

# FCC Test Report

**FCC ID** : BKEHAC033B  
**Equipment** : Wireless Game Device  
**Brand Name** : Nintendo®  
**Model Name** : HAC-033B  
**Applicant / Manufacturer** : Nintendo Co., Ltd.  
11-1, Kamitoba-Hokotate-cho,  
Minami-ku, Kyoto 601-8501,  
Japan  
**Standard** : 47 CFR FCC Part 15.247

The product was received on Jul. 04, 2018, and testing was started from Jul. 12, 2018 and completed on Jul. 25, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

**SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory**

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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### Summary of Test Result

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

Reviewed by: Sam Chen

Report Producer: Ann Hou

# 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
2.4-2.4835GHz	BT-BR(1Mbps)	1	1TX
2.4-2.4835GHz	BT-EDR(2Mbps)	1	1TX
2.4-2.4835GHz	BT-EDR(3Mbps)	1	1TX

Note:

- ◆ 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 nominal channel bandwidth.

### 1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	Nintendo	HAC-033B	Printed	fixed on board	0.89

**For Bluetooth function:**

For Bluetooth mode (1TX/1RX)

### 1.1.3 EUT Information

Operational Condition	
EUT Power Type	From Battery
EUT Function	<input checked="" type="checkbox"/> Point-to-multipoint <input type="checkbox"/> Point-to-point
Type of EUT	
<input 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 checked="" type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems)
	Host System - Brand Name / Model No.: Nintendo® / HAC-033; HAC-034
<input type="checkbox"/>	Other:

**1.1.4 Mode Test Duty Cycle**

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-BR(1Mbps)	0.785	1.051	2.888m	1k
BT-EDR(2Mbps)	0.785	1.051	2.89m	1k
BT-EDR(3Mbps)	0.785	1.051	2.892m	1k

**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
- ◆ Public Notice DA 00-705
- ◆ ANSI C63.10-2013

**1.3 Testing Location Information**

Testing Location		
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL : 886-3-327-3456 FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.		
<input type="checkbox"/>	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.) TEL : 886-3-656-9065 FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.		

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Daniel Hsu	24.1°C / 53%	25/Jul/2018
RF Conducted	TH01-HY	Randy Shih	25.1°C / 62%	12/Jul/2018
Radiated	03CH09-HY	Jerry Lin	25.5°C / 55%	16/Jul/2018



### 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)	3.6 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%



## 2 Test Configuration of EUT

### 2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	5V

### 2.2 Test Channel Mode

Test Software	Broadcom Blue Tool
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Mode	PowerSetting
BT-BR(1Mbps)	-
2402MHz	0
2441MHz	0
2480MHz	0
BT-EDR(2Mbps)	-
2402MHz	0
2441MHz	0
2480MHz	0
BT-EDR(3Mbps)	-
2402MHz	0
2441MHz	0
2480MHz	0



### 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
Operating Mode	CTX
1	USB mode

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	CTX		
1	USB mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT			V

Note.

**Non-AFH:** DH5 Packet permit maximum  $1600 / 79 / 6 = 3.37$  hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times  $3.37 \times 1.185 = 4$  within 1.185 seconds.

**AFH:** DH5 Packet permit maximum  $800 / 20 / 6 = 6.67$  hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times  $13.33 \times 8 = 106.6$  within 8 seconds.

Under the above conditions, Non-AFH Mode configuration was found to be the worst case and measured during the test.

## 2.4 Accessories and Support Equipment

Accessories				
Battery	<b>Brand Name</b>	Nintendo	<b>Model Name</b>	HAC-006
	<b>Power Rating</b>	3.7Vdc, 525mAh	<b>Type</b>	Li-ion

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

Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5530	DoC
2	Adapter for Notebook	DELL	LA65NS2-01	DoC
3	Fixture	-	-	-

Note: Support equipment No.3 was provided by customer.

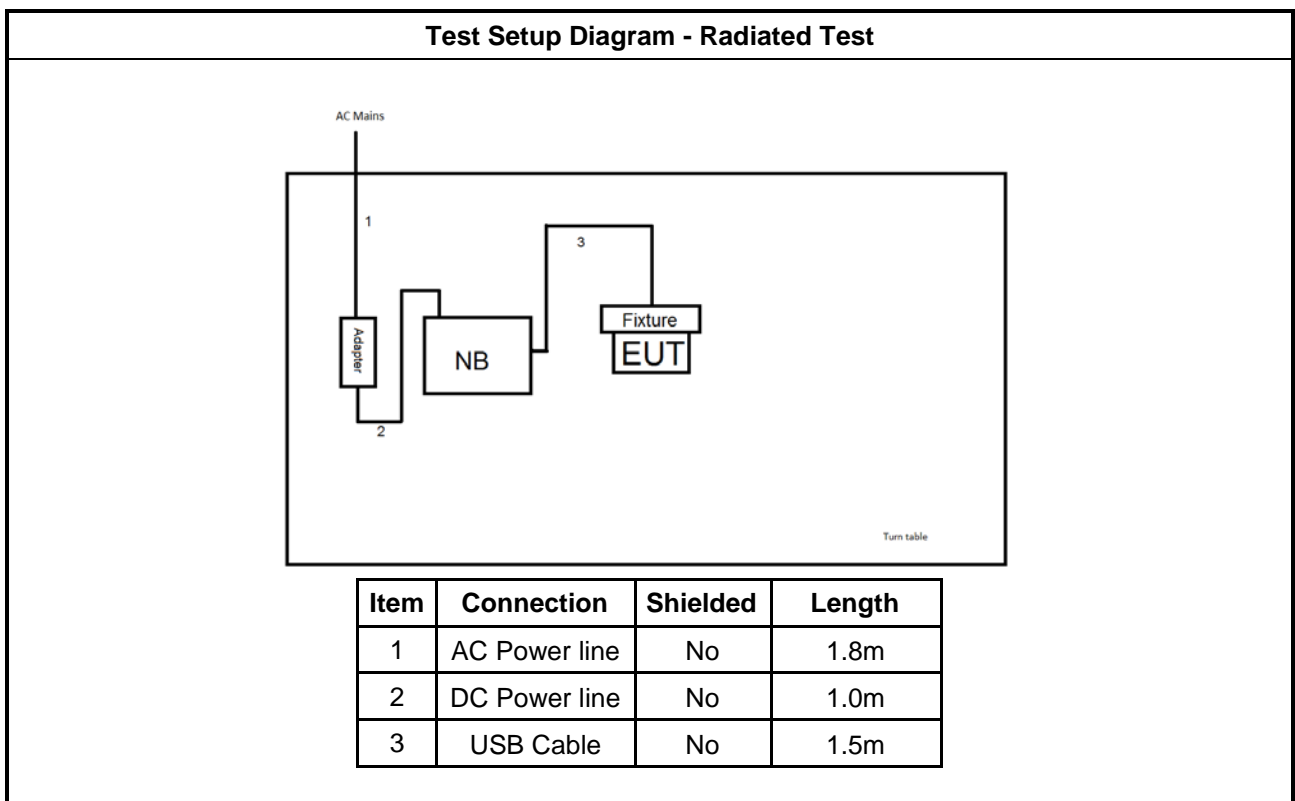
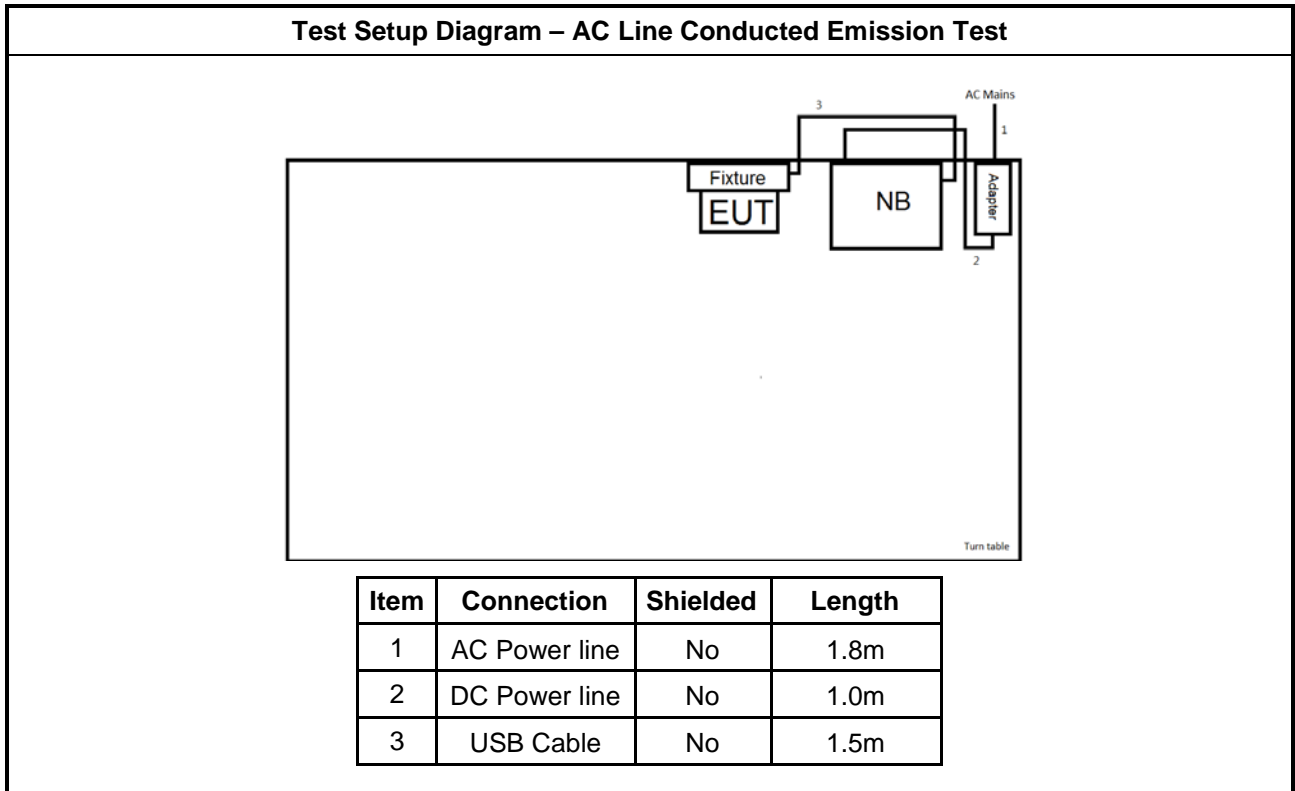
Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for Notebook	DELL	HA65NM130	DoC
3	Fixture	-	-	-

Note: Support equipment No.3 was provided by customer.

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5530	DoC
2	Adapter for Notebook	DELL	LA65NS2-01	DoC
3	Fixture	-	-	-

Note: Support equipment No.3 was provided by customer.

## 2.5 Test Setup Diagram



### 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.

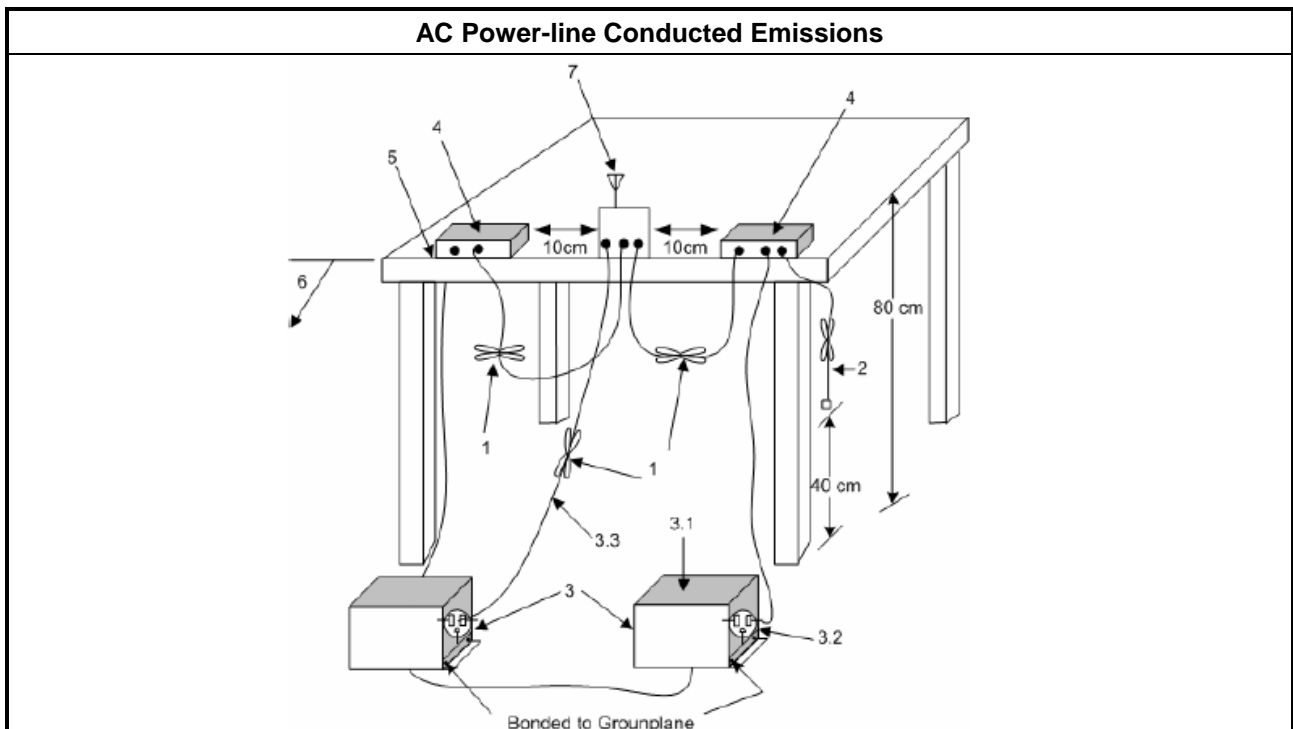
##### 3.1.2 Measuring Instruments

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

##### 3.1.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.</li> </ul>

##### 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	
<ul style="list-style-type: none"> <li>2400-2483.5 MHz Band:</li> </ul>	
	<ul style="list-style-type: none"> <li><math>N \geq 75</math> and <math>ChS \geq MAX</math> (20 dB bandwidth, 25 kHz).</li> </ul>
	<ul style="list-style-type: none"> <li><math>75 &gt; N \geq 15</math> and <math>ChS \geq MAX</math> (20 dB bandwidth 2/3,25 kHz).</li> </ul>
<b>N:</b> Number of Hopping Frequencies; <b>ChS:</b> Hopping Channel Separation	

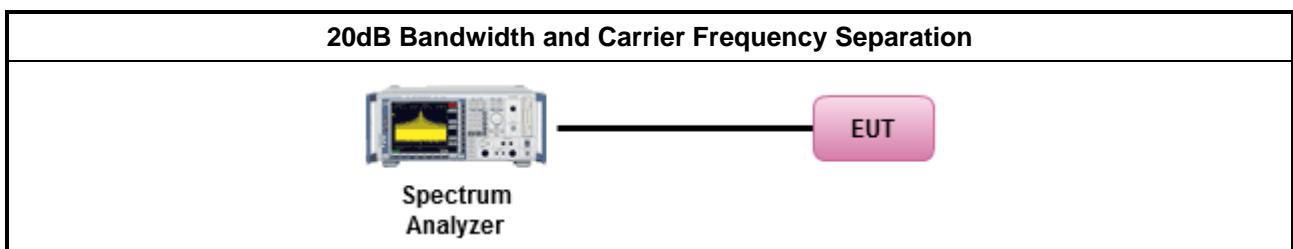
#### 3.2.2 Measuring Instruments

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

#### 3.2.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>Refer as ANSI C63.10-2013, clause 6.9.2 for 20 dB bandwidth measurement.</li> </ul>
<ul style="list-style-type: none"> <li>Refer as ANSI C63.10-2013, clause 7.8.2 for carrier frequency separation measurement.</li> </ul>

#### 3.2.4 Test Setup



#### 3.2.5 Test Result of 20dB Bandwidth

Refer as Appendix B.1

#### 3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix B.2

### 3.3 Maximum Conducted Output Power

#### 3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
<ul style="list-style-type: none"> <li>▪ 2400-2483.5 MHz Band:</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ <math>N \geq 75</math>; Power 30dBm; EIRP 36dBm</li> </ul>
	<ul style="list-style-type: none"> <li>▪ <math>75 &gt; N \geq 15</math>; Power 21dBm; EIRP 27dBm</li> </ul>
<b>N:</b> Number of Hopping Frequencies	

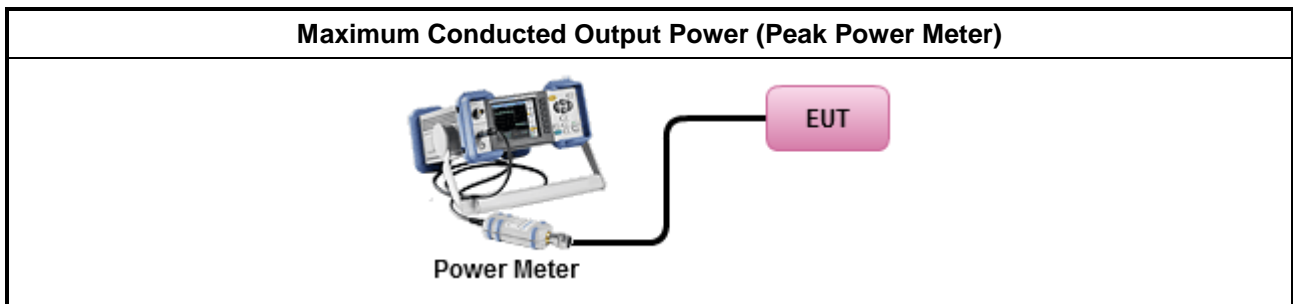
#### 3.3.2 Measuring Instruments

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

#### 3.3.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10-2013, clause 7.8.5 for output power measurement.</li> </ul>

#### 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	
<ul style="list-style-type: none"> <li>2400-2483.5 MHz Band:</li> </ul>	
	<ul style="list-style-type: none"> <li><math>N \geq 75</math> and <math>ChS \geq MAX</math> (20 dB bandwidth, 25 kHz).</li> </ul>
	<ul style="list-style-type: none"> <li><math>75 &gt; N \geq 15</math> and <math>ChS \geq MAX</math> (20 dB bandwidth 2/3, 25 kHz).</li> </ul>
<b>N:</b> Number of Hopping Frequencies; <b>ChS</b> : Hopping Channel Separation	

#### 3.4.2 Hopping Bandedge Limit

Refer clause 3.6.1 and clause 3.7.1

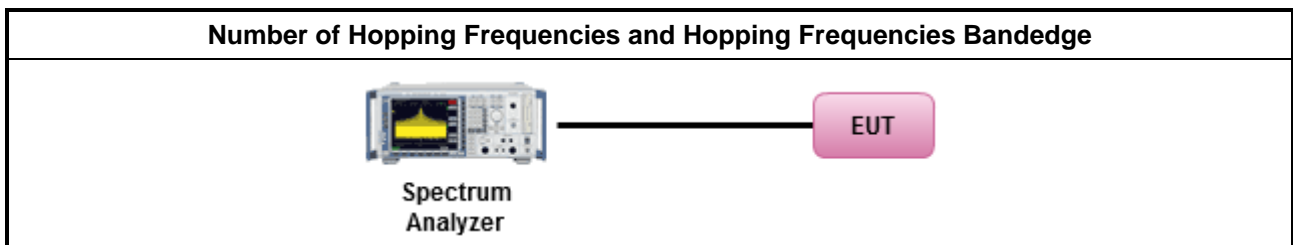
#### 3.4.3 Measuring Instruments

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

#### 3.4.4 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>Refer as ANSI C63.10-2013, clause 7.8.3 for number of hopping frequencies measurement.</li> </ul>
<ul style="list-style-type: none"> <li>Refer as ANSI C63.10-2013, clause 7.8.6 for hopping frequencies Bandedge measurement.</li> </ul>

#### 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

Time of Occupancy (Dwell Time) Limit for Frequency Hopping Systems	
<ul style="list-style-type: none"> <li>2400-2483.5 MHz Band:</li> </ul>	
	<ul style="list-style-type: none"> <li><math>N \geq 75</math>; 0.4s in <math>N \times 0.4</math> period</li> </ul>
	<ul style="list-style-type: none"> <li><math>75 &gt; N \geq 15</math>; 0.4s in <math>N \times 0.4</math> period</li> </ul>
<b>N:</b> Number of Hopping Frequencies	

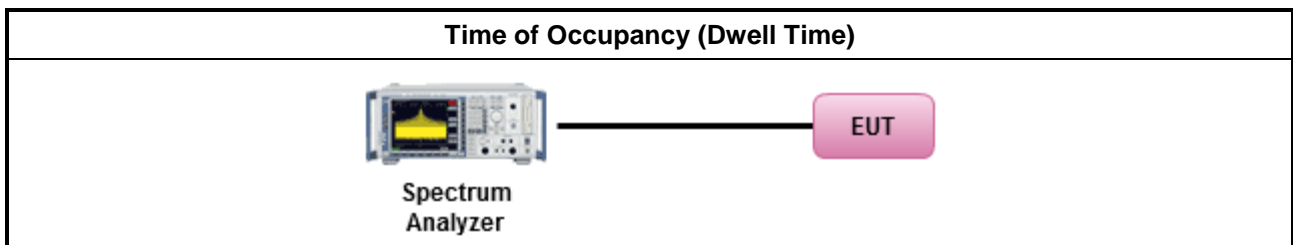
#### 3.5.2 Measuring Instruments

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

#### 3.5.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> <li>Refer as ANSI C63.10-2013, clause 7.8.4 for dwell time measurement.</li> </ul>	
<ul style="list-style-type: none"> <li>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.</li> </ul>	
	<ul style="list-style-type: none"> <li>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 <math>5/1600</math> seconds, or 3.125ms. DH5 Packet permit maximum <math>1600 / 79 / 6 = 3.37</math> hops per second in each channel.</li> </ul>

#### 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.	

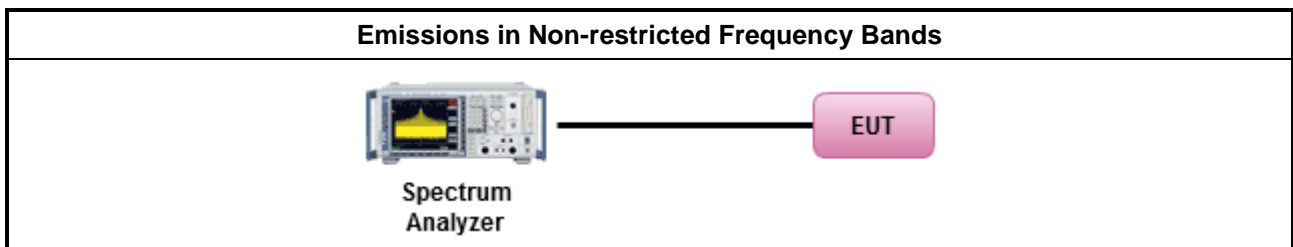
#### 3.6.2 Measuring Instruments

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

#### 3.6.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>Refer as ANSI C63.10-2013, clause 7.8.8 for unwanted emissions into non-restricted bands.</li> </ul>

#### 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.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

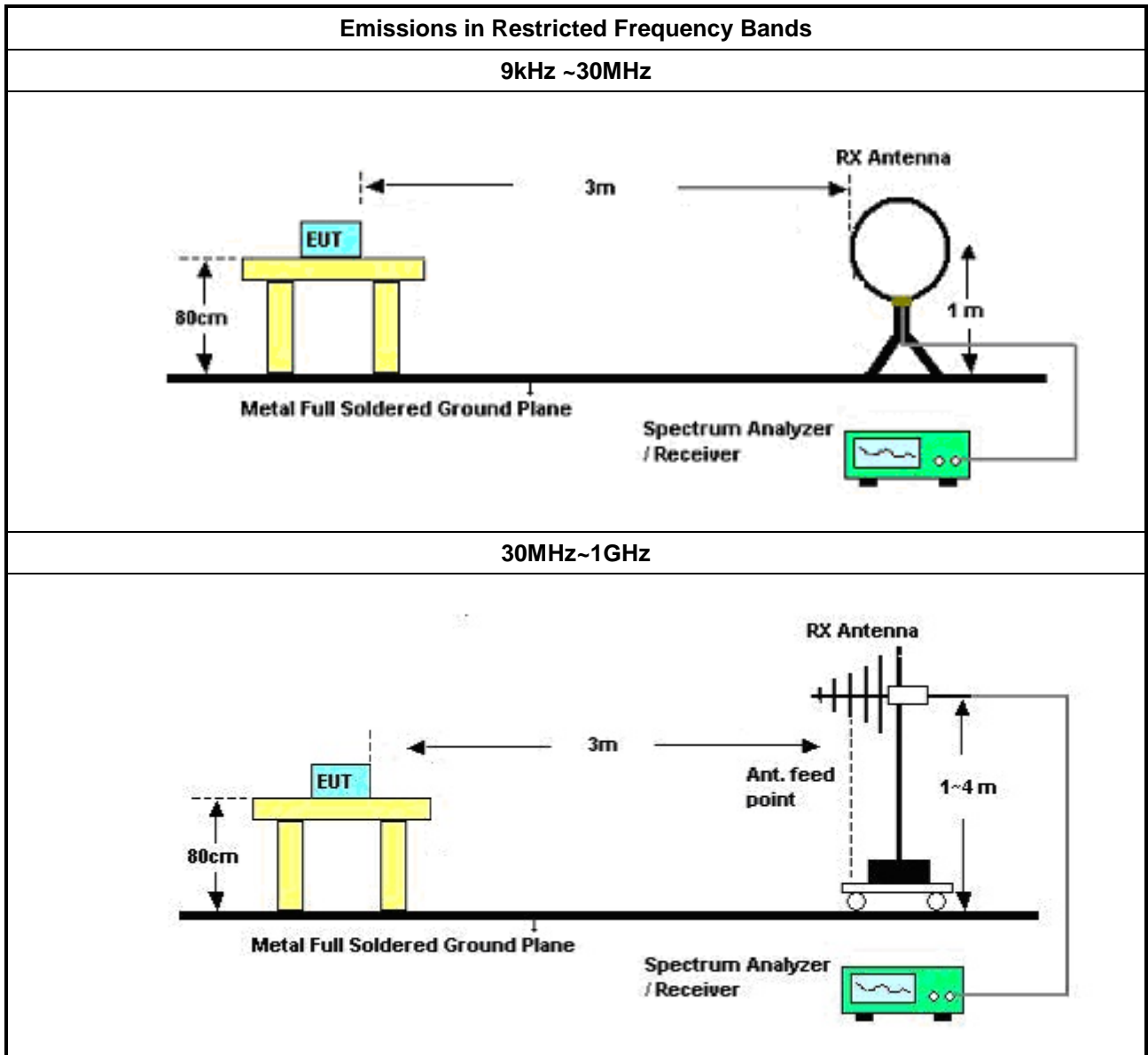
#### 3.7.2 Measuring Instruments

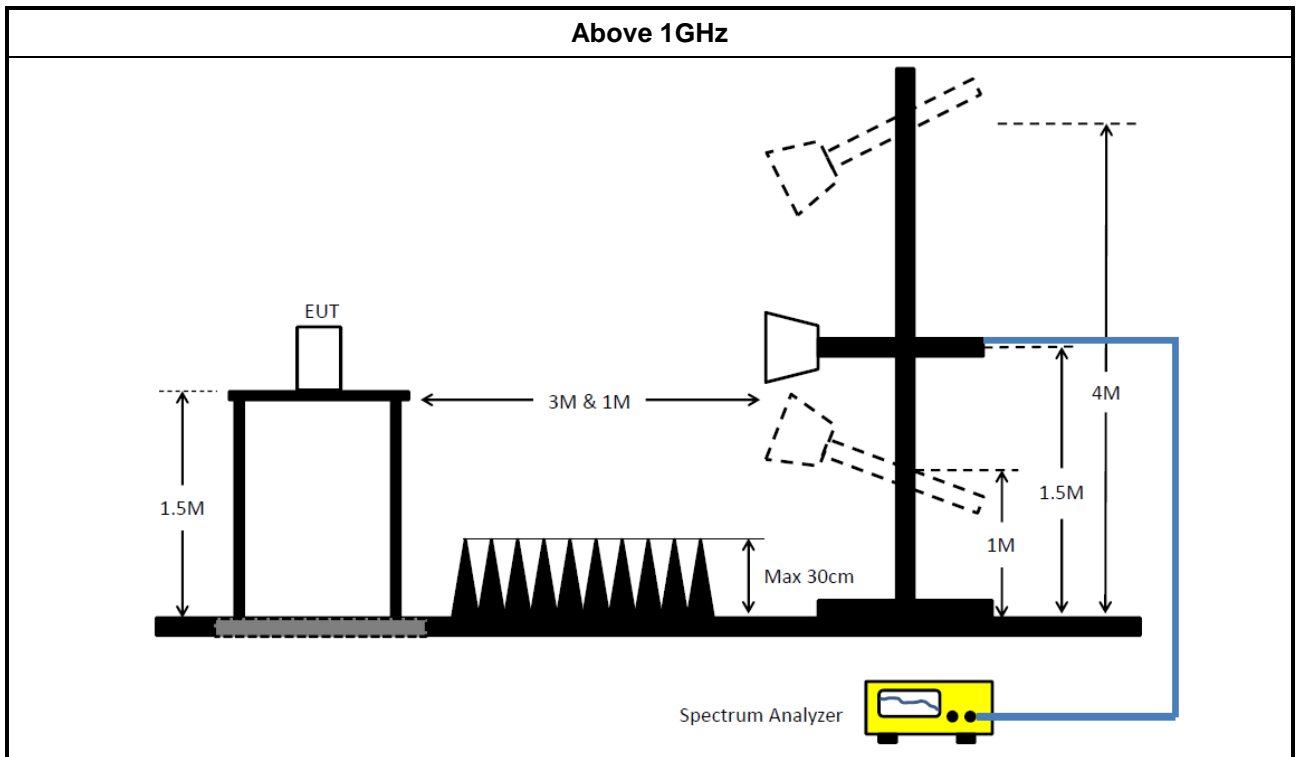
Refer a test equipment and calibration data table in this test report.

#### 3.7.3 Test Procedures

Test Method	
	<ul style="list-style-type: none"> <li>▪ The average emission levels shall be measured in [hopping duty factor].</li> </ul>
	<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ For the transmitter unwanted emissions shall be measured using following options below:               <ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10, clause 4.1.4.2.1 QP value.</li> <li>▪ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak.</li> <li>▪ Refer as ANSI C63.10, clause 4.1.4.2.4 average value of hopping pulsed emissions.</li> </ul> </li> </ul>

### 3.7.4 Test Setup





### 3.7.5 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

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

### 3.7.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix G



## 4 Test Equipment and Calibration Data

### Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	17/Nov/2017	16/Nov/2018
RF Cable-CON	HUBER+SUHNER	RG213/U	076118320200 01	9kHz ~ 30MHz	06/Oct/2017	05/Oct/2018
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2017	11/Oct/2018

NCR : Non-Calibration Require

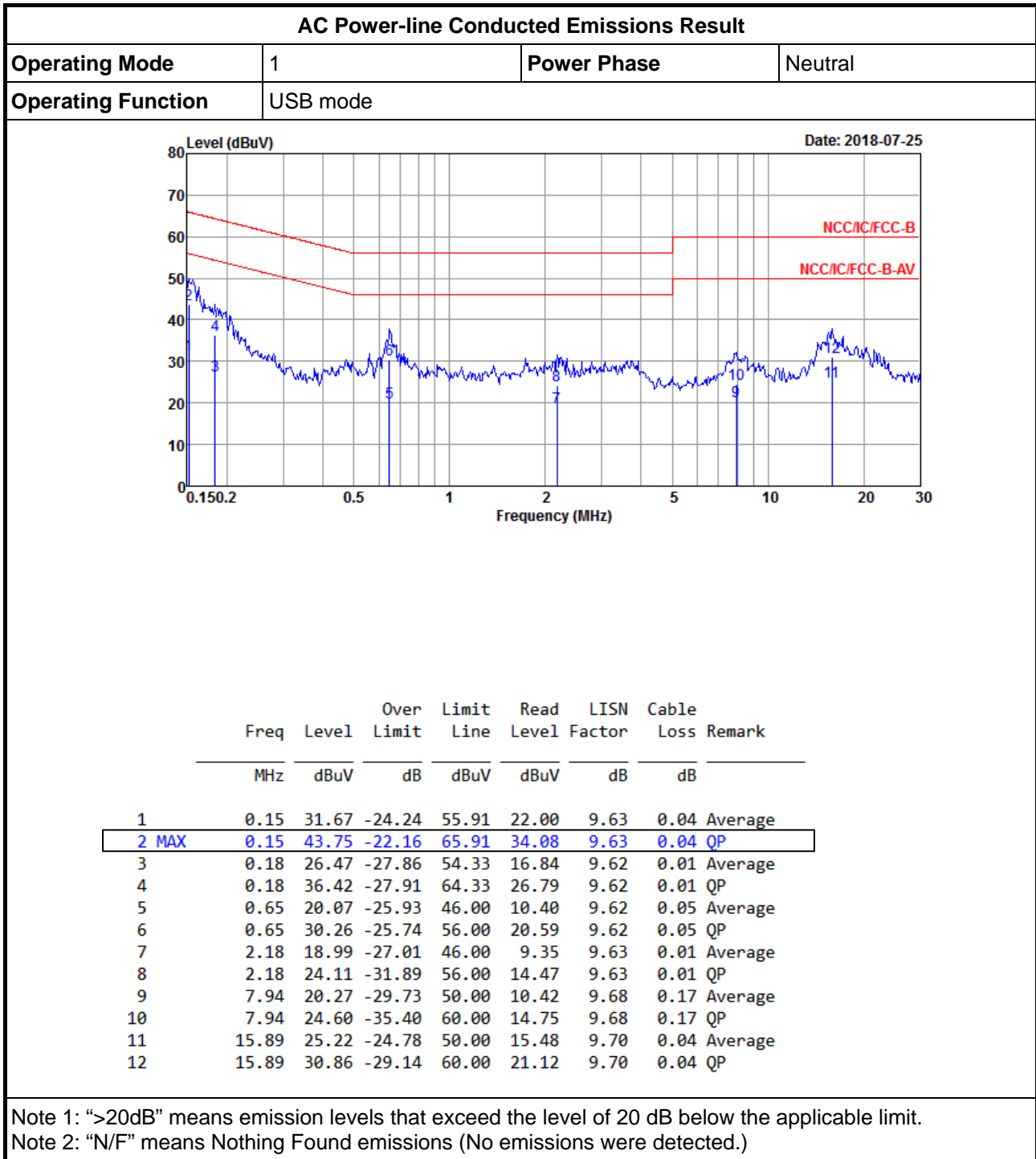
### Instrument for Conducted Test

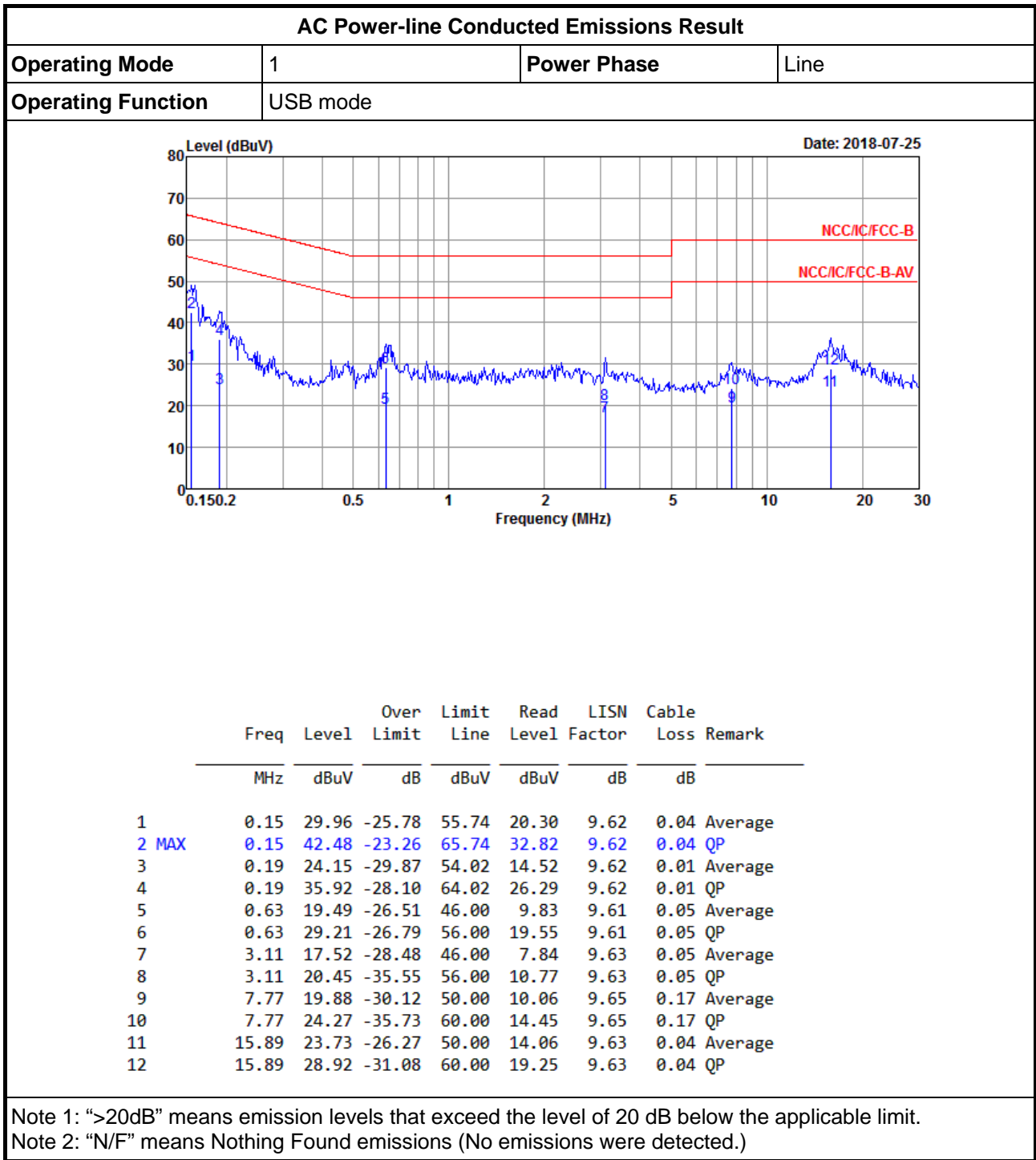
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9kHz~40GHz	05/Feb/2018	04/Feb/2019
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	05/Feb/2018	04/Feb/2019
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	05/Feb/2018	04/Feb/2019
RF Cable-1.5m	HUBER+SUHNER	SUCOFLEX_104	MY12582/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-1.5m	HUBER+SUHNER	SUCOFLEX_104	MY12583/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10712/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10713/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018



Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	23/Apr/2018	22/Apr/2019
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	14/Jun/2018	13/Jun/2019
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	10/May/2018	09/May/2019
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	27/Apr/2018	26/Apr/2019
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	20/Jul/2017	19/Jul/2018
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	09/Sep/2017	08/Sep/2018
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	30/Apr/2018	29/Apr/2019
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170614	18GHz~40GHz	09/Feb/2018	08/Feb/2019
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	29/Mar/2018	28/Mar/2019
RF Cable-R03m	Jye Bao	RG142	CB031	9kHz ~ 1GHz	1/Feb/2018	31/Jan/2019
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz ~ 40GHz	14/Mar/2018	13/Mar/2019









**Summary**

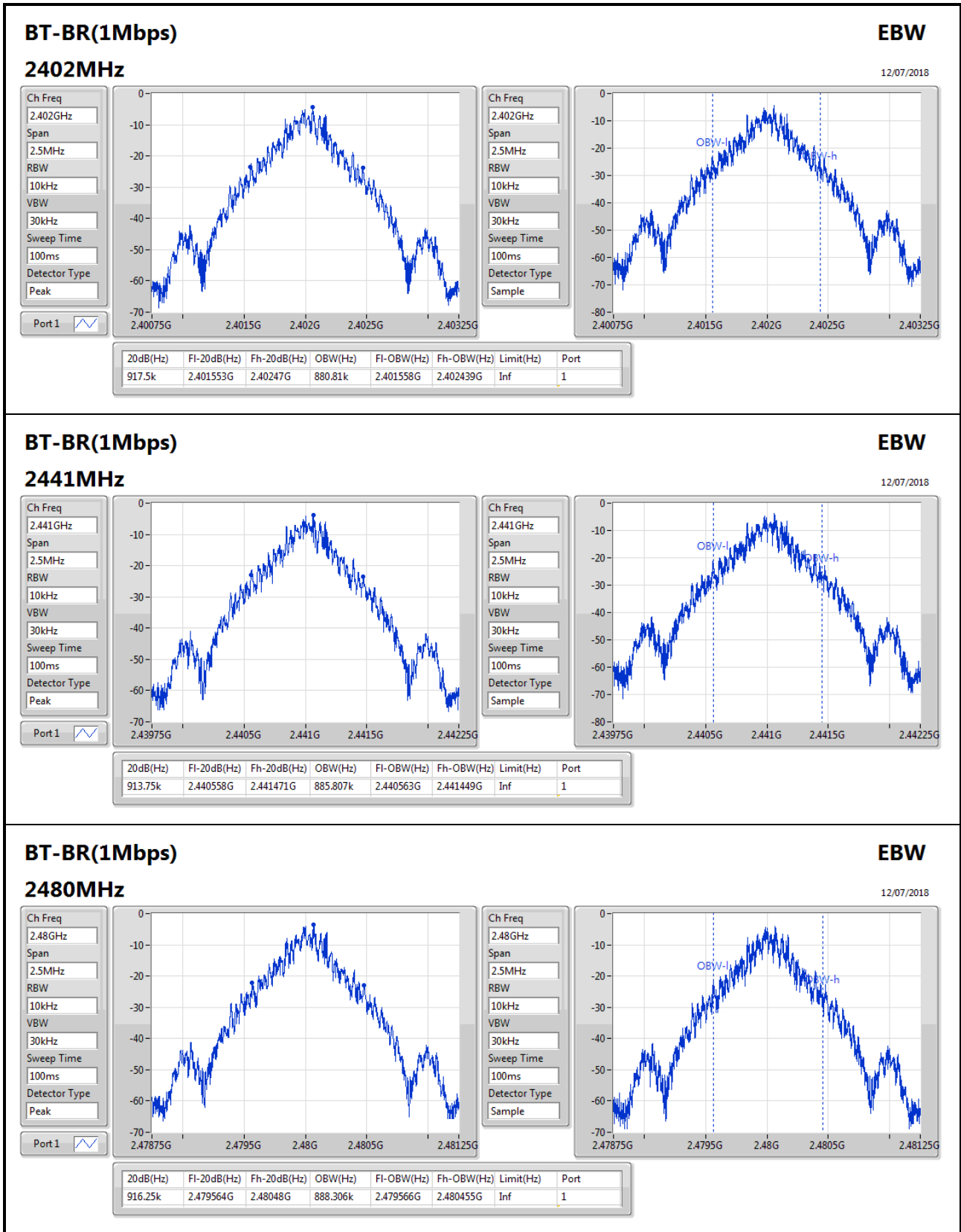
Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-BR(1Mbps)	917.5k	888.306k	888KF1D	913.75k	880.81k
BT-EDR(2Mbps)	1.319M	1.227M	1M23G1D	1.315M	1.223M
BT-EDR(3Mbps)	1.29M	1.223M	1M22G1D	1.283M	1.222M

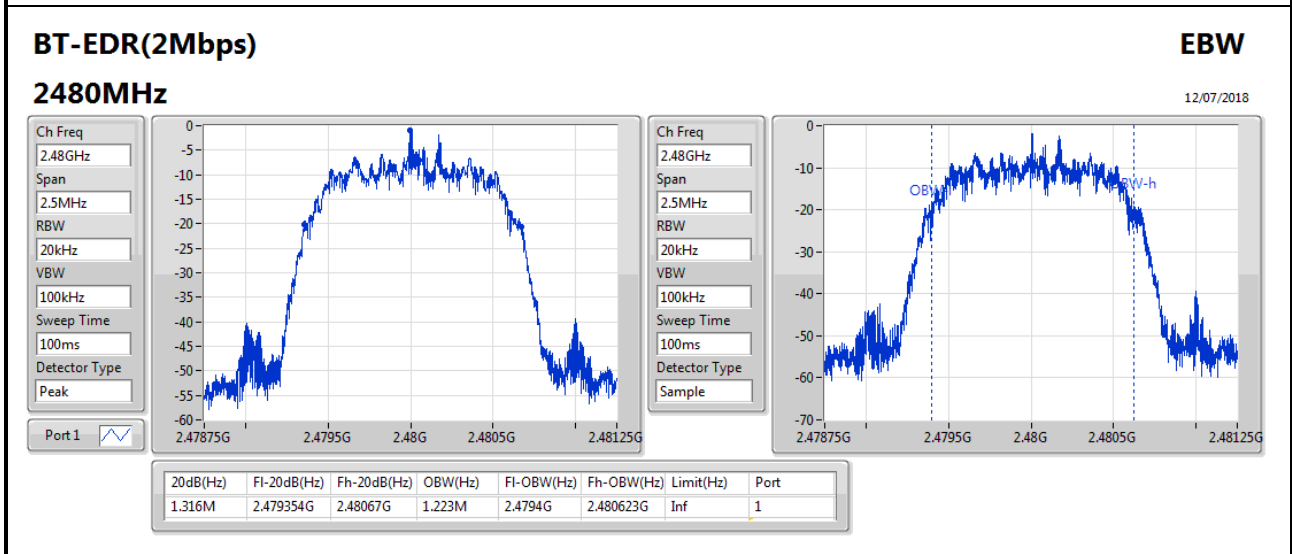
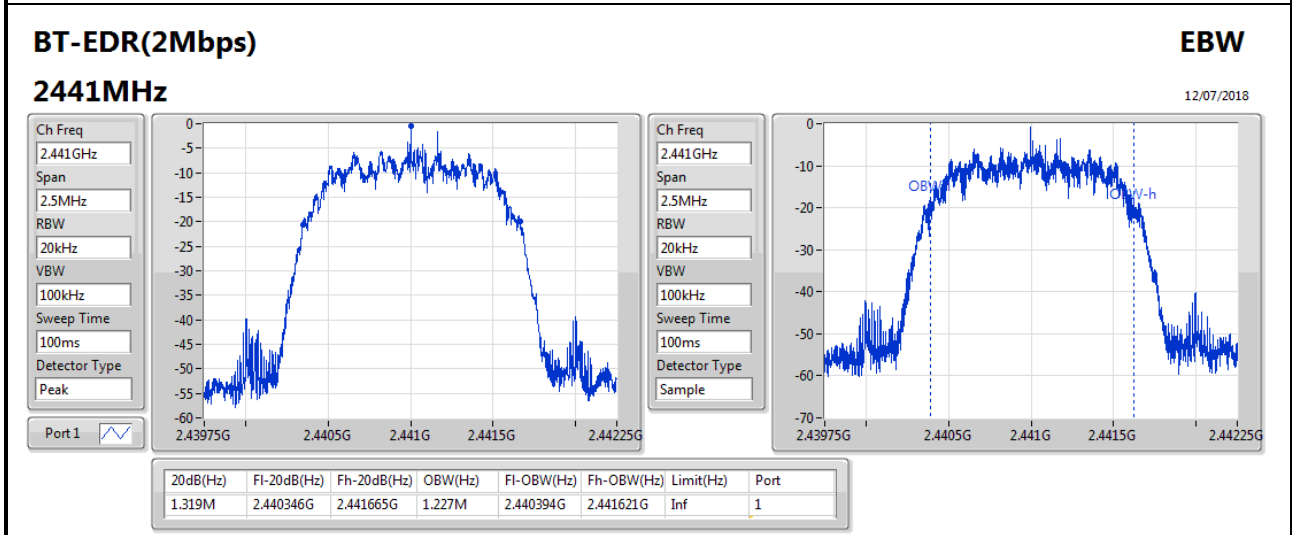
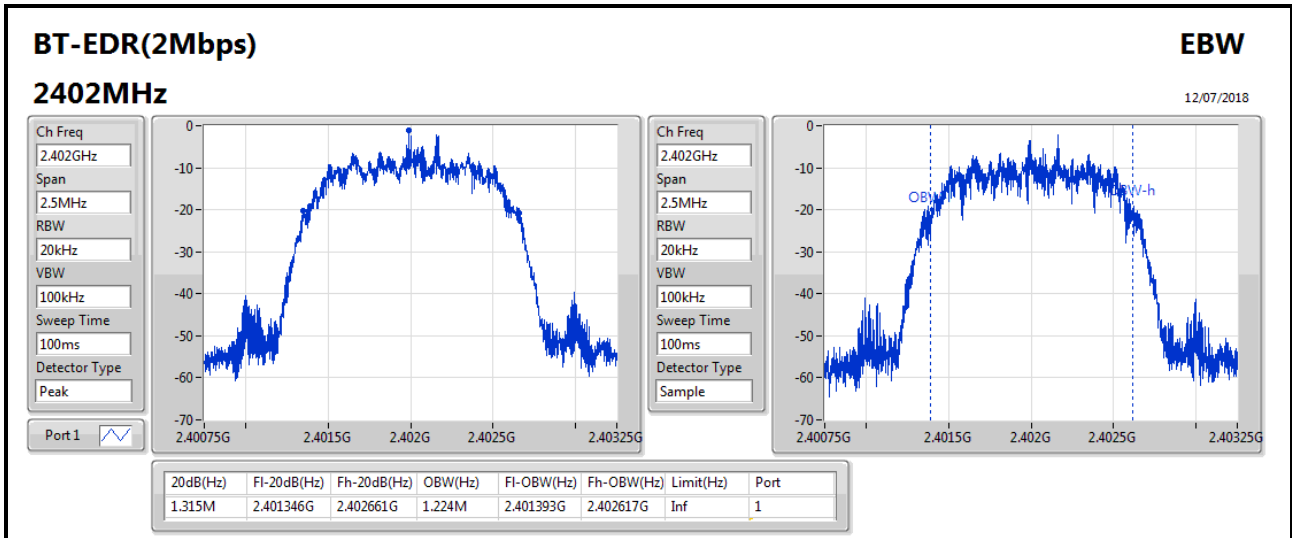
**Max-N dB** = Maximum 20dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;  
**Min-N dB** = Minimum 20dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

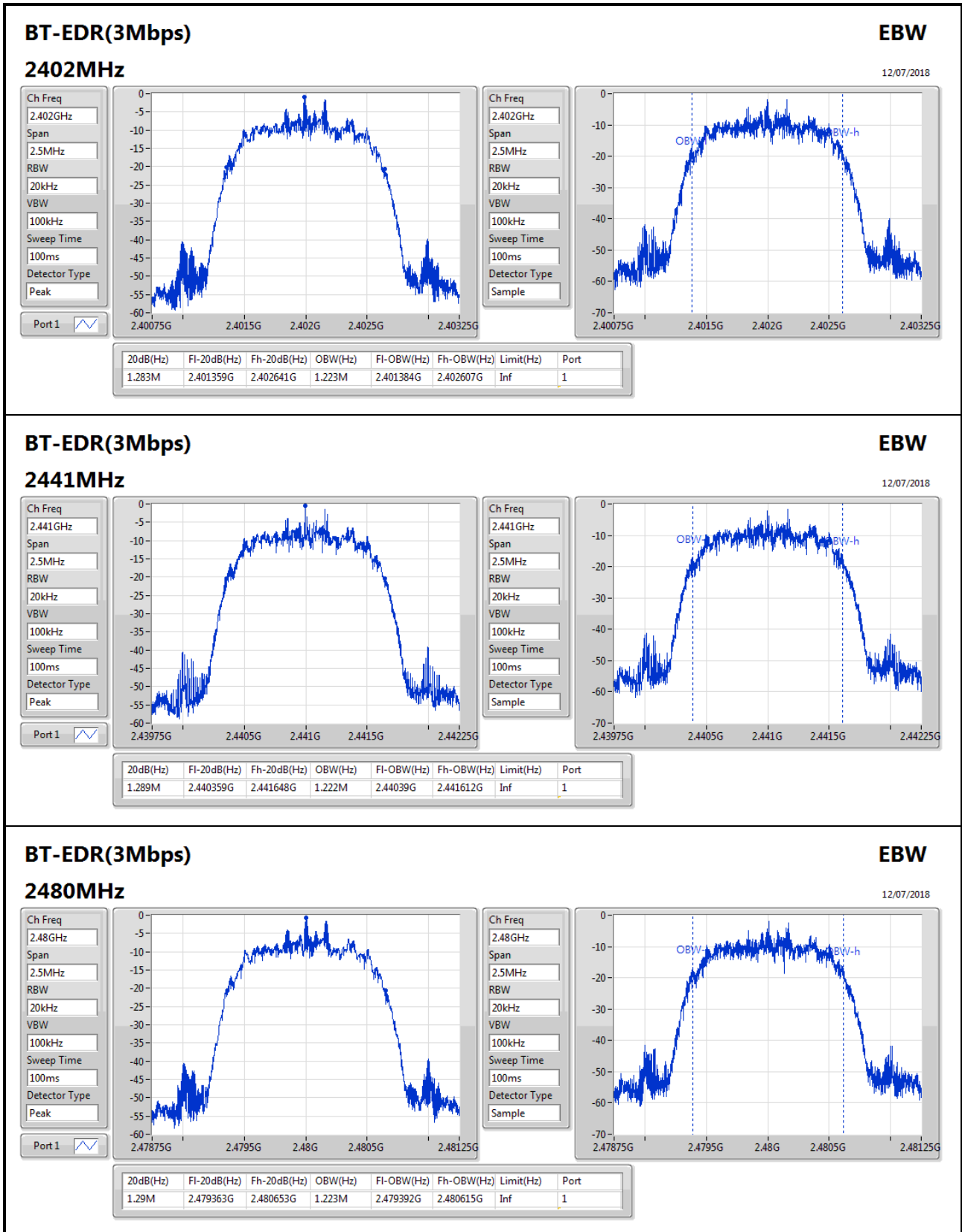
**Result**

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-BR(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	Inf	917.5k	880.81k
2441MHz_TnomVnom	Pass	Inf	913.75k	885.807k
2480MHz_TnomVnom	Pass	Inf	916.25k	888.306k
BT-EDR(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	Inf	1.315M	1.224M
2441MHz_TnomVnom	Pass	Inf	1.319M	1.227M
2480MHz_TnomVnom	Pass	Inf	1.316M	1.223M
BT-EDR(3Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	Inf	1.283M	1.223M
2441MHz_TnomVnom	Pass	Inf	1.289M	1.222M
2480MHz_TnomVnom	Pass	Inf	1.29M	1.223M

**Port X-N dB** = Port X 20dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;






**BT-EDR(3Mbps)**
**EBW**

12/07/2018

**2480MHz**

Ch Freq: 2.48GHz  
Span: 2.5MHz  
RBW: 20kHz  
VBW: 100kHz  
Sweep Time: 100ms  
Detector Type: Peak

Port 1

Ch Freq: 2.48GHz  
Span: 2.5MHz  
RBW: 20kHz  
VBW: 100kHz  
Sweep Time: 100ms  
Detector Type: Sample

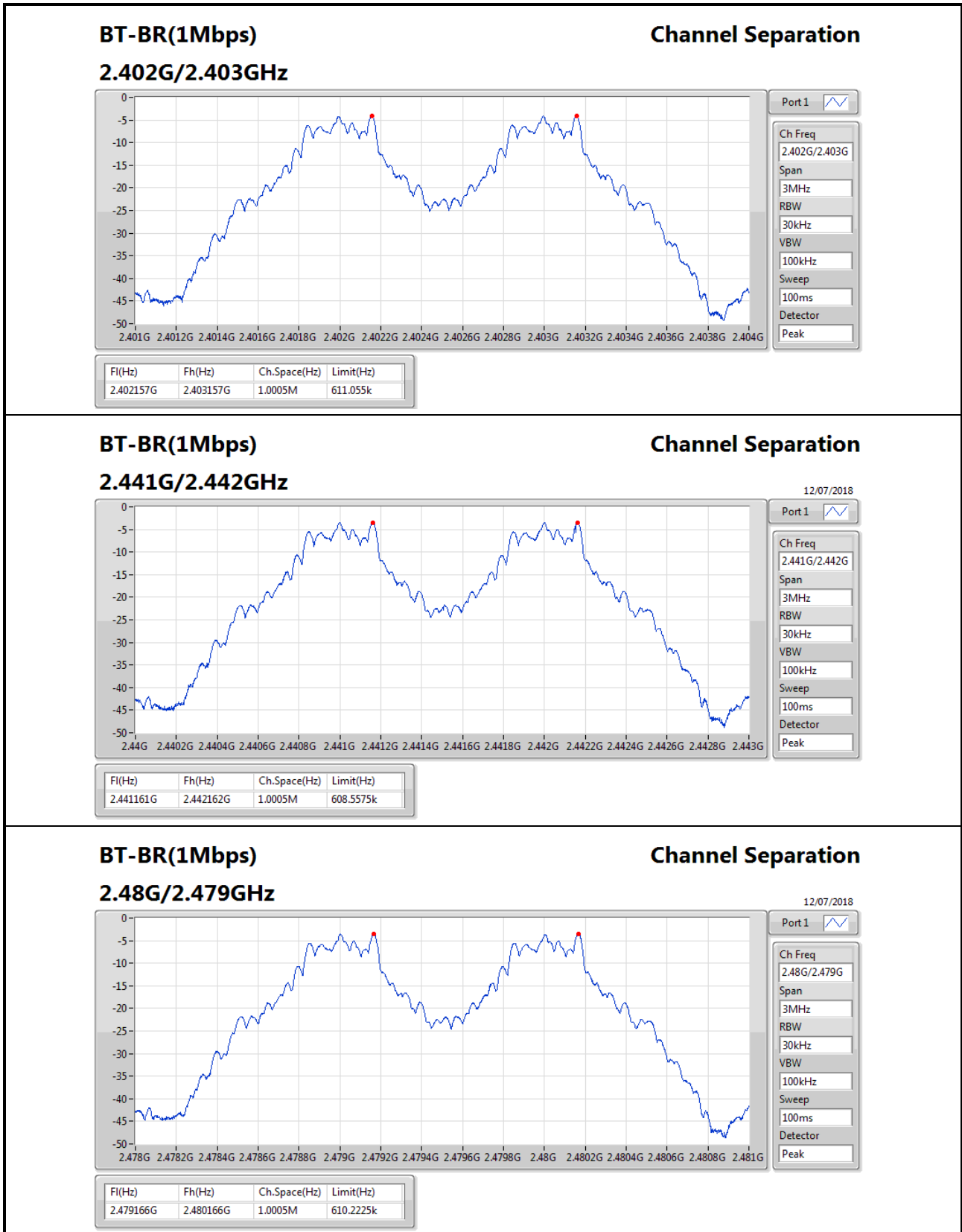


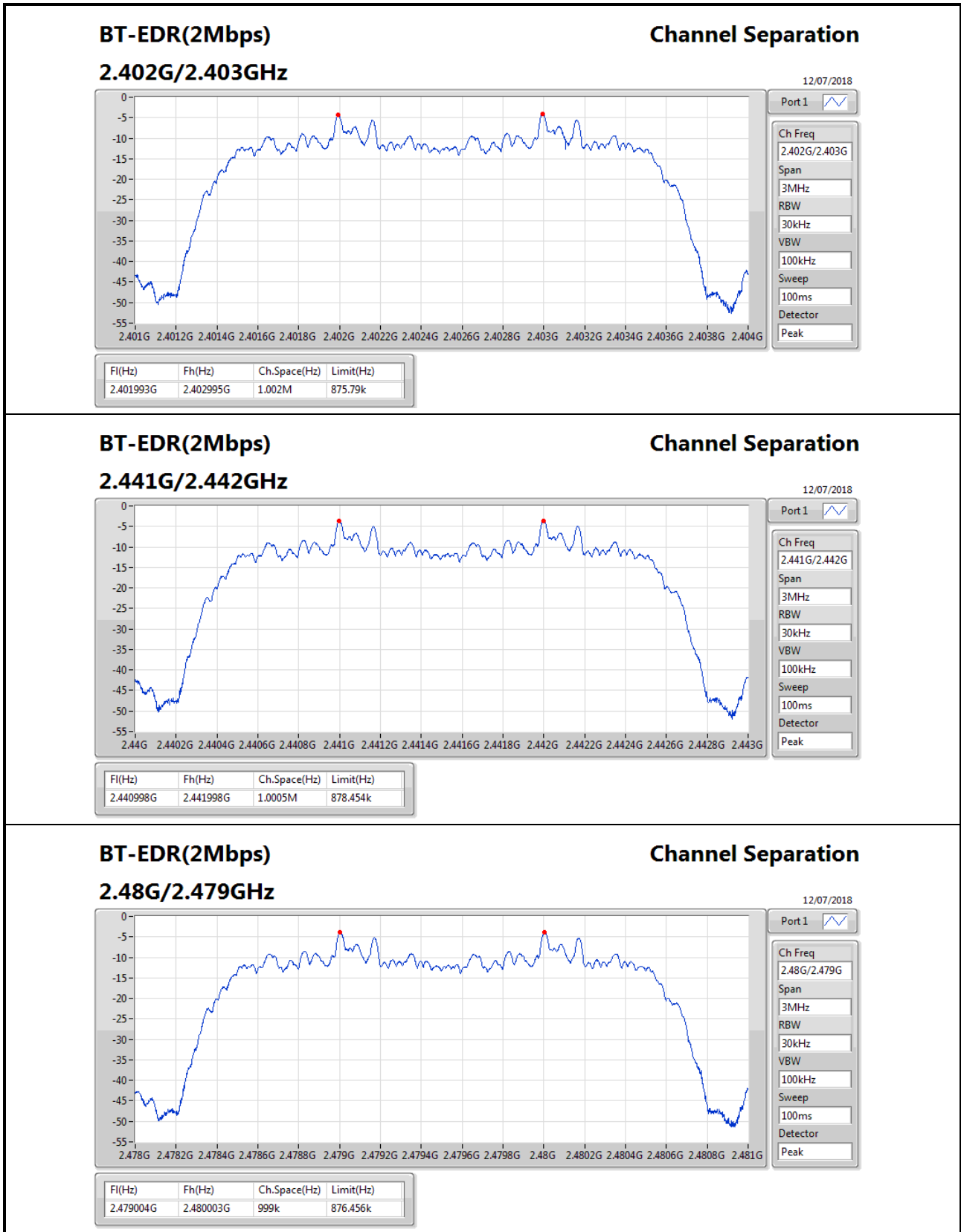
**Summary**

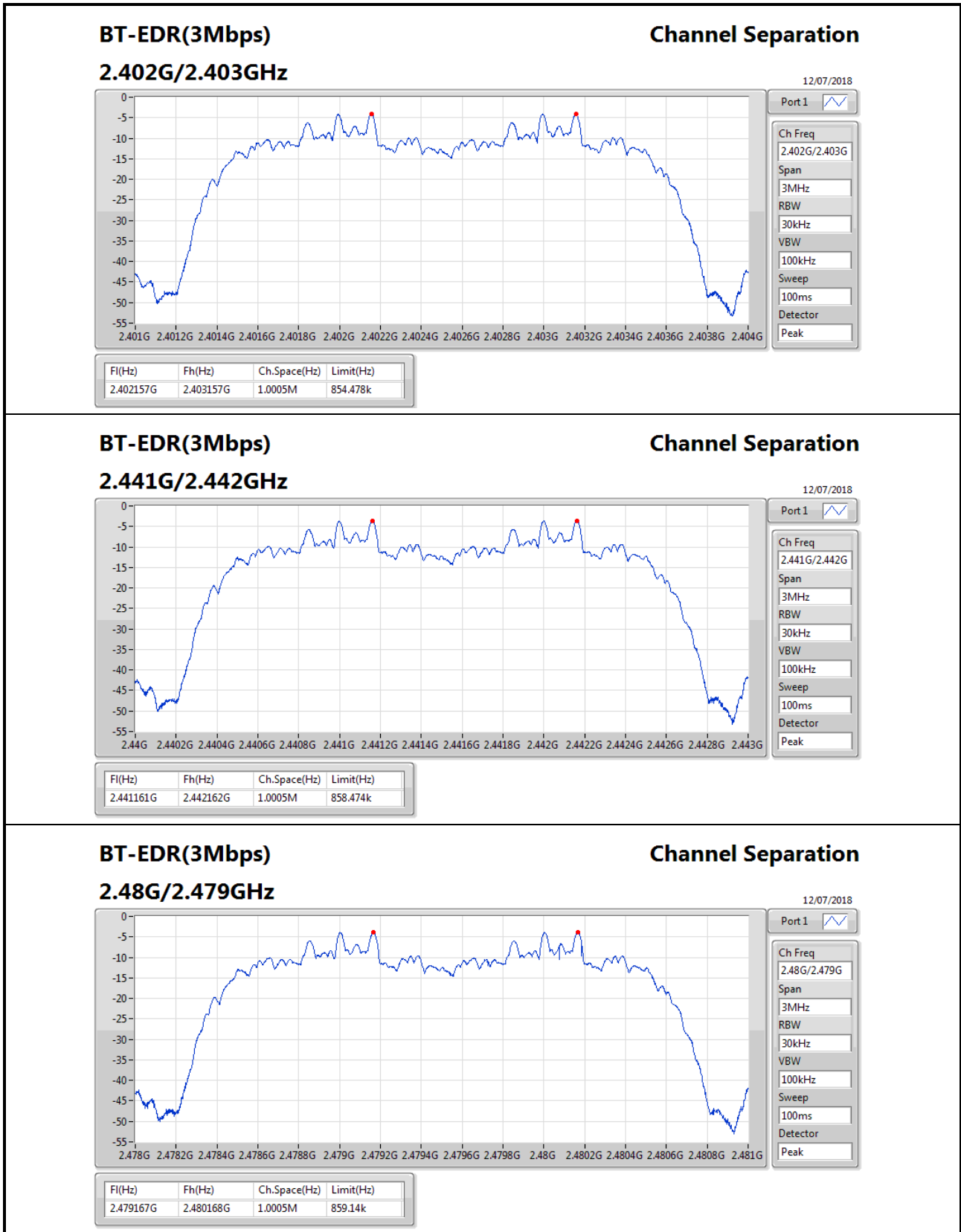
Mode	Max-Space (Hz)	Min-Space (Hz)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	1.0005M	1.0005M
BT-EDR(2Mbps)	1.002M	999k
BT-EDR(3Mbps)	1.0005M	1.0005M

**Result**

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
BT-BR(1Mbps)	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402157G	2.403157G	1.0005M	611.055k
2441MHz_TnomVnom	Pass	2.441161G	2.442162G	1.0005M	608.5575k
2480MHz_TnomVnom	Pass	2.479166G	2.480166G	1.0005M	610.2225k
BT-EDR(2Mbps)	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.401993G	2.402995G	1.002M	875.79k
2441MHz_TnomVnom	Pass	2.440998G	2.441998G	1.0005M	878.454k
2480MHz_TnomVnom	Pass	2.479004G	2.480003G	999k	876.456k
BT-EDR(3Mbps)	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402157G	2.403157G	1.0005M	854.478k
2441MHz_TnomVnom	Pass	2.441161G	2.442162G	1.0005M	858.474k
2480MHz_TnomVnom	Pass	2.479167G	2.480168G	1.0005M	859.14k











**Summary**

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	2.46	0.00176
BT-EDR(2Mbps)	5.00	0.00316
BT-EDR(3Mbps)	5.16	0.00328

**Result**

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	0.89	1.51	21.00
2441MHz_TnomVnom	Pass	0.89	2.46	21.00
2480MHz_TnomVnom	Pass	0.89	2.39	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	0.89	4.56	21.00
2441MHz_TnomVnom	Pass	0.89	5.00	21.00
2480MHz_TnomVnom	Pass	0.89	4.70	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	0.89	4.70	21.00
2441MHz_TnomVnom	Pass	0.89	5.16	21.00
2480MHz_TnomVnom	Pass	0.89	4.87	21.00



**Summary**

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	2.16	0.00164
BT-EDR(2Mbps)	2.22	0.00167
BT-EDR(3Mbps)	2.26	0.00168

**Result**

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	0.89	1.36	30.00
2441MHz_TnomVnom	Pass	0.89	2.16	30.00
2480MHz_TnomVnom	Pass	0.89	2.13	30.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	0.89	1.79	30.00
2441MHz_TnomVnom	Pass	0.89	2.22	30.00
2480MHz_TnomVnom	Pass	0.89	1.97	30.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	0.89	1.76	30.00
2441MHz_TnomVnom	Pass	0.89	2.26	30.00
2480MHz_TnomVnom	Pass	0.89	1.97	30.00

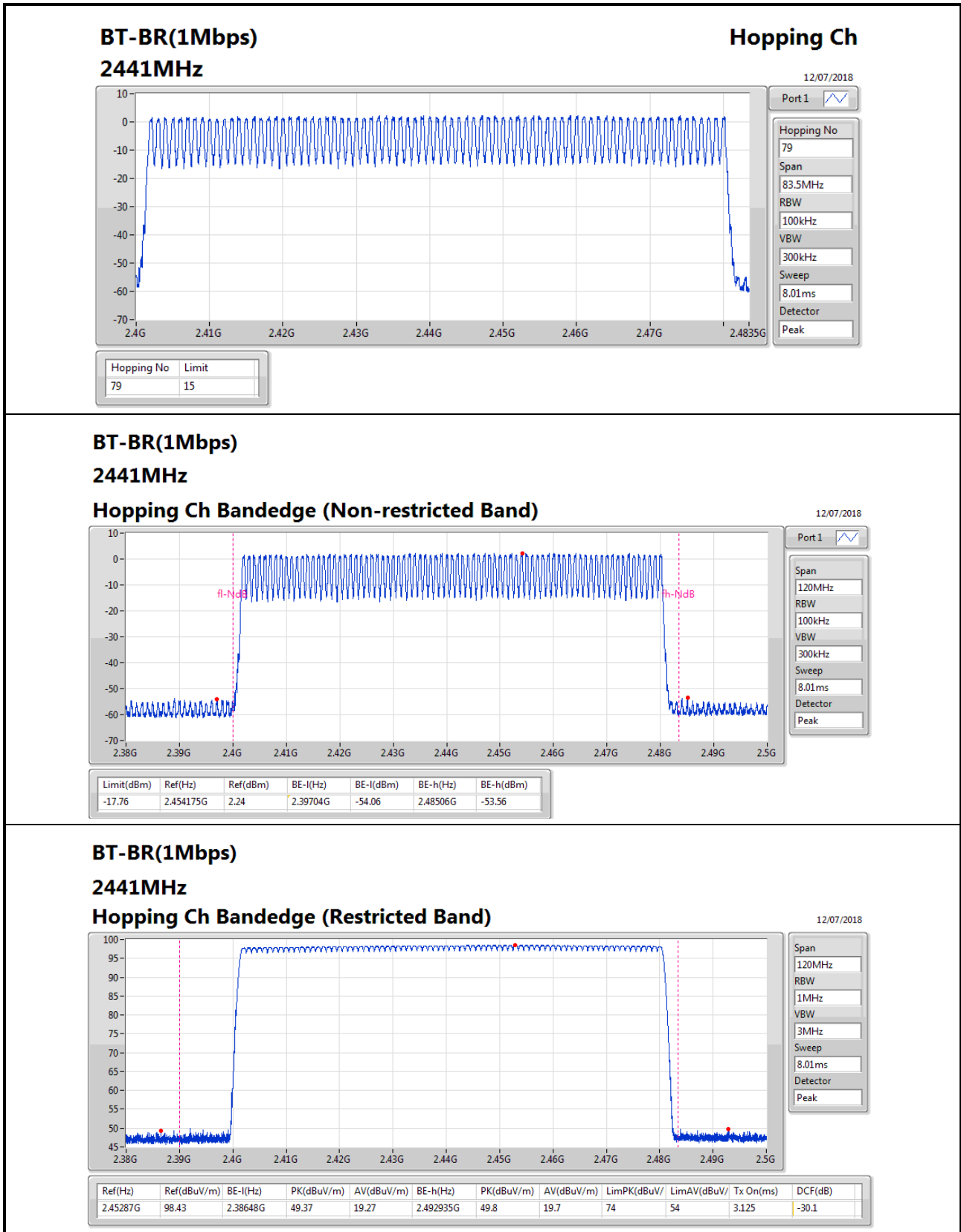


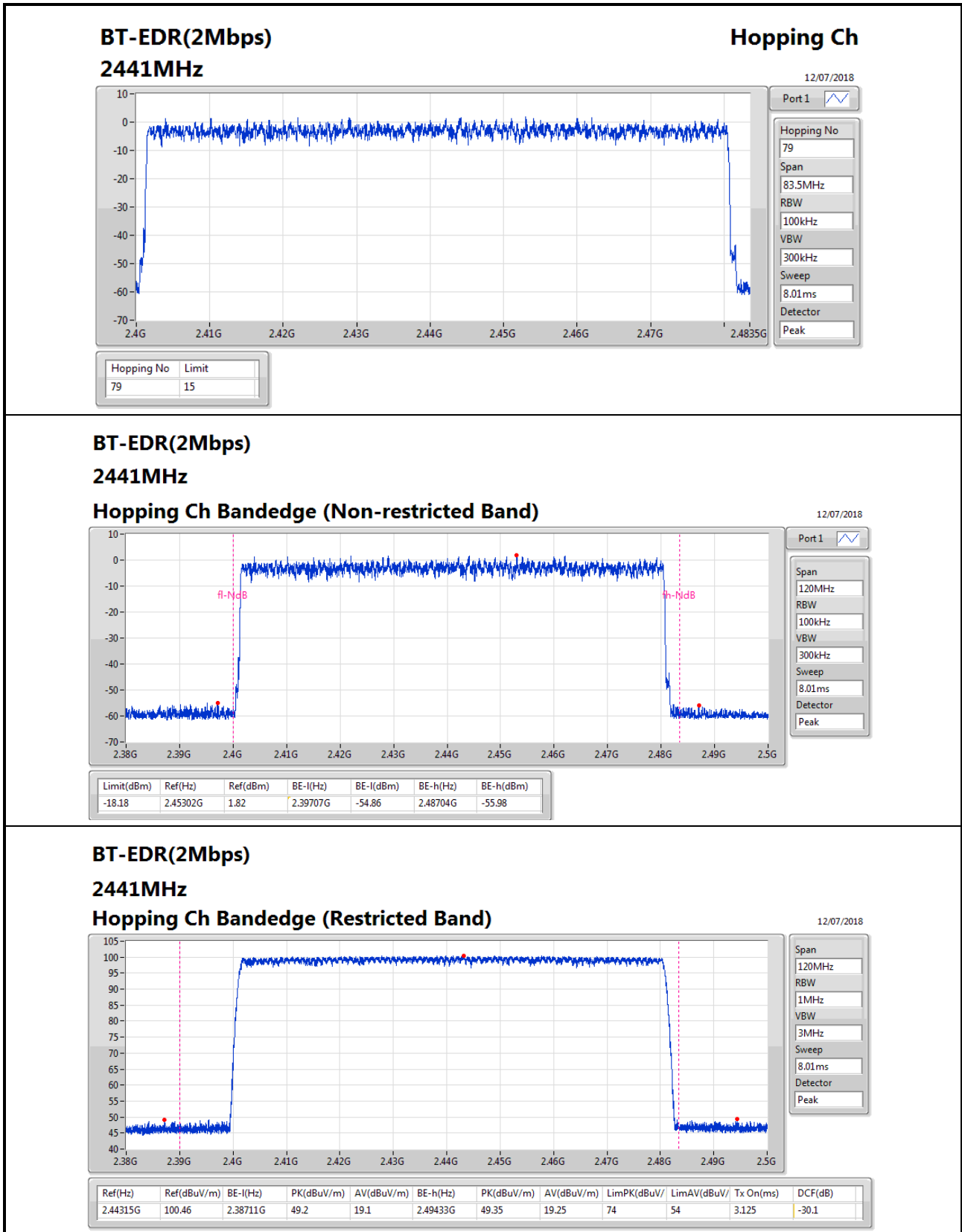
**Summary**

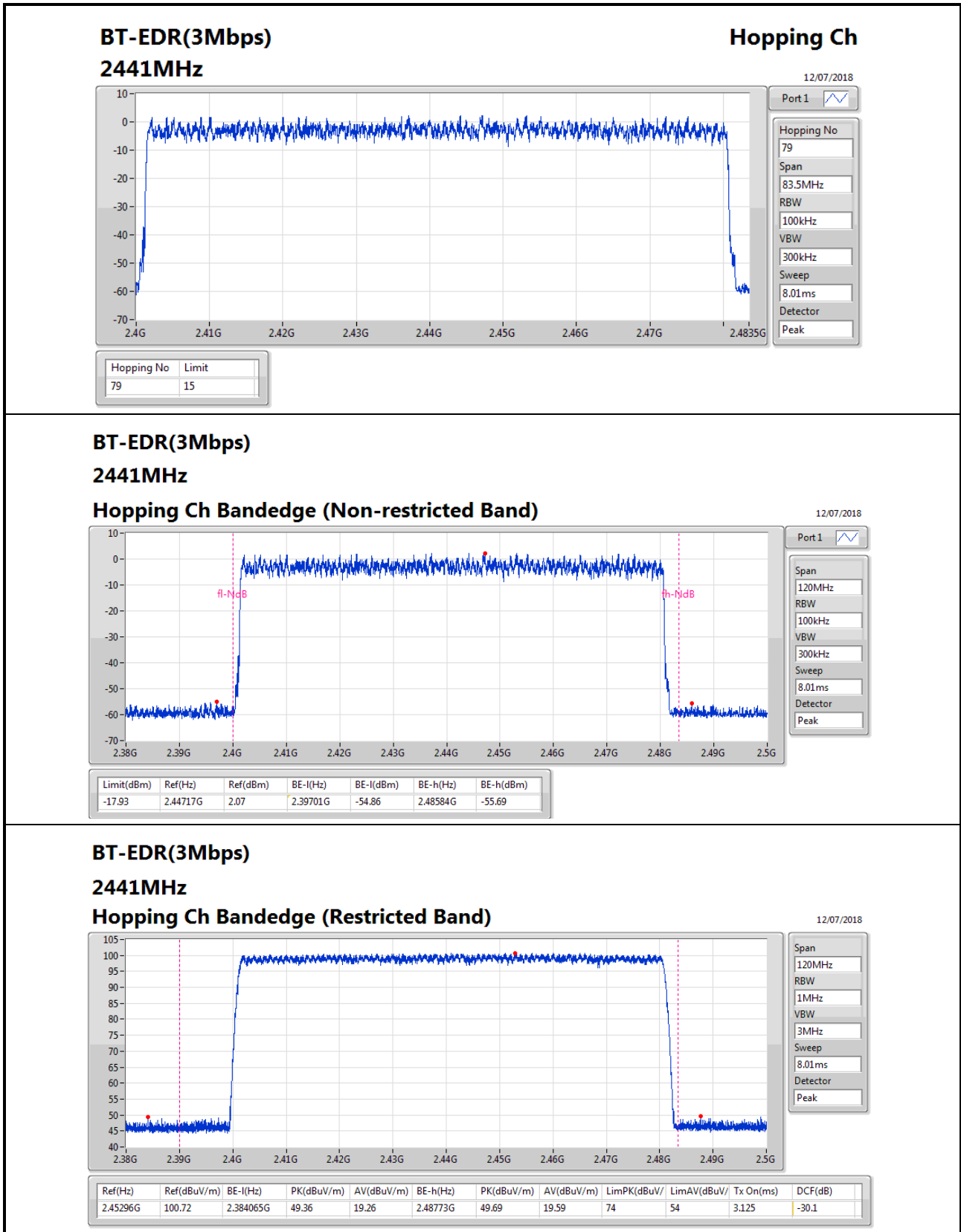
Mode	Max-Hop No
2.4-2.4835GHz	-
BT-BR(1Mbps)	79
BT-EDR(2Mbps)	79
BT-EDR(3Mbps)	79

**Result**

Mode	Result	Hopping No	Limit
BT-BR(1Mbps)	-	-	-
2441MHz_TnomVnom	Pass	79	15
BT-EDR(2Mbps)	-	-	-
2441MHz_TnomVnom	Pass	79	15
BT-EDR(3Mbps)	-	-	-
2441MHz_TnomVnom	Pass	79	15







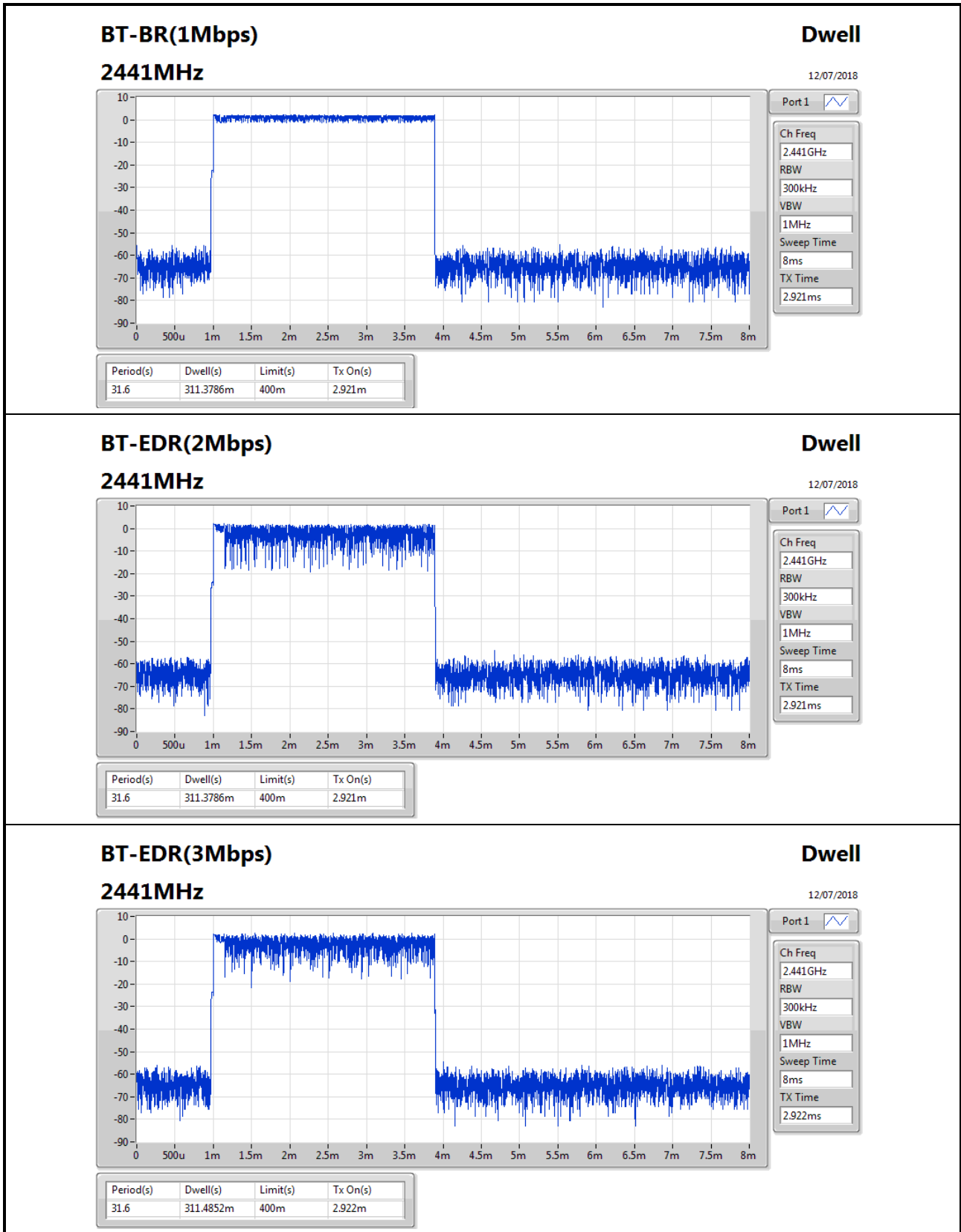


**Summary**

Mode	Max-Dwell (s)
2.4-2.4835GHz	-
BT-BR(1Mbps)	311.3786m
BT-EDR(2Mbps)	311.3786m
BT-EDR(3Mbps)	311.4852m

**Result**

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
BT-BR(1Mbps)	-	-	-	-	-
2441MHz_TnomVnom	Pass	31.6	311.3786m	400m	2.921m
BT-EDR(2Mbps)	-	-	-	-	-
2441MHz_TnomVnom	Pass	31.6	311.3786m	400m	2.921m
BT-EDR(3Mbps)	-	-	-	-	-
2441MHz_TnomVnom	Pass	31.6	311.4852m	400m	2.922m





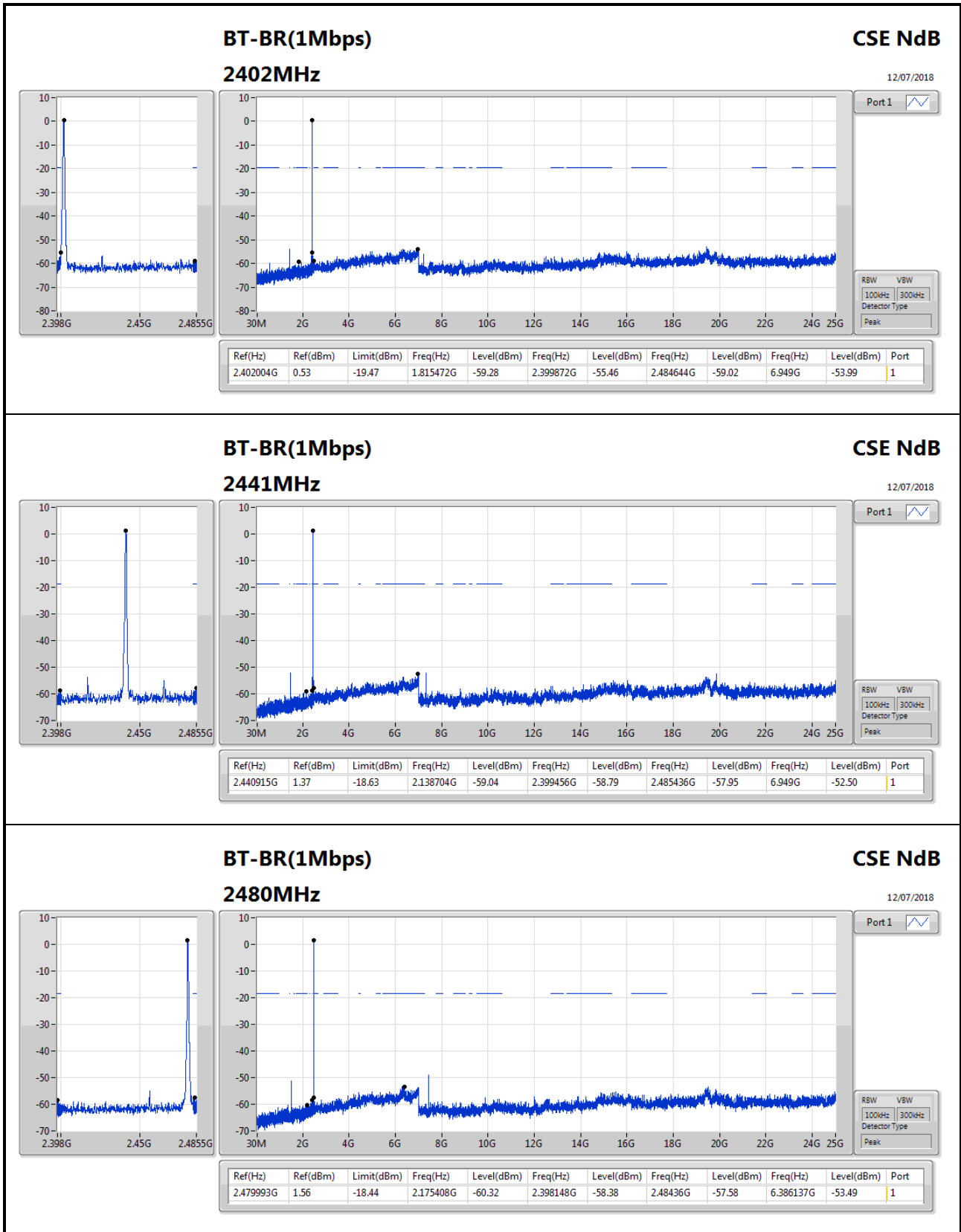


Summary

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
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	2.440915G	1.37	-18.63	2.138704G	-59.04	2.399456G	-58.79	2.485436G	-57.95	6.949G	-52.50	1
BT-EDR(2Mbps)	Pass	2.441082G	-0.46	-20.46	1.931504G	-59.36	2.398272G	-58.67	2.483788G	-58.28	6.994029G	-52.69	1
BT-EDR(3Mbps)	Pass	2.479993G	-0.59	-20.59	2.150544G	-59.01	2.399628G	-59.28	2.483852G	-57.85	6.926485G	-52.00	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
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402004G	0.53	-19.47	1.815472G	-59.28	2.399872G	-55.46	2.484644G	-59.02	6.949G	-53.99	1
2441MHz_TnomVnom	Pass	2.440915G	1.37	-18.63	2.138704G	-59.04	2.399456G	-58.79	2.485436G	-57.95	6.949G	-52.50	1
2480MHz_TnomVnom	Pass	2.479993G	1.56	-18.44	2.175408G	-60.32	2.398148G	-58.38	2.48436G	-57.58	6.386137G	-53.49	1
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.401837G	0.99	-19.01	1.8356G	-58.88	2.399952G	-56.82	2.485124G	-58.06	7.205102G	-51.64	1
2441MHz_TnomVnom	Pass	2.441082G	-0.46	-20.46	1.931504G	-59.36	2.398272G	-58.67	2.483788G	-58.28	6.994029G	-52.69	1
2480MHz_TnomVnom	Pass	2.48016G	0.83	-19.17	2.151728G	-59.61	2.398424G	-58.93	2.483688G	-57.53	6.33548G	-51.88	1
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.402004G	0.92	-19.08	2.067664G	-59.10	2.399696G	-56.54	2.485296G	-58.49	6.360808G	-52.91	1
2441MHz_TnomVnom	Pass	2.440748G	0.06	-19.94	2.194352G	-59.47	2.399656G	-58.64	2.484428G	-58.12	6.380509G	-52.44	1
2480MHz_TnomVnom	Pass	2.479993G	-0.59	-20.59	2.150544G	-59.01	2.399628G	-59.28	2.483852G	-57.85	6.926485G	-52.00	1



### BT-BR(1Mbps)

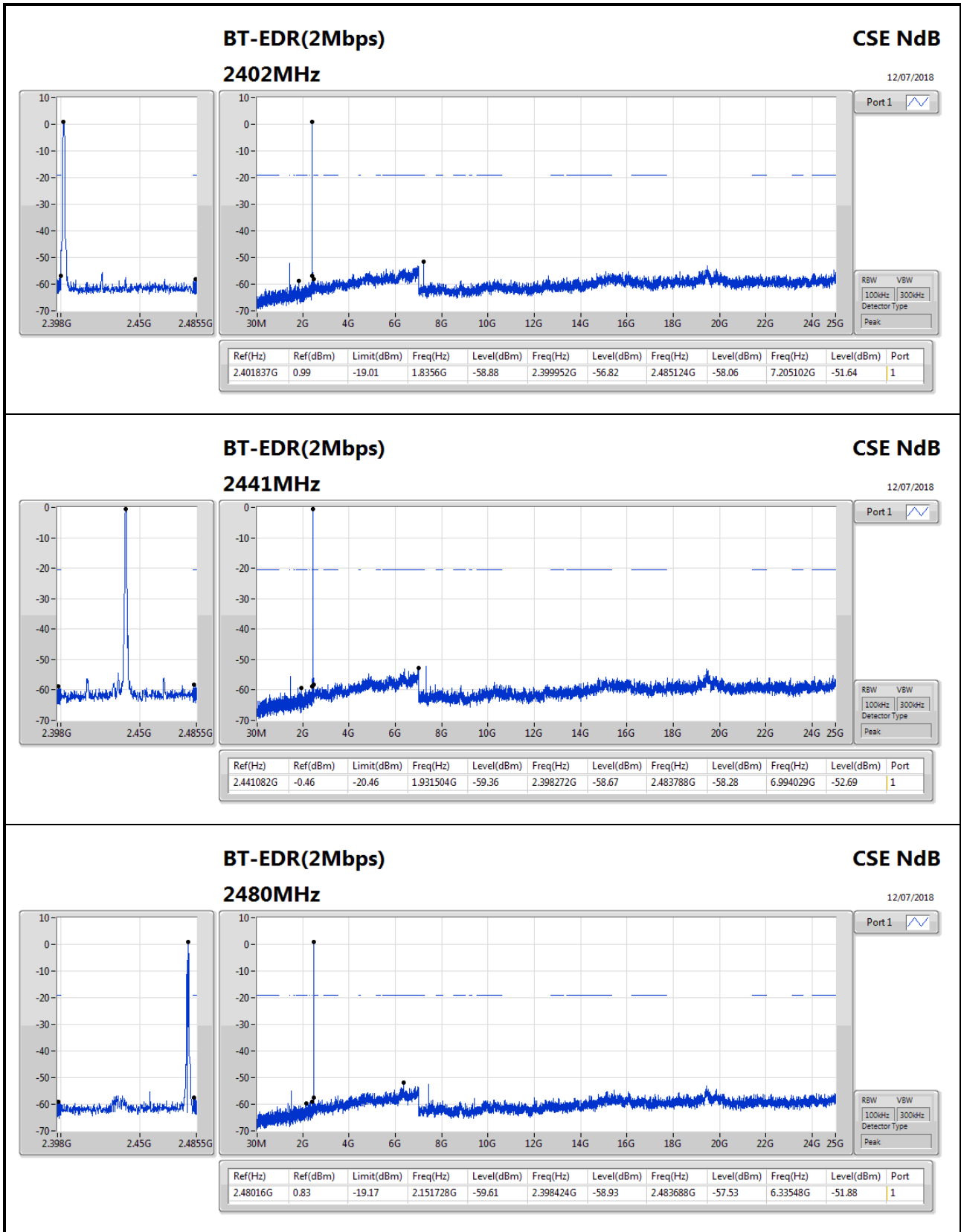
#### 2480MHz

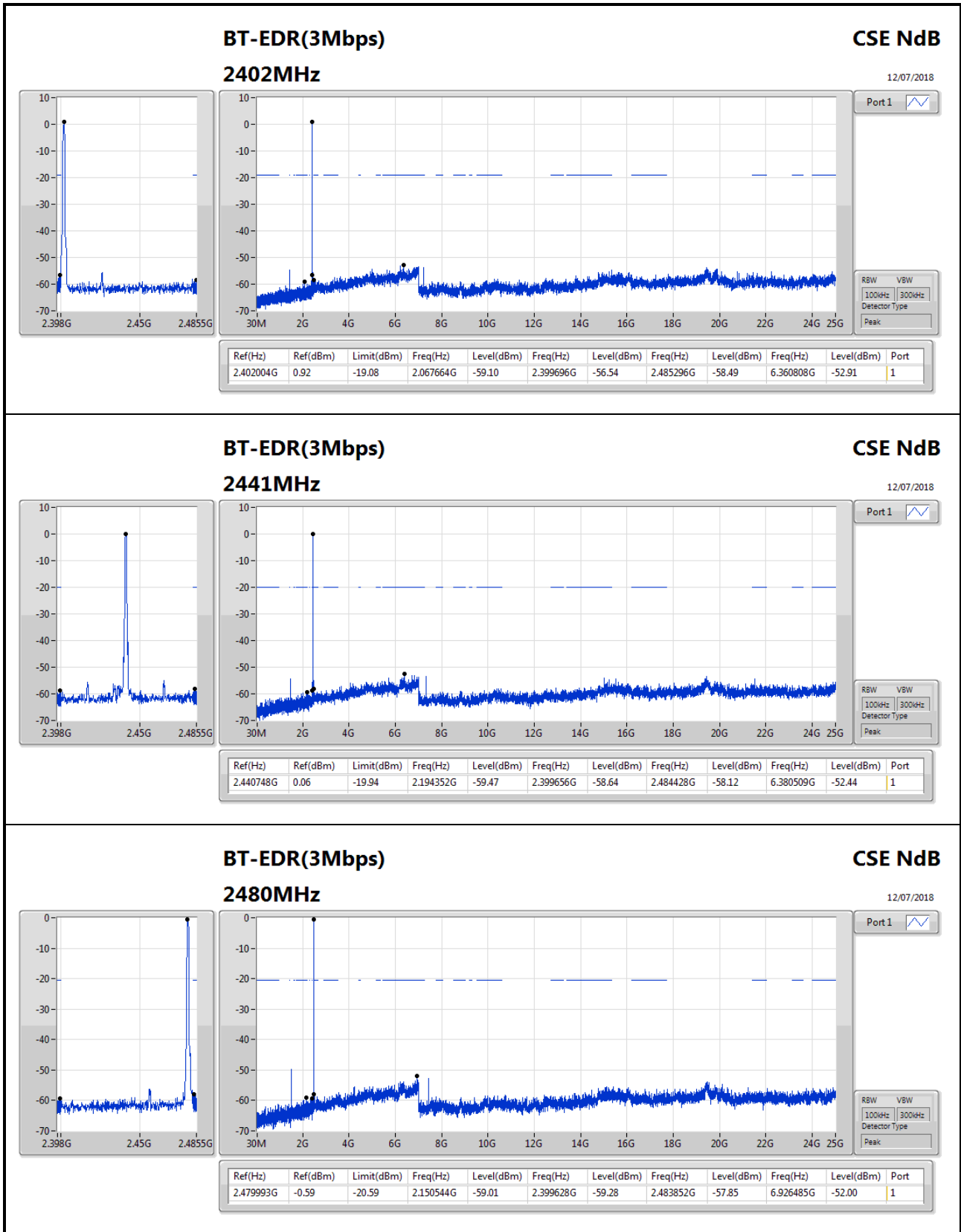
**CSE NdB**  
12/07/2018

Port1

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.479993G	1.56	-18.44	2.175408G	-60.32	2.398148G	-58.38	2.48436G	-57.58	6.386137G	-53.49	1

RBW  VBW   
100kHz  300kHz   
Detector Type  
 Peak







Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	PK	59.1M	30.00	40.00	-10.00	-25.56	3	Horizontal	360	1.00	-



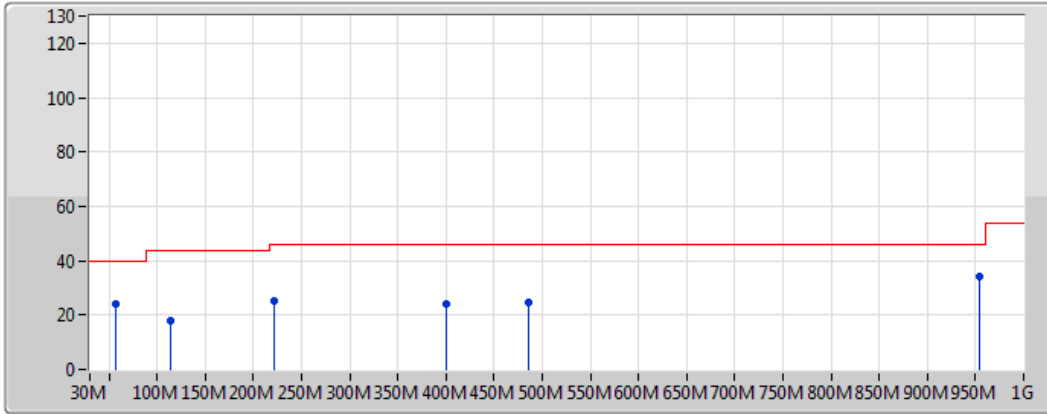
**Result**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2441MHz	Pass	PK	57.16M	24.17	40.00	-15.83	-25.37	3	Vertical	0	1.00	-
2441MHz	Pass	PK	113.42M	18.09	43.50	-25.41	-19.75	3	Vertical	0	1.00	-
2441MHz	Pass	PK	222.06M	25.02	46.00	-20.98	-20.68	3	Vertical	0	1.00	-
2441MHz	Pass	PK	400.54M	23.97	46.00	-22.03	-14.02	3	Vertical	0	1.00	-
2441MHz	Pass	PK	485.9M	24.73	46.00	-21.27	-12.30	3	Vertical	0	1.00	-
2441MHz	Pass	PK	953.44M	33.96	46.00	-12.04	-4.71	3	Vertical	0	1.00	-
2441MHz	Pass	PK	59.1M	30.00	40.00	-10.00	-25.56	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	90.14M	16.50	43.50	-27.00	-22.41	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	260.86M	18.48	46.00	-27.52	-15.71	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	439.34M	22.16	46.00	-23.84	-13.05	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	565.44M	23.64	46.00	-22.36	-10.48	3	Horizontal	360	1.00	-
2441MHz	Pass	PK	953.44M	31.64	46.00	-14.36	-4.71	3	Horizontal	360	1.00	-

### BT-BR(1Mbps)

### 2441MHz\_TX

16/07/2018



Legend for the spectrum plot:

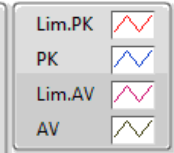
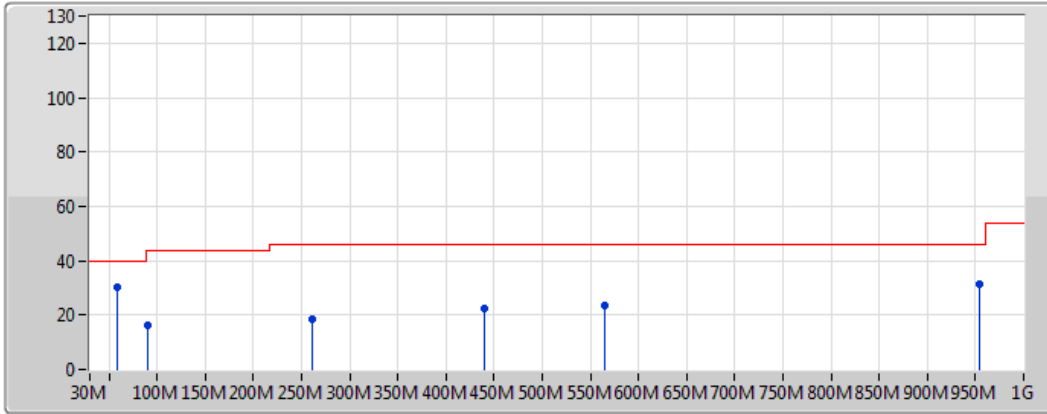
- Lim.PK: Red line with a peak symbol
- PK: Blue line with a peak symbol
- Lim.AV: Pink line with a peak symbol
- AV: Green line with a peak symbol

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	57.16M	24.17	40.00	-15.83	-25.37	3	Vertical	0	1.00	-
PK	113.42M	18.09	43.50	-25.41	-19.75	3	Vertical	0	1.00	-
PK	222.06M	25.02	46.00	-20.98	-20.68	3	Vertical	0	1.00	-
PK	400.54M	23.97	46.00	-22.03	-14.02	3	Vertical	0	1.00	-
PK	485.9M	24.73	46.00	-21.27	-12.30	3	Vertical	0	1.00	-
PK	953.44M	33.96	46.00	-12.04	-4.71	3	Vertical	0	1.00	-

### BT-BR(1Mbps)

### 2441MHz\_TX

16/07/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	59.1M	30.00	40.00	-10.00	-25.56	3	Horizontal	360	1.00	-
PK	90.14M	16.50	43.50	-27.00	-22.41	3	Horizontal	360	1.00	-
PK	260.86M	18.48	46.00	-27.52	-15.71	3	Horizontal	360	1.00	-
PK	439.34M	22.16	46.00	-23.84	-13.05	3	Horizontal	360	1.00	-
PK	565.44M	23.64	46.00	-22.36	-10.48	3	Horizontal	360	1.00	-
PK	953.44M	31.64	46.00	-14.36	-4.71	3	Horizontal	360	1.00	-





Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	AV	2.4842G	45.47	54.00	-8.53	31.12	3	Horizontal	315	1.30	-
BT-EDR(2Mbps)	Pass	AV	2.4836G	45.47	54.00	-8.53	31.11	3	Horizontal	312	1.06	-
BT-EDR(3Mbps)	Pass	AV	2.4842G	45.49	54.00	-8.51	31.12	3	Horizontal	300	1.06	-



Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3878G	44.63	54.00	-9.37	30.77	3	Vertical	223	2.62	-
2402MHz	Pass	AV	2.402G	91.48	Inf	-Inf	30.82	3	Vertical	223	2.62	-
2402MHz	Pass	PK	2.3588G	55.93	74.00	-18.07	30.66	3	Vertical	223	2.62	-
2402MHz	Pass	PK	2.4022G	92.80	Inf	-Inf	30.82	3	Vertical	223	2.62	-
2402MHz	Pass	AV	2.378G	44.66	54.00	-9.34	30.73	3	Horizontal	213	1.50	-
2402MHz	Pass	AV	2.402G	91.98	Inf	-Inf	30.82	3	Horizontal	213	1.50	-
2402MHz	Pass	PK	2.3788G	55.76	74.00	-18.24	30.74	3	Horizontal	213	1.50	-
2402MHz	Pass	PK	2.4022G	93.21	Inf	-Inf	30.82	3	Horizontal	213	1.50	-
2402MHz	Pass	AV	4.80394G	32.45	54.00	-21.55	2.08	3	Vertical	178	1.50	-
2402MHz	Pass	PK	4.81036G	44.33	74.00	-29.67	2.10	3	Vertical	178	1.50	-
2402MHz	Pass	AV	4.80418G	32.53	54.00	-21.47	2.08	3	Horizontal	37	2.00	-
2402MHz	Pass	PK	4.80748G	43.60	74.00	-30.40	2.09	3	Horizontal	37	2.00	-
2441MHz	Pass	AV	2.387G	44.61	54.00	-9.39	30.76	3	Vertical	220	3.19	-
2441MHz	Pass	AV	2.441G	91.01	Inf	-Inf	30.96	3	Vertical	220	3.19	-
2441MHz	Pass	AV	2.4966G	45.42	54.00	-8.58	31.16	3	Vertical	220	3.19	-
2441MHz	Pass	PK	2.3726G	55.96	74.00	-18.04	30.71	3	Vertical	220	3.19	-
2441MHz	Pass	PK	2.441G	92.29	Inf	-Inf	30.96	3	Vertical	220	3.19	-
2441MHz	Pass	PK	2.493G	56.91	74.00	-17.09	31.14	3	Vertical	220	3.19	-
2441MHz	Pass	AV	2.3878G	44.62	54.00	-9.38	30.77	3	Horizontal	320	1.01	-
2441MHz	Pass	AV	2.441G	97.64	Inf	-Inf	30.96	3	Horizontal	320	1.01	-
2441MHz	Pass	AV	2.4998G	45.43	54.00	-8.57	31.17	3	Horizontal	320	1.01	-
2441MHz	Pass	PK	2.357G	56.11	74.00	-17.89	30.66	3	Horizontal	320	1.01	-
2441MHz	Pass	PK	2.441G	98.94	Inf	-Inf	30.96	3	Horizontal	320	1.01	-
2441MHz	Pass	PK	2.483502G	56.48	74.00	-17.52	31.11	3	Horizontal	320	1.01	-
2441MHz	Pass	AV	4.8922G	32.72	54.00	-21.28	2.30	3	Vertical	318	1.52	-
2441MHz	Pass	PK	4.8871G	43.93	74.00	-30.07	2.29	3	Vertical	318	1.52	-
2441MHz	Pass	AV	4.8925G	32.61	54.00	-21.39	2.30	3	Horizontal	359	2.01	-
2441MHz	Pass	PK	4.87522G	43.87	74.00	-30.13	2.26	3	Horizontal	359	2.01	-
2480MHz	Pass	AV	2.48G	91.47	Inf	-Inf	31.10	3	Vertical	218	2.83	-
2480MHz	Pass	AV	2.4968G	45.43	54.00	-8.57	31.16	3	Vertical	218	2.83	-
2480MHz	Pass	PK	2.4802G	92.77	Inf	-Inf	31.10	3	Vertical	218	2.83	-
2480MHz	Pass	PK	2.4844G	56.31	74.00	-17.69	31.12	3	Vertical	218	2.83	-
2480MHz	Pass	AV	2.48G	97.29	Inf	-Inf	31.10	3	Horizontal	315	1.30	-
2480MHz	Pass	AV	2.4842G	45.47	54.00	-8.53	31.12	3	Horizontal	315	1.30	-
2480MHz	Pass	PK	2.4802G	98.54	Inf	-Inf	31.10	3	Horizontal	315	1.30	-
2480MHz	Pass	PK	2.4922G	56.89	74.00	-17.11	31.14	3	Horizontal	315	1.30	-
2480MHz	Pass	AV	4.97266G	32.83	54.00	-21.17	2.50	3	Vertical	88	1.50	-
2480MHz	Pass	PK	4.96996G	44.57	74.00	-29.43	2.49	3	Vertical	88	1.50	-
2480MHz	Pass	AV	4.97338G	32.80	54.00	-21.20	2.50	3	Horizontal	1	1.50	-
2480MHz	Pass	PK	4.96012G	44.88	74.00	-29.12	2.47	3	Horizontal	1	1.50	-
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3884G	44.62	54.00	-9.38	30.77	3	Vertical	211	2.65	-
2402MHz	Pass	AV	2.402G	90.03	Inf	-Inf	30.82	3	Vertical	211	2.65	-
2402MHz	Pass	PK	2.378G	56.42	74.00	-17.58	30.73	3	Vertical	211	2.65	-
2402MHz	Pass	PK	2.4022G	93.92	Inf	-Inf	30.82	3	Vertical	211	2.65	-
2402MHz	Pass	AV	2.378G	44.90	54.00	-9.10	30.73	3	Horizontal	312	1.09	-
2402MHz	Pass	AV	2.402G	96.85	Inf	-Inf	30.82	3	Horizontal	312	1.09	-



RSE TX above 1GHz Result

Appendix G.2

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2402MHz	Pass	PK	2.353G	56.16	74.00	-17.84	30.65	3	Horizontal	312	1.09	-
2402MHz	Pass	PK	2.4022G	100.68	Inf	-Inf	30.82	3	Horizontal	312	1.09	-
2441MHz	Pass	AV	2.385G	44.64	54.00	-9.36	30.76	3	Vertical	211	3.19	-
2441MHz	Pass	AV	2.441G	89.97	Inf	-Inf	30.96	3	Vertical	211	3.19	-
2441MHz	Pass	AV	2.4998G	45.43	54.00	-8.57	31.17	3	Vertical	211	3.19	-
2441MHz	Pass	PK	2.3646G	55.69	74.00	-18.31	30.69	3	Vertical	211	3.19	-
2441MHz	Pass	PK	2.441G	93.77	Inf	-Inf	30.96	3	Vertical	211	3.19	-
2441MHz	Pass	PK	2.4966G	56.94	74.00	-17.06	31.16	3	Vertical	211	3.19	-
2441MHz	Pass	AV	2.3814G	44.61	54.00	-9.39	30.75	3	Horizontal	312	1.02	-
2441MHz	Pass	AV	2.441G	95.98	Inf	-Inf	30.96	3	Horizontal	312	1.02	-
2441MHz	Pass	AV	2.4886G	45.44	54.00	-8.56	31.13	3	Horizontal	312	1.02	-
2441MHz	Pass	PK	2.3614G	55.85	74.00	-18.15	30.67	3	Horizontal	312	1.02	-
2441MHz	Pass	PK	2.441G	99.80	Inf	-Inf	30.96	3	Horizontal	312	1.02	-
2441MHz	Pass	PK	2.4862G	56.88	74.00	-17.12	31.12	3	Horizontal	312	1.02	-
2480MHz	Pass	AV	2.48G	90.10	Inf	-Inf	31.10	3	Vertical	215	2.83	-
2480MHz	Pass	AV	2.499998G	45.45	54.00	-8.55	31.17	3	Vertical	215	2.83	-
2480MHz	Pass	PK	2.4802G	93.91	Inf	-Inf	31.10	3	Vertical	215	2.83	-
2480MHz	Pass	PK	2.4972G	56.68	74.00	-17.32	31.16	3	Vertical	215	2.83	-
2480MHz	Pass	AV	2.48G	95.85	Inf	-Inf	31.10	3	Horizontal	312	1.06	-
2480MHz	Pass	AV	2.4836G	45.47	54.00	-8.53	31.11	3	Horizontal	312	1.06	-
2480MHz	Pass	PK	2.48G	99.69	Inf	-Inf	31.10	3	Horizontal	312	1.06	-
2480MHz	Pass	PK	2.485G	56.43	74.00	-17.57	31.12	3	Horizontal	312	1.06	-
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3878G	44.65	54.00	-9.35	30.77	3	Vertical	40	2.82	-
2402MHz	Pass	AV	2.402G	87.01	Inf	-Inf	30.82	3	Vertical	40	2.82	-
2402MHz	Pass	PK	2.3724G	55.67	74.00	-18.33	30.71	3	Vertical	40	2.82	-
2402MHz	Pass	PK	2.402G	90.89	Inf	-Inf	30.82	3	Vertical	40	2.82	-
2402MHz	Pass	AV	2.378G	44.88	54.00	-9.12	30.73	3	Horizontal	310	1.09	-
2402MHz	Pass	AV	2.402G	96.65	Inf	-Inf	30.82	3	Horizontal	310	1.09	-
2402MHz	Pass	PK	2.3758G	56.15	74.00	-17.85	30.72	3	Horizontal	310	1.09	-
2402MHz	Pass	PK	2.402G	100.54	Inf	-Inf	30.82	3	Horizontal	310	1.09	-
2441MHz	Pass	AV	2.3886G	44.63	54.00	-9.37	30.77	3	Vertical	203	3.19	-
2441MHz	Pass	AV	2.441G	89.79	Inf	-Inf	30.96	3	Vertical	203	3.19	-
2441MHz	Pass	AV	2.4986G	45.43	54.00	-8.57	31.17	3	Vertical	203	3.19	-
2441MHz	Pass	PK	2.3558G	55.95	74.00	-18.05	30.66	3	Vertical	203	3.19	-
2441MHz	Pass	PK	2.441G	93.76	Inf	-Inf	30.96	3	Vertical	203	3.19	-
2441MHz	Pass	PK	2.4954G	56.36	74.00	-17.64	31.16	3	Vertical	203	3.19	-
2441MHz	Pass	AV	2.3842G	44.61	54.00	-9.39	30.76	3	Horizontal	305	1.01	-
2441MHz	Pass	AV	2.441G	96.08	Inf	-Inf	30.96	3	Horizontal	305	1.01	-
2441MHz	Pass	AV	2.4998G	45.44	54.00	-8.56	31.17	3	Horizontal	305	1.01	-
2441MHz	Pass	PK	2.349G	55.62	74.00	-18.38	30.63	3	Horizontal	305	1.01	-
2441MHz	Pass	PK	2.441G	100.00	Inf	-Inf	30.96	3	Horizontal	305	1.01	-
2441MHz	Pass	PK	2.4974G	56.48	74.00	-17.52	31.16	3	Horizontal	305	1.01	-
2480MHz	Pass	AV	2.48G	89.58	Inf	-Inf	31.10	3	Vertical	202	2.85	-
2480MHz	Pass	AV	2.499998G	45.45	54.00	-8.55	31.17	3	Vertical	202	2.85	-
2480MHz	Pass	PK	2.48G	93.45	Inf	-Inf	31.10	3	Vertical	202	2.85	-
2480MHz	Pass	PK	2.4952G	56.71	74.00	-17.29	31.16	3	Vertical	202	2.85	-
2480MHz	Pass	AV	2.48G	95.71	Inf	-Inf	31.10	3	Horizontal	300	1.06	-
2480MHz	Pass	AV	2.4842G	45.49	54.00	-8.51	31.12	3	Horizontal	300	1.06	-



## RSE TX above 1GHz Result

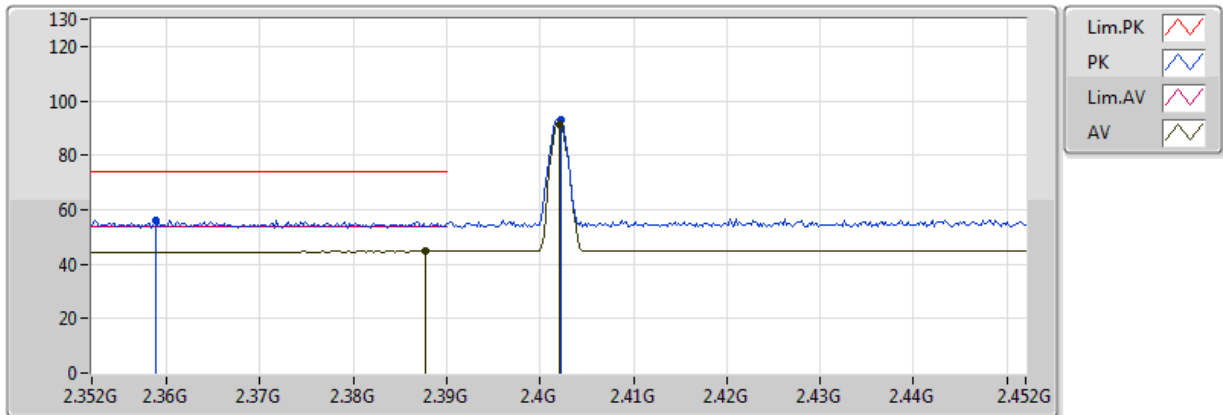
## Appendix G.2

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz	Pass	PK	2.48G	99.60	Inf	-Inf	31.10	3	Horizontal	300	1.06	-
2480MHz	Pass	PK	2.4882G	56.71	74.00	-17.29	31.13	3	Horizontal	300	1.06	-

### BT-BR(1Mbps)

### 2402MHz\_TX

16/07/2018

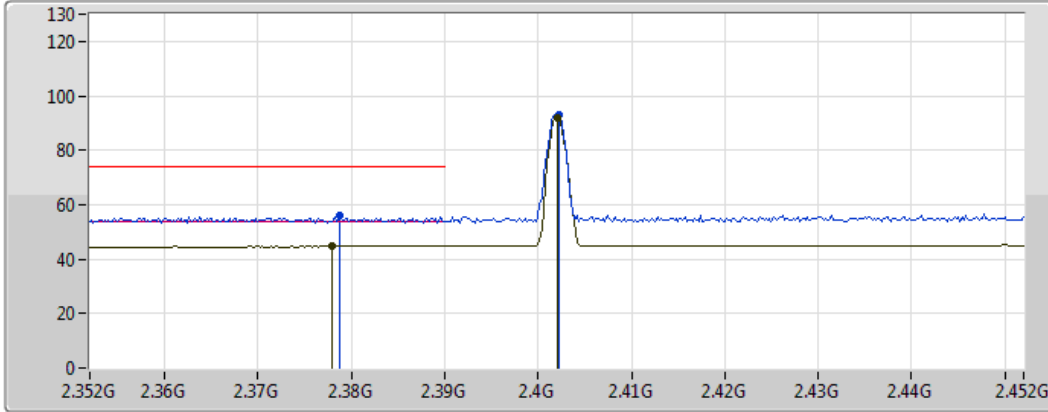


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3878G	44.63	54.00	-9.37	30.77	3	Vertical	223	2.62	-
AV	2.402G	91.48	Inf	-Inf	30.82	3	Vertical	223	2.62	-
PK	2.3588G	55.93	74.00	-18.07	30.66	3	Vertical	223	2.62	-
PK	2.4022G	92.80	Inf	-Inf	30.82	3	Vertical	223	2.62	-

### BT-BR(1Mbps)

### 2402MHz\_TX

16/07/2018

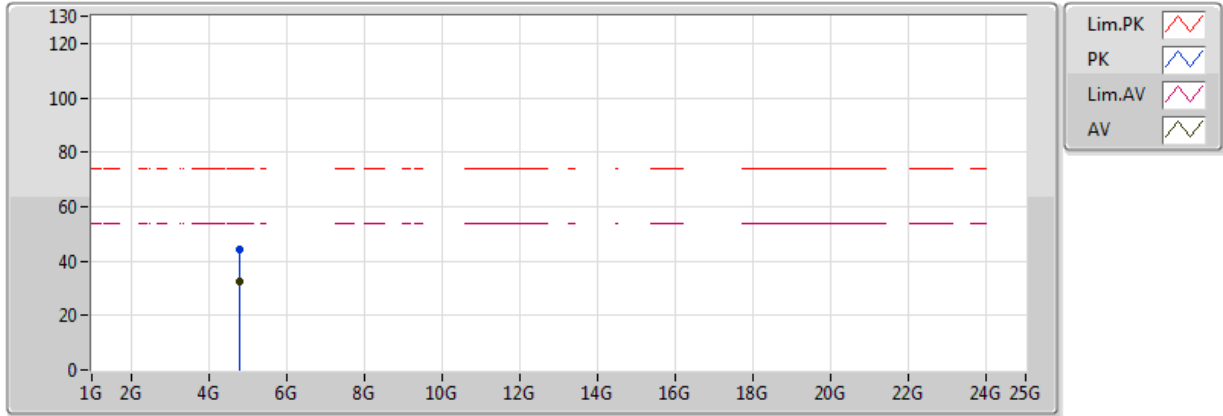


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.378G	44.66	54.00	-9.34	30.73	3	Horizontal	213	1.50	-
AV	2.402G	91.98	Inf	-Inf	30.82	3	Horizontal	213	1.50	-
PK	2.3788G	55.76	74.00	-18.24	30.74	3	Horizontal	213	1.50	-
PK	2.4022G	93.21	Inf	-Inf	30.82	3	Horizontal	213	1.50	-

### BT-BR(1Mbps)

### 2402MHz\_TX

16/07/2018

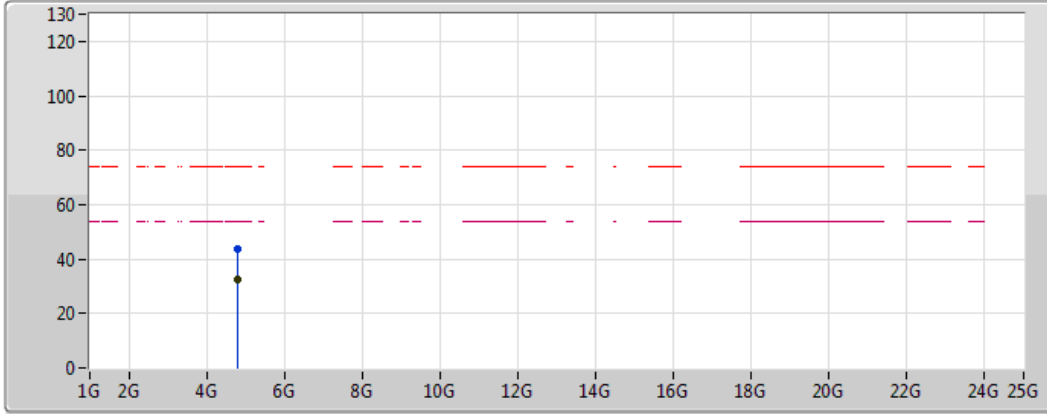






Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80394G	32.45	54.00	-21.55	2.08	3	Vertical	178	1.50	-
PK	4.81036G	44.33	74.00	-29.67	2.10	3	Vertical	178	1.50	-

### BT-BR(1Mbps)

### 2402MHz\_TX

16/07/2018



Lim.PK	
PK	
Lim.AV	
AV	

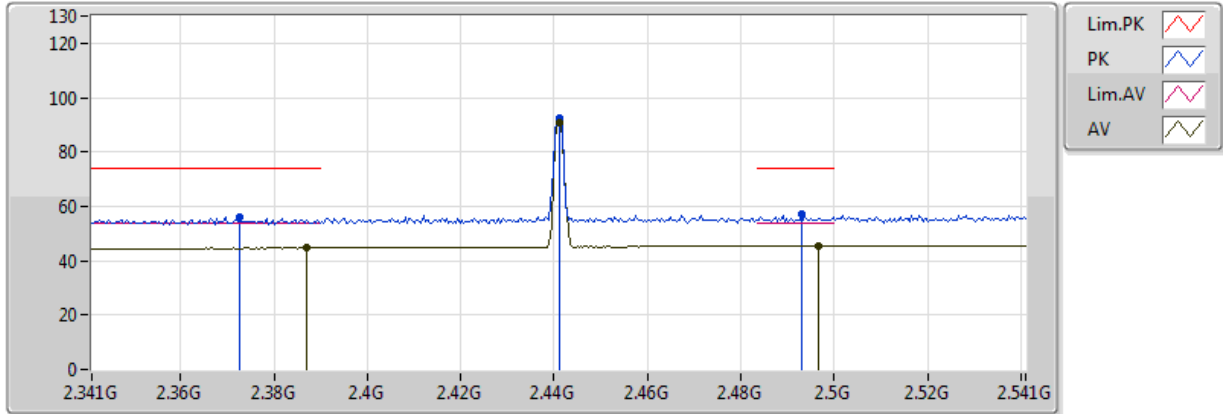
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80418G	32.53	54.00	-21.47	2.08	3	Horizontal	37	2.00	-
PK	4.80748G	43.60	74.00	-30.40	2.09	3	Horizontal	37	2.00	-



### BT-BR(1Mbps)

### 2441MHz\_TX

16/07/2018

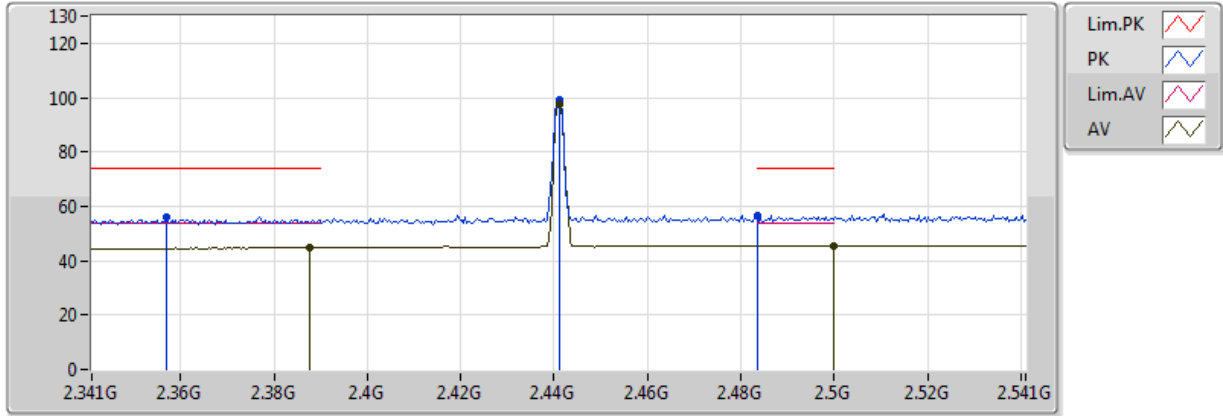


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.387G	44.61	54.00	-9.39	30.76	3	Vertical	220	3.19	-
AV	2.441G	91.01	Inf	-Inf	30.96	3	Vertical	220	3.19	-
AV	2.4966G	45.42	54.00	-8.58	31.16	3	Vertical	220	3.19	-
PK	2.3726G	55.96	74.00	-18.04	30.71	3	Vertical	220	3.19	-
PK	2.441G	92.29	Inf	-Inf	30.96	3	Vertical	220	3.19	-
PK	2.493G	56.91	74.00	-17.09	31.14	3	Vertical	220	3.19	-

**BT-BR(1Mbps)**

**2441MHz\_TX**

16/07/2018

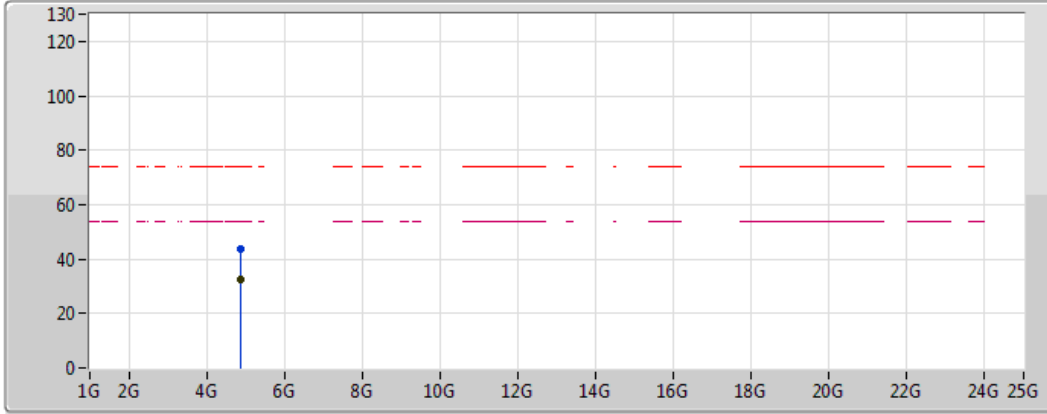


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3878G	44.62	54.00	-9.38	30.77	3	Horizontal	320	1.01	-
AV	2.441G	97.64	Inf	-Inf	30.96	3	Horizontal	320	1.01	-
AV	2.4998G	45.43	54.00	-8.57	31.17	3	Horizontal	320	1.01	-
PK	2.357G	56.11	74.00	-17.89	30.66	3	Horizontal	320	1.01	-
PK	2.441G	98.94	Inf	-Inf	30.96	3	Horizontal	320	1.01	-
PK	2.483502G	56.48	74.00	-17.52	31.11	3	Horizontal	320	1.01	-

### BT-BR(1Mbps)

### 2441MHz\_TX

16/07/2018

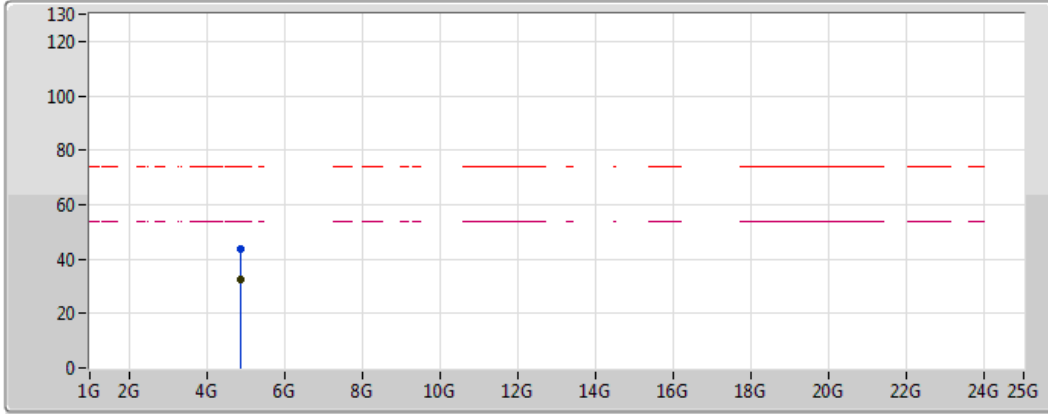


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.8922G	32.72	54.00	-21.28	2.30	3	Vertical	318	1.52	-
PK	4.8871G	43.93	74.00	-30.07	2.29	3	Vertical	318	1.52	-

### BT-BR(1Mbps)

### 2441MHz\_TX

16/07/2018

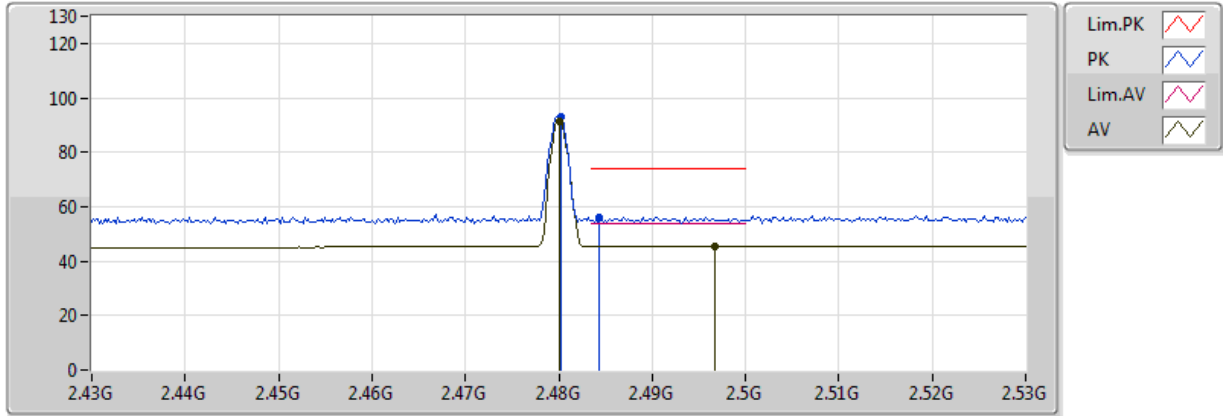


Type	Freq (Hz)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.8925G	32.61	54.00	-21.39	2.30	3	Horizontal	359	2.01	-
PK	4.87522G	43.87	74.00	-30.13	2.26	3	Horizontal	359	2.01	-

### BT-BR(1Mbps)

### 2480MHz\_TX

16/07/2018

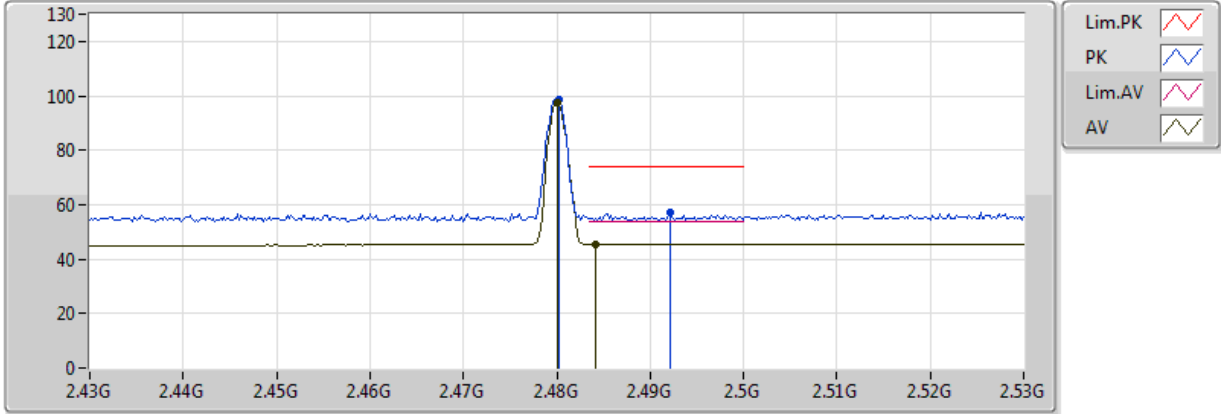


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	91.47	Inf	-Inf	31.10	3	Vertical	218	2.83	-
AV	2.4968G	45.43	54.00	-8.57	31.16	3	Vertical	218	2.83	-
PK	2.4802G	92.77	Inf	-Inf	31.10	3	Vertical	218	2.83	-
PK	2.4844G	56.31	74.00	-17.69	31.12	3	Vertical	218	2.83	-

### BT-BR(1Mbps)

### 2480MHz\_TX

16/07/2018

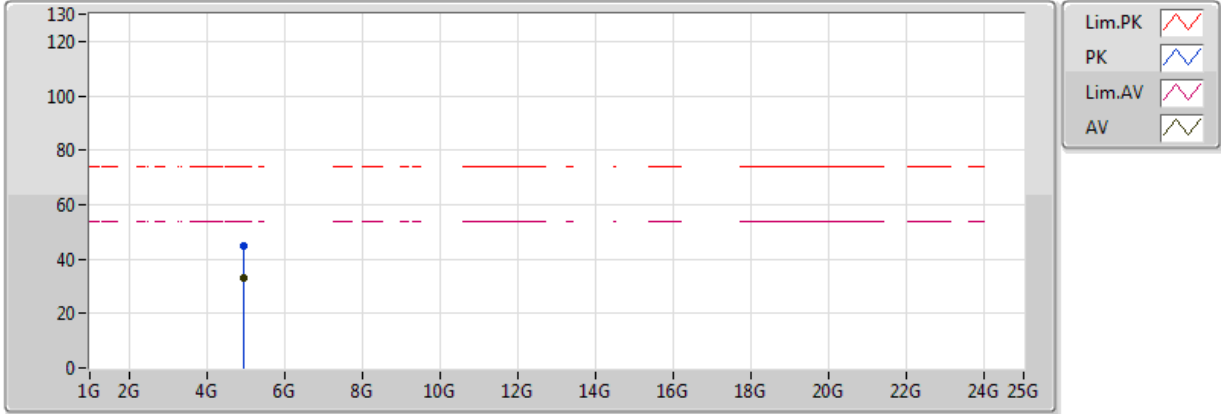


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	97.29	Inf	-Inf	31.10	3	Horizontal	315	1.30	-
AV	2.4842G	45.47	54.00	-8.53	31.12	3	Horizontal	315	1.30	-
PK	2.4802G	98.54	Inf	-Inf	31.10	3	Horizontal	315	1.30	-
PK	2.4922G	56.89	74.00	-17.11	31.14	3	Horizontal	315	1.30	-

### BT-BR(1Mbps)

### 2480MHz\_TX

16/07/2018

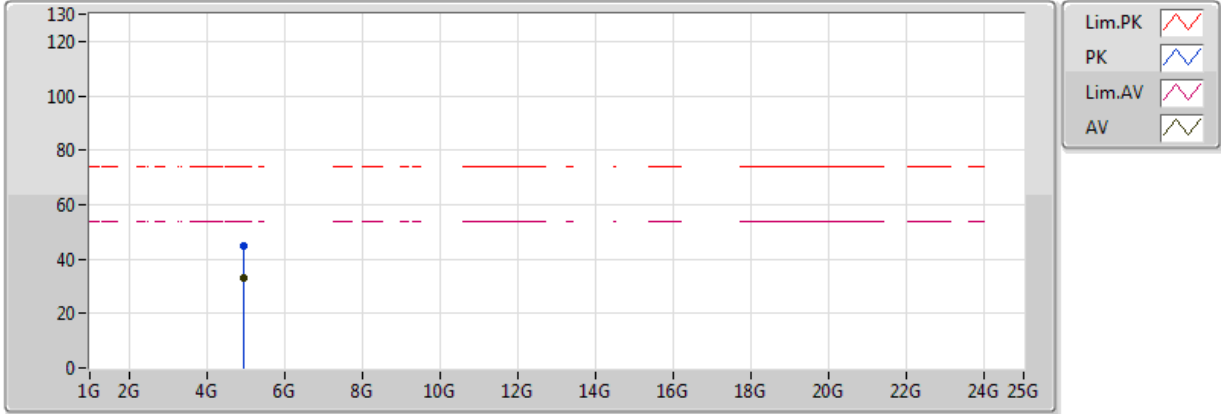


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.97266G	32.83	54.00	-21.17	2.50	3	Vertical	88	1.50	-
PK	4.96996G	44.57	74.00	-29.43	2.49	3	Vertical	88	1.50	-

### BT-BR(1Mbps)

### 2480MHz\_TX

16/07/2018



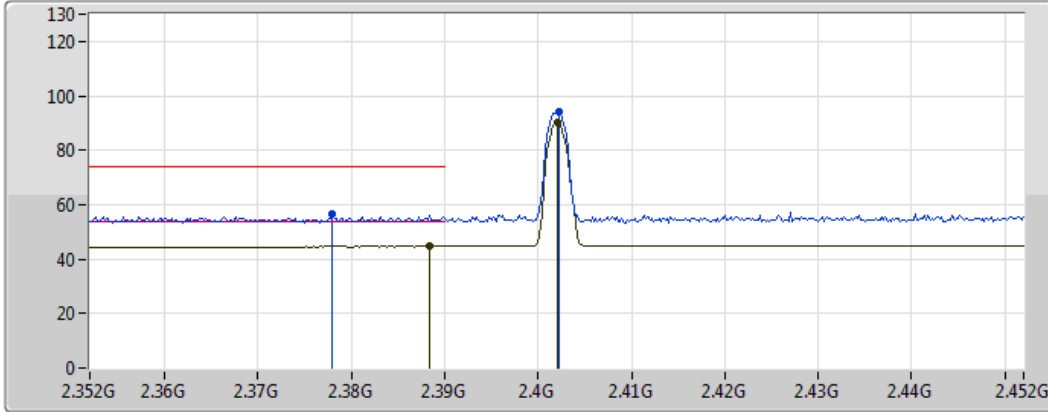
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.97338G	32.80	54.00	-21.20	2.50	3	Horizontal	1	1.50	-
PK	4.96012G	44.88	74.00	-29.12	2.47	3	Horizontal	1	1.50	-







### BT-EDR(2Mbps)

### 2402MHz\_TX

16/07/2018



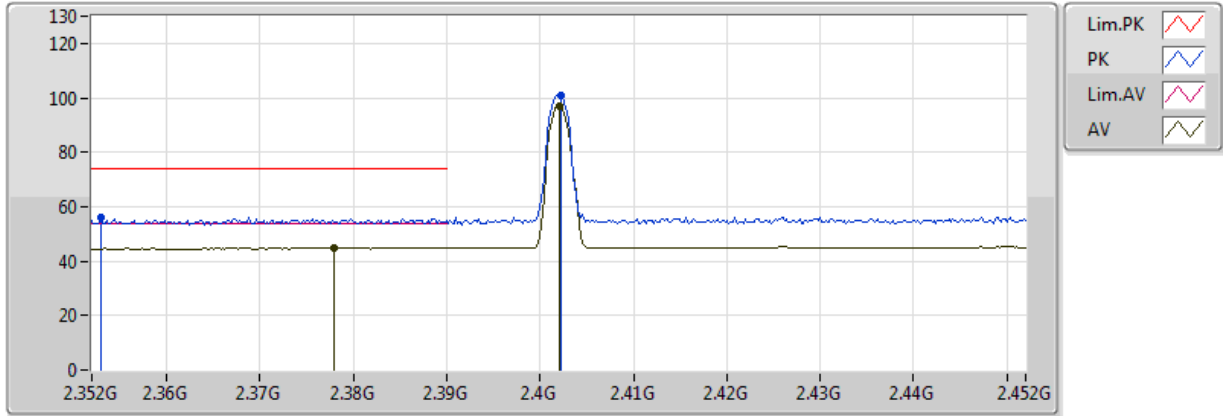
Lim.PK	
PK	
Lim.AV	
AV	

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3884G	44.62	54.00	-9.38	30.77	3	Vertical	211	2.65	-
AV	2.402G	90.03	Inf	-Inf	30.82	3	Vertical	211	2.65	-
PK	2.378G	56.42	74.00	-17.58	30.73	3	Vertical	211	2.65	-
PK	2.4022G	93.92	Inf	-Inf	30.82	3	Vertical	211	2.65	-

### BT-EDR(2Mbps)

### 2402MHz\_TX

16/07/2018

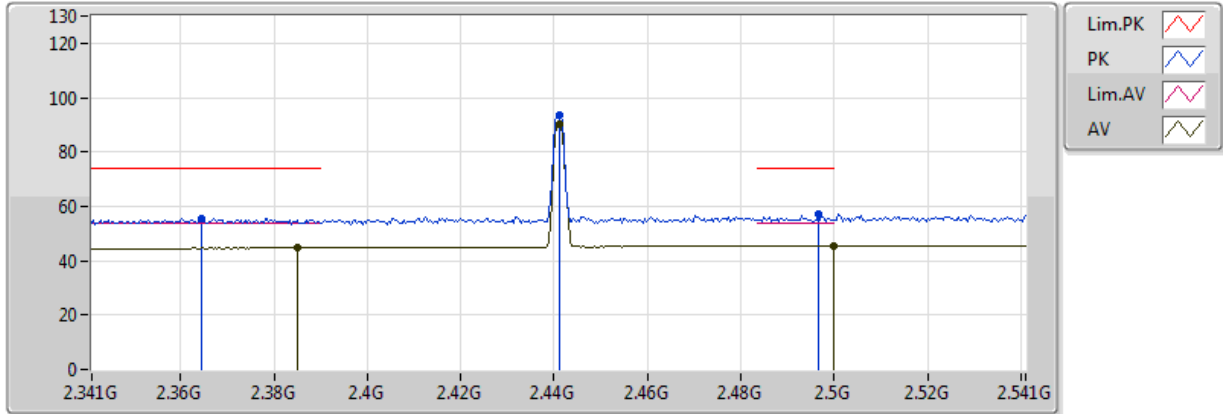


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.378G	44.90	54.00	-9.10	30.73	3	Horizontal	312	1.09	-
AV	2.402G	96.85	Inf	-Inf	30.82	3	Horizontal	312	1.09	-
PK	2.353G	56.16	74.00	-17.84	30.65	3	Horizontal	312	1.09	-
PK	2.4022G	100.68	Inf	-Inf	30.82	3	Horizontal	312	1.09	-

### BT-EDR(2Mbps)

### 2441MHz\_TX

16/07/2018

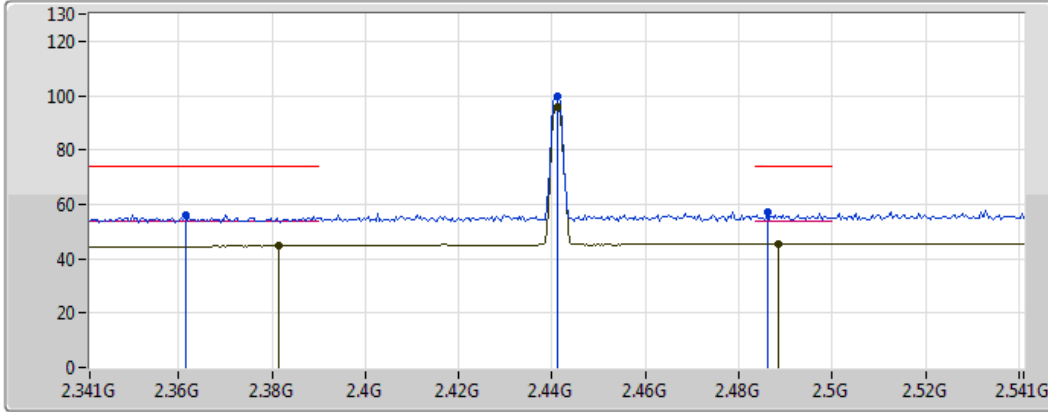






Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.385G	44.64	54.00	-9.36	30.76	3	Vertical	211	3.19	-
AV	2.441G	89.97	Inf	-Inf	30.96	3	Vertical	211	3.19	-
AV	2.4998G	45.43	54.00	-8.57	31.17	3	Vertical	211	3.19	-
PK	2.3646G	55.69	74.00	-18.31	30.69	3	Vertical	211	3.19	-
PK	2.441G	93.77	Inf	-Inf	30.96	3	Vertical	211	3.19	-
PK	2.4966G	56.94	74.00	-17.06	31.16	3	Vertical	211	3.19	-

### BT-EDR(2Mbps)

### 2441MHz\_TX

16/07/2018



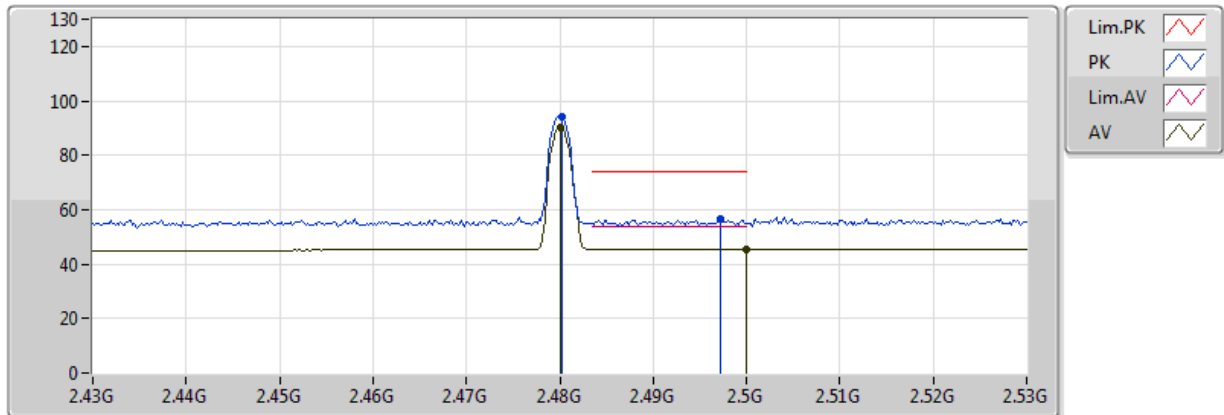
Lim.PK	
PK	
Lim.AV	
AV	

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3814G	44.61	54.00	-9.39	30.75	3	Horizontal	312	1.02	-
AV	2.441G	95.98	Inf	-Inf	30.96	3	Horizontal	312	1.02	-
AV	2.4886G	45.44	54.00	-8.56	31.13	3	Horizontal	312	1.02	-
PK	2.3614G	55.85	74.00	-18.15	30.67	3	Horizontal	312	1.02	-
PK	2.441G	99.80	Inf	-Inf	30.96	3	Horizontal	312	1.02	-
PK	2.4862G	56.88	74.00	-17.12	31.12	3	Horizontal	312	1.02	-

### BT-EDR(2Mbps)

### 2480MHz\_TX

16/07/2018

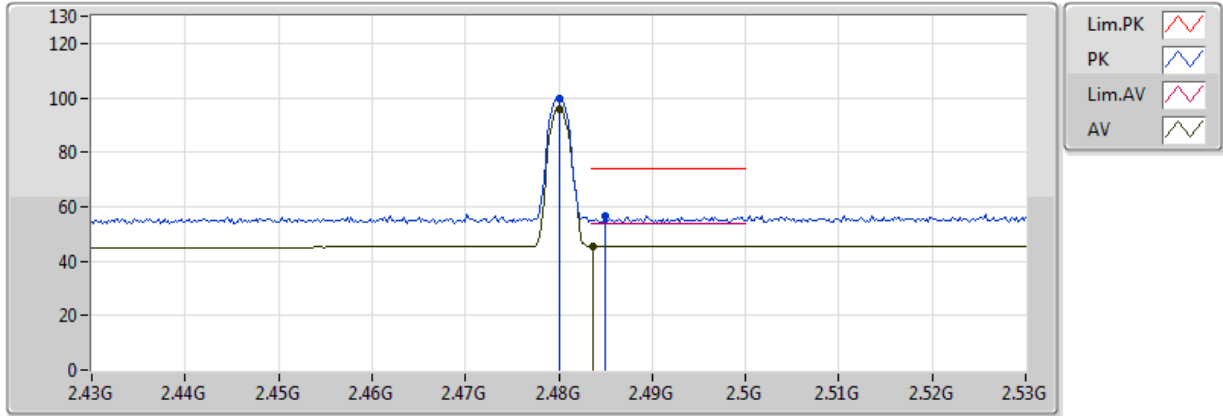


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	90.10	Inf	-Inf	31.10	3	Vertical	215	2.83	-
AV	2.499998G	45.45	54.00	-8.55	31.17	3	Vertical	215	2.83	-
PK	2.4802G	93.91	Inf	-Inf	31.10	3	Vertical	215	2.83	-
PK	2.4972G	56.68	74.00	-17.32	31.16	3	Vertical	215	2.83	-

### BT-EDR(2Mbps)

### 2480MHz\_TX

16/07/2018

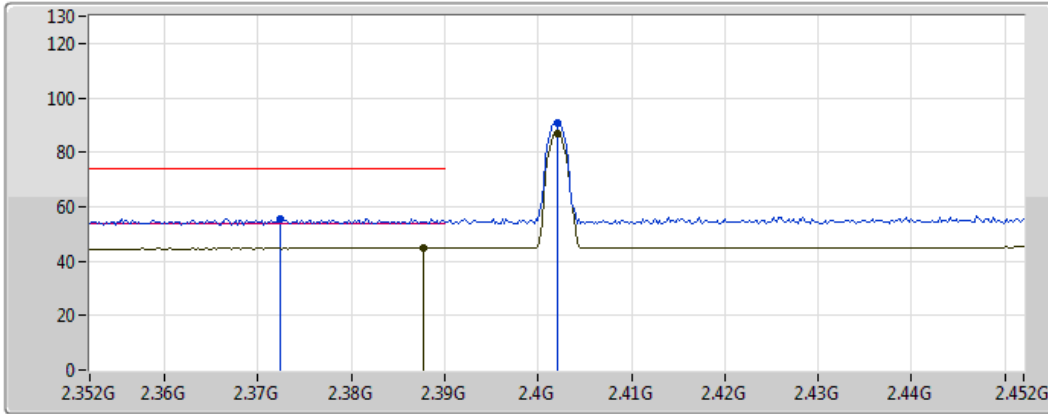


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	95.85	Inf	-Inf	31.10	3	Horizontal	312	1.06	-
AV	2.4836G	45.47	54.00	-8.53	31.11	3	Horizontal	312	1.06	-
PK	2.48G	99.69	Inf	-Inf	31.10	3	Horizontal	312	1.06	-
PK	2.485G	56.43	74.00	-17.57	31.12	3	Horizontal	312	1.06	-

### BT-EDR(3Mbps)

### 2402MHz\_TX

16/07/2018

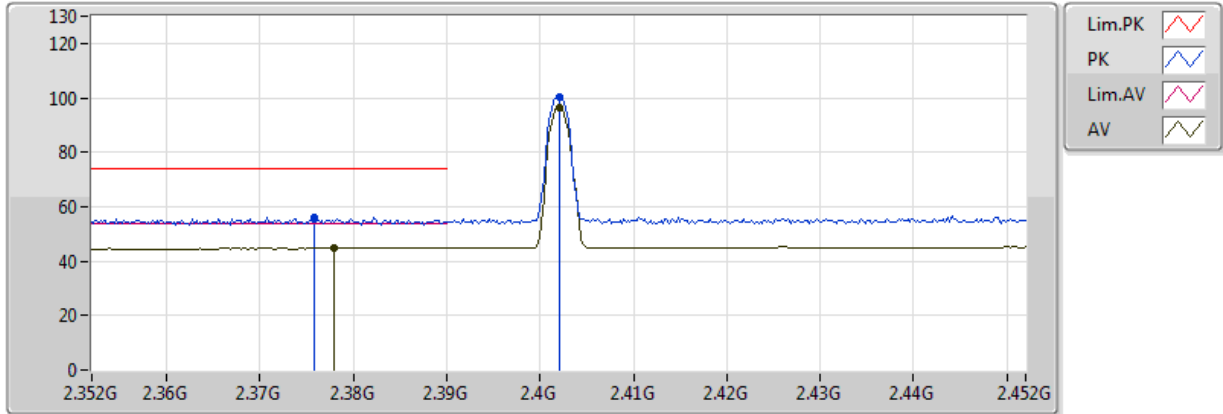


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3878G	44.65	54.00	-9.35	30.77	3	Vertical	40	2.82	-
AV	2.402G	87.01	Inf	-Inf	30.82	3	Vertical	40	2.82	-
PK	2.3724G	55.67	74.00	-18.33	30.71	3	Vertical	40	2.82	-
PK	2.402G	90.89	Inf	-Inf	30.82	3	Vertical	40	2.82	-

### BT-EDR(3Mbps)

### 2402MHz\_TX

16/07/2018



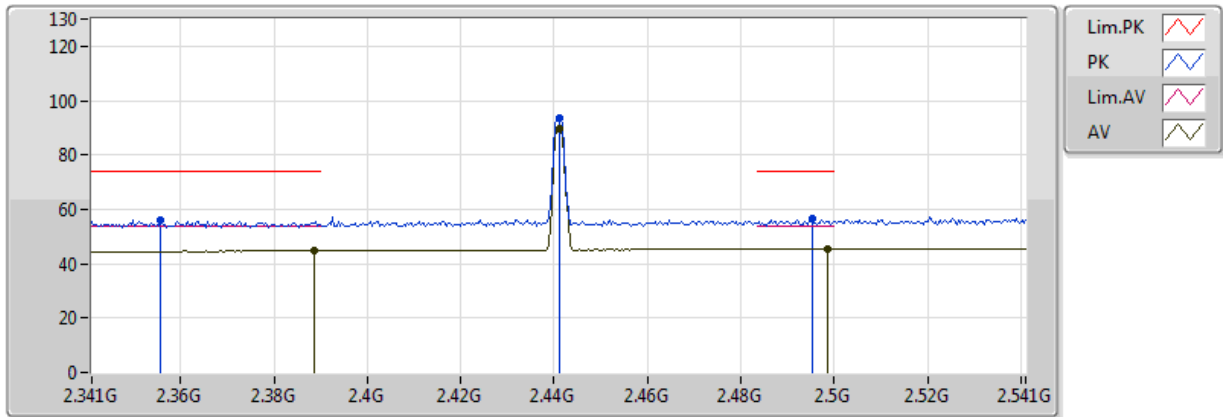
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.378G	44.88	54.00	-9.12	30.73	3	Horizontal	310	1.09	-
AV	2.402G	96.65	Inf	-Inf	30.82	3	Horizontal	310	1.09	-
PK	2.3758G	56.15	74.00	-17.85	30.72	3	Horizontal	310	1.09	-
PK	2.402G	100.54	Inf	-Inf	30.82	3	Horizontal	310	1.09	-



### BT-EDR(3Mbps)

### 2441MHz\_TX

16/07/2018

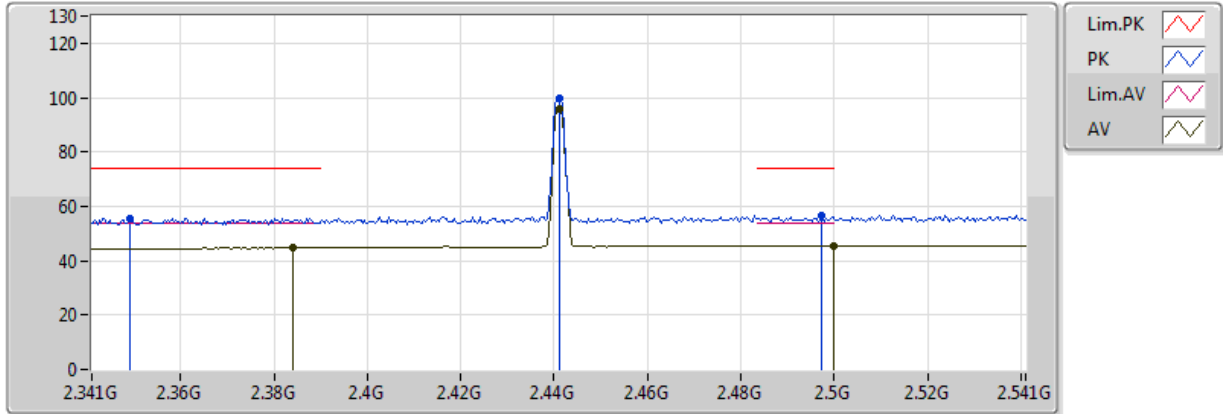


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3886G	44.63	54.00	-9.37	30.77	3	Vertical	203	3.19	-
AV	2.441G	89.79	Inf	-Inf	30.96	3	Vertical	203	3.19	-
AV	2.4986G	45.43	54.00	-8.57	31.17	3	Vertical	203	3.19	-
PK	2.3558G	55.95	74.00	-18.05	30.66	3	Vertical	203	3.19	-
PK	2.441G	93.76	Inf	-Inf	30.96	3	Vertical	203	3.19	-
PK	2.4954G	56.36	74.00	-17.64	31.16	3	Vertical	203	3.19	-

### BT-EDR(3Mbps)

### 2441MHz\_TX

16/07/2018

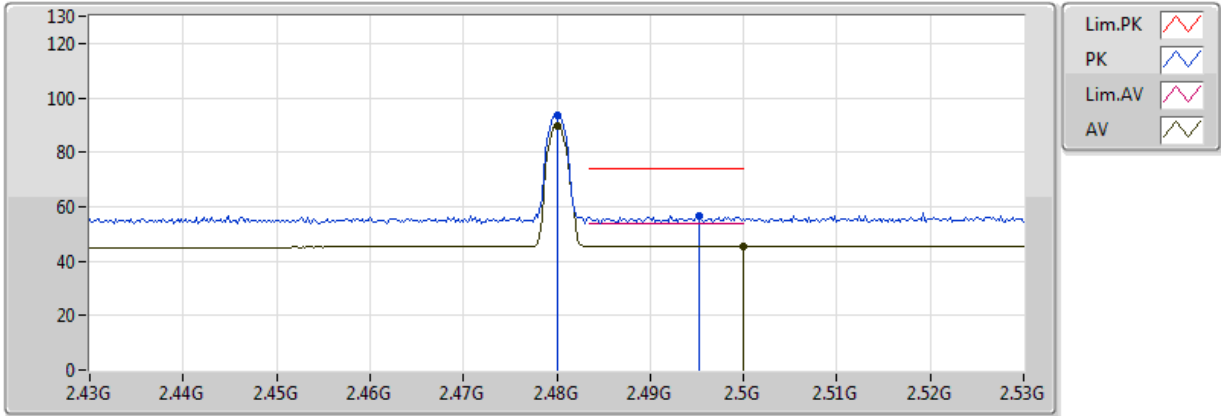


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3842G	44.61	54.00	-9.39	30.76	3	Horizontal	305	1.01	-
AV	2.441G	96.08	Inf	-Inf	30.96	3	Horizontal	305	1.01	-
AV	2.4998G	45.44	54.00	-8.56	31.17	3	Horizontal	305	1.01	-
PK	2.349G	55.62	74.00	-18.38	30.63	3	Horizontal	305	1.01	-
PK	2.441G	100.00	Inf	-Inf	30.96	3	Horizontal	305	1.01	-
PK	2.4974G	56.48	74.00	-17.52	31.16	3	Horizontal	305	1.01	-

### BT-EDR(3Mbps)

### 2480MHz\_TX

16/07/2018

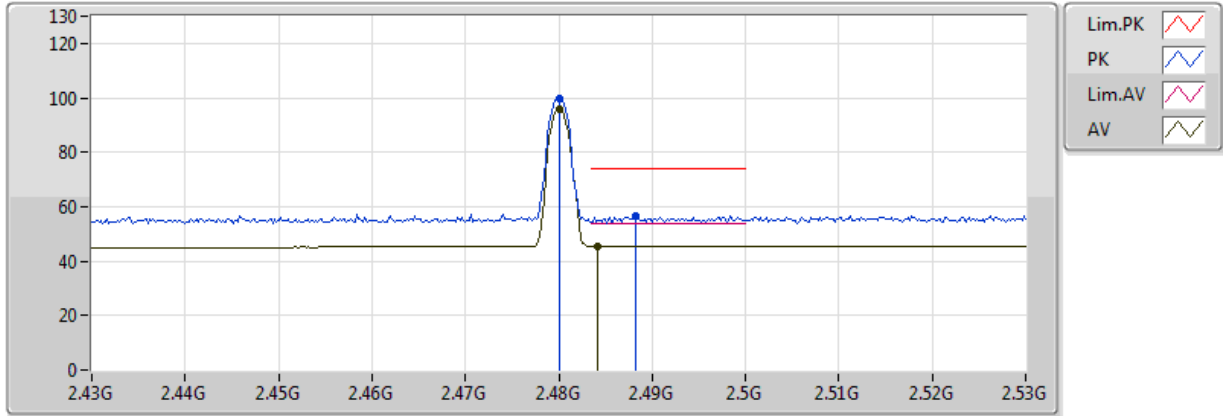


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	89.58	Inf	-Inf	31.10	3	Vertical	202	2.85	-
AV	2.499998G	45.45	54.00	-8.55	31.17	3	Vertical	202	2.85	-
PK	2.48G	93.45	Inf	-Inf	31.10	3	Vertical	202	2.85	-
PK	2.4952G	56.71	74.00	-17.29	31.16	3	Vertical	202	2.85	-

### BT-EDR(3Mbps)

### 2480MHz\_TX

16/07/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	95.71	Inf	-Inf	31.10	3	Horizontal	300	1.06	-
AV	2.4842G	45.49	54.00	-8.51	31.12	3	Horizontal	300	1.06	-
PK	2.48G	99.60	Inf	-Inf	31.10	3	Horizontal	300	1.06	-
PK	2.4882G	56.71	74.00	-17.29	31.13	3	Horizontal	300	1.06	-