

FCC TEST REPORT

FCC ID : 2AV4OZENLETCOIL4000
Equipment : ZENLET COIL
Brand Name : Zenlet
Model Name : ZENLET COIL
Applicant : ZENLET CO.,LTD.
2F., No.45, Ln. 150,Sec. 1, Jiuzong Rd., Neihu Dist., Taipei
City 114, Taiwan (R.O.C.)
Manufacturer : Powergene Technology Co., Ltd. Taiwan Branch
1F-5, No.1, Wuquan 1st Rd., Xinzhuang Dist., New Taipei
City, Taiwan
Standard : 47 CFR FCC Part 15.209

The product was received on May 08, 2020, and testing was started from May 14, 2020 and completed on May 16, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

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



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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



Table of Contents

HISTORY OF THIS TEST REPORT	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Information.....	5
1.2 Testing Applied Standards	6
1.3 Testing Location Information	6
1.4 Measurement Uncertainty	7
2 TEST CONFIGURATION OF EUT.....	8
2.1 Test Condition	8
2.2 The Worst Case Configuration	8
2.3 The Worst Case Measurement Configuration	8
2.4 Support Equipment.....	9
2.5 Test Setup Diagram	10
3 TRANSMITTER TEST RESULT	12
3.1 AC Power-line Conducted Emissions	12
3.2 Transmitter Radiated Emissions	18
3.3 Emission Bandwidth	28
4 TEST EQUIPMENT AND CALIBRATION DATA	30
APPENDIX A. TEST PHOTOS	
PHOTOGRAPHS OF EUT v01	



History of this test report

TEL : 886-3-327-3456
FAX : 886-3-327-0973
Report Template No.: HE1-C5 Ver2.5
FCC ID: 2A40ZENLETCOIL4000



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	15.209	Transmitter Radiated Emissions	PASS	-
3.3	15.215(c)	Emission Bandwidth	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: Sam Tsai

Report Producer: Debby Hung

1 General Description

1.1 Information

1.1.1 General Information

Wireless Power Transfer General Information			
Frequency Range	Modulation Mode	Charging Freq. (kHz)	Field Strength (dBuV/m)
112-205 kHz	ASK	127.642	57.76
Power Transfer Method	Output power from each primary coil	That may have multiple primary coils	Charging Method
Magnetic induction and only single primary coil.	<15W	No	Client directly contact
Note 1: Field strength performed peak level at 1m.			

1.1.2 Antenna Information

Antenna Category	
☐	Equipment placed on the market without antennas
☒	Integral antenna (antenna permanently attached)
☐	Temporary RF connector provided
☒	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
☐	External antenna (dedicated antennas)

Antenna General Information		
No.	Ant. Cat.	Ant. Type
1	Integral	coil

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From Host system / Adapter
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 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
☒	Operated normally mode for worst duty cycle
☐	Operated test mode for worst duty cycle
Test Signal Duty Cycle (x)	
☒	100%

1.2 Testing Applied Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013

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

- ◆ KDB 680106 D01 RF Exposure Wireless Charging Apps v03
- ◆ 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
Test site Designation No. TW1190 with FCC.			
☐	Wen Shan	ADD : No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)	
		TEL : 886-3-318-0787	FAX : 886-3-318-0287
Test site Designation No. TW1097 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	22.9~23.8°C / 62~68%	15/May/2020
RF Conducted	TH07-HY	Justin	19.6~25.1°C / 51~55%	14/May/2020
Radiated Emission	03CH02-HY	Edward	22.9~23.8°C / 62~68%	16/May/2020

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)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

Condition Item	Abbreviation/Remark	Remark
Tnom Vnom	Tnom	20°C
-	Vnom	120V

2.2 The Worst Case Configuration

Mode	Field Strength (dBuV/m at 1 m)	Charger Frequencies (kHz)
WPC	57.76	127.642

Note.1: Wireless charger were performed all charging conditions including variable loading and non-charging operation, the worst mode is full charging loading.

Note.2: Wireless charger frequencies are variable frequency range (112-205 kHz) and depend on charging loading.

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
	1. Adapter Mode
	2. USB Mode

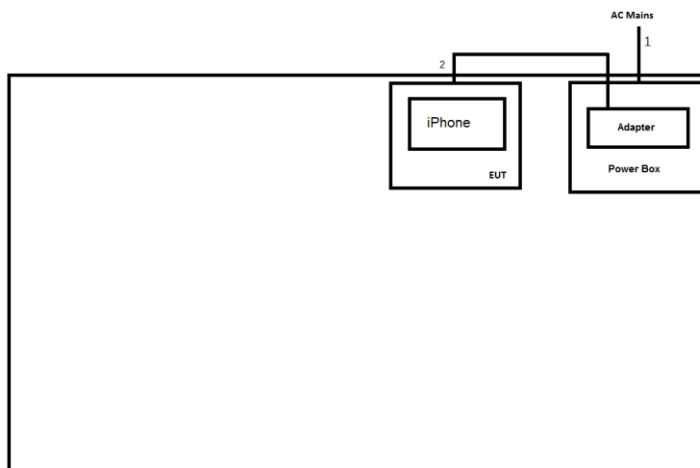
The Worst Case Mode for Following Conformance Tests	
Tests Item	Transmitter Radiated Emissions, Emission Bandwidth
Test Condition	Radiated measurement
Operating Mode	CTX
	1. Adapter Mode
	2. USB Mode
Orthogonal Planes of EUT	Z Plane
	

2.4 Support Equipment

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	Dell	PP13S	-
2	Adapter for NB	Dell	AA90PM111	-
3	IPHONE	APPLE	A1905	-
4	AC Adapter	ASUS	PA-1050-39	-

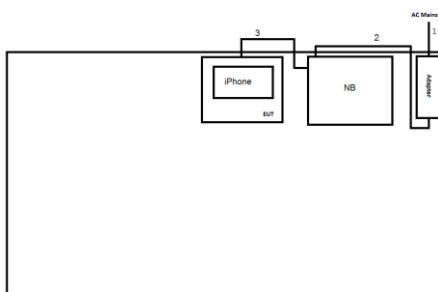
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test <Mode 1>

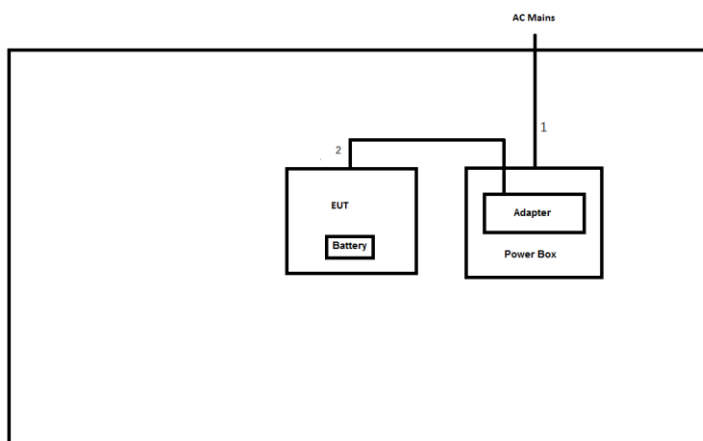


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	USB Cable	Yes	1.0	-

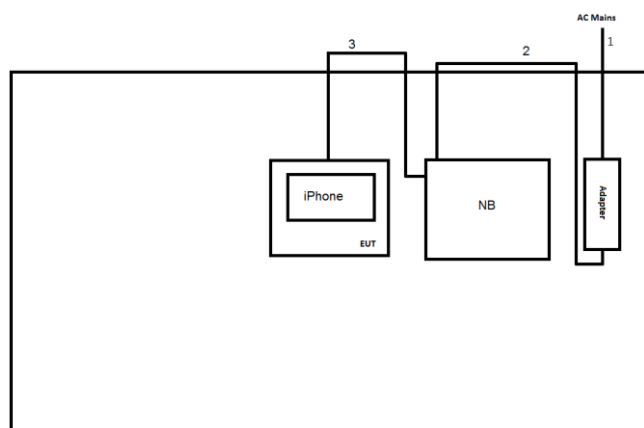
Test Setup Diagram – AC Line Conducted Emission Test <Mode 2>



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.5	-
3	USB Cable	Yes	1.0	-

Test Setup Diagram - Radiated Test <Mode 1>


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	USB Cable	Yes	1.0	-

Test Setup Diagram - Radiated Test <Mode 2>


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	1.5	-
3	USB Cable	Yes	1.0	-

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.

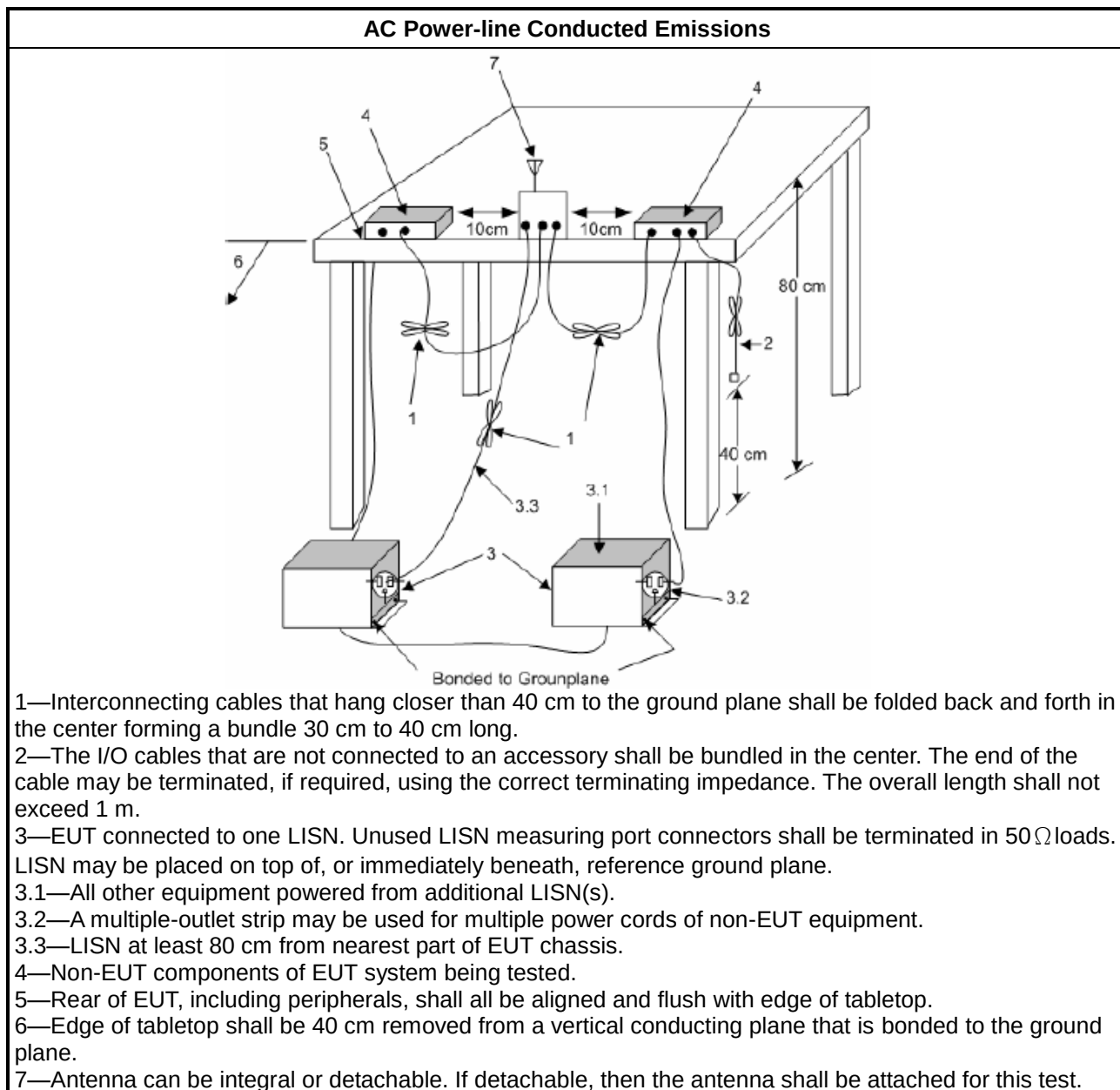
3.1.2 Measuring Instruments

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

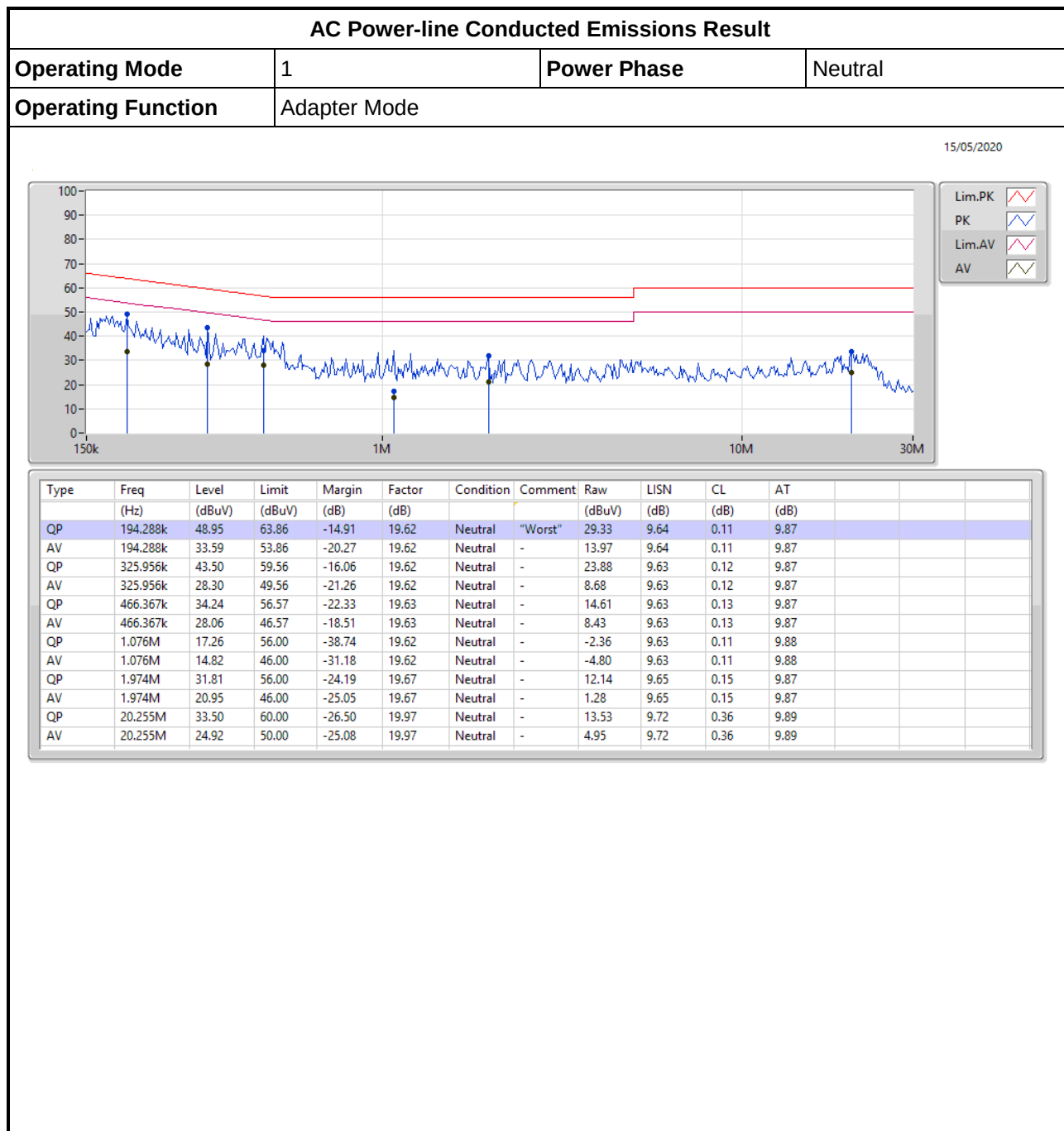
3.1.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.
☒	If AC conducted emissions fall in operating band, then following below test method confirm final result.
☐	Accept measurements done with a suitable dummy load replacing the antenna under the following conditions: (1) Perform the AC line conducted tests with the antenna connected to determine compliance with FCC 15.207 limits outside the transmitter's fundamental emission band; (2) Retest with a dummy load to determine compliance with FCC 15.207 limits within the transmitter's fundamental emission band.
☒	For a device with a permanent antenna operating at or below 30 MHz, accept measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions: (1) Perform the AC line conducted tests with the permanent antenna to determine compliance with the FCC 15.207 limits outside the transmitter's fundamental emission band; (2) Retest with a dummy load in lieu of the permanent antenna to determine compliance with the FCC 15.207 limits within the transmitter's fundamental emission band.

3.1.4 Test Setup



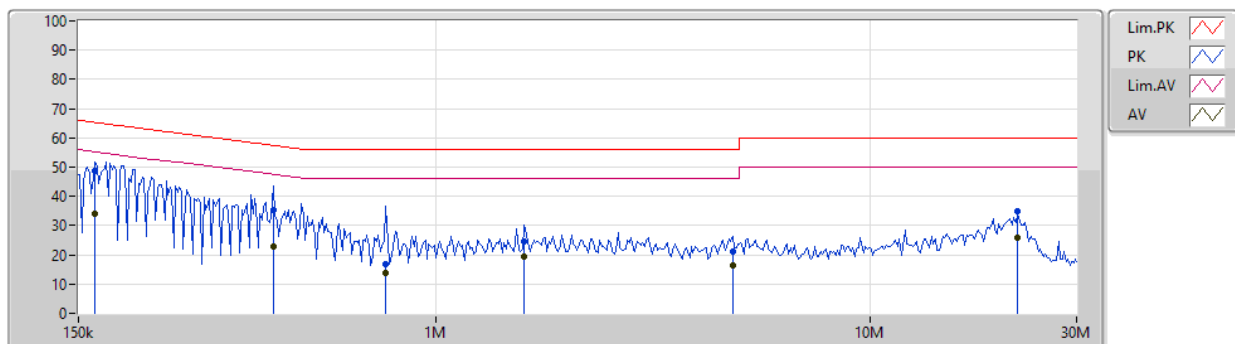
3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Adapter Mode		

15/05/2020

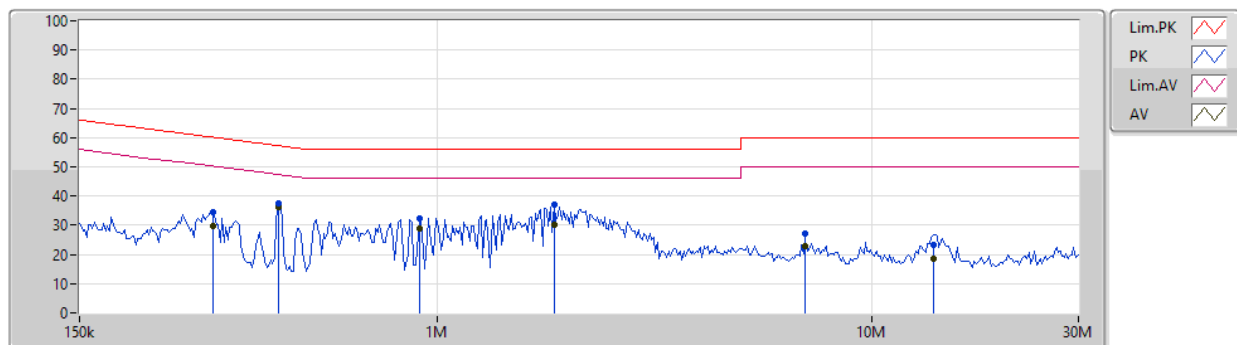


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	164.053k	48.86	65.25	-16.39	19.64	Line	"Worst"	29.22	9.66	0.11	9.87			
AV	164.053k	34.22	55.25	-21.03	19.64	Line	-	14.58	9.66	0.11	9.87			
QP	422.196k	35.18	57.40	-22.22	19.64	Line	-	15.54	9.64	0.13	9.87			
AV	422.196k	22.89	47.40	-24.51	19.64	Line	-	3.25	9.64	0.13	9.87			
QP	767.002k	16.76	56.00	-39.24	19.63	Line	-	-2.87	9.64	0.12	9.87			
AV	767.002k	13.92	46.00	-32.08	19.63	Line	-	-5.71	9.64	0.12	9.87			
QP	1.602M	24.57	56.00	-31.43	19.66	Line	-	4.91	9.65	0.14	9.87			
AV	1.602M	19.20	46.00	-26.80	19.66	Line	-	-0.46	9.65	0.14	9.87			
QP	4.833M	21.28	56.00	-34.72	19.75	Line	-	1.53	9.67	0.20	9.88			
AV	4.833M	16.38	46.00	-29.62	19.75	Line	-	-3.37	9.67	0.20	9.88			
QP	21.933M	34.77	60.00	-25.23	19.88	Line	-	14.89	9.61	0.38	9.89			
AV	21.933M	25.80	50.00	-24.20	19.88	Line	-	5.92	9.61	0.38	9.89			

AC Power-line Conducted Emissions Result

Operating Mode	2	Power Phase	Neutral
Operating Function	USB Mode		

15/05/2020

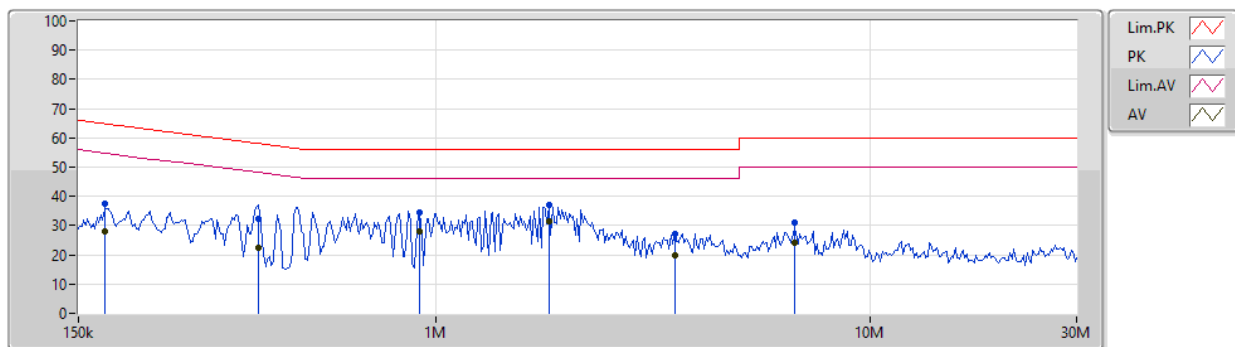


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	304.025k	34.62	60.13	-25.51	19.62	Neutral	-	15.00	9.63	0.12	9.87			
AV	304.025k	29.55	50.13	-20.58	19.62	Neutral	-	9.93	9.63	0.12	9.87			
QP	430.682k	37.63	57.24	-19.61	19.63	Neutral	-	18.00	9.63	0.13	9.87			
AV	430.682k	36.34	47.24	-10.90	19.63	Neutral	"Worst"	16.71	9.63	0.13	9.87			
QP	908.364k	32.17	56.00	-23.83	19.62	Neutral	-	12.55	9.63	0.11	9.88			
AV	908.364k	28.96	46.00	-17.04	19.62	Neutral	-	9.34	9.63	0.11	9.88			
QP	1.86M	36.99	56.00	-19.01	19.66	Neutral	-	17.33	9.65	0.14	9.87			
AV	1.86M	30.19	46.00	-15.81	19.66	Neutral	-	10.53	9.65	0.14	9.87			
QP	7.054M	27.03	60.00	-32.97	19.79	Neutral	-	7.24	9.68	0.23	9.88			
AV	7.054M	22.69	50.00	-27.31	19.79	Neutral	-	2.90	9.68	0.23	9.88			
QP	13.878M	23.49	60.00	-36.51	19.89	Neutral	-	3.60	9.71	0.30	9.88			
AV	13.878M	18.74	50.00	-31.26	19.89	Neutral	-	-1.15	9.71	0.30	9.88			

AC Power-line Conducted Emissions Result

Operating Mode	2	Power Phase	Line
Operating Function	USB Mode		

15/05/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	172.421k	37.35	64.83	-27.48	19.64	Line	-	17.71	9.66	0.11	9.87			
AV	172.421k	27.89	54.83	-26.94	19.64	Line	-	8.25	9.66	0.11	9.87			
QP	389.891k	32.37	58.07	-25.70	19.64	Line	-	12.73	9.64	0.13	9.87			
AV	389.891k	22.23	48.07	-25.84	19.64	Line	-	2.59	9.64	0.13	9.87			
QP	917.448k	34.48	56.00	-21.52	19.63	Line	-	14.85	9.64	0.11	9.88			
AV	917.448k	27.93	46.00	-18.07	19.63	Line	-	8.30	9.64	0.11	9.88			
QP	1.823M	37.02	56.00	-18.98	19.66	Line	-	17.36	9.65	0.14	9.87			
AV	1.823M	31.30	46.00	-14.70	19.66	Line	"Worst"	11.64	9.65	0.14	9.87			
QP	3.55M	27.05	56.00	-28.95	19.72	Line	-	7.33	9.66	0.18	9.88			
AV	3.55M	19.93	46.00	-26.07	19.72	Line	-	0.21	9.66	0.18	9.88			
QP	6.712M	30.89	60.00	-29.11	19.79	Line	-	11.10	9.68	0.23	9.88			
AV	6.712M	24.00	50.00	-26.00	19.79	Line	-	4.21	9.68	0.23	9.88			

3.2 Transmitter Radiated Emissions

3.2.1 Transmitter Radiated Emissions Limit

Transmitter Radiated 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: the frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 1GHz measurements employing a CISPR quasi-peak detector.

3.2.2 Measuring Instruments

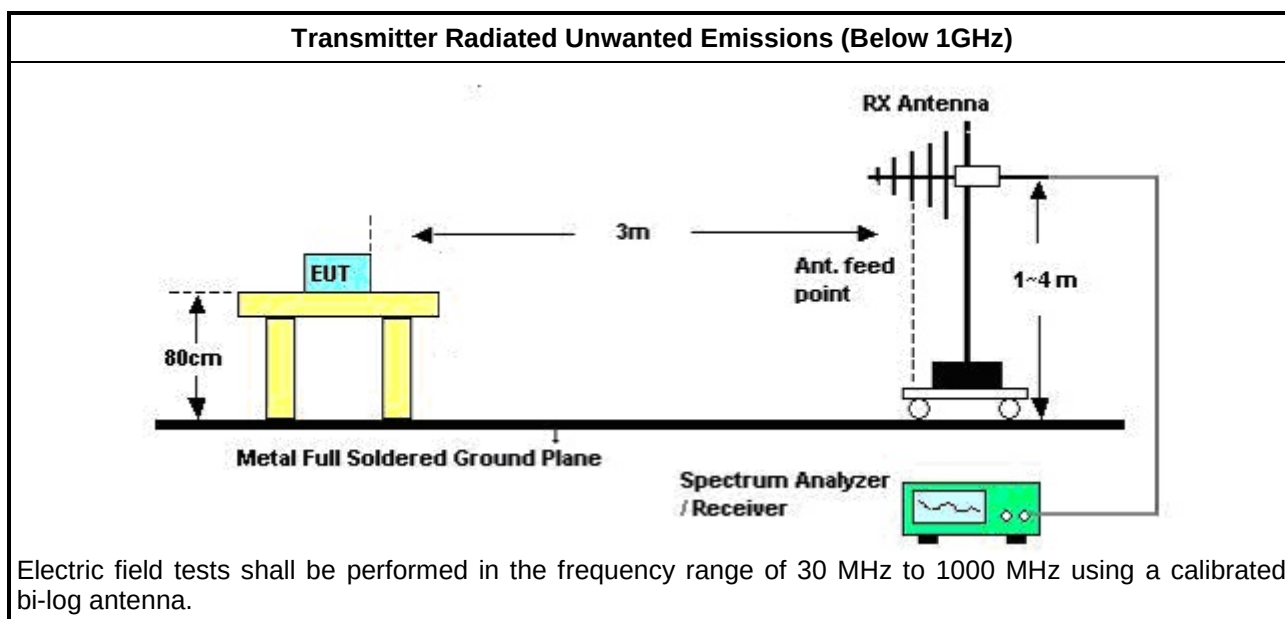
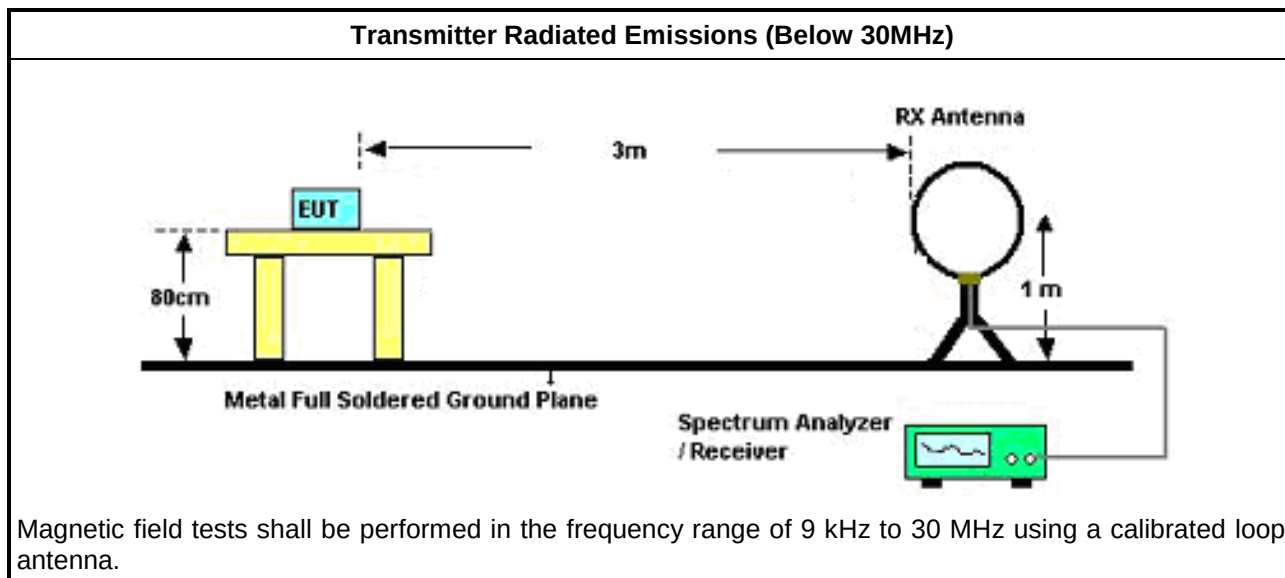
Refer a test equipment and calibration data table in this test report.



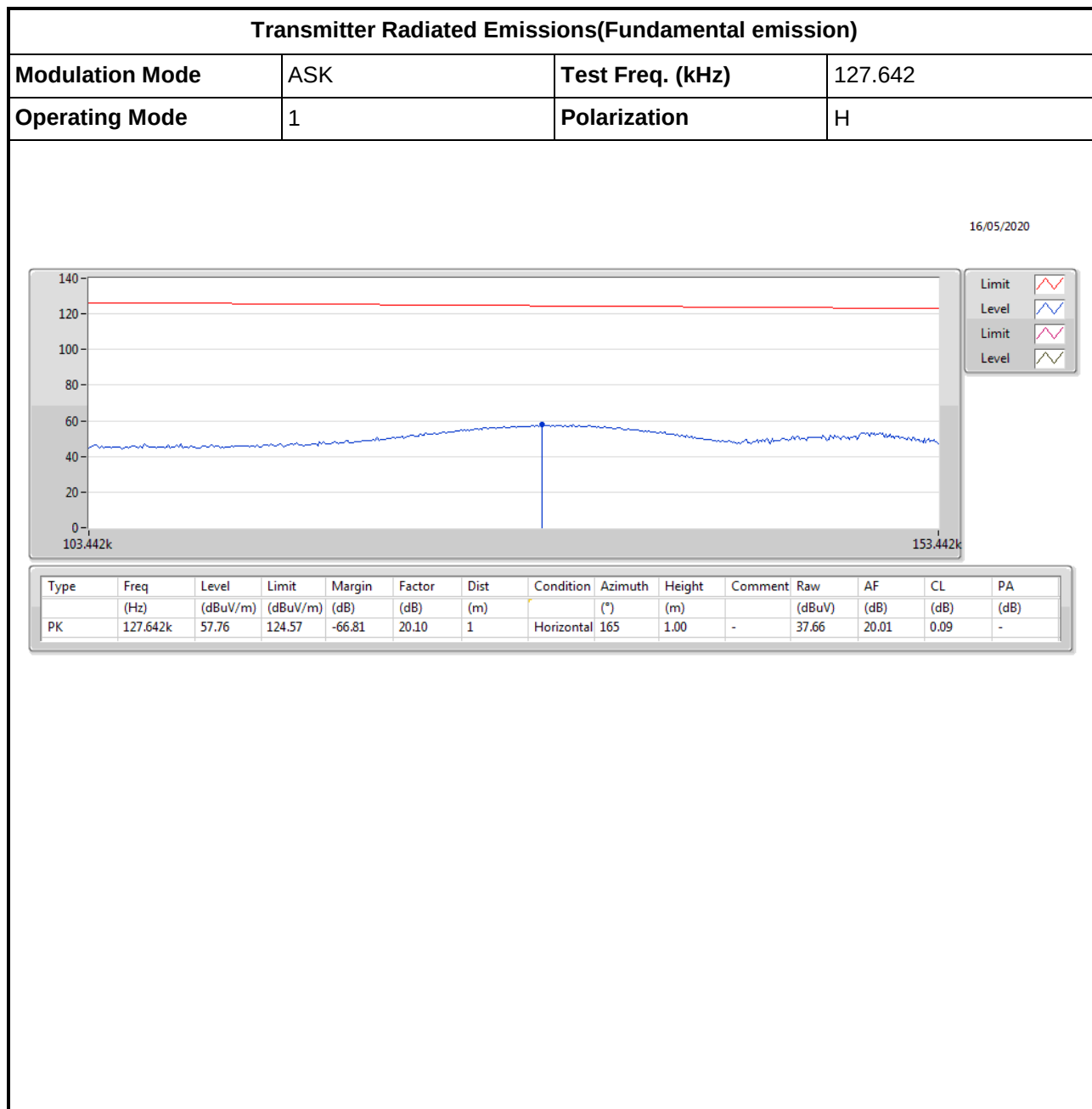
3.2.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1 GHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz the frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 30MHz measurements employing a CISPR quasi-peak detector. Test distance is 3 m.
☒	At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the requirements; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be following below methods.
☐	The results shall be extrapolated to the specified distance by making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
☒	The results shall be by using the square of an inverse linear distance extrapolation factor (40 dB/decade).
☒	For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.
☒	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.
☒	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 Transmitter Radiated Emissions (Below 30MHz)

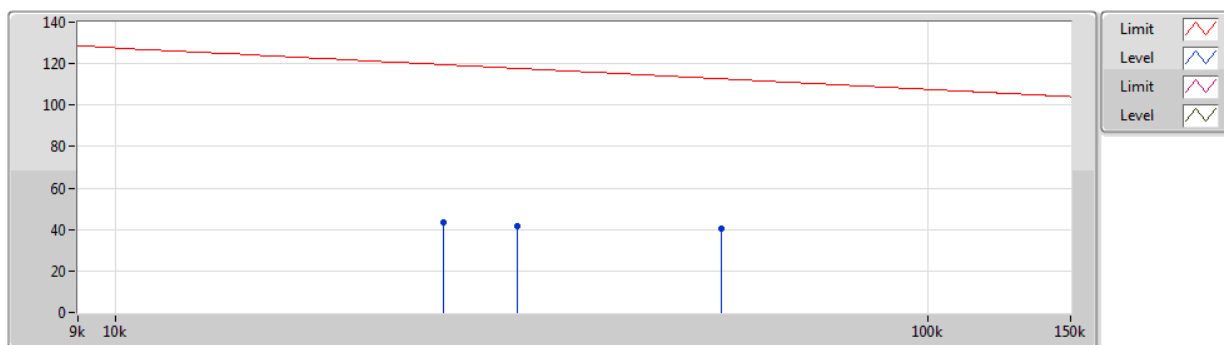




Transmitter Radiated Emissions (9 kHz – 150 kHz)

Modulation Mode	ASK	Test Freq. (kHz)	127.642
Operating Mode	1	Polarization	H

16/05/2020

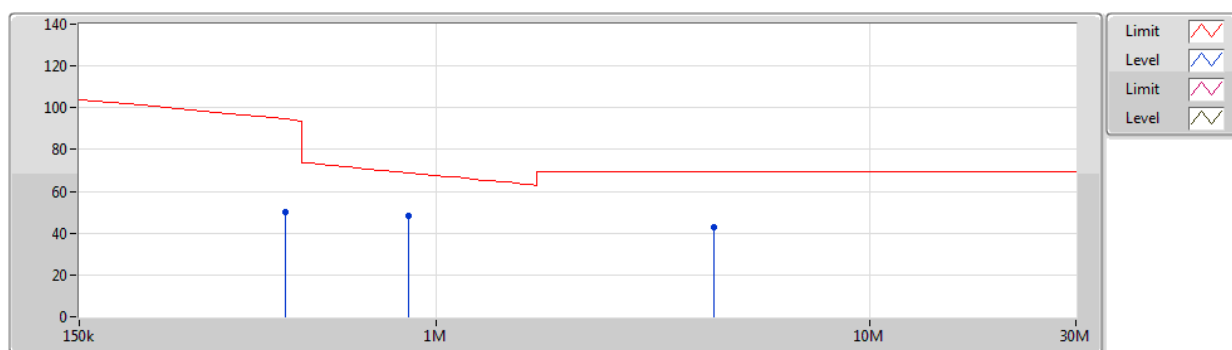


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	25.356k	43.65	119.52	-75.87	21.02	3	Horizontal	360	1.00	-	22.63	20.95	0.07	-
PK	31.278k	41.56	117.70	-76.14	21.27	3	Horizontal	360	1.00	-	20.29	21.20	0.07	-
PK	55.812k	40.47	112.67	-72.20	21.06	3	Horizontal	360	1.00	-	19.41	20.99	0.07	-

Transmitter Radiated Emissions (150 kHz – 30 MHz)

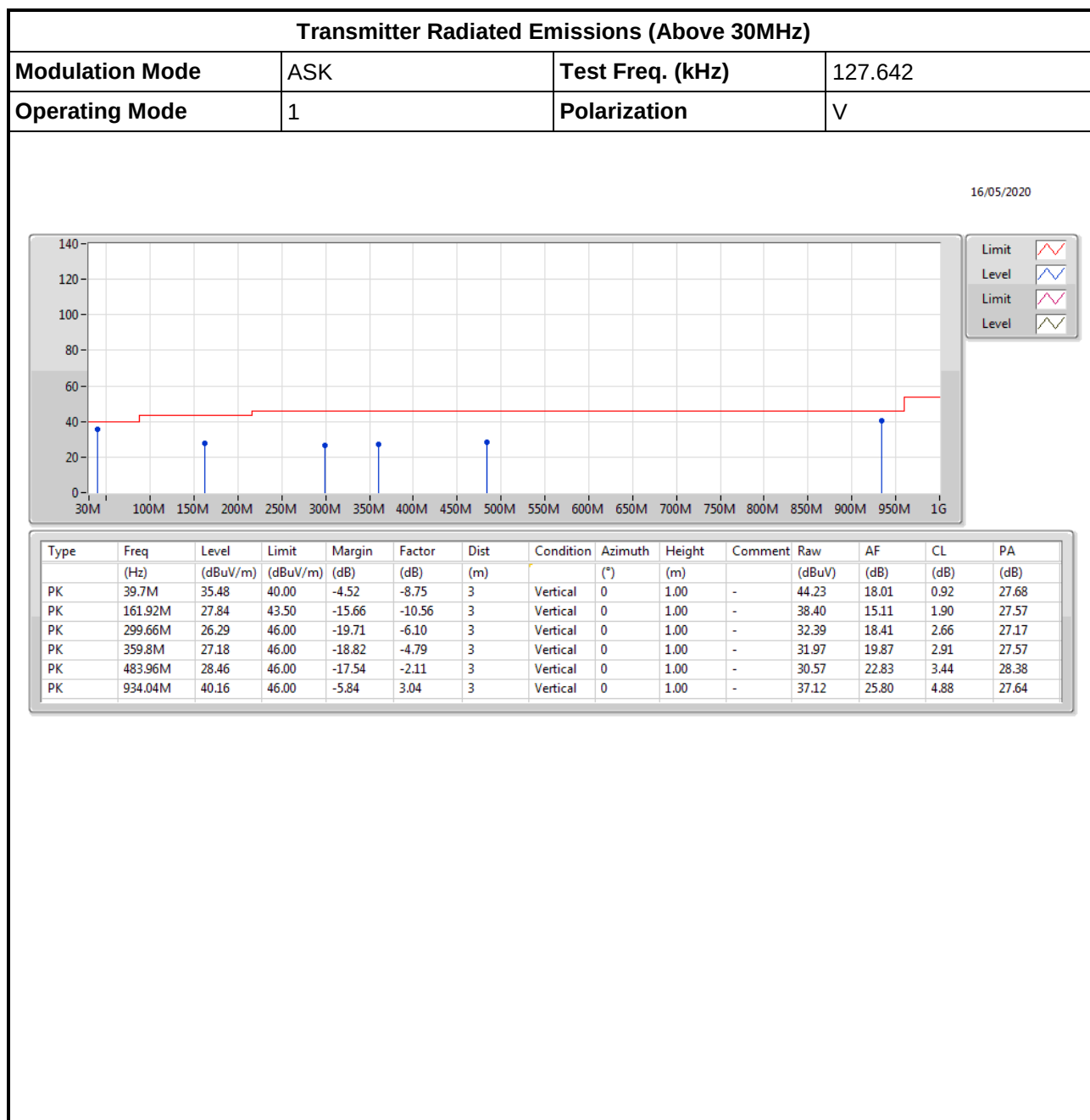
Modulation Mode	ASK	Test Freq. (kHz)	127.642
Operating Mode	1	Polarization	H

16/05/2020



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	448.5k	49.96	94.57	-44.61	20.64	3	Horizontal	0	1.00	-	29.32	20.48	0.16	-
PK	866.4k	48.33	68.85	-20.52	20.72	3	Horizontal	0	1.00	-	27.61	20.42	0.30	-
PK	4.389M	43.14	69.54	-26.40	20.89	3	Horizontal	0	1.00	-	22.25	20.47	0.42	-

3.2.6 Transmitter Radiated Emissions (Above 30MHz)

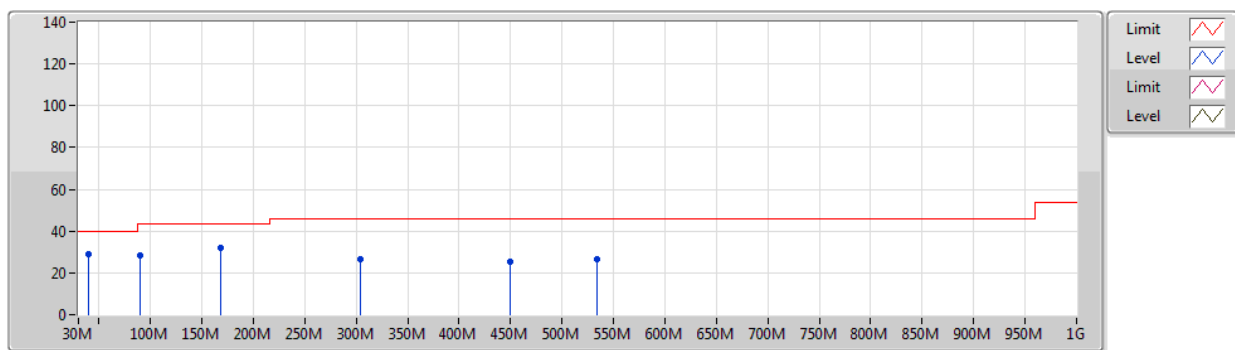




Transmitter Radiated Emissions (Above 30MHz)

Modulation Mode	ASK	Test Freq. (kHz)	127.642
Operating Mode	1	Polarization	H

16/05/2020



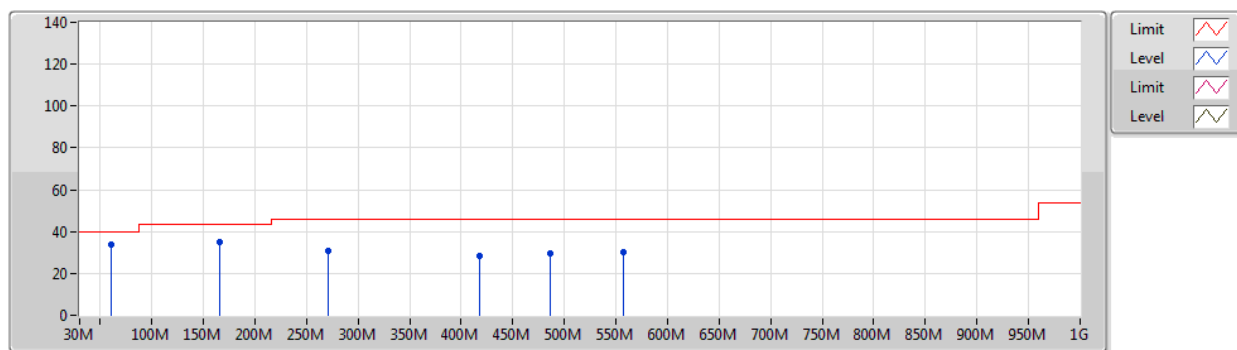
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	39.7M	29.10	40.00	-10.90	-8.75	3	Horizontal	360	1.00	-	37.85	18.01	0.92	27.68
PK	90.14M	28.14	43.50	-15.36	-12.32	3	Horizontal	360	1.00	-	40.46	14.02	1.41	27.75
PK	167.74M	31.97	43.50	-11.53	-10.78	3	Horizontal	360	1.00	-	42.75	14.83	1.93	27.54
PK	303.54M	26.49	46.00	-19.51	-6.01	3	Horizontal	360	1.00	-	32.50	18.51	2.67	27.19
PK	449.04M	25.16	46.00	-20.84	-3.18	3	Horizontal	360	1.00	-	28.34	21.84	3.28	28.30
PK	534.4M	26.59	46.00	-19.41	-1.85	3	Horizontal	360	1.00	-	28.44	23.12	3.60	28.57



Transmitter Radiated Emissions (Above 30MHz)

Modulation Mode	ASK	Test Freq. (kHz)	127.642
Operating Mode	2	Polarization	V

16/05/2020

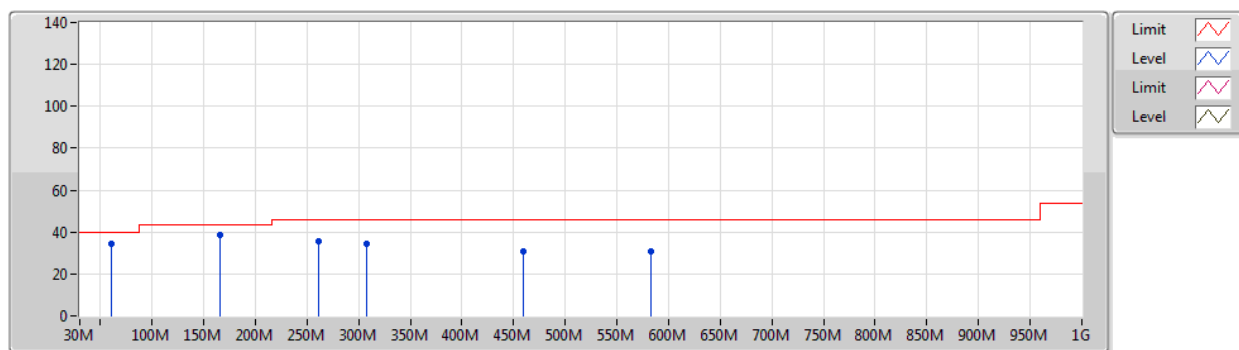


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	61.04M	33.87	40.00	-6.13	-15.11	3	Vertical	0	1.00	-	48.98	11.44	1.15	27.70
PK	165.8M	34.71	43.50	-8.79	-10.83	3	Vertical	0	1.00	-	45.54	14.80	1.92	27.55
PK	270.56M	30.92	46.00	-15.08	-6.49	3	Vertical	0	1.00	-	37.41	18.18	2.51	27.18
PK	418M	28.55	46.00	-17.45	-3.09	3	Vertical	0	1.00	-	31.64	21.79	3.15	28.03
PK	485.9M	29.79	46.00	-16.21	-2.09	3	Vertical	0	1.00	-	31.88	22.84	3.45	28.38
PK	557.68M	30.47	46.00	-15.53	-0.93	3	Vertical	0	1.00	-	31.40	24.01	3.68	28.62

Transmitter Radiated Emissions (Above 30MHz)

Modulation Mode	ASK	Test Freq. (kHz)	127.642
Operating Mode	2	Polarization	H

16/05/2020



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	61.04M	34.58	40.00	-5.42	-15.11	3	Horizontal	360	1.00	-	49.69	11.44	1.15	27.70
PK	165.8M	38.45	43.50	-5.05	-10.83	3	Horizontal	360	1.00	-	49.28	14.80	1.92	27.55
PK	260.86M	35.80	46.00	-10.20	-6.08	3	Horizontal	360	1.00	-	41.88	18.64	2.46	27.18
PK	307.42M	34.69	46.00	-11.31	-5.91	3	Horizontal	360	1.00	-	40.60	18.61	2.69	27.21
PK	458.74M	30.72	46.00	-15.28	-2.90	3	Horizontal	360	1.00	-	33.62	22.11	3.32	28.33
PK	582.9M	30.48	46.00	-15.52	-0.97	3	Horizontal	360	1.00	-	31.45	23.78	3.80	28.55

3.3 Emission Bandwidth

3.3.1 Emission Bandwidth Limit

Emission Bandwidth Limit
N/A

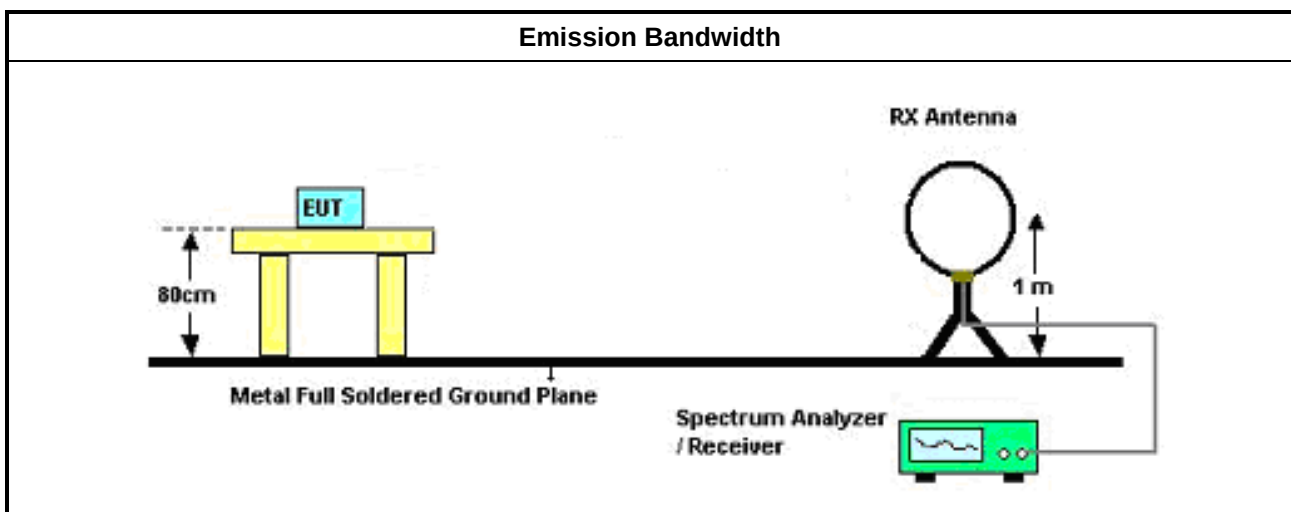
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

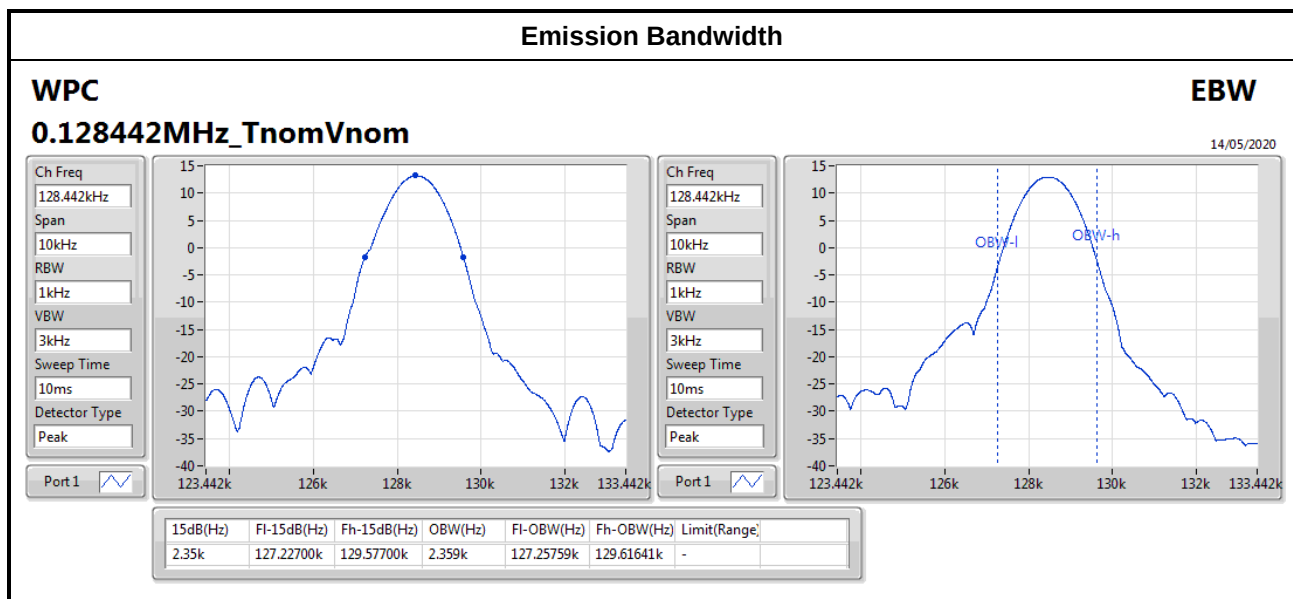
Test Method
☒ Because the measured signal is CW or CW-like adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.
☒ For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.

3.3.4 Test Setup



3.3.5 Test Result of Emission Bandwidth

Occupied Channel Bandwidth Result			
Modulation Mode	Frequency (kHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
ASK	127.642	2.35	2.359
Limit		N/A	N/A
Result		Complied	



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	102051	9kHz ~ 3.6GHz	28/May/2019	27/May/2020
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	04/Nov/2019	05/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 Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz~40GHz	19/Mar/2020	18/Mar/2021
Loop Antenna	TESEQ	HLA 6120	31244	9kHz ~ 30MHz	16/Mar/2020	15/Mar/2021

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz~1GHz 3m	29/Aug/2019	28/Aug/2020
Amplifier	Agilent	8447D	2944A11149	100kHz~1.3GHz	02/Jul/2019	01/Jul/2020
Spectrum Analyzer	Rohde & Schwarz	FSP40	100593	9kHz - 40GHz	27/Dec/2020	26/Dec/2021
EMC Receiver	R&S	ESR3	102051	9kHz~3.6GHz	28/May/2019	27/May/2020
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz~1GHz	25/Mar/2020	24/Mar/2021
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112B / MTJ6102-05	2723 / 2	30MHz~1GHz	28/Feb/2020	27/Feb/2021
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2020	15/Mar/2021