Testing Laboratory 3787

RADIO TEST REPORT

FCC ID	:	**UDX-600130010**
Equipment	:	**SMART Camera**
Brand Name	:	**CISCO**
Model Name	:	**MV13-HW**
Applicant	:	**Cisco Systems, Inc.** **170 West Tasman Drive, San Jose, CA 95134 USA**
Manufacturer	:	**Cisco Systems, Inc.** **170 West Tasman Drive, San Jose, CA 95134 USA**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Mar. 15, 2023, and testing was started from Mar. 16, 2023 and completed on Jul. 19, 2023. We, Sporton International Inc. Hsinchu 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 test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory
No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)

Table of Contents

Appendix H. Test Results of Radiated Emission Co-location

Appendix I. Test Photos

Photographs of EUT v01

History of this test report

Report No.	Version	Description	Issued Date
FR291332-02AC	01	Initial issue of report	Oct. 04, 2023

Summary of Test Result

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

Conformity Assessment Condition:
1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".
Disclaimer:
The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sam Chen
Report Producer: Sophia Shiung

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 π/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)
	WLAN 2.4GHz	WLAN 5GHz	Bluetooth					
1	1	1	1	SERCOMM	Ant1	PIFA Antenna	I-PEX	Note 1
2	2	2	2	SERCOMM	Ant2	PIFA Antenna	I-PEX	

Note 1:

Ant.	Antenna Gain (dBi)			
	2.4GHz	5GHz UNII 1~2A	5GHz UNII 2C	5GHz UNII 3
1	3.82	4.21	4.51	3.94
2	1.98	2.62	2.11	2.32

Note 2: The above information was declared by manufacturer.

Note 3: The EUT support TX/RX diversity function.
The Port 1 generated the worst case. Thus it was selected to test and record in the report.

Note 4: **For 2.4GHz function**
For IEEE 802.11 b/g/n/VHT (1TX/1RX):
Both Port 1 and Port 2 can be used as transmitting/receiving antenna.
But only one of them can transmit and receive signal at the same time.
For 5GHz function
For IEEE 802.11a/n/ac (1TX/1RX):
Both Port 1 and Port 2 can be used as transmitting/receiving antenna.
But only one of them can transmit and receive signal at the same time.
For bluetooth function
For bluetooth (1TX/1RX):
Both Port 1 and Port 2 can be used as transmitting/receiving antenna.
But only one of them can transmit and receive signal at the same time.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-BR(1Mbps)	0.741	1.3	2.887m	1k
BT-EDR(2Mbps)	0.742	1.3	2.889m	1k
BT-EDR(3Mbps)	0.828	0.82	2.891m	1k

Note:
- DC is Duty Cycle.
- DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	From PoE
Test Software Version	QRCT V4.0.00201.0

1.1.5 Multiple Sources of Component Information

The EUT has second source verify for DDR4, UFS-3.1 256GB, PoE Transformer, LAN Transformer, ACT2, RF Connector, CMOS Coaxial Cable, LED Board Cable.
Note: The above information was declared by manufacturer.

1.1.6 EUT Combination Information

Item	Type	EUT 1	EUT 2
1	DDR4	Main Source	Second Source
2	UFS-3.1 256GB	Main Source	Second Source
3	PoE Transformer	Main Source	Second Source
4	LAN Transformer	Main Source	Second Source
5	ACT2	Main Source	Second Source
6	RF Connector	Main Source	Second Source
7	CMOS Coaxial Cable	Main Source	Second Source
8	LED Board Cable	Main Source	Second Source
9	Mic Board Cable	Main Source	Second Source

Note 1: After evaluating, the EUT 1 was selected to test all the test items and recorded in the report; the EUT 2 was selected to test AC power-line conducted emissions and Emissions in Restricted Frequency Bands below 1GHz.

Note 2: The above information was declared by manufacturer.

1.2 Applicable Standards

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

- 47 CFR FCC Part 15.247

The following reference test guidance is not within the scope of accreditation of TAF.

- FCC KDB 558074 D01 v05r02
- FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location Information	
Test Lab.：Sporton International Inc. Hsinchu Laboratory	
Hsinchu	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)
(TAF: 3787)	TEL: 886-3-656-9065 FAX: 886-3-656-9085
	Test site Designation No. TW3787 with FCC.
	Conformity Assessment Body Identifier (CABID) TW3787 with ISED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH03-CB	Brian Sun	23.5~24.2 / 62~69	Mar. 21, 2023~ May 05, 2023
Radiated < 1GHz	03CH05-CB	Black Lu	21.2-22.3 / 56-59	Jun. 23, 2023~ Jul. 10, 2023
Radiated > 1GHz	03CH06-CB	Roy Mai	21.7~22.8 / 56~59	Mar. 16, 2023~ May 10, 2023
Radiated (For Co-location)	03CH05-CB	Roy Mai	21.2~22.3 / 56~59	Mar. 16, 2023~ May 10, 2023
AC Conduction	CO01-CB	Gray Lee	21~22 / 54~55	Jul. 19, 2023

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)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.1 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Conducted Emission	3.2 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.2 dB	Confidence levels of 95%
Bandwidth Measurement	2.0 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
BT-BR(1Mbps)	-
2402MHz	9
2440MHz	9
2480MHz	9
BT-EDR(2Mbps)	-
2402MHz	9
2440MHz	9
2480MHz	9
BT-EDR(3Mbps)	-
2402MHz	9
2440MHz	9
2480MHz	9

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Normal Link
1	EUT 1 connected via Ethernet - Day mode + PoE 1
2	EUT 1 connected via Ethernet - Night mode + PoE 1
Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3~6 will follow this same test mode.	
3	EUT 1 connected via WLAN 2.4GHz - Night mode + PoE 1
4	EUT 1 connected via WLAN 2.4GHz - Night mode + PoE 2
5	EUT 1 connected via WLAN 5GHz - Night mode + PoE 1
6	EUT 1 connected via WLAN 5GHz - Night mode + PoE 2
Mode 2 has been evaluated to be the worst case among Mode 1~6, thus measurement for Mode 7 will follow this same test mode.	
7	EUT 2 connected via Ethernet - Night mode + PoE 1
For operating, Mode 2 is the worst case and it was recorded in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	20dB Bandwidth Carrier Frequency Separation Maximum Conducted Output Power Number of Hopping Frequencies Hopping Bandedge Time of Occupancy (Dwell Time) Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains
1	EUT 1

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link
1	EUT 1 in Z axis connected via Ethernet - Day mode + PoE 1
2	EUT 1 in Y axis connected via Ethernet - Day mode + PoE 1
3	EUT 1 in X axis connected via Ethernet - Day mode + PoE 1
Mode 1 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will follow this same test mode.	
4	EUT 1 in Z axis connected via Ethernet - Night mode + PoE 1
Mode 4 has been evaluated to be the worst case among Mode 1~4, thus measurement for Mode 5~8 will follow this same test mode.	
5	EUT 1 in Z axis connected via WLAN 2.4GHz - Night mode + PoE 1
6	EUT 1 in Z axis connected via WLAN 2.4GHz - Night mode + PoE 2
7	EUT 1 in Z axis connected via WLAN 5GHz - Night mode + PoE 1
8	EUT 1 in Z axis connected via WLAN 5GHz - Night mode + PoE 2
Mode 7 has been evaluated to be the worst case among Mode 1~8, thus measurement for Mode 9 will follow this same test mode.	
9	EUT 2 in Z axis connected via WLAN 5GHz - Night mode + PoE 1
For operating, mode 9 is the worst case and it was recorded in this test report.	
Operating Mode > 1GHz	CTX
	The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found at Z axis. Thus, the measurement will follow this same test configuration.
1	EUT 1 in Z axis

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Radiated Emission Co-location
Test Condition	Radiated measurement
Operating Mode	Normal Link
	EUT in Y axis generated the worst case at Radiated measurement above 1GHz (CTX – Harmonic) for WLAN 2.4GHz and 5GHz. Consequently, the measurement will follow this same test mode.
1	EUT 1 in Y axis + Bluetooth + WLAN 2.4GHz
2	EUT 1 in Y axis + Bluetooth + WLAN 5GHz
For operating, mode 2 is the worst case and it was recorded in this test report.	
Refer to Appendix H for Radiated Emission Co-location.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	EUT 1 + Bluetooth + WLAN 2.4GHz
2	EUT 1 + Bluetooth + WLAN 5GHz
Refer to Sporton Test Report No.: FA291332-02 for Co-location RF Exposure Evaluation.	

Note: The PoEs were for measurement only and would not be marketed.
Their information is shown as below:

Support Unit	Brand	Model
PoE 1	PHIHONG	POEA33U-1ATE
PoE 2	Cisco	MA-PWR-MV-LV

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link Mode:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories
Wall-mounted rack 1*1
Wall-mounted rack 2*1
Wall-mounted rack 3*1

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	PoE 1	PHIHONG	POEA30U-1AT-1	N/A
B	LAN NB	DELL	E6430	N/A
C	Smart phone	Samsung	Galaxy J2	N/A

For Radiated (below 1GHz):

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	Lenovo	L440	N/A
B	PoE 1	PHIHONG	POEA33U-1ATE	N/A
C	WLAN AP	ASUS	RT-AX88U	N/A
D	Smart phone	Samsung	Galaxy J2	N/A

For Radiated (above 1GHz):

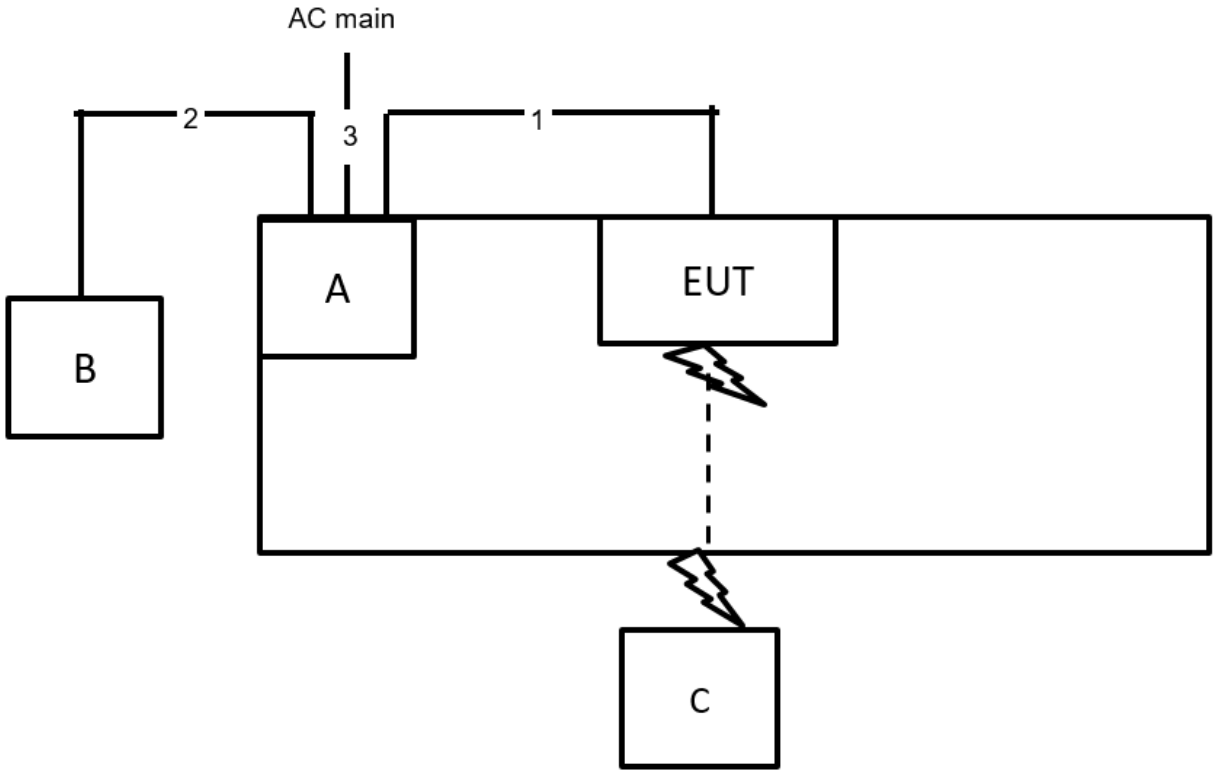
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	PoE 1	PHIHONG	POEA30U-1AT-1	N/A

For RF Conducted:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A
B	PoE 2	Cisco	MA-PWR-MV-LV	N/A

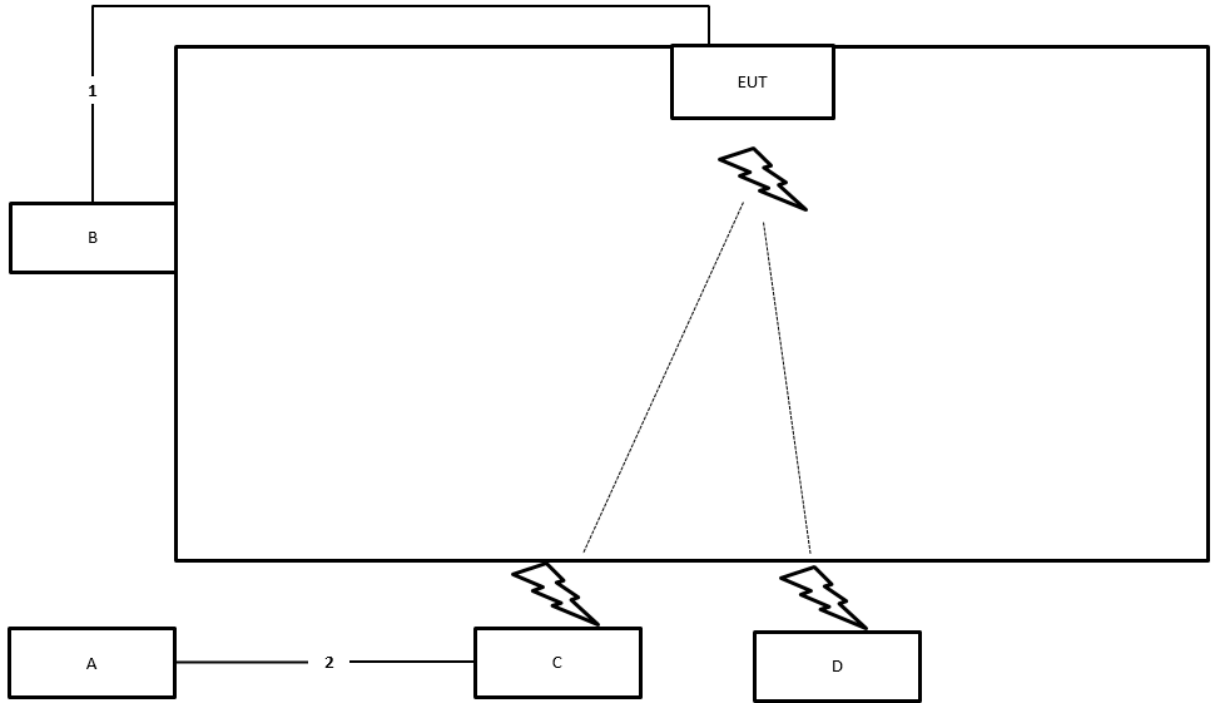
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



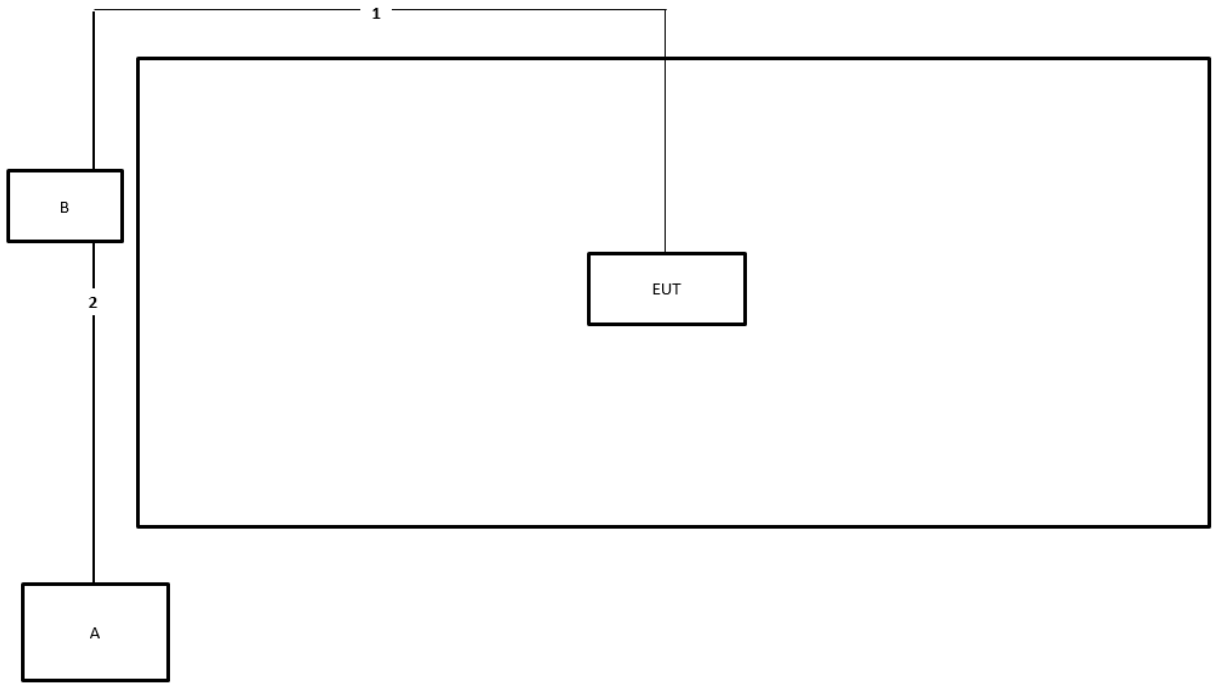
Item	Connection	Shielded	Length
1	RJ-45 cable	No	1.5m
2	RJ-45 cable	No	10m
3	Power cable	No	1m

Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	10m

Test Setup Diagram - Radiated Test > 1GHz



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

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

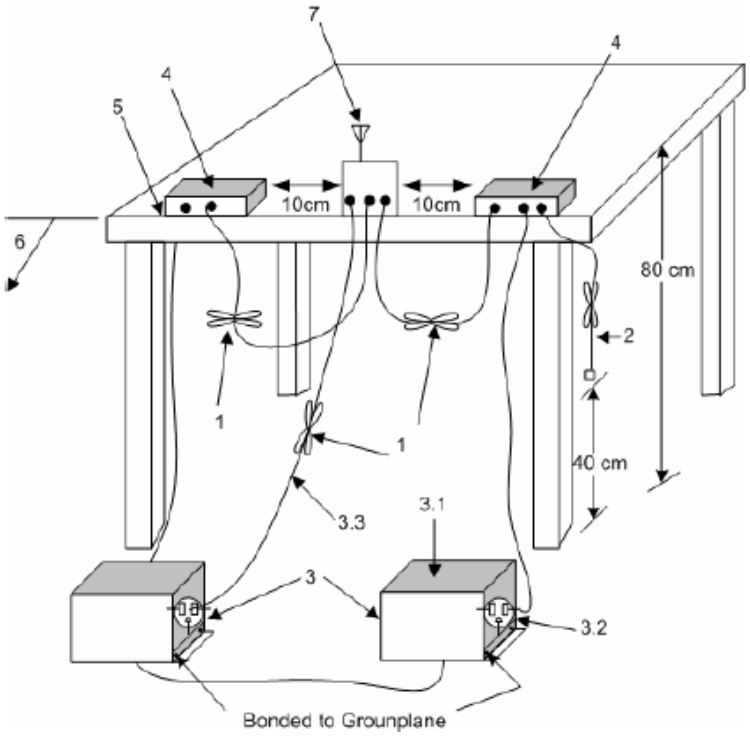
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup

AC Power-line Conducted Emissions



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
3.1—All other equipment powered from additional LISN(s).
3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
3.3—LISN at least 80 cm from nearest part of EUT chassis.
4—Non-EUT components of EUT system being tested.
5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

1.1.1. Measurement Results Calculation

The measured Level is calculated using:

a. Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level

b. Margin = -Limit + Level

3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 20dB Bandwidth and Carrier Frequency Separation

3.2.1 20dB Bandwidth and Carrier Frequency Separation Limit

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

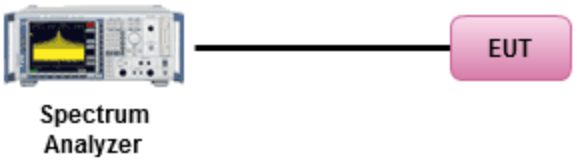
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup

20dB Bandwidth and Carrier Frequency Separation


3.2.5 Test Result of 20dB Bandwidth

Refer as Appendix B

3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit
▪ 902-928 MHz Band:
▪ N ≥50; Power 30dBm; EIRP 36dBm
▪ 50 >N≥ 25; Power 23.98dBm; EIRP 29.98dBm
▪ 2400-2483.5 MHz Band:
▪ N ≥ 75; Power 30dBm; EIRP 36dBm
▪ 75 >N ≥ 15; Power 21dBm; EIRP 27dBm
▪ 5725-5850 MHz Band:
▪ N ≥ 75; Power 30dBm; EIRP 36dBm
N:Number of Hopping Frequencies

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup

Maximum Conducted Output Power (Peak Power Meter)


3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Number of Hopping Frequencies and Hopping Bandedge

3.4.1 Number of Hopping Frequencies Limit

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

3.4.2 Hopping Bandedge Limit

Refer clause 3.6.1 and clause 3.7.1

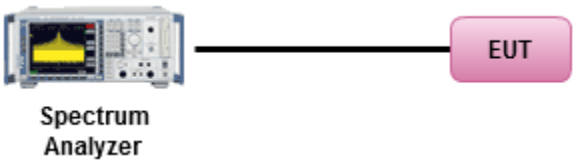
3.4.3 Measuring Instruments

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

3.4.4 Test Procedures

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

3.4.5 Test Setup

Number of Hopping Frequencies and Hopping Frequencies Bandedge


3.4.6 Test Result of Number of Hopping Frequencies

Refer as Appendix D

3.4.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix D

3.5 Time of Occupancy (Dwell Time)

3.5.1 Time of Occupancy (Dwell Time) Limit

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

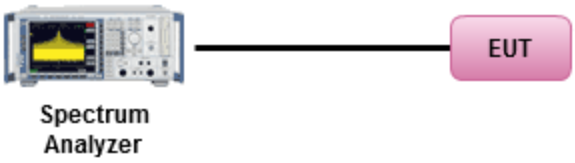
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup

Time of Occupancy (Dwell Time)


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

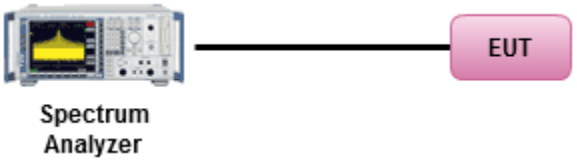
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

3.6.4 Test Setup

Emissions in Non-restricted Frequency Bands


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 below30 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.

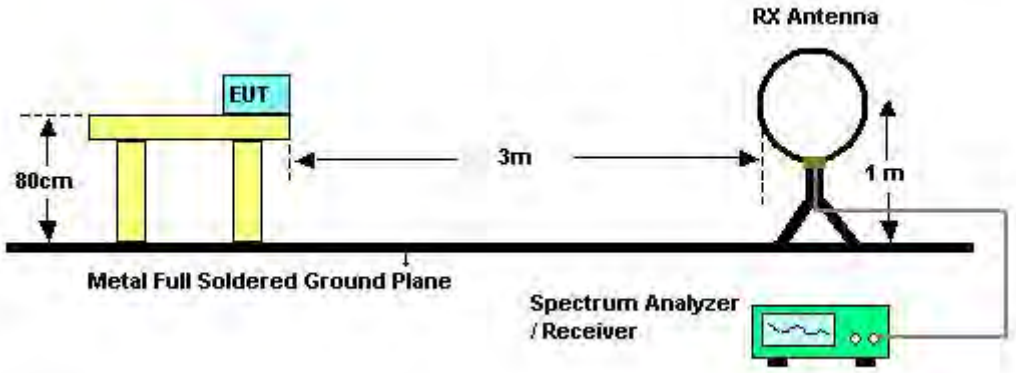
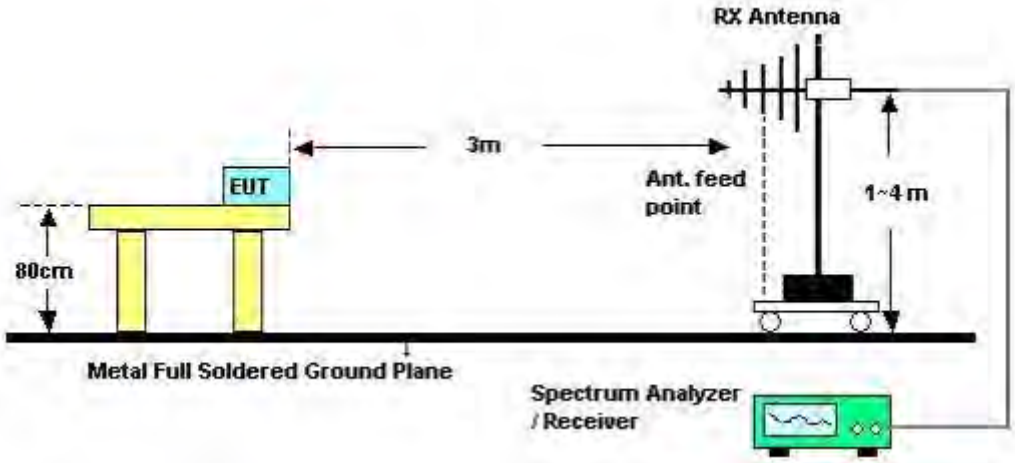
3.7.2 Measuring Instruments

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

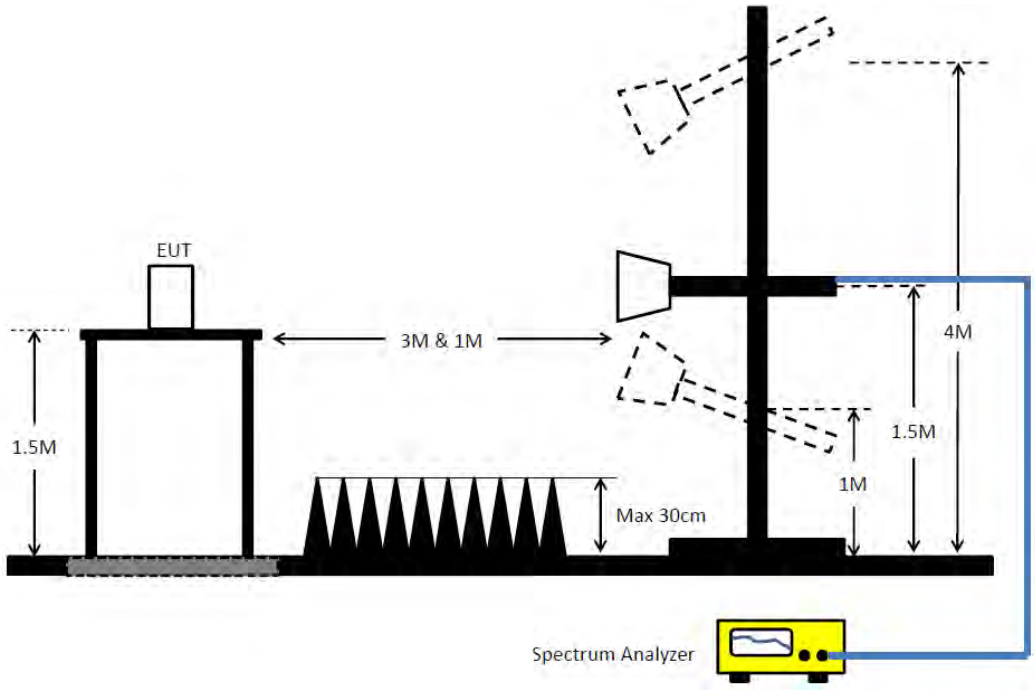
3.7.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [hopping duty factor].	
▪ Refer as ANSI C63.10; clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as ANSI C63.10, clause 4.1.4.2.1 QP value.
	▪ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak.
	▪ Refer as ANSI C63.10, clause 4.1.4.2.4 average value of hopping pulsed emissions.

3.7.4 Test Setup

Emissions in Restricted Frequency Bands
9kHz ~30MHz

30MHz~1GHz


Above 1GHz



3.7.5 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level.

3.7.6 Emissions in Restricted Frequency Bands (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.
The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.7.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix G

4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 20, 2023	Feb. 19, 2024	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Feb. 16, 2023	Feb. 15, 2024	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 27, 2023	Apr. 26, 2024	Conduction (CO01-CB)
Pulse Limiter	Rohde& Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 09, 2023	Feb. 08, 2024	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 18, 2022	Oct. 17, 2023	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	31244	9kHz - 30 MHz	Mar. 23, 2023	Mar. 22, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 03, 2022	Aug. 02, 2023	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 24, 2023	Mar. 23, 2024	Radiation (03CH05-CB)
Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 03, 2023	May 02, 2024	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Nov. 06, 2022	Nov. 05, 2023	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Jun. 23, 2022	Jun. 22, 2023	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH05-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH05-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH06-CB	1GHz ~18GHz 3m	Sep. 30, 2022	Sep. 29, 2023	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1292	1GHz~18GHz	Aug. 09, 2022	Aug. 08, 2023	Radiation (03CH06-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	Aug 02, 2022	Aug 01, 2023	Radiation (03CH06-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Dec. 21, 2022	Dec. 20, 2023	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-68	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-05+68	1GHz~18GHz	Dec. 21, 2022	Dec. 20, 2023	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Signal Analyzer	R&S	FSV40	101903	9kHz ~ 40GHz	May 27, 2022	May 26, 2023	Conducted (TH03-CB)
Power Sensor	Anritsu	MA2411B	1531344	300MHz~ 40GHz	Jul. 31, 2022	Jul. 30, 2023	Conducted (TH03-CB)
Power Meter	Anritsu	ML2495A	1728002	300MHz~ 40GHz	Jul. 31, 2022	Jul. 30, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-11	1 GHz –18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-12	1 GHz –18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-13	1 GHz –18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz –18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH03-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Switch	SPTCB	SP-SWI	SWI-03	1 GHz – 26.5 GHz	Oct. 04, 2022	Oct. 03, 2023	Conducted (TH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH03-CB)

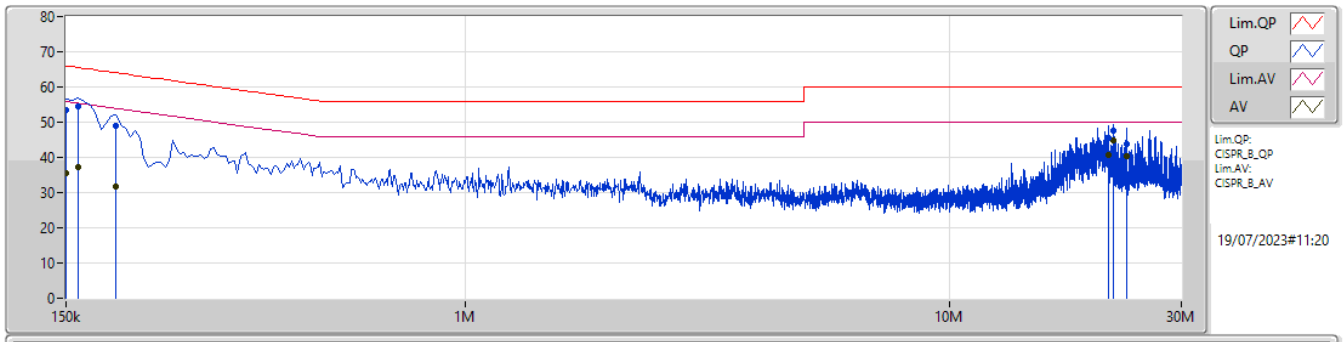
Note: Calibration Interval of instruments listed above is one year.

NCR means Non-Calibration required.

Summary

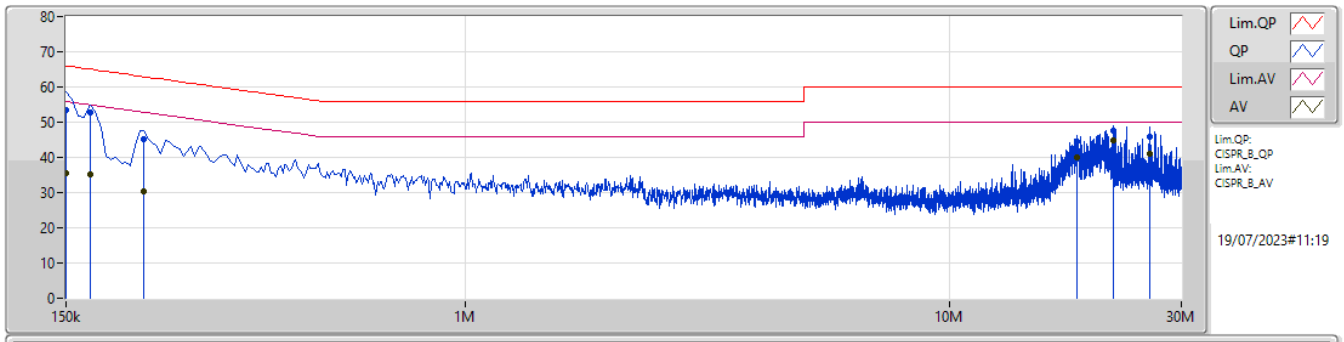
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 2	Pass	AV	21.665M	44.89	50.00	-5.11	Neutral

Mode 2



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	150k	53.43	66.00	-12.57	10.00	Line	-	43.43	0.09	0.04	9.87
AV	150k	35.50	56.00	-20.50	10.00	Line	-	25.50	0.09	0.04	9.87
QP	159k	54.60	65.52	-10.92	10.00	Line	-	44.60	0.09	0.04	9.87
AV	159k	37.13	55.52	-18.39	10.00	Line	-	27.13	0.09	0.04	9.87
QP	190.5k	49.09	64.01	-14.92	9.98	Line	-	39.11	0.08	0.04	9.86
AV	190.5k	31.66	54.01	-22.35	9.98	Line	-	21.68	0.08	0.04	9.86
QP	21.174M	45.47	60.00	-14.53	10.56	Line	-	34.91	0.30	0.24	10.02
AV	21.174M	40.55	50.00	-9.45	10.56	Line	-	29.99	0.30	0.24	10.02
QP	21.665M	47.60	60.00	-12.40	10.57	Line	-	37.03	0.31	0.24	10.02
AV	21.665M	44.87	50.00	-5.13	10.57	Line	"Worst"	34.30	0.31	0.24	10.02
QP	23.132M	43.92	60.00	-16.08	10.61	Line	-	33.31	0.31	0.26	10.04
AV	23.132M	40.18	50.00	-9.82	10.61	Line	-	29.57	0.31	0.26	10.04

Mode 2



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	150k	53.40	66.00	-12.60	9.98	Neutral	-	43.42	0.07	0.04	9.87
AV	150k	35.62	56.00	-20.38	9.98	Neutral	-	25.64	0.07	0.04	9.87
QP	168k	52.65	65.06	-12.41	9.98	Neutral	-	42.67	0.07	0.04	9.87
AV	168k	35.02	55.06	-20.04	9.98	Neutral	-	25.04	0.07	0.04	9.87
QP	217.5k	45.04	62.92	-17.88	9.97	Neutral	-	35.07	0.07	0.04	9.86
AV	217.5k	30.21	52.92	-22.71	9.97	Neutral	-	20.24	0.07	0.04	9.86
QP	18.303M	44.49	60.00	-15.51	10.47	Neutral	-	34.02	0.27	0.20	10.00
AV	18.303M	39.94	50.00	-10.06	10.47	Neutral	-	29.47	0.27	0.20	10.00
QP	21.665M	47.65	60.00	-12.35	10.57	Neutral	-	37.08	0.31	0.24	10.02
AV	21.665M	44.89	50.00	-5.11	10.57	Neutral	"Worst"	34.32	0.31	0.24	10.02
QP	25.877M	45.82	60.00	-14.18	10.71	Neutral	-	35.11	0.36	0.29	10.06
AV	25.877M	40.96	50.00	-9.04	10.71	Neutral	-	30.25	0.36	0.29	10.06

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)	880k	833.486k	833KF1D	880k	829.702k
BT-EDR(2Mbps)	1.279M	1.186M	1M19G1D	1.254M	1.175M
BT-EDR(3Mbps)	1.26M	1.189M	1M19G1D	1.257M	1.177M

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

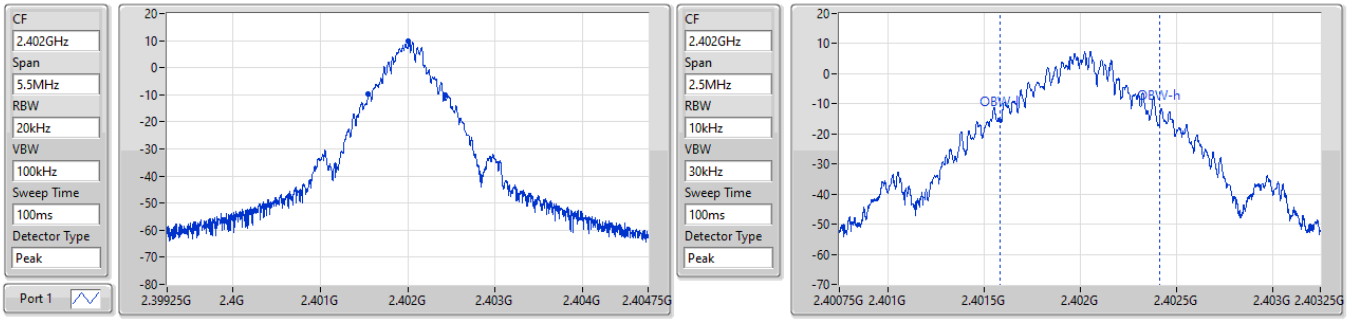
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	Inf	880k	832.679k
2440MHz	Pass	Inf	880k	829.702k
2480MHz	Pass	Inf	880k	833.486k
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.279M	1.186M
2440MHz	Pass	Inf	1.254M	1.175M
2480MHz	Pass	Inf	1.257M	1.184M
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.26M	1.188M
2440MHz	Pass	Inf	1.257M	1.177M
2480MHz	Pass	Inf	1.26M	1.189M

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

2.4-2.4835GHz_BT-BR(1Mbps) **EBW-FS**

2402MHz

05/05/2023

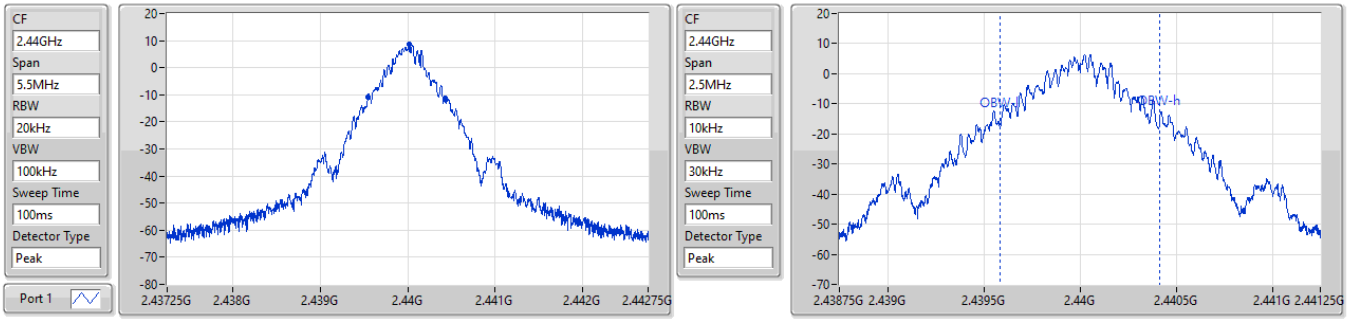


20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
880k	2.401546G	2.402426G	832.679k	2.401584G	2.402417G	Inf	1

2.4-2.4835GHz_BT-BR(1Mbps) **EBW-FS**

2440MHz

05/05/2023

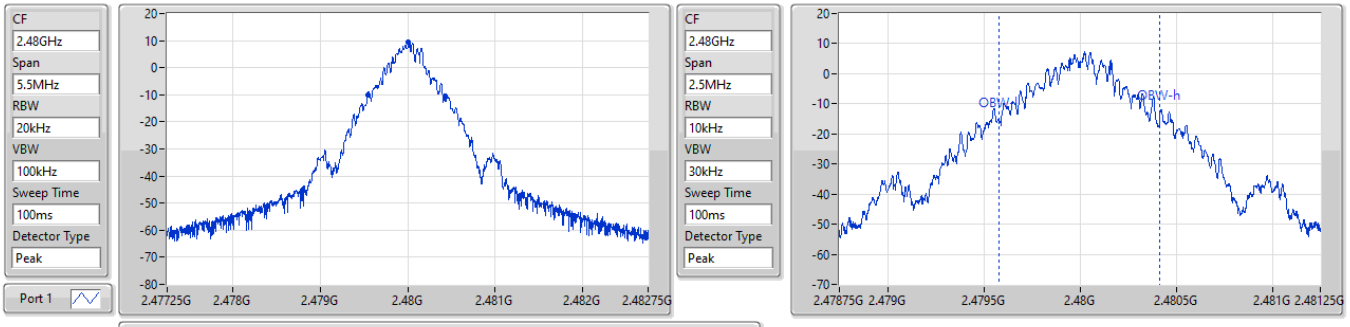


20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
880k	2.439544G	2.440424G	829.702k	2.439585G	2.440415G	Inf	1

2.4-2.4835GHz_BT-BR(1Mbps) **EBW-FS**

2480MHz

05/05/2023

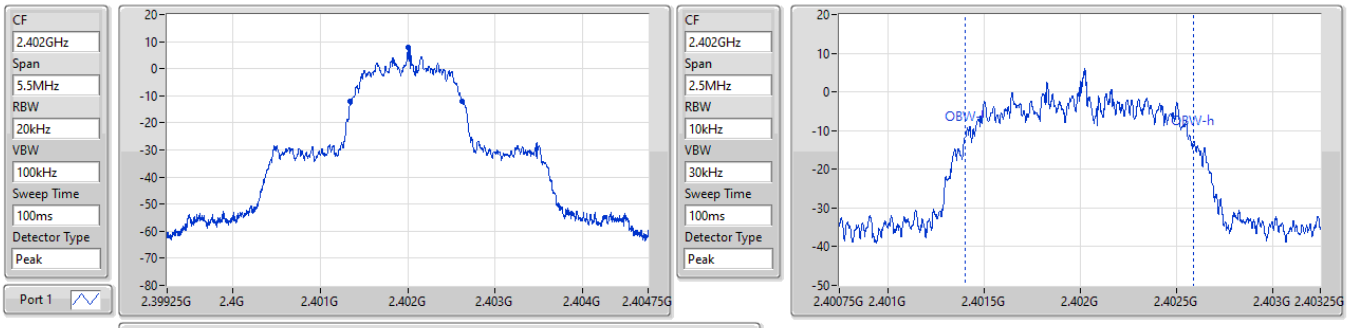


20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
880k	2.479544G	2.480424G	833.486k	2.479582G	2.480416G	Inf	1

2.4-2.4835GHz_BT-EDR(2Mbps) **EBW-FS**

2402MHz

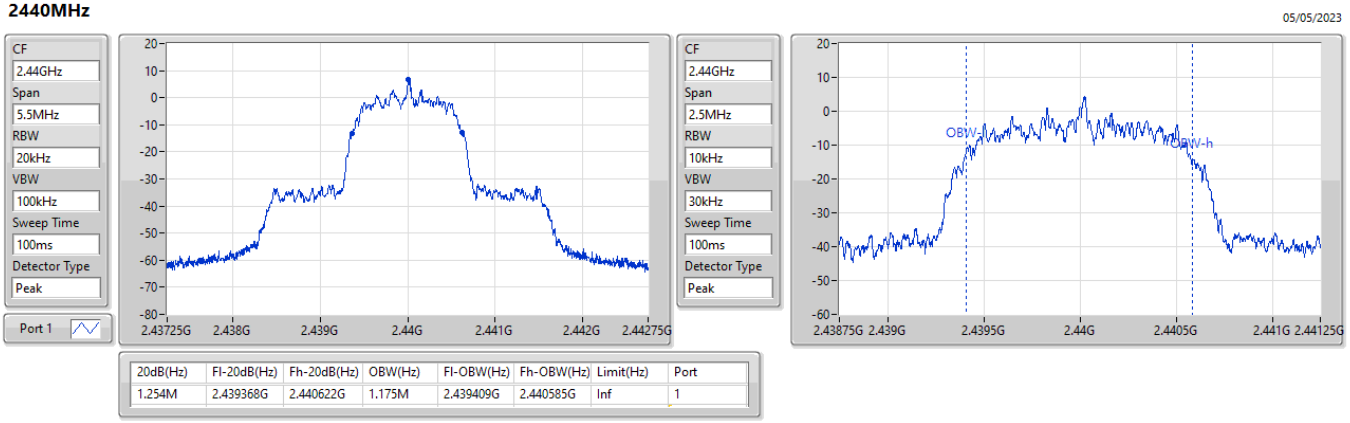
05/05/2023



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.279M	2.401346G	2.402624G	1.186M	2.401406G	2.402591G	Inf	1

2.4-2.4835GHz_BT-EDR(2Mbps) **EBW-FS**

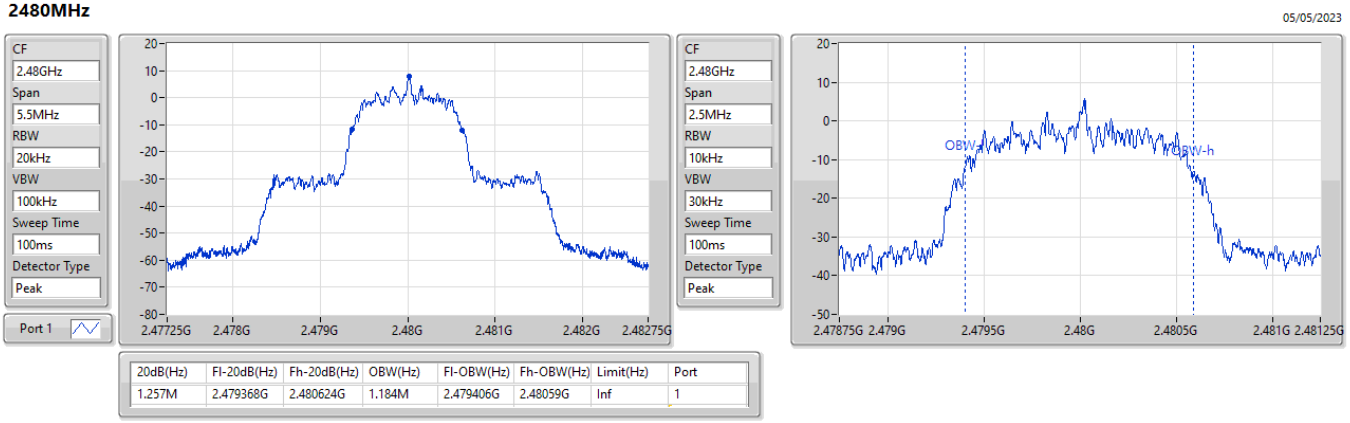
2440MHz



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.254M	2.439368G	2.440622G	1.175M	2.439409G	2.440585G	Inf	1

2.4-2.4835GHz_BT-EDR(2Mbps) **EBW-FS**

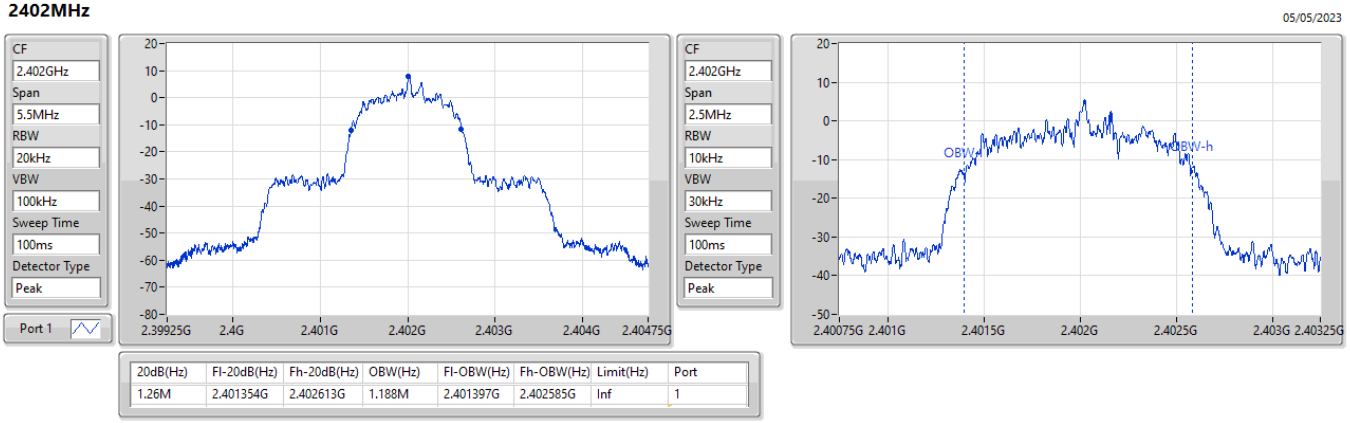
2480MHz



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.257M	2.479368G	2.480624G	1.184M	2.479406G	2.48059G	Inf	1

2.4-2.4835GHz_BT-EDR(3Mbps) **EBW-FS**

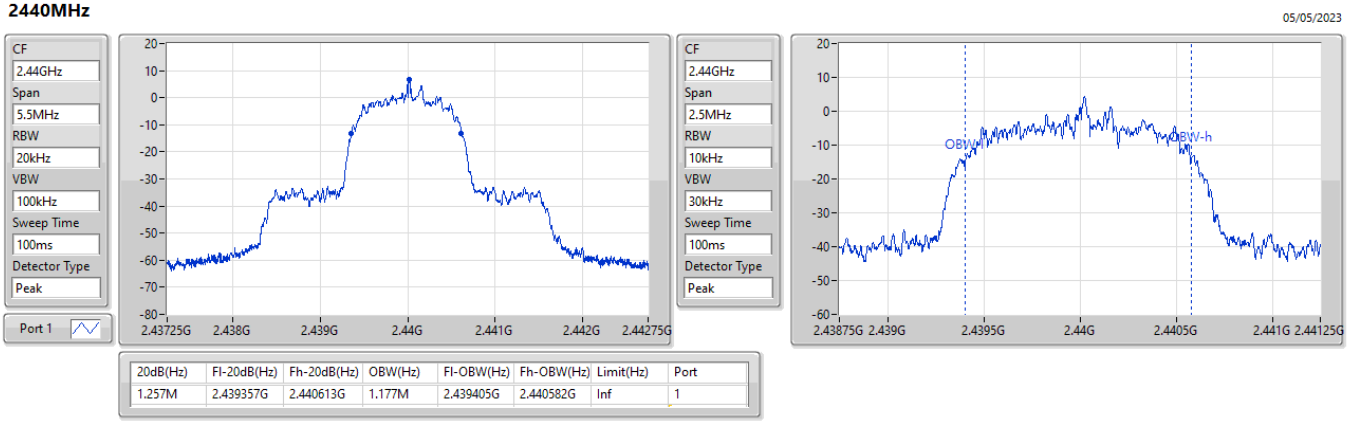
2402MHz



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.26M	2.401354G	2.402613G	1.188M	2.401397G	2.402585G	Inf	1

2.4-2.4835GHz_BT-EDR(3Mbps) **EBW-FS**

2440MHz

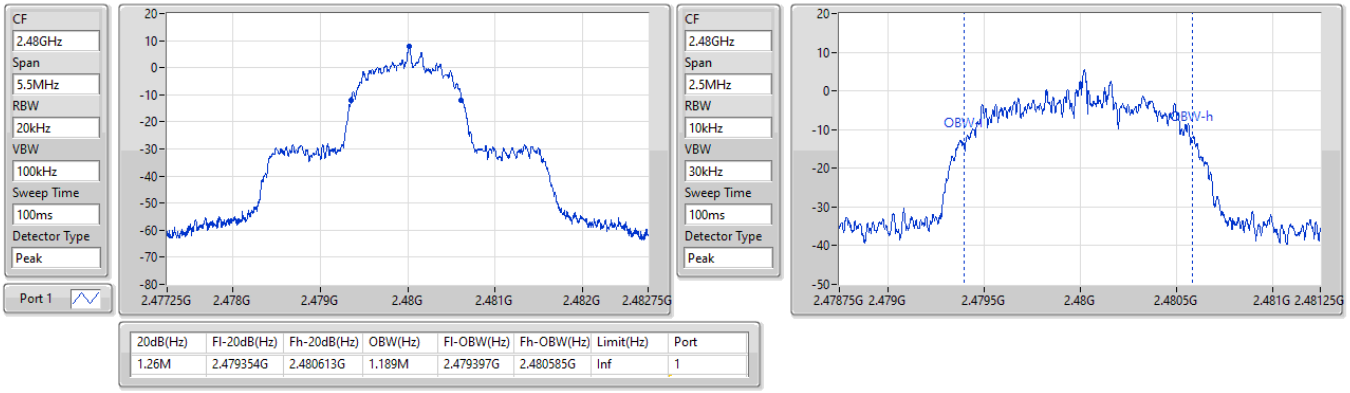


20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.257M	2.439357G	2.440613G	1.177M	2.439405G	2.440582G	Inf	1

2.4-2.4835GHz_BT-EDR(3Mbps) **EBW-FS**

2480MHz

05/05/2023



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.26M	2.479354G	2.480613G	1.189M	2.479397G	2.480585G	Inf	1

Summary

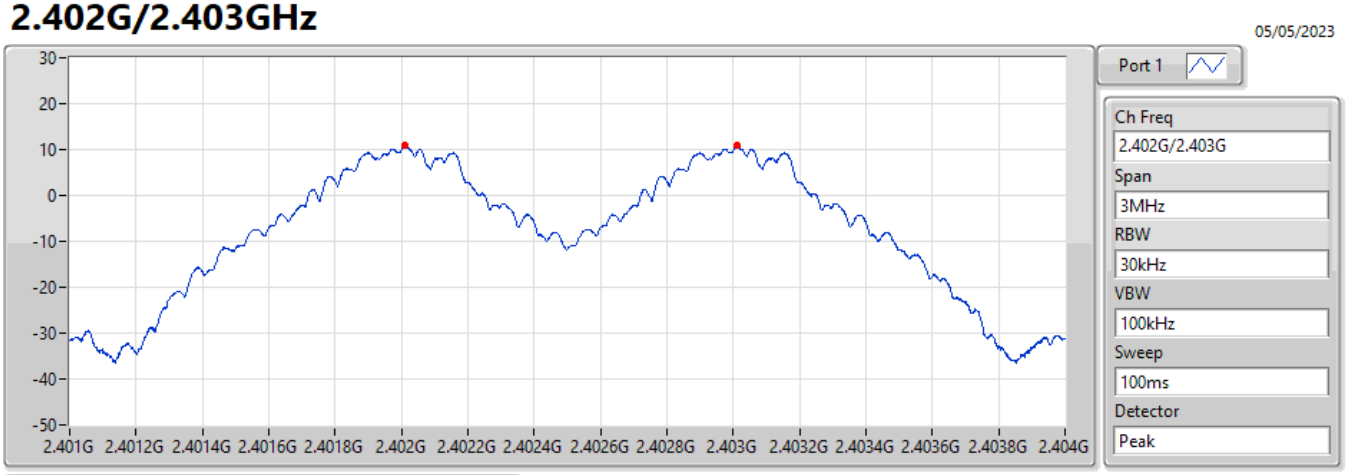
Mode	Max-Space (Hz)	Min-Space (Hz)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	1.002M	999k
BT-EDR(2Mbps)	1.002M	1.0005M
BT-EDR(3Mbps)	1.002M	999k

Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
BT-BR(1Mbps)	-	-	-	-	-
2402MHz	Pass	2.402011G	2.403013G	1.002M	586.08k
2440MHz	Pass	2.440011G	2.44101G	999k	586.08k
2480MHz	Pass	2.479011G	2.480012G	1.0005M	586.08k
BT-EDR(2Mbps)	-	-	-	-	-
2402MHz	Pass	2.402011G	2.403012G	1.0005M	851.814k
2440MHz	Pass	2.44001G	2.441012G	1.002M	835.164k
2480MHz	Pass	2.479011G	2.480012G	1.0005M	837.162k
BT-EDR(3Mbps)	-	-	-	-	-
2402MHz	Pass	2.40201G	2.40301G	1.0005M	839.16k
2440MHz	Pass	2.44001G	2.441012G	1.002M	837.162k
2480MHz	Pass	2.479011G	2.48001G	999k	839.16k

2.4-2.4835GHz_BT-BR(1Mbps) Channel Separation-FS

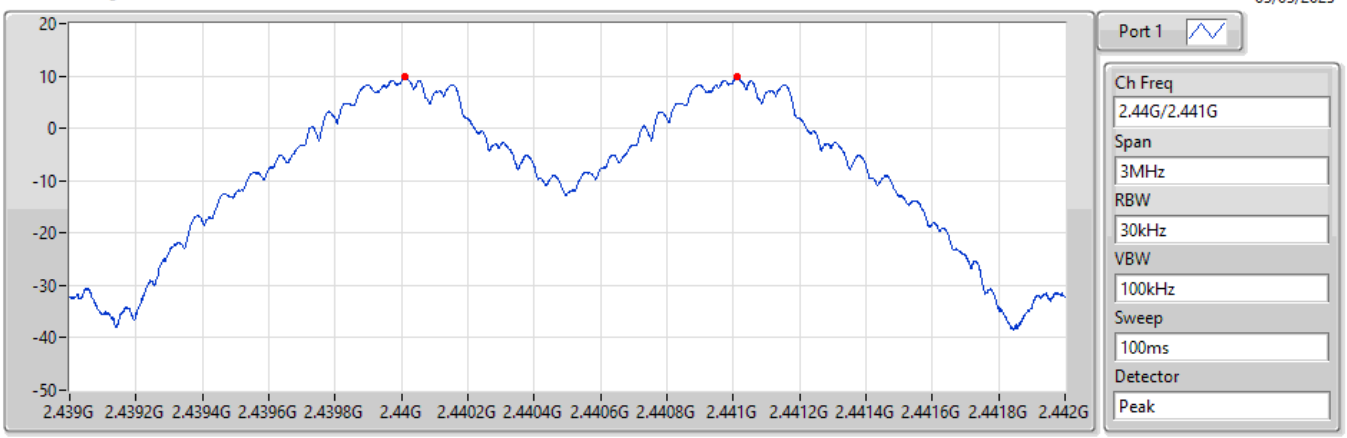
2.402G/2.403GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.402011G	2.403013G	1.002M	586.08k

2.4-2.4835GHz_BT-BR(1Mbps) Channel Separation-FS

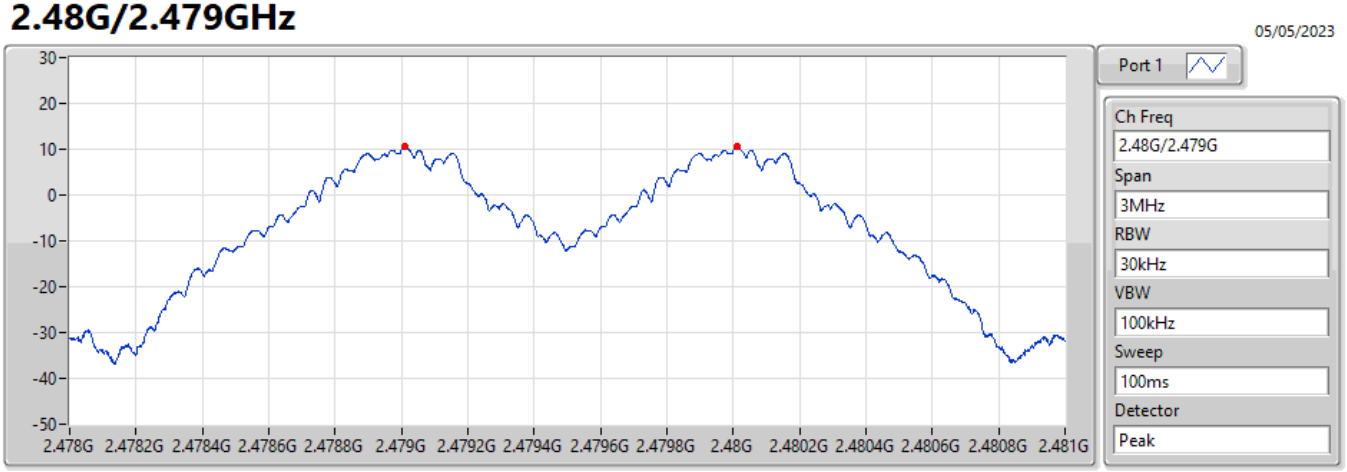
2.44G/2.441GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.440011G	2.44101G	999k	586.08k

2.4-2.4835GHz_BT-BR(1Mbps) Channel Separation-FS

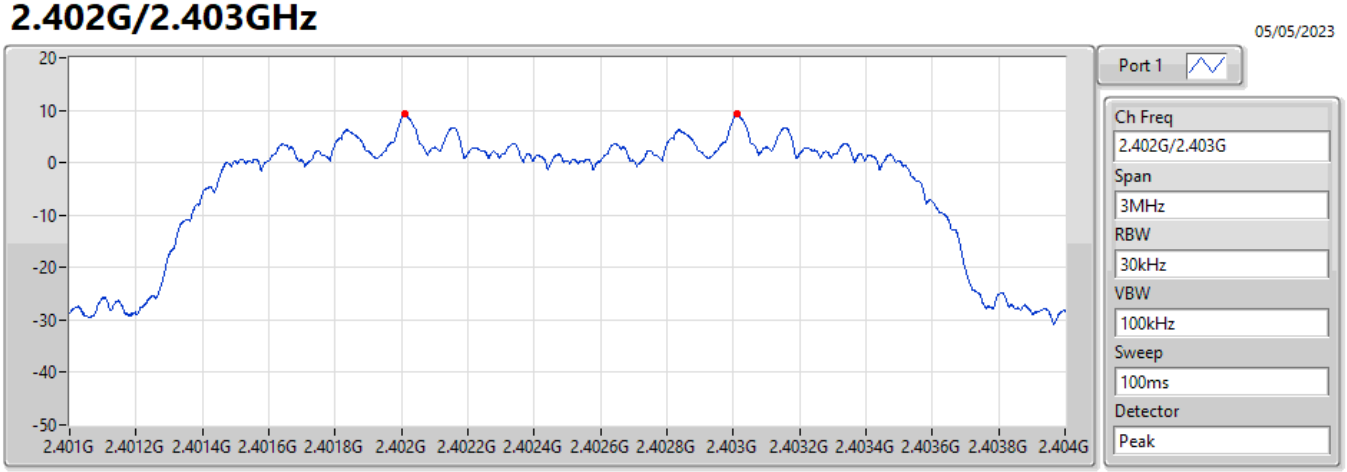
2.48G/2.479GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.479011G	2.480012G	1.0005M	586.08k

2.4-2.4835GHz_BT-EDR(2Mbps) Channel Separation-FS

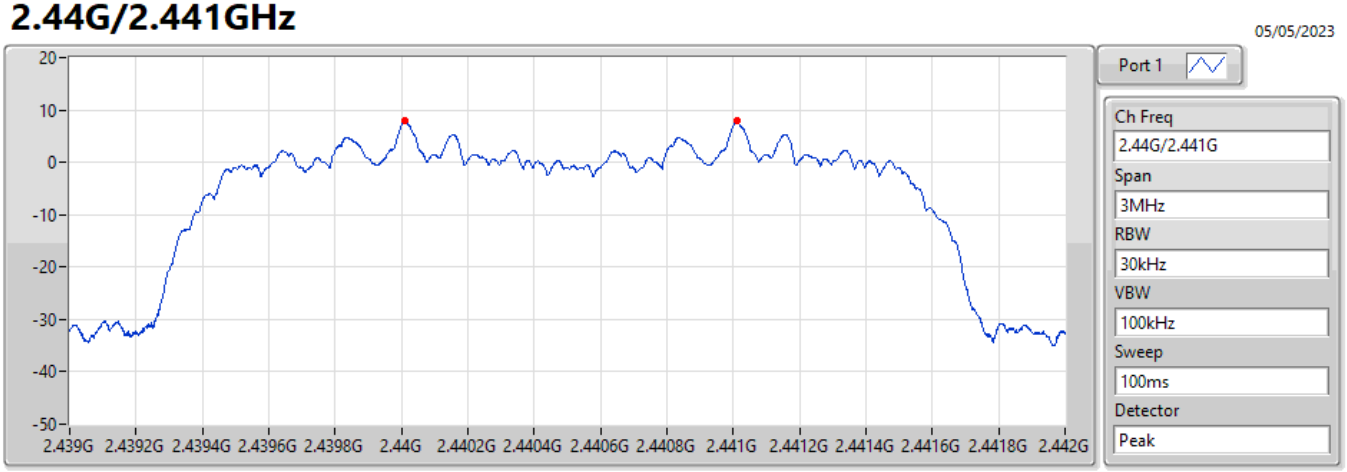
2.402G/2.403GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.402011G	2.403012G	1.0005M	851.814k

2.4-2.4835GHz_BT-EDR(2Mbps) Channel Separation-FS

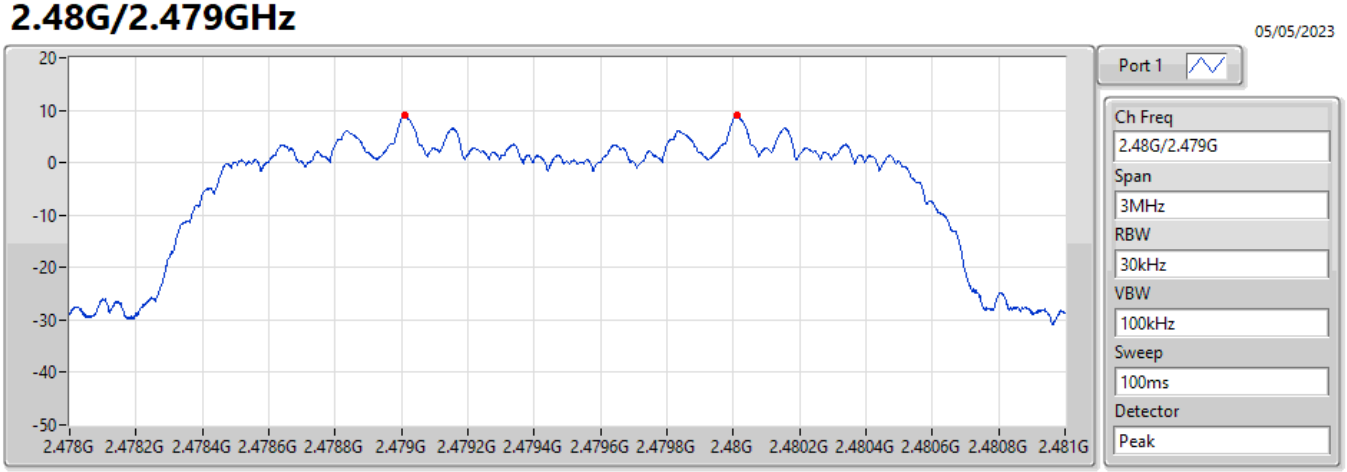
2.44G/2.441GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.44001G	2.441012G	1.002M	835.164k

2.4-2.4835GHz_BT-EDR(2Mbps) Channel Separation-FS

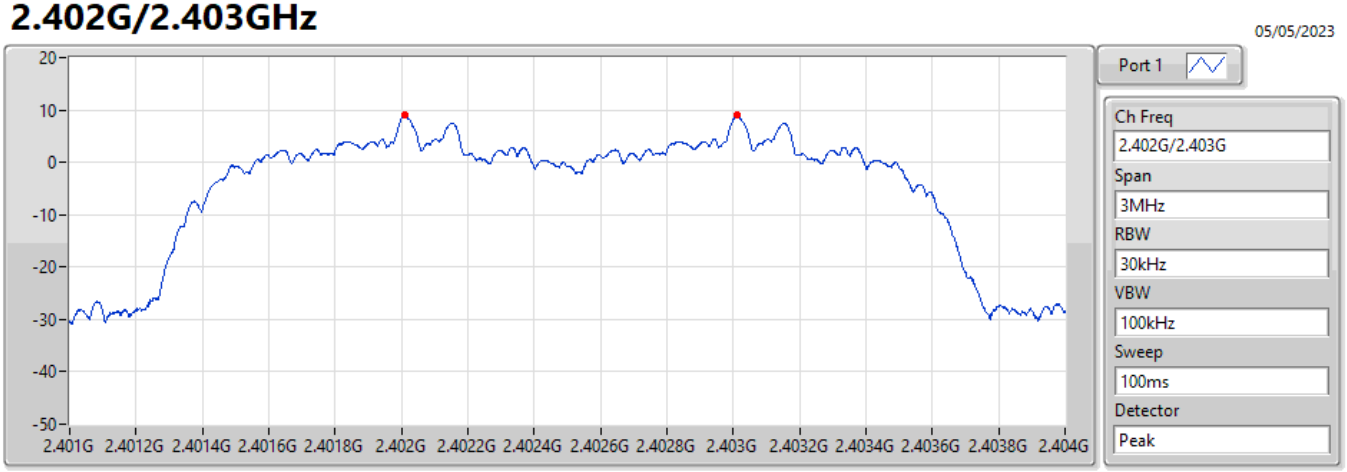
2.48G/2.479GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.479011G	2.480012G	1.0005M	837.162k

2.4-2.4835GHz_BT-EDR(3Mbps) Channel Separation-FS

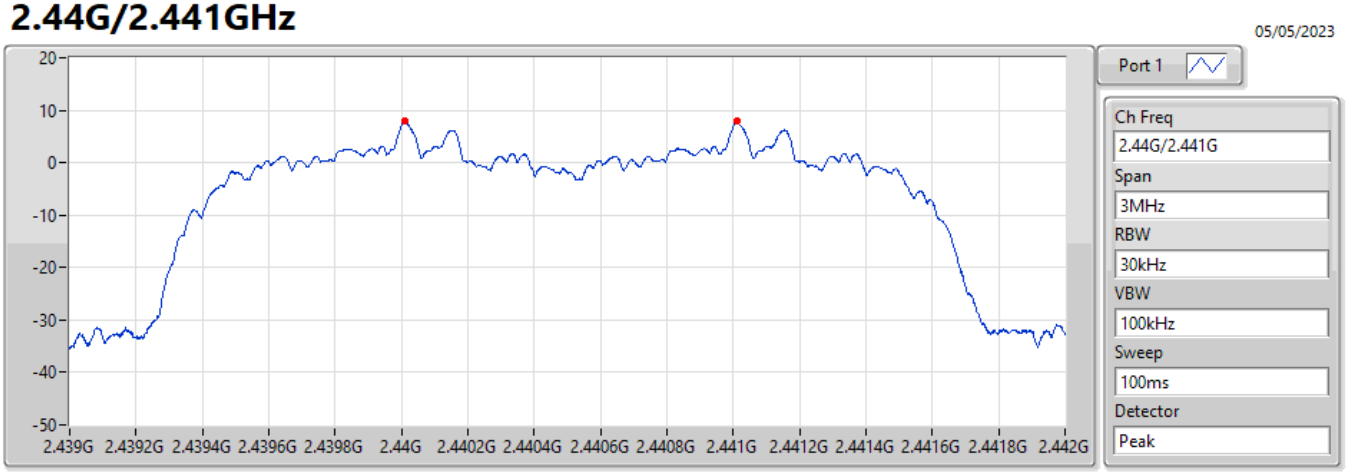
2.402G/2.403GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.40201G	2.40301G	1.0005M	839.16k

2.4-2.4835GHz_BT-EDR(3Mbps) Channel Separation-FS

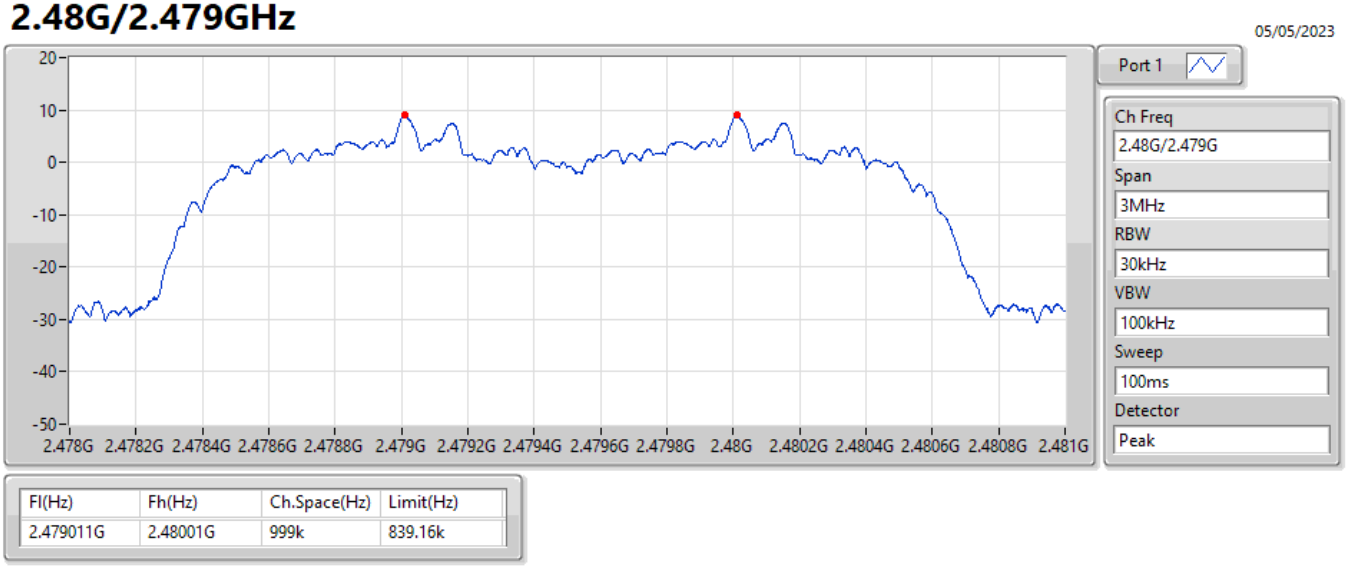
2.44G/2.441GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.44001G	2.441012G	1.002M	837.162k

2.4-2.4835GHz_BT-EDR(3Mbps) **Channel Separation-FS**

2.48G/2.479GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.479011G	2.48001G	999k	839.16k

Summary

Mode	Total Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	12.62	0.01828
BT-EDR(2Mbps)	10.48	0.01117
BT-EDR(3Mbps)	10.43	0.01104

Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	3.82	12.62	21.00
2440MHz	Pass	3.82	11.75	21.00
2480MHz	Pass	3.82	12.49	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	3.82	10.48	21.00
2440MHz	Pass	3.82	9.15	21.00
2480MHz	Pass	3.82	10.37	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	3.82	10.43	21.00
2440MHz	Pass	3.82	9.14	21.00
2480MHz	Pass	3.82	10.26	21.00

DG = Directional Gain; Port X = Port X output power

Summary

Mode	Total Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	12.96	0.01977
BT-EDR(2Mbps)	12.46	0.01762
BT-EDR(3Mbps)	12.46	0.01762

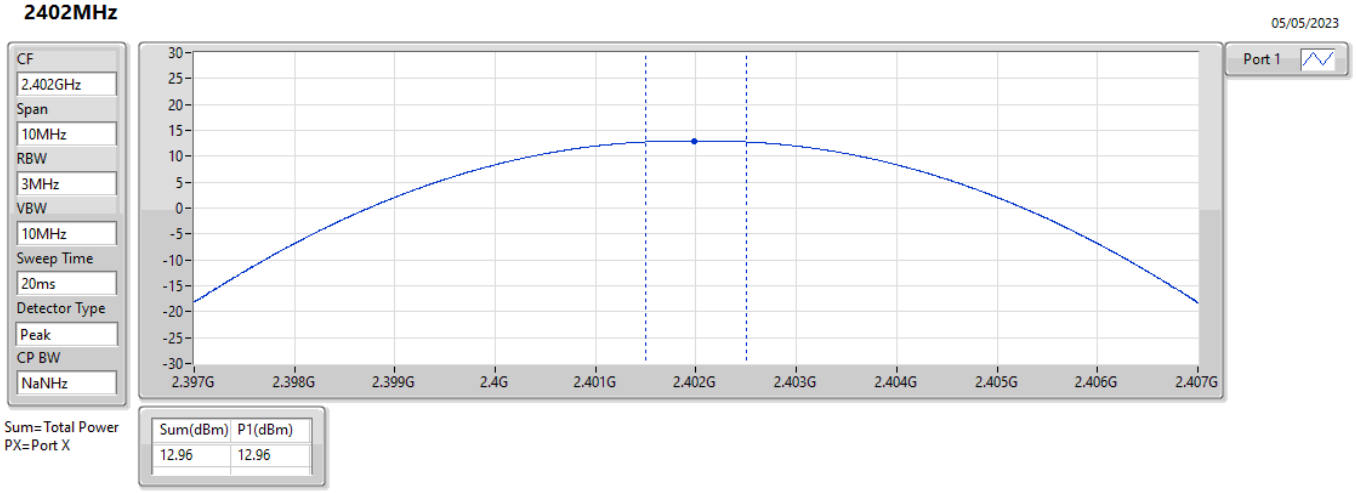
Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	3.82	12.96	21.00
2440MHz	Pass	3.82	12.00	21.00
2480MHz	Pass	3.82	12.71	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	3.82	12.46	21.00
2440MHz	Pass	3.82	11.52	21.00
2480MHz	Pass	3.82	12.31	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	3.82	12.46	21.00
2440MHz	Pass	3.82	11.58	21.00
2480MHz	Pass	3.82	12.39	21.00

DG = Directional Gain; Port X = Port X output power

2.4-2.4835GHz_BT-BR(1Mbps) **PK Power-FS**

2402MHz

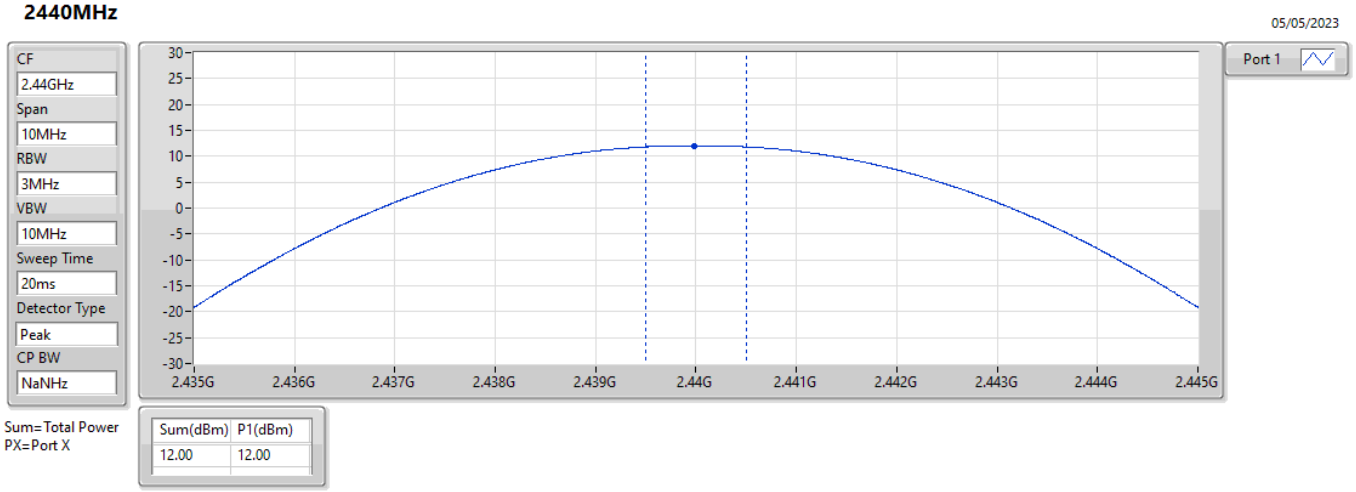


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
12.96	12.96

2.4-2.4835GHz_BT-BR(1Mbps) **PK Power-FS**

2440MHz

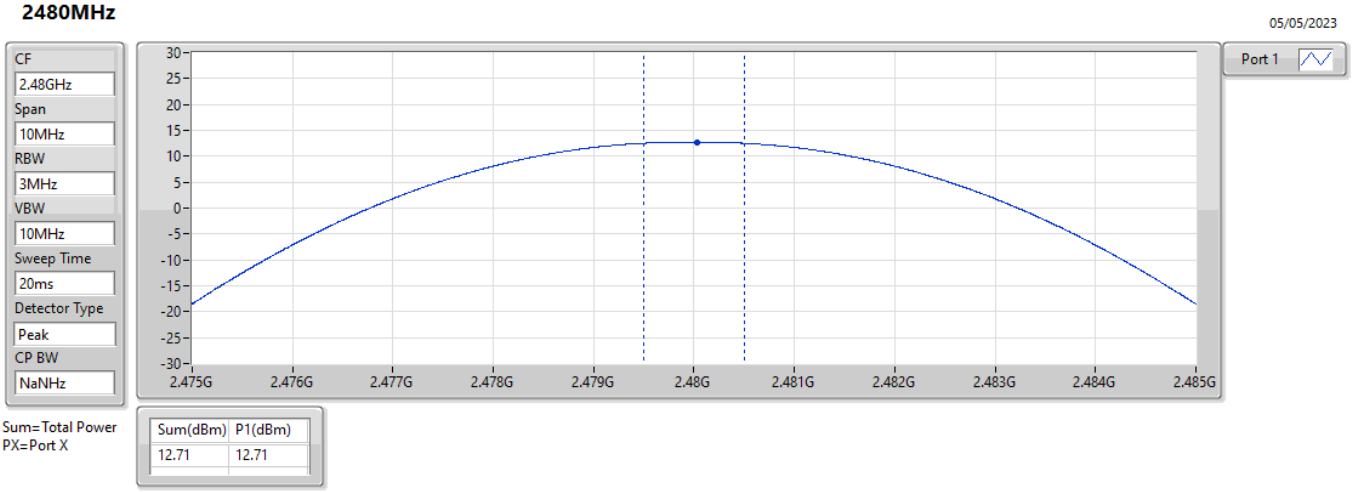


Sum=Total Power
PX=Port X

Sum(dBm)	P1(dBm)
12.00	12.00

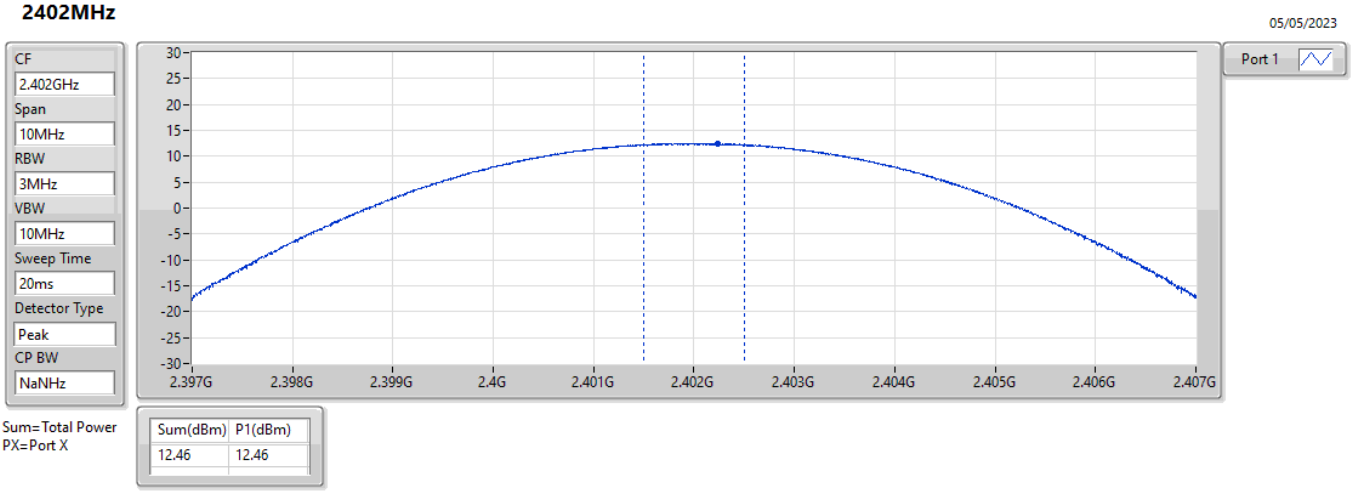
2.4-2.4835GHz_BT-BR(1Mbps) **PK Power-FS**

2480MHz



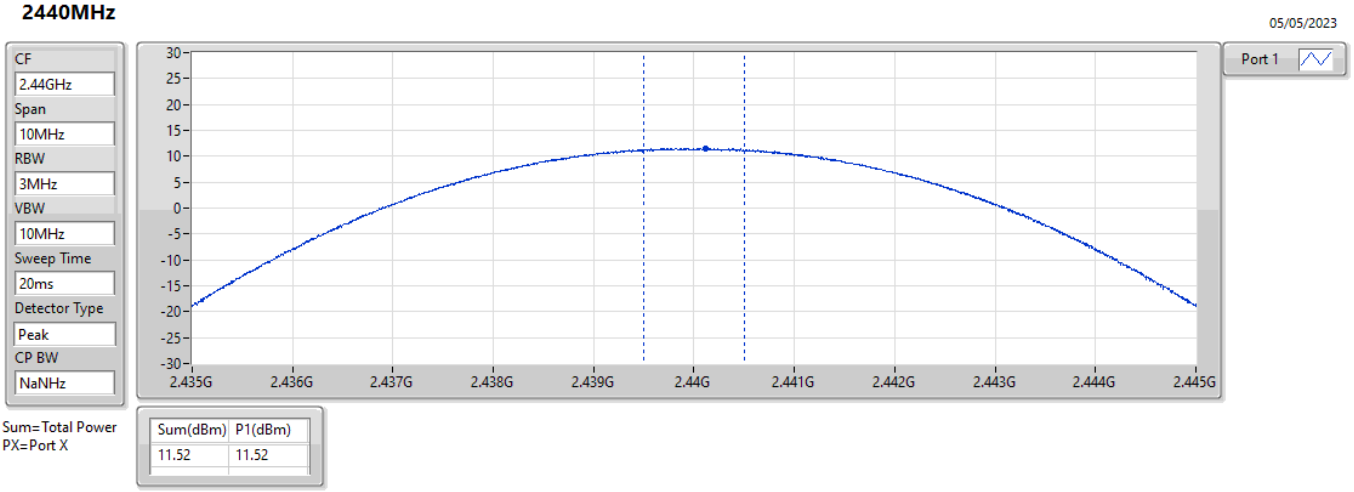
2.4-2.4835GHz_BT-EDR(2Mbps) **PK Power-FS**

2402MHz



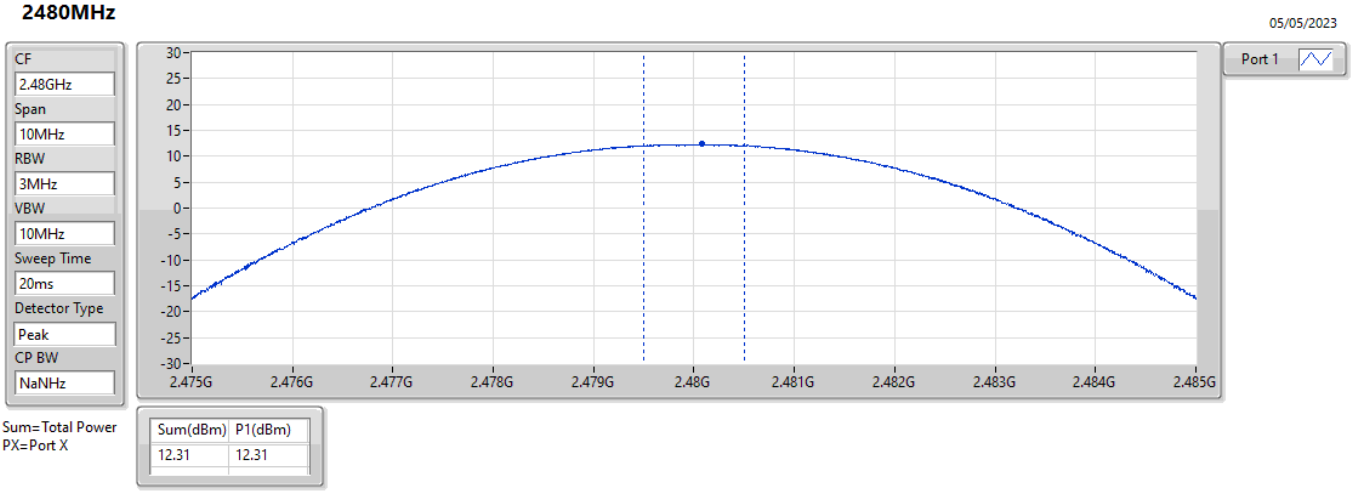
2.4-2.4835GHz_BT-EDR(2Mbps) **PK Power-FS**

2440MHz



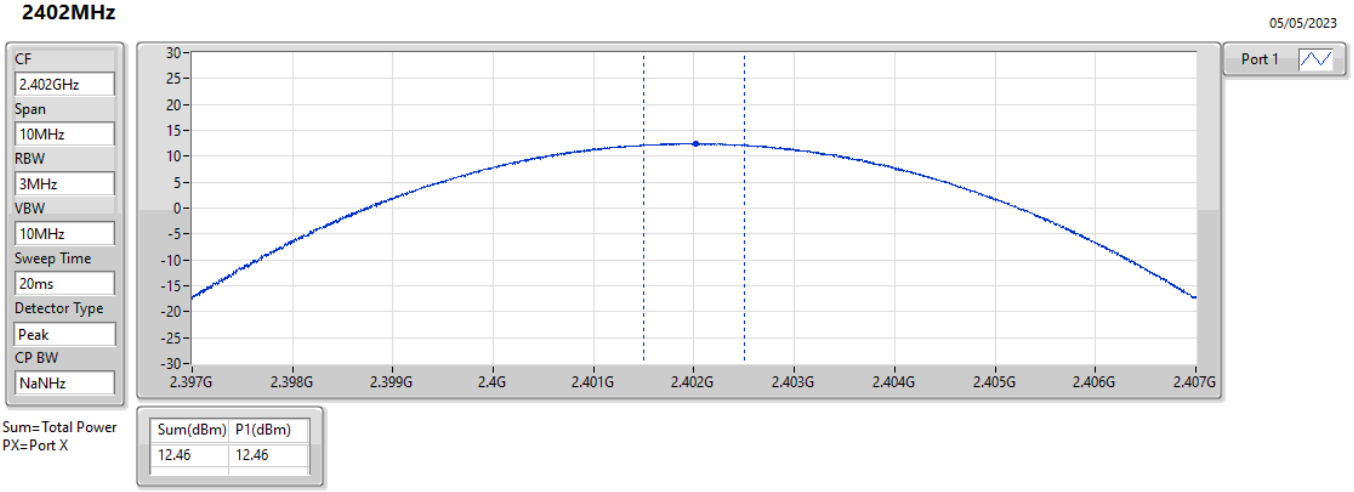
2.4-2.4835GHz_BT-EDR(2Mbps) **PK Power-FS**

2480MHz



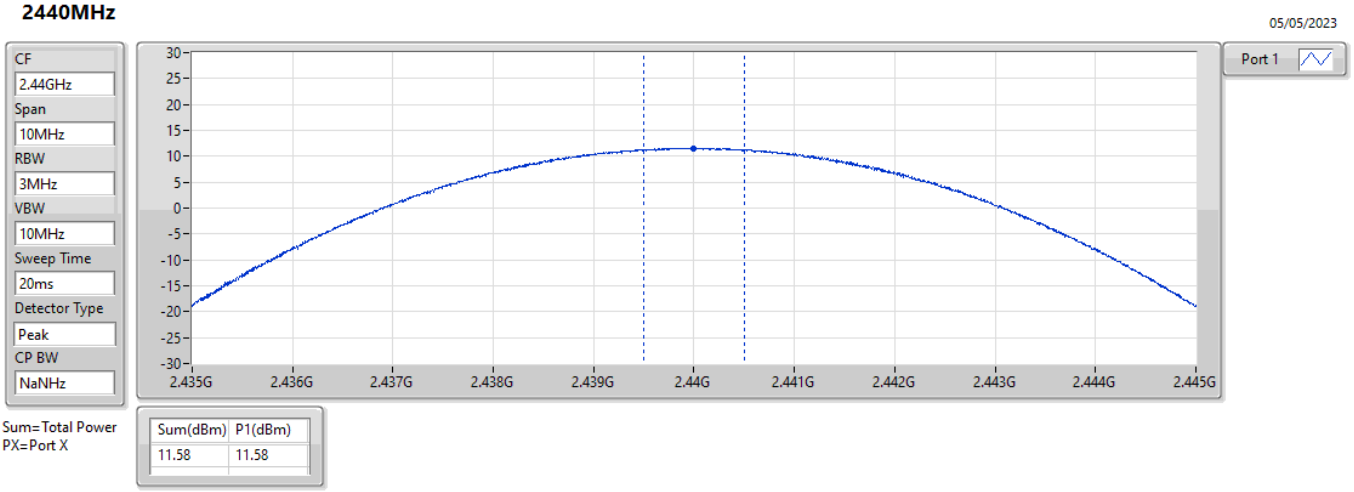
2.4-2.4835GHz_BT-EDR(3Mbps) **PK Power-FS**

2402MHz



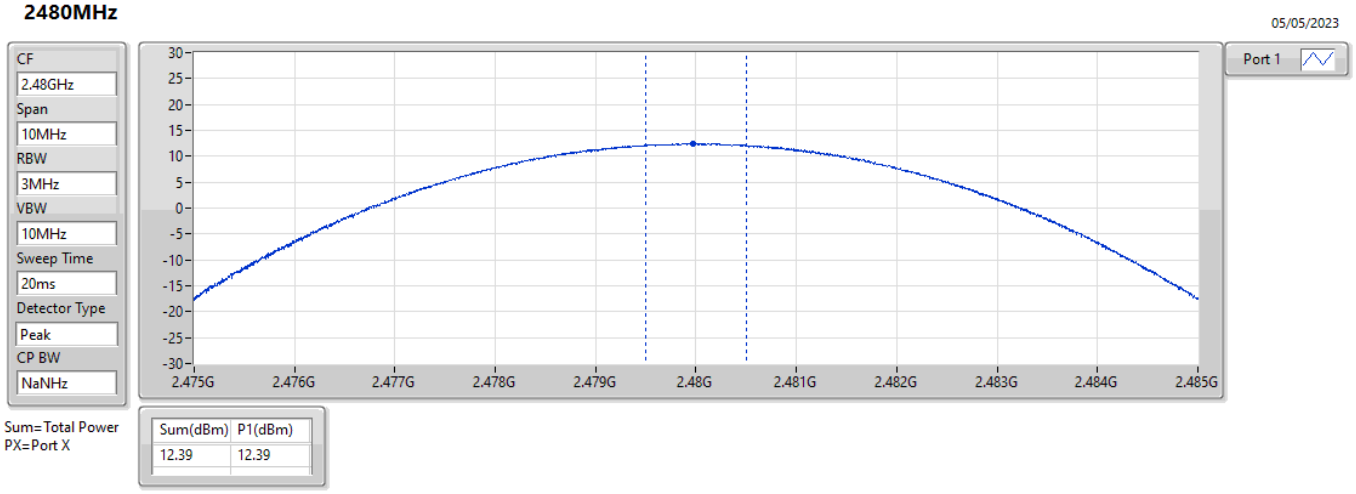
2.4-2.4835GHz_BT-EDR(3Mbps) **PK Power-FS**

2440MHz



2.4-2.4835GHz_BT-EDR(3Mbps) **PK Power-FS**

2480MHz



Summary

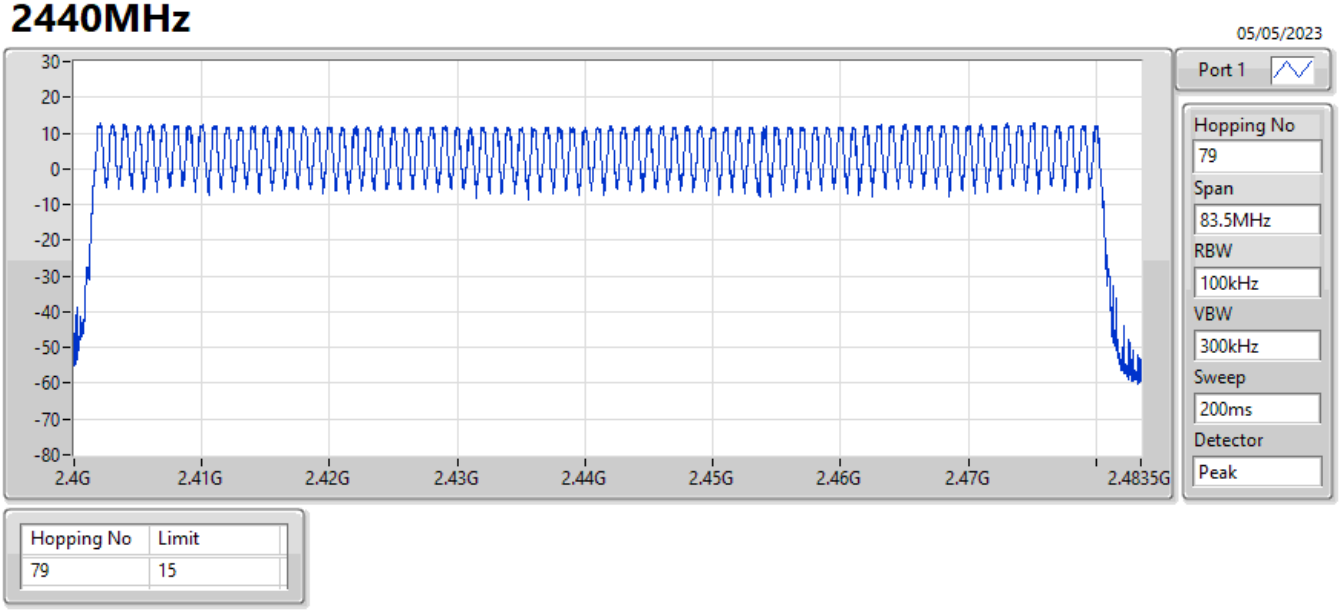
Mode	Max-Hop No
2.4-2.4835GHz	-
BT-BR(1Mbps)	79
BT-EDR(2Mbps)	79
BT-EDR(3Mbps)	79

Result

Mode	Result	Hopping No	Limit
BT-BR(1Mbps)	-	-	-
2440MHz	Pass	79	15
BT-EDR(2Mbps)	-	-	-
2440MHz	Pass	79	15
BT-EDR(3Mbps)	-	-	-
2440MHz	Pass	79	15

2.4-2.4835GHz_BT-BR(1Mbps) Hopping-FS

2440MHz

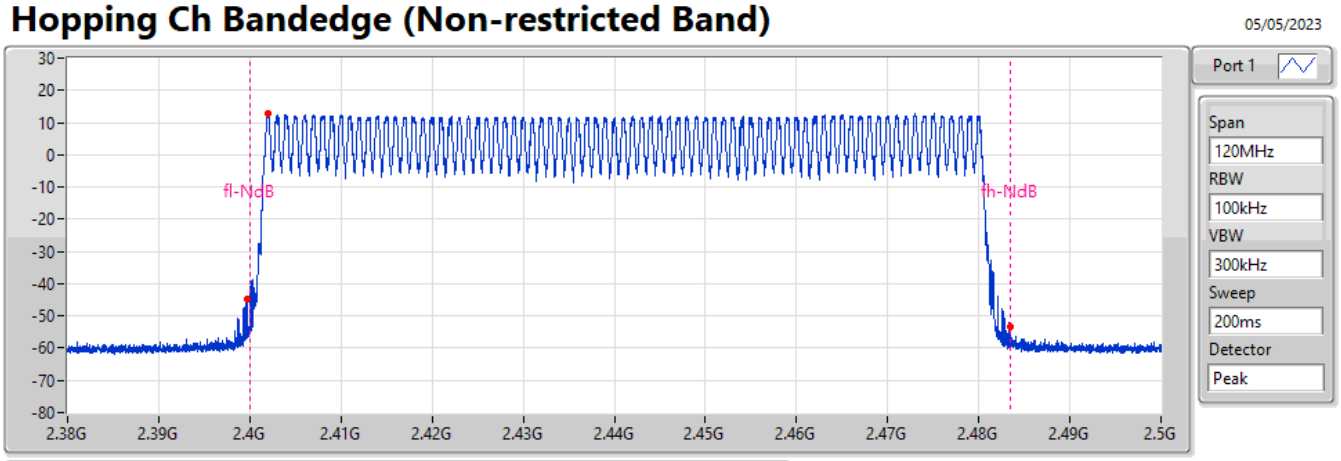


Hopping No	Limit
79	15

2.4-2.4835GHz_BT-BR(1Mbps)

2440MHz

Hopping Ch Bandedge (Non-restricted Band)

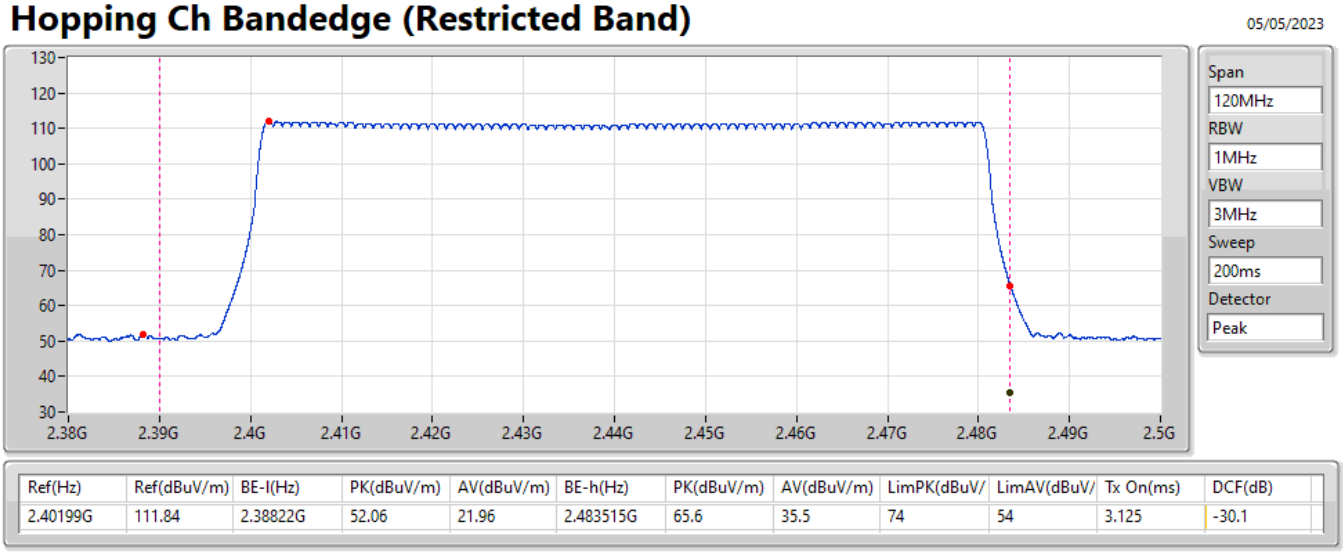


Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-7.25	2.402005G	12.75	2.399725G	-44.73	2.48353G	-53.23

2.4-2.4835GHz_BT-BR(1Mbps)

2440MHz

Hopping Ch Bandedge (Restricted Band)

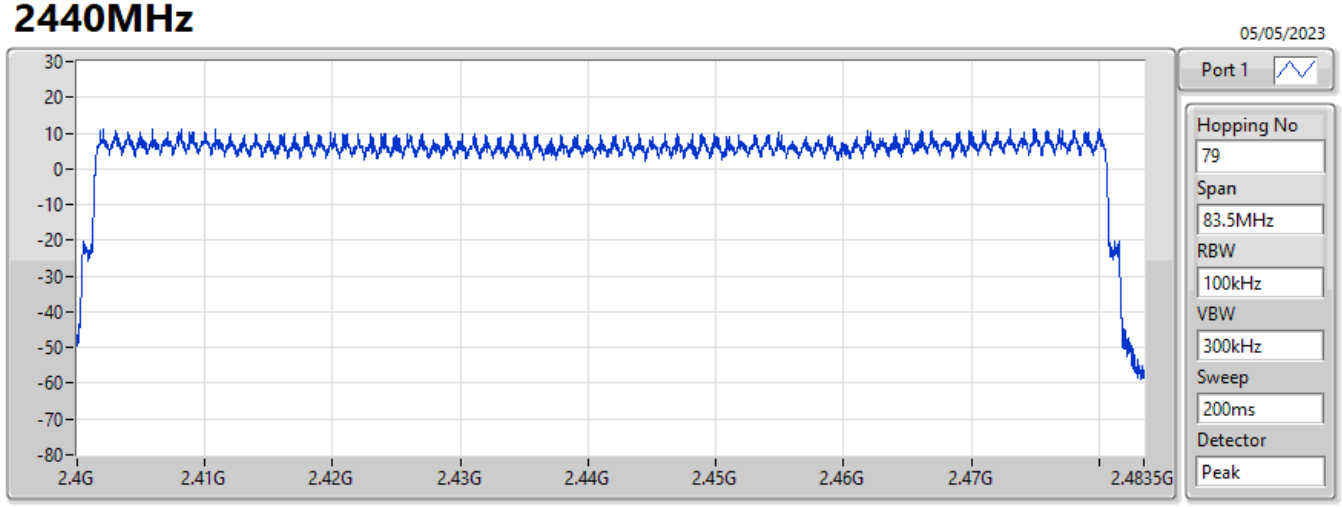


Ref(Hz)	Ref(dBuV/m)	BE-l(Hz)	PK(dBuV/m)	AV(dBuV/m)	BE-h(Hz)	PK(dBuV/m)	AV(dBuV/m)	LimPK(dBuV/	LimAV(dBuV/	Tx On(ms)	DCF(dB)
2.40199G	111.84	2.38822G	52.06	21.96	2.483515G	65.6	35.5	74	54	3.125	-30.1

2.4-2.4835GHz_BT-EDR(2Mbps)

Hopping-FS

2440MHz

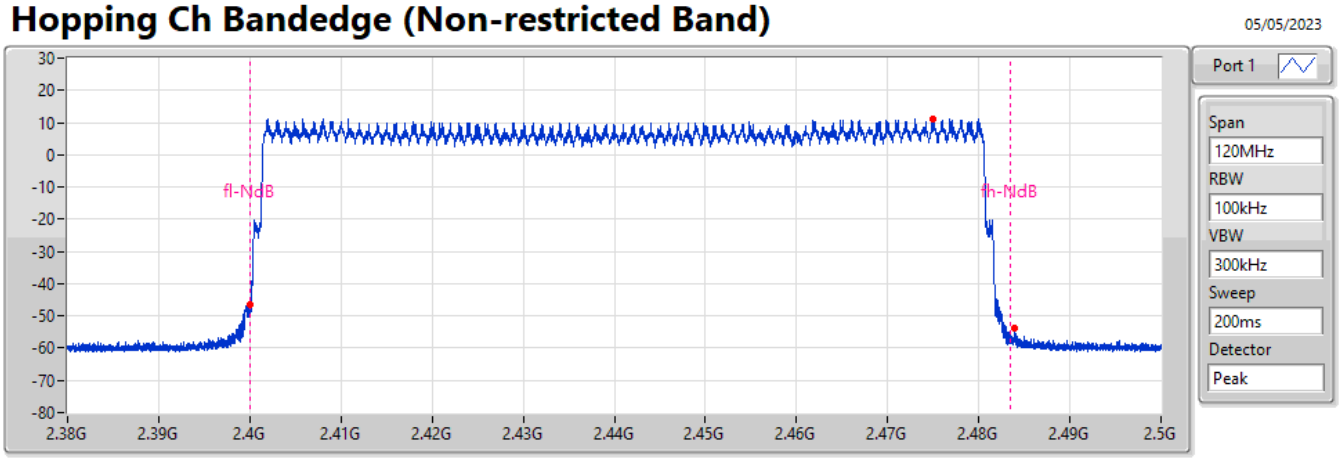


Hopping No	Limit
79	15

2.4-2.4835GHz_BT-EDR(2Mbps)

2440MHz

Hopping Ch Bandedge (Non-restricted Band)

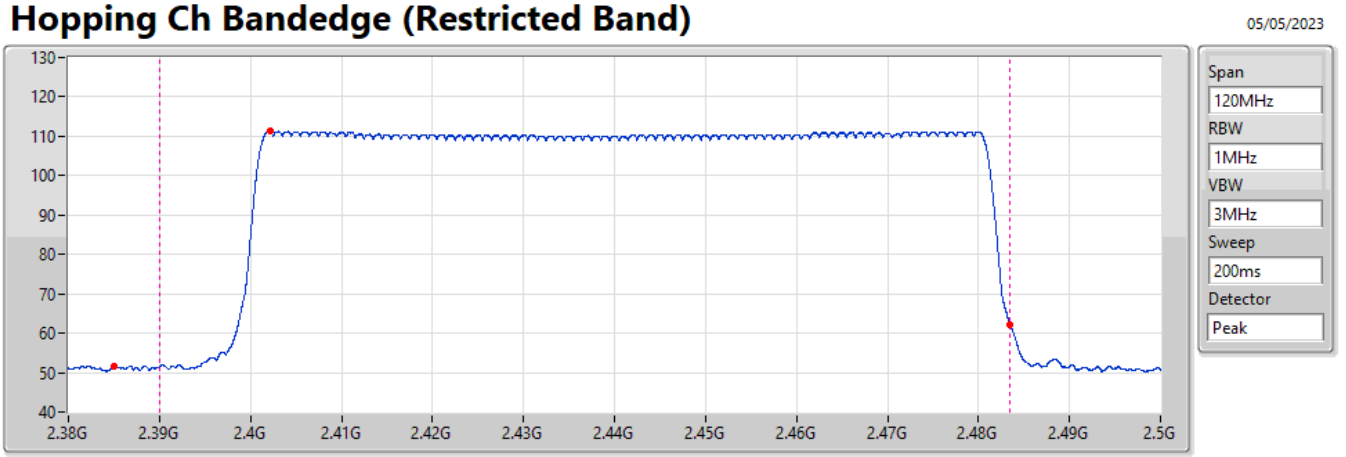


Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-8.97	2.47501G	11.03	2.399965G	-46.52	2.48398G	-54

2.4-2.4835GHz_BT-EDR(2Mbps)

2440MHz

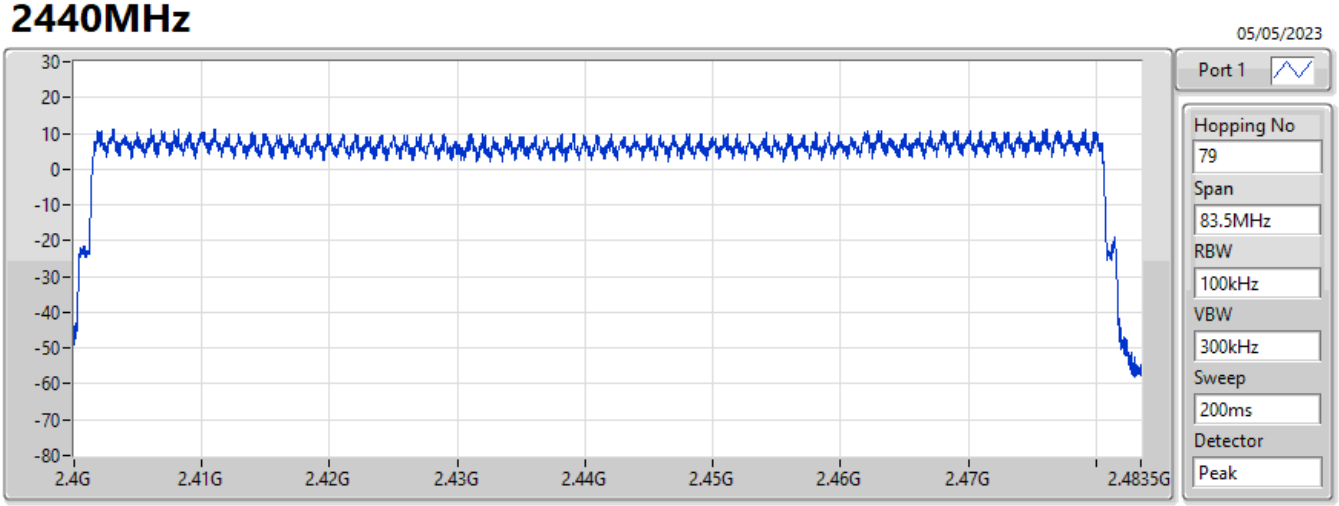
Hopping Ch Bandedge (Restricted Band)



Ref(Hz)	Ref(dBuV/m)	BE-l(Hz)	PK(dBuV/m)	AV(dBuV/m)	BE-h(Hz)	PK(dBuV/m)	AV(dBuV/m)	LimPK(dBuV/	LimAV(dBuV/	Tx On(ms)	DCF(dB)
2.402125G	111.22	2.38504G	51.77	21.67	2.483515G	62.15	32.05	74	54	3.125	-30.1

2.4-2.4835GHz_BT-EDR(3Mbps) Hopping-FS

2440MHz

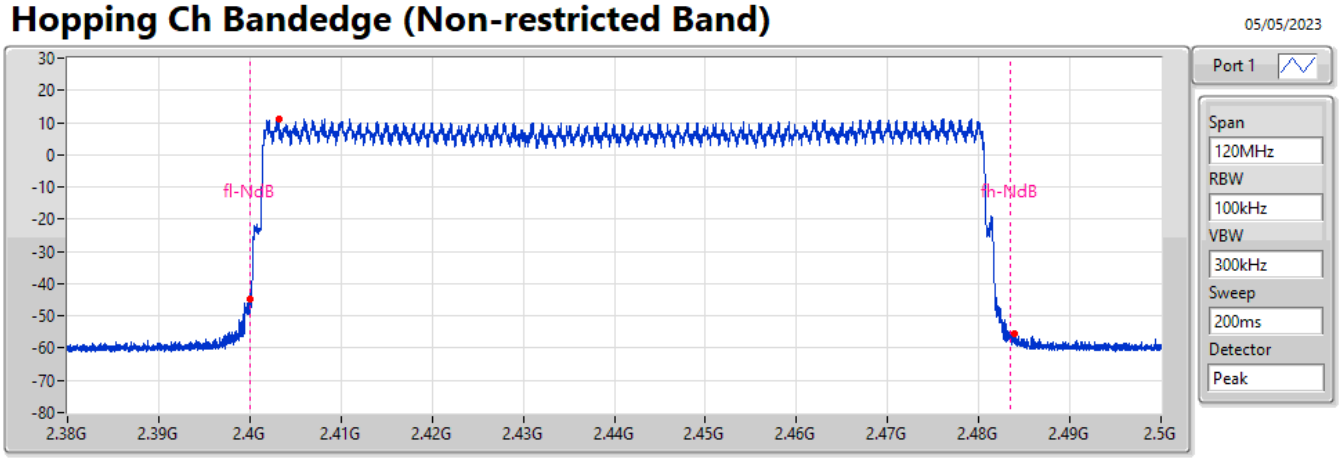


Hopping No	Limit
79	15

2.4-2.4835GHz_BT-EDR(3Mbps)

2440MHz

Hopping Ch Bandedge (Non-restricted Band)

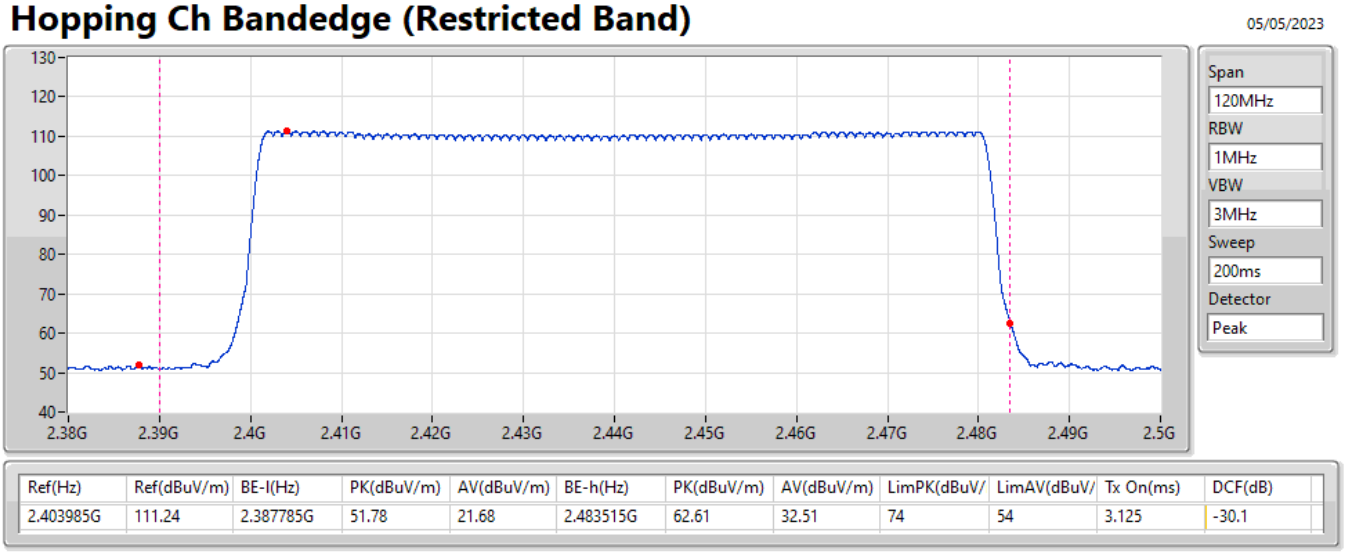


Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-8.94	2.40316G	11.06	2.39998G	-44.62	2.483845G	-55.36

2.4-2.4835GHz_BT-EDR(3Mbps)

2440MHz

Hopping Ch Bandedge (Restricted Band)



Ref(Hz)	Ref(dBuV/m)	BE-l(Hz)	PK(dBuV/m)	AV(dBuV/m)	BE-h(Hz)	PK(dBuV/m)	AV(dBuV/m)	LimPK(dBuV/	LimAV(dBuV/	Tx On(ms)	DCF(dB)
2.403985G	111.24	2.387785G	51.78	21.68	2.483515G	62.61	32.51	74	54	3.125	-30.1

Summary

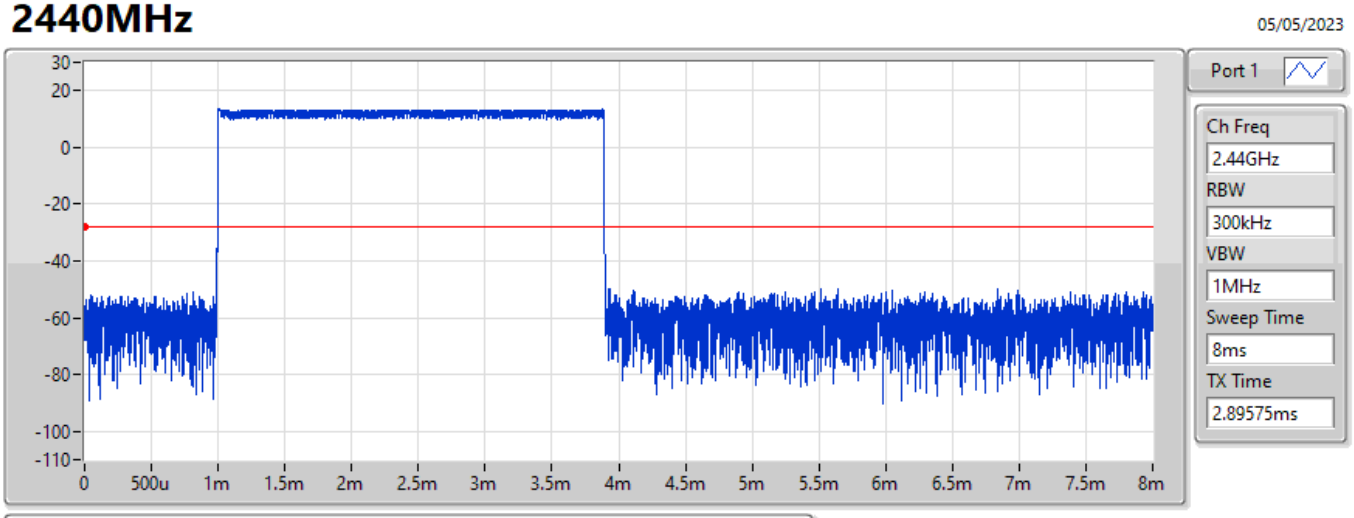
Mode	Max-Dwell (s)
2.4-2.4835GHz	-
BT-BR(1Mbps)	308.68695m_DH5
BT-EDR(2Mbps)	308.9801m_DH5
BT-EDR(3Mbps)	308.4471m_DH5

Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
BT-BR(1Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	308.68695m_DH5	400m	2.89575m
2440MHz	Pass	8	154.343475m_DH5-AFH	400m	2.89575m
BT-EDR(2Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	308.9801m_DH5	400m	2.8985m
2440MHz	Pass	8	154.49005m_DH5-AFH	400m	2.8985m
BT-EDR(3Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	308.4471m_DH5	400m	2.8935m
2440MHz	Pass	8	154.236875m_DH5-AFH	400m	2.89375m

2.4-2.4835GHz_BT-BR(1Mbps) Dwell-FS

2440MHz

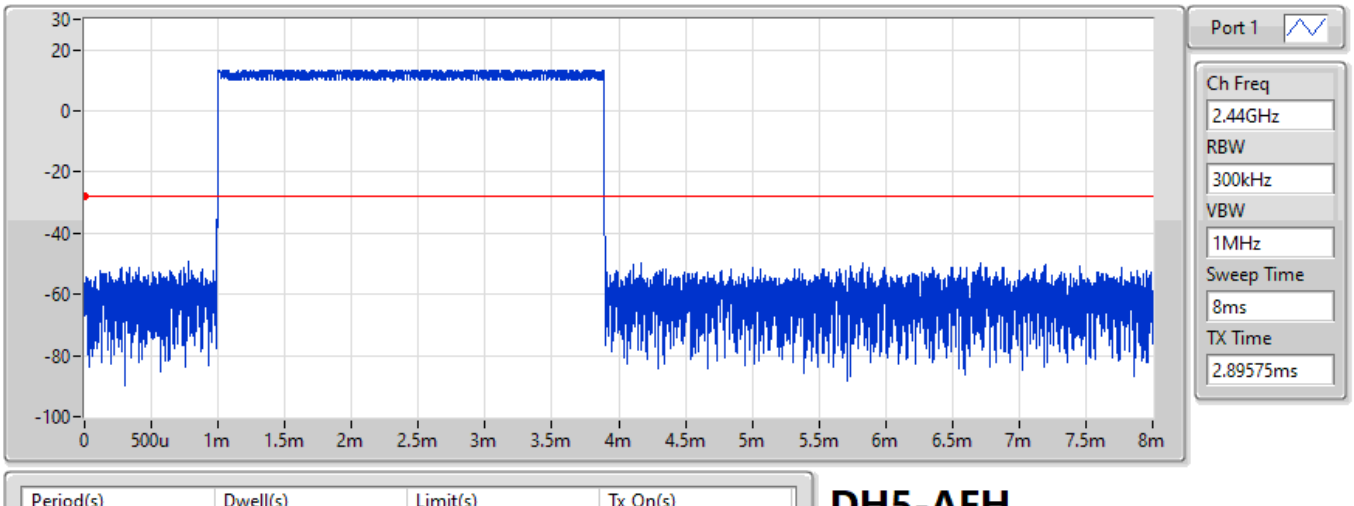


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	308.68695m_DH5	400m	2.89575m

DH5

2.4-2.4835GHz_BT-BR(1Mbps) Dwell-FS

2440MHz

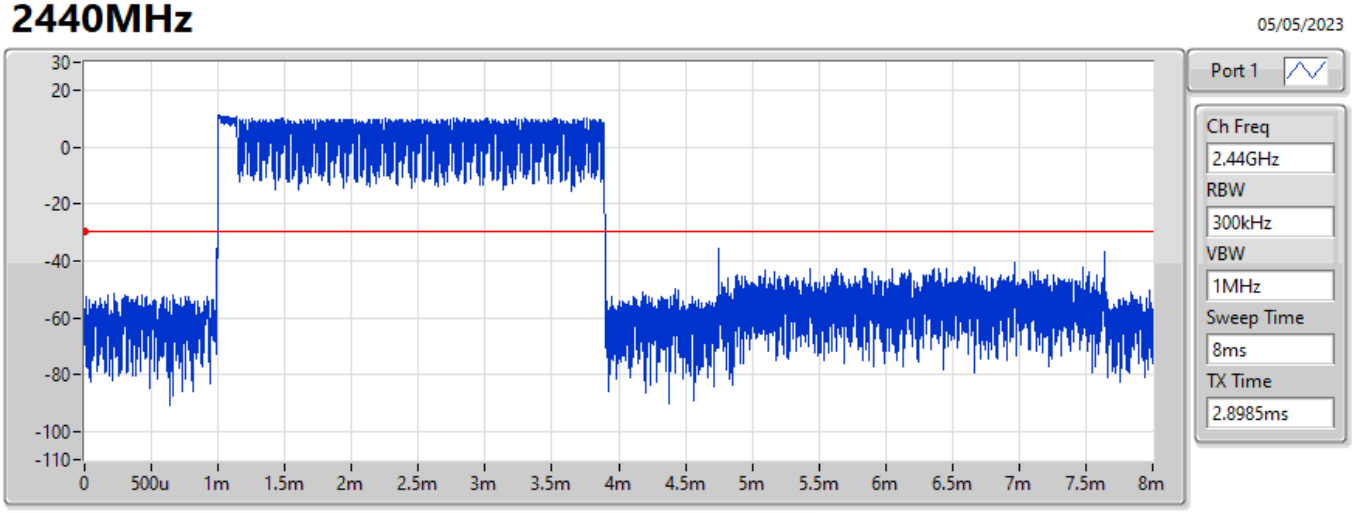


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
8	154.343475m_DH5-AFI	400m	2.89575m

DH5-AFH

2.4-2.4835GHz_BT-EDR(2Mbps) Dwell-FS

2440MHz

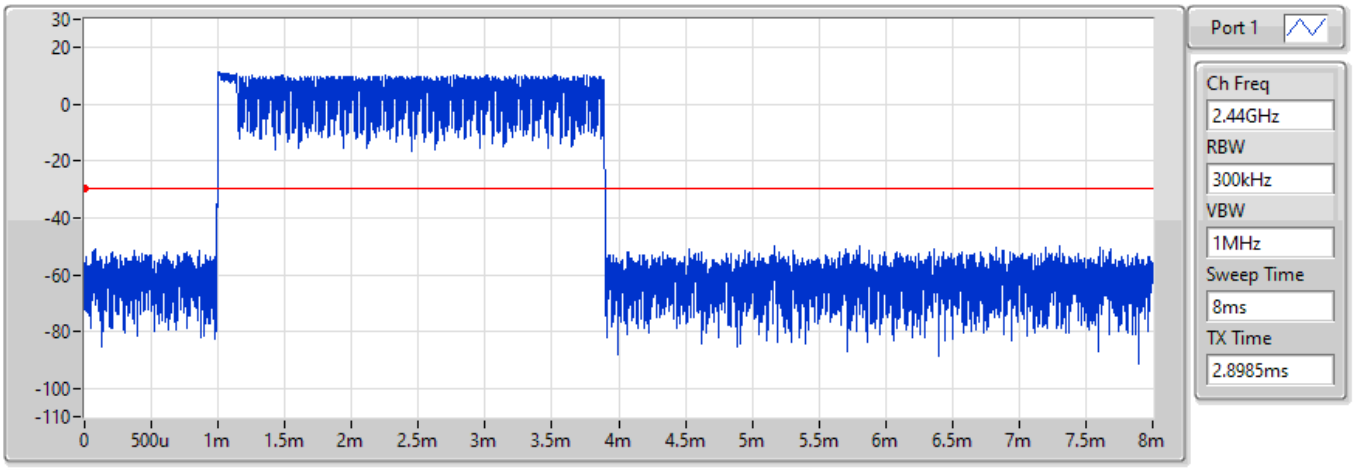


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	308.9801m_DH5	400m	2.8985m

DH5

2.4-2.4835GHz_BT-EDR(2Mbps) Dwell-FS

2440MHz

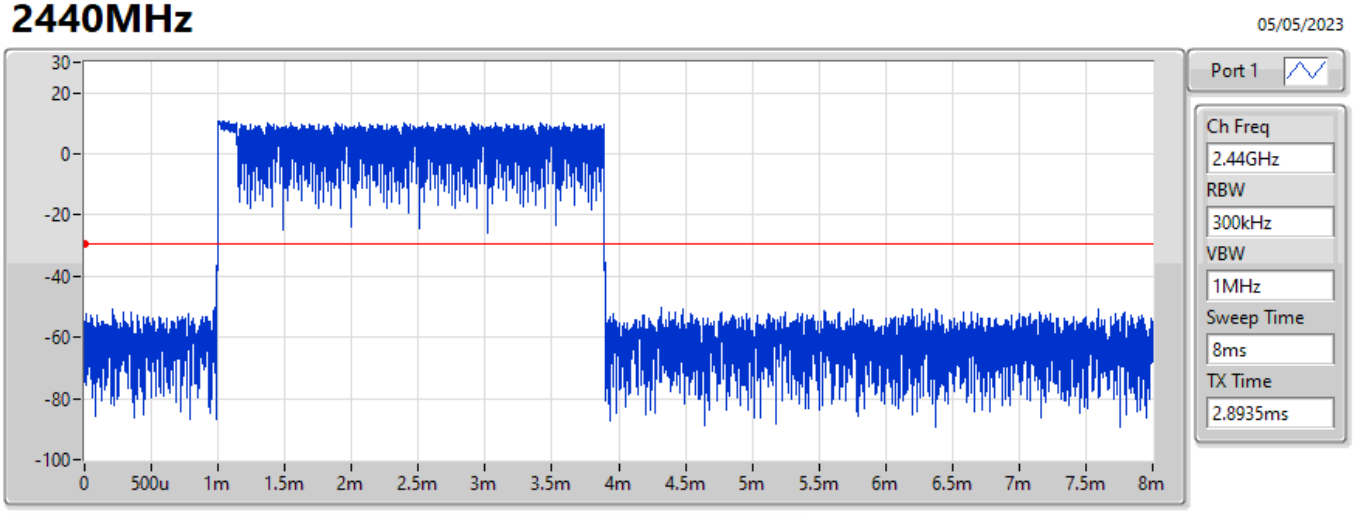


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
8	154.49005m_DH5-AFH	400m	2.8985m

DH5-AFH

2.4-2.4835GHz_BT-EDR(3Mbps) Dwell-FS

2440MHz

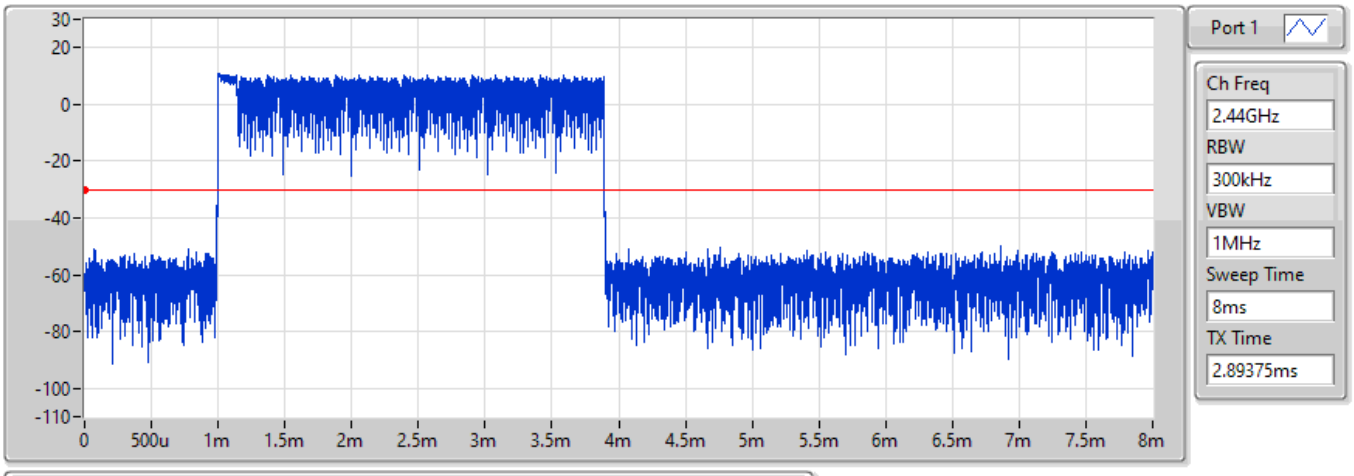


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	308.4471m_DH5	400m	2.8935m

DH5

2.4-2.4835GHz_BT-EDR(3Mbps) Dwell-FS

2440MHz



Period(s)	Dwell(s)	Limit(s)	Tx On(s)
8	154.236875m_DH5-AFI	400m	2.89375m

DH5-AFH

Summary

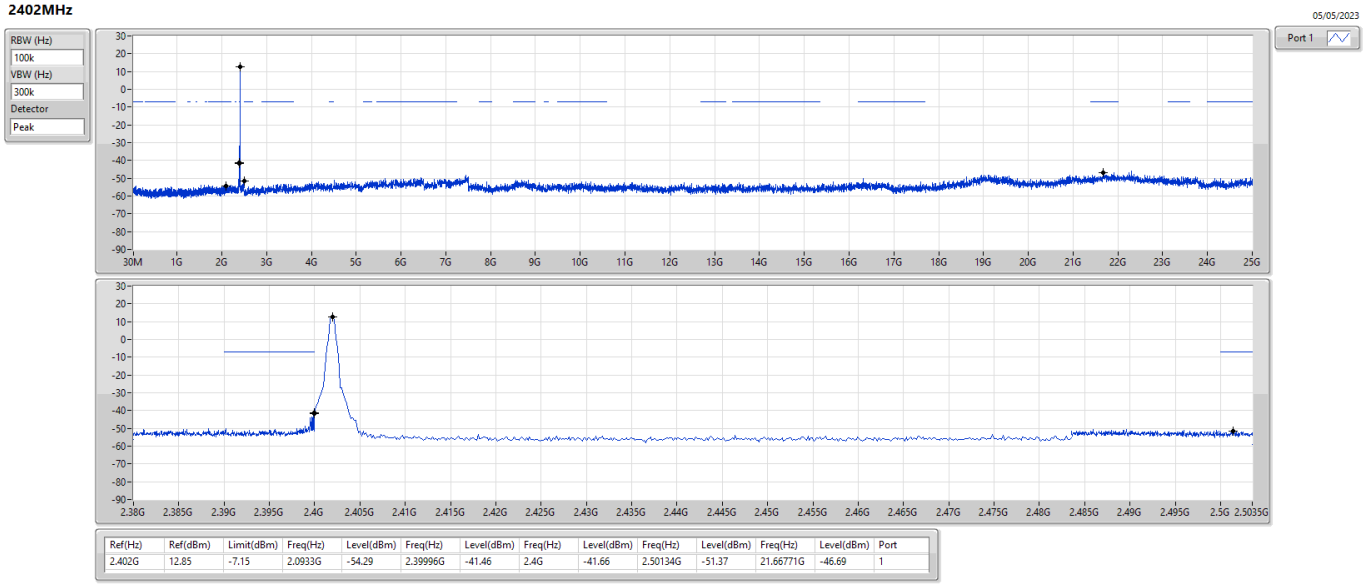
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	2.402G	12.85	-7.15	2.0933G	-54.29	2.39996G	-41.46	2.4G	-41.66	2.50134G	-51.37	21.66771G	-46.69	1
BT-EDR(2Mbps)	Pass	2.402G	11.14	-8.86	2.08978G	-53.46	2.39992G	-44.07	2.4G	-43.41	2.50006G	-51.12	21.99391G	-47.40	1
BT-EDR(3Mbps)	Pass	2.402G	10.19	-9.81	2.06275G	-53.94	2.4G	-44.13	2.4G	-43.72	2.5007G	-49.85	21.66208G	-46.62	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)	Freq (Hz)	Level (dBm)	Port
BT-BR(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	12.85	-7.15	2.0933G	-54.29	2.39996G	-41.46	2.4G	-41.66	2.50134G	-51.37	21.66771G	-46.69	1
2440MHz	Pass	2.43991G	11.37	-8.63	2.1967G	-52.63	2.39092G	-50.35	2.4G	-56.61	2.5019G	-51.18	21.61709G	-47.16	1
2480MHz	Pass	2.48016G	12.03	-7.97	2.18848G	-54.34	2.39268G	-51.41	2.4G	-56.42	2.50142G	-50.41	21.67052G	-46.67	1
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	11.14	-8.86	2.08978G	-53.46	2.39992G	-44.07	2.4G	-43.41	2.50006G	-51.12	21.99391G	-47.40	1
2440MHz	Pass	2.43991G	9.72	-10.28	2.09095G	-54.05	2.393G	-50.62	2.4G	-55.86	2.5027G	-51.41	21.80268G	-47.66	1
2480MHz	Pass	2.48016G	10.87	-9.13	1.80778G	-52.97	2.39988G	-50.35	2.4G	-56.68	2.50342G	-51.41	21.63396G	-47.88	1
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	10.19	-9.81	2.06275G	-53.94	2.4G	-44.13	2.4G	-43.72	2.5007G	-49.85	21.66208G	-46.62	1
2440MHz	Pass	2.44008G	9.64	-10.36	1.90413G	-53.59	2.39288G	-50.52	2.4G	-56.49	2.50042G	-51.13	21.65927G	-45.66	1
2480MHz	Pass	2.48016G	10.88	-9.12	2.01105G	-53.09	2.39324G	-50.94	2.4G	-56.29	2.50026G	-50.70	21.98828G	-46.43	1

2.4-2.4835GHz_BT-BR(1Mbps) CSENdB-FS

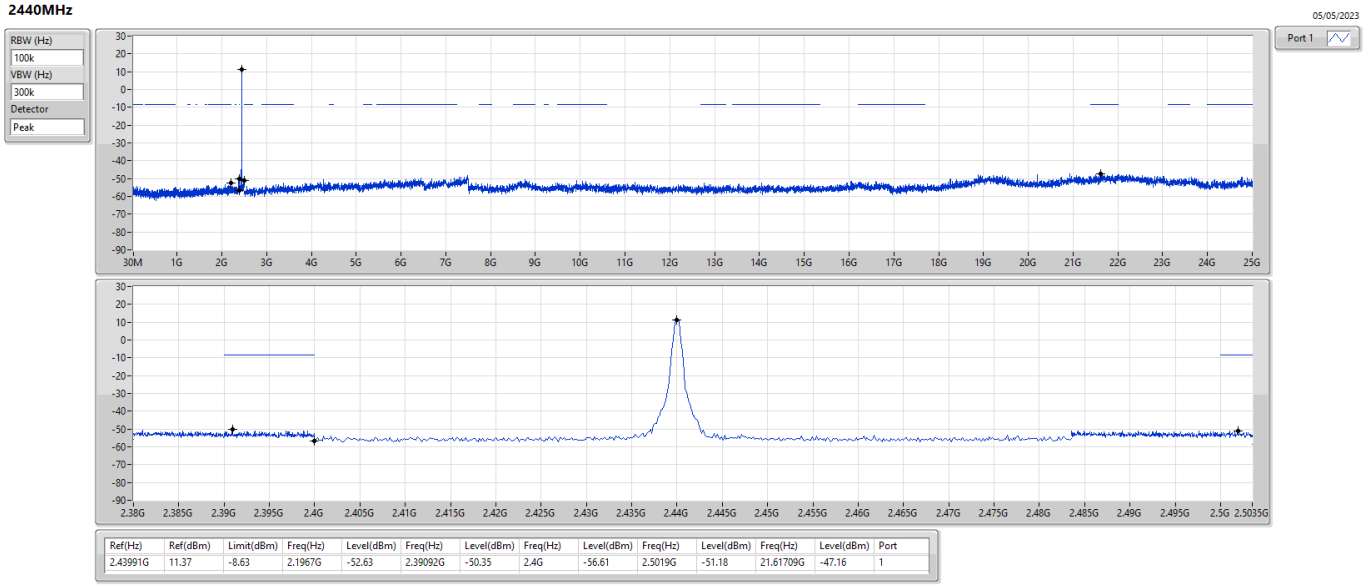
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	12.85	-7.15	2.0933G	-54.29	2.39996G	-41.46	2.4G	-41.66	2.50134G	-51.37	21.66771G	-46.69	1

2.4-2.4835GHz_BT-BR(1Mbps) CSENdB-FS

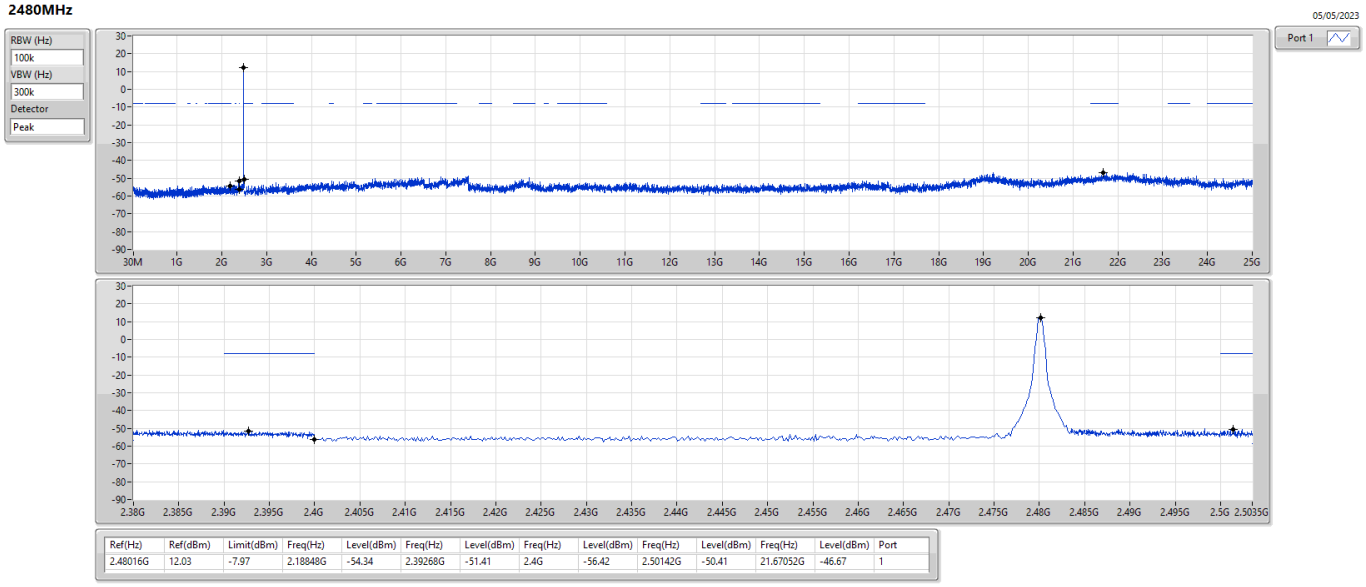
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43991G	11.37	-8.63	2.1967G	-52.63	2.39092G	-50.35	2.4G	-56.61	2.5019G	-51.18	21.61709G	-47.16	1

2.4-2.4835GHz_BT-BR(1Mbps) CSENdB-FS

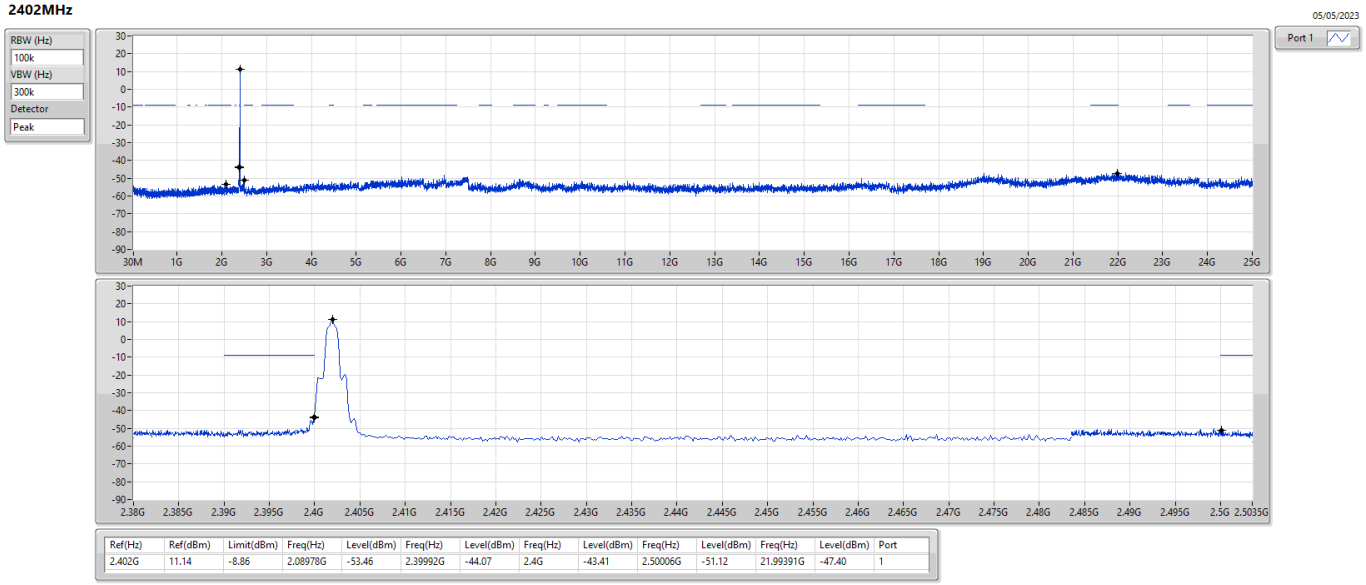
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48016G	12.03	-7.97	2.18848G	-54.34	2.39268G	-51.41	2.4G	-56.42	2.50142G	-50.41	21.67052G	-46.67	1

2.4-2.4835GHz_BT-EDR(2Mbps) CSENdB-FS

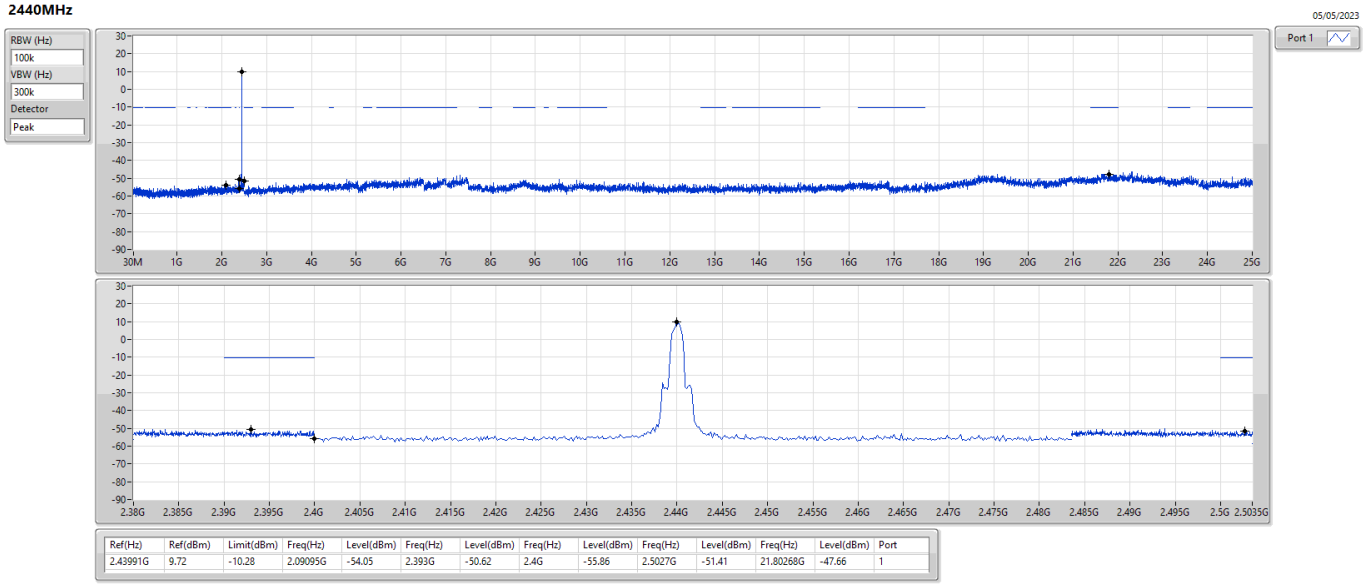
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	11.14	-8.86	2.08978G	-53.46	2.39992G	-44.07	2.4G	-43.41	2.50006G	-51.12	21.99391G	-47.40	1

2.4-2.4835GHz_BT-EDR(2Mbps) CSENdB-FS

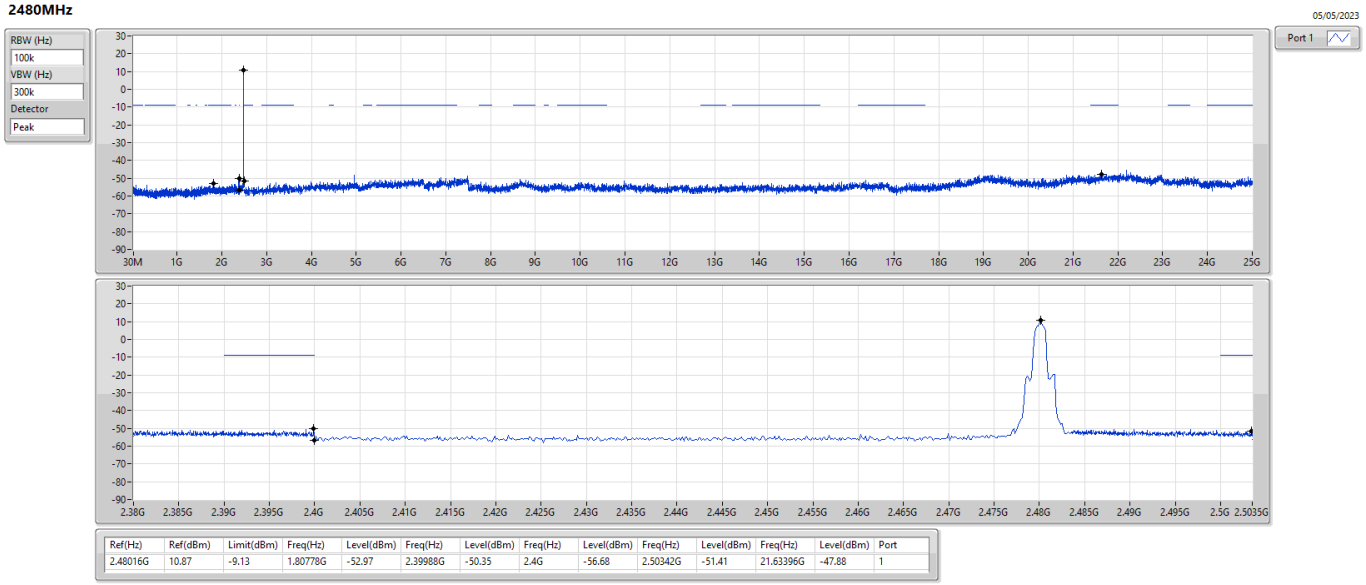
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.43991G	9.72	-10.28	2.09095G	-54.05	2.393G	-50.62	2.4G	-55.86	2.5027G	-51.41	21.80268G	-47.66	1

2.4-2.4835GHz_BT-EDR(2Mbps) CSENdB-FS

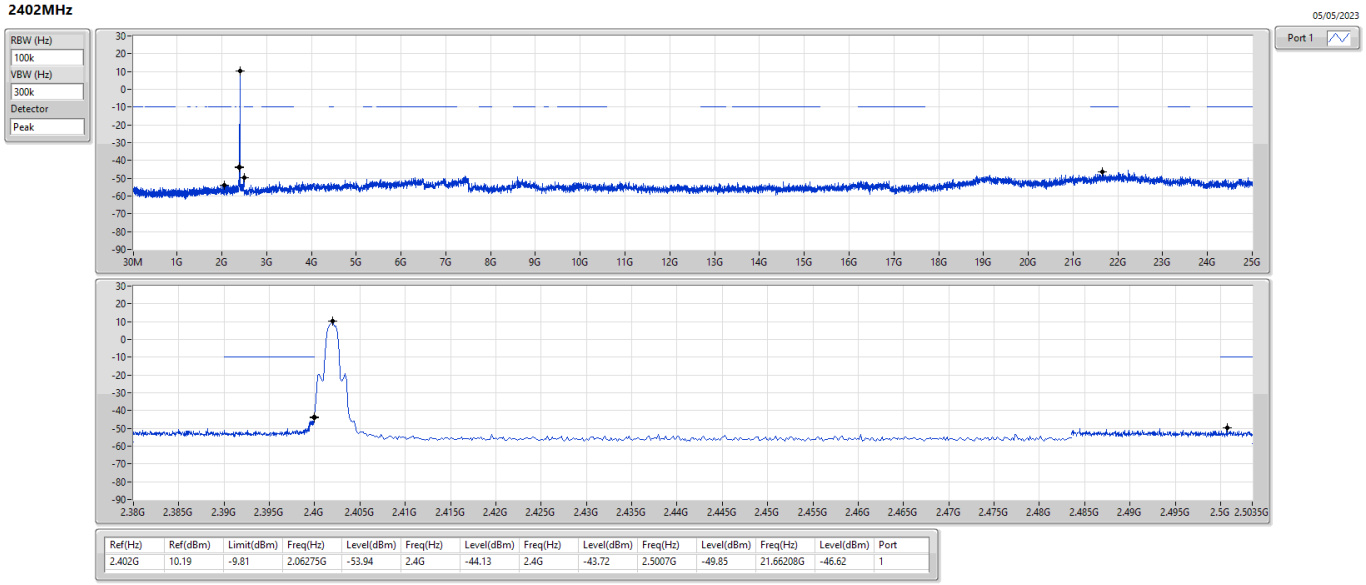
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48016G	10.87	-9.13	1.80778G	-52.97	2.39988G	-50.35	2.4G	-56.68	2.50342G	-51.41	21.63396G	-47.88	1

2.4-2.4835GHz_BT-EDR(3Mbps) CSENdB-FS

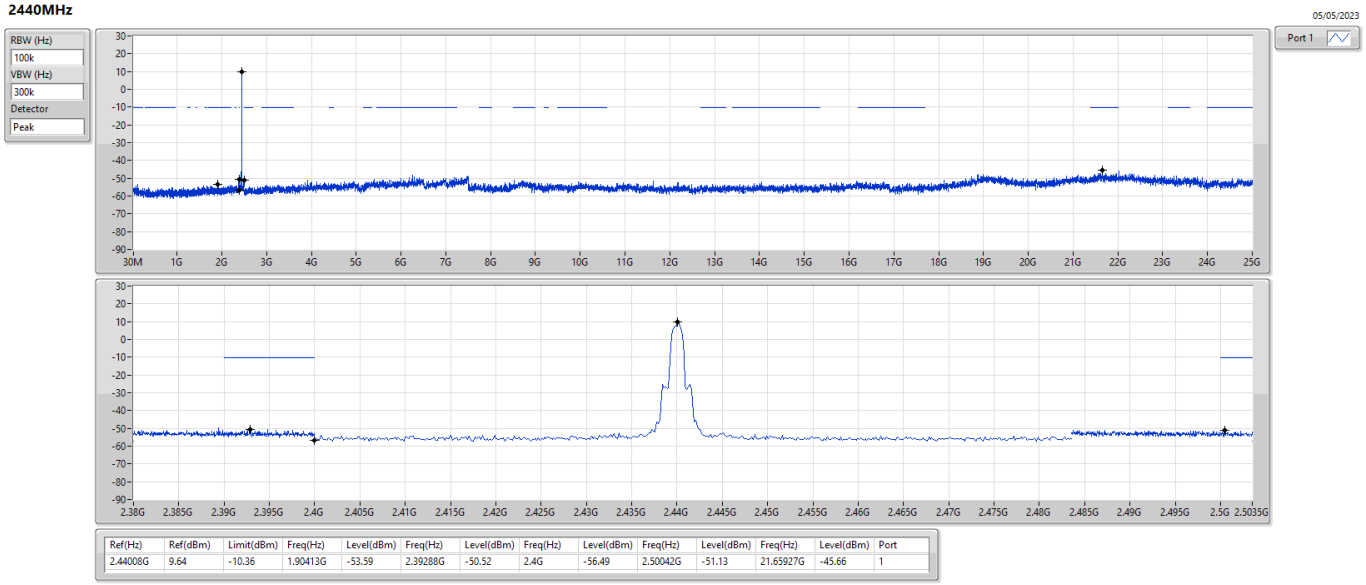
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	10.19	-9.81	2.06275G	-53.94	2.4G	-44.13	2.4G	-43.72	2.5007G	-49.85	21.66208G	-46.62	1

2.4-2.4835GHz_BT-EDR(3Mbps) CSENdB-FS

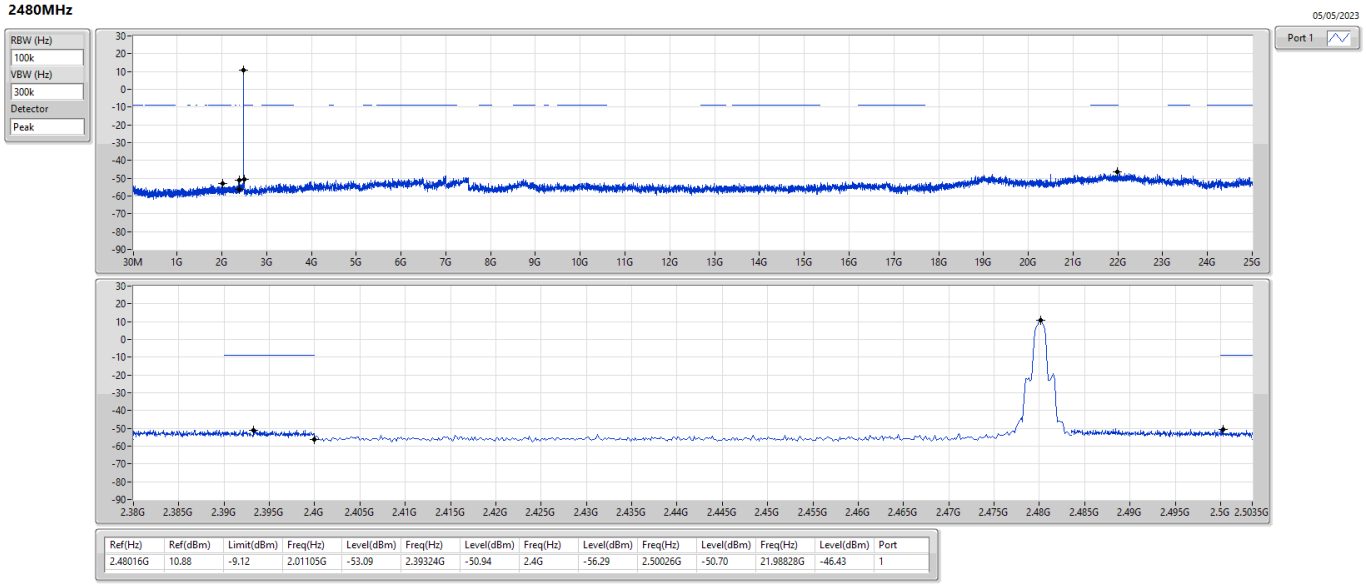
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	9.64	-10.36	1.90413G	-53.59	2.39288G	-50.52	2.4G	-56.49	2.50042G	-51.13	21.65927G	-45.66	1

2.4-2.4835GHz_BT-EDR(3Mbps) CSENdB-FS

2480MHz

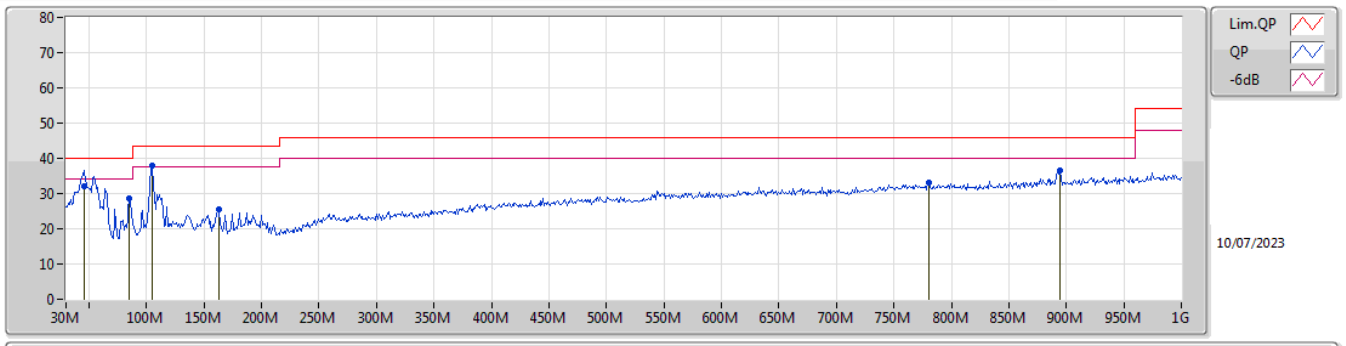


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48016G	10.88	-9.12	2.01105G	-53.09	2.39324G	-50.94	2.4G	-56.29	2.50026G	-50.70	21.98828G	-46.43	1

Summary

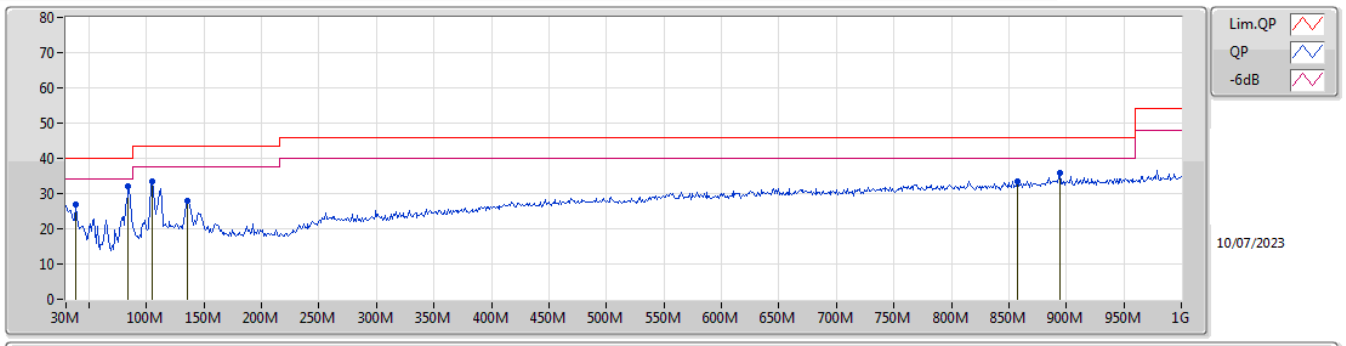
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 9	Pass	PK	104.69M	37.93	43.50	-5.57	Vertical

Mode 9



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
QP	45.52M	32.23	40.00	-7.77	-14.61	3	Vertical	2	1.00	-	46.84	15.99	1.22	31.82
PK	85.29M	28.52	40.00	-11.48	-16.43	3	Vertical	166	1.00	-	44.95	13.89	1.58	31.90
PK	104.69M	37.93	43.50	-5.57	-12.75	3	Vertical	202	1.25	"Worst"	50.68	17.45	1.75	31.95
PK	162.89M	25.49	43.50	-18.01	-14.01	3	Vertical	146	1.00	-	39.50	15.86	2.17	32.04
PK	780.78M	33.04	46.00	-12.96	-1.90	3	Vertical	5	1.00	-	34.94	25.60	5.13	32.63
PK	894.27M	36.53	46.00	-9.47	-0.46	3	Vertical	360	3.00	-	36.99	26.37	5.64	32.47

Mode 9



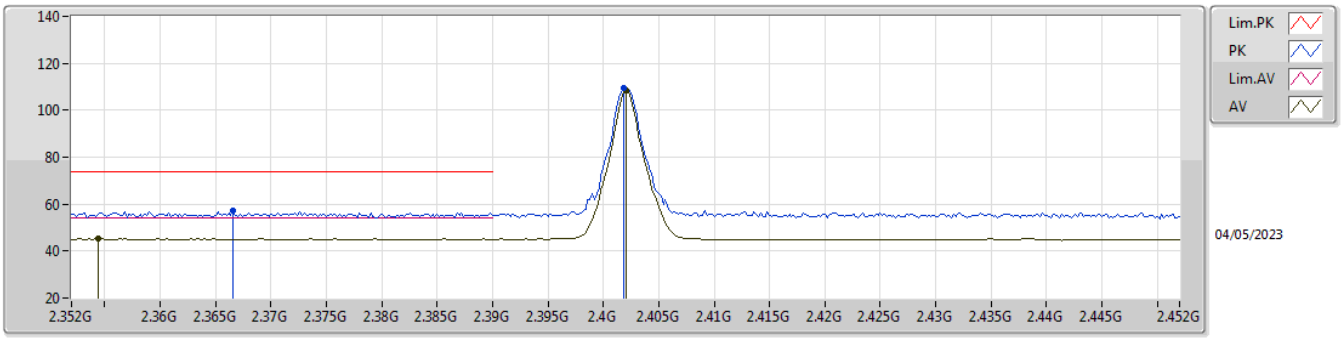
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	38.73M	26.90	40.00	-13.10	-11.18	3	Horizontal	325	1.00	-	38.08	19.45	1.13	31.76
PK	84.32M	32.16	40.00	-7.84	-16.62	3	Horizontal	320	1.00	"Worst"	48.78	13.70	1.58	31.90
PK	104.69M	33.30	43.50	-10.20	-12.75	3	Horizontal	356	1.50	-	46.05	17.45	1.75	31.95
PK	135.73M	27.87	43.50	-15.63	-12.42	3	Horizontal	241	1.50	-	40.29	17.57	1.98	31.97
PK	857.41M	33.61	46.00	-12.39	-1.14	3	Horizontal	265	2.00	-	34.75	26.02	5.44	32.60
PK	894.27M	35.74	46.00	-10.26	-0.46	3	Horizontal	285	1.50	-	36.20	26.37	5.64	32.47

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	AV	2.4835G	52.47	54.00	-1.23	3	Vertical	245	1.10	-

2.4-2.4835GHz_BT-BR(1Mbps)

2402MHz_TX

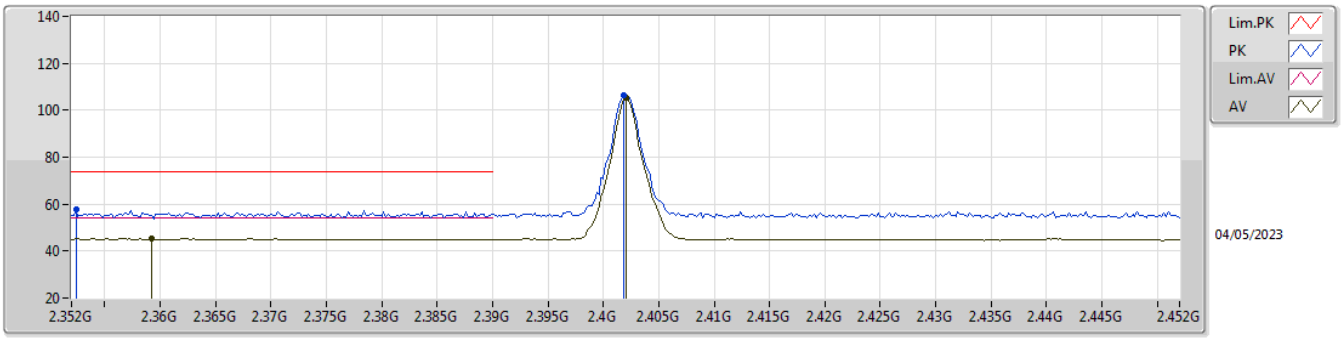


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3666G	57.34	74.00	-16.66	24.58	3	Vertical	232	1.80	-	27.73	5.03	-
AV	2.3544G	45.27	54.00	-8.73	12.48	3	Vertical	232	1.80	-	27.78	5.01	-
PK	2.4018G	109.29	Inf	-Inf	76.58	3	Vertical	232	1.80	-	27.60	5.11	-
AV	2.402G	108.46	Inf	-Inf	75.75	3	Vertical	232	1.80	-	27.60	5.11	-

2.4-2.4835GHz_BT-BR(1Mbps)

2402MHz_TX

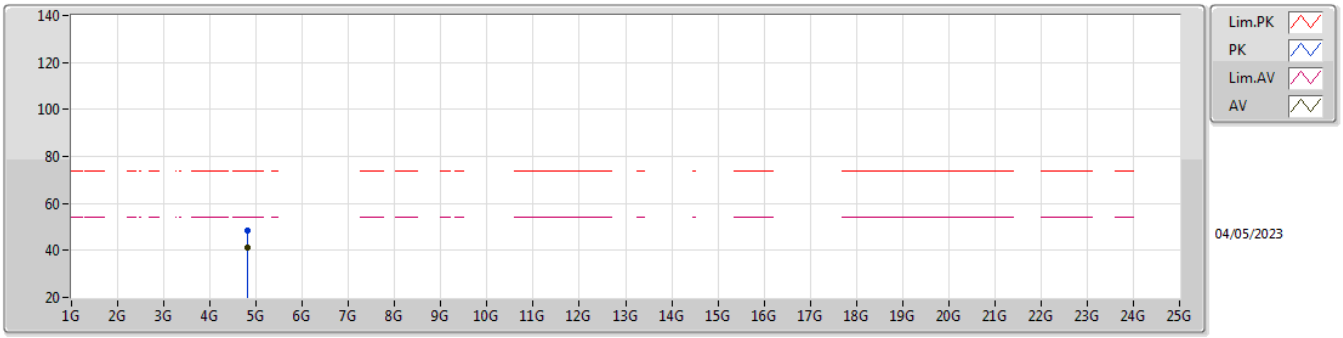


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3524G	57.51	74.00	-16.49	24.72	3	Horizontal	262	2.77	-	27.79	5.00	-
AV	2.3592G	45.29	54.00	-8.71	12.51	3	Horizontal	262	2.77	-	27.76	5.02	-
PK	2.4018G	106.16	Inf	-Inf	73.45	3	Horizontal	262	2.77	-	27.60	5.11	-
AV	2.402G	105.33	Inf	-Inf	72.62	3	Horizontal	262	2.77	-	27.60	5.11	-

2.4-2.4835GHz_BT-BR(1Mbps)

2402MHz_TX

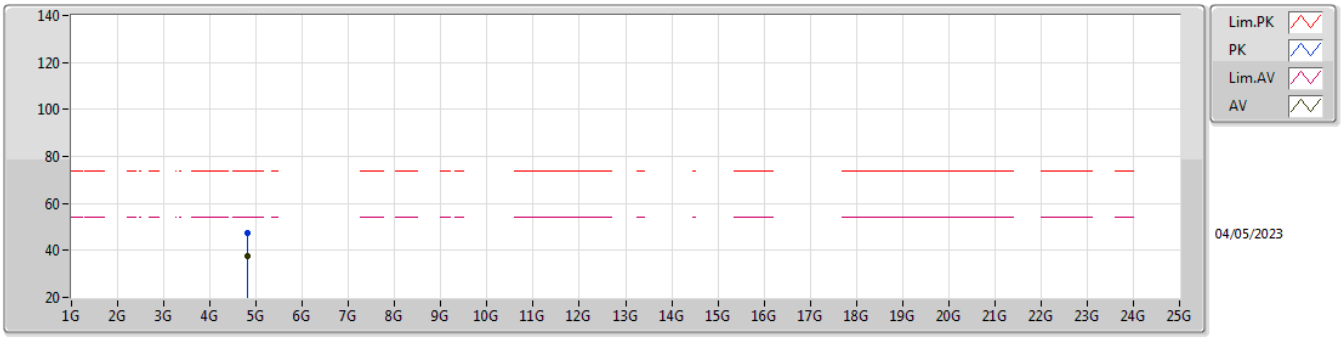


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.8037G	48.63	74.00	-25.37	43.10	3	Vertical	277	2.50	-	31.31	6.75	32.53
AV	4.80403G	41.15	54.00	-12.85	35.62	3	Vertical	277	2.50	-	31.31	6.75	32.53

2.4-2.4835GHz_BT-BR(1Mbps)

2402MHz_TX

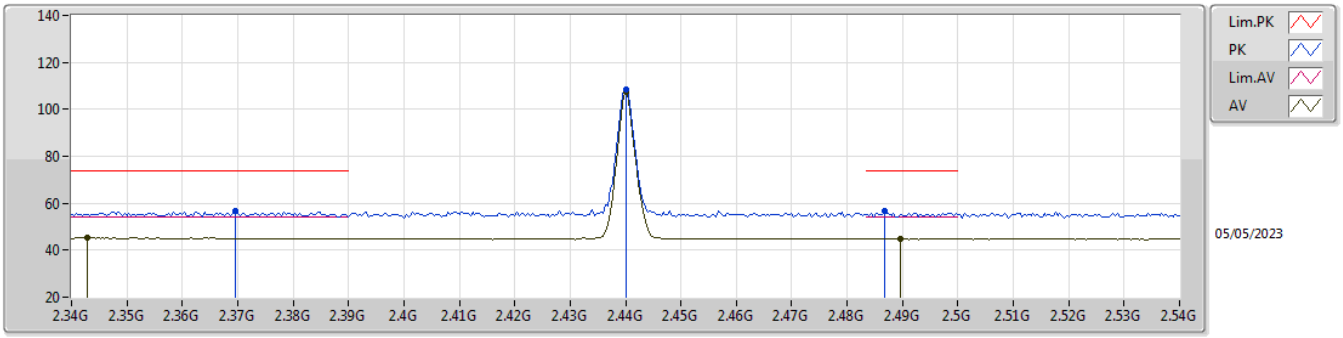


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.80425G	47.22	74.00	-26.78	41.69	3	Horizontal	95	2.64	-	31.31	6.75	32.53
AV	4.80397G	37.50	54.00	-16.50	31.97	3	Horizontal	95	2.64	-	31.31	6.75	32.53

2.4-2.4835GHz_BT-BR(1Mbps)

2440MHz_TX

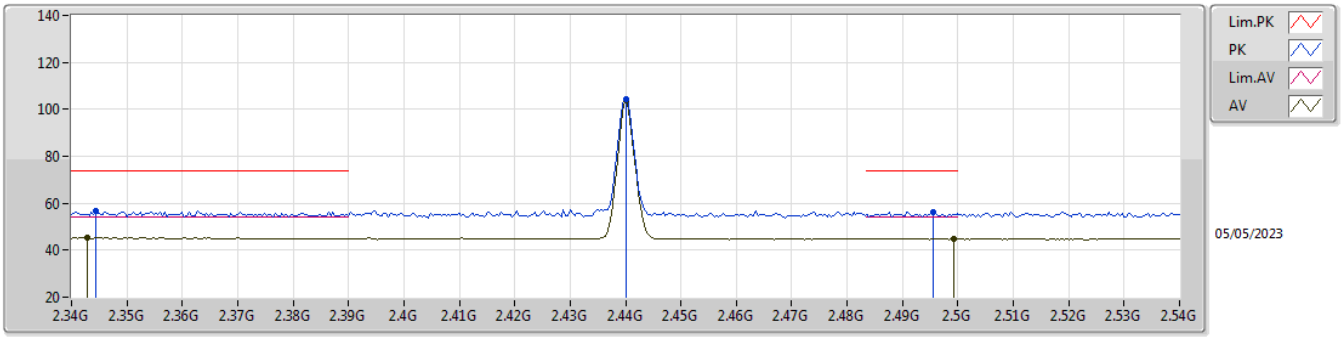


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3696G	56.81	74.00	-17.19	24.05	3	Vertical	246	1.08	-	27.72	5.04	-
AV	2.3428G	45.36	54.00	-8.64	12.54	3	Vertical	246	1.08	-	27.84	4.98	-
PK	2.44G	108.47	Inf	-Inf	75.76	3	Vertical	246	1.08	-	27.60	5.11	-
AV	2.44G	107.61	Inf	-Inf	74.90	3	Vertical	246	1.08	-	27.60	5.11	-
PK	2.4868G	56.68	74.00	-17.32	23.97	3	Vertical	246	1.08	-	27.60	5.11	-
AV	2.4896G	44.95	54.00	-9.05	12.24	3	Vertical	246	1.08	-	27.60	5.11	-

2.4-2.4835GHz_BT-BR(1Mbps)

2440MHz_TX

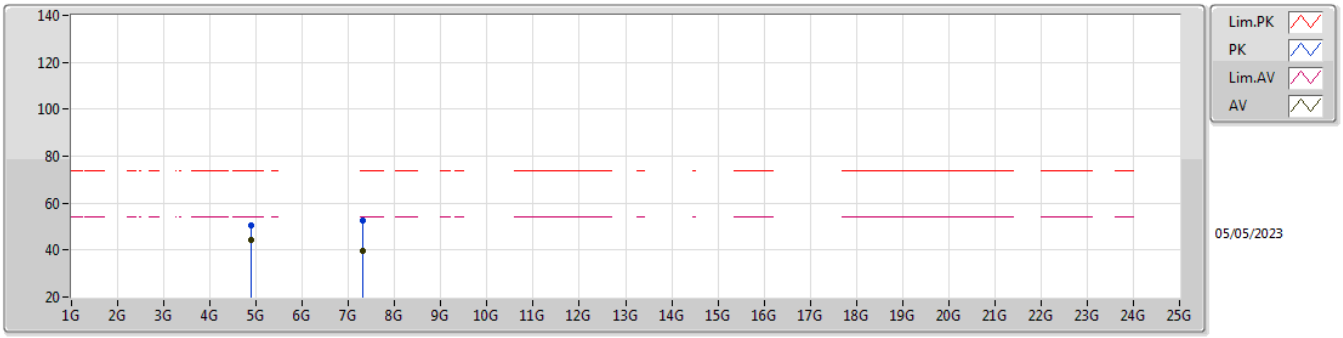


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3444G	56.80	74.00	-17.20	23.99	3	Horizontal	277	2.72	-	27.83	4.98	-
AV	2.3428G	45.27	54.00	-8.73	12.45	3	Horizontal	277	2.72	-	27.84	4.98	-
PK	2.44G	104.50	Inf	-Inf	71.79	3	Horizontal	277	2.72	-	27.60	5.11	-
AV	2.44G	103.61	Inf	-Inf	70.90	3	Horizontal	277	2.72	-	27.60	5.11	-
PK	2.4956G	56.10	74.00	-17.90	23.39	3	Horizontal	277	2.72	-	27.60	5.11	-
AV	2.4992G	44.86	54.00	-9.14	12.15	3	Horizontal	277	2.72	-	27.60	5.11	-

2.4-2.4835GHz_BT-BR(1Mbps)

2440MHz_TX

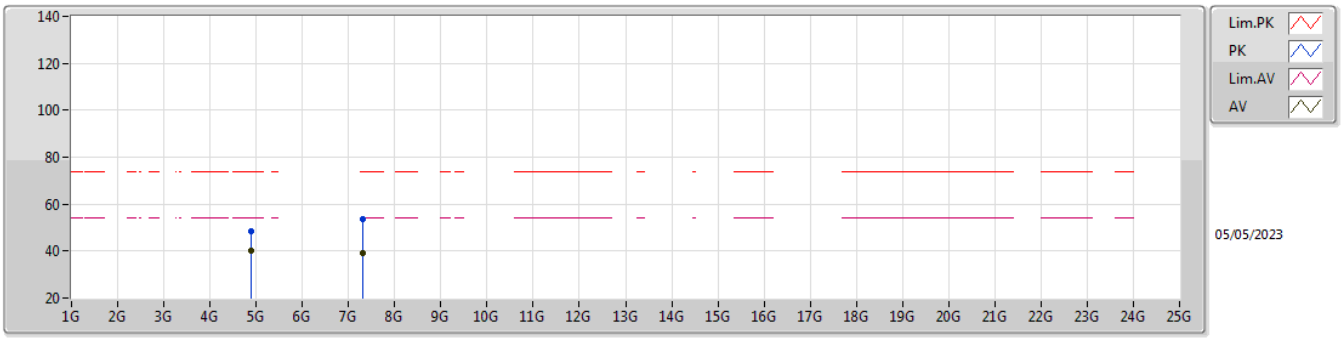


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.87965G	50.59	74.00	-23.41	44.91	3	Vertical	243	2.54	-	31.40	6.78	32.50
AV	4.88003G	44.38	54.00	-9.62	38.70	3	Vertical	243	2.54	-	31.40	6.78	32.50
PK	7.32G	52.47	74.00	-21.53	41.15	3	Vertical	290	1.80	-	36.70	8.07	33.45
AV	7.31975G	39.68	54.00	-14.32	28.36	3	Vertical	290	1.80	-	36.70	8.07	33.45

2.4-2.4835GHz_BT-BR(1Mbps)

2440MHz_TX

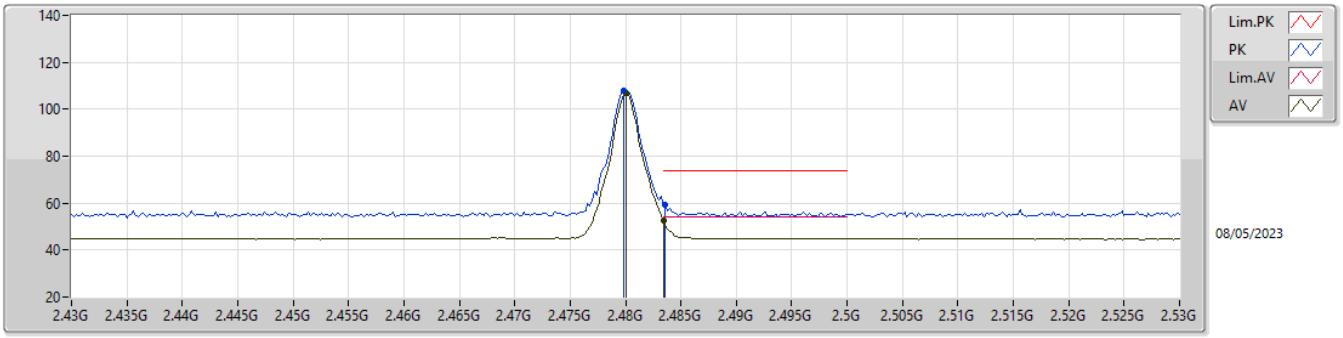


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.88026G	48.68	74.00	-25.32	43.00	3	Horizontal	93	2.89	-	31.40	6.78	32.50
AV	4.88G	39.96	54.00	-14.04	34.28	3	Horizontal	93	2.89	-	31.40	6.78	32.50
PK	7.31758G	53.79	74.00	-20.21	42.47	3	Horizontal	121	1.55	-	36.70	8.07	33.45
AV	7.32042G	39.14	54.00	-14.86	27.82	3	Horizontal	121	1.55	-	36.70	8.07	33.45

2.4-2.4835GHz_BT-BR(1Mbps)

2480MHz_TX

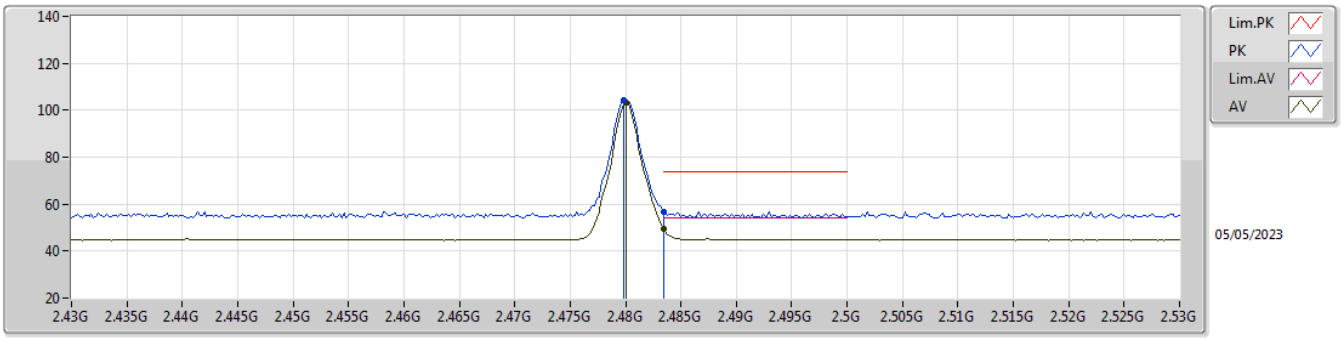


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4798G	107.76	Inf	-Inf	75.05	3	Vertical	245	1.10	-	27.60	5.11	-
AV	2.48G	106.88	Inf	-Inf	74.17	3	Vertical	245	1.10	-	27.60	5.11	-
PK	2.4836G	59.41	74.00	-14.59	26.70	3	Vertical	245	1.10	-	27.60	5.11	-
AV	2.4835G	52.77	54.00	-1.23	20.06	3	Vertical	245	1.10	-	27.60	5.11	-

2.4-2.4835GHz_BT-BR(1Mbps)

2480MHz_TX

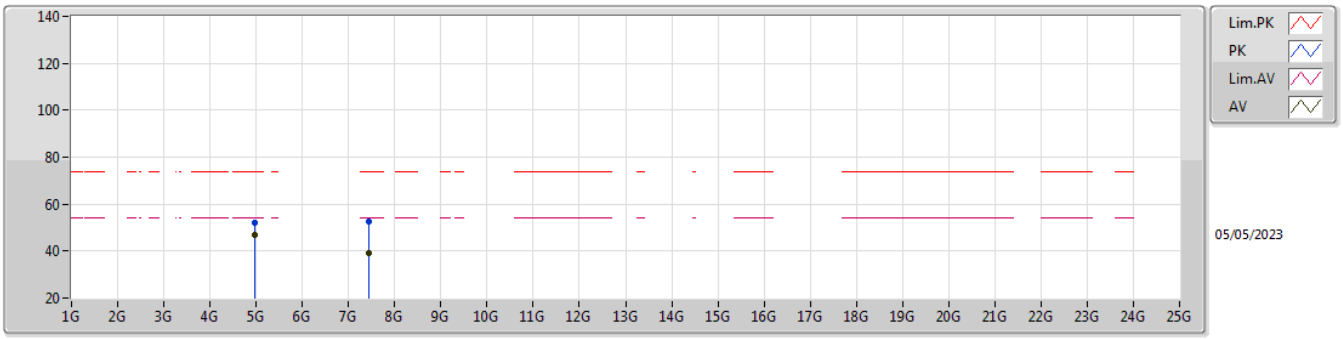


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4798G	104.16	Inf	-Inf	71.45	3	Horizontal	267	1.86	-	27.60	5.11	-
AV	2.48G	103.31	Inf	-Inf	70.60	3	Horizontal	267	1.86	-	27.60	5.11	-
PK	2.4835G	56.90	74.00	-17.10	24.19	3	Horizontal	267	1.86	-	27.60	5.11	-
AV	2.4835G	49.74	54.00	-4.26	17.03	3	Horizontal	267	1.86	-	27.60	5.11	-

2.4-2.4835GHz_BT-BR(1Mbps)

2480MHz_TX

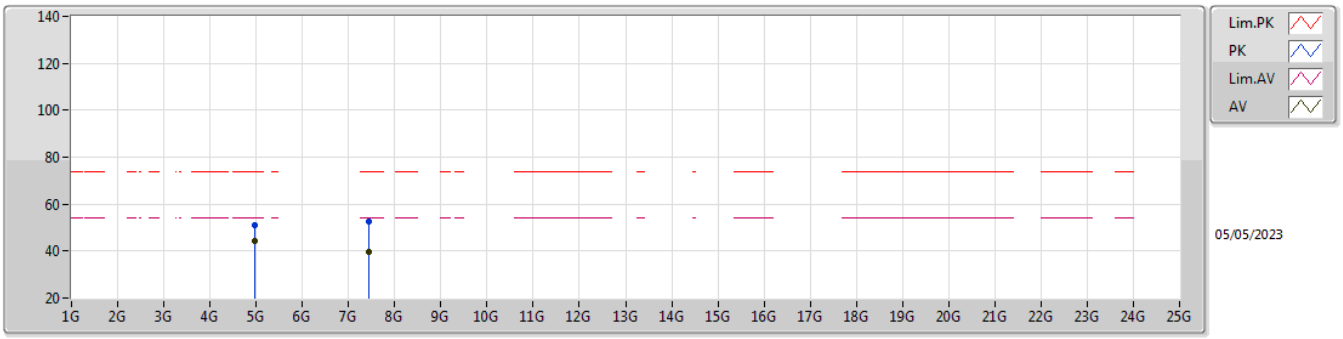


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.95984G	52.24	74.00	-21.76	46.33	3	Vertical	80	1.00	-	31.56	6.81	32.46
AV	4.96001G	47.04	54.00	-6.96	41.13	3	Vertical	80	1.00	-	31.56	6.81	32.46
PK	7.43959G	52.49	74.00	-21.51	41.31	3	Vertical	236	1.85	-	36.70	8.08	33.60
AV	7.4387G	39.36	54.00	-14.64	28.18	3	Vertical	236	1.85	-	36.70	8.08	33.60

2.4-2.4835GHz_BT-BR(1Mbps)

2480MHz_TX

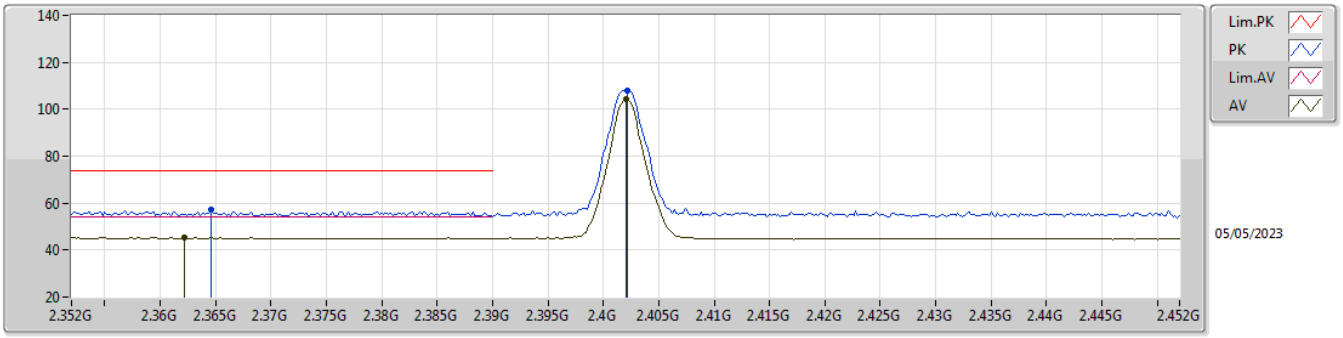


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.95984G	51.08	74.00	-22.92	45.17	3	Horizontal	173	2.48	-	31.56	6.81	32.46
AV	4.95994G	44.22	54.00	-9.78	38.31	3	Horizontal	173	2.48	-	31.56	6.81	32.46
PK	7.44174G	52.48	74.00	-21.52	41.30	3	Horizontal	283	1.65	-	36.70	8.09	33.61
AV	7.44025G	39.56	54.00	-14.44	28.38	3	Horizontal	283	1.65	-	36.70	8.08	33.60

2.4-2.4835GHz_BT-EDR(3Mbps)

2402MHz_TX

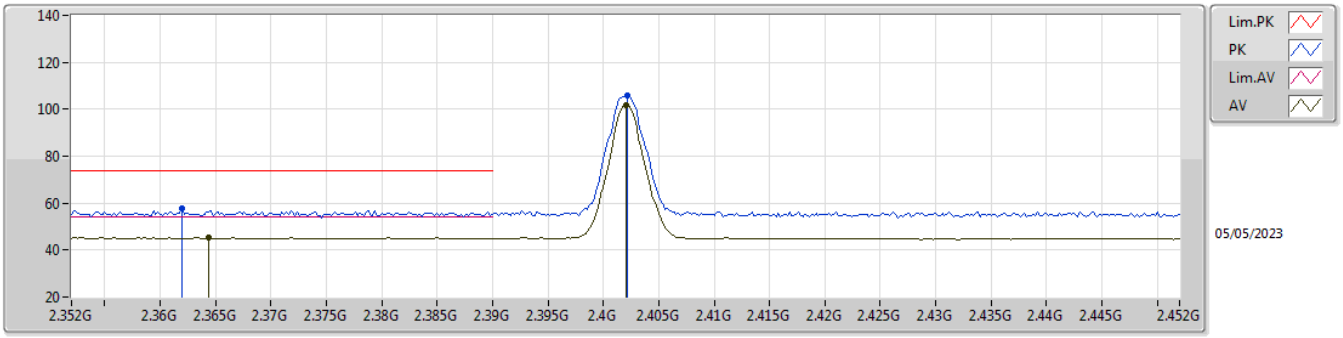


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3646G	57.04	74.00	-16.96	24.27	3	Vertical	234	1.80	-	27.74	5.03	-
AV	2.3622G	45.23	54.00	-8.77	12.46	3	Vertical	234	1.80	-	27.75	5.02	-
PK	2.4022G	107.94	Inf	-Inf	75.23	3	Vertical	234	1.80	-	27.60	5.11	-
AV	2.402G	104.14	Inf	-Inf	71.43	3	Vertical	234	1.80	-	27.60	5.11	-

2.4-2.4835GHz_BT-EDR(3Mbps)

2402MHz_TX

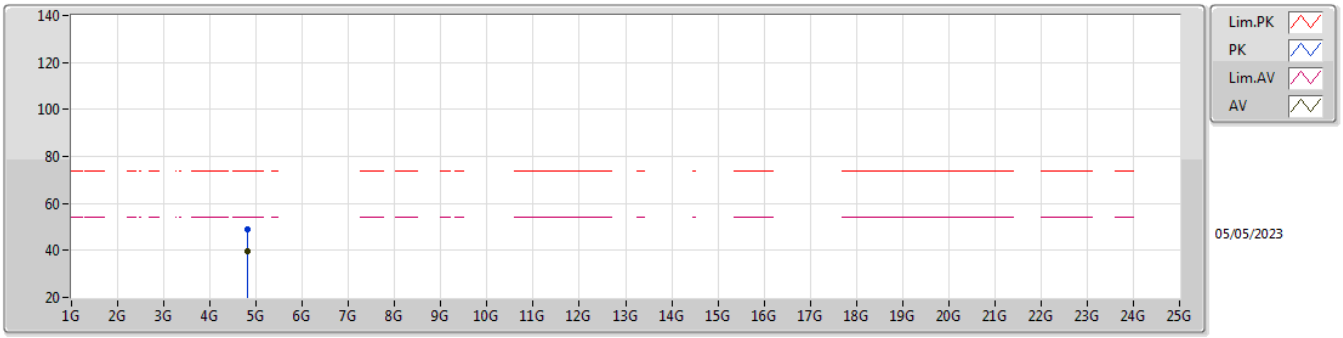


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.362G	57.65	74.00	-16.35	24.88	3	Horizontal	265	1.54	-	27.75	5.02	-
AV	2.3644G	45.28	54.00	-8.72	12.51	3	Horizontal	265	1.54	-	27.74	5.03	-
PK	2.4022G	105.62	Inf	-Inf	72.91	3	Horizontal	265	1.54	-	27.60	5.11	-
AV	2.402G	101.78	Inf	-Inf	69.07	3	Horizontal	265	1.54	-	27.60	5.11	-

2.4-2.4835GHz_BT-EDR(3Mbps)

2402MHz_TX

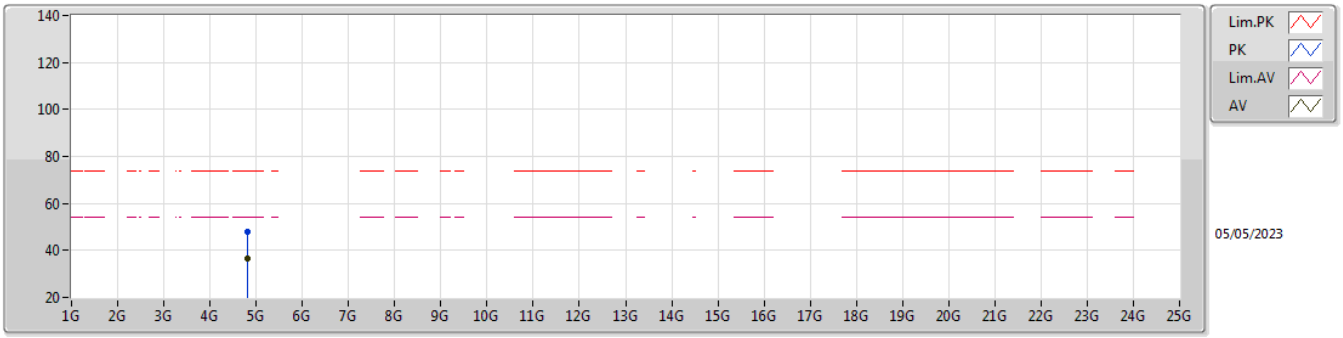


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.80351G	49.12	74.00	-24.88	43.59	3	Vertical	272	2.51	-	31.31	6.75	32.53
AV	4.80411G	39.44	54.00	-14.56	33.91	3	Vertical	272	2.51	-	31.31	6.75	32.53

2.4-2.4835GHz_BT-EDR(3Mbps)

2402MHz_TX

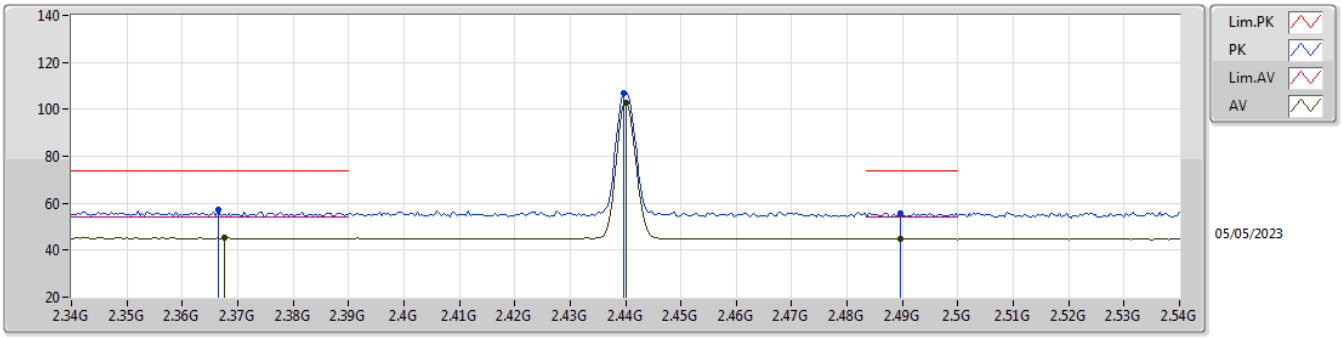


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.80349G	47.84	74.00	-26.16	42.31	3	Horizontal	95	2.64	-	31.31	6.75	32.53
AV	4.80407G	36.49	54.00	-17.51	30.96	3	Horizontal	95	2.64	-	31.31	6.75	32.53

2.4-2.4835GHz_BT-EDR(3Mbps)

2440MHz_TX

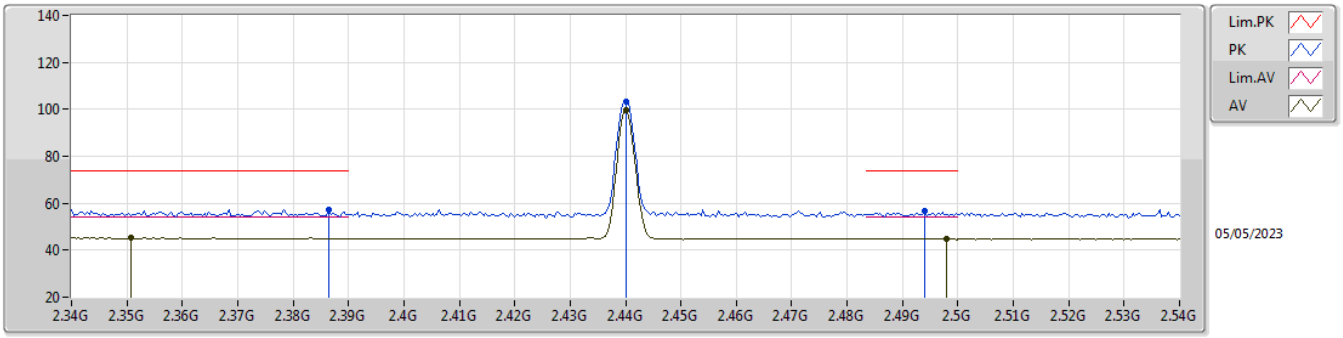


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3664G	57.47	74.00	-16.53	24.71	3	Vertical	245	1.09	-	27.73	5.03	-
AV	2.3676G	45.26	54.00	-8.74	12.49	3	Vertical	245	1.09	-	27.73	5.04	-
PK	2.4396G	106.99	Inf	-Inf	74.28	3	Vertical	245	1.09	-	27.60	5.11	-
AV	2.44G	103.00	Inf	-Inf	70.29	3	Vertical	245	1.09	-	27.60	5.11	-
PK	2.4896G	55.77	74.00	-18.23	23.06	3	Vertical	245	1.09	-	27.60	5.11	-
AV	2.4896G	44.89	54.00	-9.11	12.18	3	Vertical	245	1.09	-	27.60	5.11	-

2.4-2.4835GHz_BT-EDR(3Mbps)

2440MHz_TX

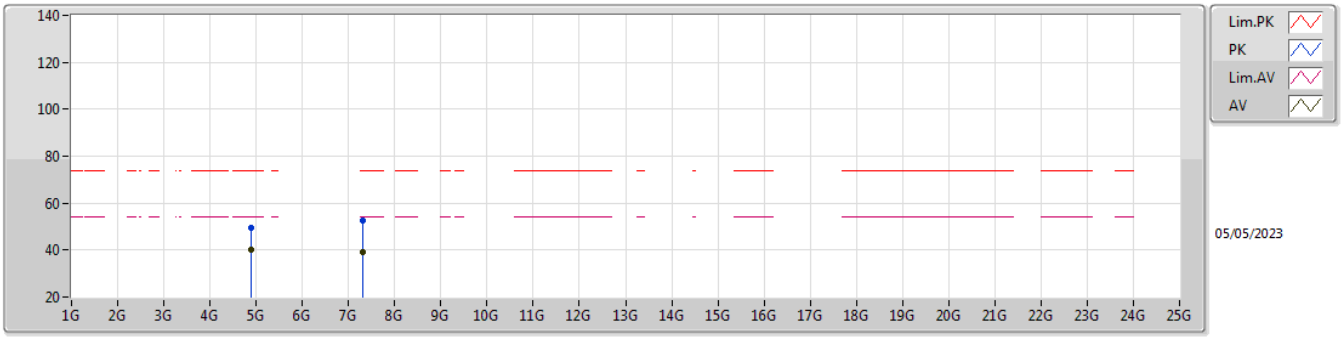


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.3864G	57.21	74.00	-16.79	24.48	3	Horizontal	263	3.00	-	27.65	5.08	-
AV	2.3508G	45.29	54.00	-8.71	12.49	3	Horizontal	263	3.00	-	27.80	5.00	-
PK	2.44G	103.45	Inf	-Inf	70.74	3	Horizontal	263	3.00	-	27.60	5.11	-
AV	2.44G	99.44	Inf	-Inf	66.73	3	Horizontal	263	3.00	-	27.60	5.11	-
PK	2.494G	56.75	74.00	-17.25	24.04	3	Horizontal	263	3.00	-	27.60	5.11	-
AV	2.498G	44.87	54.00	-9.13	12.16	3	Horizontal	263	3.00	-	27.60	5.11	-

2.4-2.4835GHz_BT-EDR(3Mbps)

2440MHz_TX

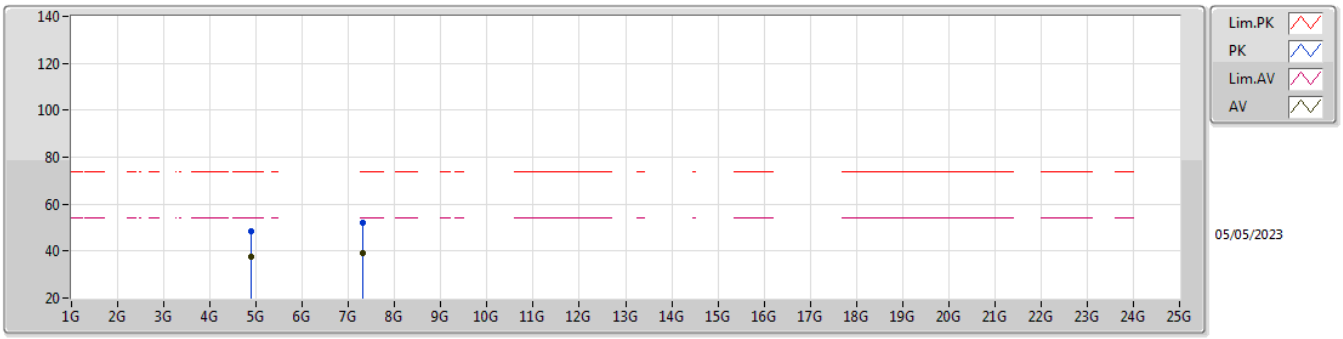


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.88022G	49.50	74.00	-24.50	43.82	3	Vertical	247	2.67	-	31.40	6.78	32.50
AV	4.8801G	40.23	54.00	-13.77	34.55	3	Vertical	247	2.67	-	31.40	6.78	32.50
PK	7.31958G	52.47	74.00	-21.53	41.15	3	Vertical	63	1.34	-	36.70	8.07	33.45
AV	7.32141G	39.11	54.00	-14.89	27.79	3	Vertical	63	1.34	-	36.70	8.07	33.45

2.4-2.4835GHz_BT-EDR(3Mbps)

2440MHz_TX

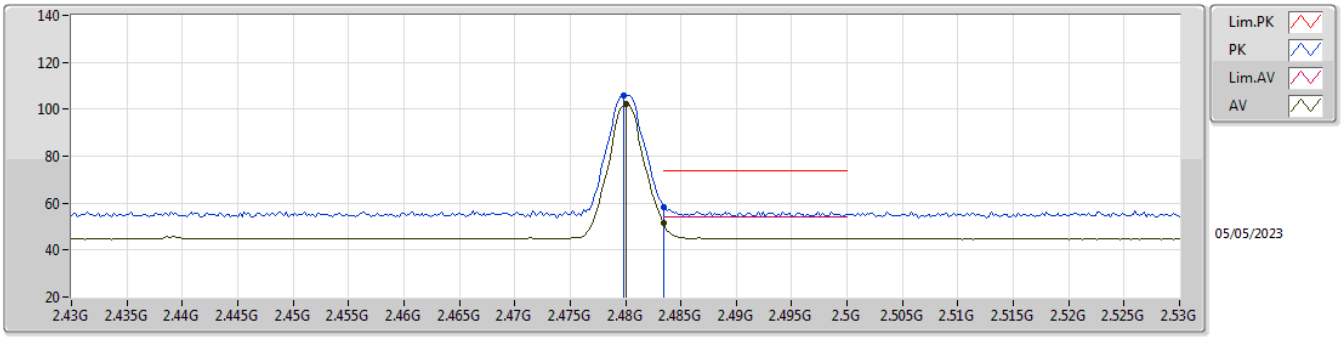


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.88024G	48.19	74.00	-25.81	42.51	3	Horizontal	92	2.88	-	31.40	6.78	32.50
AV	4.87992G	37.44	54.00	-16.56	31.76	3	Horizontal	92	2.88	-	31.40	6.78	32.50
PK	7.31946G	52.03	74.00	-21.97	40.71	3	Horizontal	124	1.80	-	36.70	8.07	33.45
AV	7.32106G	39.14	54.00	-14.86	27.82	3	Horizontal	124	1.80	-	36.70	8.07	33.45

2.4-2.4835GHz_BT-EDR(3Mbps)

2480MHz_TX

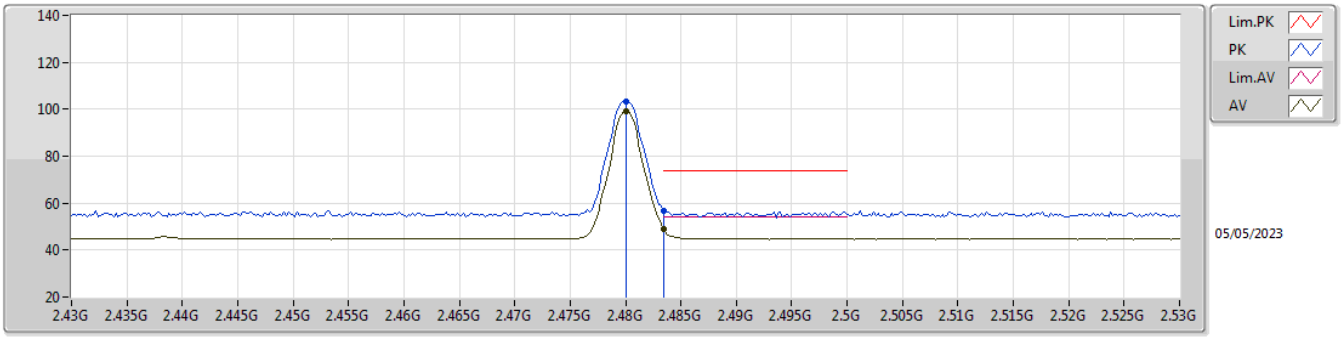


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.4798G	106.08	Inf	-Inf	73.37	3	Vertical	255	1.10	-	27.60	5.11	-
AV	2.48G	102.25	Inf	-Inf	69.54	3	Vertical	255	1.10	-	27.60	5.11	-
PK	2.4835G	58.18	74.00	-15.82	25.47	3	Vertical	255	1.10	-	27.60	5.11	-
AV	2.4835G	51.44	54.00	-2.56	18.73	3	Vertical	255	1.10	-	27.60	5.11	-

2.4-2.4835GHz_BT-EDR(3Mbps)

2480MHz_TX

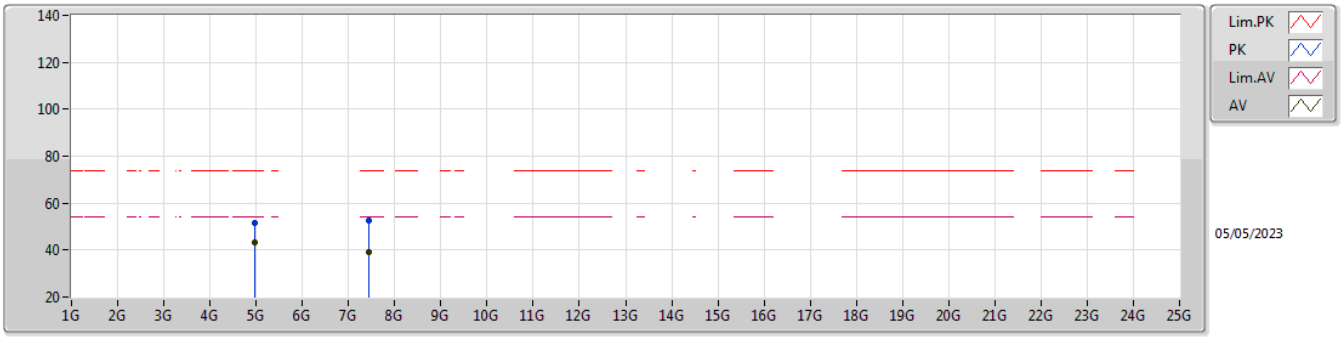


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	2.48G	103.23	Inf	-Inf	70.52	3	Horizontal	270	2.09	-	27.60	5.11	-
AV	2.48G	99.32	Inf	-Inf	66.61	3	Horizontal	270	2.09	-	27.60	5.11	-
PK	2.4835G	56.73	74.00	-17.27	24.02	3	Horizontal	270	2.09	-	27.60	5.11	-
AV	2.4835G	49.15	54.00	-4.85	16.44	3	Horizontal	270	2.09	-	27.60	5.11	-

2.4-2.4835GHz_BT-EDR(3Mbps)

2480MHz_TX

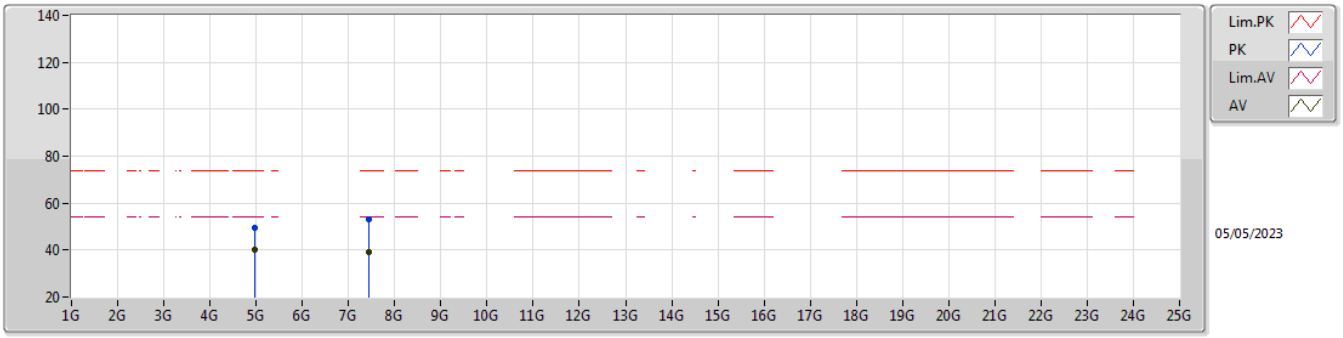


EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.95978G	51.72	74.00	-22.28	45.81	3	Vertical	249	2.49	-	31.56	6.81	32.46
AV	4.96003G	43.40	54.00	-10.60	37.49	3	Vertical	249	2.49	-	31.56	6.81	32.46
PK	7.43999G	52.40	74.00	-21.60	41.22	3	Vertical	147	2.87	-	36.70	8.08	33.60
AV	7.44159G	39.03	54.00	-14.97	27.85	3	Vertical	147	2.87	-	36.70	8.09	33.61

2.4-2.4835GHz_BT-EDR(3Mbps)

2480MHz_TX



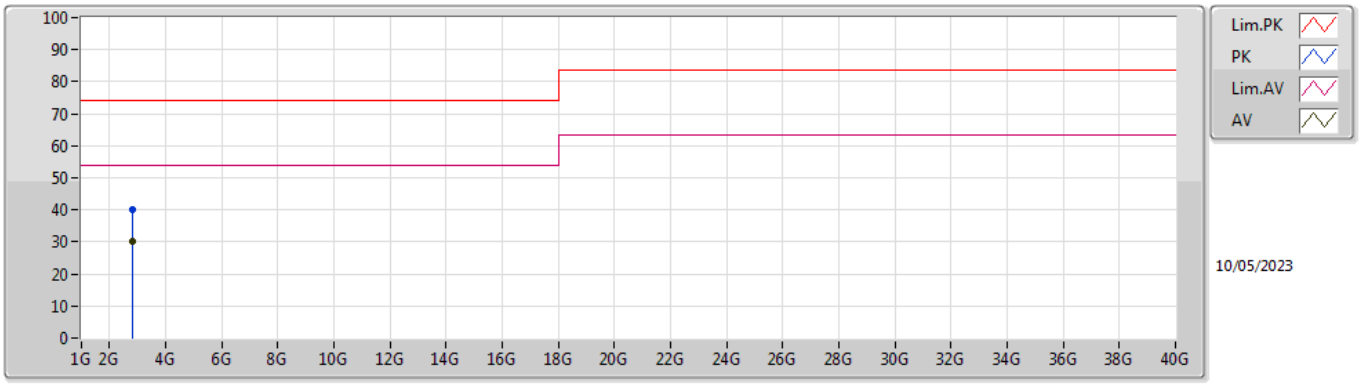
EUT Z_1TX
Setting 9
06-D-P-5

Type	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)
PK	4.96059G	49.43	74.00	-24.57	43.52	3	Horizontal	173	2.47	-	31.56	6.81	32.46
AV	4.95987G	40.19	54.00	-13.81	34.28	3	Horizontal	173	2.47	-	31.56	6.81	32.46
PK	7.44185G	53.23	74.00	-20.77	42.05	3	Horizontal	225	2.38	-	36.70	8.09	33.61
AV	7.44217G	39.30	54.00	-14.70	28.12	3	Horizontal	225	2.38	-	36.70	8.09	33.61

Summary

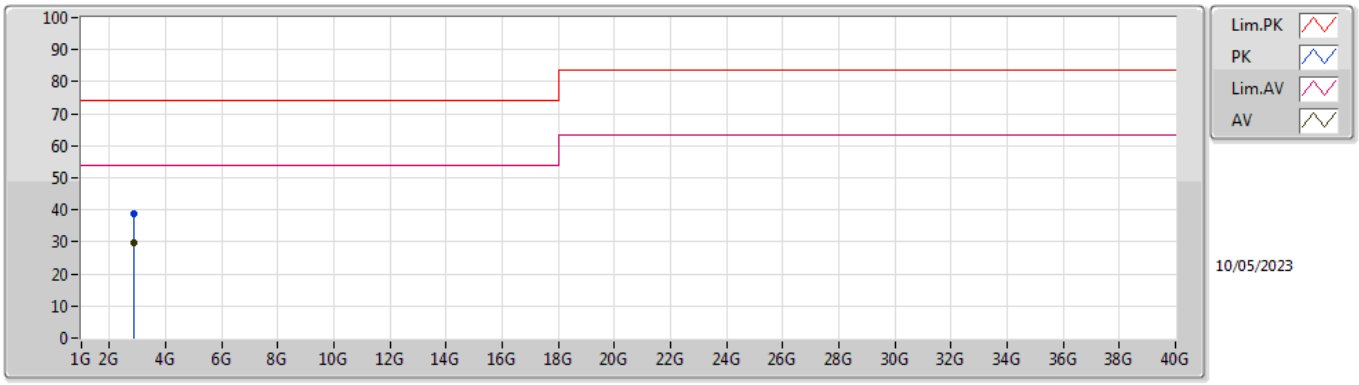
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 2	Pass	AV	2.821G	30.05	54.00	-23.95	Vertical

Mode 2



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	2.821G	40.05	74.00	-33.95	-3.01	3	Vertical	15	1.40	-	43.06	28.44	4.71	36.16
AV	2.821G	30.05	54.00	-23.95	-3.01	3	Vertical	15	1.40	"Worst"	33.06	28.44	4.71	36.16

Mode 2



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	2.872G	38.63	74.00	-35.37	-2.69	3	Horizontal	40	1.55	-	41.32	28.68	4.74	36.11
AV	2.872G	29.85	54.00	-24.15	-2.69	3	Horizontal	40	1.55	"Worst"	32.54	28.68	4.74	36.11