



# RADIO TEST REPORT

FCC ID : MSQ-RTAXJE01

Equipment : AX1800 Dual Band WiFi Router

Brand Name : ASUS

Model Name : XD4N, RP-AX1800, XD4RV2, XD4

Applicant : ASUSTeK COMPUTER INC.  
1F., No. 15, Lide Rd., Beitou, Taipei 112, Taiwan

Manufacturer (1) : Datamax Electronics (DongGuan) Co., Ltd.  
Niu Shan Foreign Economic Industrial Park, Dong Cheng District, Dong Guan City, Guang Dong, China

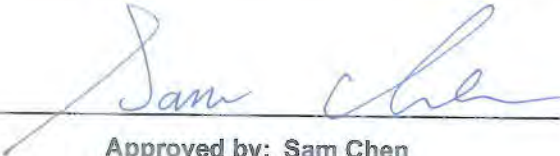
Manufacturer (2) : Lukisen Electronic Corp.  
3F.,No.236,Boai St., Shulin Dist.,New Taipei City 23845, Taiwan

Manufacturer (3) : Lih Rong Electronic Enterprise Co.,Ltd.  
No. 486, Sec. 1, Wanshou Road, Guishan District, , Taoyuan City, Taiwan

Standard : 47 CFR FCC Part 15.407

The product was received on Jul. 15, 2020, and testing was started from Jul. 15, 2020 and completed on May 17, 2021. 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**  
No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)



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### Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.407(b)	Unwanted Emissions	PASS	-

Note: Reference to Sporton Project No.: 021444-01.

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

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

**Reviewed by: Sam Chen**

**Report Producer: Wendy Pan**



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20), ax (HEW20)	5180-5240	36-48 [4]
5725-5850		5745-5825	149-165 [5]
5150-5250	n (HT40), ac (VHT40), ax (HEW40)	5190-5230	38-46 [2]
5725-5850		5755-5795	151-159 [2]
5150-5250	ac (VHT80), ax (HEW80)	5210	42 [1]
5725-5850		5775	155 [1]



<b>Band</b>	<b>Mode</b>	<b>BWch (MHz)</b>	<b>Nant</b>
5.15-5.25GHz	802.11a	20	2TX
5.15-5.25GHz	802.11n (HT20)	20	2TX
5.15-5.25GHz	802.11n (HT20)-BF	20	2TX
5.15-5.25GHz	802.11ac VHT20	20	2TX
5.15-5.25GHz	802.11ac VHT20-BF	20	2TX
5.15-5.25GHz	802.11ax HEW20	20	2TX
5.15-5.25GHz	802.11ax HEW20-BF	20	2TX
5.15-5.25GHz	802.11n (HT40)	40	2TX
5.15-5.25GHz	802.11n (HT40)-BF	40	2TX
5.15-5.25GHz	802.11ac VHT40	40	2TX
5.15-5.25GHz	802.11ac VHT40-BF	40	2TX
5.15-5.25GHz	802.11ax HEW40	40	2TX
5.15-5.25GHz	802.11ax HEW40-BF	40	2TX
5.15-5.25GHz	802.11ac VHT80	80	2TX
5.15-5.25GHz	802.11ac VHT80-BF	80	2TX
5.15-5.25GHz	802.11ax HEW80	80	2TX
5.15-5.25GHz	802.11ax HEW80-BF	80	2TX
5.725-5.85GHz	802.11a	20	2TX
5.725-5.85GHz	802.11n (HT20)	20	2TX
5.725-5.85GHz	802.11n (HT20)-BF	20	2TX
5.725-5.85GHz	802.11ac VHT20	20	2TX
5.725-5.85GHz	802.11ac VHT20-BF	20	2TX
5.725-5.85GHz	802.11ax HEW20	20	2TX
5.725-5.85GHz	802.11ax HEW20-BF	20	2TX
5.725-5.85GHz	802.11n (HT40)	40	2TX
5.725-5.85GHz	802.11n (HT40)-BF	40	2TX
5.725-5.85GHz	802.11ac VHT40	40	2TX
5.725-5.85GHz	802.11ac VHT40-BF	40	2TX
5.725-5.85GHz	802.11ax HEW40	40	2TX
5.725-5.85GHz	802.11ax HEW40-BF	40	2TX
5.725-5.85GHz	802.11ac VHT80	80	2TX
5.725-5.85GHz	802.11ac VHT80-BF	80	2TX
5.725-5.85GHz	802.11ax HEW80	80	2TX
5.725-5.85GHz	802.11ax HEW80-BF	80	2TX



Note:

- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40 and VHT80 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ HEW20, HEW40, HEW80 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ BWch is the nominal channel bandwidth.

**1.1.2 Antenna Information**

Set	Ant.	Port	Brand	Part number	Type	Connector	Uncorrelated Gain (dBi)			Correlated Gain (dBi)		
							2.4GHz	5GHz Band 1	5GHz Band 4	2.4GHz	5GHz Band 1	5GHz Band 4
1	1	1	WHA YU	C660-510493-A (SRF20191786)	Dipole	I-PEX	0.69	0.88	1.22	3.68	3.85	4.08
	2	2	WHA YU	C660-510494-A (SRF20191787)	Dipole	I-PEX	0.69	0.88	1.22	3.68	3.85	4.08
Set	Ant.	Port	Brand	Part number	Type	Connector	Uncorrelated Gain (dBi)			Correlated Gain (dBi)		
							2.4GHz	5GHz Band 1	5GHz Band 4	2.4GHz	5GHz Band 1	5GHz Band 4
2	1	1	WALSIN	RFDPA210608IM LB902	Dipole	I-PEX	0.65	0.65	0.71	3.57	3.39	3.05
	2	2	WALSIN	RFDPA210606IM LB902	Dipole	I-PEX	0.65	0.65	0.71	3.57	3.39	3.05

Note1: The above information was declared by manufacturer.

Note2: For WLAN Function (2TX/2RX):

The WLAN 2.4GHz supports the b, g, n, VHT, ax, and the WLAN 5GHz supports the a, n, VHT, ax.

There are two set antenna for WLAN Function use, and each set contains two antennas.

Because Set 1 antenna & Set 2 antenna are the same type antennas, only the higher gain antenna

“Set 1 antenna” was tested.

Port 1 and Port 2 could transmit/receive simultaneously.



1.1.3 EUT Operational Condition

<b>EUT Power Type</b>	From power adapter			
<b>Beamforming Function</b>	<input checked="" type="checkbox"/>	With beamforming	<input type="checkbox"/>	Without beamforming
	The product has beamforming function for n/VHT/ax in 2.4GHz and n/ac/ax in 5GHz.			
<b>Function</b>	<input type="checkbox"/>	Outdoor P2M	<input checked="" type="checkbox"/>	Indoor P2M
	<input type="checkbox"/>	Fixed P2P	<input type="checkbox"/>	Client
<b>Test Software Version</b>	accessMTool (3.1.0.3)			

Note: The above information was declared by manufacturer.

1.1.4 Table for EUT Supports Functions

Function	Support Type
AP Router	Master
Bridge	Client without radar detection
Repeater	Master
Mesh	Master

Note: 1.From the above, the “AP Router” and “Mesh” were performed EUT 5 for AC Power Port Conducted Emission, Emissions in Restricted Frequency Bands below 1GHz and the tests and recorded in this report by manufacturer request.

2.From the above, the “AP Router” was performed EUT 6 for all test items, EUT 7 for Radiated Emissions below 1GHz and all the tests and recorded in this report.

3.The above information was declared by manufacturer.

1.1.5 Table for Components Source Information

Items	Main source	Second Source	Third Source
2.4GHz PA	Brand name: Qorvo Model name: QPF4206B	Brand name: Skyworks Model name: SKY85337	Brand name: Richwave Model name: RTC7646HT

Note: The above information was declared by manufacturer.

1.1.6 Table for EUT information

EUT	Amount of LAN Port	2.4G PA	Size of DC jack port	Adapter
1	2	Main	Big	Adapter 1, 2, 5
2	2	Second	Big	Adapter 1, 2, 5
3	1	Main	Big	Adapter 1, 2, 5
4	1	Second	Big	Adapter 1, 2, 5
5	1	Main	Small	Adapter 3~4
6	2	Third	Big	Adapter 1, 2, 5
7	1	Third	Big	Adapter 1, 2, 5





1.1.7 Table for Multiple Listing

The EUT has four model names which are identical to each other in all aspects except for the following table:

Model Name	Description
XD4N	There is nothing different for two model names, just for different marketing use.
RP-AX1800	
XD4RV2	
XD4	

Note 1: From the above models, model: XD4N 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.

1.1.8 Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR021444AB

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

Modifications	Performance Checking
<ol style="list-style-type: none"> <li>Adding EUT 5.</li> <li>Adding the third source of 2.4GHz PA combines as EUT 6~7.</li> <li>Adding three adapters (Adapter 3, 4, 5).</li> </ol>	<ol style="list-style-type: none"> <li>AC Power Port Conducted Emission.</li> <li>Unwanted Emissions below 1GHz.</li> </ol>
<ol style="list-style-type: none"> <li>Adding one model name: XD4.</li> <li>Changing the Manufacturer (3) information: from "Manufacturer: Kentec Inc. / address: No. 5, Tzu-Chiang 1st Rd. Chungli Industrial Zone, Taoyuan City, Taiwan" to "Manufacturer: Lih Rong Electronic Enterprise Co.,Ltd. / address: No. 486, Sec. 1, Wanshou Road, Guishan District, , Taoyuan City, Taiwan".</li> </ol>	After evaluating, it doesn't affect the test results.



### 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 662911 D01 v02r01
- ♦ 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
Radiated <1GHz	03CH05-CB	Stim Sung	21.4-22.5 / 55-57	Apr. 01, 2021 ~ May 04, 2021
AC Conduction (Test Mode: Mode 1 ~ 3)	CO01-CB	Peter Wu	22~23 / 57~58	Jul. 15, 2020
AC Conduction (Test Mode: Mode 4 ~ 5)	CO01-CB	Wei Li	22~23 / 60~62	May 17, 2021

### 1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.0 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.8 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 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	
<b>Tests Item</b>	AC power-line conducted emissions
<b>Condition</b>	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
<b>Operating Mode</b>	Normal Link
1	AP Router - EUT 5 + Adapter 3
2	AP Router - EUT 5 + Adapter 4
Mode 1 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	Mesh - EUT 5 + Adapter 3
AP Router mode has been evaluated to be the worst case, thus measurement for Mode 4 ~ 5 will follow this same test mode.	
4	AP Router - EUT 1 + Adapter 5
Adapter 2 has been evaluated to be the worst case, thus measurement for Mode 5 will follow this same test mode.	
5	AP Router - EUT 6 + Adapter 2
For operating mode 5 is the worst case and it was record in this test report.	



<b>The Worst Case Mode for Following Conformance Tests</b>	
<b>Tests Item</b>	Unwanted Emissions
<b>Test Condition</b>	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.
<b>Operating Mode &lt; 1GHz</b>	CTX
<b>Operating Mode &lt; 1GHz</b>	CTX
The EUT performed testing at WLAN 2.4GHz and WLAN 5GHz mode, The WLAN 2.4GHz mode has been evaluated to be the worst case. So the measurement will follow this same test configuration.	
1	EUT 6 + WLAN 2.4GHz - Adapter 5
2	EUT 7 + WLAN 2.4GHz- Adapter 5
Adapter 2 has been evaluated to be the worst case from adapter 1, 2, 5, thus measurement for Mode 3 will follow this same test mode.	
3	EUT 6 + WLAN 2.4GHz - Adapter 2
EUT 1 has been evaluated to be the worst case from EUT 1~2, thus measurement for Mode 4 will follow this same test mode.	
4	EUT 1 + WLAN 2.4GHz - Adapter 5
5	EUT 5 + WLAN 2.4GHz - Adapter 3
6	EUT 5 + WLAN 2.4GHz - Adapter 4
For operating mode 3 is the worst case and it was record in this test report.	

<b>The Worst Case Mode for Following Conformance Tests</b>	
<b>Tests Item</b>	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
<b>Operating Mode</b>	
1	EUT 6 (WLAN 2.4GHz) + EUT 1 (WLAN 5GHz)
Refer to Sporton Test Report No.: FA021444-02 for Co-location RF Exposure Evaluation.	

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

## 2.2 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



### 2.3 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter 1	LEI	MU18B1120150-A1	INPUT: 100-240V ~ 50/60Hz, 0.6A OUTPUT: 12V, 1.5A
Adapter 2	DVE	DSA-18PFR-12 FUS 120150	INPUT: 100-240V ~ 50/60Hz, 0.6A OUTPUT: 12V, 1.5A, 18.0W
Adapter 3	PI	AD2055320	INPUT: 100-240V ~ 50/60Hz, 0.6A OUTPUT: 12V, 2.0A
Adapter 4	DELTA	ADP-24EW B	INPUT: 100-240V ~ 0.9A, 50-60Hz OUTPUT: 12V, 2A
Adapter 5	LEI	MU18D1120150-A1	INPUT: 100-240V ~ 50/60Hz, 0.6A OUTPUT: 12V, 1.5A
Other			
RJ-45 cable*1: Non-shielded, 2m			

### 2.4 Support Equipment

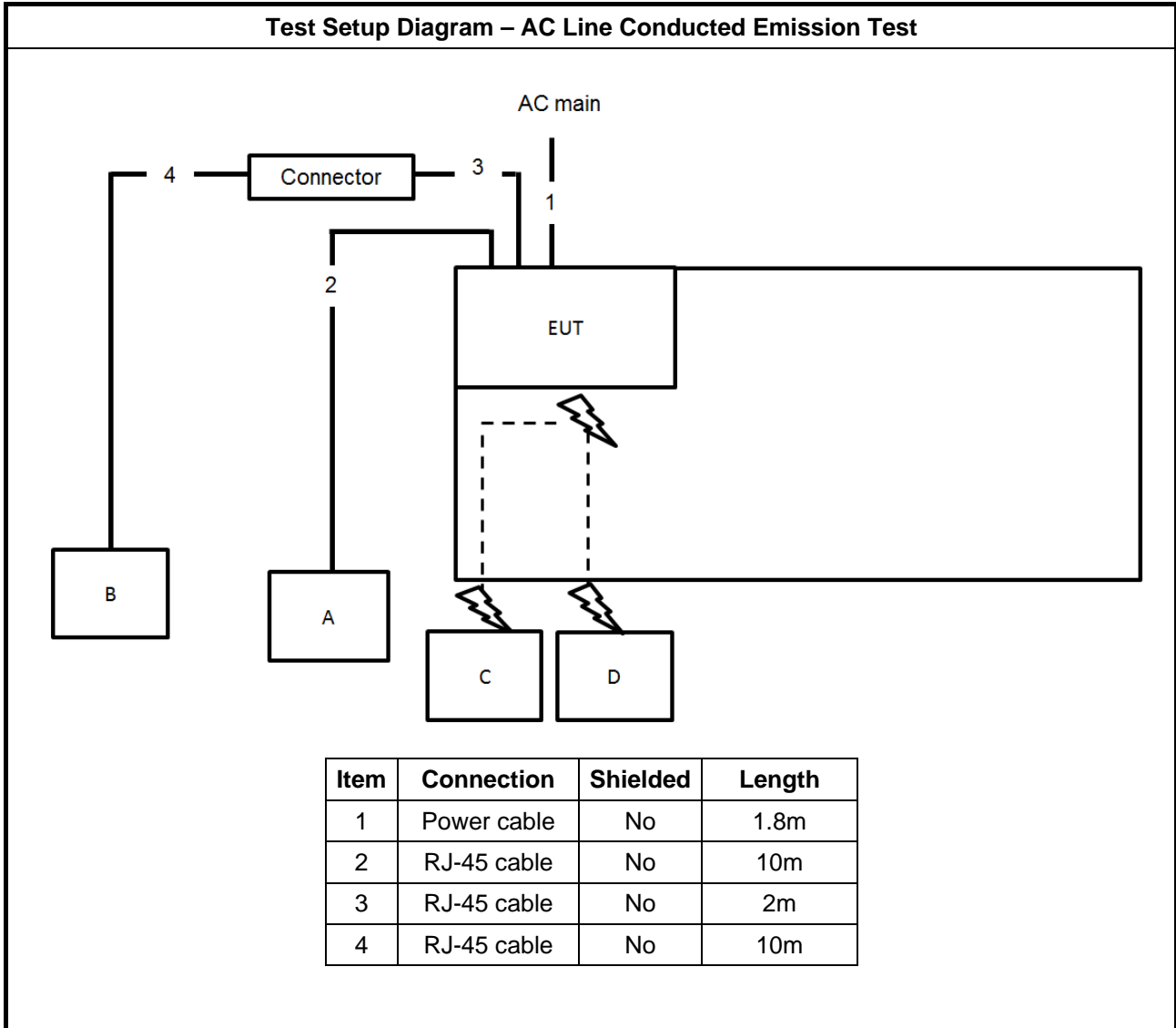
For AC Conduction:

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

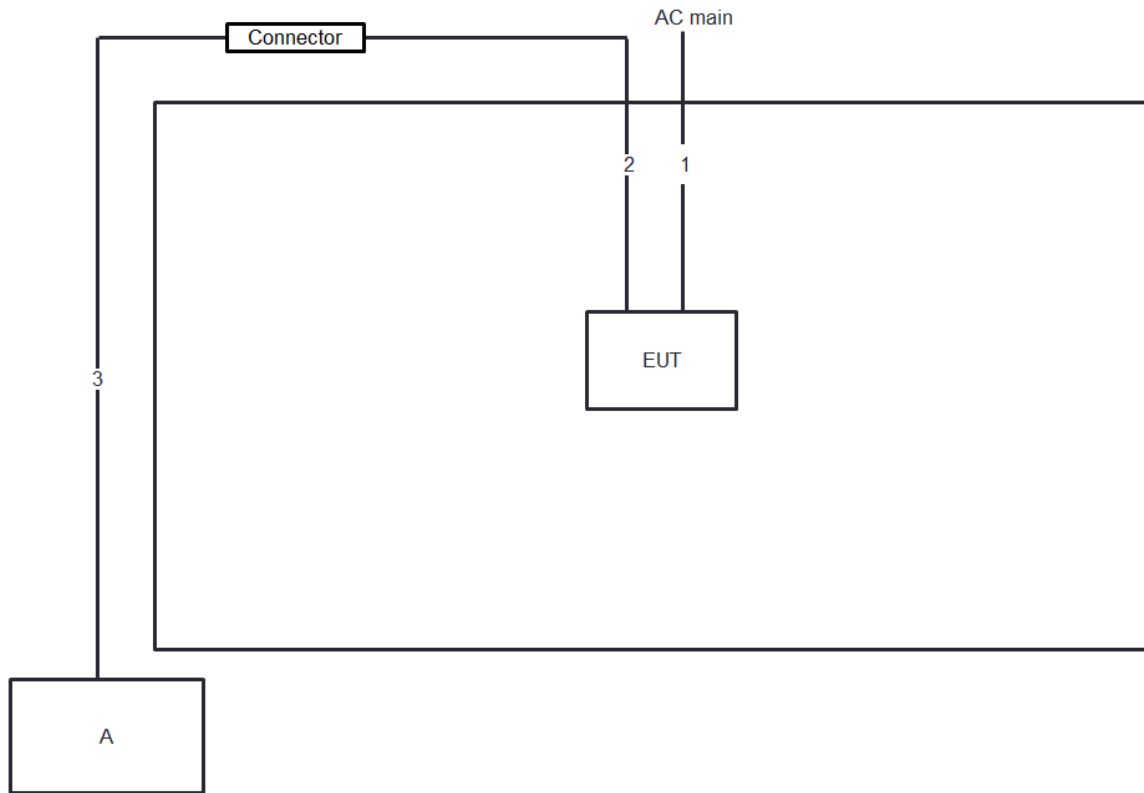
For Radiated (below 1GHz):

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

## 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	2m
3	RJ-45 cable	No	10m



### 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

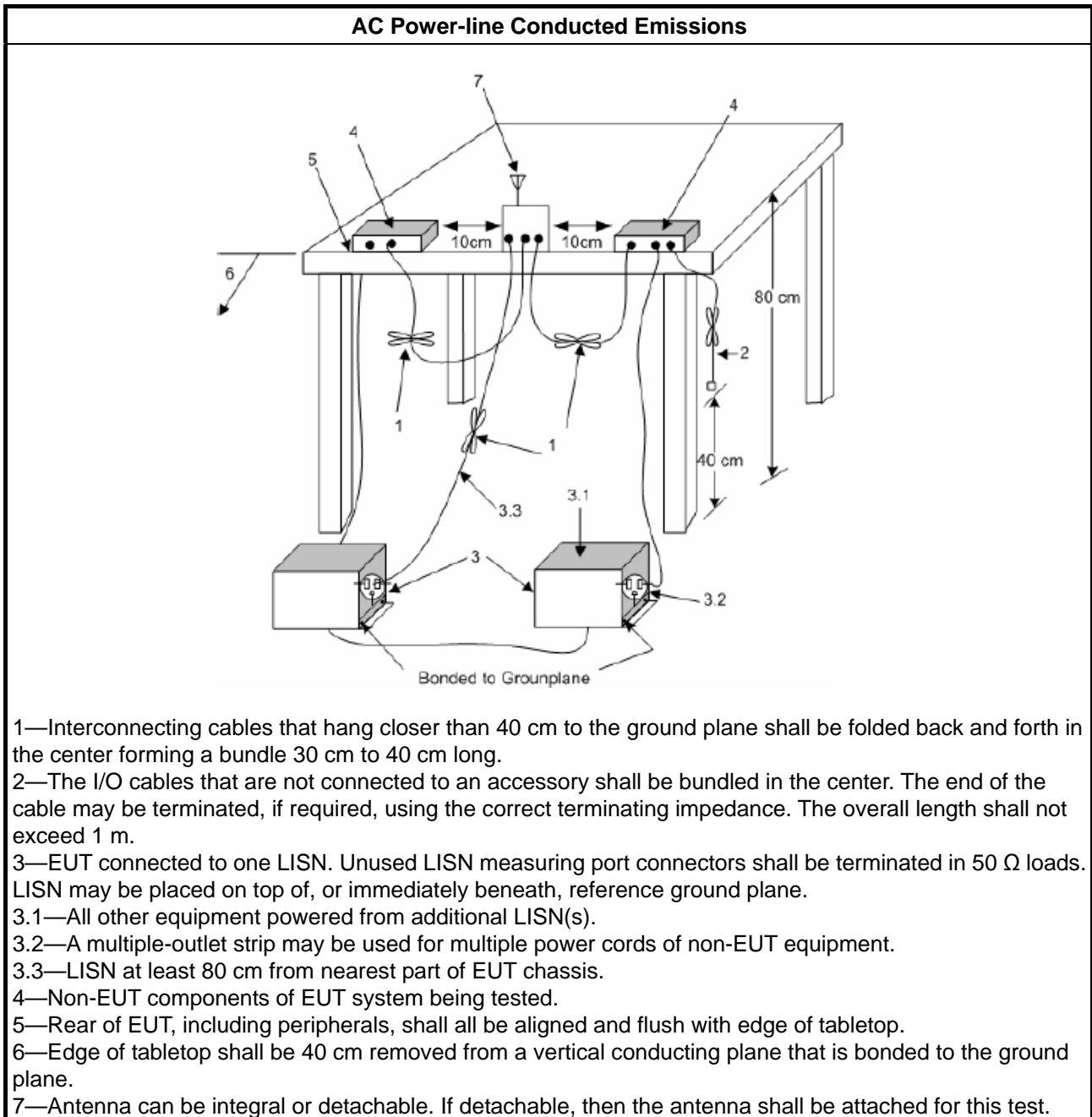
Refer a test equipment and calibration data table in this test report.

##### 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



### 3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- a. Corrected Reading: LISN Factor (LISN) + Attenuator (AT/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 Unwanted Emissions

#### 3.2.1 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.

#### 3.2.2 Measuring Instruments

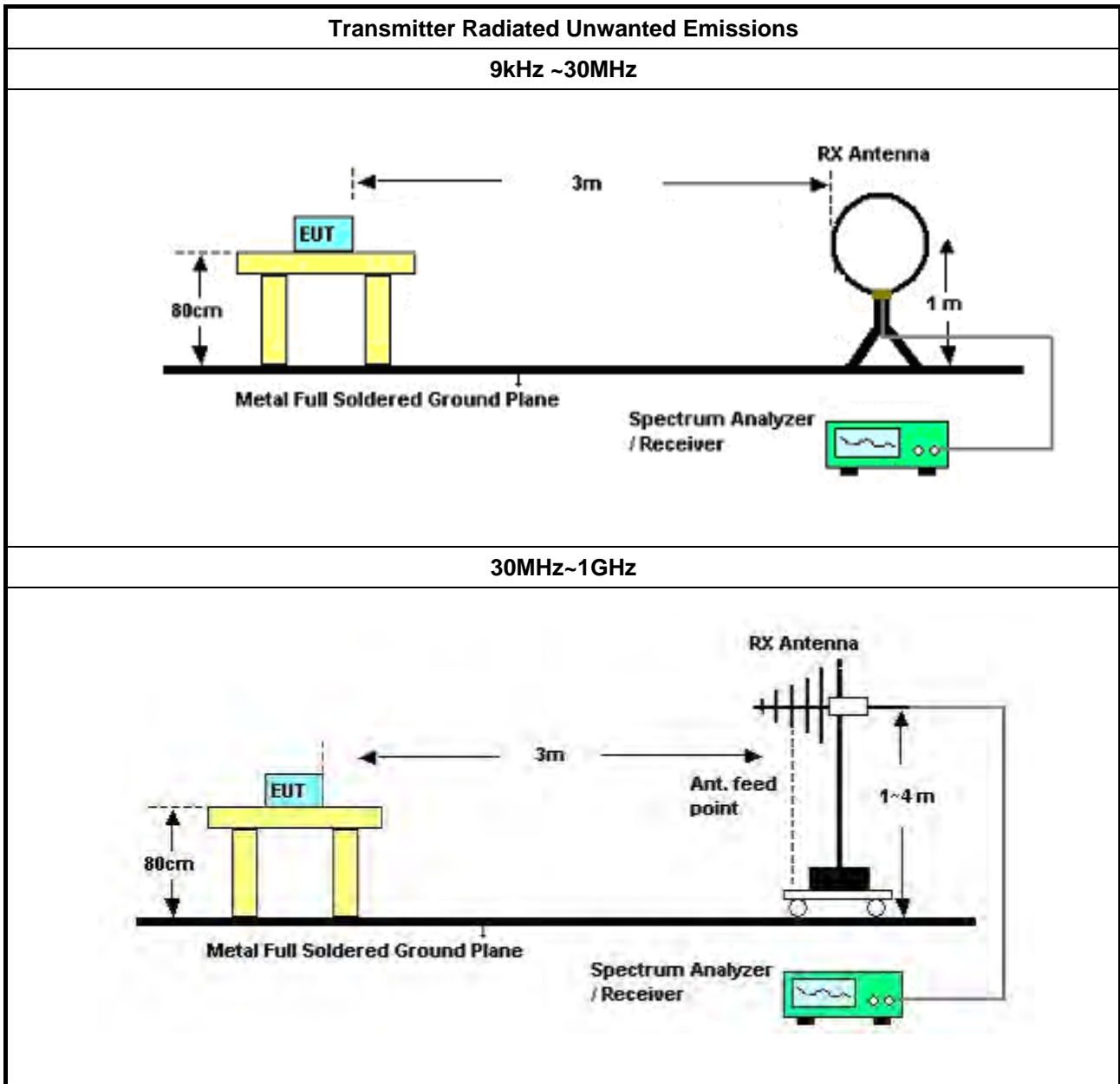
Refer a test equipment and calibration data table in this test report.



**3.2.3 Test Procedures**

<b>Test Method</b>	
<ul style="list-style-type: none"> <li>▪ 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).</li> </ul>	
<ul style="list-style-type: none"> <li>▪ The average emission levels shall be measured in [duty cycle <math>\geq</math> 98 or duty factor].</li> </ul>	
<ul style="list-style-type: none"> <li>▪ For the transmitter unwanted emissions shall be measured using following options below:</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Refer as FCC KDB 789033, clause G)2) for unwanted emissions into non-restricted bands.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as FCC KDB 789033, clause G)1) for unwanted emissions into restricted bands.</li> </ul>
	<input type="checkbox"/> Refer as FCC KDB 789033, G)6) Method AD (Trace Averaging).
	<input checked="" type="checkbox"/> Refer as FCC KDB 789033, 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, 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"> <li>▪ For radiated measurement.</li> </ul>	
	<ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.</li> </ul>
<ul style="list-style-type: none"> <li>▪ The any unwanted emissions level shall not exceed the fundamental emission level.</li> </ul>	
<ul style="list-style-type: none"> <li>▪ All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.</li> </ul>	

### 3.2.4 Test Setup



### 3.2.5 Measurement Results Calculation

The measured Level is calculated using:

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



### **3.2.6 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.

### **3.2.7 Test Result of Transmitter Unwanted Emissions**

Refer as Appendix B



## 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 ~ 8.45GHz	Feb. 26, 2020	Feb. 25, 2021	Conduction (CO01-CB)
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Mar. 03, 2021	Mar. 02, 2022	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 25, 2019	Dec. 24, 2020	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Jan. 06, 2021	Jan. 05, 2022	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 21, 2019	Nov. 20, 2020	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Mar. 07, 2021	Mar. 06, 2022	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Jan. 31, 2020	Jan. 30, 2021	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Jan. 30, 2021	Jan. 29, 2022	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 21, 2019	May 20, 2020	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	May 20, 2020	May 19, 2021	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Apr. 13, 2020	Apr. 12, 2021	Radiation (03CH05-CB)
Loop Antenna	Teseq	HLA 6120	31244	9kHz - 30 MHz	Mar. 16, 2021	Mar. 15, 2022	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 10, 2020	Aug. 09, 2021	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 26, 2021	Mar. 25, 2022	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 28, 2020	Apr. 27, 2021	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 27, 2021	Apr. 26, 2022	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Nov. 10, 2020	Nov. 09, 2021	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	May 13, 2020	May 12, 2021	Radiation (03CH05-CB)



RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 05, 2020	Oct. 04, 2021	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)

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

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



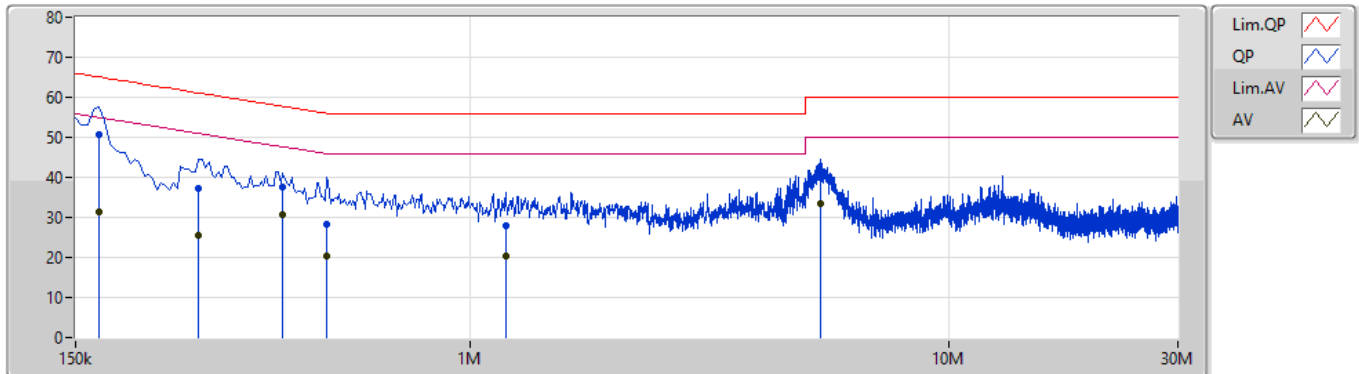
**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 5	Pass	QP	150k	54.32	66.00	-11.68	Neutral

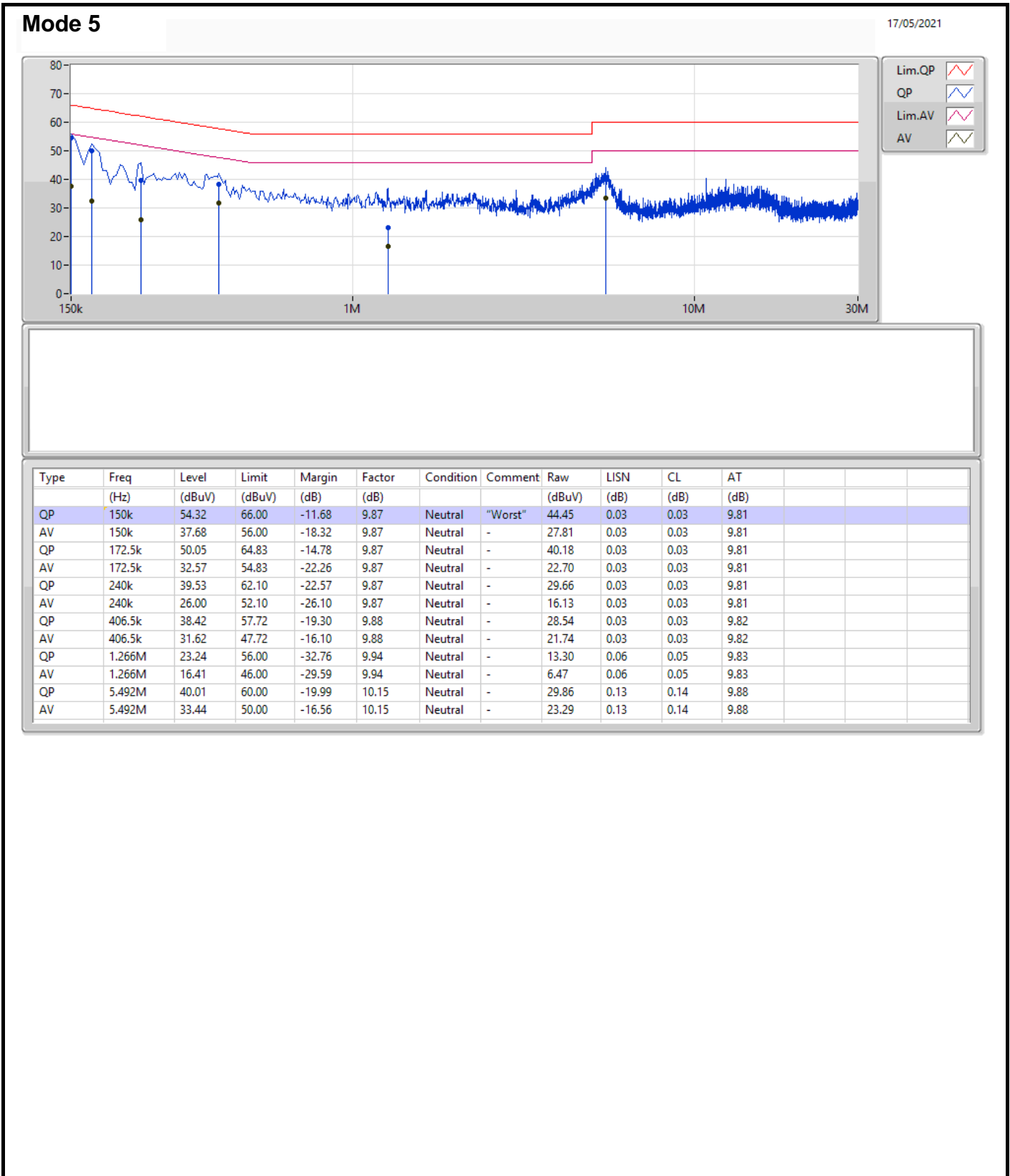


Mode 5

17/05/2021



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	168k	50.55	65.06	-14.51	9.88	Line	"Worst"	40.67	0.04	0.03	9.81
AV	168k	31.23	55.06	-23.83	9.88	Line	-	21.35	0.04	0.03	9.81
QP	271.5k	37.24	61.07	-23.83	9.88	Line	-	27.36	0.04	0.03	9.81
AV	271.5k	25.48	51.07	-25.59	9.88	Line	-	15.60	0.04	0.03	9.81
QP	406.5k	37.68	57.72	-20.04	9.89	Line	-	27.79	0.04	0.03	9.82
AV	406.5k	30.59	47.72	-17.13	9.89	Line	-	20.70	0.04	0.03	9.82
QP	500k	28.42	56.00	-27.58	9.89	Line	-	18.53	0.04	0.03	9.82
AV	500k	20.49	46.00	-25.51	9.89	Line	-	10.60	0.04	0.03	9.82
QP	1.185M	27.85	56.00	-28.15	9.95	Line	-	17.90	0.07	0.05	9.83
AV	1.185M	20.30	46.00	-25.70	9.95	Line	-	10.35	0.07	0.05	9.83
QP	5.375M	40.17	60.00	-19.83	10.18	Line	-	29.99	0.16	0.14	9.88
AV	5.375M	33.55	50.00	-16.45	10.18	Line	-	23.37	0.16	0.14	9.88





**Summary**

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 3	Pass	PK	65.89M	34.26	40.00	-5.74	Vertical

