COMPLIANCE
For FCC PART 15 Subpart C

Applicant Name:	Date of Testing
Seers Technology Co., Ltd.	January 07, 2015 to March 12, 2015
	Test Site/Location
Address:	#23, Gokhyeon-ro 480 Beon-gil, Mohyeon-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do 449-853, South Korea
#1210 Tech Center, SKⓝTechnopark, 124, Sagimakgol-ro, Jungwon-gu, Seongnam-si,Gyeonggi-do, South Korea	**Test Report No.:** BWS-15-RF-0004
	BWS FRN: 0009936881
FCC ID:	**QN8HH-800**

Model(s):	HH-800
EUT Type:	HICARE HUB
Frequency Range:	2402-2480 MHz
Modulation Type	BDR(GFSK), EDR(π/4-DQPSK), EDR(8DPSK)
FCC Classification:	Spread Spectrum Transmitter (DSS)
FCC Rule Part(s):	FCC Part 15 Subpart C §15.247

The product was received on January 07, 2015 and testing was completed on March 12, 2015. We, BWS TECH Inc. would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of BWS TECH Inc. the test report shall not be reproduced except in full.

(Date) 03/13/2015

Tested by **Hyun-Yong, Seol**

(Date)03/13/2015

Reviewed by **Bang-Hyun, Nam**

BWS TECH INC.

#23, Gokhyeon-ro 480 Beon-gil, Mohyeon-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do 449-853, South Korea
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http://www.bws.co.kr

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FCC TEST REPORT

Scope – *Measurement and determination of electromagnetic emission(EME) of radio frequency devices including intentional radiators and/or unintentional radiators for compliance with the technical rules and regulations of the U.S Federal Communications Commission(FCC)*

1. General Information

1.1 Applicant

- **Company Name** : Seers Technology Co., Ltd.
- **Company Address** : #1210 Tech Center, SKⓝTechnopark, 124, Sagimakgol-ro, Jungwon-gu,Seongnam-si, Gyeonggi-do, South Korea
- **Phone/Fax** : Tel No. : +82-31-776-3036~8 Fax No. : +82-31-776-3039

1.2 Manufacturer

- **Company Name** : Seers Technology Co., Ltd.
- **Company Address** : #1210 Tech Center, SKⓝTechnopark, 124, Sagimakgol-ro, Jungwon-gu,Seongnam-si, Gyeonggi-do, South Korea
- **Phone/Fax** : Tel No. : +82-31-776-3036~8 Fax No. : +82-31-776-3039

1.3 EUT Description

- **EUT Type** : HICARE HUB
- **Model Name** : HH-800(Basic), HH-801(a Model without BP Module from Basic Model)
- **S/N** : Prototype
- **Freq. Range** : 2402-2480 MHz
- **Number of Channels** : BDR(79 Channel), EDR(79 Channel)
- **Modulation Method** : BDR(GFSK), EDR(π/4-DQPSK), EDR(8DPSK)
- **Power source** : AC Input: 100-240 V 50/60 Hz, DC Output: 12 V, 2.5-3 A
- **Battery** : 7.4 A, 1350 mAh
- **Antenna Peak Gain** : 1.99 dBi

1.4 Other Information

- **FCC Rule Part(s)** : Part 15 Subpart C §15.247
- **Test Procedure** : ANSI C63.10-2013 DA 00-705
- **FCC ID** : QN8HH-800
- **Date of Test** : January 07, 2015 to March 12, 2015
- **Place of Test** : BWS TECH Inc.(FCC Registration Number : 287786) #23, Gokhyeon-ro 480 Beon-gil, Mohyeon-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do 449-853, South Korea TEL: +82 31 333 5997 FAX: +82 31 333 0017

2. Description of Test Facility

Site Description

Test Lab. :

Accredited by Industry Canada, February 27, 2012
The Certificate Registration Number is 4963A-2.

Accredited by FCC, September 03, 2013
The Certificate Registration Number is 287786.

Accredited by VCCI, July 10, 2012
The Certificate Registration Number is C-4326

Accredited by RRA(EMC,RF, SAR), November 27, 2014
The Certificate Registration Number is KR0017

Accredited by KOLAS(KS Q ISO/IEC 17025), October 7, 2014
The Certificate Registration Number is KT174

Name of Firm : BWS TECH Inc.

Site Location : #23, Gokhyeon-ro 480 Beon-gil, Mohyeon-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do 449-853, South Korea

3. Test Methodology

The tests documented in this report were performed in accordance with ANSI C63.10: 2013 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

3.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application

3.2 EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 FCC Part 15.205 Restricted Bands Of Operations

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

1 Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
2 Above 38.6

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

3.4 Description Of Test Modes

The EUT has been tested under operating condition.
After verification, all tests were carried out with the worst case test modes as shown below GFSK(1Mbps) Channel Low (2402MHz), Mid (2440MHz) and High (2480MHz), these were chosen for full testing

4. Summary of Test Results

Spread Spectrum Transmitter (DSS)				
Clause	**TEST Description**	**Standard Section**	**Requirements**	**Result**
5.1	**Number of Channels**	§15.247(a)(1)	≥ 15 Channel Number	Pass
5.2	**Hopping Channel Separation**	§15.247(a)(1)	≥ 2/3 of 20 dB Bandwidth	Pass
5.3	**Dwell Time of Each Channel**	§15.247(a)(1)	≤ 0.4 s	Pass
5.4	**20dB and 99% Bandwidth**	§15.247(a)(1)	N/A	Pass
5.5	**Maximum Peak Conducted Output Power**	§15.247(b)(1)	≤ 125mW	Pass
5.6	**Conducted Spurious Emission**	§15.247(d)	≥20dBc/100kHz	Pass
5.7	**Radiated Spurious Emission**	§15.247(d), §15.209(a), §15.35(b)	§15.209, §15.247(d)	Pass
5.8	**Band Edges Measurement**	§15.247(d)	§15.205(a), §15.209(a)	
5.8	**AC Power Conducted Emission**	§15.207	§15.207(a)	Pass
5.9	**Antenna Application**	§15.247(b), §15.203	§15.247(b), §15.203	Pass

5. Test Data

5.1 Number of Channels

5.1.1 Test Equipment

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date (year/month/date)
Spectrum analyzer	N9020A	Agilent	US46220101	15/09/11
Spectrum analyzer	FSP13	Rohde & Schwarz	100760	16/02/06
RF Cable_2m	Test No.1	Hubersunhner	N/A	16/01/14
AC Power Source	15001ix-CTS	California Instruments	56255/56256/56257	16/01/13

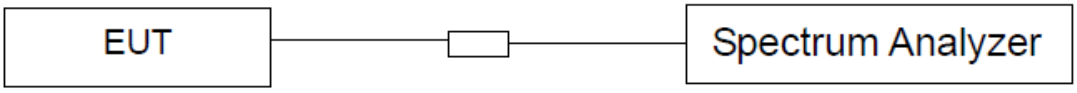
5.1.2 Test Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

5.1.3 Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = the frequency band of operation; RBW ≥ 1% of the span; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
6. The number of hopping frequency used is defined as the number of total channel.
7. Record the measurement data derived from spectrum analyzer.

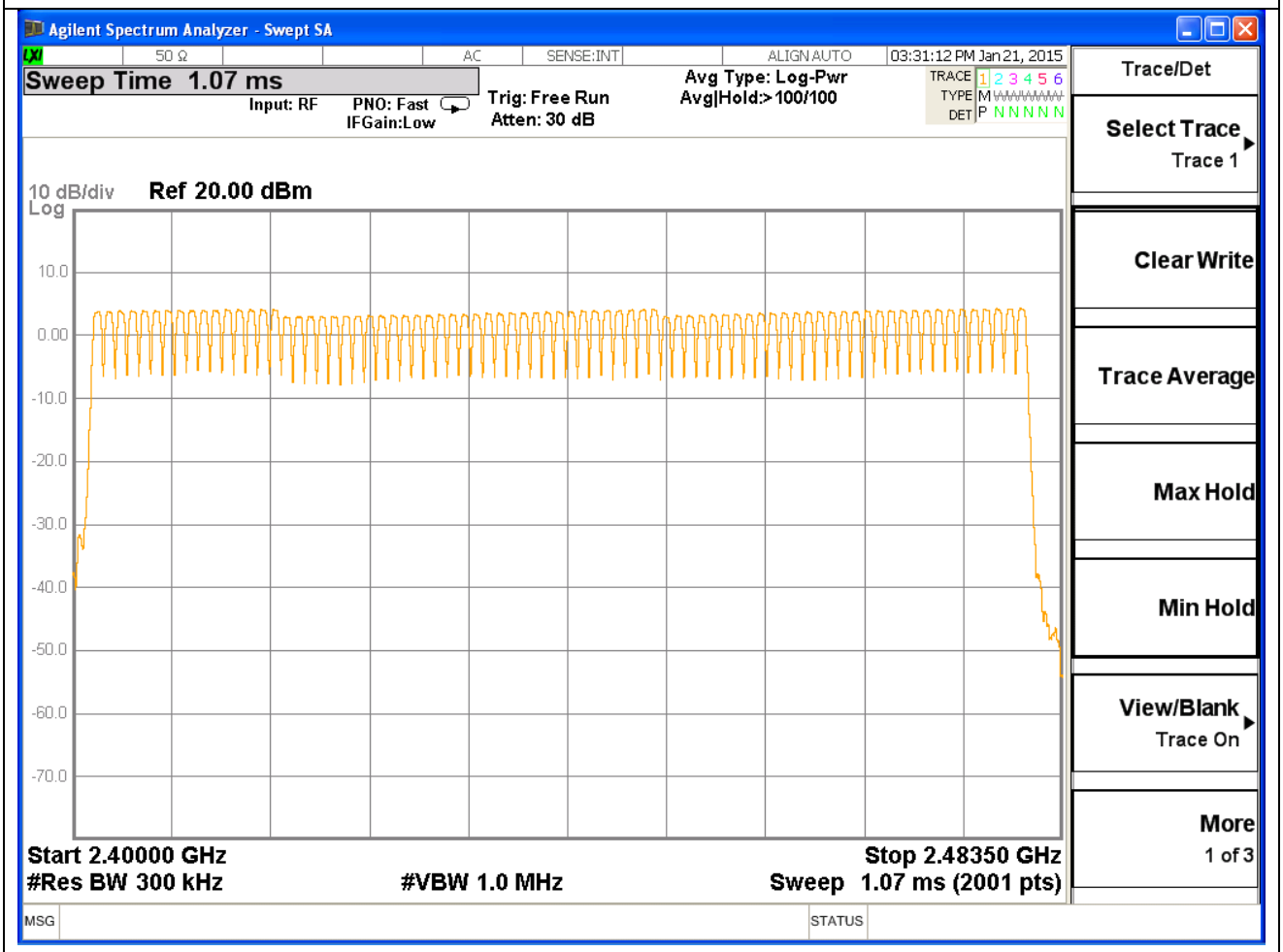
5.1.4 Block Diagram of Test Setup



5.1.5 Test Result

Number of Hopping(Channel)	Channel Number
79	≥15

Number of Hopping Channel



5.2 Hopping Channel Separation

5.2.1 Test Equipment

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date (year/month/date)
Spectrum analyzer	N9020A	Agilent	US46220101	15/09/11
RF Cable_2m	Test No.1	Hubersunhner	N/A	16/01/14
AC Power Source	15001ix-CTS	California Instruments	56255/56256/56257	16/01/13

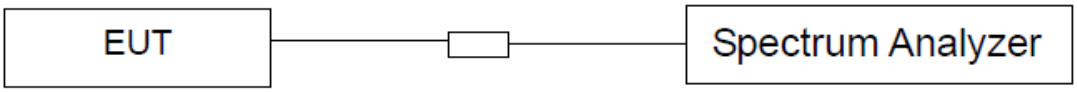
5.2.2 Test Limit

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.

5.2.3 Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels; RBW ≥ 1% of the span; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

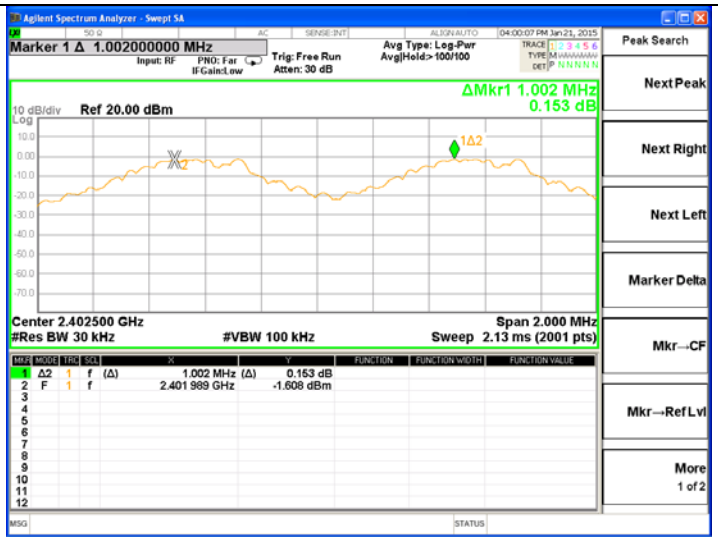
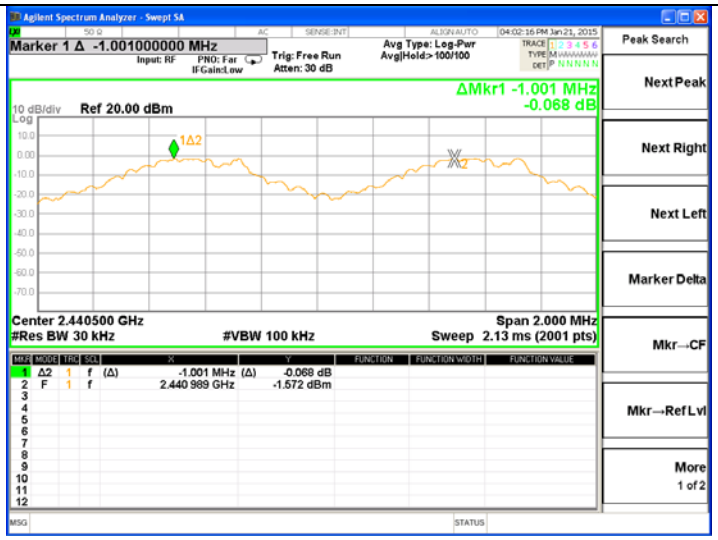
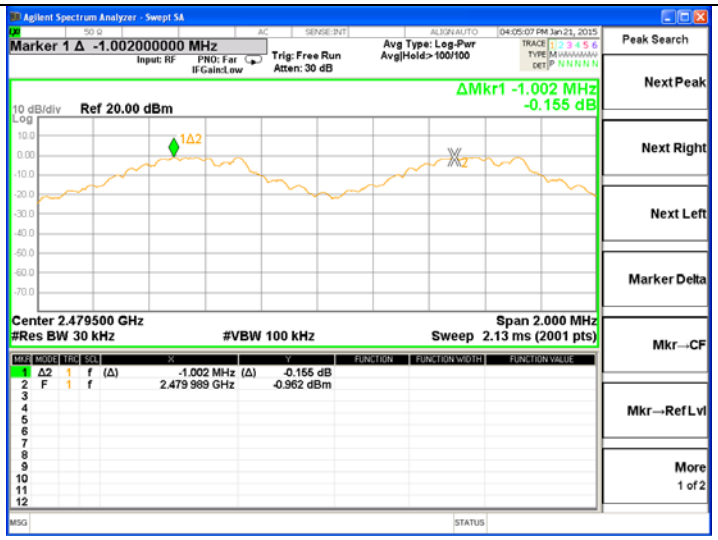
5.2.4 Block Diagram of Test Setup



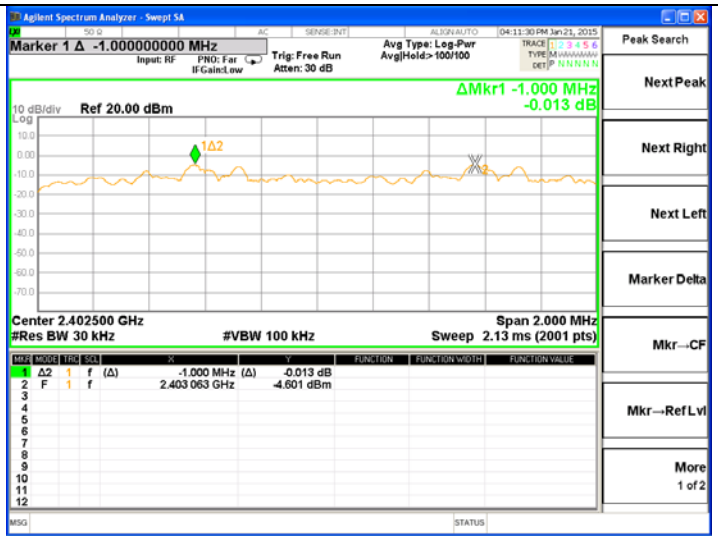
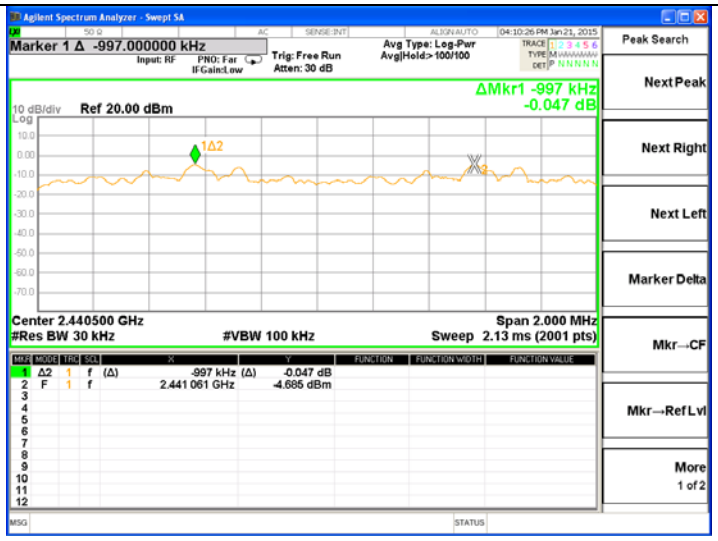
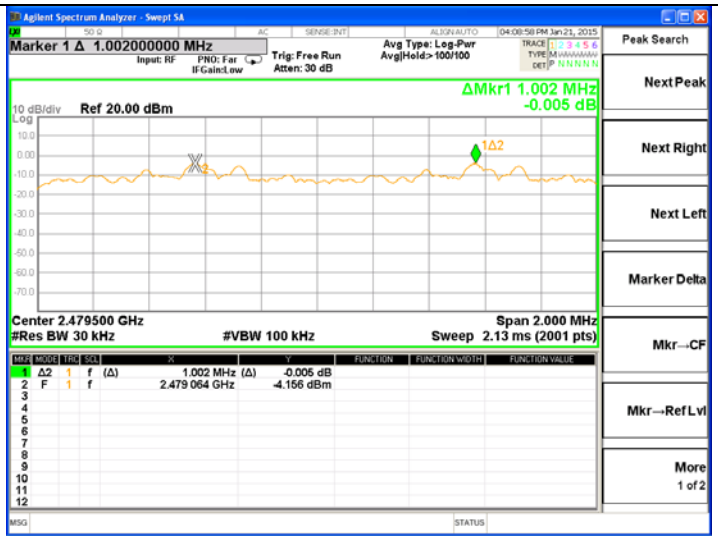
5.2.5 Test Result

Modulation	Channel	Test Result (kHz)	Limit (kHz)
BDR(GFSK)	Low	1002	≥640
	Middle	1001	≥640
	High	1002	≥640
EDR(π/4-DQPSK)	Low	1000	≥850
	Middle	997	≥850
	High	1002	≥850
EDR(8DPSK)	Low	998	≥850
	Middle	1005	≥850
	High	998	≥850

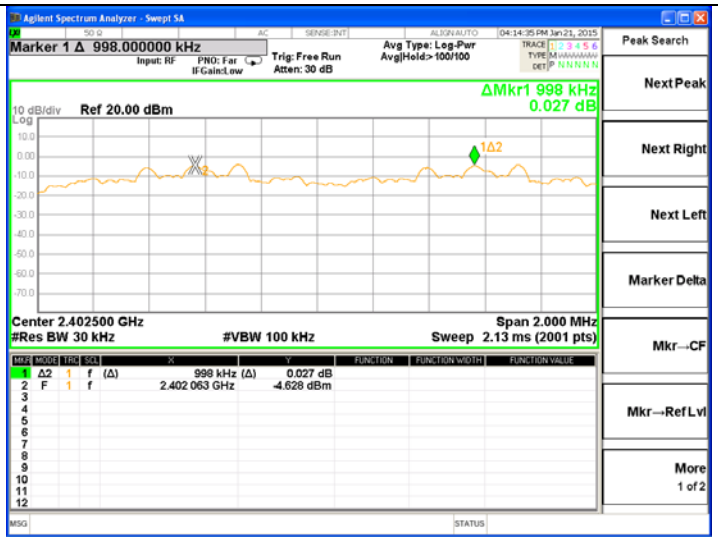
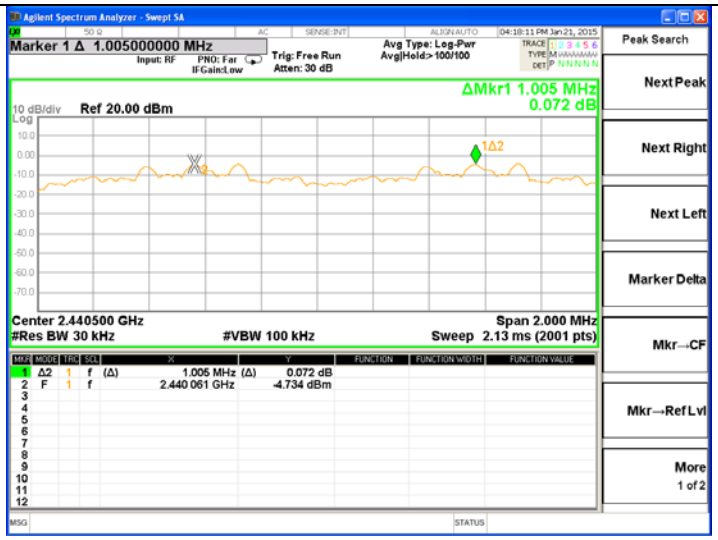
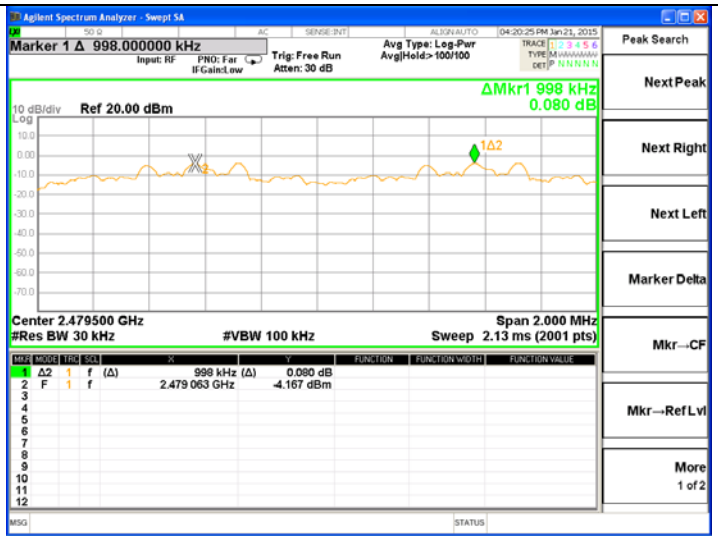
Hopping Channel Separation - BDR(GFSK)

Low Channel	
Middle Channel	
High Channel	

Hopping Channel Separation - EDR(π/4-DQPSK)

Low Channel	
Middle Channel	
High Channel	

Hopping Channel Separation - EDR(8DPSK)

Low Channel	
Middle Channel	
High Channel	

5.3 Dwell Time of Each Channel

5.3.1 Test Equipment

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date (year/month/date)
Spectrum analyzer	N9020A	Agilent	US46220101	15/09/11
RF Cable_2m	Test No.1	Hubersunhner	N/A	16/01/14
AC Power Source	15001ix-CTS	California Instruments	56255/56256/56257	16/01/13

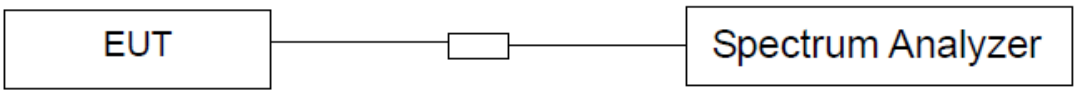
5.3.2 Test Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

5.3.3 Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW ≥ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

5.3.4 Block Diagram of Test Setup



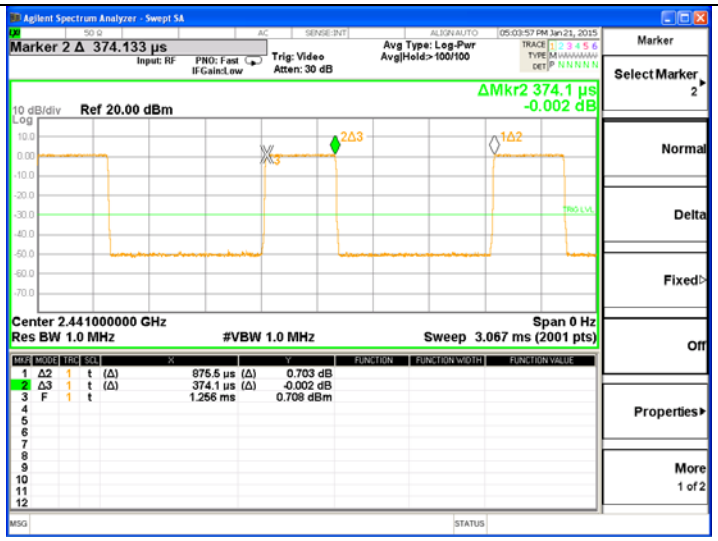
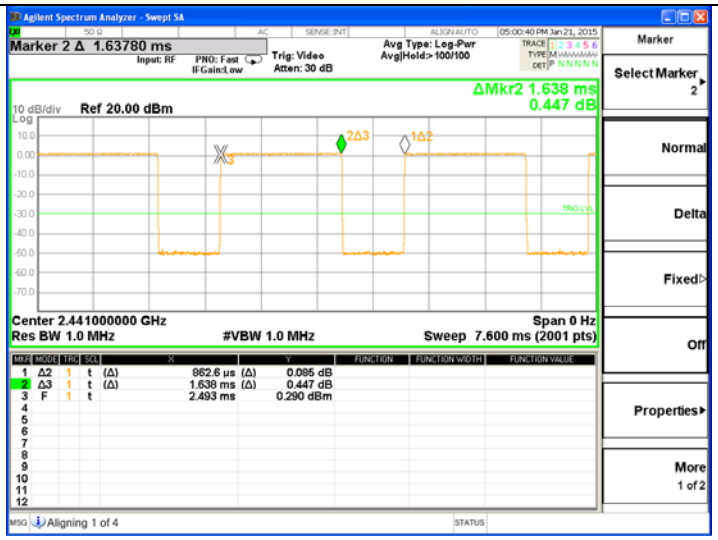
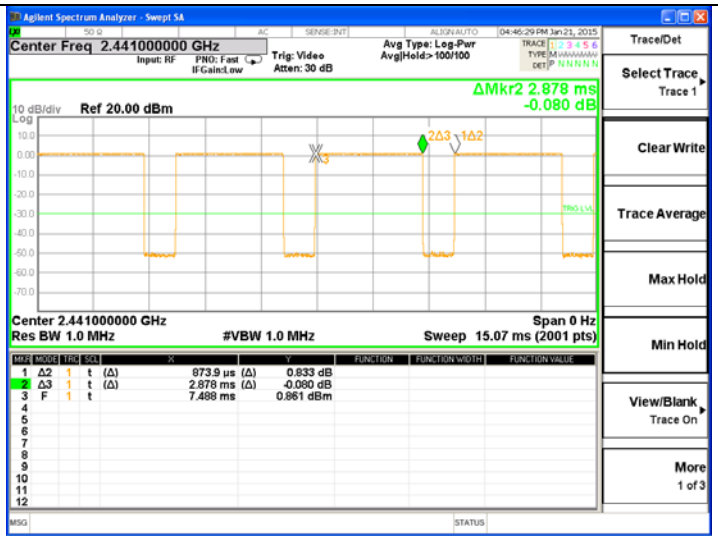
5.3.5 Test Result

Modulation	Packet	Time Slot Length (ms)	Dwell Time (ms)	Limit (ms)
BDR(GFSK)	DH1	0.37	118.4	≤400
	DH3	1.64	262.4	≤400
	DH5	2.88	307.2	≤400
EDR(π/4-DQPSK)	DH1	0.39	124.8	≤400
	DH3	1.64	262.4	≤400
	DH5	2.89	308.3	≤400
EDR(8DPSK)	DH1	0.39	124.8	≤400
	DH3	1.63	260.8	≤400
	DH5	2.89	308.3	≤400

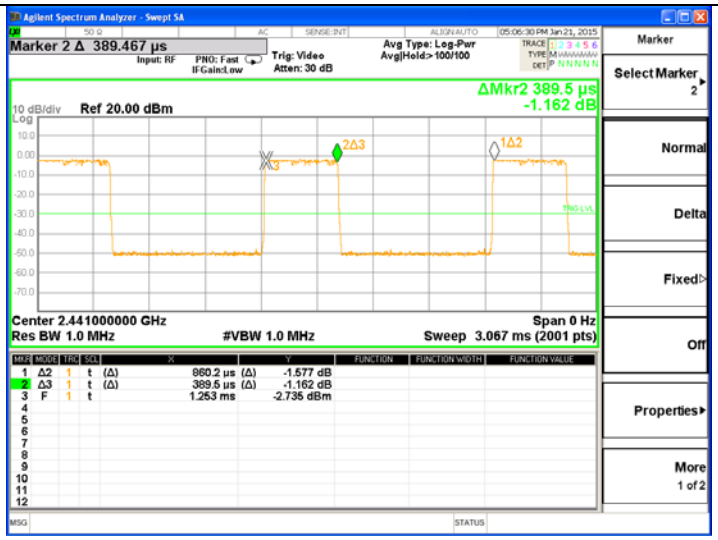
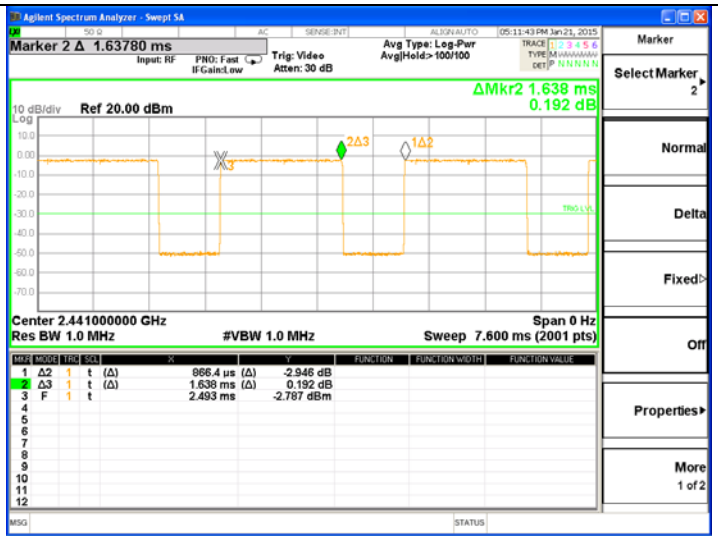
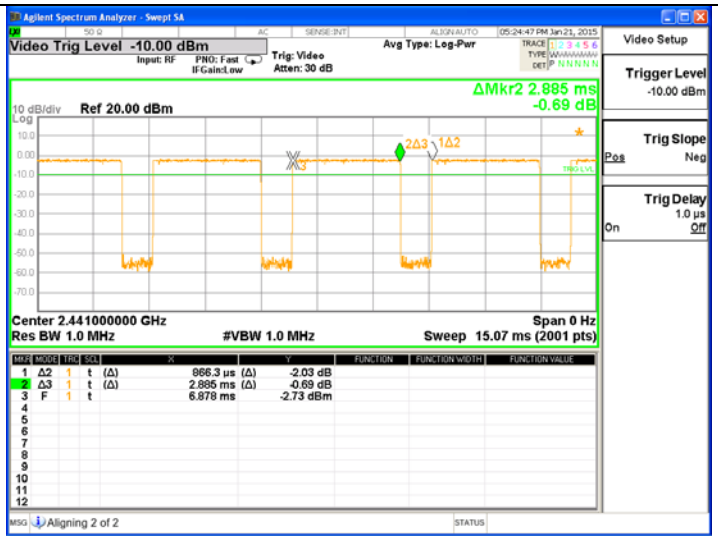
The test period: T = 0.4 Second * 79 Channel = 31.6 s

Dwell time = time slot length * (Hopping rate / Number of hopping channels) * Period

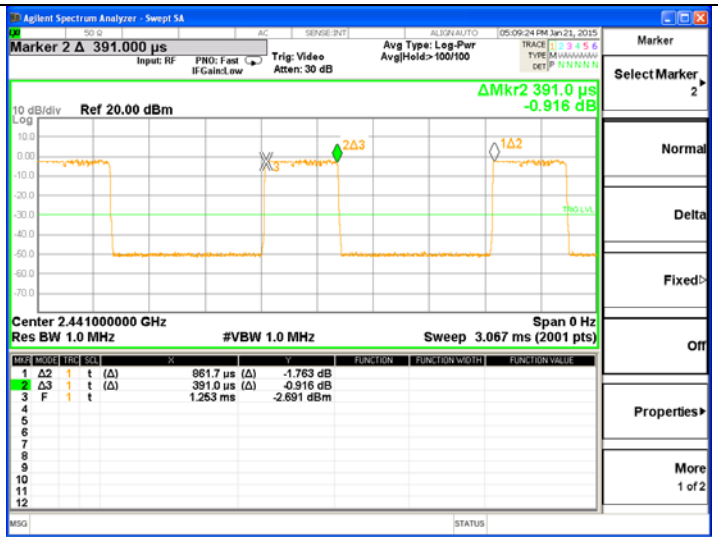
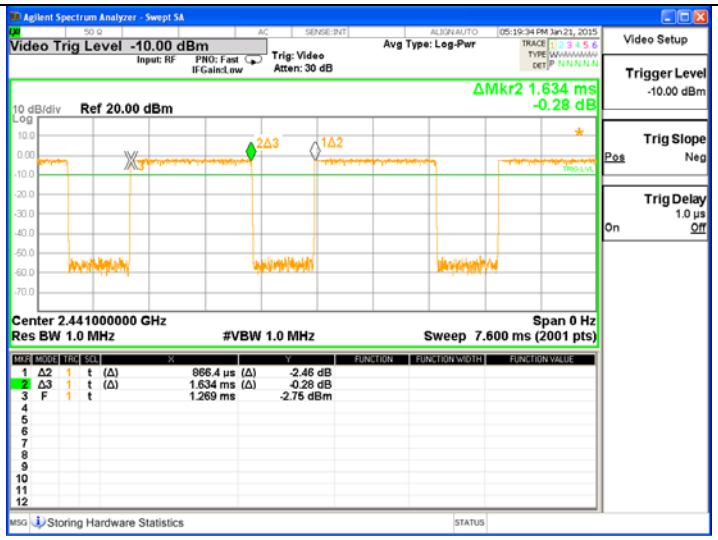
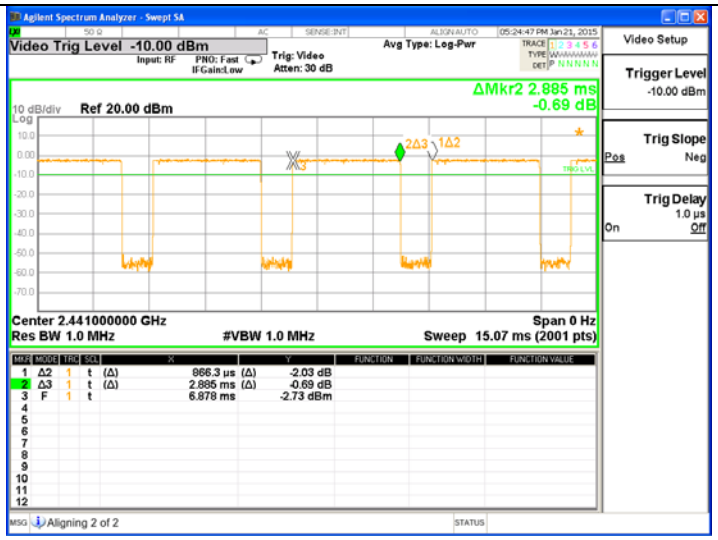
Dwell Time of Each Channel - BDR(GFSK)

DH1	
DH3	
DH5	

Dwell Time of Each Channel - EDR(π/4-DQPSK)

DH1	
DH3	
DH5	

Dwell Time of Each Channel - EDR(8DPSK)

DH1	
DH3	
DH5	

5.4 20dB and 99% Bandwidth

5.4.1 Test Equipment

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date (year/month/date)
Spectrum analyzer	N9020A	Agilent	US46220101	15/09/11
RF Cable_2m	Test No.1	Hubersunhner	N/A	16/01/14
AC Power Source	15001ix-CTS	California Instruments	56255/56256/56257	16/01/13

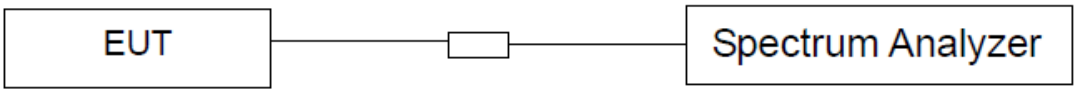
5.4.2 Test Limit

Reporting only

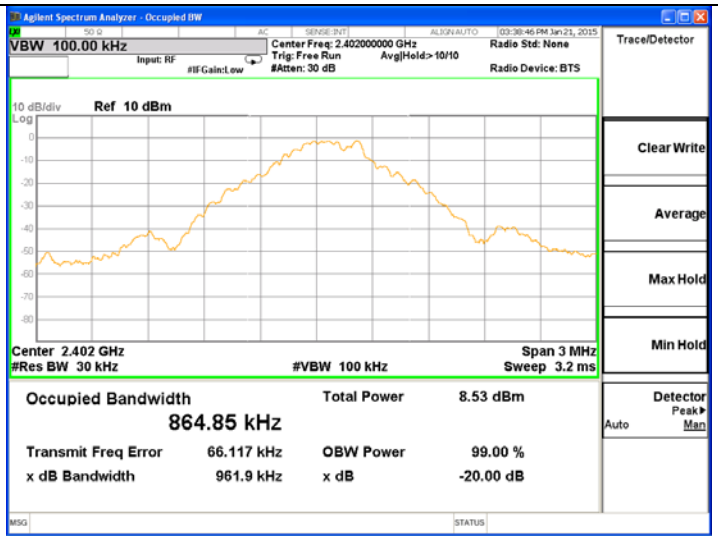
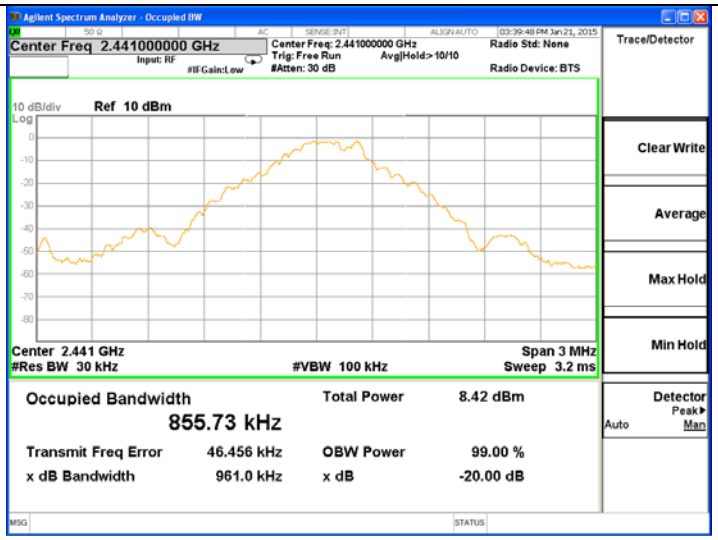
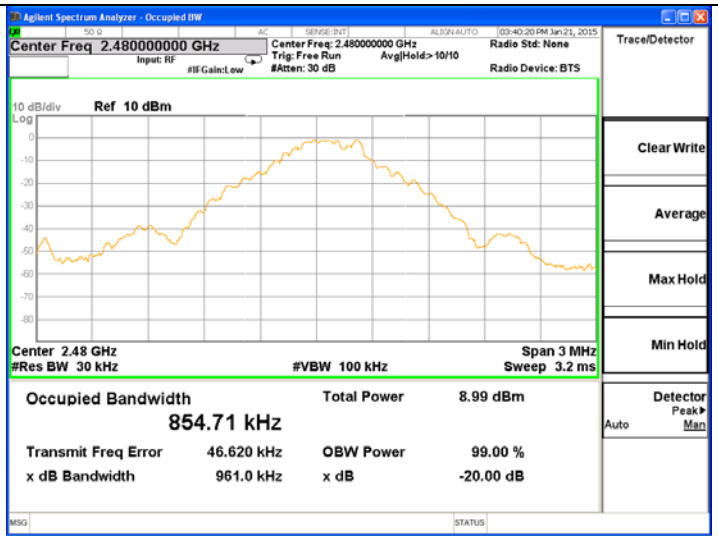
5.4.3 Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Use the following spectrum analyzer settings for 20dB Bandwidth measurement.
   Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW ≥ 1% of the 20 dB bandwidth; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
5. Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
   For 99% Bandwidth measurement, the RBW=30kHz, and VBW = 100kHz. Sweep = auto ; Detector function = sample. Trace = max hold.
6. Measure and record the results in the test report.

5.4.4 Block Diagram of Test Setup

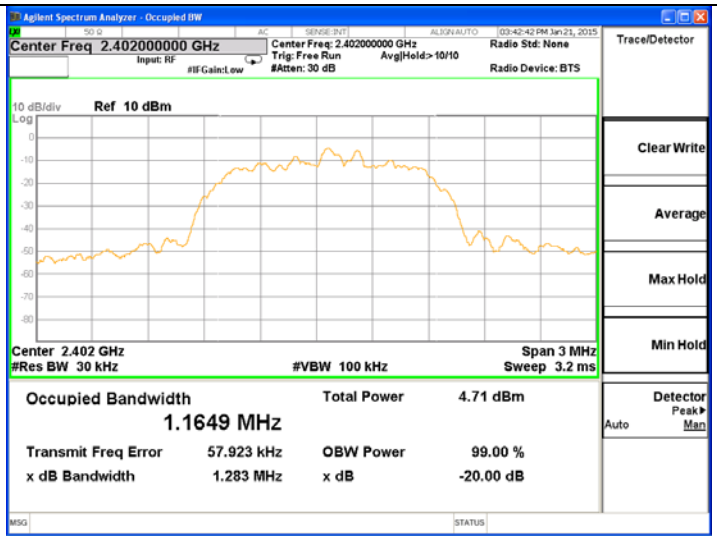


5.4.5 Test Result

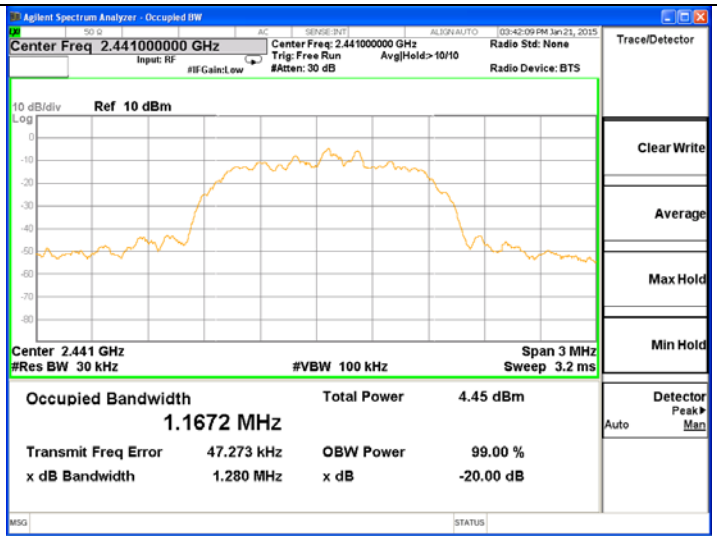
20dB and 99% Bandwidth - BDR(GFSK)	
2402MHz	
2441MHz	
2480MHz	

20dB and 99% Bandwidth - EDR(π/4-DQPSK)

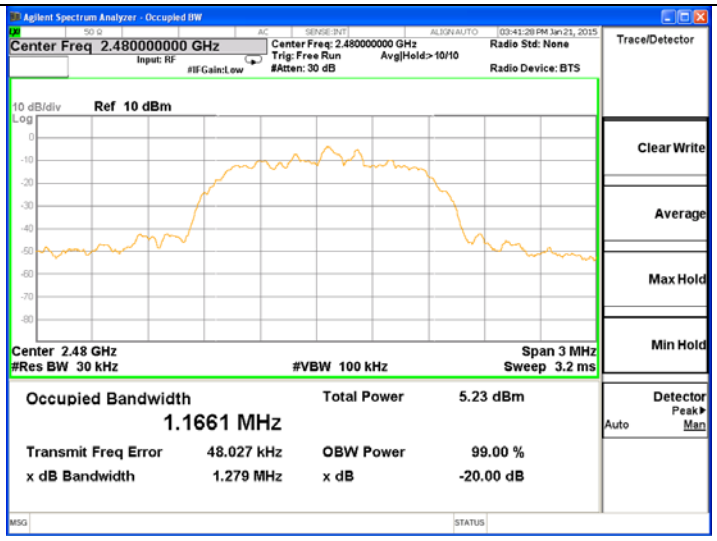
2402MHz



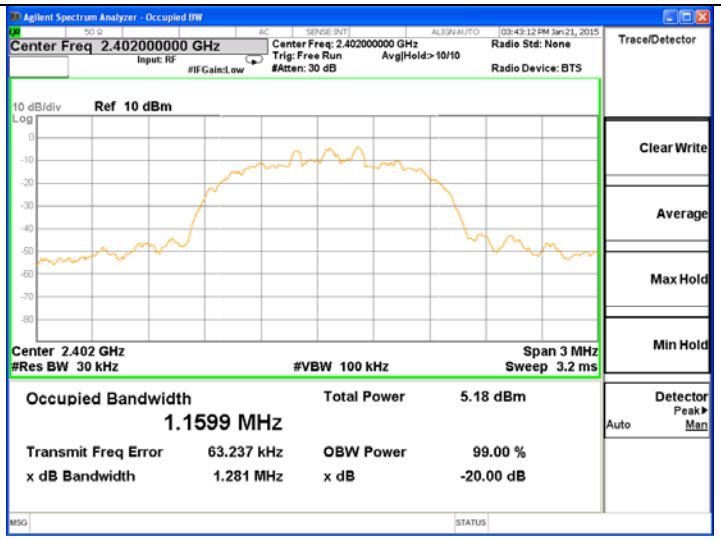
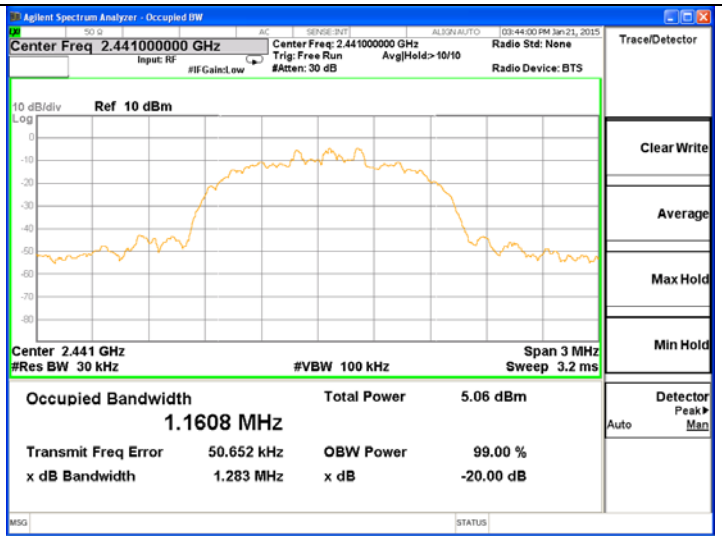
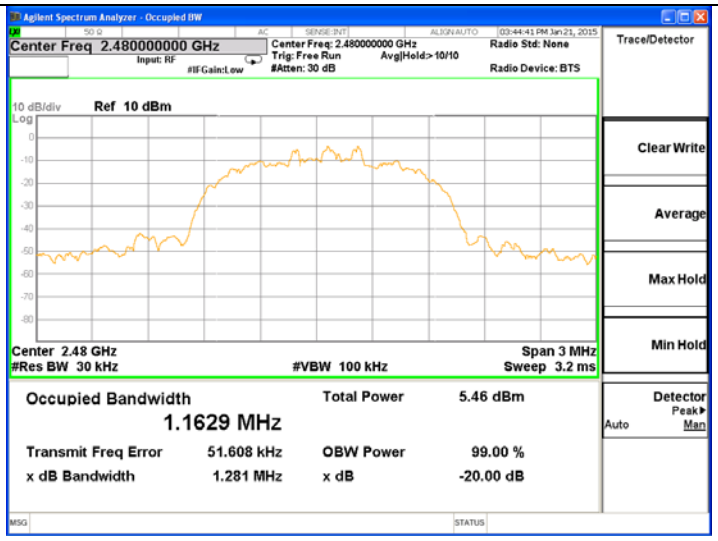
2441MHz



2480MHz



20dB and 99% Bandwidth - EDR(8DPSK)

2402MHz	
2441MHz	
2480MHz	

5.5 Maximum Peak Conducted Output Power

5.5.1 Test Equipment

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date (year/month/date)
Power Meter	RPR3006W	D.A.R.E!! Insrtuments	14I00048SNO09	15/04/29
RF Cable_2m	Test No.1	Hubersunhner	N/A	16/01/14
AC Power Source	15001ix-CTS	California Instruments	56255/56256/56257	16/01/13

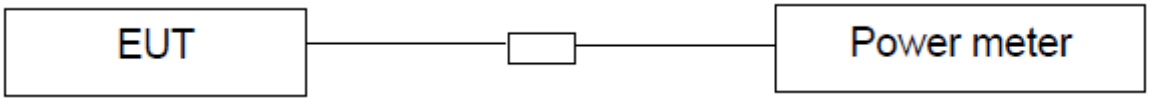
5.5.2 Test Limit

Section 15.247 (b) The maximum peak conducted output power of the intentional radiator shall not exceed the following: (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts. The power limit for 1Mbps is 1watt, and for 2Mbps, 3Mbps and AFH are 0.125 watts.

5.5.3 Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power with cable loss and record the results in the test report.
5. Measure and record the results in the test report.

5.5.4 Block Diagram of Test Setup



5.5.5 Test Result

BDR(GFSK)

Frequency(MHz)	Test Result(dBm)	Limit(dBm)
2402	1.7	≤20.97
2441	1.9	≤20.97
2480	2.1	≤20.97

EDR(π/4-DQPSK)

Frequency(MHz)	Test Result(dBm)	Limit(dBm)
2402	-1.5	≤20.97
2441	-1.2	≤20.97
2480	-1.0	≤20.97

EDR(8DPSK)

Frequency(MHz)	Test Result(dBm)	Limit(dBm)
2402	-1.5	≤20.97
2441	-1.2	≤20.97
2480	-1.0	≤20.97

Note: Limit(dBm) is the value of Limit(mW) to be conversioned as follows:

10log125 = 20.97dBm

5.6 Conducted Spurious Emission

5.6.1 Test Equipment

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date (year/month/date)
Spectrum analyzer	N9020A	Agilent	US46220101	15/09/11
RF Cable_2m	Test No.1	Hubersunhner	N/A	16/01/14
AC Power Source	15001ix-CTS	California Instruments	56255/56256/56257	16/01/13

5.6.2 Test Limit

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Note: Wireless charger configuration was evaluated.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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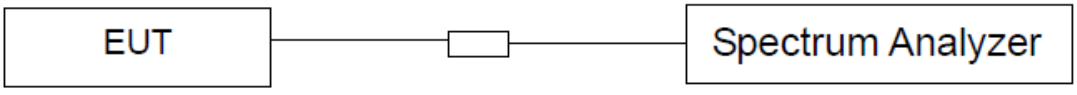
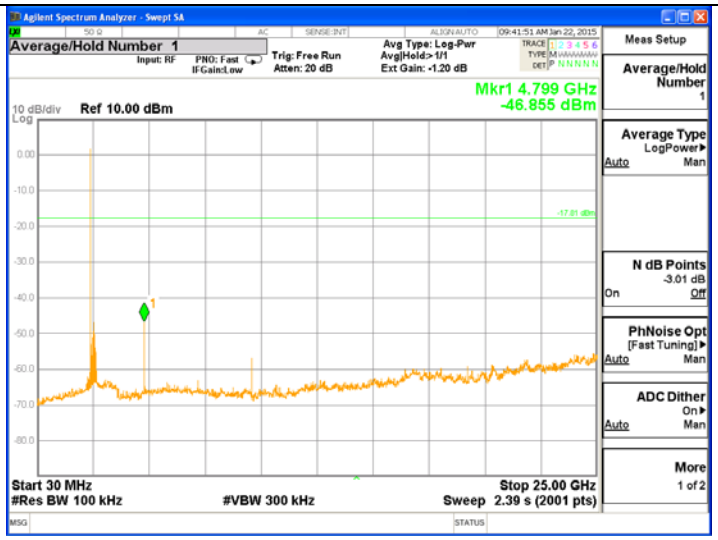
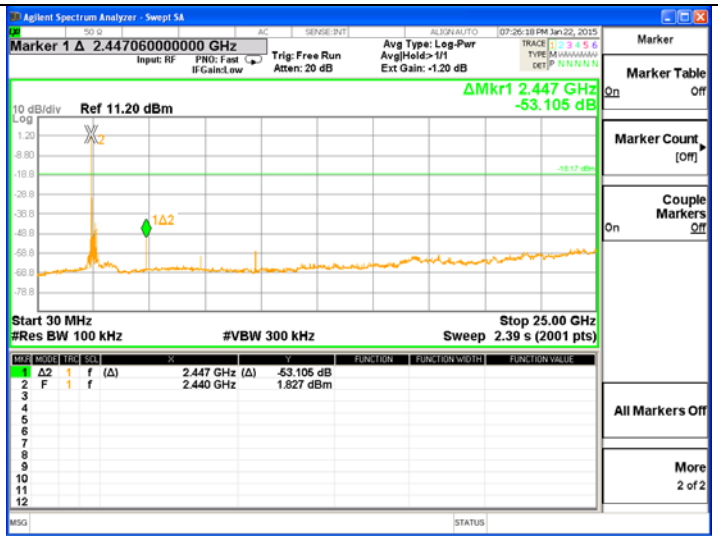
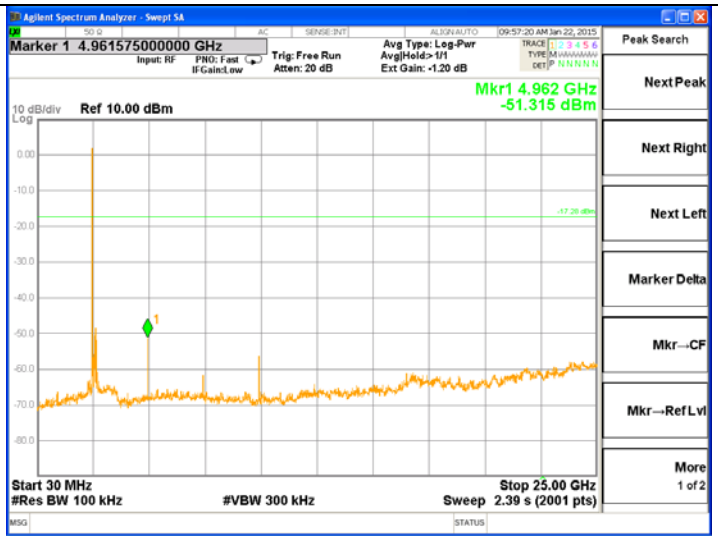
5.6.3 Test Procedure

1. The testing follows the guidelines in Band-edge Compliance of RF Conducted Emissions of FCC Public Notice DA 00-705 Measurement Guidelines.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 100kHz (≥ 1% span=10MHz), VBW = 300kHz (≥ RBW). Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
4. Enable hopping function of the EUT and then repeat step 2. and 3.
5. Measure and record the results in the test report.

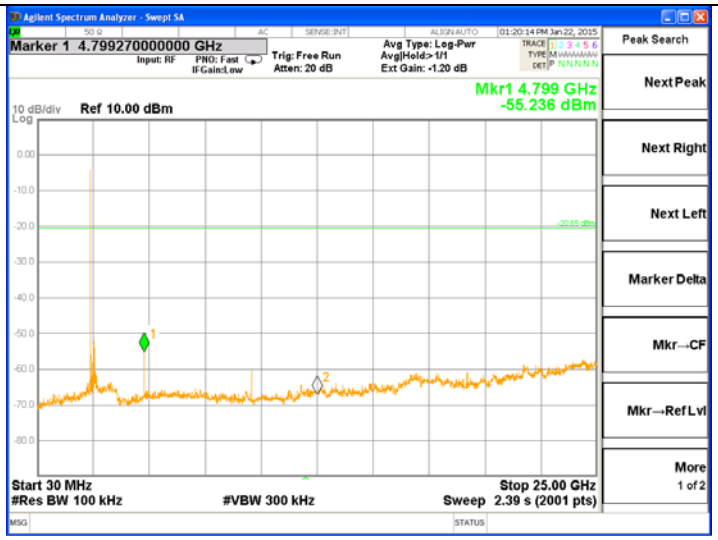
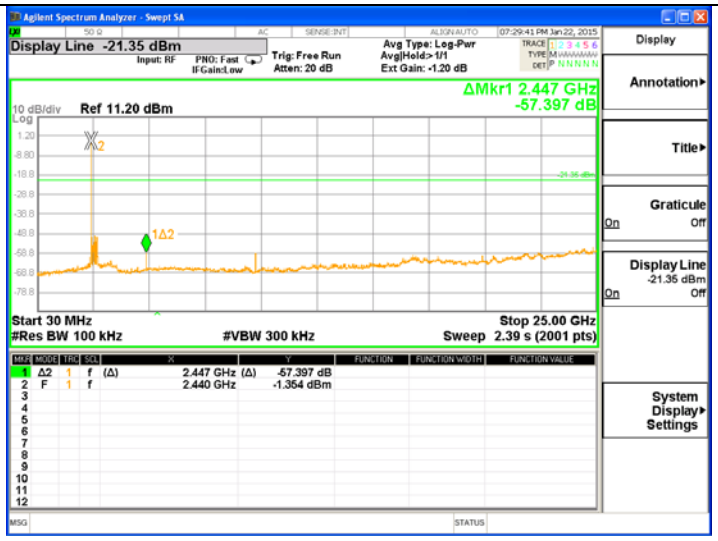
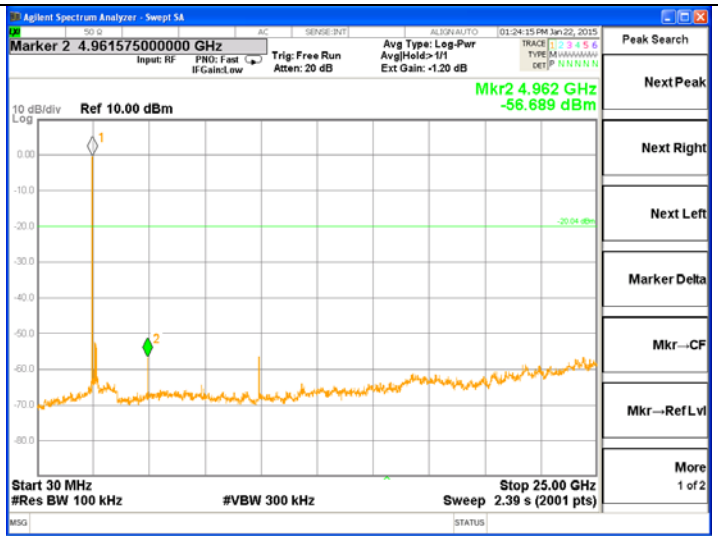
5.6.4 Block Diagram of Test Setup



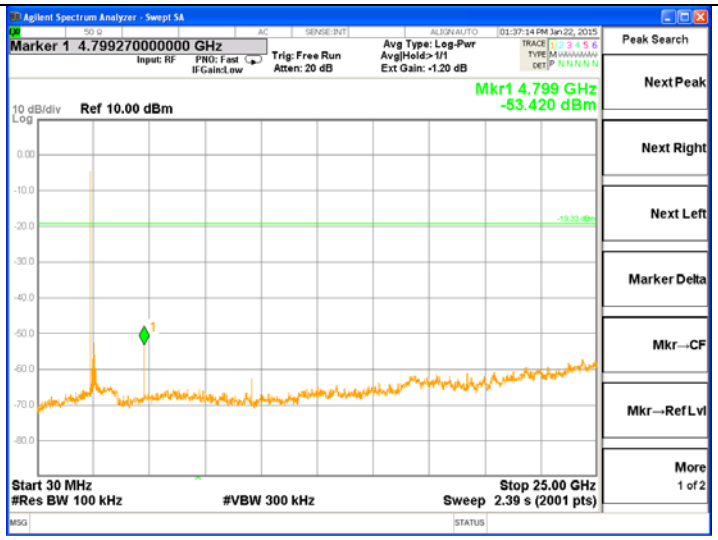
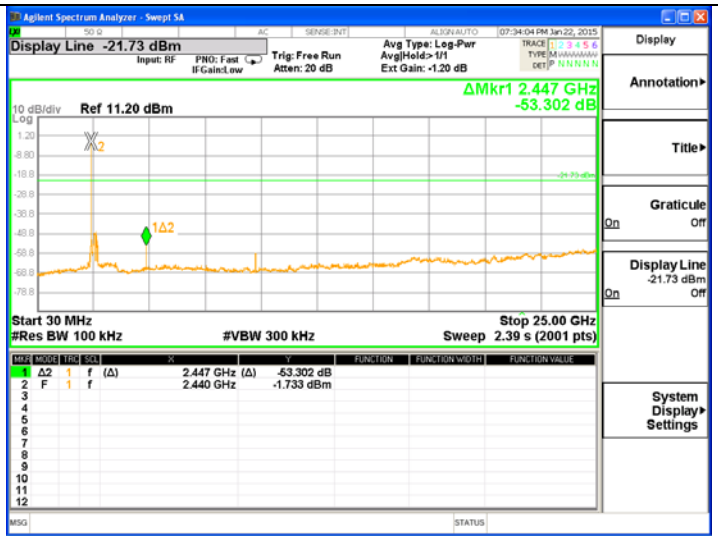
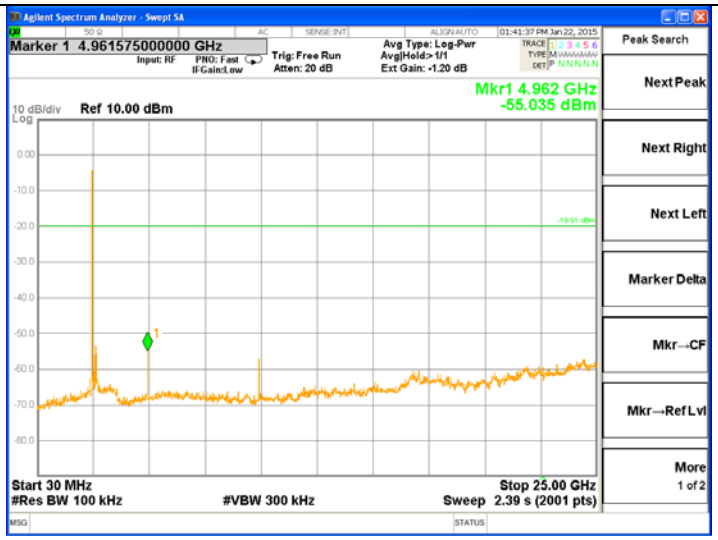
5.6.5 Test Result

Conducted Spurious Emission - BDR(GFSK)	
Low Channel	
Middle Channel	
High Channel	

Conducted Spurious Emission - EDR(π/4-DQPSK)

Low Channel	
Middle Channel	
High Channel	

Conducted Spurious Emission - EDR(8DPSK)

Low Channel	
Middle Channel	
High Channel	

5.7 Radiated Spurious Emission

5.7.1 Test Equipment

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date (year/month/date)
Spectrum analyzer	FSP13	Rohde & Schwarz	100760	16/02/06
Spectrum analyzer	N9020A	Agilent	US46220101	15/09/11
Bilog Antenna	VULB9160	Schwarzbeck	VULB9160-3122	16/04/02
Antenna Master	JAC-3	DAE IL EMC	N/A	15/05/07
Antenna Turntable Controller	JAC-2	JAEMC	N/A	15/05/07
RF Cable_2m	Test No.1	Hubersunhner	N/A	16/01/14
RF Cable_10m	Test No.2	Hubersunhner	N/A	16/01/14
Loop Antenna	HFH2-Z2	Rohde & Schwarz	881056/6	16/01/06
Horn Antenna	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D 234	15/09/15
Horn Antenna	BBHA 9170	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170157	15/11/14
RF Amplifier	PAM-118A	COM-POWER	551019	15/07/21
Antenna Master	N/A	AUDIX	N/A	15/09/17
Antenna Turntable Controller	ACT	AUDIX	N/A	15/09/17
RE Below 1 GHz CHAMBER	N/A	SY Corp.	N/A	15/09/17
RE Above 1 GHz CHAMBER	N/A	SY Corp.	N/A	15/09/17
AC Power Source	15001ix-CTS	California Instruments	56255/56256/56257	16/01/13

5.7.2 Test Limit

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

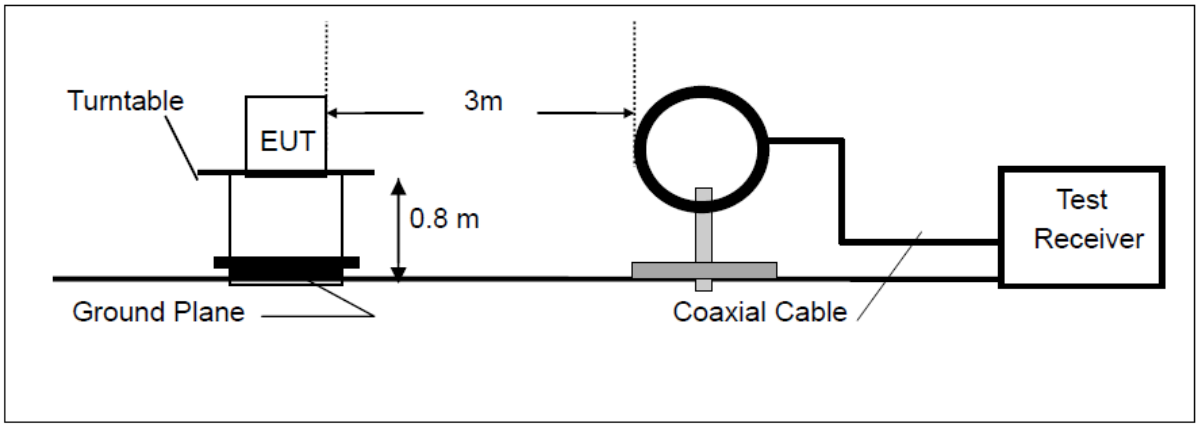
5.7.3 Test Procedure

1. The testing follows the guidelines in Spurious Radiated Emissions of FCC Public Notice DA 00-705 Measurement Guidelines.
2. The EUT was placed on a turntable with 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
   (3) For average measurement: use duty cycle correction factor method per 15.35(c).
   Duty cycle = On time/100 milliseconds
   On time = $N_1*L_1+N_2*L_2+...+N_{n-1}*LN_{n-1}+N_n*L_n$
   Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
   Average Emission Level = Peak Emission Level + 20*log(Duty cycle)
7. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

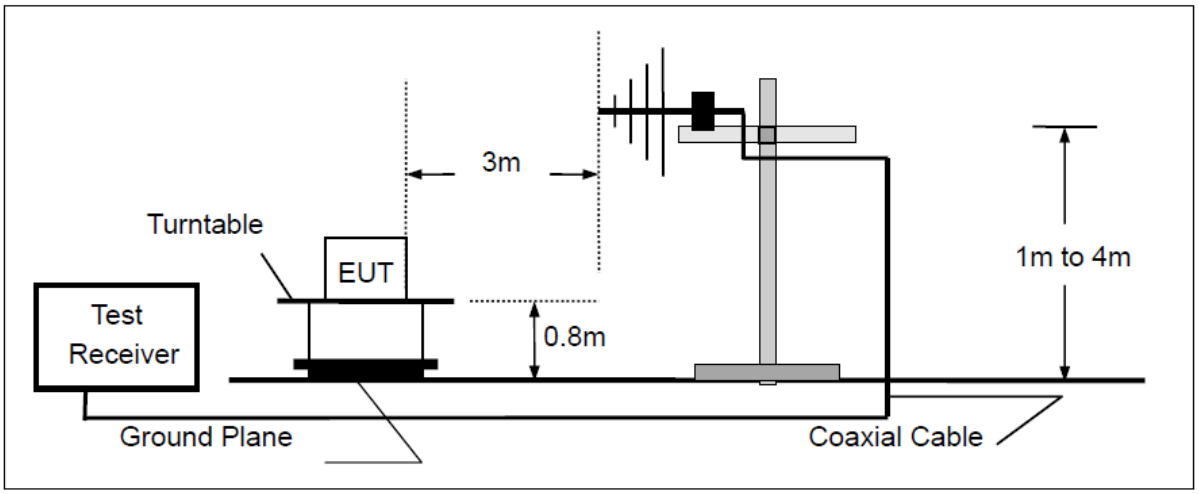
Note: The average levels were calculated from the peak level corrected with duty cycle correction factor (-24.73dB) derived from 20log (dwell time/100ms). This correction is only for signals that hop with the fundamental signal, such as band-edge and harmonic. Other spurious signals that are independent of the hopping signal would not use this correction.

5.7.4 Block Diagram of Test Setup

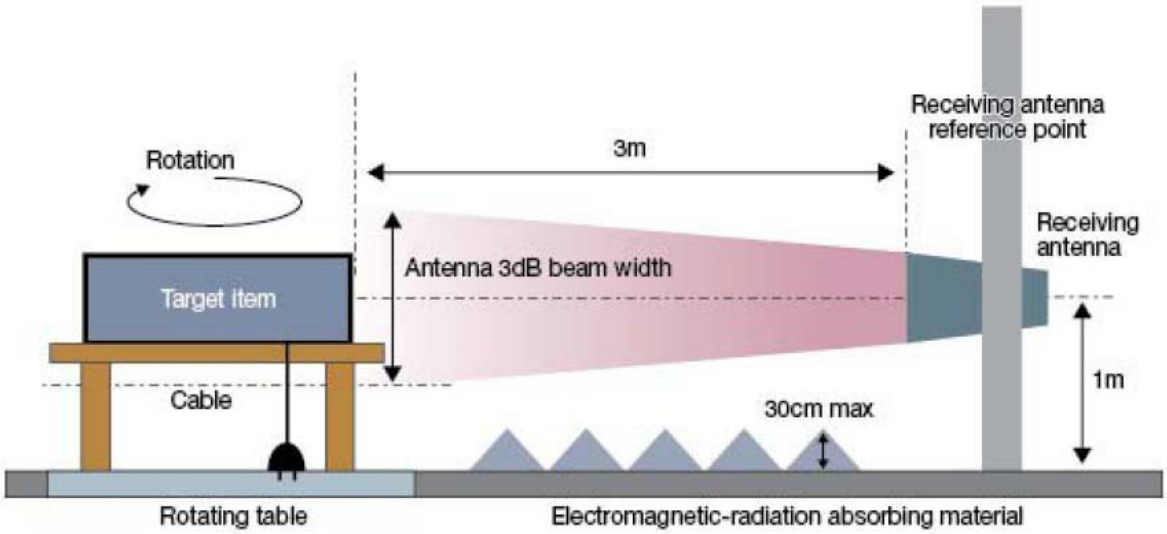
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



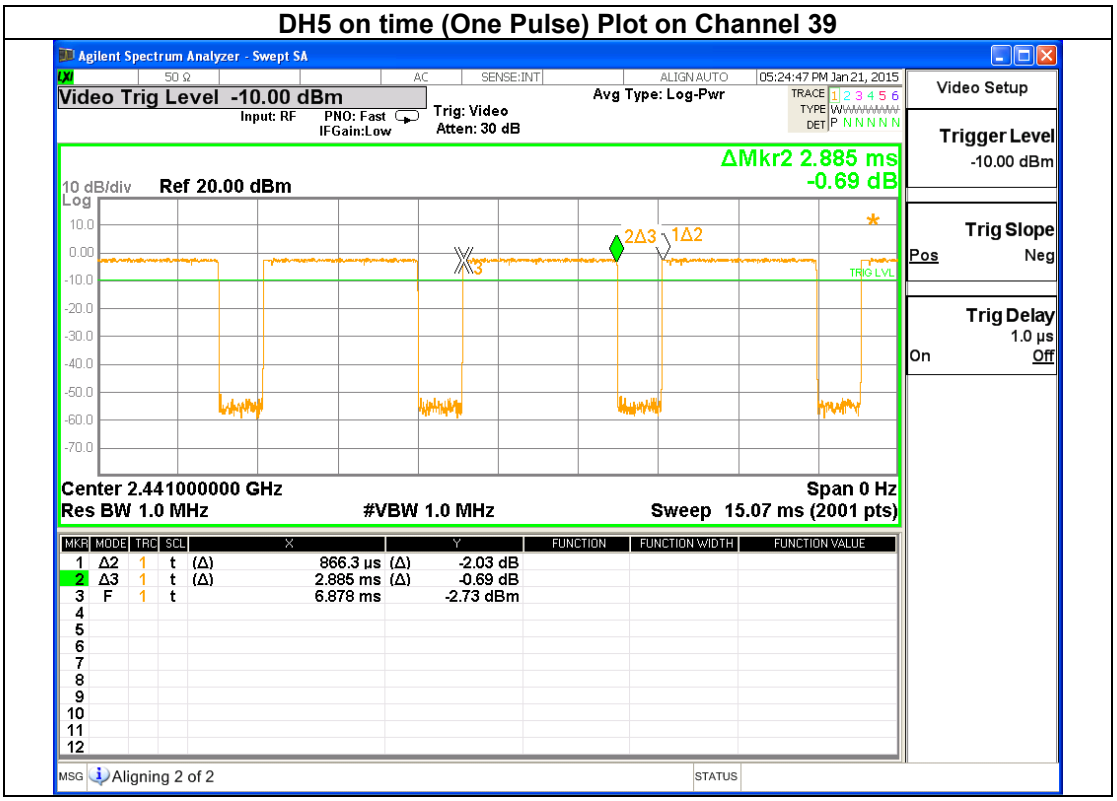
(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



5.7.5 Test Result

5.7.5.1 Duty cycle correction factor for average measurement

DH5 on time (One Pulse) Plot on Channel 39



There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. [100ms / 57.6ms] = 2 hops

Thus, the maximum possible ON time:

2.89 ms x 2 = 5.78 ms

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

20 x log(5.80 ms/100ms) = -24.76 dB

5.7.5.2 0.009–30 MHz

Frequency [MHz]	Reading [dB µV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB µV/m]	Emission Level [dB µV/m]	Result.
-	-	-	-	-	-	-	-	Pass

Note: §15.31(o)_The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

5.7.5.3 30–1000 MHz

BDR(GFSK)- 2402 MHz(Low)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
46.80	16.11	V	13.11	0.38	40.00	29.60	Q.P
196.40	20.22	V	10.42	1.06	43.52	31.70	Q.P
216.00	22.40	H	10.56	1.14	43.52	34.10	Q.P
391.30	17.53	H	15.13	1.54	46.02	34.20	Q.P
424.90	16.20	V	15.77	1.63	46.02	33.60	Q.P
588.40	13.43	V	18.60	2.07	46.02	34.10	Q.P

BDR(GFSK)- 2441 MHz(Middle)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
47.60	15.17	V	13.15	0.39	40.00	28.70	Q.P
195.60	20.58	V	10.46	1.06	43.52	32.10	Q.P
216.10	22.49	H	10.56	1.14	46.02	34.20	Q.P
391.20	17.54	H	15.13	1.54	46.02	34.20	Q.P
423.70	16.23	V	15.74	1.62	46.02	33.60	Q.P
588.70	13.33	V	18.60	2.07	46.02	34.00	Q.P

BDR(GFSK)- 2480 MHz(High)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
46.80	15.11	V	13.11	0.38	40.00	28.60	Q.P
196.40	20.82	V	10.42	1.06	43.52	32.30	Q.P
237.20	21.28	H	11.59	1.23	46.02	34.10	Q.P
394.70	17.58	H	15.17	1.55	46.02	34.30	Q.P
429.50	15.97	V	15.89	1.64	46.02	33.50	Q.P
524.50	15.23	V	17.47	1.90	46.02	34.60	Q.P

EDR(π/4-DQPSK)- 2402 MHz(Low)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
46.70	16.22	V	13.10	0.38	40.00	29.70	Q.P
196.20	20.81	V	10.43	1.06	43.52	32.30	Q.P
210.10	22.23	H	10.35	1.12	43.52	33.70	Q.P
245.80	21.29	H	11.94	1.26	46.02	34.50	Q.P
271.20	20.93	H	12.88	1.29	46.02	35.10	Q.P
482.10	16.26	V	16.76	1.78	46.02	34.80	Q.P

EDR(π/4-DQPSK)- 2441 MHz(Middle)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
46.80	16.11	V	13.11	0.38	40.00	29.60	Q.P
196.50	20.92	V	10.42	1.06	43.52	32.40	Q.P
210.10	22.33	H	10.35	1.12	43.52	33.80	Q.P
246.40	21.27	H	11.97	1.27	46.02	34.50	Q.P
271.10	21.03	H	12.87	1.29	46.02	35.20	Q.P
481.90	16.06	V	16.76	1.78	46.02	34.60	Q.P

EDR(π/4-DQPSK)- 2480 MHz(High)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
46.90	16.11	V	13.11	0.38	40.00	29.60	Q.P
196.40	20.82	V	10.42	1.06	43.52	32.30	Q.P
210.20	22.22	H	10.36	1.12	43.52	33.70	Q.P
246.40	21.37	H	11.97	1.27	46.02	34.60	Q.P
271.10	21.03	H	12.87	1.29	46.02	35.20	Q.P
481.10	15.98	V	16.75	1.78	46.02	34.50	Q.P

EDR(8DPSK)- 2402 MHz(Low)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
46.60	16.12	V	13.10	0.38	40.00	29.60	Q.P
196.10	20.80	V	10.44	1.06	43.52	32.30	Q.P
211.20	22.08	H	10.39	1.12	43.52	33.60	Q.P
245.80	21.19	H	11.94	1.26	46.02	34.40	Q.P
271.20	21.03	H	12.88	1.29	46.02	35.20	Q.P
482.00	16.16	V	16.76	1.78	46.02	34.70	Q.P

EDR(8DPSK)- 2441 MHz(Middle)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
46.60	16.12	V	13.10	0.38	40.00	29.60	Q.P
196.70	21.03	V	10.41	1.06	43.52	32.50	Q.P
211.00	22.39	H	10.39	1.12	43.52	33.90	Q.P
247.60	21.52	H	12.01	1.27	46.02	34.80	Q.P
270.20	20.98	H	12.83	1.29	46.02	35.10	Q.P
489.80	15.93	V	16.87	1.80	46.02	34.60	Q.P

EDR(8DPSK)- 2480 MHz(High)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
45.90	16.06	V	13.06	0.38	40.00	29.50	Q.P
195.80	20.59	V	10.45	1.06	43.52	32.10	Q.P
211.10	22.39	H	10.39	1.12	43.52	33.90	Q.P
245.80	21.49	H	11.94	1.26	46.02	34.70	Q.P
272.00	20.89	H	12.92	1.29	46.02	35.10	Q.P
480.90	15.98	V	16.74	1.78	46.02	34.50	Q.P

5.7.5.4 Above 1 GHz

BDR(GFSK)- 2402 MHz(Low)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
1325.60	47.14	H	25.50	3.35	40.40	74	35.60	Peak
1920.30	47.06	H	26.09	4.07	40.71	74	36.50	Peak
2645.20	49.32	V	27.09	4.65	41.17	74	39.90	Peak
3322.20	46.63	H	28.18	5.36	41.57	74	38.60	Peak
5124.70	42.98	V	31.07	6.57	41.02	74	39.60	Peak
6473.40	42.34	H	34.74	7.55	43.53	74	41.10	Peak

BDR(GFSK)- 2441 MHz(Middle)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
1325.40	47.04	H	25.50	3.35	40.40	74	35.50	Peak
1920.30	46.86	H	26.09	4.07	40.71	74	36.30	Peak
2645.20	49.32	V	27.09	4.65	41.17	74	39.90	Peak
3322.10	46.53	H	28.18	5.36	41.57	74	38.50	Peak
5124.70	42.98	V	31.07	6.57	41.02	74	39.60	Peak
6473.40	39.11	H	34.74	7.55	40.30	74	41.10	Peak

BDR(GFSK)- 2480 MHz(High)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
1325.70	47.04	H	25.50	3.35	40.40	74	35.50	Peak
1920.30	47.16	H	26.09	4.07	40.71	74	36.60	Peak
2645.20	49.32	V	27.09	4.65	41.17	74	39.90	Peak
3322.50	46.63	H	28.18	5.36	41.57	74	38.60	Peak
5125.20	43.08	V	31.07	6.57	41.02	74	39.70	Peak
6474.10	39.20	H	34.74	7.55	40.30	74	41.20	Peak

EDR(π/4-DQPSK)- 2402 MHz(Low)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
1438.60	46.96	H	25.55	3.56	40.46	74	35.60	Peak
3316.30	45.65	H	28.17	5.35	41.57	74	37.60	Peak
4323.60	45.51	V	29.79	6.20	41.59	74	39.90	Peak
5604.10	41.09	H	31.33	6.79	40.62	74	38.60	Peak
7896.20	29.45	V	42.38	8.47	40.69	74	39.60	Peak
9012.30	23.58	H	48.37	9.52	40.36	74	41.10	Peak

EDR(π/4-DQPSK)- 2441 MHz(Middle)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
1438.60	46.96	H	25.55	3.56	40.46	74	35.60	Peak
3316.30	45.75	H	28.17	5.35	41.57	74	37.70	Peak
4323.60	45.51	V	29.79	6.20	41.59	74	39.90	Peak
5604.30	41.19	H	31.33	6.79	40.62	74	38.70	Peak
7896.80	29.64	V	42.38	8.47	40.69	74	39.80	Peak
9012.90	23.68	H	48.37	9.52	40.36	74	41.20	Peak

EDR(π/4-DQPSK)- 2480 MHz(High)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
1438.70	46.99	H	25.52	3.56	40.46	74	35.60	Peak
3317.70	45.25	H	28.36	5.35	41.57	74	37.40	Peak
4323.50	45.13	V	30.06	6.20	41.59	74	39.80	Peak
5605.20	40.60	H	31.82	6.79	40.62	74	38.60	Peak
7898.20	35.20	V	36.62	8.47	40.69	74	39.60	Peak
9012.90	35.30	H	36.75	9.52	40.36	74	41.20	Peak

EDR(8DPSK)- 2402 MHz(Low)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
1438.60	47.09	H	25.52	3.56	40.46	74	35.70	Peak
3317.10	45.55	H	28.36	5.35	41.57	74	37.70	Peak
4323.50	45.13	V	30.06	6.20	41.59	74	39.80	Peak
5604.30	40.61	H	31.82	6.79	40.62	74	38.60	Peak
7895.90	35.11	V	36.62	8.47	40.69	74	39.50	Peak
9012.40	35.30	H	36.75	9.52	40.36	74	41.20	Peak

EDR(8DPSK)- 2441 MHz(Middle)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
1438.20	47.09	H	25.52	3.56	40.46	74	35.70	Peak
3315.80	45.66	H	28.36	5.35	41.57	74	37.80	Peak
4324.20	45.43	V	30.06	6.20	41.59	74	40.10	Peak
5603.20	40.81	H	31.82	6.79	40.62	74	38.80	Peak
7897.10	35.50	V	36.62	8.47	40.69	74	39.90	Peak
9012.90	35.30	H	36.75	9.52	40.36	74	41.20	Peak

EDR(8DPSK)- 2480 MHz(High)

Frequency [MHz]	Reading [dB μV]	Polarization [*H/**V]	Ant. Factor [dB]	Cable Loss [dB]	AMP Gain [dB]	Limit [dB μV/m]	Emission Level [dB μV/m]	Detector
1438.60	47.19	H	25.52	3.56	40.46	74	35.80	Peak
3317.80	45.45	H	28.36	5.36	41.57	74	37.60	Peak
4323.80	45.23	V	30.06	6.20	41.59	74	39.90	Peak
5605.90	40.80	H	31.82	6.79	40.62	74	38.80	Peak
7898.30	35.30	V	36.62	8.47	40.69	74	39.70	Peak
9012.80	35.40	H	36.75	9.52	40.36	74	41.30	Peak

5.8 Band Edges Measurement

5.8.1 Test Equipment

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date (year/month/date)
Spectrum analyzer	FSP13	Rohde & Schwarz	100760	16/02/06
Spectrum analyzer	N9020A	Agilent	US46220101	15/09/11
Bilog Antenna	VULB9160	Schwarzbeck	VULB9160-3122	16/04/02
Antenna Master	JAC-3	DAE IL EMC	N/A	15/05/07
Antenna Turntable Controller	JAC-2	JAEMC	N/A	15/05/07
RF Cable_2m	Test No.1	Hubersunhner	N/A	16/01/14
RF Cable_10m	Test No.2	Hubersunhner	N/A	16/01/14
Loop Antenna	HFH2-Z2	Rohde & Schwarz	881056/6	16/01/06
Horn Antenna	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D 234	15/09/15
Horn Antenna	BBHA 9170	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170157	15/11/14
RF Amplifier	PAM-118A	COM-POWER	551019	15/07/21
Antenna Master	N/A	AUDIX	N/A	15/09/17
Antenna Turntable Controller	ACT	AUDIX	N/A	15/09/17
RE Below 1 GHz CHAMBER	N/A	SY Corp.	N/A	15/09/17
RE Above 1 GHz CHAMBER	N/A	SY Corp.	N/A	15/09/17
AC Power Source	15001ix-CTS	California Instruments	56255/56256/56257	16/01/13

5.8.2 Test Limit

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, 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 in15.209(a).

5.8.3 Test Procedure

The EUT is placed on a turntable, which is 0.8m above the ground plane.

The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

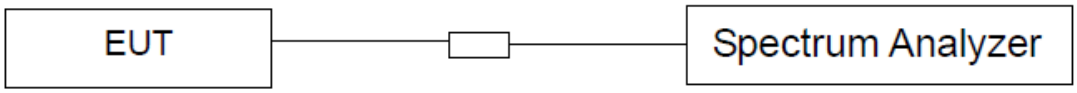
PEAK: RBW=VBW=1MHz / Sweep=AUTO

AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

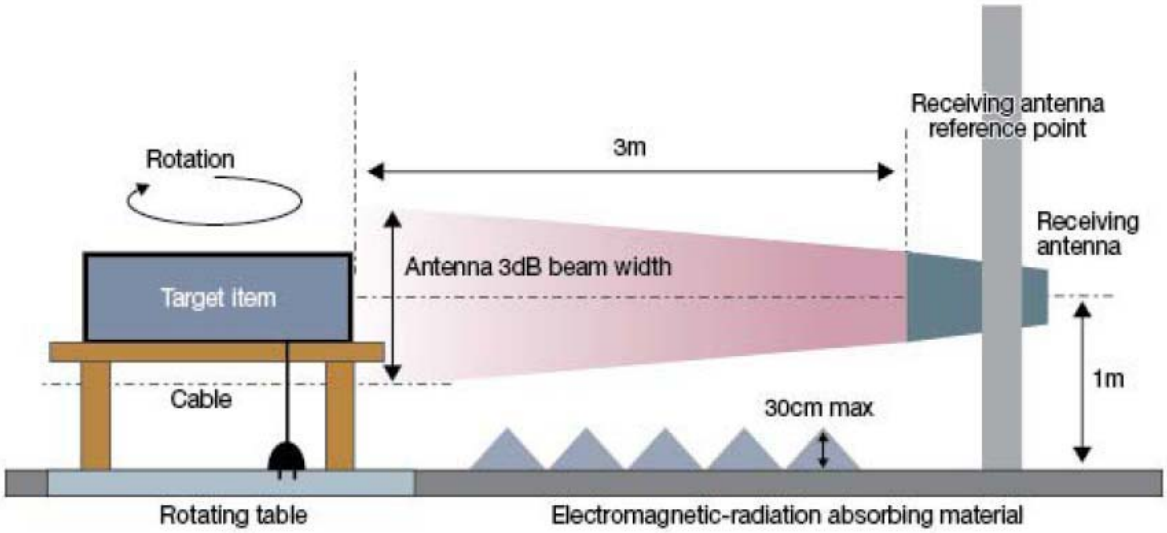
Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

5.8.4 Test SET-UP (Block Diagram of Configuration)

(a) Conducted Emission Test Set-Up, Frequency above 1000MHz



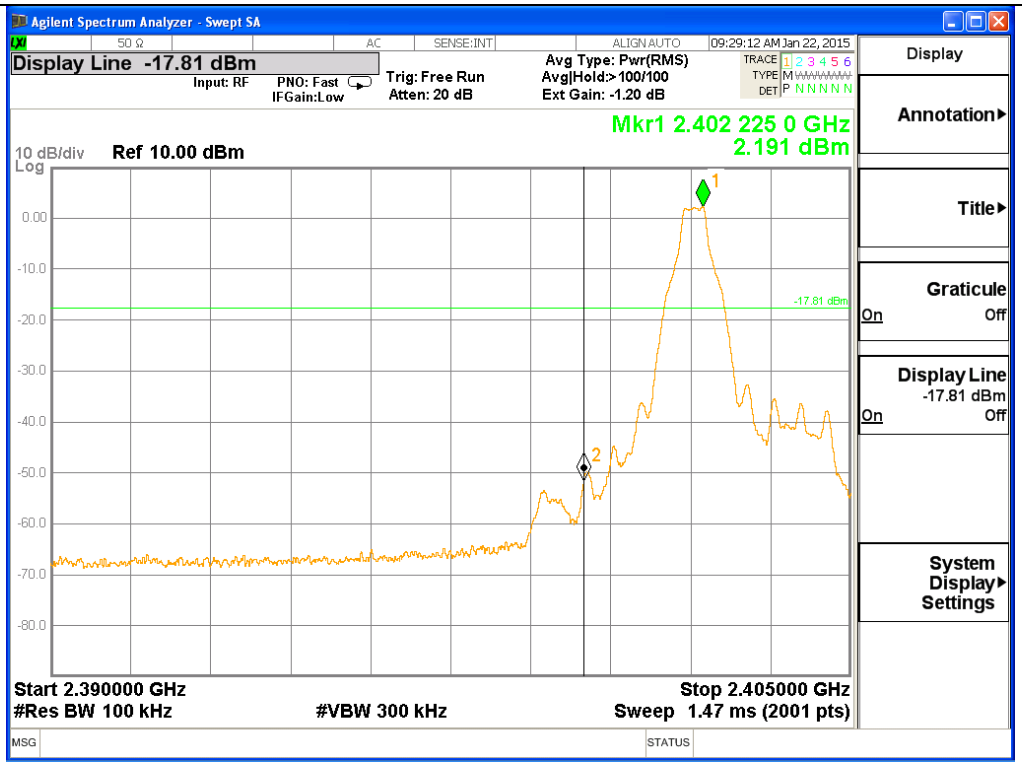
(b)Radiated Emission Test Set-Up, Frequency above 1000MHz



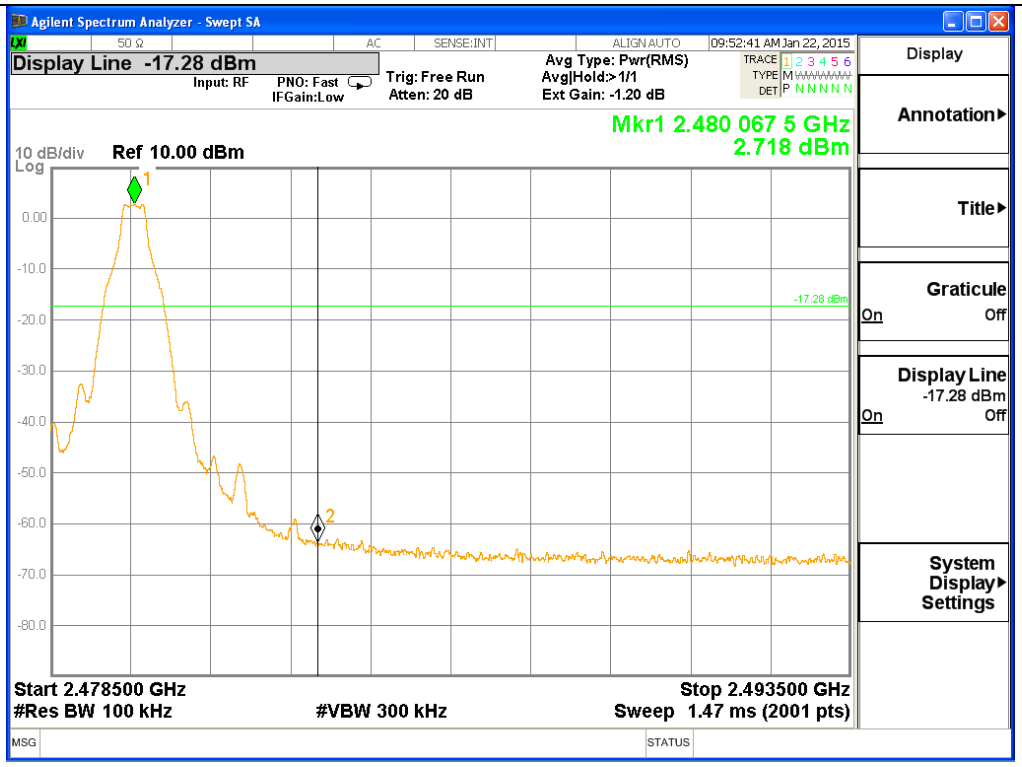
5.8.5 Test Result

5.8.5.1 Conducted Band Edges

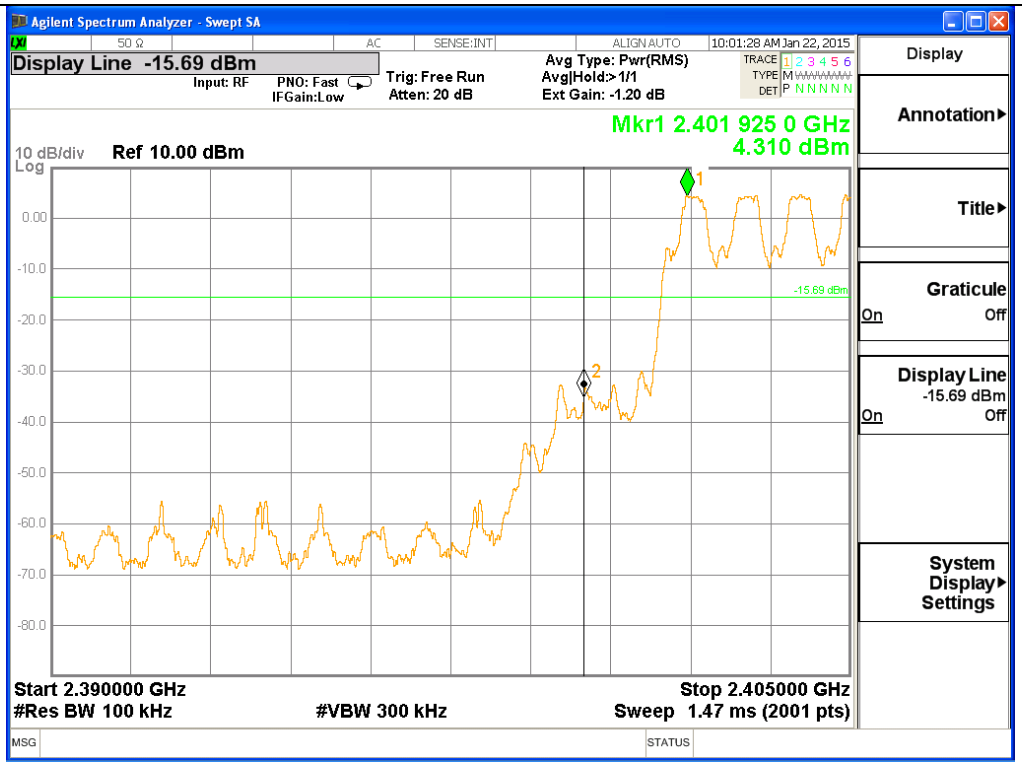
Low Band Edge – BDR(GFSK)



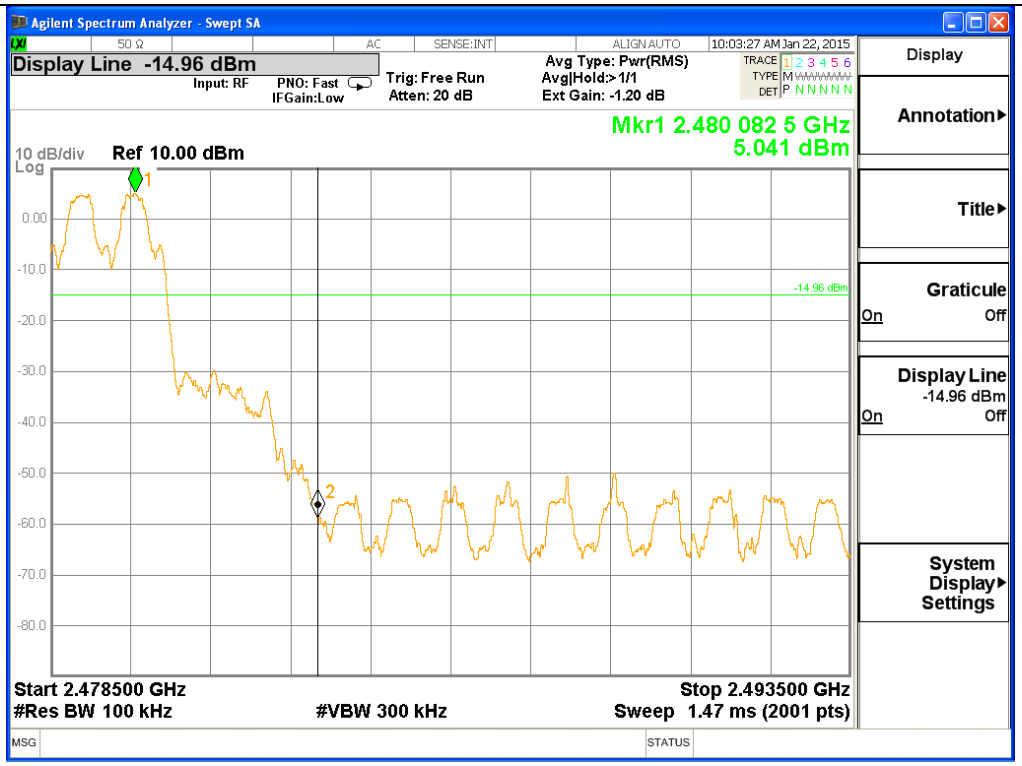
High Band Edge – BDR(GFSK)



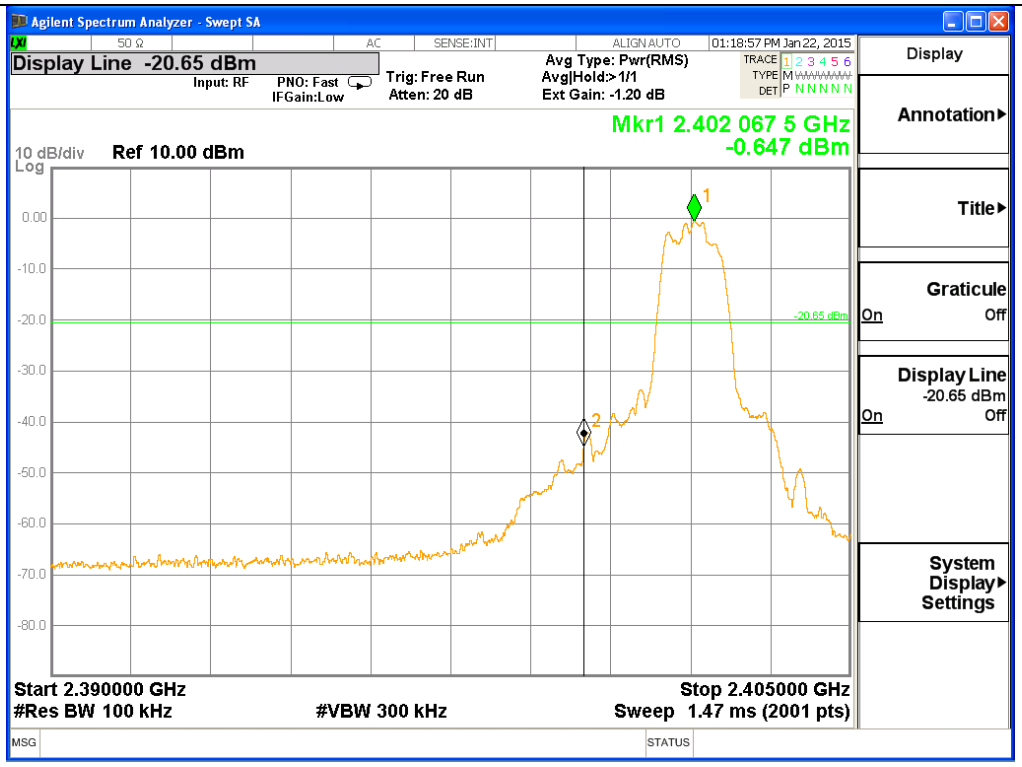
Hopping Mode - Low Band Edge – BDR(GFSK)



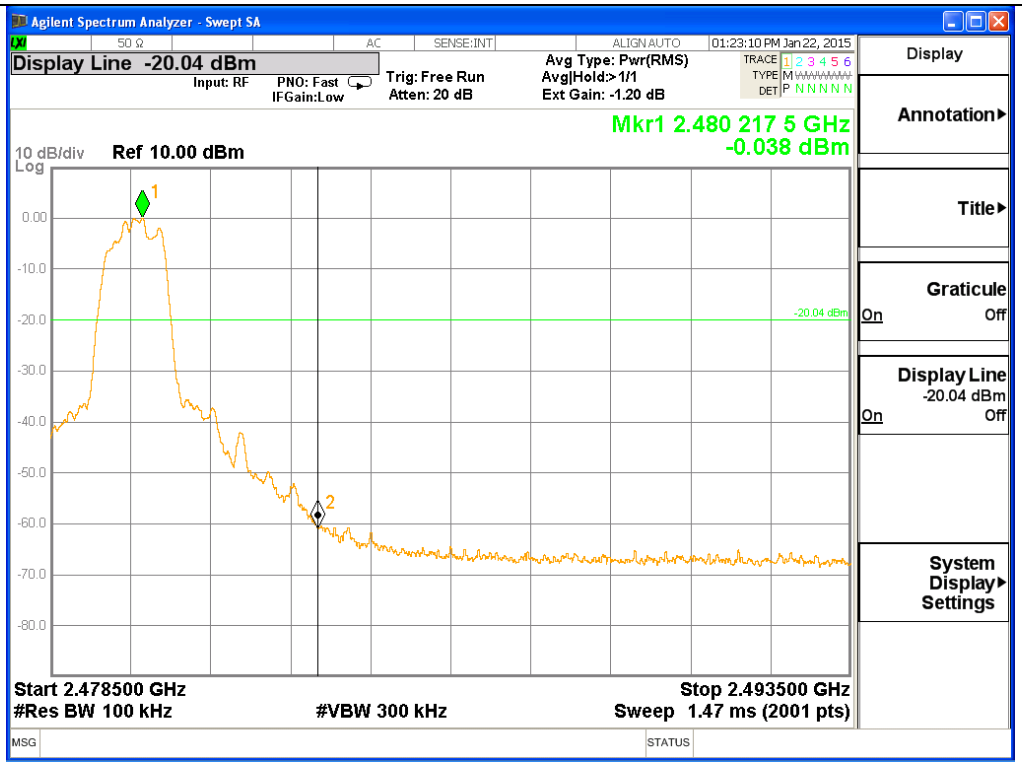
Hopping Mode - High Band Edge – BDR(GFSK)



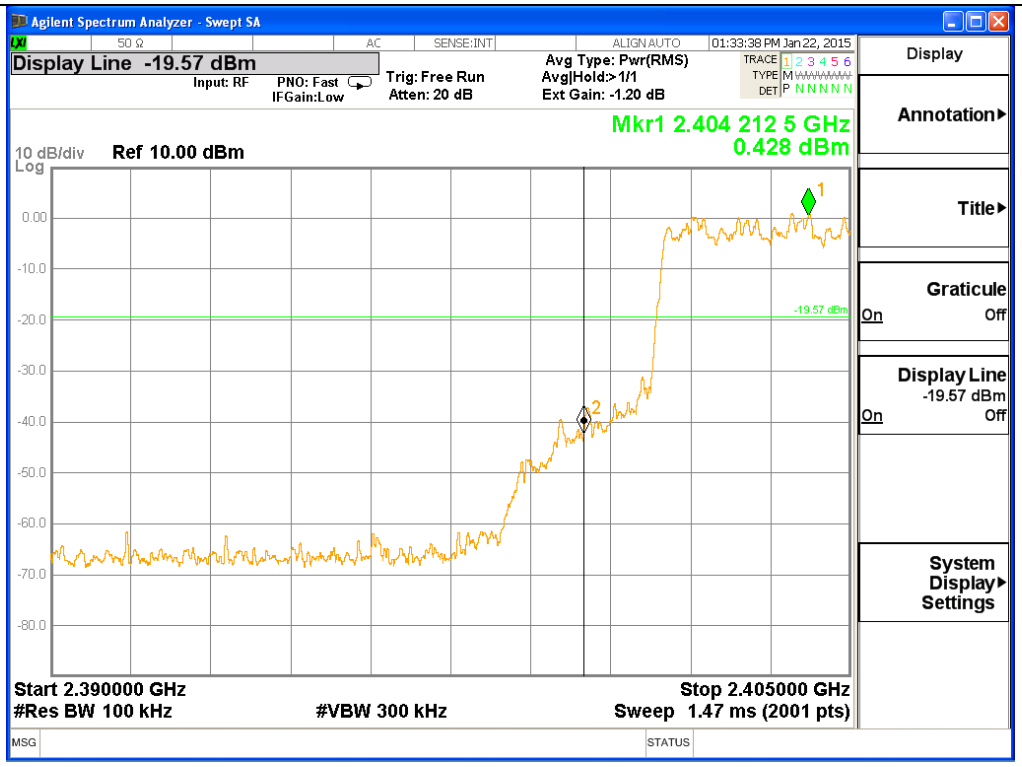
Low Band Edge – EDR(π/4-DQPSK)



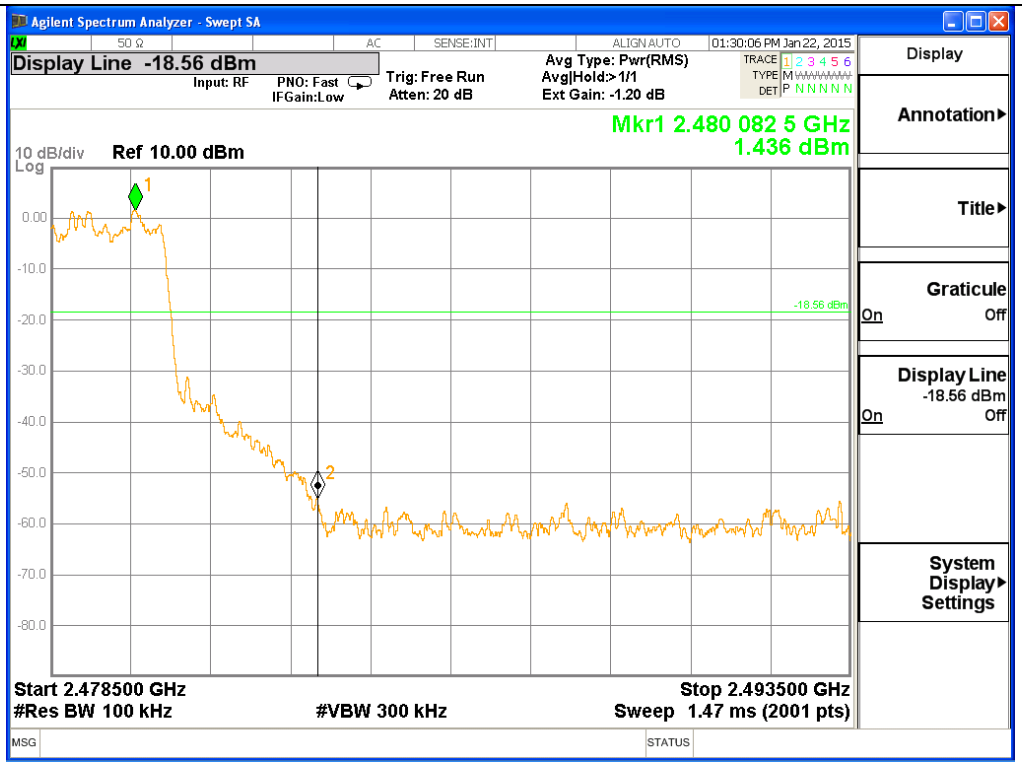
High Band Edge – EDR(π/4-DQPSK)



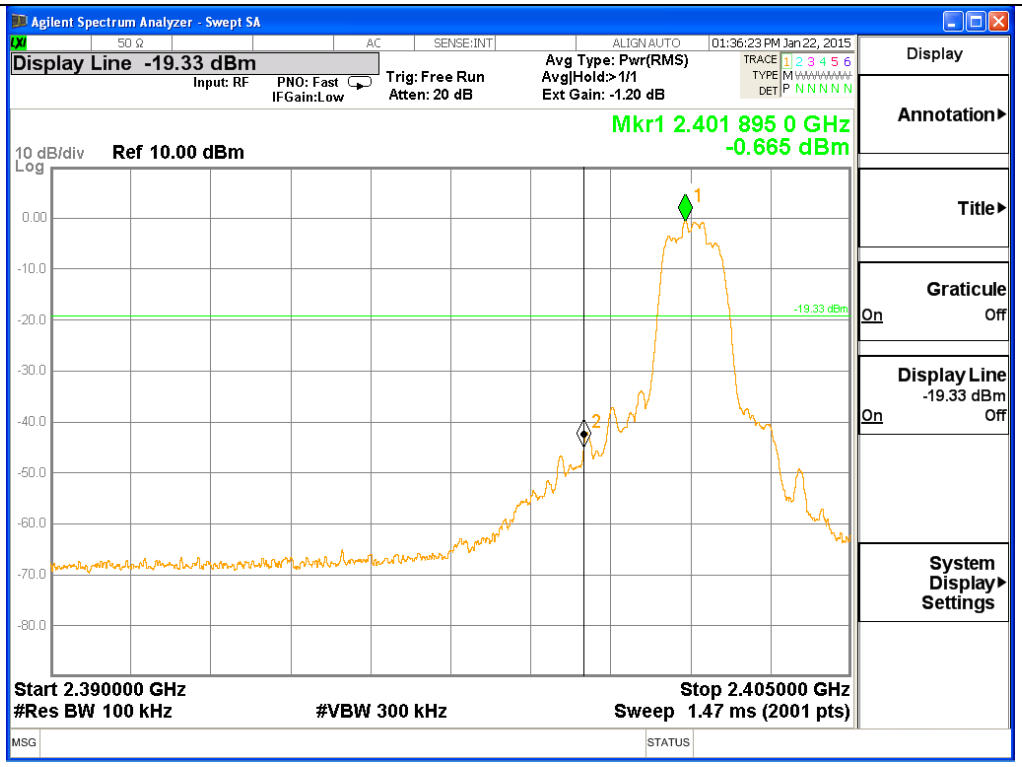
Hopping Mode - Low Band Edge – EDR(π/4-DQPSK)



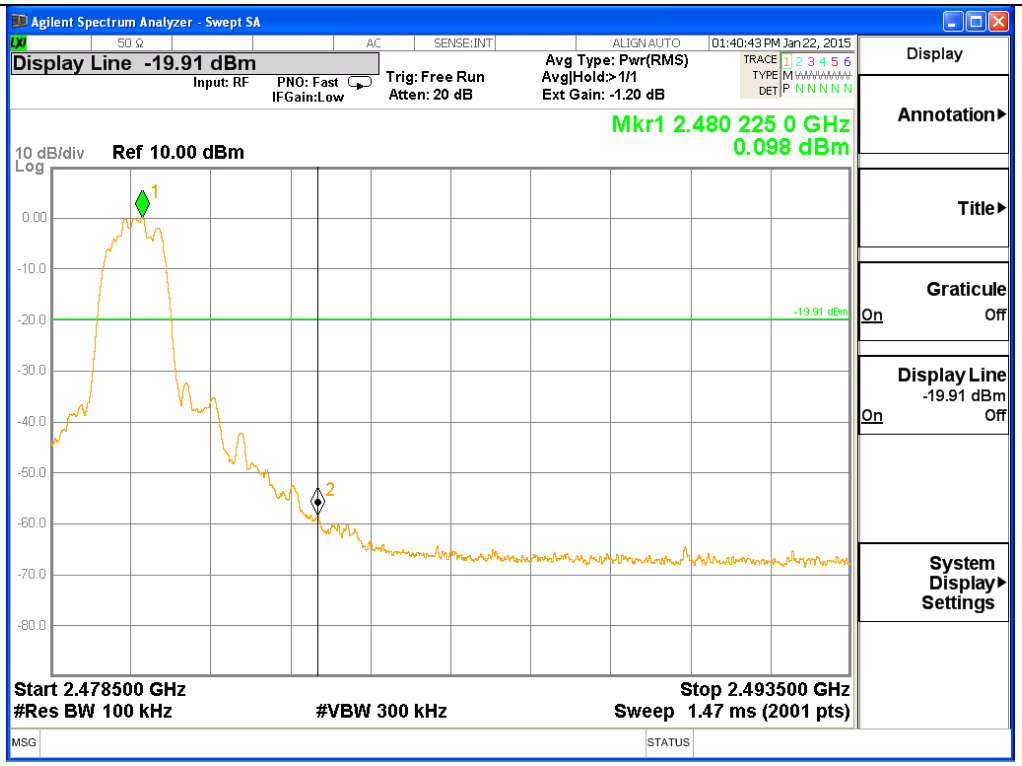
Hopping Mode - High Band Edge – EDR(π/4-DQPSK)



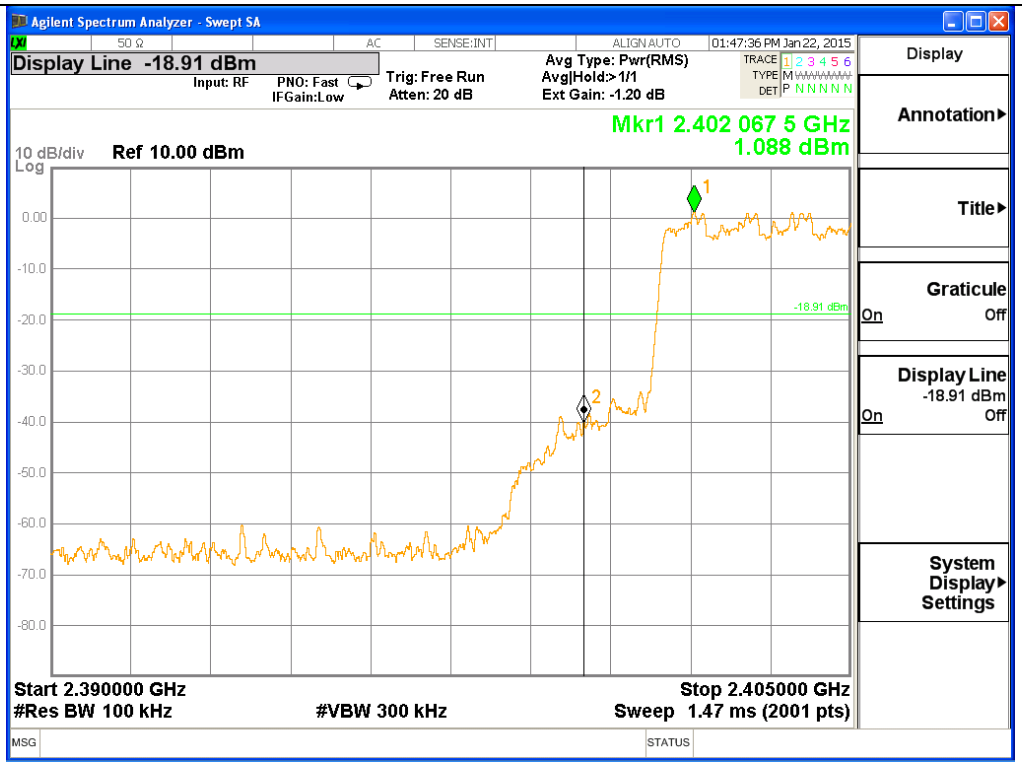
Low Band Edge – EDR(8DPSK)



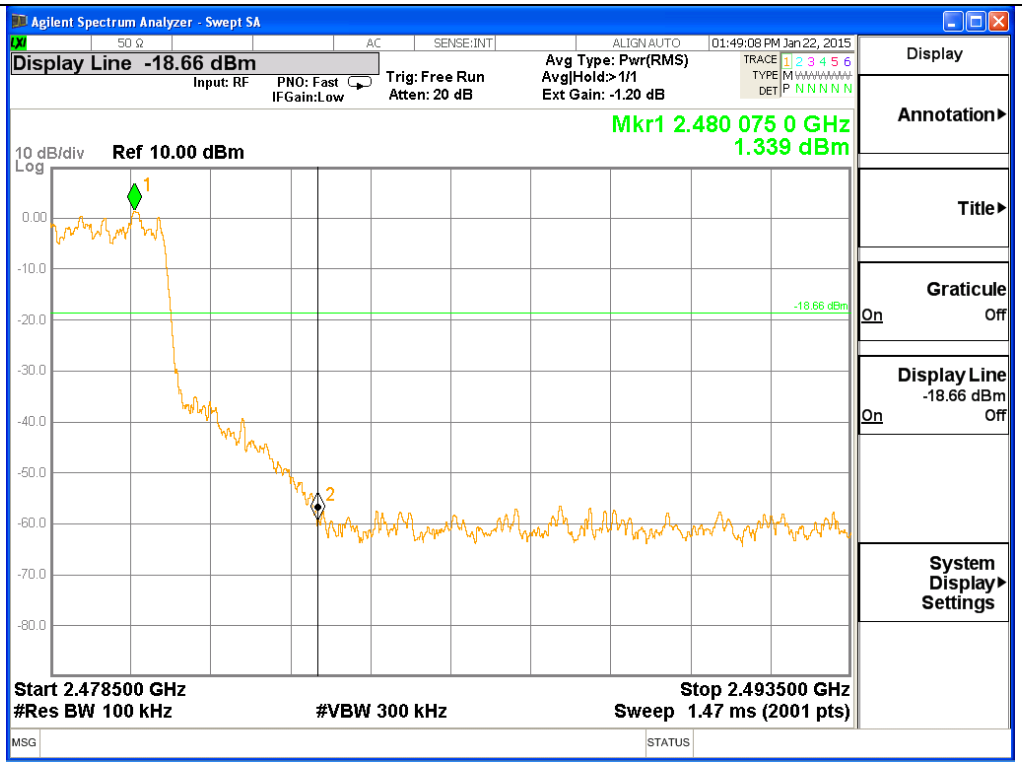
High Band Edge – EDR(8DPSK)



Hopping Mode - Low Band Edge – EDR(8DPSK)



Hopping Mode - High Band Edge – EDR(8DPSK)



5.8.5.2 Radiated Band Edges

BDR(GFSK)- Low Channel (2402 MHz)

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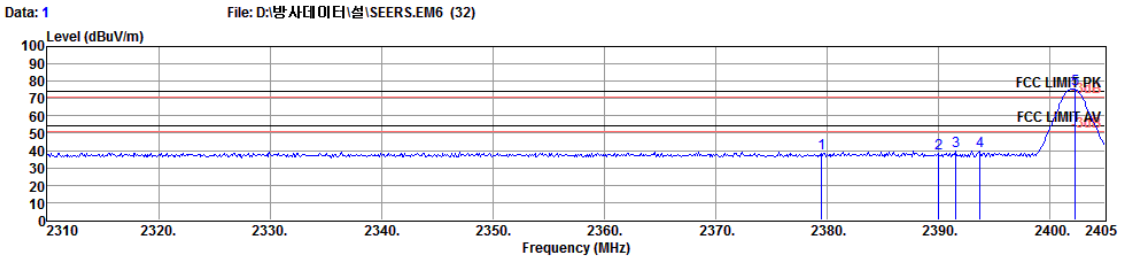

Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : GFSK Channel 0
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2379.54	48.40	26.73	41.00	4.43	38.56	74.00	-35.44	---	---	Peak
2	2390.09	47.96	26.74	41.01	4.44	38.13	74.00	-35.87	---	---	Peak
3	2391.61	49.66	26.74	41.01	4.44	39.83	74.00	-34.17	---	---	Peak
4	2393.79	49.69	26.75	41.01	4.44	39.87	74.00	-34.13	---	---	Peak
5 *	2402.34	85.25	26.76	41.02	4.45	75.44	74.00	1.44	---	---	Peak

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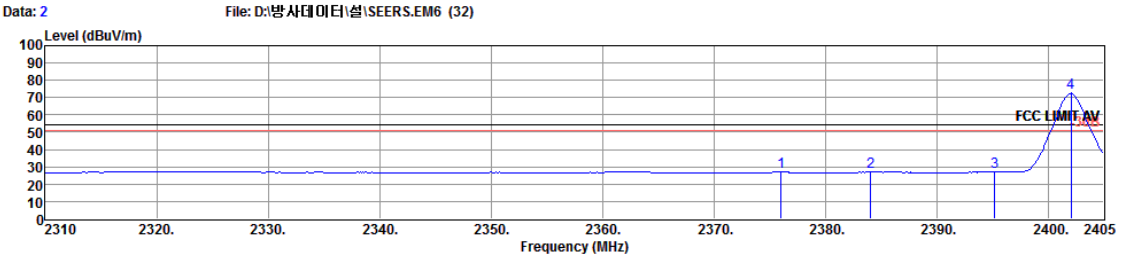


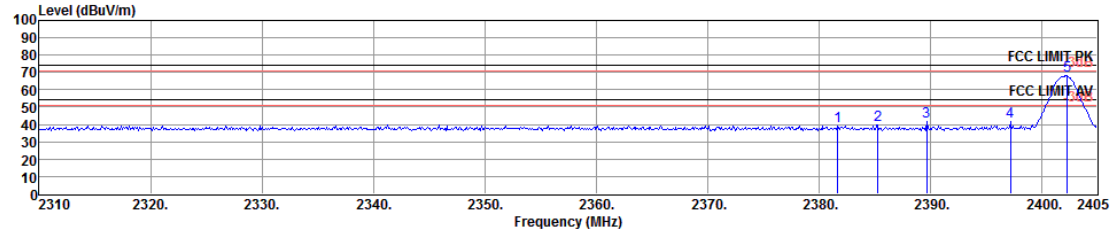
Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : GFSK Channel 0
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2376.03	36.93	26.72	41.00	4.43	27.08	54.00	-26.92	---	---	Average
2	2384.10	36.72	26.73	41.00	4.43	26.88	54.00	-27.12	---	---	Average
3	2395.22	37.06	26.75	41.01	4.44	27.24	54.00	-26.76	---	---	Average
4 *	2402.06	82.42	26.76	41.02	4.45	72.61	54.00	18.61	---	---	Average

BWS Testing Laboratory

BWS TECH INC

Data: 3 File: D:\방사데이터\설\SEERS.EM6 (32)



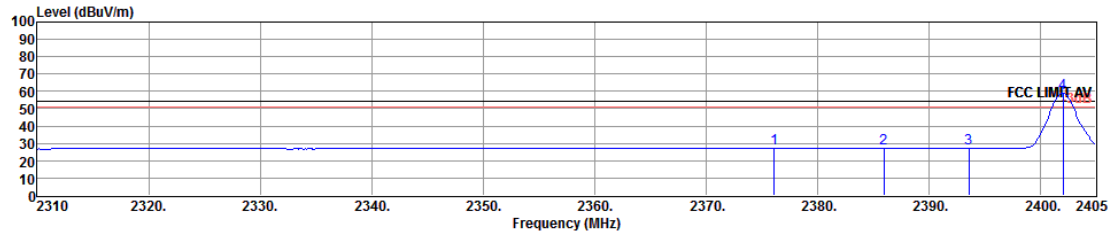
Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : GFSK Channel 0
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2381.73	48.99	26.73	41.00	4.43	39.15	74.00	-34.85	---	---	Peak
2	2385.34	49.66	26.73	41.00	4.43	39.82	74.00	-34.18	---	---	Peak
3	2389.71	51.63	26.74	41.01	4.44	41.80	74.00	-32.20	---	---	Peak
4	2397.21	51.52	26.75	41.01	4.44	41.70	74.00	-32.30	---	---	Peak
5	2402.34	77.90	26.76	41.02	4.45	68.09	74.00	-5.91	---	---	Peak

BWS Testing Laboratory

BWS TECH INC

Data: 4 File: D:\방사데이터\설\SEERS.EM6 (32)

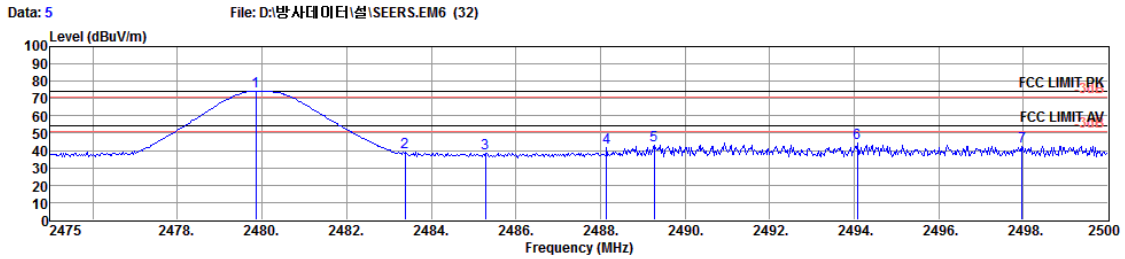


Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : GFSK Channel 0
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2376.12	37.08	26.72	41.00	4.43	27.23	54.00	-26.77	---	---	Average
2	2386.00	36.98	26.74	41.00	4.43	27.15	54.00	-26.85	---	---	Average
3	2393.60	36.93	26.75	41.01	4.44	27.11	54.00	-26.89	---	---	Average
4 *	2402.06	69.01	26.76	41.02	4.45	59.20	54.00	5.20	---	---	Average

BDR(GFSK)- High Channel (2480 MHz)

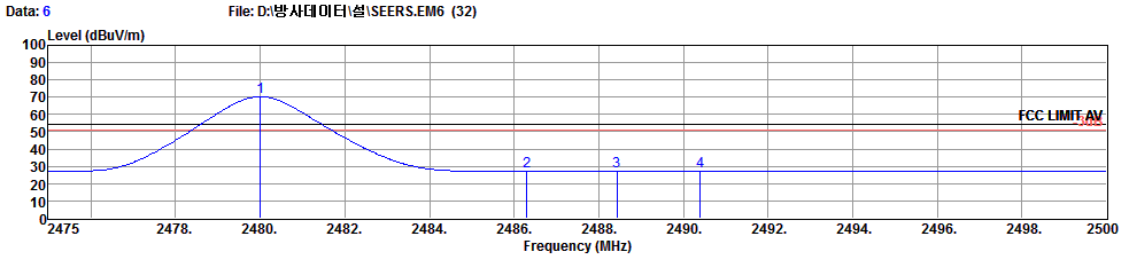
BWS TECH INC



Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : GFSK Channel 78
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1 *	2479.85	84.04	26.85	41.07	4.50	74.32	74.00	0.32	---	---	Peak
2	2483.38	48.72	26.86	41.07	4.51	39.02	74.00	-34.98	---	---	Peak
3	2485.28	48.40	26.86	41.07	4.51	38.70	74.00	-35.30	---	---	Peak
4	2488.15	51.70	26.87	41.07	4.51	42.01	74.00	-31.99	---	---	Peak
5	2489.28	53.06	26.87	41.07	4.51	43.37	74.00	-30.63	---	---	Peak
6	2494.08	53.73	26.87	41.08	4.52	44.04	74.00	-29.96	---	---	Peak
7	2497.98	51.90	26.88	41.08	4.52	42.22	74.00	-31.78	---	---	Peak

BWS TECH INC

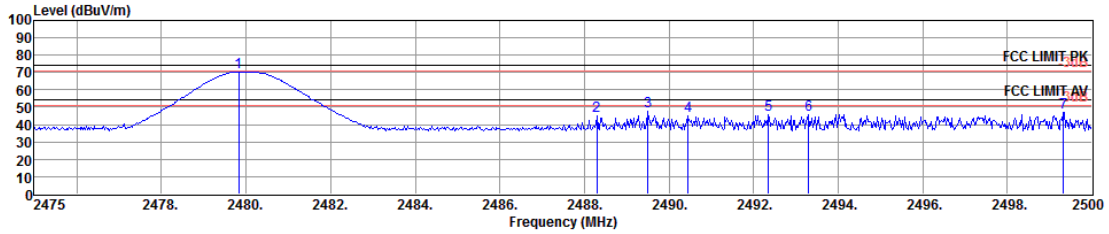


Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : GFSK Channel 78
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1 *	2480.00	80.06	26.86	41.07	4.50	70.35	54.00	16.35	---	---	Average
2	2486.30	36.76	26.86	41.07	4.51	27.06	54.00	-26.94	---	---	Average
3	2488.43	36.81	26.87	41.07	4.51	27.12	54.00	-26.88	---	---	Average
4	2490.40	36.83	26.87	41.07	4.51	27.14	54.00	-26.86	---	---	Average

BWS TECH INC

Data: 7 File: D:\방사데이터\설\SEERS.EM6 (32)

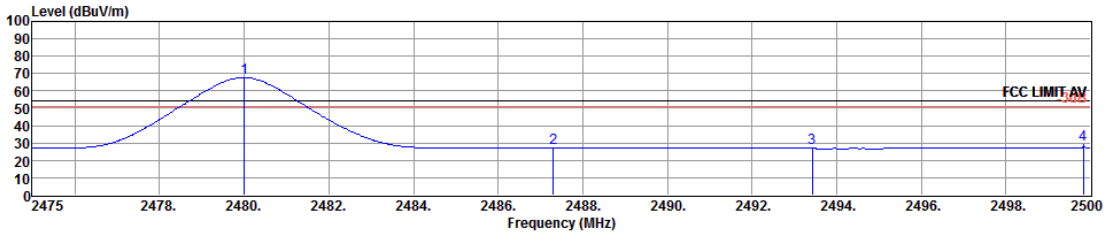


Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : GFSK Channel 78
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2479.83	80.16	26.85	41.07	4.50	70.44	74.00	-3.56	---	---	Peak
2	2488.30	54.46	26.87	41.07	4.51	44.77	74.00	-29.23	---	---	Peak
3	2489.50	57.13	26.87	41.07	4.51	47.44	74.00	-26.56	---	---	Peak
4	2490.45	54.40	26.87	41.07	4.51	44.71	74.00	-29.29	---	---	Peak
5	2492.35	55.48	26.87	41.08	4.51	45.78	74.00	-28.22	---	---	Peak
6	2493.30	55.55	26.87	41.08	4.51	45.85	74.00	-28.15	---	---	Peak
7	2499.33	56.47	26.88	41.08	4.52	46.79	74.00	-27.21	---	---	Peak

BWS TECH INC

Data: 8 File: D:\방사데이터\설\SEERS.EM6 (32)

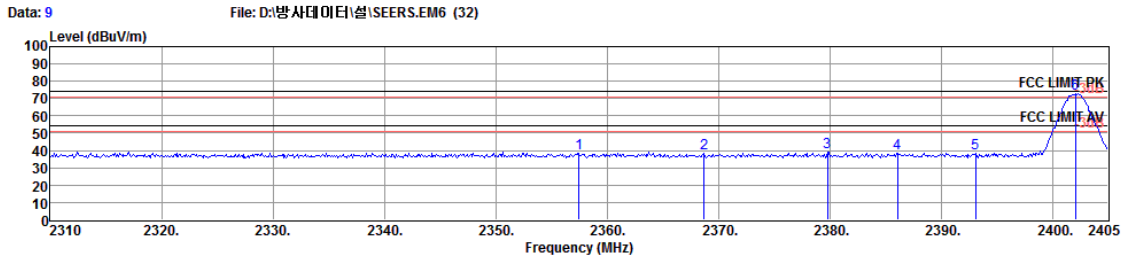


Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : GFSK Channel 78
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1 *	2480.00	77.42	26.86	41.07	4.50	67.71	54.00	13.71	---	---	Average
2	2487.30	36.73	26.86	41.07	4.51	27.03	54.00	-26.97	---	---	Average
3	2493.43	36.56	26.87	41.08	4.52	26.87	54.00	-27.13	---	---	Average
4	2499.83	38.93	26.88	41.08	4.52	29.25	54.00	-24.75	---	---	Average

EDR(π/4-DQPSK)- Low Channel (2402 MHz)

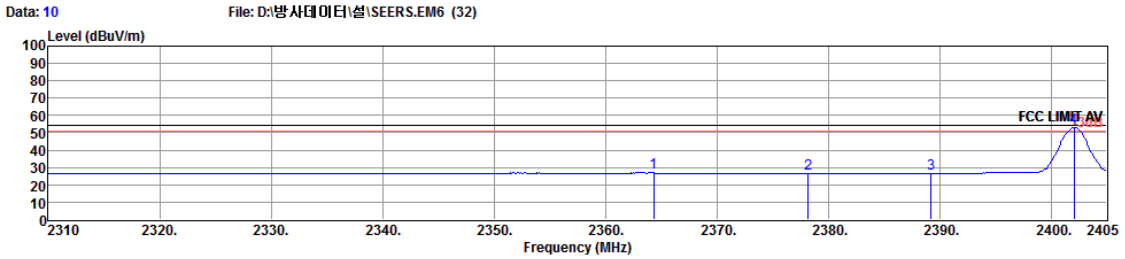
BWS TECH INC



Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : Pi/4-DQPSK Channel 0
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2357.50	48.33	26.70	40.99	4.41	38.45	74.00	-35.55	---	---	Peak
2	2368.71	48.00	26.71	40.99	4.42	38.14	74.00	-35.86	---	---	Peak
3	2379.83	48.68	26.73	41.00	4.43	38.84	74.00	-35.16	---	---	Peak
4	2386.10	48.24	26.74	41.00	4.43	38.41	74.00	-35.59	---	---	Peak
5	2393.13	48.08	26.74	41.01	4.44	38.25	74.00	-35.75	---	---	Peak
6 !	2402.06	82.62	26.76	41.02	4.45	72.81	74.00	-1.19	---	---	Peak

BWS TECH INC

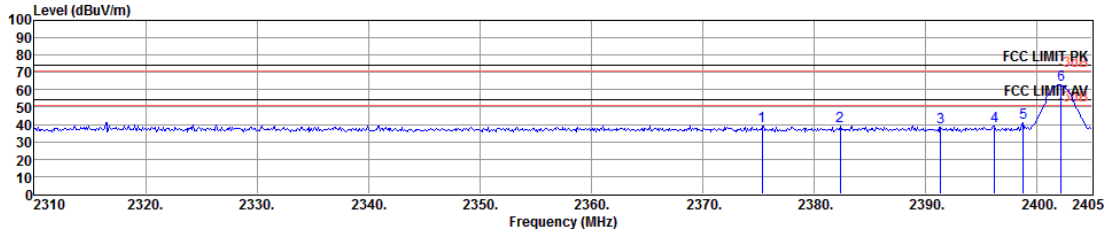


Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : Pi/4-DQPSK Channel 0
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2364.34	36.72	26.71	40.99	4.42	26.86	54.00	-27.14	---	---	Average
2	2378.21	36.44	26.73	41.00	4.43	26.60	54.00	-27.40	---	---	Average
3	2389.23	36.48	26.74	41.01	4.44	26.65	54.00	-27.35	---	---	Average
4 !	2402.06	62.93	26.76	41.02	4.45	53.12	54.00	-0.88	---	---	Average

BWS TECH INC

Data: 11 File: D:\방사데이터\설\SEERS.EM6 (32)

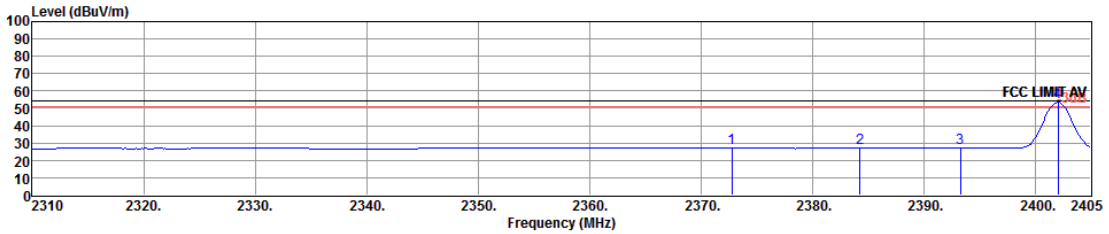


Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : Pi/4-DQPSK Channel 0
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2375.36	49.16	26.72	41.00	4.43	39.31	74.00	-34.69	---	---	Peak
2	2382.39	49.01	26.73	41.00	4.43	39.17	74.00	-34.83	---	---	Peak
3	2391.42	48.32	26.74	41.01	4.44	38.49	74.00	-35.51	---	---	Peak
4	2396.26	48.90	26.75	41.01	4.44	39.08	74.00	-34.92	---	---	Peak
5	2398.83	51.15	26.75	41.01	4.44	41.33	74.00	-32.67	---	---	Peak
6	2402.25	72.82	26.76	41.02	4.45	63.01	74.00	-10.99	---	---	Peak

BWS TECH INC

Data: 12 File: D:\방사데이터\설\SEERS.EM6 (32)



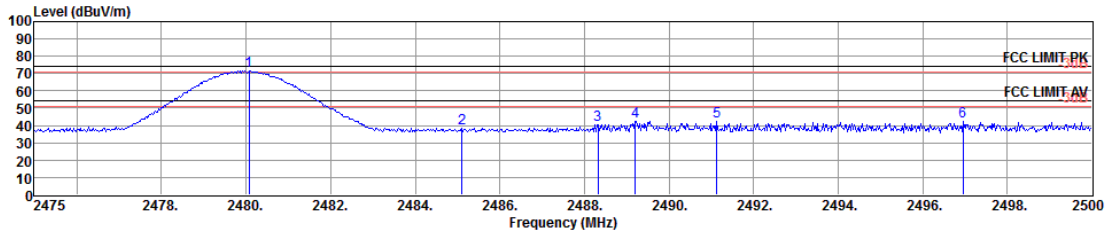
Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : Pi/4-DQPSK Channel 0
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2372.80	36.90	26.72	41.00	4.42	27.04	54.00	-26.96	---	---	Average
2	2384.29	36.88	26.73	41.00	4.43	27.04	54.00	-26.96	---	---	Average
3	2393.32	36.87	26.75	41.01	4.44	27.05	54.00	-26.95	---	---	Average
4 !	2402.06	63.41	26.76	41.02	4.45	53.60	54.00	-0.40	---	---	Average

EDR(π/4-DQPSK)- High Channel (2480 MHz)

BWS TECH INC

Data: 13 File: D:\방사데이터\설\SEERS.EM6 (32)

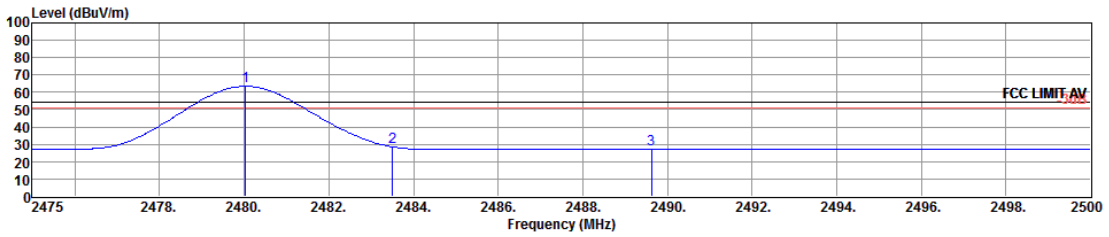


Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : Pi/4-DQPSK Channel 78
memo :

		Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	!	2480.08	81.03	26.86	41.07	4.50	71.32	74.00	-2.68	---	---	Peak
2		2485.10	48.07	26.86	41.07	4.51	38.37	74.00	-35.63	---	---	Peak
3		2488.33	50.38	26.87	41.07	4.51	40.69	74.00	-33.31	---	---	Peak
4		2489.20	52.27	26.87	41.07	4.51	42.58	74.00	-31.42	---	---	Peak
5		2491.13	51.87	26.87	41.07	4.51	42.18	74.00	-31.82	---	---	Peak
6		2496.95	51.93	26.88	41.08	4.52	42.25	74.00	-31.75	---	---	Peak

BWS TECH INC

Data: 14 File: D:\방사데이터\설\SEERS.EM6 (32)

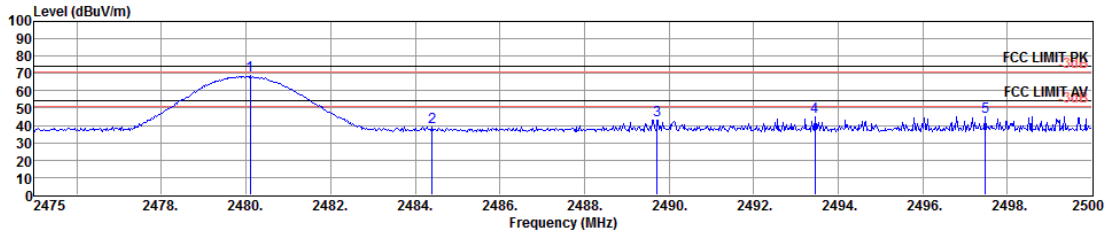


Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : Pi/4-DQPSK Channel 78
memo :

		Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	*	2480.03	73.17	26.86	41.07	4.50	63.46	54.00	9.46	---	---	Average
2		2483.50	38.26	26.86	41.07	4.51	28.56	54.00	-25.44	---	---	Average
3		2489.63	36.74	26.87	41.07	4.51	27.05	54.00	-26.95	---	---	Average

BWS TECH INC

Data: 15 File: D:\방사데이터\설\SEERS.EM6 (32)

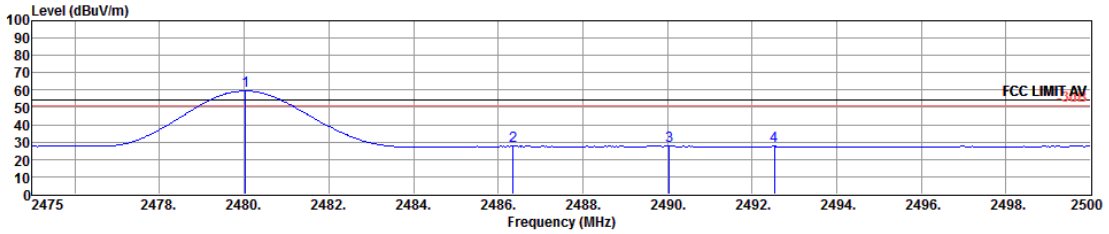


Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : Pi/4-DQPSK Channel 78
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2480.10	78.28	26.86	41.07	4.50	68.57	74.00	-5.43	---	---	Peak
2	2484.40	48.95	26.86	41.07	4.51	39.25	74.00	-34.75	---	---	Peak
3	2489.73	53.05	26.87	41.07	4.51	43.36	74.00	-30.64	---	---	Peak
4	2493.45	54.58	26.87	41.08	4.52	44.89	74.00	-29.11	---	---	Peak
5	2497.48	54.97	26.88	41.08	4.52	45.29	74.00	-28.71	---	---	Peak

BWS TECH INC

Data: 16 File: D:\방사데이터\설\SEERS.EM6 (32)



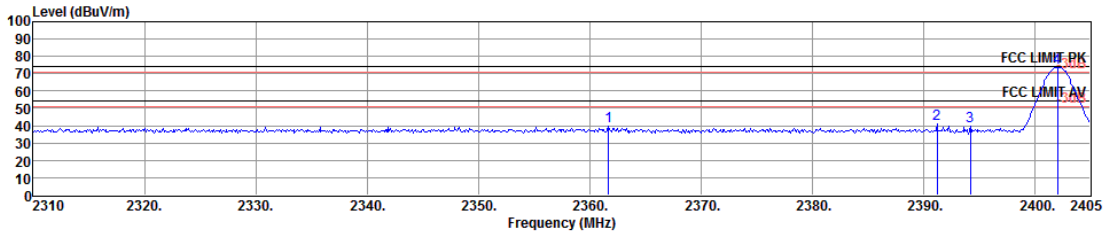
Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : Pi/4-DQPSK Channel 78
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1 *	2480.03	69.19	26.86	41.07	4.50	59.48	54.00	5.48	---	---	Average
2	2486.35	37.23	26.86	41.07	4.51	27.53	54.00	-26.47	---	---	Average
3	2490.05	37.21	26.87	41.07	4.51	27.52	54.00	-26.48	---	---	Average
4	2492.53	37.21	26.87	41.08	4.51	27.51	54.00	-26.49	---	---	Average

EDR(8DPSK)- Low Channel (2402 MHz)

BWS TECH INC

Data: 17 File: D:\방사데이터\설\SEERS.EM6 (32)

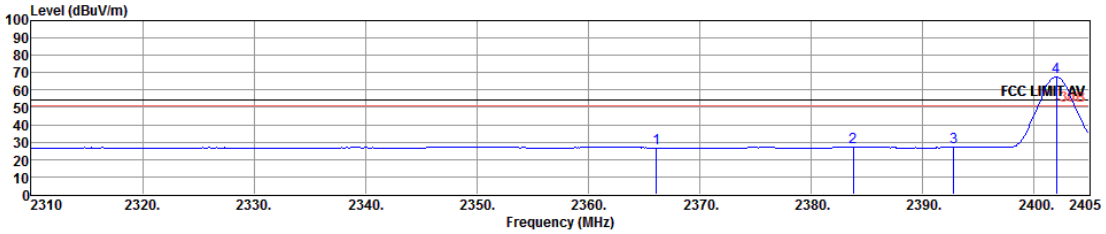


Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : 8DPSK Channel 0
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2361.68	49.89	26.70	40.99	4.41	40.01	74.00	-33.99	---	---	Peak
2	2391.23	50.80	26.74	41.01	4.44	40.97	74.00	-33.03	---	---	Peak
3	2394.27	49.37	26.75	41.01	4.44	39.55	74.00	-34.45	---	---	Peak
4 !	2402.06	83.55	26.76	41.02	4.45	73.74	74.00	-0.26	---	---	Peak

BWS TECH INC

Data: 18 File: D:\방사데이터\설\SEERS.EM6 (32)

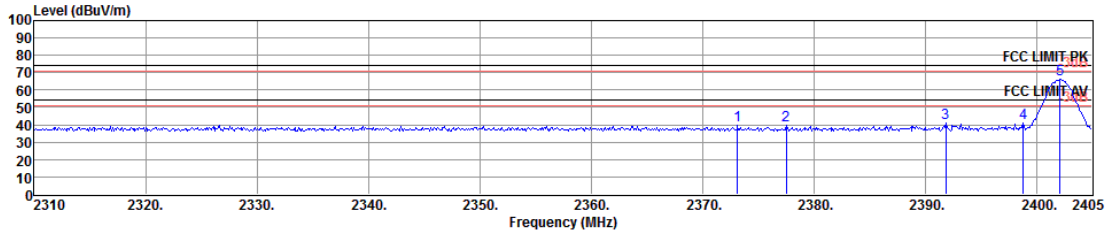


Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : 8DPSK Channel 0
memo :

	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2366.15	36.64	26.71	40.99	4.42	26.78	54.00	-27.22	---	---	Average
2	2383.82	36.77	26.73	41.00	4.43	26.93	54.00	-27.07	---	---	Average
3	2392.84	36.77	26.74	41.01	4.44	26.94	54.00	-27.06	---	---	Average
4 *	2402.06	77.54	26.76	41.02	4.45	67.73	54.00	13.73	---	---	Average

BWS TECH INC

Data: 19 File: D:\방사데이터\설\SEERS.EM6 (32)

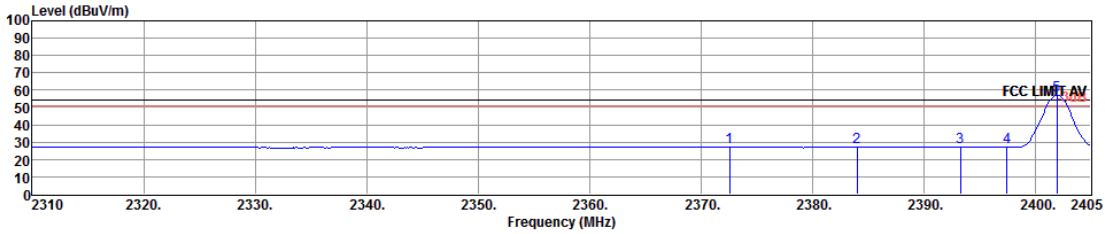


Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : 8DPSK Channel 0
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2373.18	49.46	26.72	41.00	4.42	39.60	74.00	-34.40	---	---	Peak
2	2377.55	49.56	26.72	41.00	4.43	39.71	74.00	-34.29	---	---	Peak
3	2391.89	50.57	26.74	41.01	4.44	40.74	74.00	-33.26	---	---	Peak
4	2398.83	50.97	26.75	41.01	4.44	41.15	74.00	-32.85	---	---	Peak
5	2402.15	75.83	26.76	41.02	4.45	66.02	74.00	-7.98	---	---	Peak

BWS TECH INC

Data: 20 File: D:\방사데이터\설\SEERS.EM6 (32)

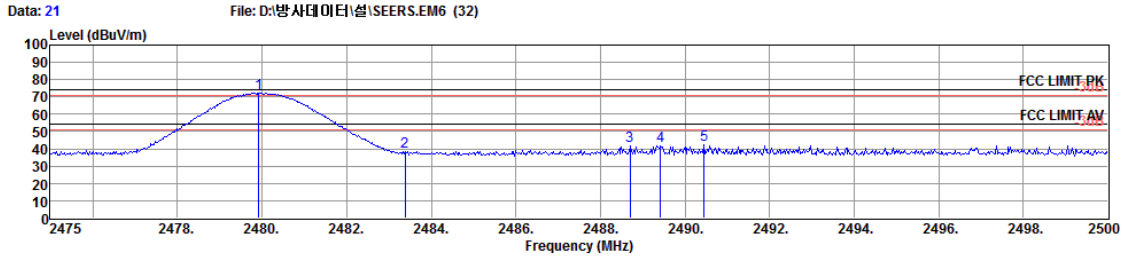


Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : 8DPSK Channel 0
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2372.61	37.04	26.72	41.00	4.42	27.18	54.00	-26.82	---	---	Average
2	2384.01	36.99	26.73	41.00	4.43	27.15	54.00	-26.85	---	---	Average
3	2393.32	36.95	26.75	41.01	4.44	27.13	54.00	-26.87	---	---	Average
4	2397.50	37.12	26.75	41.01	4.44	27.30	54.00	-26.70	---	---	Average
5 *	2401.96	67.03	26.76	41.02	4.45	57.22	54.00	3.22	---	---	Average

EDR(8DPSK)- High Channel (2480 MHz)

BWS TECH INC



Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : 8DPSK Channel 78
memo :

		Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	!	2479.93	82.02	26.86	41.07	4.50	72.31	74.00	-1.69	---	---	Peak
2		2483.38	48.38	26.86	41.07	4.51	38.68	74.00	-35.32	---	---	Peak
3		2488.70	51.35	26.87	41.07	4.51	41.66	74.00	-32.34	---	---	Peak
4		2489.43	51.54	26.87	41.07	4.51	41.85	74.00	-32.15	---	---	Peak
5		2490.45	52.28	26.87	41.07	4.51	42.59	74.00	-31.41	---	---	Peak

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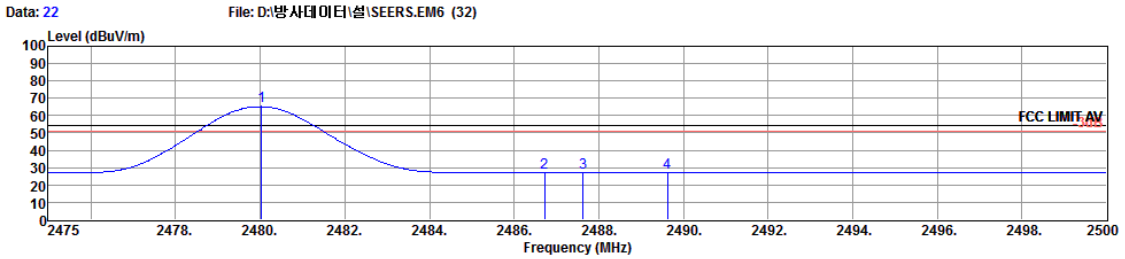

Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 HORIZONTAL
eut : HH-800
mode : 8DPSK Channel 78
memo :

		Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	*	2480.03	74.95	26.86	41.07	4.50	65.24	54.00	11.24	---	---	Average
2		2486.73	36.74	26.86	41.07	4.51	27.04	54.00	-26.96	---	---	Average
3		2487.63	36.76	26.86	41.07	4.51	27.06	54.00	-26.94	---	---	Average
4		2489.63	36.80	26.87	41.07	4.51	27.11	54.00	-26.89	---	---	Average

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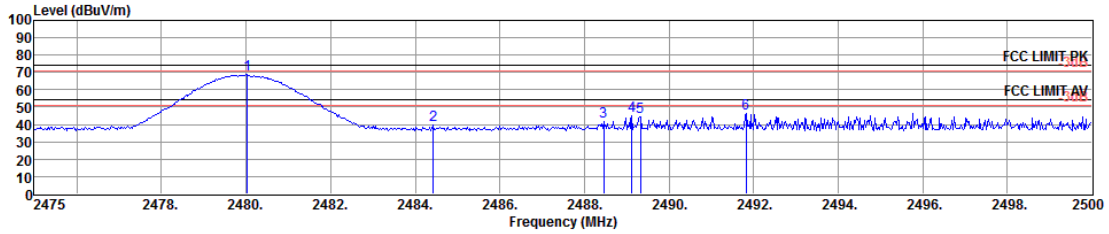
Data: 23 File: D:\방사데이터\설\SEERS.EM6 (32)



Site : SVSWR Chamber
Condition: FCC LIMIT PK 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : 8DPSK Channel 78
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1	2480.03	78.32	26.86	41.07	4.50	68.61	74.00	-5.39	---	---	Peak
2	2484.43	49.19	26.86	41.07	4.51	39.49	74.00	-34.51	---	---	Peak
3	2488.45	51.57	26.87	41.07	4.51	41.88	74.00	-32.12	---	---	Peak
4	2489.13	54.87	26.87	41.07	4.51	45.18	74.00	-28.82	---	---	Peak
5	2489.33	54.32	26.87	41.07	4.51	44.63	74.00	-29.37	---	---	Peak
6	2491.83	56.08	26.87	41.07	4.51	46.39	74.00	-27.61	---	---	Peak

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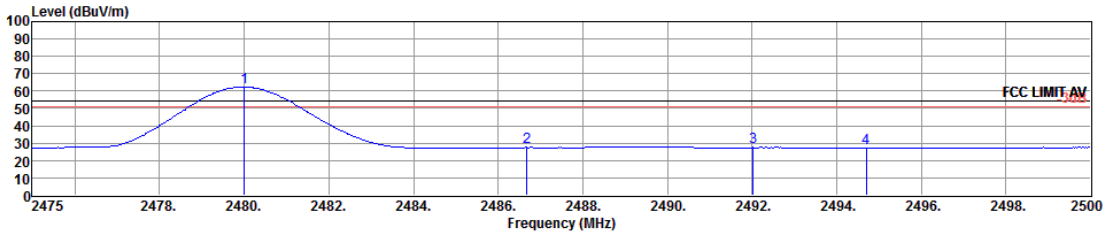
Data: 24 File: D:\방사데이터\설\SEERS.EM6 (32)



Site : SVSWR Chamber
Condition: FCC LIMIT AV 3m BBHA9120D517_2014 VERTICAL
eut : HH-800
mode : 8DPSK Channel 78
memo :

	Freq	ReadLevel	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit Line	Over Limit	A/Pos	T/Pos	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg	
1 *	2480.00	72.13	26.86	41.07	4.50	62.42	54.00	8.42	---	---	Average
2	2486.68	37.19	26.86	41.07	4.51	27.49	54.00	-26.51	---	---	Average
3	2492.03	37.18	26.87	41.07	4.51	27.49	54.00	-26.51	---	---	Average
4	2494.70	37.12	26.87	41.08	4.52	27.43	54.00	-26.57	---	---	Average

5.9 AC Power Conducted Emission

5.9.1 Test Equipment

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NUMBER	Calibration Due date (year/month/date)
LISN	ENV216	ROHDE & SCHWARZ	100324	16/01/12
LISN	FCC-LISN-50-50-2-02	FCC	03074	16/01/12
#2 Conducted Cable_2.7m	N/A	N/A	N/A	16/01/14
Test Receiver	ESPI	ROHDE & SCHWARZ	100063	16/01/12
CE CHAMBER	N/A	SY Corp.	N/A	15/09/17
AC Power Source	15001ix-CTS	California Instruments	56255/56256/56257	16/01/13

5.9.2 Test Limit

For equipment 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.

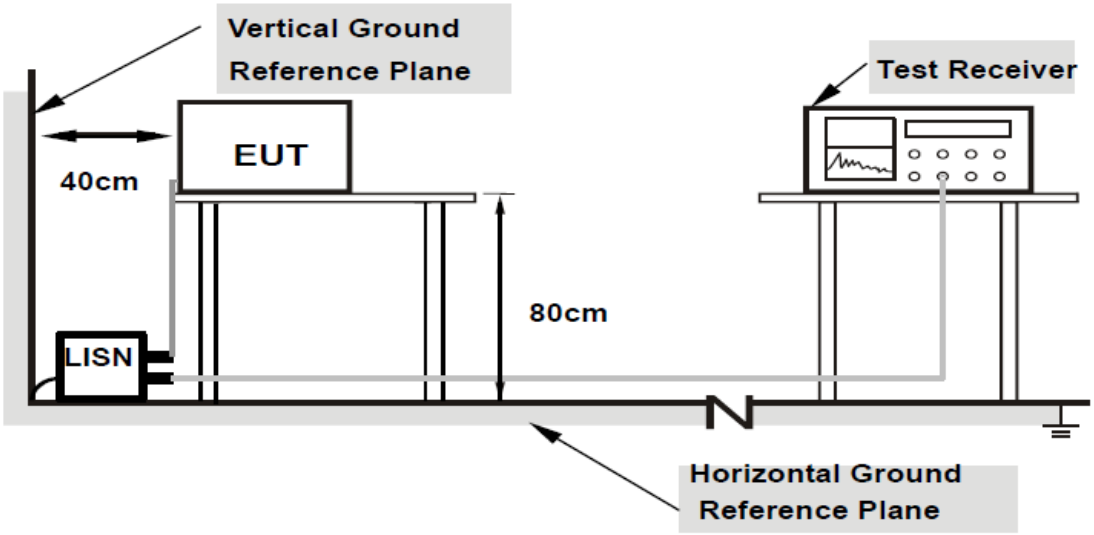
Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

5.9.3 Test Procedures

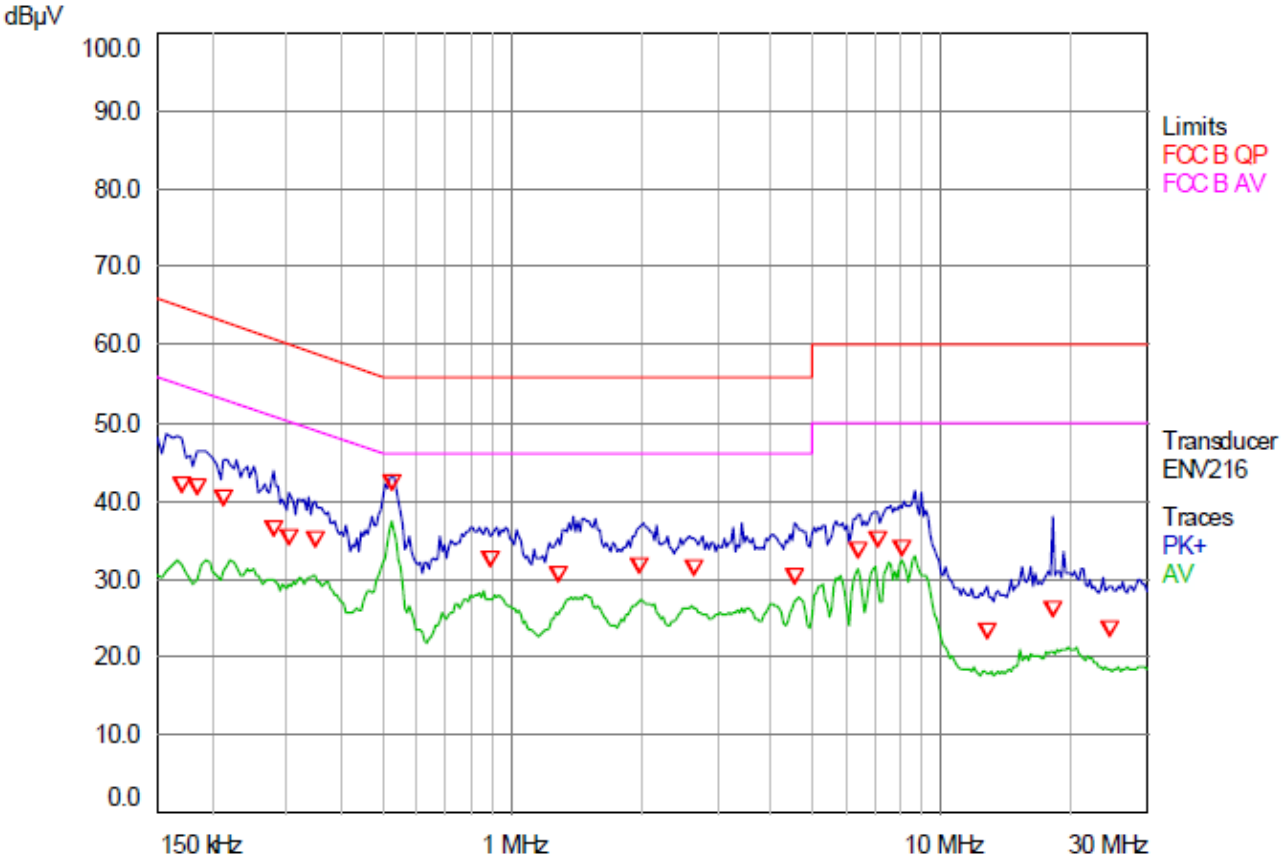
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network(LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

5.9.4 Block Diagram of Test Setup



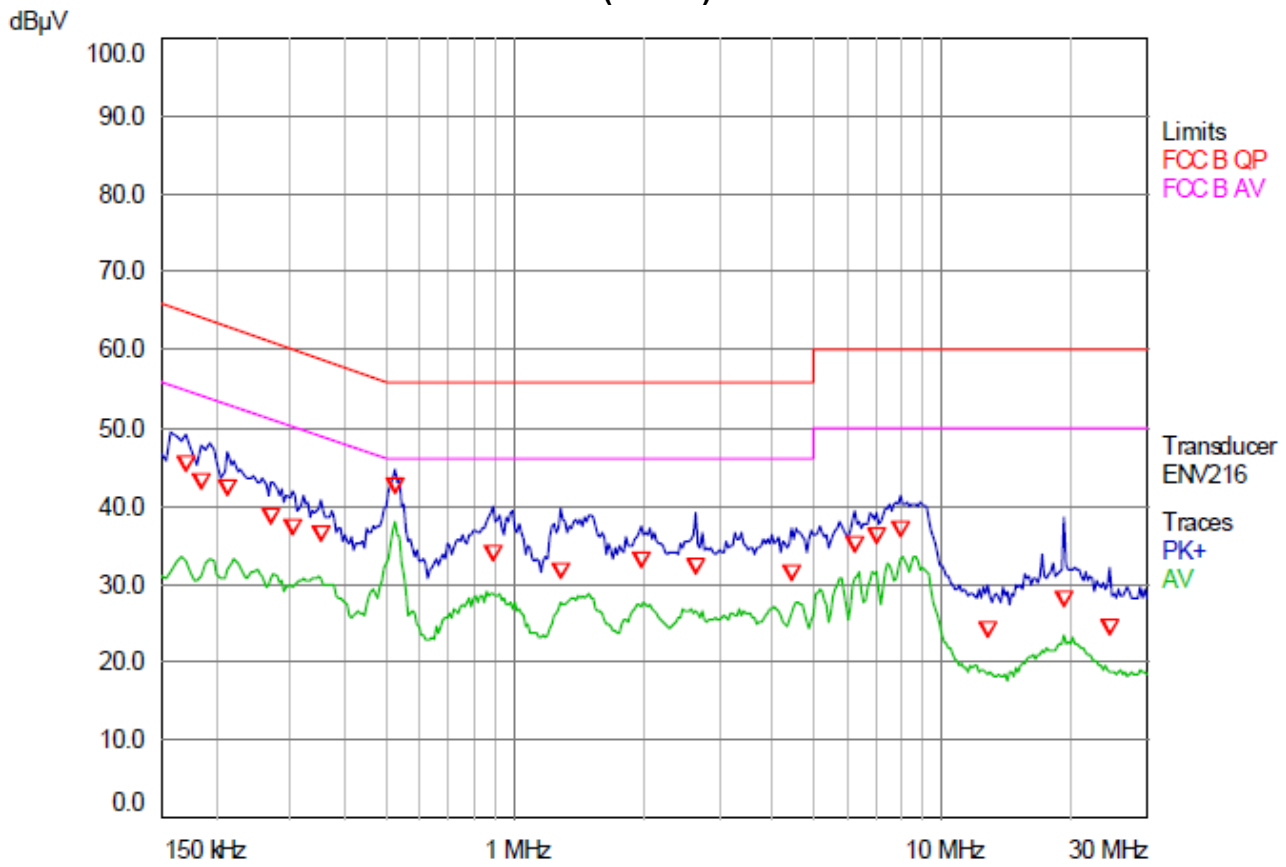
5.9.5 Test Result

BDR(GFSK)- H



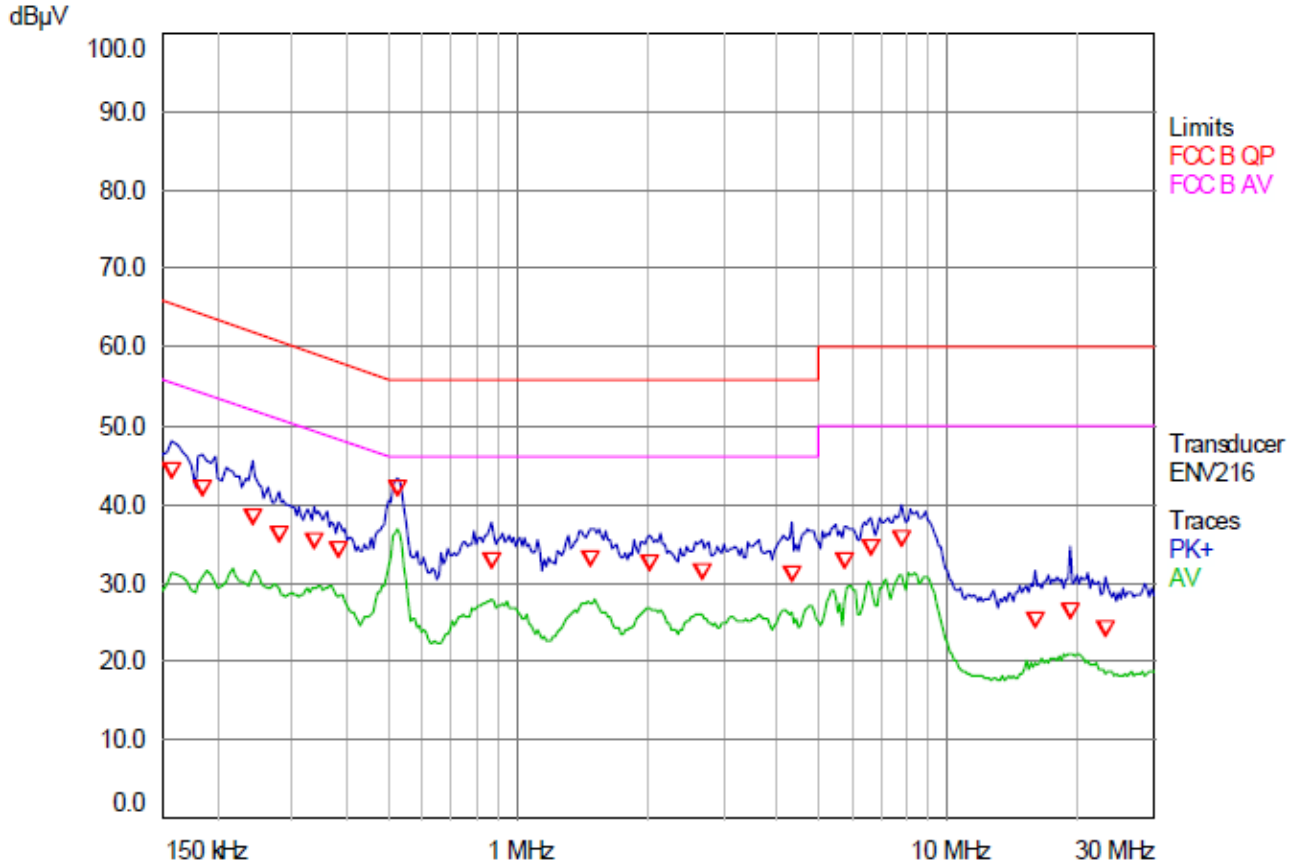
Trace	Frequency	Level	Limit	Delta Limit	Delta Ref	Comment
	(MHz)	(dBµV)	(dBµV)	(dB)	(dB)	
1 QP	0.17	41.19	64.96	-23.77		
1 QP	0.186	40.87	64.21	-23.34		
1 QP	0.214	39.39	63.05	-23.66		
1 QP	0.278	35.43	60.88	-25.45		
1 QP	0.302	34.37	60.19	-25.82		
1 QP	0.35	34.06	58.96	-24.90		
1 QP	0.524	41.31	56.00	-14.69		
1 QP	0.892	31.69	56.00	-24.31		
1 QP	1.284	29.55	56.00	-26.45		
1 QP	1.976	30.76	56.00	-25.24		
1 QP	2.64	30.40	56.00	-25.60		
1 QP	4.544	29.35	56.00	-26.65		
1 QP	6.372	32.57	60.00	-27.43		
1 QP	7.06	33.98	60.00	-26.02		
1 QP	8.032	32.84	60.00	-27.16		
1 QP	12.78	22.45	60.00	-37.55		
1 QP	18.132	25.15	60.00	-34.85		
1 QP	24.592	22.64	60.00	-37.36		

BDR(GFSK)- N



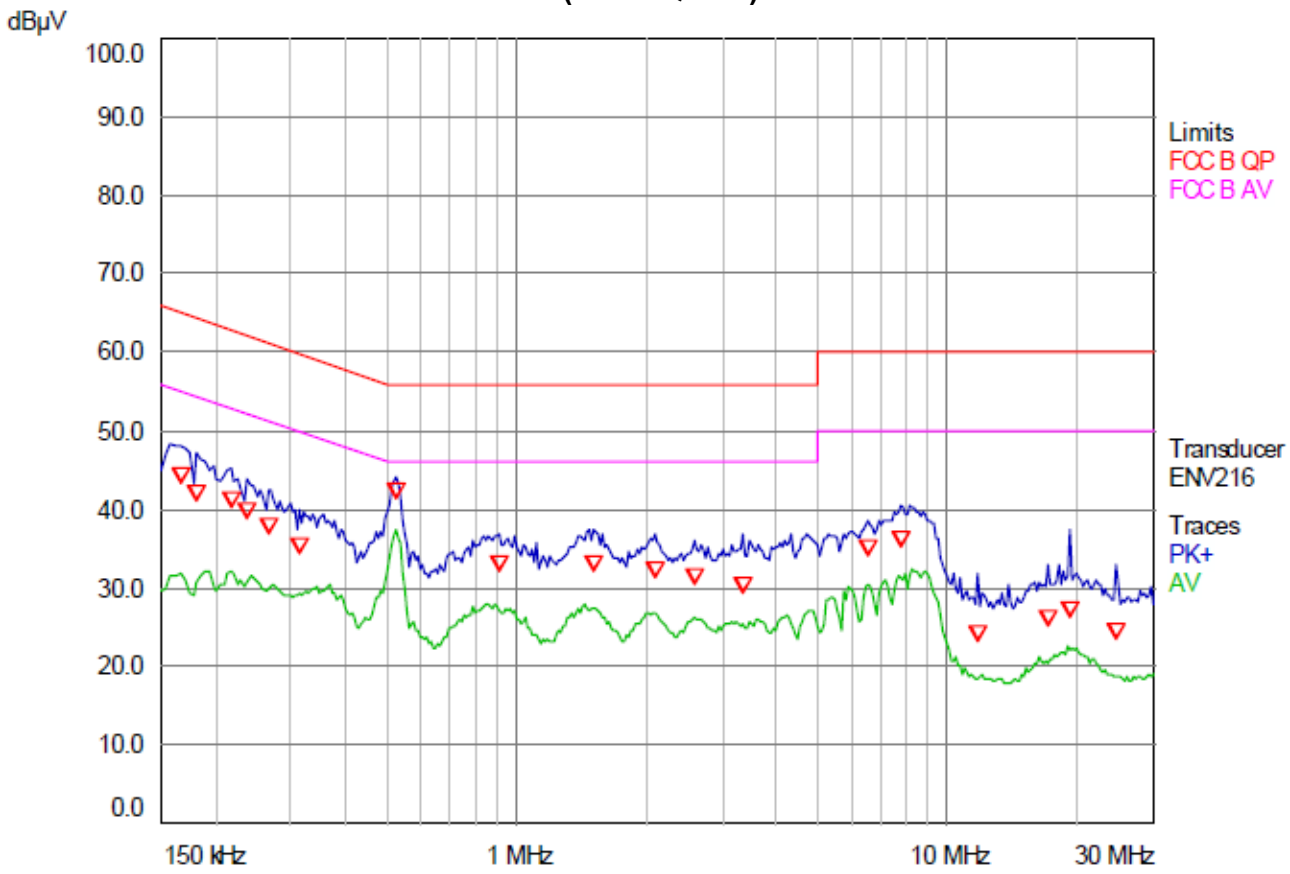
Trace	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Delta Limit (dB)	Delta Ref (dB)	Comment
1 QP	0.17	44.29	64.96	-20.67		
1 QP	0.186	42.11	64.21	-22.10		
1 QP	0.214	41.35	63.05	-21.70		
1 QP	0.27	37.58	61.12	-23.54		
1 QP	0.302	36.28	60.19	-23.91		
1 QP	0.354	35.50	58.87	-23.37		
1 QP	0.528	41.71	56.00	-14.29		
1 QP	0.892	33.09	56.00	-22.91		
1 QP	1.284	30.75	56.00	-25.25		
1 QP	1.972	32.01	56.00	-23.99		
1 QP	2.64	31.21	56.00	-24.79		
1 QP	4.452	30.36	56.00	-25.64		
1 QP	6.26	34.09	60.00	-25.91		
1 QP	7.028	35.14	60.00	-24.86		
1 QP	7.964	35.97	60.00	-24.03		
1 QP	12.712	23.05	60.00	-36.95		
1 QP	19.224	27.07	60.00	-32.93		
1 QP	24.524	23.44	60.00	-36.56		

EDR(π/4-DQPSK)-H



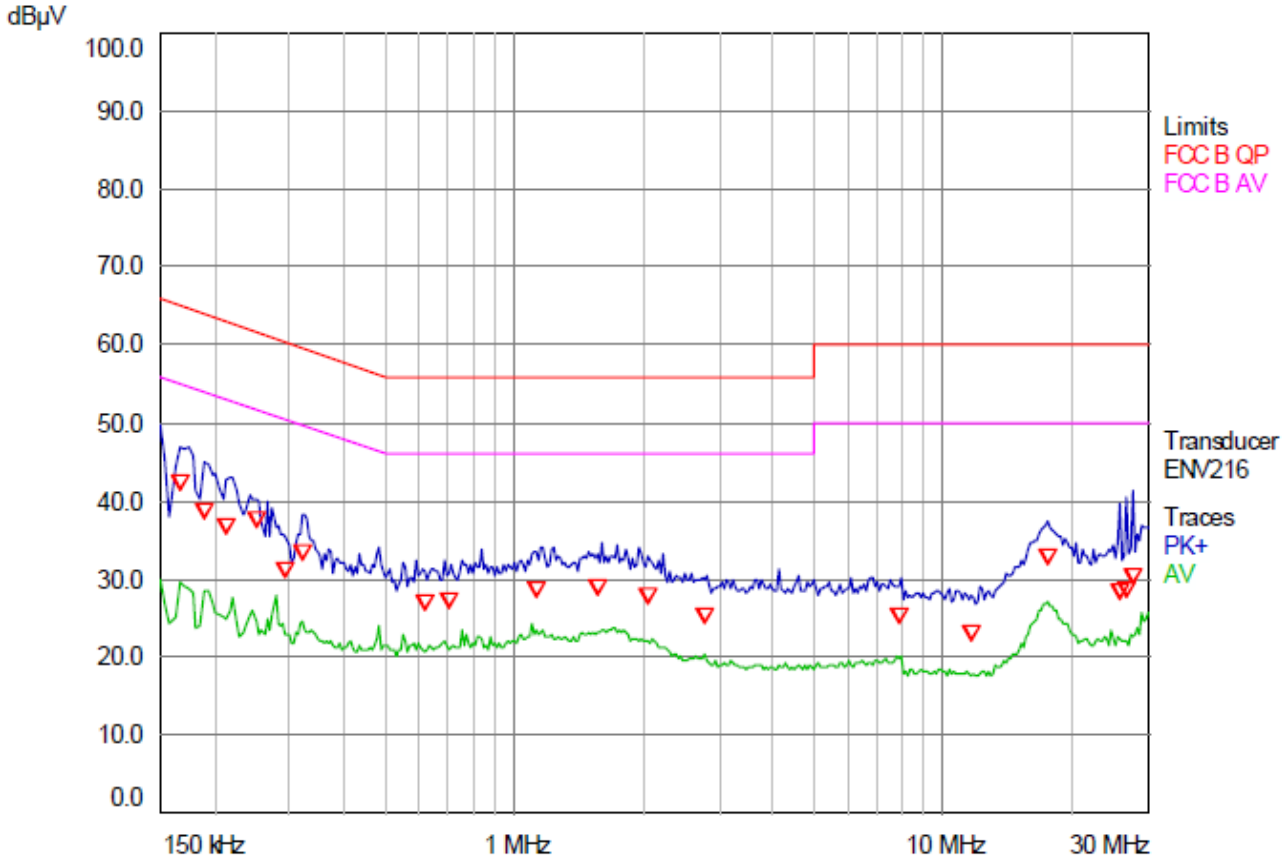
Trace	Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Delta Limit (dB)	Delta Ref (dB)	Comment
1 QP	0.158	43.21	65.57	-22.36		
1 QP	0.186	40.93	64.21	-23.28		
1 QP	0.242	37.57	62.03	-24.46		
1 QP	0.278	35.33	60.88	-25.55		
1 QP	0.338	34.34	59.25	-24.91		
1 QP	0.382	33.18	58.24	-25.06		
1 QP	0.528	40.95	56.00	-15.05		
1 QP	0.868	31.93	56.00	-24.07		
1 QP	1.472	32.21	56.00	-23.79		
1 QP	2.024	31.56	56.00	-24.44		
1 QP	2.668	30.36	56.00	-25.64		
1 QP	4.336	30.08	56.00	-25.92		
1 QP	5.764	31.74	60.00	-28.26		
1 QP	6.6	33.56	60.00	-26.44		
1 QP	7.784	34.69	60.00	-25.31		
1 QP	15.992	24.37	60.00	-35.63		
1 QP	19.228	25.45	60.00	-34.55		
1 QP	23.304	23.08	60.00	-36.92		

EDR(π/4-DQPSK)-N



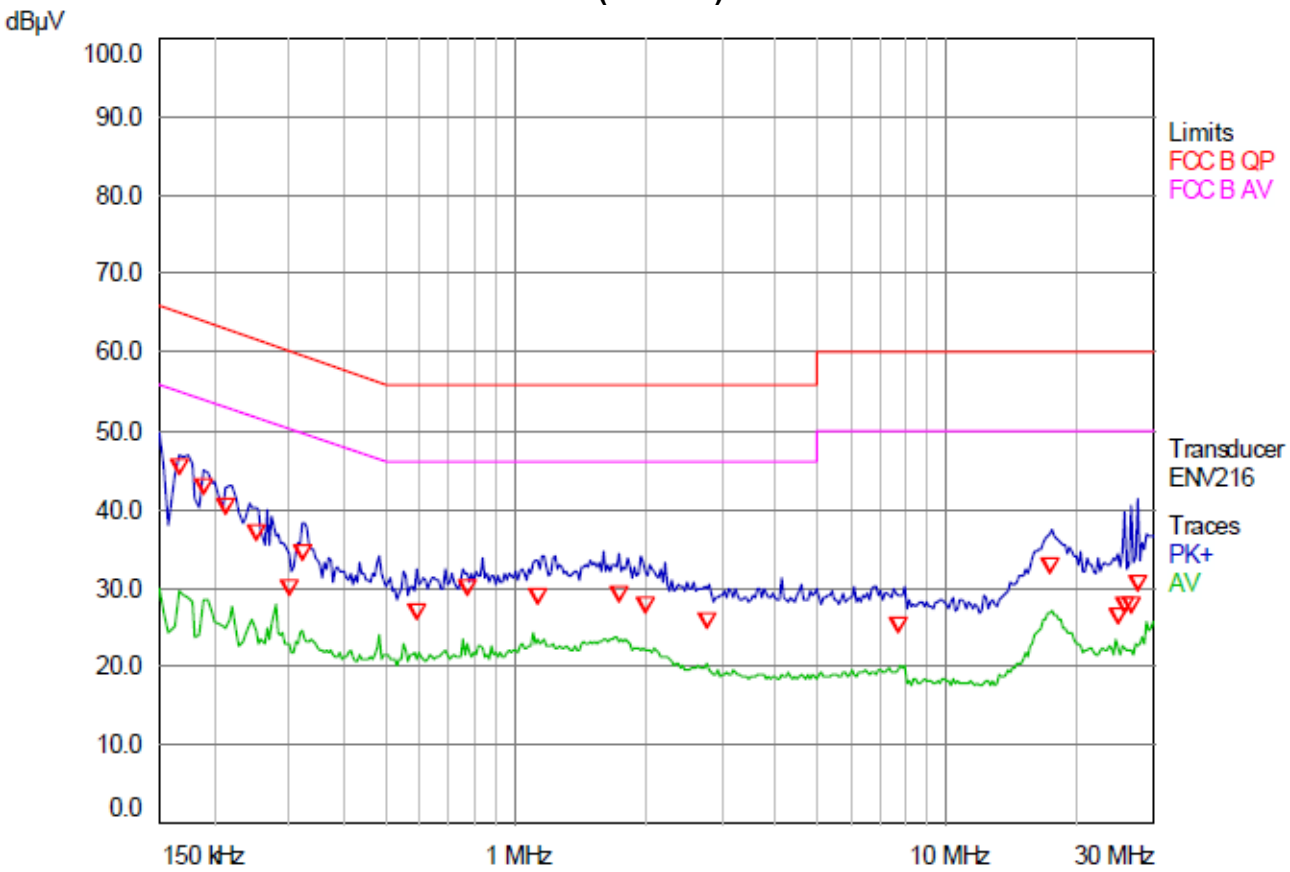
Trace	Frequency	Level	Limit	Delta Limit	Delta Ref	Comment
	(MHz)	(dBµV)	(dBµV)	(dB)	(dB)	
1 QP	0.166	43.41	65.16	-21.75		
1 QP	0.182	41.07	64.39	-23.32		
1 QP	0.218	40.33	62.89	-22.56		
1 QP	0.238	38.74	62.17	-23.43		
1 QP	0.266	36.75	61.24	-24.49		
1 QP	0.314	34.43	59.86	-25.43		
1 QP	0.524	41.36	56.00	-14.64		
1 QP	0.908	32.11	56.00	-23.89		
1 QP	1.512	32.08	56.00	-23.92		
1 QP	2.104	31.38	56.00	-24.62		
1 QP	2.58	30.39	56.00	-25.61		
1 QP	3.34	29.39	56.00	-26.61		
1 QP	6.508	33.97	60.00	-26.03		
1 QP	7.812	35.19	60.00	-24.81		
1 QP	11.72	23.18	60.00	-36.82		
1 QP	17.052	25.03	60.00	-34.97		
1 QP	19.228	26.33	60.00	-33.67		
1 QP	24.528	23.37	60.00	-36.63		

EDR(8DPSK)-H



Trace	Frequency	Level	Limit	Delta Limit	Delta Ref	Comment
	(MHz)	(dBµV)	(dBµV)	(dB)	(dB)	
1 QP	0.166	41.23	65.16	-23.93		
1 QP	0.19	37.79	64.04	-26.25		
1 QP	0.214	35.88	63.05	-27.17		
1 QP	0.25	36.63	61.76	-25.13		
1 QP	0.294	30.21	60.41	-30.20		
1 QP	0.322	32.46	59.66	-27.20		
1 QP	0.62	25.97	56.00	-30.03		
1 QP	0.704	26.27	56.00	-29.73		
1 QP	1.12	27.54	56.00	-28.46		
1 QP	1.556	27.94	56.00	-28.06		
1 QP	2.044	26.68	56.00	-29.32		
1 QP	2.768	24.34	56.00	-31.66		
1 QP	7.864	24.37	60.00	-35.63		
1 QP	11.632	22.18	60.00	-37.82		
1 QP	17.516	31.77	60.00	-28.23		
1 QP	25.62	27.38	60.00	-32.62		
1 QP	26.624	27.65	60.00	-32.35		
1 QP	27.752	29.23	60.00	-30.77		

EDR(8DPSK)-N



Trace	Frequency	Level	Limit	Delta Limit	Delta Ref	Comment
	(MHz)	(dBµV)	(dBµV)	(dB)	(dB)	
1 QP	0.166	44.47	65.16	-20.69		
1 QP	0.19	41.91	64.04	-22.13		
1 QP	0.214	39.41	63.05	-23.64		
1 QP	0.25	36.02	61.76	-25.74		
1 QP	0.298	28.93	60.30	-31.37		
1 QP	0.322	33.53	59.66	-26.13		
1 QP	0.592	26.07	56.00	-29.93		
1 QP	0.776	28.99	56.00	-27.01		
1 QP	1.12	27.85	56.00	-28.15		
1 QP	1.732	28.11	56.00	-27.89		
1 QP	2.012	26.70	56.00	-29.30		
1 QP	2.768	24.83	56.00	-31.17		
1 QP	7.728	24.24	60.00	-35.76		
1 QP	17.356	31.94	60.00	-28.06		
1 QP	24.76	25.49	60.00	-34.51		
1 QP	25.62	26.73	60.00	-33.27		
1 QP	26.624	26.93	60.00	-33.07		
1 QP	27.752	29.49	60.00	-30.51		

5.10 Antenna Application

5.10.1 Antenna Requirement

Standard	Requirement
FCC CRF Part 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Antenna Type	Frequency	Antenna Gain	Limit
Chip Antenna	2.4 GHz	1.99 dBi	≤6 dBi

5.10.2 Result

PASS