FCC 47 CFR PART 15 SUBPART C AND ANSI C63.4:2003
TEST REPORT

For

magnetU

Model : magnetU

Trade Name : magnetU

Issued for

MAGNETU MOBILE LTD.

66 Har Tavor St.,Kfar Sava, Israel, 44539

Issued by

Compliance Certification Services Inc.
Hsinchu Lab.
NO. 989-1 Wen Shan Rd., Shang Shan Village,
Qionglin Shiang Hsinchu County 30741, Taiwan, R.O.C
TEL: +886-3-5921698
FAX: +886-3-5921108

http://www.ccsrf.com
E-Mail : service@ccsrf.com

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	11/09/2011	Initial Issue	All Page 110	Cindy Pon

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1. TEST REPORT CERTIFICATION

Applicant	：	MAGNETU MOBILE LTD.
Address	：	66 Har Tavor St.,Kfar Sava, Israel, 44539
Equipment Under Test	：	magnetU
Model	：	magnetU
Trade Name	：	magnetU
Tested Date	：	October 25 ~ November 09, 2011

APPLICABLE STANDARD	
Standard	**Test Result**
FCC Part 15 Subpart C AND ANSI C63.4:2003	PASS

WE HEREBY CERTIFY THAT: The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Sb. Lu
Sr. Engineer

Reviewed by:

Gundam Lin
Sr. Engineer

2. EUT DESCRIPTION

Product Name	magnetU
Model Number	magnetU
Identify Number	T111025301
Received Date	October 25, 2011
Frequency Range	Bluetooth : 2402MHz ~ 2480MHz f = 2402 + nMHz, n = 0, …..78 Zigbee : 2405MHz ~ 2480MHz f = 2405 + (n-11)MHz, n = 11, …..26
Transmit Power	Bluetooth : 4.53 dBm (0.0028W) Zigbee : 4.13 dBm (0.0026W)
Channel Spacing	Bluetooth : 1MHz Zigbee : 5MHz
Channel Number	Bluetooth : 79 Channels Zigbee : 16 Channels
Transmit Data Rate	Bluetooth : GFSK (1Mbps), π/4-DQPSK (2Mbps), 8-DPSK (3Mbps) Zigbee : 250kbps
Type of Modulation	Bluetooth : Frequency Hopping Spread Spectrum Zigbee : OQPSK
Frequency Selection	by software / firmware
Transmitter Classification	portable device
Antenna Type	Bluetooth : Multilayer Chip Antenna, Antenna Gain : 0 dBi Zigbee : SMD type Antenna, Antenna Gain : 4.1 dBi
Power Rating	3.7Vdc (Battery Powered) 5.0Vdc (From Notebook PC, Powered From Host Device)
Test Voltage	120Vac/60Hz
DC Power Cable Type	Shielded USB cable, 0.5m × 1 (detachable)
RF Exposure Evaluation	Since the EUT is classed portable device, and the maximum peak power is 4.53 dBm (<13.6dBm), the MPE evaluation is not required and no SAR consideration applied.
I/O Port	Micro USB port × 1

Remark :

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *For more details, please refer to the User's manual of the EUT.*
3. *This submittal(s) (test report) is intended for FCC ID: Z9K-MAGNETU filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.*

3. DESCRIPTION OF TEST MODES

The EUT (magnetU) had been tested under operating condition.

Conducted Emission / Radiated Emission Test (Below 1 GHz)

Normal Mode

Bluetooth

There are three channels have been tested as following :

Channel	Frequency (MHz)
Low	2402
Middle	2441
High	2480

Radiated Emission Test (Above 1 GHz):

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

Tested Channel	Modulation Technology	Modulation Type	Packet Type
Low, Mid, High	FHSS	GFSK	DH5
Low, Mid, High	FHSS	8-DPSK	3-DH5

Bandedge Measurement :

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

Tested Channel	Modulation Technology	Modulation Type	Packet Type
Low, High	FHSS	GFSK	DH5
Low, High	FHSS	8-DPSK	3-DH5

Antenna Port Conducted Measurement :

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

Tested Channel	Modulation Technology	Modulation Type	Packet Type
Low, Mid, High	FHSS	GFSK	DH5
Low, Mid, High	FHSS	8-DPSK	3-DH5

Remark：*The field strength of spurious emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in stand-up position(Z axis) and the worst case was recorded.*

Zigbee

Conducted / Radiated Emission Test (Above 1 GHz)

There are three channels have been tested as following :

Channel	Frequency (MHz)
Low	2405
Middle	2440
High	2480

Remark：*1. 250kbps data rate (worst case) were chosen for full testing.*

2. The field strength of spurious emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(X axis) and the worst case was recorded.

4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4: 2003 and FCC CFR 47, 15.207, 15.209 and 15.247.

5. FACILITIES AND ACCREDITATION

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

NO. 989-1 Wen Shan Rd., Shang Shan Village,
Qionglin Shiang Hsinchu County 30741, Taiwan, R.O.C

The sites are constructed in conformance with the requirements of ANSI C63.4:2003 and CISPR 22. All receiving equipment conforms to CISPR 16-1-1, CISPR 16-1-2, CISPR 16-1-3, CISPR 16-1-4, CISPR 16-1-5.

5.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Taiwan	TAF

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	INDUSTRY CANADA
Japan	VCCI
Taiwan	BSMI
USA	FCC MRA

Copies of granted accreditation certificates are available for downloading from our web site, http:///www.ccsrf.com

5.3 MEASUREMENT UNCERTAINTY

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4-2.

PARAMETER	UNCERTAINTY
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 30 to 1000 MHz	+/- 3.5189
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 1 to 18GHz	+/- 2.5164
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 18 to 26 GHz	+/- 2.4967
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 26 to 40 GHz	+/- 2.7655
Conducted Emission (Mains Terminals), 9kHz to 30MHz	+/- 1.5923

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Consistent with industry standard (e.g. CISPR 22: 2006, clause 11, Measurement Uncertainty) determining compliance with the limits shall be base on the results of the compliance measurement. Consequently the measure emissions being less than the maximum allowed emission result in this be a compliant test or passing test.

The acceptable measurement uncertainty value without requiring revision of the compliance statement is base on conducted and radiated emissions being less than U_{CISPR} which is 3.6dB and 5.2dB respectively. CCS values (called U_{Lab} in CISPR 16-4-2) is less than U_{CISPR} as shown in the table above. Therefore, MU need not be considered for compliance.

6. SETUP OF EQUIPMENT UNDER TEST

SUPPORT EQUIPMENT

No.	Product	Manufacturer	Model No.	Serial No.	FCC ID
1	Notebook PC	DELL	Latitude D610 PP01L	CN-0XD762-48643-637-1743	DoC
2	-----	MAGNETU MOBILE LTD.	magnetU	-----	-----
3	Mobile phone	SAMSUNG	SGH-E908	R4VP270982E	-----

SETUP DIAGRAM FOR TESTS

EUT & peripherals setup diagram is shown in appendix setup photos.

EUT OPERATING CONDITION

RF Mode:

Bluetooth

1. Setup all computers like the setup diagram.
2. Run CSR Blue Test software.
3. TX mode(GFSK)
   TXDATA1
   LO Freq: 2402, 2441, 2480
   Power (EXT, Int): 255, 63
   CFG PKT, Packet Type: 15
   Packet Size: 339
   CFG FREQ TX/RX interval(uSec): 6250
   TX mode (8-DPSK)
   TXDATA1
   LO Freq: 2402, 2441, 2480
   Power (EXT, Int): 255, 105
   CFG PKT, Packet Type: 31
   Packet Size: 1021
   CFG FREQ TX/RX interval(uSec): 6250

4. All of the functions are under run.
5. Start test.

Zigbee

1. Set up all computers like the setup diagram.
2. Power on all equipments.
   HyperTerminal
   TX Mode:
   ⇨ Tx Data Rate: 250kbps
   ⇨ Select channel:
   Channel Low (2405MHz)
   Channel Mid (2440MHz)
   Channel High (2480MHz)
3. All of the functions are under run.
4. Start test.

Normal Mode:

1. Setup all computers like the setup diagram.
2. Power on all equipments.
3. Make a connection both with EUT and Mobile Phone.
4. All of the functions are under run.
5. Start test.

7. FCC PART 15.247 REQUIREMENTS (BLUETOOTH)

7.1 20dB BANDWIDTH FOR HOPPING

LIMITS

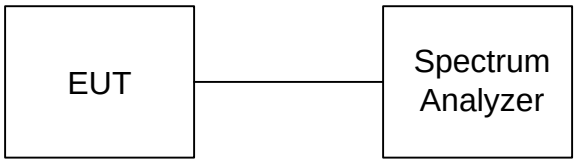
Limit : N/A

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

The 20dB band width was measured with a spectrum analyzer connected to RF antenna connector(conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency. The analyzer center frequency was set to the EUT carrier frequency, using the analyzer. Display Line and Marker Delta functions, the 20dB band width of the emission was determined.

TEST RESULTS

Modulation Type: GFSK, CFG PKT Packet Type: 15 Packet Size: 339 (DH5)

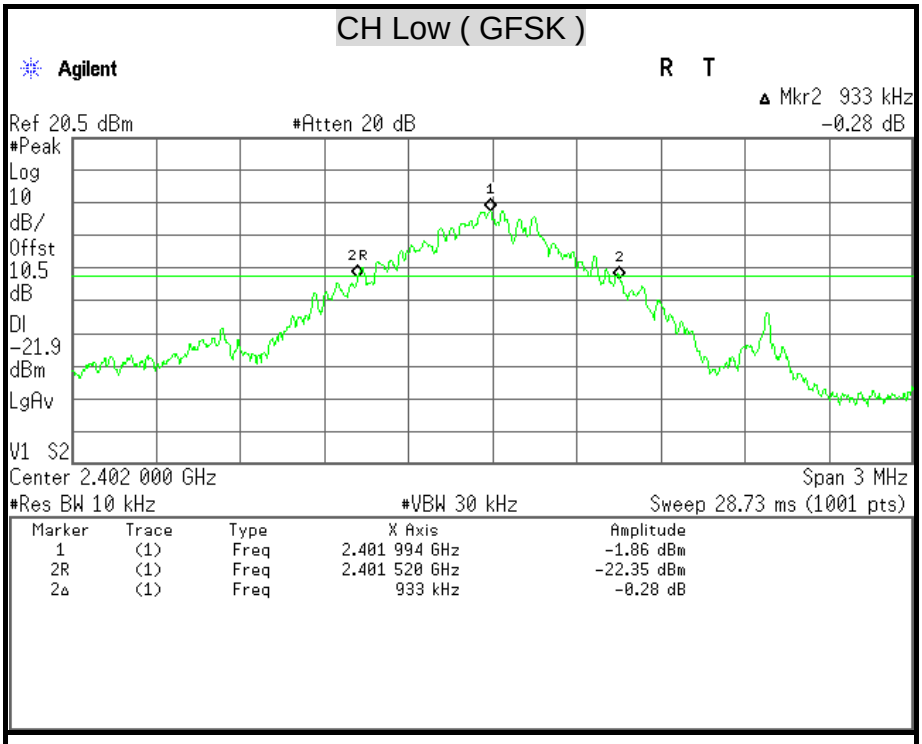
Channel	Channel Frequency (MHz)	20dB Bandwidth (MHz)	Result
Low	2402	0.933	N/A
Middle	2441	0.930	N/A
High	2480	0.927	N/A

Modulation Type: 8-DPSK, CFG PKT Packet Type: 31 Packet Size: 1021 (3-DH5)

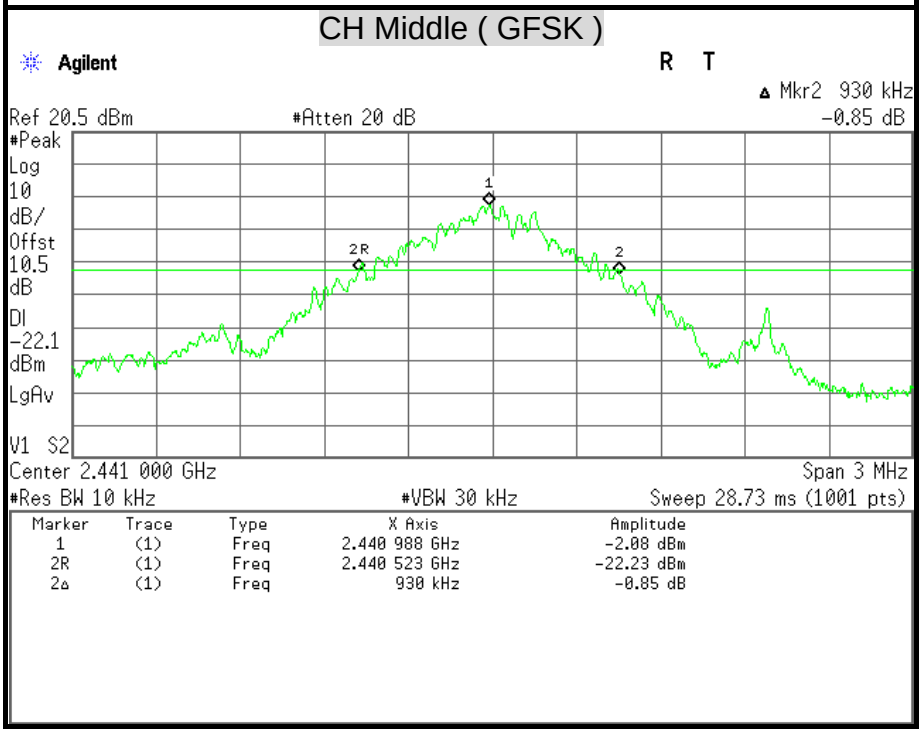
Channel	Channel Frequency (MHz)	20dB Bandwidth (MHz)	Result
Low	2402	1.280	N/A
Middle	2441	1.265	N/A
High	2480	1.255	N/A

20dB BANDWIDTH

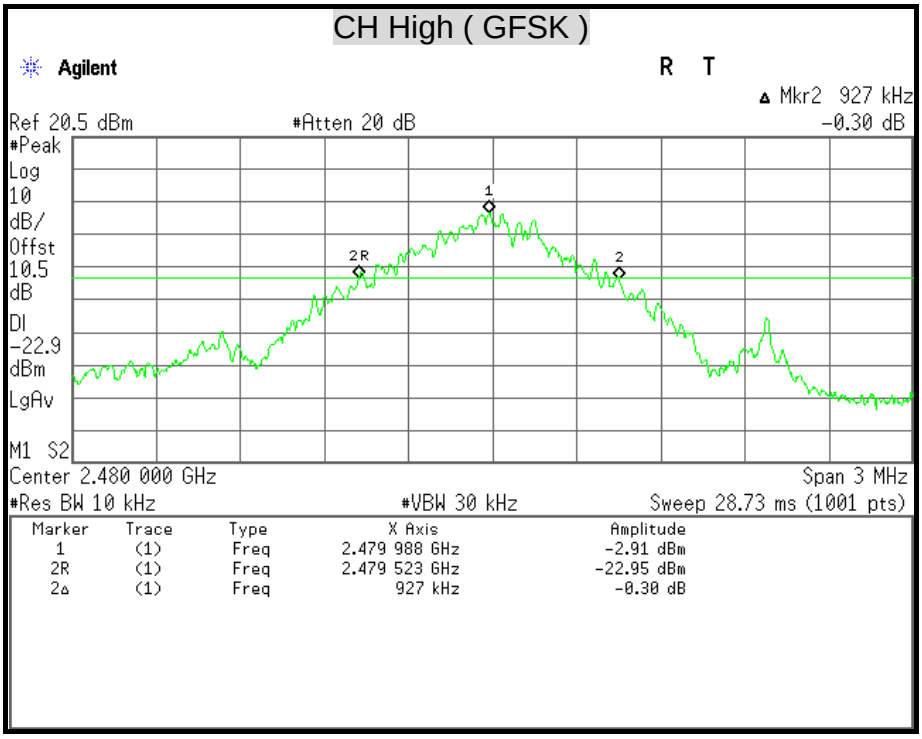
CH Low (GFSK)



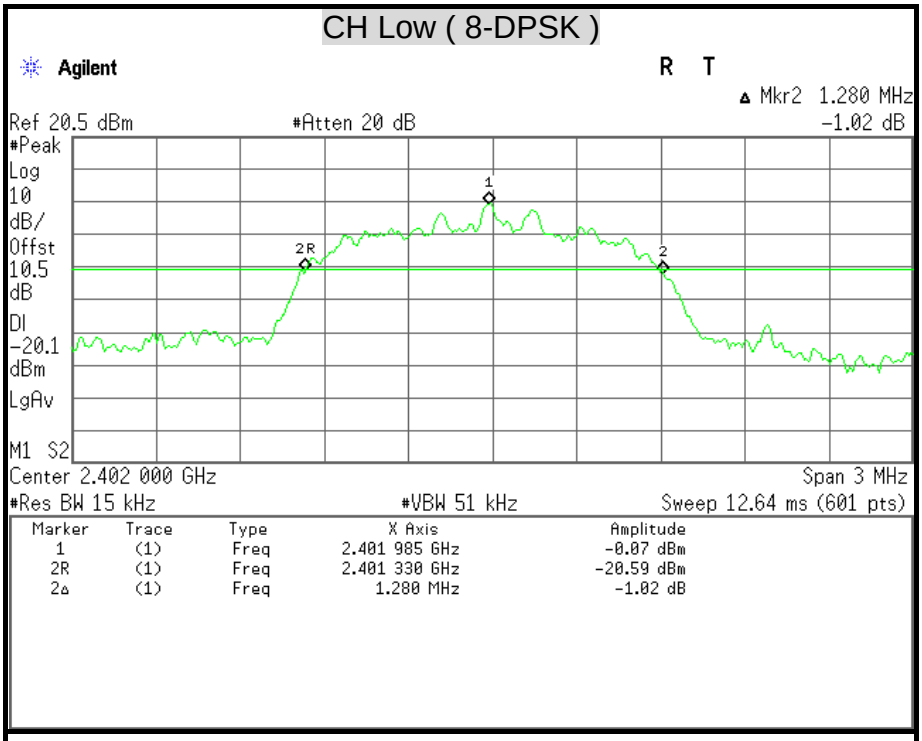
CH Middle (GFSK)



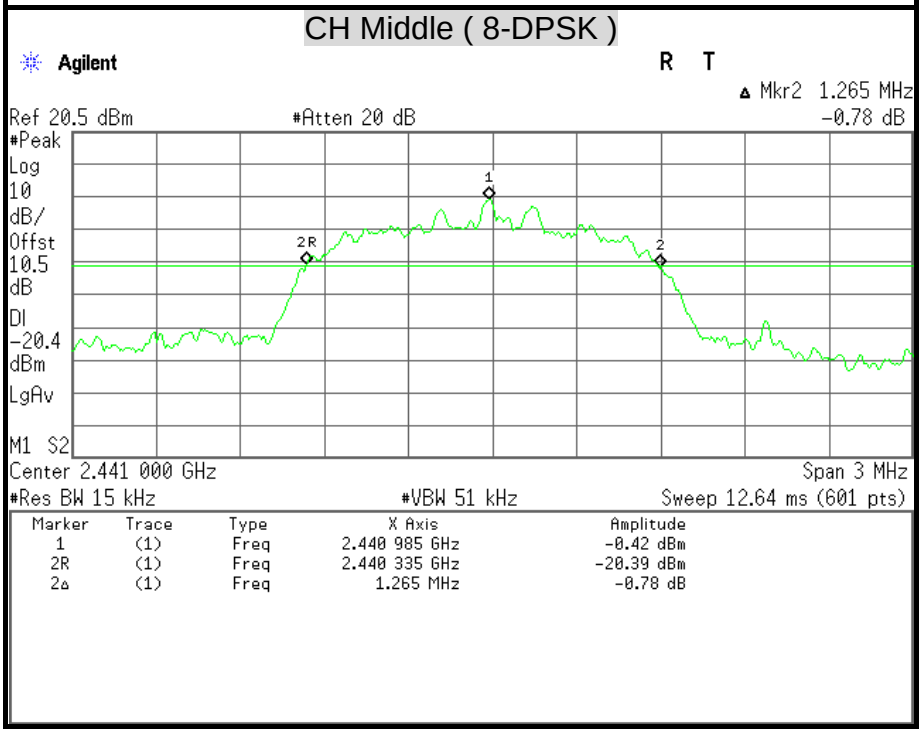
CH High (GFSK)



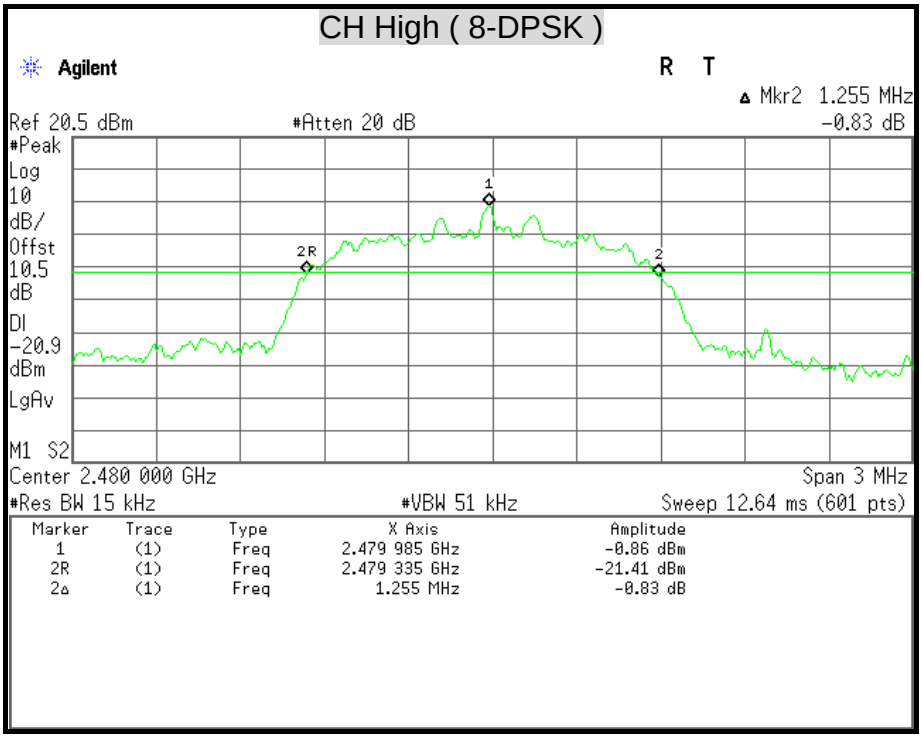
CH Low (8-DPSK)



CH Middle (8-DPSK)



CH High (8-DPSK)



7.2 MAXIMUM PEAK OUTPUT POWER

LIMITS

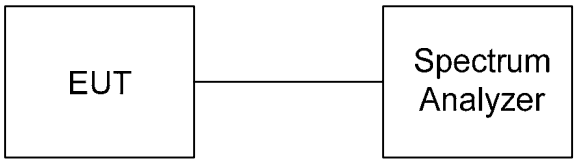
§15.247(b)(1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

The RF power output was measured with a spectrum analyzer connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency, a spectrum analyzer was used to record the shape of the transmit signal.

TEST RESULTS

Modulation Type: GFSK ,CFG PKT Packet Type: 15 Packet Size: 339 (DH5)

Channel	Channel Frequency (MHz)	Peak Power		Peak Power Limit		Result
		(dBm)	(W)	(dBm)	(W)	
Low	2402	3.51	0.0022	20.97	0.125	PASS
Middle	2441	4.41	0.0028	20.97	0.125	PASS
High	2480	4.53	0.0028	20.97	0.125	PASS

Remark: *The cable assembly insertion loss of 10.5dB (including 10 dB pad and 0.5 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.*

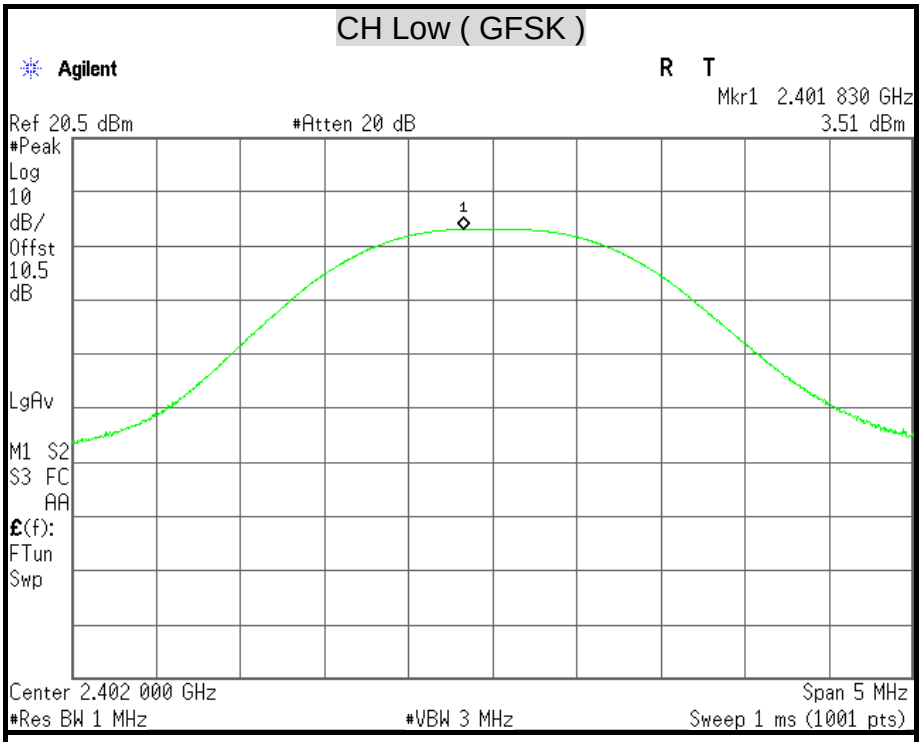
Modulation Type: 8-DPSK ,CFG PKT Packet Type: 31 Packet Size: 1021 (3-DH5)

Channel	Channel Frequency (MHz)	Peak Power		Peak Power Limit		Result
		(dBm)	(W)	(dBm)	(W)	
Low	2402	2.12	0.0016	20.97	0.125	PASS
Middle	2441	2.65	0.0018	20.97	0.125	PASS
High	2480	2.56	0.0018	20.97	0.125	PASS

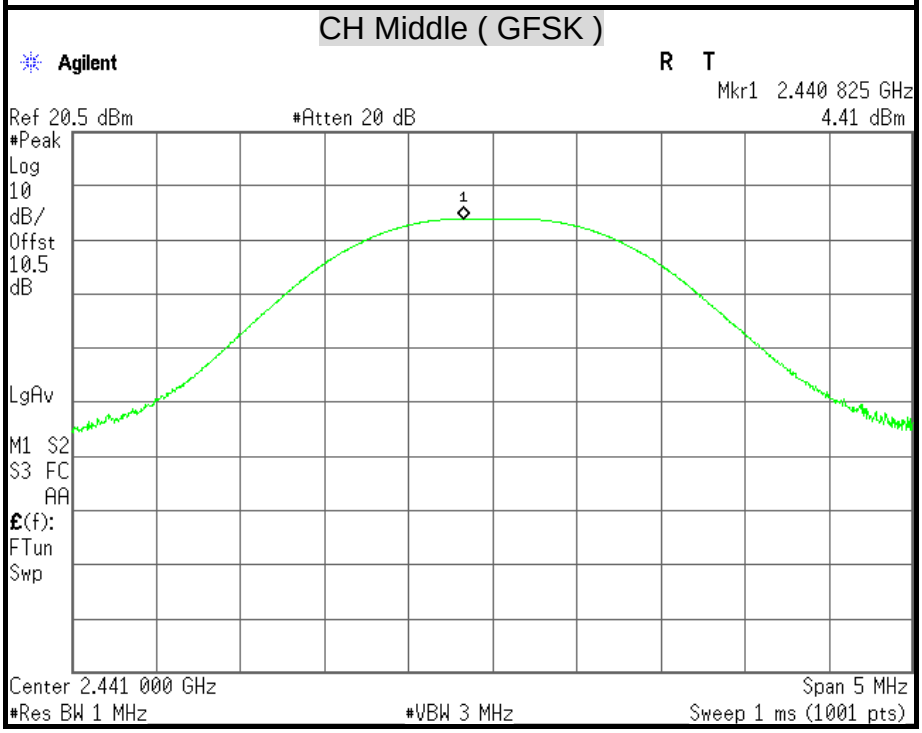
Remark: *The cable assembly insertion loss of 10.5dB (including 10 dB pad and 0.5 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.*

MAXIMUM PEAK OUTPUT POWER

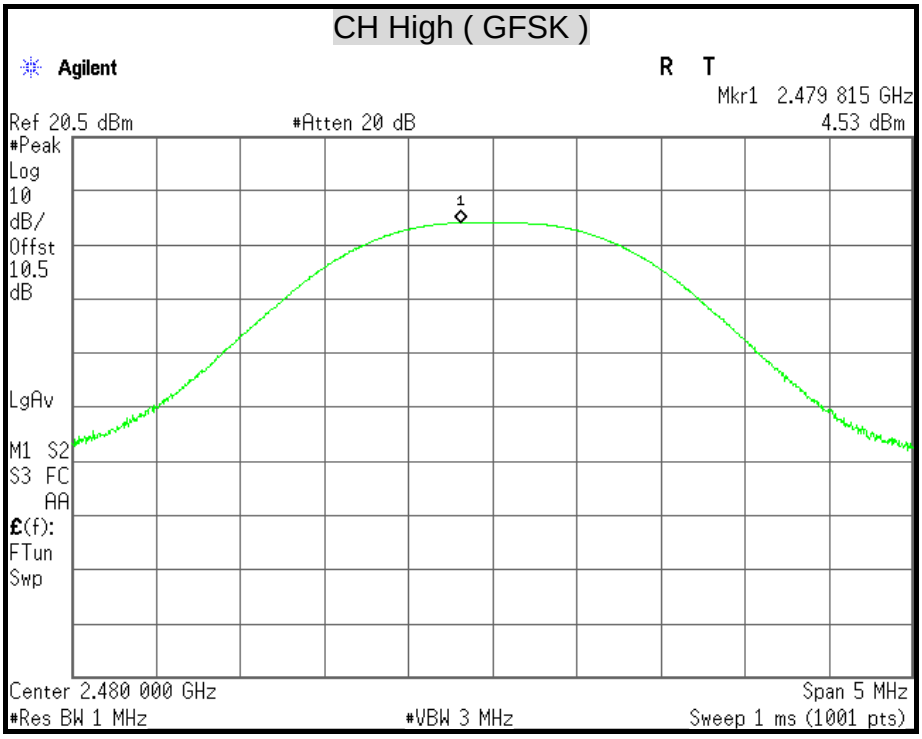
CH Low (GFSK)



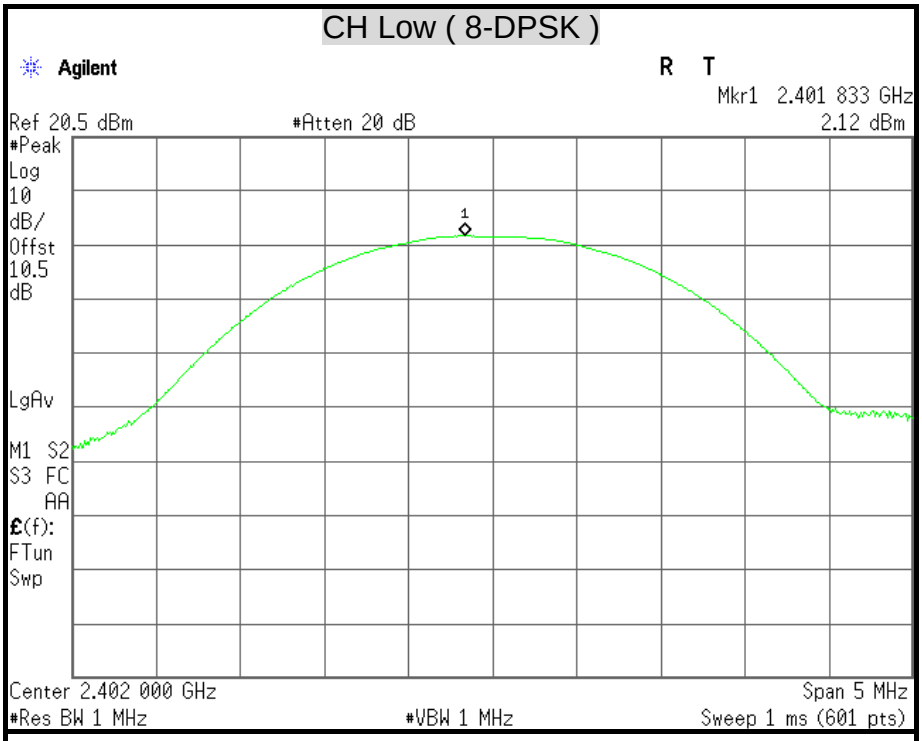
CH Middle (GFSK)



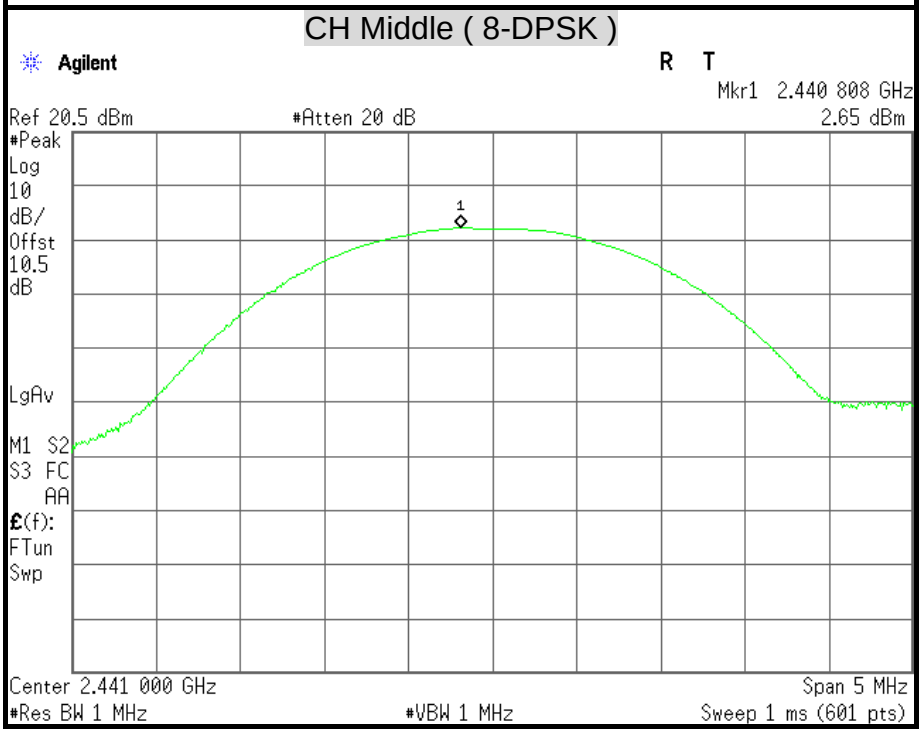
CH High (GFSK)



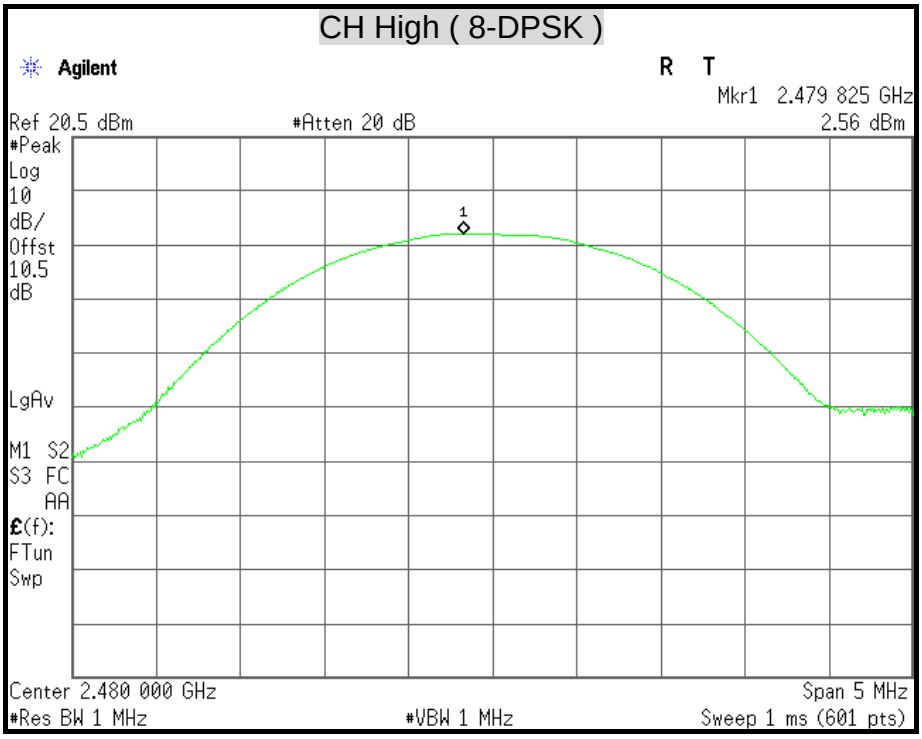
CH Low (8-DPSK)



CH Middle (8-DPSK)



CH High (8-DPSK)



7.3 HOPPING CHANNEL SEPARATION

LIMITS

§15.247(a)(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. 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 pseudorandomly 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.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in test setup without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
3. By using the MaxHold function record the separation of adjacent channels.
4. Measure the frequency difference of these two adjacent channels by spectrum analyzer MARK function. And then plot the result on spectrum analyzer screen.
5. Repeat above procedures until all frequencies measured were complete.

TEST RESULTS

Refer to section 8.1, 20dB bandwidth measurement, the measured channel separation should be greater than two-third of 20dB bandwidth or Minimum bandwidth.

Modulation Type: GFSK, CFG PKT Packet Type: 15 Packet Size: 339 (DH5)

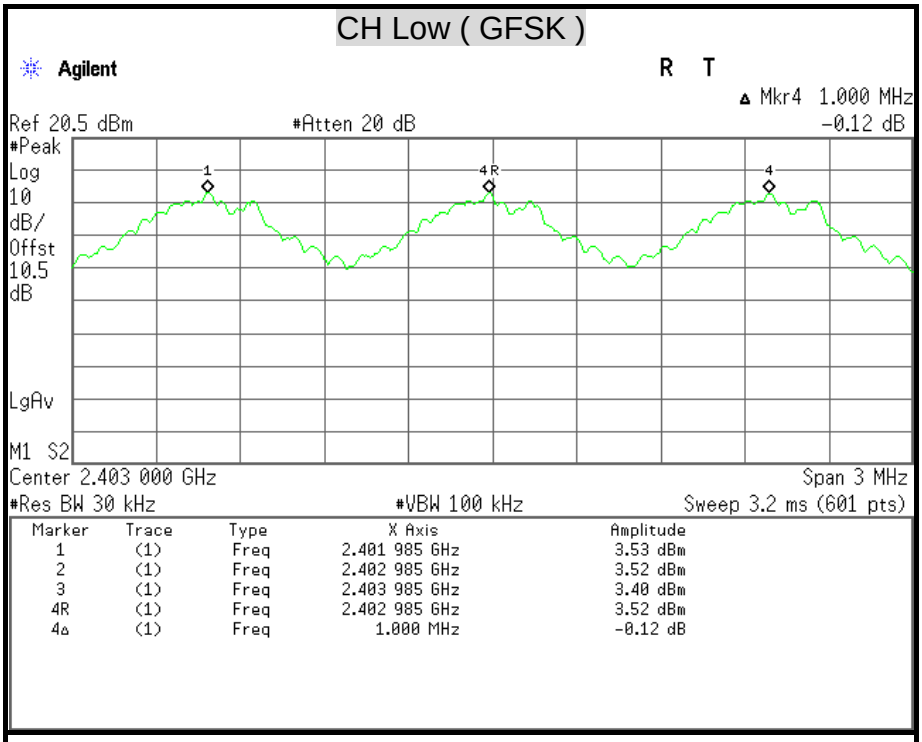
Channel	Channel Frequency (MHz)	Adjacent Hopping Channel Separation (kHz)	Two –third of 20dB bandwidth (kHz)	Minimum Bandwidth	Result
Low	2402	1000	622.00	25 kHz	PASS
Middle	2441	1000	620.00	25 kHz	PASS
High	2480	1000	618.00	25 kHz	PASS

Modulation Type: 8-DPSK, CFG PKT Packet Type: 31 Packet Size: 1021 (3-DH5)

Channel	Channel Frequency (MHz)	Adjacent Hopping Channel Separation (kHz)	Two –third of 20dB bandwidth (kHz)	Minimum Bandwidth	Result
Low	2402	1000	853.33	25 kHz	PASS
Middle	2441	1000	843.33	25 kHz	PASS
High	2480	1000	836.67	25 kHz	PASS

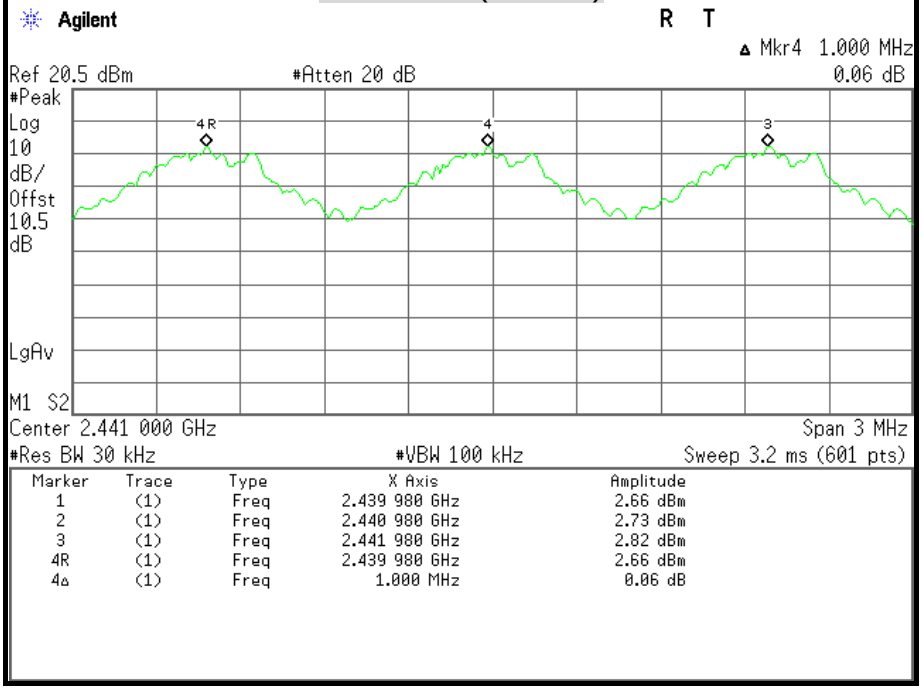
HOPPING CHANNEL SEPARATION

CH Low (GFSK)



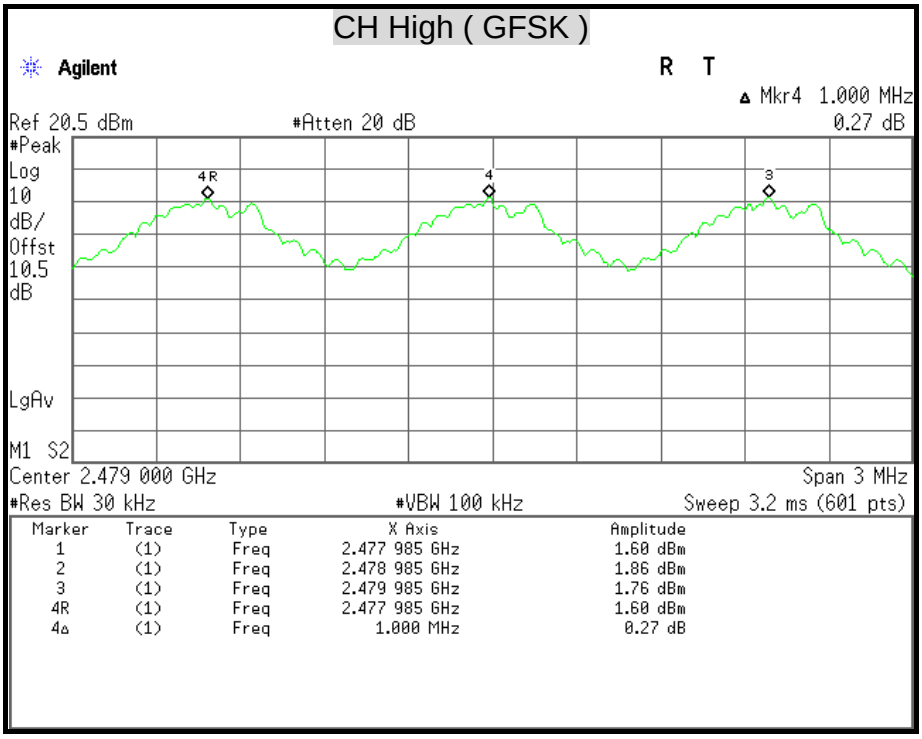
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.401 985 GHz	3.53 dBm
2	(1)	Freq	2.402 985 GHz	3.52 dBm
3	(1)	Freq	2.403 985 GHz	3.40 dBm
4R	(1)	Freq	2.402 985 GHz	3.52 dBm
4Δ	(1)	Freq	1.000 MHz	-0.12 dB

CH Middle (GFSK)



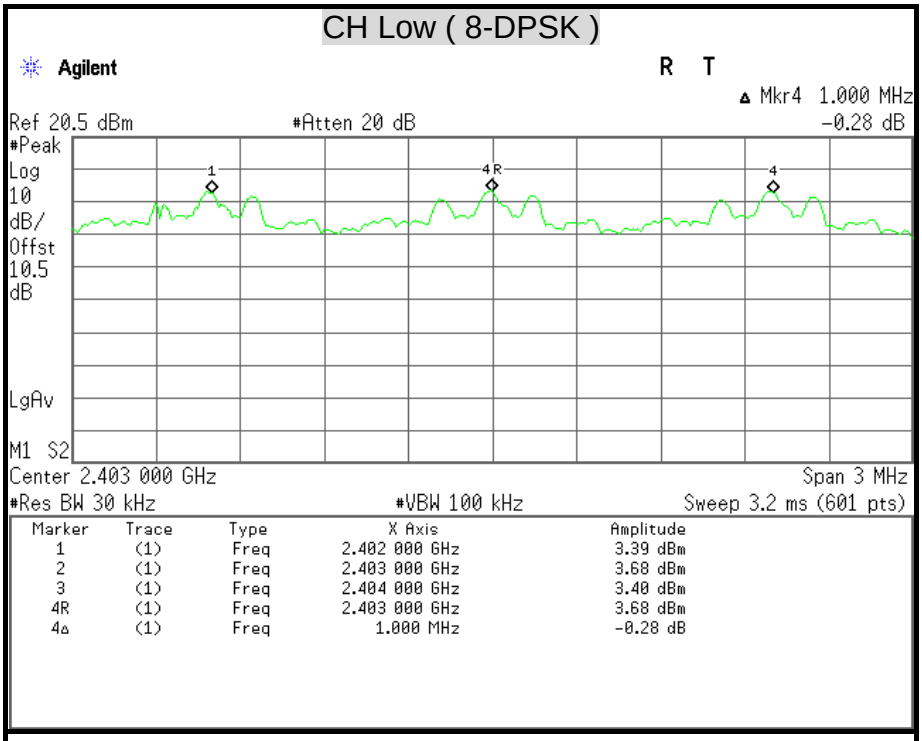
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.439 980 GHz	2.66 dBm
2	(1)	Freq	2.440 980 GHz	2.73 dBm
3	(1)	Freq	2.441 980 GHz	2.82 dBm
4R	(1)	Freq	2.439 980 GHz	2.66 dBm
4Δ	(1)	Freq	1.000 MHz	0.06 dB

CH High (GFSK)

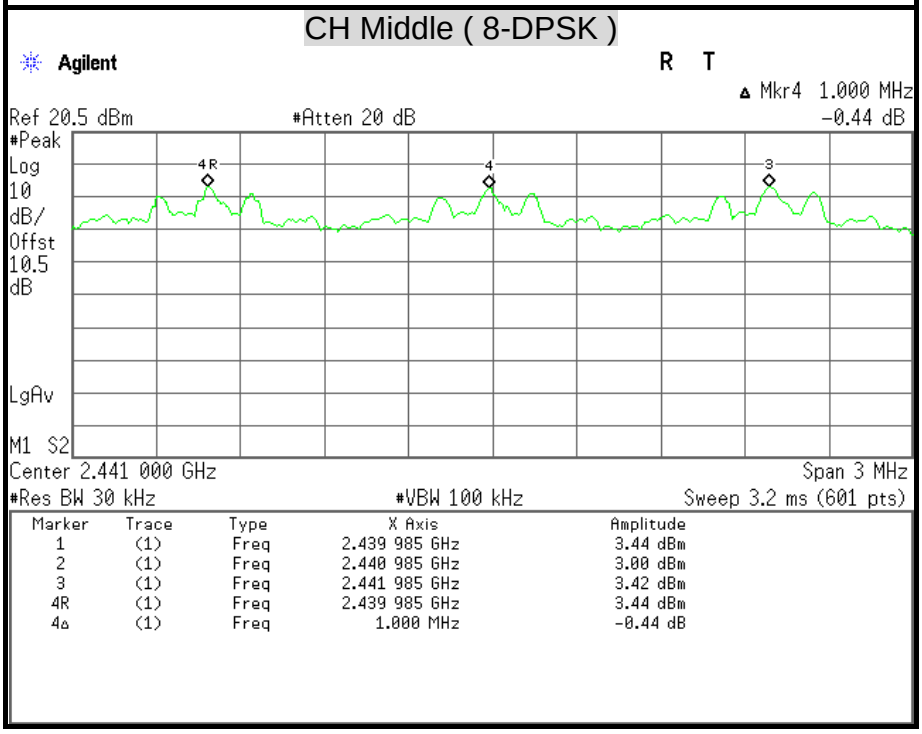


Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.477 985 GHz	1.60 dBm
2	(1)	Freq	2.478 985 GHz	1.86 dBm
3	(1)	Freq	2.479 985 GHz	1.76 dBm
4R	(1)	Freq	2.477 985 GHz	1.60 dBm
4Δ	(1)	Freq	1.000 MHz	0.27 dB

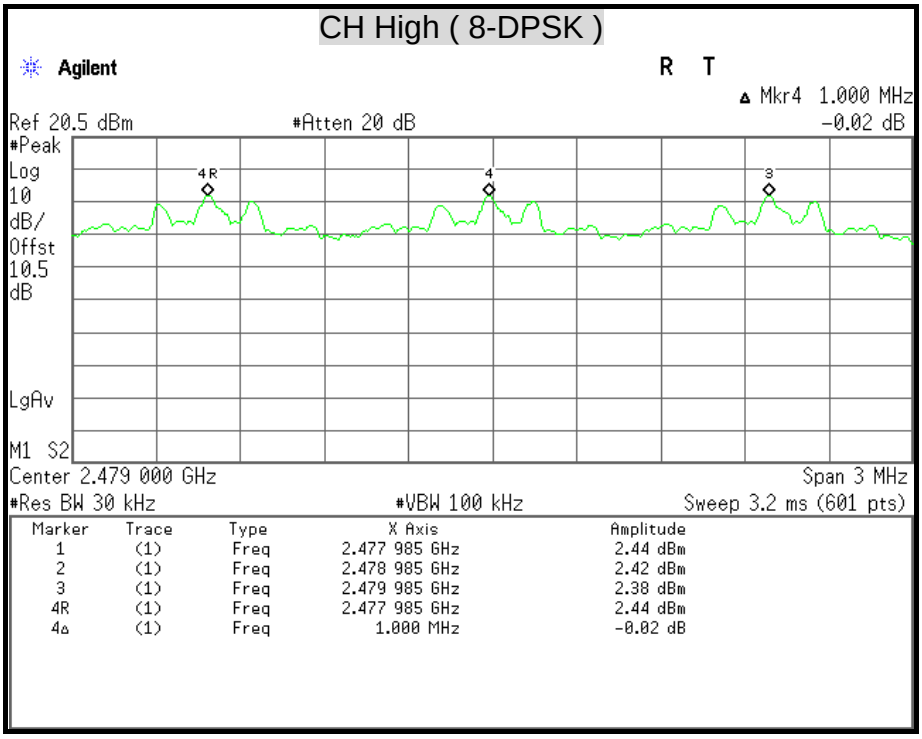
CH Low (8-DPSK)



CH Middle (8-DPSK)



CH High (8-DPSK)



7.4 NUMBER OF HOPPING FREQUENCY USED

LIMITS

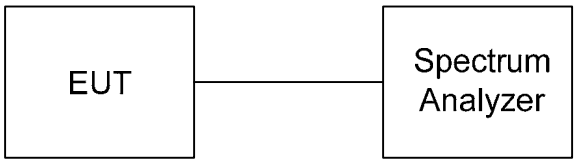
§15.247(a)(1)(iii) For frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



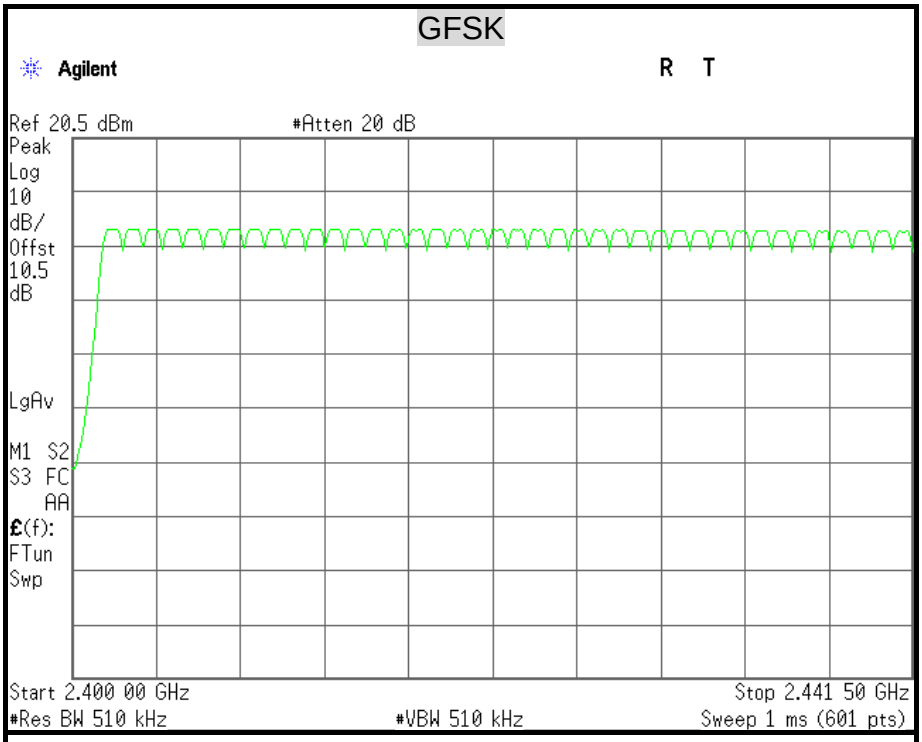
TEST PROCEDURE

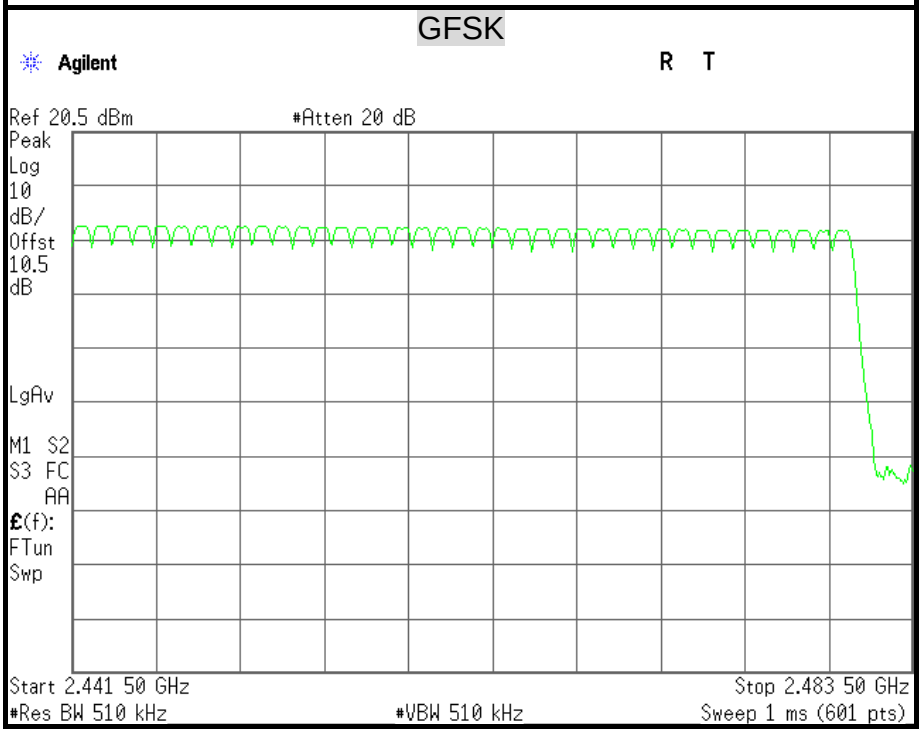
1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in test setup without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set the spectrum analyzer on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
4. Set the spectrum analyzer on View mode and then plot the result on spectrum analyzer screen.
5. Repeat above procedures until all frequencies measured were complete.

TEST RESULTS

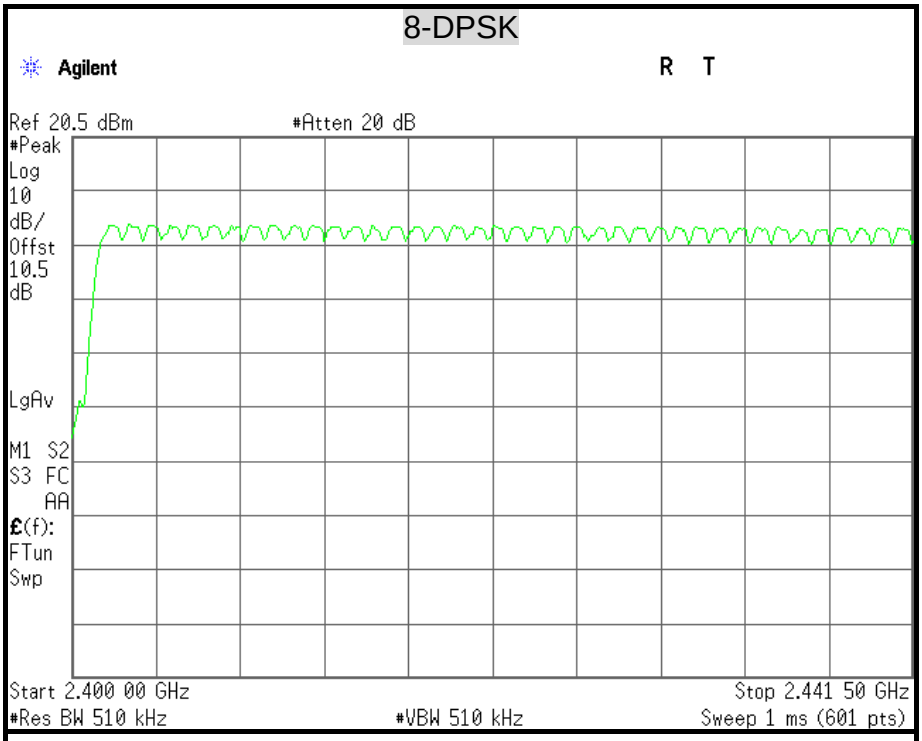
Refer to the attached plot.
There are 79 hopping frequencies in a hopping sequence.

NUMBER OF HOPPING FREQUENCY USED

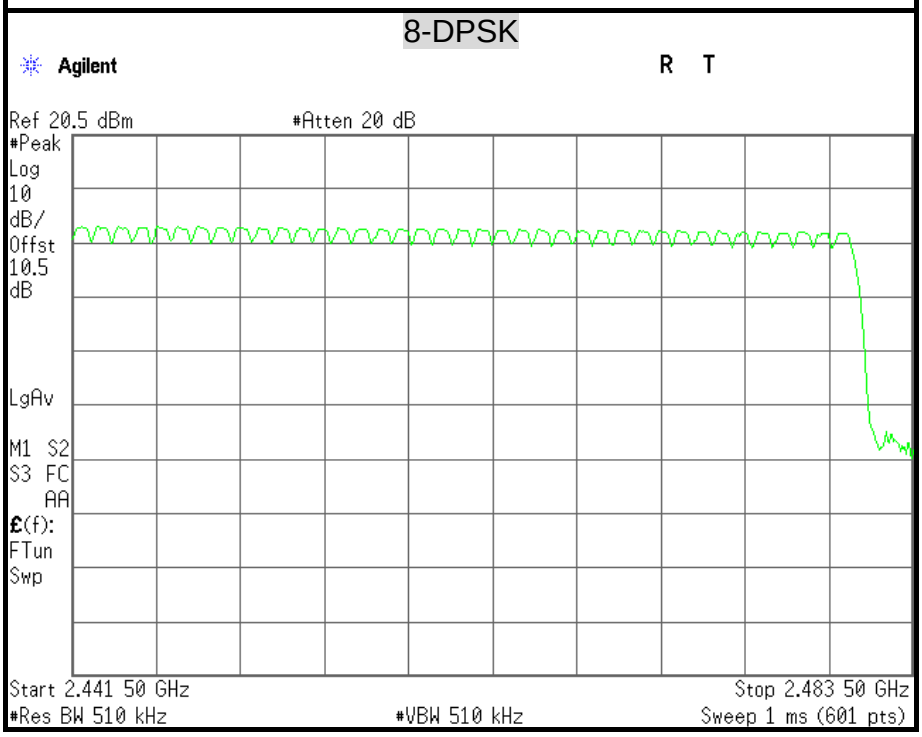




8-DPSK



8-DPSK



7.5 DWELL TIME ON EACH CHANNEL

LIMITS

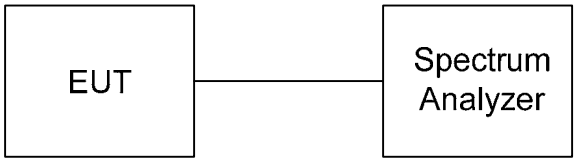
§15.247(a)(1)(iii) For frequency hopping system operating in the 2400-2483.5MHz band, the average time of occupancy on any frequency shall not be greater than 0.4 second within a 31.6 second period.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in test setup without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of spectrum analyzer on any frequency be measured and set spectrum analyzer to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
4. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
5. Repeat above procedures until all frequencies measured were complete.
6. The EUT has 3 type of payload, DH1, DH3, DH5. The hopping rate is 1600 per second. The longer the payload is, the slower the hopping rate is.

TEST RESULTS

Time of occupancy on the TX channel in 31.6sec = time domain slot length × hop rate ÷ number of hop per channel × 31.6

Refer to the attached graph.

The hopping rates of Bluetooth devices change with different types of payload. The longer the payload is, the slower the hopping rate. The hopping rate scenario is defined in Bluetooth core specification.

Modulation Type: GFSK, CFG PKT Packet Type: 15 Packet Size: 339 (DH5)

Channel	Channel Frequency (MHz)	Packet type	Dwell time (ms)	Time of occupancy on the TX channel in 31.6sec (ms)	Limit for Time of occupancy on the TX channel in 31.6sec (ms)	Results
Low	2402	DH1	0.40	128.00	400	PASS
	2402	DH3	1.65	264.00	400	PASS
	2402	DH5	2.90	309.33	400	PASS
Middle	2441	DH1	0.40	128.00	400	PASS
	2441	DH3	1.65	264.00	400	PASS
	2441	DH5	2.90	309.33	400	PASS
High	2480	DH1	0.40	128.00	400	PASS
	2480	DH3	1.65	264.00	400	PASS
	2480	DH5	2.90	309.33	400	PASS

Remark:

Ch Low
DH1 Dwell time = 0.40 ms × (1600÷2) ÷ 79 × 31.6 = 128.00 (ms)
DH3 Dwell time = 1.65 ms × (1600÷4) ÷ 79 × 31.6 = 264.00 (ms)
DH5 Dwell time = 2.90 ms × (1600÷6) ÷ 79 × 31.6 = 309.33 (ms)
Ch Middle
DH1 Dwell time = 0.40 ms × (1600÷2) ÷ 79 × 31.6 = 128.00 (ms)
DH3 Dwell time = 1.65 ms × (1600÷4) ÷ 79 × 31.6 = 264.00 (ms)
DH5 Dwell time = 2.90 ms × (1600÷6) ÷ 79 × 31.6 = 309.33 (ms)
Ch High
DH1 Dwell time = 0.40 ms × (1600÷2) ÷ 79 × 31.6 = 128.00 (ms)
DH3 Dwell time = 1.65 ms × (1600÷4) ÷ 79 × 31.6 = 264.00 (ms)
DH5 Dwell time = 2.90 ms × (1600÷6) ÷ 79 × 31.6 = 309.33 (ms)

Modulation Type: 8-DPSK, CFG PKT Packet Type: 31 Packet Size: 1021 (3-DH5)

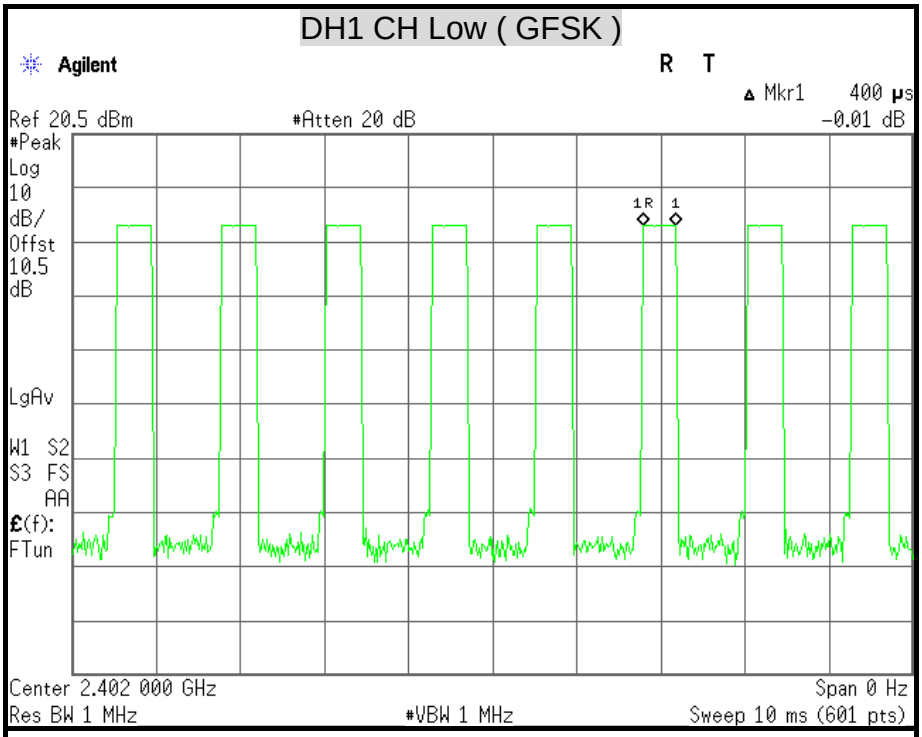
Channel	Channel Frequency (MHz)	Packet type	Dwell time (ms)	Time of occupancy on the TX channel in 31.6sec (ms)	Limit for Time of occupancy on the TX channel in 31.6sec (ms)	Results
Low	2402	DH1	0.40	128.00	400	PASS
	2402	DH3	1.65	264.00	400	PASS
	2402	DH5	2.90	309.33	400	PASS
Middle	2441	DH1	0.40	128.00	400	PASS
	2441	DH3	1.65	264.00	400	PASS
	2441	DH5	2.90	309.33	400	PASS
High	2480	DH1	0.40	128.00	400	PASS
	2480	DH3	1.65	264.00	400	PASS
	2480	DH5	2.90	309.33	400	PASS

Remark:

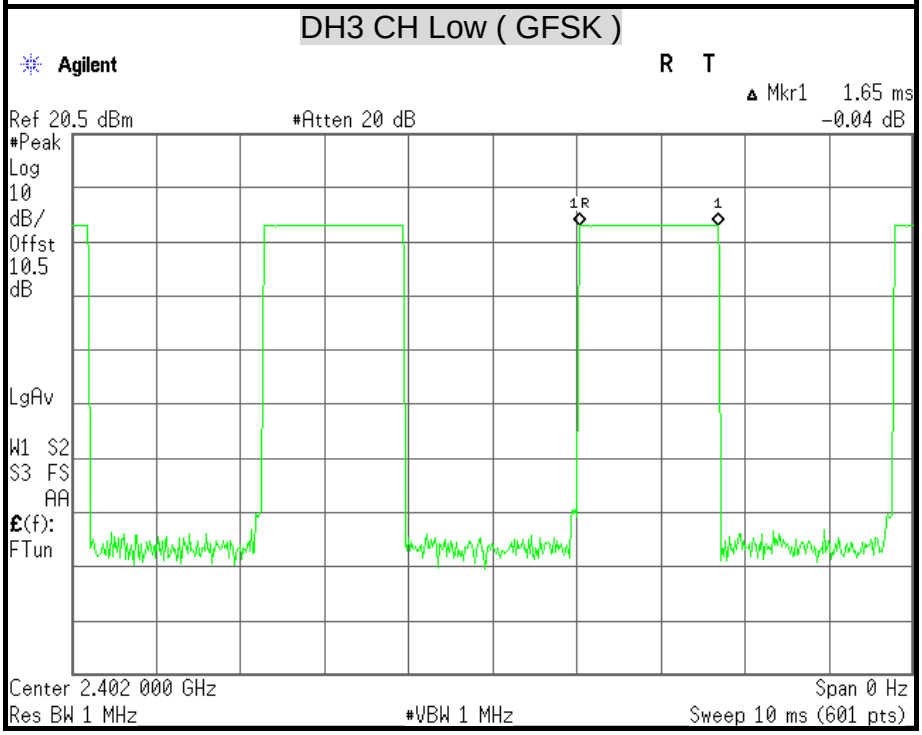
Ch Low
DH1 Dwell time = 0.40 ms × (1600÷2) ÷ 79 × 31.6 = 128.00 (ms)
DH3 Dwell time = 1.65 ms × (1600÷4) ÷ 79 × 31.6 = 264.00 (ms)
DH5 Dwell time = 2.90 ms × (1600÷6) ÷ 79 × 31.6 = 309.33 (ms)
Ch Middle
DH1 Dwell time = 0.40 ms × (1600÷2) ÷ 79 × 31.6 = 128.00 (ms)
DH3 Dwell time = 1.65 ms × (1600÷4) ÷ 79 × 31.6 = 264.00 (ms)
DH5 Dwell time = 2.90 ms × (1600÷6) ÷ 79 × 31.6 = 309.33 (ms)
Ch High
DH1 Dwell time = 0.40 ms × (1600÷2) ÷ 79 × 31.6 = 128.00 (ms)
DH3 Dwell time = 1.65 ms × (1600÷4) ÷ 79 × 31.6 = 264.00 (ms)
DH5 Dwell time = 2.90 ms × (1600÷6) ÷ 79 × 31.6 = 309.33 (ms)

DWELL TIME ON EACH PAYLOAD

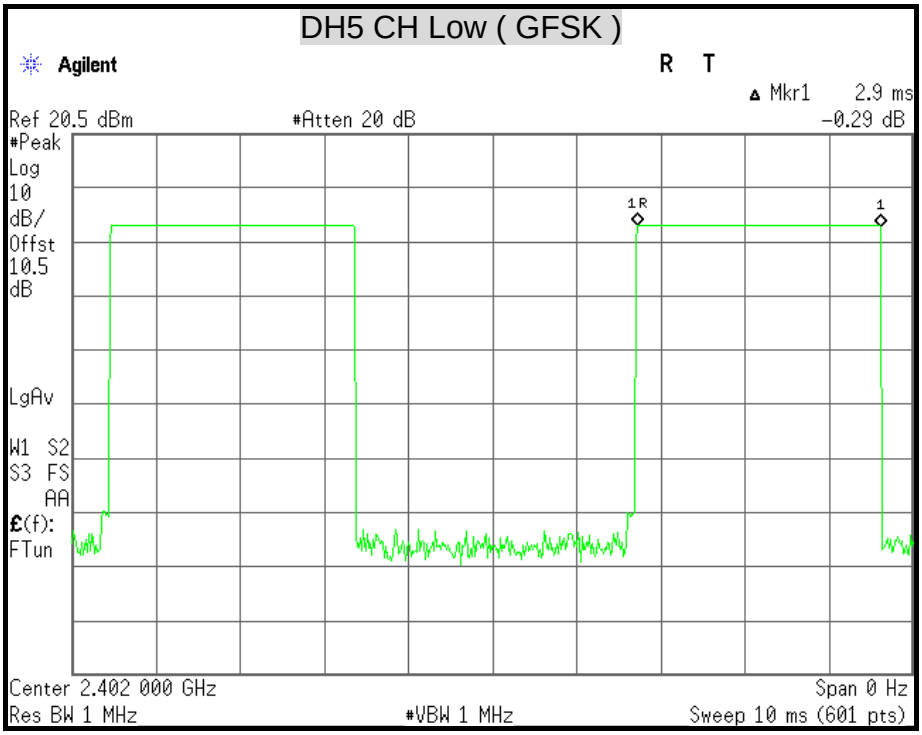
DH1 CH Low (GFSK)



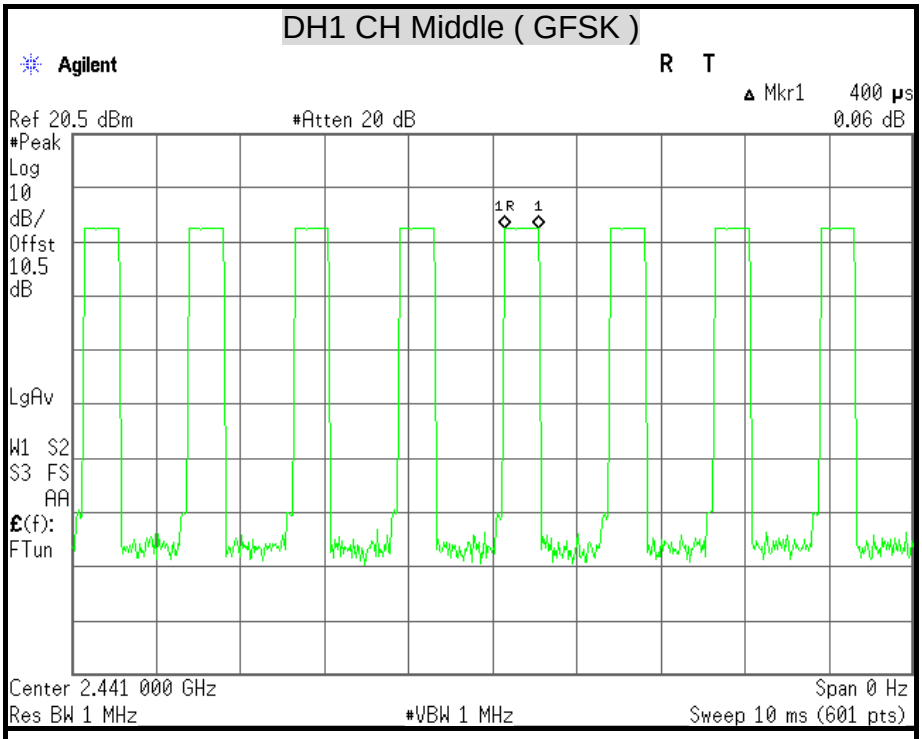
DH3 CH Low (GFSK)



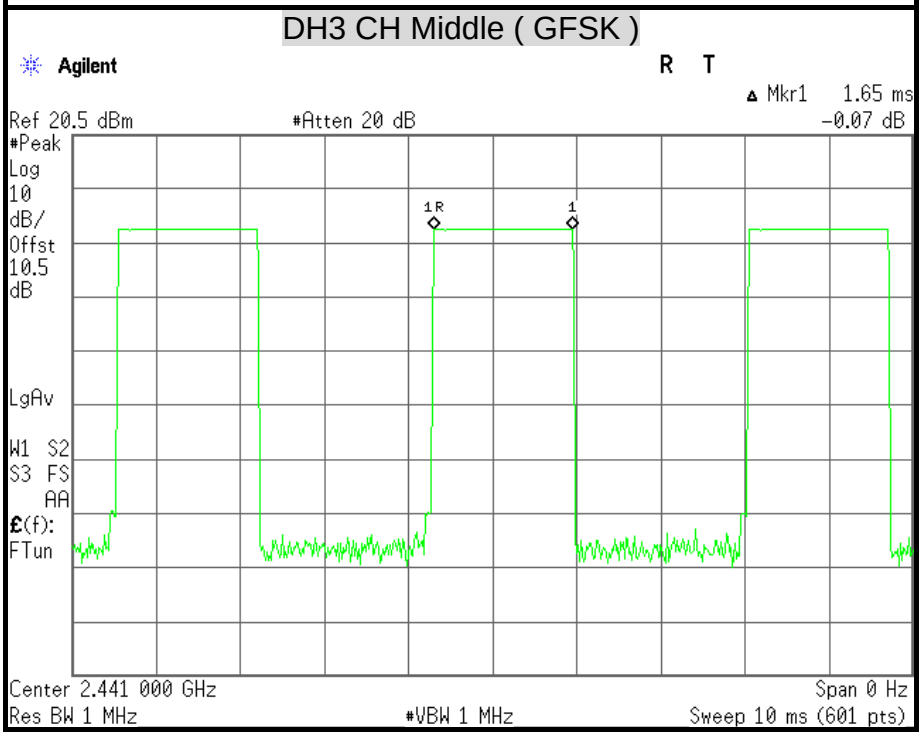
DH5 CH Low (GFSK)



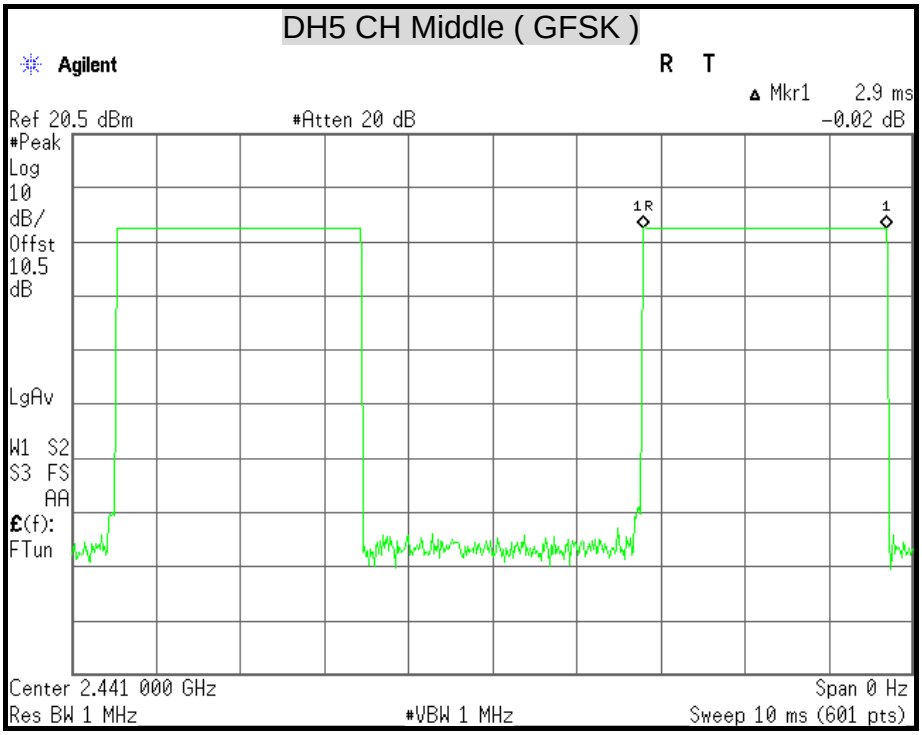
DH1 CH Middle (GFSK)



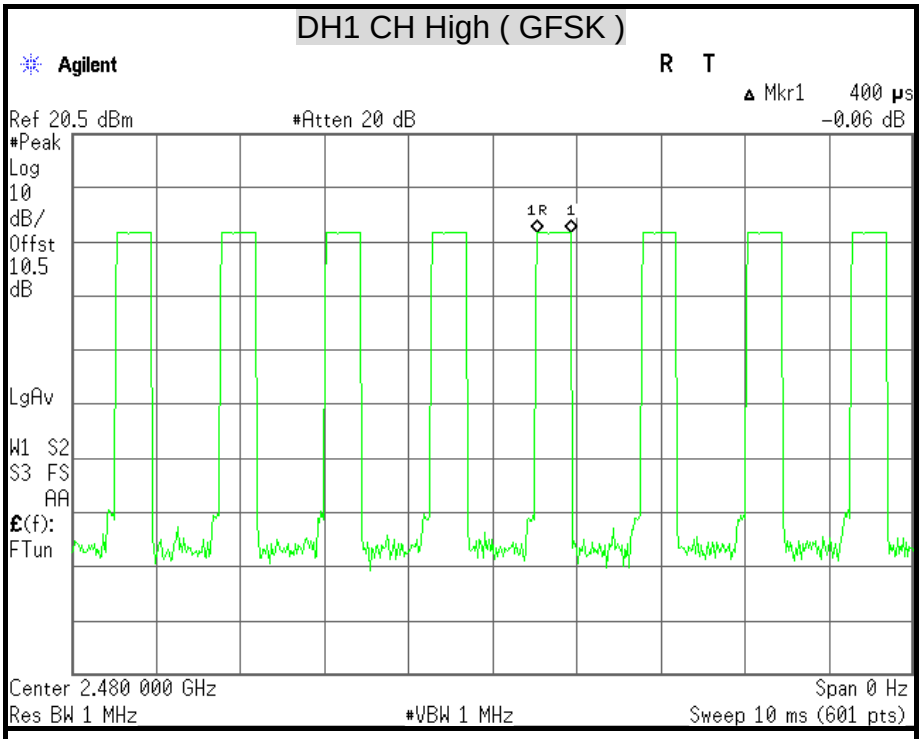
DH3 CH Middle (GFSK)



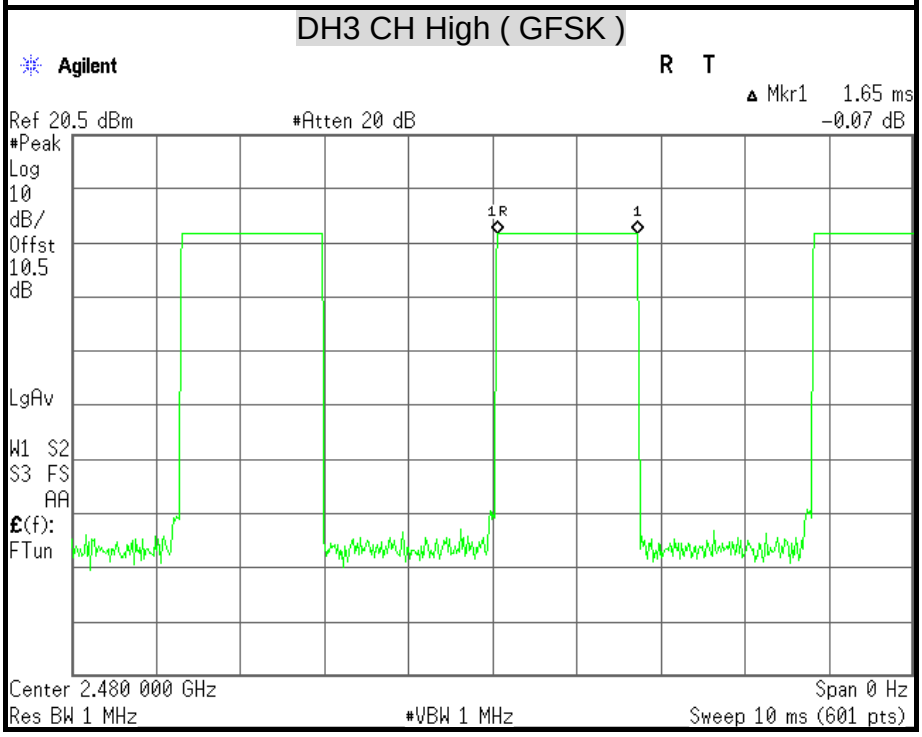
DH5 CH Middle (GFSK)



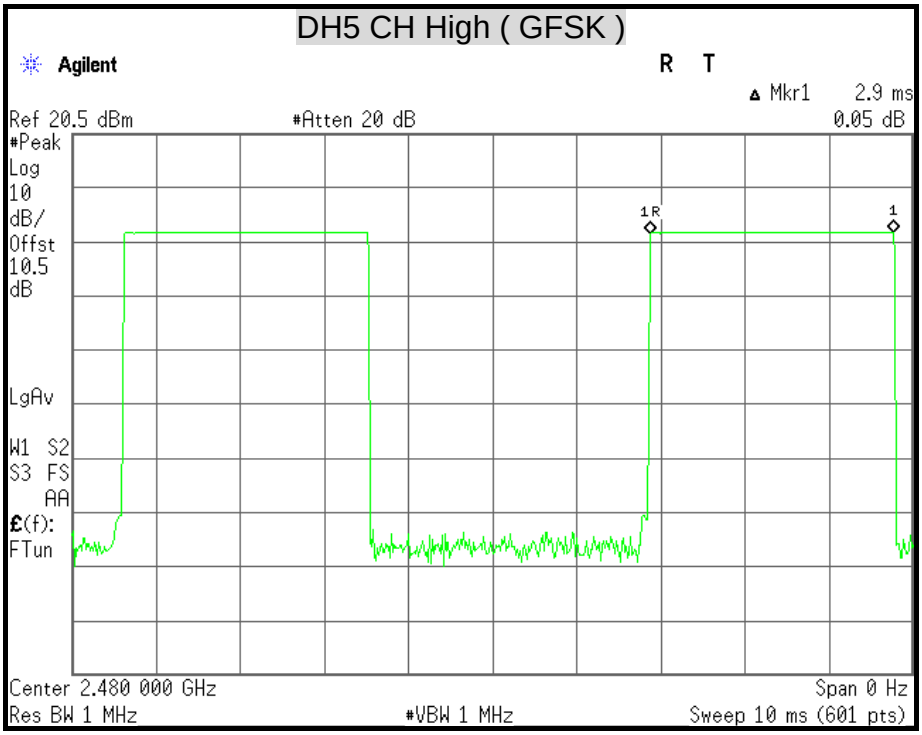
DH1 CH High (GFSK)



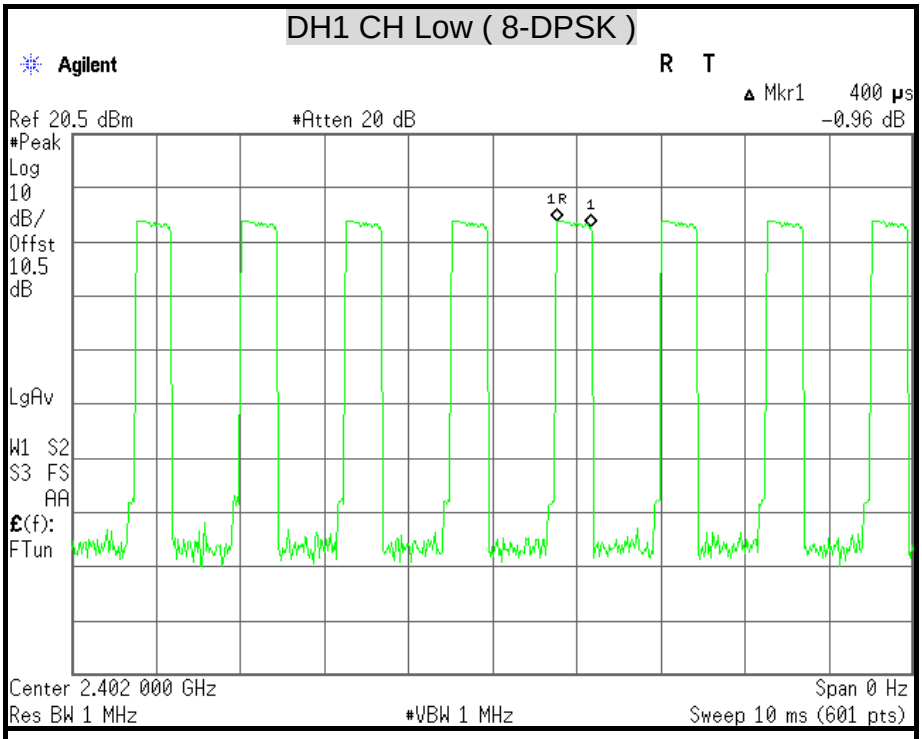
DH3 CH High (GFSK)



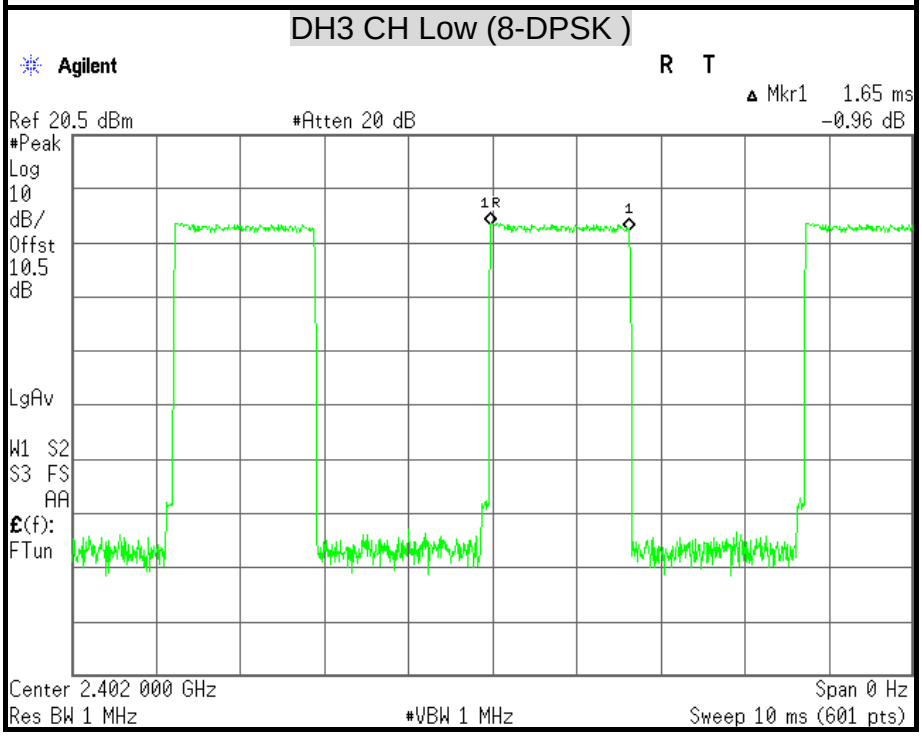
DH5 CH High (GFSK)



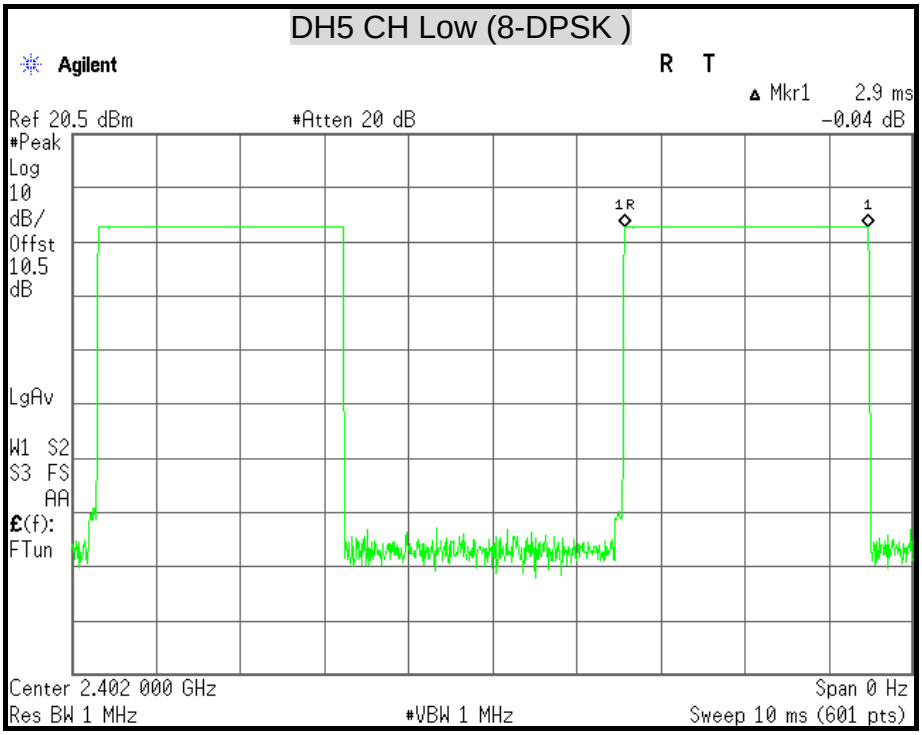
DH1 CH Low (8-DPSK)



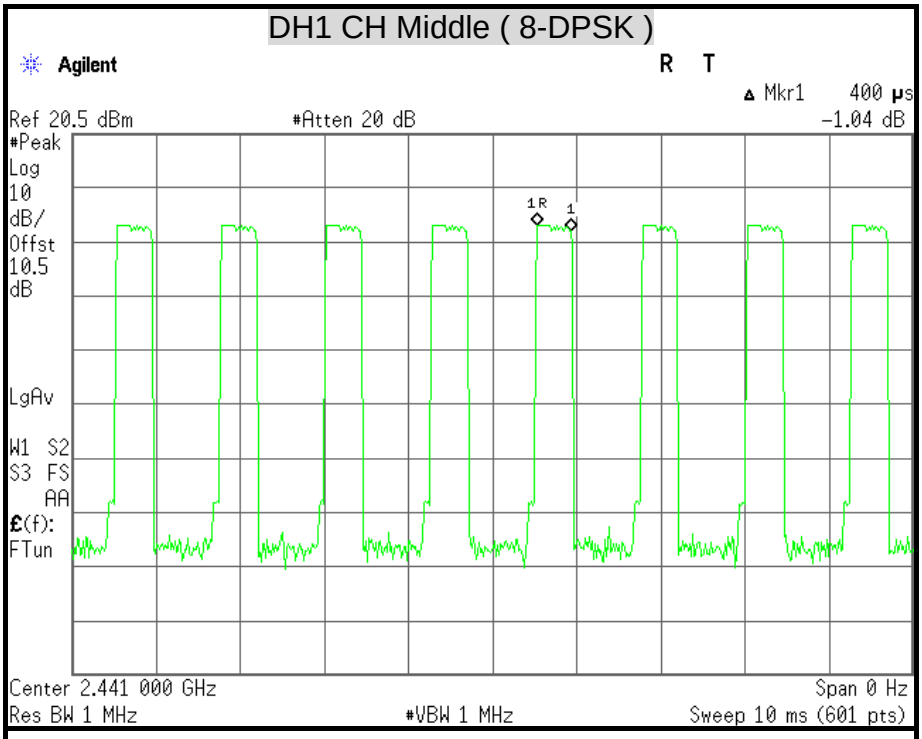
DH3 CH Low (8-DPSK)



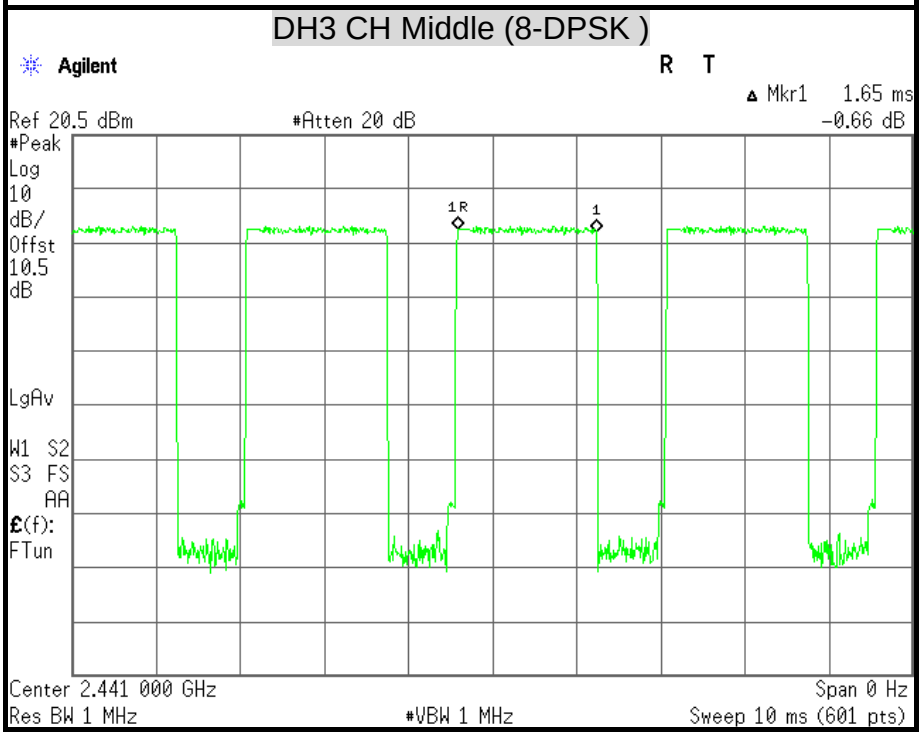
DH5 CH Low (8-DPSK)



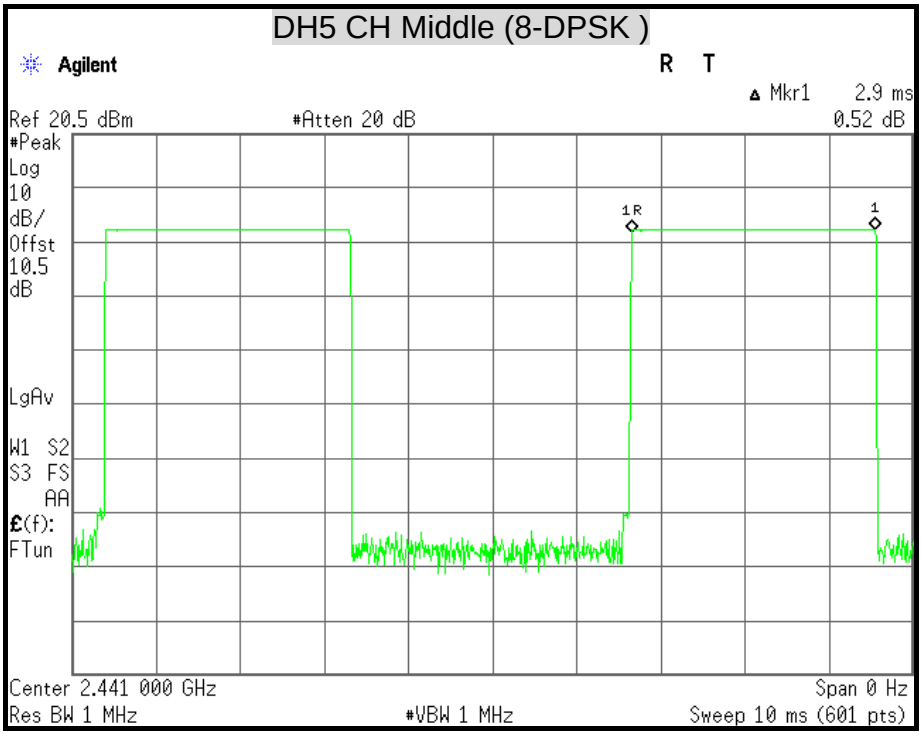
DH1 CH Middle (8-DPSK)



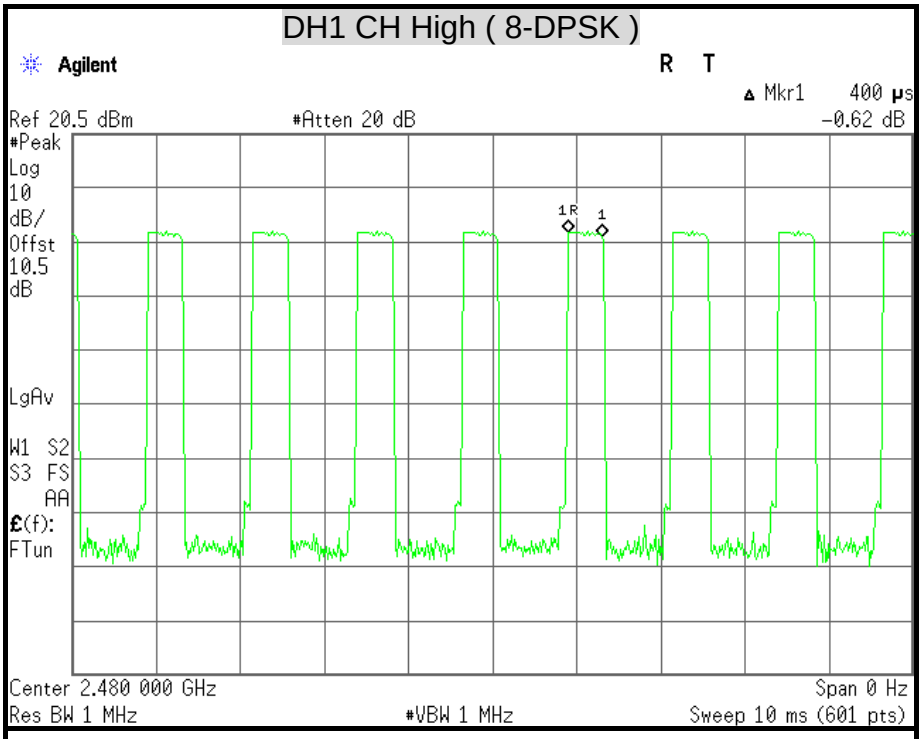
DH3 CH Middle (8-DPSK)



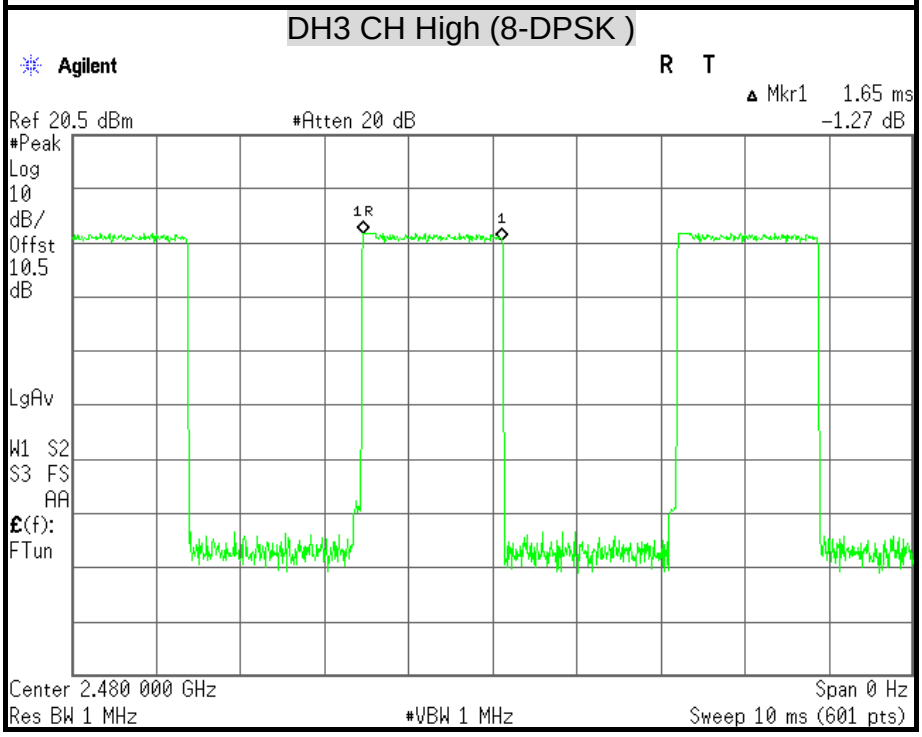
DH5 CH Middle (8-DPSK)



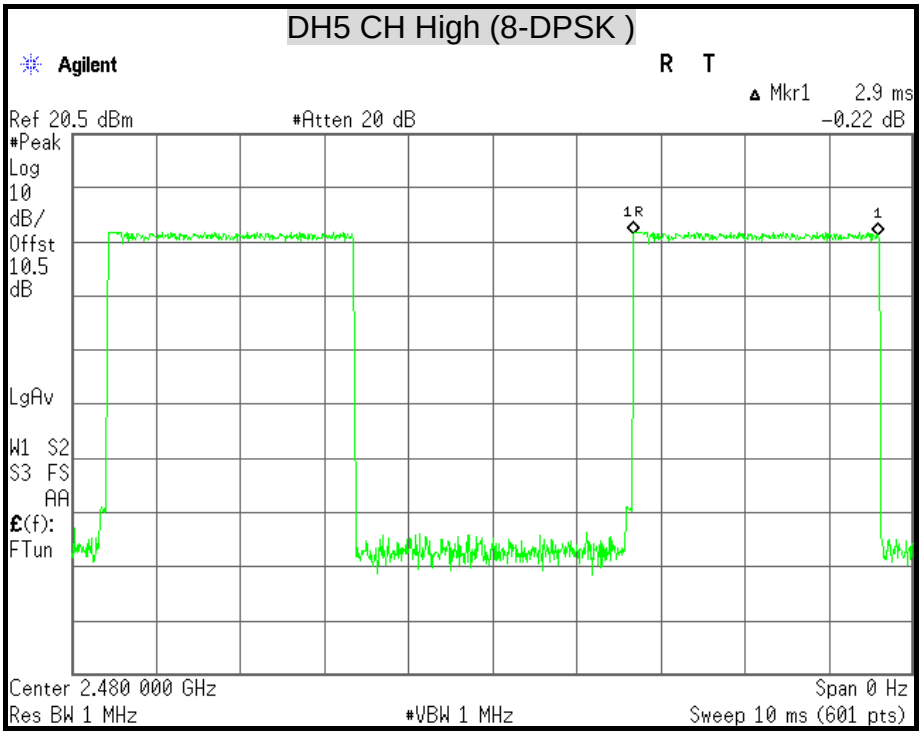
DH1 CH High (8-DPSK)



DH3 CH High (8-DPSK)



DH5 CH High (8-DPSK)



7.6 CONDUCTED SPURIOUS EMISSION

LIMITS

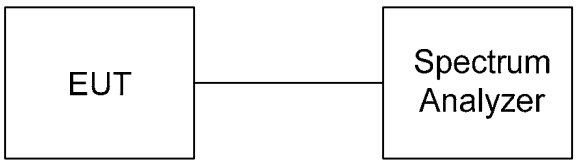
§ 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the and that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

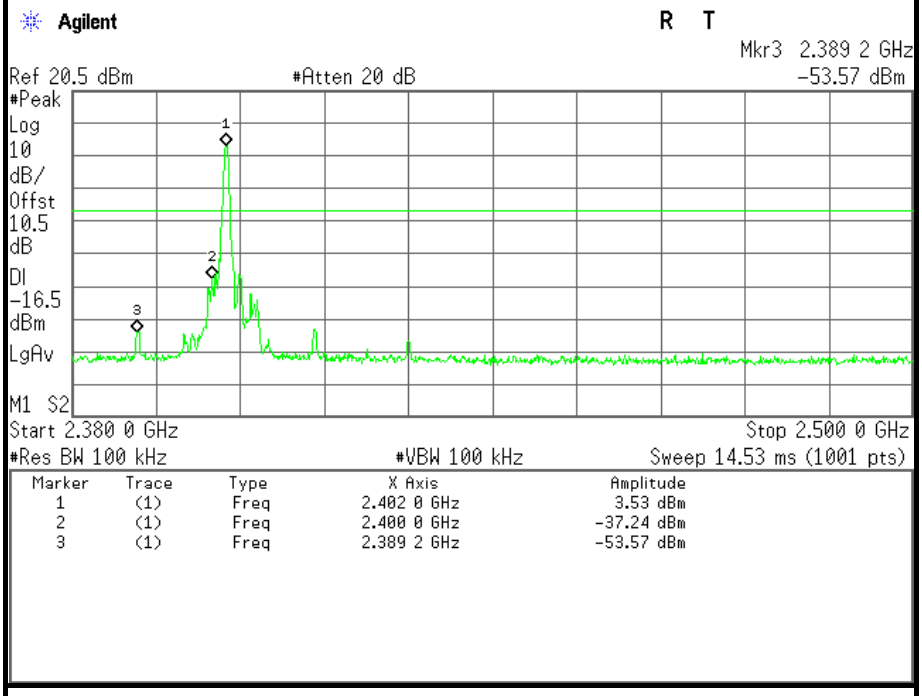
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

The spectrum from 30 MHz to 26.5 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

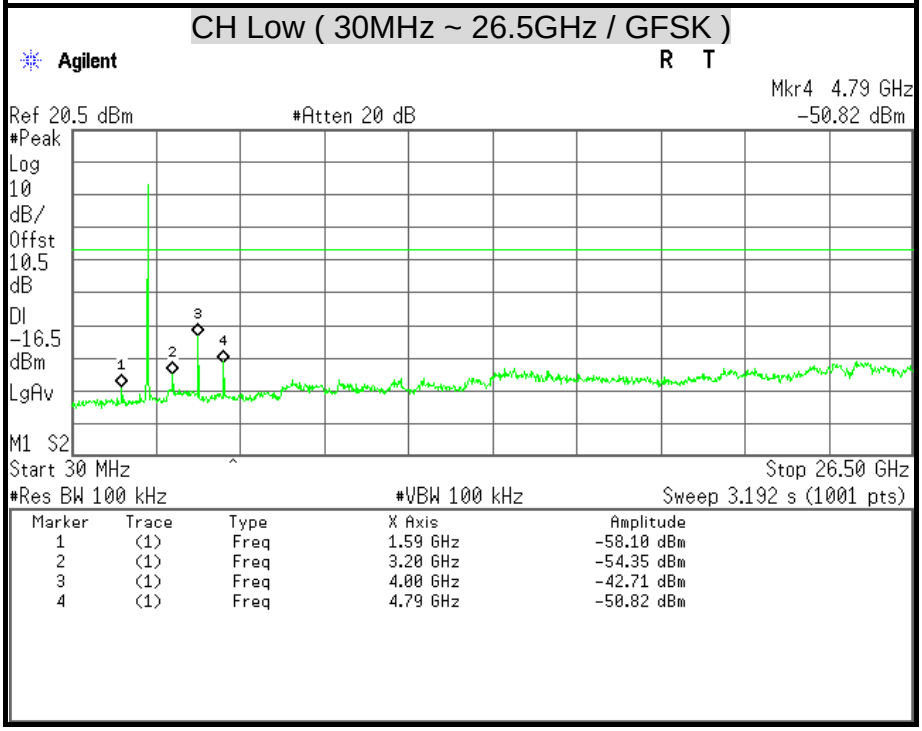
TEST RESULTS

OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

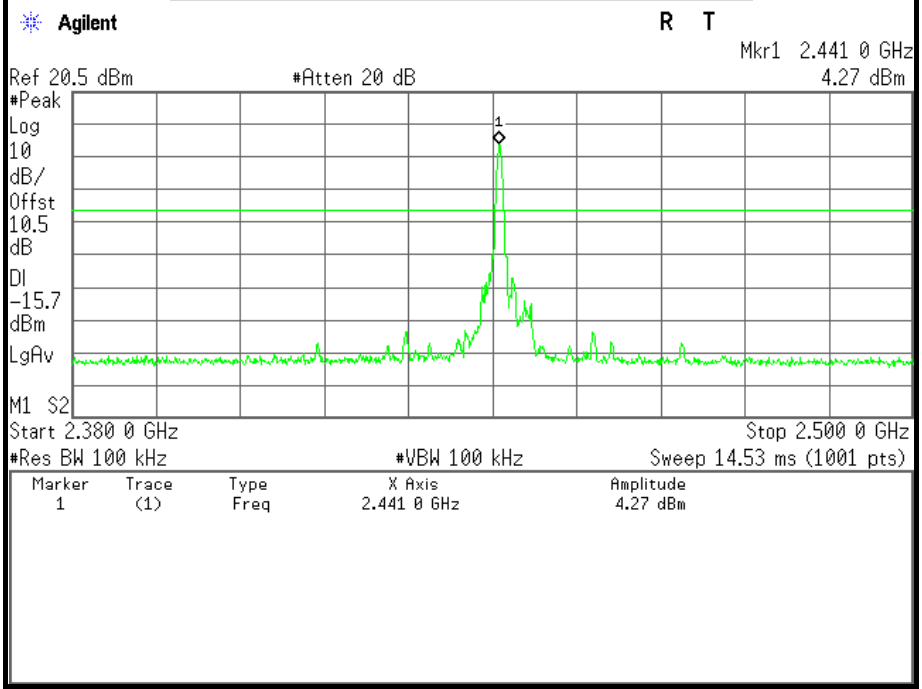
CH Low (2.38GHz ~ 2.5GHz / GFSK)



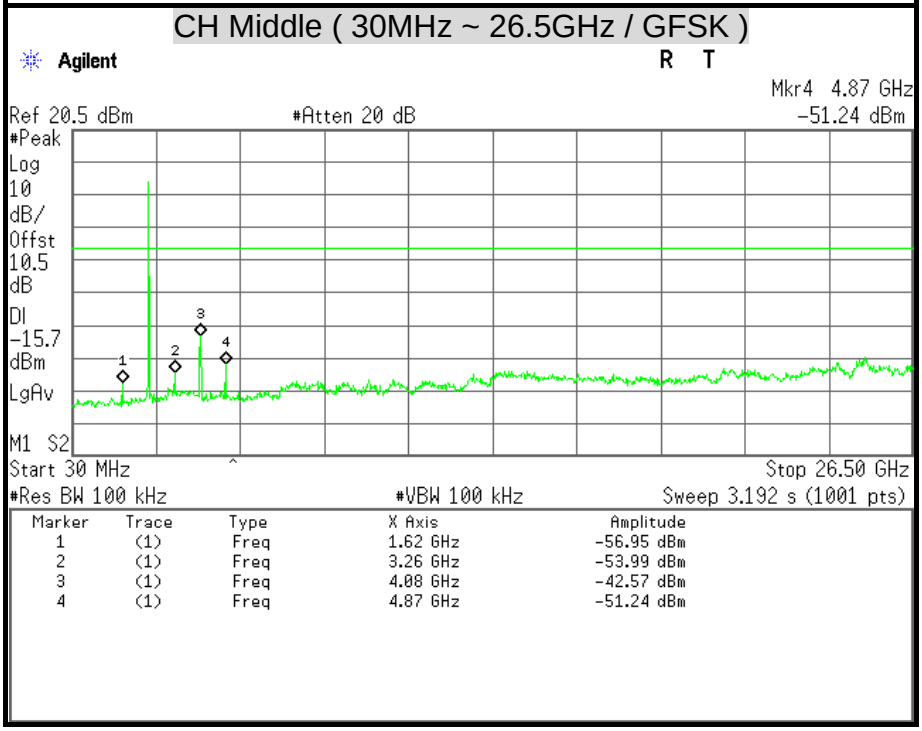
CH Low (30MHz ~ 26.5GHz / GFSK)



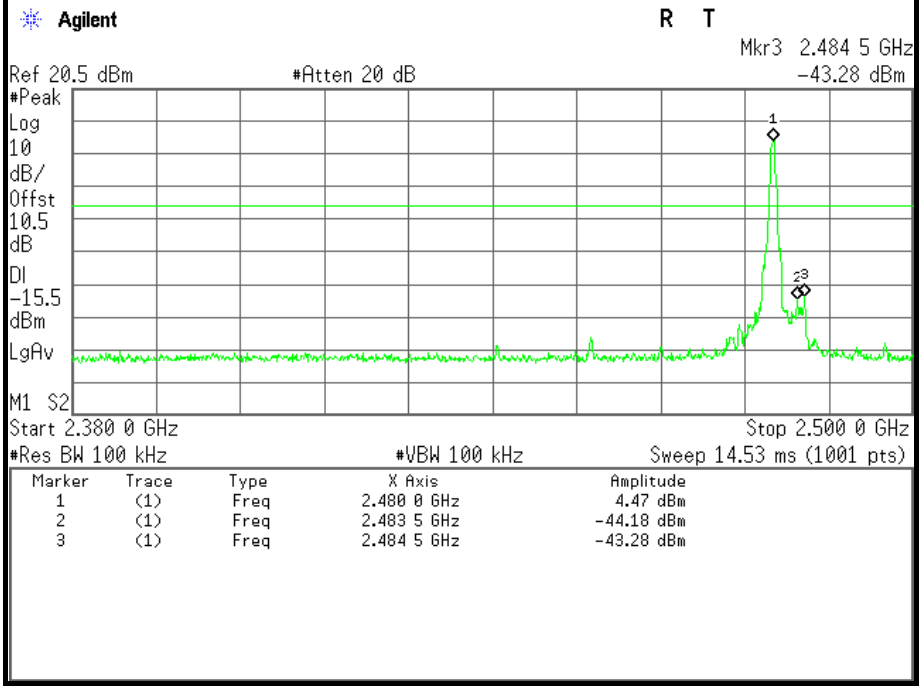
CH Middle (2.38GHz ~ 2.5GHz / GFSK)



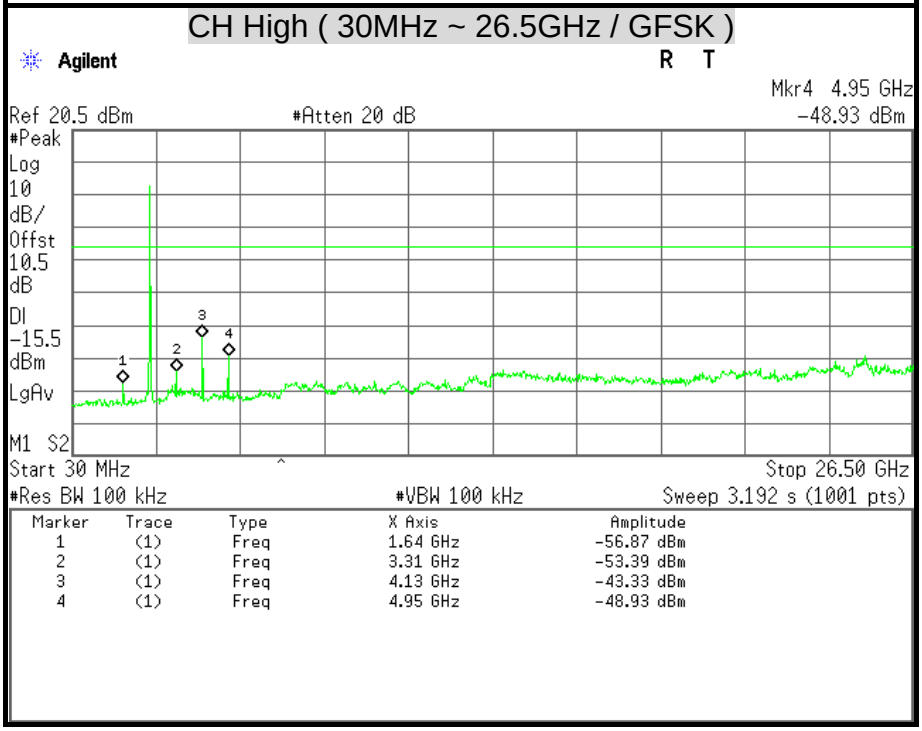
CH Middle (30MHz ~ 26.5GHz / GFSK)



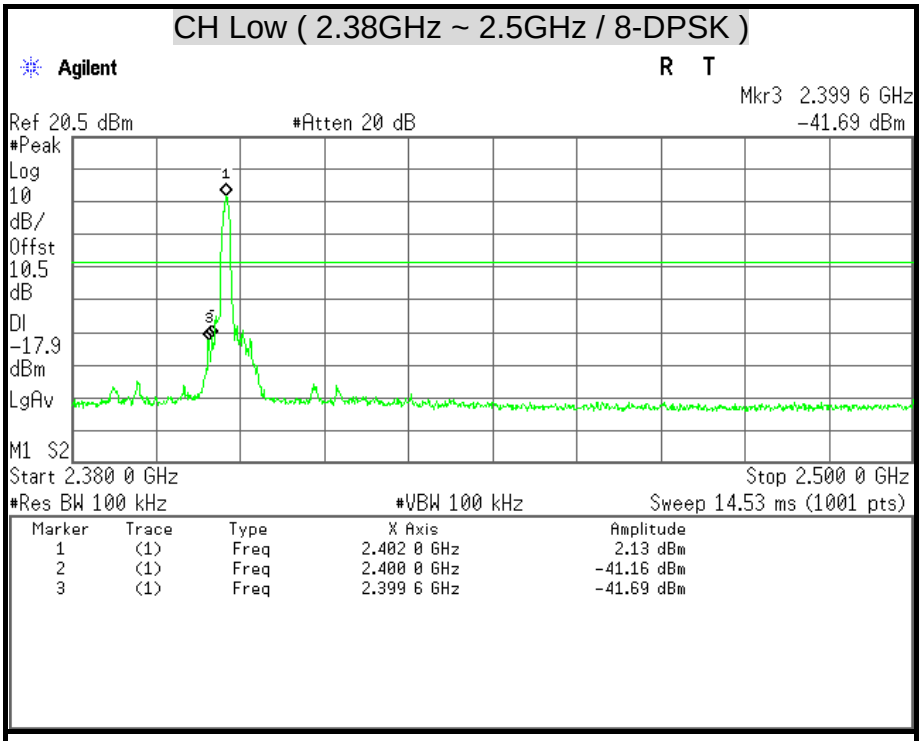
CH High (2.38GHz ~ 2.5GHz / GFSK)



CH High (30MHz ~ 26.5GHz / GFSK)

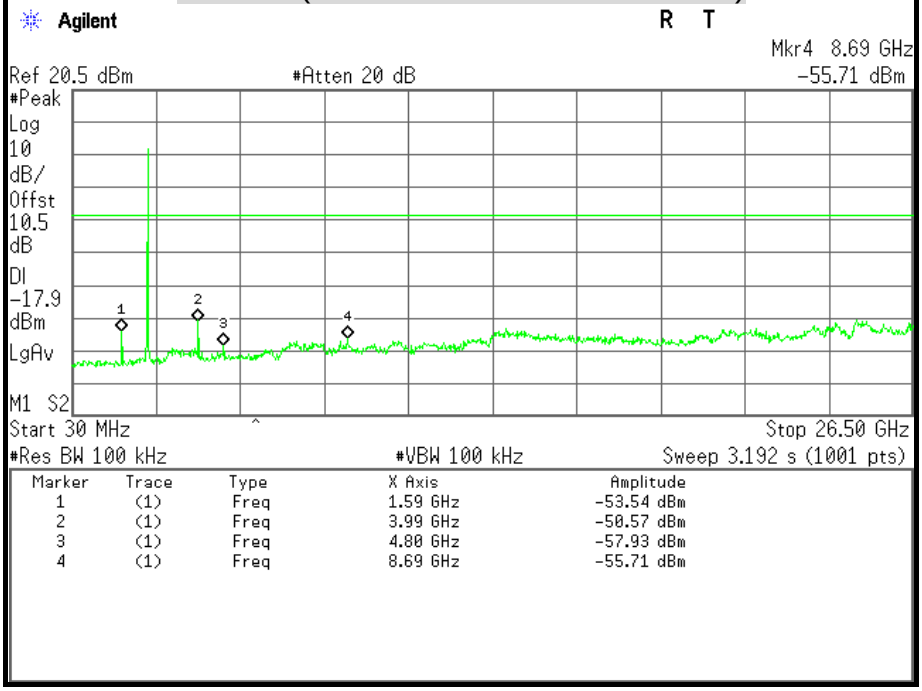


CH Low (2.38GHz ~ 2.5GHz / 8-DPSK)



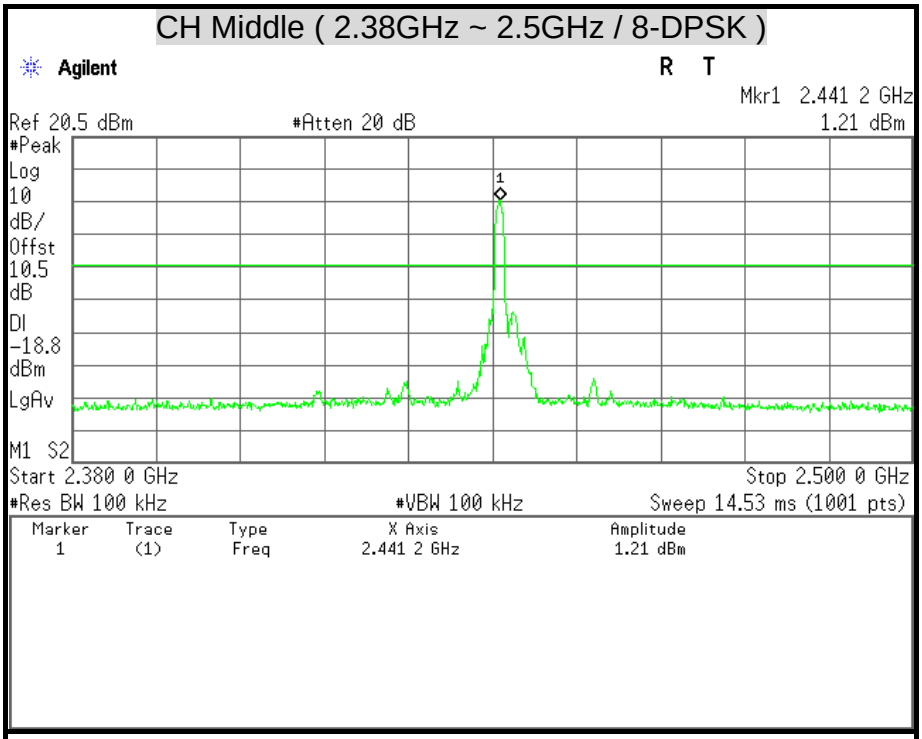
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.402 0 GHz	2.13 dBm
2	(1)	Freq	2.400 0 GHz	-41.16 dBm
3	(1)	Freq	2.399 6 GHz	-41.69 dBm

CH Low (30MHz ~ 26.5GHz / 8-DPSK)

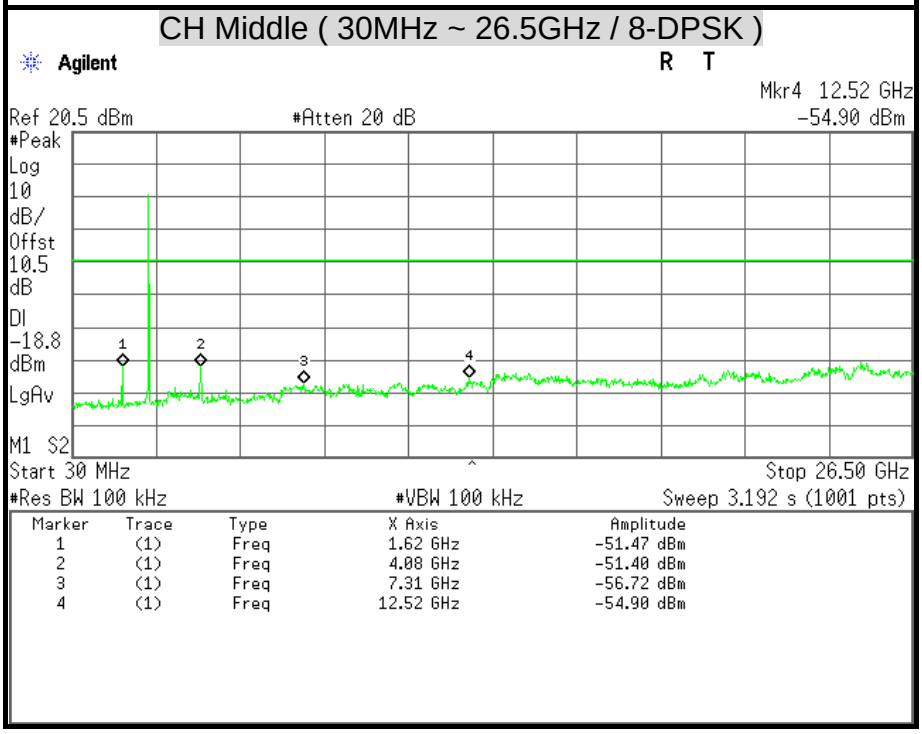


Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	1.59 GHz	-53.54 dBm
2	(1)	Freq	3.99 GHz	-50.57 dBm
3	(1)	Freq	4.80 GHz	-57.93 dBm
4	(1)	Freq	8.69 GHz	-55.71 dBm

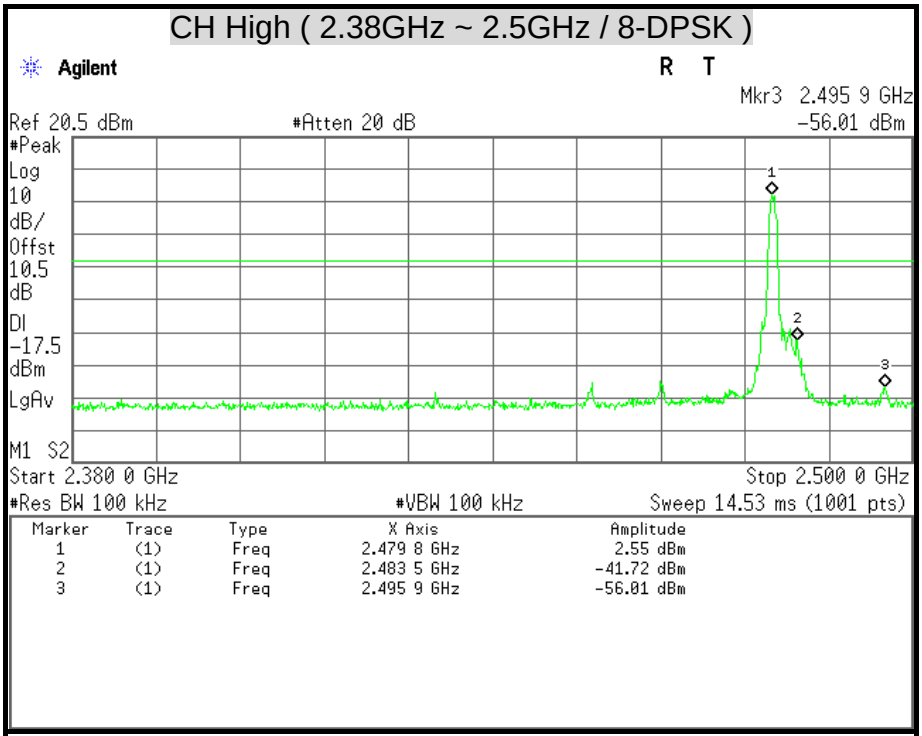
CH Middle (2.38GHz ~ 2.5GHz / 8-DPSK)



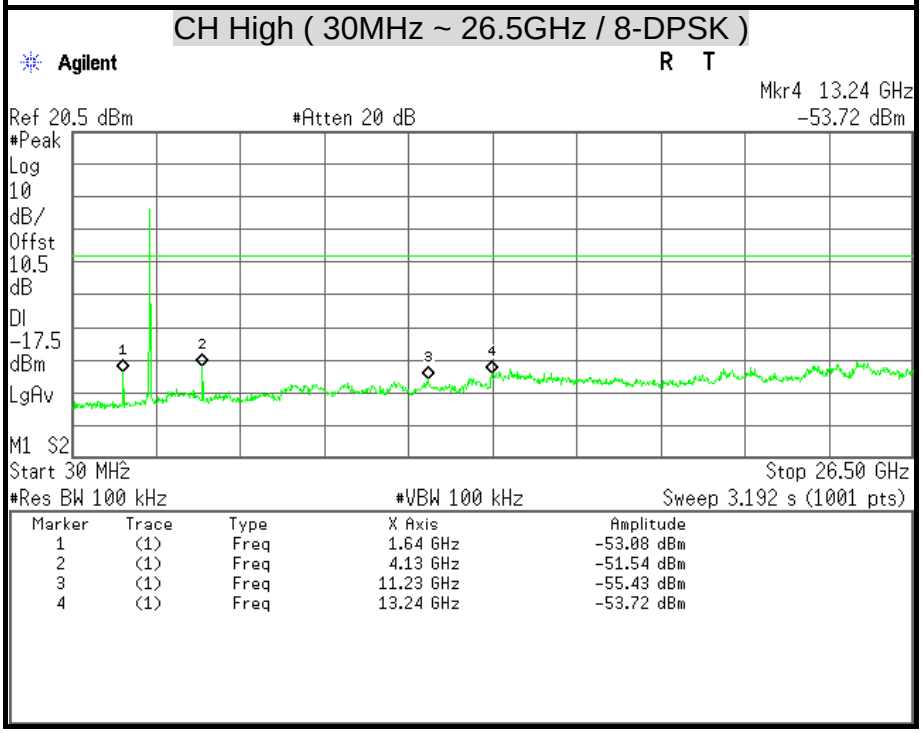
CH Middle (30MHz ~ 26.5GHz / 8-DPSK)



CH High (2.38GHz ~ 2.5GHz / 8-DPSK)

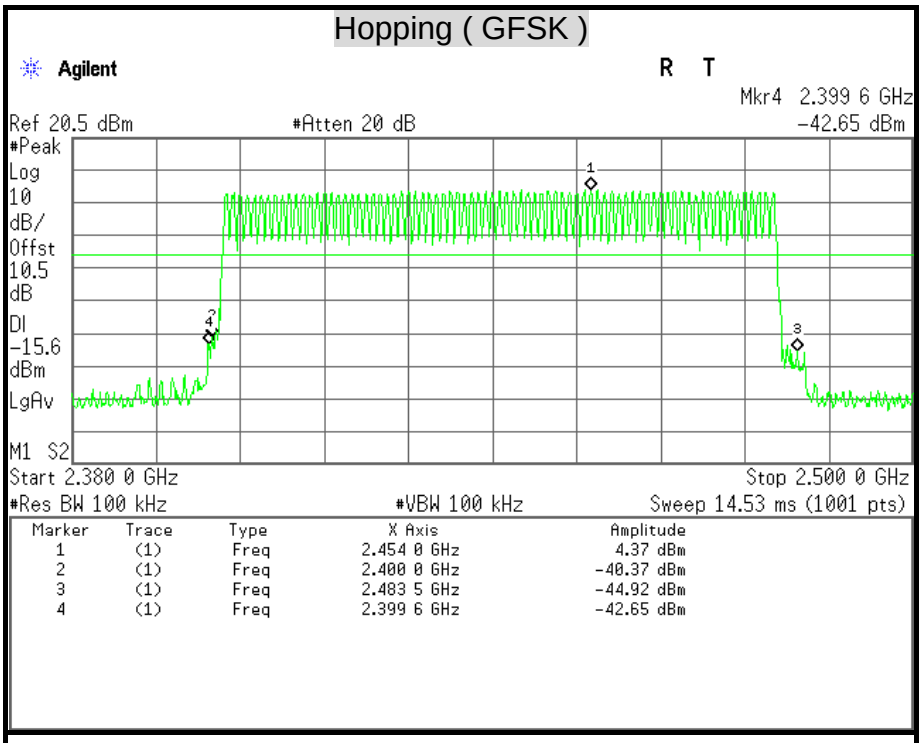


CH High (30MHz ~ 26.5GHz / 8-DPSK)

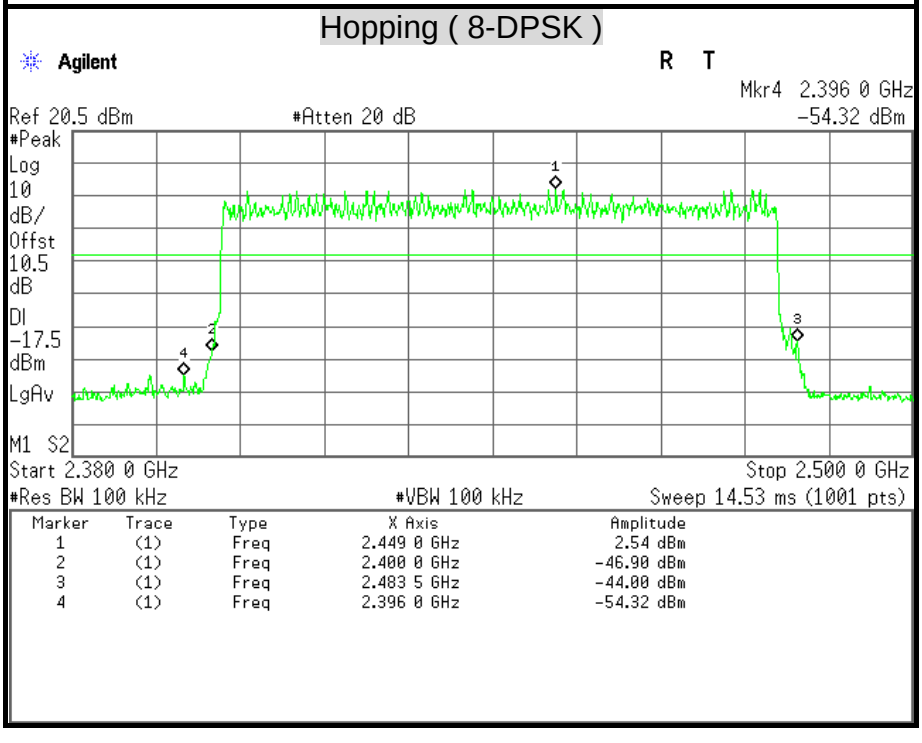


CONDUCTED MEASUREMENT BAND EDGES

Hopping (GFSK)



Hopping (8-DPSK)



8. FCC PART 15.247 REQUIREMENTS (ZIGBEE)

8.1 6dB BANDWIDTH

LIMITS

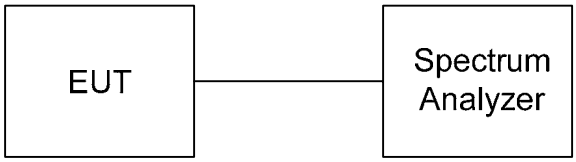
§ 15.247(a) (2) For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

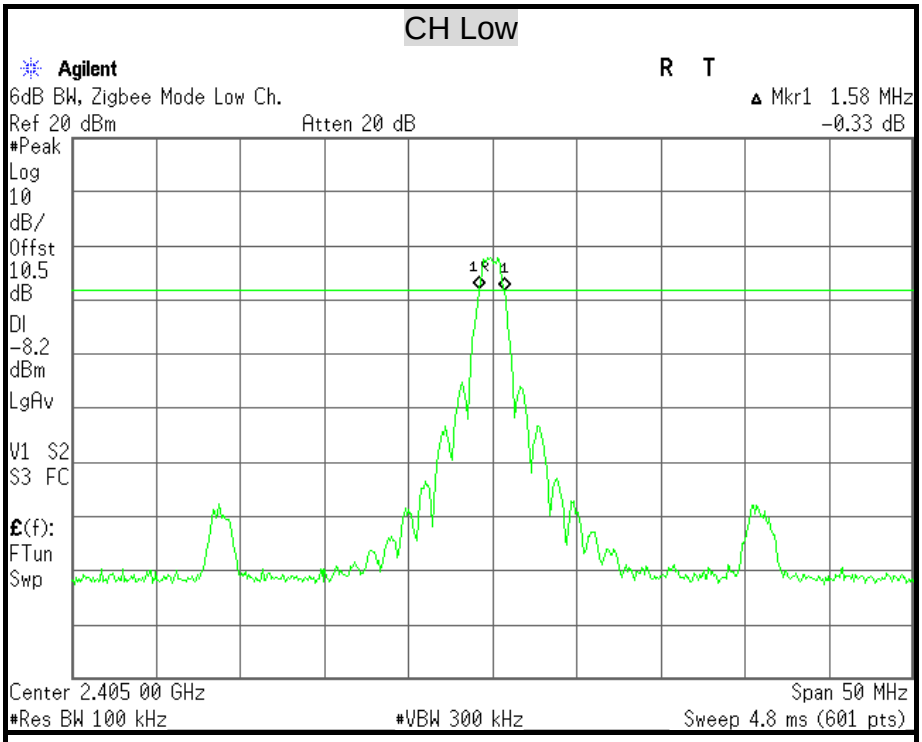
The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

TEST RESULTS

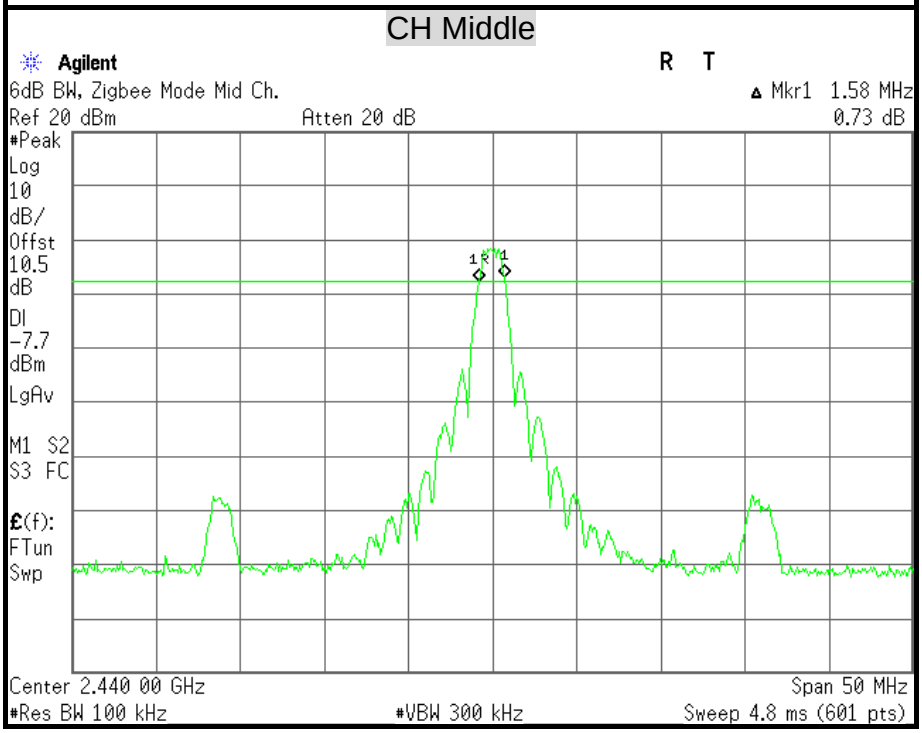
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (kHz)	Pass / Fail
Low	2405	1.58	500	PASS
Middle	2440	1.58	500	PASS
High	2480	1.42	500	PASS

6dB BANDWIDTH

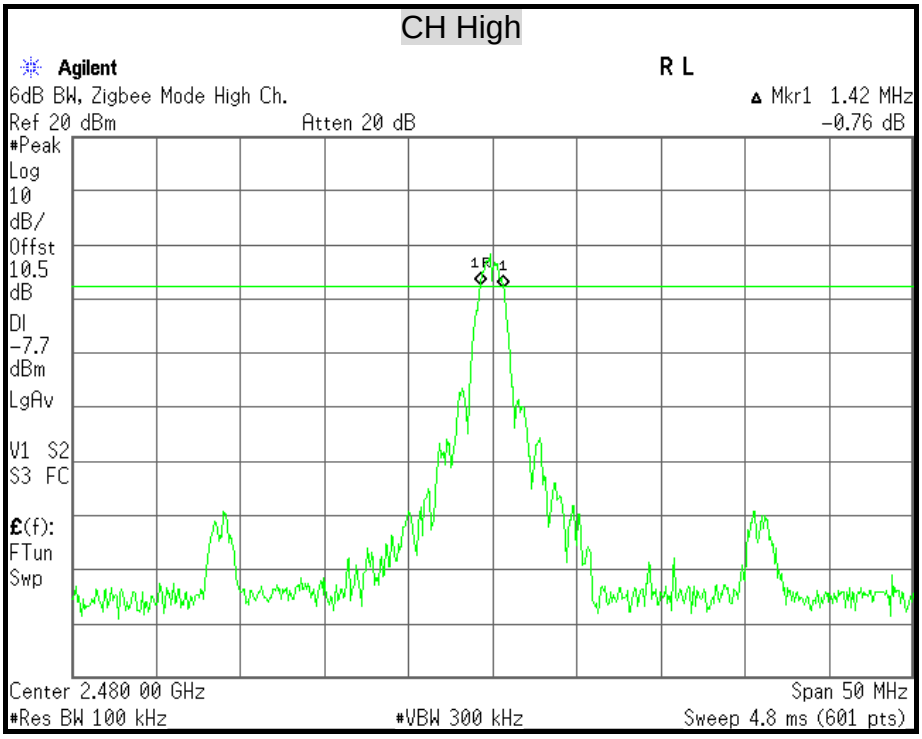
CH Low



CH Middle



CH High



8.2 MAXIMUM PEAK OUTPUT POWER

LIMITS

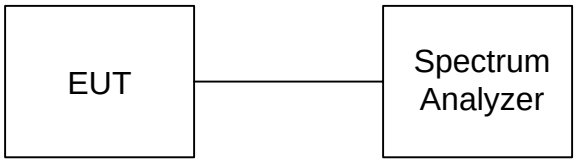
§ 15.247(b) The maximum peak output power of the intentional radiator shall not exceed the following :
§ 15.247(b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands : 1 watt.
§ 15.247(b) (4) Except as shown in paragraphs (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

1. The spectrum shall be set as follows :
   Span : 1.5 times channel integration bandwidth.
   RBW : 1MHz
   VBW : 3MHz
   Detector : Peak
   Sweep : Single trace
2. Compute the combined power of all signal responses contained in the trace by covering all the data points.
3. The peak output power is the channel power integrated over 26dB bandwidth.

TEST RESULTS

Channel	Channel Frequency (MHz)	Peak Power		Peak Power Limit		Pass / Fail
		(dBm)	(W)	(dBm)	(W)	
Low	2405	3.11	0.0020	30	1	PASS
Middle	2440	4.10	0.0026	30	1	PASS
High	2480	4.13	0.0026	30	1	PASS

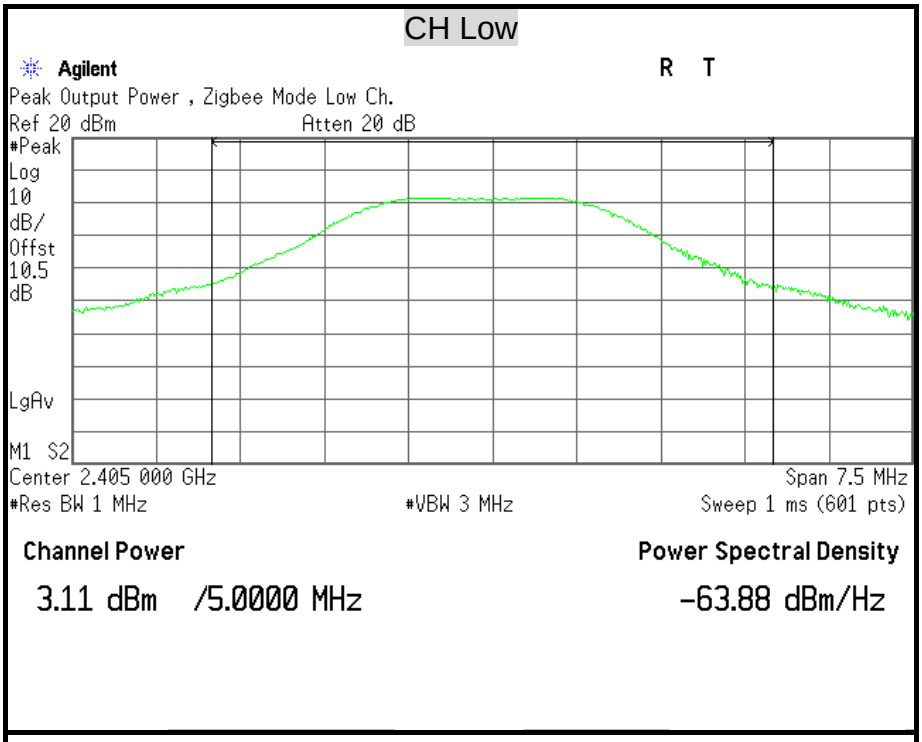
Remark:

1. At finial test to get the worst-case emission at 250kbps.

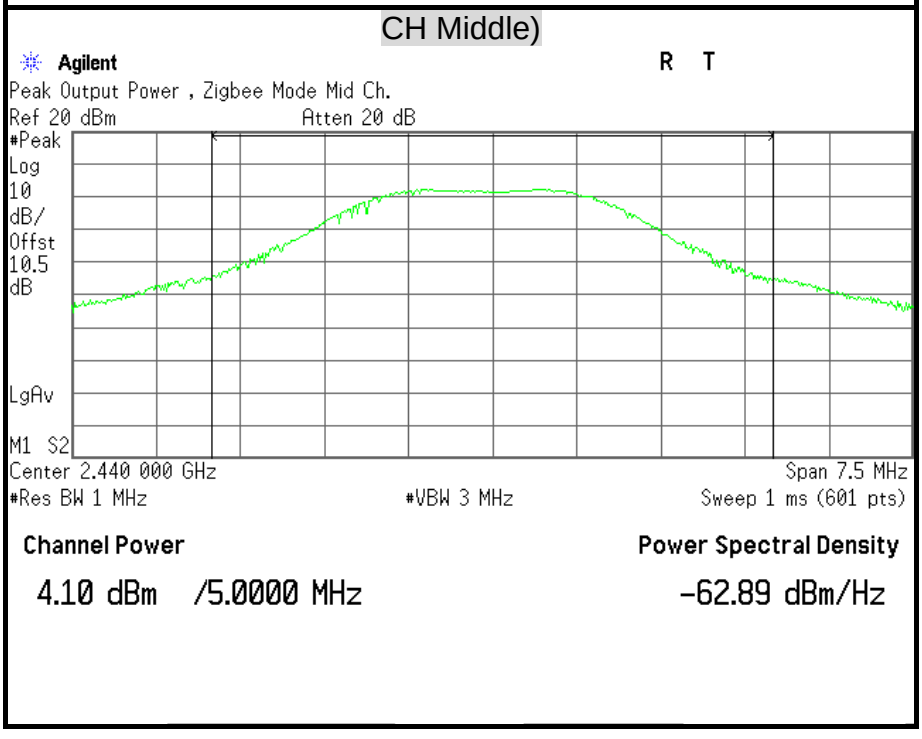
2. The cable assembly insertion loss of 10.5dB (including 10 dB pad and 0.5 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

MAXIMUM PEAK OUTPUT POWER

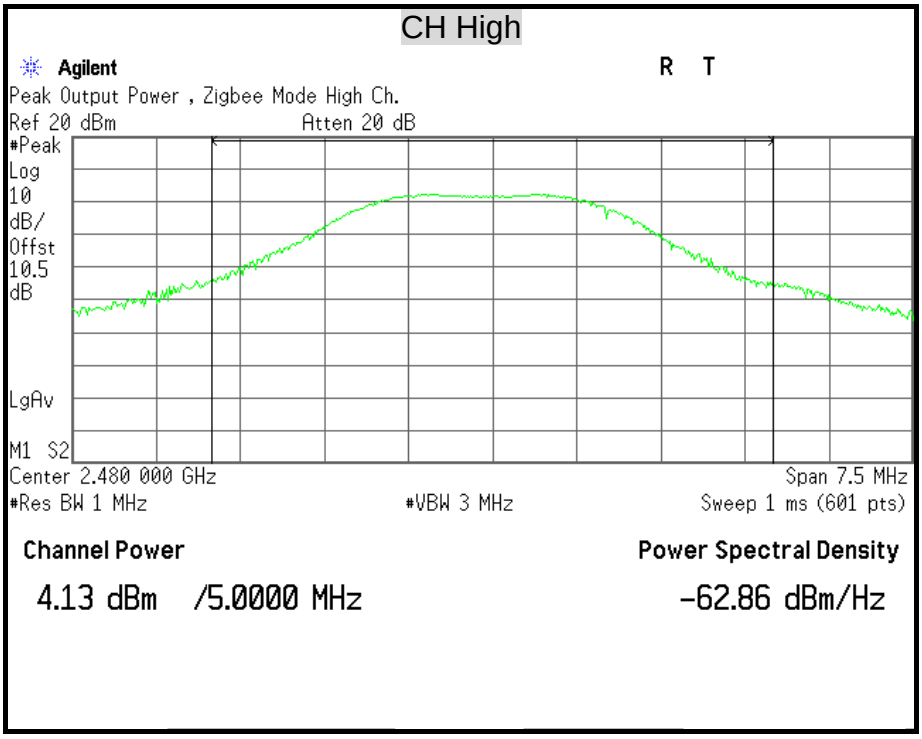
CH Low



CH Middle)



CH High



8.3 AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer.

TEST RESULTS

Channel	Channel Frequency (MHz)	Average Power Output (dBm)
Low	2405	1.61
Middle	2440	2.11
High	2480	2.38

Remark:
1. At finial test to get the worst-case emission at 250kbps.
2. The cable assembly insertion loss of 10.5dB (including 10 dB pad and 0.5 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

8.4 POWER SPECTRAL DENSITY

LIMITS

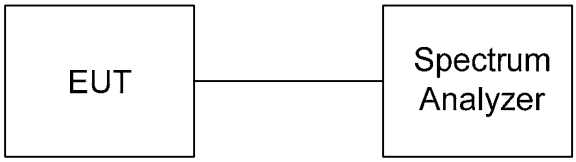
§ 15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using RBW＝3KHz and VBW≧RBW, set sweep time＝span / 3KHz.

The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span / 3KHz for a full response of the mixer in the spectrum analyzer.

TEST RESULTS

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Minimum Limit (dBm)	Pass / Fail
Low	2405	-11.91	8	PASS
Middle	2440	-11.15	8	PASS
High	2480	-10.65	8	PASS

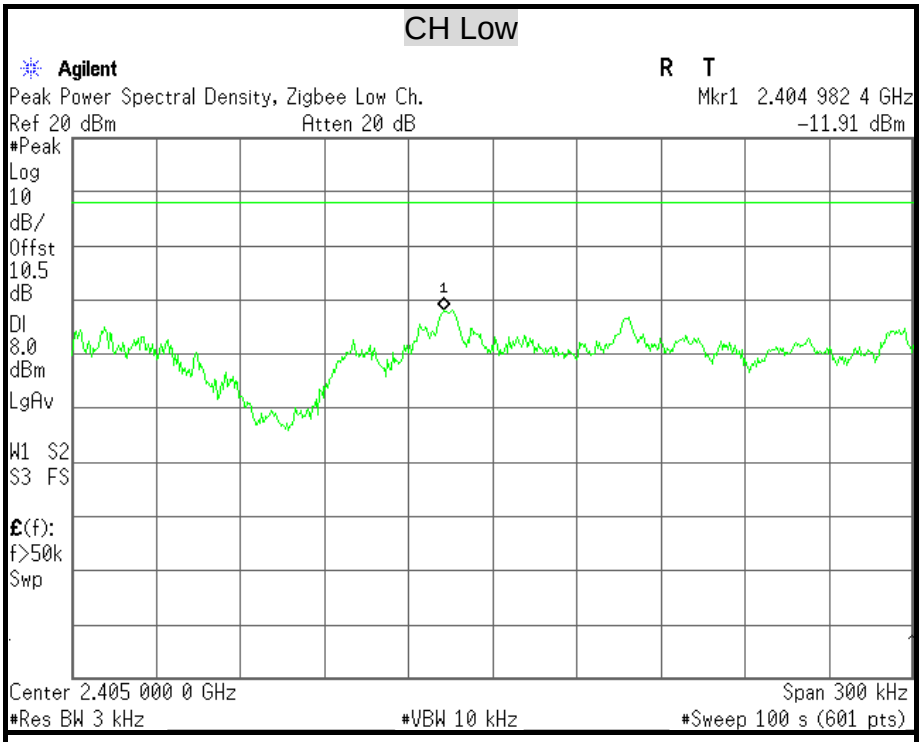
Remark:

1. At finial test to get the worst-case emission at 250kbps.

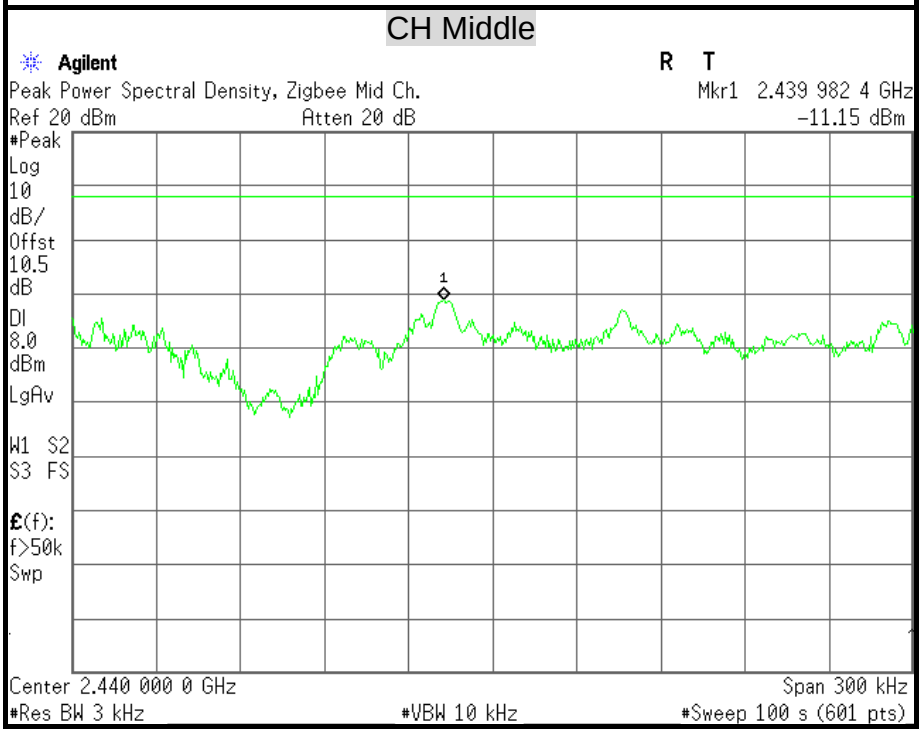
2. The cable assembly insertion loss of 10.5dB (including 10 dB pad and 0.5 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

POWER SPECTRAL DENSITY

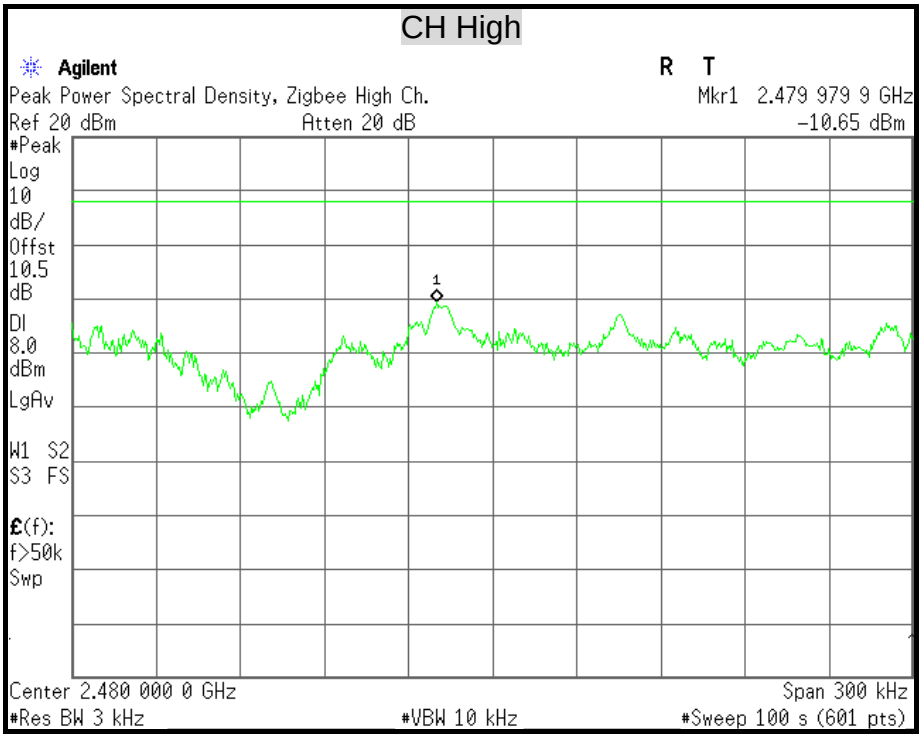
CH Low



CH Middle



CH High



8.5 CONDUCTED SPURIOUS EMISSION

LIMITS

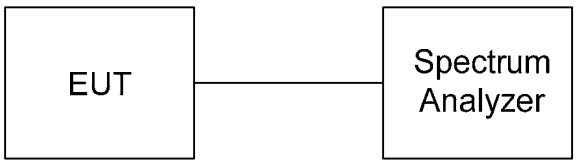
§ 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the and that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY46180323	04/24/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP



TEST PROCEDURE

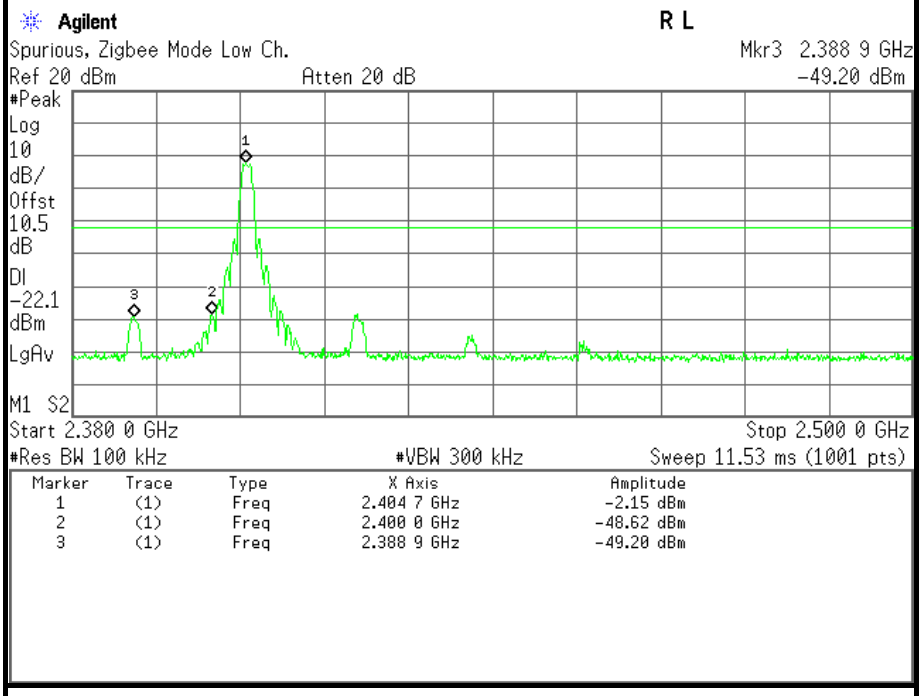
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

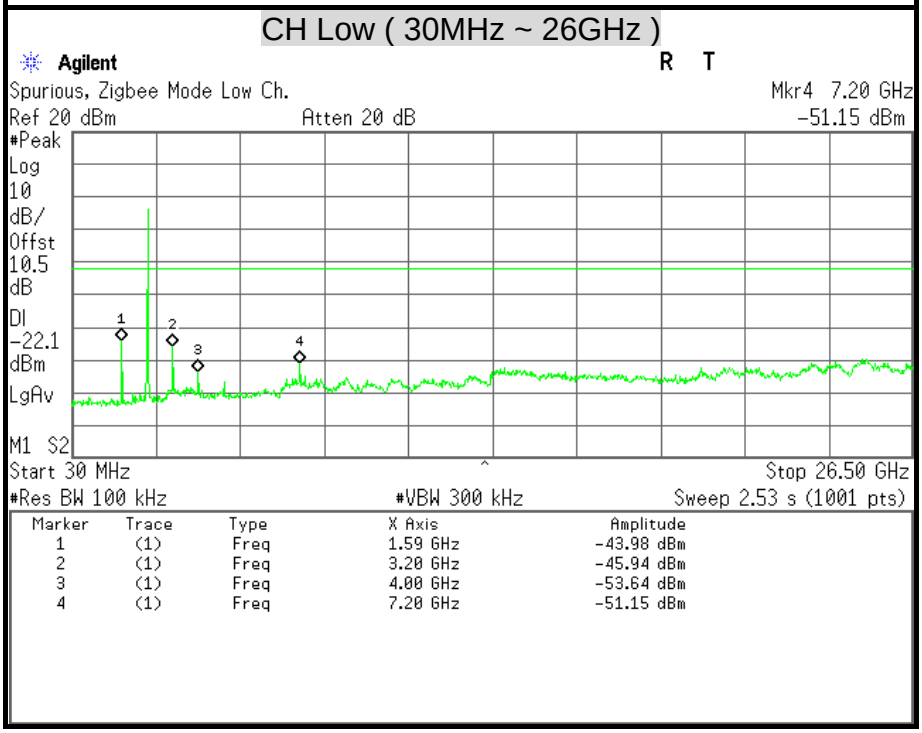
TEST RESULTS

OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

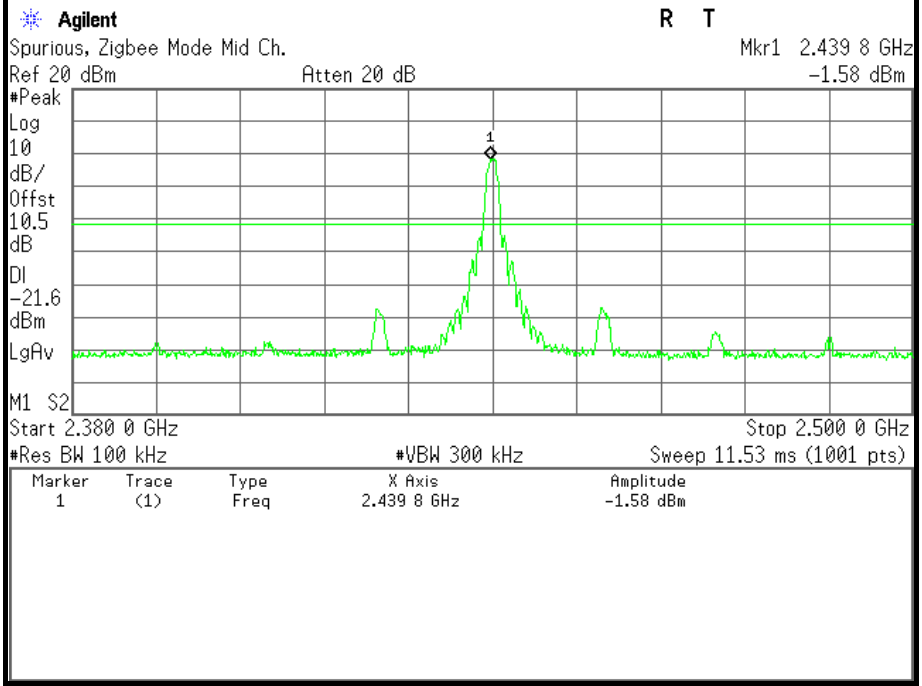
CH Low (2.38GHz ~ 2.5GHz)



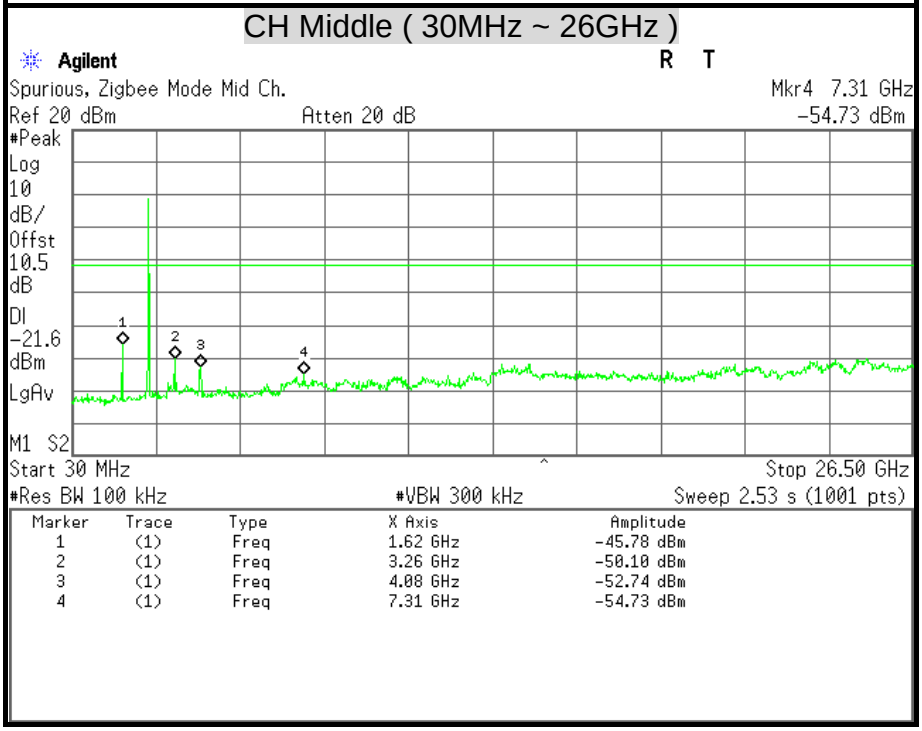
CH Low (30MHz ~ 26GHz)



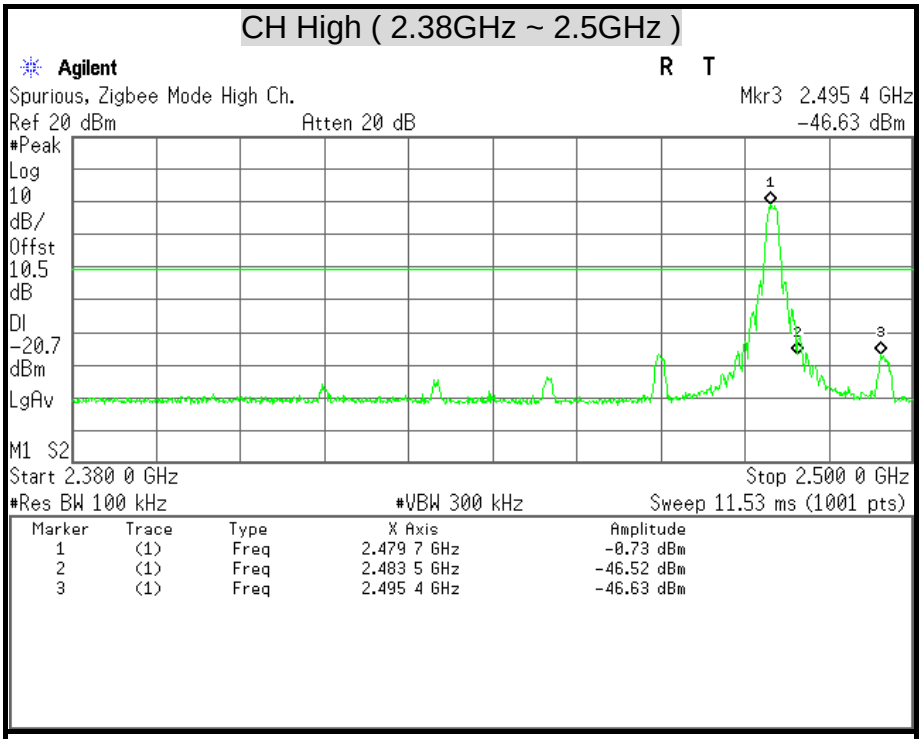
CH Middle (2.38GHz ~ 2.5GHz)



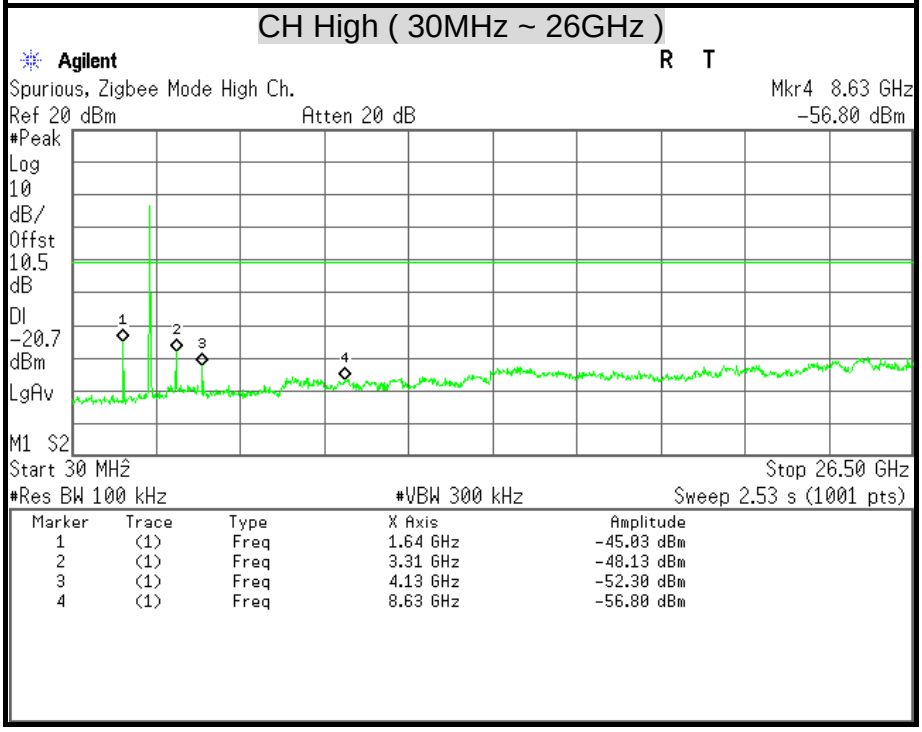
CH Middle (30MHz ~ 26GHz)



CH High (2.38GHz ~ 2.5GHz)



CH High (30MHz ~ 26GHz)



9. RADIATED EMISSION

LIMITS

(1) According to § 15.205 (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 - 3338	36.43 - 36.5
12.57675 - 12.57725	322 -335.4	3600 - 4400	([2])
13.36 - 13.41			

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

(2) According to § 15.205 (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 is 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) According to § 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table :

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

Remark: ***Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not 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., Sections 15.231 and 15.241.*

(4) According to § 15.209 (b) In the emission table above, the tighter limit applies at the band edges.

TEST EQUIPMENT

Radiated Emission / 966Chamber_B

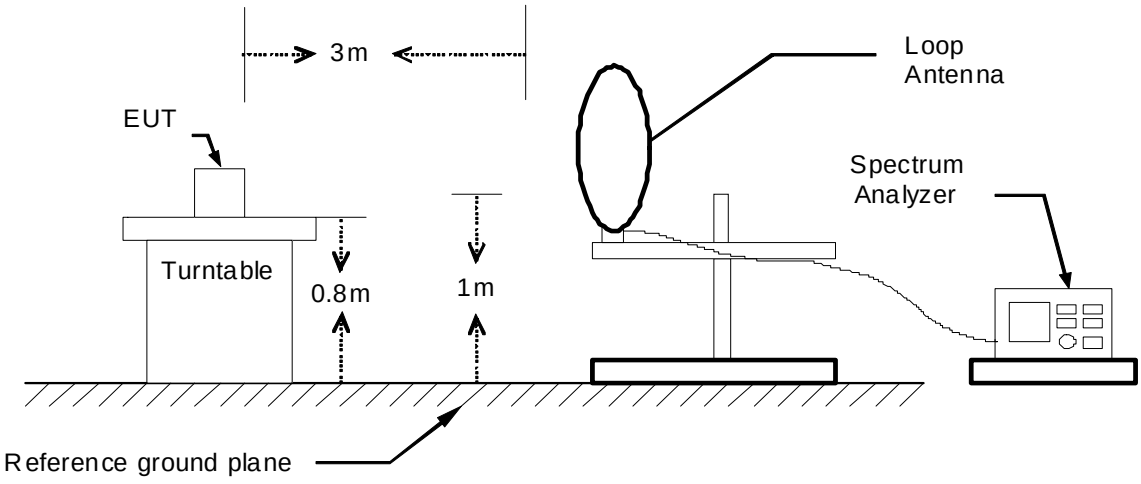
Name of Equipment	Manufacture	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360132	06/19/2012
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101131	01/13/2012
Broadband Hybrid Bi-Log Antenna	Sunol Sciences	JB1	A100209-4	10/05/2012
Double-Ridged Waveguide Horn	ETS-LINDGREN	3117	00078732	07/03/2012
Horn Antenna	COM-POWER	AH-840	03077	12/12/2011
Pre-Amplifier	Agilent	8447D	2944A10052	07/19/2012
Pre-Amplifier	Agilent	8449B	3008A01916	09/18/2012
Notch Filters Band Reject	Micro-Tronics	BRM05702-01	026	N.C.R

Remark: *1. Each piece of equipment is scheduled for calibration once a year.*
2. N.C.R = No Calibration Request.

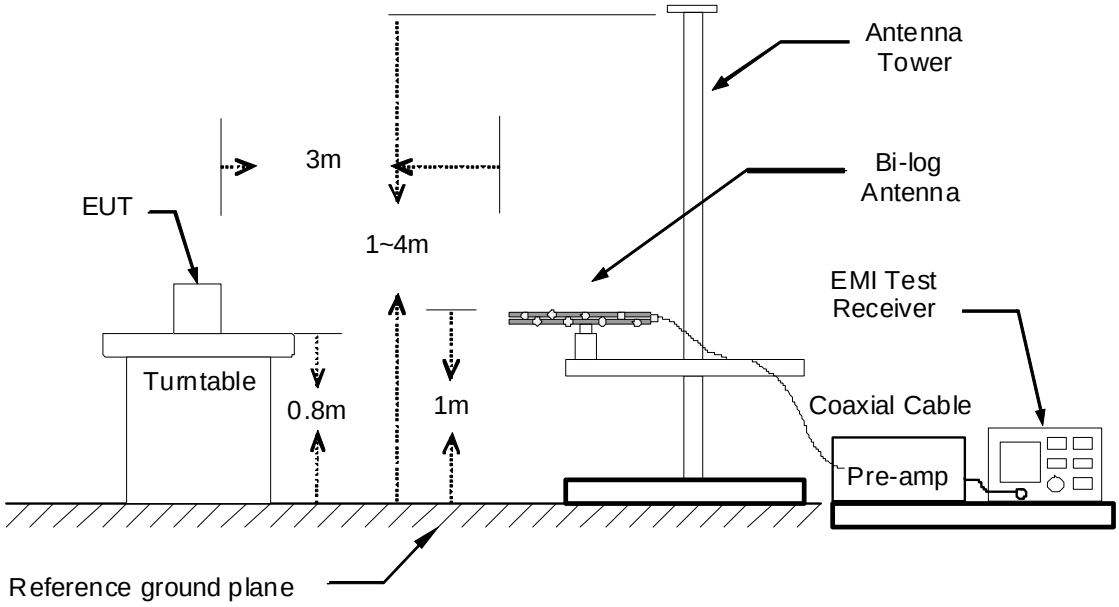
TEST SETUP

The diagram below shows the test setup that is utilized to make the measurements for emission from below 1GHz.

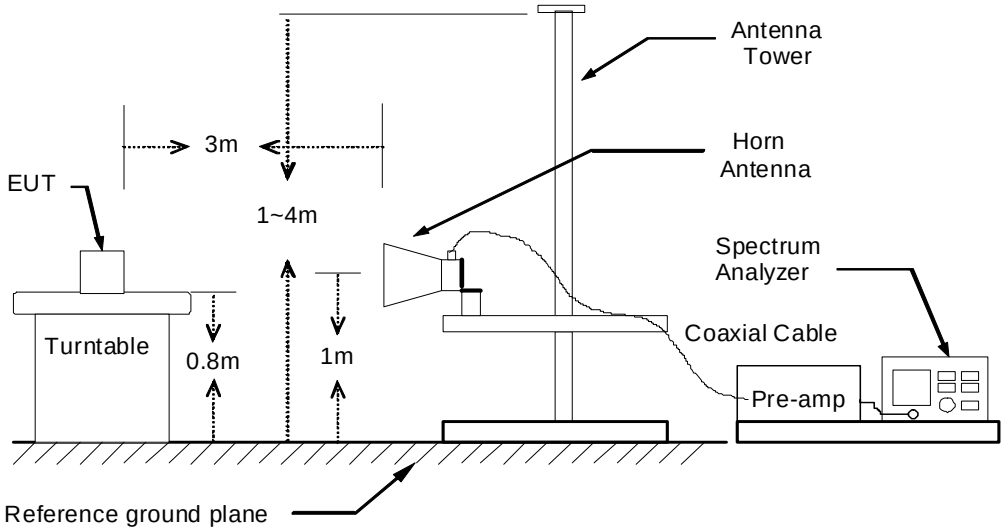
9kHz ~ 30MHz



30MHz ~ 1GHz



The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz.



TEST PROCEDURE

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.
2. While measuring the radiated emission below 1GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. While measuring the radiated emission above 1GHz, the EUT was set 3 meters away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Remark：

1. *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.*
2. *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1GHz.*
3. *The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.*

TEST RESULTS

Below 1 GHz (9kHz ~ 30MHz)

No emission found between lowest internal used/generated frequency to 30MHz.

Below 1 GHz (30MHz ~ 1GHz)

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Normal Mode	Temp. & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
119.24	42.44	-13.77	28.67	43.50	-14.83	Peak
239.52	43.53	-13.95	29.57	46.00	-16.43	Peak
301.60	40.93	-11.82	29.11	46.00	-16.89	Peak
399.57	42.16	-9.99	32.17	46.00	-13.83	Peak
431.58	38.68	-9.48	29.20	46.00	-16.80	Peak
797.27	40.00	-3.76	36.24	46.00	-9.76	QP

966 Chamber_B at 3Meter / Vertical						
Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
52.31	51.65	-19.78	31.86	40.00	-8.14	Peak
70.74	52.60	-19.48	33.12	40.00	-6.88	Peak
100.81	53.72	-17.17	36.55	43.50	-6.95	Peak
399.57	39.41	-9.99	29.42	46.00	-16.58	Peak
531.49	40.06	-8.04	32.02	46.00	-13.98	Peak
797.27	42.14	-3.76	38.38	46.00	-7.62	Peak

Remark:

1. *Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit.*
2. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
3. *Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) – PreAmp.Gain (dB)*
4. *Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)*
5. *Margin (dB) = Remark result (dBuV/m) - Quasi-peak limit (dBuV/m).*

TX Above 1 GHz

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Bluetooth / GFSK TX / CH Low	TEMP & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal									
Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1330.00	47.30	---	-2.95	44.35	---	74.00	54.00	-9.65	Peak
1602.00	52.24	---	-1.49	50.75	---	74.00	54.00	-3.25	Peak
1862.00	53.15	37.57	1.00	54.15	38.57	74.00	54.00	-15.43	AVG
3195.00	41.93	---	5.52	47.45	---	74.00	54.00	-6.55	Peak
3375.00	41.41	---	5.72	47.13	---	74.00	54.00	-6.87	Peak
4800.00	54.72	41.18	9.39	64.11	50.57	74.00	54.00	-3.43	AVG

966 Chamber_B at 3Meter / Vertical									
Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1328.00	51.93	---	-2.96	48.98	---	74.00	54.00	-5.02	Peak
1602.00	51.90	---	-1.49	50.41	---	74.00	54.00	-3.59	Peak
1862.00	54.14	37.65	1.00	55.14	38.65	74.00	54.00	-15.35	AVG
3262.50	41.57	---	5.59	47.17	---	74.00	54.00	-6.83	Peak
4635.00	41.16	---	9.28	50.44	---	74.00	54.00	-3.56	Peak
4807.50	48.00	36.27	9.39	57.39	45.66	74.00	54.00	-8.34	AVG

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
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.*
6. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(AV)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Bluetooth / GFSK TX / CH Middle	TEMP & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal									
Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1598.00	50.88	---	-1.53	49.35	---	74.00	54.00	-4.65	Peak
1628.00	50.10	---	-1.24	48.86	---	74.00	54.00	-5.14	Peak
1860.00	53.35	37.54	0.98	54.33	38.52	74.00	54.00	-15.48	AVG
3180.00	42.16	---	5.50	47.66	---	74.00	54.00	-6.34	Peak
4560.00	39.33	---	9.23	48.56	---	74.00	54.00	-5.44	Peak
4875.00	52.87	40.05	9.44	62.31	49.49	74.00	54.00	-4.51	AVG

966 Chamber_B at 3Meter / Vertical									
Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1596.00	50.83	---	-1.55	49.28	---	74.00	54.00	-4.72	Peak
1862.00	53.66	38.10	1.00	54.66	39.10	74.00	54.00	-14.90	AVG
2126.00	51.72	33.06	2.66	54.38	35.72	74.00	54.00	-18.28	AVG
3180.00	41.74	---	5.50	47.24	---	74.00	54.00	-6.76	Peak
4575.00	39.85	---	9.24	49.09	---	74.00	54.00	-4.91	Peak
4875.00	47.26	36.55	9.44	56.70	45.99	74.00	54.00	-8.01	AVG

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
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.*
6. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(AV)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Bluetooth / GFSK TX / CH High	TEMP & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal									
Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1594.00	50.46	---	-1.57	48.89	---	74.00	54.00	-5.11	Peak
1654.00	50.86	---	-0.99	49.87	---	74.00	54.00	-4.13	Peak
1860.00	53.97	37.54	0.98	54.95	38.52	74.00	54.00	-15.48	AVG
3675.00	41.73	---	6.25	47.98	---	74.00	54.00	-6.02	Peak
4305.00	40.85	---	8.34	49.18	---	74.00	54.00	-4.82	Peak
4965.00	48.64	36.87	9.50	58.14	46.37	74.00	54.00	-7.63	AVG

966 Chamber_B at 3Meter / Vertical									
Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1330.00	52.54	---	-2.95	49.59	---	74.00	54.00	-4.41	Peak
1596.00	51.58	---	-1.55	50.03	---	74.00	54.00	-3.97	Peak
1860.00	53.12	37.43	0.98	54.10	38.41	74.00	54.00	-15.59	AVG
3255.00	41.57	---	5.59	47.15	---	74.00	54.00	-6.85	Peak
4395.00	39.86	---	8.73	48.59	---	74.00	54.00	-5.41	Peak
4965.00	42.35	---	9.50	51.85	---	74.00	54.00	-2.15	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
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.*
6. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(AV)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Bluetooth / 8-DPSK TX / CH Low	TEMP & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1332.00	47.94	---	-2.94	45.00	---	74.00	54.00	-9.00	Peak
1602.00	51.89	---	-1.49	50.39	---	74.00	54.00	-3.61	Peak
1860.00	54.03	37.73	0.98	55.01	38.71	74.00	54.00	-15.29	AVG
3375.00	41.95	---	5.72	47.67	---	74.00	54.00	-6.33	Peak
4410.00	39.71	---	8.80	48.50	---	74.00	54.00	-5.50	Peak
4800.00	53.67	37.79	9.39	63.06	47.18	74.00	54.00	-6.82	AVG

966 Chamber_B at 3Meter / Vertical

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1332.00	51.75	---	-2.94	48.81	---	74.00	54.00	-5.19	Peak
1602.00	51.74	---	-1.49	50.25	---	74.00	54.00	-3.75	Peak
1864.00	54.09	37.94	1.02	55.11	38.96	74.00	54.00	-15.04	AVG
3600.00	41.26	---	6.08	47.34	---	74.00	54.00	-6.66	Peak
4455.00	39.51	---	8.99	48.50	---	74.00	54.00	-5.50	Peak
4800.00	42.03	---	9.39	51.41	---	74.00	54.00	-2.59	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
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.*
6. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(AV)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Bluetooth / 8-DPSK TX / CH Middle	TEMP & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1596.00	50.04	---	-1.55	48.49	---	74.00	54.00	-5.51	Peak
1628.00	50.51	---	-1.24	49.27	---	74.00	54.00	-4.73	Peak
1864.00	53.72	37.75	1.02	54.74	38.77	74.00	54.00	-15.23	AVG
3180.00	42.98	---	5.50	48.48	---	74.00	54.00	-5.52	Peak
4590.00	40.09	---	9.25	49.34	---	74.00	54.00	-4.66	Peak
4875.00	50.67	36.15	9.44	60.11	45.59	74.00	54.00	-8.41	AVG

966 Chamber_B at 3Meter / Vertical

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1330.00	52.24	---	-2.95	49.29	---	74.00	54.00	-4.71	Peak
1600.00	51.78	---	-1.51	50.27	---	74.00	54.00	-3.73	Peak
1862.00	54.48	37.11	1.00	55.48	38.11	74.00	54.00	-15.89	AVG
3270.00	41.93	---	5.60	47.53	---	74.00	54.00	-6.47	Peak
3855.00	41.26	---	6.67	47.92	---	74.00	54.00	-6.08	Peak
4875.00	40.30	---	9.44	49.74	---	74.00	54.00	-4.26	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
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.*
6. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(AV)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Bluetooth / 8-DPSK TX / CH High	TEMP & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1596.00	49.64	---	-1.55	48.09	---	74.00	54.00	-5.91	Peak
1654.00	51.18	---	-0.99	50.19	---	74.00	54.00	-3.81	Peak
1860.00	53.03	35.51	0.98	54.01	36.49	74.00	54.00	-17.51	AVG
3510.00	41.47	---	5.87	47.34	---	74.00	54.00	-6.66	Peak
4515.00	40.31	---	9.20	49.51	---	74.00	54.00	-4.49	Peak
4965.00	42.18	---	9.50	51.68	---	74.00	54.00	-2.32	Peak

966 Chamber_B at 3Meter / Vertical

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1866.00	53.17	37.63	1.04	54.21	38.67	74.00	54.00	-15.33	AVG
2124.00	52.08	33.49	2.65	54.73	36.14	74.00	54.00	-17.86	AVG
2922.00	46.60	---	5.05	51.66	---	74.00	54.00	-2.34	Peak
3270.00	41.52	---	5.60	47.12	---	74.00	54.00	-6.88	Peak
4395.00	40.29	---	8.73	49.02	---	74.00	54.00	-4.98	Peak
4965.00	39.95	---	9.50	49.44	---	74.00	54.00	-4.56	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
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.*
6. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(AV)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Zigbee / TX / CH Low	TEMP & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1330.00	47.37	---	-2.95	44.42	---	74.00	54.00	-9.58	Peak
1604.00	48.54	---	-1.47	47.07	---	74.00	54.00	-6.93	Peak
1862.00	53.59	38.56	1.00	54.59	39.56	74.00	54.00	-14.44	AVG
3195.00	42.43	---	5.52	47.95	---	74.00	54.00	-6.05	Peak
4575.00	39.29	---	9.24	48.53	---	74.00	54.00	-5.47	Peak
5100.00	39.95	---	9.77	49.71	---	74.00	54.00	-4.29	Peak

966 Chamber_B at 3Meter / Vertical

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1366.00	57.80	35.05	-2.85	54.95	32.20	74.00	54.00	-21.80	AVG
1598.00	53.17	---	-1.53	51.63	---	74.00	54.00	-2.37	Peak
1862.00	53.70	39.58	1.00	54.70	40.58	74.00	54.00	-13.42	AVG
3150.00	42.65	---	5.47	48.12	---	74.00	54.00	-5.88	Peak
4275.00	40.35	---	8.20	48.55	---	74.00	54.00	-5.45	Peak
4860.00	39.33	---	9.43	48.75	---	74.00	54.00	-5.25	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
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.*
6. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(AV)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Zigbee / TX / CH Middle	TEMP & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1362.00	50.35	---	-2.86	47.49	---	74.00	54.00	-6.51	Peak
1626.00	49.97	---	-1.26	48.71	---	74.00	54.00	-5.29	Peak
1862.00	54.05	39.62	1.00	55.05	40.62	74.00	54.00	-13.38	AVG
3255.00	42.55	---	5.59	48.13	---	74.00	54.00	-5.87	Peak
4440.00	39.34	---	8.93	48.26	---	74.00	54.00	-5.74	Peak
4935.00	39.40	---	9.48	48.88	---	74.00	54.00	-5.12	Peak

966 Chamber_B at 3Meter / Vertical

Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1364.00	58.58	37.58	-2.85	55.73	34.73	74.00	54.00	-19.27	AVG
1858.00	54.66	39.60	0.96	55.62	40.56	74.00	54.00	-13.44	AVG
2128.00	47.23	---	2.66	49.90	---	74.00	54.00	-4.10	Peak
3150.00	41.68	---	5.47	47.15	---	74.00	54.00	-6.85	Peak
4320.00	40.11	---	8.40	48.51	---	74.00	54.00	-5.49	Peak
5085.00	41.29	---	9.73	51.02	---	74.00	54.00	-2.98	Peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
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.*
6. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(AV)
   Remark AVG = Result(AV) – Limit(AV)

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/02
Test Mode	Zigbee / TX / CH High	TEMP & Humidity	25°C, 56%

966 Chamber_B at 3Meter / Horizontal									
Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1330.00	47.89	---	-2.95	44.94	---	74.00	54.00	-9.06	Peak
1596.00	48.70	---	-1.55	47.15	---	74.00	54.00	-6.85	Peak
1862.00	54.09	38.12	1.00	55.09	39.12	74.00	54.00	-14.88	AVG
3225.00	41.38	---	5.55	46.93	---	74.00	54.00	-7.07	Peak
4545.00	39.54	---	9.22	48.76	---	74.00	54.00	-5.24	Peak
4905.00	40.54	---	9.46	49.99	---	74.00	54.00	-4.01	Peak

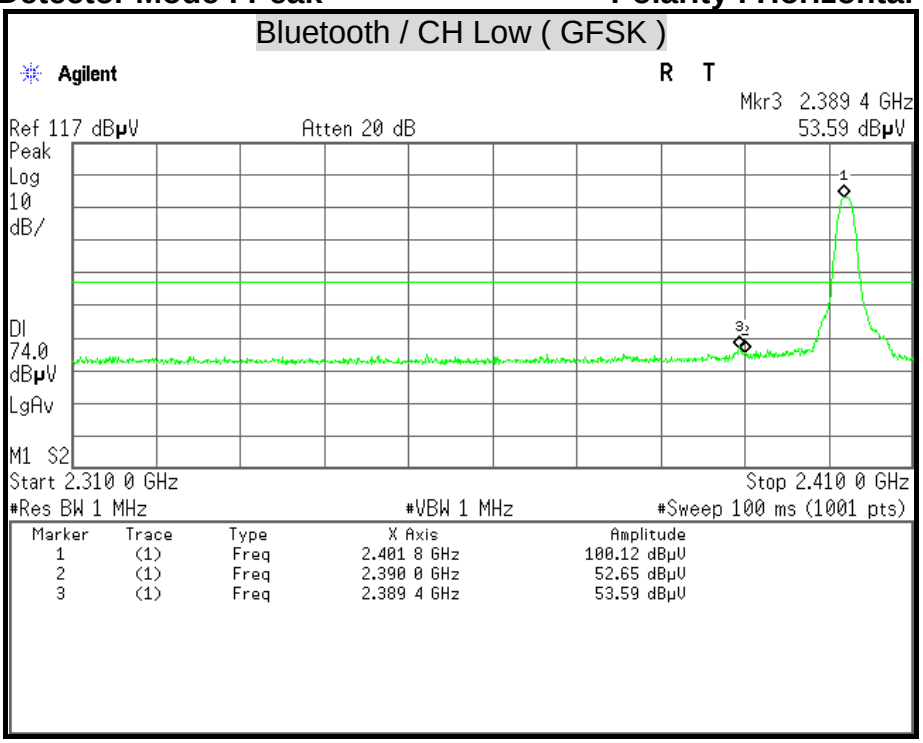
966 Chamber_B at 3Meter / Vertical									
Frequency (MHz)	Reading-PK (dBuV)	Reading-AV (dBuV)	Correction Factor (dB/m)	Result-PK (dBuV/m)	Result-AV (dBuV/m)	Limit-PK (dBuV/m)	Limit-AV (dBuV/m)	Margin (dB)	Remark
1370.00	54.20	---	-2.84	51.37	---	74.00	54.00	-2.63	Peak
1594.00	52.78	---	-1.57	51.21	---	74.00	54.00	-2.79	Peak
1862.00	54.39	39.85	1.00	55.39	40.85	74.00	54.00	-13.15	AVG
3195.00	41.58	---	5.52	47.10	---	74.00	54.00	-6.90	Peak
4530.00	38.94	---	9.21	48.15	---	74.00	54.00	-5.85	Peak
4995.00	39.45	---	9.52	48.96	---	74.00	54.00	-5.04	Peak

Remark:

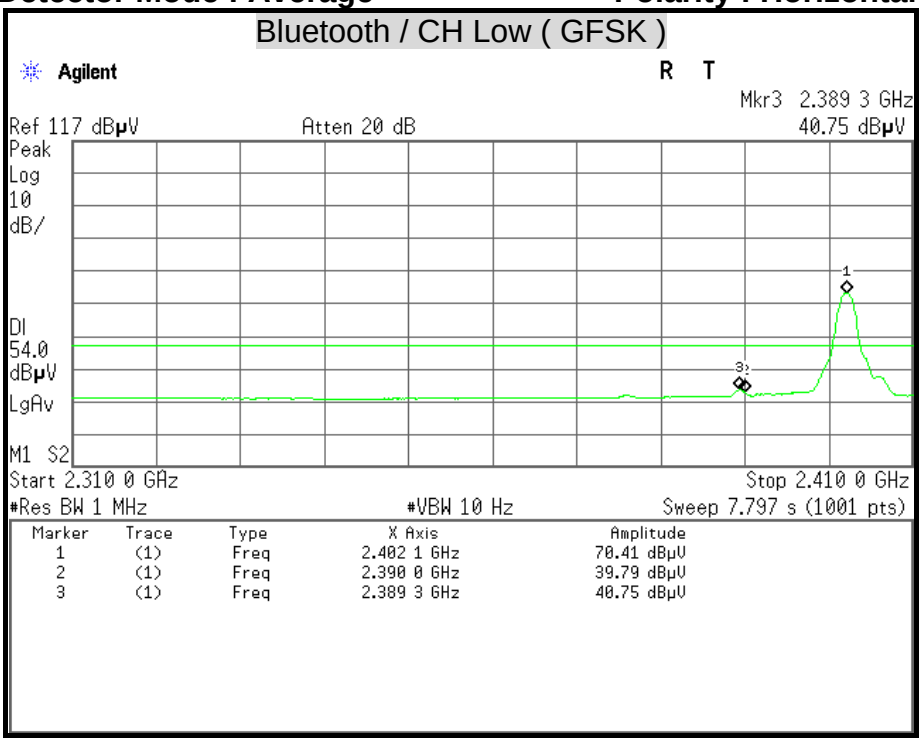
1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Average test would be performed if the peak result were greater than the average limit.*
3. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
4. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
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.*
6. *Result = Reading + Correction Factor*
   Margin = Result – Limit
   Remark Peak = Result(PK) – Limit(AV)
   Remark AVG = Result(AV) – Limit(AV)

Restricted Band Edges

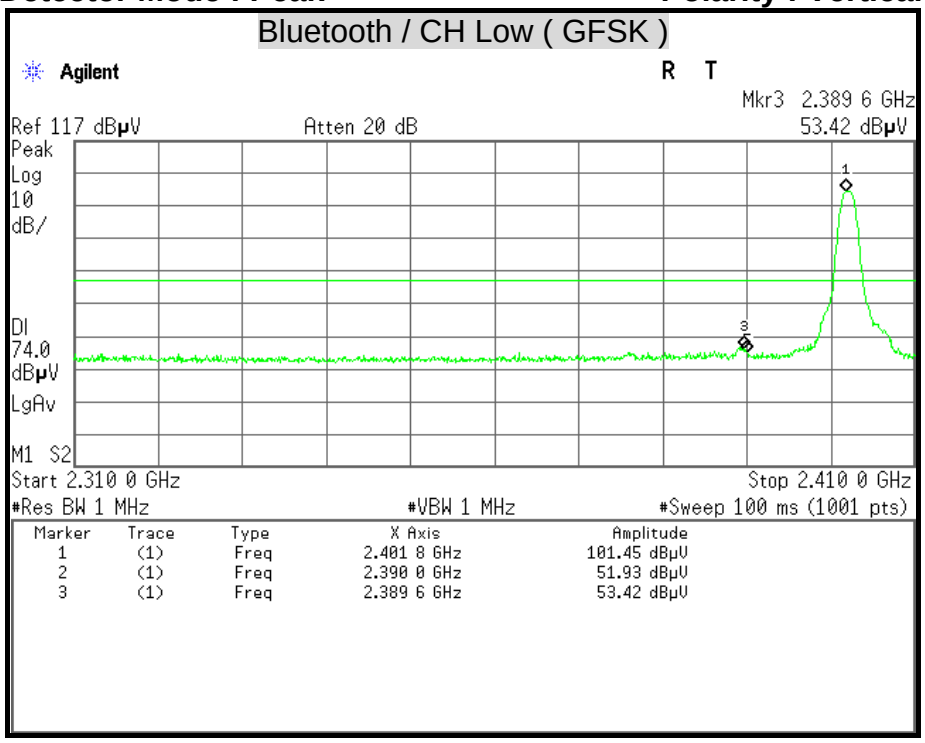
Detector Mode : Peak **Polarity : Horizontal**



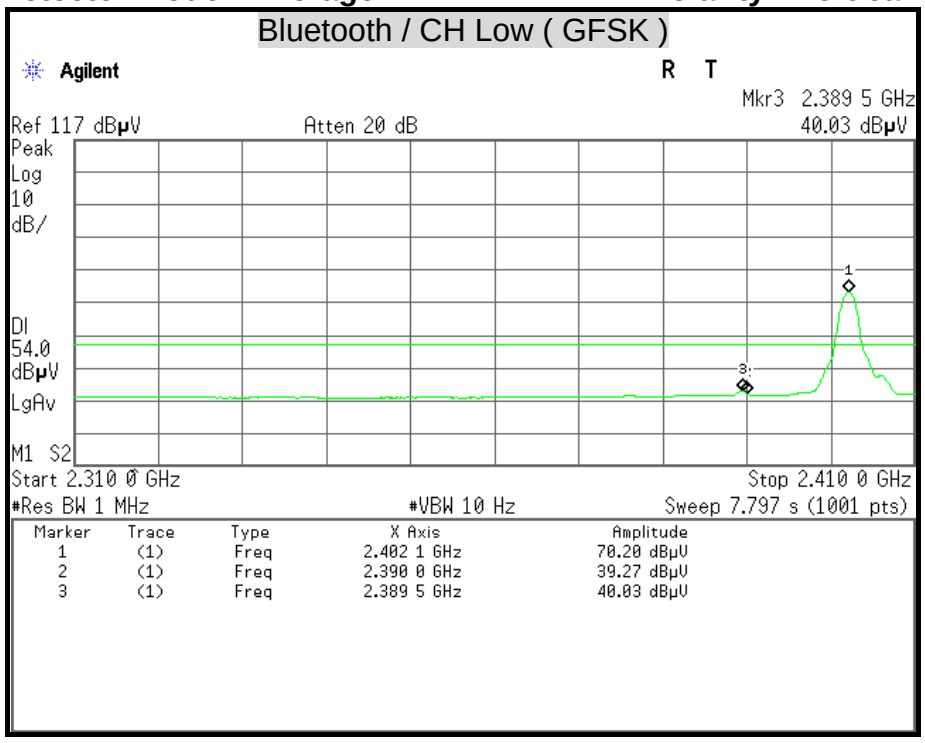
Detector Mode : Average **Polarity : Horizontal**



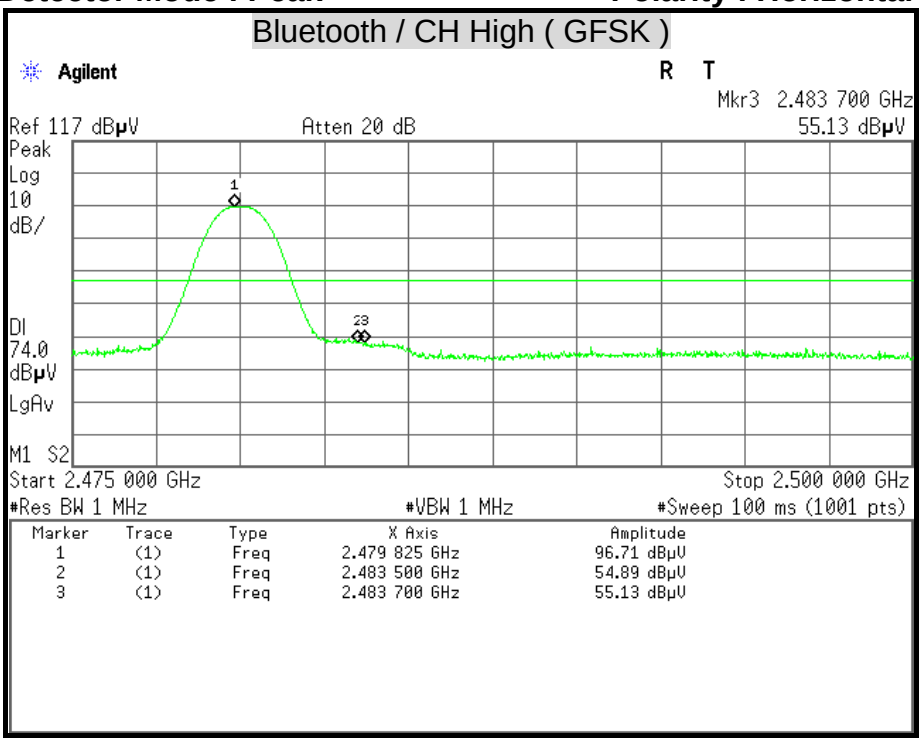
Detector Mode : Peak **Polarity : Vertical**



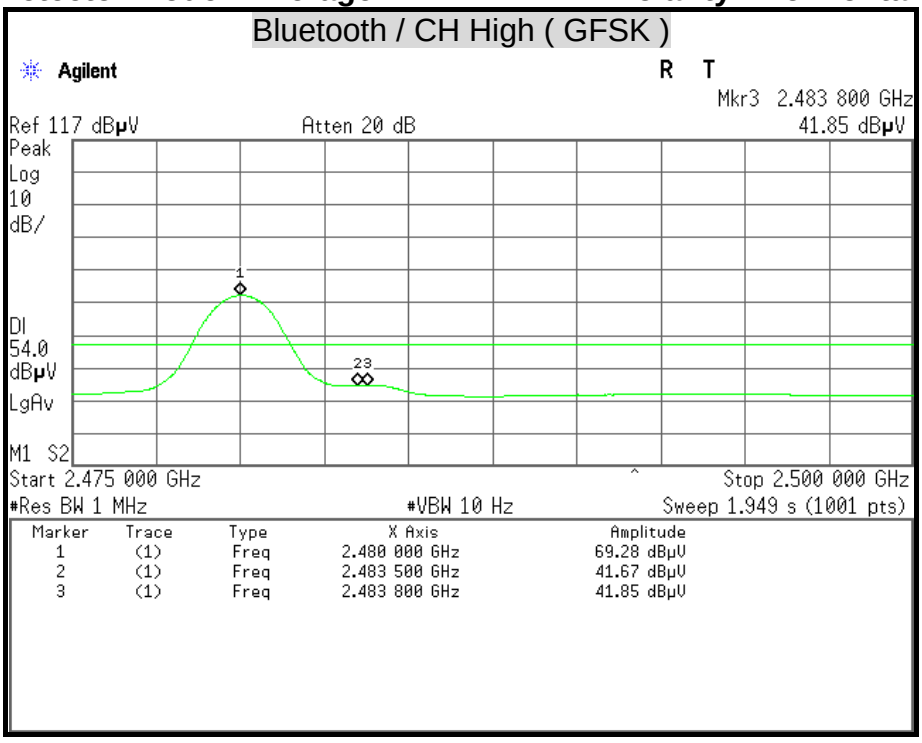
Detector Mode : Average **Polarity : Vertical**



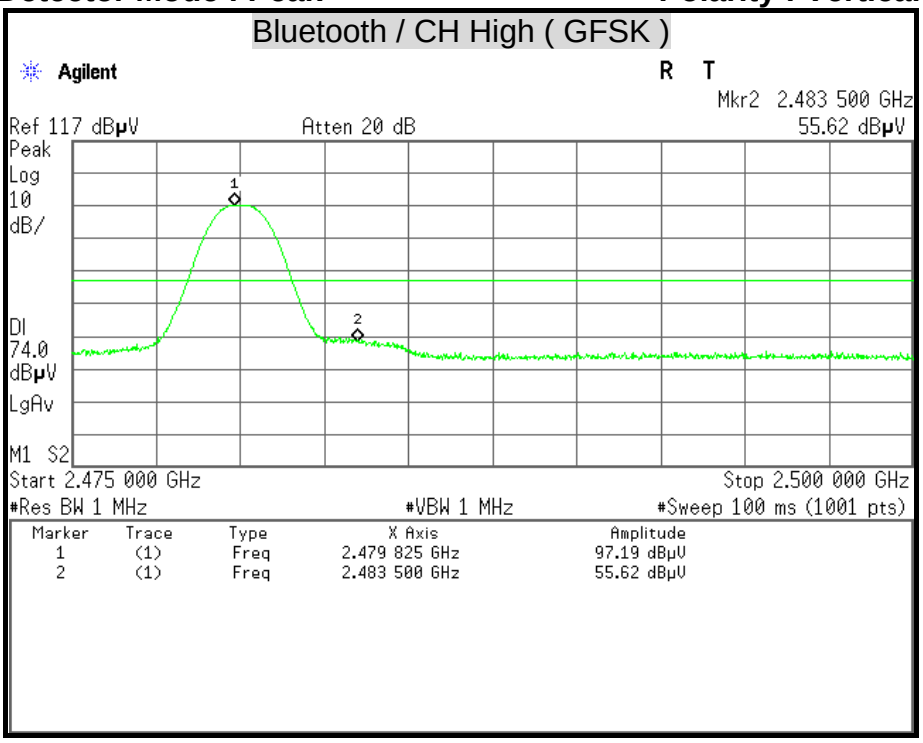
Detector Mode : Peak **Polarity : Horizontal**



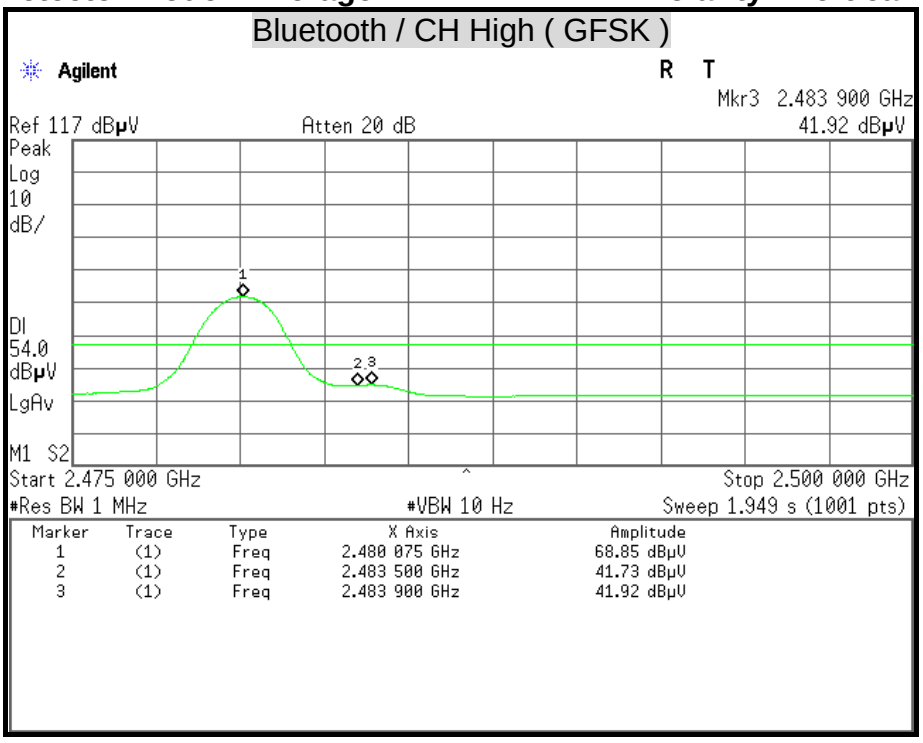
Detector Mode : Average **Polarity : Horizontal**



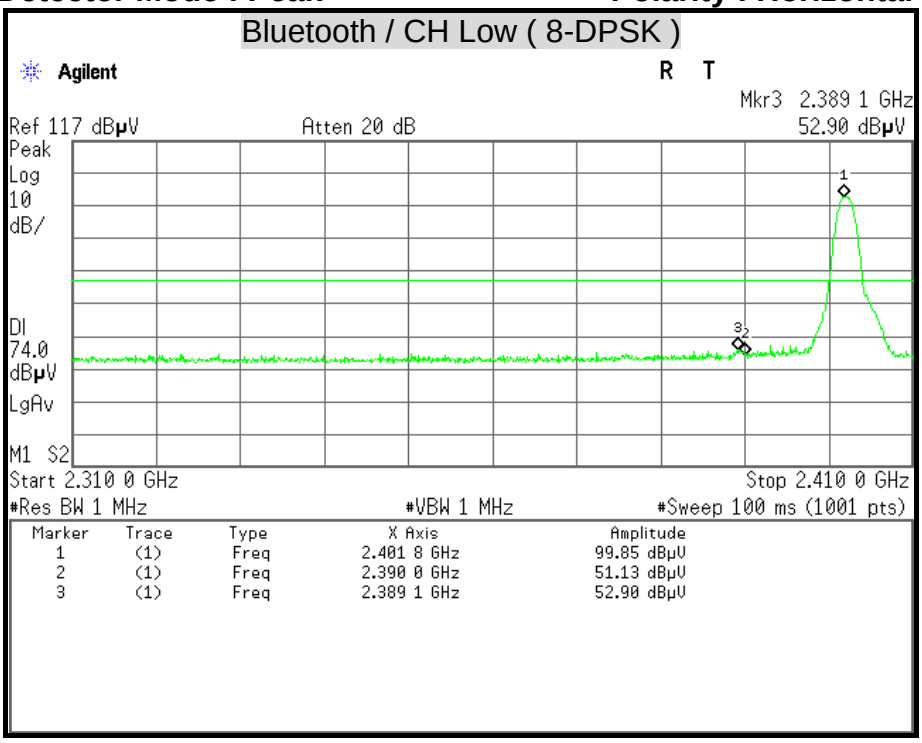
Detector Mode : Peak **Polarity : Vertical**



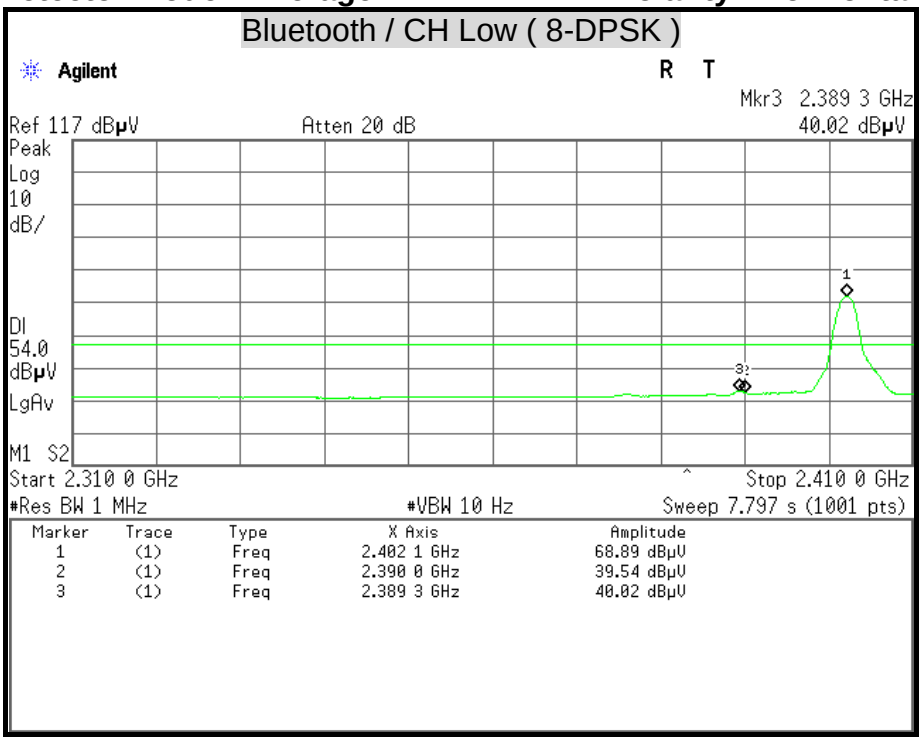
Detector Mode : Average **Polarity : Vertical**



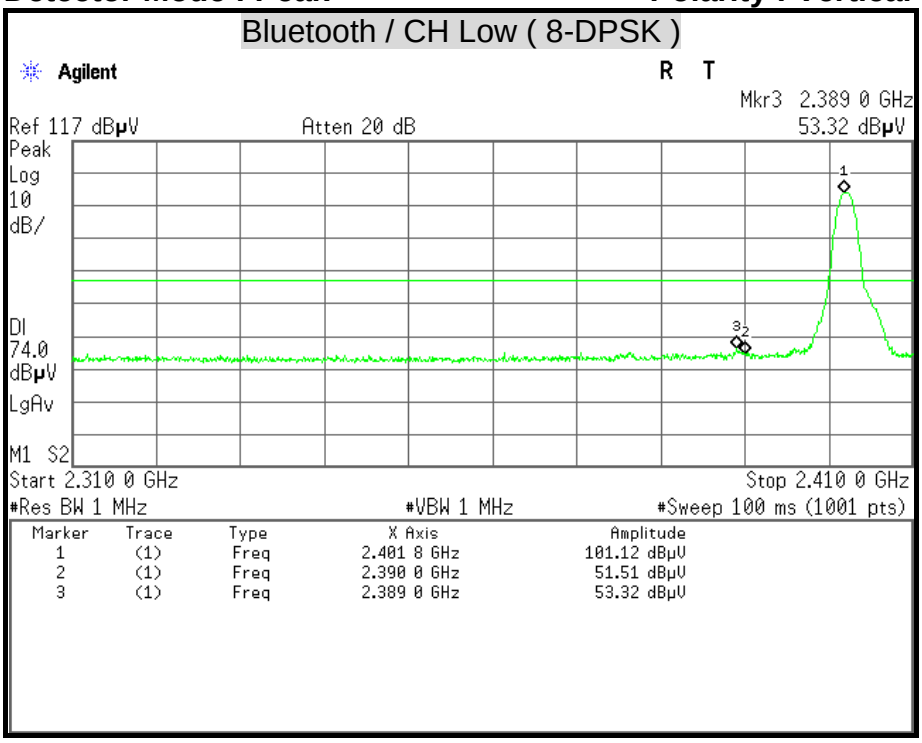
Detector Mode : Peak **Polarity : Horizontal**



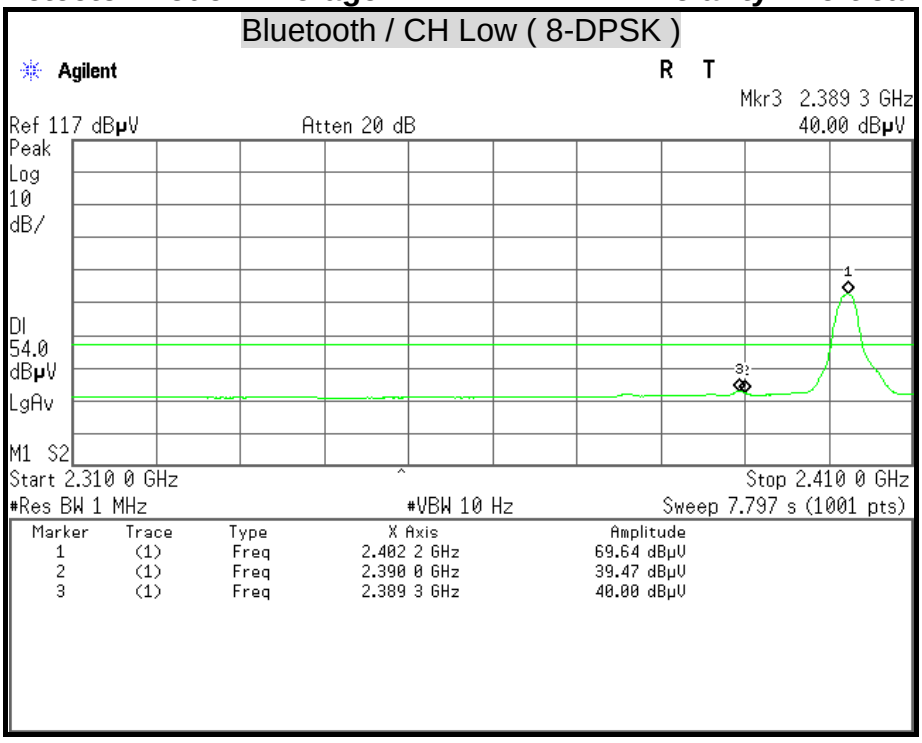
Detector Mode : Average **Polarity : Horizontal**



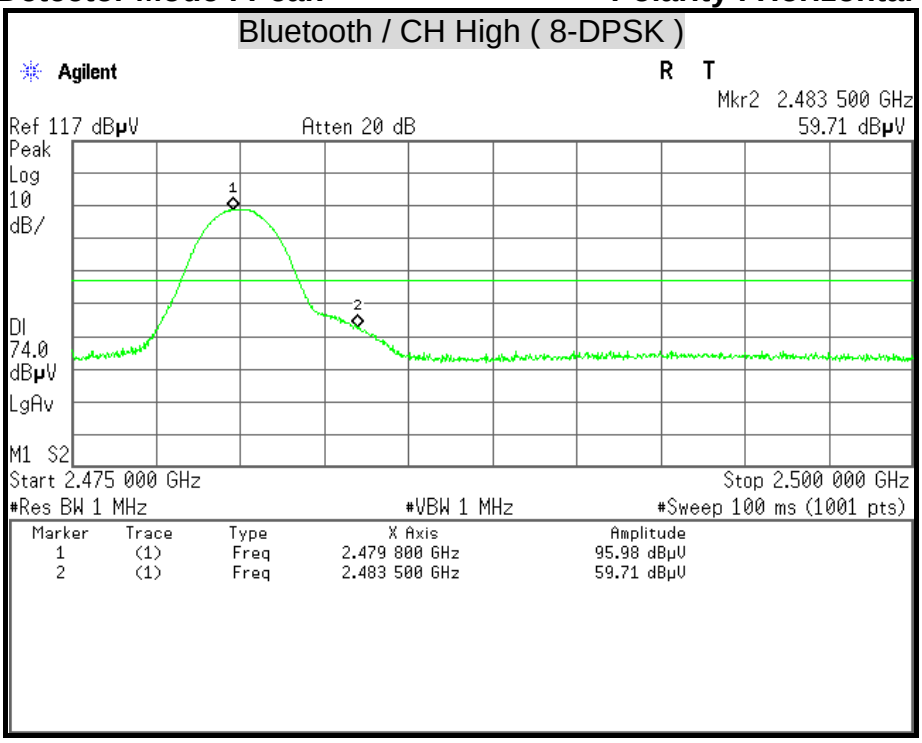
Detector Mode : Peak **Polarity : Vertical**



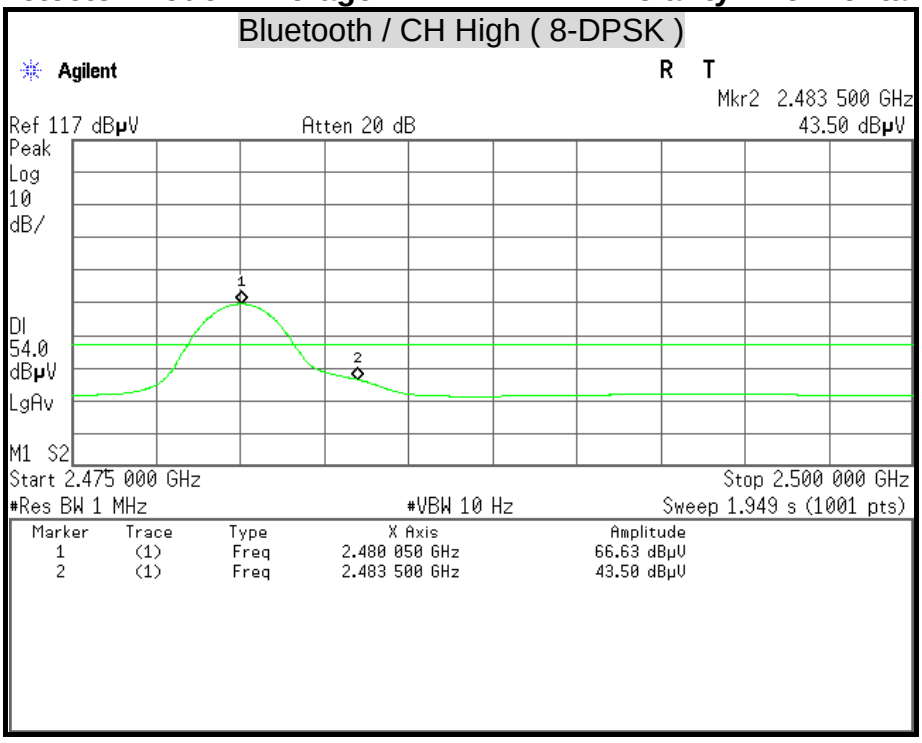
Detector Mode : Average **Polarity : Vertical**



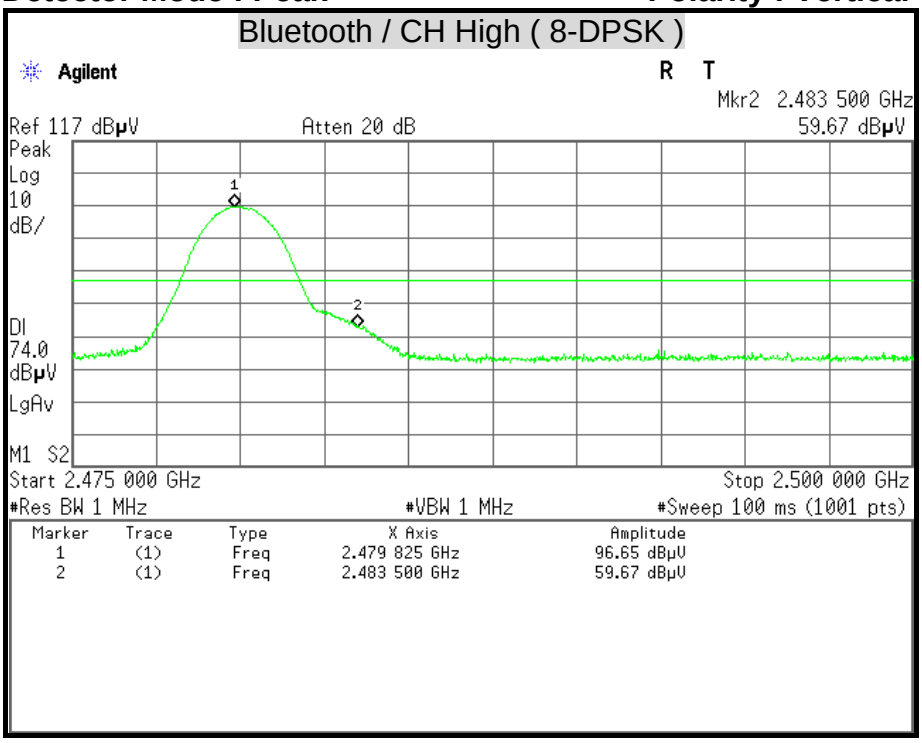
Detector Mode : Peak **Polarity : Horizontal**



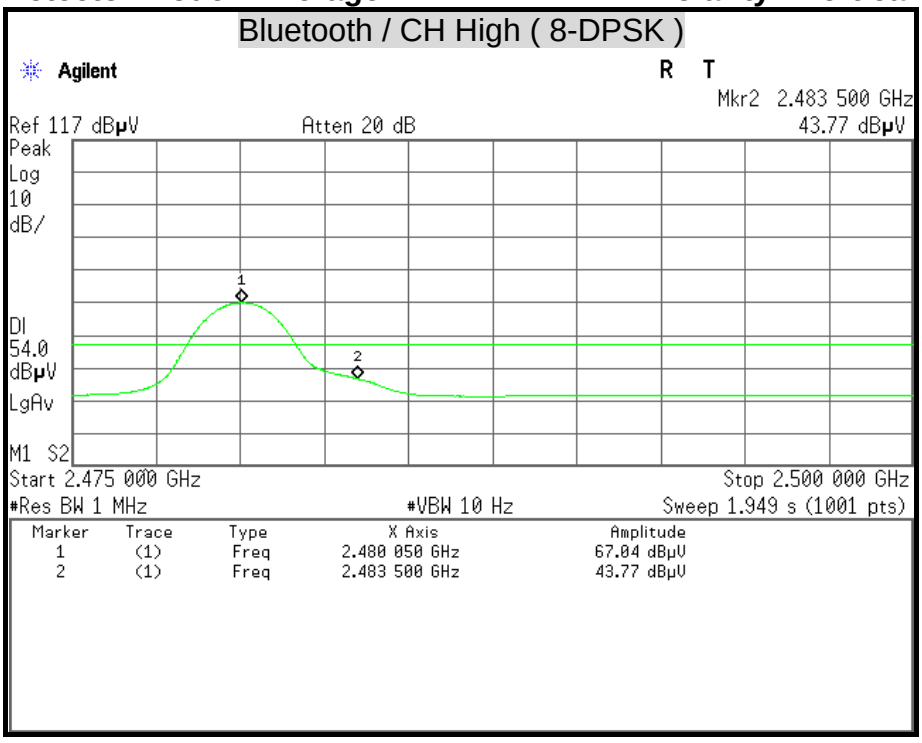
Detector Mode : Average **Polarity : Horizontal**



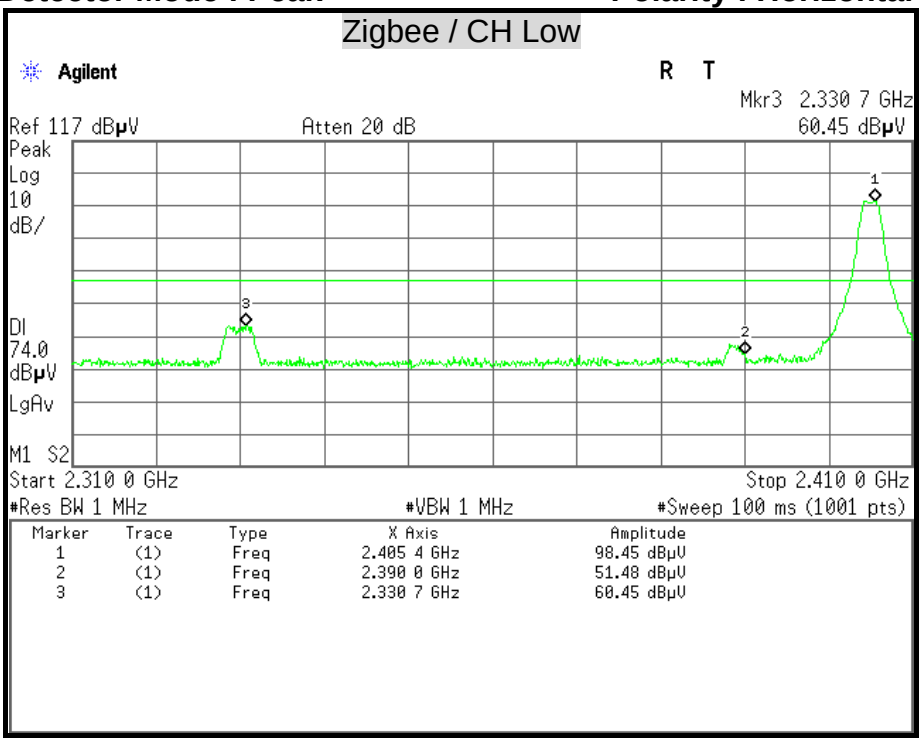
Detector Mode : Peak **Polarity : Vertical**



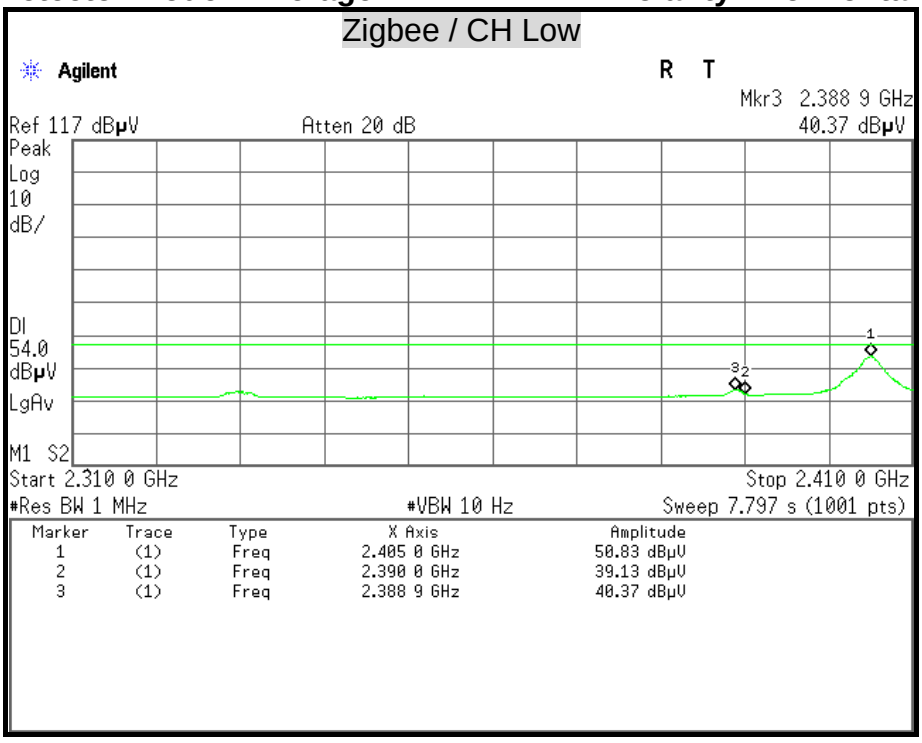
Detector Mode : Average **Polarity : Vertical**



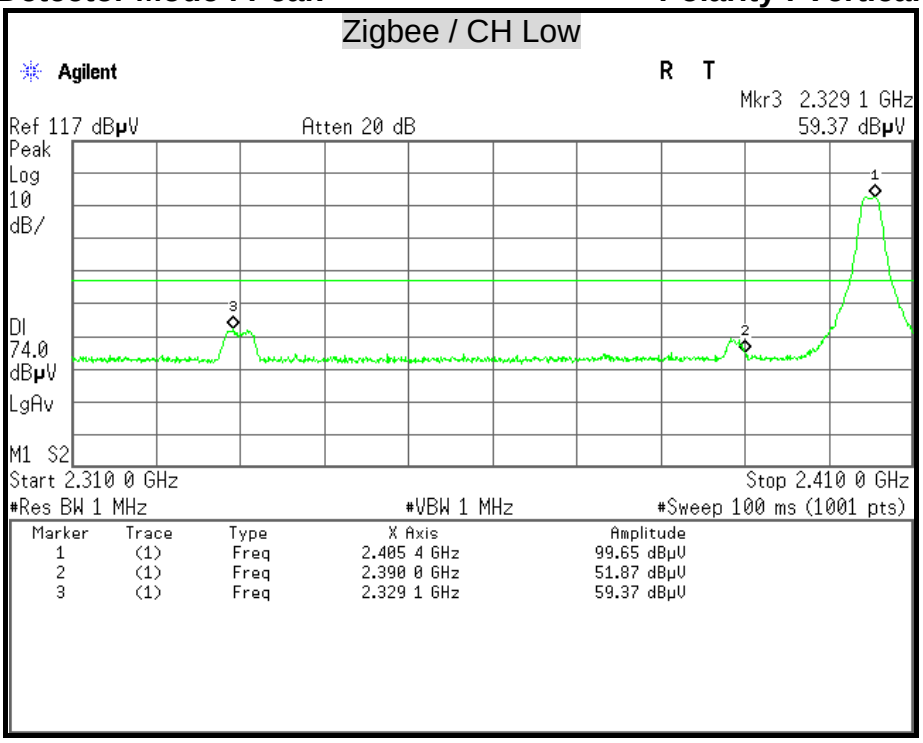
Detector Mode : Peak **Polarity : Horizontal**



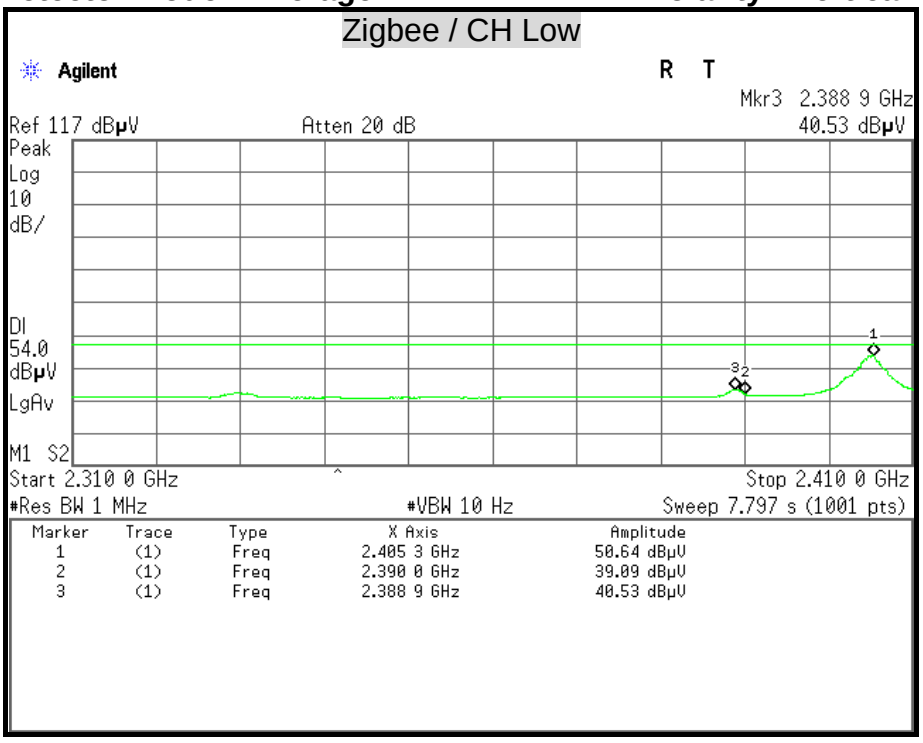
Detector Mode : Average **Polarity : Horizontal**



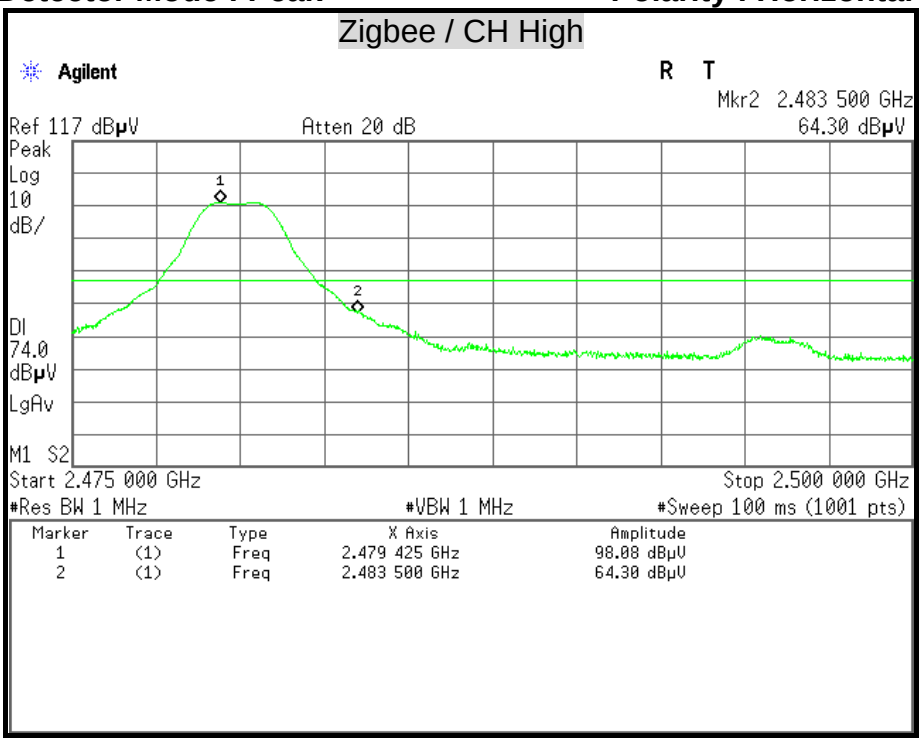
Detector Mode : Peak **Polarity : Vertical**



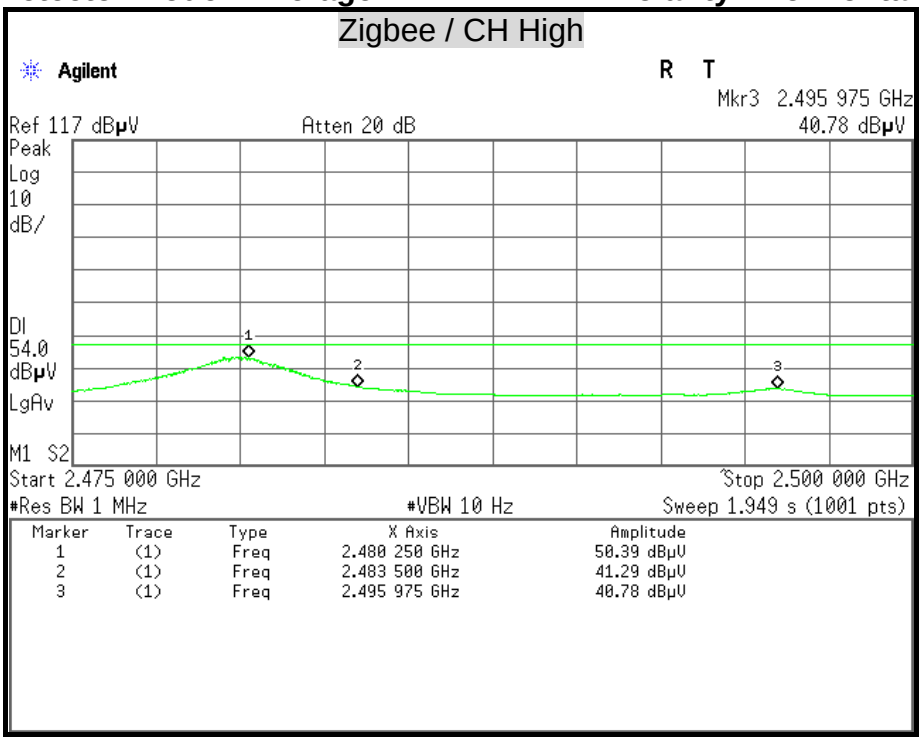
Detector Mode : Average **Polarity : Vertical**



Detector Mode : Peak **Polarity : Horizontal**

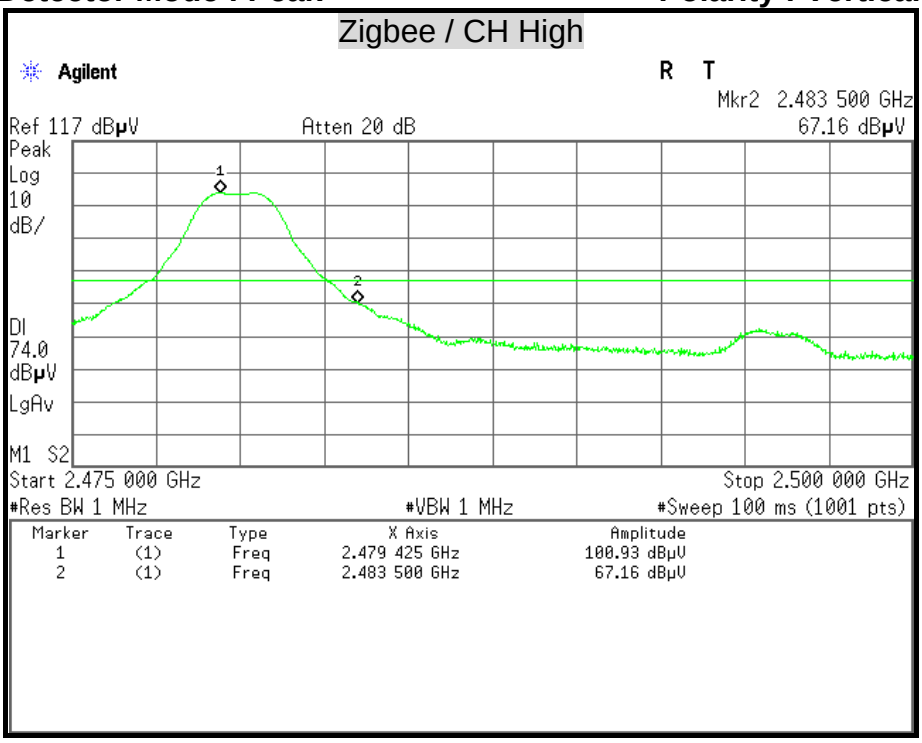


Detector Mode : Average **Polarity : Horizontal**



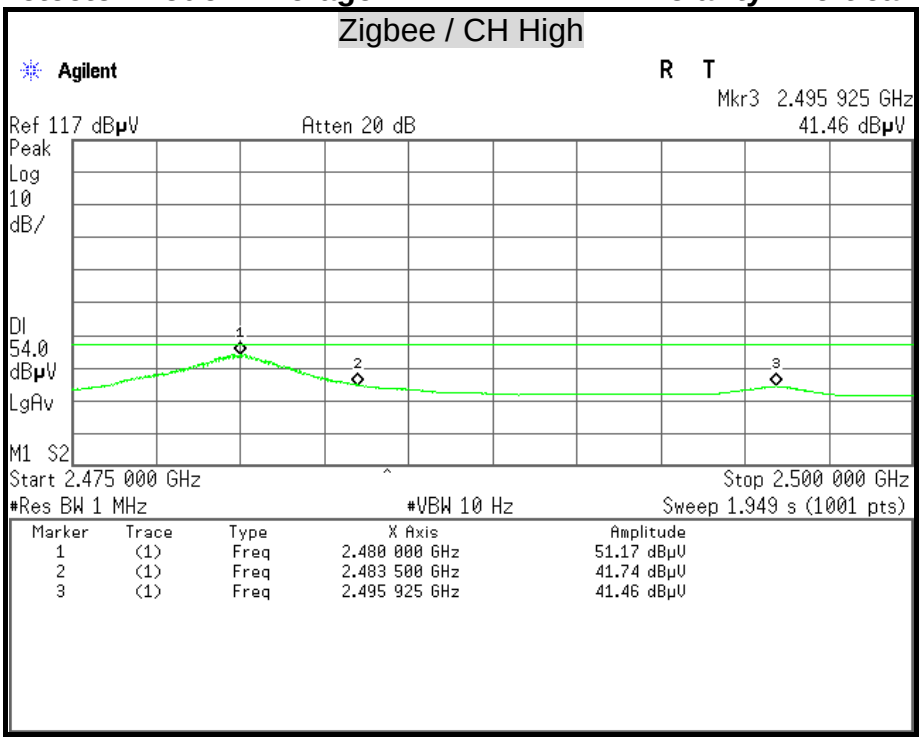
Detector Mode : Peak **Polarity : Vertical**

Zigbee / CH High



Detector Mode : Average **Polarity : Vertical**

Zigbee / CH High



10. CONDUCTED EMISSION

LIMITS

§ 15.207 (a) Except as shown in paragraph (b) and (c) this section, 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 ohms 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.

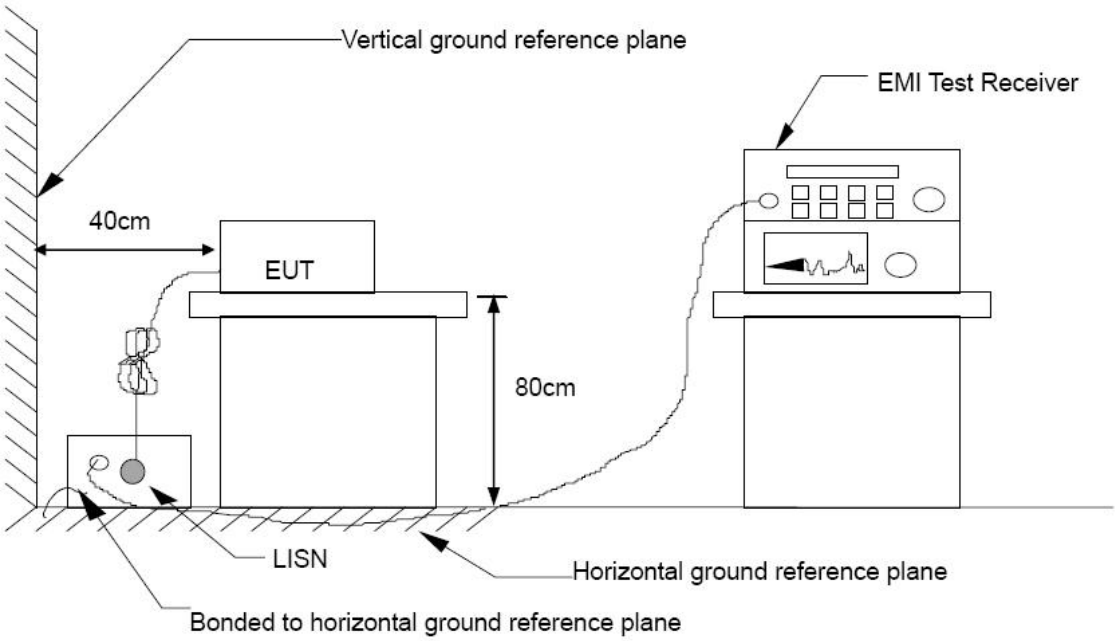
Frequency Range (MHz)	Conducted Limit (dBμv)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5.00	56	46
5.00 - 30.0	60	50

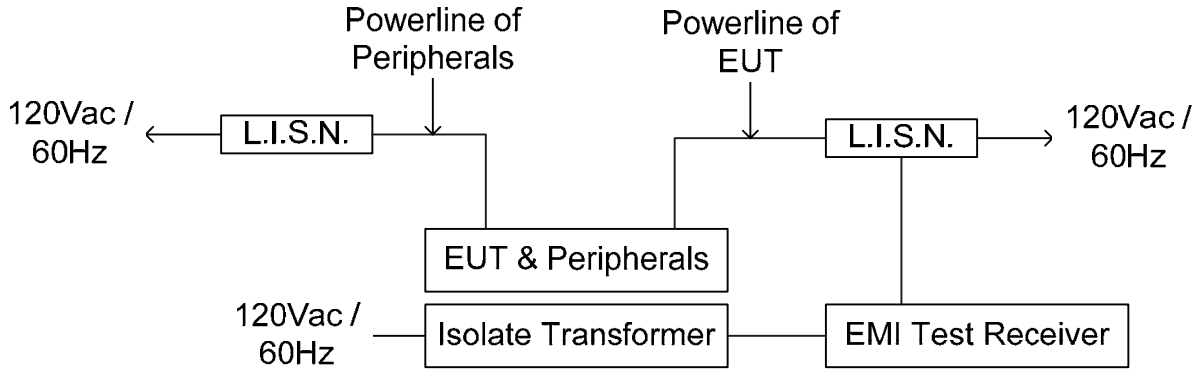
TEST EQUIPMENT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
L.I.S.N	SCHWARZBECK	NSLK 8127	8127-465	08/09/2012
L.I.S.N	SCHWARZBECK	NSLK 8127	8127-473	03/14/2012
EMI Receiver	ROHDE & SCHWARZ	ESCS 30	835418/008	10/20/2012
Pulse Limit	ROHDE & SCHWARZ	ESH3-Z2	100117	09/14/2012

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST SETUP





TEST PROCEDURE

The test procedure is performed in a 4m × 3m × 2.4m (L×W×H) shielded room.

The EUT along with its peripherals were placed on a 1.0m (W) × 1.5m (L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.

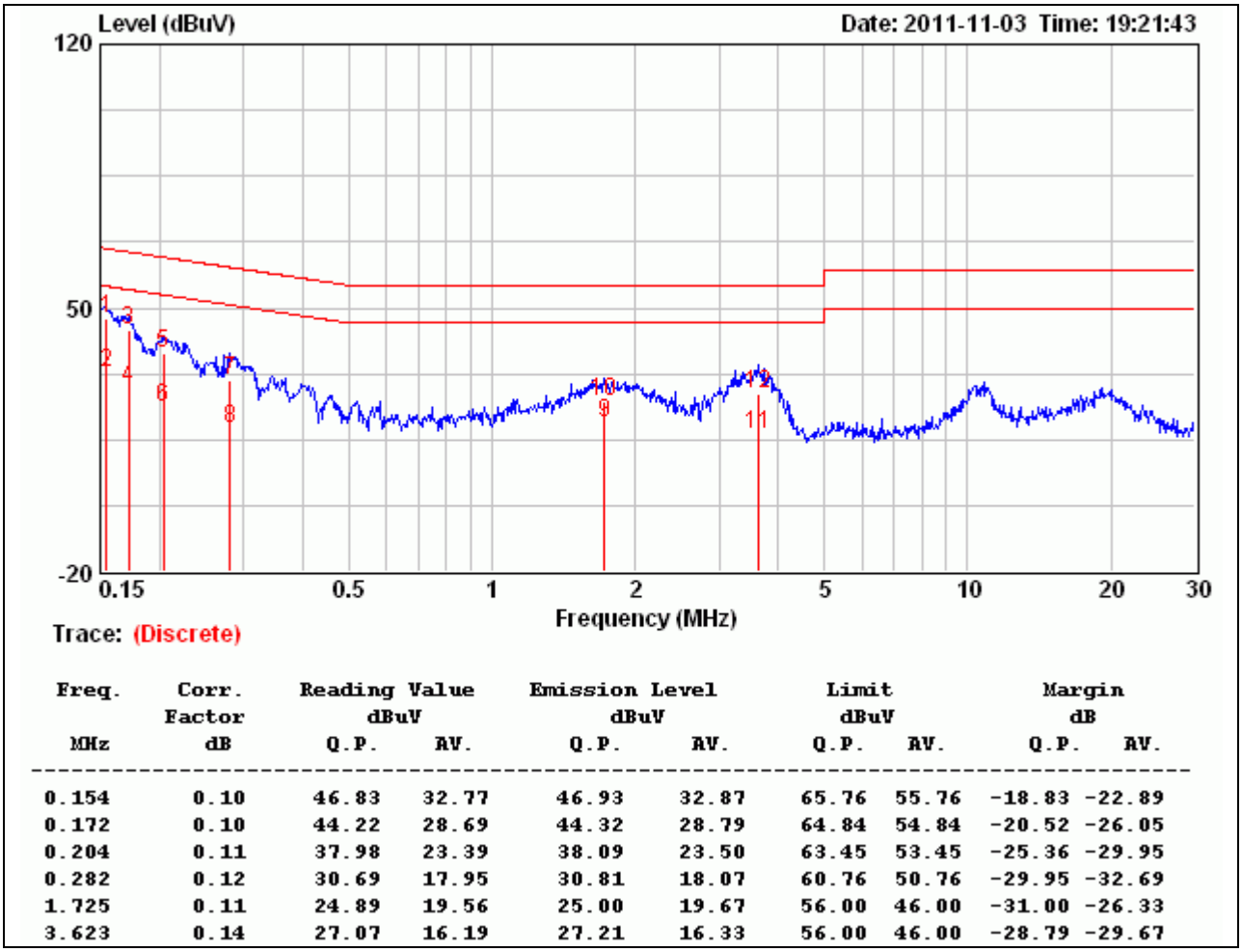
The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.

The EUT was located so that the distance between the boundary of the EUT and the closest surface of the LISN is 0.8 m. Where a mains flexible cord was provided by the manufacturer shall be 1 m long, or if in excess of 1 m, the excess cable was folded back and forth as far as possible so as to form a bundle not exceeding 0.4 m in length.

TEST RESULTS

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/03
Test Mode	Normal Mode	Temp. & Humidity	21°C, 58%

LINE



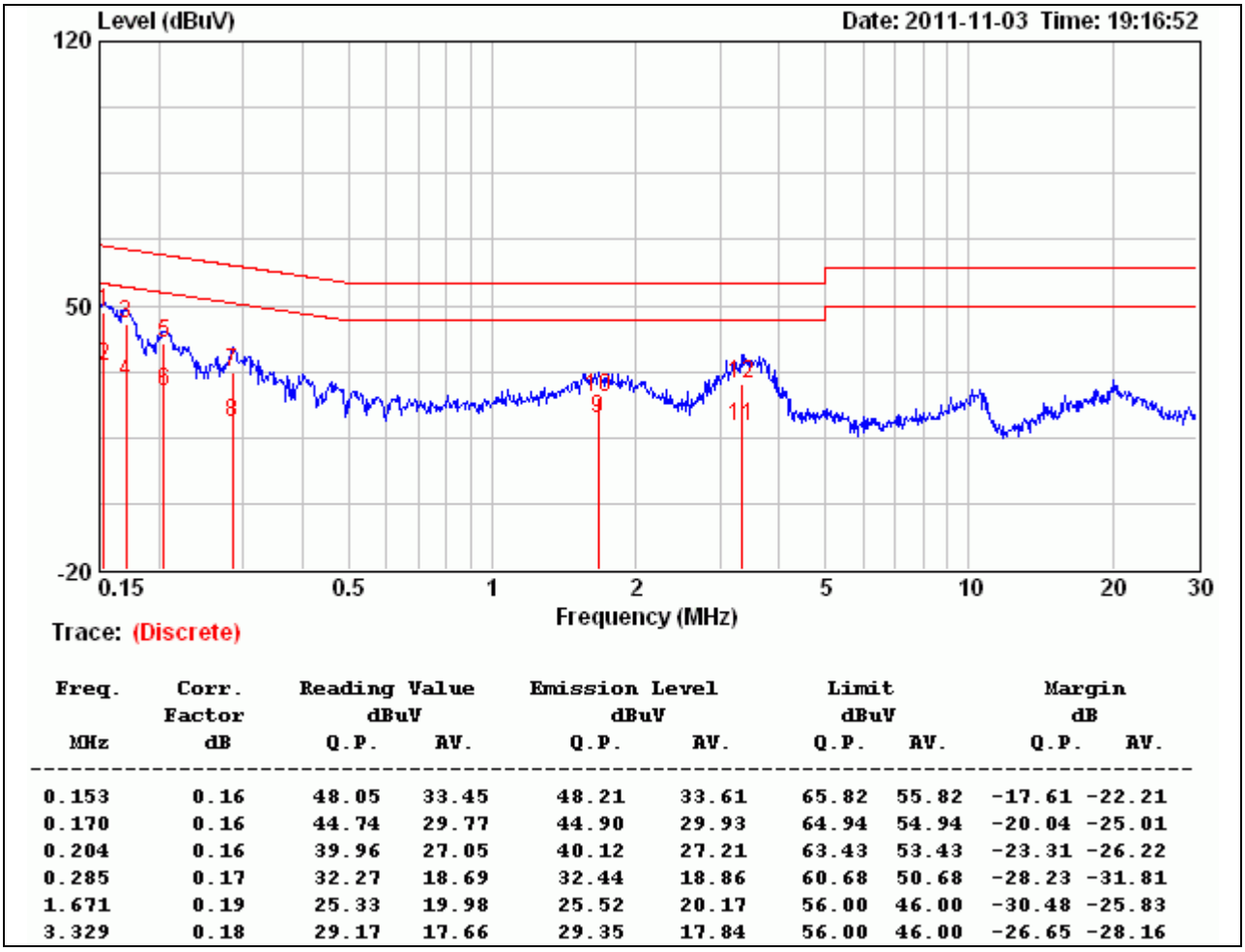
Freq. MHz	Corr. Factor dB	Reading Value dBuV Q.P.	Reading Value dBuV AV.	Emission Level dBuV Q.P.	Emission Level dBuV AV.	Limit dBuV Q.P.	Limit dBuV AV.	Margin dB Q.P.	Margin dB AV.
0.154	0.10	46.83	32.77	46.93	32.87	65.76	55.76	-18.83	-22.89
0.172	0.10	44.22	28.69	44.32	28.79	64.84	54.84	-20.52	-26.05
0.204	0.11	37.98	23.39	38.09	23.50	63.45	53.45	-25.36	-29.95
0.282	0.12	30.69	17.95	30.81	18.07	60.76	50.76	-29.95	-32.69
1.725	0.11	24.89	19.56	25.00	19.67	56.00	46.00	-31.00	-26.33
3.623	0.14	27.07	16.19	27.21	16.33	56.00	46.00	-28.79	-29.67

Remark:

1. *Correction Factor = Insertion loss + Cable loss*
2. *Emission level = Reading Value + Correction factor*
3. *Margin value = Emission level – Limit value*

Product Name	magnetU	Test By	Waternil Guan
Test Model	magnetU	Test Date	2011/11/03
Test Mode	Normal Mode	Temp. & Humidity	21°C, 58%

NEUTRAL



Freq. MHz	Corr. Factor dB	Reading Value dBuV Q.P.	Reading Value dBuV AV.	Emission Level dBuV Q.P.	Emission Level dBuV AV.	Limit dBuV Q.P.	Limit dBuV AV.	Margin dB Q.P.	Margin dB AV.
0.153	0.16	48.05	33.45	48.21	33.61	65.82	55.82	-17.61	-22.21
0.170	0.16	44.74	29.77	44.90	29.93	64.94	54.94	-20.04	-25.01
0.204	0.16	39.96	27.05	40.12	27.21	63.43	53.43	-23.31	-26.22
0.285	0.17	32.27	18.69	32.44	18.86	60.68	50.68	-28.23	-31.81
1.671	0.19	25.33	19.98	25.52	20.17	56.00	46.00	-30.48	-25.83
3.329	0.18	29.17	17.66	29.35	17.84	56.00	46.00	-26.65	-28.16

Remark:

1. Correction Factor = Insertion loss + Cable loss
2. Emission level = Reading Value + Correction factor
3. Margin value = Emission level – Limit value