Testing Laboratory
3787

RADIO TEST REPORT

FCC ID	:	2ARXK-VHC25
Equipment	:	Wireless Edge Server
Brand Name	:	VeeaHub
Model Name	:	VHC25,VHC20
Applicant	:	Veea Inc. 164 E 83rd Street, NEW YORK,United States, 10028
Manufacturer	:	Veea Inc. 164 E 83rd Street, NEW YORK,United States, 10028
Standard	:	47 CFR FCC Part 15.247

The product was received on Aug. 09, 2021, and testing was started from Aug. 11, 2021 and completed on Dec. 03, 2021. 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
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History of this test report

Report No.	Version	Description	Issued Date
FR172726AB	01	Initial issue of report	Jan. 13, 2022

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	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

1. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.
2. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen
Report Producer: Wendy Pan

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.	Brand Name	Model Name	Antenna Type	Connector	Gain (dBi)
1	WNC	VHC25	PIFA	I-PEX	Note 1
2	WNC	VHC25	PIFA	I-PEX	
3	WNC	VHC25	PIFA	I-PEX	
4	WNC	VHC25	PIFA	I-PEX	

Note 1:

Ant.	Port					Gain (dBi)				
	WLAN 2.4GHz	WLAN 5GHz UNII-3	WLAN 5GHz UNII-1	Bluetooth BR/EDR	Bluetooth LE or IEEE802.15.4	WLAN 2.4GHz	WLAN 5GHz UNII-3	WLAN 5GHz UNII-1	Bluetooth BR/EDR	Bluetooth LE or IEEE802.15.4
1	-	-	2	1	-	-	-	3.6	2.3	-
2	1	2	-	-	-	2.2	3.3	-	-	-
3	-	-	1	-	1	-	-	3.5	-	1.9
4	2	1	-	-	-	1.8	3.4	-	-	-

Note 2: The above information was declared by manufacturer.

Note 3: Directional gain information

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$Directional Gain = 10 \cdot \log\left[\frac{\sum_{i=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{i,k}\right\}^2}{N_{ANT}}\right]$
BF	$Directional Gain = 10 \cdot \log\left[\frac{\sum_{i=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{i,k}\right\}^2}{N_{ANT}}\right]$	$Directional Gain = 10 \cdot \log\left[\frac{\sum_{i=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{i,k}\right\}^2}{N_{ANT}}\right]$

Ex.

Directional Gain (NSS1) formula : $Directional Gain = 10 \cdot \log\left[\frac{\sum_{i=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{i,k}\right\}^2}{N_{ANT}}\right]$

NSS1(g1,1) = $10^{G1/20}$; NSS1(g1,2)= $10^{G2/20}$; NSS1(g1,2)= $10^{G3/20}$; NSS1(g1,2)= $10^{G4/20}$

gj,k =(Nss1(g1,1) + Nss1(g1,2) + Nss1(g1,3) + Nss1(g1,4))^2

DG = 10 log[(Nss1(g1,1) + Nss1(g1,2) + Nss1(g1,3) + Nss1(g1,4))^2 / N_{ANT}] => 10 log[($10^{G1/20}$ + $10^{G2/20}$ + $10^{G3/20}$ + $10^{G4/20}$)^2 / N_{ANT}]

Where ;

G1 = Ant 1 Gain ; G2 = Ant 2 Gain ; G3 = Ant 3 Gain ; G4 = Ant 4 Gain ;

2.4GHz DG = 5.01 dBi

5 GHz U-NII-1 DG = 6.56 dBi

5 GHz U-NII-3 DG = 6.36 dBi

For 2.4GHz:

For IEEE 802.11b/g/n/VHT/ax mode (2TX/2RX):

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz UNII-1 / UNII-3:

For IEEE 802.11a/n/ac/ax mode (2TX/2RX):

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

Bluetooth / IEEE802.15.4 (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-BR(1Mbps)	0.744	1.28	2.898m	1k
BT-EDR(3Mbps)	0.78	1.08	2.908m	1k
BT-EDR(2Mbps)	0.747	1.27	2.907m	1k

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

1.1.4 EUT Operational Condition

EUT Power Type	From adapter
Test Software Version	DOS [ver 6.1.7601]

1.1.5 Table for Multiple Listing

Model Name	Description
VHC25	All the model names are identical, the difference model names served as marketing strategy.
VHC20	

Note1: From the above models, model: VHC25 was selected as representative model for the test and its data was recorded in this report.
Note 2: The above information was declared by manufacturer.

1.1.6 Table for EUT Operation Information

Operation Mode	Description
1	WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band + Bluetooth BR/EDR + IEEE 802.15.4
2	WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band + Bluetooth BR/EDR + Bluetooth LE

Note: The above information was declared by manufacturer.

1.1.7 Table for EUT support function

Function
AP
Mesh

Note1: AP mode was selected as representative mode for AC power-line conducted emissions and Emissions in Restricted Frequency Bands below 1GHz test and its data was recorded in this report.
Note2: 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

Testing Location Information	
Test Lab.：Sporton International Inc. Hsinchu Laboratory	
Hsinchu (TAF: 3787)	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) 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	TH01-CB	Caster Chang	23.2~24.2 / 53~55	Aug. 13, 2021 ~ Sep. 18, 2021
Radiated<1GHz	10CH01-CB	Peter Wu	23~24 / 58~59	Aug. 30, 2021 ~ Dec. 03, 2021
Radiated>1GHz	03CH01-CB	RJ Huang	24.4-25.5 / 55-58	Aug. 11, 2021 ~ Sep. 09, 2021
Radiated Co-Location	03CH06-CB	RJ Huang	25.8-28.2 / 56-59	Aug. 11, 2021 ~ Sep. 09, 2021
AC Conduction	CO01-CB	Ryo Fan	22~23 / 65~67	Aug. 27, 2021

1.3 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)	2.0 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	1.6 dB	Confidence levels of 95%
Radiated Emissions below 1GHz	4.2 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%
Conducted Emission	2.5 dB	Confidence levels of 95%
Output Power Measurement	1.3 dB	Confidence levels of 95%
Power Density Measurement	2.5 dB	Confidence levels of 95%
Bandwidth Measurement	0.9%	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
BT-BR(1Mbps)	-
2402MHz	10
2440MHz	10
2480MHz	10
BT-EDR(2Mbps)	-
2402MHz	10
2440MHz	10
2480MHz	10
BT-EDR(3Mbps)	-
2402MHz	10
2440MHz	10
2480MHz	10

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	Normal Link – AP mode (WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band) + CTX (Bluetooth BR/EDR + IEEE 802.15.4) + Adapter
2	Normal Link – AP mode (WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band) + CTX (Bluetooth BR/EDR + Bluetooth LE) + Adapter
For operating mode 1 is the worst case and it was record in this test report.	

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

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	Normal Link
1	EUT in Z axis Normal Link – AP mode (WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band) + CTX (Bluetooth BR/EDR + IEEE 802.15.4) + Adapter
2	EUT in Z axis Normal Link – AP mode (WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band) + CTX (Bluetooth BR/EDR + Bluetooth LE) + Adapter
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 ~ 4 will follow this same test mode.	
3	EUT in Y axis Normal Link – AP mode (WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band) + CTX (Bluetooth BR/EDR + IEEE 802.15.4) + Adapter
4	EUT in X axis Normal Link – AP mode (WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band) + CTX (Bluetooth BR/EDR + IEEE 802.15.4) + Adapter
For operating mode 1 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	The EUT was performed at X axis, Y axis and Z axis position t, and the worst case was found at Z axis. So the measurement will follow this same test configuration.
	EUT in Z axis CTX

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
	The EUT was performed at X axis, Y axis and Z axis position t, and the worst case was found at Z axis. So the measurement will follow this same test configuration.
1	EUT in Z axis Normal Link – AP mode (WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band) + CTX (Bluetooth BR/EDR + IEEE 802.15.4) + Adapter
2	EUT in Z axis Normal Link – AP mode (WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band) + CTX (Bluetooth BR/EDR + Bluetooth LE) + Adapter
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	WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band + Bluetooth BR/EDR + IEEE 802.15.4
2	WLAN 2.4GHz + 5GHz Low Band + 5GHz High Band + Bluetooth BR/EDR + Bluetooth LE
Refer to Sporton Test Report No.: FA172726 for Co-location RF Exposure Evaluation.	

Note: The EUT can only be used in Z axis position.

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories			
Equipment Name	**Brand Name**	**Model Name**	**Rating**
Adapter	Veea	VHC25-30A	Input: 100-240V~50/60Hz, 1.0A Max Output: 12V, 2.5A
Other			
RJ-45 cable*1: Non-shielded, 1.8m			

2.5 Support Equipment

For AC Conduction and Radiated (below 1GHz):

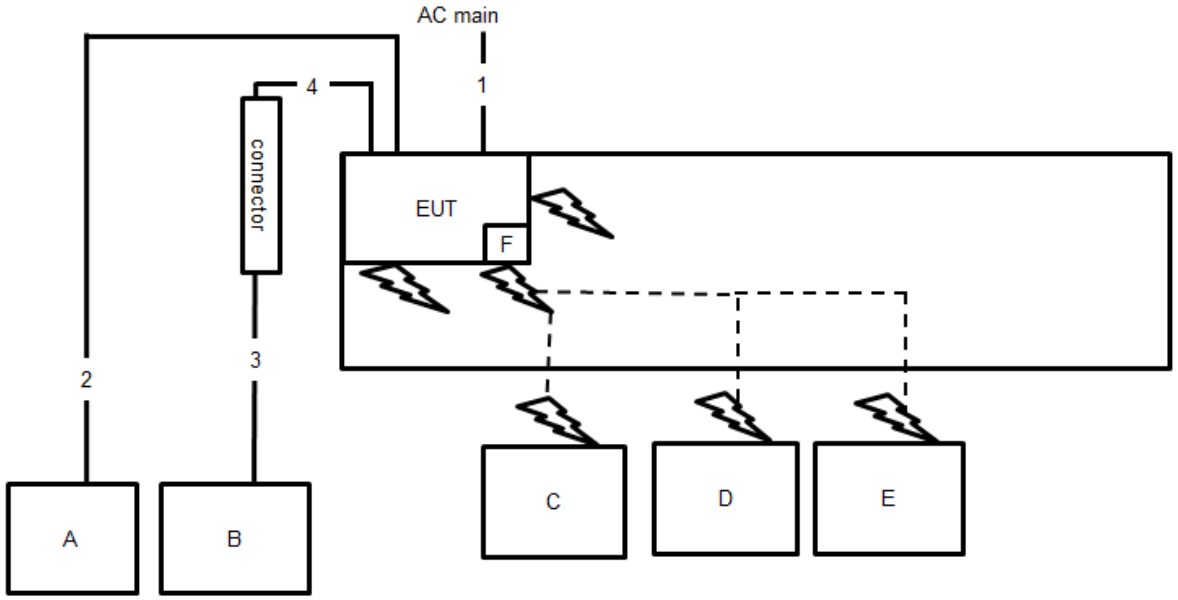
Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	LAN NB	DELL	E6430	N/A
B	WAN NB	DELL	E6430	N/A
C	2.4G NB	DELL	E6430	N/A
D	5GL NB	DELL	E6430	N/A
E	5GH NB	DELL	E6431	N/A
F	Micro SD Card	Transcend	TS16GUSDHC10	N/A

For Radiated (above 1GHz) and RF Conducted:

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Notebook	DELL	E4300	N/A

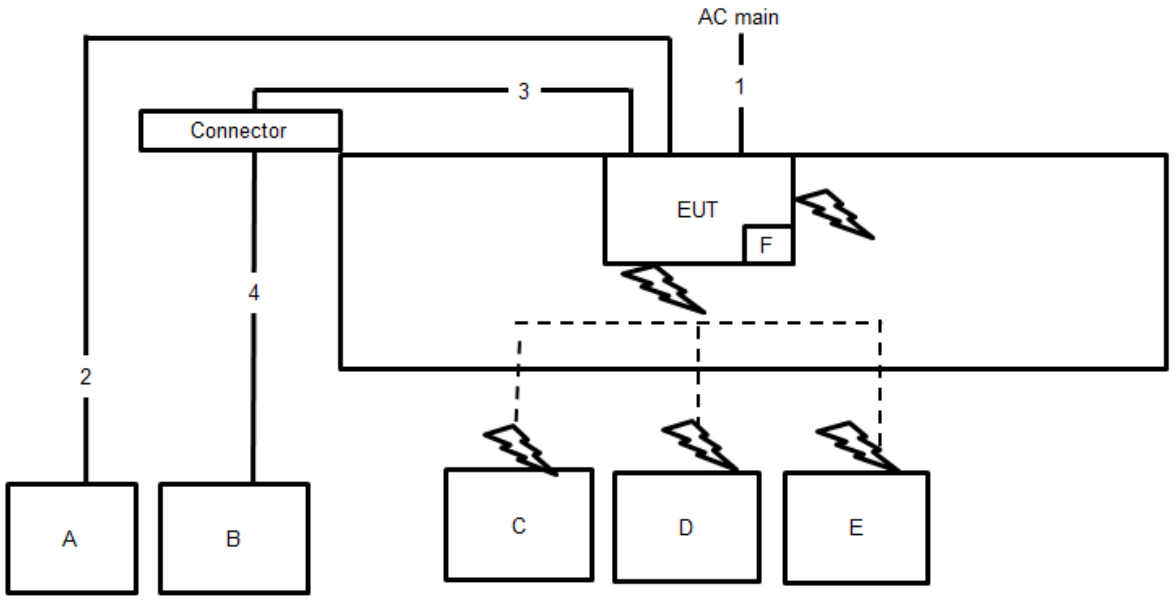
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



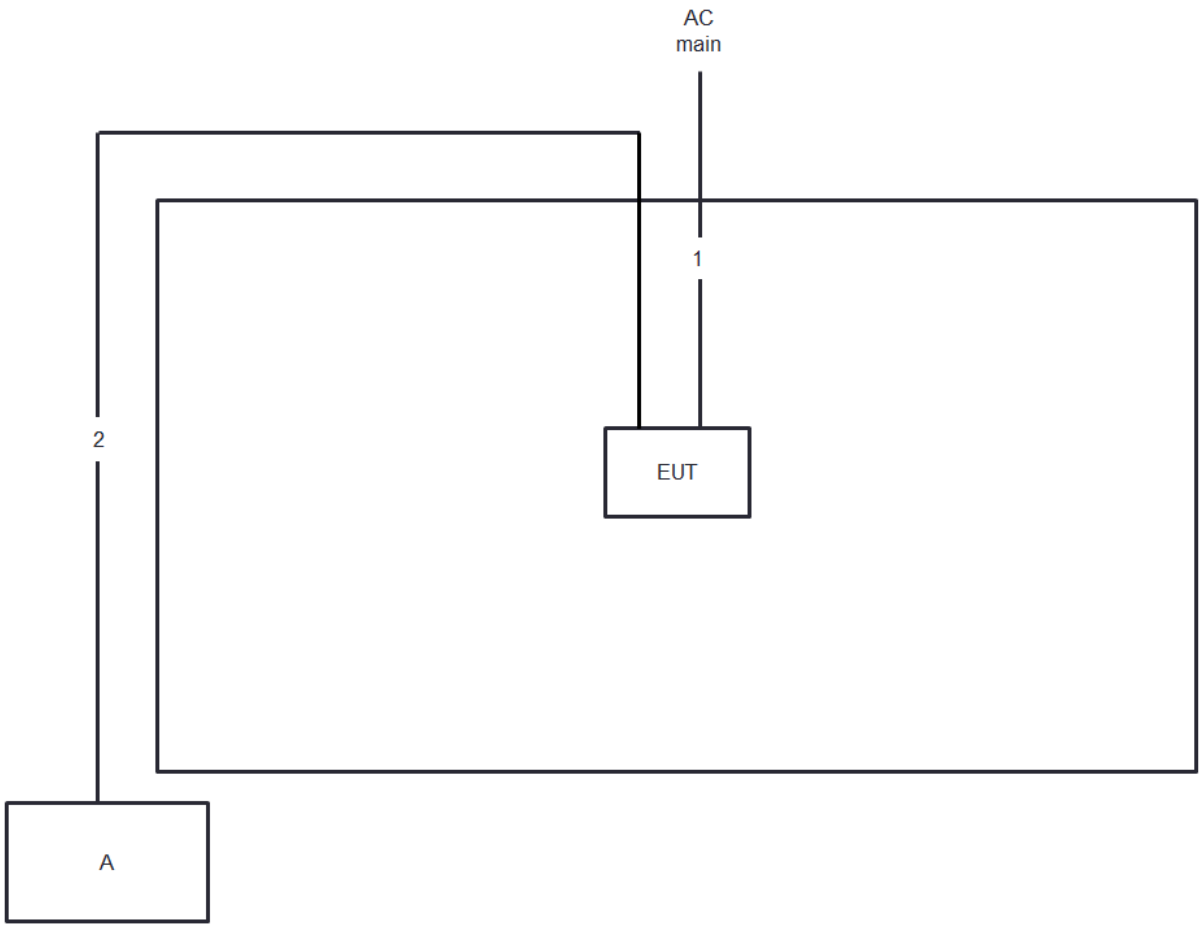
Item	Connection	Shielded	Length
1	Power cable	No	1.6m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	1.8m

Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.6m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.8m
4	RJ-45 cable	No	10m

Test Setup Diagram - Radiated Test > 1GHz



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

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

3.1.2 Measuring Instruments

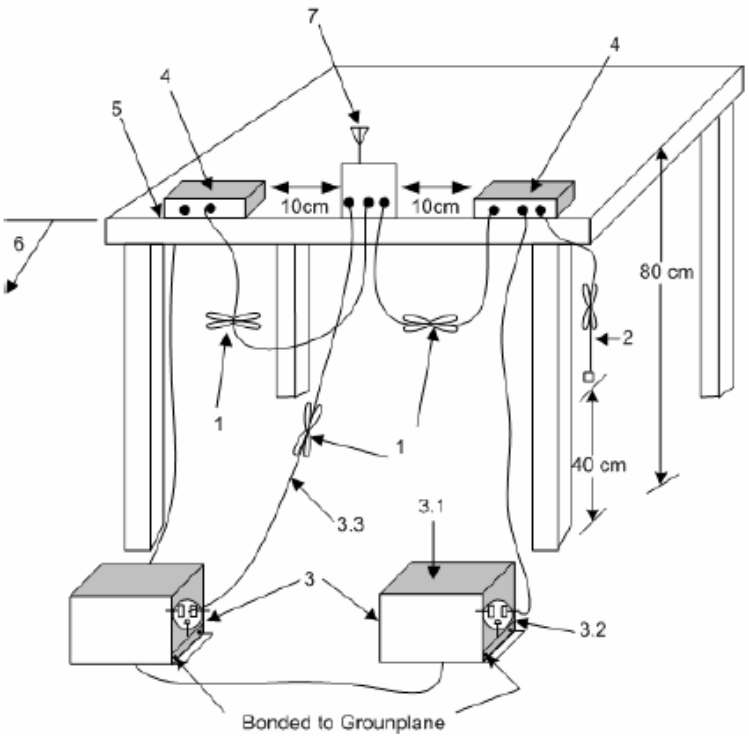
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 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

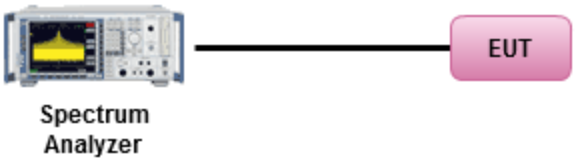
3.2.2 Measuring Instruments

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

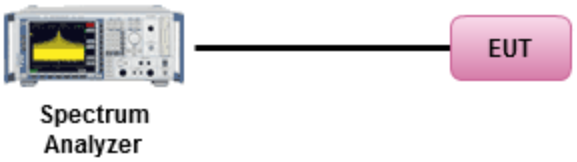
3.4.3 Measuring Instruments

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

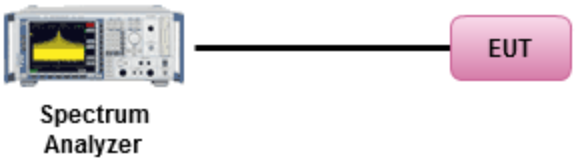
3.5.2 Measuring Instruments

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.	

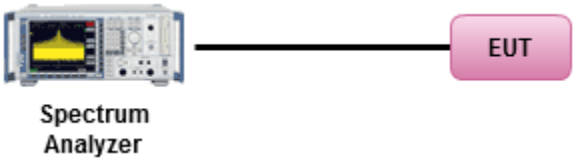
3.6.2 Measuring Instruments

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.

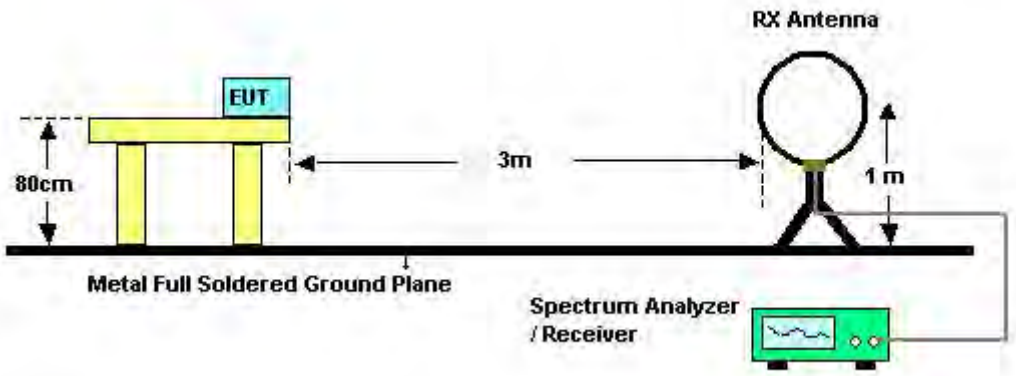
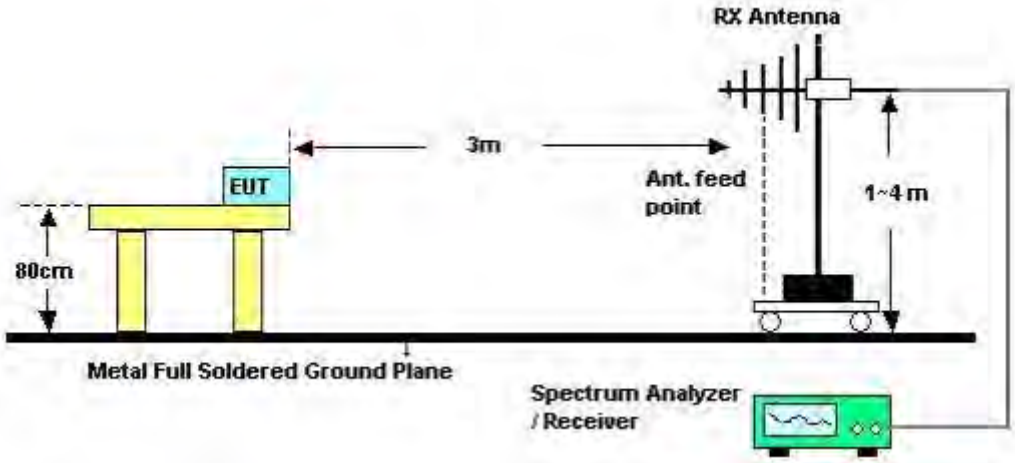
3.7.2 Measuring Instruments

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

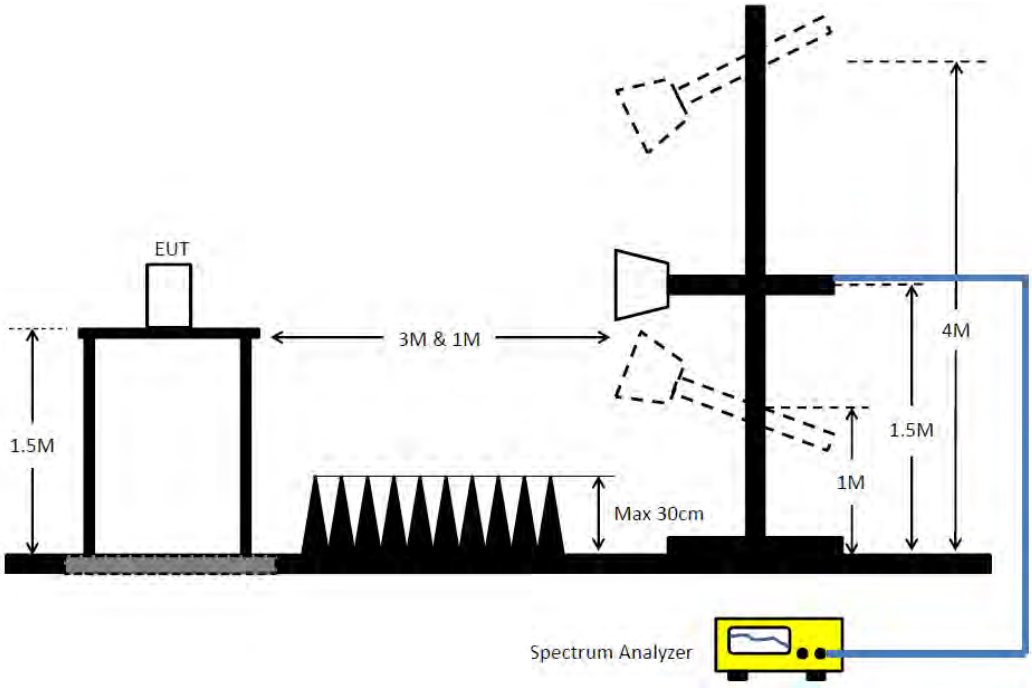
3.7.3 Test Procedures

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	Mar. 03, 2021	Mar. 02, 2022	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Jan. 06, 2021	Jan. 05, 2022	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Mar. 07, 2021	Mar. 06, 2022	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Jan. 30, 2021	Jan. 29, 2022	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 19, 2021	May 18, 2022	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
10m Semi Anechoic Chamber NSA	TDK	SAC-10M	10CH01-CB	30MHz~1GHz 10m,3m	Jan. 28, 2021	Jan. 27, 2022	Radiation (10CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10783	9kHz ~ 1.3GHz	Mar. 11, 2021	Mar. 10, 2022	Radiation (10CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10784	9kHz ~ 1.3GHz	Mar. 11, 2021	Mar. 10, 2022	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-01	25MHz ~ 1GHz	Oct. 20, 2020	Oct. 19, 2021	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-01	25MHz ~ 1GHz	Oct. 19, 2021	Oct. 18, 2022	Radiation (10CH01-CB)
High Cable	Woken	SUCOFLEX 104	low cable-02	25MHz ~ 1GHz	Oct. 20, 2020	Oct. 19, 2021	Radiation (10CH01-CB)
High Cable	Woken	SUCOFLEX 104	low cable-02	25MHz ~ 1GHz	Oct. 19, 2021	Oct. 18, 2022	Radiation (10CH01-CB)
Bilog Antenna with 6dB Attenuator	Chase & EMCI	CBL6111A &N-6-06	1543 &AT-N0609	30MHz ~ 1GHz	Jul. 01, 2021	Jun. 30, 2022	Radiation (10CH01-CB)
EMI Test Receiver	Rohde&Schwarz	ESCI	100186	9kHz ~ 3GHz	Jul. 12, 2021	Jul. 11, 2022	Radiation (10CH01-CB)
Spectrum Analyzer	Rohde&Schwarz	FSV30	101026	9kHz ~ 30GHz	Mar. 08, 2021	Mar. 07, 2022	Radiation (10CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Apr. 14, 2021	Apr. 13, 2022	Radiation (10CH01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (10CH01-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH01-CB	1GHz ~18GHz 3m	May 07, 2021	May 06, 2022	Radiation (03CH01-CB)
Horn Antenna	ETS-LINDGREN	3115	00075790	750MHz ~ 18GHz	Nov. 06, 2020	Nov. 05, 2021	Radiation (03CH01-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 18, 2021	Jun. 17, 2022	R Radiation (03CH01-CB)
Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	Jul. 02, 2021	Jul. 01, 2022	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 13, 2021	Jul. 12, 2022	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	May 03, 2021	May 02, 2022	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 15, 2021	Jul. 14, 2022	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 15, 2021	Jul. 14, 2022	Radiation (03CH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH01-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH06-CB	1GHz ~18GHz 3m	Oct. 02, 2020	Oct. 01, 2021	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1370	1GHz~18GHz	Sep. 21, 2020	Sep. 20, 2021	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 18, 2021	Jun. 17, 2022	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	May 06, 2021	May 05, 2022	Radiation (03CH06-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 13, 2021	Jul. 12, 2022	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Dec. 15, 2020	Dec. 14, 2021	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-05	1GHz~18GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-05+24	1GHz~18GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 15, 2021	Jul. 14, 2022	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 15, 2021	Jul. 14, 2022	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	May 21, 2021	May 20, 2022	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 26.5 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz –26.5 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH01-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-08	1 GHz –26.5 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz –26.5 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-30	1 GHz –26.5 GHz	Oct. 05, 2020	Oct. 04, 2021	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Feb. 23, 2021	Feb. 22, 2022	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Feb. 23, 2021	Feb. 22, 2022	Conducted (TH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH01-CB)

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

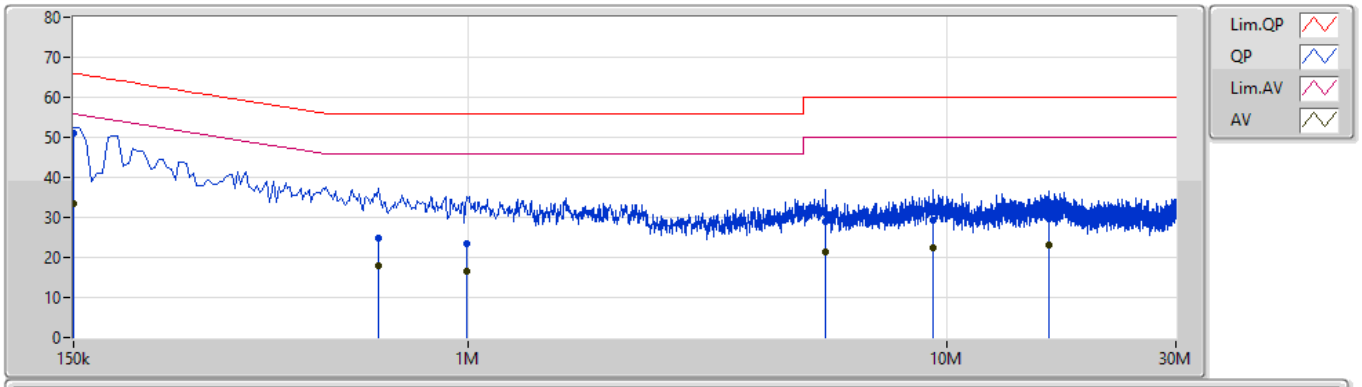
N.C.R. means Non-Calibration required.

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	150k	50.89	66.00	-15.11	Line

Mode 1

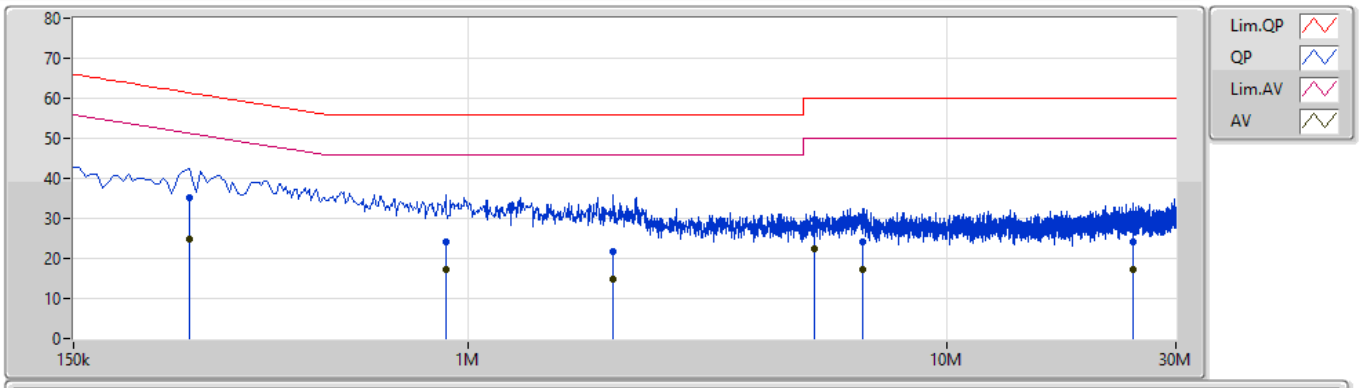
27/08/2021



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	150k	50.89	66.00	-15.11	9.89	Line	"Worst"	41.00	0.04	0.04	9.81
AV	150k	33.54	56.00	-22.46	9.89	Line	-	23.65	0.04	0.04	9.81
QP	649.5k	24.86	56.00	-31.14	9.92	Line	-	14.94	0.05	0.04	9.83
AV	649.5k	18.06	46.00	-27.94	9.92	Line	-	8.14	0.05	0.04	9.83
QP	996k	23.35	56.00	-32.65	9.93	Line	-	13.42	0.06	0.04	9.83
AV	996k	16.65	46.00	-29.35	9.93	Line	-	6.72	0.06	0.04	9.83
QP	5.568M	28.96	60.00	-31.04	10.17	Line	-	18.79	0.16	0.13	9.88
AV	5.568M	21.51	50.00	-28.49	10.17	Line	-	11.34	0.16	0.13	9.88
QP	9.339M	29.39	60.00	-30.61	10.27	Line	-	19.12	0.21	0.16	9.90
AV	9.339M	22.25	50.00	-27.75	10.27	Line	-	11.98	0.21	0.16	9.90
QP	16.292M	29.64	60.00	-30.36	10.41	Line	-	19.23	0.29	0.18	9.94
AV	16.292M	22.95	50.00	-27.05	10.41	Line	-	12.54	0.29	0.18	9.94

Mode 1

27/08/2021



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	262.5k	35.06	61.35	-26.29	9.88	Neutral	"Worst"	25.18	0.03	0.04	9.81
AV	262.5k	24.88	51.35	-26.47	9.88	Neutral	-	15.00	0.03	0.04	9.81
QP	897k	24.12	56.00	-31.88	9.92	Neutral	-	14.20	0.05	0.04	9.83
AV	897k	17.31	46.00	-28.69	9.92	Neutral	-	7.39	0.05	0.04	9.83
QP	2.009M	21.67	56.00	-34.33	9.96	Neutral	-	11.71	0.07	0.07	9.82
AV	2.009M	14.72	46.00	-31.28	9.96	Neutral	-	4.76	0.07	0.07	9.82
QP	5.289M	29.72	60.00	-30.28	10.14	Neutral	-	19.58	0.13	0.13	9.88
AV	5.289M	22.33	50.00	-27.67	10.14	Neutral	-	12.19	0.13	0.13	9.88
QP	6.644M	24.20	60.00	-35.80	10.19	Neutral	-	14.01	0.16	0.14	9.89
AV	6.644M	17.11	50.00	-32.89	10.19	Neutral	-	6.92	0.16	0.14	9.89
QP	24.468M	24.08	60.00	-35.92	10.64	Neutral	-	13.44	0.36	0.27	10.01
AV	24.468M	17.24	50.00	-32.76	10.64	Neutral	-	6.60	0.36	0.27	10.01

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)	967.5k	857.071k	857KF1D	935k	827.086k
BT-EDR(2Mbps)	1.284M	1.218M	1M22G1D	1.281M	1.197M
BT-EDR(3Mbps)	1.265M	1.102M	1M10G1D	1.201M	1.067M

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

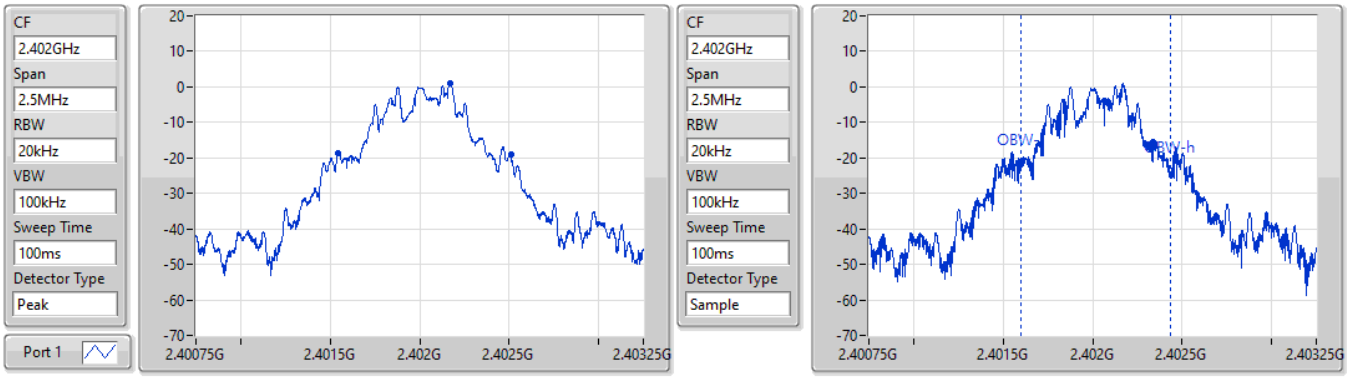
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	Inf	967.5k	839.58k
2440MHz	Pass	Inf	935k	827.086k
2480MHz	Pass	Inf	936.25k	857.071k
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.281M	1.218M
2440MHz	Pass	Inf	1.281M	1.208M
2480MHz	Pass	Inf	1.284M	1.197M
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.201M	1.067M
2440MHz	Pass	Inf	1.263M	1.074M
2480MHz	Pass	Inf	1.265M	1.102M

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

BT-BR(1Mbps) EBW-FS

2402MHz

16/08/2021

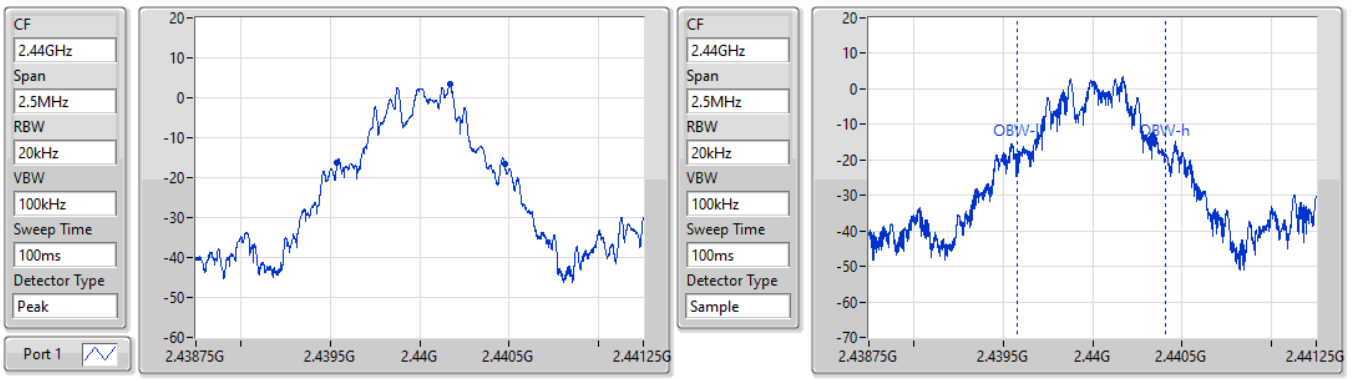


20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
967.5k	2.401541G	2.402509G	839.58k	2.401596G	2.402436G	Inf	1

BT-BR(1Mbps) EBW-FS

2440MHz

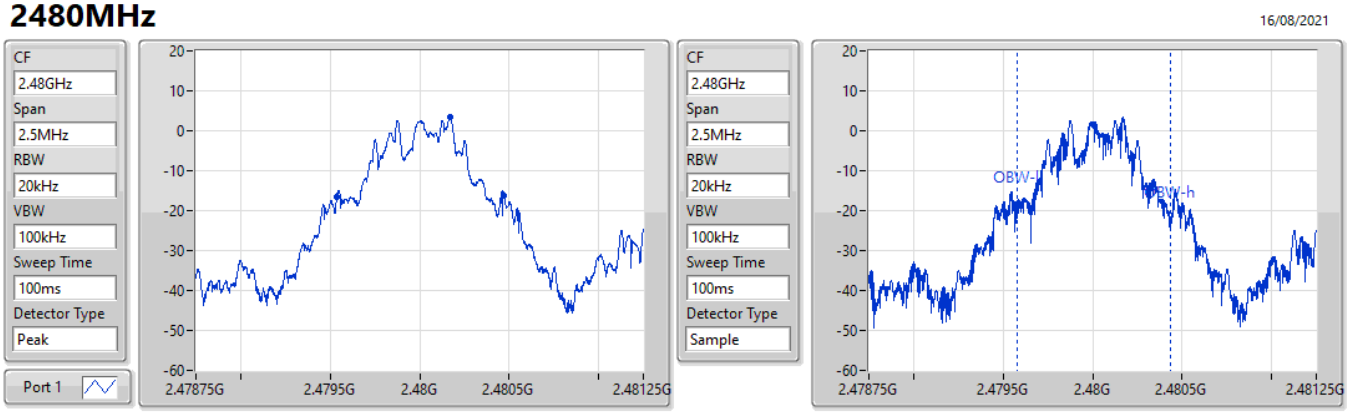
16/08/2021



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
935k	2.439539G	2.440474G	827.086k	2.439581G	2.440409G	Inf	1

BT-BR(1Mbps) EBW-FS

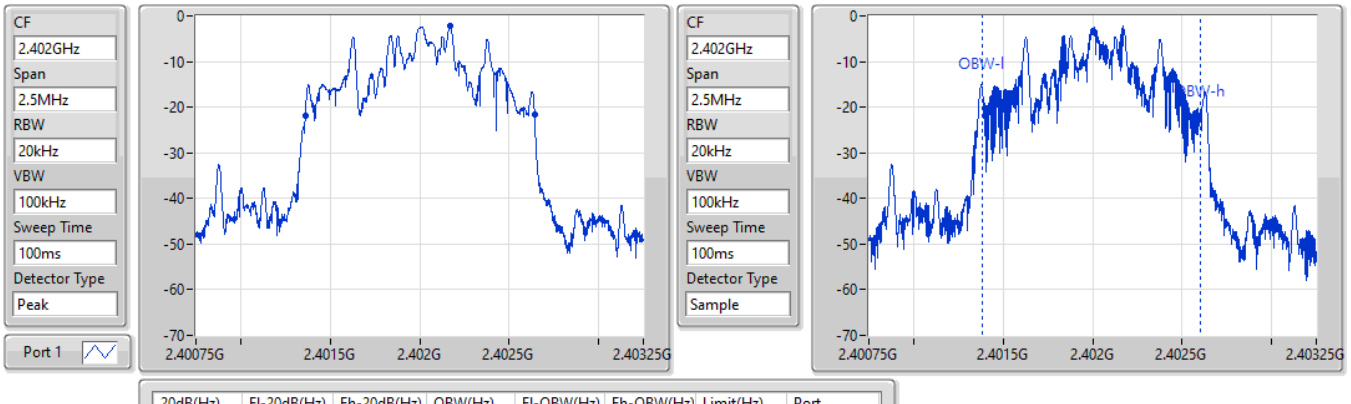
2480MHz



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
936.25k	2.479536G	2.480473G	857.071k	2.479578G	2.480435G	Inf	1

BT-EDR(2Mbps) EBW-FS

2402MHz

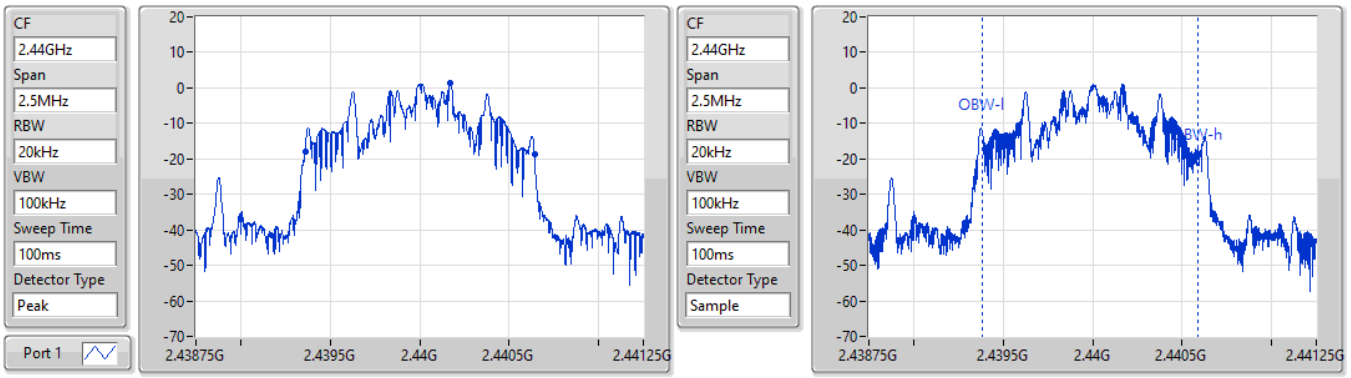


20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.281M	2.401361G	2.402643G	1.218M	2.401383G	2.402601G	Inf	1

BT-EDR(2Mbps) EBW-FS

2440MHz

16/08/2021

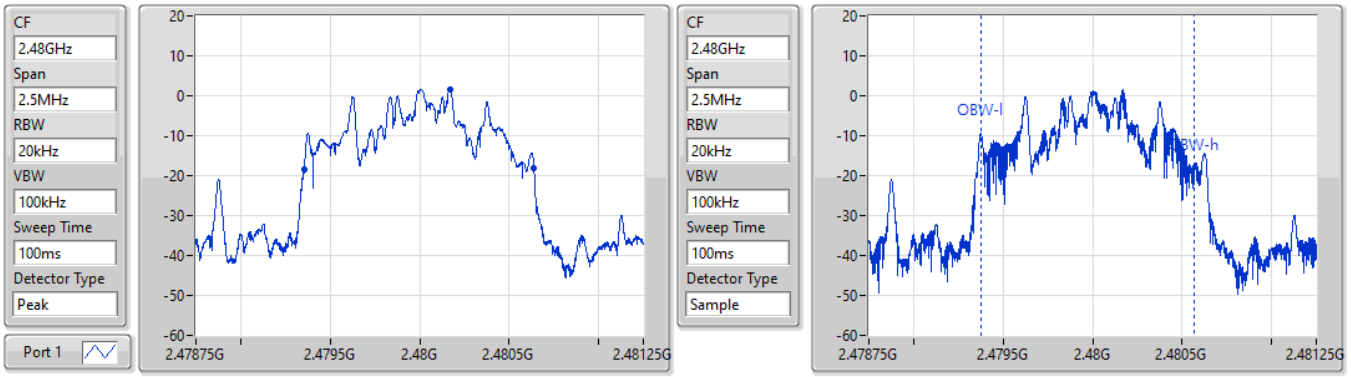


20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.281M	2.43936G	2.440641G	1.208M	2.43938G	2.440588G	Inf	1

BT-EDR(2Mbps) EBW-FS

2480MHz

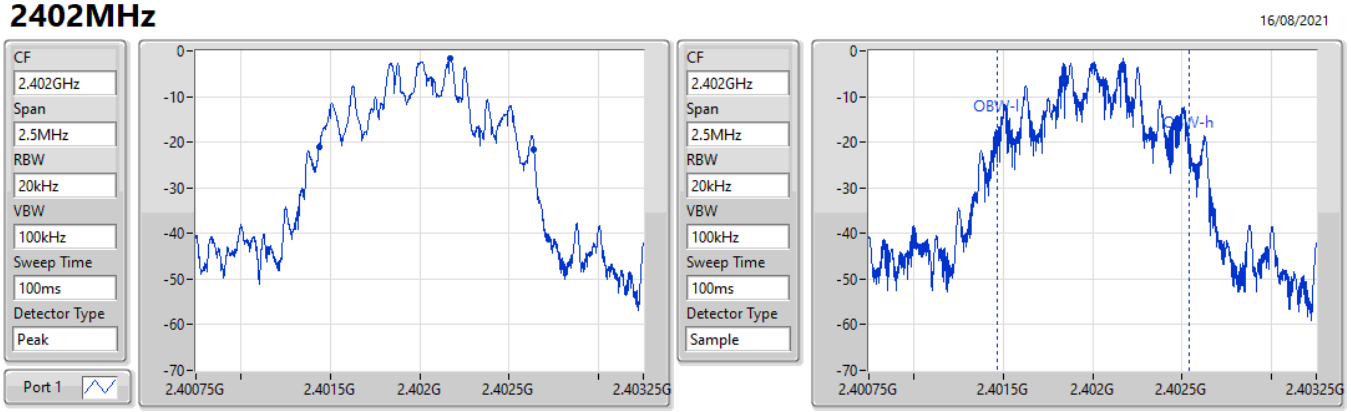
16/08/2021



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.284M	2.479355G	2.480639G	1.197M	2.479374G	2.480571G	Inf	1

BT-EDR(3Mbps) EBW-FS

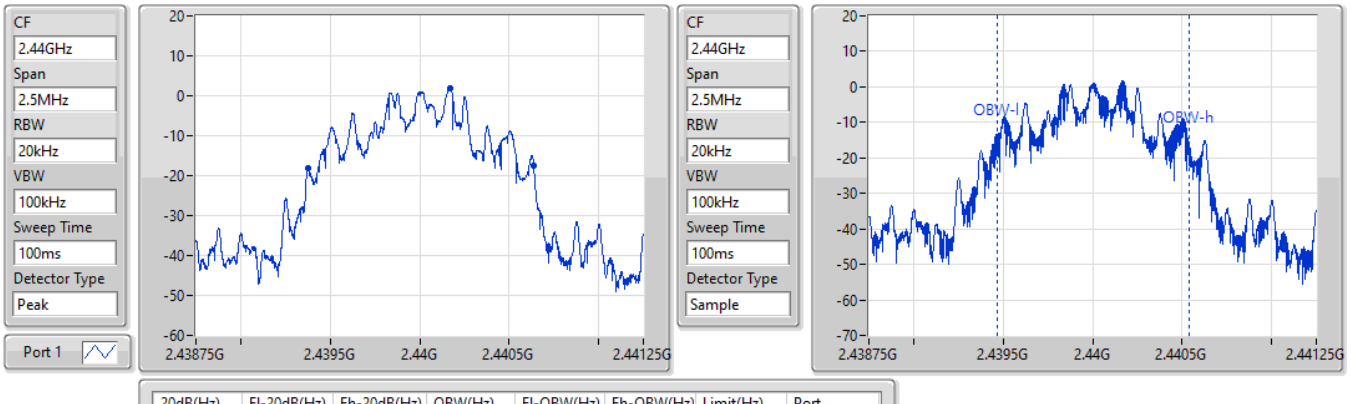
2402MHz



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.201M	2.401438G	2.402639G	1.067M	2.40147G	2.402537G	Inf	1

BT-EDR(3Mbps) EBW-FS

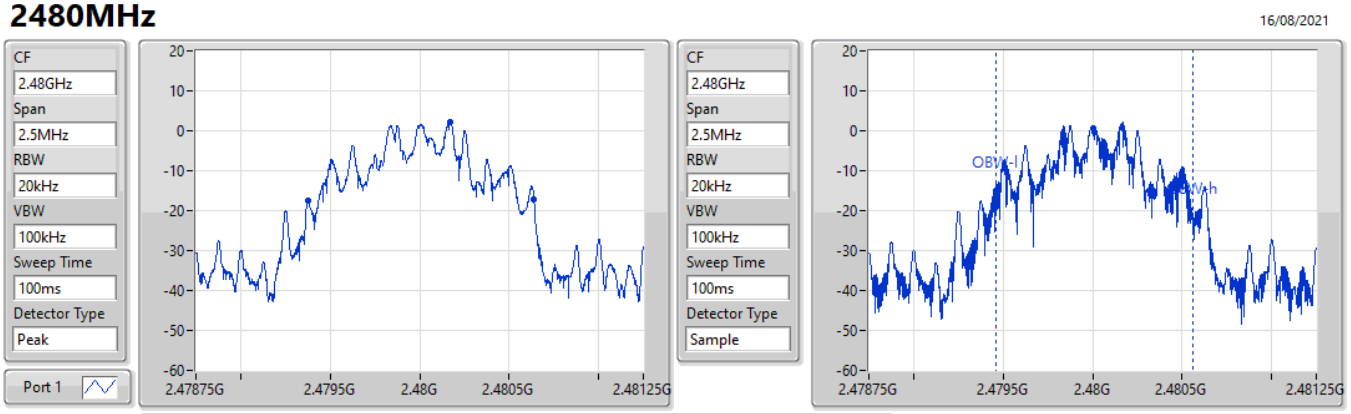
2440MHz



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.263M	2.439375G	2.440638G	1.074M	2.439464G	2.440538G	Inf	1

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

2480MHz



20dB(Hz)	Fl-20dB(Hz)	Fh-20dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.265M	2.479374G	2.480639G	1.102M	2.479458G	2.48056G	Inf	1

Summary

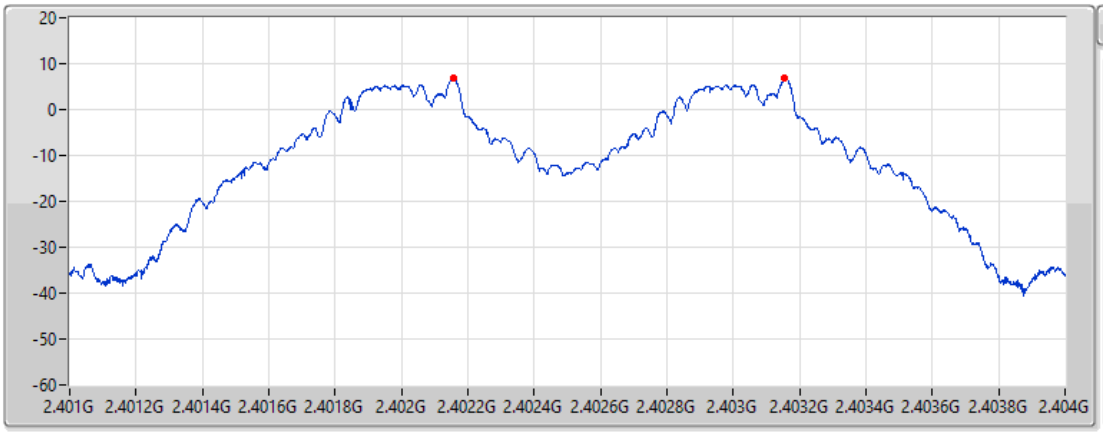
Mode	Max-Space (Hz)	Min-Space (Hz)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	1.0005M	999k
BT-EDR(2Mbps)	1.0005M	999k
BT-EDR(3Mbps)	1.002M	1.0005M

Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
BT-BR(1Mbps)	-	-	-	-	-
2402MHz	Pass	2.402157G	2.403156G	999k	644.355k
2440MHz	Pass	2.440161G	2.44116G	999k	622.71k
2480MHz	Pass	2.479166G	2.480166G	1.0005M	623.5425k
BT-EDR(2Mbps)	-	-	-	-	-
2402MHz	Pass	2.402004G	2.403004G	1.0005M	853.146k
2440MHz	Pass	2.440007G	2.441007G	1.0005M	853.146k
2480MHz	Pass	2.479016G	2.480015G	999k	855.144k
BT-EDR(3Mbps)	-	-	-	-	-
2402MHz	Pass	2.402157G	2.403157G	1.0005M	799.866k
2440MHz	Pass	2.44016G	2.441162G	1.002M	841.158k
2480MHz	Pass	2.479166G	2.480166G	1.0005M	842.49k

BT-BR(1Mbps) Channel Separation-FS

2.402G/2.403GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.402157G	2.403156G	999k	644.355k

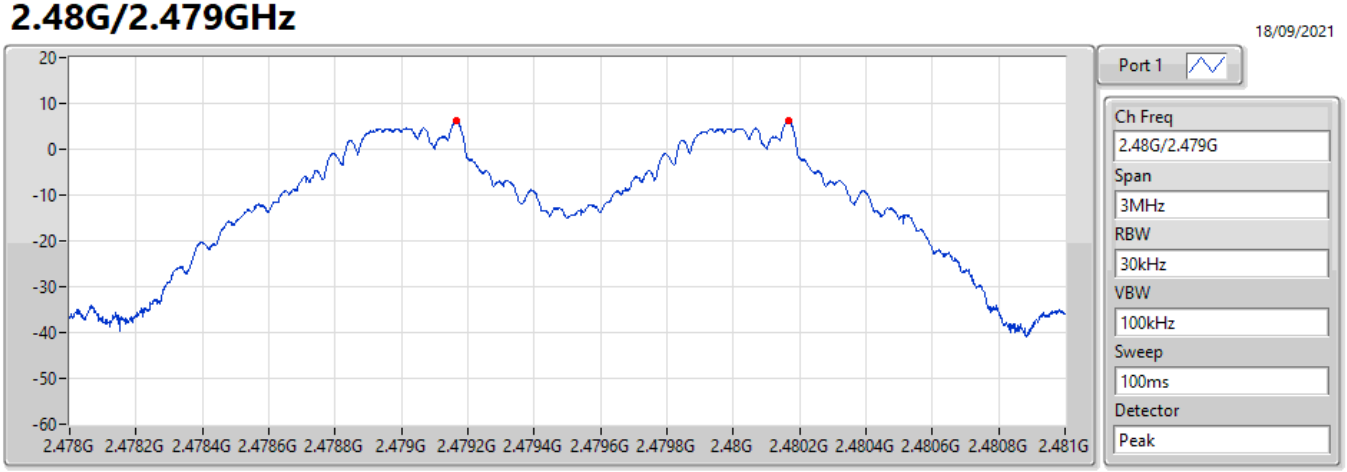
BT-BR(1Mbps) Channel Separation-FS

2.44G/2.441GHz

Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.440161G	2.44116G	999k	622.71k

BT-BR(1Mbps) Channel Separation-FS

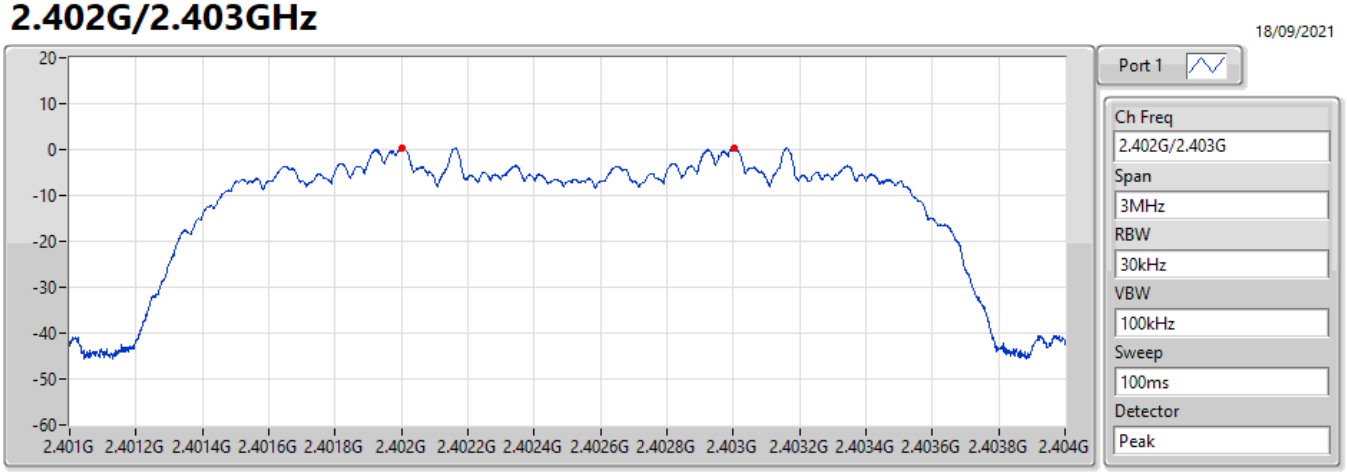
2.48G/2.479GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.479166G	2.480166G	1.0005M	623.5425k

BT-EDR(2Mbps) Channel Separation-FS

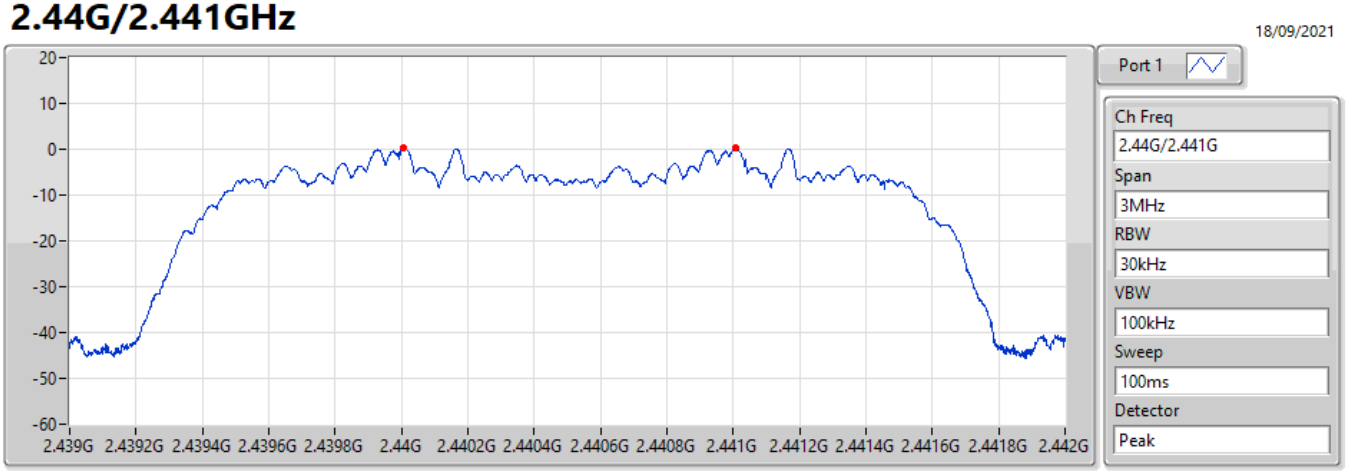
2.402G/2.403GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.402004G	2.403004G	1.0005M	853.146k

BT-EDR(2Mbps) Channel Separation-FS

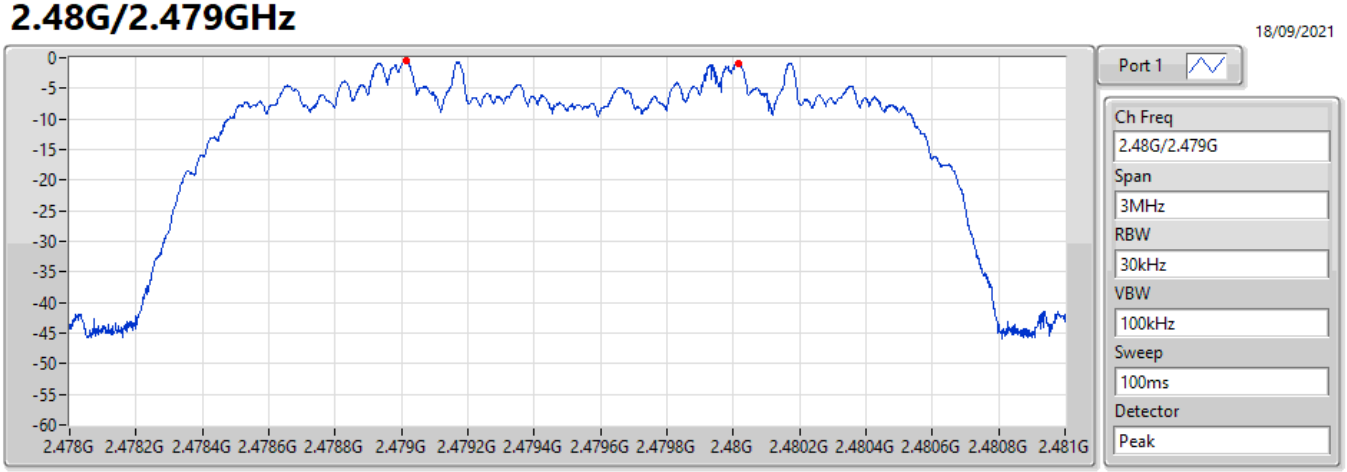
2.44G/2.441GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.440007G	2.441007G	1.0005M	853.146k

BT-EDR(2Mbps) Channel Separation-FS

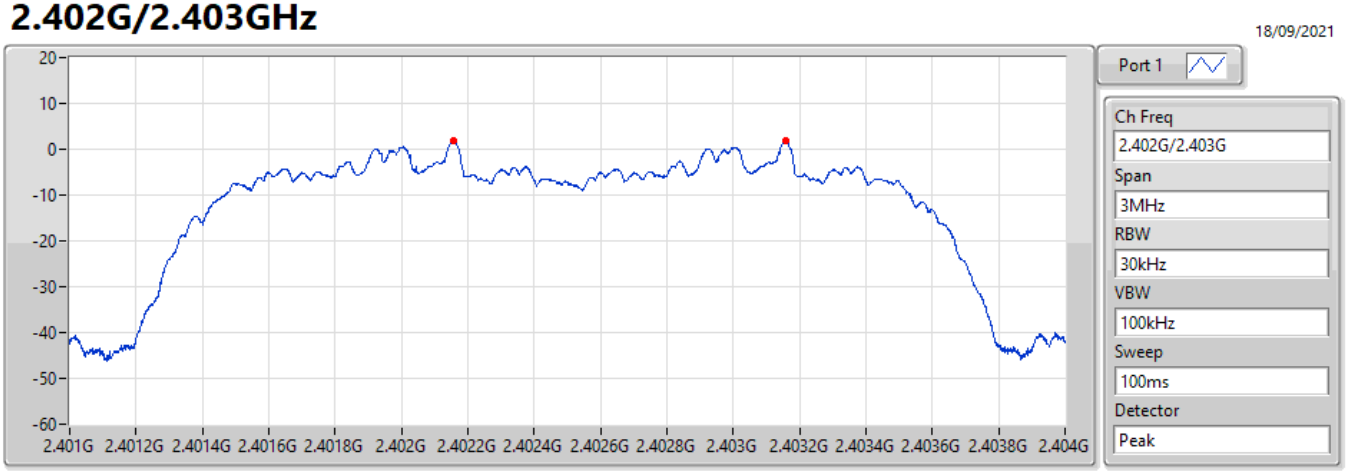
2.48G/2.479GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.479016G	2.480015G	999k	855.144k

BT-EDR(3Mbps) Channel Separation-FS

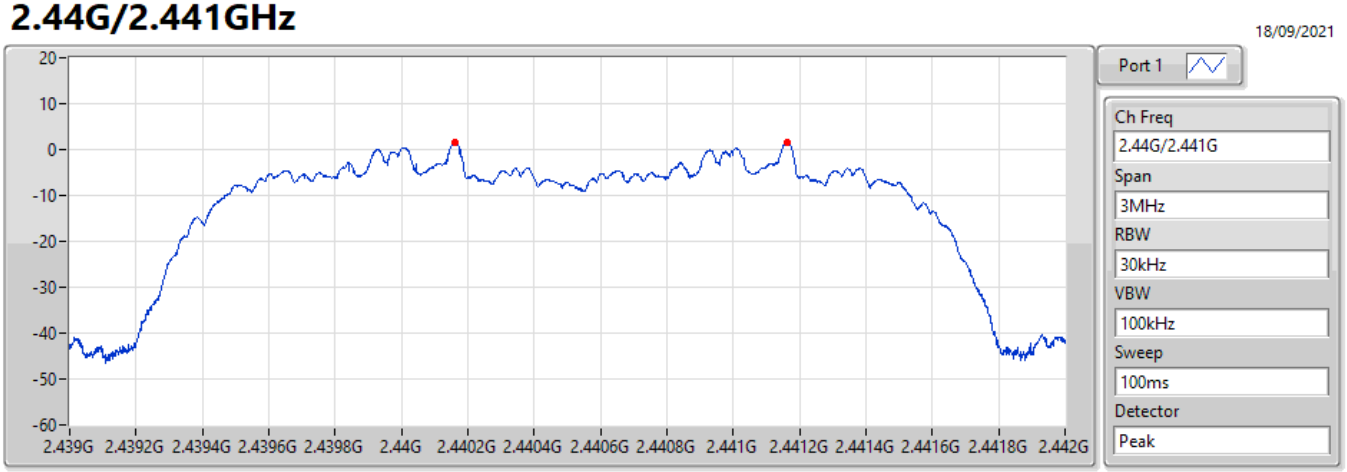
2.402G/2.403GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.402157G	2.403157G	1.0005M	799.866k

BT-EDR(3Mbps) Channel Separation-FS

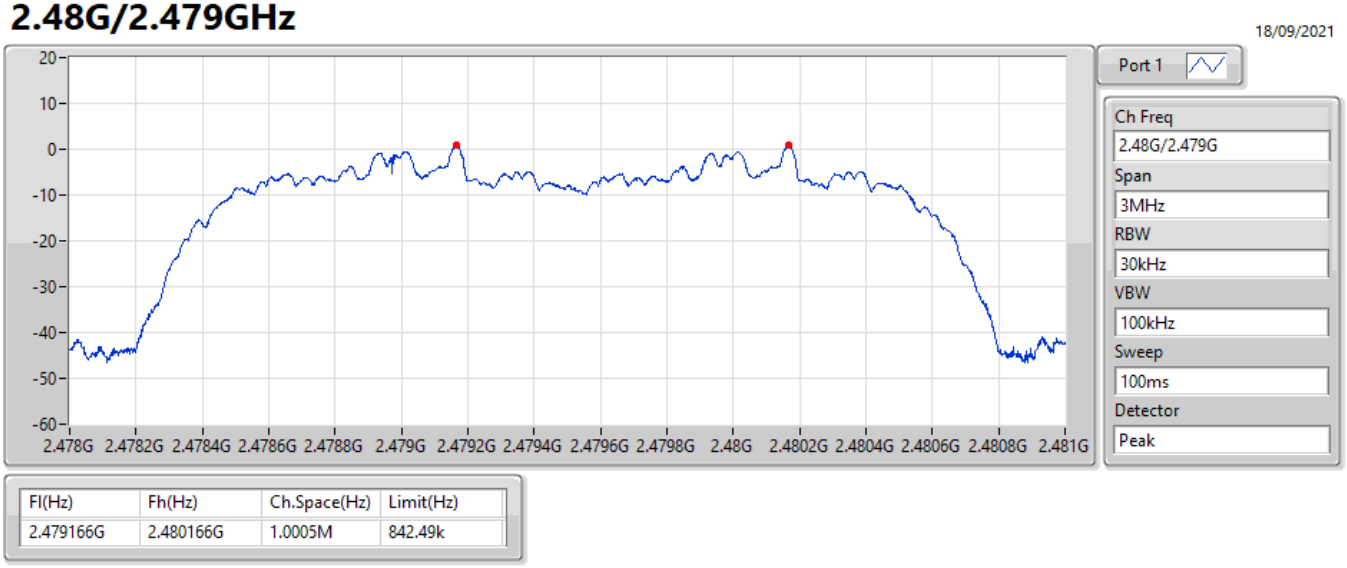
2.44G/2.441GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.44016G	2.441162G	1.002M	841.158k

BT-EDR(3Mbps) **Channel Separation-FS**

2.48G/2.479GHz



Fl(Hz)	Fh(Hz)	Ch.Space(Hz)	Limit(Hz)
2.479166G	2.480166G	1.0005M	842.49k

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	7.89	0.00615
BT-EDR(2Mbps)	6.88	0.00488
BT-EDR(3Mbps)	7.13	0.00516

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	2.30	5.51	21.00
2440MHz	Pass	2.30	7.87	21.00
2480MHz	Pass	2.30	7.89	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	2.30	3.34	21.00
2440MHz	Pass	2.30	6.54	21.00
2480MHz	Pass	2.30	6.88	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	2.30	4.05	21.00
2440MHz	Pass	2.30	6.96	21.00
2480MHz	Pass	2.30	7.13	21.00

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

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-BR(1Mbps)	7.74	0.00594
BT-EDR(2Mbps)	5.63	0.00366
BT-EDR(3Mbps)	5.56	0.00360

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-BR(1Mbps)	-	-	-	-
2402MHz	Pass	2.30	5.21	21.00
2440MHz	Pass	2.30	7.72	21.00
2480MHz	Pass	2.30	7.74	21.00
BT-EDR(2Mbps)	-	-	-	-
2402MHz	Pass	2.30	1.62	21.00
2440MHz	Pass	2.30	5.08	21.00
2480MHz	Pass	2.30	5.63	21.00
BT-EDR(3Mbps)	-	-	-	-
2402MHz	Pass	2.30	1.51	21.00
2440MHz	Pass	2.30	4.93	21.00
2480MHz	Pass	2.30	5.56	21.00

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

Summary

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

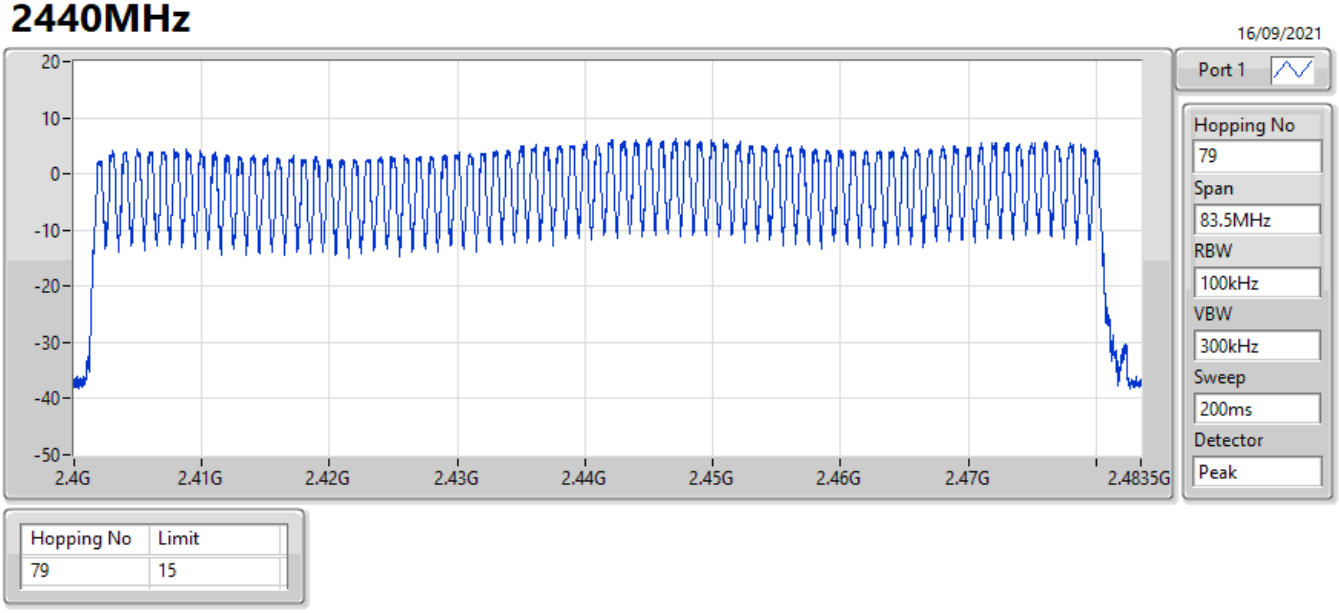
Result

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

BT-BR(1Mbps)

2440MHz

Hopping-FS

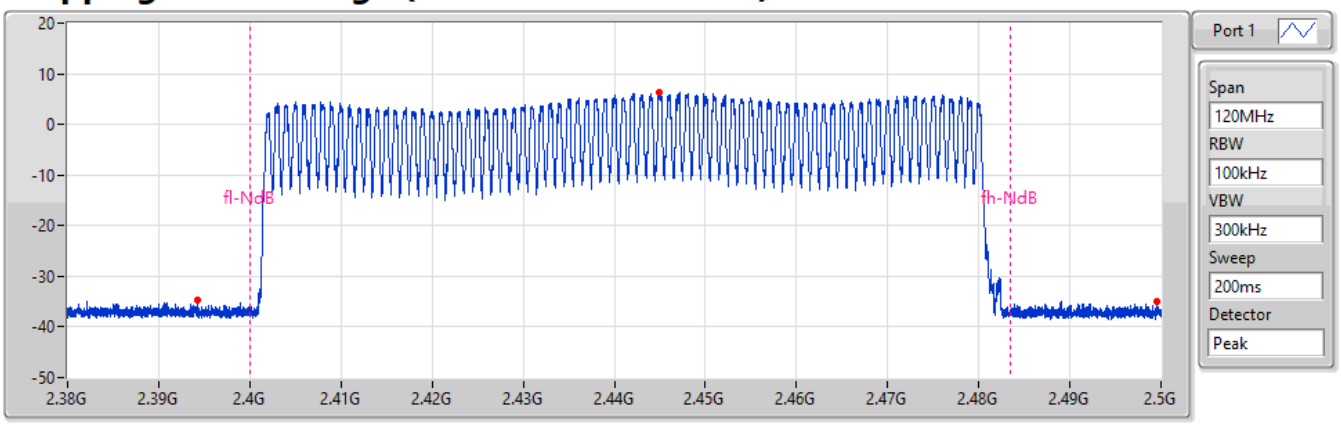


Hopping No	Limit
79	15

BT-BR(1Mbps)

2440MHz

Hopping Ch Bandedge (Non-restricted Band)

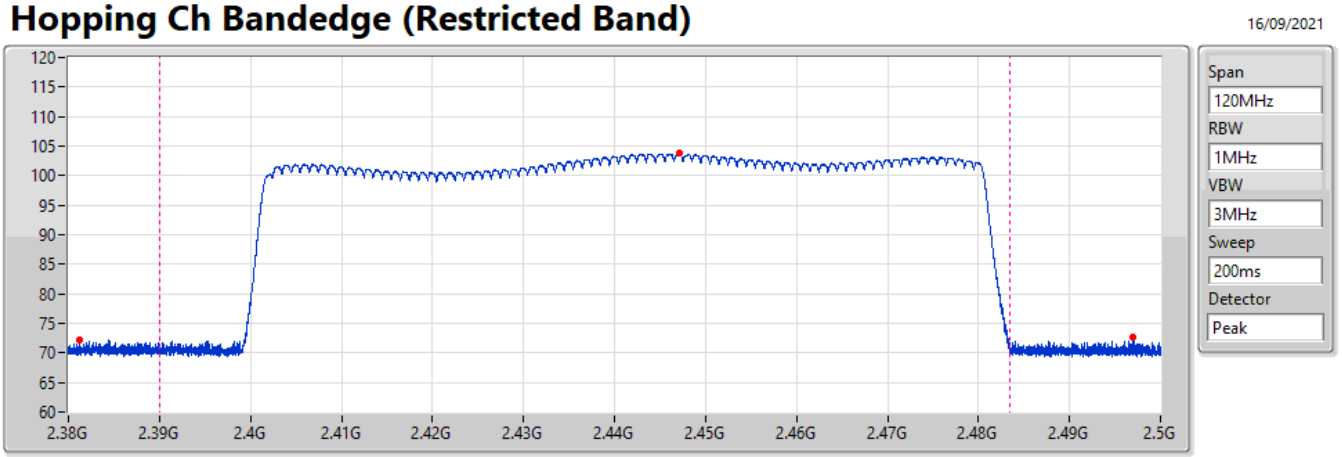


Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-13.68	2.444995G	6.32	2.394265G	-34.79	2.49952G	-34.87

BT-BR(1Mbps)

2440MHz

Hopping Ch Bandedge (Restricted Band)

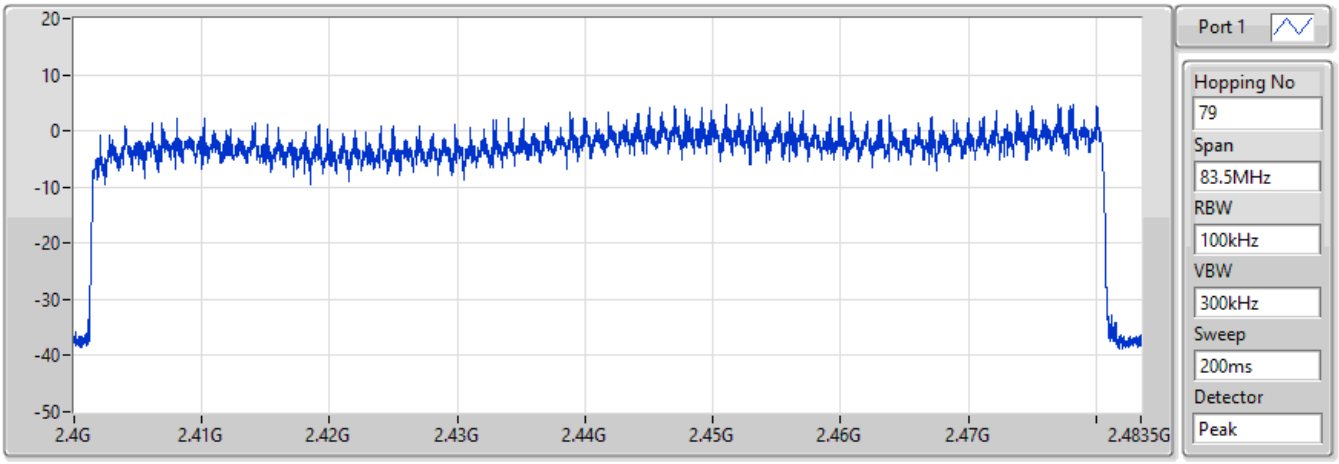


Ref(Hz)	Ref(dBuV/m)	BE-l(Hz)	PK(dBuV/m)	AV(dBuV/m)	BE-h(Hz)	PK(dBuV/m)	AV(dBuV/m)	LimPK(dBuV/	LimAV(dBuV/	Tx On(ms)	DCF(dB)
2.44714G	103.76	2.38123G	72.26	42.16	2.49703G	72.61	42.51	74	54	3.125	-30.1

BT-EDR(2Mbps)

Hopping-FS

2440MHz

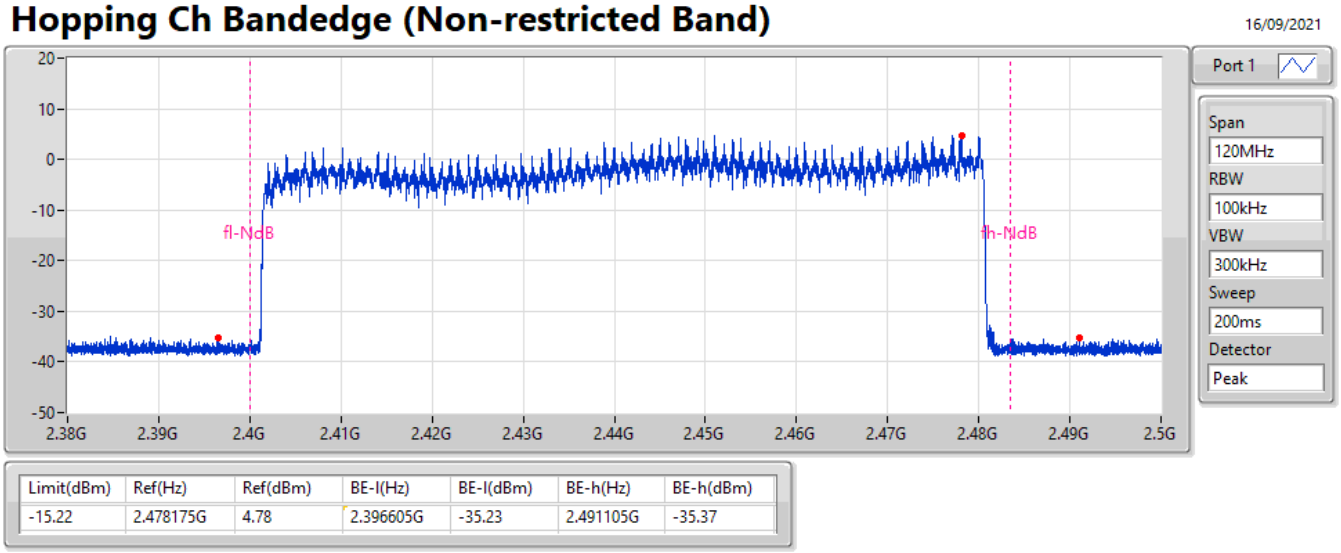


Hopping No	Limit
79	15

BT-EDR(2Mbps)

2440MHz

Hopping Ch Bandedge (Non-restricted Band)

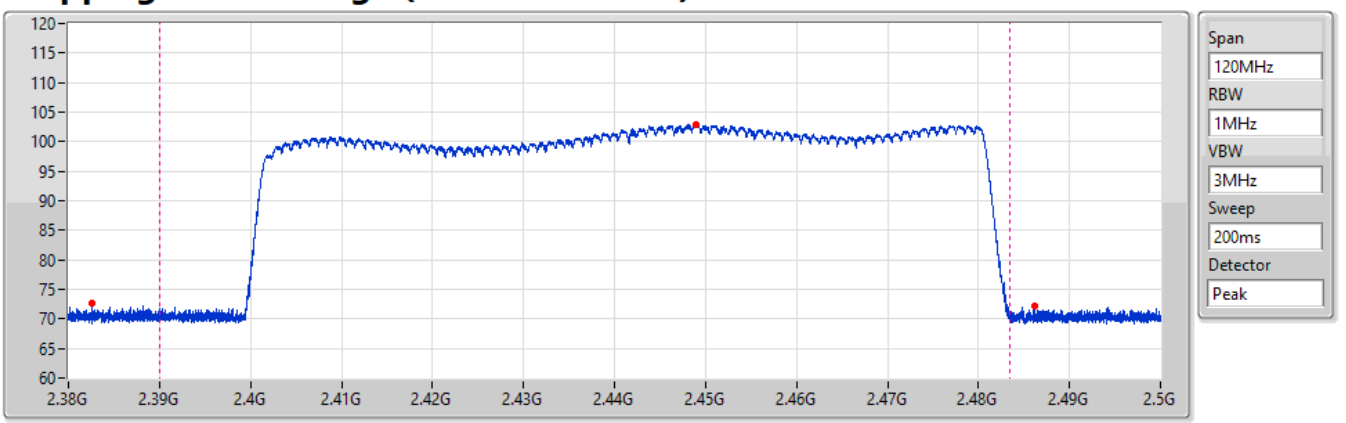


Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-15.22	2.478175G	4.78	2.396605G	-35.23	2.491105G	-35.37

BT-EDR(2Mbps)

2440MHz

Hopping Ch Bandedge (Restricted Band)

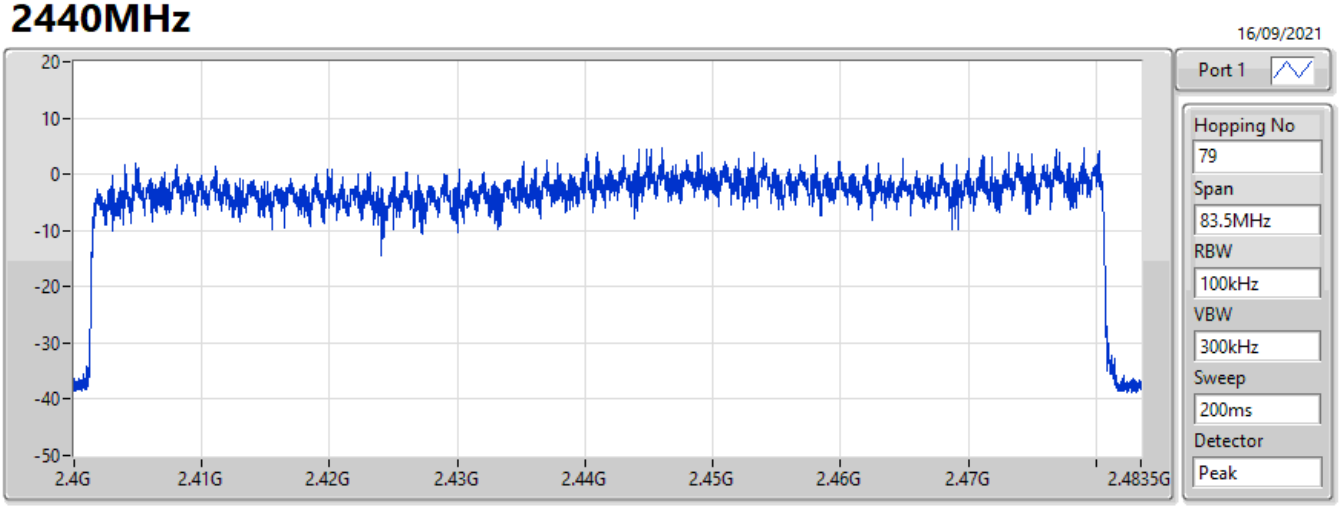


Ref(Hz)	Ref(dBuV/m)	BE-l(Hz)	PK(dBuV/m)	AV(dBuV/m)	BE-h(Hz)	PK(dBuV/m)	AV(dBuV/m)	LimPK(dBuV/	LimAV(dBuV/	Tx On(ms)	DCF(dB)
2.44894G	102.88	2.382595G	72.61	42.51	2.486125G	72.15	42.05	74	54	3.125	-30.1

BT-EDR(3Mbps)

2440MHz

Hopping-FS

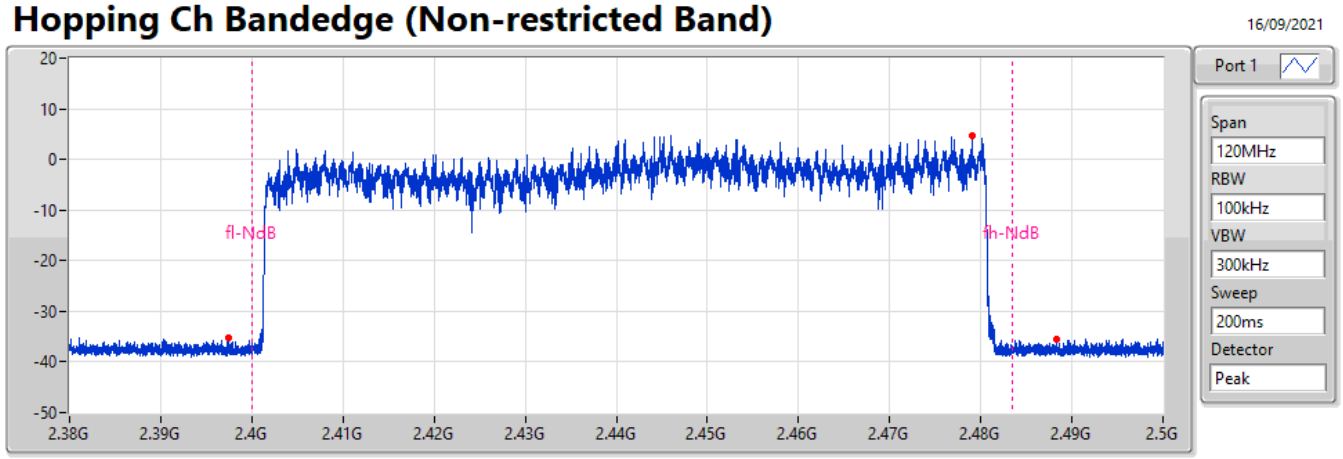


Hopping No	Limit
79	15

BT-EDR(3Mbps)

2440MHz

Hopping Ch Bandedge (Non-restricted Band)

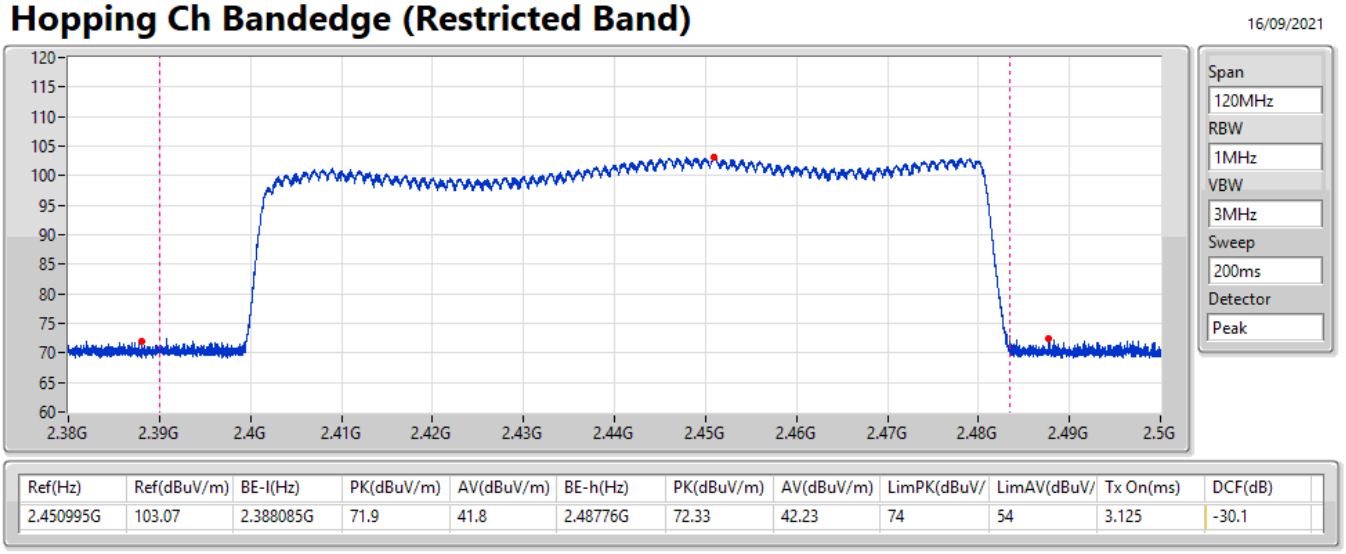


Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
-15.18	2.479015G	4.82	2.39752G	-35.3	2.48836G	-35.38

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)
2.450995G	103.07	2.388085G	71.9	41.8	2.48776G	72.33	42.23	74	54	3.125	-30.1

Summary

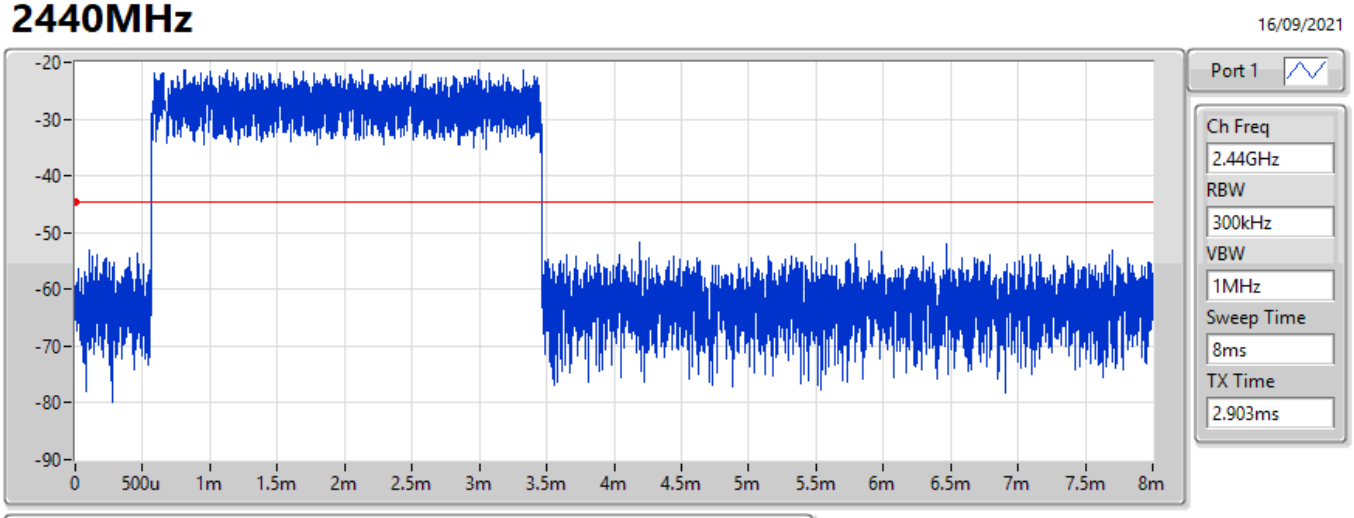
Mode	Max-Dwell (s)
2.4-2.4835GHz	-
BT-BR(1Mbps)	309.4598m_DH5
BT-EDR(2Mbps)	310.206m_DH5
BT-EDR(3Mbps)	310.3126m_DH5

Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
BT-BR(1Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	309.4598m_DH5	400m	2.903m
2440MHz	Pass	8	154.6766m_DH5-AFH	400m	2.902m
BT-EDR(2Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	310.206m_DH5	400m	2.91m
2440MHz	Pass	8	155.103m_DH5-AFH	400m	2.91m
BT-EDR(3Mbps)	-	-	-	-	-
2440MHz	Pass	31.6	310.3126m_DH5	400m	2.911m
2440MHz	Pass	8	155.1563m_DH5-AFH	400m	2.911m

BT-BR(1Mbps) **Dwell-FS**

2440MHz

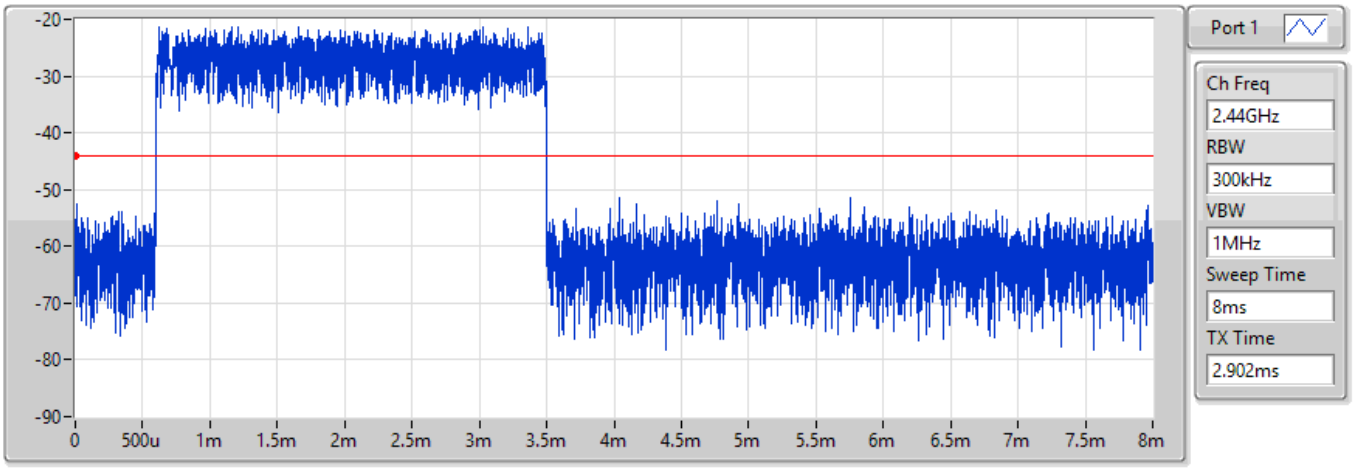


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	309.4598m_DH5	400m	2.903m

DH5

BT-BR(1Mbps) **Dwell-FS**

2440MHz

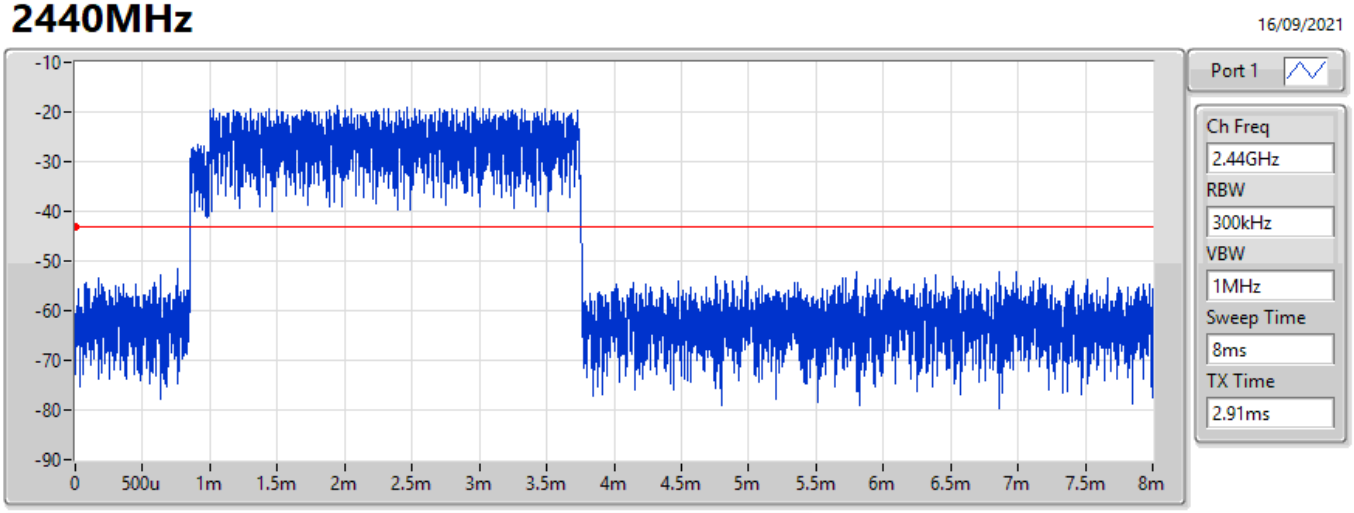


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
8	154.6766m_DH5-AFH	400m	2.902m

DH5-AFH

BT-EDR(2Mbps) Dwell-FS

2440MHz

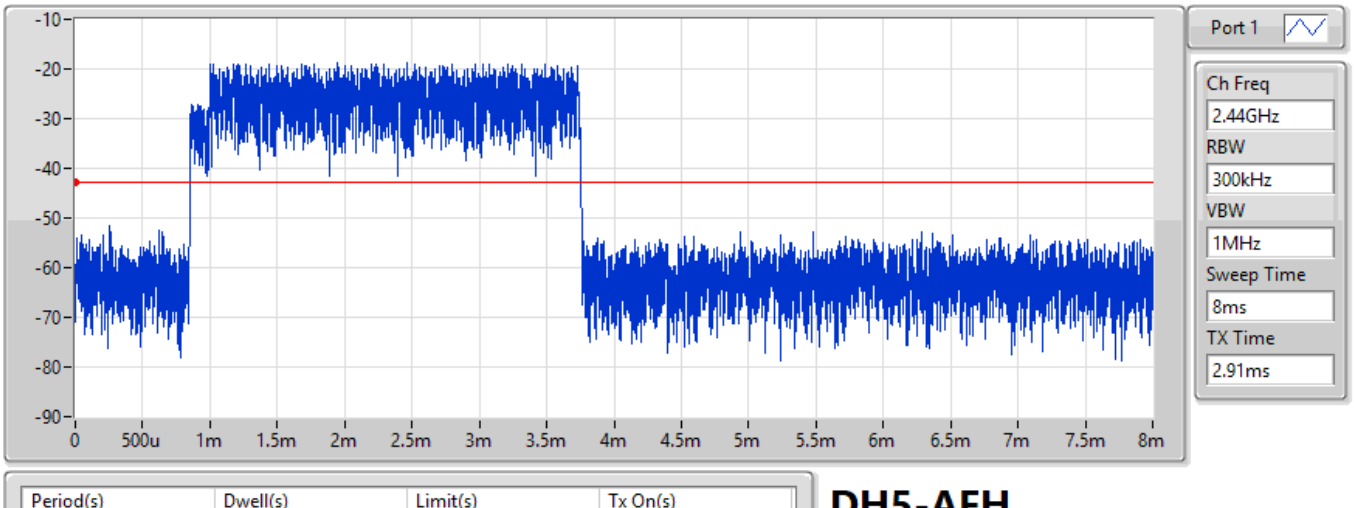


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	310.206m_DH5	400m	2.91m

DH5

BT-EDR(2Mbps) Dwell-FS

2440MHz

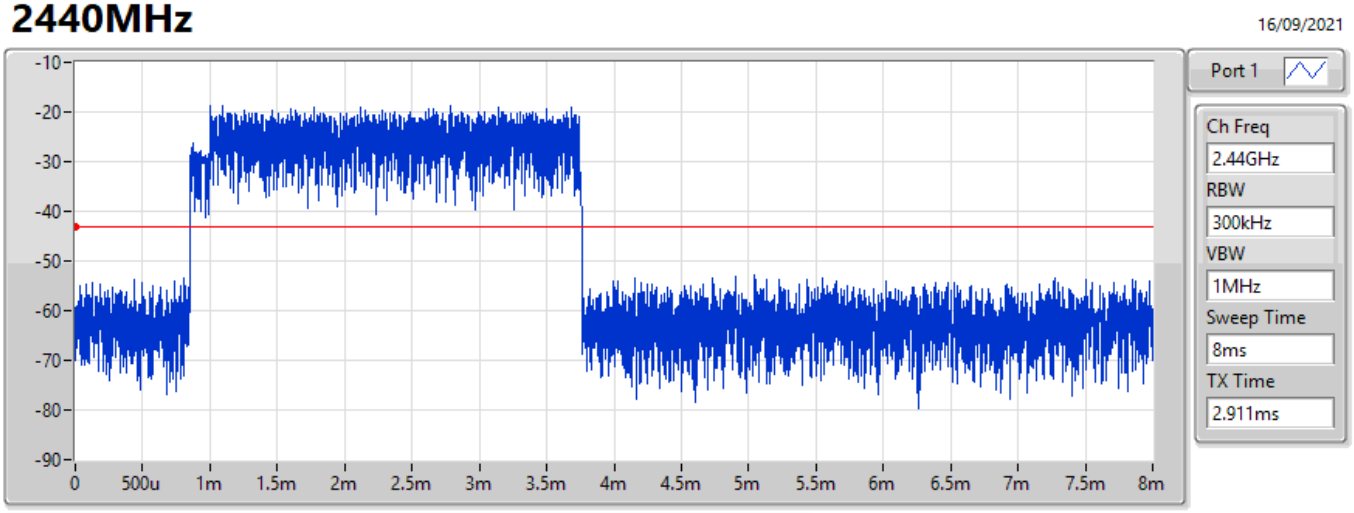


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
8	155.103m_DH5-AFH	400m	2.91m

DH5-AFH

BT-EDR(3Mbps) Dwell-FS

2440MHz

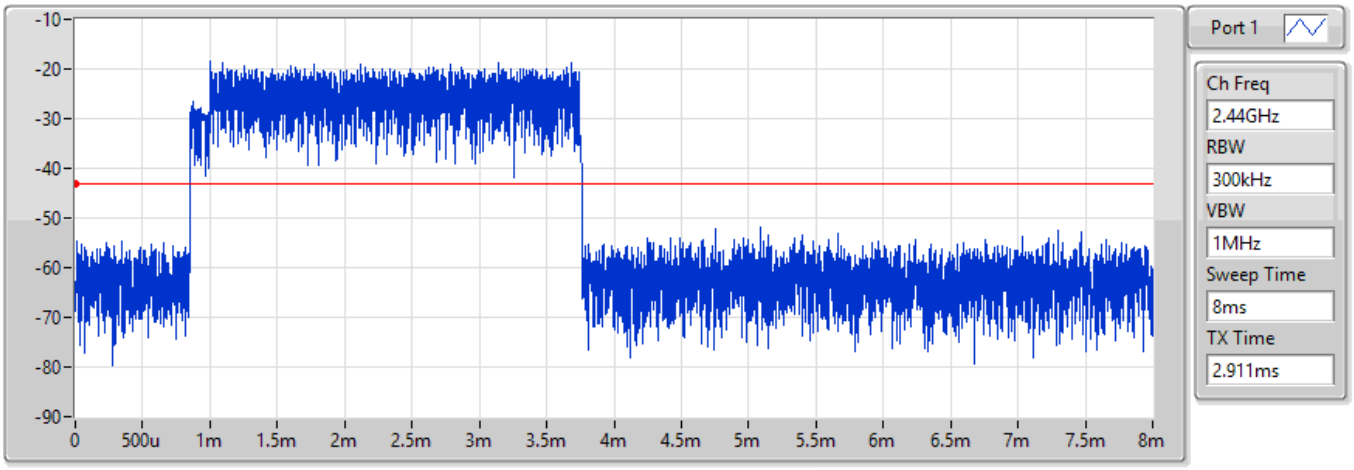


Period(s)	Dwell(s)	Limit(s)	Tx On(s)
31.6	310.3126m_DH5	400m	2.911m

DH5

BT-EDR(3Mbps) Dwell-FS

2440MHz



Period(s)	Dwell(s)	Limit(s)	Tx On(s)
8	155.1563m_DH5-AFH	400m	2.911m

DH5-AFH

Summary

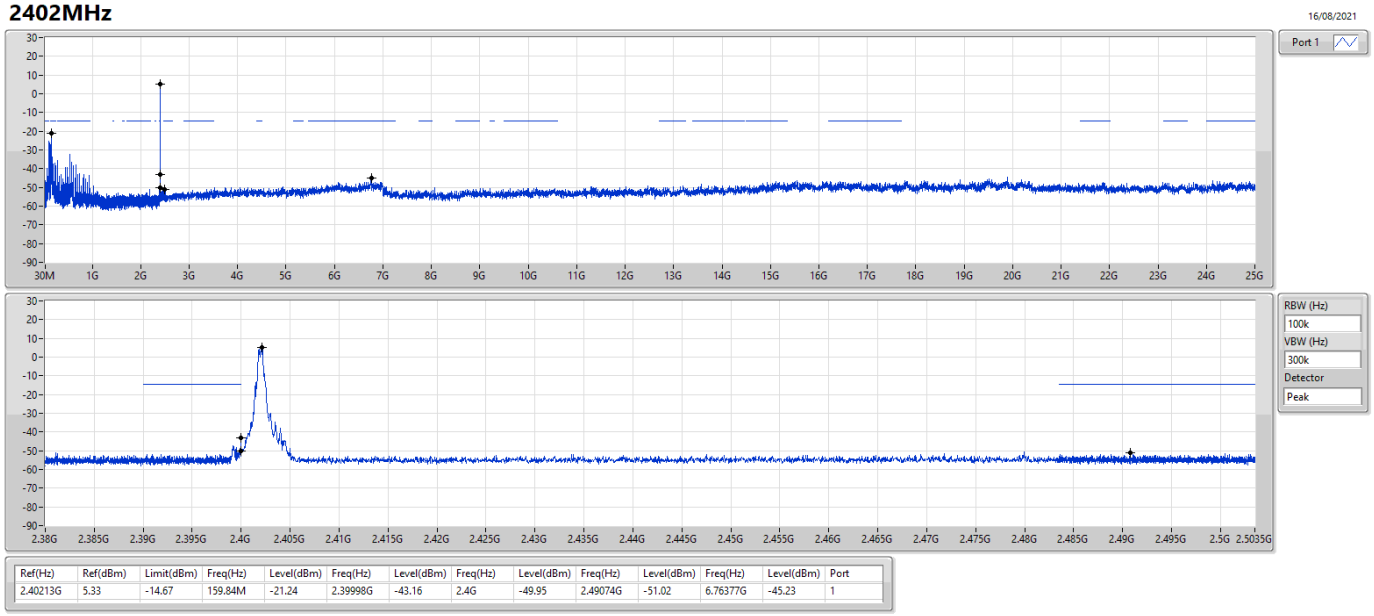
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-BR(1Mbps)	Pass	2.43987G	6.57	-13.43	159.84M	-19.06	2.39891G	-51.75	2.4G	-54.46	2.49127G	-50.83	6.6288G	-46.34	1
BT-EDR(2Mbps)	Pass	2.40205G	0.88	-19.12	159.84M	-24.00	2.4G	-40.06	2.4G	-41.01	2.49338G	-51.16	16.84783G	-45.46	1
BT-EDR(3Mbps)	Pass	2.40188G	-0.17	-20.17	159.84M	-21.43	2.4G	-40.93	2.4G	-40.74	2.48888G	-51.33	24.44602G	-45.60	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	2.40213G	5.33	-14.67	159.84M	-21.24	2.39998G	-43.16	2.4G	-49.95	2.49074G	-51.02	6.76377G	-45.23	1
2440MHz	Pass	2.43987G	6.57	-13.43	159.84M	-19.06	2.39891G	-51.75	2.4G	-54.46	2.49127G	-50.83	6.6288G	-46.34	1
2480MHz	Pass	2.4802G	7.25	-12.75	95.8M	-24.88	2.39038G	-52.29	2.4835G	-45.78	2.48548G	-49.70	24.75254G	-46.04	1
BT-EDR(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40205G	0.88	-19.12	159.84M	-24.00	2.4G	-40.06	2.4G	-41.01	2.49338G	-51.16	16.84783G	-45.46	1
2440MHz	Pass	2.44021G	5.12	-14.88	95.8M	-24.41	2.39684G	-51.97	2.4835G	-55.02	2.49643G	-51.01	6.83689G	-45.71	1
2480MHz	Pass	2.47987G	5.73	-14.27	159.84M	-24.49	2.39104G	-52.24	2.4835G	-52.90	2.48396G	-50.45	24.50508G	-44.90	1
BT-EDR(3Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40188G	-0.17	-20.17	159.84M	-21.43	2.4G	-40.93	2.4G	-40.74	2.48888G	-51.33	24.44602G	-45.60	1
2440MHz	Pass	2.44004G	4.34	-15.66	159.84M	-18.04	2.39656G	-51.89	2.4G	-53.07	2.49595G	-50.95	6.91563G	-46.26	1
2480MHz	Pass	2.48008G	4.95	-15.05	95.8M	-18.05	2.39475G	-51.38	2.4835G	-53.00	2.48388G	-50.75	15.21402G	-46.44	1

BT-BR(1Mbps) **CSENdB-FS**

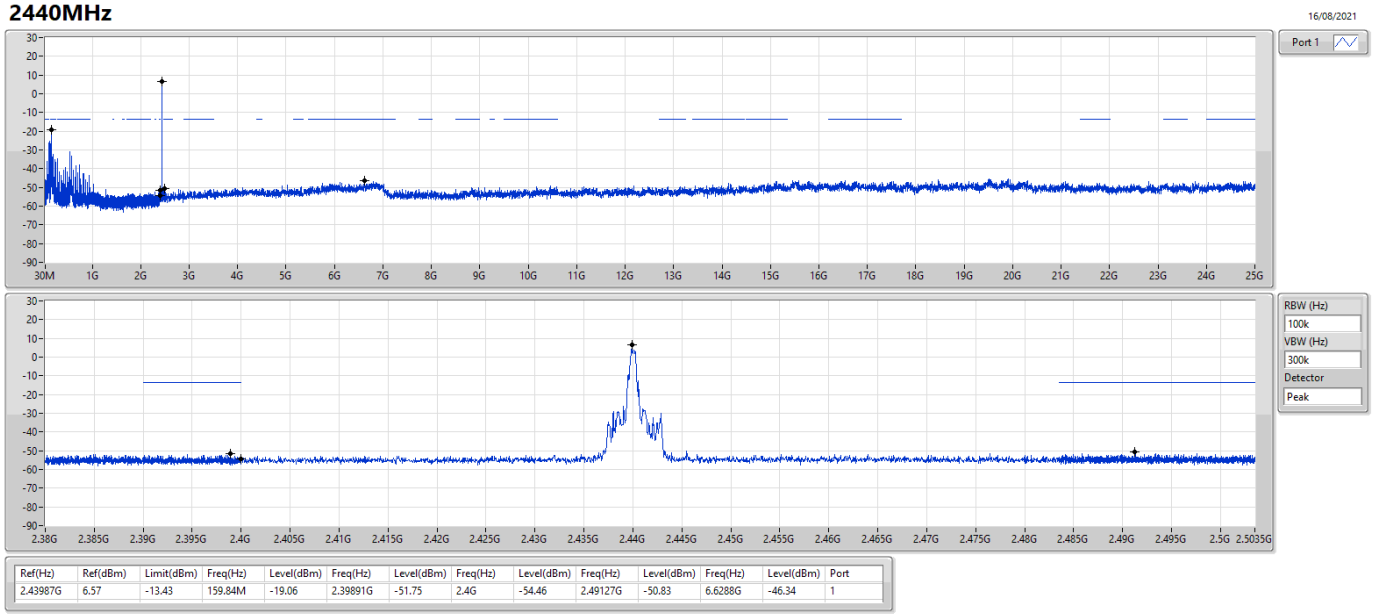
2402MHz



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
2.40213G	5.33	-14.67	159.84M	-21.24	2.39998G	-43.16	2.4G	-49.95	2.49074G	-51.02	6.76377G	-45.23	1

BT-BR(1Mbps) **CSENdB-FS**

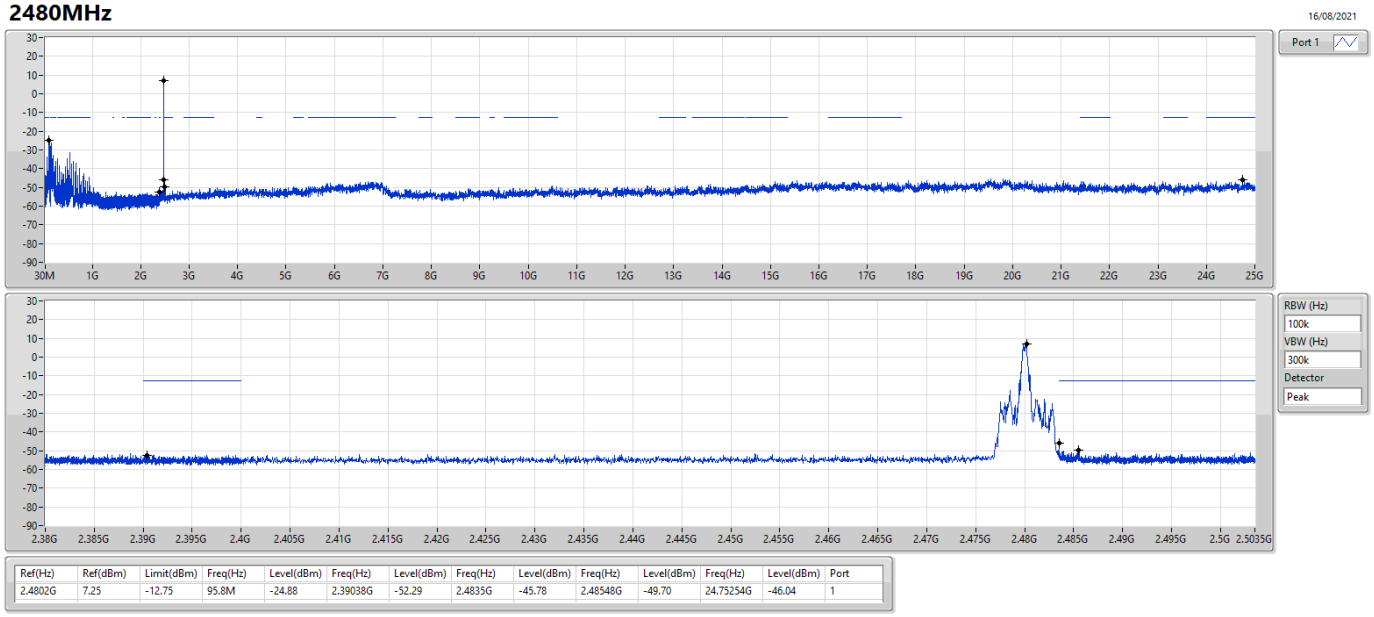
2440MHz



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
2.43987G	6.57	-13.43	159.84M	-19.06	2.39891G	-51.75	2.4G	-54.46	2.49127G	-50.83	6.6288G	-46.34	1

BT-BR(1Mbps) **CSENdB-FS**

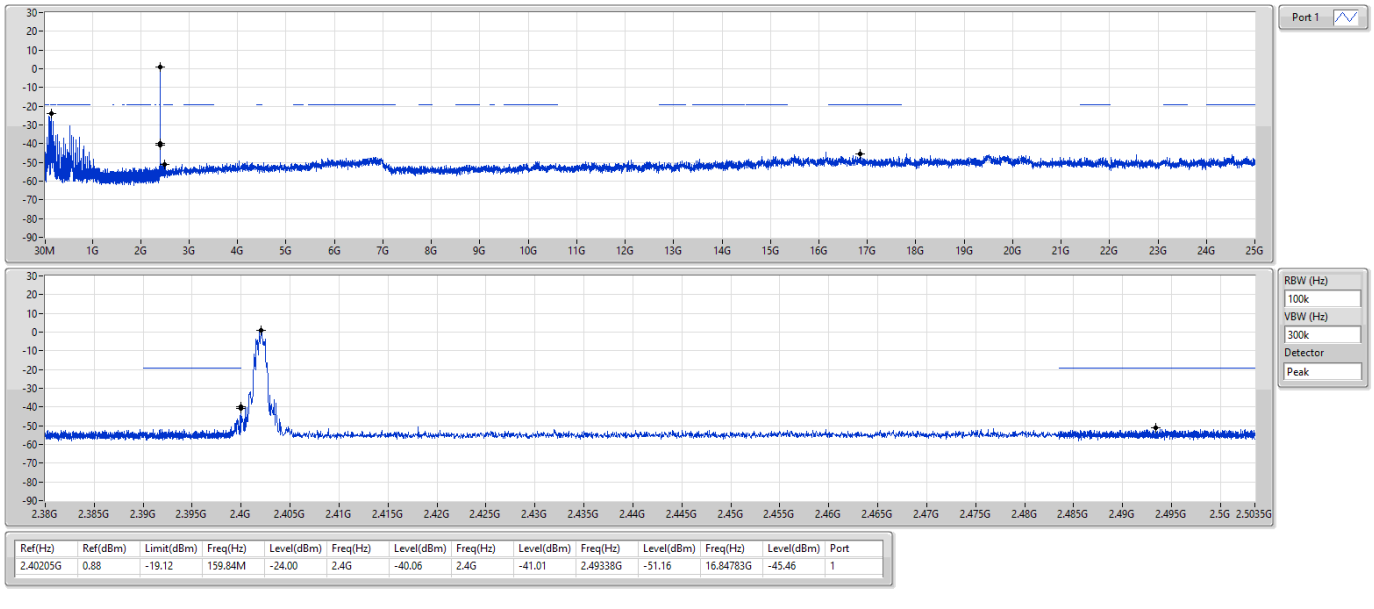
2480MHz



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
2.4802G	7.25	-12.75	95.8M	-24.88	2.39038G	-52.29	2.4835G	-45.78	2.48548G	-49.70	24.75254G	-46.04	1

BT-EDR(2Mbps) **CSENdB-FS**

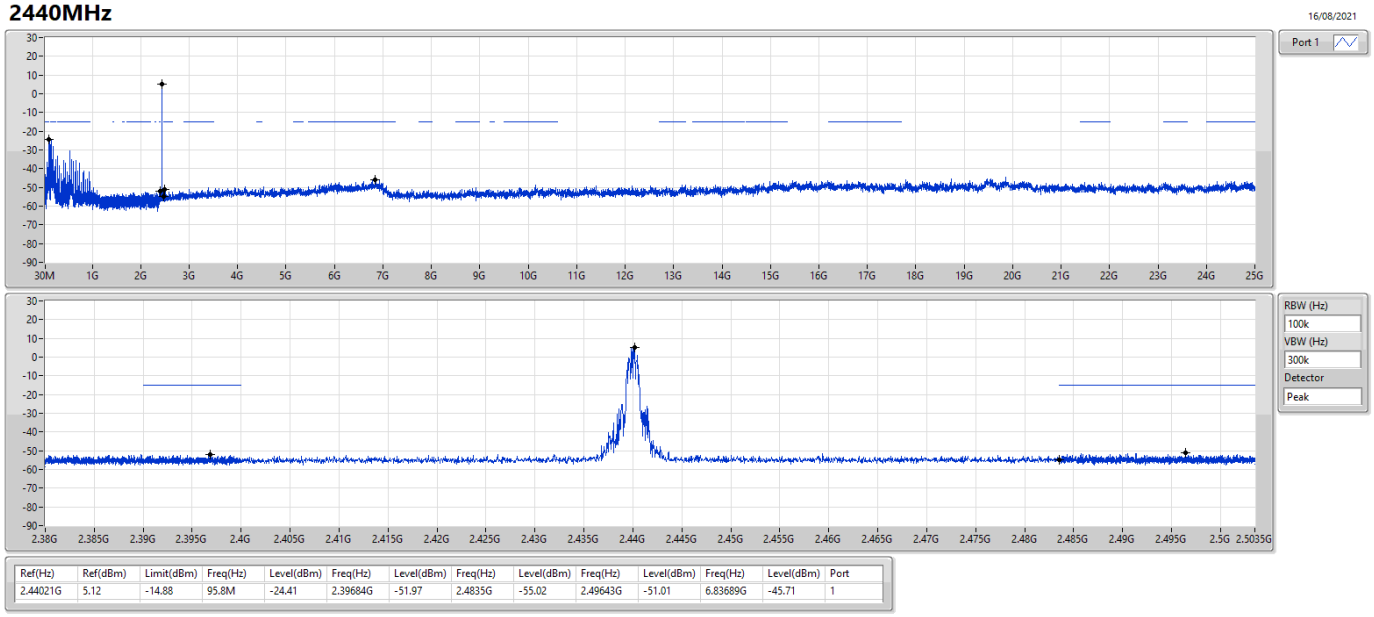
2402MHz



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
2.40205G	0.88	-19.12	159.84M	-24.00	2.4G	-40.06	2.4G	-41.01	2.49338G	-51.16	16.84783G	-45.46	1

BT-EDR(2Mbps) **CSENdB-FS**

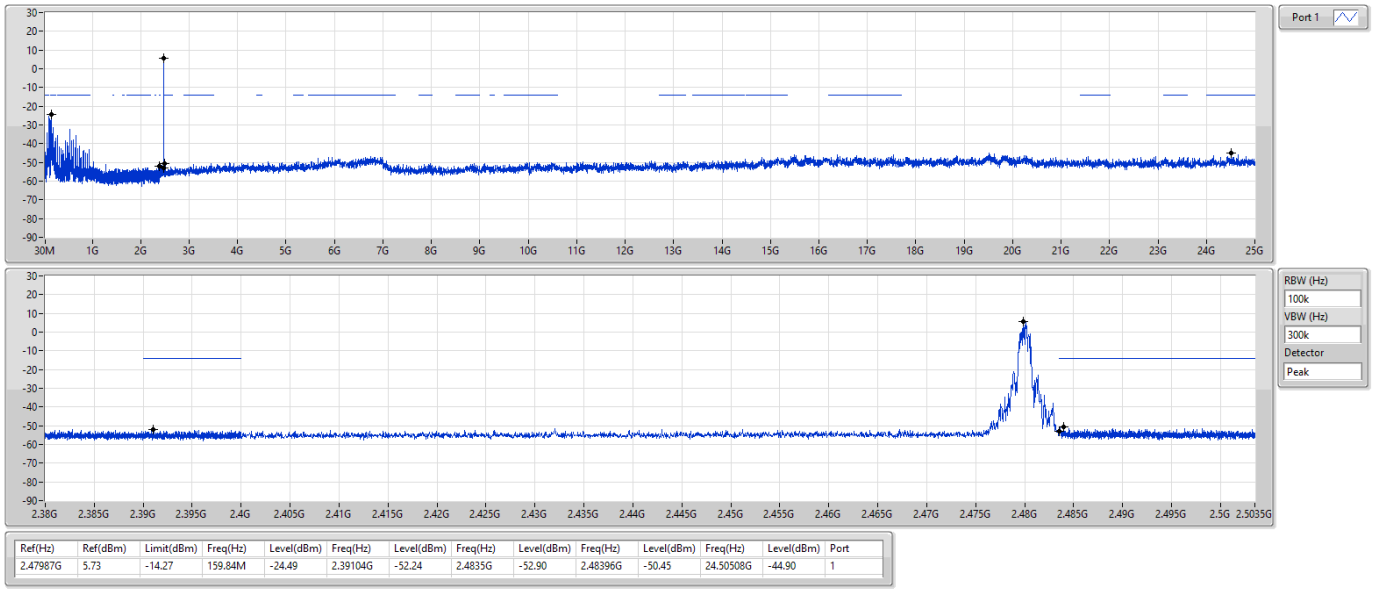
2440MHz



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
2.44021G	5.12	-14.88	95.8M	-24.41	2.39684G	-51.97	2.4835G	-55.02	2.49643G	-51.01	6.83689G	-45.71	1

BT-EDR(2Mbps) **CSENdB-FS**

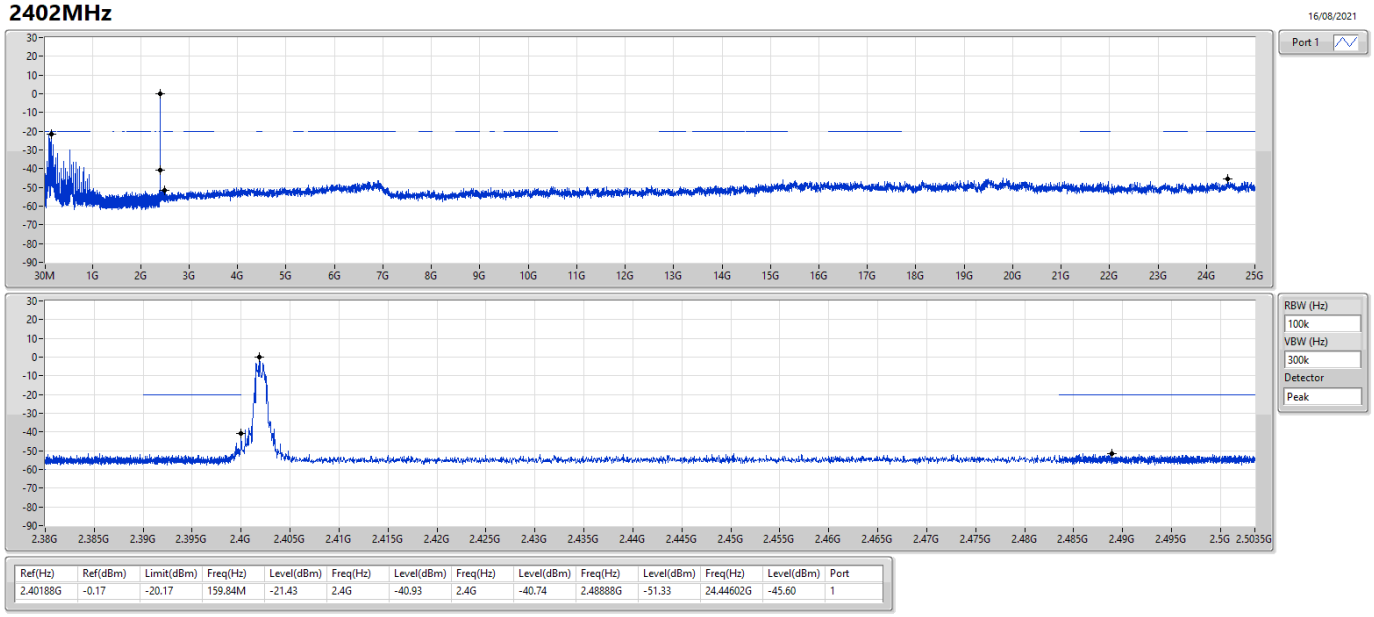
2480MHz



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
2.47987G	5.73	-14.27	159.84M	-24.49	2.39104G	-52.24	2.4835G	-52.90	2.48396G	-50.45	24.50508G	-44.90	1

BT-EDR(3Mbps) **CSENdB-FS**

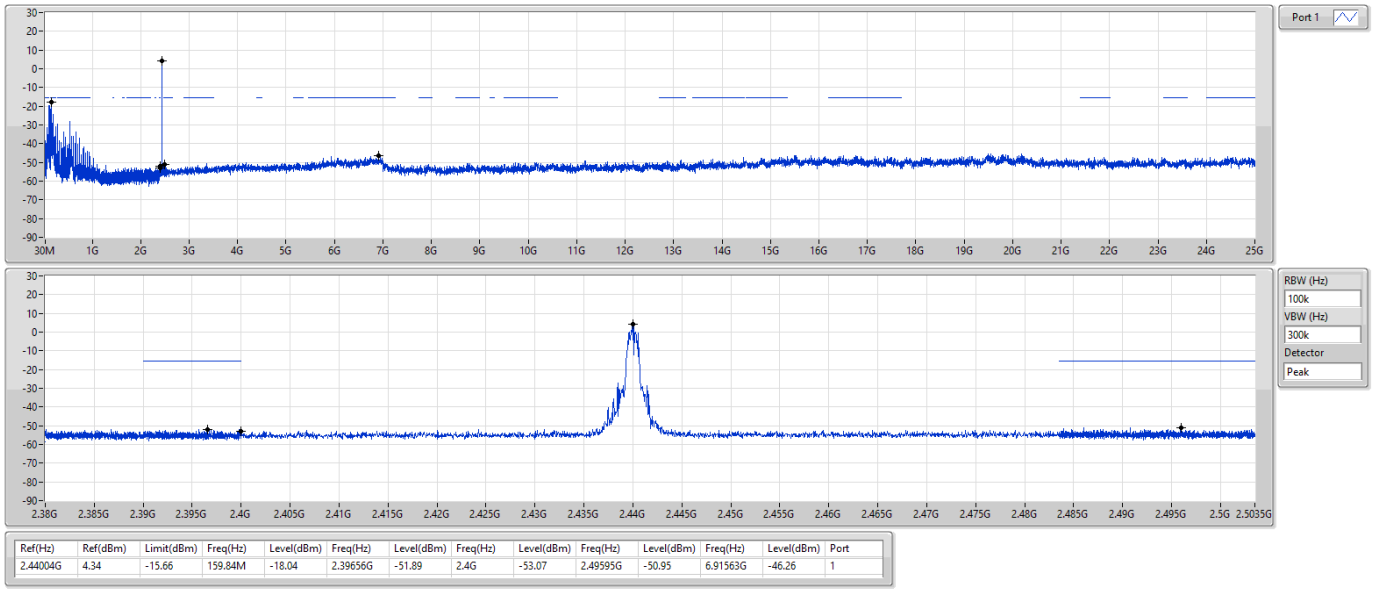
2402MHz



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
2.40188G	-0.17	-20.17	159.84M	-21.43	2.4G	-40.93	2.4G	-40.74	2.48888G	-51.33	24.44602G	-45.60	1

BT-EDR(3Mbps) **CSENdB-FS**

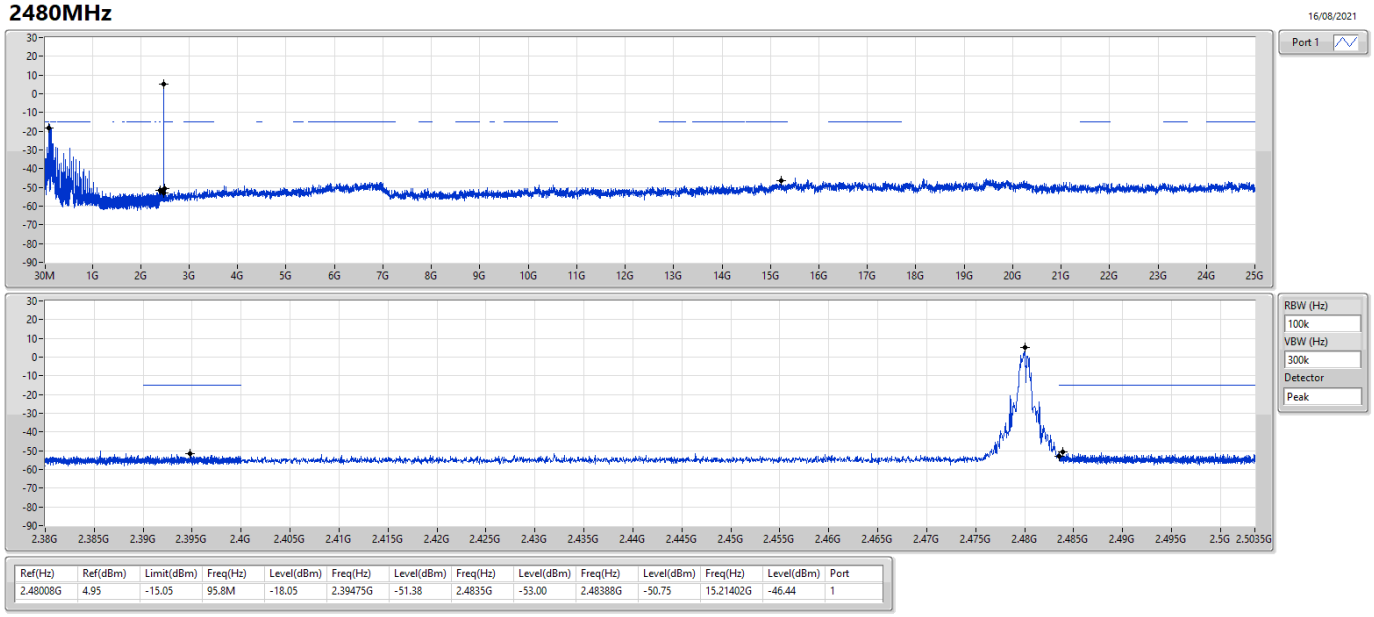
2440MHz



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
2.44004G	4.34	-15.66	159.84M	-18.04	2.39656G	-51.89	2.4G	-53.07	2.49595G	-50.95	6.91563G	-46.26	1

BT-EDR(3Mbps) **CSENdB-FS**

2480MHz



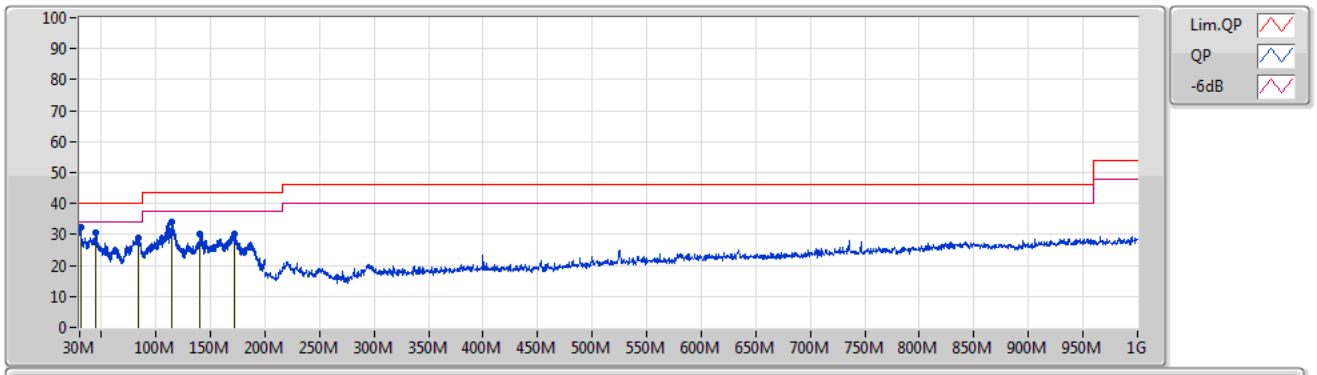
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48008G	4.95	-15.05	95.8M	-18.05	2.39475G	-51.38	2.4835G	-53.00	2.48388G	-50.75	15.21402G	-46.44	1

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	PK	30.68M	32.24	40.00	-7.76	Vertical

Mode 1

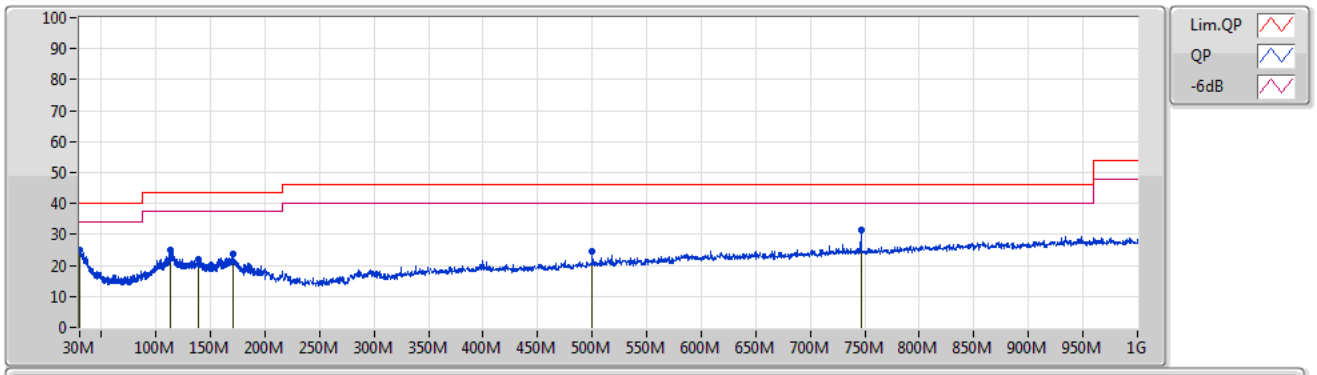
30/08/2021



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	30.68M	32.24	40.00	-7.76	-3.26	3	Vertical	300	1.00	"Worst"	35.50	23.60	1.03	27.89
PK	45.05M	30.70	40.00	-9.30	-10.66	3	Vertical	293	1.00	-	41.36	15.87	1.40	27.93
PK	84.32M	28.84	40.00	-11.16	-12.11	3	Vertical	32	2.00	-	40.95	13.55	2.19	27.85
PK	113.9M	33.94	43.50	-9.56	-7.00	3	Vertical	246	1.00	-	40.94	18.08	2.61	27.69
PK	140.33M	30.36	43.50	-13.14	-7.42	3	Vertical	36	1.00	-	37.78	17.12	3.00	27.54
PK	172.46M	30.33	43.50	-13.17	-8.48	3	Vertical	48	4.00	-	38.81	15.56	3.39	27.43

Mode 1

30/08/2021



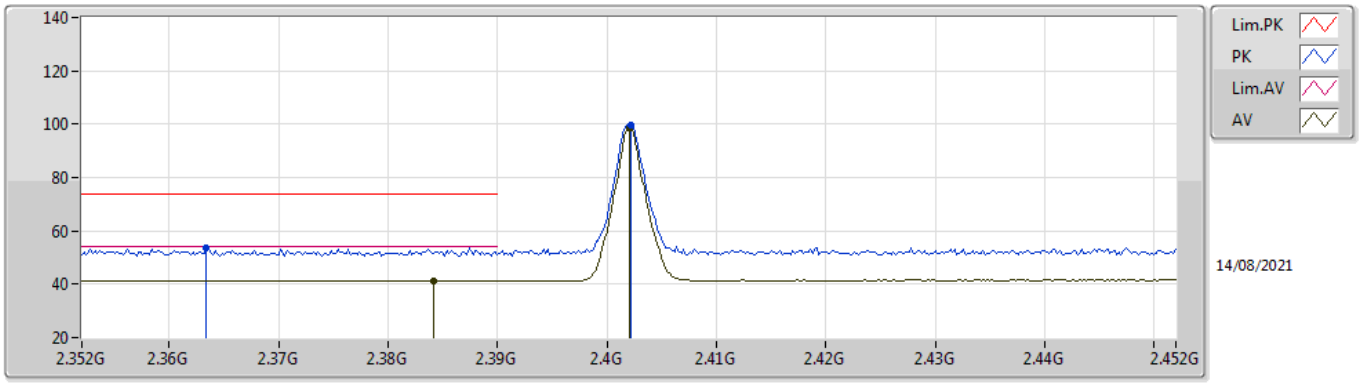
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	30.17M	24.88	40.00	-15.12	-3.13	3	Horizontal	255	1.00	-	28.01	23.74	1.01	27.88
PK	112.71M	24.91	43.50	-18.59	-7.08	3	Horizontal	331	2.00	-	31.99	18.03	2.59	27.70
PK	138.89M	22.07	43.50	-21.43	-7.35	3	Horizontal	1	1.00	-	29.42	17.22	2.98	27.55
PK	171.1M	23.62	43.50	-19.88	-8.46	3	Horizontal	8	1.00	-	32.08	15.61	3.37	27.44
PK	500M	24.53	46.00	-21.47	-5.58	3	Horizontal	342	2.00	-	30.11	17.52	4.80	27.90
PK	746.4M	31.28	46.00	-14.72	-1.20	3	Horizontal	55	1.00	"Worst"	32.48	20.41	5.99	27.60

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	53.92	54.00	-0.08	3	Vertical	48	2.86	-

BT-BR(1Mbps)

2402MHz_TX

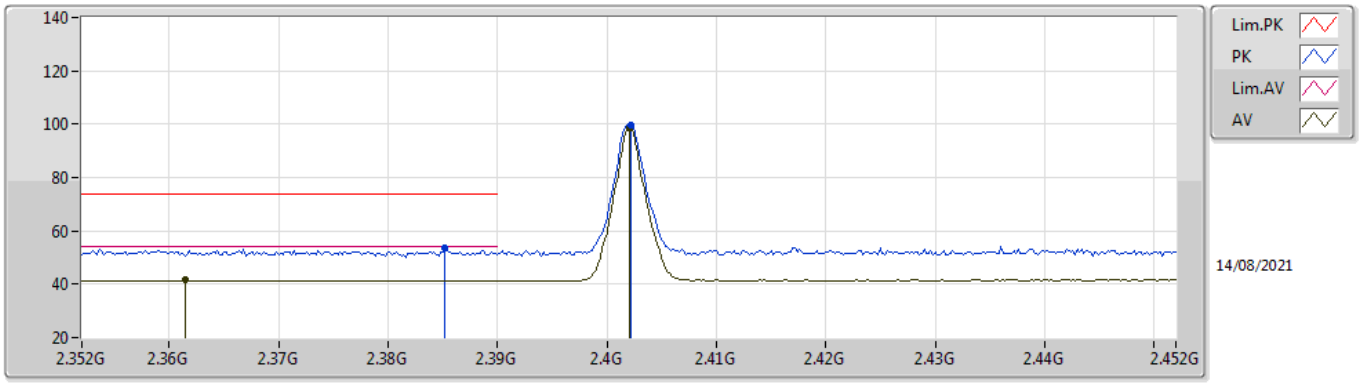


EUT Z_1TX
Setting 10
01-A-E-2

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	2.3634G	53.60	74.00	-20.40	24.11	3	Vertical	46	3.00	-	27.33	2.16	-
AV	2.3842G	41.41	54.00	-12.59	11.86	3	Vertical	46	3.00	-	27.37	2.18	-
PK	2.4022G	99.79	Inf	-Inf	70.19	3	Vertical	46	3.00	-	27.40	2.20	-
AV	2.402G	98.57	Inf	-Inf	68.97	3	Vertical	46	3.00	-	27.40	2.20	-

BT-BR(1Mbps)

2402MHz_TX

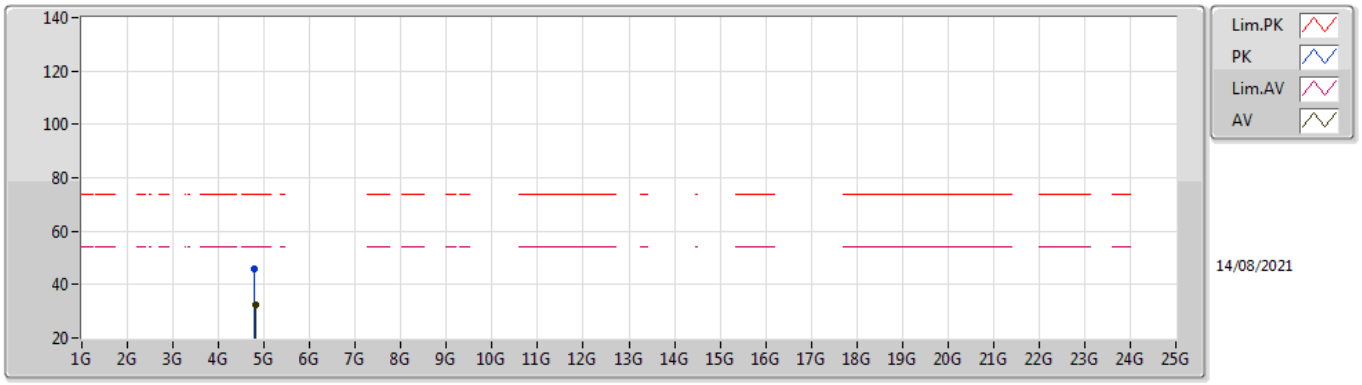


EUT Z_1TX
Setting 10
01-A-E-2

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	2.3852G	53.45	74.00	-20.55	23.89	3	Horizontal	320	1.00	-	27.37	2.19	-
AV	2.3614G	41.52	54.00	-12.48	12.04	3	Horizontal	320	1.00	-	27.32	2.16	-
PK	2.4022G	99.78	Inf	-Inf	70.18	3	Horizontal	320	1.00	-	27.40	2.20	-
AV	2.402G	98.56	Inf	-Inf	68.96	3	Horizontal	320	1.00	-	27.40	2.20	-

BT-BR(1Mbps)

2402MHz_TX

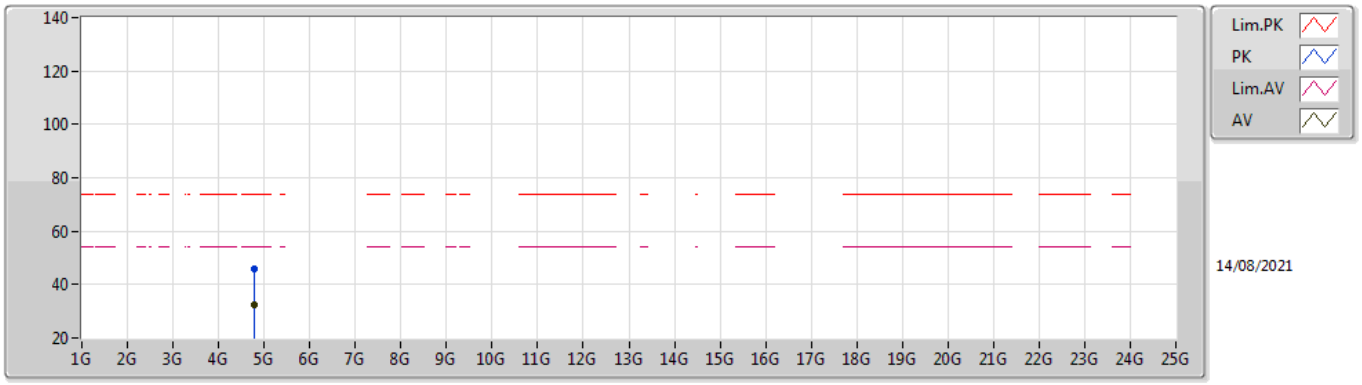


EUT Z_1TX
Setting 10
01-A-E-2

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	4.78972G	45.78	74.00	-28.22	41.66	3	Vertical	212	2.45	-	32.12	4.99	32.99
AV	4.80022G	32.19	54.00	-21.81	28.08	3	Vertical	212	2.45	-	32.10	5.00	32.99

BT-BR(1Mbps)

2402MHz_TX

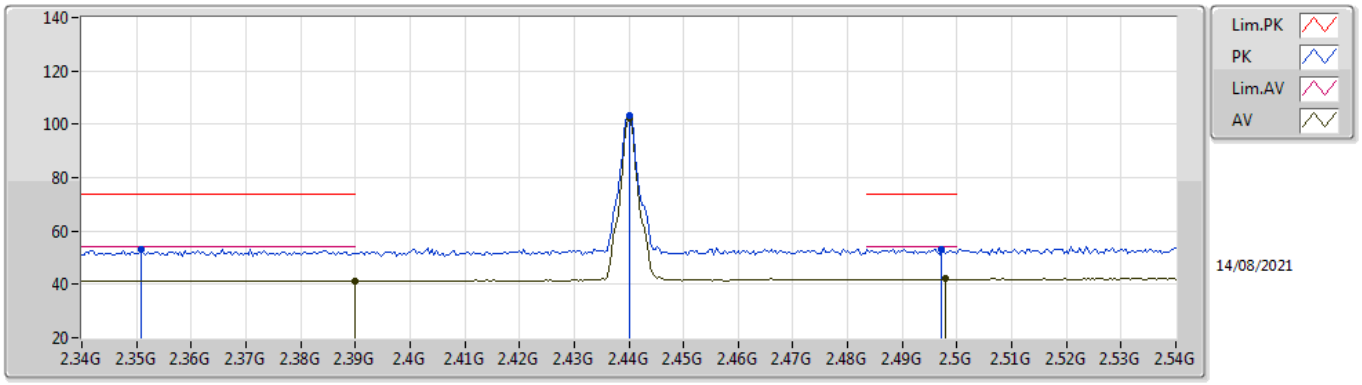


EUT Z_1TX
Setting 10
01-A-E-2

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	4.78912G	45.72	74.00	-28.28	41.60	3	Horizontal	66	1.80	-	32.12	4.99	32.99
AV	4.79476G	32.30	54.00	-21.70	28.19	3	Horizontal	66	1.80	-	32.11	4.99	32.99

BT-BR(1Mbps)

2440MHz_TX

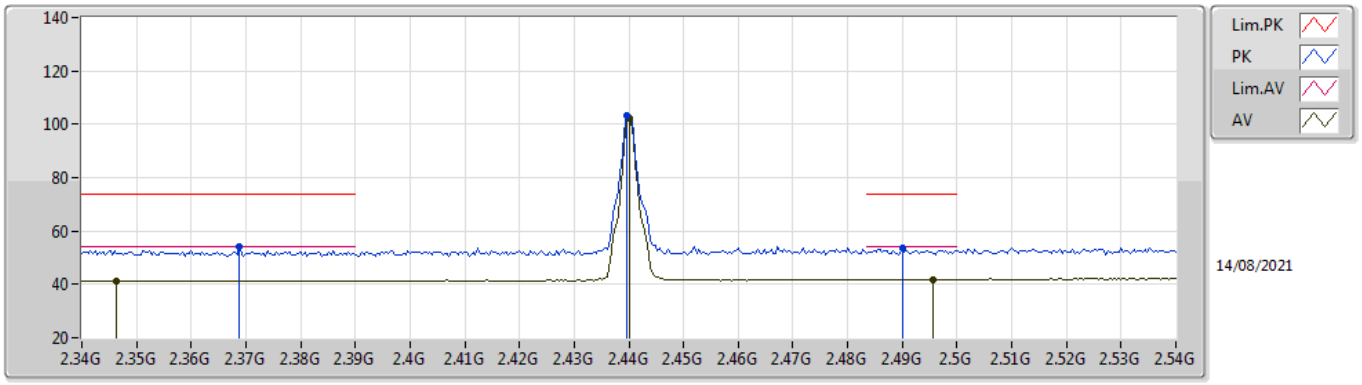


EUT Z_1TX
Setting 10
01-A-E-2

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	2.3508G	53.16	74.00	-20.84	23.71	3	Vertical	47	2.95	-	27.30	2.15	-
AV	2.39G	41.39	54.00	-12.61	11.82	3	Vertical	47	2.95	-	27.38	2.19	-
PK	2.44G	103.12	Inf	-Inf	73.40	3	Vertical	47	2.95	-	27.48	2.24	-
AV	2.44G	102.04	Inf	-Inf	72.32	3	Vertical	47	2.95	-	27.48	2.24	-
PK	2.4972G	53.31	74.00	-20.69	23.23	3	Vertical	47	2.95	-	27.78	2.30	-
AV	2.498G	42.00	54.00	-12.00	11.91	3	Vertical	47	2.95	-	27.79	2.30	-

BT-BR(1Mbps)

2440MHz_TX

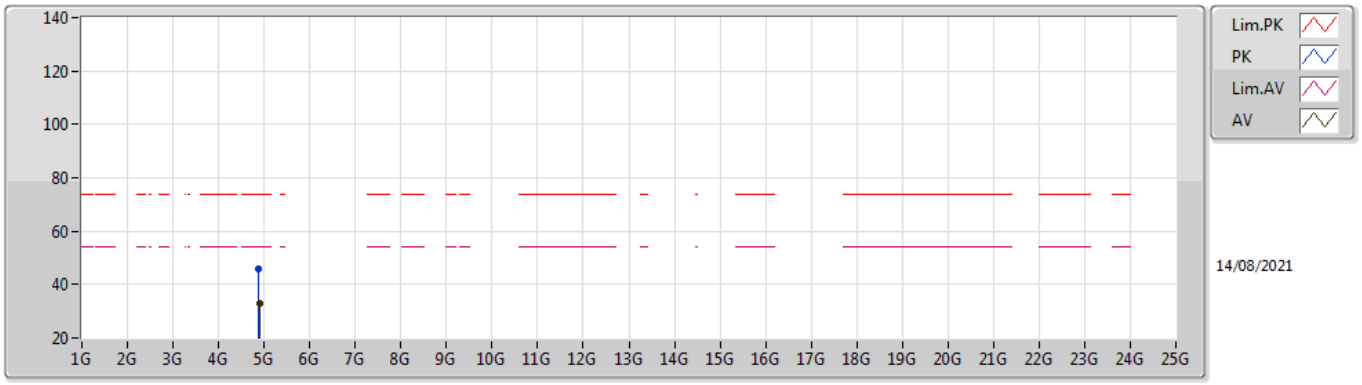


EUT Z_1TX
Setting 10
01-A-E-2

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	2.3688G	54.37	74.00	-19.63	24.86	3	Horizontal	327	1.19	-	27.34	2.17	-
AV	2.3464G	41.33	54.00	-12.67	11.88	3	Horizontal	327	1.19	-	27.30	2.15	-
PK	2.4396G	103.08	Inf	-Inf	73.36	3	Horizontal	327	1.19	-	27.48	2.24	-
AV	2.44G	102.02	Inf	-Inf	72.30	3	Horizontal	327	1.19	-	27.48	2.24	-
PK	2.49G	53.70	74.00	-20.30	23.67	3	Horizontal	327	1.19	-	27.74	2.29	-
AV	2.4956G	41.98	54.00	-12.02	11.91	3	Horizontal	327	1.19	-	27.77	2.30	-

BT-BR(1Mbps)

2440MHz_TX

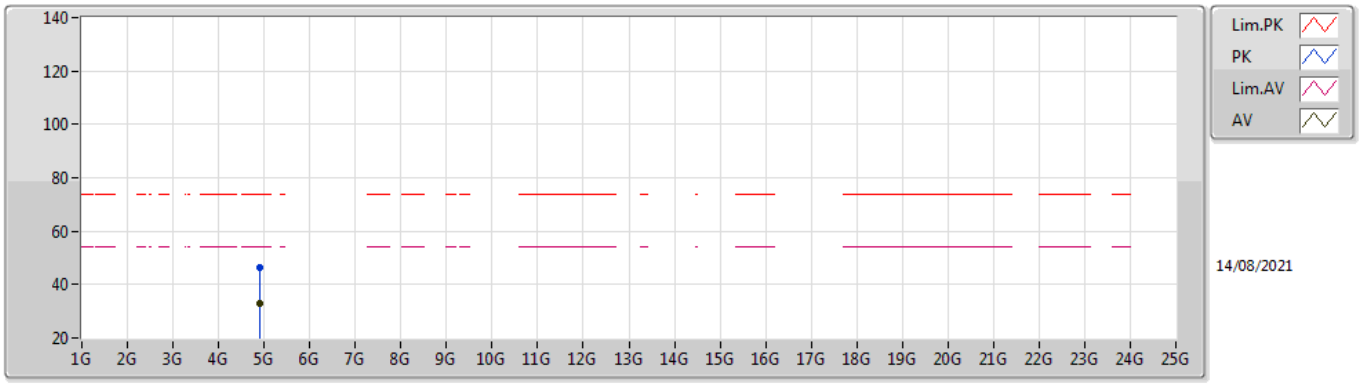


EUT Z_1TX
Setting 10
01-A-E-2

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	4.87388G	45.87	74.00	-28.13	41.36	3	Vertical	113	1.00	-	32.45	5.04	32.98
AV	4.89446G	32.94	54.00	-21.06	28.37	3	Vertical	113	1.00	-	32.49	5.05	32.97

BT-BR(1Mbps)

2440MHz_TX

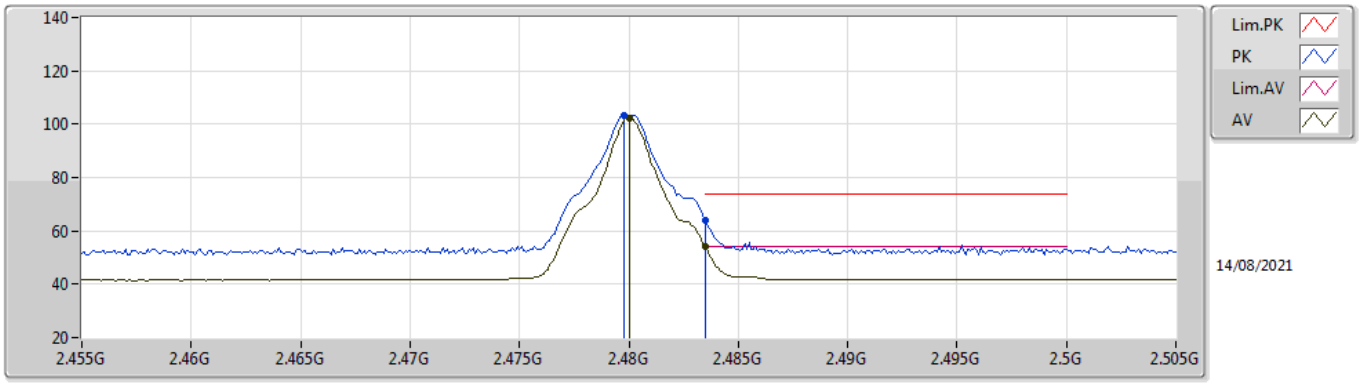


EUT Z_1TX
Setting 10
01-A-E-2

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	4.89212G	46.47	74.00	-27.53	41.92	3	Horizontal	14	1.43	-	32.48	5.05	32.98
AV	4.89254G	32.91	54.00	-21.09	28.35	3	Horizontal	14	1.43	-	32.49	5.05	32.98

BT-BR(1Mbps)

2480MHz_TX

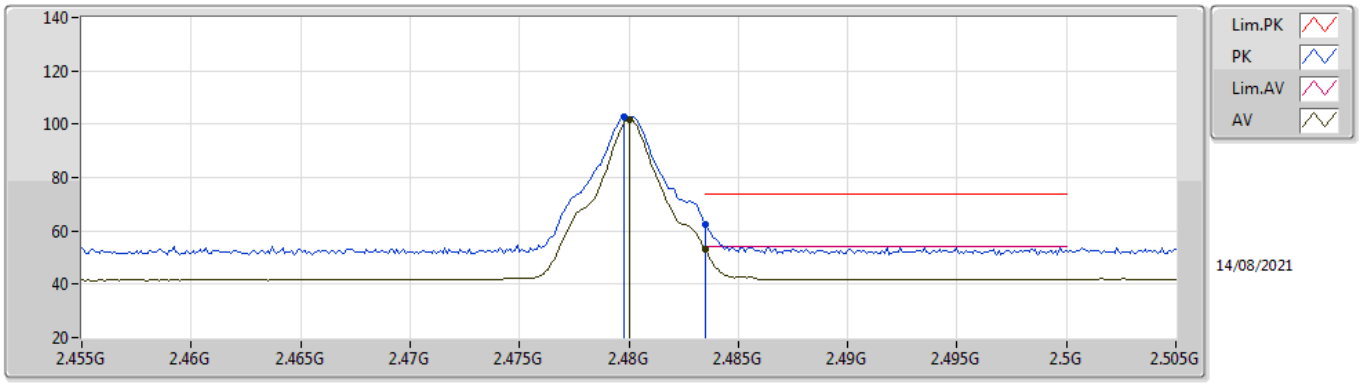


EUT Z_1TX
Setting 10
01-A-E-2

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	103.46	Inf	-Inf	73.50	3	Vertical	48	2.86	-	27.68	2.28	-
AV	2.48G	102.35	Inf	-Inf	72.39	3	Vertical	48	2.86	-	27.68	2.28	-
PK	2.4835G	63.76	74.00	-10.24	33.78	3	Vertical	48	2.86	-	27.70	2.28	-
AV	2.4835G	53.92	54.00	-0.08	23.94	3	Vertical	48	2.86	-	27.70	2.28	-

BT-BR(1Mbps)

2480MHz_TX

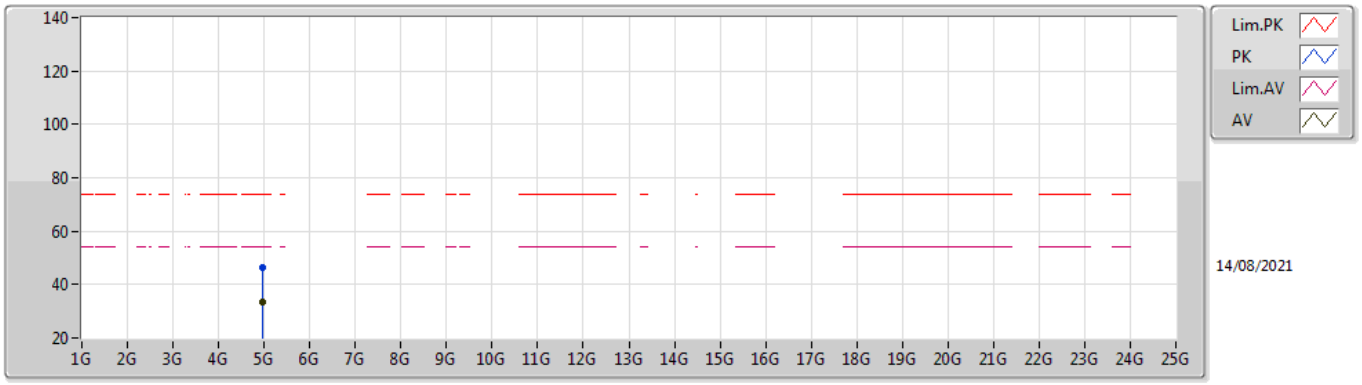


EUT Z_1TX
Setting 10
01-A-E-2

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	102.74	Inf	-Inf	72.78	3	Horizontal	325	1.15	-	27.68	2.28	-
AV	2.48G	101.54	Inf	-Inf	71.58	3	Horizontal	325	1.15	-	27.68	2.28	-
PK	2.4835G	62.47	74.00	-11.53	32.49	3	Horizontal	325	1.15	-	27.70	2.28	-
AV	2.4835G	52.91	54.00	-1.09	22.93	3	Horizontal	325	1.15	-	27.70	2.28	-

BT-BR(1Mbps)

2480MHz_TX

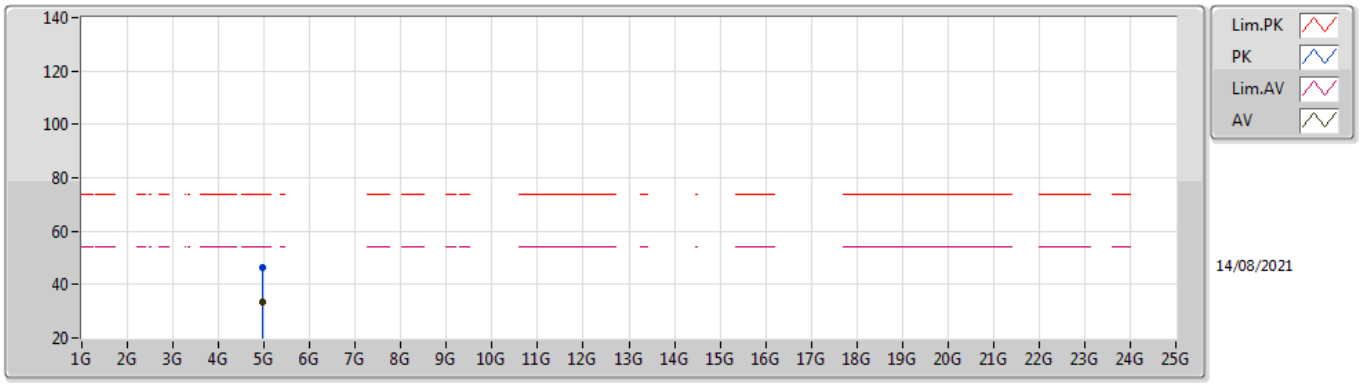


EUT Z_1TX
Setting 10
01-A-E-2

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	4.96804G	46.36	74.00	-27.64	41.48	3	Vertical	66	1.66	-	32.76	5.08	32.96
AV	4.9714G	33.38	54.00	-20.62	28.49	3	Vertical	66	1.66	-	32.76	5.09	32.96

BT-BR(1Mbps)

2480MHz_TX

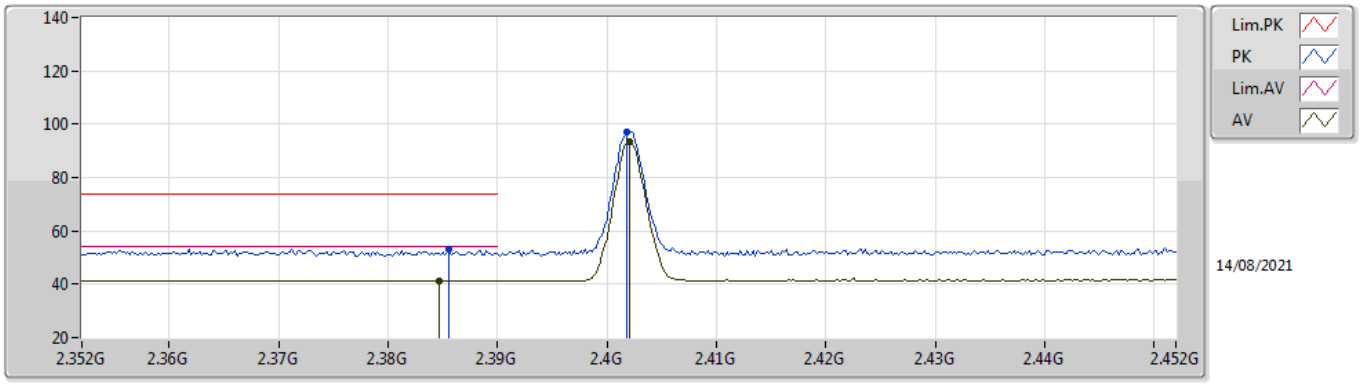


EUT Z_1TX
Setting 10
01-A-E-2

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	4.96288G	46.25	74.00	-27.75	41.37	3	Horizontal	206	1.00	-	32.77	5.08	32.97
AV	4.97434G	33.48	54.00	-20.52	28.60	3	Horizontal	206	1.00	-	32.75	5.09	32.96

BT-EDR(3Mbps)

2402MHz_TX

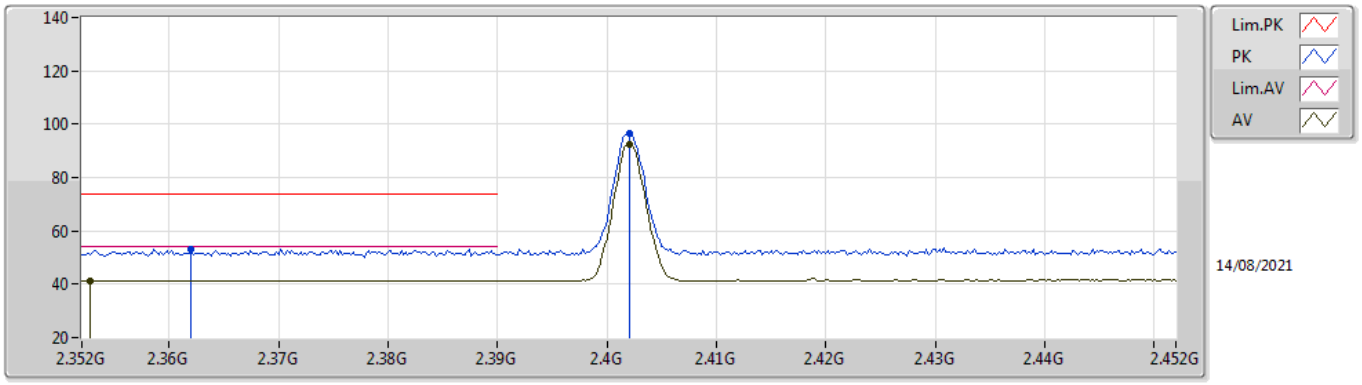


EUT Z_1TX
Setting 10
01-A-E-2

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	2.3856G	53.22	74.00	-20.78	23.66	3	Vertical	44	3.00	-	27.37	2.19	-
AV	2.3846G	41.40	54.00	-12.60	11.85	3	Vertical	44	3.00	-	27.37	2.18	-
PK	2.4018G	97.11	Inf	-Inf	67.51	3	Vertical	44	3.00	-	27.40	2.20	-
AV	2.402G	93.20	Inf	-Inf	63.60	3	Vertical	44	3.00	-	27.40	2.20	-

BT-EDR(3Mbps)

2402MHz_TX

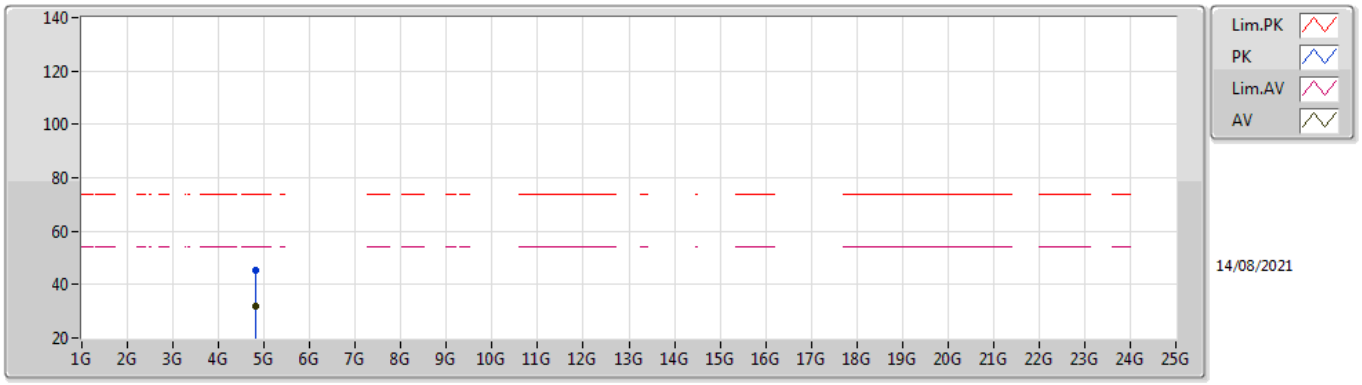


EUT Z_1TX
Setting 10
01-A-E-2

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	53.32	74.00	-20.68	23.84	3	Horizontal	320	1.15	-	27.32	2.16	-
AV	2.3528G	41.37	54.00	-12.63	11.91	3	Horizontal	320	1.15	-	27.31	2.15	-
PK	2.402G	96.44	Inf	-Inf	66.84	3	Horizontal	320	1.15	-	27.40	2.20	-
AV	2.402G	92.65	Inf	-Inf	63.05	3	Horizontal	320	1.15	-	27.40	2.20	-

BT-EDR(3Mbps)

2402MHz_TX

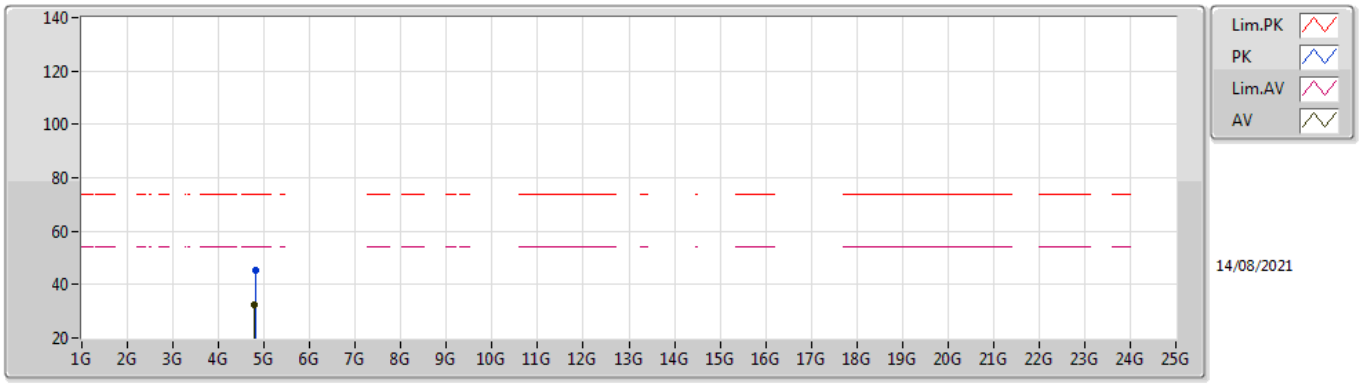


EUT Z_1TX
Setting 10
01-A-E-2

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	4.80658G	45.55	74.00	-28.45	41.40	3	Vertical	64	1.80	-	32.14	5.00	32.99
AV	4.80646G	32.11	54.00	-21.89	27.96	3	Vertical	64	1.80	-	32.14	5.00	32.99

BT-EDR(3Mbps)

2402MHz_TX

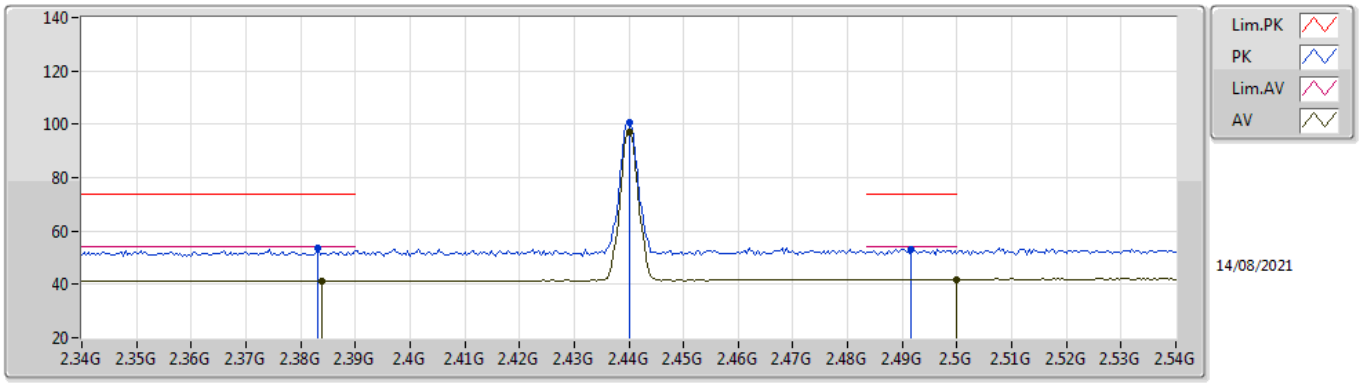


EUT Z_1TX
Setting 10
01-A-E-2

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	4.8013G	45.37	74.00	-28.63	41.25	3	Horizontal	281	3.00	-	32.11	5.00	32.99
AV	4.79416G	32.20	54.00	-21.80	28.09	3	Horizontal	281	3.00	-	32.11	4.99	32.99

BT-EDR(3Mbps)

2440MHz_TX

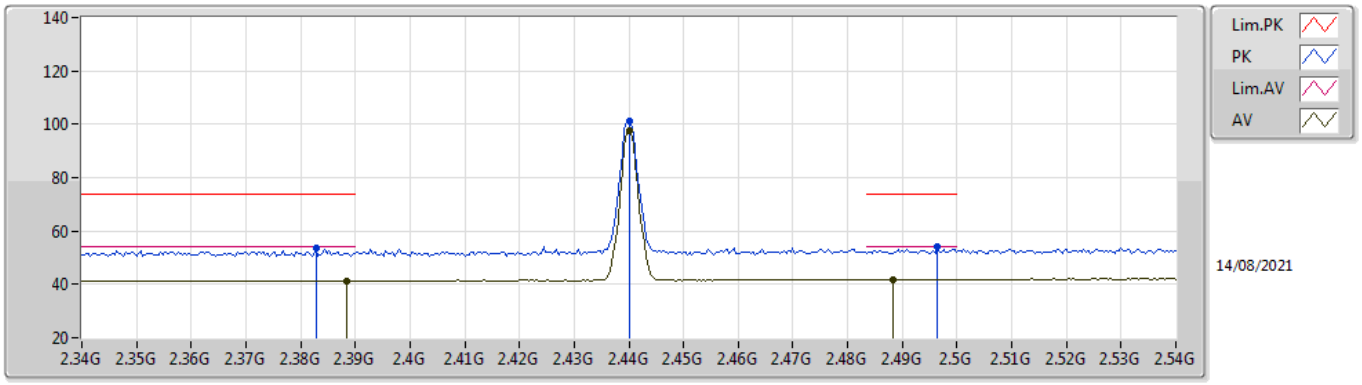


EUT Z_1TX
Setting 10
01-A-E-2

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	2.3832G	53.66	74.00	-20.34	24.11	3	Vertical	46	3.00	-	27.37	2.18	-
AV	2.384G	41.33	54.00	-12.67	11.78	3	Vertical	46	3.00	-	27.37	2.18	-
PK	2.44G	100.89	Inf	-Inf	71.17	3	Vertical	46	3.00	-	27.48	2.24	-
AV	2.44G	97.09	Inf	-Inf	67.37	3	Vertical	46	3.00	-	27.48	2.24	-
PK	2.4916G	53.35	74.00	-20.65	23.31	3	Vertical	46	3.00	-	27.75	2.29	-
AV	2.5G	41.91	54.00	-12.09	11.81	3	Vertical	46	3.00	-	27.80	2.30	-

BT-EDR(3Mbps)

2440MHz_TX

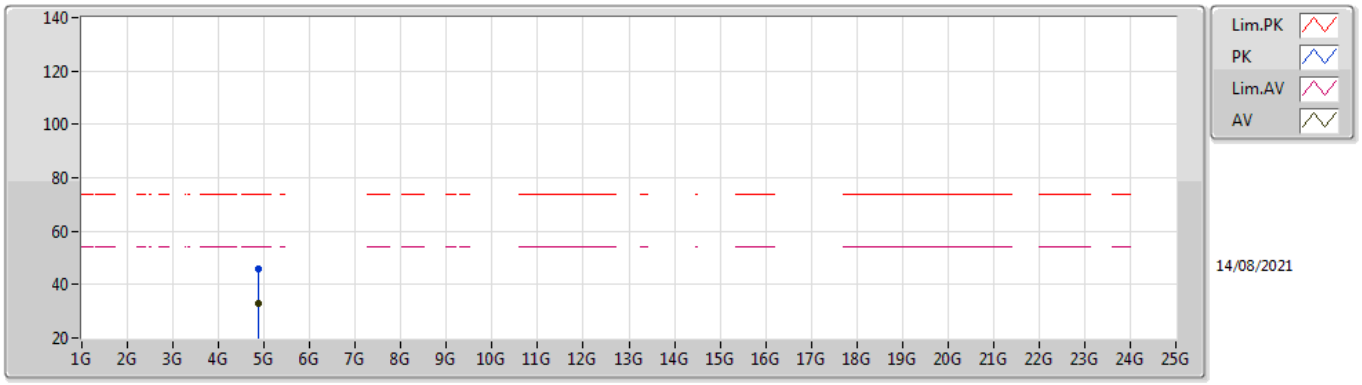


EUT Z_1TX
Setting 10
01-A-E-2

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	2.3828G	53.45	74.00	-20.55	23.90	3	Horizontal	326	1.19	-	27.37	2.18	-
AV	2.3884G	41.37	54.00	-12.63	11.80	3	Horizontal	326	1.19	-	27.38	2.19	-
PK	2.44G	101.45	Inf	-Inf	71.73	3	Horizontal	326	1.19	-	27.48	2.24	-
AV	2.44G	97.54	Inf	-Inf	67.82	3	Horizontal	326	1.19	-	27.48	2.24	-
PK	2.4964G	53.89	74.00	-20.11	23.81	3	Horizontal	326	1.19	-	27.78	2.30	-
AV	2.4884G	41.93	54.00	-12.07	11.91	3	Horizontal	326	1.19	-	27.73	2.29	-

BT-EDR(3Mbps)

2440MHz_TX

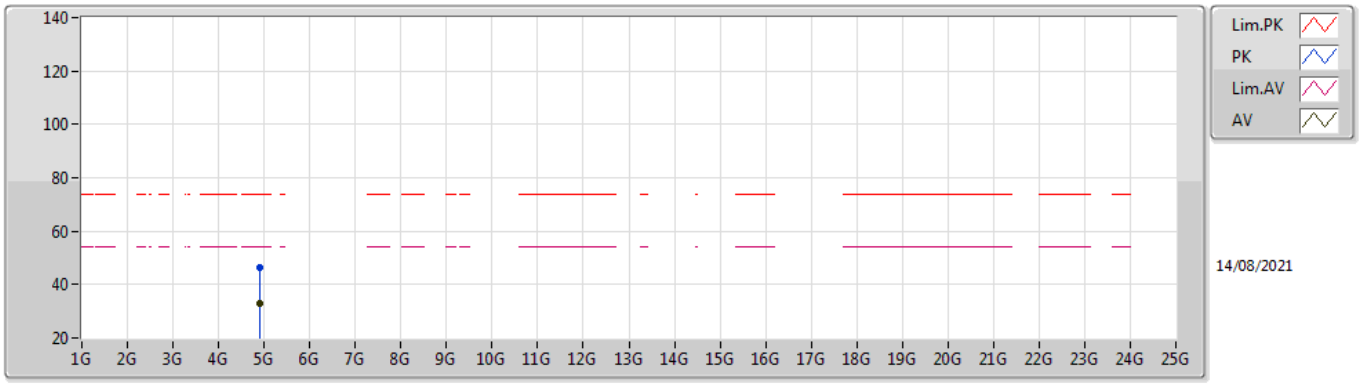


EUT Z_1TX
Setting 10
01-A-E-2

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	4.8653G	46.02	74.00	-27.98	41.54	3	Vertical	145	1.00	-	32.43	5.03	32.98
AV	4.88774G	32.95	54.00	-21.05	28.41	3	Vertical	145	1.00	-	32.48	5.04	32.98

BT-EDR(3Mbps)

2440MHz_TX

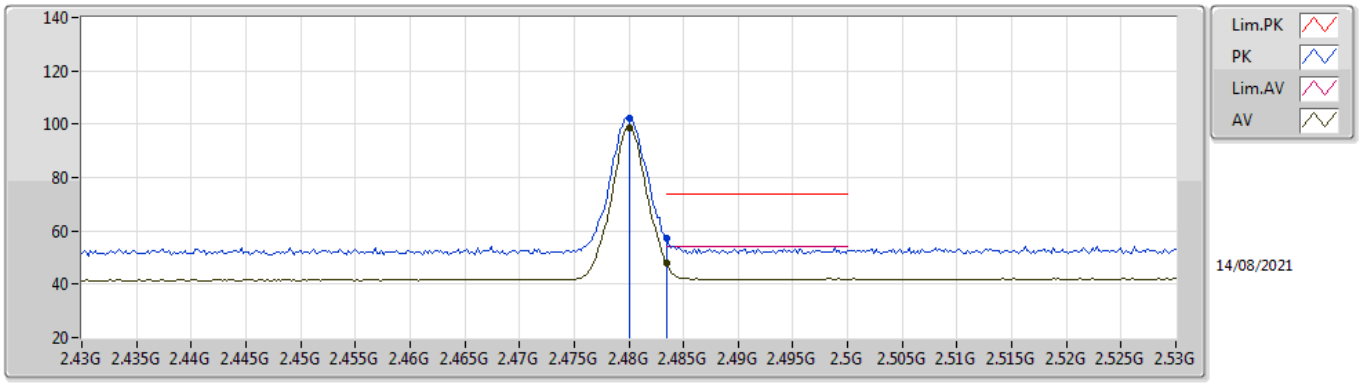


EUT Z_1TX
Setting 10
01-A-E-2

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	4.8899G	46.56	74.00	-27.44	42.02	3	Horizontal	18	2.98	-	32.48	5.04	32.98
AV	4.89248G	33.03	54.00	-20.97	28.48	3	Horizontal	18	2.98	-	32.48	5.05	32.98

BT-EDR(3Mbps)

2480MHz_TX

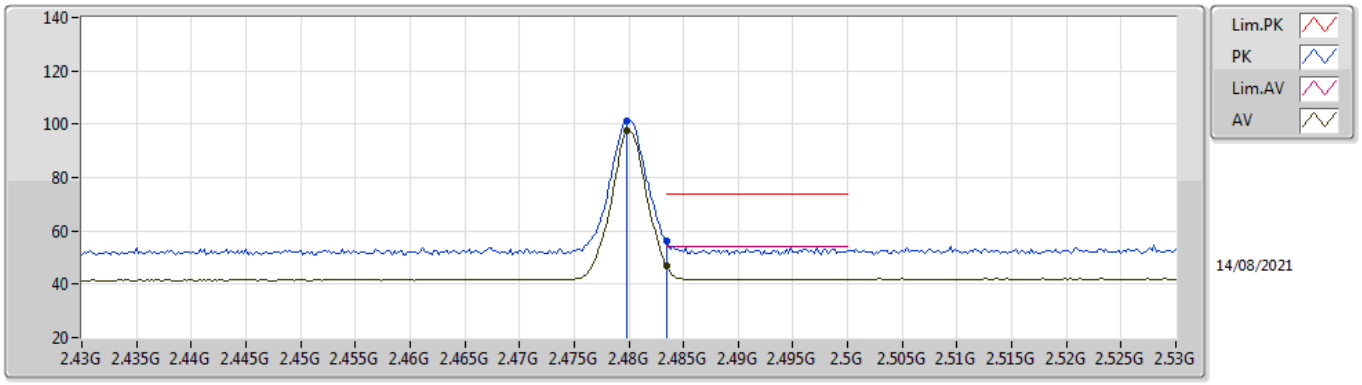


EUT Z_1TX
Setting 10
01-A-E-2

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	102.15	Inf	-Inf	72.19	3	Vertical	48	2.84	-	27.68	2.28	-
AV	2.48G	98.57	Inf	-Inf	68.61	3	Vertical	48	2.84	-	27.68	2.28	-
PK	2.4835G	57.28	74.00	-16.72	27.30	3	Vertical	48	2.84	-	27.70	2.28	-
AV	2.4835G	48.10	54.00	-5.90	18.12	3	Vertical	48	2.84	-	27.70	2.28	-

BT-EDR(3Mbps)

2480MHz_TX

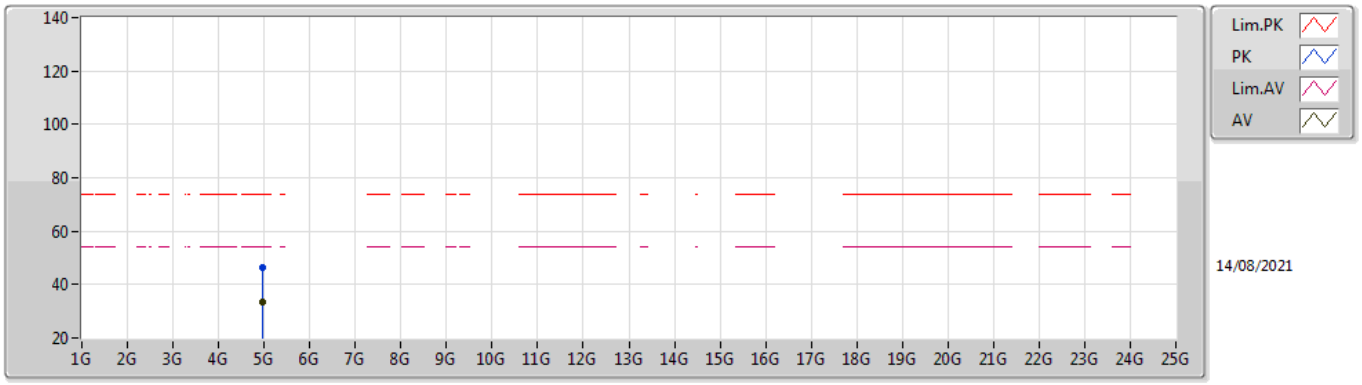


EUT Z_1TX
Setting 10
01-A-E-2

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	101.30	Inf	-Inf	71.34	3	Horizontal	324	1.16	-	27.68	2.28	-
AV	2.4798G	97.54	Inf	-Inf	67.58	3	Horizontal	324	1.16	-	27.68	2.28	-
PK	2.4835G	56.09	74.00	-17.91	26.11	3	Horizontal	324	1.16	-	27.70	2.28	-
AV	2.4835G	47.10	54.00	-6.90	17.12	3	Horizontal	324	1.16	-	27.70	2.28	-

BT-EDR(3Mbps)

2480MHz_TX

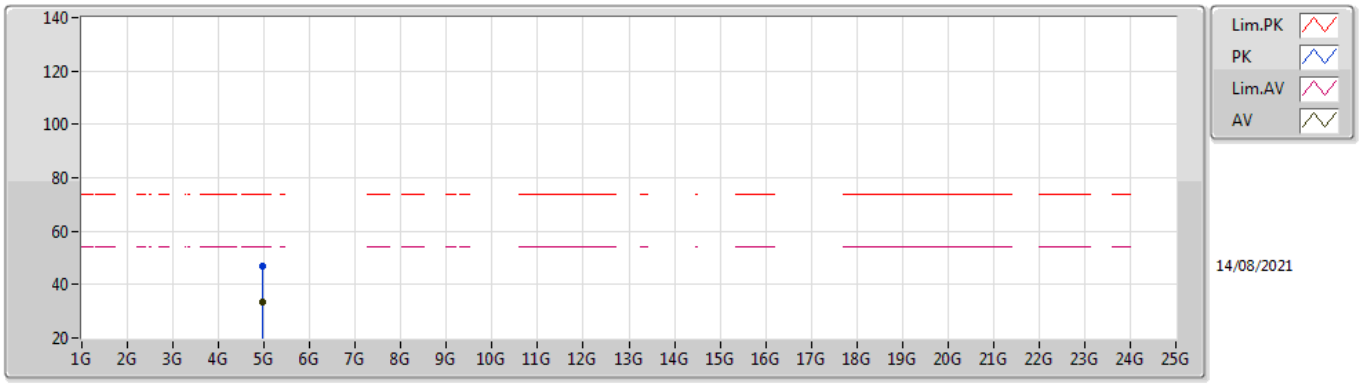


EUT Z_1TX
Setting 10
01-A-E-2

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	4.9573G	46.35	74.00	-27.65	41.45	3	Vertical	268	1.16	-	32.79	5.08	32.97
AV	4.97362G	33.34	54.00	-20.66	28.46	3	Vertical	268	1.16	-	32.75	5.09	32.96

BT-EDR(3Mbps)

2480MHz_TX



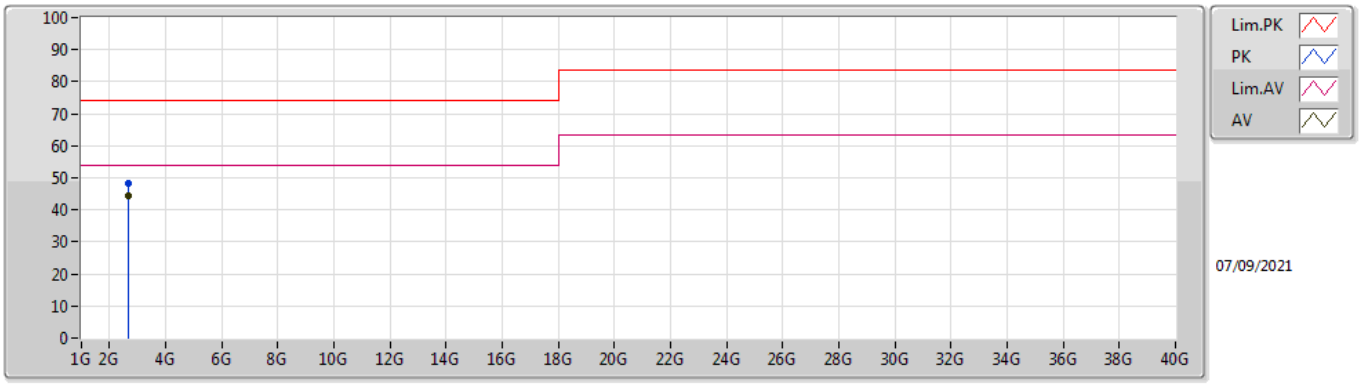
EUT Z_1TX
Setting 10
01-A-E-2

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	4.97254G	46.64	74.00	-27.36	41.76	3	Horizontal	228	1.15	-	32.75	5.09	32.96
AV	4.97302G	33.22	54.00	-20.78	28.34	3	Horizontal	228	1.15	-	32.75	5.09	32.96

Summary

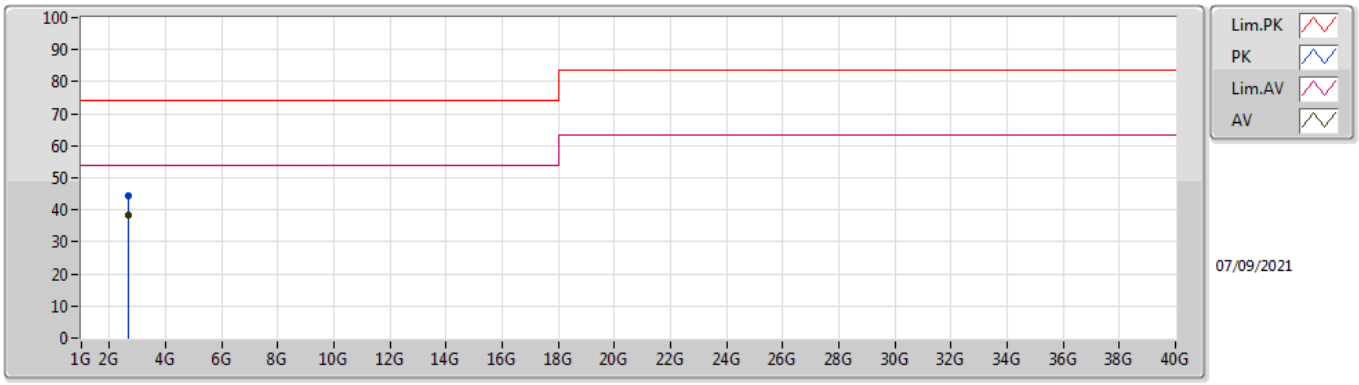
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	2.68801G	44.36	54.00	-9.64	Vertical

Mode 1



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	2.68808G	48.38	74.00	-25.62	-2.30	3	Vertical	199	1.54	-	50.68	27.73	3.48	33.51
AV	2.68801G	44.36	54.00	-9.64	-2.30	3	Vertical	199	1.54	"Worst"	46.66	27.73	3.48	33.51

Mode 1



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	2.68797G	44.47	74.00	-29.53	-2.30	3	Horizontal	144	1.00	-	46.77	27.73	3.48	33.51
AV	2.68801G	38.20	54.00	-15.80	-2.30	3	Horizontal	144	1.00	"Worst"	40.50	27.73	3.48	33.51