



# RADIO TEST REPORT

**FCC ID** : RSL-TQ7403  
**Equipment** : IEEE802.11ax tri-radio 2.4G/5G/6GHz 2x2+2x2+2x2+  
Bluetooth® Low Energy and ZigBee wireless AP  
**Brand Name** : Allied Telesis  
**Model Name** : AT-TQ7403  
**Applicant** : Allied Telesis K.K.  
2nd. TOC Bldg.7-21-11 Nishi-Gotanda,  
Shinagawa-ku Tokyo 141-0031 Japan  
**Manufacturer** : Allied Telesis K.K.  
2nd. TOC Bldg.7-21-11 Nishi-Gotanda,  
Shinagawa-ku Tokyo 141-0031 Japan  
**Standard** : 47 CFR FCC Part 15.247

The product was received on May 31, 2023, and testing was started from Jul. 25, 2023 and completed on Sep. 04, 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

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## Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	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/manufacture 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:**

1. 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.
2. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.

**Reviewed by: Sam Chen****Report Producer: Viola Huang**



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

Frequency Range (MHz)	Bluetooth Mode	Ch. Frequency (MHz)	Channel Number
2400-2483.5	LE	2402-2480	0-39 [40]

#### For Radio 4

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1	1
2.4-2.4835GHz	BT-LE(500Kb/s)	1	1
2.4-2.4835GHz	BT-LE(125Kb/s)	1	1
2.4-2.4835GHz	BT-LE(2Mbps)	2	1

Note:

- ◆ Bluetooth LE uses a GFSK modulation.
- ◆ BWch is the nominal channel bandwidth.



**1.1.2 Antenna Information**

Set	Ant.	2.4GHz Port	5GHz Port	Brand	Model Name	Antenna Type	Connector	Remark	Gain (dBi)
1	1	2	2	WNC	08.22430.001	Dipole	RP-SMA PLUG	External	Note 1
	2	1	1	WNC	08.22430.001	Dipole	RP-SMA PLUG	External	
2	1	2	2	Angeei	EXD24140D01	Patch	N-Type	External	
	2	1	1	Angeei	EXD24140D01	Patch	N-Type	External	

Ant.	6GHz Port	Bluetooth / Zigbee	Brand	Model Name	Antenna Type	Connector	Remark	Gain (dBi)
3	2	1	WNC	95XEAK15.GAU	PIFA	I-PEX	Internal	Note 1
4	1	-	WNC	95XEAK15.GAT	PIFA	I-PEX	Internal	

Note1:

Antenna set 1:

Set	Ant.	2.4GHz Port	5GHz Port	Radio 1 (2.4GHz) and Radio 2 (5GHz)				
				Antenna Gain (dBi)				
				WLAN 2.4GHz	WLAN 5GHz			
					UNII 1	UNII 2A	UNII 2C	UNII 3
1	1	2	2	2.83	2.20	3.16	2.80	3.72
	2	1	1	2.51	2.88	3.85	3.56	3.85

Antenna set 2 with 2M antenna cable:

Set	Ant.	2.4GHz Port	Radio 1 (2.4GHz)				
			Antenna Gain (dBi)	Cable Loss of 2M N-type (dB)	Loss of SMA Connector (dB)	Cable loss of Internal EUT (dB)	Net Gain (dBi)
2	1	2	13	0.75	0.07	0.95	11.23
	2	1	13	0.75	0.07	0.68	11.50

Set	Ant.	5GHz Port	Radio 2 (5GHz)										
			Antenna Gain (dBi)	Cable Loss of 2M N-type (dB)	Loss of SMA Connector (dB)	Cable loss of Internal EUT (dB)				Net Gain (dBi)			
						UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3
2	1	2	16	1.23	0.12	1.48	1.49	1.56	1.58	13.17	13.16	13.09	13.07
	2	1	16	1.23	0.12	1.10	1.17	1.34	1.23	13.55	13.48	13.31	13.42



**Antenna set 2 with 2M and 10M antenna cable:**

Set	Ant.	2.4GHz Port	Radio 1 (2.4GHz)					Net Gain (dBi)
			Antenna Gain (dBi)	Cable Loss of 2M N-type (dB)	Cable Loss of 10M N-type (dB)	Loss of SMA Connector (dB)	Cable loss of Internal EUT (dB)	
2	1	2	13	0.75	3.77	0.07	0.95	7.46
	2	1	13	0.75	3.77	0.07	0.68	7.73

Set	Ant.	5GHz Port	Radio 2 (5GHz)											
			Antenna Gain (dBi)	Cable Loss of 2M N-type (dB)	Cable Loss of 10M N-type (dB)	Loss of SMA Connector (dB)	Cable loss of Internal EUT (dB)				Net Gain (dBi)			
							UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 1	UNII 2A	UNII 2C	UNII 3
2	1	2	16	1.23	6.16	0.12	1.48	1.49	1.56	1.58	7.01	7.00	6.93	6.91
	2	1	16	1.23	6.16	0.12	1.10	1.17	1.34	1.23	7.39	7.32	7.15	7.26

**Antenna 3 and 4:**

Ant.	6GHz Port	Bluetooth / Zigbee	Radio 3 (6GHz) and Radio 4 (Bluetooth / Zigbee)				
			Antenna Gain (dBi)				
			UNII 5	UNII 6	UNII 7	UNII 8	Bluetooth / Zigbee
3	2	1	5.93	5.98	5.98	5.58	2.62
4	1	-	5.93	5.99	5.99	5.98	-

Note2: The above information was declared by manufacturer.

Note3: For antenna set 2: The gain of antenna set 2 with 2M antenna cable was higher than antenna set 2 with 10M antenna cable, thus antenna set 2 with 2M antenna cable was selected to test.

Note4: The EUT has two antenna sets for radio 1 and radio 2.

Note5: The DFS band isn't enabled at this time.





Note6: 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	$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ANT}} \left[ \sum_{k=1}^{N_{ANT}} G_{j,k} \right]^2}{N_{ANT}} \right]$
BF	$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ANT}} \left[ \sum_{k=1}^{N_{ANT}} G_{j,k} \right]^2}{N_{ANT}} \right]$	$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ANT}} \left[ \sum_{k=1}^{N_{ANT}} G_{j,k} \right]^2}{N_{ANT}} \right]$

Ex.

Directional Gain (NSS1) formula :

$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ANT}} \left[ \sum_{k=1}^{N_{ANT}} G_{j,k} \right]^2}{N_{ANT}} \right]$$

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

$g_{j,k} = (NSS1(g1,1) + NSS1(g1,2))^2$

$DG = 10 \log[(NSS1(g1,1) + NSS1(g1,2))^2 / N_{ANT}] \Rightarrow 10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$

Where ;

For Antenna set 1

2.4G G1= 2.83 dBi ; G2= 2.51 dBi ;DG= 5.68dBi

5G UNII-1 G1= 2.2 dBi ; G2= 2.88 dBi ;DG= 5.56dBi

5G UNII-2A G1= 3.16 dBi ; G2= 3.85 dBi ;DG= 6.52dBi

5G UNII-2C G1= 2.8 dBi ; G2= 3.56 dBi ;DG= 6.2dBi

5G UNII-3 G1= 3.72 dBi ; G2= 3.85 dBi ;DG= 6.8dBi

For Antenna set 2 (Cross-Polarized Antenna)

2.4G G1= 11.23 dBi ; G2= 11.5 dBi ;DG= 11.5dBi

5G UNII-1 G1= 13.17 dBi ; G2= 13.55 dBi ;DG= 13.55dBi

5G UNII-2A G1= 13.16 dBi ; G2= 13.48 dBi ;DG= 13.48dBi

5G UNII-2C G1= 13.09 dBi ; G2= 13.31 dBi ;DG= 13.31dBi

5G UNII-3 G1= 13.07 dBi ; G2= 13.42 dBi ;DG= 13.42dBi

For Antenna 3 and Antenna 4

6G UNII-4 G1= 5.93 dBi ; G2= 5.93 dBi ;DG= 8.94dBi

6G UNII-5 G1= 5.98 dBi ; G2= 5.99 dBi ;DG= 9dBi

6G UNII-6 G1= 5.98 dBi ; G2= 5.99 dBi ;DG= 9dBi

6G UNII-7 G1= 5.58 dBi ; G2= 5.98 dBi ;DG= 8.79dBi

**<For Radio 1 (2.4GHz Functions) and Radio 2 (5GHz Functions)>**

**For 2TX/2RX:**

Port 1 and Port 2 can be use as transmitting/receiving antenna

Port 1 and Port 2 could receive simultaneously.

**<For Radio 3 / 6GHz Functions>**

**For 2TX/2RX:**

Port 1 and Port 2 can be use as transmitting/receiving antenna

Port 1 and Port 2 could receive simultaneously.

**<For Radio 4 / Bluetooth / Zigbee Functions>**

**For 1TX/1RX:**

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





**1.1.3 Table for Antennae Set 2 Configuration**

Set	Configuration	Ant. of EUT	Radio 1 (2.4GHz) and Radio 2 (5GHz)			
			Antenna port of antenna set 2			
2	1	1	1	-	-	-
		2	2	-	-	-
	2	1	-	4	-	-
		2	-	3	-	-
	3	1	-	-	3	-
		2	-	-	4	-
	4	1	-	-	-	2
		2	-	-	-	1

**1.1.4 Mode Test Duty Cycle**

For Radio 4

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.683	1.66	427.031u	3k
BT-LE(2Mbps)	0.362	4.41	242.344u	10k

Note:

- ◆ DC is Duty Cycle.
- ◆ DCF is Duty Cycle Factor.



**1.1.5 EUT Operational Condition**

<b>EUT Power Type</b>	From Power Adapter or PoE	
<b>Function</b>	<input checked="" type="checkbox"/> Point-to-multipoint	<input type="checkbox"/> Point-to-point
	The product has beamforming function for 11n/VHT/11ax in 2.4GHz, 11n/11ac/11ax in 5GHz and 11ax in 6GHz.	
<b>Test Software Version</b>	DOS [ver 6.1.7601]	
<b>Firmware Number</b>	OpenWrt 19.07-SNAPSHOT r0-038100ce5 / LuCI Master git-23.186.24565-038100c	
<b>Serial Number</b>	A10581R232800231	
<b>Support Mode</b>	<input checked="" type="checkbox"/> LE 1M PHY: 1 Mb/s	
	<input checked="" type="checkbox"/> LE Coded PHY (S=2): 500 Kb/s	
	<input checked="" type="checkbox"/> LE Coded PHY (S=8): 125 Kb/s	
	<input checked="" type="checkbox"/> LE 2M PHY: 2 Mb/s	

Note: The above information was declared by manufacturer.

**1.1.6 Table for Radio Function**

Radio	WLAN 2.4GHz	WLAN 5GHz	WLAN 6GHz	Bluetooth / Zigbee
1	V	-	-	-
2	-	V	-	-
3	-	-	V	-
4	-	-	-	V

Note: 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
- ♦ ANSI C63.10-2013

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	TH01-CB	KJ Chang	23.6~24.7 / 62~69	Jul. 31, 2023~Aug. 23, 2023
Radiated below 1GHz	03CH05-CB	RJ Huang	21~22 / 55~58	Jul. 28, 2023~Aug. 04, 2023
Radiated above 1GHz	03CH02-CB	Alex Kuo	22~23.9 / 57~63	Jul. 25, 2023~Jul. 31, 2023
	03CH04-CB	Alex Kuo	22.9~23.6 / 60~63	
Radiated above 1GHz (For co-location test)	03CH04-CB	Alex Kuo	22.3~24 / 57~62	Sep. 04, 2023
AC Conduction	CO02-CB	Summer Li	24~25 / 49~50	Aug. 21, 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)	4.1 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%
Conducted Emission	3.1 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.1 dB	Confidence levels of 95%
Bandwidth Measurement	2.2%	Confidence levels of 95%



## 2 Test Configuration of EUT

### 2.1 Test Channel Mode

For Radio 4

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	200
2440MHz	200
2478MHz	200
2480MHz	170
BT-LE(2Mbps)	-
2402MHz	200
2440MHz	200
2478MHz	200
2480MHz	160



## 2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	AC power-line conducted emissions
<b>Condition</b>	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
<b>Operating Mode</b>	Normal Link
	<ol style="list-style-type: none"> <li>For antenna set 2: configuration 2 (Port 4 + Port 3) has been evaluated to be the worst case for radiated emissions test. Consequently, measurement for conducted emissions test will follow this same test mode.</li> <li>For powered by PoE: There are two PoE ports on the EUT. Because of the same function and rate, powered from PoE port 2 is selected for testing.</li> </ol>
1	EUT + antenna set 1 (2.4GHz+5GHz) + ant. 3~ant. 4 (6GHz) + ant. 3 (Bluetooth) + adapter
2	EUT + antenna set 1 (2.4GHz+5GHz) + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / TX) + adapter
3	EUT + antenna set 1 (2.4GHz+5GHz) + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / RX) + adapter
Mode 3 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 + antenna set 1 (2.4GHz+5GHz) + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / RX) + PoE
5	EUT + antenna set 2 (2.4GHz+5GHz) + configuration 2 (Port 4 + Port 3) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Bluetooth) + adapter
6	EUT + antenna set 2 (2.4GHz+5GHz) + configuration 2 (Port 4 + Port 3) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / TX) + adapter
7	EUT + antenna set 2 (2.4GHz+5GHz) configuration 2 (Port 4 + Port 3) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / RX) + adapter
Mode 6 has been evaluated to be the worst case among Mode 5~7, thus measurement for Mode 8 will follow this same test mode.	
8	EUT + antenna set 2 (2.4GHz+5GHz) + configuration 2 (Port 4 + Port 3) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / TX) + PoE
Mode 8 has been evaluated to be the worst case among Mode 5~8, thus measurement for Mode 9 will follow this same test mode.	
9	EUT + antenna set 2 (2.4GHz+5GHz) configuration 2 (Port 4 + Port 3) with 2M and 10M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / TX) + PoE
For operating mode 9 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
<b>Tests Item</b>	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
<b>Test Condition</b>	Conducted measurement at transmit chains
1	Radio 4



<b>The Worst Case Mode for Following Conformance Tests</b>	
<b>Tests Item</b>	<b>Emissions in Restricted Frequency Bands</b>
<b>Test Condition</b>	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.
<b>Operating Mode &lt; 1GHz</b>	Normal Link 1. For antenna set 1: The EUT performed the test at the X axis, Y axis and Z axis. The Y axis has been evaluated to be the worst case, this measurement will follow this same test mode. 2. For antenna set 2: The EUT performed the test at the X axis, Y axis and Z axis. The Z axis has been evaluated to be the worst case, this measurement will follow this same test mode. 3. For powered by PoE: There are two PoE ports on the EUT. Because of the same function and rate, powered from PoE port 2 is selected for testing.
1	EUT in Y axis + antenna set 1 (2.4GHz+5GHz) + ant. 3~ant. 4 (6GHz) + ant. 3 (Bluetooth) + adapter
2	EUT in Y axis + antenna set 1 (2.4GHz+5GHz) + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / TX) + adapter
3	EUT in Y axis + antenna set 1 (2.4GHz+5GHz) + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / RX) + adapter
Mode 3 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 in Y axis + antenna set 1 (2.4GHz+5GHz) + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / RX) + PoE
5	EUT in Z axis + antenna set 2 (2.4GHz+5GHz) + configuration 2 (Port 4 + Port 3) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Bluetooth) + adapter
6	EUT in Z axis + antenna set 2 (2.4GHz+5GHz) + configuration 2 (Port 4 + Port 3) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Bluetooth) + adapter
7	EUT in Z axis + antenna set 2 (2.4GHz+5GHz) + configuration 3 (Port 3 + Port 4) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Bluetooth) + adapter
8	EUT in Z axis + antenna set 2 (2.4GHz+5GHz) + configuration 4 (Port 2 + Port 1) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Bluetooth) + adapter
Mode 6 has been evaluated to be the worst case among Mode 5~8, thus measurement for Mode 9~10 will follow this same test mode.	
9	EUT in Z axis + antenna set 2 (2.4GHz+5GHz) + configuration 2 (Port 4 + Port 3) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / TX) + adapter
10	EUT in Z axis + antenna set 2 (2.4GHz+5GHz) + configuration 2 (Port 4 + Port 3) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Zigbee / RX) + adapter
Mode 6 has been evaluated to be the worst case among Mode 5~10, thus measurement for Mode 11~12 will follow this same test mode.	
11	EUT in Z axis + antenna set 2 (2.4GHz+5GHz) + configuration 2 (Port 4 + Port 3) with 2M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Bluetooth) + PoE
12	EUT in Z axis + antenna set 2 (2.4GHz+5GHz) + configuration 2 (Port 4 + Port 3) with 12M antenna cable + ant. 3~ant. 4 (6GHz) + ant. 3 (Bluetooth) + PoE
For operating mode 4 is the worst case and it was record in this test report.	



<b>Operating Mode &gt; 1GHz</b>	CTX
	The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found at Y axis. Thus, the measurement will follow this same test configuration.
1	EUT in Y axis

<b>The Worst Case Mode for Following Conformance Tests</b>	
<b>Tests Item</b>	Simultaneous Transmission Analysis - Radiated Emission Co-location
<b>Test Condition</b>	Radiated measurement
<b>Operating Mode</b>	Normal Link
	1. For test mode 1: The EUT was performed testing at X, Y, and Z axis positions, and the worst case was found at Y axis in Unwanted Emissions above 1GHz. Thus, the measurement will follow this same test configuration.
	2. For test mode 2: The EUT was performed testing at X, Y, and Z axis positions, and the worst case was found at Z axis in Unwanted Emissions above 1GHz. Thus, the measurement will follow this same test configuration.
	3. For test mode 3: The EUT was performed testing at X, Y, and Z axis positions, and the worst case was found at Y axis in Unwanted Emissions above 1GHz. Thus, the measurement will follow this same test configuration.
	4. For test mode 4: The EUT was performed testing at X, Y, and Z axis positions, and the worst case was found at X axis in Unwanted Emissions above 1GHz. Thus, the measurement will follow this same test configuration.
1	EUT in Y axis_Radio 1 (2.4GHz) + Radio 2 (5GHz) with antenna set 1
2	EUT in Z axis_Radio 1 (2.4GHz) + Radio 2 (5GHz) with antenna set 2 with 2M antenna cable + configuration 3 (Port 3 + Port 4)
3	EUT in Y axis_Radio 3 (6GHz) + Radio 4 (Bluetooth)
4	EUT in X axis_Radio 3 (6GHz) + Radio 4 (Zigbee)
For operating mode 3 is the worst case and it was record in this test report.	
Refer to Appendix G for Radiated Emission Co-location.	





<b>The Worst Case Mode for Following Conformance Tests</b>	
<b>Tests Item</b>	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
<b>Operating Mode</b>	
1	Radio 1 (2.4GHz) + Radio 2 (5GHz) with antenna set 1 + Radio 3 (6GHz) + Radio 4 (Bluetooth)
2	Radio 1 (2.4GHz) + Radio 2 (5GHz) with antenna set 1 + Radio 3 (6GHz) + Radio 4 (Zigbee)
3	Radio 1 (2.4GHz) + Radio 2 (5GHz) with antenna set 2 with 2M antenna cable + Radio 3 (6GHz) + Radio 4 (Bluetooth)
4	Radio 1 (2.4GHz) + Radio 2 (5GHz) with antenna set 2 with 2M antenna cable + Radio 3 (6GHz) + Radio 4 (Zigbee)
Refer to Sporton Test Report No.: CA372105 for Co-location RF Exposure Evaluation.	

Note: The Adapter and PoE are for measurement only, would not be marketed.

Adapter and PoE information as below:

<b>Power</b>	<b>Brand</b>	<b>Model</b>
Adapter	APD	DA-48Z12
PoE 1	DELTA	ADP-60HR B
PoE 2	Microsemi	PD-9001GR/AC

### 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

<b>Accessories</b>
Mounting Bracket*1
SMA Connector*2 (Used for Patch Ant.)



## 2.5 Support Equipment

### For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	LAN1 NB	DELL	E6430	N/A
B	LAN2 NB	DELL	E6430	N/A
C	2.4G NB	DELL	E6431	N/A
D	5G NB	DELL	E6432	N/A
E	6G NB	DELL	E6433	N/A
F	Zigbee Device	Allied Telesis	TQ6403	N/A
G	PoE 1	DELTA	ADP-60HR B	N/A
H	6G Client	INTEL	AX210NGW	PD9AX210NG/NA
J	Device NB	DELL	E6433	N/A

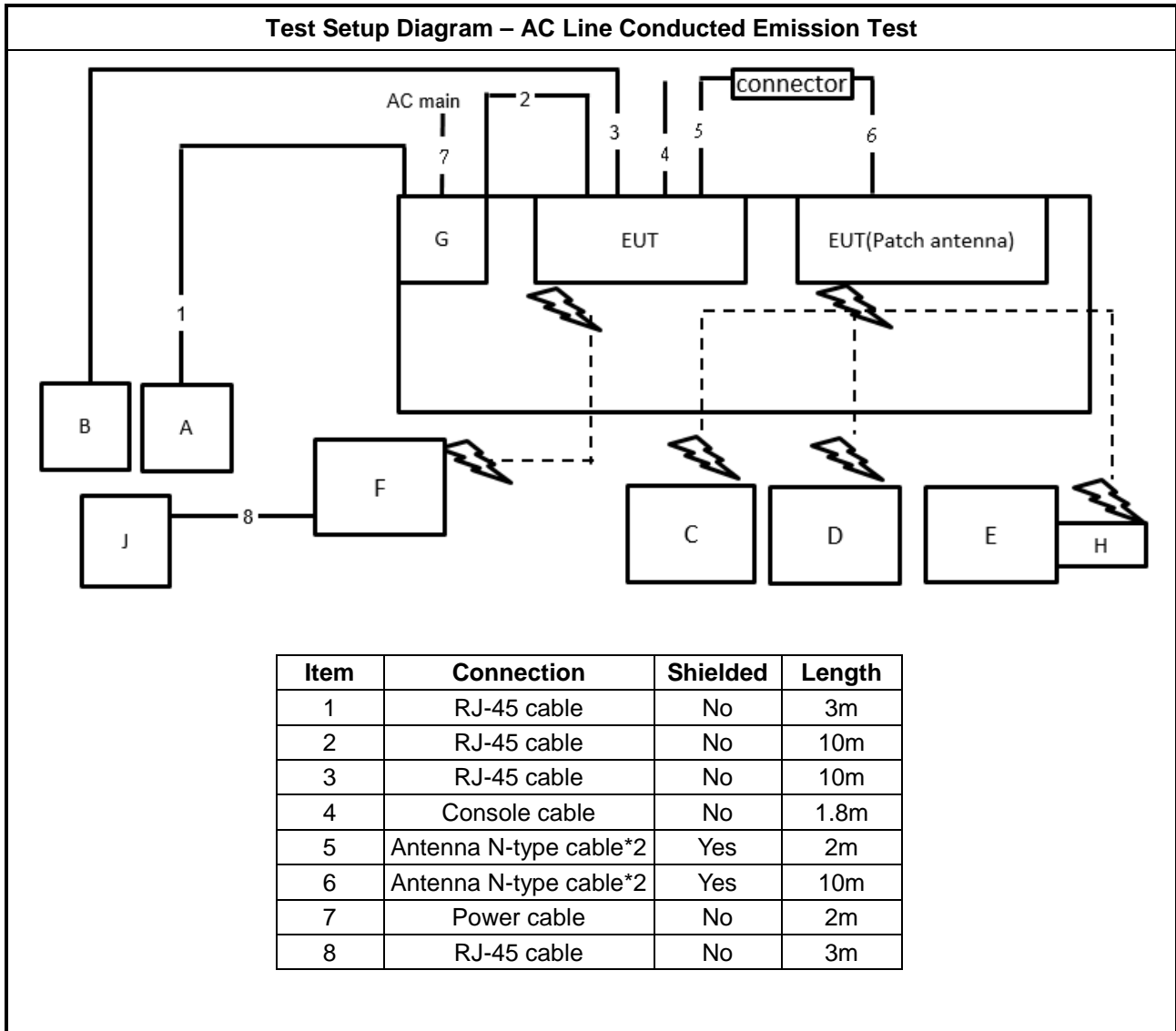
### For Radiated (below 1GHz):

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	2.5G Notebook	DELL	E4300	N/A
B	PoE 2	Microsemi	PD-9001GR/AC	N/A
C	2.5G Notebook	DELL	E4300	N/A
D	Zigbee Client	Allied Telesis	TQ6403	N/A
E	Client Notebook	DELL	E4300	N/A
F	2.4G WIFI Notebook	DELL	E4300	N/A
G	5G WIFI Notebook	DELL	E4300	N/A
H	6G WIFI Notebook	DELL	E4300	N/A
I	WLAN module	INTEL	AX210NGW	PD9AX210NG

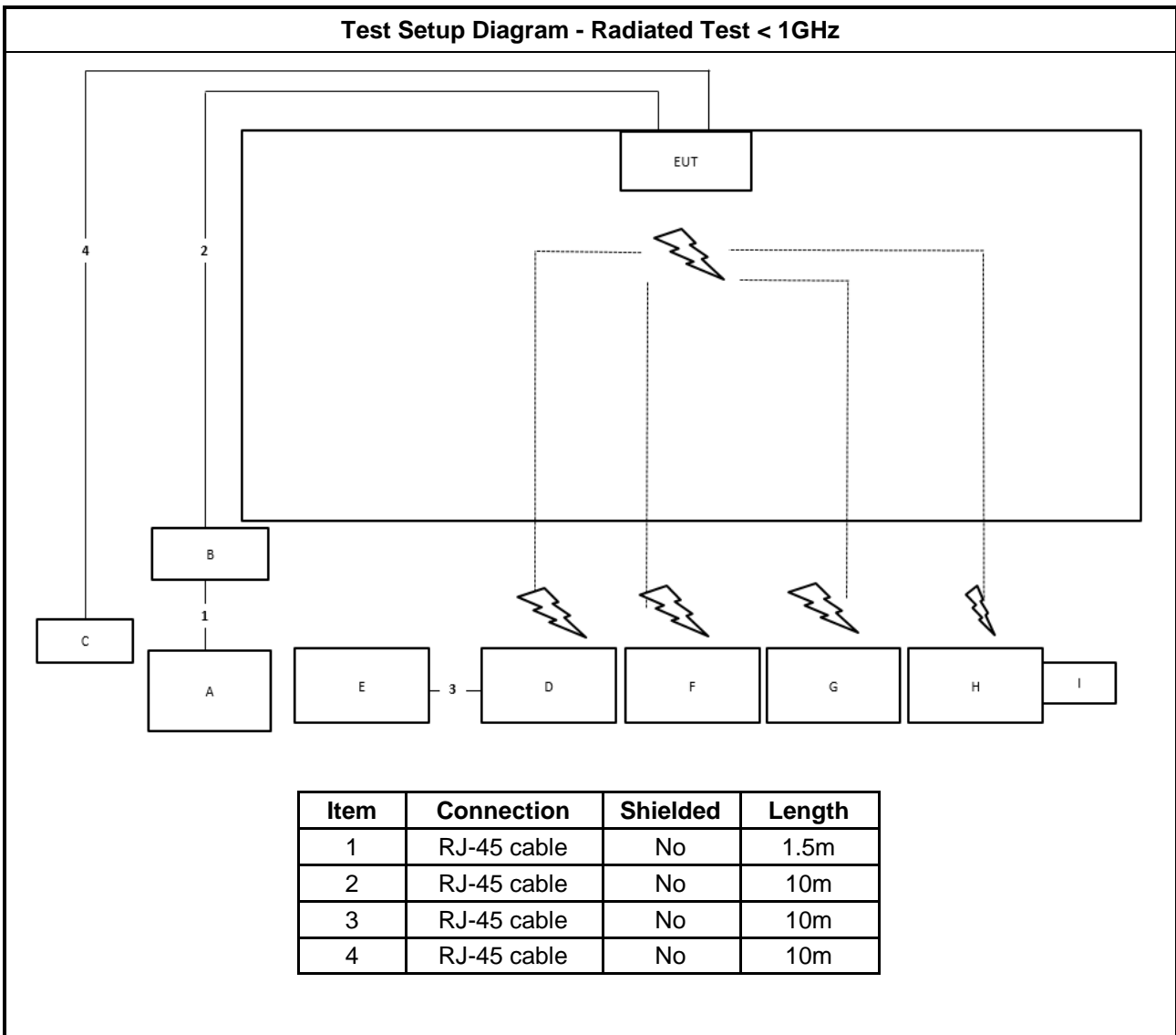
### For Radiated (above 1GHz) and RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	PoE 1	DELTA	ADP-60HR B	N/A

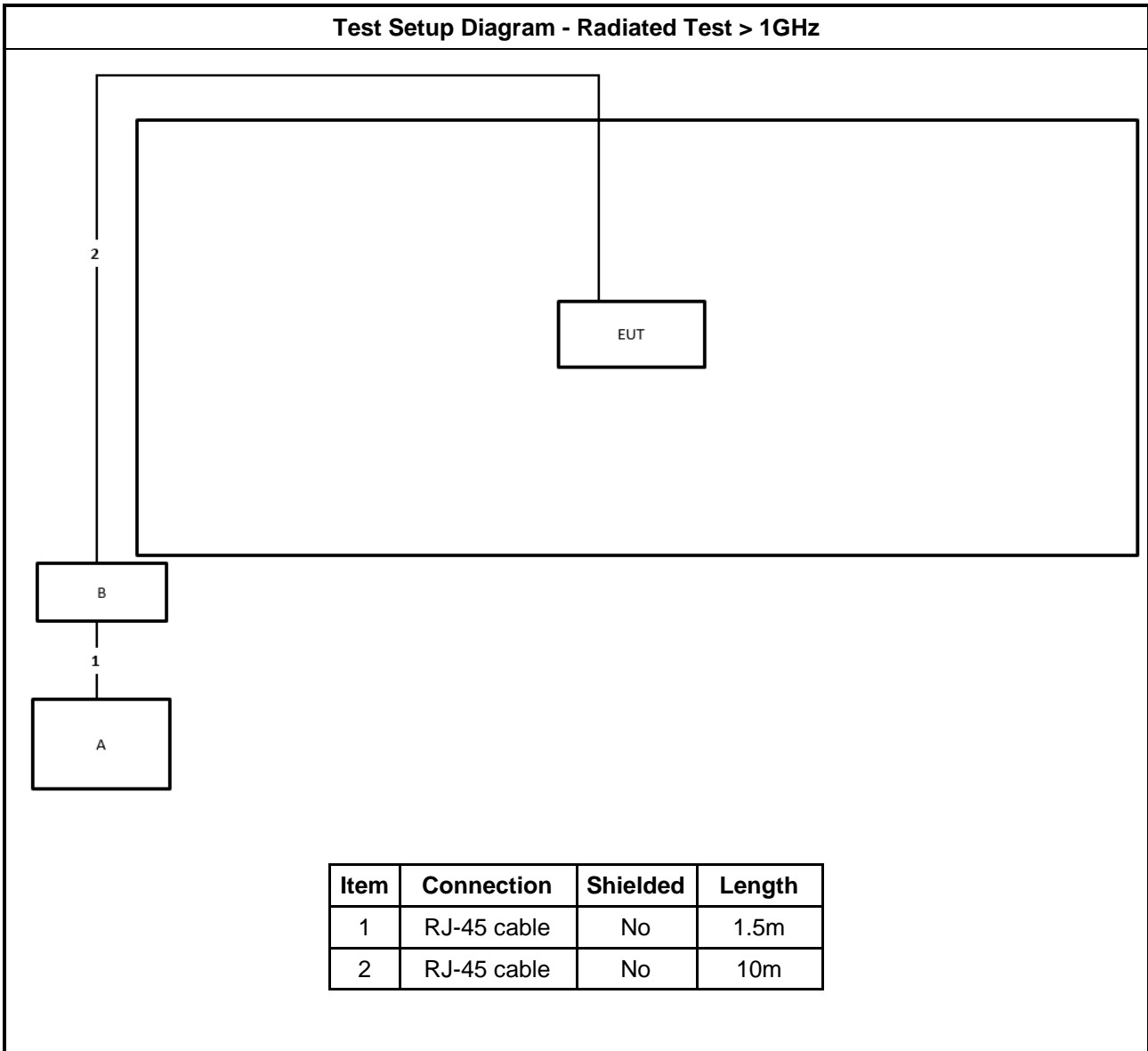
## 2.6 Test Setup Diagram



**Test Setup Diagram - Radiated Test < 1GHz**



**Test Setup Diagram - Radiated Test > 1GHz**



Item	Connection	Shielded	Length
1	RJ-45 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.

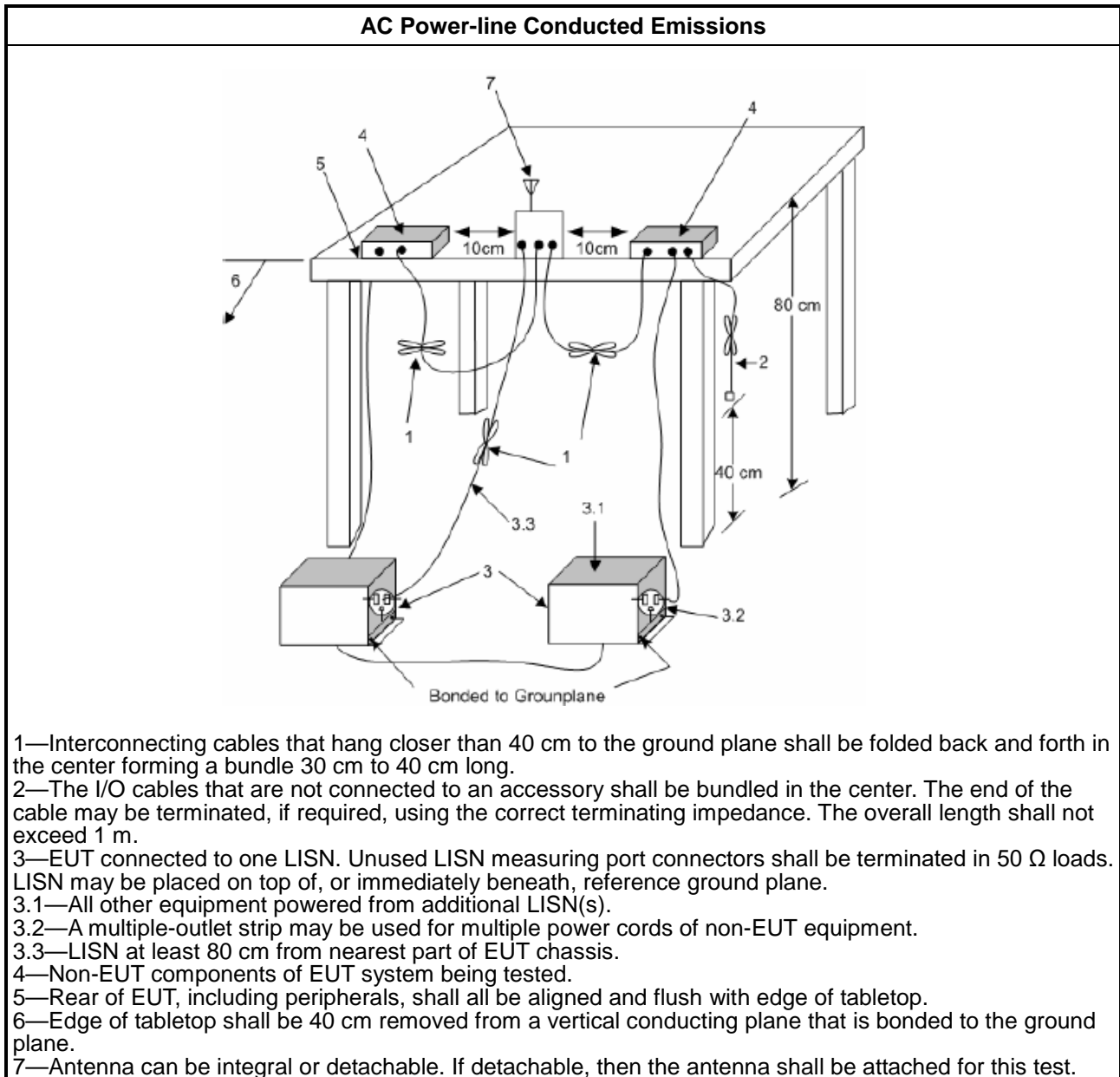
##### 3.1.2 Measuring Instruments

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



#### 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 DTS Bandwidth

#### 3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
<b>Systems using digital modulation techniques:</b>
<ul style="list-style-type: none"> <li>▪ 6 dB bandwidth <math>\geq</math> 500 kHz.</li> </ul>

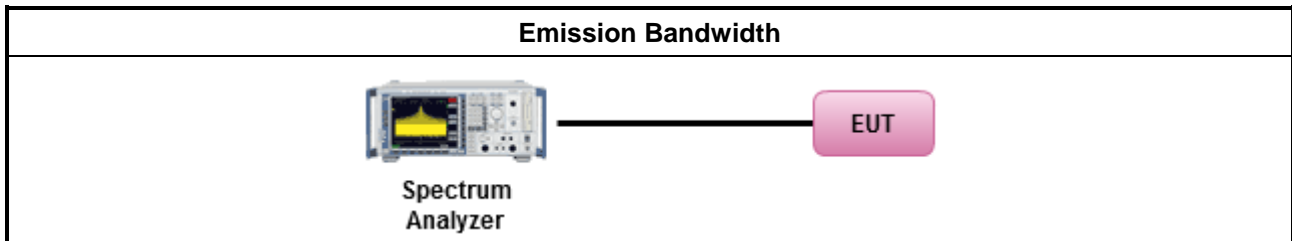
#### 3.2.2 Measuring Instruments

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

#### 3.2.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>▪ For the emission bandwidth shall be measured using one of the options below:</li> </ul>
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

#### 3.2.4 Test Setup



#### 3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B



### 3.3 Maximum Conducted Output Power

#### 3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	<ul style="list-style-type: none"> <li>▪ If <math>G_{TX} \leq 6</math> dBi, then <math>P_{Out} \leq 30</math> dBm (1 W)</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Point-to-multipoint systems (P2M): If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Point-to-point systems (P2P): If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Smart antenna system (SAS):</li> </ul>
	<ul style="list-style-type: none"> <li>- Single beam: If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>- Overlap beam: If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3</math> dBm</li> </ul>
	<ul style="list-style-type: none"> <li>- Aggregate power on all beams: If <math>G_{TX} &gt; 6</math> dBi, then <math>P_{Out} = 30 - (G_{TX} - 6)/3 + 8</math> dB dBm</li> </ul>
$P_{Out}$ = maximum peak conducted output power or maximum conducted output power in dBm, $G_{TX}$ = the maximum transmitting antenna directional gain in dBi.	

#### 3.3.2 Measuring Instruments

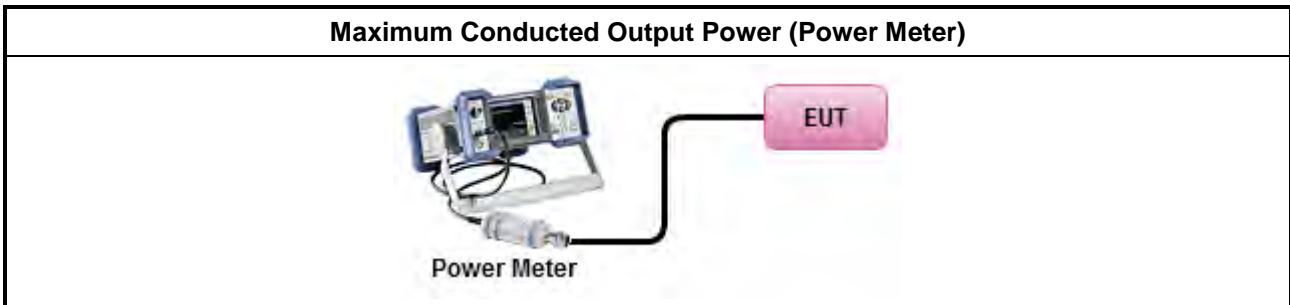
Refer a test equipment and calibration data table in this test report.



**3.3.3 Test Procedures**

Test Method	
<ul style="list-style-type: none"> <li>▪ Maximum Peak Conducted Output Power</li> </ul>	
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW method).
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
<ul style="list-style-type: none"> <li>▪ Maximum Conducted Output Power</li> </ul>	
[duty cycle ≥ 98% or external video / power trigger]	
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.3 Method AVGSA-1A. (alternative)
duty cycle < 98% and average over on/off periods with duty factor	
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)
Measurement using a power meter (PM)	
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.1 Method AVGPM (using an RF average power meter).
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.2 Method AVGPM-G (using an gate RF average power meter).
<ul style="list-style-type: none"> <li>▪ For conducted measurement.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ If multiple transmit chains, EIRP calculation could be following as methods:  <math>P_{total} = P_1 + P_2 + \dots + P_n</math>            (calculated in linear unit [mW] and transfer to log unit [dBm])  <math>EIRP_{total} = P_{total} + DG</math> </li> </ul>	

### 3.3.4 Test Setup



### 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C



### 3.4 Power Spectral Density

#### 3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
<ul style="list-style-type: none"> <li>Power Spectral Density (PSD) ≤ 8 dBm/3kHz</li> </ul>

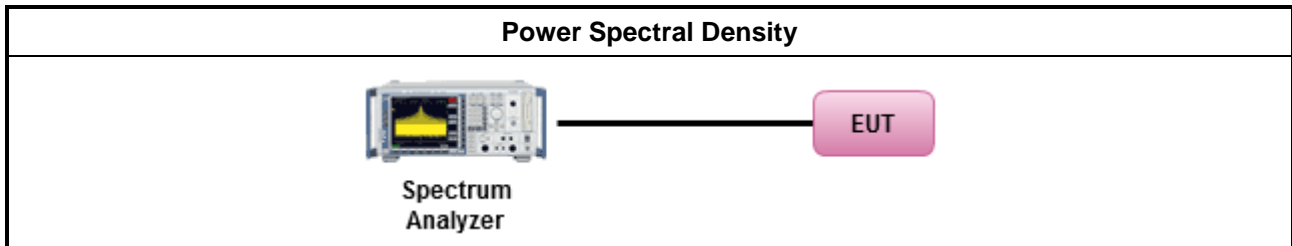
#### 3.4.2 Measuring Instruments

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

#### 3.4.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).</li> </ul>
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10 Method Max. PSD. [duty cycle ≥ 98% or external video / power trigger]
<ul style="list-style-type: none"> <li>For conducted measurement.</li> </ul>
<ul style="list-style-type: none"> <li>If The EUT supports multiple transmit chains using options given below: <ul style="list-style-type: none"> <li><input type="checkbox"/> Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.</li> <li><input type="checkbox"/> Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,</li> <li><input type="checkbox"/> Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.</li> </ul> </li> </ul>

### 3.4.4 Test Setup



### 3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

### 3.5 Emissions in Non-restricted Frequency Bands

#### 3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

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

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

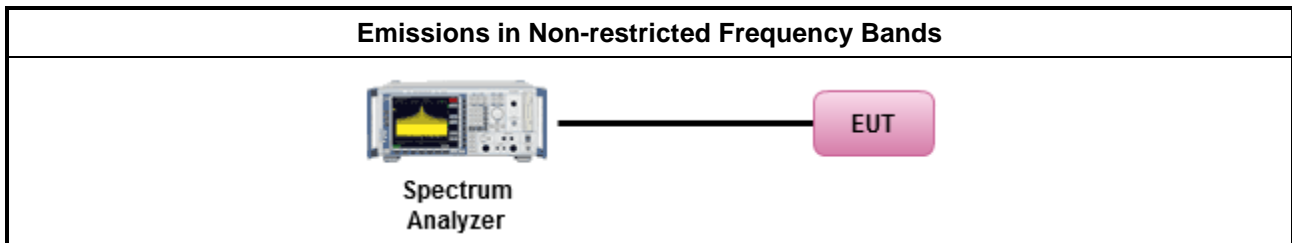
#### 3.5.2 Measuring Instruments

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

#### 3.5.3 Test Procedures

Test Method
<ul style="list-style-type: none"> <li>Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands.</li> </ul>

#### 3.5.4 Test Setup



#### 3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E





### 3.6 Emissions in Restricted Frequency Bands

#### 3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

#### 3.6.2 Measuring Instruments

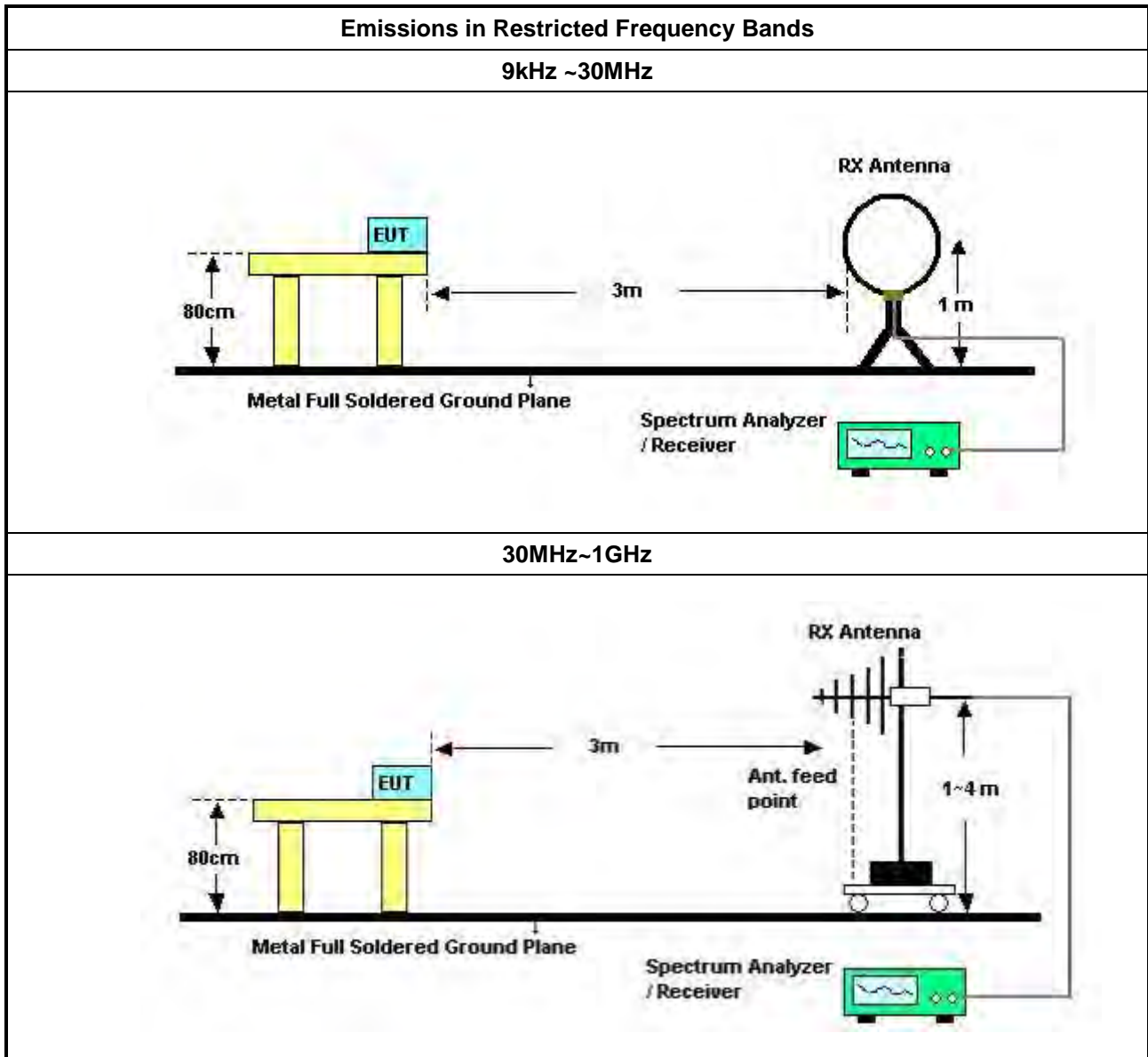
Refer a test equipment and calibration data table in this test report.

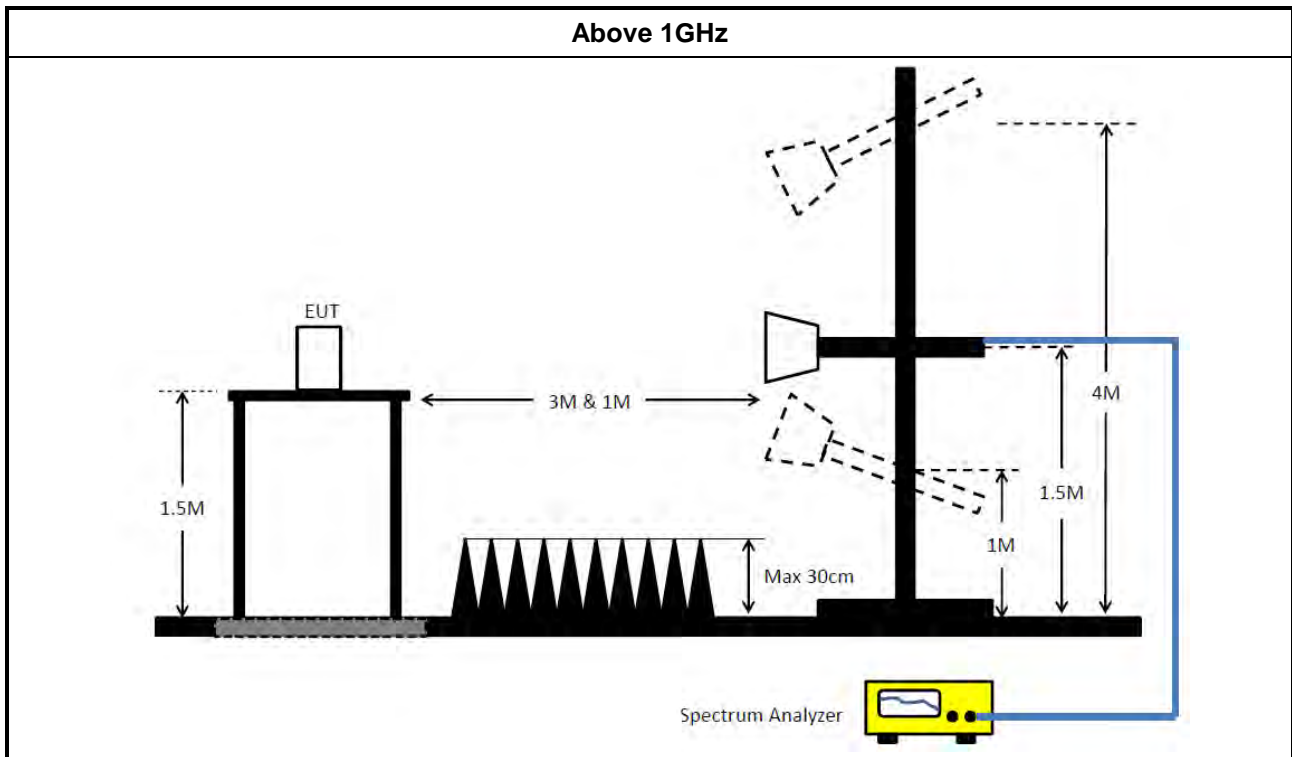


**3.6.3 Test Procedures**

<b>Test Method</b>	
<ul style="list-style-type: none"> <li>▪ The average emission levels shall be measured in [duty cycle <math>\geq</math> 98 or duty factor].</li> </ul>	
<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ For the transmitter unwanted emissions shall be measured using following options below:</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.</li> </ul>
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle $\geq$ 98%).
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW $\geq$ 1/T).
	<input type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.
<ul style="list-style-type: none"> <li>▪ For the transmitter band-edge emissions shall be measured using following options below:</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Refer as FCC KDB 558074 clause 8.7 &amp; c63.10 clause 11.13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).</li> </ul>
	<ul style="list-style-type: none"> <li>▪ For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below:                (1) Measure and sum the spectra across the outputs or                (2) Measure and add 10 log(N) dB             </li> </ul>
	<ul style="list-style-type: none"> <li>▪ For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.</li> </ul>

**3.6.4 Test Setup**





### 3.6.5 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.

### 3.6.6 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.

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

Refer as Appendix F



## 4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Apr. 06, 2023	Apr. 05, 2024	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Dec. 20, 2022	Dec. 19, 2023	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	May 18, 2023	May 17, 2024	Conduction (CO02-CB)
COND Cable	Woken	Cable	2	0.15MHz ~ 30MHz	Oct. 18, 2022	Oct. 17, 2023	Conduction (CO02-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F-N	00378	9kHz ~ 30MHz	Oct. 18, 2022	Oct. 17, 2023	Conduction (CO02-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)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 02, 2023	Aug. 01, 2024	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)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 18, 2023	Apr. 17, 2024	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 13, 2023	Jun. 12, 2024	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	RIKEN	SAC-3M	03CH02-CB	1GHz ~18GHz	Mar. 25, 2023	Mar. 24, 2024	Radiation (03CH02-CB)
Horn Antenna	EMCO	3115	9610-4976	1GHz ~ 18GHz	Apr. 18, 2023	Apr. 17, 2024	Radiation (03CH02-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 28, 2023	Jun. 27, 2024	Radiation (03CH02-CB)
Pre-Amplifier	Agilent	83017A	MY39501305	1GHz ~ 26.5GHz	Jun. 30, 2023	Jun. 29, 2024	Radiation (03CH02-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH02-CB)
Spectrum analyzer	R&S	FSU	100015	9kHz~26GHz	Dec. 05, 2022	Dec. 04, 2023	Radiation (03CH02-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-18	1GHz ~ 18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH02-CB)
RF Cable-high	Woken	RG402	High Cable-18+19	1GHz ~ 18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH02-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH02-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH04-CB	1GHz ~18GHz 3m	Feb. 23, 2023	Feb. 22, 2024	Radiation (03CH04-CB)
Horn Antenna	ETS-Lindgren	3115	00143147	750MHz~18GHz	Oct. 12, 2022	Oct. 11, 2023	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 28, 2023	Jun. 27, 2024	Radiation (03CH04-CB)
Pre-Amplifier	Agilent	83017A	MY53270063	0.5GHz~26.5GHz	Jun. 30, 2023	Jun. 29, 2024	Radiation (03CH04-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Mar. 21, 2023	Mar. 20, 2024	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+67	1GHz - 18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH04-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	May 29, 2023	May 28, 2024	Conducted (TH01-CB)
Switch	SPTCB	SP-SWI	SWI-01	1 GHz ~26.5 GHz	Oct. 04, 2022	Oct. 03, 2023	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz ~ 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz ~ 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz ~ 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz ~ 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH01-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-30	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Feb. 22, 2023	Feb. 21, 2024	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Feb. 22, 2023	Feb. 21, 2024	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.

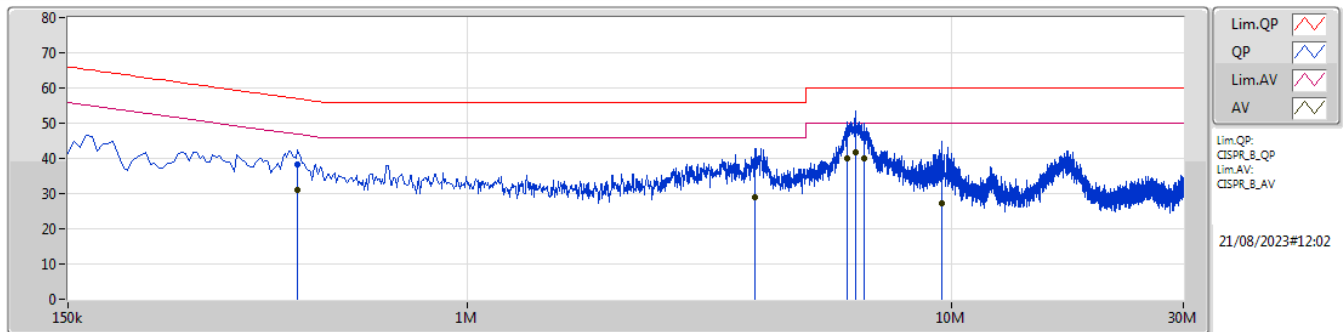


**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 9	Pass	AV	6.315M	42.87	50.00	-7.13	Neutral

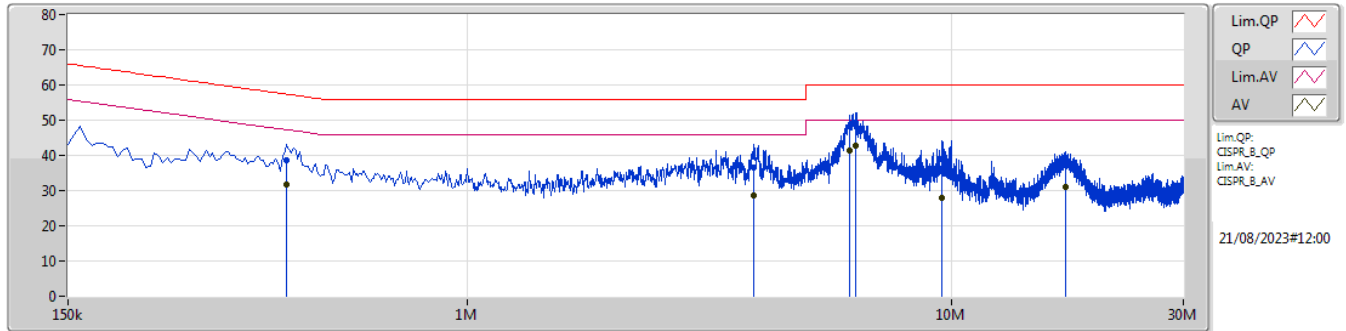


## Mode 9



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	447k	38.39	56.94	-18.55	10.19	Line	-	28.20	0.04	0.15	10.00
AV	447k	31.00	46.94	-15.94	10.19	Line	-	20.81	0.04	0.15	10.00
QP	3.926M	37.57	56.00	-18.43	10.14	Line	-	27.43	0.10	0.20	9.84
AV	3.926M	28.90	46.00	-17.10	10.14	Line	-	18.76	0.10	0.20	9.84
QP	6.068M	46.90	60.00	-13.10	10.23	Line	-	36.67	0.15	0.20	9.88
AV	6.068M	40.10	50.00	-9.90	10.23	Line	-	29.87	0.15	0.20	9.88
QP	6.315M	48.22	60.00	-11.78	10.23	Line	-	37.99	0.15	0.20	9.88
AV	6.315M	41.60	50.00	-8.40	10.23	Line	"Worst"	31.37	0.15	0.20	9.88
QP	6.576M	46.88	60.00	-13.12	10.24	Line	-	36.64	0.15	0.21	9.88
AV	6.576M	39.87	50.00	-10.13	10.24	Line	-	29.63	0.15	0.21	9.88
QP	9.524M	38.12	60.00	-21.88	10.32	Line	-	27.80	0.19	0.21	9.92
AV	9.524M	27.41	50.00	-22.59	10.32	Line	-	17.09	0.19	0.21	9.92

## Mode 9



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	6.135M	48.42	60.00	-11.58	10.22	Neutral	-	38.20	0.14	0.20	9.88
AV	6.135M	41.21	50.00	-8.79	10.22	Neutral	-	30.99	0.14	0.20	9.88
QP	6.315M	49.13	60.00	-10.87	10.22	Neutral	-	38.91	0.14	0.20	9.88
AV	6.315M	42.87	50.00	-7.13	10.22	Neutral	"Worst"	32.65	0.14	0.20	9.88
QP	9.551M	38.87	60.00	-21.13	10.31	Neutral	-	28.56	0.18	0.21	9.92
AV	9.551M	27.95	50.00	-22.05	10.31	Neutral	-	17.64	0.18	0.21	9.92
QP	17.115M	37.81	60.00	-22.19	10.47	Neutral	-	27.34	0.22	0.25	10.00
AV	17.115M	31.05	50.00	-18.95	10.47	Neutral	-	20.58	0.22	0.25	10.00
QP	3.908M	36.62	56.00	-19.38	10.14	Neutral	-	26.48	0.10	0.20	9.84
AV	3.908M	28.78	46.00	-17.22	10.14	Neutral	-	18.64	0.10	0.20	9.84
QP	424.5k	38.60	57.36	-18.76	10.20	Neutral	-	28.40	0.05	0.15	10.00
AV	424.5k	31.84	47.36	-15.52	10.20	Neutral	-	21.64	0.05	0.15	10.00



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	637.5k	1.027M	1M03F1D	635k	1.026M
BT-LE(2Mbps)	1.093M	2.053M	2M05F1D	1.088M	2.038M

Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;  
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth



Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	637.5k	1.026M
2440MHz	Pass	500k	636.25k	1.026M
2480MHz	Pass	500k	635k	1.027M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.093M	2.038M
2440MHz	Pass	500k	1.09M	2.047M
2480MHz	Pass	500k	1.088M	2.053M

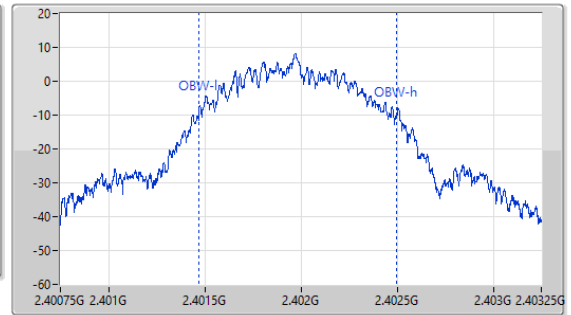
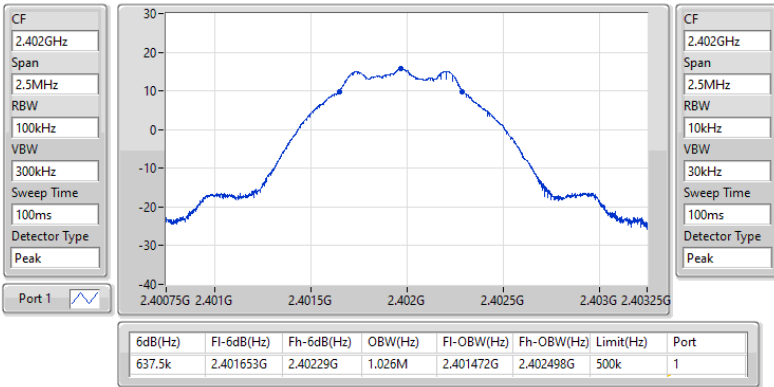
Port X-N dB = Port X 6dB down bandwidth;  
Port X-OBW = Port X 99% occupied bandwidth

2.4-2.4835GHz\_BT-LE(1Mbps)

EBW-DTS

2402MHz

31/07/2023

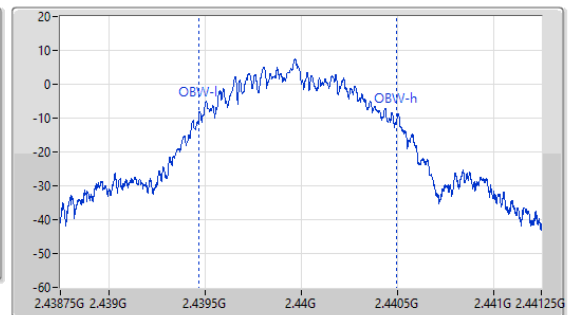
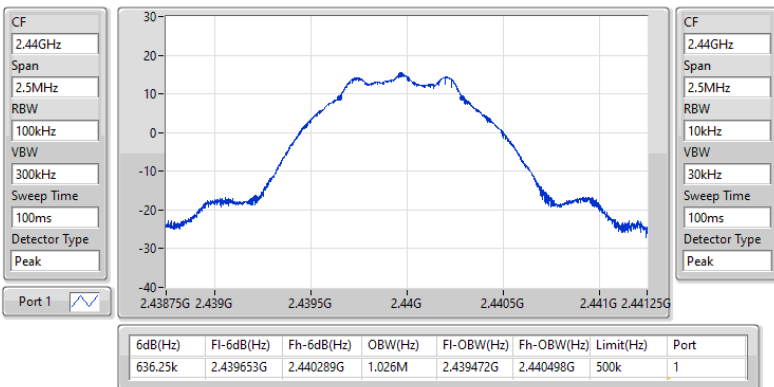


2.4-2.4835GHz\_BT-LE(1Mbps)

EBW-DTS

2440MHz

31/07/2023

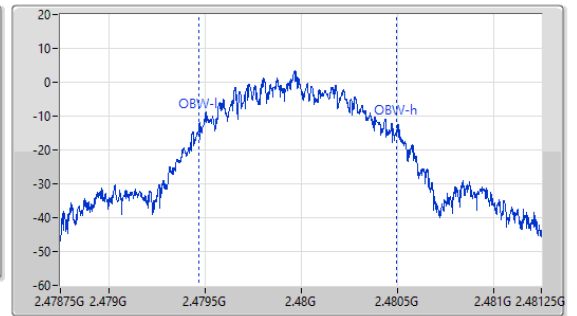
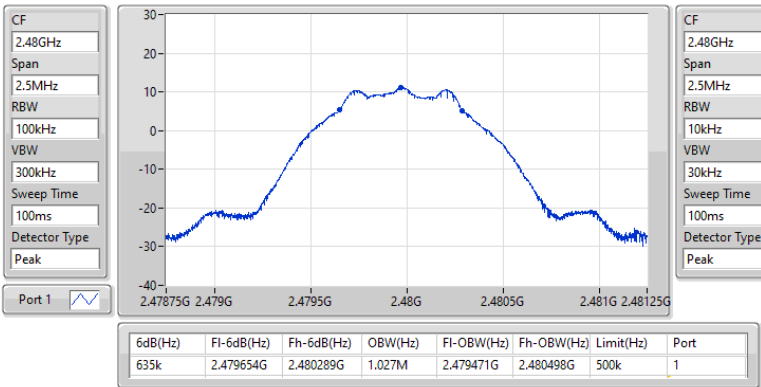


2.4-2.4835GHz\_BT-LE(1Mbps)

EBW-DTS

2480MHz

31/07/2023

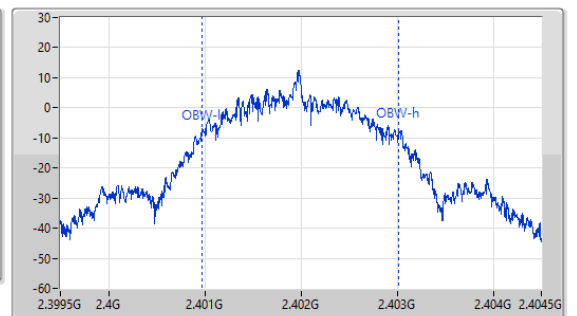
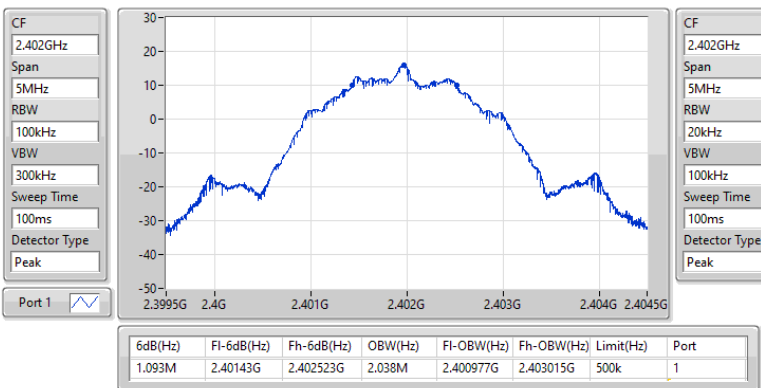


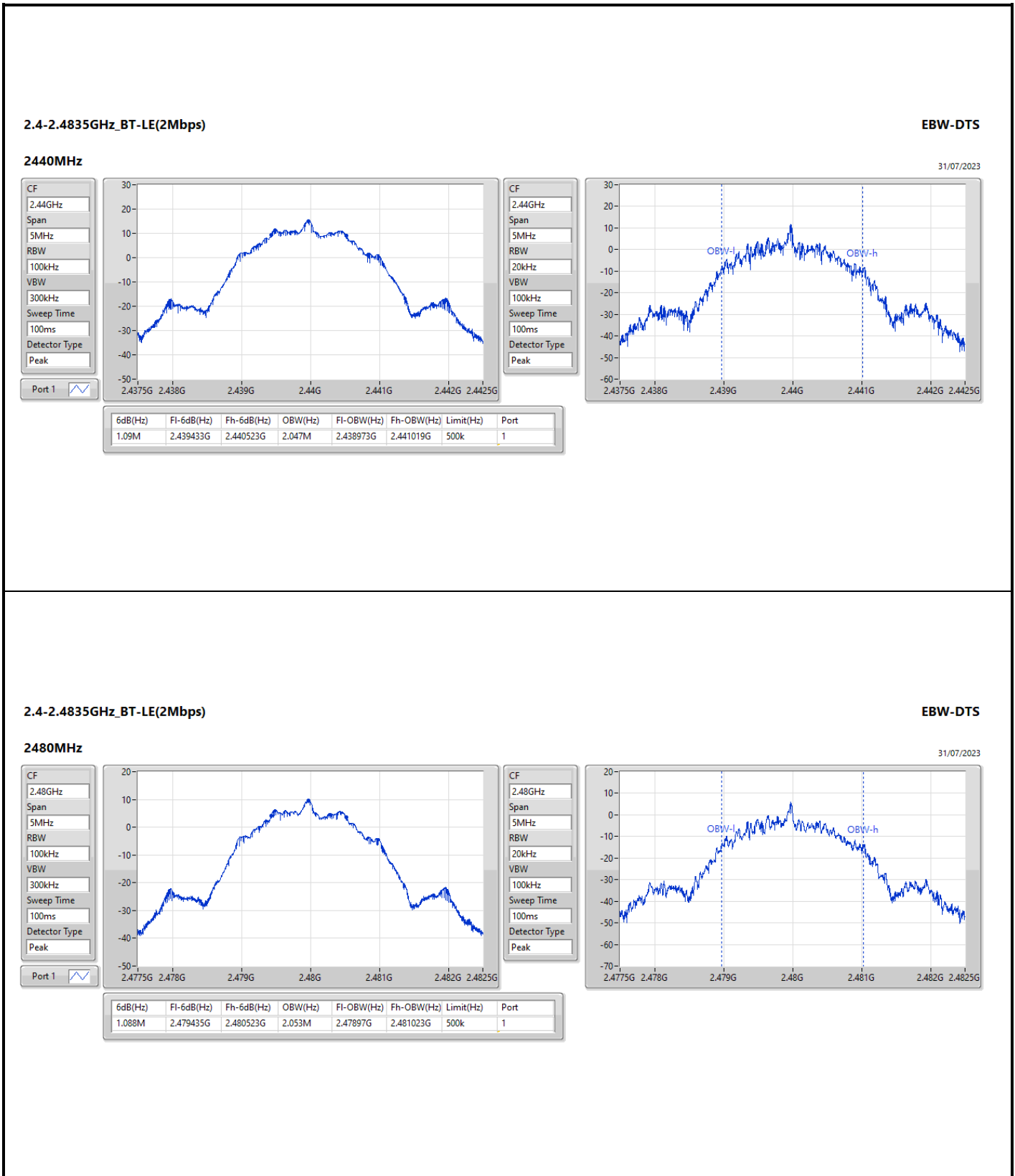
2.4-2.4835GHz\_BT-LE(2Mbps)

EBW-DTS

2402MHz

31/07/2023







**Summary**

Mode	Total Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	15.42	0.03483
BT-LE(2Mbps)	15.28	0.03373





Result

Mode	Result	DG (dBi)	Total Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.62	15.42	30.00
2440MHz	Pass	2.62	14.68	30.00
2478MHz	Pass	2.62	14.52	30.00
2480MHz	Pass	2.62	10.88	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.62	15.28	30.00
2440MHz	Pass	2.62	14.70	30.00
2478MHz	Pass	2.62	1.11	30.00
2480MHz	Pass	2.62	9.03	30.00

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



**Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	0.73
BT-LE(2Mbps)	0.54

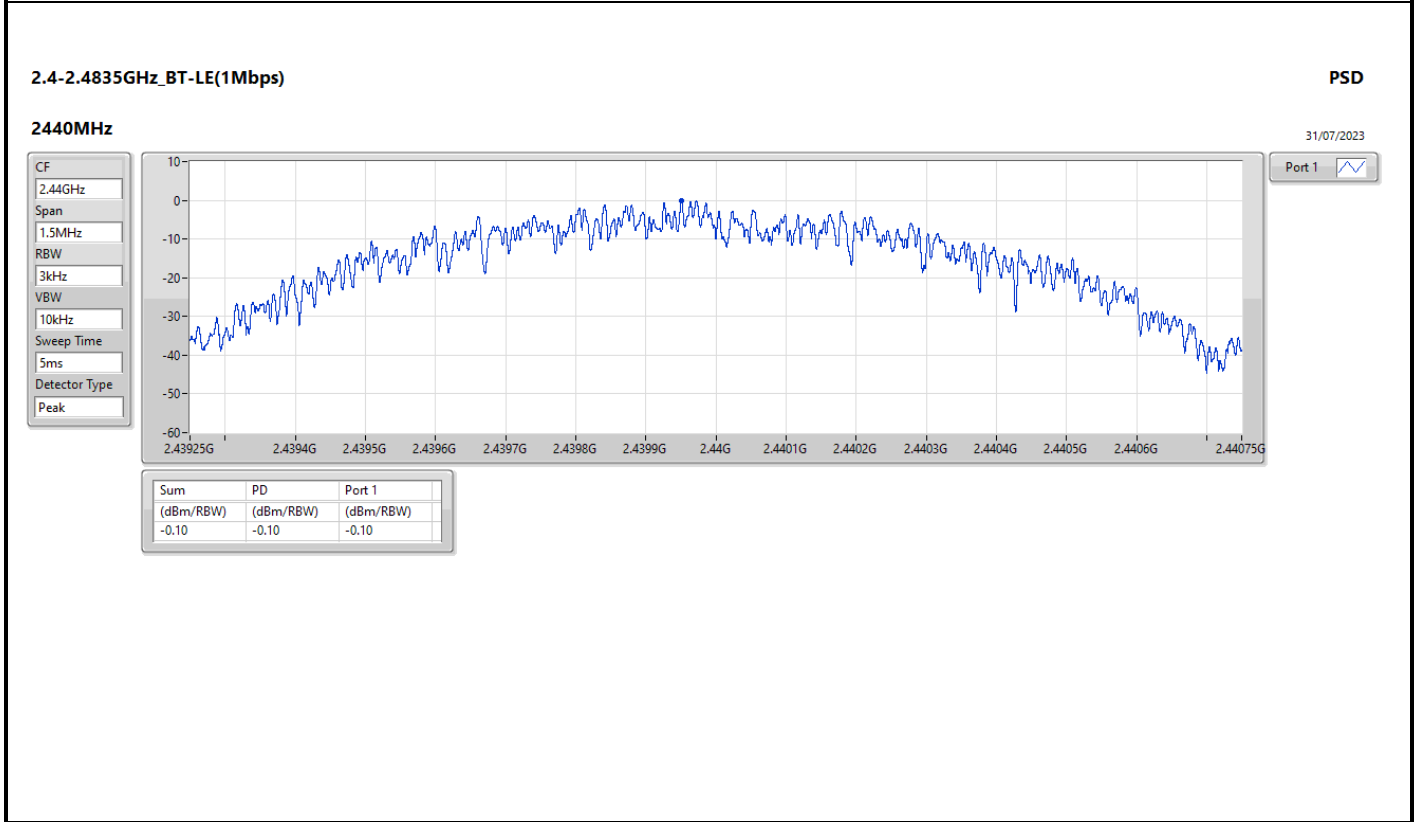
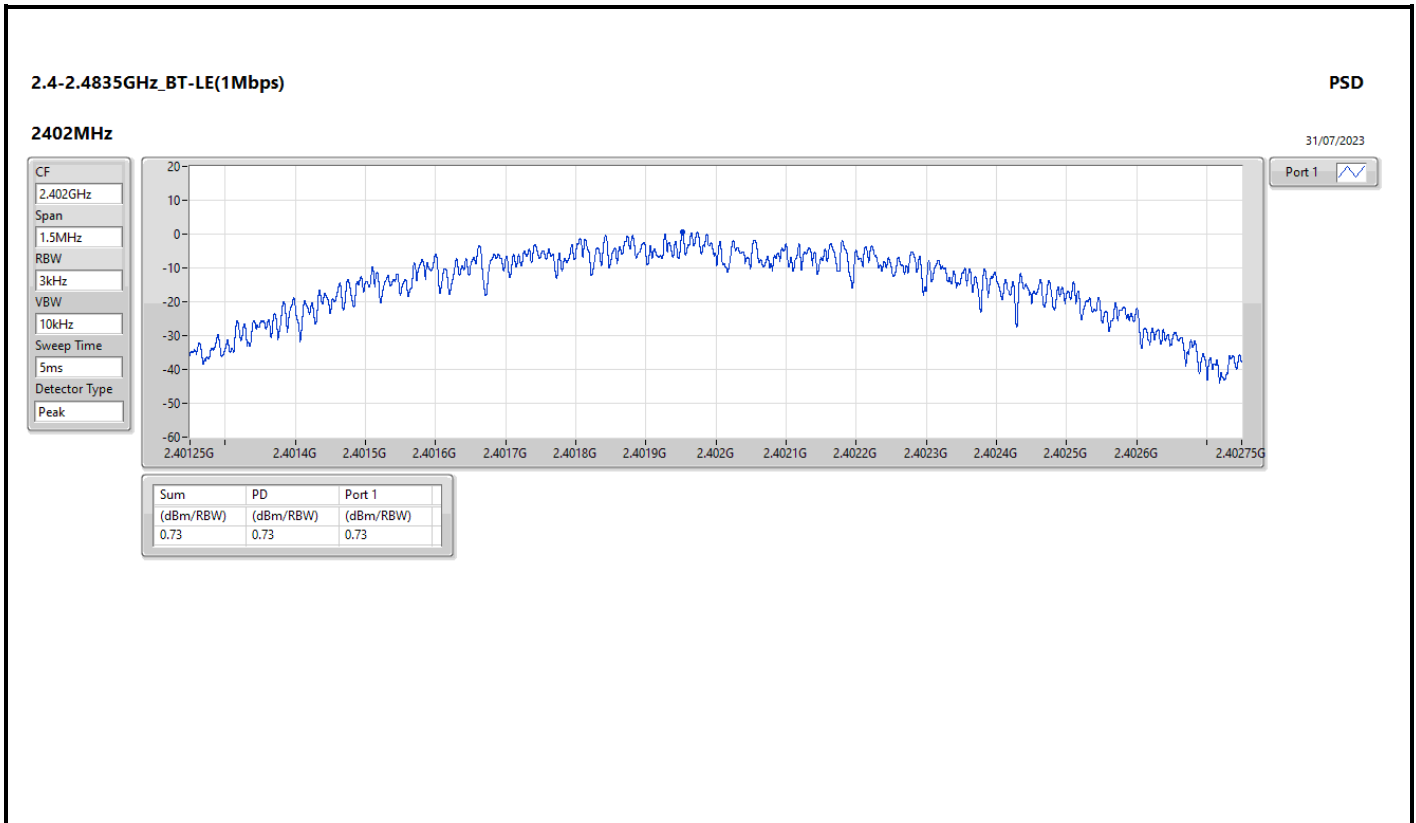
RBW = 3kHz;

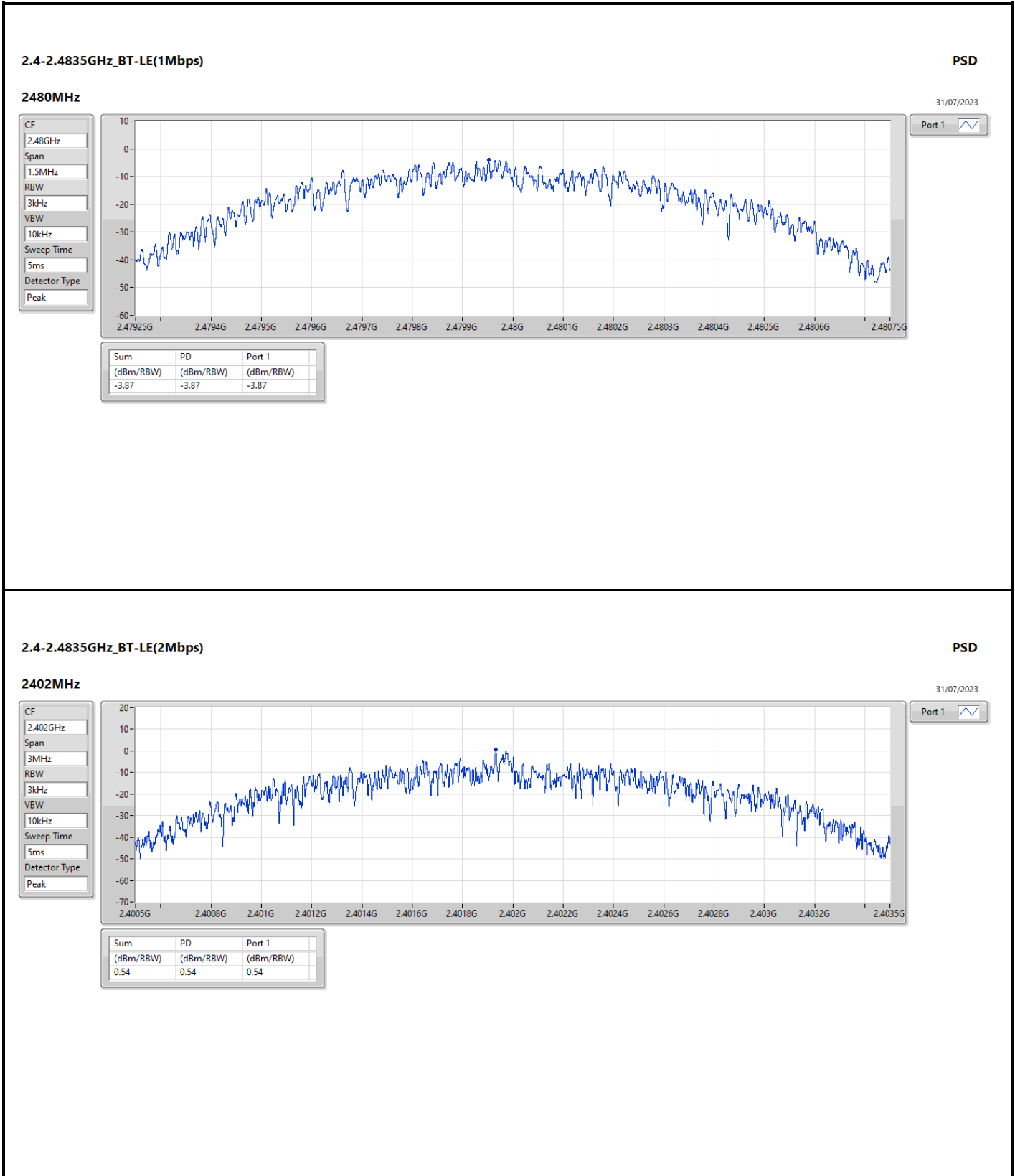


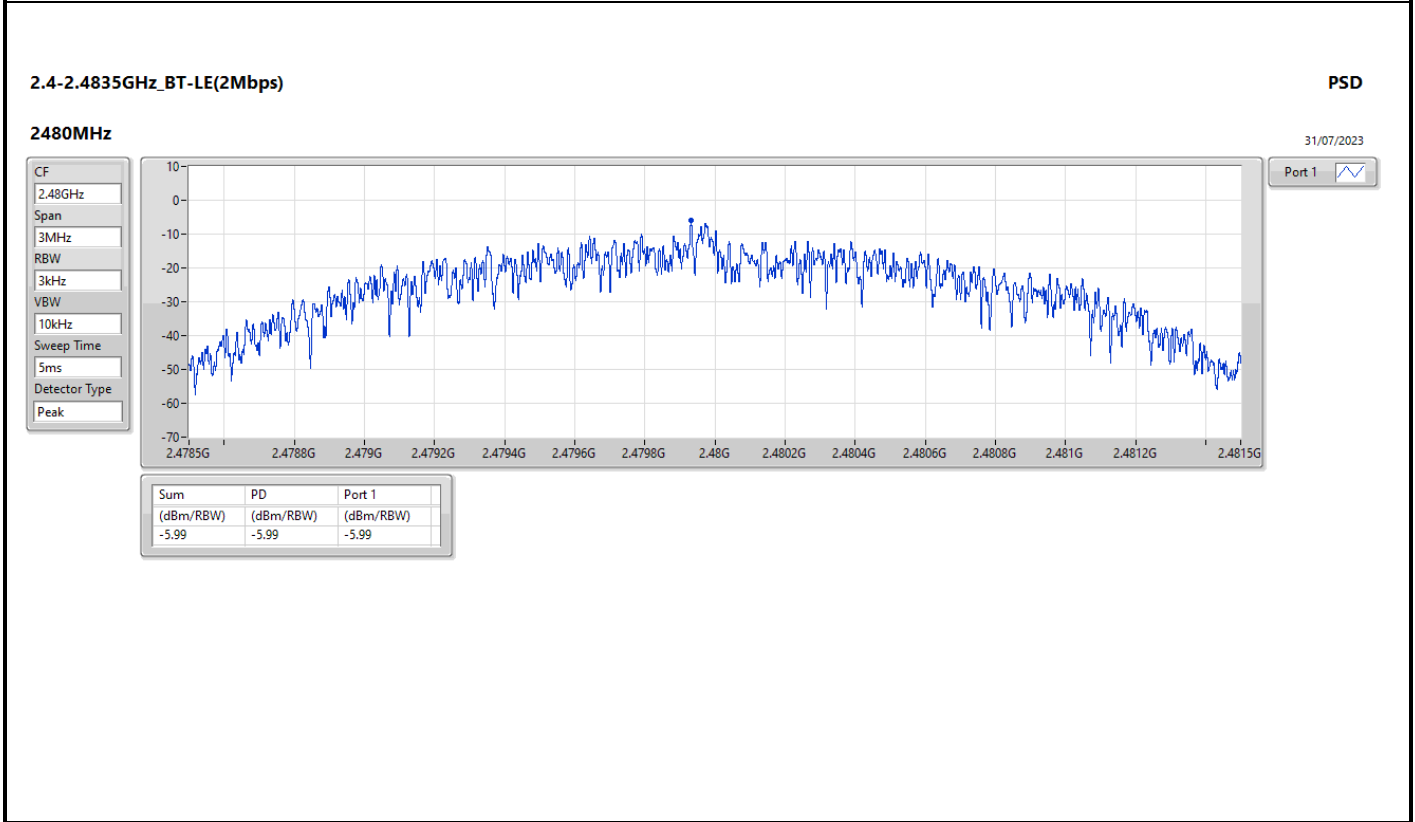
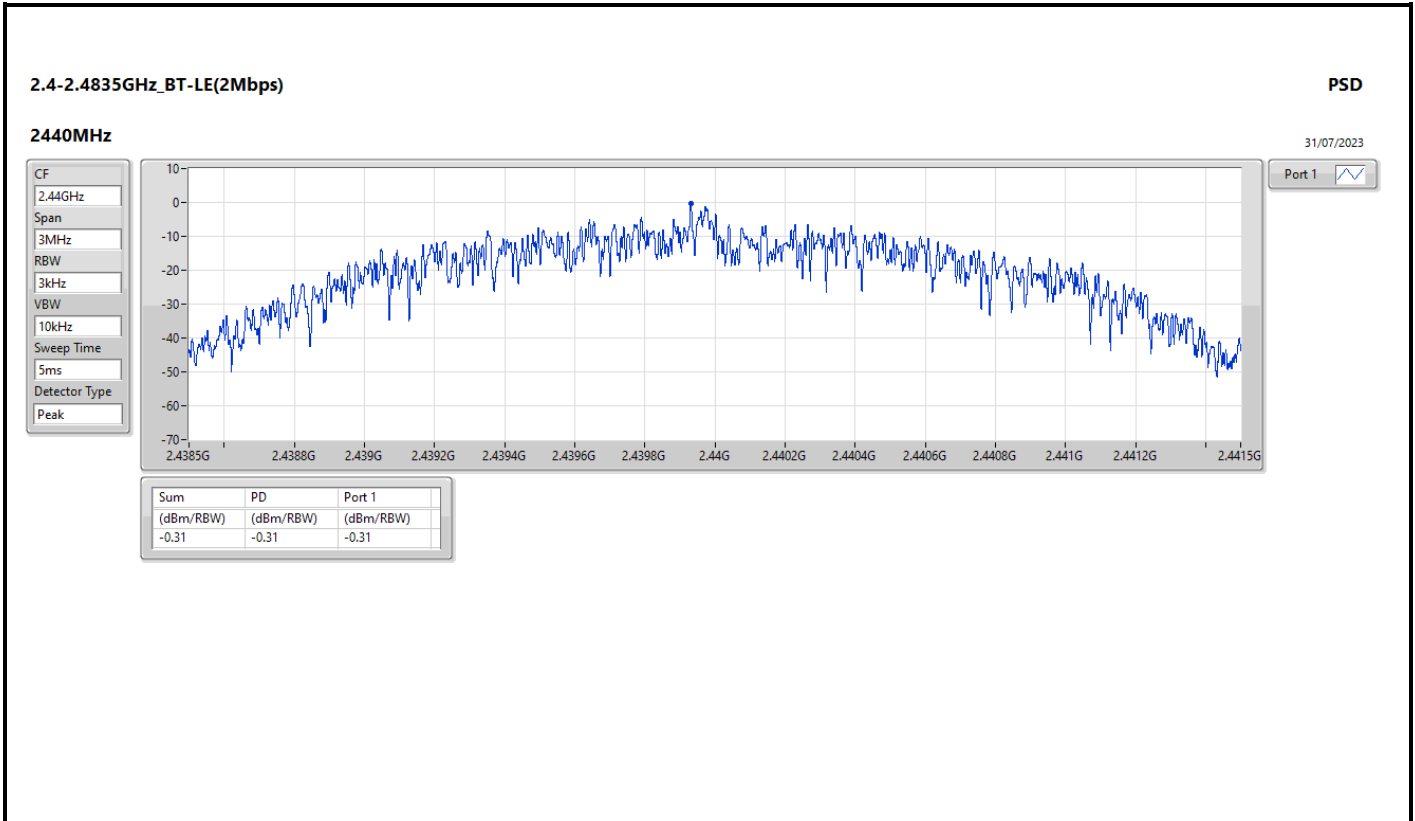
Result

Mode	Result	DG (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.62	0.73	8.00
2440MHz	Pass	2.62	-0.10	8.00
2480MHz	Pass	2.62	-3.87	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.62	0.54	8.00
2440MHz	Pass	2.62	-0.31	8.00
2480MHz	Pass	2.62	-5.99	8.00

DG = Directional Gain; RBW = 3kHz;  
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;









Summary

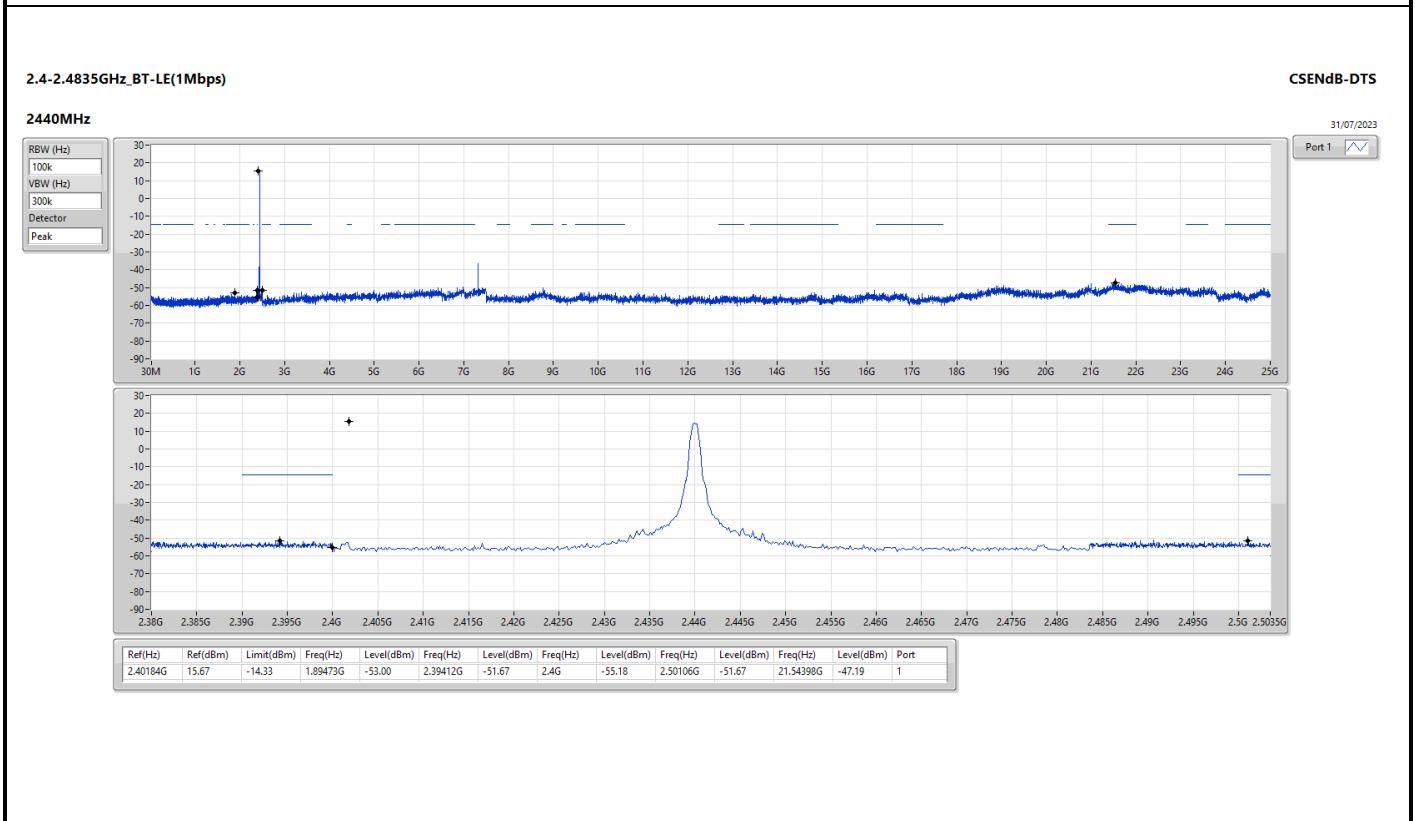
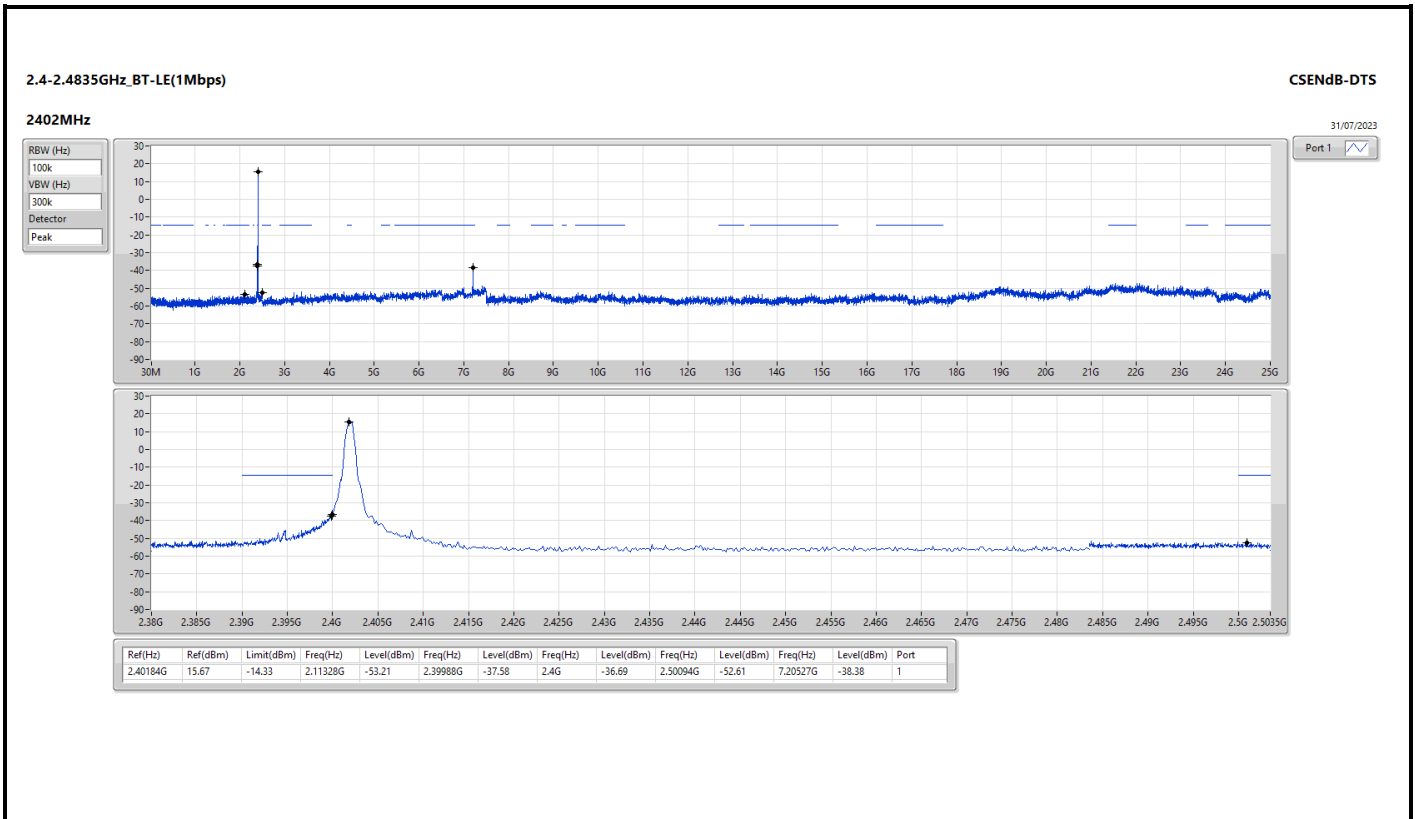
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.40184G	15.67	-14.33	2.11328G	-53.21	2.39988G	-37.58	2.4G	-36.69	2.50094G	-52.61	7.20527G	-38.38	1
BT-LE(2Mbps)	Pass	2.40184G	15.42	-14.58	2.1074G	-53.58	2.4G	-17.07	2.4G	-19.24	2.50106G	-51.82	7.20246G	-37.98	1

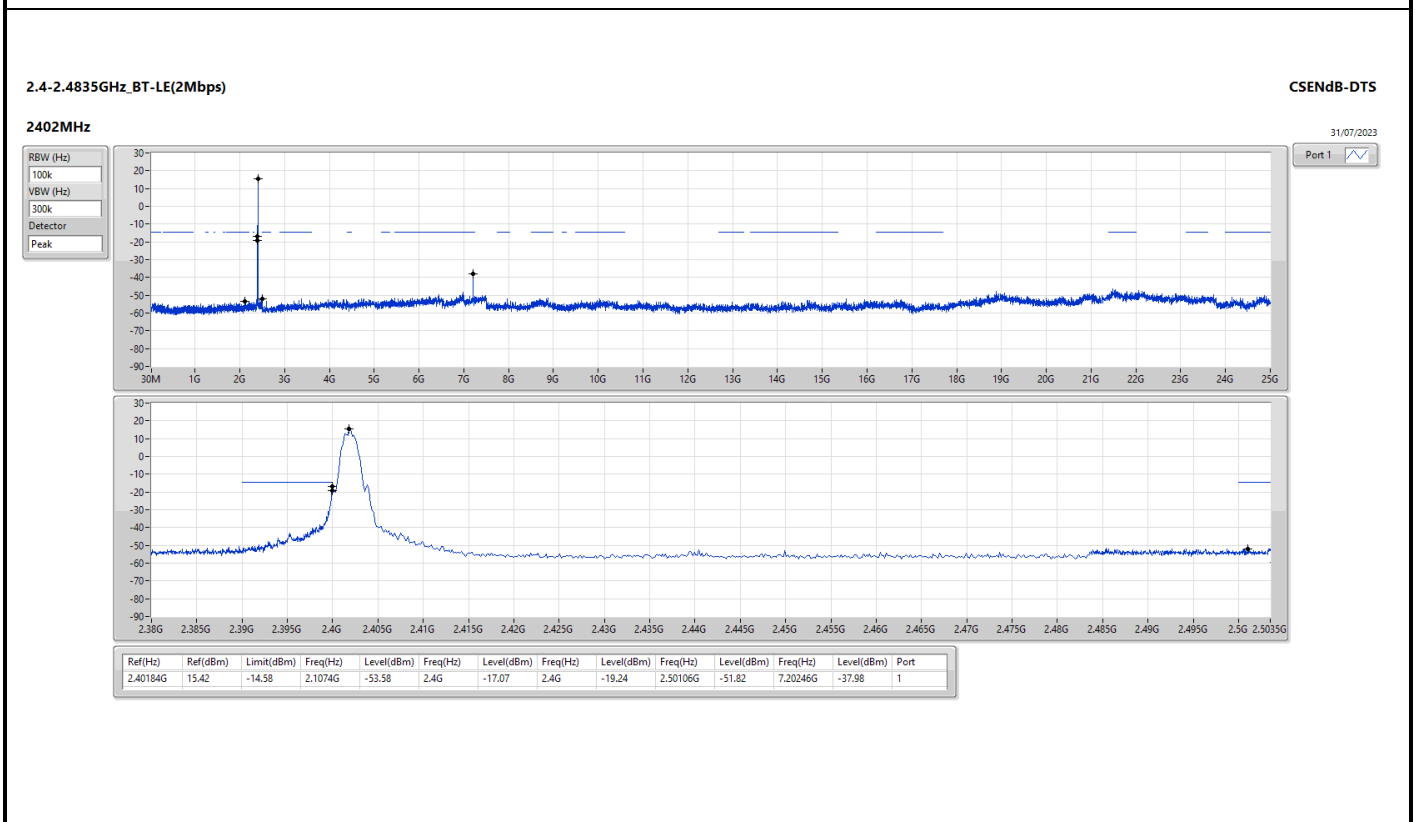
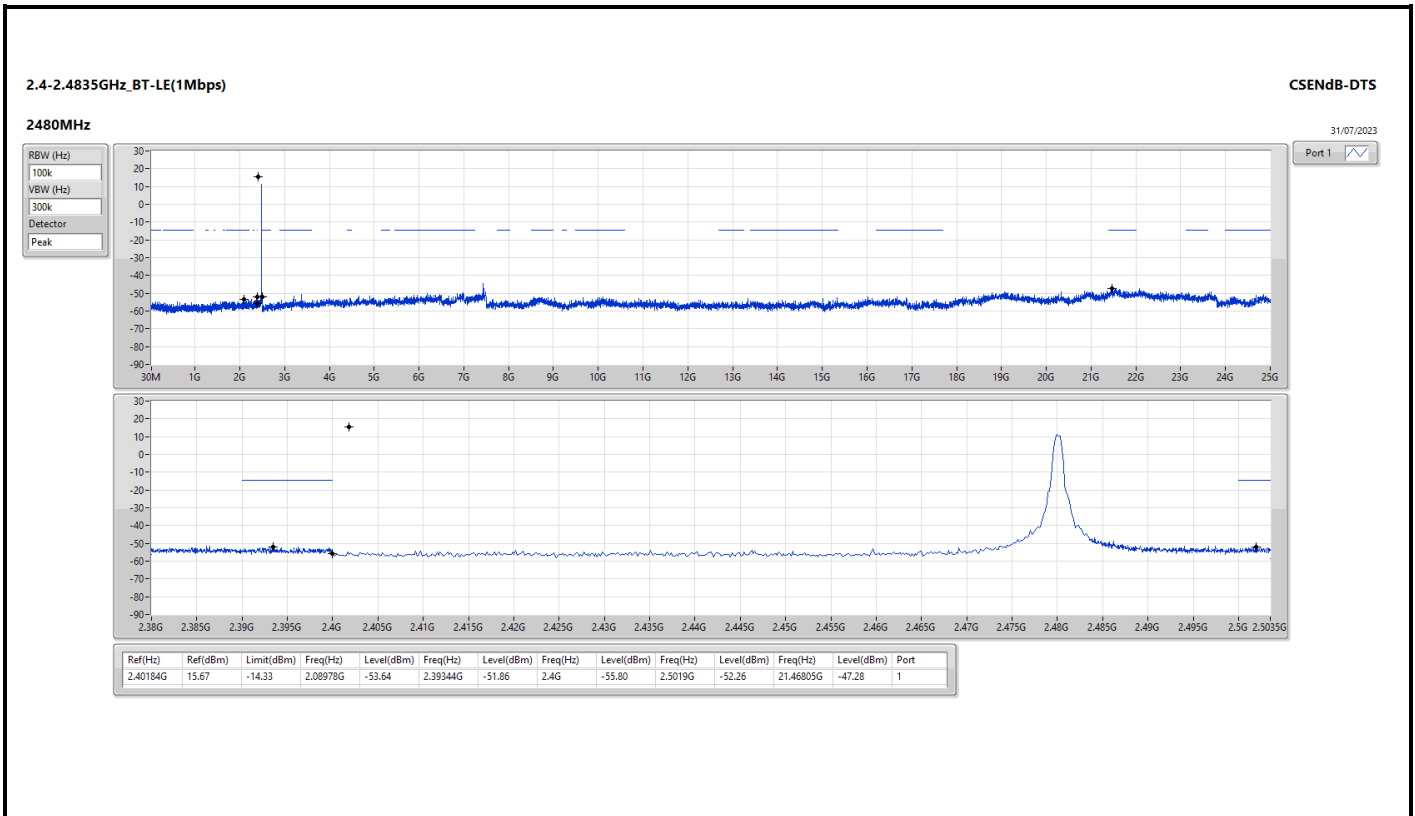


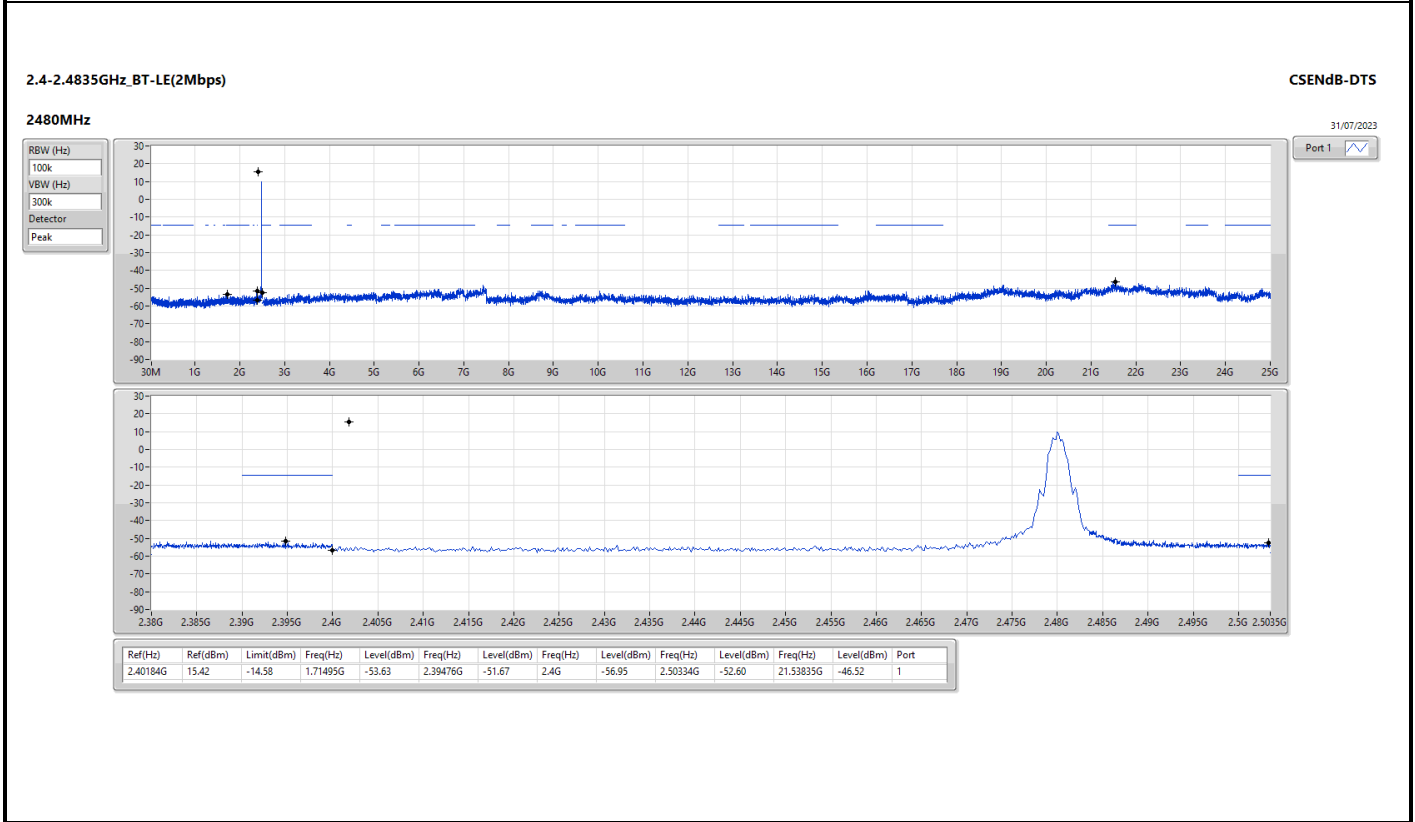
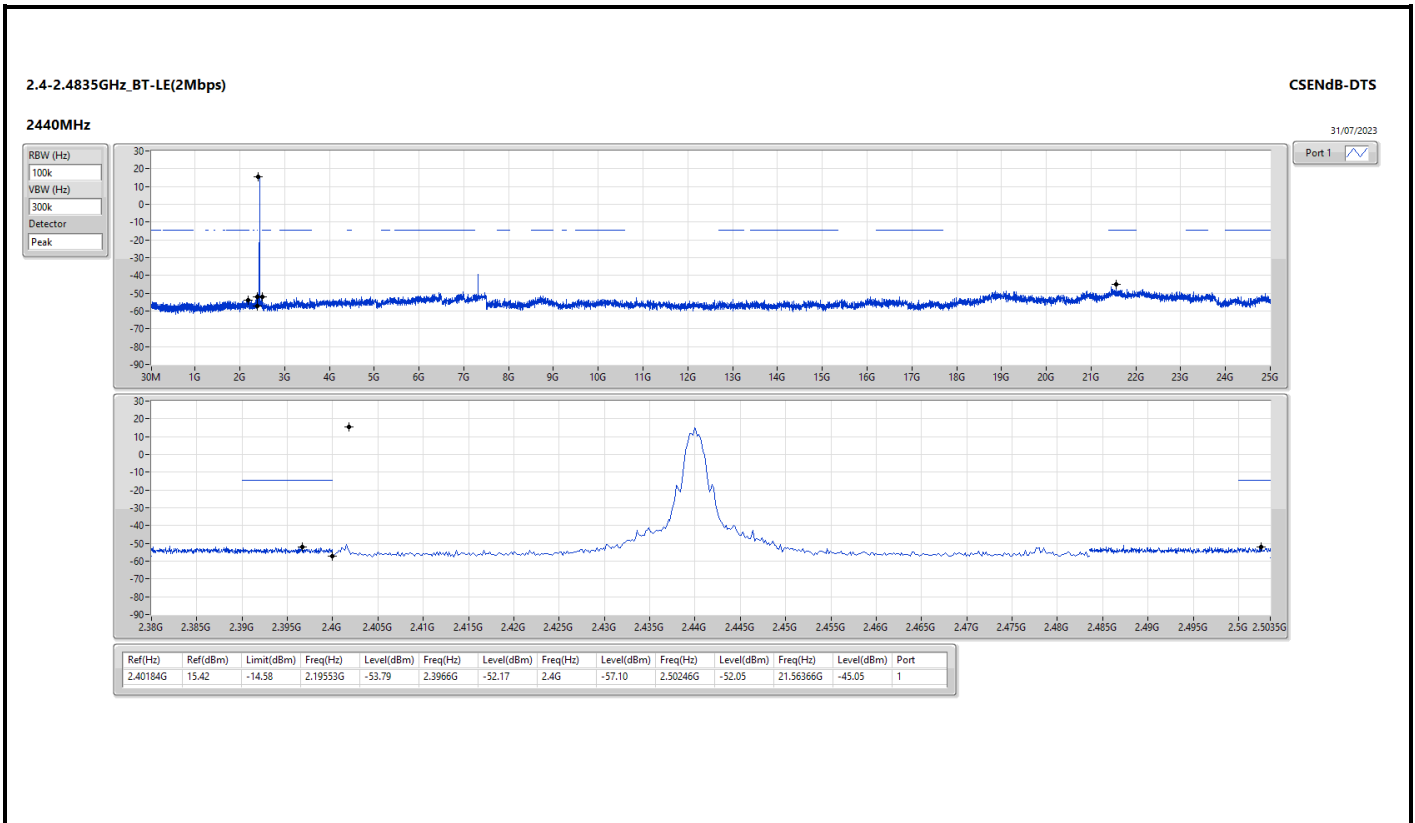
Result

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-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40184G	15.67	-14.33	2.11328G	-53.21	2.39988G	-37.58	2.4G	-36.69	2.50094G	-52.61	7.20527G	-38.38	1
2440MHz	Pass	2.40184G	15.67	-14.33	1.89473G	-53.00	2.39412G	-51.67	2.4G	-55.18	2.50106G	-51.67	21.54398G	-47.19	1
2480MHz	Pass	2.40184G	15.67	-14.33	2.08978G	-53.64	2.39344G	-51.86	2.4G	-55.80	2.5019G	-52.26	21.46805G	-47.28	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40184G	15.42	-14.58	2.1074G	-53.58	2.4G	-17.07	2.4G	-19.24	2.50106G	-51.82	7.20246G	-37.98	1
2440MHz	Pass	2.40184G	15.42	-14.58	2.19553G	-53.79	2.3966G	-52.17	2.4G	-57.10	2.50246G	-52.05	21.56366G	-45.05	1
2480MHz	Pass	2.40184G	15.42	-14.58	1.71495G	-53.63	2.39476G	-51.67	2.4G	-56.95	2.50334G	-52.60	21.53835G	-46.52	1







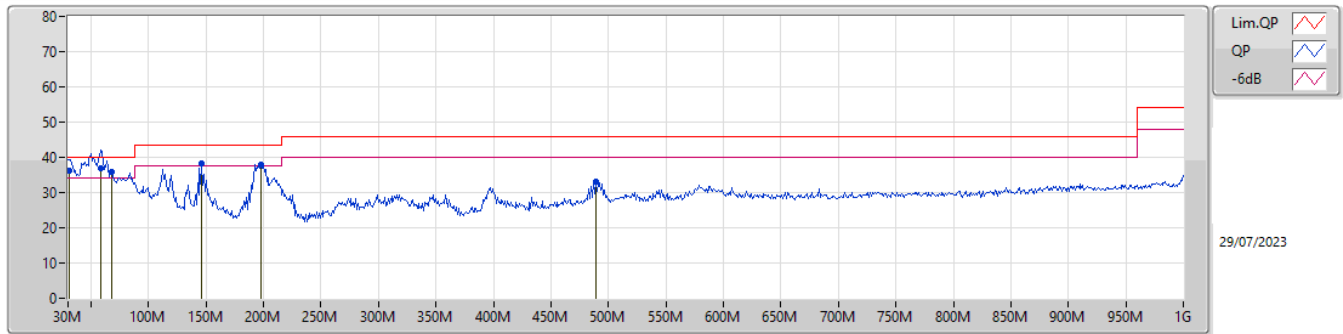




**Summary**

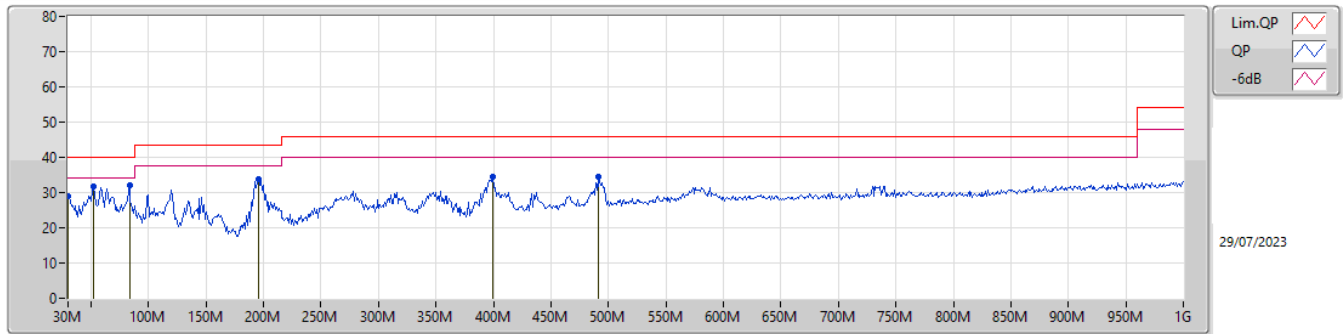
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 4	Pass	QP	58.13M	36.98	40.00	-3.02	Vertical

Mode 4



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
QP	30.97M	36.11	40.00	-3.89	-6.92	3	Vertical	197	1.00	-	43.03	23.62	1.03	31.57
QP	58.13M	36.98	40.00	-3.02	-18.11	3	Vertical	360	1.25	"Worst"	55.09	12.45	1.34	31.90
PK	67.83M	35.71	40.00	-4.29	-18.15	3	Vertical	356	1.50	-	53.86	12.33	1.43	31.91
PK	146.4M	38.39	43.50	-5.11	-13.24	3	Vertical	170	1.00	-	51.63	16.71	2.05	32.00
PK	197.81M	38.02	43.50	-5.48	-14.38	3	Vertical	194	1.00	-	52.40	15.22	2.41	32.01
PK	488.81M	33.01	46.00	-12.99	-5.16	3	Vertical	360	1.50	-	38.17	23.18	3.94	32.28

Mode 4



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	30M	29.04	40.00	-10.96	-6.41	3	Horizontal	83	1.25	-	35.45	24.11	1.02	31.54
PK	52.31M	31.68	40.00	-8.32	-17.24	3	Horizontal	173	1.00	-	48.92	13.36	1.28	31.88
PK	83.35M	31.92	40.00	-8.08	-16.80	3	Horizontal	231	2.00	"Worst"	48.72	13.54	1.57	31.91
PK	195.87M	33.93	43.50	-9.57	-14.44	3	Horizontal	253	1.50	-	48.37	15.18	2.39	32.01
PK	399.57M	34.50	46.00	-11.50	-7.03	3	Horizontal	116	1.00	-	41.53	21.59	3.55	32.17
PK	490.75M	34.64	46.00	-11.36	-5.13	3	Horizontal	151	1.00	-	39.77	23.20	3.95	32.28

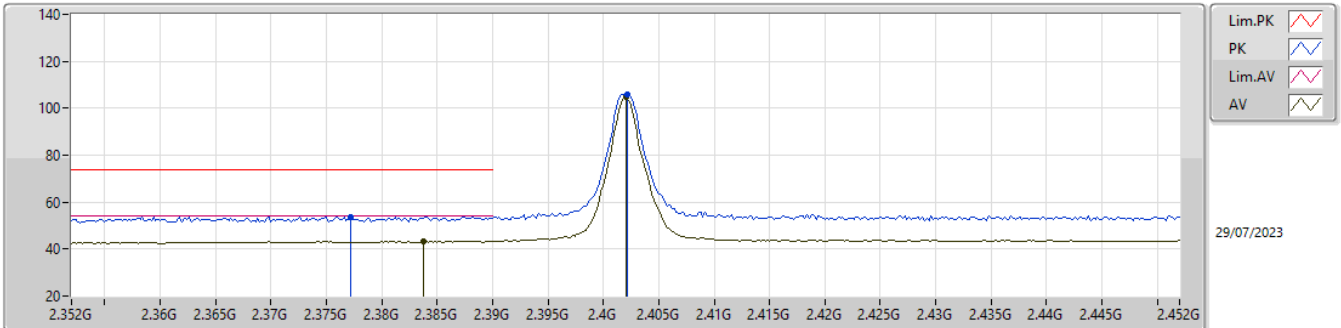


Summary

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-LE(2Mbps)	Pass	AV	2.4835G	53.97	54.00	-0.03	3	Horizontal	336	2.03	-

2.4-2.4835GHz\_BT-LE(1Mbps)

2402MHz\_TX



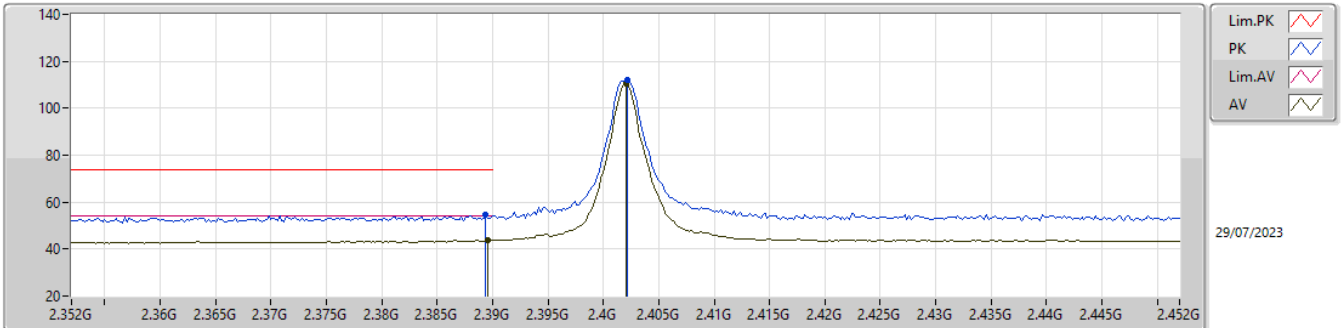
EUTY\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3772G	53.78	74.00	-20.22	23.03	3	Vertical	124	3.00	-	27.56	3.19	-
AV	2.3838G	43.45	54.00	-10.55	12.66	3	Vertical	124	3.00	-	27.60	3.19	-
PK	2.4022G	106.10	Inf	-Inf	75.20	3	Vertical	124	3.00	-	27.70	3.20	-
AV	2.402G	104.69	Inf	-Inf	73.79	3	Vertical	124	3.00	-	27.70	3.20	-



2.4-2.4835GHz\_BT-LE(1Mbps)

2402MHz\_TX

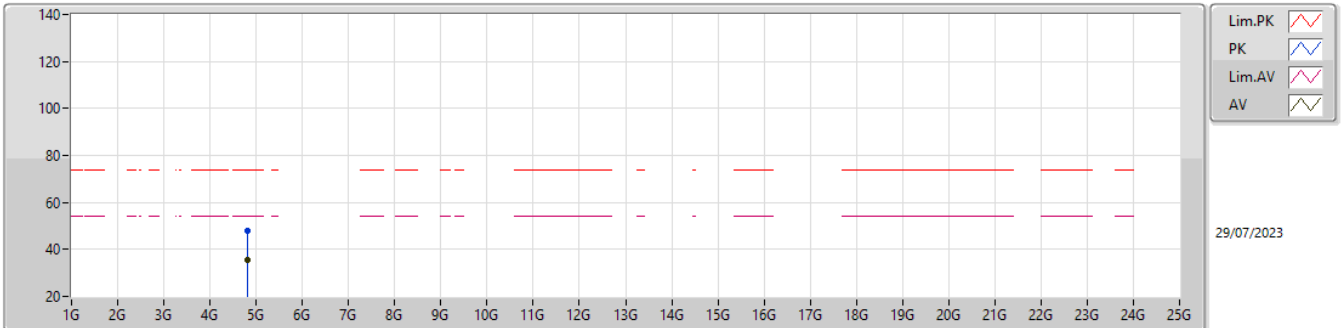


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3894G	54.46	74.00	-19.54	23.63	3	Horizontal	45	2.43	-	27.64	3.19	-
AV	2.3896G	43.76	54.00	-10.24	12.93	3	Horizontal	45	2.43	-	27.64	3.19	-
PK	2.4022G	111.87	Inf	-Inf	80.97	3	Horizontal	45	2.43	-	27.70	3.20	-
AV	2.402G	110.48	Inf	-Inf	79.58	3	Horizontal	45	2.43	-	27.70	3.20	-

2.4-2.4835GHz\_BT-LE(1Mbps)

2402MHz\_TX

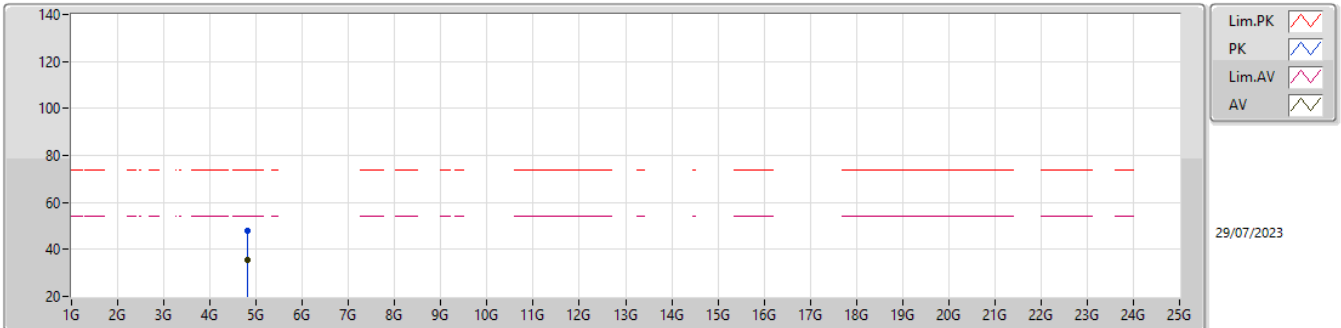


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.80504G	47.82	74.00	-26.18	42.58	3	Vertical	303	2.33	-	32.61	5.30	32.67
AV	4.80708G	35.33	54.00	-18.67	30.09	3	Vertical	303	2.33	-	32.61	5.30	32.67

2.4-2.4835GHz\_BT-LE(1Mbps)

2402MHz\_TX

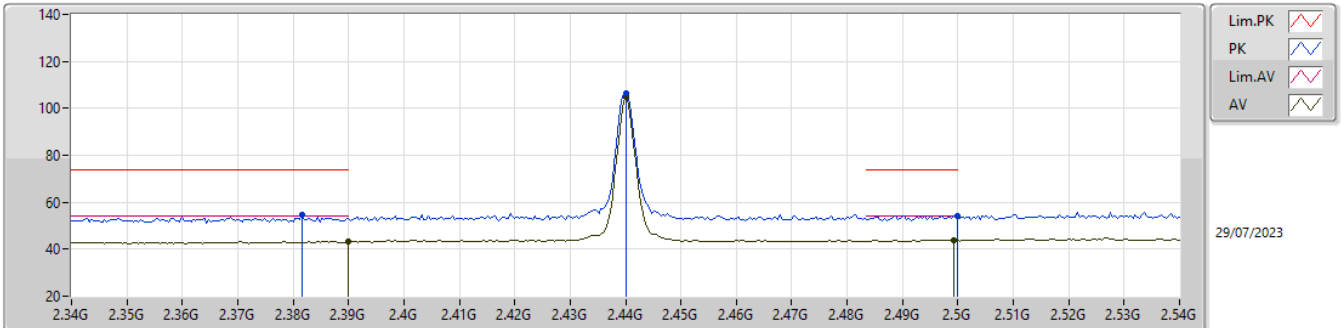


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.80414G	47.74	74.00	-26.26	42.50	3	Horizontal	256	1.95	-	32.61	5.30	32.67
AV	4.80522G	35.46	54.00	-18.54	30.22	3	Horizontal	256	1.95	-	32.61	5.30	32.67

2.4-2.4835GHz\_BT-LE(1Mbps)

2440MHz\_TX

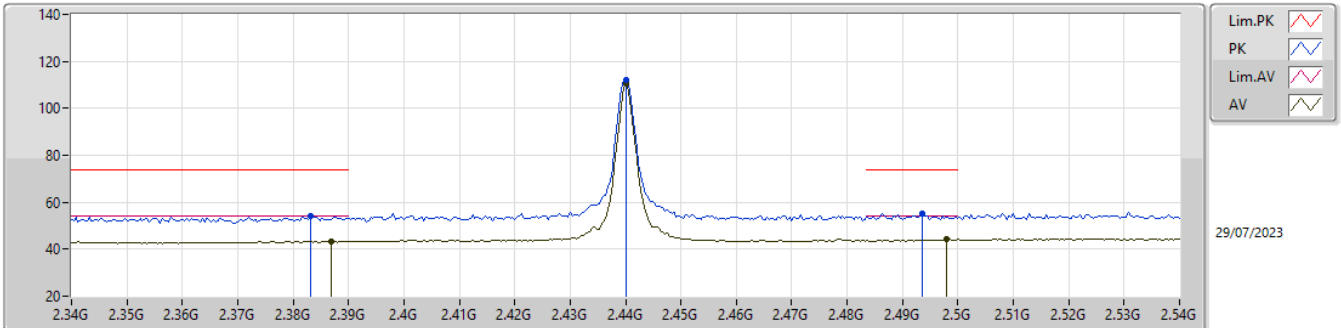


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3816G	54.55	74.00	-19.45	23.77	3	Vertical	123	2.64	-	27.59	3.19	-
AV	2.39G	43.30	54.00	-10.70	12.46	3	Vertical	123	2.64	-	27.64	3.20	-
PK	2.44G	106.43	Inf	-Inf	75.49	3	Vertical	123	2.64	-	27.70	3.24	-
AV	2.44G	105.08	Inf	-Inf	74.14	3	Vertical	123	2.64	-	27.70	3.24	-
PK	2.5G	54.19	74.00	-19.81	22.99	3	Vertical	123	2.64	-	27.90	3.30	-
AV	2.4992G	43.98	54.00	-10.02	12.78	3	Vertical	123	2.64	-	27.90	3.30	-

2.4-2.4835GHz\_BT-LE(1Mbps)

2440MHz\_TX

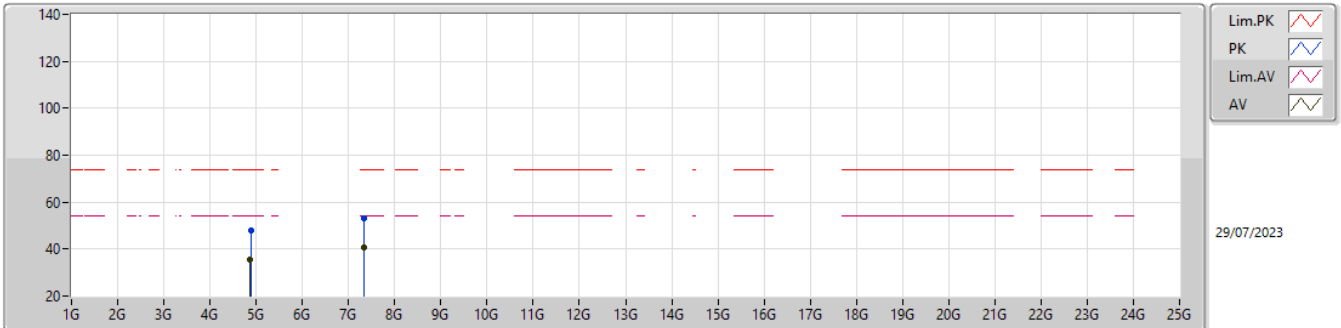


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3832G	53.91	74.00	-20.09	23.12	3	Horizontal	34	1.68	-	27.60	3.19	-
AV	2.3868G	43.30	54.00	-10.70	12.49	3	Horizontal	34	1.68	-	27.62	3.19	-
PK	2.44G	111.87	Inf	-Inf	80.93	3	Horizontal	34	1.68	-	27.70	3.24	-
AV	2.44G	110.41	Inf	-Inf	79.47	3	Horizontal	34	1.68	-	27.70	3.24	-
PK	2.4936G	55.32	74.00	-18.68	24.16	3	Horizontal	34	1.68	-	27.87	3.29	-
AV	2.498G	44.37	54.00	-9.63	13.18	3	Horizontal	34	1.68	-	27.89	3.30	-

2.4-2.4835GHz\_BT-LE(1Mbps)

2440MHz\_TX

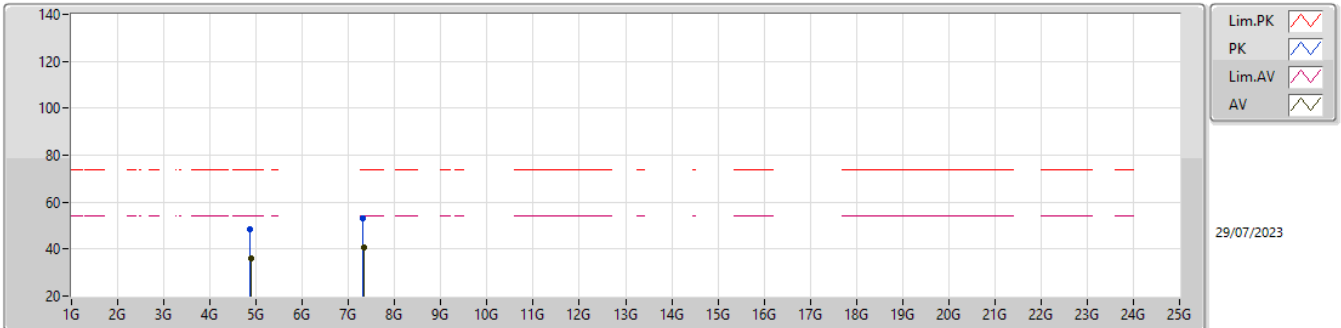


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87816G	48.10	74.00	-25.90	42.54	3	Vertical	300	2.20	-	32.76	5.30	32.50
AV	4.87624G	35.73	54.00	-18.27	30.18	3	Vertical	300	2.20	-	32.75	5.30	32.50
PK	7.32244G	53.10	74.00	-20.90	42.58	3	Vertical	219	2.51	-	37.70	6.92	34.10
AV	7.32436G	40.76	54.00	-13.24	30.24	3	Vertical	219	2.51	-	37.70	6.92	34.10

2.4-2.4835GHz\_BT-LE(1Mbps)

2440MHz\_TX

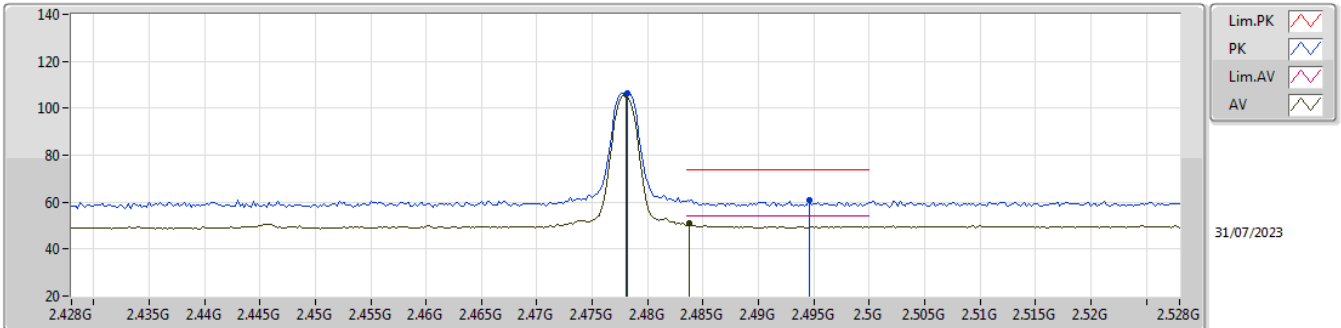


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87652G	48.40	74.00	-25.60	42.85	3	Horizontal	26	2.38	-	32.75	5.30	32.50
AV	4.87908G	35.88	54.00	-18.12	30.32	3	Horizontal	26	2.38	-	32.76	5.30	32.50
PK	7.31718G	52.87	74.00	-21.13	42.35	3	Horizontal	65	1.37	-	37.70	6.92	34.10
AV	7.32414G	40.88	54.00	-13.12	30.36	3	Horizontal	65	1.37	-	37.70	6.92	34.10

2.4-2.4835GHz\_BT-LE(1Mbps)

2478MHz\_TX



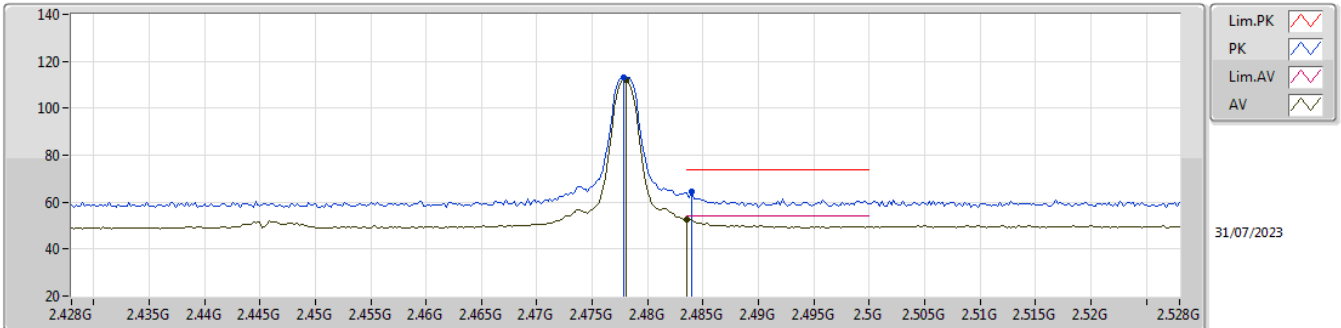
EUT\_Y\_1TX  
Setting 200  
02-L-W-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4782G	106.48	Inf	-Inf	74.74	3	Vertical	360	2.77	-	28.50	3.24	-
AV	2.478G	105.67	Inf	-Inf	73.93	3	Vertical	360	2.77	-	28.50	3.24	-
PK	2.4946G	61.08	74.00	-12.92	29.28	3	Vertical	360	2.77	-	28.55	3.25	-
AV	2.4838G	50.78	54.00	-3.22	19.04	3	Vertical	360	2.77	-	28.50	3.24	-



2.4-2.4835GHz\_BT-LE(1Mbps)

2478MHz\_TX

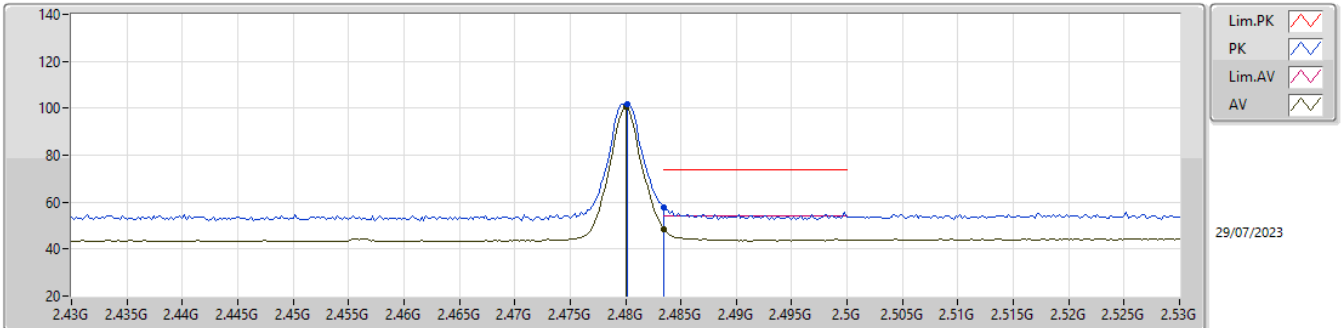


EUT Y\_1TX  
Setting 200  
02-L-W-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4778G	113.11	Inf	-Inf	81.37	3	Horizontal	42	2.13	-	28.50	3.24	-
AV	2.478G	112.31	Inf	-Inf	80.57	3	Horizontal	42	2.13	-	28.50	3.24	-
PK	2.484G	64.50	74.00	-9.50	32.76	3	Horizontal	42	2.13	-	28.50	3.24	-
AV	2.4835G	52.84	54.00	-1.16	21.10	3	Horizontal	42	2.13	-	28.50	3.24	-

2.4-2.4835GHz\_BT-LE(1Mbps)

2480MHz\_TX

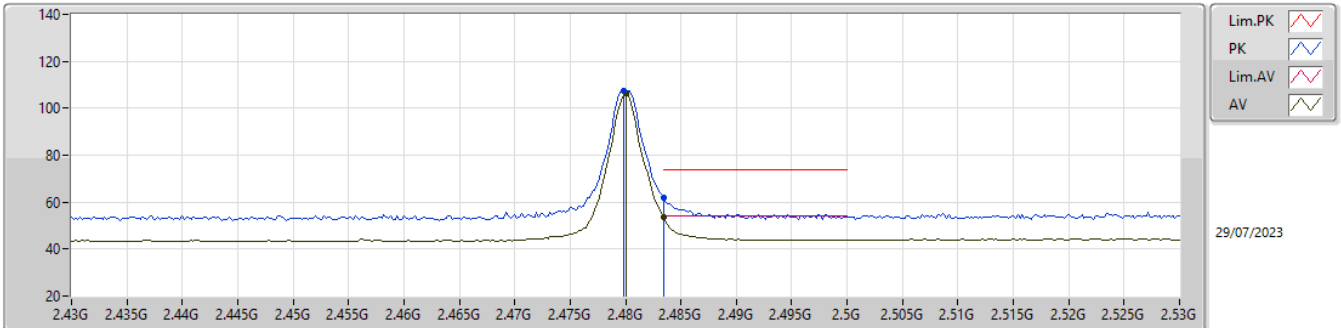


EUT\_Y\_1TX  
Setting 170  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4802G	101.94	Inf	-Inf	70.84	3	Vertical	129	2.83	-	27.82	3.28	-
AV	2.48G	100.61	Inf	-Inf	69.51	3	Vertical	129	2.83	-	27.82	3.28	-
PK	2.4835G	57.93	74.00	-16.07	26.82	3	Vertical	129	2.83	-	27.83	3.28	-
AV	2.4835G	48.54	54.00	-5.46	17.43	3	Vertical	129	2.83	-	27.83	3.28	-

2.4-2.4835GHz\_BT-LE(1Mbps)

2480MHz\_TX

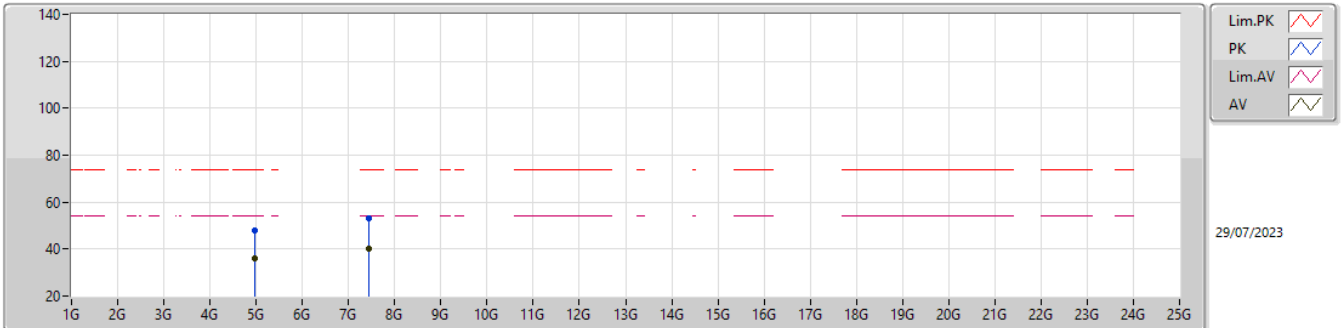


EUT\_Y\_1TX  
Setting 170  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4798G	107.46	Inf	-Inf	76.36	3	Horizontal	340	1.18	-	27.82	3.28	-
AV	2.48G	106.18	Inf	-Inf	75.08	3	Horizontal	340	1.18	-	27.82	3.28	-
PK	2.4835G	61.75	74.00	-12.25	30.64	3	Horizontal	340	1.18	-	27.83	3.28	-
AV	2.4835G	53.41	54.00	-0.59	22.30	3	Horizontal	340	1.18	-	27.83	3.28	-

2.4-2.4835GHz\_BT-LE(1Mbps)

2480MHz\_TX

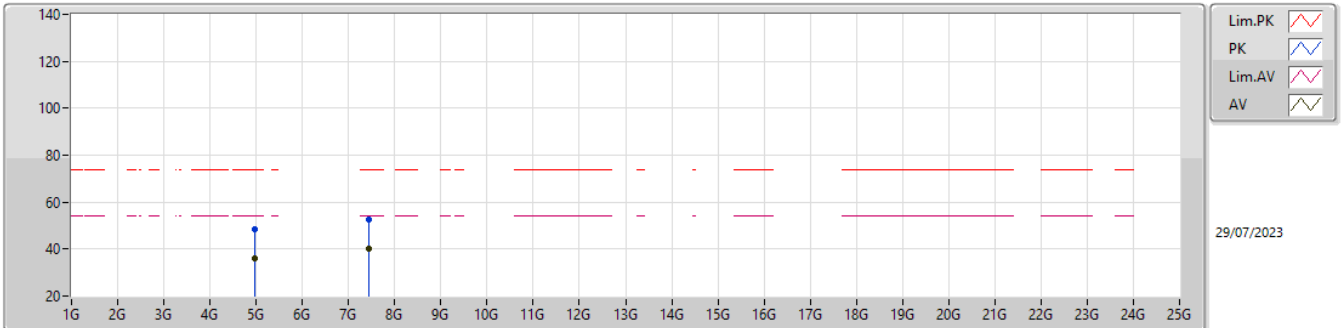


EUT\_Y\_1TX  
Setting 170  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.96144G	48.15	74.00	-25.85	42.23	3	Vertical	255	2.74	-	32.92	5.30	32.30
AV	4.96204G	35.93	54.00	-18.07	30.01	3	Vertical	255	2.74	-	32.92	5.30	32.30
PK	7.44088G	53.15	74.00	-20.85	42.86	3	Vertical	218	2.87	-	37.42	7.02	34.15
AV	7.44076G	40.22	54.00	-13.78	29.93	3	Vertical	218	2.87	-	37.42	7.02	34.15

2.4-2.4835GHz\_BT-LE(1Mbps)

2480MHz\_TX

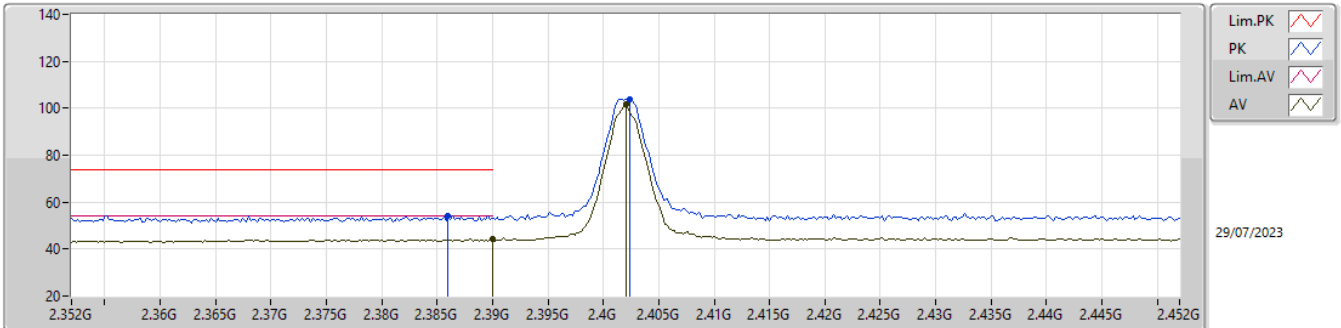


EUT\_Y\_1TX  
Setting 170  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.95838G	48.54	74.00	-25.46	42.63	3	Horizontal	339	1.85	-	32.92	5.30	32.31
AV	4.96164G	36.02	54.00	-17.98	30.10	3	Horizontal	339	1.85	-	32.92	5.30	32.30
PK	7.44002G	52.56	74.00	-21.44	42.27	3	Horizontal	101	2.48	-	37.42	7.02	34.15
AV	7.4421G	40.41	54.00	-13.59	30.12	3	Horizontal	101	2.48	-	37.42	7.02	34.15

2.4-2.4835GHz\_BT-LE(2Mbps)

2402MHz\_TX

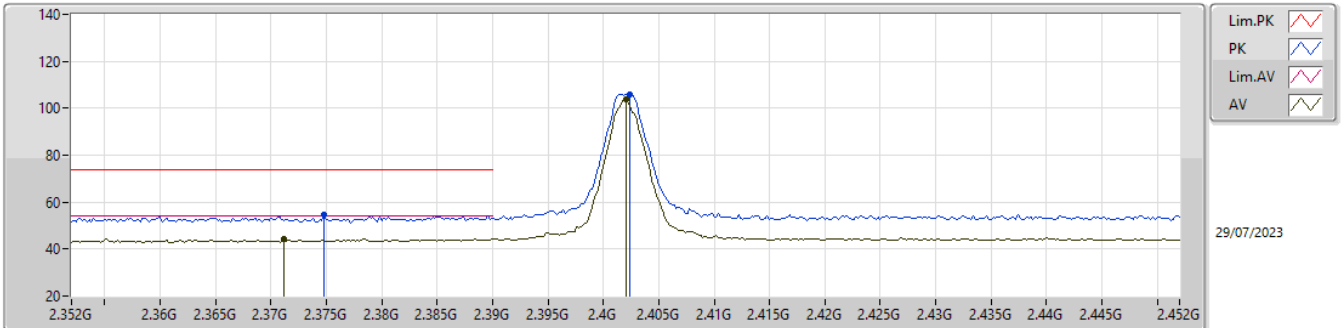


EUTY\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.386G	54.25	74.00	-19.75	23.44	3	Vertical	360	1.37	-	27.62	3.19	-
AV	2.39G	44.17	54.00	-9.83	13.33	3	Vertical	360	1.37	-	27.64	3.20	-
PK	2.4024G	103.89	Inf	-Inf	72.99	3	Vertical	360	1.37	-	27.70	3.20	-
AV	2.402G	101.64	Inf	-Inf	70.74	3	Vertical	360	1.37	-	27.70	3.20	-

2.4-2.4835GHz\_BT-LE(2Mbps)

2402MHz\_TX

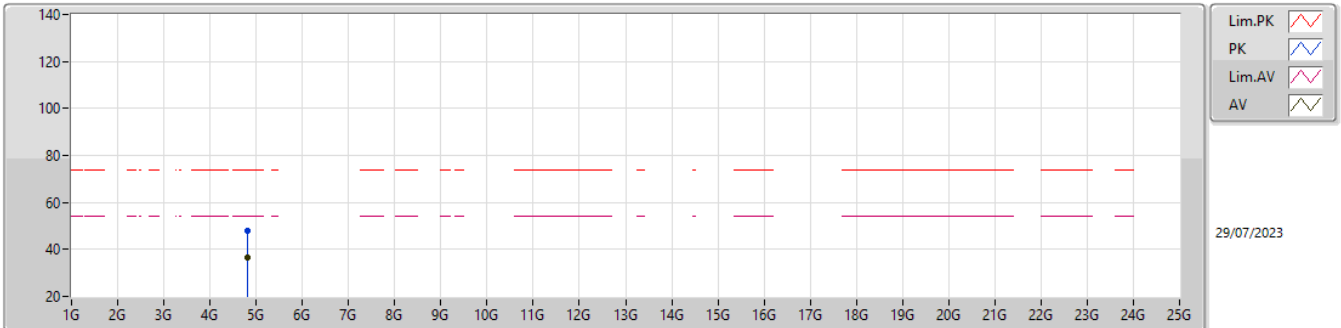


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3748G	54.50	74.00	-19.50	23.76	3	Horizontal	124	3.00	-	27.55	3.19	-
AV	2.3712G	44.19	54.00	-9.81	13.47	3	Horizontal	124	3.00	-	27.53	3.19	-
PK	2.4024G	106.08	Inf	-Inf	75.18	3	Horizontal	124	3.00	-	27.70	3.20	-
AV	2.402G	103.75	Inf	-Inf	72.85	3	Horizontal	124	3.00	-	27.70	3.20	-

2.4-2.4835GHz\_BT-LE(2Mbps)

2402MHz\_TX



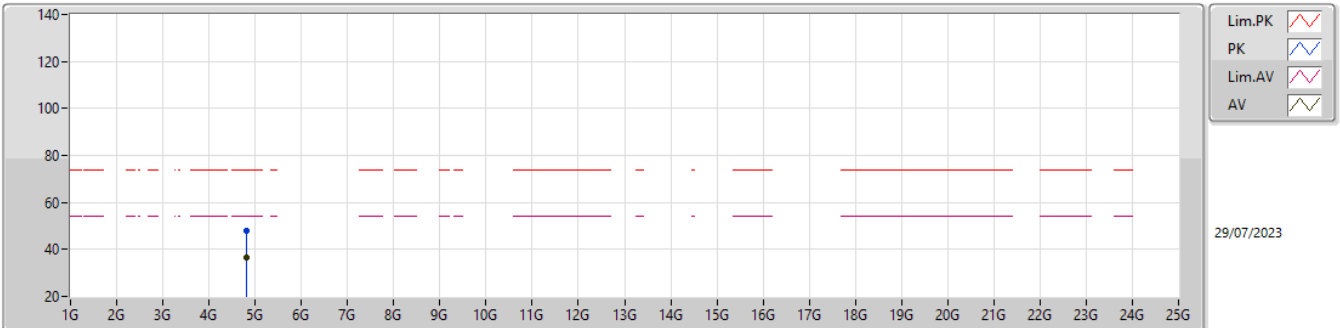
EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.80802G	48.10	74.00	-25.90	42.84	3	Vertical	205	2.06	-	32.62	5.30	32.66
AV	4.80468G	36.79	54.00	-17.21	31.55	3	Vertical	205	2.06	-	32.61	5.30	32.67



2.4-2.4835GHz\_BT-LE(2Mbps)

2402MHz\_TX

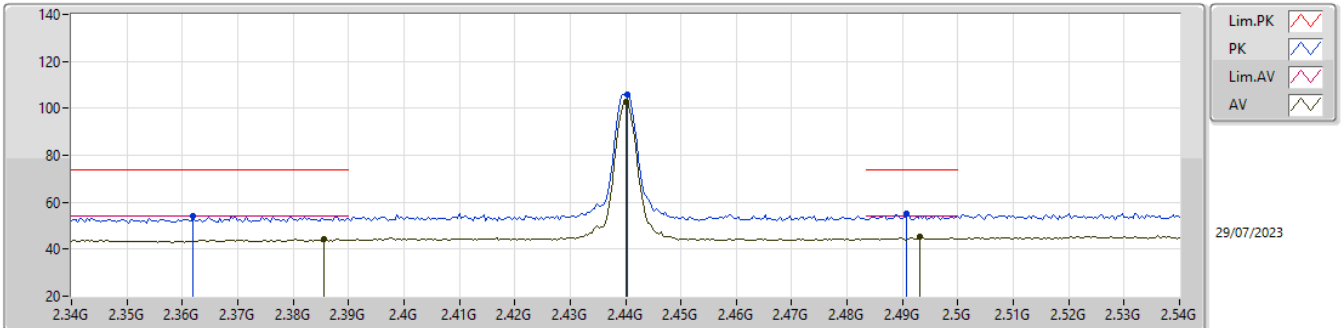


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.80572G	47.69	74.00	-26.31	42.45	3	Horizontal	357	1.01	-	32.61	5.30	32.67
AV	4.80882G	36.80	54.00	-17.20	31.54	3	Horizontal	357	1.01	-	32.62	5.30	32.66

2.4-2.4835GHz\_BT-LE(2Mbps)

2440MHz\_TX

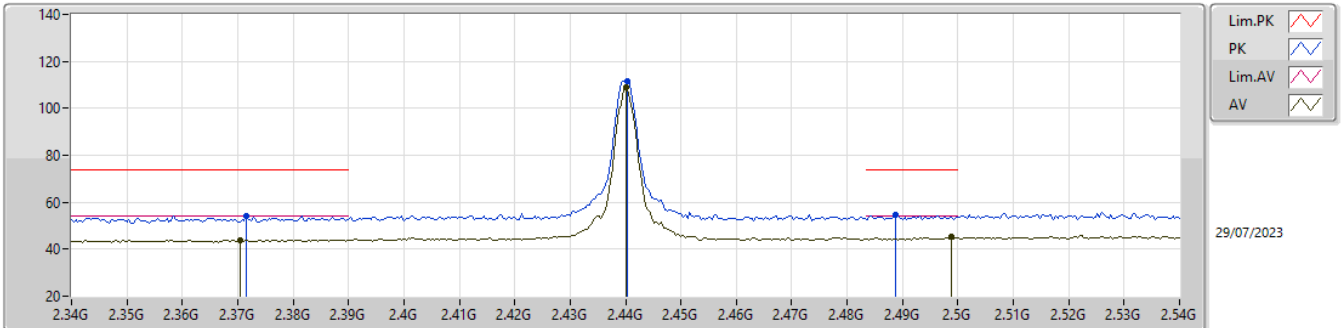


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.362G	53.97	74.00	-20.03	23.32	3	Vertical	124	2.66	-	27.47	3.18	-
AV	2.3856G	44.13	54.00	-9.87	13.33	3	Vertical	124	2.66	-	27.61	3.19	-
PK	2.4404G	105.80	Inf	-Inf	74.86	3	Vertical	124	2.66	-	27.70	3.24	-
AV	2.44G	103.01	Inf	-Inf	72.07	3	Vertical	124	2.66	-	27.70	3.24	-
PK	2.4908G	55.05	74.00	-18.95	23.90	3	Vertical	124	2.66	-	27.86	3.29	-
AV	2.4932G	45.16	54.00	-8.84	14.00	3	Vertical	124	2.66	-	27.87	3.29	-

2.4-2.4835GHz\_BT-LE(2Mbps)

2440MHz\_TX

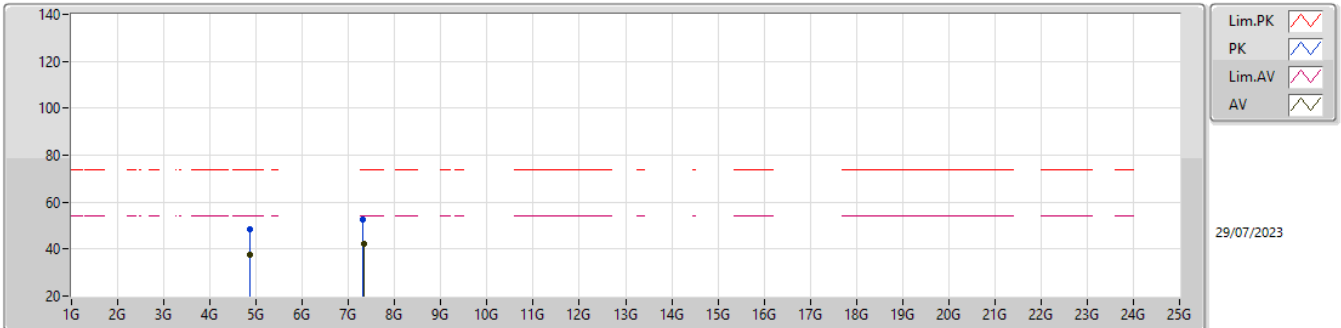


EUTY\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.3716G	54.00	74.00	-20.00	23.28	3	Horizontal	46	2.10	-	27.53	3.19	-
AV	2.3704G	43.98	54.00	-10.02	13.27	3	Horizontal	46	2.10	-	27.52	3.19	-
PK	2.4404G	111.58	Inf	-Inf	80.64	3	Horizontal	46	2.10	-	27.70	3.24	-
AV	2.44G	108.82	Inf	-Inf	77.88	3	Horizontal	46	2.10	-	27.70	3.24	-
PK	2.4888G	54.46	74.00	-19.54	23.31	3	Horizontal	46	2.10	-	27.86	3.29	-
AV	2.4988G	45.18	54.00	-8.82	13.98	3	Horizontal	46	2.10	-	27.90	3.30	-

2.4-2.4835GHz\_BT-LE(2Mbps)

2440MHz\_TX

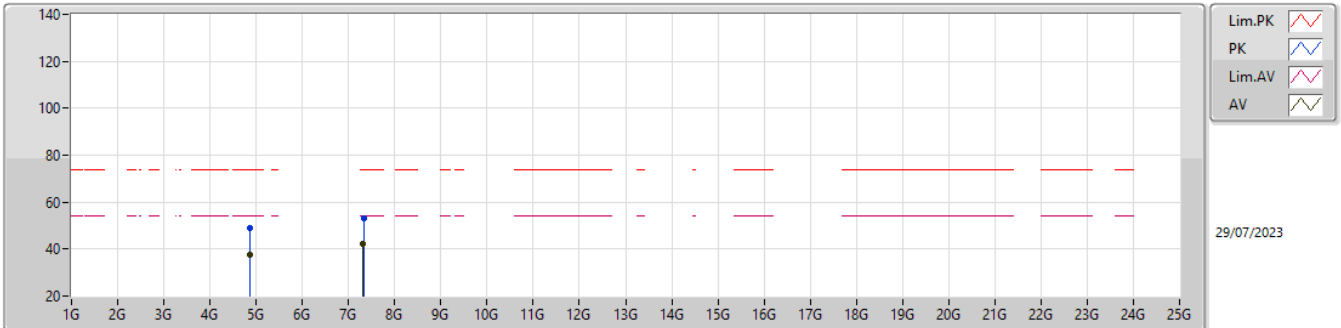


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.8766G	48.38	74.00	-25.62	42.83	3	Vertical	57	3.00	-	32.75	5.30	32.50
AV	4.8768G	37.33	54.00	-16.67	31.78	3	Vertical	57	3.00	-	32.75	5.30	32.50
PK	7.31502G	52.83	74.00	-21.17	42.31	3	Vertical	202	2.85	-	37.70	6.92	34.10
AV	7.32404G	42.07	54.00	-11.93	31.55	3	Vertical	202	2.85	-	37.70	6.92	34.10

2.4-2.4835GHz\_BT-LE(2Mbps)

2440MHz\_TX

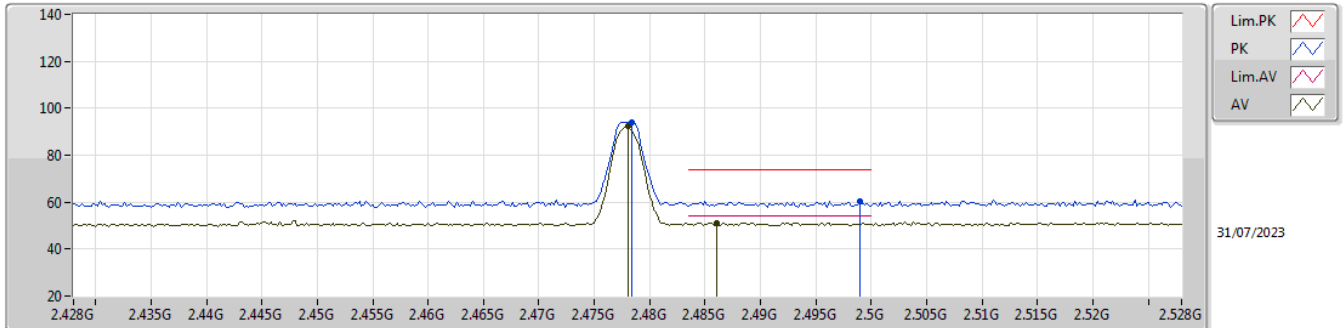


EUT\_Y\_1TX  
Setting 200  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.87562G	48.72	74.00	-25.28	43.17	3	Horizontal	260	2.30	-	32.75	5.30	32.50
AV	4.8769G	37.35	54.00	-16.65	31.80	3	Horizontal	260	2.30	-	32.75	5.30	32.50
PK	7.32252G	53.35	74.00	-20.65	42.83	3	Horizontal	210	2.44	-	37.70	6.92	34.10
AV	7.31648G	42.44	54.00	-11.56	31.92	3	Horizontal	210	2.44	-	37.70	6.92	34.10

2.4-2.4835GHz\_BT-LE(2Mbps)

2478MHz\_TX

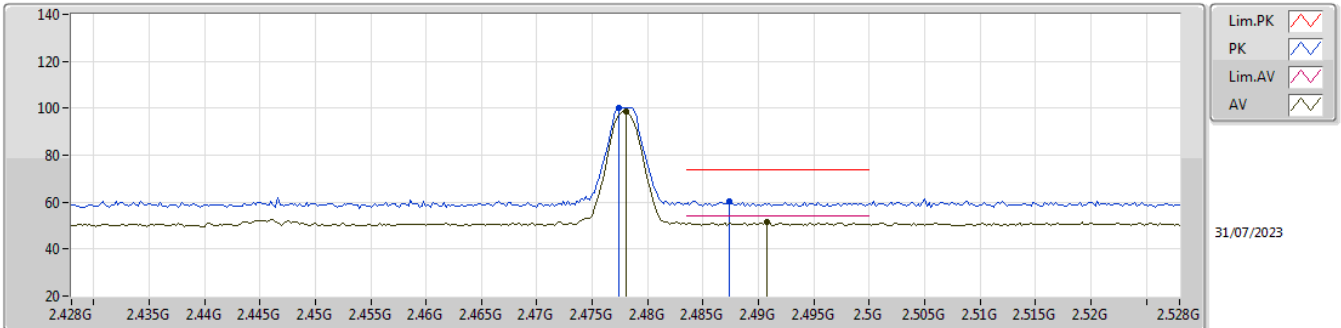


EUT\_Y\_1TX  
Setting 200  
02-L-W-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4784G	93.94	Inf	-Inf	62.20	3	Vertical	360	2.78	-	28.50	3.24	-
AV	2.478G	92.18	Inf	-Inf	60.44	3	Vertical	360	2.78	-	28.50	3.24	-
PK	2.499G	60.59	74.00	-13.41	28.75	3	Vertical	360	2.78	-	28.59	3.25	-
AV	2.486G	51.19	54.00	-2.81	19.45	3	Vertical	360	2.78	-	28.50	3.24	-

2.4-2.4835GHz\_BT-LE(2Mbps)

2478MHz\_TX

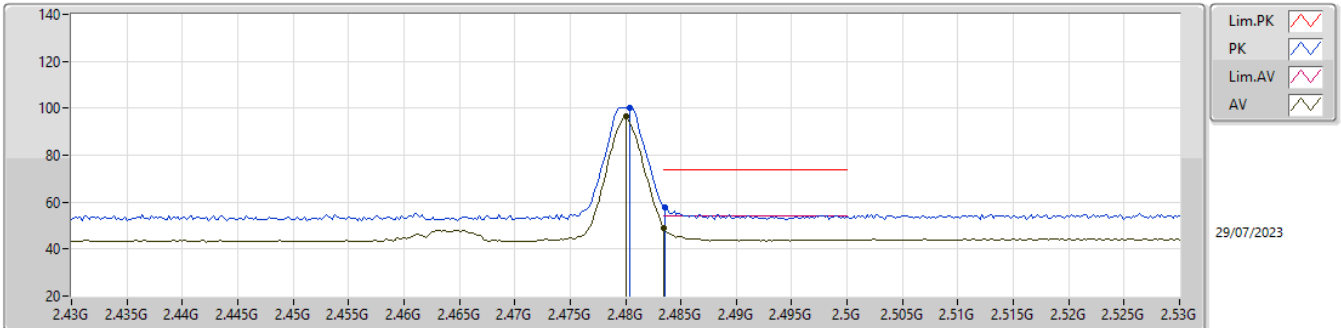


EUT Y\_1TX  
Setting 200  
02-L-W-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4774G	100.41	Inf	-Inf	68.67	3	Horizontal	42	2.14	-	28.50	3.24	-
AV	2.478G	98.77	Inf	-Inf	67.03	3	Horizontal	42	2.14	-	28.50	3.24	-
PK	2.4874G	60.56	74.00	-13.44	28.82	3	Horizontal	42	2.14	-	28.50	3.24	-
AV	2.4908G	51.41	54.00	-2.59	19.65	3	Horizontal	42	2.14	-	28.51	3.25	-

2.4-2.4835GHz\_BT-LE(2Mbps)

2480MHz\_TX



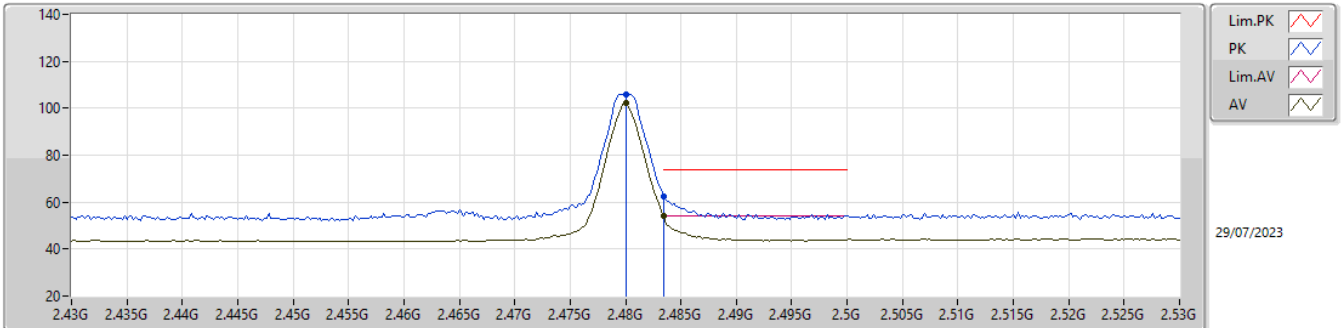
EUTY\_1TX  
Setting 160  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.4804G	100.37	Inf	-Inf	69.27	3	Vertical	128	2.84	-	27.82	3.28	-
AV	2.48G	96.60	Inf	-Inf	65.50	3	Vertical	128	2.84	-	27.82	3.28	-
PK	2.4836G	57.93	74.00	-16.07	26.82	3	Vertical	128	2.84	-	27.83	3.28	-
AV	2.4835G	49.21	54.00	-4.79	18.10	3	Vertical	128	2.84	-	27.83	3.28	-



2.4-2.4835GHz\_BT-LE(2Mbps)

2480MHz\_TX

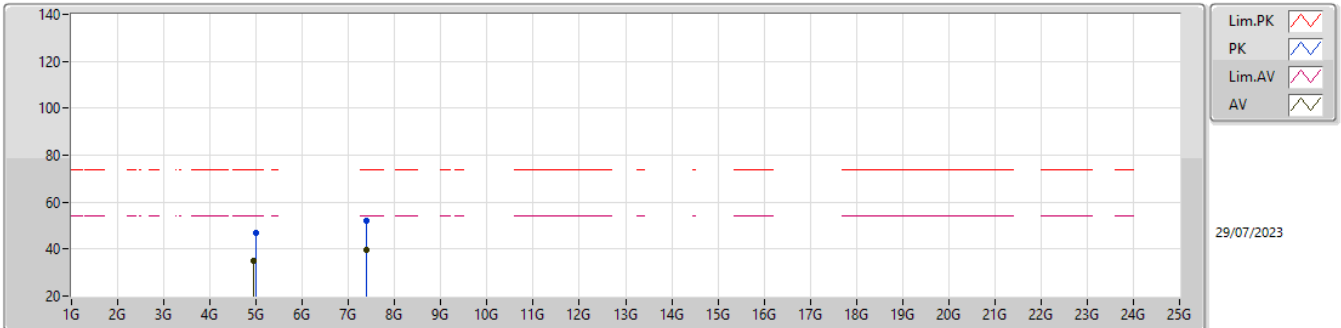


EUT\_Y\_1TX  
 Setting 160  
 04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	2.48G	105.85	Inf	-Inf	74.75	3	Horizontal	336	2.03	-	27.82	3.28	-
AV	2.48G	102.15	Inf	-Inf	71.05	3	Horizontal	336	2.03	-	27.82	3.28	-
PK	2.4835G	62.39	74.00	-11.61	31.28	3	Horizontal	336	2.03	-	27.83	3.28	-
AV	2.4835G	53.97	54.00	-0.03	22.86	3	Horizontal	336	2.03	-	27.83	3.28	-

2.4-2.4835GHz\_BT-LE(2Mbps)

2480MHz\_TX

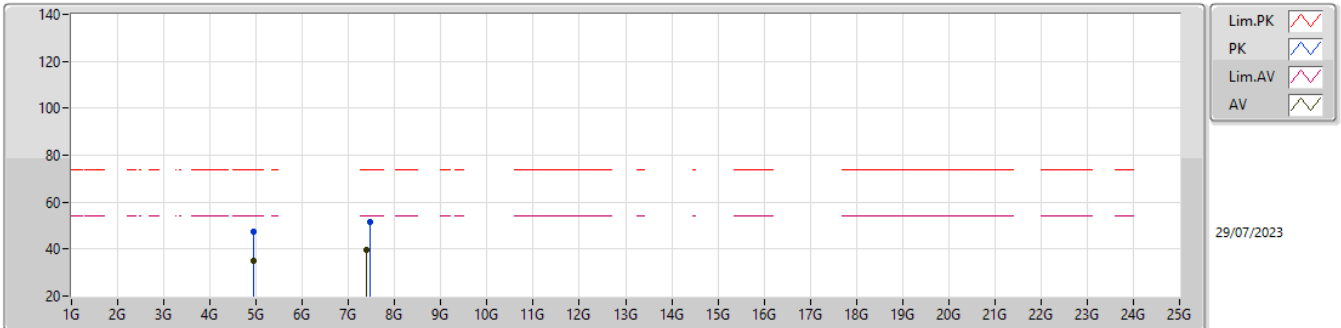


EUT\_Y\_1TX  
Setting 160  
04-H-R-5

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.9912G	46.74	74.00	-27.26	40.69	3	Vertical	226	1.51	-	32.98	5.30	32.23
AV	4.9454G	35.24	54.00	-18.76	29.39	3	Vertical	226	1.51	-	32.89	5.30	32.34
PK	7.392G	52.06	74.00	-21.94	41.67	3	Vertical	33	2.10	-	37.53	6.99	34.13
AV	7.3906G	39.73	54.00	-14.27	29.33	3	Vertical	33	2.10	-	37.54	6.99	34.13

2.4-2.4835GHz\_BT-LE(2Mbps)

2480MHz\_TX



EUT\_Y\_1TX  
Setting 160  
04-H-R-5

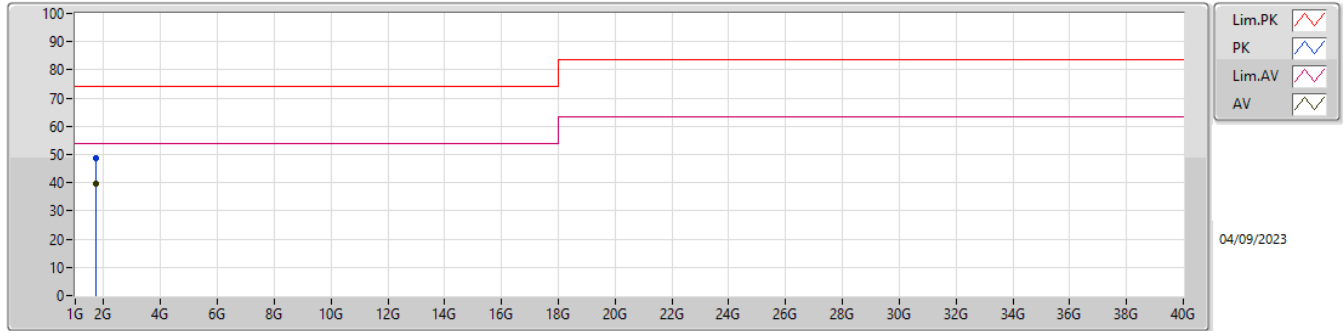
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)
PK	4.948G	47.39	74.00	-26.61	41.52	3	Horizontal	28	1.10	-	32.90	5.30	32.33
AV	4.9558G	35.19	54.00	-18.81	29.29	3	Horizontal	28	1.10	-	32.91	5.30	32.31
PK	7.4618G	51.45	74.00	-22.55	41.19	3	Horizontal	63	1.48	-	37.38	7.03	34.15
AV	7.391G	39.77	54.00	-14.23	29.37	3	Horizontal	63	1.48	-	37.54	6.99	34.13



**Summary**

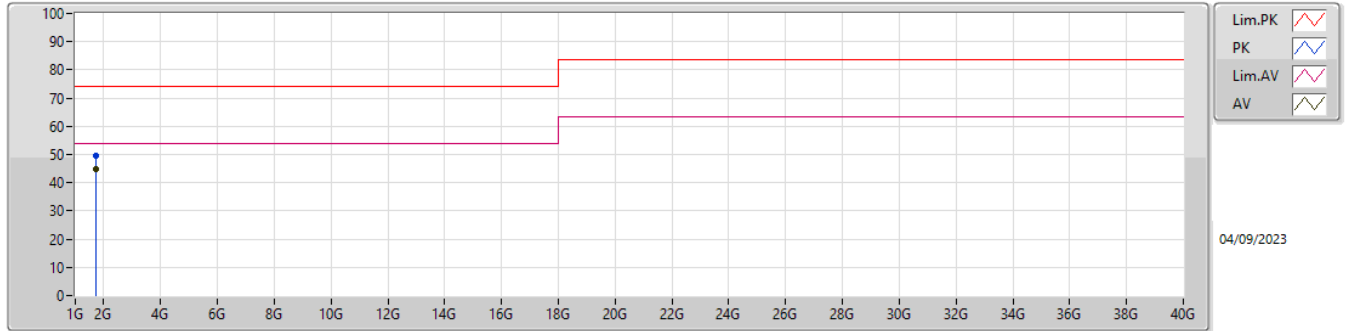
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 3	Pass	AV	1.71088G	44.88	54.00	-9.12	Horizontal

Mode 3



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	1.71148G	48.83	74.00	-25.17	-7.25	3	Vertical	223	1.80	-	56.08	25.35	3.21	35.81
AV	1.72332G	39.81	54.00	-14.19	-7.18	3	Vertical	223	1.80	"Worst"	46.99	25.39	3.22	35.79

Mode 3



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	1.7112G	49.49	74.00	-24.51	-7.26	3	Horizontal	308	1.80	-	56.75	25.34	3.21	35.81
AV	1.71088G	44.88	54.00	-9.12	-7.26	3	Horizontal	308	1.80	"Worst"	52.14	25.34	3.21	35.81