RF TEST REPORT

Test Equipment	:	Multicom Repeater 900
Model Name	:	MR-900
Variant Model Name	:	MR900, MC11R-900, RefAudio Pro X Link MC11 Repeater 900, MCR-900, SPEZ-R SPEZ-Repeater, SPEZ-R 900
FCC ID	:	YJHMR-900
Date of receipt	:	2017.02.10
Test duration	:	2017.02.20 ~ 2017.02.24
Date of issue	:	2017.03.08

Applicant : Maytel Co., Ltd

#417 Doosan Venture Digm 126-1, Pyeongchon-dong,Dongan-gu
Anyang-si, Gyeonggi-do, Republic of Korea

Test Laboratory : Lab-T, Inc.

2182-42, 2182-40 Baegok-daero, Mohyeon-myeon, Cheoin-gu, Yongin-si
Gyeonggi-do 17036, Korea

Test specification	:	FCC Part 15 Subpart C 15.247 IC RSS-247 Issue 2 & RSS-GEN Issue 4
RF Output Power	:	21.98 dBm
Test result	:	Pass

The above equipment was tested by Lab-T Testing Laboratory for compliance
with the requirements of FCC,IC Rules and Regulations.
The test results presented in this test report are limited only to the sample supplied by applicant
and the use of this test report is inhibited other than its purpose.
This test report shall not be reproduced except in full, without the written approval of Lab-T, Inc

Tested by:

Engineer
SungSin Kim

Reviewed by:

Technical Manager
SangHoon Yu

CONTENTS

1. Client Information

Applicant	:	Maytel Co., Ltd
Address	:	#417 Doosan Venture Digm 126-1, Pyeongchon-dong,Dongan-gu, Anyang-si Gyeonggi-do, Republic of Korea
Telephone No.	:	+82-31-487-5508
Person in charge	:	Su Won Bae / swmaytel@naver.com

Manufacturer	:	Maytel Co., Ltd
Address	:	#417 Doosan Venture Digm 126-1, Pyeongchon-dong,Dongan-gu, Anyang-si Gyeonggi-do, Republic of Korea

2. Laboratory Information

Test Laboratory	:	Lab-T, Inc.
Address	:	2182-42, 2182-40 Baegok-daero, Mohyeon-myeon, Cheoin-gu, Yongin-si Gyeonggi-do 17036, Korea
Telephone No.	:	+82 31-322-6767
Facsimile No.	:	+82 31-322-6768

Certificate

FCC Designation No.	:	KR0159
FCC Registration No.	:	133186
IC Site Registration No.	:	22000-1

3. Information About Test Equipment

3.1 Equipment Information

Equipment type	Multicom Repeater 900
Equipment model name	MR-900
Variant model name	MR900, MC11R-900, RefAudio Pro X Link, MC11 Repeater 900, MCR-900, SPEZ-R, SPEZ-Repeater, SPEZ-R 900
Frequency range	903 MHz ~ 926.5 MHz (Number of Channels : 48, Hopping Channels : 25) Note3
Modulation type	GFSK
Modulation technology	FHSS
Power supply	DC 3.70 V
H/W version	Rev 1.4
S/W version	1.0

Note1:The above EUT information was declared by the manufacturer.
Note2: Variant model names are used for each other different Buyers.
Note3: This device uses 25 random hopping channels among total 48 channels.

3.2 Antenna Information

Antenna 1	type	Dipole Antenna
	gain	4.34 dBi
Antenna 2	type	Dipole Antenna
	gain	4.34 dBi

3.3 Test Frequency

Test mode	Test frequency (MHz)		
	Lowest frequency	Middle frequency	Highest frequency
GFSK	903	915	926.5

3.4 Tested Companion Device Information

Type	Manufacturer	Model	Note
-	-	-	-
-	-	-	-

3.5 Equipment Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	903	20	913	40	923
1	903.5	21	913.5	41	923.5
2	904	22	914	42	924
3	904.5	23	914.5	43	924.5
4	905	24	915	44	925
5	905.5	25	915.5	45	925.5
6	906	26	916	48	926
7	906.5	27	916.5	47	926.5
8	907	28	917		
9	907.5	29	917.5		
10	908	30	918		
11	908.5	31	918.5		
12	909	32	919		
13	909.5	33	919.5		
14	910	34	920		
15	910.5	35	920.5		
16	911	36	921		
17	911.5	37	921.5		
18	912	38	922		
19	912.5	39	922.5		

NOTE 1 : Test frequencies are the lowest channel: 0 channel(903 MHz), middle channel: 24 channel(915 MHz) and highest channel: 47 channel(926.5 MHz)

NOTE 2 : This device uses 25 random hopping channels among total 48 channels.

4. Test Report

4.1 Summary

FCC Rule	IC Rule	Parameter	Clause	Status
Transmitter Requirements				
15.203 15.247(c)	-	Antenna Requirement	4.4.1	C
15.247(a)(1)(i)	RSS-247 5.1(c)	20 dB Channel Bandwidth	4.4.2	C
-	RSS-GEN 6.6	Occupied Bandwidth	4.4.2	
15.247(a)(1)(i)	RSS-247 5.1(c)	Hopping Channel Number	4.4.3	C
15.247(a)(1)(i)	RSS-247 5.1(c)	Average Time of occupancy	4.4.4	C
15.247(a)(1)	RSS-247 5.1(b)	Carrier Frequencies Separated	4.4.5	C
15.247(b)(2)	RSS-247 5.4(a)	Maximum Peak Output Power	4.4.6	C
15.247(d) 15.205(a) 15.209(a)	RSS-247 5.5	Spurious Emission, Band Edge and Restricted bands	4.4.7	C
15.207(a)	RSS-GEN 8.8	Conducted Emissions	4.4.8	C
NOTE 1 : C = Comply N/C = Not Comply N/T = Not Tested N/A = Not Applicable				

* The general test methods used to test this device is ANSI C63.10:2013

4.2 Measurement Uncertainty

Mesurement items	Expanded Uncertainty
RF Output Power	±0.790 dB (The confidence level is about 95 %, *k*=2)
Occupied Channel Bandwidth	±2 286 Hz (The confidence level is about 95 %, *k*=2)
Conducted Spurious Emissions	±1.034 dB (The confidence level is about 95 %, *k*=2)
Radiated Spurious Emissions (1 GHz under)	±4.560 dB (The confidence level is about 95 %, *k*=2)
Radiated Spurious Emissions (Above 1 GHz)	±4.460 dB (The confidence level is about 95 %, *k*=2)
Conducted emission	±1.780 dB (The confidence level is about 95 %, *k*=2)

4.3 Test Report Version

Test Report No.	Date	Description
TRRFCC17-0002	17.03.08	Initial issue
TRRFCC17-0002(1)	17.03.16	Rev.1

4.4 Transmitter Requirements

4.4.1 Antenna Requirement

4.4.1.1 Regulation

Accoding to §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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Accoding to §15.247(c) Operation with directional antenna gains greater than 6 dBi.

4.4.1.4 Result

Comply
(The transmitter has a Dipole Antenna. The directional peak gain of the antenna is 4.34 dBi.
Antenna Type : External Antenna, Connector Type : Reverse Polarity SMA connector)

4.4.2 20 dB Bandwidth and Occupied Bandwidth

4.4.4.2 Regulation

According to §15.247(a)(1)(i) and RSS-247 §5.1(c) For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system 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.

20 dB and 99% emission bandwidth reporting only, measurement is also used to determine limits for other requirements of FHSS transmitters.

4.4.2.2 Measurement Procedure

The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
ANSI C63.10 § 6.9.2 Occupied bandwidth 20dB Relative procedure
ANSI C63.10 § 6.9.3 Occupied bandwidth 99% procedure

4.4.2.3 Result

Comply (measurement data : refer to the next page)

4.4.2.4 Measurement data

Test mode : GFSK(ANT1)

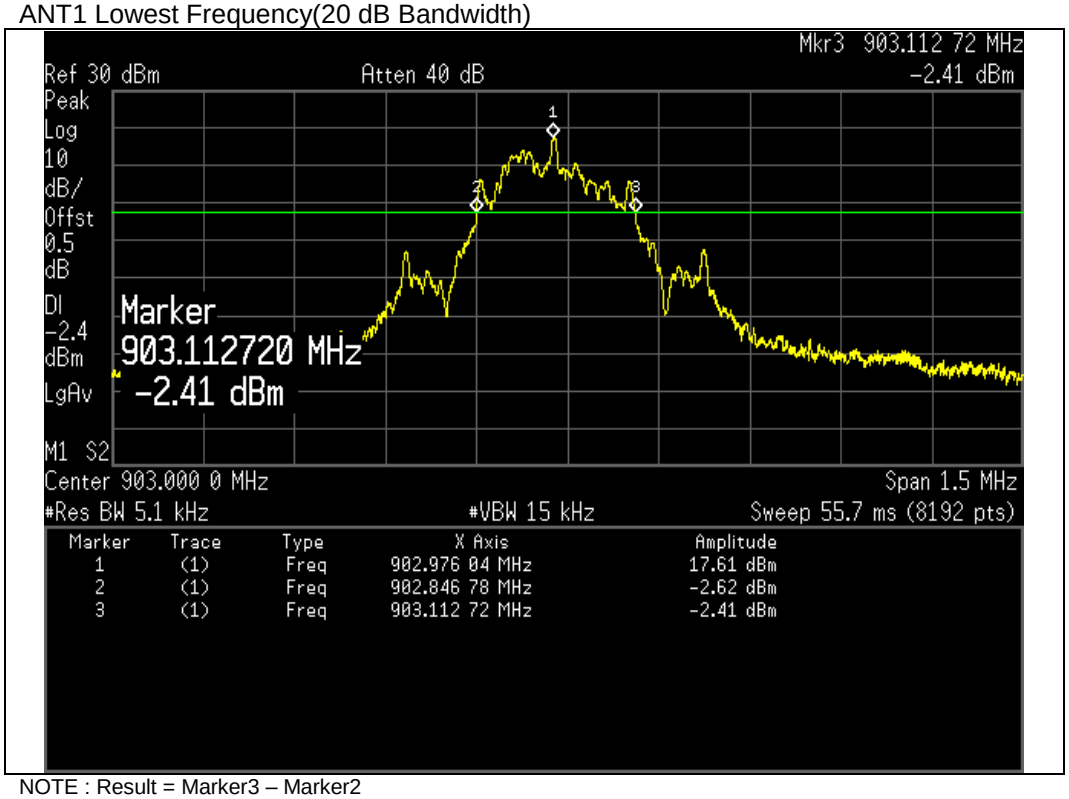
20dB Channel Bandwidth			
Frequency (MHz)	Result (kHz)	Max. Limit (kHz)	Occupied Bandwidth (99 % Bandwith)(kHz)
903	266	500	257
915	266	500	257
926.5	266	500	257

Test mode : GFSK(ANT2)

20dB Channel Bandwidth			
Frequency (MHz)	Result (kHz)	Max. Limit (kHz)	Occupied Bandwidth (99 % Bandwith)(kHz)
903	267	500	260
915	266	500	257
926.5	264	500	257

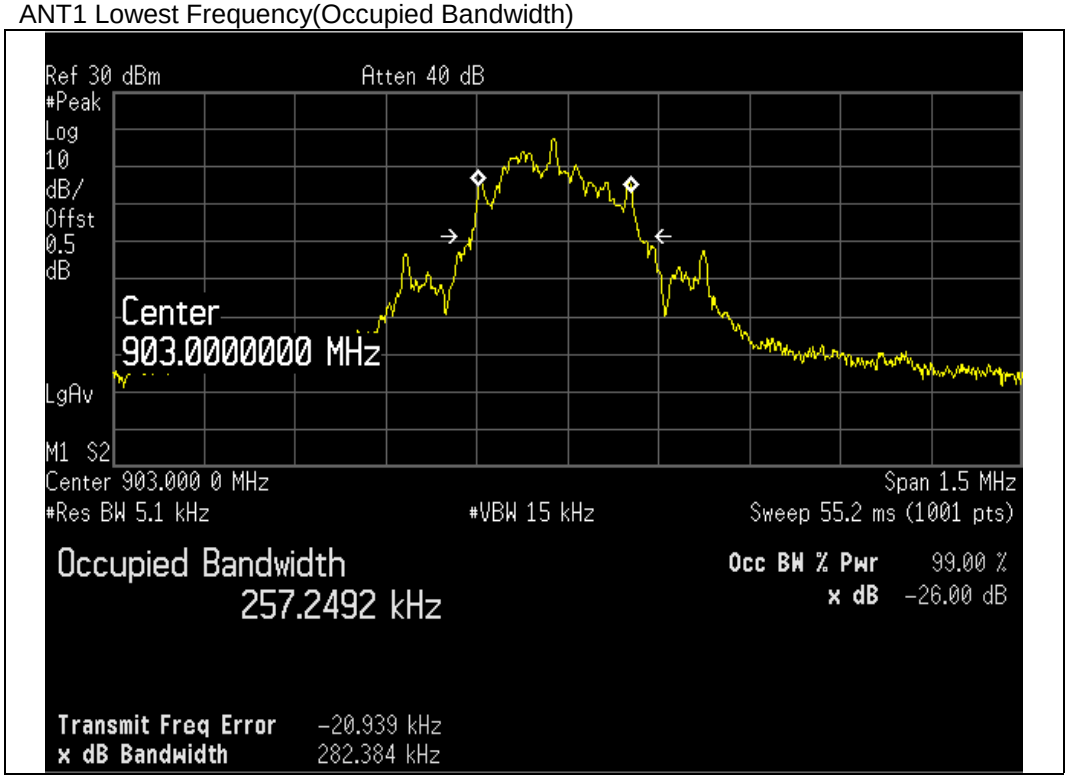
4.4.2.5 Test Plot

ANT1 Lowest Frequency(20 dB Bandwidth)

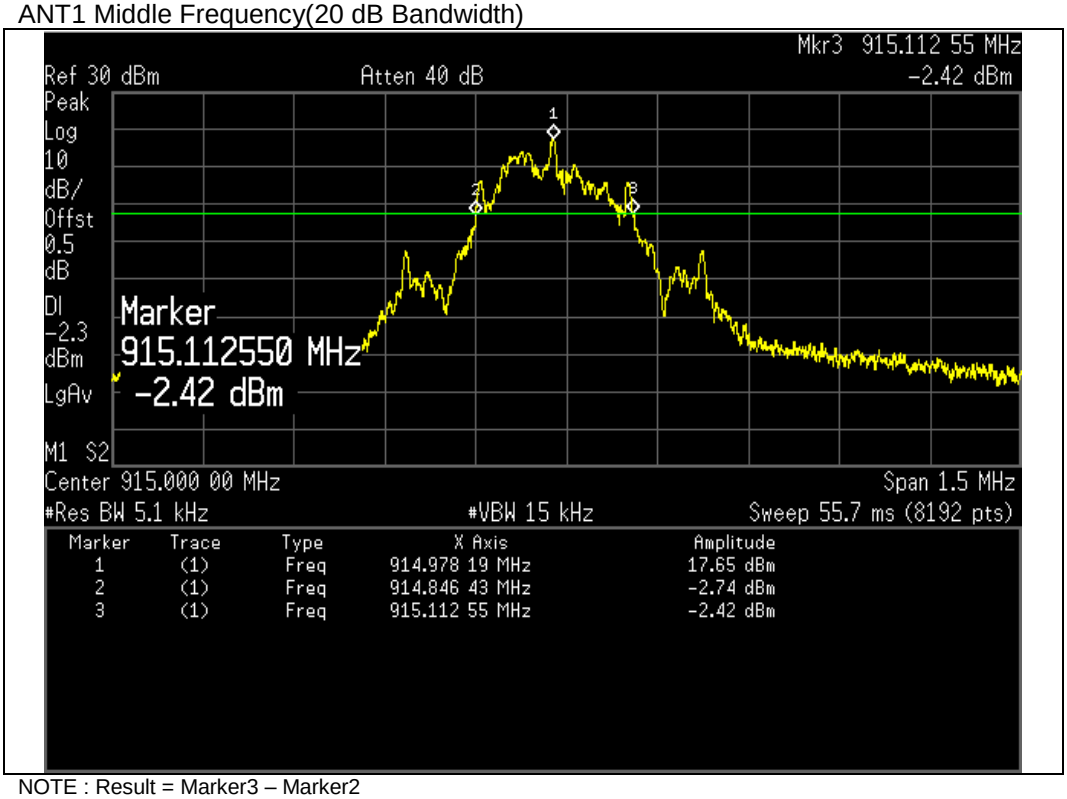


NOTE : Result = Marker3 – Marker2

ANT1 Lowest Frequency(Occupied Bandwidth)

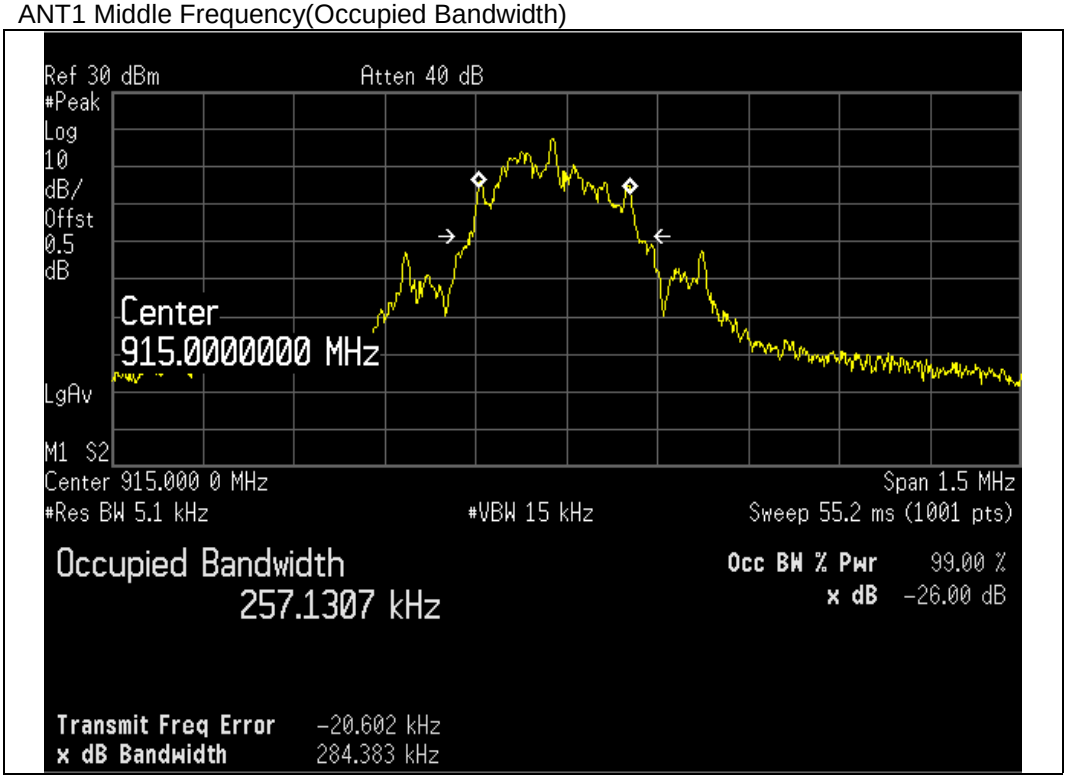


ANT1 Middle Frequency(20 dB Bandwidth)

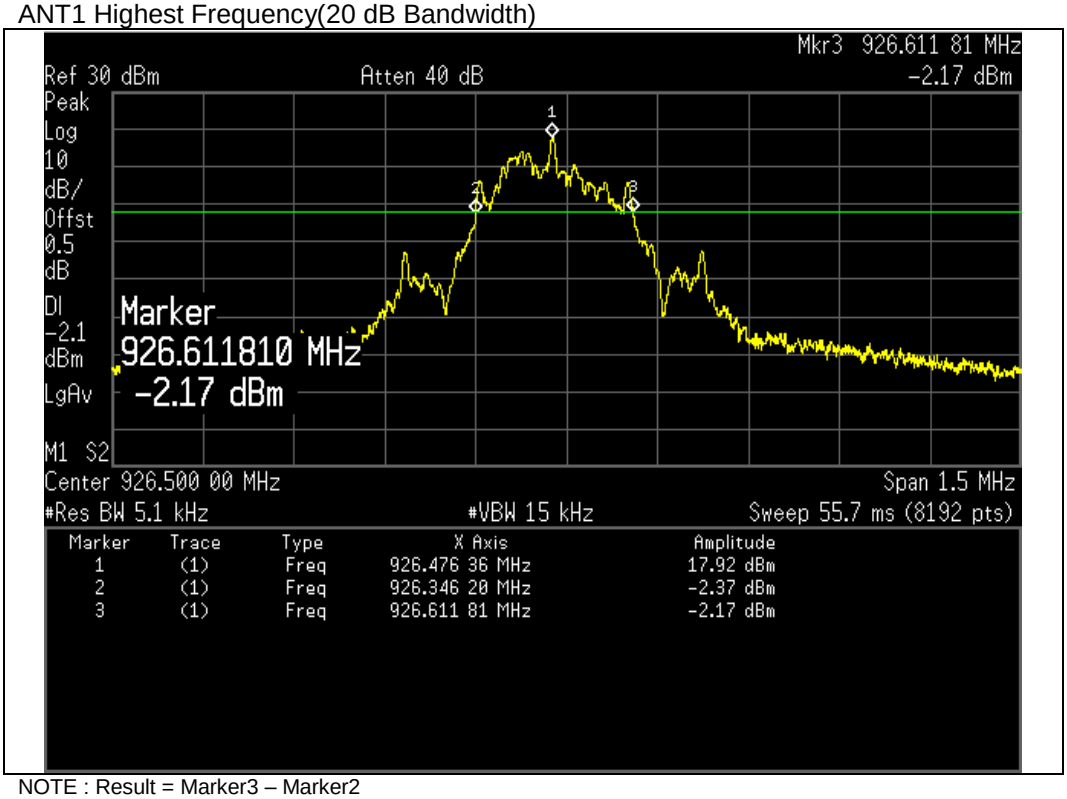


NOTE : Result = Marker3 – Marker2

ANT1 Middle Frequency(Occupied Bandwidth)

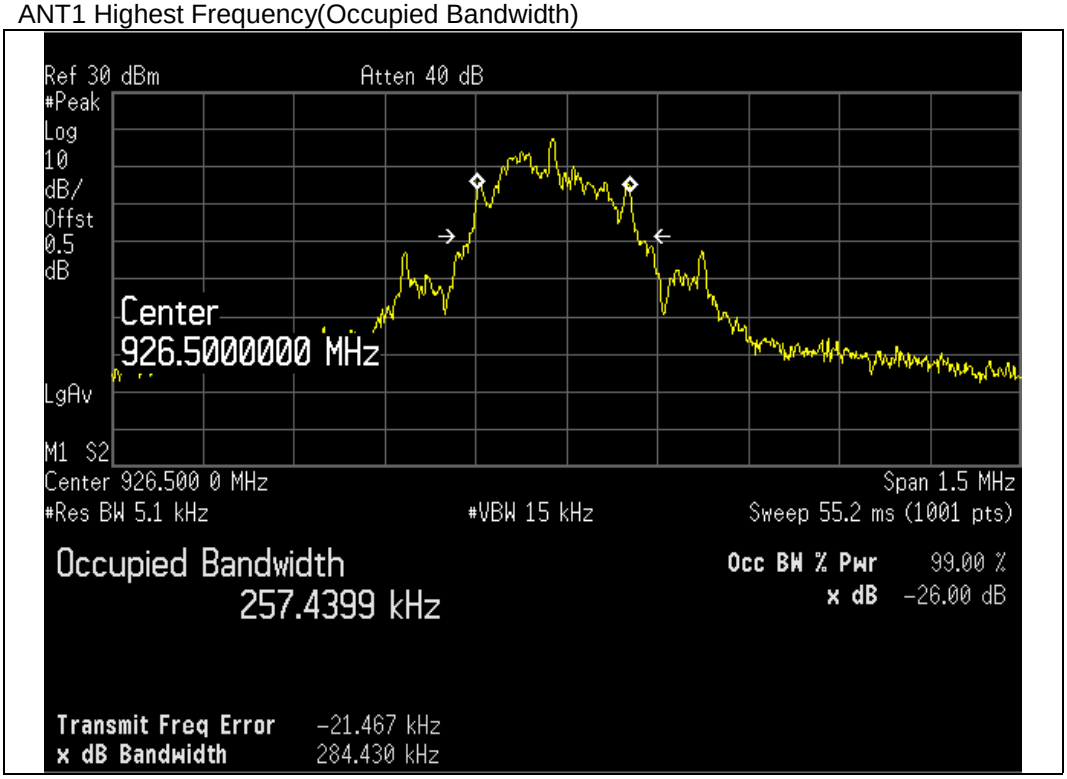


ANT1 Highest Frequency(20 dB Bandwidth)

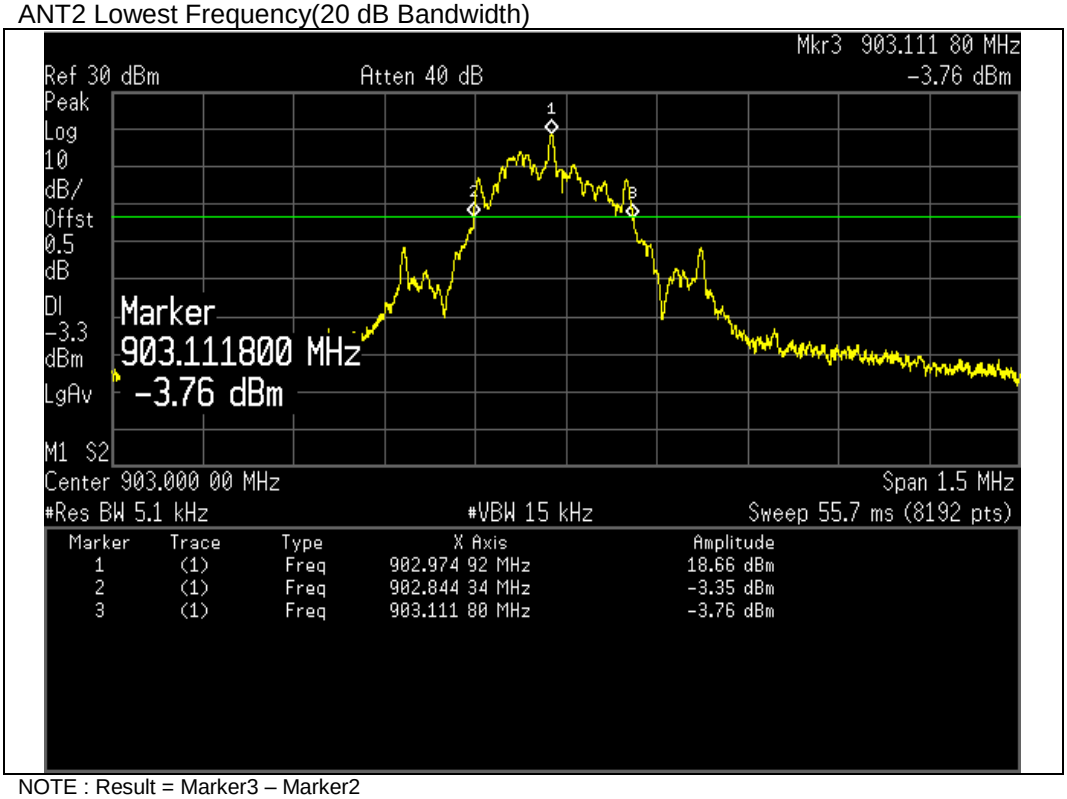


NOTE : Result = Marker3 – Marker2

ANT1 Highest Frequency(Occupied Bandwidth)

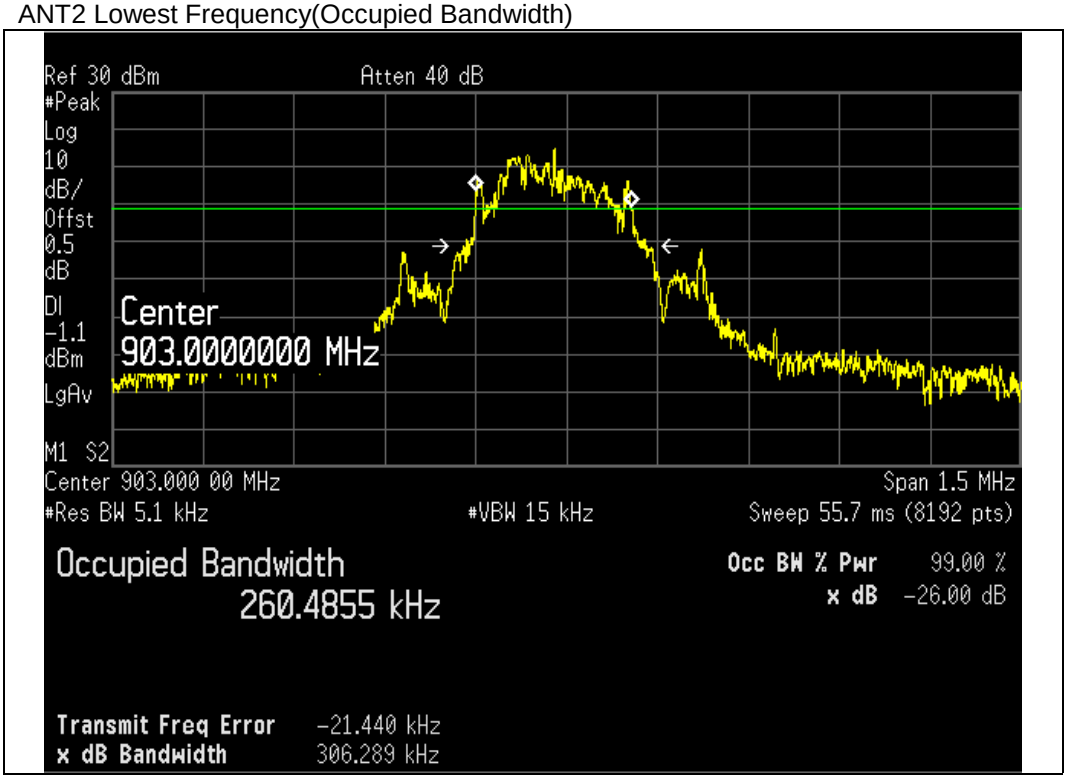


ANT2 Lowest Frequency(20 dB Bandwidth)

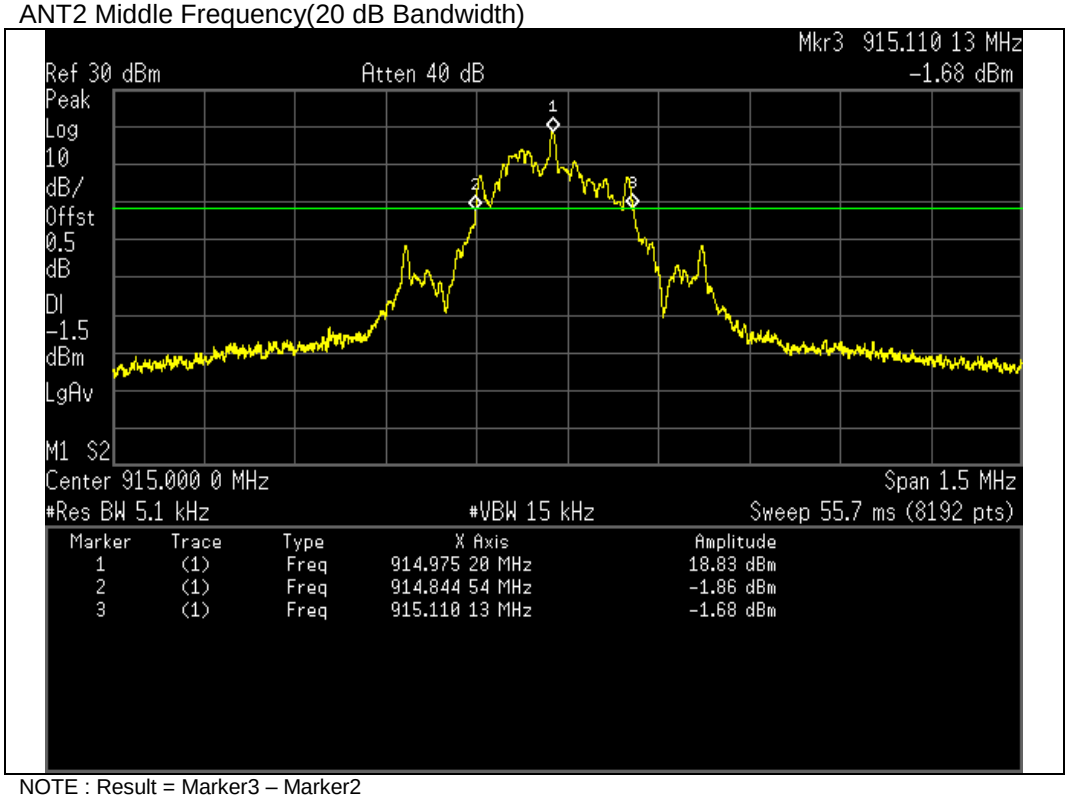


NOTE : Result = Marker3 – Marker2

ANT2 Lowest Frequency(Occupied Bandwidth)

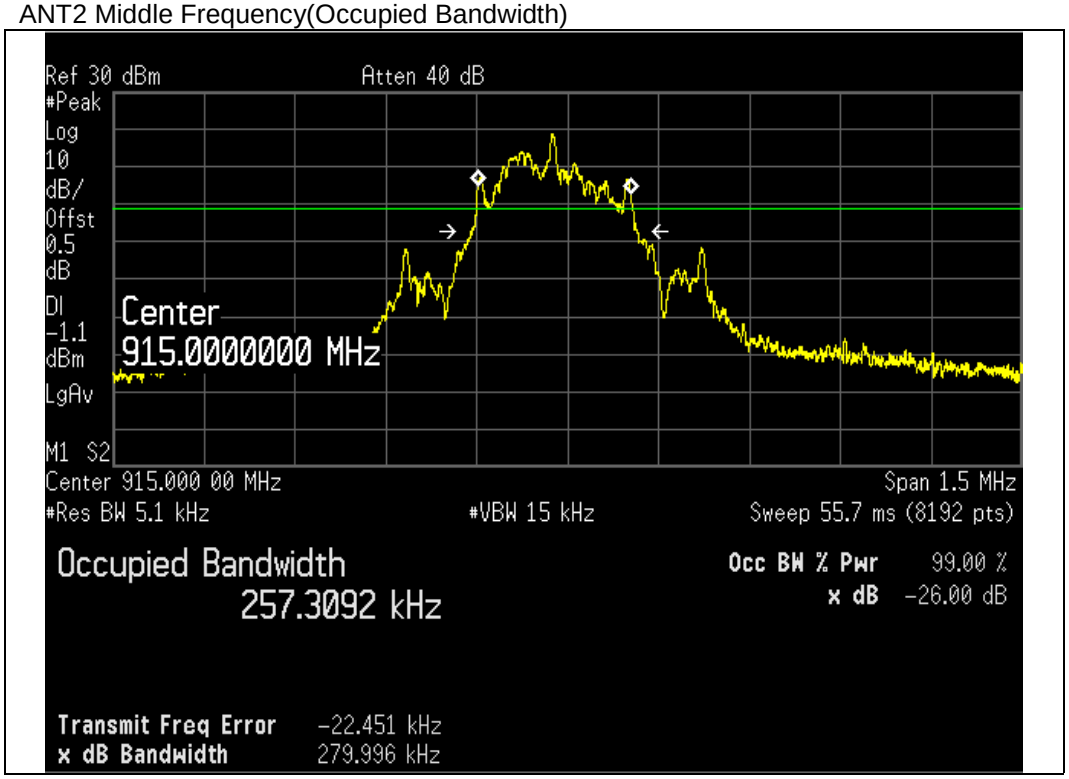


ANT2 Middle Frequency(20 dB Bandwidth)

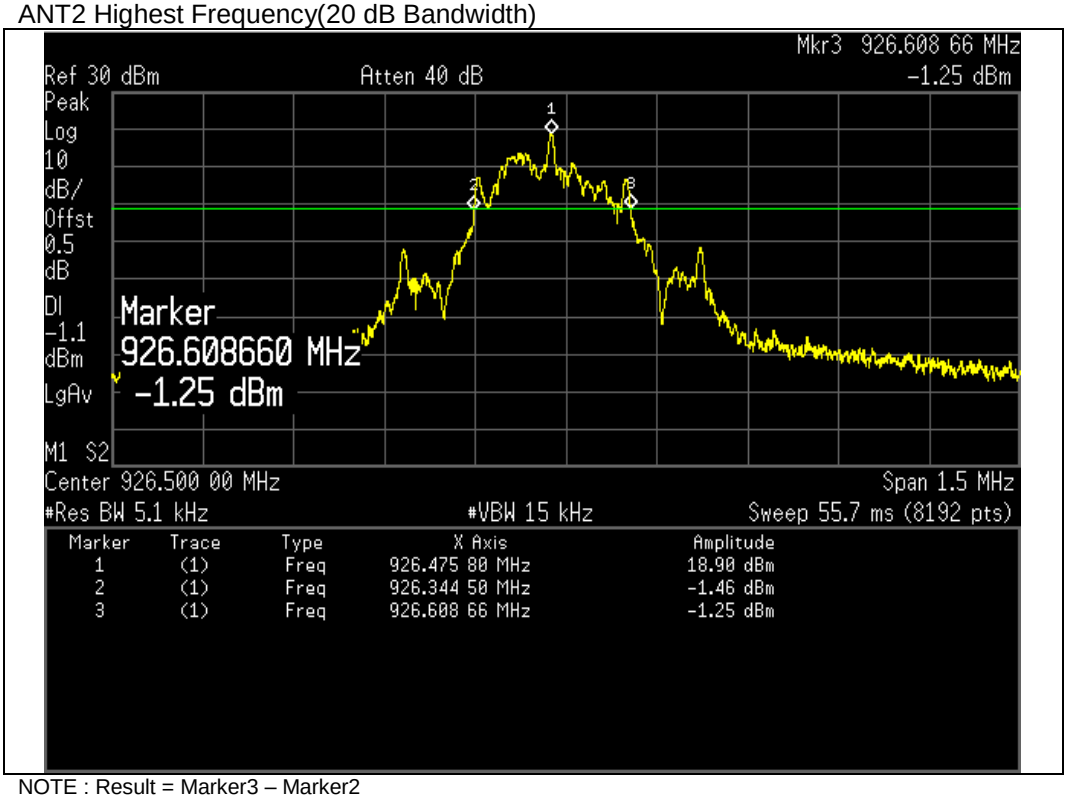


NOTE : Result = Marker3 – Marker2

ANT2 Middle Frequency(Occupied Bandwidth)

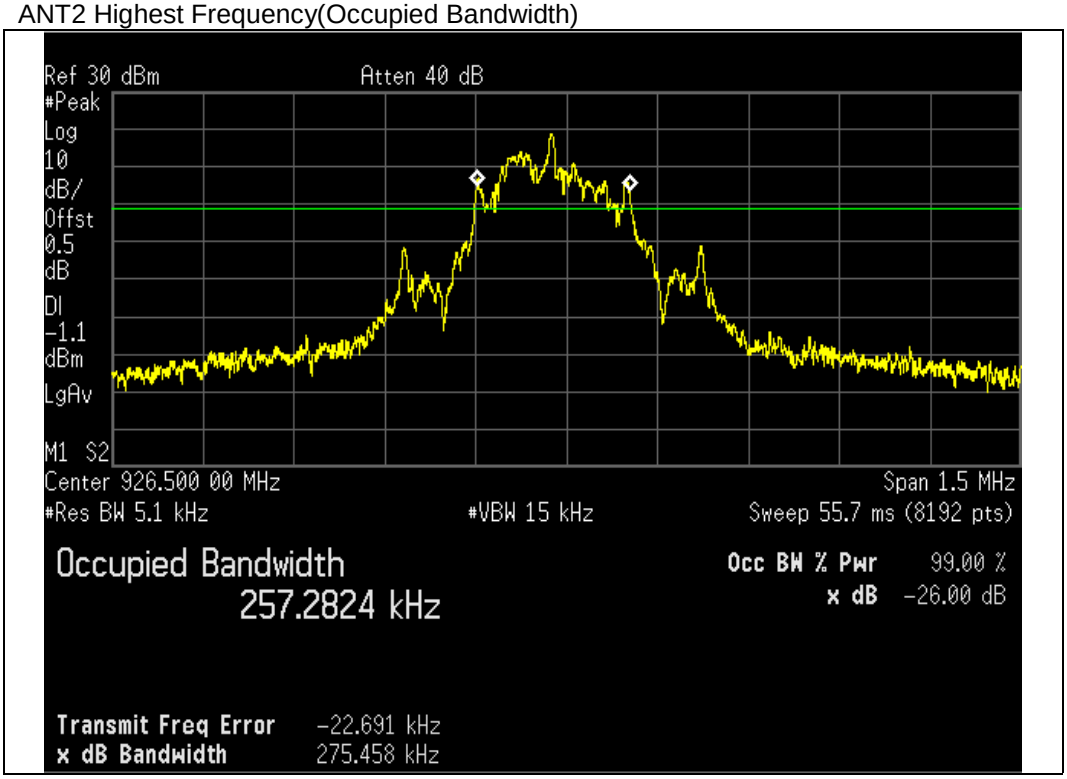


ANT2 Highest Frequency(20 dB Bandwidth)



NOTE : Result = Marker3 – Marker2

ANT2 Highest Frequency(Occupied Bandwidth)



4.4.3 Hopping Channel Number

4.4.4.2 Regulation

According to §15.247(a)(1)(i) and RSS-247 §5.1(c) For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system 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.

4.4.3.2 Measurement Procedure

The testing follows FCC Public Notice DA 00-705 Measurement Guidelines
ANSI C63.10 § 7.8.3 Number of hopping frequencies

4.4.3.3 Result

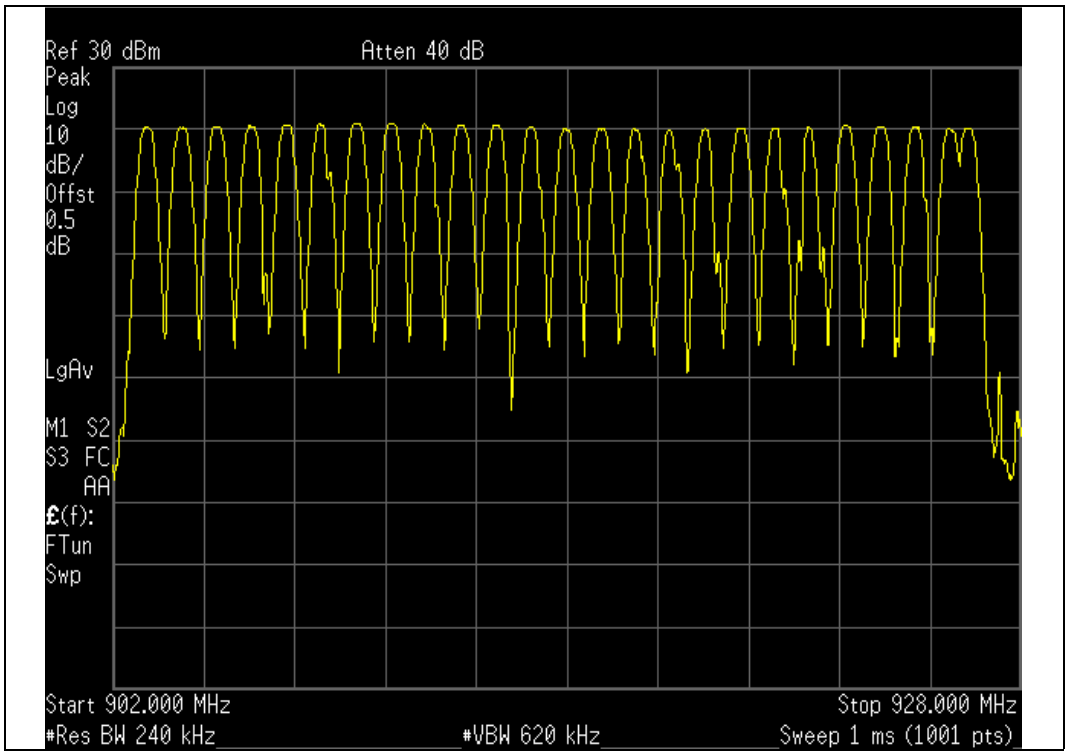
Comply (measurement data : refer to the next page)

4.4.3.4 Measurement data

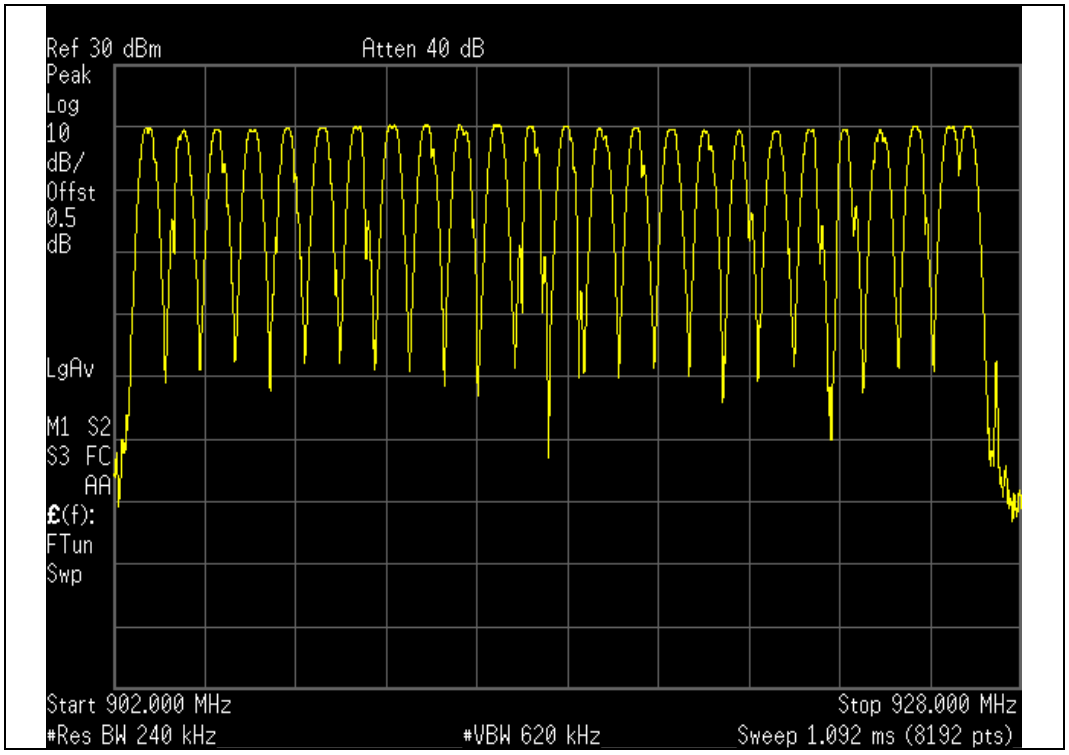
Total number of Hopping Channels is 25.

4.4.3.5 Test Plot

ANT1



ANT2



4.4.4 Average Time of occupancy

4.4.4.2 Regulation

According to §15.247(a)(1)(i) and RSS-247 §5.1(c) For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system 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.

4.4.4.2 Measurement Procedure

The testing follows FCC Public Notice DA 00-705 Measurement Guidelines
ANSI C63.10 § 7.8.3 Time of Occupancy

4.4.4.3 Result

Comply (measurement data : refer to the next page)

4.4.4.4 Measurement data

Test mode : GFSK(ANT1)

Average Time of occupancy					
Frequency (MHz)	Pulse	Number of Pulse in 10 seconds	Average Time of occupancy (ms)	Total (ms)	Limit (ms)
903	1	32	1.30	74.36	400
	2	26	1.26		
915	1	33	1.30	108.42	400
	2	52	1.26		
926.5	1	27	1.30	70.94	400
	2	28	1.28		

NOTE1 : Pulse 1 is Highest Level pulse.
Pulse 2 is Next Level pulse.
NOTE2 : Total : Average Time of occupancy(Pulse1) + Average Time of occupancy(Pulse2)

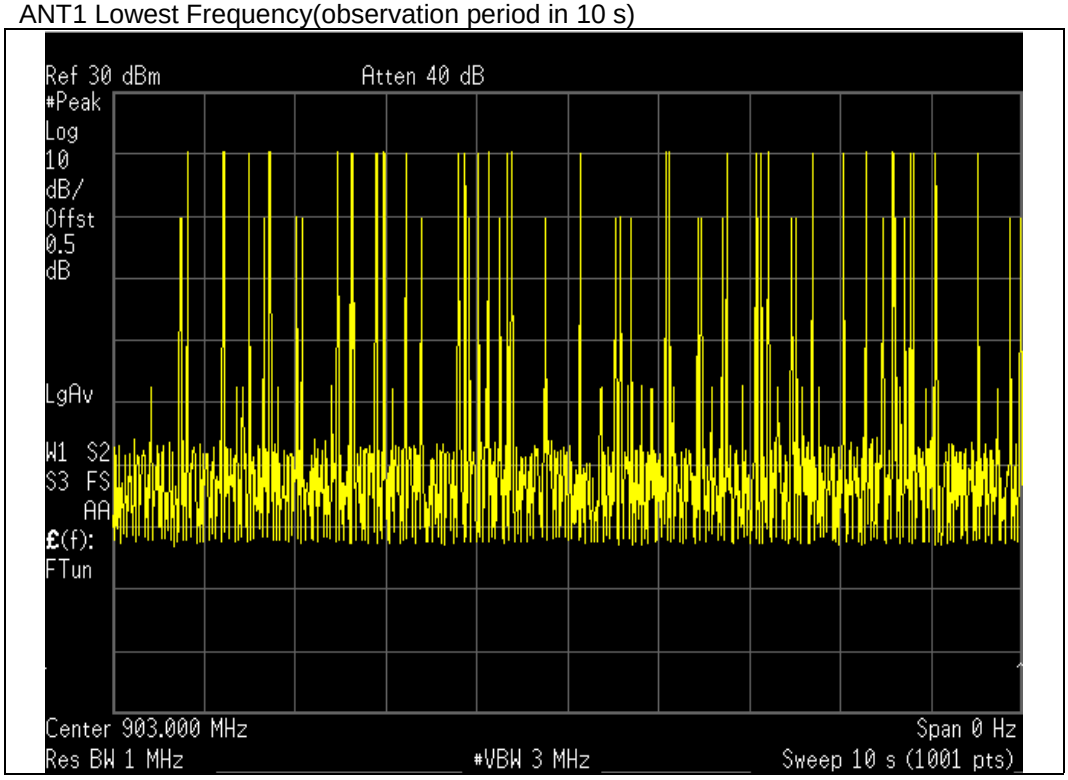
Test mode : GFSK(ANT2)

Average Time of occupancy					
Frequency (MHz)	Pulse	Number of Pulse in 10 seconds	Average Time of occupancy (ms)	Total (ms)	Limit (ms)
903	1	27	0.65	68.58	400
	2	27	0.63		
915	1	31	0.65	103.02	400
	2	49	0.64		
926.5	1	26	0.65	67.08	400
	2	26	0.64		

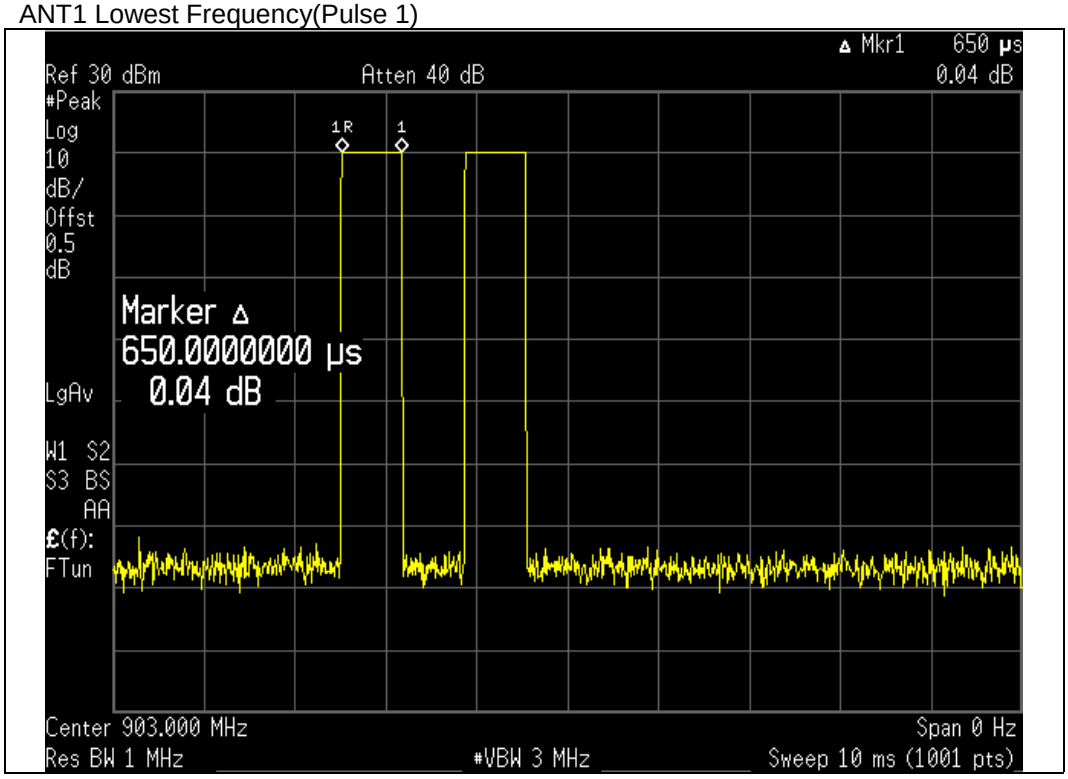
NOTE1 : Pulse 1 is Highest Level pulse.
Pulse 2 is Next Level pulse.
NOTE2 : Total : Average Time of occupancy(Pulse1) + Average Time of occupancy(Pulse2)

4.4.4.5 Test Plot

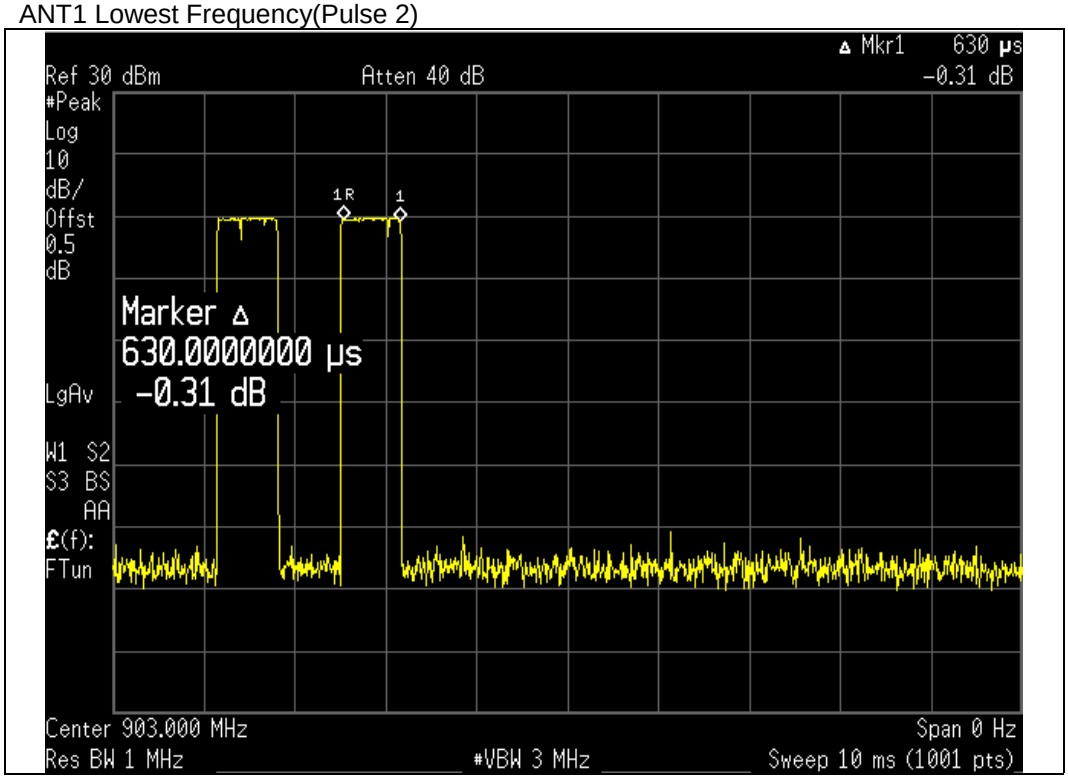
ANT1 Lowest Frequency(observation period in 10 s)



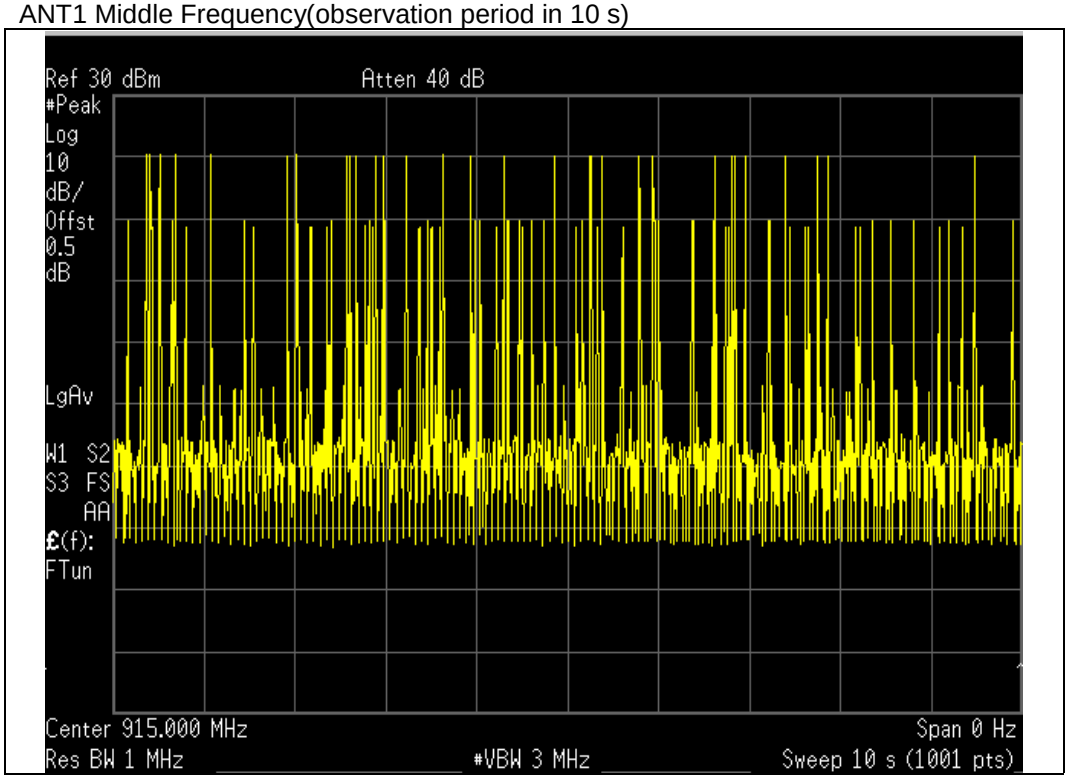
ANT1 Lowest Frequency(Pulse 1)



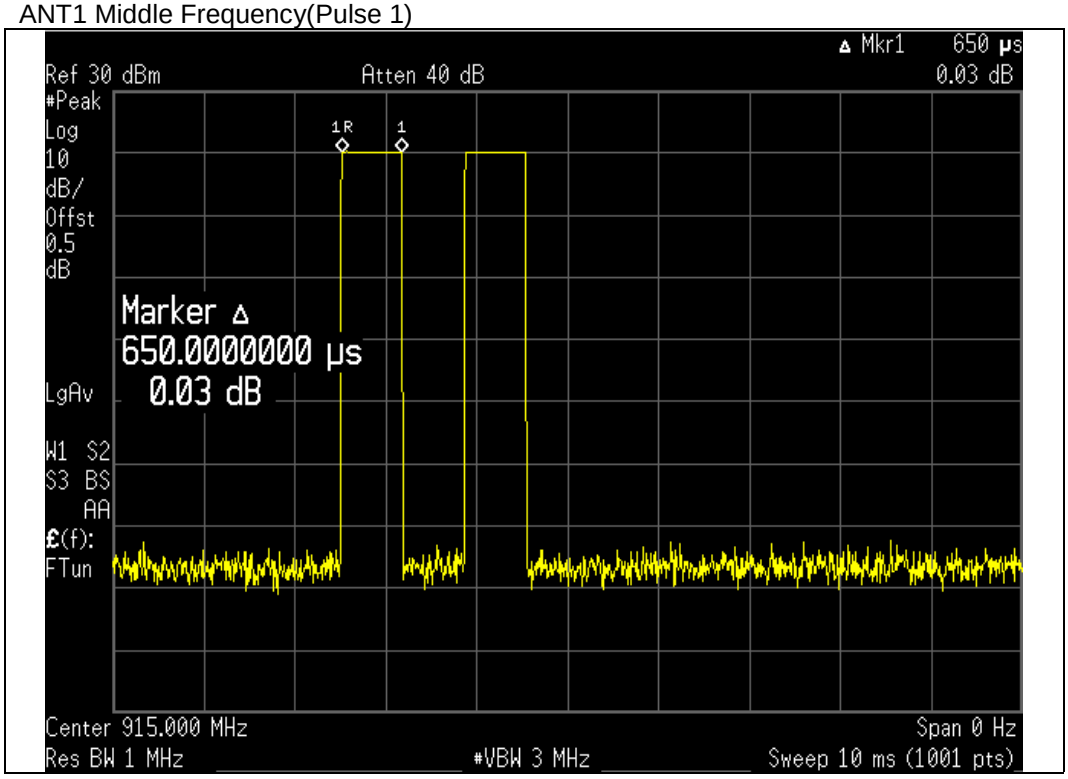
ANT1 Lowest Frequency(Pulse 2)



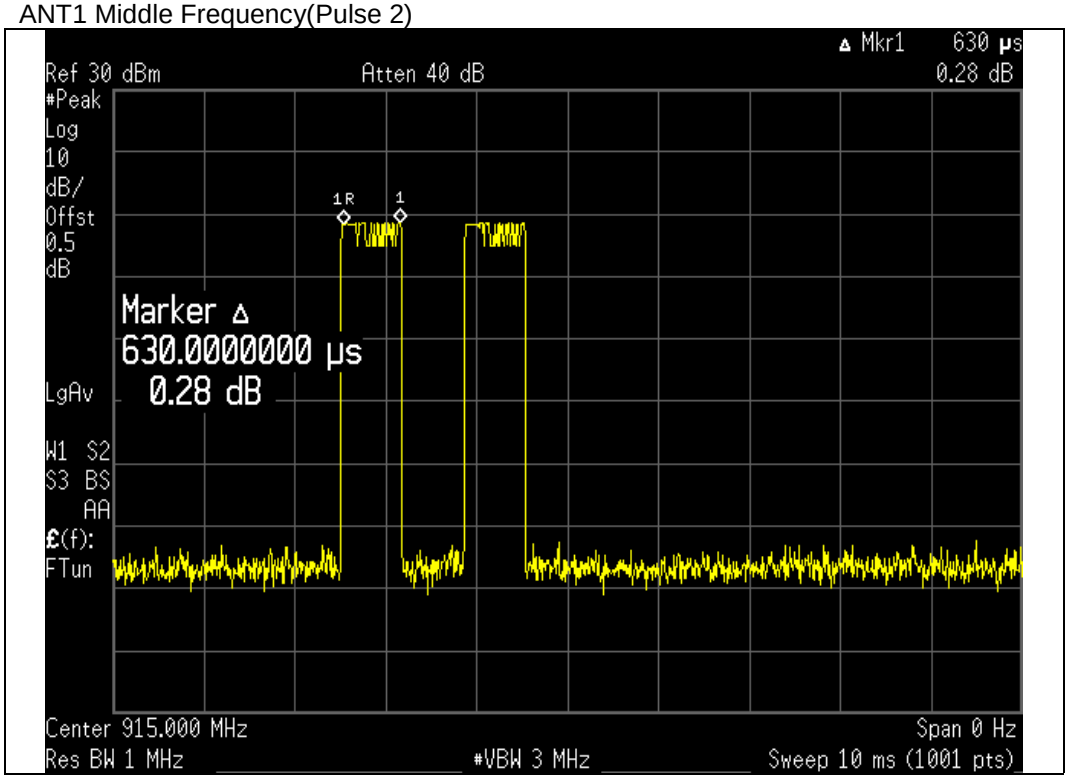
ANT1 Middle Frequency(observation period in 10 s)



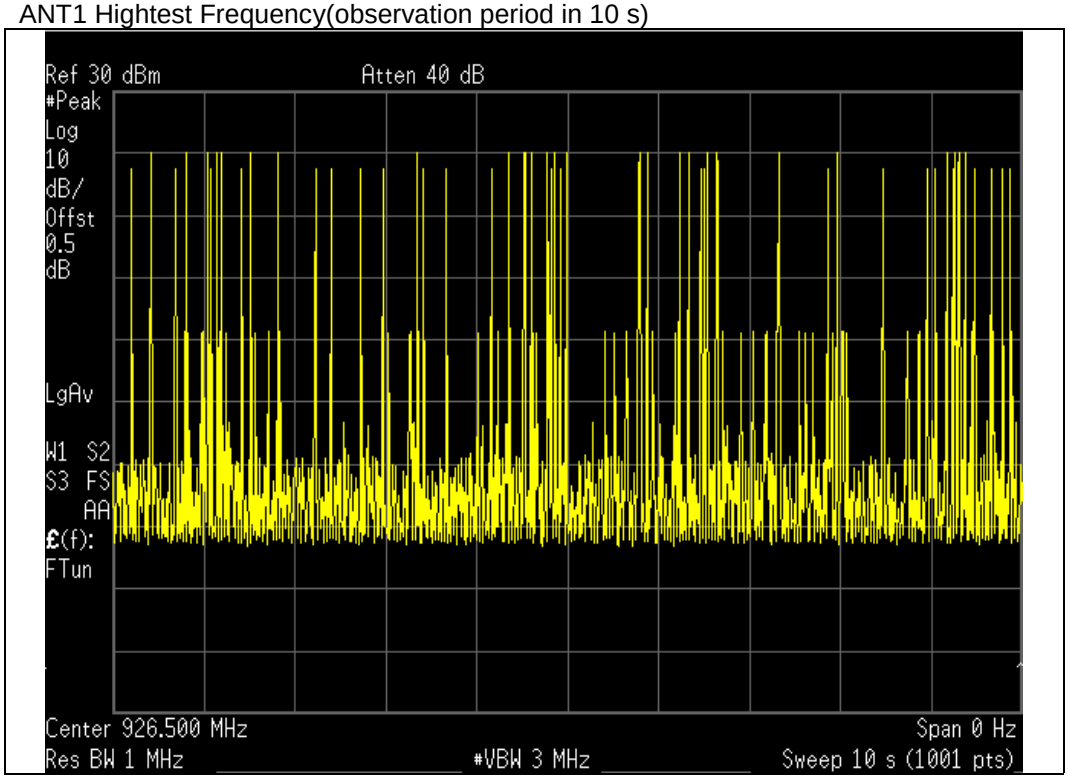
ANT1 Middle Frequency(Pulse 1)



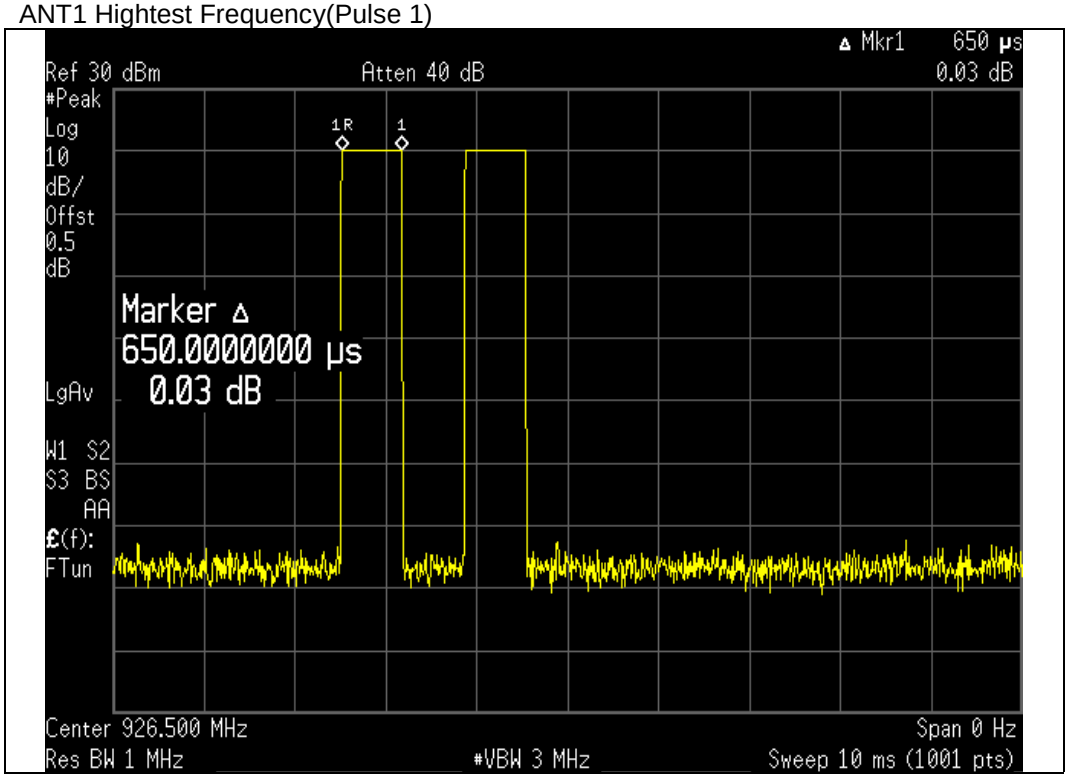
ANT1 Middle Frequency(Pulse 2)



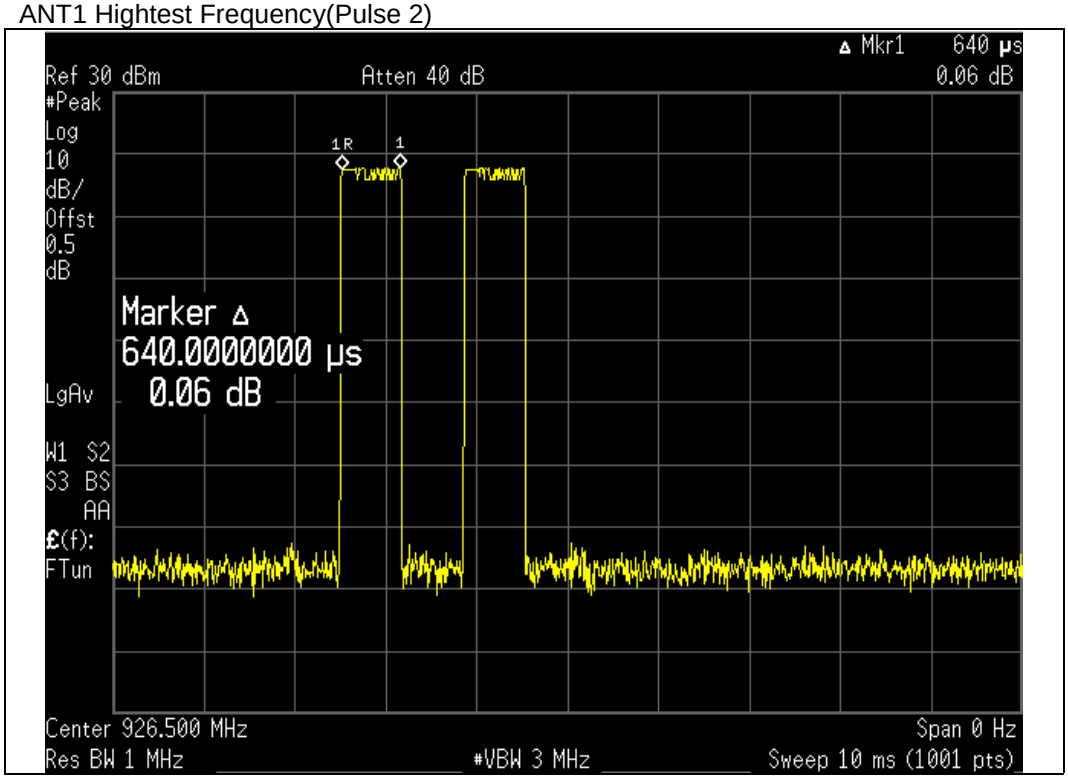
ANT1 Hightest Frequency(observation period in 10 s)



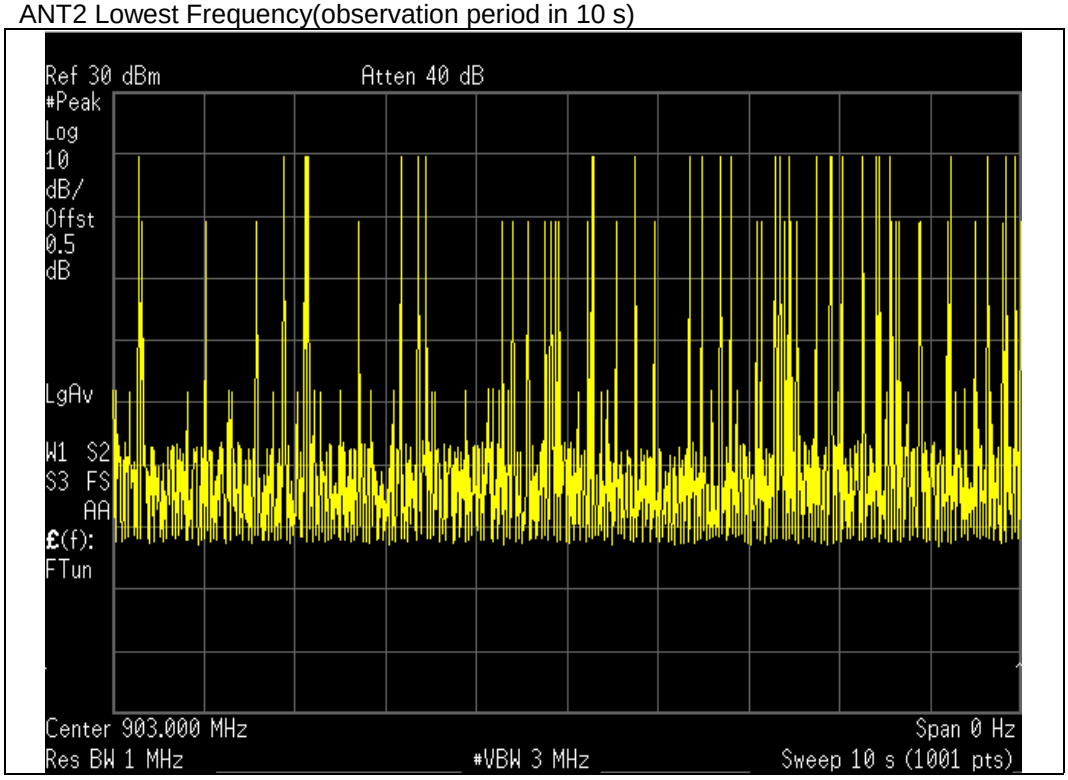
ANT1 Hightest Frequency(Pulse 1)



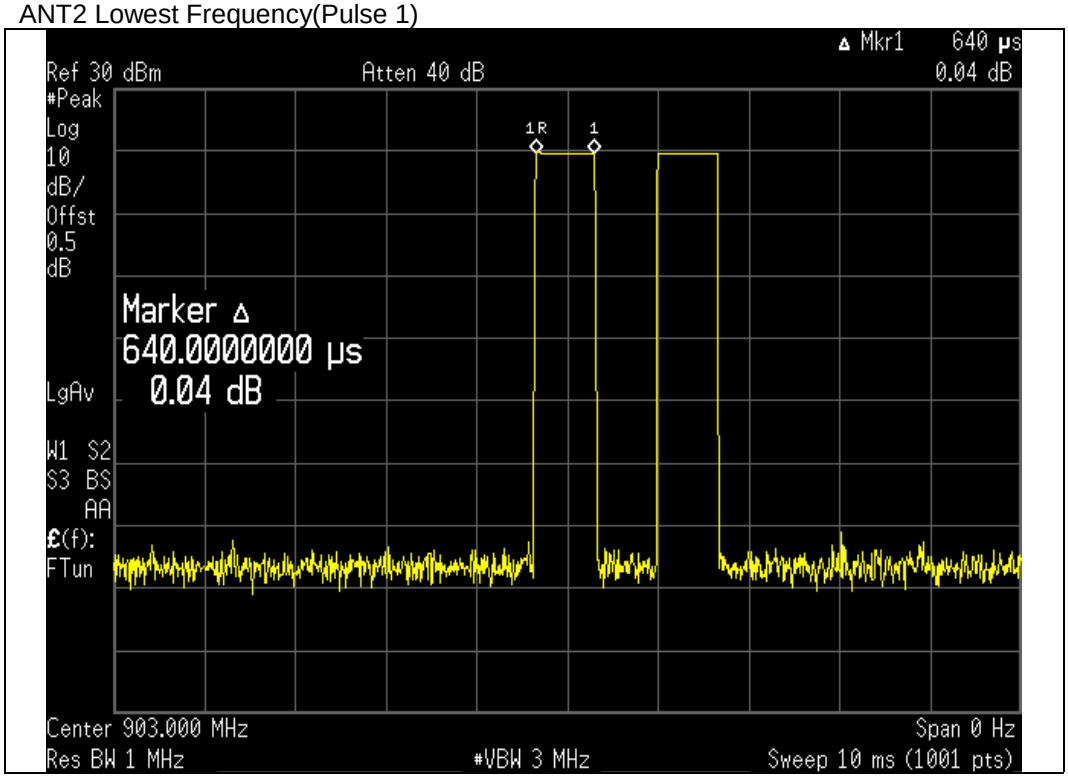
ANT1 Hightest Frequency(Pulse 2)



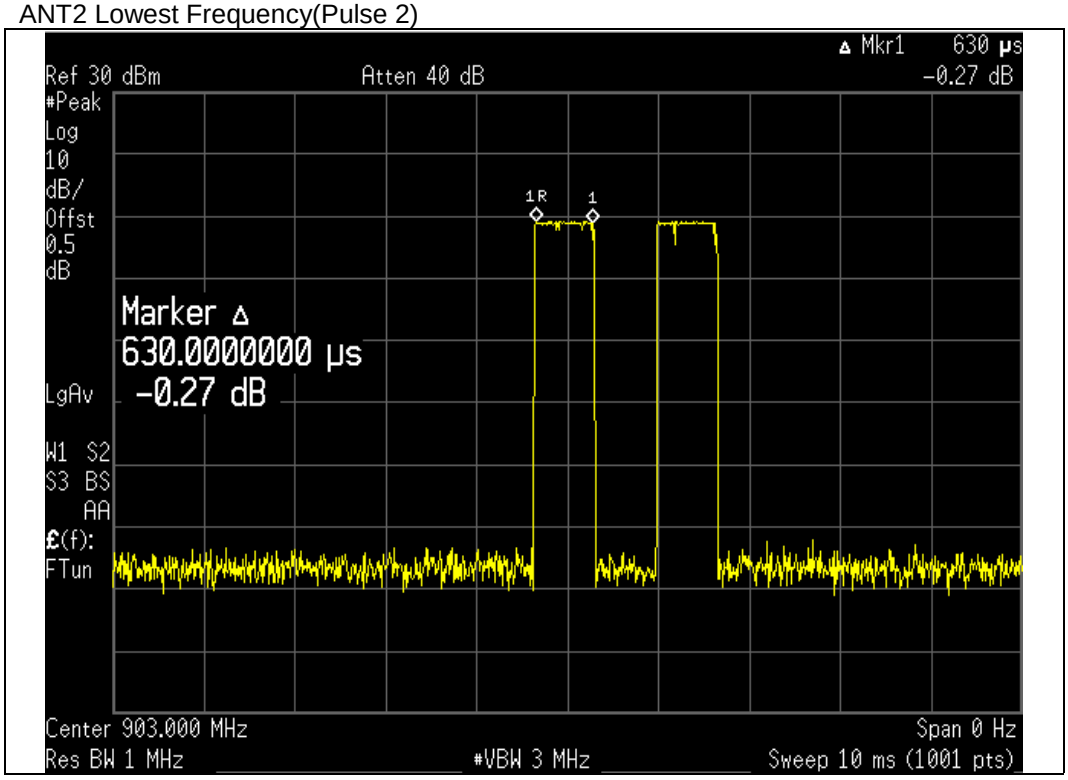
ANT2 Lowest Frequency(observation period in 10 s)



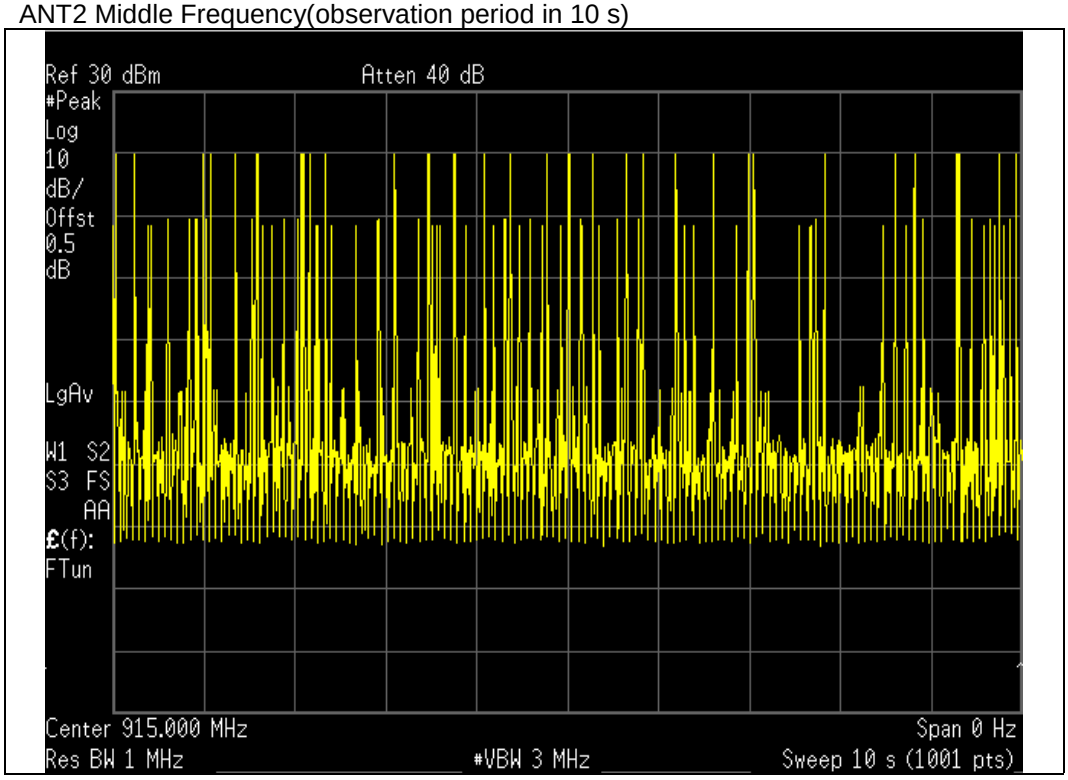
ANT2 Lowest Frequency(Pulse 1)



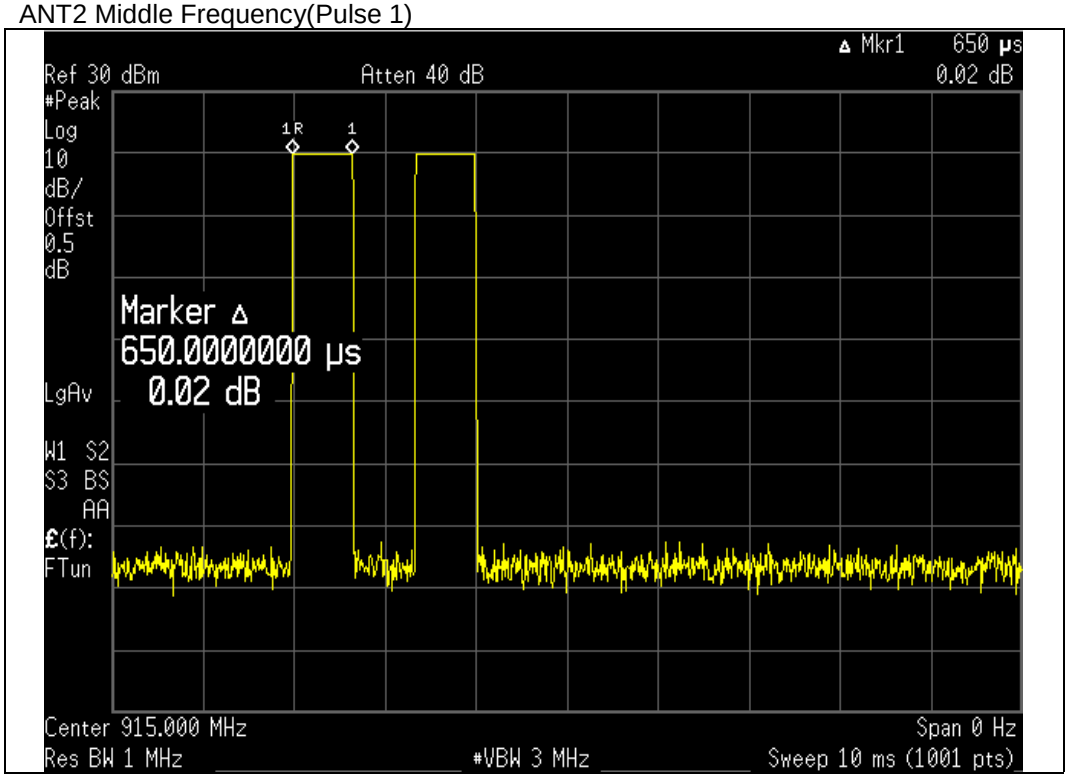
ANT2 Lowest Frequency(Pulse 2)



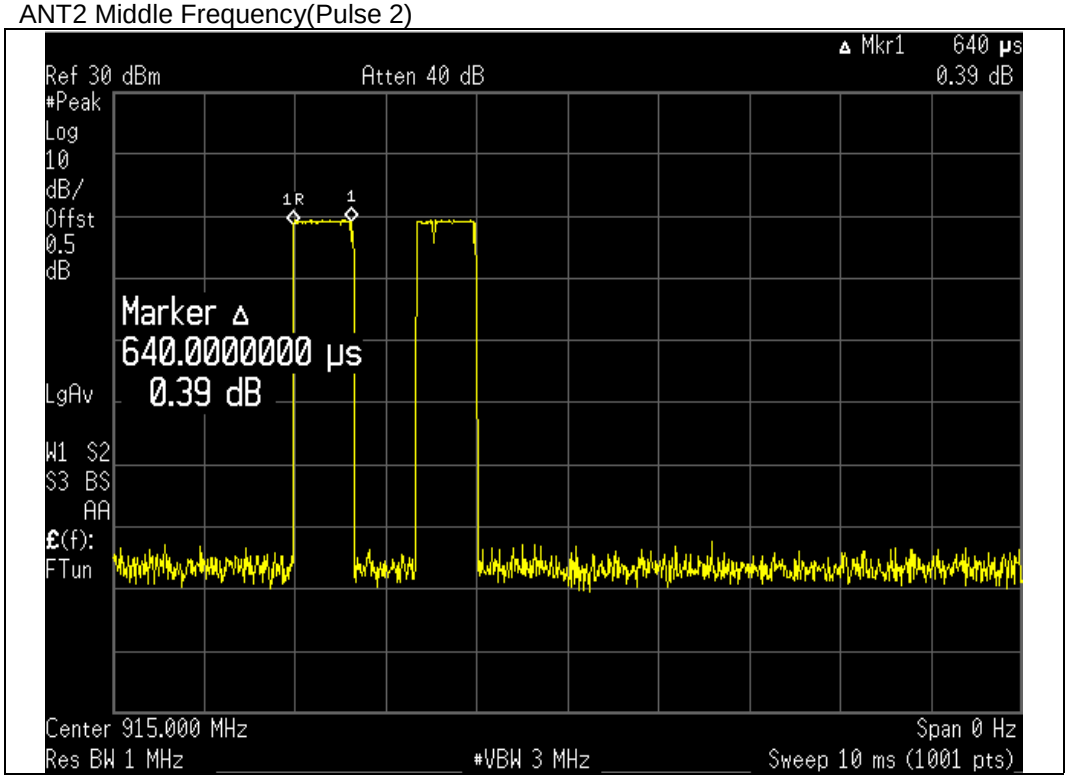
ANT2 Middle Frequency(observation period in 10 s)



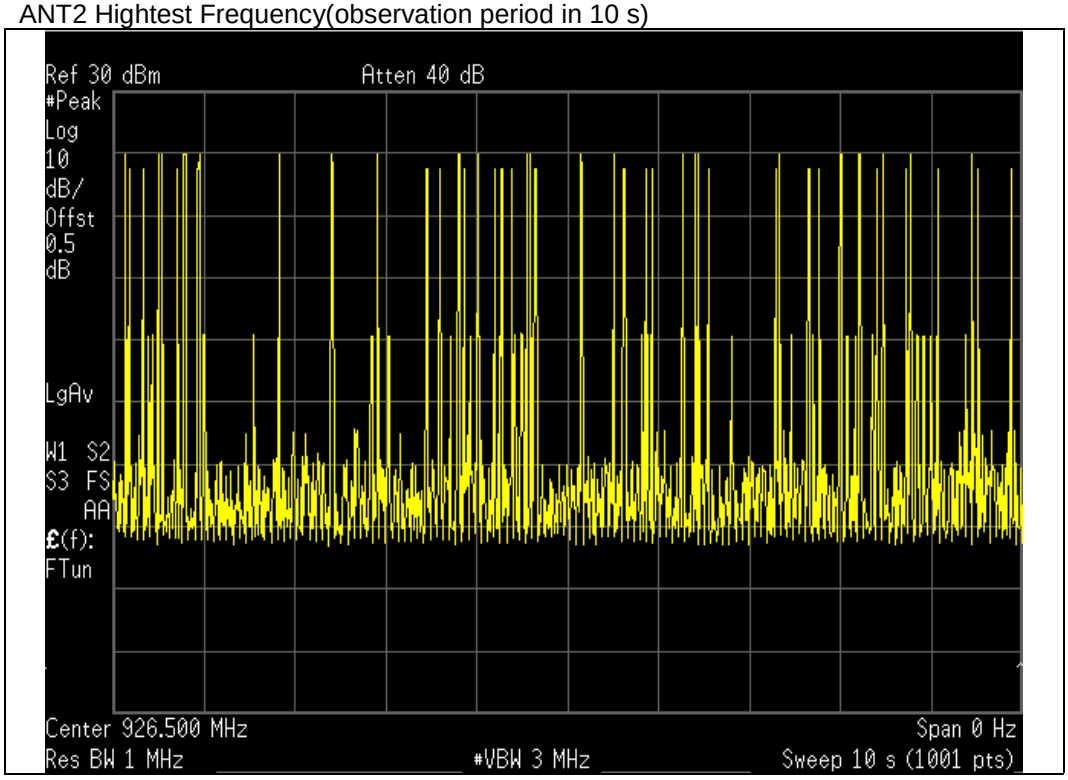
ANT2 Middle Frequency(Pulse 1)



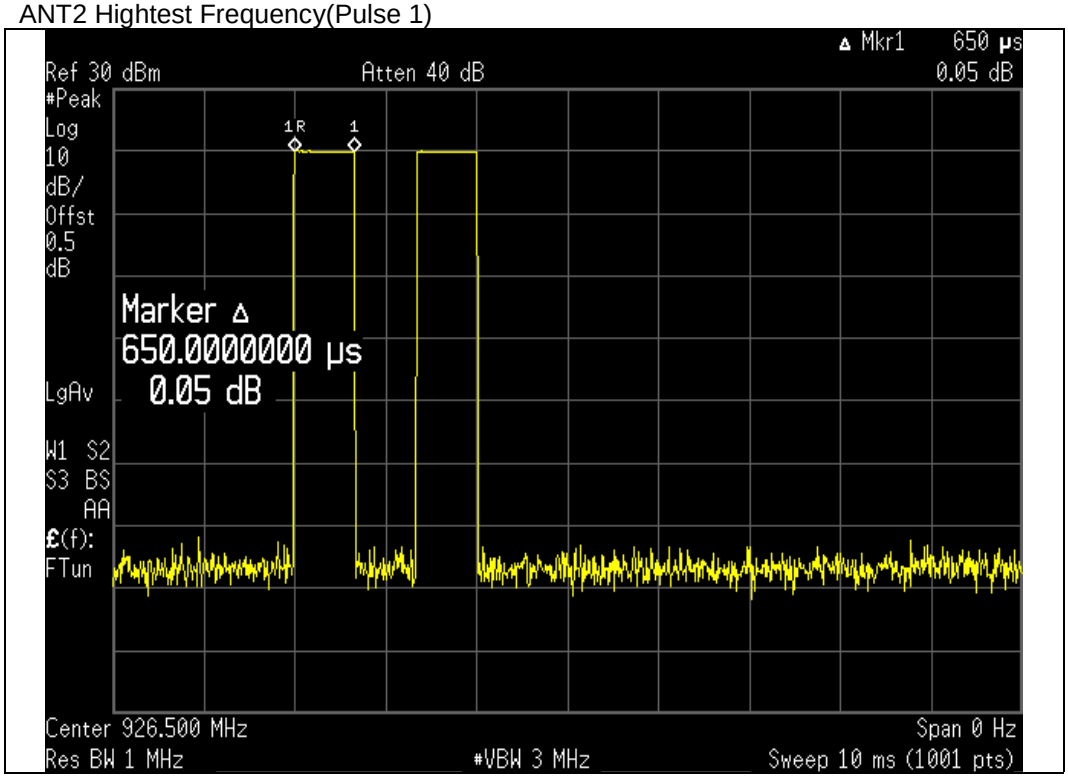
ANT2 Middle Frequency(Pulse 2)



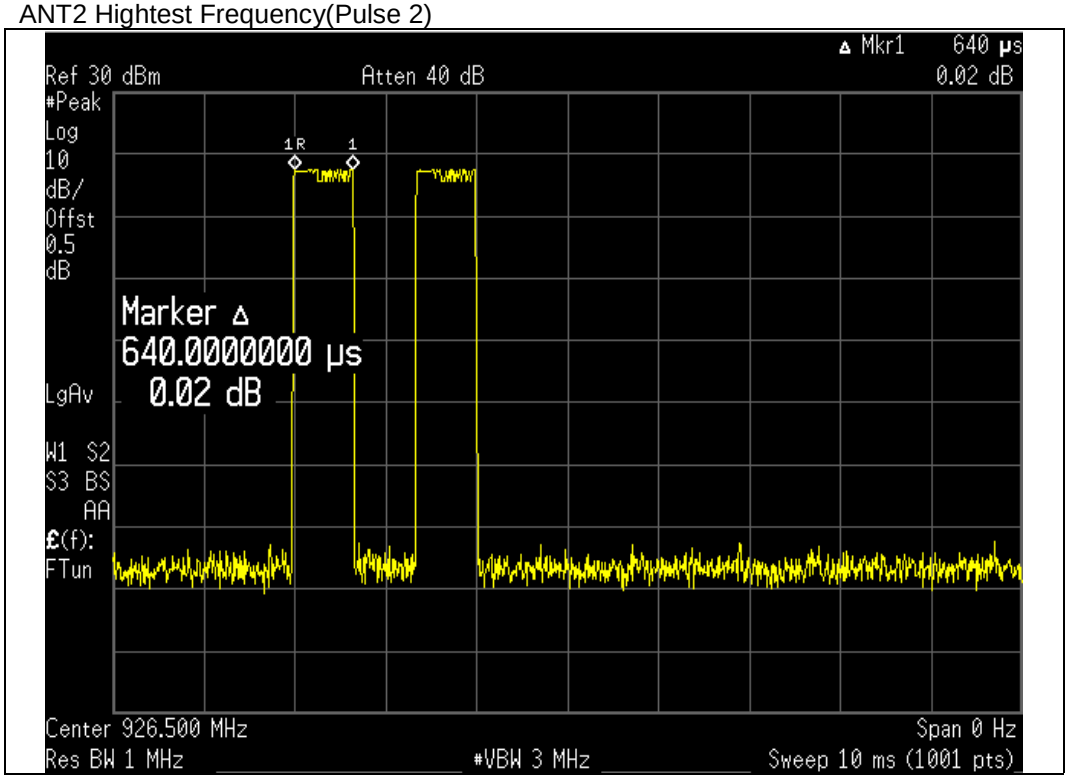
ANT2 Hightest Frequency(observation period in 10 s)



ANT2 Hightest Frequency(Pulse 1)



ANT2 Hightest Frequency(Pulse 2)



4.4.5 Carrier Frequencies Separated

4.4.5.2 Regulation

According to §15.247(a)(1) and RSS-247 §5.1(b) 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. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

4.4.5.2 Measurement Procedure

The testing follows FCC Public Notice DA 00-705 Measurement Guidelines
ANSI C63.10 § 7.8.2 Carrier frequency separation

4.4.5.3 Result

Comply (measurement data : refer to the next page)

4.4.5.4 Measurement data

Test mode : GFSK(ANT1)

Carrier Frequencies Separated		
Test Channel	Carrier Frequencies Separated (kHz)	Min. Limit (kHz)
Channel 1 to Channel 2	999	266
Channel 23 to Channel 24	999	266
Channel 46 to Channel 47	507	266

NOTE1 : Limit(kHz) : Result of 20 dB Bandwidth

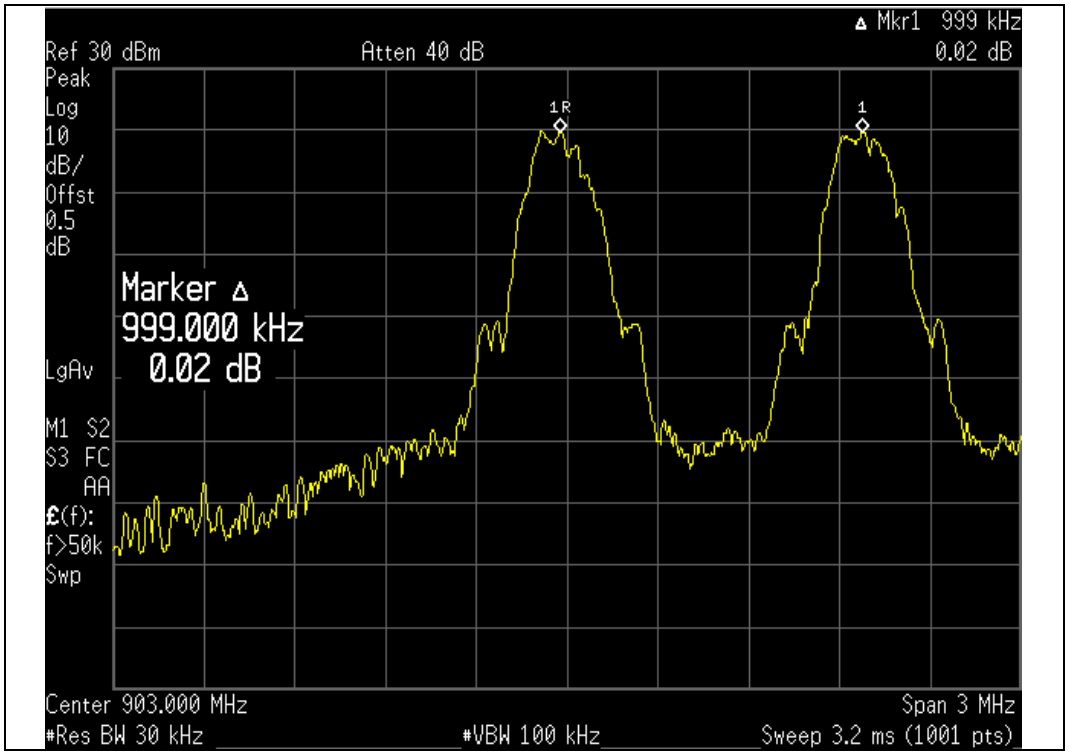
Test mode : GFSK(ANT2)

Carrier Frequencies Separated		
Test Channel	Carrier Frequencies Separated (kHz)	Min. Limit (kHz)
Channel 1 to Channel 2	999	267
Channel 23 to Channel 24	999	266
Channel 46 to Channel 47	498	264

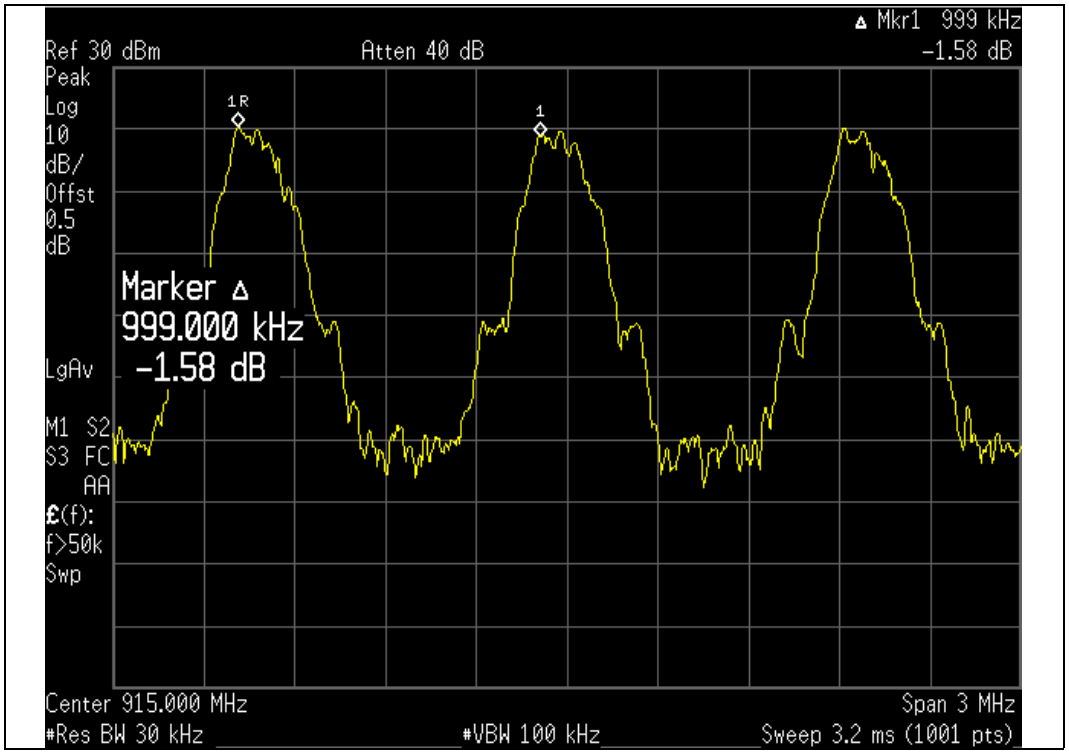
NOTE1 : Limit(kHz) : Result of 20 dB Bandwidth

4.4.5.5 Test Plot

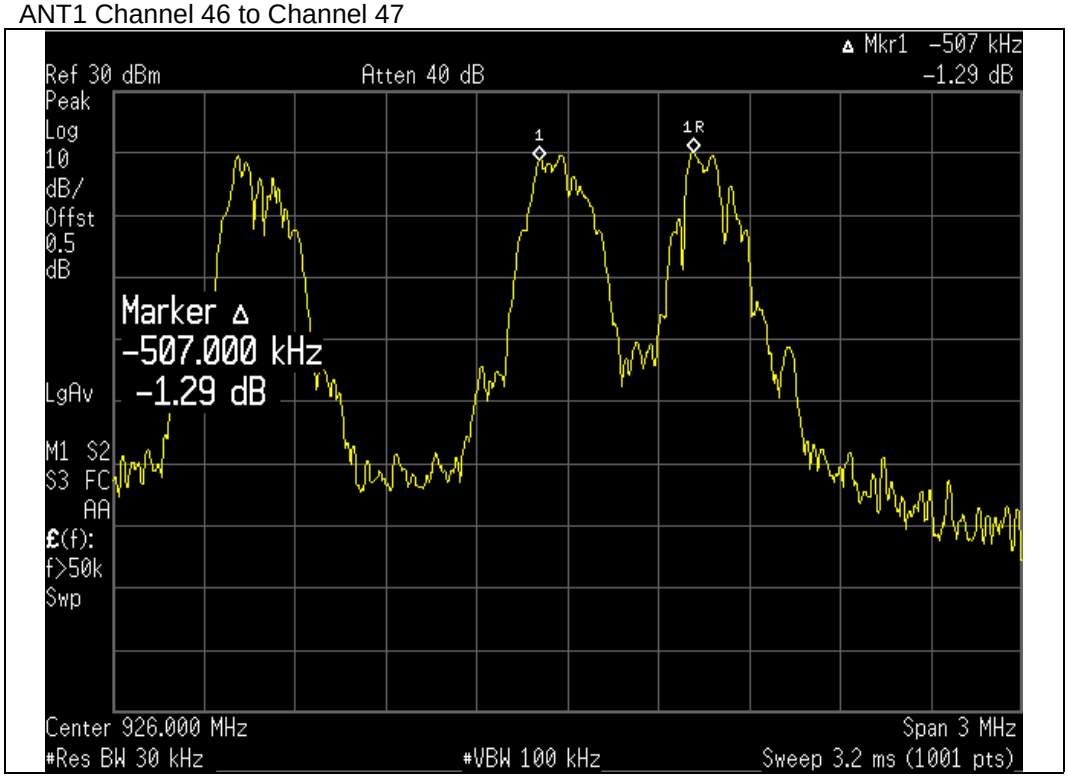
ANT1 Channel 1 to Channel 2



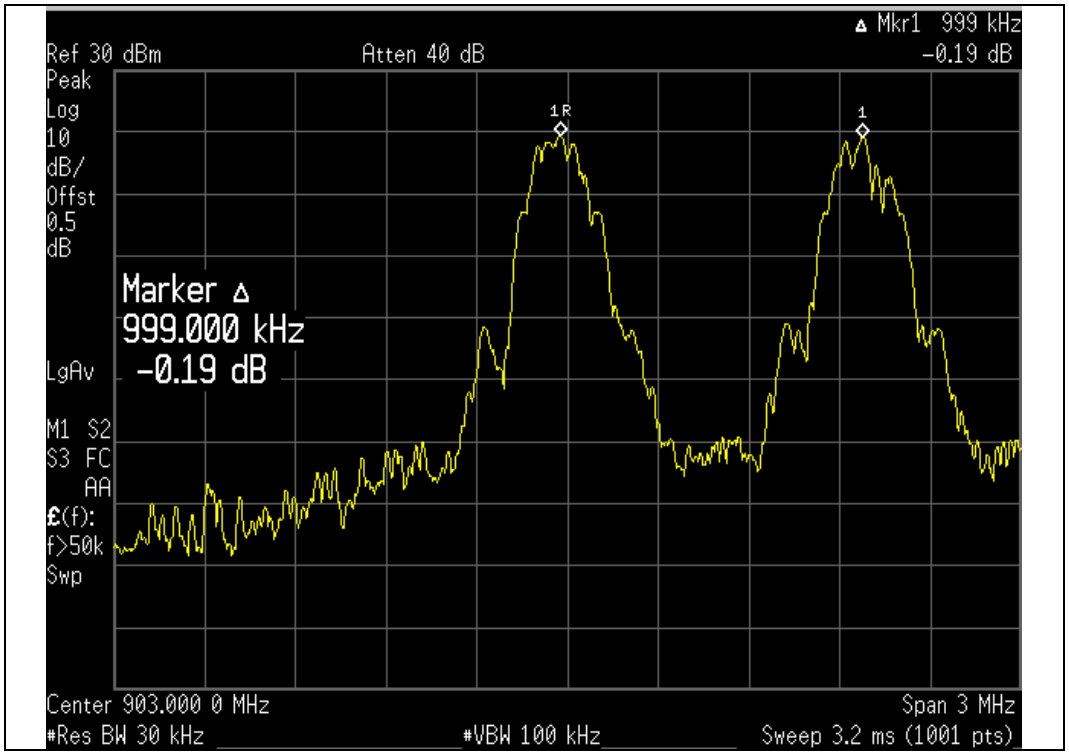
ANT1 Channel 23 to Channel 24



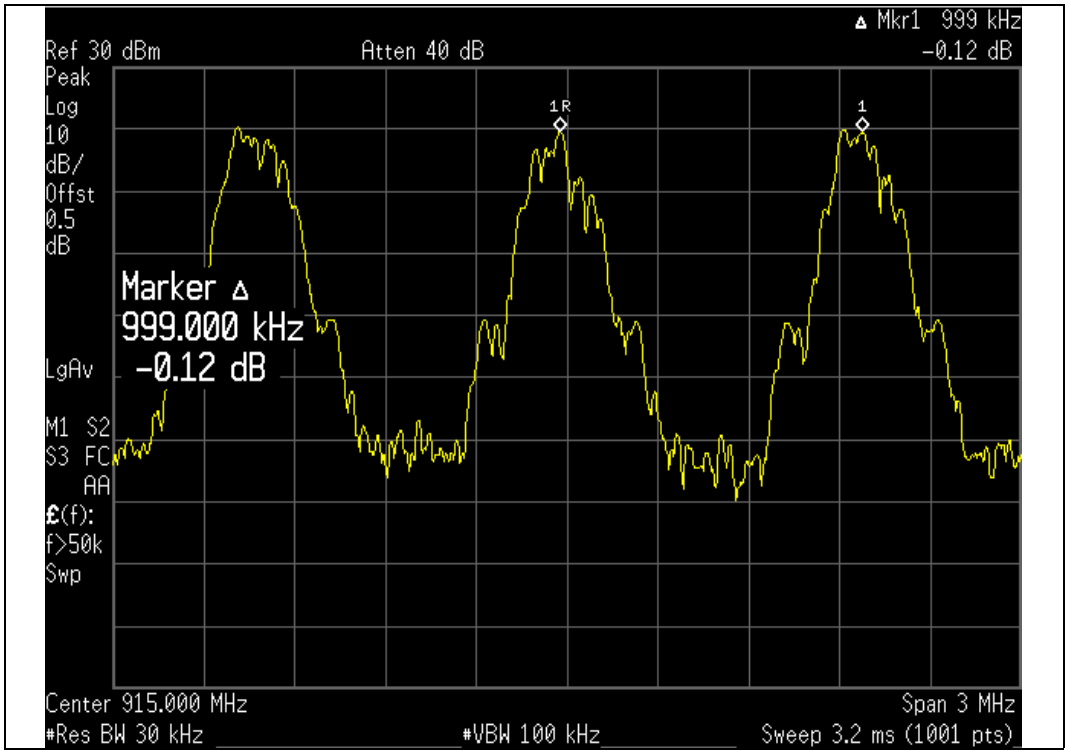
ANT1 Channel 46 to Channel 47



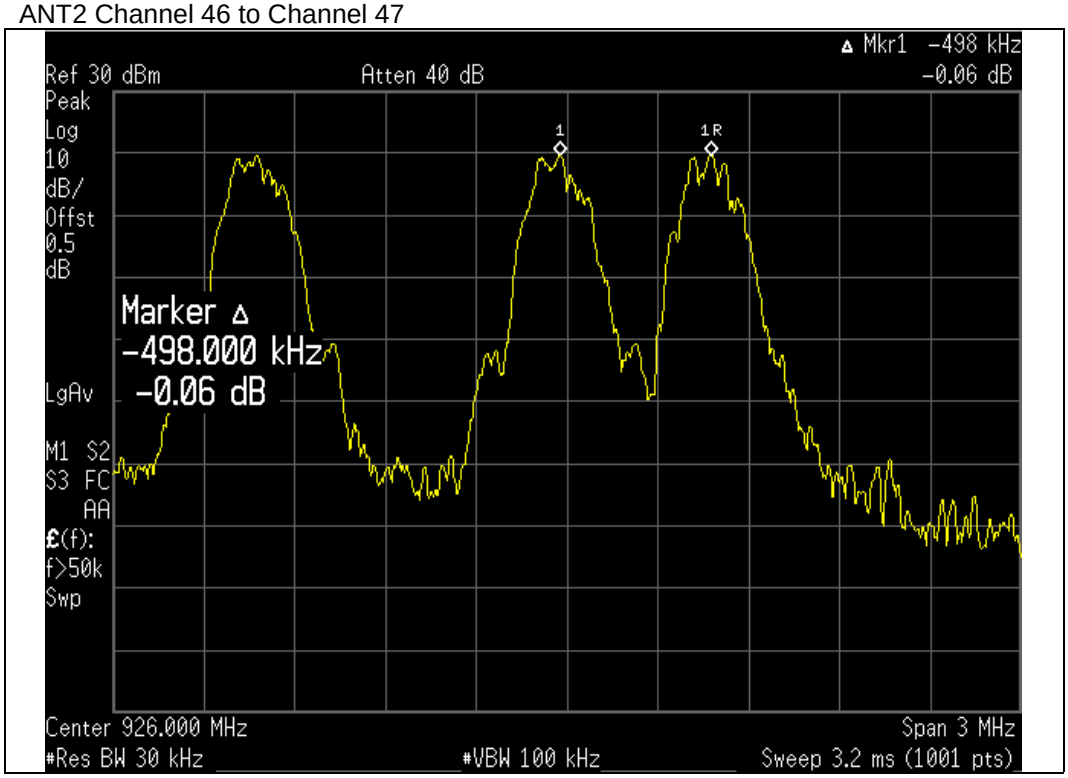
ANT2 Channel 1 to Channel 2



ANT2 Channel 23 to Channel 24



ANT2 Channel 46 to Channel 47



4.4.6 Maximum Peak Output Power

4.4.6.1 Regulation

According to §15.247(b)(2) For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

According to RSS-247 §5.4(a) For FHSs operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1.0 W, and the e.i.r.p. shall not exceed 4 W if the hopset uses 50 or more hopping channels; the maximum peak conducted output power shall not exceed 0.25 W and the e.i.r.p. shall not exceed 1 W if the hopset uses less than 50 hopping channels.

4.4.6.2 Measurement Procedure

The testing follows FCC Public Notice DA 00-705 Measurement Guidelines
ANSI C63.10 § 7.8.5 Output Power test procedure for FHSS

4.4.6.3 Result

Comply (measurement data : refer to the next page)

4.4.6.4 Measurement data

Test mode : GFSK(ANT1)

Maximum Peak Output Power				
Frequency (MHz)	Peak Output Power Result (dBm)	Peak Output Power Result (W)	Peak Output Power Limit (W)	Avg Output Power Result (dBm)
903	20.210	0.105	0.250	6.820
915	20.200	0.105	0.250	6.810
926.5	20.100	0.102	0.250	6.790

NOTE1 : Since the directional gain of the Helical Antenna declared by the manufacturer (GANT =4.34 dBi), does not exceed 6.0 dBi ,there was no need to reduce the output power.
NOTE2 : We took the insertion loss of the cable loss into consideration within the measuring instrument.
NOTE3 : Peak Output Power Result(W) = (10^(Peak Output Power Result(dBm)/10))/1000

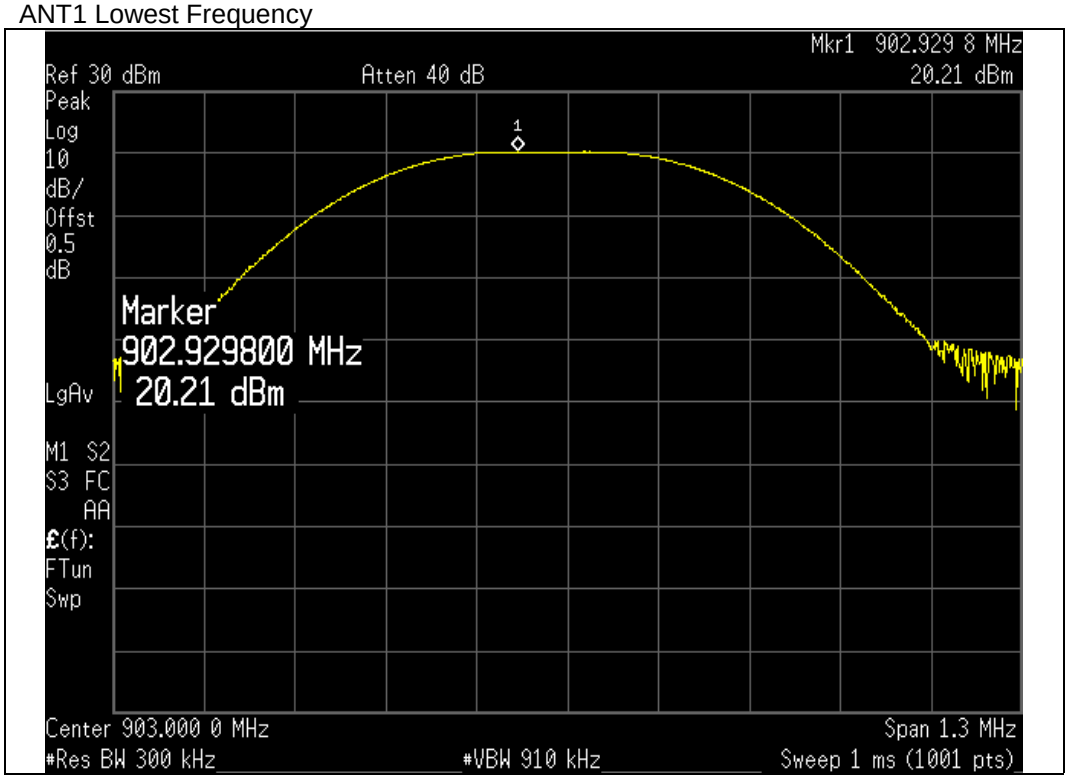
Test mode : GFSK(ANT2)

Maximum Peak Output Power				
Frequency (MHz)	Peak Output Power Result (dBm)	Peak Output Power Result (W)	Peak Output Power Limit (W)	Avg Output Power Result (dBm)
903	21.450	0.140	0.250	7.210
915	21.580	0.144	0.250	7.250
926.5	21.980	0.158	0.250	7.310

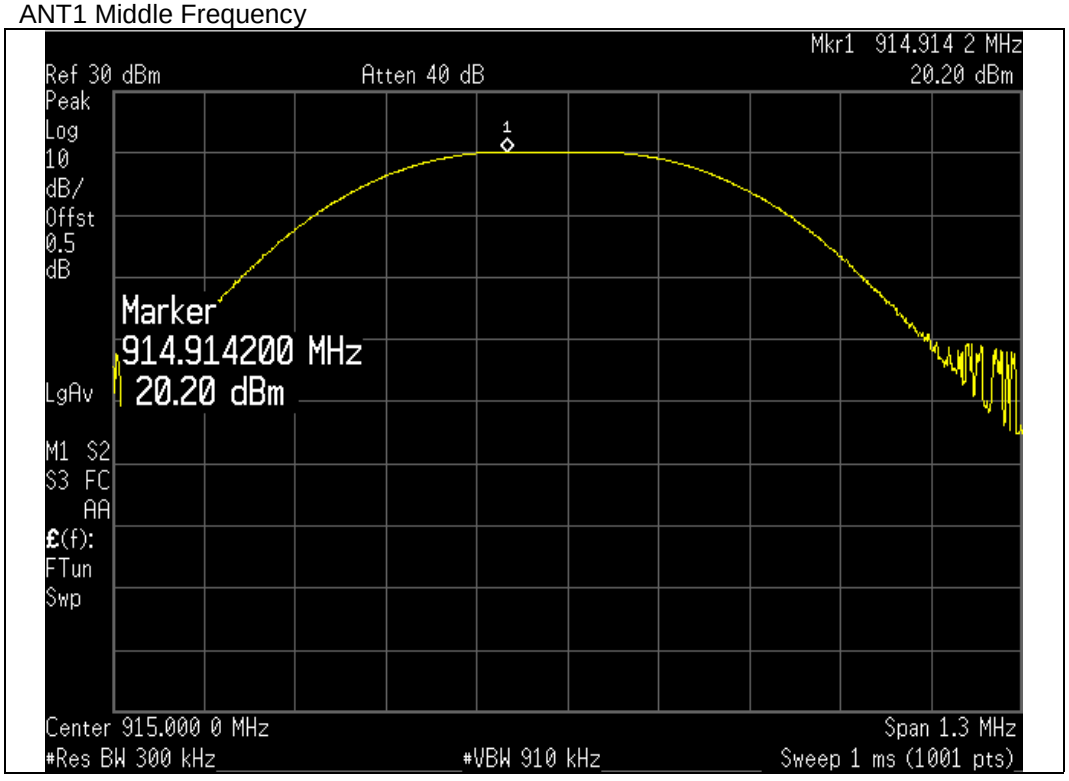
NOTE1 : Since the directional gain of the Helical Antenna declared by the manufacturer (GANT =4.34 dBi), does not exceed 6.0 dBi ,there was no need to reduce the output power.
NOTE2 : We took the insertion loss of the cable loss into consideration within the measuring instrument.
NOTE3 : Peak Output Power Result(W) = (10^(Peak Output Power Result(dBm)/10))/1000

4.4.6.5 Test Plot

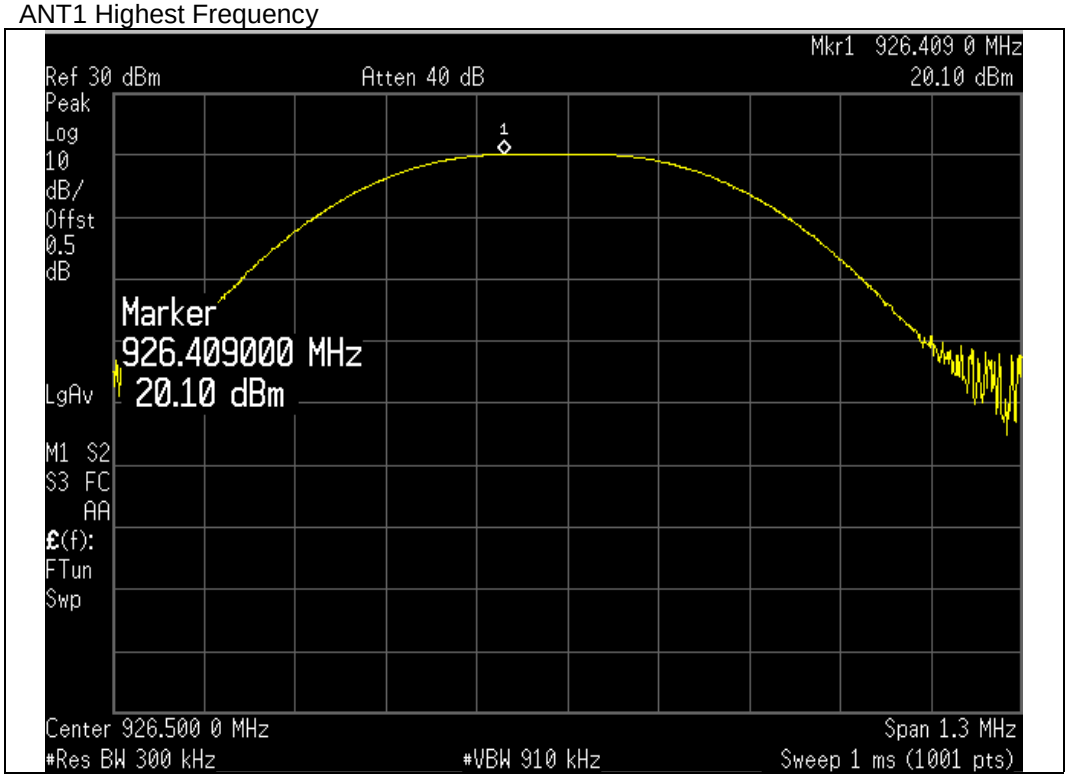
ANT1 Lowest Frequency



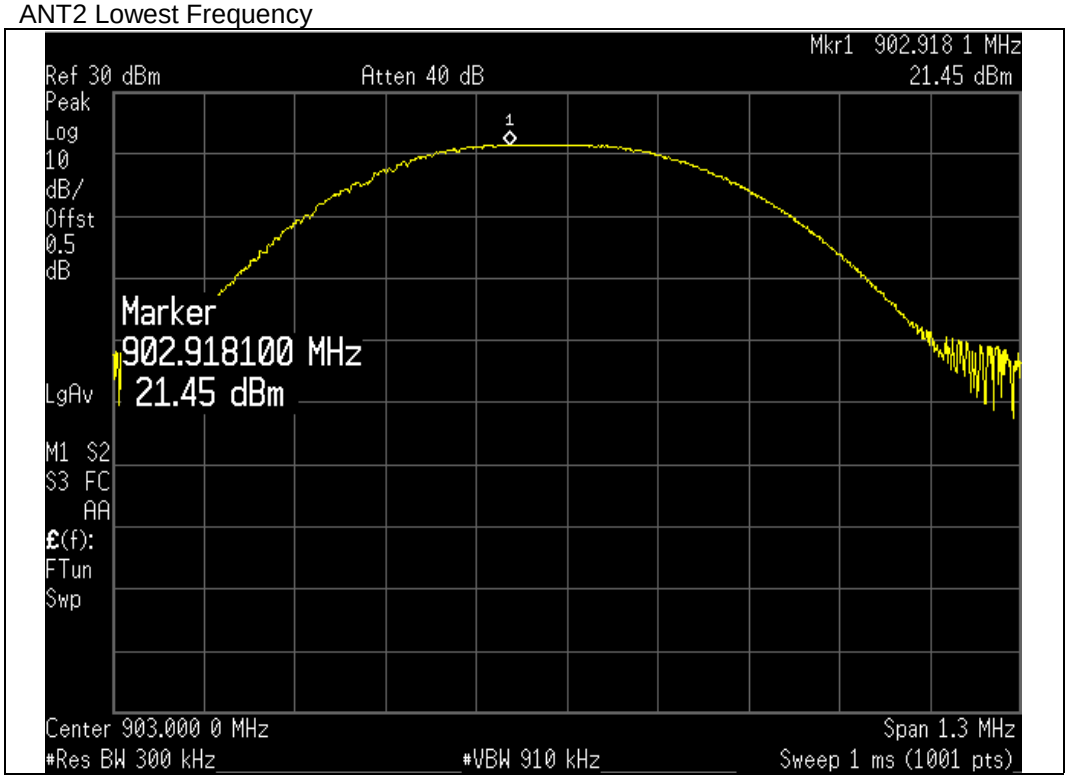
ANT1 Middle Frequency



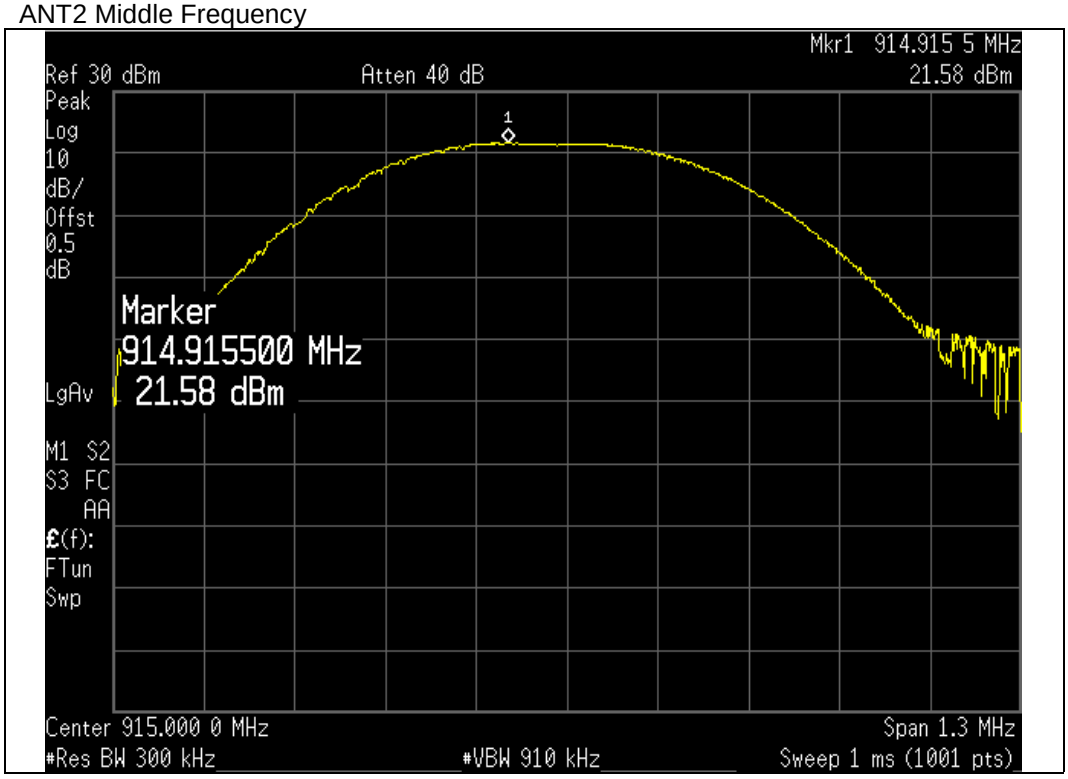
ANT1 Highest Frequency



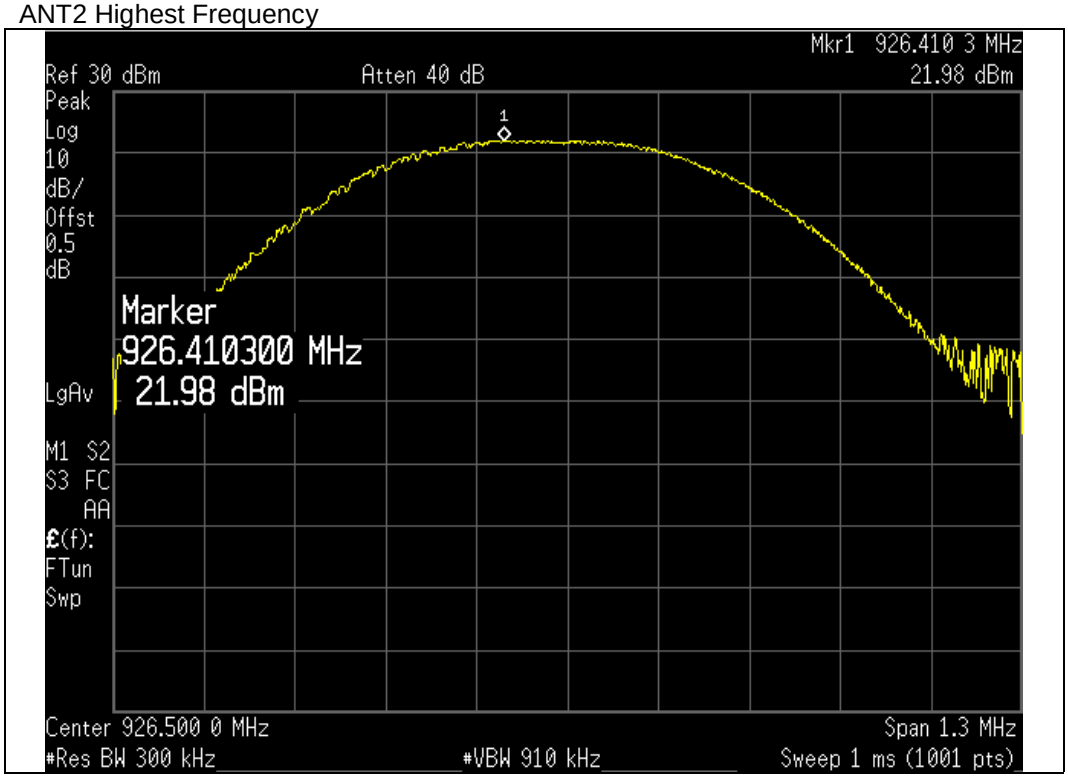
ANT2 Lowest Frequency



ANT2 Middle Frequency



ANT2 Highest Frequency



4.4.7 Spurious Emission, Band Edge, and Restricted bands

4.4.7.1 Regulation

According to §15.247(d) and RSS-247 §5.5 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

According to §15.209(a) and RSS-GEN §8.9 Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall notexceed the field strength levels specified in the following table:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009 - 0.490	2 400/F(kHz)	300
0.490 - 1.705	24 000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shallnot be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permItted under other sections of this part, e.g., §§15.231 and 15.241.

According to §15.205(a),(b) and RSS-GEN §8.10 only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.009 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.694 75 - 16.695 25	608 - 614	5.35 - 5.46
2.173 5 - 2.190 5	16.804 25 - 16.804 75	960 – 1 240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1 300 – 1 427	8.025 - 8.5
4.177 25 - 4.177 75	37.5 - 38.25	1 435 – 1 626.5	9.0 - 9.2
4.207 25 - 4.207 75	73 - 74.6	1 645.5 – 1 646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1 660 – 1 710	10.6 - 12.7
6.267 75 - 6.268 25	108 - 121.94	1 718.8 – 1 722.2	13.25 - 13.4
6.311 75 - 6.312 25	123 - 138	2 200 – 2 300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2 310 – 2 390	15.35 - 16.2
8.362 - 8.366	156.524 75 - 156.525 25	2 483.5 – 2 500	17.7 - 21.4
8.376 25 - 8.386 75	156.7 - 156.9	2 690 – 2 900	22.01 - 23.12
8.414 25 - 8.414 75	162.012 5 - 167.17	3 260 – 3 267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3 332 – 3 339	31.2 - 31.8
12.519 75 - 12.520 25	240 - 285	3 345.8 – 3 358	36.43 - 36.5
12.576 75 - 12.577 25	322 - 335.4	3 600 – 4 400	Above 38.6
13.36 - 13.41			

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurement

4.4.7.2 Measurement Procedure

The testing follows FCC Public Notice DA 00-705 Measurement Guidelines
ANSI C63.10 § 6.10.4 Authorized band-edge relative method (lower bandedge)
ANSI C63.10 § 6.10.6 Marker Delta Method (upper restricted bandedge)
ANSI C63.10 § 11.11.1 General Information
ANSI C63.10 § 11.11.3 Emission level measurement

4.4.7.2.1 Band-edge Compliance of RF Conducted Emissions

Span : wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation
RBW : ≥ 1% of the span
VBW : ≥ RBW
Sweep : Auto
Detector : Peak
Trace : Max hold

Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section. Submit this plot.

Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit. Submit this plot.

4.4.7.2.2 Conducted Spurious Emissions

Span : wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation
RBW : ≥ 1% of the span
VBW : ≥ RBW
Sweep : Auto
Detector : Peak
Trace : Max hold

Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section. Submit these plots.

4.4.7.2.3 Radiated Spurious Emissions

1) The preliminary and final rdiated measurements were performed to determine the frequency producing the maximum emissions in at a 10m anechoic chamber. The EUT was tested at a distance 3 meters.
2) The EUT was placed on the top of the 0.8-meter height, 1 × 1.5 meter non-metallic table. To find the maximum emission levels, the height of a measuring antenna was changed and the turntable was rotated 360°.
3) The antenna polarization was also changed from vertical to horizontal. The spectrum was scanned from 9 kHz to 30 MHz using the loop antenna, and from 30 to 1 000 MHz using the BILOG broadband antenna, and from 1 000 MHz to 10 000 MHz using the horn antenna.
4) Each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth.

Span : wide enough to fully capture the emission being measured
RBW : ≥ 1 MHz for f ≥1 GHz, 100 kHz for f < 1 GHz
VBW : ≥ RBW
Sweep : Auto
Detector : Peak
Trace : Max hold

Follow the guidelines in ANSI C63.4 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.

set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit. Submit this data.

4.4.7.3 Result

Comply (measurement data : refer to the next page)

4.4.7.4 Measurement data_Radiated Spurious Emissions

Test mode : ANT1 Lowest Frequency

Frequency (MHz)	Detector	Pol. (V/H)	Reading (dBμV)	Ant Factor (dB)	Loss (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Below 30 MHz	Not Detected	-	-	-	-	-	-	-
294.924	QP	H	57.2	13.4	-26.7	43.9	64.0	20.01
897.131	QP	V	42.9	23.7	-24.6	42.0	64.0	22.0
2 708.875	PK	V	53.8	32.9	-28.2	58.5	74.0	15.5
	AV		37.1	32.9	-28.2	41.8	54.0	12.2
3 611.125	PK	H	51.1	33.1	-27.0	57.2	74.0	16.8
	AV		33.8	33.1	-27.0	39.9	54.0	14.1
Above 4 GHz	Not Detected	-	-	-	-	-	-	-

Note 1 : Loss : Cable loss - Amp gain
Note 2 : Result : Reading + Ant Factor + Loss
Note 3 : Limit of excluding Restricband(30 MHz≤ f ≤ 1 000 MHz) : Reference(84 dBμV/m) - 20 dB

Test mode : ANT1 Middle Frequency

Frequency (MHz)	Detector	Pol. (V/H)	Reading (dBμV)	Ant Factor (dB)	Loss (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Below 30 MHz	Not Detected	-	-	-	-	-	-	-
258.065	QP	H	53.2	12.1	-27.0	38.3	46.0	7.7
471.459	QP	H	50.5	17.5	-26.7	41.3	64.3	23.0
887.065	QP	H	26.8	23.5	-24.7	25.6	64.3	38.7
942.973	QP	H	43.6	24.3	-24.4	43.5	64.3	20.8
2 744.875	PK	V	54.9	32.8	-28.2	59.5	74.0	14.5
	AV		37.2	32.8	-28.2	41.8	54.0	12.2
3 659.500	PK	V	50.6	33.2	-26.9	56.9	74.0	17.1
	AV		33.1	33.2	-26.9	39.4	54.0	14.6
Above 4 GHz	Not Detected	-	-	-	-	-	-	-

Note 1 : Loss : Cable loss - Amp gain
Note 2 : Result : Reading + Ant Factor + Loss
Note 3 : Limit of excluding Restricband(30 MHz≤ f ≤ 1 000 MHz) : Reference(84.3 dBμV/m) - 20 dB

Test mode : ANT1 Highest Frequency

Frequency (MHz)	Detector	Pol. (V/H)	Reading (dBµV)	Ant Factor (dB)	Loss (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Below 30 MHz	Not Detected	-	-	-	-	-	-	-
258.065	QP	H	54.2	12.1	-27.0	39.3	46.0	6.7
294.924	QP	H	53.6	13.4	-26.7	40.3	64.6	24.3
463.214	QP	H	59.1	17.3	-26.7	49.7	64.6	14.9
931.331	QP	V	44.0	24.1	-24.4	43.7	64.6	20.9
2 778.625	PK	V	57.4	32.7	-28.1	62.0	74.0	12.0
	AV		37.6	32.7	-28.1	42.2	54.0	11.8
3 705.625	PK	V	53.1	33.2	-26.9	59.4	74.0	14.6
	AV		34.5	33.2	-26.9	40.8	54.0	13.2
Above 4 GHz	Not Detected	-	-	-	-	-	-	-

Note 1 : Loss : Cable loss - Amp gain
Note 2 : Result : Reading + Ant Factor + Loss
Note 3 : Limit of excluding Restricband(30 MHz≤ f ≤ 1 000 MHz) : Reference(84.6 dBµV/m) - 20 dB

Test mode : ANT2 Lowest Frequency

Frequency (MHz)	Detector	Pol. (V/H)	Reading (dBµV)	Ant Factor (dB)	Loss (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Below 30 MHz	Not Detected	-	-	-	-	-	-	-
73.650	QP	H	45.8	9.4	-29.0	26.2	40.0	13.8
258.065	QP	H	52.8	12.1	-27.0	37.9	46.0	8.1
294.924	QP	H	54.1	13.4	-26.7	40.8	63.2	22.4
895.190	QP	V	37.9	23.6	-26.6	36.9	63.2	26.3
2 708.875	PK	H	54.7	32.9	-28.2	59.4	74.0	14.6
	AV		38.6	32.9	-28.2	43.3	54.0	10.7
3 611.125	PK	H	50.0	33.1	-27.0	56.1	74.0	17.9
	AV		34.7	33.1	-27.0	40.8	54.0	13.2
Above 4 GHz	Not Detected	-	-	-	-	-	-	-

Note 1 : Loss : Cable loss - Amp gain
Note 2 : Result : Reading + Ant Factor + Loss
Note 3 : Limit of excluding Restricband(30 MHz≤ f ≤ 1 000 MHz) : Reference(83.2 dBµV/m) - 20 dB

Test mode : ANT2 Middle Frequency

Frequency (MHz)	Detector	Pol. (V/H)	Reading (dBµV)	Ant Factor (dB)	Loss (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Below 30 MHz	Not Detected	-	-	-	-	-	-	-
258.065	QP	H	55.3	12.1	-27.0	40.4	46.0	5.6
294.924	QP	H	53.5	13.4	-26.7	40.2	64.3	24.1
457.516	QP	H	60.3	17.2	-26.7	50.8	64.3	13.5
899.192	QP	H	30.1	23.7	-24.6	29.2	64.3	35.1
943.943	QP	H	42.6	24.3	-24.4	42.5	64.3	21.8
2 744.875	PK	V	58.0	32.8	-28.2	62.6	74.0	11.4
	AV		36.9	32.8	-28.2	41.5	54.0	12.5
3 659.500	PK	V	49.3	33.2	-26.9	55.6	74.0	18.4
	AV		34.1	33.2	-26.9	40.4	54.0	13.6
Above 4 GHz	Not Detected	-	-	-	-	-	-	-

Note 1 : Loss : Cable loss - Amp gain
Note 2 : Result : Reading + Ant Factor + Loss
Note 3 : Limit of excluding Restricband(30 MHz≤ f ≤ 1 000 MHz) : Reference(84.3 dBµV/m) - 20 dB

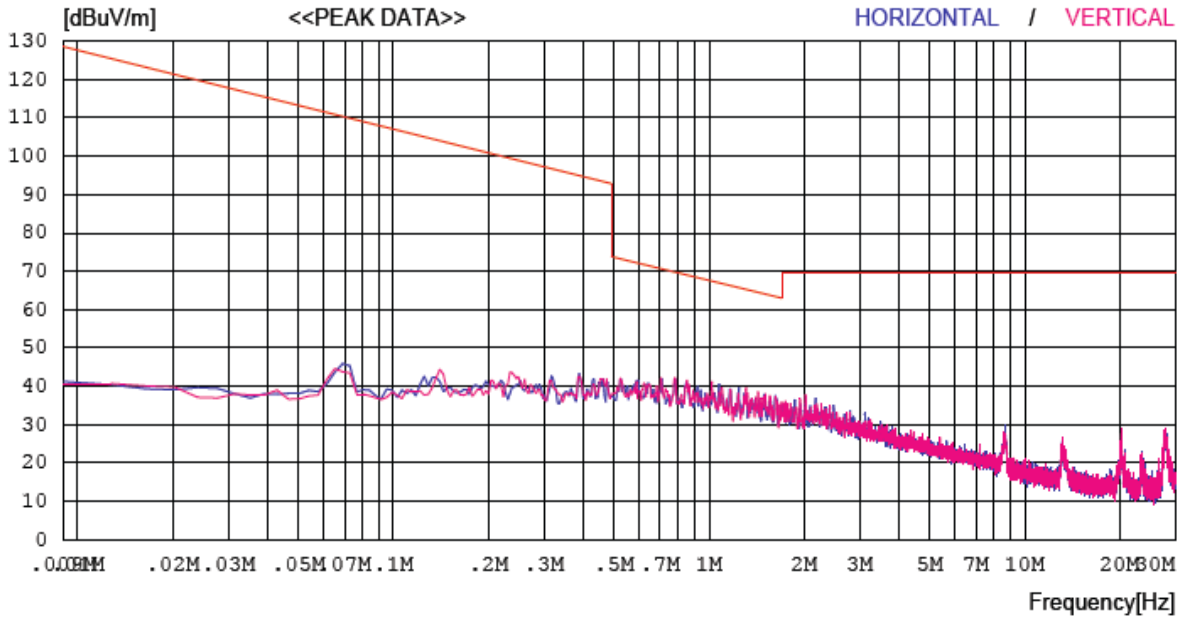
Test mode : ANT2 Highest Frequency

Frequency (MHz)	Detector	Pol. (V/H)	Reading (dBµV)	Ant Factor (dB)	Loss (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Below 30 MHz	Not Detected	-	-	-	-	-	-	-
258.065	QP	H	52.5	12.1	-27.0	37.6	46.0	8.4
463.214	QP	H	61.2	17.3	-26.7	51.8	64.3	12.5
931.452	QP	V	42.3	24.1	-24.4	42.0	64.3	22.3
2 779.750	PK	V	54.1	32.7	-28.1	58.7	74.0	15.3
	AV		38.6	32.7	-28.1	43.2	54.0	10.8
Above 3 GHz	Not Detected	-	-	-	-	-	-	-

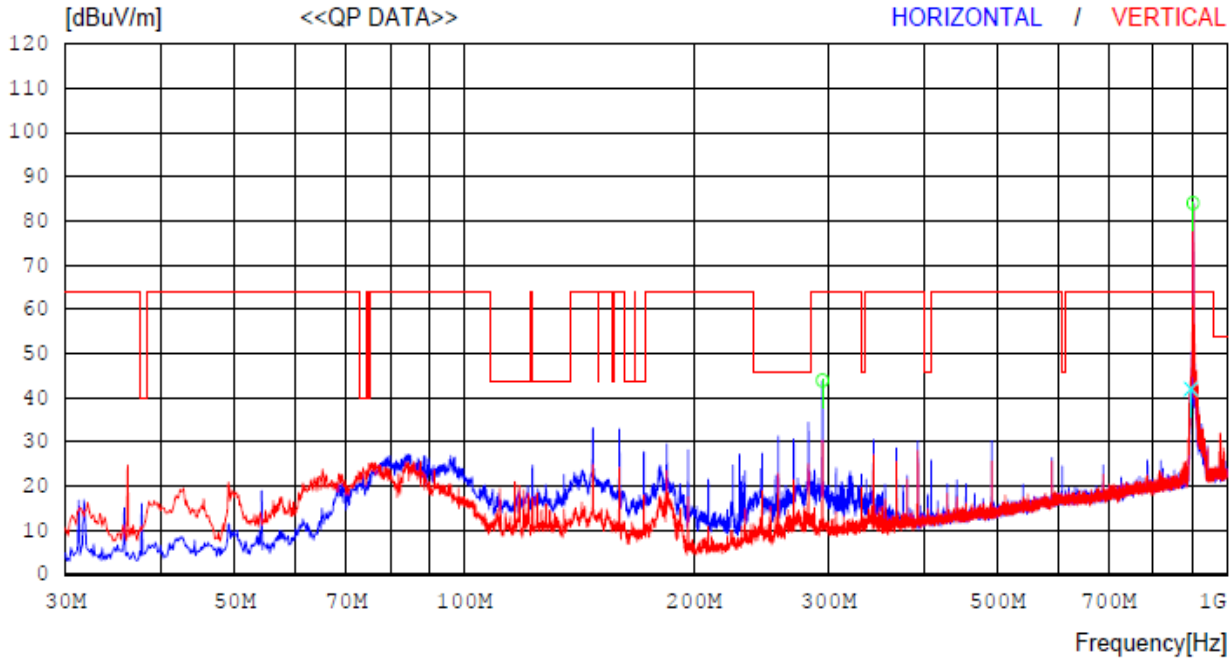
Note 1 : Loss : Cable loss - Amp gain
Note 2 : Result : Reading + Ant Factor + Loss
Note 3 : Limit of excluding Restricband(30 MHz≤ f ≤ 1 000 MHz) : Reference(84.3 dBµV/m) - 20 dB

4.4.7.5 Measurement Plot_Radiated Spurious Emissions

Test mode : 9 kHz ~ 30 MHz Worst Case(ANT2 Highest Frequency)



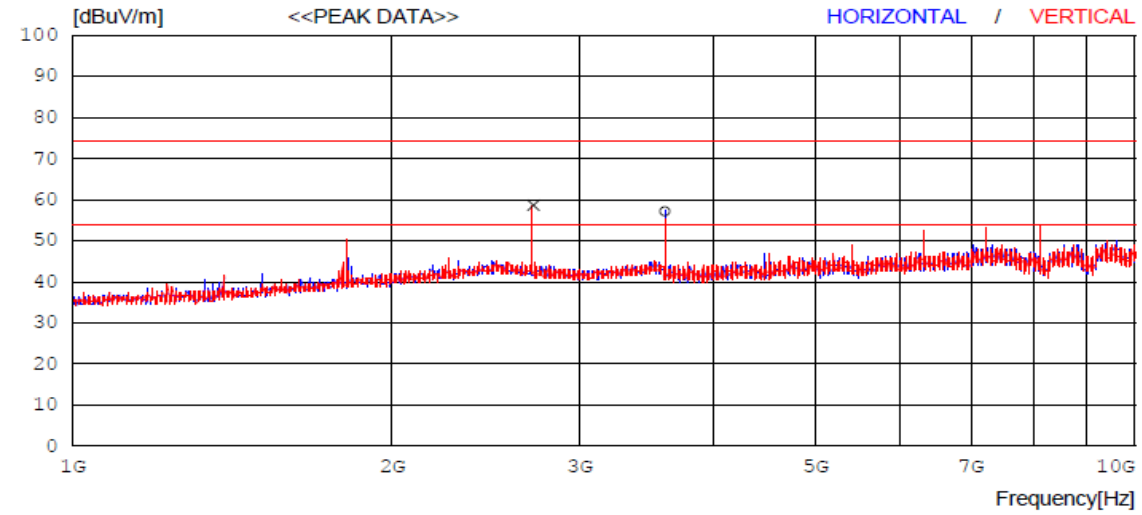
Test mode : ANT1 Lowest Frequency (30 MHz ~ 1 GHz)



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	294.924	57.2	13.4	-26.7	0.0	43.9	64.0	20.1	104	357
2	903.073	84.9	23.7	-24.6	0.0	84.0	64.0	-20.0	200	166
----- Vertical ------										
3	897.131	42.9	23.7	-24.6	0.0	42.0	64.0	22.0	100	358

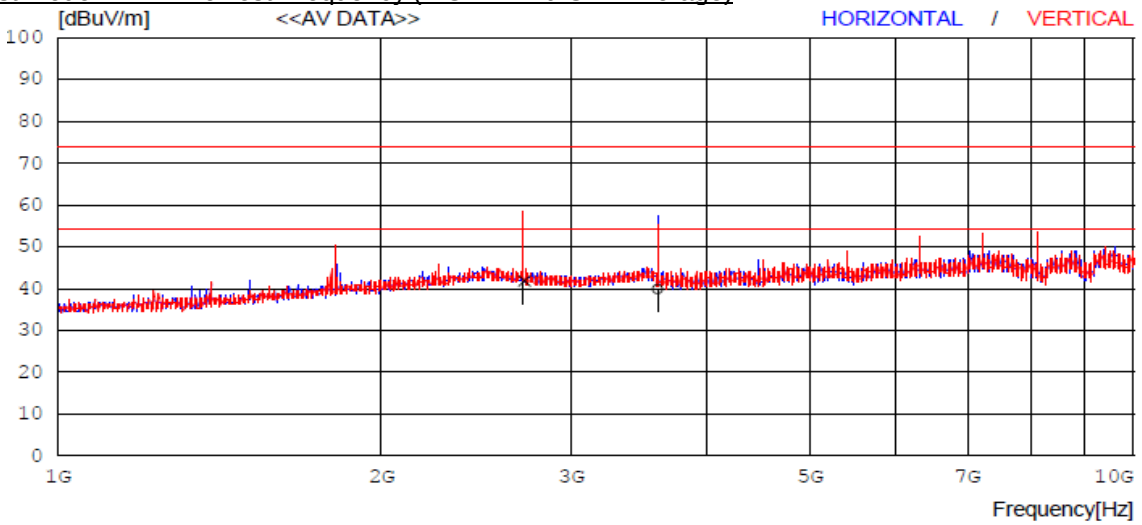
NOTE : 903.073 MHz = Reference

Test mode : ANT1 Lowest Frequency (1 GHz ~ 10 GHz Peak)



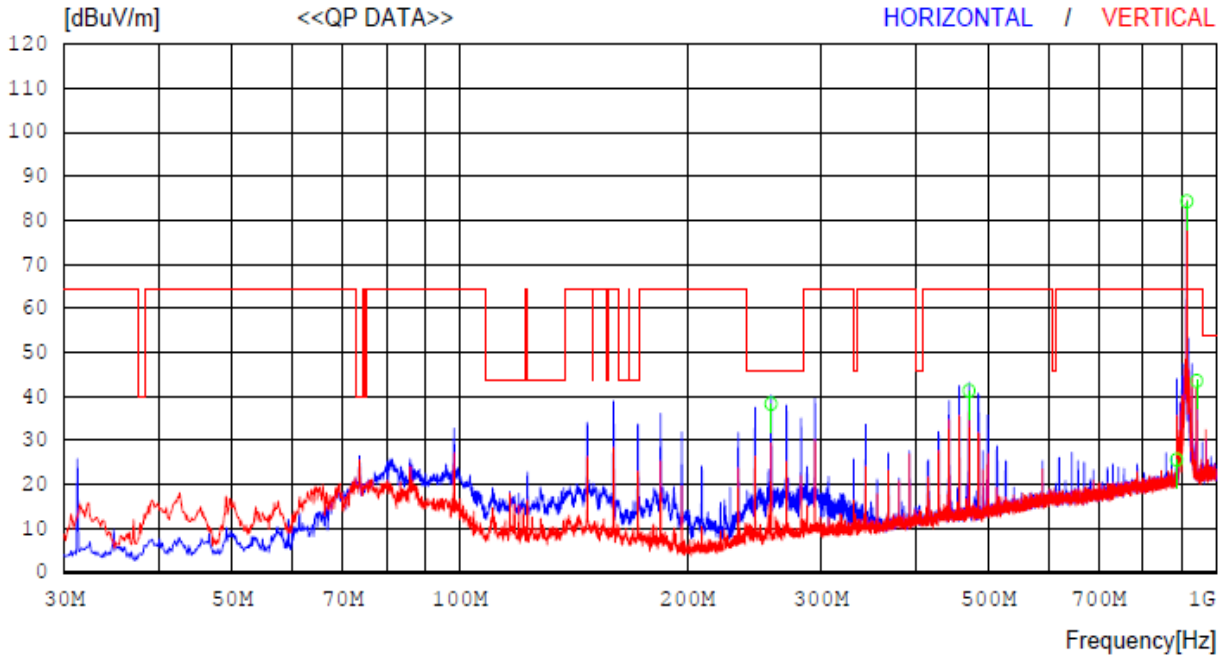
No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	3611.125	51.1	33.1	-27.0	0.0	57.2	74.0	16.8	100	313
----- Vertical ------										
2	2708.875	53.8	32.9	-28.2	0.0	58.5	74.0	15.5	100	9

Test mode : ANT1 Lowest Frequency (1 GHz ~ 10 GHz Average)



No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	3611.125	33.8	**33.1**	-27.0	0.0	39.9	54.0	14.1	100	313
----- Vertical ------										
2	2708.875	37.1	**32.9**	-28.2	0.0	41.8	54.0	12.2	100	9

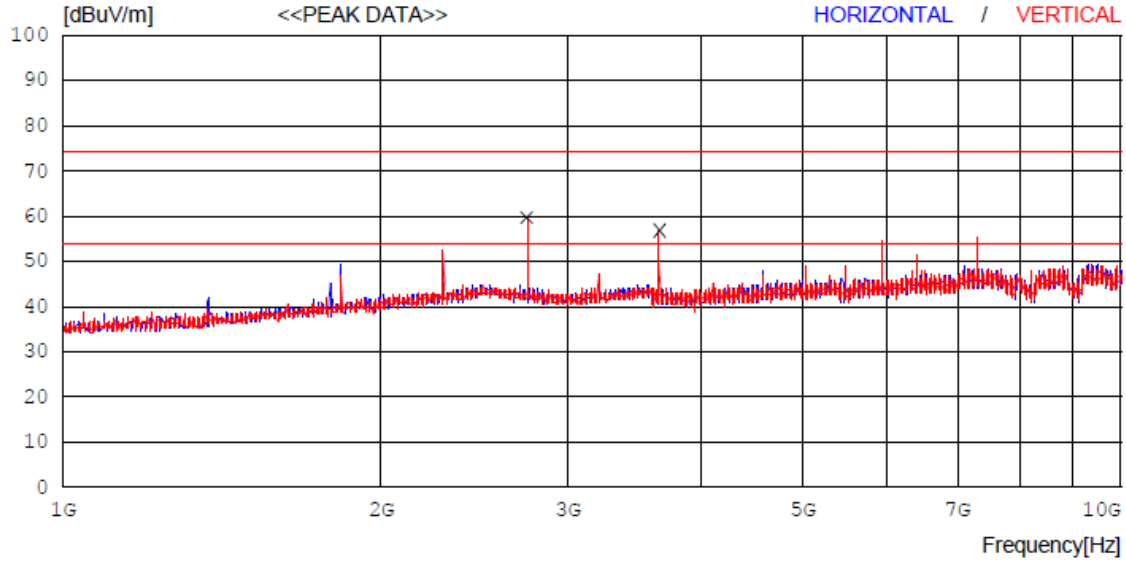
Test mode : ANT1 Middle Frequency (30 MHz ~ 1 GHz)



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	471.459	50.5	17.5	-26.7	0.0	41.3	64.3	23.0	100	4
2	887.065	26.8	23.5	-24.7	0.0	25.6	64.3	38.7	100	181
3	942.973	43.6	24.3	-24.4	0.0	43.5	64.3	20.8	400	309
4	915.080	84.6	24.2	-24.5	0.0	84.3	64.3	-20.0	400	7
5	258.065	53.2	12.1	-27.0	0.0	38.3	46.0	7.7	100	332

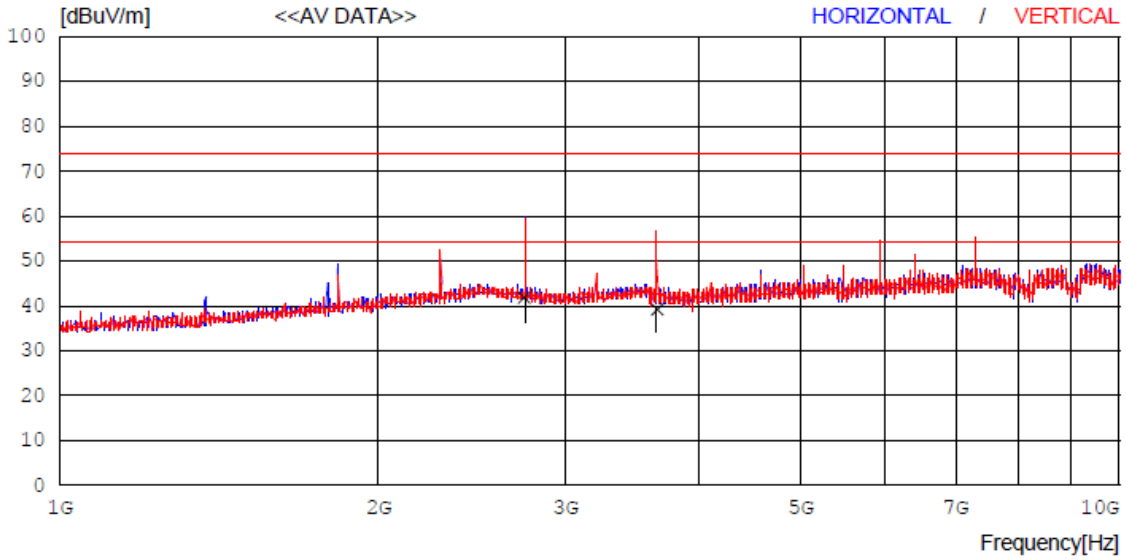
NOTE : 915.080 MHz = Reference

Test mode : ANT1 Middle Frequency (1 GHz ~ 10 GHz Peak)



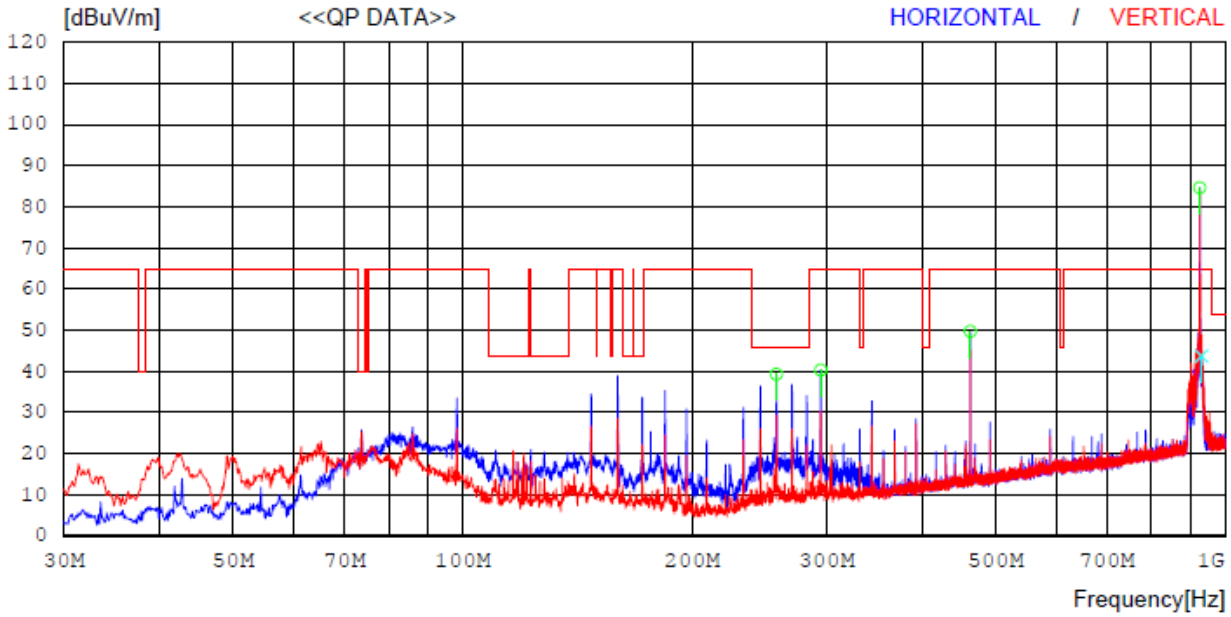
No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Vertical ------										
1	2744.875	54.9	32.8	-28.2	0.0	59.5	74.0	14.5	100	158
2	3659.500	50.6	33.2	-26.9	0.0	56.9	74.0	17.1	100	171

Test mode : ANT1 Middle Frequency (1 GHz ~ 10 GHz Average)



No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Vertical ------										
1	2744.875	37.2	32.8	-28.2	0.0	41.8	54.0	12.2	100	158
2	3659.500	33.1	33.2	-26.9	0.0	39.4	54.0	14.6	100	171

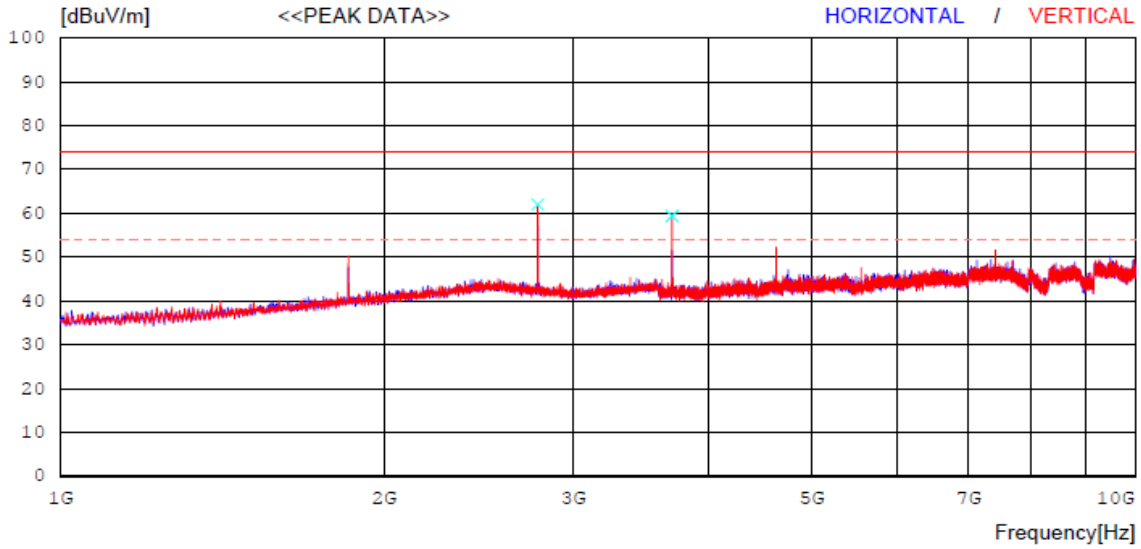
Test mode : ANT1 Highest Frequency (30 MHz ~ 1 GHz)



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	258.065	54.2	12.1	-27.0	0.0	39.3	46.0	6.7	104	304
2	294.924	53.6	13.4	-26.7	0.0	40.3	64.6	24.3	104	337
3	926.601	84.9	24.2	-24.5	0.0	84.6	64.6	-20.0	200	318
4	463.214	59.1	17.3	-26.7	0.0	49.7	64.6	14.9	200	149
----- Vertical ------										
5	931.331	44.0	24.1	-24.4	0.0	43.7	64.6	20.9	100	248

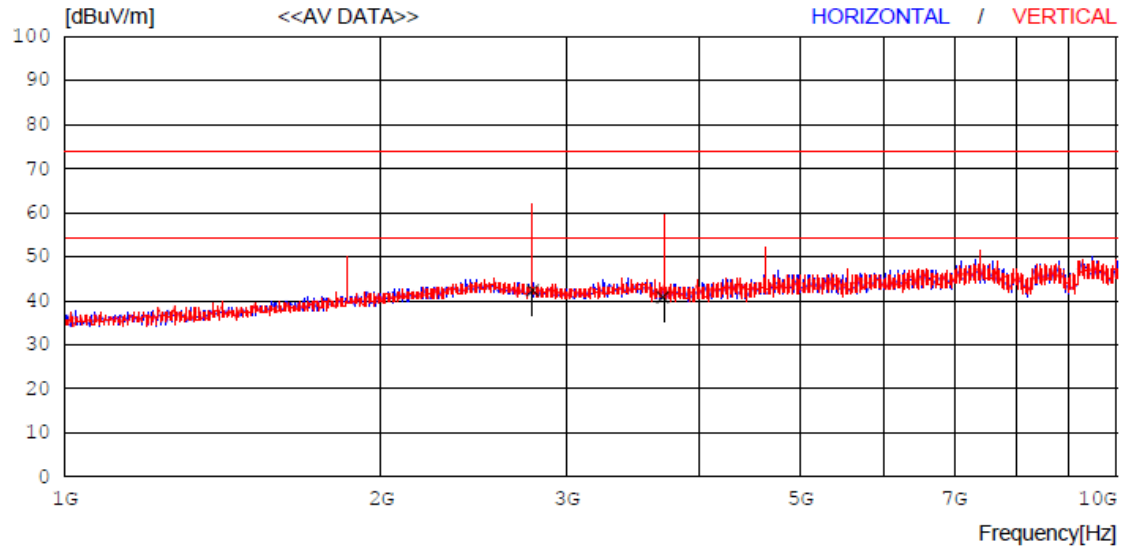
NOTE : 926.601 MHz = Reference

Test mode : ANT1 Highest Frequency (1 GHz ~ 10 GHz Peak)



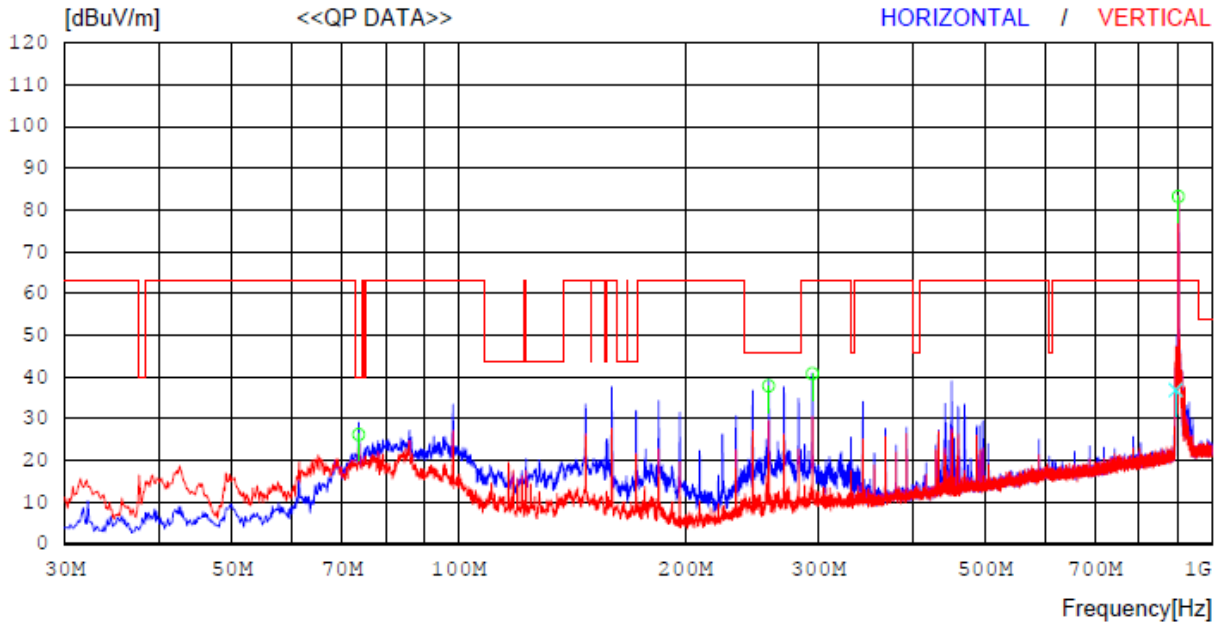
No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Vertical ------										
1	2778.625	57.4	32.7	-28.1	0.0	62.0	74.0	12	100	347
2	3705.625	53.1	33.2	-26.9	0.0	59.4	74.0	14.6	100	159

Test mode : ANT1 Highest Frequency (1 GHz ~ 10 GHz Average)



No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Vertical ------										
1	2778.625	37.6	32.7	-28.1	0.0	42.2	54.0	11.8	100	347
2	3705.625	34.5	33.2	-26.9	0.0	40.8	54.0	13.2	100	159

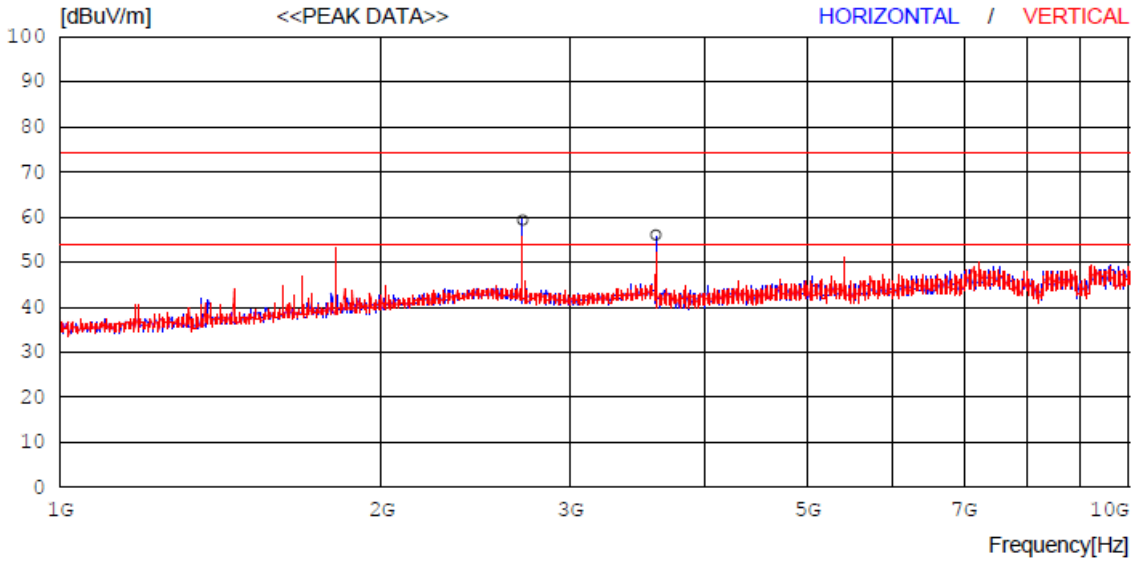
Test mode : ANT2 Lowest Frequency (30 MHz ~ 1 GHz)



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	73.650	45.8	**9.4**	-29.0	0.0	26.2	40.0	13.8	300	285
2	258.065	52.8	**12.1**	-27.0	0.0	37.9	46.0	8.1	104	323
3	294.924	54.1	**13.4**	-26.7	0.0	40.8	63.2	22.4	104	342
4	903.073	84.1	**23.7**	-24.6	0.0	83.2	63.2	-20.0	104	121
----- Vertical ------										
5	895.190	37.9	**23.6**	-24.6	0.0	36.9	63.2	26.3	187	357

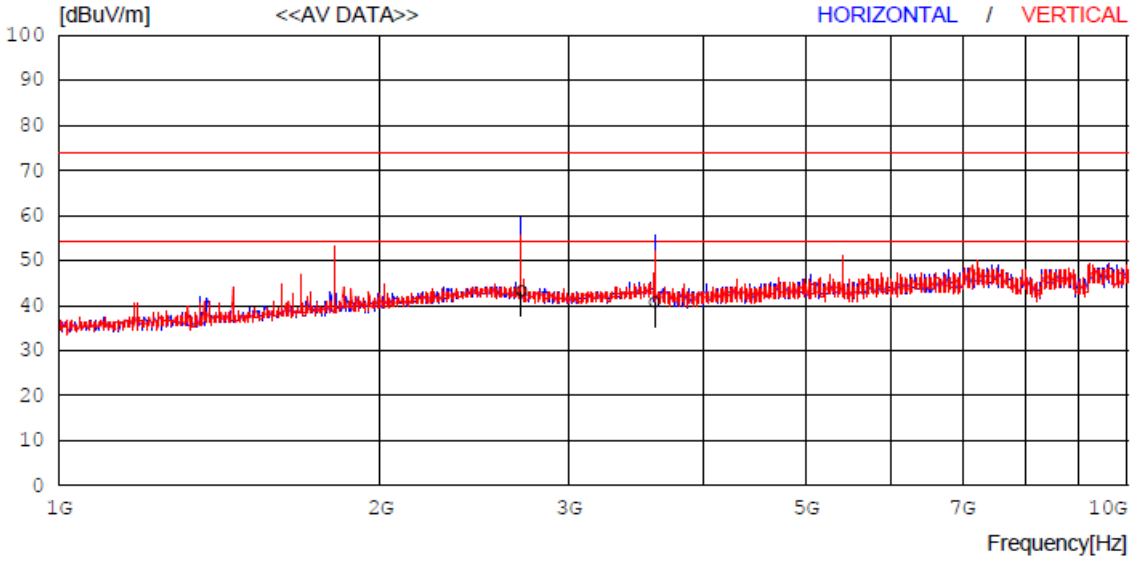
NOTE : 903.073 MHz = Reference

Test mode : ANT2 Lowest Frequency (1 GHz ~ 10 GHz Peak)



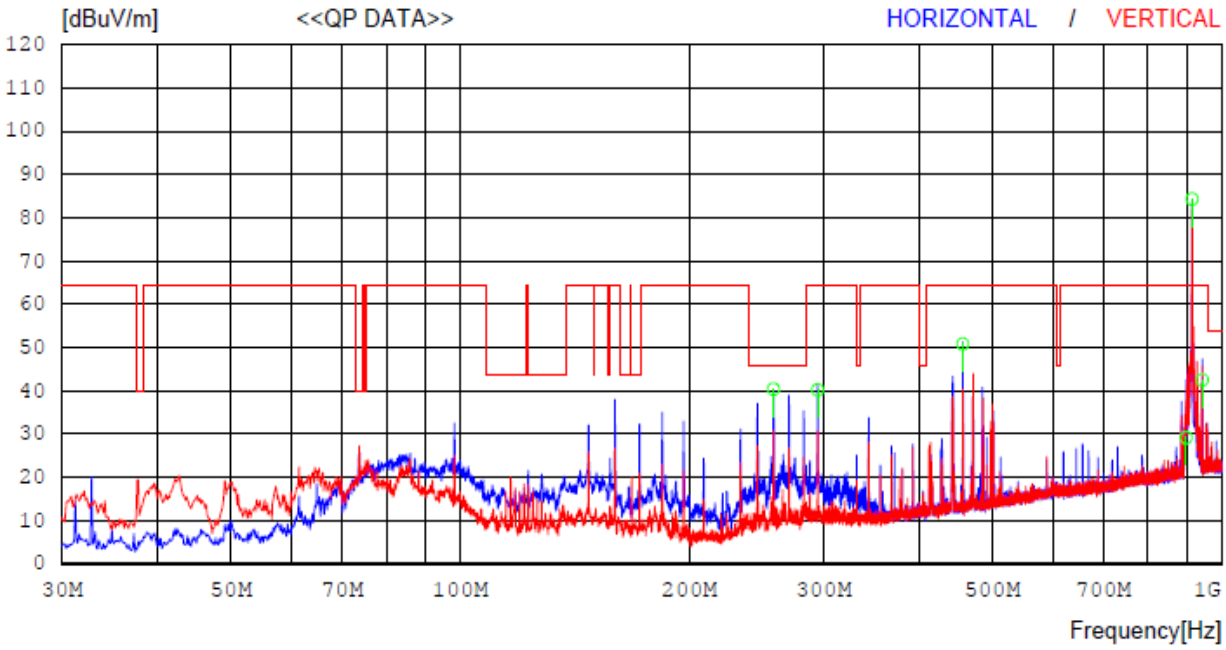
No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	2708.875	54.7	32.9	-28.2	0.0	59.4	74.0	14.6	100	201
2	3611.125	50.0	33.1	-27.0	0.0	56.1	74.0	17.9	100	92

Test mode : ANT2 Lowest Frequency (1 GHz ~ 10 GHz Average)



No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	2708.875	38.6	32.9	-28.2	0.0	43.3	54.0	10.7	100	201
2	3611.125	34.7	33.1	-27.0	0.0	40.8	54.0	13.2	100	92

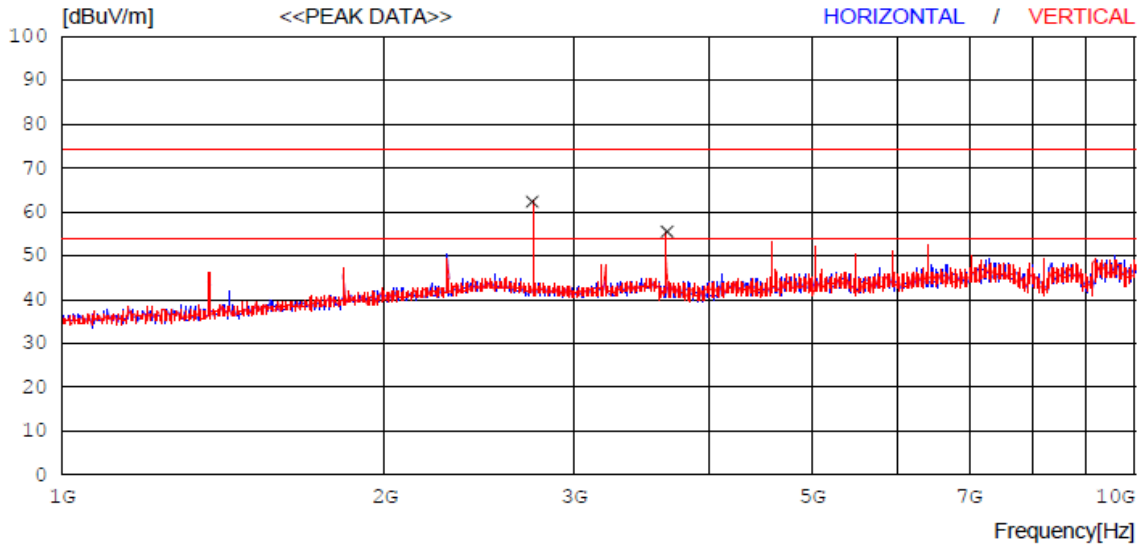
Test mode : ANT2 Middle Frequency (30 MHz ~ 1 GHz)



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	258.065	55.3	12.1	-27.0	0.0	40.4	46.0	5.6	104	309
2	294.924	53.5	13.4	-26.7	0.0	40.2	64.3	24.1	104	333
3	457.516	60.3	17.2	-26.7	0.0	50.8	64.3	13.5	200	0
4	899.192	30.1	23.7	-24.6	0.0	29.2	64.3	35.1	300	252
5	943.943	42.6	24.3	-24.4	0.0	42.5	64.3	21.8	104	286
6	915.080	84.6	24.2	-24.5	0.0	84.3	64.3	-20.0	104	135

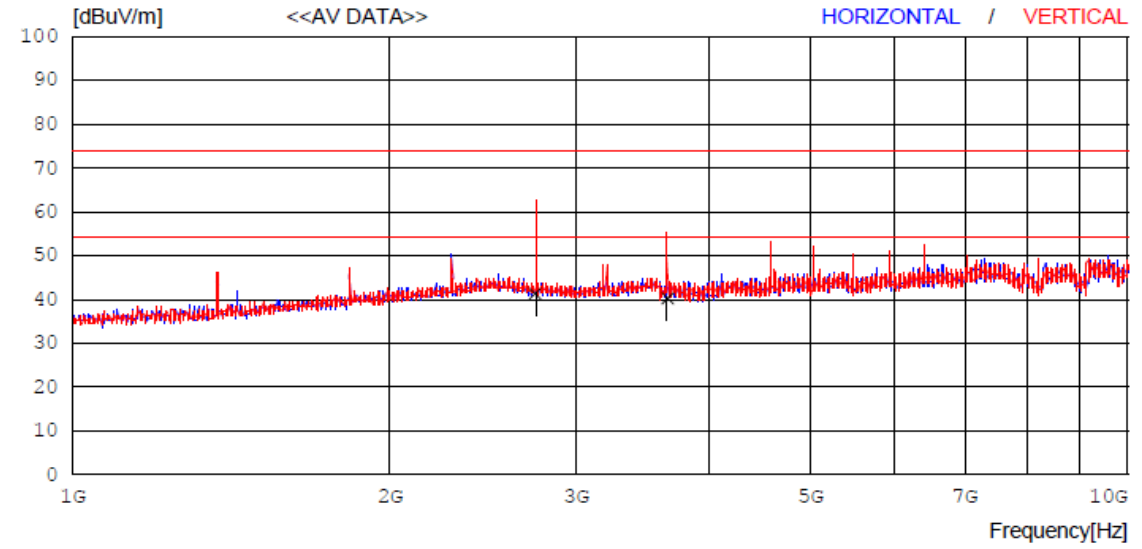
NOTE : 915.080 MHz = Reference

Test mode : ANT2 Middle Frequency (1 GHz ~ 10 GHz Peak)



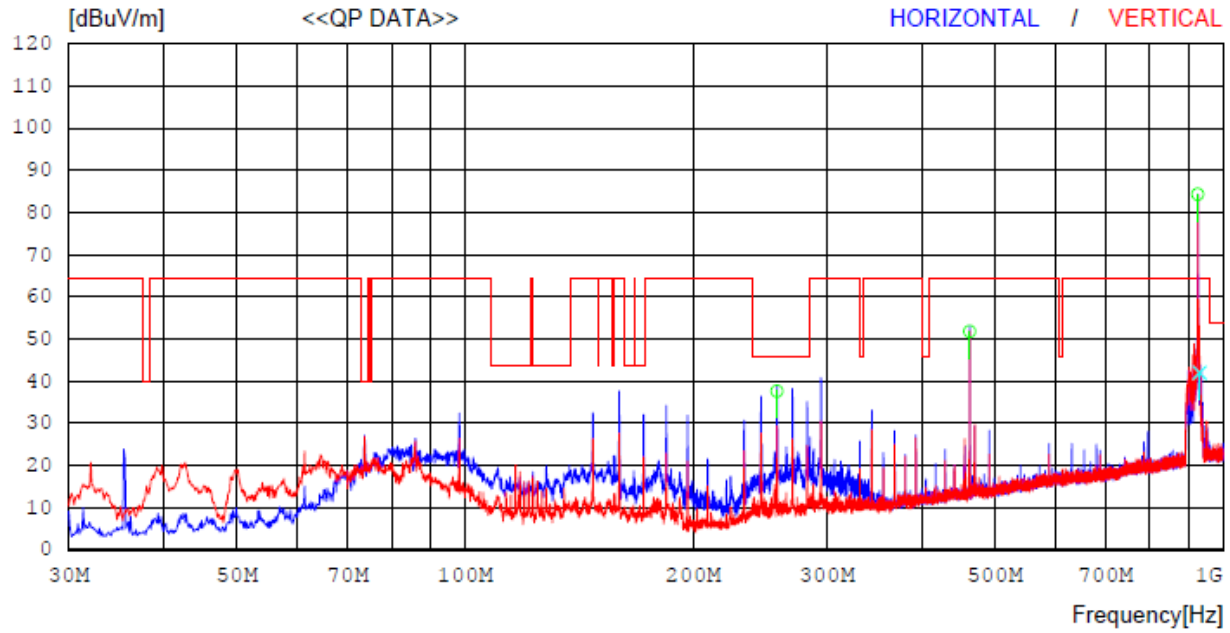
No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Vertical ------										
1	2744.875	58.0	32.8	-28.2	0.0	62.6	74.0	11.4	100	201
2	3659.500	49.3	33.2	-26.9	0.0	55.6	74.0	18.4	100	172

Test mode : ANT2 Middle Frequency (1 GHz ~ 10 GHz Average)



No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Vertical ------										
1	2744.875	36.9	32.8	-28.2	0.0	41.5	54.0	12.5	100	201
2	3659.500	34.1	33.2	-26.9	0.0	40.4	54.0	13.6	100	172

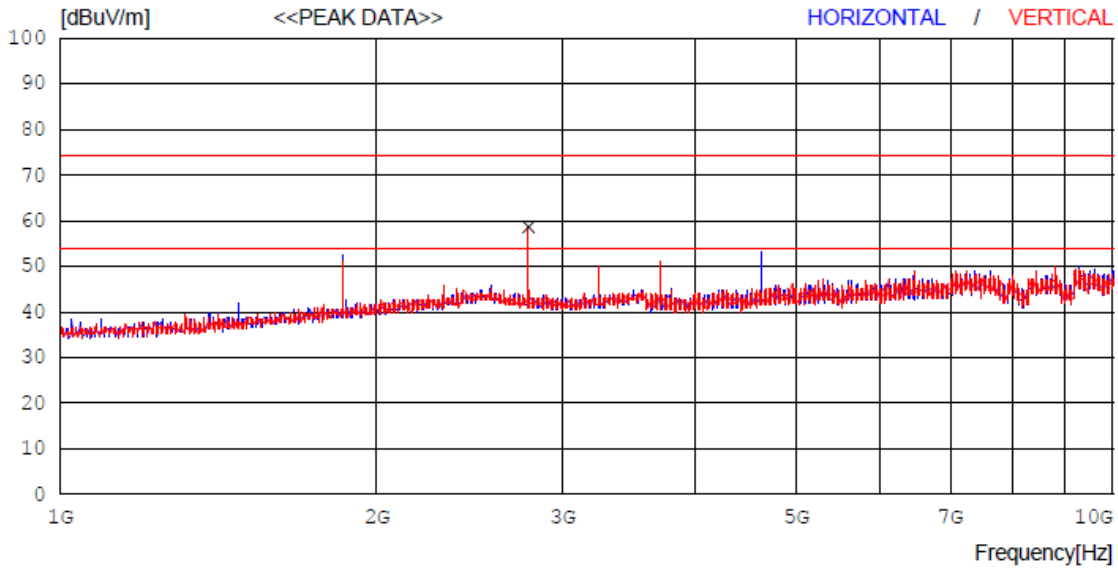
Test mode : ANT2 Highest Frequency (30 MHz ~ 1 GHz)



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	258.065	52.5	12.1	-27.0	0.0	37.6	46.0	8.4	102	333
2	463.214	61.2	17.3	-26.7	0.0	51.8	64.3	12.5	200	357
3	926.601	84.6	24.2	-24.5	0.0	84.3	64.3	-20.0	400	158
----- Vertical ------										
4	931.452	42.3	24.1	-24.4	0.0	42.0	64.3	22.3	100	205

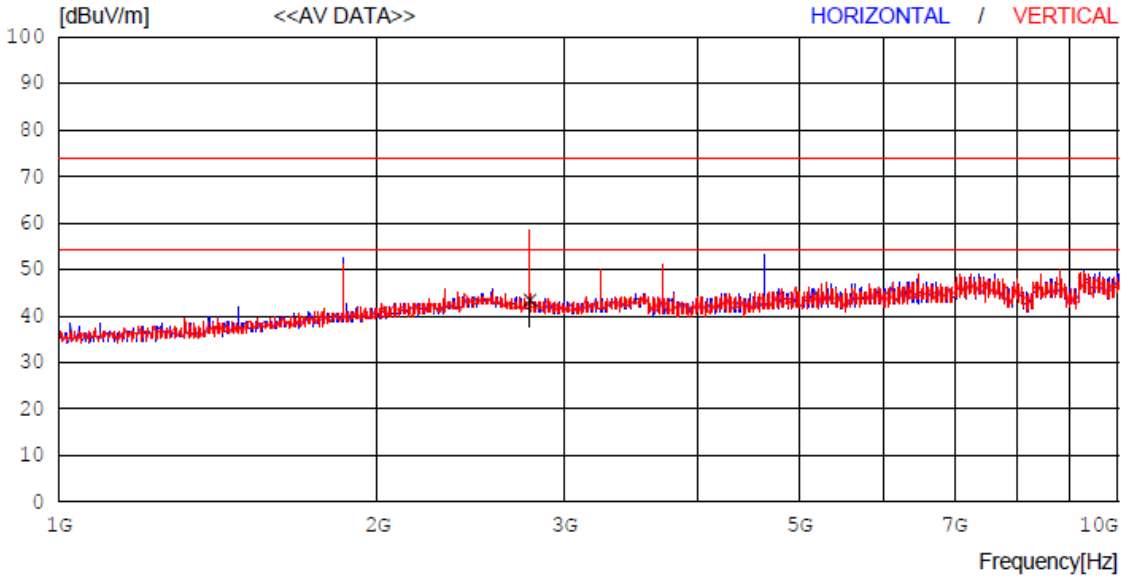
NOTE : 926.601 MHz = Reference

Test mode : ANT2 Highest Frequency (1 GHz ~ 10 GHz Peak)



No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Vertical ------										
1	2779.750	54.1	32.7	-28.1	0.0	58.7	74.0	15.3	100	139

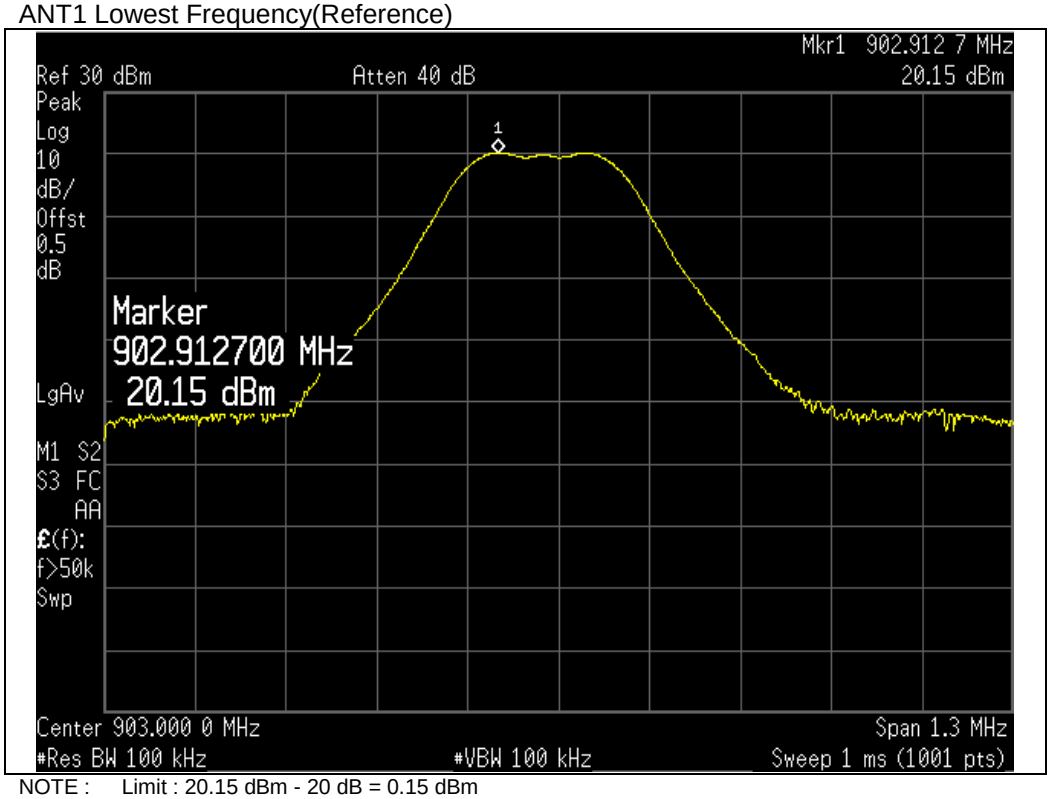
Test mode : ANT2 Highest Frequency (1 GHz ~ 10 GHz Average)



No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Vertical ------										
1	2779.750	38.6	32.7	-28.1	0.0	43.2	54.0	10.8	100	139

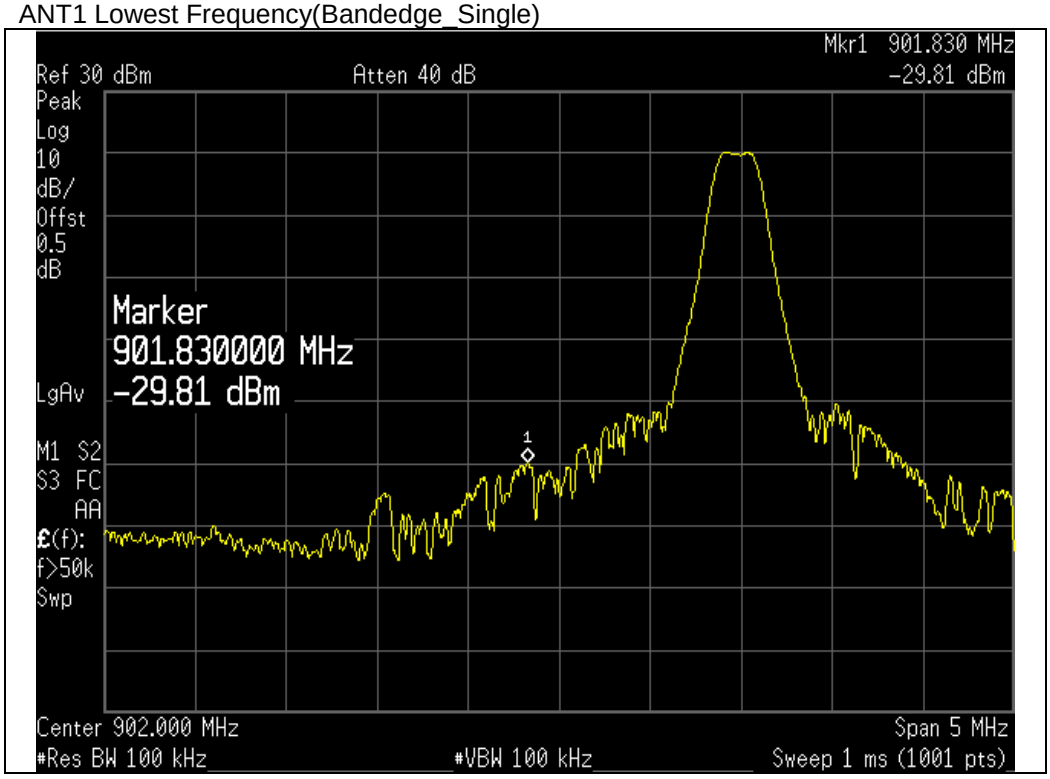
4.4.7.6 Measurement data_Conducted Spurious Emissions

ANT1 Lowest Frequency(Reference)

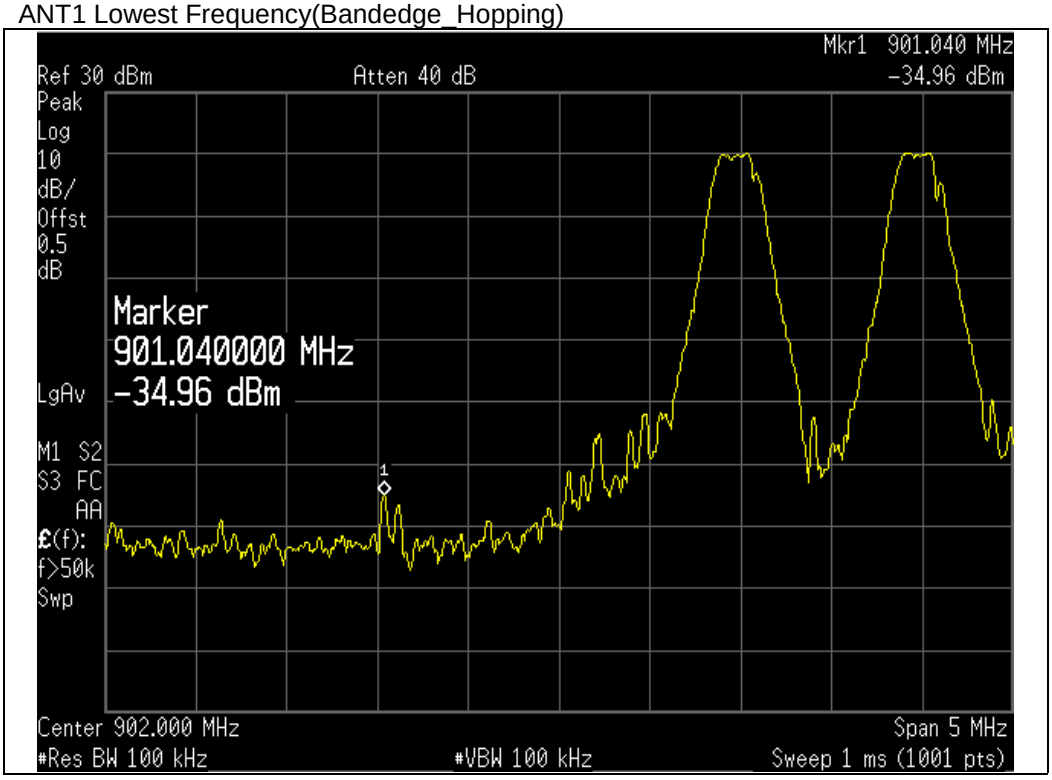


NOTE : Limit : 20.15 dBm - 20 dB = 0.15 dBm

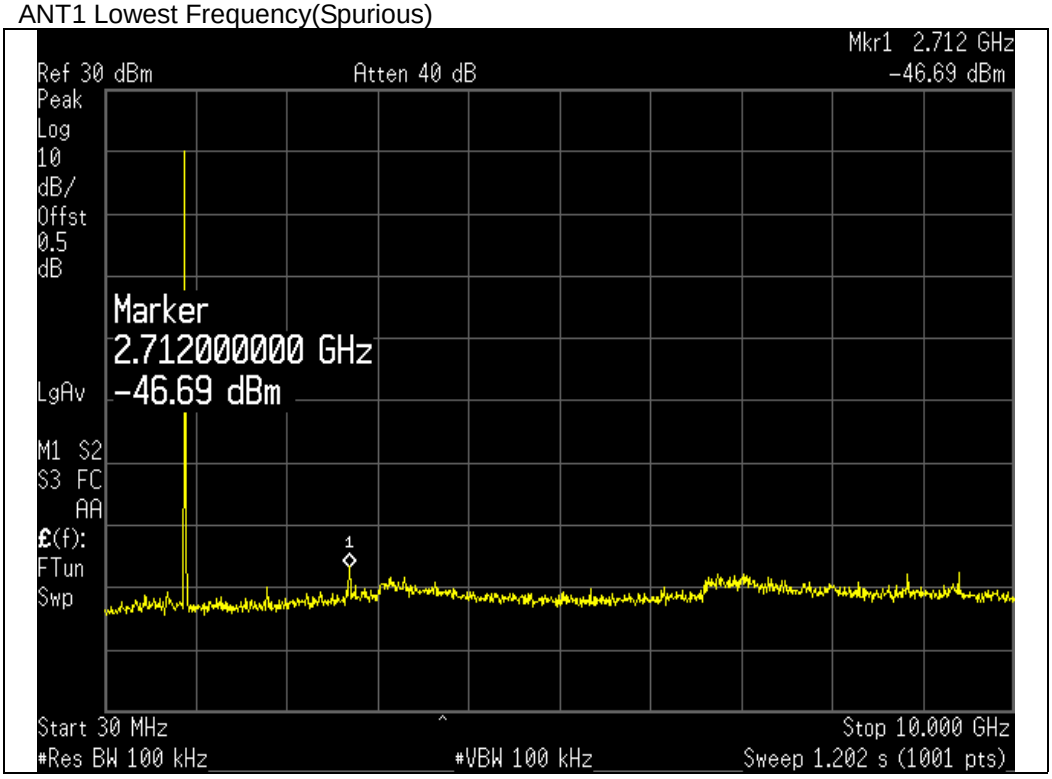
ANT1 Lowest Frequency(Bandedge_Single)



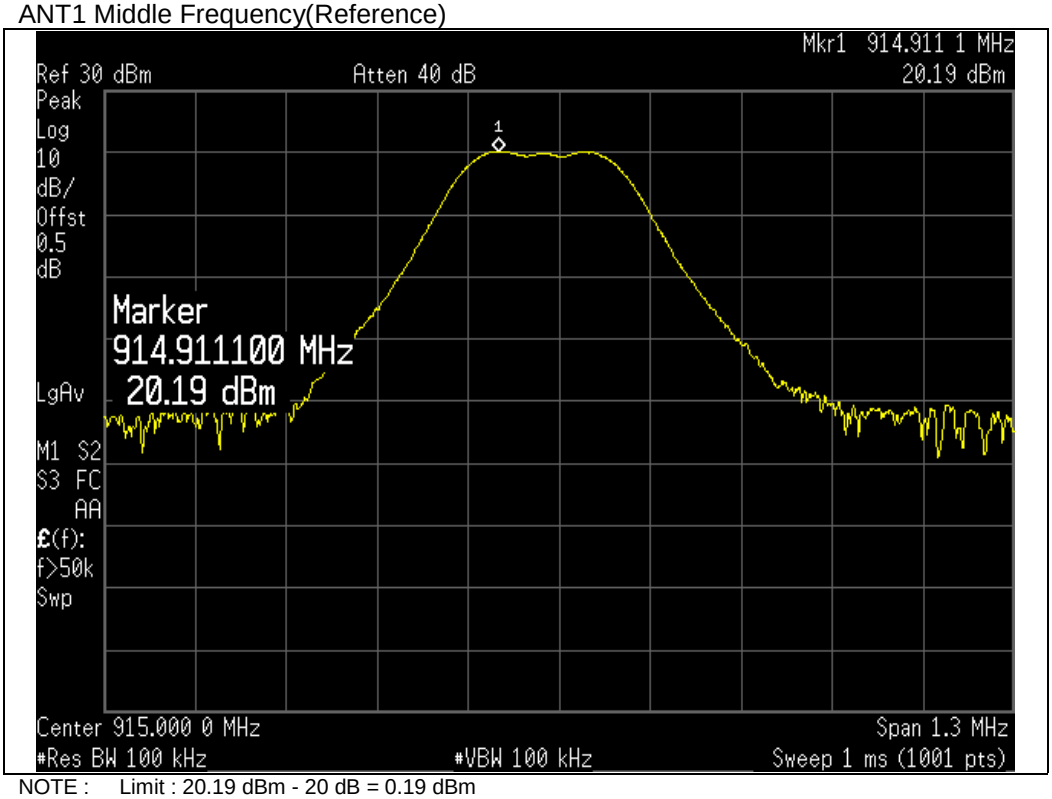
ANT1 Lowest Frequency(Bandedge_Hopping)



ANT1 Lowest Frequency(Spurious)

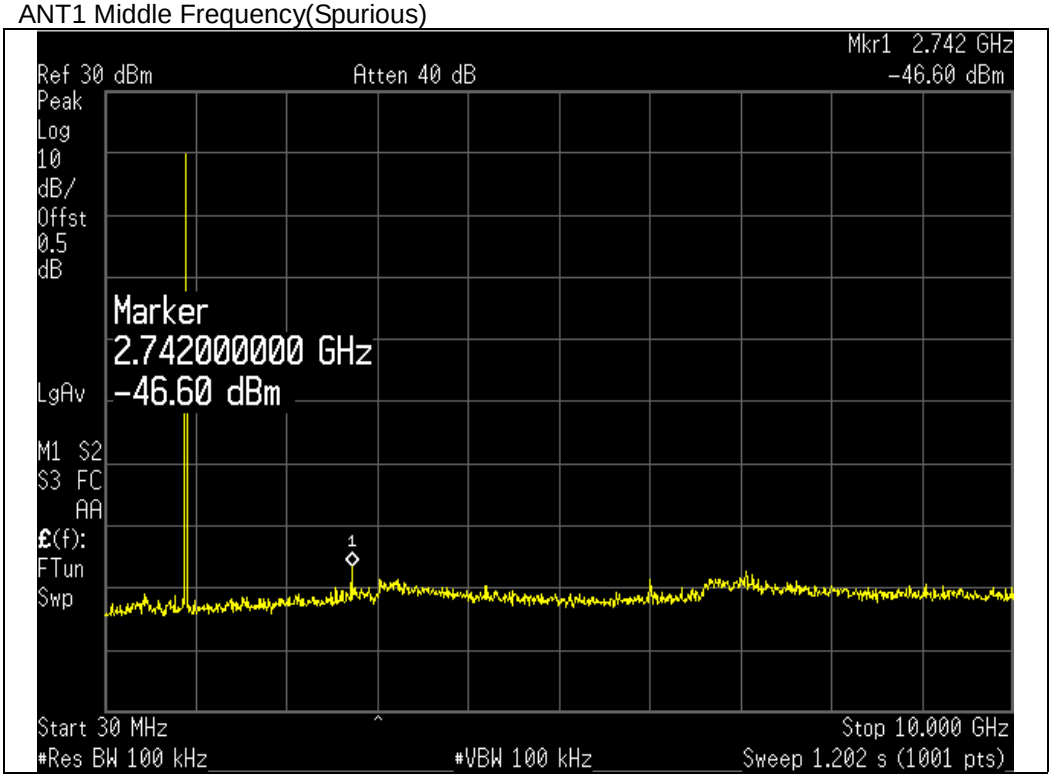


ANT1 Middle Frequency(Reference)

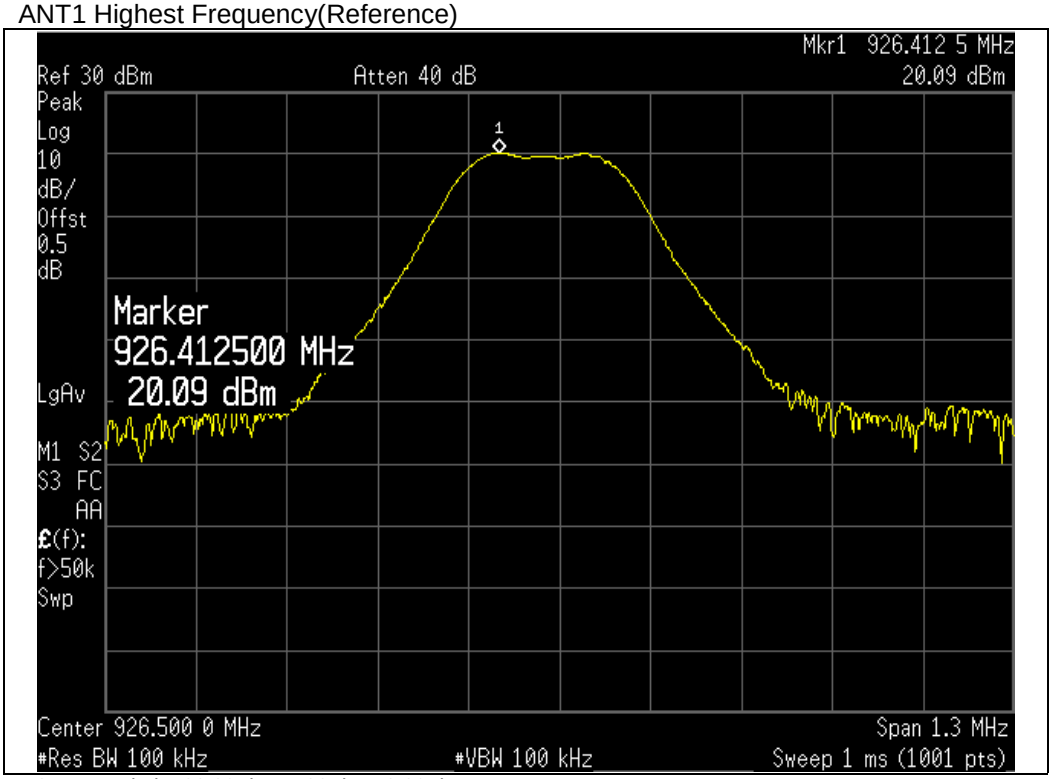


NOTE : Limit : 20.19 dBm - 20 dB = 0.19 dBm

ANT1 Middle Frequency(Spurious)

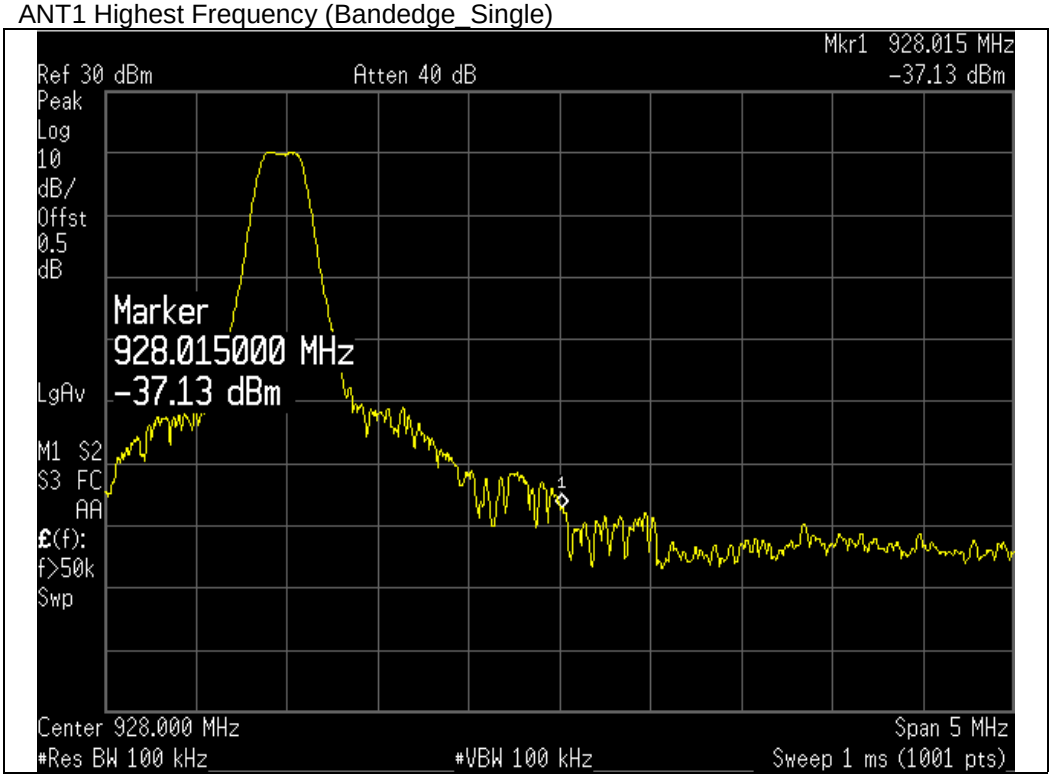


ANT1 Highest Frequency(Reference)

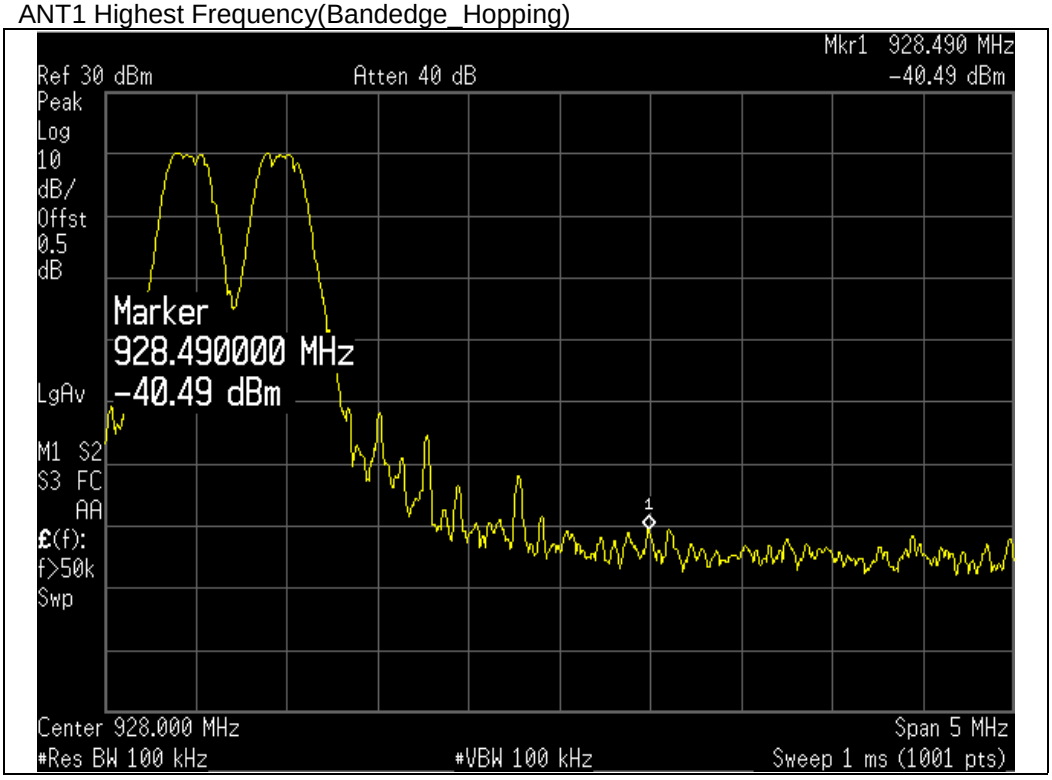


NOTE : Limit : 20.09 dBm - 20 dB = 0.09 dBm

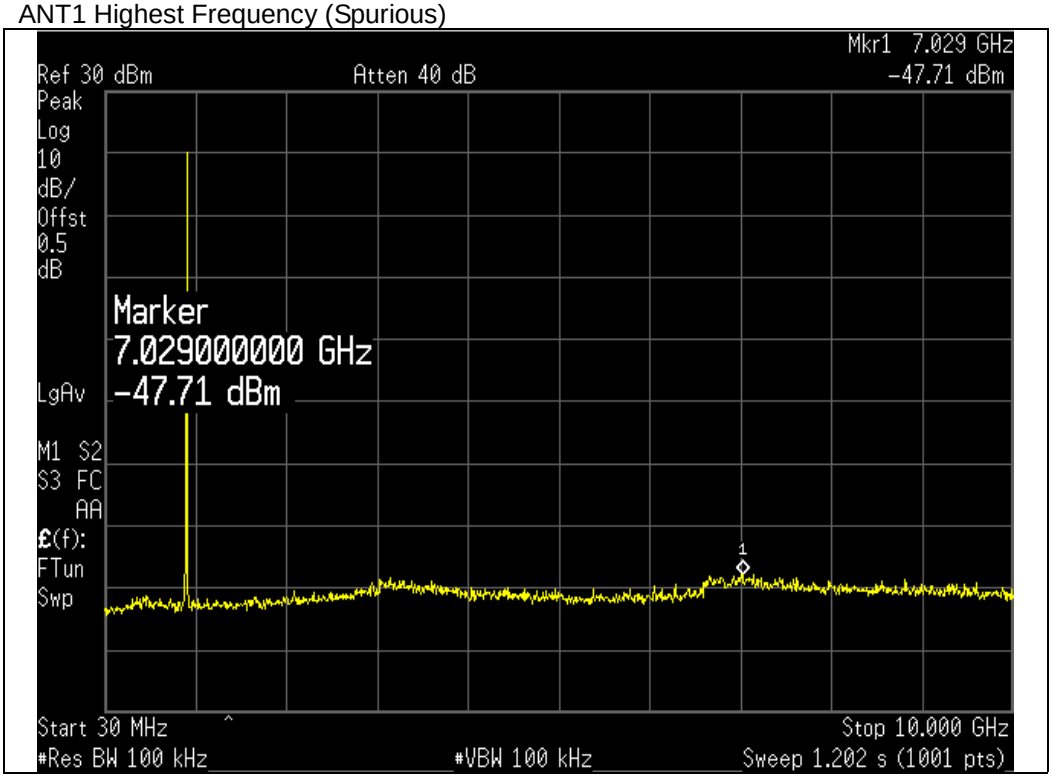
ANT1 Highest Frequency (Bandedge_Single)



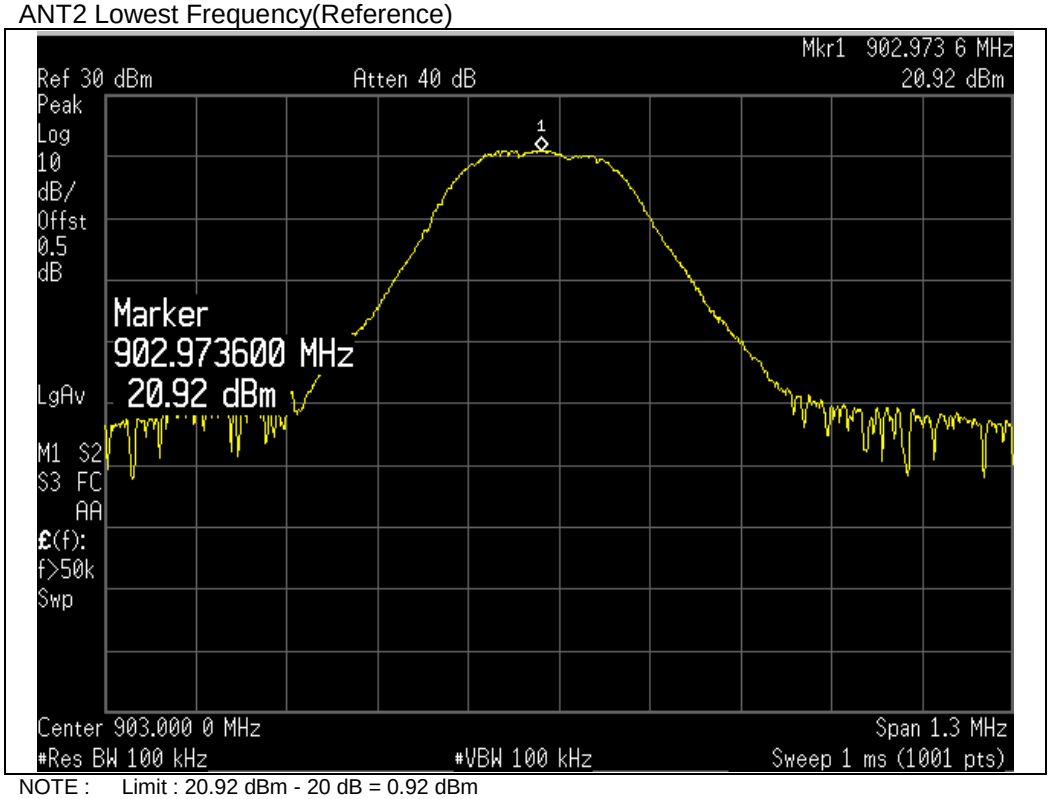
ANT1 Highest Frequency(Bandedge_Hopping)



ANT1 Highest Frequency (Spurious)

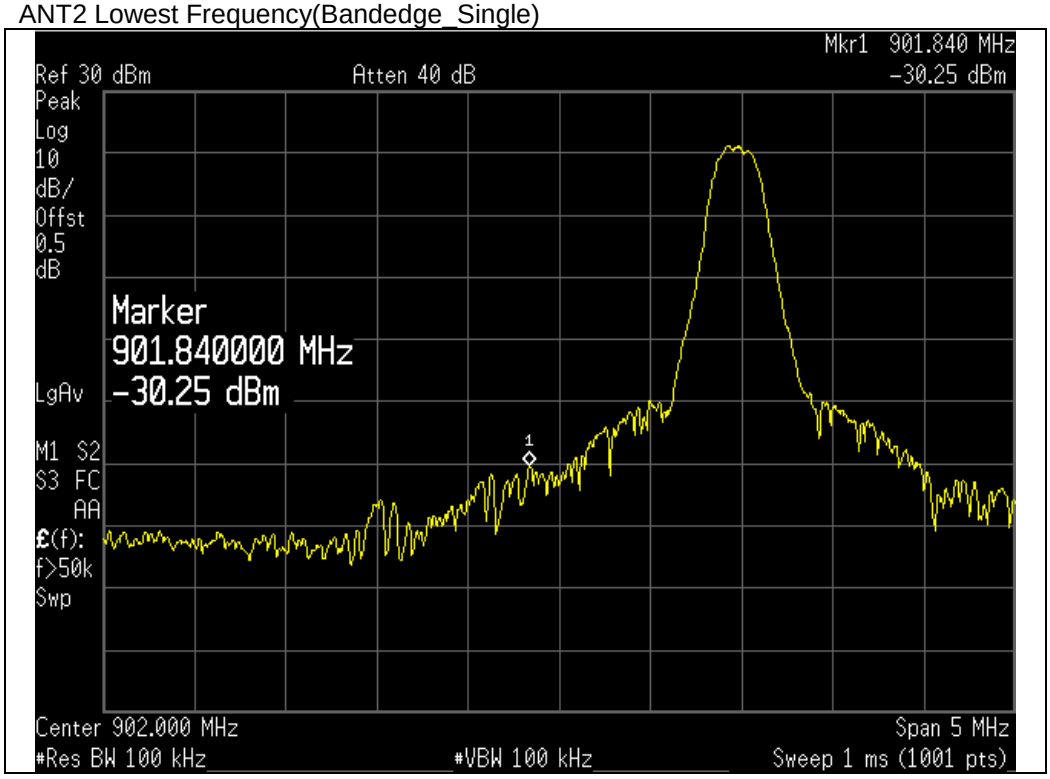


ANT2 Lowest Frequency(Reference)

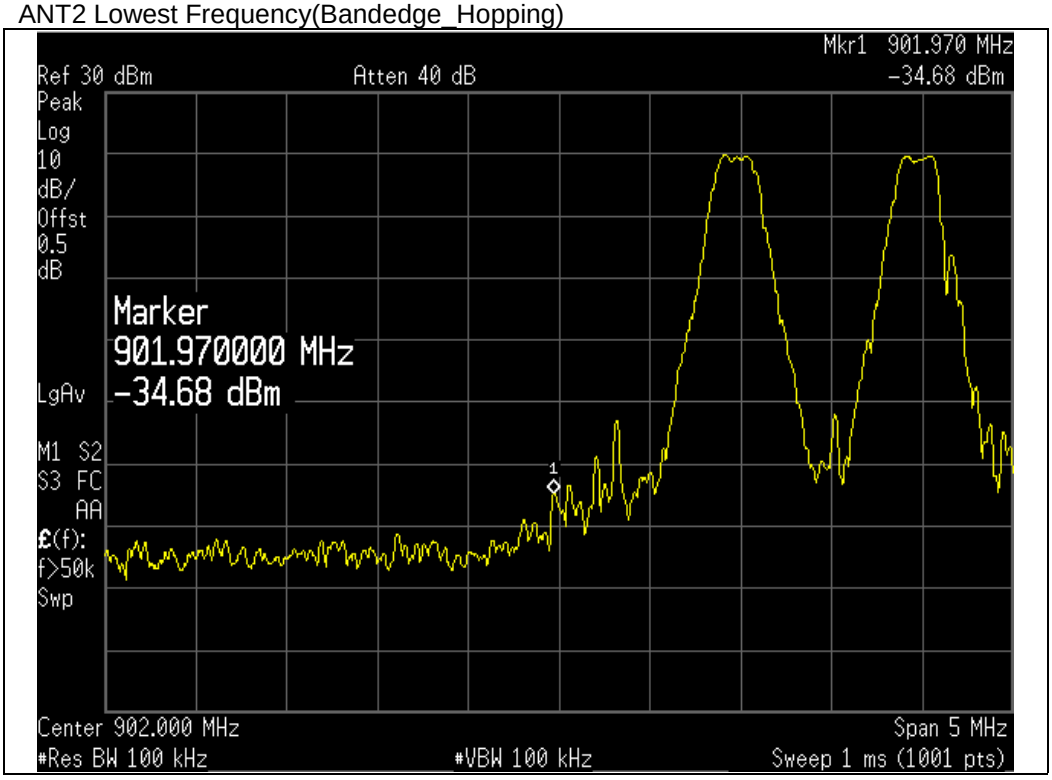


NOTE : Limit : 20.92 dBm - 20 dB = 0.92 dBm

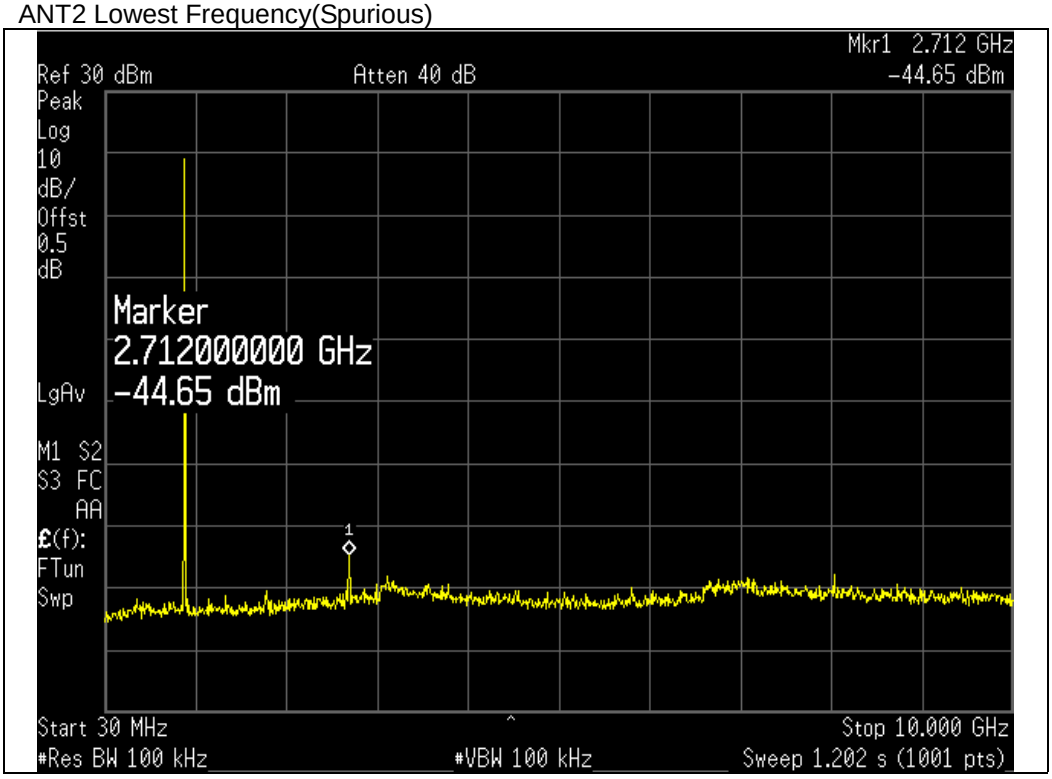
ANT2 Lowest Frequency(Bandedge_Single)



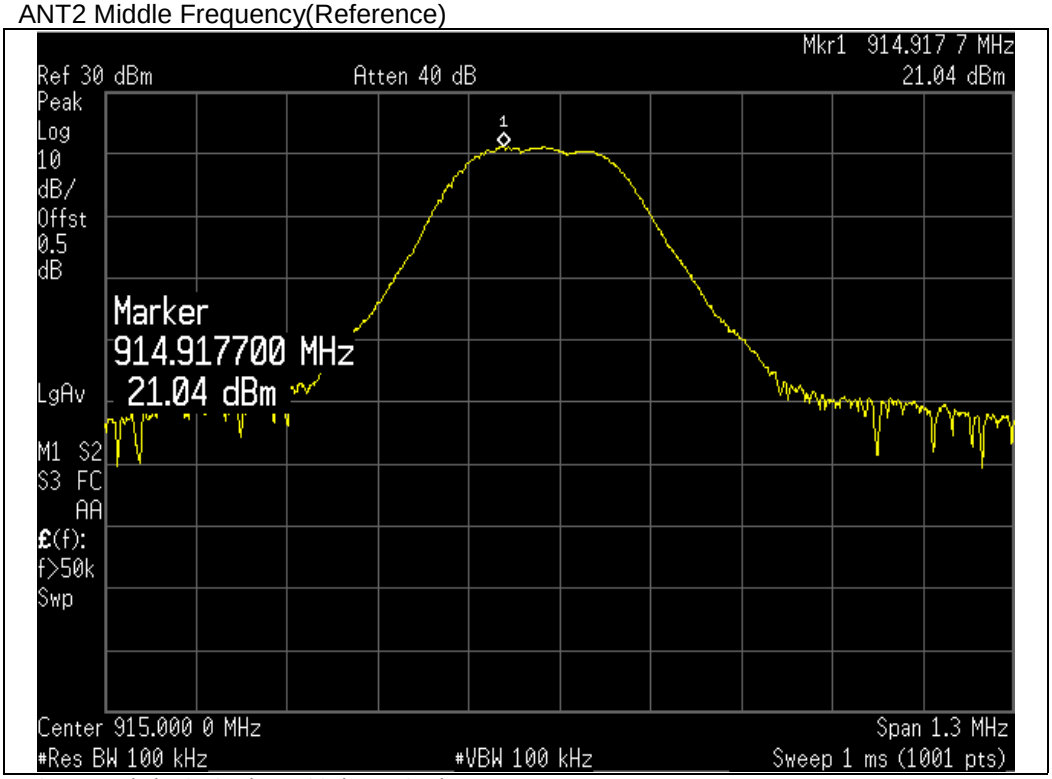
ANT2 Lowest Frequency(Bandedge_Hopping)



ANT2 Lowest Frequency(Spurious)

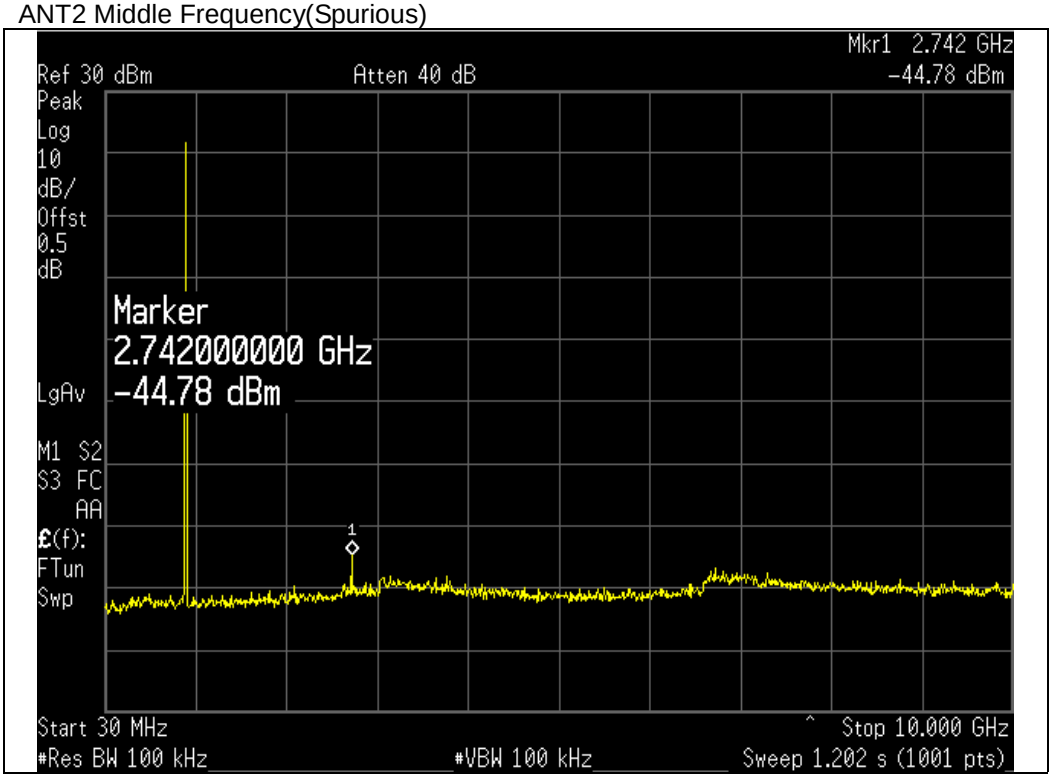


ANT2 Middle Frequency(Reference)

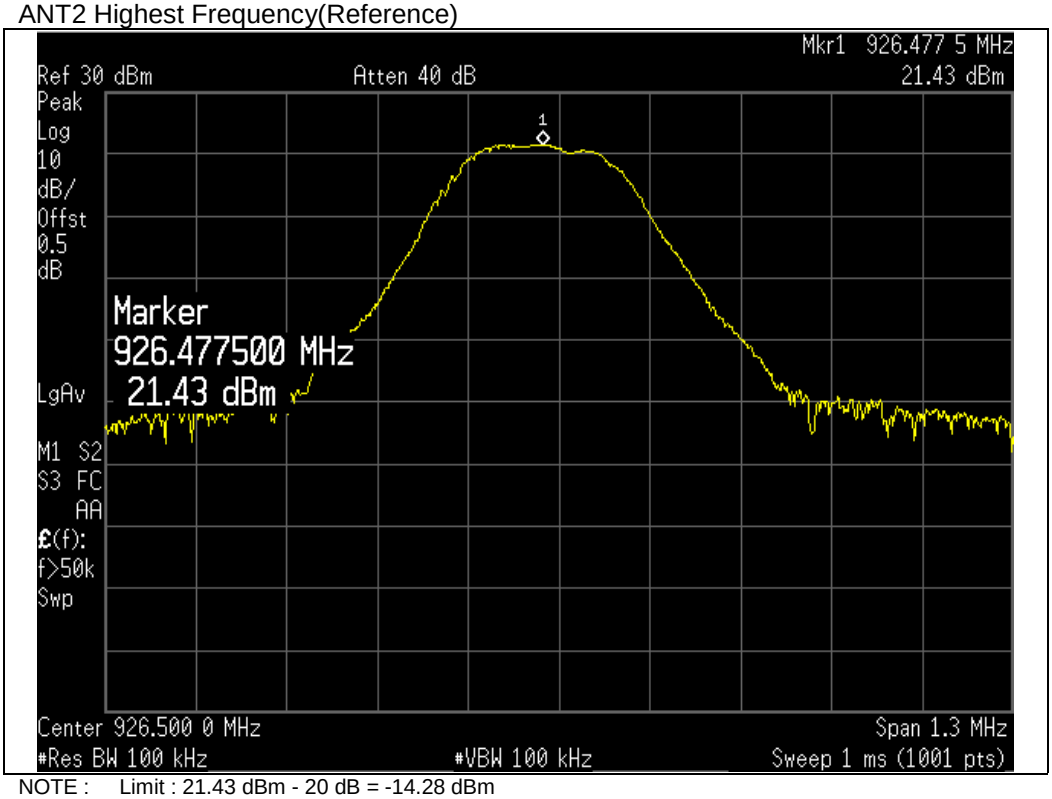


NOTE : Limit : 21.04 dBm - 20 dB = 1.04 dBm

ANT2 Middle Frequency(Spurious)

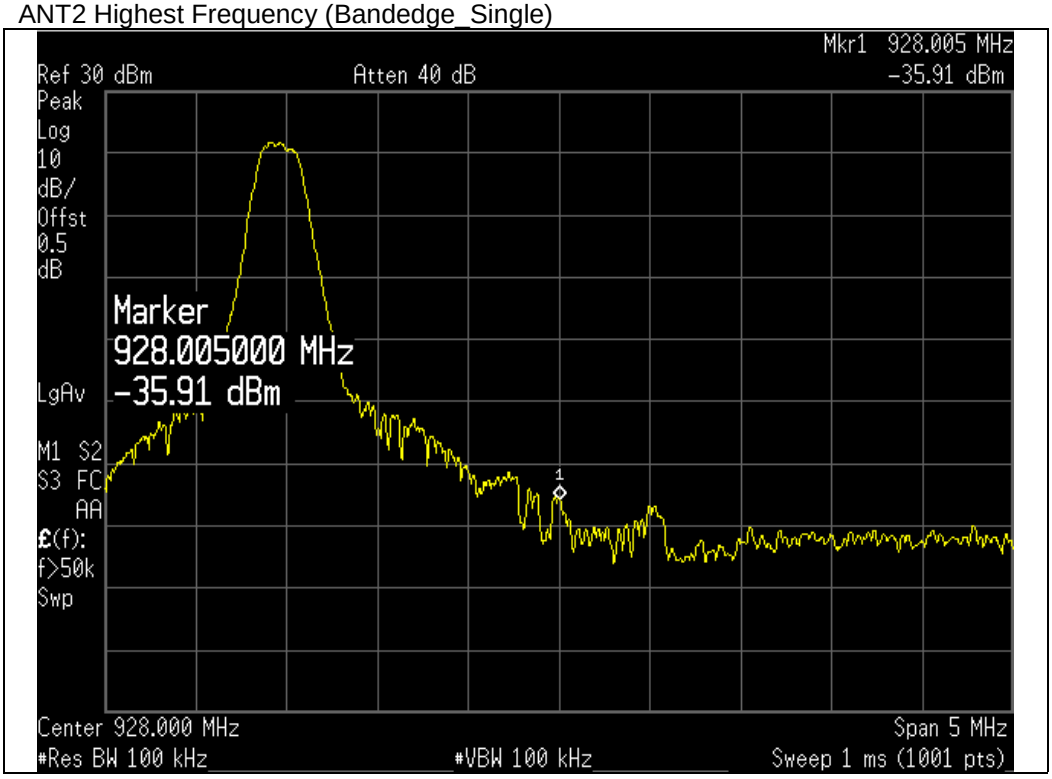


ANT2 Highest Frequency(Reference)

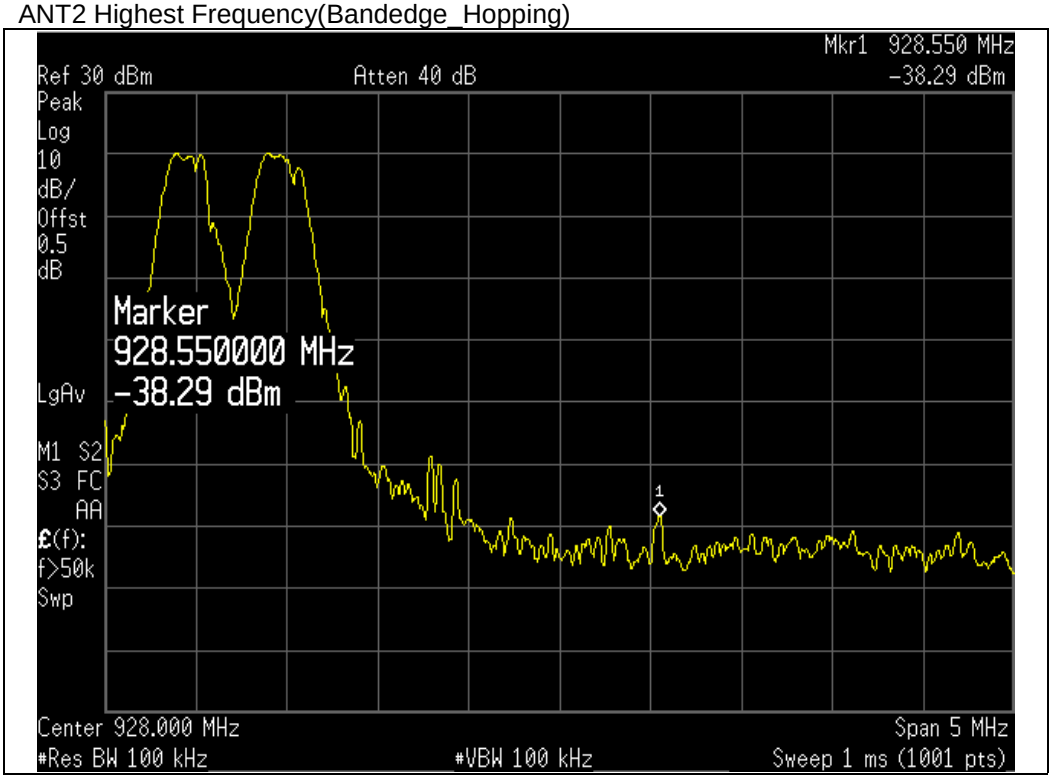


NOTE : Limit : 21.43 dBm - 20 dB = -14.28 dBm

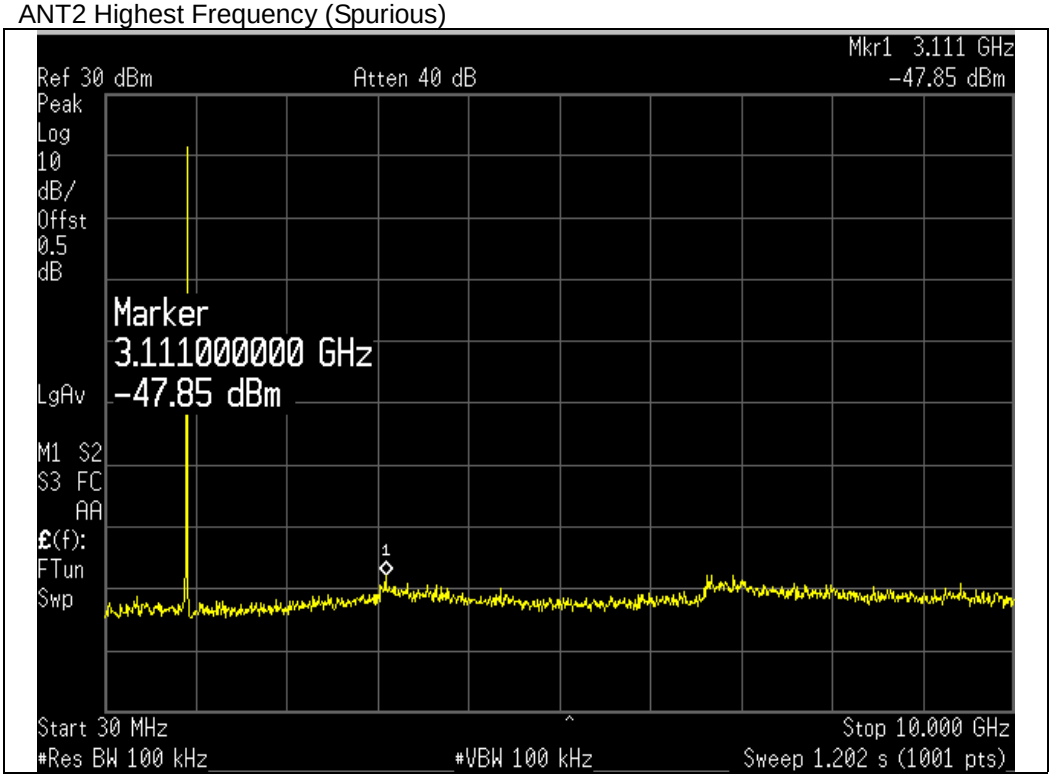
ANT2 Highest Frequency (Bandedge_Single)



ANT2 Highest Frequency(Bandedge_Hopping)



ANT2 Highest Frequency (Spurious)



4.4.8 Conducted Emission

4.4.8.1 Regulation

According to §15.207(a) and RSS-GEN8.8 for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 Ω line impedance stabilization network (LISN).
Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Qausi-peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency.

According to §15.107(a), for unintentional device, except for Class A digital devices, line conducted emission limits are the same as the above table.

4.4.6.2 Measurement Procedure

1) The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5 m away from the side wall of the shielded room.

2) Each current-carrying conductor of the EUT power cord was individually connected through a 50 Ω/50 μH LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity Meter, to the input power source.

3) Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.

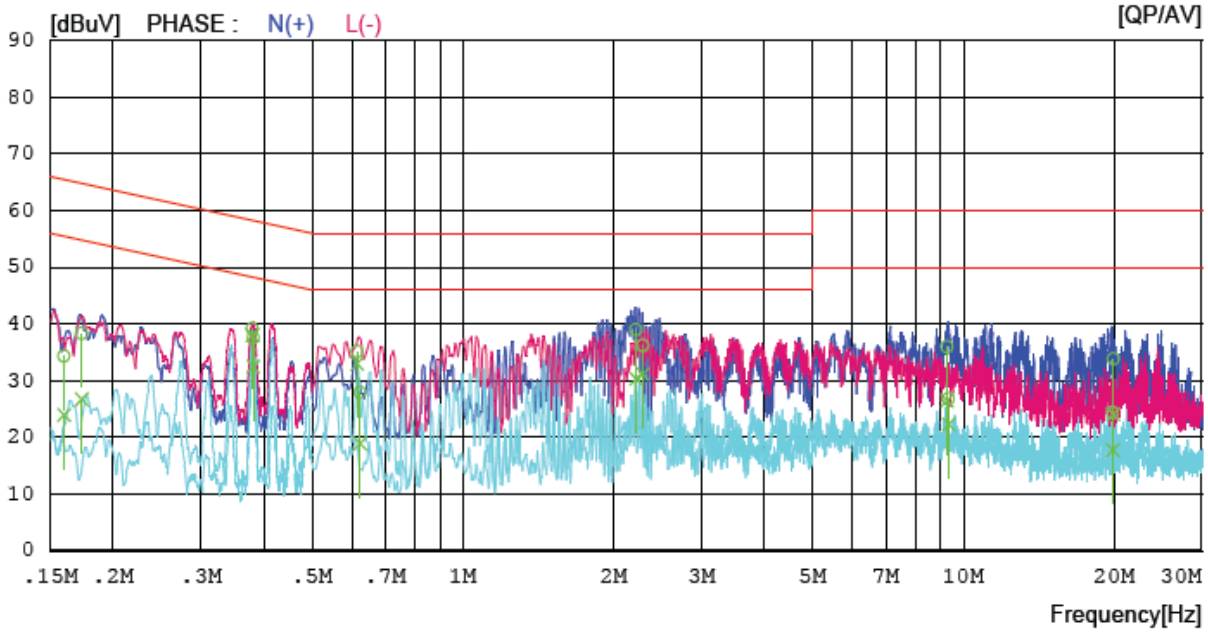
4) The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.

5) The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASIPEAK and AVERAGE within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.

4.4.8.3 Result

Comply (measurement data : refer to the next page)

4.4.8.4 Measurement data



NO	FREQ	READING QP	READING CAV	C.FACTOR	RESULT QP	RESULT CAV	LIMIT QP	LIMIT CAV	MARGIN QP	MARGIN CAV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.17298	18.1	6.5	20.2	38.3	26.7	64.8	54.8	26.5	28.1	N(+)
2	0.38087	17.4	12.4	20.1	37.5	32.5	58.3	48.3	20.8	15.8	N(+)
3	0.62266	7.8	-1.2	20.1	27.9	18.9	56.0	46.0	28.1	27.1	N(+)
4	2.21713	19.1	10.4	19.9	39.0	30.3	56.0	46.0	17.0	15.7	N(+)
5	9.26962	15.6	6.1	20.4	36.0	26.5	60.0	50.0	24.0	23.5	N(+)
6	19.93405	13.3	3.6	20.5	33.8	24.1	60.0	50.0	26.2	25.9	N(+)
7	0.15952	14.1	3.7	20.2	34.3	23.9	65.5	55.5	31.2	31.6	L(-)
8	0.37960	18.9	17.8	20.2	39.1	38.0	58.3	48.3	19.2	10.3	L(-)
9	0.61456	14.9	12.8	20.2	35.1	33.0	56.0	46.0	20.9	13.0	L(-)
10	2.28630	16.2	11.1	20.0	36.2	31.1	56.0	46.0	19.8	14.9	L(-)
11	9.34618	6.4	1.9	20.4	26.8	22.3	60.0	50.0	33.2	27.7	L(-)
12	19.87269	3.8	-2.7	20.5	24.3	17.8	60.0	50.0	35.7	32.2	L(-)

APPENDIX I

TEST EQUIPMENT USED FOR TESTS

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment.

Equipment	Manufacturer	Model	Serial No.	Cal. Date (yy.mm.dd)	Next Cal.Date (yy.mm.dd)
SPECTRUM ANALYZER	AGILENT	E4440A	MY45304319	16.10.26	17.10.26
Dynamic Mesurement DC Source	HP	66332A	US37471465	17.01.12	18.01.12
HUMIDITY/TEMP DATA RECORDER	LUTRON	MHB-382SD	79735	16.04.28	17.04.28
Digital MultiMeter	HP	34401A	US36025428	17.01.12	18.01.12
Signal Generator	ROHDE&SCHWARZ	SMB100A	178384	16.10.18	16.10.18
EMI Test Receiver	ROHDE&SCHWARZ	ESU40	100445	16.12.14	17.12.14
BiLog Antenna	Schwarzbeck	VULB9160	3381	15.06.15	17.06.15
Preamplifier	TSJ	MLA-10k01-b01-27	1870369	16.04.25	17.04.25
Antenna Mast(10 m)	TOKIN	5977	-	-	-
Controller(10 m)	TOKIN	5909L	141909L-1	-	-
Turn Table(10 m)	TOKIN	5983-1.5	-	-	-
10 m Semi-Anechoic Chamber	SY CORPORATION	-	-	-	-
Active Loop H-Field	ETS	6502	00150598	15.06.05	17.06.05
Double Ridege Horn Antenna	ETS	3117	00168726	15.04.07	17.04.07
Double Ridege Horn Antenna	A.H Systems, Inc	SAS-574	2581	15.05.04	17.05.04
PREAMPLIFIER	Agilent	8449B	3008A02110	17.01.13	18.01.13
High pass filter	Wainwright Instruments GmbH	WHKX12-935-1000-15000-40SS	7	16.09.09	17.09.09