

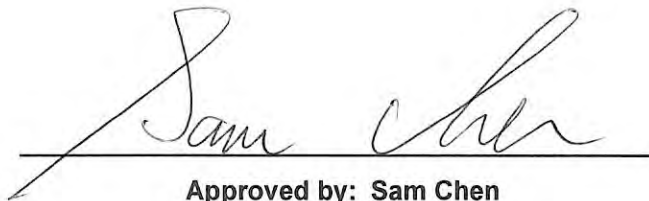


RADIO TEST REPORT

FCC ID : Z3WAIR4980
Equipment : Wi-Fi 6E Smart Mesh System
Brand Name : Airties
Model Name : Air 4980
Applicant : Airties Wireless Networks
Sehit Mehmet Mikdat Uluunlu Sokagi No:23
Esentepe, Sisli İstanbul, 34394 Turkey
Manufacturer : Airties Wireless Networks
Sehit Mehmet Mikdat Uluunlu Sokagi No:23
Esentepe, Sisli İstanbul, 34394 Turkey
Standard : 47 CFR FCC Part 15.407

The product was received on Jul. 08, 2022, and testing was started from Jul. 21, 2022 and completed on Jul. 25, 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 variant 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

Sporton International Inc. Hsinchu Laboratory

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TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A12_5 Ver1.1



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.3	15.407(a)	Peak Power Spectral Density (E.I.R.P.)	PASS	-
3.4	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:

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: Viola Huang



1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5925-7125	ax (HEW20)	5955-7095	1-229 [58]
5925-7125	ax (HEW40)	5965-7085	3-227 [29]
5925-7125	ax (HEW80)	5985-7025	7-215 [14]
5925-7125	ax (HEW160)	6025-6985	15-207 [7]

Band	Mode	BWch (MHz)	Nant
UNII 5-8	ax (HEW20)	20	4
UNII 5-8	ax (HEW20)-BF	20	4
UNII 5-8	ax (HEW40)	40	4
UNII 5-8	ax (HEW40)-BF	40	4
UNII 5-8	ax (HEW80)	80	4
UNII 5-8	ax (HEW80)-BF	80	4
UNII 5-8	ax (HEW160)	160	4
UNII 5-8	ax (HEW160)-BF	160	4

Note:

- HEW20, HEW40, HEW80 and HEW160 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- BWch is the nominal channel bandwidth.
- The channel defined in the IEEE Standard P802.11ax™/D6.1.

1.1.2 Antenna Information

Ant.	2.4GHz port	5GHz port	6E port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	1	-	AirTies	A00	PCB antenna	N/A	Note 1
2	2	2	-	AirTies	A11	PCB antenna	N/A	
3	-	-	1	AirTies	A0X	PCB antenna	N/A	
4	-	-	2	AirTies	A1X	PCB antenna	N/A	
5	-	-	3	AirTies	A2X	PCB antenna	N/A	
6	-	-	4	AirTies	A3X	PCB antenna	N/A	

Note 1:

Ant.	Antenna Gain (dBi)								
	WLAN 2.4GHz	WLAN 5GHz				WLAN 6E			
		UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 5	UNII 6	UNII 7	UNII 8
1	3.36	1.62	2.35	1.37	1.01	-	-	-	-
2	4.06	1.92	1.59	0.54	2.18	-	-	-	-
3	-	-	-	-	-	2.40	1.29	1.05	3.33
4	-	-	-	-	-	3.01	2.18	1.57	2.00
5	-	-	-	-	-	3.06	2.14	1.20	2.68
6	-	-	-	-	-	1.30	1.61	2.56	2.70

Ant.	Directional Gain (dBi)									
	WLAN 2.4GHz		WLAN 5GHz							
			UNII 1		UNII 2A		UNII 2C		UNII 3	
	2T1S	2T2S	2T1S	2T2S	2T1S	2T2S	2T1S	2T2S	2T1S	2T2S
1	4.66	1.65	3.10	0.11	3.34	0.33	2.66	-0.35	3.60	0.59
2										

Ant.	Directional Gain (dBi)											
	WLAN 6E											
	UNII 5			UNII 6			UNII 7			UNII 8		
	4T1S	4T2S	4T4S	4T1S	4T2S	4T4S	4T1S	4T2S	4T4S	4T1S	4T2S	4T4S
3	5.10	3.06	0.15	3.92	2.18	-1.09	3.57	2.56	-1.30	5.90	3.33	-0.03
4												
5												
6												

Note 2: The EUT has six antennas.

Note 3: The brand/model/antenna type information was declared by manufacturer.



Note 4: Maximum Directional Gain following KDB662911 D03.

The antenna report is provided in the operational description for this application.

For 2.4GHz:

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

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz UNII 1~3:

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

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

For 5GHz UNII 5~8:

For IEEE 802.11ax mode (4TX/4RX):

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

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

**1.1.3 EUT Operational Condition**

EUT Power Type	From Power Adapter			
Beamforming Function	☒	With beamforming	☐	Without beamforming
	The product has beamforming function for n/VHT/ax in 2.4GHz, n/ac/ax in 5GHz UNII 1~UNII 3 and ax in 6GHz UNII 5~UNII 8.			
Device Type	☒	Indoor Access Point	☒	Subordinate
	☐	Indoor Client	☐	Standard Power Access Point
	☐	Dual Client	☐	Standard Client
	☐	Fixed Client		
Test Software Version	accessMTool(version 3.2.1.3)			
HW version	PCB-4980-D01-M01-R06			
SW version	4.127.8.0			

Note: The above information was declared by manufacturer.

1.1.4 Table for EUT supports function

Function	Supports type	Support Band
AP Router	Master	2.4GHz / 5GHz / 6E
Mesh	Master	6E

Note: The AP router was selected to test.



1.1.5 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR211129AC

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. 6G&5G FEM supply 0201 package MLCCs have been changed to 0402 MLCCs. (C328,C356,C384,C412,C892,C930,C385, C390, C893, C899, C931, C937 footprint change)	1. Unwanted Emissions Above 1GHz 2. Maximum Equivalent Isotropically Radiated Power (E.I.R.P.) 3. Peak Power Spectral Density (E.I.R.P.) For items 1~3 after evaluating TXBF mode 802.11ax HEW160 6505 MHz only, and it is max power channel of original test report. (The test results are based on original output power to re-test.).
2. ECAPs as inserted in 5V DC switcher output according to to more stabilize the supply voltage. 3. MLCCs have been added to CPU Core regulator output and Radio IC Core regulator output according to broadcom suggestion. 4. Reserved MLCCs have been added according to 1.8V power rail measurements. 5. 3.3V DC switcher and its peripheral components have been changed due to component shortage and availability. 6. 5V DC switcher and its peripheral components have been changed(different vendor) due to component shortage and availability. 7. JTAG_SEL functionality of Radio IC has been disabled due to it's not used. 8. PCB layout and P/N changed from PCB-4980-D01-M01-R05 to PCB-4980-D01-M01-R06 due to the changes listed above. 9. change U6.	1. AC Power-line Conducted Emissions 2. Unwanted Emissions below 1GHz



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 15.407
- ♦ 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 987594 D02 v01r01
- ♦ FCC KDB 662911 D03 v01
- ♦ 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	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)
(TAF: 3787)	TEL: 886-3-656-9065 FAX: 886-3-656-9085
	Test site Designation No. TW3787 with FCC.
	Conformity Assessment Body Identifier (CABID) TW3787 with ISCED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated below 1GHz	03CH05-CB	Bruce Yang	24.4~25.5 / 55~58	Jul. 21, 2022
Radiated above 1GHz	03CH03-CB	Eason Chen	24.5~25.6 / 56~59	Jul. 22, 2022~Jul. 25, 2022
AC Conduction	CO02-CB	Joe Chu	23~24 / 61~62	Jul. 25, 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)	3.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.2 dB	Confidence levels of 95%

2 Test Configuration of EUT

2.1 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 (AP Router) + Adapter

The Worst Case Mode for Following Conformance Tests	
Tests Item	Maximum Equivalent Isotropically Radiated Power (E.I.R.P.) Peak Power Spectral Density (E.I.R.P.)
Test Condition	Radiated measurement
	The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found at X axis. So the measurement will follow this same test configuration.
1	EUT in X axis_HEW 160 6505MHz_Beamforming mode

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 X axis (AP Router) + Adapter
2	EUT in Y axis (AP Router) + Adapter
3	EUT in Z axis (AP Router) + Adapter
For operating mode 2 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, and the worst case was found at Z axis. So the measurement will follow this same test configuration.
1	EUT in Z axis_HEW 160 6505MHz_Beamforming mode



2.2 EUT Operation during Test

For CTX Mode:

During the test, the following programs under WIN 7 were executed.

The program was executed as follows:

1. During the test, the EUT operation to normal function.
2. Executed command fixed test channel under DoS.
3. Executed "Lantest.exe" to link with the remote workstation to transmit and receive packet by WLAN module and transmit duty cycle no less than 98%.

For Normal Link Mode:

During the test, the EUT operation to normal function.

2.3 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter	MOSO	MS-V2000R120-024H0-US	INPUT: 100-240V, 50/60Hz, 0.7A max. OUTPUT 12.0V, 2.0A
Others			
RJ-45 cable*1, non-shielded, 1.5m			



2.4 Support Equipment

For AC Conduction:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	LAN PC	DELL	T3400	N/A
B	2.5G WAN PC	DELL	T3400	N/A
C	2.4G NB	DELL	E6430	N/A
D	5G NB	DELL	E6430	N/A
E	6G NB	DELL	E6430	N/A

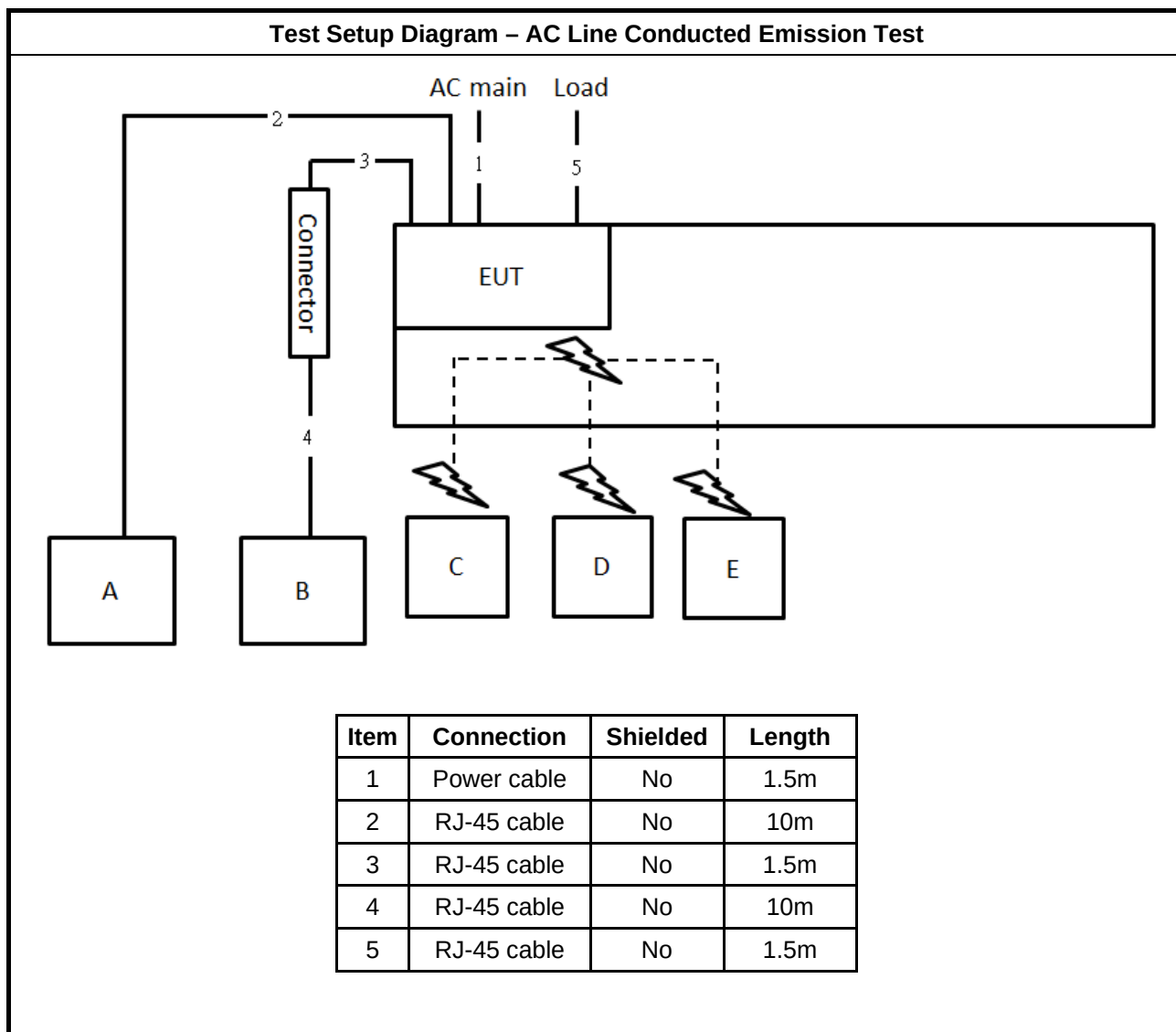
For Radiated (below 1GHz):

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook (WAN Port)	DELL	E4300	N/A
B	Notebook (LAN Port)	DELL	E4300	N/A
C	Notebook (2.4G WiFi)	DELL	E4300	N/A
D	Notebook (5G WiFi)	DELL	E4300	N/A
E	WLAN module	Intel	AX210NGW	N/A
F	Notebook (6G WiFi)	DELL	E4300	N/A

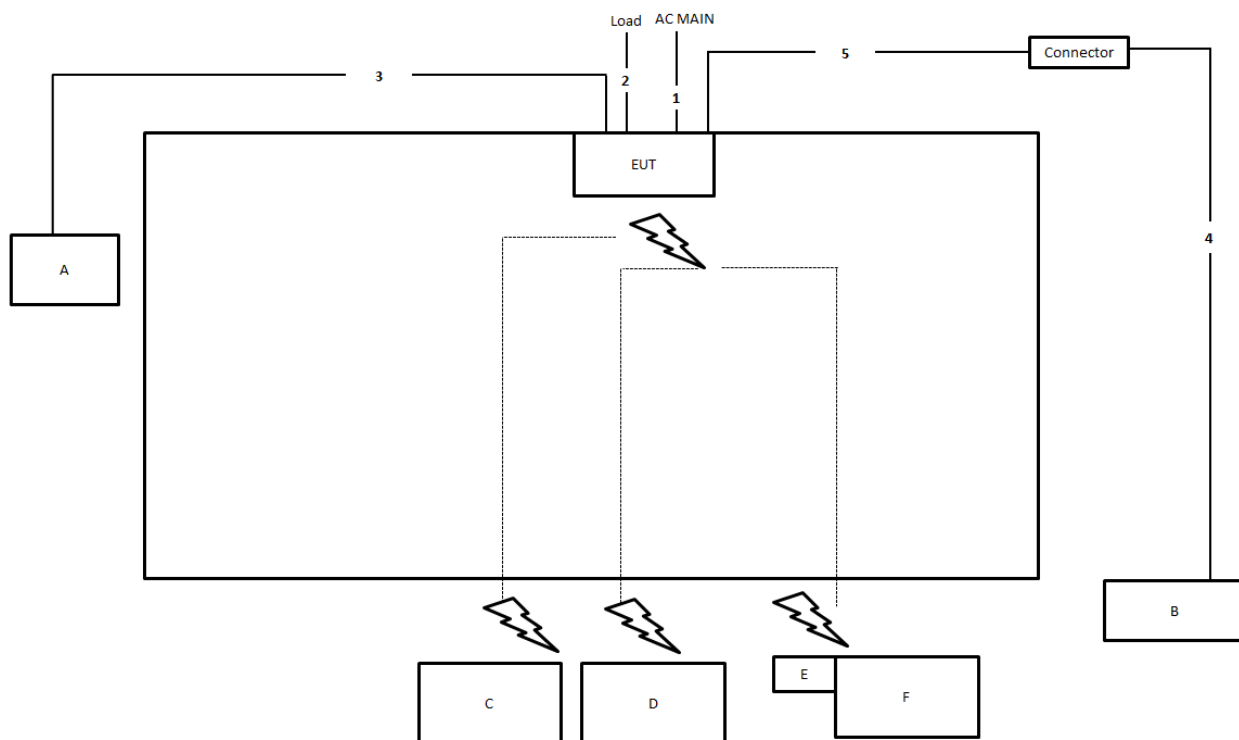
For Radiated (above 1GHz):

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	Notebook	DELL	E4300	N/A
C	WLAN module	Intel	AX210NGW	PD9AX210NG

2.5 Test Setup Diagram

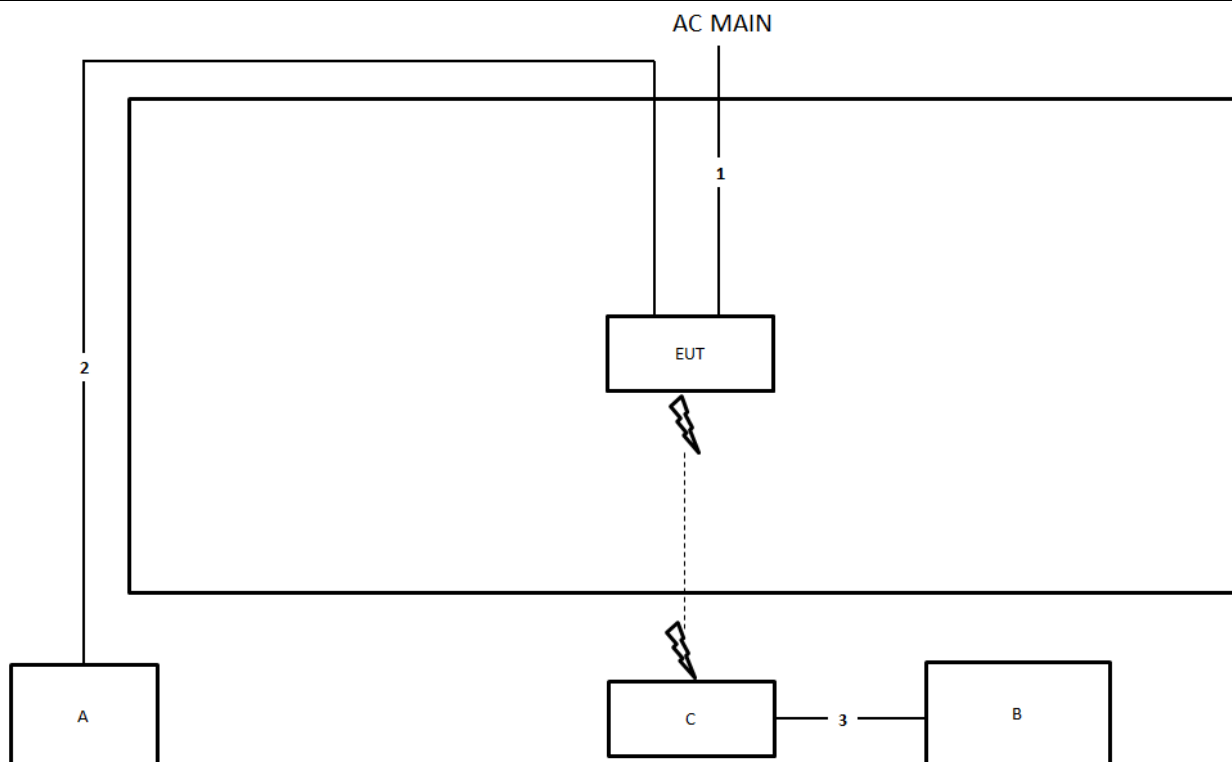


Test Setup Diagram - Radiated Test < 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m
5	RJ-45 cable	No	1.5m

Test Setup Diagram - Radiated Test > 1GHz / for beamforming mode



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.5m



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

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

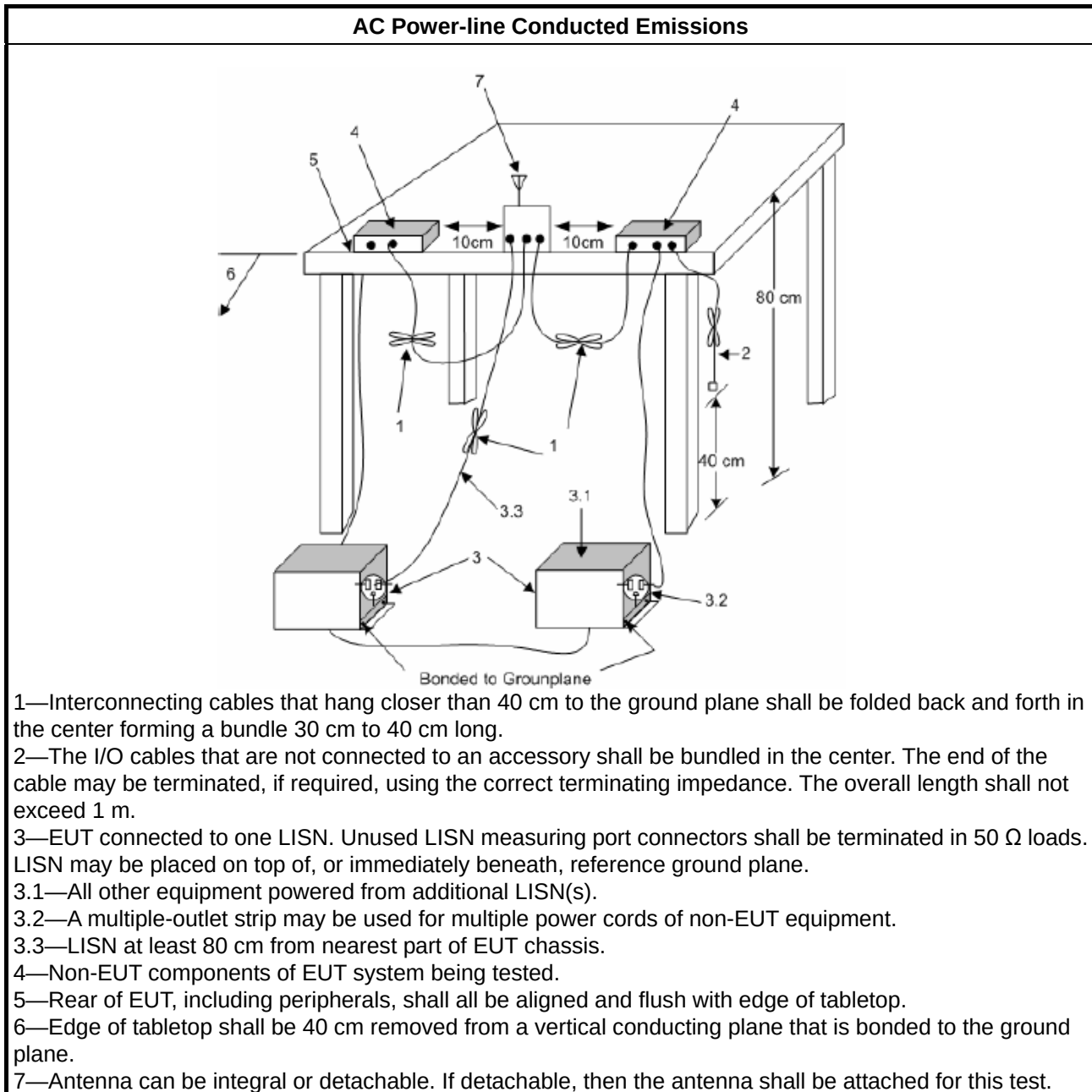
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- Corrected Reading (dBuV) = LISN Factor + Cable Loss + Read Level = Level
- Margin = - Limit + (Read Level + LISN Factor + Cable Loss)

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A



3.2 Maximum Equivalent Isotopically Radiated Power (E.I.R.P.)

3.2.1 Maximum Equivalent Isotopically Radiated Power (E.I.R.P.) Limit

Maximum Equivalent Isotopically Radiated Power (E.I.R.P.) Limit	
UNII Devices	
☒ For the 5.925 ~ 6.425 GHz band:	
	■ For standard power access point and fixed client device : e.i.r.p < 36 dBm , For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees not exceed 125 mW (21 dBm).
	■ For indoor access point : e.i.r.p < 30 dBm.
	■ For subordinate device control of an indoor access point : e.i.r.p < 30 dBm.
	■ For client device control of a standard power access point : e.i.r.p < 30 dBm.
	■ For client device control of an indoor access point : e.i.r.p < 24 dBm.
☒ For the 6.425 ~ 6.525 GHz band:	
	■ For indoor access point : e.i.r.p < 30 dBm.
	■ For client device control of an indoor access point : e.i.r.p < 24 dBm.
☒ For the 6.525 ~ 6.875 GHz band:	
	■ For standard power access point and fixed client device : e.i.r.p < 36 dBm , For outdoor devices, the maximum e.i.r.p. at any elevation angle above 30 degrees not exceed 125 mW (21 dBm).
	■ For indoor access point : e.i.r.p < 30 dBm.
	■ For subordinate device control of an indoor access point : e.i.r.p < 30 dBm.
	■ For client device control of a standard power access point : e.i.r.p < 30 dBm.
	■ For client device control of an indoor access point : e.i.r.p < 24 dBm.
☒ For the 6.875 ~ 7.125 GHz band:	
	■ For indoor access point : e.i.r.p < 30 dBm.
	■ For client device control of an indoor access point : e.i.r.p < 24 dBm.
RLAN Devices	
☐ For the 5.925 ~ 7.125 GHz band:	
	■ For RLAN devices(Indoor) other than client devices < 30 dBm / occupied bandwidth.
	■ For client devices(Indoor) < 24 dBm / occupied bandwidth.



3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
According to FCC KDB 987594 D02 clause II.E, the test measurement procedure shall refer to KDB 789033.	
Average over on/off periods with duty factor	
☒	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging). Spectrum analyzer setting: RBW/VBW : 1/3MHz ; Detector : RMS ; Trace mode : Average ; Sweep Count 100.
☐	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	
☐	Refer as FCC KDB 789033 D02, clause E Method PM-G (using an RF average power meter).
☐ For conducted measurement.	
If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.	
If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	
☒ For radiated measurement.	
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.	

Note :

The test is the final test result, It includes antenna /cable loss factor & FSL factor.

The EIRP calculation refer to "KDB 412172 D01 Determining ERP and EIRP v01r01"

EIRP Formula:

$$EIRP(dBm) = PR(dBm) + LP(FSL \text{ factor})$$

where;

PR(dBm) : Power measurement level include antenna/cable loss

LP : Free Space Loss(dB)

PR Formula :

$$PR(dBm) = P \text{ Meas}(dBm) - GR(dBi) + LC(dB)$$

where;

P Meas(dBm) : Power measurement level

GR(dBi) : Gain of the receive(measurement) antenna (dBi)

LC(dB) : Measurement cable loss (dB)



LP(FSL factor) Formula :

$$LP(dB) = 20 \log F + 20 \log D - 27.54$$

where;

F(MHz) : EUT center frequency

D(m) : Measurement distance

For Example:

Test mode HE20 TxBF 4T1S 5955MHz EIRP measurement

PR Formula :

$$PR(dBm) = -27.05 - 10.65 + 4.75 = -32.96$$

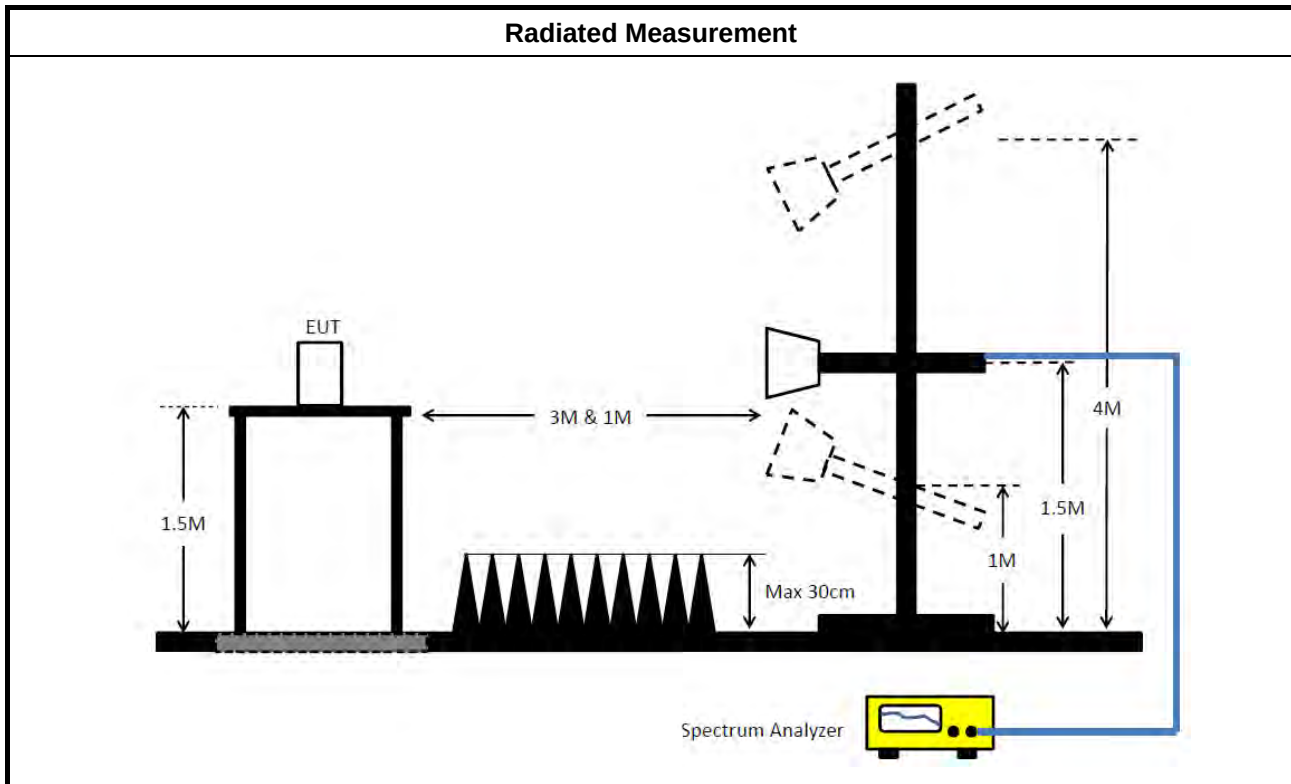
LP(FSL factor) Formula :

$$LP(dB) = 20 \log(5955) + 20 \log(3) - 27.5 = 58.31$$

EIRP Formula :

$$EIRP(dBm) = -32.96 + 58.31 = 25.35$$

3.2.4 Test Setup



3.2.5 Test Result of Maximum Equivalent Isotropically Radiated Power (E.I.R.P)

Refer as Appendix B

3.3 Peak Power Spectral Density (E.I.R.P.)

3.3.1 Peak Power Spectral Density (E.I.R.P.) Limit

Peak Power Spectral Density (E.I.R.P.) Limit	
UNII Devices	
☒	For the 5.925 ~ 6.425 GHz band:
☐	For standard power access point and fixed client device : e.i.r.p PSD < 23 dBm/MHz.
☐	For indoor access point : e.i.r.p PSD < 5 dBm/MHz.
☐	For subordinate device control of an indoor access point : e.i.r.p PSD < 5 dBm/MHz.
☐	For client device control of a standard power access point : e.i.r.p PSD < 17 dBm/MHz.
☐	For client device control of an indoor access point : e.i.r.p PSD < -1 dBm/MHz.
☒	For the 6.425 ~ 6.525 GHz band:
☐	For indoor access point : e.i.r.p PSD < 5 dBm/MHz.
☐	For client device control of an indoor access point : e.i.r.p PSD < -1 dBm/MHz.
☒	For the 6.525 ~ 6.875 GHz band:
☐	For standard power access point and fixed client device : e.i.r.p PSD < 23 dBm/MHz.
☐	For indoor access point : e.i.r.p PSD < 5 dBm/MHz.
☐	For subordinate device control of an indoor access point : e.i.r.p PSD < 5 dBm/MHz.
☐	For client device control of a standard power access point : e.i.r.p PSD < 17 dBm/MHz.
☐	For client device control of an indoor access point : e.i.r.p PSD < -1 dBm/MHz.
☒	For the 6.875 ~ 7.125 GHz band:
☐	For indoor access point : e.i.r.p PSD < 5 dBm/MHz.
☐	For client device control of an indoor access point : e.i.r.p PSD < -1 dBm/MHz.
RLAN Devices	
☐	For the 5.925 ~ 7.125 GHz band:
☐	For RLAN devices(Indoor) other than client devices < 5 dBm / MHz.
☐	For client devices(Indoor) < -1 dBm / MHz.

3.3.2 Measuring Instruments

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



3.3.3 Test Procedures

Test Method	
According to KDB 987594 D02 clause II.F, the measurement procedure shall refer to KDB 789033. 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:	
☐	Refer as FCC KDB 789033 D02, F)5) power spectral density can be measured using resolution bandwidths < 1 MHz provided that the results are integrated over 1 MHz bandwidth
[duty cycle ≥ 98% or external video / power trigger]	
☒	Refer as FCC KDB 789033 D02, clause E Method SA-1 (spectral trace averaging).
☐	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	
☒	Refer as FCC KDB 789033 D02, clause E Method SA-2 (spectral trace averaging).
☐	Refer as FCC KDB 789033 D02, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
☐	For conducted measurement.
If the EUT supports multiple transmit chains using options given below:	
☐	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
☐	Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,
☐	Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.
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]) $EIRP_{total} = PPSD_{total} + DG$	
☒	For radiated measurement.
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.	

**Test Method**

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

Note :

The test is the final test result, It includes antenna /cable loss factor & FSL factor.

The EIRP PSD calculation refer to "KDB 412172 D01 Determining ERP and EIRP v01r01"

EIRP PSD Formula :

$EIRP\ PSD(dBm/MHz) = PR(dBm/MHz) + LP(FSL\ factor)$

where;

PR(dBm/MHz) : Power measurement level include antenna/cable loss

LP : Free Space Loss(dB)

PR Formula :

$PR(dBm/MHz) = P\ Meas(dBm/MHz) - GR(dBi) + LC(dB)$

where;

P Meas(dBm/MHz) : PSD measurement level

GR(dBi) : Gain of the receive(measurement) antenna (dBi)

LC(dB) : Measurement cable loss (dB)

LP(FSL factor) Formula :

$LP(dB) = 20\ logF + 20\ logD - 27.54$

where;

F(MHz) : EUT center frequency

D(m) : Measurement distance

For Example:

Test mode HE20 TxBF 4T1S 5955MHz EIRP PSD measurement

PR Formula :

$PR(dBm/MHz) = -48.64 - 11.71 + 6.78 = -53.57$

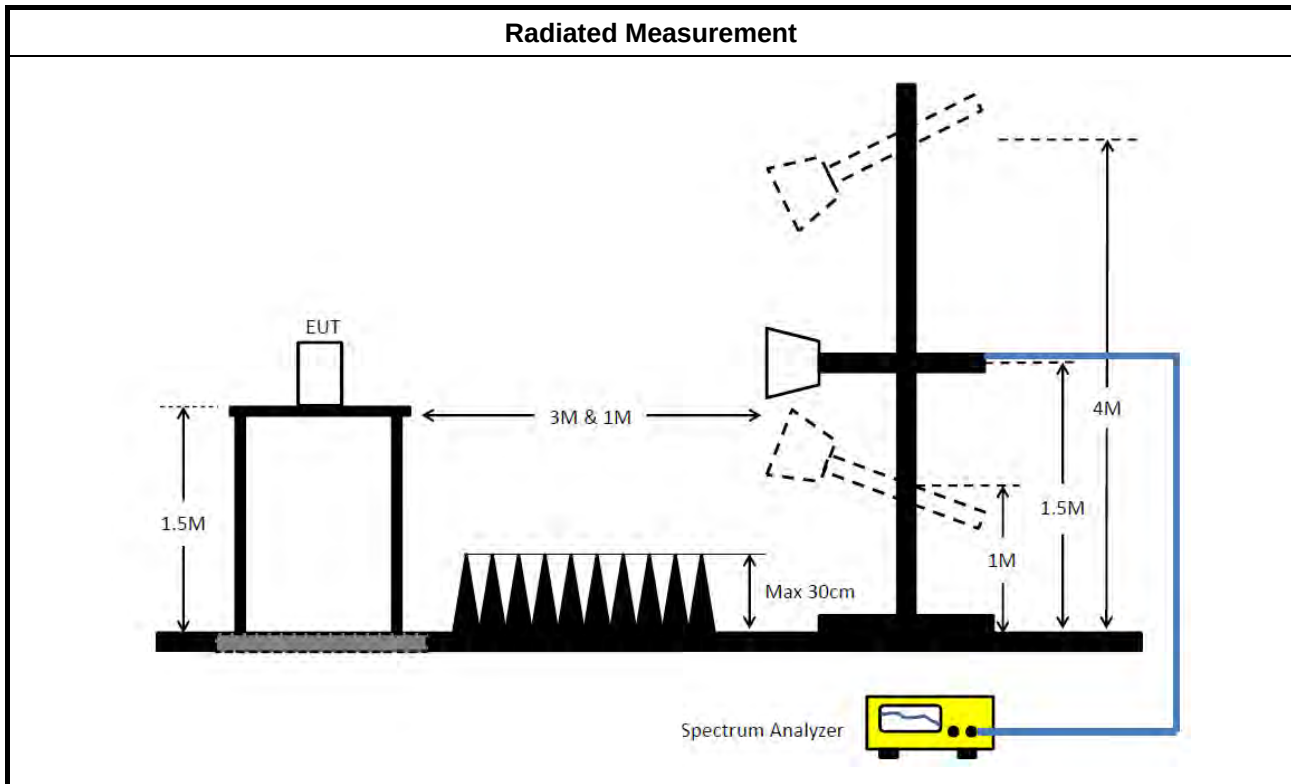
LP(FSL factor) Formula :

$LP(dB) = 20\log(5952.48) + 20\log(3) - 27.5 = 58.33$

EIRP PSD Formula

$EIRP\ PSD(dBm/MHz) = -53.57 + 58.33 = 4.76$

3.3.4 Test Setup



3.3.5 Test Result of Peak Power Spectral Density (E.I.R.P.)

Refer as Appendix C

3.4 Unwanted Emissions

3.4.1 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($20 \times \log(\text{standard distance}/\text{test distance}) = 20\log(3/1) = 9.54\text{dB}$).
EX. Above 18GHz emission limit calculation (3m to 1m) = $54\text{dBuV/m at 3m} + 9.54\text{dB} = 63.54\text{ dBuV/m at 1m}$.

Un-restricted band emissions above 1GHz Limit	
Frequency	Limit
Any outside the 5.945 – 7.125 GHz emission	e.i.r.p. -27 dBm [68.2 dBuV/m@3m] Note 1: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m($20 \times \log(\text{standard distance}/\text{test distance}) = 20\log(3/1) = 9.54\text{dB}$). EX. Above 18GHz emission limit calculation (3m to 1m) = $68.2\text{dBuV/m at 3m} + 9.54\text{dB} = 77.74\text{ dBuV/m at 1m}$. Note 2:-27 dBm EIRP OOBE is measured RMS which is a deviation from the current 15E rules for 5 GHz bands. In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit.
Frequency	Emission MASK Limit



3.4.2 Measuring Instruments

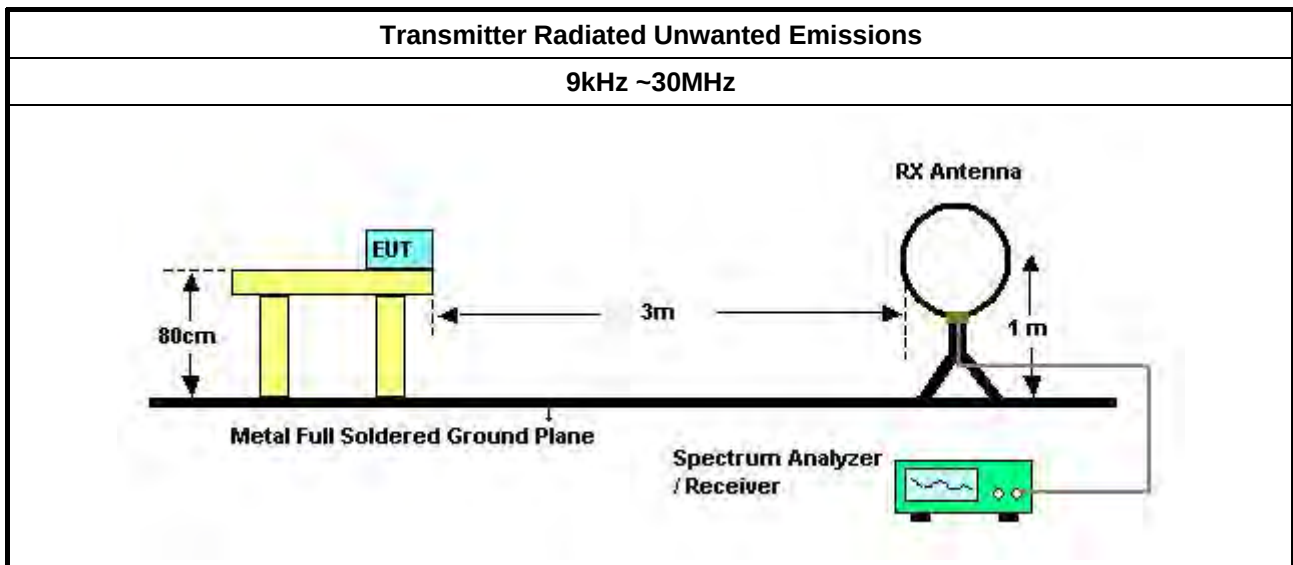
Refer a test equipment and calibration data table in this test report.

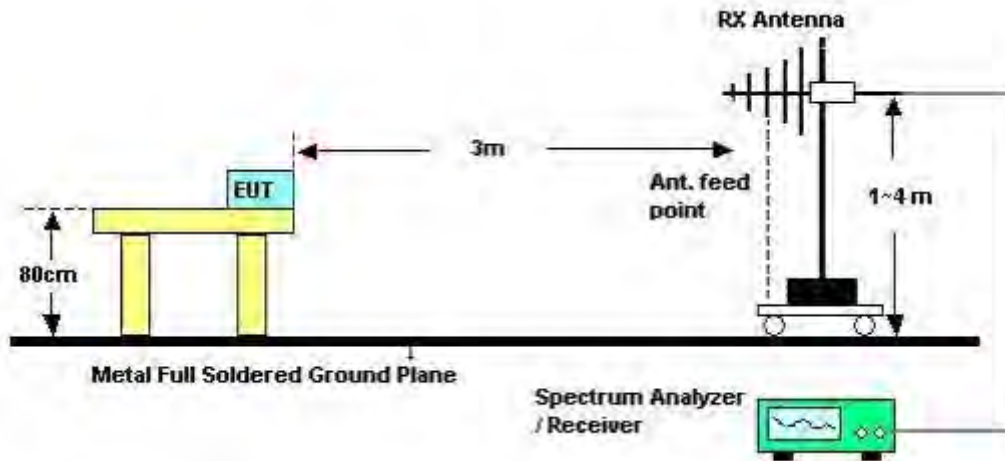
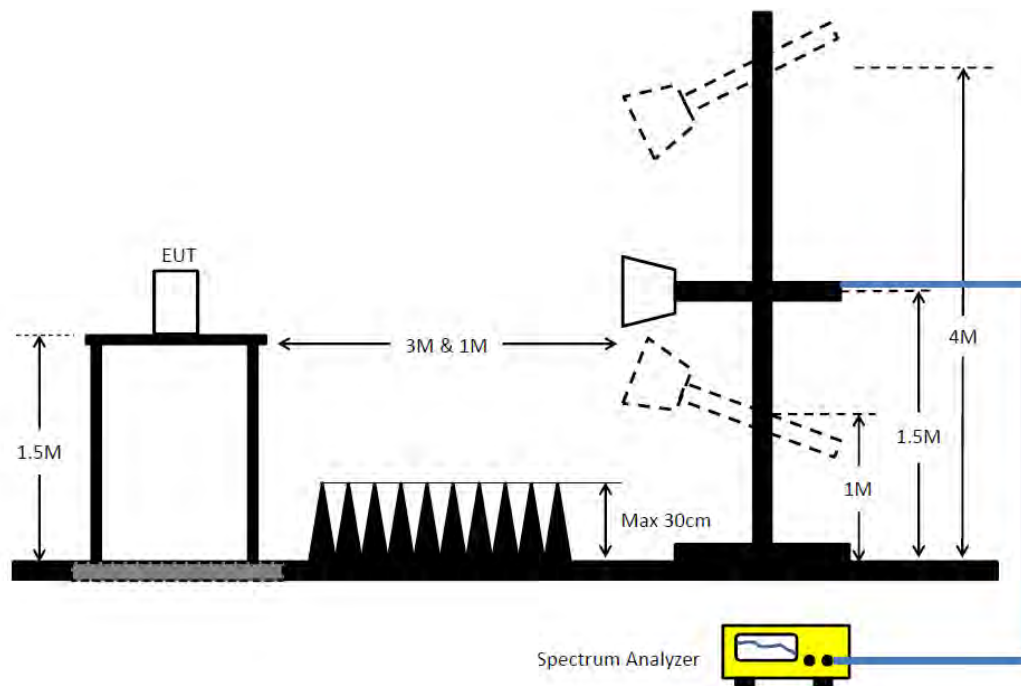
3.4.3 Test Procedures

Test Method	
According to KDB 987594 D02 II.G. the unwanted emission measurement procedure shall refer to KDB 789300(except emission MASK). 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).	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as FCC KDB 789033 D02, clause G)2) for unwanted emissions into non-restricted bands.
	Refer as FCC KDB 789033 D02, clause G)1) for unwanted emissions into restricted bands.
	☒ Refer as FCC KDB 789033 D02, G)6) Method AD (Trace Averaging). (For unrestricted band measurement)
	☐ Refer as FCC KDB 789033 D02, G)6) Method VB (Reduced VBW).
	☒ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq$ 1/T, where T is pulse time.(For restricted band average measurement)
	☐ Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	☒ Refer as FCC KDB 789033 D02, clause G)5) measurement procedure peak limit.
	☐ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
Refer as FCC KDB 789033 D02, clause G)3)d)ii) for Band edge Integration measurements.	
For emission MASK shall be measured using following options below:	
	☒ Refer as FCC draft KDB 987594 D02, J) In-Band Emissions
For radiated measurement.	
	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.
The any unwanted emissions level shall not exceed the fundamental emission level.	
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.	

Test Method	
For conducted and cabinet radiation measurement, refer as FCC KDB 789033 D02, clause G)3).	
	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
	For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

3.4.4 Test Setup



30MHz~1GHz

Above 1GHz




3.4.5 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

3.4.6 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.

3.4.7 Test Result of Transmitter Unwanted Emissions

Refer as Appendix D



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Jan. 07, 2022	Jan. 06, 2023	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Dec. 22, 2021	Dec. 21, 2022	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	May 06, 2022	May 05, 2023	Conduction (CO02-CB)
COND Cable	Woken	Cable	2	0.15MHz~30MHz	Oct. 19, 2021	Oct. 18, 2022	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F-N	00378	9kHz ~ 30MHz	Mar. 18, 2022	Mar. 17, 2023	Conduction (CO02-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO02-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	May 14, 2022	May 13, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 09, 2021	Aug. 08, 2022	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 25, 2022	Mar. 24, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 26, 2022	Apr. 25, 2023	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Mar. 14, 2022	Mar. 13, 2023	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 17, 2022	Jun. 16, 2023	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH03-CB	1GHz ~18GHz 3m	May 05, 2022	May 04, 2023	Radiation (03CH03-CB)
Horn Antenna	ETS • Lindgren	3115	6821	750MHz~18GHz	Jan. 21, 2022	Jan. 20, 2023	Radiation (03CH03-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 05, 2021	Aug. 04, 2022	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH03-CB)
Pre-Amplifier	-	-	TF-130N-R1	18GHz ~ 40GHz	Jun. 21, 2022	Jun. 20, 2023	Radiation (03CH03-CB)
Spectrum Analyzer	R&S	FSP40	100019	9kHz ~ 40GHz	Jun. 10, 2022	Jun. 09, 2023	Radiation (03CH03-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-20+29	1GHz ~ 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-29	1GHz ~ 18GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH03-CB)

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

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



Conducted Emissions at Powerline

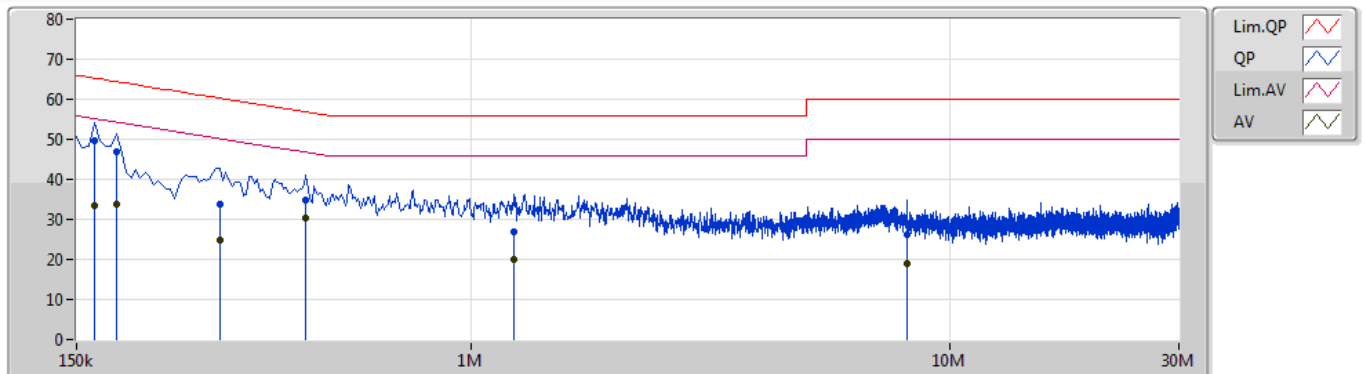
Appendix A

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	150k	51.81	66.00	-14.19	Neutral

Mode 1

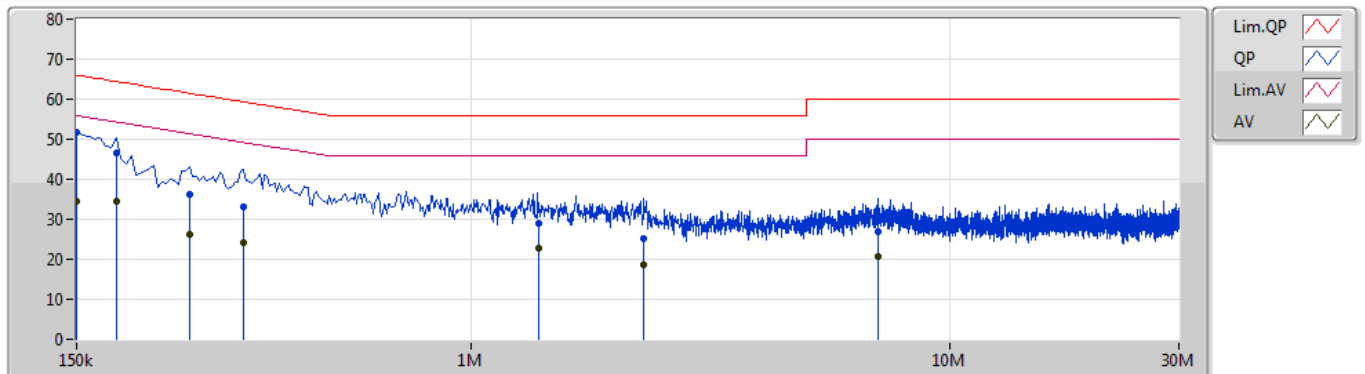
25/07/2022



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	163.5k	49.57	65.27	-15.70	10.23	Line	"Worst"	39.34	0.12	0.02	10.09			
AV	163.5k	33.60	55.27	-21.67	10.23	Line	-	23.37	0.12	0.02	10.09			
QP	181.5k	46.83	64.41	-17.58	10.22	Line	-	36.61	0.12	0.02	10.08			
AV	181.5k	33.74	54.41	-20.67	10.22	Line	-	23.52	0.12	0.02	10.08			
QP	298.5k	33.93	60.28	-26.35	10.23	Line	-	23.70	0.12	0.02	10.09			
AV	298.5k	24.78	50.28	-25.50	10.23	Line	-	14.55	0.12	0.02	10.09			
QP	451.5k	34.87	56.84	-21.97	10.25	Line	-	24.62	0.12	0.02	10.11			
AV	451.5k	30.32	46.84	-16.52	10.25	Line	-	20.07	0.12	0.02	10.11			
QP	1.23M	26.82	56.00	-29.18	10.32	Line	-	16.50	0.15	0.03	10.14			
AV	1.23M	20.03	46.00	-25.97	10.32	Line	-	9.71	0.15	0.03	10.14			
QP	8.115M	26.05	60.00	-33.95	10.57	Line	-	15.48	0.31	0.07	10.19			
AV	8.115M	19.07	50.00	-30.93	10.57	Line	-	8.50	0.31	0.07	10.19			

Mode 1

25/07/2022



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	150k	51.81	66.00	-14.19	10.29	Neutral	"Worst"	41.52	0.16	0.02	10.11			
AV	150k	34.62	56.00	-21.38	10.29	Neutral	-	24.33	0.16	0.02	10.11			
QP	181.5k	46.71	64.41	-17.70	10.26	Neutral	-	36.45	0.16	0.02	10.08			
AV	181.5k	34.57	54.41	-19.84	10.26	Neutral	-	24.31	0.16	0.02	10.08			
QP	258k	36.34	61.49	-25.15	10.26	Neutral	-	26.08	0.16	0.02	10.08			
AV	258k	26.26	51.49	-25.23	10.26	Neutral	-	16.00	0.16	0.02	10.08			
QP	334.5k	33.04	59.35	-26.31	10.28	Neutral	-	22.76	0.16	0.02	10.10			
AV	334.5k	23.98	49.35	-25.37	10.28	Neutral	-	13.70	0.16	0.02	10.10			
QP	1.379M	28.94	56.00	-27.06	10.35	Neutral	-	18.59	0.18	0.03	10.14			
AV	1.379M	22.69	46.00	-23.31	10.35	Neutral	-	12.34	0.18	0.03	10.14			
QP	2.292M	25.23	56.00	-30.77	10.41	Neutral	-	14.82	0.20	0.05	10.16			
AV	2.292M	18.54	46.00	-27.46	10.41	Neutral	-	8.13	0.20	0.05	10.16			
QP	7.062M	27.00	60.00	-33.00	10.52	Neutral	-	16.48	0.26	0.07	10.19			
AV	7.062M	20.53	50.00	-29.47	10.52	Neutral	-	10.01	0.26	0.07	10.19			



Average Power

Appendix B

Summary

Mode	EIRP (dBm)	EIRP (W)
6.525-6.875GHz	-	-
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	25.35	0.34277



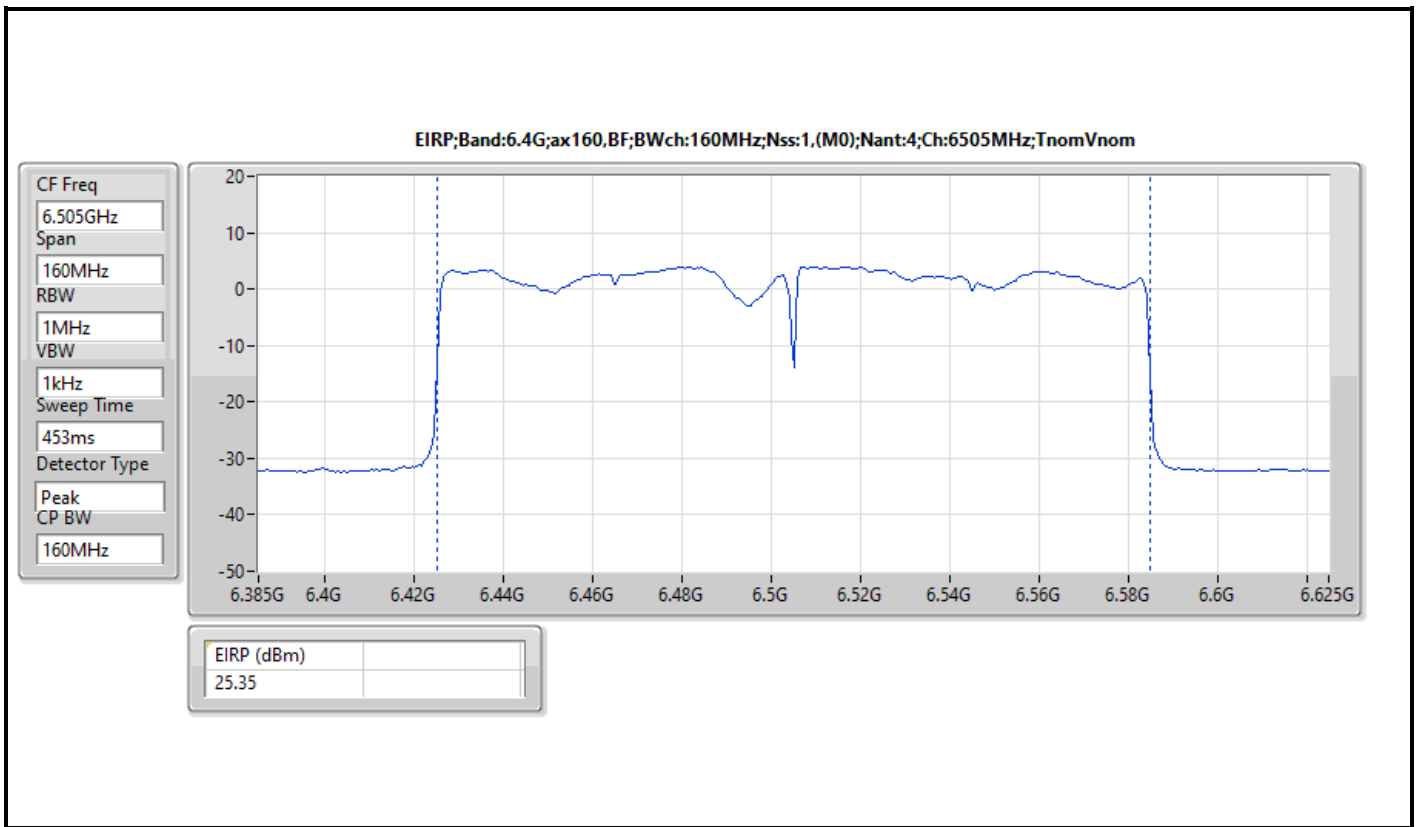
Average Power

Appendix B

Result

Mode	Result	EIRP (dBm)	EIRP Limit (dBm)
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-	-
6505MHz Straddle 6.425-6.525GHz	Pass	25.35	30.00

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



Summary

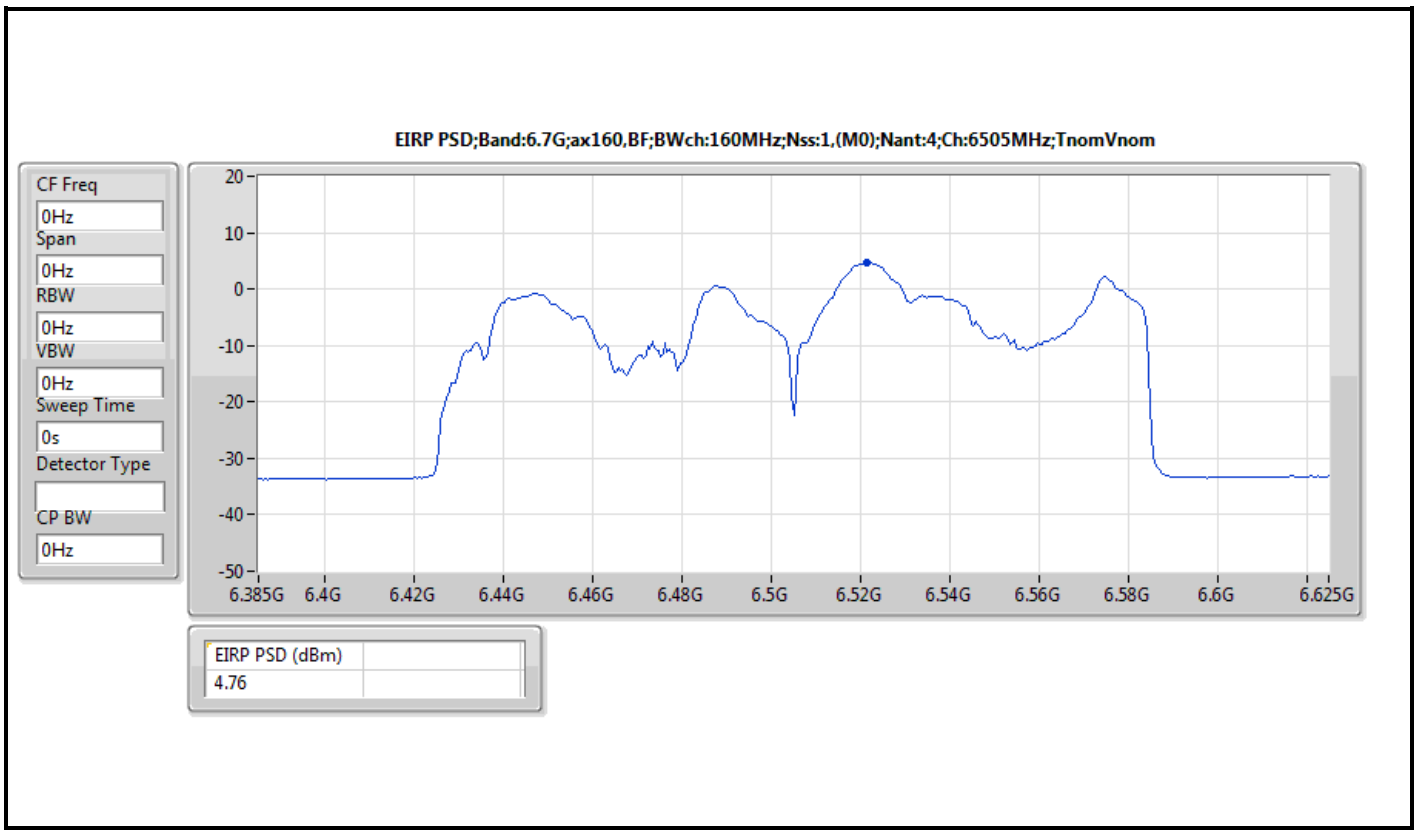
Mode	EIRP PD (dBm/RBW)
6.525-6.875GHz	-
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	4.76

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

Result

Mode	Result	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	-	-	-
6505MHz Straddle 6.425-6.525GHz	Pass	4.76	5.00

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;





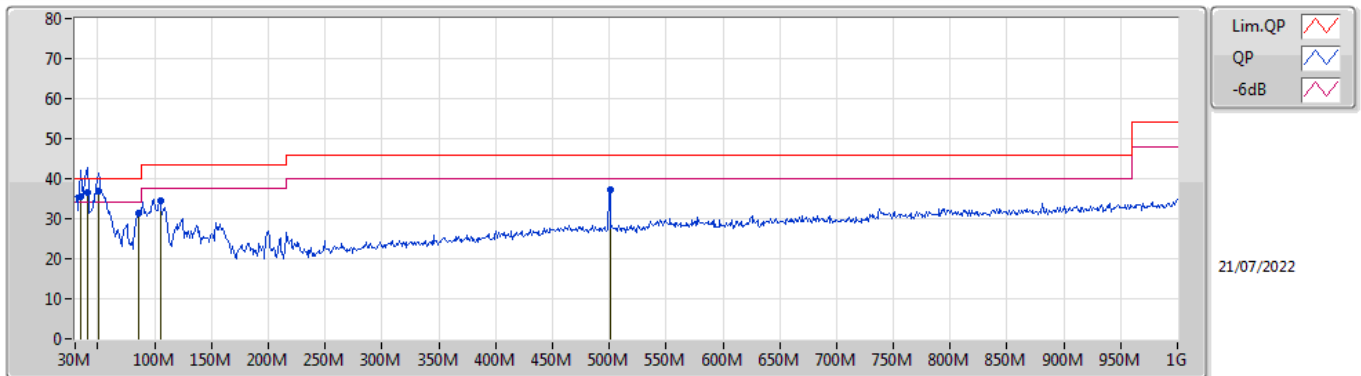
Radiated Emissions below 1GHz

Appendix D.1

Summary

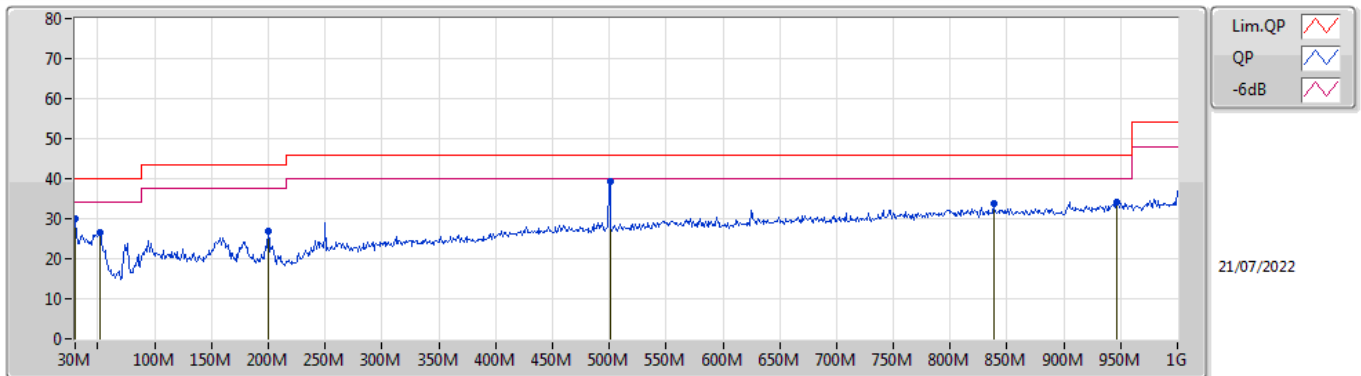
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 2	Pass	QP	50.37M	36.96	40.00	-3.04	Vertical

Mode 2



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
QP	34.85M	35.42	40.00	-4.58	-9.28	3	Vertical	360	1.00	-	44.70	21.51	0.90	31.69
QP	40.67M	36.57	40.00	-3.43	-12.63	3	Vertical	356	2.00	-	49.20	18.22	0.91	31.76
QP	50.37M	36.96	40.00	-3.04	-16.84	3	Vertical	10	1.25	"Worst"	53.80	13.92	1.10	31.86
PK	85.29M	31.31	40.00	-8.69	-16.83	3	Vertical	174	1.25	-	48.14	13.70	1.41	31.94
PK	104.69M	34.52	43.50	-8.98	-13.20	3	Vertical	165	1.00	-	47.72	17.25	1.52	31.97
PK	500.45M	37.20	46.00	-8.80	-5.60	3	Vertical	359	1.25	-	42.80	23.20	3.60	32.40

Mode 2



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
PK	30M	30.16	40.00	-9.84	-6.76	3	Horizontal	286	3.00	-	36.92	23.99	0.80	31.55
PK	52.31M	26.60	40.00	-13.40	-17.61	3	Horizontal	162	3.00	-	44.21	13.16	1.10	31.87
PK	199.75M	26.87	43.50	-16.63	-14.72	3	Horizontal	134	2.00	-	41.59	15.10	2.20	32.02
PK	500.45M	39.27	46.00	-6.73	-5.60	3	Horizontal	102	1.25	"Worst"	44.87	23.20	3.60	32.40
PK	838.01M	33.77	46.00	-12.23	-1.66	3	Horizontal	0	2.00	-	35.43	25.78	5.05	32.49
PK	946.65M	34.09	46.00	-11.91	-0.46	3	Horizontal	356	1.25	-	34.55	26.44	5.58	32.48

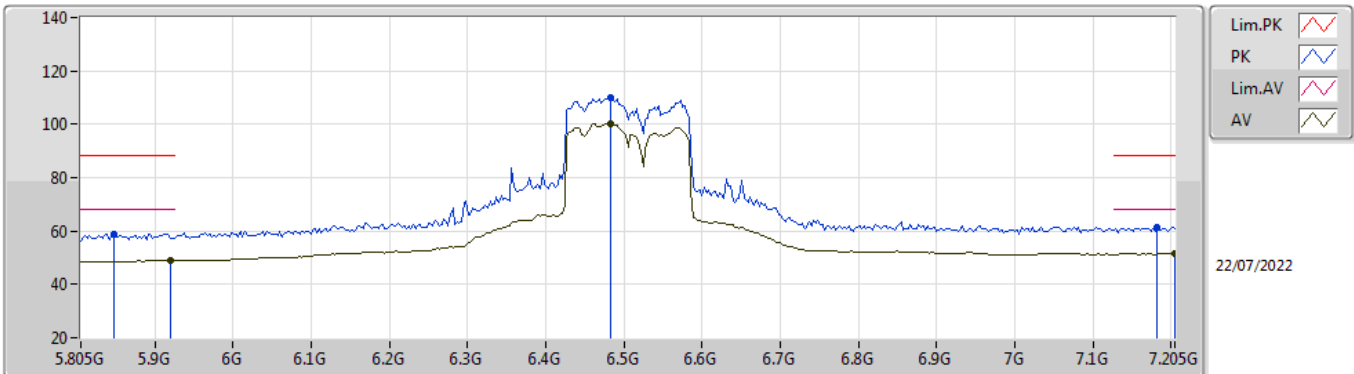


Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
6.525-6.875GHz	-	-	-	-	-	-	-	-	-	-	-
802.11ax HEW160-BF_Nss1,(MCS0)_4TX	Pass	AV	19.50306G	53.38	63.54	-10.16	1	Vertical	106	2.69	-

802.11ax HEW160-BF_Nss1,(MCS0)_4TX

6505MHz Straddle 6.525-6.875GHz_TnomVnom

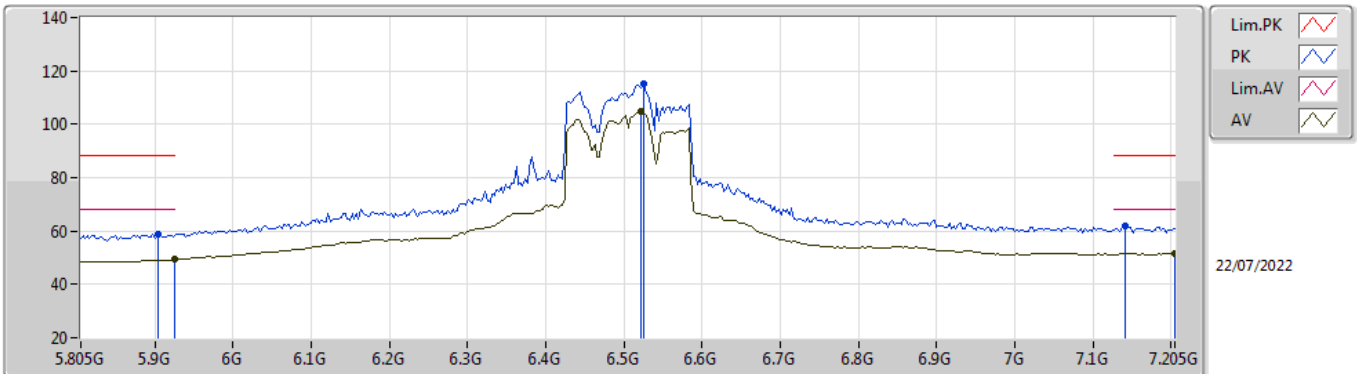


EUT_Z_4TX
Setting 83
03-D-E-2-10

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	5.847G	58.90	88.20	-29.30	52.10	3	Vertical	0	2.34	-	34.29	7.45	34.94
RMS	5.9198G	48.96	68.20	-19.24	41.71	3	Vertical	0	2.34	-	34.68	7.52	34.95
PK	6.4826G	109.86	Inf	-Inf	102.32	3	Vertical	0	2.34	-	34.70	7.87	35.03
RMS	6.4826G	100.35	Inf	-Inf	92.81	3	Vertical	0	2.34	-	34.70	7.87	35.03
PK	7.1826G	61.36	88.20	-26.84	51.94	3	Vertical	0	2.34	-	36.30	8.20	35.08
RMS	7.205G	51.57	68.20	-16.63	42.02	3	Vertical	0	2.34	-	36.43	8.21	35.09

802.11ax HEW160-BF_Nss1,(MCS0)_4TX

6505MHz Straddle 6.525-6.875GHz_TnomVnom

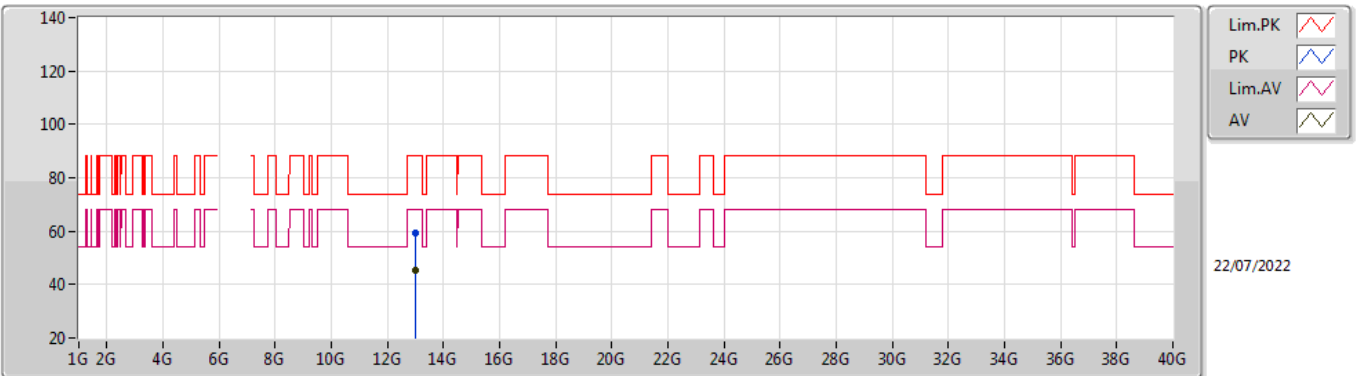


EUT_Z_4TX
Setting 83
03-D-E-2-10

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	5.903G	58.86	88.20	-29.34	51.70	3	Horizontal	0	1.16	-	34.61	7.50	34.95
RMS	5.925G	49.42	68.20	-18.78	42.15	3	Horizontal	0	1.16	-	34.70	7.52	34.95
PK	6.5246G	115.30	Inf	-Inf	107.58	3	Horizontal	0	1.16	-	34.80	7.95	35.03
RMS	6.5218G	105.06	Inf	-Inf	97.36	3	Horizontal	0	1.16	-	34.79	7.94	35.03
PK	7.1406G	62.08	88.20	-26.12	52.90	3	Horizontal	0	1.16	-	36.04	8.20	35.06
RMS	7.205G	51.54	68.20	-16.66	41.99	3	Horizontal	0	1.16	-	36.43	8.21	35.09

802.11ax HEW160-BF_Nss1,(MCS0)_4TX

6505MHz Straddle 6.525-6.875GHz_TnomVnom

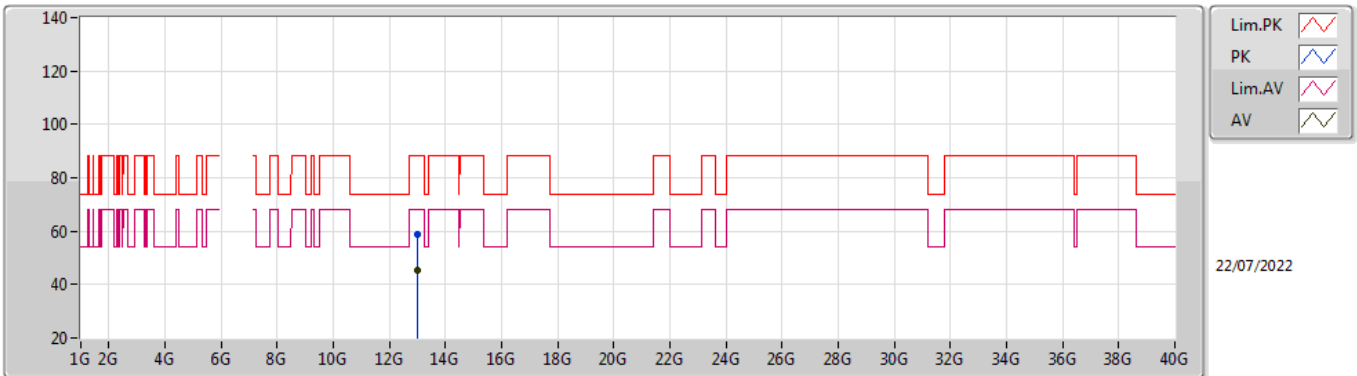


EUT_Z_4TX
Setting 83
03-D-E-2

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	12.99944G	59.07	88.20	-29.13	41.76	3	Vertical	195	1.72	-	39.50	11.60	33.79
RMS	13.01048G	45.14	68.20	-23.06	27.78	3	Vertical	195	1.72	-	39.53	11.61	33.78

802.11ax HEW160-BF_Nss1,(MCS0)_4TX

6505MHz Straddle 6.525-6.875GHz_TnomVnom

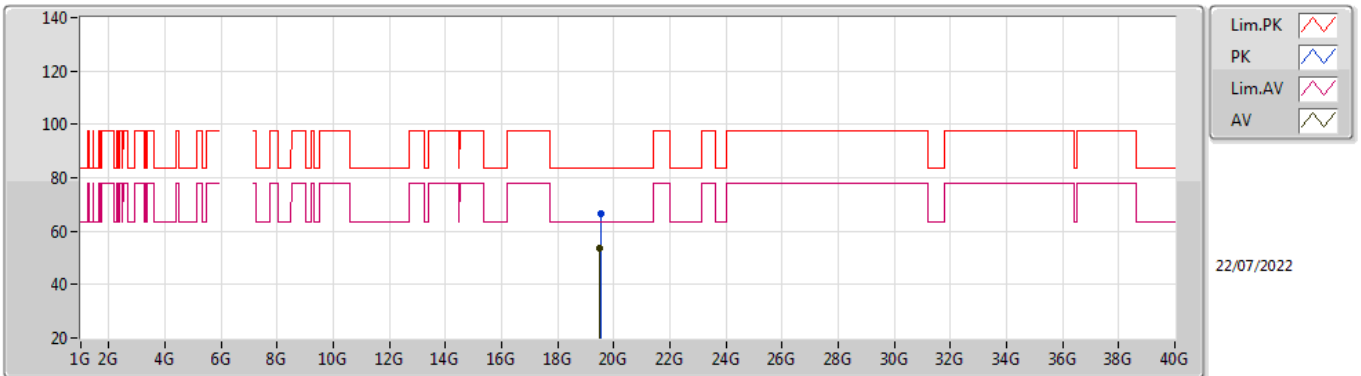


EUT_Z_4TX
Setting 83
03-D-E-2

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	13.00838G	58.59	88.20	-29.61	41.23	3	Horizontal	24	1.27	-	39.53	11.61	33.78
RMS	13.0169G	45.09	68.20	-23.11	27.70	3	Horizontal	24	1.27	-	39.55	11.61	33.77

802.11ax HEW160-BF_Nss1,(MCS0)_4TX

6505MHz Straddle 6.525-6.875GHz_TnomVnom

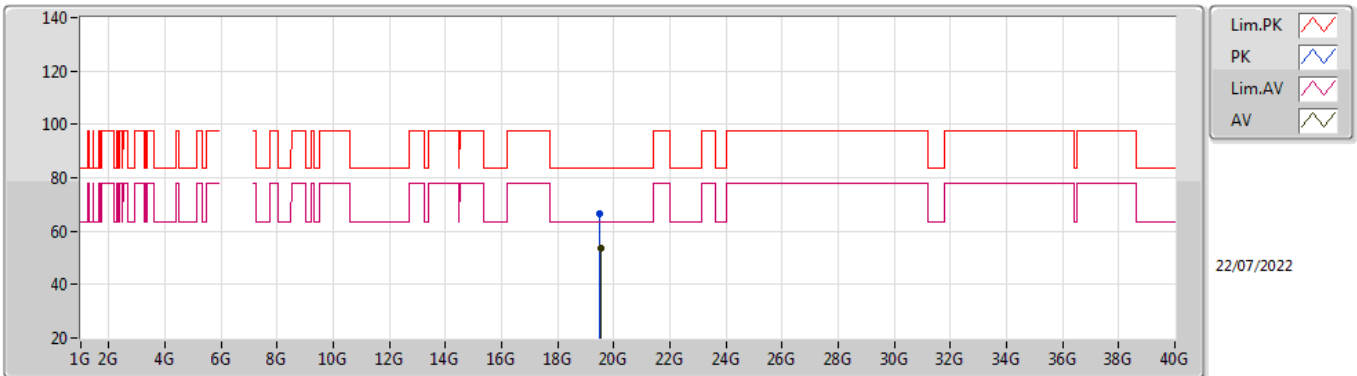


EUT_Z_4TX
Setting 83
03-D-E-2

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	19.52064G	66.66	83.54	-16.88	44.14	1	Vertical	106	2.69	-	37.89	14.93	30.30
AV	19.50306G	53.38	63.54	-10.16	30.82	1	Vertical	106	2.69	-	37.90	14.93	30.27

802.11ax HEW160-BF_Nss1,(MCS0)_4TX

6505MHz Straddle 6.525-6.875GHz_TnomVnom



EUT_Z_4TX
Setting 83
03-D-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	19.51398G	66.59	83.54	-16.95	44.06	1	Horizontal	264	2.27	-	37.89	14.93	30.29
AV	19.52088G	53.38	63.54	-10.16	30.86	1	Horizontal	264	2.27	-	37.89	14.93	30.30