



RADIO TEST REPORT

FCC ID : 2AWBQ-EWMD
Equipment : 5GHz Wireless Module
Brand Name : Everestek
Model Name : EW41SED, EW20SHD, EW10SHD
Applicant : Everestek Inc.
2F.-1, No. 5, Tai-Yuen 1st St., Zhubei City, Hsinchu
County, 30288 Taiwan
Manufacturer : Rayson Technology Co., Ltd.
No. 9, Yanfa 2nd Road, East District, Hsinchu City,
Taiwan 30076
Standard : 47 CFR FCC Part 15.407

The product was received on Apr. 13, 2022, and testing was started from Apr. 15, 2022 and completed on Apr. 20, 2022. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

Approved by: Sam Chen

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



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Appendix A. Test Results of AC Power-line Conducted Emissions**Appendix B. Test Results of Emission Bandwidth****Appendix C. Test Results of Maximum Output Power****Appendix D. Test Results of Power Spectral Density****Appendix E. Test Results of Unwanted Emissions****Appendix F. Test Photos****Photographs of EUT v01**



History of this test report



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
0	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.407(a)	Emission Bandwidth	PASS	-
3.3	15.407(a)	Maximum Output Power	PASS	-
3.4	15.407(a)	Power Spectral Density	PASS	-
3.5	15.407(b)	Unwanted Emissions	PASS	-

Declaration of Conformity:

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

Comments and Explanations:

1. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.
2. 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:** Wendy Pan



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Channel Spacing (MHz)	Ch. Frequency (MHz)	Channel Number
5150-5250	2	5167-5248	1-41 [41]
5725-5850	2	5726-5848	42-103 [62]

Band (MHz)	Mode	BWch (MHz)	Nant
5150-5250	FSK	2	2TX
5725-5850	FSK	2	2TX

Note:

- Uses a combination of FSK modulation.
- BWch is the nominal channel bandwidth.



1.1.2 Table for Channel List

Frequency Range (MHz)		
5150-5250		
Channel Number	Port 1	Port 2
ch1	5167	5175
ch2	5169	5177
ch3	5171	5179
ch4	5173	5181
ch5	5175	5183
ch6	5177	5185
ch7	5179	5187
ch8	5181	5189
ch9	5183	5191
ch10	5185	5193
ch11	5187	5195
ch12	5189	5197
ch13	5191	5199
ch14	5193	5201
ch15	5195	5203
ch16	5197	5205
ch17	5199	5207
ch18	5201	5209
ch19	5203	5211
ch20	5205	5213
ch21	5207	5215
ch22	5209	5217
ch23	5211	5219
ch24	5213	5221
ch25	5215	5223
ch26	5217	5225
ch27	5219	5227
ch28	5221	5229
ch29	5223	5231
ch30	5225	5233
ch31	5227	5235



ch32	5229	5237
ch33	5231	5239
ch34	5233	5241
ch35	5235	5243
ch36	5237	5245
ch37	5239	5247
ch38	5241	5233
ch39	5243	5235
ch40	5245	5237
ch41	5248	5240



Frequency Range (MHz)		
5725-5850 (MHz)		
Channel	Port 1	Port 2
ch42	5726	5734
ch43	5728	5736
ch44	5730	5738
ch45	5732	5740
ch46	5734	5742
ch47	5736	5744
ch48	5738	5746
ch49	5740	5748
ch50	5742	5750
ch51	5744	5752
ch52	5746	5754
ch53	5748	5756
ch54	5750	5758
ch55	5752	5760
ch56	5754	5762
ch57	5756	5764
ch58	5758	5766
ch59	5760	5768
ch60	5762	5770
ch61	5764	5772
ch62	5766	5774
ch63	5768	5776
ch64	5770	5778
ch65	5772	5780
ch66	5774	5782
ch67	5776	5784
ch68	5778	5786
ch69	5780	5788
ch70	5782	5790
ch71	5784	5792
ch72	5786	5794



ch73	5788	5796
ch74	5790	5798
ch75	5792	5800
ch76	5794	5802
ch77	5796	5804
ch78	5798	5806
ch79	5800	5808
ch80	5802	5810
ch81	5804	5812
ch82	5806	5814
ch83	5808	5816
ch84	5810	5818
ch85	5812	5820
ch86	5814	5822
ch87	5816	5824
ch88	5818	5826
ch89	5820	5828
ch90	5822	5830
ch91	5824	5832
ch92	5826	5834
ch93	5828	5836
ch94	5830	5838
ch95	5832	5840
ch96	5834	5842
ch97	5836	5844
ch98	5838	5846
ch99	5840	5848
ch100	5842	5834
ch101	5844	5836
ch102	5846	5838
ch103	5848	5840

**1.1.3 Antenna Information**

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PCB Antenna	N/A	2
2	N/A	N/A	PCB Antenna	N/A	2

Note: The above information was declared by manufacturer.



1.1.4 Mode Test Duty Cycle

Mode	DC	T(s)	VBW(Hz) $\geq 1/T$
FSK	1	0	n/a (DC>=0.98)

Note:

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

1.1.5 EUT Operational Condition

EUT Power Type	From host system			
Beamforming Function	<input type="checkbox"/>	With beamforming	<input checked="" type="checkbox"/>	Without beamforming
	<input type="checkbox"/>	Outdoor P2M	<input type="checkbox"/>	Indoor P2M
	<input type="checkbox"/>	Fixed P2P	<input checked="" type="checkbox"/>	Client
	<input checked="" type="checkbox"/>	Point-to-multipoint	<input type="checkbox"/>	Point-to-point
Test Software Version	EMI Tool for MD Module(DualChip)Version 2.5			

Note: The above information was declared by manufacturer.

1.1.6 Table for Multiple Listing

Brand Name	Model Name	Description
Everestek	EW41SED	All the models are identical, the different model names served as a marketing strategy.
	EW20SHD	
	EW10SHD	

Note 1: From the above models, model: EW41SED was selected as representative model for the test and its data was recorded in this report.

Note 2: The above information was declared by manufacturer.



1.2 Applicable Standards

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

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF.

- ♦ FCC KDB 412172 D01 v01r01
- ♦ FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location Information				
Test Lab. : Sporton International Inc. Hsinchu Laboratory				
Hsinchu (TAF: 3787)	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) TEL: 886-3-656-9065	FAX: 886-3-656-9085		
Test site Designation No. TW3787 with FCC. Conformity Assessment Body Identifier (CABID) TW3787 with ISED.				

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH02-CB	Jay Lo	23.9-24.6 / 63-65	Apr. 18, 2022~ Apr. 20, 2022
Radiated below 1GHz	03CH06-CB	Stim Sung	23.8-24.9 / 55-58	Apr. 15, 2022
Radiated above 1GHz	03CH01-CB	Gino Huang	24.2-26.1 / 55-58	Apr. 15, 2022~ Apr. 20, 2022
AC Conduction	CO01-CB	Allen Chung	22~23 / 55~56	Apr. 18, 2022



1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.5 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%
Conducted Emission	2.5 dB	Confidence levels of 95%
Output Power Measurement	1.3 dB	Confidence levels of 95%
Power Density Measurement	2.5 dB	Confidence levels of 95%
Bandwidth Measurement	0.9%	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode	Power Setting
FSK_2TX	-
5167MHz	5
5175MHz	5
5203MHz	4
5211MHz	4
5248MHz	4
5240MHz	4
5726MHz	2
5734MHz	2
5788MHz	1
5796MHz	1
5848MHz	2
5840MHz	2



2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Normal Link
1	EUT

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emission Bandwidth Maximum Output Power Power Spectral Density
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests	
Tests Item	Unwanted Emissions
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 in Z axis
2	EUT in Y axis
3	EUT in X axis

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

Operating Mode > 1GHz	CTX
	The EUT was performed at X axis, Y axis and Z axis position for Unwanted Emissions above 1GHz test, and the worst case was found at X axis for Harmonic and Z axis for Bandedge. So the measurement will follow this same test configuration.

2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link Mode:

The EUT transmits RF signal continuously.

The blue light on the test fixture is always on after the device receives the RF signal.



2.4 Accessories

N/A

2.5 Support Equipment

For other test items:

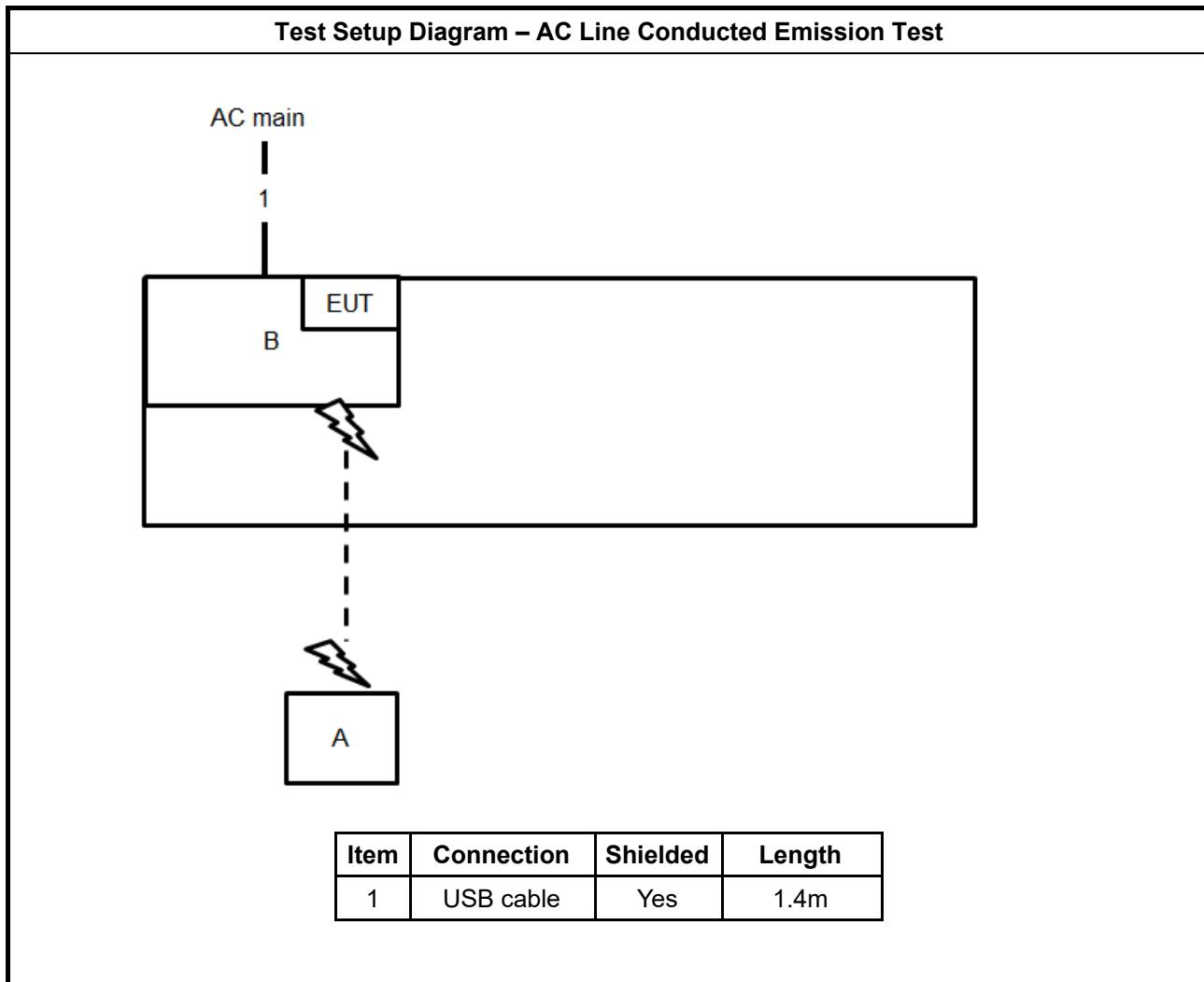
Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Device	Everestek	EW41SED	N/A
B	Test fixture	Everestek	EVB_MD_210518	N/A

For Radiated above 1GHz and RF Conducted:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	Test fixture	Everestek	190718_V01	N/A
C	Test fixture	Everestek	EVB_MD_210518	N/A

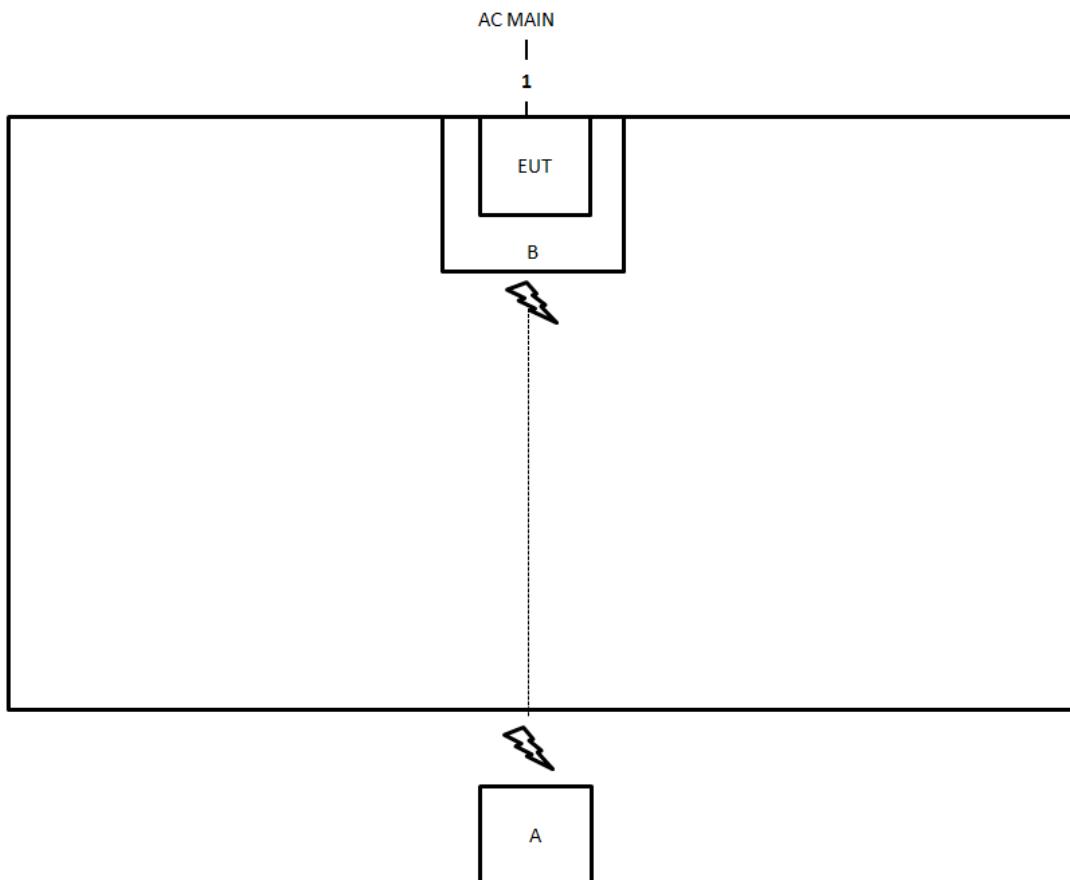


2.6 Test Setup Diagram





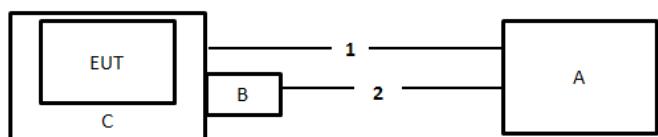
Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	USB cable	No	1.4m



Test Setup Diagram - Radiated Test > 1GHz



Item	Connection	Shielded	Length
1	USB to Micro cable	No	1.5m
2	USB to USB cable	No	1m



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

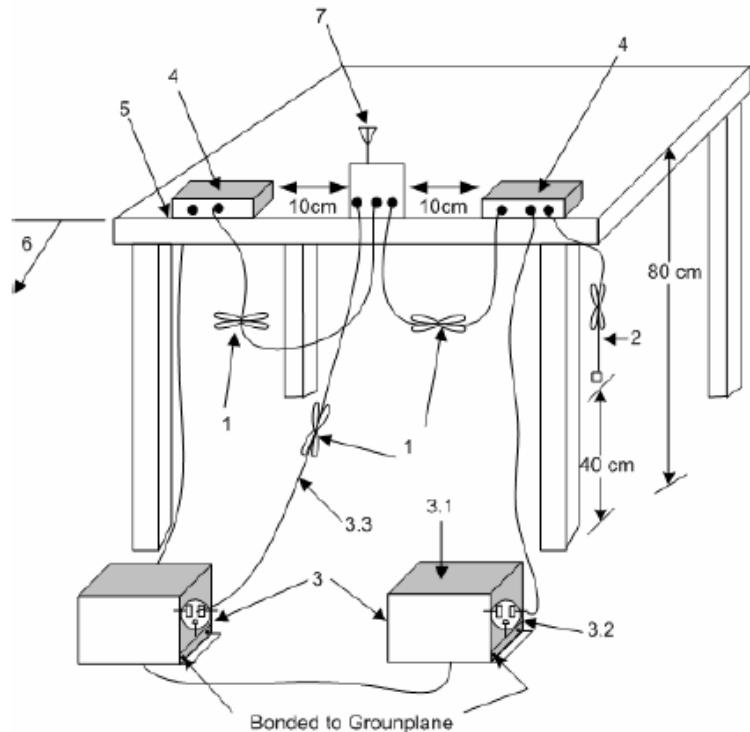
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup

AC Power-line Conducted Emissions



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.

2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in $50\ \Omega$ loads. LISN may be placed on top of, or immediately beneath, reference ground plane.

3.1—All other equipment powered from additional LISN(s).

3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.

3.3—LISN at least 80 cm from nearest part of EUT chassis.

4—Non-EUT components of EUT system being tested.

5—Rear of EUT, including peripherals, shall all be aligned.

6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded

7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

Arizona can be integral or detachable. If detachable, then the anchoring shall be attached for the tool.

3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- a. Corrected Reading: LISN Factor (LISN) + Attenuator (AI/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- b. Margin = -Limit + Level

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A



3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

Emission Bandwidth Limit	
UNII Devices	
<input checked="" type="checkbox"/>	For the 5.15-5.25 GHz band, N/A
<input type="checkbox"/>	For the 5.25-5.35 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.47-5.725 GHz band, the maximum conducted output power shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in MHz.
<input checked="" type="checkbox"/>	For the 5.725-5.85 GHz band, 26 dB emission bandwidth ,N/A. 6 dB emission bandwidth $\geq 500\text{kHz}$.
<input type="checkbox"/>	For the 5.85-5.895 GHz band, 26 dB emission bandwidth ,N/A. 6 dB emission bandwidth $\geq 500\text{kHz}$.
LE-LAN Devices	
<input type="checkbox"/>	For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
<input type="checkbox"/>	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz
<input type="checkbox"/>	For the 5.725-5.85 GHz band, 6 dB emission bandwidth $\geq 500\text{kHz}$.

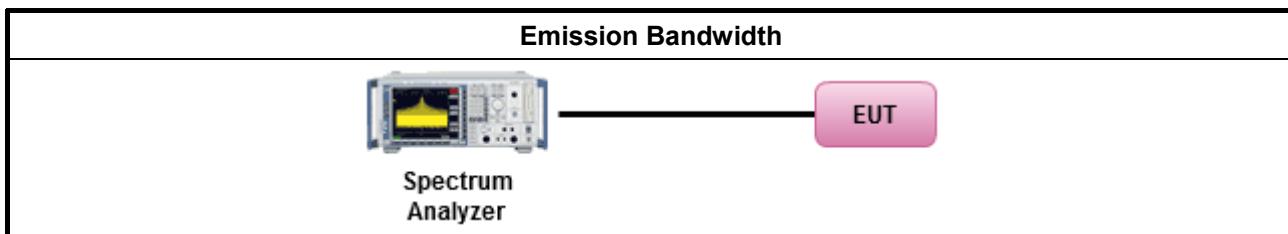
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪	For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033 D02, clause C for EBW and clause D for OBW measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
<input type="checkbox"/>	Refer as IC RSS-Gen, clause 4.6 for bandwidth testing.

3.2.4 Test Setup





3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B



3.3 Maximum Output Power

3.3.1 Limit

Maximum Output Power Limit	
UNII Devices	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	<ul style="list-style-type: none">Outdoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$. e.i.r.p. at any elevation angle above 30 degrees ≤ 125 mW [21 dBm]Indoor AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$Point-to-point AP: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$.Mobile or Portable Client: the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
<input type="checkbox"/> For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + $10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
<input type="checkbox"/> For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + $10 \log B$, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.	
<input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none">Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$.Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.
Maximum EIRP Limit	
<input type="checkbox"/> For the 5.85-5.895 GHz band:	
	<ul style="list-style-type: none">Indoor AP & subordinate device < 36 dBmClient device < 30 dBm
LE-LAN Devices	
<input type="checkbox"/> For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.	
<input type="checkbox"/> For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz	
<input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or $17 + 10 \log B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz	
<input type="checkbox"/> For the 5.725-5.85 GHz band:	
	<ul style="list-style-type: none">Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$.Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W.



lesser of 1 W.

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

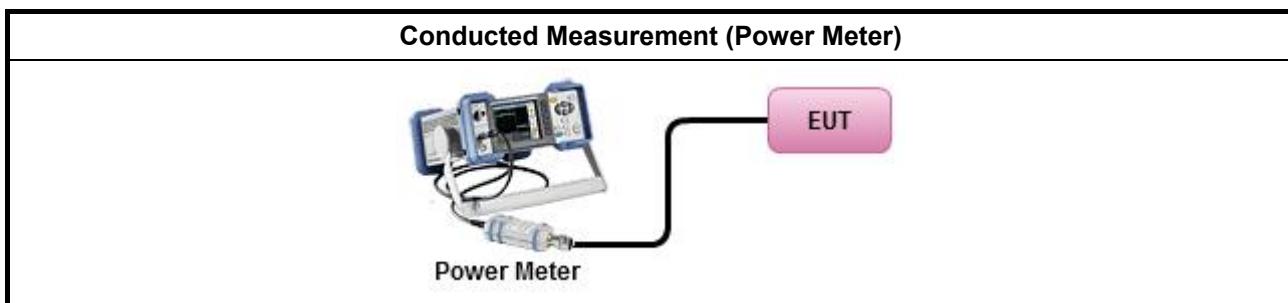
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
Average over on/off periods with duty factor	<input type="checkbox"/> Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging). <input type="checkbox"/> Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
Wideband RF power meter and average over on/off periods with duty factor	<input checked="" type="checkbox"/> Refer as FCC KDB 789033 D02, clause E Method PM-G (using an RF average power meter).
<input checked="" type="checkbox"/> For conducted measurement.	<ul style="list-style-type: none">If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$
<input type="checkbox"/> For radiated measurement.	<ul style="list-style-type: none">Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing"Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.

3.3.4 Test Setup



3.3.5 Test Result of Maximum Output Power

Refer as Appendix C



3.4 Power Spectral Density

3.4.1 Limit

Peak Power Spectral Density Limit	
UNII Devices	
<input checked="" type="checkbox"/> For the 5.15-5.25 GHz band:	<ul style="list-style-type: none">Outdoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.Indoor AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.Point-to-point AP: the peak power spectral density (PPSD) shall not exceed the lesser of 17dBm/MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 17 - (G_{TX} - 23)$.Mobile or Portable Client: the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= $11 - (G_{TX} - 6)$.
<input type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= $11 - (G_{TX} - 6)$.	
<input type="checkbox"/> For the 5.47-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz. If $G_{TX} > 6$ dBi, then PPSD= $11 - (G_{TX} - 6)$.	
<input checked="" type="checkbox"/> For the 5.725-5.85 GHz band:	<ul style="list-style-type: none">Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$.Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.
EIRP Power Spectral Density Limit	
<input type="checkbox"/> For the 5.85-5.895 GHz band:	
	<ul style="list-style-type: none">Indoor AP & subordinate device < 20 dBm/MHzClient device < 14 dBm/MHz
LE-LAN Devices	
<input type="checkbox"/> For the 5.15-5.25 GHz band, the e.i.r.p. peak power spectral density (PPSD) ≤ 10 dBm/MHz.	
<input type="checkbox"/> For the 5.25-5.35 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.	
	<ul style="list-style-type: none">e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. at different elevations, where θ is the angle above the local horizontal plane (of the Earth) as shown below: -13 dBW/MHz for $0^\circ \leq \theta < 8^\circ$; -13 – 0.716 (θ-8) dBW/MHz for $8^\circ \leq \theta < 40^\circ$ -35.9 – 1.22 (θ-40) dBW/MHz for $40^\circ \leq \theta \leq 45^\circ$; -42 dBW/MHz for $\theta > 45^\circ$
<input type="checkbox"/> For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the peak power spectral density (PPSD) ≤ 11 dBm/MHz.	
<input type="checkbox"/> For the 5.725-5.85 GHz band:	
	<ul style="list-style-type: none">Point-to-multipoint systems (P2M): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz. If $G_{TX} > 6$ dBi, then PPSD= $30 - (G_{TX} - 6)$.Point-to-point systems (P2P): the peak power spectral density (PPSD) ≤ 30 dBm/500kHz.

PPSD = peak power spectral density that he same method as used to determine the conducted output



power shall be used to determine the power spectral density. And power spectral density in dBm/MHz
 G_{TX} = the maximum transmitting antenna directional gain in dBi.

3.4.2 Measuring Instruments

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

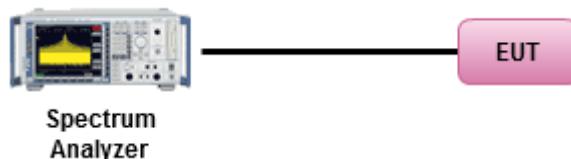


3.4.3 Test Procedures

Test Method	
<ul style="list-style-type: none">Peak power spectral density procedures that the same method as used to determine the conducted output power shall be used to determine the peak power spectral density and use the peak search function on the spectrum analyzer to find the peak of the spectrum. For the peak power spectral density shall be measured using below options:	
<ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 789033 D02, F5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth [duty cycle \geq 98% or external video / power trigger]	
<ul style="list-style-type: none"><input checked="" type="checkbox"/> Refer as FCC KDB 789033 D02, clause E Method SA-1 (spectral trace averaging).	
<ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 789033 D02, clause E Method SA-1 Alt. (RMS detection with slow sweep speed) duty cycle $<$ 98% and average over on/off periods with duty factor	
<ul style="list-style-type: none"><input checked="" type="checkbox"/> Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).	
<ul style="list-style-type: none"><input type="checkbox"/> Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)	
<ul style="list-style-type: none"><input checked="" type="checkbox"/> For conducted measurement.	
<ul style="list-style-type: none">If the EUT supports multiple transmit chains using options given below:	
<ul style="list-style-type: none"><input checked="" type="checkbox"/> Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.	
<ul style="list-style-type: none"><input type="checkbox"/> Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,	
<ul style="list-style-type: none"><input type="checkbox"/> Option 3: Measure and add $10 \log(N)$ dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with $10 \log(N)$. Or each transmit chains shall be add $10 \log(N)$ to compared with the limit.	
<ul style="list-style-type: none">If multiple transmit chains, EIRP PPSD calculation could be following as methods: $PPSD_{total} = PPSD_1 + PPSD_2 + \dots + PPSD_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = PPSD_{total} + DG$	
<ul style="list-style-type: none"><input type="checkbox"/> For radiated measurement.	
<ul style="list-style-type: none"><input checked="" type="checkbox"/> Refer as FCC KDB 789033 D02 clause II A.1.F "Antenna-port Conducted versus Radiated Testing"	
<ul style="list-style-type: none"><input checked="" type="checkbox"/> Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.	

**Test Method**

- Refer as FCC KDB 412172 D01 clause 2.2 for EIRP calculation.

3.4.4 Test Setup**Conducted Measurement****3.4.5 Test Result of Power Spectral Density**

Refer as Appendix D



3.5 Unwanted Emissions

3.5.1 Transmitter Unwanted Emissions Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz 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.



Un-restricted band emissions above 1GHz Limit	
Operating Band	Limit
<input checked="" type="checkbox"/> 5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
<input type="checkbox"/> 5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
<input type="checkbox"/> 5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
<input checked="" type="checkbox"/> 5.725 - 5.85 GHz	all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
<input type="checkbox"/> 5.85 - 5.895 GHz	(i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of -7 dBm/MHz at or above 5.925 GHz. (ii) For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of -5 dBm/MHz and shall decrease linearly to an e.i.r.p. of -27 dBm/MHz at or above 5.925 GHz. (iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/ MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.
Note 1: 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).	

3.5.2 Measuring Instruments

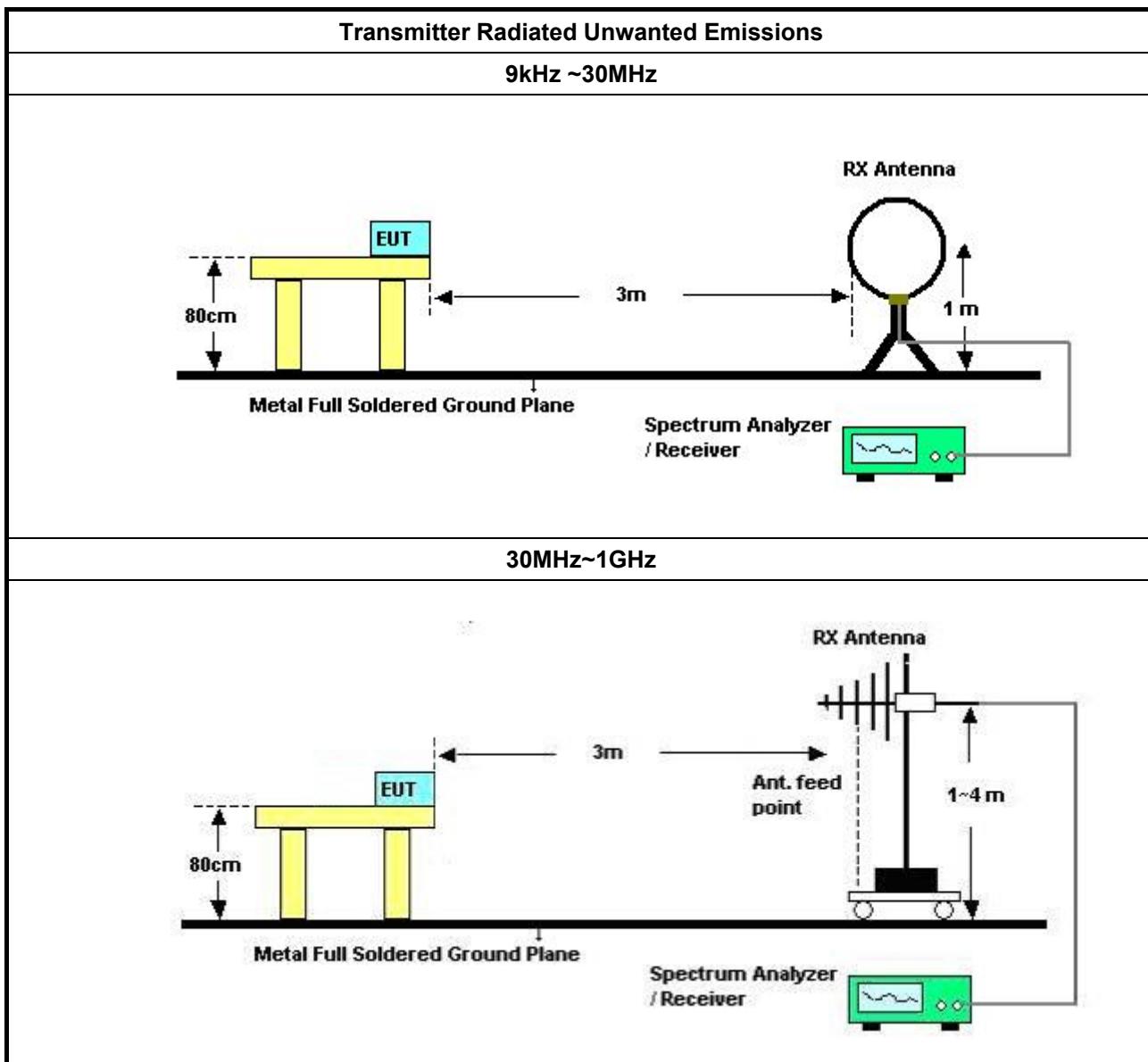
Refer a test equipment and calibration data table in this test report.

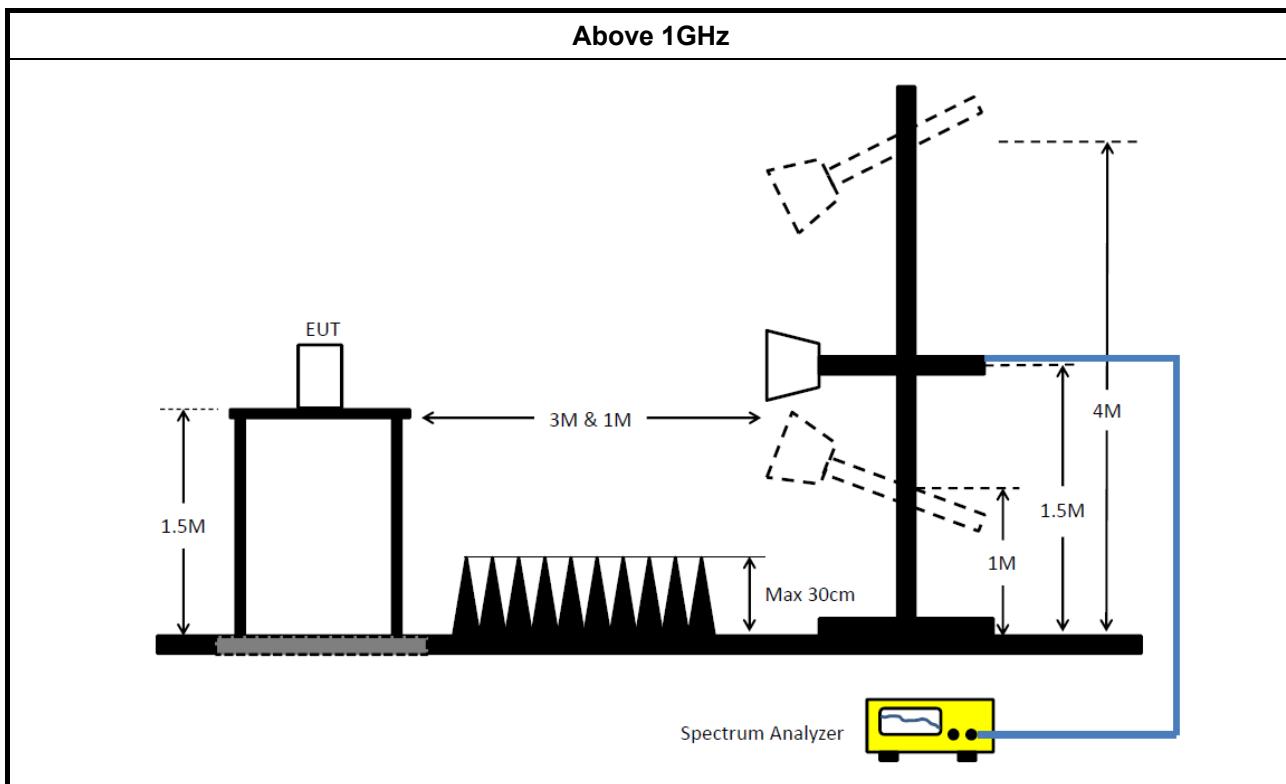


3.5.3 Test Procedures

Test Method	
<ul style="list-style-type: none">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. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. 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).	
<ul style="list-style-type: none">The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].	
<ul style="list-style-type: none">For the transmitter unwanted emissions shall be measured using following options below:	
<ul style="list-style-type: none">Refer as FCC KDB 789033 D02, clause G)2) for unwanted emissions into non-restricted bands.	
<ul style="list-style-type: none">Refer as FCC KDB 789033 D02, clause G)1) for unwanted emissions into restricted bands.	
	<input type="checkbox"/> Refer as FCC KDB 789033 D02, G)6) Method AD (Trace Averaging).
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033 D02, G)6) Method VB (Reduced VBW).
	<input type="checkbox"/> Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). $VBW \geq 1/T$, where T is pulse time.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033 D02, clause G)5) measurement procedure peak limit.
	<input type="checkbox"/> Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
	<ul style="list-style-type: none">For radiated measurement.
	<ul style="list-style-type: none">Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	<ul style="list-style-type: none">Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	<ul style="list-style-type: none">Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
<ul style="list-style-type: none">The any unwanted emissions level shall not exceed the fundamental emission level.	
<ul style="list-style-type: none">All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	

3.5.4 Test Setup





3.5.5 Measurement Results Calculation

The measured Level is calculated using:

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

3.5.6 Transmitter Unwanted Emissions (Below 30MHz)

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

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

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

3.5.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix E



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 22, 2022	Feb. 21, 2023	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Feb. 09, 2022	Feb. 08, 2023	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Jan. 07, 2022	Jan. 06, 2023	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 10, 2022	Feb. 09, 2023	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 19, 2021	May 18, 2022	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	31244	9kHz - 30 MHz	Mar. 18, 2022	Mar. 17, 2023	Radiation (03CH06-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH06-CB	30 MHz ~ 1 GHz	Aug. 09, 2021	Aug. 08, 2022	Radiation (03CH06-CB)
Bilog Antenna with 6 dB attenuator	TESEQ & EMC1	CBL6112D & N-6-06	37878 & AT-N0606	20MHz ~ 2GHz	Jul. 31, 2021	Jul. 30, 2022	Radiation (03CH06-CB)
Pre-Amplifier	Agilent	310N	187290	0.1MHz ~ 1GHz	Nov. 04, 2021	Nov. 03, 2022	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Dec. 24, 2021	Dec. 23, 2022	Radiation (03CH06-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 21, 2021	Jun. 20, 2022	Radiation (03CH06-CB)
RF Cable-low	Woken	RG402	Low Cable-05+24	30MHz~1GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH06-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH01-CB	1GHz ~18GHz 3m	May 07, 2021	May 06, 2022	Radiation (03CH01-CB)
Horn Antenna	ETS-LINDGREN	3115	00075790	750MHz ~ 18GHz	Nov. 06, 2021	Nov. 05, 2022	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 05, 2021	Aug. 04, 2022	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02121	1GHz ~ 26.5GHz	May 20, 2021	May 19, 2022	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 13, 2021	Jul. 12, 2022	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	May 03, 2021	May 02, 2022	Radiation (03CH01-CB)
RF Cable-high	Woken	RG402	High Cable-16	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-16+17	1 GHz ~ 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH01-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH01-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	101027	9kHz~40GHz	Aug. 02, 2021	Aug. 01, 2022	Conducted (TH02-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Oct. 25, 2021	Oct. 24, 2022	Conducted (TH02-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Oct. 25, 2021	Oct. 24, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-01	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-02	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-03	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-04	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	High Cable-05	1 GHz – 18 GHz	Oct. 04, 2021	Oct. 03, 2022	Conducted (TH02-CB)
Switch	SPTCB	SP-SWI	SWI-02	1 GHz – 26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	SWI-02-P1	1 GHz – 26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	SWI-02-P2	1 GHz – 26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	SWI-02-P3	1 GHz – 26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	SWI-02-P4	1 GHz – 26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH02-CB)
RF Cable-high	Woken	RG402	SWI-02-P5	1 GHz – 26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Conducted (TH02-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conducted (TH02-CB)

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

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



Conducted Emissions at Powerline

Appendix A

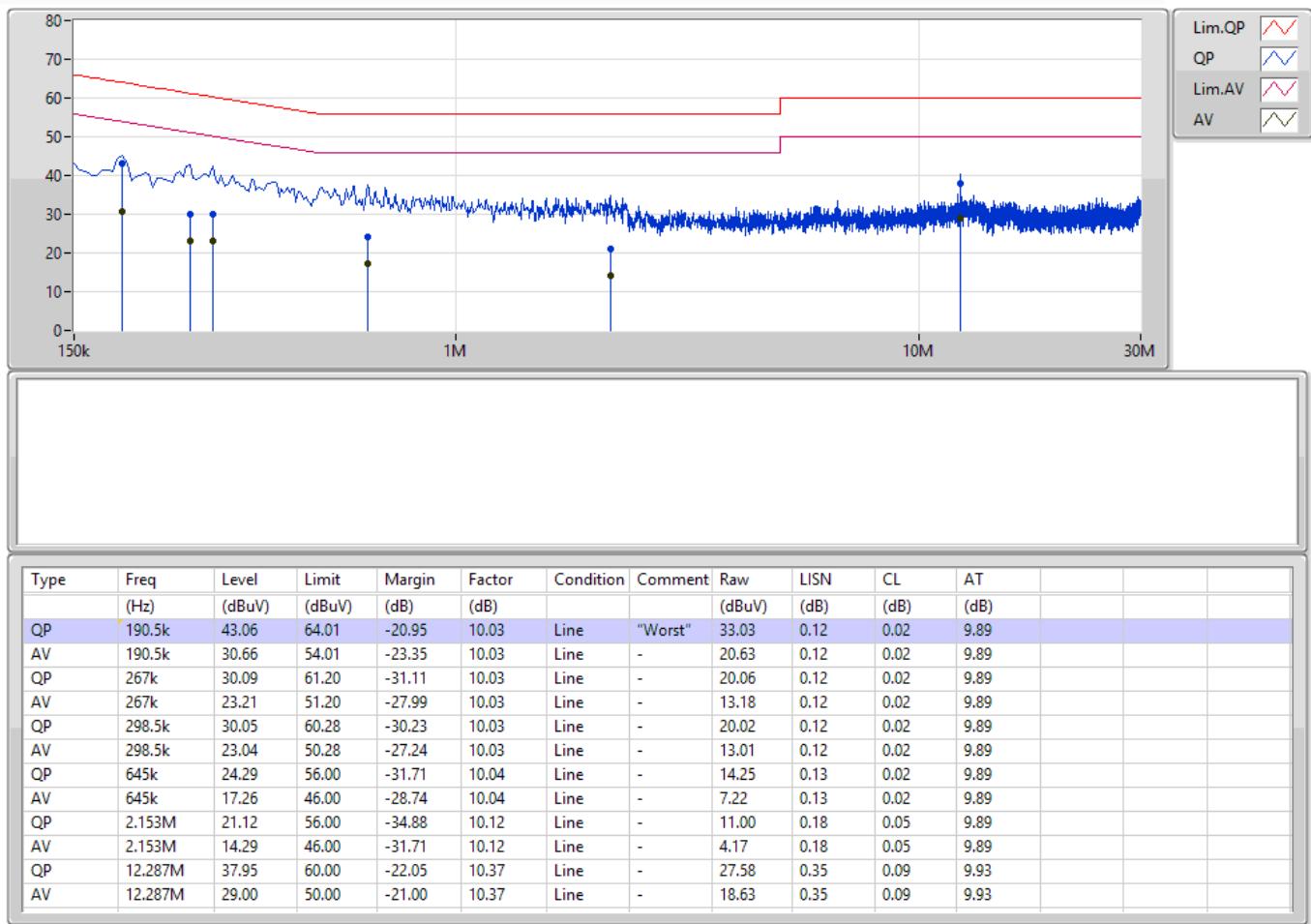
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	186k	43.94	64.20	-20.26	Neutral

Mode 1

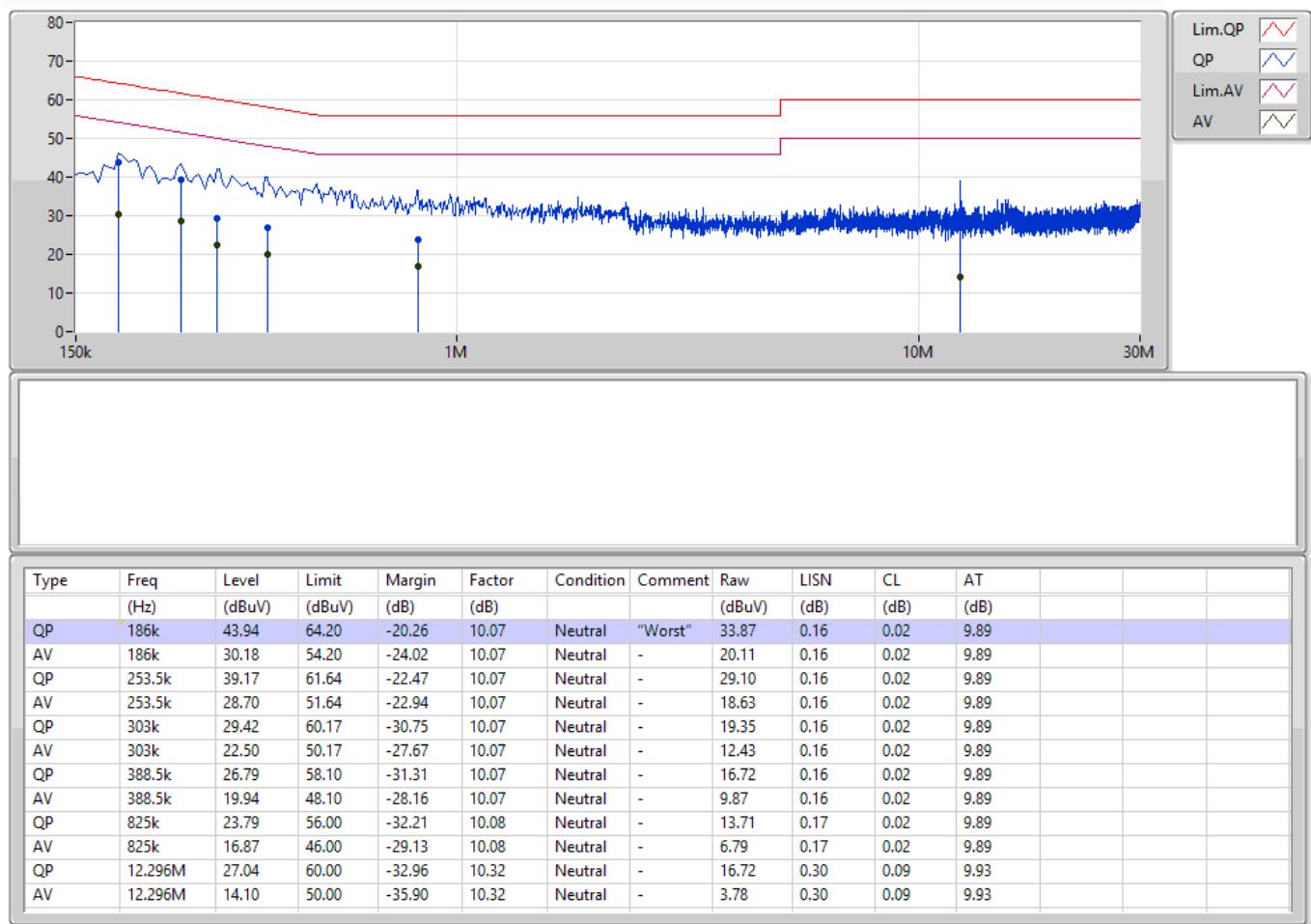
18/04/2022

Lim.QP	
QP	
Lim.AV	
AV	



Mode 1

18/04/2022



**Summary**

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
FSK_2TX	4.05M	2.984M	2M98F1D	4.02M	2.834M
5.725-5.85GHz	-	-	-	-	-
FSK_2TX	1.53M	3.238M	3M24F1D	1.29M	2.969M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Max-OBW = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;

Min-OBW = Minimum 99% occupied bandwidth

**Result**

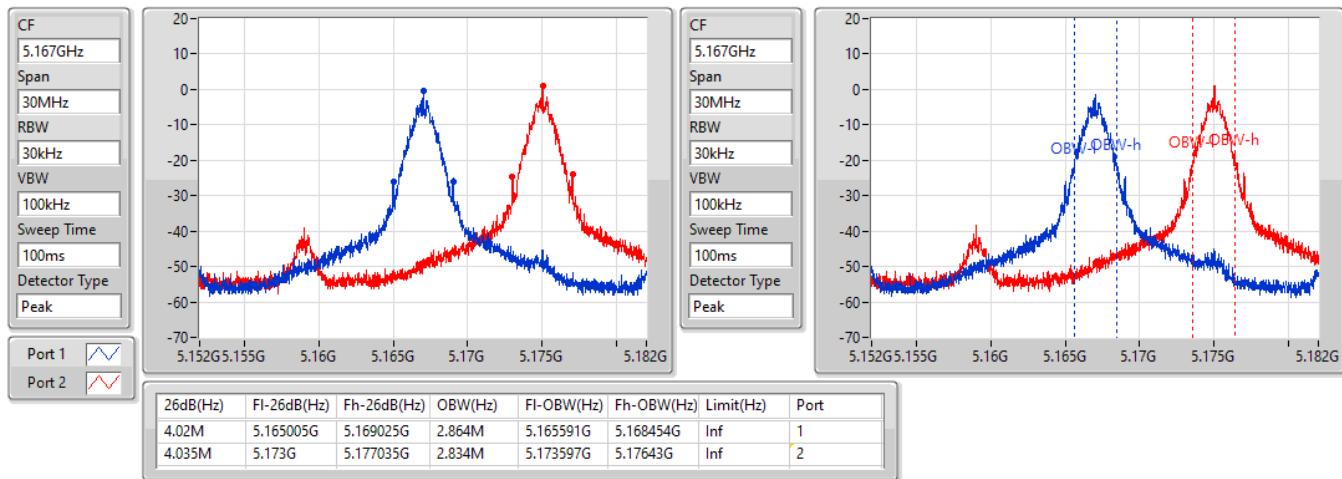
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
FSK_2TX	-	-	-	-	-	-
5167MHz	Pass	Inf	4.02M	2.864M	-	-
5175MHz	Pass	Inf	-	-	4.035M	2.834M
5203MHz	Pass	Inf	4.035M	2.924M	-	-
5211MHz	Pass	Inf	-	-	4.02M	2.834M
5248MHz	Pass	Inf	4.05M	2.984M	-	-
5240MHz	Pass	Inf	-	-	4.02M	2.849M
5726MHz	Pass	500k	1.335M	3.103M	-	-
5734MHz	Pass	500k	-	-	1.32M	3.088M
5788MHz	Pass	500k	1.29M	3.118M	-	-
5796MHz	Pass	500k	-	-	1.335M	3.238M
5848MHz	Pass	500k	1.32M	2.969M	-	-
5840MHz	Pass	500k	-	-	1.53M	3.193M

Port X-N dB = Port X 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band

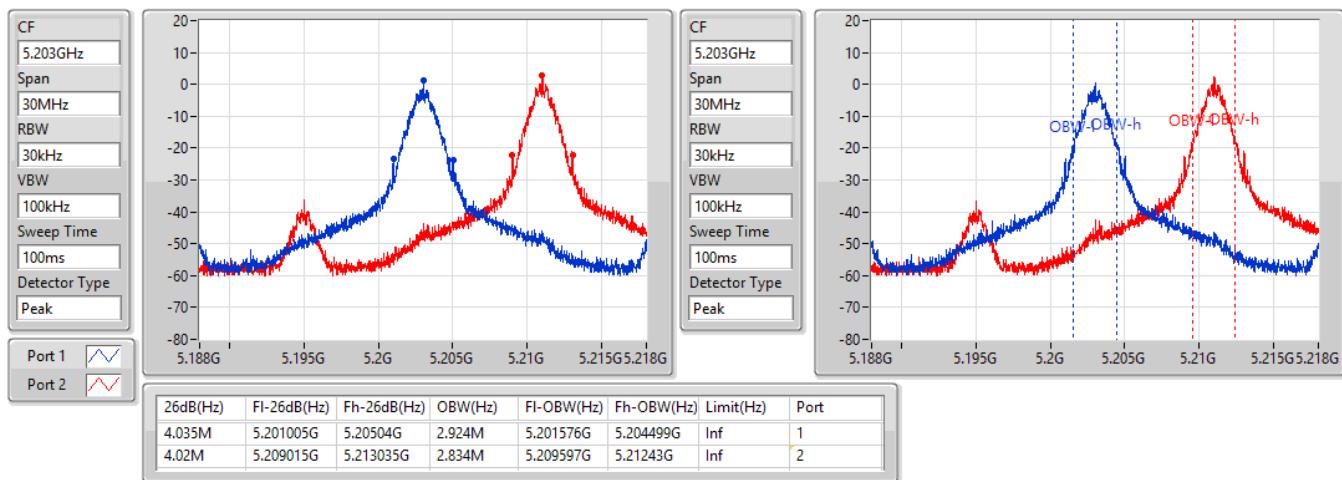
Port X-OBW = Port X 99% occupied bandwidth

FSK_2TX
5167+5175MHz
EBW

20/04/2022

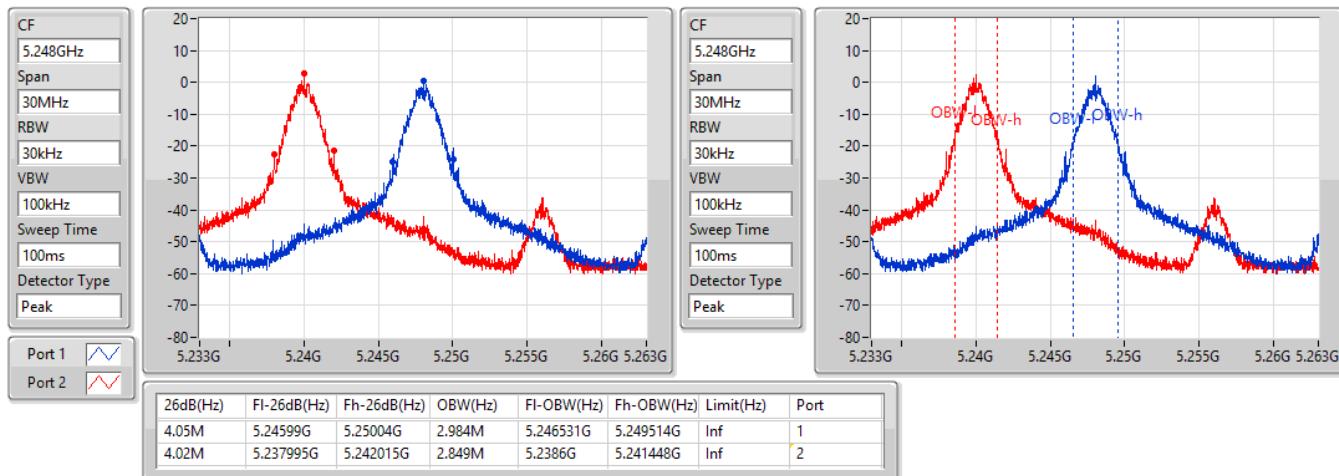

FSK_2TX
5203+5211MHz
EBW

18/04/2022

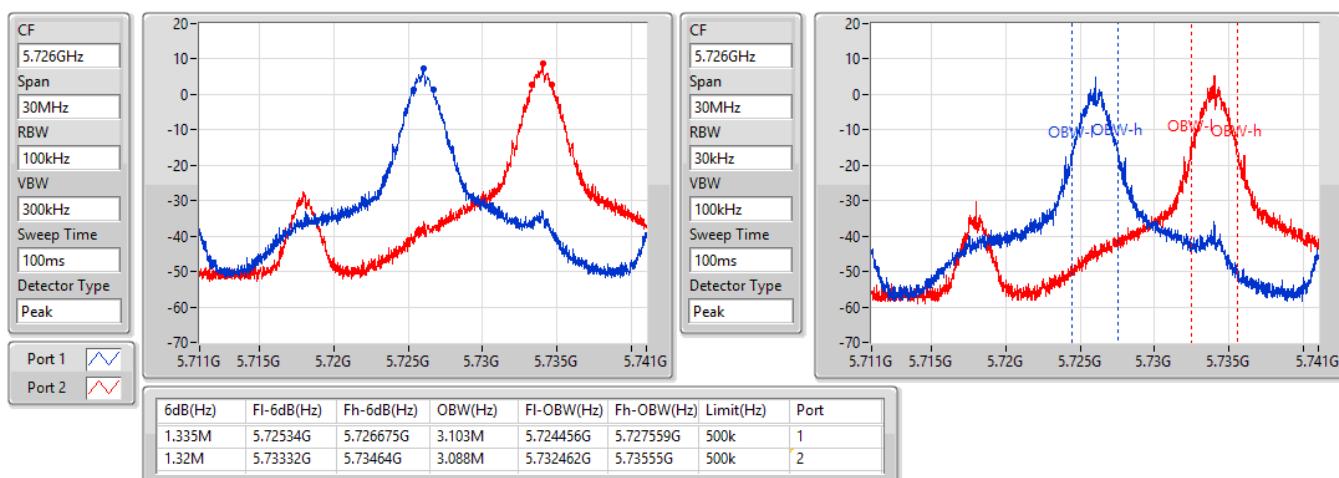


FSK_2TX
EBW
5248+5240MHz

18/04/2022

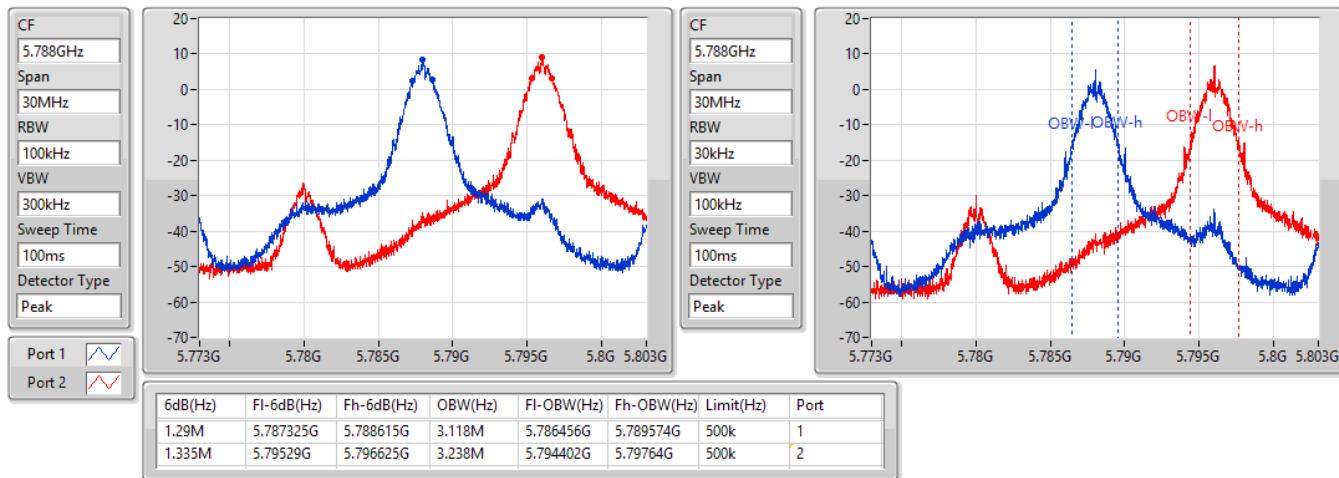

FSK_2TX
EBW
5726+5734MHz

18/04/2022

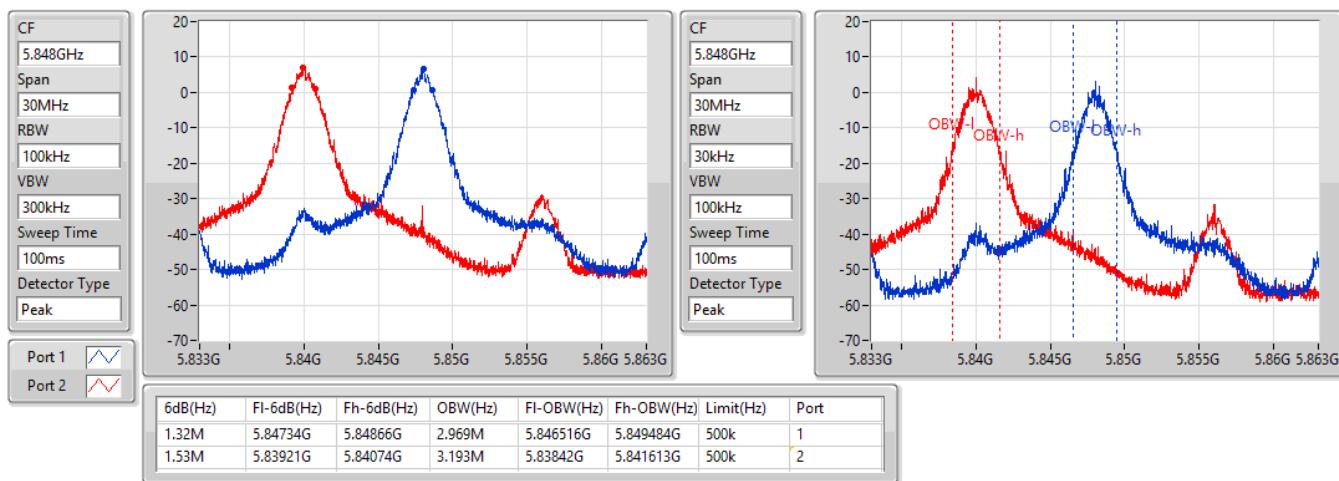


FSK_2TX
5788+5796MHz

18/04/2022


FSK_2TX
5848+5840MHz

18/04/2022



**Summary**

Mode	Total Power (dBm)	Total Power (W)
5.15-5.25GHz	-	-
FSK_2TX	10.99	0.01256
5.725-5.85GHz	-	-
FSK_2TX	14.23	0.02649



Average Power

Appendix C

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
FSK_2TX	-	-	-	-	-	-
5167MHz	Pass	2.00	3.98	-	3.98	23.98
5175MHz	Pass	2.00	-	5.37	5.37	23.98
5203MHz	Pass	2.00	6.88	-	6.88	23.98
5211MHz	Pass	2.00	-	8.37	8.37	23.98
5248MHz	Pass	2.00	7.20	-	7.20	23.98
5240MHz	Pass	2.00	-	8.64	8.64	23.98
5726MHz	Pass	2.00	9.95	-	9.95	30.00
5734MHz	Pass	2.00	-	10.95	10.95	30.00
5788MHz	Pass	2.00	10.76	-	10.76	30.00
5796MHz	Pass	2.00	-	11.63	11.63	30.00
5848MHz	Pass	2.00	9.26	-	9.26	30.00
5840MHz	Pass	2.00	-	10.19	10.19	30.00

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

**Summary**

Mode	PD (dBm/RBW)
5.15-5.25GHz	-
FSK_2TX	5.95
5.725-5.85GHz	-
FSK_2TX	7.42

RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;



Result

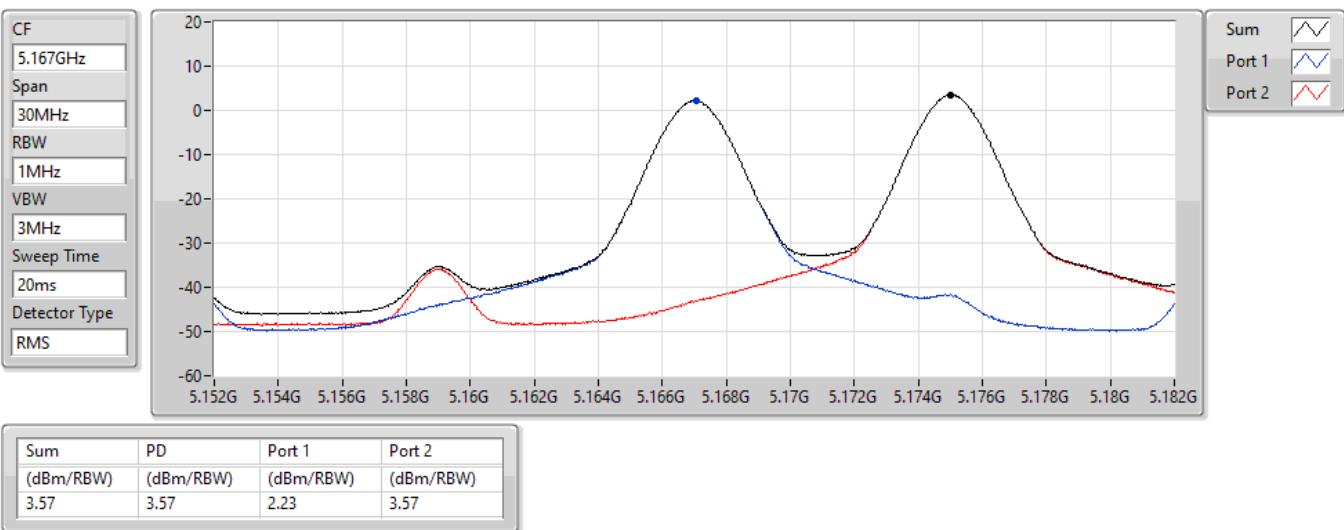
Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
FSK_2TX	-	-	-	-	-	-
5167MHz	Pass	2	2.23	-	2.23	11.00
5175MHz	Pass	2	-	3.57	3.57	11.00
5203MHz	Pass	2	4.20	-	4.20	11.00
5211MHz	Pass	2	-	5.72	5.72	11.00
5248MHz	Pass	2	4.38	-	4.38	11.00
5240MHz	Pass	2	-	5.95	5.95	11.00
5726MHz	Pass	2	6.01	-	6.01	30.00
5734MHz	Pass	2	-	7.00	7.00	30.00
5788MHz	Pass	2	6.75	-	6.75	30.00
5796MHz	Pass	2	-	7.42	7.42	30.00
5848MHz	Pass	2	5.41	-	5.41	30.00
5840MHz	Pass	2	-	5.94	5.94	30.00

DG = Directional Gain; RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

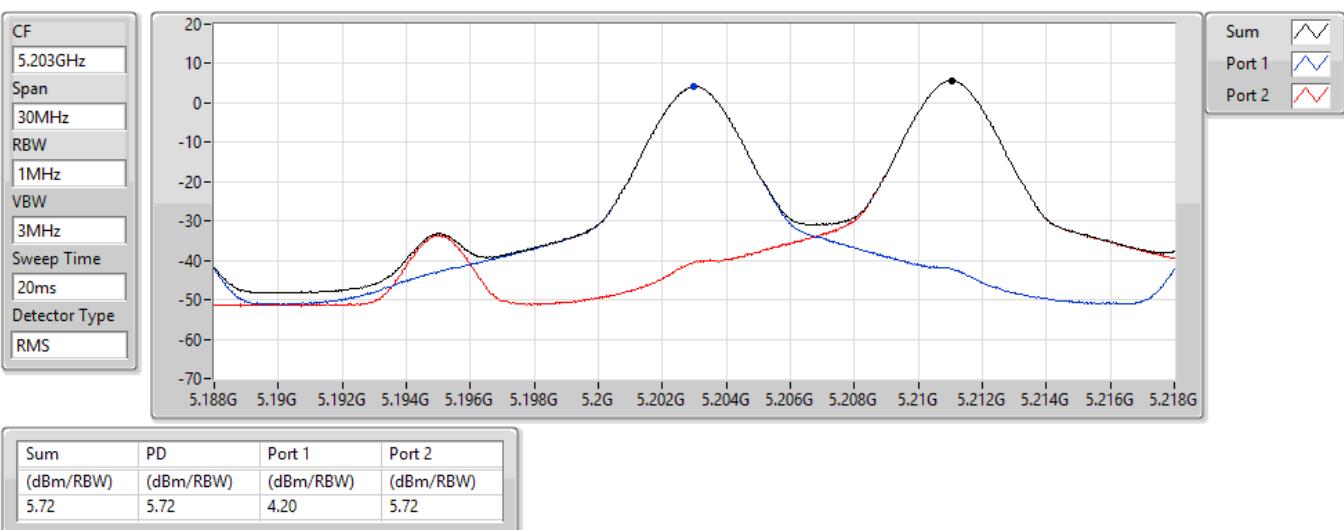
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density;

FSK_2TX
5167+5175MHz

20/04/2022

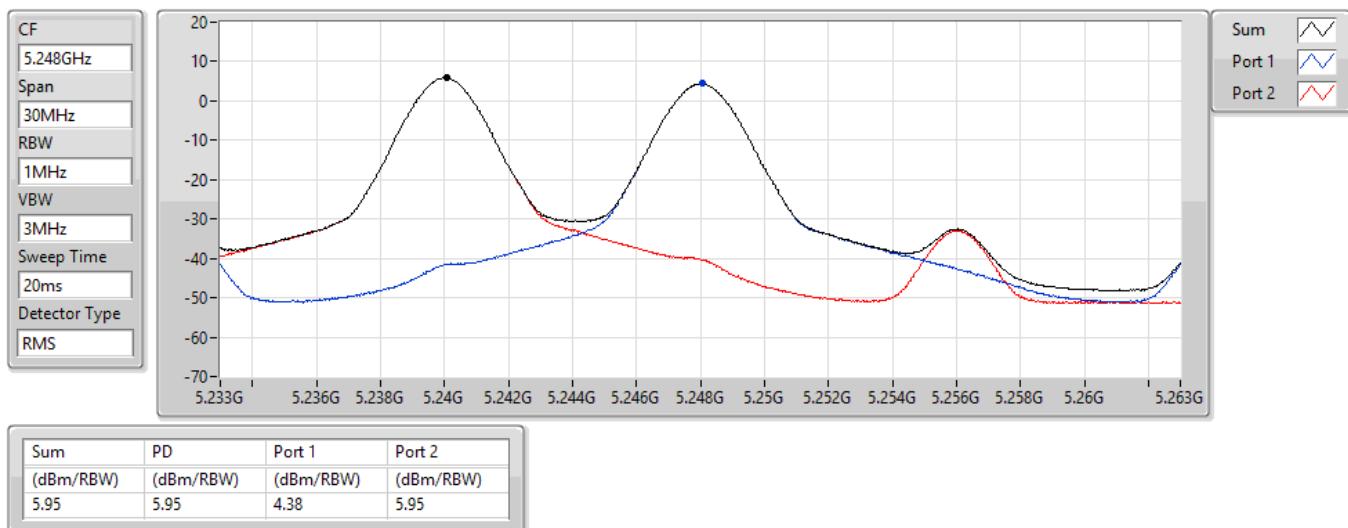

FSK_2TX
5203+5211MHz

18/04/2022

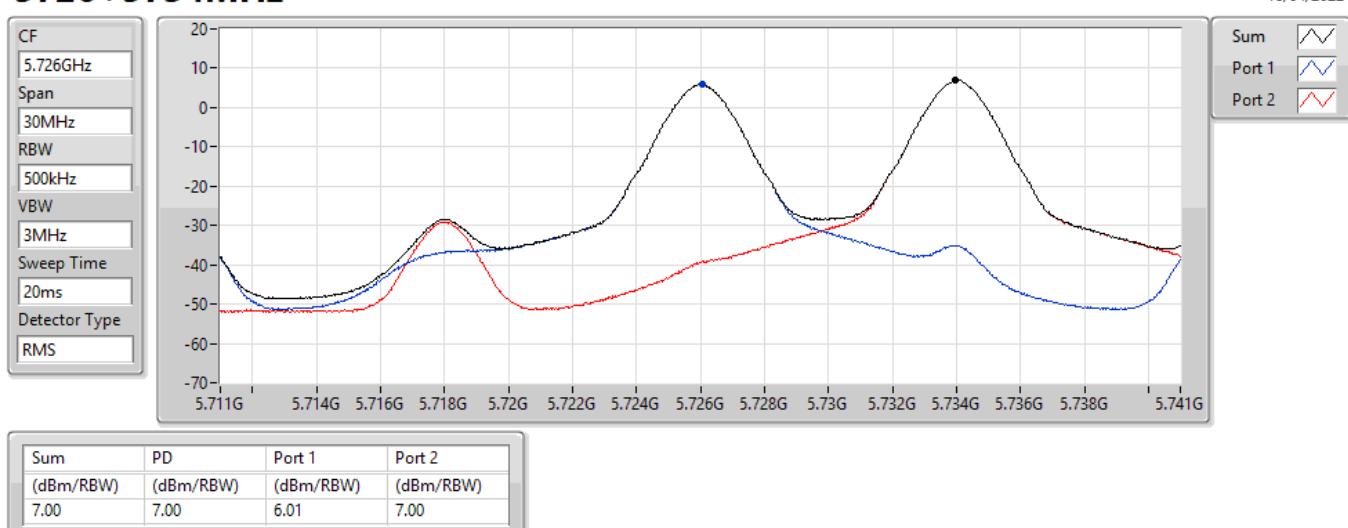


FSK_2TX
PSD
5248+5240MHz

18/04/2022

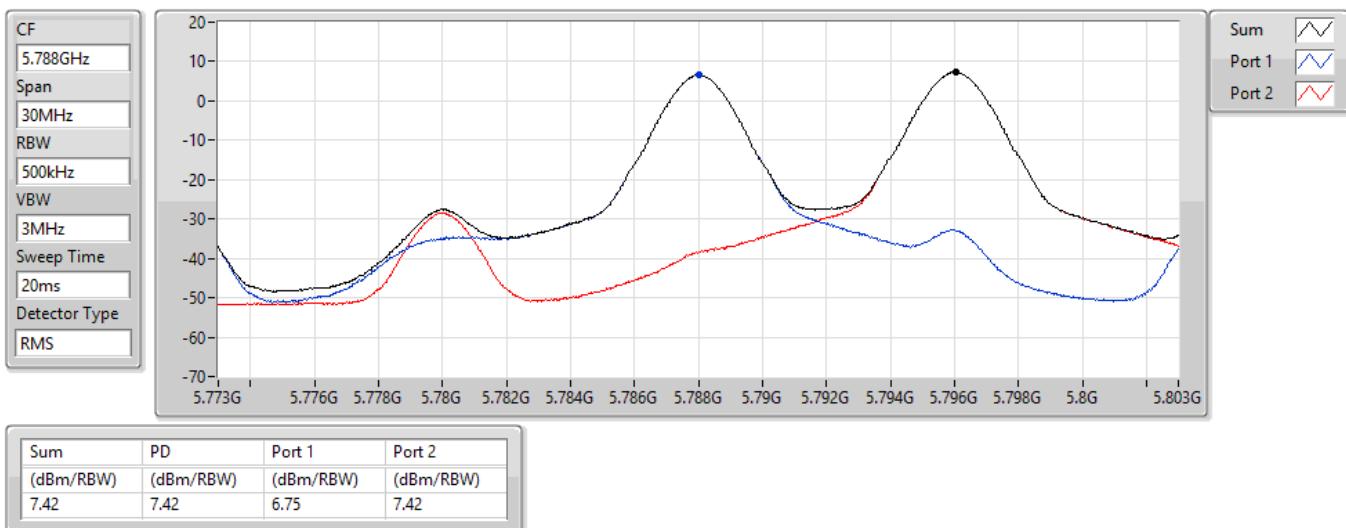

FSK_2TX
PSD
5726+5734MHz

18/04/2022

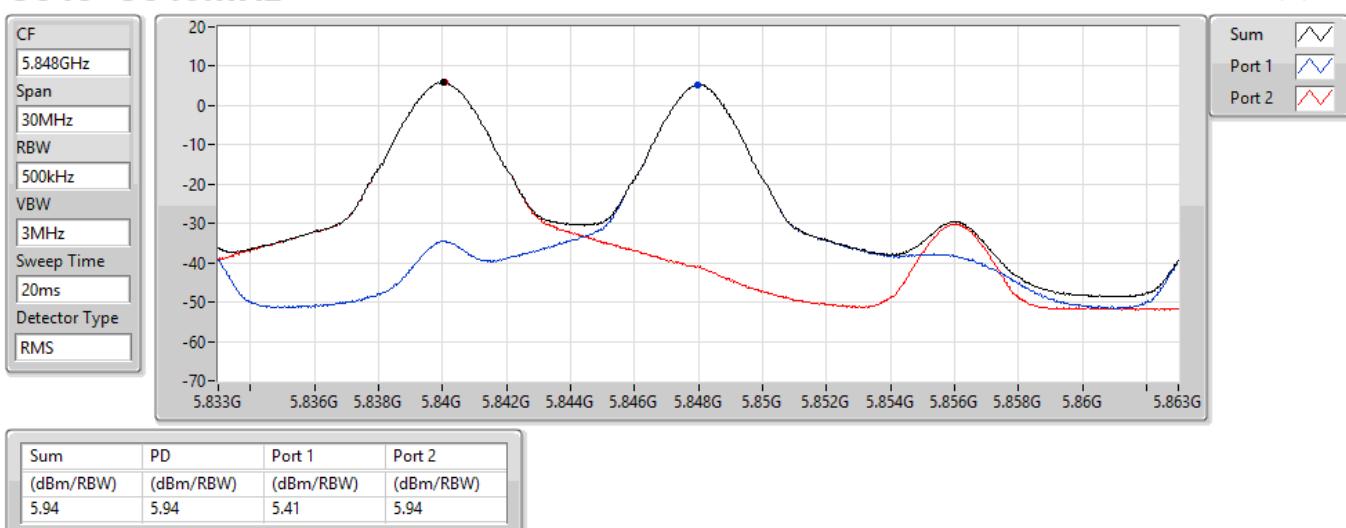


FSK_2TX
PSD
5788+5796MHz

18/04/2022

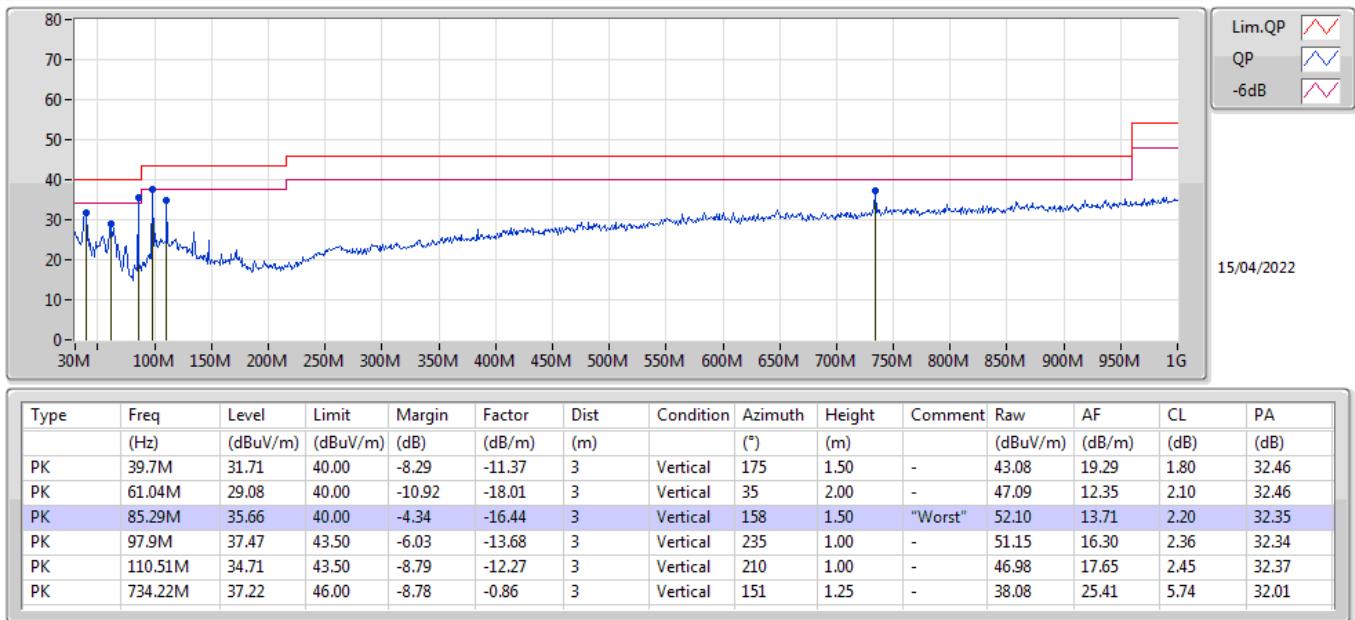

FSK_2TX
PSD
5848+5840MHz

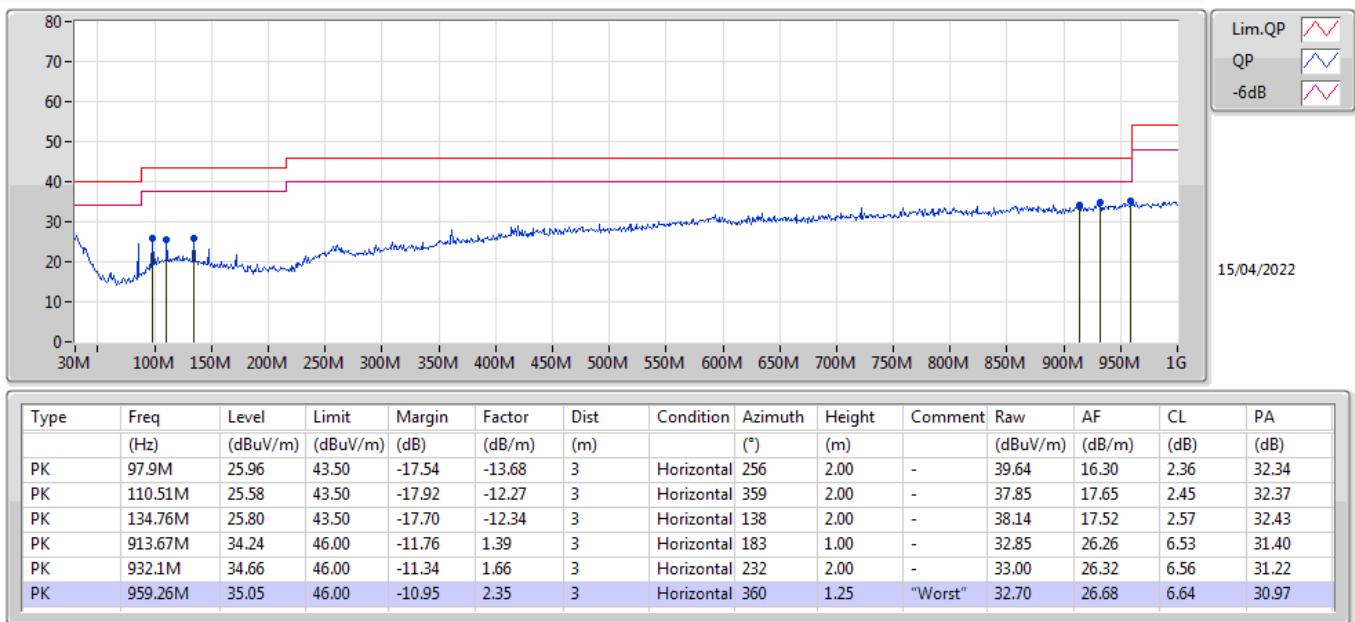
18/04/2022



**Summary**

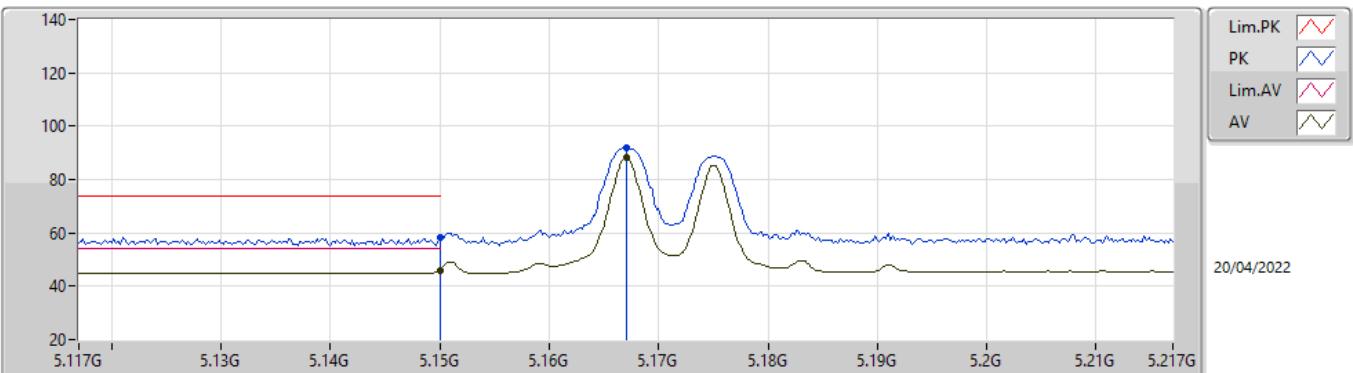
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	PK	85.29M	35.66	40.00	-4.34	Vertical

Mode 1


Mode 1


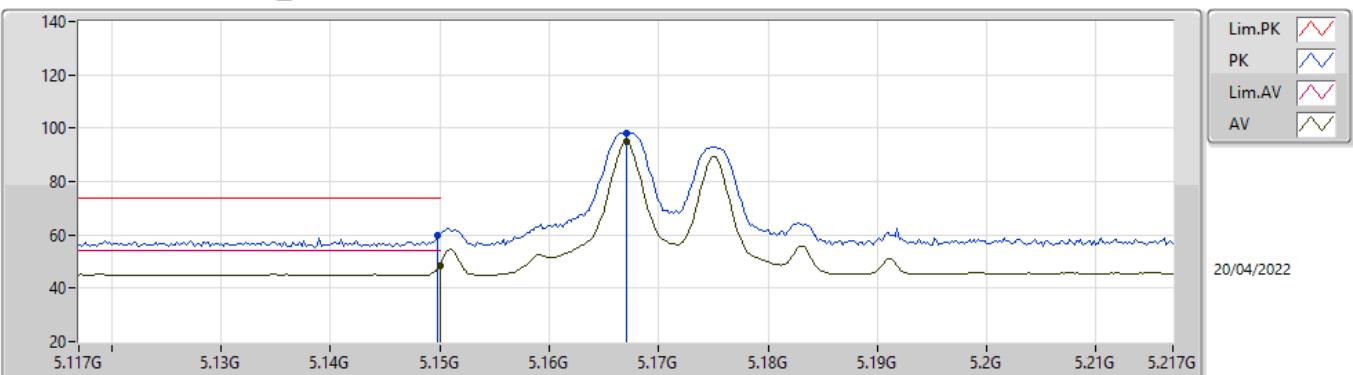
**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
5.725-5.85GHz	-	-	-	-	-	-	-	-	-	-	-
FSK_2TX	Pass	PK	17.36356G	68.16	68.20	-0.04	3	Vertical	26	1.79	-

FSK_2TX
5167+5175MHz_TnomVnom


EUT Z_2TX
Setting 5
01-C-E-2-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.15G	58.15	74.00	-15.85	52.32	3	Vertical	142	2.95	-	34.00	7.17	35.34	
AV	5.15G	46.02	54.00	-7.98	40.19	3	Vertical	142	2.95	-	34.00	7.17	35.34	
PK	5.167G	91.83	Inf	-Inf	85.92	3	Vertical	142	2.95	-	34.07	7.18	35.34	
AV	5.167G	88.23	Inf	-Inf	82.32	3	Vertical	142	2.95	-	34.07	7.18	35.34	

FSK_2TX
5167+5175MHz_TnomVnom


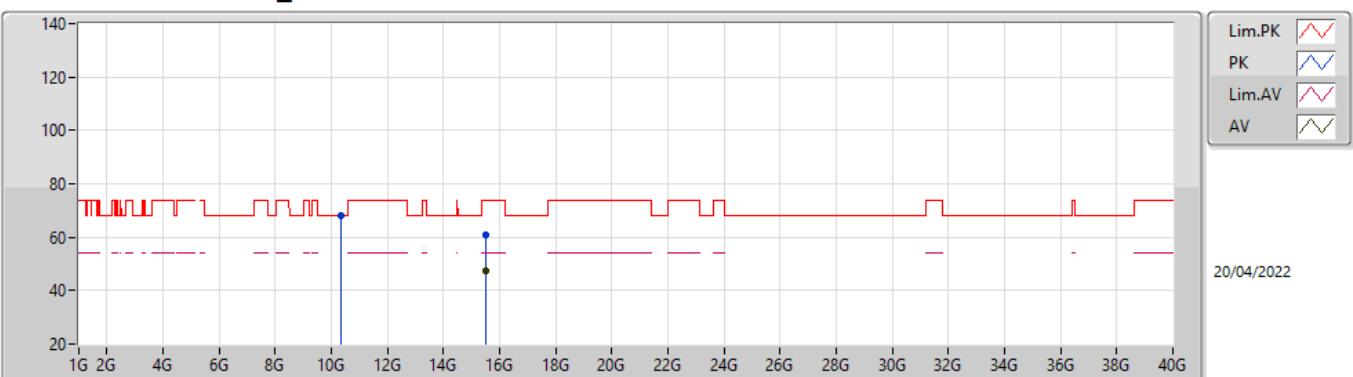
EUT Z_2TX
Setting 5
01-C-E-2-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1498G	59.65	74.00	-14.35	53.82	3	Horizontal	55	1.20	-	34.00	7.17	35.34	
AV	5.15G	48.61	54.00	-5.39	42.78	3	Horizontal	55	1.20	-	34.00	7.17	35.34	
PK	5.167G	98.35	Inf	-Inf	92.44	3	Horizontal	55	1.20	-	34.07	7.18	35.34	
AV	5.167G	94.79	Inf	-Inf	88.88	3	Horizontal	55	1.20	-	34.07	7.18	35.34	

FSK_2TX
5167+5175MHz_TnomVnom

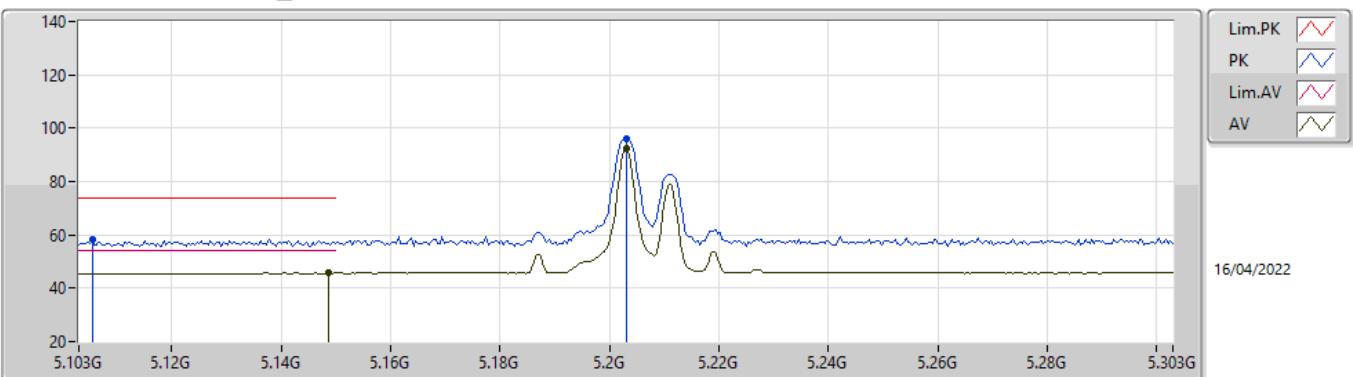

EUT X_2TX
Setting 5
01-C-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	10.3502G	66.31	68.20	-1.89	53.20	3	Vertical	130	2.35	-	38.15	10.55	35.59	
PK	15.5G	60.22	74.00	-13.78	43.74	3	Vertical	128	2.32	-	38.70	13.15	35.37	
AV	15.5012G	47.34	54.00	-6.66	30.87	3	Vertical	128	2.32	-	38.69	13.15	35.37	

FSK_2TX
5167+5175MHz_TnomVnom


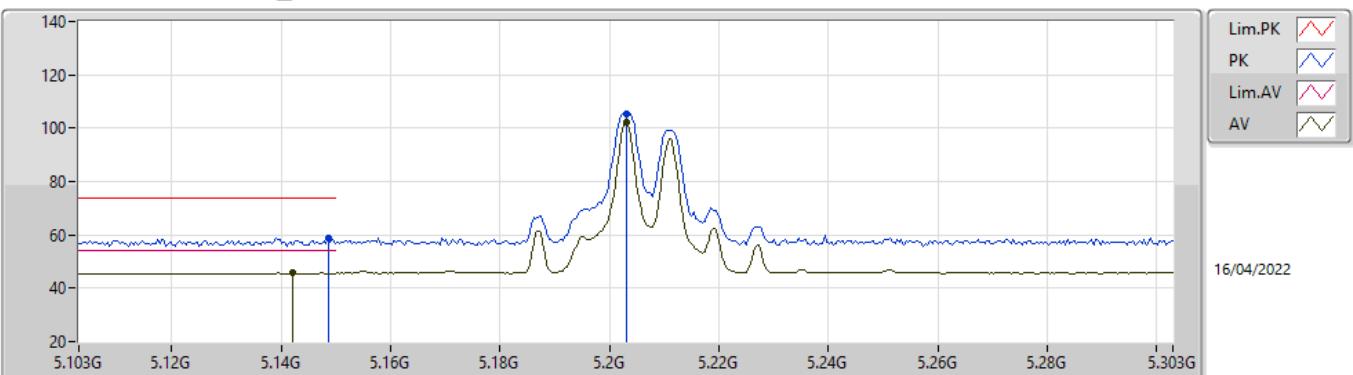
EUT X_2TX
Setting 5
01-C-E-2

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	10.3503G	68.18	68.20	-0.02	55.07	3	Horizontal	310	1.01	-	38.15	10.55	35.59	
PK	15.5006G	60.74	74.00	-13.26	44.26	3	Horizontal	316	1.02	-	38.70	13.15	35.37	
AV	15.5012G	47.67	54.00	-6.33	31.20	3	Horizontal	316	1.02	-	38.69	13.15	35.37	

FSK_2TX
5203+5211MHz_TnomVnom


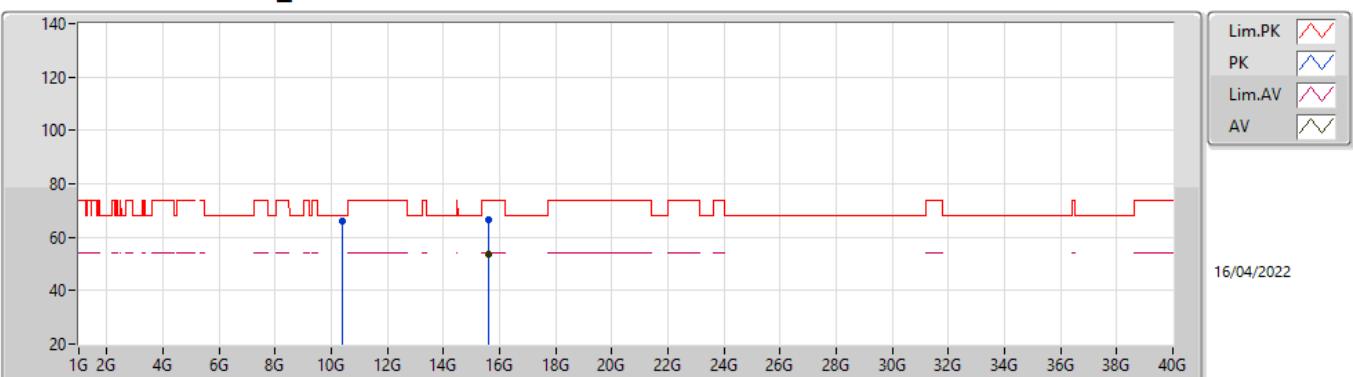
EUT Z_2TX
Setting 4
01-E-G-2-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1054G	58.18	74.00	-15.82	51.99	3	Vertical	314	2.91	-	32.79	6.35	32.95	
AV	5.1486G	45.67	54.00	-8.33	39.54	3	Vertical	314	2.91	-	32.70	6.37	32.94	
PK	5.203G	95.78	Inf	-Inf	89.61	3	Vertical	314	2.91	-	32.71	6.40	32.94	
AV	5.203G	92.20	Inf	-Inf	86.03	3	Vertical	314	2.91	-	32.71	6.40	32.94	

FSK_2TX
5203+5211MHz_TnomVnom


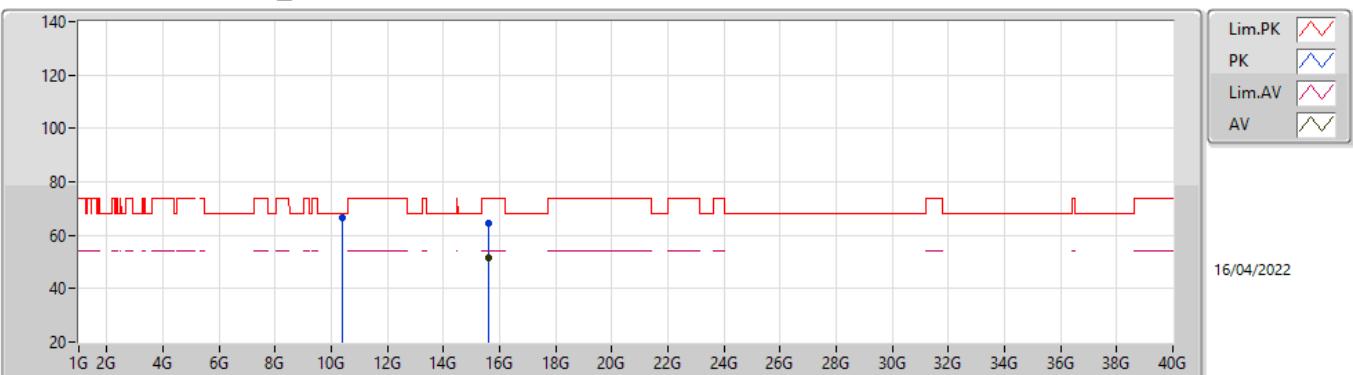
EUT Z_2TX
Setting 4
01-E-G-2-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1486G	58.81	74.00	-15.19	52.68	3	Horizontal	42	1.04	-	32.70	6.37	32.94	
AV	5.1422G	45.71	54.00	-8.29	39.56	3	Horizontal	42	1.04	-	32.72	6.37	32.94	
PK	5.203G	105.60	Inf	-Inf	99.43	3	Horizontal	42	1.04	-	32.71	6.40	32.94	
AV	5.203G	102.06	Inf	-Inf	95.89	3	Horizontal	42	1.04	-	32.71	6.40	32.94	

FSK_2TX
5203+5211MHz_TnomVnom


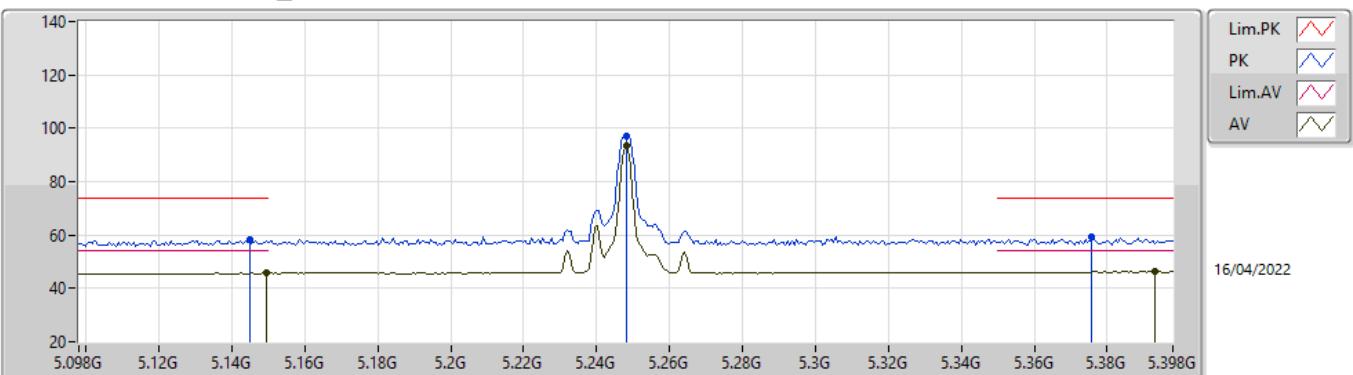
EUT X_2TX
Setting 4
01-E-K-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	10.40554G	66.13	68.20	-2.07	52.21	3	Vertical	136	1.81	-	38.41	8.60	33.09	
PK	15.6087G	66.48	74.00	-7.52	51.11	3	Vertical	335	1.80	-	37.79	10.38	32.80	
AV	15.60898G	53.85	54.00	-0.15	38.48	3	Vertical	335	1.80	-	37.79	10.38	32.80	

FSK_2TX
5203+5211MHz_TnomVnom


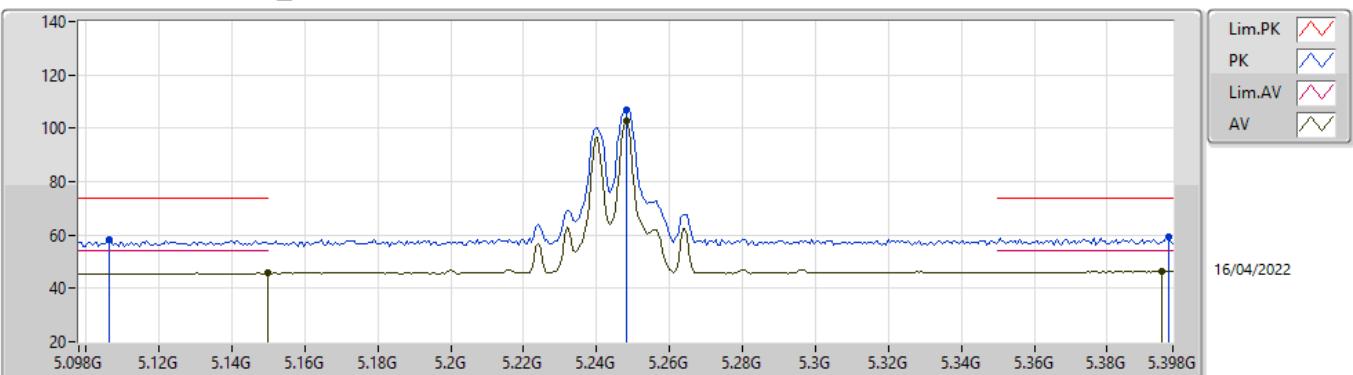
EUT X_2TX
Setting 4
01-E-K-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	10.406G	66.47	68.20	-1.73	52.55	3	Horizontal	20	1.81	-	38.41	8.60	33.09	
PK	15.60846G	64.41	74.00	-9.59	49.04	3	Horizontal	329	1.80	-	37.79	10.38	32.80	
AV	15.60898G	51.80	54.00	-2.20	36.43	3	Horizontal	329	1.80	-	37.79	10.38	32.80	

FSK_2TX
5248+5240MHz_TnomVnom


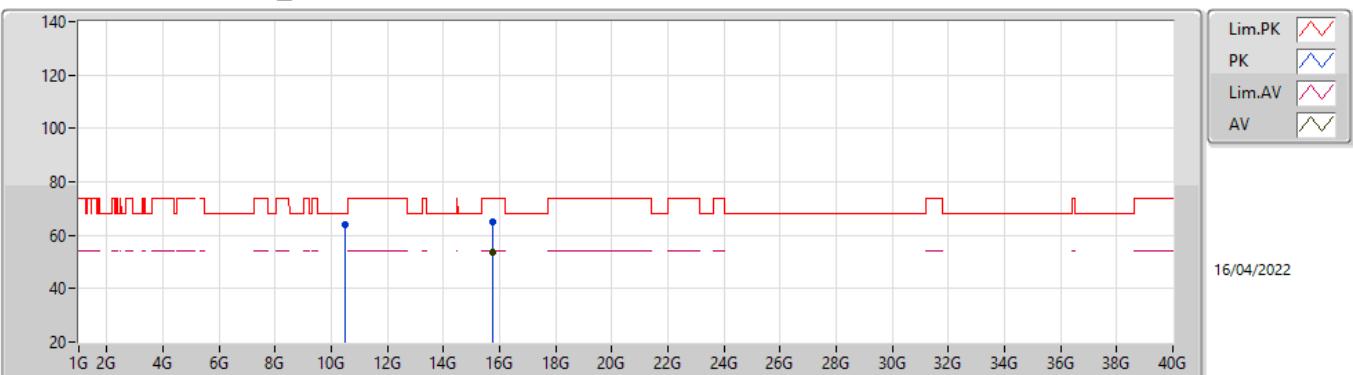
EUT Z_2TX
Setting 4
01-E-G-2-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1448G	58.06	74.00	-15.94	51.92	3	Vertical	309	2.86	-	32.71	6.37	32.94	
AV	5.1496G	45.68	54.00	-8.32	39.55	3	Vertical	309	2.86	-	32.70	6.37	32.94	
PK	5.248G	97.30	Inf	-Inf	91.03	3	Vertical	309	2.86	-	32.80	6.40	32.93	
AV	5.248G	93.47	Inf	-Inf	87.20	3	Vertical	309	2.86	-	32.80	6.40	32.93	
PK	5.3758G	59.07	74.00	-14.93	52.48	3	Vertical	309	2.86	-	33.10	6.40	32.91	
AV	5.3932G	46.22	54.00	-7.78	39.56	3	Vertical	309	2.86	-	33.17	6.40	32.91	

FSK_2TX
5248+5240MHz_TnomVnom


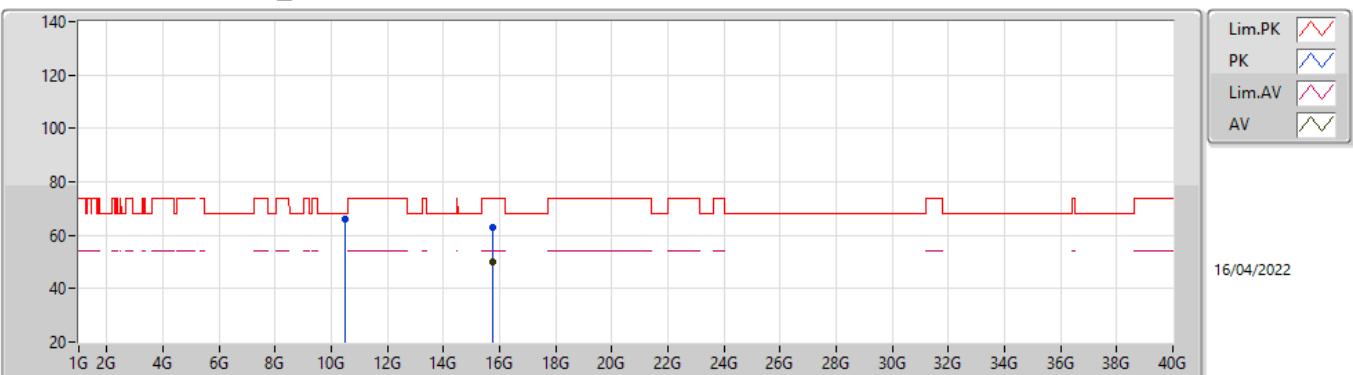
EUT Z_2TX
Setting 4
01-E-G-2-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.1064G	58.09	74.00	-15.91	51.90	3	Horizontal	45	1.00	-	32.79	6.35	32.95	
AV	5.15G	45.62	54.00	-8.38	39.49	3	Horizontal	45	1.00	-	32.70	6.37	32.94	
PK	5.248G	106.86	Inf	-Inf	100.59	3	Horizontal	45	1.00	-	32.80	6.40	32.93	
AV	5.248G	102.87	Inf	-Inf	96.60	3	Horizontal	45	1.00	-	32.80	6.40	32.93	
PK	5.3968G	59.06	74.00	-14.94	52.38	3	Horizontal	45	1.00	-	33.19	6.40	32.91	
AV	5.395G	46.31	54.00	-7.69	39.64	3	Horizontal	45	1.00	-	33.18	6.40	32.91	

FSK_2TX
5248+5240MHz_TnomVnom


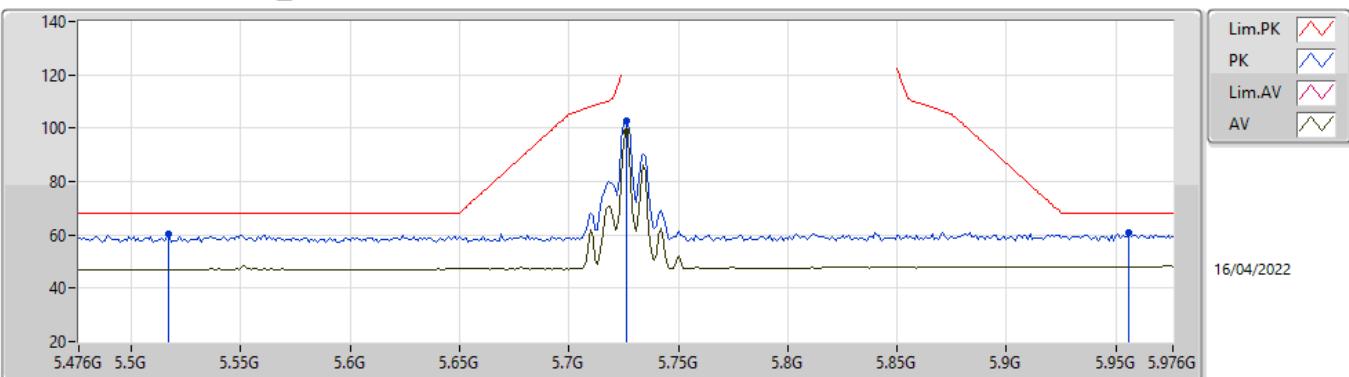
EUT X_2TX
Setting 4
01-E-K-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	10.49582G	64.20	68.20	-4.00	50.09	3	Vertical	135	1.81	-	38.50	8.62	33.01	
PK	15.74398G	65.25	74.00	-8.75	49.65	3	Vertical	338	1.80	-	37.96	10.42	32.78	
AV	15.74412G	53.70	54.00	-0.30	38.10	3	Vertical	338	1.80	-	37.96	10.42	32.78	

FSK_2TX
5248+5240MHz_TnomVnom


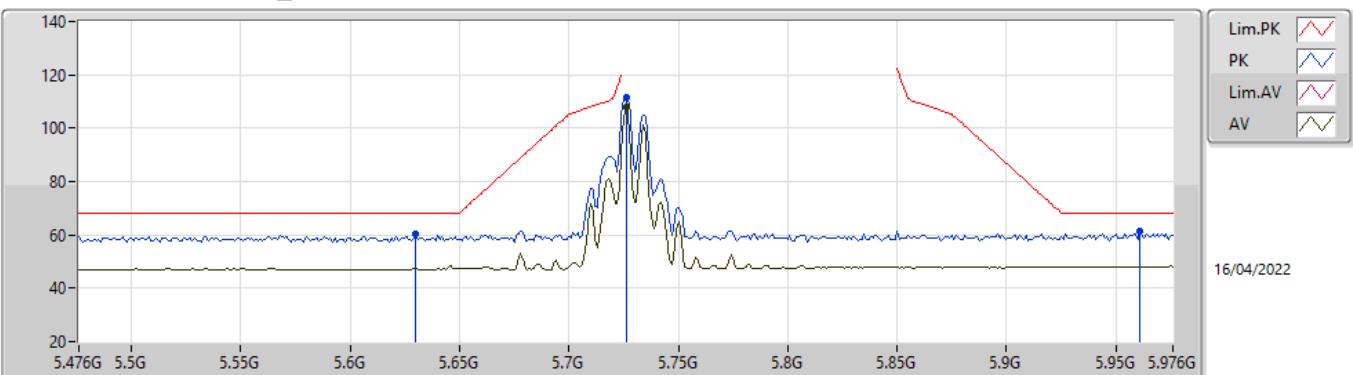
EUT X_2TX
Setting 4
01-E-K-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	10.49546G	66.10	68.20	-2.10	51.99	3	Horizontal	7	2.60	-	38.50	8.62	33.01	
PK	15.74412G	62.82	74.00	-11.18	47.22	3	Horizontal	330	1.80	-	37.96	10.42	32.78	
AV	15.74382G	49.90	54.00	-4.10	34.30	3	Horizontal	330	1.80	-	37.96	10.42	32.78	

FSK_2TX
5726+5734MHz_TnomVnom


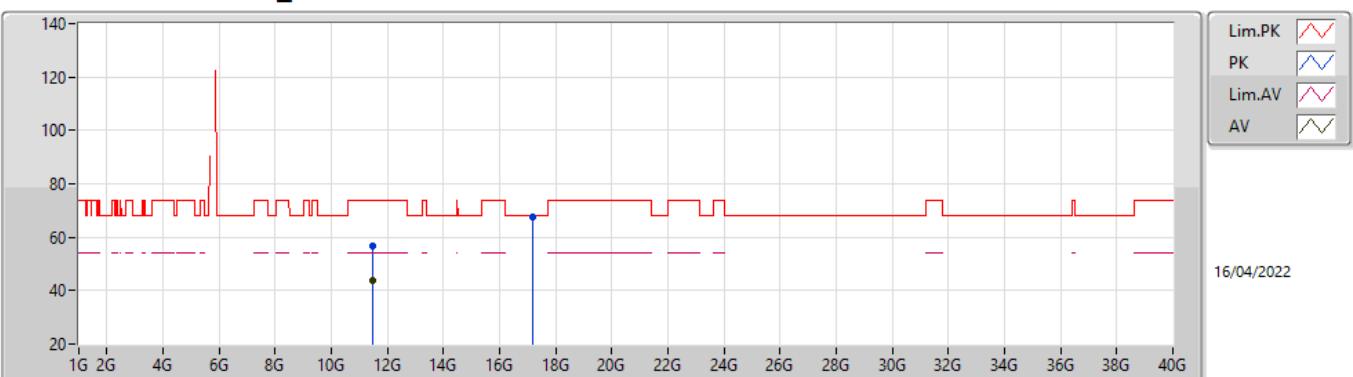
EUT Z_2TX
Setting 2
01-E-G-2-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.517G	60.25	68.20	-7.95	52.86	3	Vertical	294	2.70	-	33.77	6.52	32.90	
PK	5.726G	102.56	Inf	-Inf	94.67	3	Vertical	294	2.70	-	34.21	6.60	32.92	
AV	5.726G	98.75	Inf	-Inf	90.86	3	Vertical	294	2.70	-	34.21	6.60	32.92	
PK	5.956G	60.62	68.20	-7.58	51.85	3	Vertical	294	2.70	-	35.12	6.60	32.95	

FSK_2TX
5726+5734MHz_TnomVnom


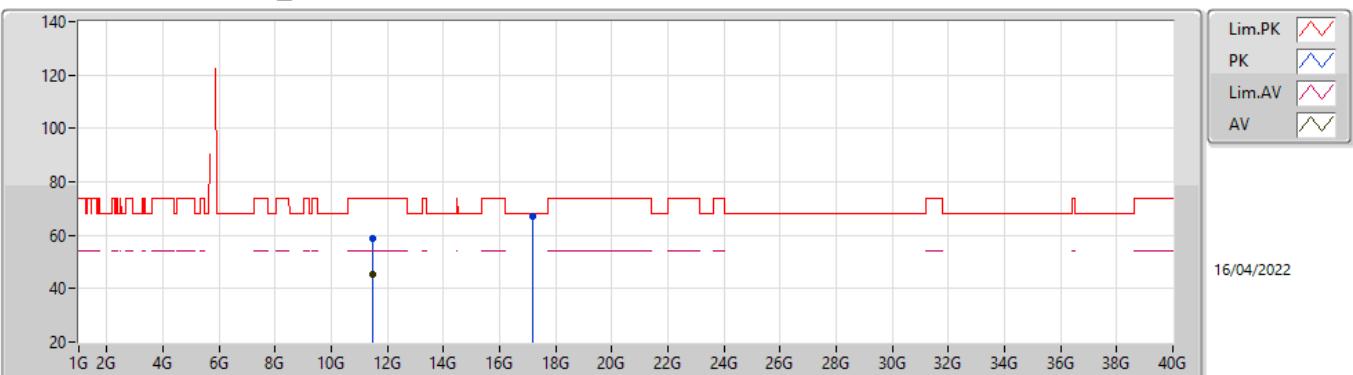
EUT Z_2TX
Setting 2
01-E-G-2-10

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.63G	60.10	68.20	-8.10	52.43	3	Horizontal	49	1.07	-	33.98	6.60	32.91	
PK	5.726G	111.79	Inf	-Inf	103.90	3	Horizontal	49	1.07	-	34.21	6.60	32.92	
AV	5.726G	107.93	Inf	-Inf	100.04	3	Horizontal	49	1.07	-	34.21	6.60	32.92	
PK	5.961G	61.16	68.20	-7.04	52.37	3	Horizontal	49	1.07	-	35.14	6.60	32.95	

FSK_2TX
5726+5734MHz_TnomVnom


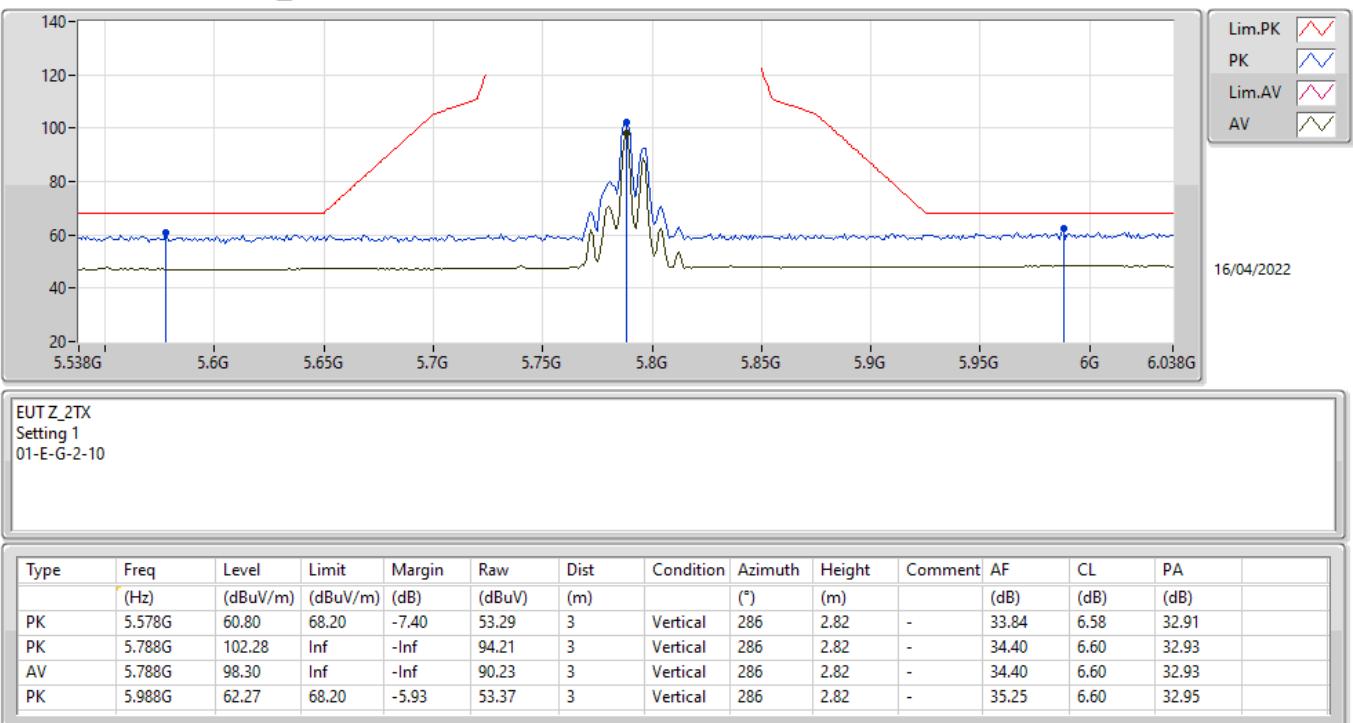
EUT X_2TX
Setting 2
01-E-K-4

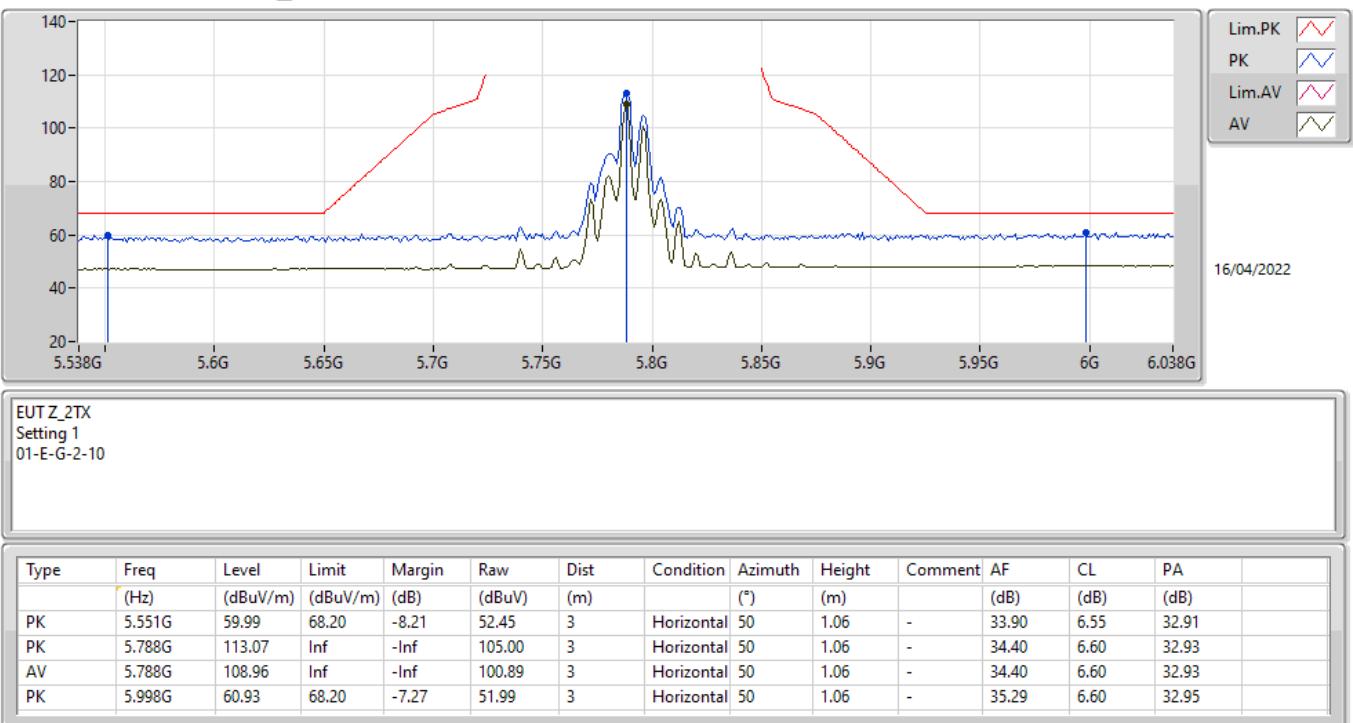
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	11.4514G	56.56	74.00	-17.44	42.10	3	Vertical	355	1.80	-	38.40	8.86	32.80	
AV	11.45214G	43.74	54.00	-10.26	29.28	3	Vertical	355	1.80	-	38.40	8.86	32.80	
PK	17.17776G	67.80	68.20	-0.40	47.43	3	Vertical	27	1.78	-	41.56	10.85	32.04	

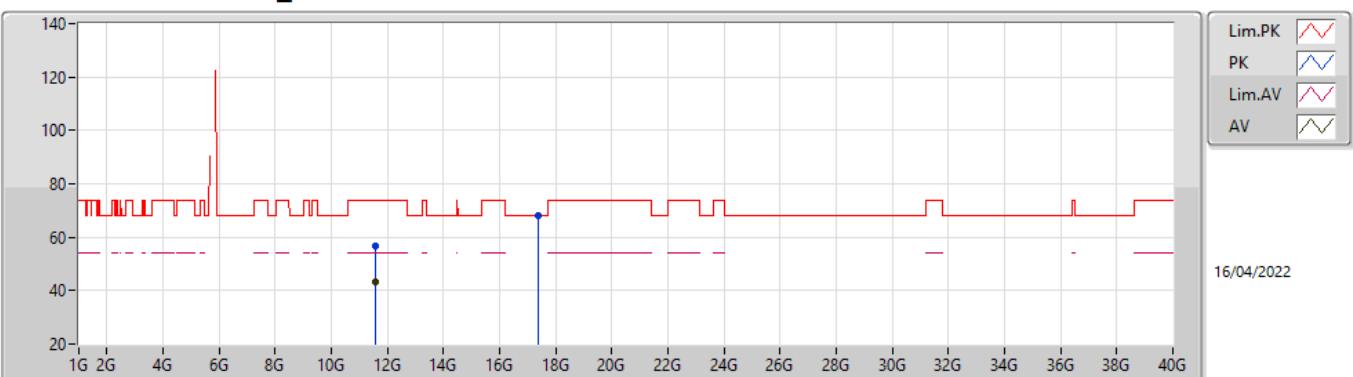
FSK_2TX
5726+5734MHz_TnomVnom


EUT X_2TX
Setting 2
01-E-K-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	11.4526G	58.58	74.00	-15.42	44.12	3	Horizontal	18	1.80	-	38.40	8.86	32.80	
AV	11.45212G	45.10	54.00	-8.90	30.64	3	Horizontal	18	1.80	-	38.40	8.86	32.80	
PK	17.175G	66.96	68.20	-1.24	46.60	3	Horizontal	318	2.59	-	41.55	10.85	32.04	

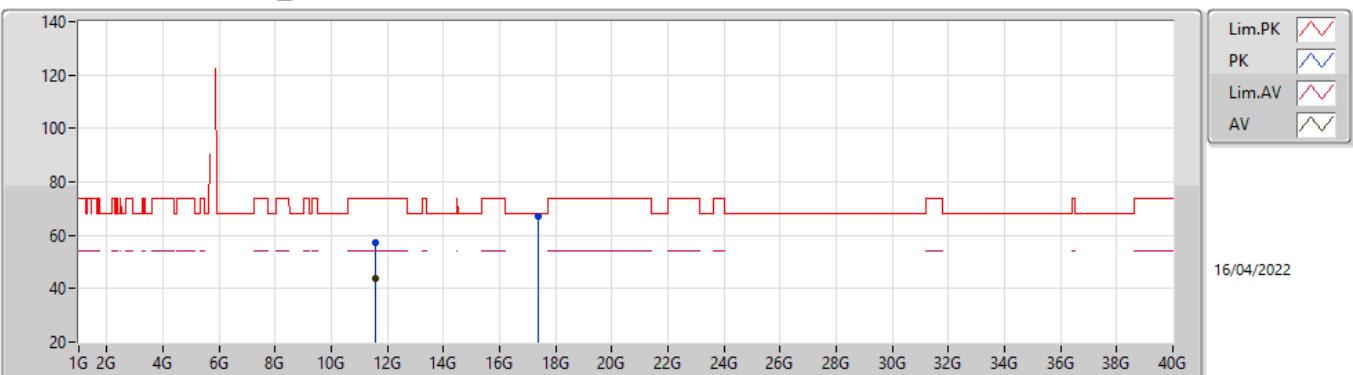
FSK_2TX
5788+5796MHz_TnomVnom


FSK_2TX
5788+5796MHz_TnomVnom


FSK_2TX
5788+5796MHz_TnomVnom


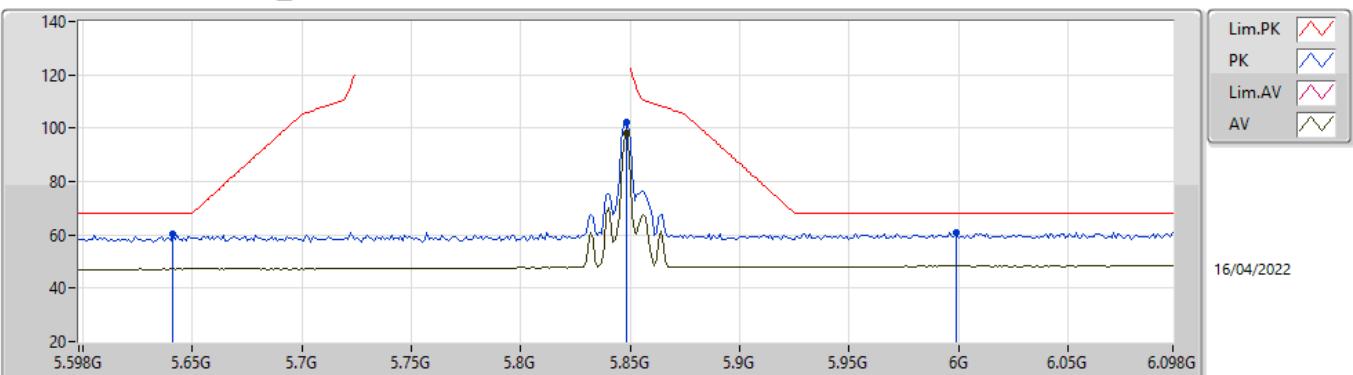
EUT X_2TX
Setting 1
01-E-K-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	11.5767G	56.65	74.00	-17.35	42.03	3	Vertical	2	1.80	-	38.55	8.89	32.82	
AV	11.5762G	43.33	54.00	-10.67	28.71	3	Vertical	2	1.80	-	38.55	8.89	32.82	
PK	17.36356G	68.16	68.20	-0.04	47.03	3	Vertical	26	1.79	-	42.16	10.91	31.94	

FSK_2TX
5788+5796MHz_TnomVnom


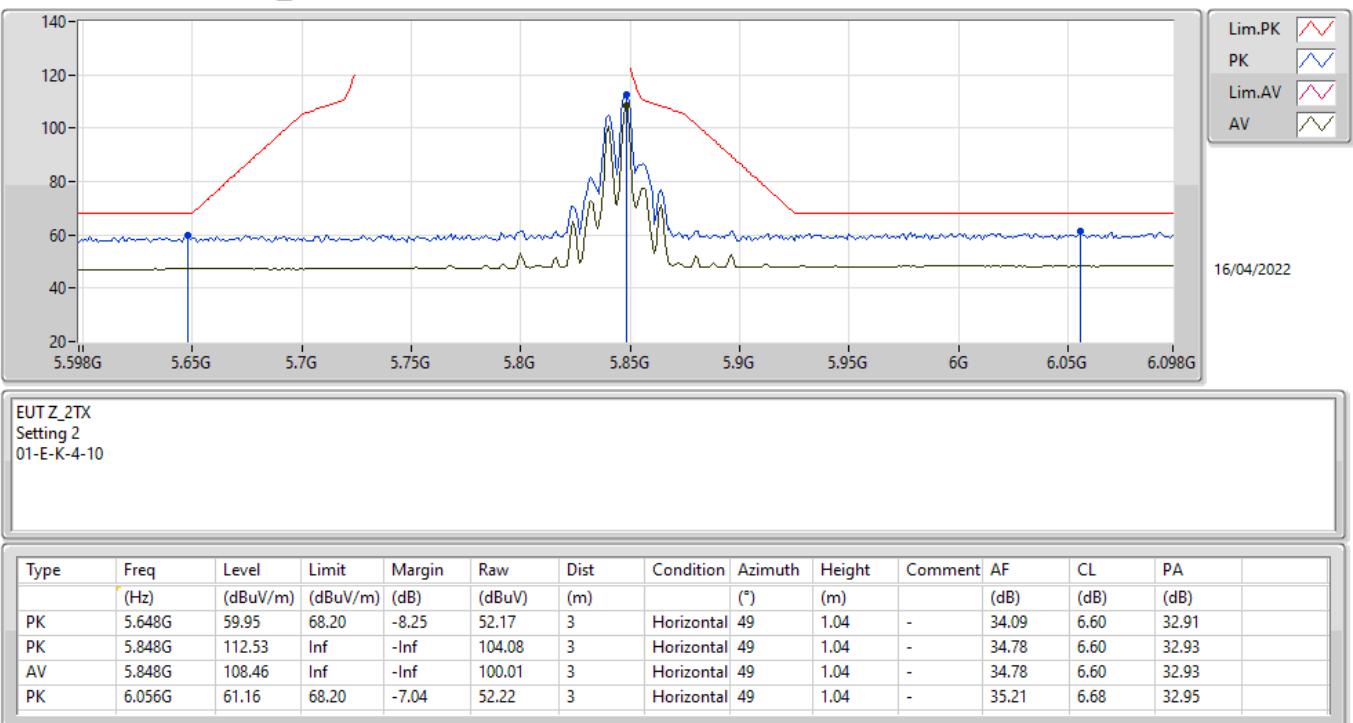
EUT X_2TX
Setting 1
01-E-K-4

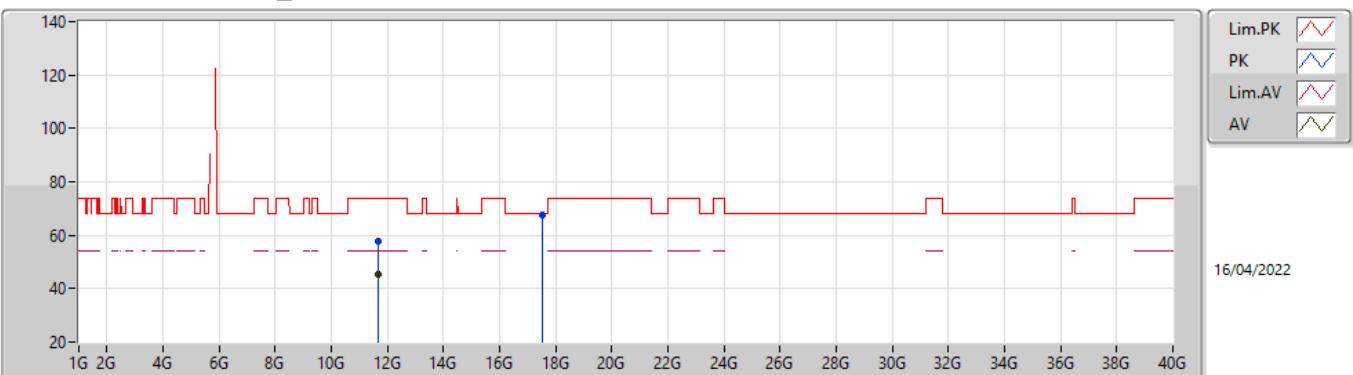
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	11.57626G	57.11	74.00	-16.89	42.49	3	Horizontal	313	1.99	-	38.55	8.89	32.82	
AV	11.57604G	43.83	54.00	-10.17	29.21	3	Horizontal	313	1.99	-	38.55	8.89	32.82	
PK	17.366G	67.13	68.20	-1.07	45.99	3	Horizontal	357	1.78	-	42.17	10.91	31.94	

FSK_2TX
5848+5840MHz_TnomVnom


EUT Z_2TX
Setting 2
01-E-K-4-10

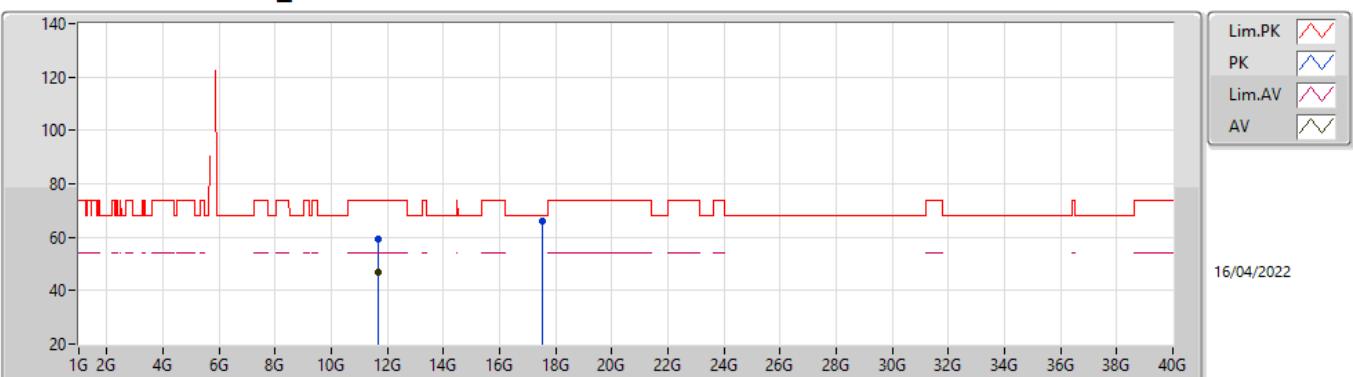
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	5.641G	60.14	68.20	-8.06	52.40	3	Vertical	104	3.00	-	34.05	6.60	32.91	
PK	5.848G	102.31	Inf	-Inf	93.86	3	Vertical	104	3.00	-	34.78	6.60	32.93	
AV	5.848G	98.29	Inf	-Inf	89.84	3	Vertical	104	3.00	-	34.78	6.60	32.93	
PK	5.999G	60.80	68.20	-7.40	51.85	3	Vertical	104	3.00	-	35.30	6.60	32.95	

FSK_2TX
5848+5840MHz_TnomVnom


FSK_2TX
5848+5840MHz_TnomVnom


EUT X_2TX
Setting 2
01-E-K-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	11.69612G	57.81	74.00	-16.19	43.13	3	Vertical	349	1.90	-	38.60	8.92	32.84	
AV	11.69608G	45.56	54.00	-8.44	30.88	3	Vertical	349	1.90	-	38.60	8.92	32.84	
PK	17.54346G	67.70	68.20	-0.50	46.25	3	Vertical	331	1.76	-	42.34	10.96	31.85	

FSK_2TX
5848+5840MHz_TnomVnom


EUT X_2TX
Setting 2
01-E-K-4

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw (dBuV)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	AF (dB)	CL (dB)	PA (dB)	
PK	11.69636G	59.20	74.00	-14.80	44.52	3	Horizontal	307	2.97	-	38.60	8.92	32.84	
AV	11.69612G	46.84	54.00	-7.16	32.16	3	Horizontal	307	2.97	-	38.60	8.92	32.84	
PK	17.5489G	66.27	68.20	-1.93	44.81	3	Horizontal	6.9	1.80	-	42.35	10.96	31.85	