewalk
Model No.: KGM100XB
Trade Mark: QUECTEL
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2026-06-05
Date of Test: 2026-07-09 to 2026-07-31
Date of Issue: 2026-08-04

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

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Revision Record			
Version	Description	Date	Remark
00	Original	2026-08-04	/

Authorized for issue by:			
Prepared By		<i>Tommie Tang</i>	
		<u>Tommie_Tang/Project Engineer</u>	
Approved By		<i>Terry Hou</i>	
		<u>Terry Hou /Reviewer</u>	

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

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 (2020) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2020) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2020) Section 6.6 & 11.12	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Maximum Conducted Output Power		ANSI C63.10 (2020) Section 11.9.2	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth		ANSI C63.10 (2020) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Power Spectral Density		ANSI C63.10 (2020) Section 11.10.3	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement		ANSI C63.10 (2020) Section 6.10.4	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions		ANSI C63.10 (2020) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass

3 Contents

	Page
1 COVER PAGE	1
2 Test Summary	3
3 Contents.....	4
4 General Information.....	5
4.1 Details of E.U.T.	5
4.2 Power level setting using in test.....	5
4.3 Description of Support Units	5
4.4 Channel List	5
4.5 Measurement Uncertainty	6
4.6 Test Location	7
4.7 Test Facility	7
4.8 Deviation from Standards.....	7
4.9 Abnormalities from Standard Conditions.....	7
5 Equipment List	8
6 Radio Spectrum Technical Requirement.....	9
6.1 Antenna Requirement	9
7 Radio Spectrum Matter Test Results	10
7.1 Conducted Emissions at AC Power Line (150kHz-30MHz).....	10
7.2 Radiated Spurious Emissions Below 1GHz	14
7.3 Radiated Spurious Emissions Above 1GHz.....	18
7.4 Maximum Conducted Output Power	26
7.5 Minimum 6dB Bandwidth.....	28
7.6 Power Spectral Density	29
7.7 Conducted Band Edges Measurement	30
7.8 Conducted Spurious Emissions	31
8 Test Setup Photo	32
9 EUT Constructional Details (EUT Photos).....	32
10 Appendix.....	33

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 3.3V
FVIN:	KGM100XBACR01A01M01
HVIN:	KGM100XB
Operation Frequency:	902.5MHz to 926.5MHz
Modulation Type:	CSS
Number of Channels:	31
Channel Spacing:	800KHz
Antenna Type:	Dipole Antenna
Antenna Gain:	1.5dBi (Provided by the manufacturer)

4.2 Power level setting using in test

Modulation	Antenna	Power level setting
CSS_500KHz	Ant 1	22

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	LENOVO	80H1	/
Adapter	Sichuan Jiuzhou Electronic Technology Co.,Ltd	DYS05200CQ-U	/

4.4 Channel List

CSS_500KHz

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	902.5	10	909.7	19	916.9	28	924.1
2	903.3	11	910.5	20	917.7	29	924.9
3	904.1	12	911.3	21	918.5	30	925.7
4	904.9	13	912.1	22	919.3	31	926.5
5	905.7	14	912.9	23	920.1	28	924.1
6	906.5	15	913.7	24	920.9	29	924.9
7	907.3	16	914.5	25	921.7	30	925.7
8	908.1	17	915.3	26	922.5	31	926.5
9	908.9	18	916.1	27	923.3		

4.5 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
8	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
10	Temperature Test	1°C
11	Humidity Test	3%
12	Supply Voltages	1.5%
13	Time	3%
Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.		

4.6 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).
3. Sample source: sent by customer.

4.7 Test Facility

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

• **A2LA (Certificate No. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA).

• **FCC (Designation Number: CN1172)**

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory.

• **ISED (CAB Identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E

• **VCCI (Member No:1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.8 Deviation from Standards

None

4.9 Abnormalities from Standard Conditions

None

5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
Conducted Emission at Mains Terminals						
1	EMI Test Receive	R&S	ESCI	KS301196	07/06/2026	07/05/2027
2	LISN	R&S	ENV216	KS301197	01/08/2026	01/07/2027
3	LISN	Schwarzbeck	NNLK 8129	KS301091	01/08/2026	01/07/2027
4	Pulse Limiter	R&S	ESH3-Z2	KUS1902E001	12/18/2025	12/17/2026
5	CE test Cable	Thermax	/	CZ301102	12/18/2025	12/17/2026
6	Software	Faratronic	E3	/	N.C.R	N.C.R
RF Conducted Test						
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	07/07/2026	07/06/2027
2	Spectrum Analyzer	Keysight	N9020A	KUS2001M001-2	07/07/2026	07/06/2027
3	Spectrum Analyzer	Keysight	N9030B	KSEM021-1	12/17/2025	12/16/2026
4	Signal Generator	R&S	SMBV100B	KSEM032	12/17/2025	12/16/2026
5	Signal Generator	R&S	SMW200A	KSEM020-1	07/07/2026	07/06/2027
6	Signal Generator	Agilent	N5182A	KUS2001M001-1	07/07/2026	07/06/2027
7	Signal Generator	Agilent	E8257C	KS301066	07/07/2026	07/06/2027
8	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	07/07/2026	07/06/2027
9	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	12/17/2025	12/16/2026
10	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	07/07/2026	07/06/2027
11	Switcher	TST	FY562	KUS2001M001-4	12/17/2025	12/16/2026
12	Conducted Test Cable	Thermax	RF01-RF04	CZ301111-CZ301120	12/17/2025	12/16/2026
13	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	07/07/2026	07/06/2027
14	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	12/30/2025	12/29/2026
15	Software	BST	TST-PASS	/	NCR	NCR
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	07/06/2026	07/05/2027
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	12/17/2025	12/16/2026
3	Signal Generator	Agilent	E8257C	KS301066	07/07/2026	07/06/2027
4	Loop Antenna (9KHz-30MHz)	COM-POWER	AL-130R	KUS1806E001	07/07/2026	07/06/2027
5	Bilog Antenna (30MHz-1GHz)	TESEQ	CBL 6112D	KUS1806E005	07/07/2026	07/06/2027
6	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	01/11/2026	01/10/2028
7	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	01/11/2026	01/10/2028
8	Amplifier(30MHz~1GHz)	TST	LNA009100G30	KSEM061	12/18/2025	12/17/2026
9	Amplifier(400MHz~8GHz)	TST	LNA004080G30	KSEM062	12/18/2025	12/17/2026
10	Amplifier(1GHz~18GHz)	TST	LNA010180G45	KSEM039	07/07/2026	07/06/2027
11	Amplifier(18~40GHz)	TST	LNA180400G40	KSEM038	07/07/2026	07/06/2027
12	Radiation Test Cable	REBES MICROWAVE	A81-SMSM-10M	CZ301097-CZ301100	11/14/2025	11/13/2026
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	12/30/2025	12/29/2026
14	Software	ESE	E3_V 6.111221a	/	NCR	NCR
15	Measurement Software	Tonscend	JS32-RE V5.0.0.1	/	NCR	NCR
16	Measurement Software	Tonscend	JS32-RSE V5.0.0.0	/	NCR	NCR

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 Dipole Antenna and no consideration of replacement. The best case gain of the antenna is 1.5 dBi.

Antenna location: Refer to internal photo.

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 (2020) 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: 21.0 °C

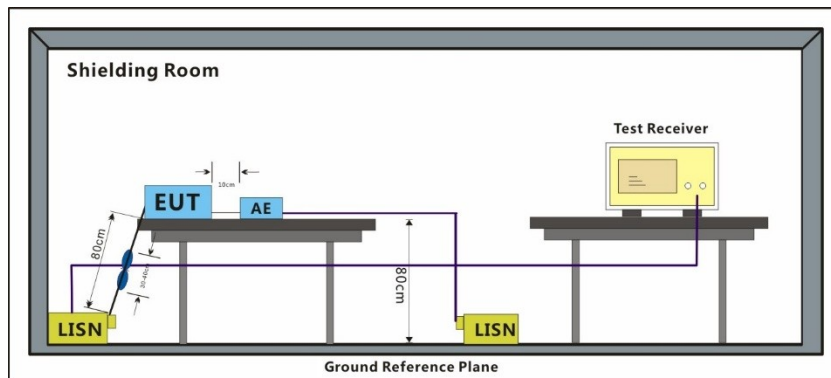
Humidity: 48.4 % RH

Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with CSS_500KHz modulation.

7.1.3 Test Setup Diagram

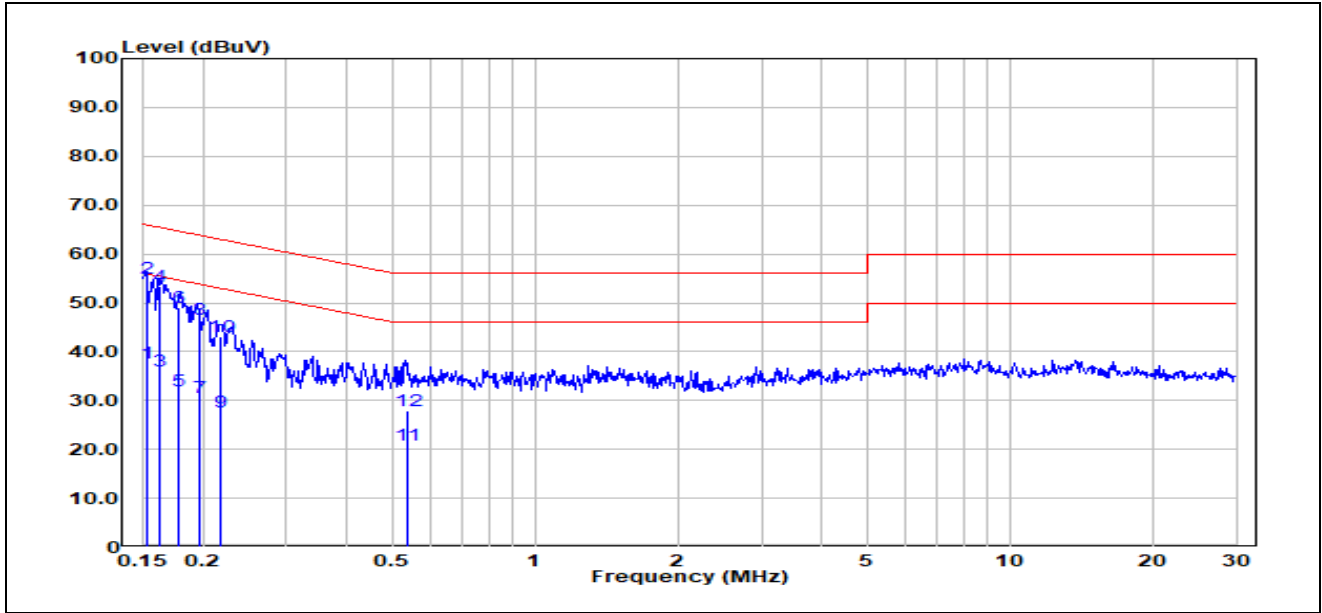


7.1.4 Measurement Procedure and Data

- 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.

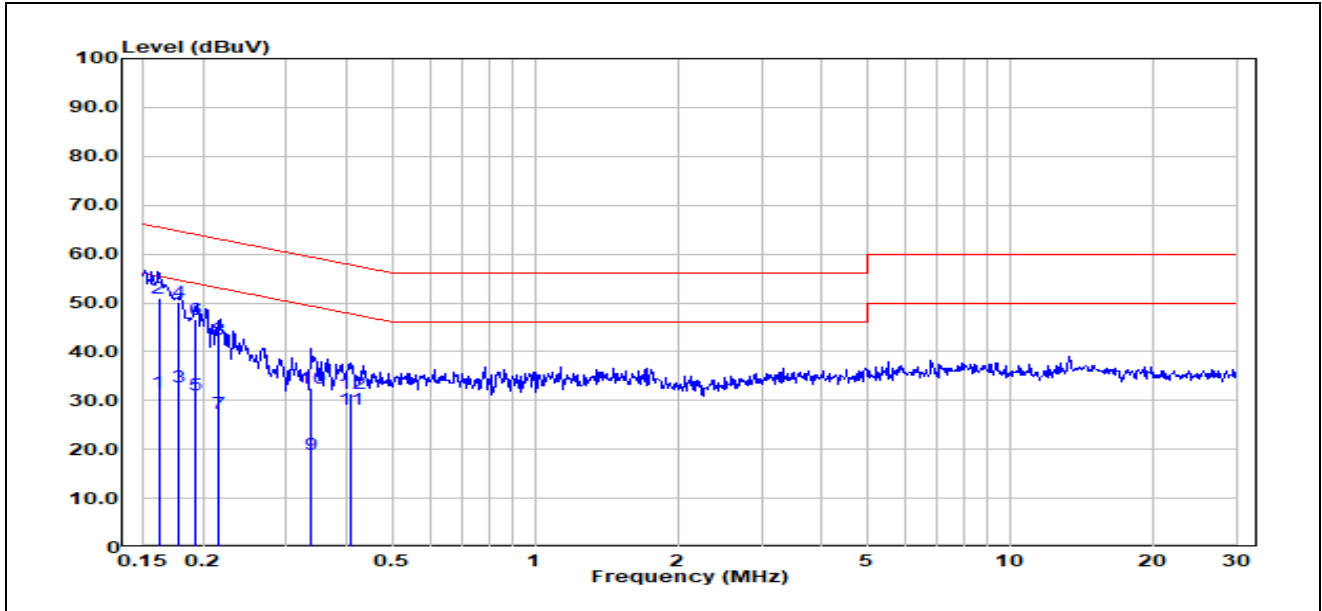
Remark: Level=Read Level+ Cable Loss+ LISN Factor

Test Mode: 00; Line: Live line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1528	17.24	20.38	37.62	55.85	-18.23	Average
2	0.1528	34.51	20.38	54.89	65.85	-10.96	QP
3	0.1623	15.84	20.33	36.17	55.35	-19.18	Average
4	0.1623	32.95	20.33	53.28	65.35	-12.07	QP
5	0.1776	11.83	20.28	32.11	54.60	-22.49	Average
6	0.1776	28.89	20.28	49.17	64.60	-15.43	QP
7	0.1959	10.30	20.26	30.56	53.78	-23.22	Average
8	0.1959	26.28	20.26	46.54	63.78	-17.24	QP
9	0.2179	7.41	20.19	27.60	52.90	-25.30	Average
10	0.2179	23.02	20.19	43.21	62.90	-19.69	QP
11	0.5369	0.54	20.21	20.75	46.00	-25.25	Average
12	0.5369	7.65	20.21	27.86	56.00	-28.14	QP

Test Mode: 00; Line: Neutral Line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1613	11.33	20.41	31.74	55.40	-23.66	Average
2	0.1613	30.48	20.41	50.89	65.40	-14.51	QP
3	0.1777	12.37	20.35	32.72	54.59	-21.87	Average
4	0.1777	29.81	20.35	50.16	64.59	-14.43	QP
5	0.1926	10.77	20.28	31.05	53.93	-22.88	Average
6	0.1926	26.27	20.28	46.55	63.93	-17.38	QP
7	0.2164	7.12	20.21	27.33	52.96	-25.63	Average
8	0.2164	22.33	20.21	42.54	62.96	-20.42	QP
9	0.3376	-1.06	20.10	19.04	49.26	-30.22	Average
10	0.3376	12.30	20.10	32.40	59.26	-26.86	QP
11	0.4081	8.05	20.17	28.22	47.69	-19.47	Average
12	0.4081	11.31	20.17	31.48	57.69	-26.21	QP

7.2 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.4,6.5

Measurement Distance: 3M

Limit:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	Field strength (dBμV/m@3m)
0.009-0.490	2400/F(kHz)	300	128.5 to 93.8
0.490-1.705	24000/F(kHz)	30	73.8 to 62.9
1.705-30.0	30	30	69.60
30-88	100	3	40.0
88-216	150	3	43.5
216-960	200	3	46.0
960-1000	500	3	54.0

Note : The above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C

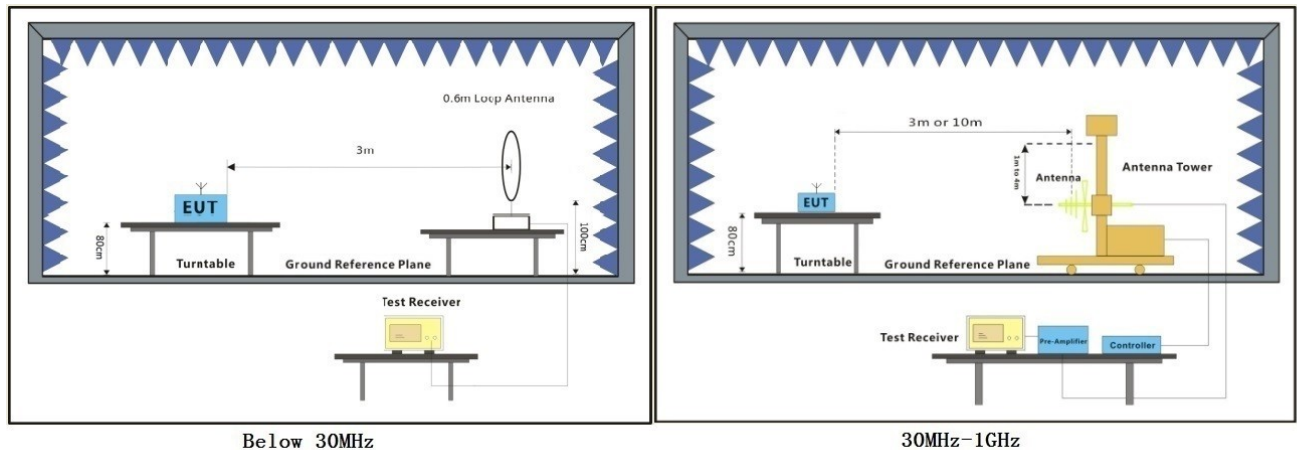
Humidity: 45.6 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with CSS_500KHz modulation.

7.2.3 Test Setup Diagram



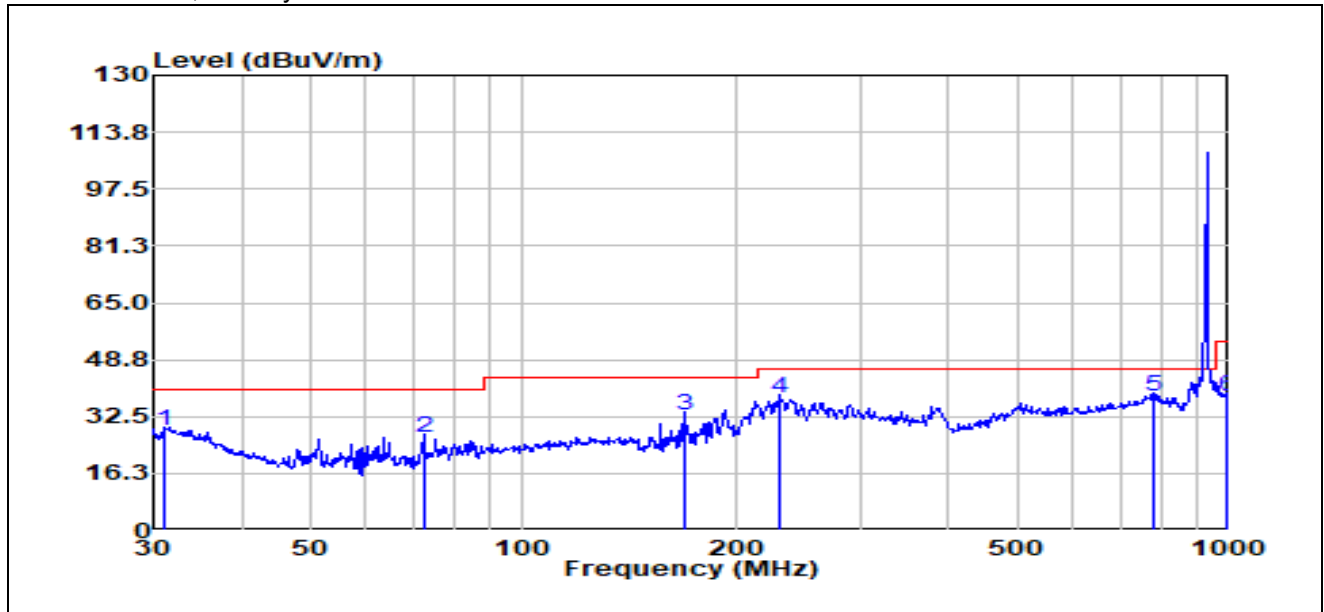
7.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8m above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3m or 10m away from the interference-receiving antenna, which was mounted on the variable-height antenna tower.
- c. The antenna height is varied from 1m to 4m 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 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1m) 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:

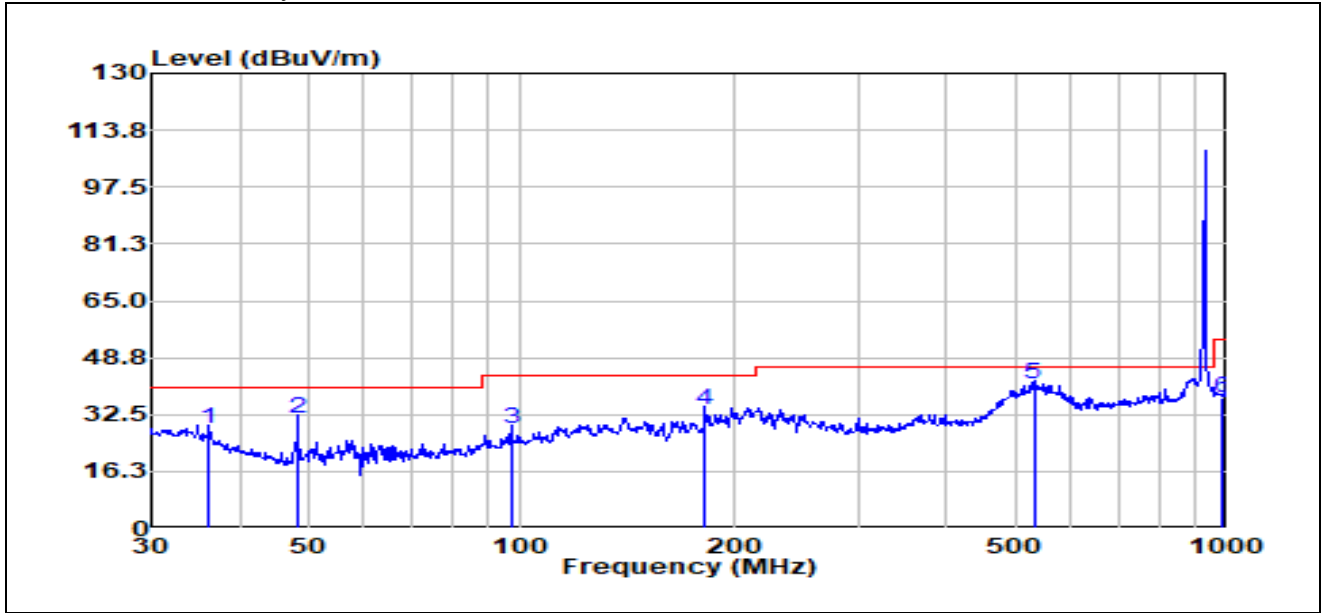
- 1 Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
2. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the worst-case test curve is displayed.

Test Mode: 00; Polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	31.07	4.11	24.26	28.37	40.00	-11.63	QP
2	72.59	12.21	14.15	26.36	40.00	-13.64	QP
3	169.01	15.98	16.76	32.74	43.50	-10.76	QP
4	230.91	18.80	18.75	37.55	46.00	-8.45	QP
5	779.61	8.00	30.48	38.48	46.00	-7.52	QP
6	989.54	6.82	31.37	38.19	54.00	-15.81	QP

Test Mode: 00; Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	36.25	7.74	20.74	28.48	40.00	-11.52	QP
2	48.33	18.13	13.13	31.26	40.00	-8.74	QP
3	96.78	10.68	17.60	28.28	43.50	-15.22	QP
4	182.56	15.94	18.08	34.02	43.50	-9.48	QP
5	531.96	14.10	27.10	41.20	46.00	-4.80	QP
6	986.07	6.18	31.27	37.45	54.00	-16.55	QP

7.3 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.6 & 11.12

Measurement Distance: 3M

Limit:

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

Note:

At Above 18GHz, measurements may be performed at a distance shorter than that specified in the regulations

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor+ Aux Factor (if applicable)

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

EX. Above 18GHz, Aux Factor = 20 dB/decade of distance, the aux factor is $20\log(1/3) = -9.54\text{dB}$ (for 1m test distance).

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C

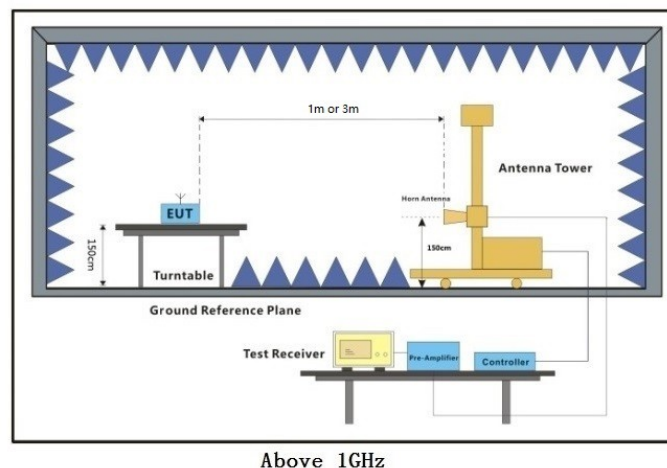
Humidity: 45.6 % RH

Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with CSS_500KHz modulation.

7.3.3 Test Setup Diagram



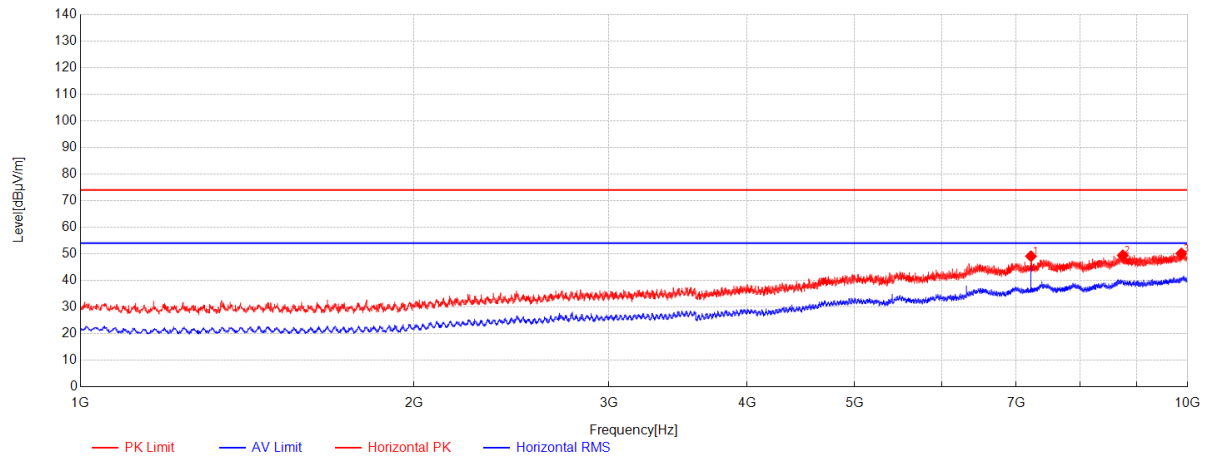
7.3.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5m above the ground at a 3m fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3m away from the interference-receiving antenna from 1GHz to 10GHz, and 1m away from the interference-receiving antenna above 18GHz.
- b. The interference-receiving antenna was mounted on the variable-height antenna tower, with its boresight facing the EUT throughout the test.
- c. The antenna height is varied from 1m to 4m 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 1m to 4m 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. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- g. 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.
- h. Repeat above procedures until all frequencies measured was complete.

Remark:

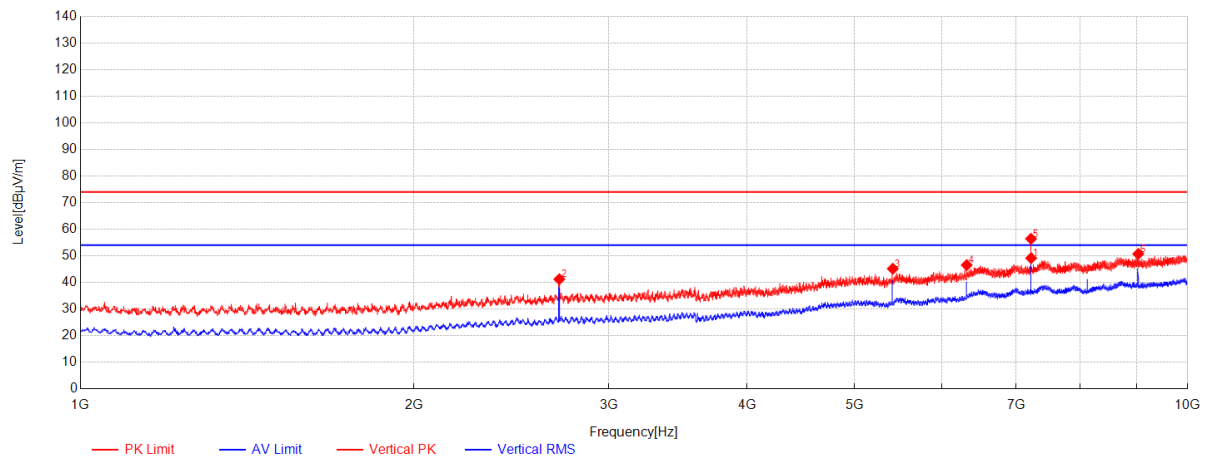
1. Scan from 1GHz to 10th harmonic of the highest frequency or 40 GHz, whichever is lower.
2. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits 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.
3. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s).

CSS_500KHz-902.5MHz- Horizontal



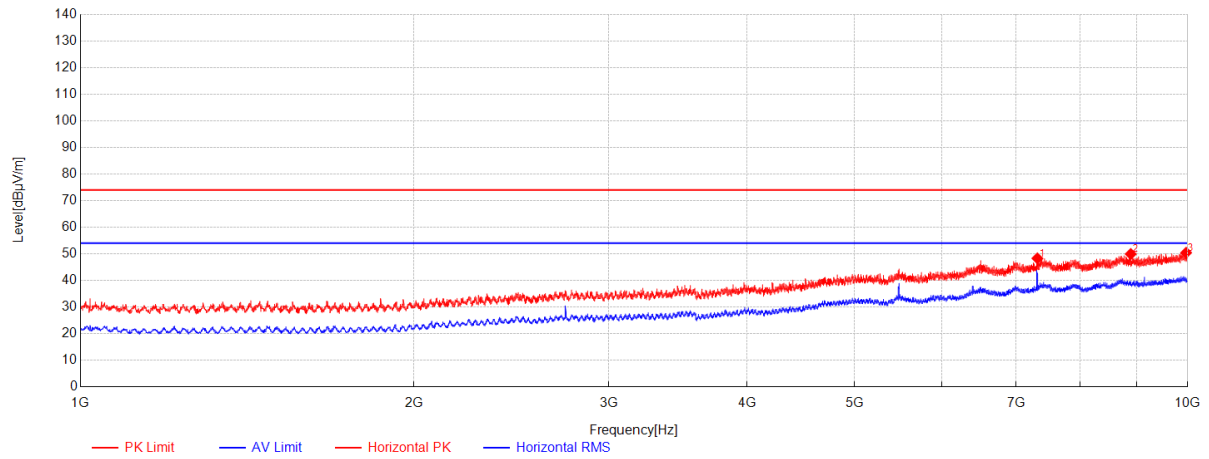
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	7219	60.01	36.28	-47.21	49.08	74.00	24.92	Horizontal
2	8738.5	56.40	37.58	-44.57	49.41	74.00	24.59	Horizontal
3	9868.75	54.78	38.71	-43.37	50.12	74.00	23.88	Horizontal

CSS_500KHz-902.5MHz- Vertical



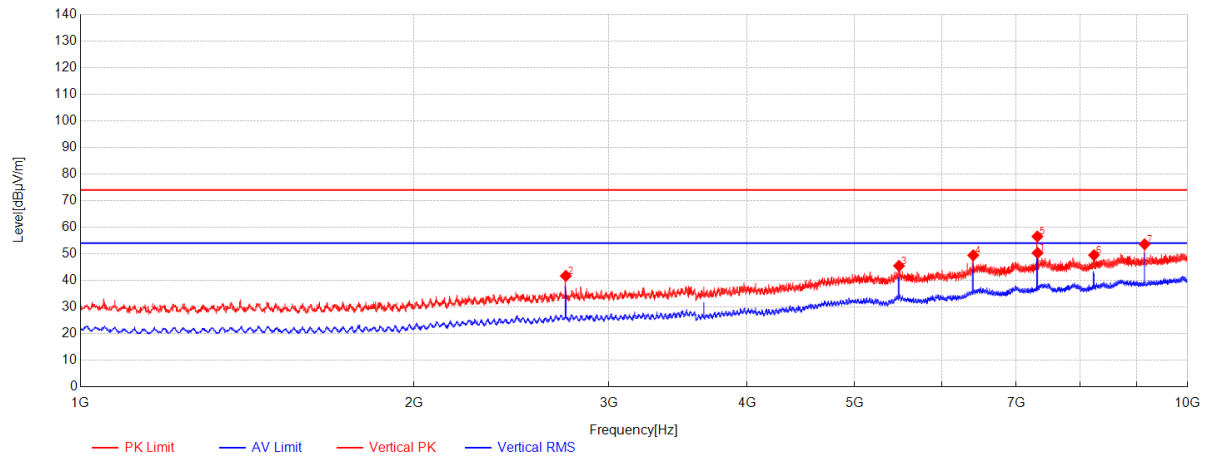
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	7221.25	60.04	36.29	-47.21	49.12	54.00	4.88	Vertical
2	2707	66.98	27.13	-52.90	41.21	74.00	32.79	Vertical
3	5416	61.30	31.76	-47.92	45.14	74.00	28.86	Vertical
4	6316	59.68	33.70	-46.86	46.52	74.00	27.48	Vertical
5	7219	67.30	36.28	-47.21	56.37	74.00	17.63	Vertical
6	9024.25	57.64	37.90	-44.83	50.71	74.00	23.29	Vertical

CSS_500KHz-914.5MHz- Horizontal



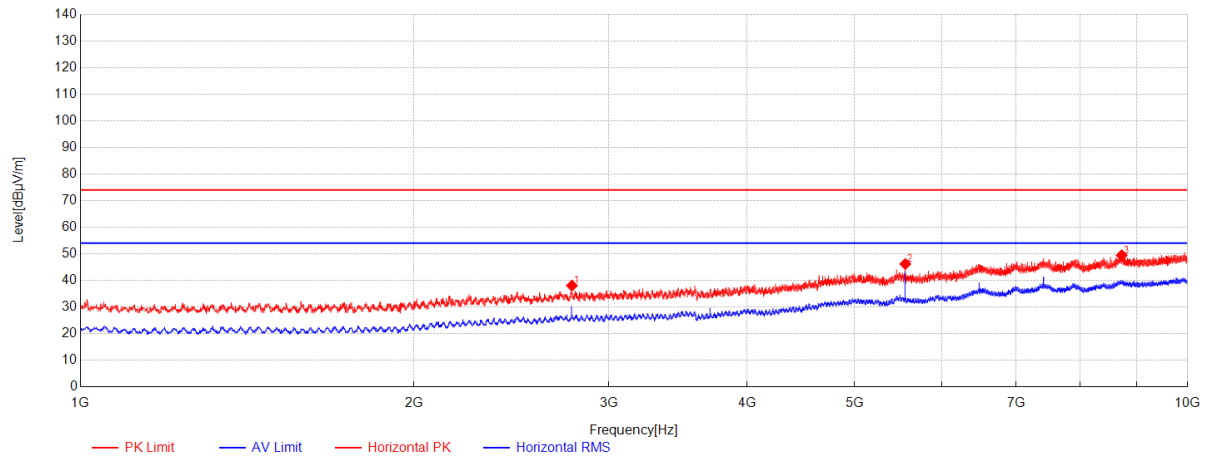
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	7315.75	58.88	36.33	-46.92	48.29	74.00	25.71	Horizontal
2	8884	57.45	37.70	-45.24	49.91	74.00	24.09	Horizontal
3	9967.75	55.20	38.96	-43.77	50.39	74.00	23.61	Horizontal

CSS_500KHz-914.5MHz- Vertical



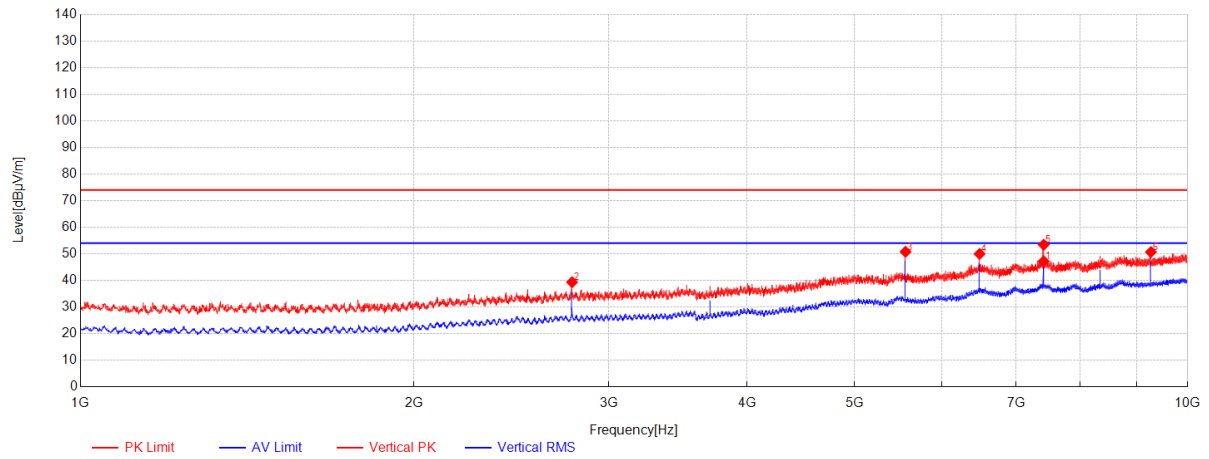
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	7318.75	60.83	36.34	-46.87	50.30	54.00	3.70	Vertical
2	2743.75	67.48	27.09	-52.87	41.70	74.00	32.30	Vertical
3	5486.5	60.38	32.05	-46.95	45.48	74.00	28.52	Vertical
4	6402.25	61.83	33.91	-46.30	49.44	74.00	24.56	Vertical
5	7315.75	67.11	36.33	-46.92	56.52	74.00	17.48	Vertical
6	8230	59.04	36.82	-46.35	49.51	74.00	24.49	Vertical
7	9143.5	60.28	38.06	-44.75	53.59	74.00	20.41	Vertical

CSS_500KHz-926.5MHz- Horizontal



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2779	63.42	27.46	-52.84	38.04	74.00	35.96	Horizontal
2	5558.5	61.58	31.93	-47.34	46.17	74.00	27.83	Horizontal
3	8717.5	56.33	37.54	-44.45	49.42	74.00	24.58	Horizontal

CSS_500KHz-926.5MHz- Vertical



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	7411.75	56.65	36.28	-45.73	47.20	54.00	6.80	Vertical
2	2779.75	64.68	27.49	-52.84	39.33	74.00	34.67	Vertical
3	5560.75	66.19	31.94	-47.37	50.76	74.00	23.24	Vertical
4	6487	61.61	34.20	-45.86	49.95	74.00	24.05	Vertical
5	7412.5	62.86	36.28	-45.73	53.41	74.00	20.59	Vertical
6	9264.25	57.60	38.17	-45.10	50.67	74.00	23.33	Vertical

7.4 Maximum Conducted Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2020) Section 11.9.2

Limit:

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

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

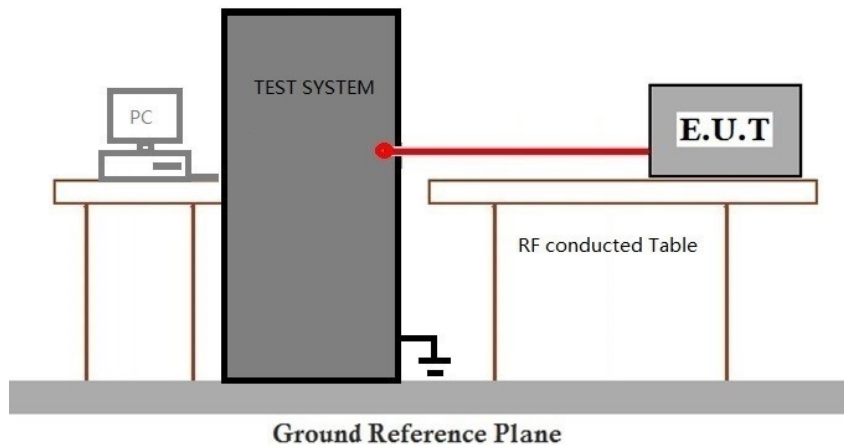
Humidity: 46.2 % RH

Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with CSS_500KHz modulation.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

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



Report No.: KSCR260600132502

Page: 27 of 51

Please Refer to Appendix for Details

7.5 Minimum 6dB Bandwidth

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

Test Method: ANSI C63.10 (2020) Section 11.8.1

Limit:

≥500 kHz

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

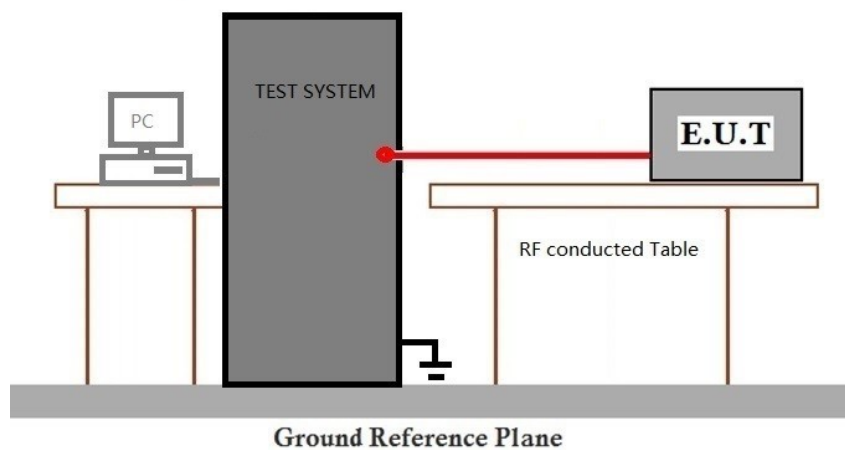
Humidity: 46.2 % RH

Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with CSS_500KHz modulation.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.6 Power Spectral Density

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

Test Method: ANSI C63.10 (2020) Section 11.10.3

Limit:

≤8dBm in any 3 kHz band during any time interval of continuous transmission

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

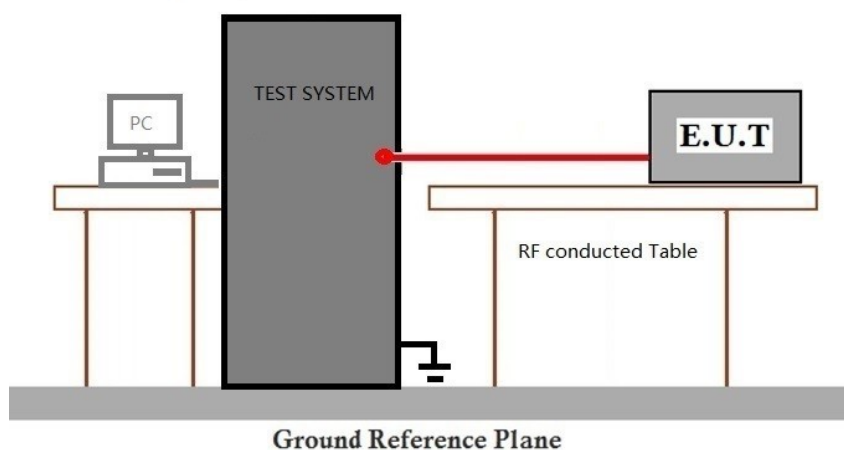
Humidity: 46.2 % RH

Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with CSS_500KHz 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 (2020) Section 6.10.4

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: 25.5 °C

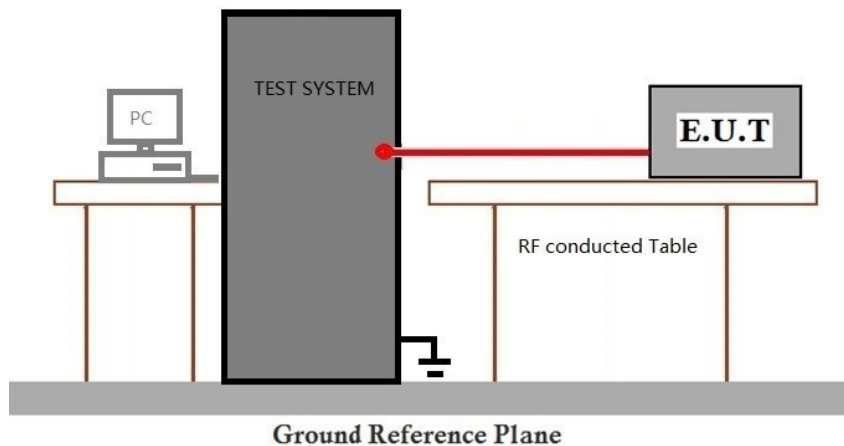
Humidity: 46.2 % RH

Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with CSS_500KHz 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 (2020) Section 11.11

Limit:

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

7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

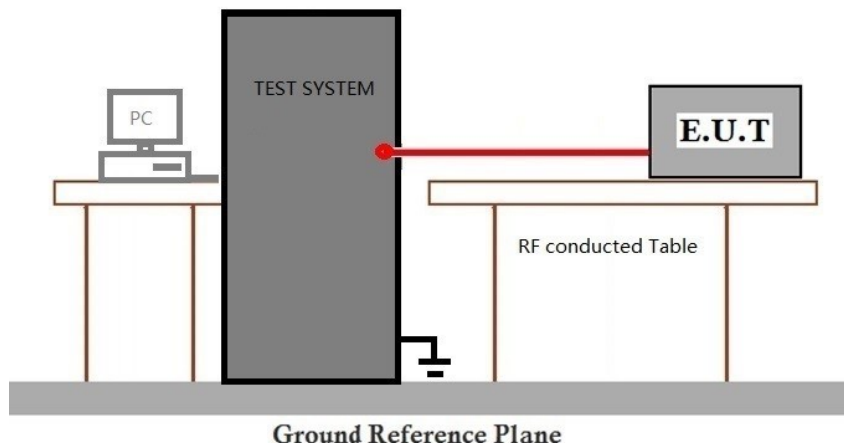
Humidity: 46.2 % RH

Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with CSS_500KHz modulation.

7.8.3 Test Setup Diagram



7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2606001325AT

9 EUT Constructional Details (EUT Photos)

Refer to Appendix_Photographs of EUT Constructional Details for KSCR2606001325AT



10 Appendix

CSS_500KHz

1. Duty Cycle

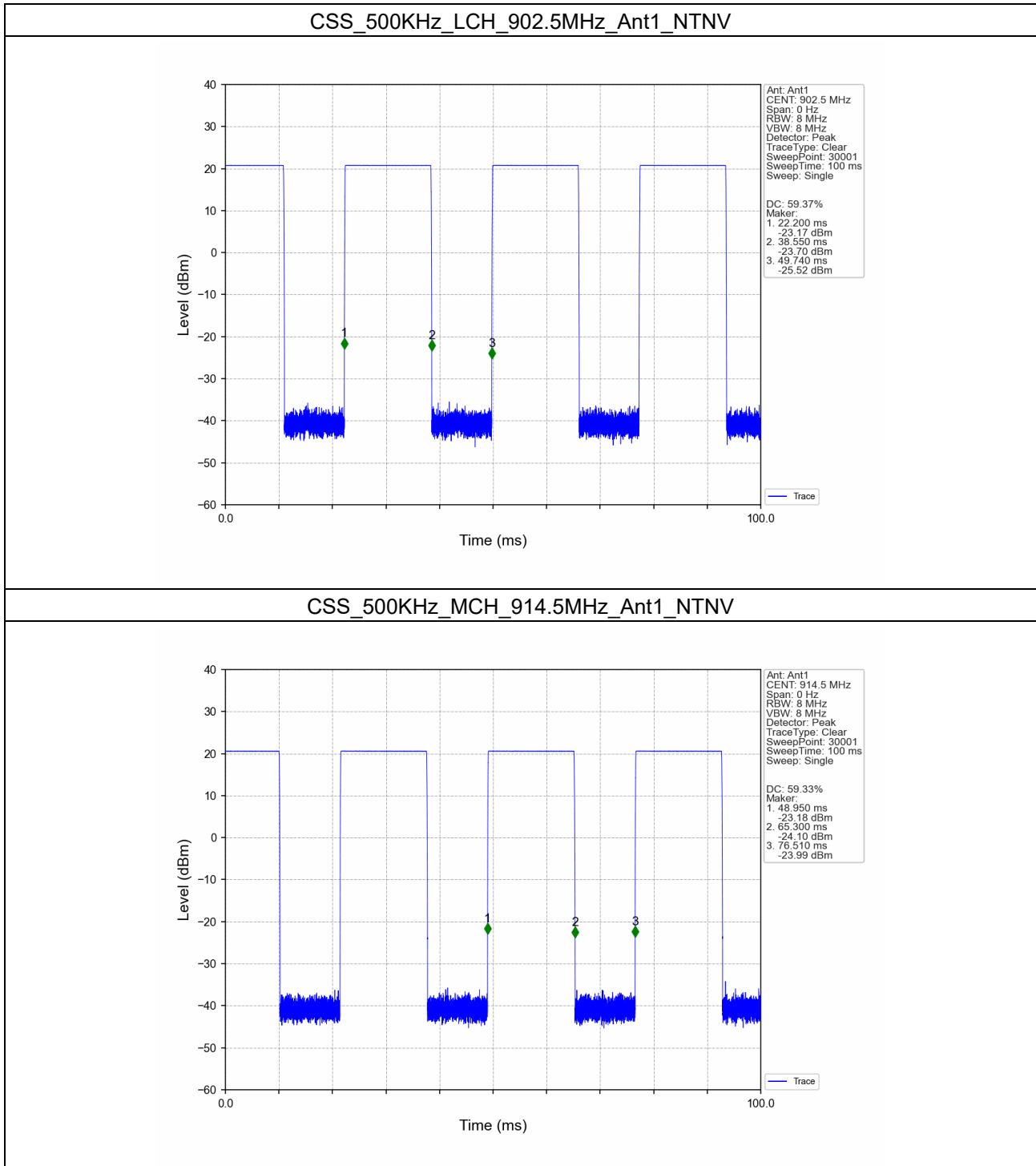
1.1 Test Result

1.1.1 Ant1

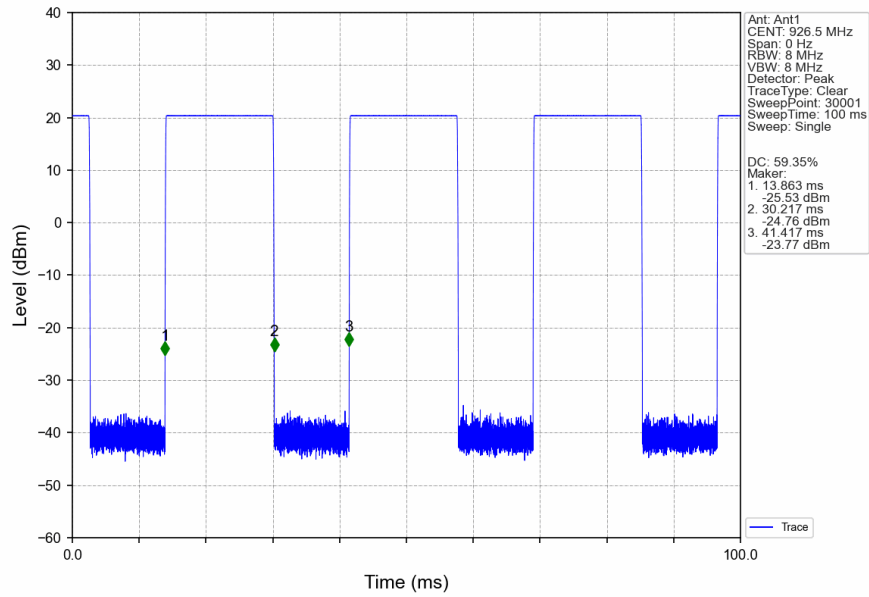
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
CSS_500KHz	SISO	902.5	16.350	27.540	59.37	2.26	0.02
		914.5	16.350	27.560	59.33	2.27	0.02
		926.5	16.354	27.554	59.35	2.27	0.02

1.2 Test Graph

1.2.1 Ant1



CSS_500KHz_HCH_926.5MHz_Ant1_NTNV



2. Bandwidth

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
CSS_500KHz	SISO	902.5	1	0.442	/	Pass
		914.5	1	0.501	/	Pass
		926.5	1	0.510	/	Pass

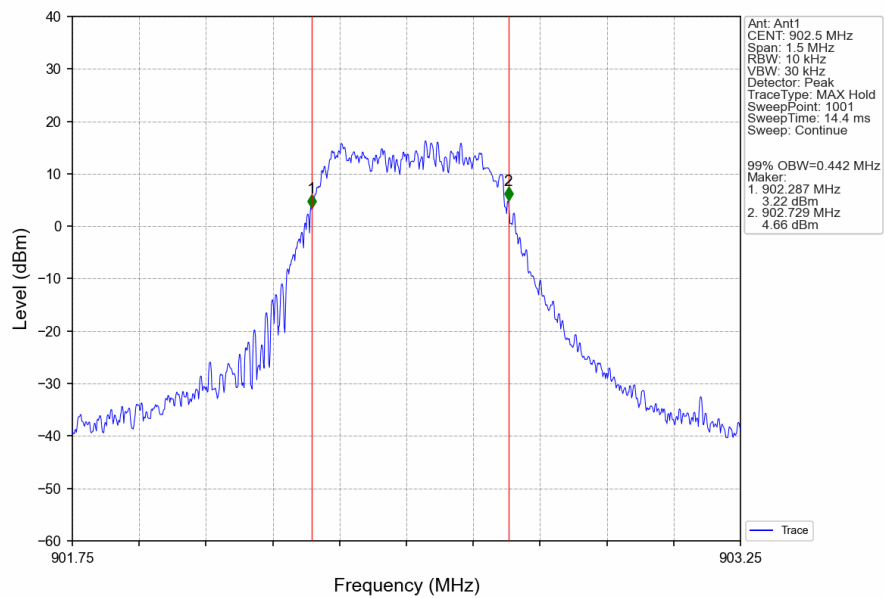
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
CSS_500KHz	SISO	902.5	1	0.526	≥ 0.5	Pass
		914.5	1	0.593	≥ 0.5	Pass
		926.5	1	0.604	≥ 0.5	Pass

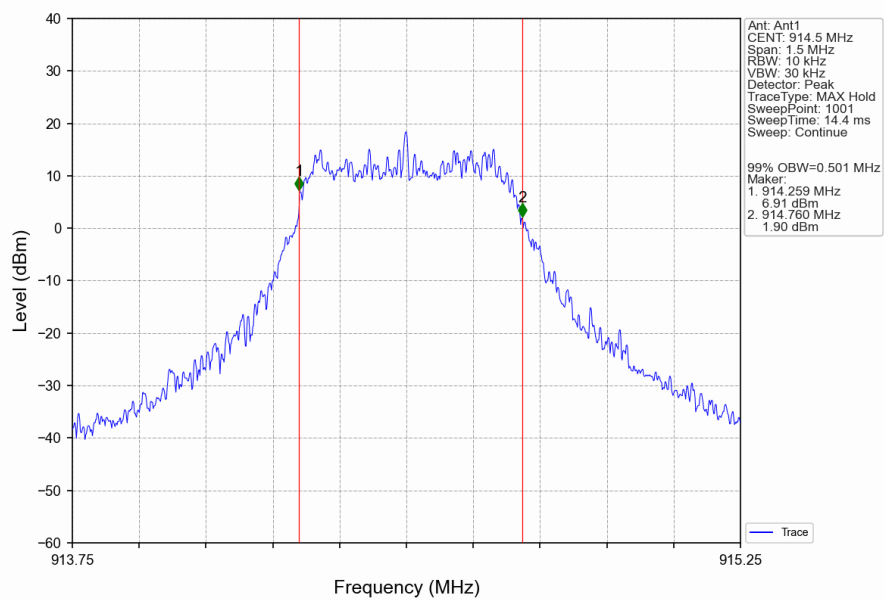
2.2 Test Graph

2.2.1 OBW

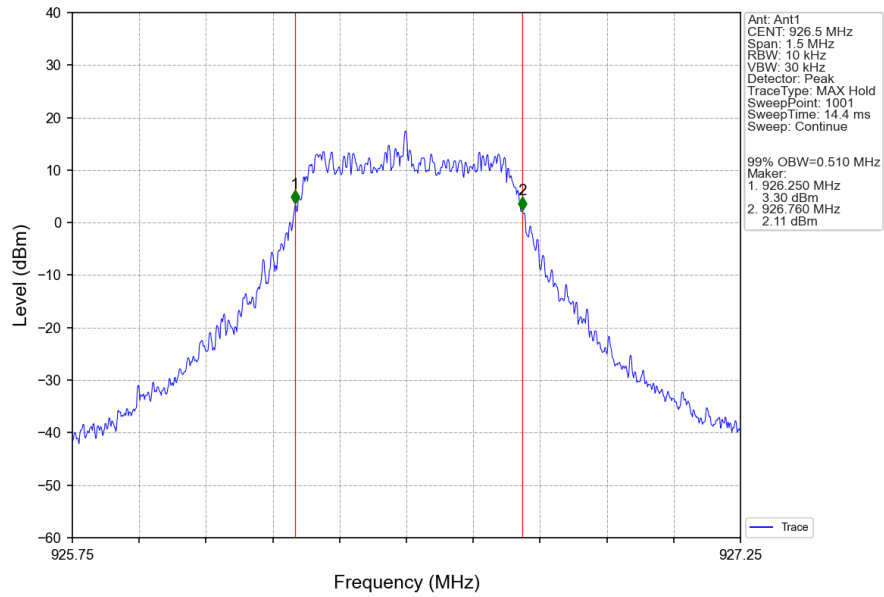
CSS_500KHz_LCH_902.5MHz_Ant1_NTNV



CSS_500KHz_MCH_914.5MHz_Ant1_NTNV

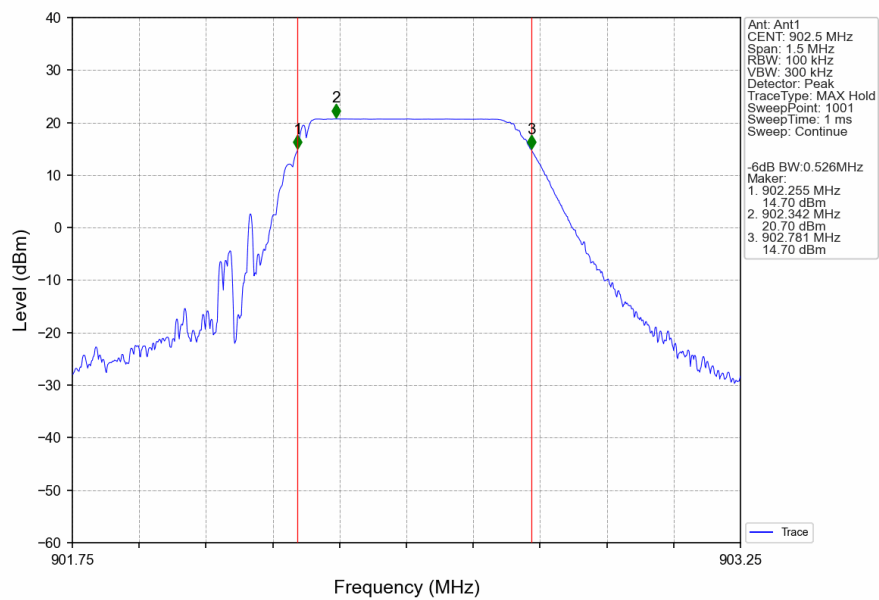


CSS_500KHz_HCH_926.5MHz_Ant1_NTNV

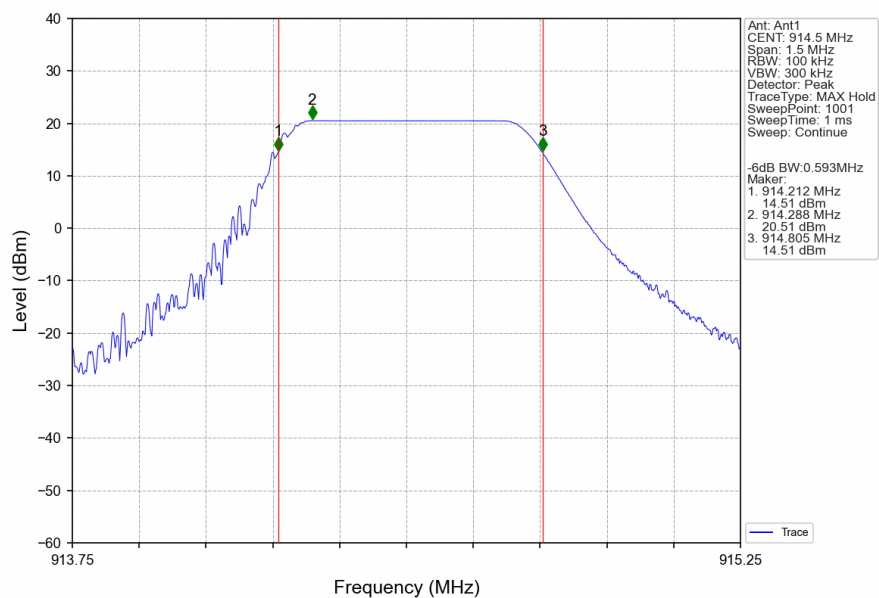


2.2.2 6dB BW

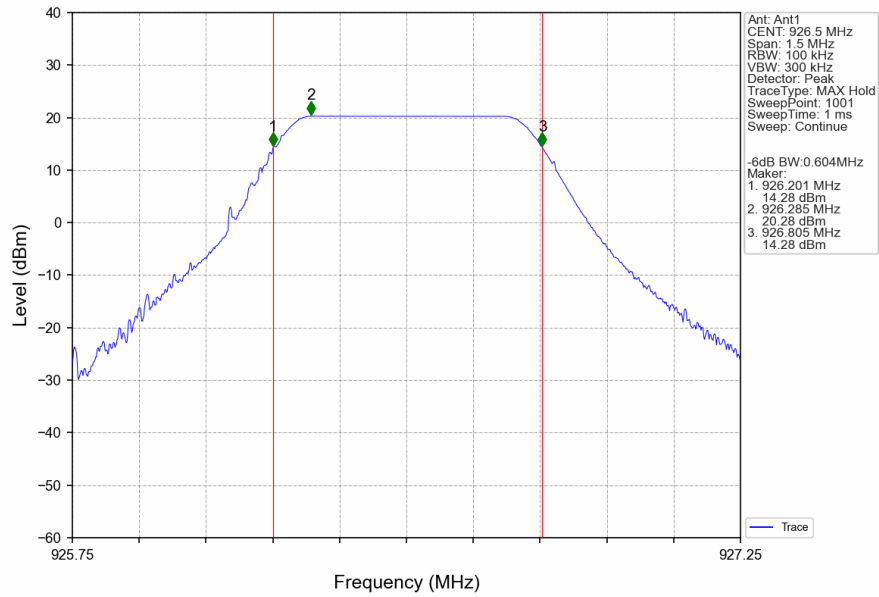
CSS_500KHz_LCH_902.5MHz_Ant1_NTNV



CSS_500KHz_MCH_914.5MHz_Ant1_NTNV



CSS_500KHz_HCH_926.5MHz_Ant1_NTNV





Report No.: KSCR260600132502

Page: 41 of 51

3. Maximum Conducted Output Power

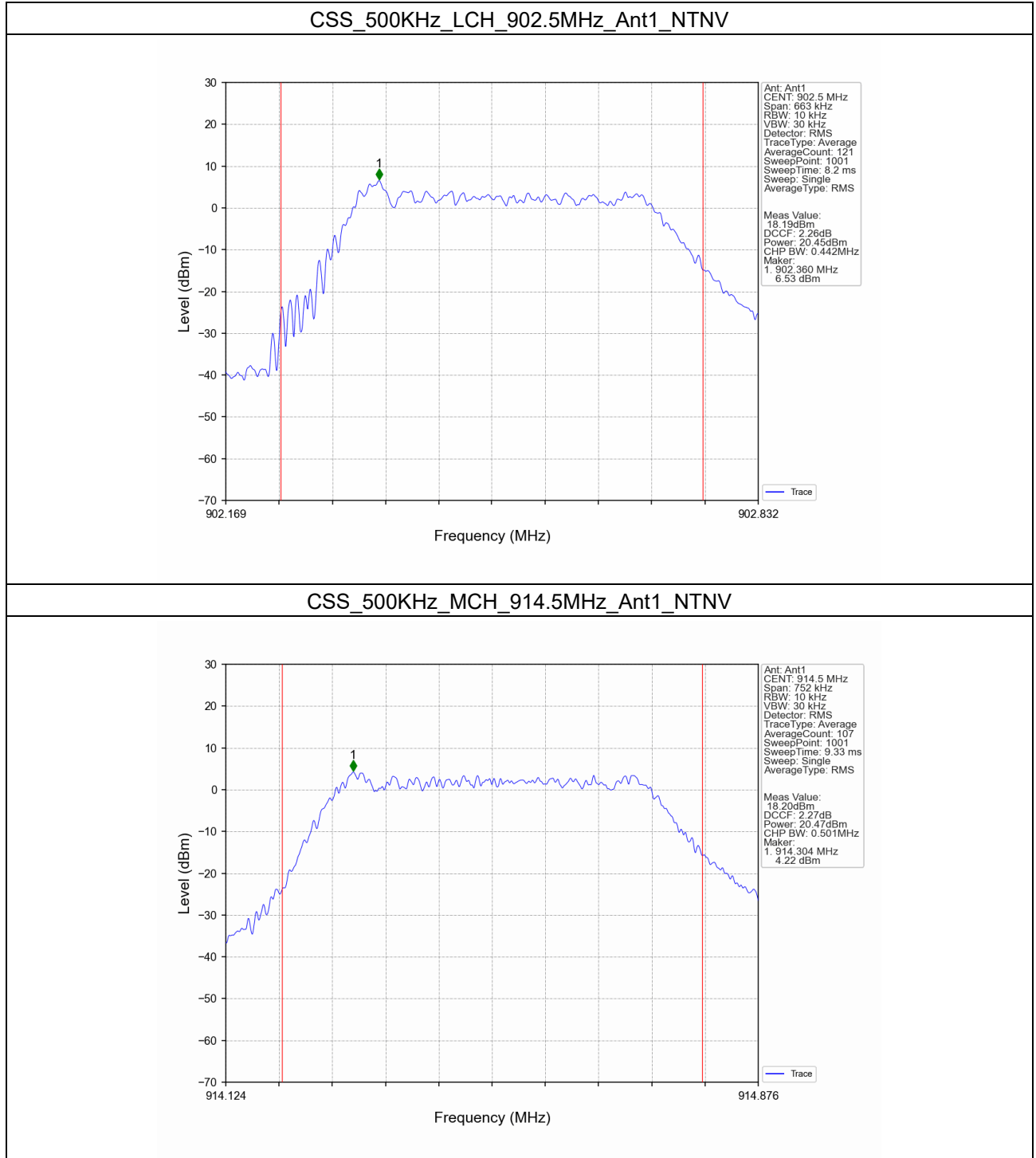
3.1 Test Result

3.1.1 Power

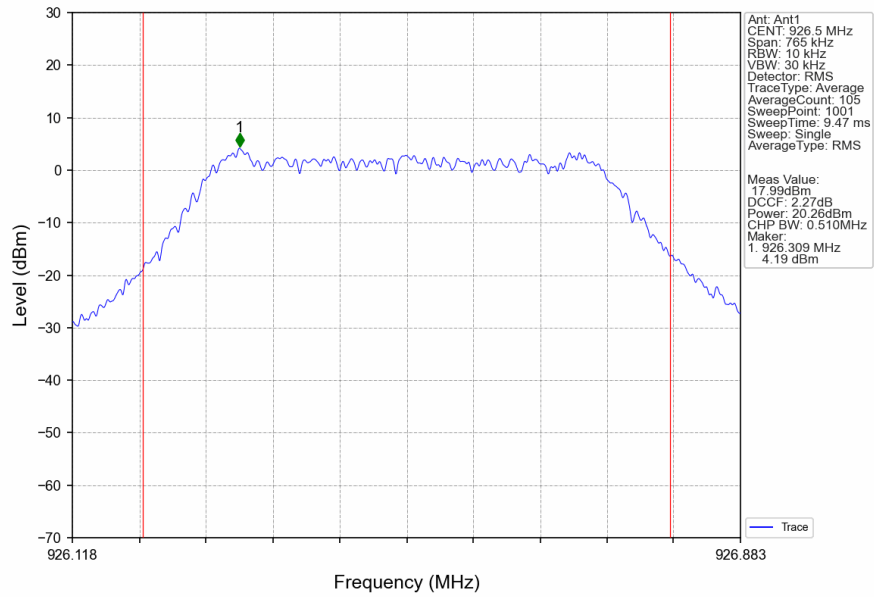
Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
CSS_500KHz	SISO	902.5	20.45	<=30	Pass
		914.5	20.47	<=30	Pass
		926.5	20.26	<=30	Pass
Note1: Antenna Gain: Ant1: 1.50dBi;					

3.2 Test Graph

3.2.1 Power



CSS_500KHz_HCH_926.5MHz_Ant1_NTNV



4. Maximum Power Spectral Density

4.1 Test Result

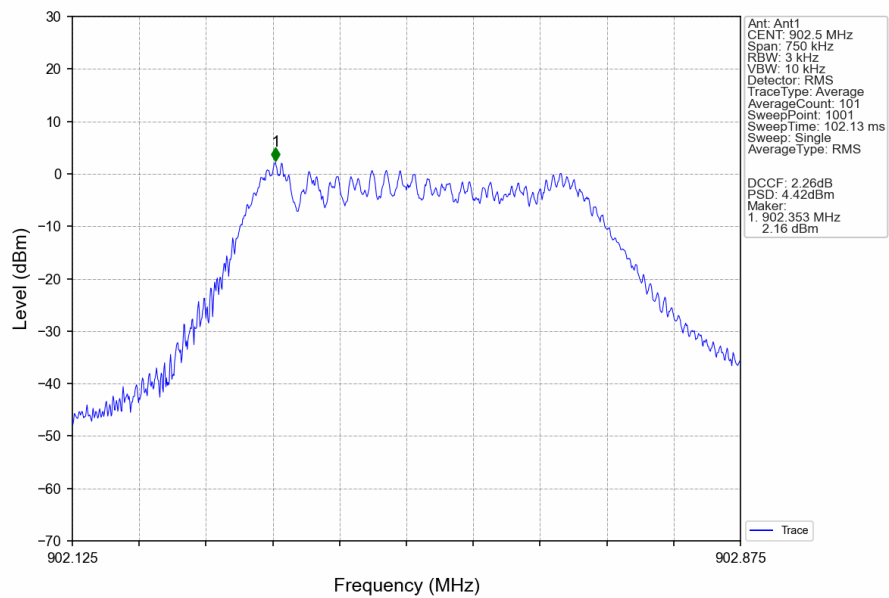
4.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit(dBm/3kHz)	
CSS_500KHz	SISO	902.5	4.42dBm/3kHz	<=8	Pass
		914.5	1.77dBm/3kHz	<=8	Pass
		926.5	1.31dBm/3kHz	<=8	Pass
Note1: Antenna Gain: Ant1: 1.50dBi;					

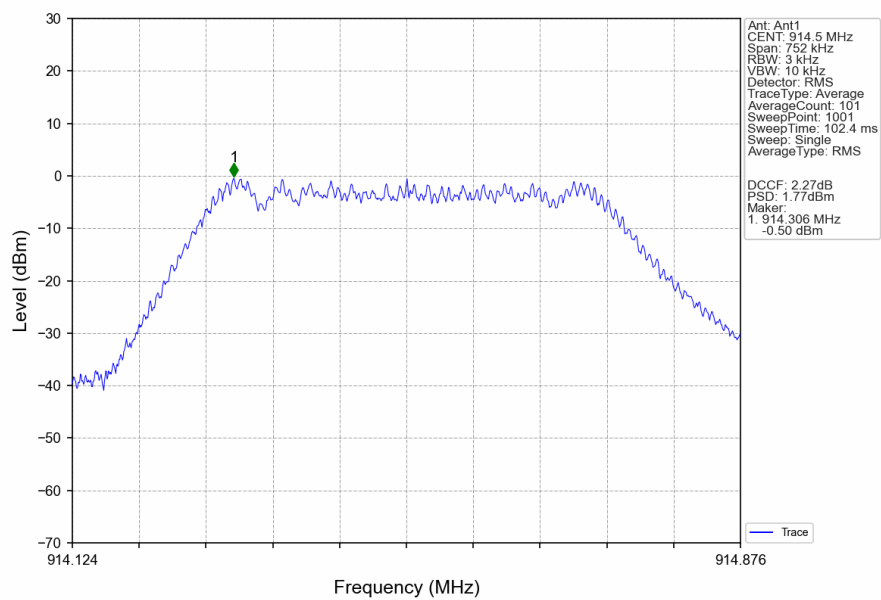
4.2 Test Graph

4.2.1 PSD

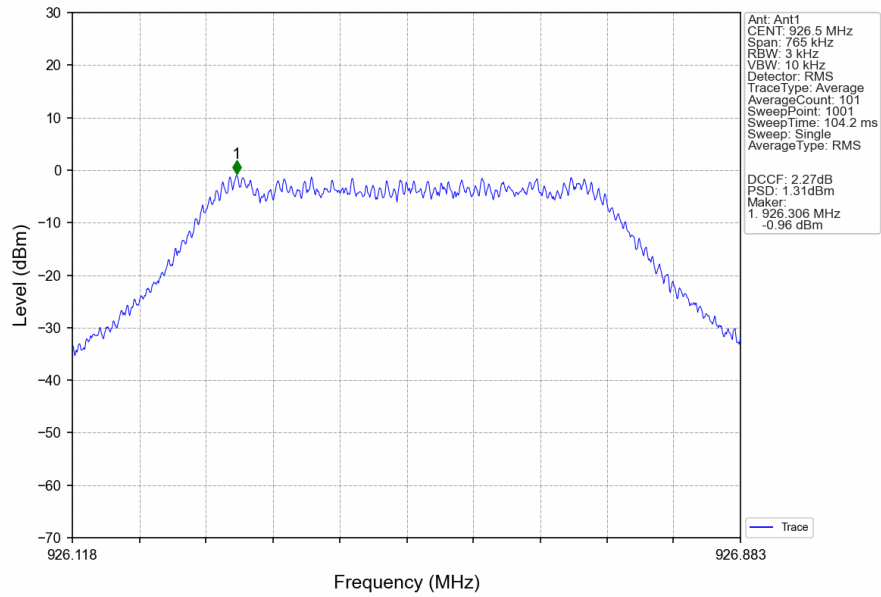
CSS_500KHz_LCH_902.5MHz_Ant1_NTNV



CSS_500KHz_MCH_914.5MHz_Ant1_NTNV



CSS_500KHz_HCH_926.5MHz_Ant1_NTNV



5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
CSS_500KHz	SISO	902.5	1	20.69
		914.5	1	20.50
		926.5	1	20.27

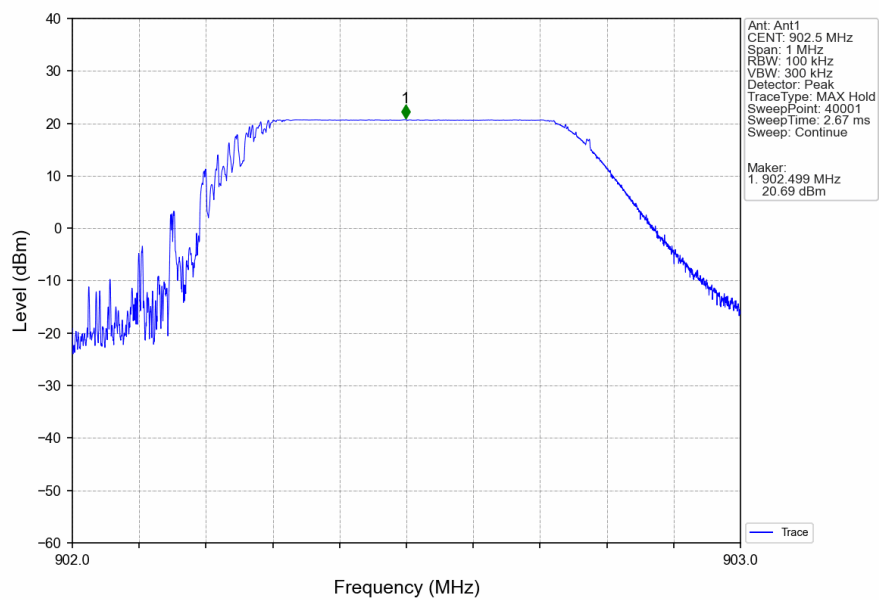
5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
CSS_500KHz	SISO	902.5	1	20.69	-9.31	Pass
		914.5	1	20.69	-9.31	Pass
		926.5	1	20.69	-9.31	Pass

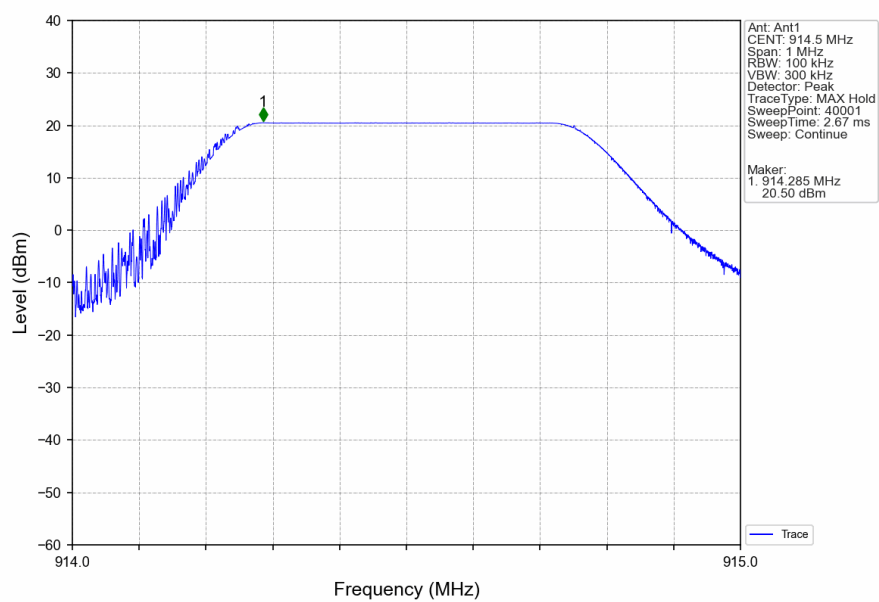
5.2 Test Graph

5.2.1 Ref

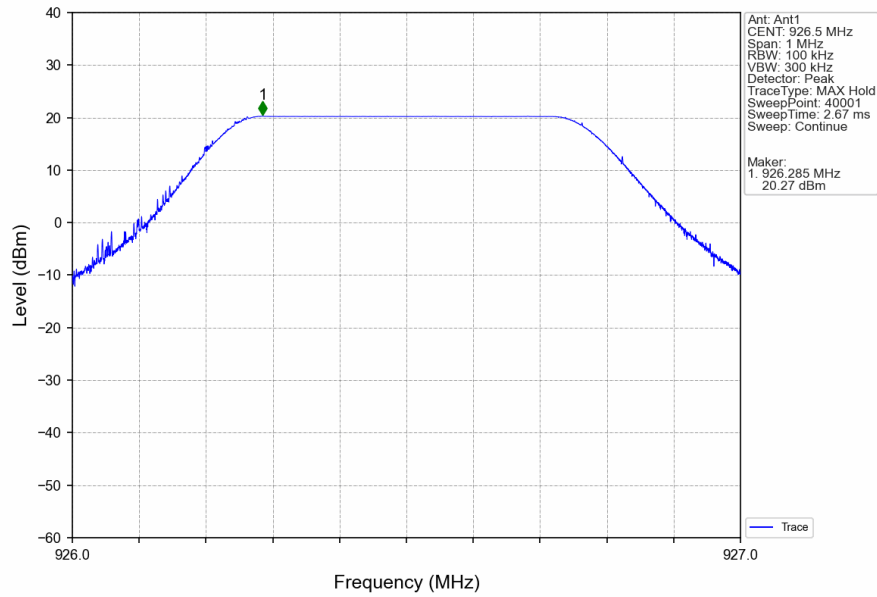
CSS_500KHz_LCH_902.5MHz_Ant1_NTNV



CSS_500KHz_MCH_914.5MHz_Ant1_NTNV

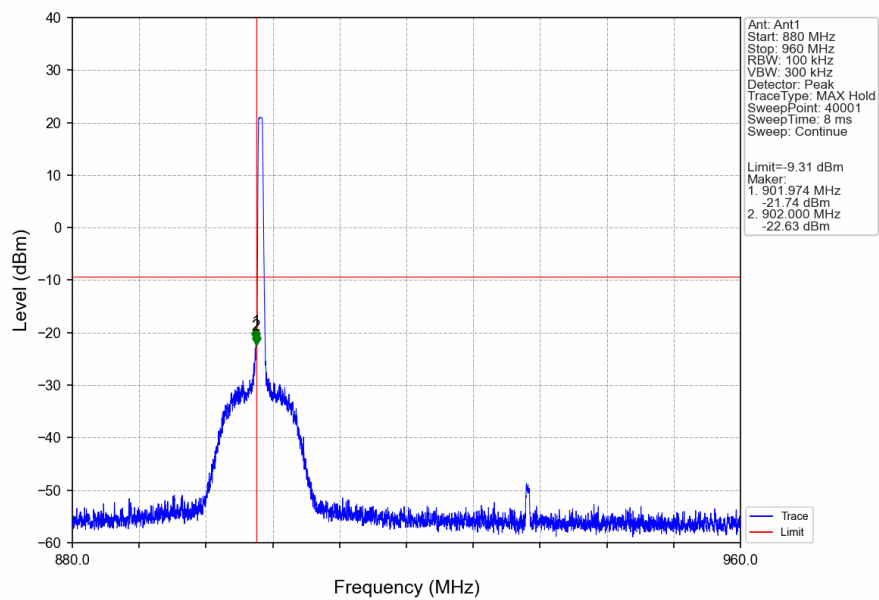


CSS_500KHz_HCH_926.5MHz_Ant1_NTNV

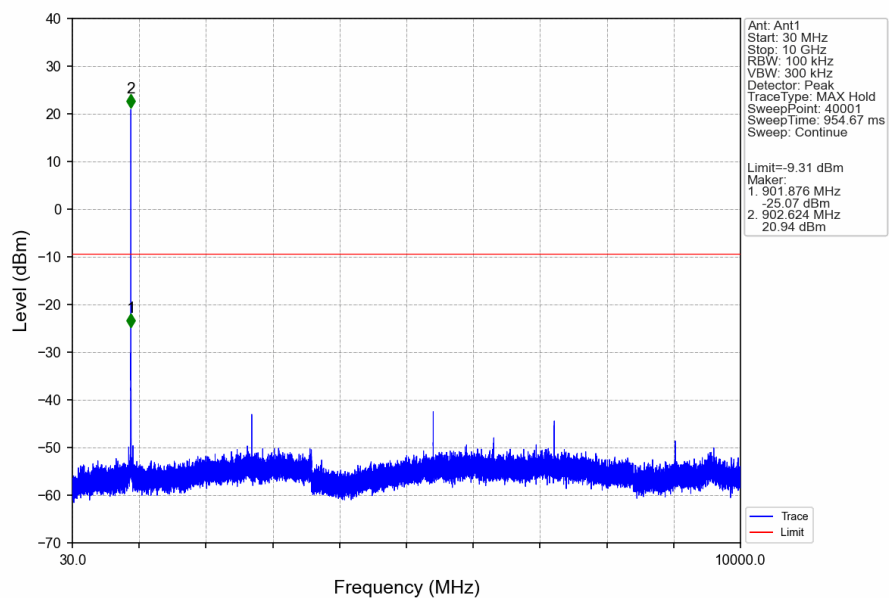


5.2.2 CSE

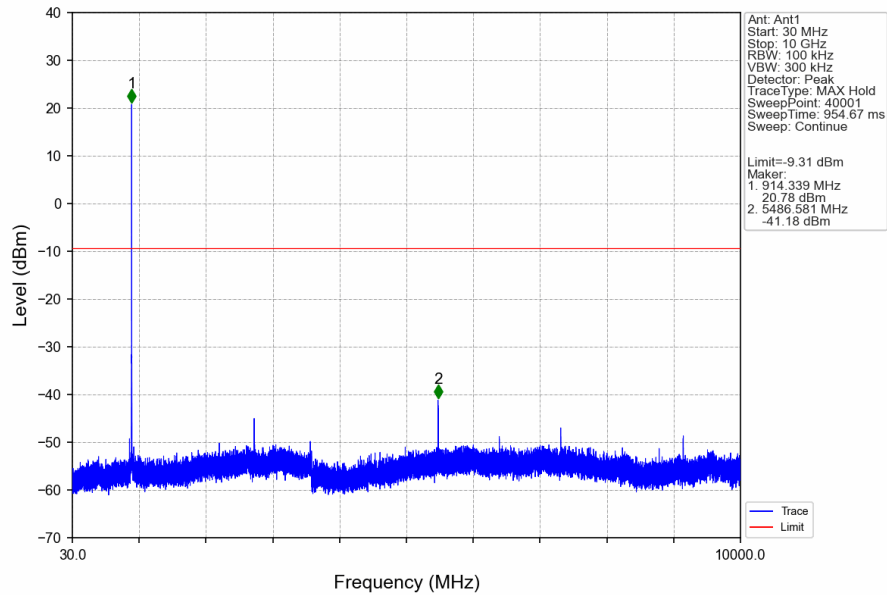
CSS_500KHz_LCH_902.5MHz_Ant1_NTNV



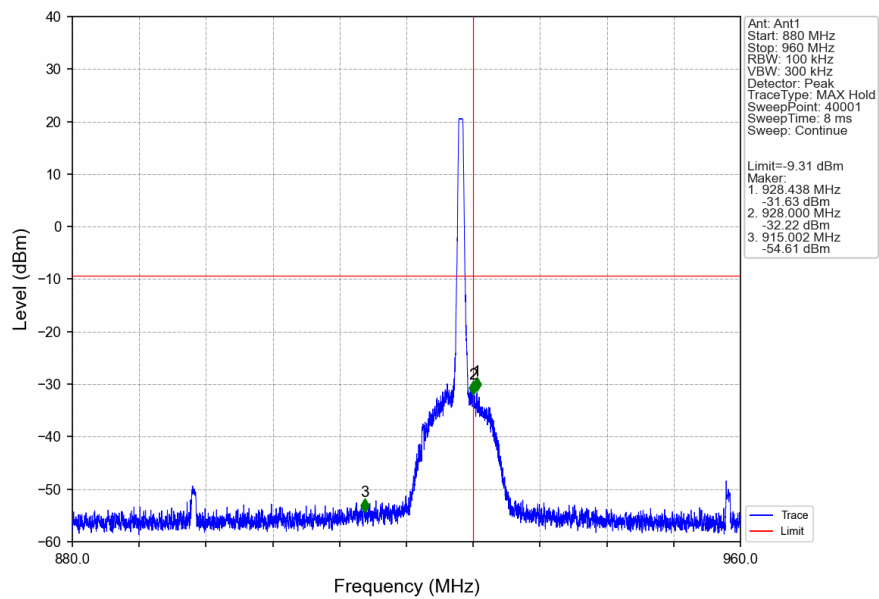
CSS_500KHz_LCH_902.5MHz_Ant1_NTNV



CSS_500KHz_MCH_914.5MHz_Ant1_NTNV



CSS_500KHz_HCH_926.5MHz_Ant1_NTNV



- End of the Report -