



FCC RADIO TEST REPORT

FCC ID : UIDW31
Equipment : W31
Brand Name : ARRIS
Model Name : W31
Applicant : ARRIS
3871 Lakefield Drive Suite 300, Suwanee, Georgia,
30024 United States
Manufacturer : ARRIS
3871 Lakefield Drive Suite 300, Suwanee, Georgia,
30024 United States
Standard : 47 CFR FCC Part 15.247

The product was received on Mar. 26, 2018, and testing was started from Mar. 26, 2018 and completed on May 07, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

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History of this test report



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	-

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]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1.0	1TX
2.4-2.4835GHz	BT-2LE	1.0	1TX

Note:

- Bluetooth LE uses a GFSK modulation for DSSS.
- BWch is the nominal channel bandwidth.
- Nss-Min is the minimum number of spatial streams.
- Nant is the number of outputs. e.g., 2(2, 3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.



1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	PEGATRON	RFPCA2620-01_Rev02	Dual band PCB dipole antenna	I-PEX	Note
2	PEGATRON	RFPCA2620-02_Rev02	Dual band PCB dipole antenna	I-PEX	
3	PEGATRON	RFPCA2620-03_Rev01	Dual band PCB dipole antenna	I-PEX	
4	PEGATRON	RFPCA2620-04_Rev02	Dual band PCB dipole antenna	I-PEX	
5	PEGATRON	RFPCA2307-02 Rev02	PCB dipole antenna	I-PEX	
6	PEGATRON	RFPCA2211-03 Rev01	PCB dipole antenna	I-PEX	
7	PEGATRON	RFPCA2211-04 Rev02	PCB dipole antenna	I-PEX	
8	PEGATRON	RFPCA1806-03 Rev01	PCB dipole antenna	I-PEX	
9	PEGATRON	RFPCA3508-05_Rev02	PCB antenna	I-PEX	
10	PEGATRON	RFPCA1806-03 Rev01	PCB dipole antenna	I-PEX	

Note:

Ant.	Port	Uncorrelated (dBi)			Correlated (dBi)			(dBi)
		2.4G	5G B1	5G B4	2.4G	5G B1	5G B4	
1	1	4.22	5.71	-	5.35	6.23		-
2	2	4.22	5.71	-	5.35	6.23		-
3	3	4.22	5.71	-	5.35	6.23		-
4	4	4.22	5.71	-	5.35	6.23		-
5	1	-	-	5.82	-	-	6.93	-
6	2	-	-	5.82	-	-	6.93	-
7	3	-	-	5.82	-	-	6.93	-
8	4	-	-	5.82	-	-	6.93	-
9	1	-	-	-	-	-	-	4.12
10	-	-	5.23	5.23	-	-	-	-

Note: The EUT has ten antennas.

For Radio 1

2.4GHz Functions

For IEEE 802.11b/g/n/ac mode (4TX, 4RX):

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

5GHz Functions (1RX):

The EUT only supports the antenna receive function.

**For Radio 3****5GHz B1 Functions****For IEEE 802.11a/n/ac mode (4TX, 4RX):**

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

For Radio 2**5GHz B4 Functions****For IEEE 802.11a/n/ac mode (4TX, 4RX):**

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

For Radio 4**Bluetooth Functions (1TX, 1RX):**

Only Port 1 could transmit/receive simultaneously.

1.1.3 Table for radio type

Radio No.	2.4G	5G B1	5G B4	BT
Radio 1	V	Only RX function	Only RX function	-
Radio 2	-	-	V	-
Radio 3	-	V	-	-
Radio 4	-	-	-	V

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-LE(1Mbps)	0.632	1.993	395.625u	3k
BT-2LE	0.351	4.547	219.375u	10k

1.1.5 EUT Operational Condition

EUT Power Type	From Power Adapter	
Function	<input checked="" type="checkbox"/>	Point-to-multipoint
Test Software Version	Telnet v1.27.2	
Support Mode	<input checked="" type="checkbox"/>	LE 1M PHY: 1 Mb/s
	<input type="checkbox"/>	LE Coded PHY (S=2): 500 Kb/s
	<input type="checkbox"/>	LE Coded PHY (S=8): 125 Kb/s
	<input checked="" type="checkbox"/>	LE 2M PHY: 2 Mb/s



1.2 Testing Applied Standards

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

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 558074 D01 v04
- ♦ FCC KDB 412172 D01 v01r01

1.3 Testing Location Information

Testing Location				
<input type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456	FAX : 886-3-318-0055	
<input checked="" type="checkbox"/>	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065	FAX : 886-3-656-9085	

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Stim Sung	22°C / 55%	Mar. 26, 2018 ~ May 04, 2018
Radiated below 1GHz	03CH01-CB	Joy Tseng & Cola Fan	22°C / 54%	May 04, 2018
Radiated above 1GHz	03CH01-CB	Joy Tseng & Cola Fan	22°C / 54%	Apr. 03, 2018 ~ May 07, 2018
AC Conduction	CO01-CB	Rick Yeh	24°C / 52%	May 07, 2018

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74 x10 ⁻⁸	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	default
2440MHz	default
2480MHz	default

Mode	Power Setting
BT-2LE_Nss1_1TX	-
2402MHz	default
2440MHz	default
2480MHz	default



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
Operating Mode	CTX
1	EUT in Y axis - Radio 1 (2.4GHz)
2	EUT in Y axis - Radio 3 (5GHz B1)
3	EUT in Y axis - Radio 2 (5GHz B4)
4	EUT in Y axis - Radio 4 (Bluetooth)

For operating mode 2 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
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	CTX
1	EUT in Y axis - Radio 1 (2.4GHz)
2	EUT in Y axis - Radio 3 (5GHz B1)
3	EUT in Y axis - Radio 2 (5GHz B4)
4	EUT in Y axis - Radio 4 (Bluetooth)

For operating mode 1 is the worst case and it was record in this test report.

Operating Mode > 1GHz	CTX
1	EUT in Y axis - Radio 4 (Bluetooth)



The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	Radio 1 (2.4GHz) + Radio 3 (WLAN 5GHz B1) + Radio 2 (WLAN 5GHz B4) + Radio 4 (Bluetooth)

Refer to Sporton Test Report No.: FA842742 for Co-location RF Exposure Evaluation.

Note 1: The EUT can only be used at Y axis position.

2.3 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



2.4 Accessories

Accessories				
Equipment Name	Brand Name	Model Name	P/N	Rating
Adapter	APD	WA-36L12FU	AREP05681	INPUT: 100-120V ~, 60Hz, 0.9A Max OUTPUT: 12V, 3A

2.5 Support Equipment

For Test Site No: CO01-CB

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E6430	DoC
2	Flash disk3.0	Transcend	JetFlash-700	N/A

For Test Site No: 03CH01-CB

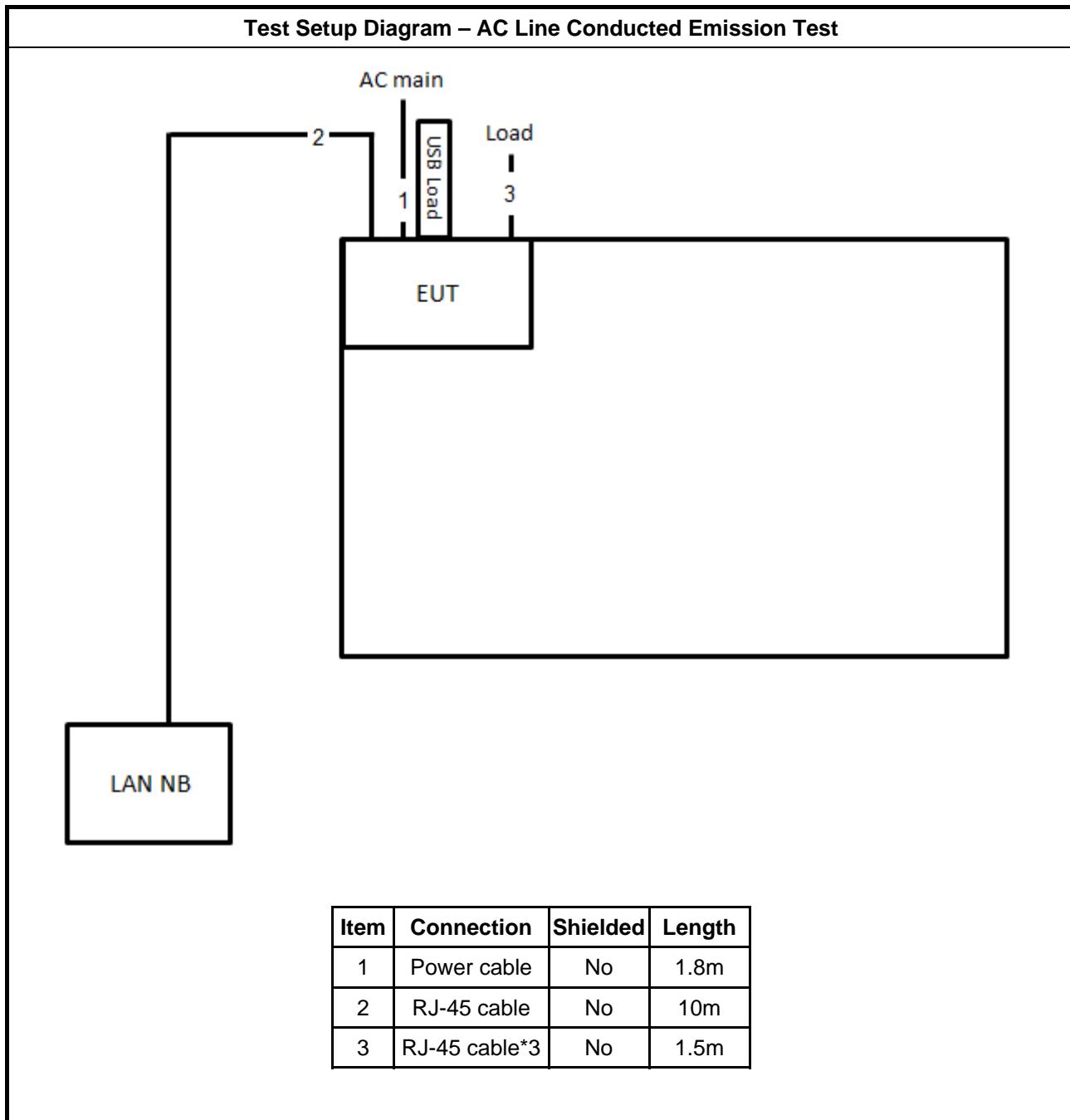
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC

For Test Site No: TH01-CB

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB	DELL	E4300	DoC

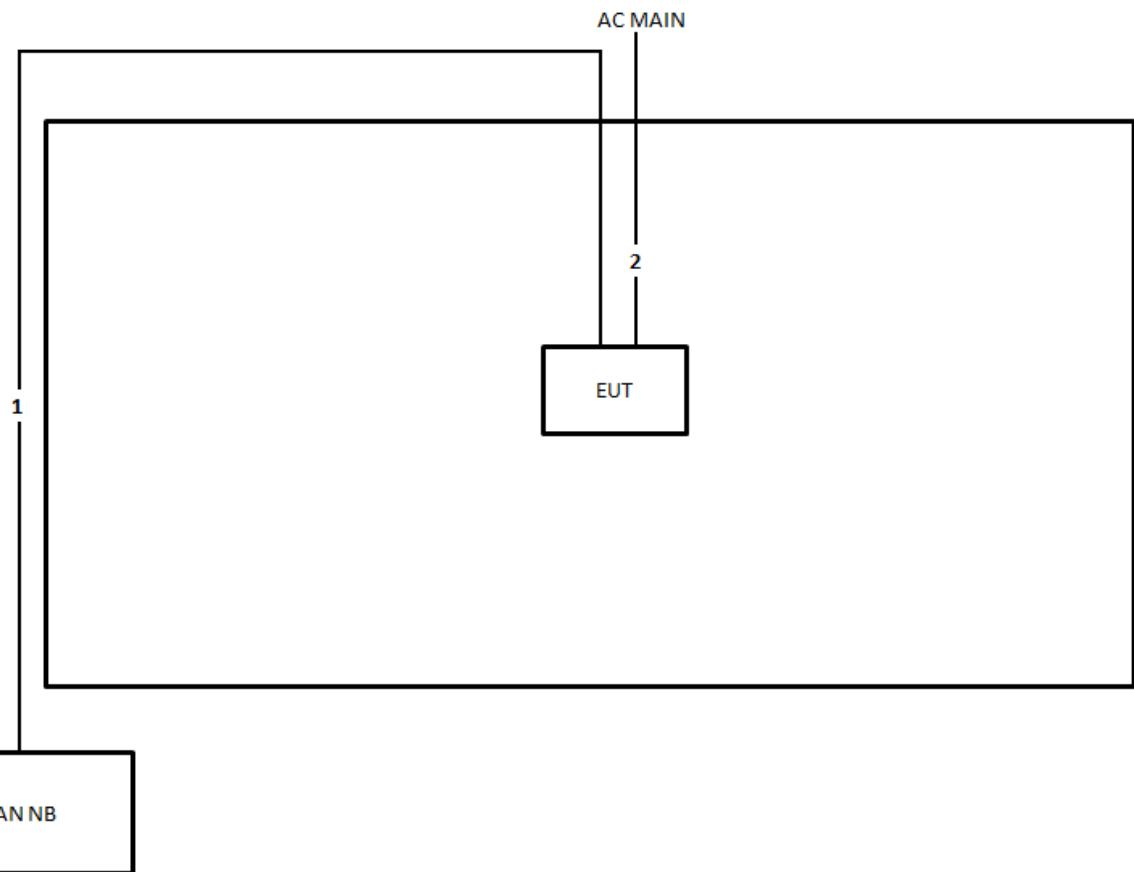


2.6 Test Setup Diagram





Test Setup Diagram - Radiated Test



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



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.

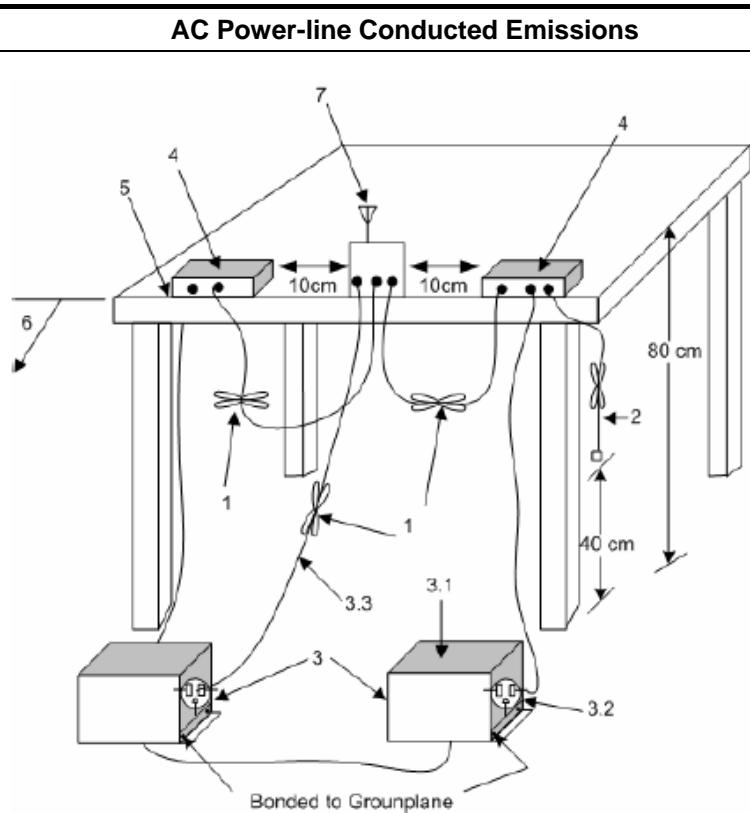
3.1.2 Measuring Instruments

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

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 \geq 500 kHz.

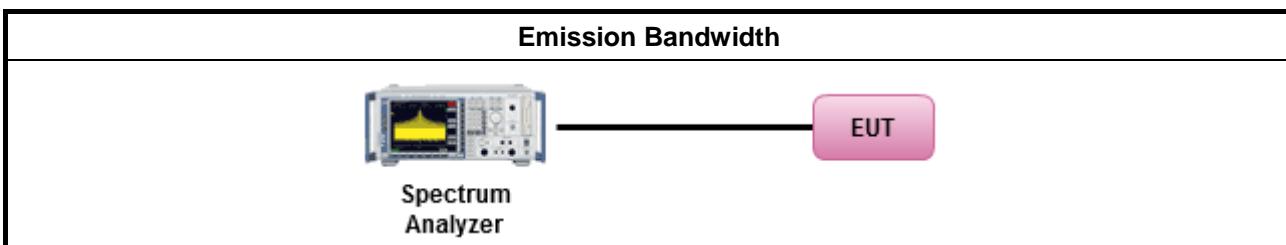
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method
▪ For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
<input type="checkbox"/> Refer as FCC KDB 558074, clause 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 $G_{TX} \leq 6 \text{ dBi}$, then $P_{Out} \leq 30 \text{ dBm}$ (1 W)
	<ul style="list-style-type: none">▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6) \text{ dBm}$
	<ul style="list-style-type: none">▪ Point-to-point systems (P2P): If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)/3 \text{ dBm}$
	<ul style="list-style-type: none">▪ Smart antenna system (SAS):<ul style="list-style-type: none">- Single beam: If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)/3 \text{ dBm}$- Overlap beam: If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)/3 \text{ dBm}$- Aggregate power on all beams: If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8\text{dB dBm}$

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

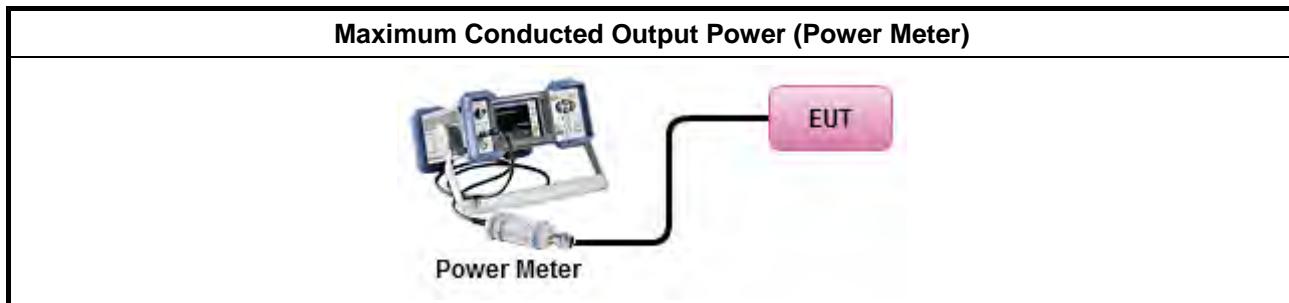
Refer a test equipment and calibration data table in this test report.



3.3.3 Test Procedures

Test Method	
▪ Maximum Peak Conducted Output Power	<input type="checkbox"/> Refer as FCC KDB 558074, clause 9.1.1 Option 1 (RBW \geq EBW method). <input type="checkbox"/> Refer as FCC KDB 558074, clause 9.1.3 (peak power meter for VBW \geq DTS BW)
▪ Maximum Conducted Output Power	<p>[duty cycle \geq 98% or external video / power trigger]</p> <input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging). <input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging). <input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
	Measurement using a power meter (PM)
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM (using an RF average power meter). <input type="checkbox"/> Refer as FCC KDB 558074, clause 9.2.3.2 Method AVGPM-G (using an gate RF average power meter).
▪ 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.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

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

3.4.2 Measuring Instruments

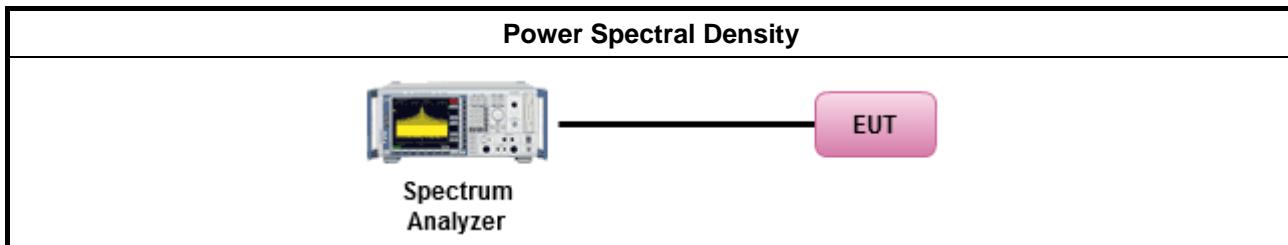
Refer a test equipment and calibration data table in this test report.

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).
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak). [duty cycle ≥ 98% or external video / power trigger]
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.3 Method AVGPSD-1 (spectral trace averaging).
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.4 Method AVGPSD-2 (slow sweep speed)
duty cycle < 98% and average over on/off periods with duty factor
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.5 Method AVGPSD-1 Alt (spectral trace averaging).
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.6 Method AVGPSD-2 Alt. (slow sweep speed)
▪ For conducted measurement.
▪ If The EUT supports multiple transmit chains using options given below:
<input checked="" 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 (dB)
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.

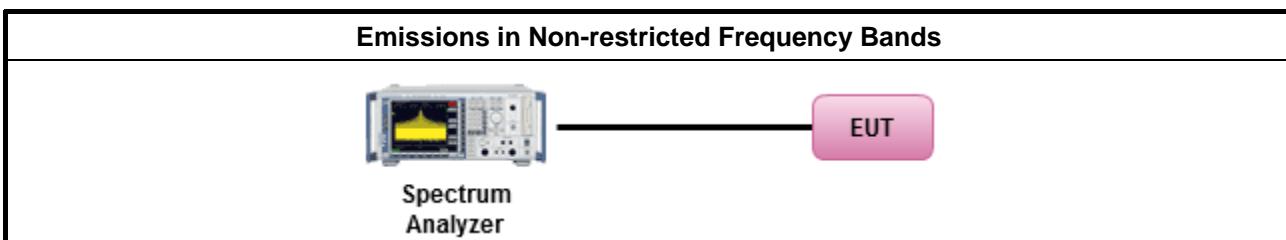
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
▪ Refer as FCC KDB 558074, clause 11 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.

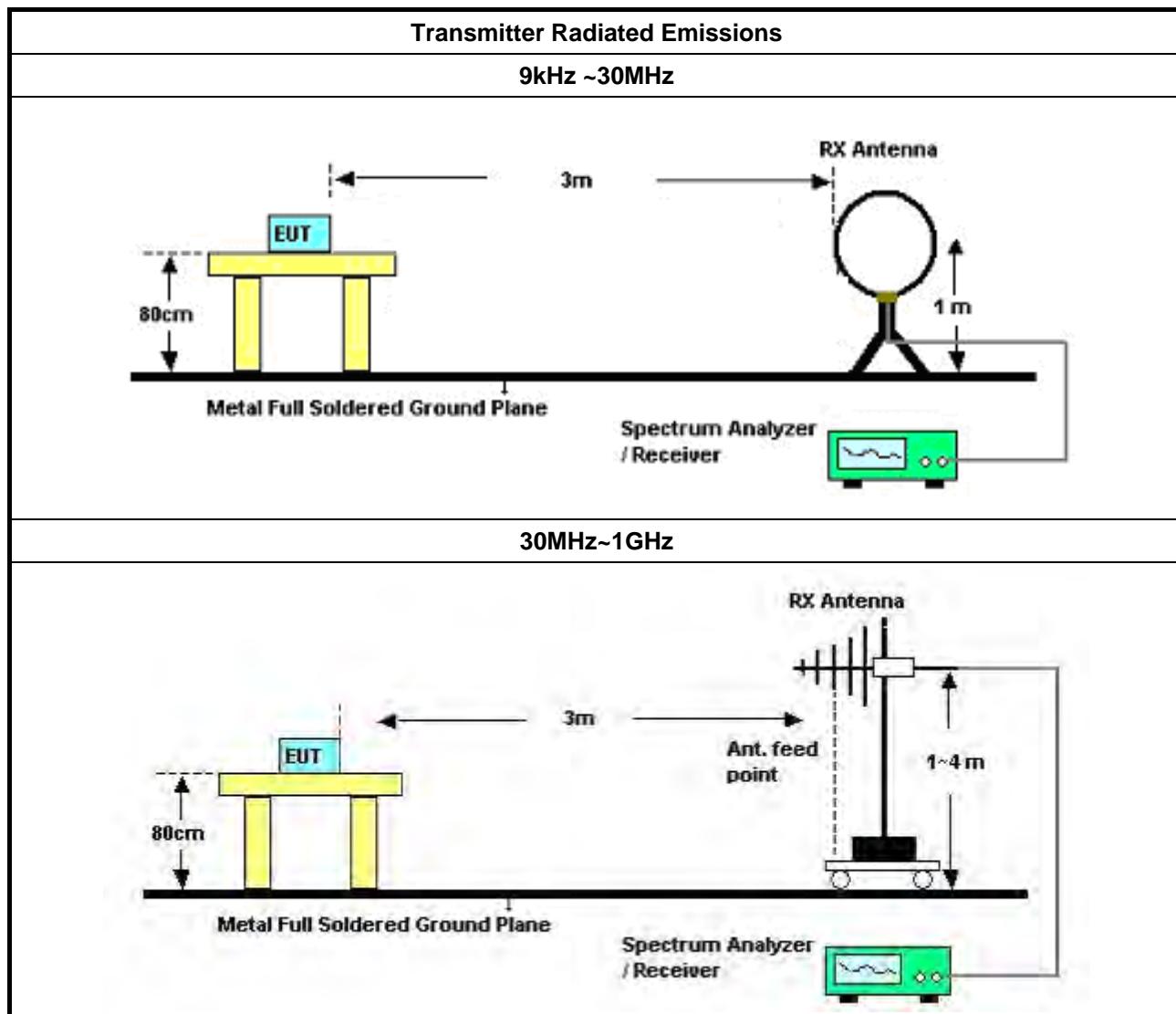


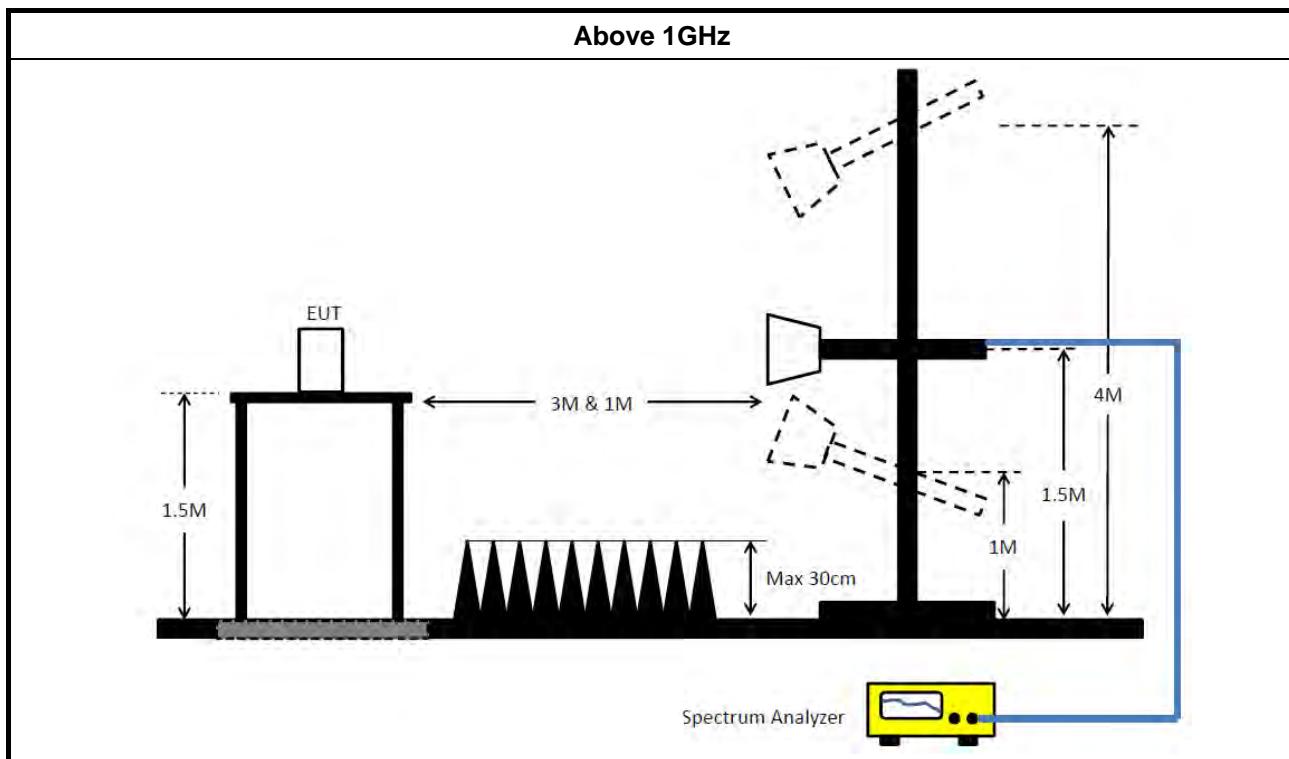
3.6.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].	
▪ Refer as ANSI C63.10, clause 6.9.2.2 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 12 for unwanted emissions into restricted bands.
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq 98\%$)
	<input type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced $VBW \geq 1/T$).
	<input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). $VBW \geq 1/T$, where T is pulse time.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
	<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 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 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 13.2 (ANSI C63.10, clause 6.9.3) for marker-delta method for band-edge measurements.
	▪ Refer as FCC KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
▪ For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 12.2.2.	
	▪ 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 Transmitter Radiated Unwanted Emissions (Below 30MHz)

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 10 harmonic or 40 GHz, whichever is appropriate.

3.6.6 Transmitter Radiated Unwanted Emissions

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 31, 2018	Jan. 30, 2019	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz~100MHz	Dec. 20, 2017	Dec. 19, 2018	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 29, 2017	Dec. 28, 2018	Conduction (CO01-CB)
Impulsbegrenzer Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 06, 2018	Feb. 05, 2019	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 23, 2017	May 22, 2018	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2017	Aug. 29, 2018	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2018	Mar. 15, 2019	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 20, 2017	Nov. 19, 2018	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Jul. 04, 2018	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2018	May 01, 2019	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 09, 2018	Jan. 08, 2019	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 10, 2017	Jul. 09, 2018	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 23, 2017	Nov. 22, 2018	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 06, 2017	May 05, 2018	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)

**FCC RADIO TEST REPORT****Report No. : FR842742AD**

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 11, 2017	Oct. 10, 2018	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 21, 2017	Dec. 20, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz ~26.5 GHz	Oct. 11, 2017	Oct. 10, 2018	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 20, 2017	Nov. 19, 2018	Conducted (TH01-CB)

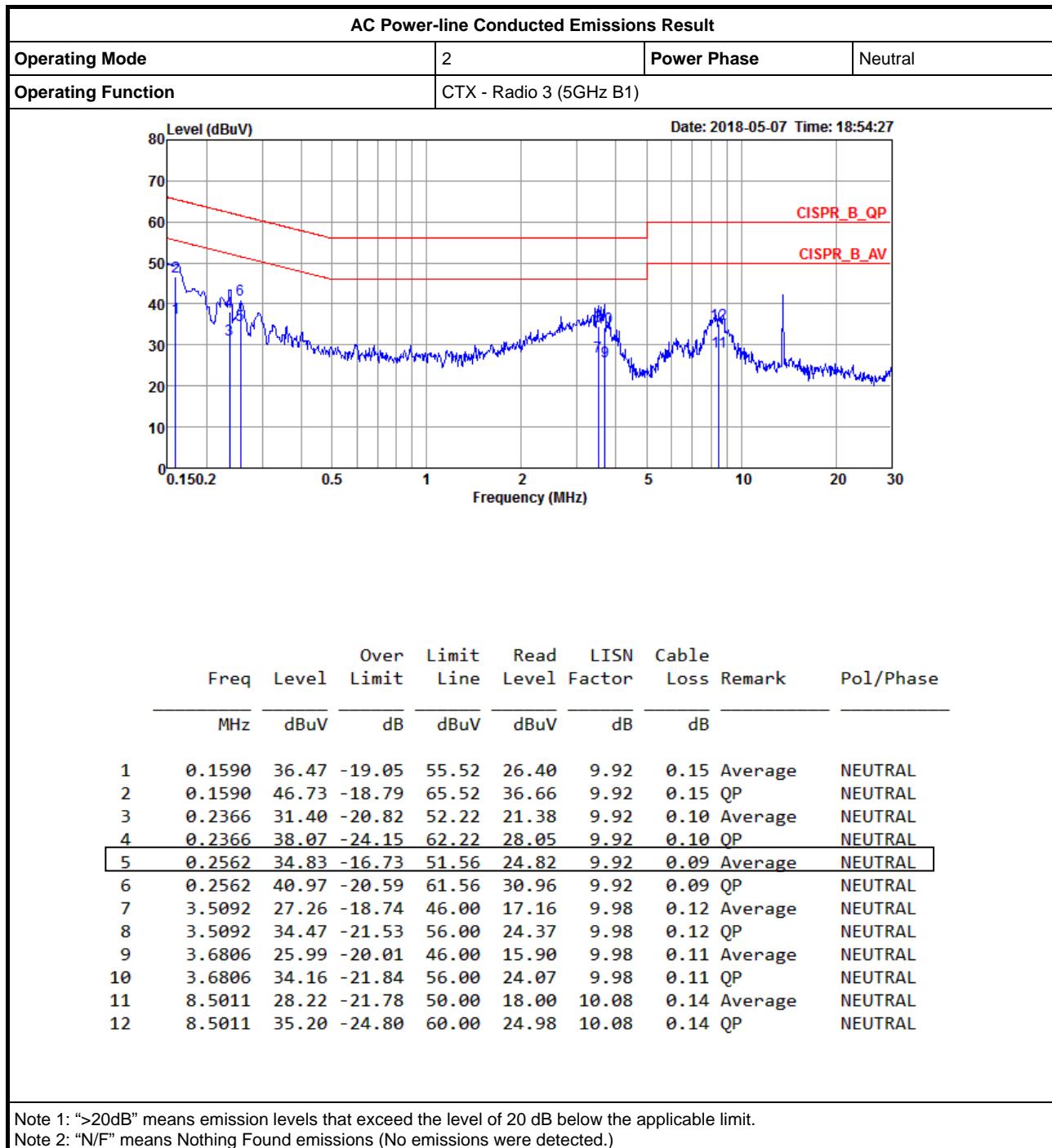
Note: Calibration Interval of instruments listed above is one year.

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



AC Power-line Conducted Emissions Result

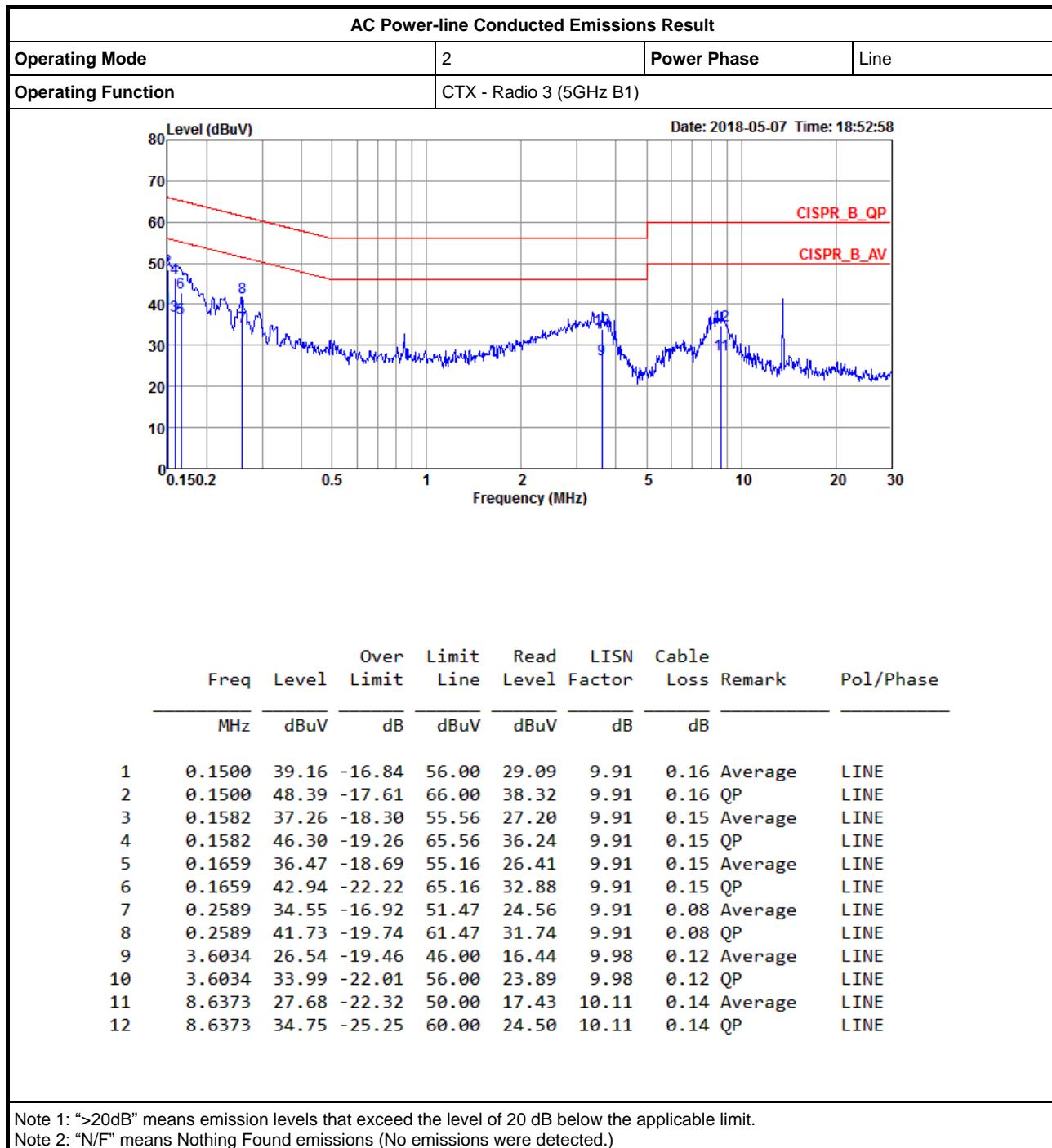
Appendix A





AC Power-line Conducted Emissions Result

Appendix A



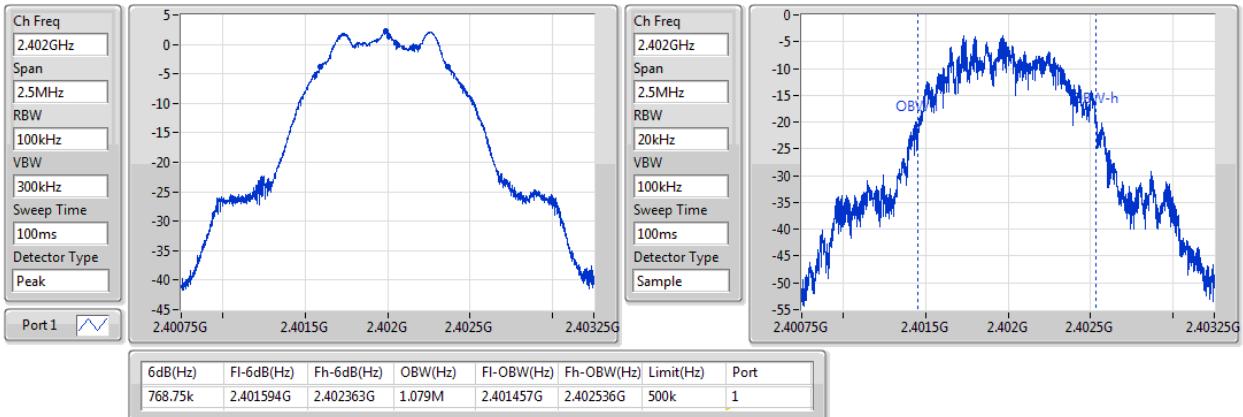
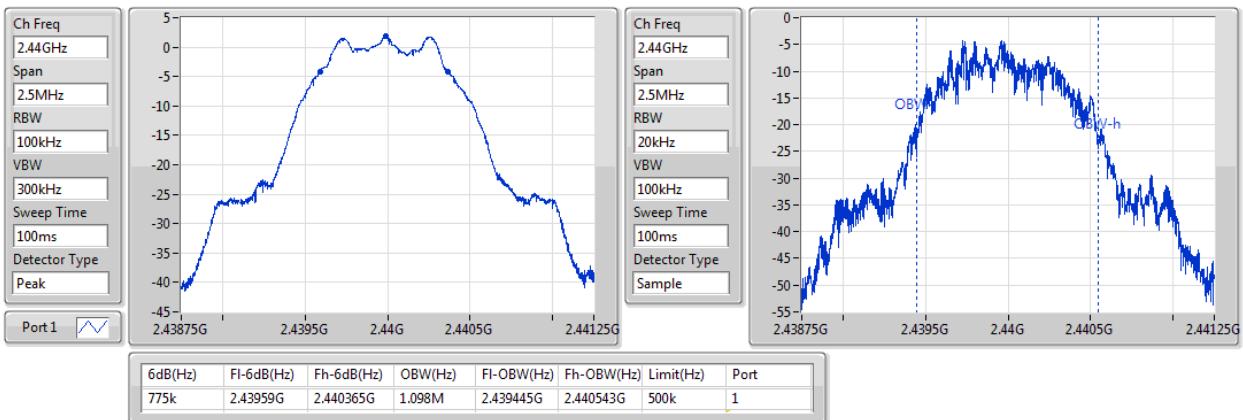
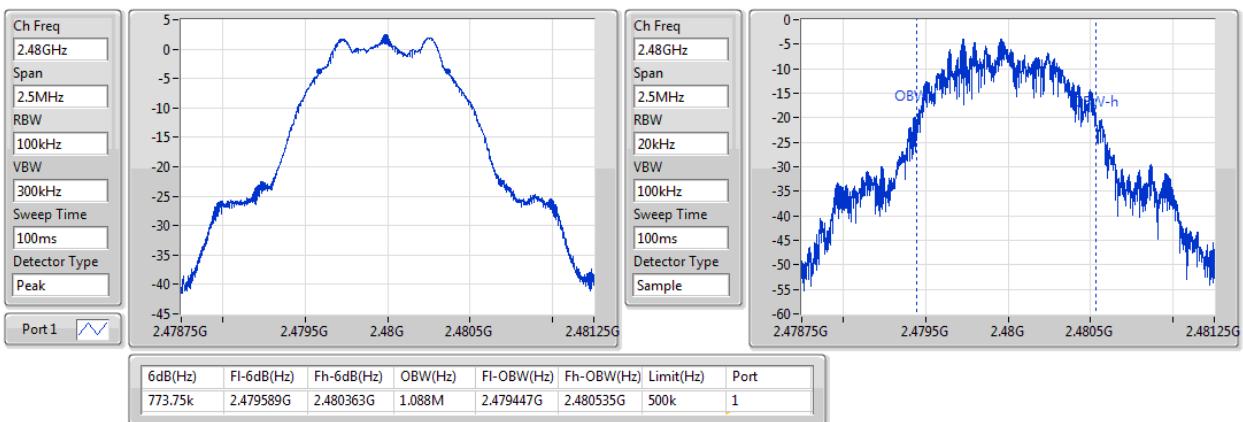
**For BT-LE (1Mbps)****Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	775k	1.098M	1M10F1D	768.75k	1.079M

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

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	768.75k	1.079M
2440MHz	Pass	500k	775k	1.098M
2480MHz	Pass	500k	773.75k	1.088M

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

BT-LE(1Mbps)
2402MHz

BT-LE(1Mbps)
2440MHz

BT-LE(1Mbps)
2480MHz


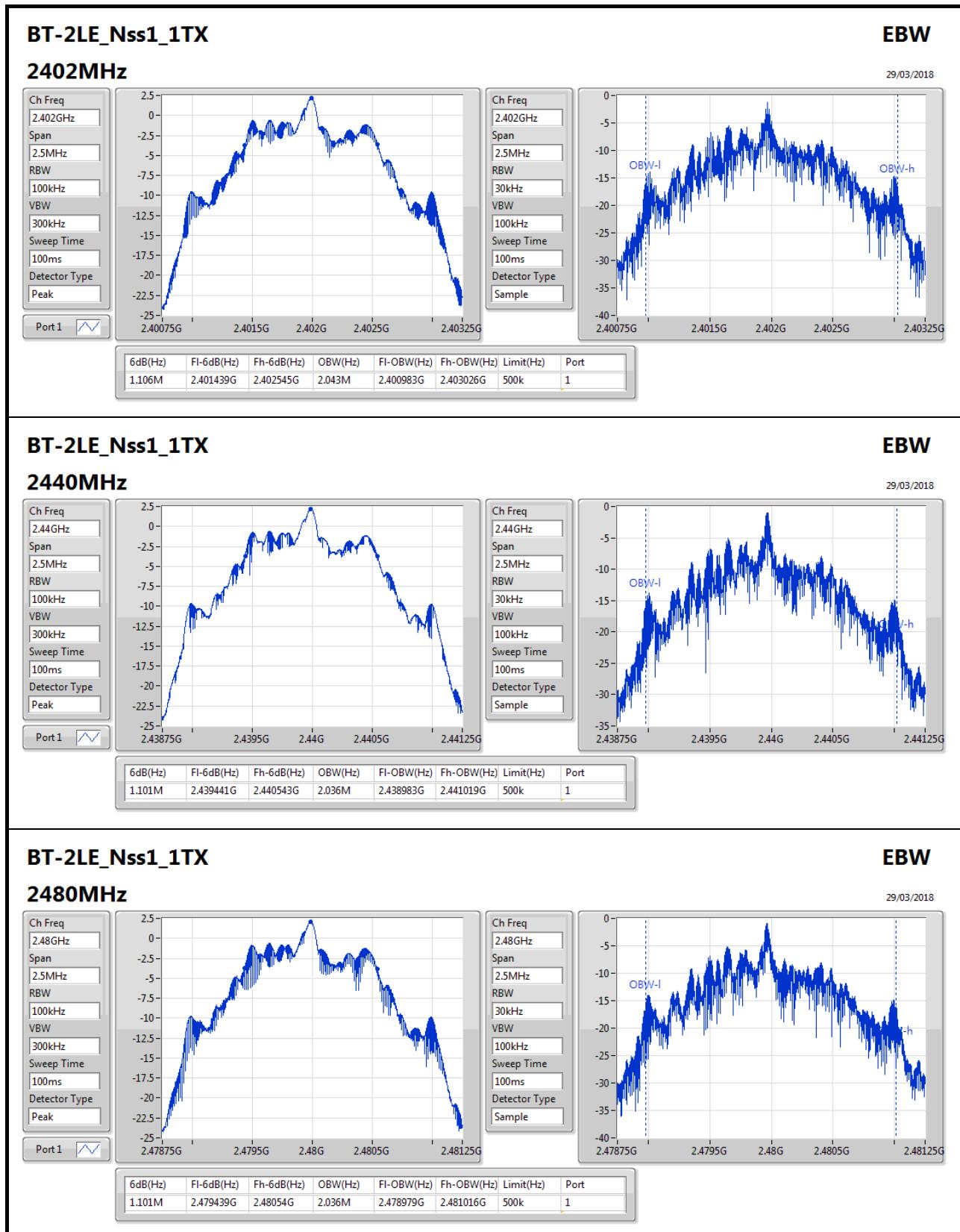
**For BT-2LE
Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-2LE_Nss1_1TX	1.106M	2.043M	2M04D1D	1.101M	2.036M

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-2LE_Nss1_1TX	-	-	-	-
2402MHz	Pass	500k	1.106M	2.043M
2440MHz	Pass	500k	1.101M	2.036M
2480MHz	Pass	500k	1.101M	2.036M

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



**For BT-LE (1Mbps)****Summary**

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	2.72	0.00187

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.12	2.72	30.00
2440MHz	Pass	4.12	2.54	30.00
2480MHz	Pass	4.12	2.68	30.00

**For BT-2LE
Summary**

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-2LE_Nss1_1TX	2.54	0.00179

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-2LE_Nss1_1TX	-	-	-	-
2402MHz	Pass	4.12	2.54	30.00
2440MHz	Pass	4.12	2.47	30.00
2480MHz	Pass	4.12	2.48	30.00



For BT-LE (1Mbps)

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-12.21

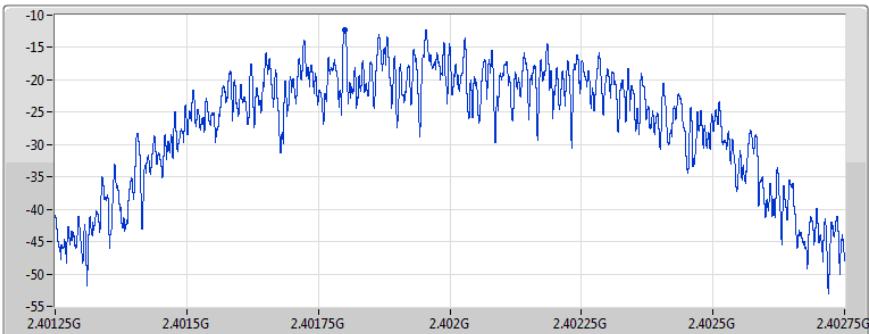
RBW=3kHz.

Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.12	-12.21	8.00
2440MHz	Pass	4.12	-12.49	8.00
2480MHz	Pass	4.12	-12.24	8.00

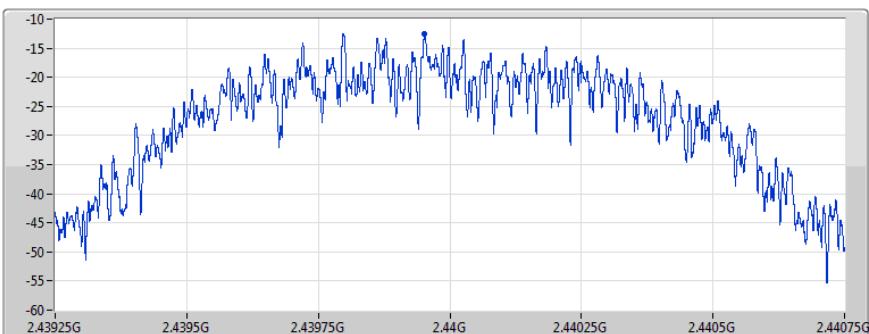
RBW=3kHz.

BT-LE(1Mbps)
2402MHz

 Ch Freq
 2.402GHz
 Span
 1.5MHz
 RBW
 3kHz
 VBW
 10kHz
 Sweep Time
 32.1ms
 Detector Type
 Peak

PSD

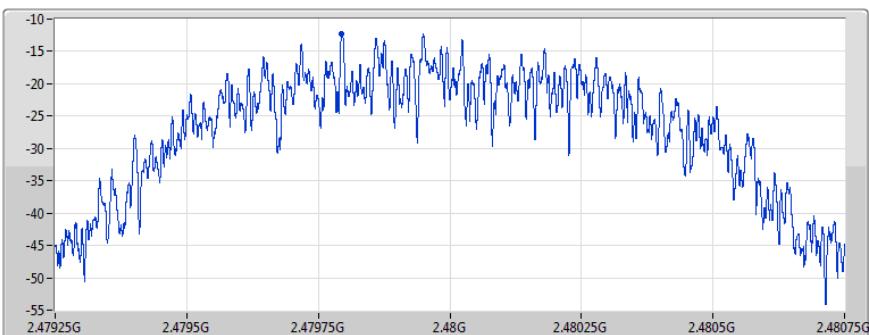
29/03/2018

 Port 1
BT-LE(1Mbps)
2440MHz

 Ch Freq
 2.44GHz
 Span
 1.5MHz
 RBW
 3kHz
 VBW
 10kHz
 Sweep Time
 32.1ms
 Detector Type
 Peak

PSD

29/03/2018

 Port 1
BT-LE(1Mbps)
2480MHz

 Ch Freq
 2.48GHz
 Span
 1.5MHz
 RBW
 3kHz
 VBW
 10kHz
 Sweep Time
 32.1ms
 Detector Type
 Peak

PSD

29/03/2018

 Port 1

**For BT-2LE
Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-2LE_Nss1_1TX	-14.19

RBW=3kHz.

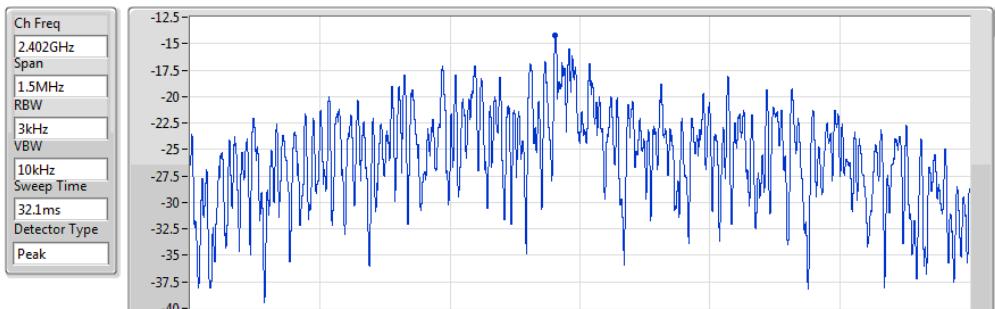
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-2LE_Nss1_1TX	-	-	-	-
2402MHz	Pass	4.12	-14.19	8.00
2440MHz	Pass	4.12	-14.46	8.00
2480MHz	Pass	4.12	-14.21	8.00

RBW=3kHz.

BT-2LE_Nss1_1TX
2402MHz
PSD

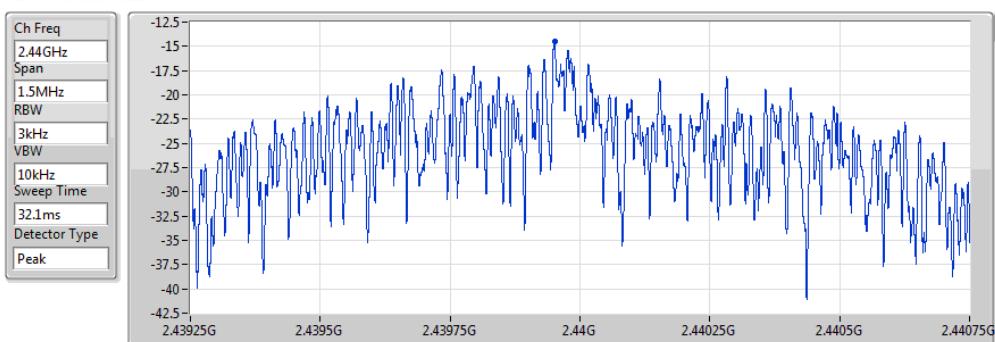
29/03/2018

Port 1


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.19	-14.19	-14.19

BT-2LE_Nss1_1TX
2440MHz
PSD

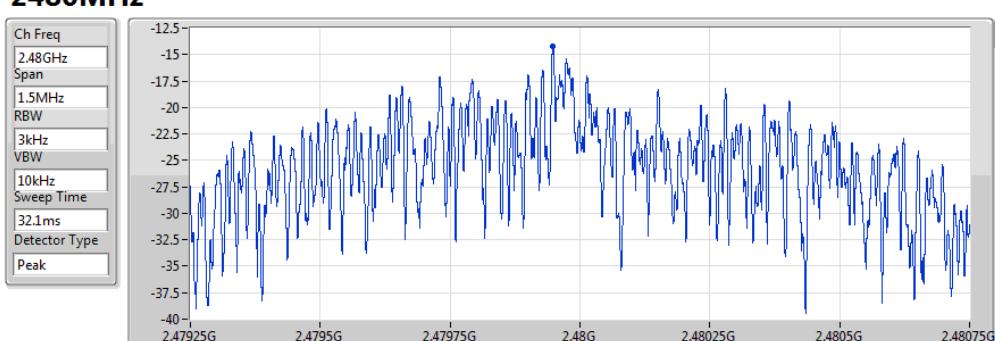
29/03/2018

Port 1


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.46	-14.46	-14.46

BT-2LE_Nss1_1TX
2480MHz
PSD

29/03/2018

Port 1


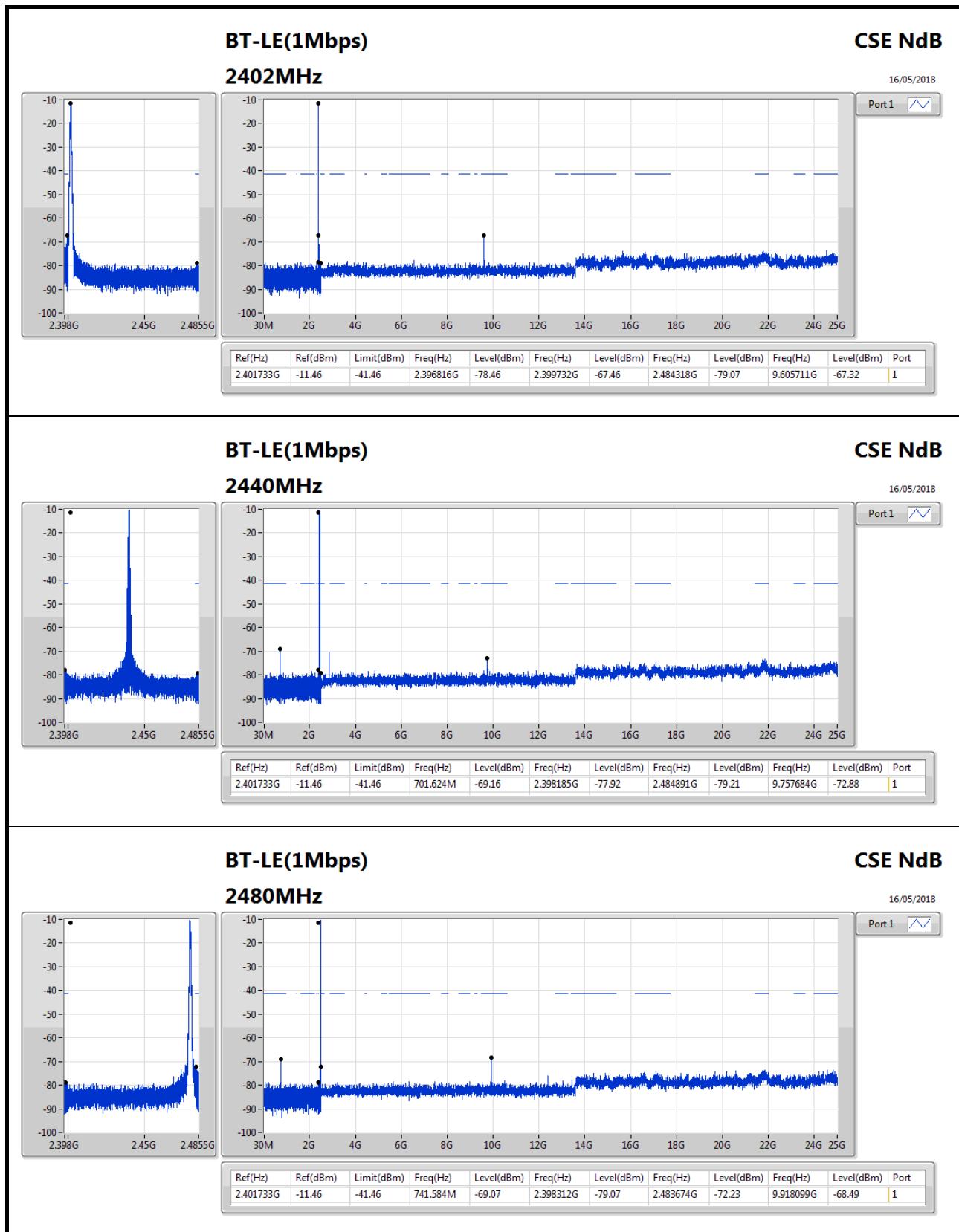
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.21	-14.21	-14.21

**For BT-LE (1Mbps)****Summary**

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Port						
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.401733G	-11.46	-41.46	2.396816G	-78.46	2.399732G	-67.46	2.484318G	-79.07	9.605711G	-67.32	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Port						
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.401733G	-11.46	-41.46	2.396816G	-78.46	2.399732G	-67.46	2.484318G	-79.07	9.605711G	-67.32	1
2440MHz	Pass	2.401733G	-11.46	-41.46	701.624M	-69.16	2.398185G	-77.92	2.484891G	-79.21	9.757684G	-72.88	1
2480MHz	Pass	2.401733G	-11.46	-41.46	741.584M	-69.07	2.398312G	-79.07	2.483674G	-72.23	9.918099G	-68.49	1

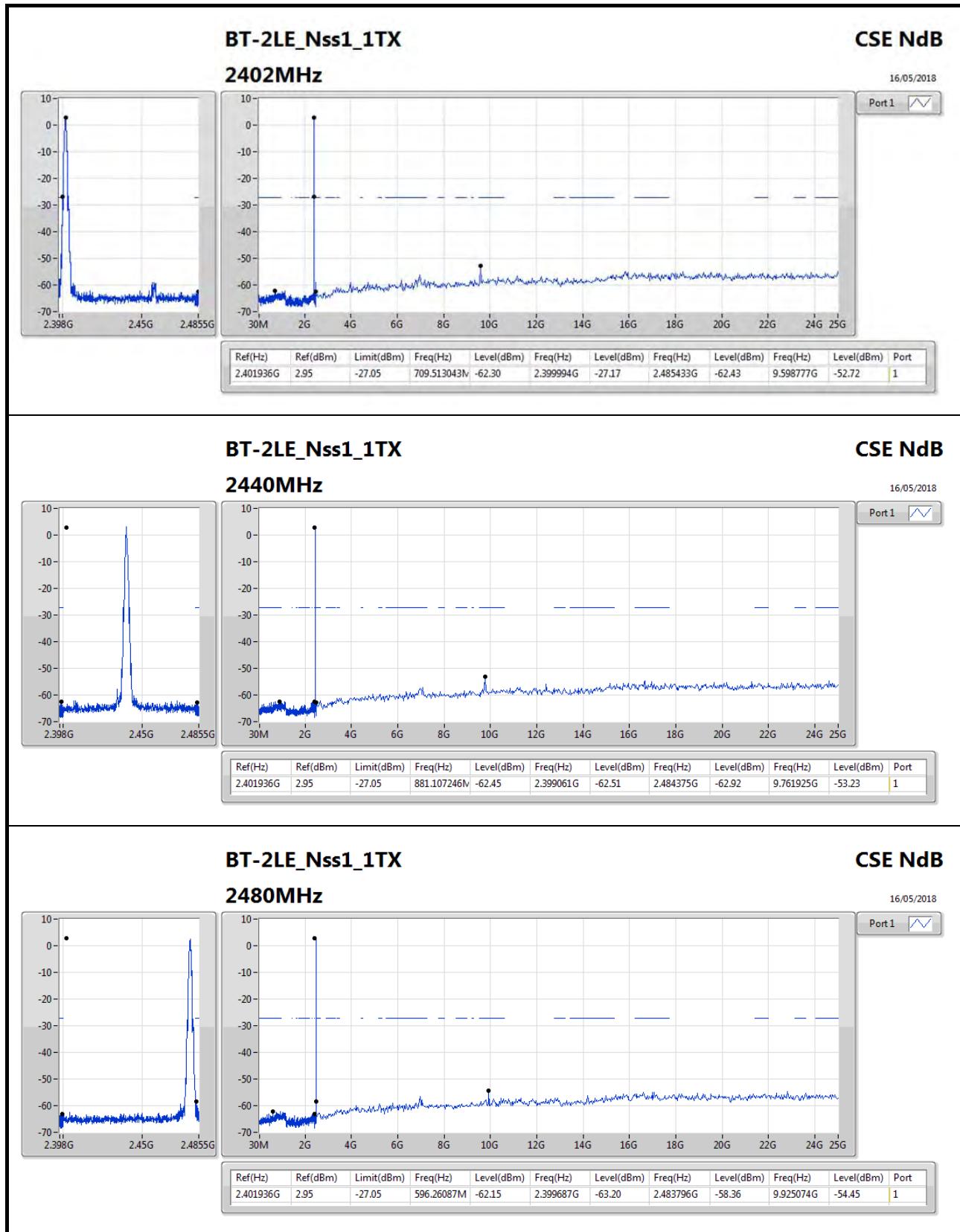


**For BT-2LE
Summary**

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-2LE_Nss1_1TX	Pass	2.401936G	2.95	-27.05	709.513043M	-62.30	2.399994G	-27.17	2.485433G	-62.43	9.598777G	-52.72	1

Result

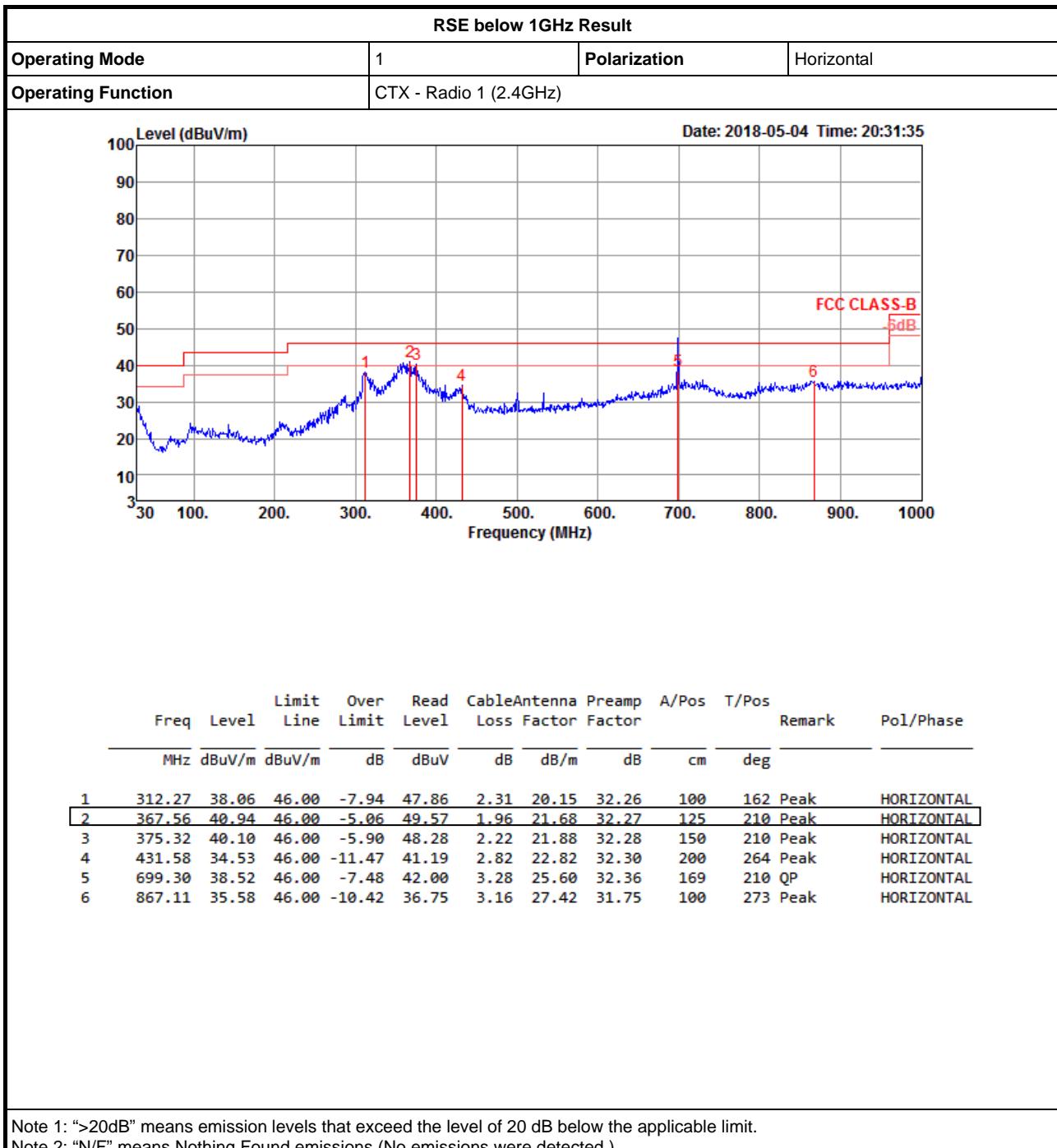
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-2LE_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.401936G	2.95	-27.05	709.513043M	-62.30	2.399994G	-27.17	2.485433G	-62.43	9.598777G	-52.72	1
2440MHz	Pass	2.401936G	2.95	-27.05	881.107246M	-62.45	2.399061G	-62.51	2.484375G	-62.92	9.761925G	-53.23	1
2480MHz	Pass	2.401936G	2.95	-27.05	596.26087M	-62.15	2.399687G	-63.20	2.483796G	-58.36	9.925074G	-54.45	1





RSE below 1GHz Result

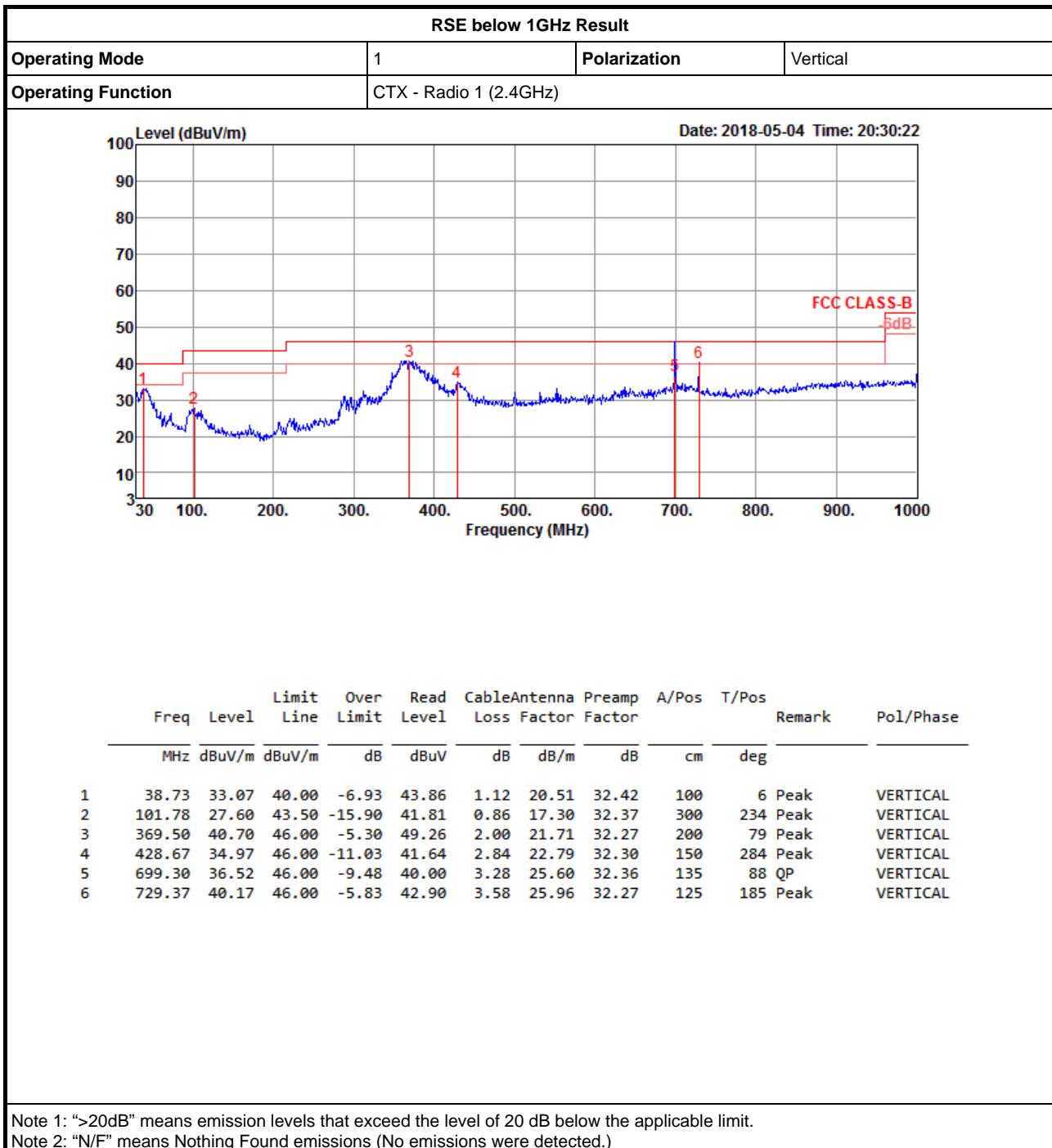
Appendix F.1





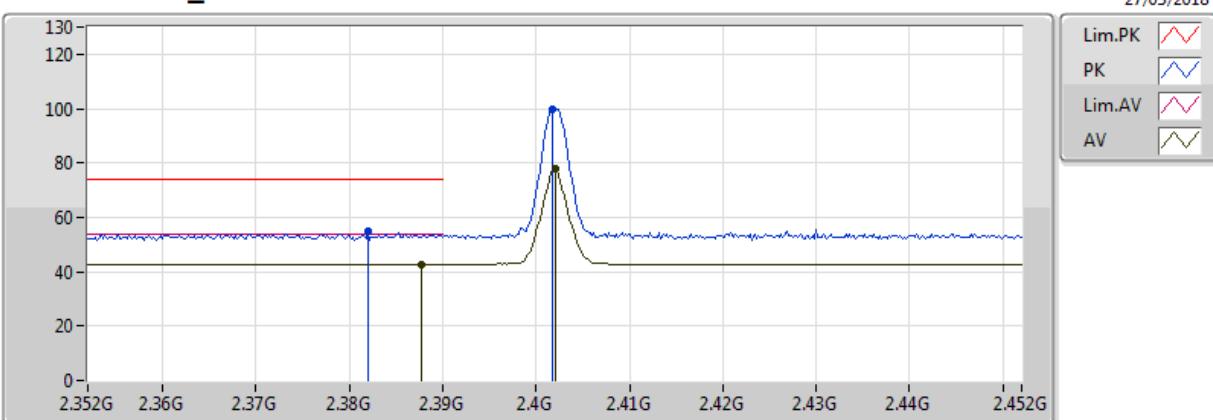
RSE below 1GHz Result

Appendix F.1



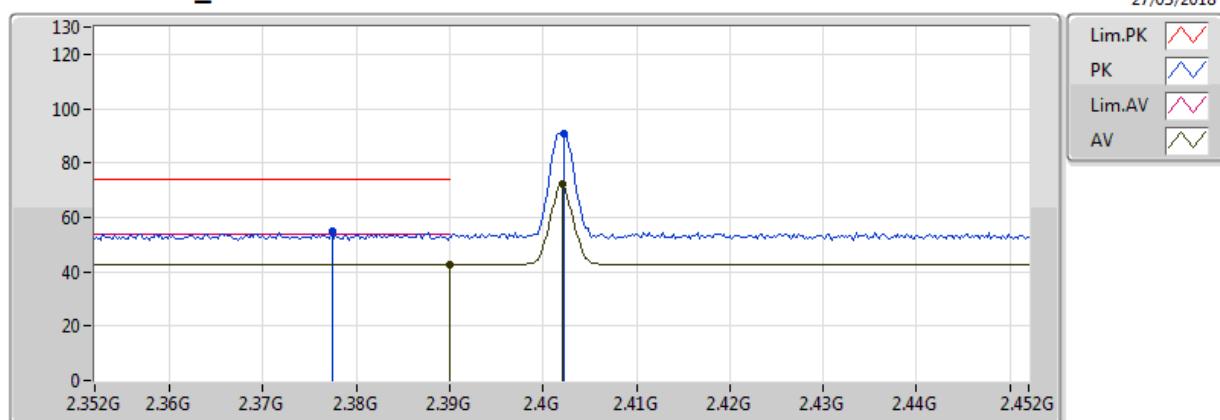
**For BT-LE (1Mbps)****Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE_Nss1_1TX	Pass	AV	2.483502G	44.83	54.00	-9.17	31.17	3	Vertical	37	2.52	-

BT-LE_Nss1_1TX
2402MHz_TX


EUT Y_1TX
Setting Default
01-E-2
FSP

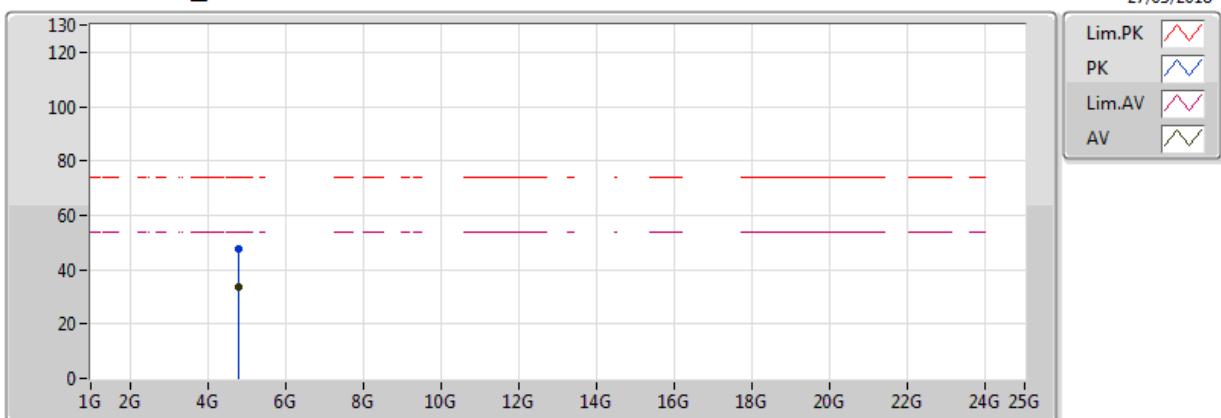
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.3878G	42.74	54.00	-11.26	30.97	3	Vertical	51	2.45	-			
AV	2.402G	77.69	Inf	-Inf	30.94	3	Vertical	51	2.45	-			
PK	2.382G	54.73	74.00	-19.27	30.98	3	Vertical	51	2.45	-			
PK	2.4018G	99.74	Inf	-Inf	30.94	3	Vertical	51	2.45	-			

BT-LE_Nss1_1TX
2402MHz_TX


EUT Y_1TX
Setting Default
01-E-2
FSP

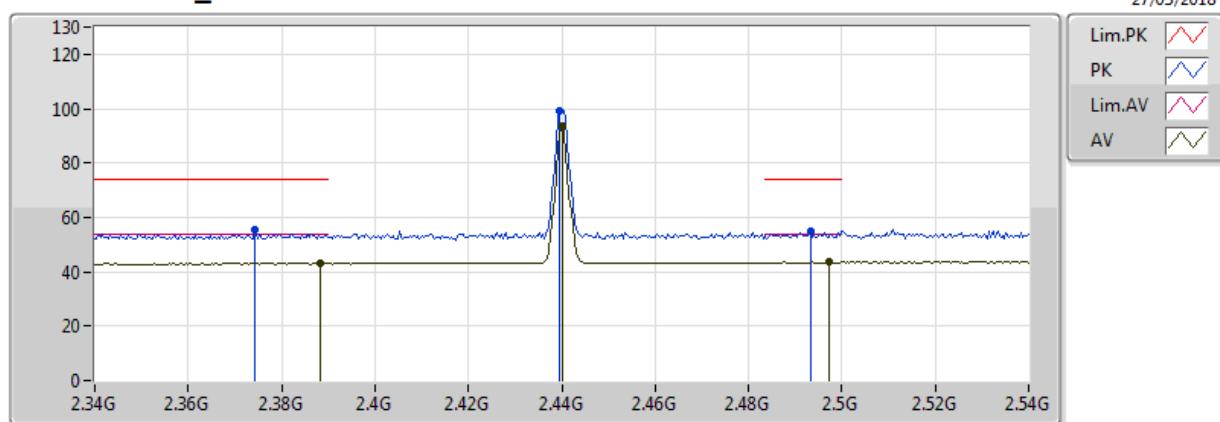
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments		
AV	2.389998G	42.77	54.00	-11.23	30.96	3	Horizontal	143	1.68	-		
AV	2.402G	72.13	Inf	-Inf	30.94	3	Horizontal	143	1.68	-		
PK	2.3774G	54.66	74.00	-19.34	31.00	3	Horizontal	143	1.68	-		
PK	2.4022G	90.94	Inf	-Inf	30.94	3	Horizontal	143	1.68	-		

BT-LE_Nss1_1TX
2402MHz_TX


BT-LE_Nss1_1TX
2402MHz_TX


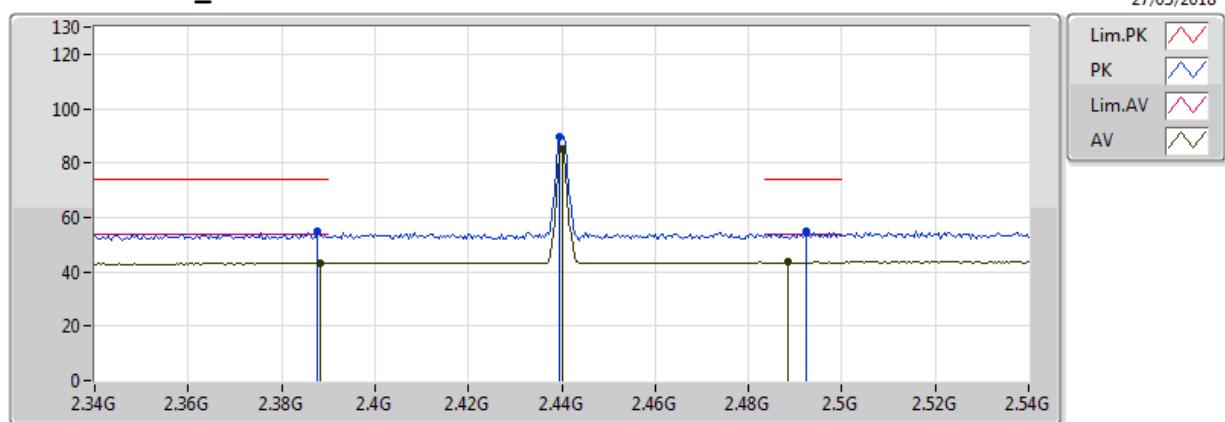
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.80374G	33.71	54.00	-20.29	3.92	3	Horizontal	351	1.48	-			
PK	4.80368G	47.50	74.00	-26.50	3.92	3	Horizontal	351	1.48	-			

BT-LE_Nss1_1TX
2440MHz_TX


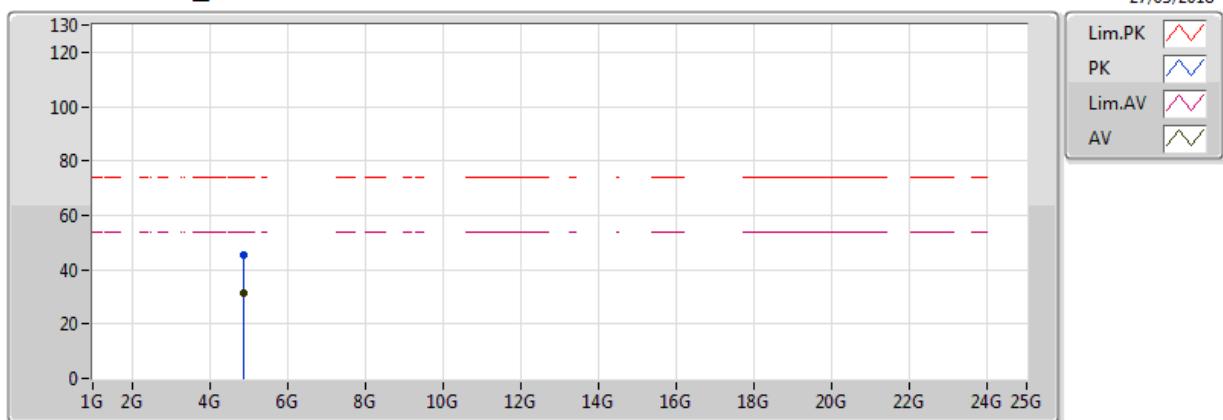
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3884G	43.19	54.00	-10.81	30.96	3	Vertical	70	1.50	-
AV	2.44G	93.72	Inf	-Inf	31.05	3	Vertical	70	1.50	-
AV	2.4972G	43.48	54.00	-10.52	31.21	3	Vertical	70	1.50	-
PK	2.3744G	55.25	74.00	-18.75	31.01	3	Vertical	70	1.50	-
PK	2.4396G	98.96	Inf	-Inf	31.04	3	Vertical	70	1.50	-
PK	2.4932G	54.79	74.00	-19.21	31.20	3	Vertical	70	1.50	-

BT-LE_Nss1_1TX
2440MHz_TX


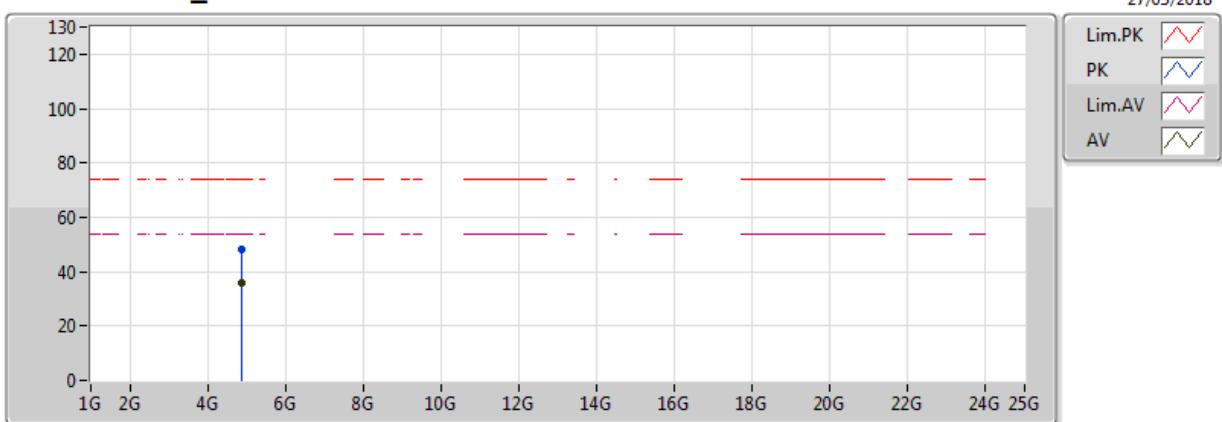
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.3884G	43.22	54.00	-10.78	30.96	3	Horizontal	141	1.65	-			
AV	2.44G	85.18	Inf	-Inf	31.05	3	Horizontal	141	1.65	-			
AV	2.4884G	43.62	54.00	-10.38	31.19	3	Horizontal	141	1.65	-			
PK	2.3876G	54.68	74.00	-19.32	30.97	3	Horizontal	141	1.65	-			
PK	2.4396G	89.69	Inf	-Inf	31.04	3	Horizontal	141	1.65	-			
PK	2.4924G	54.77	74.00	-19.23	31.20	3	Horizontal	141	1.65	-			

BT-LE_Nss1_1TX
2440MHz_TX


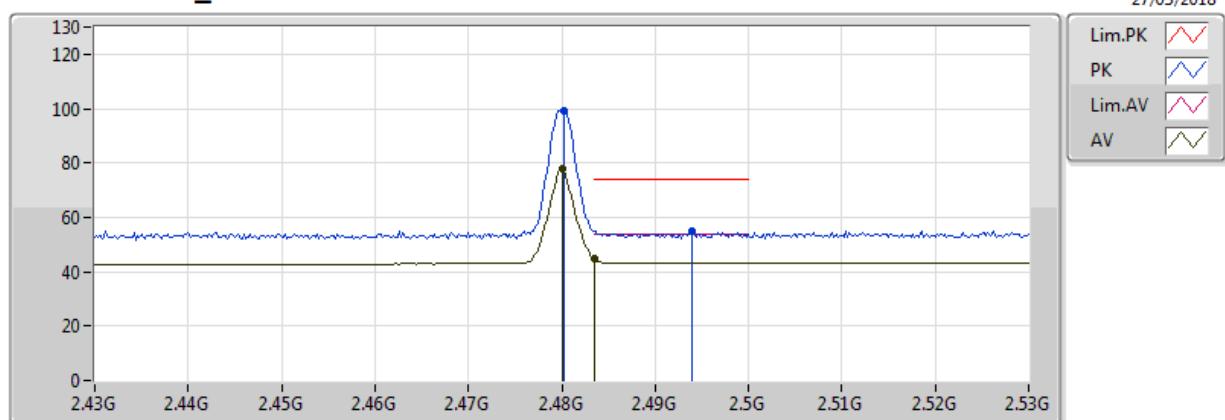
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.87949G	31.60	54.00	-22.40	4.23	3	Vertical	141	1.71	-			
PK	4.88068G	45.18	74.00	-28.82	4.23	3	Vertical	141	1.71	-			

BT-LE_Nss1_1TX
2440MHz_TX


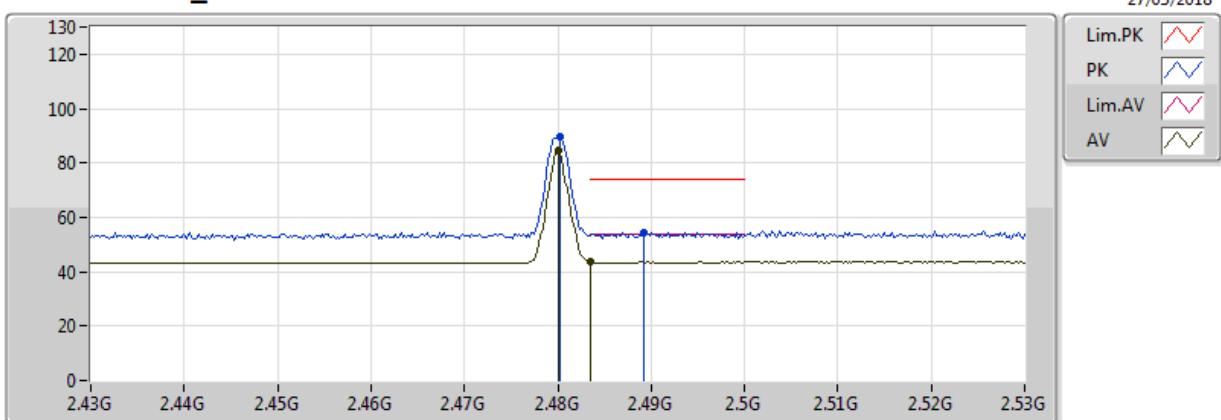
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.87974G	35.74	54.00	-18.26	4.23	3	Horizontal	1	1.71	-			
PK	4.88G	47.91	74.00	-26.09	4.23	3	Horizontal	1	1.71	-			

BT-LE_Nss1_1TX
2480MHz_TX


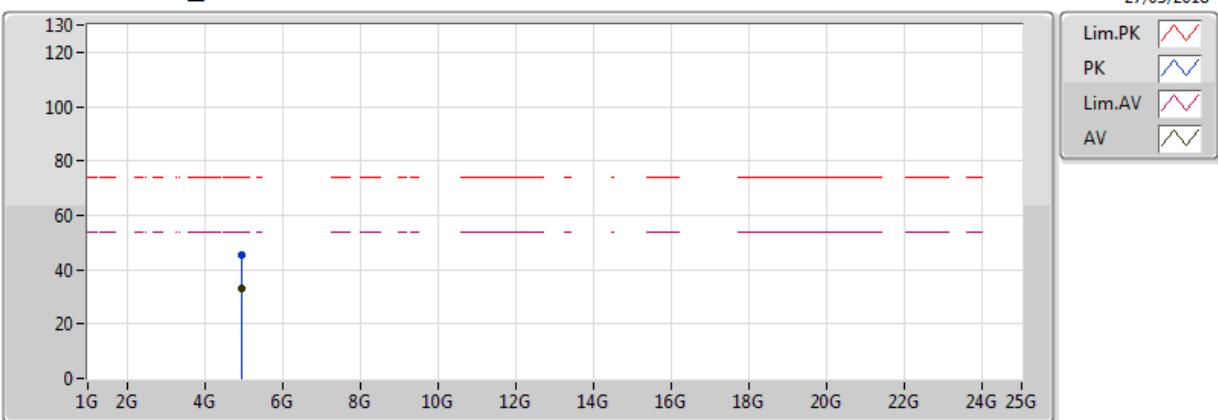
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.48G	77.65	Inf	-Inf	31.16	3	Vertical	37	2.52	-			
AV	2.483502G	44.83	54.00	-9.17	31.17	3	Vertical	37	2.52	-			
PK	2.4802G	99.38	Inf	-Inf	31.16	3	Vertical	37	2.52	-			
PK	2.494G	55.11	74.00	-18.89	31.20	3	Vertical	37	2.52	-			

BT-LE_Nss1_1TX
2480MHz_TX


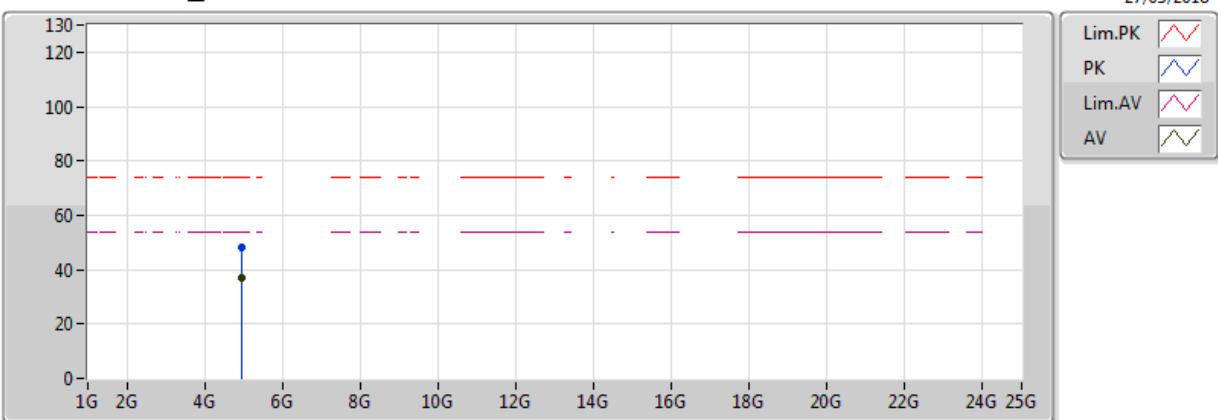
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.48G	84.68	Inf	-Inf	31.16	3	Horizontal	36	2.28	-			
AV	2.483502G	43.68	54.00	-10.32	31.17	3	Horizontal	36	2.28	-			
PK	2.4802G	89.39	Inf	-Inf	31.16	3	Horizontal	36	2.28	-			
PK	2.4892G	54.56	74.00	-19.44	31.19	3	Horizontal	36	2.28	-			

BT-LE_Nss1_1TX
2480MHz_TX


EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.95996G	32.80	54.00	-21.20	4.54	3	Vertical	346	1.82	-			
PK	4.9595G	45.39	74.00	-28.61	4.54	3	Vertical	346	1.82	-			

BT-LE_Nss1_1TX
2480MHz_TX


EUT Y_1TX
Setting Default
01-E-2
FSP

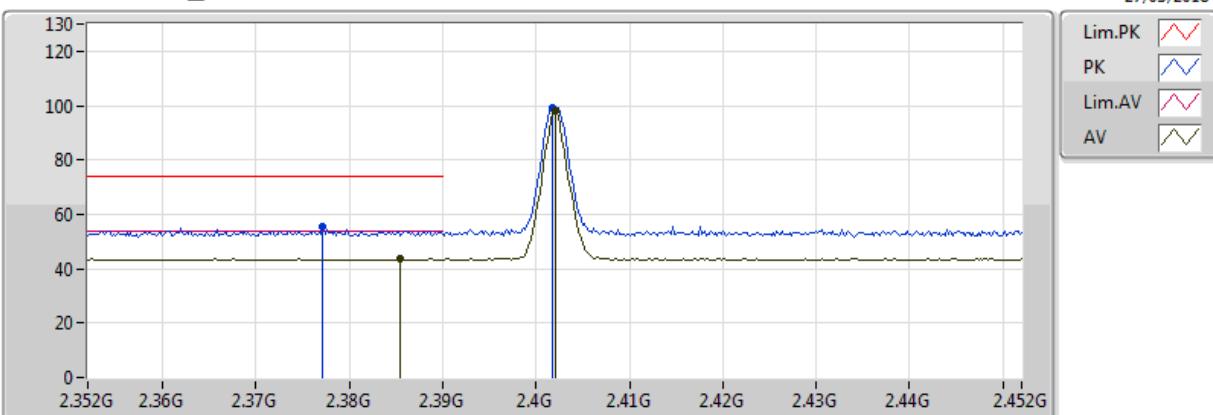
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.95979G	37.21	54.00	-16.79	4.54	3	Horizontal	2	1.62	-			
PK	4.95946G	48.13	74.00	-25.87	4.54	3	Horizontal	2	1.62	-			

**For BT-2LE
Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-2LE_Nss1_1TX	Pass	AV	2.483502G	48.66	54.00	-5.34	32.45	3	Vertical	17	2.33	-

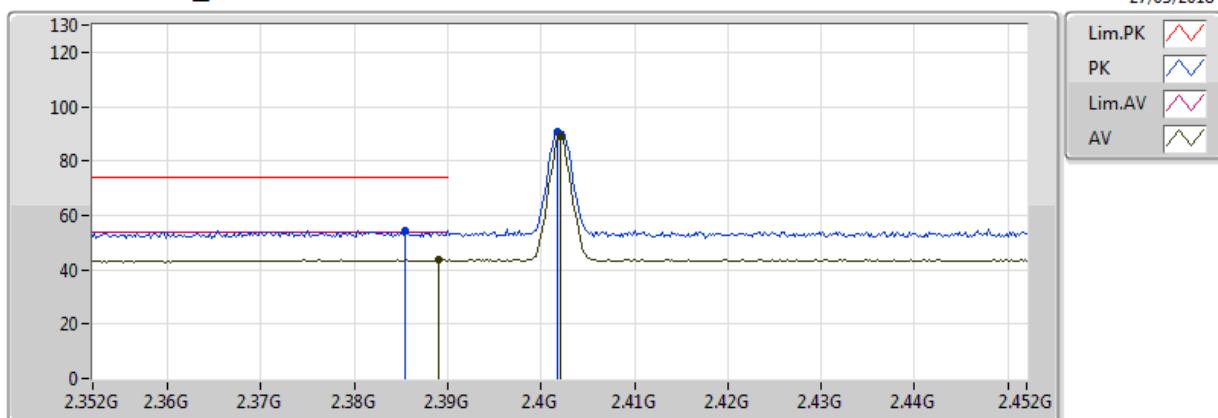
BT-LE_Nss1_1TX
2402MHz_TX

27/03/2018



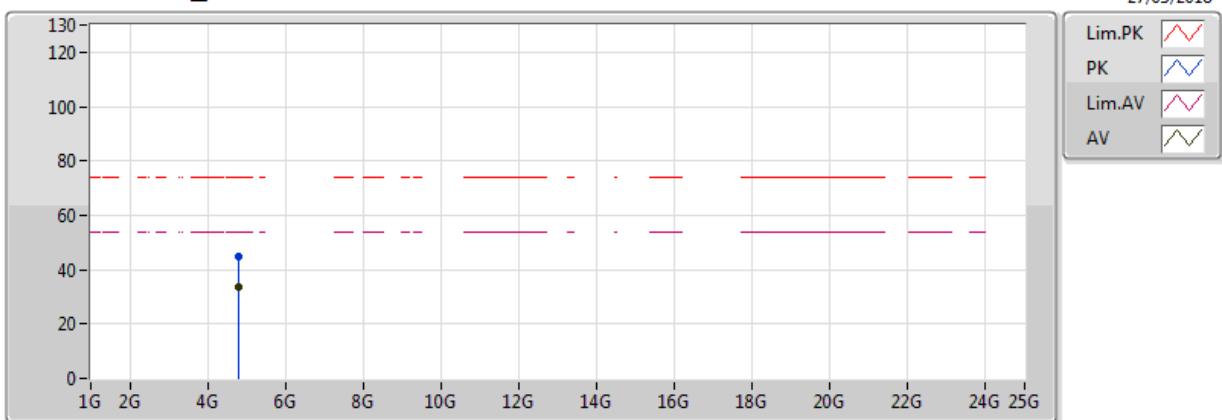
EUT Y_1TX
 Setting Default
 01-E-2
 FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments		
AV	2.3854G	43.71	54.00	-10.29	30.97	3	Vertical	52	2.38	-		
AV	2.402G	97.82	Inf	-Inf	30.94	3	Vertical	52	2.38	-		
PK	2.3772G	55.31	74.00	-18.69	31.00	3	Vertical	52	2.38	-		
PK	2.4018G	99.46	Inf	-Inf	30.94	3	Vertical	52	2.38	-		

BT-LE_Nss1_1TX
2402MHz_TX


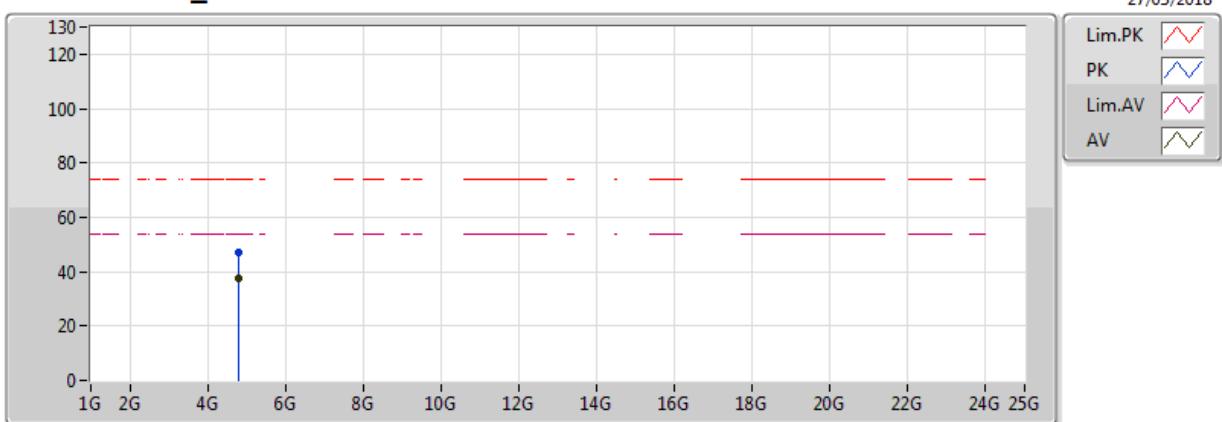
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.389G	43.64	54.00	-10.36	30.96	3	Horizontal	143	1.69	-
AV	2.402G	89.13	74.00	15.13	30.94	3	Horizontal	143	1.69	-
PK	2.3854G	54.63	74.00	-19.37	30.97	3	Horizontal	143	1.69	-
PK	2.4018G	90.94	74.00	16.94	30.94	3	Horizontal	143	1.69	-

BT-LE_Nss1_1TX
2402MHz_TX


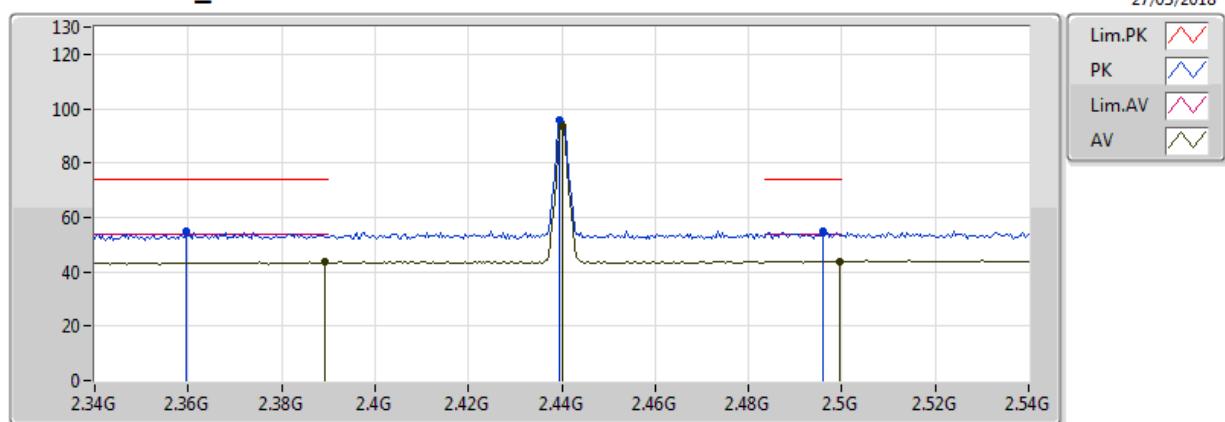
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.80342G	33.35	54.00	-20.65	3.91	3	Vertical	65	1.49	-			
PK	4.80335G	44.98	74.00	-29.02	3.91	3	Vertical	65	1.49	-			

BT-LE_Nss1_1TX
2402MHz_TX


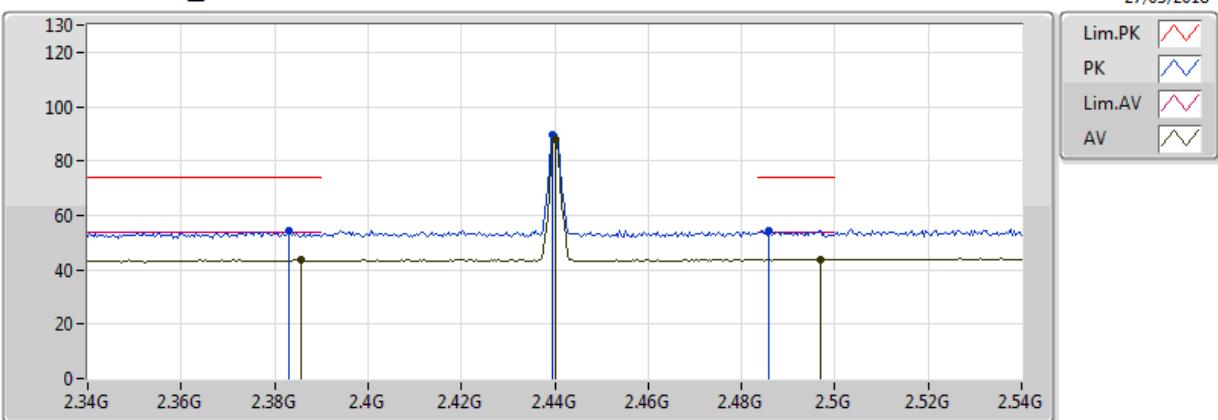
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.80351G	37.29	54.00	-16.71	3.91	3	Horizontal	355	1.64	-			
PK	4.80338G	46.95	74.00	-27.05	3.91	3	Horizontal	355	1.64	-			

BT-LE_Nss1_1TX
2440MHz_TX


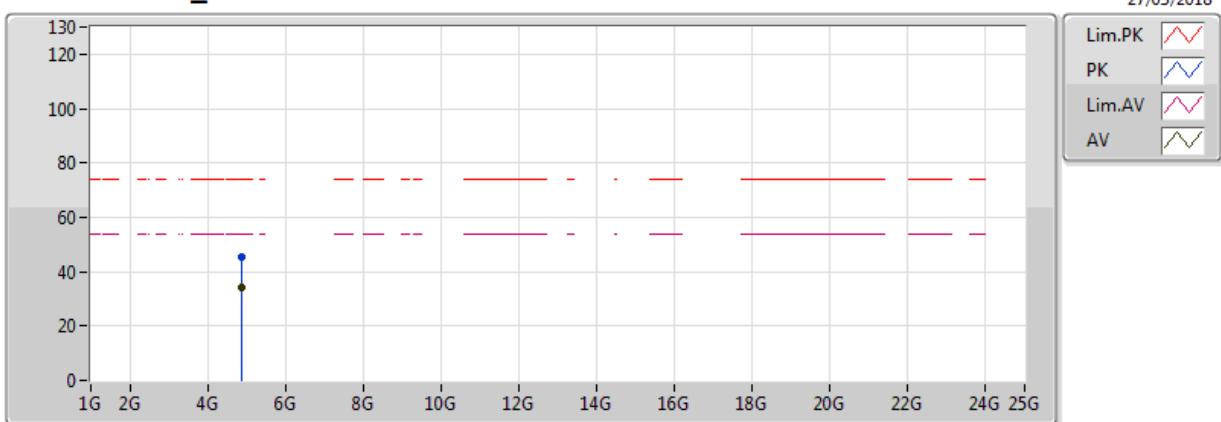
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3892G	43.52	54.00	-10.48	30.96	3	Vertical	129	1.08	-
AV	2.44G	93.65	Inf	-Inf	31.05	3	Vertical	129	1.08	-
AV	2.4996G	43.92	54.00	-10.08	31.22	3	Vertical	129	1.08	-
PK	2.3596G	54.66	74.00	-19.34	31.05	3	Vertical	129	1.08	-
PK	2.4396G	95.61	Inf	-Inf	31.04	3	Vertical	129	1.08	-
PK	2.496G	54.70	74.00	-19.30	31.21	3	Vertical	129	1.08	-

BT-LE_Nss1_1TX
2440MHz_TX


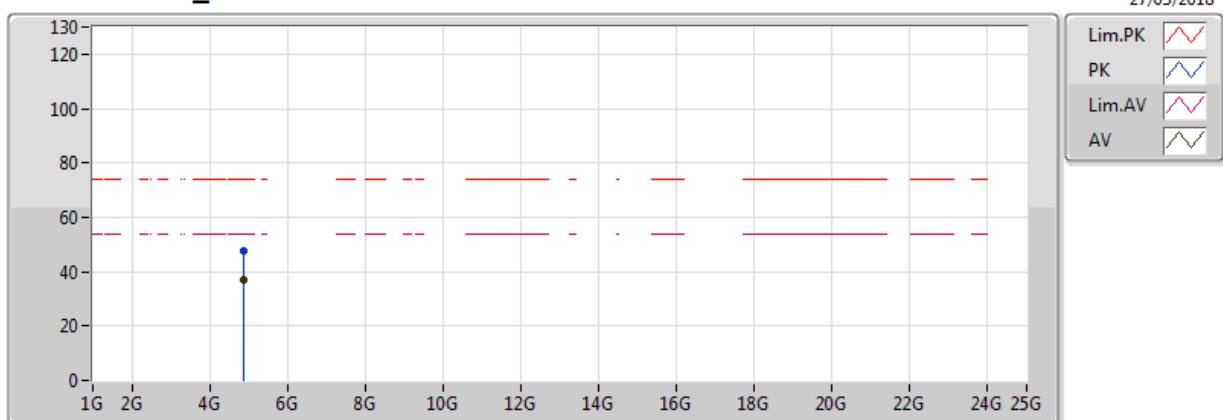
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.3856G	43.75	54.00	-10.25	30.97	3	Horizontal	142	1.65	-			
AV	2.44G	88.09	Inf	-Inf	31.05	3	Horizontal	142	1.65	-			
AV	2.4968G	43.86	54.00	-10.14	31.21	3	Horizontal	142	1.65	-			
PK	2.3832G	54.08	74.00	-19.92	30.98	3	Horizontal	142	1.65	-			
PK	2.4396G	89.72	Inf	-Inf	31.04	3	Horizontal	142	1.65	-			
PK	2.486G	54.37	74.00	-19.63	31.18	3	Horizontal	142	1.65	-			

BT-LE_Nss1_1TX
2440MHz_TX


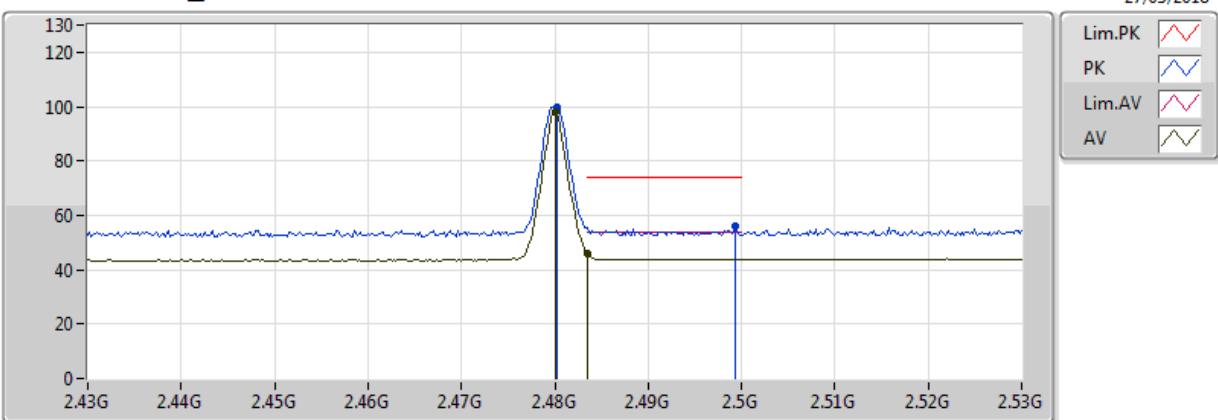
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.88037G	34.15	54.00	-19.85	4.23	3	Vertical	360	2.88	-			
PK	4.87963G	45.27	74.00	-28.73	4.23	3	Vertical	360	2.88	-			

BT-LE_Nss1_1TX
2440MHz_TX


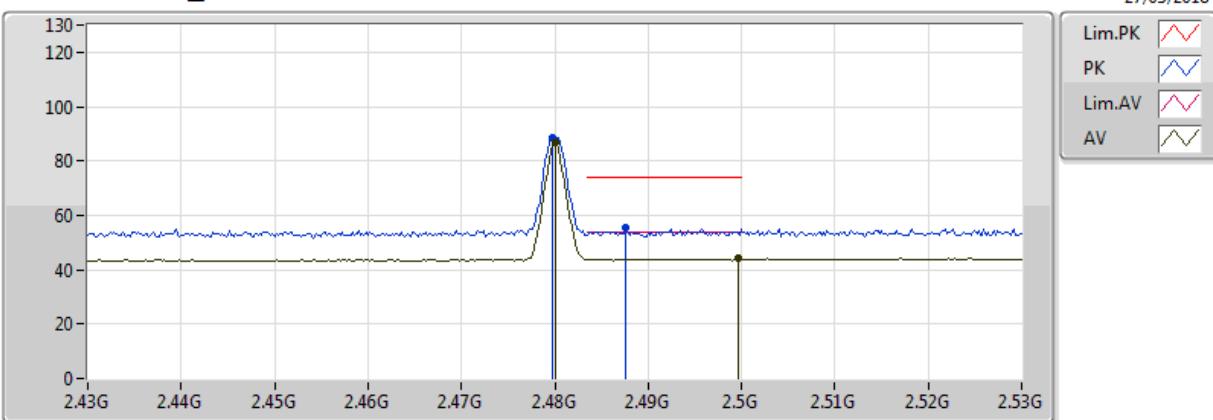
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.87954G	37.06	54.00	-16.94	4.23	3	Horizontal	360	1.66	-			
PK	4.87938G	47.45	74.00	-26.55	4.23	3	Horizontal	360	1.66	-			

BT-LE_Nss1_1TX
2480MHz_TX


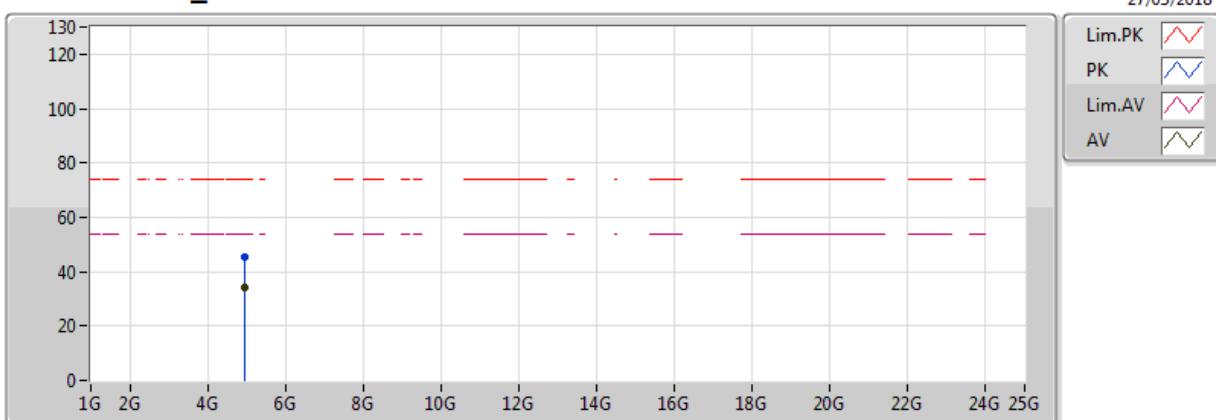
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.48G	97.80	Inf	-Inf	31.16	3	Vertical	44	2.59	-			
AV	2.483502G	46.21	54.00	-7.79	31.17	3	Vertical	44	2.59	-			
PK	2.4802G	99.60	Inf	-Inf	31.16	3	Vertical	44	2.59	-			
PK	2.4994G	55.81	74.00	-18.19	31.22	3	Vertical	44	2.59	-			

BT-LE_Nss1_1TX
2480MHz_TX


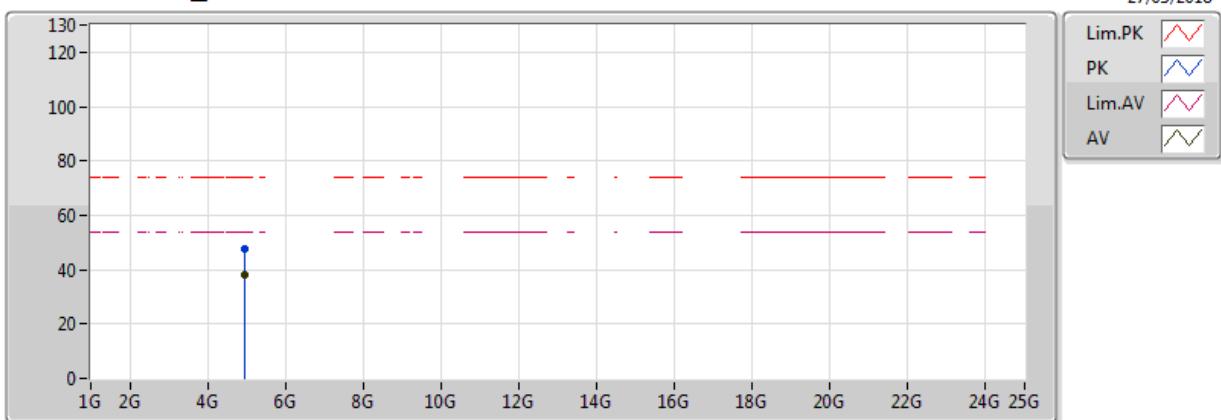
EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.48G	86.78	Inf	-Inf	31.16	3	Horizontal	44	2.74	-			
AV	2.4996G	44.01	54.00	-9.99	31.22	3	Horizontal	44	2.74	-			
PK	2.4798G	88.56	Inf	-Inf	31.16	3	Horizontal	44	2.74	-			
PK	2.4876G	55.37	74.00	-18.63	31.18	3	Horizontal	44	2.74	-			

BT-LE_Nss1_1TX
2480MHz_TX


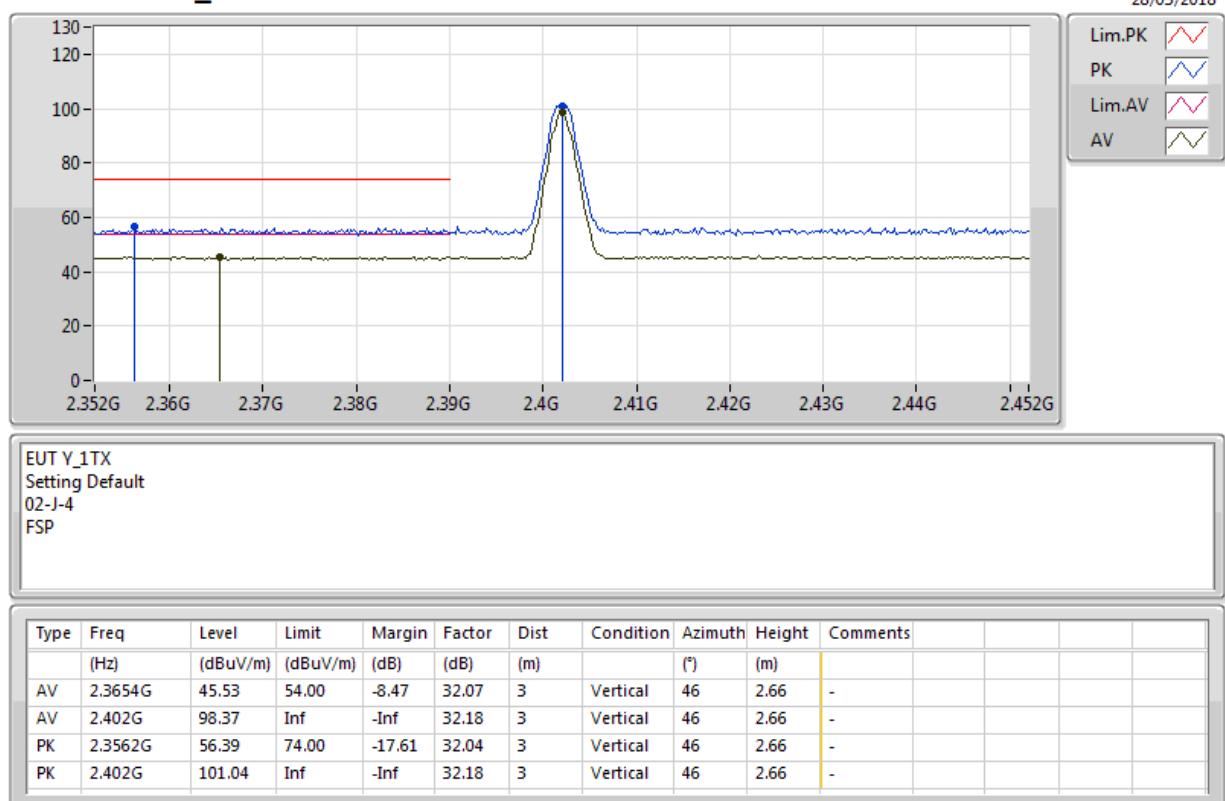
EUT Y_1TX
Setting Default
01-E-2
FSP

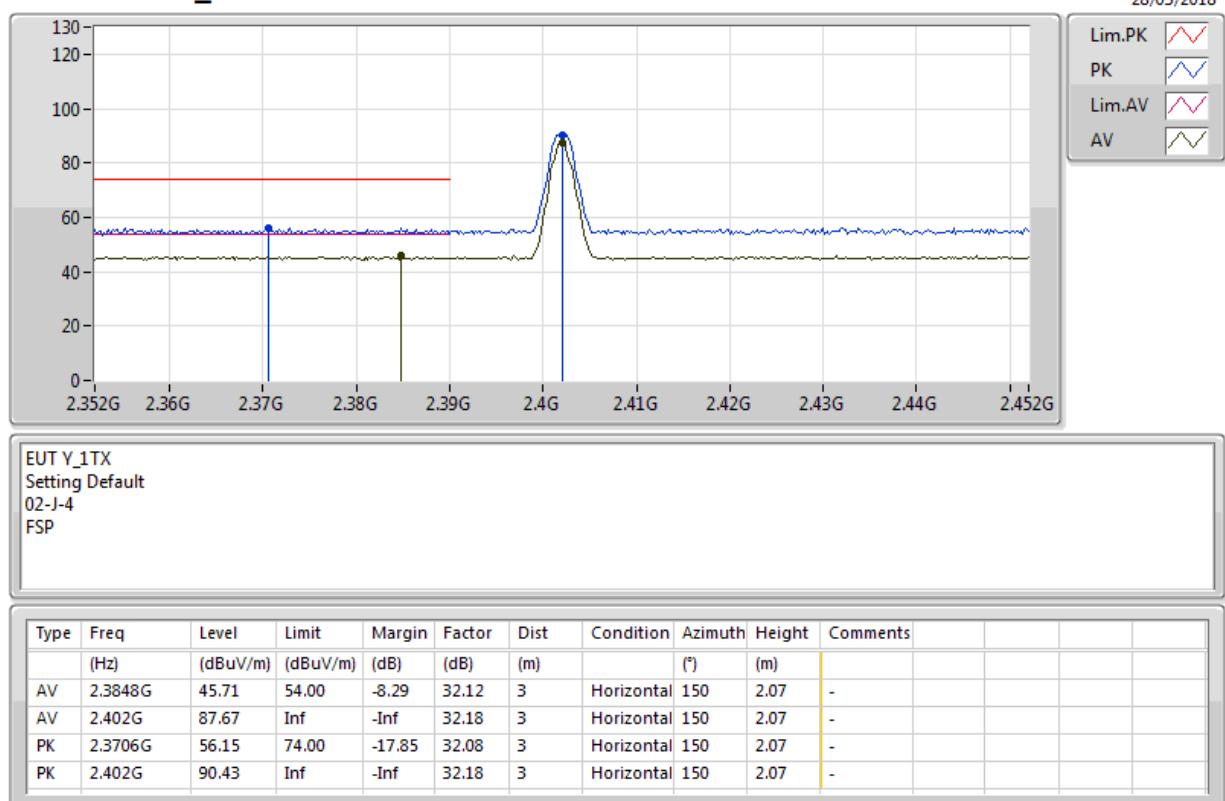
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.9601G	33.95	54.00	-20.05	4.54	3	Vertical	359	2.41	-			
PK	4.95935G	45.61	74.00	-28.39	4.54	3	Vertical	359	2.41	-			

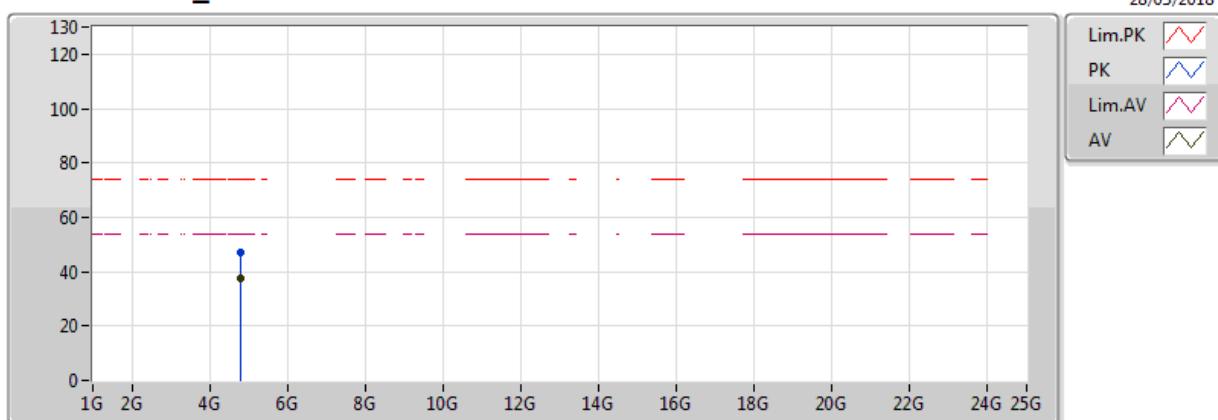
BT-LE_Nss1_1TX
2480MHz_TX


EUT Y_1TX
Setting Default
01-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.95951G	38.31	54.00	-15.69	4.54	3	Horizontal	359	1.70	-			
PK	4.96046G	47.75	74.00	-26.25	4.55	3	Horizontal	359	1.70	-			

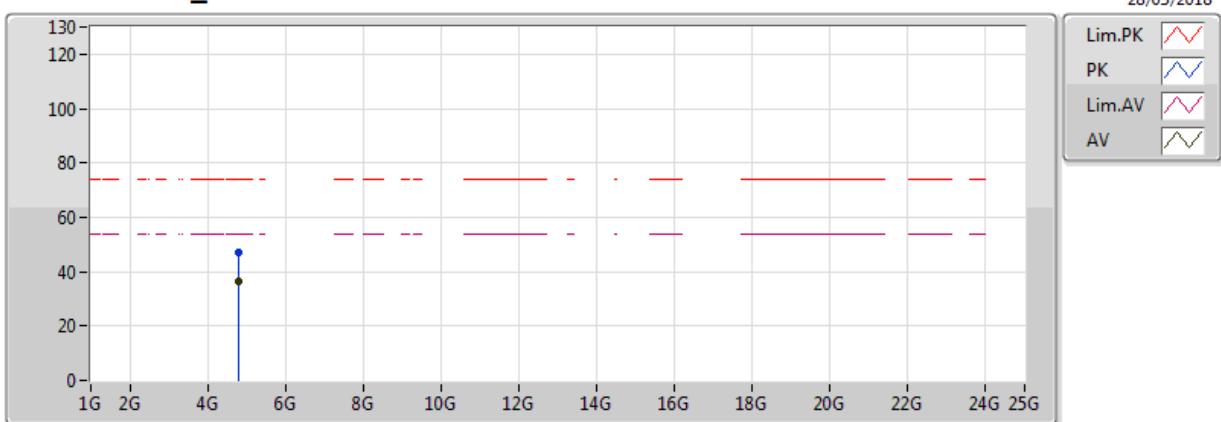
BT-2LE_Nss1_1TX
2402MHz_TX


BT-2LE_Nss1_1TX
2402MHz_TX


BT-2LE_Nss1_1TX
2402MHz_TX


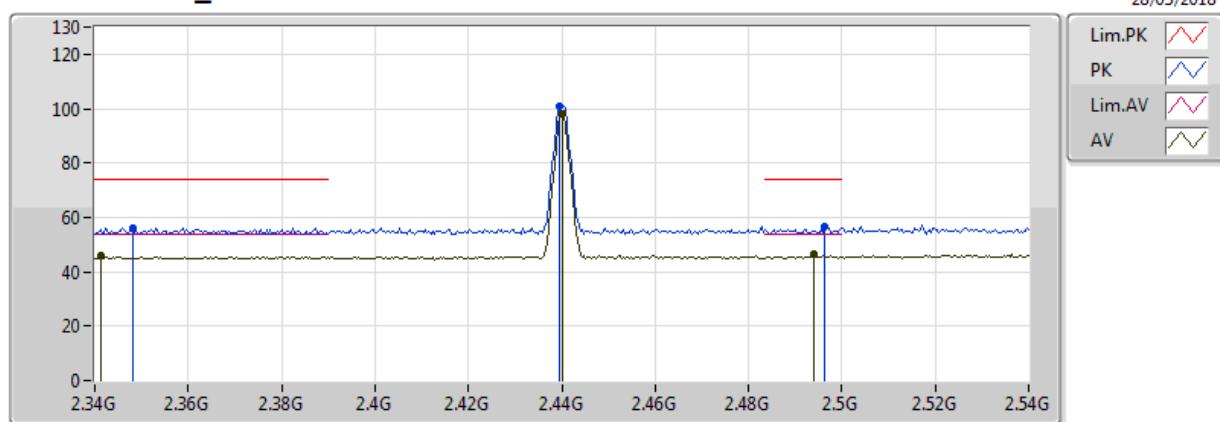
EUT Y_1TX
Setting Default
02-J-4
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.79872G	37.30	54.00	-16.70	9.13	3	Vertical	202	1.49	-			
PK	4.79656G	47.03	74.00	-26.97	9.13	3	Vertical	202	1.49	-			

BT-2LE_Nss1_1TX
2402MHz_TX


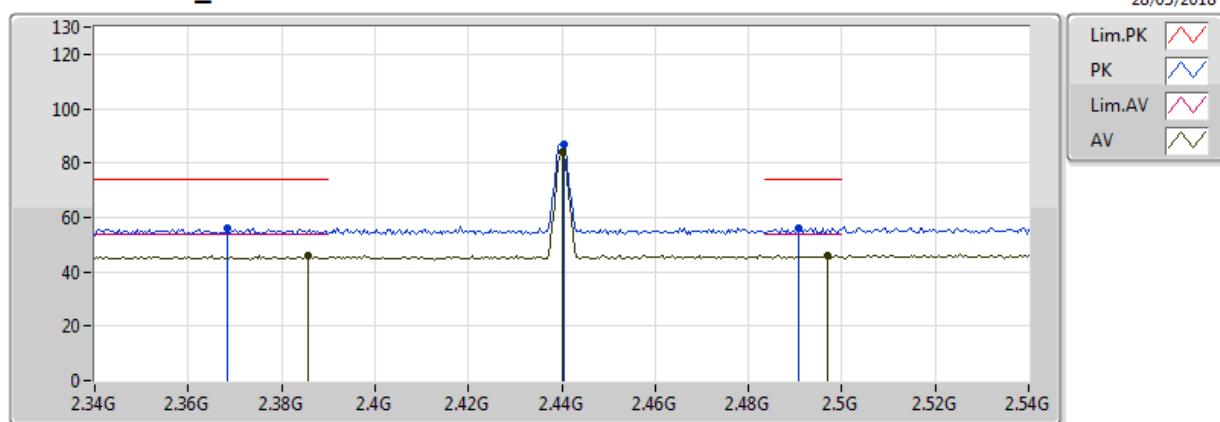
EUT Y_1TX
Setting Default
02-J-4
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.79782G	36.64	54.00	-17.36	9.13	3	Horizontal	148	1.50	-
PK	4.81072G	46.97	74.00	-27.03	9.16	3	Horizontal	148	1.50	-

BT-2LE_Nss1_1TX
2440MHz_TX


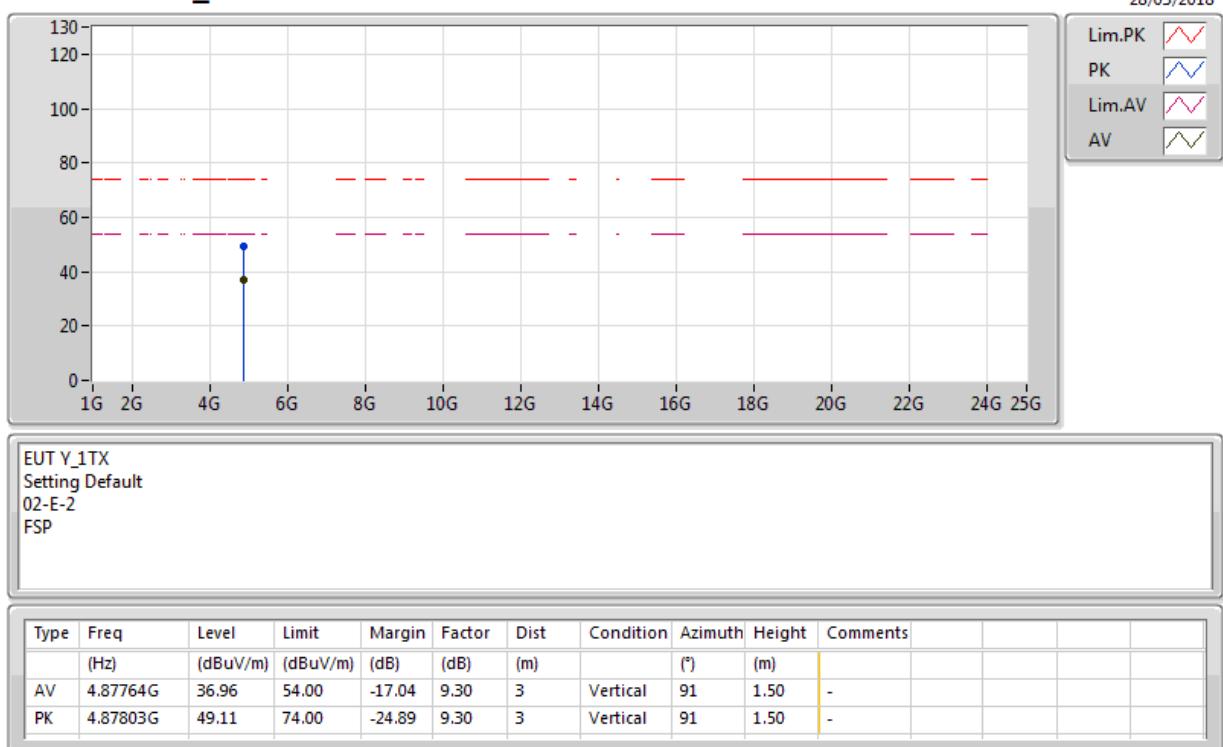
EUT Y_1TX
Setting Default
02-E-2
FSP

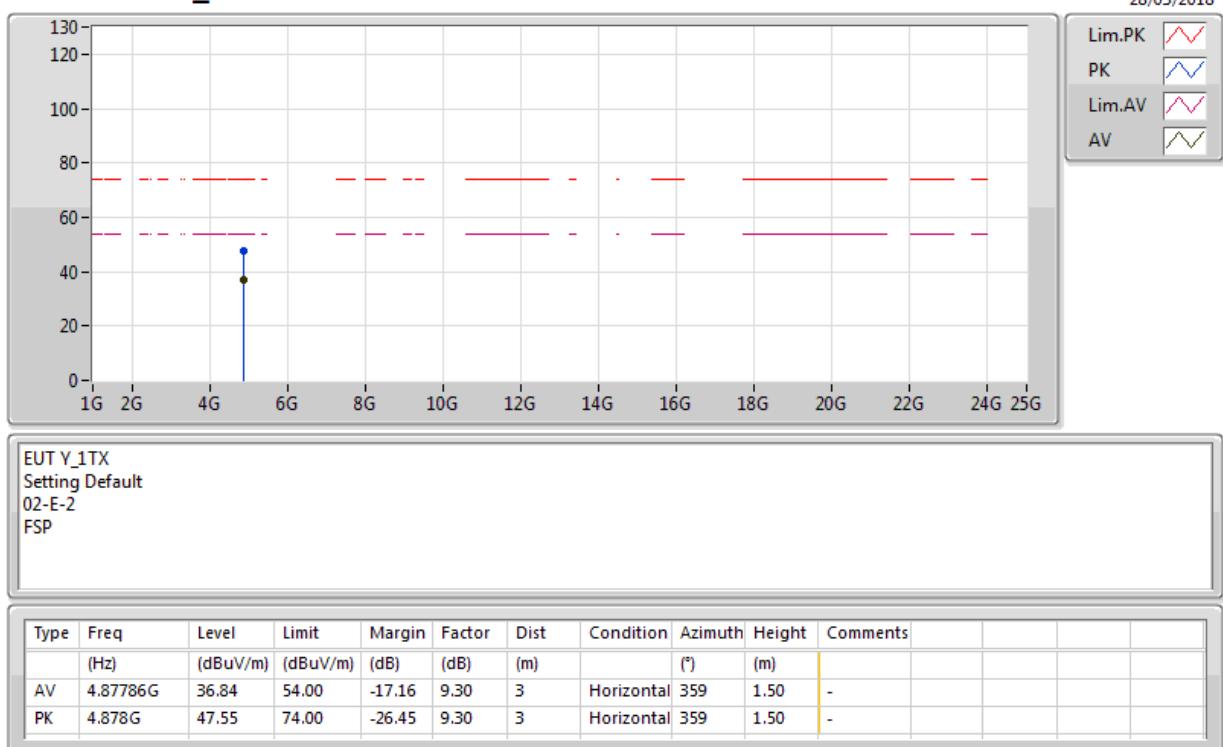
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.3412G	45.86	54.00	-8.14	31.99	3	Vertical	32	2.69	-			
AV	2.44G	98.16	Inf	-Inf	32.30	3	Vertical	32	2.69	-			
AV	2.494G	46.38	54.00	-7.62	32.48	3	Vertical	32	2.69	-			
PK	2.348G	56.21	74.00	-17.79	32.01	3	Vertical	32	2.69	-			
PK	2.4396G	100.70	Inf	-Inf	32.30	3	Vertical	32	2.69	-			
PK	2.4964G	56.36	74.00	-17.64	32.49	3	Vertical	32	2.69	-			

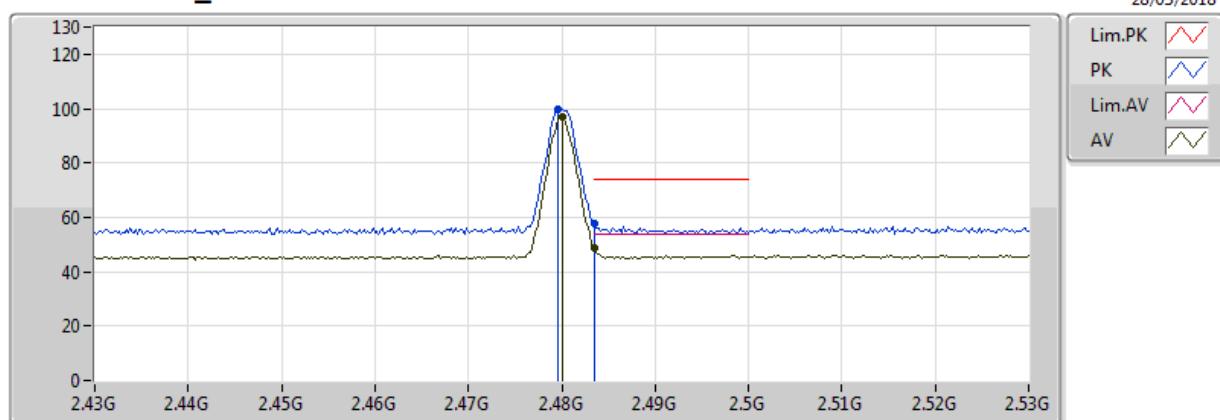
BT-2LE_Nss1_1TX
2440MHz_TX


EUT Y_1TX
Setting Default
02-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.3856G	45.84	54.00	-8.16	32.13	3	Horizontal	322	2.10	-			
AV	2.44G	83.92	Inf	-Inf	32.30	3	Horizontal	322	2.10	-			
AV	2.4968G	45.72	54.00	-8.28	32.49	3	Horizontal	322	2.10	-			
PK	2.3684G	56.27	74.00	-17.73	32.08	3	Horizontal	322	2.10	-			
PK	2.4404G	86.72	Inf	-Inf	32.30	3	Horizontal	322	2.10	-			
PK	2.4908G	56.10	74.00	-17.90	32.47	3	Horizontal	322	2.10	-			

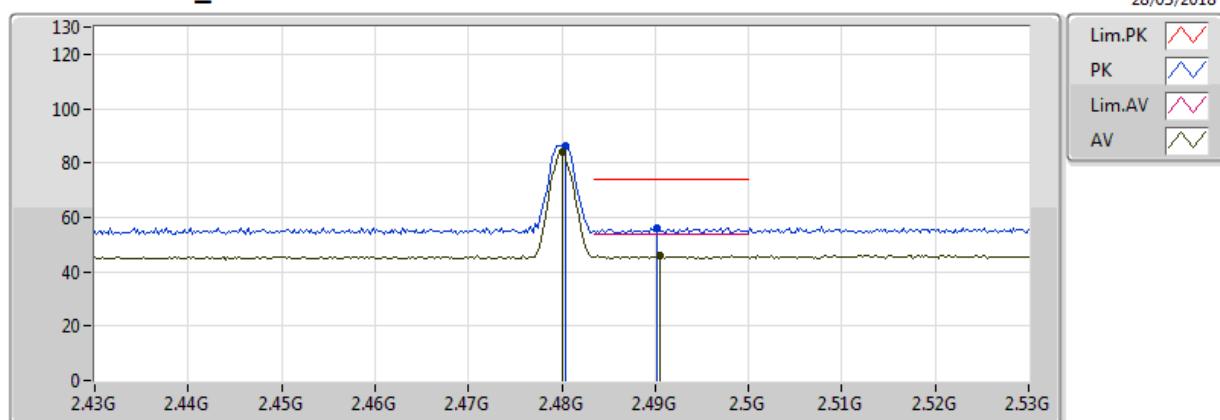
BT-2LE_Nss1_1TX
2440MHz_TX


BT-2LE_Nss1_1TX
2440MHz_TX


BT-2LE_Nss1_1TX
2480MHz_TX


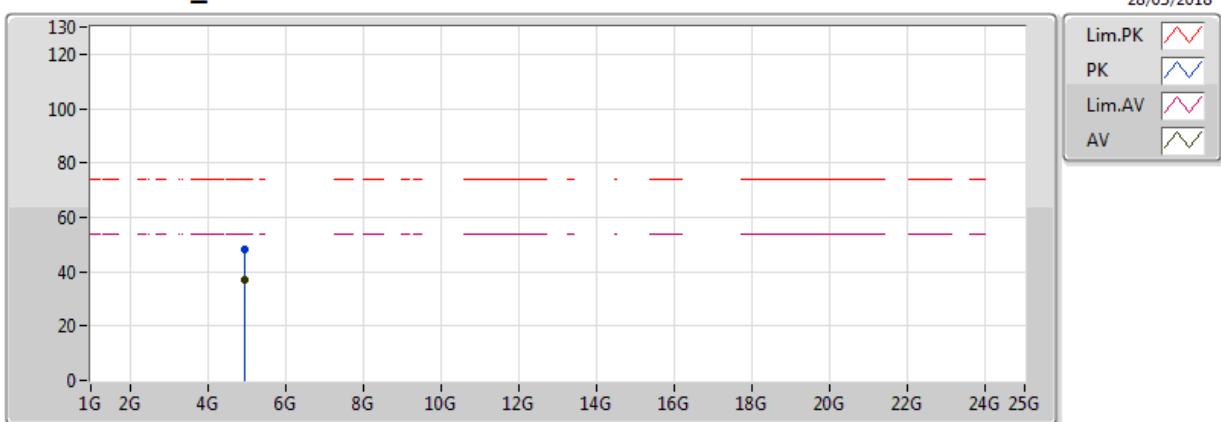
EUT Y_1TX
Setting Default
02-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.48G	97.20	Inf	-Inf	32.43	3	Vertical	17	2.33	-			
AV	2.483502G	48.66	54.00	-5.34	32.45	3	Vertical	17	2.33	-			
PK	2.4796G	99.60	Inf	-Inf	32.43	3	Vertical	17	2.33	-			
PK	2.483502G	57.98	74.00	-16.02	32.45	3	Vertical	17	2.33	-			

BT-2LE_Nss1_1TX
2480MHz_TX


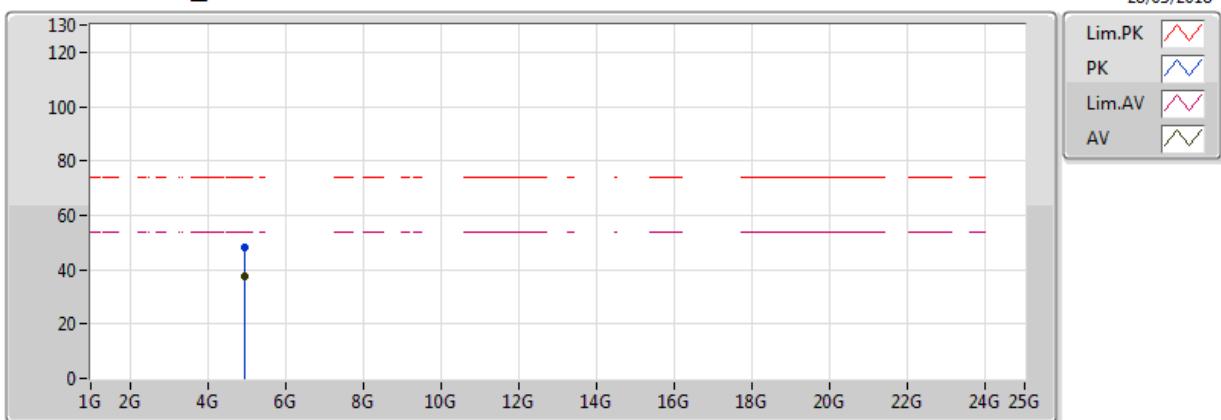
EUT Y_1TX
Setting Default
02-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	2.48G	83.89	Inf	-Inf	32.43	3	Horizontal	342	2.29	-			
AV	2.4906G	45.96	54.00	-8.04	32.47	3	Horizontal	342	2.29	-			
PK	2.4804G	86.44	Inf	-Inf	32.44	3	Horizontal	342	2.29	-			
PK	2.4902G	56.01	74.00	-17.99	32.47	3	Horizontal	342	2.29	-			

BT-2LE_Nss1_1TX
2480MHz_TX


EUT Y_1TX
Setting Default
02-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.95835G	37.01	54.00	-16.99	9.45	3	Vertical	109	1.50	-			
PK	4.96103G	48.46	74.00	-25.54	9.45	3	Vertical	109	1.50	-			

BT-2LE_Nss1_1TX
2480MHz_TX


EUT Y_1TX
Setting Default
02-E-2
FSP

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments			
AV	4.95921G	37.43	54.00	-16.57	9.45	3	Horizontal	333	1.88	-			
PK	4.95884G	48.43	74.00	-25.57	9.45	3	Horizontal	333	1.88	-			