

NCC Test Report

Equipment : 雙頻無線接入點
Brand Name : UBIQUITI
Model Name : UAP-FlexHD
Applicant : 香港商優比快科技有限公司台灣分公司
臺北市信義區松仁路 107 號 12 樓
Manufacturer : Ubiquiti Inc.
685 Third Avenue, 27th Floor New York,
New York 10017 USA
Standard : LP0002 Section 3.10 (2018-01-10)

The product was received on Nov. 06, 2019, and testing was started from Nov. 08, 2019 and completed on Nov. 08, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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

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History of this test report

[illegible]

Summary of Test Result

Report Clause	Ref.Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	3.10.1.4	Antenna Requirement	PASS	-
3.1	2.3	AC Power-line Conducted Emissions	PASS	-
3.2	3.10.1.5	Emissions in Restricted Frequency Bands	PASS	-
3.3	2.11	Receiver Radiated Unwanted Emissions	PASS	-

Declaration of Conformity:

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

Comments and explanations:

None

Reviewed by: Jackson Tsai

Report Producer: Michelle Tsai

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Bluetooth Mode	Ch. Frequency (MHz)	Channel Number
2400-2483.5	LE	2402-2480	0-39 [40]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1.0	1TX

Note:

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

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector
1	1	-	-	PIFA	i-Pex
	2	-	-	PIFA	i-Pex
2	3	-	-	PIFA	i-Pex
	4	-	-	PIFA	i-Pex
3	1	-	-	Chip	Fixed on board

Ant.	Port	Gain (dBi)		
		2.4G	BT	5G
1	1	1.6	-	4.0
	2			
2	3	-	-	4.0
	4			
3	1	-	1.6	-

Note 1: The EUT has three antennas.

For 2.4GHz function:

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

Ant. 1 could transmit/receive simultaneously.

For BT function:

For Bluetooth mode (1TX/1RX)

Only Ant. 3 can be used as transmitting/receiving antenna.

For 5GHz function:

For IEEE 802.11a/n/ac mode (4TX/4RX):

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

1.1.3 EUT Information

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

1.1.4 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: TR7O2609-12AL

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

Modifications	Performance Checking
PoE Adapter and power cord were added	AC Conduction data and Radiated Emission data 30M to 1G was evaluated

1.2 Testing Applied Standards

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

- ♦ LP0002 (2018-01-10)
- ♦ ANSI C63.10-2013
- ♦ KDB 558074 D01 v05r02
- ♦ ANSI C63.4-2014
- ♦ KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Radiated	03CH03-HY	Patrick Hseih	23.4~24.8°C / 50.9~53.1%	08/Nov/2019
AC Conduction	CO04HY	Edward Wang	22.9~24.6°C / 61.8~65.3%	08/Nov/2019

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)	3.54 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	1.6 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

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

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX/CRX
1	PoE Mode

The Worst Case Mode for Following Conformance Tests	
Tests Item	Emissions in Restricted Frequency Bands
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode < 1GHz	CTX/CRX
1	PoE Mode
Orthogonal Planes of EUT	Y Plane
	

2.3 Accessories

PoE Adapter	Brand Name	UBIQUITI	Model Name	GP-V480-032G
	Manufacturer	UBIQUITI	SN	--
	Power Rating	I/P: 100 - 240Vac, 0.5 A, O/P: 48 Vdc, 0.32A		
Power Cord	Brand Name	CHAO HUI	Model Name	CH-231+ CH-706
	Power Cord	0.6 meter, non-shielded cable, w/o ferrite core		

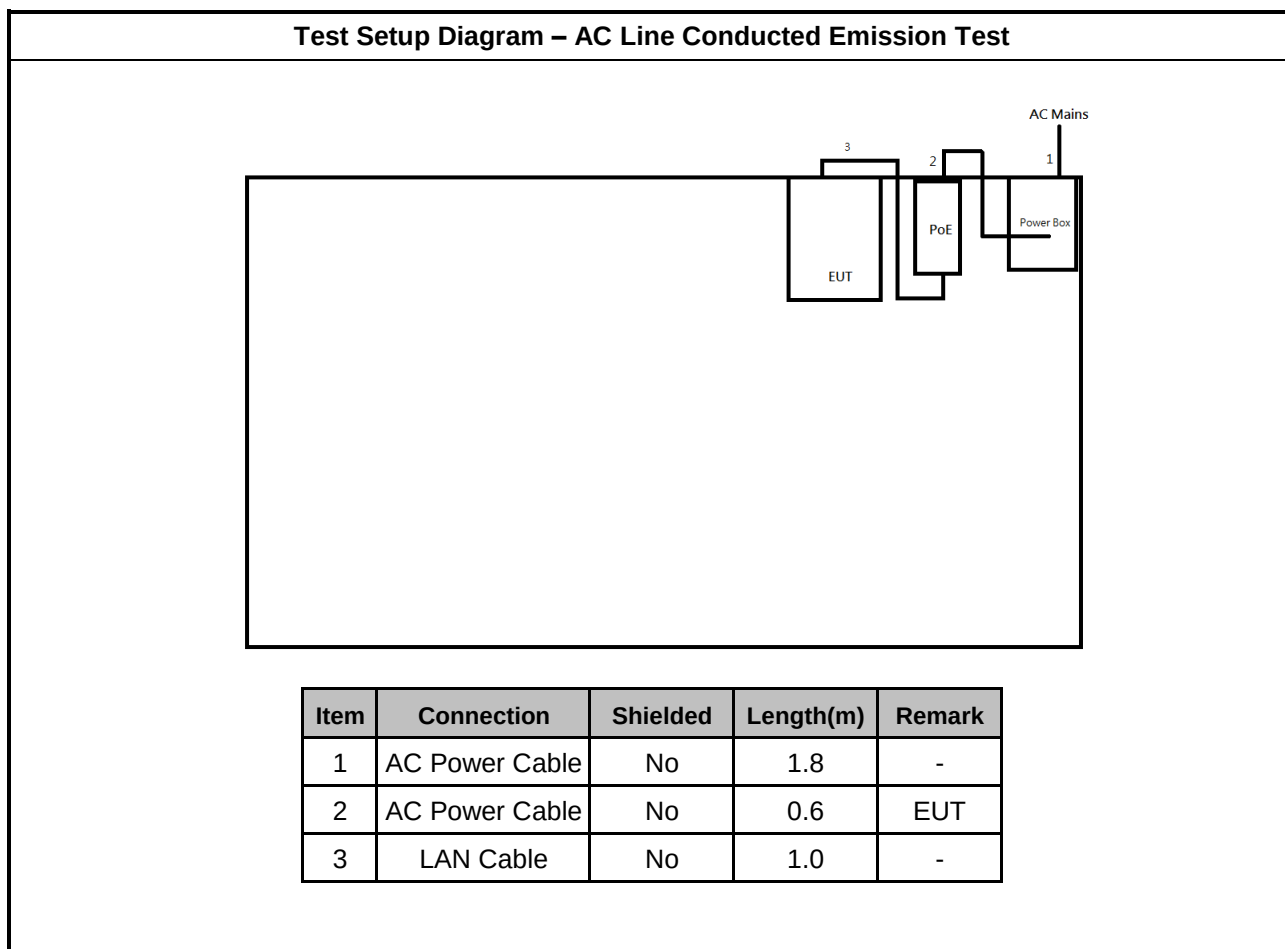
Reminder: Regarding to more detail and other information, please refer to user manual.

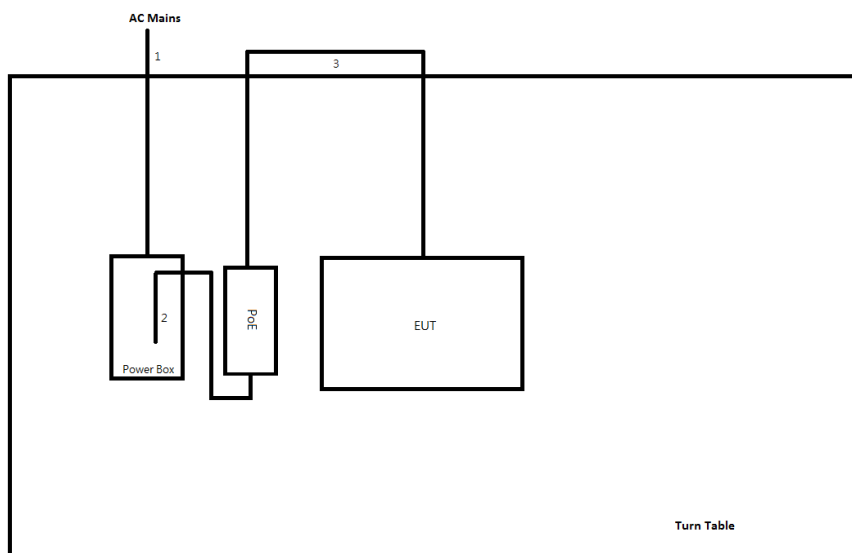
2.4 Support Equipment

Support Equipment – AC Conduction and Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	LAN Cable	Power sync	CAT-6E-01	-

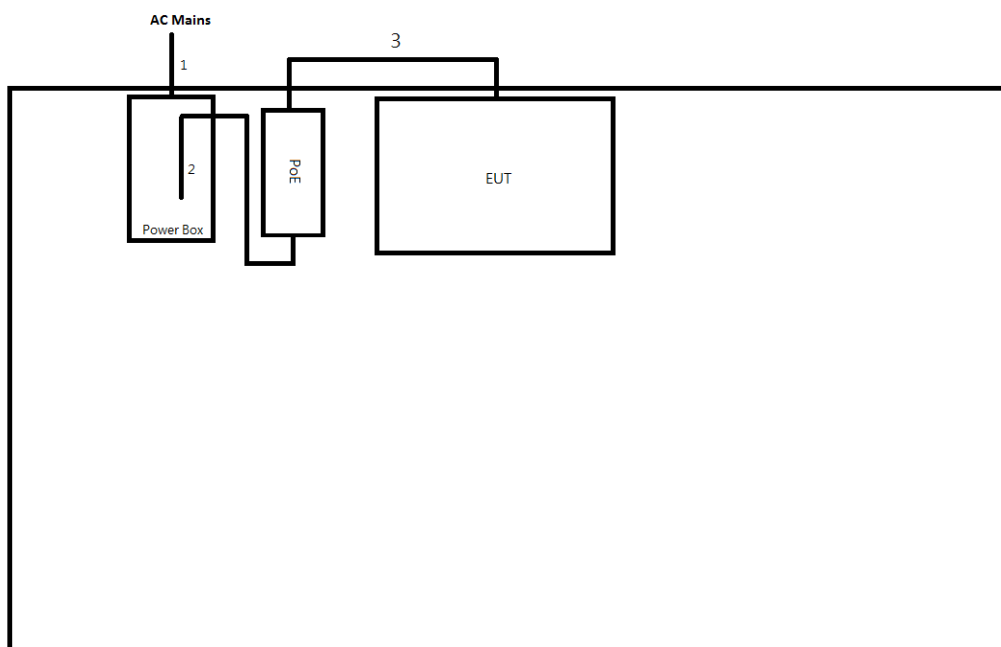
Note: No.1 was provided by SPORTON LAB. The applicant has signed the recognizance that the equipment will not be sold with the accessory.

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test (TX)


Item	Connection	Shielded	Length(m)	Remark
1	AC Power Cable	No	1.8	-
2	AC Power Cable	No	0.6	-
3	LAN Cable	No	1.5	-

Test Setup Diagram - Radiated Test (RX)


Item	Connection	Shielded	Length(m)	Remark
1	AC Power Cable	No	1.8	-
2	AC Power Cable	No	0.6	-
3	LAN Cable	No	1.5	-

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

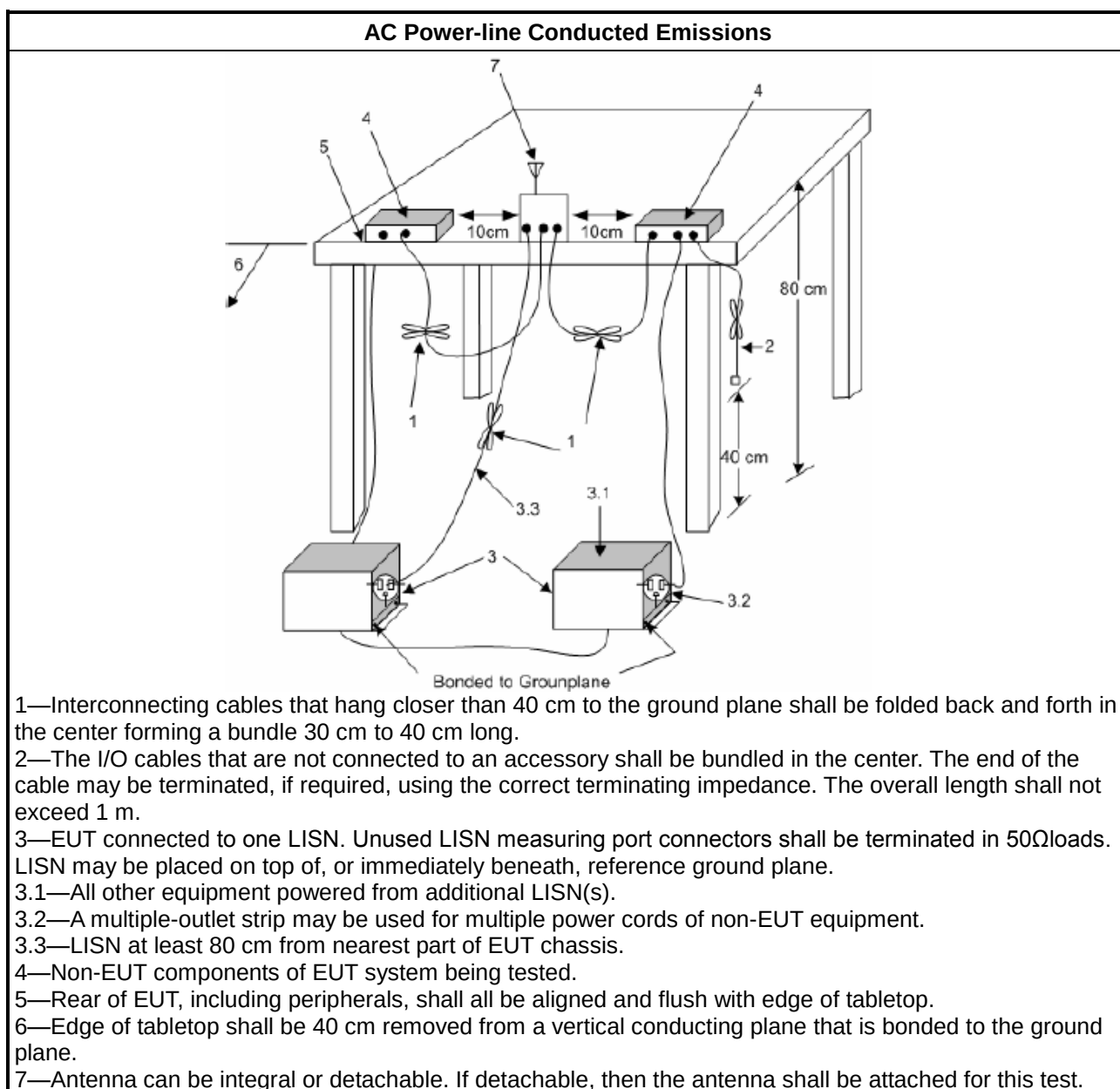
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 Emissions in Restricted Frequency Bands

3.2.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

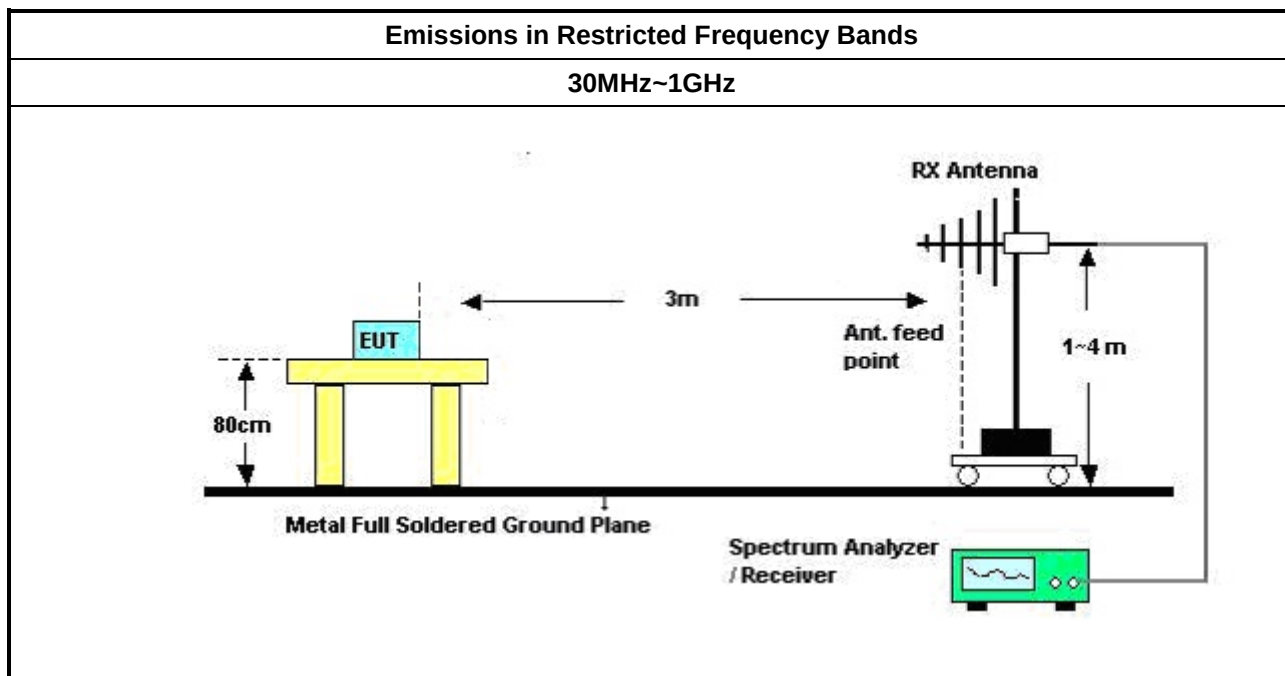
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
	- The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor]. - Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
	- For the transmitter unwanted emissions shall be measured using following options below: - Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
	- For the transmitter band-edge emissions shall be measured using following options below: - Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below. - Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements. - Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
	- Use the following spectrum analyzer settings: - Set RBW=100 kHz for $f < 1$ GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold. - Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement, refer as 1.1.4.
	KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.
	- Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field. - Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

3.2.4 Test Setup



3.2.5 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

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

3.2.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix B

3.3 Receiver Radiated Spurious Emissions

3.3.1 Receiver in Radiated Spurious Emissions Limit

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

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

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

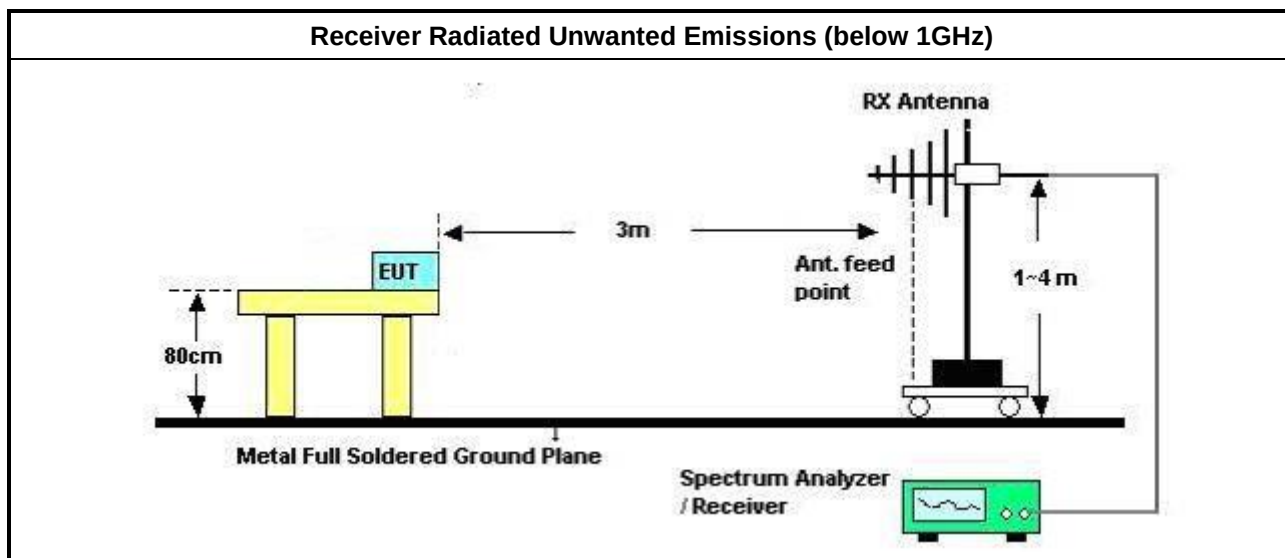
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
☒	The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is higher, without exceeding 40 GHz.
☒	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).
☒	For radiated measurement, refer as ANSI C63.4, clause 8.3.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from below 30 MHz.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from 30 MHz-1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the QP-Limit so that the QP level does not need to be reported in addition.
☒	Refer as ANSI C63.4, clause 8.3.1.2 and 8.3.2.2 for radiated emissions from above 1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
☒	All amplitude of spurious emissions that are attenuated by more than 30 dB below the permissible value has no need to be reported.

3.3.4 Test Setup



3.3.5 Test Result of Receiver Radiated Unwanted Emissions

Refer as Appendix C

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	05/Nov/2019	04/Nov/2020
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	12/Sep/2019	11/Sep/2020
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	24/Sep/2019	23/Sep/2020

NCR : Non-Calibration Require

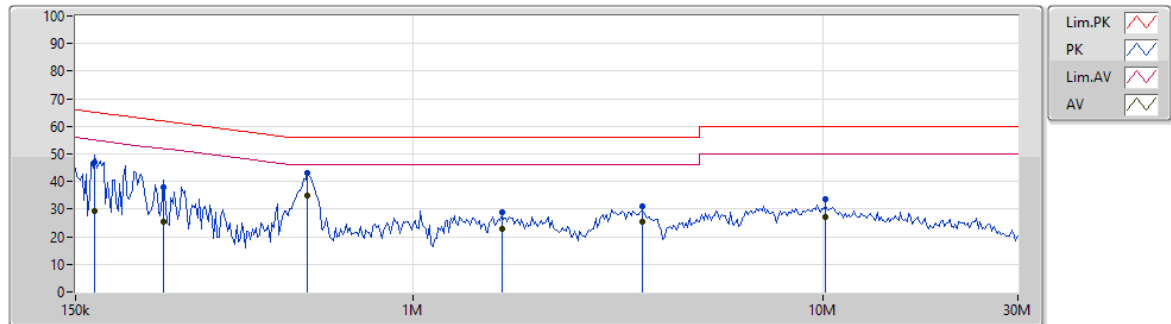
Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	30/ Aug/2019	29/ Aug/2020
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	22/Apr/2019	21/Apr/2020
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112B / MTJ6102-05	2723 / 2	30MHz ~ 2GHz	11/Oct/2019	10/Oct//2020
Signal Analyzer	R&S	FSP40	100305	9kHz ~ 40 GHz;-140~+30d Bm	10/Jun/2019	09/Jun/2020
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	22/Mar/2019	21/Mar/2020
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	15/Mar/2019	14/Mar/2020

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	PoE Mode (TX)		

08/11/2019

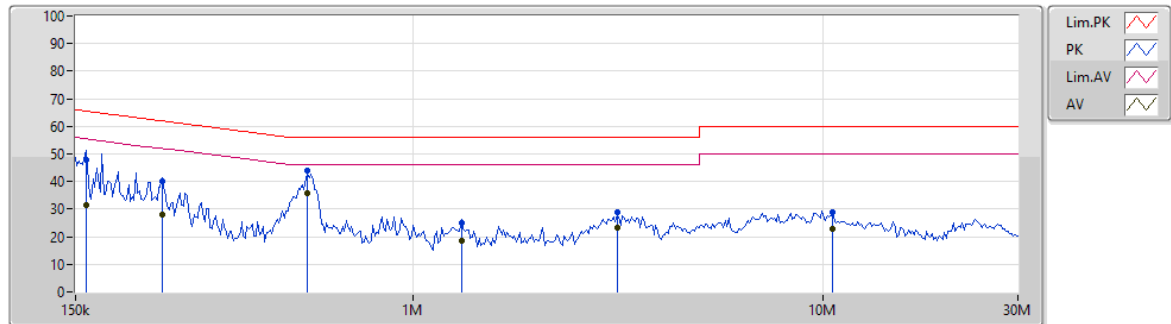


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	167.35k	46.77	65.08	-18.31	19.58	Neutral	-	27.19	9.60	0.11	9.87			
AV	167.35k	29.12	55.08	-25.96	19.58	Neutral	-	9.54	9.60	0.11	9.87			
QP	246.695k	37.94	61.87	-23.93	19.58	Neutral	-	18.36	9.59	0.12	9.87			
AV	246.695k	25.45	51.87	-26.42	19.58	Neutral	-	5.87	9.59	0.12	9.87			
QP	552.321k	43.20	56.00	-12.80	19.59	Neutral	-	23.61	9.59	0.13	9.87			
AV	552.321k	34.72	46.00	-11.28	19.59	Neutral	"Worst"	15.13	9.59	0.13	9.87			
QP	1.65M	28.82	56.00	-27.18	19.61	Neutral	-	9.21	9.60	0.14	9.87			
AV	1.65M	23.00	46.00	-23.00	19.61	Neutral	-	3.39	9.60	0.14	9.87			
QP	3.622M	31.06	56.00	-24.94	19.67	Neutral	-	11.39	9.61	0.18	9.88			
AV	3.622M	25.39	46.00	-20.61	19.67	Neutral	-	5.72	9.61	0.18	9.88			
QP	10.194M	33.43	60.00	-26.57	19.82	Neutral	-	13.61	9.67	0.27	9.88			
AV	10.194M	26.99	50.00	-23.01	19.82	Neutral	-	7.17	9.67	0.27	9.88			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	PoE Mode (TX)		

08/11/2019

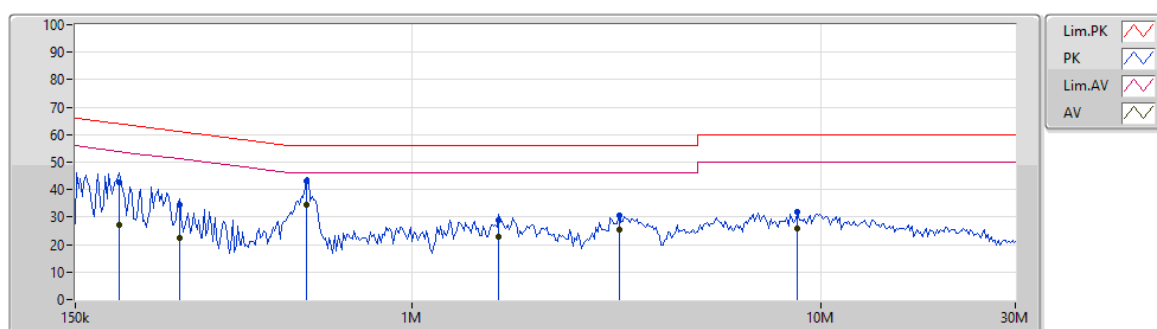


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	159.228k	47.93	65.50	-17.57	19.58	Line	-	28.35	9.60	0.11	9.87			
AV	159.228k	31.68	55.50	-23.82	19.58	Line	-	12.10	9.60	0.11	9.87			
QP	244.252k	40.03	61.95	-21.92	19.59	Line	-	20.44	9.60	0.12	9.87			
AV	244.252k	28.17	51.95	-23.78	19.59	Line	-	8.58	9.60	0.12	9.87			
QP	552.321k	43.94	56.00	-12.06	19.59	Line	-	24.35	9.59	0.13	9.87			
AV	552.321k	35.74	46.00	-10.26	19.59	Line	"Worst"	16.15	9.59	0.13	9.87			
QP	1.313M	24.90	56.00	-31.10	19.62	Line	-	5.28	9.61	0.13	9.88			
AV	1.313M	18.61	46.00	-27.39	19.62	Line	-	-1.01	9.61	0.13	9.88			
QP	3.151M	28.76	56.00	-27.24	19.68	Line	-	9.08	9.63	0.17	9.88			
AV	3.151M	23.28	46.00	-22.72	19.68	Line	-	3.60	9.63	0.17	9.88			
QP	10.608M	28.89	60.00	-31.11	19.82	Line	-	9.07	9.66	0.28	9.88			
AV	10.608M	22.96	50.00	-27.04	19.82	Line	-	3.14	9.66	0.28	9.88			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	PoE Mode (RX)		

08/11/2019

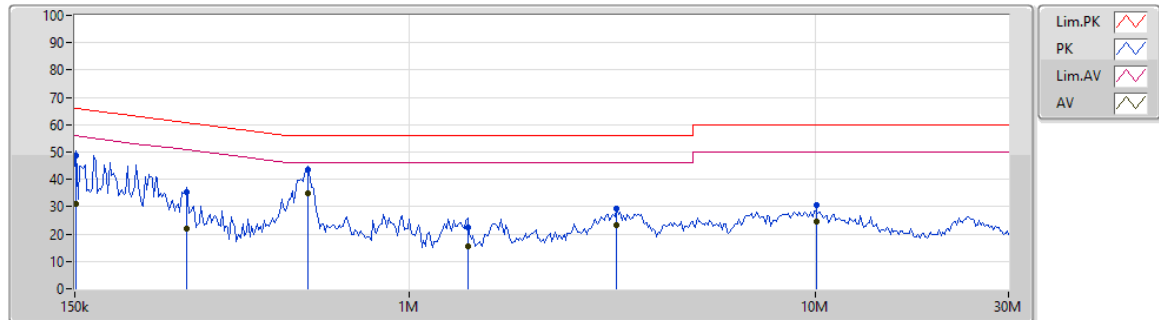


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	192.365k	42.85	63.93	-21.08	19.57	Neutral	-	23.28	9.59	0.11	9.87			
AV	192.365k	27.05	53.93	-26.88	19.57	Neutral	-	7.48	9.59	0.11	9.87			
QP	269.806k	34.53	61.12	-26.59	19.58	Neutral	-	14.95	9.59	0.12	9.87			
AV	269.806k	22.53	51.12	-28.59	19.58	Neutral	-	2.95	9.59	0.12	9.87			
QP	552.321k	43.16	56.00	-12.84	19.59	Neutral	-	23.57	9.59	0.13	9.87			
AV	552.321k	34.67	46.00	-11.33	19.59	Neutral	"Worst"	15.08	9.59	0.13	9.87			
QP	1.634M	28.71	56.00	-27.29	19.61	Neutral	-	9.10	9.60	0.14	9.87			
AV	1.634M	22.89	46.00	-23.11	19.61	Neutral	-	3.28	9.60	0.14	9.87			
QP	3.214M	30.79	56.00	-25.21	19.67	Neutral	-	11.12	9.61	0.18	9.88			
AV	3.214M	25.37	46.00	-20.63	19.67	Neutral	-	5.70	9.61	0.18	9.88			
QP	8.781M	31.85	60.00	-28.15	19.80	Neutral	-	12.05	9.66	0.26	9.88			
AV	8.781M	25.70	50.00	-24.30	19.80	Neutral	-	5.90	9.66	0.26	9.88			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	PoE Mode (RX)		

08/11/2019



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	151.5k	48.59	65.92	-17.33	19.58	Line	-	29.01	9.60	0.11	9.87			
AV	151.5k	31.19	55.92	-24.73	19.58	Line	-	11.61	9.60	0.11	9.87			
QP	283.569k	35.22	60.70	-25.48	19.59	Line	-	15.63	9.60	0.12	9.87			
AV	283.569k	22.07	50.70	-28.63	19.59	Line	-	2.48	9.60	0.12	9.87			
QP	563.422k	43.45	56.00	-12.55	19.59	Line	-	23.86	9.59	0.13	9.87			
AV	563.422k	35.08	46.00	-10.92	19.59	Line	"Worst"	15.49	9.59	0.13	9.87			
QP	1.393M	22.40	56.00	-33.60	19.62	Line	-	2.78	9.61	0.13	9.88			
AV	1.393M	15.67	46.00	-30.33	19.62	Line	-	-3.95	9.61	0.13	9.88			
QP	3.246M	29.14	56.00	-26.86	19.69	Line	-	9.45	9.63	0.18	9.88			
AV	3.246M	23.37	46.00	-22.63	19.69	Line	-	3.68	9.63	0.18	9.88			
QP	10.093M	30.49	60.00	-29.51	19.82	Line	-	10.67	9.67	0.27	9.88			
AV	10.093M	24.57	50.00	-25.43	19.82	Line	-	4.75	9.67	0.27	9.88			



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	PK	92.08M	37.86	43.50	-5.64	-11.62	3	Horizontal	360	1.00	-

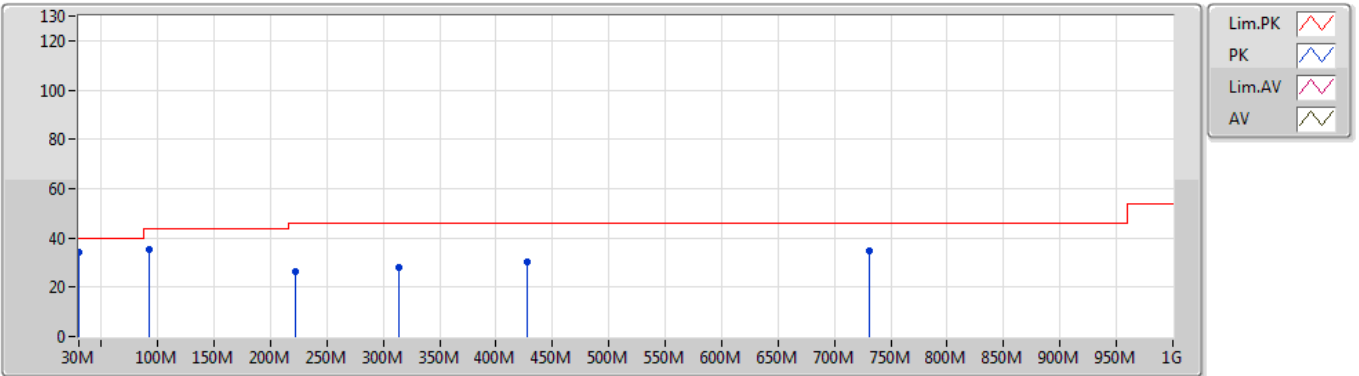
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2442MHz	Pass	PK	30M	34.10	40.00	-5.90	-3.76	3	Vertical	0	1.00	-
2442MHz	Pass	PK	92.08M	35.58	43.50	-7.92	-11.62	3	Vertical	0	1.00	-
2442MHz	Pass	PK	222.06M	26.07	46.00	-19.93	-10.05	3	Vertical	0	1.00	-
2442MHz	Pass	PK	313.24M	27.86	46.00	-18.14	-5.41	3	Vertical	0	1.00	-
2442MHz	Pass	PK	427.7M	30.06	46.00	-15.94	-2.36	3	Vertical	0	1.00	-
2442MHz	Pass	PK	730.34M	34.85	46.00	-11.15	1.01	3	Vertical	0	1.00	-
2442MHz	Pass	PK	92.08M	37.86	43.50	-5.64	-11.62	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	154.16M	30.04	43.50	-13.46	-9.92	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	255.04M	27.87	46.00	-18.13	-6.09	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	375.32M	35.32	46.00	-10.68	-4.03	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	619.76M	29.83	46.00	-16.17	0.26	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	899.12M	39.40	46.00	-6.60	3.08	3	Horizontal	360	1.00	-

BT-LE(1Mbps)

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2442MHz_PoE

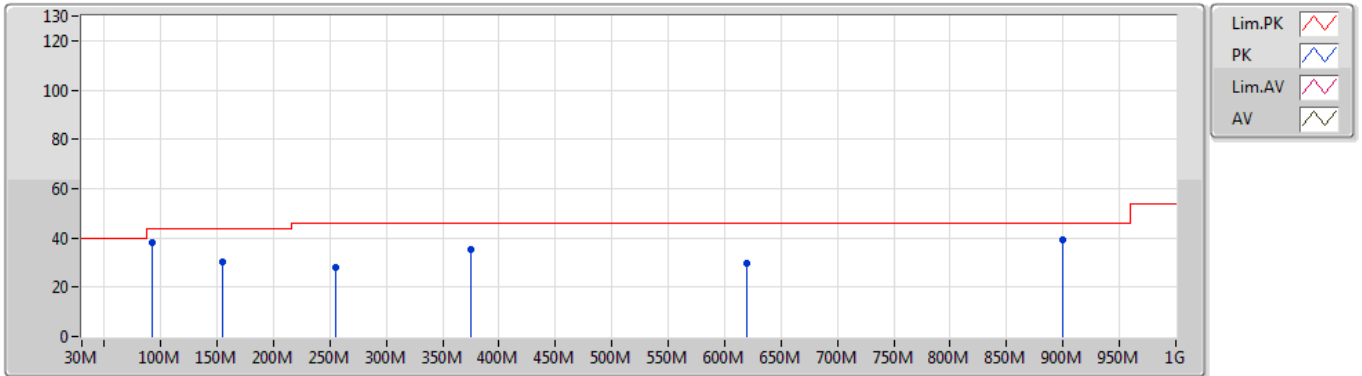


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	34.10	40.00	-5.90	-3.76	3	Vertical	0	1.00	-	37.86	23.01	0.80	27.57
PK	92.08M	35.58	43.50	-7.92	-11.62	3	Vertical	0	1.00	-	47.20	14.33	1.45	27.40
PK	222.06M	26.07	46.00	-19.93	-10.05	3	Vertical	0	1.00	-	36.12	14.46	2.33	26.84
PK	313.24M	27.86	46.00	-18.14	-5.41	3	Vertical	0	1.00	-	33.27	18.56	2.81	26.78
PK	427.7M	30.06	46.00	-15.94	-2.36	3	Vertical	0	1.00	-	32.42	21.86	3.30	27.52
PK	730.34M	34.85	46.00	-11.15	1.01	3	Vertical	0	1.00	-	33.84	24.60	4.45	28.04

BT-LE(1Mbps)

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2442MHz_PoE



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	92.08M	37.86	43.50	-5.64	-11.62	3	Horizontal	360	1.00	-	49.48	14.33	1.45	27.40
PK	154.16M	30.04	43.50	-13.46	-9.92	3	Horizontal	360	1.00	-	39.96	15.33	1.91	27.16
PK	255.04M	27.87	46.00	-18.13	-6.09	3	Horizontal	360	1.00	-	33.96	18.13	2.51	26.73
PK	375.32M	35.32	46.00	-10.68	-4.03	3	Horizontal	360	1.00	-	39.35	20.03	3.08	27.14
PK	619.76M	29.83	46.00	-16.17	0.26	3	Horizontal	360	1.00	-	29.57	24.22	4.12	28.08
PK	899.12M	39.40	46.00	-6.60	3.08	3	Horizontal	360	1.00	-	36.32	25.60	4.98	27.50



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	PK	92.08M	38.87	43.50	-4.63	-11.62	3	Vertical	0	1.00	-

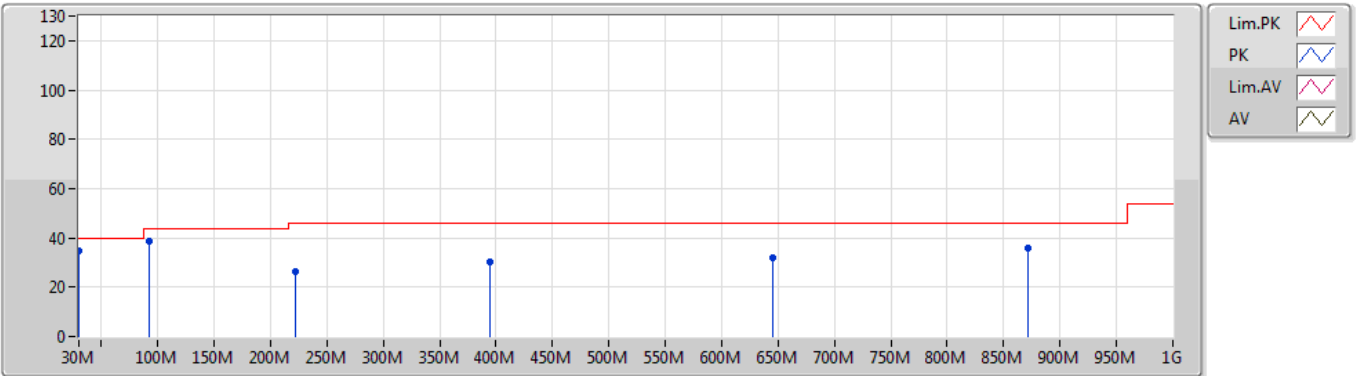
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2442MHz	Pass	PK	30M	35.02	40.00	-4.98	-3.76	3	Vertical	0	1.00	-
2442MHz	Pass	PK	92.08M	38.87	43.50	-4.63	-11.62	3	Vertical	0	1.00	-
2442MHz	Pass	PK	222.06M	26.54	46.00	-19.46	-10.05	3	Vertical	0	1.00	-
2442MHz	Pass	PK	394.72M	30.53	46.00	-15.47	-3.47	3	Vertical	0	1.00	-
2442MHz	Pass	PK	644.98M	31.83	46.00	-14.17	0.31	3	Vertical	0	1.00	-
2442MHz	Pass	PK	871.96M	35.81	46.00	-10.19	2.79	3	Vertical	0	1.00	-
2442MHz	Pass	PK	30M	29.75	40.00	-10.25	-3.76	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	94.02M	36.83	43.50	-6.67	-11.10	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	156.1M	30.32	43.50	-13.18	-10.00	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	315.18M	36.60	46.00	-9.40	-5.36	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	722.58M	33.64	46.00	-12.36	0.81	3	Horizontal	360	1.00	-
2442MHz	Pass	PK	862.26M	36.19	46.00	-9.81	2.65	3	Horizontal	360	1.00	-

BT-LE(1Mbps)RX

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2442MHz_PoE

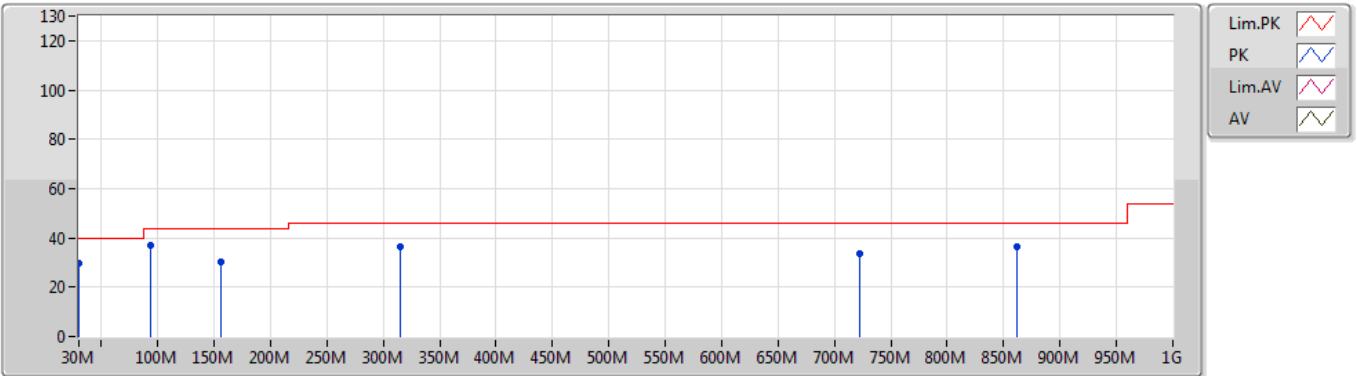


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	35.02	40.00	-4.98	-3.76	3	Vertical	0	1.00	-	38.78	23.01	0.80	27.57
PK	92.08M	38.87	43.50	-4.63	-11.62	3	Vertical	0	1.00	-	50.49	14.33	1.45	27.40
PK	222.06M	26.54	46.00	-19.46	-10.05	3	Vertical	0	1.00	-	36.59	14.46	2.33	26.84
PK	394.72M	30.53	46.00	-15.47	-3.47	3	Vertical	0	1.00	-	34.00	20.63	3.16	27.26
PK	644.98M	31.83	46.00	-14.17	0.31	3	Vertical	0	1.00	-	31.52	24.25	4.17	28.11
PK	871.96M	35.81	46.00	-10.19	2.79	3	Vertical	0	1.00	-	33.02	25.50	4.92	27.63

BT-LE(1Mbps)RX

08/11/2019

2442MHz_PoE



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	29.75	40.00	-10.25	-3.76	3	Horizontal	360	1.00	-	33.51	23.01	0.80	27.57
PK	94.02M	36.83	43.50	-6.67	-11.10	3	Horizontal	360	1.00	-	47.93	14.83	1.46	27.39
PK	156.1M	30.32	43.50	-13.18	-10.00	3	Horizontal	360	1.00	-	40.32	15.23	1.93	27.16
PK	315.18M	36.60	46.00	-9.40	-5.36	3	Horizontal	360	1.00	-	41.96	18.61	2.82	26.79
PK	722.58M	33.64	46.00	-12.36	0.81	3	Horizontal	360	1.00	-	32.83	24.42	4.43	28.04
PK	862.26M	36.19	46.00	-9.81	2.65	3	Horizontal	360	1.00	-	33.54	25.44	4.89	27.68