



FCC RADIO TEST REPORT

FCC ID : G954331X
Equipment Name : DOCSIS Cable Gateway
Trade Name : Technicolor
Model Number : CGM4331COM
Applicant / Manufacturer : Technicolor Connected Home USA LLC
5030 Sugarloaf Parkway, Building 6, Lawrenceville
Georgia, United States, 30044
Standard : 47 CFR FCC Part 15.247

The product was received on Jun. 26, 2019, and testing was started from Jun. 26, 2019 and completed on Jul. 26, 2019. 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

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB Ver1.0



Summary of Test Result

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

Declaration of Conformity:

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

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Cindy Peng



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

Note:

- ♦ Bluetooth LE uses a GFSK modulation.
- ♦ 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.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	-	-	-	-	4.30

Note 1: The above information was declared by manufacturer.

Note 2: The EUT has one antennas for Bluetooth use. (1TX/1RX).

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-LE(1Mbps)	0.476	3.22	297.5u	10k

Note:

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

**1.1.4 EUT Operational Condition**

EUT Power Type	From power adapter		
Test Software Version	Telnet		
Function	☒	Point-to-multipoint	☐ Point-to-point
Support Mode	☒	LE 1M PHY: 1 Mb/s	
	☐	LE Coded PHY (S=2): 500 Kb/s	
	☐	LE Coded PHY (S=8): 125 Kb/s	
	☐	LE 2M PHY: 2 Mb/s	

Note: The above information was declared by manufacturer.



1.2 Applicable Standards

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

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 558074 D01 v05r02

1.3 Testing Location Information

Testing Location				
☐	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	TEL : 886-3-327-3456	FAX : 886-3-327-0973
☒	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	TH02-CB	Owen Hsu	21~23°C / 52~54%	Jul. 02, 2019
Radiated below 1GHz	03CH05-CB	Cola Fan	26~27.3°C / 62~66%	Jul. 25, 2019
Radiated above 1GHz	03CH06-CB	Mason Chen	21~25°C / 56~60%	Jun. 26, 2019~Jun. 27, 2019
AC Conduction	CO01-CB	Max Lin	24.1~24.6°C / 58~59%	Jul. 26, 2019

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086B 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)	2.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	5.1 dB	Confidence levels of 95%
Conducted Emission	2.4 dB	Confidence levels of 95%
Output Power Measurement	1.5 dB	Confidence levels of 95%
Power Density Measurement	2.4 dB	Confidence levels of 95%
Bandwidth Measurement	2%	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	110
2440MHz	110
2480MHz	110

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	Normal Link
1	EUT + Adapter 1
2	EUT + Adapter 2

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	Normal Link
1	EUT + Adapter 1
2	EUT + Adapter 2
Operating Mode > 1GHz	CTX

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	WLAN 2.4GHz + WLAN 5GHz
2	WLAN 5GHz + Zigbee + Bluetooth
Refer to Sporton Test Report No.: FA971031 for Co-location RF Exposure Evaluation.	

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



2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories				
No.	Equipment Name	Brand Name	Model Name	Rating
1	Adapter 1	AcBel	ADK002	INPUT: 100-120V ~50/60Hz, 1.5A, OUTPUT: 12V, 4.6A
2	Adapter 2	Netbit	NBC56A120460VU	INPUT: 100-120V ~50/60Hz, 1.5A, OUTPUT: 12V, 4.6A



2.5 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	LAN NB	DELL	E6430	N/A
B	2.4G NB	DELL	E6430	N/A
C	5G NB	DELL	E6430	N/A
D	Phone1	SAMPO	HT-B 907WL	N/A
E	Phone2	SAMPO	HT-B 907WL	N/A
F	Terminal system	HUAWEI	SmartAX ma5633	N/A
G	Server	HUAWEI	ETP48200-C5A3	N/A
H	Terminal system NB	DELL	INSPIRON 3576	N/A
I	2.5G PC	DELL	T3400	N/A
J	SPLITTER	N/A	N/A	N/A
K	MoCA	Standalone	B2140	N/A
L	MoCA NB	DELL	E6430	N/A

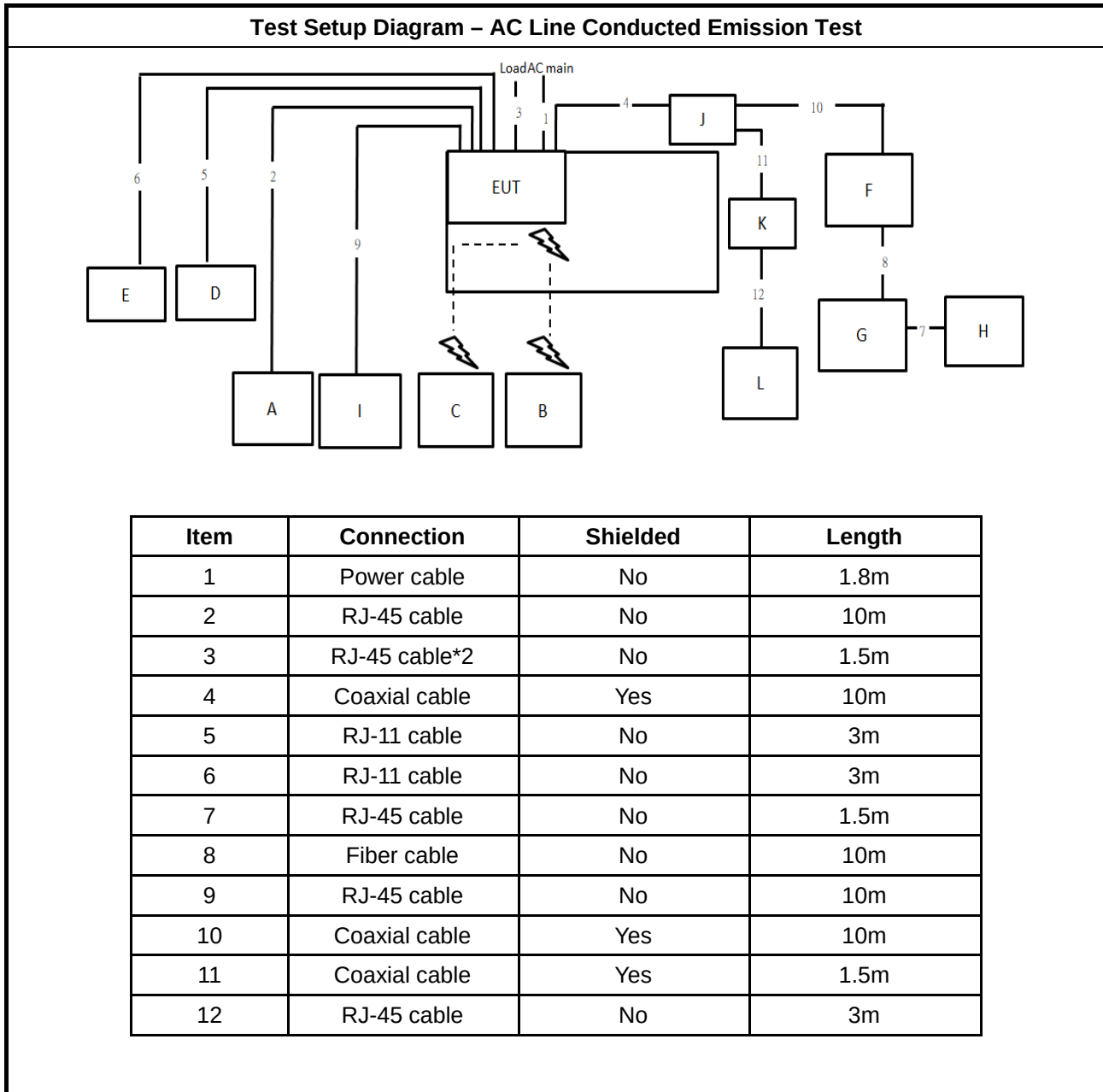
For Radiated (below 1GHz):

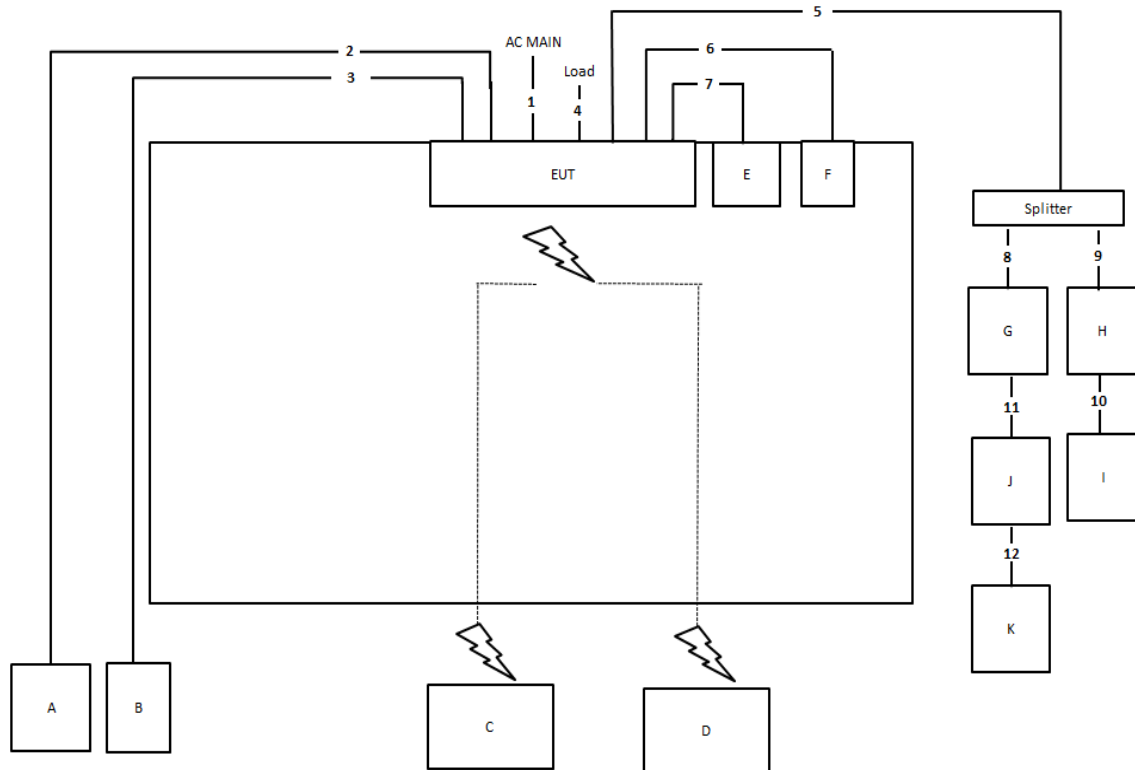
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A
B	NB	DELL	E4300	N/A
C	NB	DELL	E4300	N/A
D	NB	DELL	E4300	N/A
E	Phone	PHILIPS	M20	N/A
F	Phone	H-T-T	F-689	N/A
G	Terminal system	HUAWEI	SmartAX MA5633	N/A
H	MoCA	Standalone	B2140	N/A
I	NB	DELL	E4300	N/A
J	Server	HUAWEI	ETP48200-C5A3	N/A
K	NB	DELL	Inspiron 15	N/A

For Radiated (above 1GHz) and RF Conducted:

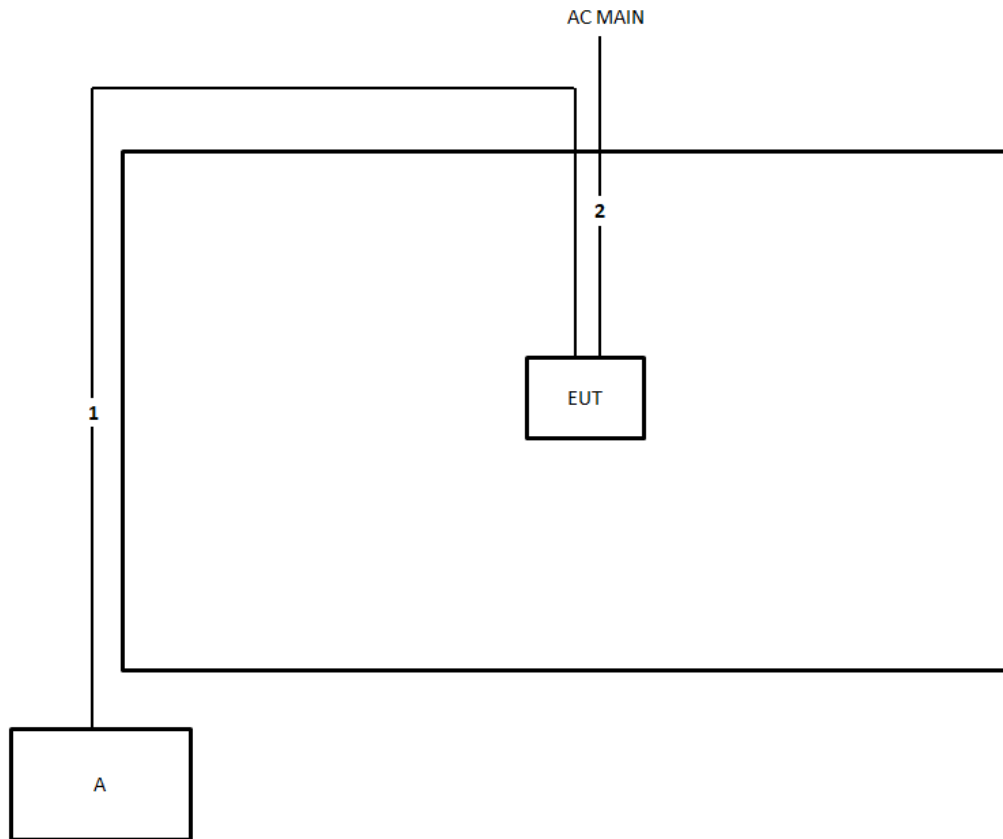
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	NB	DELL	E4300	N/A

2.6 Test Setup Diagram



Test Setup Diagram - Radiated Test < 1GHz


Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	1.5m
5	Coaxial cable	Yes	10m
6	RJ-11 cable	No	1.5m
7	RJ-11 cable	No	1.5m
8	Coaxial cable	Yes	1.5m
9	Coaxial cable	Yes	1.5m
10	RJ-45 cable	No	1.5m
11	Fiber cable	No	10m
12	RJ-45 cable	No	1.5m

Test Setup Diagram - Radiated Test > 1GHz


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.		

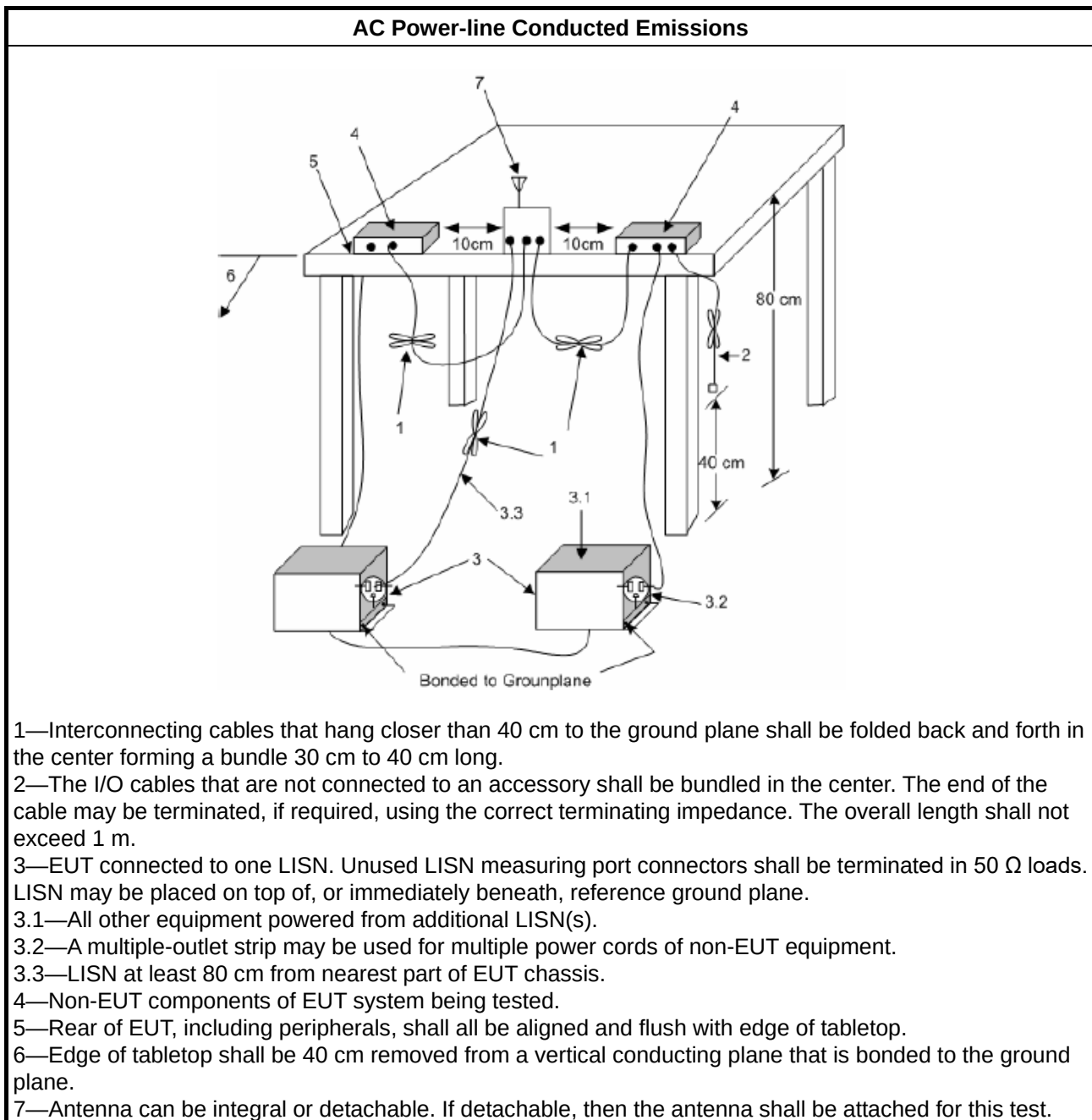
3.1.2 Measuring Instruments

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



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.

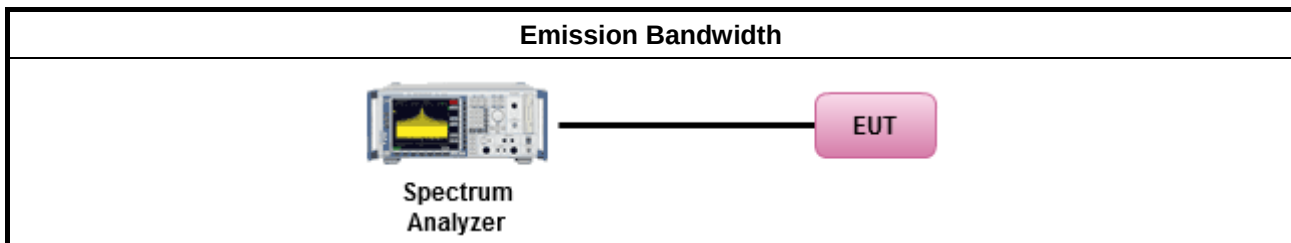
3.2.2 Measuring Instruments

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:
☒	Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
☐	Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.
☐	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	
	▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 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	
▪ Maximum Peak Conducted Output Power	
☐	Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW $\geq$ EBW method).
☐	Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power meter).
▪ Maximum Conducted Output Power	
[duty cycle $\geq$ 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)
Measurement 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).
☐	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:

$$P_{\text{total}} = P_1 + P_2 + \dots + P_n$$
 (calculated in linear unit [mW] and transfer to log unit [dBm])

$$\text{EIRP}_{\text{total}} = P_{\text{total}} + \text{DG}$$

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)



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

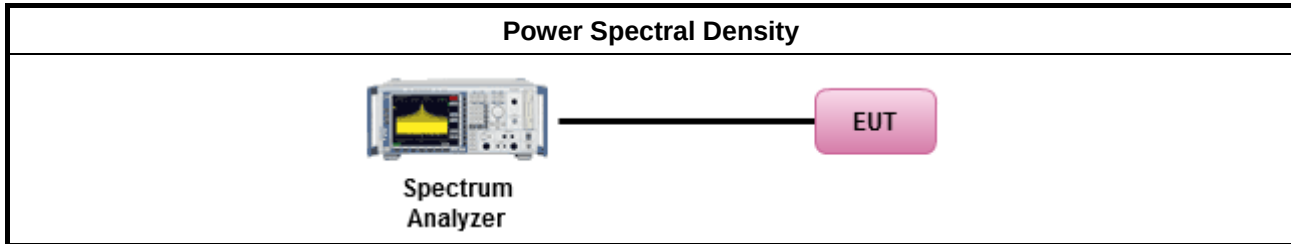
Refer a test equipment and calibration data table in this test report.

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).
☒ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.2 Method PKPSD. [duty cycle $\geq 98\%$ or external video / power trigger]
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.3 Method AVGPS-1.
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.5 Method AVGPS-2.
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.7 Method AVGPS-3.
duty cycle $< 98\%$ and average over on/off periods with duty factor
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.4 Method AVGPS-1A. (alternative).
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.6 Method AVGPS-2A. (alternative)
☐ Refer as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10.8 Method AVGPS-3A. (alternative)
▪ For conducted measurement.
▪ If The 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	
RF output power procedure	Limit (dBc)
Peak output power procedure	20
Average output power procedure	30
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level. Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.	

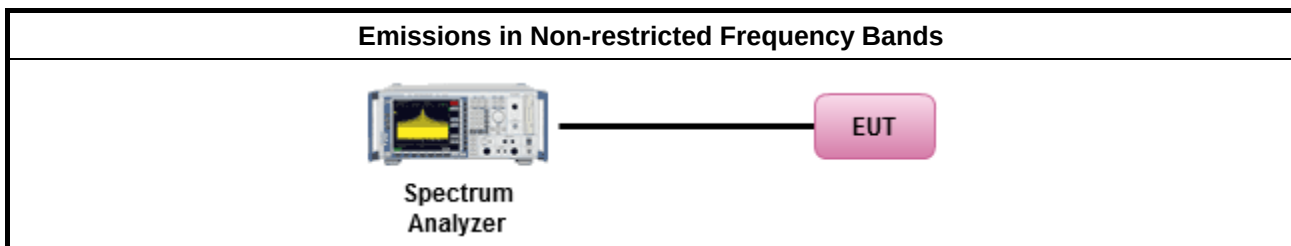
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E



3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

3.6.2 Measuring Instruments

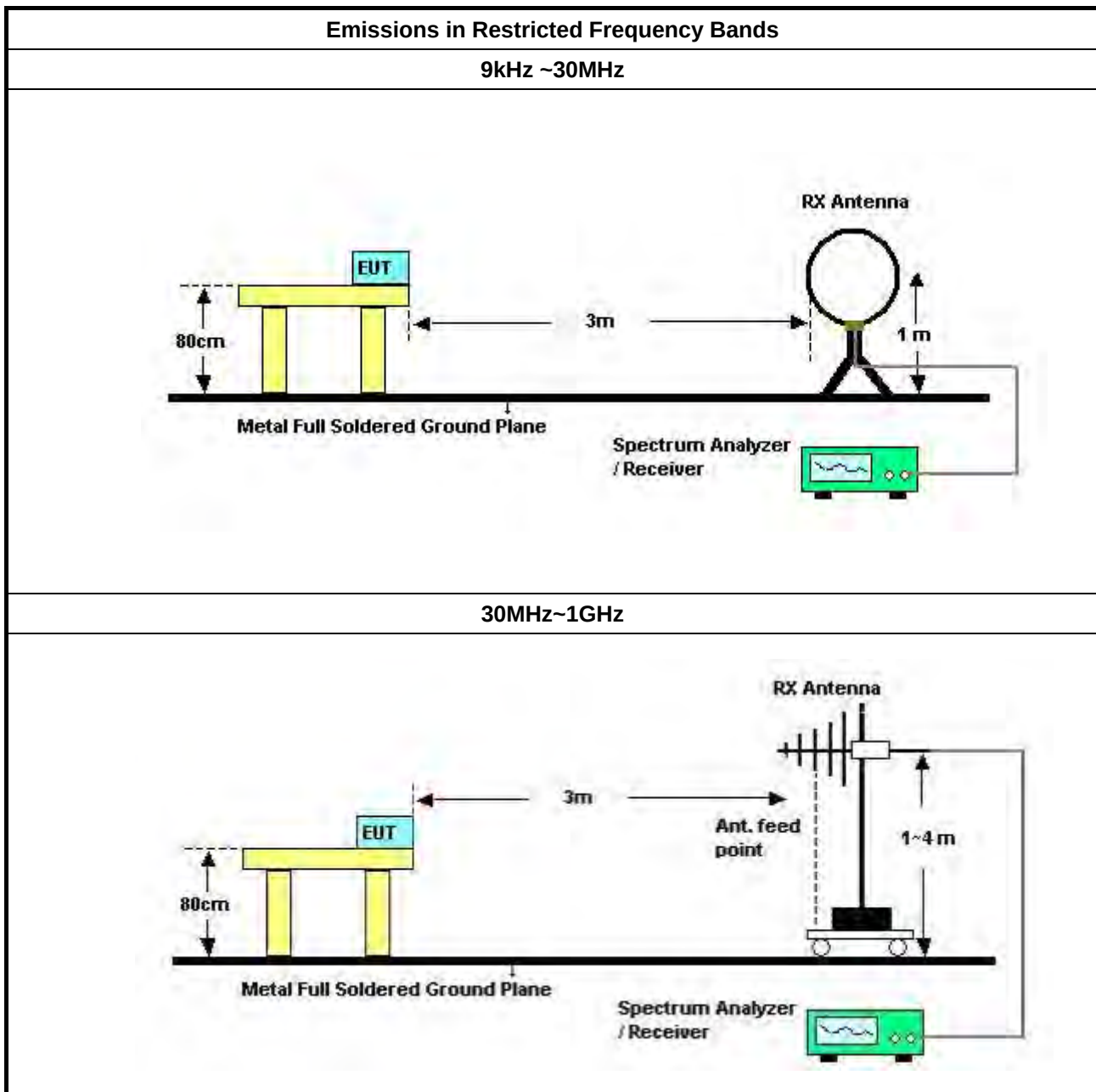
Refer a test equipment and calibration data table in this test report.

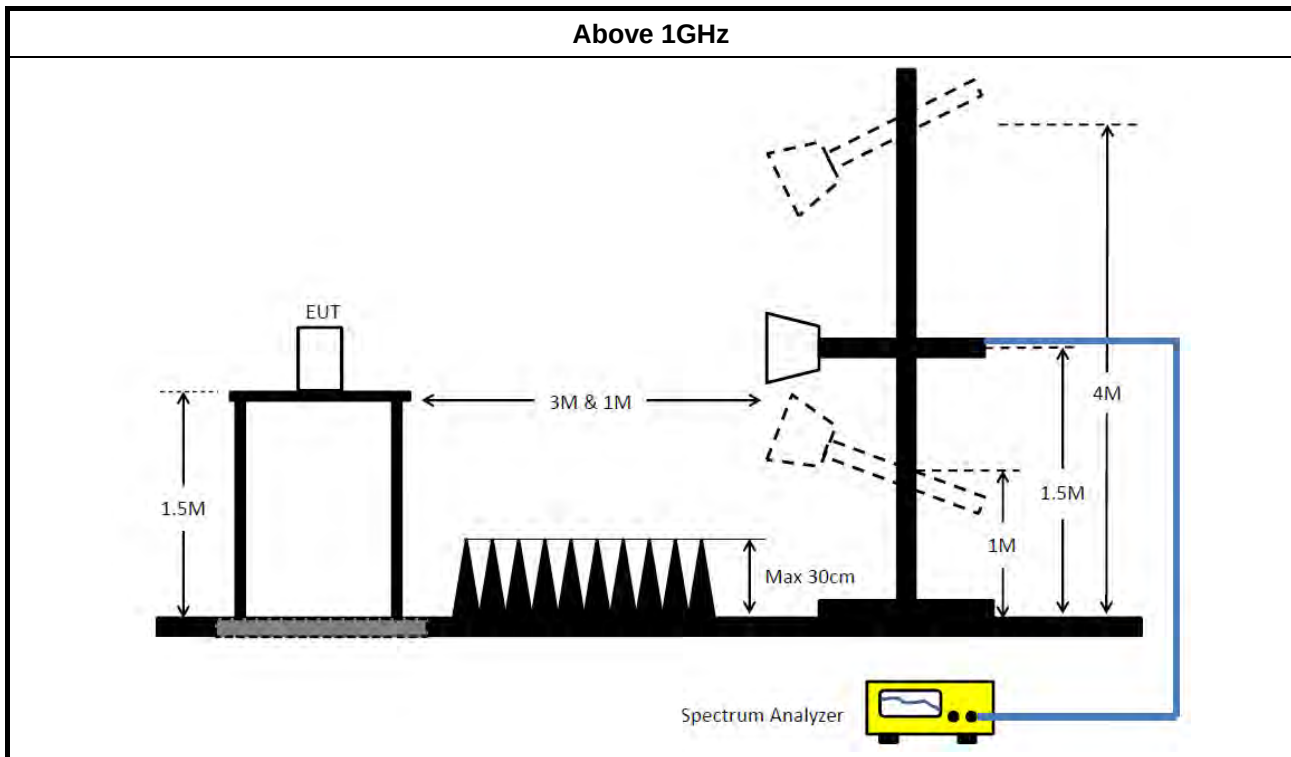


3.6.3 Test Procedures

Test Method	
The average emission levels shall be measured in [duty cycle ≥ 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 $\geq 98\%$).
☐	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 $\geq 1/T$).
☐	Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq 1/T$, 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 + Cable Loss + Read Level - Preamp Factor = Level.

3.6.6 Emissions in Restricted Frequency Bands (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.

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



4 Test Equipment and Calibration Data

For AC Conduction:

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 28, 2019	Jan. 29, 2020	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 24, 2018	Dec. 23, 2019	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Jan. 11, 2019	Jan. 10, 2020	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 21, 2019	May 20, 2020	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO01-CB)

For Radiated (below 1GHz):

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 29, 2019	Mar. 28, 2020	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESE & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 28, 2019	Mar. 27, 2020	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 01, 2019	Apr. 30, 2020	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Jan. 31, 2019	Jan. 30, 2020	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 15, 2019	May 14, 2020	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	LOW Cable-04+23	30MHz~1GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH05-CB)

**For Radiated (above 1GHz):**

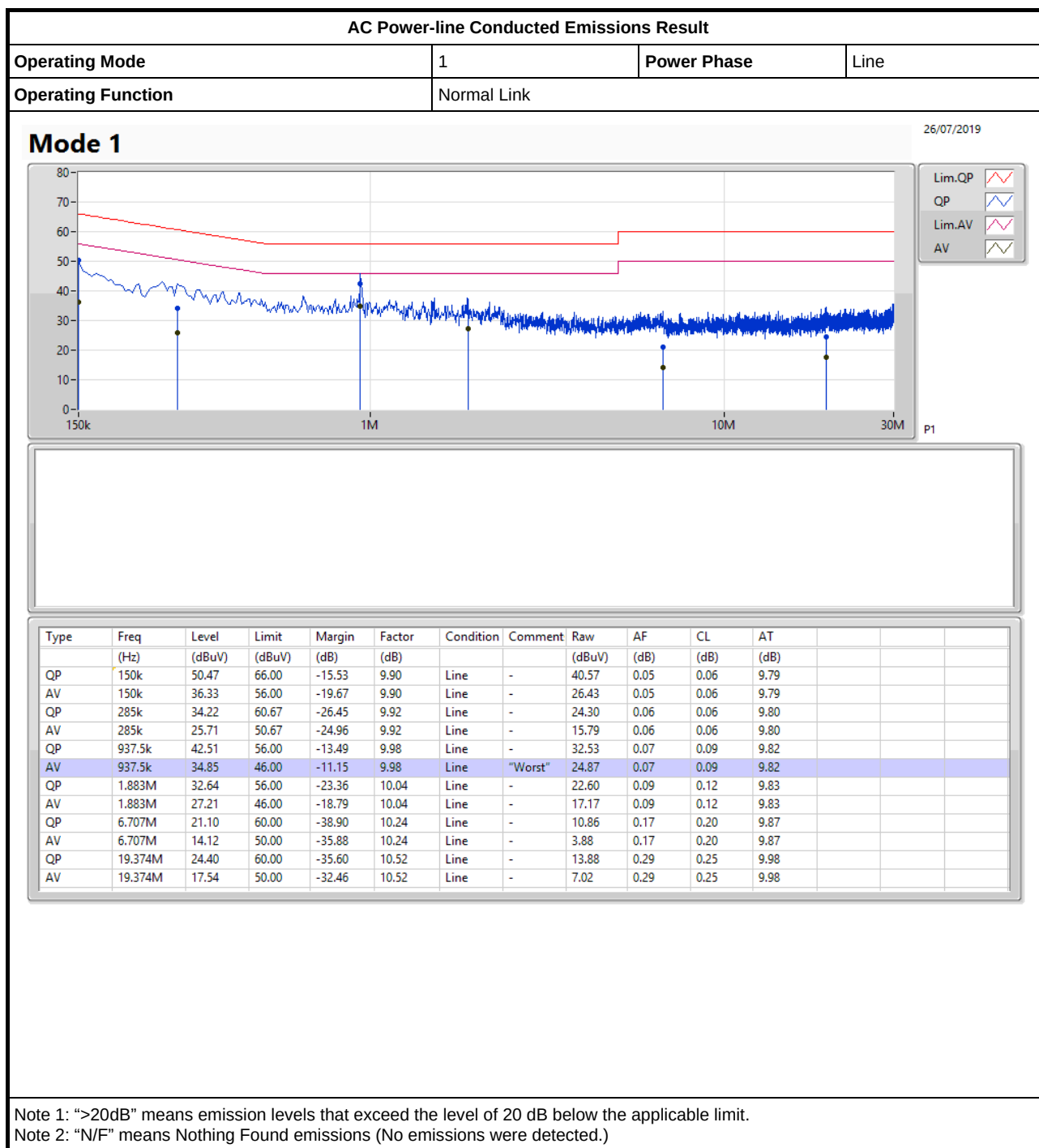
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1292	1GHz~18GHz	Jul. 20, 2018	Jul. 19, 2019	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Jun. 12, 2019	Jun. 11, 2020	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	83017A	MY53270064	0.5GHz ~ 26.5GHz	May 08, 2019	May 07, 2020	Radiation (03CH06-CB)
Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 04, 2018	Jul. 03, 2019	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Oct. 03, 2018	Oct. 02, 2019	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHNER	RG402	High Cable-05	1GHz~18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH06-CB)
RF Cable-high	HUBER+SUHNER	RG402	High Cable-05+24	1GHz~18GHz	Oct. 08, 2018	Oct. 07, 2019	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#1	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH06-CB)
RF Cable-high	Woken	RG402	High Cable-40G#2	18GHz ~ 40 GHz	Jul. 27, 2018	Jul. 26, 2019	Radiation (03CH06-CB)

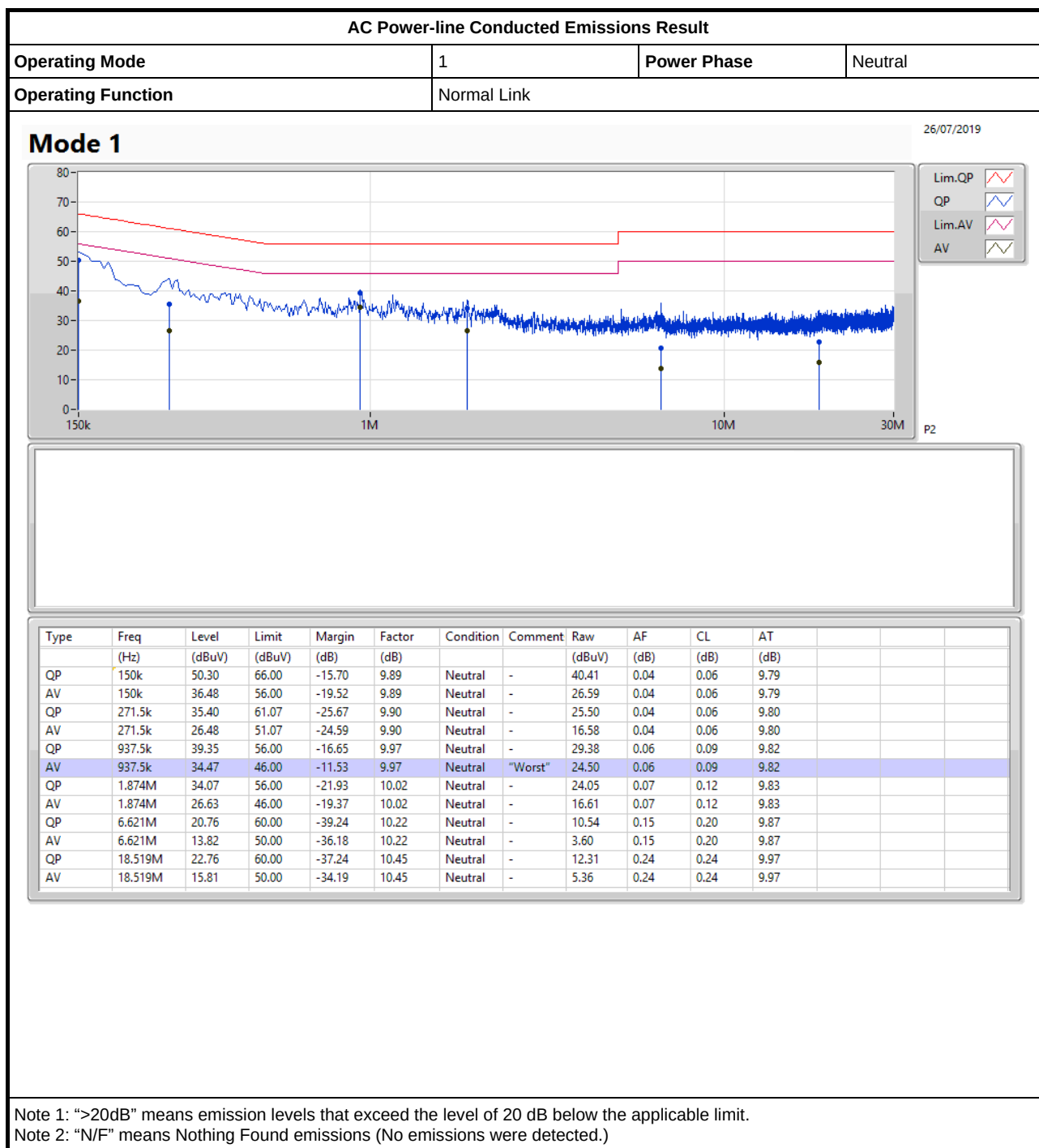
For RF Conducted:

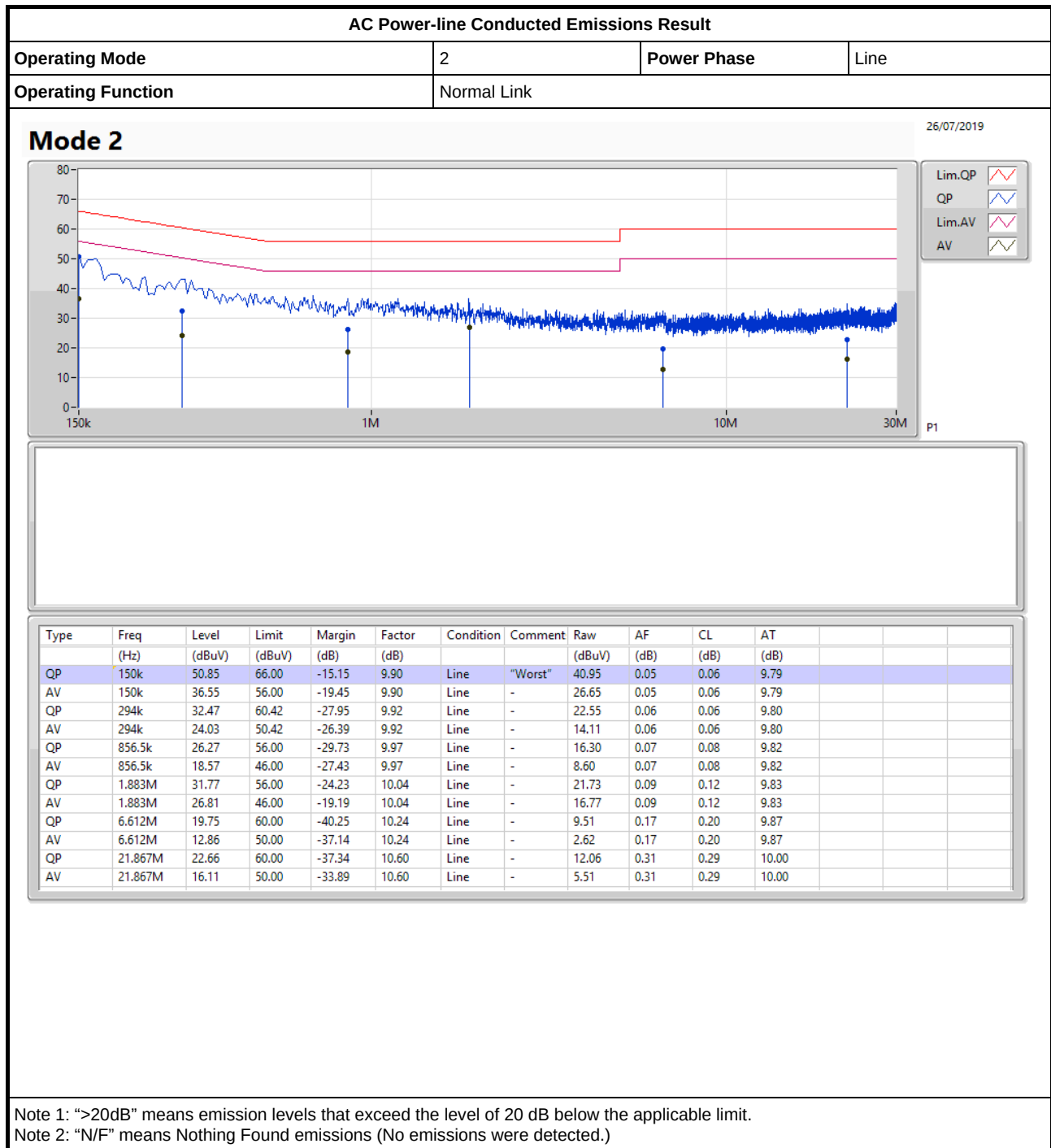
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Feb. 25, 2019	Feb. 24, 2020	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Sep. 03, 2018	Sep. 02, 2019	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Sep. 03, 2018	Sep. 02, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz ~ 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz ~ 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-3	1 GHz ~ 26.5 GHz	Oct. 24, 2018	Oct. 23, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz ~ 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz ~ 26.5 GHz	Oct. 08, 2018	Oct. 07, 2019	Conducted (TH02-CB)

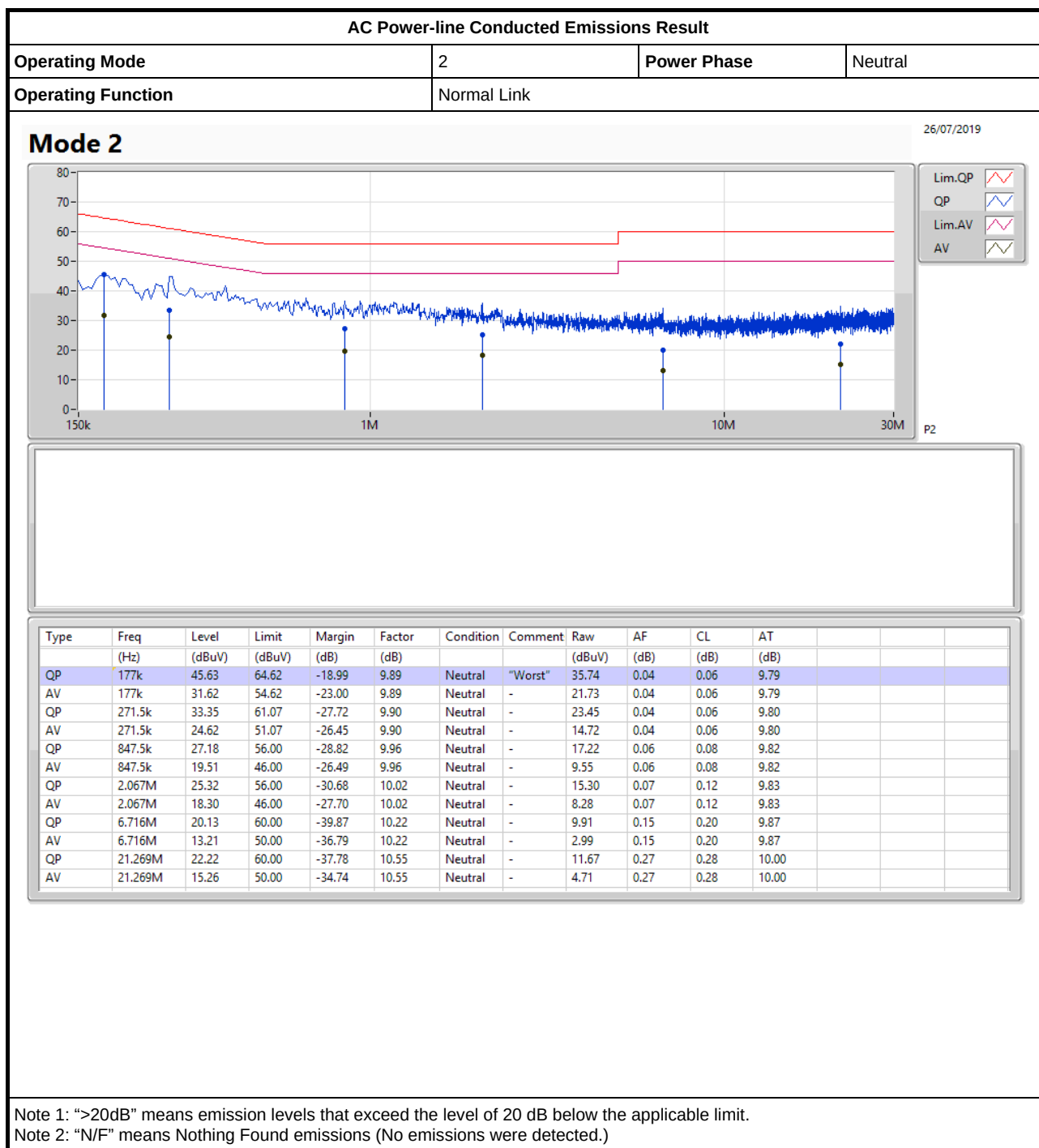
Note: Calibration Interval of instruments listed above is one year.

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











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)	706.25k	1.03M	1M03F1D	701.25k	1.021M

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;



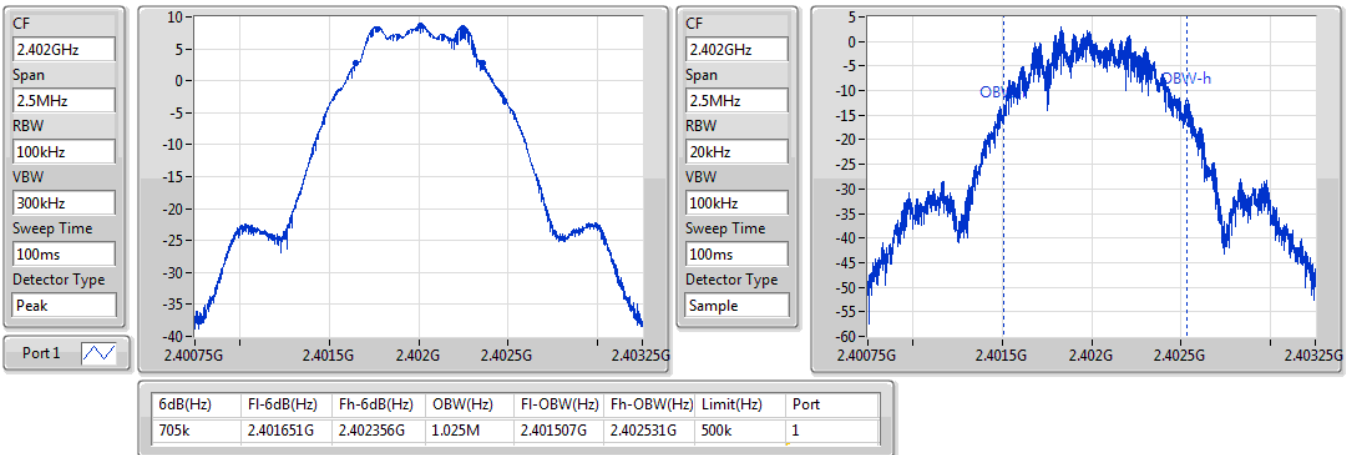
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	705k	1.025M
2440MHz	Pass	500k	701.25k	1.021M
2480MHz	Pass	500k	706.25k	1.03M

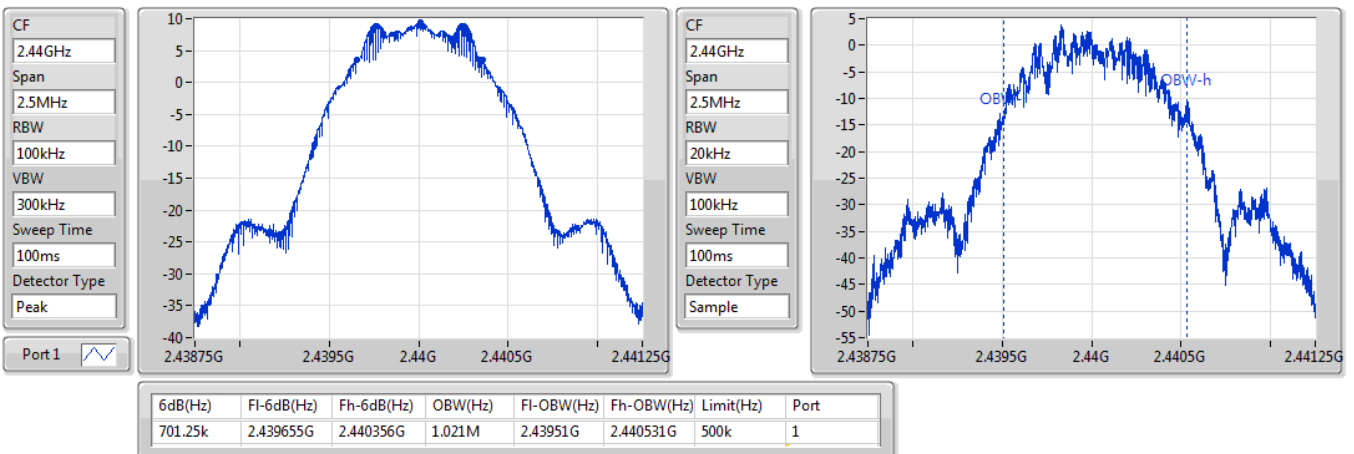
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
2402MHz
EBW

02/07/2019


BT-LE(1Mbps)
2440MHz
EBW

02/07/2019

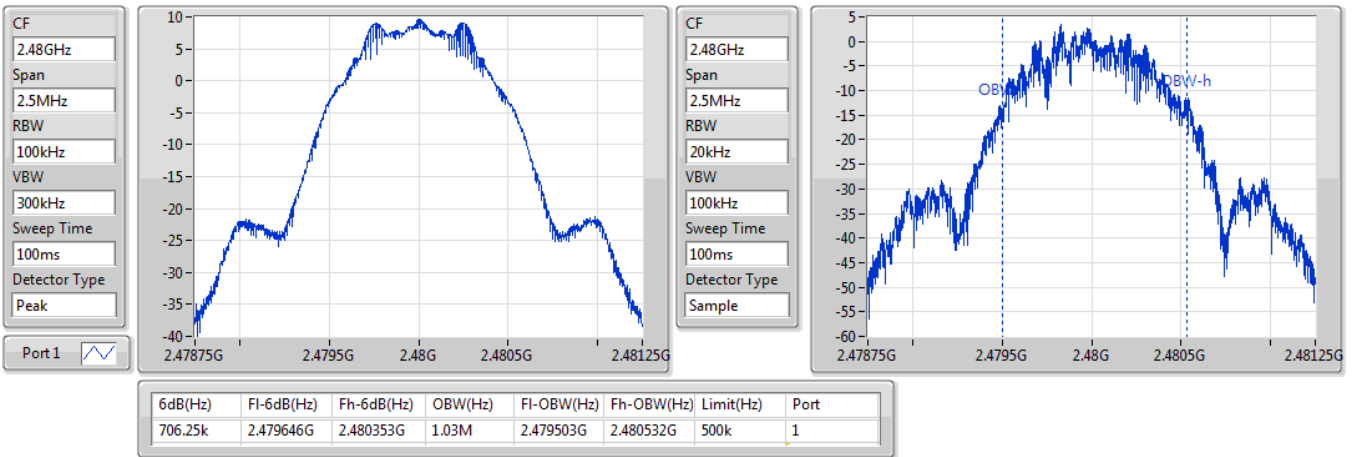


BT-LE(1Mbps)

2480MHz

EBW

02/07/2019





Average Power-DTS Result

Appendix C

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	9.55	0.00902



Average Power-DTS Result

Appendix C

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.30	8.82	30.00
2440MHz	Pass	4.30	9.55	30.00
2480MHz	Pass	4.30	9.23	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-5.24

RBW=3 kHz.



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.30	-5.85	8.00
2440MHz	Pass	4.30	-5.24	8.00
2480MHz	Pass	4.30	-5.56	8.00

DG = Directional Gain; RBW=3 kHz;

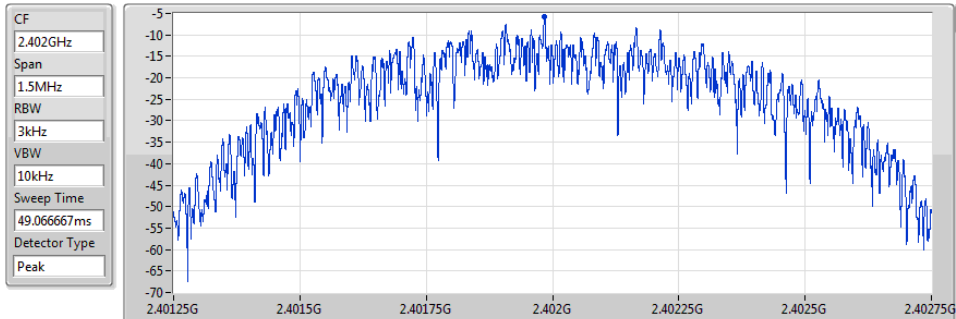
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

PSD

2402MHz

02/07/2019



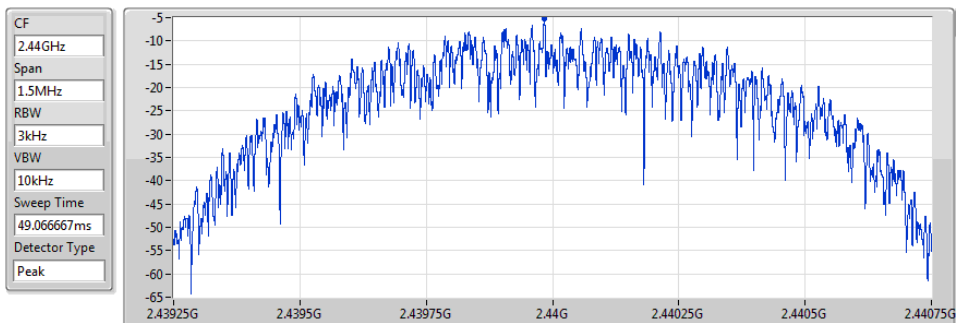
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.85	-5.85	-5.85

BT-LE(1Mbps)

PSD

2440MHz

02/07/2019



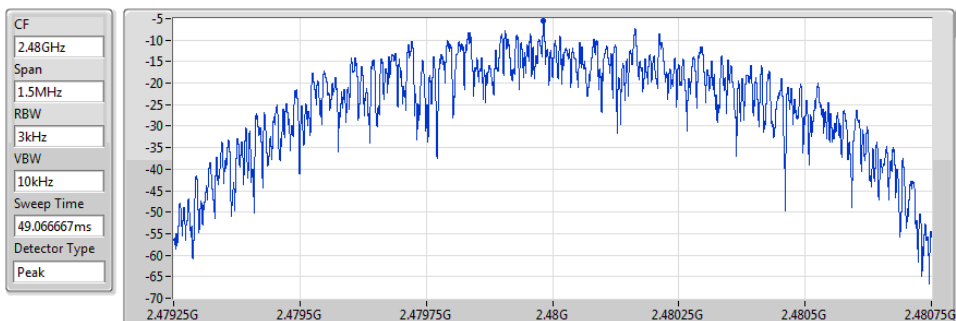
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.24	-5.24	-5.24

BT-LE(1Mbps)

PSD

2480MHz

02/07/2019



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.56	-5.56	-5.56



Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.44G	9.12	-20.88	49.83M	-55.84	2.39933G	-55.88	2.48546G	-55.93	5.80076G	-41.16	1

Result

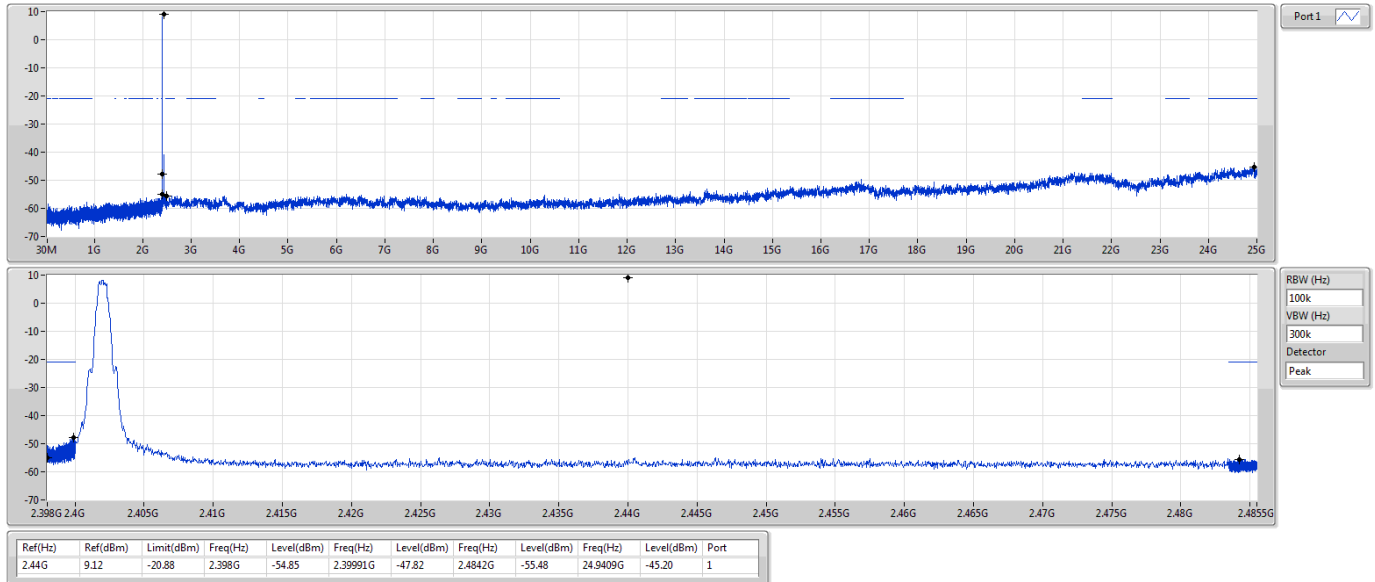
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44G	9.12	-20.88	2.398G	-54.85	2.39991G	-47.82	2.4842G	-55.48	24.9409G	-45.20	1
2440MHz	Pass	2.44G	9.12	-20.88	49.83M	-55.84	2.39933G	-55.88	2.48546G	-55.93	5.80076G	-41.16	1
2480MHz	Pass	2.44G	9.12	-20.88	2.16327G	-55.74	2.39899G	-55.77	2.48392G	-50.66	24.9015G	-44.69	1

BT-LE(1Mbps)

CSE NdB

2402MHz

02/07/2019

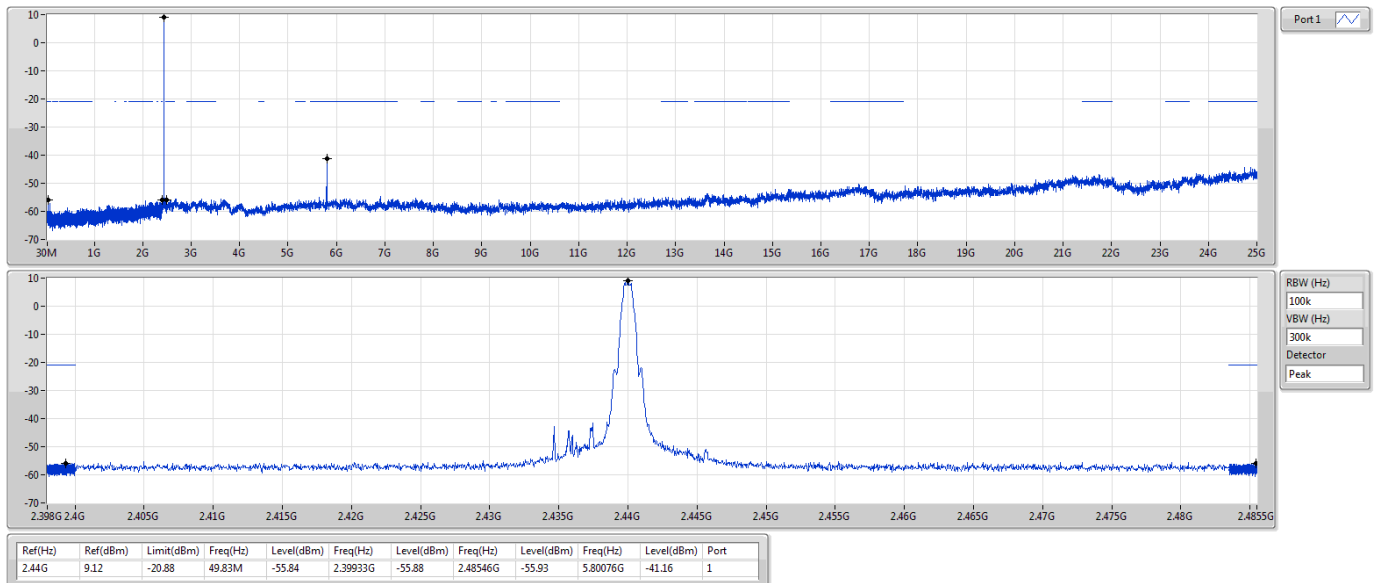


BT-LE(1Mbps)

CSE NdB

2440MHz

02/07/2019



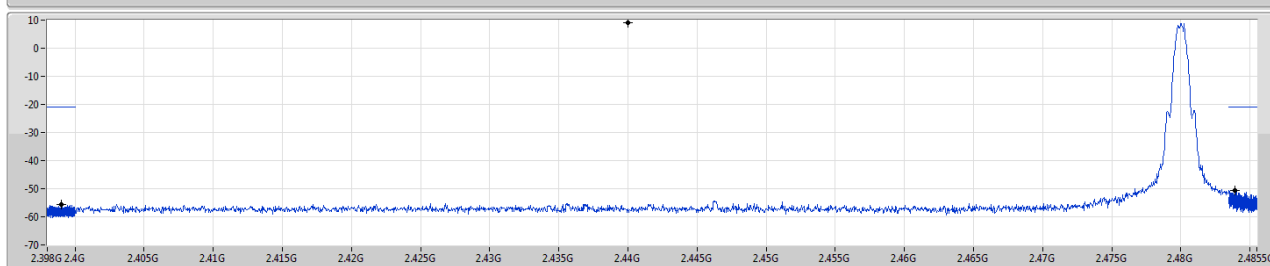
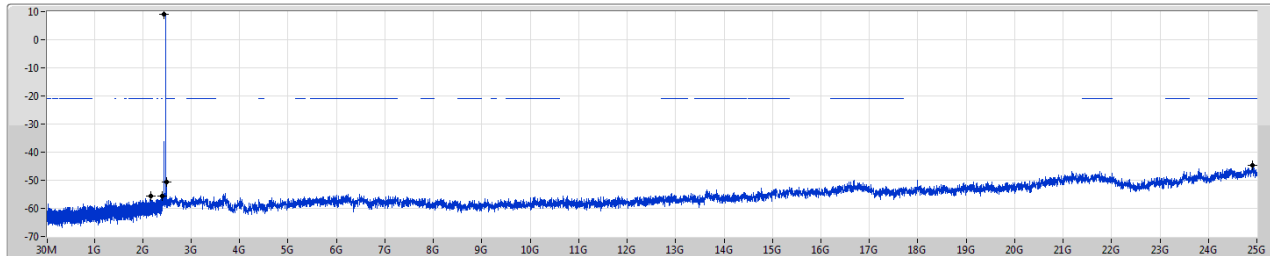
BT-LE(1Mbps)

2480MHz

CSE NdB

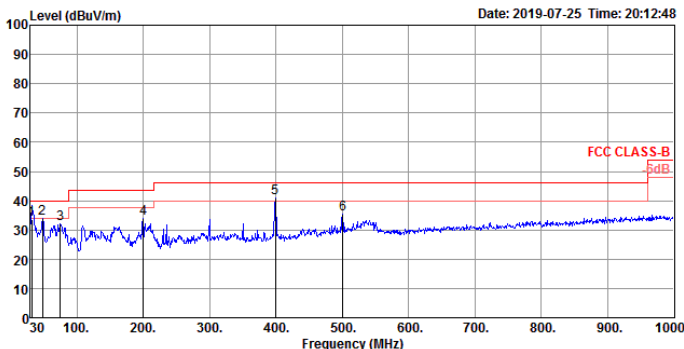
02/07/2019

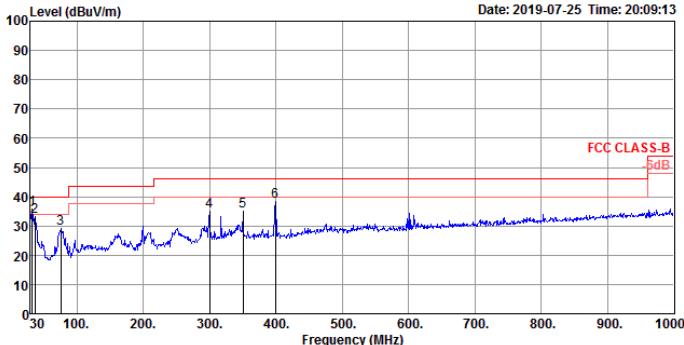
Port1

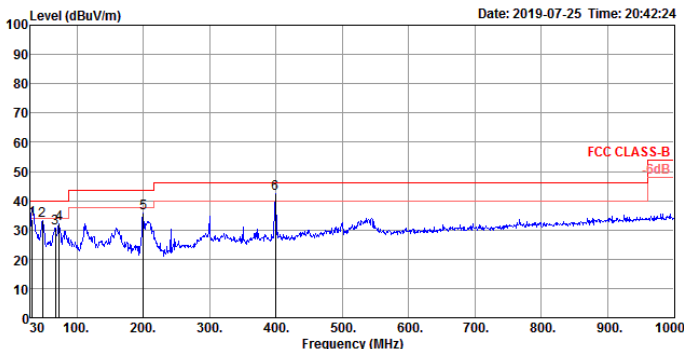


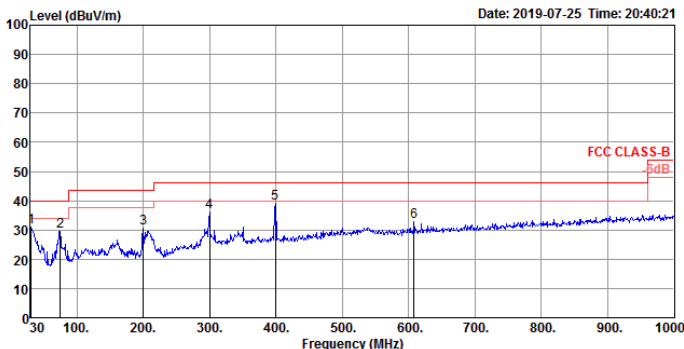
RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44G	9.12	-20.88	2.16327G	-55.74	2.39899G	-55.77	2.48392G	-50.66	2.49015G	-44.69	1

RSE below 1GHz Result																																																																																																											
Operating Mode	1				Polarization			Vertical																																																																																																			
Operating Function	Normal Link																																																																																																										
Level (dBuV/m) Date: 2019-07-25 Time: 20:12:48  <table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>CableAntenna</th><th>Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th>dB/m</th><th>dB</th><th>cm</th><th>deg</th><th></th></tr><tr><td>1</td><td>31.94</td><td>33.68</td><td>40.00</td><td>-6.32</td><td>40.00</td><td>0.71</td><td>24.51</td><td>31.54</td><td>100</td><td>167 QP</td><td>VERTICAL</td></tr><tr><td>2</td><td>48.43</td><td>34.12</td><td>40.00</td><td>-5.88</td><td>49.44</td><td>0.92</td><td>15.46</td><td>31.70</td><td>100</td><td>224 Peak</td><td>VERTICAL</td></tr><tr><td>3</td><td>74.62</td><td>32.06</td><td>40.00</td><td>-7.94</td><td>49.89</td><td>1.12</td><td>12.93</td><td>31.88</td><td>200</td><td>360 Peak</td><td>VERTICAL</td></tr><tr><td>4</td><td>199.75</td><td>34.00</td><td>43.50</td><td>-9.50</td><td>48.01</td><td>1.73</td><td>16.20</td><td>31.94</td><td>100</td><td>187 Peak</td><td>VERTICAL</td></tr><tr><td>5</td><td>399.57</td><td>40.86</td><td>46.00</td><td>-5.14</td><td>48.02</td><td>2.56</td><td>22.47</td><td>32.19</td><td>125</td><td>172 Peak</td><td>VERTICAL</td></tr><tr><td>6</td><td>500.45</td><td>35.37</td><td>46.00</td><td>-10.63</td><td>41.08</td><td>2.94</td><td>23.83</td><td>32.48</td><td>100</td><td>222 Peak</td><td>VERTICAL</td></tr></table>													Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		1	31.94	33.68	40.00	-6.32	40.00	0.71	24.51	31.54	100	167 QP	VERTICAL	2	48.43	34.12	40.00	-5.88	49.44	0.92	15.46	31.70	100	224 Peak	VERTICAL	3	74.62	32.06	40.00	-7.94	49.89	1.12	12.93	31.88	200	360 Peak	VERTICAL	4	199.75	34.00	43.50	-9.50	48.01	1.73	16.20	31.94	100	187 Peak	VERTICAL	5	399.57	40.86	46.00	-5.14	48.02	2.56	22.47	32.19	125	172 Peak	VERTICAL	6	500.45	35.37	46.00	-10.63	41.08	2.94	23.83	32.48	100	222 Peak	VERTICAL
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase																																																																																																
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg																																																																																																	
1	31.94	33.68	40.00	-6.32	40.00	0.71	24.51	31.54	100	167 QP	VERTICAL																																																																																																
2	48.43	34.12	40.00	-5.88	49.44	0.92	15.46	31.70	100	224 Peak	VERTICAL																																																																																																
3	74.62	32.06	40.00	-7.94	49.89	1.12	12.93	31.88	200	360 Peak	VERTICAL																																																																																																
4	199.75	34.00	43.50	-9.50	48.01	1.73	16.20	31.94	100	187 Peak	VERTICAL																																																																																																
5	399.57	40.86	46.00	-5.14	48.02	2.56	22.47	32.19	125	172 Peak	VERTICAL																																																																																																
6	500.45	35.37	46.00	-10.63	41.08	2.94	23.83	32.48	100	222 Peak	VERTICAL																																																																																																
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)																																																																																																											

RSE below 1GHz Result																																																																																																											
Operating Mode		1			Polarization			Horizontal																																																																																																			
Operating Function		Normal Link																																																																																																									
Level (dBuV/m) Date: 2019-07-25 Time: 20:09:13  <table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>CableAntenna</th><th>Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th>dB/m</th><th>dB</th><th>cm</th><th>deg</th><th></th></tr><tr><td>1</td><td>32.91</td><td>35.76</td><td>40.00</td><td>-4.24</td><td>42.57</td><td>0.72</td><td>23.99</td><td>31.52</td><td>200</td><td>16 Peak</td><td>HORIZONTAL</td></tr><tr><td>2</td><td>36.79</td><td>33.22</td><td>40.00</td><td>-6.78</td><td>42.24</td><td>0.78</td><td>21.69</td><td>31.49</td><td>200</td><td>35 Peak</td><td>HORIZONTAL</td></tr><tr><td>3</td><td>75.59</td><td>29.18</td><td>40.00</td><td>-10.82</td><td>46.92</td><td>1.13</td><td>13.01</td><td>31.88</td><td>300</td><td>63 Peak</td><td>HORIZONTAL</td></tr><tr><td>4</td><td>299.66</td><td>35.18</td><td>46.00</td><td>-10.82</td><td>45.27</td><td>2.21</td><td>19.78</td><td>32.08</td><td>100</td><td>258 Peak</td><td>HORIZONTAL</td></tr><tr><td>5</td><td>350.10</td><td>34.92</td><td>46.00</td><td>-11.08</td><td>43.40</td><td>2.46</td><td>21.20</td><td>32.14</td><td>100</td><td>280 Peak</td><td>HORIZONTAL</td></tr><tr><td>6</td><td>399.57</td><td>38.45</td><td>46.00</td><td>-7.55</td><td>45.61</td><td>2.56</td><td>22.47</td><td>32.19</td><td>100</td><td>134 Peak</td><td>HORIZONTAL</td></tr></table>													Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		1	32.91	35.76	40.00	-4.24	42.57	0.72	23.99	31.52	200	16 Peak	HORIZONTAL	2	36.79	33.22	40.00	-6.78	42.24	0.78	21.69	31.49	200	35 Peak	HORIZONTAL	3	75.59	29.18	40.00	-10.82	46.92	1.13	13.01	31.88	300	63 Peak	HORIZONTAL	4	299.66	35.18	46.00	-10.82	45.27	2.21	19.78	32.08	100	258 Peak	HORIZONTAL	5	350.10	34.92	46.00	-11.08	43.40	2.46	21.20	32.14	100	280 Peak	HORIZONTAL	6	399.57	38.45	46.00	-7.55	45.61	2.56	22.47	32.19	100	134 Peak	HORIZONTAL
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase																																																																																																
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg																																																																																																	
1	32.91	35.76	40.00	-4.24	42.57	0.72	23.99	31.52	200	16 Peak	HORIZONTAL																																																																																																
2	36.79	33.22	40.00	-6.78	42.24	0.78	21.69	31.49	200	35 Peak	HORIZONTAL																																																																																																
3	75.59	29.18	40.00	-10.82	46.92	1.13	13.01	31.88	300	63 Peak	HORIZONTAL																																																																																																
4	299.66	35.18	46.00	-10.82	45.27	2.21	19.78	32.08	100	258 Peak	HORIZONTAL																																																																																																
5	350.10	34.92	46.00	-11.08	43.40	2.46	21.20	32.14	100	280 Peak	HORIZONTAL																																																																																																
6	399.57	38.45	46.00	-7.55	45.61	2.56	22.47	32.19	100	134 Peak	HORIZONTAL																																																																																																
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)																																																																																																											

RSE below 1GHz Result																																																																																																											
Operating Mode	2				Polarization				Vertical																																																																																																		
Operating Function	Normal Link																																																																																																										
Level (dBuV/m) Date: 2019-07-25 Time: 20:42:24  <table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>CableAntenna</th><th>Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th>dB/m</th><th>dB</th><th>cm</th><th>deg</th><th></th></tr><tr><td>1</td><td>32.91</td><td>33.40</td><td>40.00</td><td>-6.60</td><td>40.21</td><td>0.72</td><td>23.99</td><td>31.52</td><td>100</td><td>143 QP</td><td>VERTICAL</td></tr><tr><td>2</td><td>48.43</td><td>33.04</td><td>40.00</td><td>-6.96</td><td>48.36</td><td>0.92</td><td>15.46</td><td>31.70</td><td>150</td><td>266 Peak</td><td>VERTICAL</td></tr><tr><td>3</td><td>67.83</td><td>30.68</td><td>40.00</td><td>-9.32</td><td>48.95</td><td>1.01</td><td>12.60</td><td>31.88</td><td>200</td><td>107 Peak</td><td>VERTICAL</td></tr><tr><td>4</td><td>73.65</td><td>32.10</td><td>40.00</td><td>-7.90</td><td>50.02</td><td>1.10</td><td>12.86</td><td>31.88</td><td>200</td><td>3 Peak</td><td>VERTICAL</td></tr><tr><td>5</td><td>199.75</td><td>35.85</td><td>43.50</td><td>-7.65</td><td>49.86</td><td>1.73</td><td>16.20</td><td>31.94</td><td>100</td><td>168 Peak</td><td>VERTICAL</td></tr><tr><td>6</td><td>399.57</td><td>42.45</td><td>46.00</td><td>-3.55</td><td>49.61</td><td>2.56</td><td>22.47</td><td>32.19</td><td>125</td><td>188 Peak</td><td>VERTICAL</td></tr></table>													Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		1	32.91	33.40	40.00	-6.60	40.21	0.72	23.99	31.52	100	143 QP	VERTICAL	2	48.43	33.04	40.00	-6.96	48.36	0.92	15.46	31.70	150	266 Peak	VERTICAL	3	67.83	30.68	40.00	-9.32	48.95	1.01	12.60	31.88	200	107 Peak	VERTICAL	4	73.65	32.10	40.00	-7.90	50.02	1.10	12.86	31.88	200	3 Peak	VERTICAL	5	199.75	35.85	43.50	-7.65	49.86	1.73	16.20	31.94	100	168 Peak	VERTICAL	6	399.57	42.45	46.00	-3.55	49.61	2.56	22.47	32.19	125	188 Peak	VERTICAL
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase																																																																																																
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg																																																																																																	
1	32.91	33.40	40.00	-6.60	40.21	0.72	23.99	31.52	100	143 QP	VERTICAL																																																																																																
2	48.43	33.04	40.00	-6.96	48.36	0.92	15.46	31.70	150	266 Peak	VERTICAL																																																																																																
3	67.83	30.68	40.00	-9.32	48.95	1.01	12.60	31.88	200	107 Peak	VERTICAL																																																																																																
4	73.65	32.10	40.00	-7.90	50.02	1.10	12.86	31.88	200	3 Peak	VERTICAL																																																																																																
5	199.75	35.85	43.50	-7.65	49.86	1.73	16.20	31.94	100	168 Peak	VERTICAL																																																																																																
6	399.57	42.45	46.00	-3.55	49.61	2.56	22.47	32.19	125	188 Peak	VERTICAL																																																																																																
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)																																																																																																											

RSE below 1GHz Result																																																																																																											
Operating Mode			2			Polarization			Horizontal																																																																																																		
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Level (dBuV/m) Date: 2019-07-25 Time: 20:40:21  <table><tr><th></th><th>Freq</th><th>Level</th><th>Limit</th><th>Over</th><th>Read</th><th>CableAntenna</th><th>Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th><th>Pol/Phase</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th>dB/m</th><th>dB</th><th>cm</th><th>deg</th><th></th></tr><tr><td>1</td><td>30.97</td><td>31.12</td><td>40.00</td><td>-8.88</td><td>36.88</td><td>0.69</td><td>25.11</td><td>31.56</td><td>300</td><td>204 Peak</td><td>HORIZONTAL</td></tr><tr><td>2</td><td>74.62</td><td>29.55</td><td>40.00</td><td>-10.45</td><td>47.38</td><td>1.12</td><td>12.93</td><td>31.88</td><td>150</td><td>0 Peak</td><td>HORIZONTAL</td></tr><tr><td>3</td><td>199.75</td><td>30.53</td><td>43.50</td><td>-12.97</td><td>44.54</td><td>1.73</td><td>16.20</td><td>31.94</td><td>200</td><td>87 Peak</td><td>HORIZONTAL</td></tr><tr><td>4</td><td>299.66</td><td>36.24</td><td>46.00</td><td>-9.76</td><td>46.33</td><td>2.21</td><td>19.78</td><td>32.08</td><td>100</td><td>251 Peak</td><td>HORIZONTAL</td></tr><tr><td>5</td><td>399.57</td><td>39.27</td><td>46.00</td><td>-6.73</td><td>46.43</td><td>2.56</td><td>22.47</td><td>32.19</td><td>100</td><td>259 Peak</td><td>HORIZONTAL</td></tr><tr><td>6</td><td>608.12</td><td>32.88</td><td>46.00</td><td>-13.12</td><td>36.92</td><td>3.30</td><td>25.00</td><td>32.34</td><td>300</td><td>0 Peak</td><td>HORIZONTAL</td></tr></table>													Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		1	30.97	31.12	40.00	-8.88	36.88	0.69	25.11	31.56	300	204 Peak	HORIZONTAL	2	74.62	29.55	40.00	-10.45	47.38	1.12	12.93	31.88	150	0 Peak	HORIZONTAL	3	199.75	30.53	43.50	-12.97	44.54	1.73	16.20	31.94	200	87 Peak	HORIZONTAL	4	299.66	36.24	46.00	-9.76	46.33	2.21	19.78	32.08	100	251 Peak	HORIZONTAL	5	399.57	39.27	46.00	-6.73	46.43	2.56	22.47	32.19	100	259 Peak	HORIZONTAL	6	608.12	32.88	46.00	-13.12	36.92	3.30	25.00	32.34	300	0 Peak	HORIZONTAL
	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase																																																																																																
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg																																																																																																	
1	30.97	31.12	40.00	-8.88	36.88	0.69	25.11	31.56	300	204 Peak	HORIZONTAL																																																																																																
2	74.62	29.55	40.00	-10.45	47.38	1.12	12.93	31.88	150	0 Peak	HORIZONTAL																																																																																																
3	199.75	30.53	43.50	-12.97	44.54	1.73	16.20	31.94	200	87 Peak	HORIZONTAL																																																																																																
4	299.66	36.24	46.00	-9.76	46.33	2.21	19.78	32.08	100	251 Peak	HORIZONTAL																																																																																																
5	399.57	39.27	46.00	-6.73	46.43	2.56	22.47	32.19	100	259 Peak	HORIZONTAL																																																																																																
6	608.12	32.88	46.00	-13.12	36.92	3.30	25.00	32.34	300	0 Peak	HORIZONTAL																																																																																																
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RSE TX above 1GHz Result

Appendix F.2

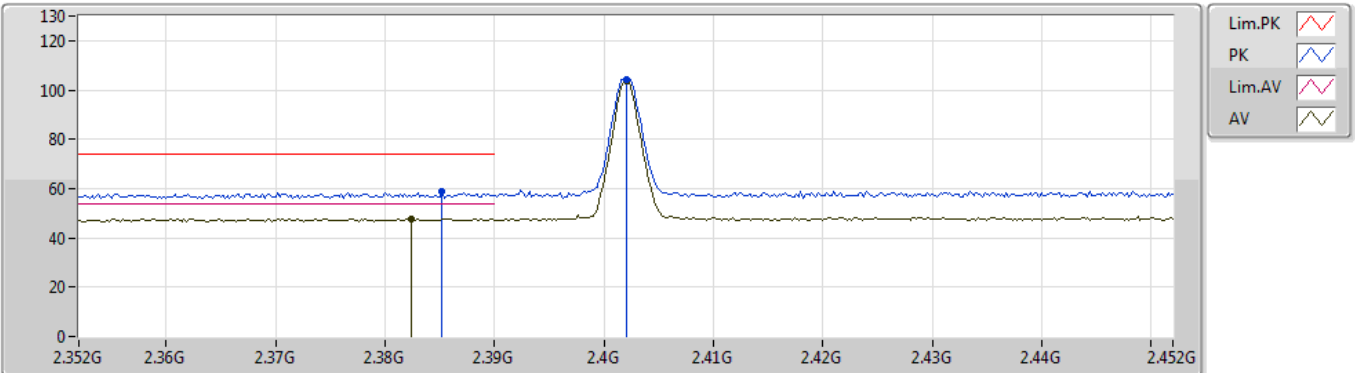
Summary

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(1Mbps)	Pass	AV	2.4835G	50.18	54.00	-3.82	31.39	3	Horizontal	77	1.03	-

BT-LE(1Mbps)

27/06/2019

2402MHz_TX



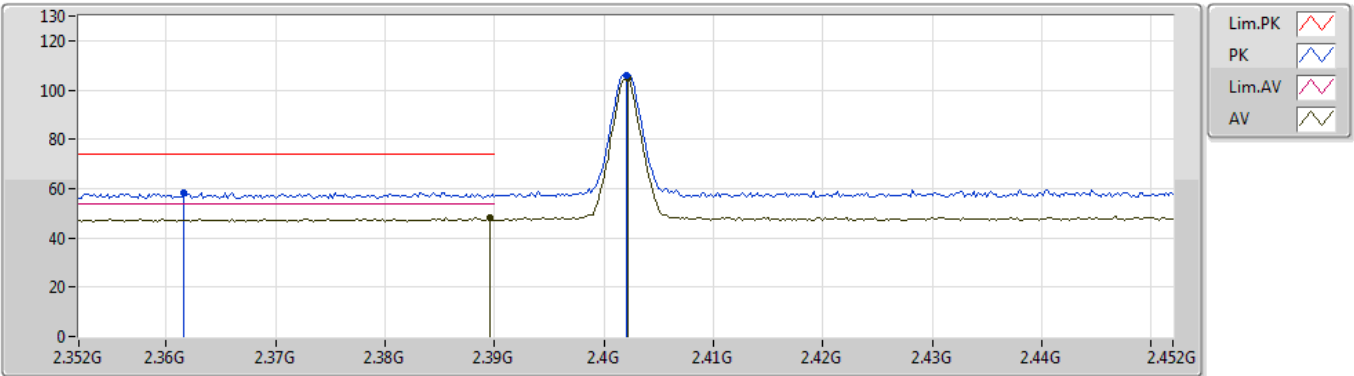
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3852G	58.88	74.00	-15.12	31.19	3	Vertical	2	1.02	-				
AV	2.3824G	47.82	54.00	-6.18	31.19	3	Vertical	2	1.02	-				
PK	2.402G	104.38	Inf	-Inf	31.23	3	Vertical	2	1.02	-				
AV	2.402G	103.42	Inf	-Inf	31.23	3	Vertical	2	1.02	-				

BT-LE(1Mbps)

27/06/2019

2402MHz_TX



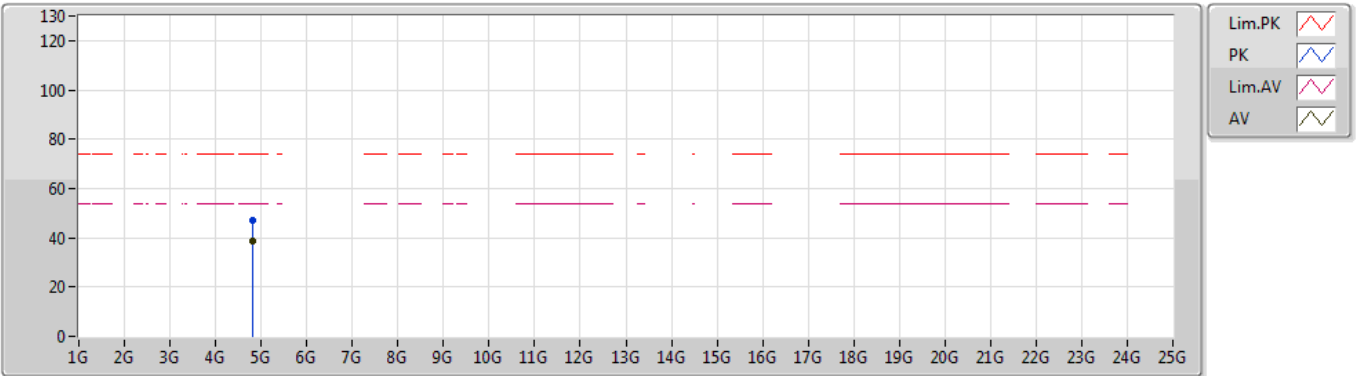
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3616G	58.43	74.00	-15.57	31.13	3	Horizontal	107	2.06	-				
AV	2.3896G	48.42	54.00	-5.58	31.20	3	Horizontal	107	2.06	-				
PK	2.402G	105.84	Inf	-Inf	31.23	3	Horizontal	107	2.06	-				
AV	2.4022G	104.90	Inf	-Inf	31.23	3	Horizontal	107	2.06	-				

BT-LE(1Mbps)

27/06/2019

2402MHz_TX



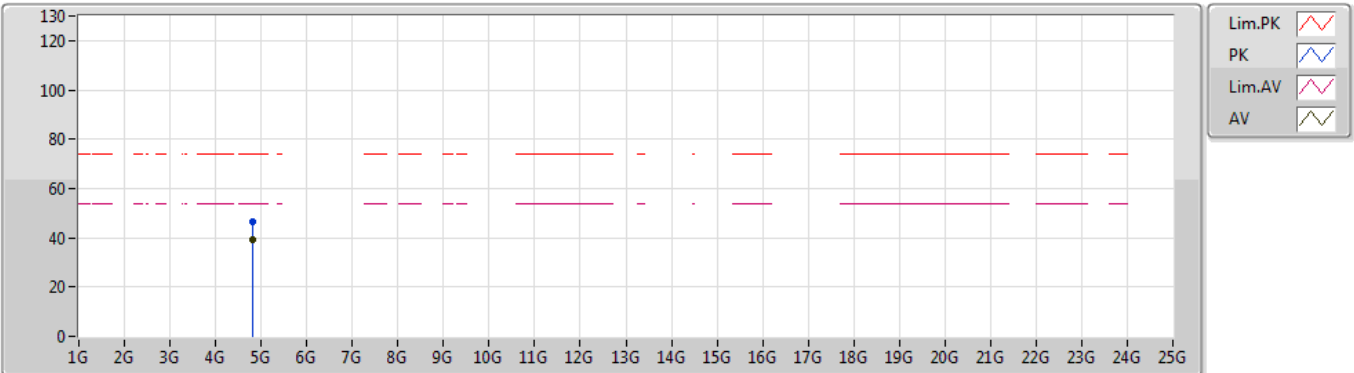
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.80442G	47.29	74.00	-26.71	7.12	3	Vertical	72	1.55	-				
AV	4.80396G	38.48	54.00	-15.52	7.12	3	Vertical	72	1.55	-				

BT-LE(1Mbps)

27/06/2019

2402MHz_TX



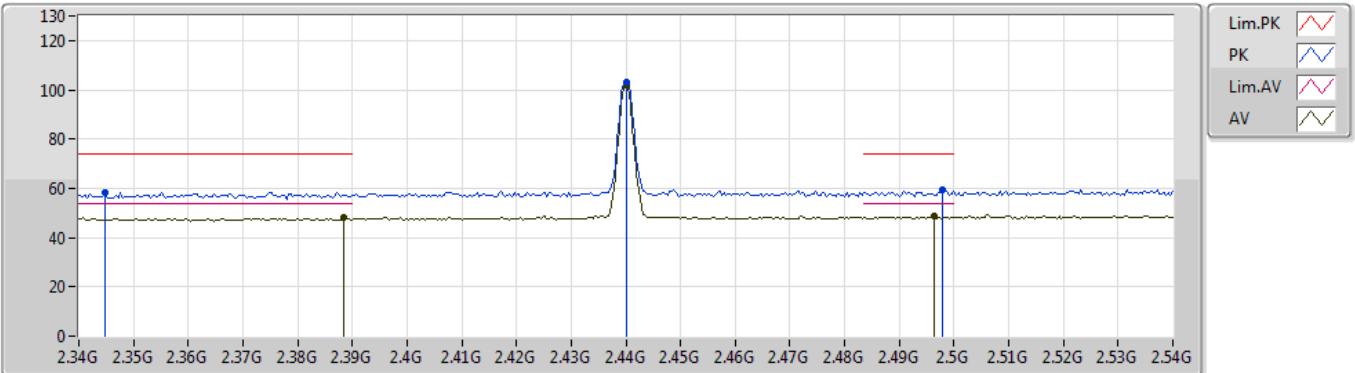
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.8036G	46.60	74.00	-27.40	7.12	3	Horizontal	190	2.47	-				
AV	4.8035G	38.99	54.00	-15.01	7.12	3	Horizontal	190	2.47	-				

BT-LE(1Mbps)

27/06/2019

2440MHz_TX



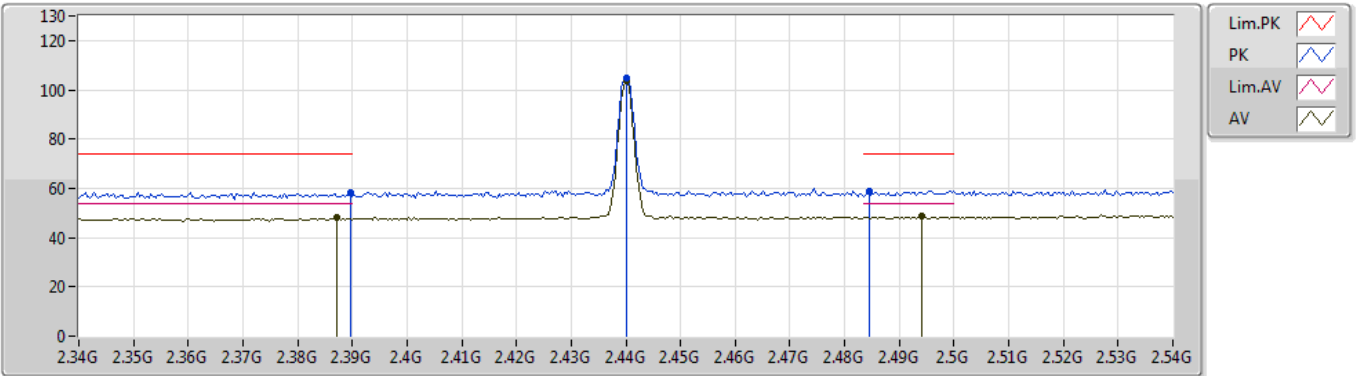
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3448G	58.37	74.00	-15.63	31.09	3	Vertical	187	1.56	-				
AV	2.3884G	48.11	54.00	-5.89	31.20	3	Vertical	187	1.56	-				
PK	2.44G	102.83	Inf	-Inf	31.31	3	Vertical	187	1.56	-				
AV	2.44G	101.78	Inf	-Inf	31.31	3	Vertical	187	1.56	-				
PK	2.498G	59.16	74.00	-14.84	31.43	3	Vertical	187	1.56	-				
AV	2.4964G	48.50	54.00	-5.50	31.42	3	Vertical	187	1.56	-				

BT-LE(1Mbps)

27/06/2019

2440MHz_TX



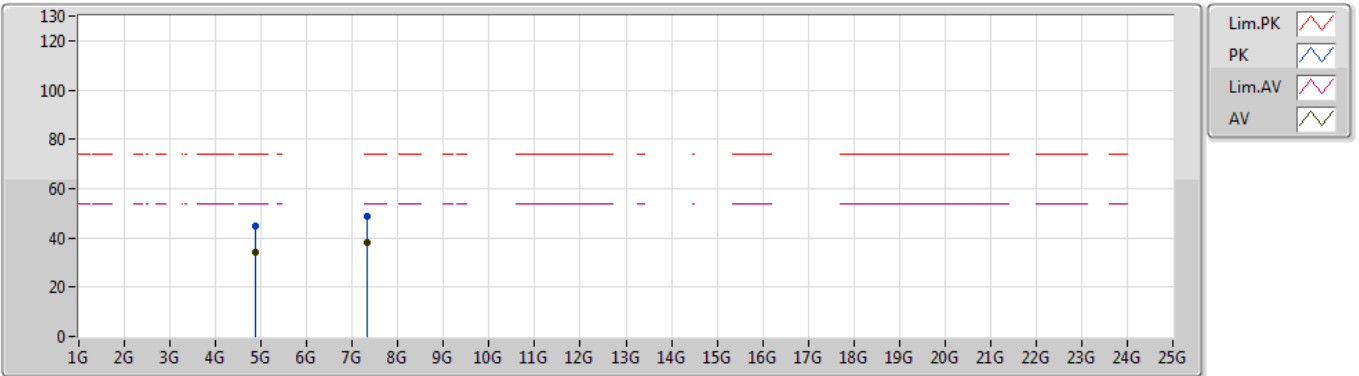
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	2.3896G	58.46	74.00	-15.54	31.20	3	Horizontal	92	1.32	-				
AV	2.3872G	47.93	54.00	-6.07	31.20	3	Horizontal	92	1.32	-				
PK	2.44G	104.63	Inf	-Inf	31.31	3	Horizontal	92	1.32	-				
AV	2.44G	103.69	Inf	-Inf	31.31	3	Horizontal	92	1.32	-				
PK	2.4844G	59.09	74.00	-14.91	31.40	3	Horizontal	92	1.32	-				
AV	2.494G	48.76	54.00	-5.24	31.42	3	Horizontal	92	1.32	-				

BT-LE(1Mbps)

27/06/2019

2440MHz_TX



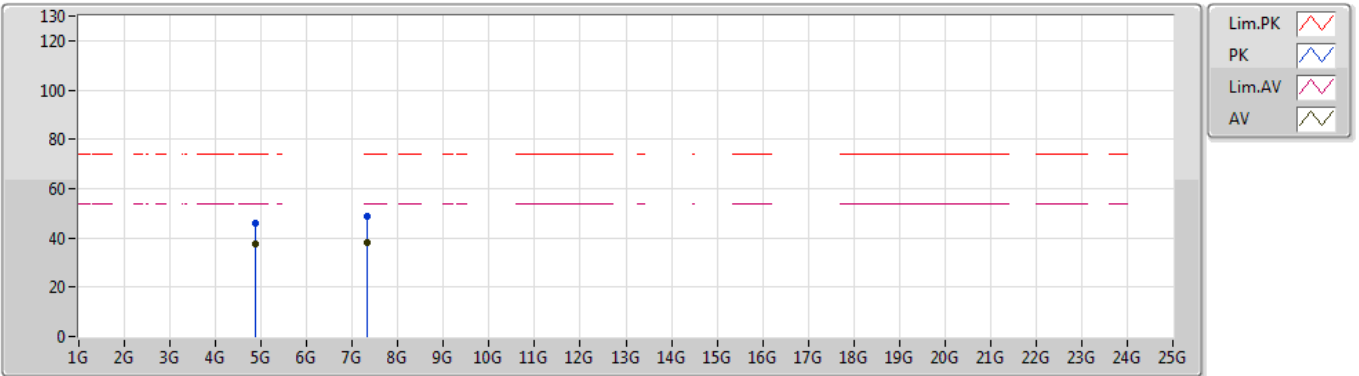
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.8804G	44.76	74.00	-29.24	7.30	3	Vertical	220	1.31	-				
AV	4.87984G	34.17	54.00	-19.83	7.30	3	Vertical	220	1.31	-				
PK	7.3228G	48.93	74.00	-25.07	10.59	3	Vertical	115	2.05	-				
AV	7.32224G	38.34	54.00	-15.66	10.59	3	Vertical	115	2.05	-				

BT-LE(1Mbps)

27/06/2019

2440MHz_TX



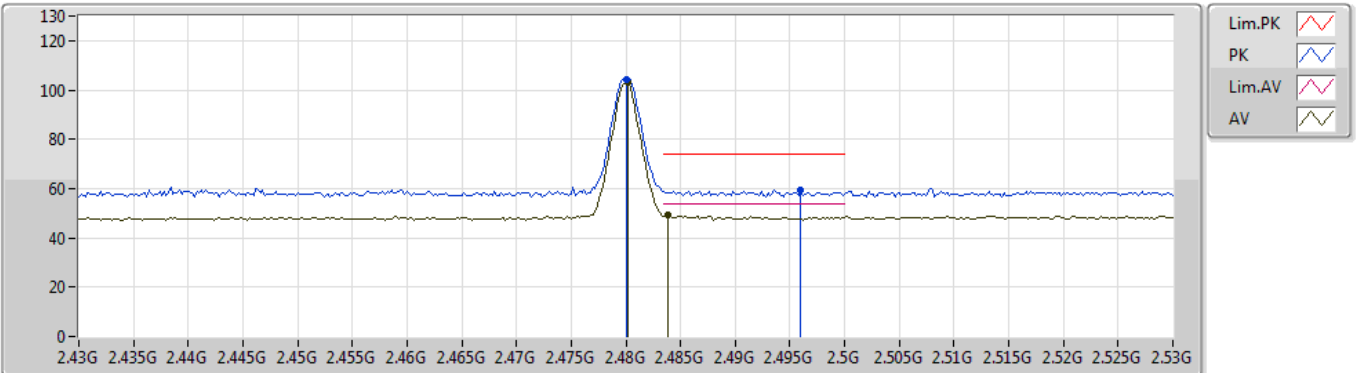
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.87932G	46.11	74.00	-27.89	7.30	3	Horizontal	237	2.17	-				
AV	4.87956G	37.59	54.00	-16.41	7.30	3	Horizontal	237	2.17	-				
PK	7.32084G	48.80	74.00	-25.20	10.59	3	Horizontal	224	2.13	-				
AV	7.32052G	38.21	54.00	-15.79	10.58	3	Horizontal	224	2.13	-				

BT-LE(1Mbps)

2480MHz_TX

27/06/2019



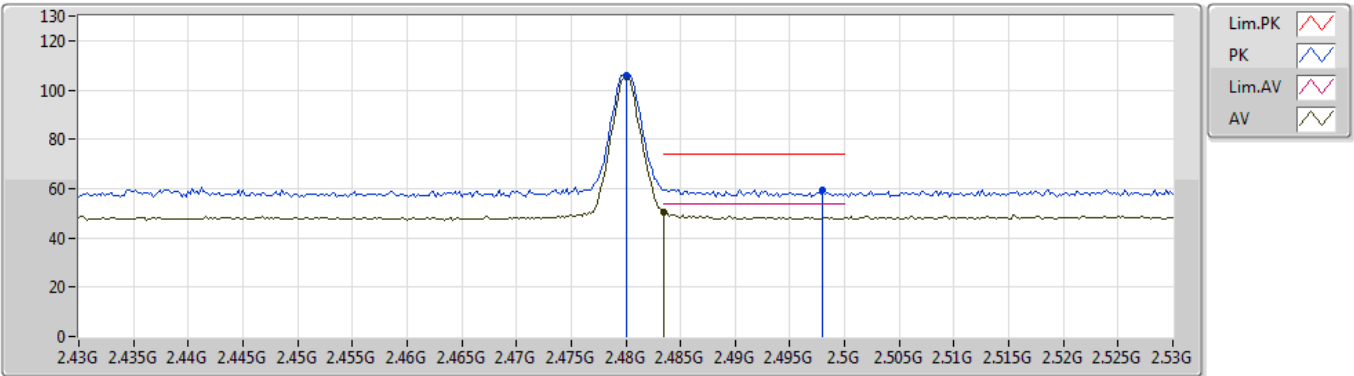
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment			
PK	2.48G	104.16	Inf	-Inf	31.39	3	Vertical	355	2.29	-			
AV	2.4802G	103.22	Inf	-Inf	31.39	3	Vertical	355	2.29	-			
PK	2.496G	59.48	74.00	-14.52	31.42	3	Vertical	355	2.29	-			
AV	2.4838G	49.04	54.00	-4.96	31.39	3	Vertical	355	2.29	-			

BT-LE(1Mbps)

2480MHz_TX

27/06/2019



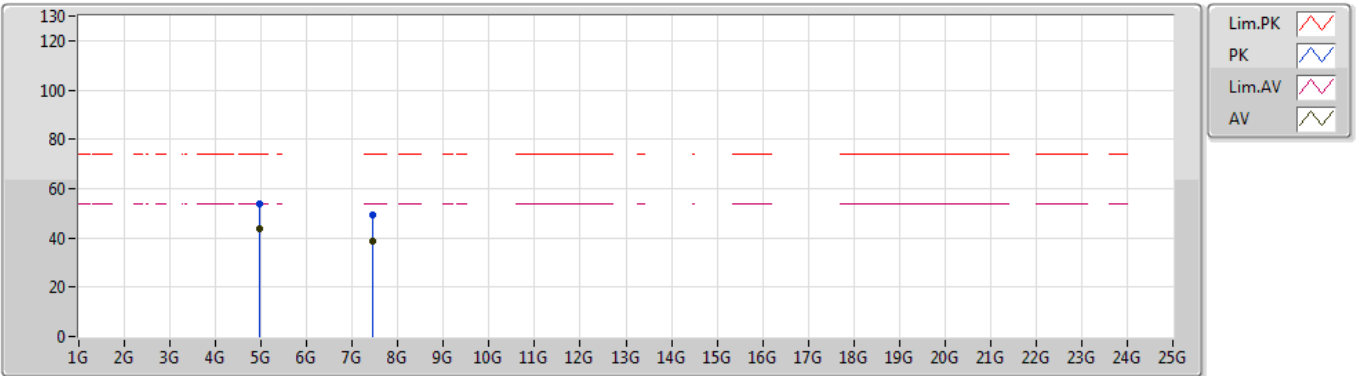
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment			
PK	2.48G	106.18	Inf	-Inf	31.39	3	Horizontal	77	1.03	-			
AV	2.48G	105.25	Inf	-Inf	31.39	3	Horizontal	77	1.03	-			
PK	2.498G	59.49	74.00	-14.51	31.43	3	Horizontal	77	1.03	-			
AV	2.4835G	50.18	54.00	-3.82	31.39	3	Horizontal	77	1.03	-			

BT-LE(1Mbps)

27/06/2019

2480MHz_TX



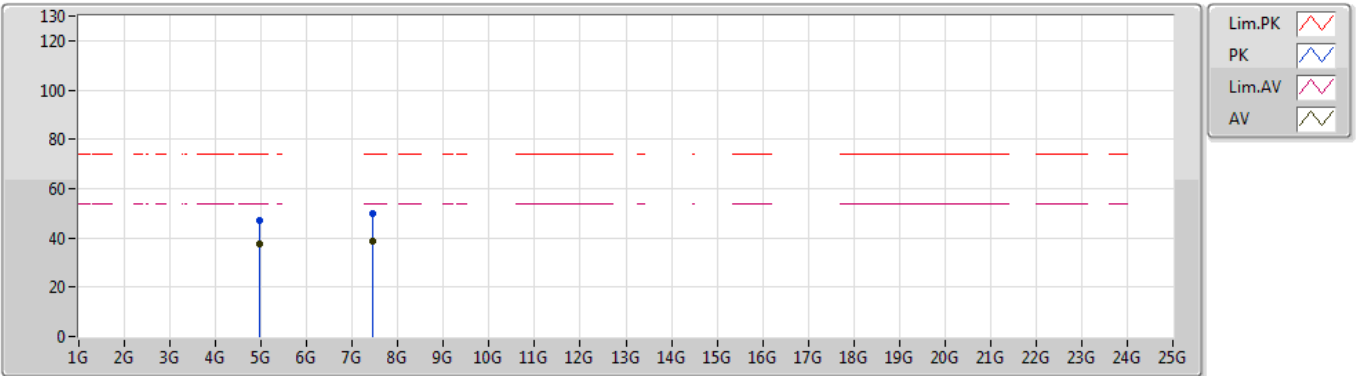
EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.9636G	53.55	74.00	-20.45	7.49	3	Vertical	48	2.37	-				
AV	4.95912G	43.44	54.00	-10.56	7.48	3	Vertical	48	2.37	-				
PK	7.44576G	49.32	74.00	-24.68	10.91	3	Vertical	51	1.27	-				
AV	7.44356G	38.57	54.00	-15.43	10.91	3	Vertical	51	1.27	-				

BT-LE(1Mbps)

27/06/2019

2480MHz_TX



EUT Y_1TX
Setting 110
02-B-4
FSU(100015)

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	4.95968G	46.90	74.00	-27.10	7.48	3	Horizontal	177	1.97	-				
AV	4.9604G	37.33	54.00	-16.67	7.48	3	Horizontal	177	1.97	-				
PK	7.44848G	49.88	74.00	-24.12	10.92	3	Horizontal	358	2.39	-				
AV	7.4456G	38.53	54.00	-15.47	10.91	3	Horizontal	358	2.39	-				