Report No. : FR282322-03AD





RADIO TEST REPORT

بالأخالية والمراد والم

FCC ID	: UDX-600128010	
Equipment	: SMART Camera	
Brand Name	: CISCO	1.0
Model Name	: MV33-HW	1.1
Applicant	: Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95	5134 USA
Manufacturer	: Cisco Systems, Inc. 170 West Tasman Drive, San Jose, CA 95	134 USA
Standard	: 47 CFR FCC Part 15.247	

The product was received on Mar. 18, 2023, and testing was started from Mar. 22, 2023 and completed on Jul. 19, 2023. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

am

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.)

TEL : 886-3-656-9065 FAX : 886-3-656-9085 Report Template No.: CB-A10_6 Ver1.3 Page Number 2 1 of 34 -Issued Date 2 Oct. 04, 2023 Report Version 2 01



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History of this test report

Report No.	Version	Description	Issued Date
FR282322-03AD	01	Initial issue of report	Oct. 04, 2023



Summary of Test Result

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

Conformity Assessment Condition:

- 1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- 2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sam Chen Report Producer: Sandy Chuang



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]
Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1	1TX

2.4-2.4835GHz	BT-LE(500Kb/s)	1	1TX
2.4-2.4835GHz	BT-LE(125Kb/s)	1	1TX
2.4-2.4835GHz	BT-LE(2Mbps)	2	1TX

Note:

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



1.1.2 Antenna Information

		Port						Gain (dBi)				
Ant.			Brand	Model	Antenna	Connector	WLAN	V	VLAN S	5GHz		
Ant.	WLAN	Bluetooth	Dialiu	Name	Туре	Connector	2.4GHz	UNII	UNII	UNII	UNII	Bluetooth
							2.40112	1	2A	2C	3	
1	1	1	SERCOMM	Ant 1, Ant2	PIFA	I-PEX	2.40	3.31	3.31	3.76	3.05	2.40
2	2	2	SERCOMM	Ant 1, Ant2	PIFA	I-PEX	0.98	2.40	2.40	2.10	2.50	0.98

Note: The above information was declared by manufacturer.

For 2.4GHz function:

For IEEE 802.11b/g/n/VHT 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 5GHz function:

For IEEE 802.11a/n/ac 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 Bluetooth function (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.



1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.628	2.02	392.5u	3k
BT-LE(2Mbps)	0.333	4.78	208.125u	10k

Note:

• DC is Duty Cycle.

DCF is Duty Cycle Factor.

1.1.4 EUT Operational Condition

EUT Power Type	From PoE					
Function	Point-to-multipoint Point-to-point					
Test Software Version	QRCT_v4.0.00201.0					
	LE 1M PHY: 1 Mb/s					
Support Modo	LE Coded PHY (S=2): 500 Kb/s					
Support Mode	LE Coded PHY (S=8): 125 Kb/s					
	LE 2M PHY: 2 Mb/s					

Note: The above information was declared by manufacturer.



1.1.5 Multiple Sources

The EUT has second source verify for DDR4, UFS-3.1 256GB, PoE Transformer, LAN Transformer, ACT2,

RF Connector, CMOS Coaxial Cable, LED Board Cable.

Note: The above information was declared by manufacturer.

1.1.6 EUT Combination Information

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

Note 1: From the above, EUT 1 was selected to test all items and EUT 2 was selected to test AC Power-line

Conducted Emissions and Emissions in Restricted Frequency Bands below 1GHz only, and their data was recorded in this report.

Note 2: The above information was declared by manufacturer.



1.2 Applicable Standards

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

- 47 CFR FCC Part 15.247
- 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 InformationTest Lab. : Sporton International Inc. Hsinchu LaboratoryHsinchuADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)(TAF: 3787)TEL: 886-3-656-9065FAX: 886-3-656-9085Test 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	TH02-CB	Ken Yeh	22.6~24.3 / 60~62	Mar. 22, 2023~ May 18, 2023
Radiated <1GHz	03CH05-CB	Mark Hsu	21~22 / 55~58	Jul. 13, 2023
Radiated >1GHz	03CH01-CB	Paul Huang	22.4~23.9 / 59~60	May 17, 2023~ May 18, 2023
Radiated Co-location	03CH05-CB	Paul Huang	23~24.7 / 58~63	Jul. 13, 2023
AC Conduction	CO01-CB	Gray Lee	21~22 / 53~54	Jul. 19, 2023



1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2) **Test Date: Before Jun. 01, 2023**

Test Items	Uncertainty	Remark			
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%			

Test Date: After May 31, 2023

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.1 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	Maximum
2440MHz	Maximum
2478MHz	Maximum
2480MHz	Default
BT-LE(2Mbps)	-
2402MHz	Maximum
2440MHz	Maximum
2478MHz	Maximum
2480MHz	Default



2.2 The Worst Case Measurement Configuration

Th	The Worst Case Mode for Following Conformance Tests			
Tests Item AC power-line conducted emissions				
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz			
Operating Mode	Normal Link			
1	EUT 1 + LAN mode-Day mode + Bluetooth + PoE 1			
2	EUT 1 + LAN mode-Night mode + Bluetooth + PoE 1			
Mode 2 has been evaluated to be the worst case among Mode $1\sim2$, thus measurement for Mode $3\sim6$ will follow this same test mode.				
3	EUT 1 + WLAN 2.4GHz mode-Night mode + Bluetooth + PoE 1			
4	EUT 1 + WLAN 2.4GHz mode-Night mode + Bluetooth + PoE 2			
5	EUT 1 + WLAN 5GHz mode-Night mode + Bluetooth + PoE 1			
6	EUT 1 + WLAN 5GHz mode-Night mode + Bluetooth + PoE 2			
Mode 2 has been evaluated to be the worst case among Mode 1~6, thus measurement for Mode 7 will follow this same test mode.				
7	EUT 2 + LAN mode-Night mode + Bluetooth + PoE 1			
For operating mode 2 is the worst case and it was record in this test report.				

Tł	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		
Test Condition Conducted measurement at transmit chains			
Test Mode	EUT 1		



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



The Worst Case Mode for Following Conformance Tests		
Tests Item	Simultaneous Transmission Analysis - Radiated Emission Co-location	
Test Condition	Radiated measurement	
Operating Mode	Normal Link	
The EUT was performed at X axis, Y axis and Z axis position for Radiated Emissions <above 1ghz="">, the worst case was found at Y axis position. Thus the measurement will follow.</above>		
1	EUT 1 at Y axis + Bluetooth + WLAN 2.4GHz + PoE 1	
2	2 EUT 1 at Y axis + Bluetooth + WLAN 5GHz + PoE 1	
Mode 1 generated the worst test result, so it was recorded in this report.		
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 EUT 1 + Bluetooth + WLAN 2.4GHz		
2 EUT 1 + Bluetooth + WLAN 5GHz		
Refer to Sporton Test Report No.: FA282322-03 for Co-location RF Exposure Evaluation.		

Note: The PoEs are for measurement only, would not be marketed.

PoEs information as below:

Power	Brand	Model
PoE 1	PHIHONG	POEA33U-1ATE
PoE 2	CISCO	MA-PWR-MV-LV

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Wall Bracket*3



2.5 Support Equipment

For AC Conduction:

	Support Equipment				
No.	No. Equipment Brand Name Model Name FCC ID				
А	PoE 1	PHIHONG	POEA33U-1ATE	N/A	
В	LAN NB	DELL	E6430	N/A	
С	Smart phone	Samsung	Galaxy J2	N/A	

For Radiated (below 1GHz):

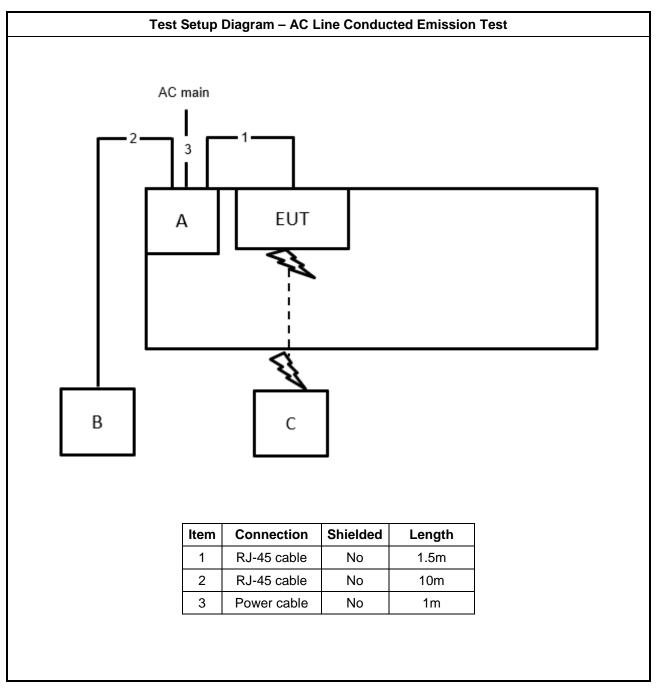
	Support Equipment				
No.	No. Equipment Brand Name Model Name FCC ID				
А	NB	DELL	E4300	N/A	
В	B PoE 1 PHIHONG POEA33U-1ATE N/A		N/A		
С	Smart phone	Samsung	Galaxy J2	N/A	

For Radiated (above 1GHz) and RF Conducted:

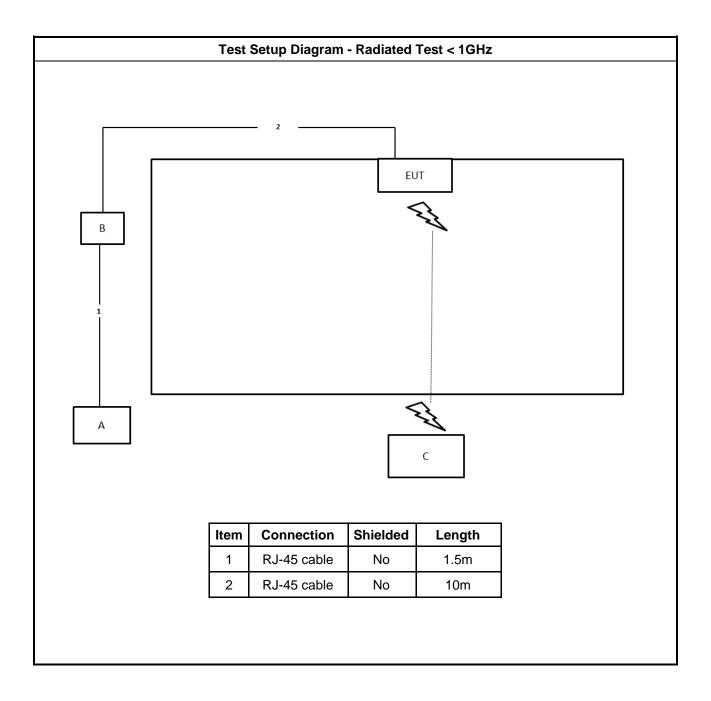
	Support Equipment				
No.	No. Equipment Brand Name Model Name FCC ID				
А	NB	DELL	E4300	N/A	
В	PoE 1	PHIHONG	PORA33U-1ATE	N/A	



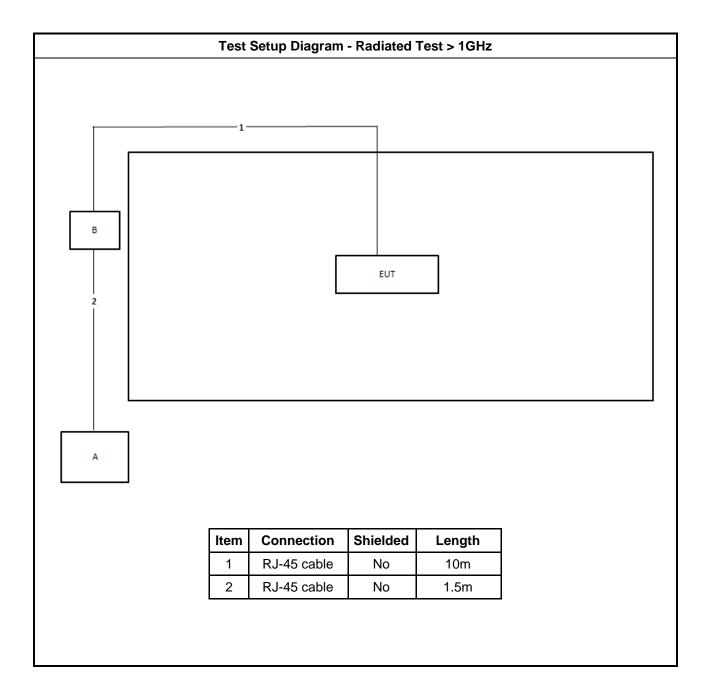
2.6 Test Setup Diagram













3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

3.1.2 Measuring Instruments

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

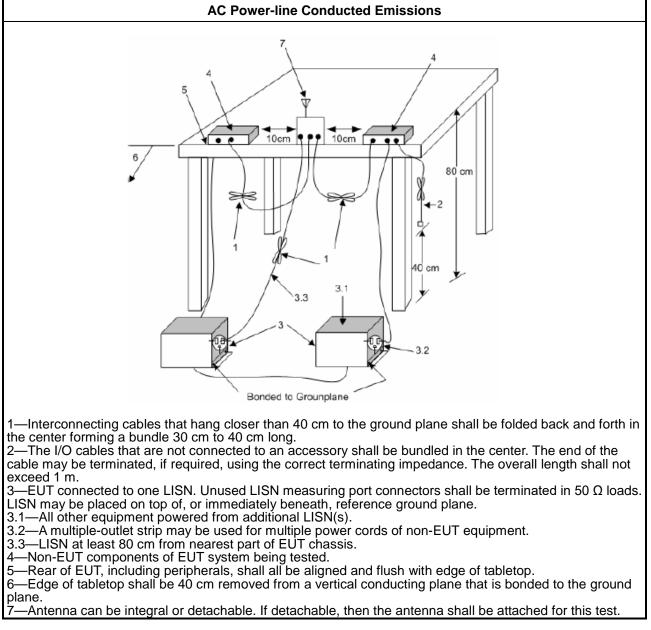
3.1.3 Test Procedures

Test Method

• 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:					
 6 dB bandwidth ≥ 500 kHz. 					

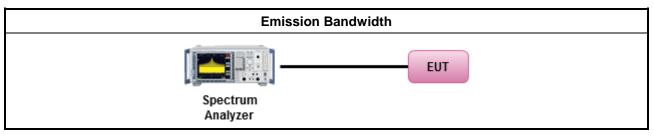
3.2.2 **Measuring Instruments**

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

3.2.3 **Test Procedures**

 measurement. Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwid measurement. 		Test Method									
 measurement. Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwid measurement. 	•	 For the emission bandwidth shall be measured using one of the options below: 									
measurement.		\boxtimes	Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.								
Peter on ANSI C62 10, plause 6.0.1 for exclusive handwidth testing			Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.								
Refer as ANSI Cos. 10, clause 6.9.1 for occupied bandwidth testing.			Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.								

3.2.4 Test Setup



Test Result of Emission Bandwidth 3.2.5

Refer as Appendix B



3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit

•	If $G_{TX} \le 6 \text{ dBi}$, then $P_{Out} \le 30 \text{ dBm} (1 \text{ W})$
---	---

- Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)$ dBm
- Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
- Smart antenna system (SAS):
 - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
 - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
 - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3 + 8$ dB dBm

 P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.

3.3.2 Measuring Instruments

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

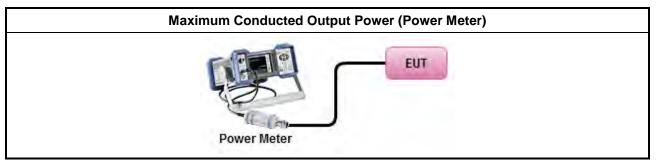


3.3.3 Test Procedures

		Test Method
•	Max	imum Peak Conducted Output Power
		Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW method).
		Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
•	Max	imum Conducted Output Power
	[duty	/ cycle ≥ 98% or external video / power trigger]
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA-1.
		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
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA-2.
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method AVGSA-2A (alternative)
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA-3
		Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method AVGSA-3A (alternative)
	Mea	surement using a power meter (PM)
		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).
	\boxtimes	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).
•	For	conducted measurement.
	•	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.
		If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + + P_n$ (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	
Power Spectral Density (PSD)≤8 dBm/3kHz	

3.4.2 Measuring Instruments

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

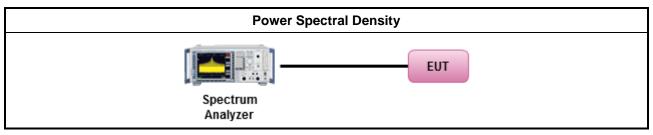
3.4.3 Test Procedures

•

	Test Method									
•	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).									
	\square	Refe	er as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10 Method Max. PSD.							
	[duty	/ cycl	e ≥ 98% or external video / power trigger]							
•	For	cond	ucted measurement.							
	•	lf Th	e EUT supports multiple transmit chains using options given below:							
			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.							
			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,							
			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						
Limit (dBc)						
20						
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

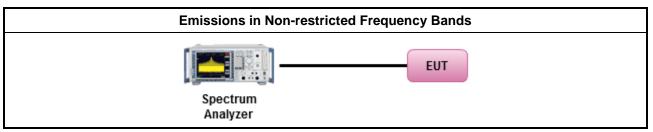
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method

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 below30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB / decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

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

3.6.2 Measuring Instruments

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

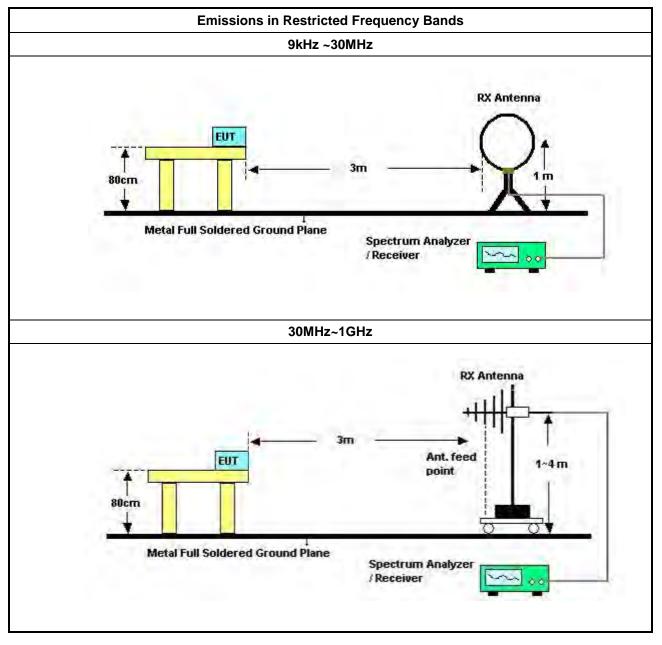


3.6.3 Test Procedures

	Test Method									
•	The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].									
•	 Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. 									
•	For the transmitter unwanted emissions shall be measured using following options below:									
	 Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands. 									
	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle ≥98%).									
	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).									
	☐ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW≥1/T).									
	□ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW \ge 1/T, where T is pulse time.									
	Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.									
	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.									
•	For the transmitter band-edge emissions shall be measured using following options below:									
	 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. 									
	 Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements. 									
	 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). 									
	 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 									
	 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. 									

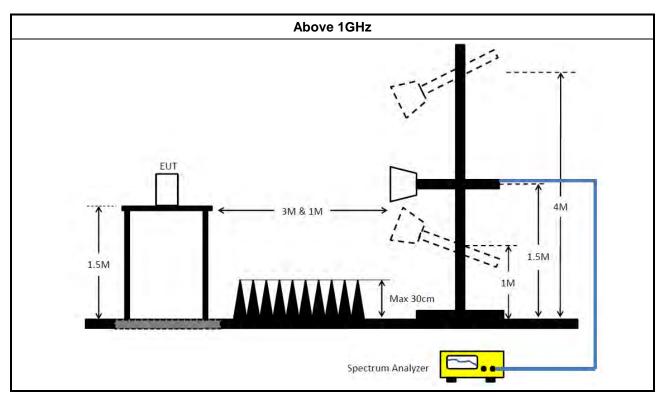


3.6.4 Test Setup









3.6.5 Measurement Results Calculation

The measured Level is calculated using:

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

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

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

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



Test Equipment and Calibration Data 4

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 20, 2023	Feb. 19, 2024	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50- 16-2	04083	150kHz ~ 100MHz	Feb. 16, 2023	Feb. 15, 2024	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 27, 2023	Apr. 26, 2024	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwa rz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 09, 2023	Feb. 08, 2024	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 18, 2022	Oct. 17, 2023	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	31244	9kHz - 30 MHz	Mar. 23, 2023	Mar. 22, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	ТDК	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 03, 2022	Aug. 02, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	ТDК	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Nov. 06, 2022	Nov. 05, 2023	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 24, 2023	Mar. 23, 2024	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBE CK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Jun. 08, 2023	Jun. 07, 2024	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH05-CB)
Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 03, 2023	May 02, 2024	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Jun. 30, 2023	Jun. 29, 2024	Radiation (03CH05-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 18, 2023	Apr. 17, 2024	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 13, 2023	Jun. 12, 2024	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH05-CB)

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Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	ТDК	SAC-3M	03CH01-CB	1GHz ~18GHz 3m	May 05, 2023	May 04, 2024	Radiation (03CH01-CB)
Horn Antenna	ETS-LINDGRE N	3115	00075790	750MHz ~ 18GHz	Nov. 04, 2022	Nov. 03, 2023	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	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	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH01-CB)
Signal Analyzer	R&S	FSV3044	101437	10kHz ~ 44GHz	Nov 29, 2022	Nov 29, 2023	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. 03, 2022	Oct. 02, 2023	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	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. 17, 2022	Oct. 16, 2023	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. 03, 2022	Oct. 02, 2023	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. 03, 2022	Oct. 02, 2023	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. 03, 2022	Oct. 02, 2023	Conducted (TH02-CB)
Switch	SPTCB	SP-SWI	SWI-02	1 GHz –26.5 GHz	Oct. 04, 2022	Oct. 03, 2023	Conducted (TH02-CB)

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Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
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.



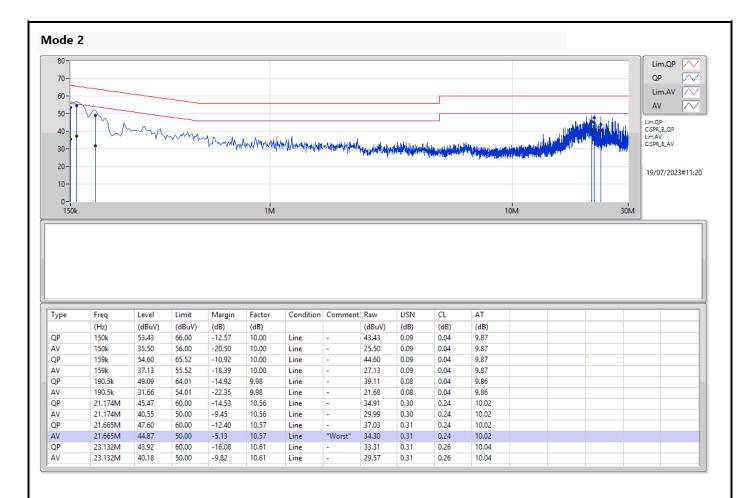
Conducted Emissions at Powerline

Appendix A

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

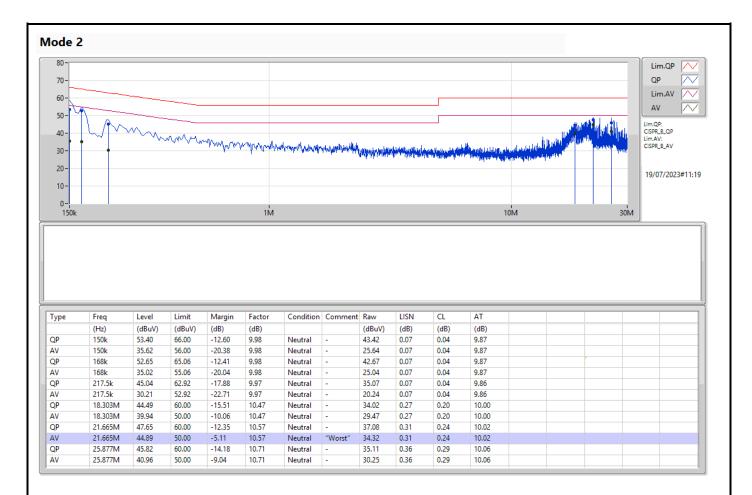


Appendix A





Appendix A





EBW-DTS

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	665k	1.028M	1M03F1D	662.5k	1.026M
BT-LE(2Mbps)	1.14M	2.039M	2M04F1D	1.133M	2.029M

 $Max\cdot N\ dB = Maximum\ 6dB\ down\ bandwidth;\ Max-OBW = Maximum\ 99\%\ occupied\ bandwidth;\ Min-OBW = Minimum\ 99\%\ occupied\ bandwidth;\ 90\%\ occupied\ bandwidth;\ 90\%\ occupied\ 90\%\ occupied\$



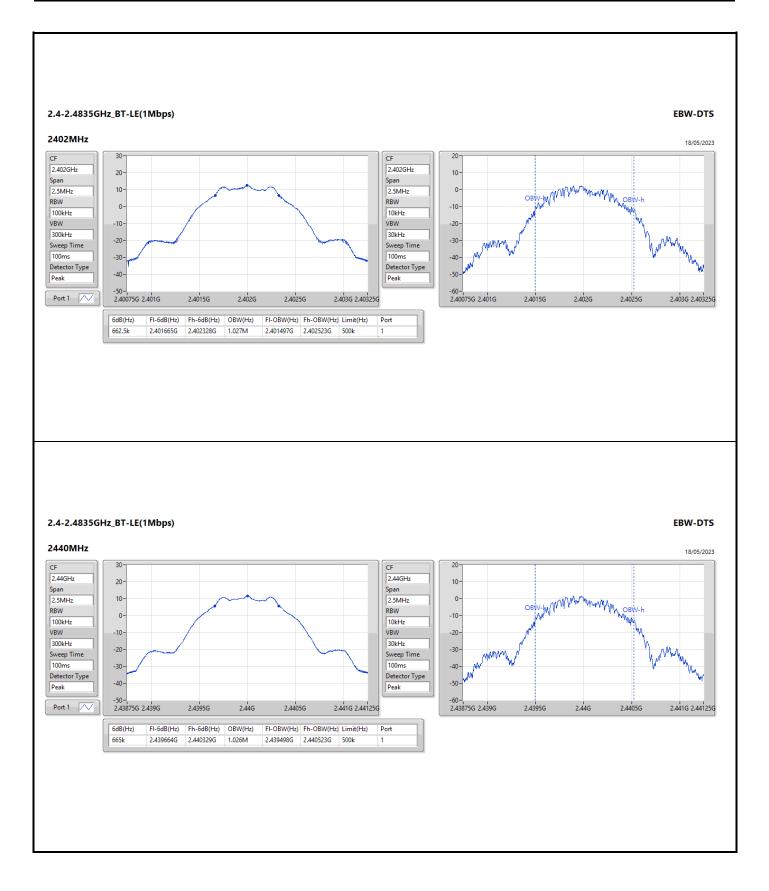
EBW-DTS

Result

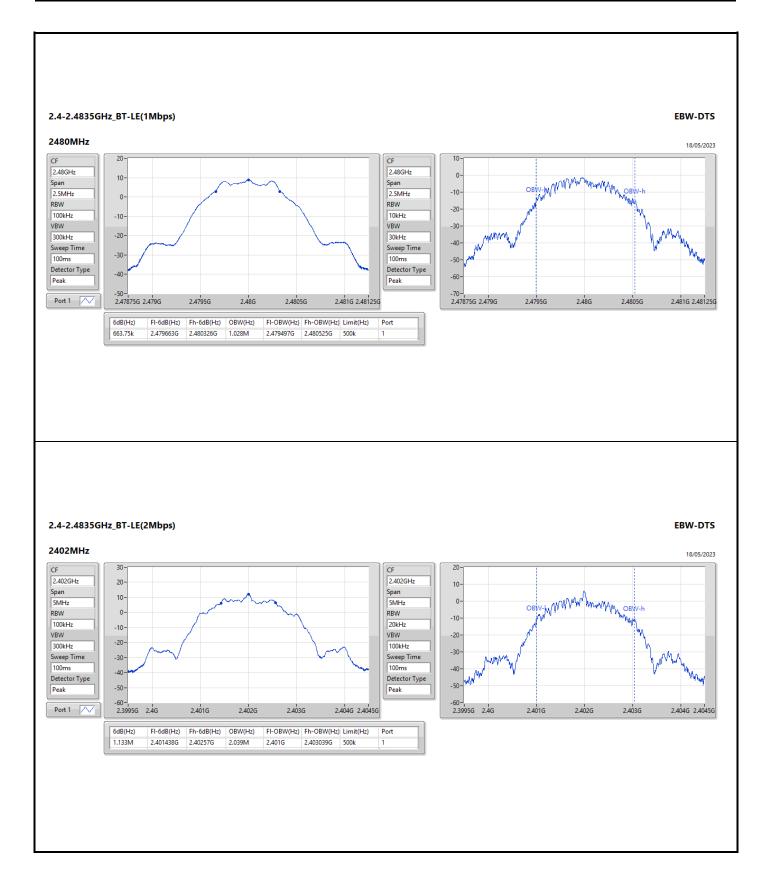
Mode	Result	Limit	Port 1-N dB	Port 1-OBW
		(Hz)	(Hz)	(Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	662.5k	1.027M
2440MHz	Pass	500k	665k	1.026M
2480MHz	Pass	500k	663.75k	1.028M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.133M	2.039M
2440MHz	Pass	500k	1.138M	2.034M
2480MHz	Pass	500k	1.14M	2.029M

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

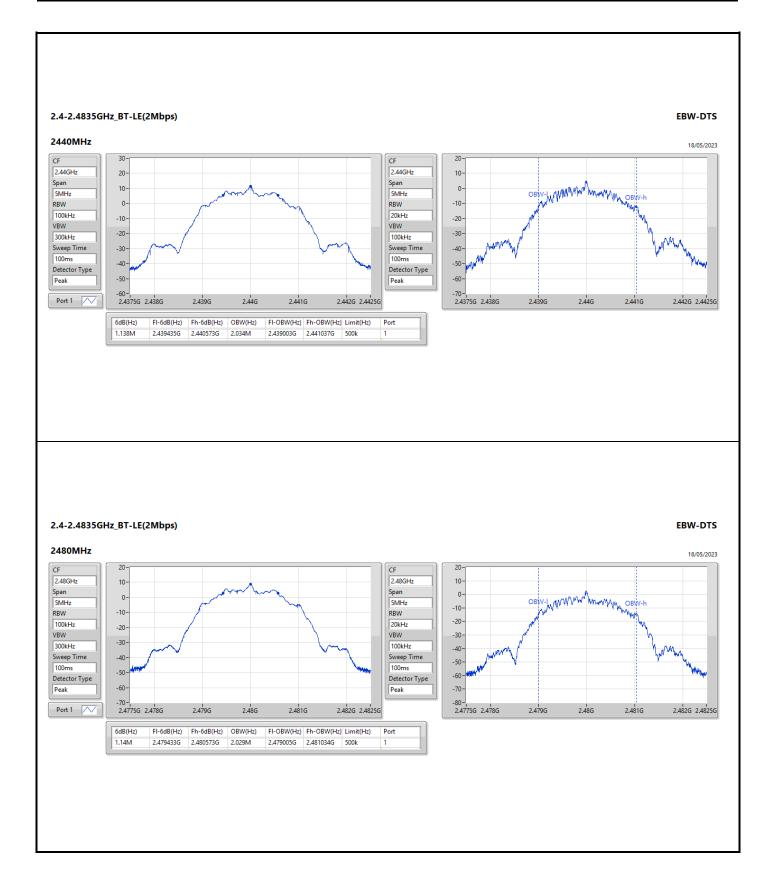














Summary

Mode	Total Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	12.43	0.01750
BT-LE(2Mbps)	11.80	0.01514



Average Power-DTS

Result

Mode	Result	DG	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.40	12.43	30.00
2440MHz	Pass	2.40	11.60	30.00
2478MHz	Pass	2.40	12.17	30.00
2480MHz	Pass	2.40	8.74	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.40	11.80	30.00
2440MHz	Pass	2.40	11.04	30.00
2478MHz	Pass	2.40	11.78	30.00
2480MHz	Pass	2.40	8.29	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	· · ·
BT-LE(1Mbps)	-2.23
BT-LE(2Mbps)	-6.21

RBW = 3kHz;



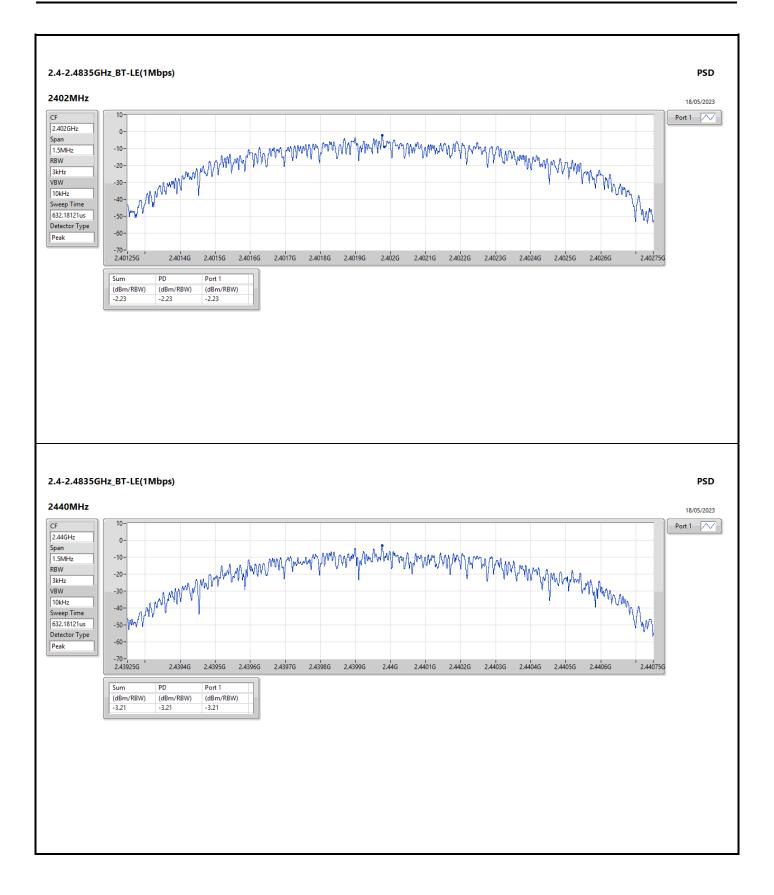
PSD-DTS

Result

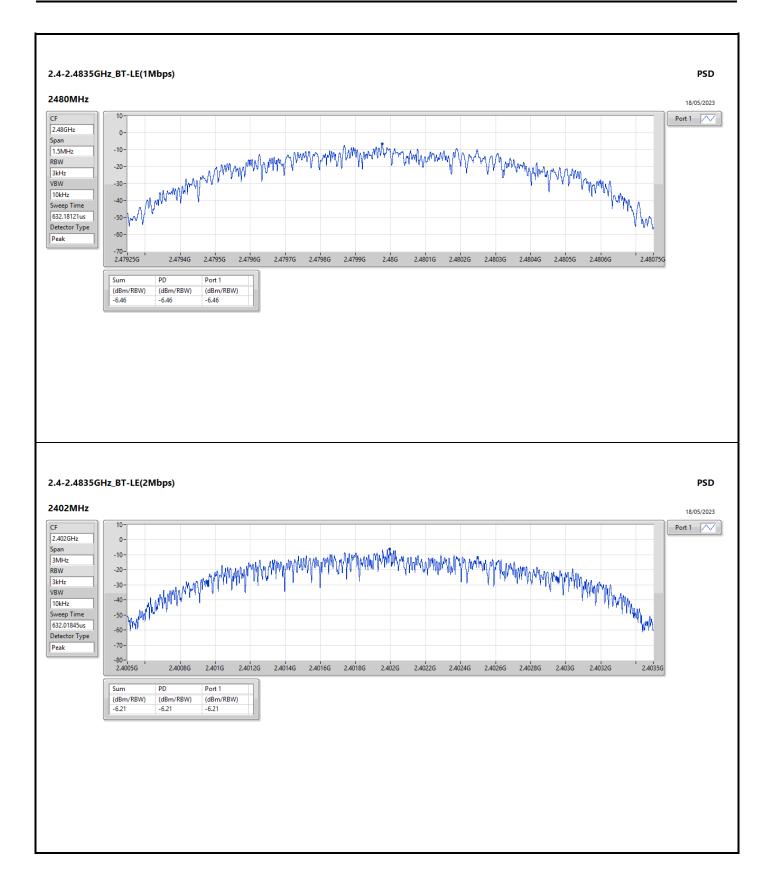
lesun				
Mode	Result	DG	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.40	-2.23	8.00
2440MHz	Pass	2.40	-3.21	8.00
2480MHz	Pass	2.40	-6.46	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.40	-6.21	8.00
2440MHz	Pass	2.40	-7.03	8.00
2480MHz	Pass	2.40	-9.90	8.00

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;

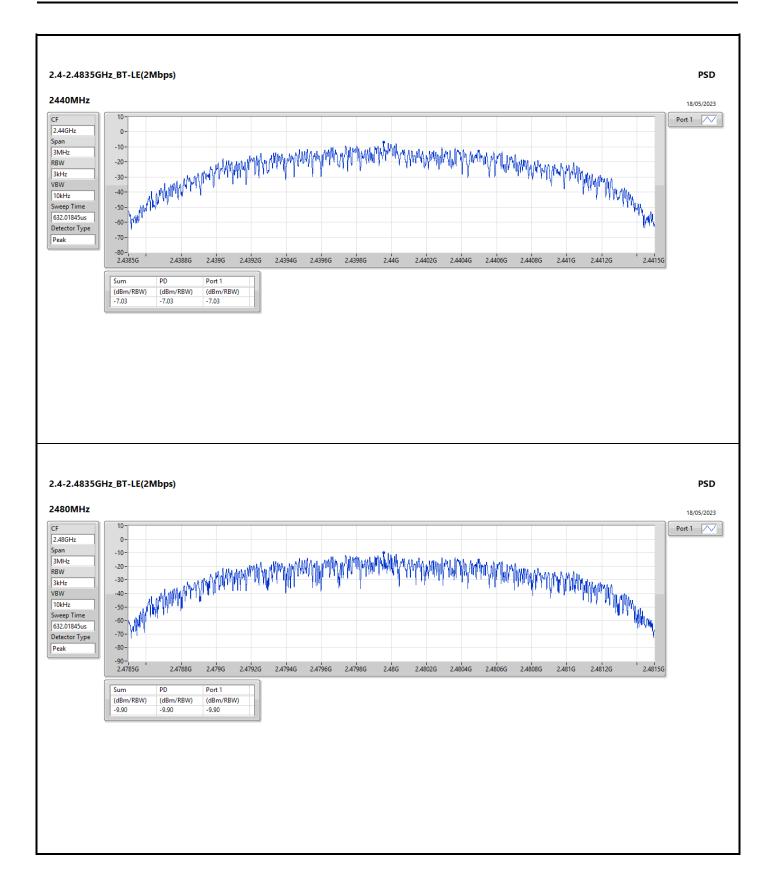














CSE NdB-DTS

Appendix E

Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Port								
2.4-2.4835GHz	-	-	-	-	-	-	-		-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.402G	12.44	-17.56	2.15558G	-52.41	2.39996G	-41.02	2.4G	-39.80	2.50114G	-52.07	16.21512G	-46.85	1
BT-LE(2Mbps)	Pass	2.402G	12.18	-17.82	2.06275G	-52.79	2.4G	-23.76	2.4G	-23.93	2.5003G	-52.70	17.64927G	-46.40	1



CSE NdB-DTS

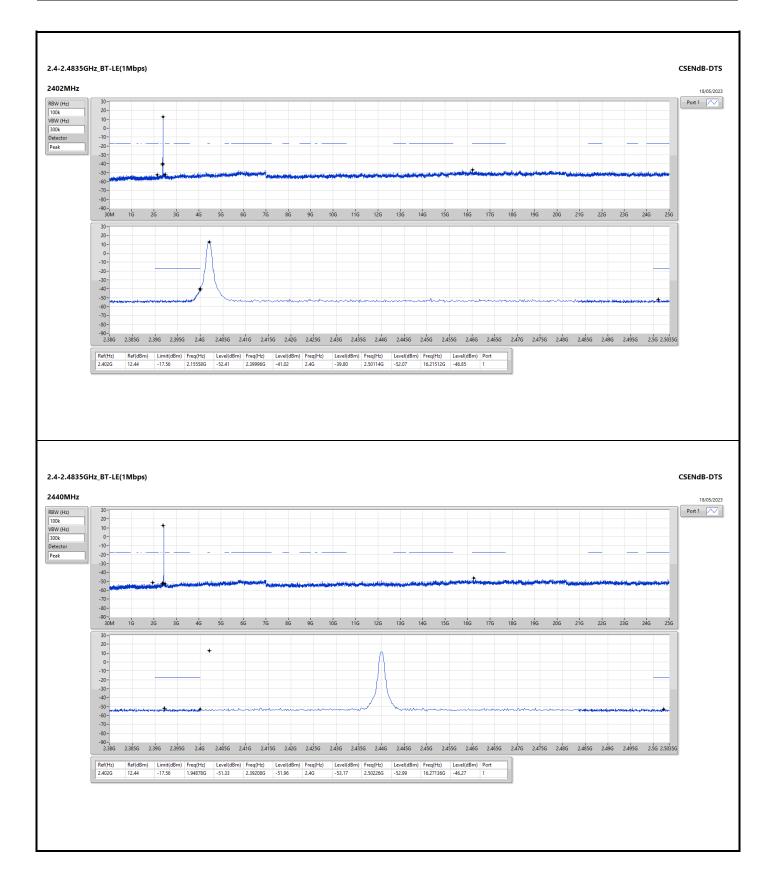
Appendix E

Result

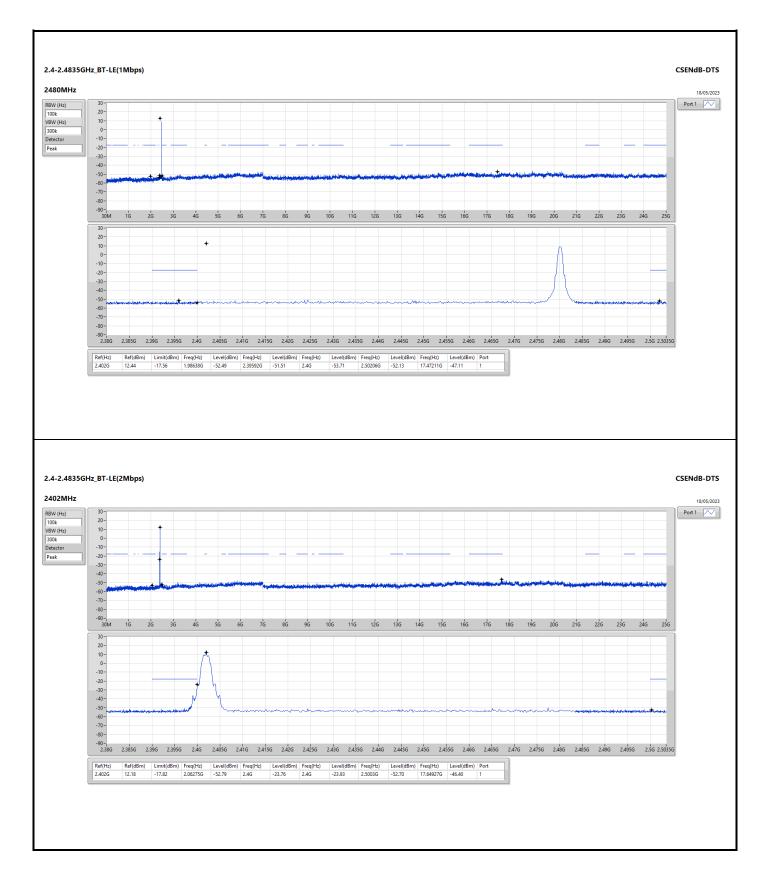
Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
BT-LE(1Mbps)	-	-	-	-		-		-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	12.44	-17.56	2.15558G	-52.41	2.39996G	-41.02	2.4G	-39.80	2.50114G	-52.07	16.21512G	-46.85	1
2440MHz	Pass	2.402G	12.44	-17.56	1.94878G	-51.33	2.39208G	-51.96	2.4G	-53.17	2.50226G	-52.99	16.27136G	-46.27	1
2480MHz	Pass	2.402G	12.44	-17.56	1.98638G	-52.49	2.39592G	-51.51	2.4G	-53.71	2.50206G	-52.13	17.47211G	-47.11	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	12.18	-17.82	2.06275G	-52.79	2.4G	-23.76	2.4G	-23.93	2.5003G	-52.70	17.64927G	-46.40	1
2440MHz	Pass	2.402G	12.18	-17.82	2.1638G	-52.61	2.39672G	-52.51	2.4G	-54.10	2.5035G	-50.64	16.43727G	-48.09	1
2480MHz	Pass	2.402G	12.18	-17.82	851.33M	-53.28	2.39412G	-52.03	2.4G	-55.36	2.50094G	-52.31	5.91453G	-47.31	1



Appendix E

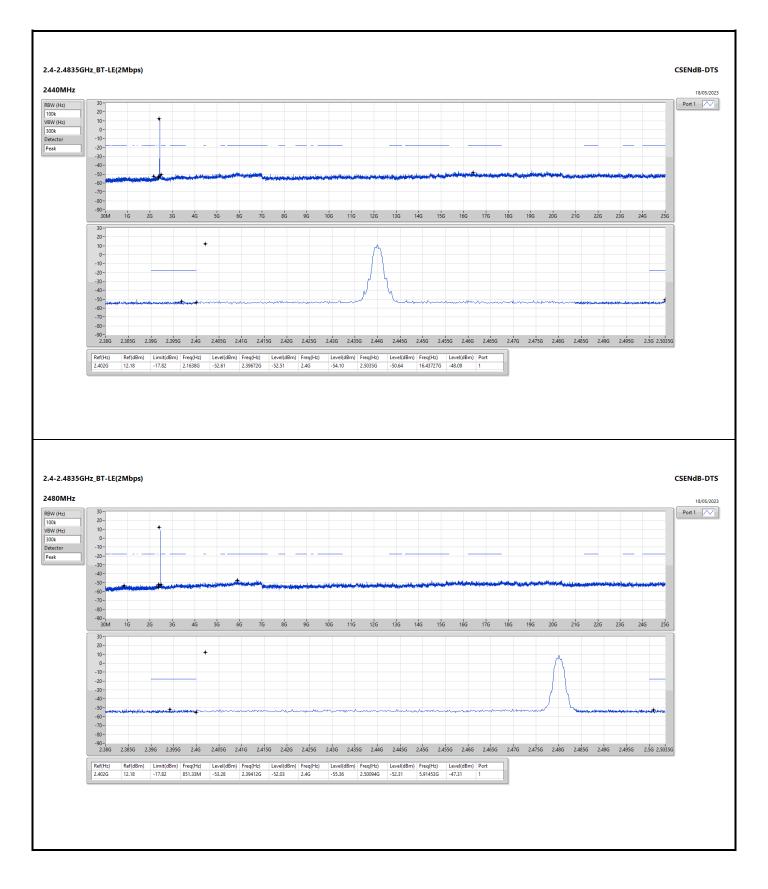








Appendix E





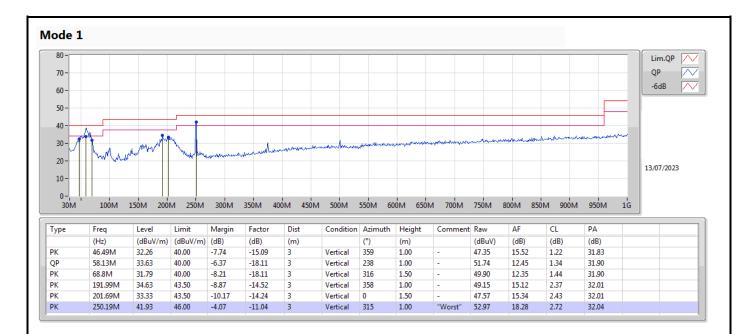
Radiated Emissions below 1GHz

Summary							-
Mode	Result	Туре	Freq	Level	Limit	Margin	Condition
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	
Mode 1	Pass	PK	250.19M	41.93	46.00	-4.07	Vertical



Radiated Emissions below 1GHz

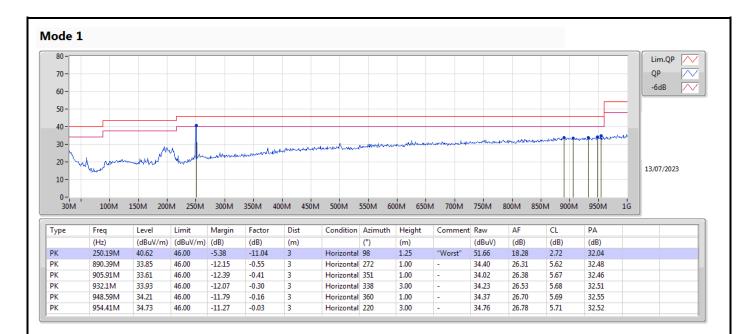
Appendix F.1





Radiated Emissions below 1GHz

Appendix F.1





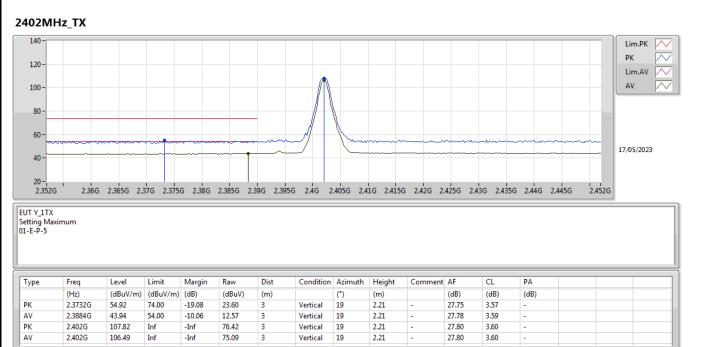
RSE TX above 1GHz

Appendix F.2

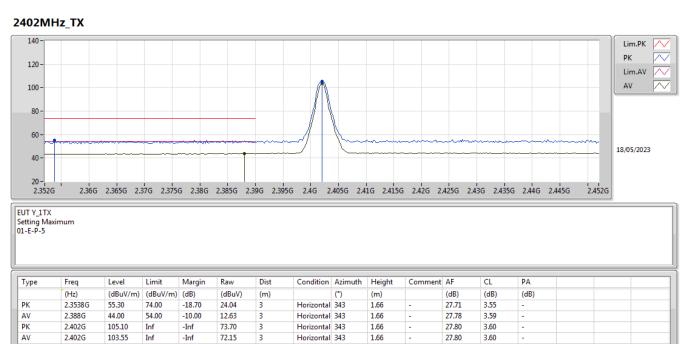
Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	AV	2.4835G	52.15	54.00	-1.85	3	Horizontal	303	2.16	-















AV

4.80405G

48.19

54.00

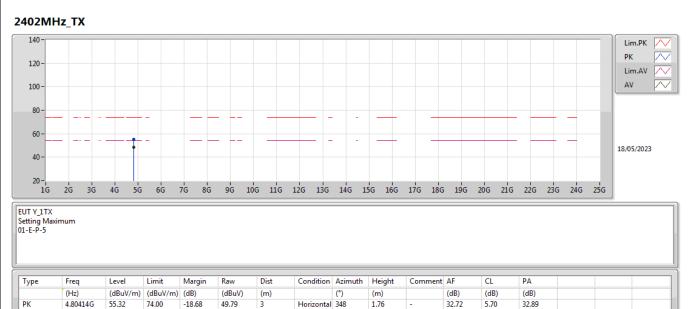
-5.81

42.66

3

Appendix F.2

2.4-2.4835GHz_BT-LE(1Mbps)



Horizontal 348

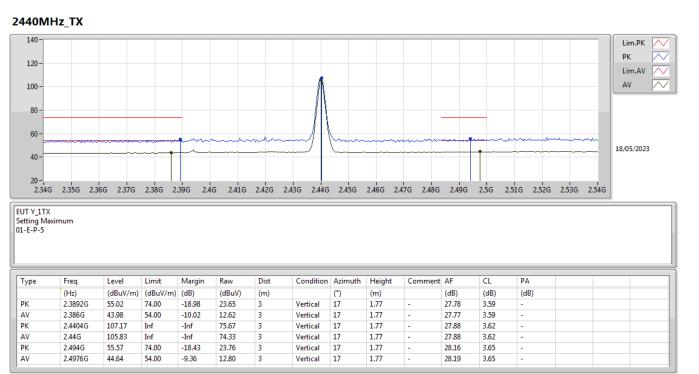
1.76

32.72

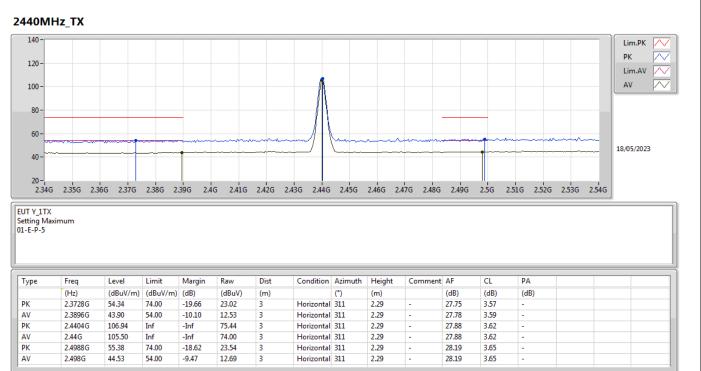
5.70

32.89







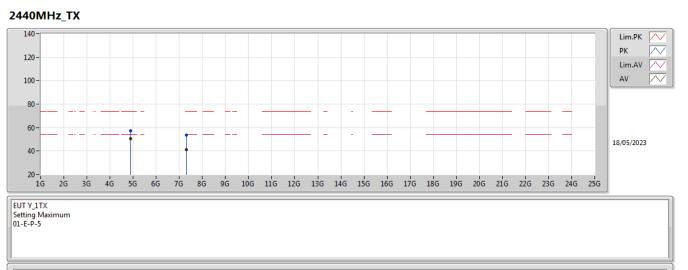






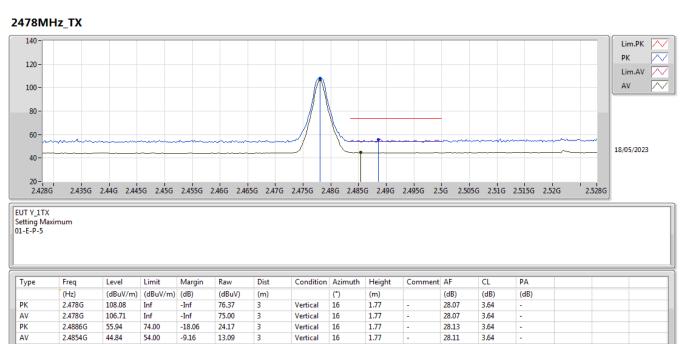
Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.87947G	51.74	74.00	-22.26	45.83	3	Vertical	44	1.76	-	33.00	5.78	32.87		
AV	4.87976G	42.25	54.00	-11.75	36.34	3	Vertical	44	1.76	-	33.00	5.78	32.87		
РК	7.31783G	53.14	74.00	-20.86	41.57	3	Vertical	152	1.73	-	37.60	7.16	33.19		
AV	7.32135G	40.83	54.00	-13.17	29.26	3	Vertical	152	1.73	-	37.60	7.16	33.19		



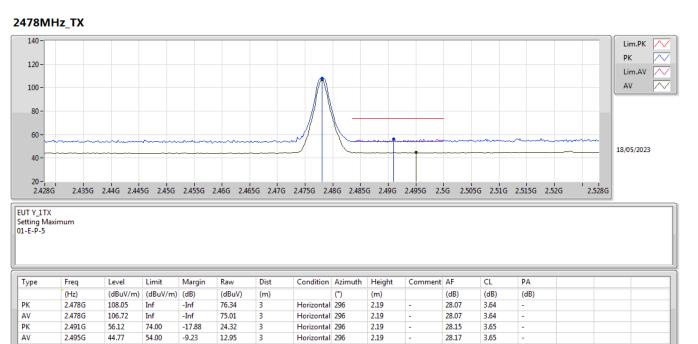


Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA			
(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)			
4.8806G	57.03	74.00	-16.97	51.12	3	Horizontal	354	1.90	-	33.00	5.78	32.87			
4.88006G	50.66	54.00	-3.34	44.75	3	Horizontal	354	1.90	-	33.00	5.78	32.87			
7.31896G	53.66	74.00	-20.34	42.09	3	Horizontal	116	1.48	-	37.60	7.16	33.19			
7.31808G	40.99	54.00	-13.01	29.42	3	Horizontal	116	1.48	-	37.60	7.16	33.19			
	(Hz) 4.8806G 4.88006G 7.31896G	(Hz) (dBuV/m) 4.8806G 57.03 4.88006G 50.66 7.31896G 53.66	(Hz) (dBuV/m) (dBuV/m) 4.8806G 57.03 74.00 4.88006G 50.66 54.00 7.31896G 53.66 74.00	(Hz) (dBuV/m) (dBV/m) (dB) 4.8806G 57.03 74.00 -16.97 4.88006G 50.66 54.00 -3.34 7.31896G 53.66 74.00 -20.34	(Hz) (dBuV/m) (dB (dBuV/ (dBuV/m) (dB (dBuV/ (dBuV/m) 4.8806G 57.03 74.00 -16.97 51.12 4.8806G 50.66 54.00 -3.34 44.75 7.31896G 53.66 74.00 -20.34 42.09	(Hz) (dBuV/m) (dBuV/m) (dBuV (m) 4.8806G 57.03 74.00 -16.97 51.12 3 4.88006G 50.66 54.00 -3.34 44.75 3 7.31896G 53.66 74.00 -20.34 42.09 3	(H2) (dBuV/m) (dBuV/m) (dB) (dBuV) (m) 4.8806G 57.03 74.00 -16.97 51.12 3 Horizontal 4.8806G 50.66 54.00 -3.34 44.75 3 Horizontal 7.31896G 53.66 74.00 -20.34 42.09 3 Horizontal	(Hz) (dBuV/m) (dB) (dBuV/ (m) (*) 4.8806G 57.03 74.00 -16.97 51.12 3 Horizontal 354 4.8806G 50.66 54.00 -3.34 44.75 3 Horizontal 354 7.31896G 53.66 74.00 -20.34 42.09 3 Horizontal 116	(Hz) (dBuV/m) (dB) (dBuV) (m) (*) (m) 4.8806G 57.03 74.00 -16.97 51.12 3 Horizontal 354 1.90 4.8806G 50.66 54.00 -3.34 44.75 3 Horizontal 354 1.90 7.31896G 53.66 74.00 -20.34 42.09 3 Horizontal 116 1.48	(H2) (dBuV/m) (dBuV/m) (dB) (dBuV/m) (m) (°) (m) 4.8806G 57.03 74.00 -16.97 51.12 3 Horizontal 354 1.90 - 4.8806G 50.66 54.00 -3.34 44.75 3 Horizontal 354 1.90 - 7.31896G 53.66 74.00 -20.34 42.09 3 Horizontal 116 1.48 -	(Hz) (dBuV/m) (dB) (dBuV/m) (m) (m) (m) (dB) 4.8806G 57.03 74.00 -16.97 51.12 3 Horizontal 354 1.90 - 33.00 4.8806G 50.66 54.00 -3.34 44.75 3 Horizontal 354 1.90 - 33.00 7.31896G 53.66 74.00 -20.34 42.09 3 Horizontal 116 1.48 - 37.60	(Hz) (dBuV/m) (dB) (dBuV) (m) (°) (m) (dB) (dB) (dB) 4.8806 57.03 74.00 -16.97 51.12 3 Horizontal 354 1.90 - 33.00 5.78 4.88066 50.66 54.00 -3.34 44.75 3 Horizontal 354 1.90 - 33.00 5.78 7.318966 53.66 74.00 -20.34 42.09 3 Horizontal 116 1.48 - 37.60 7.16	(Hz) (dBuV/m) (dB) (dBuV) (m) (°) (m) (dB) (dB) (dB) 4.8806 57.03 74.00 -16.97 51.12 3 Horizontal 354 1.90 - 33.00 5.78 32.87 4.88066 50.66 54.00 -3.34 44.75 3 Horizontal 354 1.90 - 33.00 5.78 32.87 7.318966 53.66 74.00 -20.34 42.09 3 Horizontal 116 1.48 - 37.60 7.16 33.19	(Hz) (dBuV/m) (dB) (dB) (dBuV/m) (m) (m) (m) (m) (dB) (dB) (dB) 4.8806G 57.03 74.00 -16.97 51.12 3 Horizontal 354 1.90 - 33.00 5.78 32.87 4.8806G 50.66 54.00 -3.34 44.75 3 Horizontal 354 1.90 - 33.00 5.78 32.87 7.31896G 53.66 74.00 -20.34 42.09 3 Horizontal 116 1.48 - 37.60 7.16 33.19	(Hz) (dBuV/m) (dB) (dBuV/m) (dB) (dBuV/m) (dB) (dBuV/m) (dB) (dBuV/m) (dB) (dBuV/m) (dB) <











2.4-2.4835GHz_BT-LE(1Mbps)

50.23

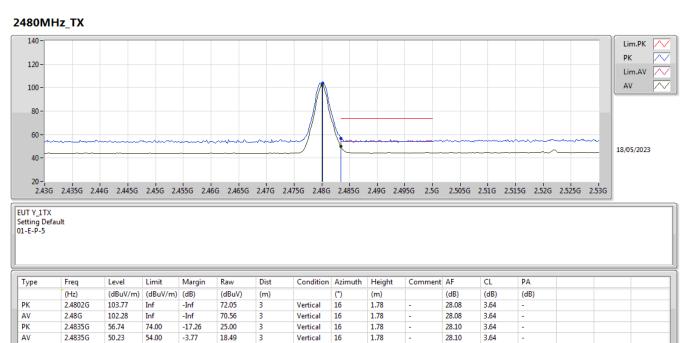
54.00

-3.77

18.49

3

Vertical 16



1.78

28.10

3.64



2.4-2.4835GHz_BT-LE(1Mbps)

2.4835G

50.17

54.00

-3.83

18.43

3

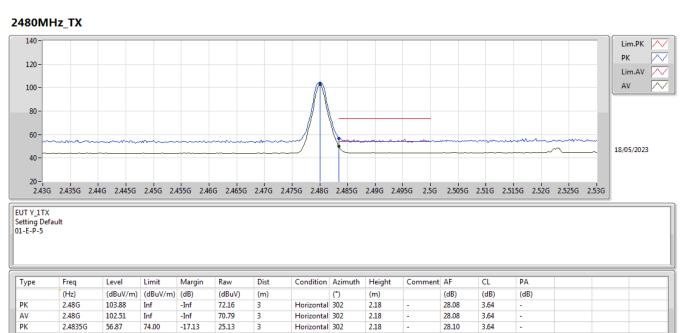
Horizontal 302

2.18

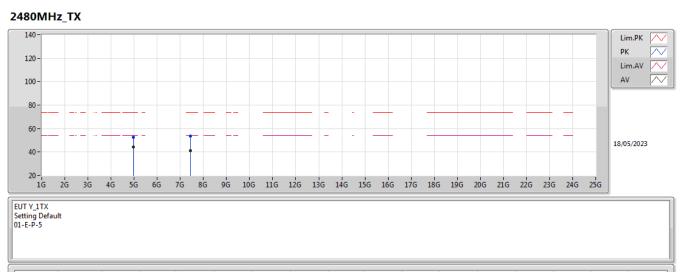
28.10

3.64

AV

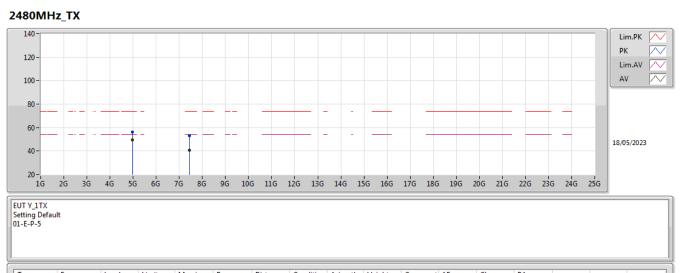






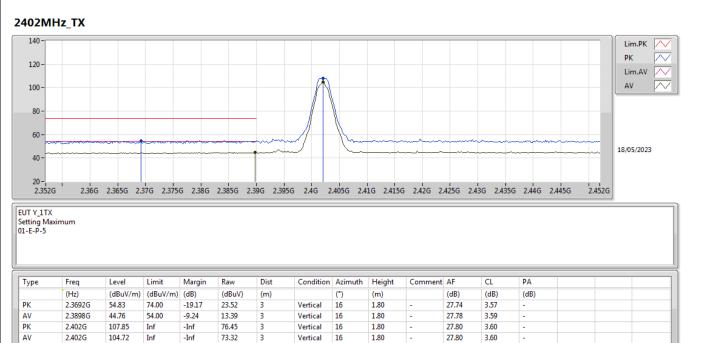
Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.95994G	52.63	74.00	-21.37	46.61	3	Vertical	324	3.00	-	33.02	5.86	32.86		
AV	4.96007G	44.26	54.00	-9.74	38.24	3	Vertical	324	3.00	-	33.02	5.86	32.86		
PK	7.44011G	53.58	74.00	-20.42	42.11	3	Vertical	197	2.32	-	37.50	7.22	33.25		
AV	7.4417G	41.06	54.00	-12.94	29.59	3	Vertical	197	2.32	-	37.50	7.22	33.25		



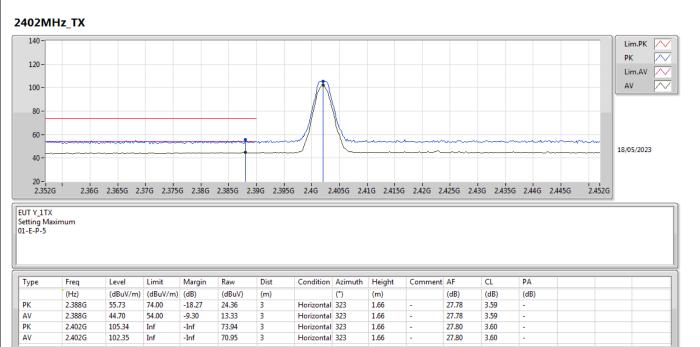


Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
PK	4.95952G	56.26	74.00	-17.74	50.24	3	Horizontal	356	1.80	-	33.02	5.86	32.86		
AV	4.96008G	49.36	54.00	-4.64	43.34	3	Horizontal	356	1.80	-	33.02	5.86	32.86		
PK	7.44119G	53.24	74.00	-20.76	41.77	3	Horizontal	174	1.40	-	37.50	7.22	33.25		
AV	7.44243G	40.84	54.00	-13.16	29.37	3	Horizontal	174	1.40	-	37.50	7.22	33.25		

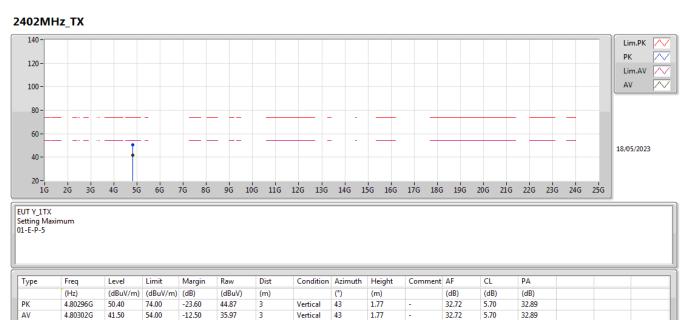














AV

4.80295G

47.81

54.00

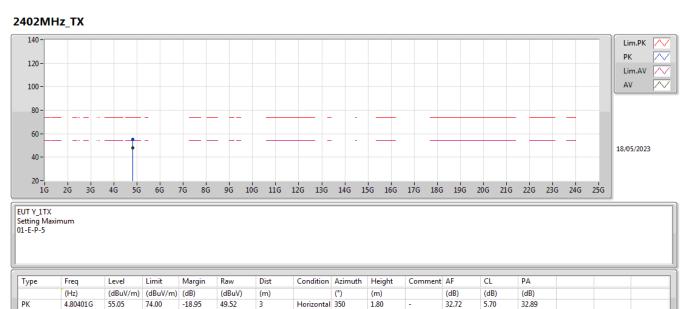
-6.19

42.28

3

Appendix F.2

2.4-2.4835GHz_BT-LE(2Mbps)



Horizontal 350

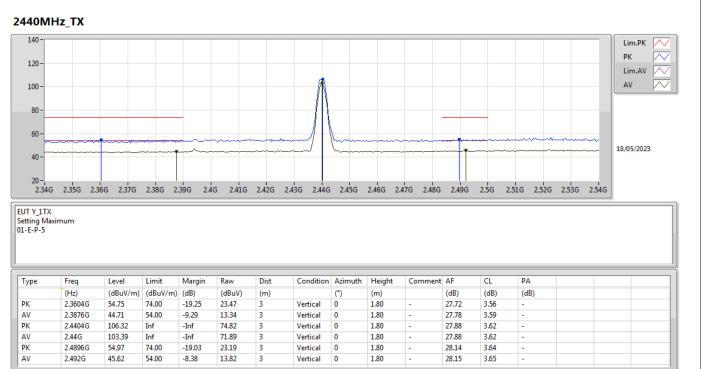
1.80

32.72

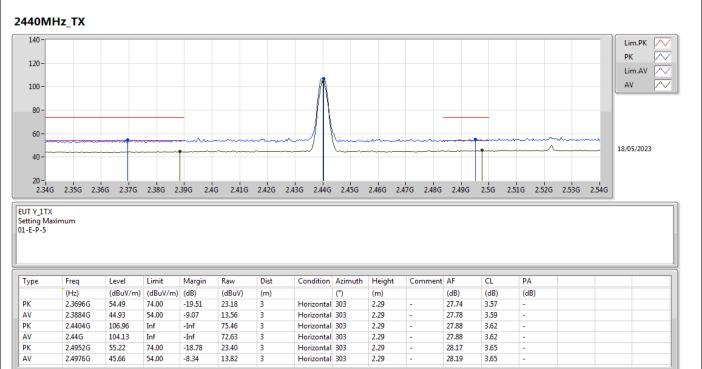
5.70

32.89

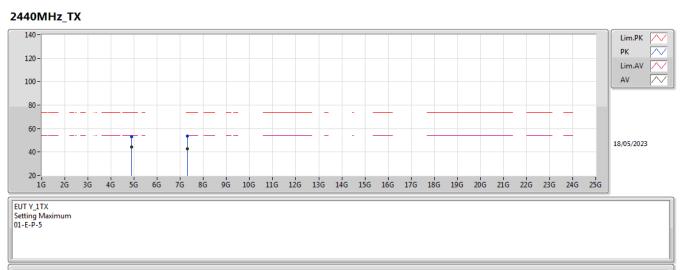






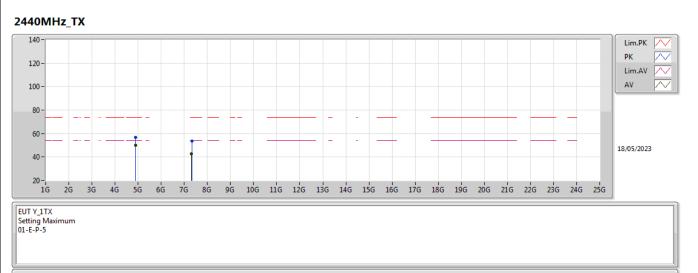






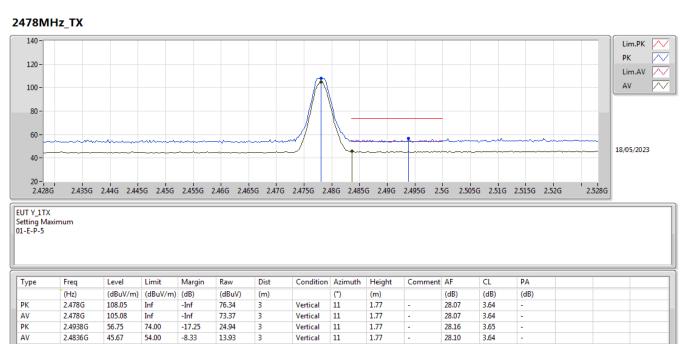
Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.87978G	52.90	74.00	-21.10	46.99	3	Vertical	313	3.00	-	33.00	5.78	32.87		
AV	4.87903G	44.23	54.00	-9.77	38.32	3	Vertical	313	3.00	-	33.00	5.78	32.87		
РК	7.31785G	53.77	74.00	-20.23	42.20	3	Vertical	18	1.75	-	37.60	7.16	33.19		
AV	7.31812G	42.54	54.00	-11.46	30.97	3	Vertical	18	1.75	-	37.60	7.16	33.19		



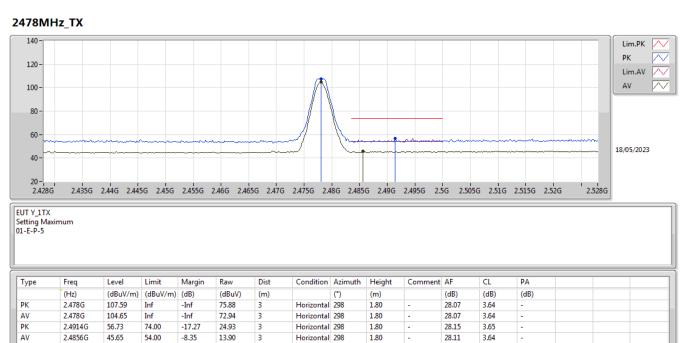


Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.88107G	56.79	74.00	-17.21	50.88	3	Horizontal	0	1.80	-	33.00	5.78	32.87		
AV	4.87901G	50.00	54.00	-4.00	44.09	3	Horizontal	0	1.80	-	33.00	5.78	32.87		
PK	7.3223G	53.64	74.00	-20.36	42.07	3	Horizontal	72	2.11	-	37.60	7.16	33.19		
AV	7.3206G	42.86	54.00	-11.14	31.29	3	Horizontal	72	2.11	-	37.60	7.16	33.19		

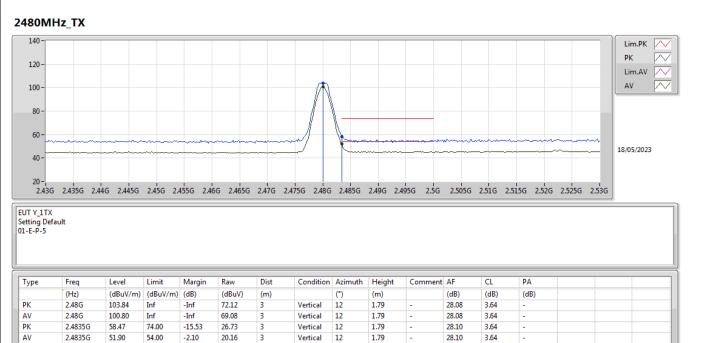














2.4-2.4835GHz_BT-LE(2Mbps)

2.4835G

52.15

54.00

-1.85

20.41

3

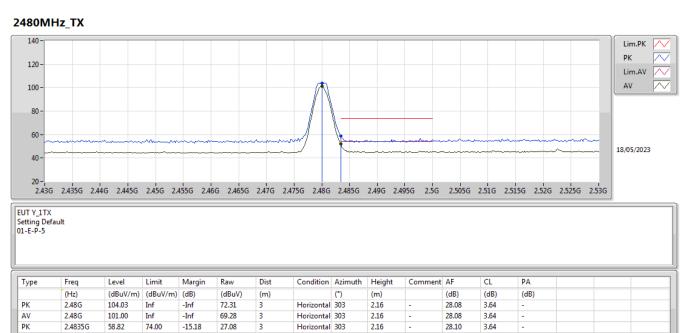
Horizontal 303

2.16

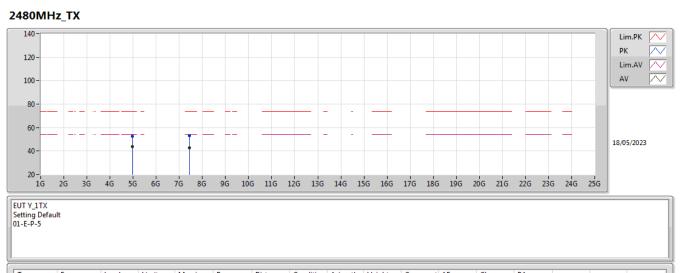
28.10

3.64

AV







Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.96105G	52.40	74.00	-21.60	46.38	3	Vertical	328	2.44	-	33.02	5.86	32.86		
AV	4.95905G	43.88	54.00	-10.12	37.86	3	Vertical	328	2.44	-	33.02	5.86	32.86		
РК	7.43817G	53.16	74.00	-20.84	41.69	3	Vertical	214	2.46	-	37.50	7.22	33.25		
AV	7.44204G	42.76	54.00	-11.24	31.29	3	Vertical	214	2.46	-	37.50	7.22	33.25		





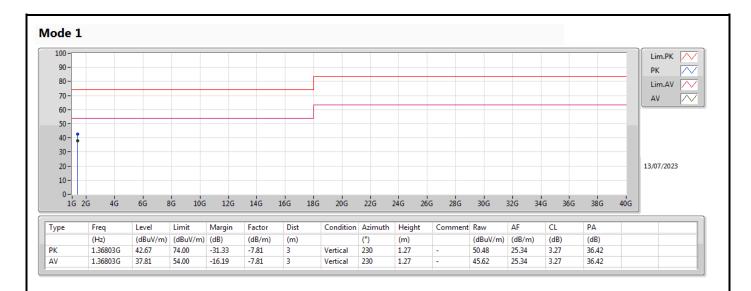
Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.96008G	55.99	74.00	-18.01	49.97	3	Horizontal	356	1.80	-	33.02	5.86	32.86		
AV	4.95895G	48.90	54.00	-5.10	42.88	3	Horizontal	356	1.80	-	33.02	5.86	32.86		
РК	7.44109G	53.71	74.00	-20.29	42.24	3	Horizontal	133	1.79	-	37.50	7.22	33.25		
AV	7.44243G	42.43	54.00	-11.57	30.96	3	Horizontal	133	1.79	-	37.50	7.22	33.25		



Summary							
Mode	Result	Туре	Freq	Level	Limit	Margin	Condition
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	
Mode 1	Pass	AV	1.36803G	37.81	54.00	-16.19	Vertical



Appendix G





Appendix G

