

FCC Test Report

Equipment : IEEE 802.11 1X1 ac/a/b/g/n Wireless LAN +Bluetooth
NGFF Module

Brand Name : AzureWave

Model No. : AW-CM286NF

FCC ID : TLZ-CM286NF

Standard : 47 CFR FCC Part 15.247

Operating Band : 2400 MHz – 2483.5 MHz

Applicant : AzureWave Technologies, Inc.
8F., No.94, Baozhong Rd. , Xindian Dist., New Taipei
City , Taiwan 231

Manufacturer : AzureWave Technologies, Inc.
8F., No.94, Baozhong Rd. , Xindian Dist., New Taipei
City , Taiwan 231

The product sample received on Apr. 03, 2017 and completely tested on Nov. 22, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given inanes and shown compliance with the applicable technical standards.

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


Cliff Chang
SPORTON INTERNATIONAL INC.



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Summary of Test Result

Conformance Test Specifications				
Report Clause	Ref. Std. Clause	Description	Limit	Result
1.1.2	15.203	Antenna Requirement	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	FCC 15.207	Complied
3.2	15.247(a)	20dB Bandwidth	15.247(a)	Complied
3.2	15.247(a)	Carrier Frequency Separation	15.247(a)	Complied
3.3	15.247(b)	Maximum Conducted Output Power	15.247(b)	Complied
3.4	15.247(a)	Number of Hopping Frequencies and Hopping Band edge	15.247(a)	Complied
3.5	15.247(a)	Time of Occupancy (Dwell Time)	15.247(a)	Complied
3.6	15.247(d)	Emissions in Non-restricted Frequency Bands	15.247(d)	Complied
3.7	15.247(d)	Emissions in Restricted Frequency Bands	Restricted Bands: FCC 15.209	Complied



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FCC ID: TLZ-CM286NF

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Bluetooth Version	Ch. Frequency (MHz)	Channel Number
2400-2483.5	BR / EDR	2402-2480	0-78 [79]

Band	Mode	BWch (MHz)	Nant
2.4G	BT-EDR	1	1
2.4G	BT-EDR2	1	1
2.4G	BT-EDR3	1	1

Note:

- ♦ 2.4G is the 2.4GHz Band (2.4-2.4835GHz).
- ♦ Bluetooth BR uses a GFSK (1Mbps).
- ♦ Bluetooth EDR uses a combination of $\pi/4$ -DQPSK (2Mbps) and 8DPSK (3Mbps).
- ♦ Bluetooth BR/EDR uses as a system using FHSS modulation.
- ♦ BWch is the channel separation
- ♦ Nss-Min is the minimum number of spatial streams.
- ♦ Nant is the number of outputs. e.g., 2(2, 3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

1.1.2 Antenna Information

Ant.	Brand Holder	Brand Holder P/N	Antenna Type	Connector
1	Smart Approach Co.,Ltd.	SE-ECX10-001	PIFA Antenna	I-PEX
2	Smart Approach Co.,Ltd.	SE-ECX10-002	PIFA Antenna	I-PEX
3	Smart Approach Co.,Ltd.	SE-ECX10-003	PIFA Antenna	I-PEX
4	Smart Approach Co.,Ltd.	SE-ECX10-004	PIFA Antenna	I-PEX
5	Smart Approach Co.,Ltd.	SE-ECX10-005	PIFA Antenna	I-PEX
6	Smart Approach Co.,Ltd.	SE-ECX10-006	PIFA Antenna	I-PEX

Ant.	True Gain = antenna gain + cable loss (dBi)				
	2.4G	5G B1	5G B2	5G B3	5G B4
1	-0.94	1.42	1.42	0.58	2.16
2	-1.67	-0.29	-0.33	1.37	1.37
3	1.04	0.92	0.92	2.59	2.59
4	0.31	0.93	0.28	-1.11	-1.37
5	1.01	0.07	0.07	0.34	-0.68
6	0.64	0.38	-0.52	-0.49	-0.68

Note1: There are 6 antennas in the antenna table list. Ant.1~Ant.6 are the same type antennas, so only the higher gain antenna was tested. 2.4G and 5G Band 3 / Band 4 use Ant.3 for test, and 5G Band 1 / Band 2 use Ant.1 for test.

Note2: Chain 1 is designated for 2.4GHz / 5GHz WLAN function, Chain 2 is designated for bluetooth functions.

For 2.4GHz WLAN function:

For IEEE 802.11b/g/n mode (1TX/1RX):

Only Chain 1 can be used as transmitting/receiving functions.

Chain 1 connect to Ant. 1~Ant. 6 for 2.4G.

For 5GHz WLAN function:

For IEEE 802.11a/n/ac mode (1TX/1RX):

Only Chain 1 can be used as transmitting/receiving functions.

Chain 1 connect to Ant. 1~Ant. 6 for 5G.

For bluetooth function (1TX, 1RX):

Only Chain 2 can be used as transmitting/receiving functions.

Chain 2 connect to Ant. 1~Ant. 6 for bluetooth.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)
BT-EDR	0.311	5.07
BT-EDR2	0.77	1.14
BT-EDR3	0.747	1.27

1.1.4 EUT Operational Condition

EUT Power Type	From Host System
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1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ FCC Public Notice DA 00-705
- ♦ FCC KDB 412172 D01 v01r01

1.3 Testing Location Information

Testing Location		
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Gino Huang	22°C / 55%	Nov. 10, 2016
Radiated	03CH01-CB	Stim Song / Nyle Chang Zero Chen / Justin Lin	22°C / 54%	Nov. 08, 2016~Nov. 22, 2016
AC Conduction	CO01-CB	Edison Lin	24°C / 58%	Nov. 04, 2016

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Bandwidth Measurement	9.74 x10 ⁻⁸	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Band	Mode	BWch (MHz)	Nss-Min	Nant	Ch. (MHz)	Range	Power Setting
2.4G	BT-EDR	1	1	1	2402	L	4
2.4G	BT-EDR	1	1	1	2441	M	4
2.4G	BT-EDR	1	1	1	2480	H	4
2.4G	BT-EDR2	1	1	1	2402	L	4
2.4G	BT-EDR2	1	1	1	2441	M	4
2.4G	BT-EDR2	1	1	1	2480	H	4
2.4G	BT-EDR3	1	1	1	2402	L	4
2.4G	BT-EDR3	1	1	1	2441	M	4
2.4G	BT-EDR3	1	1	1	2480	H	4

Note:

- ♦ Test range channel consist of L (Low Ch.), M (Middle Ch.), H (High Ch.), S (Single Ch.) and C (Straddle Band Ch.).

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	Normal Link
1	Normal Link - 2.4G + Bluetooth
2	Normal Link - 5G + Bluetooth
For operating mode 1 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	20dB Bandwidth Carrier Frequency Separation Maximum Conducted Output Power Number of Hopping Frequencies Hopping Bandedge Time of Occupancy (Dwell Time) Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link
1	EUT in Y axis - 2.4G + Bluetooth
2	EUT in Z axis - 2.4G + Bluetooth
Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT in Z axis - 5G + Bluetooth
For operating mode 2 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX
The EUT was performed in X axis, Y axis and Z axis position. The worst case was found in X axis, so it was selected to perform test and its test result was written in the report.	
1	EUT in X axis - BT

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	Bluetooth+WLAN 2.4GHz
2	Bluetooth+WLAN 5GHz
Refer to Sporton Test Report No.: FA6O2108 for Co-location RF Exposure Evaluation.	

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

N/A

2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	AP Router	Planex	GW-AP54SGX	KA220030603014-1
2	NB	DELL	E6430	DoC
3	CBT Bluetooth tester	Anritsu	MT8852B	DoC
4	NB	DELL	E6430	DoC
5	Test fixture	AzureWave	NA	DoC
6	Earphone	SHYARO CHI	MIC-04	DoC
7	Mouse	HP	FM100	DoC
8	USB Hub	iCooby	iH-19	DoC

For Test Site No: 03CH01-CB (below 1GHz)

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	AP Router	Planex	GW-AP54SGX	KA220030603014-1
2	NB	DELL	E6430	DoC
3	CBT Bluetooth tester	Anritsu	MT8852B	DoC
4	NB	DELL	E6430	DoC
5	Test fixture	AzureWave	NA	DoC
6	Earphone	SHYARO CHI	MIC-04	DoC
7	Mouse	HP	FM100	DoC

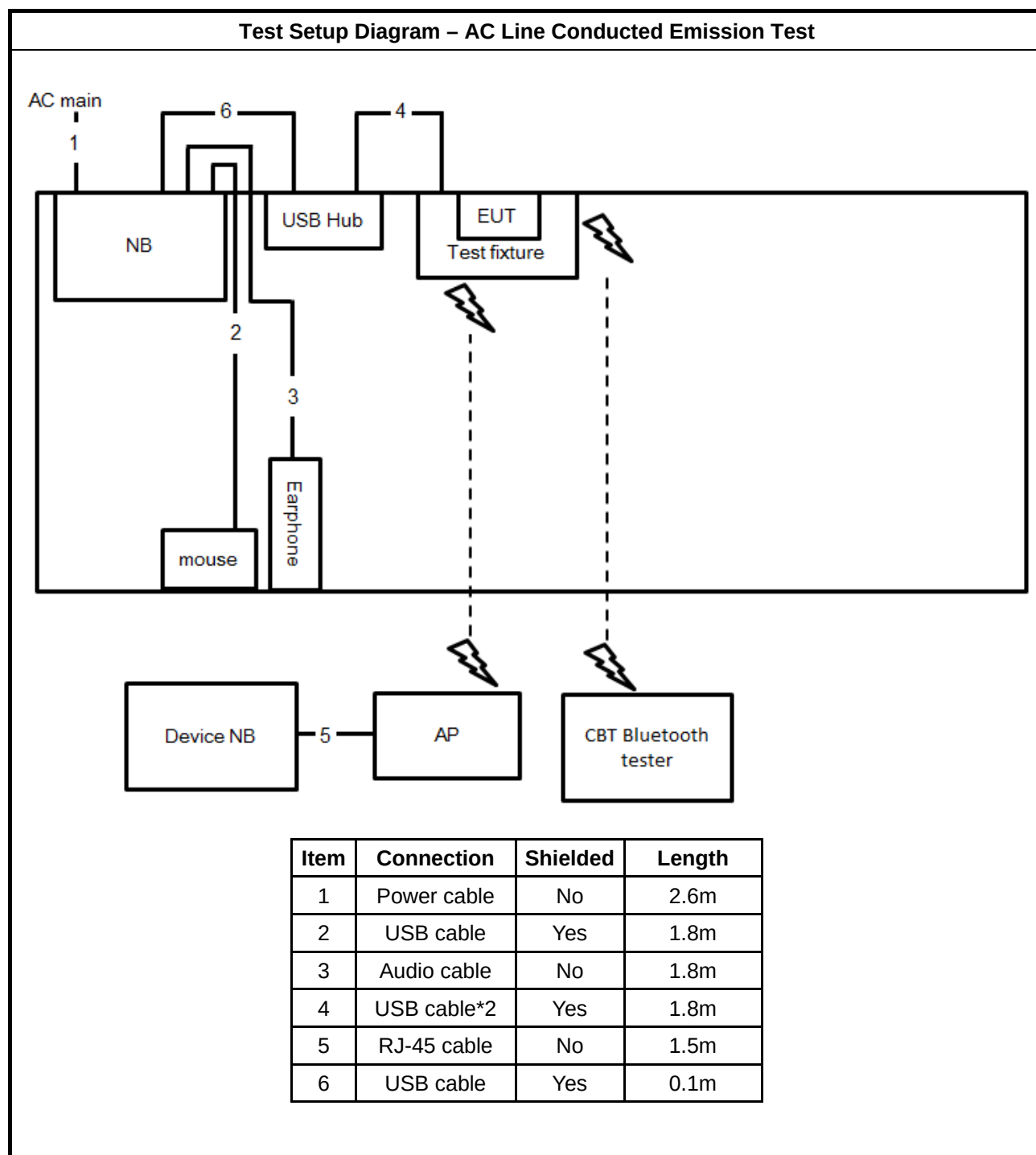
For Test Site No: 03CH01-CB (above 1GHz)

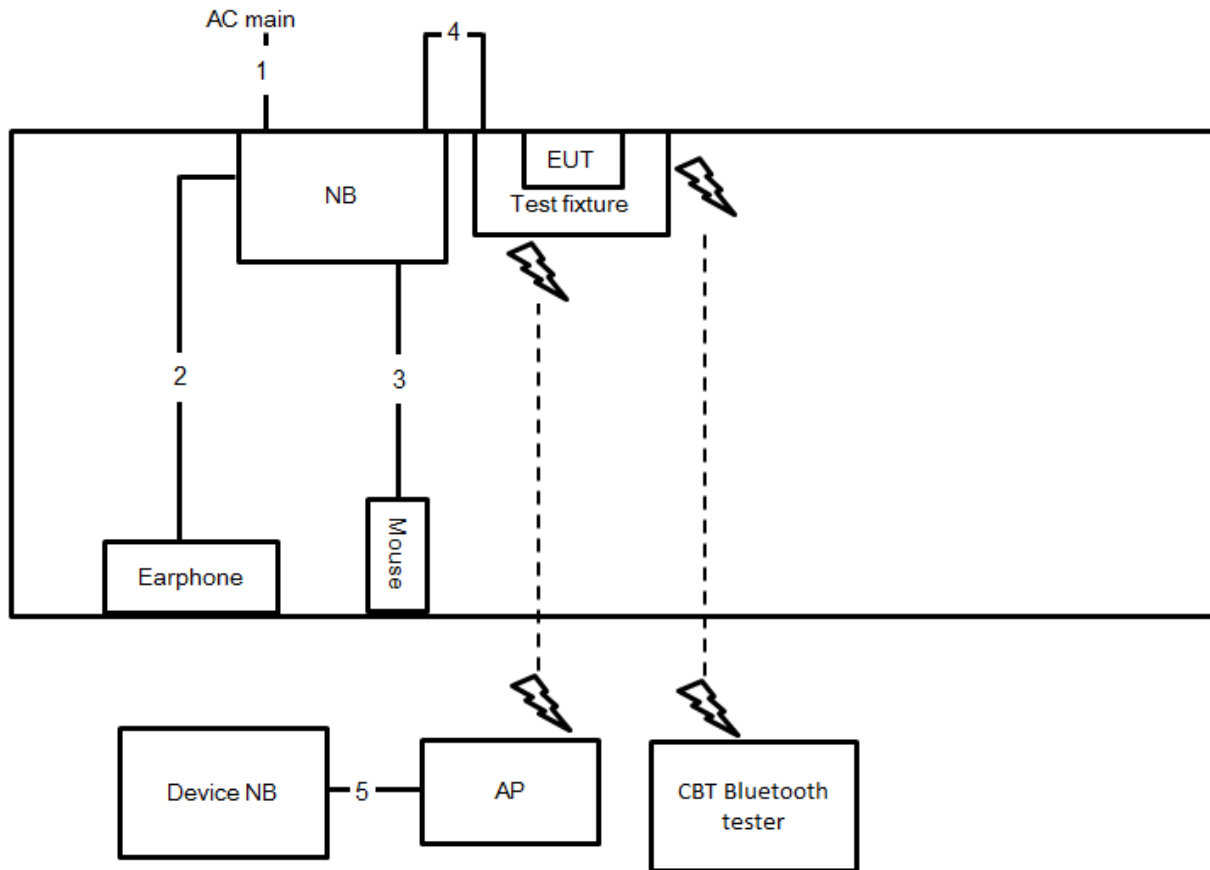
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*2	DELL	E4300	DoC
2	Test fixture	AzureWave	N/A	DoC

For Test Site No: TH01-CB

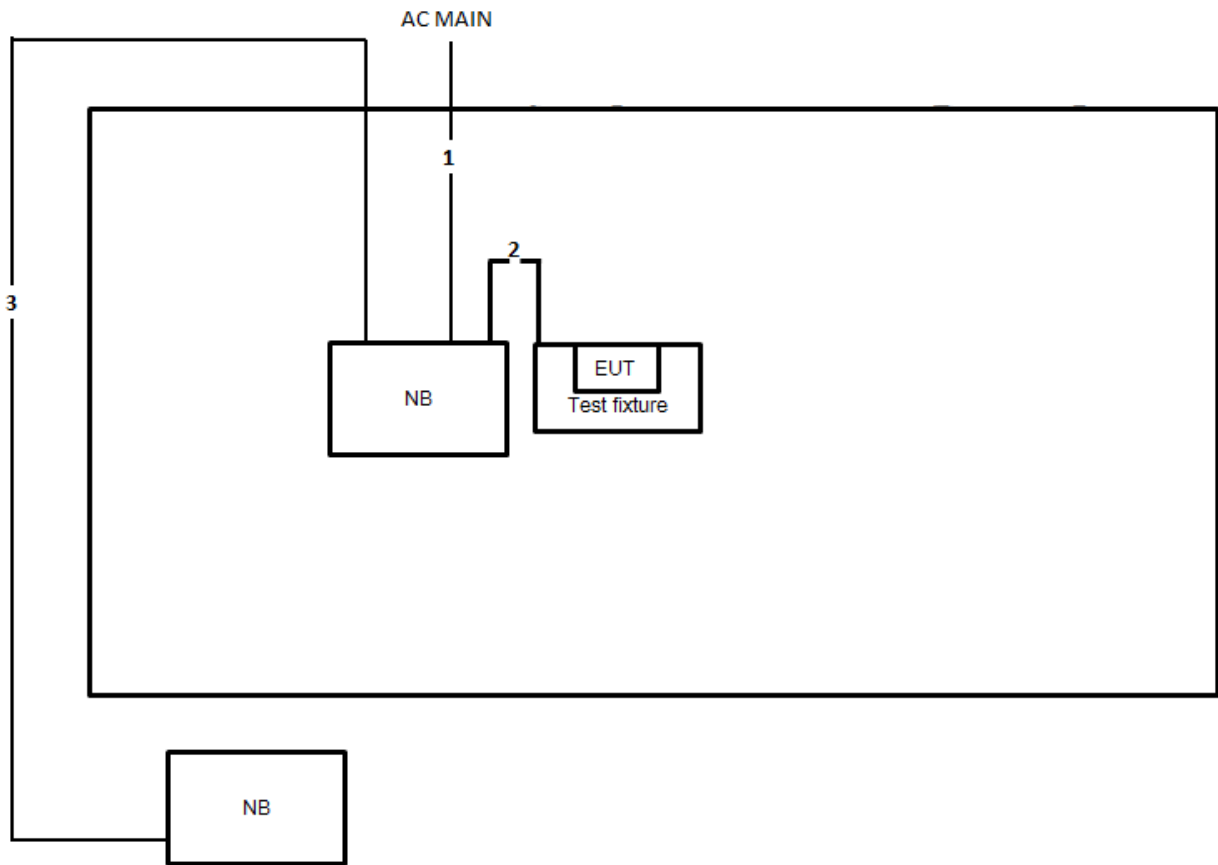
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*2	DELL	E4300	DoC
2	Test fixture	AzureWave	N/A	DoC

2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test < 1GHz


Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	Audio cable	No	1.8m
3	USB cable	Yes	1.8m
4	USB cable*2	Yes	1.8m
5	RJ-45 cable	No	1.5m

Test Setup Diagram - Radiated Test > 1GHz


Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	10m

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

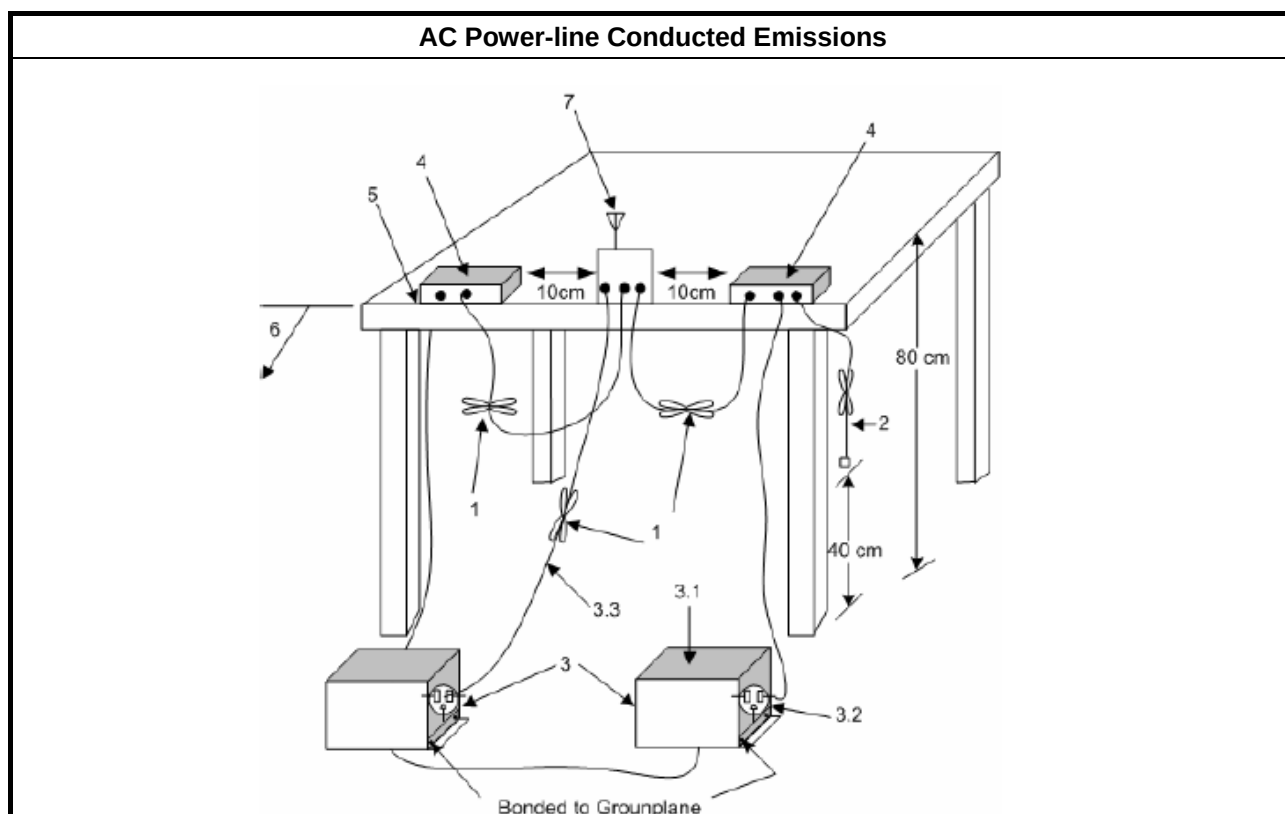
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

3.1.4 Test Setup





3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 20dB Bandwidth and Carrier Frequency Separation

3.2.1 20dB Bandwidth and Carrier Frequency Separation Limit

20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems	
902-928 MHz Band:	
	$N \geq 50$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 250 kHz.
	$50 > N \geq 25$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $>$ 250 kHz.
2400-2483.5 MHz Band:	
	$N \geq 75$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz).
	$75 > N \geq 15$ and $ChS \geq \text{MAX}$ (20 dB bandwidth 2/3, 25 kHz).
5725-5850 MHz Band:	
	$N \geq 75$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 1 MHz.
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation	

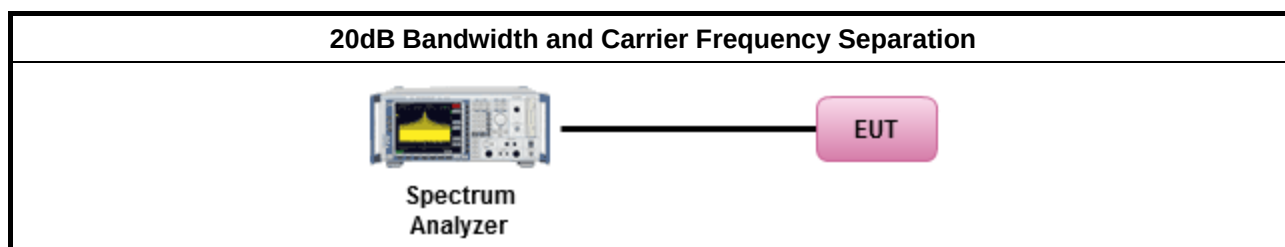
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 6.9.1 for 20 dB bandwidth measurement.
Refer as ANSI C63.10-2013, clause 7.8.2 for carrier frequency separation measurement.

3.2.4 Test Setup



3.2.5 Test Result of 20dB Bandwidth

Refer as Appendix B

3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
▪ 902-928 MHz Band:	
▪ N ≥ 50; Power 30dBm; EIRP 36dBm	
▪ 50 > N ≥ 25; Power 24dBm; EIRP 30dBm	
▪ 2400-2483.5 MHz Band:	
▪ N ≥ 75; Power 30dBm; EIRP 36dBm	
▪ 75 > N ≥ 15; Power 21dBm; EIRP 27dBm	
▪ 5725-5850 MHz Band:	
▪ N ≥ 75; Power 30dBm; EIRP 36dBm	
N: Number of Hopping Frequencies	

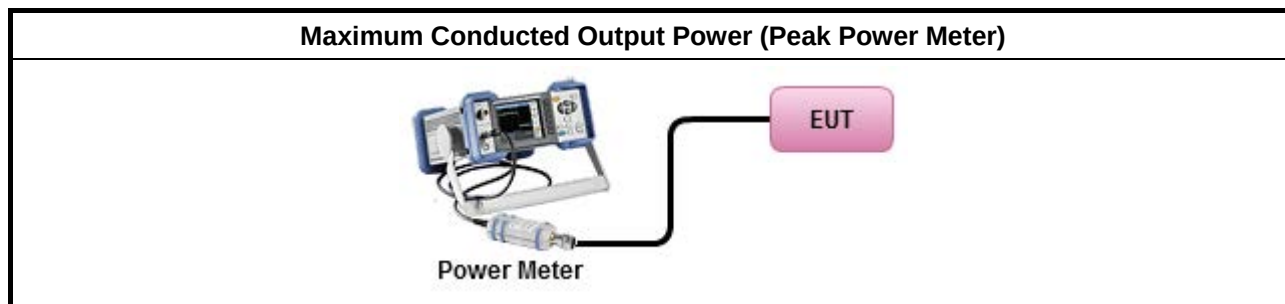
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method
▪ Refer as ANSI C63.10-2013, clause 7.8.5 for output power measurement.

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Number of Hopping Frequencies and Hopping Bandedge

3.4.1 Number of Hopping Frequencies Limit

Number of Hopping Frequencies Limit	
▪ 902-928 MHz Band:	
	▪ $N \geq 50$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 250 kHz.
	▪ $50 > N \geq 25$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $>$ 250 kHz.
▪ 2400-2483.5 MHz Band:	
	▪ $N \geq 75$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz).
	▪ $75 > N \geq 15$ and $ChS \geq MAX$ (20 dB bandwidth 2/3, 25 kHz).
▪ 5725-5850 MHz Band:	
	▪ $N \geq 75$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 1 MHz.
N: Number of Hopping Frequencies; ChS : Hopping Channel Separation	

3.4.2 Hopping Bandedge Limit

Refer clause 3.6.1 and clause 3.7.1

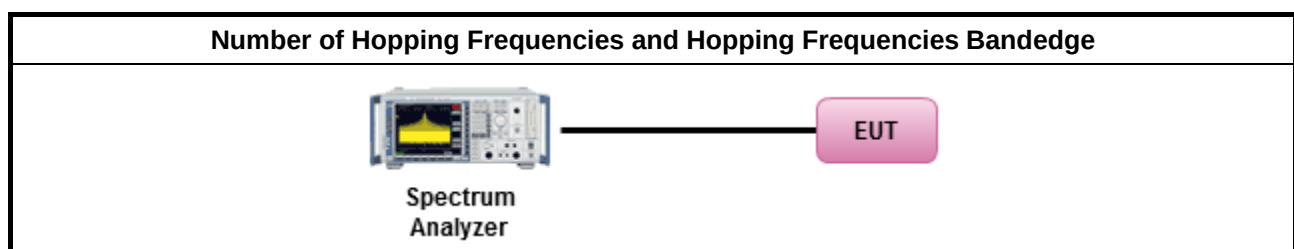
3.4.3 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.4 Test Procedures

Test Method
▪ Refer as ANSI C63.10-2013, clause 7.8.3 for number of hopping frequencies measurement.
▪ Refer as ANSI C63.10-2013, clause 7.8.6 for hopping frequencies Bandedge measurement.

3.4.5 Test Setup



3.4.6 Test Result of Number of Hopping Frequencies

Refer as Appendix D

3.4.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix D

3.5 Time of Occupancy (Dwell Time)

3.5.1 Time of Occupancy (Dwell Time) Limit

20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems	
▪ 902-928 MHz Band:	
	▪ $N \geq 50$; 0.4s in 20s period
	▪ $50 > N \geq 25$; 0.4s in 10s period
▪ 2400-2483.5 MHz Band:	
	▪ $N \geq 75$; 0.4s in $N \times 0.4$ period
	▪ $75 > N \geq 15$; 0.4s in $N \times 0.4$ period
▪ 5725-5850 MHz Band:	
	▪ $N \geq 75$; 0.4s in 30s period
N: Number of Hopping Frequencies	

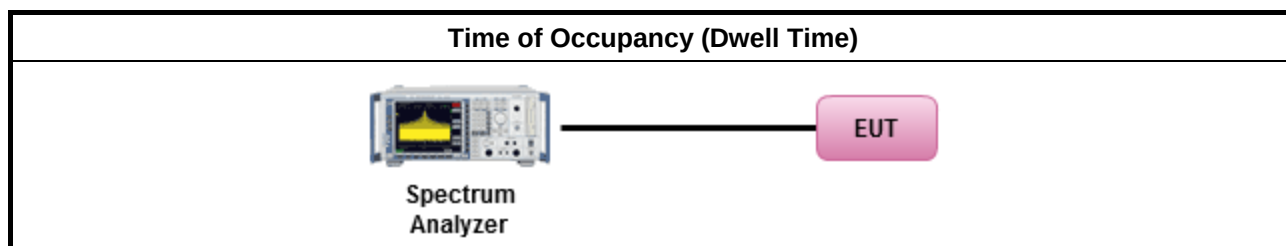
3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method	
▪ Refer as ANSI C63.10-2013, clause 7.8.4 for dwell time measurement.	
▪ Bluetooth ACL packets can be 1, 3, or 5 time slots. Following as dwell time. Operate DH5 at maximum dwell time and maximum duty cycle.	
	▪ The DH5 packet can cover up to 5 time slots. Operate DH5 at maximum dwell time and maximum duty cycle. A maximum length packet has duration of 5 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is $5/1600$ seconds, or 3.125ms. DH5 Packet permit maximum $1600 / 79 / 6 = 3.37$ hops per second in each channel.

3.5.4 Test Setup



3.5.5 Test Result of Time of Occupancy (Dwell Time)

Refer as Appendix E

3.6 Emissions in Non-restricted Frequency Bands

3.6.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.	

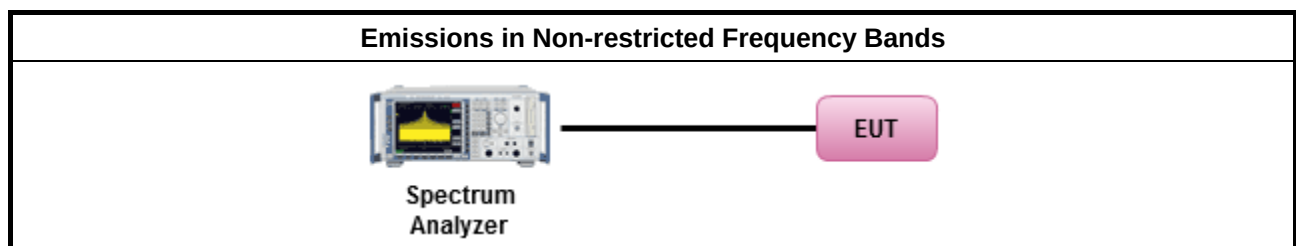
3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 7.8.8 for unwanted emissions into non-restricted bands.

3.6.4 Test Setup



3.6.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix F

3.7 Emissions in Restricted Frequency Bands

3.7.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB / decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

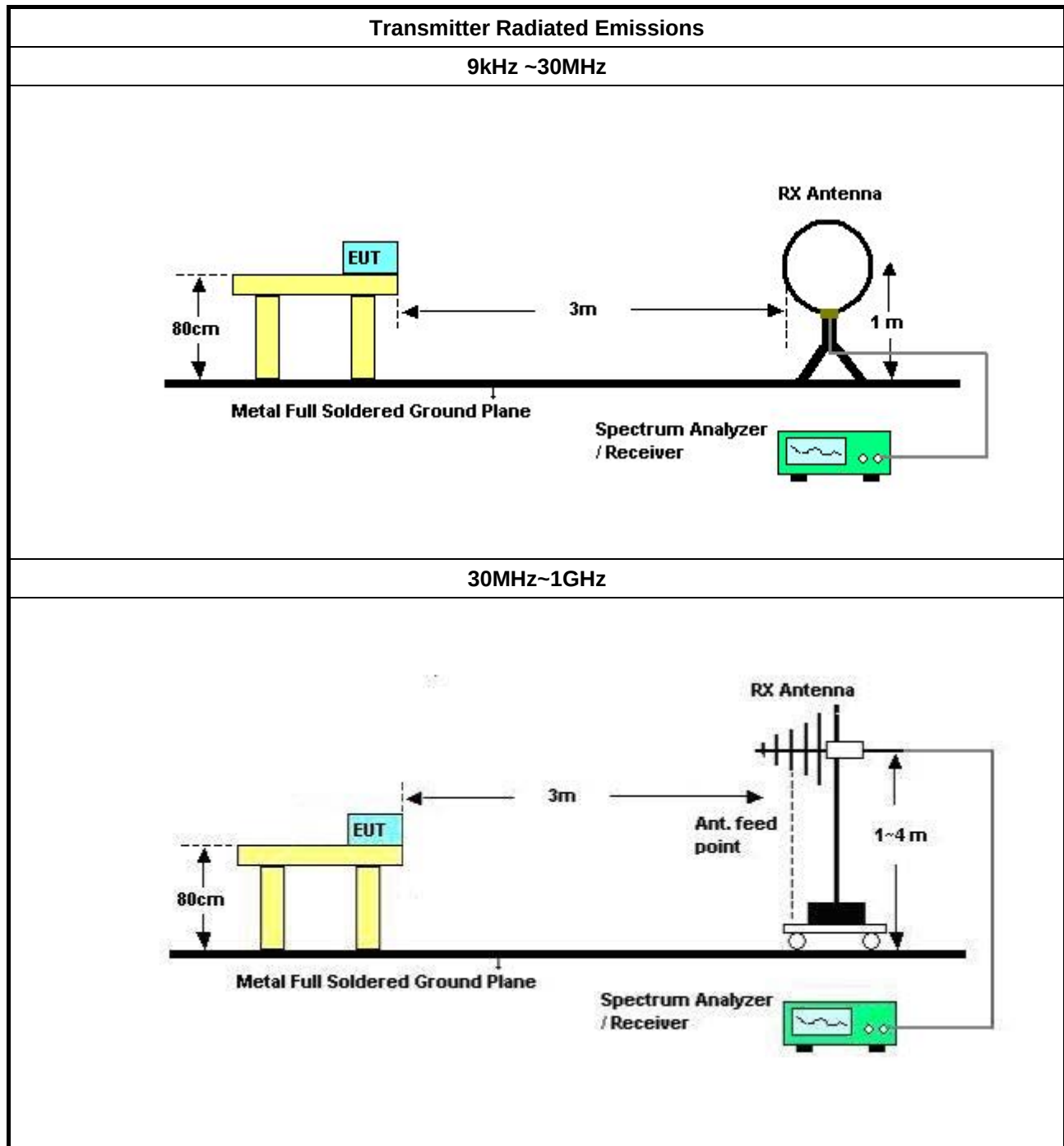
3.7.2 Measuring Instruments

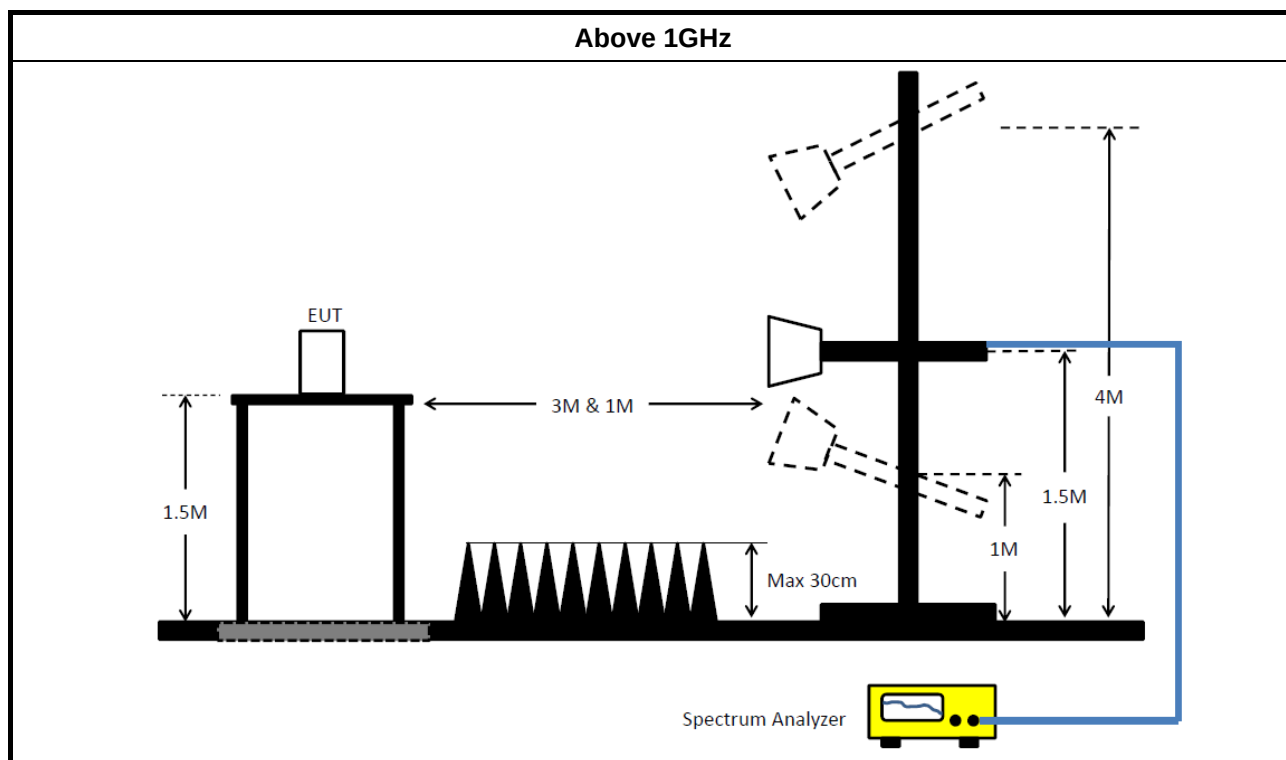
Refer a test equipment and calibration data table in this test report.

3.7.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [hopping duty factor].	
▪ Refer as ANSI C63.10; clause 6.9.2.2 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as ANSI C63.10, clause 4.1.4.2.1 QP value.
	▪ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak.
	▪ Refer as ANSI C63.10, clause 4.1.4.2.4 average value of hopping pulsed emissions.

3.7.4 Test Setup





3.7.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.7.6 Transmitter Radiated Unwanted Emissions

Refer as Appendix G

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 27, 2016	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 08, 2015	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 23, 2015	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 24, 2016	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
BILOG ANTENNA	TESEQ	CBL6112D	37880	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1370	1GHz~18GHz	Jul. 07, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jun. 28, 2016	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz ~ 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)



FCC Test Report

Report No. : FR6O2108AC

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	RG402	High Cable-7	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY54320015	50MHz~18GHz	Apr. 20, 2016	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

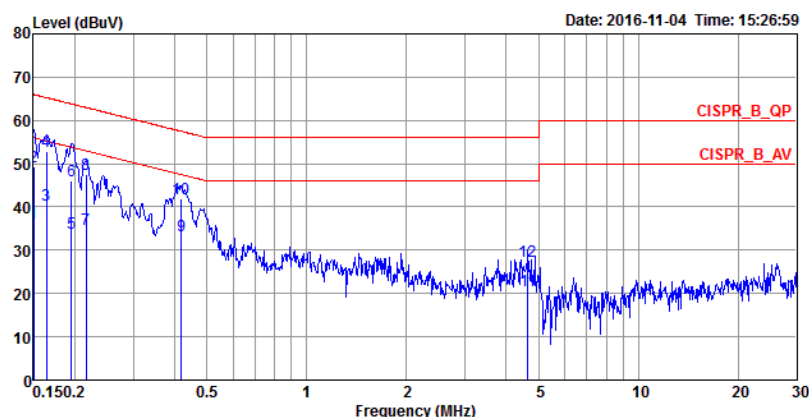
“*” Calibration Interval of instruments listed above is two years.

N.C.R. means Non-Calibration required.



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Normal Link		

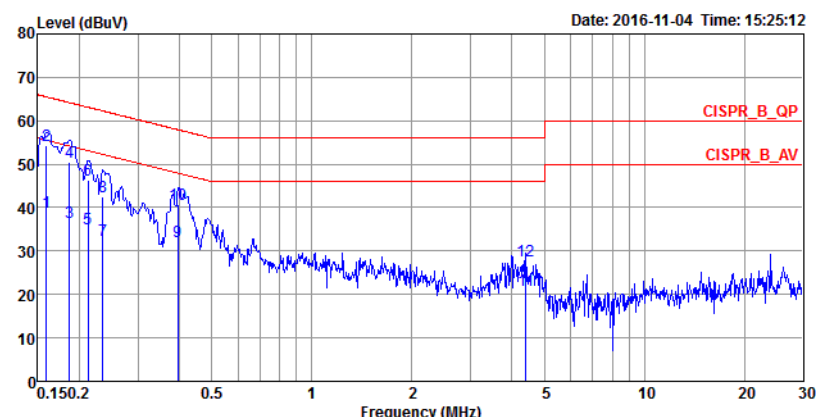


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.1500	36.31	-19.69	56.00	26.19	9.96	Average	NEUTRAL
2	0.1500	49.21	-16.79	66.00	39.09	9.96	QP	NEUTRAL
3	0.1641	40.35	-14.90	55.25	30.23	9.96	Average	NEUTRAL
4	0.1641	52.79	-12.46	65.25	42.67	9.96	QP	NEUTRAL
5	0.1955	34.08	-19.72	53.80	23.94	9.96	Average	NEUTRAL
6	0.1955	46.19	-17.61	63.80	36.05	9.96	QP	NEUTRAL
7	0.2162	34.89	-18.07	52.96	24.75	9.96	Average	NEUTRAL
8	0.2162	47.64	-15.32	62.96	37.50	9.96	QP	NEUTRAL
9	0.4193	33.43	-14.03	47.46	23.26	9.97	Average	NEUTRAL
10	0.4193	41.83	-15.63	57.46	31.66	9.97	QP	NEUTRAL
11	4.6469	20.72	-25.28	46.00	10.34	10.04	Average	NEUTRAL
12	4.6469	27.55	-28.45	56.00	17.17	10.04	QP	NEUTRAL

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.1590	39.01	-16.51	55.52	28.89	9.96	Average	LINE
2	0.1590	54.29	-11.23	65.52	44.17	9.96	QP	LINE
3	0.1864	36.67	-17.53	54.20	26.54	9.95	Average	LINE
4	0.1864	50.35	-13.85	64.20	40.22	9.95	QP	LINE
5	0.2128	35.01	-18.09	53.10	24.87	9.96	Average	LINE
6	0.2128	46.46	-16.64	63.10	36.32	9.96	QP	LINE
7	0.2353	32.54	-19.72	52.26	22.39	9.96	Average	LINE
8	0.2353	42.62	-19.64	62.26	32.47	9.96	QP	LINE
9	0.3955	32.08	-15.87	47.95	21.87	10.01	Average	LINE
10	0.3955	40.71	-17.24	57.95	30.50	10.01	QP	LINE
11	4.4071	20.85	-25.15	46.00	10.41	10.11	Average	LINE
12	4.4071	27.82	-28.18	56.00	17.38	10.11	QP	LINE

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)



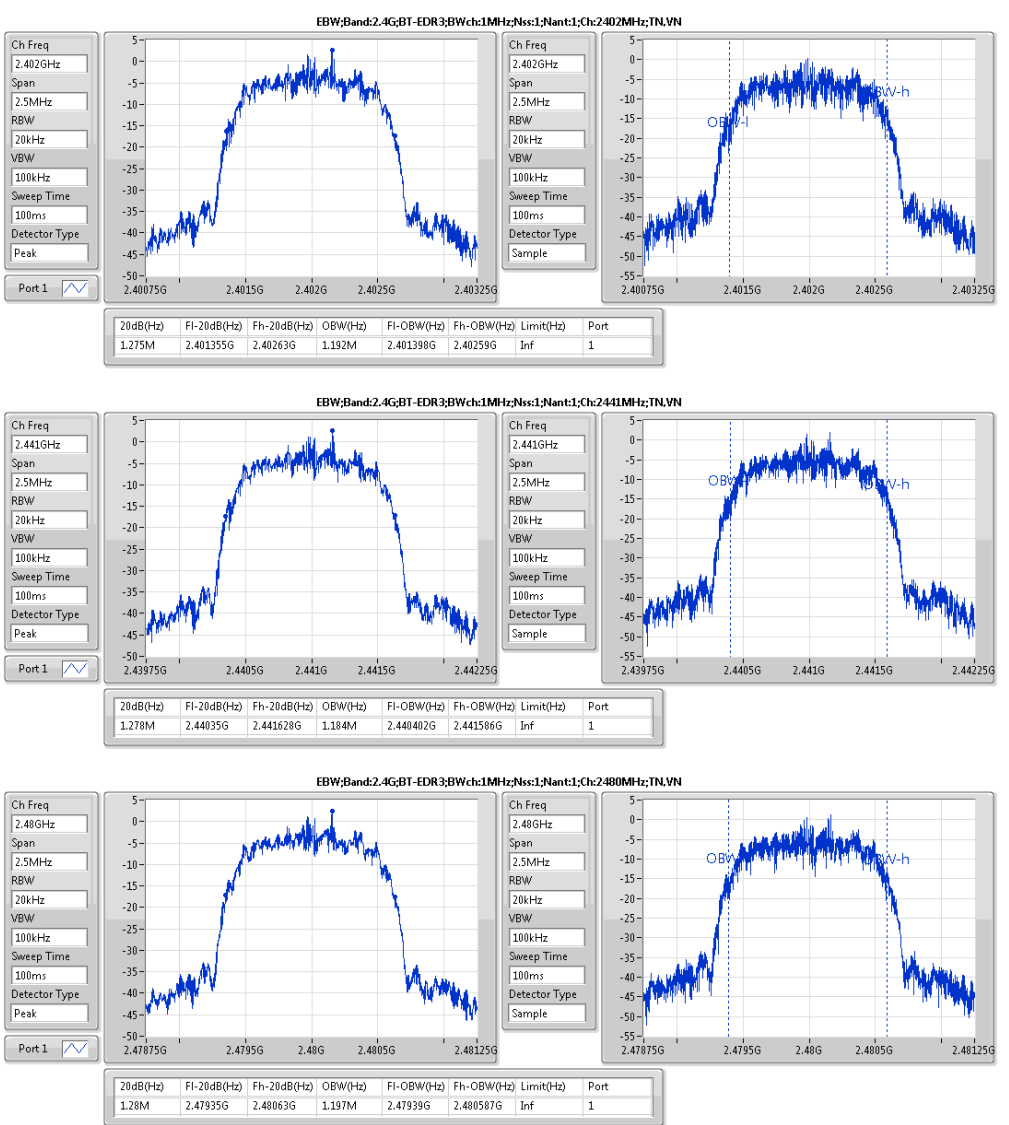
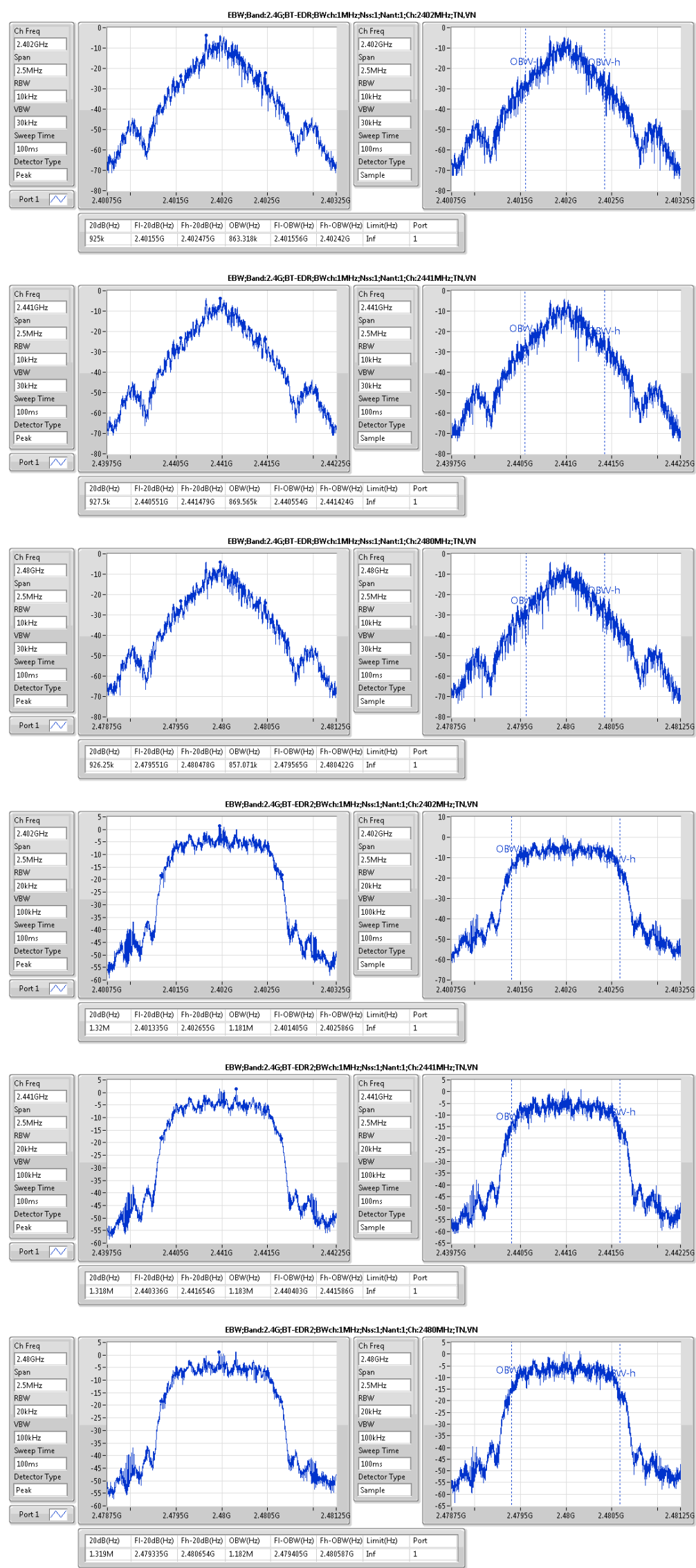
Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4G;BT-EDR;Nss1;Ntx1	927.5k	869.565k	870kF1D	925k	857.071k
2.4G;BT-EDR2;Nss1;Ntx1	1.32M	1.183M	1M18G1D	1.318M	1.181M
2.4G;BT-EDR3;Nss1;Ntx1	1.28M	1.197M	1M20G1D	1.275M	1.184M



Result

Mode	Result	Limit (Hz)	P1-N dB (Hz)	P1-OBW (Hz)
2.4G;BT-EDR;Nss1;Ntx1;2402	Pass	Inf	925k	863.318k
2.4G;BT-EDR;Nss1;Ntx1;2441	Pass	Inf	927.5k	869.565k
2.4G;BT-EDR;Nss1;Ntx1;2480	Pass	Inf	926.25k	857.071k
2.4G;BT-EDR2;Nss1;Ntx1;2402	Pass	Inf	1.32M	1.181M
2.4G;BT-EDR2;Nss1;Ntx1;2441	Pass	Inf	1.318M	1.183M
2.4G;BT-EDR2;Nss1;Ntx1;2480	Pass	Inf	1.319M	1.182M
2.4G;BT-EDR3;Nss1;Ntx1;2402	Pass	Inf	1.275M	1.192M
2.4G;BT-EDR3;Nss1;Ntx1;2441	Pass	Inf	1.278M	1.184M
2.4G;BT-EDR3;Nss1;Ntx1;2480	Pass	Inf	1.28M	1.197M





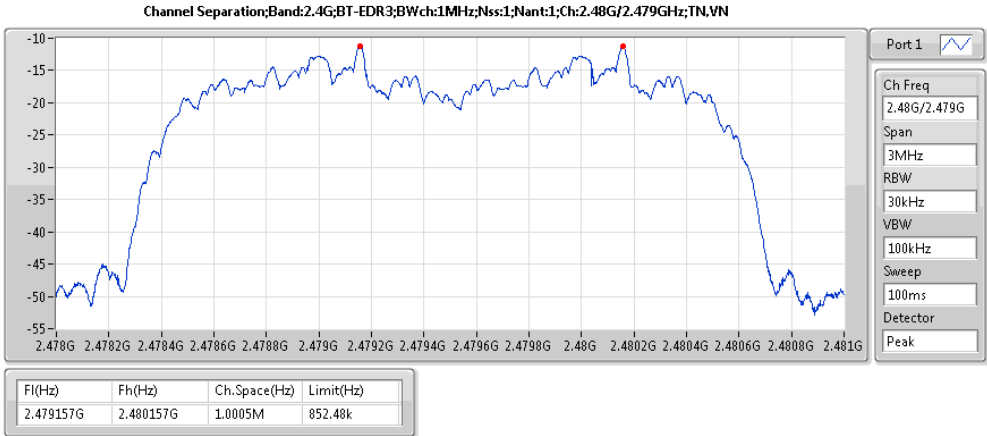
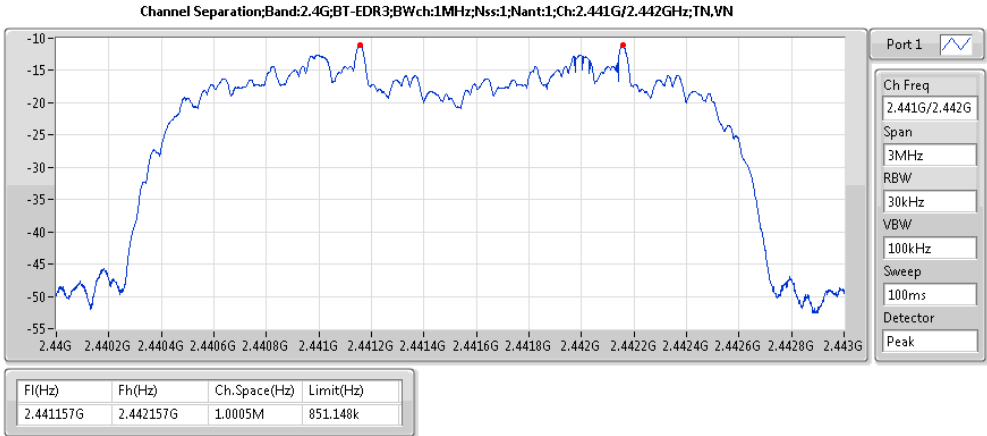
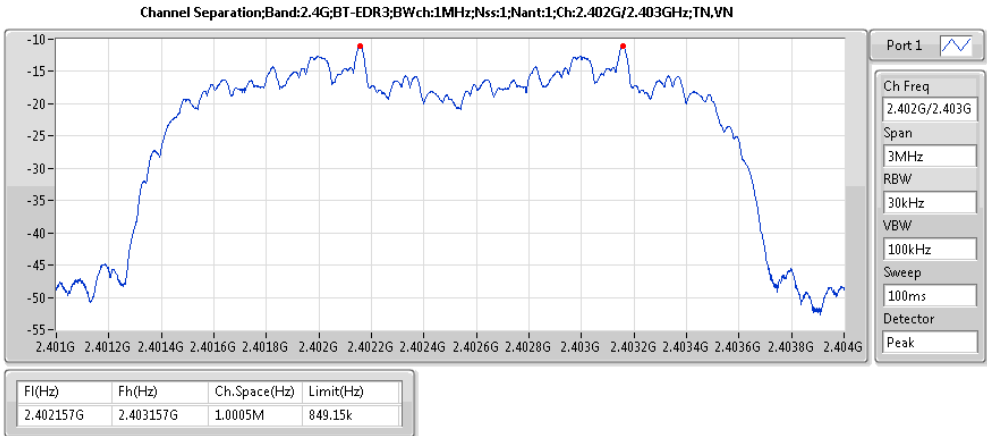
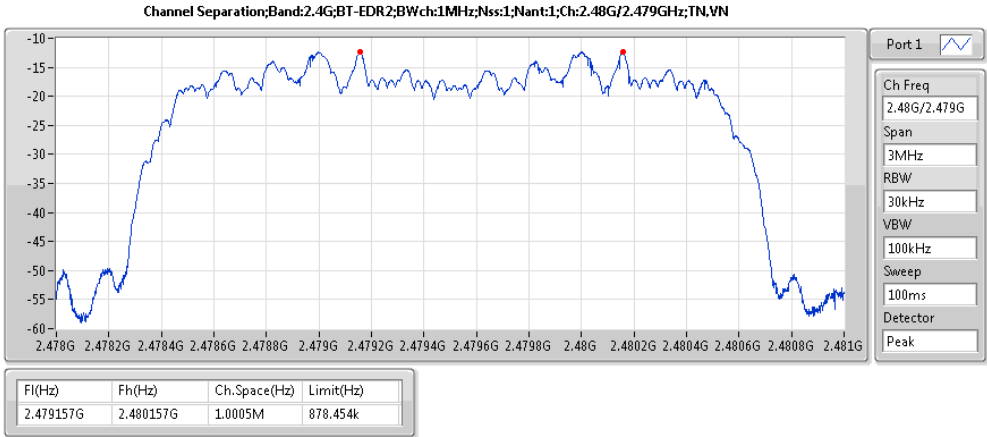
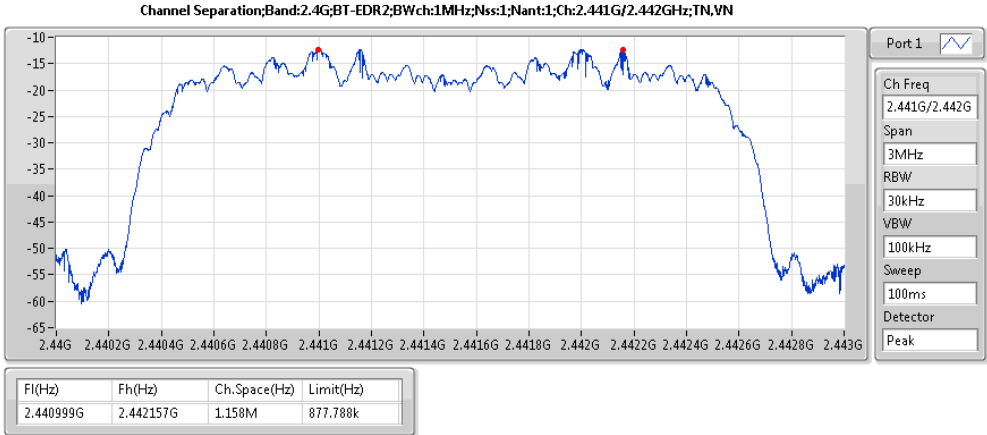
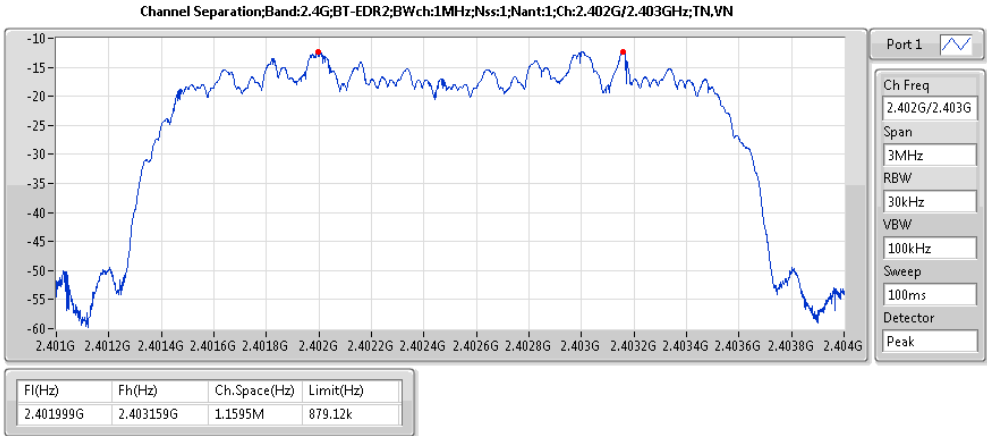
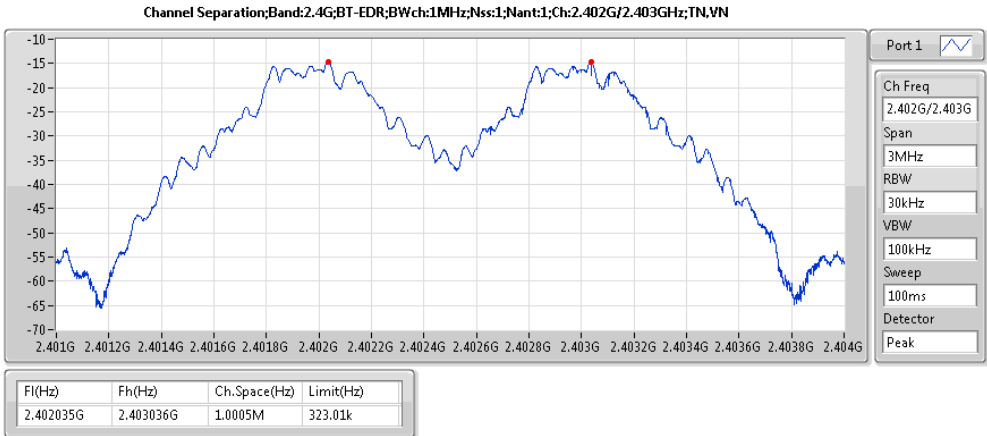
Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
2.4G;BT-EDR;Nss1;Ntx1	1.0005M	999k
2.4G;BT-EDR2;Nss1;Ntx1	1.1595M	1.0005M
2.4G;BT-EDR3;Nss1;Ntx1	1.0005M	1.0005M



Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
2.4G;BT-EDR;Nss1;Ntx1;2402	Pass	2.402035G	2.403036G	1.0005M	323.01k
2.4G;BT-EDR;Nss1;Ntx1;2441	Pass	2.441035G	2.442034G	999k	323.01k
2.4G;BT-EDR;Nss1;Ntx1;2480	Pass	2.479035G	2.480036G	1.0005M	616.8825k
2.4G;BT-EDR2;Nss1;Ntx1;2402	Pass	2.401999G	2.403159G	1.1595M	879.12k
2.4G;BT-EDR2;Nss1;Ntx1;2441	Pass	2.440999G	2.442157G	1.158M	877.788k
2.4G;BT-EDR2;Nss1;Ntx1;2480	Pass	2.479157G	2.480157G	1.0005M	878.454k
2.4G;BT-EDR3;Nss1;Ntx1;2402	Pass	2.402157G	2.403157G	1.0005M	849.15k
2.4G;BT-EDR3;Nss1;Ntx1;2441	Pass	2.441157G	2.442157G	1.0005M	851.148k
2.4G;BT-EDR3;Nss1;Ntx1;2480	Pass	2.479157G	2.480157G	1.0005M	852.48k





Summary

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
2.4G;BT-EDR;Nss1;Ntx1	4.81	0.00303	5.85	0.00385
2.4G;BT-EDR2;Nss1;Ntx1	5.54	0.00358	6.58	0.00455
2.4G;BT-EDR3;Nss1;Ntx1	5.47	0.00352	6.51	0.00448



Result

Mode	Result	DG (dBi)	Sum (dBm)	Sum Lim. (dBm)	EIRP (dBm)	EIRP Lim. (dBm)	P1 (dBm)
2.4G;BT-EDR;Nss1;Ntx1;2402	Pass	1.04	4.81	30.00	5.85	36.00	4.81
2.4G;BT-EDR;Nss1;Ntx1;2441	Pass	1.04	4.69	30.00	5.73	36.00	4.69
2.4G;BT-EDR;Nss1;Ntx1;2480	Pass	1.04	4.55	30.00	5.59	36.00	4.55
2.4G;BT-EDR2;Nss1;Ntx1;2402	Pass	1.04	5.54	30.00	6.58	36.00	5.54
2.4G;BT-EDR2;Nss1;Ntx1;2441	Pass	1.04	5.42	30.00	6.46	36.00	5.42
2.4G;BT-EDR2;Nss1;Ntx1;2480	Pass	1.04	5.25	30.00	6.29	36.00	5.25
2.4G;BT-EDR3;Nss1;Ntx1;2402	Pass	1.04	5.47	30.00	6.51	36.00	5.47
2.4G;BT-EDR3;Nss1;Ntx1;2441	Pass	1.04	5.43	30.00	6.47	36.00	5.43
2.4G;BT-EDR3;Nss1;Ntx1;2480	Pass	1.04	5.29	30.00	6.33	36.00	5.29



Summary

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
2.4G;BT-EDR;Nss1;Ntx1	4.89	0.00308	5.93	0.00392
2.4G;BT-EDR2;Nss1;Ntx1	7.97	0.00627	9.01	0.00796
2.4G;BT-EDR3;Nss1;Ntx1	8.28	0.00673	9.32	0.00855



Result

Mode	Result	DG (dBi)	Sum (dBm)	Sum Lim. (dBm)	EIRP (dBm)	EIRP Lim. (dBm)	P1 (dBm)
2.4G;BT-EDR;Nss1;Ntx1;2402	Pass	1.04	4.89	30.00	5.93	36.00	4.89
2.4G;BT-EDR;Nss1;Ntx1;2441	Pass	1.04	4.82	30.00	5.86	36.00	4.82
2.4G;BT-EDR;Nss1;Ntx1;2480	Pass	1.04	4.64	30.00	5.68	36.00	4.64
2.4G;BT-EDR2;Nss1;Ntx1;2402	Pass	1.04	7.97	30.00	9.01	36.00	7.97
2.4G;BT-EDR2;Nss1;Ntx1;2441	Pass	1.04	7.92	30.00	8.96	36.00	7.92
2.4G;BT-EDR2;Nss1;Ntx1;2480	Pass	1.04	7.75	30.00	8.79	36.00	7.75
2.4G;BT-EDR3;Nss1;Ntx1;2402	Pass	1.04	8.28	30.00	9.32	36.00	8.28
2.4G;BT-EDR3;Nss1;Ntx1;2441	Pass	1.04	8.23	30.00	9.27	36.00	8.23
2.4G;BT-EDR3;Nss1;Ntx1;2480	Pass	1.04	8.06	30.00	9.10	36.00	8.06



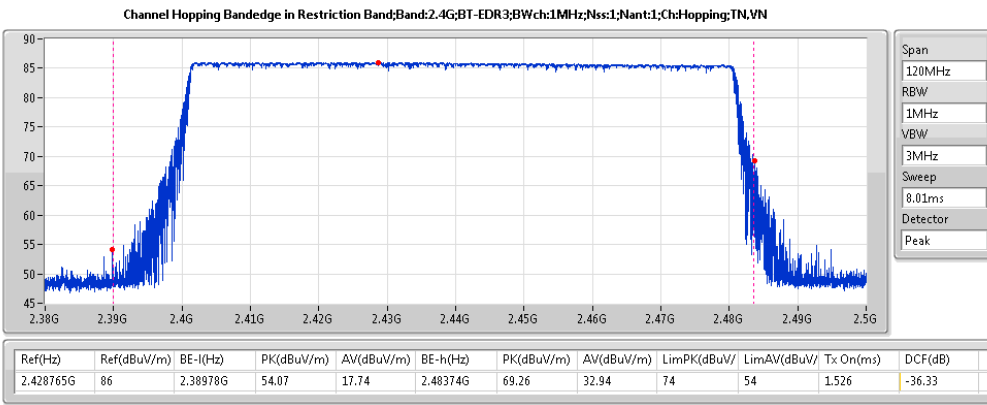
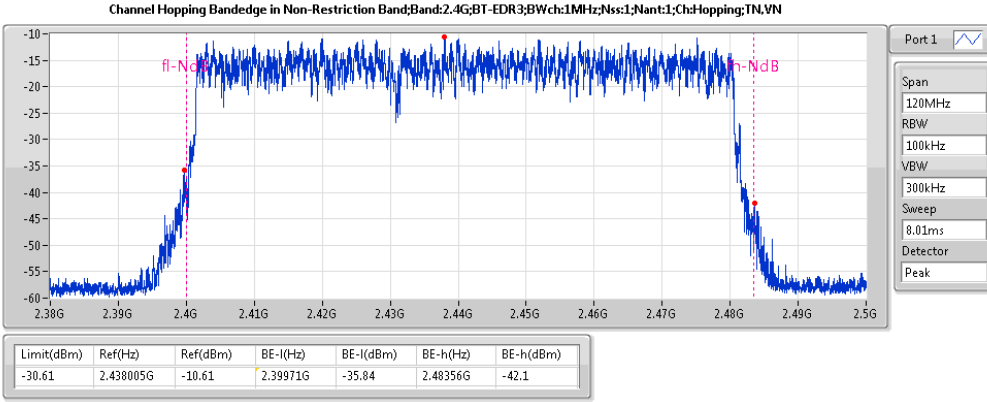
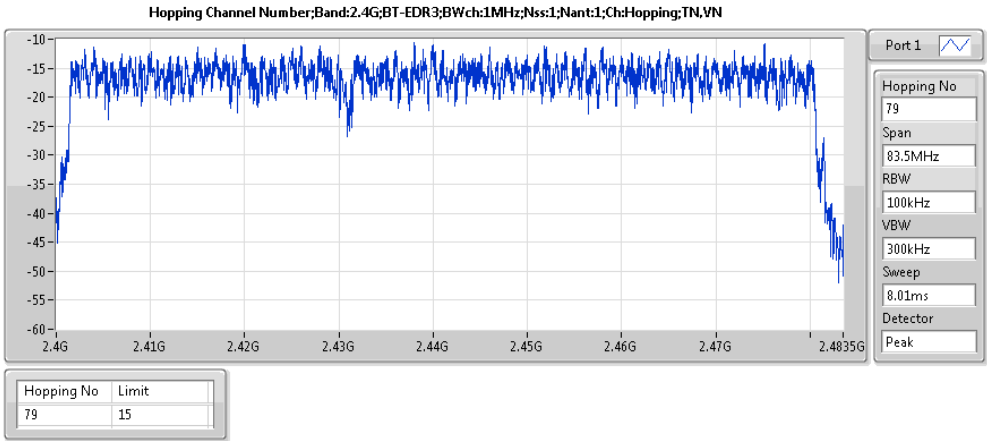
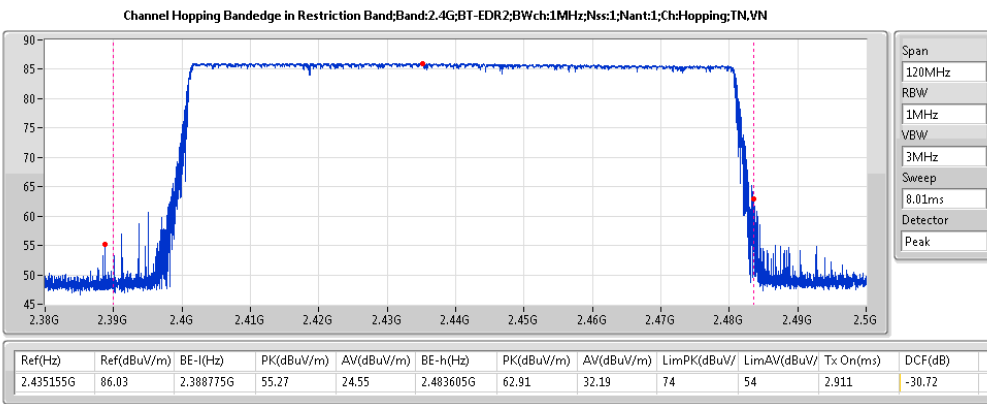
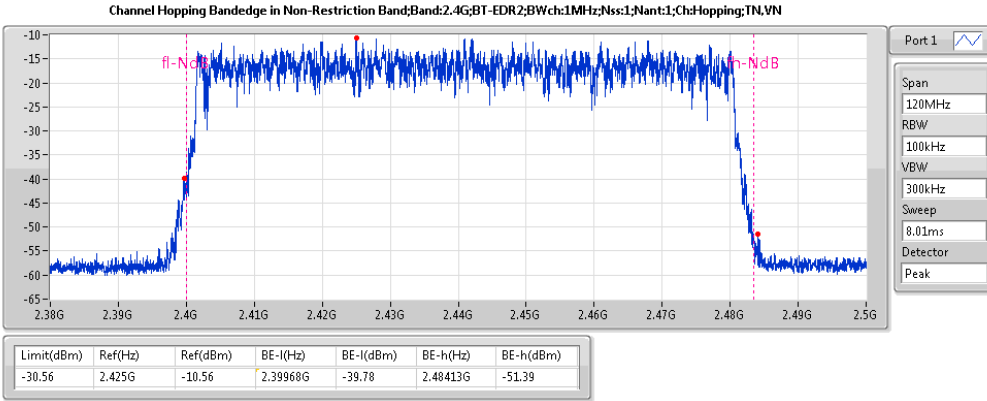
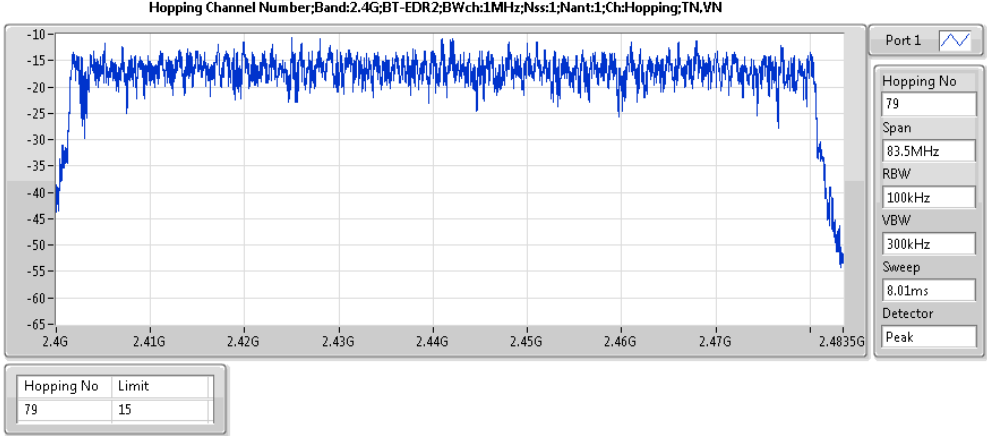
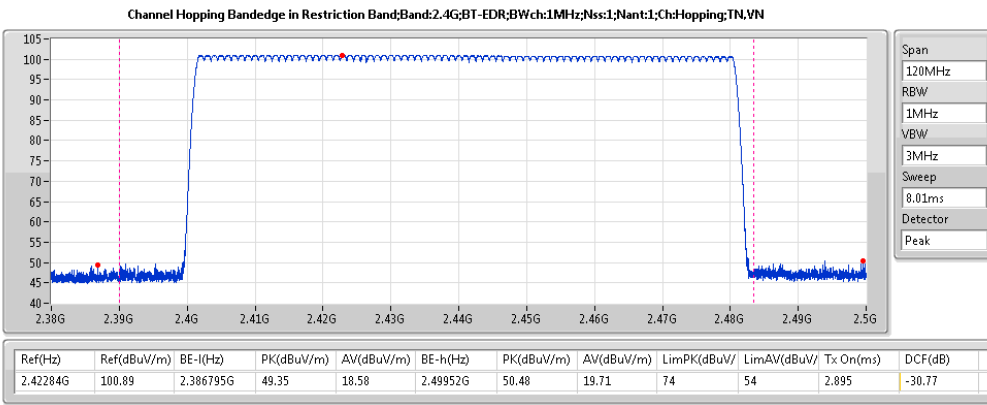
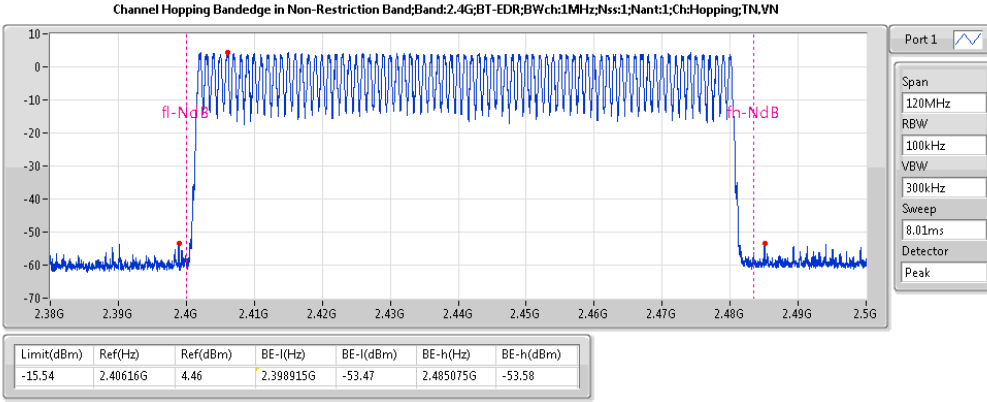
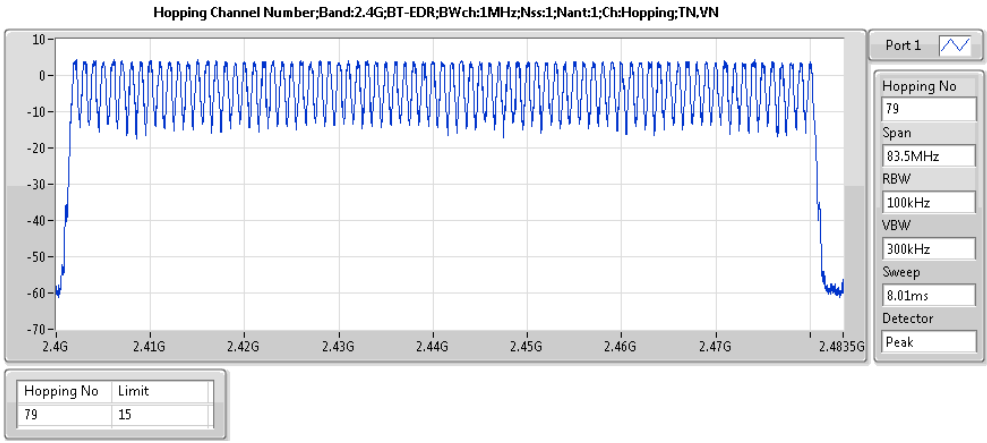
Summary

Mode	Max-Hop No
2.4G;BT-EDR;Nss1;Ntx1	79
2.4G;BT-EDR2;Nss1;Ntx1	79
2.4G;BT-EDR3;Nss1;Ntx1	79



Result

Mode	Result	Hopping No	Limit
2.4G;BT-EDR;Nss1;Ntx1;2441	Pass	79	15
2.4G;BT-EDR2;Nss1;Ntx1;2441	Pass	79	15
2.4G;BT-EDR3;Nss1;Ntx1;2441	Pass	79	15





Summary

Mode	Max-Dwell (s)
2.4G;BT-EDR;Nss1;Ntx1	308.7136m
2.4G;BT-EDR2;Nss1;Ntx1	310.3126m
2.4G;BT-EDR3;Nss1;Ntx1	271.6168m



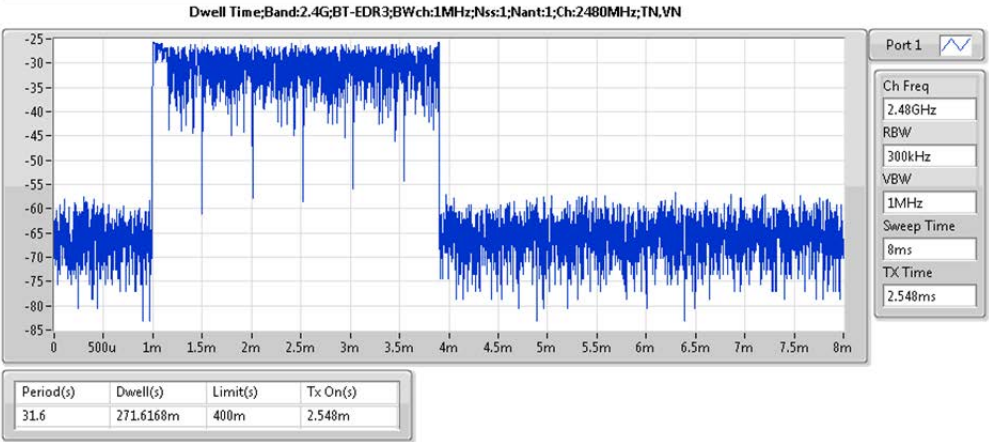
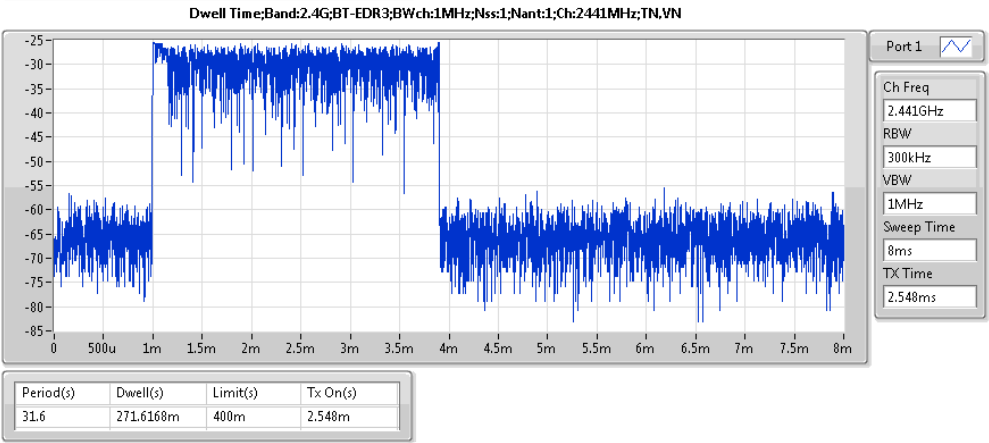
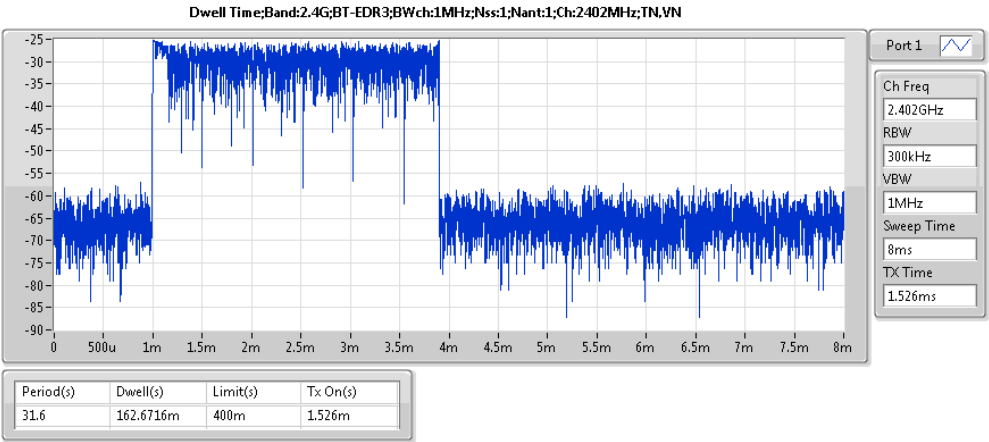
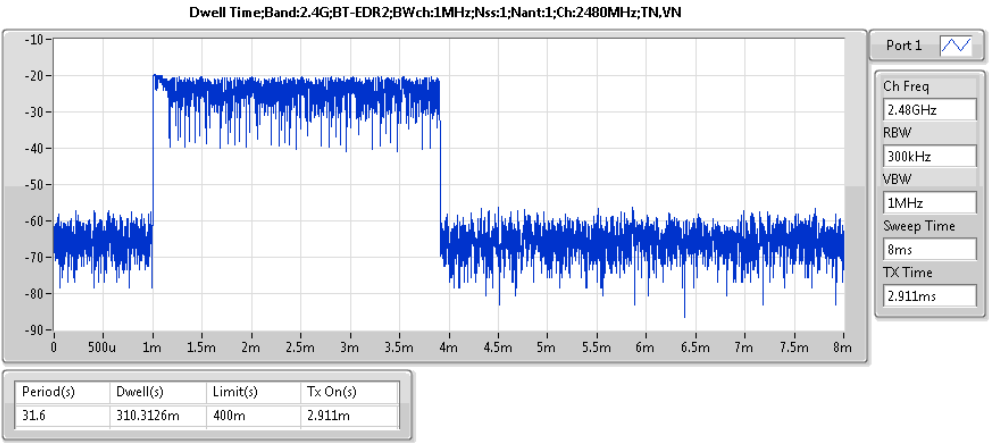
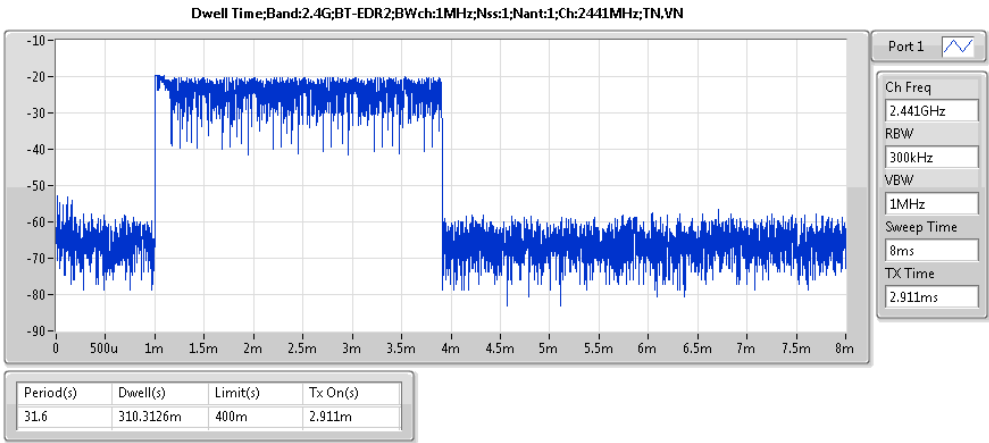
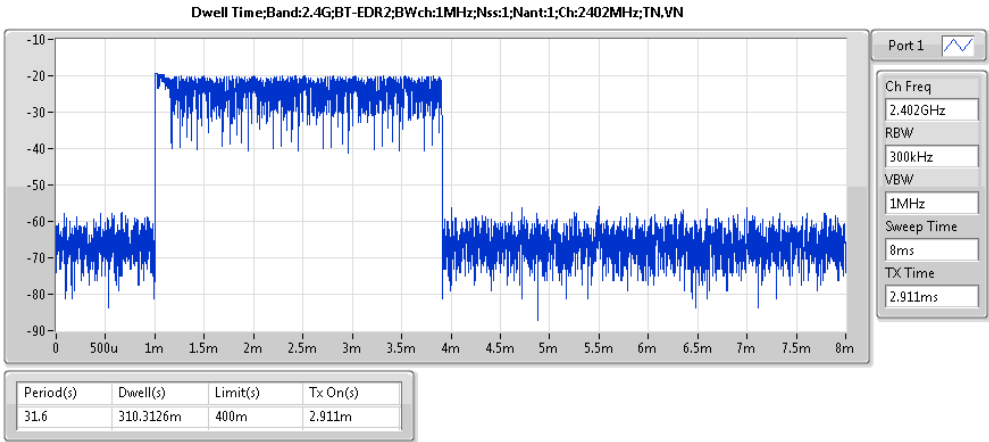
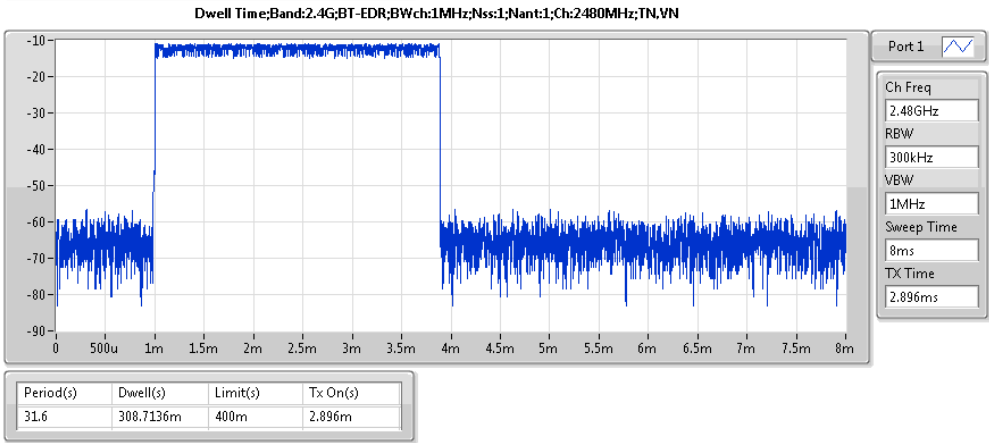
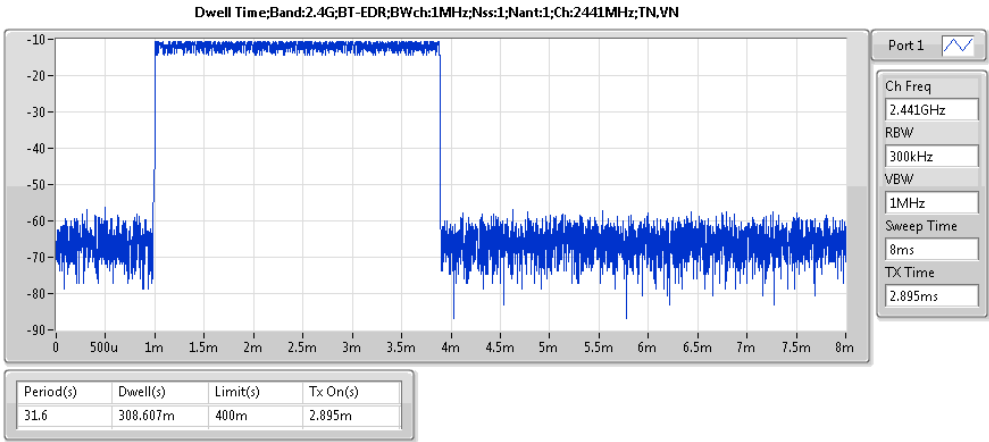
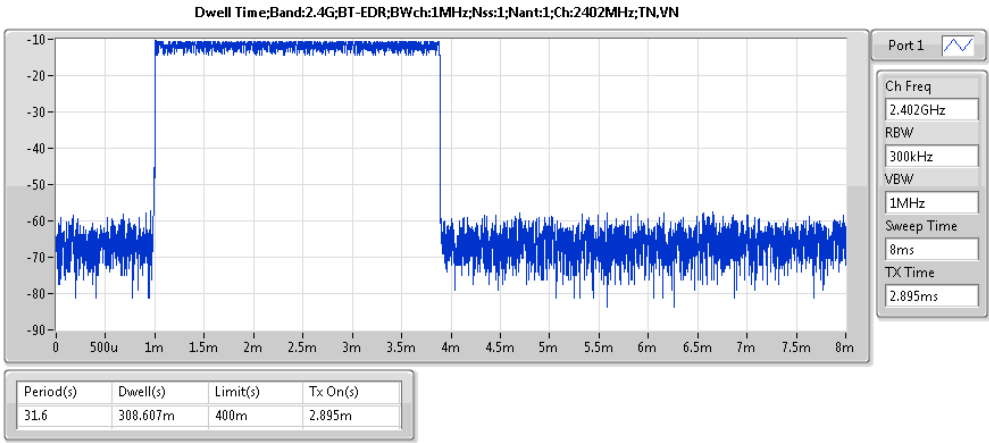
Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
2.4G;BT-EDR;Nss1;Ntx1;2402	Pass	31.6	308.607m	400m	2.895m
2.4G;BT-EDR;Nss1;Ntx1;2441	Pass	31.6	308.607m	400m	2.895m
2.4G;BT-EDR;Nss1;Ntx1;2480	Pass	31.6	308.7136m	400m	2.896m
2.4G;BT-EDR2;Nss1;Ntx1;2402	Pass	31.6	310.3126m	400m	2.911m
2.4G;BT-EDR2;Nss1;Ntx1;2441	Pass	31.6	310.3126m	400m	2.911m
2.4G;BT-EDR2;Nss1;Ntx1;2480	Pass	31.6	310.3126m	400m	2.911m
2.4G;BT-EDR3;Nss1;Ntx1;2402	Pass	31.6	162.6716m	400m	1.526m
2.4G;BT-EDR3;Nss1;Ntx1;2441	Pass	31.6	271.6168m	400m	2.548m
2.4G;BT-EDR3;Nss1;Ntx1;2480	Pass	31.6	271.6168m	400m	2.548m



Dwell Time-DSS Result

Appendix E





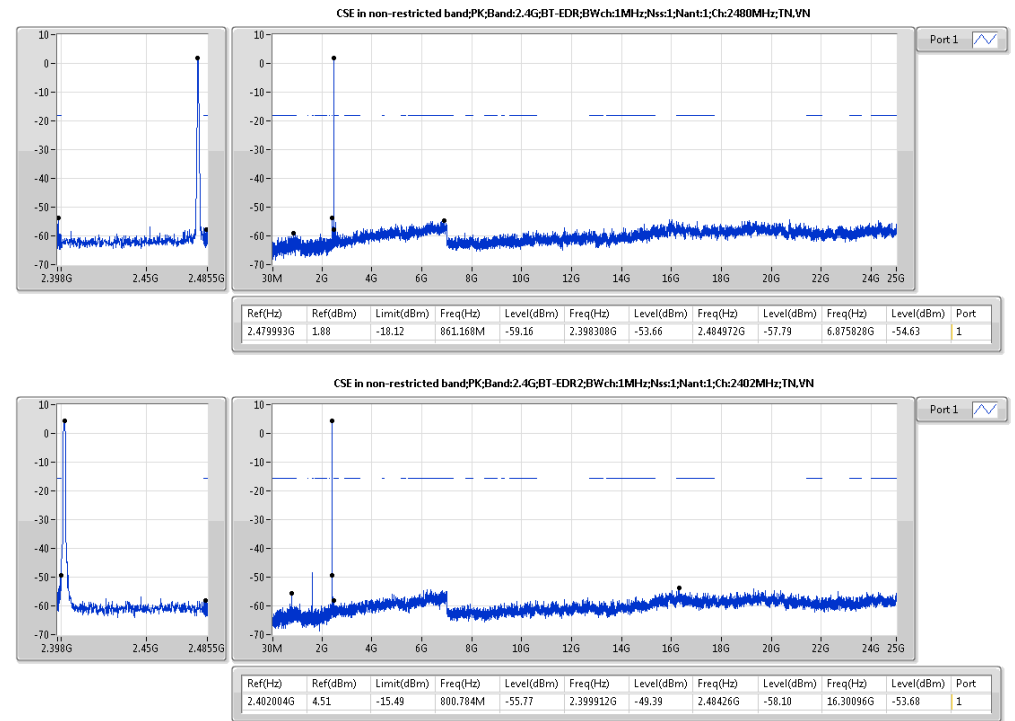
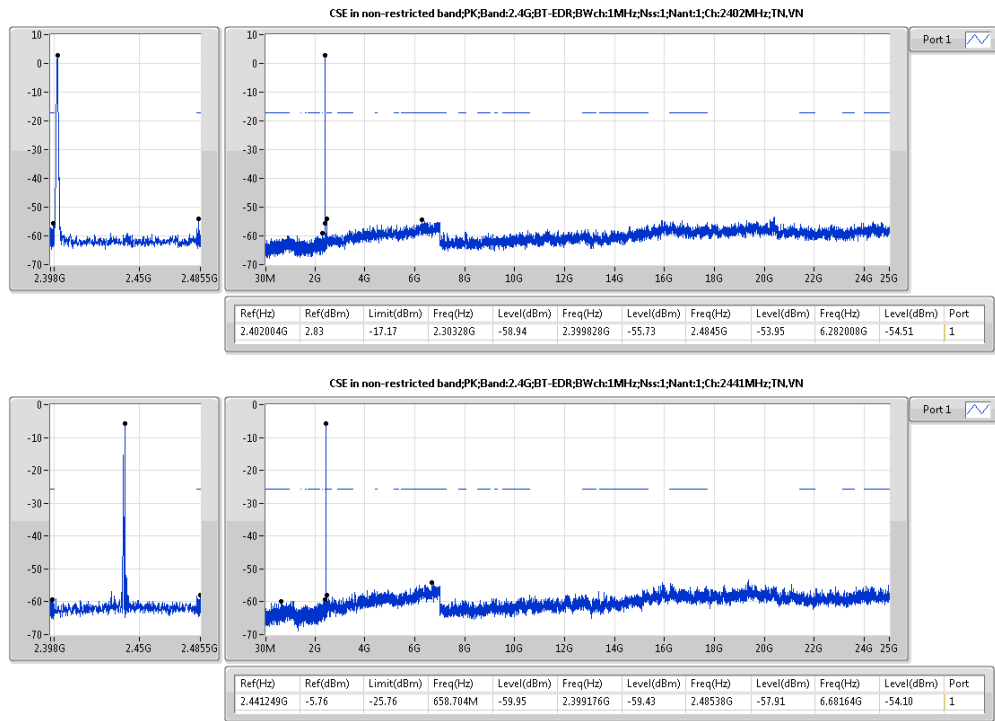
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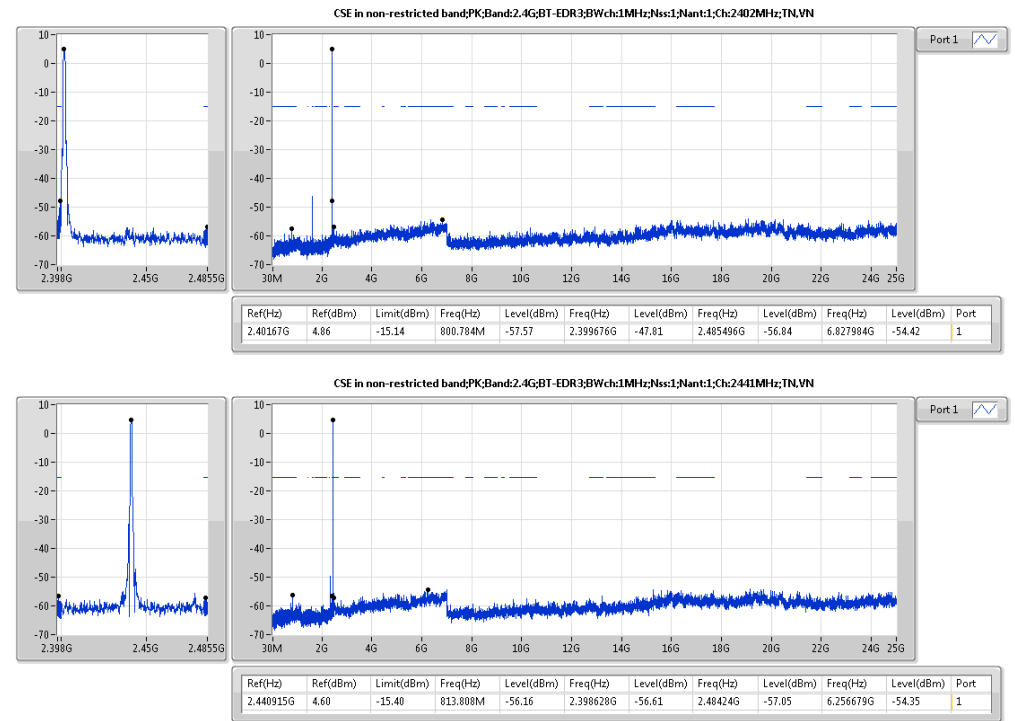
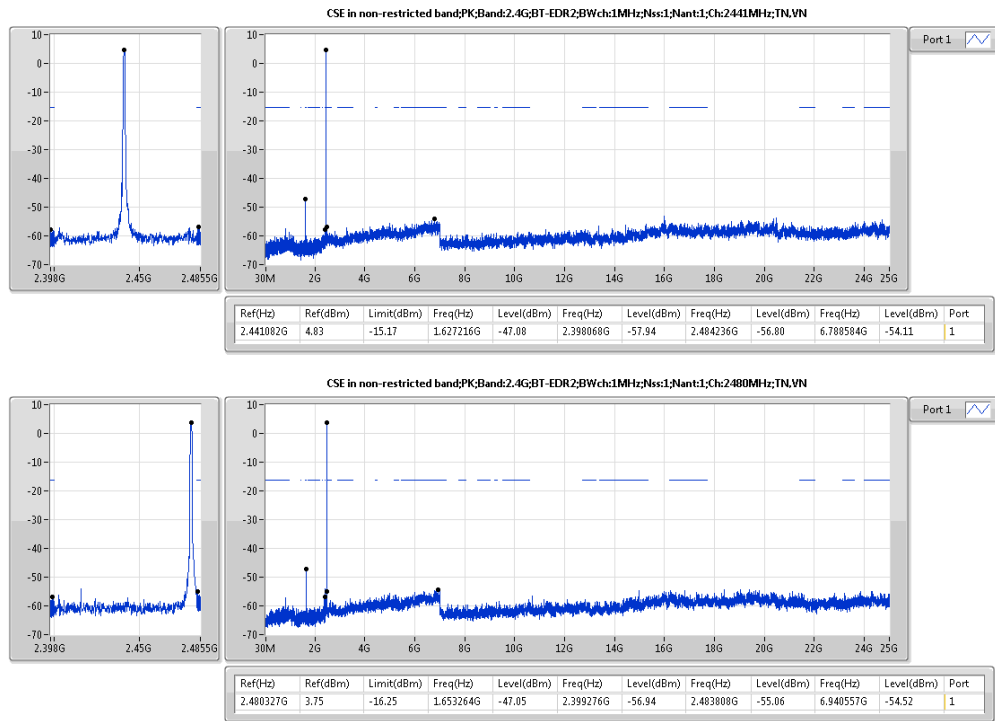
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4G;BT-EDR;Nss1;Ntx1;2441	Pass	2.441249G	-5.76	-25.76	658.704M	-59.95	2.399176G	-59.43	2.48538G	-57.91	6.68164G	-54.10	1



Result

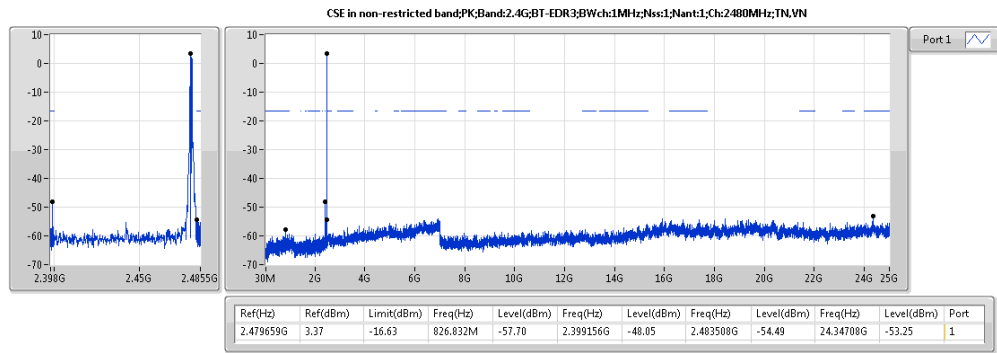
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4G;BT-EDR;Nss1;Ntx1;2402	Pass	2.402004G	2.83	-17.17	2.30328G	-58.94	2.399828G	-55.73	2.4845G	-53.95	6.282008G	-54.51	1
2.4G;BT-EDR;Nss1;Ntx1;2441	Pass	2.441249G	-5.76	-25.76	658.704M	-59.95	2.399176G	-59.43	2.48538G	-57.91	6.68164G	-54.10	1
2.4G;BT-EDR;Nss1;Ntx1;2480	Pass	2.479993G	1.88	-18.12	861.168M	-59.16	2.398308G	-53.66	2.484972G	-57.79	6.875828G	-54.63	1
2.4G;BT-EDR2;Nss1;Ntx1;2402	Pass	2.402004G	4.51	-15.49	800.784M	-55.77	2.399912G	-49.39	2.48426G	-58.10	16.30096G	-53.68	1
2.4G;BT-EDR2;Nss1;Ntx1;2441	Pass	2.441082G	4.83	-15.17	1.627216G	-47.08	2.398068G	-57.94	2.484236G	-56.80	6.788584G	-54.11	1
2.4G;BT-EDR2;Nss1;Ntx1;2480	Pass	2.480327G	3.75	-16.25	1.653264G	-47.05	2.399276G	-56.94	2.483808G	-55.06	6.940557G	-54.52	1
2.4G;BT-EDR3;Nss1;Ntx1;2402	Pass	2.40167G	4.86	-15.14	800.784M	-57.57	2.399676G	-47.81	2.485496G	-56.84	6.827984G	-54.42	1
2.4G;BT-EDR3;Nss1;Ntx1;2441	Pass	2.440915G	4.60	-15.40	813.808M	-56.16	2.398628G	-56.61	2.48424G	-57.05	6.256679G	-54.35	1
2.4G;BT-EDR3;Nss1;Ntx1;2480	Pass	2.479659G	3.37	-16.63	826.832M	-57.70	2.399156G	-48.05	2.483508G	-54.49	24.34708G	-53.25	1

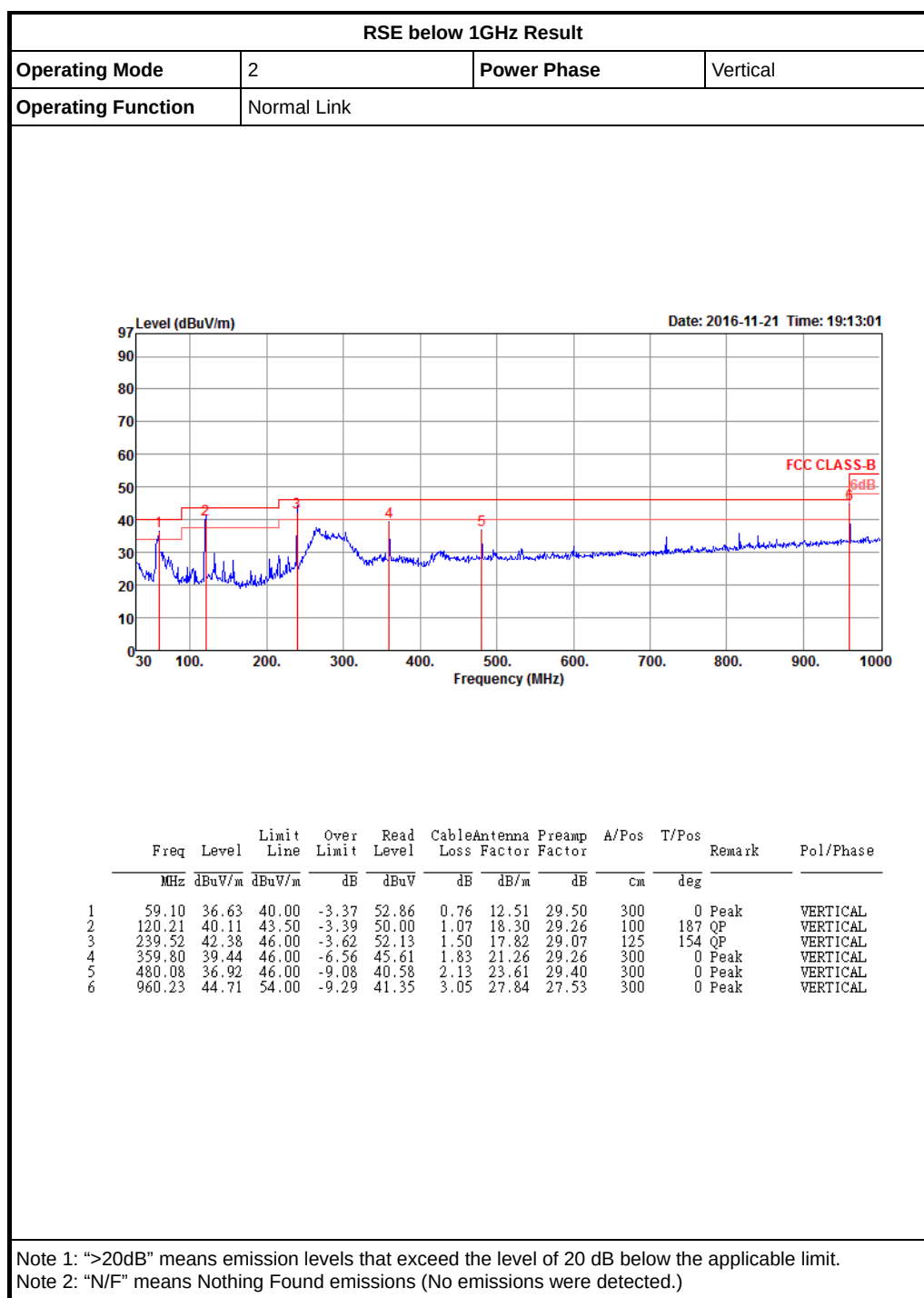
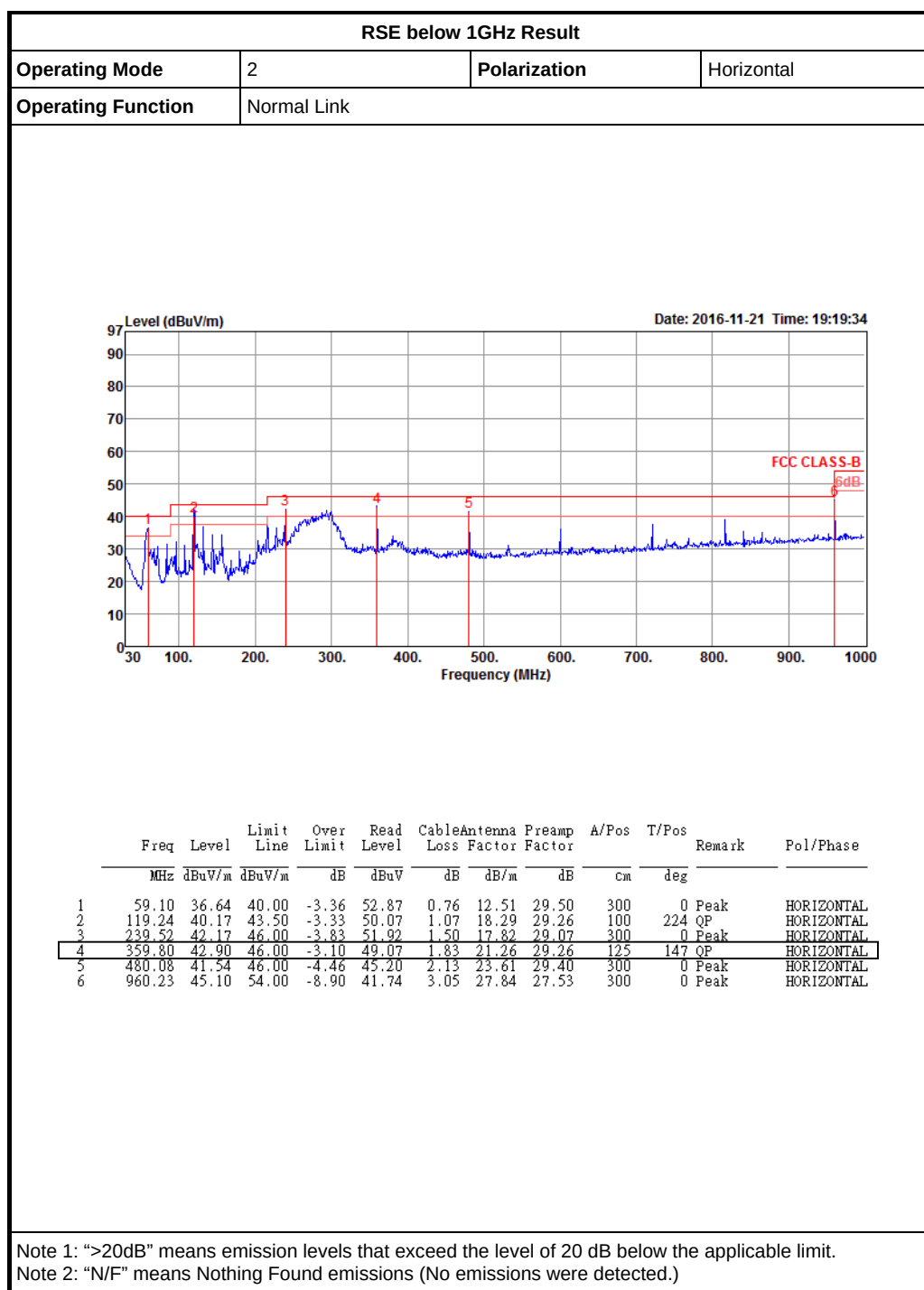






CSEndB-DSS Result





Radiated Emissions (1GHz~10th Harmonic)

Configurations	BR (GFSK) CH 0 / Chain 1
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Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4803.96	24.14	54.00	-29.86	17.09	9.03	31.07	33.05	161	304	Average	HORIZONTAL
2	4803.96	48.58	74.00	-25.42	41.53	9.03	31.07	33.05	161	304	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4804.06	24.98	54.00	-29.02	17.93	9.03	31.07	33.05	155	326	Average	VERTICAL
2	4804.06	49.42	74.00	-24.58	42.37	9.03	31.07	33.05	155	326	Peak	VERTICAL

Configurations	BR (GFSK) CH 38 / Chain 1
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Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4885.20	23.68	54.00	-30.32	16.60	8.93	31.17	33.02	132	191	Average	HORIZONTAL
2	4885.20	48.12	74.00	-25.88	41.04	8.93	31.17	33.02	132	191	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4878.26	24.25	54.00	-29.75	17.17	8.95	31.15	33.02	168	34	Average	VERTICAL
2	4878.26	48.69	74.00	-25.31	41.61	8.95	31.15	33.02	168	34	Peak	VERTICAL

Configurations	BR (GFSK) CH 78 / Chain 1
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Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4961.70	23.09	54.00	-30.91	15.97	8.85	31.25	32.98	174	113	Average	HORIZONTAL
2	4961.70	47.53	74.00	-26.47	40.41	8.85	31.25	32.98	174	113	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4957.22	24.71	54.00	-29.29	17.60	8.85	31.25	32.99	160	258	Average	VERTICAL
2	4957.22	49.15	74.00	-24.85	42.04	8.85	31.25	32.99	160	258	Peak	VERTICAL

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Configurations	EDR (8DPSK) CH 0 / Chain 1
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Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4805.52	24.23	54.00	-29.77	17.18	9.03	31.07	33.05	186	276	Average	HORIZONTAL
2	4805.52	48.67	74.00	-25.33	41.62	9.03	31.07	33.05	186	276	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4805.10	23.69	54.00	-30.31	16.64	9.03	31.07	33.05	136	180	Average
2	4805.10	48.13	74.00	-25.87	41.08	9.03	31.07	33.05	136	180	Peak
											VERTICAL

Configurations	EDR (8DPSK) CH 38 / Chain 1
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Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4885.08	22.91	54.00	-31.09	15.83	8.93	31.17	33.02	141	184	Average	HORIZONTAL
2	4885.08	47.35	74.00	-26.65	40.27	8.93	31.17	33.02	141	184	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4879.38	24.84	54.00	-29.16	17.76	8.95	31.15	33.02	230	109	Average	VERTICAL
2	4879.38	49.28	74.00	-24.72	42.20	8.95	31.15	33.02	230	109	Peak	VERTICAL

Configurations	EDR (8DPSK) CH 78 / Chain 1
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Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4958.74	24.83	54.00	-29.17	17.71	8.85	31.25	32.98	175	204	Average	HORIZONTAL
2	4958.74	49.27	74.00	-24.73	42.15	8.85	31.25	32.98	175	204	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4963.86	23.16	54.00	-30.84	16.04	8.85	31.25	32.98	144	144	Average	VERTICAL
2	4963.86	47.60	74.00	-26.40	40.48	8.85	31.25	32.98	144	144	Peak	VERTICAL

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

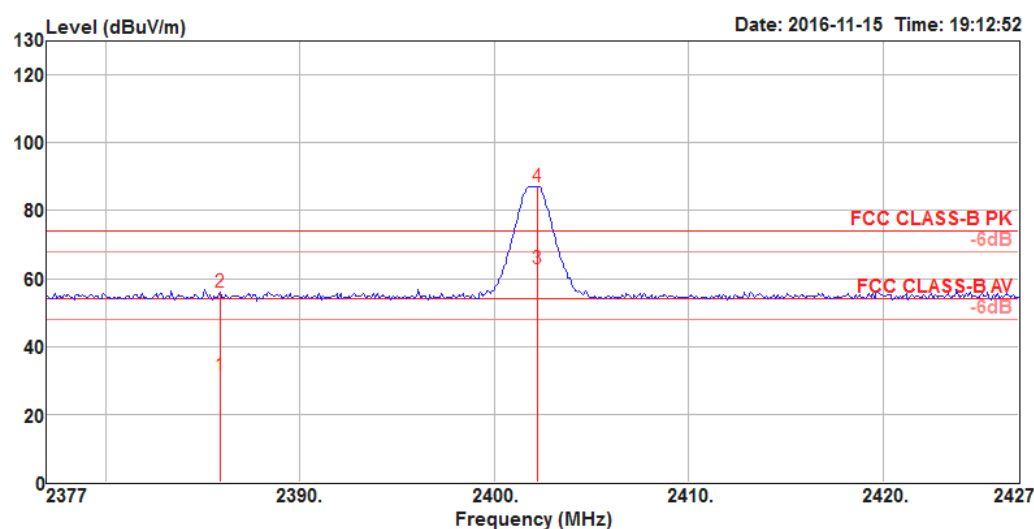
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Band Edge Emissions

Configurations	BR (GFSK) CH 0, 38, 78 / Chain 1
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Channel 0

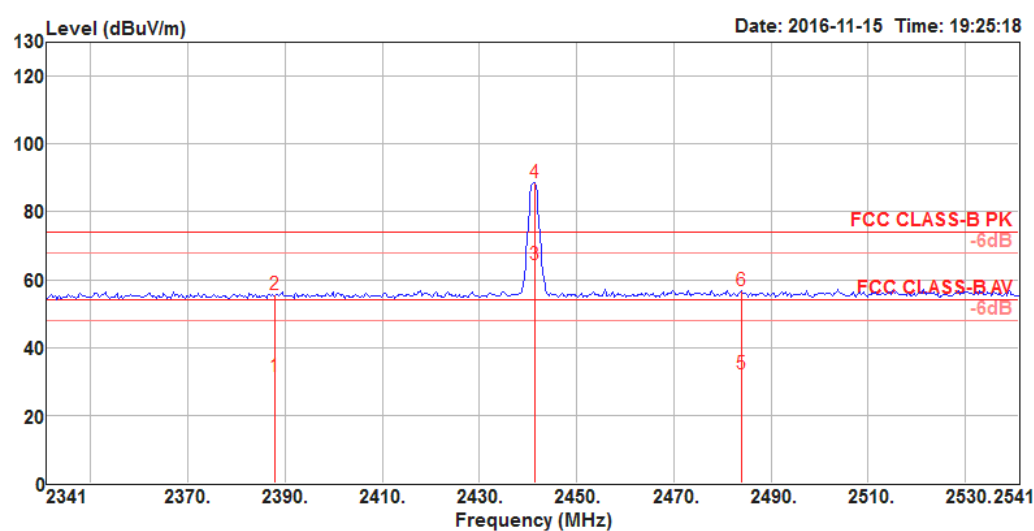
Item 3, 4 are the fundamental frequency at 2402 MHz.



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2385.90	31.53	54.00	-22.47	-1.16	5.46	27.23	0.00	109	49 Average	HORIZONTAL
2	2385.90	55.97	74.00	-18.03	23.28	5.46	27.23	0.00	109	49 Peak	HORIZONTAL
3	2402.20	62.79			30.05	5.48	27.26	0.00	109	49 Average	HORIZONTAL
4	2402.20	87.23			54.49	5.48	27.26	0.00	109	49 Peak	HORIZONTAL

Channel 38

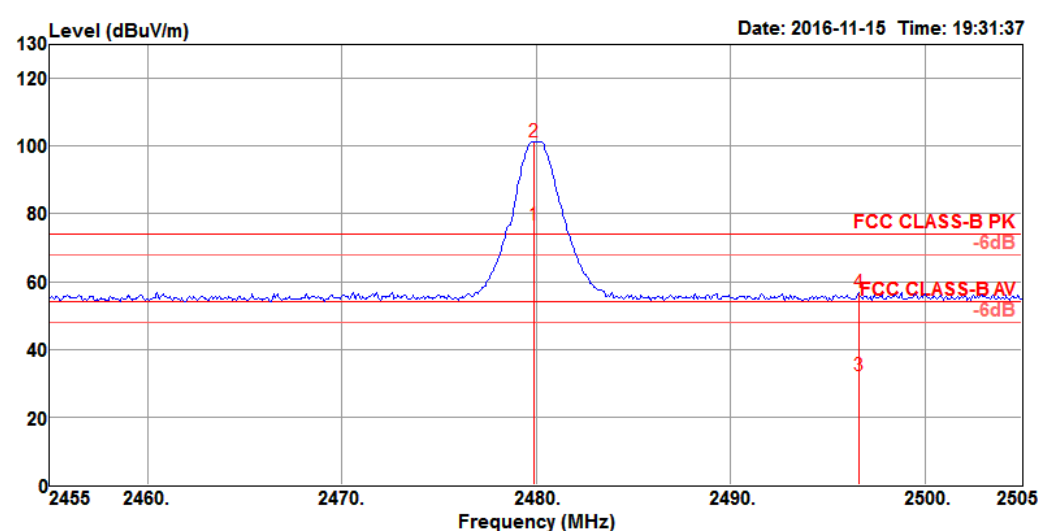
Item 3, 4 are the fundamental frequency at 2440 MHz.



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2388.00	31.31	54.00	-22.69	-1.38	5.46	27.23	0.00	142	19 Average	HORIZONTAL
2	2388.00	55.75	74.00	-18.25	23.06	5.46	27.23	0.00	142	19 Peak	HORIZONTAL
3	2441.40	64.27			31.37	5.54	27.36	0.00	142	19 Average	HORIZONTAL
4	2441.40	88.71			55.81	5.54	27.36	0.00	142	19 Peak	HORIZONTAL
5	2483.90	32.40	54.00	-21.60	-0.66	5.59	27.47	0.00	142	19 Average	HORIZONTAL
6	2483.90	56.84	74.00	-17.16	23.78	5.59	27.47	0.00	142	19 Peak	HORIZONTAL

Channel 78

Item 1, 2 are the fundamental frequency at 2480 MHz.



	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1 •	2479.90	76.80			43.77	5.58	27.45	0.00	107	31 Average	VERTICAL
2 •	2479.90	101.24			68.21	5.58	27.45	0.00	107	31 Peak	VERTICAL
3	2496.60	32.27	54.00	-21.73	-0.84	5.61	27.50	0.00	107	31 Average	VERTICAL
4	2496.60	56.71	74.00	-17.29	23.60	5.61	27.50	0.00	107	31 Peak	VERTICAL

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

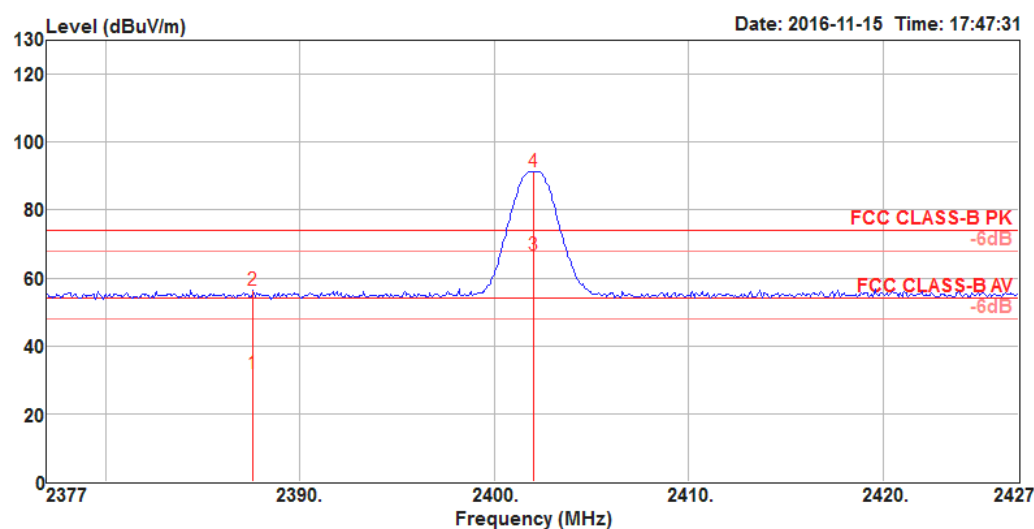
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Configurations

EDR (8DPSK) CH 0, 38, 78 / Chain 1

Channel 0

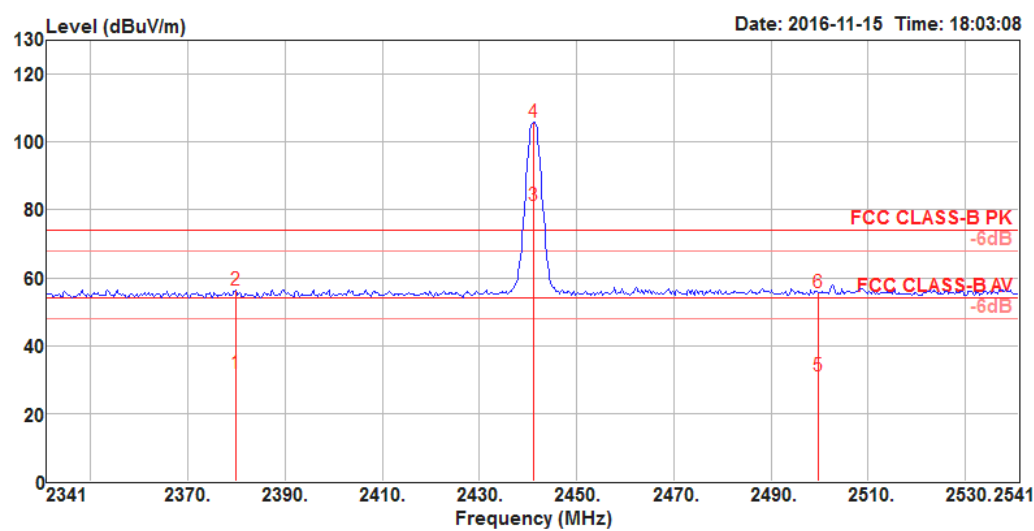
Item 3, 4 are the fundamental frequency at 2402 MHz.



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	cm	deg	
1	2387.60	32.03	54.00	-21.97	-0.66	5.46	27.23	0.00	104	49 Average	HORIZONTAL
2	2387.60	56.47	74.00	-17.53	23.78	5.46	27.23	0.00	104	49 Peak	HORIZONTAL
3	2402.00	66.93			34.19	5.48	27.26	0.00	104	49 Average	HORIZONTAL
4	2402.00	91.37			58.63	5.48	27.26	0.00	104	49 Peak	HORIZONTAL

Channel 38

Item 3, 4 are the fundamental frequency at 2440 MHz.

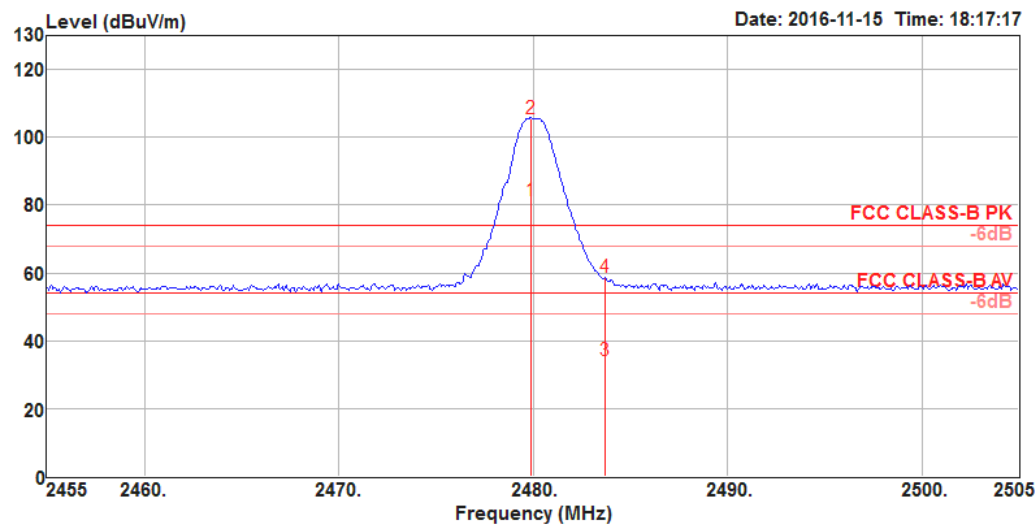


	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	cm	deg	
1	2379.80	31.77	54.00	-22.23	-0.89	5.45	27.21	0.00	105	29 Average	VERTICAL
2	2379.80	56.21	74.00	-17.79	23.55	5.45	27.21	0.00	105	29 Peak	VERTICAL
3	2441.00	81.30			48.40	5.54	27.36	0.00	105	29 Average	VERTICAL
4	2441.00	105.74			72.84	5.54	27.36	0.00	105	29 Peak	VERTICAL
5	2499.80	31.01	54.00	-22.99	-2.10	5.61	27.50	0.00	105	29 Average	VERTICAL
6	2499.80	55.45	74.00	-18.55	22.34	5.61	27.50	0.00	105	29 Peak	VERTICAL



Channel 78

Item 1, 2 are the fundamental frequency at 2480 MHz.



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1 ●	2479.90	81.22			48.19	5.58	27.45	0.00	124	33 Average	VERTICAL
2 ●	2479.90	105.66			72.63	5.58	27.45	0.00	124	33 Peak	VERTICAL
3	2483.70	34.21	54.00	-19.79	1.15	5.59	27.47	0.00	124	33 Average	VERTICAL
4	2483.70	58.65	74.00	-15.35	25.59	5.59	27.47	0.00	124	33 Peak	VERTICAL

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.