



FCC Test Report

FCC ID : 2AO9Z-B5736
Equipment : Media Receiver
Model Name : B81AO1xxxx(Where "x" in model name can be 0 to 9, A to Z, a to z, "/", "-", or blank, for marketing purpose only)
Applicant : MCBP Technologies, LLC
103 Foulk Road, Suite 202, Wilmington, DE 19803
Standard : 47 CFR FCC Part 15.247

The product was received on Jul. 30, 2018, and testing was started from Aug. 03, 2018 and completed on Aug. 08, 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: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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[illegible]

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	FCC 15.203
3.1	15.207	AC Power-line Conducted Emissions	PASS	FCC 15.207
3.2	15.247(a)	DTS Bandwidth	PASS	≥500kHz
3.3	15.247(b)	Maximum Conducted Output Power	PASS	Power [dBm]:30
3.4	15.247(e)	Power Spectral Density	PASS	PSD [dBm/3kHz]:8
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	Non-Restricted Bands: >30 dBc
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	Restricted Bands: FCC 15.209

Reviewed by: Sam Chen

Report Producer: Ann Hou

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-LE(2Mbps)	2.0	1TX

Note:

- ♦ Bluetooth LE uses a GFSK (1/2Mbps) modulation for DSSS.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Port	Part number (Main)	Part number (Aux)	Antenna Type	Connector
1	1	ADP6P-100000	-	PIFA	I-PEX
2	2	-	ADP6P-100001	PIFA	I-PEX

Ant.	Port	Gain (dBi)					
		2.4G	U-NII-1	U-NII-2A	U-NII-2C	U-NII-3	BT
1	1	1.90	1.84	1.84	1.95	1.88	1.9
2	2	1.81	1.60	1.60	1.89	1.89	-

Note 1: The EUT has two antennas.

Note 2 : Higher gain antenna was used to perform the worst configuration and result of that was recorded as the final test result.

For 2.4 GHz function:

For IEEE 802.11b/g/n mode (2TX/2RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit/receive simultaneously.

For 5 GHz function:

For IEEE 802.11a/n/ac mode (2TX/2RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit/receive simultaneously.

For Bluetooth function:

For Bluetooth mode (1TX/1RX)

Only Ant. 1 (port 1) can be used as transmitting/receiving antenna.

1.1.3 EUT Information

Operational Condition			
EUT Power Type	From AC Adapter		
EUT Function	☒ Point-to-multipoint	☐ Point-to-point	
Type of EUT			
☒	Stand-alone		
☐	Combined (EUT where the radio part is fully integrated within another device)		
	Combined Equipment - Brand Name / Model No.:		...
☐	Plug-in radio (EUT intended for a variety of host systems)		
	Host System - Brand Name / Model No.:		...
☐	Other:		

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-LE(1Mbps)	0.63	2.007	393.75u	3k
BT-LE(2Mbps)	0.333	4.776	207.813u	10k

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
- ◆ KDB 558074 D01 v04

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
Test site Designation No. TW1190 with FCC.			
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Jeff	24.2°C / 53%	07/Aug/2018
RF Conducted	TH01-HY	Barry	23.5°C / 65%	03/Aug/2018
Radiated	03CH09-HY	Andy	23.8°C / 59%	03/Aug/2018
Radiated (co-location)	03CH09-HY	Andy	24.2°C / 61%	08/Aug/2018

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)	3.6 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software Version	QRCT Version3.0.303.0
-----------------------	-----------------------

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	default
2440MHz	default
2480MHz	default
BT-LE(2Mbps)	-
2402MHz	default
2440MHz	default
2480MHz	default

2.3 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	Adapter mode

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	Adapter mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Test Condition	Radiated measurement
Operating Mode	Normal Link
1	Bluetooth+WLAN 2.4G
2	Bluetooth+WLAN 5G
Refer to Sporton Test Report No.: FA860527 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.	

2.4 Accessories

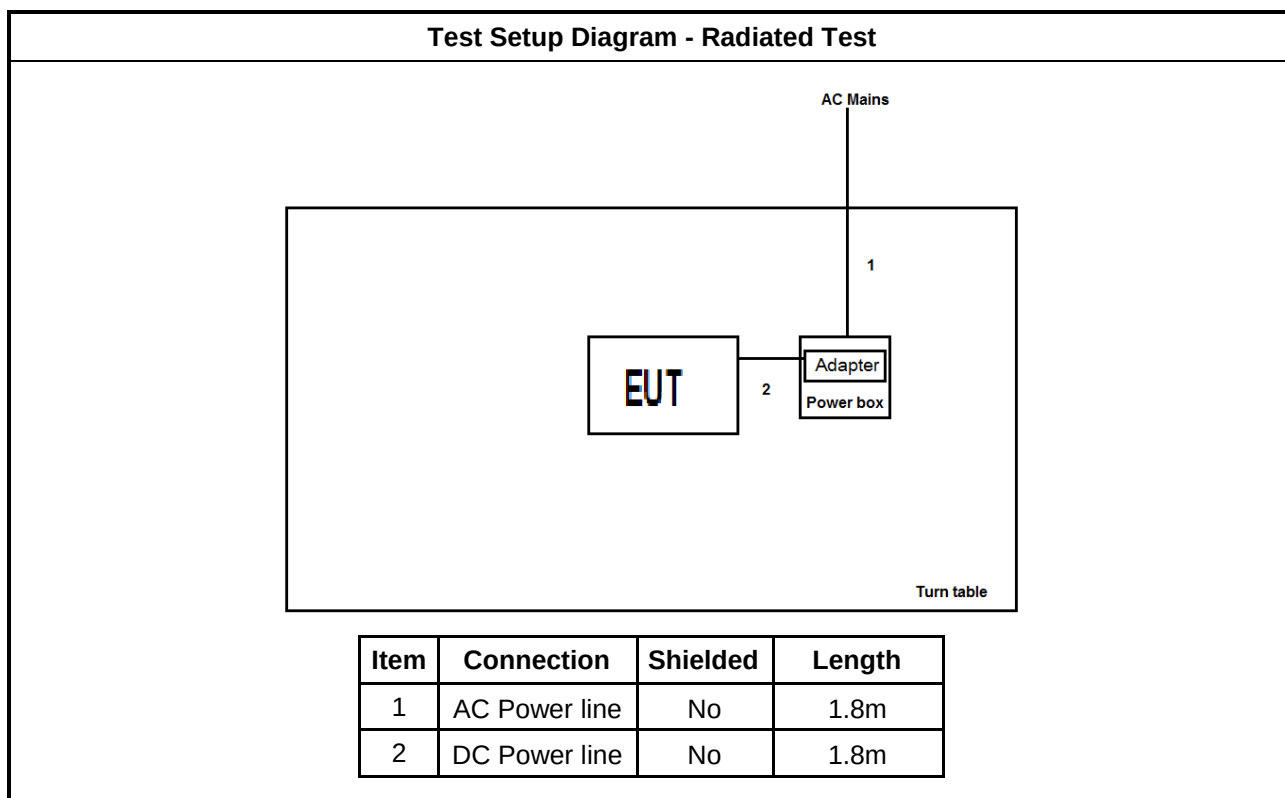
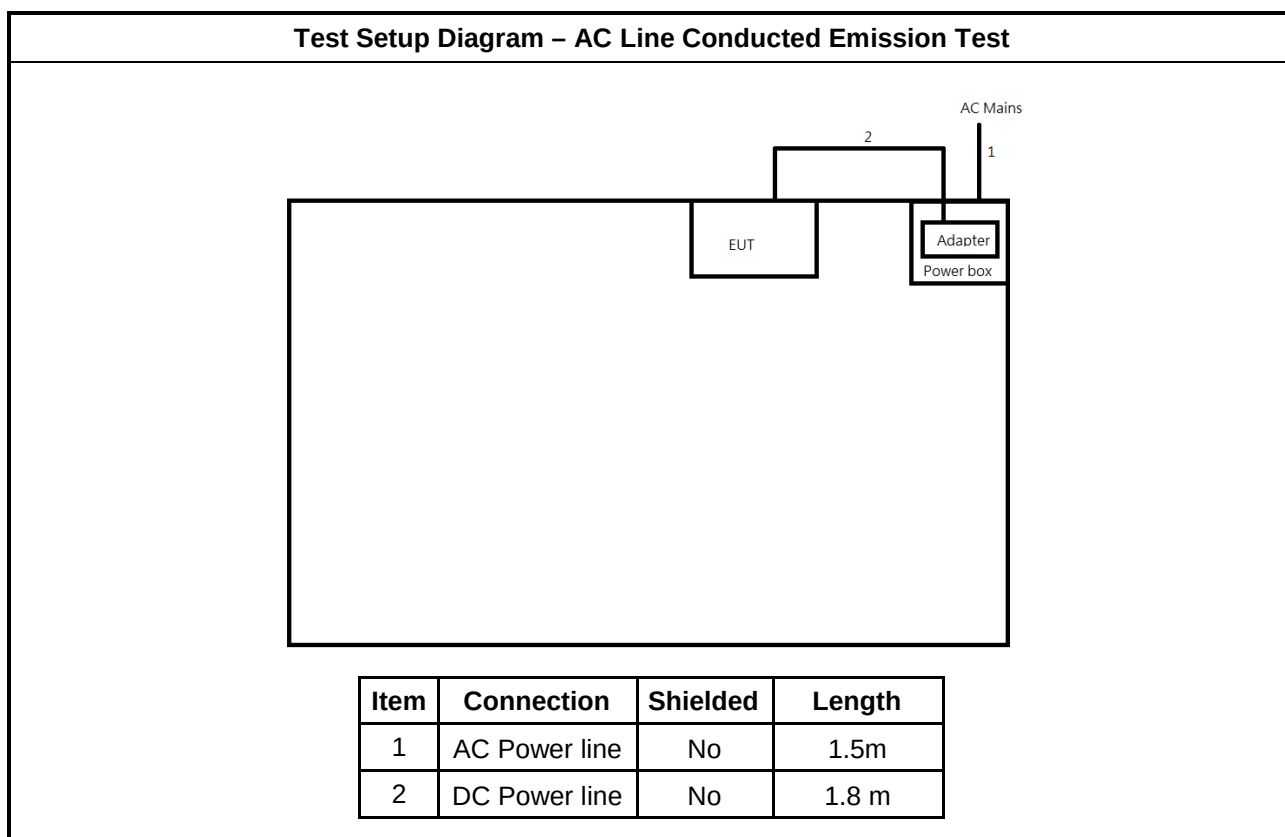
Accessories				
AC Adapter (EU Plug)	Brand Name	Chicony	Model Name	W18-045N1A
	Power Rating	I/P: 100- 240Vac, 1.2A, O/P: 19Vdc, 2.37A		
	Power Cord	1.8meter, Shielded cable, w/o ferrite core		

Reminder: Regarding to more detail and other information, please refer to user manual.

2.5 Support Equipment

Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for Notebook	DELL	HA65NM130	DoC
3	AC Power Source	GW	APS-9102	-

2.6 Test Setup Diagram



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

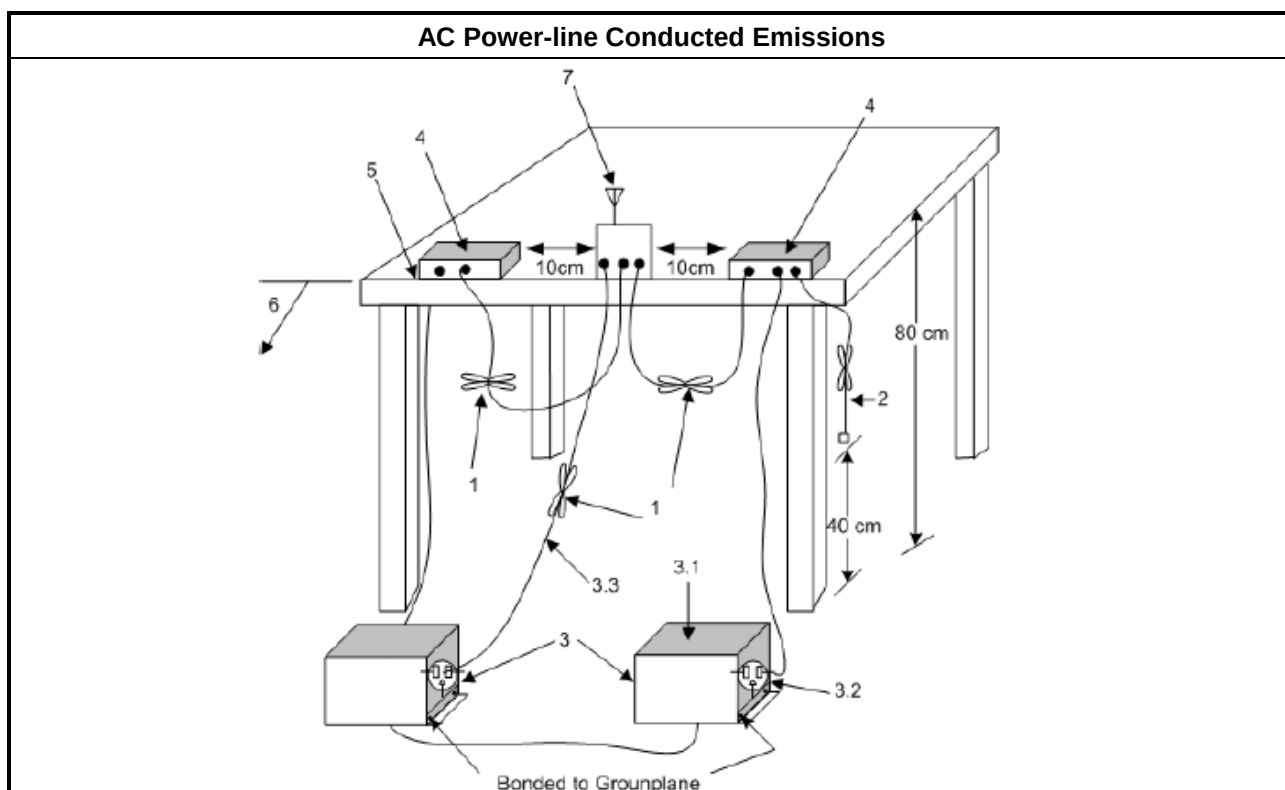
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 6.2 foray 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.

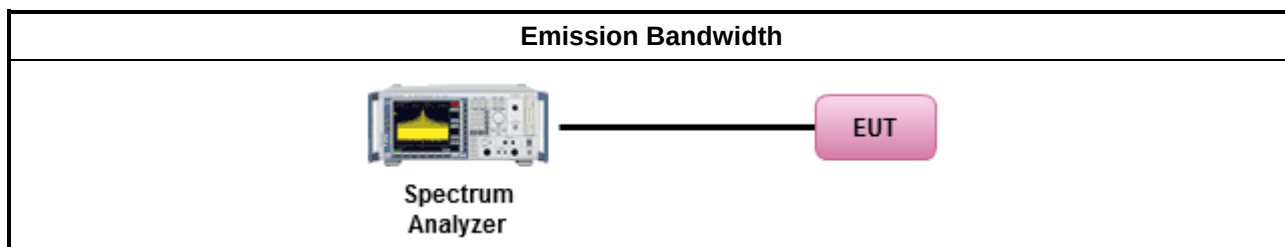
3.2.2 Measuring Instruments

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 KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
☐	Refer as KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
☐	Refer as RSS-Gen, clause 6.7 for for occupied bandwidth testing.
☐	Refer as ANSI C63.10, clause 6.9.3 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
e.i.r.p. Power Limit:	
	2400-2483.5 MHz Band
	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	Smart antenna system (SAS)
	- Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ 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.	

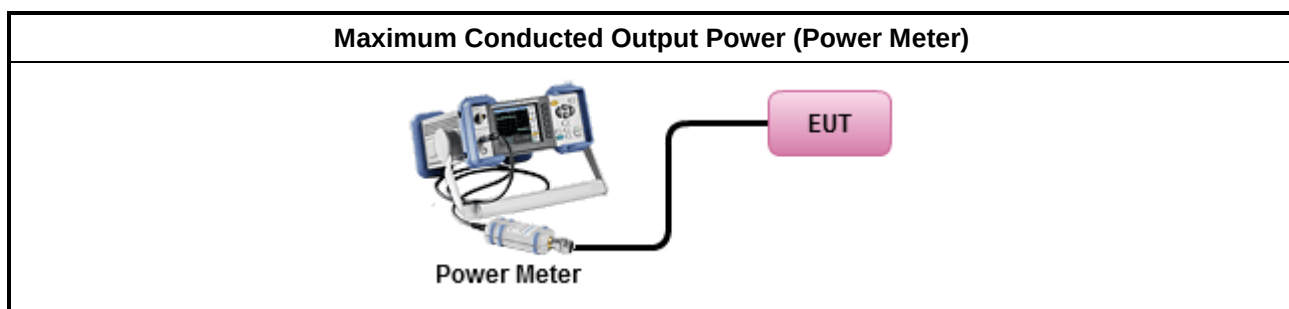
3.3.2 Measuring Instruments

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 KDB 558074, clause 9.1.1 Option 1 (RBW ≥ EBW method).
☐	Refer as KDB 558074, clause 9.1.2 Option 2 (integrated band power method)
☐	Refer as KDB 558074, clause 9.1.3 Option 3 (peak power meter for VBW ≥ DTS BW)
Maximum Average Conducted Output Power	
Duty cycle ≥ 98%	
☐	Refer as KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
Duty cycle < 98%	
☐	Refer as KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
RF power meter and average over on/off periods with duty factor or gated trigger	
☒	Refer as KDB 558074, clause 9.2.3.1 Method AVGPM (using an RF average power meter).
For conducted measurement.	
If the EUT supports multiple transmit chains using options given below: Refer as 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



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

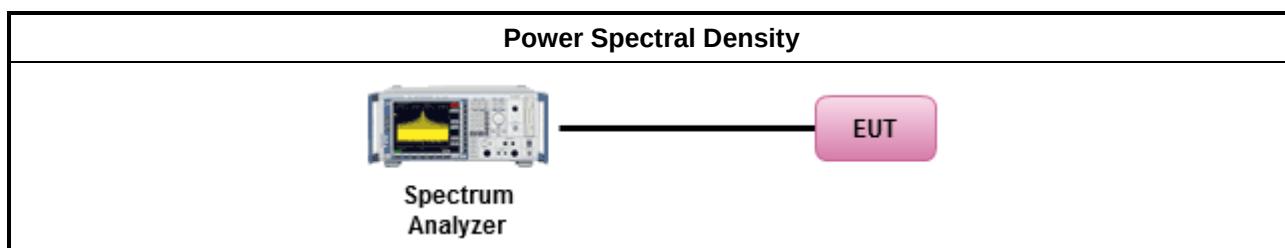
3.4.2 Measuring Instruments

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 KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak).
▪	For conducted measurement.
▪	If The EUT supports multiple transmit chains using options given below:
▪	Measure and sum the spectra across the outputs. Refer as 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.

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.	

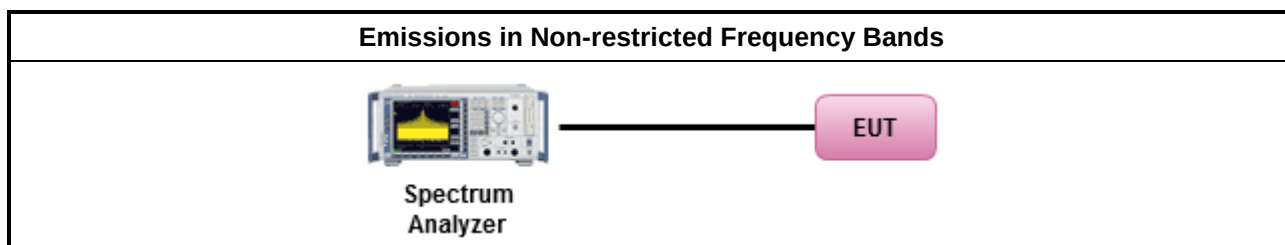
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
Refer as 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.

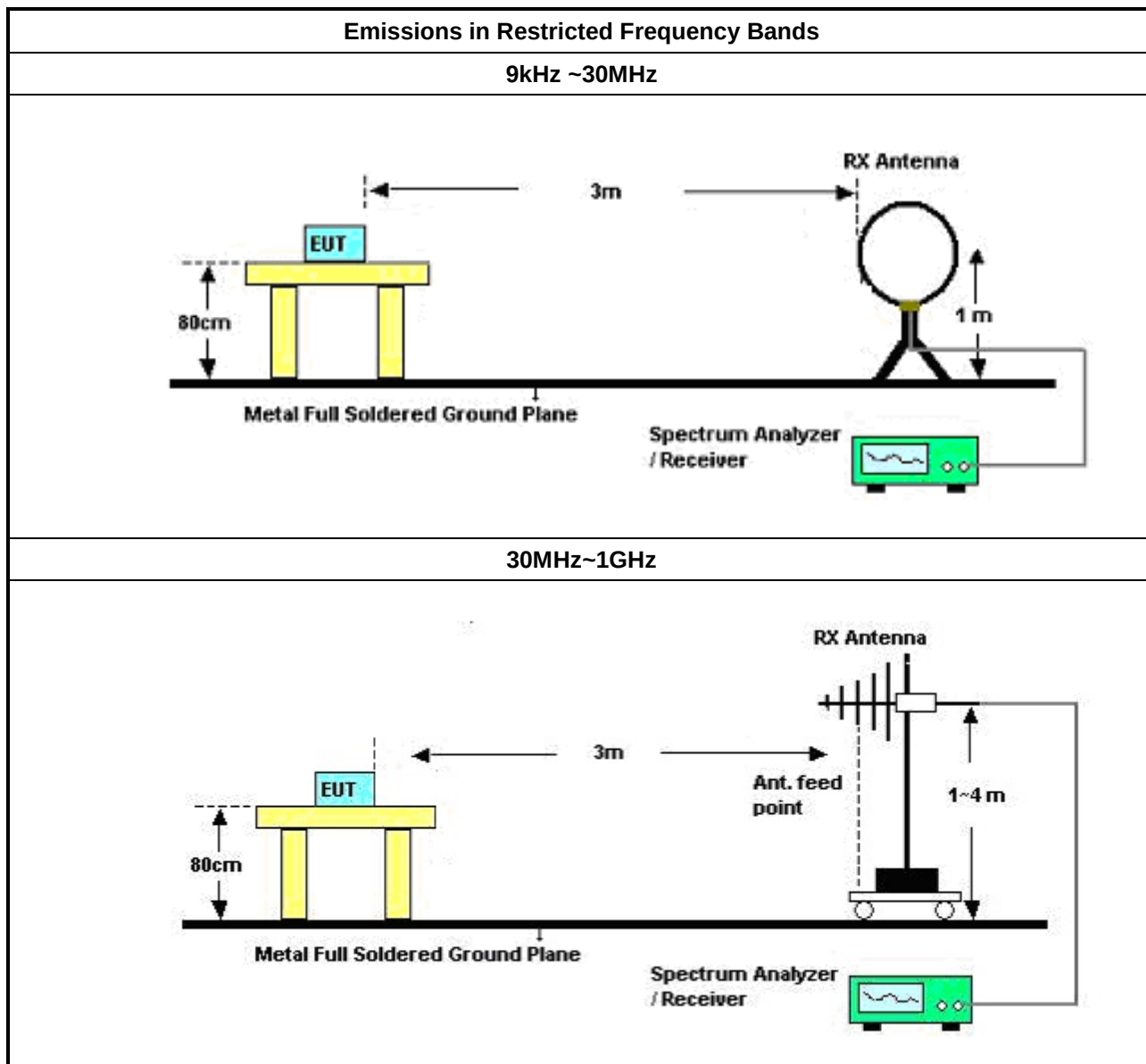
3.6.2 Measuring Instruments

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 6.10.3 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 KDB 558074, clause 12 for unwanted emissions into restricted bands.
	☒ Refer as KDB 558074, clause 12.2.5.3 (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW $\geq$ 1/T.
	☒ Refer as 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 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 KDB 558074, clause 13.2 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
	Refer as 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 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 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





3.6.6 Test Result of Emissions in Restricted Frequency Bands

TEL : 886-3-3273456
FAX : 886-3-3270973
Report Template No.: HE1-C10 Ver2.0
FCC ID: 2A09Z-B5736

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR	102051	9KHz~3.6GHz	03/May/2018	02/May/2019
LISN	R&S	ENV216	101295	9kHz~30MHz	17/Nov/2017	16/Nov/2018
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz~30MHz	06/Oct/2017	05/Oct/2018
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz~30 MHz	12/Oct/2017	11/Oct/2018

NCR : Non-Calibration Require

Instrument for Conducted Test

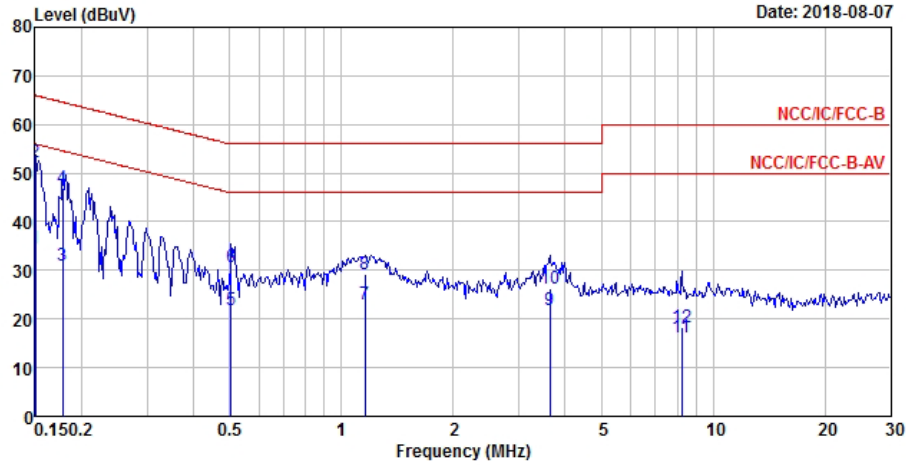
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101515	9kHz~40GHz	08/Dec/2017	07/Dec/2018
Power Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	06/Nov/2017	05/Nov/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	06/Nov/2017	05/Nov/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz~26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz~26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-1m	HUBER+SUHNER	SUCOFLEX_104	MY37332/4	30MHz~26.5GHz	26/Jan/2018	25/Jan/2019
Signal Generator	R&S	SMR40	100116	10MHz~40GHz	26/Jul/2018	25/Jul/2019

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz~1GHz	23/Apr/2018	22/Apr/2019
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz~18GHz	14/Jun/2018	13/Jun/2019
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz~26.5GHz	10/May/2018	09/May/2019
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	27/Apr/2018	26/Apr/2019
EXA Signal Analyzer	KEYSIGHT	N9010A	SG56070103	10Hz~44GHz	15/Dec/2016	14/Dec/2018
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	09/Sep/2017	08/Sep/2018
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	30/Apr/2018	29/Apr/2019
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170614	18GHz~40GHz	09/Feb/2018	08/Feb/2019
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz~40GHz	24/Aug/2017	23/Aug/2018
Loop Antenna	TESEQ	HLA 6120	31244	9k~30MHz	29/Mar/2018	28/Mar/2019
RF Cable-R03m	Jye Bao	RG142	CB031	9kHz~1GHz	1/Feb/2018	31/Jan/2019
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz~40GHz	14/Mar/2018	13/Mar/2019

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Adapter Mode		

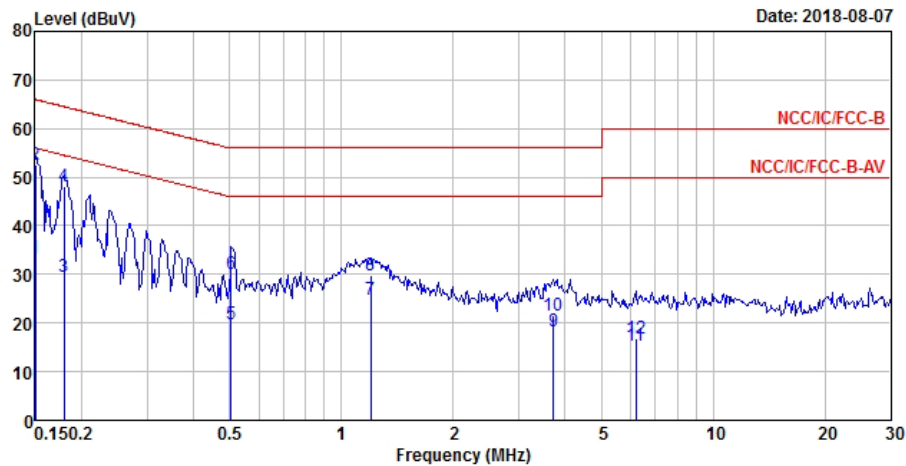


	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	34.63	-21.37	56.00	24.96	9.63	0.04	Average
2 MAX	0.15	52.14	-13.86	66.00	42.47	9.63	0.04	QP
3	0.18	30.99	-23.60	54.59	21.35	9.62	0.02	Average
4	0.18	47.07	-17.52	64.59	37.43	9.62	0.02	QP
5	0.50	21.79	-24.21	46.00	12.11	9.61	0.07	Average
6	0.50	30.56	-25.44	56.00	20.88	9.61	0.07	QP
7	1.16	23.03	-22.97	46.00	13.41	9.62	0.00	Average
8	1.16	29.28	-26.72	56.00	19.66	9.62	0.00	QP
9	3.64	21.96	-24.04	46.00	12.25	9.64	0.07	Average
10	3.64	26.23	-29.77	56.00	16.52	9.64	0.07	QP
11	8.24	16.22	-33.78	50.00	6.36	9.68	0.18	Average
12	8.24	18.43	-41.57	60.00	8.57	9.68	0.18	QP

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.)

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Adapter Mode		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	33.27	-22.73	56.00	23.61	9.62	0.04	Average
2 MAX	0.15	52.46	-13.54	66.00	42.80	9.62	0.04	QP
3	0.18	29.50	-25.00	54.50	19.86	9.62	0.02	Average
4	0.18	48.26	-16.24	64.50	38.62	9.62	0.02	QP
5	0.50	19.82	-26.18	46.00	10.14	9.61	0.07	Average
6	0.50	30.21	-25.79	56.00	20.53	9.61	0.07	QP
7	1.20	24.66	-21.34	46.00	15.05	9.61	0.00	Average
8	1.20	29.78	-26.22	56.00	20.17	9.61	0.00	QP
9	3.72	18.41	-27.59	46.00	8.70	9.63	0.08	Average
10	3.72	21.56	-34.44	56.00	11.85	9.63	0.08	QP
11	6.19	15.34	-34.66	50.00	5.56	9.64	0.14	Average
12	6.19	16.93	-43.07	60.00	7.15	9.64	0.14	QP

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.)

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)	662.5k	1.033M	1M03F1D	662.5k	1.029M
BT-LE(2Mbps)	1.14M	2.044M	2M04F1D	1.13M	2.034M

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;

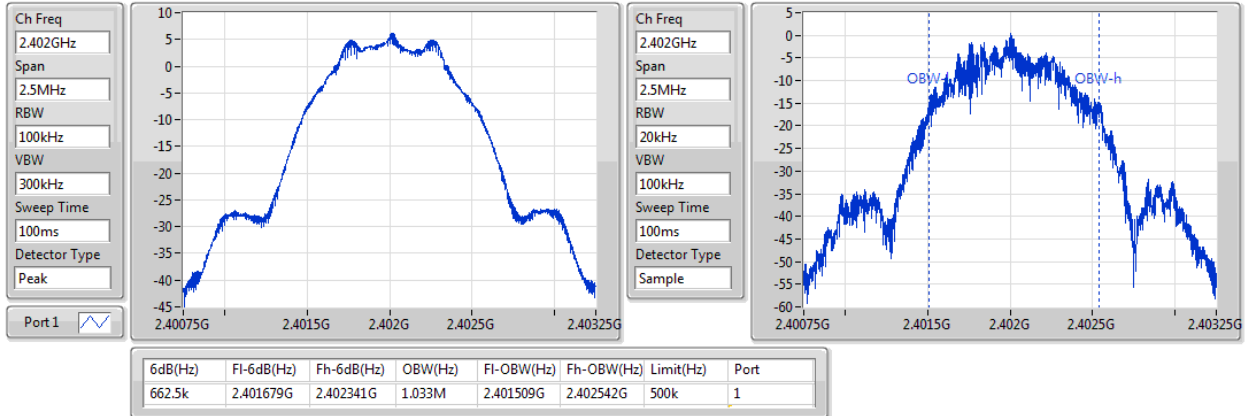
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	662.5k	1.033M
2440MHz_TnomVnom	Pass	500k	662.5k	1.032M
2480MHz_TnomVnom	Pass	500k	662.5k	1.029M
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	1.13M	2.036M
2440MHz_TnomVnom	Pass	500k	1.14M	2.034M
2480MHz_TnomVnom	Pass	500k	1.135M	2.044M

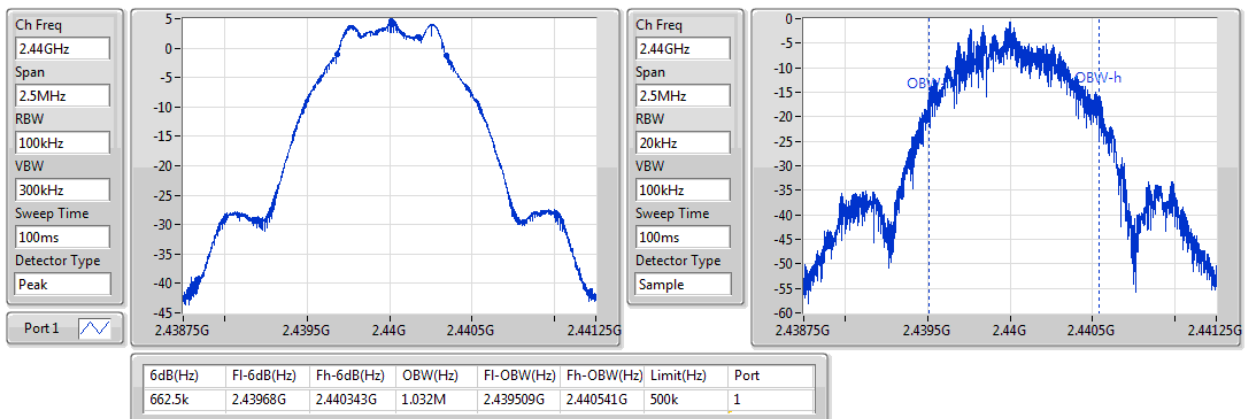
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
EBW
2402MHz

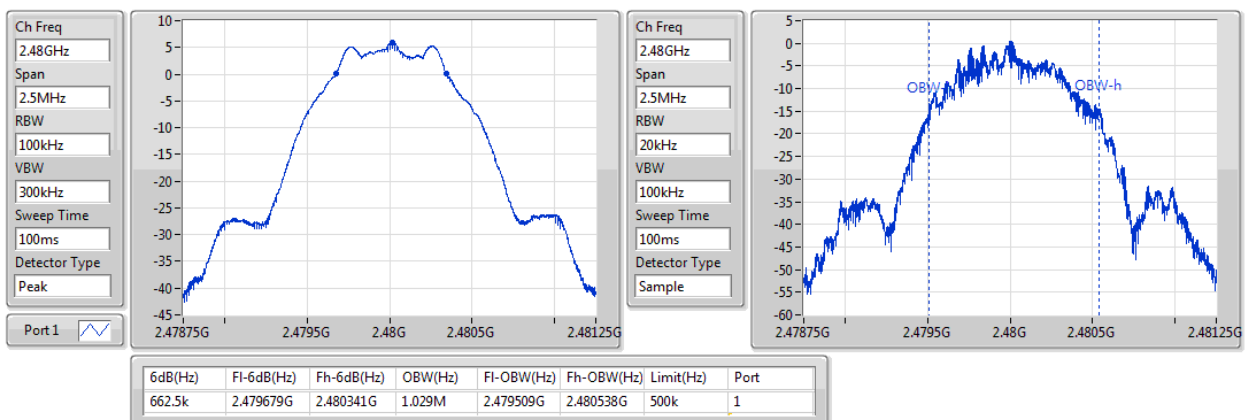
09/08/2018


BT-LE(1Mbps)
EBW
2440MHz

09/08/2018

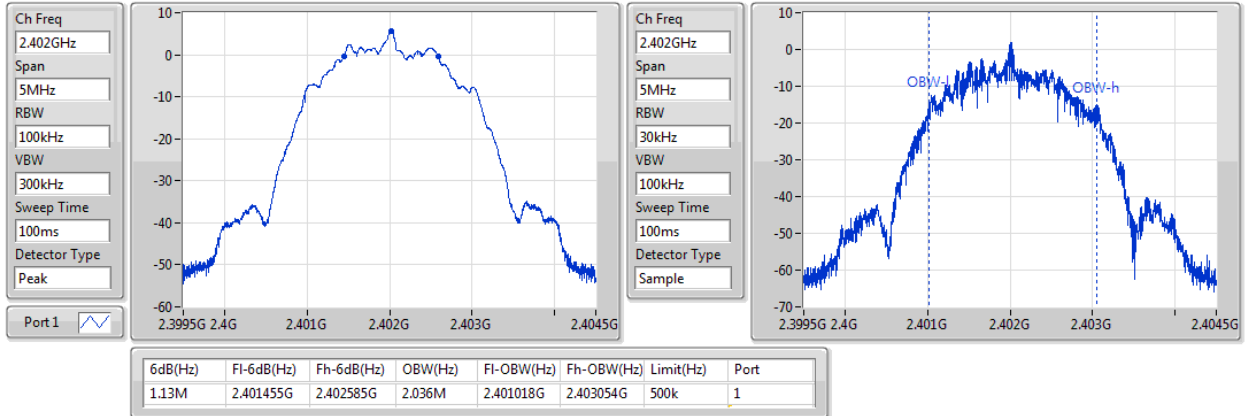

BT-LE(1Mbps)
EBW
2480MHz

09/08/2018

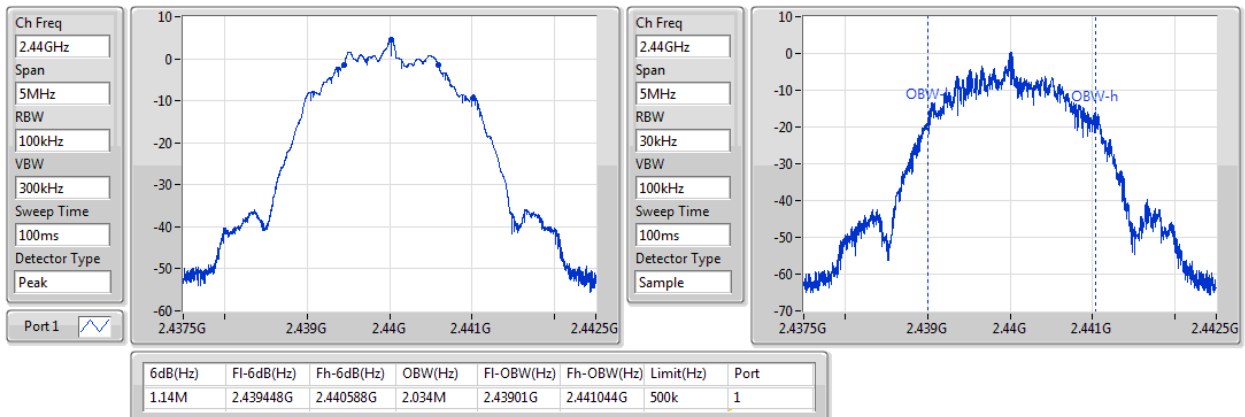


BT-LE(2Mbps)
EBW
2402MHz

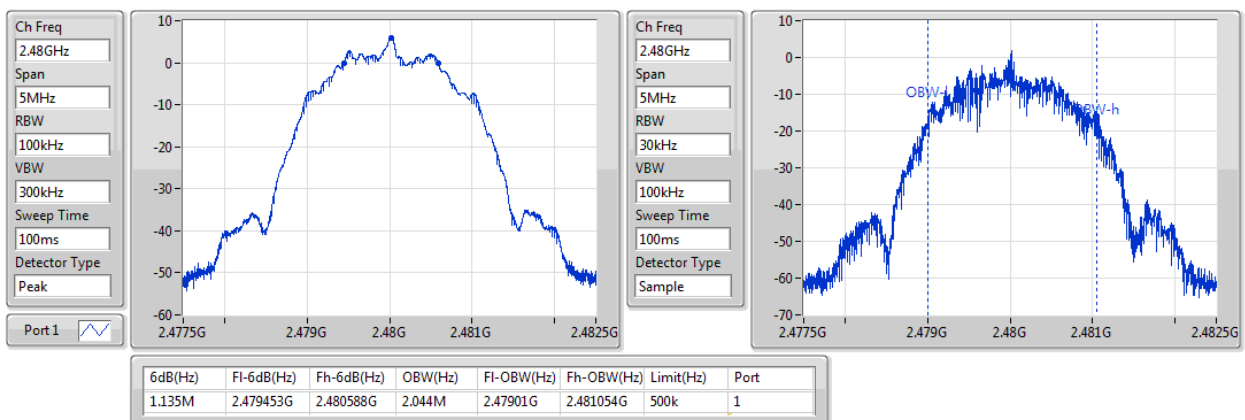
09/08/2018


BT-LE(2Mbps)
EBW
2440MHz

09/08/2018


BT-LE(2Mbps)
EBW
2480MHz

09/08/2018



Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	5.64	0.00366
BT-LE(2Mbps)	5.22	0.00333

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.90	5.23	30.00
2440MHz_TnomVnom	Pass	1.90	4.38	30.00
2480MHz_TnomVnom	Pass	1.90	5.64	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.90	4.85	30.00
2440MHz_TnomVnom	Pass	1.90	3.91	30.00
2480MHz_TnomVnom	Pass	1.90	5.22	30.00

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-9.47
BT-LE(2Mbps)	-13.13

RBW=3kHz.

Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.90	-9.95	8.00
2440MHz_TnomVnom	Pass	1.90	-10.43	8.00
2480MHz_TnomVnom	Pass	1.90	-9.47	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.90	-13.35	8.00
2440MHz_TnomVnom	Pass	1.90	-13.97	8.00
2480MHz_TnomVnom	Pass	1.90	-13.13	8.00

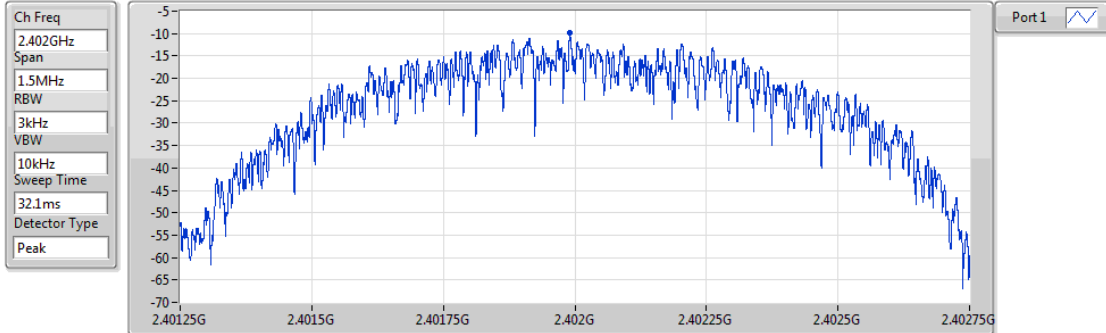
RBW=3kHz.

BT-LE(1Mbps)

PSD

2402MHz

09/08/2018



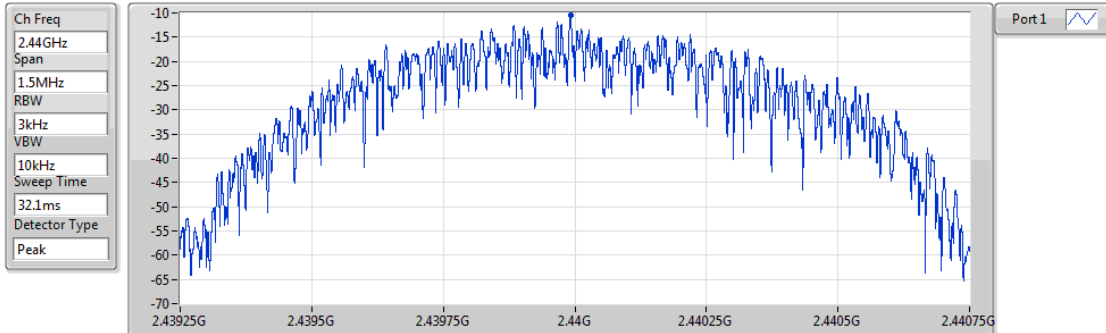
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.95	-9.95	-9.95

BT-LE(1Mbps)

PSD

2440MHz

09/08/2018



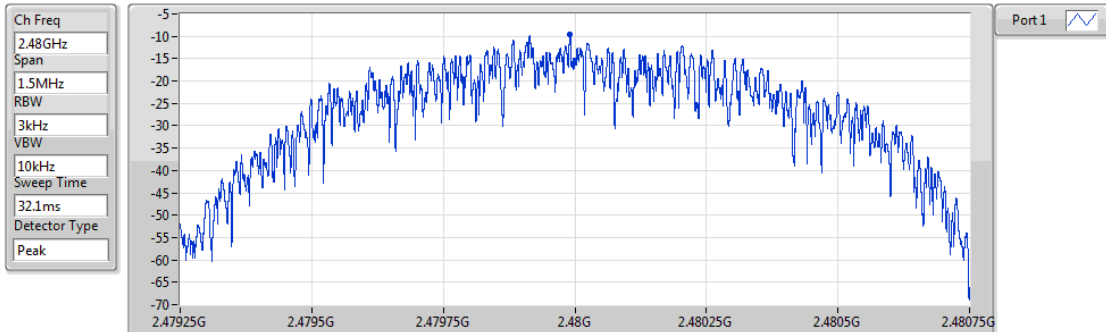
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.43	-10.43	-10.43

BT-LE(1Mbps)

PSD

2480MHz

09/08/2018



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.47	-9.47	-9.47

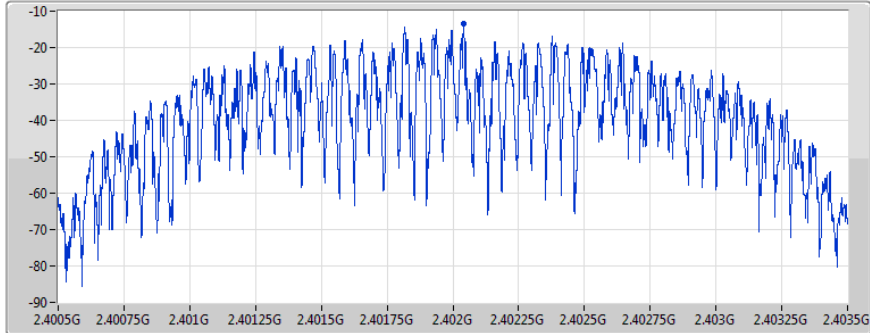
BT-LE(2Mbps)

PSD

2402MHz

09/08/2018

Ch Freq
2.402GHz
Span
3MHz
RBW
3kHz
VBW
10kHz
Sweep Time
33.4ms
Detector Type
Peak



Port 1

Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
-13.35	-13.35	-13.35

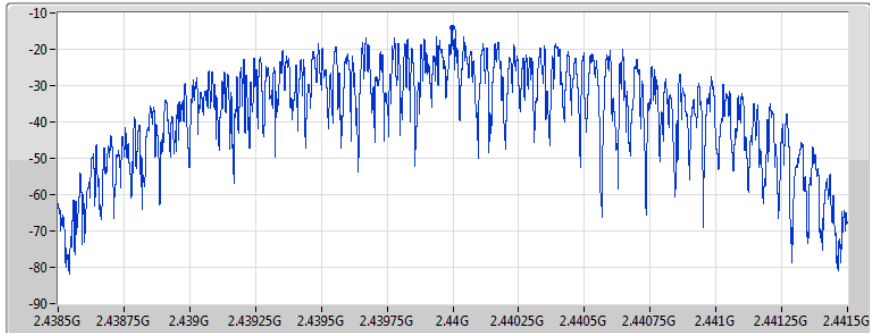
BT-LE(2Mbps)

PSD

2440MHz

09/08/2018

Ch Freq
2.44GHz
Span
3MHz
RBW
3kHz
VBW
10kHz
Sweep Time
33.4ms
Detector Type
Peak



Port 1

Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
-13.97	-13.97	-13.97

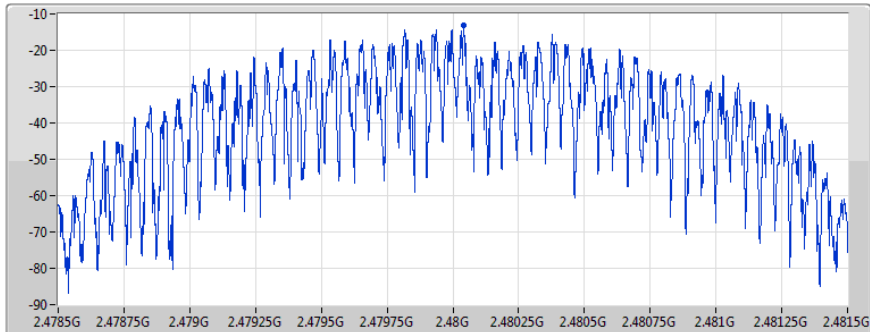
BT-LE(2Mbps)

PSD

2480MHz

09/08/2018

Ch Freq
2.48GHz
Span
3MHz
RBW
3kHz
VBW
10kHz
Sweep Time
33.4ms
Detector Type
Peak



Port 1

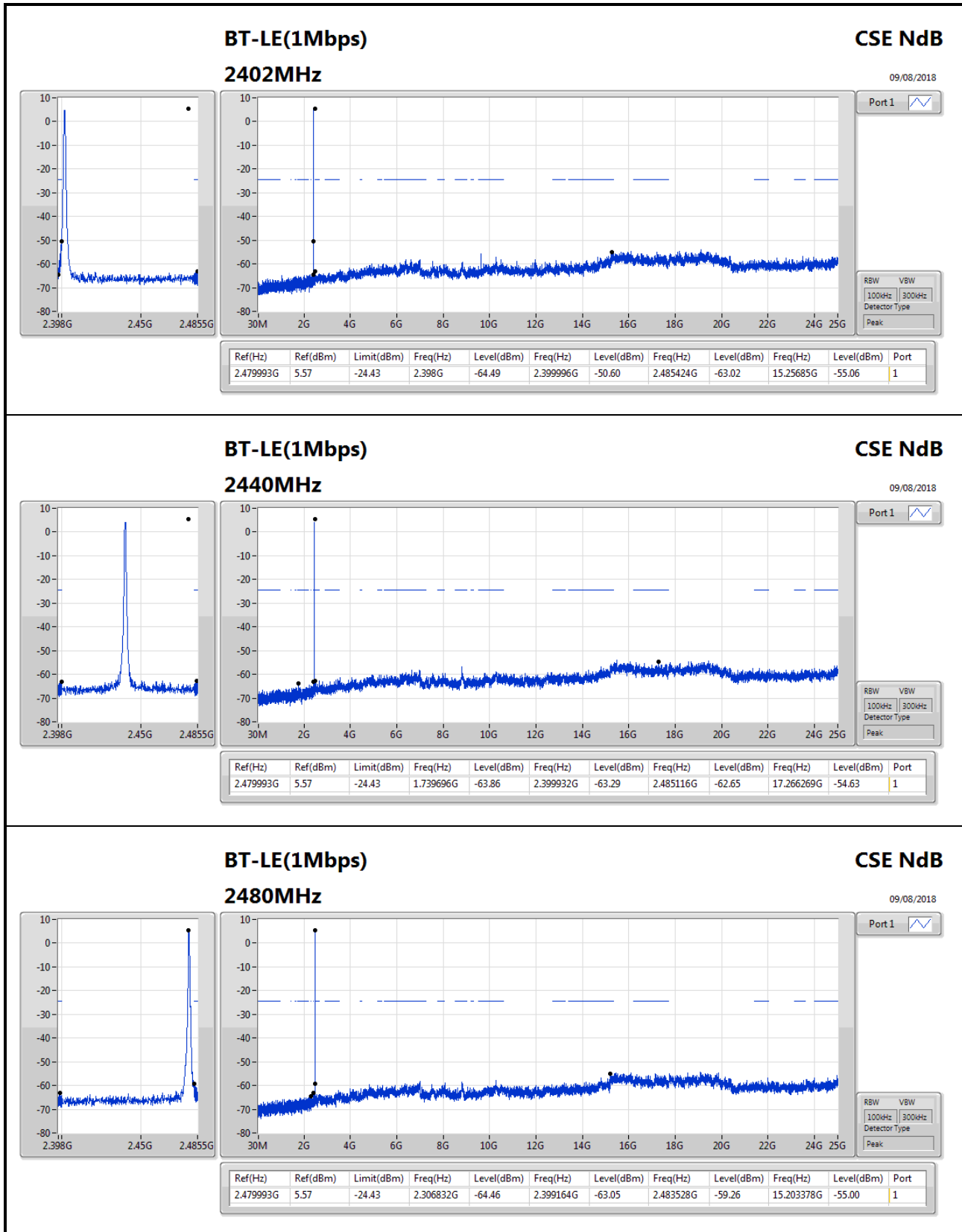
Sum	PD	Port 1
(dBm/Hz)	(dBm/Hz)	(dBm/Hz)
-13.13	-13.13	-13.13

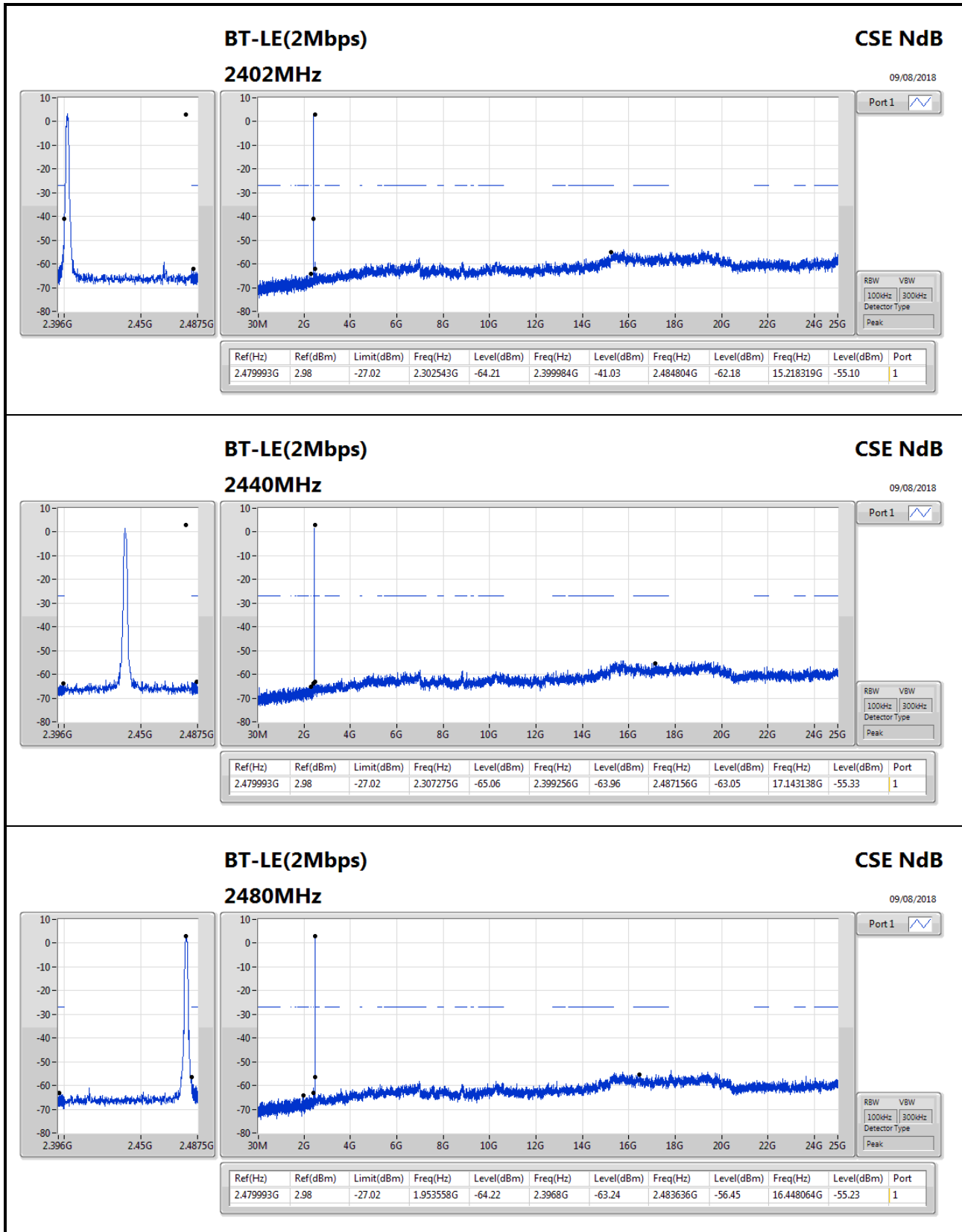
Summary

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	2.479993G	5.57	-24.43	2.398G	-64.49	2.399996G	-50.60	2.485424G	-63.02	15.25685G	-55.06	1
BT-LE(2Mbps)	Pass	2.479993G	2.98	-27.02	2.302543G	-64.21	2.399984G	-41.03	2.484804G	-62.18	15.218319G	-55.10	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_TnomVnom	Pass	2.479993G	5.57	-24.43	2.398G	-64.49	2.399996G	-50.60	2.485424G	-63.02	15.25685G	-55.06	1
2440MHz_TnomVnom	Pass	2.479993G	5.57	-24.43	1.739696G	-63.86	2.399932G	-63.29	2.485116G	-62.65	17.266269G	-54.63	1
2480MHz_TnomVnom	Pass	2.479993G	5.57	-24.43	2.306832G	-64.46	2.399164G	-63.05	2.483528G	-59.26	15.203378G	-55.00	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.479993G	2.98	-27.02	2.302543G	-64.21	2.399984G	-41.03	2.484804G	-62.18	15.218319G	-55.10	1
2440MHz_TnomVnom	Pass	2.479993G	2.98	-27.02	2.307275G	-65.06	2.399256G	-63.96	2.487156G	-63.05	17.143138G	-55.33	1
2480MHz_TnomVnom	Pass	2.479993G	2.98	-27.02	1.953558G	-64.22	2.3968G	-63.24	2.483636G	-56.45	16.448064G	-55.23	1







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	PK	31.94M	30.75	40.00	-9.25	-14.36	3	Horizontal	0	1.00	-

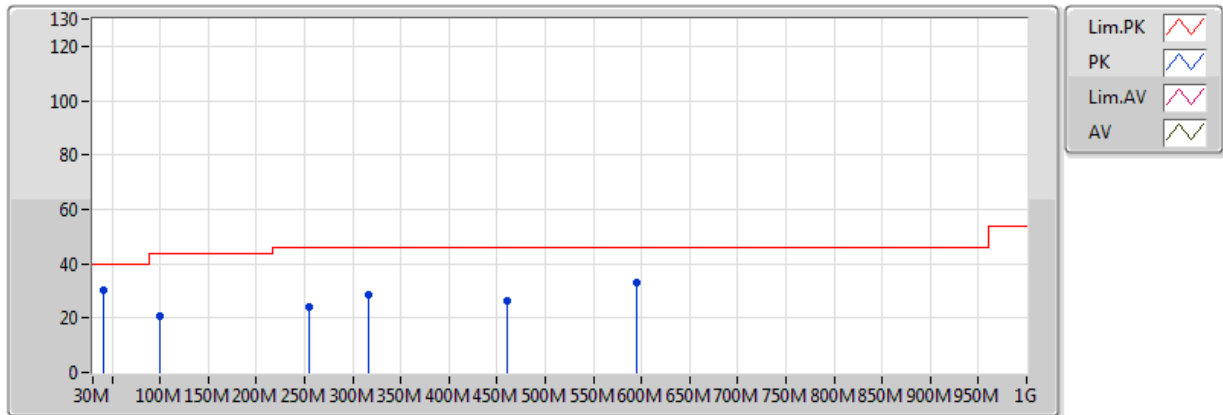
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	41.64M	30.45	40.00	-9.55	-19.22	3	Vertical	360	1.00	-
2440MHz	Pass	PK	99.84M	20.60	43.50	-22.90	-21.09	3	Vertical	360	1.00	-
2440MHz	Pass	PK	255.04M	23.95	46.00	-22.05	-16.39	3	Vertical	360	1.00	-
2440MHz	Pass	PK	317.12M	28.54	46.00	-17.46	-16.44	3	Vertical	360	1.00	-
2440MHz	Pass	PK	460.68M	26.30	46.00	-19.70	-12.70	3	Vertical	360	1.00	-
2440MHz	Pass	PK	594.54M	33.20	46.00	-12.80	-10.92	3	Vertical	360	1.00	-
2440MHz	Pass	PK	31.94M	30.75	40.00	-9.25	-14.36	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	90.14M	25.42	43.50	-18.08	-22.41	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	253.1M	25.96	46.00	-20.04	-16.68	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	317.12M	27.65	46.00	-18.35	-16.44	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	381.14M	25.21	46.00	-20.79	-14.68	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	594.54M	26.13	46.00	-19.87	-10.92	3	Horizontal	0	1.00	-

BT-LE(1Mbps)

2440MHz_Adapter

02/08/2018

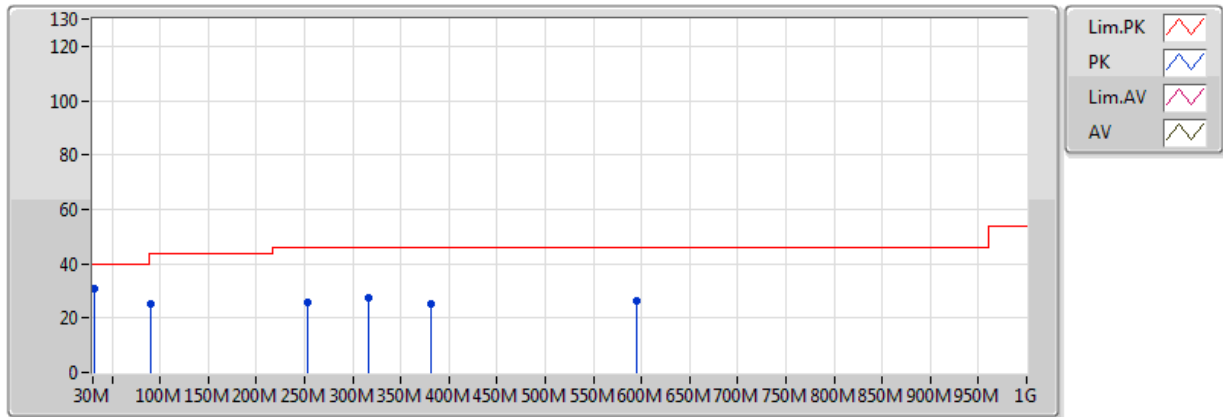


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	41.64M	30.45	40.00	-9.55	-19.22	3	Vertical	360	1.00	-
PK	99.84M	20.60	43.50	-22.90	-21.09	3	Vertical	360	1.00	-
PK	255.04M	23.95	46.00	-22.05	-16.39	3	Vertical	360	1.00	-
PK	317.12M	28.54	46.00	-17.46	-16.44	3	Vertical	360	1.00	-
PK	460.68M	26.30	46.00	-19.70	-12.70	3	Vertical	360	1.00	-
PK	594.54M	33.20	46.00	-12.80	-10.92	3	Vertical	360	1.00	-

BT-LE(1Mbps)

2440MHz_Adapter

02/08/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	31.94M	30.75	40.00	-9.25	-14.36	3	Horizontal	0	1.00	-
PK	90.14M	25.42	43.50	-18.08	-22.41	3	Horizontal	0	1.00	-
PK	253.1M	25.96	46.00	-20.04	-16.68	3	Horizontal	0	1.00	-
PK	317.12M	27.65	46.00	-18.35	-16.44	3	Horizontal	0	1.00	-
PK	381.14M	25.21	46.00	-20.79	-14.68	3	Horizontal	0	1.00	-
PK	594.54M	26.13	46.00	-19.87	-10.92	3	Horizontal	0	1.00	-

**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	2.4904G	44.76	54.00	-9.24	31.13	3	Vertical	170	1.50	-
BT-LE(2Mbps)	Pass	AV	2.483502G	44.66	54.00	-9.34	31.11	3	Vertical	173	1.50	-

Result

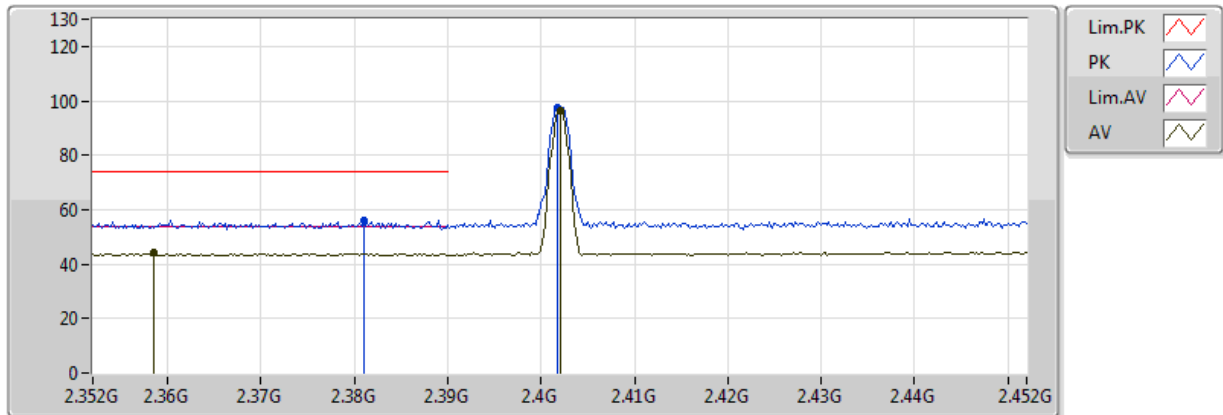
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3586G	44.01	54.00	-9.99	30.66	3	Vertical	186	1.31	-
2402MHz	Pass	AV	2.402G	96.54	Inf	-Inf	30.82	3	Vertical	186	1.31	-
2402MHz	Pass	PK	2.381G	56.00	74.00	-18.00	30.75	3	Vertical	186	1.31	-
2402MHz	Pass	PK	2.4018G	97.47	Inf	-Inf	30.82	3	Vertical	186	1.31	-
2402MHz	Pass	AV	2.3834G	43.98	54.00	-10.02	30.75	3	Horizontal	189	1.50	-
2402MHz	Pass	AV	2.402G	97.79	Inf	-Inf	30.82	3	Horizontal	189	1.50	-
2402MHz	Pass	PK	2.369G	55.84	74.00	-18.16	30.70	3	Horizontal	189	1.50	-
2402MHz	Pass	PK	2.402G	98.75	Inf	-Inf	30.82	3	Horizontal	189	1.50	-
2402MHz	Pass	AV	4.80478G	28.08	54.00	-25.92	2.08	3	Vertical	75	1.67	-
2402MHz	Pass	PK	4.80478G	42.06	74.00	-31.94	2.08	3	Vertical	75	1.67	-
2402MHz	Pass	AV	4.80634G	28.75	54.00	-25.25	2.09	3	Horizontal	336	1.50	-
2402MHz	Pass	PK	4.7929G	41.78	74.00	-32.22	2.05	3	Horizontal	336	1.50	-
2440MHz	Pass	AV	2.3836G	43.90	54.00	-10.10	30.75	3	Vertical	173	1.63	-
2440MHz	Pass	AV	2.44G	97.45	Inf	-Inf	30.95	3	Vertical	173	1.63	-
2440MHz	Pass	AV	2.499998G	44.70	54.00	-9.30	31.17	3	Vertical	173	1.63	-
2440MHz	Pass	PK	2.3832G	56.36	74.00	-17.64	30.75	3	Vertical	173	1.63	-
2440MHz	Pass	PK	2.4396G	98.43	Inf	-Inf	30.95	3	Vertical	173	1.63	-
2440MHz	Pass	PK	2.4968G	55.96	74.00	-18.04	31.16	3	Vertical	173	1.63	-
2440MHz	Pass	AV	2.3512G	44.20	54.00	-9.80	30.64	3	Horizontal	154	1.15	-
2440MHz	Pass	AV	2.44G	96.05	Inf	-Inf	30.95	3	Horizontal	154	1.15	-
2440MHz	Pass	AV	2.484G	44.73	54.00	-9.27	31.12	3	Horizontal	154	1.15	-
2440MHz	Pass	PK	2.3844G	55.64	74.00	-18.36	30.76	3	Horizontal	154	1.15	-
2440MHz	Pass	PK	2.4396G	97.02	Inf	-Inf	30.95	3	Horizontal	154	1.15	-
2440MHz	Pass	PK	2.4976G	56.08	74.00	-17.92	31.16	3	Horizontal	154	1.15	-
2440MHz	Pass	AV	4.88438G	26.98	54.00	-27.02	2.28	3	Vertical	0	1.71	-
2440MHz	Pass	PK	4.8794G	40.25	74.00	-33.75	2.27	3	Vertical	0	1.71	-
2440MHz	Pass	AV	4.88378G	29.01	54.00	-24.99	2.28	3	Horizontal	158	1.50	-
2440MHz	Pass	PK	4.88222G	40.99	74.00	-33.01	2.28	3	Horizontal	158	1.50	-
2480MHz	Pass	AV	2.48G	99.65	Inf	-Inf	31.10	3	Vertical	170	1.50	-
2480MHz	Pass	AV	2.4904G	44.76	54.00	-9.24	31.13	3	Vertical	170	1.50	-
2480MHz	Pass	PK	2.48G	100.60	Inf	-Inf	31.10	3	Vertical	170	1.50	-
2480MHz	Pass	PK	2.4838G	56.40	74.00	-17.60	31.11	3	Vertical	170	1.50	-
2480MHz	Pass	AV	2.48G	97.61	Inf	-Inf	31.10	3	Horizontal	149	1.50	-
2480MHz	Pass	AV	2.4884G	44.64	54.00	-9.36	31.13	3	Horizontal	149	1.50	-
2480MHz	Pass	PK	2.48G	98.56	Inf	-Inf	31.10	3	Horizontal	149	1.50	-
2480MHz	Pass	PK	2.4878G	56.31	74.00	-17.69	31.13	3	Horizontal	149	1.50	-
2480MHz	Pass	AV	4.97488G	27.71	54.00	-26.29	2.51	3	Vertical	244	1.50	-
2480MHz	Pass	PK	4.9669G	41.56	74.00	-32.44	2.49	3	Vertical	244	1.50	-
2480MHz	Pass	AV	4.97452G	27.86	54.00	-26.14	2.51	3	Horizontal	5	1.50	-
2480MHz	Pass	PK	4.9621G	41.49	74.00	-32.51	2.48	3	Horizontal	5	1.50	-
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3756G	43.90	54.00	-10.10	30.72	3	Vertical	185	1.35	-
2402MHz	Pass	AV	2.402G	94.18	Inf	-Inf	30.82	3	Vertical	185	1.35	-
2402MHz	Pass	PK	2.3856G	55.63	74.00	-18.37	30.76	3	Vertical	185	1.35	-
2402MHz	Pass	PK	2.402G	98.27	Inf	-Inf	30.82	3	Vertical	185	1.35	-
2402MHz	Pass	AV	2.3832G	43.97	54.00	-10.03	30.75	3	Horizontal	188	1.30	-
2402MHz	Pass	AV	2.402G	94.84	Inf	-Inf	30.82	3	Horizontal	188	1.30	-

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2402MHz	Pass	PK	2.3862G	55.38	74.00	-18.62	30.76	3	Horizontal	188	1.30	-
2402MHz	Pass	PK	2.402G	99.04	Inf	-Inf	30.82	3	Horizontal	188	1.30	-
2402MHz	Pass	AV	4.8055G	28.71	54.00	-25.29	2.08	3	Vertical	308	1.50	-
2402MHz	Pass	PK	4.80034G	41.92	74.00	-32.08	2.07	3	Vertical	308	1.50	-
2402MHz	Pass	AV	4.80628G	29.78	54.00	-24.22	2.09	3	Horizontal	10	1.50	-
2402MHz	Pass	PK	4.7995G	42.07	74.00	-31.93	2.07	3	Horizontal	10	1.50	-
2440MHz	Pass	AV	2.3896G	43.85	54.00	-10.15	30.77	3	Vertical	177	1.66	-
2440MHz	Pass	AV	2.44G	93.74	Inf	-Inf	30.95	3	Vertical	177	1.66	-
2440MHz	Pass	AV	2.4984G	44.63	54.00	-9.37	31.17	3	Vertical	177	1.66	-
2440MHz	Pass	PK	2.3564G	55.41	74.00	-18.59	30.66	3	Vertical	177	1.66	-
2440MHz	Pass	PK	2.44G	97.86	Inf	-Inf	30.95	3	Vertical	177	1.66	-
2440MHz	Pass	PK	2.4856G	55.99	74.00	-18.01	31.12	3	Vertical	177	1.66	-
2440MHz	Pass	AV	2.3612G	43.90	54.00	-10.10	30.67	3	Horizontal	183	1.69	-
2440MHz	Pass	AV	2.44G	94.51	Inf	-Inf	30.95	3	Horizontal	183	1.69	-
2440MHz	Pass	AV	2.4908G	44.58	54.00	-9.42	31.13	3	Horizontal	183	1.69	-
2440MHz	Pass	PK	2.3724G	55.92	74.00	-18.08	30.71	3	Horizontal	183	1.69	-
2440MHz	Pass	PK	2.44G	98.67	Inf	-Inf	30.95	3	Horizontal	183	1.69	-
2440MHz	Pass	PK	2.4992G	55.90	74.00	-18.10	31.17	3	Horizontal	183	1.69	-
2440MHz	Pass	AV	4.88468G	27.79	54.00	-26.21	2.28	3	Vertical	234	1.50	-
2440MHz	Pass	PK	4.89194G	42.23	74.00	-31.77	2.30	3	Vertical	234	1.50	-
2440MHz	Pass	AV	4.89278G	27.60	54.00	-26.40	2.30	3	Horizontal	331	1.49	-
2440MHz	Pass	PK	4.88714G	40.92	74.00	-33.08	2.29	3	Horizontal	331	1.49	-
2480MHz	Pass	AV	2.48G	96.44	Inf	-Inf	31.10	3	Vertical	173	1.50	-
2480MHz	Pass	AV	2.483502G	44.66	54.00	-9.34	31.11	3	Vertical	173	1.50	-
2480MHz	Pass	PK	2.48G	100.59	Inf	-Inf	31.10	3	Vertical	173	1.50	-
2480MHz	Pass	PK	2.4864G	56.29	74.00	-17.71	31.12	3	Vertical	173	1.50	-
2480MHz	Pass	AV	2.48G	94.79	Inf	-Inf	31.10	3	Horizontal	153	1.29	-
2480MHz	Pass	AV	2.4884G	44.63	54.00	-9.37	31.13	3	Horizontal	153	1.29	-
2480MHz	Pass	PK	2.48G	98.88	Inf	-Inf	31.10	3	Horizontal	153	1.29	-
2480MHz	Pass	PK	2.4958G	57.13	74.00	-16.87	31.16	3	Horizontal	153	1.29	-
2480MHz	Pass	AV	4.97224G	28.05	54.00	-25.95	2.50	3	Vertical	354	1.50	-
2480MHz	Pass	PK	4.97194G	41.83	74.00	-32.17	2.50	3	Vertical	354	1.50	-
2480MHz	Pass	AV	4.97446G	27.96	54.00	-26.04	2.51	3	Horizontal	202	1.92	-
2480MHz	Pass	PK	4.94848G	42.07	74.00	-31.93	2.44	3	Horizontal	202	1.92	-

BT-LE(1Mbps)

2402MHz_TX

26/06/2018

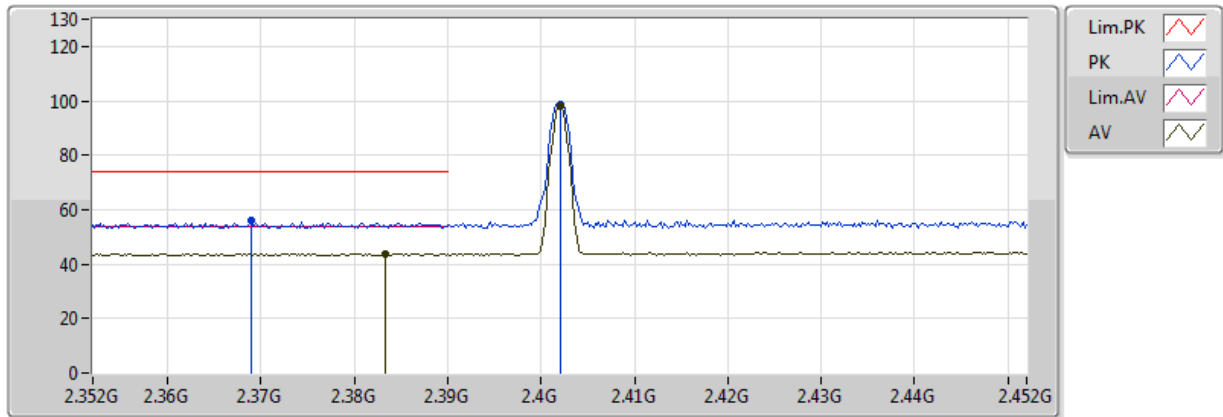


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3586G	44.01	54.00	-9.99	30.66	3	Vertical	186	1.31	-
AV	2.402G	96.54	Inf	-Inf	30.82	3	Vertical	186	1.31	-
PK	2.381G	56.00	74.00	-18.00	30.75	3	Vertical	186	1.31	-
PK	2.4018G	97.47	Inf	-Inf	30.82	3	Vertical	186	1.31	-

BT-LE(1Mbps)

2402MHz_TX

26/06/2018

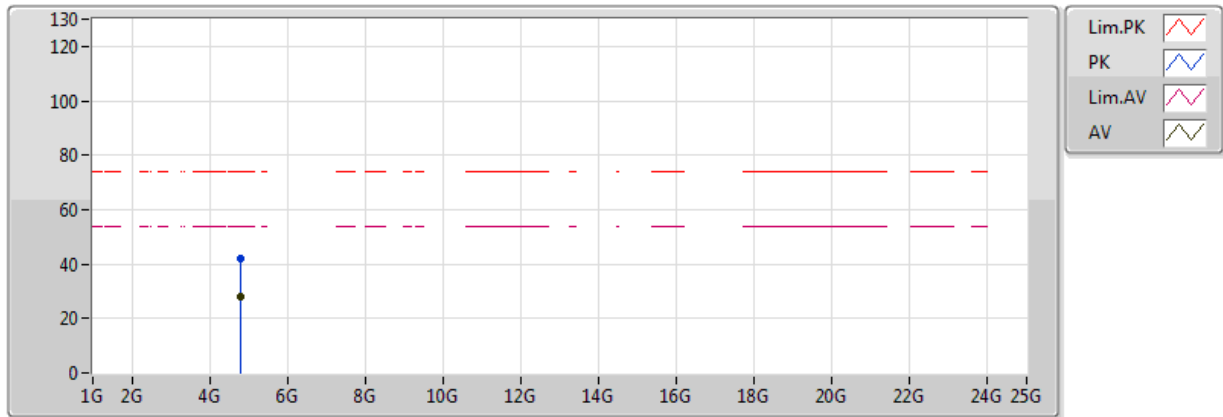


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3834G	43.98	54.00	-10.02	30.75	3	Horizontal	189	1.50	-
AV	2.402G	97.79	Inf	-Inf	30.82	3	Horizontal	189	1.50	-
PK	2.369G	55.84	74.00	-18.16	30.70	3	Horizontal	189	1.50	-
PK	2.402G	98.75	Inf	-Inf	30.82	3	Horizontal	189	1.50	-

BT-LE(1Mbps)

2402MHz_TX

26/06/2018

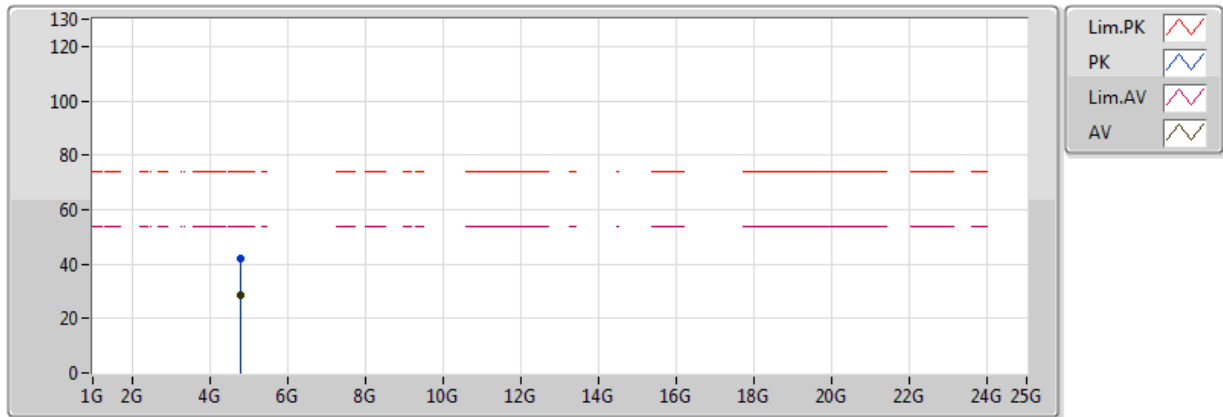


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80478G	28.08	54.00	-25.92	2.08	3	Vertical	75	1.67	-
PK	4.80478G	42.06	74.00	-31.94	2.08	3	Vertical	75	1.67	-

BT-LE(1Mbps)

2402MHz_TX

26/06/2018

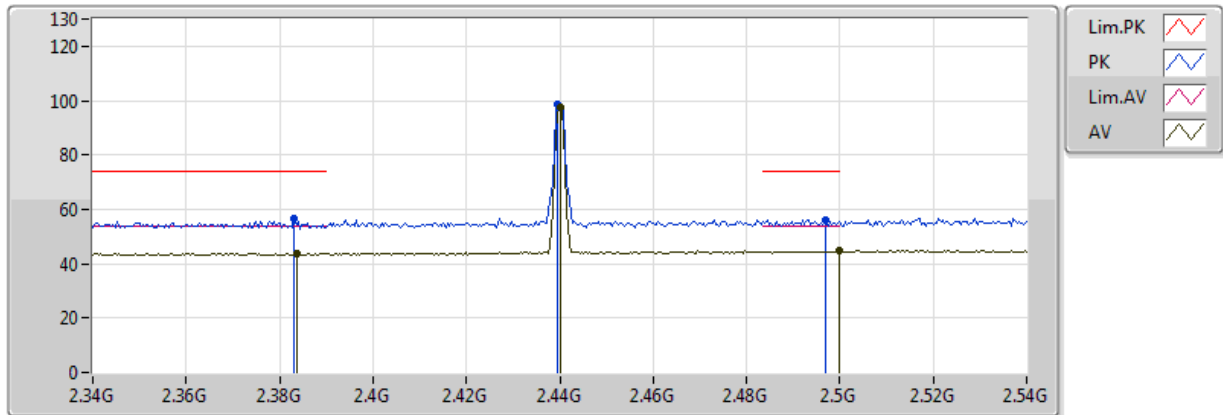


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80634G	28.75	54.00	-25.25	2.09	3	Horizontal	336	1.50	-
PK	4.7929G	41.78	74.00	-32.22	2.05	3	Horizontal	336	1.50	-

BT-LE(1Mbps)

2440MHz_TX

26/06/2018

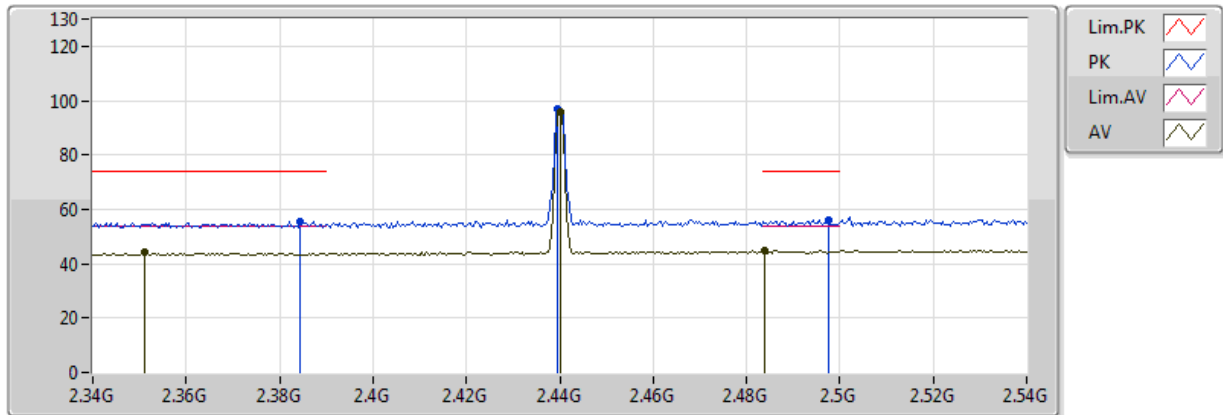


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3836G	43.90	54.00	-10.10	30.75	3	Vertical	173	1.63	-
AV	2.44G	97.45	Inf	-Inf	30.95	3	Vertical	173	1.63	-
AV	2.499998G	44.70	54.00	-9.30	31.17	3	Vertical	173	1.63	-
PK	2.3832G	56.36	74.00	-17.64	30.75	3	Vertical	173	1.63	-
PK	2.4396G	98.43	Inf	-Inf	30.95	3	Vertical	173	1.63	-
PK	2.4968G	55.96	74.00	-18.04	31.16	3	Vertical	173	1.63	-

BT-LE(1Mbps)

2440MHz_TX

26/06/2018

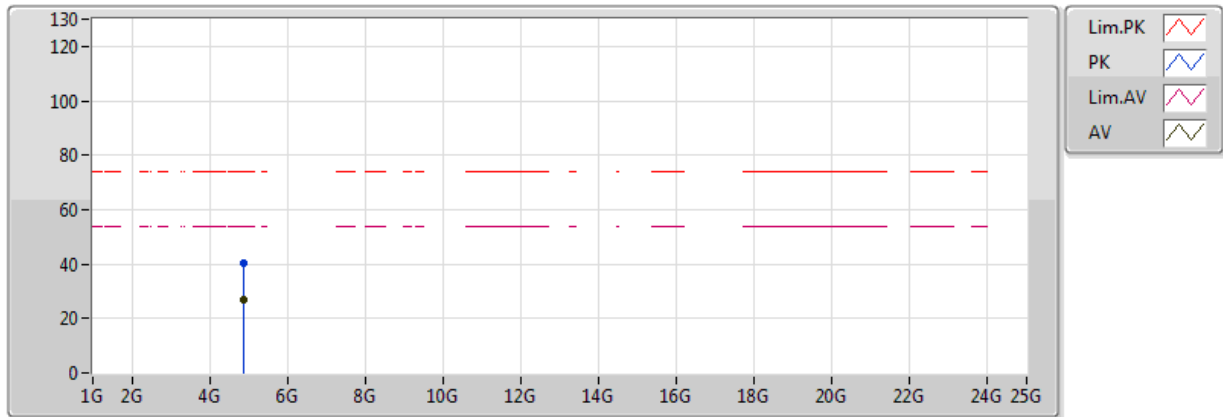


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3512G	44.20	54.00	-9.80	30.64	3	Horizontal	154	1.15	-
AV	2.44G	96.05	Inf	-Inf	30.95	3	Horizontal	154	1.15	-
AV	2.484G	44.73	54.00	-9.27	31.12	3	Horizontal	154	1.15	-
PK	2.3844G	55.64	74.00	-18.36	30.76	3	Horizontal	154	1.15	-
PK	2.4396G	97.02	Inf	-Inf	30.95	3	Horizontal	154	1.15	-
PK	2.4976G	56.08	74.00	-17.92	31.16	3	Horizontal	154	1.15	-

BT-LE(1Mbps)

2440MHz_TX

26/06/2018

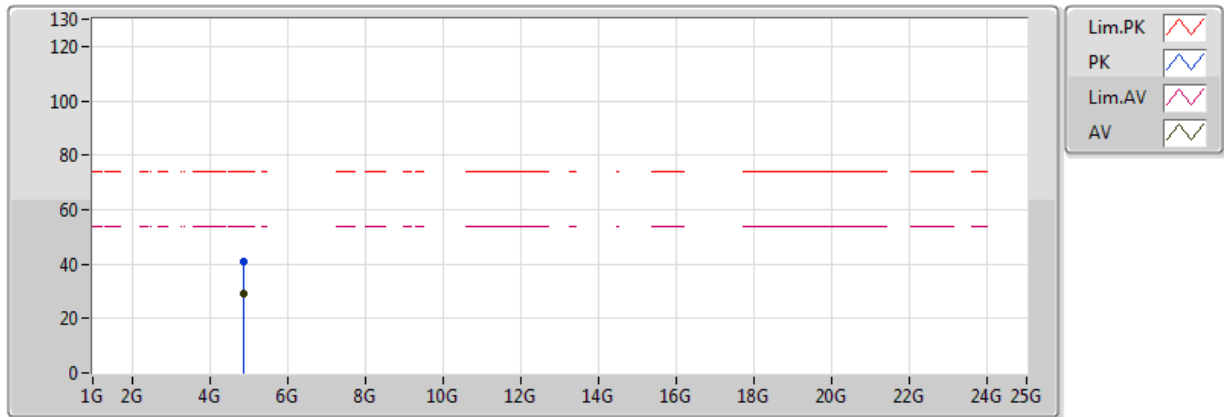


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.88438G	26.98	54.00	-27.02	2.28	3	Vertical	0	1.71	-
PK	4.8794G	40.25	74.00	-33.75	2.27	3	Vertical	0	1.71	-

BT-LE(1Mbps)

2440MHz_TX

26/06/2018

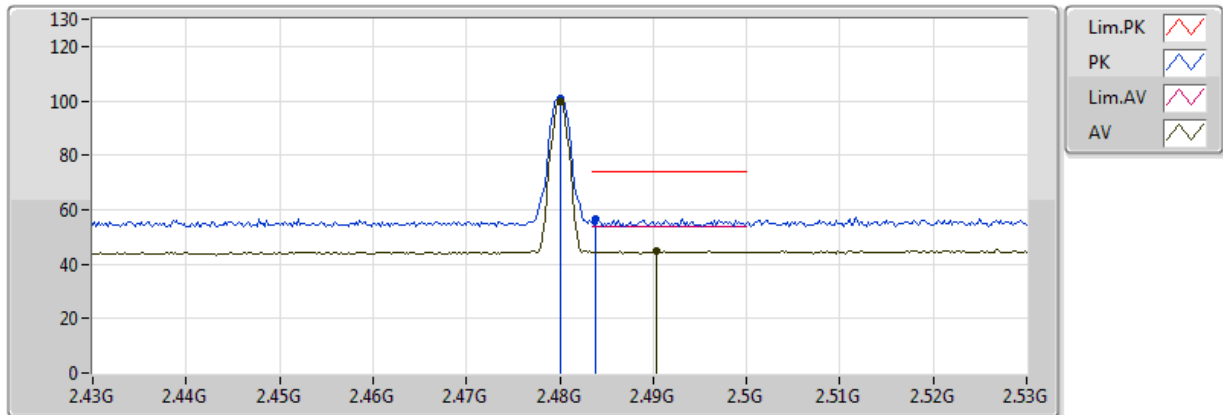


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.88378G	29.01	54.00	-24.99	2.28	3	Horizontal	158	1.50	-
PK	4.88222G	40.99	74.00	-33.01	2.28	3	Horizontal	158	1.50	-

BT-LE(1Mbps)

2480MHz_TX

26/06/2018

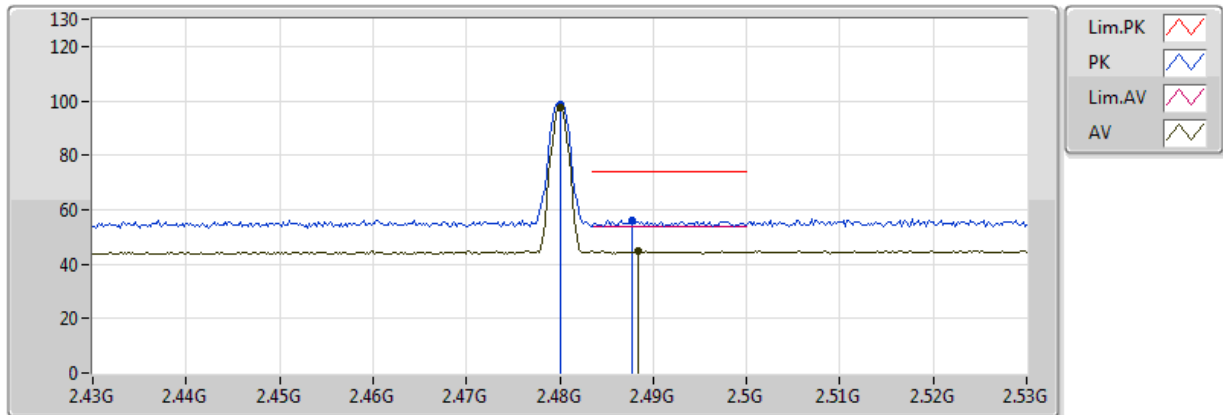


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	99.65	Inf	-Inf	31.10	3	Vertical	170	1.50	-
AV	2.4904G	44.76	54.00	-9.24	31.13	3	Vertical	170	1.50	-
PK	2.48G	100.60	Inf	-Inf	31.10	3	Vertical	170	1.50	-
PK	2.4838G	56.40	74.00	-17.60	31.11	3	Vertical	170	1.50	-

BT-LE(1Mbps)

2480MHz_TX

26/06/2018

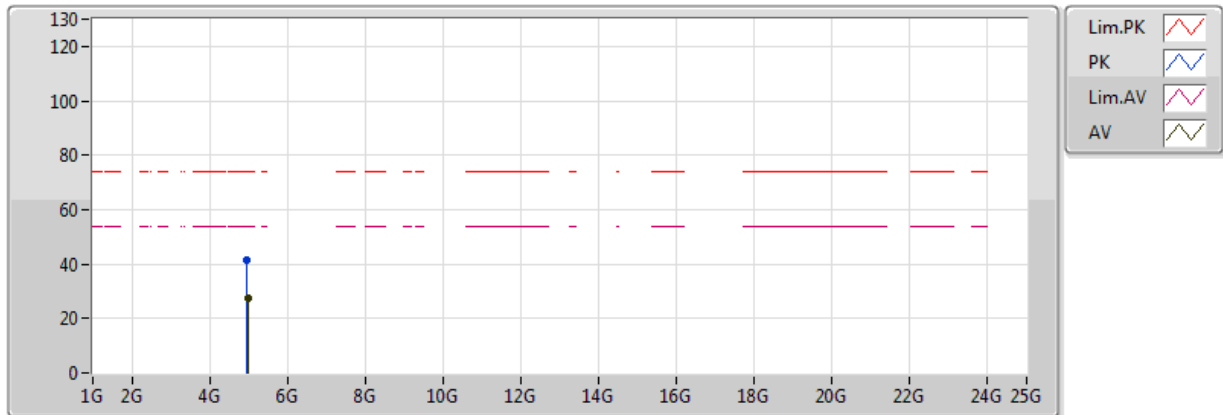


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	97.61	Inf	-Inf	31.10	3	Horizontal	149	1.50	-
AV	2.4884G	44.64	54.00	-9.36	31.13	3	Horizontal	149	1.50	-
PK	2.48G	98.56	Inf	-Inf	31.10	3	Horizontal	149	1.50	-
PK	2.4878G	56.31	74.00	-17.69	31.13	3	Horizontal	149	1.50	-

BT-LE(1Mbps)

2480MHz_TX

26/06/2018

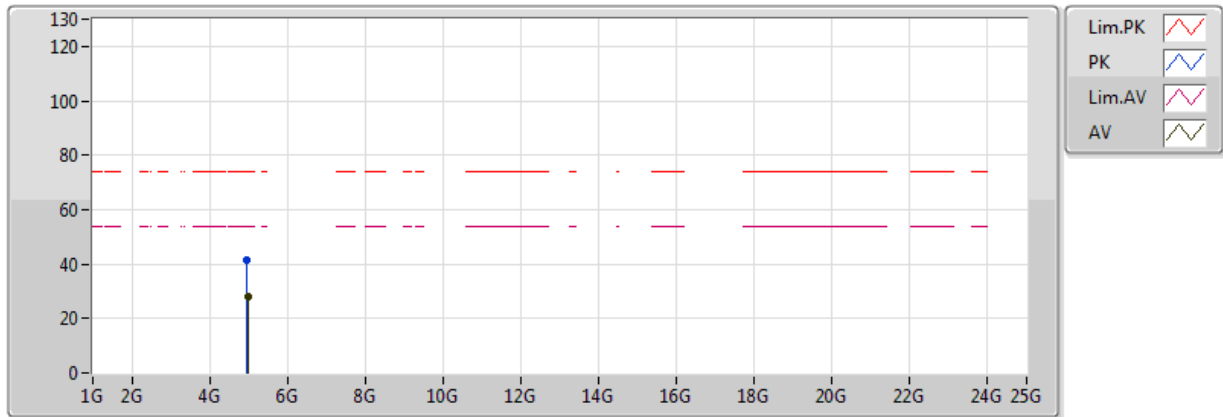


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.97488G	27.71	54.00	-26.29	2.51	3	Vertical	244	1.50	-
PK	4.9669G	41.56	74.00	-32.44	2.49	3	Vertical	244	1.50	-

BT-LE(1Mbps)

2480MHz_TX

26/06/2018

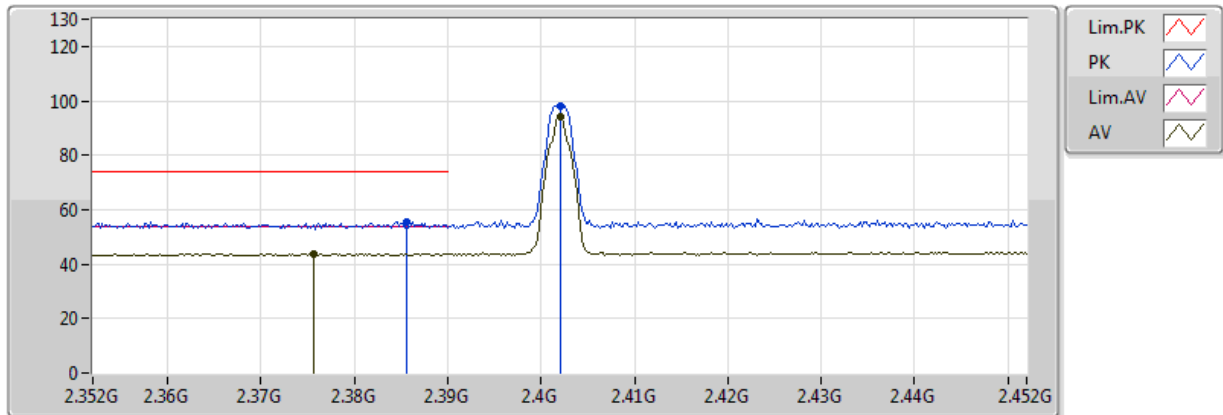


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.97452G	27.86	54.00	-26.14	2.51	3	Horizontal	5	1.50	-
PK	4.9621G	41.49	74.00	-32.51	2.48	3	Horizontal	5	1.50	-

BT-LE(2Mbps)

2402MHz_TX

26/06/2018

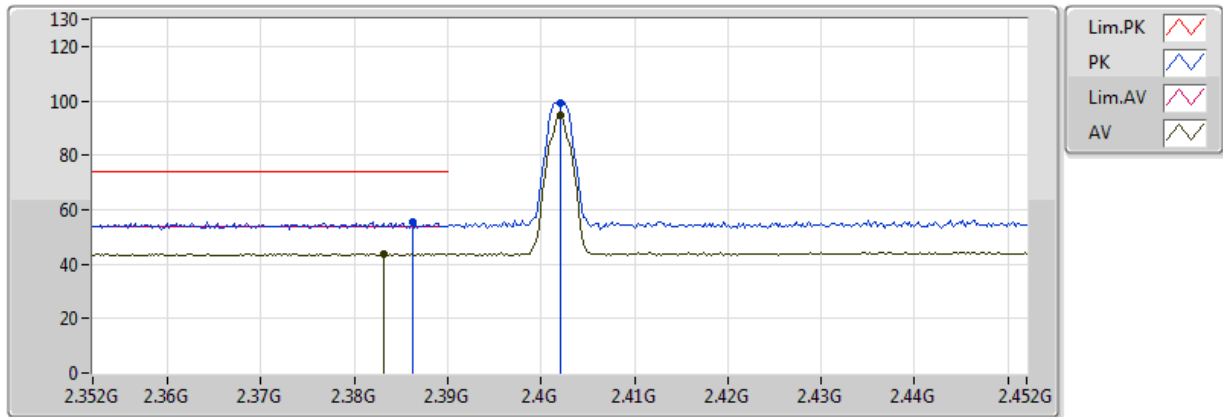


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3756G	43.90	54.00	-10.10	30.72	3	Vertical	185	1.35	-
AV	2.402G	94.18	Inf	-Inf	30.82	3	Vertical	185	1.35	-
PK	2.3856G	55.63	74.00	-18.37	30.76	3	Vertical	185	1.35	-
PK	2.402G	98.27	Inf	-Inf	30.82	3	Vertical	185	1.35	-

BT-LE(2Mbps)

2402MHz_TX

26/06/2018

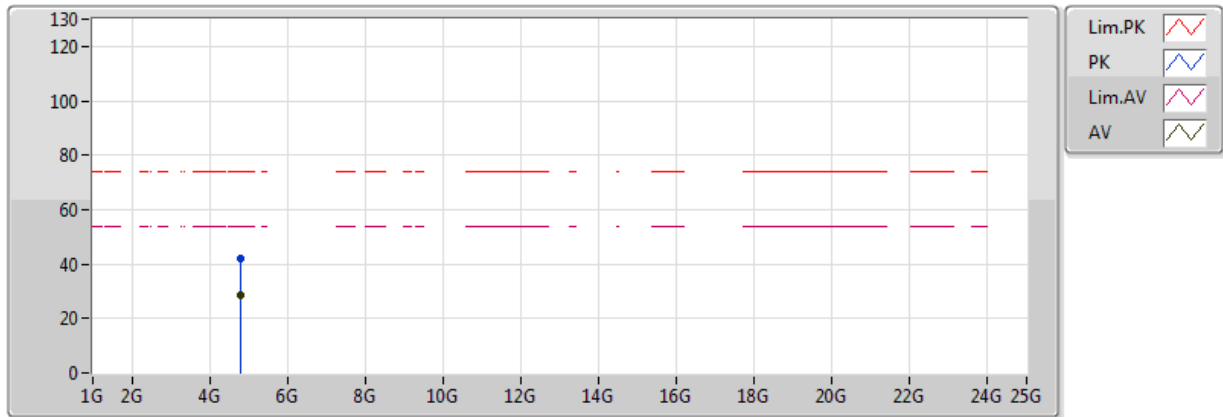


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3832G	43.97	54.00	-10.03	30.75	3	Horizontal	188	1.30	-
AV	2.402G	94.84	Inf	-Inf	30.82	3	Horizontal	188	1.30	-
PK	2.3862G	55.38	74.00	-18.62	30.76	3	Horizontal	188	1.30	-
PK	2.402G	99.04	Inf	-Inf	30.82	3	Horizontal	188	1.30	-

BT-LE(2Mbps)

2402MHz_TX

26/06/2018

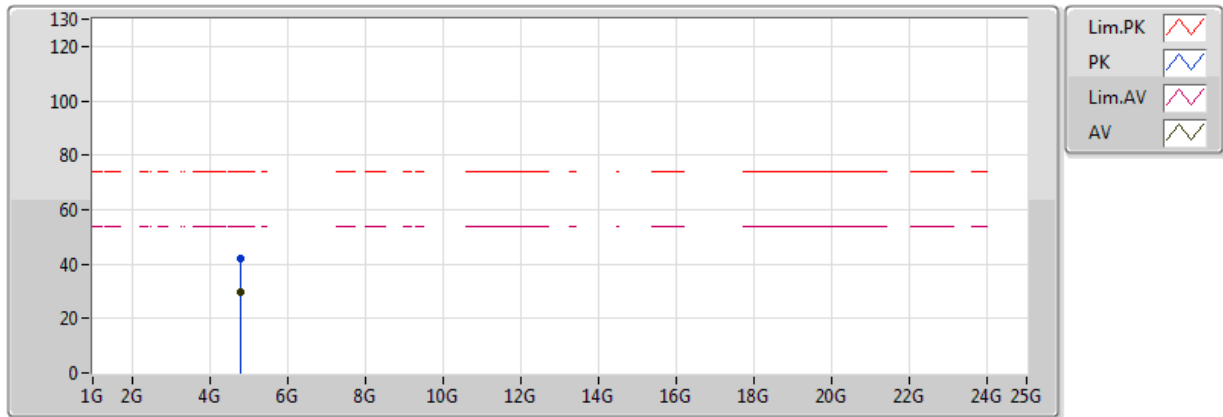


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.8055G	28.71	54.00	-25.29	2.08	3	Vertical	308	1.50	-
PK	4.80034G	41.92	74.00	-32.08	2.07	3	Vertical	308	1.50	-

BT-LE(2Mbps)

2402MHz_TX

26/06/2018

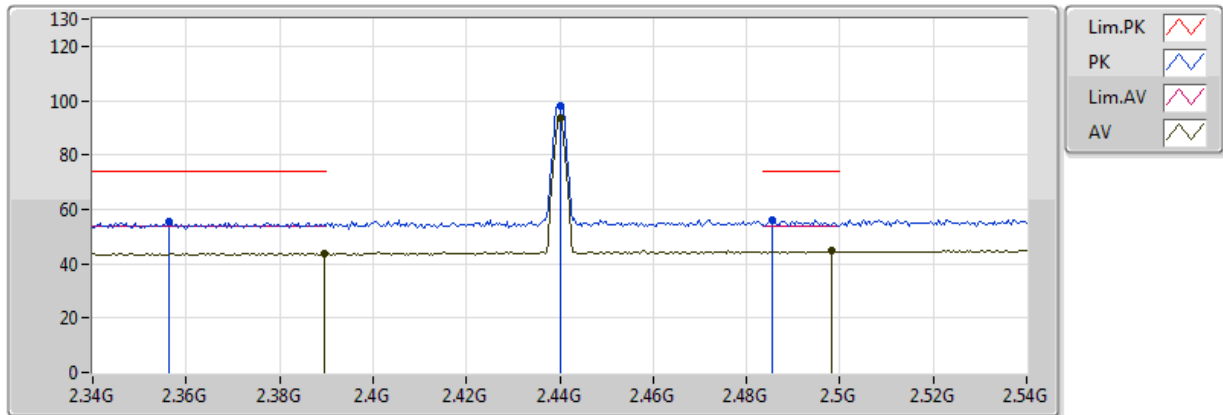


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80628G	29.78	54.00	-24.22	2.09	3	Horizontal	10	1.50	-
PK	4.7995G	42.07	74.00	-31.93	2.07	3	Horizontal	10	1.50	-

BT-LE(2Mbps)

2440MHz_TX

26/06/2018

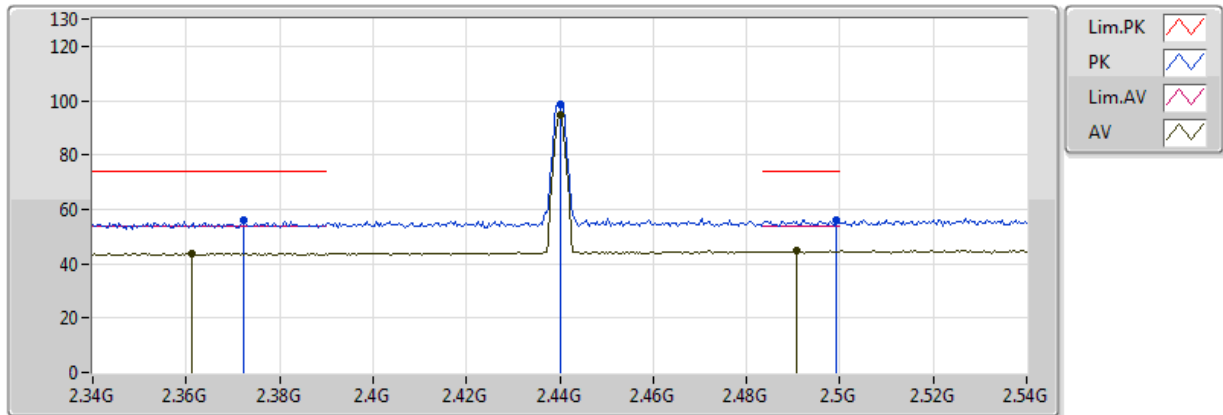


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3896G	43.85	54.00	-10.15	30.77	3	Vertical	177	1.66	-
AV	2.44G	93.74	Inf	-Inf	30.95	3	Vertical	177	1.66	-
AV	2.4984G	44.63	54.00	-9.37	31.17	3	Vertical	177	1.66	-
PK	2.3564G	55.41	74.00	-18.59	30.66	3	Vertical	177	1.66	-
PK	2.44G	97.86	Inf	-Inf	30.95	3	Vertical	177	1.66	-
PK	2.4856G	55.99	74.00	-18.01	31.12	3	Vertical	177	1.66	-

BT-LE(2Mbps)

2440MHz_TX

26/06/2018

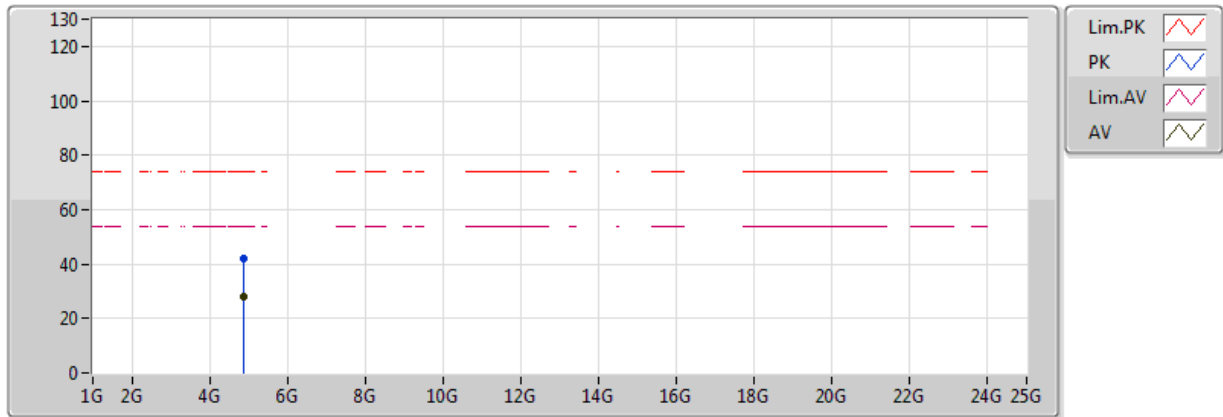


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3612G	43.90	54.00	-10.10	30.67	3	Horizontal	183	1.69	-
AV	2.44G	94.51	Inf	-Inf	30.95	3	Horizontal	183	1.69	-
AV	2.4908G	44.58	54.00	-9.42	31.13	3	Horizontal	183	1.69	-
PK	2.3724G	55.92	74.00	-18.08	30.71	3	Horizontal	183	1.69	-
PK	2.44G	98.67	Inf	-Inf	30.95	3	Horizontal	183	1.69	-
PK	2.4992G	55.90	74.00	-18.10	31.17	3	Horizontal	183	1.69	-

BT-LE(2Mbps)

2440MHz_TX

26/06/2018

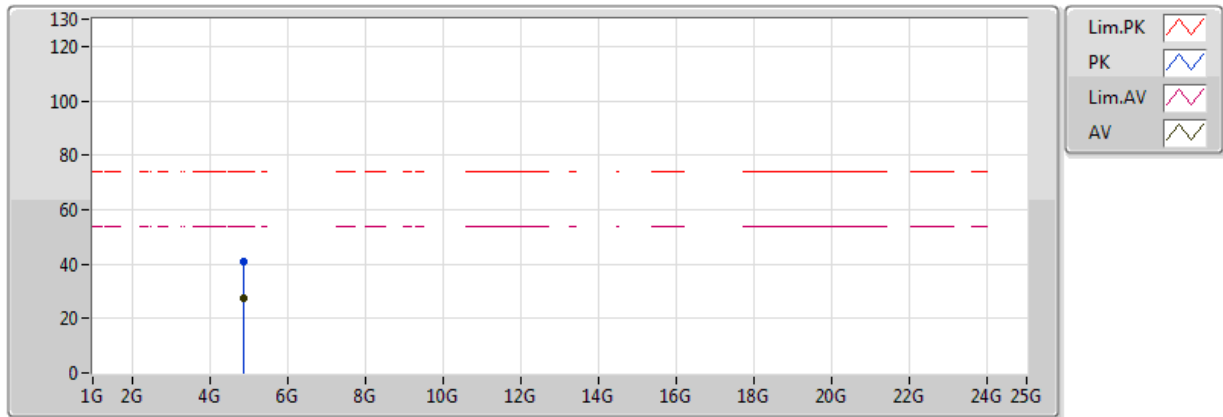


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.88468G	27.79	54.00	-26.21	2.28	3	Vertical	234	1.50	-
PK	4.89194G	42.23	74.00	-31.77	2.30	3	Vertical	234	1.50	-

BT-LE(2Mbps)

2440MHz_TX

26/06/2018

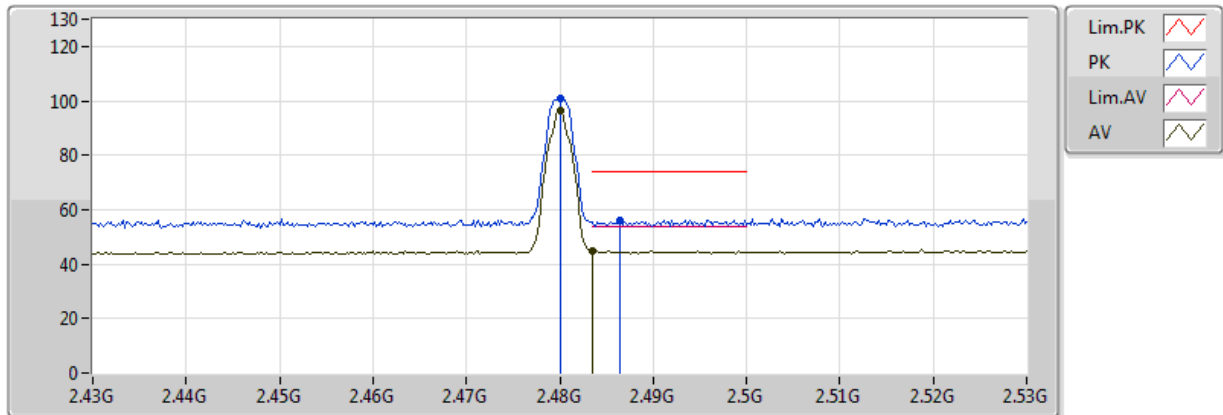


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.89278G	27.60	54.00	-26.40	2.30	3	Horizontal	331	1.49	-
PK	4.88714G	40.92	74.00	-33.08	2.29	3	Horizontal	331	1.49	-

BT-LE(2Mbps)

2480MHz_TX

26/06/2018

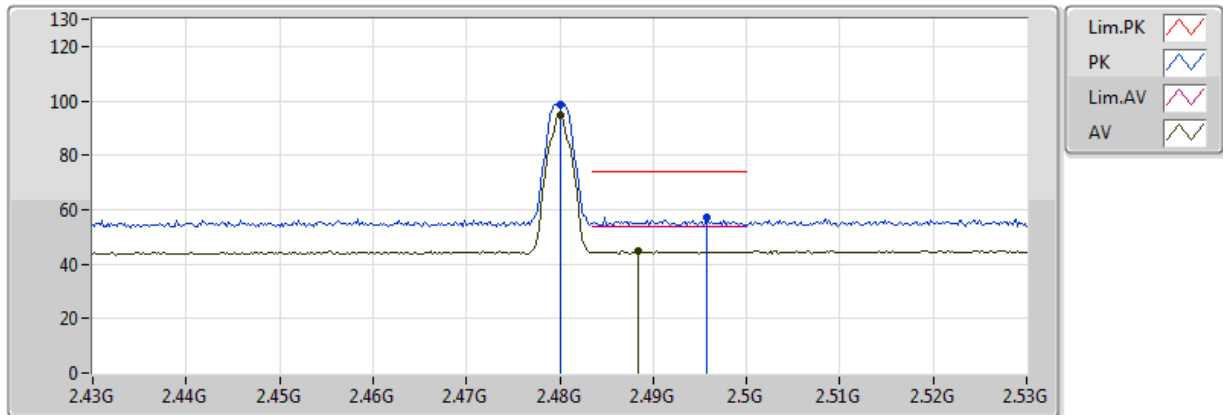


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	96.44	Inf	-Inf	31.10	3	Vertical	173	1.50	-
AV	2.483502G	44.66	54.00	-9.34	31.11	3	Vertical	173	1.50	-
PK	2.48G	100.59	Inf	-Inf	31.10	3	Vertical	173	1.50	-
PK	2.4864G	56.29	74.00	-17.71	31.12	3	Vertical	173	1.50	-

BT-LE(2Mbps)

2480MHz_TX

26/06/2018

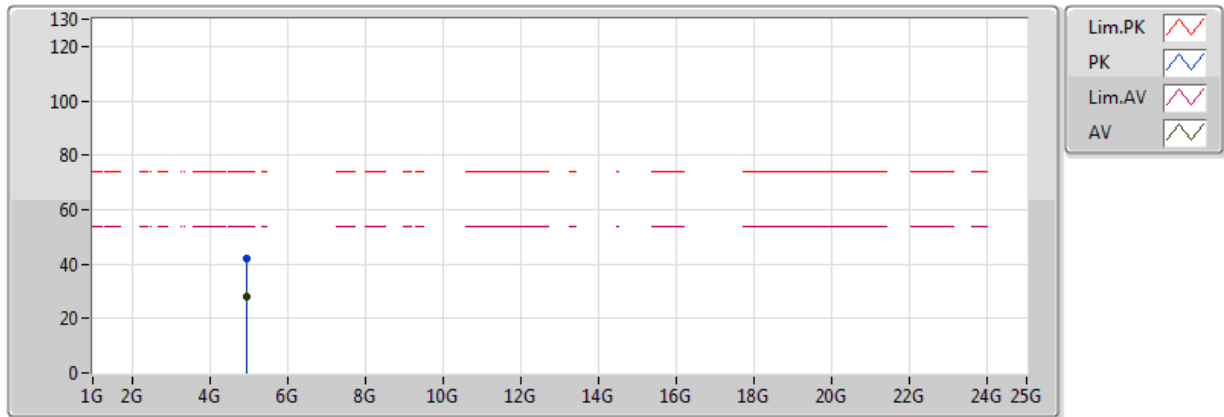


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	94.79	Inf	-Inf	31.10	3	Horizontal	153	1.29	-
AV	2.4884G	44.63	54.00	-9.37	31.13	3	Horizontal	153	1.29	-
PK	2.48G	98.88	Inf	-Inf	31.10	3	Horizontal	153	1.29	-
PK	2.4958G	57.13	74.00	-16.87	31.16	3	Horizontal	153	1.29	-

BT-LE(2Mbps)

2480MHz_TX

26/06/2018

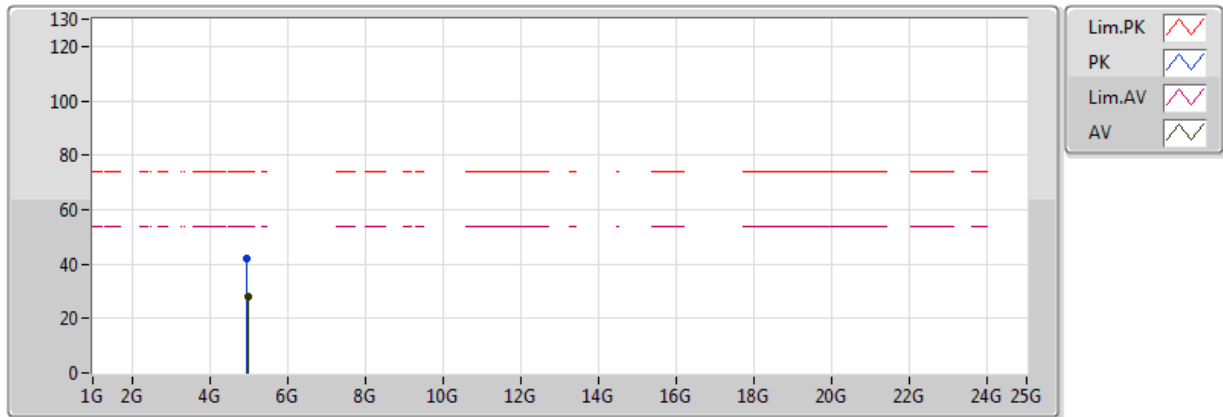


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.97224G	28.05	54.00	-25.95	2.50	3	Vertical	354	1.50	-
PK	4.97194G	41.83	74.00	-32.17	2.50	3	Vertical	354	1.50	-

BT-LE(2Mbps)

2480MHz_TX

26/06/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.97446G	27.96	54.00	-26.04	2.51	3	Horizontal	202	1.92	-
PK	4.94848G	42.07	74.00	-31.93	2.44	3	Horizontal	202	1.92	-



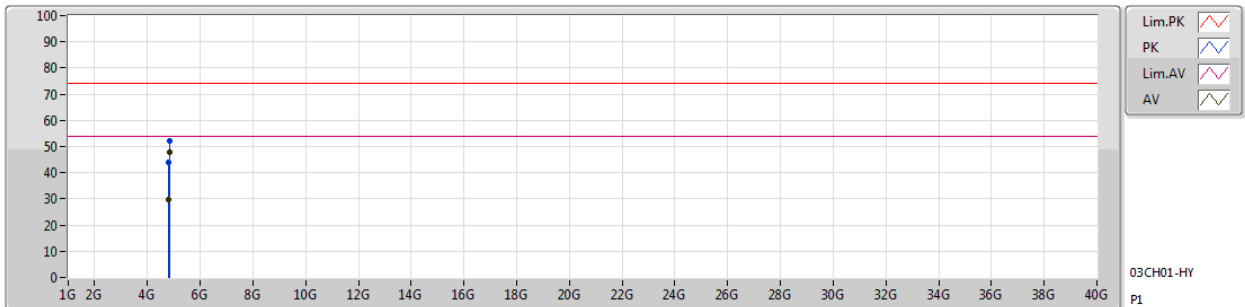
RSE above 1GHz Result

Appendix G

Summary

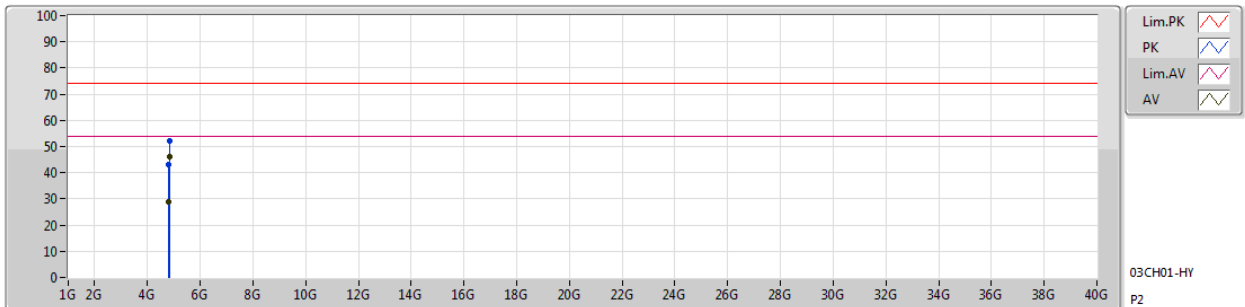
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
1	Pass	AV	4.824G	48.02	54.00	-5.98	2.13	3	Vertical	244	1.50	-
2	Pass	AV	4.824G	47.25	54.00	-6.75	2.13	3	Vertical	244	1.50	-

Radiation-above 1GHz_1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)		
AV	4.80478G	29.77	54.00	-24.23	2.08	3	Vertical	75	1.67	-	27.69	31.19	5.19	34.30		
AV	4.824G	48.02	54.00	-5.98	2.13	3	Vertical	244	1.50	-	45.89	31.22	5.20	34.29		
PK	4.80478G	43.76	74.00	-30.24	2.08	3	Vertical	75	1.67	-	41.68	31.19	5.19	34.30		
PK	4.82406G	52.29	74.00	-21.71	2.13	3	Vertical	244	1.50	-	50.16	31.22	5.20	34.29		

Radiation-above 1GHz_1

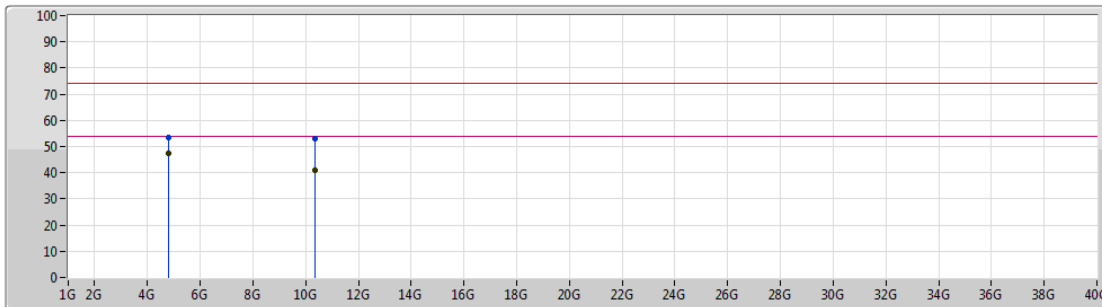


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)		
AV	4.80634G	28.76	54.00	-25.24	2.08	3	Horizontal	336	1.50	-	26.68	31.19	5.19	34.30		
AV	4.824G	46.08	54.00	-7.92	2.13	3	Horizontal	224	1.66	-	43.95	31.22	5.20	34.29		
PK	4.80634G	42.96	74.00	-31.04	2.08	3	Horizontal	336	1.50	-	40.88	31.19	5.19	34.30		
PK	4.82406G	51.94	74.00	-22.06	2.13	3	Horizontal	224	1.66	-	49.81	31.22	5.20	34.29		

Radiation-above 1GHz_2

08/08/2018

17:38



Lim.PK 
 PK 
 Lim.AV 
 AV 

03CH01-HY

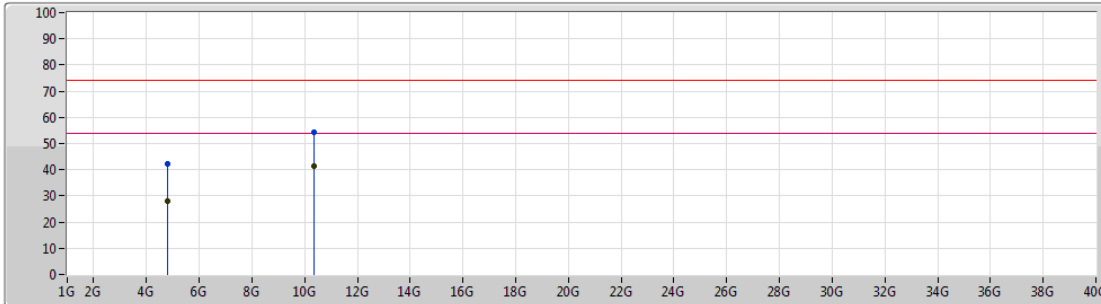
P1

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)		
AV	4.80478G	47.20	54.00	-6.80	2.08	3	Vertical	244	1.50	-	45.12	31.19	5.19	34.30		
AV	10.36882G	40.80	54.00	-13.20	12.66	3	Vertical	167	1.50	-	28.14	39.42	8.00	34.76		
PK	4.80478G	53.30	74.00	-20.70	2.08	3	Vertical	244	1.50	-	51.22	31.19	5.19	34.30		
PK	10.37046G	53.23	74.00	-20.77	12.66	3	Vertical	167	1.50	-	40.57	39.42	8.00	34.76		

Radiation-above 1GHz_2

08/08/2018

17:38



Lim.PK 
 PK 
 Lim.AV 
 AV 

03CH01-HY
P2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)		
AV	4.80634G	27.85	54.00	-26.15	2.08	3	Horizontal	336	1.50	-	25.77	31.19	5.19	34.30		
AV	10.36876G	41.40	54.00	-12.60	12.66	3	Horizontal	161	1.97	-	28.74	39.42	8.00	34.76		
PK	4.80634G	42.27	74.00	-31.73	2.08	3	Horizontal	336	1.50	-	40.19	31.19	5.19	34.30		
PK	10.36432G	54.29	74.00	-19.71	12.64	3	Horizontal	161	1.97	-	41.65	39.41	8.00	34.77		