



RADIO TEST REPORT

FCC ID : LDKIW9167EH
Equipment : Cisco Catalyst IW9167E Heavy Duty Access Point
Brand Name : CISCO
Model Name : IW9167EH-B
Applicant : Cisco Systems Inc
125 West Tasman Drive San Jose California United States 95134-1706
Manufacturer : Cisco Systems Inc
125 West Tasman Drive San Jose California United States 95134-1706
Standard : 47 CFR FCC Part 15.247

The product was received on Aug. 11, 2022, and testing was started from Aug. 17, 2022 and completed on Dec. 15, 2022. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

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



Table of Contents

History of this test report.....3

Summary of Test Result.....4

1 General Description5

1.1 Information.....5

1.2 Applicable Standards14

1.3 Testing Location Information14

1.4 Measurement Uncertainty14

2 Test Configuration of EUT16

2.1 Test Channel Mode16

2.2 The Worst Case Measurement Configuration17

2.3 EUT Operation during Test20

2.4 Accessories20

2.5 Support Equipment.....20

2.6 Test Setup Diagram21

3 Transmitter Test Result24

3.1 AC Power-line Conducted Emissions24

3.2 DTS Bandwidth.....26

3.3 Maximum Conducted Output Power27

3.4 Power Spectral Density30

3.5 Emissions in Non-restricted Frequency Bands32

3.6 Emissions in Restricted Frequency Bands.....33

4 Test Equipment and Calibration Data38

Appendix A. Test Results of AC Power-line Conducted Emissions

Appendix B. Test Results of DTS Bandwidth

Appendix C. Test Results of Maximum Conducted Output Power

Appendix D. Test Results of Power Spectral Density

Appendix E. Test Results of Emissions in Non-restricted Frequency Bands

Appendix F. Test Results of Emissions in Restricted Frequency Bands

Appendix G. Test Results of Radiated Emission Co-location

Appendix H. Test Photos

Photographs of EUT v01



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	-

Declaration of Conformity:

1. The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to report "Measurement Uncertainty".

Comments and Explanations:

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: 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.	CISCO' s Brand Name	CISCO' s Model Name	Antenna Type	Connector	Gain (dBi)
	Manufacturer' s Brand Name	Manufacturer' s Model Name			
1	CISCO	AIR-ANT2480V-N=	Dipole	N Male	Note 1
	CUSHCRAFT	S2406BFCNM			
2	CISCO	AIR-ANT2413P2M-N=	Panel	N Male	
	PCTEL	07-1193-01			
3	CISCO	IW-ANT-OMM-53-N=	Monopole	N Female	
	MP Antenna	08-ANT-0985			
4	CISCO	AIR-ANT5180V-N=	Dipole	N Male	
	Laird TECHNOLOGES	S4905WBCFNM			
5	CISCO	IW-ANT-PNL-59-N=	Panel	SMA Female	
	HUBER+SUHNER	1356.17.0076			
6	CISCO	IW-ANT-H90-510-N=	Horn	N Female	
	RF ELEMENTS	HG3-CC-S90			
7	CISCO	AIR-ANT5114P2M-N=	Panel	N Male	
	PCTEL	07-1192-01			
8	CISCO	IW-ANT-SKD-513-Q=	Patch	QMA Female	
	PCTEL	74-133202-01			
9	CISCO	IW-ANT-SKS-514-Q=	Patch	QMA Female	
	PCTEL	74-133201-01			
10	CISCO	FLMESH-HW-ANT-28	Panel	N Female	
	HUBER+SUHNER	1356.17.0023			
11	CISCO	AIR-ANT2547V-N=	Dipole	N Male	
	Laird TECHNOLOGES	OC24527-CS1			
12	CISCO	AIR-ANT2547VG-N=	Dipole	N Male	
	Laird TECHNOLOGES	OC24528-CS3			
13	CISCO	AIR-ANT2547VG-NS=	Dipole	N Male	
	Laird Connectivity	OC24528-CS4			
14	CISCO	AIR-ANT2568VG-N=	Dipole	N Male	
	Laird Connectivity	OCX24529-CS1			
15	CISCO	AIR-ANT2568VG-NS=	Dipole	N Male	
	Laird Connectivity	OCX24529-CS2			
16	CISCO	AIR-ANT2588P4M-NS=	Patch	N Female	
	Laird Connectivity	PDM24499-CS1			
17	CISCO	AIR-ANT2513P4M-N=	Patch	N Female	
	Laird Connectivity	PDM245115H-CS1			
18	CISCO	AIR-ANT2513P4M-NS=	Patch	N Female	
	Laird Connectivity	PDM245115H-CS2			
19	CISCO	IW-ANT-OMV-2567-N	Dipole	N Male	
	TE connectivity	OCX24688-CS1			
20	CISCO	IW-ANT-OMH-2567-N	Dipole	N Male	
	TE connectivity	OCX24688H-CS1			
21	CISCO	ANT-GNSS-OUT-TNC=	Patch	TNC Male	
	Pulse	W4053T4572			



Set.	Port						
	WLAN 2.4GHz (Radio 1)	4.9GHz / 5GHz (Radio 1)	4.9GHz / 5GHz (Radio 2)	WLAN 2.4GHz (Scanning Radio 3)	WLAN 5GHz (Scanning Radio 3)	BT (Radio 4)	GPS (Radio 5)
1	-	-	-	-	-	-	-
2	1	-	-	1	-	-	-
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-
	4	-	-	-	-	1	-
3	-	4	1	-	2	-	-
	-	3	2	-	1	-	-
	-	2	3	-	-	-	-
	-	1	4	-	-	-	-
4	-	-	-	-	-	-	
5	-	-	-	-	-	-	
6	-	-	-	-	-	-	
7	-	-	-	-	-	-	
8	-	-	-	-	-	-	
9	-	4	1	-	-	-	-
	-	3	2	-	-	-	-
	-	2	3	-	-	-	-
	-	1	4	-	-	-	-
10	-	4	1	-	2	-	-
	-	3	2	-	1	-	-
	-	2	3	-	-	-	-
	-	1	4	-	-	-	-
11	1	-	-	1	-	-	-
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-
	4	-	-	-	-	1	-
12	-	-	-	-	-	-	
13	-	-	-	-	-	-	
14	-	-	-	-	-	-	
15	-	-	-	-	-	-	
16	-	-	-	-	-	-	
17	-	-	-	-	-	-	
18	-	-	-	-	-	-	
19	-	-	-	-	-	-	
20	-	-	-	-	-	-	
21	-	-	-	-	-	-	1



Note 1:

Set.	Antenna Gain (dBi)				Cable loss (dB)				Net Gain (dBi)			
	WLAN 2.4GHz (Radio 1) (Scanning Radio 3) BT (Radio 4)	5GHz (Radio 1) (Radio 2) (Scanning Radio 3)		GPS (Radio 5)	WLAN 2.4GHz (Radio 1) (Scanning Radio 3) BT (Radio 4)	5GHz (Radio 1) (Radio 2) (Scanning Radio 3)		GPS (Radio 5)	WLAN 2.4GHz (Radio 1) (Scanning Radio 3) BT (Radio 4)	5GHz (Radio 1) (Radio 2) (Scanning Radio 3)		GPS (Radio 5)
	2.4G / Bluetooth	UNII 1-3	4.9G	-	2.4G / Bluetooth	UNII 1-3	4.9G	-	2.4G / Bluetooth	UNII 1-3	4.9G	-
1	8	-	-	-	-	-	-	-	8	-	-	-
2	13	-	-	-	-	-	-	-	13	-	-	-
3	-	3	3	-	-	-	-	-	-	3	3	-
4	-	8	7	-	-	-	-	-	-	8	7	-
5	-	9	-	-	-	0.97	-	-	-	8.03	-	-
6	-	10	-	-	-	0.97	-	-	-	9.03	-	-
7	-	13	-	-	-	-	-	-	-	13	-	-
8	-	13	13	-	-	0.97	0.97	-	-	12.09	12.09	-
9	-	14	14	-	-	0.97	0.97	-	-	13.03	13.03	-
10	-	19.5	-	-	-	0.97	-	-	-	18.53	-	-
11	4	7	-	-	-	-	-	-	4	7	-	-
12	4	7	-	-	-	-	-	-	4	7	-	-
13	4	7	-	-	-	-	-	-	4	7	-	-
14	6	8	-	-	-	-	-	-	6	8	-	-
15	6	8	-	-	-	-	-	-	6	8	-	-
16	Vertical: 9.1 Horizontal: 7.1	Vertical: 9.6 Horizontal: 7.8	-	-	0.62	0.97	-	-	Vertical: 8.48 Horizontal: 6.48	Vertical: 8.63 Horizontal: 6.83	-	-
17	13	13	-	-	0.62	0.97	-	-	12.38	12.03	-	-
18	13	13	-	-	0.62	0.97	-	-	12.38	12.03	-	-
19	4	7	7	-	-	-	-	-	4	7	7	-
20	4	7	7	-	-	-	-	-	4	7	7	-
21	-	-	-	2.5	-	-	-	-	-	-	-	2.5



Set.	Point-to-Multipoint	Point-to-Point
1	Yes	No
2	Yes	Yes
3	Yes	No
4	Yes	No
5	Yes	Yes
6	Yes	Yes
7	Yes	Yes
8	Yes	Yes
9	Yes	Yes
10	Yes	Yes
11	Yes	No
12	Yes	No
13	Yes	No
14	Yes	No
15	Yes	No
16	Yes	No
17	Yes	Yes
18	Yes	Yes
19	Yes	No
20	Yes	No
21	-	-

Note 2: The above information was declared by manufacturer.

Note 3: There are 21 set antennas in the antenna table list.

The lowest and highest antenna gain was selected for the test and recorded in this report.

The antennas were selected as below:

For WLAN 2.4GHz/BT: Set 2, 11.

For WLAN 5GHz: Set 3, 10.

For 4.9GHz: Set 3, 9.



Note 4: 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	$Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} \mathcal{E}_{j,k} \right\}^2}{N_{ANT}} \right]$
BF	$Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} \mathcal{E}_{j,k} \right\}^2}{N_{ANT}} \right]$	$Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} \mathcal{E}_{j,k} \right\}^2}{N_{ANT}} \right]$

Ex.

Directional Gain (NSS1) formula :

$$Directional\ Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} \mathcal{E}_{j,k} \right\}^2}{N_{ANT}} \right]$$

$NSS1(g1,1) = 10^{G1/20}$; $NSS1(g1,2) = 10^{G2/20}$; $NSS1(g1,3) = 10^{G3/20}$; $NSS1(g1,4) = 10^{G4/20}$

$g_{j,k} = (Nss1(g1,1) + Nss1(g1,2) + Nss1(g1,3) + Nss1(g1,4))^2$

$DG = 10 \log[(Nss1(g1,1) + Nss1(g1,2) + Nss1(g1,3) + Nss1(g1,4))^2 / N_{ANT}] \Rightarrow 10$

$\log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / N_{ANT}]$

Where ;

2.4G G1 = 4 dBi; G2 = 4 dBi; G3 = 4 dBi; G4 = 4 dBi;

2TDG = 7.01 dBi 4TDG = 10.02 dBi

2.4G G1 = 13 dBi; G2 = 13 dBi; G3 = 13 dBi; G4 = 13 dBi;

2TDG = 16.01 dBi 4TDG = 19.02 dBi

5G G1 = 3 dBi; G2 = 3 dBi; G3 = 3 dBi; G4 = 3 dBi;

2TDG = 6.01 dBi 4TDG = 9.02 dBi

5G G1 = 18.53 dBi; G2 = 18.53 dBi; G3 = 18.53 dBi; G4 = 18.53 dBi;

2TDG = 18.53 dBi 4TDG = 21.54 dBi

4.9G G1 = 3 dBi; G2 = 3 dBi; G3 = 3 dBi; G4 = 3 dBi;

2TDG = 6.01 dBi 4TDG = 9.02 dBi

4.9G G1 = 13.03 dBi; G2 = 13.03 dBi; G3 = 13.03 dBi; G4 = 13.03 dBi;

2TDG = 16.04 dBi 4TDG = 19.05 dBi

For Iron Radio 1

For 2.4GHz:

For IEEE 802.11b/g/n/VHT/ax mode (1TX, 2TX, 4TX/4RX):

1TX

Only Port 1 can be use as transmitting antenna.

2TX

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.

4TX

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

4RX

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3, Port 4 could receive simultaneously.



For Iron 5GHz UNII 1~UNII 3 and 4.9GHz:

For IEEE 802.11a/n/ac/ax mode (1TX, 2TX, 4TX/4RX):

1TX

Only Port 1 can be use as transmitting antenna.

2TX

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.

4TX

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

4RX

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3, Port 4 could receive simultaneously.

For Pine Radio 2

For 5GHz UNII 1~UNII 3 and 4.9GHz:

For IEEE 802.11a/n/ac/ax mode (1TX, 2TX, 4TX/4RX):

1TX

Only Port 1 can be use as transmitting antenna.

2TX

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.

4TX

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

4RX

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3, Port 4 could receive simultaneously.

For Scanning Radio 3

For 2.4GHz:

For IEEE 802.11b/g/n/VHT/ax mode (1TX/1RX):

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

For 5GHz UNII 1~UNII 3:

For IEEE 802.11a/n/ac/ax mode (1TX/1RX):

The EUT supports the antenna with TX and RX diversity functions.

Both port 1 and port 2 support transmit and receive functions, but only one of them will be used at one time.

The port 1 generated the worst case, so it was selected to test and record in the report.

For Radio 4

Bluetooth (1TX/1RX):

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

For Radio 5

GPS (1RX):

Only Port 1 can be used as receiving antenna.



1.1.3 Mode Test Duty Cycle

For antenna set 11

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.684	1.65	428.125u	3k
BT-LE(2Mbps)	0.389	4.1	243.125u	10k

For antenna set 2

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.684	1.65	428.125u	3k
BT-LE(2Mbps)	0.388	4.11	242.5u	10k

Note:

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

1.1.4 EUT Operational Condition

EUT Power Type	From PoE / Power adapter / DC 48V			
Function	<input checked="" type="checkbox"/> Point-to-multipoint	<input type="checkbox"/> Point-to-point		
Test Software Version	QSPR (Version 5.0-00201)			
Supported Software Product IDs	IW9167EH-B - Industrial Wireless 9167 AP IW9167EH-B-AP - Wi-Fi mode IW9167EH-B-URWB - URWB mode IW9167EH-B-WGB - WGB mode IW9167EH-ROW - Industrial Wireless 9167 AP IW9167EH-ROW-AP - Wi-Fi mode IW9167EH-ROW-URWB - URWB mode IW9167EH-ROW-WGB - WGB mode			
Support Mode	<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.

1.1.5 Table for Multiple Listing

Function	Support Band
AP	2.4GHz, 5GHz, 4.9GHz
P2P/P2MP	2.4GHz, 5GHz, 4.9GHz

Note1: For above table list, only AP mode was tested and recorded in this test.

Note2: The above information was declared by manufacturer.



1.1.6 Table for Radio function

Radio (R)	WLAN 2.4GHz	5GHz UNII 1~UNII 3	4.9 GHz	Scanning radio (WLAN 2.4GHz / 5GHz UNII 1~UNII 3)	Bluetooth	GPS
R1 (Iron Radio)	V (AP: 20/ P2P/P2MP: 20)	V (AP: 20/40/80) (P2P/P2MP: 20/40/80)	V	-	-	-
R2 (Pine Radio)	-	V (AP: 20/40/80/160) (P2P/P2MP: 20/40/80/160)	V	-	-	-
R3 (Scanning Radio)	-	-	-	V (AP: 20/40/80/160) (P2P/P2MP: 20/40/80/160)	-	-
R4	-	-	-	-	V	-
R5	-	-	-	-	-	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 (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 (For other item tests)	TH02-CB	Jay Lo	22.5~23.8 / 55~61	Aug. 17, 2022~Nov. 29, 2022
Radiated below 1GHz (For cabinet test)	10CH01-CB	Ryan Huang	22~23 / 53~55	Nov. 02, 2022~Dec. 15, 2022
Radiated above 1GHz (For cabinet test)	03CH01-CB	Chris Lee	23.1~24.3 / 57~60	Sep. 26, 2022~Oct. 15, 2022
AC Conduction	CO01-CB	Tim Chen	23~24 / 56~57	Nov. 03, 2022~Dec. 14, 2022

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))

For 10CH01-CB

For Before Nov. 04, 2022

Test Items	Uncertainty	Remark
Radiated Emission (9kHz ~ 30MHz)	5.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.9 dB	Confidence levels of 95%

For After Nov. 03, 2022

Test Items	Uncertainty	Remark
Radiated Emission (9kHz ~ 30MHz)	5.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.4 dB	Confidence levels of 95%



For other Test Site No.

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Conducted Emission	3.2 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.2 dB	Confidence levels of 95%
Bandwidth Measurement	2.0 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

For Radio 4

For antenna set 11

Mode	Power Setting
BT-LE_Nss1_1TX	-
2402MHz	15
2440MHz	15
2478MHz	15
2480MHz	12
BT-LE2_Nss1_1TX	-
2402MHz	15
2440MHz	15
2478MHz	15
2480MHz	11

For antenna set 2

Mode	Power Setting
BT-LE_Nss1_1TX	-
2402MHz	9
2404MHz	13
2440MHz	13
2478MHz	13
2480MHz	6
BT-LE2_Nss1_1TX	-
2402MHz	10
2404MHz	15
2440MHz	15
2478MHz	15
2480MHz	3



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	CTX
1	EUT + Iron R1 : 2.4GHz + adapter
2	EUT + Iron R1 : 2.4GHz + PoE
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3~7 will follow this same test mode.	
3	EUT + Iron R1 : 5GHz + adapter
4	EUT + Pine R2 : 5GHz + adapter
5	EUT + Scanning R3 : 2.4GHz + adapter
6	EUT + Scanning R3 : 5GHz + adapter
7	EUT + R4 : Bluetooth + adapter
8	EUT + Iron R1 : 2.4GHz + Ethernet cable + DC 48V
9	EUT + Iron R1 : 2.4GHz + Ethernet cable + PoE
Mode 8 has been evaluated to be the worst case among Mode 8~9, thus measurement for Mode 10~14 will follow this same test mode.	
10	EUT + Iron R1 : 5GHz + Ethernet cable + DC 48V
11	EUT + Pine R2 : 5GHz + Ethernet cable + DC 48V
12	EUT + Scanning R3 : 2.4GHz + Ethernet cable + DC 48V
13	EUT + Scanning R3 : 5GHz + Ethernet cable + DC 48V
14	EUT + R4 : Bluetooth + Ethernet cable + DC 48V
For operating mode 6 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands Emissions in Restricted Frequency Bands above 1GHz
Test Condition	Conducted measurement at transmit chains
1	R4 : Bluetooth



The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands below 1GHz
Test Condition	Conducted measurement at transmit chains
1	Iron R1 : 2.4GHz
2	Iron R1 : 5GHz
3	Pine R2 : 5GHz
4	Scanning R3 : 2.4GHz
5	Scanning R3 : 5GHz
6	R4 : Bluetooth
For operating mode 3 is the worst case and it was record in this test report.	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement
Operating Mode < 1GHz	CTX (Cabinet)
	The EUT was performed at the X axis, Y axis, and Z axis position for Emissions in Restricted Frequency Bands above 1GHz test, and the worst case axis was found and listed below. So the measurement will follow this same test configuration.
1	EUT in Y axis + Iron R1 : 2.4GHz + adapter
2	EUT in Y axis + Iron R1 : 2.4GHz + PoE
Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3~7 will follow this same test mode.	
3	EUT in Y axis + Iron R1 : 5GHz + PoE
4	EUT in Y axis + Pine R2 : 5GHz + PoE
5	EUT in Y axis + Scanning R3 : 2.4GHz + PoE
6	EUT in Z axis + Scanning R3 : 5GHz + PoE
7	EUT in Y axis + R4 : Bluetooth + PoE
8	EUT in Y axis + Iron R1 : 2.4GHz + Ethernet cable + DC 48V
9	EUT in Y axis + Iron R1 : 2.4GHz + Ethernet cable + PoE
Mode 9 has been evaluated to be the worst case among Mode 8~9, thus measurement for Mode 10~14 will follow this same test mode.	
10	EUT in Y axis + Iron R1 : 5GHz + Ethernet cable + PoE
11	EUT in Y axis + Pine R2 : 5GHz + Ethernet cable + PoE
12	EUT in Y axis + Scanning R3 : 2.4GHz + Ethernet cable + PoE
13	EUT in Z axis + Scanning R3 : 5GHz + Ethernet cable + PoE



14	EUT in Y axis + R4 : Bluetooth + Ethernet cable + PoE
For operating mode 5 is the worst case and it was record in this test report.	
Operating Mode > 1GHz	CTX (Cabinet)
	The EUT was performed at the X axis, Y axis, and Z axis position, and the worst case axis was found and listed below. So the measurement will follow this same test configuration.
1	EUT in Y axis + R4 : Bluetooth

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Conducted Emission Co-location
Test Condition	Conducted measurement at transmit chains
Operating Mode	CTX
1	Iron R1 (2.4GHz) + Iron R1 (5GHz) + Scanning R3 (2.4GHz) + R4 (Bluetooth)
2	Iron R1 (2.4GHz) + Iron R1 (5GHz) + Scanning R3 (5GHz port 2) + R4 (Bluetooth)
3	Pine R2 (5GHz) + Scanning R3 (5GHz port 1)
Refer to Appendix G 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	Iron R1 (2.4GHz) + Iron R1 (4.9GHz / 5GHz) + Pine R2 (4.9GHz / 5GHz) + Scanning R3 (2.4GHz) + R4 (Bluetooth)
2	Iron R1 (2.4GHz) + Iron R1 (4.9GHz / 5GHz) + Pine R2 (4.9GHz / 5GHz) + Scanning R3 (5GHz port 2) + R4 (Bluetooth)
3	Iron R1 (2.4GHz) + Iron R1 (4.9GHz / 5GHz) + Pine R2 (4.9GHz / 5GHz) + Scanning R3 (5GHz port 1) + R4 (Bluetooth)
Refer to Sporton Test Report No.: FA281101 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:

Power	Brand	Model
Adapter	LITEON	PA-1600-1C
PoE	CISCO	POE075U-1BT-C



2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4 Accessories

Accessories
Sealing collar*3
Wall-mounted rack*2
Grounding wire*1, Non shielded, 0.8m
DC cable*1, Non shielded, 2.6m
DC cable connect*1
Ethernet cable*2, Shielded, 3m
Ethernet cable connect*2

2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E6430	N/A
B	Adapter	LITEON	PA-1600-1C	N/A

For Radiated (below 1GHz):

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	PoE	PHIHONG	POE075U-1BT-C	N/A
B	LAN NB	DELL	E6430	N/A

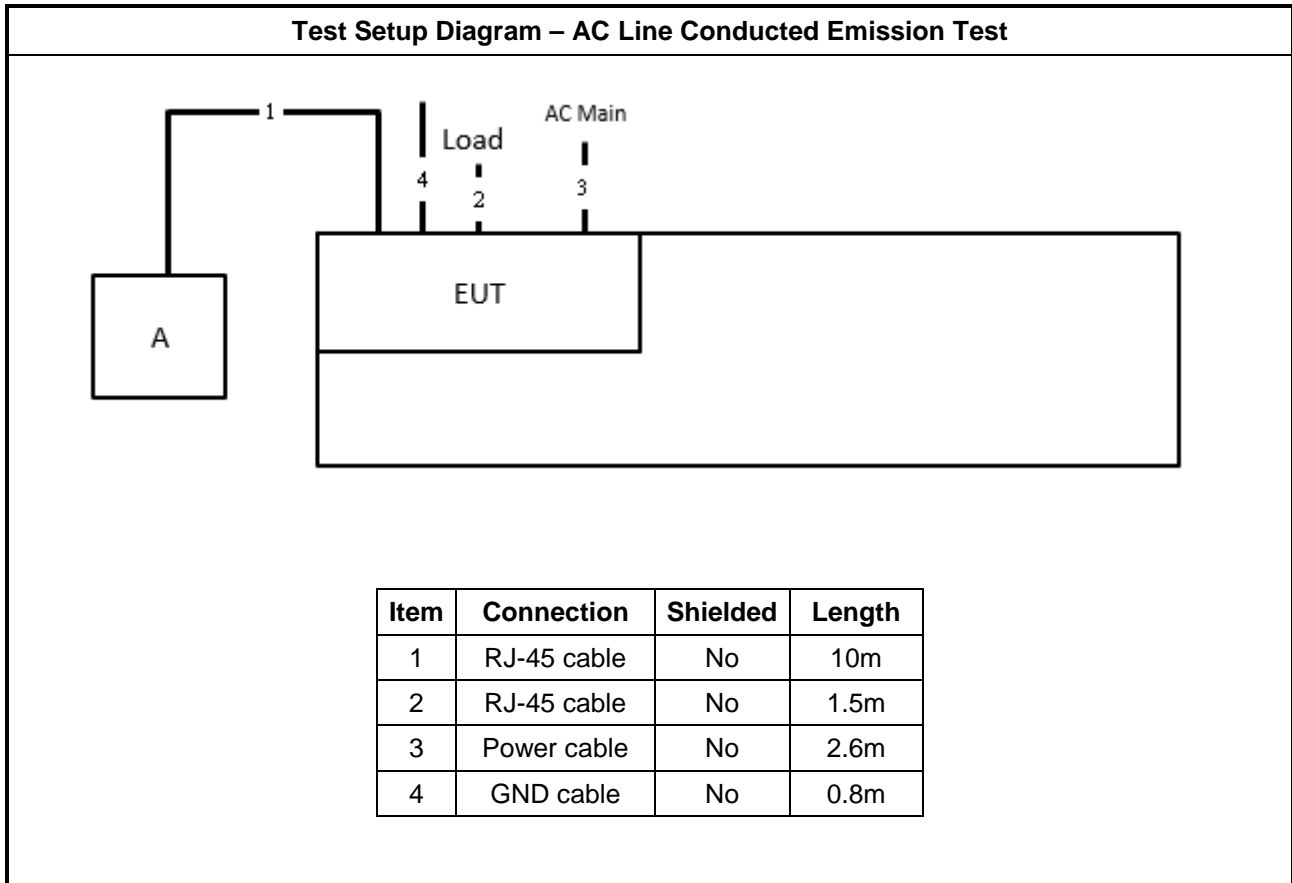
For Radiated (above 1GHz):

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	Adapter	LITEON	PA-1600-1C	N/A

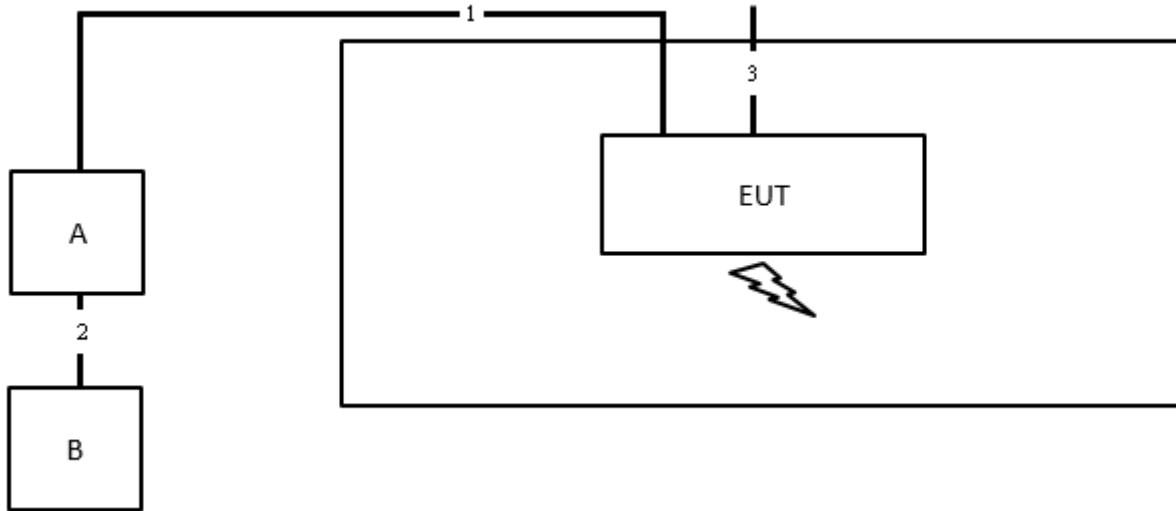
For RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	Adapter	LITEON	PA-1600-1C	N/A

2.6 Test Setup Diagram

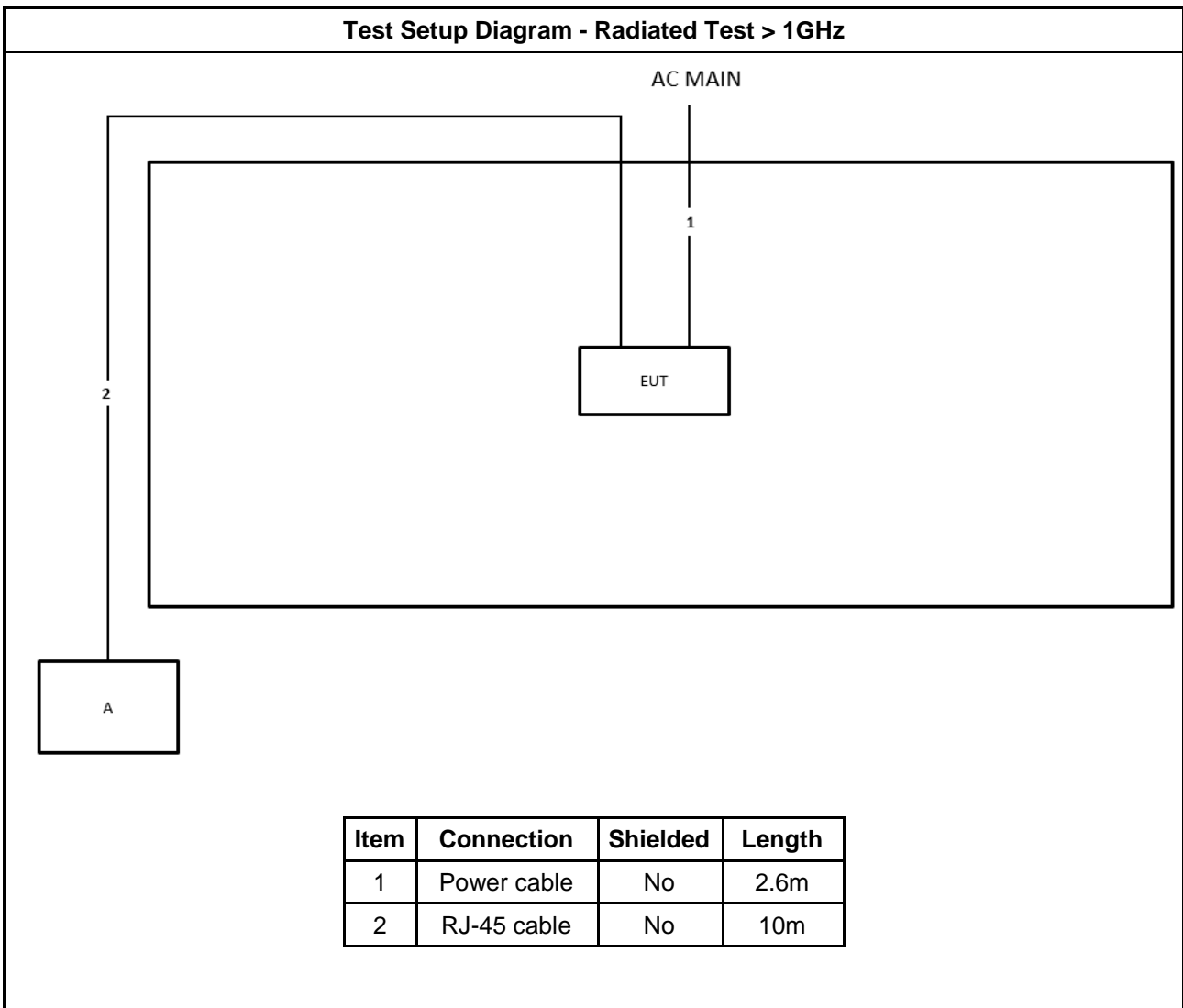


Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	3m
3	GND cable	No	0.8m

Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
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.

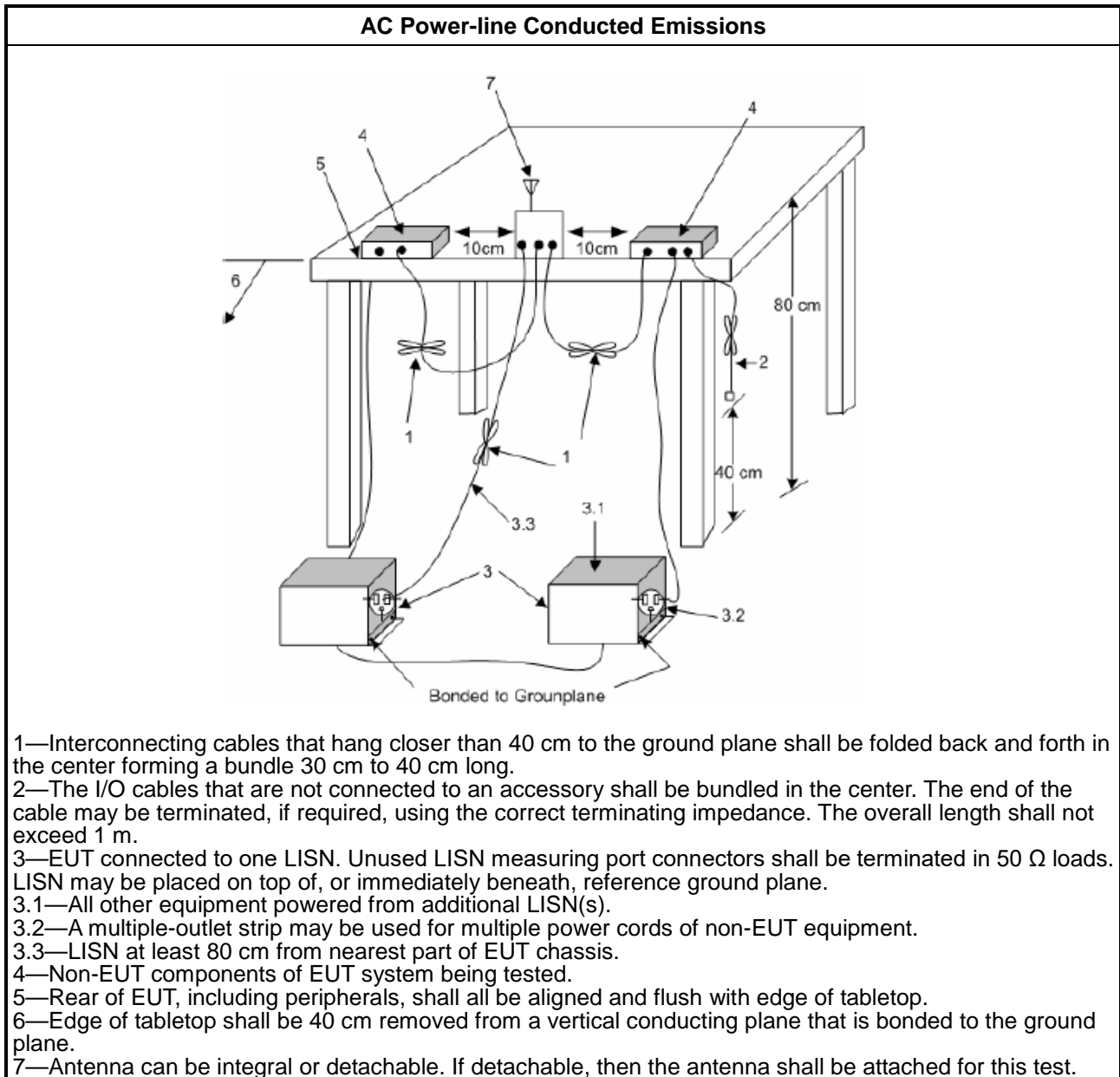
3.1.2 Measuring Instruments

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

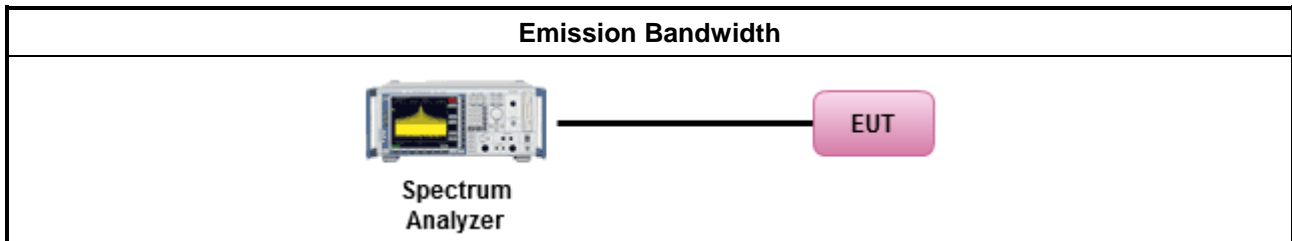
3.2.2 Measuring Instruments

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"> ▪ For the emission bandwidth shall be measured using one of the options below:
<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"> ▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS):
	<ul style="list-style-type: none"> - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
<p>P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.</p>	

3.3.2 Measuring Instruments

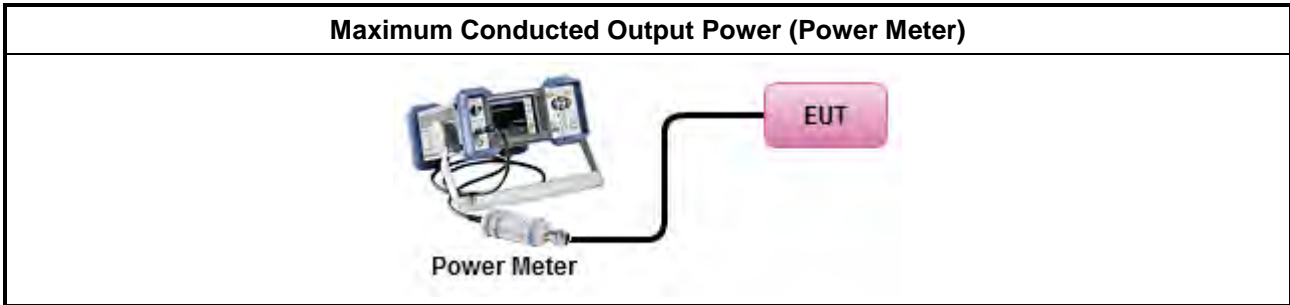
Refer a test equipment and calibration data table in this test report.



3.3.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ Maximum Peak Conducted Output Power 	
	<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"> ▪ Maximum Conducted Output Power 	
[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"> ▪ For conducted measurement. 	
<ul style="list-style-type: none"> ▪ 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. 	
<ul style="list-style-type: none"> ▪ If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$ 	

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"> Power Spectral Density (PSD) ≤ 8 dBm/3kHz

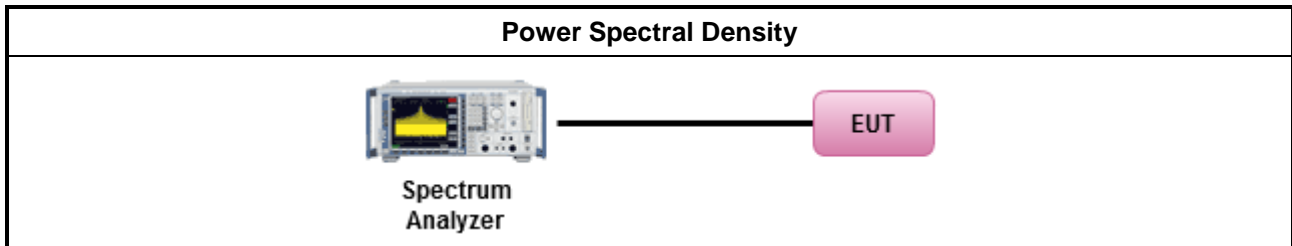
3.4.2 Measuring Instruments

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"> 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).
<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"> For conducted measurement.
<ul style="list-style-type: none"> If The EUT supports multiple transmit chains using options given below: <ul style="list-style-type: none"> <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. <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, <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.

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.

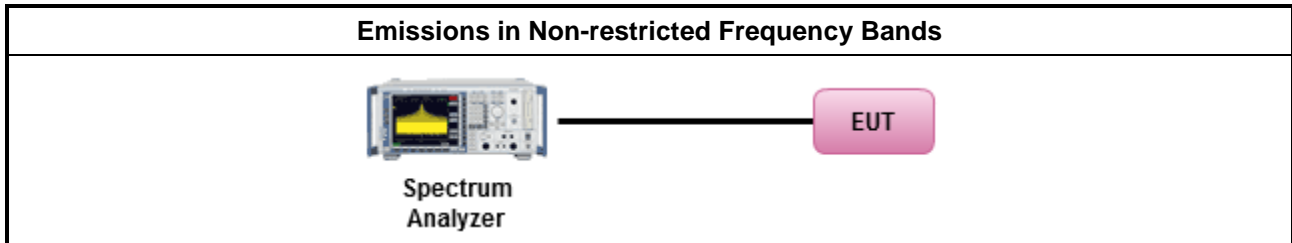
3.5.2 Measuring Instruments

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"> Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands.

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.



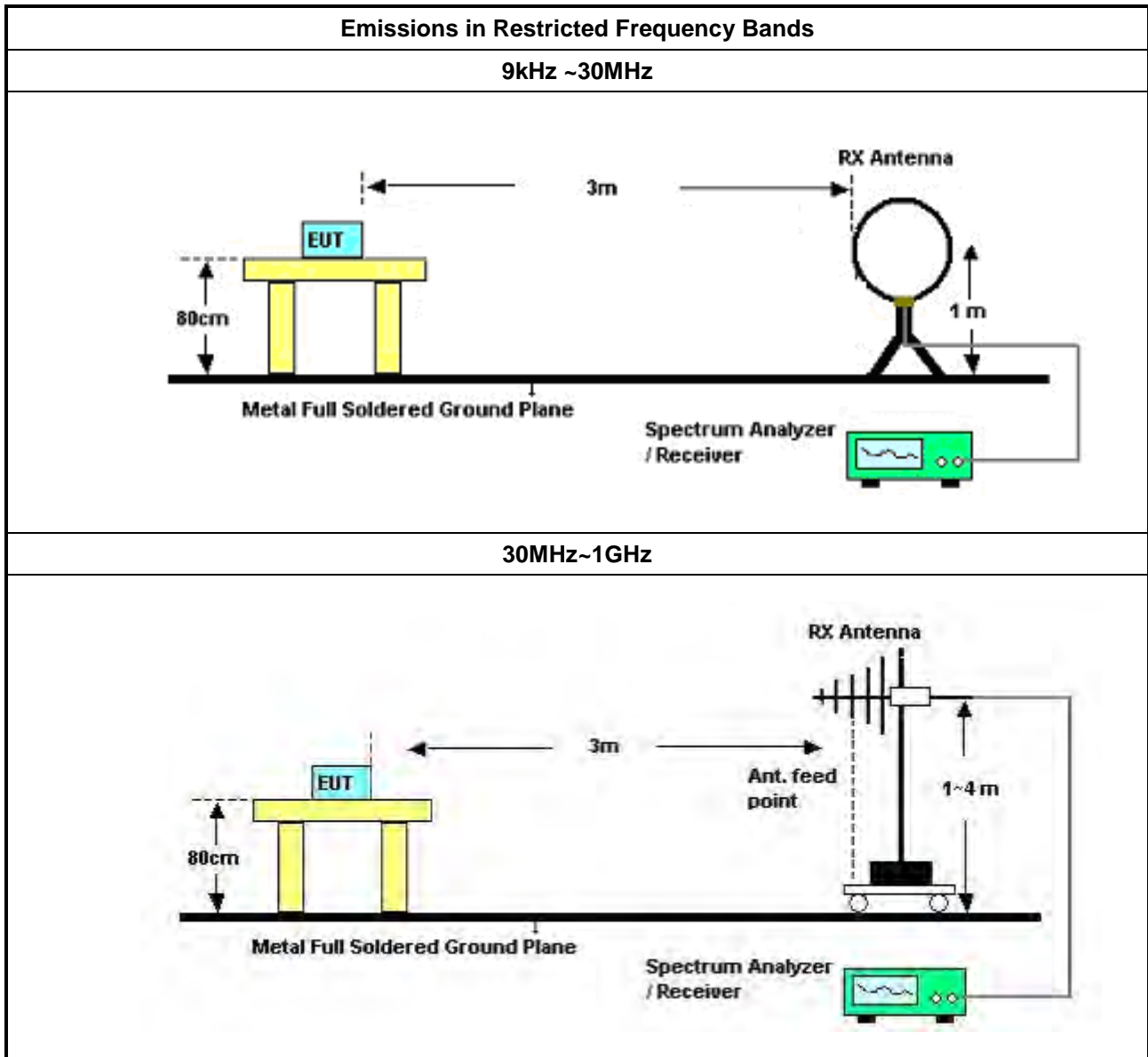
3.6.3 Test Procedures

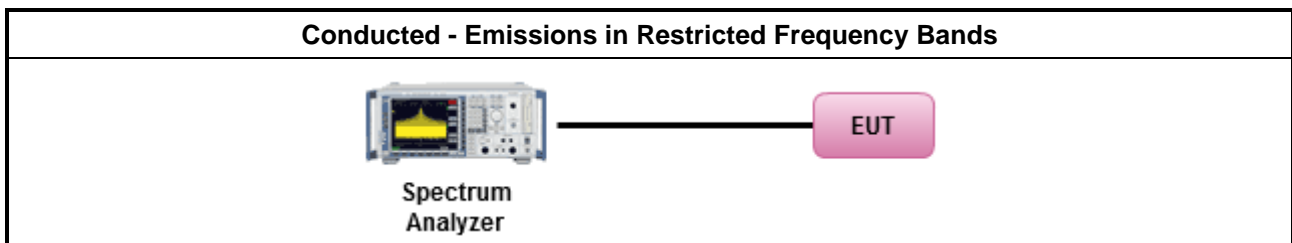
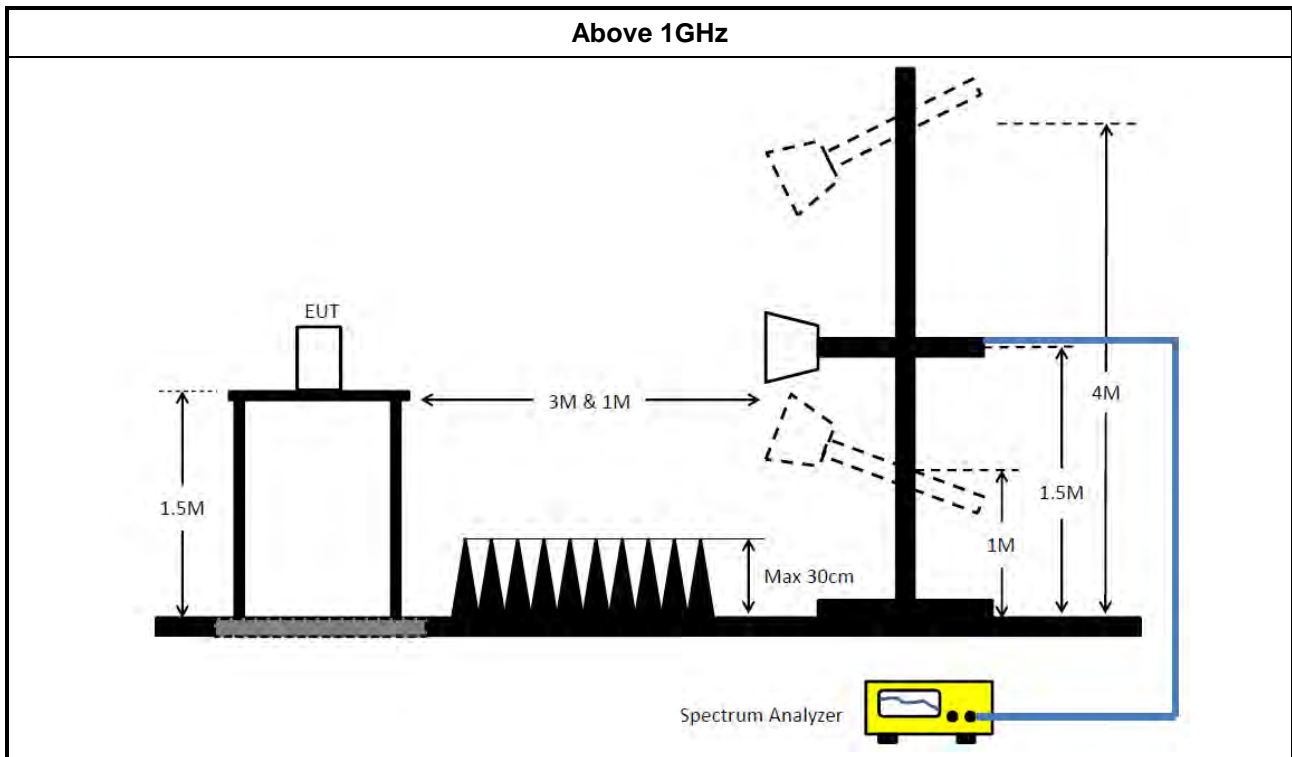
Test Method	
<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor]. 	
<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. 	
<ul style="list-style-type: none"> ▪ For the transmitter unwanted emissions shall be measured using following options below: 	
	<ul style="list-style-type: none"> ▪ Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.
	<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"> ▪ For the transmitter band-edge emissions shall be measured using following options below: 	
	<ul style="list-style-type: none"> ▪ Refer as FCC KDB 558074 clause 8.7 & 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.
	<ul style="list-style-type: none"> ▪ Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
	<ul style="list-style-type: none"> ▪ 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).
	<ul style="list-style-type: none"> ▪ 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
	<ul style="list-style-type: none"> ▪ 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.



Test Method	
<ul style="list-style-type: none">▪ For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.2.	
	<ul style="list-style-type: none">▪ For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
	<ul style="list-style-type: none">▪ 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
	<ul style="list-style-type: none">▪ 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.

3.6.4 Test Setup





3.6.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: $\text{Antenna factor (AF)} + \text{Cable loss (CL)} + \text{Read level (Raw)} - \text{Preamp factor (PA)} (\text{if applicable}) = \text{Level}$.

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
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 22, 2022	Feb. 21, 2023	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-1 6-2	04083	150kHz ~ 100MHz	Feb. 09, 2022	Feb. 08, 2023	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 12, 2022	Apr. 11, 2023	Conduction (CO01-CB)
Pulse Limiter	Rohde& Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 10, 2022	Feb. 09, 2023	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 18, 2022	May 17, 2023	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	May 14, 2022	May 13, 2023	Radiation (10CH01-CB)
10m Semi Anechoic Chamber NSA	TDK	SAC-10M	10CH01-CB	30MHz~1GHz 10m,3m	Jan. 27, 2022	Jan. 26, 2023	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10783	9kHz ~ 1.3GHz	Mar. 11, 2022	Mar. 10, 2023	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10784	9kHz ~ 1.3GHz	Mar. 11, 2022	Mar. 10, 2023	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-01	25MHz ~ 1GHz	Oct. 18, 2022	Oct. 17, 2023	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-02	25MHz ~ 1GHz	Oct. 18, 2022	Oct. 17, 2023	Radiation (10CH01-CB)
Biconical Antenna	Schwarzbeck	VHBB 9124	324	30MHz ~ 200MHz	Jun. 11, 2022	Jun. 10, 2023	Radiation (10CH01-CB)
Log Antenna	Schwarzbeck	VUSLP 9111	247	200MHz ~ 1GHz	Jun. 11, 2022	Jun. 10, 2023	Radiation (10CH01-CB)
EMI Test Receiver	Rohde& Schwarz	ESCI	100186	9kHz ~ 3GHz	Jul. 11, 2022	Jul. 10, 2023	Radiation (10CH01-CB)
Spectrum Analyzer	Rohde& Schwarz	FSV30	101026	9kHz ~ 30GHz	Apr. 22, 2022	Apr. 21, 2023	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 06, 2022	May 05, 2023	Radiation (03CH01-CB)
Horn Antenna	ETS-LINDGR EN	3115	00075790	750MHz ~ 18GHz	Nov. 06, 2021	Nov. 05, 2022	Radiation (03CH01-CB)
Horn Antenna	SCHWARZB EAK	BBHA9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02121	1GHz ~ 26.5GHz	May 19, 2022	May 18, 2023	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-H G	1864479	18GHz ~ 40GHz	Jul. 20, 2022	Jul. 19, 2023	Radiation (03CH01-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	May 06, 2022	May 05, 2023	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Aug. 15, 2022	Aug. 14, 2023	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Oct. 25, 2021	Oct. 24, 2022	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Oct. 17, 2022	Oct. 16, 2023	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Oct. 25, 2021	Oct. 24, 2022	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Oct. 17, 2022	Oct. 16, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-03	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-03	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 18 GHz	Oct. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Switch	SPTCB	SP-SWI	SWI-02	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH02-CB)

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

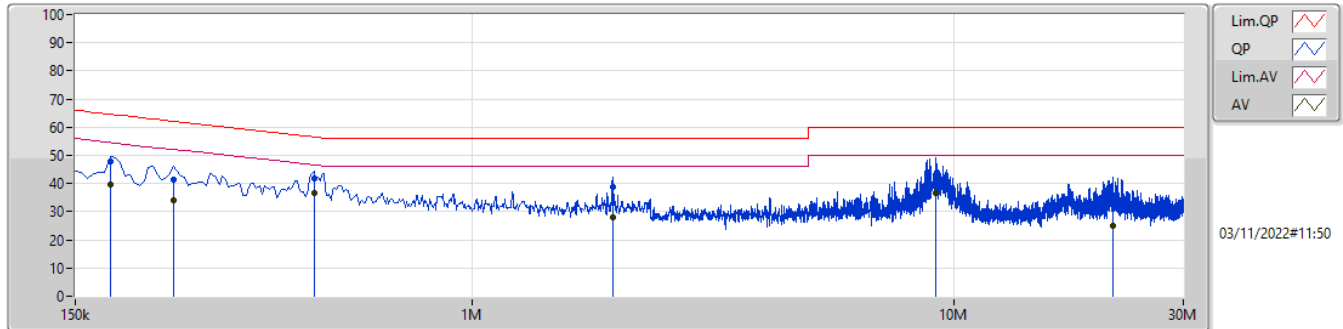
N.C.R. means Non-Calibration required.



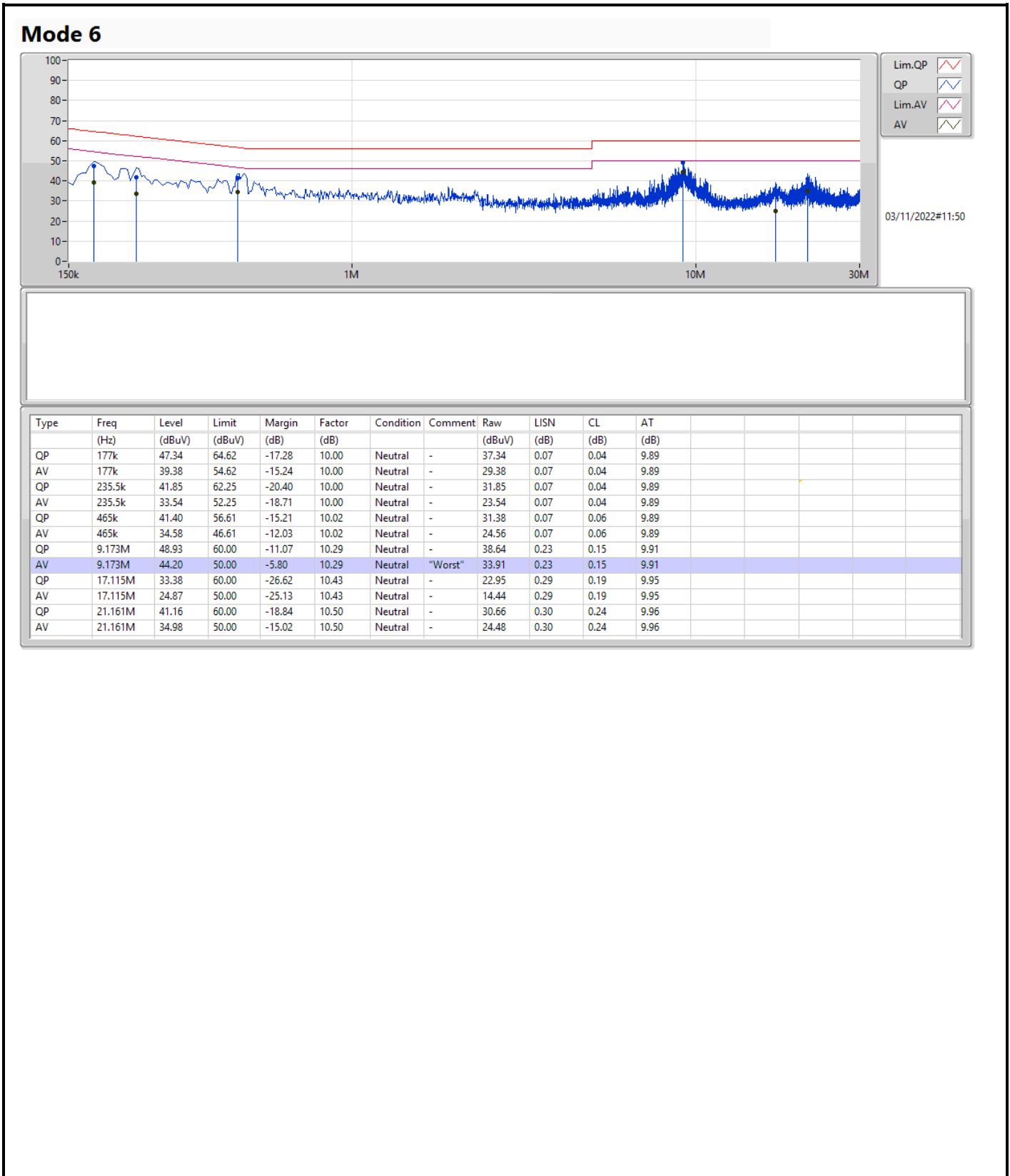
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 6	Pass	AV	9.173M	44.20	50.00	-5.80	Neutral

Mode 6



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	177k	47.82	64.62	-16.80	9.99	Line	-	37.83	0.06	0.04	9.89
AV	177k	39.50	54.62	-15.12	9.99	Line	-	29.51	0.06	0.04	9.89
QP	240k	41.52	62.10	-20.58	10.00	Line	-	31.52	0.06	0.05	9.89
AV	240k	33.90	52.10	-18.20	10.00	Line	-	23.90	0.06	0.05	9.89
QP	469.5k	41.70	56.52	-14.82	10.01	Line	-	31.69	0.06	0.06	9.89
AV	469.5k	36.64	46.52	-9.88	10.01	Line	-	26.63	0.06	0.06	9.89
QP	1.959M	38.81	56.00	-17.19	10.07	Line	-	28.74	0.09	0.09	9.89
AV	1.959M	27.98	46.00	-18.02	10.07	Line	-	17.91	0.09	0.09	9.89
QP	9.173M	41.36	60.00	-18.64	10.27	Line	-	31.09	0.21	0.15	9.91
AV	9.173M	36.54	50.00	-13.46	10.27	Line	"Worst"	26.27	0.21	0.15	9.91
QP	21.404M	32.35	60.00	-27.65	10.52	Line	-	21.83	0.32	0.24	9.96
AV	21.404M	24.96	50.00	-25.04	10.52	Line	-	14.44	0.32	0.24	9.96





Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE_Nss1_1TX	612.5k	1.004M	1M00F1D	607.5k	1.002M
BT-LE2_Nss1_1TX	772.5k	2.024M	2M02F1D	767.5k	2.012M

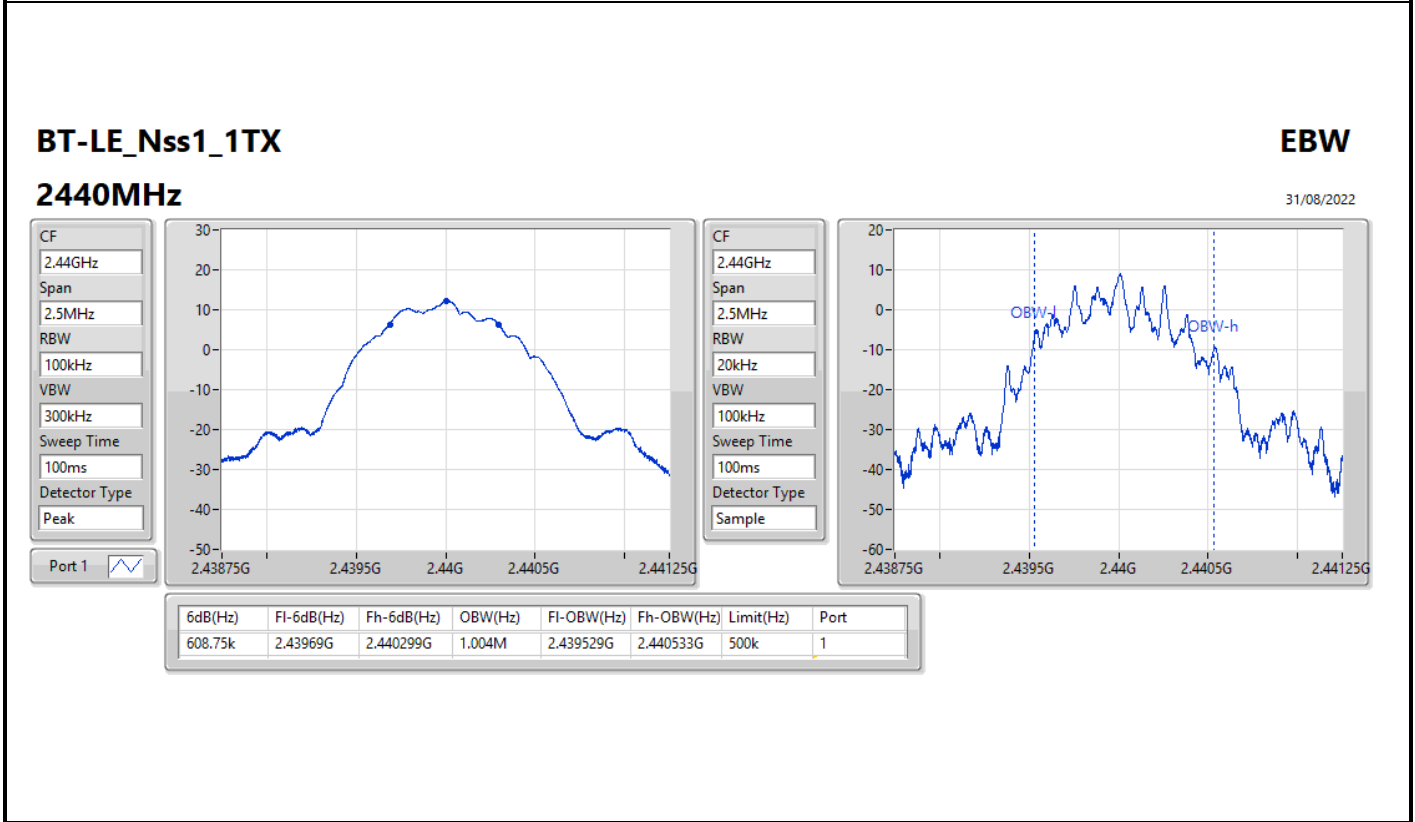
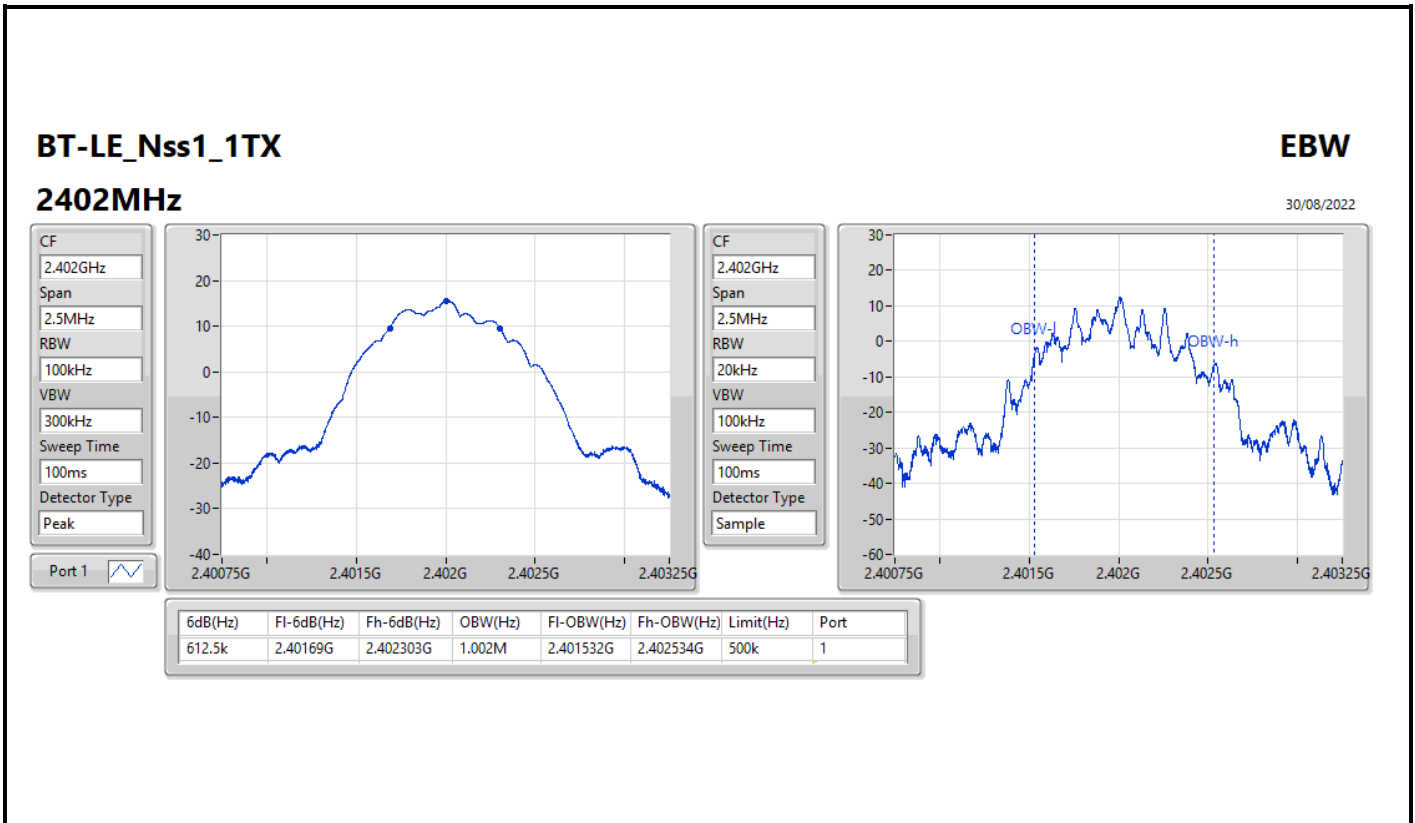
Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

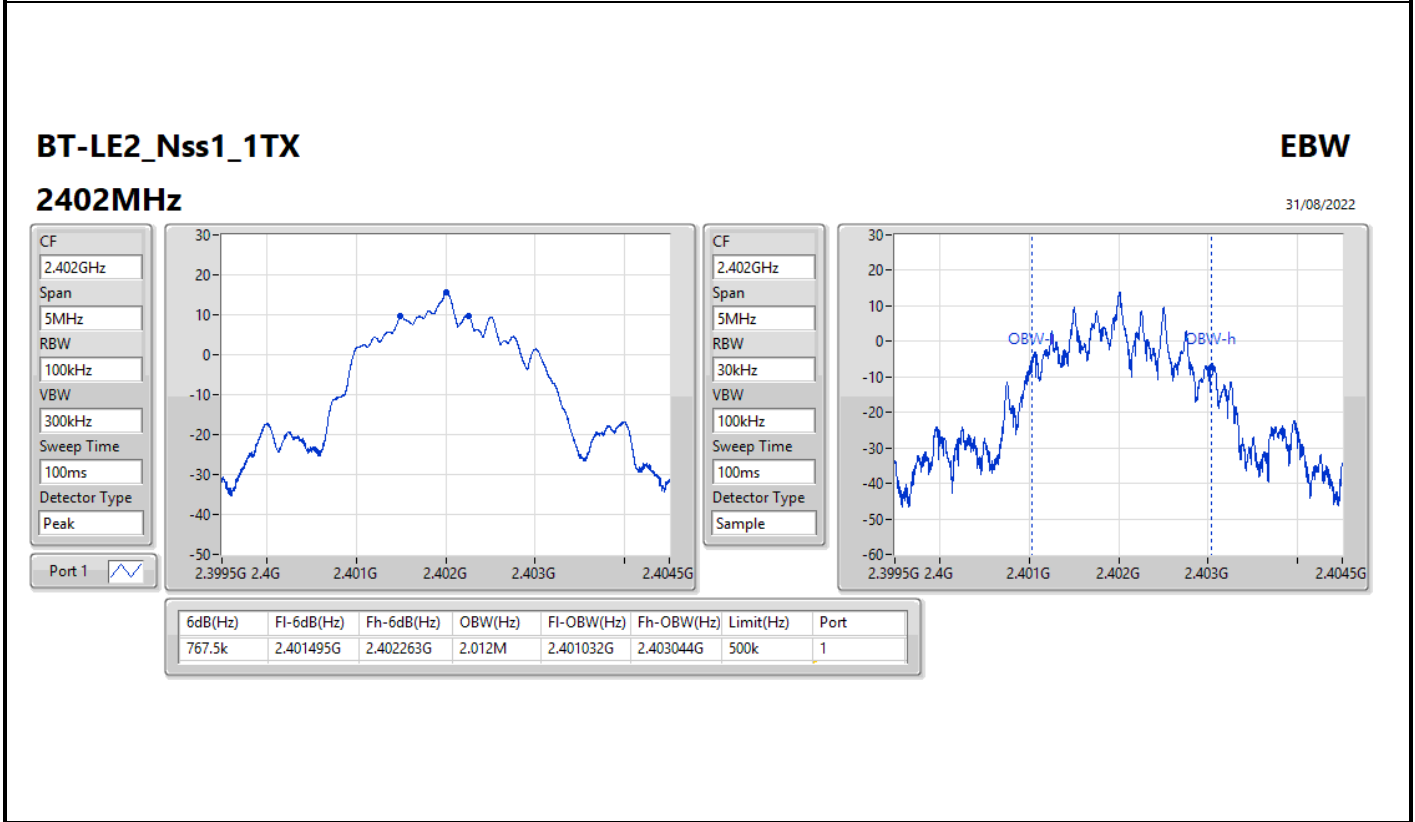
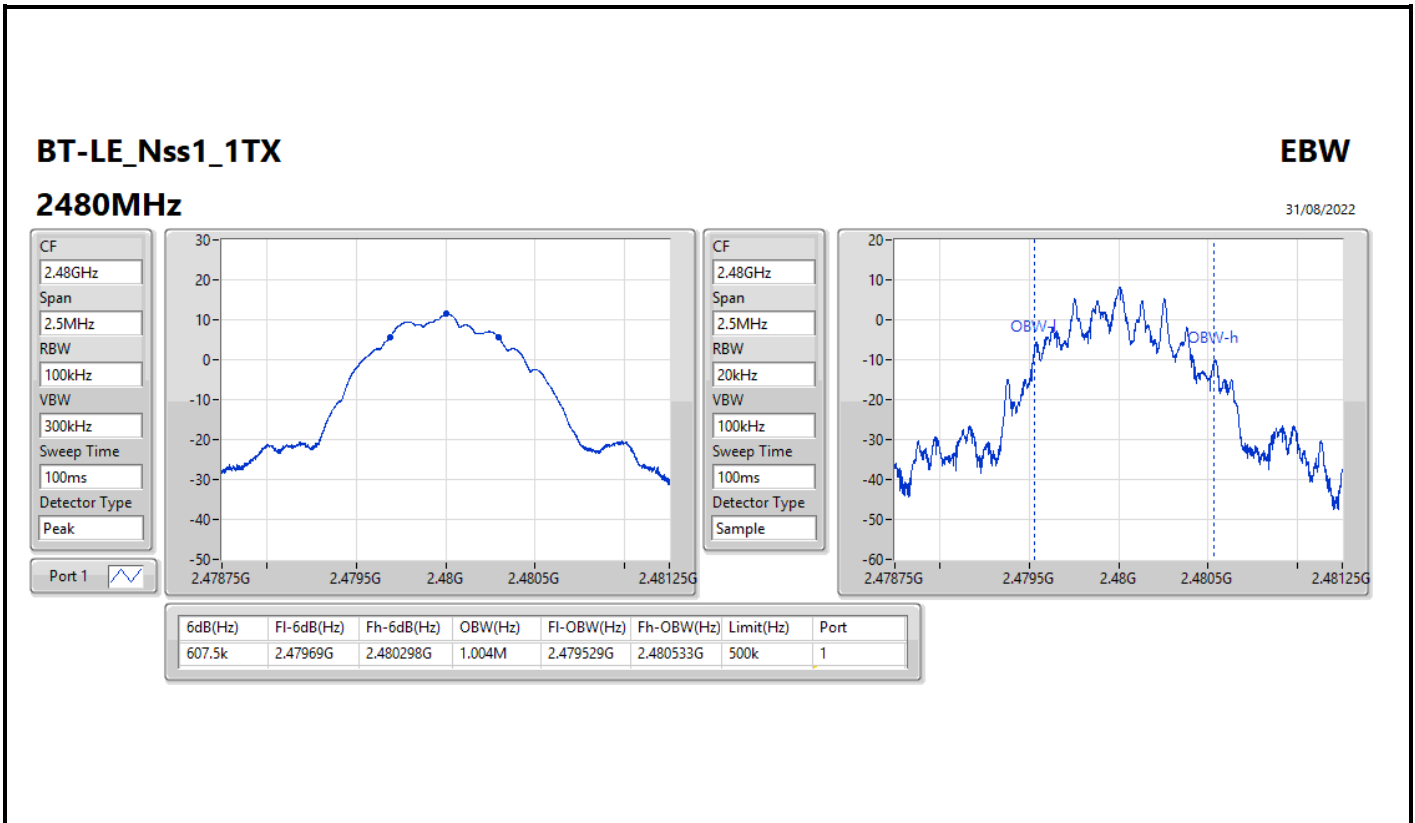


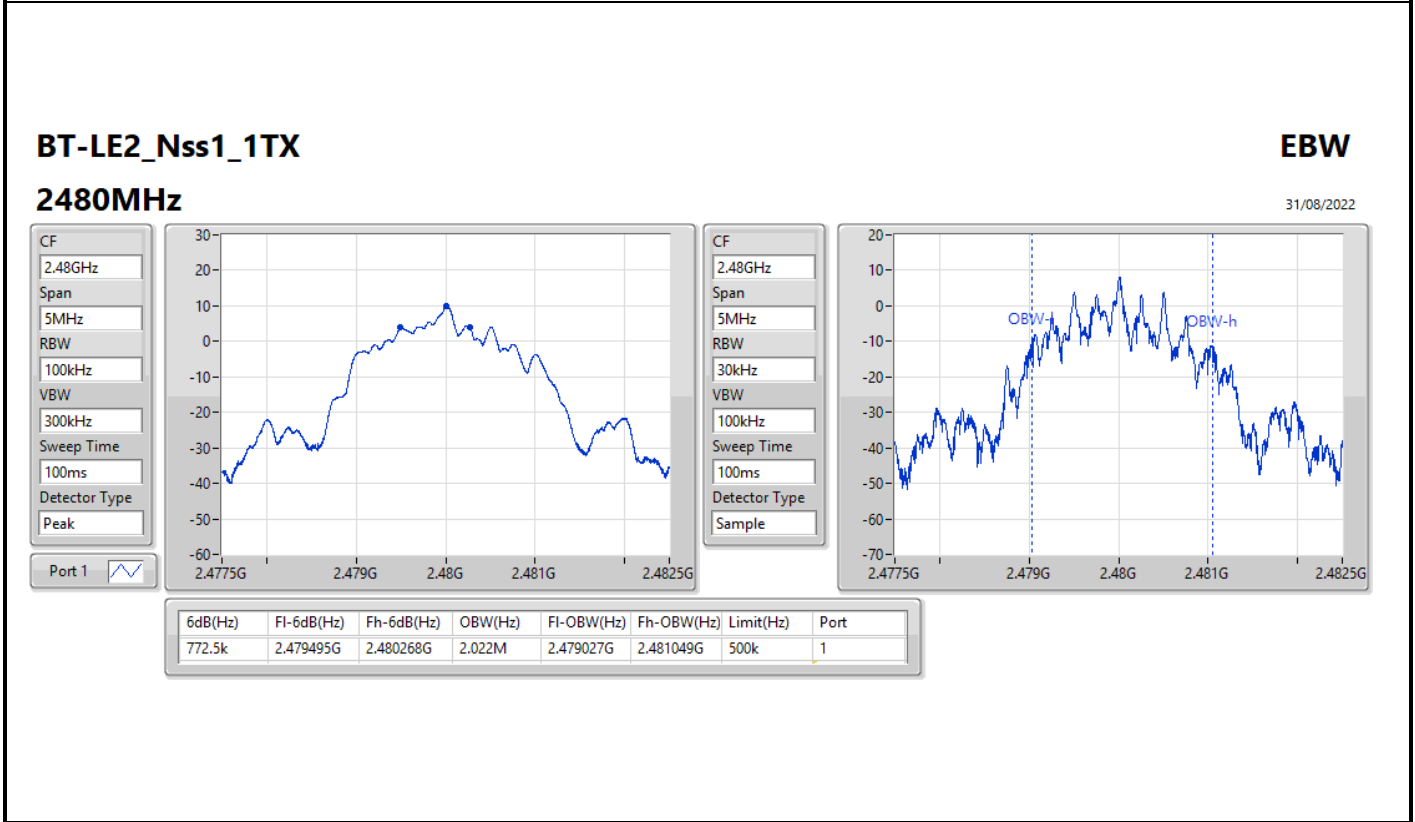
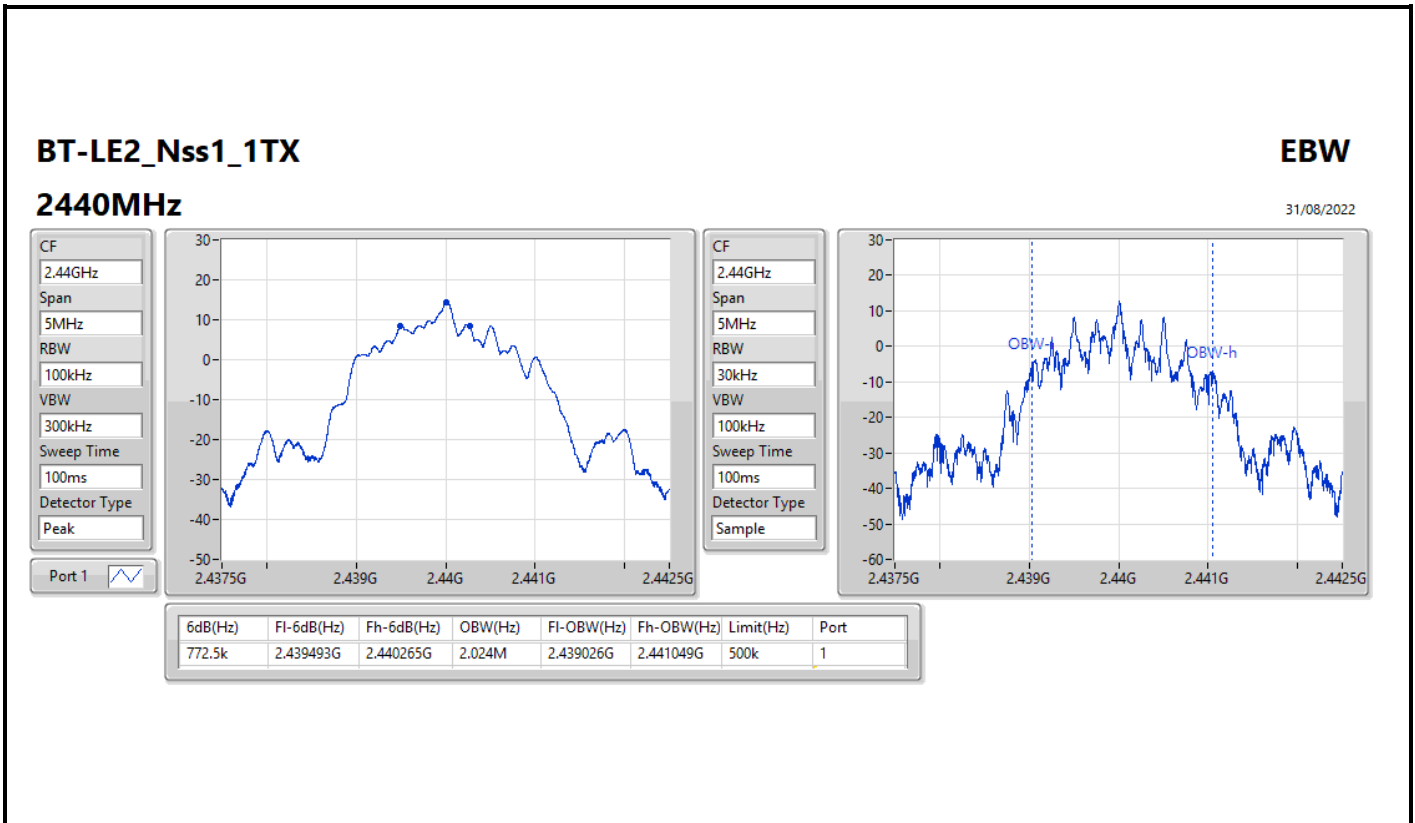
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE_Nss1_1TX	-	-	-	-
2402MHz	Pass	500k	612.5k	1.002M
2440MHz	Pass	500k	608.75k	1.004M
2480MHz	Pass	500k	607.5k	1.004M
BT-LE2_Nss1_1TX	-	-	-	-
2402MHz	Pass	500k	767.5k	2.012M
2440MHz	Pass	500k	772.5k	2.024M
2480MHz	Pass	500k	772.5k	2.022M

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









Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE_Nss1_1TX	612.5k	1.005M	1M01F1D	607.5k	1.004M
BT-LE2_Nss1_1TX	772.5k	2.028M	2M03F1D	772.5k	2.013M

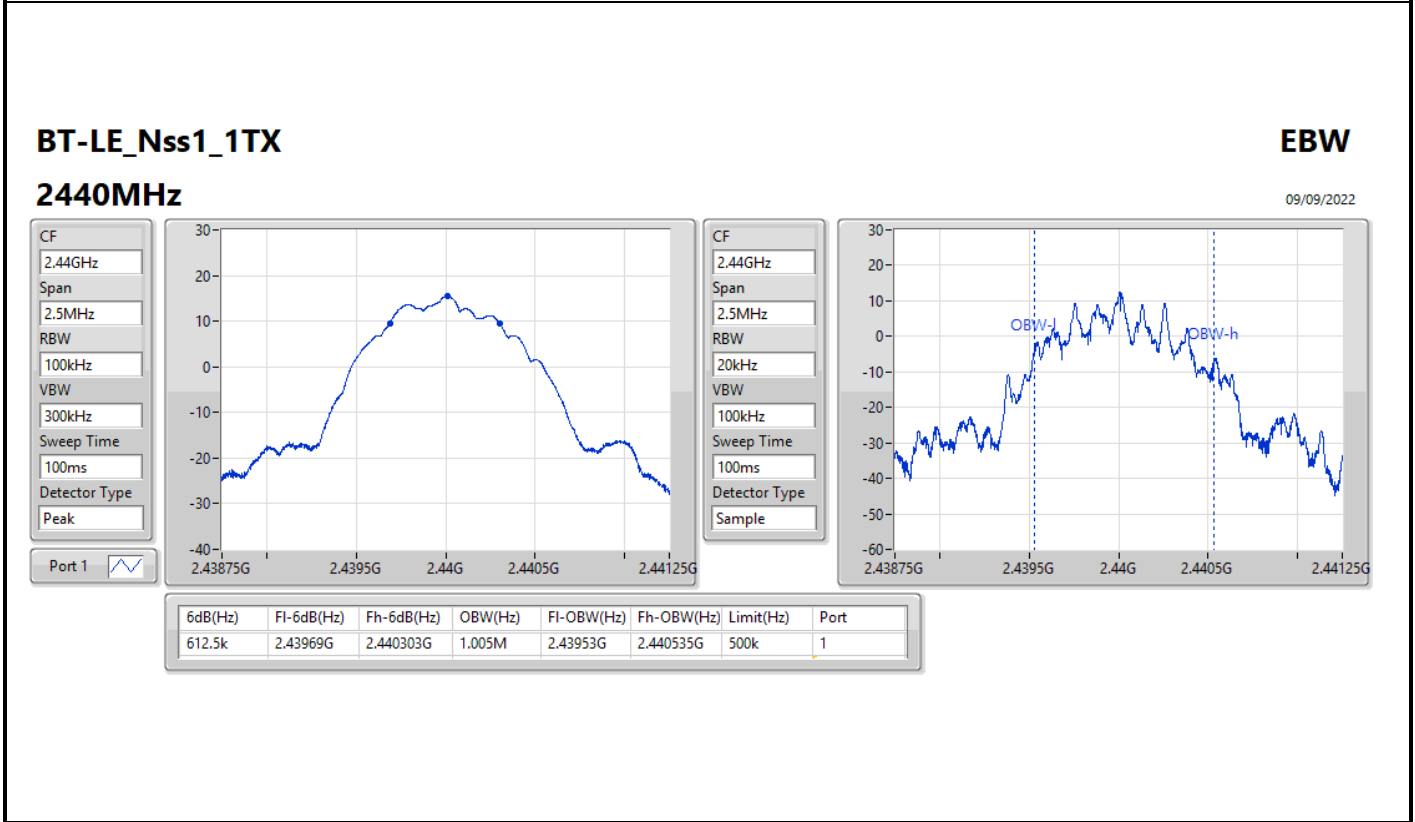
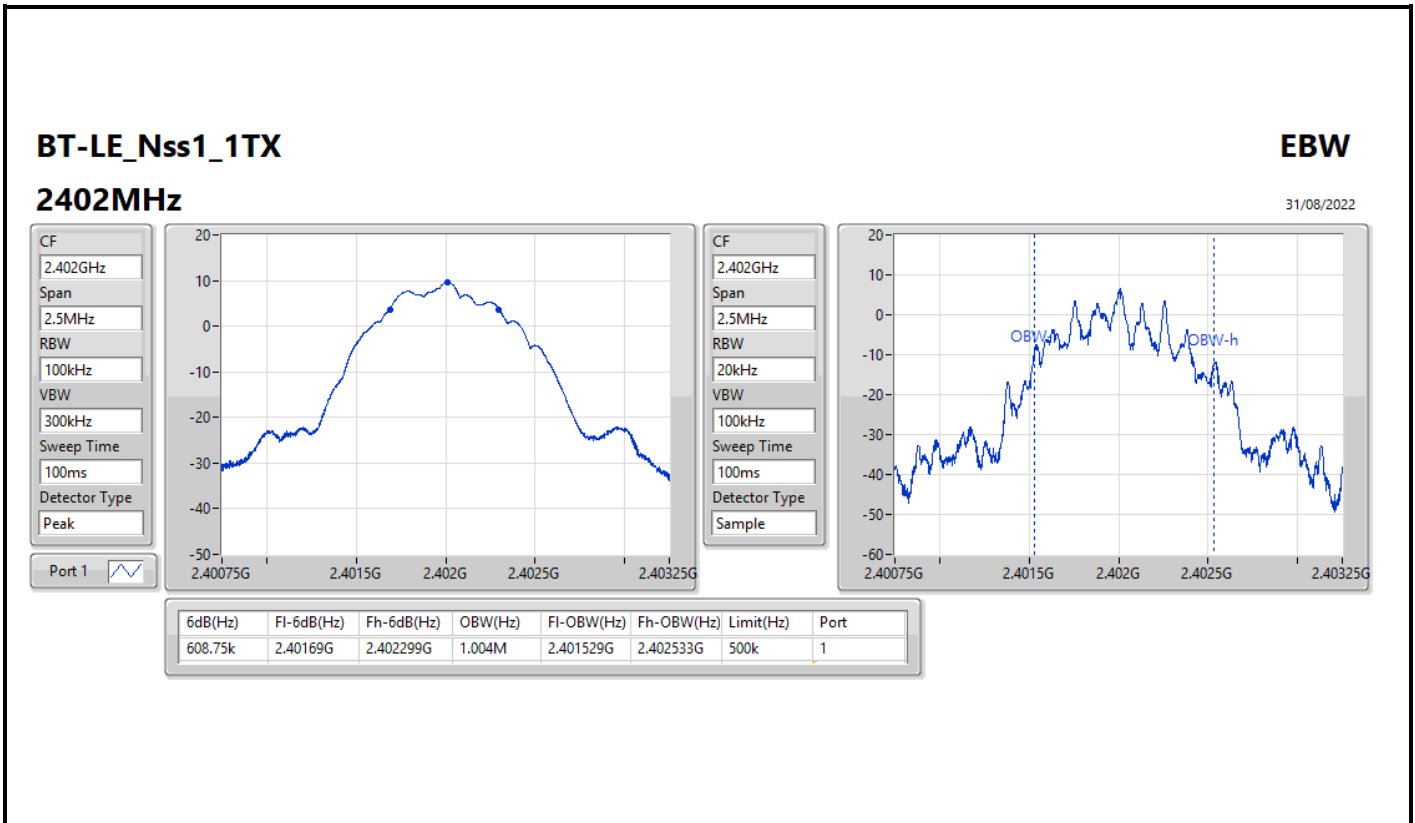
Max-N dB = Maximum 6dB down bandwidth; Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; Min-OBW = Minimum 99% occupied bandwidth

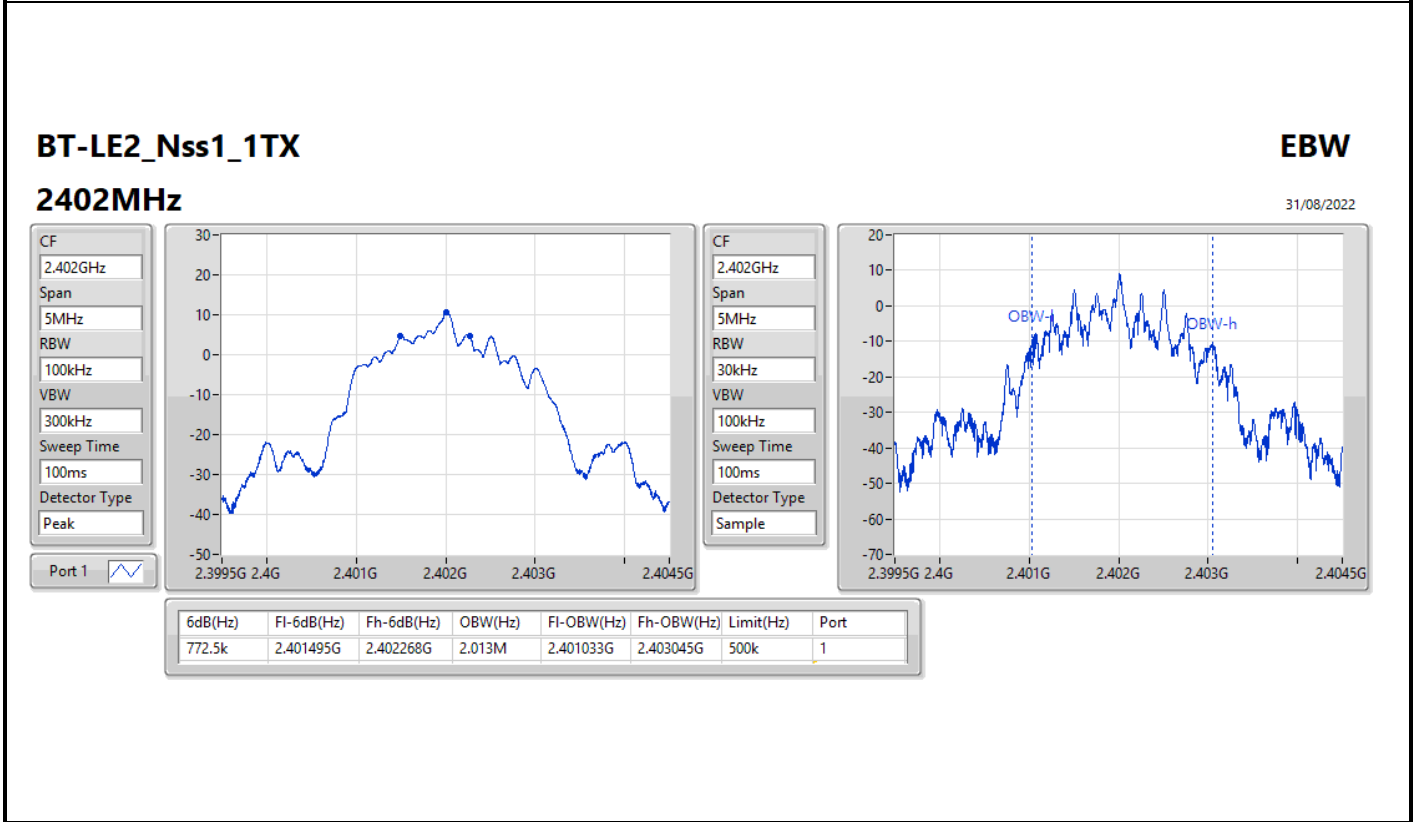
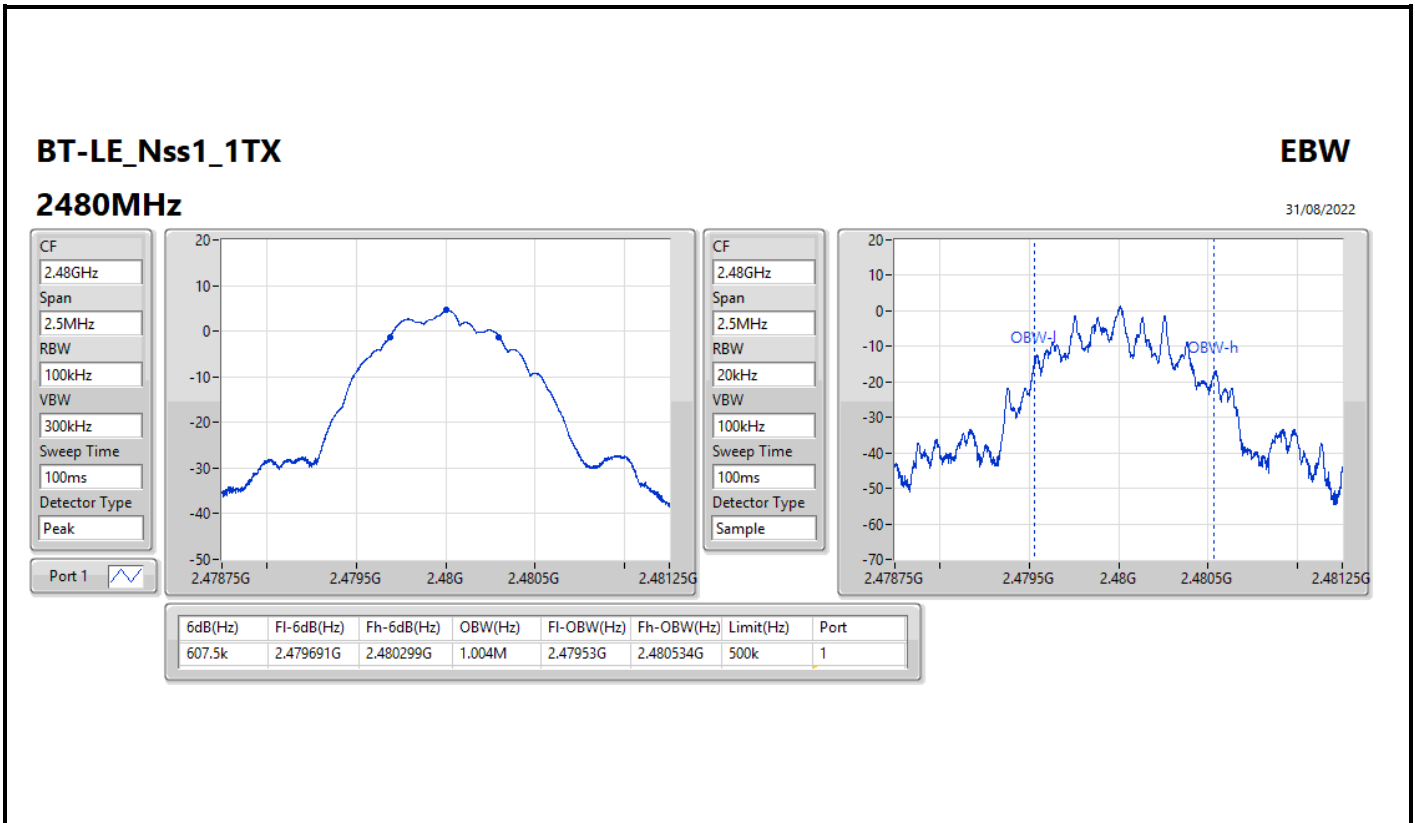


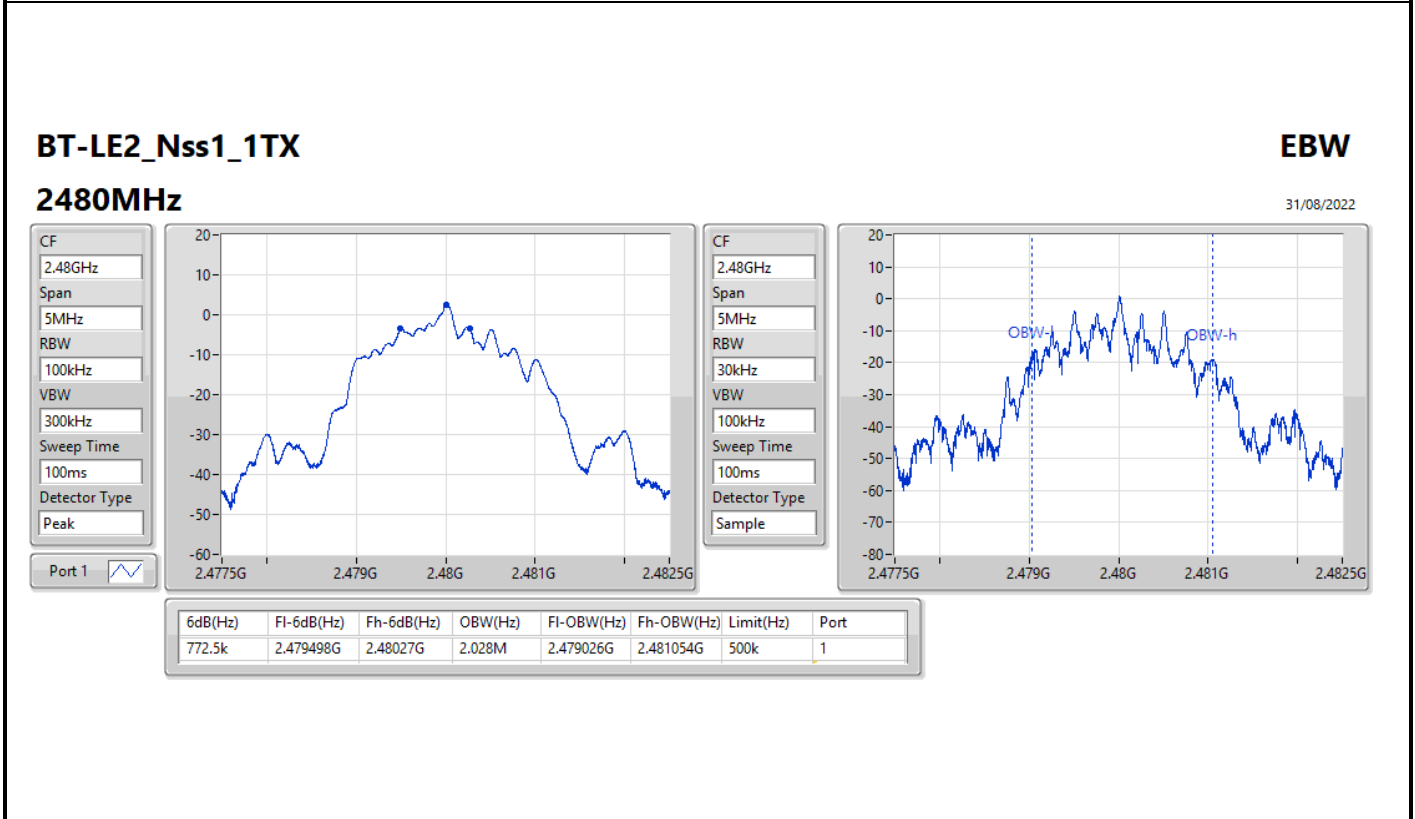
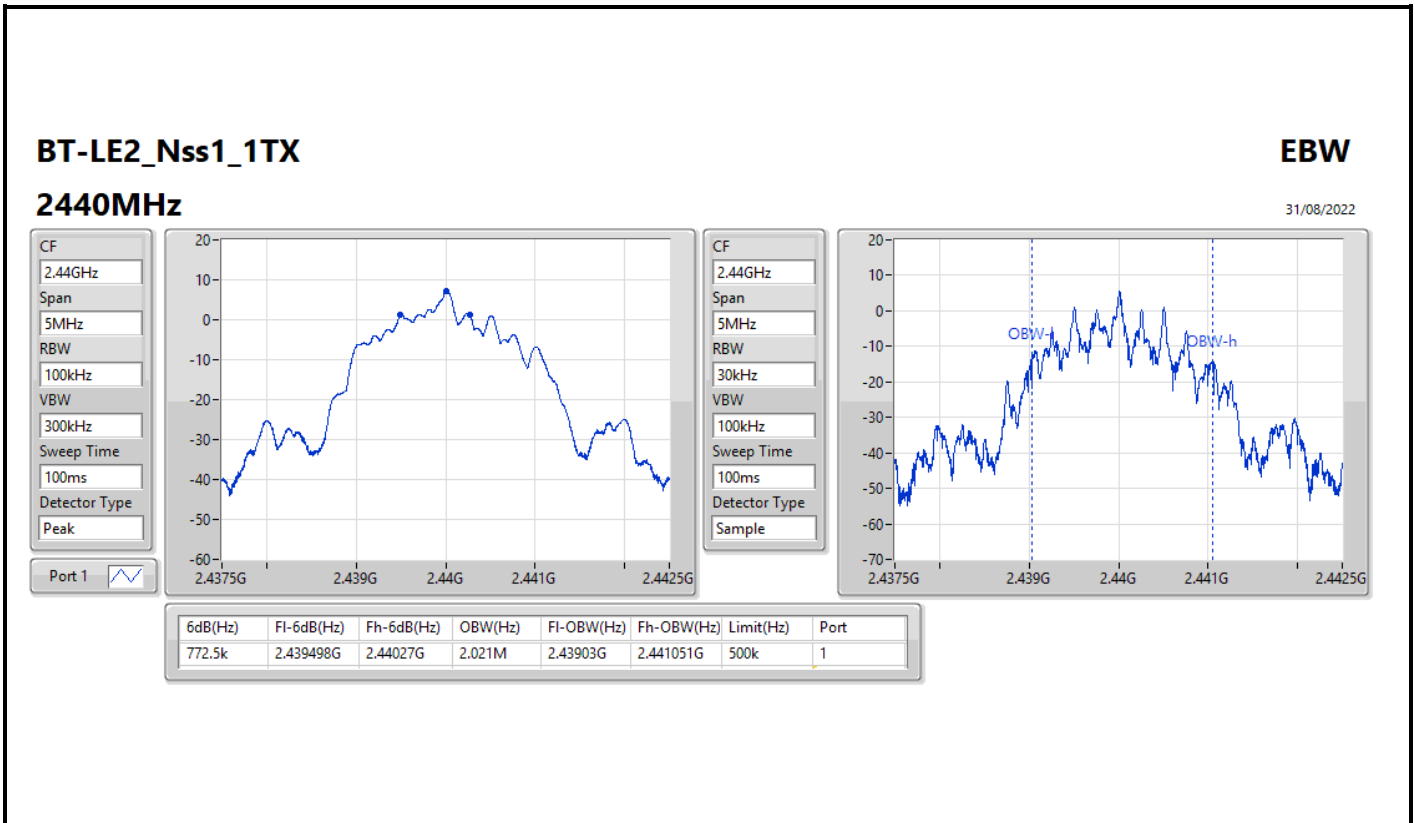
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE_Nss1_1TX	-	-	-	-
2402MHz	Pass	500k	608.75k	1.004M
2440MHz	Pass	500k	612.5k	1.005M
2480MHz	Pass	500k	607.5k	1.004M
BT-LE2_Nss1_1TX	-	-	-	-
2402MHz	Pass	500k	772.5k	2.013M
2440MHz	Pass	500k	772.5k	2.021M
2480MHz	Pass	500k	772.5k	2.028M

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









Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
BT-LE_Nss1_1TX	14.89	0.03083
BT-LE2_Nss1_1TX	14.68	0.02938



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
BT-LE_Nss1_1TX	-	-	-	-	-
2402MHz	Pass	4.00	14.75	14.75	30.00
2440MHz	Pass	4.00	14.89	14.89	30.00
2478MHz	Pass	4.00	14.26	14.26	30.00
2480MHz	Pass	4.00	10.94	10.94	30.00
BT-LE2_Nss1_1TX	-	-	-	-	-
2402MHz	Pass	4.00	14.59	14.59	30.00
2440MHz	Pass	4.00	14.68	14.68	30.00
2478MHz	Pass	4.00	7.03	7.03	30.00
2480MHz	Pass	4.00	9.01	9.01	30.00

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



Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
BT-LE_1MHz_Nss1_1TX	13.20	0.02089
BT-LE2_2MHz_Nss1_1TX	14.81	0.03027



Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
BT-LE_1MHz_Nss1_1TX	-	-	-	-	-
2402MHz	Pass	13.00	9.22	9.22	23.00
2404MHz	Pass	13.00	13.13	13.13	23.00
2440MHz	Pass	13.00	13.20	13.20	23.00
2478MHz	Pass	13.00	12.44	12.44	23.00
2480MHz	Pass	13.00	4.14	4.14	23.00
BT-LE2_2MHz_Nss1_1TX	-	-	-	-	-
2402MHz	Pass	13.00	9.78	9.78	23.00
2404MHz	Pass	13.00	14.73	14.73	23.00
2440MHz	Pass	13.00	14.81	14.81	23.00
2478MHz	Pass	13.00	7.30	7.30	23.00
2480MHz	Pass	13.00	1.63	1.63	23.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE_Nss1_1TX	7.28
BT-LE2_Nss1_1TX	2.93

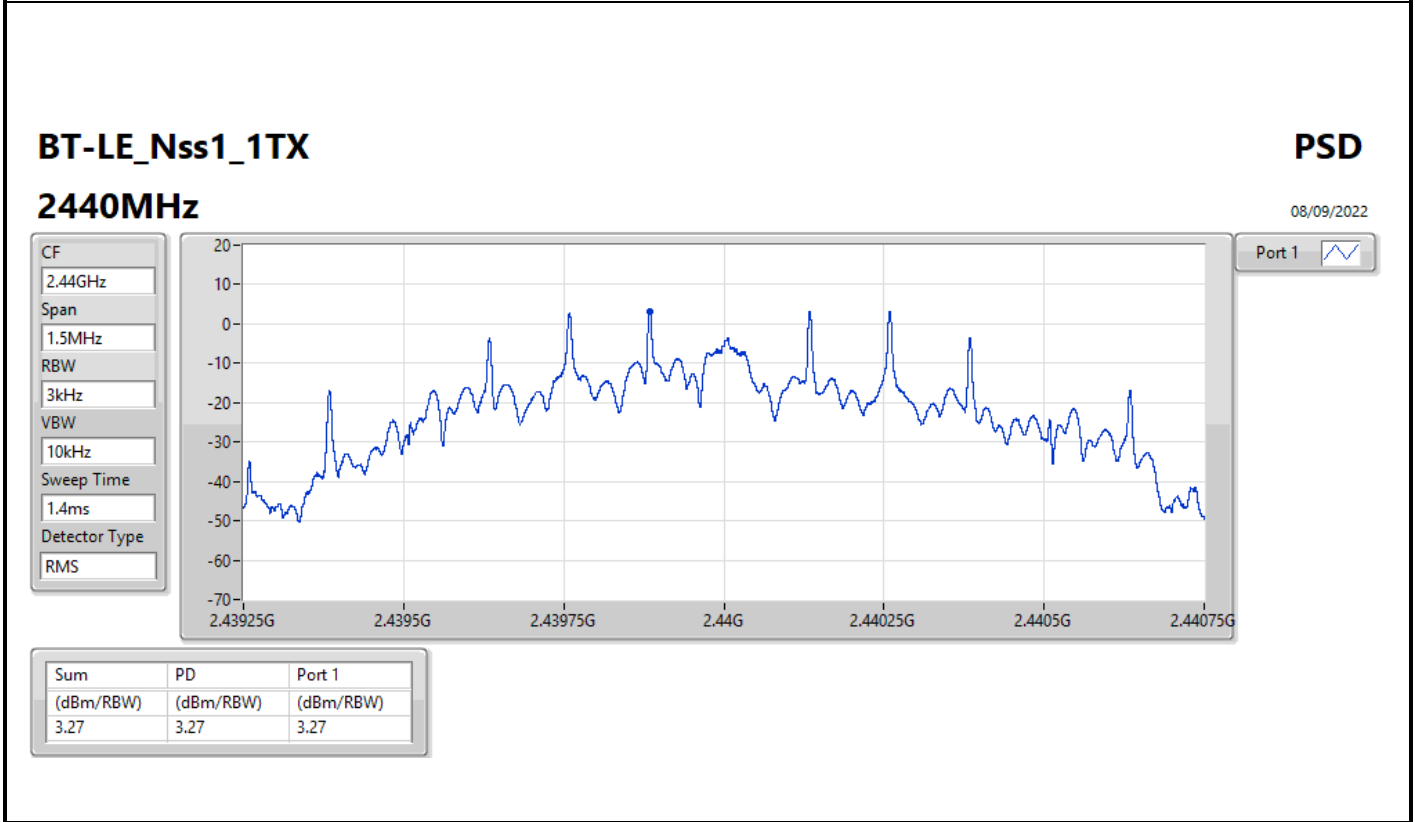
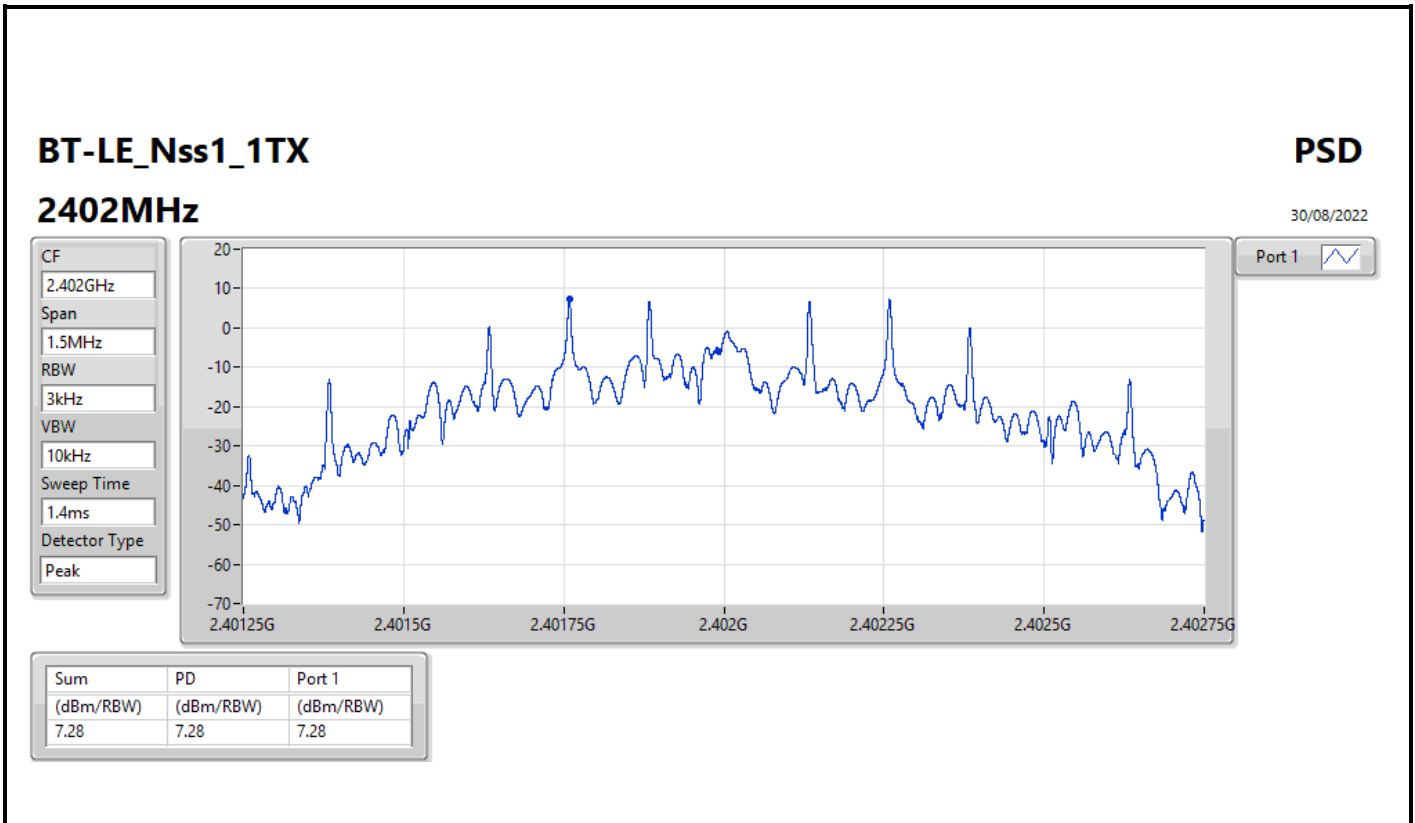
RBW = 3kHz;

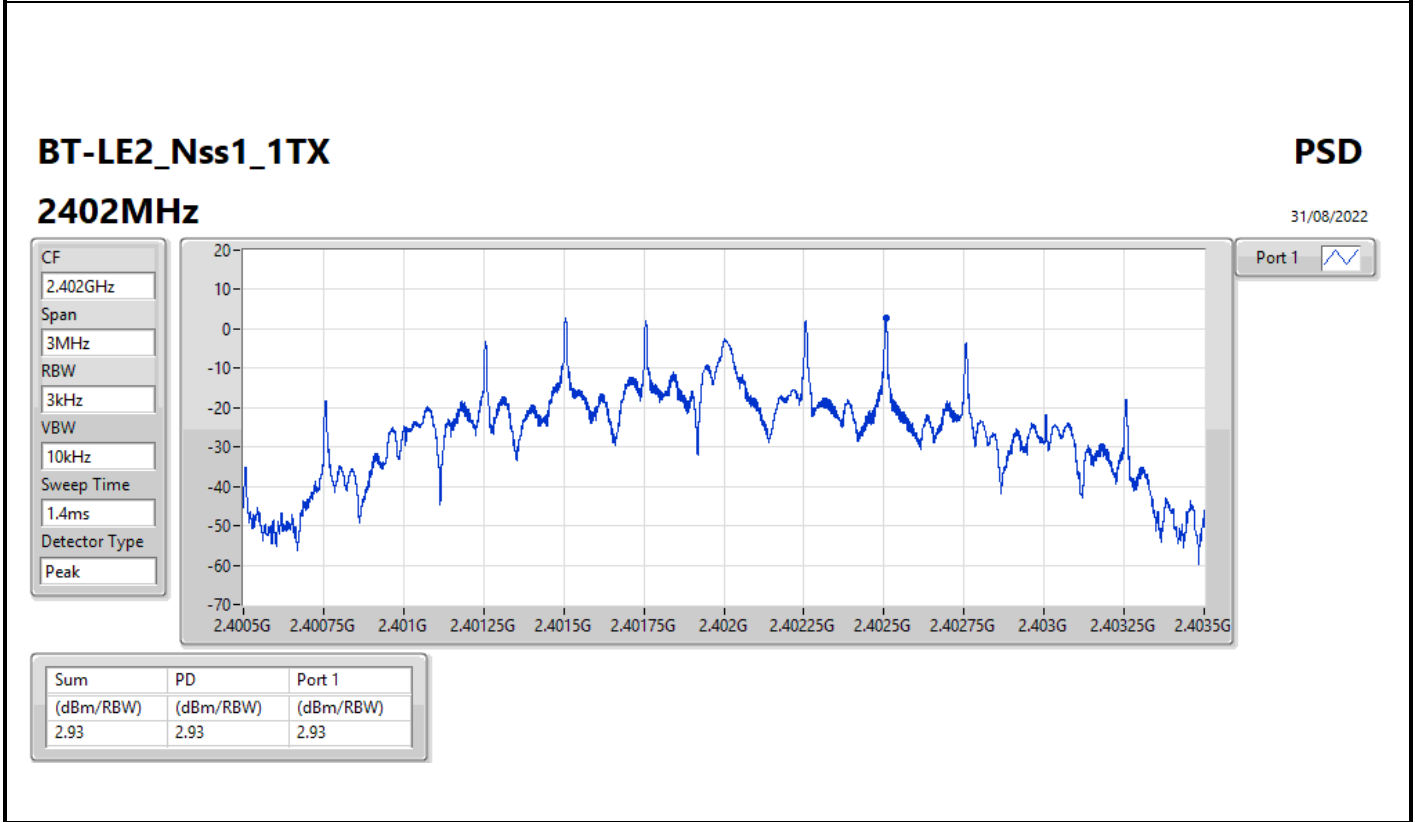
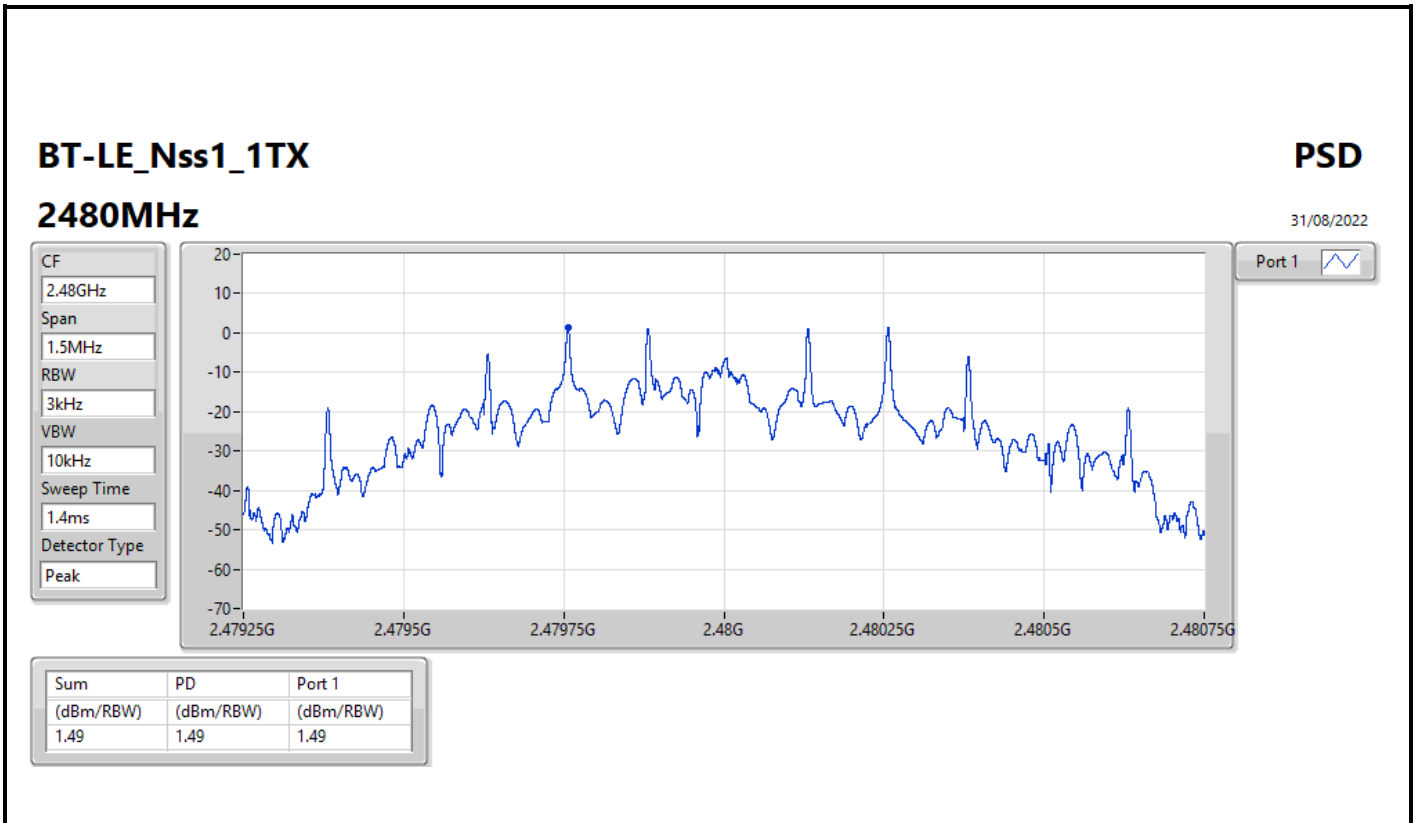


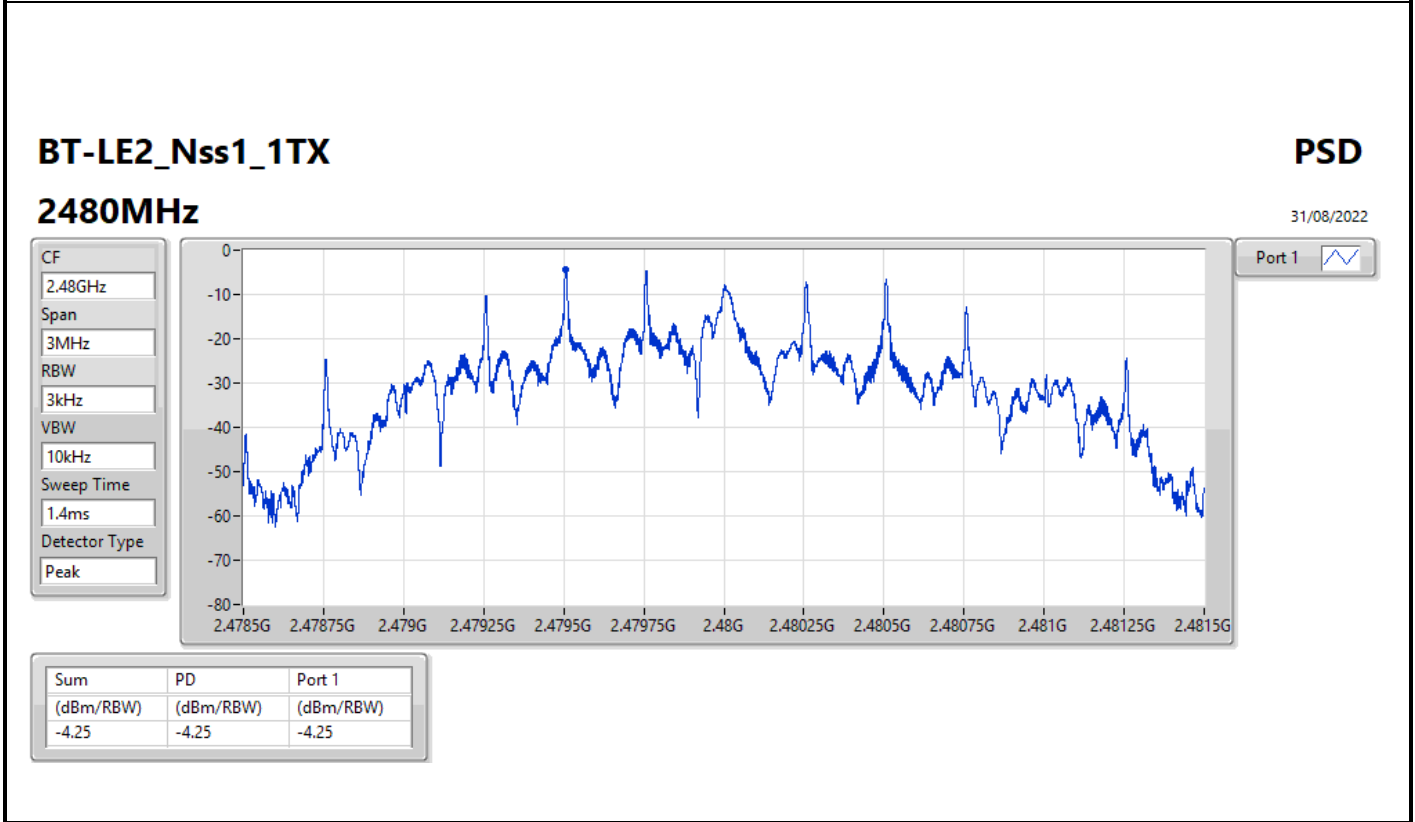
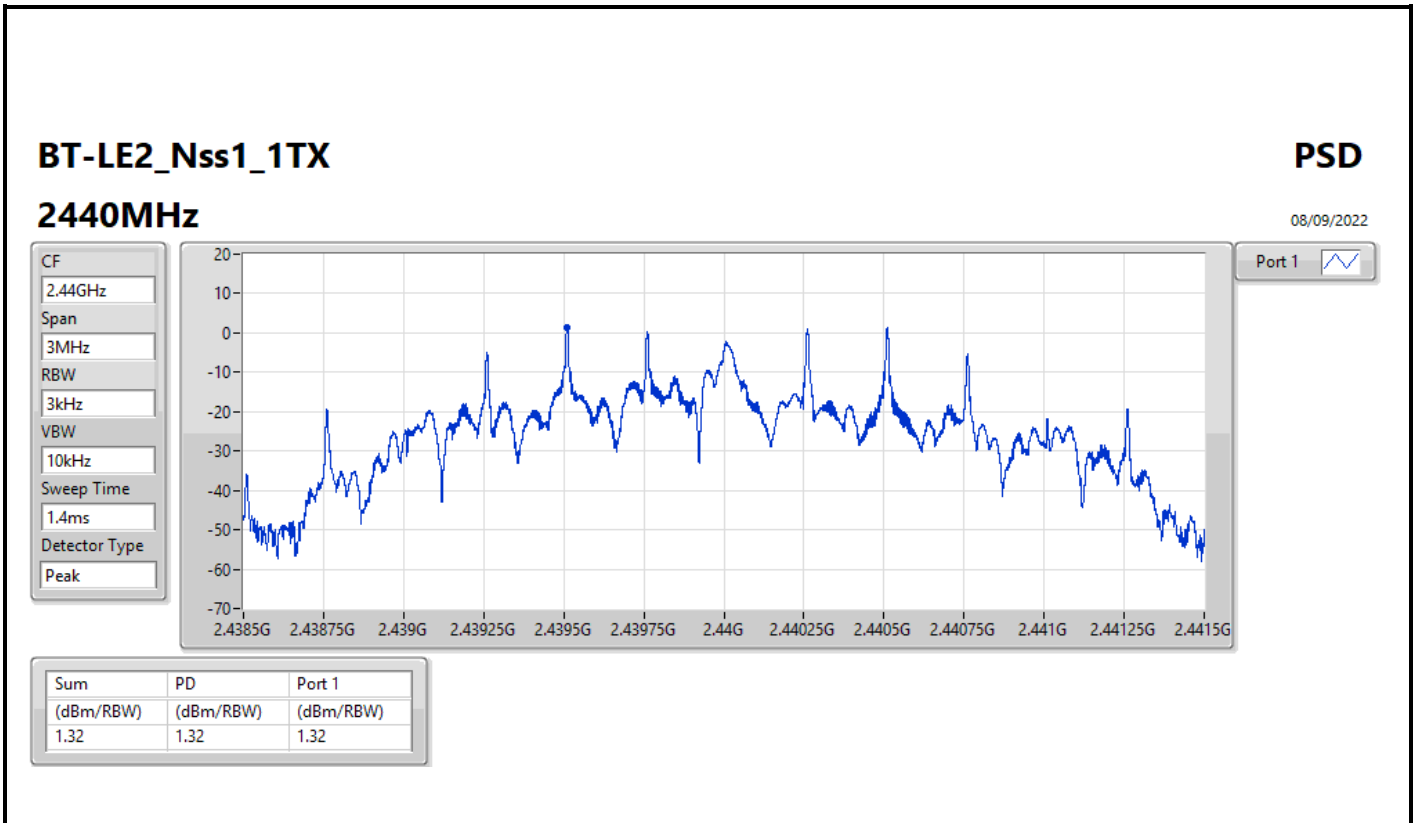
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE_Nss1_1TX	-	-	-	-	-
2402MHz	Pass	4.00	7.28	7.28	8.00
2440MHz	Pass	4.00	3.27	3.27	8.00
2480MHz	Pass	4.00	1.49	1.49	8.00
BT-LE2_Nss1_1TX	-	-	-	-	-
2402MHz	Pass	4.00	2.93	2.93	8.00
2440MHz	Pass	4.00	1.32	1.32	8.00
2480MHz	Pass	4.00	-4.25	-4.25	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	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE_Nss1_1TX	0.95
BT-LE2_Nss1_1TX	0.16

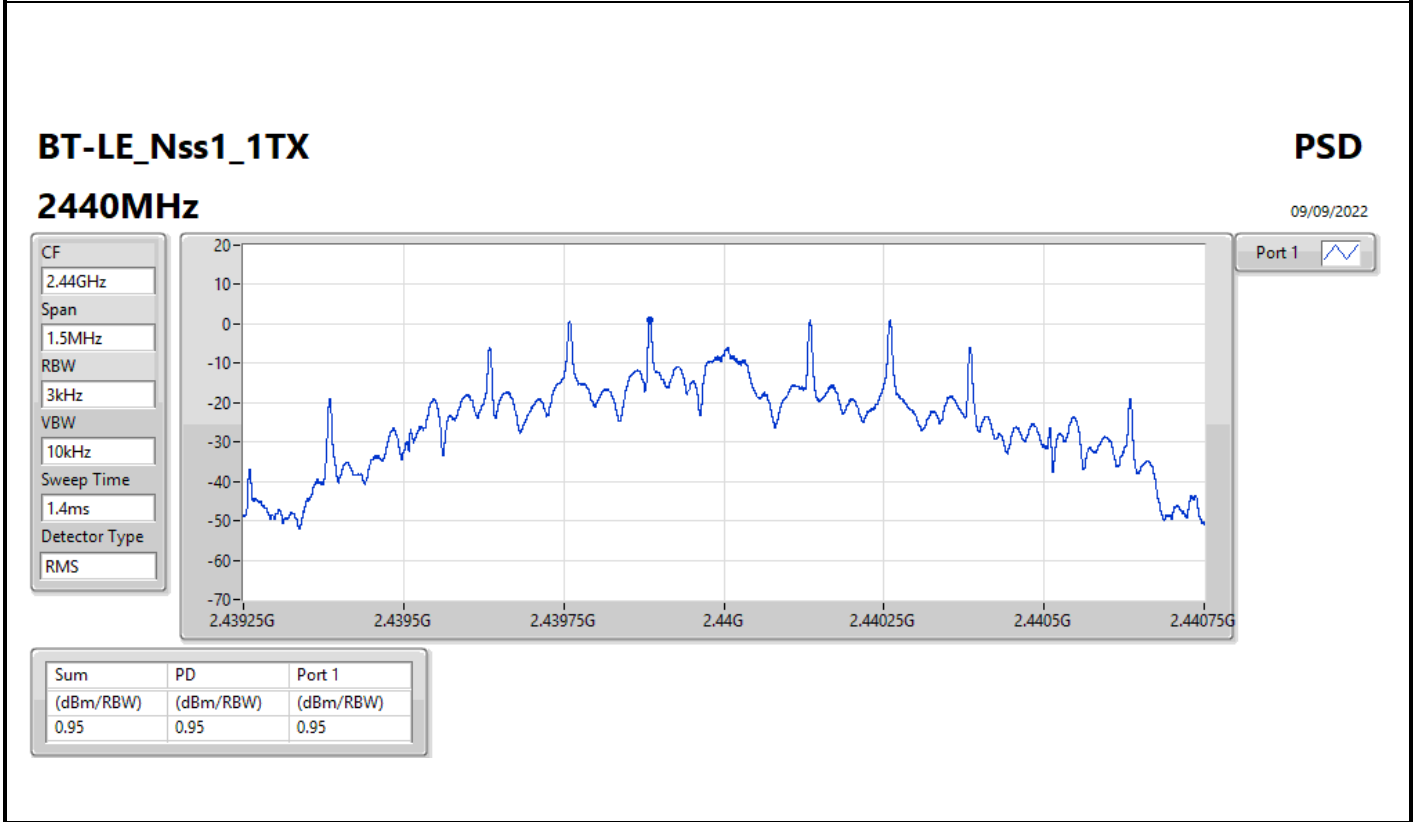
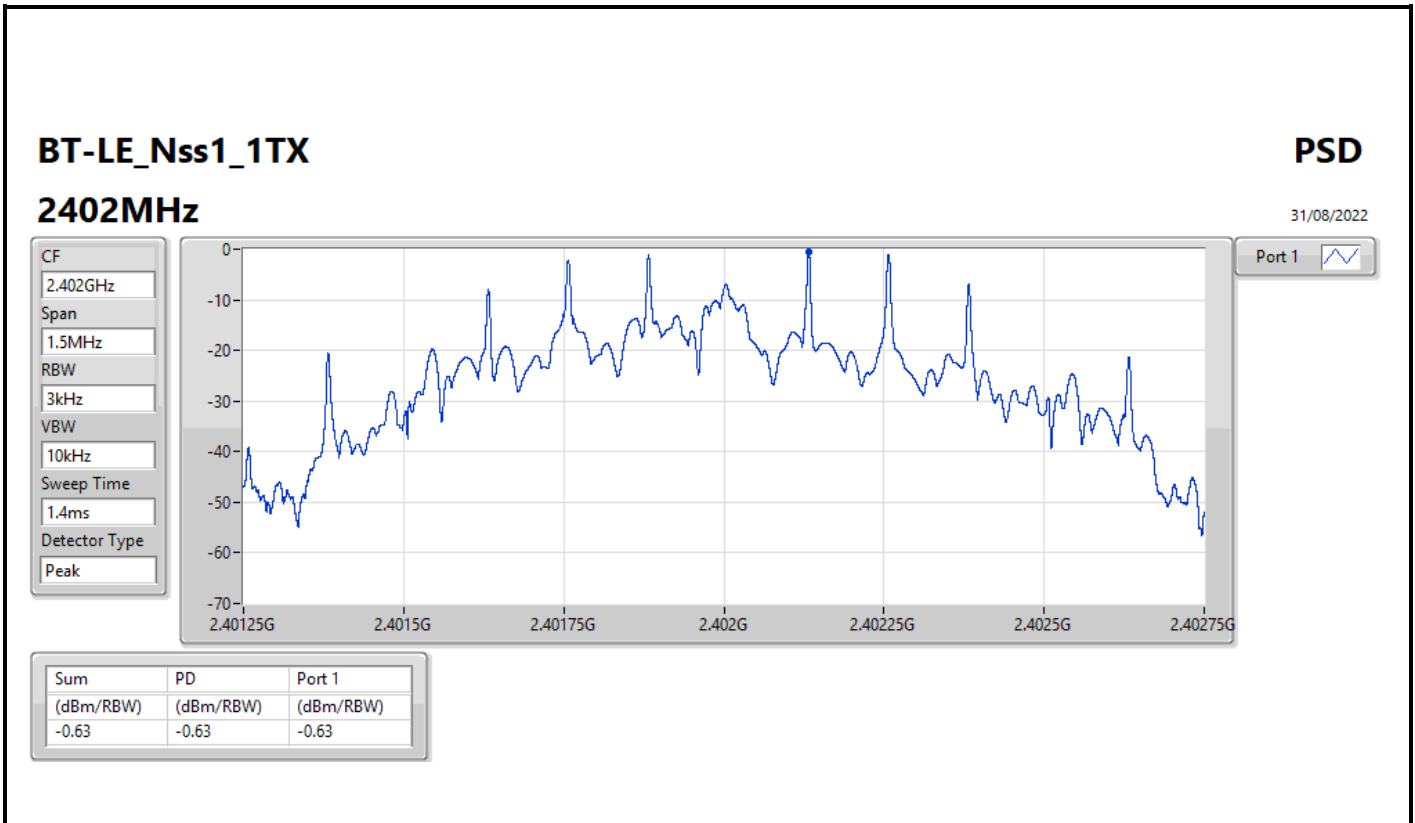
RBW = 3kHz;



Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE_Nss1_1TX	-	-	-	-	-
2402MHz	Pass	13.00	-0.63	-0.63	1.00
2440MHz	Pass	13.00	0.95	0.95	1.00
2480MHz	Pass	13.00	-3.86	-3.86	1.00
BT-LE2_Nss1_1TX	-	-	-	-	-
2402MHz	Pass	13.00	-2.56	-2.56	1.00
2440MHz	Pass	13.00	0.16	0.16	1.00
2480MHz	Pass	13.00	-13.55	-13.55	1.00

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;



BT-LE_Nss1_1TX

PSD

2480MHz

31/08/2022

CF
2.48GHz

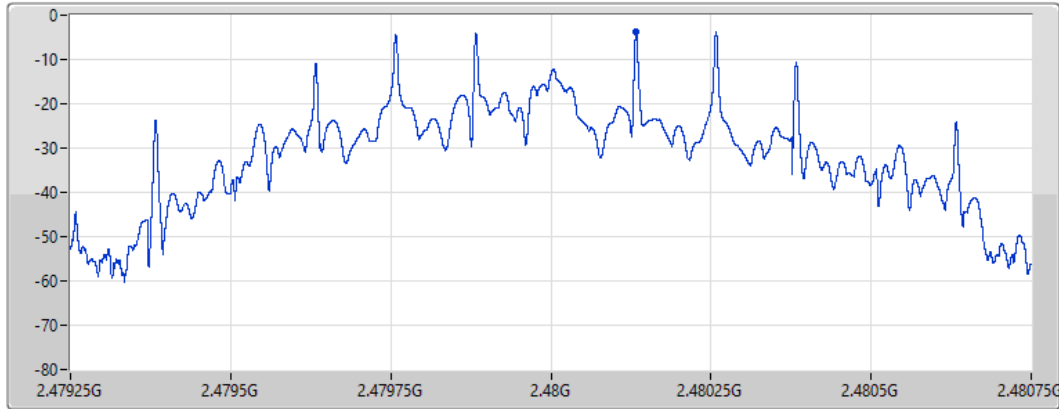
Span
1.5MHz

RBW
3kHz

VBW
10kHz

Sweep Time
1.4ms

Detector Type
Peak



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.86	-3.86	-3.86

BT-LE2_Nss1_1TX

PSD

2402MHz

31/08/2022

CF
2.402GHz

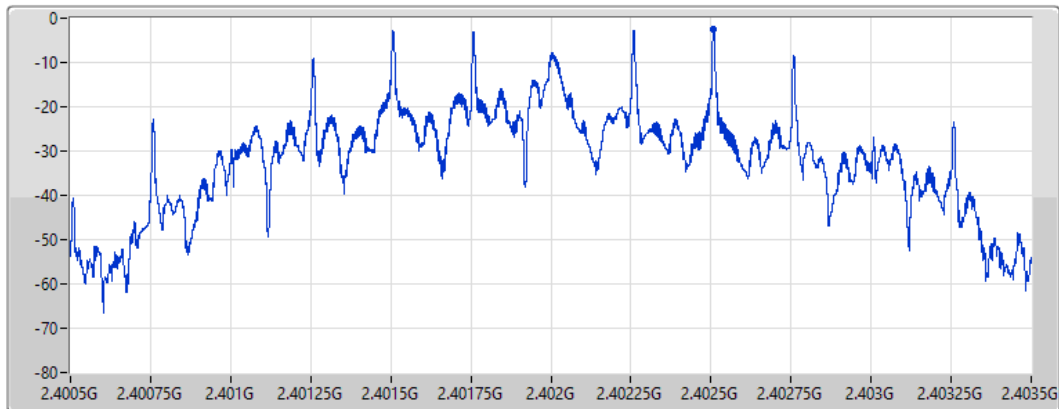
Span
3MHz

RBW
3kHz

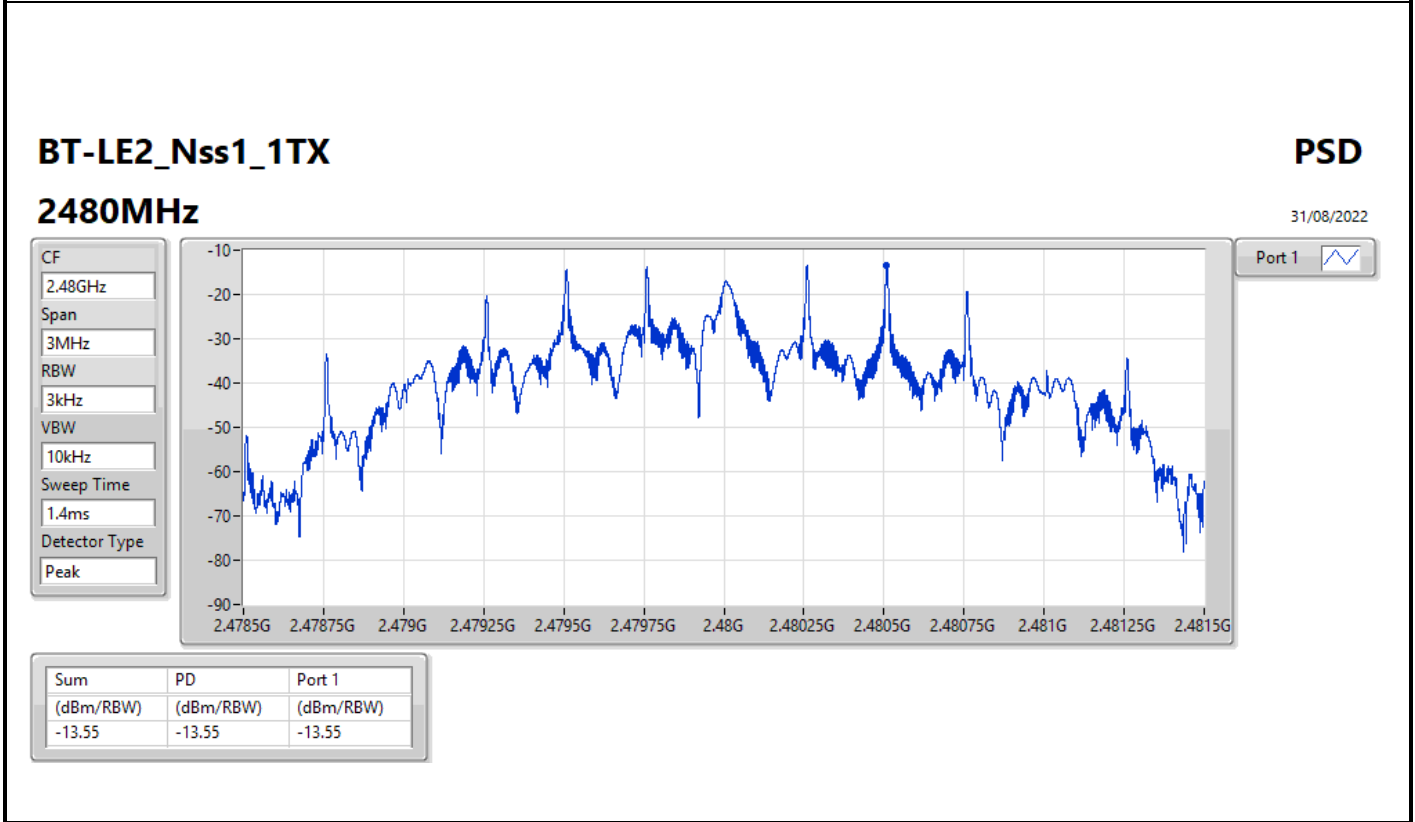
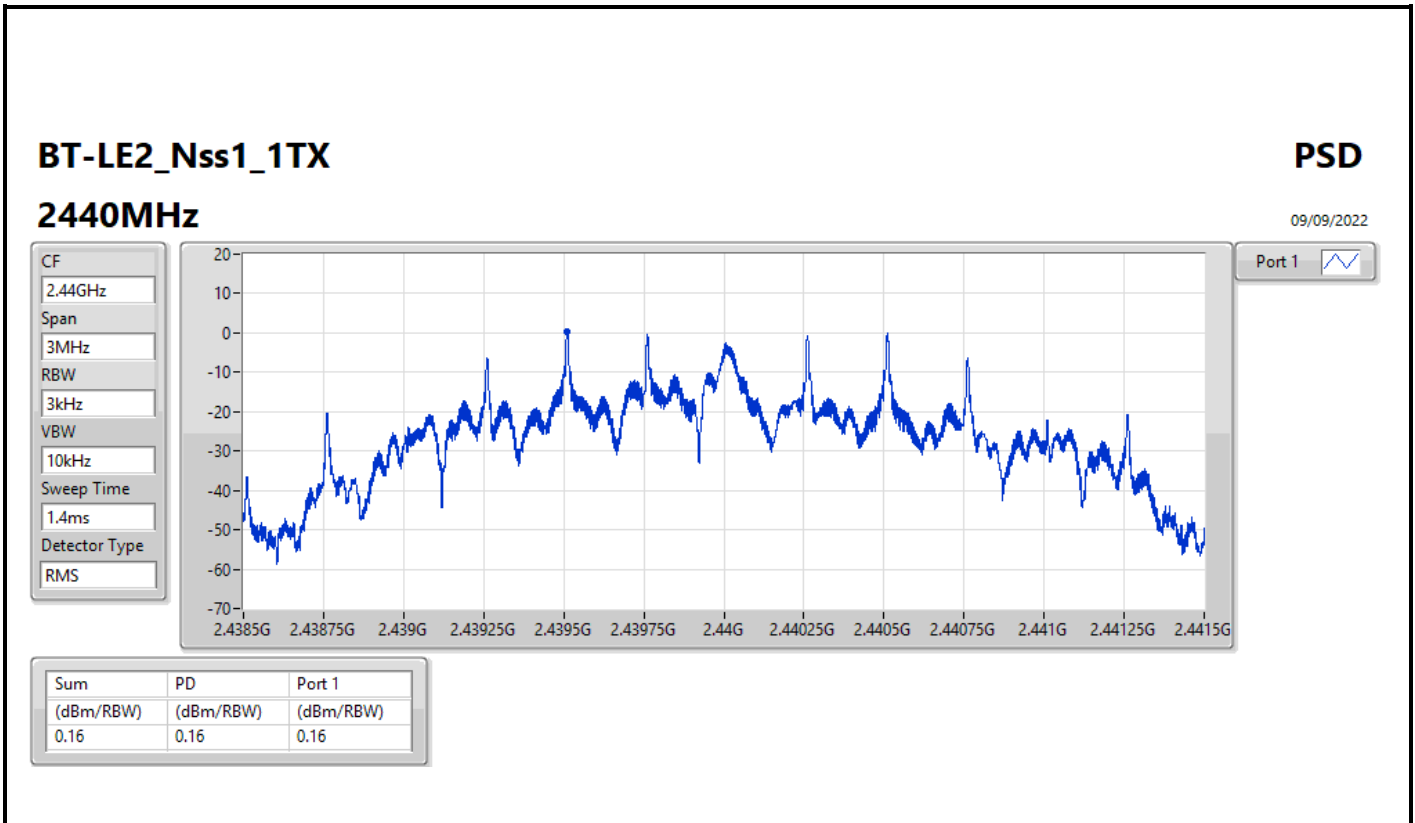
VBW
10kHz

Sweep Time
1.4ms

Detector Type
Peak



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.56	-2.56	-2.56





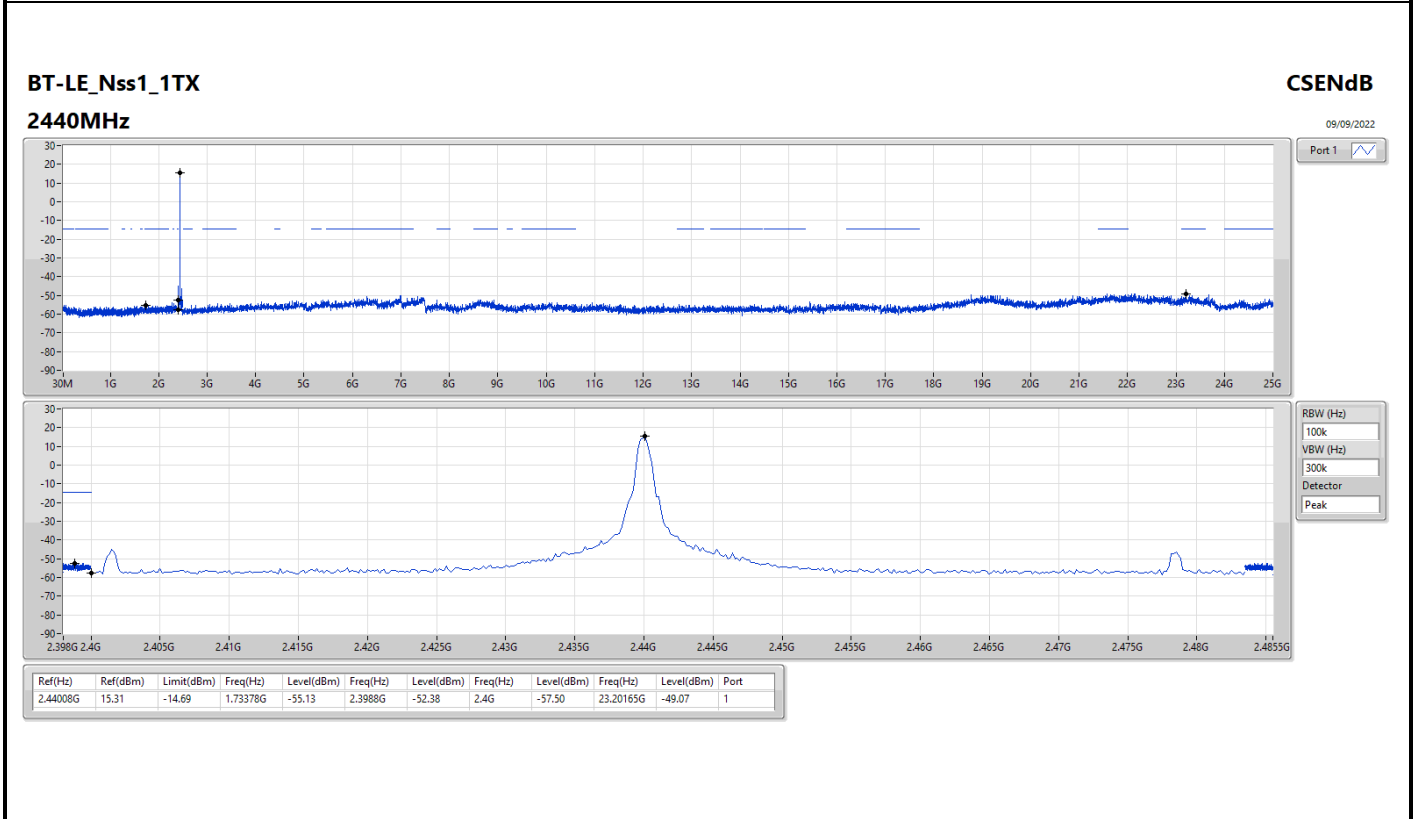
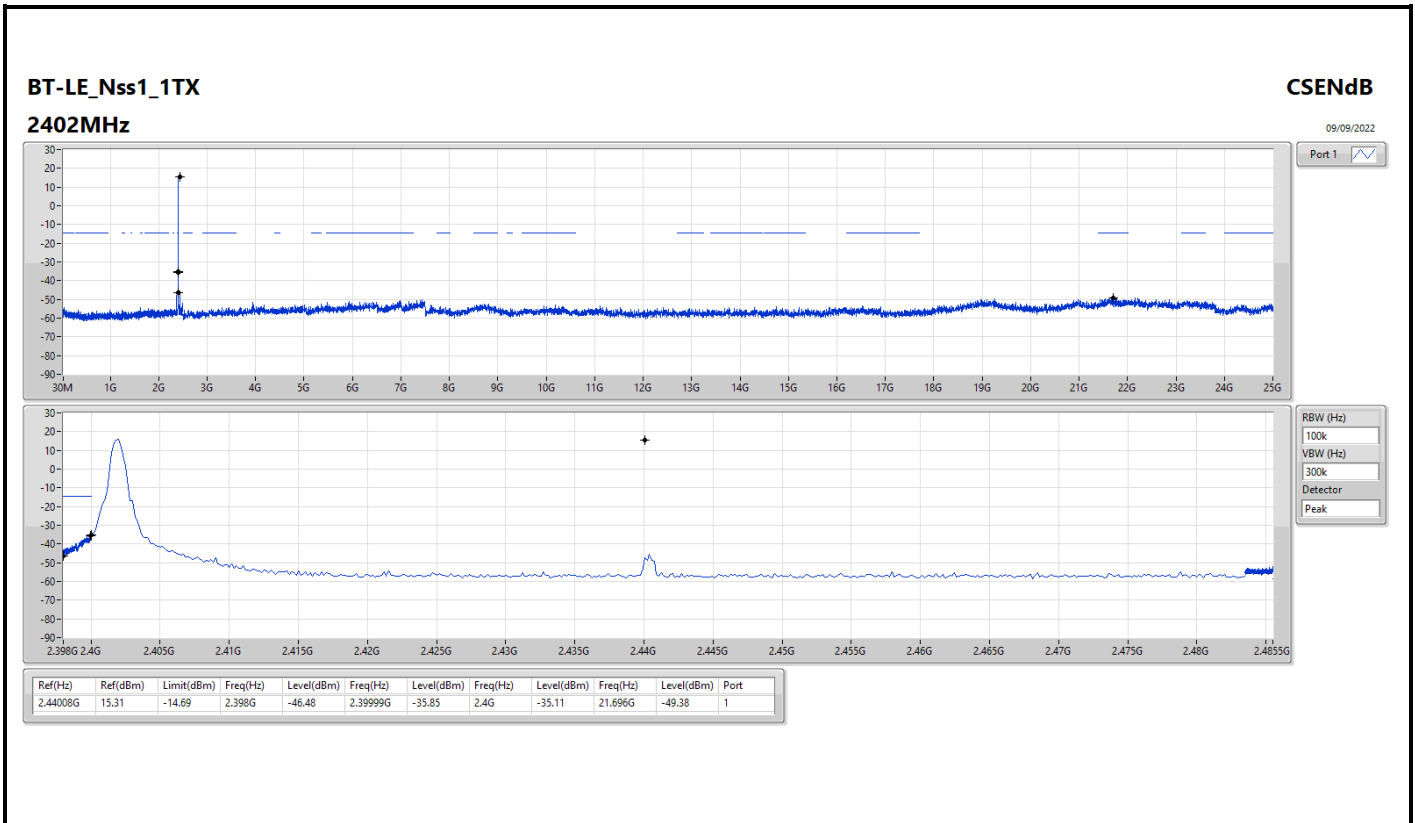
Summary

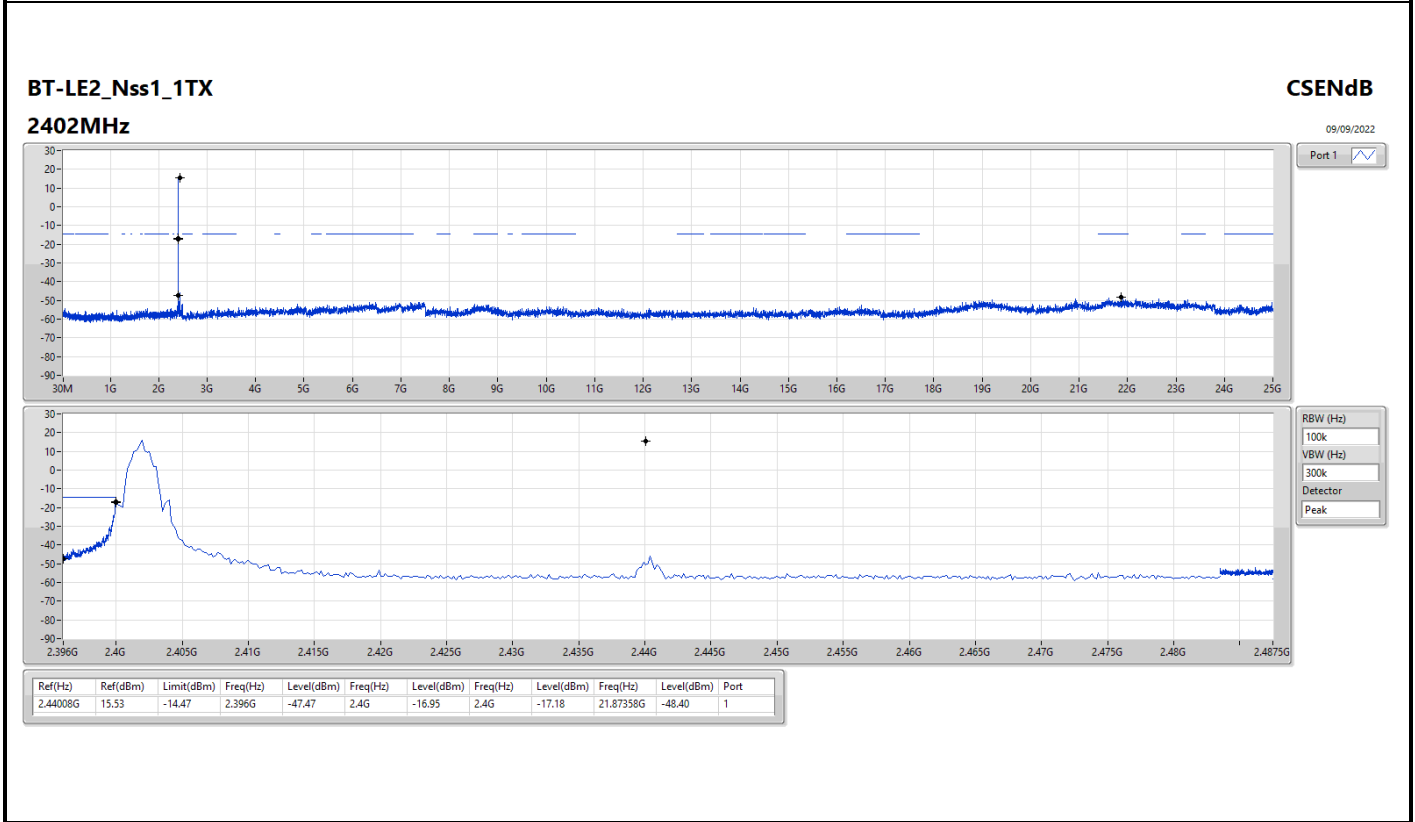
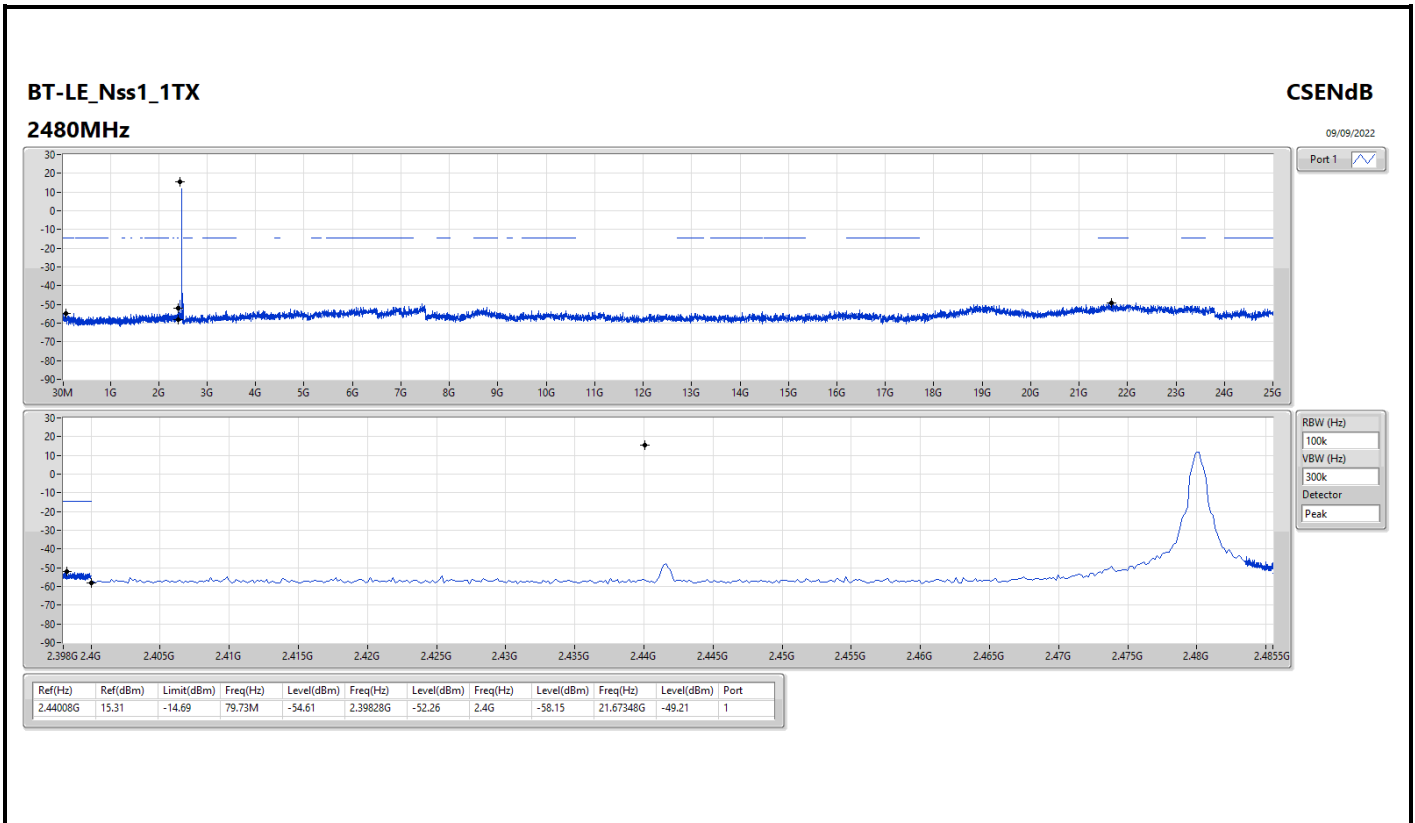
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE_Nss1_1TX	Pass	2.44008G	15.31	-14.69	2.398G	-46.48	2.39999G	-35.85	2.4G	-35.11	21.696G	-49.38	1
BT-LE2_Nss1_1TX	Pass	2.44008G	15.53	-14.47	2.396G	-47.47	2.4G	-16.95	2.4G	-17.18	21.87358G	-48.40	1

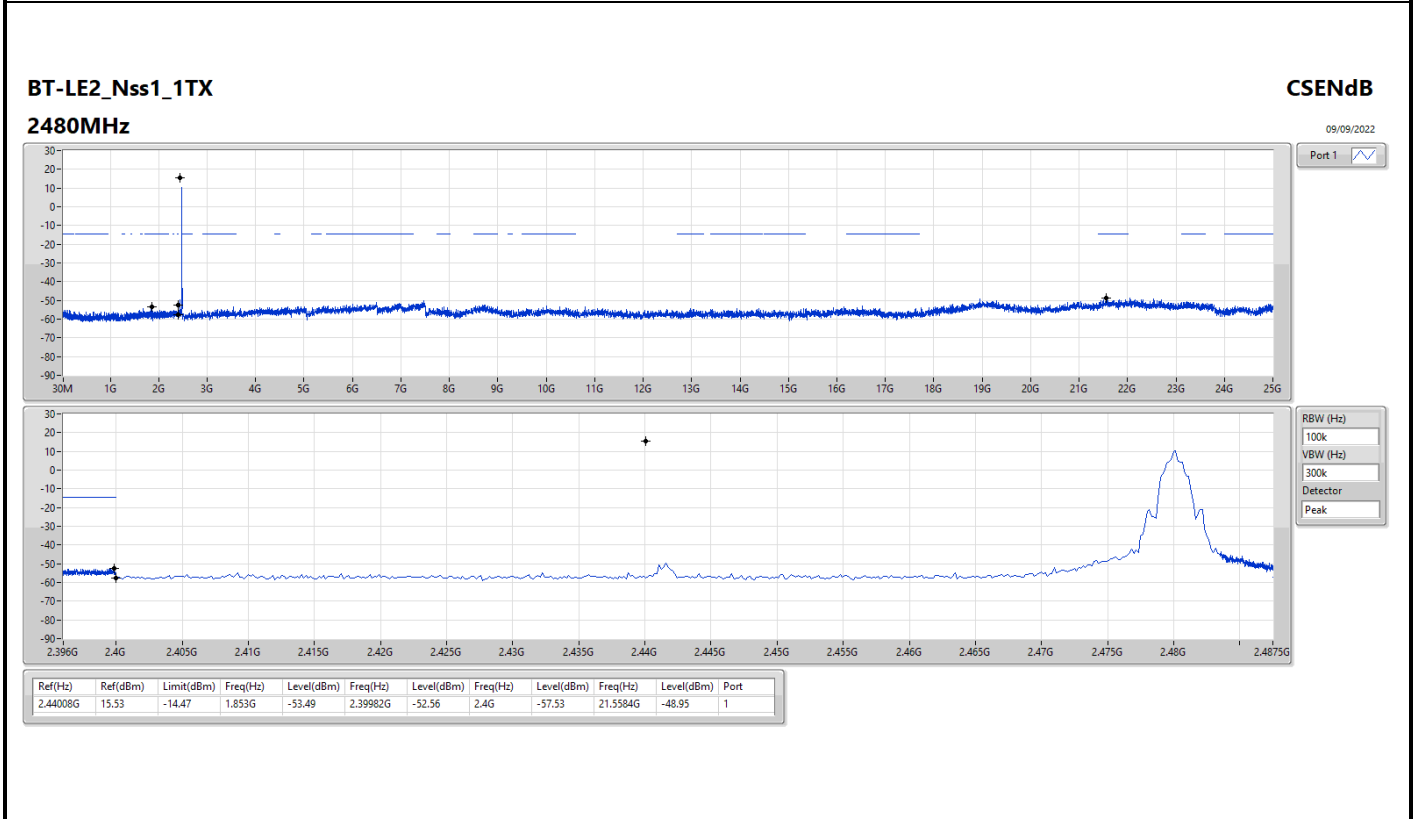
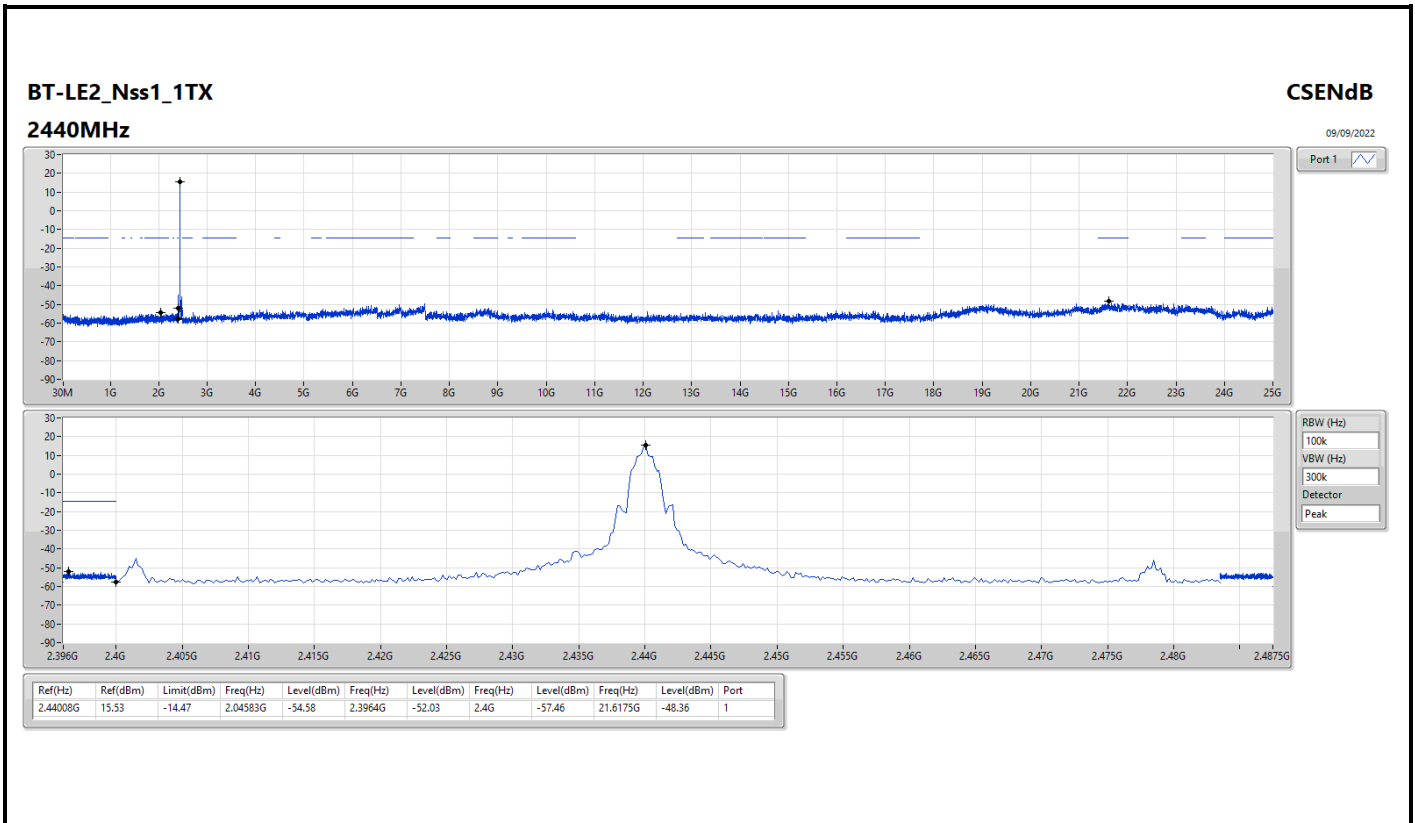


Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44008G	15.31	-14.69	2.398G	-46.48	2.39999G	-35.85	2.4G	-35.11	21.696G	-49.38	1
2440MHz	Pass	2.44008G	15.31	-14.69	1.73378G	-55.13	2.3988G	-52.38	2.4G	-57.50	23.20165G	-49.07	1
2480MHz	Pass	2.44008G	15.31	-14.69	79.73M	-54.61	2.39828G	-52.26	2.4G	-58.15	21.67348G	-49.21	1
BT-LE2_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44008G	15.53	-14.47	2.396G	-47.47	2.4G	-16.95	2.4G	-17.18	21.87358G	-48.40	1
2440MHz	Pass	2.44008G	15.53	-14.47	2.04583G	-54.58	2.3964G	-52.03	2.4G	-57.46	21.6175G	-48.36	1
2480MHz	Pass	2.44008G	15.53	-14.47	1.853G	-53.49	2.39982G	-52.56	2.4G	-57.53	21.5584G	-48.95	1









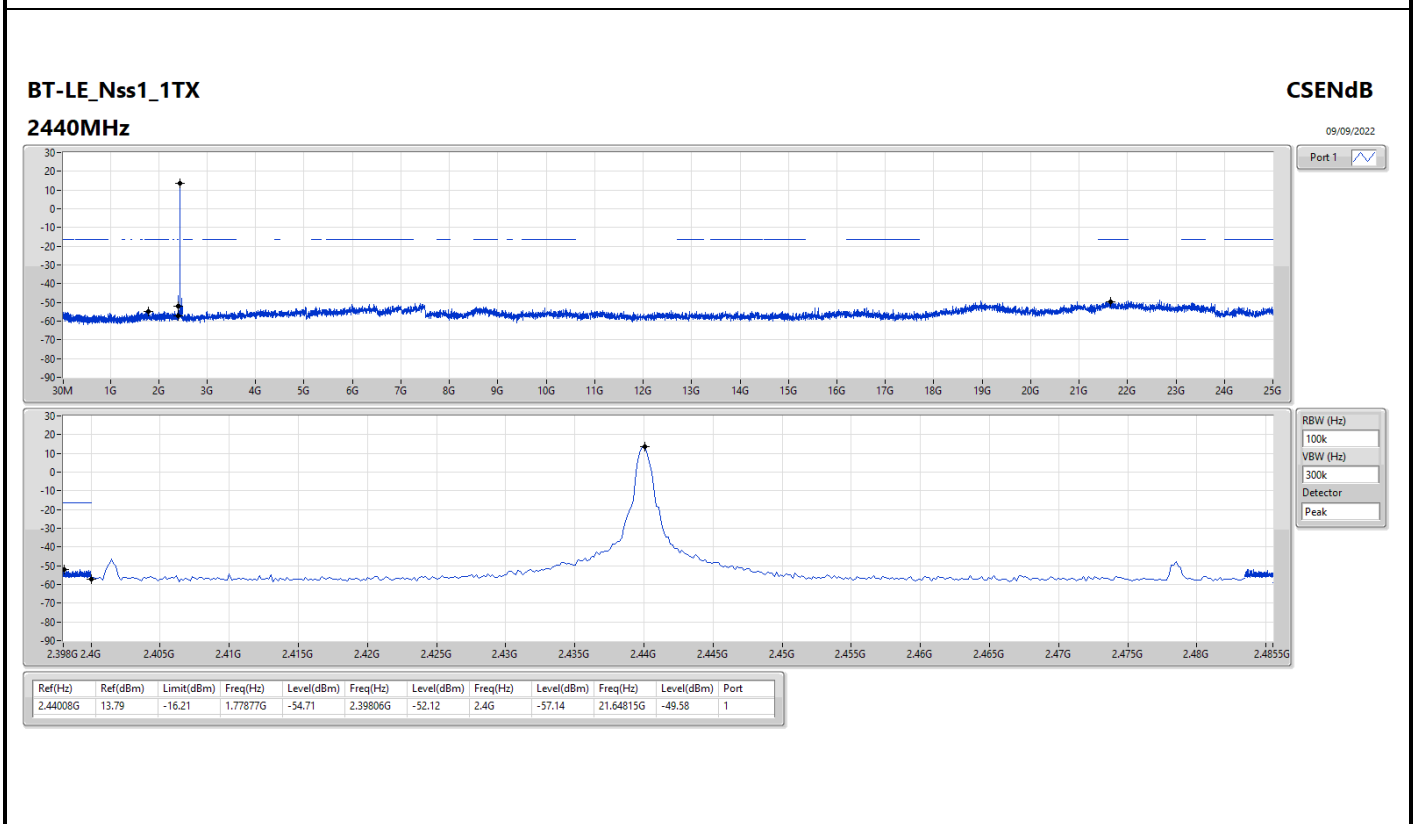
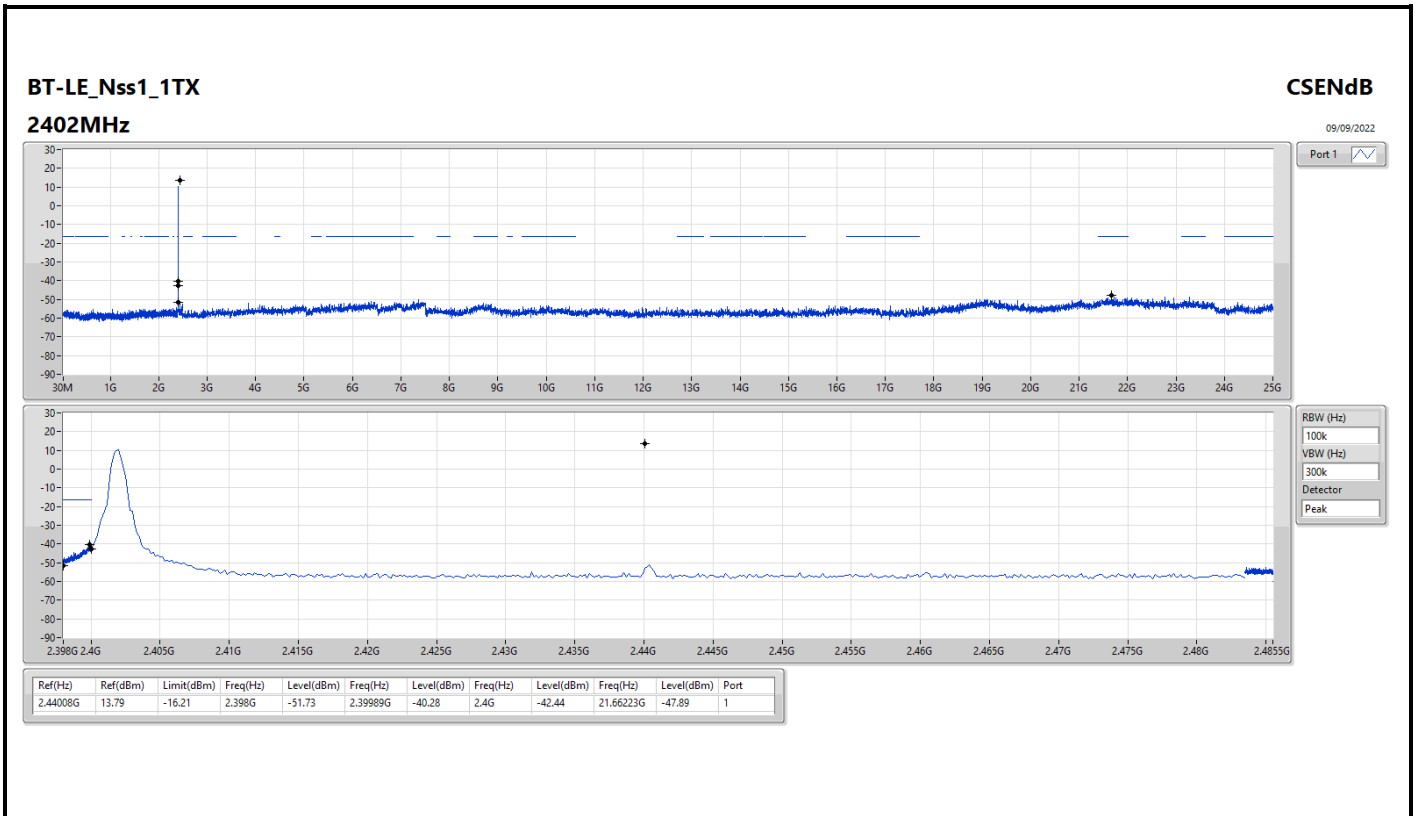
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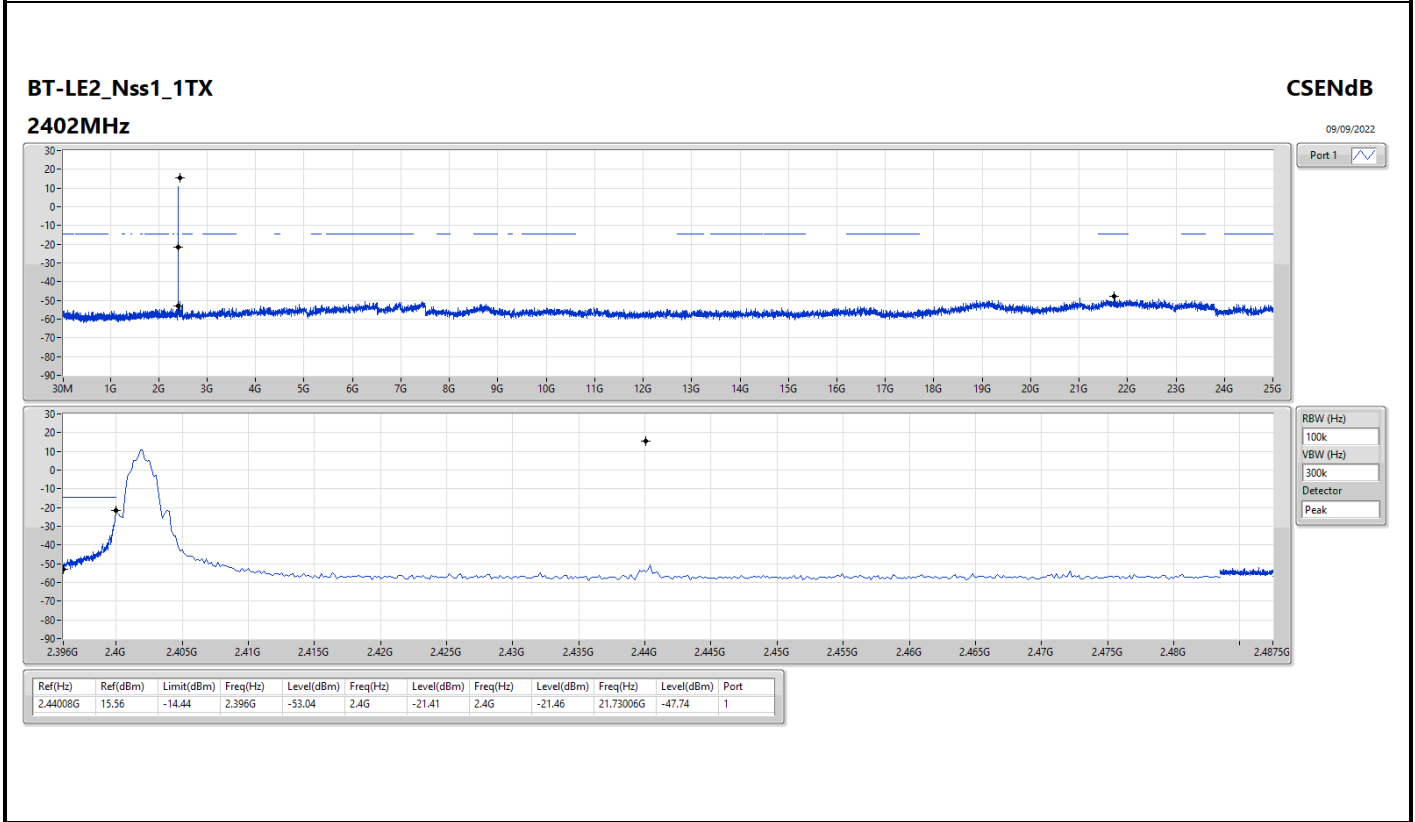
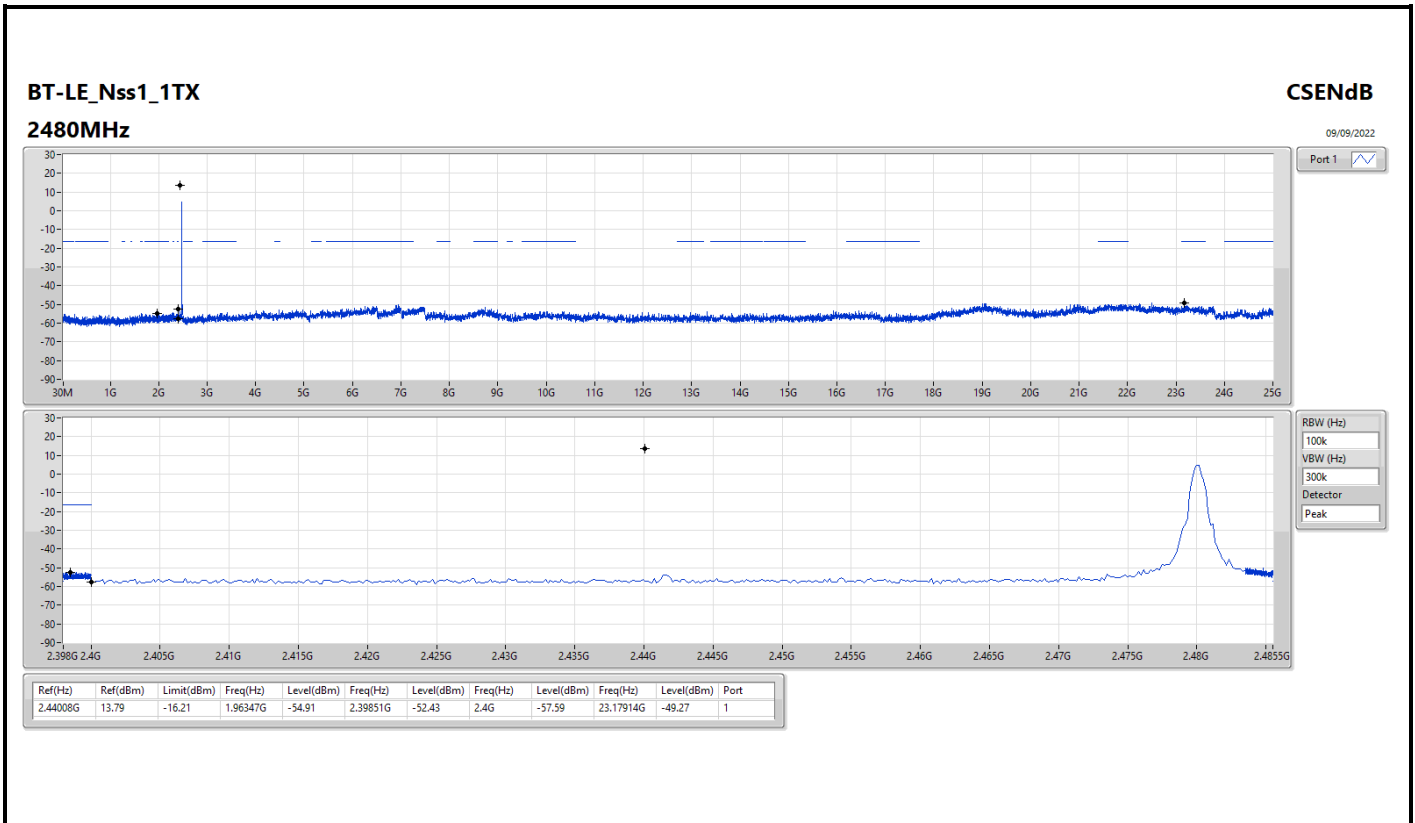
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE_Nss1_1TX	Pass	2.44008G	13.79	-16.21	2.398G	-51.73	2.39989G	-40.28	2.4G	-42.44	21.66223G	-47.89	1
BT-LE2_Nss1_1TX	Pass	2.44008G	15.56	-14.44	2.396G	-53.04	2.4G	-21.41	2.4G	-21.46	21.73006G	-47.74	1

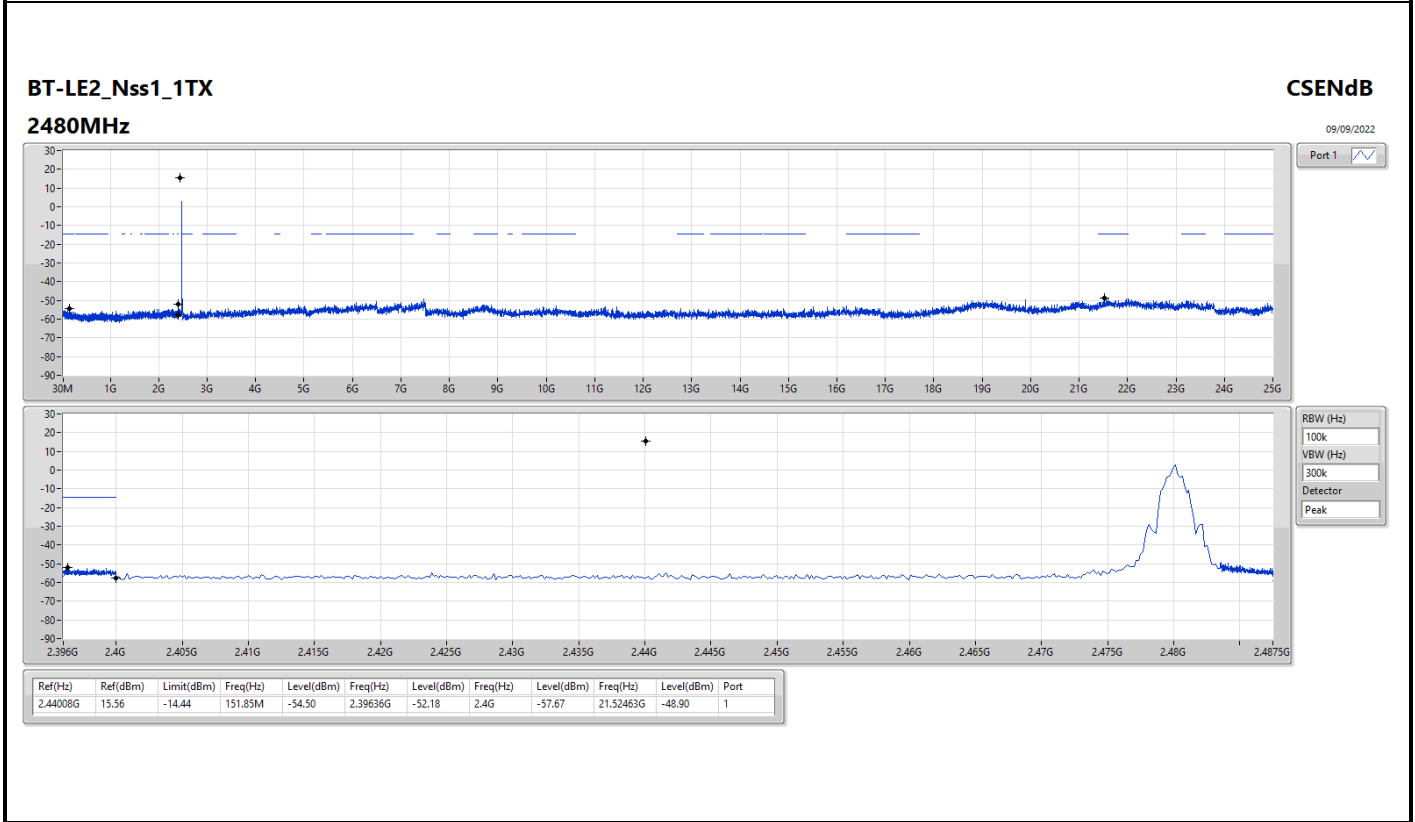
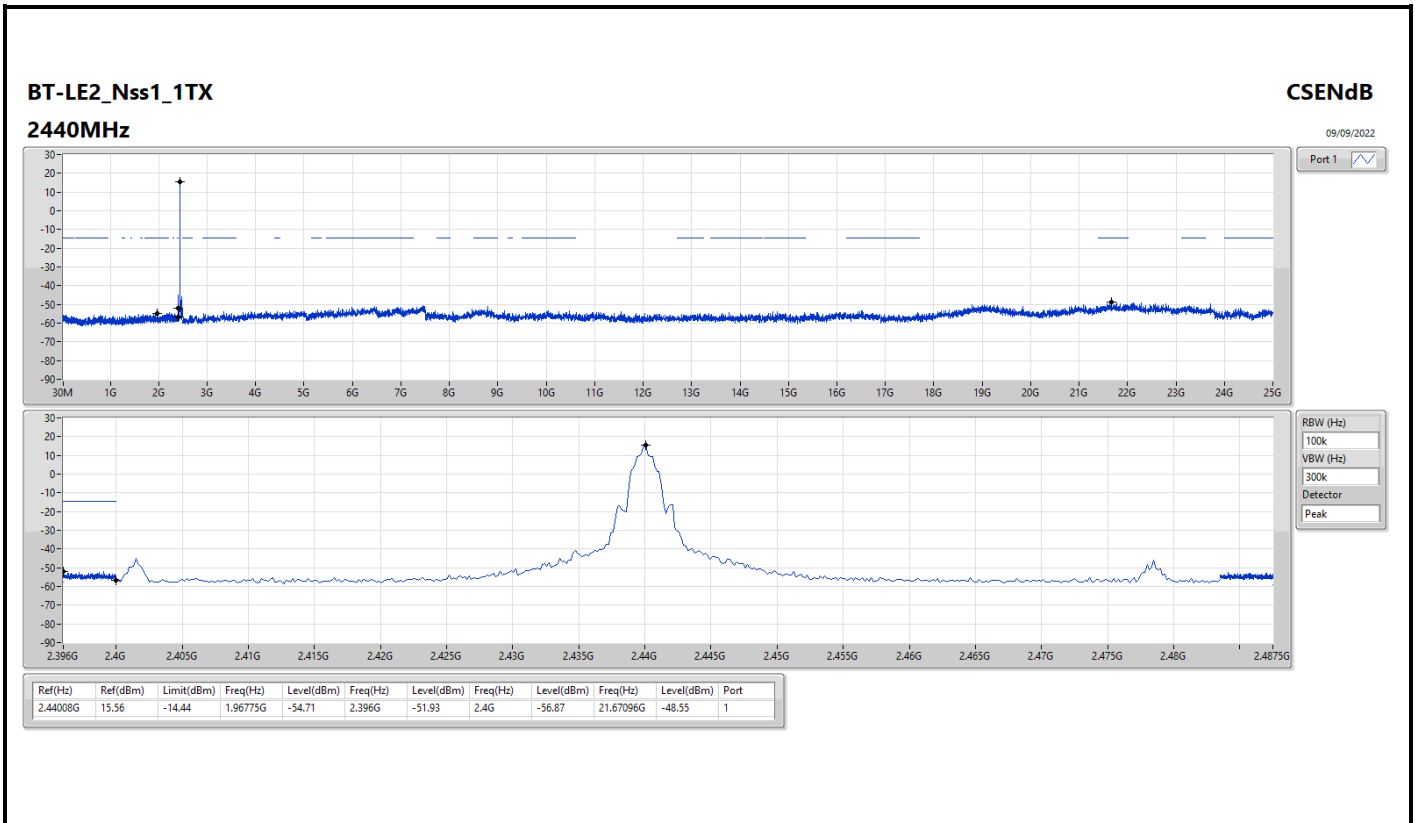


Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44008G	13.79	-16.21	2.398G	-51.73	2.39989G	-40.28	2.4G	-42.44	21.66223G	-47.89	1
2440MHz	Pass	2.44008G	13.79	-16.21	1.77877G	-54.71	2.39806G	-52.12	2.4G	-57.14	21.64815G	-49.58	1
2480MHz	Pass	2.44008G	13.79	-16.21	1.96347G	-54.91	2.39851G	-52.43	2.4G	-57.59	23.17914G	-49.27	1
BT-LE2_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44008G	15.56	-14.44	2.396G	-53.04	2.4G	-21.41	2.4G	-21.46	21.73006G	-47.74	1
2440MHz	Pass	2.44008G	15.56	-14.44	1.96775G	-54.71	2.396G	-51.93	2.4G	-56.87	21.67096G	-48.55	1
2480MHz	Pass	2.44008G	15.56	-14.44	151.85M	-54.50	2.39636G	-52.18	2.4G	-57.67	21.52463G	-48.90	1









Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	P1 (dBm)	P2 (dBm)	P3 (dBm)	P4 (dBm)
5.725-5.85GHz	-	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW20_Nss1,(MCS0)_4TX	Pass	30M	1G	PK	75.11M	-55.37	-55.20	-0.17	-79.69	-90.48	-88.60	-91.10

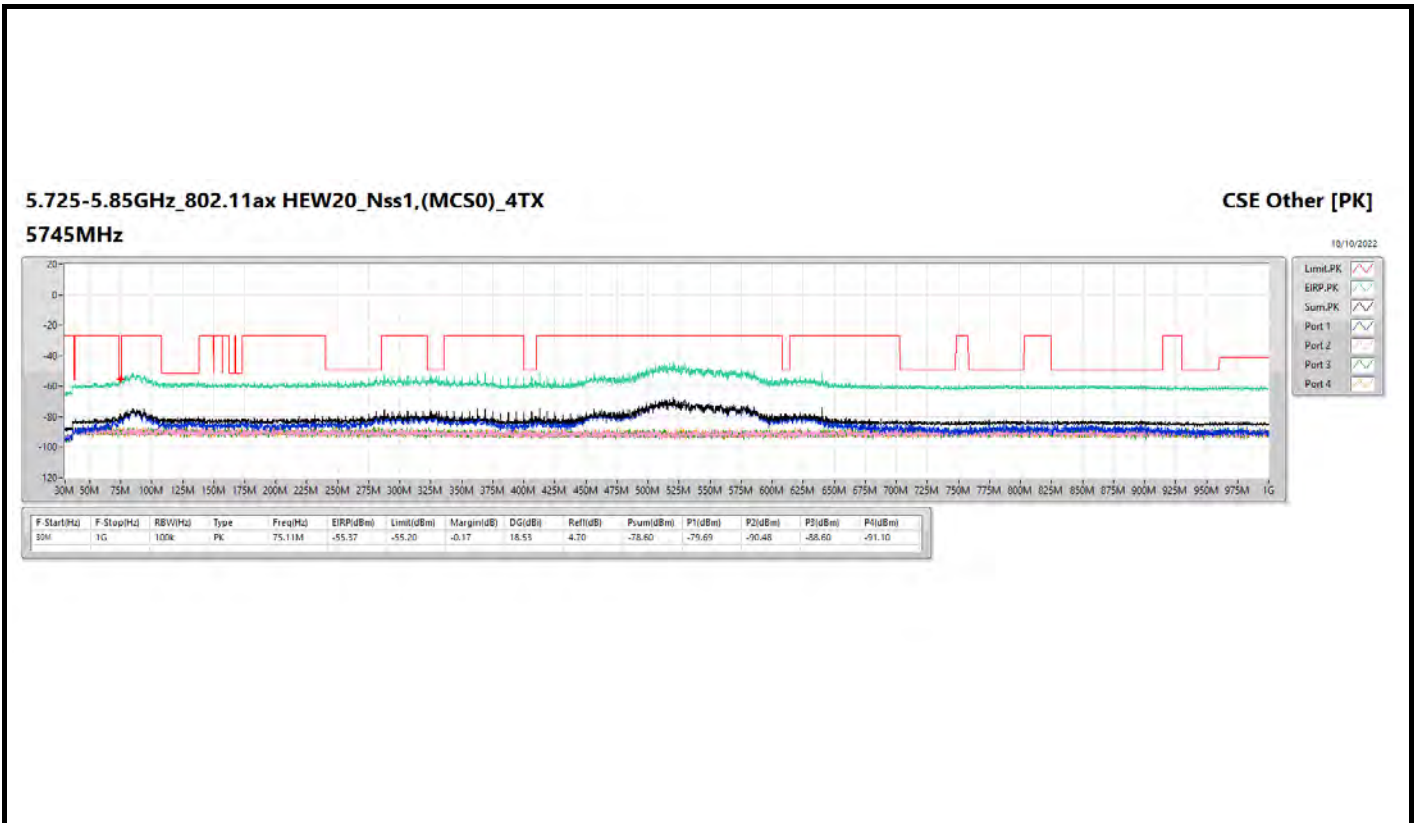
DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	P2 (dBm)	P3 (dBm)	P4 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
802.11ax HEW20_Nss1,(MCS0)_4TX	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5745MHz	Pass	30M	1G	PK	75.11M	18.53	-79.69	-90.48	-88.60	-91.10	-78.60	-55.37	-55.20	-0.17

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

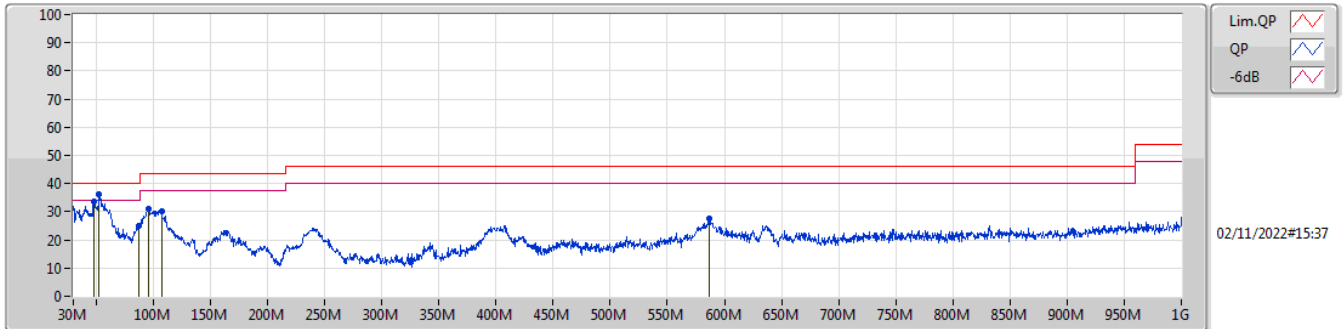




Summary

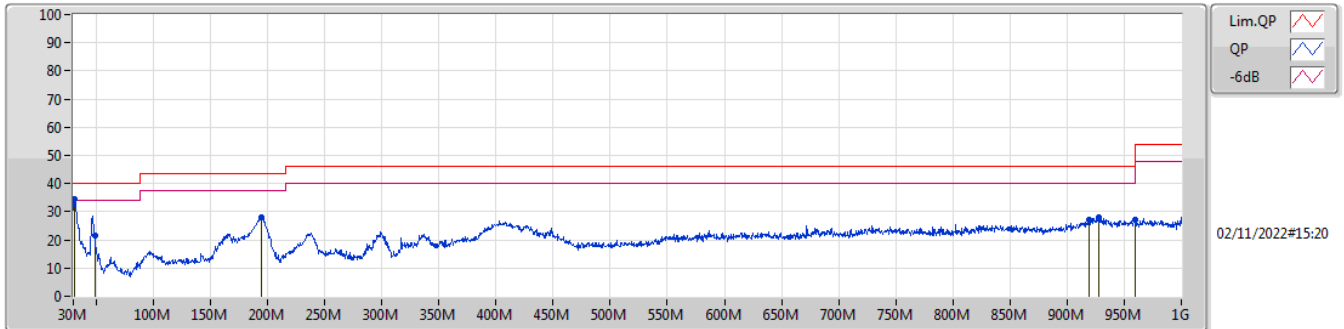
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 5	Pass	PK	52.8M	36.03	40.00	-3.97	Vertical

Test Mode 5



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	48.43M	33.55	40.00	-6.45	-37.58	3	Vertical	21	2.00	-	71.13	15.63	0.86	54.07
PK	52.8M	36.03	40.00	-3.97	-39.66	3	Vertical	311	1.00	"Worst"	75.69	13.57	0.91	54.14
PK	87.23M	25.00	40.00	-15.00	-38.67	3	Vertical	57	2.00	-	63.67	14.21	1.20	54.08
PK	95.96M	31.20	43.50	-12.30	-37.47	3	Vertical	210	3.00	-	68.67	15.47	1.23	54.17
PK	107.6M	29.98	43.50	-13.52	-36.16	3	Vertical	31	4.00	-	66.14	16.82	1.33	54.31
PK	586.3M	27.42	46.00	-18.58	-24.61	3	Vertical	55	2.00	-	52.03	25.85	3.10	53.56

Test Mode 5



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	31.46M	34.39	40.00	-5.61	-29.89	3	Horizontal	133	2.00	"Worst"	64.28	23.79	0.71	54.39
PK	48.92M	21.46	40.00	-18.54	-37.82	3	Horizontal	63	2.00	-	59.28	15.41	0.86	54.09
PK	194.9M	27.90	43.50	-15.60	-37.54	3	Horizontal	73	2.00	-	65.44	14.76	1.76	54.06
PK	919.49M	27.14	46.00	-18.86	-19.02	3	Horizontal	353	4.00	-	46.16	29.99	3.91	52.92
PK	927.74M	27.84	46.00	-18.16	-18.67	3	Horizontal	311	1.00	-	46.51	30.26	3.97	52.90
PK	959.75M	27.33	46.00	-18.67	-17.90	3	Horizontal	123	1.00	-	45.23	30.84	4.10	52.84



**CSE (Restricted Band)_R4_Antenna set 11
(Harmonic 1GHz ~ 3GHz)**

Appendix F.3

Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE_Nss1_1TX	Pass	1G	2.398G	AV	2.36375G	4.00	-48.74	-48.74	-44.74	-41.20	-3.54
BT-LE2_Nss1_1TX	Pass	1G	2.396G	AV	2.36354G	4.00	-49.76	-49.76	-45.76	-41.20	-4.56

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



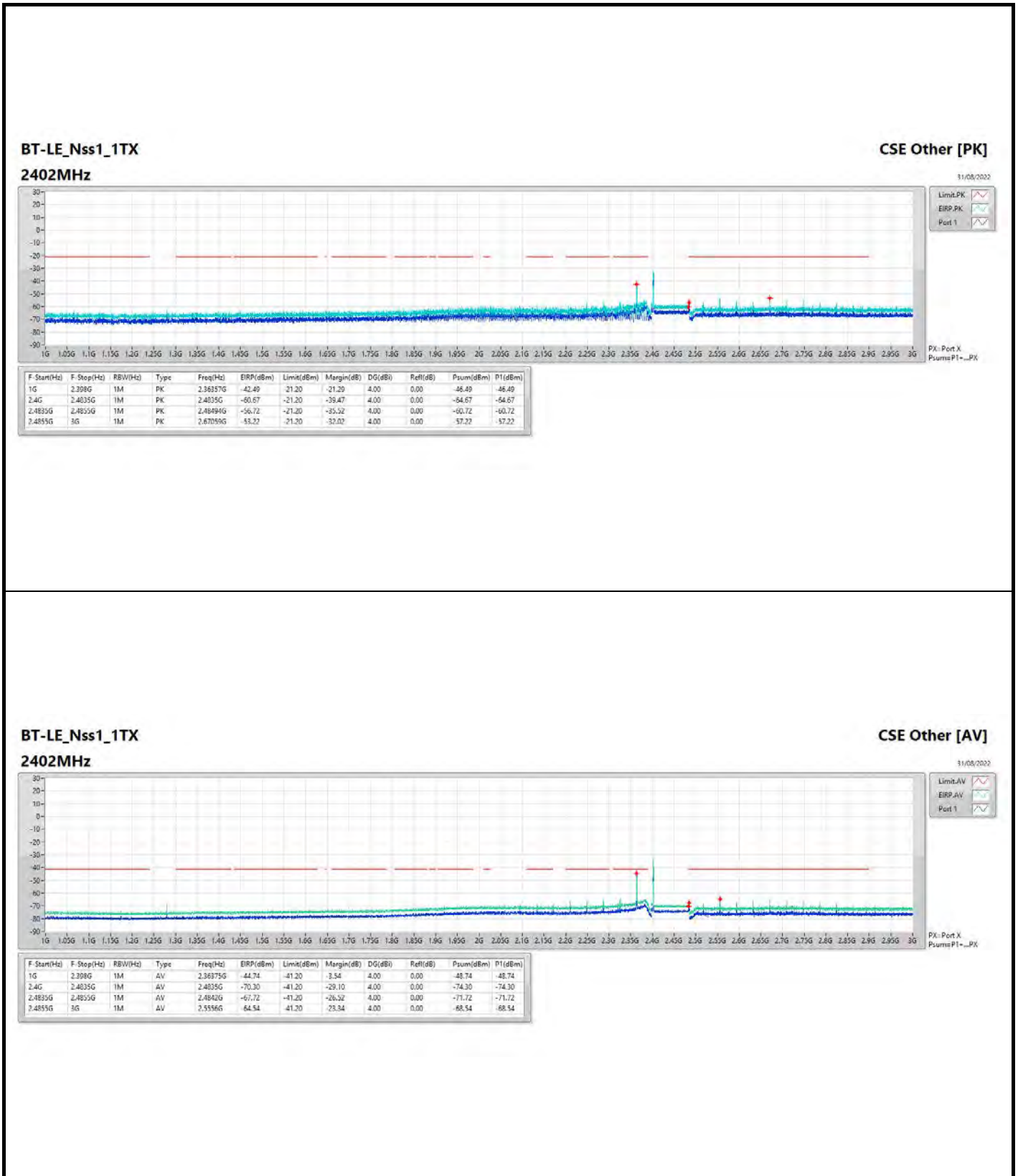
**CSE (Restricted Band)_R4_Antenna set 11
(Harmonic 1GHz ~ 3GHz)**

Appendix F.3

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
BT-LE_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	1G	2.398G	AV	2.36375G	4.00	-48.74	-48.74	-44.74	-41.20	-3.54
2402MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-74.30	-74.30	-70.30	-41.20	-29.10
2402MHz	Pass	2.4835G	2.4855G	AV	2.4842G	4.00	-71.72	-71.72	-67.72	-41.20	-26.52
2402MHz	Pass	2.4855G	3G	AV	2.5556G	4.00	-68.54	-68.54	-64.54	-41.20	-23.34
2402MHz	Pass	1G	2.398G	PK	2.36357G	4.00	-46.49	-46.49	-42.49	-21.20	-21.29
2402MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-64.67	-64.67	-60.67	-21.20	-39.47
2402MHz	Pass	2.4835G	2.4855G	PK	2.48494G	4.00	-60.72	-60.72	-56.72	-21.20	-35.52
2402MHz	Pass	2.4855G	3G	PK	2.67059G	4.00	-57.22	-57.22	-53.22	-21.20	-32.02
2440MHz	Pass	1G	2.398G	AV	2.36322G	4.00	-69.64	-69.64	-65.64	-41.20	-24.44
2440MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-73.94	-73.94	-69.94	-41.20	-28.74
2440MHz	Pass	2.4835G	2.4855G	AV	2.4845G	4.00	-71.90	-71.90	-67.90	-41.20	-26.70
2440MHz	Pass	2.4855G	3G	AV	2.59355G	4.00	-70.20	-70.20	-66.20	-41.20	-25.00
2440MHz	Pass	1G	2.398G	PK	2.36375G	4.00	-63.33	-63.33	-59.33	-21.20	-38.13
2440MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-65.30	-65.30	-61.30	-21.20	-40.10
2440MHz	Pass	2.4835G	2.4855G	PK	2.48351G	4.00	-61.27	-61.27	-57.27	-21.20	-36.07
2440MHz	Pass	2.4855G	3G	PK	2.74712G	4.00	-59.42	-59.42	-55.42	-21.20	-34.22
2480MHz	Pass	1G	2.398G	AV	2.3648G	4.00	-71.22	-71.22	-67.22	-41.20	-26.02
2480MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-74.60	-74.60	-70.60	-41.20	-29.40
2480MHz	Pass	2.4835G	2.4855G	AV	2.48406G	4.00	-71.94	-71.94	-67.94	-41.20	-26.74
2480MHz	Pass	2.4855G	3G	AV	2.51843G	4.00	-51.63	-51.63	-47.63	-41.20	-6.43
2480MHz	Pass	1G	2.398G	PK	2.36497G	4.00	-59.81	-59.81	-55.81	-21.20	-34.61
2480MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-64.90	-64.90	-60.90	-21.20	-39.70
2480MHz	Pass	2.4835G	2.4855G	PK	2.48536G	4.00	-60.97	-60.97	-56.97	-21.20	-35.77
2480MHz	Pass	2.4855G	3G	PK	2.51817G	4.00	-49.08	-49.08	-45.08	-21.20	-23.88
BT-LE2_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	1G	2.396G	AV	2.36354G	4.00	-49.76	-49.76	-45.76	-41.20	-4.56
2402MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-74.65	-74.65	-70.65	-41.20	-29.45
2402MHz	Pass	2.4835G	2.4875G	AV	2.48716G	4.00	-71.75	-71.75	-67.75	-41.20	-26.55
2402MHz	Pass	2.4875G	3G	AV	2.70916G	4.00	-68.33	-68.33	-64.33	-41.20	-23.13
2402MHz	Pass	1G	2.396G	PK	2.36319G	4.00	-46.78	-46.78	-42.78	-21.20	-21.58
2402MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-64.03	-64.03	-60.03	-21.20	-38.83
2402MHz	Pass	2.4835G	2.4875G	PK	2.48548G	4.00	-61.00	-61.00	-57.00	-21.20	-35.80
2402MHz	Pass	2.4875G	3G	PK	2.55541G	4.00	-57.31	-57.31	-53.31	-21.20	-32.11
2440MHz	Pass	1G	2.396G	AV	2.36337G	4.00	-68.04	-68.04	-64.04	-41.20	-22.84
2440MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-74.17	-74.17	-70.17	-41.20	-28.97
2440MHz	Pass	2.4835G	2.4875G	AV	2.48507G	4.00	-71.98	-71.98	-67.98	-41.20	-26.78
2440MHz	Pass	2.4875G	3G	AV	2.74721G	4.00	-68.22	-68.22	-64.22	-41.20	-23.02
2440MHz	Pass	1G	2.396G	PK	2.32498G	4.00	-58.64	-58.64	-54.64	-21.20	-33.44
2440MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-64.39	-64.39	-60.39	-21.20	-39.19
2440MHz	Pass	2.4835G	2.4875G	PK	2.4854G	4.00	-61.22	-61.22	-57.22	-21.20	-36.02
2440MHz	Pass	2.4875G	3G	PK	2.59372G	4.00	-56.82	-56.82	-52.82	-21.20	-31.62
2480MHz	Pass	1G	2.396G	AV	2.32655G	4.00	-71.78	-71.78	-67.78	-41.20	-26.58
2480MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-74.08	-74.08	-70.08	-41.20	-28.88
2480MHz	Pass	2.4835G	2.4875G	AV	2.48464G	4.00	-71.22	-71.22	-67.22	-41.20	-26.02
2480MHz	Pass	2.4875G	3G	AV	2.51851G	4.00	-56.56	-56.56	-52.56	-41.20	-11.36
2480MHz	Pass	1G	2.396G	PK	2.36494G	4.00	-61.64	-61.64	-57.64	-21.20	-36.44
2480MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-63.97	-63.97	-59.97	-21.20	-38.77
2480MHz	Pass	2.4835G	2.4875G	PK	2.48679G	4.00	-60.52	-60.52	-56.52	-21.20	-35.32
2480MHz	Pass	2.4875G	3G	PK	2.51787G	4.00	-50.57	-50.57	-46.57	-21.20	-25.37

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

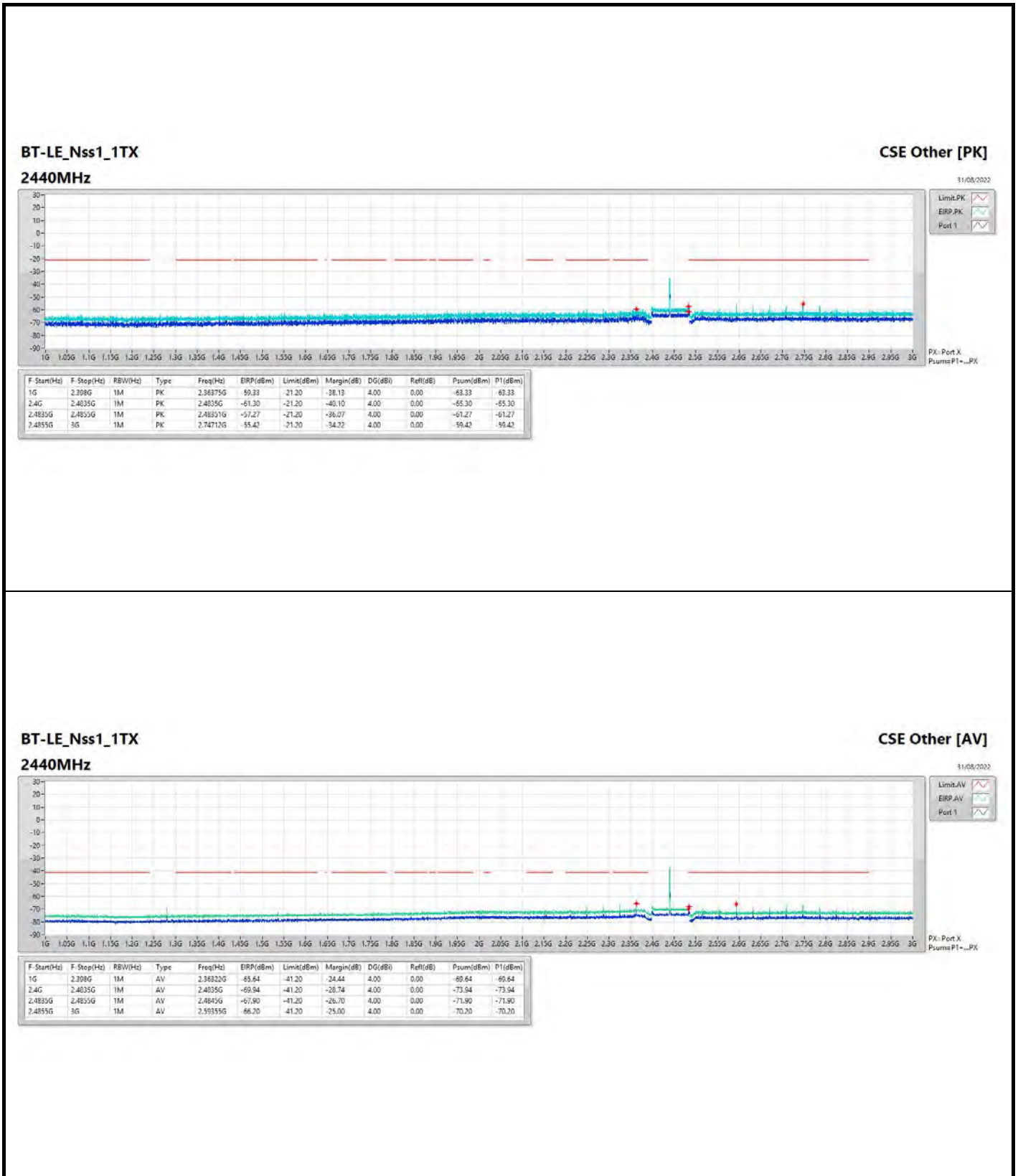


BT-LE_Nss1_1TX

2402MHz

CSE Other [AV]

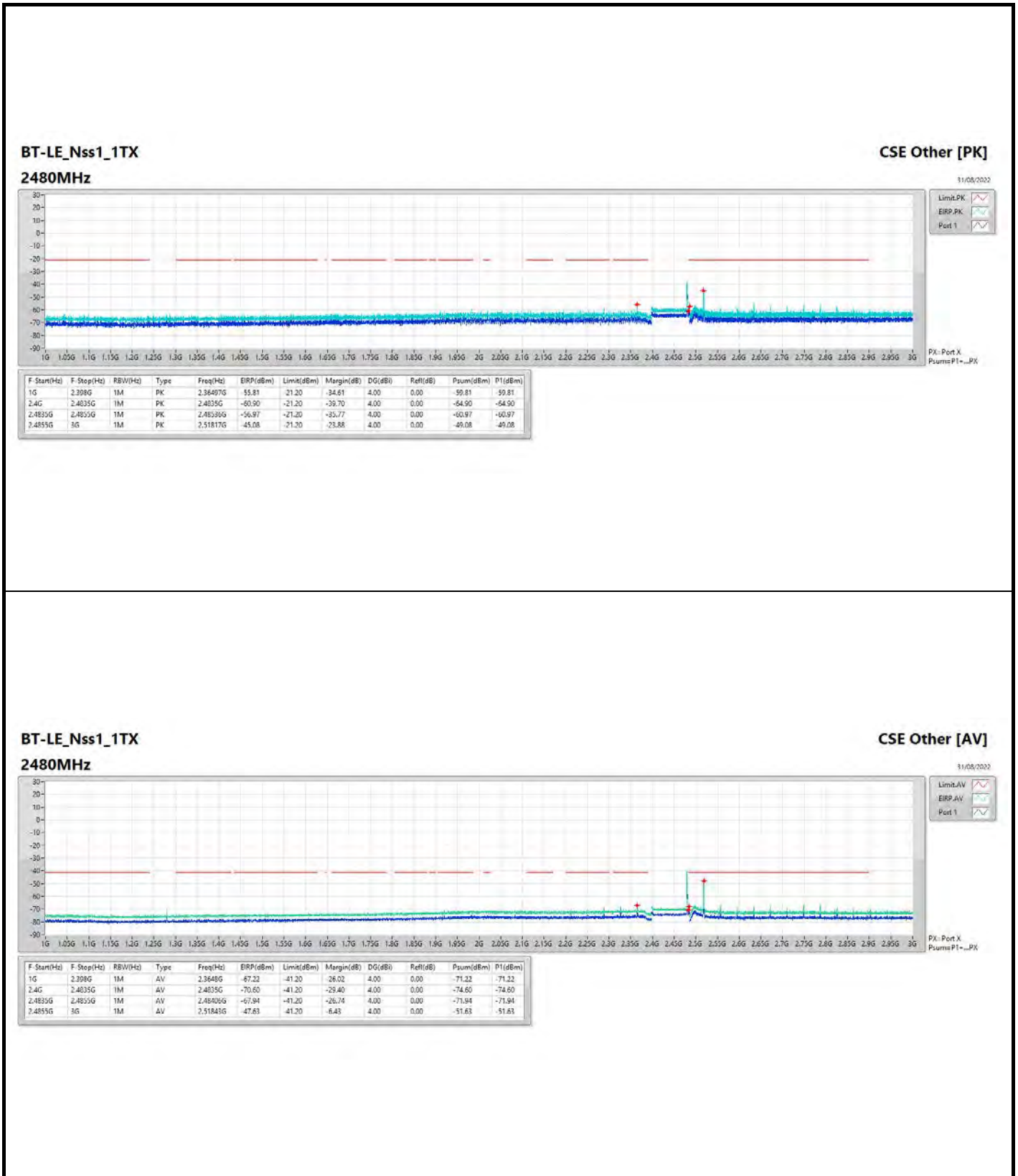
31/05/2022



BT-LE_Nss1_1TX
2440MHz

CSE Other [AV]

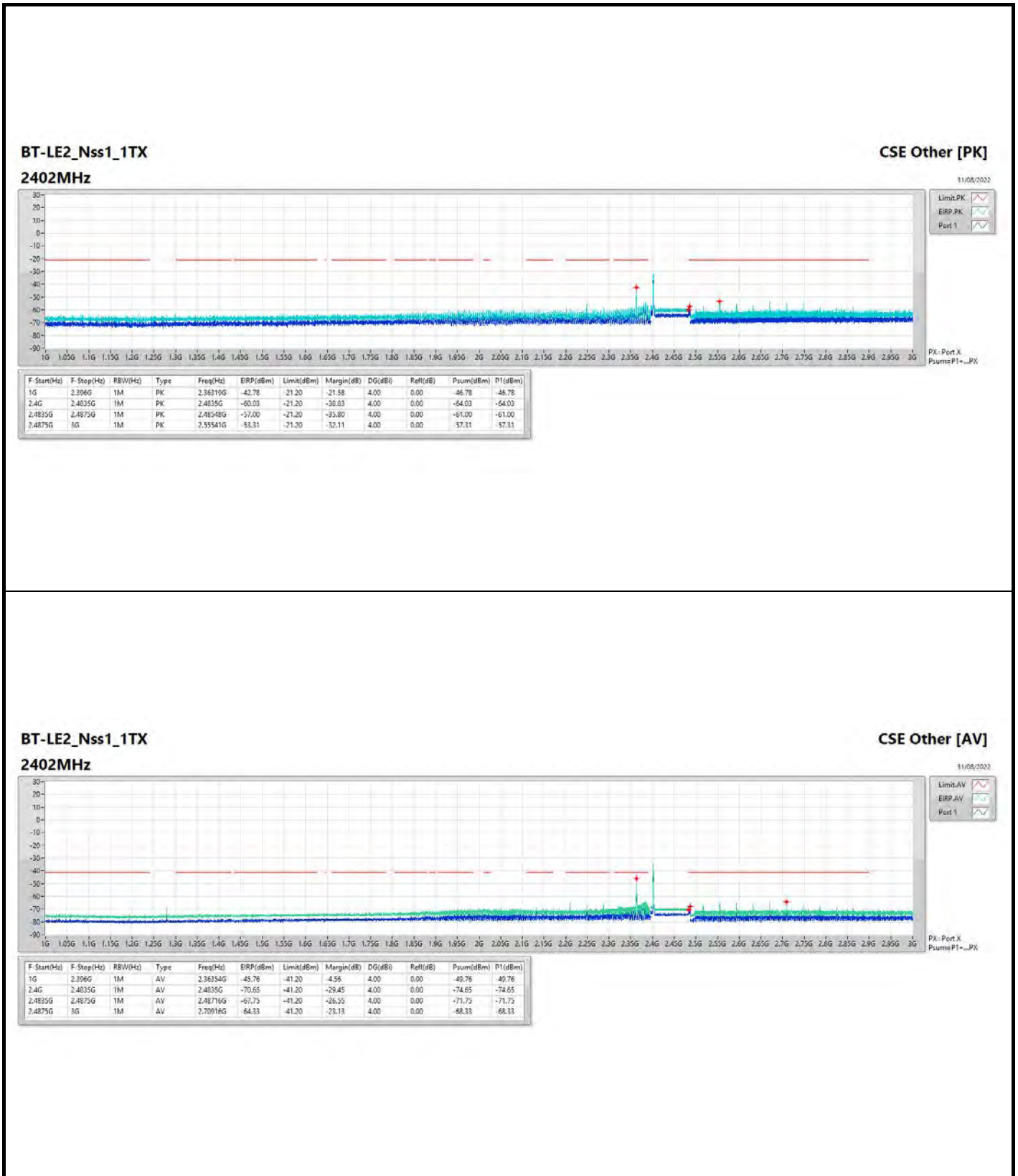
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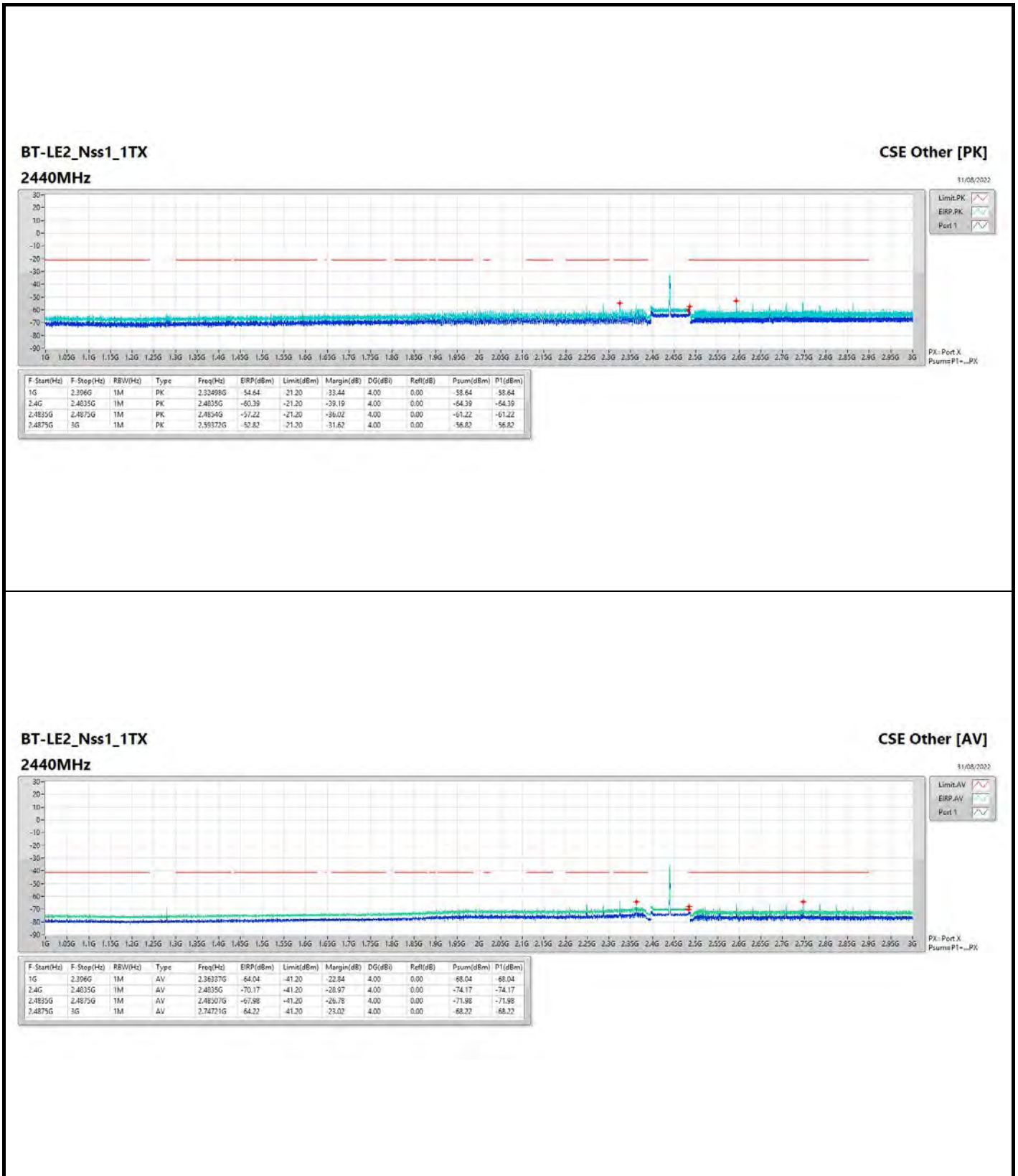


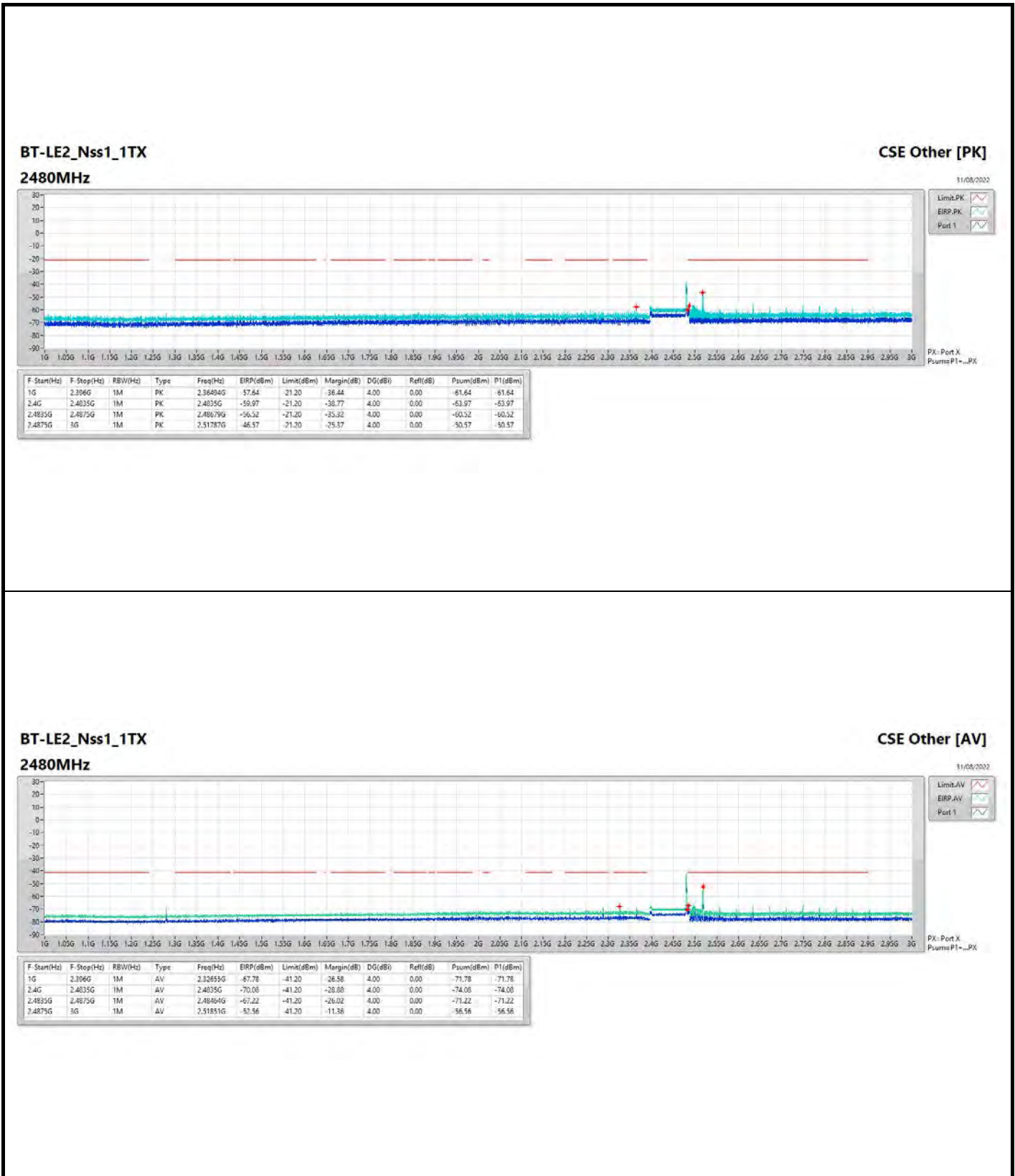
BT-LE_Nss1_1TX
2480MHz

CSE Other [AV]

31/08/2022







BT-LE2_Nss1_1TX
2480MHz

CSE Other [AV]

31/08/2022

Limit AV
ERP AV
Port 1
PX=Port X
Psum=P1...PX



**CSE (Restricted Band)_R4_Antenna set 11
(Harmonic 3GHz ~ 25GHz)**

Appendix F.4

Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE_Nss1_1TX	Pass	3G	7.5G	AV	4.87988G	4.00	-67.23	-67.23	-63.23	-41.20	-22.03
BT-LE2_Nss1_1TX	Pass	3G	7.5G	AV	7.32G	4.00	-67.31	-67.31	-63.31	-41.20	-22.11

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



**CSE (Restricted Band)_R4_Antenna set 11
(Harmonic 3GHz ~ 25GHz)**

Appendix F.4

Result

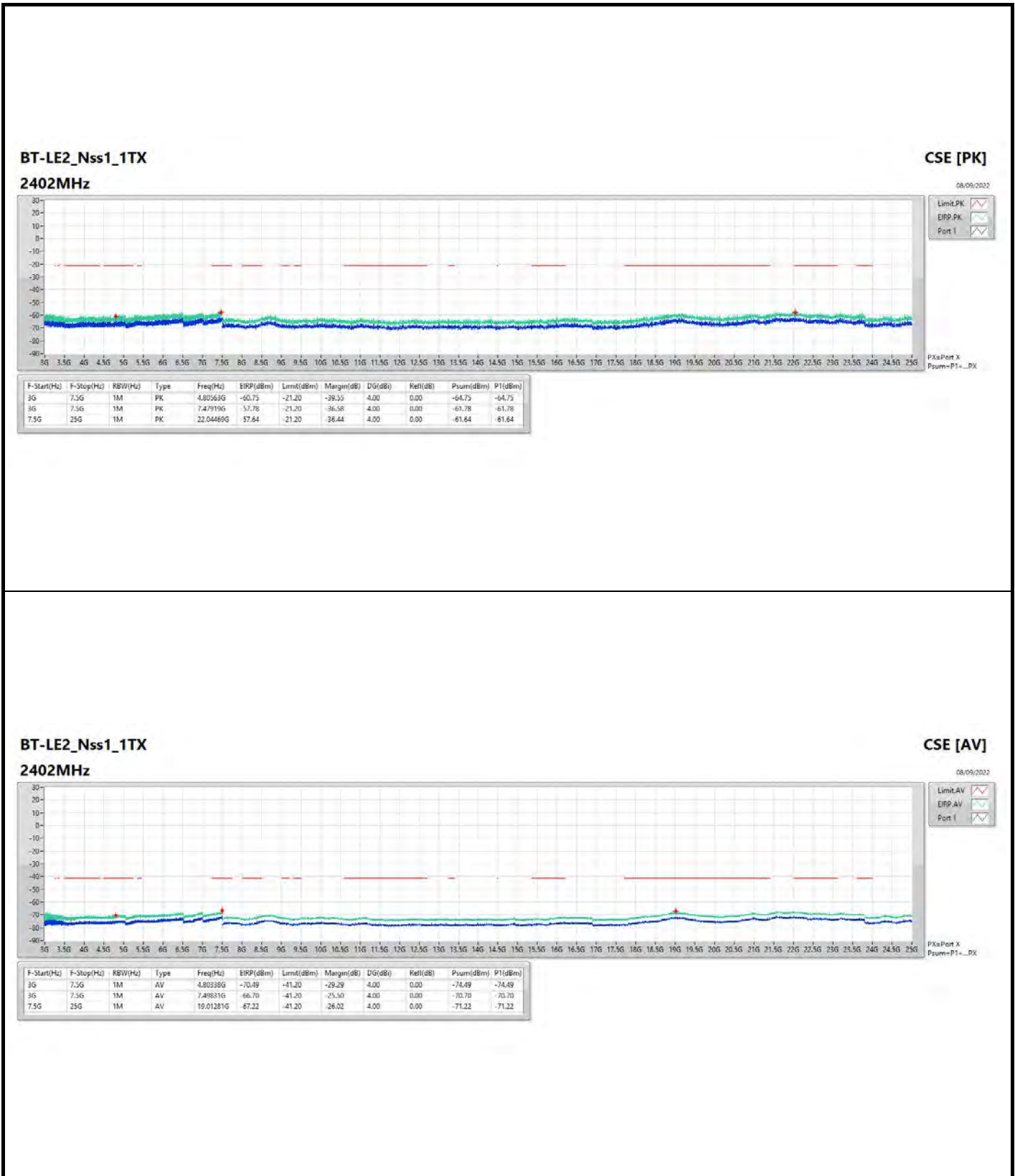
Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
BT-LE_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	3G	7.5G	AV	4.8045G	4.00	-73.36	-73.36	-69.36	-41.20	-28.16
2402MHz	Pass	3G	7.5G	AV	7.46175G	4.00	-71.10	-71.10	-67.10	-41.20	-25.90
2402MHz	Pass	7.5G	25G	AV	22.17594G	4.00	-71.19	-71.19	-67.19	-41.20	-25.99
2402MHz	Pass	3G	7.5G	PK	4.8045G	4.00	-64.42	-64.42	-60.42	-21.20	-39.22
2402MHz	Pass	3G	7.5G	PK	7.46175G	4.00	-61.78	-61.78	-57.78	-21.20	-36.58
2402MHz	Pass	7.5G	25G	PK	22.1125G	4.00	-60.76	-60.76	-56.76	-21.20	-35.56
2440MHz	Pass	3G	7.5G	AV	4.87988G	4.00	-67.23	-67.23	-63.23	-41.20	-22.03
2440MHz	Pass	7.5G	25G	AV	22.18469G	4.00	-71.18	-71.18	-67.18	-41.20	-25.98
2440MHz	Pass	3G	7.5G	PK	4.87988G	4.00	-61.53	-61.53	-57.53	-21.20	-36.33
2440MHz	Pass	3G	7.5G	PK	7.49831G	4.00	-61.24	-61.24	-57.24	-21.20	-36.04
2440MHz	Pass	7.5G	25G	PK	22.75344G	4.00	-60.97	-60.97	-56.97	-21.20	-35.77
2480MHz	Pass	3G	7.5G	AV	4.95975G	4.00	-74.73	-74.73	-70.73	-41.20	-29.53
2480MHz	Pass	3G	7.5G	AV	7.47638G	4.00	-70.84	-70.84	-66.84	-41.20	-25.64
2480MHz	Pass	7.5G	25G	AV	22.17375G	4.00	-71.04	-71.04	-67.04	-41.20	-25.84
2480MHz	Pass	3G	7.5G	PK	4.96089G	4.00	-65.59	-65.59	-61.59	-21.20	-40.39
2480MHz	Pass	3G	7.5G	PK	7.47413G	4.00	-60.82	-60.82	-56.82	-21.20	-35.62
2480MHz	Pass	7.5G	25G	PK	22.23938G	4.00	-61.33	-61.33	-57.33	-21.20	-36.13
BT-LE2_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	3G	7.5G	AV	4.80338G	4.00	-74.49	-74.49	-70.49	-41.20	-29.29
2402MHz	Pass	3G	7.5G	AV	7.49831G	4.00	-70.70	-70.70	-66.70	-41.20	-25.50
2402MHz	Pass	7.5G	25G	AV	19.01281G	4.00	-71.22	-71.22	-67.22	-41.20	-26.02
2402MHz	Pass	3G	7.5G	PK	4.80563G	4.00	-64.75	-64.75	-60.75	-21.20	-39.55
2402MHz	Pass	3G	7.5G	PK	7.47919G	4.00	-61.78	-61.78	-57.78	-21.20	-36.58
2402MHz	Pass	7.5G	25G	PK	22.04469G	4.00	-61.64	-61.64	-57.64	-21.20	-36.44
2440MHz	Pass	3G	7.5G	AV	4.87988G	4.00	-67.83	-67.83	-63.83	-41.20	-22.63
2440MHz	Pass	3G	7.5G	AV	7.32G	4.00	-67.31	-67.31	-63.31	-41.20	-22.11
2440MHz	Pass	7.5G	25G	AV	22.15625G	4.00	-71.01	-71.01	-67.01	-41.20	-25.81
2440MHz	Pass	3G	7.5G	PK	4.87931G	4.00	-60.33	-60.33	-56.33	-21.20	-35.13
2440MHz	Pass	3G	7.5G	PK	7.31888G	4.00	-59.37	-59.37	-55.37	-21.20	-34.17
2440MHz	Pass	7.5G	25G	PK	22.19781G	4.00	-60.95	-60.95	-56.95	-21.20	-35.75
2480MHz	Pass	3G	7.5G	AV	4.96031G	4.00	-74.76	-74.76	-70.76	-41.20	-29.56
2480MHz	Pass	3G	7.5G	AV	7.44825G	4.00	-71.47	-71.47	-67.47	-41.20	-26.27
2480MHz	Pass	7.5G	25G	AV	22.21969G	4.00	-71.17	-71.17	-67.17	-41.20	-25.97
2480MHz	Pass	3G	7.5G	PK	4.95975G	4.00	-65.28	-65.28	-61.28	-21.20	-40.08
2480MHz	Pass	3G	7.5G	PK	7.43925G	4.00	-61.71	-61.71	-57.71	-21.20	-36.51
2480MHz	Pass	7.5G	25G	PK	22.22406G	4.00	-61.27	-61.27	-57.27	-21.20	-36.07

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX















Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE_Nss1_1TX	Pass	2.4835G	2.4855G	AV	2.48352G	4.00	-45.54	-45.54	-41.54	-41.20	-0.34
BT-LE2_Nss1_1TX	Pass	2.4835G	2.4875G	AV	2.48356G	4.00	-45.31	-45.31	-41.31	-41.20	-0.11

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



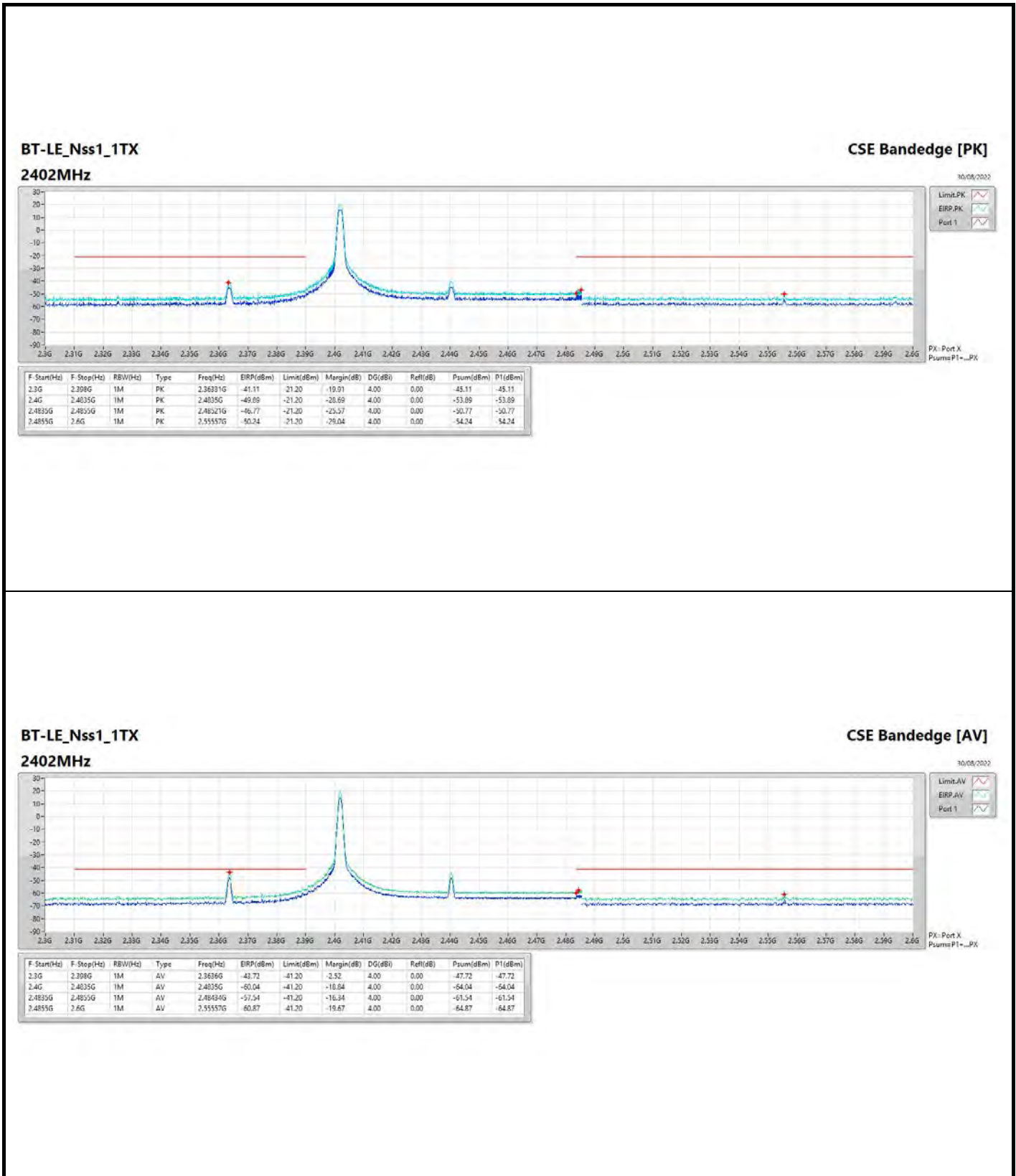
CSE (Restricted Band)_R4_Antenna set 11 (Bandedge)

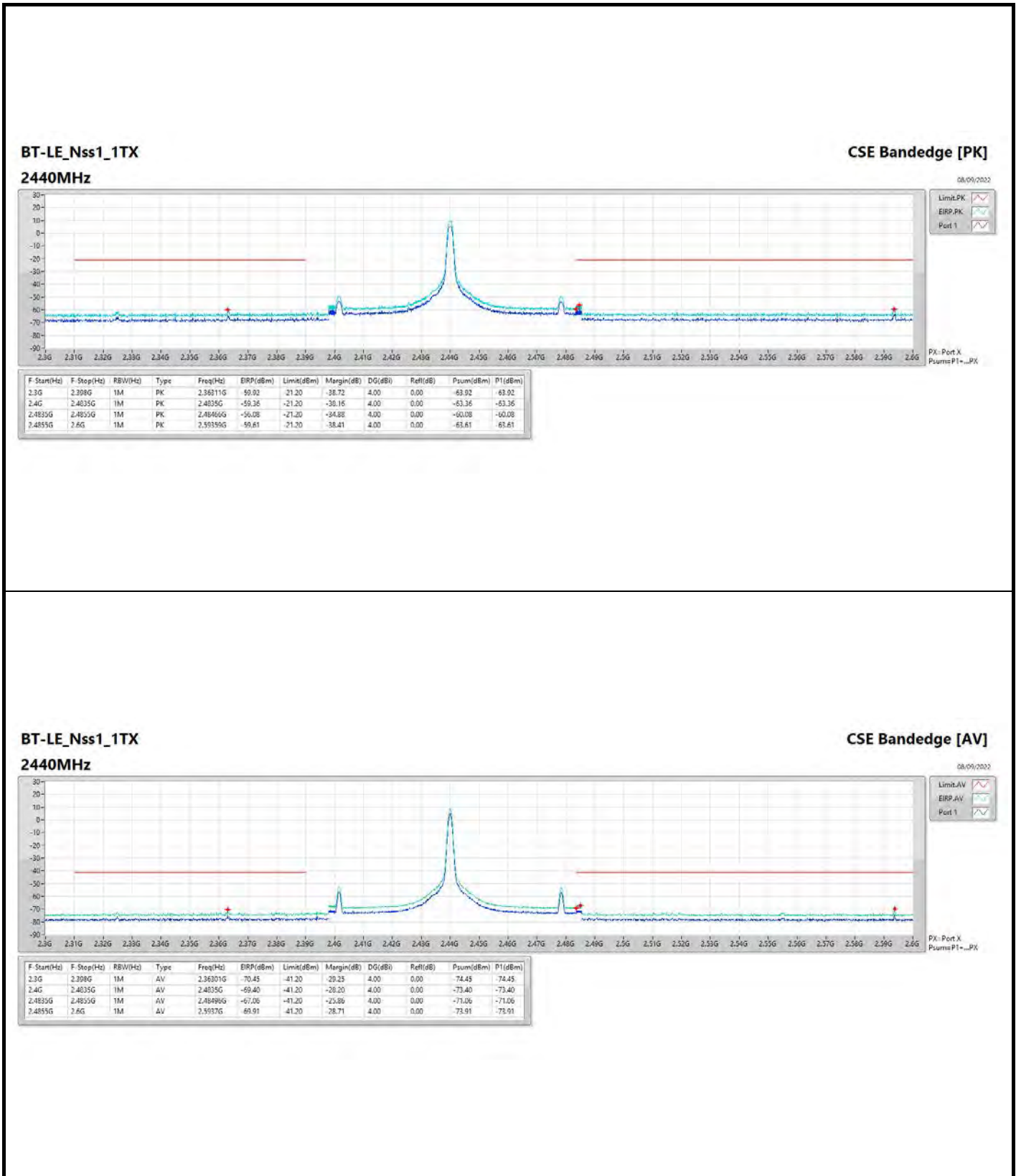
Appendix F.5

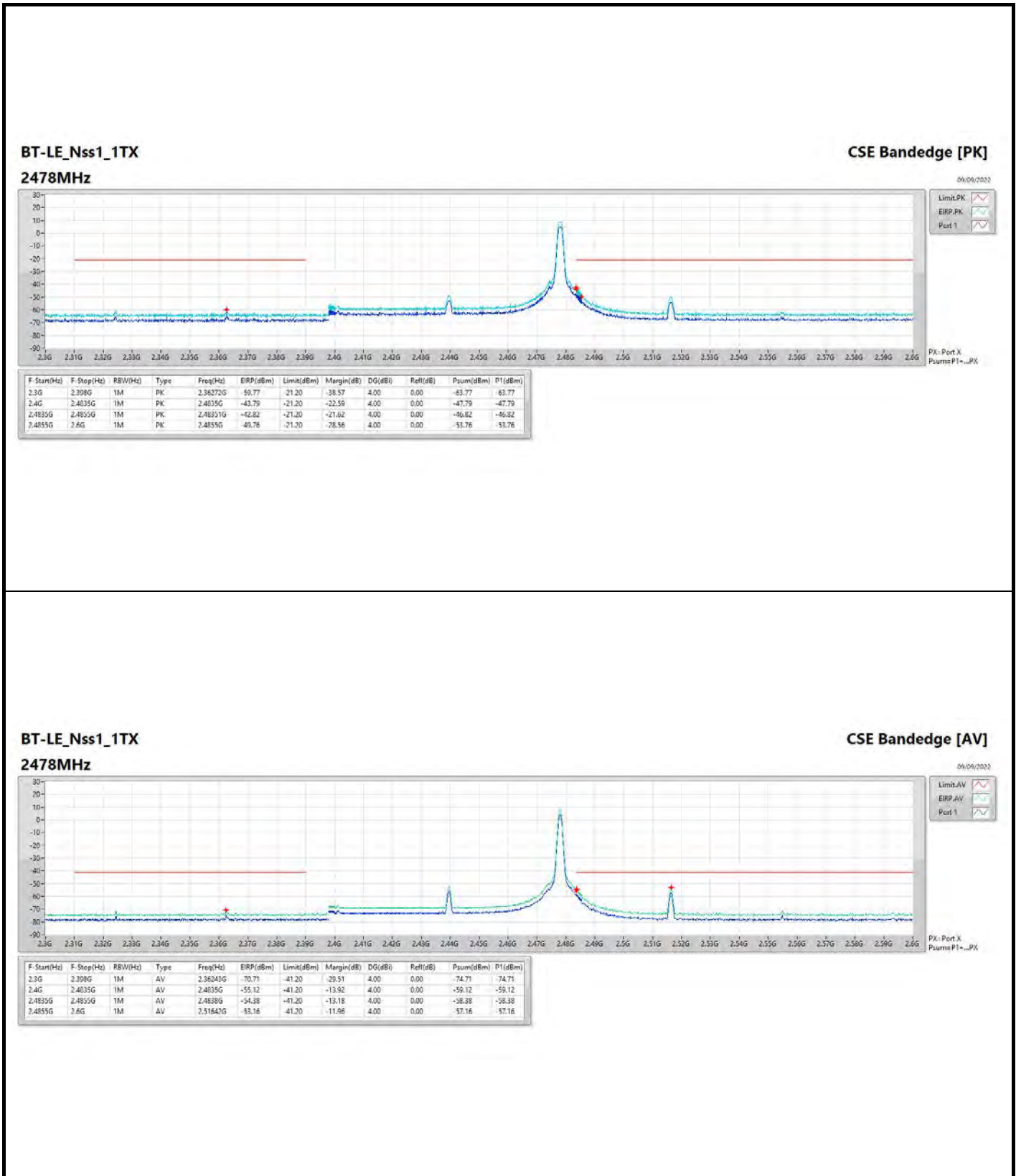
Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
BT-LE_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.3G	2.398G	AV	2.3636G	4.00	-47.72	-47.72	-43.72	-41.20	-2.52
2402MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-64.04	-64.04	-60.04	-41.20	-18.84
2402MHz	Pass	2.4835G	2.4855G	AV	2.48434G	4.00	-61.54	-61.54	-57.54	-41.20	-16.34
2402MHz	Pass	2.4855G	2.6G	AV	2.55557G	4.00	-64.87	-64.87	-60.87	-41.20	-19.67
2402MHz	Pass	2.3G	2.398G	PK	2.36331G	4.00	-45.11	-45.11	-41.11	-21.20	-19.91
2402MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-53.89	-53.89	-49.89	-21.20	-28.69
2402MHz	Pass	2.4835G	2.4855G	PK	2.48521G	4.00	-50.77	-50.77	-46.77	-21.20	-25.57
2402MHz	Pass	2.4855G	2.6G	PK	2.55557G	4.00	-54.24	-54.24	-50.24	-21.20	-29.04
2440MHz	Pass	2.3G	2.398G	AV	2.36301G	4.00	-74.45	-74.45	-70.45	-41.20	-29.25
2440MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-73.40	-73.40	-69.40	-41.20	-28.20
2440MHz	Pass	2.4835G	2.4855G	AV	2.48496G	4.00	-71.06	-71.06	-67.06	-41.20	-25.86
2440MHz	Pass	2.4855G	2.6G	AV	2.5937G	4.00	-73.91	-73.91	-69.91	-41.20	-28.71
2440MHz	Pass	2.3G	2.398G	PK	2.36311G	4.00	-63.92	-63.92	-59.92	-21.20	-38.72
2440MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-63.36	-63.36	-59.36	-21.20	-38.16
2440MHz	Pass	2.4835G	2.4855G	PK	2.48466G	4.00	-60.08	-60.08	-56.08	-21.20	-34.88
2440MHz	Pass	2.4855G	2.6G	PK	2.59359G	4.00	-63.61	-63.61	-59.61	-21.20	-38.41
2478MHz	Pass	2.3G	2.398G	AV	2.36243G	4.00	-74.71	-74.71	-70.71	-41.20	-29.51
2478MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-59.12	-59.12	-55.12	-41.20	-13.92
2478MHz	Pass	2.4835G	2.4855G	AV	2.4838G	4.00	-58.38	-58.38	-54.38	-41.20	-13.18
2478MHz	Pass	2.4855G	2.6G	AV	2.51642G	4.00	-57.16	-57.16	-53.16	-41.20	-11.96
2478MHz	Pass	2.3G	2.398G	PK	2.36272G	4.00	-63.77	-63.77	-59.77	-21.20	-38.57
2478MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-47.79	-47.79	-43.79	-21.20	-22.59
2478MHz	Pass	2.4835G	2.4855G	PK	2.48351G	4.00	-46.82	-46.82	-42.82	-21.20	-21.62
2478MHz	Pass	2.4855G	2.6G	PK	2.4855G	4.00	-53.76	-53.76	-49.76	-21.20	-28.56
2480MHz	Pass	2.3G	2.398G	AV	2.36468G	4.00	-65.86	-65.86	-61.86	-41.20	-20.66
2480MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-46.00	-46.00	-42.00	-41.20	-0.80
2480MHz	Pass	2.4835G	2.4855G	AV	2.48352G	4.00	-45.54	-45.54	-41.54	-41.20	-0.34
2480MHz	Pass	2.4855G	2.6G	AV	2.51848G	4.00	-48.97	-48.97	-44.97	-41.20	-3.77
2480MHz	Pass	2.3G	2.398G	PK	2.37174G	4.00	-55.44	-55.44	-51.44	-21.20	-30.24
2480MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-36.23	-36.23	-32.23	-21.20	-11.03
2480MHz	Pass	2.4835G	2.4855G	PK	2.48367G	4.00	-35.08	-35.08	-31.08	-21.20	-9.88
2480MHz	Pass	2.4855G	2.6G	PK	2.4855G	4.00	-40.52	-40.52	-36.52	-21.20	-15.32
BT-LE2_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.3G	2.396G	AV	2.36346G	4.00	-49.58	-49.58	-45.58	-41.20	-4.38
2402MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-64.19	-64.19	-60.19	-41.20	-18.99
2402MHz	Pass	2.4835G	2.4875G	AV	2.4849G	4.00	-61.58	-61.58	-57.58	-41.20	-16.38
2402MHz	Pass	2.4875G	2.6G	AV	2.55568G	4.00	-64.08	-64.08	-60.08	-41.20	-18.88
2402MHz	Pass	2.3G	2.396G	PK	2.36326G	4.00	-44.76	-44.76	-40.76	-21.20	-19.56
2402MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-54.69	-54.69	-50.69	-21.20	-29.49
2402MHz	Pass	2.4835G	2.4875G	PK	2.48428G	4.00	-50.60	-50.60	-46.60	-21.20	-25.40
2402MHz	Pass	2.4875G	2.6G	PK	2.55579G	4.00	-54.45	-54.45	-50.45	-21.20	-29.25
2440MHz	Pass	2.3G	2.396G	AV	2.36336G	4.00	-76.20	-76.20	-72.20	-41.20	-31.00
2440MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-73.55	-73.55	-69.55	-41.20	-28.35
2440MHz	Pass	2.4835G	2.4875G	AV	2.48527G	4.00	-71.04	-71.04	-67.04	-41.20	-25.84
2440MHz	Pass	2.4875G	2.6G	AV	2.59336G	4.00	-75.12	-75.12	-71.12	-41.20	-29.92
2440MHz	Pass	2.3G	2.396G	PK	2.36326G	4.00	-65.23	-65.23	-61.23	-21.20	-40.03
2440MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-63.83	-63.83	-59.83	-21.20	-38.63
2440MHz	Pass	2.4835G	2.4875G	PK	2.48378G	4.00	-60.20	-60.20	-56.20	-21.20	-35.00
2440MHz	Pass	2.4875G	2.6G	PK	2.59325G	4.00	-64.46	-64.46	-60.46	-21.20	-39.26
2478MHz	Pass	2.3G	2.396G	AV	2.37507G	4.00	-77.40	-77.40	-73.40	-41.20	-32.20
2478MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-63.15	-63.15	-59.15	-41.20	-17.95
2478MHz	Pass	2.4835G	2.4875G	AV	2.4837G	4.00	-62.43	-62.43	-58.43	-41.20	-17.23
2478MHz	Pass	2.4875G	2.6G	AV	2.5163G	4.00	-65.86	-65.86	-61.86	-41.20	-20.66
2478MHz	Pass	2.3G	2.396G	PK	2.37882G	4.00	-66.48	-66.48	-62.48	-21.20	-41.28
2478MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-52.12	-52.12	-48.12	-21.20	-26.92
2478MHz	Pass	2.4835G	2.4875G	PK	2.48356G	4.00	-50.06	-50.06	-46.06	-21.20	-24.86
2478MHz	Pass	2.4875G	2.6G	PK	2.51585G	4.00	-60.03	-60.03	-56.03	-21.20	-34.83
2480MHz	Pass	2.3G	2.396G	AV	2.3265G	4.00	-67.18	-67.18	-63.18	-41.20	-21.98
2480MHz	Pass	2.4G	2.4835G	AV	2.4835G	4.00	-45.37	-45.37	-41.37	-41.20	-0.17
2480MHz	Pass	2.4835G	2.4875G	AV	2.48356G	4.00	-45.31	-45.31	-41.31	-41.20	-0.11
2480MHz	Pass	2.4875G	2.6G	AV	2.5181G	4.00	-54.27	-54.27	-50.27	-41.20	-9.07
2480MHz	Pass	2.3G	2.396G	PK	2.3649G	4.00	-55.72	-55.72	-51.72	-21.20	-30.52
2480MHz	Pass	2.4G	2.4835G	PK	2.4835G	4.00	-35.36	-35.36	-31.36	-21.20	-10.16
2480MHz	Pass	2.4835G	2.4875G	PK	2.48359G	4.00	-33.91	-33.91	-29.91	-21.20	-8.71
2480MHz	Pass	2.4875G	2.6G	PK	2.48806G	4.00	-44.47	-44.47	-40.47	-21.20	-19.27

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



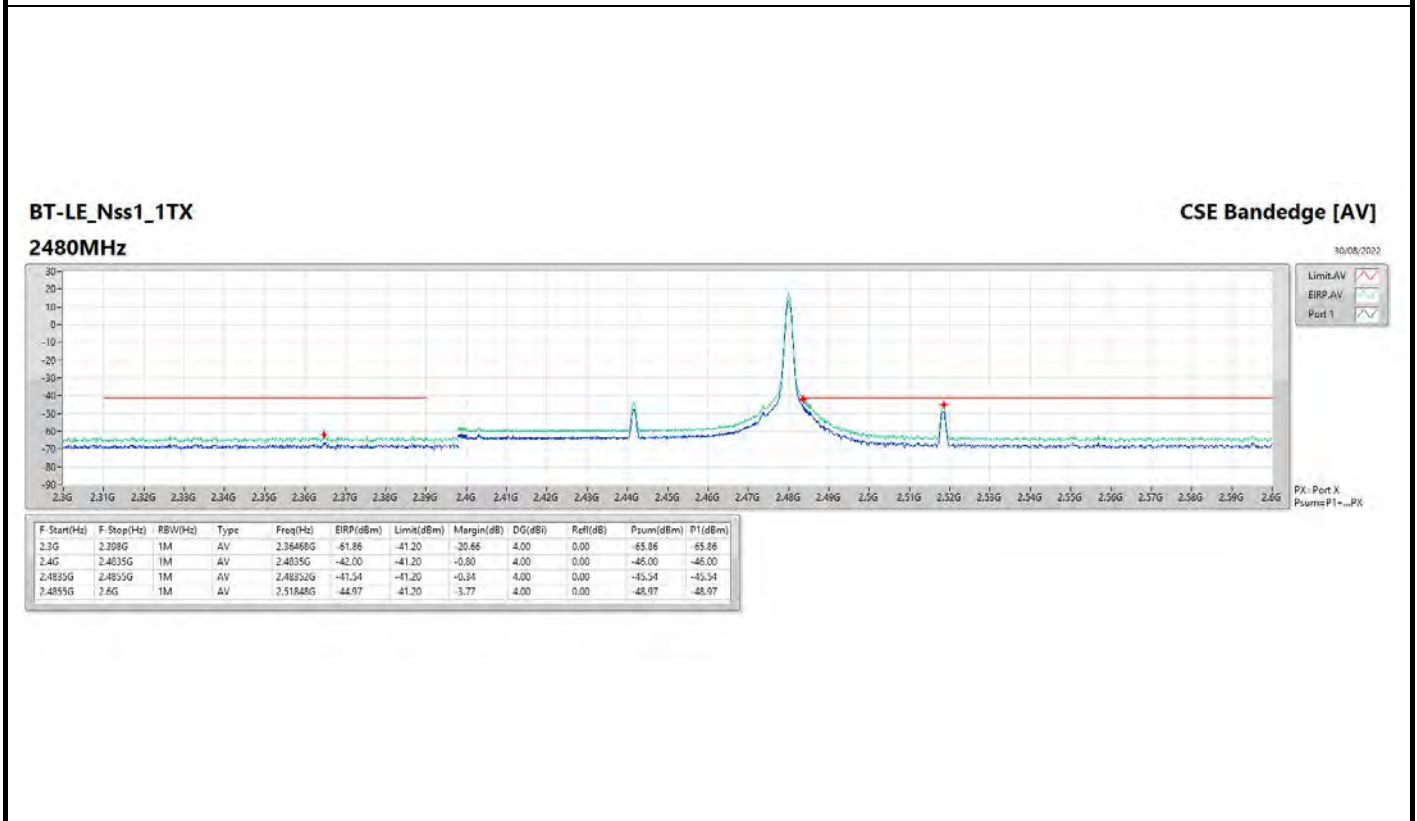
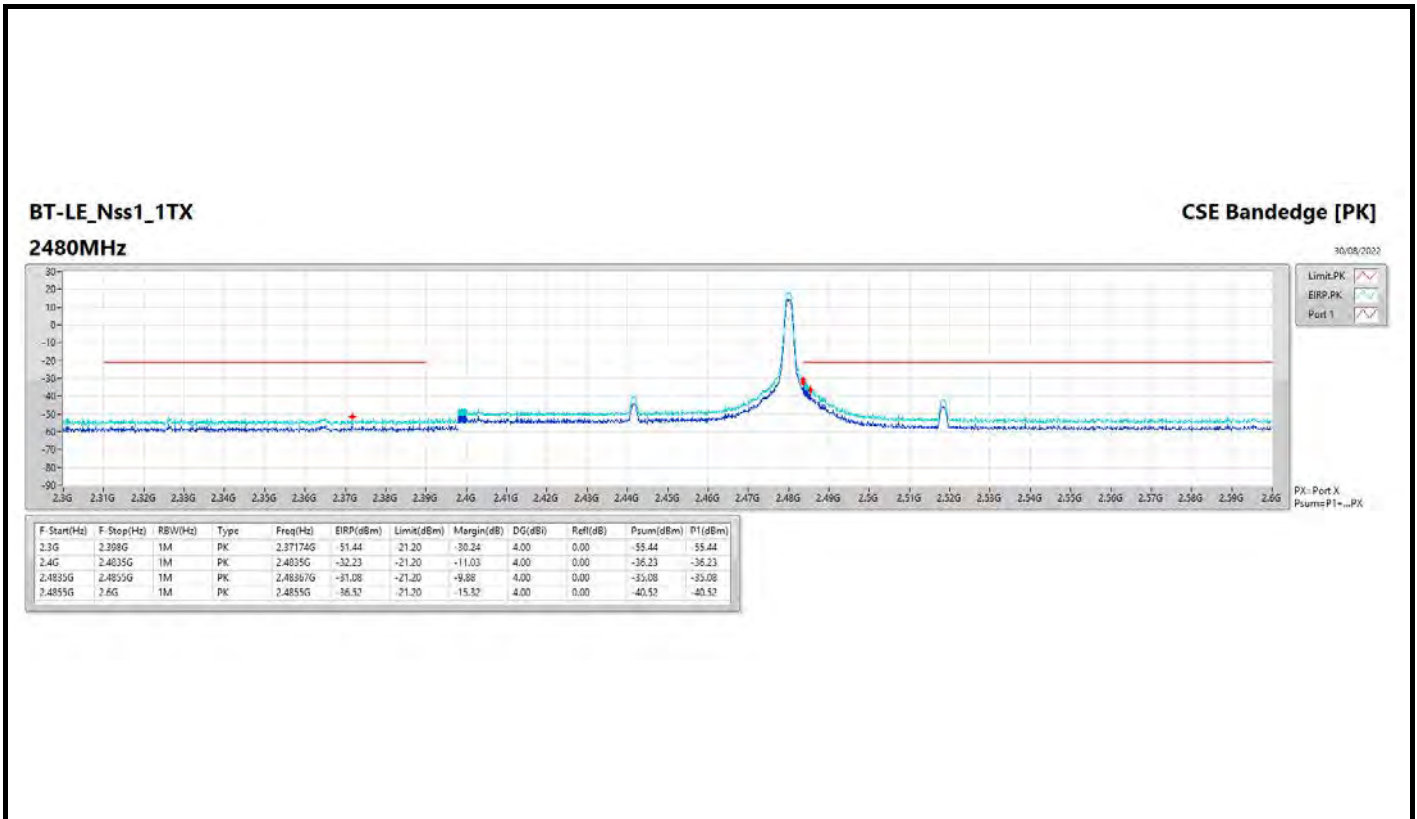


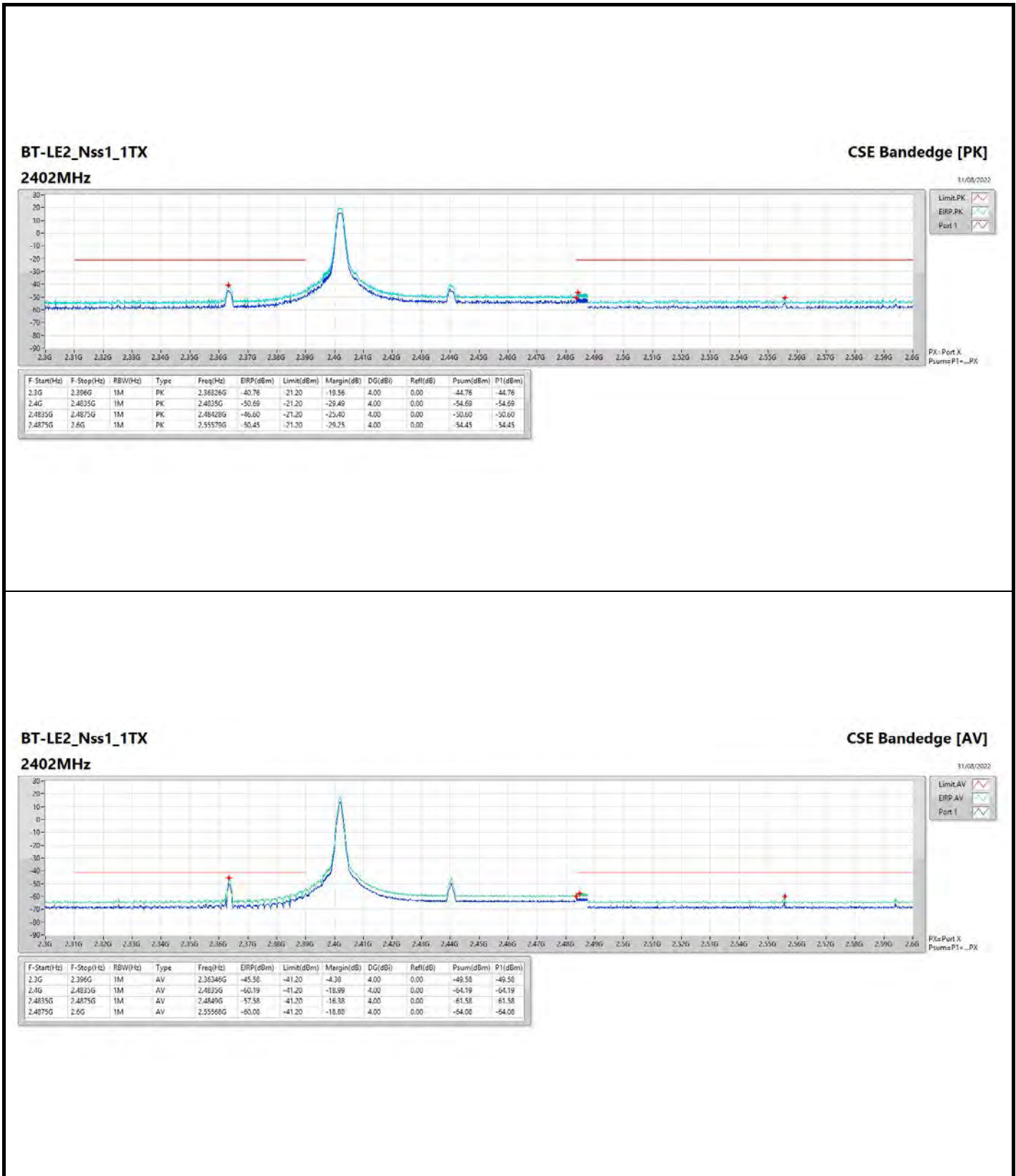


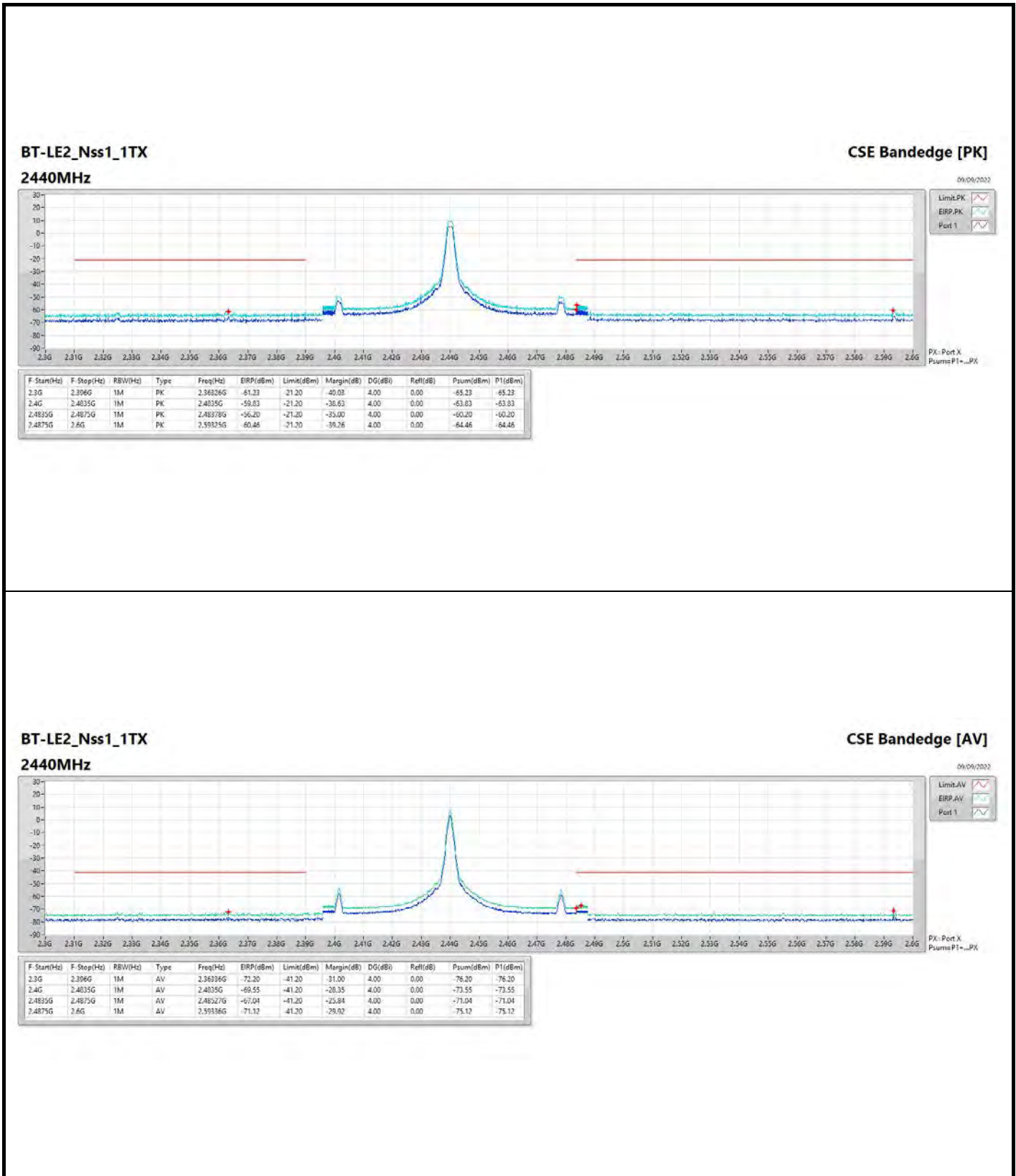
BT-LE_Nss1_1TX
2478MHz

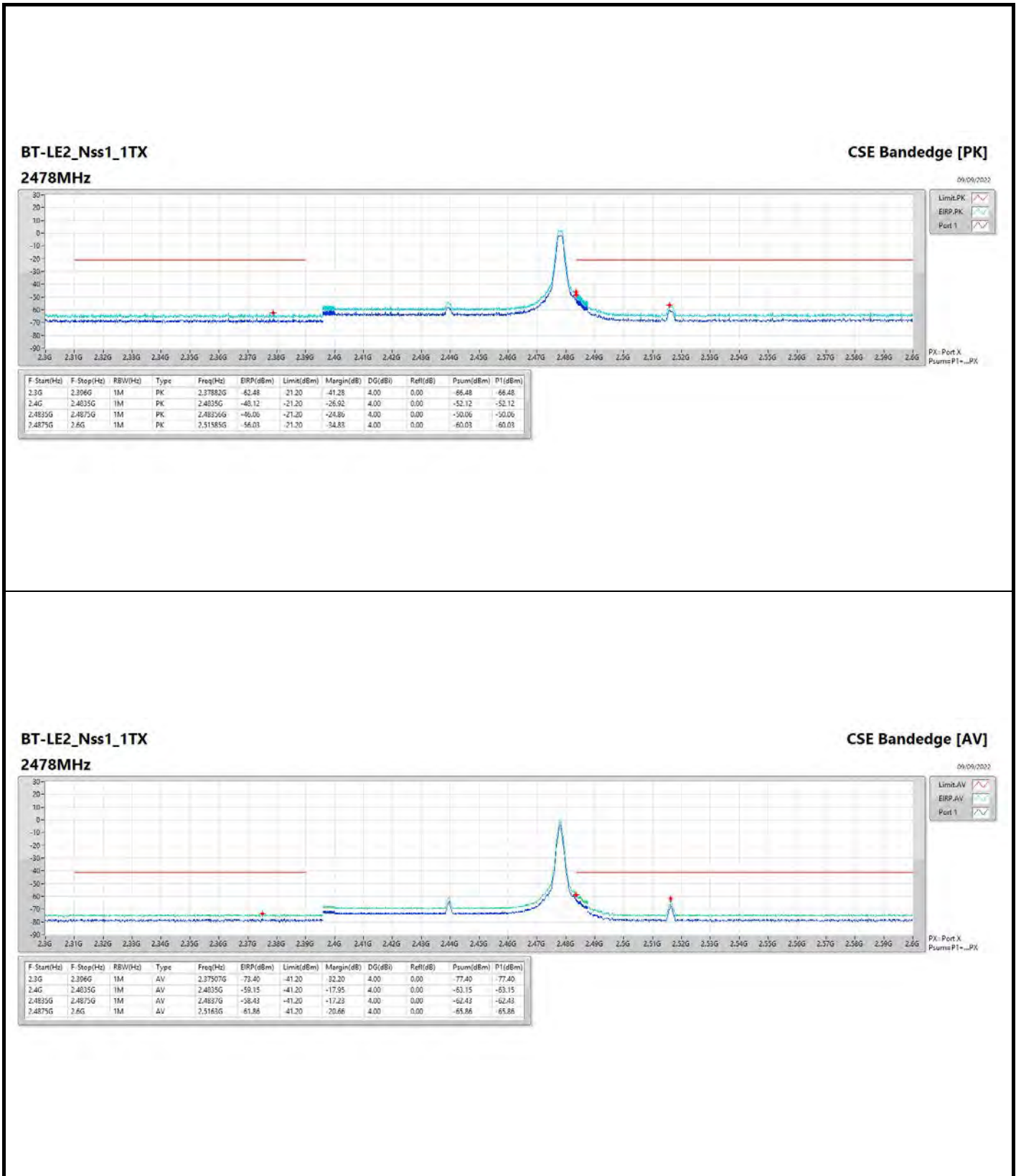
CSE Bandedge [AV]

09/09/2022







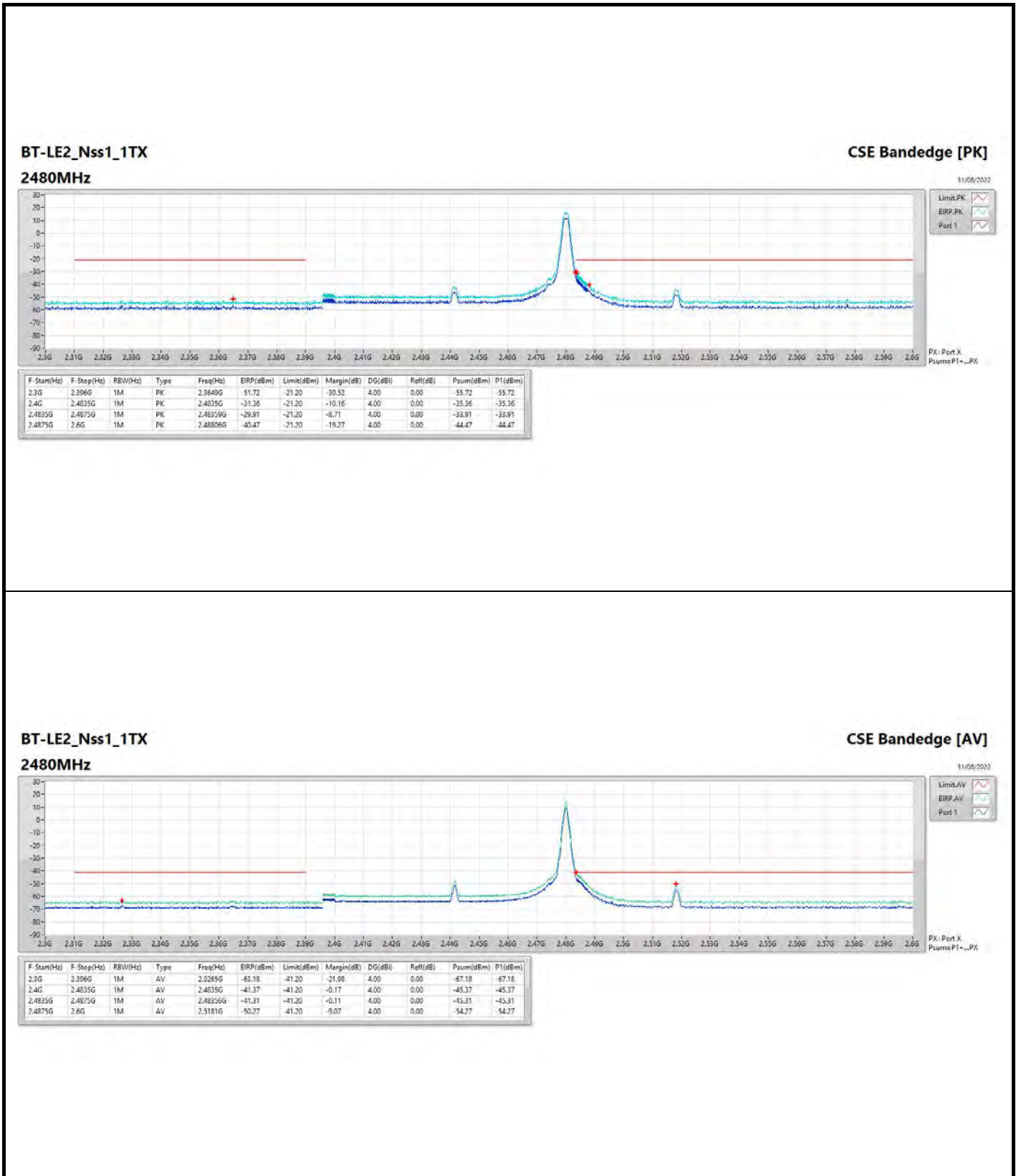


BT-LE2_Nss1_1TX
2478MHz

CSE Bandedge [AV]

09/09/2022

Limit AV
EIRP AV
Port 1
PX=Port X
Psum=P1+...PX





**CSE (Restricted Band)_R4_Antenna set 2
(Harmonic 1GHz ~ 3GHz)**

Appendix F.6

Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE_Nss1_1TX	Pass	1G	2.398G	AV	2.36375G	13.00	-55.15	-55.15	-42.15	-41.20	-0.95
BT-LE2_Nss1_1TX	Pass	1G	2.396G	AV	2.36354G	13.00	-56.47	-56.47	-43.47	-41.20	-2.27

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



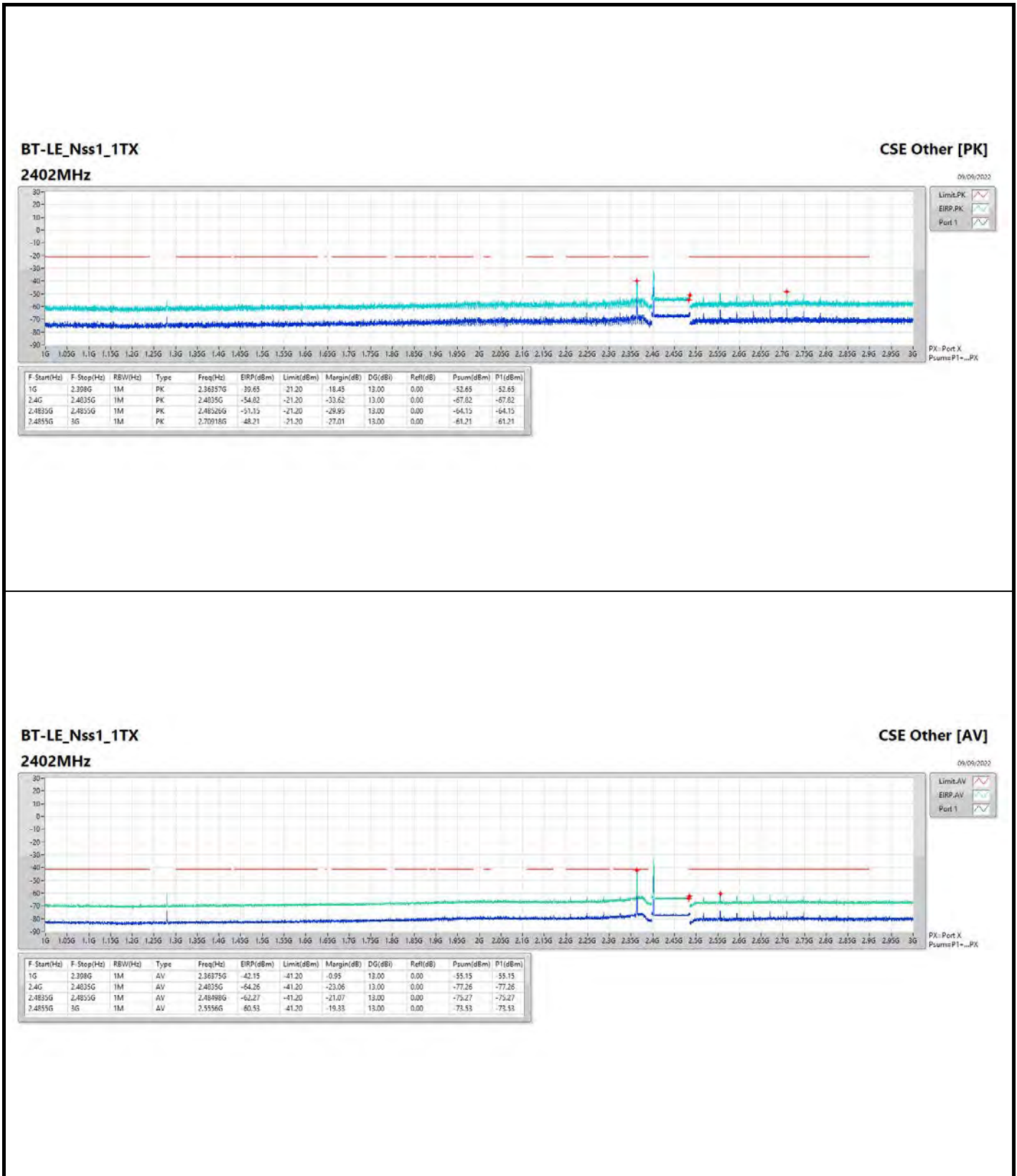
**CSE (Restricted Band)_R4_Antenna set 2
(Harmonic 1GHz ~ 3GHz)**

Appendix F.6

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
BT-LE_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	1G	2.398G	AV	2.36375G	13.00	-55.15	-55.15	-42.15	-41.20	-0.95
2402MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-77.26	-77.26	-64.26	-41.20	-23.06
2402MHz	Pass	2.4835G	2.4855G	AV	2.48498G	13.00	-75.27	-75.27	-62.27	-41.20	-21.07
2402MHz	Pass	2.4855G	3G	AV	2.5556G	13.00	-73.53	-73.53	-60.53	-41.20	-19.33
2402MHz	Pass	1G	2.398G	PK	2.36357G	13.00	-52.65	-52.65	-39.65	-21.20	-18.45
2402MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-67.82	-67.82	-54.82	-21.20	-33.62
2402MHz	Pass	2.4835G	2.4855G	PK	2.48526G	13.00	-64.15	-64.15	-51.15	-21.20	-29.95
2402MHz	Pass	2.4855G	3G	PK	2.70918G	13.00	-61.21	-61.21	-48.21	-21.20	-27.01
2440MHz	Pass	1G	2.398G	AV	2.32967G	13.00	-74.76	-74.76	-61.76	-41.20	-20.56
2440MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-74.25	-74.25	-61.25	-41.20	-20.05
2440MHz	Pass	2.4835G	2.4855G	AV	2.48359G	13.00	-71.57	-71.57	-58.57	-41.20	-17.37
2440MHz	Pass	2.4855G	3G	AV	2.70879G	13.00	-74.14	-74.14	-61.14	-41.20	-19.94
2440MHz	Pass	1G	2.398G	PK	2.32793G	13.00	-65.51	-65.51	-52.51	-21.20	-31.31
2440MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-65.08	-65.08	-52.08	-21.20	-30.88
2440MHz	Pass	2.4835G	2.4855G	PK	2.4845G	13.00	-60.43	-60.43	-47.43	-21.20	-26.23
2440MHz	Pass	2.4855G	3G	PK	2.74712G	13.00	-63.62	-63.62	-50.62	-21.20	-29.42
2480MHz	Pass	1G	2.398G	AV	2.36497G	13.00	-75.06	-75.06	-62.06	-41.20	-20.86
2480MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-74.33	-74.33	-61.33	-41.20	-20.13
2480MHz	Pass	2.4835G	2.4855G	AV	2.48366G	13.00	-71.24	-71.24	-58.24	-41.20	-17.04
2480MHz	Pass	2.4855G	3G	AV	2.5183G	13.00	-59.80	-59.80	-46.80	-41.20	-5.60
2480MHz	Pass	1G	2.398G	PK	2.35344G	13.00	-64.51	-64.51	-51.51	-21.20	-30.31
2480MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-65.55	-65.55	-52.55	-21.20	-31.35
2480MHz	Pass	2.4835G	2.4855G	PK	2.48364G	13.00	-60.81	-60.81	-47.81	-21.20	-26.61
2480MHz	Pass	2.4855G	3G	PK	2.51817G	13.00	-56.41	-56.41	-43.41	-21.20	-22.21
BT-LE2_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	1G	2.396G	AV	2.36354G	13.00	-56.47	-56.47	-43.47	-41.20	-2.27
2402MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-74.02	-74.02	-61.02	-41.20	-19.82
2402MHz	Pass	2.4835G	2.4875G	AV	2.4839G	13.00	-71.92	-71.92	-58.92	-41.20	-17.72
2402MHz	Pass	2.4875G	3G	AV	2.70928G	13.00	-71.56	-71.56	-58.56	-41.20	-17.36
2402MHz	Pass	1G	2.396G	PK	2.3625G	13.00	-59.65	-59.65	-46.65	-21.20	-25.45
2402MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-64.68	-64.68	-51.68	-21.20	-30.48
2402MHz	Pass	2.4835G	2.4875G	PK	2.48447G	13.00	-60.56	-60.56	-47.56	-21.20	-26.36
2402MHz	Pass	2.4875G	3G	PK	2.70916G	13.00	-61.04	-61.04	-48.04	-21.20	-26.84
2440MHz	Pass	1G	2.396G	AV	2.36302G	13.00	-74.36	-74.36	-61.36	-41.20	-20.16
2440MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-74.39	-74.39	-61.39	-41.20	-20.19
2440MHz	Pass	2.4835G	2.4875G	AV	2.48392G	13.00	-71.60	-71.60	-58.60	-41.20	-17.40
2440MHz	Pass	2.4875G	3G	AV	2.74734G	13.00	-72.93	-72.93	-59.93	-41.20	-18.73
2440MHz	Pass	1G	2.396G	PK	2.21627G	13.00	-65.65	-65.65	-52.65	-21.20	-31.45
2440MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-64.05	-64.05	-51.05	-21.20	-29.85
2440MHz	Pass	2.4835G	2.4875G	PK	2.48455G	13.00	-60.96	-60.96	-47.96	-21.20	-26.76
2440MHz	Pass	2.4875G	3G	PK	2.5932G	13.00	-63.14	-63.14	-50.14	-21.20	-28.94
2480MHz	Pass	1G	2.396G	AV	2.36494G	13.00	-75.90	-75.90	-62.90	-41.20	-21.70
2480MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-74.21	-74.21	-61.21	-41.20	-20.01
2480MHz	Pass	2.4835G	2.4875G	AV	2.4851G	13.00	-71.65	-71.65	-58.65	-41.20	-17.45
2480MHz	Pass	2.4875G	3G	AV	2.51812G	13.00	-65.62	-65.62	-52.62	-41.20	-11.42
2480MHz	Pass	1G	2.396G	PK	2.3611G	13.00	-64.56	-64.56	-51.56	-21.20	-30.36
2480MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-65.34	-65.34	-52.34	-21.20	-31.14
2480MHz	Pass	2.4835G	2.4875G	PK	2.48357G	13.00	-61.22	-61.22	-48.22	-21.20	-27.02
2480MHz	Pass	2.4875G	3G	PK	2.51787G	13.00	-58.29	-58.29	-45.29	-21.20	-24.09

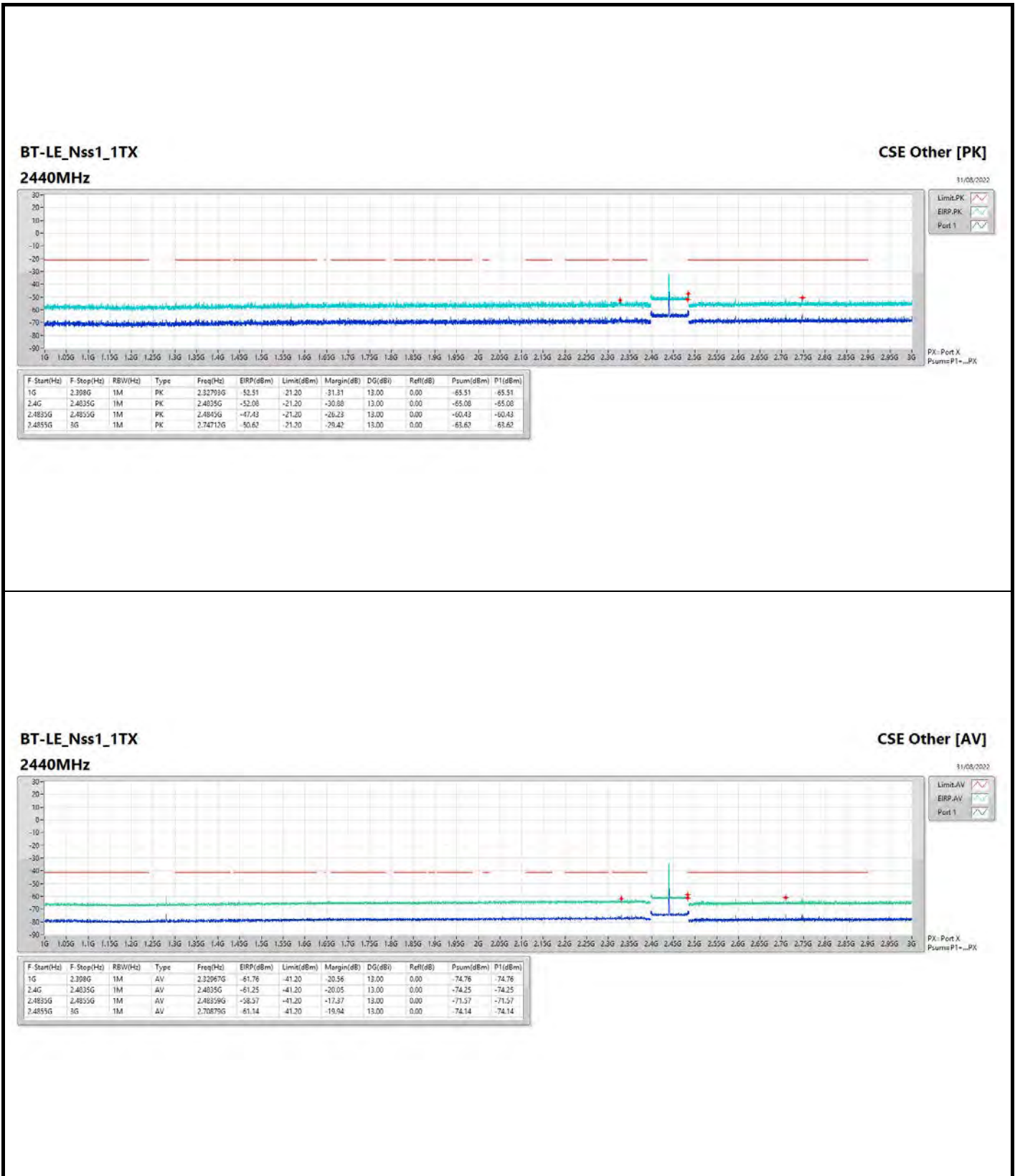
DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



BT-LE_Nss1_1TX
2402MHz

CSE Other [AV]

09/09/2022

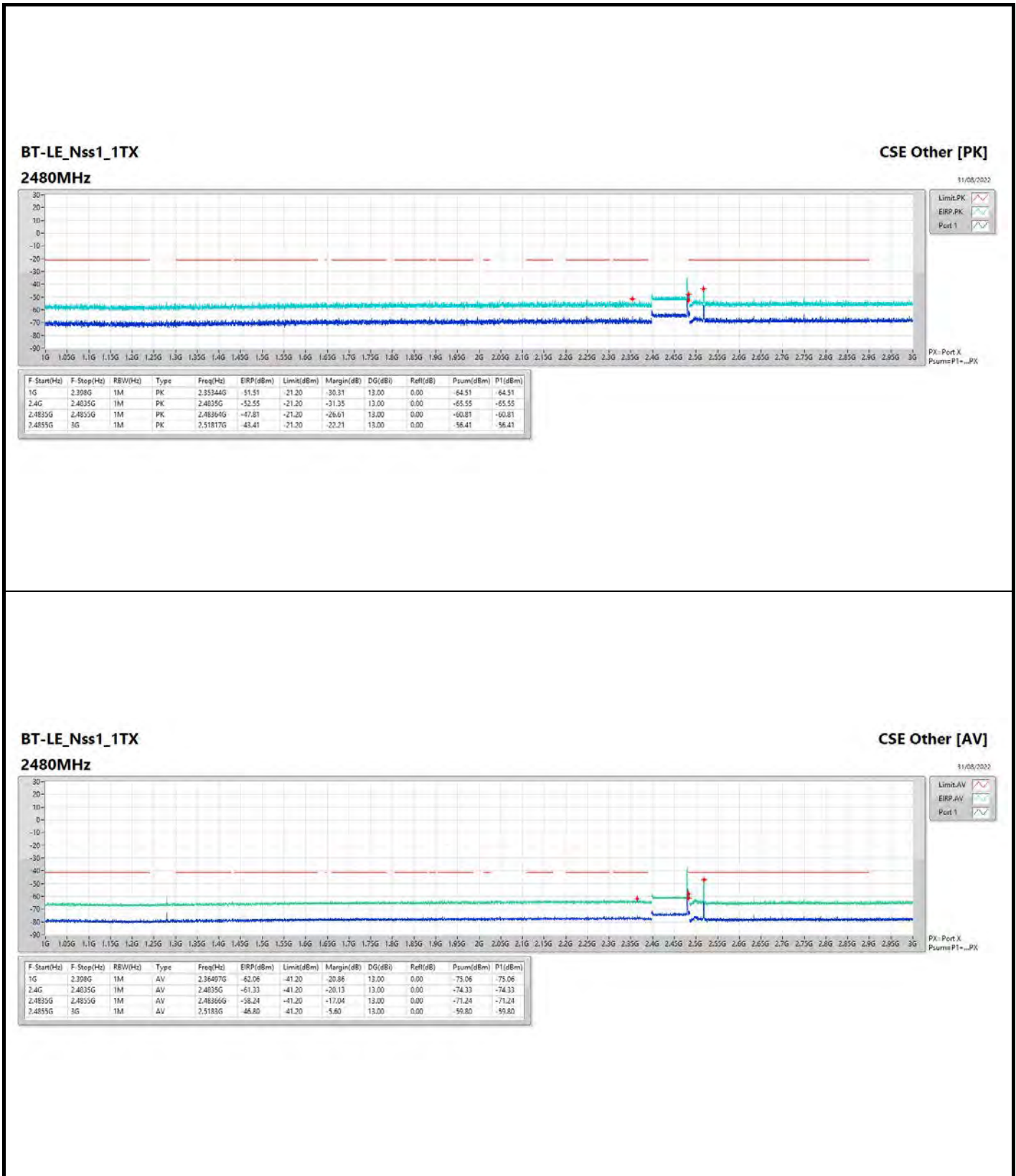


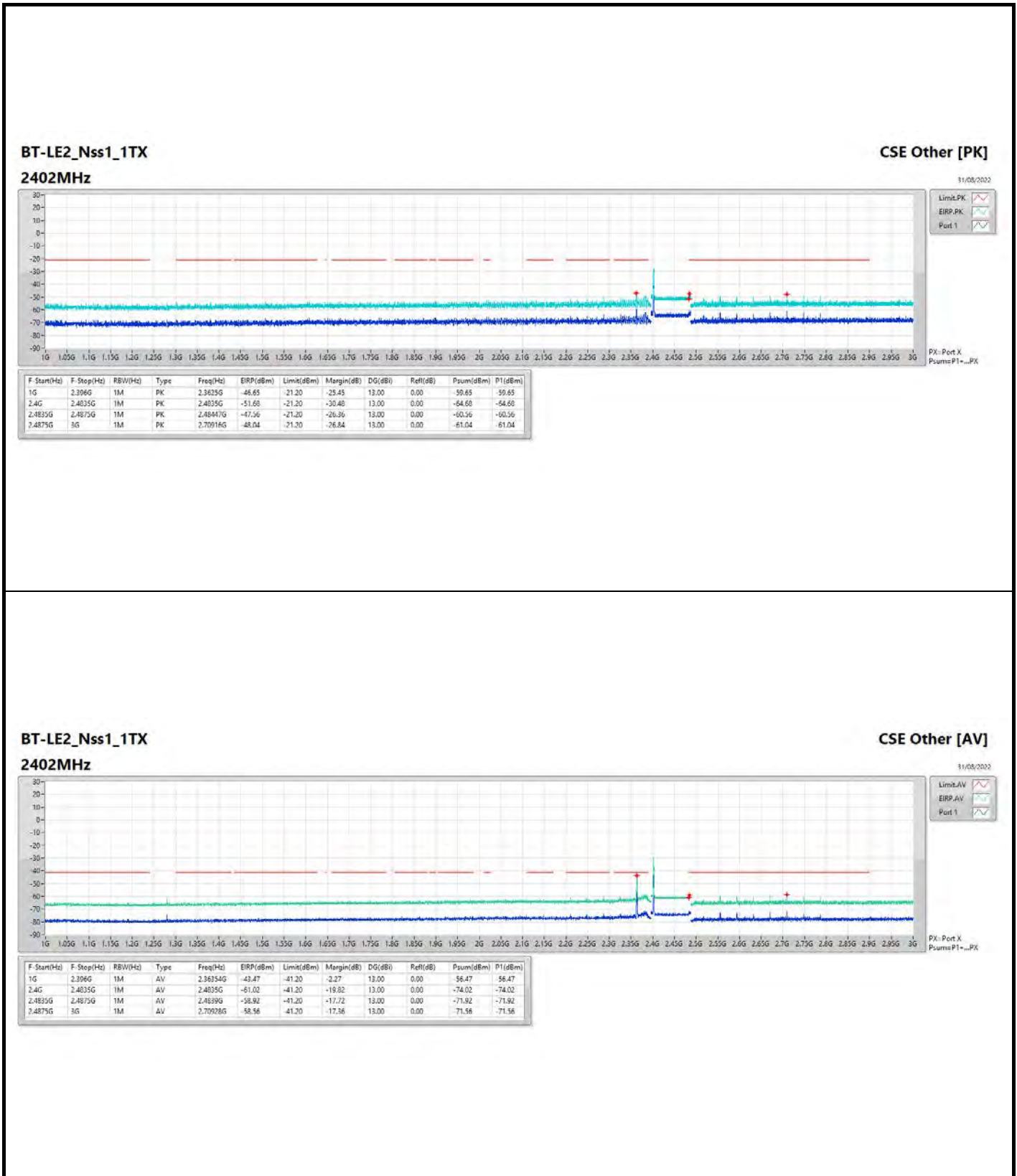
BT-LE_Nss1_1TX
2440MHz

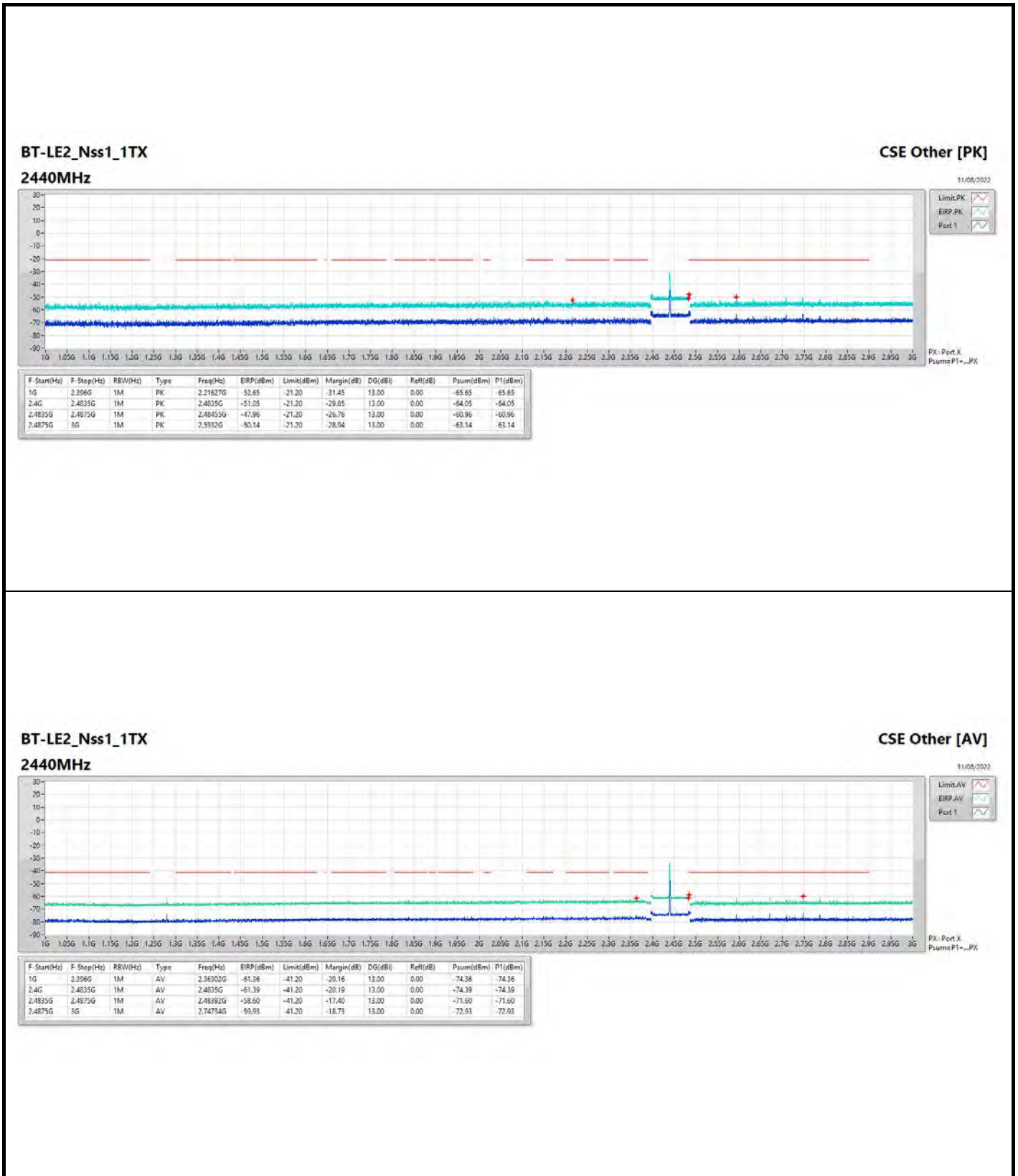
CSE Other [AV]

31/08/2022

Limit AV
ERP AV
Port 1
PX=Port X
Psum=P1...PX





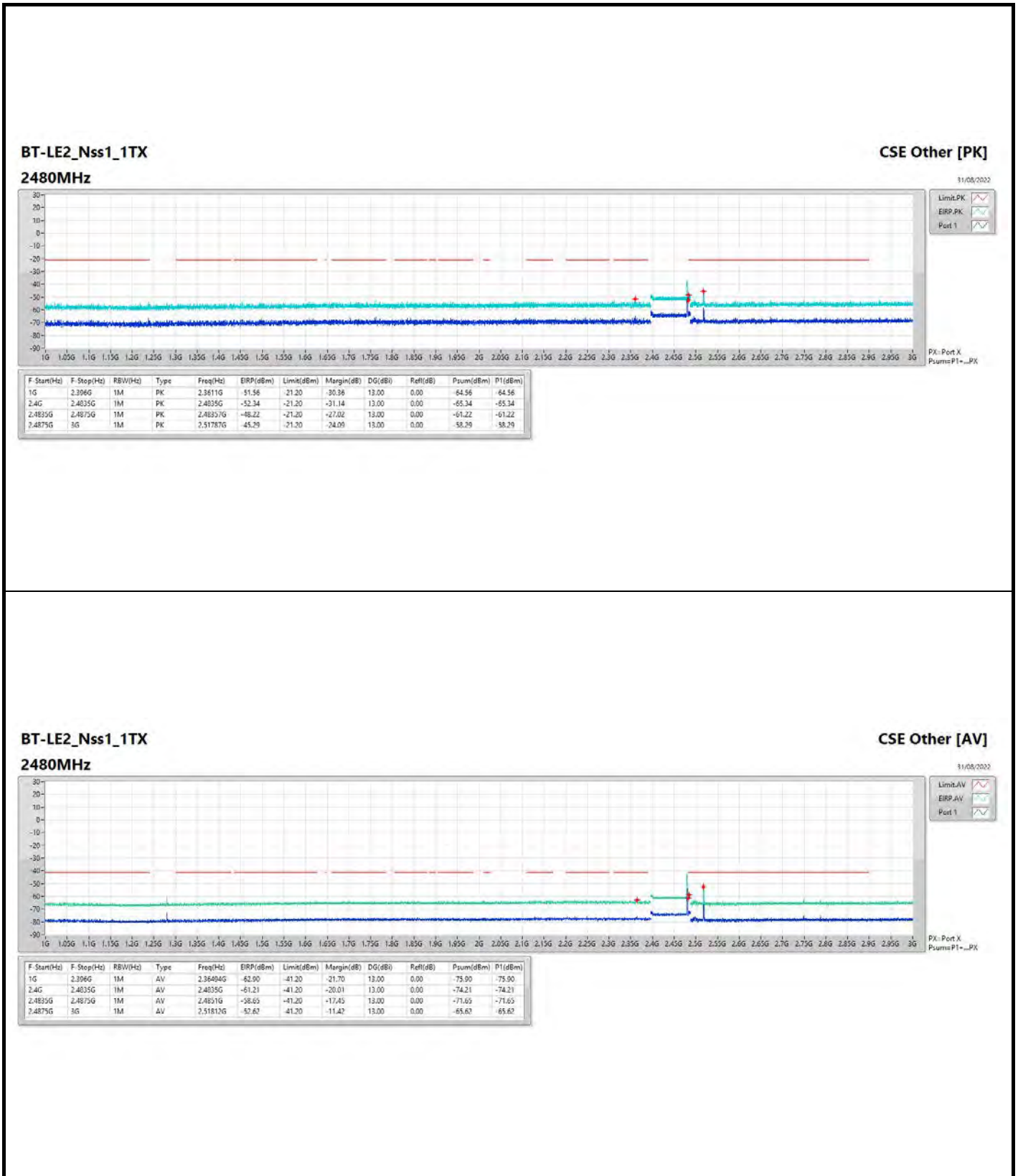


BT-LE2_Nss1_1TX
2440MHz

CSE Other [AV]

31/05/2022

Limit AV 
ERP AV 
Port 1 
PX=Port X
Psum=P1...PX



BT-LE2_Nss1_1TX
2480MHz

CSE Other [AV]

31/08/2022

Limit AV 

ERP AV 

Port 1 

F_Start(Hz)	F_Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	ERP(dBm)	Limit(dBm)	Margin(dB)	DG(dB)	Ref(dB)	Psum(dBm)	P1(dBm)
1G	2.396G	1M	AV	2.36494G	-62.90	-41.20	-21.70	13.00	0.00	-75.90	-75.90
2.4G	2.4835G	1M	AV	2.4835G	-61.21	-41.20	-20.01	13.00	0.00	-74.21	-74.21
2.4835G	2.4875G	1M	AV	2.4831G	-58.65	-41.20	-17.45	13.00	0.00	-71.65	-71.65
2.4875G	3G	1M	AV	2.5181G	-57.62	-41.20	-16.42	13.00	0.00	-65.62	-65.62



**CSE (Restricted Band)_R4_Antenna set 2
(Harmonic 3GHz ~ 25GHz)**

Appendix F.7

Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE_Nss1_1TX	Pass	3G	7.5G	AV	7.46119G	13.00	-70.75	-70.75	-57.75	-41.20	-16.55
BT-LE2_Nss1_1TX	Pass	3G	7.5G	AV	7.49831G	13.00	-70.80	-70.80	-57.80	-41.20	-16.60

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



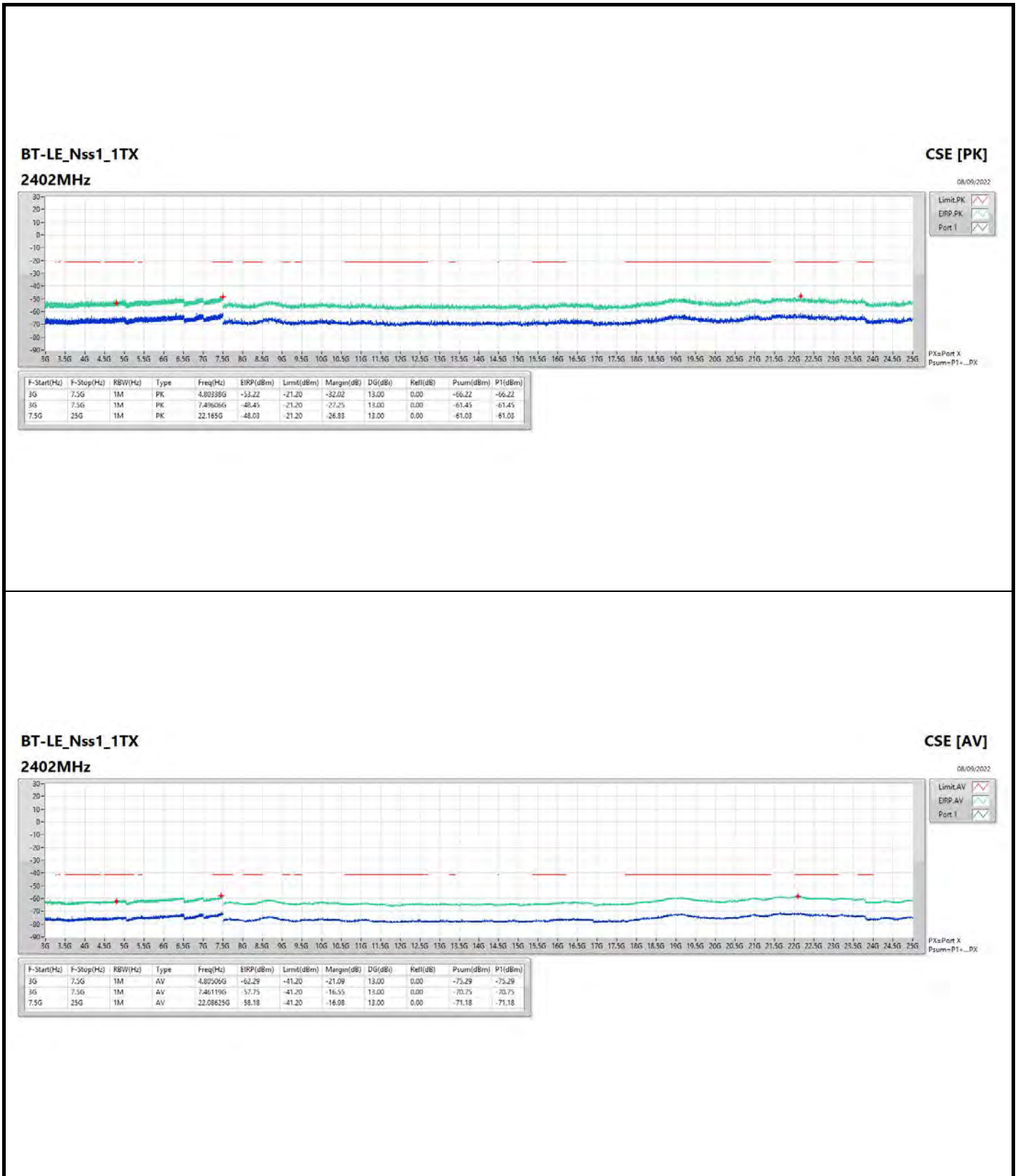
**CSE (Restricted Band)_R4_Antenna set 2
(Harmonic 3GHz ~ 25GHz)**

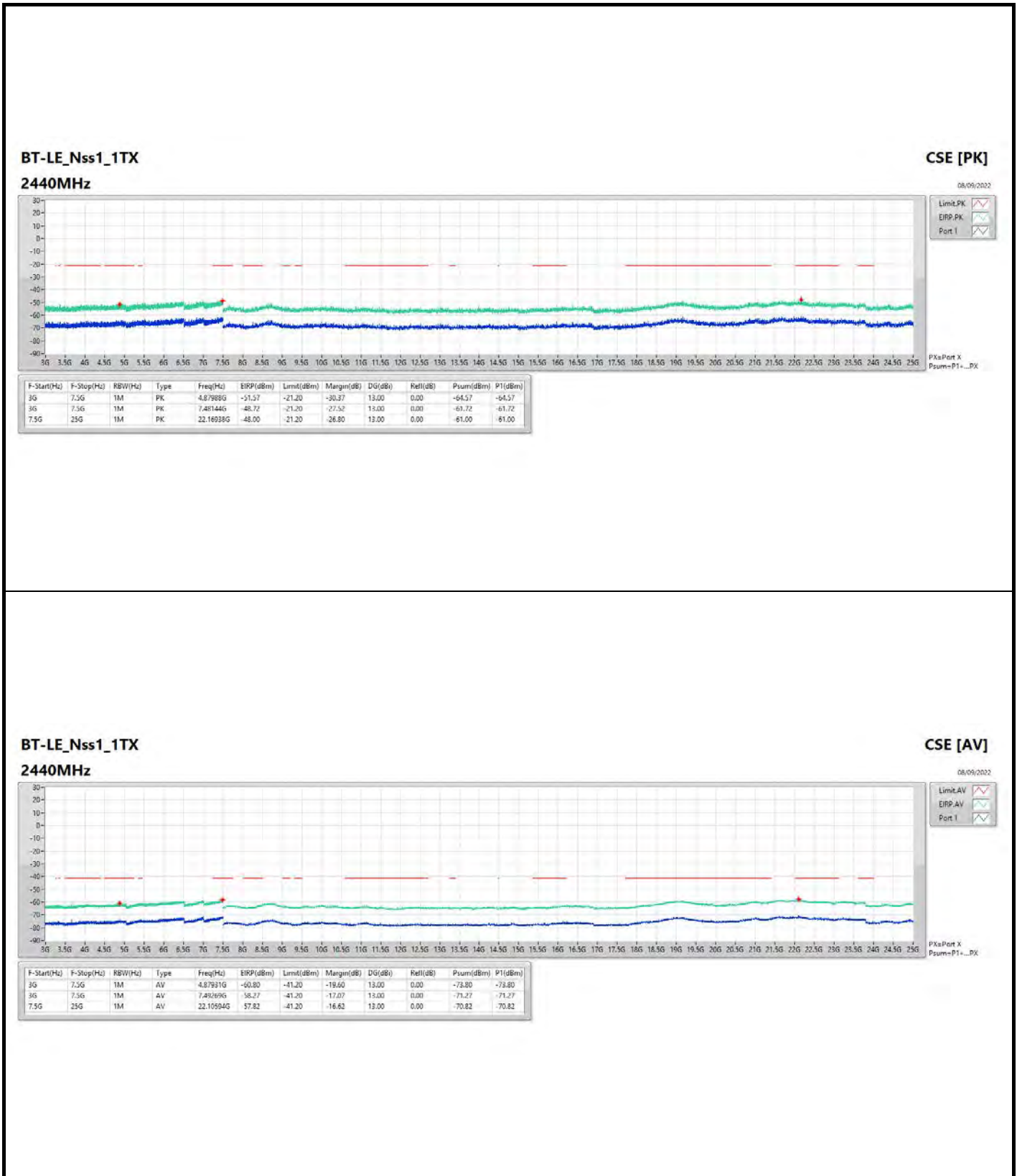
Appendix F.7

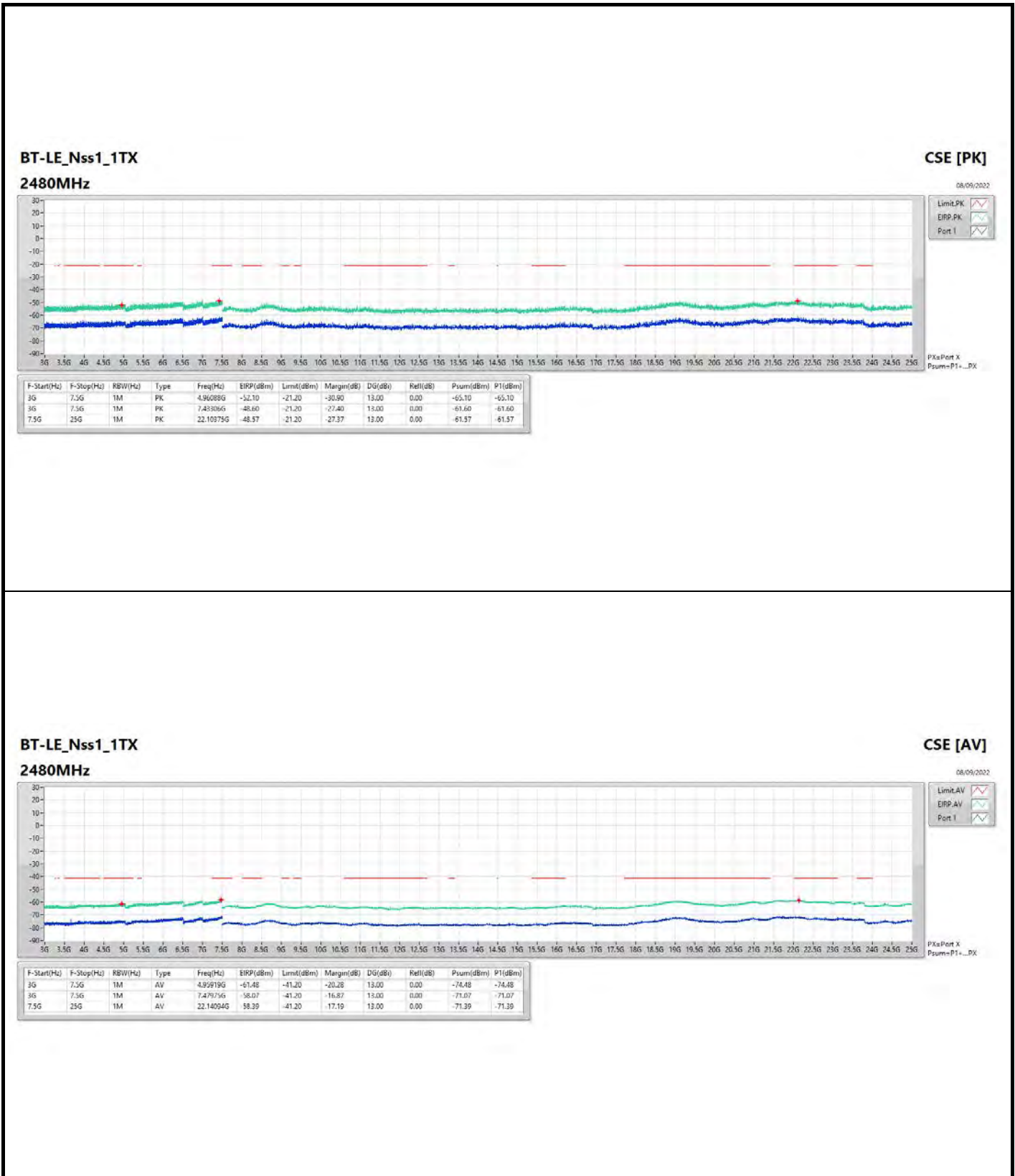
Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
BT-LE_Nss1_TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	3G	7.5G	AV	4.80506G	13.00	-75.29	-75.29	-62.29	-41.20	-21.09
2402MHz	Pass	3G	7.5G	AV	7.46119G	13.00	-70.75	-70.75	-57.75	-41.20	-16.55
2402MHz	Pass	7.5G	25G	AV	22.08625G	13.00	-71.18	-71.18	-58.18	-41.20	-16.98
2402MHz	Pass	3G	7.5G	PK	4.80338G	13.00	-66.22	-66.22	-53.22	-21.20	-32.02
2402MHz	Pass	3G	7.5G	PK	7.49606G	13.00	-61.45	-61.45	-48.45	-21.20	-27.25
2402MHz	Pass	7.5G	25G	PK	22.165G	13.00	-61.03	-61.03	-48.03	-21.20	-26.83
2440MHz	Pass	3G	7.5G	AV	4.87931G	13.00	-73.80	-73.80	-60.80	-41.20	-19.60
2440MHz	Pass	3G	7.5G	AV	7.49269G	13.00	-71.27	-71.27	-58.27	-41.20	-17.07
2440MHz	Pass	7.5G	25G	AV	22.10594G	13.00	-70.82	-70.82	-57.82	-41.20	-16.62
2440MHz	Pass	3G	7.5G	PK	4.87988G	13.00	-64.57	-64.57	-51.57	-21.20	-30.37
2440MHz	Pass	3G	7.5G	PK	7.48144G	13.00	-61.72	-61.72	-48.72	-21.20	-27.52
2440MHz	Pass	7.5G	25G	PK	22.16938G	13.00	-61.00	-61.00	-48.00	-21.20	-26.80
2480MHz	Pass	3G	7.5G	AV	4.95919G	13.00	-74.48	-74.48	-61.48	-41.20	-20.28
2480MHz	Pass	3G	7.5G	AV	7.47975G	13.00	-71.07	-71.07	-58.07	-41.20	-16.87
2480MHz	Pass	7.5G	25G	AV	22.14094G	13.00	-71.39	-71.39	-58.39	-41.20	-17.19
2480MHz	Pass	3G	7.5G	PK	4.96088G	13.00	-65.10	-65.10	-52.10	-21.20	-30.90
2480MHz	Pass	3G	7.5G	PK	7.43306G	13.00	-61.60	-61.60	-48.60	-21.20	-27.40
2480MHz	Pass	7.5G	25G	PK	22.10375G	13.00	-61.57	-61.57	-48.57	-21.20	-27.37
BT-LE2_Nss1_TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	3G	7.5G	AV	4.80281G	13.00	-75.34	-75.34	-62.34	-41.20	-21.14
2402MHz	Pass	3G	7.5G	AV	7.47019G	13.00	-71.08	-71.08	-58.08	-41.20	-16.88
2402MHz	Pass	7.5G	25G	AV	22.11688G	13.00	-71.20	-71.20	-58.20	-41.20	-17.00
2402MHz	Pass	3G	7.5G	PK	4.80338G	13.00	-65.14	-65.14	-52.14	-21.20	-30.94
2402MHz	Pass	3G	7.5G	PK	7.48088G	13.00	-61.40	-61.40	-48.40	-21.20	-27.20
2402MHz	Pass	7.5G	25G	PK	18.99531G	13.00	-61.06	-61.06	-48.06	-21.20	-26.86
2440MHz	Pass	3G	7.5G	AV	4.87988G	13.00	-71.48	-71.48	-58.48	-41.20	-17.28
2440MHz	Pass	3G	7.5G	AV	7.49831G	13.00	-70.80	-70.80	-57.80	-41.20	-16.60
2440MHz	Pass	7.5G	25G	AV	22.19563G	13.00	-71.26	-71.26	-58.26	-41.20	-17.06
2440MHz	Pass	3G	7.5G	PK	4.88044G	13.00	-64.42	-64.42	-51.42	-21.20	-30.22
2440MHz	Pass	3G	7.5G	PK	7.47525G	13.00	-60.72	-60.72	-47.72	-21.20	-26.52
2440MHz	Pass	7.5G	25G	PK	18.98875G	13.00	-61.16	-61.16	-48.16	-21.20	-26.96
2480MHz	Pass	3G	7.5G	AV	4.96144G	13.00	-74.97	-74.97	-61.97	-41.20	-20.77
2480MHz	Pass	3G	7.5G	AV	7.45163G	13.00	-71.17	-71.17	-58.17	-41.20	-16.97
2480MHz	Pass	7.5G	25G	AV	22.22406G	13.00	-71.22	-71.22	-58.22	-41.20	-17.02
2480MHz	Pass	3G	7.5G	PK	4.96088G	13.00	-65.51	-65.51	-52.51	-21.20	-31.31
2480MHz	Pass	3G	7.5G	PK	7.49044G	13.00	-59.96	-59.96	-46.96	-21.20	-25.76
2480MHz	Pass	7.5G	25G	PK	22.1825G	13.00	-60.42	-60.42	-47.42	-21.20	-26.22

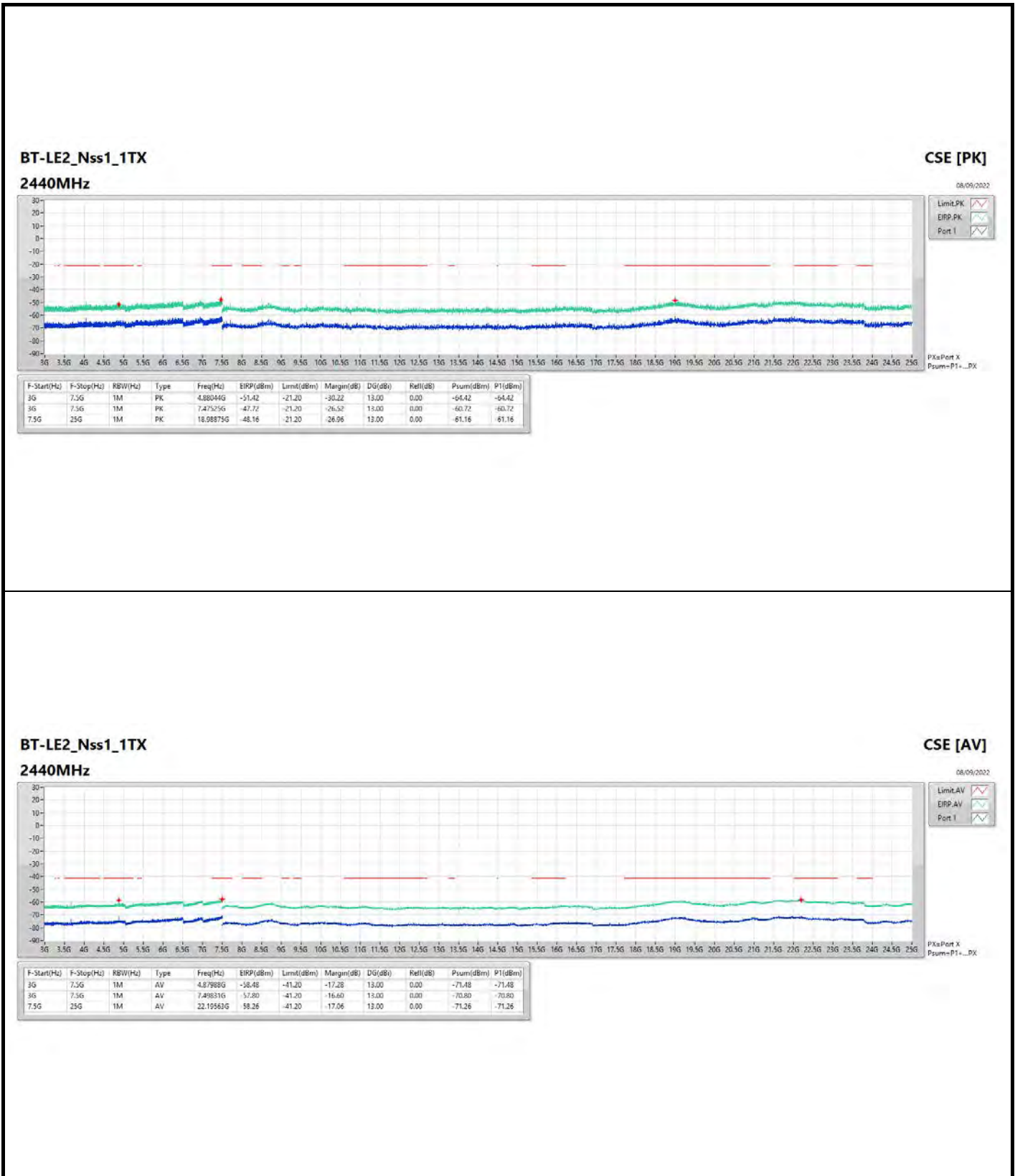
DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

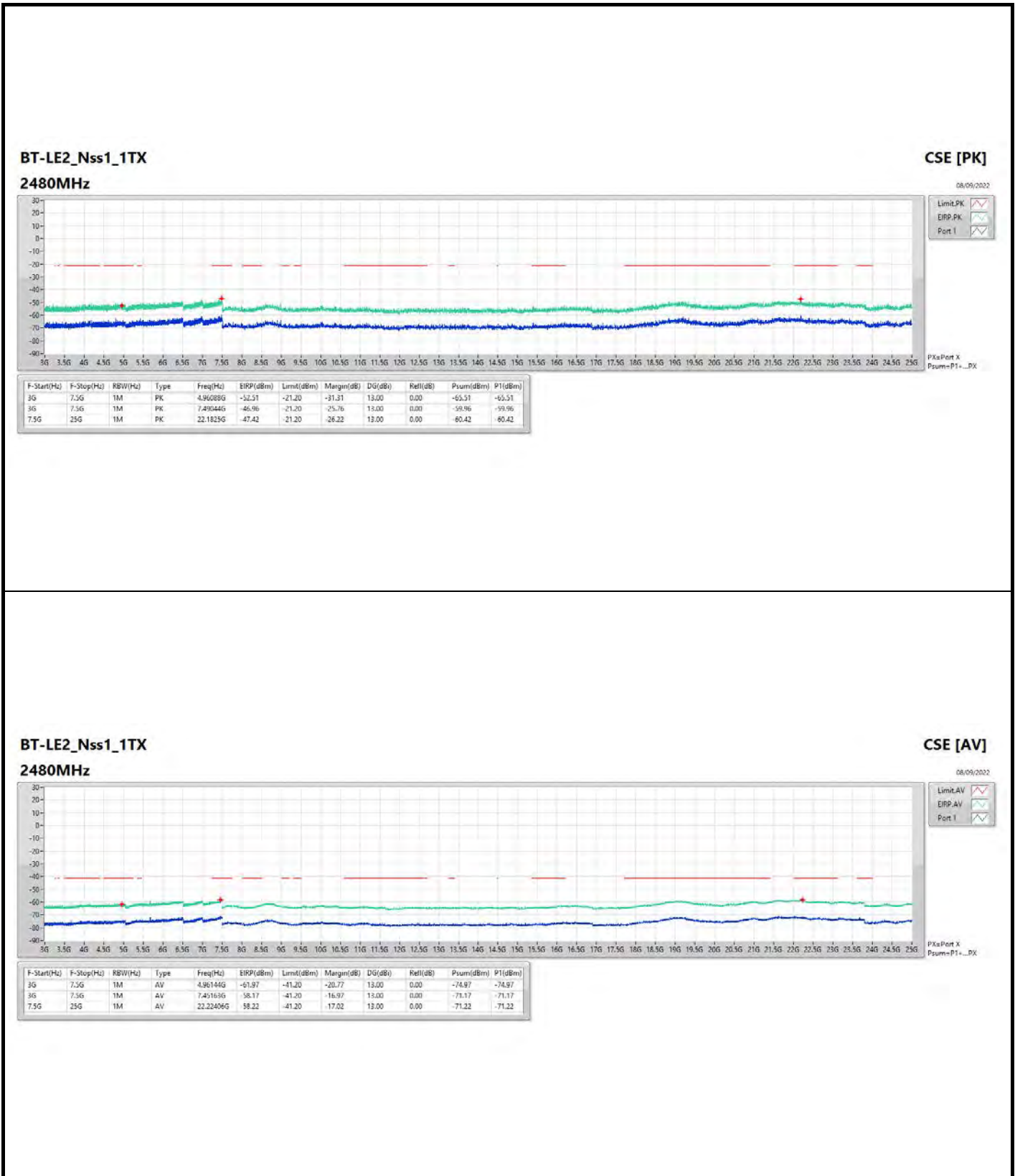














Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE_Nss1_1TX	Pass	2.4835G	2.4855G	AV	2.48354G	13.00	-54.51	-54.51	-41.51	-41.20	-0.31
BT-LE2_Nss1_1TX	Pass	2.3G	2.396G	AV	2.36355G	13.00	-54.42	-54.42	-41.42	-41.20	-0.22

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



CSE (Restricted Band)_R4_Antenna set 2 (Bandedge)

Appendix F.8

Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
BT-LE_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.3G	2.398G	AV	2.3637G	13.00	-54.77	-54.77	-41.77	-41.20	-0.57
2402MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-72.59	-72.59	-59.59	-41.20	-18.39
2402MHz	Pass	2.4835G	2.4855G	AV	2.48363G	13.00	-70.90	-70.90	-57.90	-41.20	-16.70
2402MHz	Pass	2.4855G	2.6G	AV	2.55569G	13.00	-72.29	-72.29	-59.29	-41.20	-18.09
2402MHz	Pass	2.3G	2.398G	PK	2.3637G	13.00	-51.96	-51.96	-38.96	-21.20	-17.76
2402MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-63.89	-63.89	-50.89	-21.20	-29.69
2402MHz	Pass	2.4835G	2.4855G	PK	2.48398G	13.00	-60.40	-60.40	-47.40	-21.20	-26.20
2402MHz	Pass	2.4855G	2.6G	PK	2.55557G	13.00	-60.73	-60.73	-47.73	-21.20	-26.53
2404MHz	Pass	2.3G	2.398G	AV	2.36566G	13.00	-59.37	-59.37	-46.37	-41.20	-5.17
2404MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-73.51	-73.51	-60.51	-41.20	-19.31
2404MHz	Pass	2.4835G	2.4855G	AV	2.48473G	13.00	-71.26	-71.26	-58.26	-41.20	-17.06
2404MHz	Pass	2.4855G	2.6G	AV	2.55764G	13.00	-75.50	-75.50	-62.50	-41.20	-21.30
2404MHz	Pass	2.3G	2.398G	PK	2.36546G	13.00	-56.29	-56.29	-43.29	-21.20	-22.09
2404MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-63.62	-63.62	-50.62	-21.20	-29.42
2404MHz	Pass	2.4835G	2.4855G	PK	2.48366G	13.00	-60.47	-60.47	-47.47	-21.20	-26.27
2404MHz	Pass	2.4855G	2.6G	PK	2.55764G	13.00	-64.22	-64.22	-51.22	-21.20	-30.02
2440MHz	Pass	2.3G	2.398G	AV	2.36321G	13.00	-74.57	-74.57	-61.57	-41.20	-20.37
2440MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-73.21	-73.21	-60.21	-41.20	-19.01
2440MHz	Pass	2.4835G	2.4855G	AV	2.4848G	13.00	-70.90	-70.90	-57.90	-41.20	-16.70
2440MHz	Pass	2.4855G	2.6G	AV	2.59359G	13.00	-74.48	-74.48	-61.48	-41.20	-20.28
2440MHz	Pass	2.3G	2.398G	PK	2.36311G	13.00	-63.89	-63.89	-50.89	-21.20	-29.69
2440MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-63.32	-63.32	-50.32	-21.20	-29.12
2440MHz	Pass	2.4835G	2.4855G	PK	2.48419G	13.00	-59.81	-59.81	-46.81	-21.20	-25.61
2440MHz	Pass	2.4855G	2.6G	PK	2.59359G	13.00	-62.53	-62.53	-49.53	-21.20	-28.33
2478MHz	Pass	2.3G	2.398G	AV	2.36252G	13.00	-75.65	-75.65	-62.65	-41.20	-21.45
2478MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-61.13	-61.13	-48.13	-41.20	-6.93
2478MHz	Pass	2.4835G	2.4855G	AV	2.4835G	13.00	-59.91	-59.91	-46.91	-41.20	-5.71
2478MHz	Pass	2.4855G	2.6G	AV	2.51642G	13.00	-58.85	-58.85	-45.85	-41.20	-4.65
2478MHz	Pass	2.3G	2.398G	PK	2.3244G	13.00	-65.38	-65.38	-52.38	-21.20	-31.18
2478MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-49.57	-49.57	-36.57	-21.20	-15.37
2478MHz	Pass	2.4835G	2.4855G	PK	2.48362G	13.00	-49.24	-49.24	-36.24	-21.20	-15.04
2478MHz	Pass	2.4855G	2.6G	PK	2.51642G	13.00	-56.05	-56.05	-43.05	-21.20	-21.85
2480MHz	Pass	2.3G	2.398G	AV	2.36517G	13.00	-75.91	-75.91	-62.91	-41.20	-21.71
2480MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-55.71	-55.71	-42.71	-41.20	-1.51
2480MHz	Pass	2.4835G	2.4855G	AV	2.48354G	13.00	-54.51	-54.51	-41.51	-41.20	-0.31
2480MHz	Pass	2.4855G	2.6G	AV	2.51848G	13.00	-59.14	-59.14	-46.14	-41.20	-4.94
2480MHz	Pass	2.3G	2.398G	PK	2.37085G	13.00	-65.58	-65.58	-52.58	-21.20	-31.38
2480MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-45.66	-45.66	-32.66	-21.20	-11.46
2480MHz	Pass	2.4835G	2.4855G	PK	2.48351G	13.00	-44.09	-44.09	-31.09	-21.20	-9.89
2480MHz	Pass	2.4855G	2.6G	PK	2.48573G	13.00	-49.75	-49.75	-36.75	-21.20	-15.55
BT-LE2_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.3G	2.396G	AV	2.36355G	13.00	-54.42	-54.42	-41.42	-41.20	-0.22
2402MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-72.66	-72.66	-59.66	-41.20	-18.46
2402MHz	Pass	2.4835G	2.4875G	AV	2.48431G	13.00	-69.92	-69.92	-56.92	-41.20	-15.72
2402MHz	Pass	2.4875G	2.6G	AV	2.59415G	13.00	-71.72	-71.72	-58.72	-41.20	-17.52
2402MHz	Pass	2.3G	2.396G	PK	2.38784G	13.00	-47.53	-47.53	-34.53	-21.20	-13.33
2402MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-62.70	-62.70	-49.70	-21.20	-28.50
2402MHz	Pass	2.4835G	2.4875G	PK	2.48712G	13.00	-59.34	-59.34	-46.34	-21.20	-25.14
2402MHz	Pass	2.4875G	2.6G	PK	2.55545G	13.00	-59.35	-59.35	-46.35	-21.20	-25.15
2404MHz	Pass	2.3G	2.396G	AV	2.36576G	13.00	-59.21	-59.21	-46.21	-41.20	-5.01
2404MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-73.36	-73.36	-60.36	-41.20	-19.16
2404MHz	Pass	2.4835G	2.4875G	AV	2.48582G	13.00	-71.03	-71.03	-58.03	-41.20	-16.83
2404MHz	Pass	2.4875G	2.6G	AV	2.55748G	13.00	-75.05	-75.05	-62.05	-41.20	-20.85
2404MHz	Pass	2.3G	2.396G	PK	2.36538G	13.00	-53.92	-53.92	-40.92	-21.20	-19.72
2404MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-64.14	-64.14	-51.14	-21.20	-29.94
2404MHz	Pass	2.4835G	2.4875G	PK	2.48744G	13.00	-60.34	-60.34	-47.34	-21.20	-26.14
2404MHz	Pass	2.4875G	2.6G	PK	2.5577G	13.00	-64.34	-64.34	-51.34	-21.20	-30.14
2440MHz	Pass	2.3G	2.396G	AV	2.32467G	13.00	-75.45	-75.45	-62.45	-41.20	-21.25
2440MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-72.93	-72.93	-59.93	-41.20	-18.73
2440MHz	Pass	2.4835G	2.4875G	AV	2.48393G	13.00	-70.57	-70.57	-57.57	-41.20	-16.37
2440MHz	Pass	2.4875G	2.6G	AV	2.59359G	13.00	-74.29	-74.29	-61.29	-41.20	-20.09
2440MHz	Pass	2.3G	2.396G	PK	2.36317G	13.00	-64.31	-64.31	-51.31	-21.20	-30.11
2440MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-64.14	-64.14	-51.14	-21.20	-29.94
2440MHz	Pass	2.4835G	2.4875G	PK	2.48593G	13.00	-59.78	-59.78	-46.78	-21.20	-25.58
2440MHz	Pass	2.4875G	2.6G	PK	2.5937G	13.00	-62.75	-62.75	-49.75	-21.20	-28.55
2478MHz	Pass	2.3G	2.396G	AV	2.32784G	13.00	-77.21	-77.21	-64.21	-41.20	-23.01
2478MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-62.65	-62.65	-49.65	-41.20	-8.45
2478MHz	Pass	2.4835G	2.4875G	AV	2.48354G	13.00	-62.40	-62.40	-49.40	-41.20	-8.20

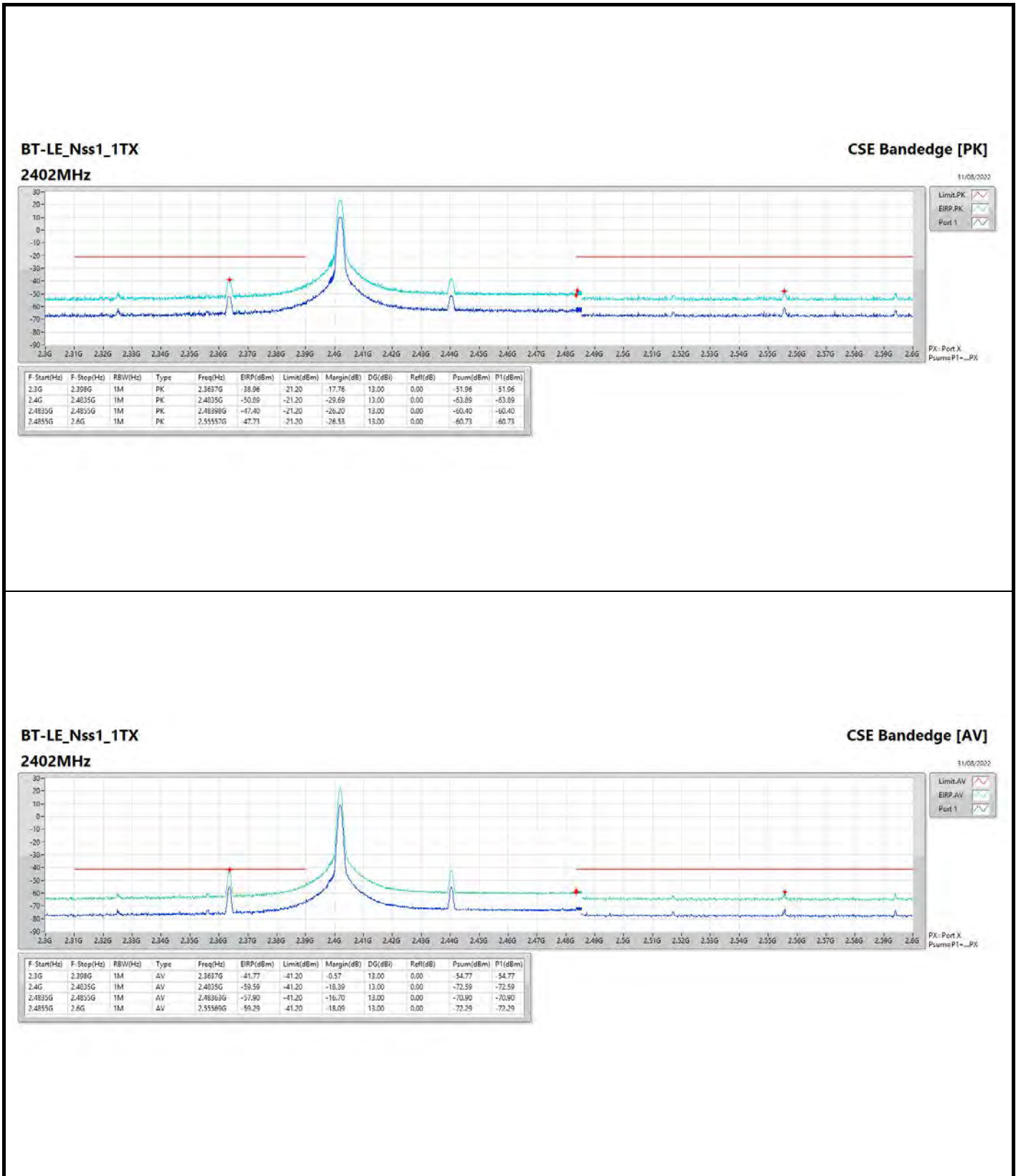


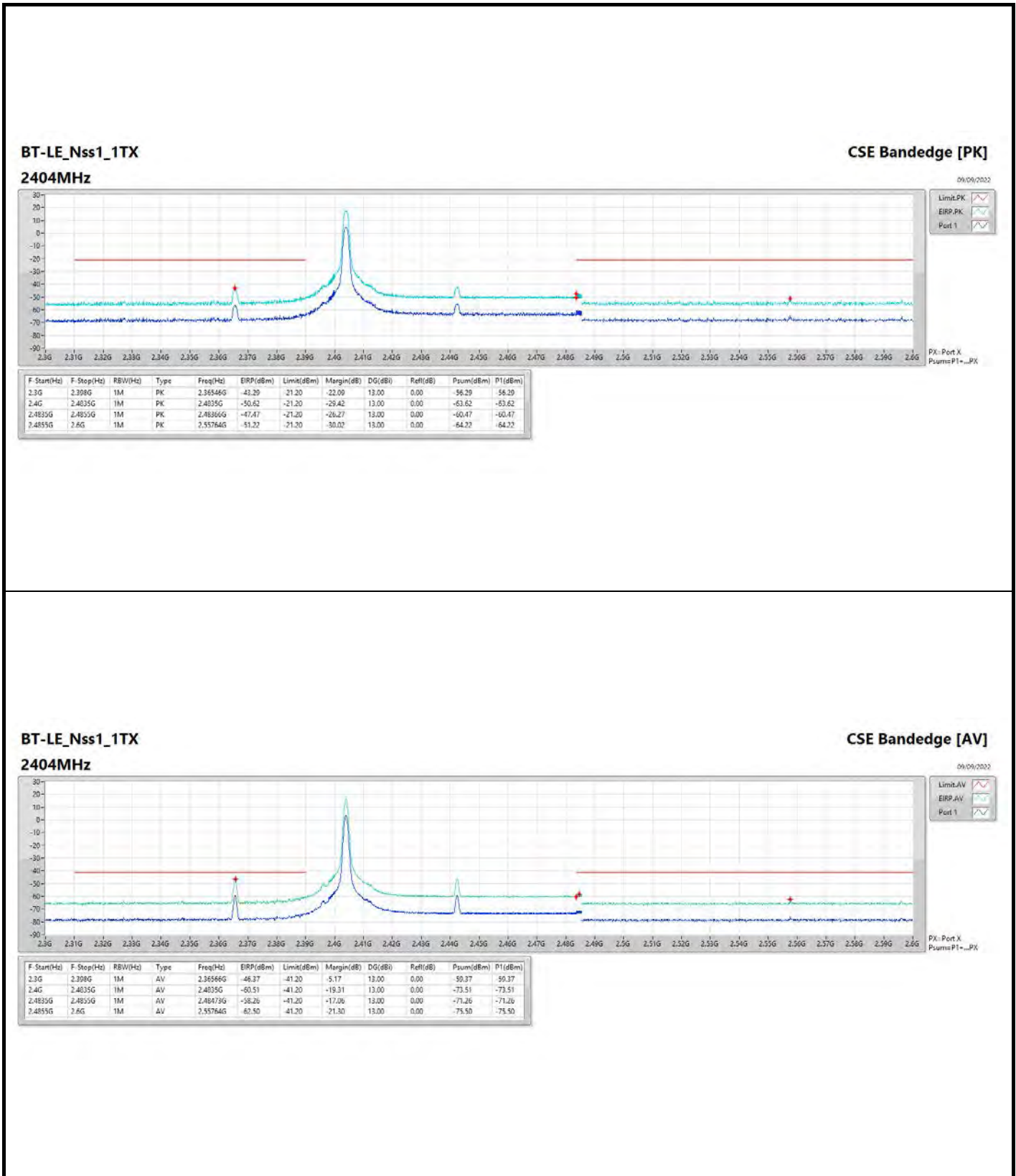
CSE (Restricted Band)_R4_Antenna set 2 (Bandedge)

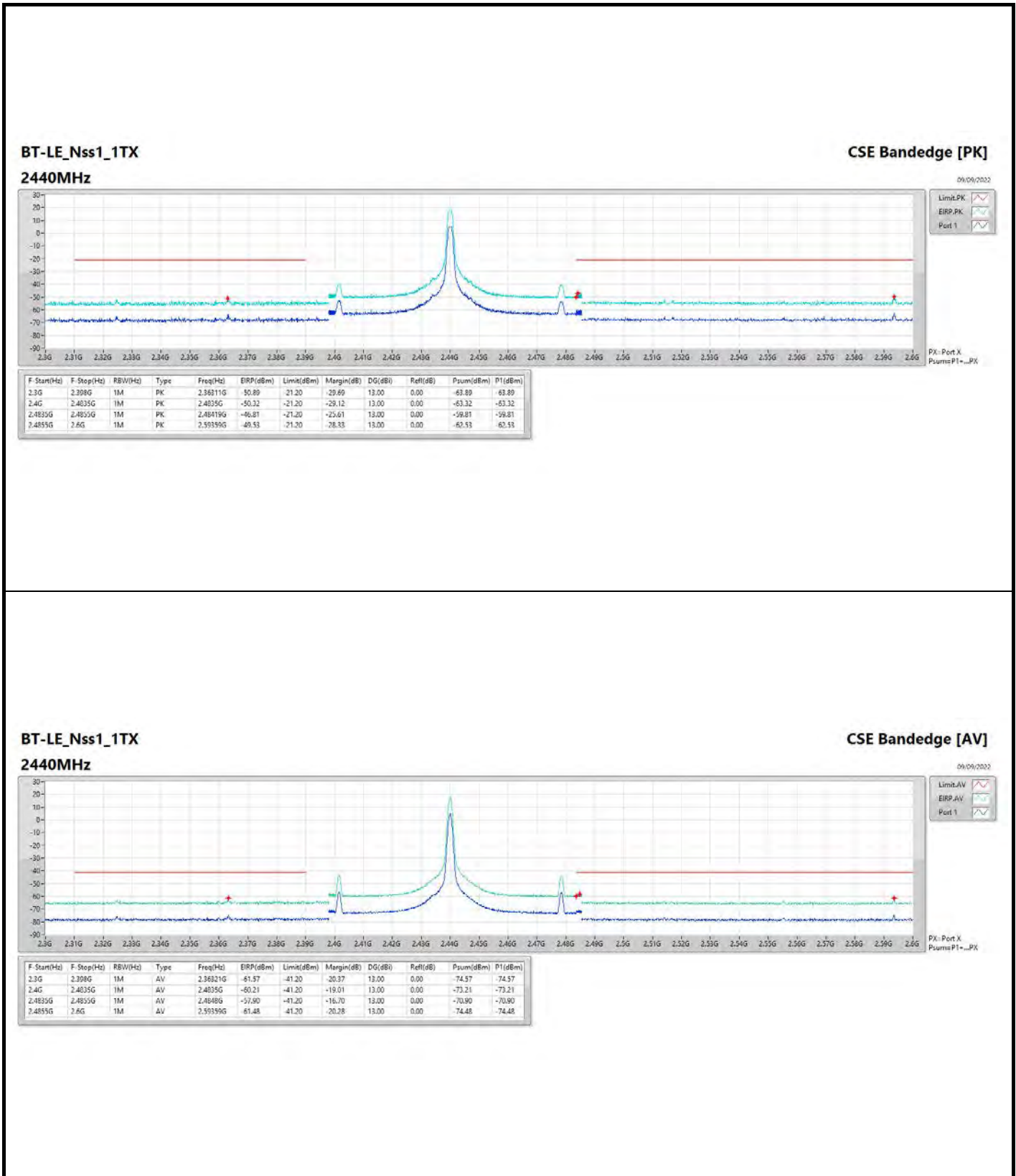
Appendix F.8

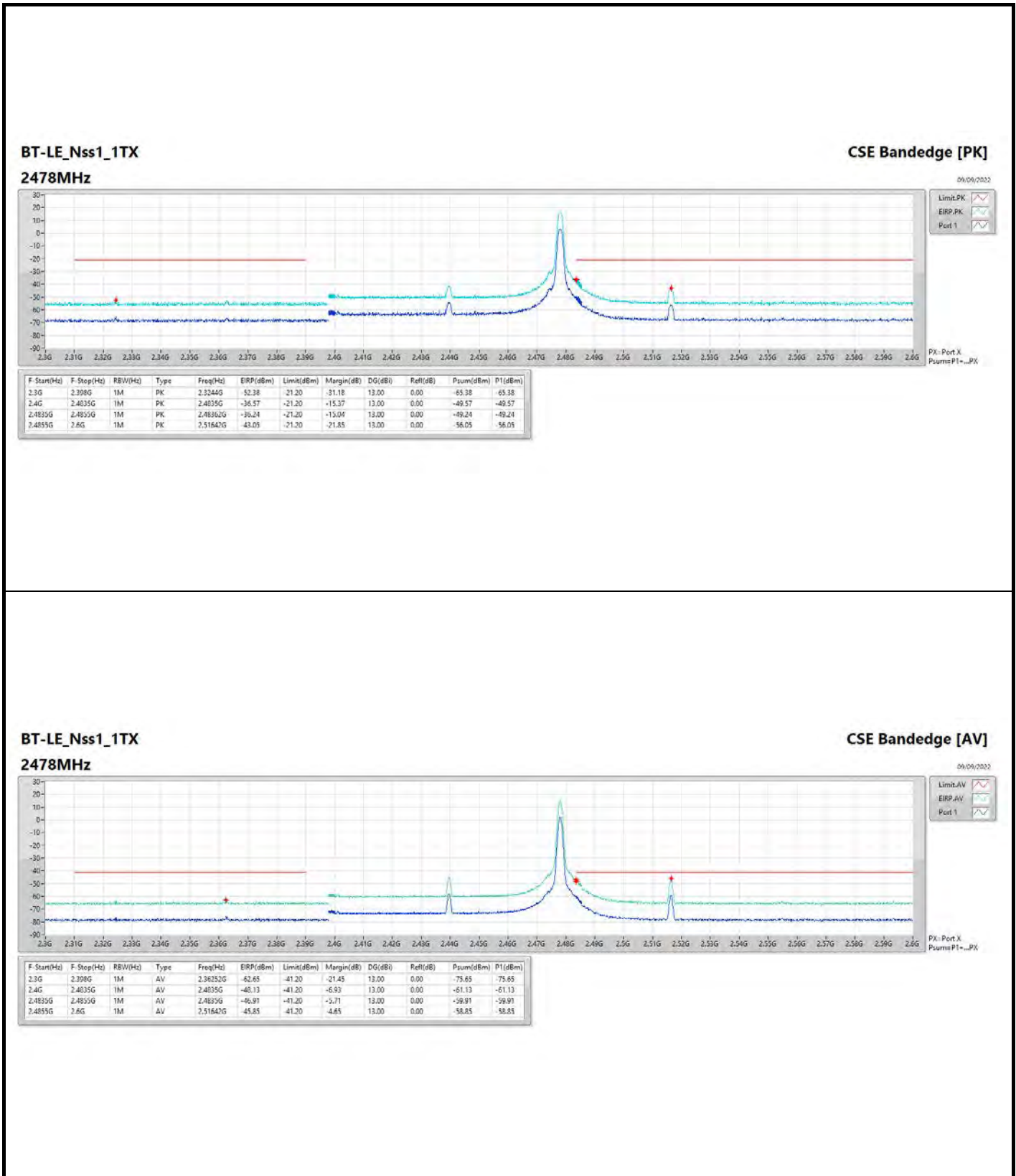
Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
2478MHz	Pass	2.4875G	2.6G	AV	2.51641G	13.00	-66.95	-66.95	-53.95	-41.20	-12.75
2478MHz	Pass	2.3G	2.396G	PK	2.35376G	13.00	-66.36	-66.36	-53.36	-21.20	-32.16
2478MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-53.24	-53.24	-40.24	-21.20	-19.04
2478MHz	Pass	2.4835G	2.4875G	PK	2.48355G	13.00	-51.18	-51.18	-38.18	-21.20	-16.98
2478MHz	Pass	2.4875G	2.6G	PK	2.51585G	13.00	-60.32	-60.32	-47.32	-21.20	-26.12
2480MHz	Pass	2.3G	2.396G	AV	2.3648G	13.00	-76.19	-76.19	-63.19	-41.20	-21.99
2480MHz	Pass	2.4G	2.4835G	AV	2.4835G	13.00	-54.65	-54.65	-41.65	-41.20	-0.45
2480MHz	Pass	2.4835G	2.4875G	AV	2.48357G	13.00	-54.46	-54.46	-41.46	-41.20	-0.26
2480MHz	Pass	2.4875G	2.6G	AV	2.4875G	13.00	-63.05	-63.05	-50.05	-41.20	-8.85
2480MHz	Pass	2.3G	2.396G	PK	2.37728G	13.00	-66.11	-66.11	-53.11	-21.20	-31.91
2480MHz	Pass	2.4G	2.4835G	PK	2.4835G	13.00	-44.16	-44.16	-31.16	-21.20	-9.96
2480MHz	Pass	2.4835G	2.4875G	PK	2.48352G	13.00	-42.04	-42.04	-29.04	-21.20	-7.84
2480MHz	Pass	2.4875G	2.6G	PK	2.48773G	13.00	-51.94	-51.94	-38.94	-21.20	-17.74

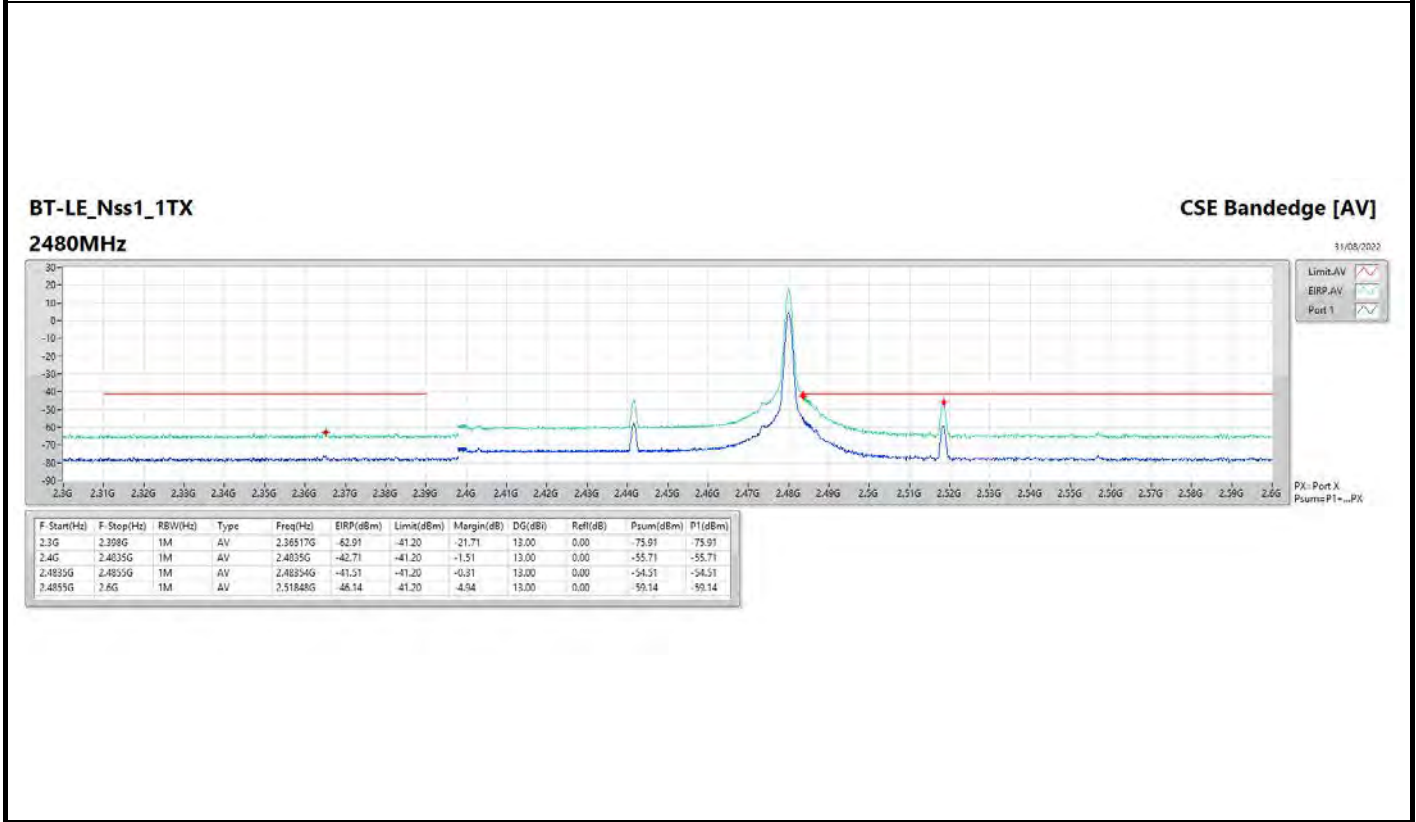
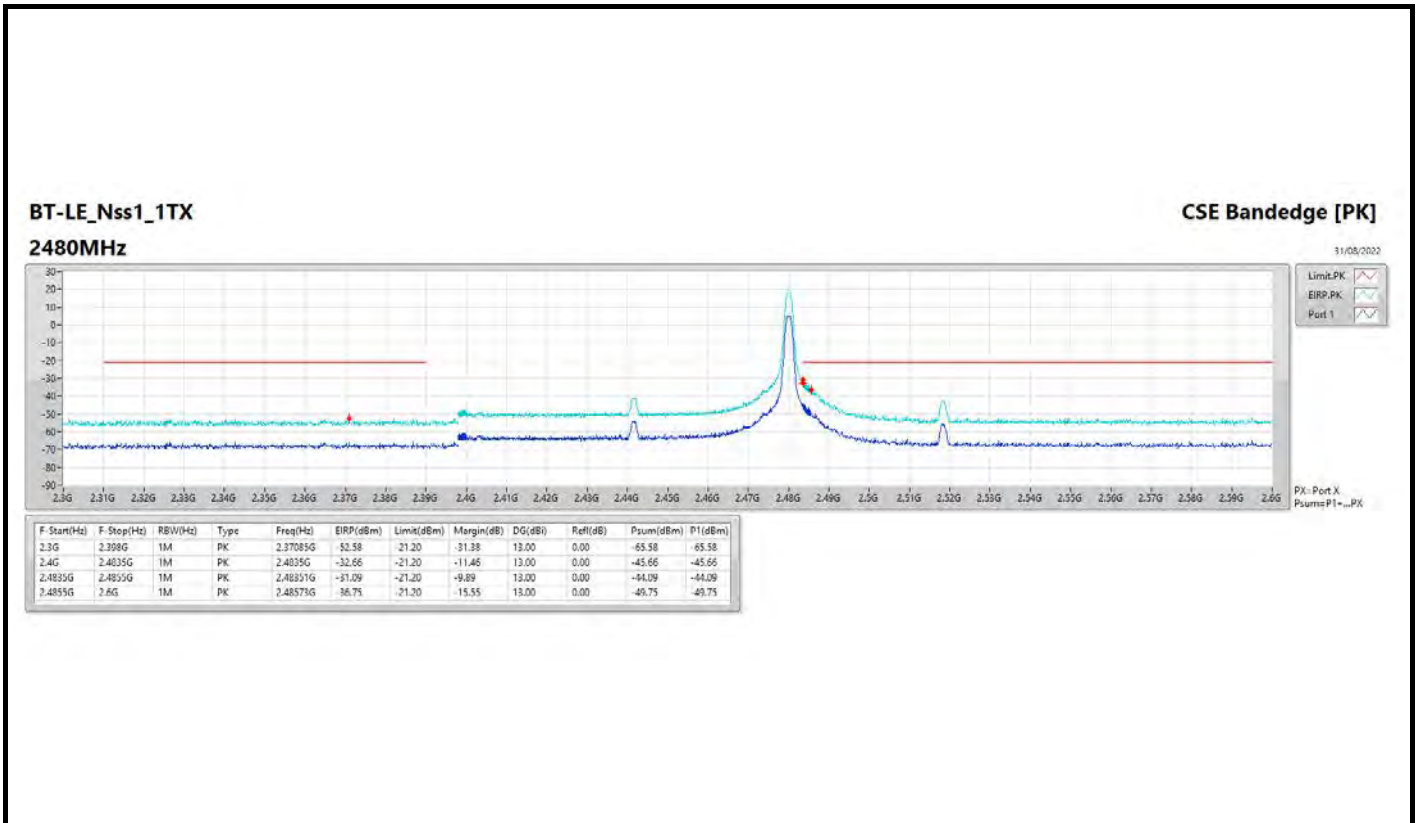
DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

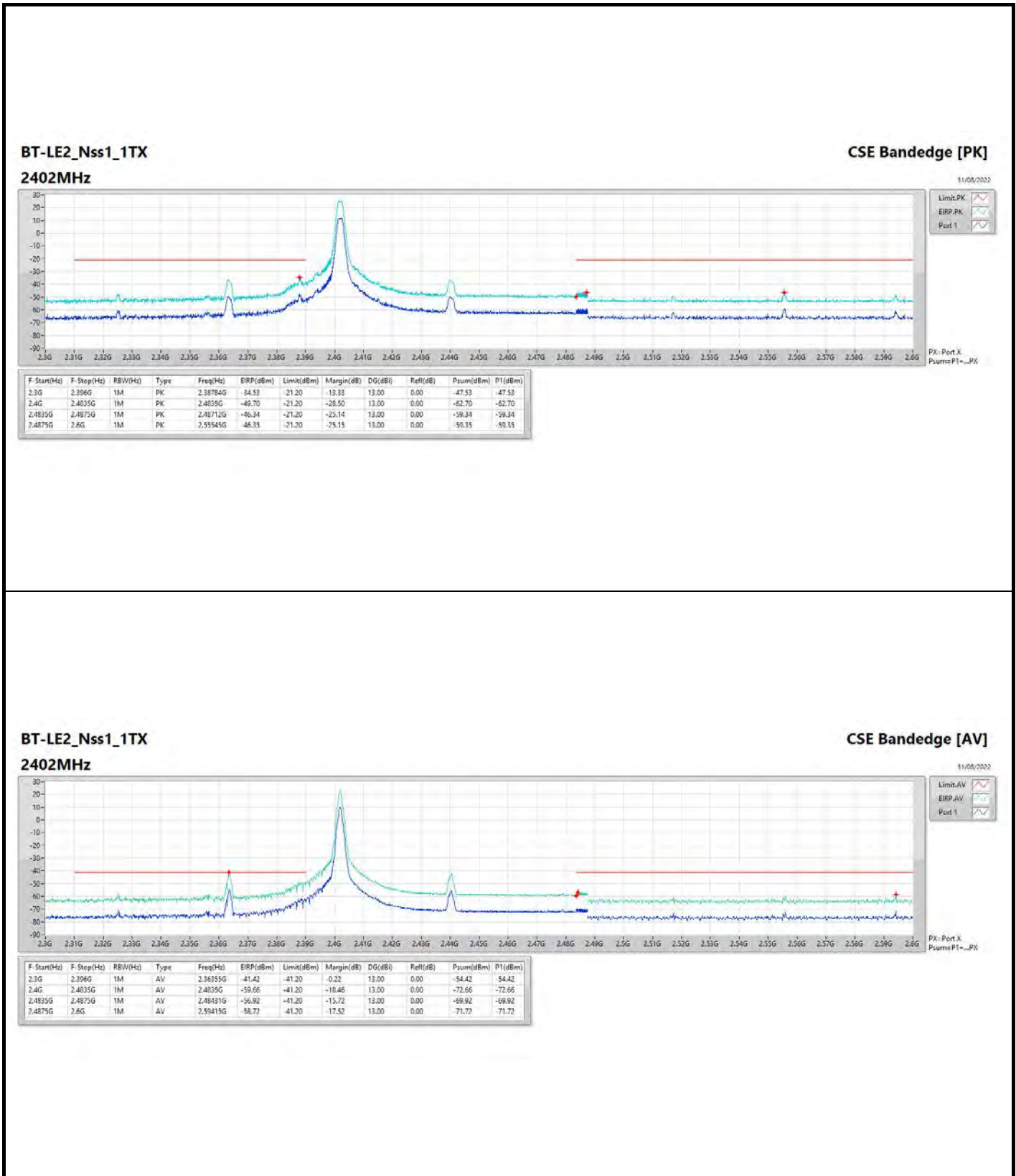






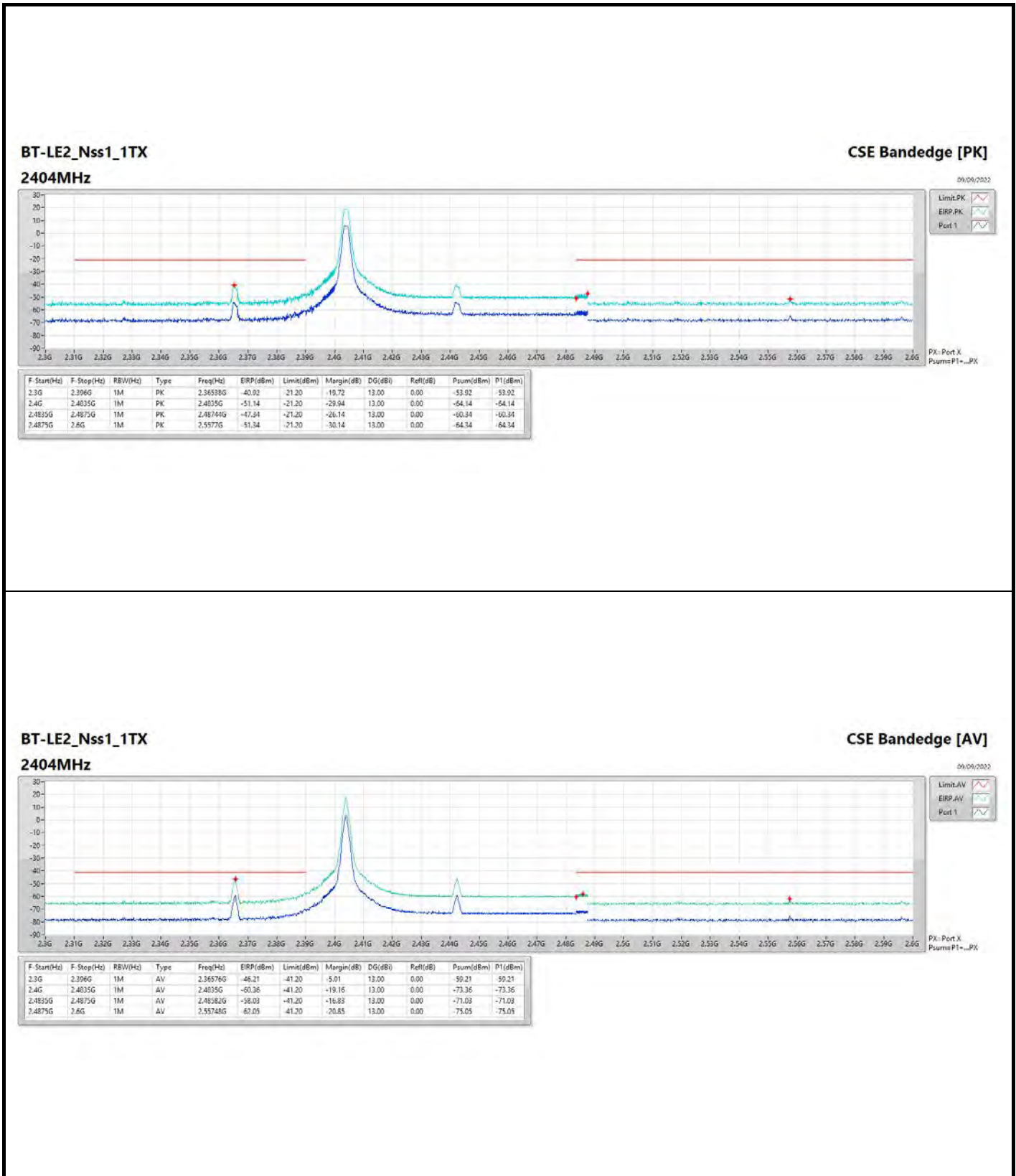


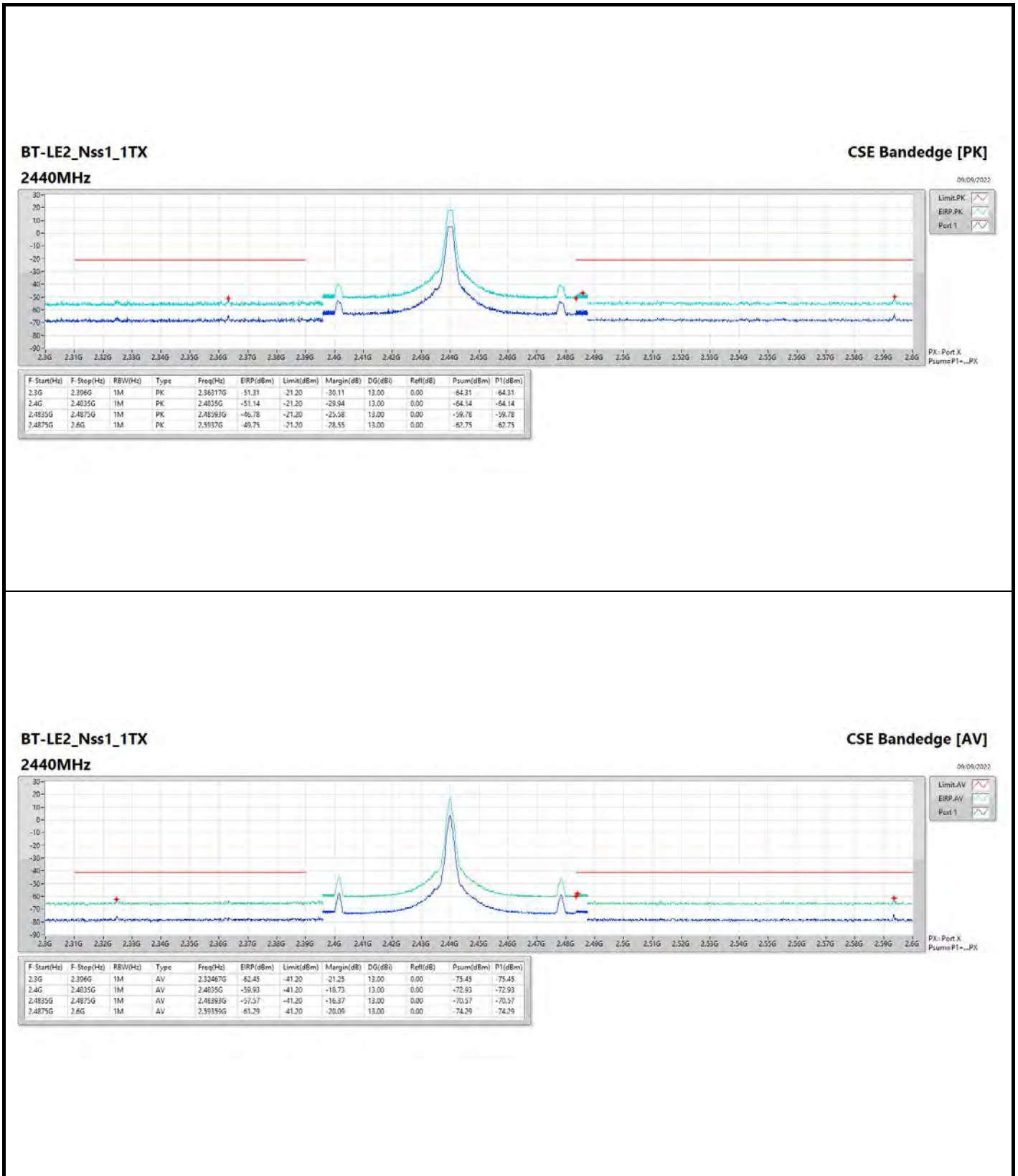


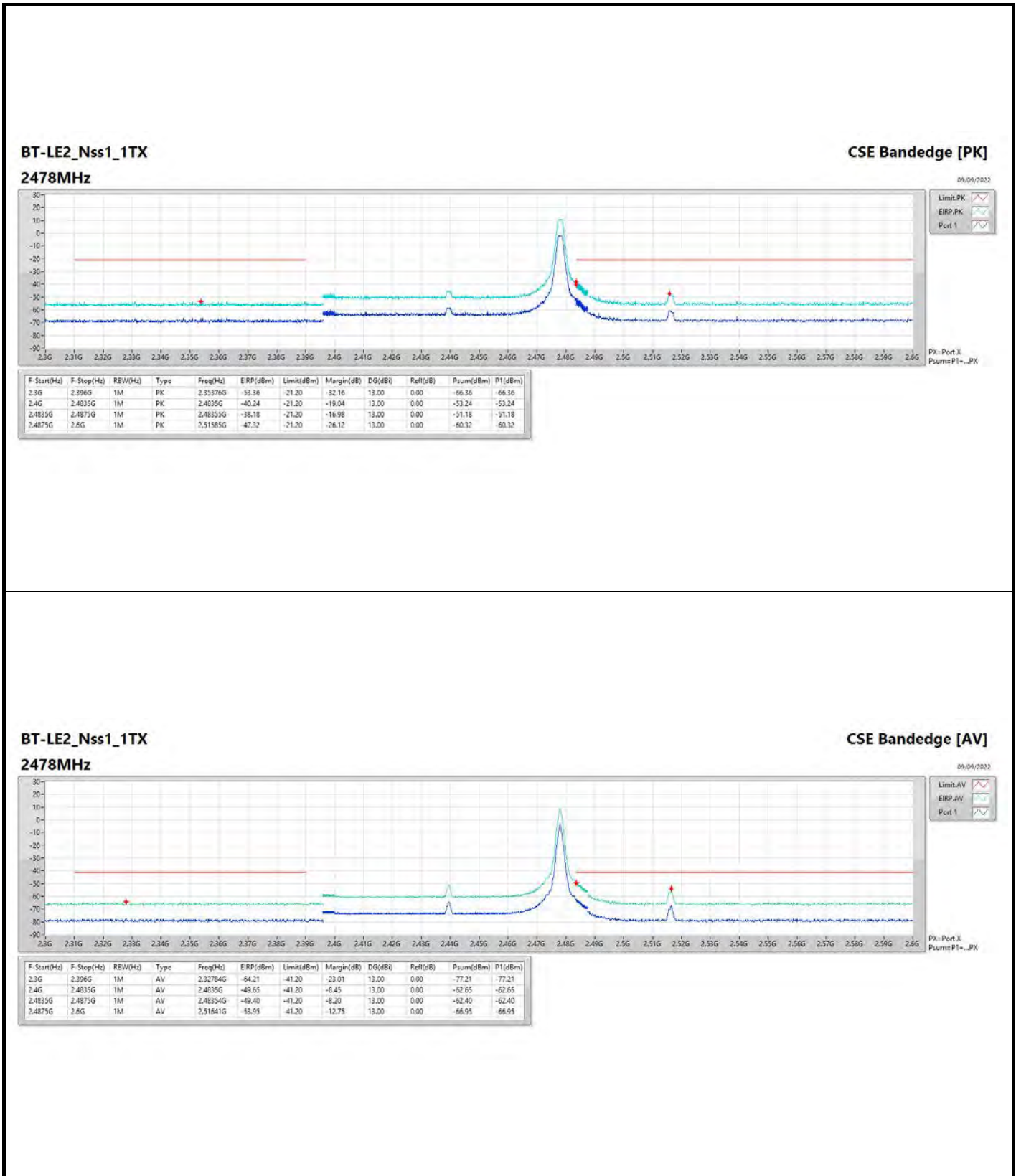


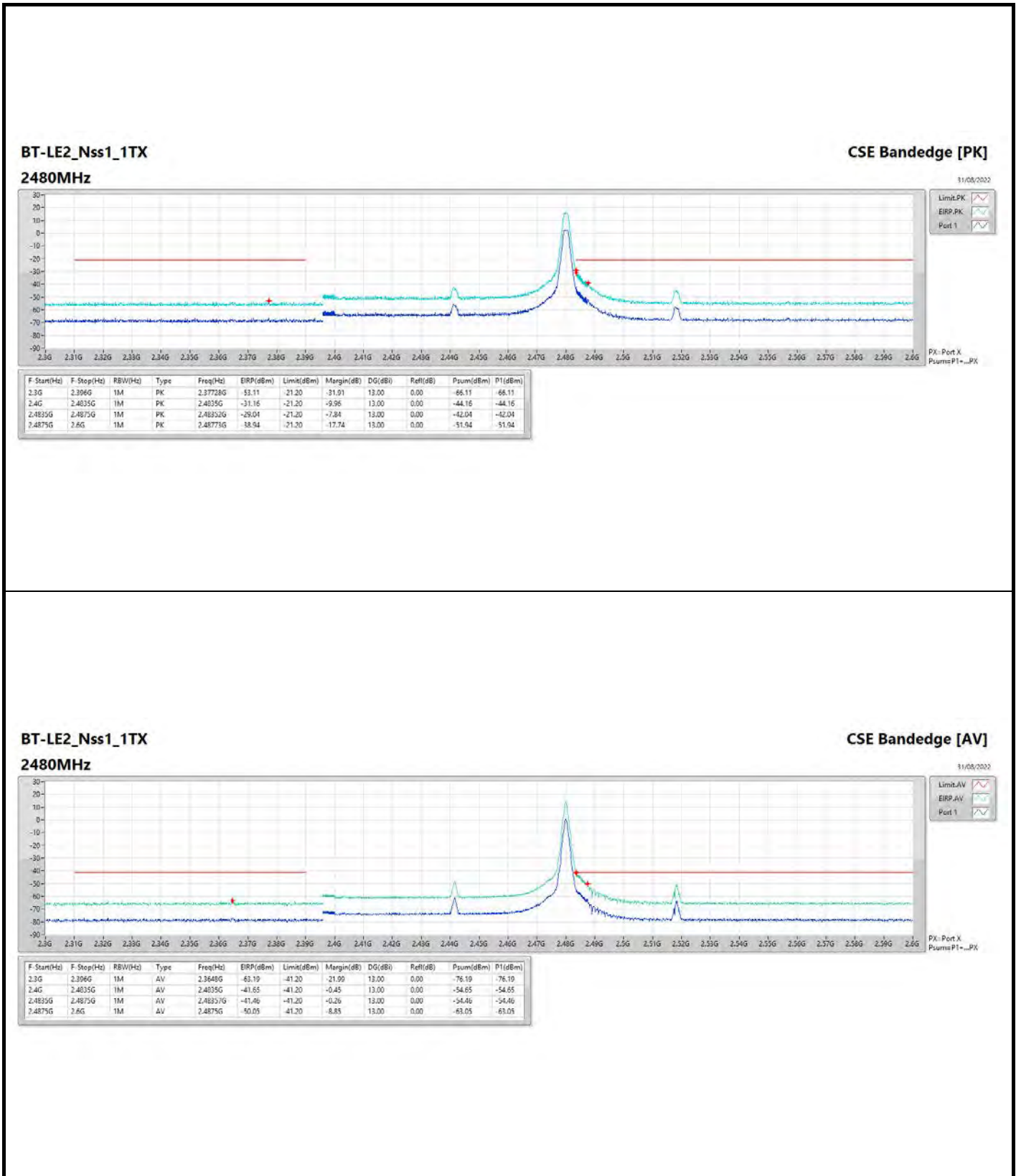
BT-LE2_Nss1_1TX
2402MHz

CSE Bandedge [AV]









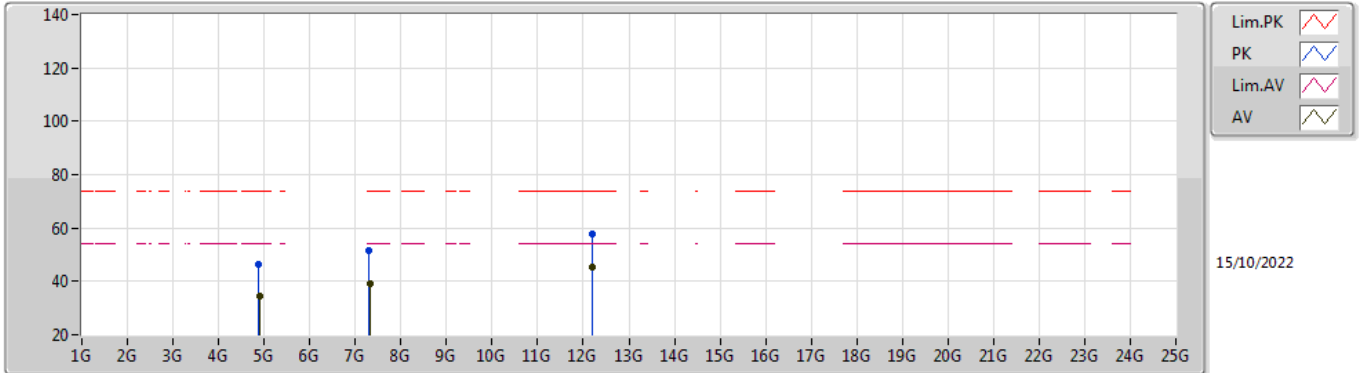


Summary

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(1Mbps)	Pass	AV	12.18506G	45.34	54.00	-8.66	3	Vertical	360	1.80	-

BT-LE(1Mbps)

2440MHz_TX

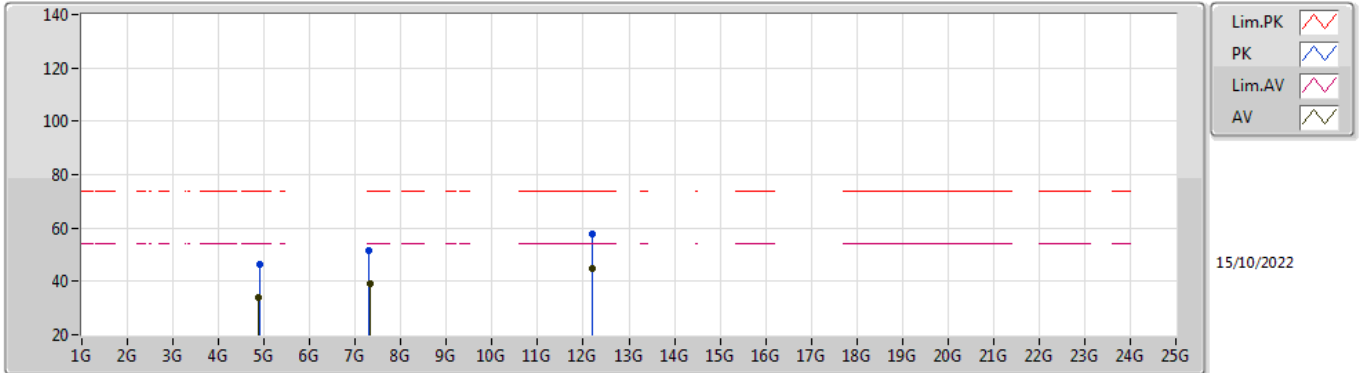


EUT_V_1TX
Setting 15
01-A-C-6

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	4.8716G	46.42	74.00	-27.58	40.99	3	Vertical	309	1.80	-	32.54	5.77	32.88
AV	4.89362G	34.38	54.00	-19.62	28.87	3	Vertical	309	1.80	-	32.59	5.79	32.87
PK	7.30806G	51.48	74.00	-22.52	40.23	3	Vertical	141	1.80	-	37.28	7.15	33.18
AV	7.31226G	39.21	54.00	-14.79	27.95	3	Vertical	141	1.80	-	37.28	7.16	33.18
PK	12.21068G	57.70	74.00	-16.30	41.76	3	Vertical	360	1.80	-	38.32	9.18	31.56
AV	12.18506G	45.34	54.00	-8.66	29.39	3	Vertical	360	1.80	-	38.34	9.17	31.56

BT-LE(1Mbps)

2440MHz_TX



EUT_V_1TX
Setting 15
01-A-C-6

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	4.89434G	46.61	74.00	-27.39	41.10	3	Horizontal	286	1.59	-	32.59	5.79	32.87
AV	4.87526G	34.17	54.00	-19.83	28.71	3	Horizontal	286	1.59	-	32.55	5.78	32.87
PK	7.3065G	51.73	74.00	-22.27	40.47	3	Horizontal	156	1.80	-	37.29	7.15	33.18
AV	7.31484G	39.23	54.00	-14.77	27.98	3	Horizontal	156	1.80	-	37.27	7.16	33.18
PK	12.2093G	57.84	74.00	-16.16	41.90	3	Horizontal	237	1.19	-	38.32	9.18	31.56
AV	12.20156G	45.07	54.00	-8.93	29.15	3	Horizontal	237	1.19	-	38.30	9.18	31.56



Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	EIRP (dBm)	Psum (dBm)	P2 (dBm)	P3 (dBm)	P4 (dBm)	P1 (dBm)	Limit (dBm)	Margin (dB)	DG (dB)
Mode 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Co-location	Pass	1G	8G	AV	-58.18	-76.71	-82.22	-83.67	-85.97	-80.71	-41.20	-16.98	18.53
Mode 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Co-location	Pass	1G	8G	AV	-58.53	-77.06	-82.73	-84.32	-85.15	-81.19	-41.20	-17.33	18.53
Mode 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Co-location	Pass	30M	1G	PK	-73.78	-97.01	-107.80	-104.81	-101.78	-100.81	-55.20	-18.58	18.53

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



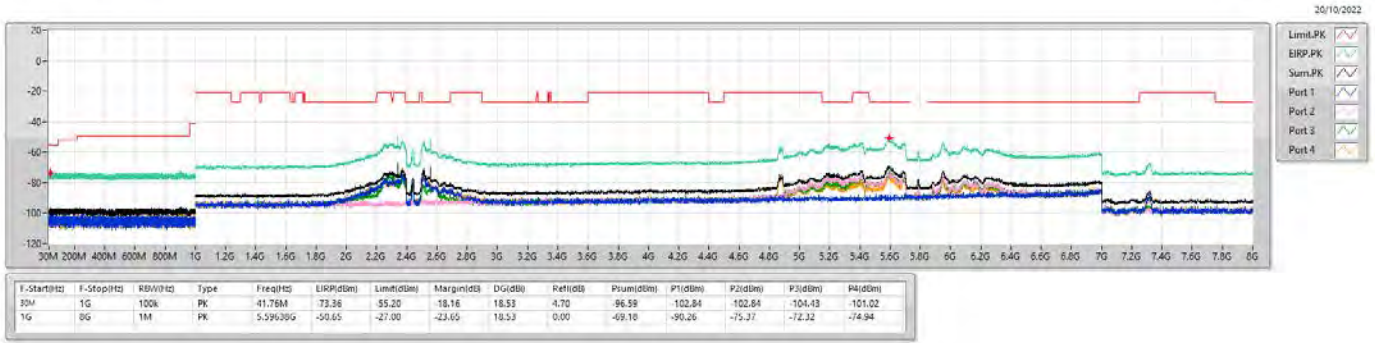
Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	P2 (dBm)	P2 (dBm)	P4 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Co-location	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mode 1	Pass	1G	8G	AV	5.41088G	18.53	-80.71	-82.22	-82.22	-85.97	-76.71	-58.18	-41.20	-16.98
Mode 1	Pass	30M	1G	PK	41.76M	18.53	-102.84	-102.84	-102.84	-101.02	-96.59	-73.36	-55.20	-18.16
Mode 1	Pass	1G	8G	PK	5.59638G	18.53	-90.26	-75.37	-75.37	-74.94	-69.18	-50.65	-27.00	-23.65
Mode 2	Pass	1G	8G	AV	5.40825G	18.53	-81.19	-82.73	-82.73	-85.15	-77.06	-58.53	-41.20	-17.33
Mode 2	Pass	30M	1G	PK	35.94M	18.53	-105.98	-100.61	-100.61	-100.61	-96.54	-73.31	-55.20	-18.11
Mode 2	Pass	1G	8G	PK	5.58675G	18.53	-71.51	-72.92	-72.92	-73.12	-66.89	-48.36	-27.00	-21.36
Mode 3	Pass	1G	8G	AV	5.41G	18.53	-90.62	-91.20	-91.20	-91.42	-84.84	-66.31	-41.20	-25.11
Mode 3	Pass	30M	1G	PK	38.49M	18.53	-100.81	-107.80	-107.80	-101.78	-97.01	-73.78	-55.20	-18.58
Mode 3	Pass	1G	8G	PK	5.704G	18.53	-72.24	-74.61	-74.61	-77.11	-69.01	-50.48	-27.00	-23.48

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

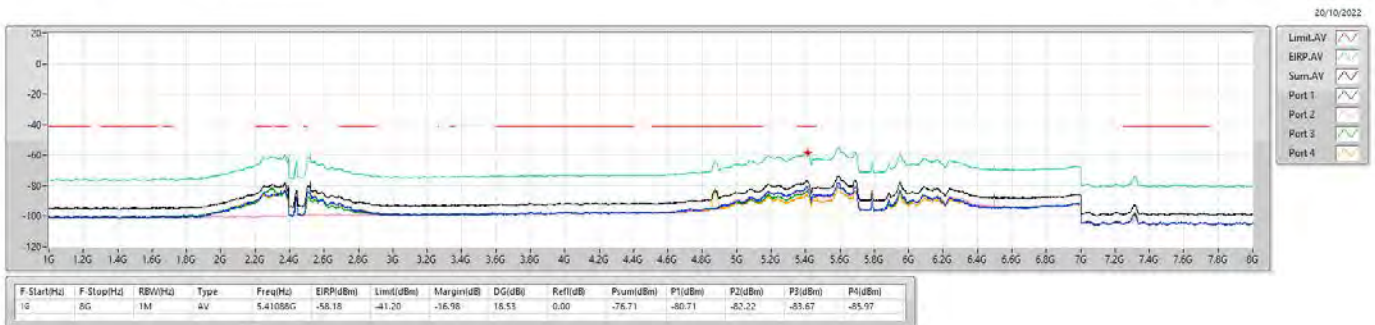
Mode 1_Co-location

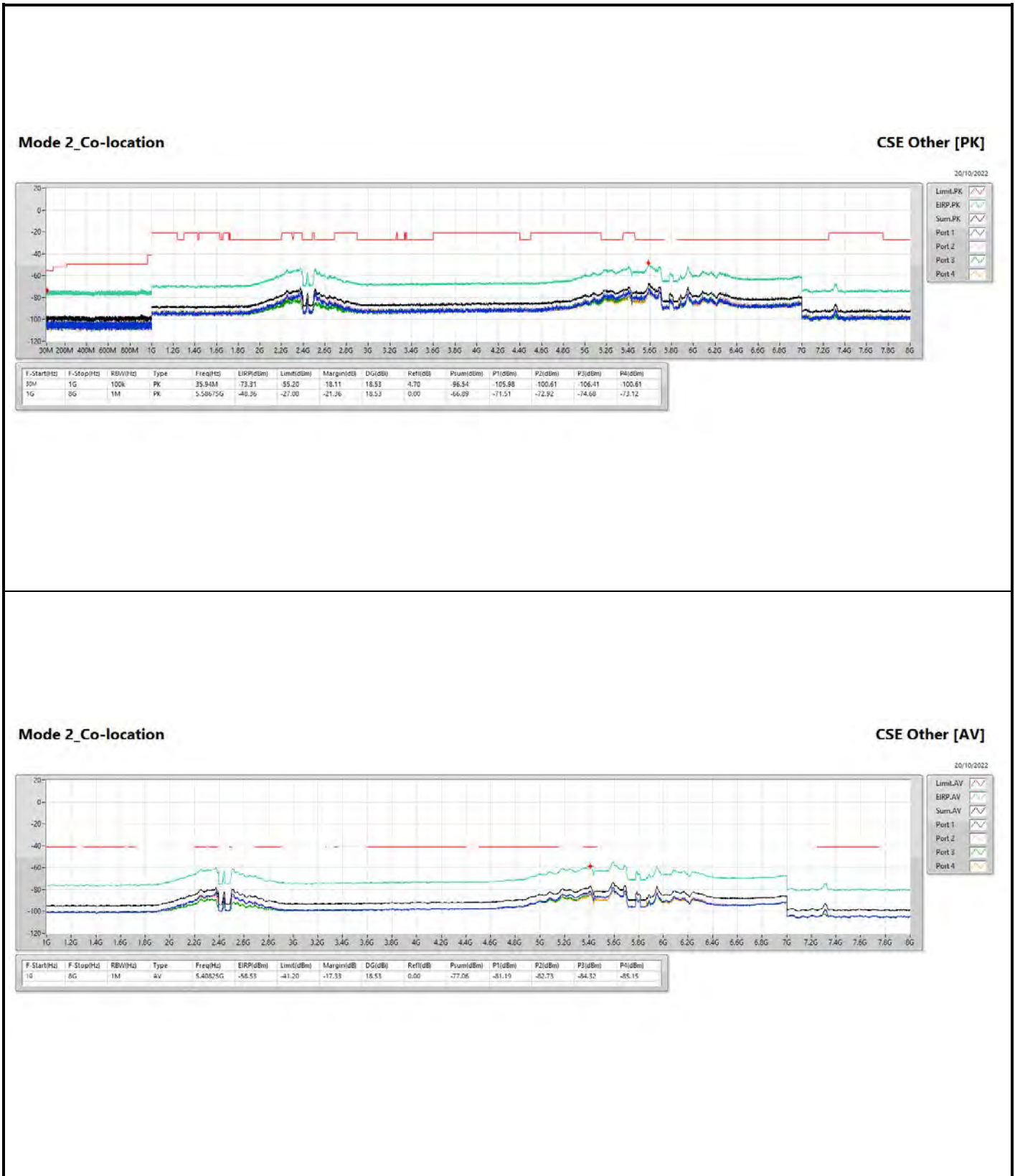
CSE Other [PK]



Mode 1_Co-location

CSE Other [AV]

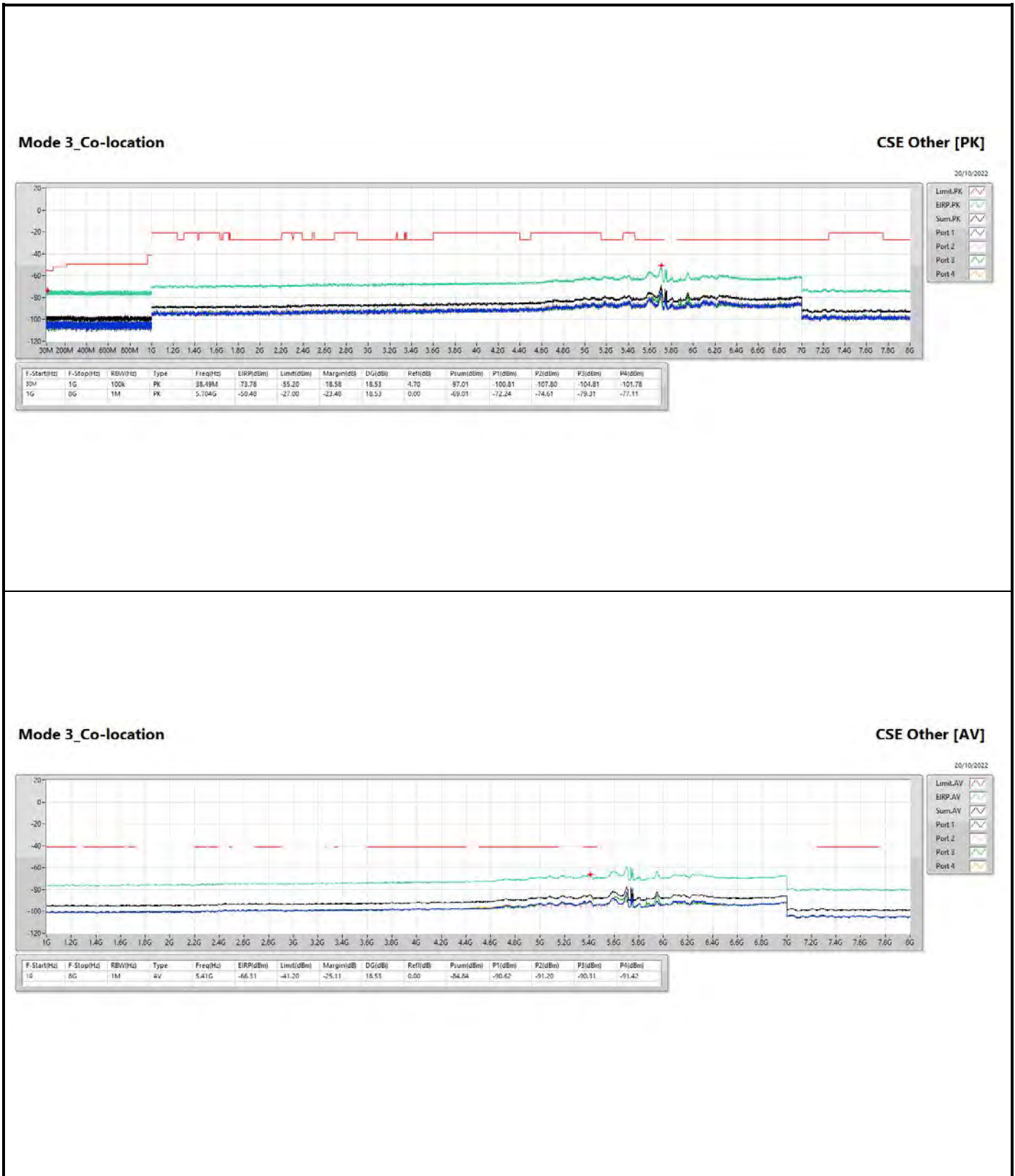




Mode 2_Co-location

CSE Other [AV]

20/10/2022



Mode 3_Co-location

CSE Other [AV]

20/10/2022



Summary

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	EIRP (dBm)	Psum (dBm)	P2 (dBm)	P3 (dBm)	P4 (dBm)	P1 (dBm)	Limit (dBm)	Margin (dB)	DG (dBi)
Mode 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Co-location	Pass	8G	40G	AV	-69.30	-87.83	-93.76	-94.43	-93.95	-93.32	-41.20	-28.10	18.53
Mode 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Co-location	Pass	8G	40G	AV	-69.18	-87.71	-93.66	-93.57	-94.30	-93.44	-41.20	-27.98	18.53
Mode 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Co-location	Pass	8G	40G	AV	-69.18	-87.71	-92.92	-94.12	-94.05	-93.96	-41.20	-27.98	18.53

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX



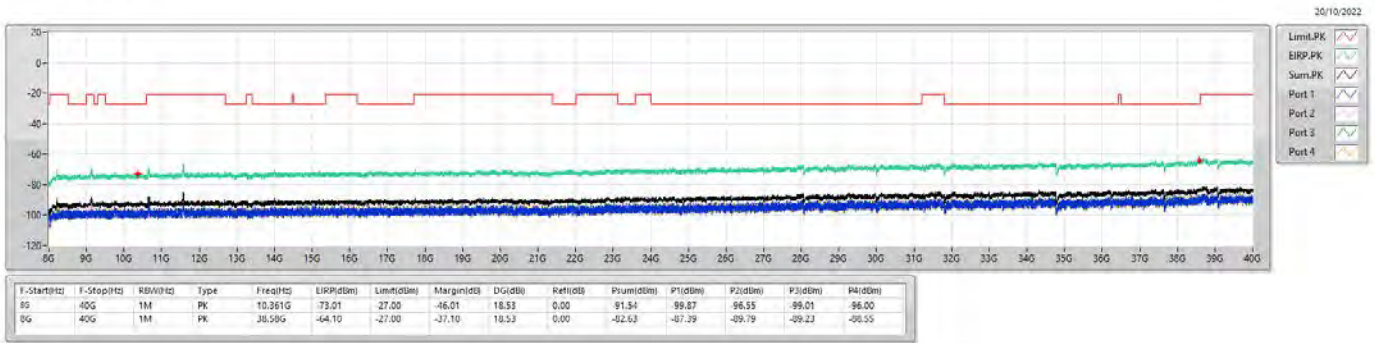
Result

Mode	Result	F-Start (Hz)	F-Stop (Hz)	Type	Freq (Hz)	DG (dBi)	P1 (dBm)	P2 (dBm)	P2 (dBm)	P4 (dBm)	Psum (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Co-location	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mode 1	Pass	8G	40G	AV	10.6G	18.53	-104.57	-104.57	-104.57	-104.43	-98.64	-80.11	-41.20	-38.91
Mode 1	Pass	8G	40G	AV	38.704G	18.53	-93.32	-93.76	-93.76	-93.95	-87.83	-69.30	-41.20	-28.10
Mode 1	Pass	8G	40G	PK	10.361G	18.53	-99.87	-96.55	-96.55	-96.00	-91.54	-73.01	-27.00	-46.01
Mode 1	Pass	8G	40G	PK	38.58G	18.53	-87.39	-89.79	-89.79	-88.55	-82.63	-64.10	-27.00	-37.10
Mode 2	Pass	8G	40G	AV	10.6G	18.53	-104.87	-104.50	-104.50	-105.10	-98.58	-80.05	-41.20	-38.85
Mode 2	Pass	8G	40G	AV	38.7G	18.53	-93.44	-93.66	-93.66	-94.30	-87.71	-69.18	-41.20	-27.98
Mode 2	Pass	8G	40G	PK	10.414G	18.53	-98.20	-99.50	-99.50	-96.89	-91.80	-73.27	-27.00	-46.27
Mode 2	Pass	8G	40G	PK	38.568G	18.53	-88.07	-90.09	-90.09	-88.79	-82.22	-63.69	-27.00	-36.69
Mode 3	Pass	8G	40G	AV	10.6G	18.53	-104.72	-104.87	-104.87	-104.94	-98.79	-80.26	-41.20	-39.06
Mode 3	Pass	8G	40G	AV	38.711G	18.53	-93.96	-92.92	-92.92	-94.05	-87.71	-69.18	-41.20	-27.98
Mode 3	Pass	8G	40G	PK	10.468G	18.53	-96.21	-97.44	-97.44	-98.09	-91.41	-72.88	-27.00	-45.88
Mode 3	Pass	8G	40G	PK	38.577G	18.53	-85.58	-87.84	-87.84	-88.97	-81.43	-62.90	-27.00	-35.90

DG = Directional Gain ; PX=Port X; Psum=P1+P2+...PX

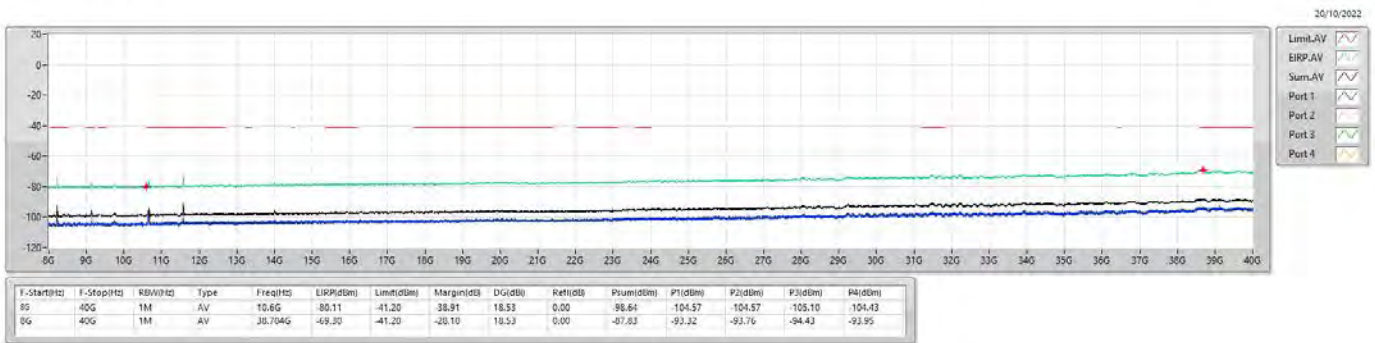
Mode 1_Co-location

CSE [PK]



Mode 1_Co-location

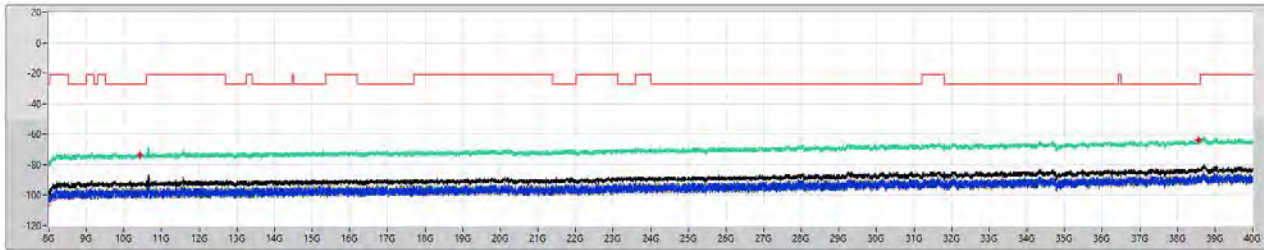
CSE [AV]



Mode 2_Co-location

CSE [PK]

20/10/2022



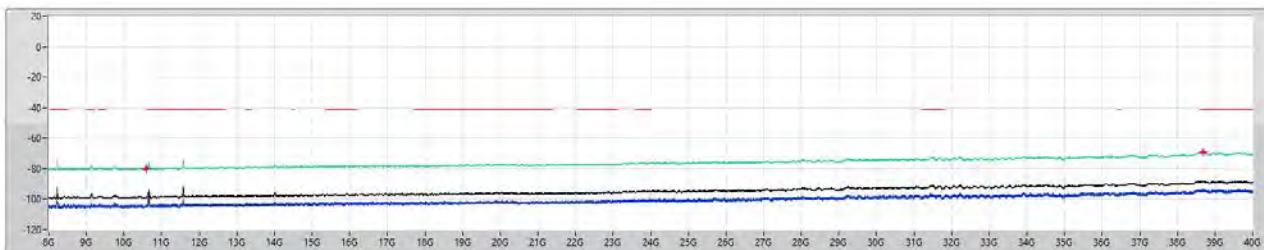
- Limit_PK
- ERP_PK
- Sum_PK
- Port_1
- Port_2
- Port_3
- Port_4

F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	ERP(dBm)	Limit(dBm)	Margin(dB)	D(dB)	Ref(dB)	Psum(dBm)	P1(dBm)	P2(dBm)	P3(dBm)	P4(dBm)
8G	40G	1M	PK	10.414G	-73.27	-27.00	-46.27	18.53	0.00	-91.80	-98.20	-99.50	-97.17	-96.89
8G	40G	1M	PK	38.568G	-63.69	-27.00	-36.69	18.53	0.00	-92.22	-98.07	-99.09	-96.70	-96.79

Mode 2_Co-location

CSE [AV]

20/10/2022



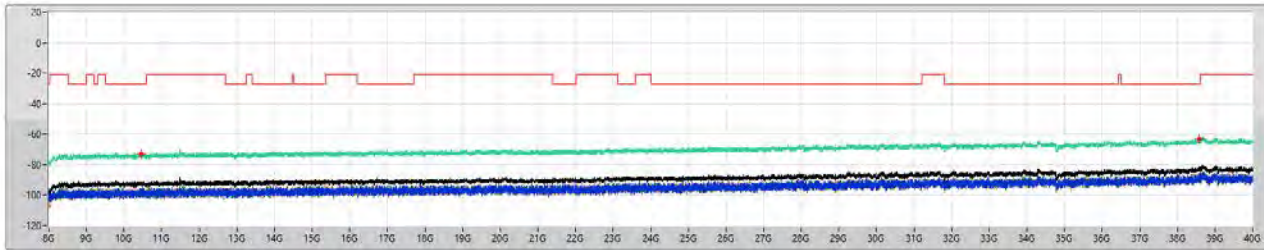
- Limit_AV
- ERP_AV
- Sum_AV
- Port_1
- Port_2
- Port_3
- Port_4

F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	ERP(dBm)	Limit(dBm)	Margin(dB)	D(dB)	Ref(dB)	Psum(dBm)	P1(dBm)	P2(dBm)	P3(dBm)	P4(dBm)
8G	40G	1M	AV	10.6G	-80.05	-41.20	-38.85	18.53	0.00	-98.58	-104.87	-104.50	-104.01	-105.10
8G	40G	1M	AV	38.7G	-69.19	-41.20	-27.99	18.53	0.00	-97.71	-93.44	-93.66	-93.57	-94.30

Mode 3_Co-location

CSE [PK]

20/10/2022



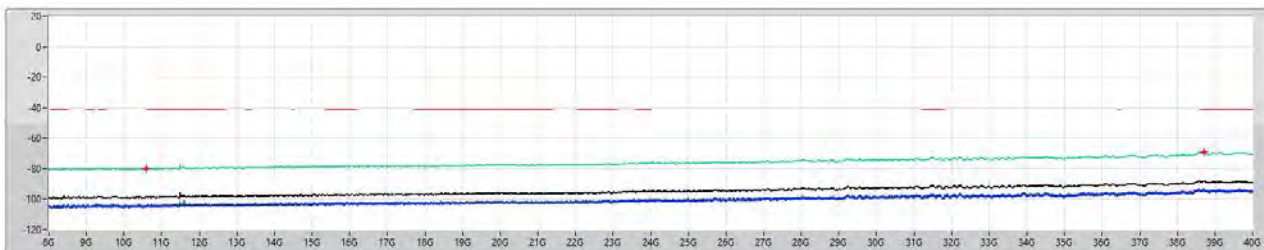
- Limit.PK
- ERP.PK
- Sum.PK
- Port.1
- Port.2
- Port.3
- Port.4

F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	ERP(dBm)	Limit(dBm)	Margin(dB)	D(dB)	Ref(dB)	Psum(dBm)	P1(dBm)	P2(dBm)	P3(dBm)	P4(dBm)
8G	40G	1M	PK	10.468G	-72.88	-27.00	-45.88	18.53	0.00	-91.41	-96.21	-97.44	-98.32	-98.09
8G	40G	1M	PK	38.577G	-62.90	-27.00	-35.90	18.53	0.00	-81.42	-85.59	-87.94	-89.20	-88.97

Mode 3_Co-location

CSE [AV]

20/10/2022



- Limit.AV
- ERP.AV
- Sum.AV
- Port.1
- Port.2
- Port.3
- Port.4

F-Start(Hz)	F-Stop(Hz)	RBW(Hz)	Type	Freq(Hz)	ERP(dBm)	Limit(dBm)	Margin(dB)	D(dB)	Ref(dB)	Psum(dBm)	P1(dBm)	P2(dBm)	P3(dBm)	P4(dBm)
8G	40G	1M	AV	10.6G	-80.26	-41.20	-39.06	18.53	0.00	-98.79	-104.72	-104.87	-104.72	-104.94
8G	40G	1M	AV	38.711G	-69.19	-41.20	-27.99	18.53	0.00	-87.71	-93.96	-92.92	-94.12	-94.05