RADIO PERFORMANCE TEST REPORT

Test Report No. : **OT-22N-RWD-026**

Reception No. : **2209002776**

Applicant : **Westcom Wireless Inc.**

Address : **2773 Leechburg Road, Lower Burrell, Pennsylvania, 15068, United States**

Manufacturer : **Westcom Wireless Inc.**

Address : **2773 Leechburg Road, Lower Burrell, Pennsylvania, 15068, United States**

Type of Equipment : **ProCom**

FCC ID. : **2AO37-ATLASMAX**

Model Name : **Atlas Max**

Multiple Model Name : **N/A**

Serial number : **N/A**

Total page of Report : **107 pages (including this page)**

Date of Incoming : **September 05, 2022**

Date of issue : **November 16, 2022**

SUMMARY

The equipment complies with the regulation; ***FCC PART 15 SUBPART C Section 15.247***

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

This report is not correlated with the "KS Q ISO/IEC 17025 and KOLAS accreditation" of Korean Laboratory Accreditation Scheme.

Tested by	Reviewed by	Approved by
Joon-Woo, Kim / Assistant Manager	Tae-Ho, Kim / Senior Manager	Ki-Hong, Nam / General Manager
ONETECH Corp.	ONETECH Corp.	ONETECH Corp.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-22N-RWD-026	November 16, 2022	Initial Release	All

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

1. VERIFICATION OF COMPLIANCE

Applicant : Westcom Wireless Inc.

Address : 2773 Leechburg Road, Lower Burrell, Pennsylvania, 15068, United States

Manufacturer : Westcom Wireless Inc.

Address : 2773 Leechburg Road, Lower Burrell, Pennsylvania, 15068, United States

Contact Person : Frank Girardi / President

Telephone No. : +1-724-337-1400

FCC ID : 2AO37-ATLASMAX

Model Name : Atlas Max

Brand Name : -

Serial Number : N/A

Date : November 16, 2022

EQUIPMENT CLASS	DSS – PART 15 SPREAD SPECTRUM TRANSMITTER
E.U.T. DESCRIPTION	ProCom
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247 558074 D01 15.247 Meas Guidance v05r02
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.247(a)(1)(i)	20 dB Bandwidth	Met the Limit / PASS
15.247(b)(2)	Conducted Maximum Peak Output Power	Met the Limit / PASS
15.247(a)(1)	Carrier Frequency Separation	Met the Limit / PASS
15.247(a)(1)(i)	Number of Hopping Frequencies	Met the Limit / PASS
15.247(a)(1)(i)	Time of Occupancy	Met the Limit / PASS
15.247(d)	Conducted Spurious Emissions	Met the Limit / PASS
15.247(d)	Band Edge(Out of Band Emissions)	Met the Limit / PASS
15.207(a)	AC Power line Conducted Emissions	Met the Limit / PASS
15.247(d), 15.205(a), 15.209(a)	Radiated Spurious Emissions	Met the Limit / PASS
15.247(d), 15.205(a), 15.209(a)	Radiated Restricted Band Edge	Met the Limit / PASS

Note.: All test items have been performed for each Normal (CH 20 ~ CH 220), Long (CH12 ~ CH 138) and Repeat (CH 20 ~ CH 220) Mode. And the conducted Emissions and Radiated Spurious Emissions have been performed for Transmitting mode and Charging mode.

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC PART 15 SUBPART C Section 15.247.

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea.

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-4112/ C-14617/ G-10666/ T-11842

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

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3. GENERAL INFORMATION

3.1 Product Description

The Westcom Wireless Inc., Model Atlas Max (referred to as the EUT in this report) is a ProCom. Product specification information described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	ProCom	
Temperature Range	-10 °C ~ 50 °C	
OPERATING FREQUENCY	902 MHz ~ 928 MHz	
MODULATION TYPE	GFSK	
RF OUTPUT POWER	Mode 1_Normal	23.52 dBm
	Mode 2_Long	29.25 dBm
	Mode 3_Repeat	29.42 dBm
ANTENNA TYPE	Helical Antenna	
ANTENNA GAIN	-0.50 dBi	
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	48 MHz	

3.2 Alternative type(s)/model(s); also covered by this test report.

-. None

4. EUT MODIFICATIONS

-. None

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5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	Westcom Wireless Inc.	Atlas Max	N/A
LCD Board	N/A	N/A	N/A
FPCB 1	N/A	N/A	N/A
FPCB 2	N/A	N/A	N/A
Battery	Mirim Technology	MS35E-M	N/A

5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

Model	Manufacturer	Description	Connected to
Atlas Max	Westcom Wireless Inc.	ProCom (EUT)	
HP ProBook 450 G7	HP	NoteBook PC	Test JIG
JIG	Bicom	Test JIG	NetBook PC
TPN-CA14	HP.	AC Adapter	NetBook PC
AC/DC Adapter	SAMSUNG	AC/DC Adapter	-

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting is programmed.

For final testing EUT was set as below to get a maximum emission levels from the EUT.

Mode 1 (Normal): 902.5 MHz, 915.0 MHz, and 927.5 MHz (Low/Middle/High)

Mode 2 (Long): 902.4 MHz, 914.8 MHz, and 927.6 MHz (Low/Middle/High)

Mode 3 (Repeat): 902.5 MHz, 915.0 MHz, and 927.5 MHz (Low/Middle/High)

The EUT was moved throughout the XY, XZ, and YZ planes and the worst case is “XZ” axis, but the worst data was recorded in this report.

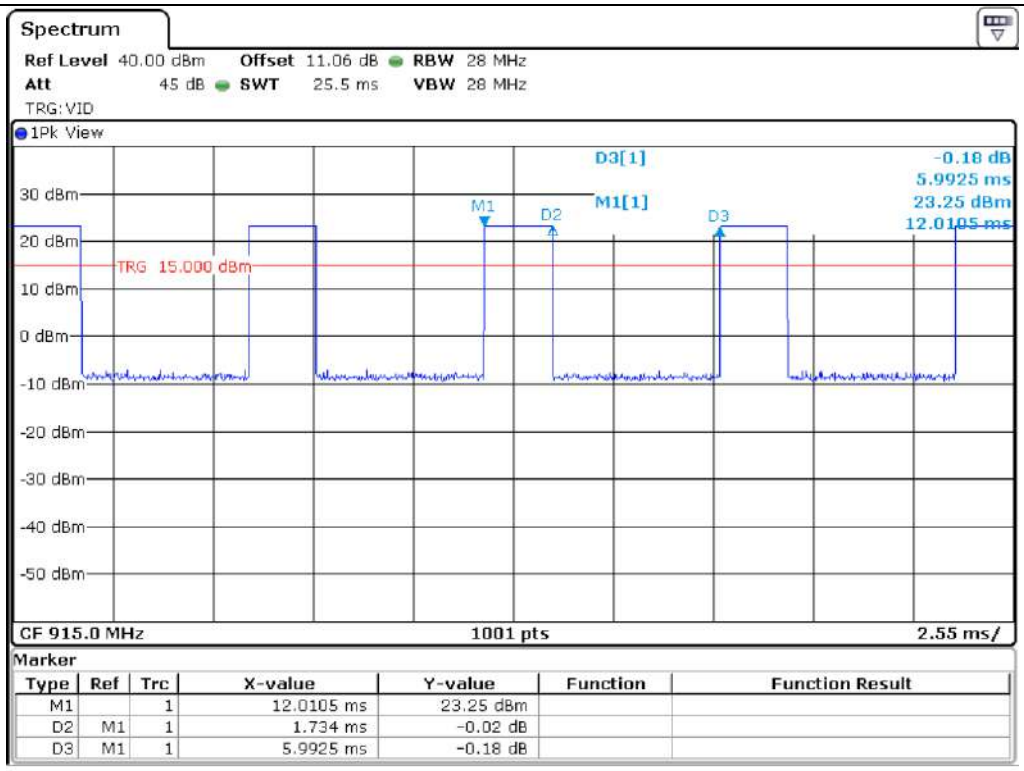
-. Duty Cycle

Mode	Tx On Time [ms]	Tx Off Time [ms]	Duty Cycle [%]	Correction Factor [dB]
GFSK (Mode 1_Normal)	1.734	4.2585	28.94	5.39
GFSK (Mode 2_Long)	2.756	3.2595	45.81	3.39
GFSK (Mode 3_Repeat)	1.25	4.775	20.75	6.83

Note – Duty Cycle : (Tx On Time / (Tx On Time + Tx Off Time)) * 100

Correction Factor : 10 * Log(1 / (Duty Cycle / 100))

-. Test Plot



Sig Fox (Mode 1_Normal)

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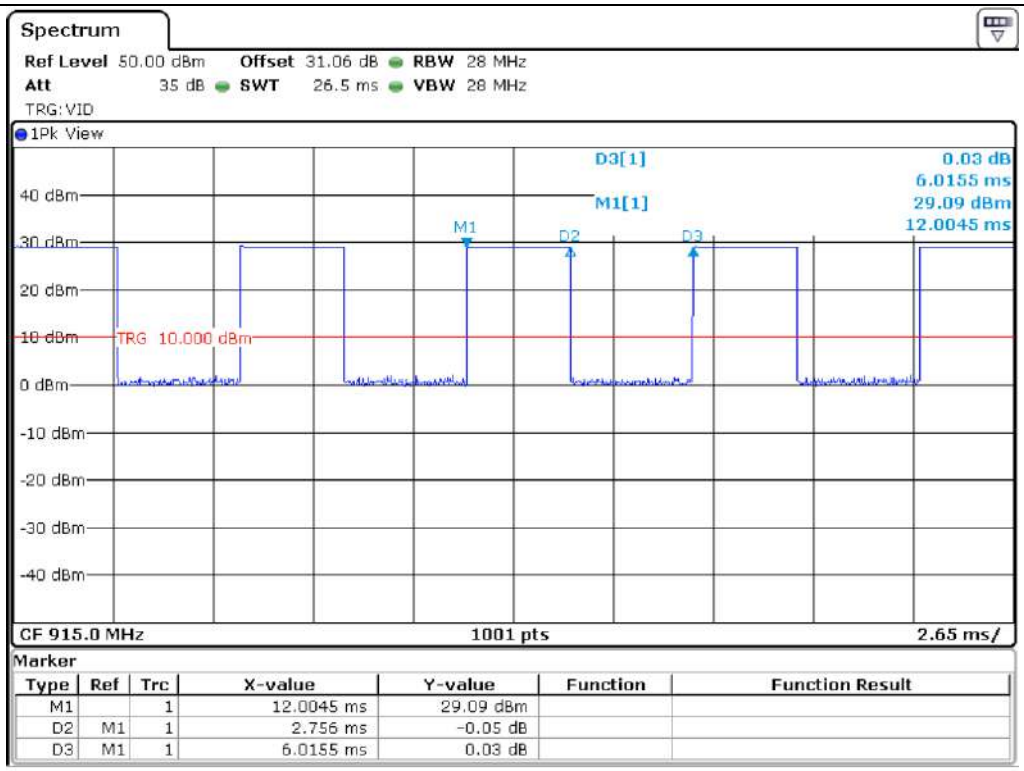
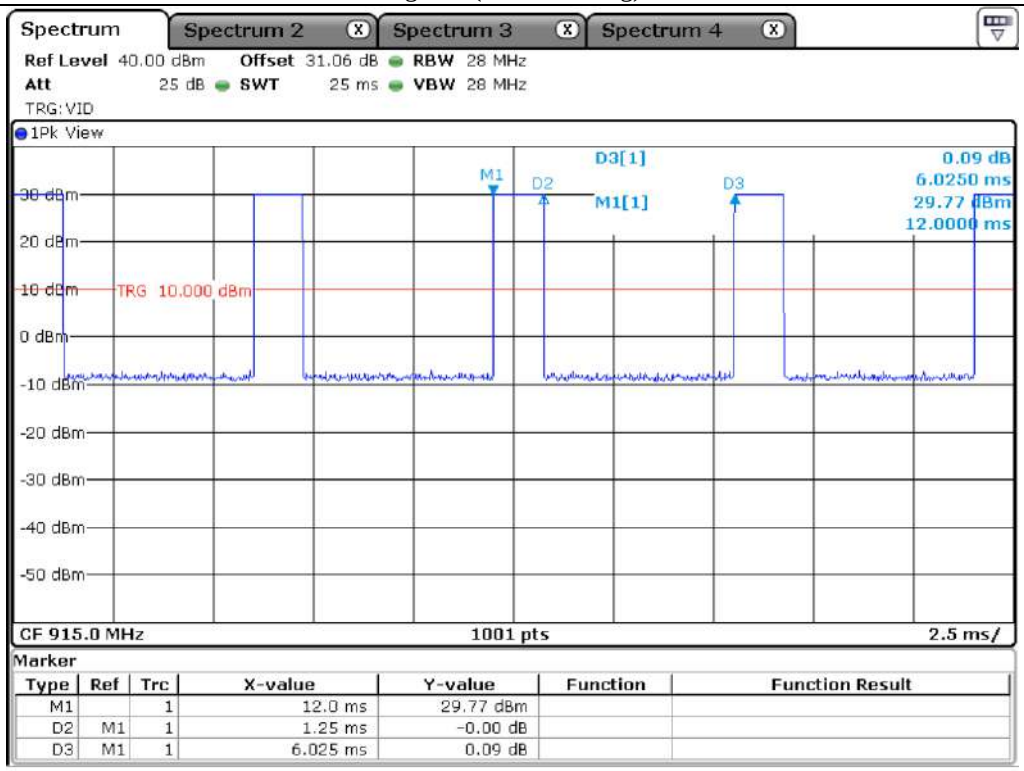


Sig Fox (Mode 2_Long)



Sig Fox (Mode 1_Repeat)

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-. Channel List

[Mode 1_Normal]

Channel	Frequency[MHz]	Channel	Frequency[MHz]	Channel	Frequency[MHz]
20	902.500	96	912.000	172	921.500
24	903.000	100	912.500	176	922.000
28	903.500	104	913.000	180	922.500
32	904.000	108	913.500	184	923.000
36	904.500	112	914.000	188	923.500
40	905.000	116	914.500	192	924.000
44	905.500	120	915.000	196	924.500
48	906.000	124	915.500	200	925.000
52	906.500	128	916.000	204	925.500
56	907.000	132	916.500	208	926.000
60	907.500	136	917.000	212	926.500
64	908.000	140	917.500	216	927.000
68	908.500	144	918.000	220	927.500
72	909.000	148	918.500	-	-
76	909.500	152	919.000	-	-
80	910.000	156	919.500	-	-
84	910.500	160	920.000	-	-
88	911.000	164	920.500	-	-
92	911.500	168	921.000	-	-

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[Mode 2_Long]

Channel	Frequency[MHz]	Channel	Frequency[MHz]	Channel	Frequency[MHz]
12	902.400	60	912.000	108	921.600
14	902.800	62	912.400	110	922.000
16	903.200	64	912.800	112	922.400
18	903.600	66	913.200	114	922.800
20	904.000	68	913.600	116	923.200
22	904.400	70	914.000	118	923.600
24	904.800	72	914.400	120	924.000
26	905.200	74	914.800	122	924.400
28	905.600	76	915.200	124	924.800
30	906.000	78	915.600	126	925.200
32	906.400	80	916.000	128	925.600
34	906.800	82	916.400	130	926.000
36	907.200	84	916.800	132	926.400
38	907.600	86	917.200	134	926.800
40	908.000	88	917.600	136	927.200
42	908.400	90	918.000	138	927.600
44	908.800	92	918.400	-	-
46	909.200	94	918.800	-	-
48	909.600	96	919.200	-	-
50	910.000	98	919.600	-	-
52	910.400	100	920.000	-	-
54	910.800	102	920.400	-	-
56	911.200	104	920.800	-	-
58	911.600	106	921.200	-	-

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[Mode 3_Repeat]

Channel	Frequency[MHz]	Channel	Frequency[MHz]	Channel	Frequency[MHz]
20	902.500	92	911.500	164	920.500
24	903.000	96	912.000	168	921.000
28	903.500	100	912.500	172	921.500
32	904.000	104	913.000	176	922.000
36	904.500	108	913.500	180	922.500
40	905.000	112	914.000	184	923.000
44	905.500	116	914.500	188	923.500
48	906.000	120	915.000	192	924.000
52	906.500	124	915.500	196	924.500
56	907.000	128	916.000	200	925.000
60	907.500	132	916.500	204	925.500
64	908.000	136	917.000	208	926.000
68	908.500	140	917.500	212	926.500
72	909.000	144	918.000	216	927.000
76	909.500	148	918.500	220	927.500
80	910.000	152	919.000	-	-
84	910.500	156	919.500	-	-
88	911.000	160	920.000	-	-

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5.4 Configuration of Test System

Line Conducted Test: The EUT was tested in the Transmitting Mode and Charging mode. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions.

Radiated Emission Test: Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

5.5 Antenna Requirement

For intentional device, according to section 15.203, 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.

Antenna Construction:

The antenna of the EUT is Helical Antenna on the main board in the EUT, so no consideration of replacement by the user.

6. PRELIMINARY TEST

6.1 AC Power line Conducted Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode & Charging Mode	X

6.2 General Radiated Emissions Tests

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worse operating condition (Please check one only)
Transmitting Mode & Charging Mode	X

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7. MAXIMUM PEAK OUTPUT POWER

7.1 Operating environment

Temperature : 23 °C

Relative humidity : 41 % R.H.

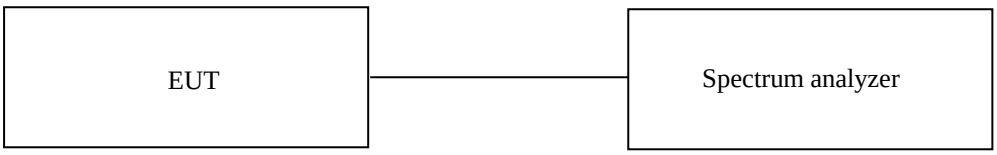
7.2 Test set-up

The maximum peak output power of the intentional radiator shall not exceed the following:

1. For frequency hopping systems operating in the 902-928 MHz band: 1 watt (30 dBm) for systems employing at least 50 hopping channels; and, 0.25 watts (24 dBm) for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

2. 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.

3. The e.i.r.p of this module not exceed 4 W because the antenna gain not exceed not 6 dBi.



7.3 Test Date

September 17, 2022 ~ November 09, 2022

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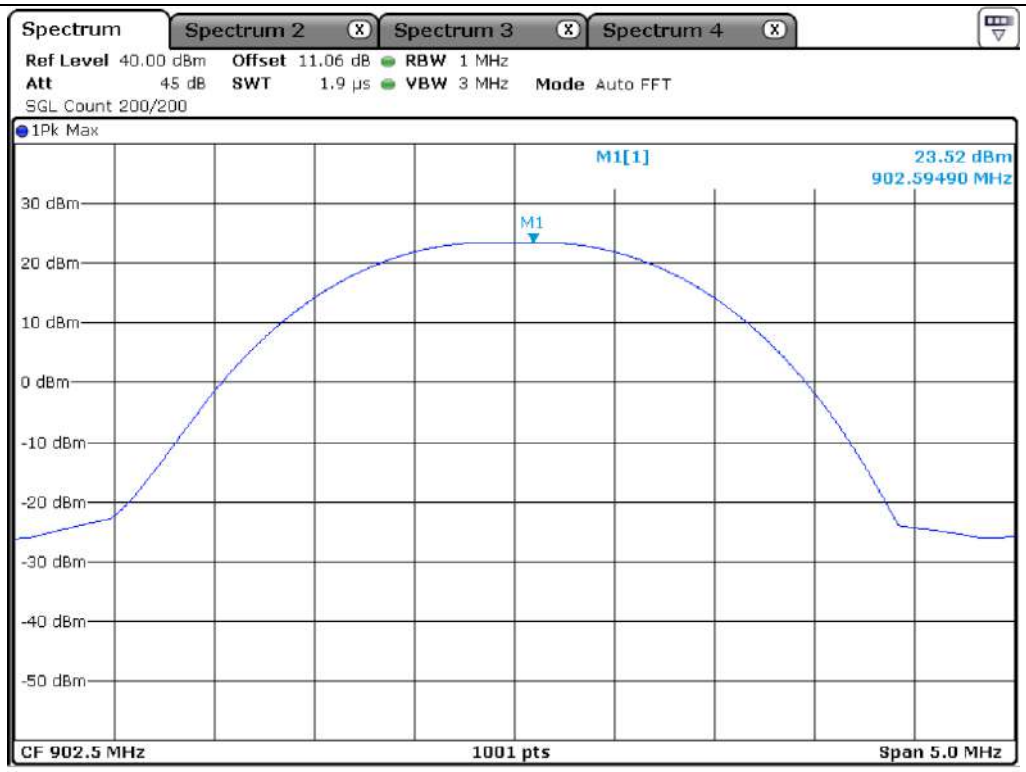
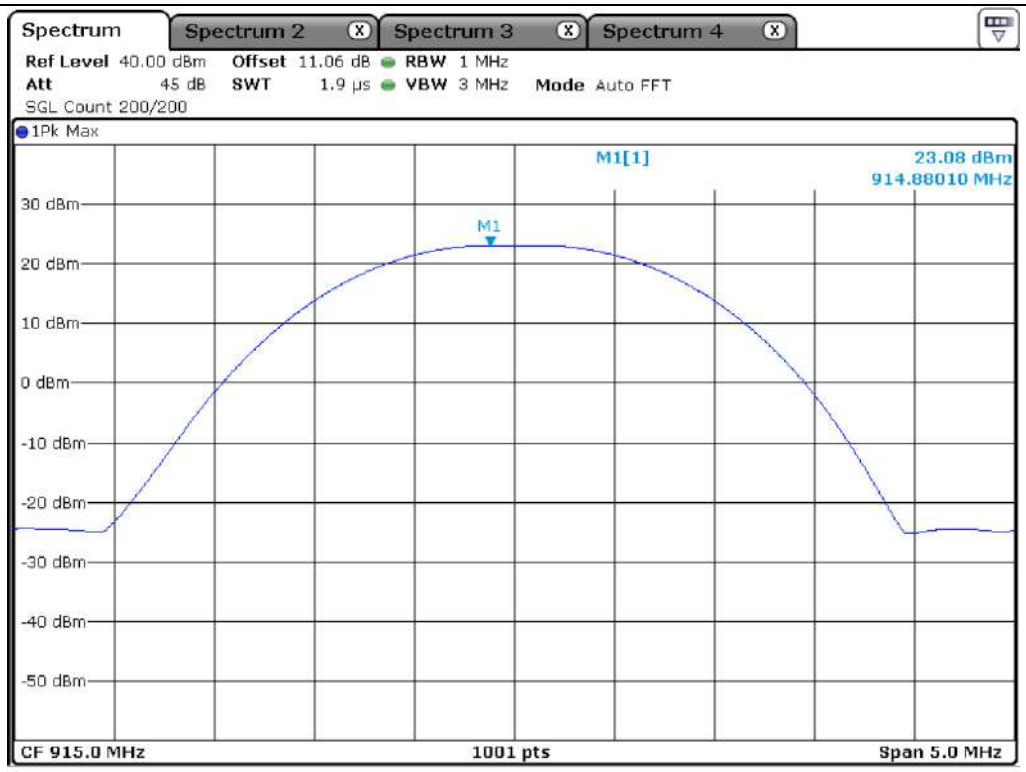
7.4 Test data for Mode 1_Normal

-. Test Result : Pass

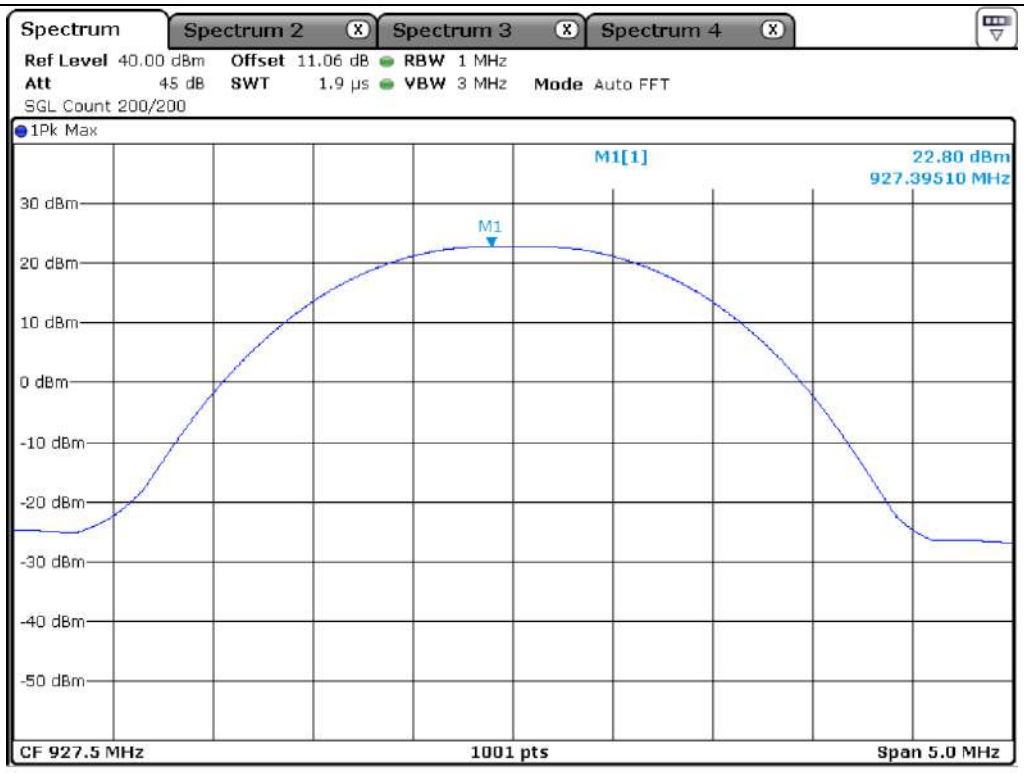
CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	MEASURED VALUE (mW)	LIMIT (mW)	MARGIN (dB)
LOW	902.5000	23.52	224.91	1 000	775.09
MIDDLE	915.0000	23.08	203.24	1 000	796.76
HIGH	927.5000	22.80	190.55	1 000	809.45



Low Channel



Middle Channel



High Channel

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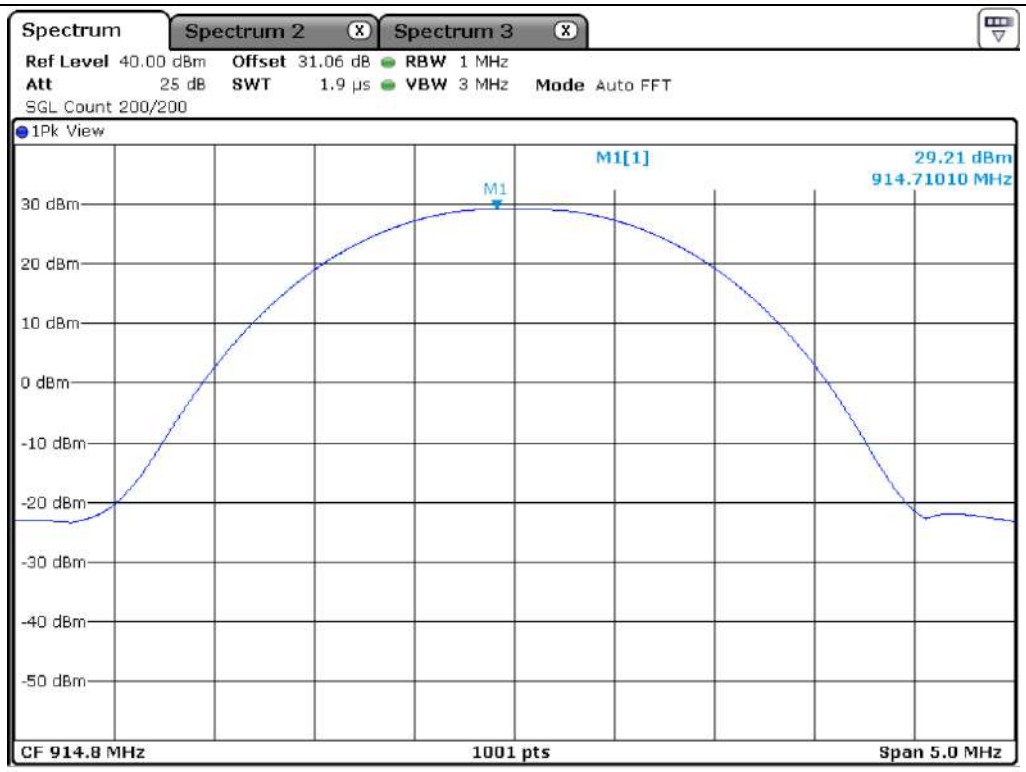
7.5 Test data for Mode 2_Long

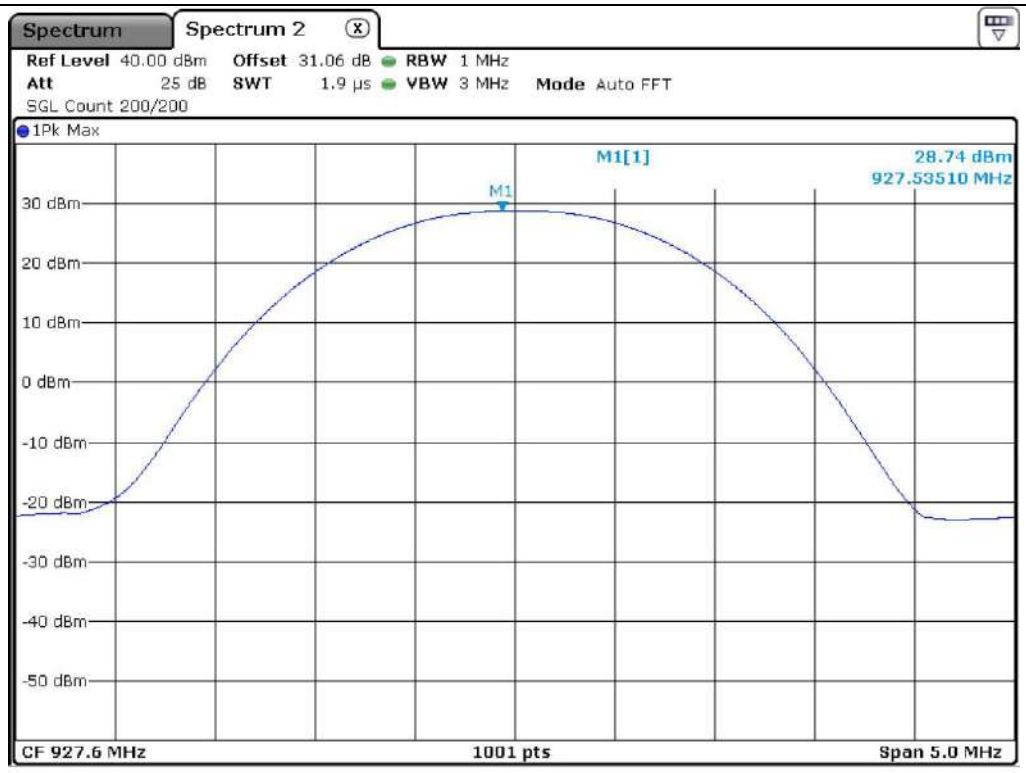
-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	MEASURED VALUE (mW)	LIMIT (mW)	MARGIN (dB)
LOW	902.4000	29.25	841.40	1 000.00	158.60
MIDDLE	914.8000	29.21	833.68	1 000.00	166.32
HIGH	927.6000	28.74	748.17	1 000.00	251.83

Low Channel



Middle Channel



High Channel

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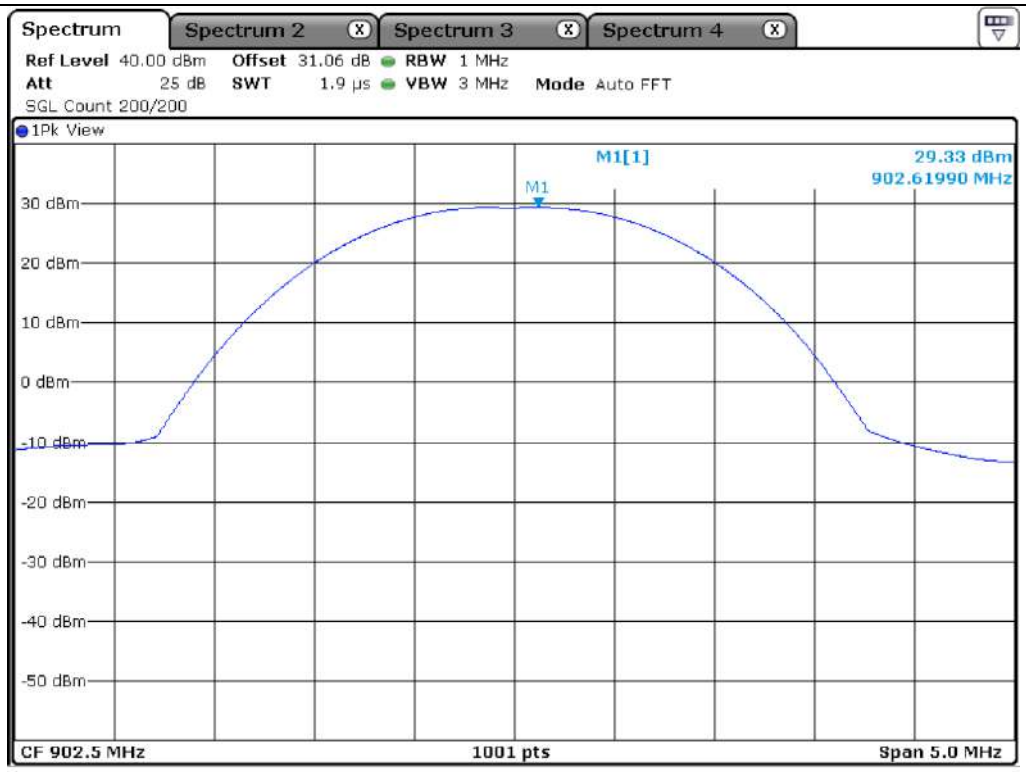
7.6 Test data for Mode 3_Repeat

-. Test Result : Pass

CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	MEASURED VALUE (mW)	LIMIT (mW)	MARGIN (dB)
LOW	902.5000	29.33	857.04	1 000.00	142.96
MIDDLE	915.0000	29.39	868.96	1 000.00	131.04
HIGH	927.5000	29.42	874.98	1 000.00	125.02



Low Channel

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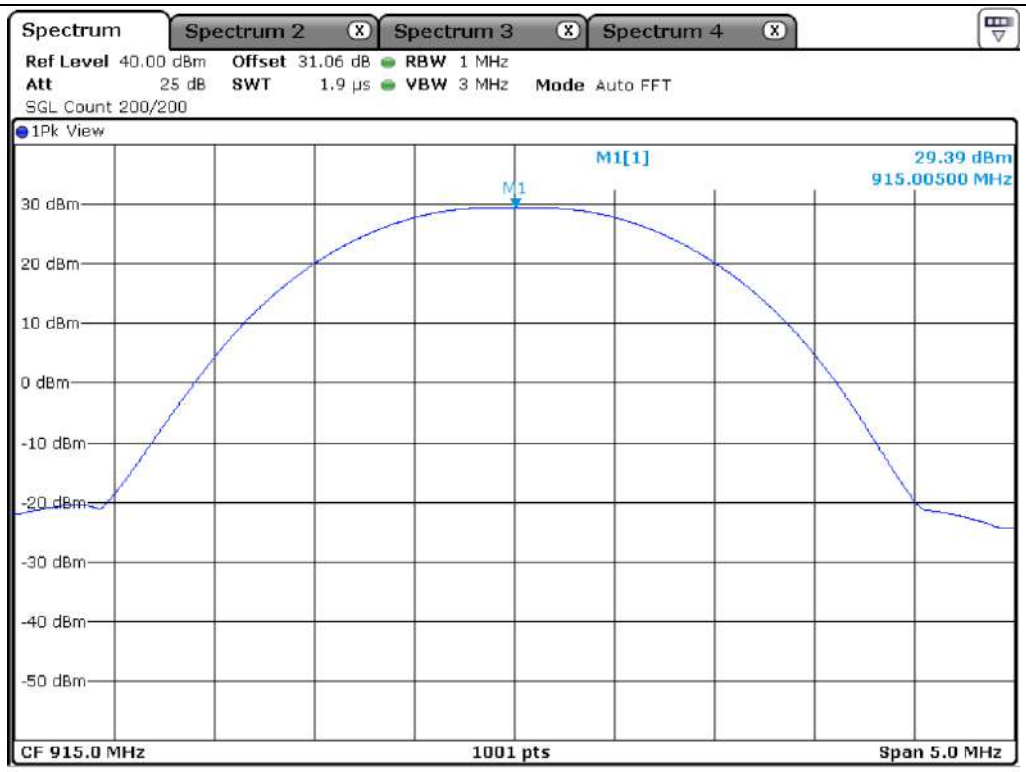
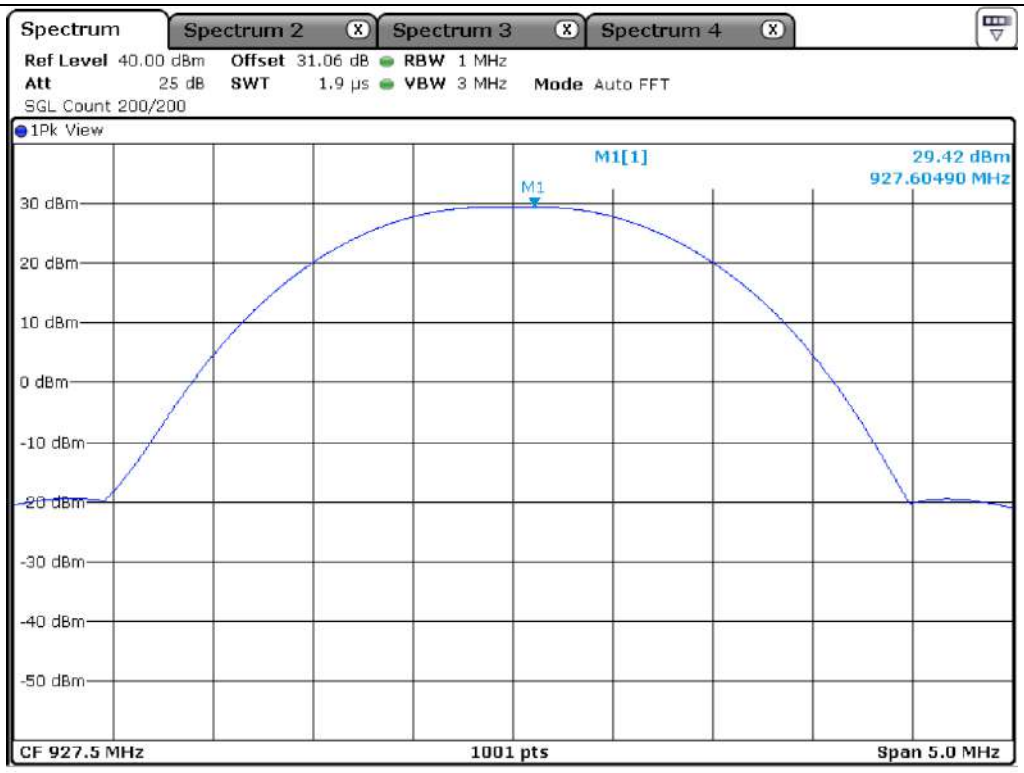


Middle Channel



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8. BAND EDGES

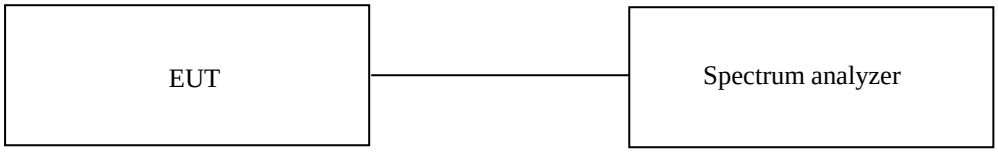
8.1 Operating environment

Temperature : 23 °C

Relative humidity : 41 % R.H.

8.2 Test set-up

According to §15.247(d) 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.



8.3 Test Date

September 17, 2022 ~ November 09, 2022

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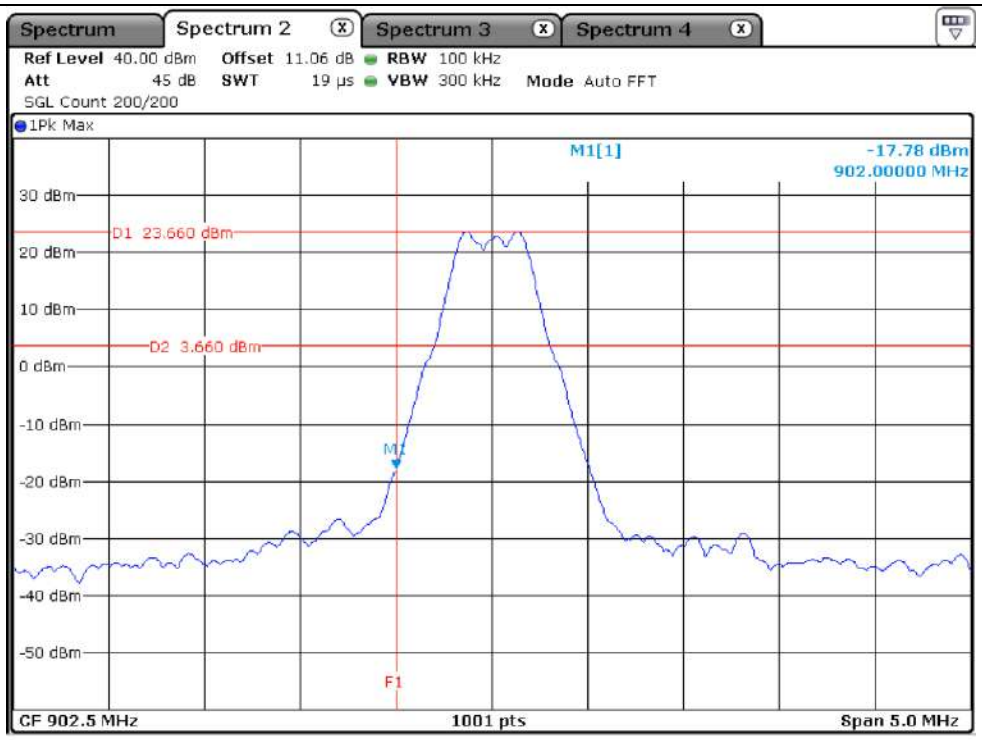
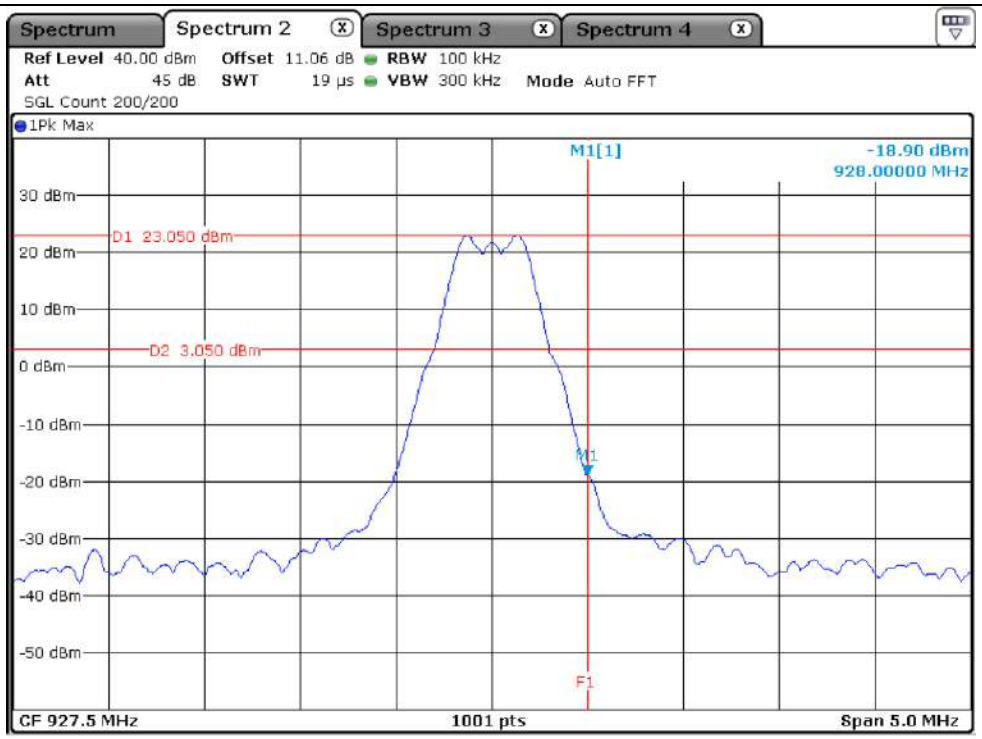
8.4 Test data for Mode 1_Normal

-. Test Result : Pass

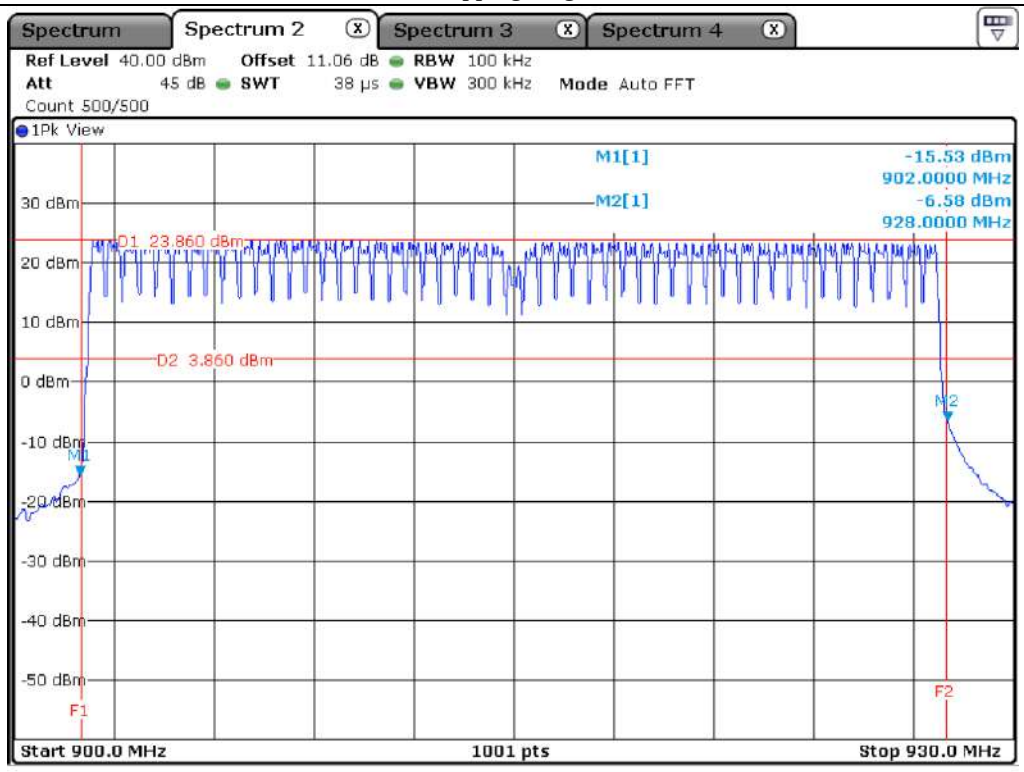
CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dB)	LIMIT (dBc)	MARGIN (dB)
Without hopping				
LOW	902.0000	41.44	20.00	21.44
HIGH	928.0000	41.95	20.00	21.95
With Hopping				
LOW	902.0000	39.39	20.00	19.39
HIGH	928.0000	30.44	20.00	10.44



Without hopping_Low Channel



Without hopping_High Channel



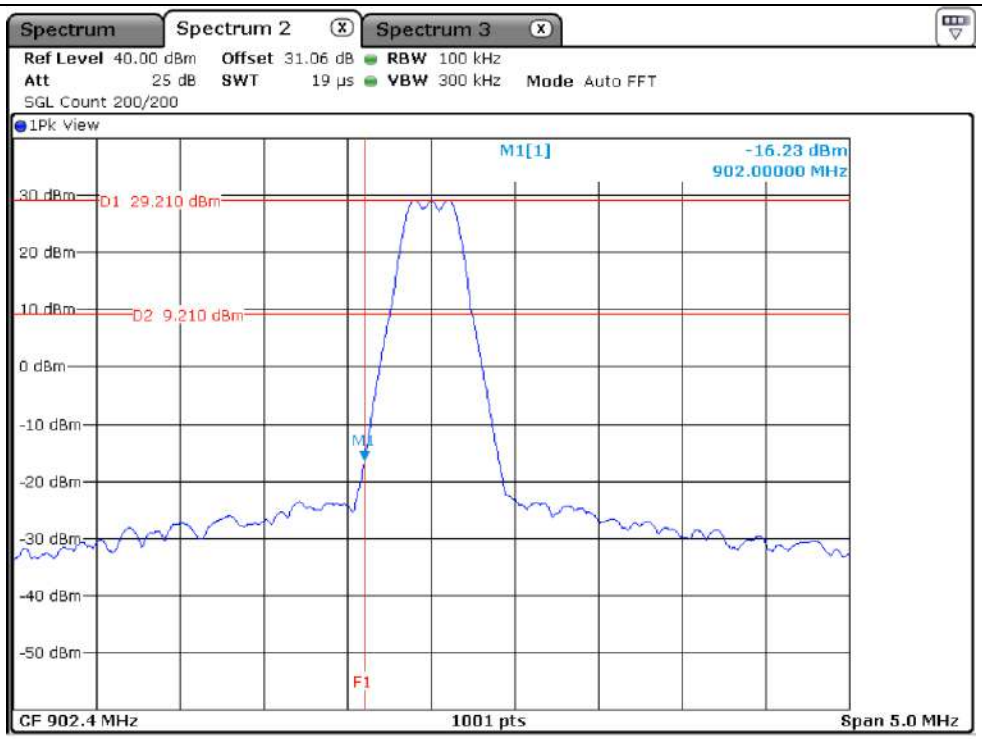
With Hopping

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

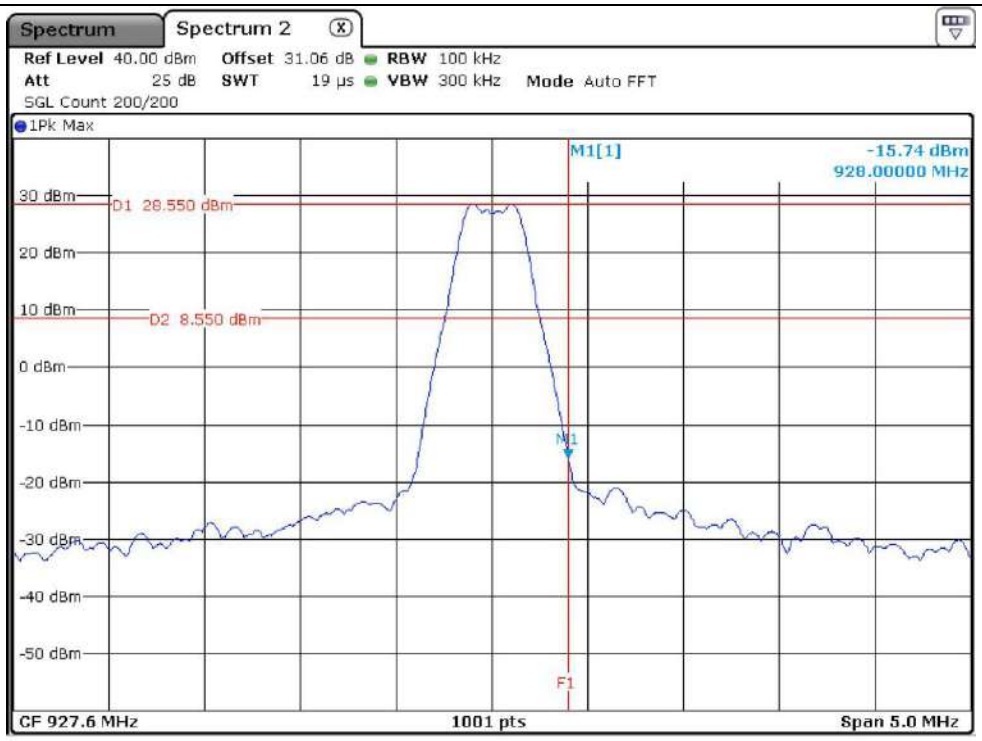
8.5 Test data for Mode 2_Long

-. Test Result : Pass

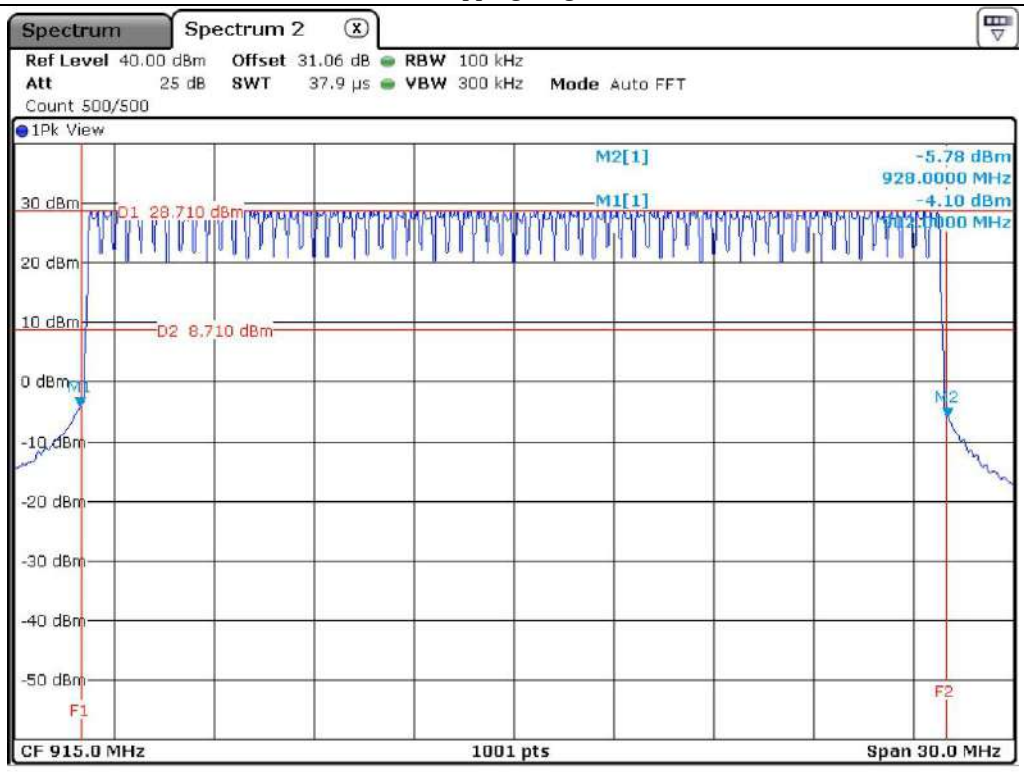
CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dB)	LIMIT (dBc)	MARGIN (dB)
Without hopping				
LOW	902.0000	45.44	20.00	25.44
HIGH	928.0000	44.29	20.00	24.29
With Hopping				
LOW	902.0000	32.81	20.00	12.81
HIGH	928.0000	34.49	20.00	14.49



Without hopping_Low Channel



Without hopping_High Channel



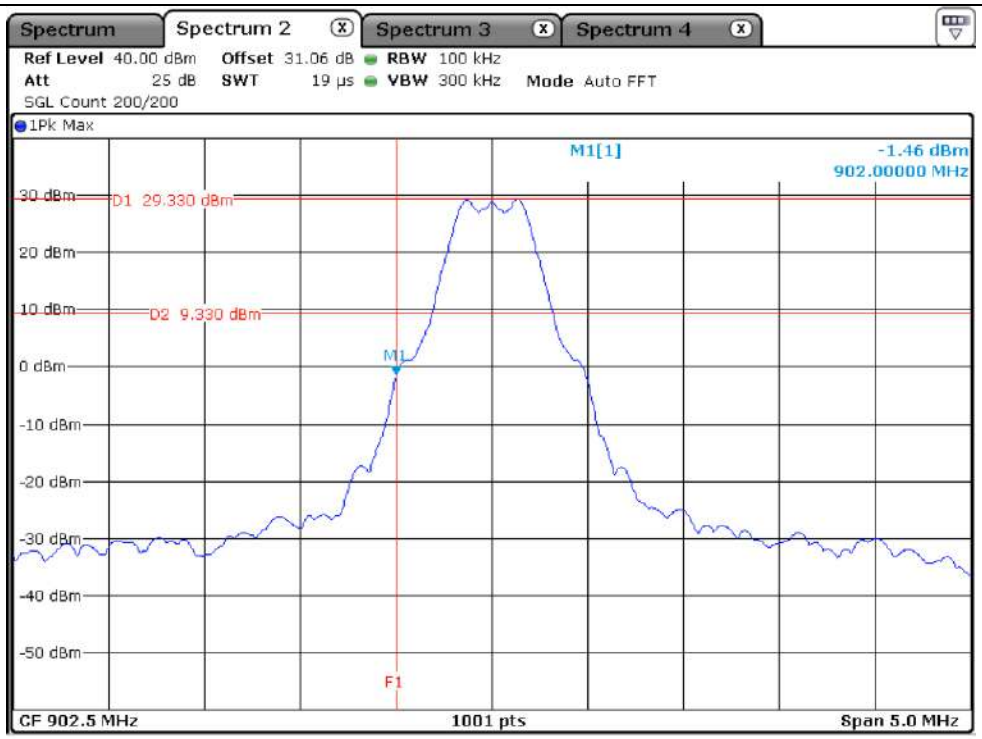
With Hopping

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

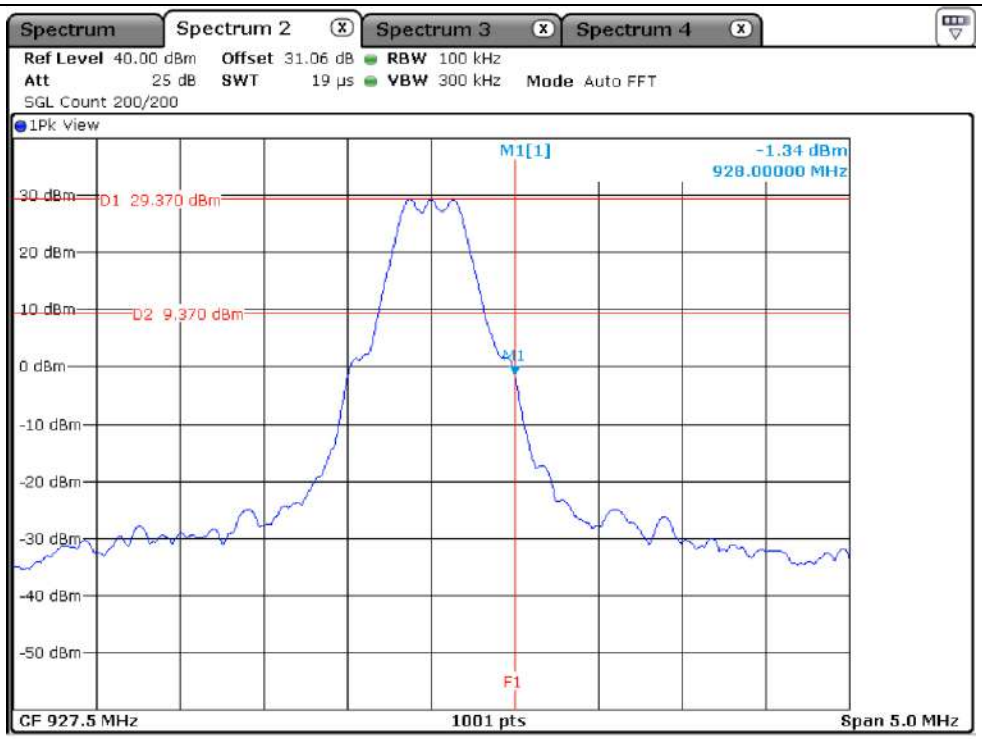
8.6 Test data for Mode 3_Repeat

-. Test Result : Pass

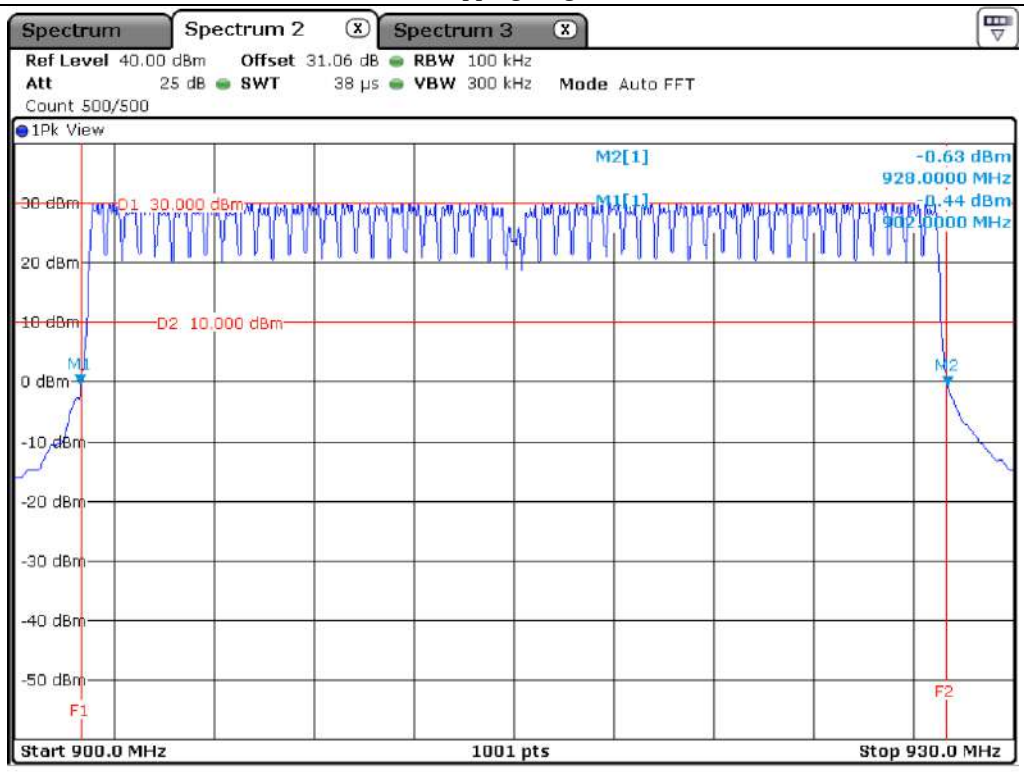
CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dB)	LIMIT (dBc)	MARGIN (dB)
Without hopping				
LOW	902.0000	30.79	20.00	10.79
HIGH	928.0000	30.71	20.00	10.71
With Hopping				
LOW	902.0000	30.44	20.00	10.44
HIGH	928.0000	30.63	20.00	10.63



Without hopping_Low Channel



Without hopping_High Channel



With Hopping

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

9. FREQUENCY SEPARATION / OCCUPIED BANDWIDTH (20 dB BANDWIDTH)

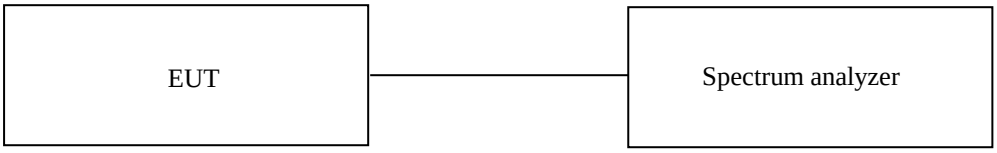
9.1 Operating environment

Temperature : 23 °C

Relative humidity : 41 % R.H.

9.2 Test set-up

According to §15.247(a)(1) 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.



9.3 Test Date

September 17, 2022 ~ November 09, 2022

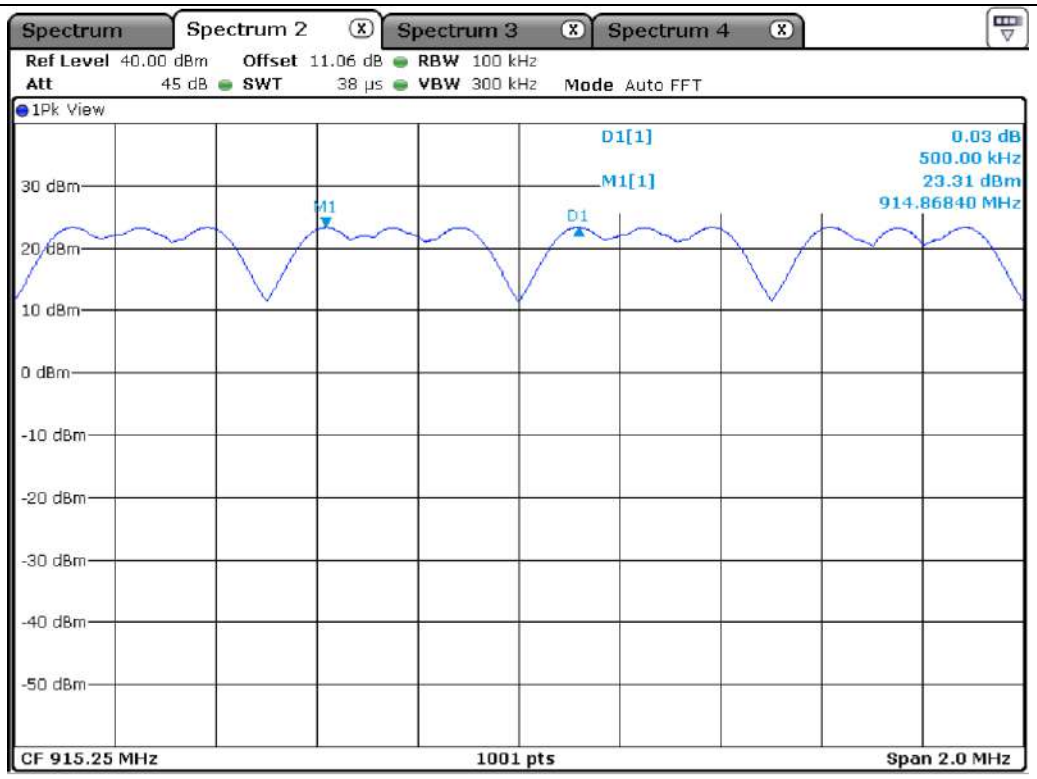
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

9.4 Test data for Mode 1_Normal

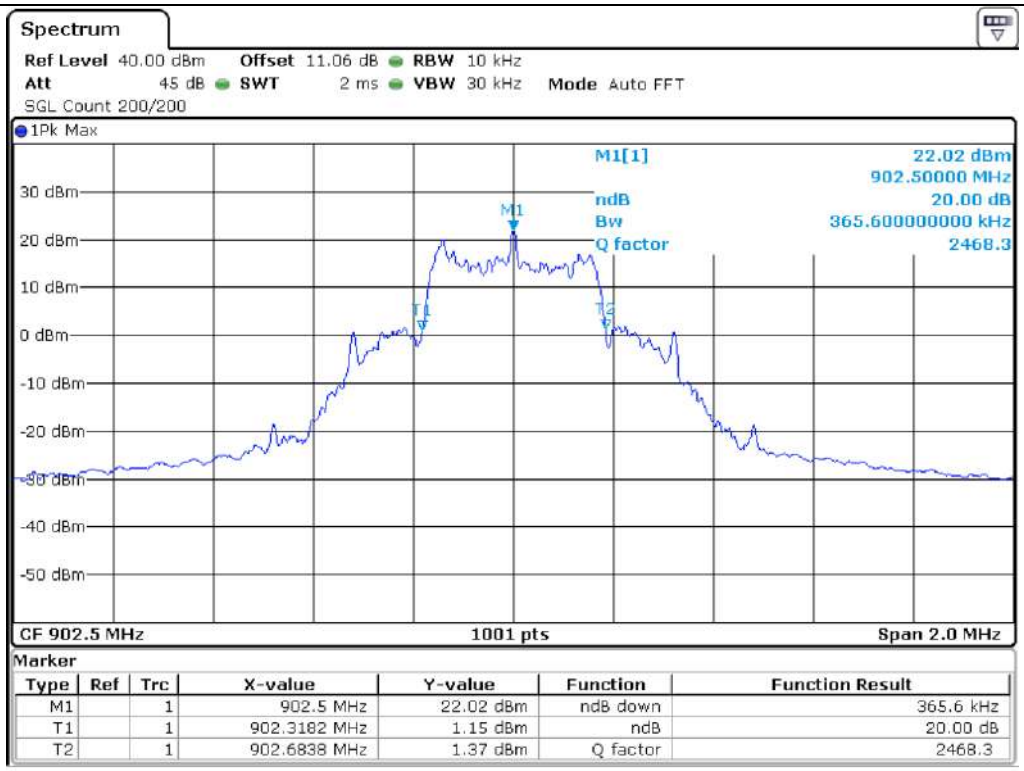
9.4.1 Carrier Frequency / 20 dB Bandwidth

-. Test Result : Pass

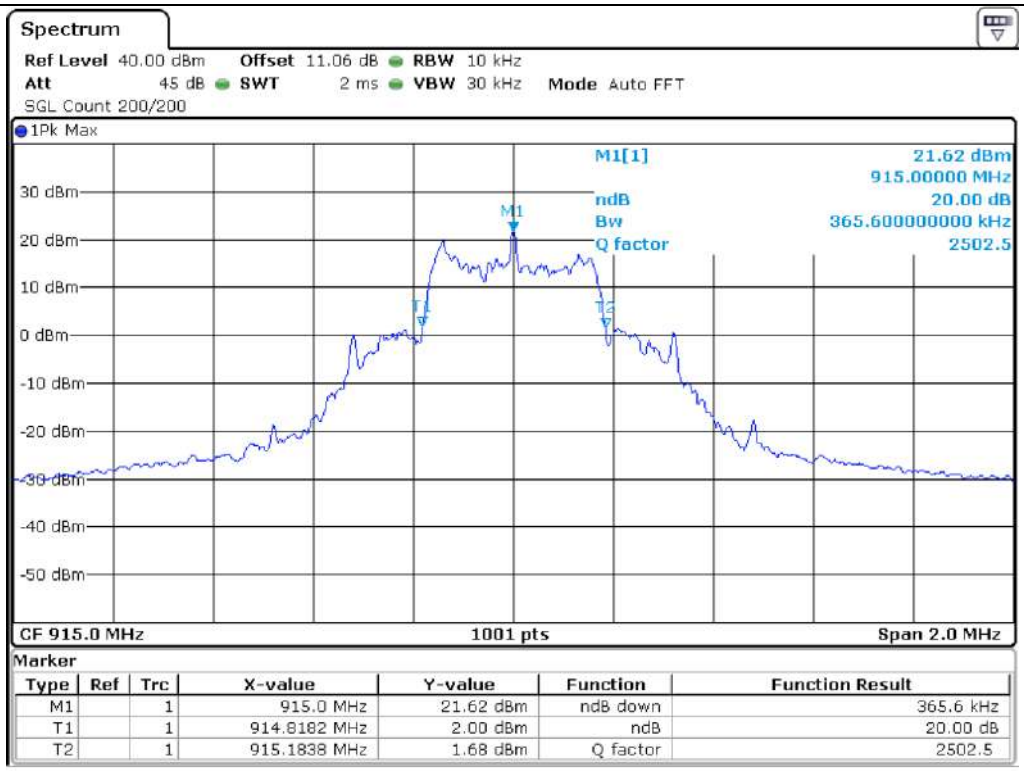
Channel Separation (kHz)	20 dB Bandwidth		Limit (kHz)	Result
	Channel	Measured Value (kHz)		
500.00	LOW	365.60	<u>> **25**</u> Or > 20 dB B.W. of Hopping Channel	Pass
	MIDDLE	365.60		
	HIGH	367.60		



Channel Separation

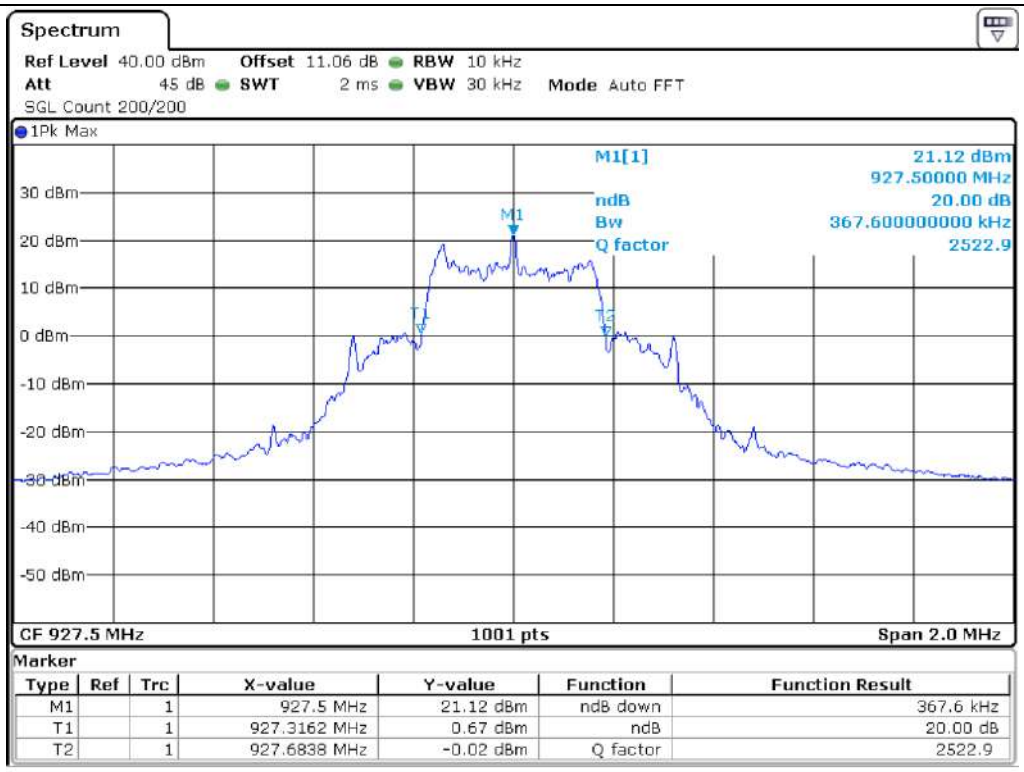


Low Channel



Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



High Channel

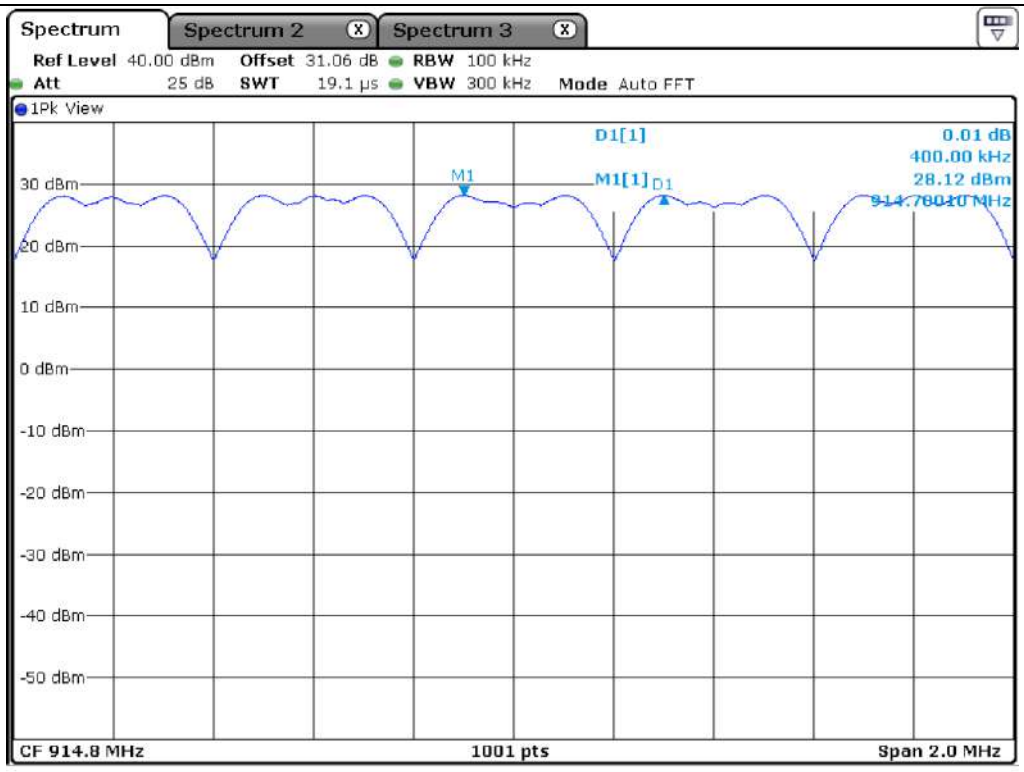
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

9.5 Test data for Mode 2_Long

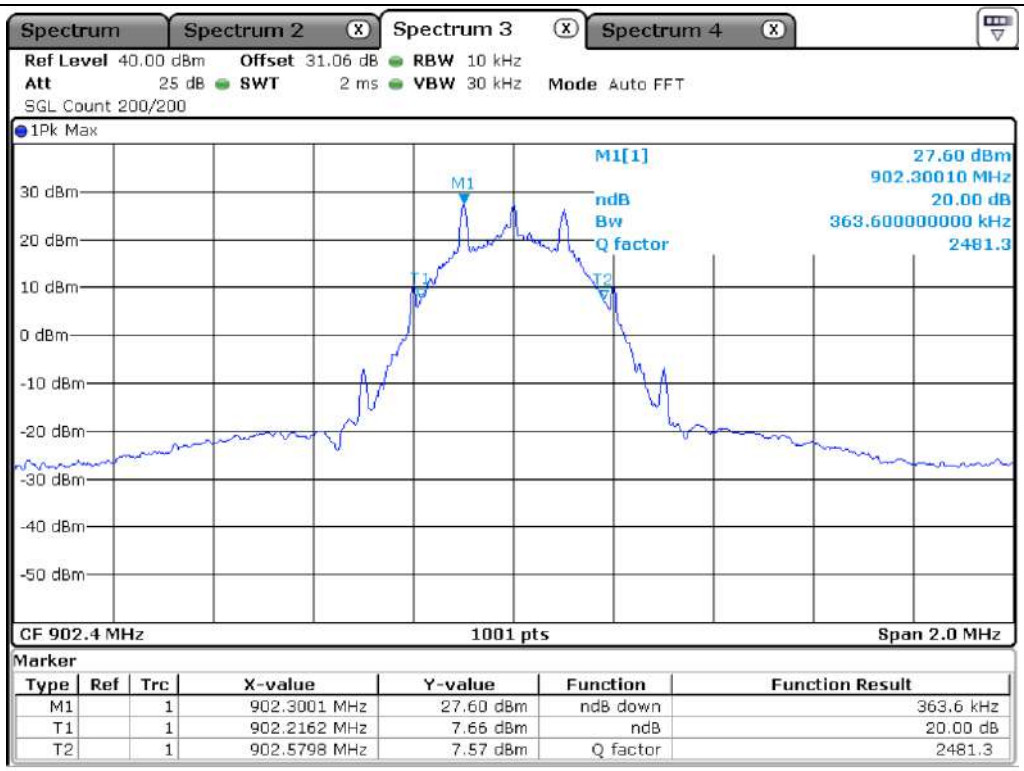
9.5.1 Carrier Frequency Separation / 20 dB Bandwidth

-. Test Result : Pass

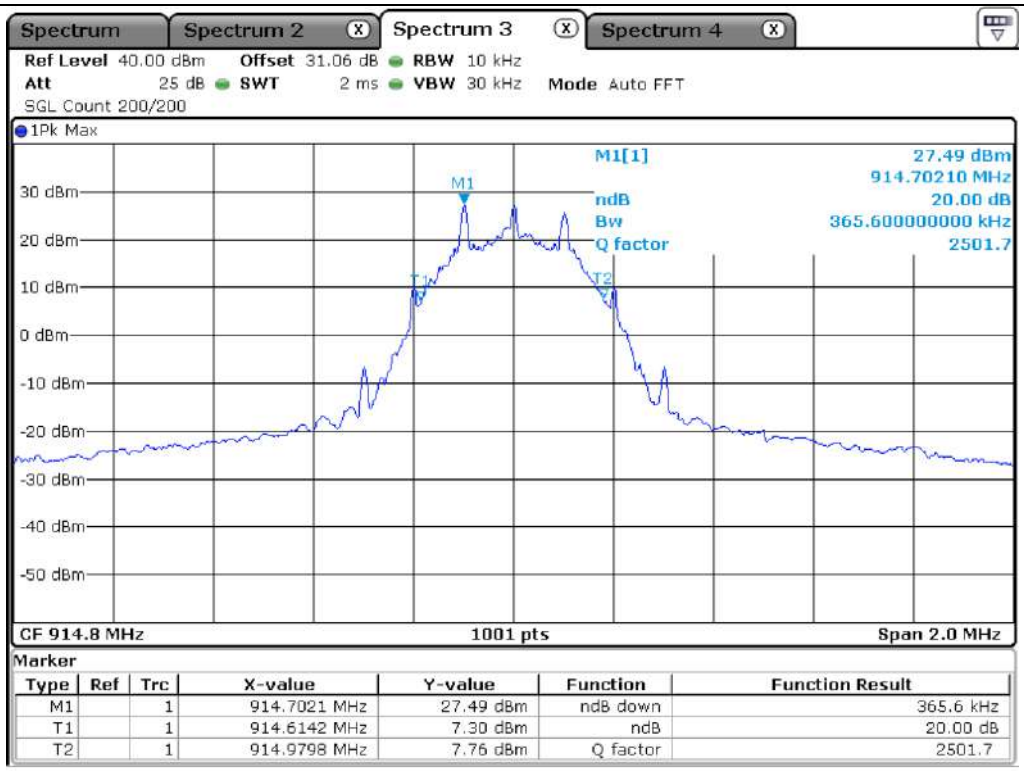
Channel Separation (kHz)	20 dB Bandwidth		Limit (kHz)	Result
	Channel	Measured Value (kHz)		
400.00	LOW	363.60	<u>> **25**</u> Or > 20 dB B.W. of Hopping Channel	Pass
	MIDDLE	365.60		
	HIGH	363.60		



Channel Separation

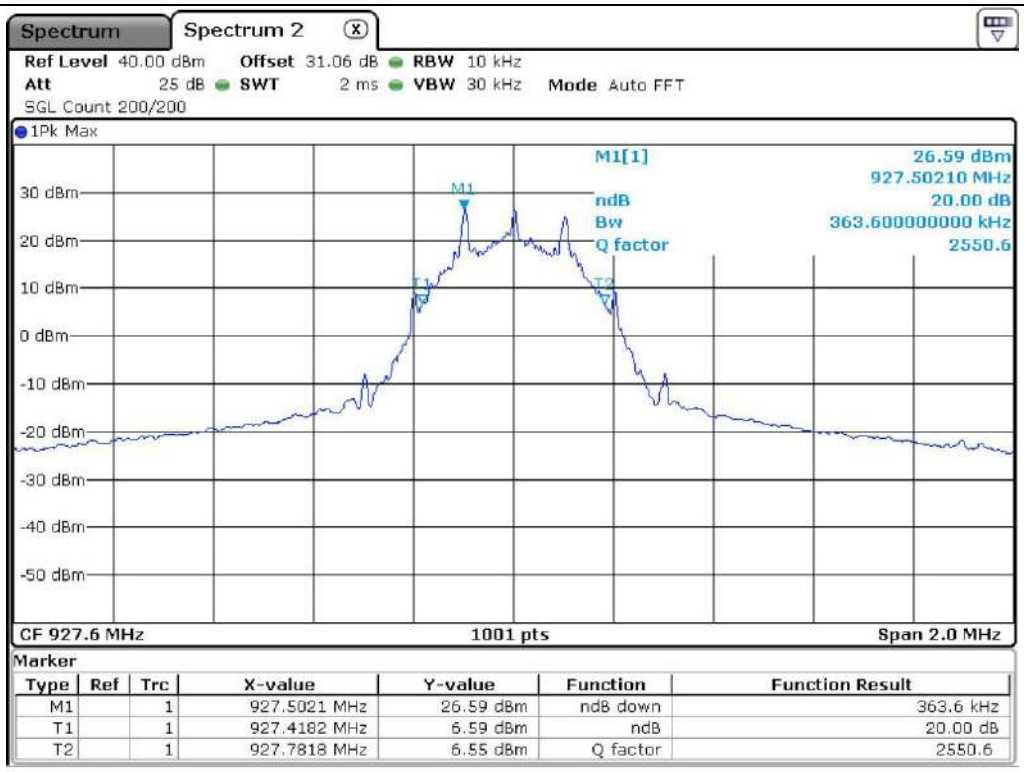


Low Channel



Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



High Channel

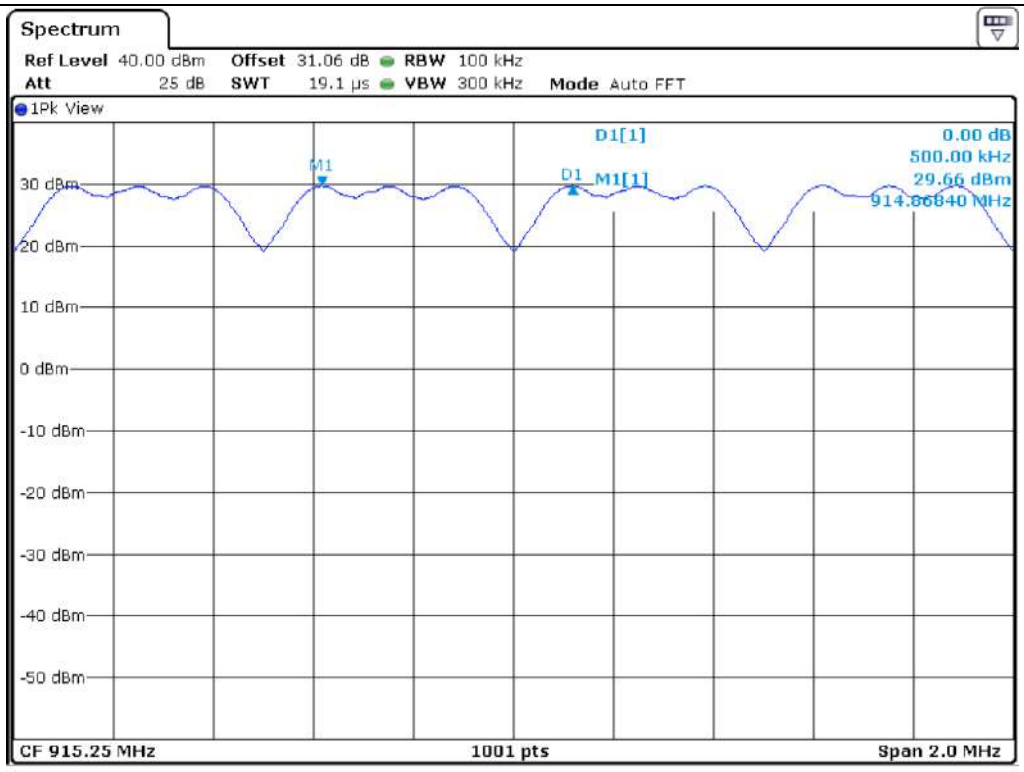
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

9.6 Test data for Mode 3_Repeat

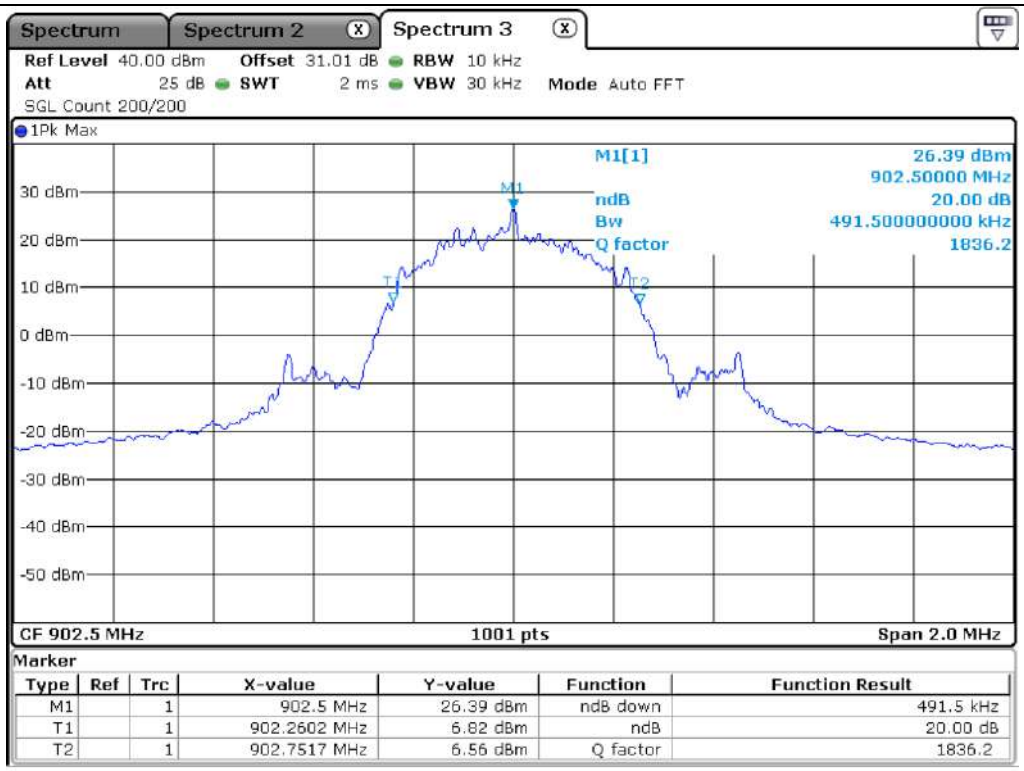
9.6.1 Carrier Frequency / 20 dB Bandwidth

-. Test Result : Pass

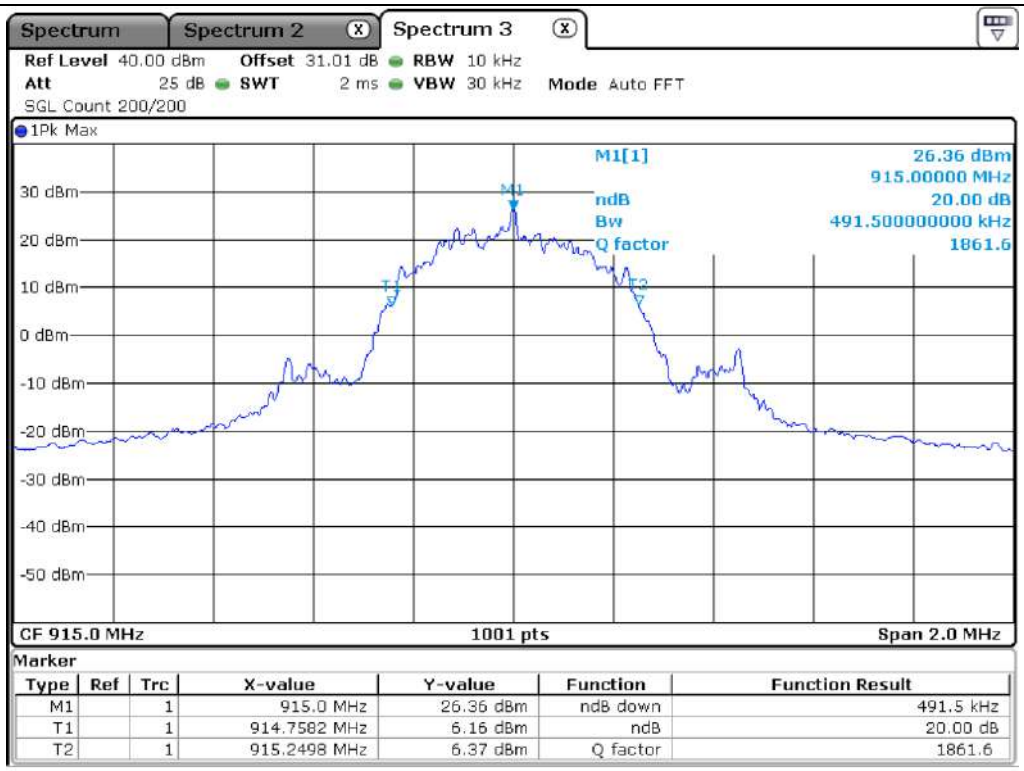
Channel Separation (kHz)	20 dB Bandwidth		Limit (kHz)	Result
	Channel	Measured Value (kHz)		
500.00	LOW	491.50	<u>> **25**</u> Or > 20 dB B.W. of Hopping Channel	Pass
	MIDDLE	491.50		
	HIGH	491.50		



Channel Separation

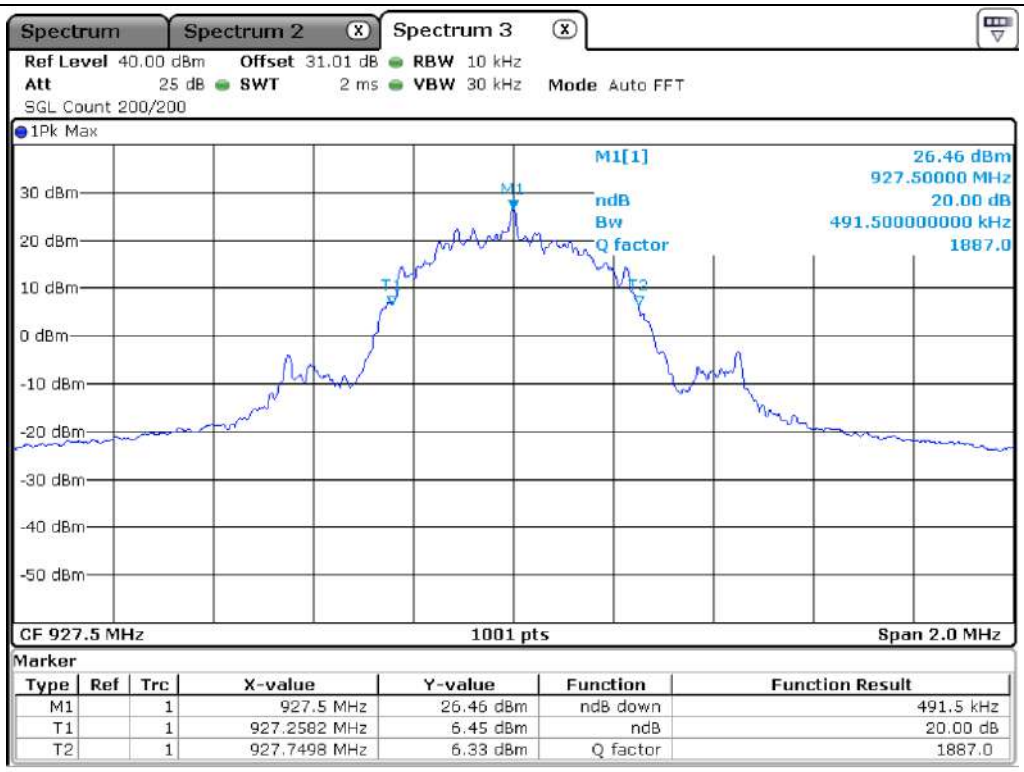


Low Channel



Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10. NUMBER OF HOPPING FREQUENCY

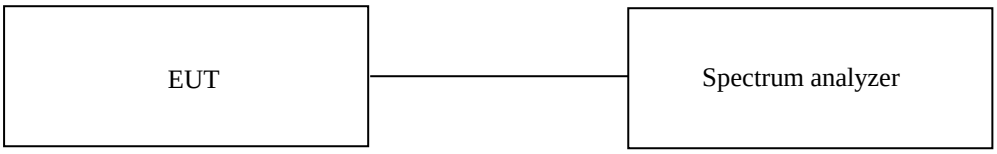
10.1 Operating environment

Temperature : 23 °C

Relative humidity : 41 % R.H.

10.2 Test set-up

According to §15.247(a)(1)(i) if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping channels and the average time of occupancy on any channel shall not be greater than 0.4 seconds within a 20-second period. If the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping channels and the average time of occupancy on any channel shall not be greater than 0.4 seconds within a 10-second period. The maximum 20 dB bandwidth of the hopping channel shall be 500 kHz.



10.3 Test Date

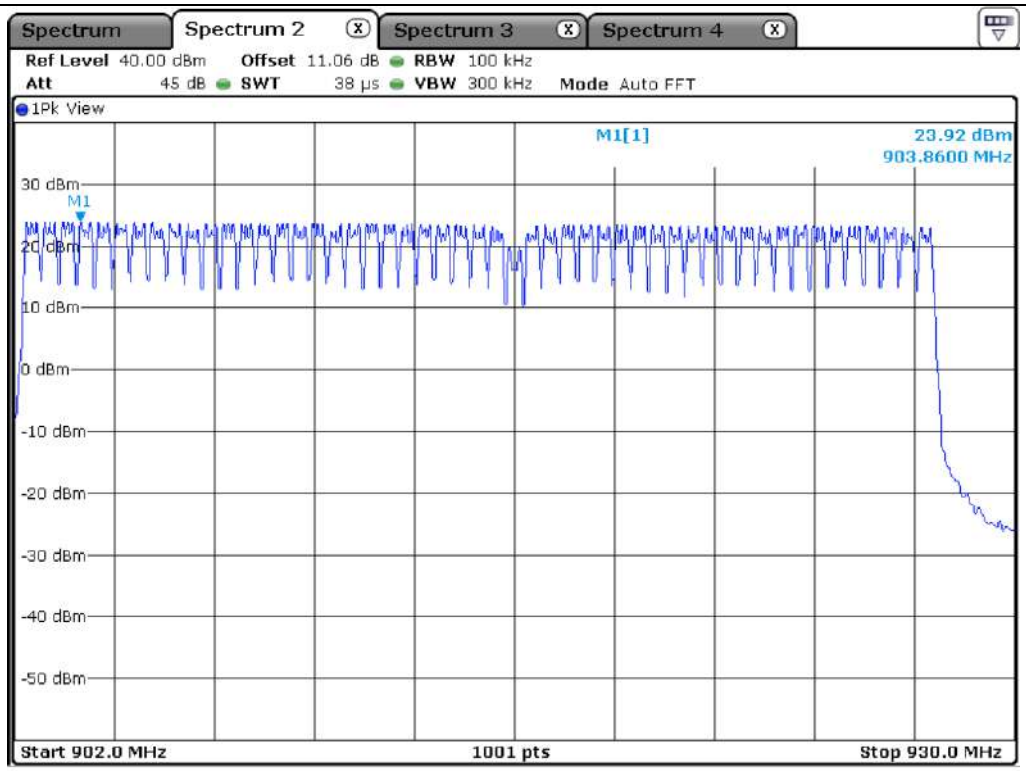
September 17, 2022 ~ November 09, 2022

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.4 Test data for Mode 1_Normal

-. Test Result : Pass

Number of Hopping Frequencies	Limit (EA)
51	25≤

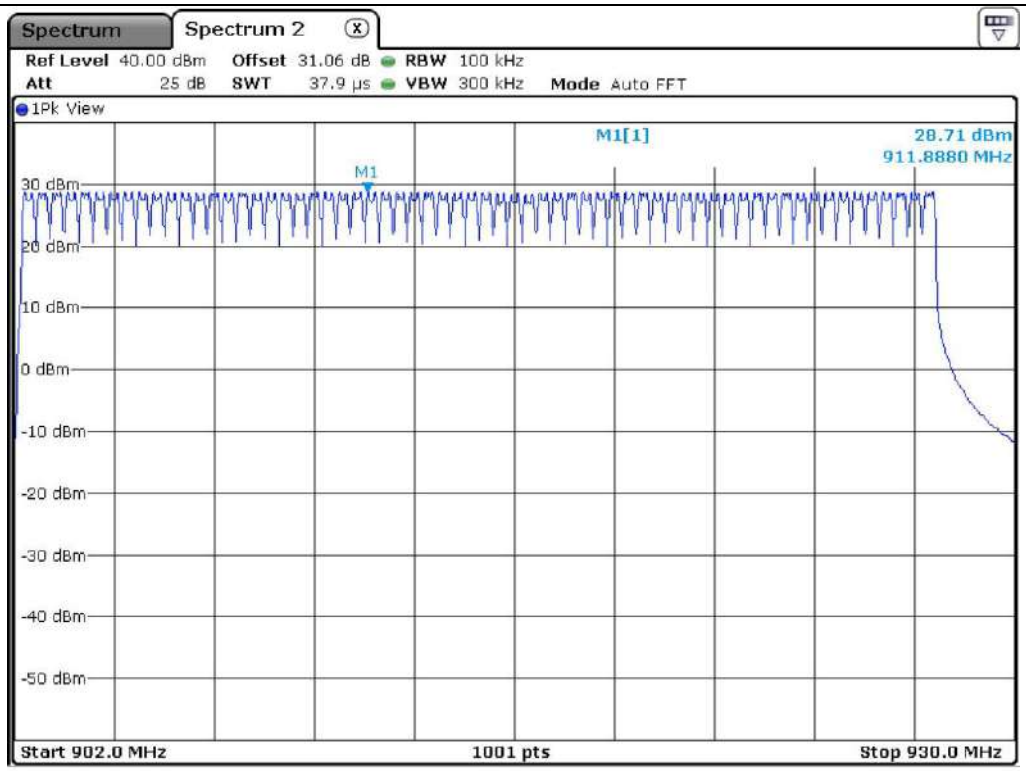


Number of Hopping Channels

10.5 Test data for Mode 2_Long

-. Test Result : Pass

Number of Hopping Frequencies	Limit (EA)
64	25≤



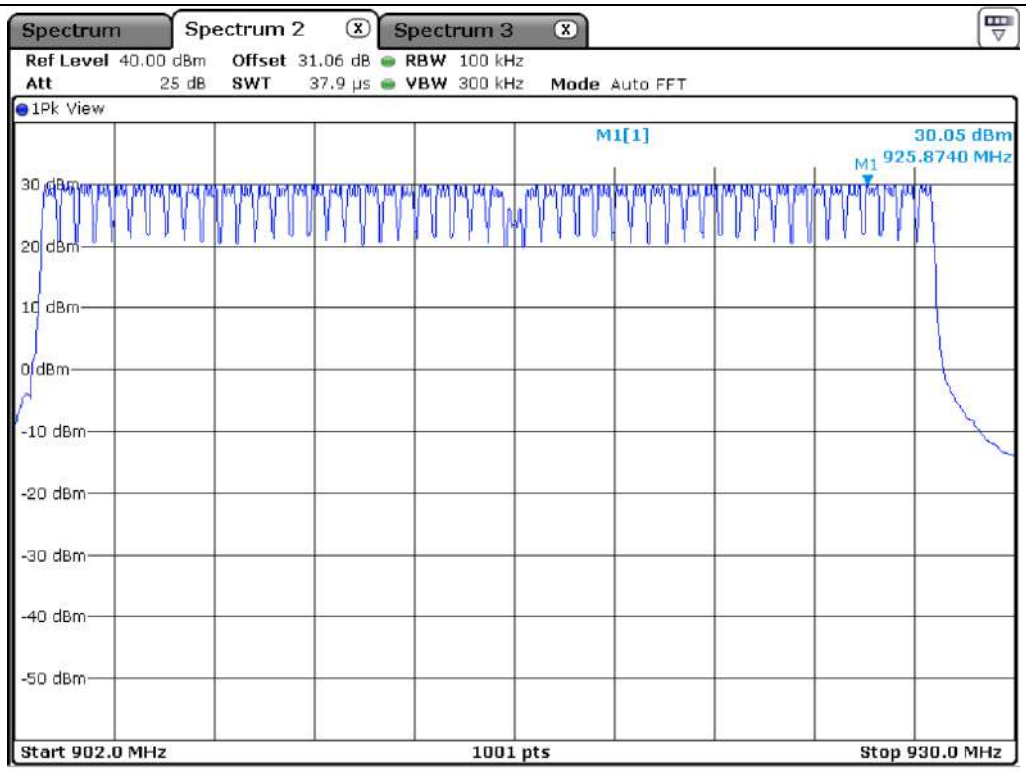
Number of Hopping Channels

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

10.6 Test data for Mode 3_Repeat

-. Test Result : Pass

Number of Hopping Frequencies	Limit (EA)
50	25≤



Number of Hopping Channels

11. TIME OF OCCUPANCY (DWELL TIME)

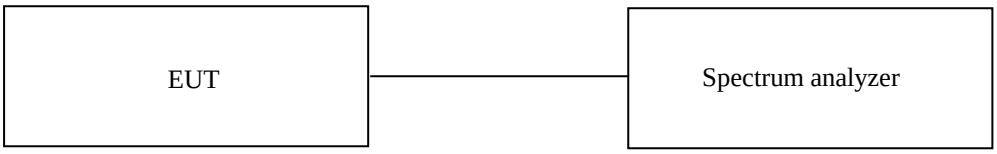
11.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

11.2 Test set-up

According to §15.247(a)(1)(i) / RSS-247 5.1.3, Frequency hopping systems operating in the 902 MHz ~ 928 MHz bands. if the 20 dB bandwidth of the hopping channel is less than 250 kHz, thesystem shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.



11.3 Test Date

September 17, 2022 ~ November 09, 2022

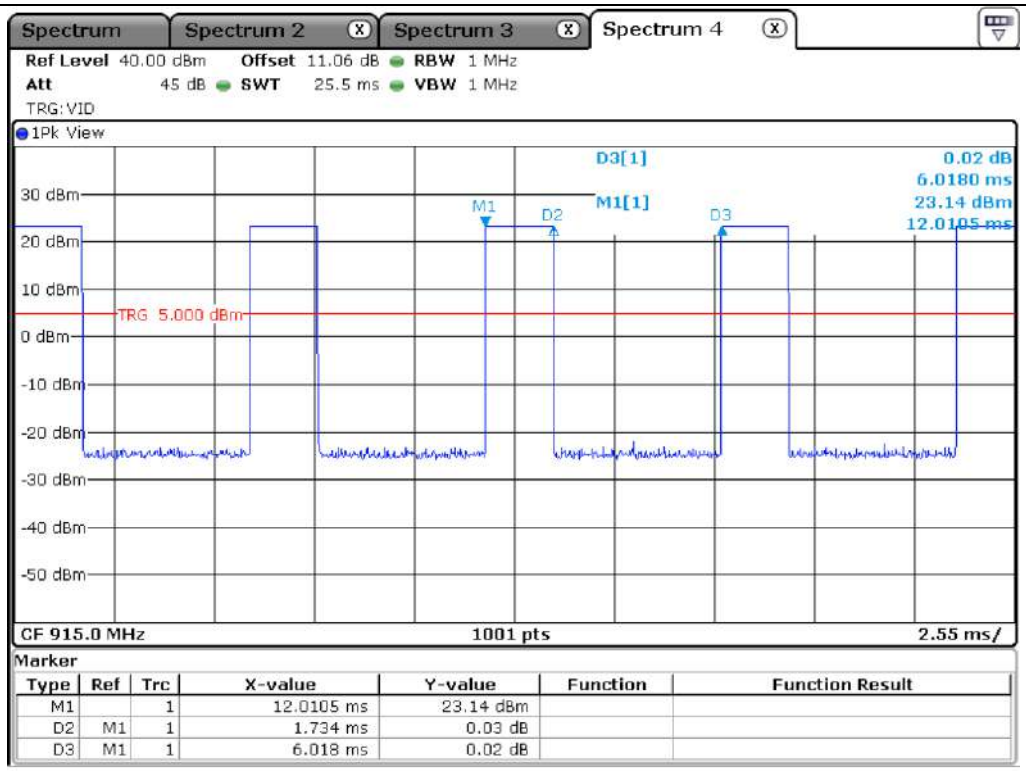
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

11.4 Test data for Mode 1_Normal

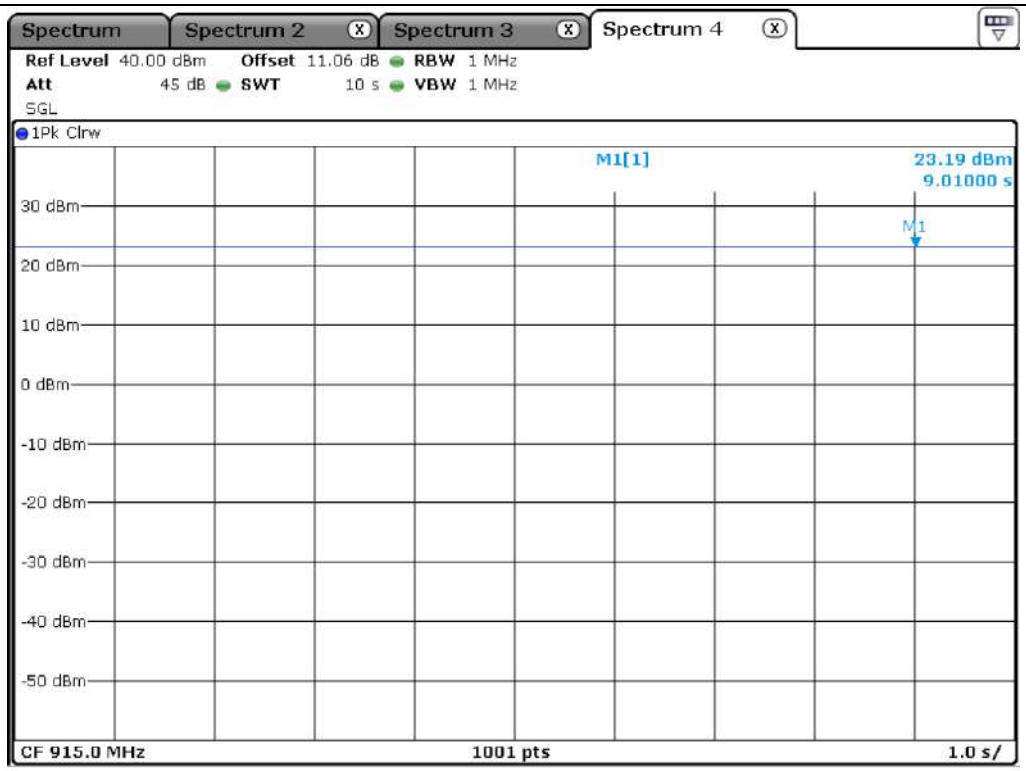
-. Test Result : Pass

Channel	Average Time of Occupancy(ms)	Number of Pulse in 10 seconds	Total(ms)	Limit(ms)
MIDDLE	1.734	1	1.734	400.00

Note : Total : Average Time of Occupancy * Number of Pulse in 10 seconds.



ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



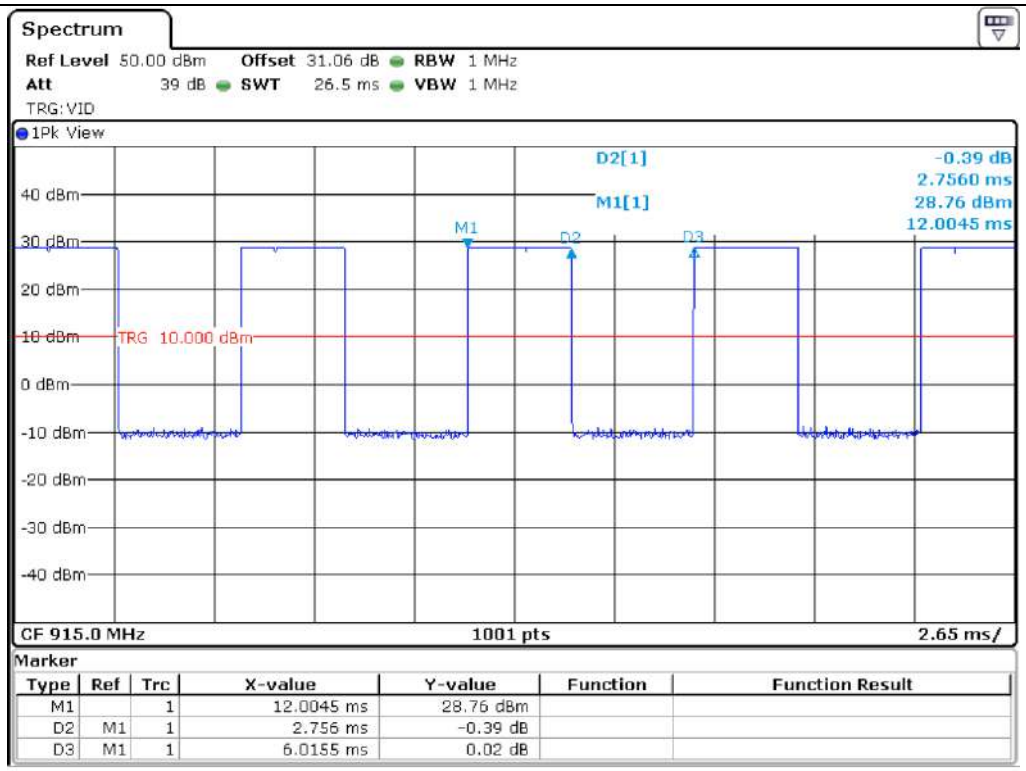
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

11.5 Test data for Mode 2_Long

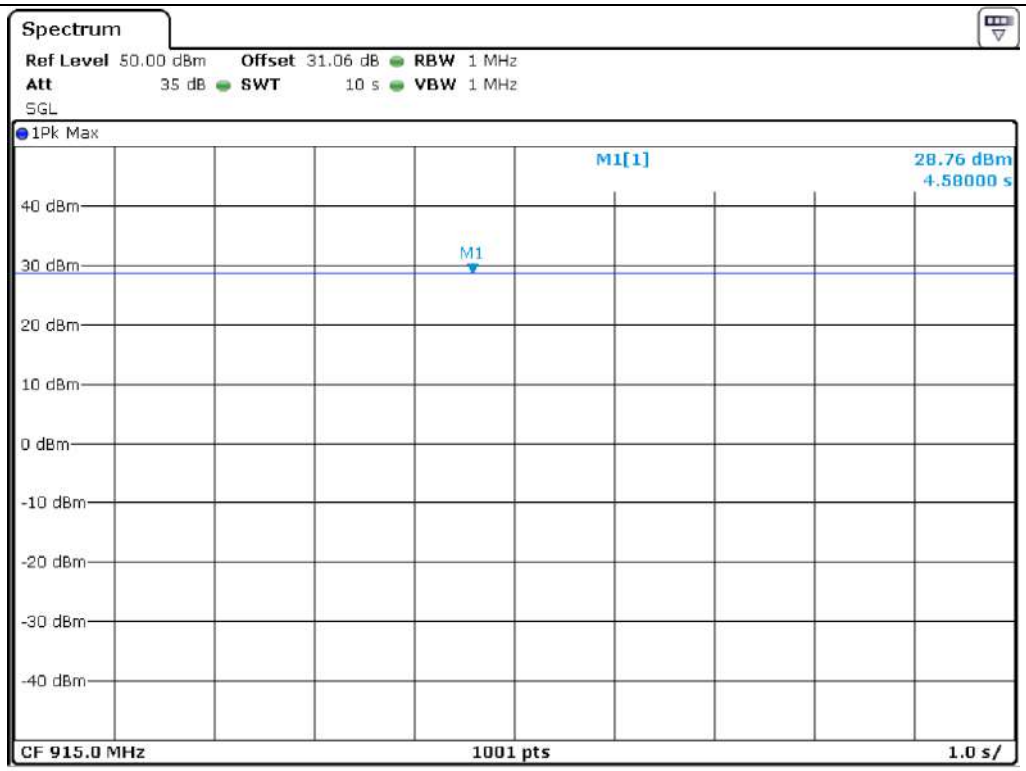
-. Test Result : Pass

Channel	Average Time of Occupancy(ms)	Number of Pulse in 10 seconds	Total(ms)	Limit(ms)
MIDDLE	2.756	1	2.756	400.00

Note : Total : Average Time of Occupancy * Number of Pulse in 10 seconds.



ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



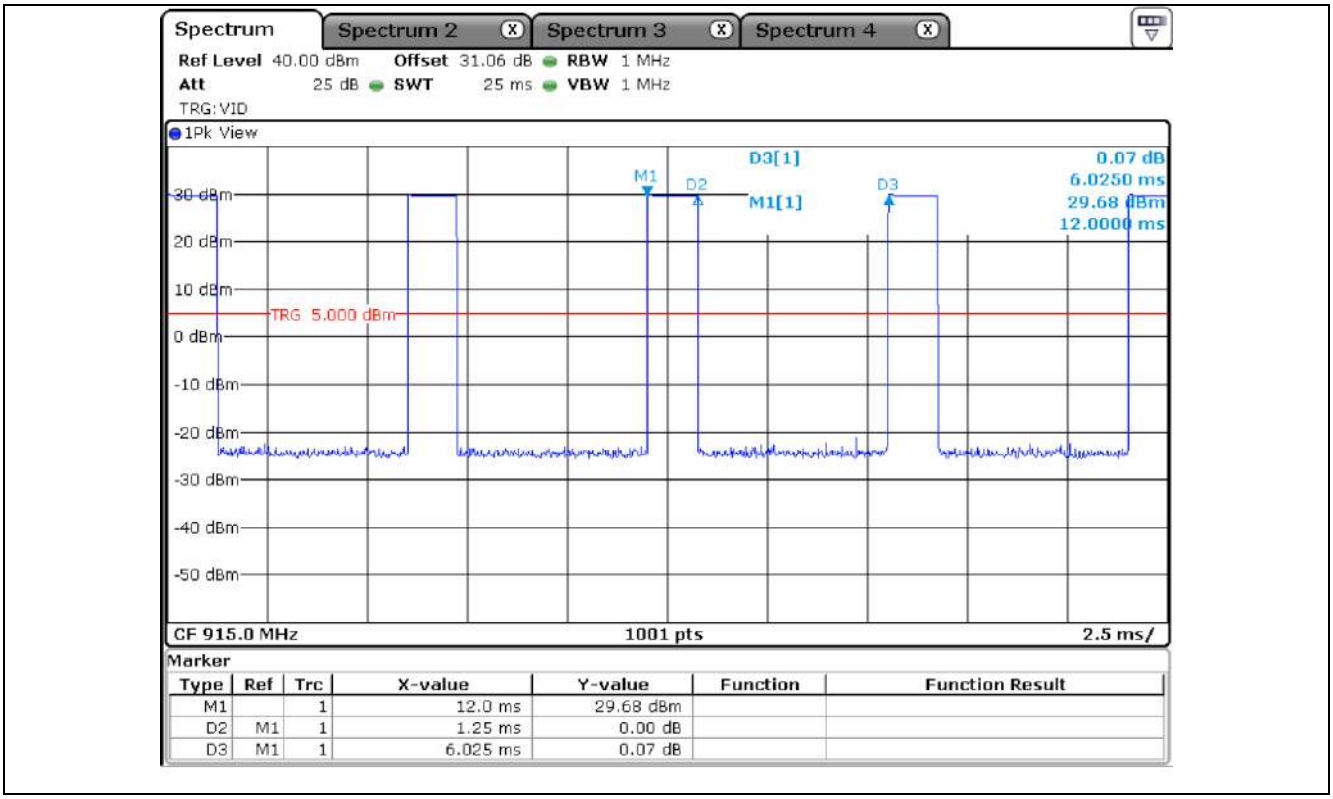
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

11.6 Test data for Mode 3_Repeat

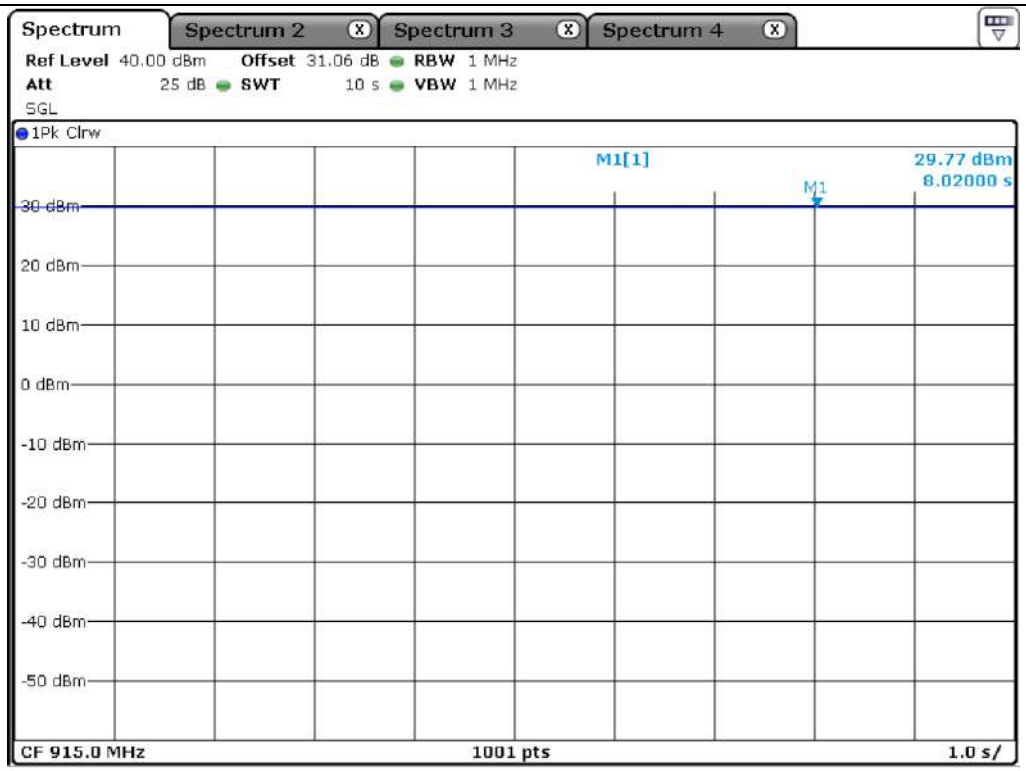
-. Test Result : Pass

Channel	Average Time of Occupancy(ms)	Number of Pulse in 10 seconds	Total(ms)	Limit(ms)
MIDDLE	1.250	1	0.125	400.00

Note : Total : Average Time of Occupancy * Number of Pulse in 10 seconds.



ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

12.1 Operating environment

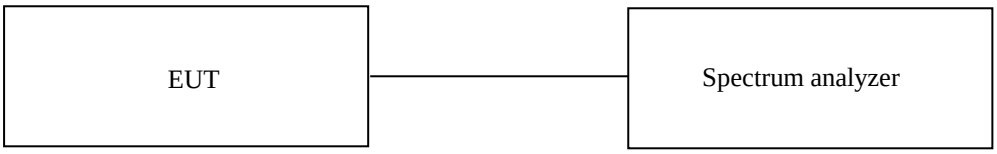
Temperature : 23 °C

Relative humidity : 41 % R.H.

12.2 Test set-up for conducted / radiated measurement

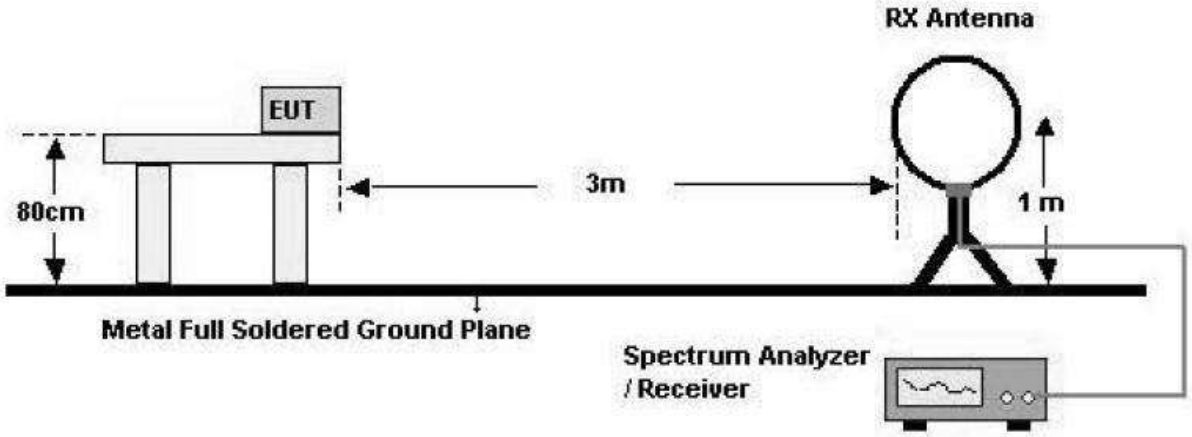
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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)).

- Conducted Configuration



- Radiated Configuration

1. Below 30 MHz



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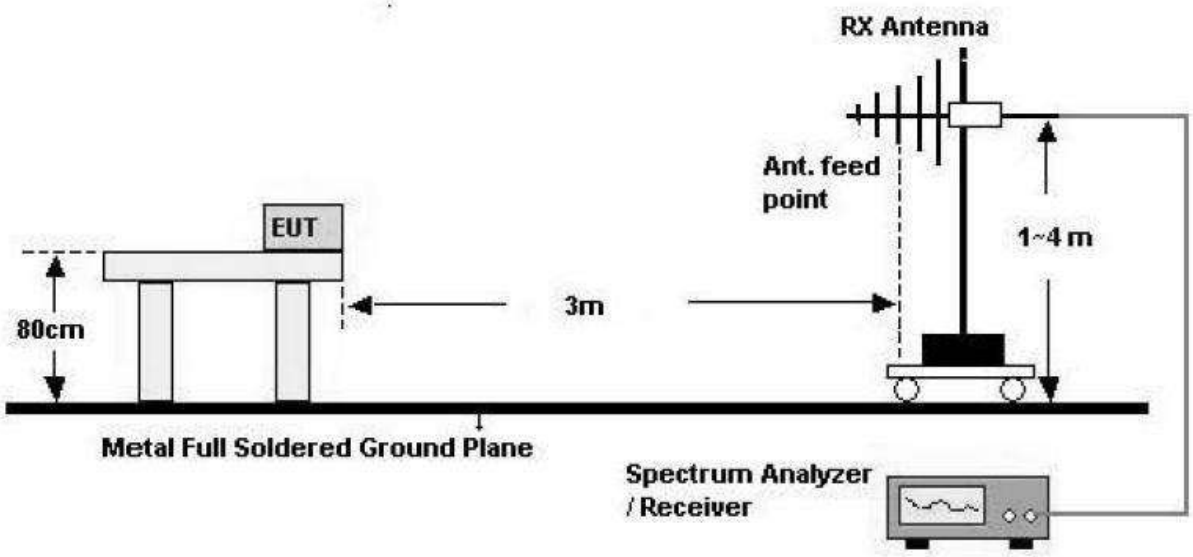
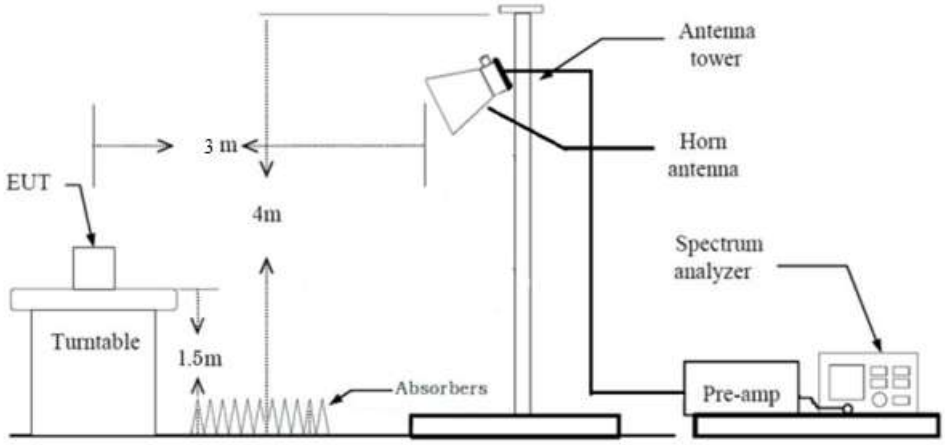
2. 30 MHz - 1 GHz



3. Above 1 GHz



12.3 Test Date

September 17, 2022 ~ November 09, 2022

12.4 Test data for conducted emission

12.4.1 Test data for Mode 1_Normal

-. Resolution bandwidth : 100 kHz

-. Video bandwidth : 300 kHz

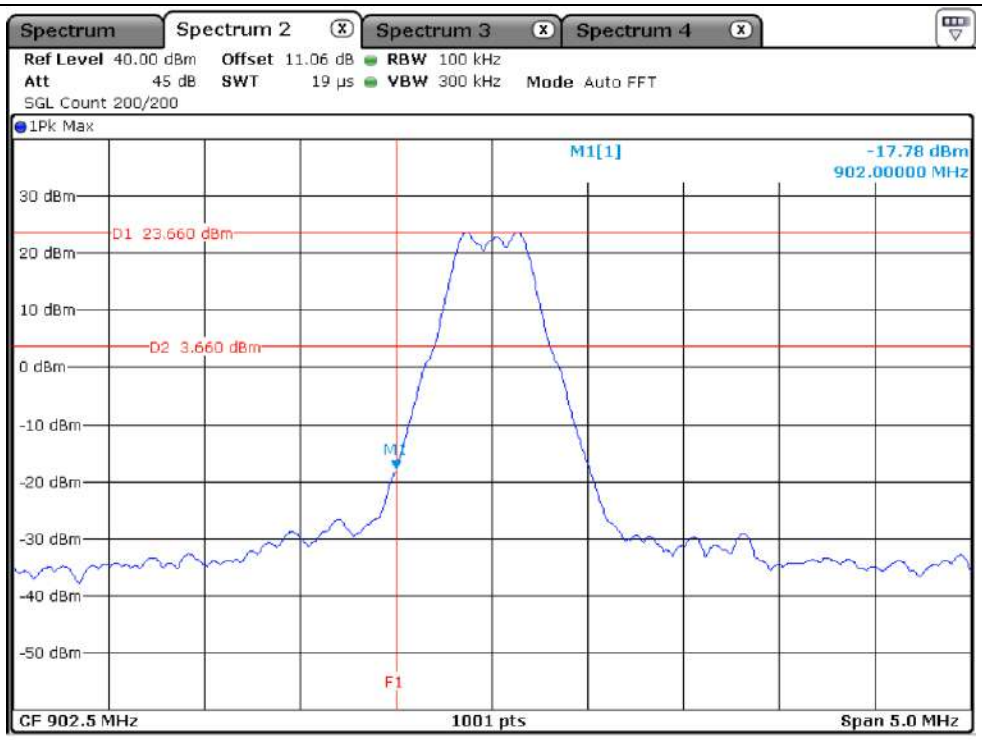
-. Detector : Peak

-. Result : PASS

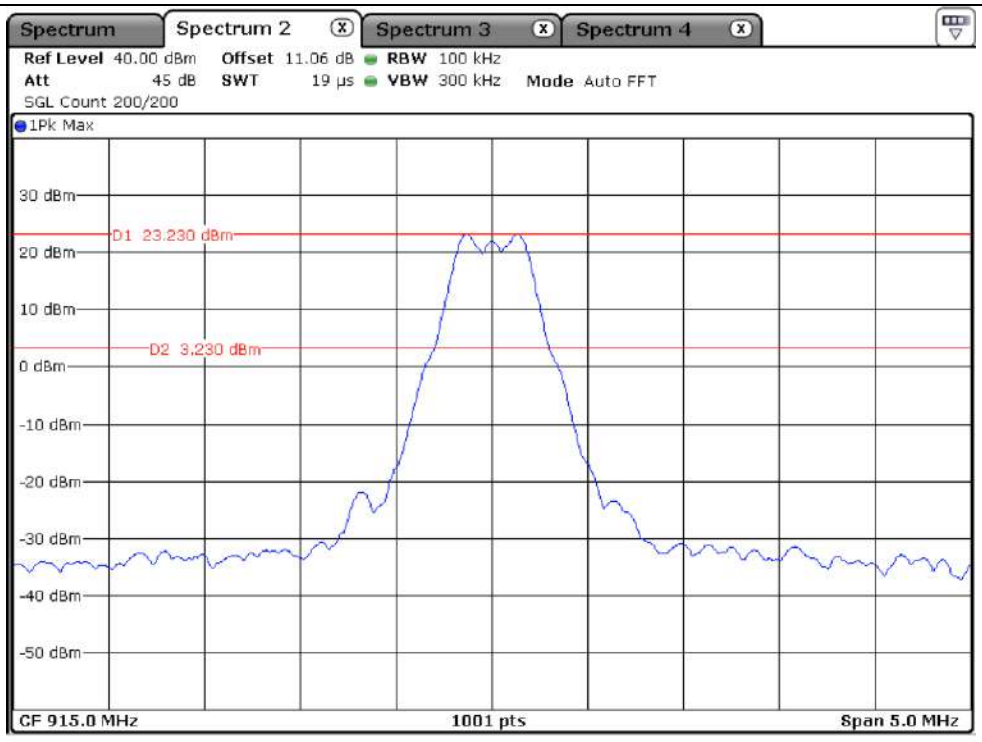
Channel	Frequency Range	Measured Value(dBm)	Limit(dBm)	Margin(dB)
Low	30 M ~ 1 GHz	-38.47	2.11	40.58
	1 GHz ~ 10 GHz	-4.13	2.11	6.24
Middle	30 M ~ 1 GHz	-25.41	2.70	28.11
	1 GHz ~ 10 GHz	-4.5	2.70	7.20
High	30 M ~ 1 GHz	-21.25	2.06	23.31
	1 GHz ~ 10 GHz	-5.03	2.06	7.09

Tabulated test data for Restricted Band

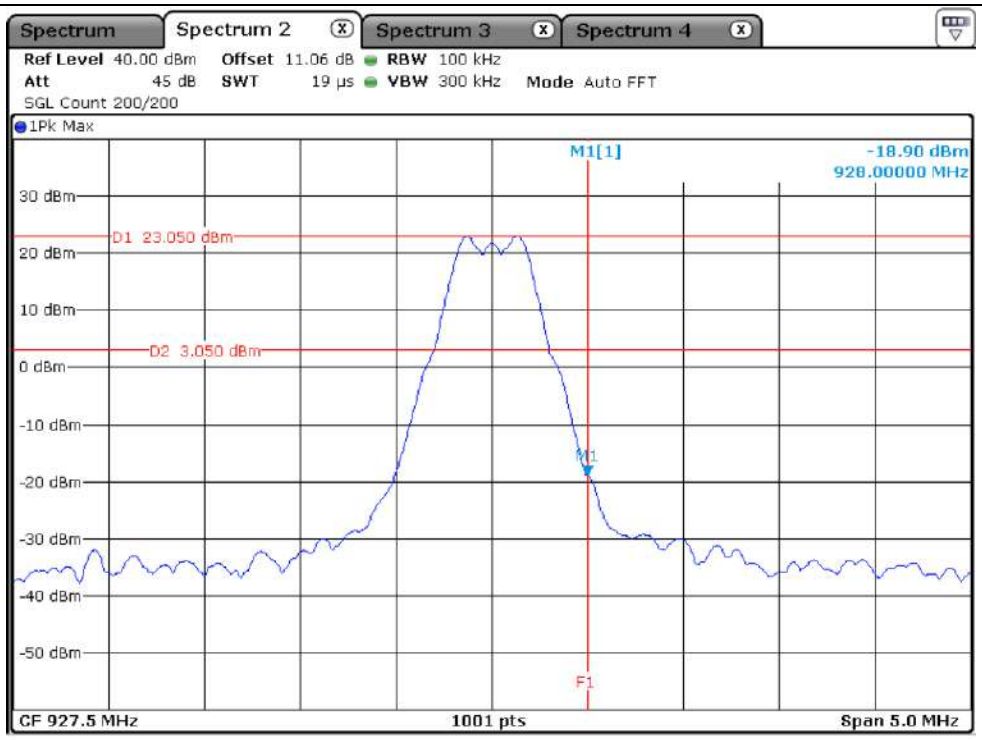
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



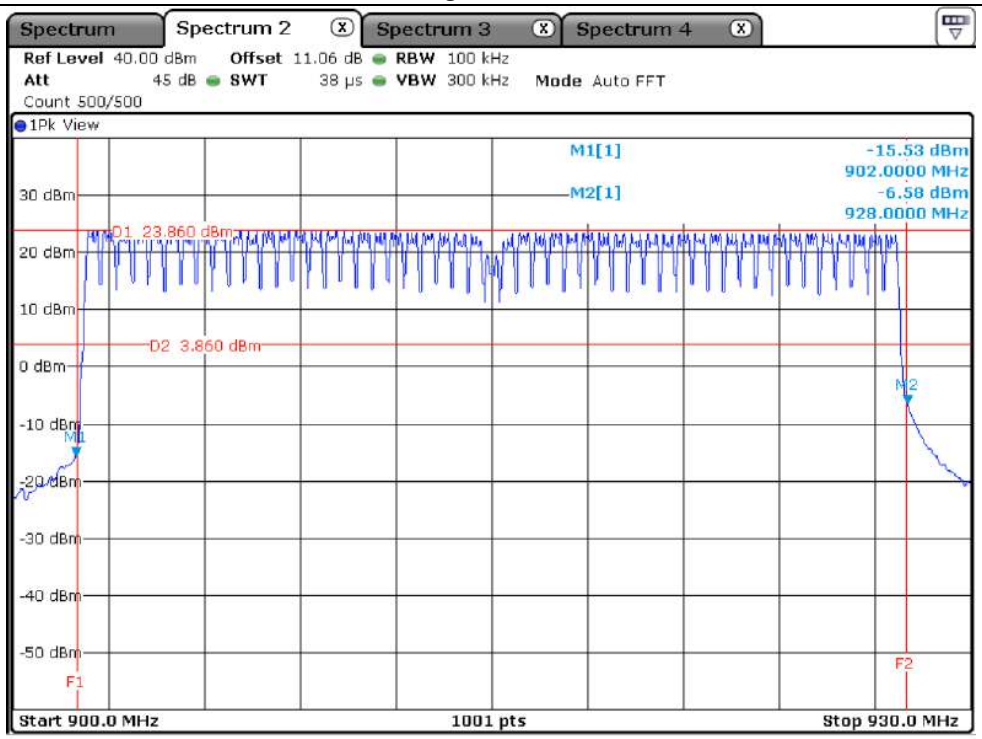
Low Channel



Middle Channel

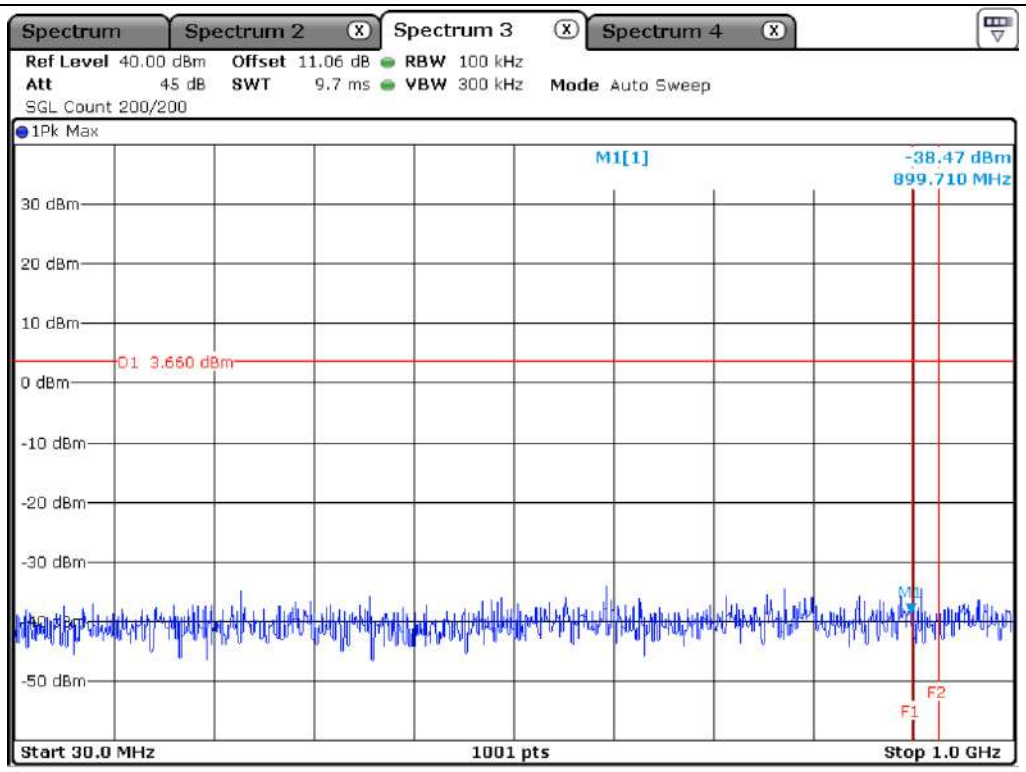


High Channel

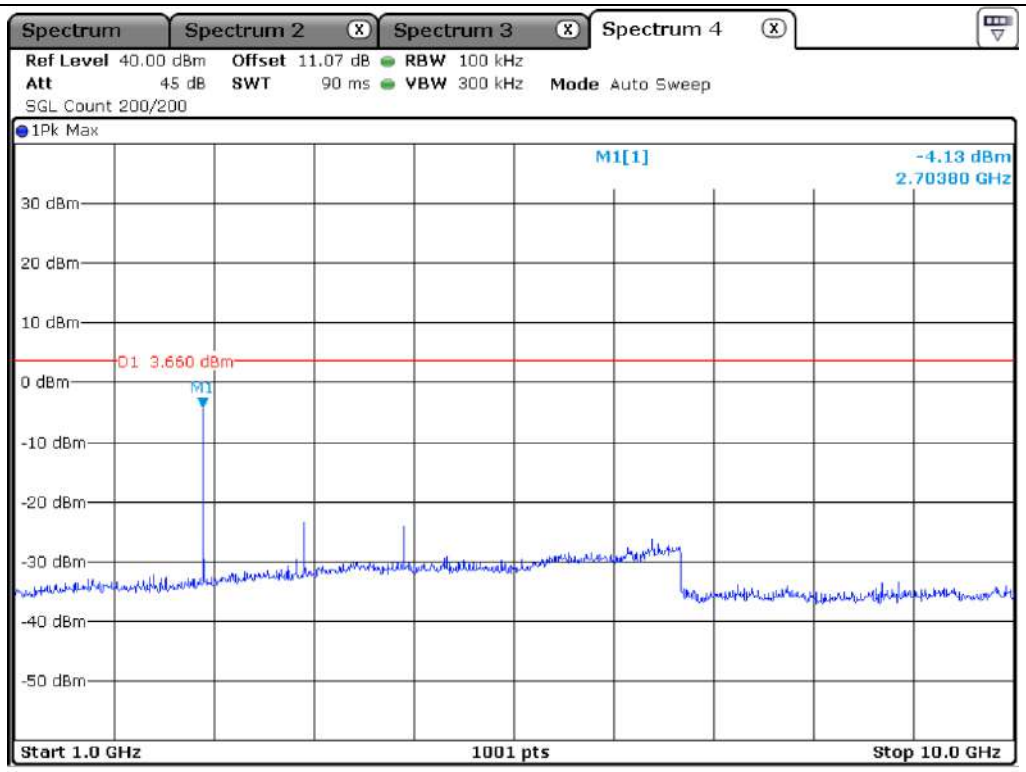


Hopping Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

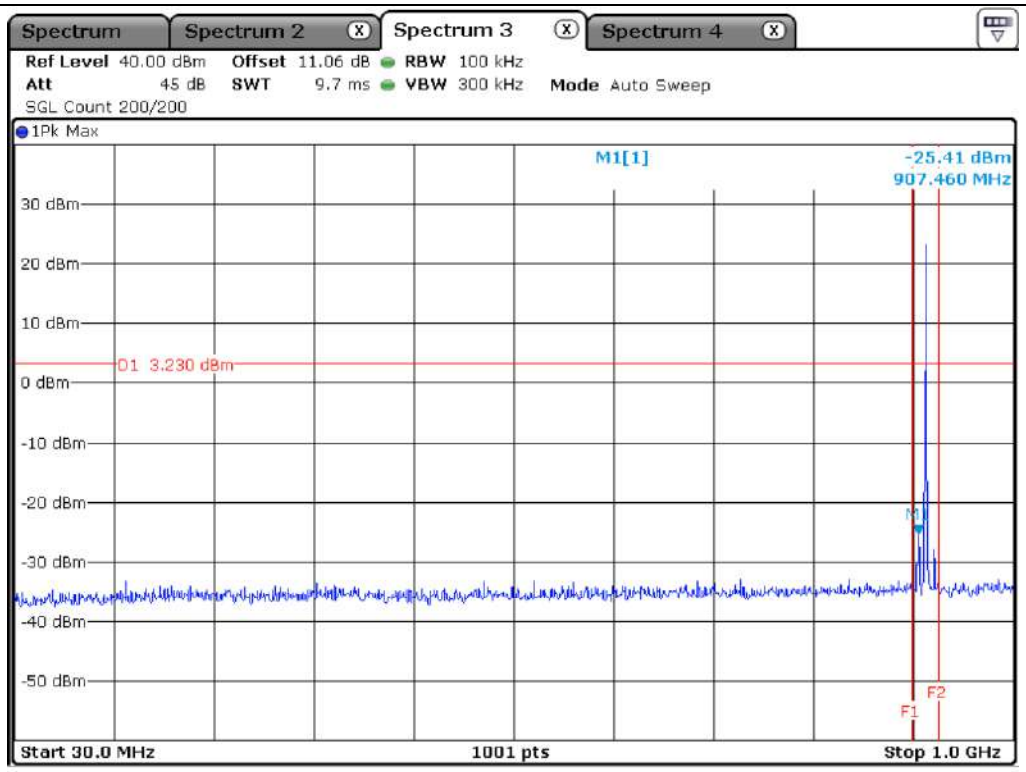


Low Channel

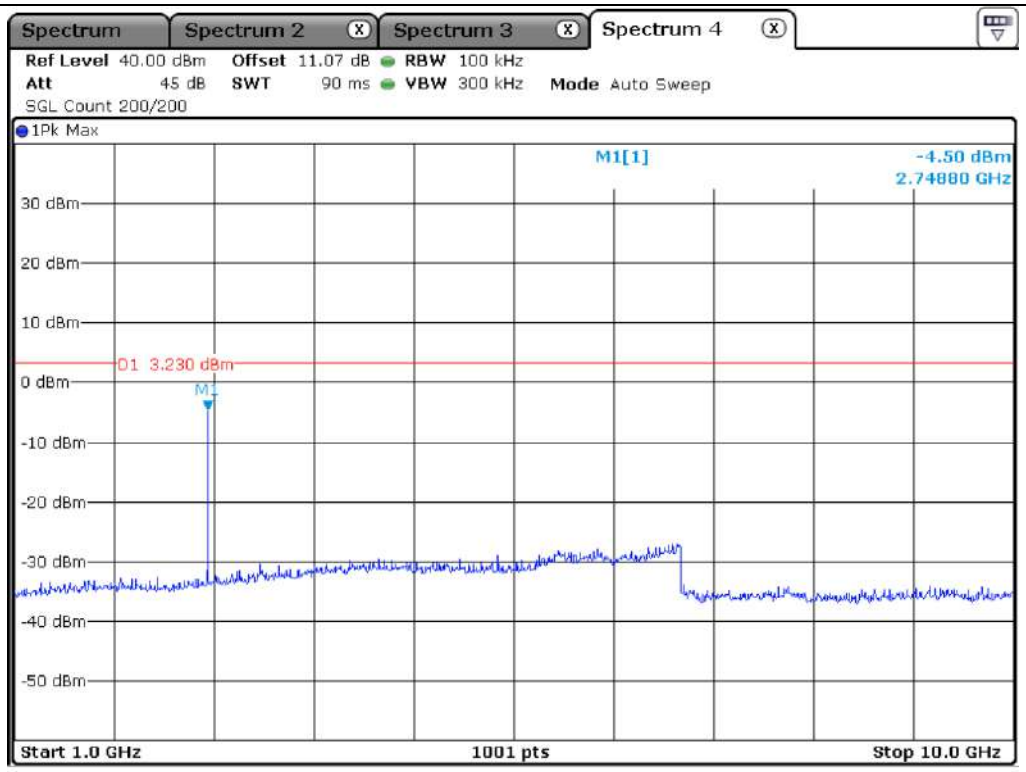


Low Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

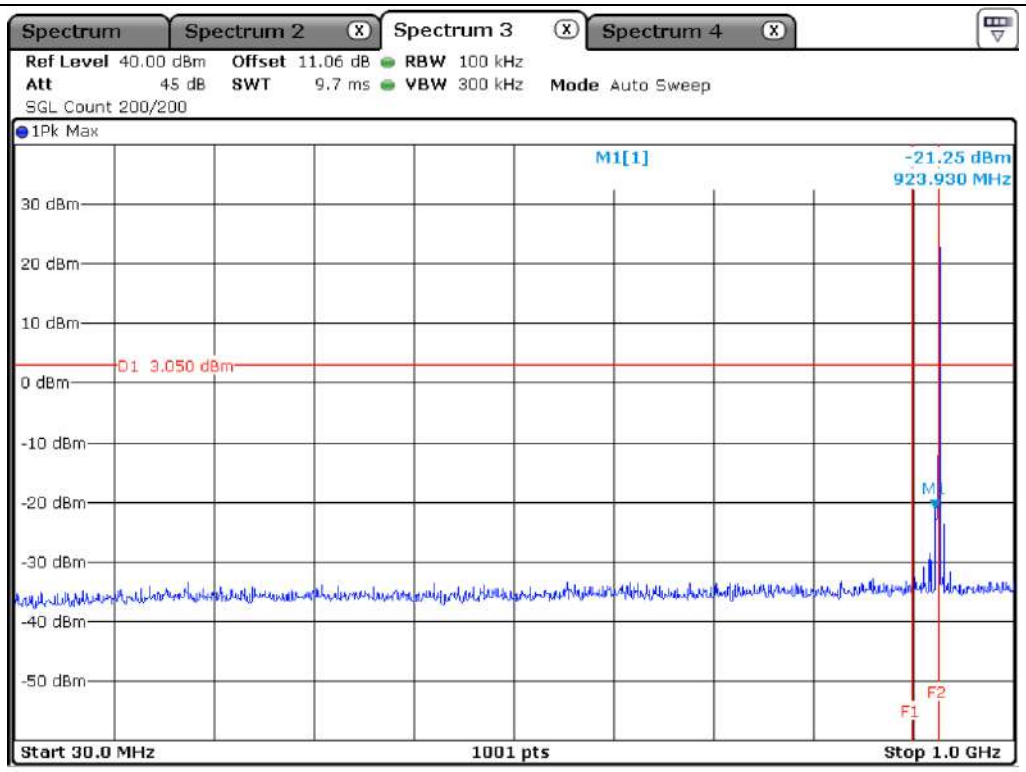


Middle Channel

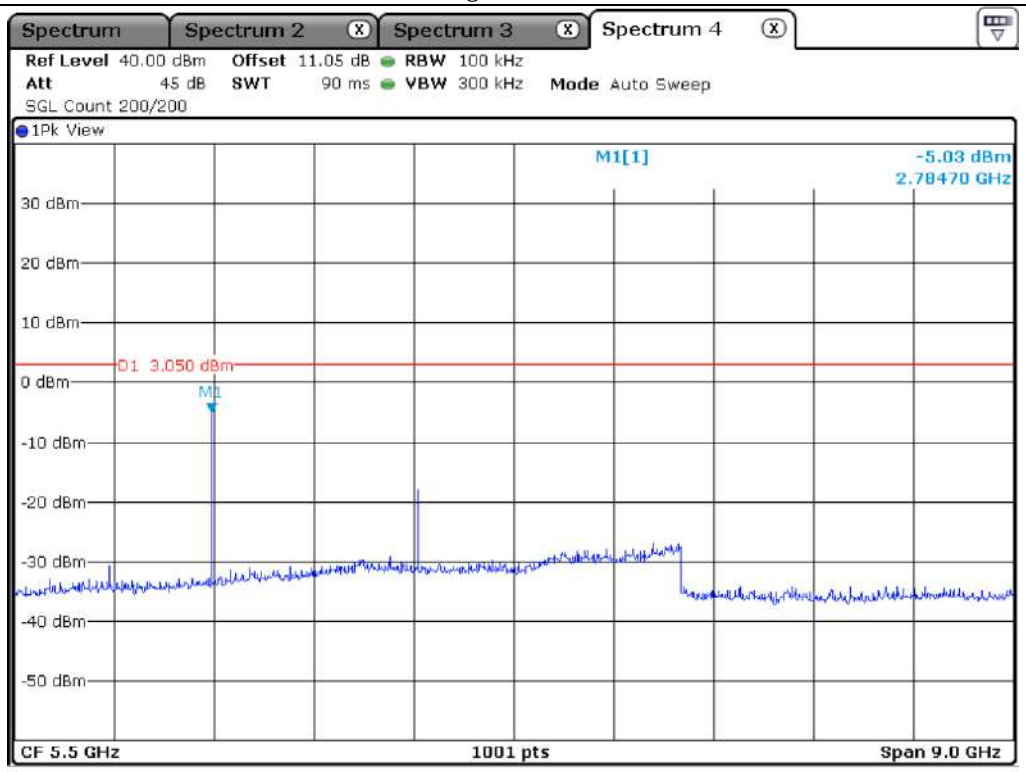


Middle Channel

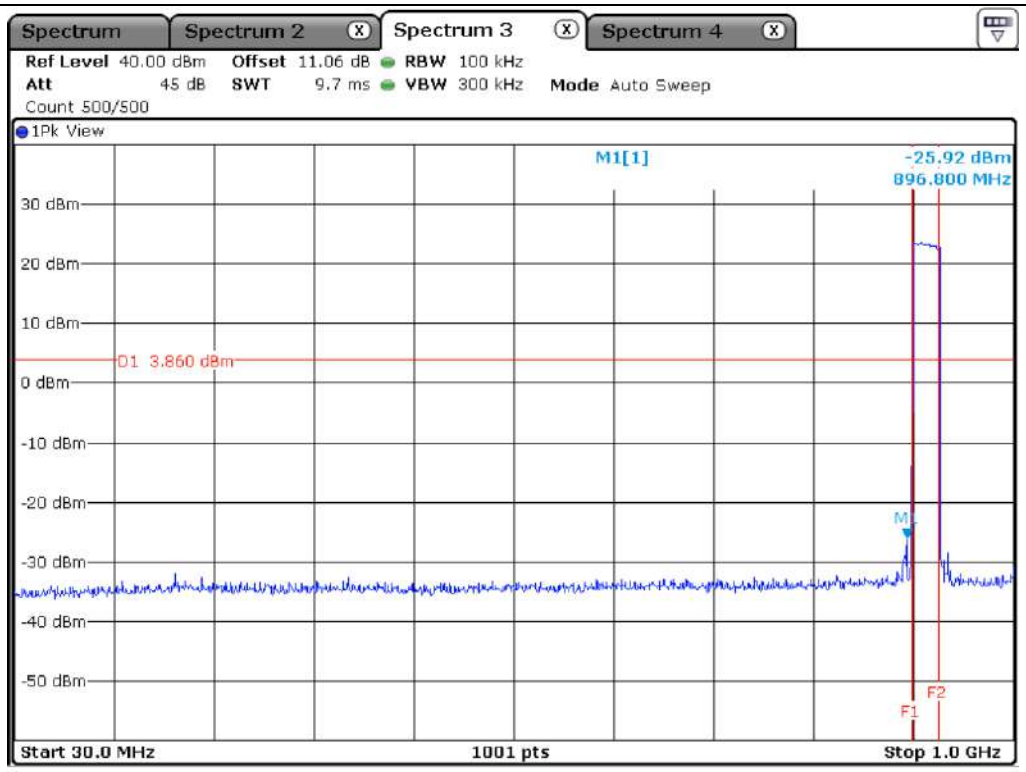
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



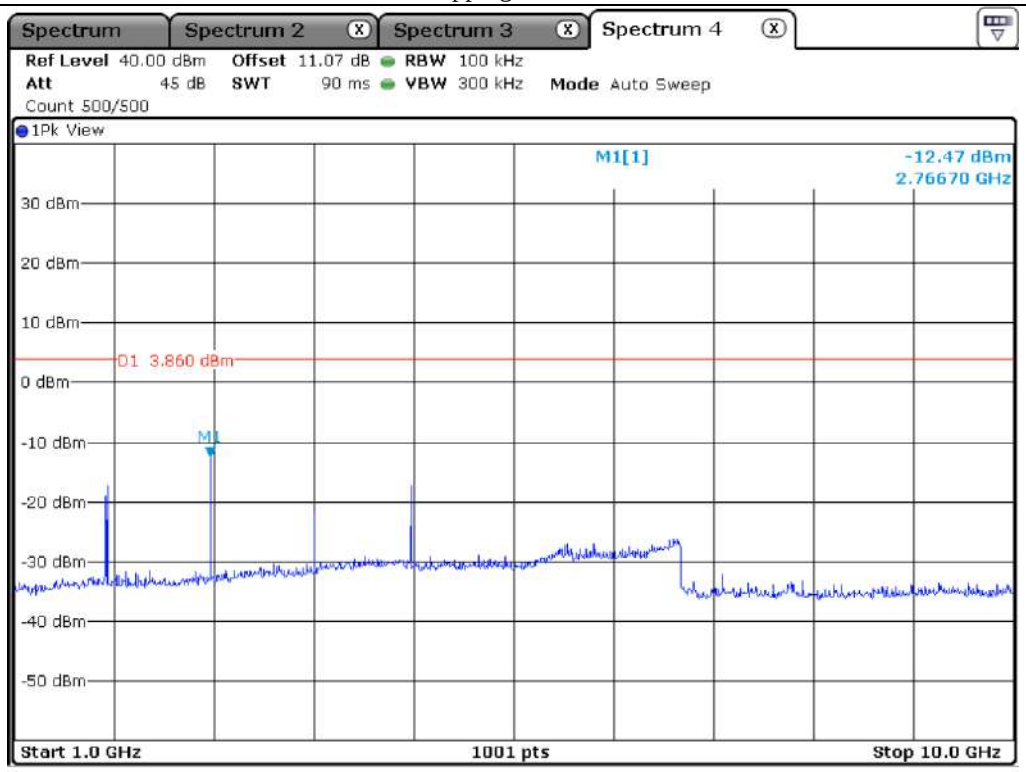
High Channel



High Channel



Hopping Channel



Hopping Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.4.2 Test data for Mode 2_Long

-. Resolution bandwidth : 100 kHz

-. Video bandwidth : 300 kHz

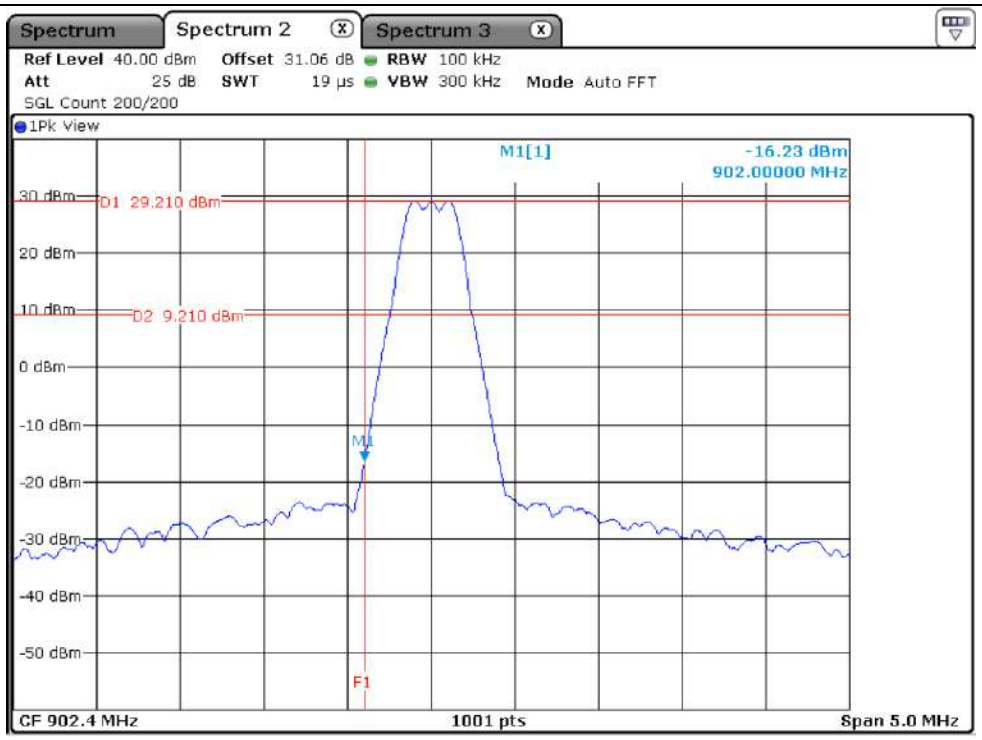
-. Detector : Peak

-. Result : PASS

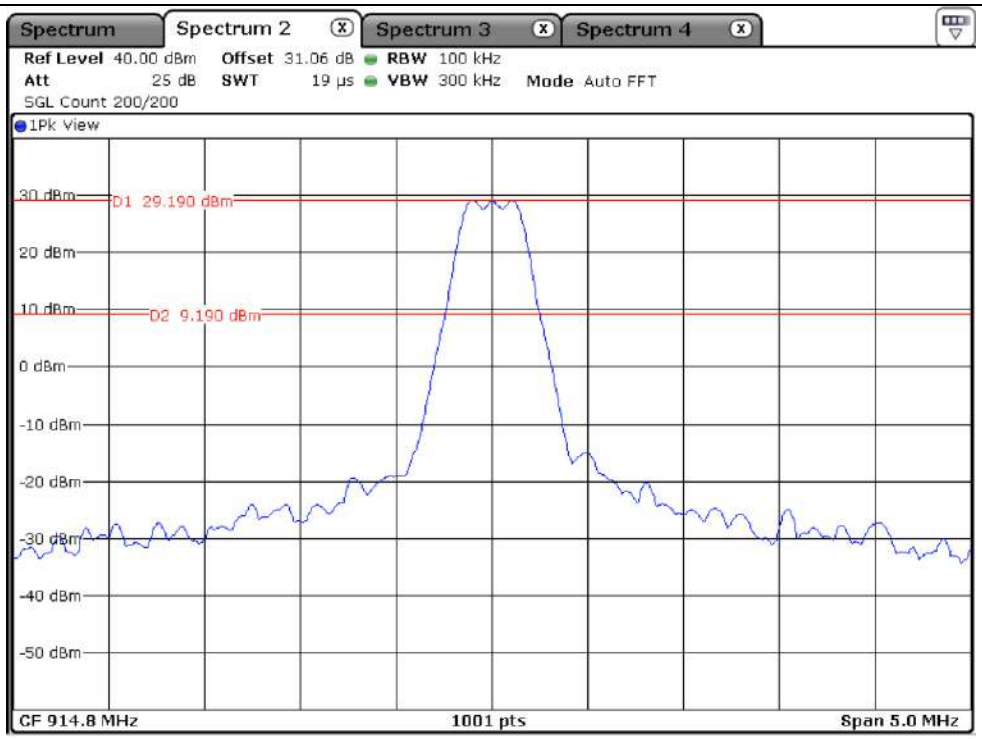
Channel	Frequency Range	Measured Value(dBm)	Limit(dBm)	Margin(dB)
Low	30 M ~ 1 GHz	-21.52	2.11	23.63
	1 GHz ~ 10 GHz	-9.65	2.11	11.76
Middle	30 M ~ 1 GHz	-20.96	2.70	23.66
	1 GHz ~ 10 GHz	-2.45	2.70	5.15
High	30 M ~ 1 GHz	0.69	2.06	1.37
	1 GHz ~ 10 GHz	-11.81	2.06	13.87

Tabulated test data for Restricted Band

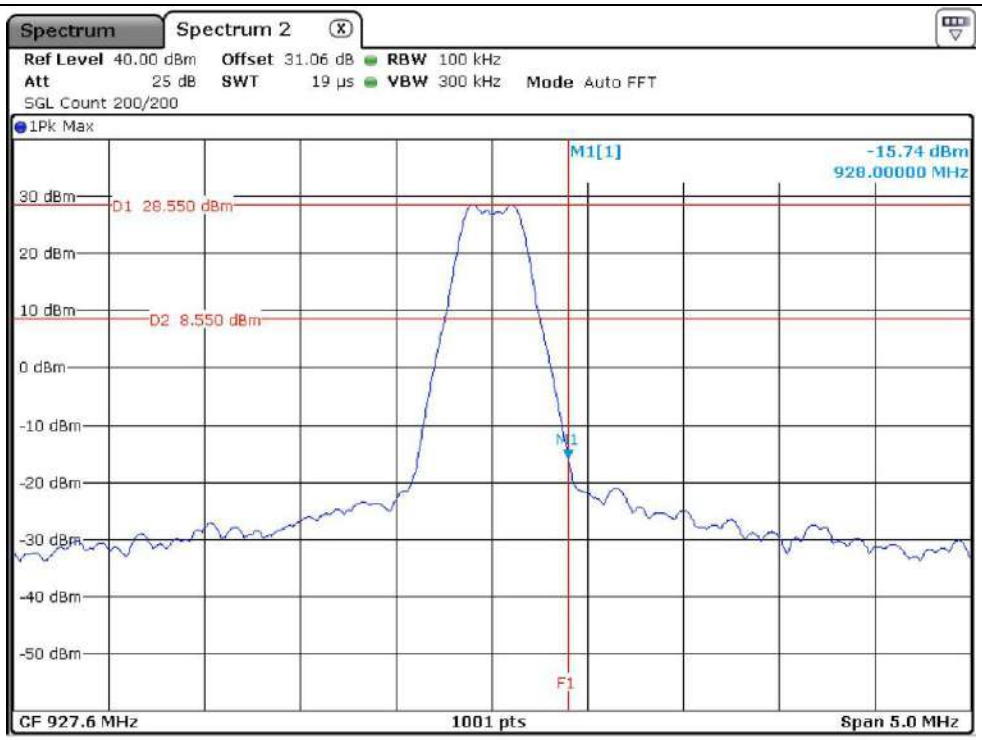
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



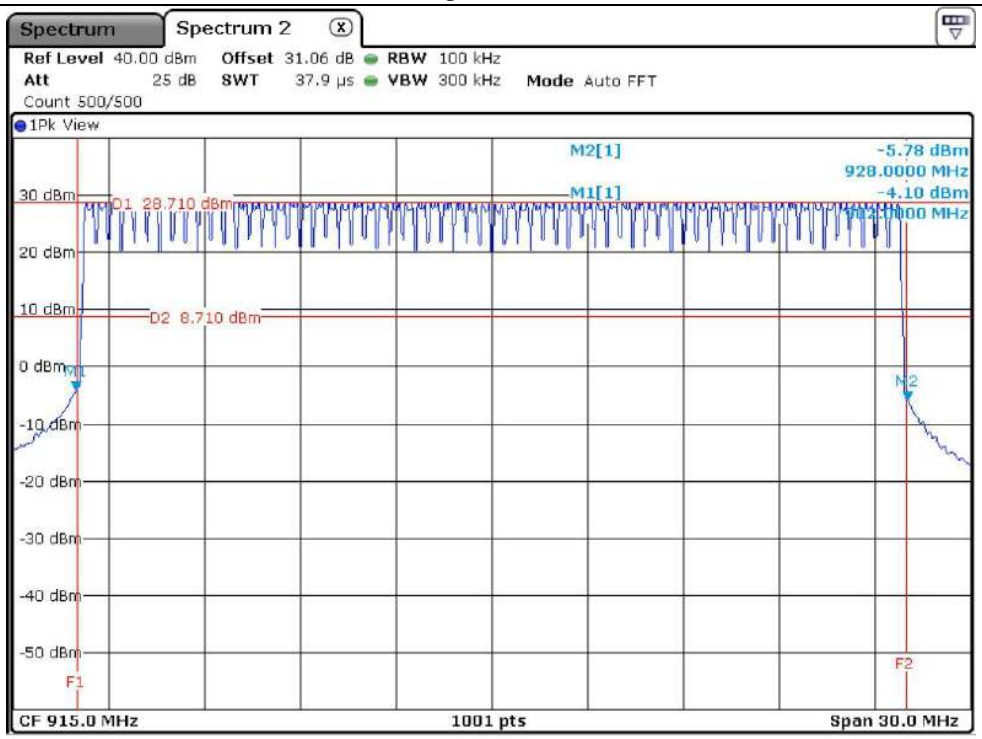
Low Channel



Middle Channel

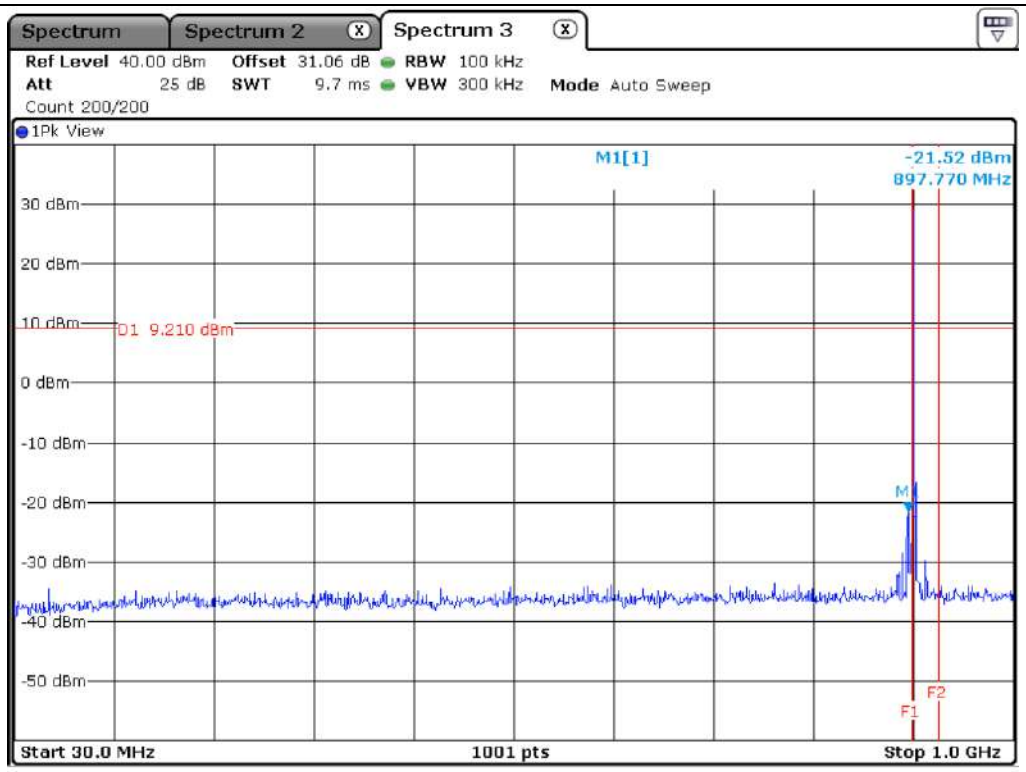


High Channel

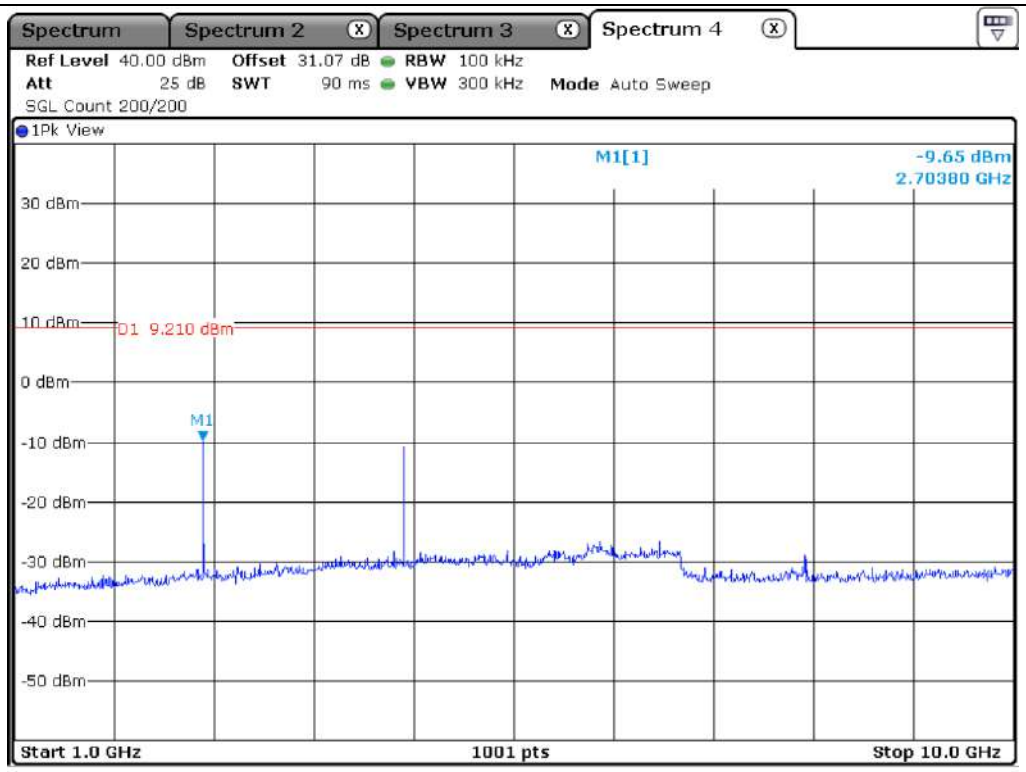


Hopping Channel

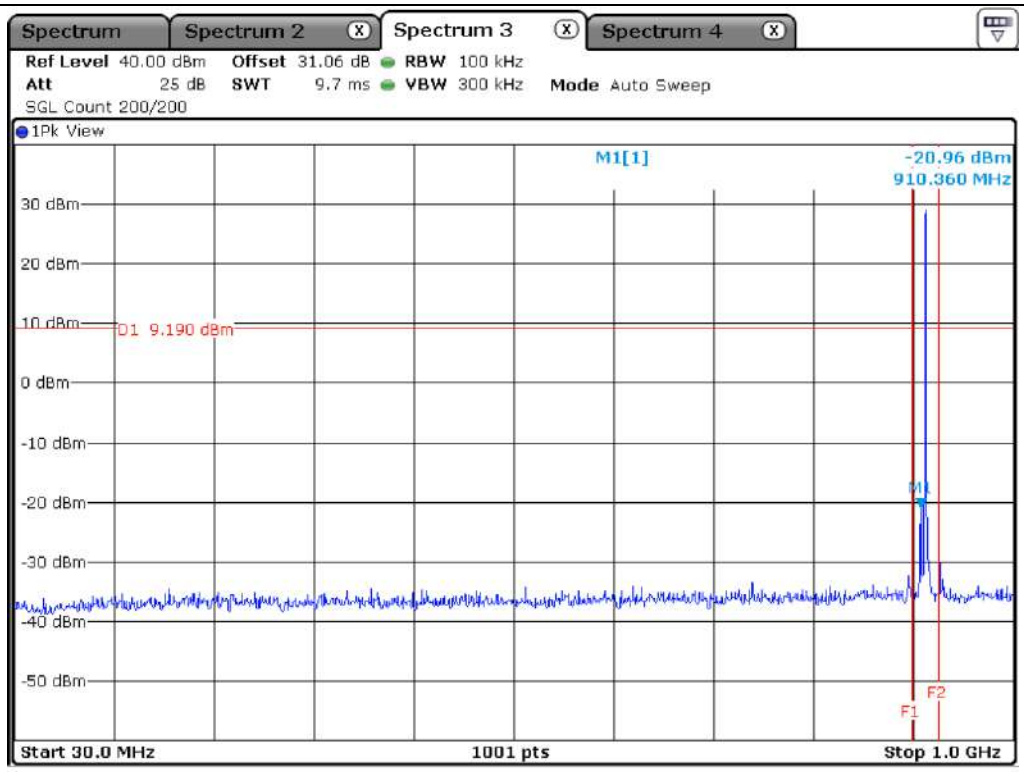
ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



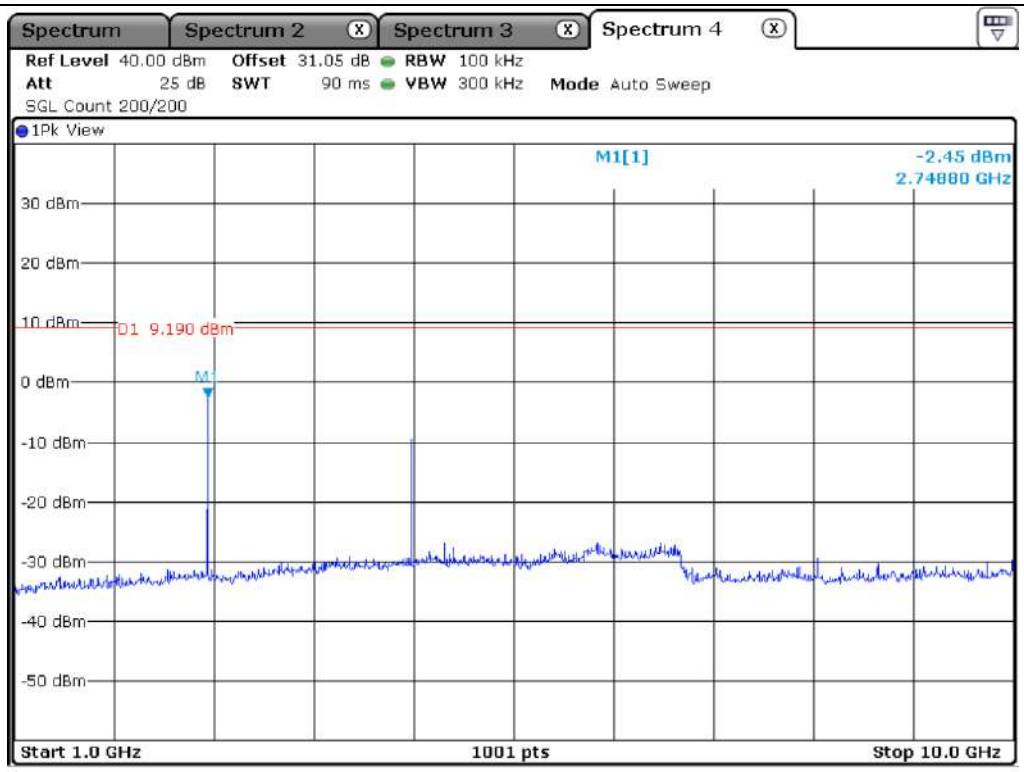
Low Channel



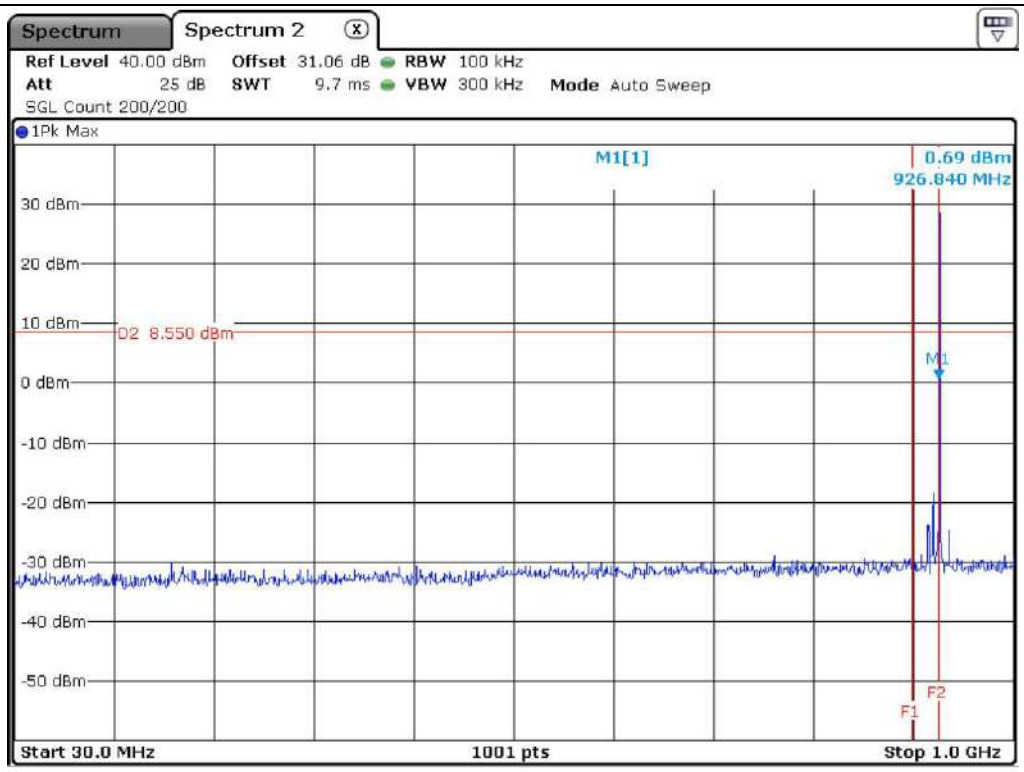
Low Channel



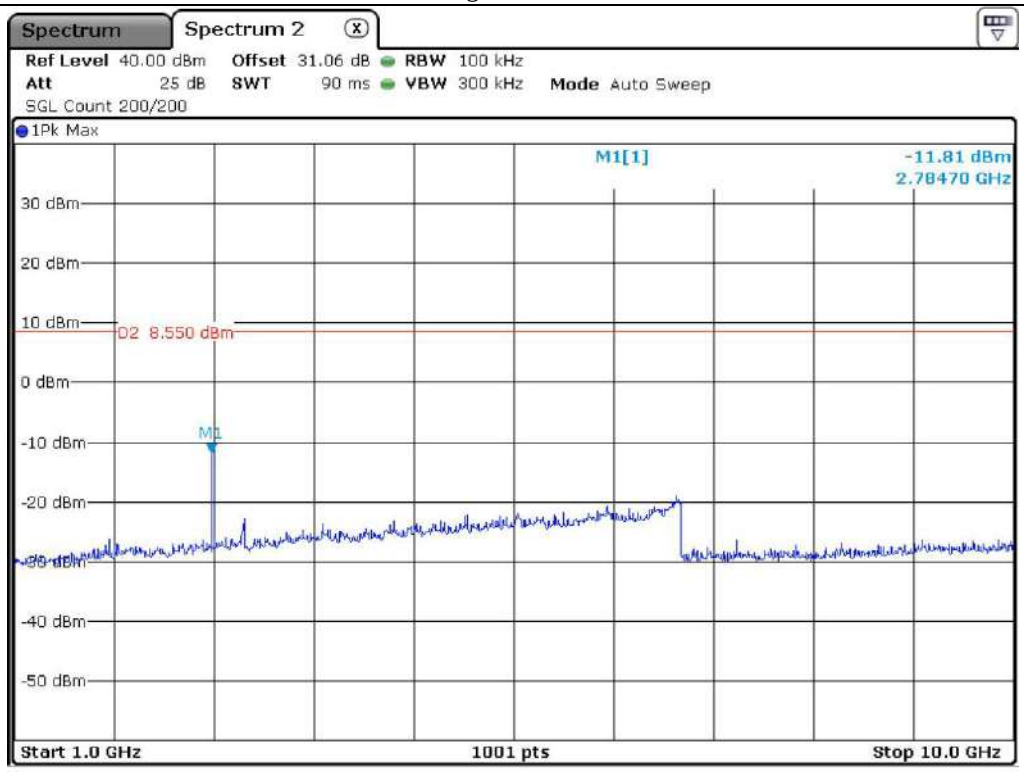
Middle Channel



Middle Channel

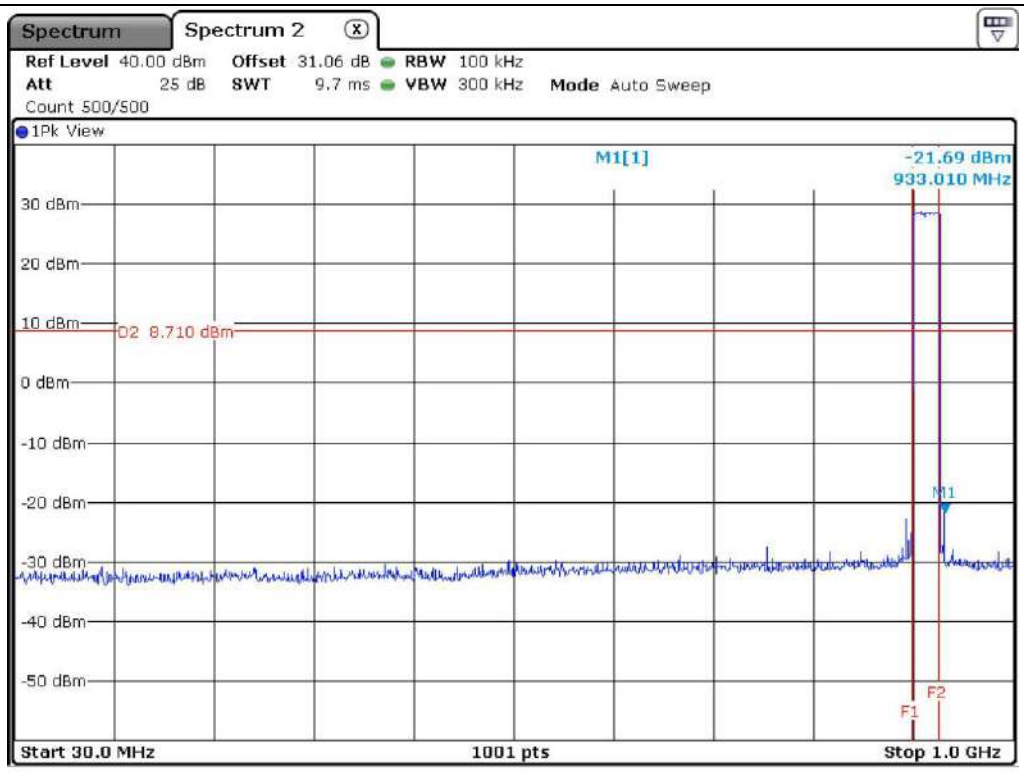


High Channel

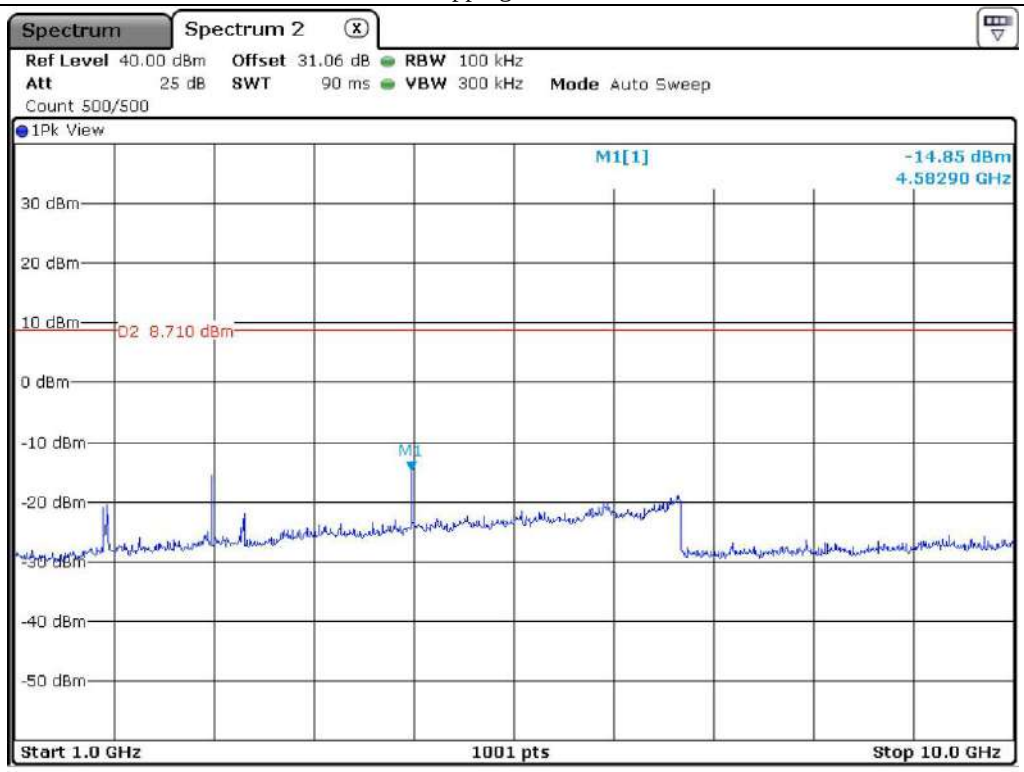


High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Hopping Channel



Hopping Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.4.3 Test data for Mode 3_Repeat

-. Resolution bandwidth : 100 kHz

-. Video bandwidth : 300 kHz

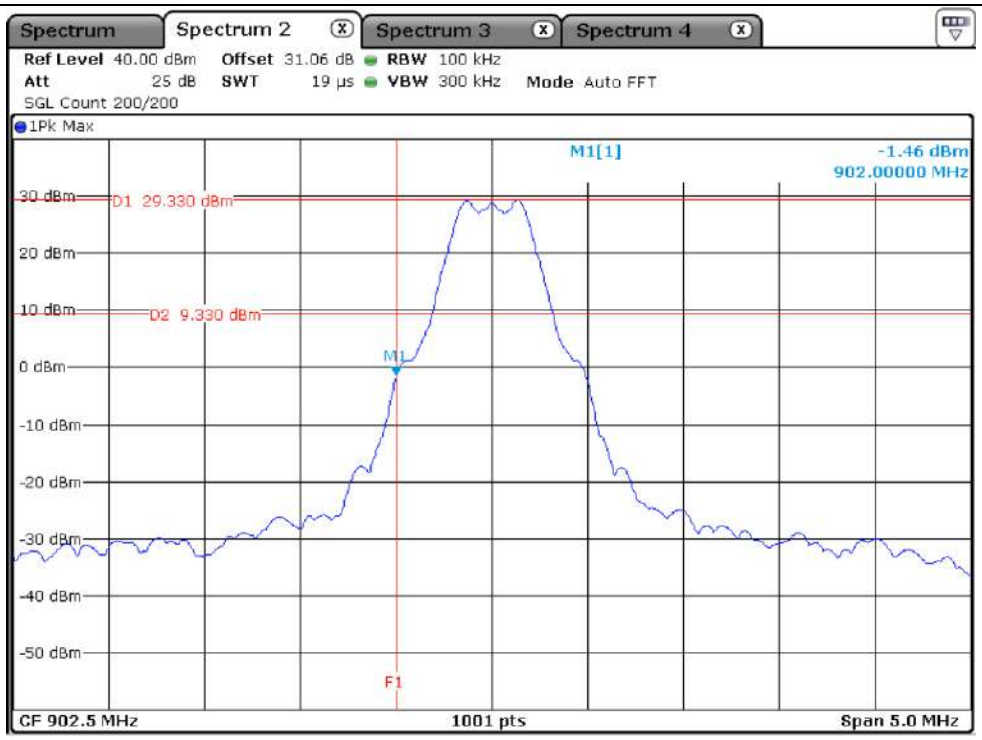
-. Detector : Peak

-. Result : PASS

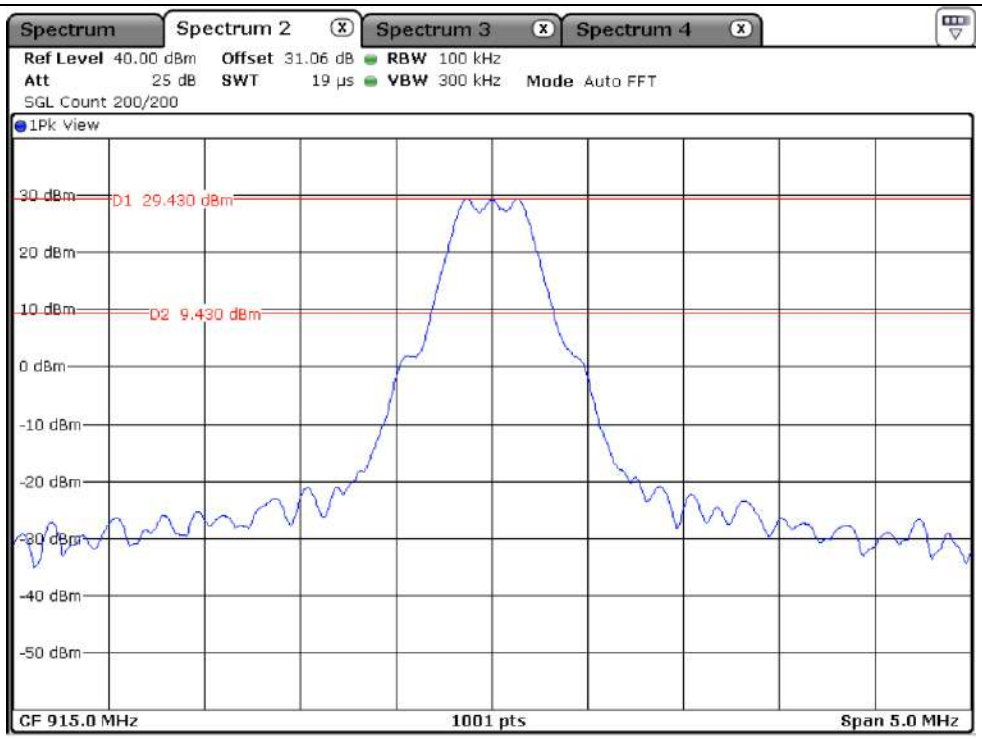
Channel	Frequency Range	Measured Value(dBm)	Limit(dBm)	Margin(dB)
Low	30 M ~ 1 GHz	-25.86	2.11	27.97
	1 GHz ~ 10 GHz	-9.58	2.11	11.69
Middle	30 M ~ 1 GHz	-20.57	2.70	23.27
	1 GHz ~ 10 GHz	-5.65	2.70	8.35
High	30 M ~ 1 GHz	-21.24	2.06	23.30
	1 GHz ~ 10 GHz	-9.87	2.06	11.93

Tabulated test data for Restricted Band

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

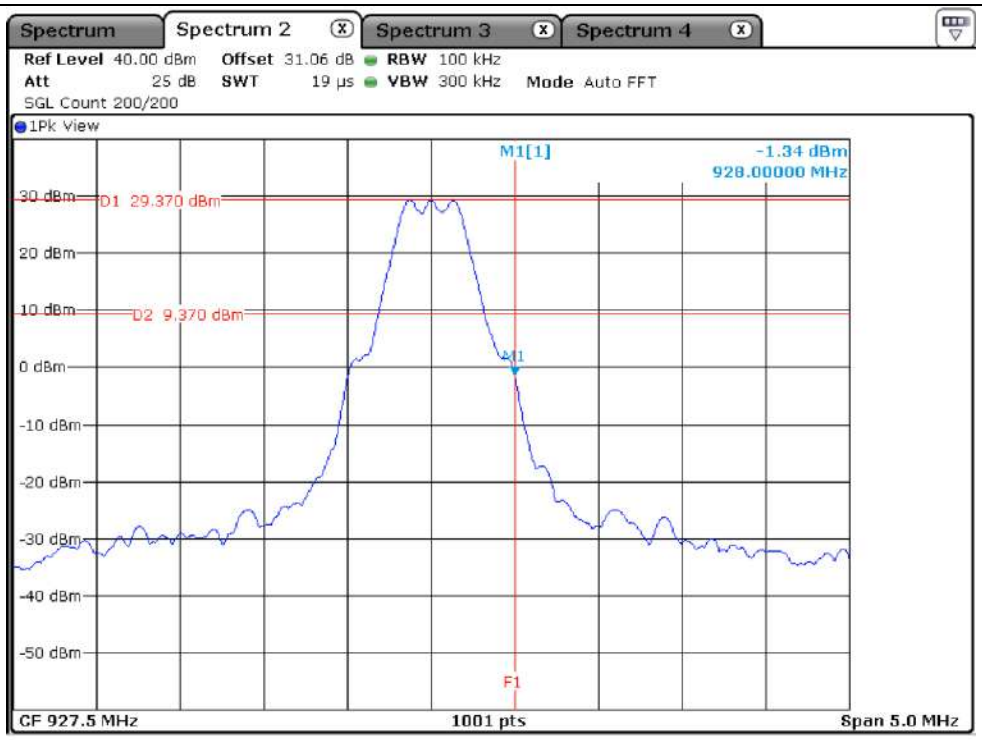


Low Channel

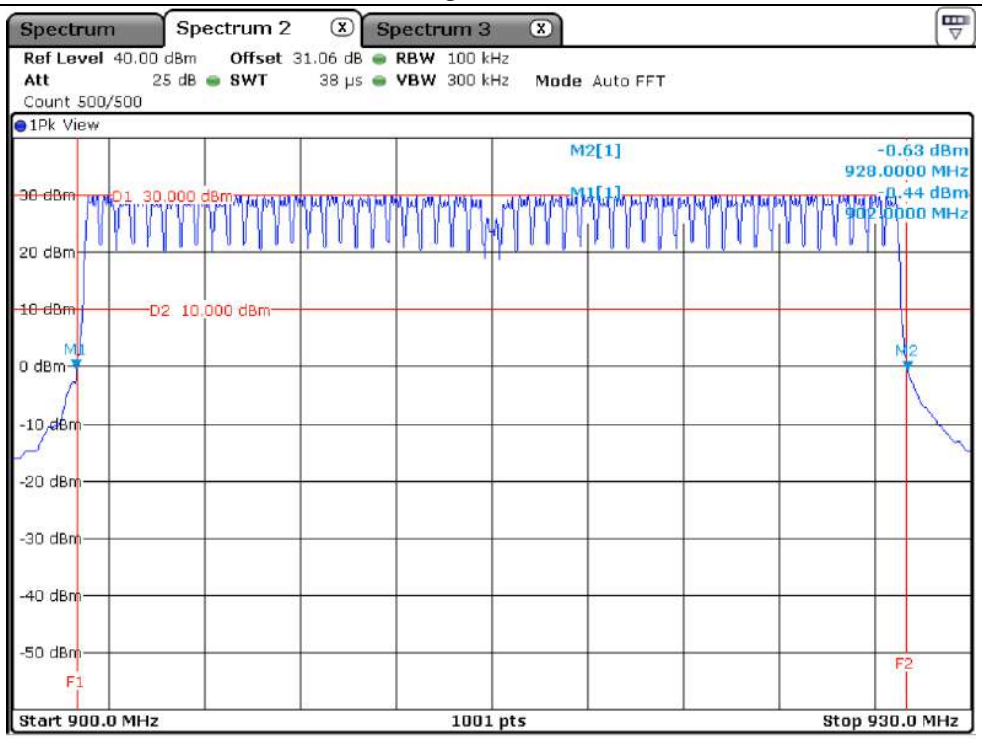


Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

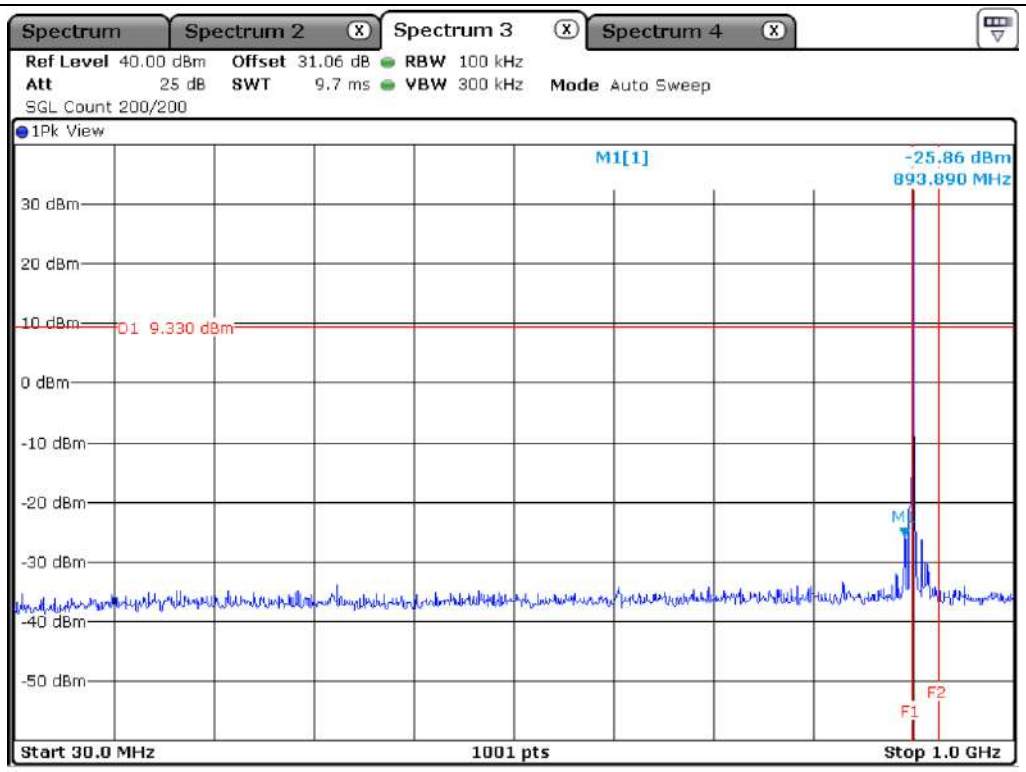


High Channel

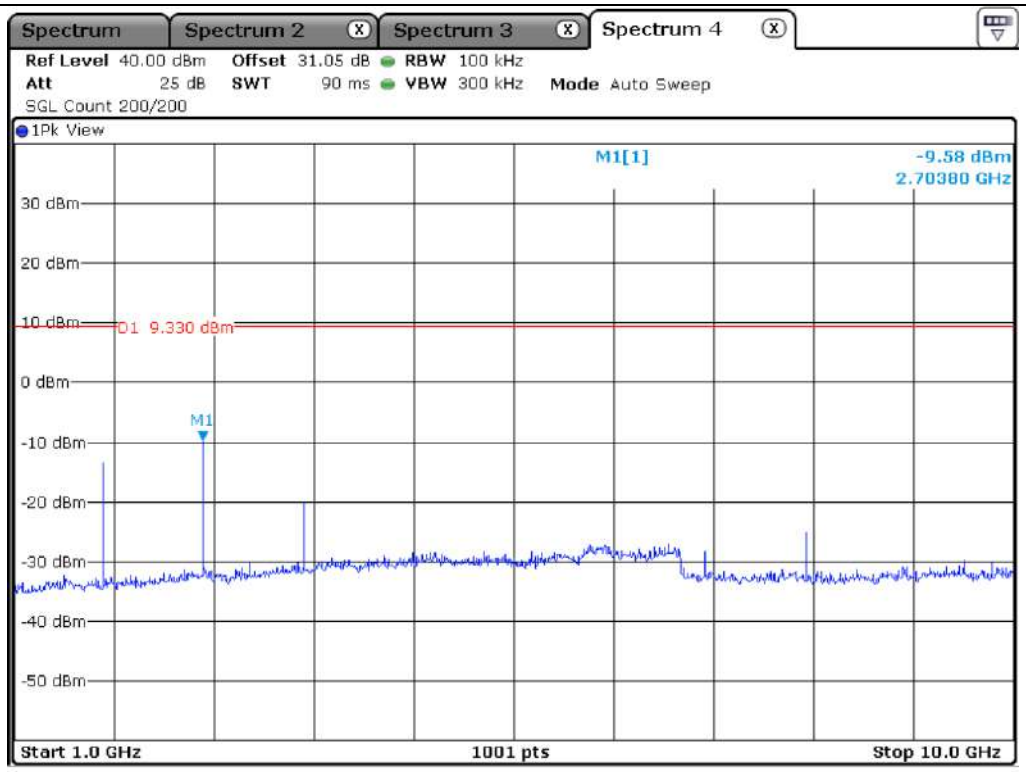


Hopping Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

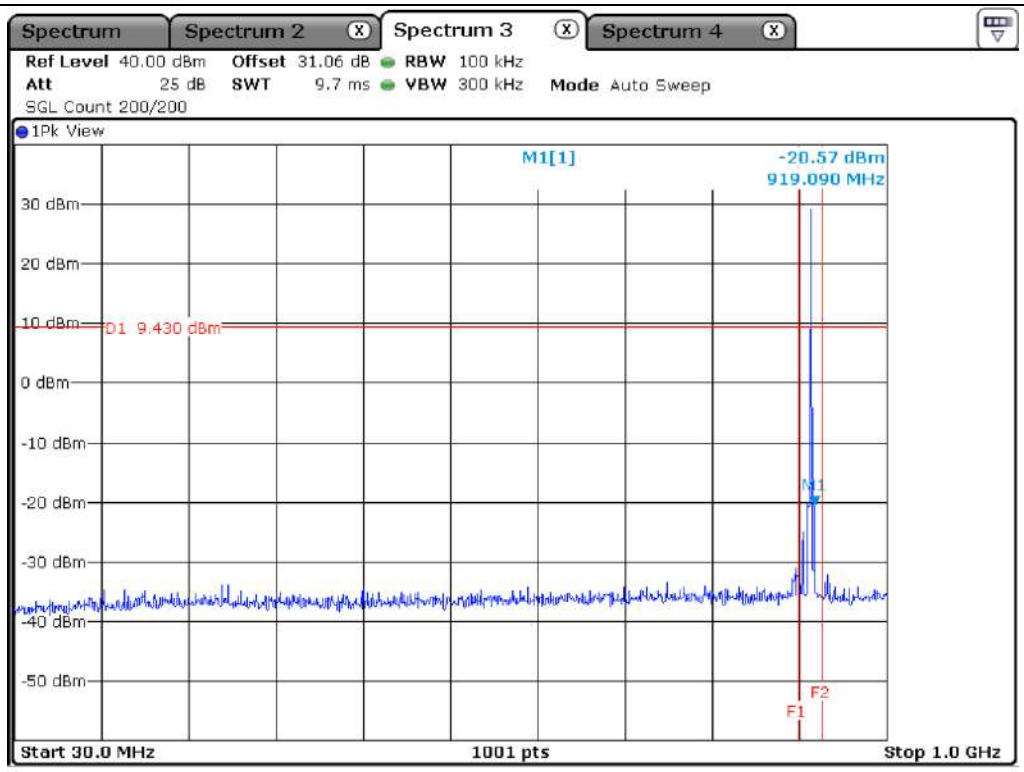


Low Channel

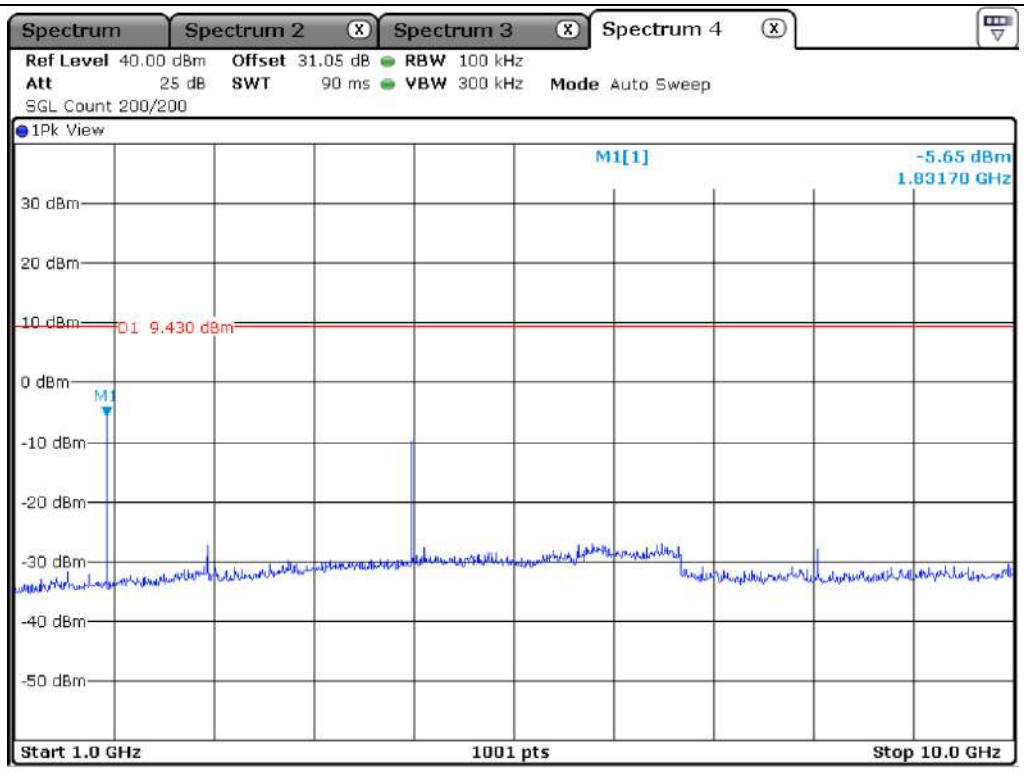


Low Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

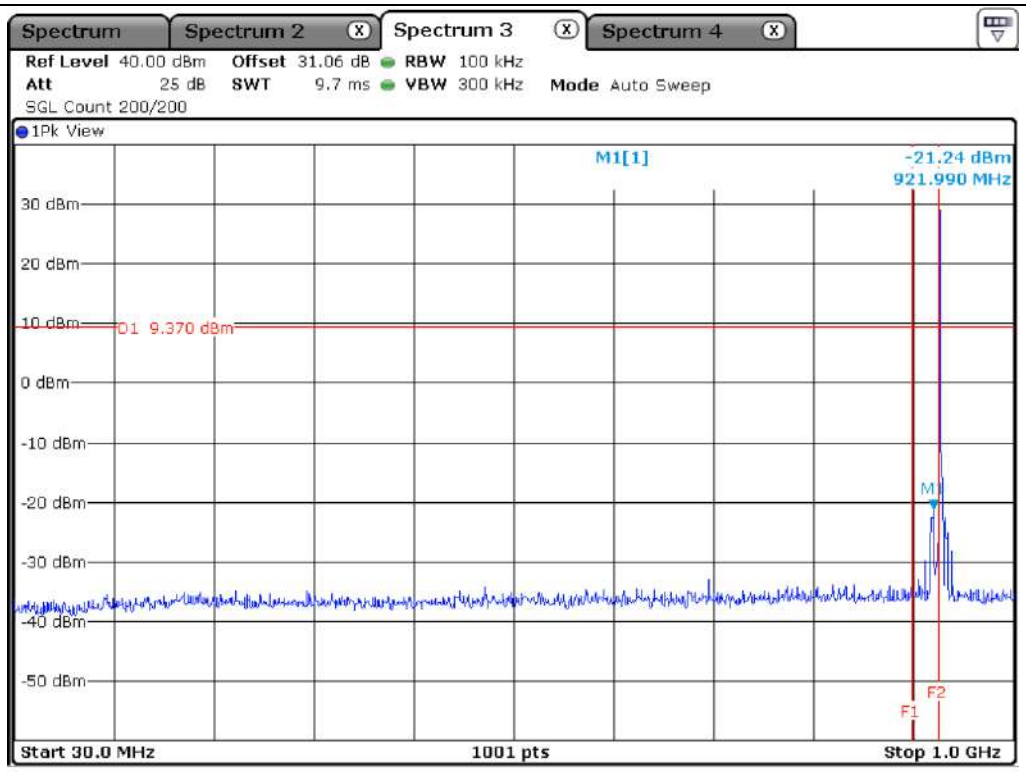


Middle Channel

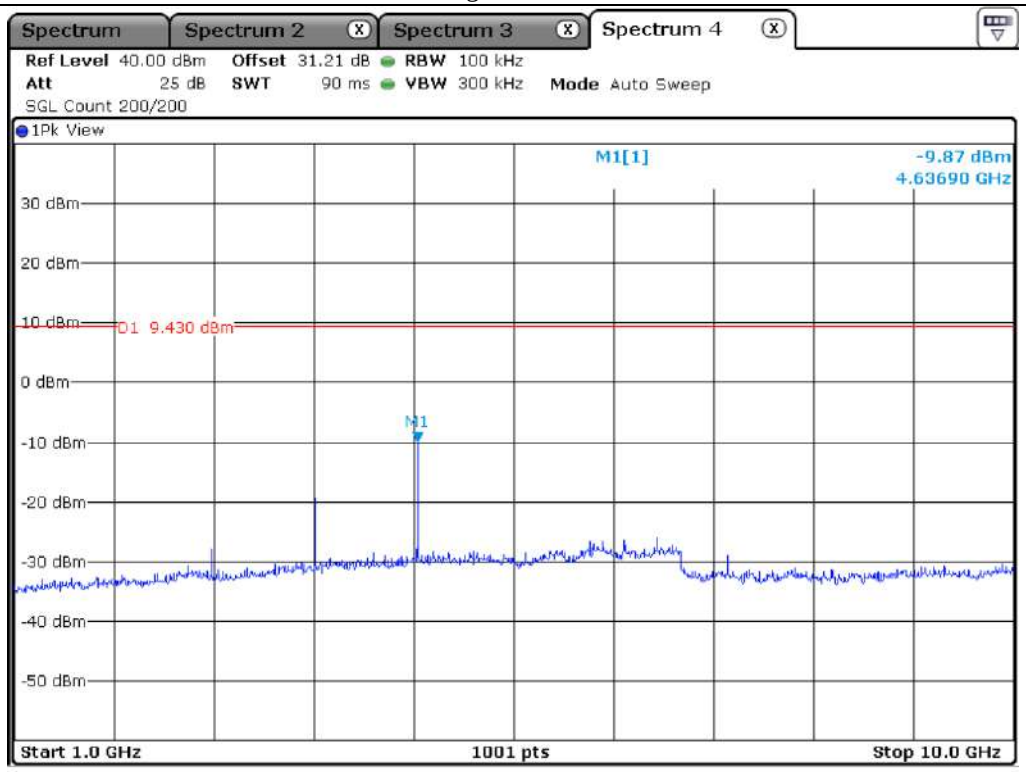


Middle Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

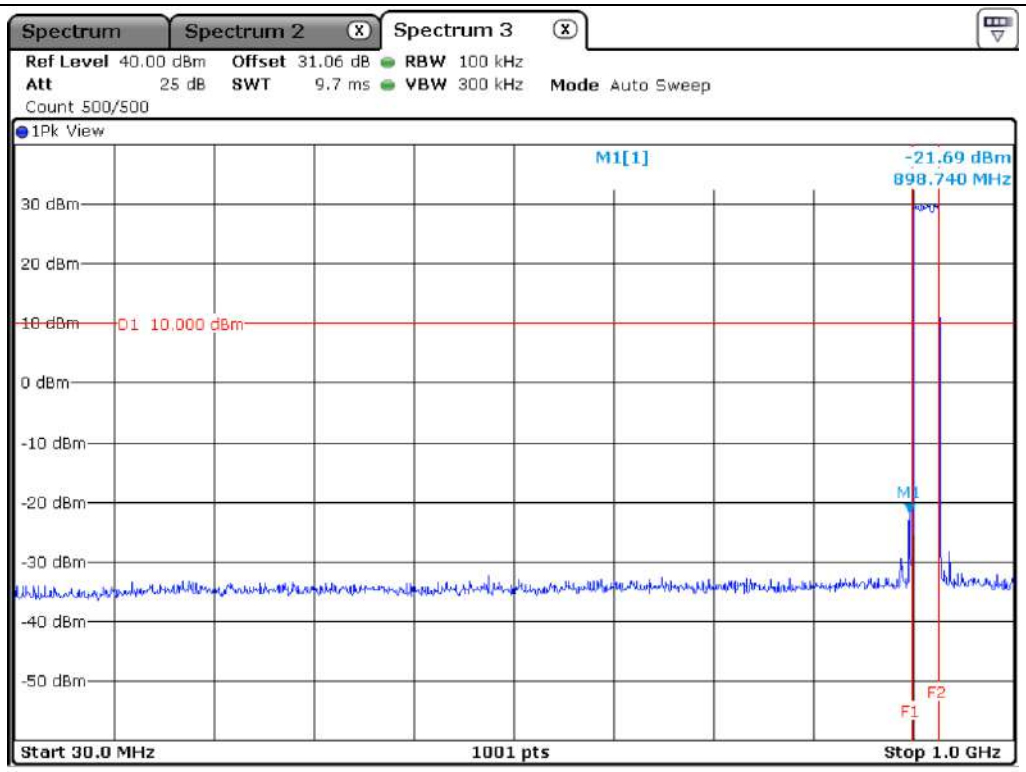


High Channel

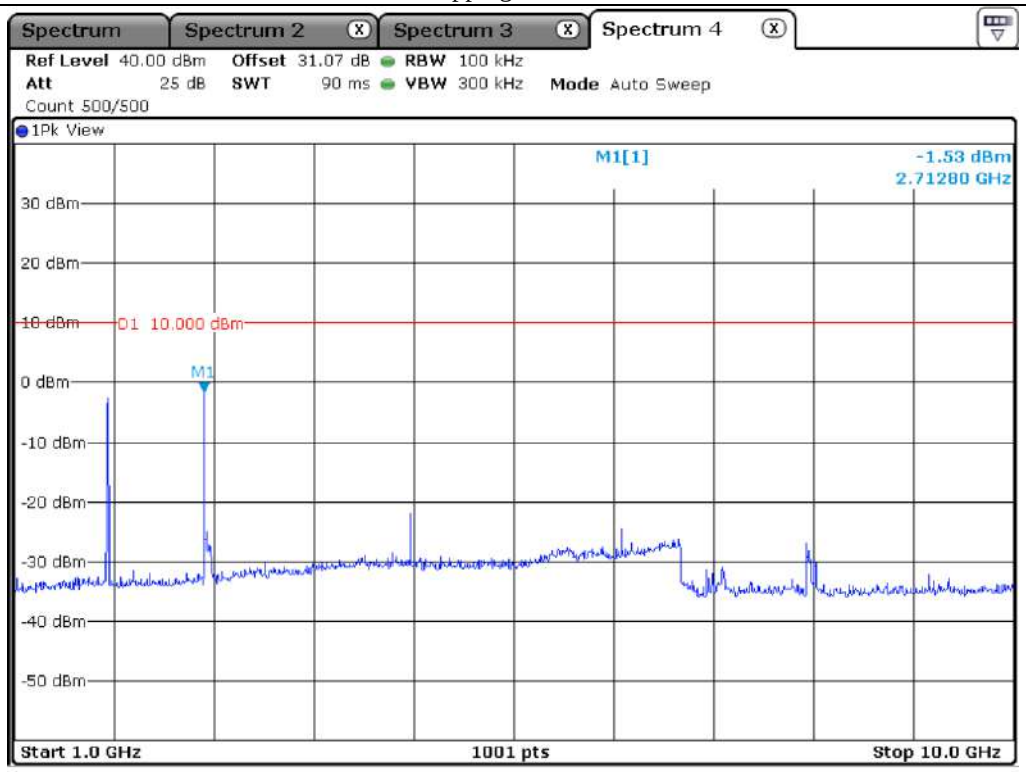


High Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



Hopping Channel



Hopping Channel

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.5 Test data for Transmitting mode radiated emission (Transmitting Mode)

12.5.1 Spurious & Harmonic Radiated Emission above 1 GHz

12.5.1.1 Test data for Mode 1_Normal

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 3 MHz for Peak Mode(Peak Detector), 3 MHz for Average Mode(RMS Detector)

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

-. Result : PASS

Channel	Frequency (MHz)	Reading (dBuV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Duty Factor	Amp Gain	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Low ch. Harmonic	1 805.00	52.52	Peak	H	25.10	8.50	-	45.10	41.02	74.00	32.98
		40.41	Average	H	25.10	8.50	5.39	45.10	34.30	54.00	19.70
		52.04	Peak	V	25.10	8.50	-	45.10	40.54	74.00	33.46
		39.39	Average	V	25.10	8.50	5.39	45.10	33.28	54.00	20.72
Middle ch. Harmonic	1 830.00	52.83	Peak	H	25.10	8.50	-	45.10	41.33	74.00	32.67
		40.39	Average	H	25.10	8.50	5.39	45.10	34.28	54.00	19.72
		51.87	Peak	V	25.10	8.50	-	45.10	40.37	74.00	33.63
		40.31	Average	V	25.10	8.50	5.39	45.10	34.20	54.00	19.80
High ch. Harmonic	1 855.00	52.42	Peak	H	25.30	8.50	-	45.10	41.12	74.00	32.88
		40.44	Average	H	25.30	8.50	5.39	45.10	34.53	54.00	19.47
		52.52	Peak	V	25.30	8.50	-	45.10	41.22	74.00	32.78
		40.30	Average	V	25.30	8.50	5.39	45.10	34.39	54.00	19.61
Low ch. Harmonic	2 707.50	51.65	Peak	H	28.10	9.30	-	44.90	44.15	74.00	29.85
		39.84	Average	H	28.10	9.30	5.39	44.90	37.73	54.00	16.27
		51.48	Peak	V	28.10	9.30	-	44.90	43.98	74.00	30.02
		39.83	Average	V	28.10	9.30	5.39	44.90	37.72	54.00	16.28
Middle ch. Harmonic	2 745.00	50.78	Peak	H	28.10	9.30	-	44.90	43.28	74.00	30.72
		39.18	Average	H	28.10	9.30	5.39	44.90	37.07	54.00	16.93
		50.81	Peak	V	28.10	9.30	-	44.90	43.31	74.00	30.69
		39.35	Average	V	28.10	9.30	5.39	44.90	37.24	54.00	16.76
High ch. Harmonic	2 782.50	50.51	Peak	H	28.00	9.30	-	44.90	42.91	74.00	31.09
		38.45	Average	H	28.00	9.30	5.39	44.90	36.24	54.00	17.76
		50.45	Peak	V	28.00	9.30	-	44.90	42.85	74.00	31.15
		38.38	Average	V	28.00	9.30	5.39	44.90	36.17	54.00	17.83

Tabulated test data for Restricted Band
Remark: “H”: Horizontal, “V”: Vertical, “*” Frequency fall in restricted band

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

12.5.1.2 Test data for Mode 2_Long

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 3 MHz for Peak Mode(Peak Detector), 3 MHz for Average Mode(RMS Detector)

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

-. Result : PASS

Channel	Frequency (MHz)	Reading (dBuV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Duty Factor	Amp Gain	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Low ch. Harmonic	1 804.80	53.09	Peak	H	25.10	8.50	-	45.10	41.59	74.00	32.41
		39.53	Average	H	25.10	8.50	3.39	45.10	31.42	54.00	22.58
		57.00	Peak	V	25.10	8.50	-	45.10	45.50	74.00	28.50
		40.70	Average	V	25.10	8.50	3.39	45.10	32.59	54.00	21.41
Middle ch. Harmonic	1 829.60	56.90	Peak	H	25.10	8.50	-	45.10	45.40	74.00	28.60
		42.26	Average	H	25.10	8.50	3.39	45.10	34.15	54.00	19.85
		54.74	Peak	V	25.10	8.50	-	45.10	43.24	74.00	30.76
		45.22	Average	V	25.10	8.50	3.39	45.10	37.11	54.00	16.89
High ch. Harmonic	1 855.20	58.65	Peak	H	25.30	8.50	-	45.10	47.35	74.00	26.65
		46.13	Average	H	25.30	8.50	3.39	45.10	38.22	54.00	15.78
		60.74	Peak	V	25.30	8.50	-	45.10	49.44	74.00	24.56
		50.65	Average	V	25.30	8.50	3.39	45.10	42.74	54.00	11.26
Low ch. Harmonic	2 707.20	51.73	Peak	H	28.10	9.30	-	44.90	44.23	74.00	29.77
		39.83	Average	H	28.10	9.30	3.39	44.90	35.72	54.00	18.28
		52.05	Peak	V	28.10	9.30	-	44.90	44.55	74.00	29.45
		39.83	Average	V	28.10	9.30	3.39	44.90	35.72	54.00	18.28
Middle ch. Harmonic	2 744.40	50.58	Peak	H	28.10	9.30	-	44.90	43.08	74.00	30.92
		39.32	Average	H	28.10	9.30	3.39	44.90	35.21	54.00	18.79
		51.18	Peak	V	28.10	9.30	-	44.90	43.68	74.00	30.32
		39.27	Average	V	28.10	9.30	3.39	44.90	35.16	54.00	18.84
High ch. Harmonic	2 782.80	52.72	Peak	H	28.00	9.30	-	44.90	45.12	74.00	28.88
		41.35	Average	H	28.00	9.30	3.39	44.90	37.14	54.00	16.86
		54.67	Peak	V	28.00	9.30	-	44.90	47.07	74.00	26.93
		43.19	Average	V	28.00	9.30	3.39	44.90	38.98	54.00	15.02

Tabulated test data for Restricted Band
Remark: “H”: Horizontal, “V”: Vertical, “*” Frequency fall in restricted band

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12.5.1.3 Test data for Mode 3_Repeat

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 3 MHz for Peak Mode(Peak Detector), 3 MHz for Average Mode(RMS Detector)

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

-. Result : PASS

Channel	Frequency (MHz)	Reading (dBuV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Duty Factor	Amp Gain	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Low ch. Harmonic	1 805.00	62.20	Peak	H	25.10	8.50	-	45.10	50.70	74.00	23.30
		48.33	Average	H	25.10	8.50	6.83	45.10	43.66	54.00	10.34
		57.66	Peak	V	25.10	8.50	-	45.10	46.16	74.00	27.84
		43.79	Average	V	25.10	8.50	6.83	45.10	39.12	54.00	14.88
Middle ch. Harmonic	1 830.00	57.57	Peak	H	25.10	8.50	-	45.10	46.07	74.00	27.93
		45.31	Average	H	25.10	8.50	6.83	45.10	40.64	54.00	13.36
		57.64	Peak	V	25.10	8.50	-	45.10	46.14	74.00	27.86
		46.15	Average	V	25.10	8.50	6.83	45.10	41.48	54.00	12.52
High ch. Harmonic	1 855.00	60.75	Peak	H	25.30	8.50	-	45.10	49.45	74.00	24.55
		51.35	Average	H	25.30	8.50	6.83	45.10	46.88	54.00	7.12
		59.91	Peak	V	25.30	8.50	-	45.10	48.61	74.00	25.39
		49.33	Average	V	25.30	8.50	6.83	45.10	44.86	54.00	9.14
Low ch. Harmonic	2 707.50	50.53	Peak	H	28.10	9.30	-	44.90	43.03	74.00	30.97
		39.81	Average	H	28.10	9.30	6.83	44.90	39.14	54.00	14.86
		51.88	Peak	V	28.10	9.30	-	44.90	44.38	74.00	29.62
		39.85	Average	V	28.10	9.30	6.83	44.90	39.18	54.00	14.82
Middle ch. Harmonic	2 745.00	50.43	Peak	H	28.10	9.30	-	44.90	42.93	74.00	31.07
		39.27	Average	H	28.10	9.30	6.83	44.90	38.60	54.00	15.40
		51.07	Peak	V	28.10	9.30	-	44.90	43.57	74.00	30.43
		39.29	Average	V	28.10	9.30	6.83	44.90	38.62	54.00	15.38
High ch. Harmonic	2 782.50	50.22	Peak	H	28.00	9.30	-	44.90	42.62	74.00	31.38
		38.39	Average	H	28.00	9.30	6.83	44.90	37.62	54.00	16.38
		50.16	Peak	V	28.00	9.30	-	44.90	42.56	74.00	31.44
		38.48	Average	V	28.00	9.30	6.83	44.90	37.71	54.00	16.29

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical, “*” Frequency fall in restricted band

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12.6 Test data for Transmitting mode radiated emission (Charging Mode)

12.6.1 Spurious & Harmonic Radiated Emission above 1 GHz

12.6.1.1 Test data for Mode 1_Normal

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 3 MHz for Peak Mode(Peak Detector), 3 MHz for Average Mode(RMS Detector)

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

-. Result : PASS

Channel	Frequency (MHz)	Reading (dBuV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Duty Factor	Amp Gain	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Low ch. Harmonic	1 805.00	53.43	Peak	H	25.10	8.50	-	45.10	41.93	74.00	32.07
		39.83	Average	H	25.10	8.50	5.39	45.10	33.72	54.00	20.28
		52.37	Peak	V	25.10	8.50	-	45.10	40.87	74.00	33.13
		39.48	Average	V	25.10	8.50	5.39	45.10	33.37	54.00	20.63
Middle ch. Harmonic	1 830.00	50.30	Peak	H	25.10	8.50	-	45.10	38.80	74.00	35.20
		40.49	Average	H	25.10	8.50	5.39	45.10	34.38	54.00	19.62
		52.52	Peak	V	25.10	8.50	-	45.10	41.02	74.00	32.98
		40.51	Average	V	25.10	8.50	5.39	45.10	34.40	54.00	19.60
High ch. Harmonic	1 855.00	52.71	Peak	H	25.30	8.50	-	45.10	41.41	74.00	32.59
		40.21	Average	H	25.30	8.50	5.39	45.10	34.30	54.00	19.70
		52.26	Peak	V	25.30	8.50	-	45.10	40.96	74.00	33.04
		41.04	Average	V	25.30	8.50	5.39	45.10	35.13	54.00	18.87
Low ch. Harmonic	2 707.50	51.94	Peak	H	28.10	9.30	-	44.90	44.44	74.00	29.56
		39.85	Average	H	28.10	9.30	5.39	44.90	37.74	54.00	16.26
		51.34	Peak	V	28.10	9.30	-	44.90	43.84	74.00	30.16
		39.82	Average	V	28.10	9.30	5.39	44.90	37.71	54.00	16.29
Middle ch. Harmonic	2 745.00	51.27	Peak	H	28.10	9.30	-	44.90	43.77	74.00	30.23
		39.18	Average	H	28.10	9.30	5.39	44.90	37.07	54.00	16.93
		50.95	Peak	V	28.10	9.30	-	44.90	43.45	74.00	30.55
		39.20	Average	V	28.10	9.30	5.39	44.90	37.09	54.00	16.91
High ch. Harmonic	2 782.50	50.27	Peak	H	28.00	9.30	-	44.90	42.67	74.00	31.33
		38.42	Average	H	28.00	9.30	5.39	44.90	36.21	54.00	17.79
		49.93	Peak	V	28.00	9.30	-	44.90	42.33	74.00	31.67
		38.36	Average	V	28.00	9.30	5.39	44.90	36.15	54.00	17.85

Tabulated test data for Restricted Band
Remark: “H”: Horizontal, “V”: Vertical, “*” Frequency fall in restricted band

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12.5.1.2 Test data for Mode 2_Long

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 3 MHz for Peak Mode(Peak Detector), 3 MHz for Average Mode(RMS Detector)

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

-. Result : PASS

Channel	Frequency (MHz)	Reading (dBuV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Duty Factor	Amp Gain	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Low ch. Harmonic	1 804.80	52.03	Peak	H	25.10	8.50	-	45.10	40.53	74.00	33.47
		39.47	Average	H	25.10	8.50	3.39	45.10	31.36	54.00	22.64
		56.85	Peak	V	25.10	8.50	-	45.10	45.35	74.00	28.65
		40.98	Average	V	25.10	8.50	3.39	45.10	32.87	54.00	21.13
Middle ch. Harmonic	1 829.60	58.03	Peak	H	25.10	8.50	-	45.10	46.53	74.00	27.47
		42.29	Average	H	25.10	8.50	3.39	45.10	34.18	54.00	19.82
		55.66	Peak	V	25.10	8.50	-	45.10	44.16	74.00	29.84
		45.51	Average	V	25.10	8.50	3.39	45.10	37.40	54.00	16.60
High ch. Harmonic	1 855.20	54.31	Peak	H	25.30	8.50	-	45.10	43.01	74.00	30.99
		44.99	Average	H	25.30	8.50	3.39	45.10	37.08	54.00	16.92
		59.13	Peak	V	25.30	8.50	-	45.10	47.83	74.00	26.17
		48.12	Average	V	25.30	8.50	3.39	45.10	40.21	54.00	13.79
Low ch. Harmonic	2 707.20	51.37	Peak	H	28.10	9.30	-	44.90	43.87	74.00	30.13
		39.86	Average	H	28.10	9.30	3.39	44.90	35.75	54.00	18.25
		51.79	Peak	V	28.10	9.30	-	44.90	44.29	74.00	29.71
		39.89	Average	V	28.10	9.30	3.39	44.90	35.78	54.00	18.22
Middle ch. Harmonic	2 744.40	50.96	Peak	H	28.10	9.30	-	44.90	43.46	74.00	30.54
		39.34	Average	H	28.10	9.30	3.39	44.90	35.23	54.00	18.77
		50.94	Peak	V	28.10	9.30	-	44.90	43.44	74.00	30.56
		39.36	Average	V	28.10	9.30	3.39	44.90	35.25	54.00	18.75
High ch. Harmonic	2 782.80	51.93	Peak	H	28.00	9.30	-	44.90	44.33	74.00	29.67
		40.36	Average	H	28.00	9.30	3.39	44.90	36.15	54.00	17.85
		53.80	Peak	V	28.00	9.30	-	44.90	46.20	74.00	27.80
		40.88	Average	V	28.00	9.30	3.39	44.90	36.67	54.00	17.33

Tabulated test data for Restricted Band
Remark: “H”: Horizontal, “V”: Vertical, “*” Frequency fall in restricted band

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12.5.1.3 Test data for Mode 3_Repeat

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 3 MHz for Peak Mode(Peak Detector), 3 MHz for Average Mode(RMS Detector)

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

-. Result : PASS

Channel	Frequency (MHz)	Reading (dBuV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Duty Factor	Amp Gain	Total (dBuV/m)	Limits (dBuV/m)	Margin (dB)
Low ch. Harmonic	1 805.00	62.67	Peak	H	25.10	8.50	-	45.10	51.17	74.00	22.83
		48.60	Average	H	25.10	8.50	6.83	45.10	43.93	54.00	10.07
		57.57	Peak	V	25.10	8.50	-	45.10	46.07	74.00	27.93
		43.49	Average	V	25.10	8.50	6.83	45.10	38.82	54.00	15.18
Middle ch. Harmonic	1 830.00	56.40	Peak	H	25.10	8.50	-	45.10	44.90	74.00	29.10
		45.15	Average	H	25.10	8.50	6.83	45.10	40.48	54.00	13.52
		57.11	Peak	V	25.10	8.50	-	45.10	45.61	74.00	28.39
		45.85	Average	V	25.10	8.50	6.83	45.10	41.18	54.00	12.82
High ch. Harmonic	1 855.00	60.44	Peak	H	25.30	8.50	-	45.10	49.14	74.00	24.86
		50.84	Average	H	25.30	8.50	6.83	45.10	46.37	54.00	7.63
		59.78	Peak	V	25.30	8.50	-	45.10	48.48	74.00	25.52
		49.00	Average	V	25.30	8.50	6.83	45.10	44.53	54.00	9.47
Low ch. Harmonic	2 707.50	50.58	Peak	H	28.10	9.30	-	44.90	43.08	74.00	30.92
		39.84	Average	H	28.10	9.30	6.83	44.90	39.17	54.00	14.83
		51.91	Peak	V	28.10	9.30	-	44.90	44.41	74.00	29.59
		39.88	Average	V	28.10	9.30	6.83	44.90	39.21	54.00	14.79
Middle ch. Harmonic	2 745.00	50.48	Peak	H	28.10	9.30	-	44.90	42.98	74.00	31.02
		39.29	Average	H	28.10	9.30	6.83	44.90	38.62	54.00	15.38
		51.12	Peak	V	28.10	9.30	-	44.90	43.62	74.00	30.38
		39.31	Average	V	28.10	9.30	6.83	44.90	38.64	54.00	15.36
High ch. Harmonic	2 782.50	50.24	Peak	H	28.00	9.30	-	44.90	42.64	74.00	31.36
		38.42	Average	H	28.00	9.30	6.83	44.90	37.65	54.00	16.35
		50.19	Peak	V	28.00	9.30	-	44.90	42.59	74.00	31.41
		38.50	Average	V	28.00	9.30	6.83	44.90	37.73	54.00	16.27

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical, “*” Frequency fall in restricted band

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13. RADIATED EMISSION TEST

13.1 Operating environment

Temperature : 23 °C

Relative humidity : 41 % R.H.

13.2 Test set-up

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 9 kHz to 10.0 GHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

13.3 Test Date

September 17, 2022 ~ November 09, 2022

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13.4 Test data for Transmitting Mode

13.4.1 Test data for Mode 1_Normal

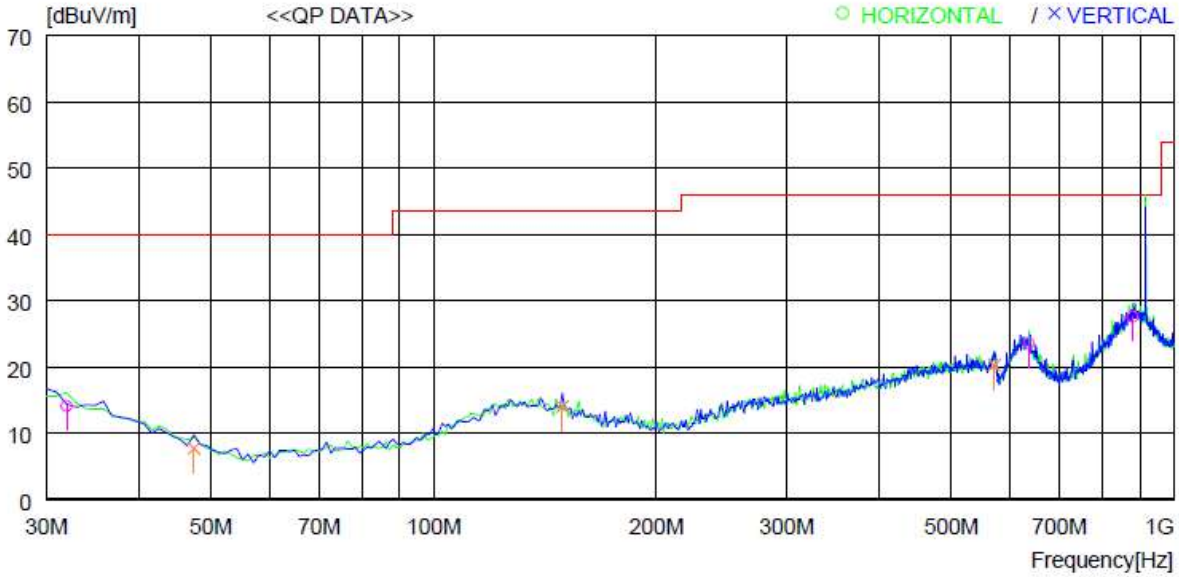
13.4.1.1 Test data for 30 MHz ~ 1 000 MHz

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

-. Measurement distance : 3 m

-. The highest value is the fundamental.



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	31.940	25.5	20.7	1.0	33.1	14.1	40.0	25.9	300	246
2	637.217	27.1	24.8	5.0	33.4	23.5	46.0	22.5	100	359
3	879.710	26.9	27.6	5.8	32.7	27.6	46.0	18.4	400	214
----- Vertical ------										
4	47.460	25.4	14.1	1.3	33.1	7.7	40.0	32.3	300	0
5	149.310	26.1	18.6	2.3	33.0	14.0	43.5	29.5	200	359
6	572.229	24.6	24.1	4.8	33.2	20.3	46.0	25.7	100	203

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13.4.1.2 Test data for Below 30 MHz

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

13.4.1.3 Test data for above 1 GHz

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

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13.4.2 Test data for Mode 2_Long

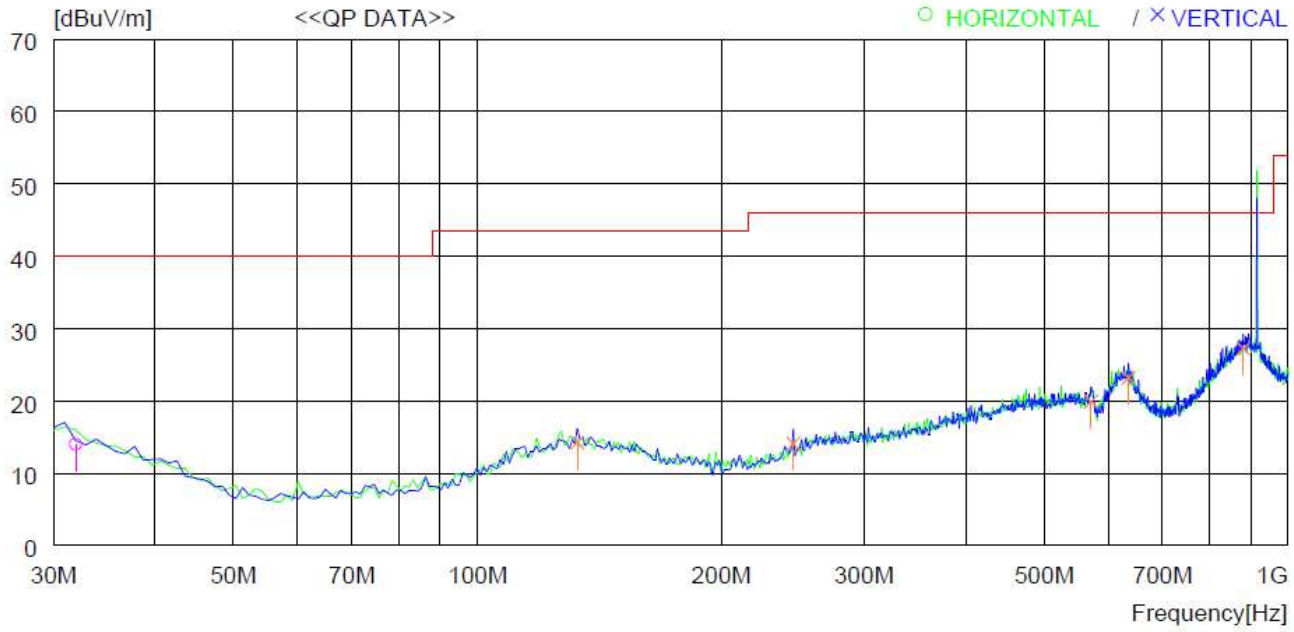
13.4.2.1 Test data for 30 MHz ~ 1 000 MHz

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

-. Measurement distance : 3 m

-. The highest value is the fundamental.



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	31.940	25.4	20.7	1.0	33.1	14.0	40.0	26.0	200	239
----- Vertical ------										
2	132.820	25.6	19.4	2.2	33.0	14.2	43.5	29.3	300	0
3	245.340	26.7	17.3	3.1	33.0	14.1	46.0	31.9	400	359
4	571.259	24.3	24.0	4.8	33.2	19.9	46.0	26.1	200	288
5	635.277	26.8	24.8	5.0	33.4	23.2	46.0	22.8	200	359
6	880.679	26.4	27.6	5.8	32.6	27.2	46.0	18.8	100	288

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13.4.2.2 Test data for Below 30 MHz

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

13.4.2.3 Test data for above 1 GHz

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

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13.4.3 Test data for Mode 3_Repeat

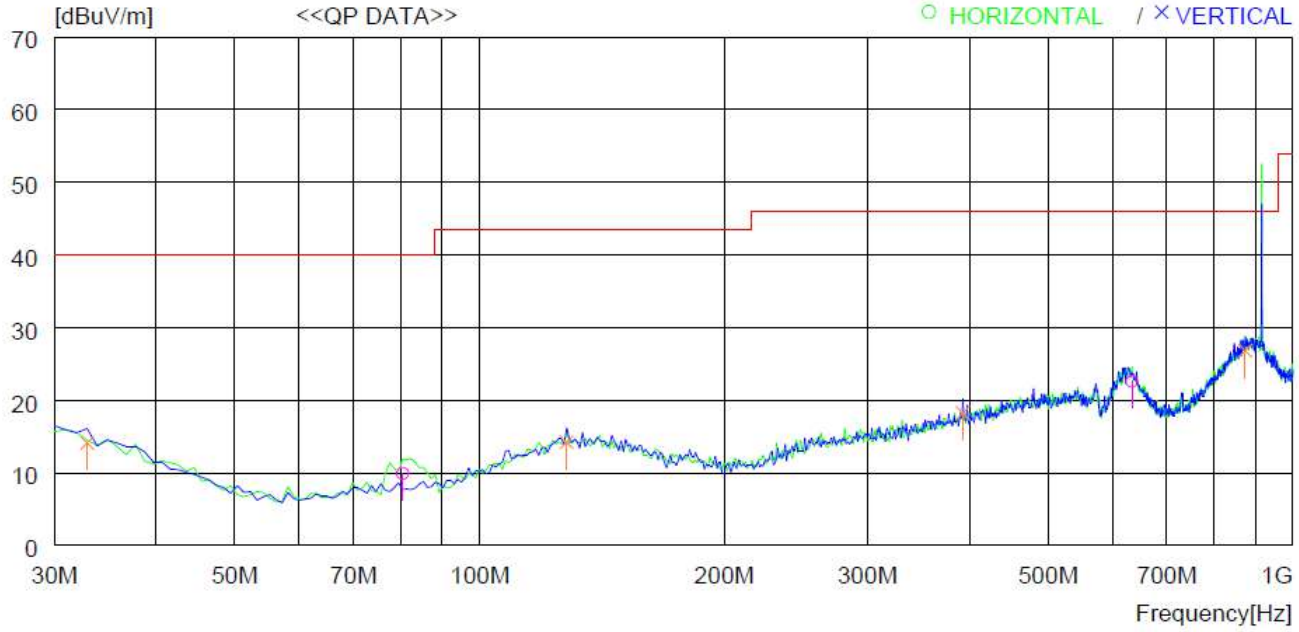
13.4.3.1 Test data for 30 MHz ~ 1 000 MHz

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

-. Measurement distance : 3 m

-. The highest value is the fundamental.



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	80.440	28.0	13.3	1.7	33.1	9.9	40.0	30.1	300	359
2	634.307	26.2	24.7	5.0	33.3	22.6	46.0	23.4	400	0
----- Vertical ------										
3	32.910	25.9	20.2	1.1	33.1	14.1	40.0	25.9	400	284
4	127.970	25.7	19.3	2.2	33.0	14.2	43.5	29.3	100	306
5	392.780	26.1	21.1	3.9	32.9	18.2	46.0	27.8	300	4
6	873.890	26.2	27.5	5.8	32.7	26.8	46.0	19.2	100	0

13.4.3.2 Test data for Below 30 MHz

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

13.4.3.3 Test data for above 1 GHz

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

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13.5 Test data for Charging Mode

13.5.1 Test data for Mode 1_Normal

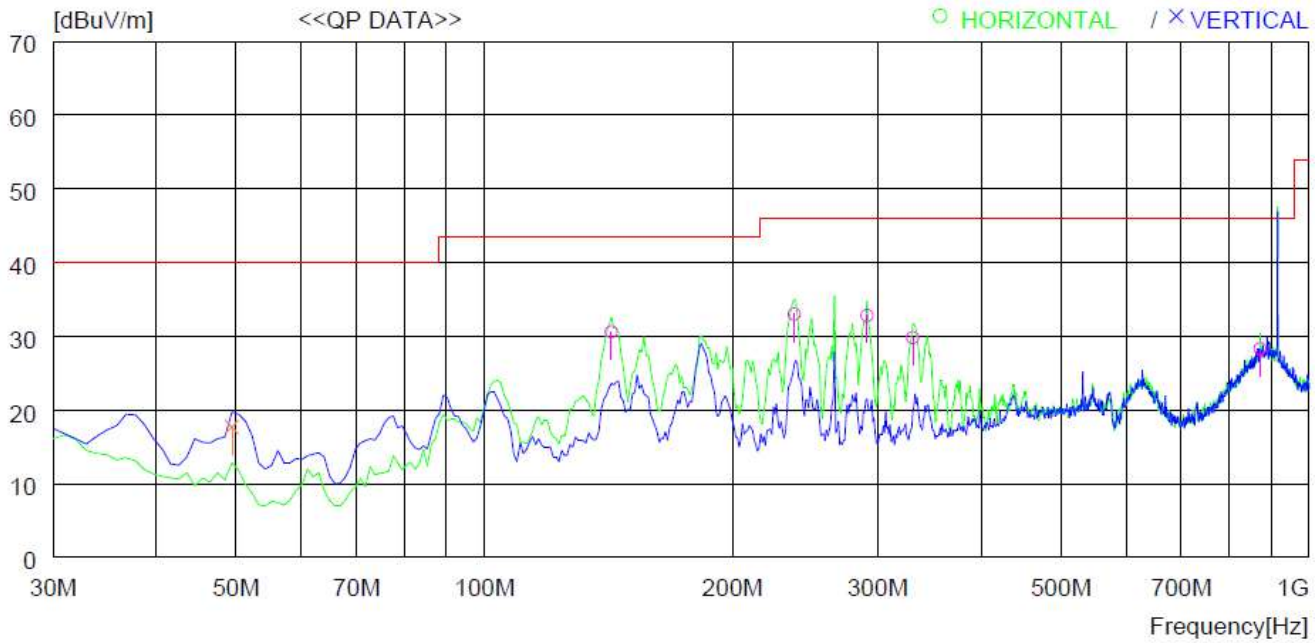
13.5.1.1 Test data for 30 MHz ~ 1 000 MHz

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

-. Measurement distance : 3 m

-. The highest value is the fundamental.



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	142.520	42.3	19.1	2.2	33.0	30.6	43.5	12.9	200	0
2	237.580	46.2	16.8	3.0	33.0	33.0	46.0	13.0	100	359
3	290.930	43.2	19.2	3.3	32.9	32.8	46.0	13.2	100	359
4	330.700	39.3	19.9	3.6	33.0	29.8	46.0	16.2	100	62
5	871.950	27.8	27.5	5.8	32.8	28.3	46.0	17.7	100	227
----- Vertical ------										
6	49.400	36.2	13.4	1.2	33.1	17.7	40.0	22.3	100	0

13.5.1.2 Test data for Below 30 MHz

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

13.5.1.3 Test data for above 1 GHz

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

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13.5.2 Test data for Mode 2_Long

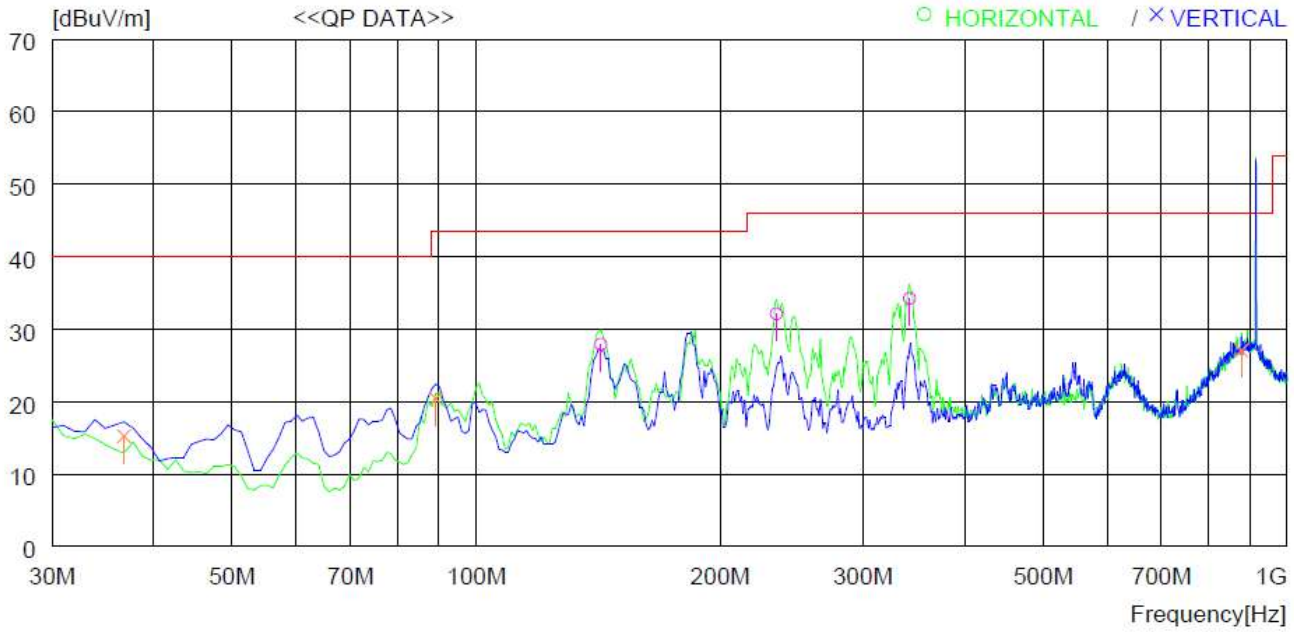
13.5.2.1 Test data for 30 MHz ~ 1 000 MHz

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

-. Measurement distance : 3 m

-. The highest value is the fundamental.



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	142.520	39.6	19.1	2.2	33.0	27.9	43.5	15.6	200	0
2	234.670	45.6	16.6	2.9	33.0	32.1	46.0	13.9	100	168
3	342.340	43.5	20.1	3.6	33.0	34.2	46.0	11.8	100	359
----- Vertical ------										
4	36.790	28.6	18.6	1.1	33.1	15.2	40.0	24.8	100	166
5	89.170	38.0	13.7	1.8	33.1	20.4	43.5	23.1	100	0
6	877.770	26.3	27.6	5.8	32.7	27.0	46.0	19.0	400	213

13.5.2.2 Test data for Below 30 MHz

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

13.5.2.3 Test data for above 1 GHz

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

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13.5.3 Test data for Mode 3_Repeat

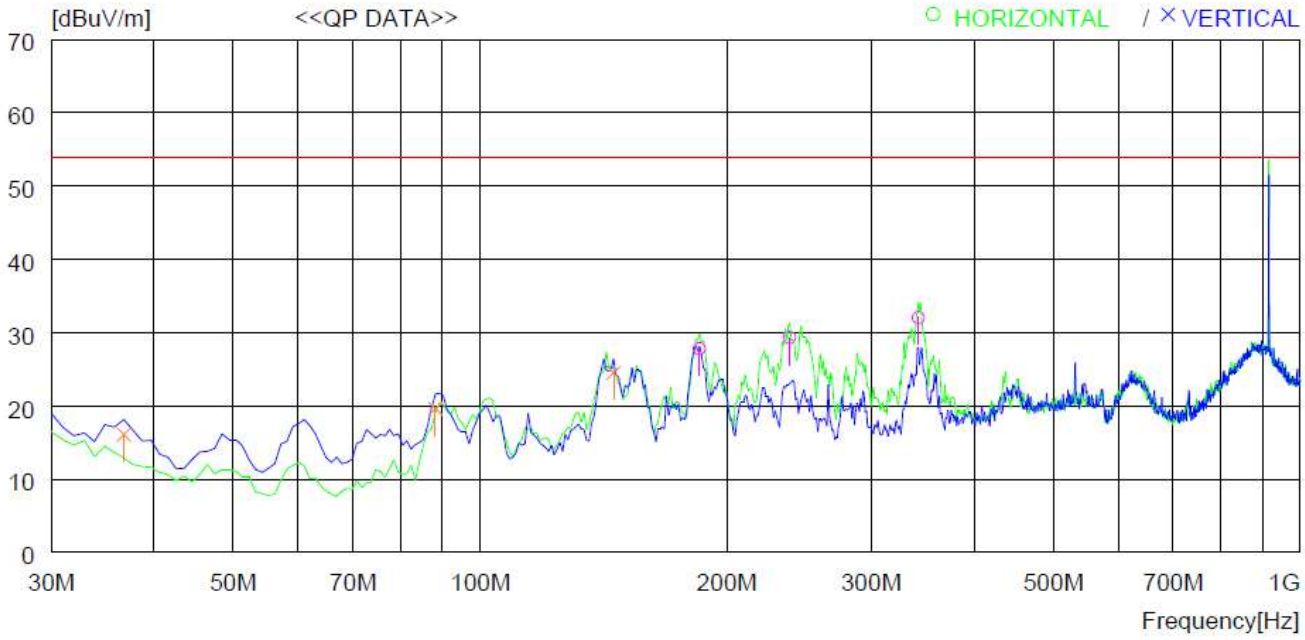
13.5.3.1 Test data for 30 MHz ~ 1 000 MHz

-. Resolution bandwidth : 120 kHz

-. Frequency range : 30 MHz ~ 1 000 MHz

-. Measurement distance : 3 m

-. The highest value is the fundamental.



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	185.200	41.8	16.4	2.6	33.0	27.8	54.0	26.2	100	81
2	238.550	42.5	16.8	3.0	33.0	29.3	54.0	24.7	100	90
3	342.340	41.3	20.1	3.6	33.0	32.0	54.0	22.0	100	307
----- Vertical ------										
4	36.790	29.5	18.6	1.1	33.1	16.1	54.0	37.9	100	143
5	88.200	37.2	13.7	1.8	33.1	19.6	54.0	34.4	100	0
6	145.430	36.3	18.9	2.3	33.0	24.5	54.0	29.5	100	0

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13.5.3.2 Test data for Below 30 MHz

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

13.5.3.3 Test data for above 1 GHz

-. Resolution bandwidth : 1 MHz for Peak and Average Mode

-. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode

-. Frequency range : 1 GHz ~ 10.0 GHz

-. Measurement distance : 3 m

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Factor (dB/m)	Cable Loss	Amp Gain	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)
Emission from the EUT more than 20 dB below the limit in each frequency range.								

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14. CONDUCTED EMISSION TEST

14.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

14.2 Test set-up

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50 Ω / 50 μH + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

14.3 Test Date

November 03, 2020 ~ November 06, 2020

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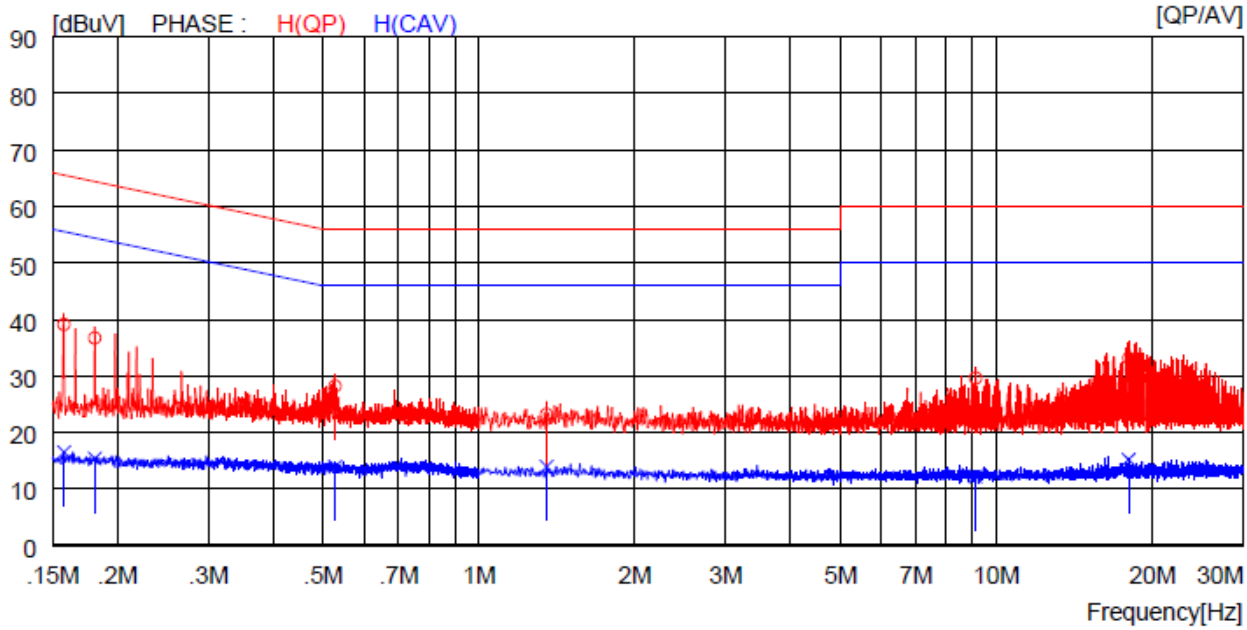
14.4 Test Data for Trasmitting Mode

14.4.1 Test data for Mode 1_Normal

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15800	29.1	----	10.0	39.1	----	65.6	----	26.5	----	H(QP)
2	0.18100	26.7	----	10.0	36.7	----	64.4	----	27.7	----	H(QP)
3	0.52800	18.2	----	10.0	28.2	----	56.0	----	27.8	----	H(QP)
4	1.35200	13.1	----	10.1	23.2	----	56.0	----	32.8	----	H(QP)
5	9.12500	19.4	----	10.2	29.6	----	60.0	----	30.4	----	H(QP)
6	18.04000	22.7	----	10.4	33.1	----	60.0	----	26.9	----	H(QP)
7	0.15800	----	6.5	10.0	----	16.5	----	55.6	----	39.1	H(CAV)
8	0.18100	----	5.4	10.0	----	15.4	----	54.4	----	39.0	H(CAV)
9	0.52800	----	3.9	10.0	----	13.9	----	46.0	----	32.1	H(CAV)
10	1.35200	----	3.8	10.1	----	13.9	----	46.0	----	32.1	H(CAV)
11	9.12500	----	2.0	10.2	----	12.2	----	50.0	----	37.8	H(CAV)
12	18.04000	----	4.8	10.4	----	15.2	----	50.0	----	34.8	H(CAV)

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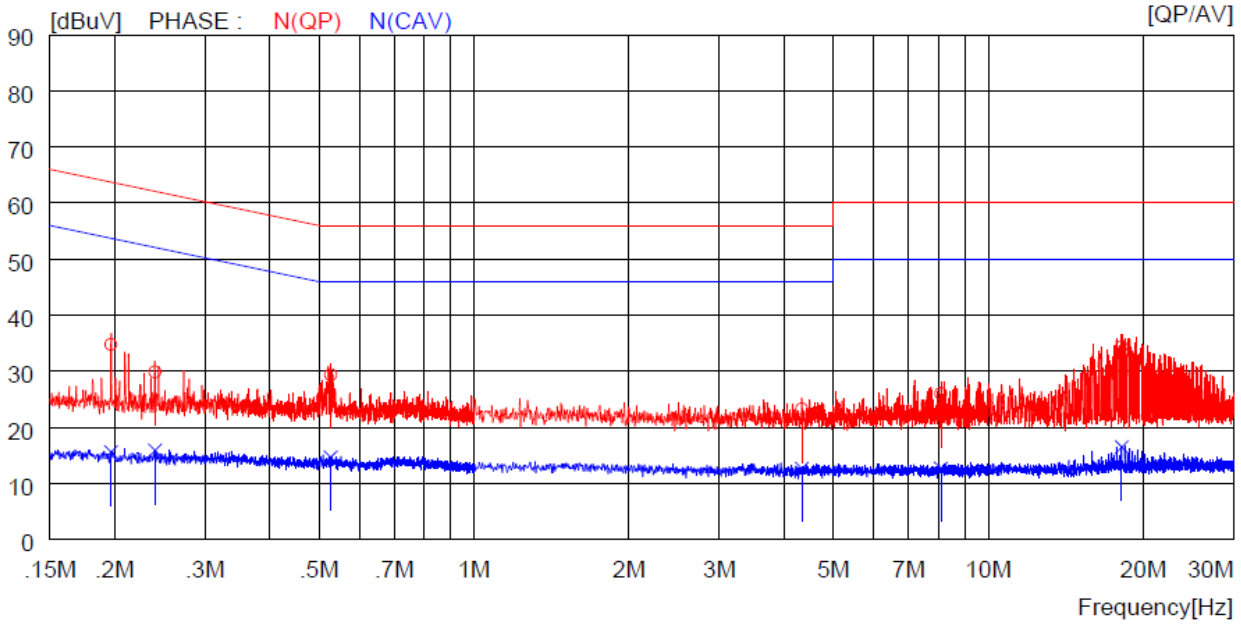
-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.19700	24.8	----	10.0	34.8	----	63.7	----	28.9	----	N(QP)
2	0.24000	19.9	----	10.0	29.9	----	62.1	----	32.2	----	N(QP)
3	0.52700	19.4	----	10.0	29.4	----	56.0	----	26.6	----	N(QP)
4	4.34000	13.2	----	10.1	23.3	----	56.0	----	32.7	----	N(QP)
5	8.09000	15.8	----	10.2	26.0	----	60.0	----	34.0	----	N(QP)
6	18.19000	24.0	----	10.4	34.4	----	60.0	----	25.6	----	N(QP)
7	0.19700	----	5.6	10.0	----	15.6	----	53.7	----	38.1	N(CAV)
8	0.24000	----	5.9	10.0	----	15.9	----	52.1	----	36.2	N(CAV)
9	0.52700	----	4.7	10.0	----	14.7	----	46.0	----	31.3	N(CAV)
10	4.34000	----	2.6	10.1	----	12.7	----	46.0	----	33.3	N(CAV)
11	8.09000	----	2.5	10.2	----	12.7	----	50.0	----	37.3	N(CAV)
12	18.19000	----	6.1	10.4	----	16.5	----	50.0	----	33.5	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

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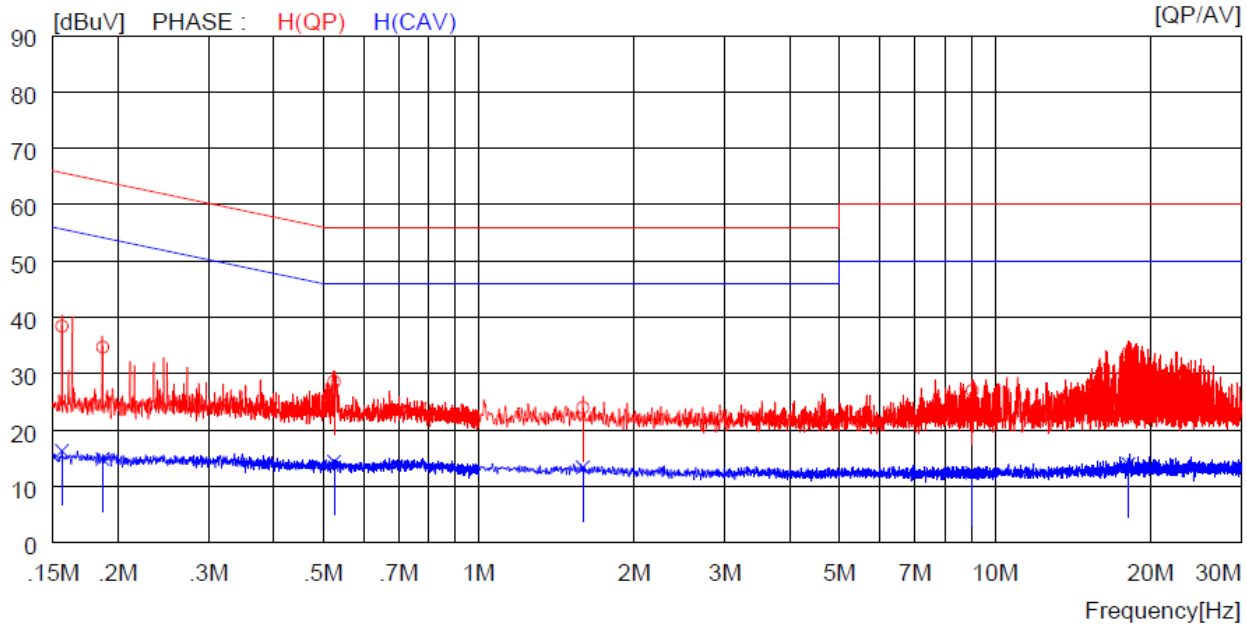
14.4.2 Test data for Mode 2_Long

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

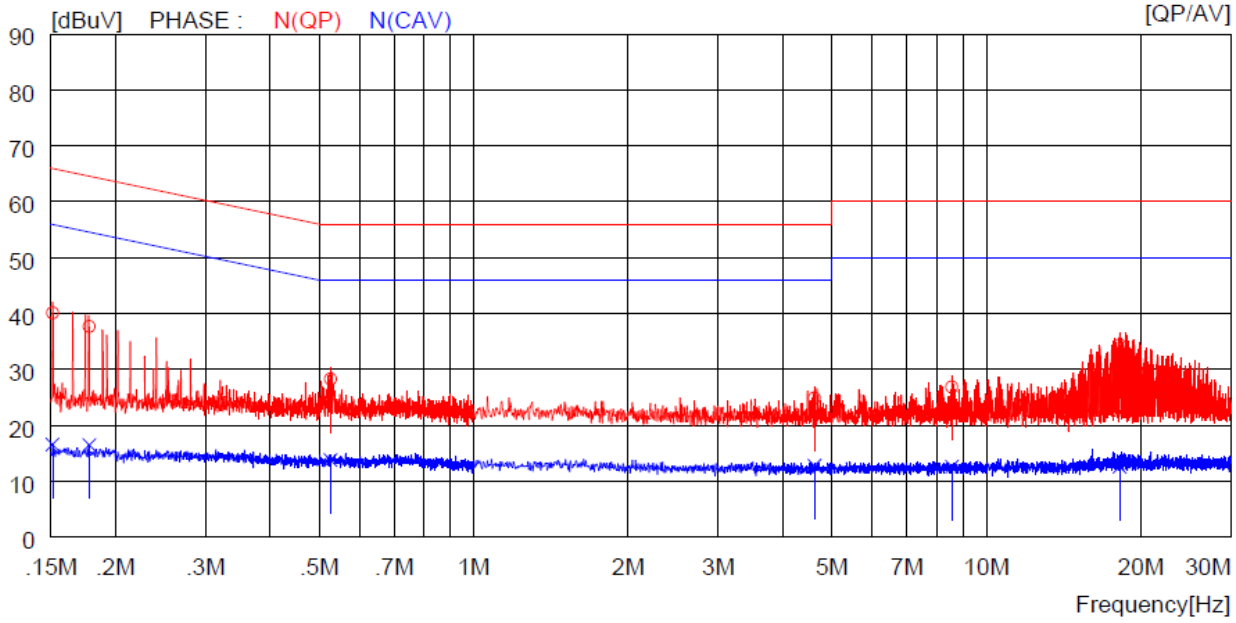
-. Tested Line : HOT LINE



NO	FREQ	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15600	28.4	----	10.0	38.4	----	65.7	----	27.3	----	H(QP)
2	0.18700	24.7	----	10.0	34.7	----	64.2	----	29.5	----	H(QP)
3	0.52500	18.6	----	10.0	28.6	----	56.0	----	27.4	----	H(QP)
4	1.59200	13.9	----	10.1	24.0	----	56.0	----	32.0	----	H(QP)
5	9.04500	16.8	----	10.2	27.0	----	60.0	----	33.0	----	H(QP)
6	18.12000	23.3	----	10.4	33.7	----	60.0	----	26.3	----	H(QP)
7	0.15600	----	6.3	10.0	----	16.3	----	55.7	----	39.4	H(CAV)
8	0.18700	----	4.9	10.0	----	14.9	----	54.2	----	39.3	H(CAV)
9	0.52500	----	4.4	10.0	----	14.4	----	46.0	----	31.6	H(CAV)
10	1.59200	----	3.3	10.1	----	13.4	----	46.0	----	32.6	H(CAV)
11	9.04500	----	2.2	10.2	----	12.4	----	50.0	----	37.6	H(CAV)
12	18.12000	----	3.6	10.4	----	14.0	----	50.0	----	36.0	H(CAV)

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15100	30.1	----	10.0	40.1	----	65.9	----	25.8	----	N(QP)
2	0.17800	27.7	----	10.0	37.7	----	64.6	----	26.9	----	N(QP)
3	0.52600	18.3	----	10.0	28.3	----	56.0	----	27.7	----	N(QP)
4	4.62400	14.8	----	10.1	24.9	----	56.0	----	31.1	----	N(QP)
5	8.57000	16.7	----	10.2	26.9	----	60.0	----	33.1	----	N(QP)
6	18.21000	24.0	----	10.4	34.4	----	60.0	----	25.6	----	N(QP)
7	0.15100	----	6.6	10.0	----	16.6	----	55.9	----	39.3	N(CAV)
8	0.17800	----	6.5	10.0	----	16.5	----	54.6	----	38.1	N(CAV)
9	0.52600	----	3.8	10.0	----	13.8	----	46.0	----	32.2	N(CAV)
10	4.62400	----	2.7	10.1	----	12.8	----	46.0	----	33.2	N(CAV)
11	8.57000	----	2.4	10.2	----	12.6	----	50.0	----	37.4	N(CAV)
12	18.21000	----	2.2	10.4	----	12.6	----	50.0	----	37.4	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

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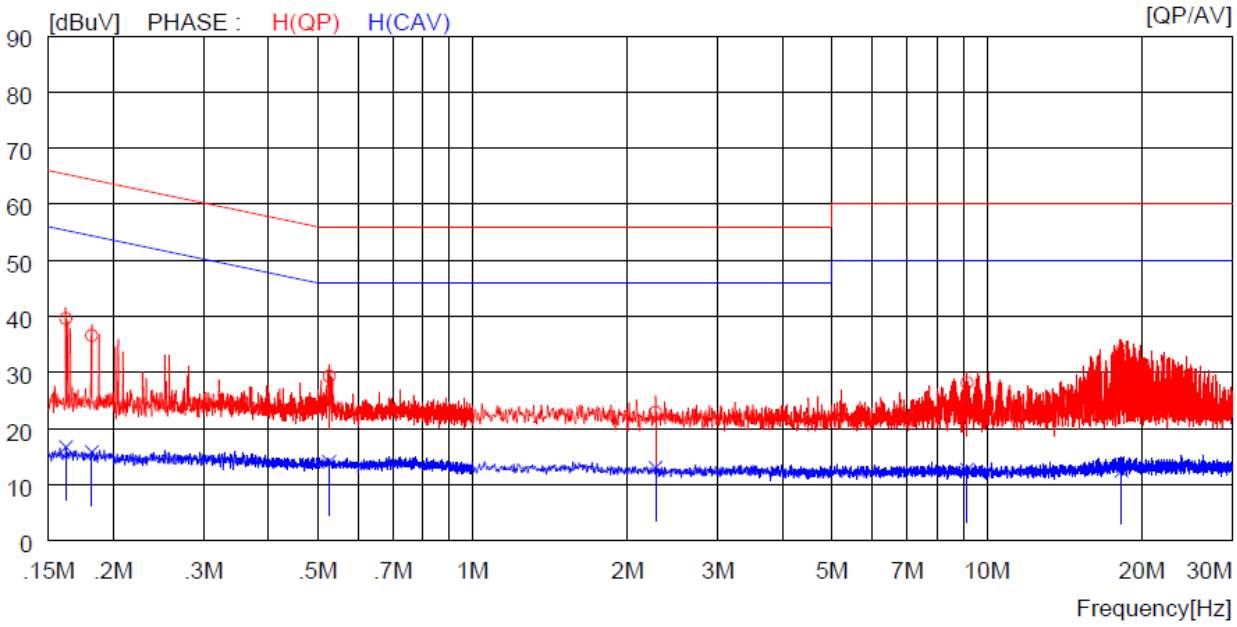
14.4.3 Test data for Mode 3_Repeat

-. Resolution bandwidth : 9 kHz

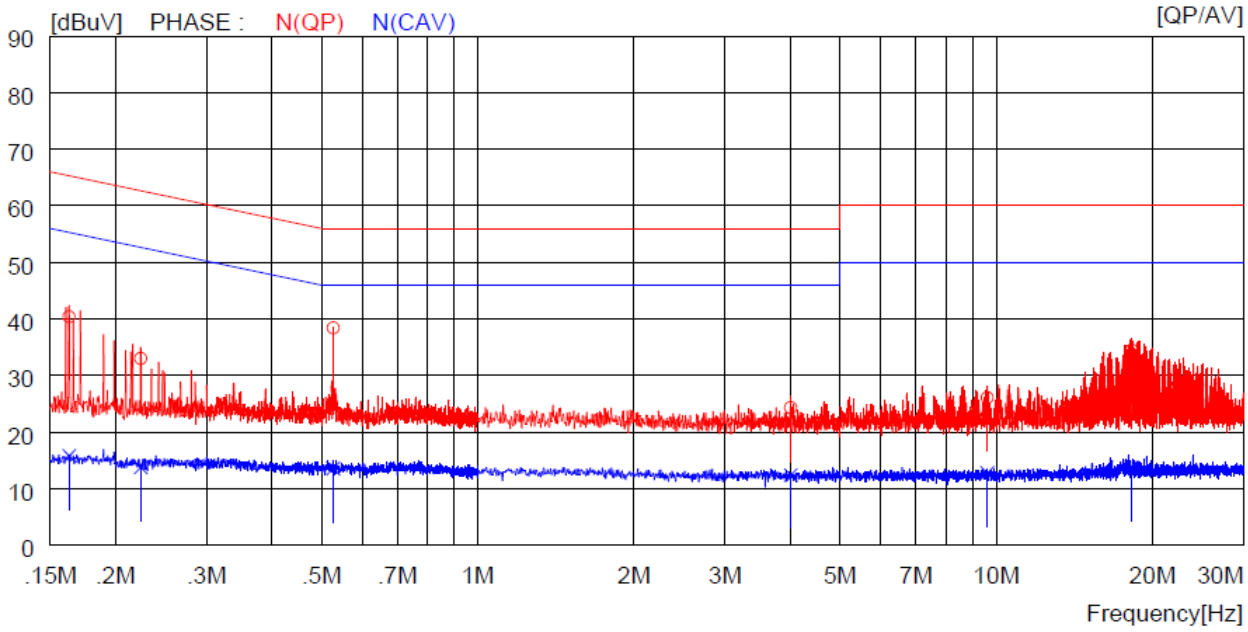
-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.16200	29.6	----	10.0	39.6	----	65.4	----	25.8	----	H(QP)
2	0.18200	26.6	----	10.0	36.6	----	64.4	----	27.8	----	H(QP)
3	0.52700	19.3	----	10.0	29.3	----	56.0	----	26.7	----	H(QP)
4	2.26800	12.8	----	10.1	22.9	----	56.0	----	33.1	----	H(QP)
5	9.16000	18.0	----	10.2	28.2	----	60.0	----	31.8	----	H(QP)
6	18.27000	23.4	----	10.4	33.8	----	60.0	----	26.2	----	H(QP)
7	0.16200	----	6.7	10.0	----	16.7	----	55.4	----	38.7	H(CAV)
8	0.18200	----	5.8	10.0	----	15.8	----	54.4	----	38.6	H(CAV)
9	0.52700	----	4.1	10.0	----	14.1	----	46.0	----	31.9	H(CAV)
10	2.26800	----	2.9	10.1	----	13.0	----	46.0	----	33.0	H(CAV)
11	9.16000	----	2.5	10.2	----	12.7	----	50.0	----	37.3	H(CAV)
12	18.27000	----	2.1	10.4	----	12.5	----	50.0	----	37.5	H(CAV)

-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.16300	30.4	----	10.0	40.4	----	65.3	----	24.9	----	N(QP)
2	0.22400	23.0	----	10.0	33.0	----	62.7	----	29.7	----	N(QP)
3	0.52700	28.4	----	10.0	38.4	----	56.0	----	17.6	----	N(QP)
4	4.01600	14.2	----	10.1	24.3	----	56.0	----	31.7	----	N(QP)
5	9.61000	15.9	----	10.2	26.1	----	60.0	----	33.9	----	N(QP)
6	18.25000	24.1	----	10.4	34.5	----	60.0	----	25.5	----	N(QP)
7	0.16300	----	5.8	10.0	----	15.8	----	55.3	----	39.5	N(CAV)
8	0.22400	----	3.8	10.0	----	13.8	----	52.7	----	38.9	N(CAV)
9	0.52700	----	3.6	10.0	----	13.6	----	46.0	----	32.4	N(CAV)
10	4.01600	----	2.3	10.1	----	12.4	----	46.0	----	33.6	N(CAV)
11	9.61000	----	2.6	10.2	----	12.8	----	50.0	----	37.2	N(CAV)
12	18.25000	----	3.4	10.4	----	13.8	----	50.0	----	36.2	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

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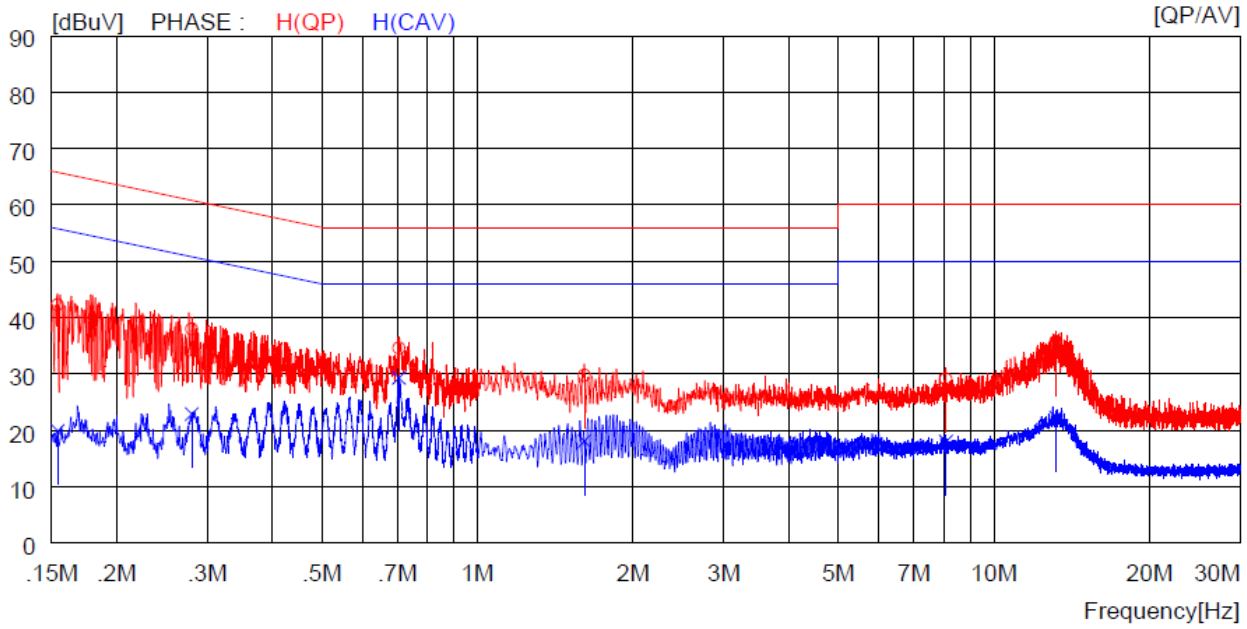
14.5 Test Data for Charging Mode

14.5.1 Test data for Mode 1_Normal

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15400	32.3	----	10.0	42.3	----	65.8	----	23.5	----	H(QP)
2	0.28000	28.0	----	10.0	38.0	----	60.8	----	22.8	----	H(QP)
3	0.70500	24.6	----	10.0	34.6	----	56.0	----	21.4	----	H(QP)
4	1.61200	19.7	----	10.1	29.8	----	56.0	----	26.2	----	H(QP)
5	8.07500	18.9	----	10.2	29.1	----	60.0	----	30.9	----	H(QP)
6	13.19000	25.4	----	10.3	35.7	----	60.0	----	24.3	----	H(QP)
7	0.15400	----	9.9	10.0	----	19.9	----	55.8	----	35.9	H(CAV)
8	0.28000	----	12.9	10.0	----	22.9	----	50.8	----	27.9	H(CAV)
9	0.70500	----	19.3	10.0	----	29.3	----	46.0	----	16.7	H(CAV)
10	1.61200	----	8.0	10.1	----	18.1	----	46.0	----	27.9	H(CAV)
11	8.07500	----	7.8	10.2	----	18.0	----	50.0	----	32.0	H(CAV)
12	13.19000	----	12.0	10.3	----	22.3	----	50.0	----	27.7	H(CAV)

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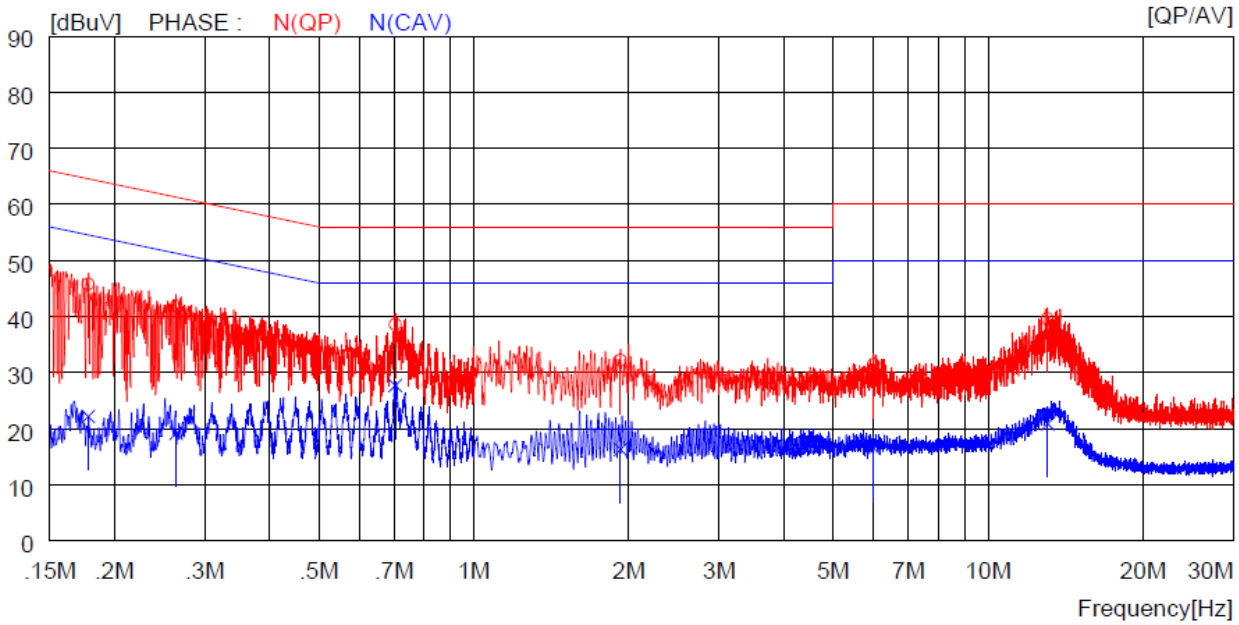
-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.17800	35.8	----	10.0	45.8	----	64.6	----	18.8	----	N(QP)
2	0.26400	31.9	----	10.0	41.9	----	61.3	----	19.4	----	N(QP)
3	0.70400	28.6	----	10.0	38.6	----	56.0	----	17.4	----	N(QP)
4	1.92800	22.1	----	10.1	32.2	----	56.0	----	23.8	----	N(QP)
5	5.99500	21.3	----	10.2	31.5	----	60.0	----	28.5	----	N(QP)
6	13.06000	29.3	----	10.3	39.6	----	60.0	----	20.4	----	N(QP)
7	0.17800	----	12.2	10.0	----	22.2	----	54.6	----	32.4	N(CAV)
8	0.26400	----	9.2	10.0	----	19.2	----	51.3	----	32.1	N(CAV)
9	0.70400	----	17.7	10.0	----	27.7	----	46.0	----	18.3	N(CAV)
10	1.92800	----	6.2	10.1	----	16.3	----	46.0	----	29.7	N(CAV)
11	5.99500	----	6.3	10.2	----	16.5	----	50.0	----	33.5	N(CAV)
12	13.06000	----	10.6	10.3	----	20.9	----	50.0	----	29.1	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

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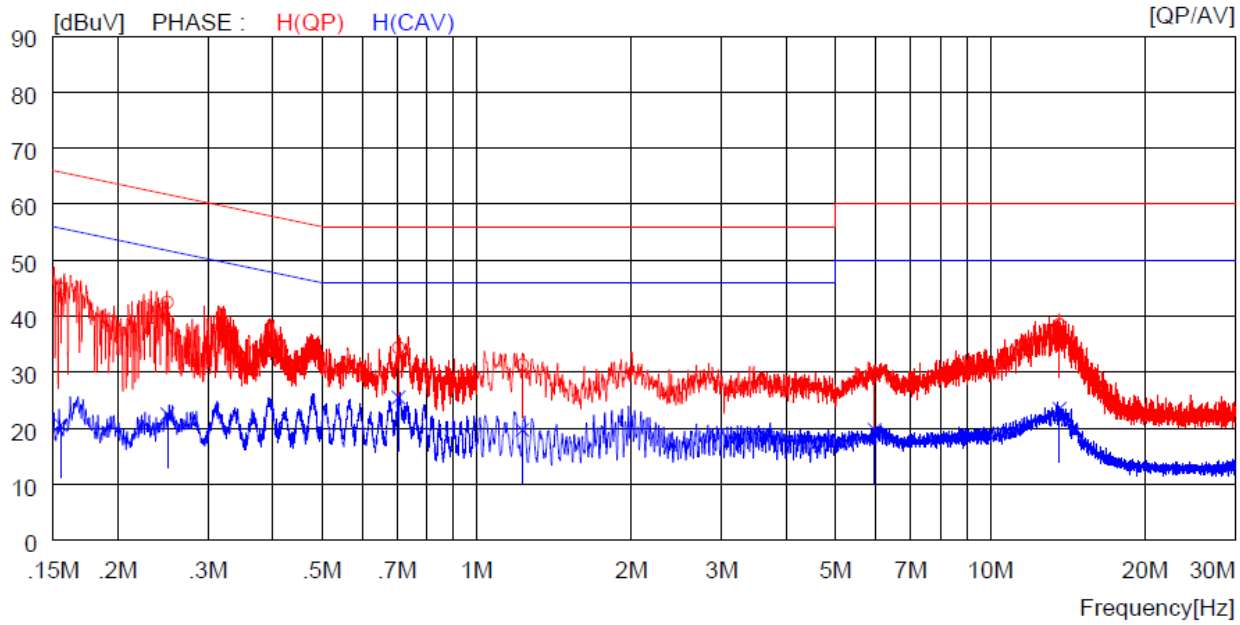
14.5.2 Test data for Mode 2_Long

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15500	34.9	----	10.0	44.9	----	65.7	----	20.8	----	H(QP)
2	0.25000	32.5	----	10.0	42.5	----	61.8	----	19.3	----	H(QP)
3	0.70500	24.4	----	10.0	34.4	----	56.0	----	21.6	----	H(QP)
4	1.22800	21.2	----	10.1	31.3	----	56.0	----	24.7	----	H(QP)
5	5.96000	19.3	----	10.2	29.5	----	60.0	----	30.5	----	H(QP)
6	13.64000	28.2	----	10.3	38.5	----	60.0	----	21.5	----	H(QP)
7	0.15500	----	10.6	10.0	----	20.6	----	55.7	----	35.1	H(CAV)
8	0.25000	----	12.5	10.0	----	22.5	----	51.8	----	29.3	H(CAV)
9	0.70500	----	15.5	10.0	----	25.5	----	46.0	----	20.5	H(CAV)
10	1.22800	----	9.6	10.1	----	19.7	----	46.0	----	26.3	H(CAV)
11	5.96000	----	9.5	10.2	----	19.7	----	50.0	----	30.3	H(CAV)
12	13.64000	----	13.2	10.3	----	23.5	----	50.0	----	26.5	H(CAV)

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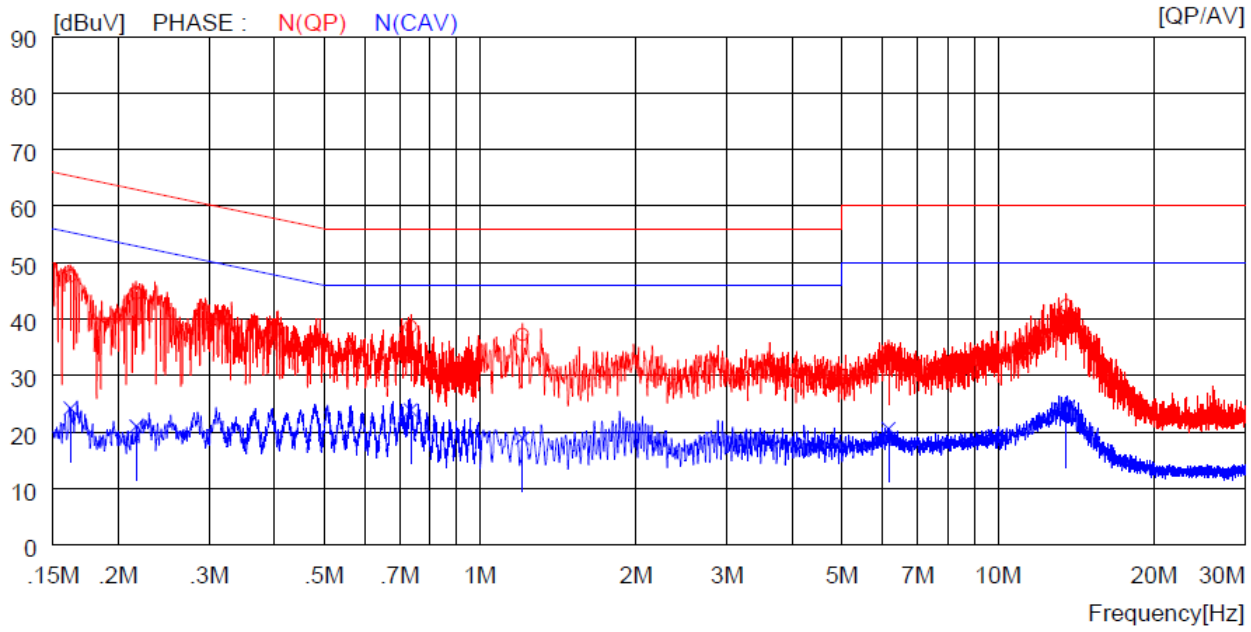
-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.16200	37.6	----	10.0	47.6	----	65.4	----	17.8	----	N(QP)
2	0.21700	34.6	----	10.0	44.6	----	62.9	----	18.3	----	N(QP)
3	0.73500	28.7	----	10.0	38.7	----	56.0	----	17.3	----	N(QP)
4	1.20800	27.2	----	10.1	37.3	----	56.0	----	18.7	----	N(QP)
5	6.15000	24.1	----	10.2	34.3	----	60.0	----	25.7	----	N(QP)
6	13.56000	32.1	----	10.3	42.4	----	60.0	----	17.6	----	N(QP)
7	0.16200	----	14.2	10.0	----	24.2	----	55.4	----	31.2	N(CAV)
8	0.21700	----	11.0	10.0	----	21.0	----	52.9	----	31.9	N(CAV)
9	0.73500	----	13.9	10.0	----	23.9	----	46.0	----	22.1	N(CAV)
10	1.20800	----	8.9	10.1	----	19.0	----	46.0	----	27.0	N(CAV)
11	6.15000	----	10.4	10.2	----	20.6	----	50.0	----	29.4	N(CAV)
12	13.56000	----	12.9	10.3	----	23.2	----	50.0	----	26.8	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

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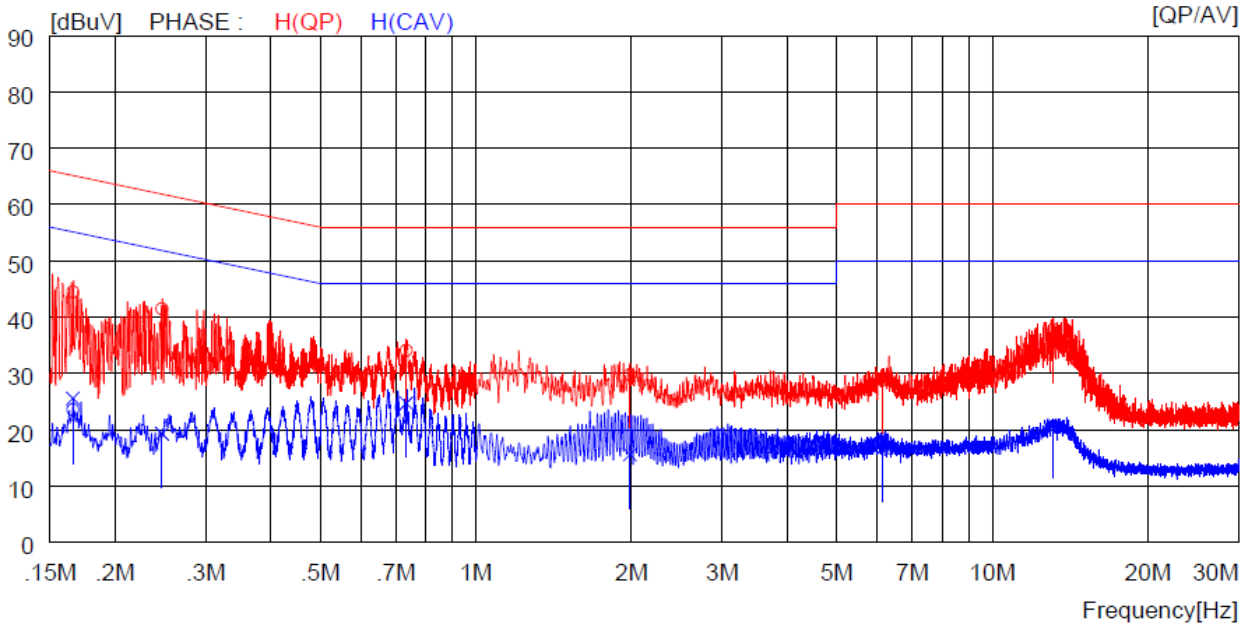
14.5.3 Test data for Mode 3_Repeat

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

-. Tested Line : HOT LINE



NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.16600	34.5	----	10.0	44.5	----	65.2	----	20.7	----	H(QP)
2	0.24700	31.5	----	10.0	41.5	----	61.9	----	20.4	----	H(QP)
3	0.73400	24.1	----	10.0	34.1	----	56.0	----	21.9	----	H(QP)
4	1.98800	19.7	----	10.1	29.8	----	56.0	----	26.2	----	H(QP)
5	6.14000	18.7	----	10.2	28.9	----	60.0	----	31.1	----	H(QP)
6	13.15000	27.5	----	10.3	37.8	----	60.0	----	22.2	----	H(QP)
7	0.16600	13.6	15.6	10.0	23.6	25.6	65.2	55.2	41.6	29.6	H(CAV)
8	0.24700	----	9.3	10.0	----	19.3	----	51.9	----	32.6	H(CAV)
9	0.73400	----	14.7	10.0	----	24.7	----	46.0	----	21.3	H(CAV)
10	1.98800	----	5.5	10.1	----	15.6	----	46.0	----	30.4	H(CAV)
11	6.14000	----	6.6	10.2	----	16.8	----	50.0	----	33.2	H(CAV)
12	13.15000	----	10.6	10.3	----	20.9	----	50.0	----	29.1	H(CAV)

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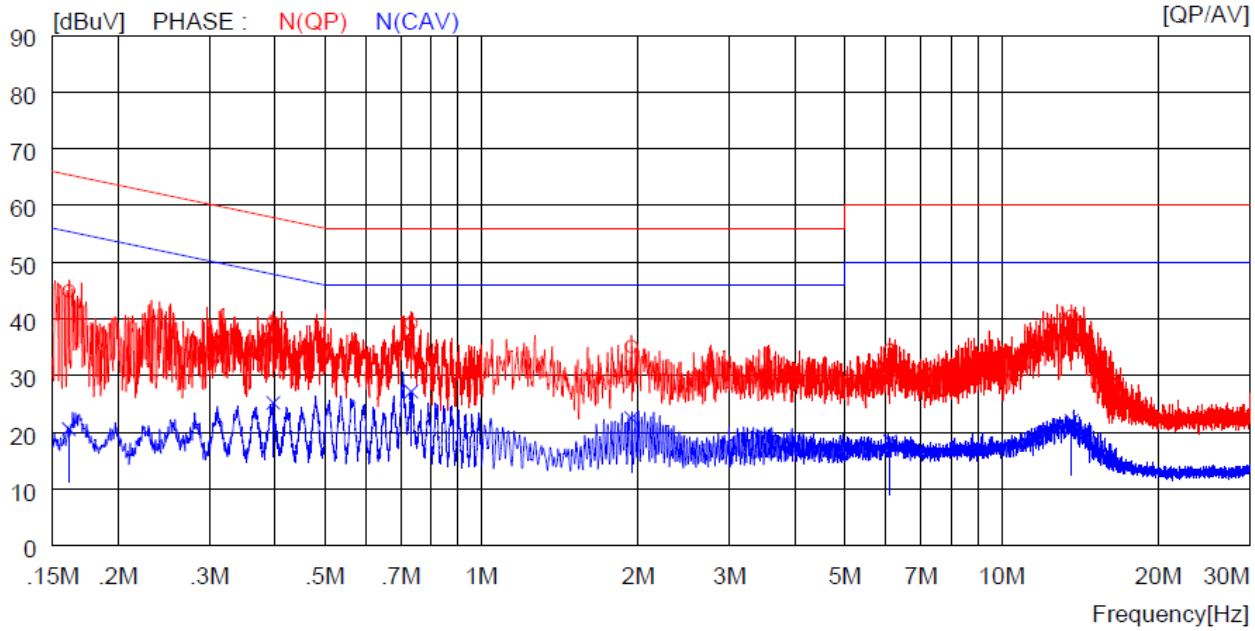
-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.16100	34.9	----	10.0	44.9	----	65.4	----	20.5	----	N(QP)
2	0.39800	29.4	----	10.0	39.4	----	57.9	----	18.5	----	N(QP)
3	0.73300	29.2	----	10.0	39.2	----	56.0	----	16.8	----	N(QP)
4	1.94400	25.0	----	10.1	35.1	----	56.0	----	20.9	----	N(QP)
5	6.10500	24.3	----	10.2	34.5	----	60.0	----	25.5	----	N(QP)
6	13.64000	30.2	----	10.3	40.5	----	60.0	----	19.5	----	N(QP)
7	0.16100	----	10.6	10.0	----	20.6	----	55.4	----	34.8	N(CAV)
8	0.39800	----	15.2	10.0	----	25.2	----	47.9	----	22.7	N(CAV)
9	0.73300	----	17.2	10.0	----	27.2	----	46.0	----	18.8	N(CAV)
10	1.94400	----	12.4	10.1	----	22.5	----	46.0	----	23.5	N(CAV)
11	6.10500	----	8.2	10.2	----	18.4	----	50.0	----	31.6	N(CAV)
12	13.64000	----	11.7	10.3	----	22.0	----	50.0	----	28.0	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

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15. LIST OF TEST EQUIPMENT

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
FSVA40	Rohde & Schwarz	Signal Analyzer	101598	Apr. 19, 2022 (1Y)
ESR	Rohde & Schwarz	EMI Test Receiver	101470	Oct. 18, 2021 (1Y)
310N	Sonoma Instrument	Pre-Amplifier	312544	Mar. 15, 2022 (1Y)
SCU18	Rohde & Schwarz	Signal Conditioning unit	102266	Jul. 12, 2022 (1Y)
DT3000-3t	Innco System	Turn Table	DT3000/093	N/A
MA-4000XPET	Innco System	Tilt Antenna Master	MA4000/509	N/A
HLP-2008	TDK RF Solutions	Hybrid Antenna	131313	Fed. 21, 2022 (1Y)
BBHA9120D	Schwarzbeck	Horn Antenna	295	Mar. 02, 2022 (1Y)
89-30-11	WEINSCHEL	Fixed Coaxial Attenuator(30 dB)	687	Jan. 06. 2022 (1Y)
10 dB Attenuator	Rohde & Schwarz	10 dB Attenuator	14100882-3	Jul. 14. 2022 (1Y)
HPF 1.5GHz	Rohde & Schwarz	High Pass Filter	N/A	Jan. 19. 2022 (1Y)
N/A	PHELCOM.CO	Band Reject Filter	N/A	Jan. 18. 2022 (1Y)
3825/2	EMCO	LISN(AMN)	9109-1869	Mar. 15, 2022 (1Y)
ESH3-Z2	Rohde & Schwarz	Pulse Limiter	100655	Mar. 14, 2022 (1Y)
ESCI	Rohde & Schwarz	Test Receiver	101012	Oct, 20, 2021 (1Y)
NSLK8128	SCHWARZ BECK	V - LISN (4*32/50A)	8128216	Oct. 13, 2021 (1Y)
SMB100A	Rohde & Schwarz	SIGNAL GENERATOR	177648	Jan. 17. 2022 (1Y)
SH-242	ESPEC	Temperature & Humidity Chamber	0093001589	Mar. 18, 2022 (1Y
FMZB 1513	Schwarzbeck	Loop Antenna	1513-235	Mar. 24, 2022 (1Y)

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