

FCC Test Report

Equipment : GRAPHICS TABLET COMPUTER
Brand Name : Wacom
Model No. : DTH-W1320
FCC ID : HV4DTHW1320
Standard : 47 CFR FCC Part 15.247
RF Spec. : Bluetooth EDR
Operating Band : 2400 MHz – 2483.5 MHz
FCC Classification : DSS
Applicant / Manufacturer : Wacom Co., Ltd.
2-510-1 Toyonodai, Kazo-shi, Saitama 349-1148 Japan

The product sample received on Jul. 13, 2016 and completely tested on Sep. 20, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 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 INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Kevin Liang / Assistant Manager

Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Accessories and Support Equipment	7
1.3	Testing Applied Standards	7
1.4	Testing Location Information	7
1.5	Measurement Uncertainty	8
2	TEST CONFIGURATION OF EUT.....	9
2.1	The Worst Case Modulation Configuration	9
2.2	The Worst Case Power Setting Parameter	9
2.3	The Worst Case Measurement Configuration.....	10
2.4	Test Setup Diagram	11
3	TRANSMITTER TEST RESULT	12
3.1	AC Power-line Conducted Emissions	12
3.2	20dB Bandwidth and Carrier Frequency Separation.....	14
3.3	Number of Hopping Frequencies	15
3.4	Time of Occupancy (Dwell Time)	16
3.5	RF Output Power.....	18
3.6	Transmitter Radiated Bandedge Emissions	20
3.7	Transmitter Radiated Unwanted Emissions	22
4	TEST EQUIPMENT AND CALIBRATION DATA	26

Appendix I. Test Result of AC Power-line Conducted Emissions

Appendix A.1~A.2. Test Result of Emission Bandwidth & Channel Separation

Appendix B.1~B.2 Test Result of Hopping Number & Dwell Time

Appendix C. Test Result of Maximum Conducted Output Power

Appendix D. Test Result of Transmitter Radiated Bandedge Emissions

Appendix E. Transmitter Radiated Unwanted Emissions

Appendix F. Test Photos

Appendix G. Photographs of EUT

Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.5052260MHz 41.45 (Margin 14.55dB) - QP 38.97 (Margin 7.03dB) - AV	FCC 15.207	Complied
3.2	15.247(a)	20dB Bandwidth	Refer as Appendix A	N/A	Complied
3.2	15.247(a)	Carrier Frequency Separation (ChS)	Refer as Appendix A	$ChS \geq BW_{20dB} \times 2/3$	Complied
3.3	15.247(a)	Number of Hopping Frequencies (N)	Refer as Appendix B	$N \geq 15$	Complied
3.4	15.247(a)	Time of Occupancy (Dwell Time)	Refer as Appendix B	0.4 s within $0.4 \times N$	Complied
3.5	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Refer as Appendix C	Power [dBm] BR:21 EDR:21	Complied
3.6	15.247(d)	Transmitter Radiated Bandedge Emissions	Non-Restricted Bands: 2399.964MHz:38.17dB Restricted Bands: [dBuV/m at 3m]: 2489.760 MHz 59.64 (Margin 14.36 dB) - PK 29.54 (Margin 24.46 dB) - AV	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied
3.7	15.247(d)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 3m]: 600.360 MHz 41.81 (Margin 4.19 dB) - PK	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied

Revision History

[illegible]

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information				
Frequency Range (MHz)	Bluetooth Mode	Ch. Frequency (MHz)	Channel Number	RF Output Power (dBm)
2400-2483.5	BR / EDR	2402-2480	0-78 [79]	5.71
Note 1: Bluetooth BR uses a GFSK (1Mbps). Note 2: Bluetooth EDR uses a combination of $\pi/4$ -DQPSK (2Mbps) and 8DPSK (3Mbps). Note 3: RF output power specifies that Maximum Peak Conducted Output Power.				

1.1.2 Antenna Information

Antenna Category	
<input checked="" type="checkbox"/>	Integral antenna (antenna permanently attached)
<input checked="" type="checkbox"/>	Temporary RF connector provided
<input type="checkbox"/>	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
<input type="checkbox"/>	External antenna (dedicated antennas)
<input type="checkbox"/>	Single power level with corresponding antenna(s).
<input type="checkbox"/>	Multiple power level and corresponding antenna(s).

Antenna General Information			
No.	Ant. Cat.	Ant. Type	Gain (dBi)
1	Integral	PIFA	1.31
2	Integral	PIFA	0.91

1.1.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	<input checked="" type="checkbox"/> Production ; <input type="checkbox"/> Pre-Production ; <input type="checkbox"/> Prototype
Type of EUT	
<input checked="" type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.:
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.:
<input type="checkbox"/>	Other:

1.1.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
<input checked="" type="checkbox"/> Operated test mode for worst duty cycle	
Test Signal Duty Cycle (x)	Power Duty Factor [dB] – (10 log 1/x)
<input checked="" type="checkbox"/> 78.4% - test mode single channel-BR-1Mbps	1.06
<input checked="" type="checkbox"/> 78.4% - test mode single channel-EDR-2Mbps	1.06
<input checked="" type="checkbox"/> 74.8% - test mode single channel-EDR-3Mbps	1.26
Bluetooth ACL packets can be 1, 3, or 5 time slots. The DH1 packet can cover a single time slot. The DH3 packet can cover up to 3 time slots. The DH5 packet can cover up to 5 time slots. Operate DH5 at maximum dwell time and maximum duty cycle.	

1.1.5 EUT Operational Condition

Supply Voltage	<input checked="" type="checkbox"/> AC mains	<input checked="" type="checkbox"/> DC	
Type of DC Source	<input checked="" type="checkbox"/> External AC adapter	<input type="checkbox"/> From Host System	<input checked="" type="checkbox"/> Battery

1.2 Accessories and Support Equipment

Accessories				
AC Adapter	Brand Name	DELTA	Model Name	ADP-100PB B
	Power Rating	I/P: 100 - 240Vac, 1.8A, O/P: 5V/3A or 20V/5A		
Touch Pen	Brand Name	Wacom	Model Name	KP-504E
WLAN/BT Module	Brand Name	Intel	Model Name	8260NGW
GPS chip	Brand Name	BROADCOM	Model Name	BCM4752IFBG

Reminder: Regarding to more detail and other information, please refer to user manual.

Support Equipment - RF Conducted			
No.	Equipment	Brand Name	Model Name
1	-	-	-

Support Equipment - AC Conduction and Radiated Emission			
No.	Equipment	Brand Name	Model Name
1	-	-	-

1.3 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
- ♦ ANSI C63.10-2013
- ♦ FCC Public Notice DA 00-705

1.4 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.		
		TEL : 886-3-327-3456	FAX : 886-3-327-0973	
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Ryan	22°C / 54%	09/08/2016
RF Conducted	TH01-HY	Jeremy	21°C / 61%	20/09/2016
Radiated	03CH03-HY	Jeff	20.5°C / 52%	16/08/2016

Test site registered number [553509] with FCC.

1.5 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))

Measurement Uncertainty		
Test Item		Uncertainty
AC power-line conducted emissions		±2.3 dB
Emission bandwidth, 6dB bandwidth		±0.5%
RF output power, conducted		±0.1 dB
Power density, conducted		±0.5 dB
Unwanted emissions, conducted	±0.4 dB	±0.4 dB
	±0.4 dB	±0.4 dB
	±0.6 dB	±0.6 dB
	±0.5 dB	±0.5 dB
	±0.5 dB	±0.5 dB
	N/A	N/A
All emissions, radiated	±2.5 dB	±2.5 dB
	±2.3 dB	±2.3 dB
	±2.6 dB	±2.6 dB
	±3.6 dB	±3.6 dB
	±3.8 dB	±3.8 dB
	N/A	N/A
Temperature		±0.8 °C
Humidity		±5 %
DC and low frequency voltages		±0.9%
Time		±1.4 %
Duty Cycle		±0.5 %

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing					
Bluetooth Mode	Transmit Chains (N _{TX})	Data Rate	Modulation Mode	RF Output Power (dBm)	Worst Mode
BR	1	1 Mbps	BR-1Mbps	4.90	EDR-3Mbps
EDR	1	2 Mbps	EDR-2Mbps	5.53	
EDR	1	3 Mbps	EDR-3Mbps	5.71	
Note 1: Bluetooth BR uses a combination of GFSK (1Mbps).					
Note 2: Bluetooth EDR uses a combination of $\pi/4$ -DQPSK (2Mbps) and 8DPSK (3Mbps).					
Note 3: Modulation modes consist below configuration: FHSS BR-1Mbps: GFSK (1Mbps), EDR-2Mbps: $\pi/4$ -DQPSK (2Mbps), EDR-3Mbps: 8DPSK(3Mbps)					
Note 4: RF output power specifies that Maximum Peak Conducted Output Power.					




2.2 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter			
Test Software Version	DRTU V1.8.9		
Modulation Mode	2402 MHz	2441 MHz	2480 MHz
BR,1Mbps	7	7	7
EDR,2Mbps	7	7	7
EDR,3Mbps	7	7	7

2.3 The Worst Case Measurement Configuration

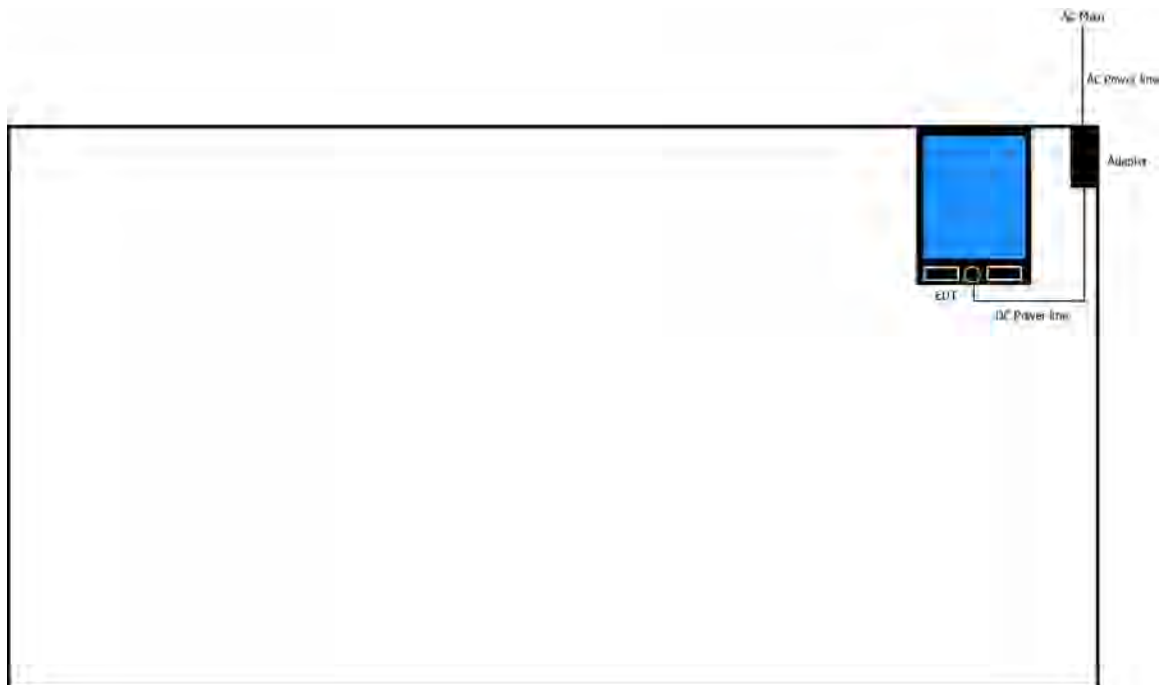
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	2M 2441MHz, Adapter with charging mode

The Worst Case Mode for Following Conformance Tests	
Tests Item	RF Output Power, 20dB Bandwidth, Carrier Frequency Separation (ChS) Number of Hopping Frequencies (N), Time of Occupancy (Dwell Time)
Test Condition	Conducted measurement at transmit chains
Modulation Mode	BR-1Mbps, EDR-2Mbps, EDR-3Mbps

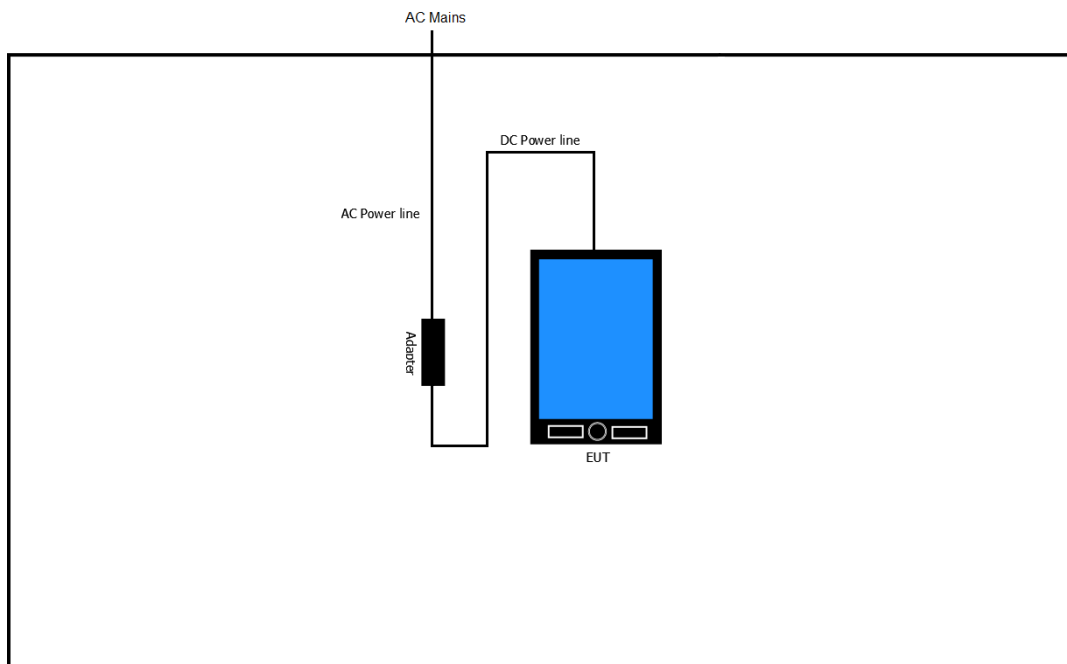
The Worst Case Mode for Following Conformance Tests			
Tests Item	Emission Bandwidth, Fundamental Emissions, Radiated Unwanted Emissions		
Test Condition	Radiated measurement		
User Position	<input type="checkbox"/> EUT will be placed in fixed position.		
	<input type="checkbox"/> EUT will be placed in mobile position and operating multiple positions.		
	<input checked="" type="checkbox"/> EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions.		
Operating Mode	Operating Mode Description		
1	2M 2441MHz, Adapter with charging mode		
Modulation Mode	BR-1Mbps, EDR-2Mbps, EDR-3Mbps		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT			V

2.4 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Test Setup Diagram - Radiated Test



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.

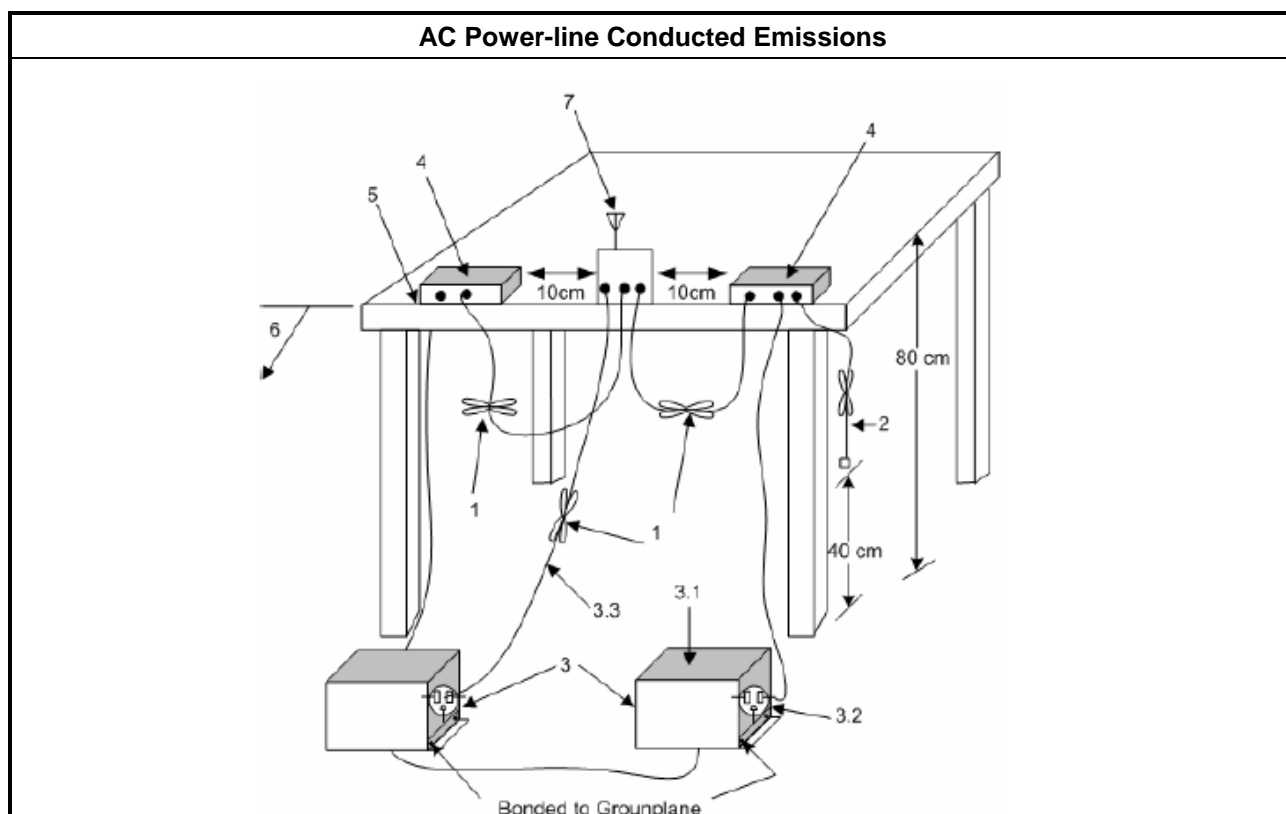
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup





3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix I

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	
<input checked="" type="checkbox"/>	2400-2483.5 MHz Band:
<input type="checkbox"/>	$N \geq 75$ and ChS \geq MAX (20 dB bandwidth, 25 kHz).
<input checked="" type="checkbox"/>	$N \geq 15$ and ChS \geq MAX (20 dB bandwidth x 2/3, 25 kHz).
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation	

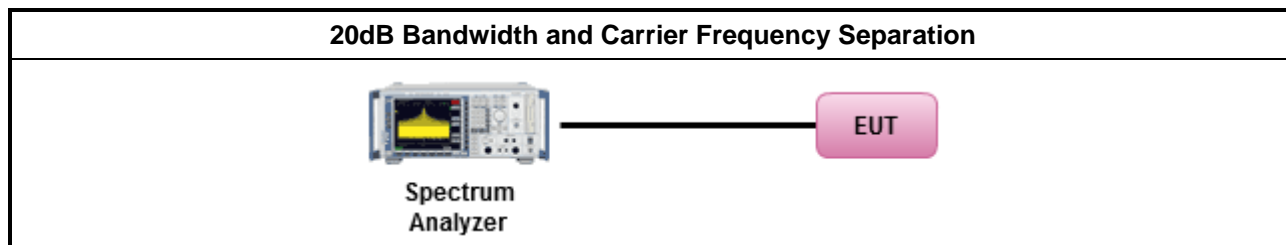
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.2 for 20 dB bandwidth measurement.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 7.8.2 for carrier frequency separation measurement.
<input checked="" type="checkbox"/>	For conducted measurement.
<input checked="" type="checkbox"/>	The EUT supports single transmit chain and measurements performed on this transmit chain.
<input type="checkbox"/>	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.

3.2.4 Test Setup



3.2.5 Test Result of 20dB Bandwidth and Carrier Frequency Separation

Refer as Appendix A.1~A.2

3.3 Number of Hopping Frequencies

3.3.1 Number of Hopping Frequencies Limit

Number of Hopping Frequencies Limit for Frequency Hopping Systems	
<input checked="" type="checkbox"/>	2400-2483.5 MHz Band:
<input type="checkbox"/>	$N \geq 75$ and ChS \geq MAX (20 dB bandwidth, 25 kHz).
<input checked="" type="checkbox"/>	$N \geq 15$ and ChS \geq MAX (20 dB bandwidth x 2/3, 25 kHz).
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation	

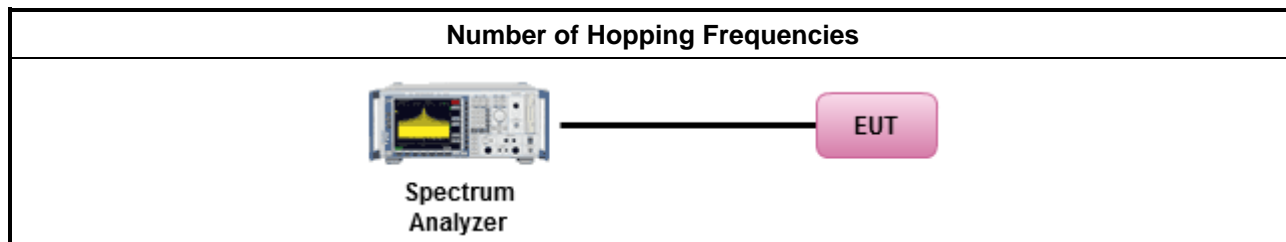
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 7.8.3 for number of hopping frequencies measurement.
<input checked="" type="checkbox"/>	For conducted measurement.
<input checked="" type="checkbox"/>	The EUT supports single transmit chain and measurements performed on this transmit chain.
<input type="checkbox"/>	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.

3.3.4 Test Setup



3.3.5 Test Result of Number of Hopping Frequencies

Refer as Appendix B.1

3.4 Time of Occupancy (Dwell Time)

3.4.1 Time of Occupancy (Dwell Time) Limit

Time of Occupancy (Dwell Time) Limit for Frequency Hopping Systems	
<input checked="" type="checkbox"/>	2400-2483.5 MHz Band: Dwell time ≤ 0.4 second within $0.4 \times N$
N: Number of Hopping Frequencies	

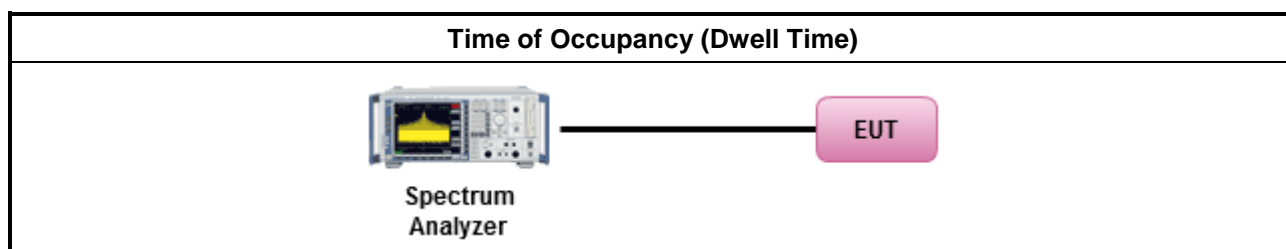
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 7.8.4 for dwell time measurement.
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	The DH1 packet can cover a single time slot. A maximum length packet has duration of 1 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is $1/1600$ seconds, or 0.625ms. DH1 Packet permit maximum $1600 / 79 / 2 = 10.12$ hops per second in each channel (1 time slot RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times $10.12 \times 31.6 = 320$ within 31.6 seconds.
<input checked="" type="checkbox"/>	The DH3 packet can cover up to 3 time slots. A maximum length packet has duration of 3 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is $3/1600$ seconds, or 1.875ms. DH3 Packet permit maximum $1600 / 79 / 4 = 5.06$ hops per second in each channel (3 time slots TX, 1 time slot RX). So, the dwell time is the time duration of the pulse times $5.06 \times 31.6 = 160$ within 31.6 seconds.
<input checked="" type="checkbox"/>	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 (5 time slots TX, 1 time slot RX). So, the dwell time is the time duration of the pulse times $3.37 \times 31.6 = 106.6$ within 31.6 seconds
<input checked="" type="checkbox"/>	For conducted measurement.
<input checked="" type="checkbox"/>	The EUT supports single transmit chain and measurements performed on this transmit chain.
<input type="checkbox"/>	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.

3.4.4 Test Setup





3.4.5 Test Result of Time of Occupancy (Dwell Time)

Refer as Appendix B.2

3.5 RF Output Power

3.5.1 RF Output Power Limit

RF Output Power Limit for Frequency Hopping Systems	
Maximum Peak Conducted Output Power Limit	
<input checked="" type="checkbox"/> 2400-2483.5 MHz Band:	
	<input type="checkbox"/> For Hopping Channel: $N \geq 75$
	<input type="checkbox"/> If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<input type="checkbox"/> If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<input checked="" type="checkbox"/> For Hopping Channel: $N \geq 15$
	<input checked="" type="checkbox"/> If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 21$ dBm (0.125 W)
	<input type="checkbox"/> If $G_{TX} > 6$ dBi, then $P_{Out} = 21 - (G_{TX} - 6)$ dBm
e.i.r.p. Power Limit:	
<input checked="" type="checkbox"/> 2400-2483.5 MHz Band:	
	<input type="checkbox"/> For Hopping Channel: $N \geq 75 - P_{eirp} \leq 36$ dBm (4 W)
	<input checked="" type="checkbox"/> For Hopping Channel: $N \geq 15 - P_{eirp} \leq 27$ dBm (0.5 W)
G_{TX} = the maximum transmitting antenna directional gain in dBi. P_{eirp} = e.i.r.p. Power in dBm. N: Number of Hopping Frequencies ChS: Hopping Channel Separation	

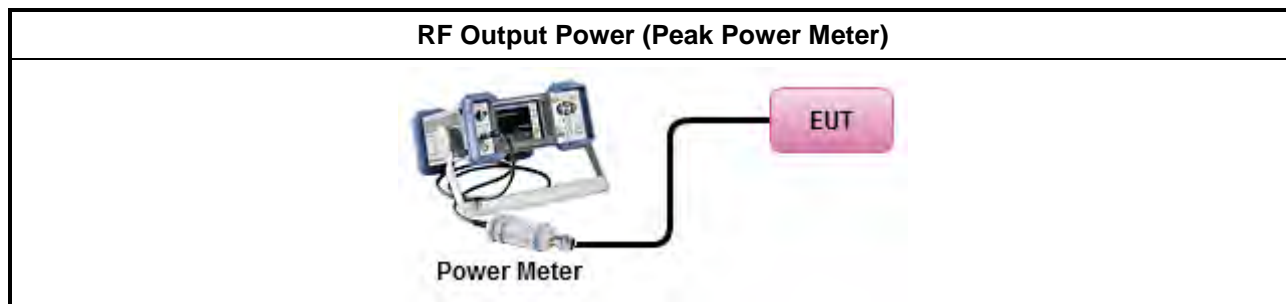
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/> Maximum Peak Conducted Output Power	
	<input type="checkbox"/> Refer as FCC DA 00-0705, spectrum analyzer for peak power.
	<input checked="" type="checkbox"/> Refer as FCC DA 00-0705, peak power meter for peak power.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 11.9.1.3) for peak power meter.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 11.9.1.1) for spectrum analyzer - (RBW \geq EBW).
<input checked="" type="checkbox"/> For conducted measurement.	
	<input checked="" type="checkbox"/> The EUT supports single transmit chain and measurements performed on this transmit chain.
	<input type="checkbox"/> The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.

3.5.4 Test Setup



3.5.5 Test Result of Maximum Peak Conducted Output Power

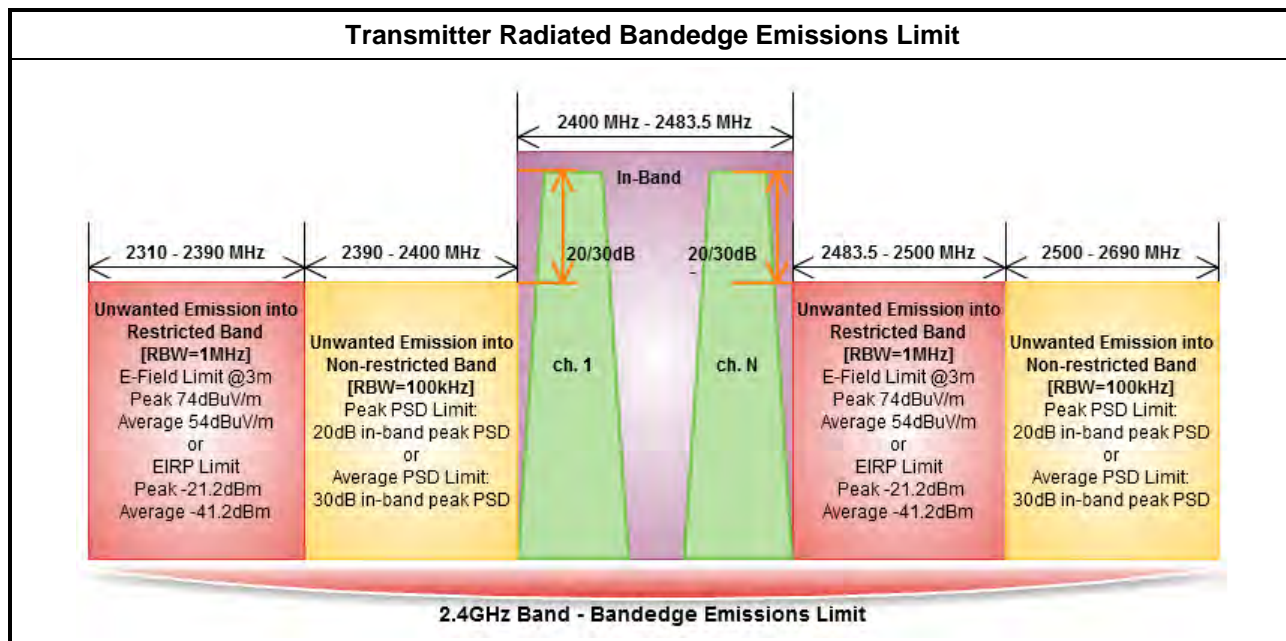
Refer as Appendix C

3.5.6 Test Result of Maximum Average Conducted Output Power

Refer as Appendix C

3.6 Transmitter Radiated Bandedge Emissions

3.6.1 Transmitter Radiated Bandedge Emissions Limit



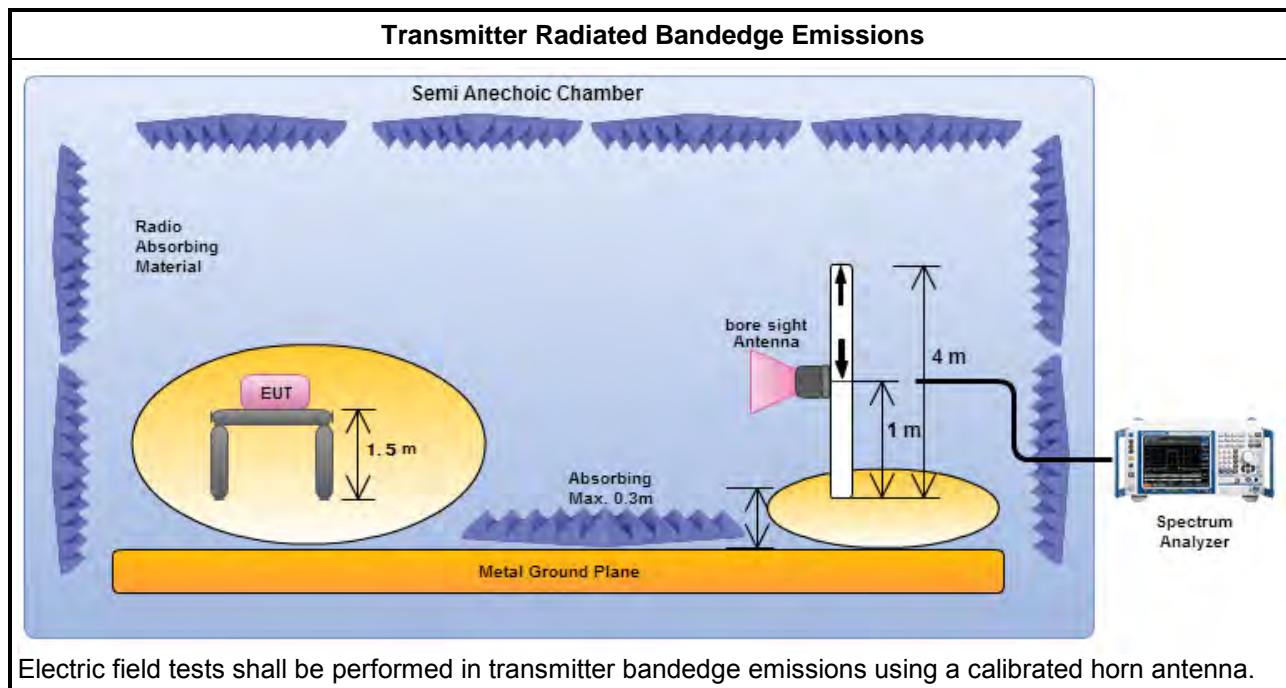
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

Test Method – General Information	
<input checked="" type="checkbox"/>	The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.10 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
<input checked="" type="checkbox"/>	For the transmitter unwanted emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	For unwanted emissions into non-restricted bands. 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.
<input checked="" type="checkbox"/>	For unwanted emissions into restricted bands.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.3 (Reduced VBW). VBW \geq 1/T, where T is pulse time.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
<input checked="" type="checkbox"/>	For the transmitter bandedge emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.10 for band-edge testing.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.10.6.2 for marker-delta method for band-edge measurements.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 7.8.6 for band-edge testing into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.6 for radiated emissions and test distance is 3m.

3.6.4 Test Setup



3.6.5 Test Result of Transmitter Radiated Bandedge Emissions

Refer as Appendix D

3.7 Transmitter Radiated Unwanted Emissions

3.7.1 Transmitter Radiated Unwanted Emissions 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.

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30

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.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

3.7.2 Measuring Instruments

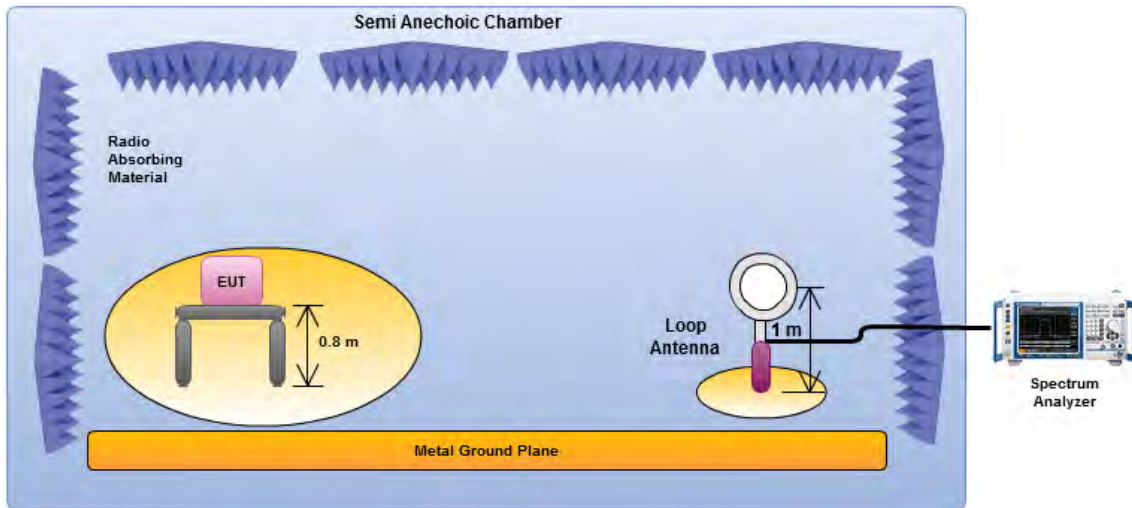
Refer a test equipment and calibration data table in this test report.

3.7.3 Test Procedures

Test Method – General Information	
<input checked="" type="checkbox"/>	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).
<input checked="" type="checkbox"/>	The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
<input checked="" type="checkbox"/>	For the transmitter unwanted emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	Refer as FCC DA 00-0705, for spurious radiated emissions. The dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from $20\log(\text{dwell time}/100 \text{ ms})$
<input type="checkbox"/>	For unwanted emissions into non-restricted bands. 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.
<input checked="" type="checkbox"/>	For unwanted emissions into restricted bands.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.3 (Reduced VBW). $\text{VBW} \geq 1/T$, where T is pulse time.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
<input checked="" type="checkbox"/>	For radiated measurement.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1 GHz and test distance is 3m.
<input checked="" type="checkbox"/>	The any unwanted emissions level shall not exceed the fundamental emission level.
<input checked="" type="checkbox"/>	All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

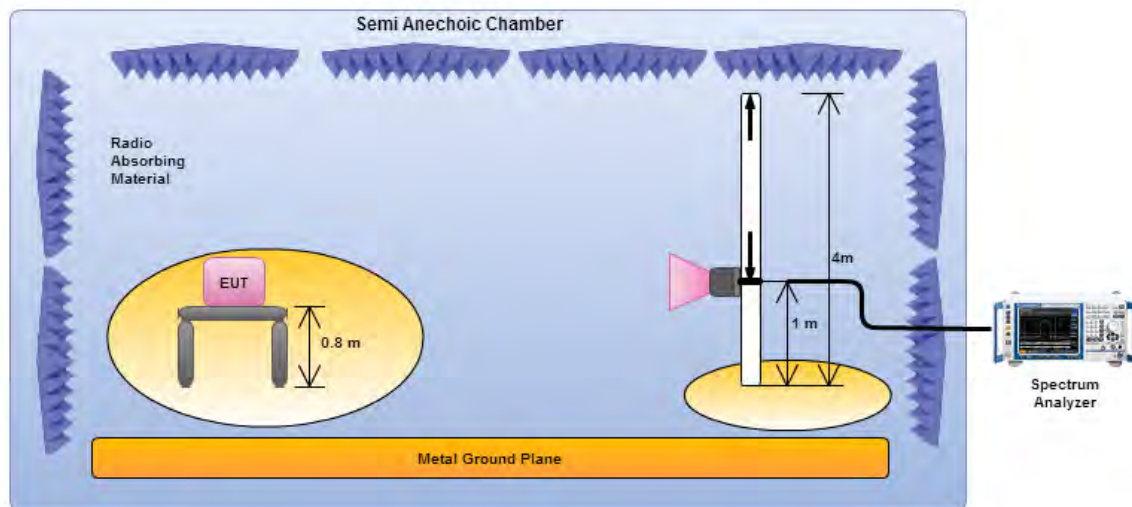
3.7.4 Test Setup

Transmitter Spurious and Out of Band Emissions (9 kHz - 30 MHz)

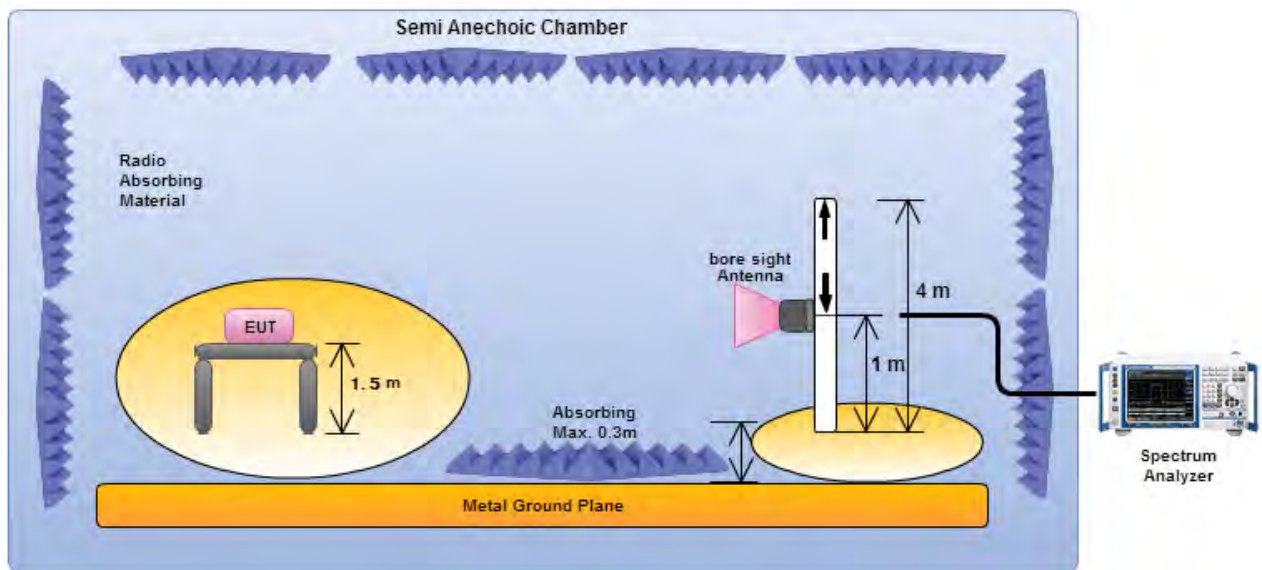


Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna.

Transmitter Radiated Unwanted Emissions (below 1GHz)



Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna.

Transmitter Radiated Unwanted Emissions (Above 1GHz)


Electric field tests shall be performed in the frequency range of 1 GHz to 10th harmonic of highest fundamental frequency or 40 GHz using a calibrated horn antenna.

3.7.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported. Any spurious which has more than 20 dB of margin compared to the applicable limit is not necessarily reported.

3.7.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Refer as Appendix E

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
EMC Receiver	KEYSIGHT	N9038A	MY54130031	20 Hz ~ 8.4 GHz	14/04/2016	13/04/2017
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9 kHz ~ 30 MHz	26/01/2016	25/01/2017
LISN (Support Unit)	R&S	ENV216	101295	9 kHz ~ 30 MHz	04/11/2015	03/11/2016
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9 kHz ~ 30 MHz	30/10/2015	29/10/2016
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	NCR	NCR

NCR: No Calibration Require.

Instrument for Conducted Test

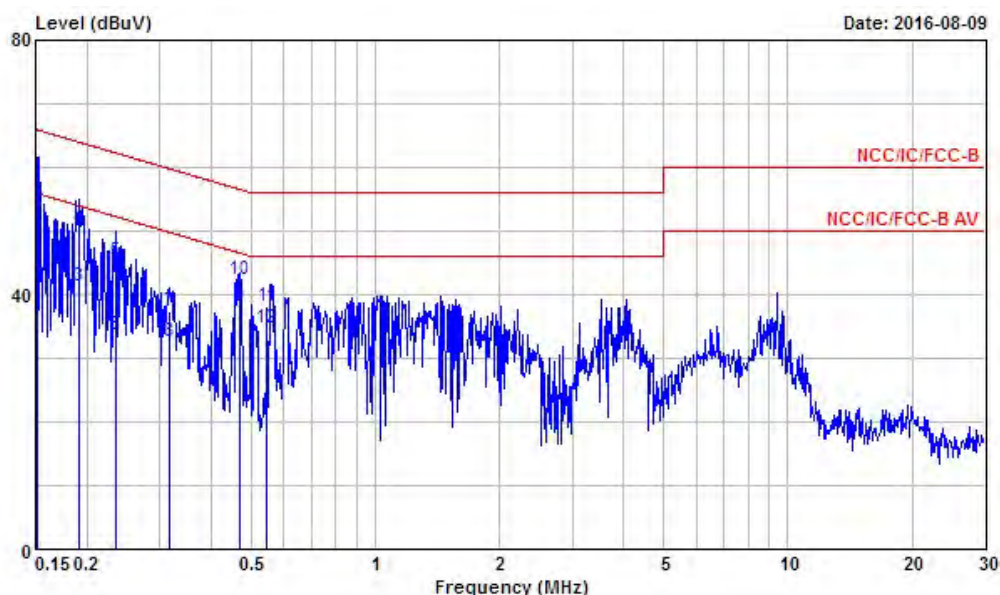
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101500	9 KHz ~ 40 GHz	12/05/2016	11/05/ 2017
Power Sensor	Anritsu	MA2411B	917017	300 MHz ~ 40 GHz	04/02/2016	03/02/2017
Power Meter	Anritsu	ML2495A	949003	300 MHz ~ 40 GHz	04/02/2016	03/02/2017
Signal Generator	R&S	SMR40	100116	10 MHz ~ 40 GHz	21/07/2016	20/07/2017

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz ~ 1 GHz 3m	28/11/2015	27/11/2016
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1 GHz ~ 18 GHz 3m	16/12/2015	15/12/ 2016
Amplifier	HP	8447D	2944A08033	10 kHz ~ 1.3 GHz	10/05//2016	09/05/2017
Amplifier	Agilent	8449B	3008A02120	1 GHz ~ 26.5 GHz	02/09/2015	01/09/ 2016
Spectrum	R&S	FSV40	101513	9 kHz ~ 40 GHz	16/02/ 2016	15/02/ 2017
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz ~ 1 GHz	18/09/ 2015	17/09/2016
Horn Antenna	SCHWARZBECK	BBHA9120D	1531	1 GHz ~ 18 GHz	22/04/ 2016	21/04/ 2017
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	18 GHz ~ 40 GHz	29/01/ 2016	28/01/ 2017
Loop Antenna	TESEQ	HLA 6120	31244	9 kHz ~ 30 MHz	02/02/2015	01/02/2017

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	2M 2441MHz, Adapter with charging mode		



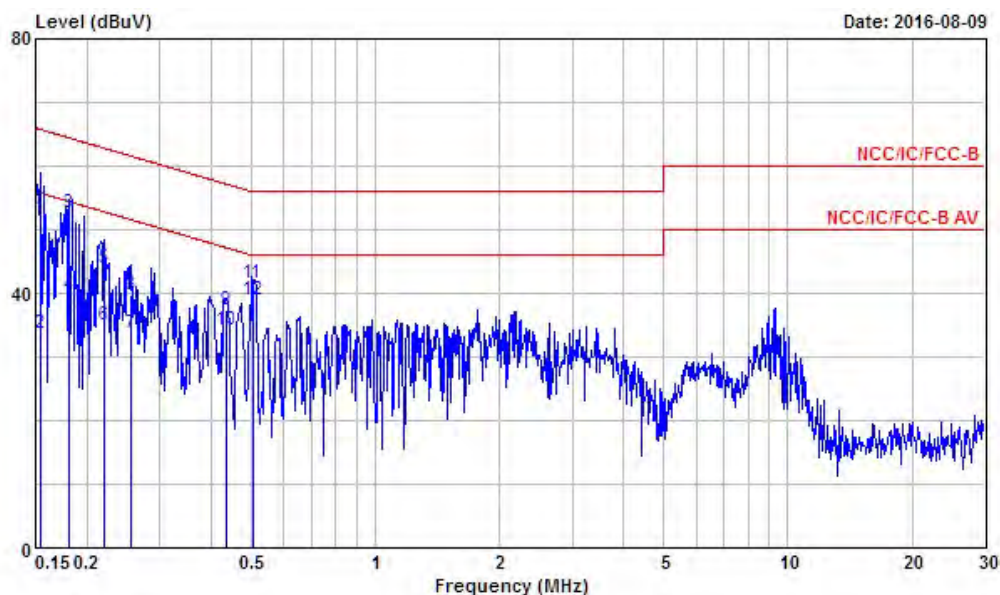
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1515980	57.82	-8.09	65.91	57.50	0.10	0.22	QP
2	0.1515980	47.37	-8.54	55.91	47.05	0.10	0.22	Average
3	0.1903870	41.39	-12.63	54.02	40.99	0.11	0.29	Average
4	0.1903870	50.57	-13.45	64.02	50.17	0.11	0.29	QP
5	0.2353310	45.18	-17.08	62.26	44.82	0.11	0.25	QP
6	0.2353310	33.78	-18.48	52.26	33.42	0.11	0.25	Average
7	0.3166190	37.42	-22.38	59.80	37.13	0.12	0.17	QP
8	0.3166190	32.68	-17.12	49.80	32.39	0.12	0.17	Average
9	0.4711010	38.12	-8.37	46.49	37.90	0.12	0.10	Average
10	0.4711010	42.31	-14.18	56.49	42.09	0.12	0.10	QP
11	0.5459100	38.03	-17.97	56.00	37.81	0.12	0.10	QP
12	0.5459100	34.76	-11.24	46.00	34.54	0.12	0.10	Average

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	2M 2441MHz, Adapter with charging mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1540270	51.89	-13.89	65.78	51.56	0.11	0.22	QP
2	0.1540270	33.71	-22.07	55.78	33.38	0.11	0.22	Average
3	0.1815220	52.52	-11.90	64.42	52.14	0.11	0.27	QP
4	0.1815220	39.71	-14.71	54.42	39.33	0.11	0.27	Average
5	0.2196670	44.07	-18.76	62.83	43.69	0.11	0.27	QP
6	0.2196670	34.90	-17.93	52.83	34.52	0.11	0.27	Average
7	0.2561510	33.66	-17.90	51.56	33.32	0.11	0.23	Average
8	0.2561510	39.77	-21.79	61.56	39.43	0.11	0.23	QP
9	0.4351090	37.47	-19.68	57.15	37.25	0.12	0.10	QP
10	0.4351090	34.10	-13.05	47.15	33.88	0.12	0.10	Average
11	0.5052260	41.45	-14.55	56.00	41.23	0.12	0.10	QP
12	0.5052260	38.97	-7.03	46.00	38.75	0.12	0.10	Average

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.)



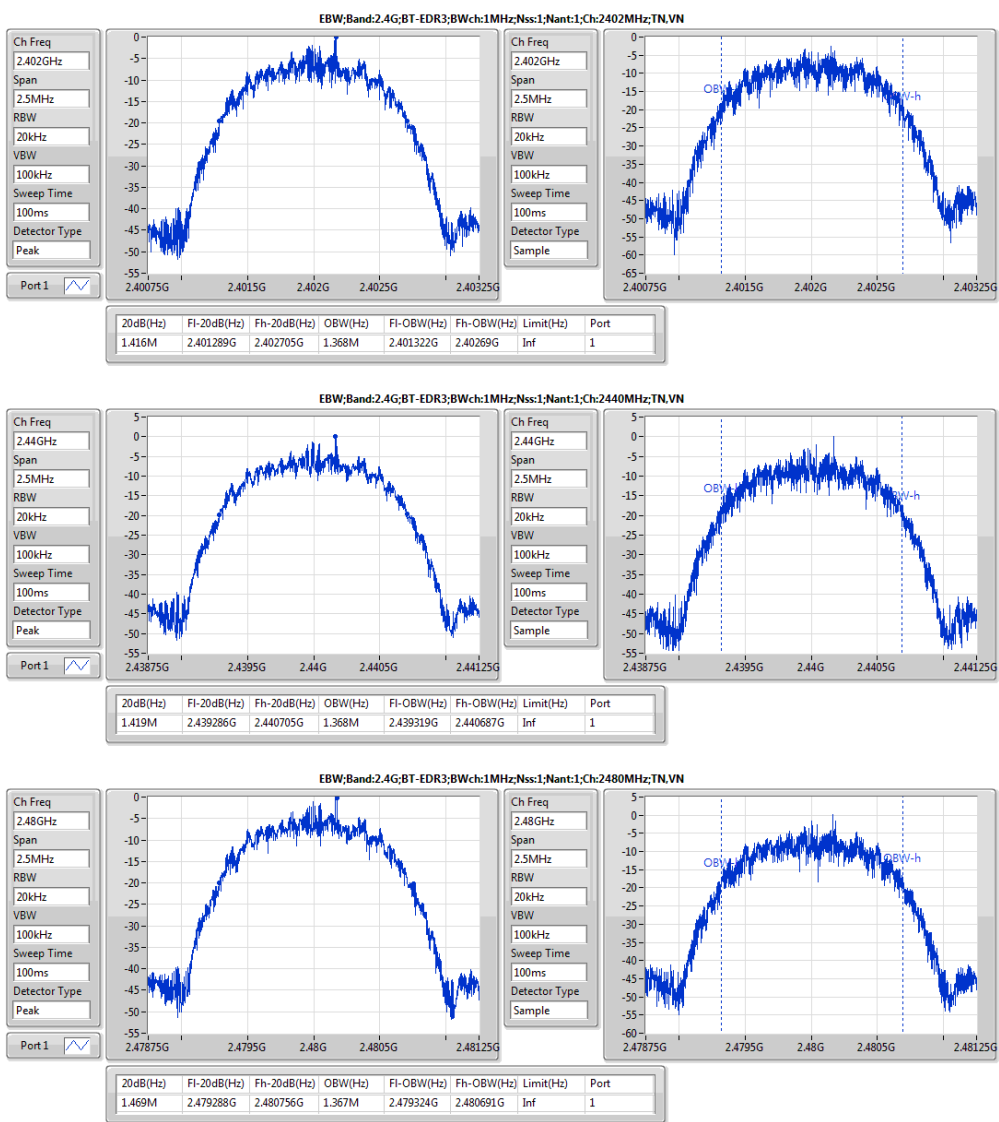
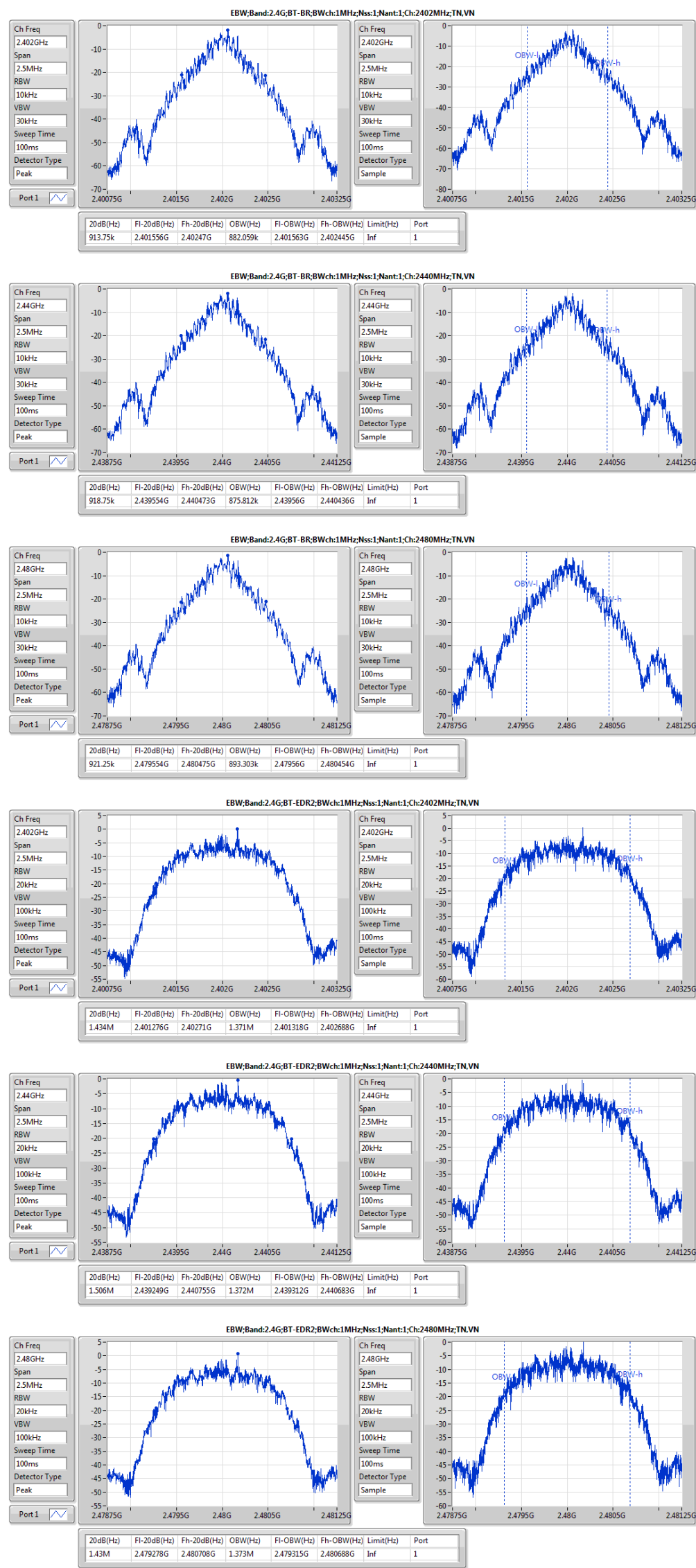
Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4G;BT-BR;1;1;1	921.25k	893.303k	893kF1D	913.75k	875.812k
2.4G;BT-EDR2;1;1;1	1.506M	1.373M	1M37G1D	1.43M	1.371M
2.4G;BT-EDR3;1;1;1	1.469M	1.368M	1M37G1D	1.416M	1.367M



Result

Mode	Result	Limit	P1-N dB (Hz)	P1-OBW (Hz)
2.4G;BT-BR;1;1;1;2402;L;TN,VN	Pass	Inf	913.75k	882.059k
2.4G;BT-BR;1;1;1;2440;M;TN,VN	Pass	Inf	918.75k	875.812k
2.4G;BT-BR;1;1;1;2480;H;TN,VN	Pass	Inf	921.25k	893.303k
2.4G;BT-EDR2;1;1;1;2402;L;TN,VN	Pass	Inf	1.434M	1.371M
2.4G;BT-EDR2;1;1;1;2440;M;TN,VN	Pass	Inf	1.506M	1.372M
2.4G;BT-EDR2;1;1;1;2480;H;TN,VN	Pass	Inf	1.43M	1.373M
2.4G;BT-EDR3;1;1;1;2402;L;TN,VN	Pass	Inf	1.416M	1.368M
2.4G;BT-EDR3;1;1;1;2440;M;TN,VN	Pass	Inf	1.419M	1.368M
2.4G;BT-EDR3;1;1;1;2480;H;TN,VN	Pass	Inf	1.469M	1.367M





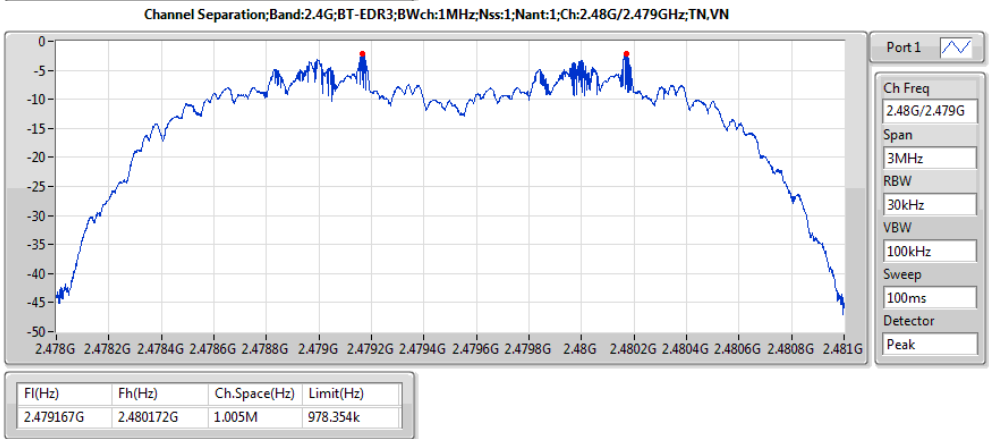
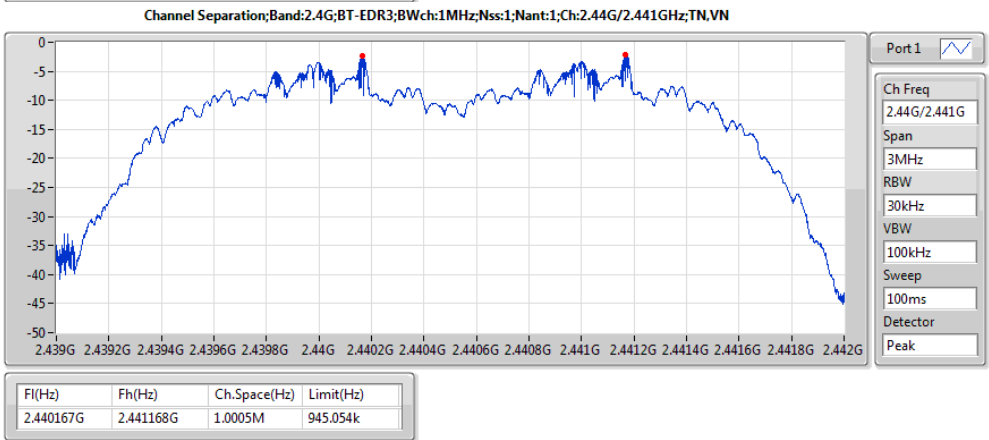
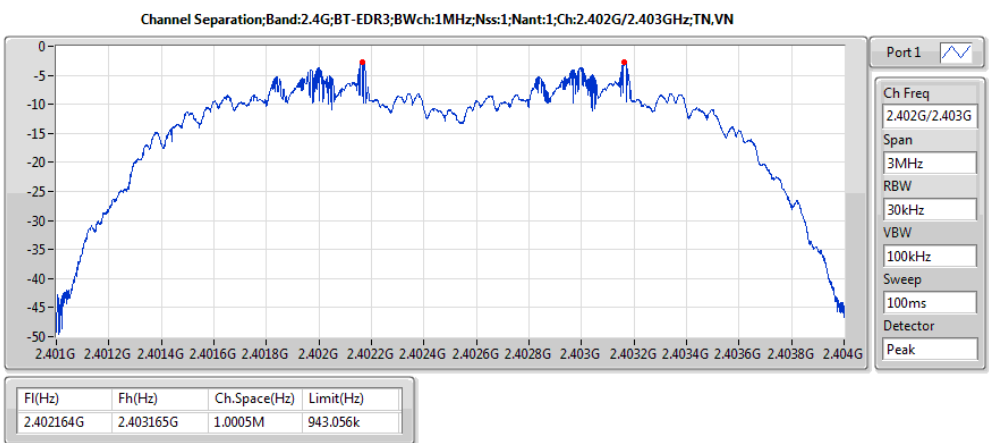
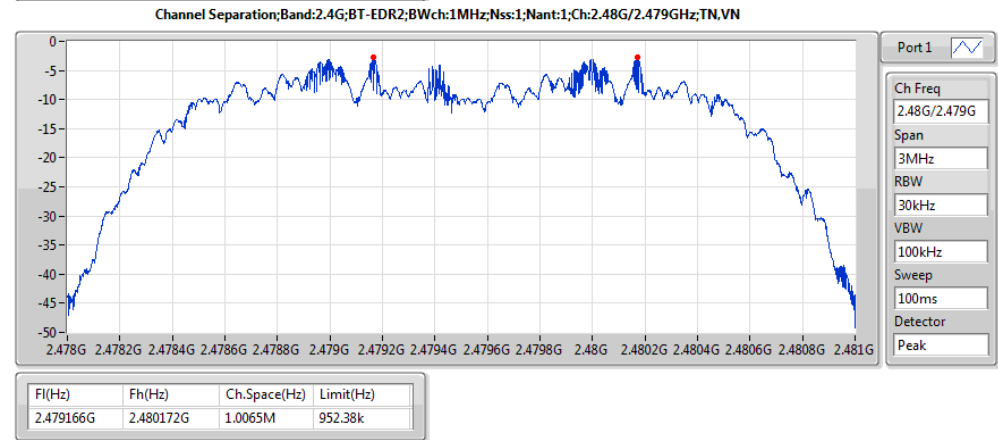
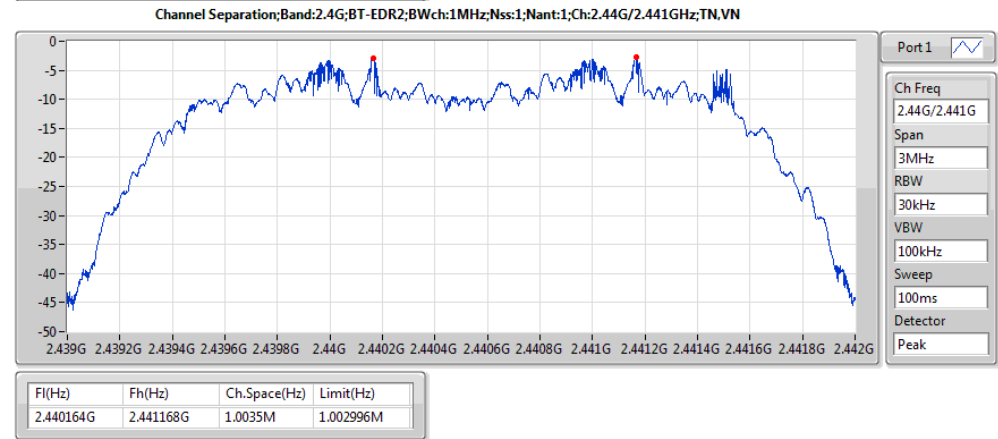
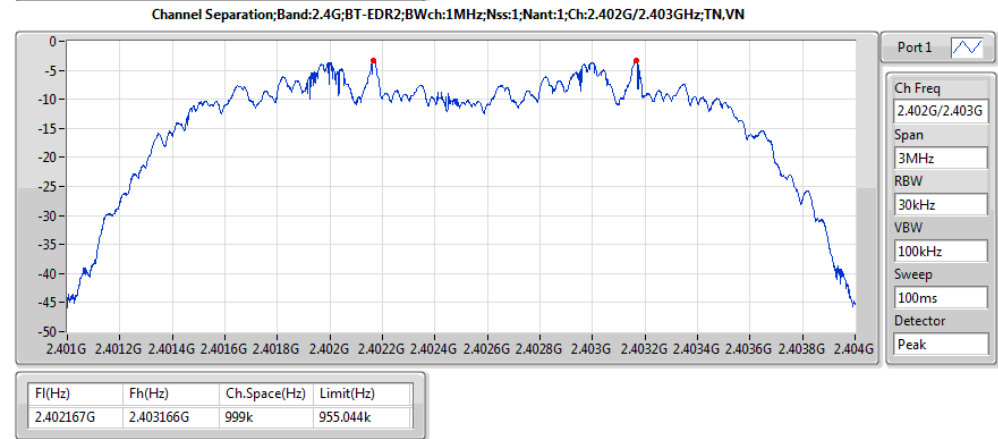
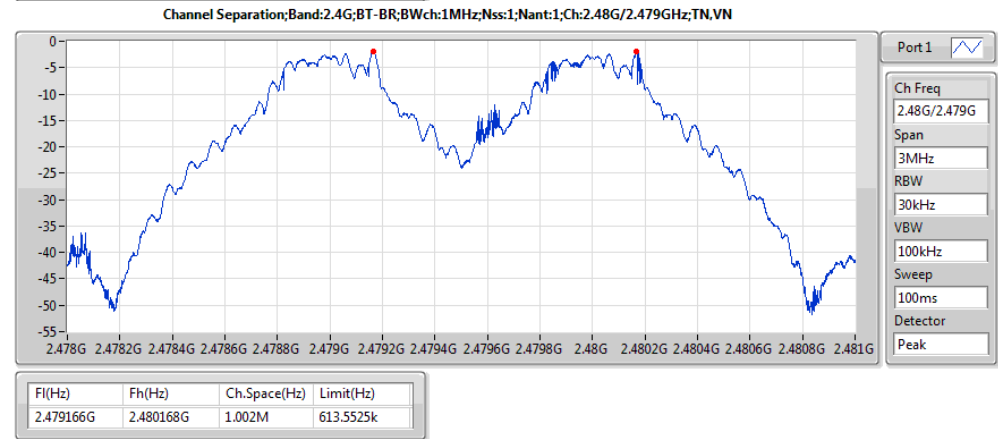
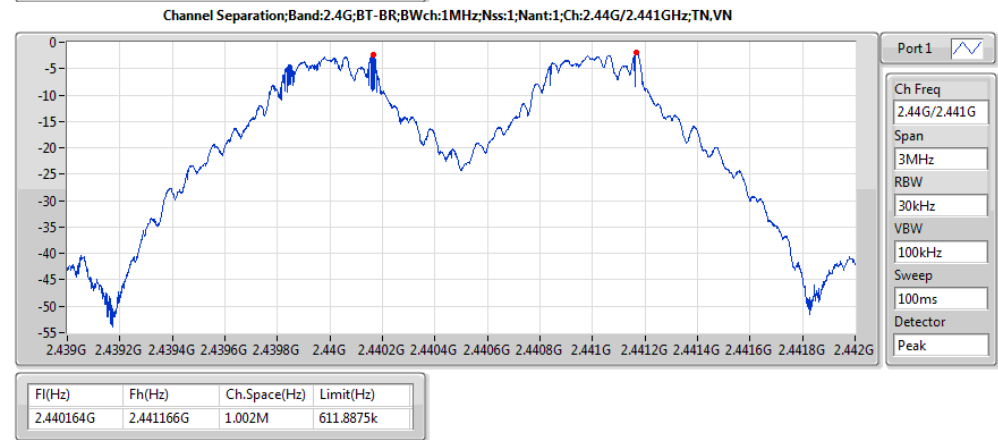
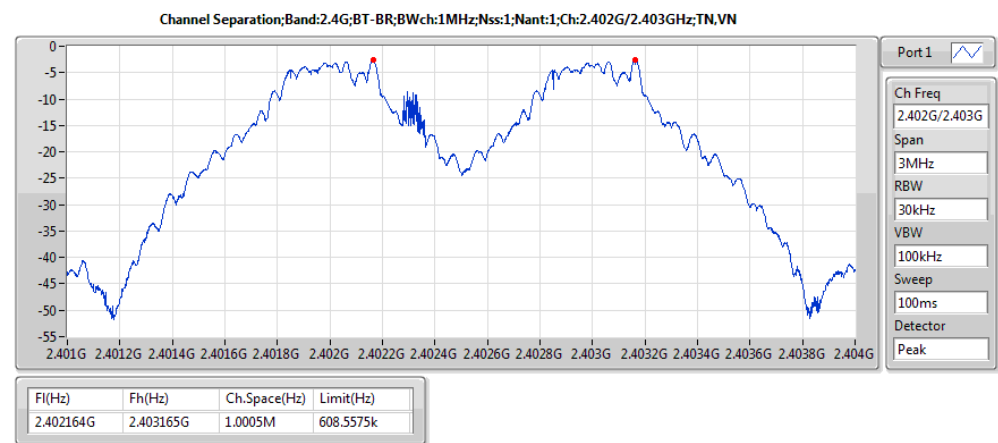
Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
2.4G;BT-BR;1;1;1	1.002M	1.0005M
2.4G;BT-EDR2;1;1;1	1.0065M	999k
2.4G;BT-EDR3;1;1;1	1.005M	1.0005M



Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
2.4G;BT-BR;1;1;1;2402;L;TN,VN	Pass	2.402164G	2.403165G	1.0005M	608.5575k
2.4G;BT-BR;1;1;1;2440;M;TN,VN	Pass	2.440164G	2.441166G	1.002M	611.8875k
2.4G;BT-BR;1;1;1;2480;H;TN,VN	Pass	2.479166G	2.480168G	1.002M	613.5525k
2.4G;BT-EDR2;1;1;1;2402;L;TN,VN	Pass	2.402167G	2.403166G	999k	955.044k
2.4G;BT-EDR2;1;1;1;2440;M;TN,VN	Pass	2.440164G	2.441168G	1.0035M	1.002996M
2.4G;BT-EDR2;1;1;1;2480;H;TN,VN	Pass	2.479166G	2.480172G	1.0065M	952.38k
2.4G;BT-EDR3;1;1;1;2402;L;TN,VN	Pass	2.402164G	2.403165G	1.0005M	943.056k
2.4G;BT-EDR3;1;1;1;2440;M;TN,VN	Pass	2.440167G	2.441168G	1.0005M	945.054k
2.4G;BT-EDR3;1;1;1;2480;H;TN,VN	Pass	2.479167G	2.480172G	1.005M	978.354k





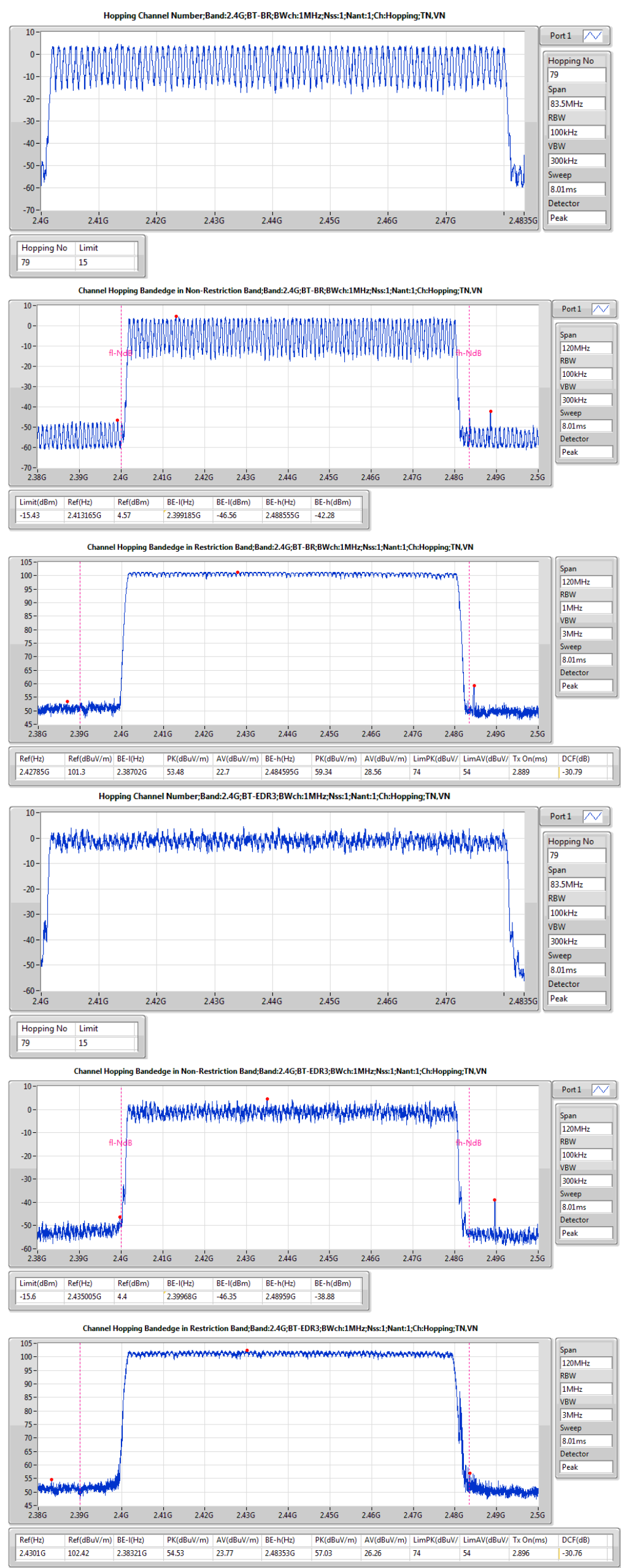
Summary

Mode	Max-Hop No
2.4G;BT-BR;1;1;1	79
2.4G;BT-EDR2;1;1;1	79
2.4G;BT-EDR3;1;1;1	79



Result

Mode	Result	Hopping No	Limit
2.4G;BT-BR;1;1;1;2440;M;TN,VN	Pass	79	15
2.4G;BT-EDR2;1;1;1;2440;M;TN,VN	Pass	79	15
2.4G;BT-EDR3;1;1;1;2440;M;TN,VN	Pass	79	15





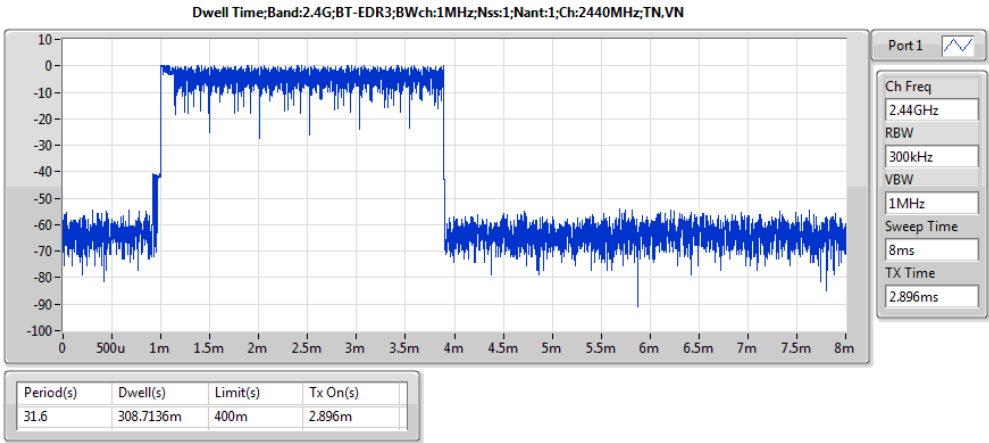
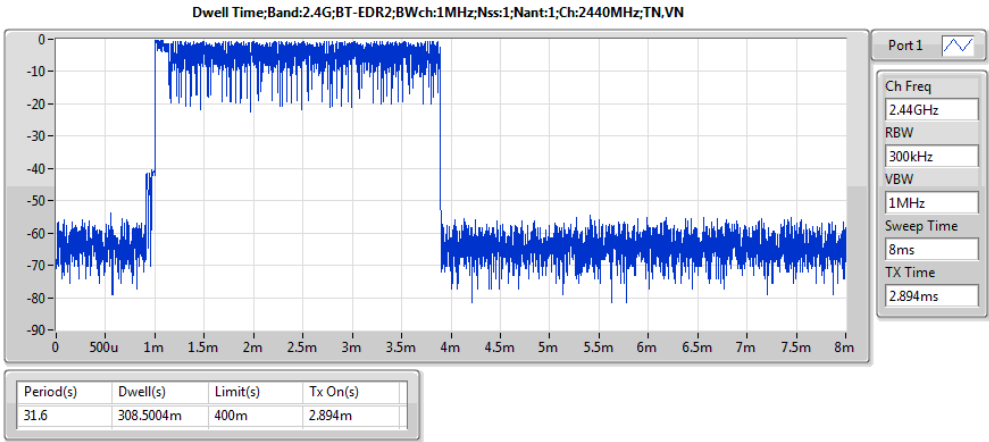
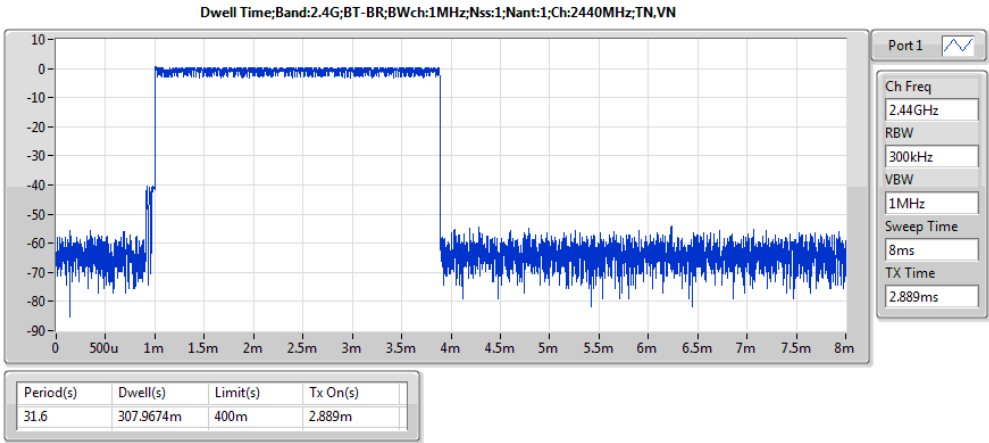
Summary

Mode	Max-Dwell (s)
2.4G;BT-BR;1;1;1	307.9674m
2.4G;BT-EDR2;1;1;1	308.5004m
2.4G;BT-EDR3;1;1;1	308.7136m



Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
2.4G;BT-BR;1;1;1;2440;M;TN,VN	Pass	31.6	307.9674m	400m	2.889m
2.4G;BT-EDR2;1;1;1;2440;M;TN,VN	Pass	31.6	308.5004m	400m	2.894m
2.4G;BT-EDR3;1;1;1;2440;M;TN,VN	Pass	31.6	308.7136m	400m	2.896m





Summary

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
2.4G;BT-BR;1;1;1	4.90	0.00309	6.21	0.00418
2.4G;BT-EDR2;1;1;1	5.53	0.00357	6.84	0.00483
2.4G;BT-EDR3;1;1;1	5.71	0.00372	7.02	0.00504



Result

Mode	Result	DG (dBi)	Sum (dBm)	Sum Lim. (dBm)	EIRP (dBm)	EIRP Lim. (dBm)	P1 (dBm)
2.4G;BT-BR;1;1;1;2402;L;TN,VN	Pass	1.31	4.68	30.00	5.99	36.00	4.68
2.4G;BT-BR;1;1;1;2440;M;TN,VN	Pass	1.31	4.78	30.00	6.09	36.00	4.78
2.4G;BT-BR;1;1;1;2480;H;TN,VN	Pass	1.31	4.90	30.00	6.21	36.00	4.90
2.4G;BT-EDR2;1;1;1;2402;L;TN,VN	Pass	1.31	4.97	30.00	6.28	36.00	4.97
2.4G;BT-EDR2;1;1;1;2440;M;TN,VN	Pass	1.31	4.81	30.00	6.12	36.00	4.81
2.4G;BT-EDR2;1;1;1;2480;H;TN,VN	Pass	1.31	5.53	30.00	6.84	36.00	5.53
2.4G;BT-EDR3;1;1;1;2402;L;TN,VN	Pass	1.31	5.02	30.00	6.33	36.00	5.02
2.4G;BT-EDR3;1;1;1;2440;M;TN,VN	Pass	1.31	5.61	30.00	6.92	36.00	5.61
2.4G;BT-EDR3;1;1;1;2480;H;TN,VN	Pass	1.31	5.71	30.00	7.02	36.00	5.71



Summary

Mode	Sum (dBm)	Sum (W)	EIRP (dBm)	EIRP (W)
2.4G;BT-BR;1;1;1	4.87	0.00307	6.18	0.00415
2.4G;BT-EDR2;1;1;1	4.93	0.00311	6.24	0.00421
2.4G;BT-EDR3;1;1;1	5.01	0.00317	6.32	0.00429



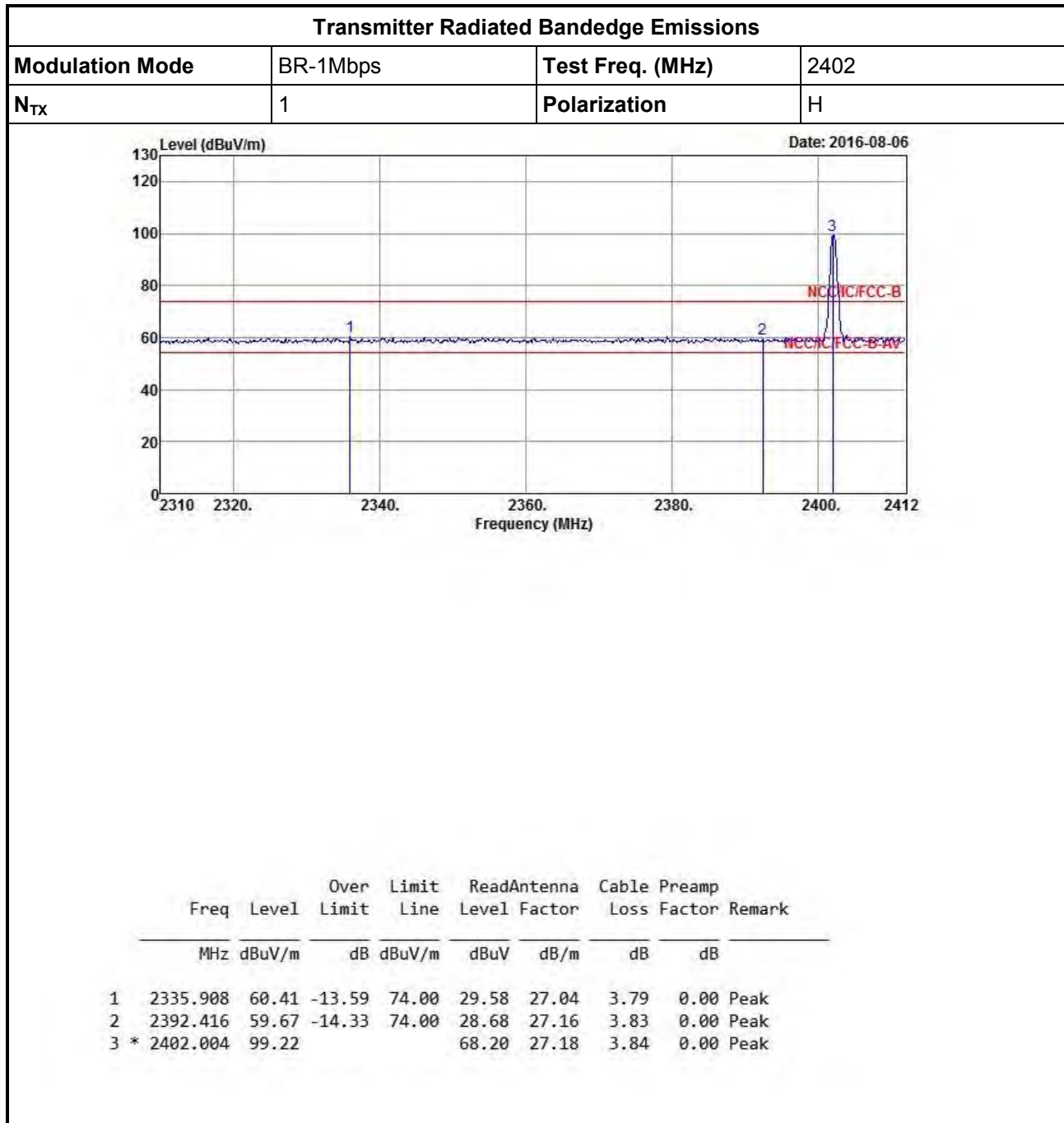
Result

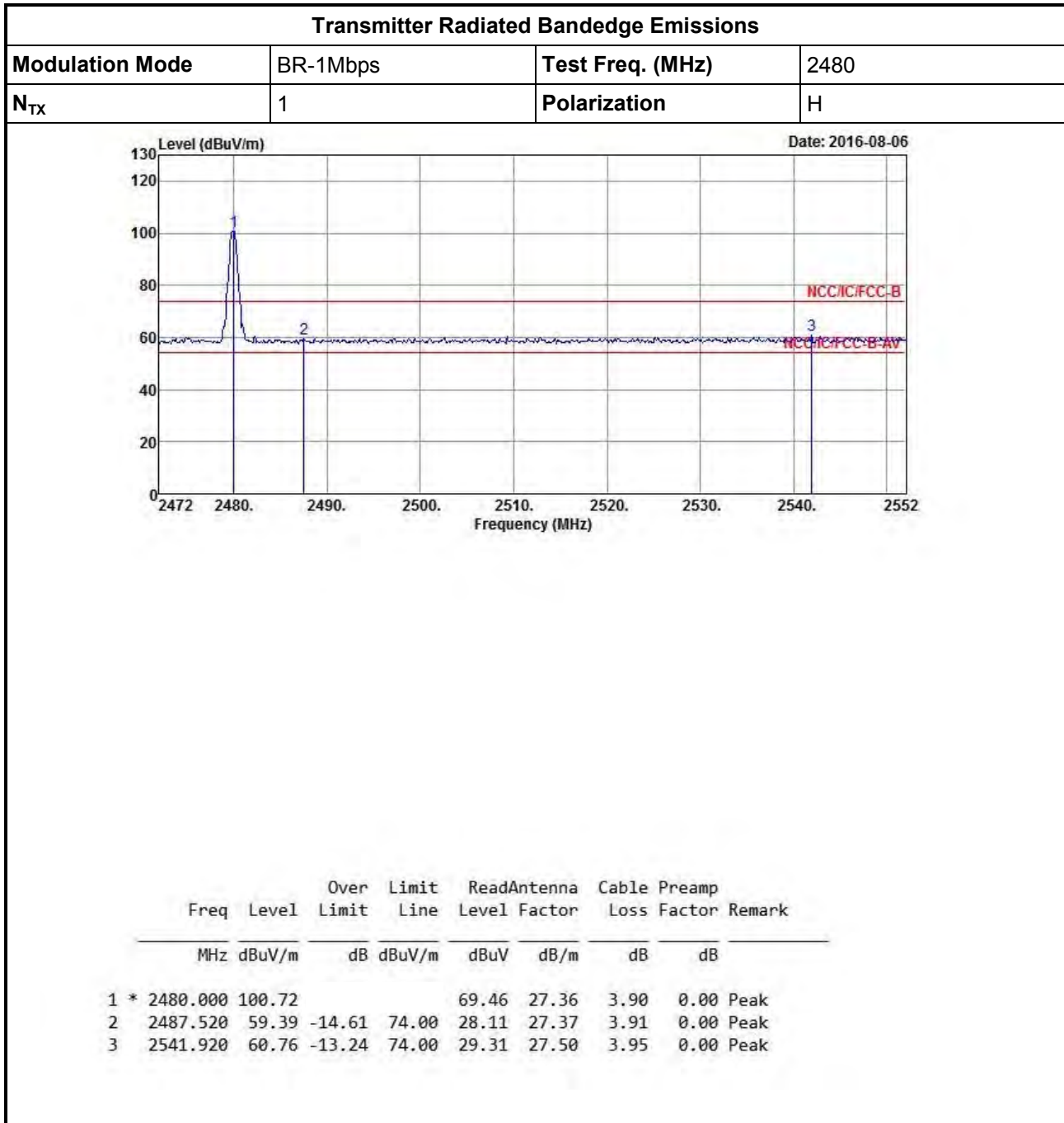
Mode	Result	DG (dBi)	Sum (dBm)	Sum Lim. (dBm)	EIRP (dBm)	EIRP Lim. (dBm)	P1 (dBm)
2.4G;BT-BR;1;1;1;2402;L;TN,VN	Pass	1.31	4.65	30.00	5.96	36.00	4.65
2.4G;BT-BR;1;1;1;2440;M;TN,VN	Pass	1.31	4.75	30.00	6.06	36.00	4.75
2.4G;BT-BR;1;1;1;2480;H;TN,VN	Pass	1.31	4.87	30.00	6.18	36.00	4.87
2.4G;BT-EDR2;1;1;1;2402;L;TN,VN	Pass	1.31	4.67	30.00	5.98	36.00	4.67
2.4G;BT-EDR2;1;1;1;2440;M;TN,VN	Pass	1.31	4.81	30.00	6.12	36.00	4.81
2.4G;BT-EDR2;1;1;1;2480;H;TN,VN	Pass	1.31	4.93	30.00	6.24	36.00	4.93
2.4G;BT-EDR3;1;1;1;2402;L;TN,VN	Pass	1.31	4.74	30.00	6.05	36.00	4.74
2.4G;BT-EDR3;1;1;1;2440;M;TN,VN	Pass	1.31	4.87	30.00	6.18	36.00	4.87
2.4G;BT-EDR3;1;1;1;2480;H;TN,VN	Pass	1.31	5.01	30.00	6.32	36.00	5.01

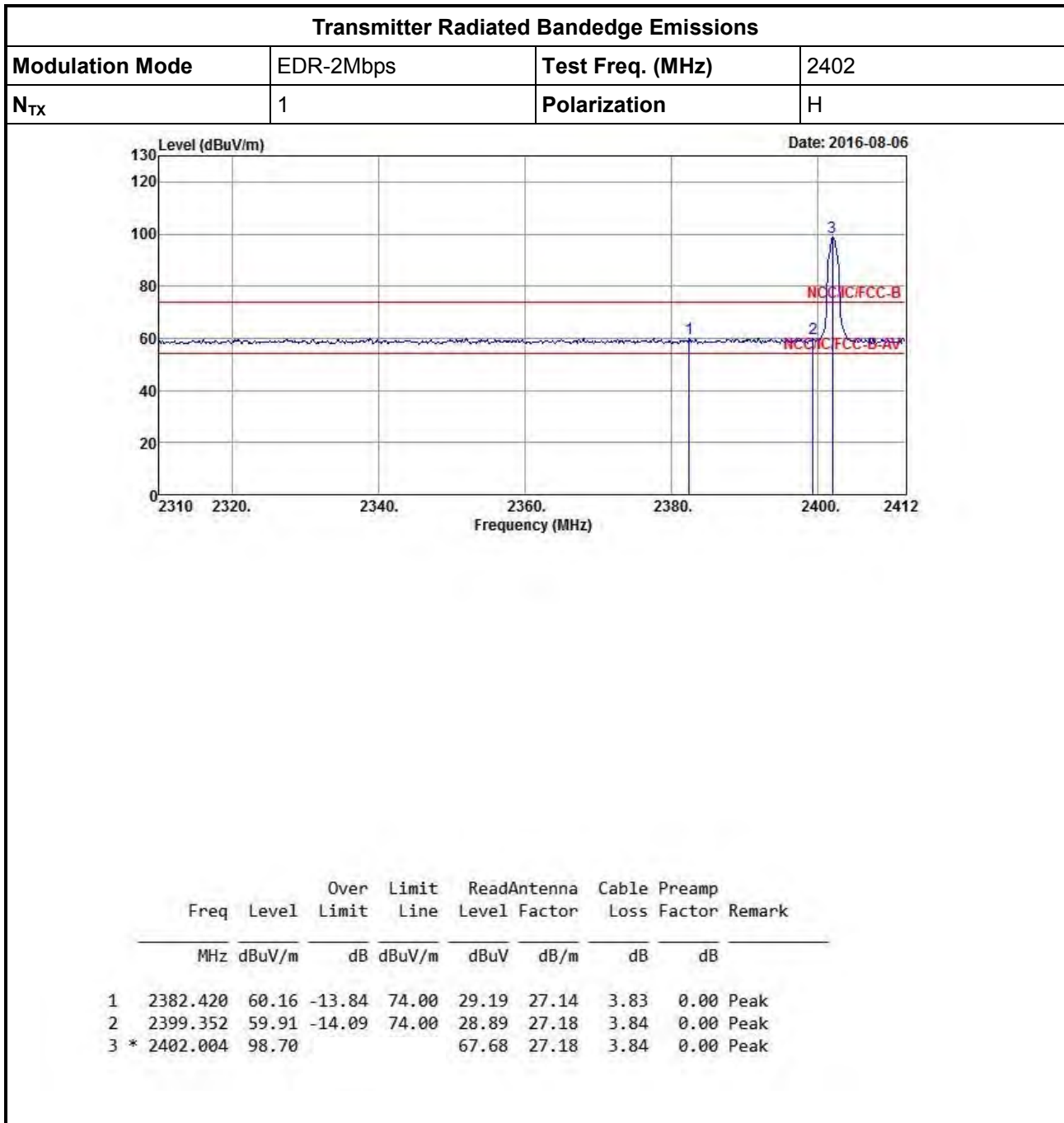
Transmitter Radiated Bandedge Emissions (Non-restricted Band)							
Modulation	Test Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Pol.
BR-1Mbps	2402	99.22	2392.416	59.67	39.55	20	H
BR -1Mbps	2480	100.72	2541.920	60.75	39.97	20	H
EDR-2Mbps	2402	98.70	2399.352	59.91	38.79	20	H
EDR-2Mbps	2480	100.28	2519.040	60.58	39.70	20	H
EDR-3Mbps	2402	97.89	2399.964	59.72	38.17	20	H
EDR-3Mbps	2480	99.92	2501.120	60.51	39.41	20	H
Note 1: Measurement worst emissions of receive antenna polarization							

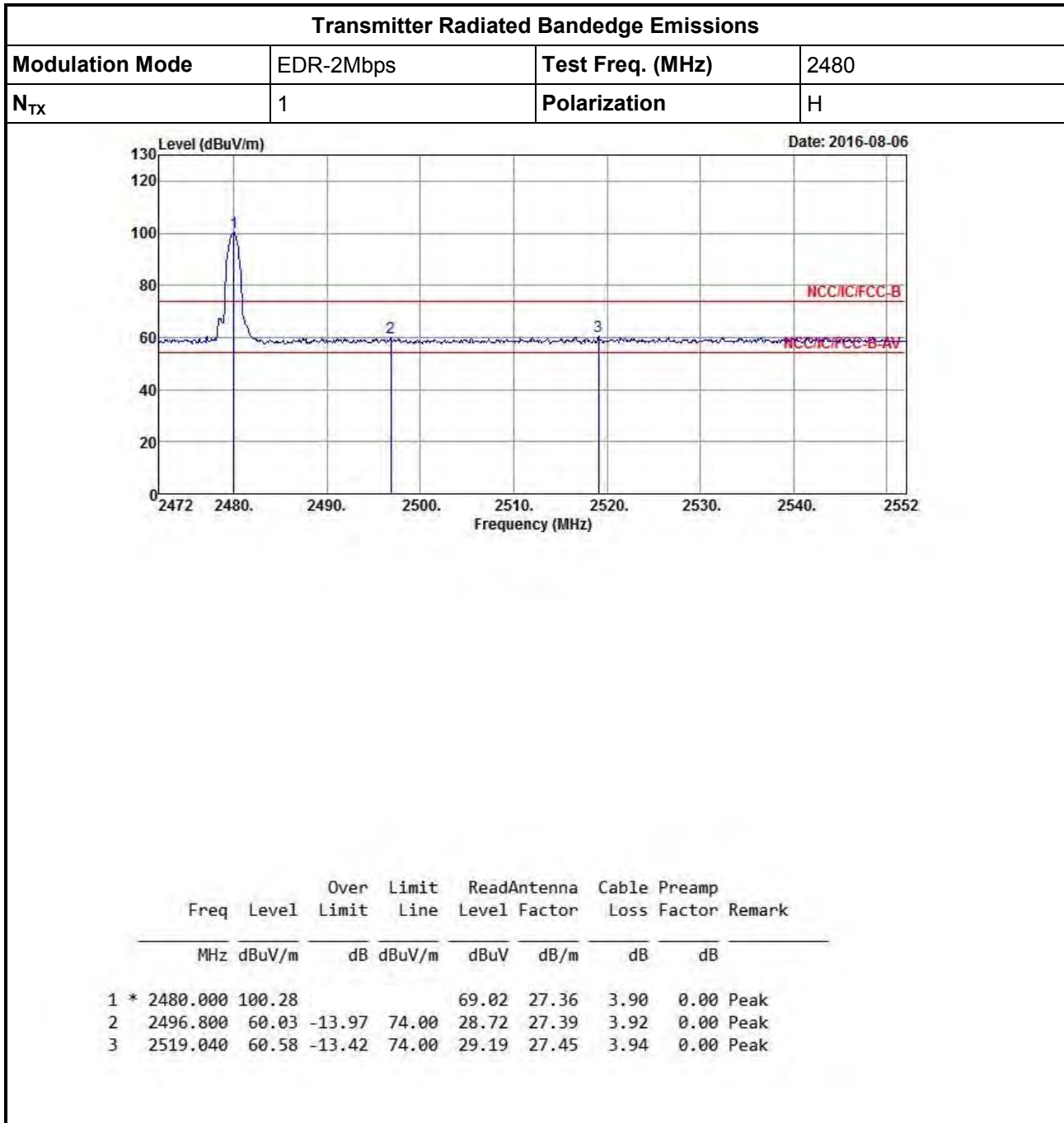
Transmitter Radiated Bandedge Emissions (Restricted Band)									
Modulation Mode	Freq. (MHz)	Measure Distance (m)	Freq. (MHz) PK	Level (dBuV/m) PK	Limit (dBuV/m) PK	Freq. (MHz) AV	Level (dBuV/m) AV	Limit (dBuV/m) AV	Pol.
BR-1Mbps	2402	3	2364.672	56.41	74	2364.672	26.31	54	H
BR -1Mbps	2480	3	2489.760	59.64	74	2489.760	29.54	54	H
EDR-2Mbps	2402	3	2325.096	57.43	74	2325.096	27.33	54	H
EDR-2Mbps	2480	3	2489.600	59.63	74	2489.600	29.53	54	H
EDR-3Mbps	2402	3	2325.504	57.38	74	2325.504	27.28	54	H
EDR-3Mbps	2480	3	2489.600	58.49	74	2489.600	28.39	54	H
Note 1: Measurement worst emissions of receive antenna polarization.									
Note 2: Average emission setting: RBW=1MHz; VBW ≥ 1/T, where T is "Pulse On Time", e.g., DH5 VBW≥1/3.125ms, VBW=1kHz									

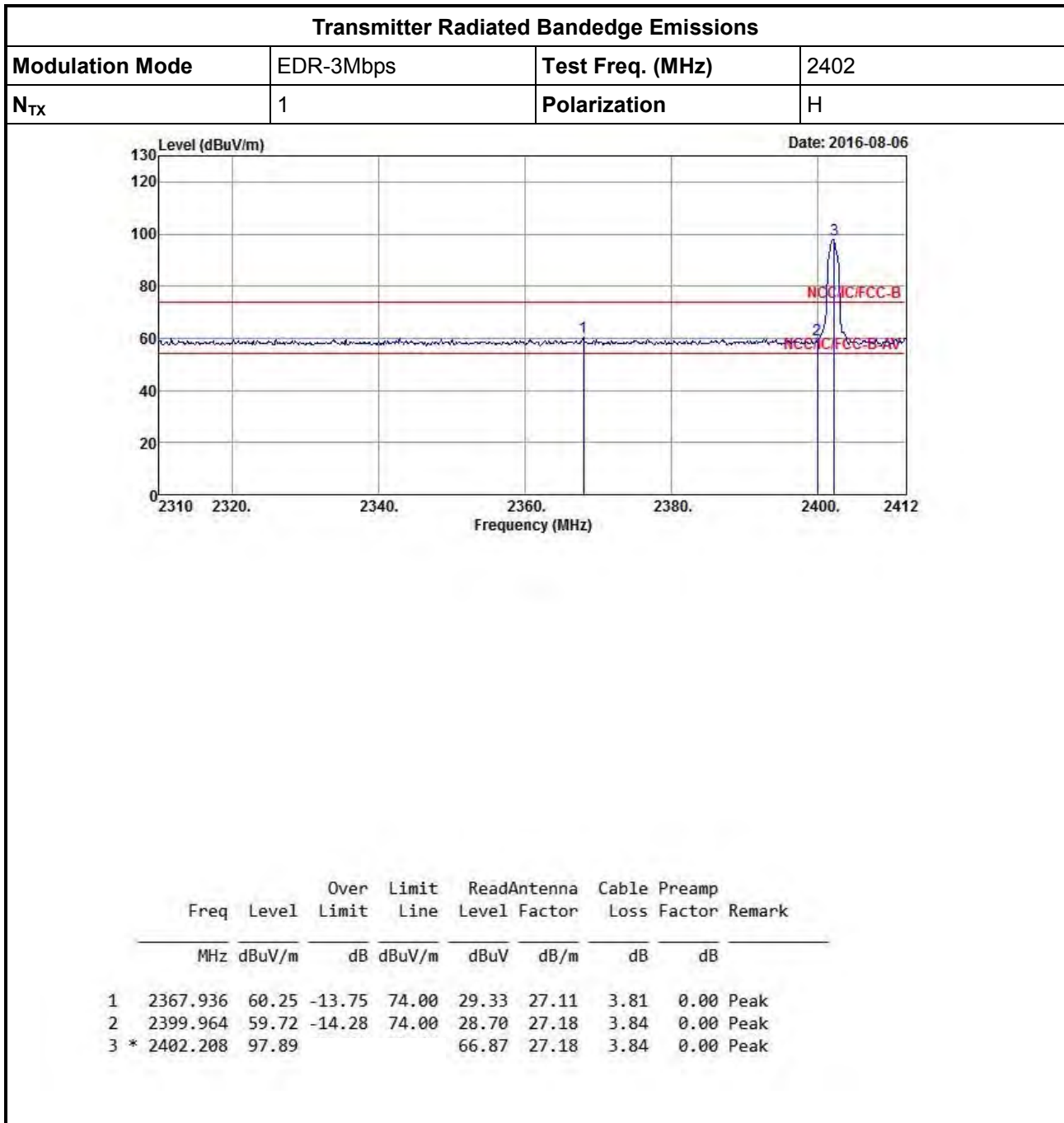
Transmitter Radiated Bandedge Emissions (Non-restricted Band)

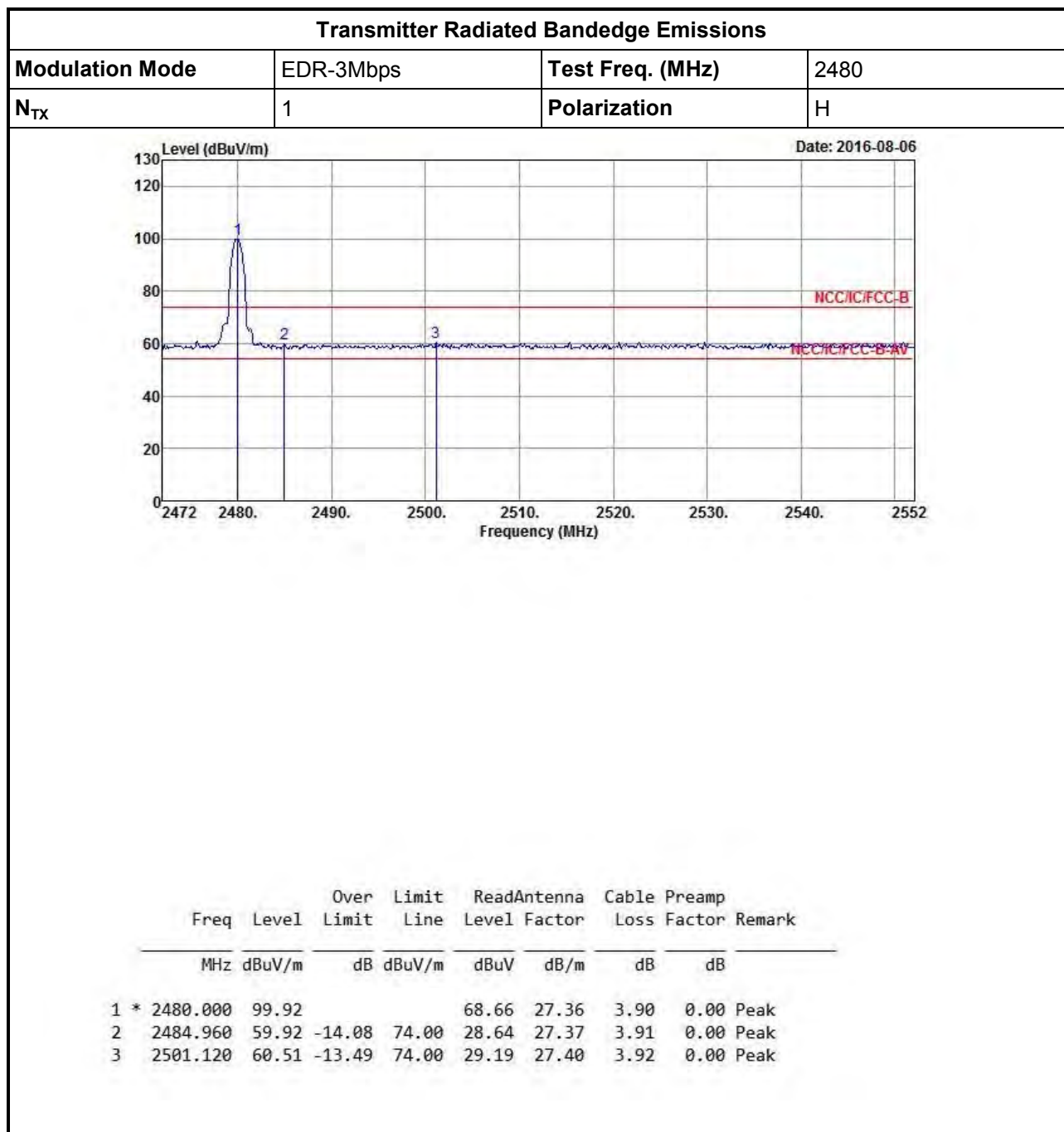




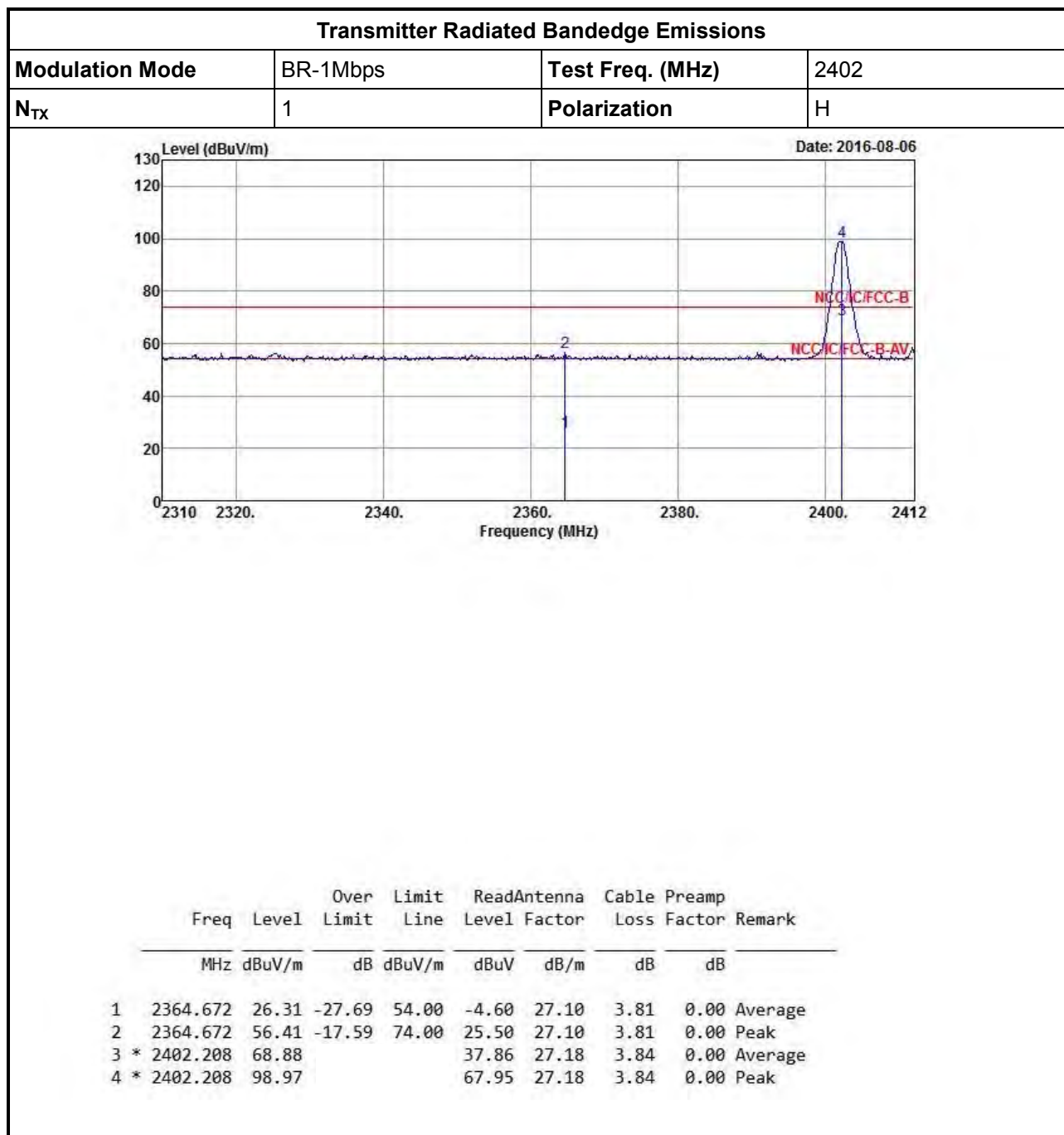


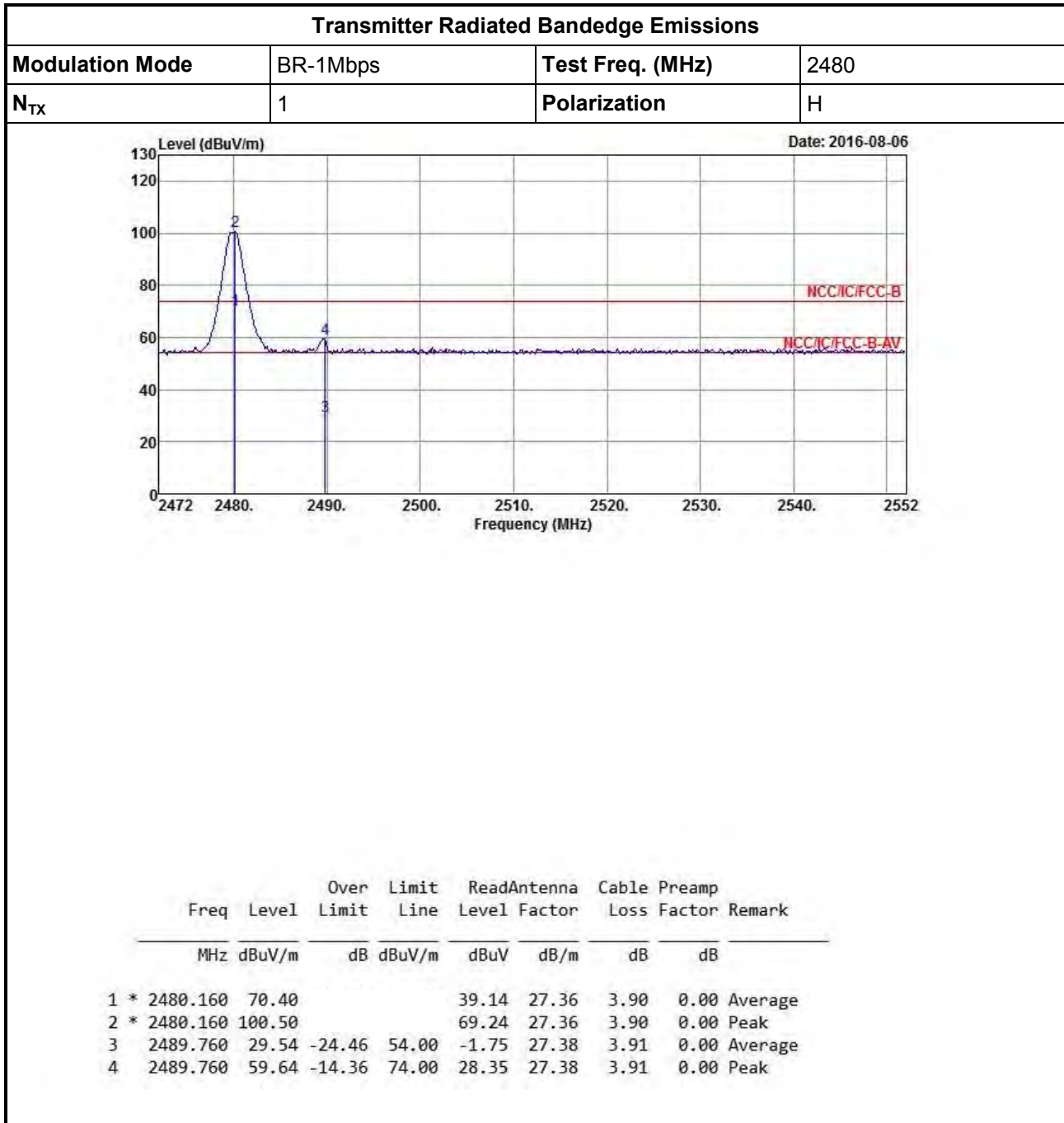


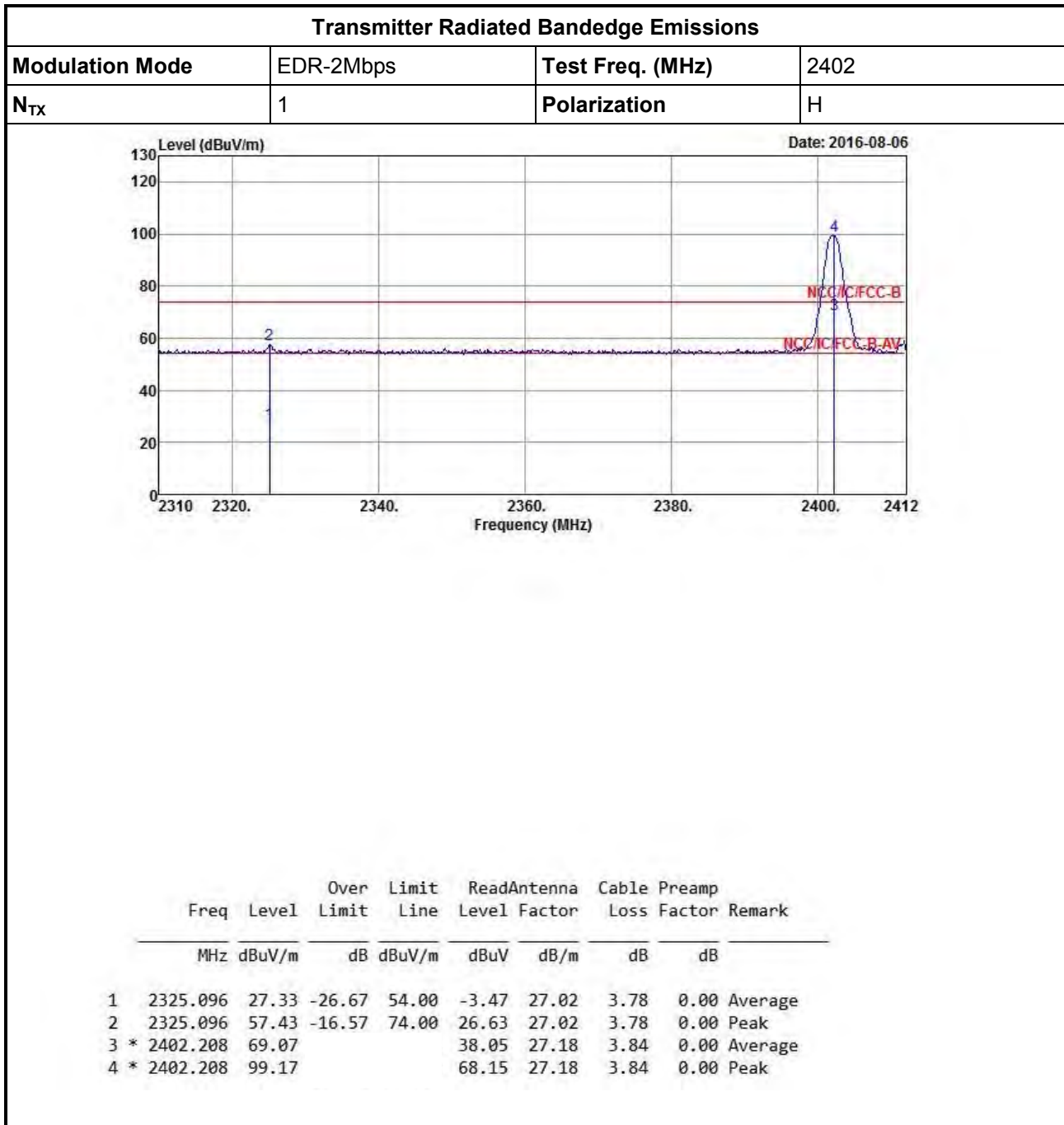


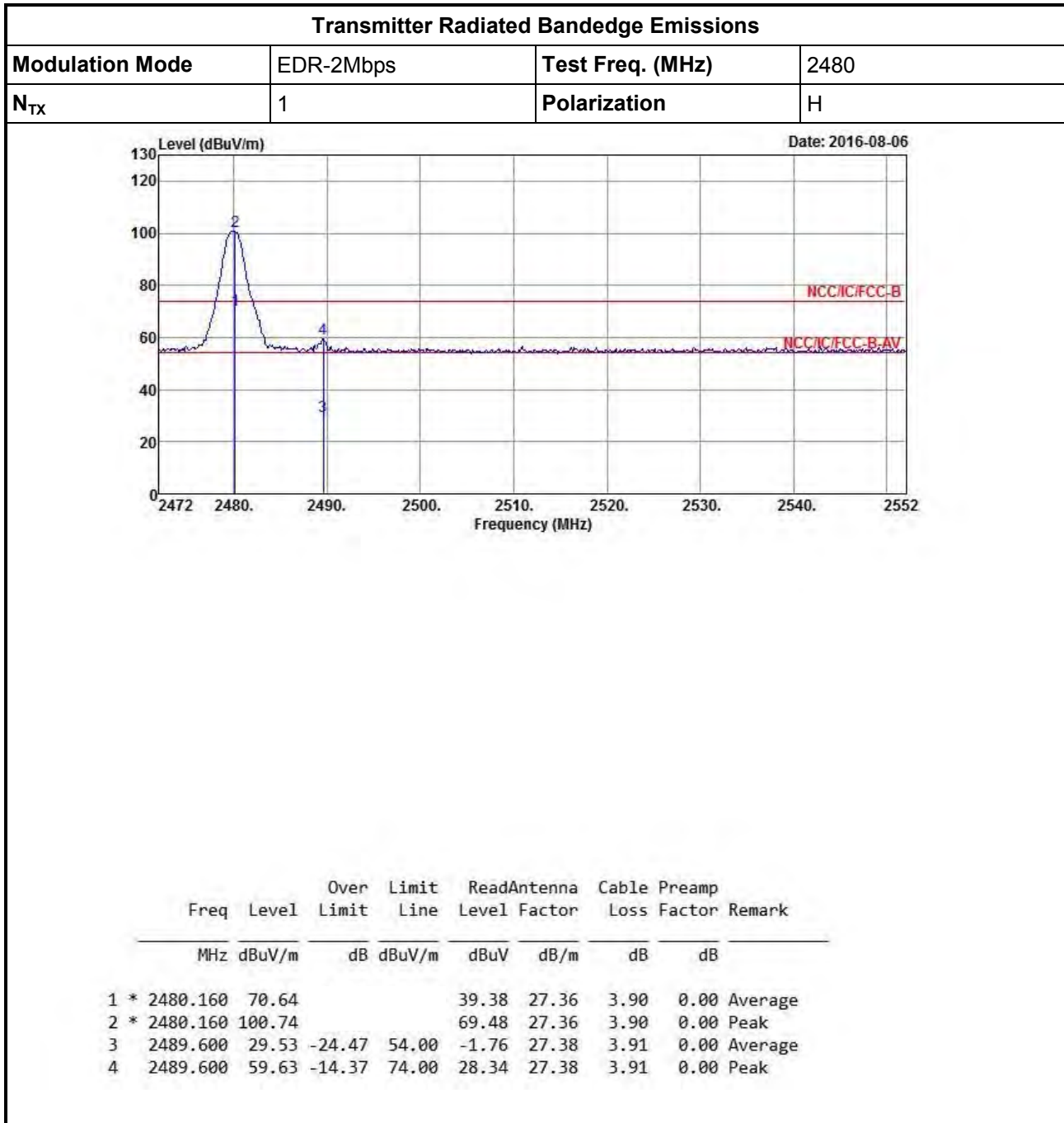


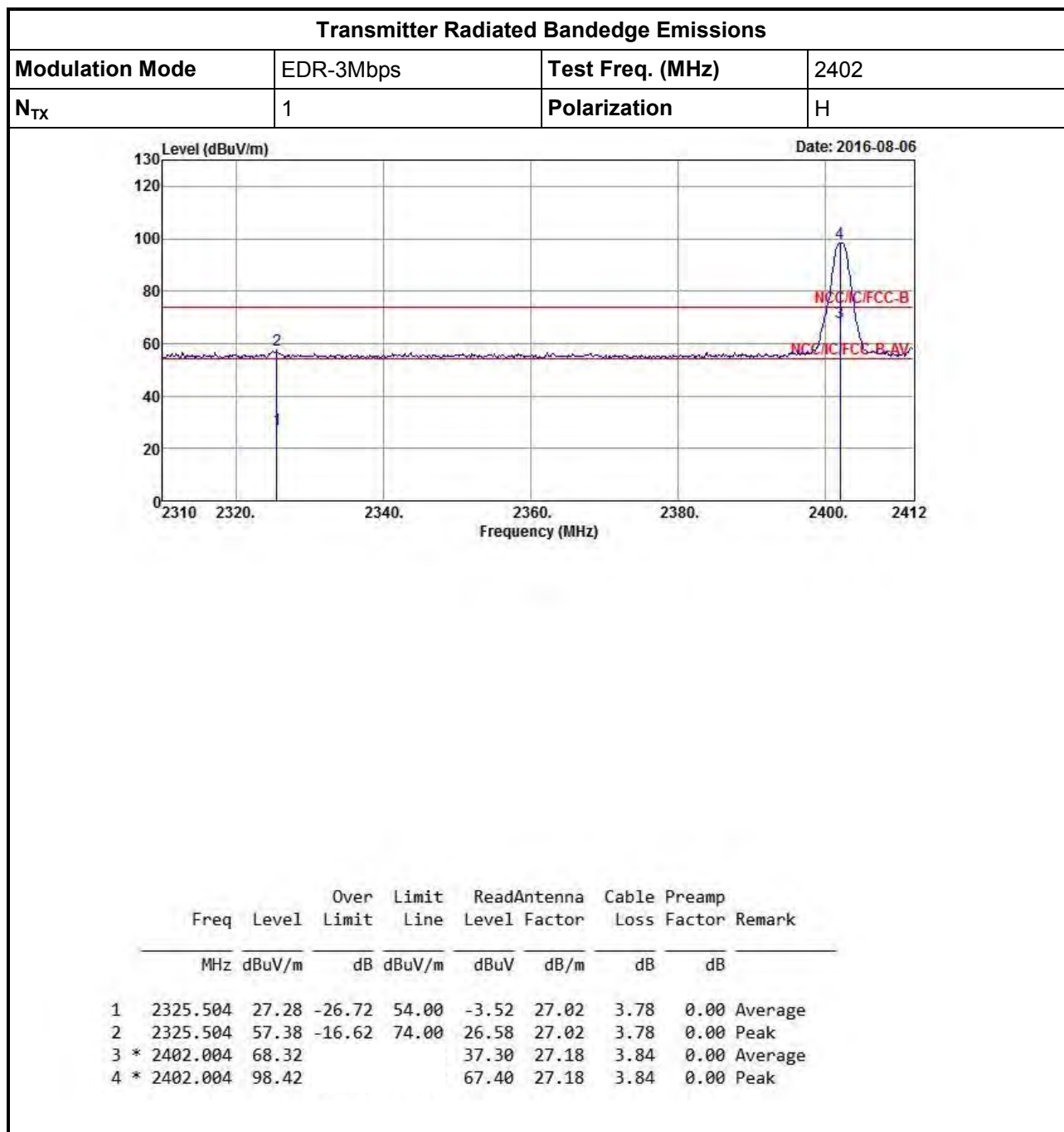
Transmitter Radiated Bandedge Emissions (Restricted Band)

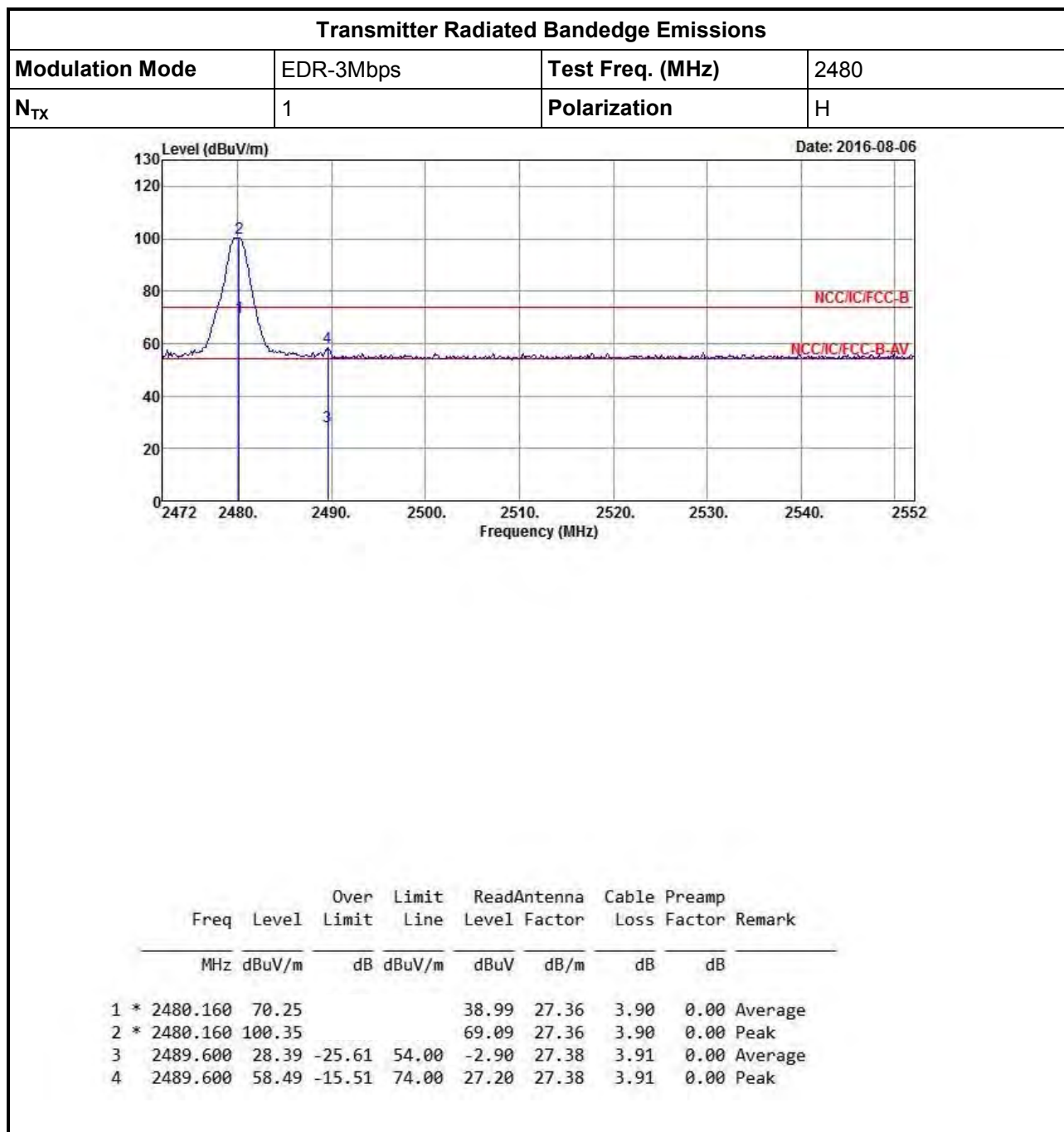




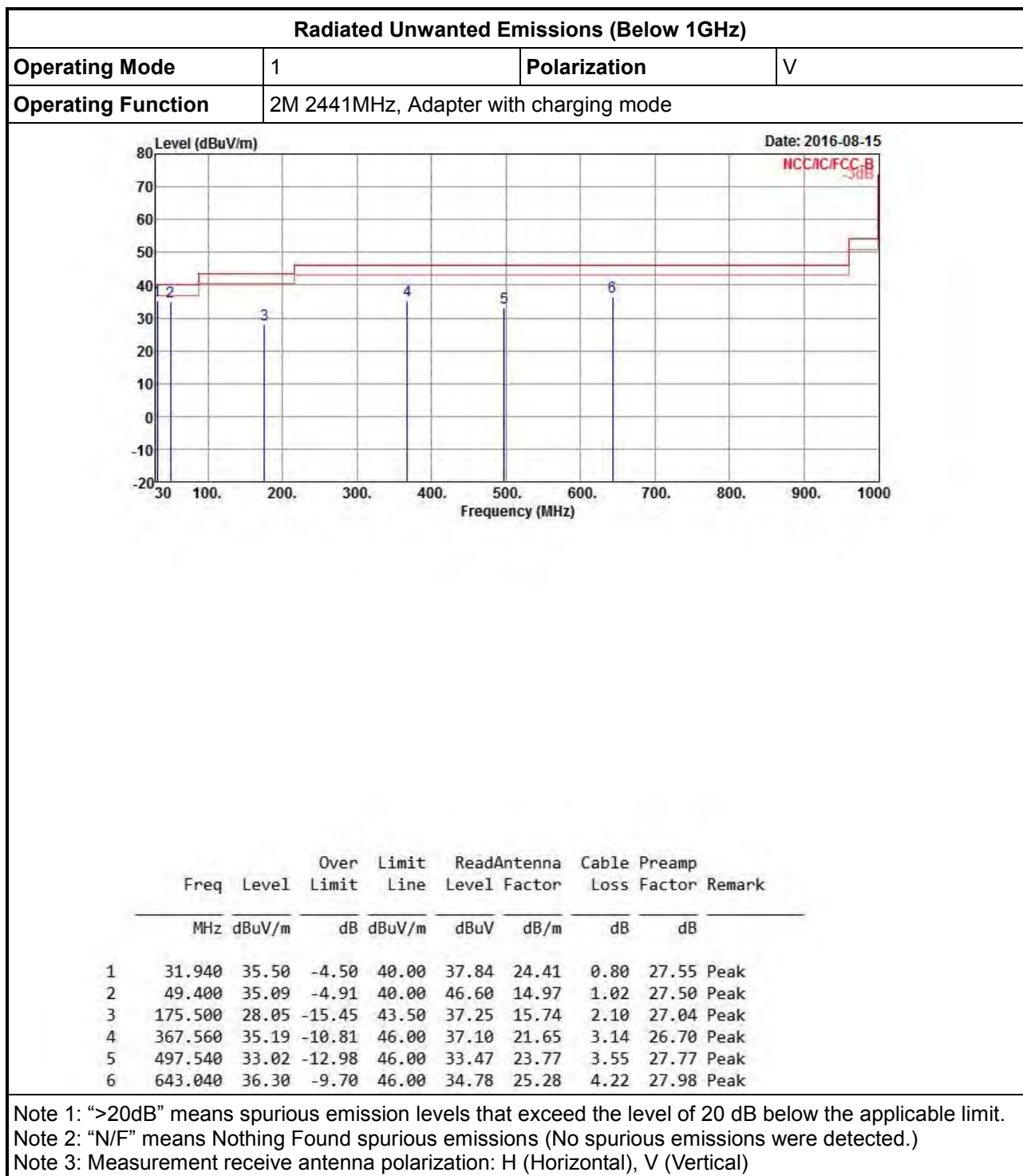


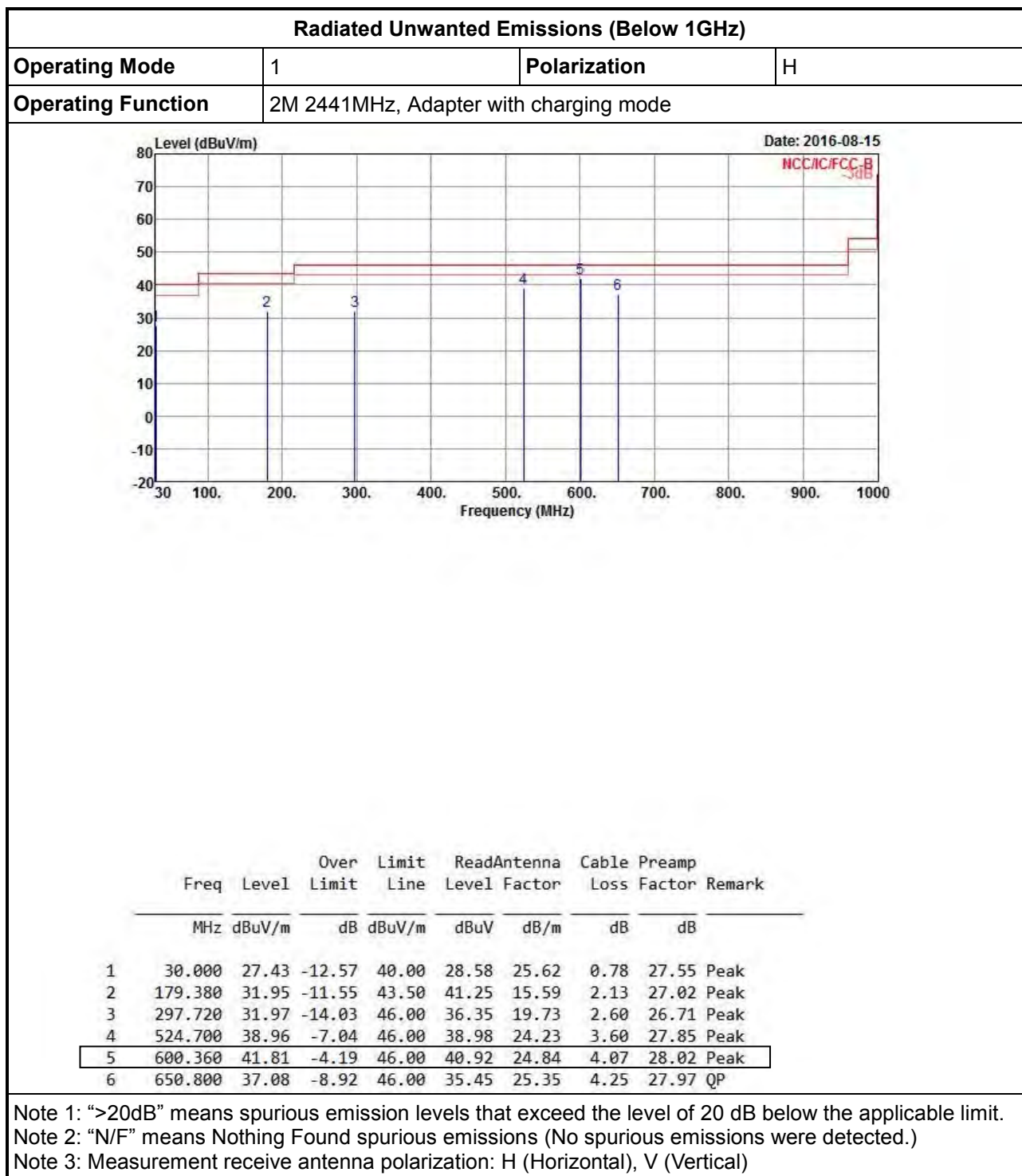






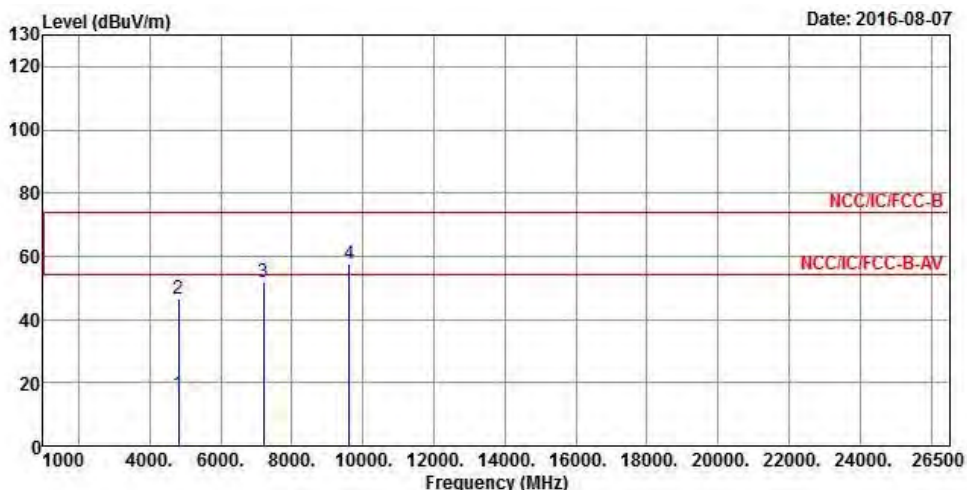
Transmitter Radiated Unwanted Emissions (Below 1GHz)





Transmitter Radiated Unwanted Emissions (Above 1GHz)

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	BR/EDR	Test Freq. (MHz)	2402
Operating Function	Transmit	Polarization	V



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	4804.000	16.27	-37.73	54.00	14.38	31.13	5.36	34.60 Average
2	4804.000	46.37	-27.63	74.00	44.48	31.13	5.36	34.60 Peak
3	7206.000	51.64			43.89	35.59	7.04	34.88 Peak
4	9608.000	57.44			45.71	38.72	8.29	35.28 Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

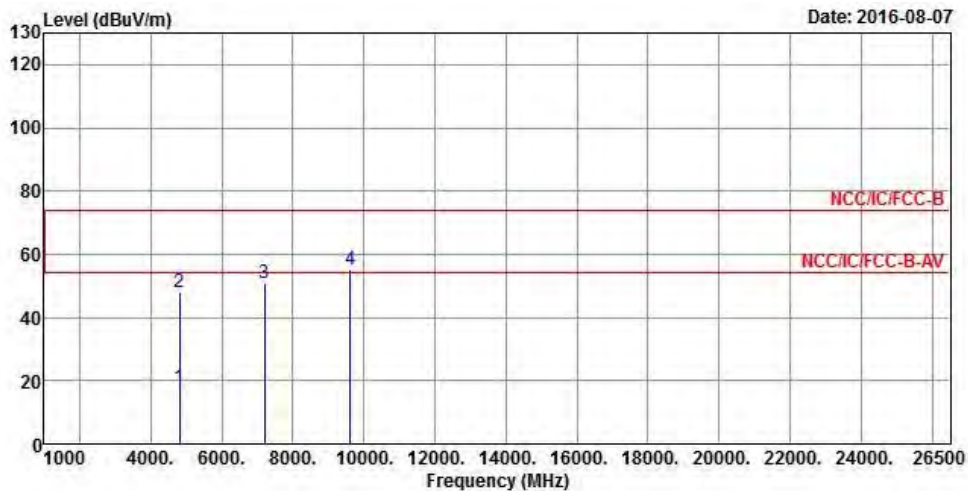
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (99.17 dBuV/m).

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	BR/EDR	Test Freq. (MHz)	2402
Operating Function	Transmit	Polarization	H

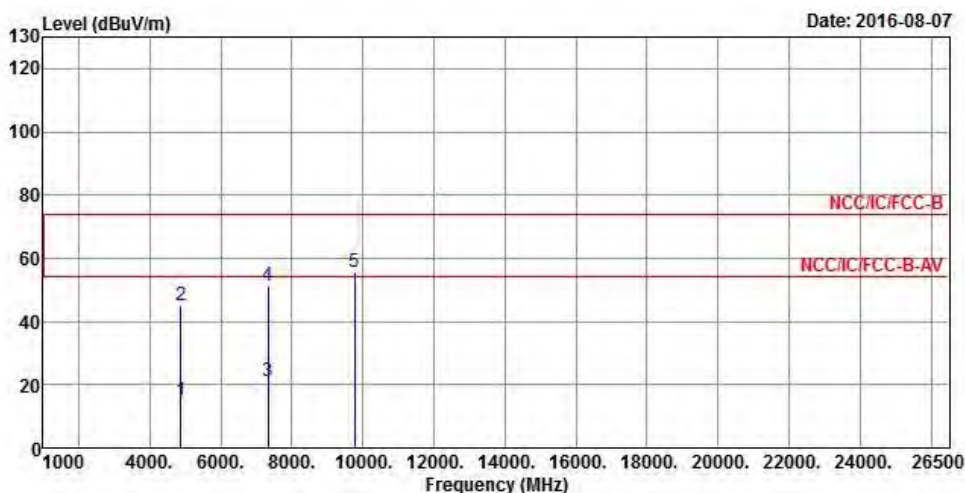


	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	4804.000	17.75	-36.25	54.00	15.86	31.13	5.36	34.60 Average
2	4804.000	47.85	-26.15	74.00	45.96	31.13	5.36	34.60 Peak
3	7206.000	50.78			43.03	35.59	7.04	34.88 Peak
4	9608.000	55.18			43.45	38.72	8.29	35.28 Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (99.17dBuV/m).
 Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	BR/EDR	Test Freq. (MHz)	2441
Operating Function	Transmit	Polarization	V



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	4882.000	15.06	-38.94	54.00	12.90	31.23	5.51	34.58 Average
2	4882.000	45.16	-28.84	74.00	43.00	31.23	5.51	34.58 Peak
3	7323.000	21.31	-32.69	54.00	13.32	35.88	7.02	34.91 Average
4	7323.000	51.41	-22.59	74.00	43.42	35.88	7.02	34.91 Peak
5	9764.000	55.44			43.80	38.75	8.19	35.30 Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

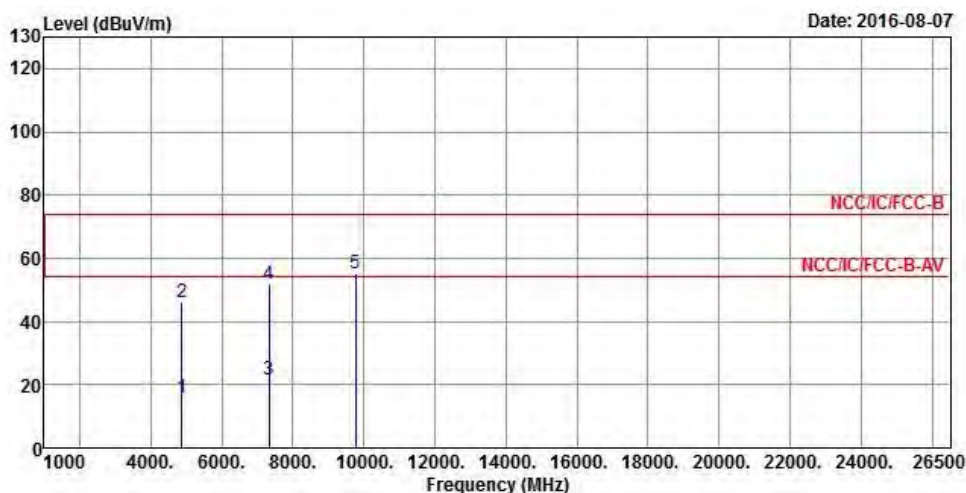
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (97.15 dBuV/m).

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	BR/EDR	Test Freq. (MHz)	2441
Operating Function	Transmit	Polarization	H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	4882.000	15.86	-38.14	54.00	13.70	31.23	5.51	34.58 Average
2	4882.000	45.96	-28.04	74.00	43.80	31.23	5.51	34.58 Peak
3	7323.000	21.78	-32.22	54.00	13.79	35.88	7.02	34.91 Average
4	7323.000	51.88	-22.12	74.00	43.89	35.88	7.02	34.91 Peak
5	9764.000	55.14			43.50	38.75	8.19	35.30 Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

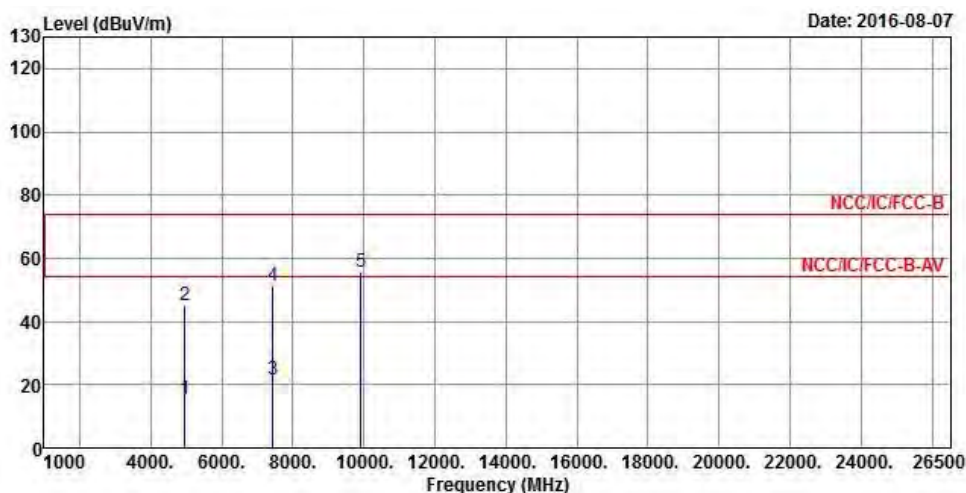
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (97.15 dBuV/m).

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	BR/EDR	Test Freq. (MHz)	2480
Operating Function	Transmit	Polarization	V



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	4960.000	15.19	-38.81	54.00	12.75	31.34	5.66	34.56 Average
2	4960.000	45.29	-28.71	74.00	42.85	31.34	5.66	34.56 Peak
3	7440.000	21.44	-32.56	54.00	13.18	36.16	7.04	34.94 Average
4	7440.000	51.54	-22.46	74.00	43.28	36.16	7.04	34.94 Peak
5	9920.000	55.55			43.87	38.78	8.21	35.31 Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

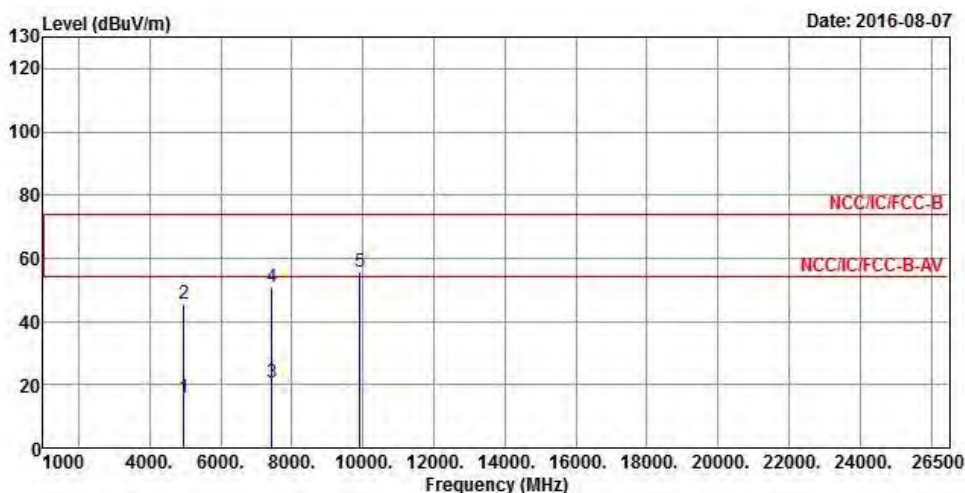
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least **20** dB relative to the maximum measured in-band level (100.74 dBuV/m).

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	BR/EDR	Test Freq. (MHz)	2480
Operating Function	Transmit	Polarization	H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	4960.000	15.63	-38.37	54.00	13.19	31.34	5.66	34.56 Average
2	4960.000	45.73	-28.27	74.00	43.29	31.34	5.66	34.56 Peak
3	7440.000	20.72	-33.28	54.00	12.46	36.16	7.04	34.94 Average
4	7440.000	50.82	-23.18	74.00	42.56	36.16	7.04	34.94 Peak
5	9920.000	55.57			43.89	38.78	8.21	35.31 Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level (100.74dBuV/m).

Note 6: No level of unwanted emissions exceeds the level of the fundamental emission.