FCC Test Report

Equipment	:	**Digitizer**
Brand Name	:	**PENTECH**
Model No.	:	**TP-101S01-H1S1-GT**
FCC ID	:	**QYLRX1001**
Standard	:	**47 CFR FCC Part 15.209**
Operating Band	:	**400kHz (button on), 506 kHz**
FCC Classification	:	**DCD**
Applicant	:	**Getac Technology Corporation.** 5F., Building A, No. 209, Sec.1, Nangang Rd.,Nangang Dist., Taipei City 11568, Taiwan, R.O.C.
Manufacturer	:	**Hanvon Pentech Co., LTD** Hanwang Tower, Building No. 5, Zhongguancun Software Park, Haidian District, Beijing, China 100193

The product sample received on May 26, 2016 and completely tested on Aug. 24, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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

Reviewed by:

Kevin Liang / Assistant Manager

Testing Laboratory
1190

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Summary of Test Result

Conformance Test Specifications					
Report Clause	**Ref. Std. Clause**	**Description**	**Measured**	**Limit**	**Result**
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]:0.1860270MHz 35.27 (Margin 18.94dB) - AV 49.02 (Margin 15.19dB) - QP	FCC 15.207	Complied
3.2	15.209	Transmitter Radiated Emissions	[dBuV/m at 1m]: 299.66MHz 37.21 (Margin 8.79dB) - PK	FCC 15.209	Complied
3.3	15.215(c)	Emission Bandwidth	20dB Bandwidth 36.76 [kHz]	N/A	Complied

Revision History

Report No.	Version	Description	Issued Date
FR570164-19	Rev. 01	Initial issue of report	Aug. 18, 2016
FR570164-19	Rev. 02	Update transmitter frequency 400kHz / 506kHz	Aug. 24, 2016

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information				
Frequency Range	**Modulation**	**Ch. Frequency (kHz)**	**Channel Number**	**Field Strength (dBuV/m)@1m**
506 kHz	OOK	506	1	59.95
400 kHz (Button on)	OOK	400	1	69.3
Note 1: Field strength performed peak level at 1m.				

1.1.2 Antenna Information

Antenna Category	
Antenna Type: Internal	
☐	Equipment placed on the market without antennas
☒	Integral antenna (antenna permanently attached)
☐	External antenna (dedicated antennas)

1.1.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	☒ Production ; ☐ Pre-Production ; ☐ Prototype
Type of EUT	
☐	Stand-alone
☒	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: Getac / RX10
☐	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)	**Power Duty Factor[dB] – (10 log 1/x)**
☒ 100%	0.00

1.1.5 EUT Operational Condition

Supply Voltage	☒ AC mains	☒ DC	
Type of DC Source	☒ External AC adapter	☐ From Host System	☒ Battery

1.2 Accessories and Support Equipment

Specification of Accessory				
AC Adapter 1	Brand Name	FSP GROUP INC.	Model Name	FSP065-REB
	Power Rating	I/P: 100-240Vac, 1.5A ; O/P: 19Vdc, 3.42A		
	Power Cord	1.7 meter, non-shielded cable, w/o ferrite core		
	Power Cable	1.5 meter, non-shielded cable, with a ferrite core		
Battery 1	Brand Name	Getac	Model Name	BP4S1P2100-S
	Power Rating	I/P: 15.2Vdc, 2160mAh		
Battery 2	Brand Name	Getac	Model Name	BP4S2P2900-P
	Power Rating	I/P: 14.4Vdc, 5800mAh		
RFID	Brand Name	RF IDeas	Model Name	RDR-6022AKU
Digitizer Module	Brand Name	PENTECH	Model Name	TP-101S01-H1S1-GT

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

1.3 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 15.209
- ANSI C63.10-2013

1.4 Testing Location Information

Testing Location					
☒	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973			
Test Condition		**Test Site No.**	**Test Engineer**	**Test Environment**	**Test Date**
RF Conducted		TH01-HY	Jeremy	23.5℃ / 64%	24/08/2016
AC Conduction		CO04-HY	Ryan	22℃ / 56%	24/05/2016
Radiated Emission		03CH03-HY	Daniel	23℃ / 56%	24/08/2016

Test site registered number [553509] with FCC.

1.5 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)

Measurement Uncertainty		
Test Item		**Uncertainty**
AC power-line conducted emissions		±2.3 dB
Emission bandwidth, 6dB bandwidth		±0.6 %
RF output power, conducted		±0.1 dB
Power density, conducted		±0.6 dB
Unwanted emissions, conducted	9 – 150 kHz	±0.4 dB
	0.15 – 30 MHz	±0.4 dB
	30 – 1000 MHz	±0.6 dB
	1 – 18 GHz	±0.5 dB
	18 – 40 GHz	±0.5 dB
	40 – 200 GHz	N/A
All emissions, radiated	9 – 150 kHz	±2.5 dB
	0.15 – 30 MHz	±2.3 dB
	30 – 1000 MHz	±2.6 dB
	1 – 18 GHz	±3.6 dB
	18 – 40 GHz	±3.8 dB
	40 – 200 GHz	N/A
Temperature		±0.8 ℃
Humidity		±5 %
DC and low frequency voltages		±0.9 %
Time		±1.4 %
Duty Cycle		±0.6 %

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Mode	Field Strength (dBuV/m at 1m)
OOK	69.3

2.2 Test Channel Frequencies Configuration

Mode	Test Channel Frequencies (kHz)
OOK	506-(F1)
OOK	400-(F2) (Button on)

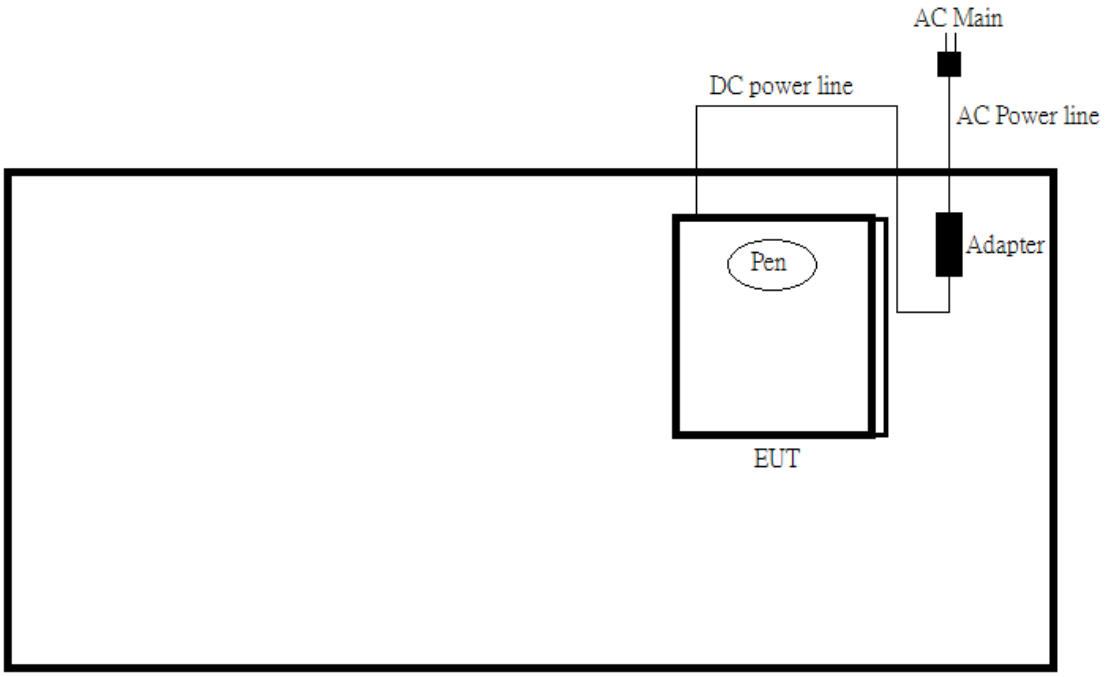
2.3 The Worst Case Measurement Configuration

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 Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
F1	Transmit Mode Note : EUT touch on pannel

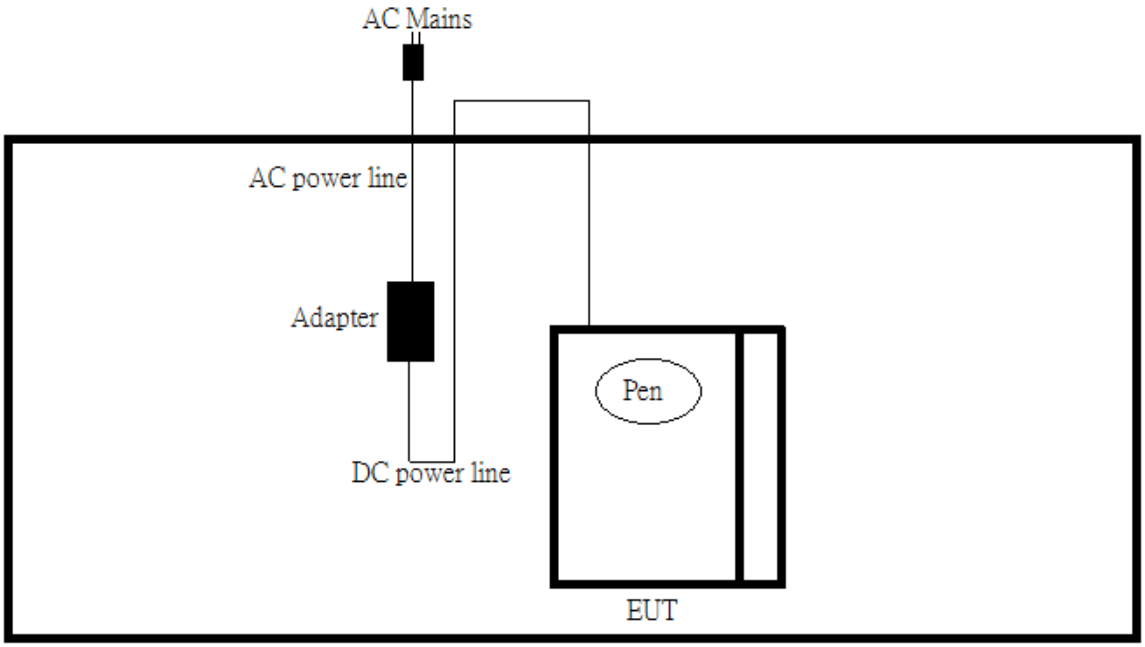
The Worst Case Mode for Following Conformance Tests			
Tests Item	Emission Bandwidth, Field Strength of Fundamental Emissions Transmitter Radiated Unwanted Emissions		
Test Condition	Radiated measurement		
User Position	☐ EUT will be placed in fixed position.		
	☐ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes.		
	☒ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed three orthogonal planes.		
Operating Mode	Operating Mode Description		
1 **2**	☒ F1 Transmit Mode ☒ F2 Transmit Mode		
Orthogonal Planes of EUT	**X Plane**	**Y Plane**	**Z Plane**
			
Worst Planes of EUT			V

2.4 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Test Setup Diagram - Radiated Test



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

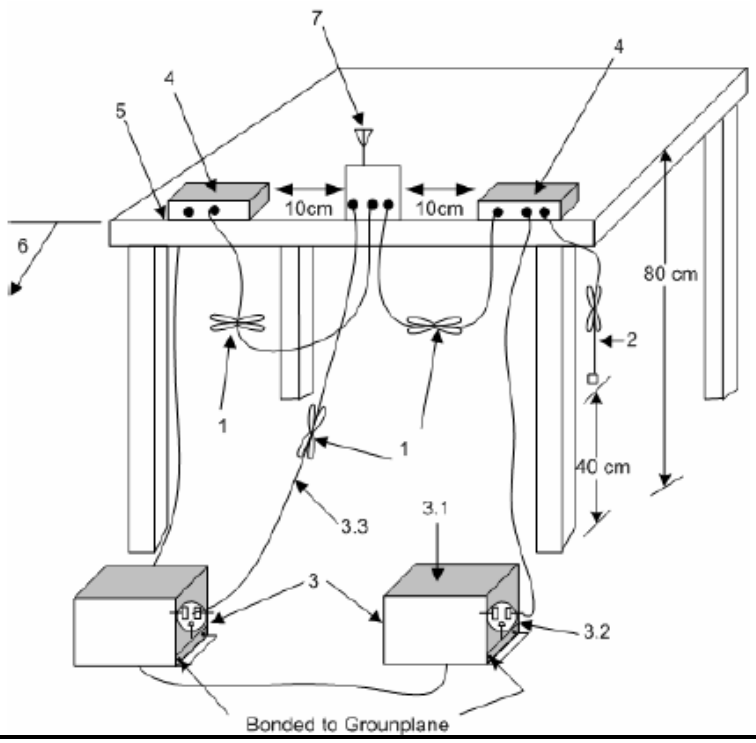
Refer a test equipment and calibration data table in this test report.

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.

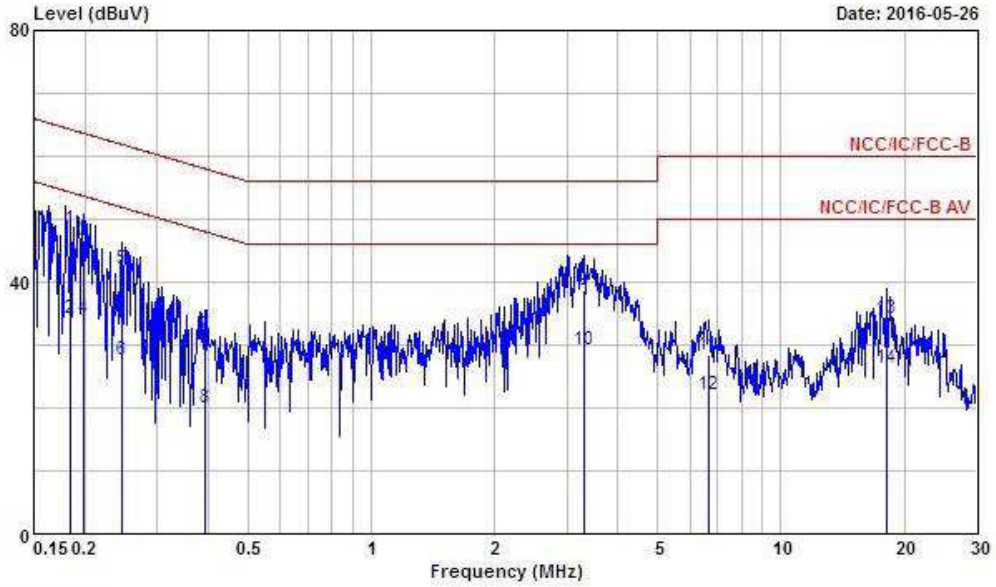
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

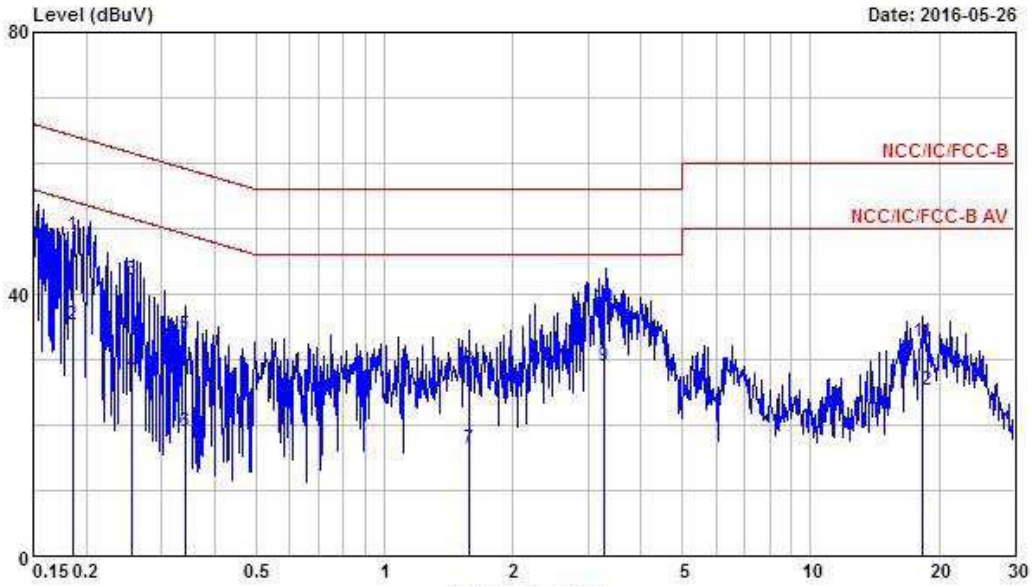
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	Transmit Mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	@0.1844080	48.51	-15.77	64.28	48.12	0.11	0.28	QP
2	0.1844080	34.08	-20.20	54.28	33.69	0.11	0.28	Average
3	0.1986310	46.60	-17.07	63.67	46.19	0.11	0.30	QP
4	0.1986310	34.33	-19.34	53.67	33.92	0.11	0.30	Average
5	0.2458240	42.15	-19.75	61.90	41.80	0.11	0.24	QP
6	0.2458240	27.54	-24.36	51.90	27.19	0.11	0.24	Average
7	0.3913610	31.61	-26.42	58.03	31.38	0.12	0.11	QP
8	0.3913610	19.97	-28.06	48.03	19.74	0.12	0.11	Average
9	3.310	38.67	-17.33	56.00	38.34	0.17	0.16	QP
10	3.310	29.16	-16.84	46.00	28.83	0.17	0.16	Average
11	6.660	28.55	-31.45	60.00	28.17	0.23	0.15	QP
12	6.660	22.08	-27.92	50.00	21.70	0.23	0.15	Average
13	18.040	34.25	-25.75	60.00	33.69	0.36	0.20	QP
14	18.040	26.39	-23.61	50.00	25.83	0.36	0.20	Average

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)
Note 3: When emissions are in operating band over limits, retest with a dummy load for final in-band results.

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	Transmit Mode		



Memo : MODE 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	@0.1860270	49.02	-15.19	64.21	48.63	0.11	0.28	QP
2	0.1860270	35.27	-18.94	54.21	34.88	0.11	0.28	Average
3	0.2564540	42.20	-19.35	61.55	41.86	0.11	0.23	QP
4	0.2564540	27.86	-23.69	51.55	27.52	0.11	0.23	Average
5	0.3409970	33.63	-25.55	59.18	33.36	0.12	0.15	QP
6	0.3409970	18.85	-30.33	49.18	18.58	0.12	0.15	Average
7	1.580	16.20	-29.80	46.00	15.83	0.14	0.23	Average
8	1.580	28.46	-27.54	56.00	28.09	0.14	0.23	QP
9	3.290	28.83	-17.17	46.00	28.51	0.16	0.16	Average
10	3.290	37.85	-18.15	56.00	37.53	0.16	0.16	QP
11	18.330	32.71	-27.29	60.00	32.17	0.34	0.20	QP
12	18.330	25.25	-24.75	50.00	24.71	0.34	0.20	Average

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)
Note 3: When emissions are in operating band over limits, retest with a dummy load for final in-band results.

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

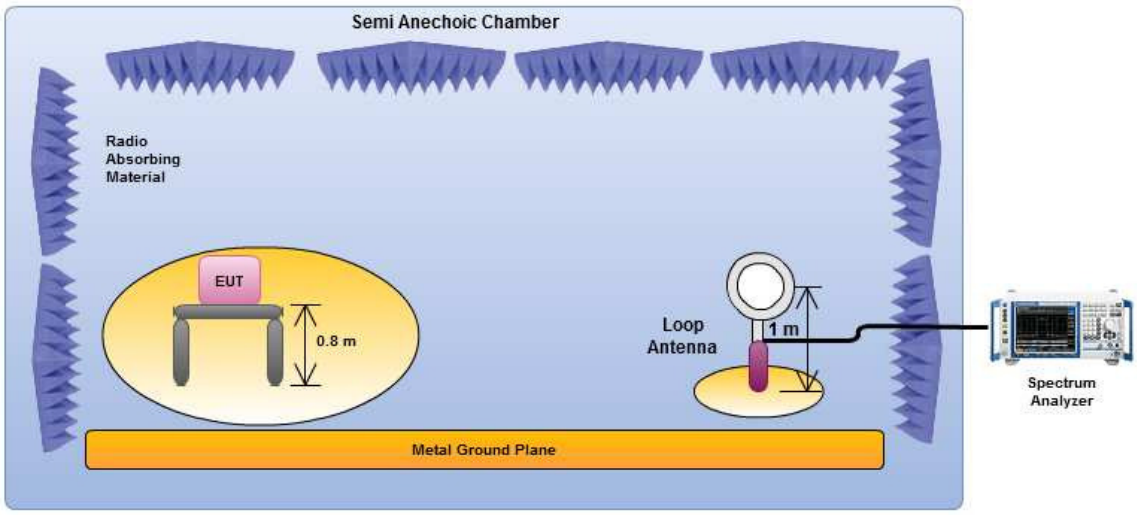
Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

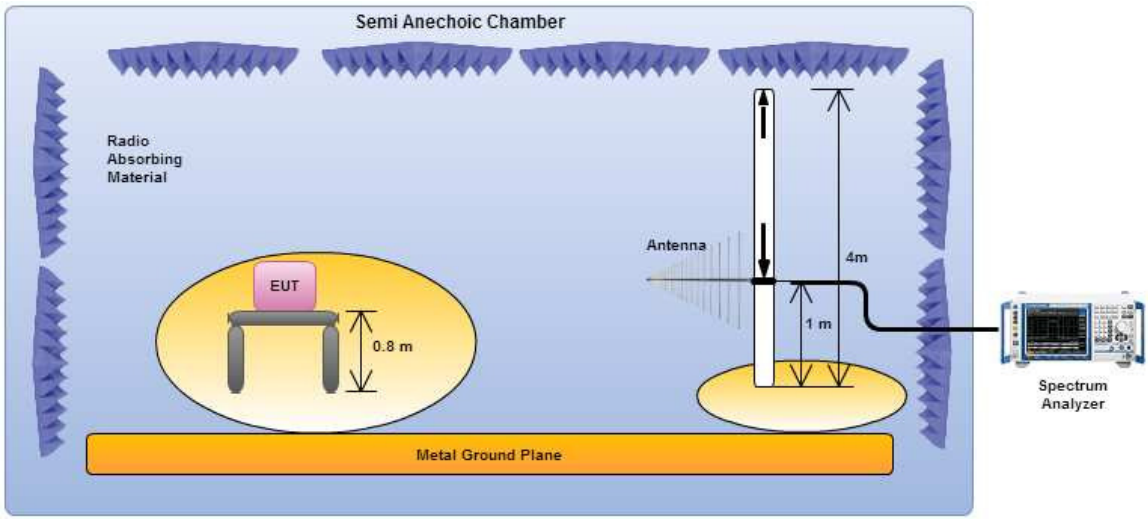
Test Method	
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1 GHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz. The frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 30MHz measurements employing a CISPR quasi-peak detector. Test distance is 3m.
☒	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.

3.2.4 Test Setup

Transmitter Radiated Emissions



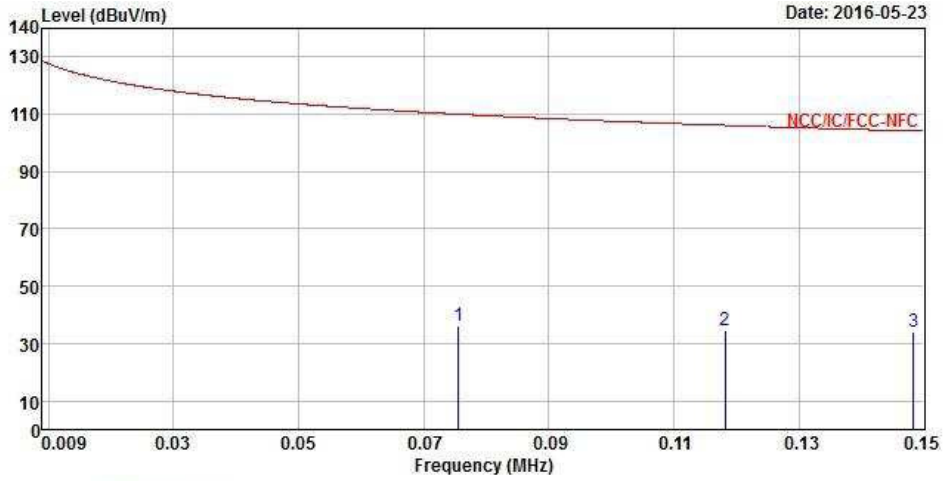
Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. The center of the loop shall be 1 m above the ground.



Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna. the antenna height shall be varied from 1 m to 4 m.

3.2.5 Transmitter Radiated Emissions (Below 30MHz)

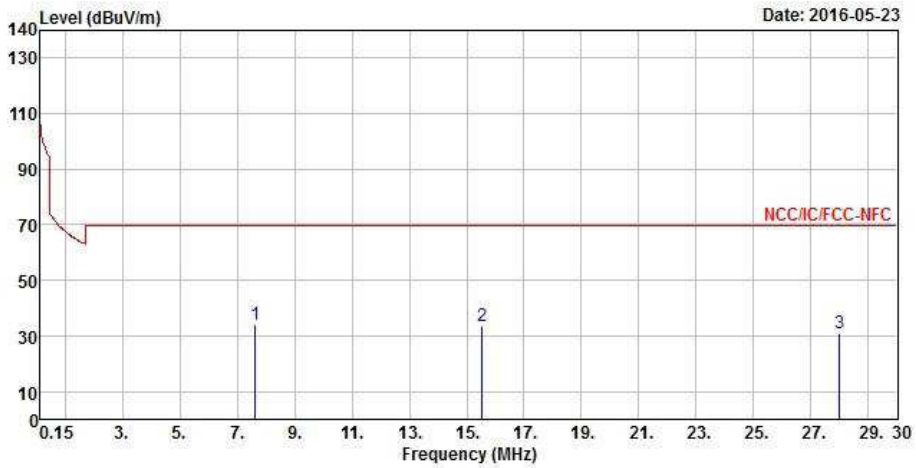
Transmitter Radiated Unwanted Emissions (9 kHz –150 kHz)			
Modulation Mode	OOK	**Polarization**	H
Operating Mode	1	**Operating Function**	F1 Transmit Mode



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	0.0756	36.22	-73.82	110.04	15.07	21.00	0.15	0.00	Peak
2	0.1181	34.80	-71.36	106.16	13.58	21.06	0.16	0.00	Peak
3	0.1483	34.18	-70.01	104.19	13.01	21.01	0.16	0.00	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement worst emissions of receive antenna polarization: H (Horizontal).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

Transmitter Radiated Unwanted Emissions (150 kHz – 30 MHz)			
Modulation Mode	OOK	**Polarization**	H
Operating Mode	1	**Operating Function**	F1 Transmit Mode

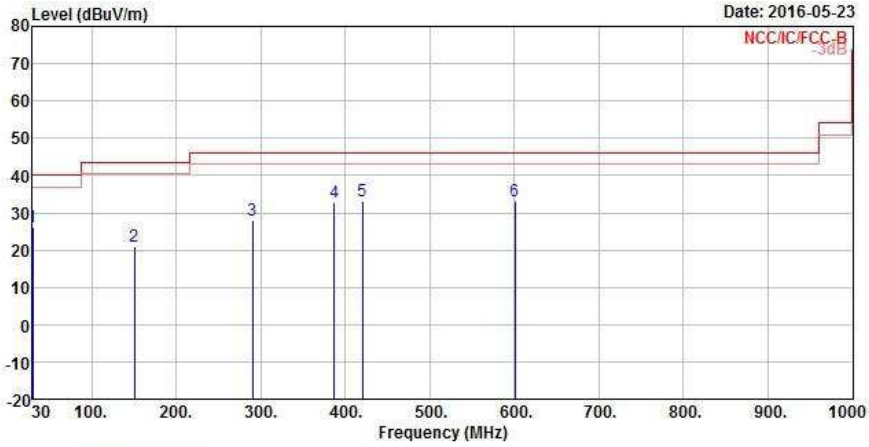


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	7.6280	34.02	-35.52	69.54	12.50	21.11	0.41	0.00	Peak
2	15.5480	33.52	-36.02	69.54	11.57	21.41	0.54	0.00	Peak
3	27.9900	31.22	-38.32	69.54	8.79	21.66	0.77	0.00	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement worst emissions of receive antenna polarization: H (Horizontal).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

3.2.6 Transmitter Radiated Emissions (Above 30MHz)

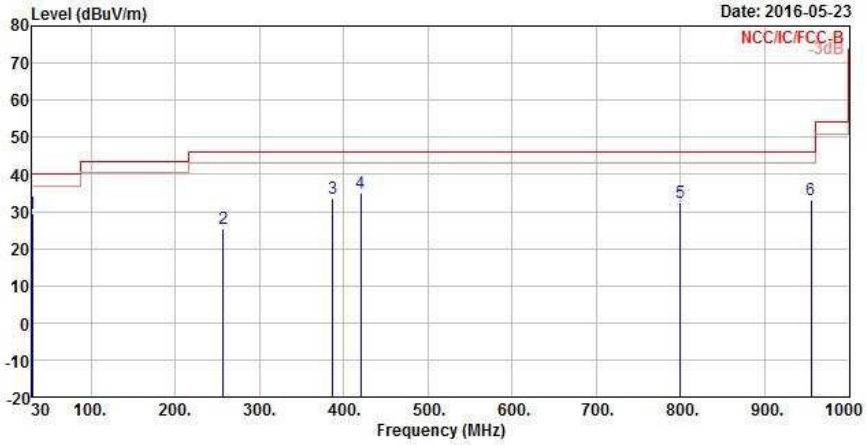
Transmitter Radiated Emissions (Above 30MHz)			
Modulation Mode	OOK	**Test Freq. (FX)**	F1
Operating Function	Transmit	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	30.0000	26.07	-13.93	40.00	26.22	26.62	0.78	27.55	Peak
2	150.2800	21.01	-22.49	43.50	29.33	16.92	1.91	27.15	Peak
3	289.9600	28.13	-17.87	46.00	32.72	19.55	2.58	26.72	Peak
4	386.9600	32.95	-13.05	46.00	34.38	22.07	3.20	26.70	Peak
5	419.9400	33.24	-12.76	46.00	34.28	22.58	3.30	26.92	Peak
6	600.3600	33.17	-12.83	46.00	32.28	24.84	4.07	28.02	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

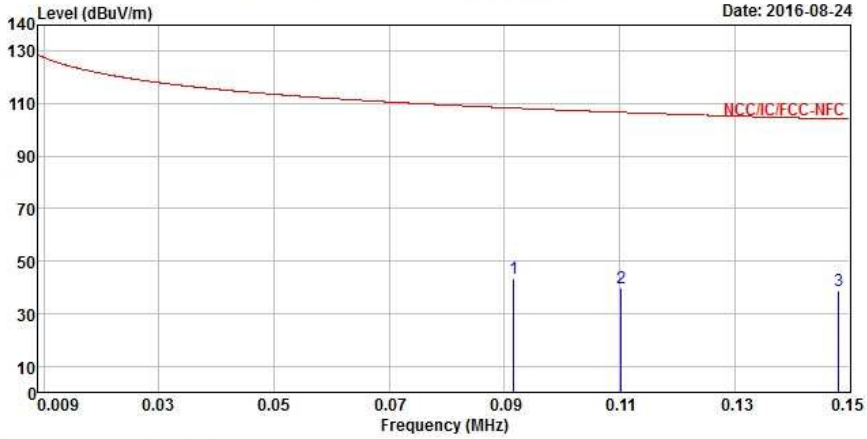
Transmitter Radiated Emissions (Above 30MHz)			
Modulation Mode	OOK	**Test Freq. (FX)**	F1
Operating Function	F1 Transmit	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	30.0000	29.45	-10.55	40.00	29.60	26.62	0.78	27.55	Peak
2	256.9800	25.43	-20.57	46.00	30.24	19.50	2.48	26.79	Peak
3	386.9600	33.38	-12.62	46.00	34.81	22.07	3.20	26.70	Peak
4	419.9400	34.89	-11.11	46.00	35.93	22.58	3.30	26.92	Peak
5	800.1800	32.41	-13.59	46.00	29.04	26.59	4.56	27.78	Peak
6	955.3800	33.21	-12.79	46.00	27.43	27.96	5.19	27.37	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

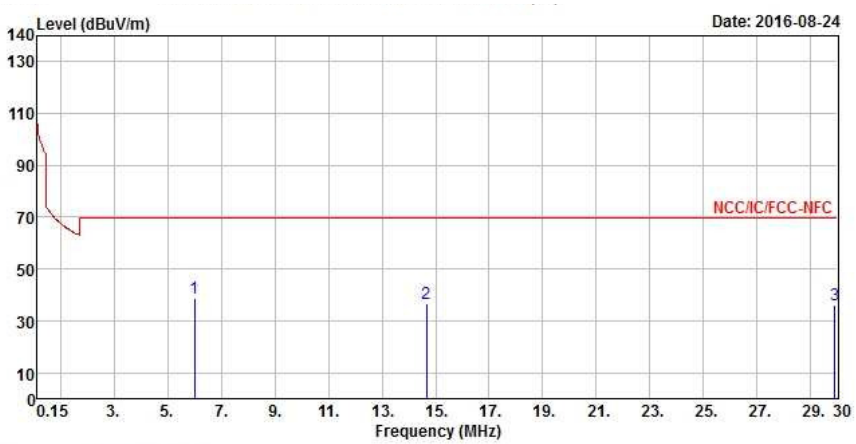
Transmitter Radiated Unwanted Emissions (9 kHz –150 kHz)			
Modulation Mode	OOK	**Polarization**	H
Operating Mode	2	**Operating Function**	F1 Transmit Mode



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	0.092	43.28	-65.09	108.37	22.02	21.10	0.16	0.00	Peak
2	0.110	39.56	-67.20	106.76	18.30	21.10	0.16	0.00	Peak
3	0.148	38.99	-65.21	104.20	17.82	21.01	0.16	0.00	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement worst emissions of receive antenna polarization: H (Horizontal).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

Transmitter Radiated Unwanted Emissions (150 kHz – 30 MHz)			
Modulation Mode	OOK	**Polarization**	H
Operating Mode	2	**Operating Function**	F1 Transmit Mode

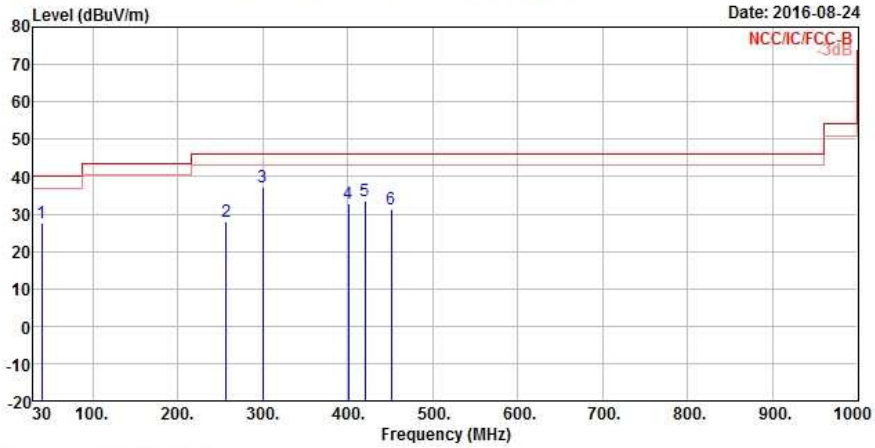


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	6.001	38.69	-30.85	69.54	17.32	20.98	0.39	0.00	Peak
2	14.657	36.60	-32.94	69.54	14.70	21.39	0.51	0.00	Peak
3	29.881	36.09	-33.45	69.54	13.61	21.70	0.78	0.00	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement worst emissions of receive antenna polarization: H (Horizontal).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

3.2.7 Transmitter Radiated Emissions (Above 30MHz)

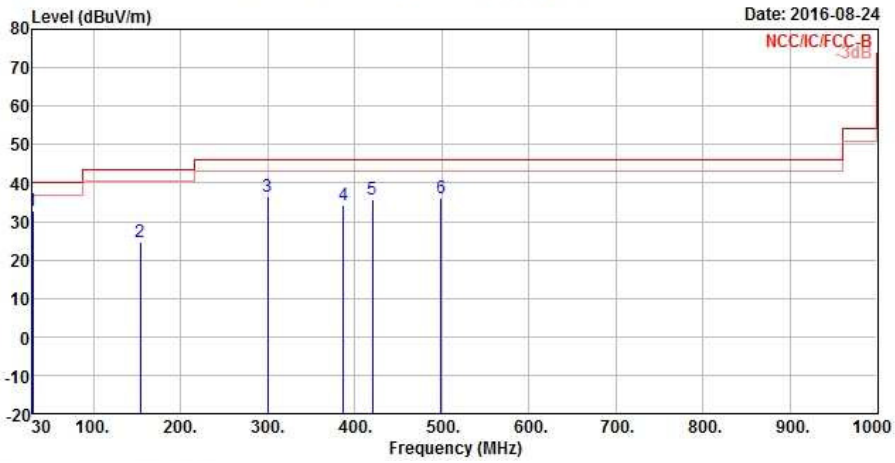
Transmitter Radiated Emissions (Above 30MHz)			
Modulation Mode	OOK	**Test Freq. (FX)**	F2
Operating Function	Transmit	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	39.700	27.49	-12.51	40.00	34.43	19.69	0.90	27.53	Peak
2	256.980	27.99	-18.01	46.00	32.80	19.50	2.48	26.79	Peak
3	299.660	37.21	-8.79	46.00	41.53	19.77	2.61	26.70	Peak
4	400.540	32.89	-13.11	46.00	33.99	22.37	3.24	26.71	Peak
5	419.940	33.46	-12.54	46.00	34.50	22.58	3.30	26.92	Peak
6	450.980	31.18	-14.82	46.00	32.11	22.94	3.39	27.26	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

Transmitter Radiated Emissions (Above 30MHz)			
Modulation Mode	OOK	**Test Freq. (FX)**	F2
Operating Function	Transmit	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	30.000	32.90	-7.10	40.00	34.05	25.62	0.78	27.55	Peak
2	154.160	24.78	-18.72	43.50	33.26	16.72	1.94	27.14	Peak
3	299.660	36.40	-9.60	46.00	40.72	19.77	2.61	26.70	Peak
4	386.960	34.28	-11.72	46.00	35.70	22.08	3.20	26.70	Peak
5	419.940	35.77	-10.23	46.00	36.81	22.58	3.30	26.92	Peak
6	499.480	36.08	-9.92	46.00	36.51	23.80	3.56	27.79	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

3.3 Emission Bandwidth

3.3.1 Emission Bandwidth Limit

Emission Bandwidth Limit
N/A

3.3.2 Measuring Instruments

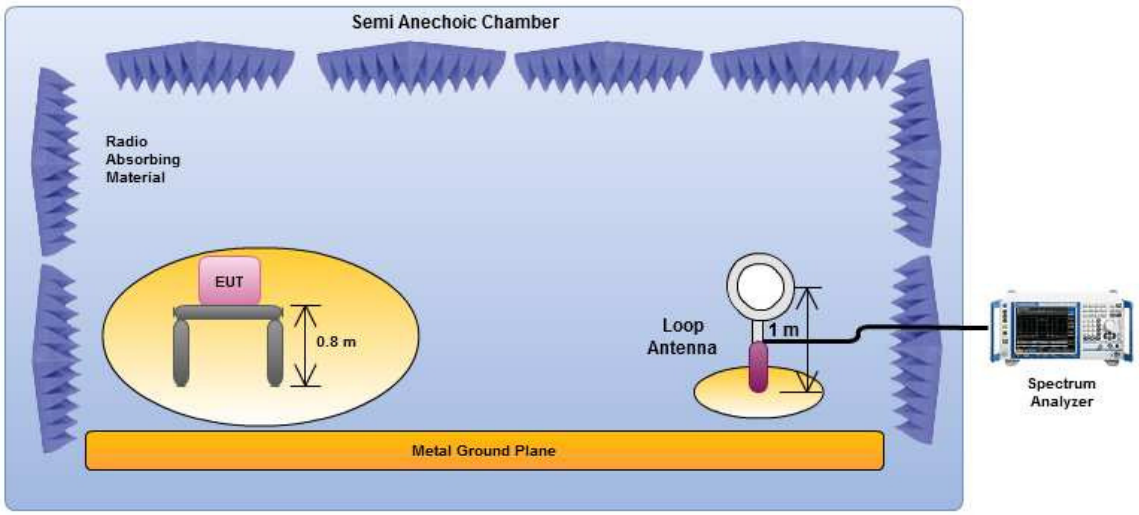
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
☒	For the emission bandwidth refer ANSI C63.10, clause 6.9.2 for occupied bandwidth testing.
☒	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

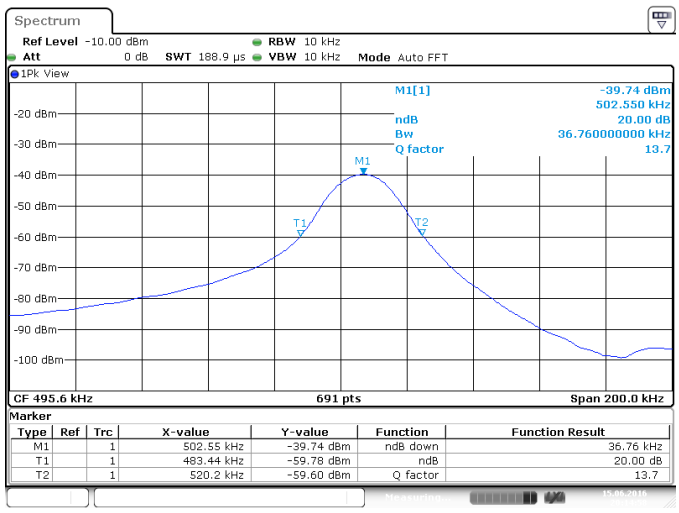
Emission Bandwidth



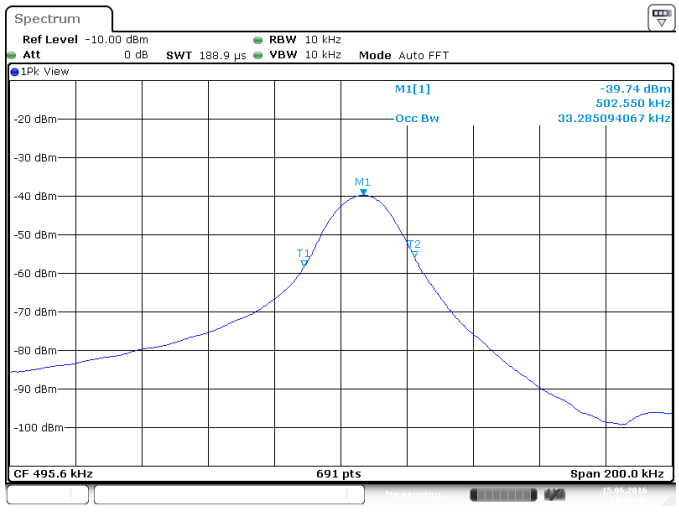
3.3.5 Test Result of Emission Bandwidth

Occupied Channel Bandwidth Result			
Modulation Mode	**Frequency (kHz)**	**20dB Bandwidth (kHz)**	**99% Bandwidth (kHz)**
OOK	506	36.76	33.28
OOK	400	33.86	30.10
Limit		**N/A**	**N/A**
Result		**Complied**	

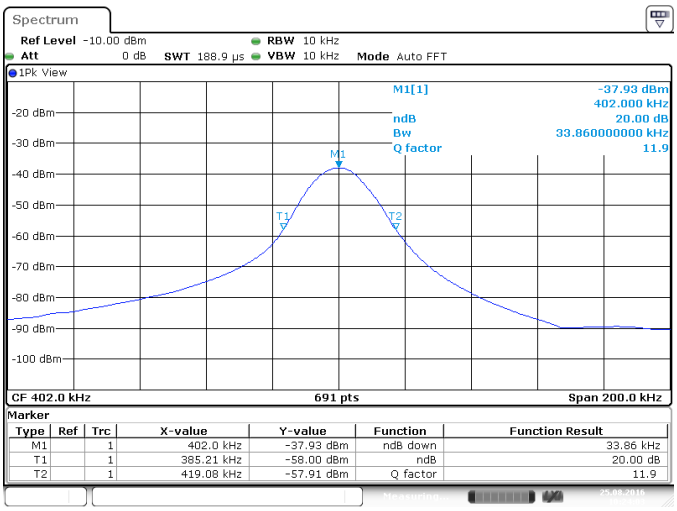
506kHz 20dB Emission Bandwidth Plot



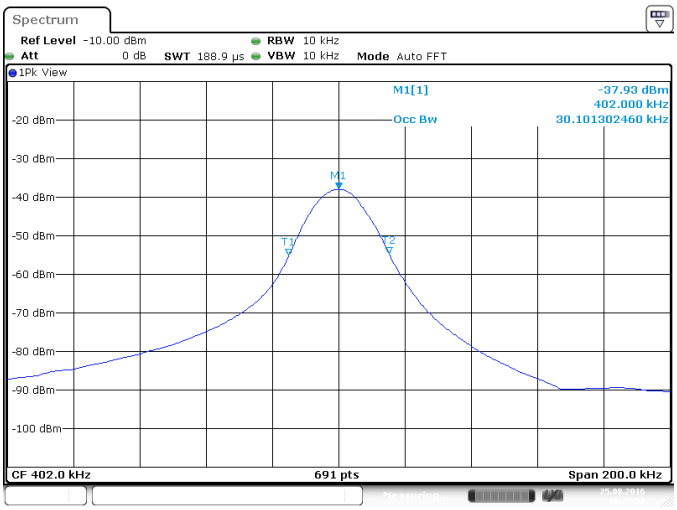
506kHz 99% Emission Bandwidth Plot



400kHz 20dB Emission Bandwidth Plot



400kHz 99% Emission Bandwidth Plot



3.3.6 Test Result of Field Strength of Fundamental Emissions

Field Strength of Fundamental Emissions Result					
Modulation Mode	**Frequency (kHz)**	**Fundamental (dBuV/m)@1m**	**Polarization**	**Margin (dB)**	**Limit (dBuV/m)@1m**
OOK	506	59.95	H	32.65	92.6
OOK	400	69.3	H	45.34	114.64
Result		**Complied**			

Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal).
Note 2: The Limit is based on measurement employing an average detector.
Note 3: The fundamental result is measured by peak detector.

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Next Calibration Date
EMC Receiver	KEYSIGHT	N9038A	MY54130031	20Hz ~ 8.4GHz	Apr. 14, 2016	Apr. 13, 2017
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 26, 2016	Jan. 25, 2017
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	Oct. 30, 2015	Oct. 29, 2016
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	NCR	NCR

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Next Calibration Date
Spectrum Analyzer	R&S	FSV 40	101013	9KHz~40GHz	Feb 16, 2016	Feb 15, 2017

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Next Calibration Date
Spectrum Analyzer	R&S	FSP 40	100305	9KHz~40GHz	Feb. 16, 2016	Feb. 15, 2017
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	*03CH03-HY*	*30MHz ~ 1GHz 3m*	Nov. 28, 2015	Nov. 27, 2016
Amplifier	Agilent	8447D	2944A08033	100kHz ~ 1.3GHz	May 10, 2016	May 09, 2017
Bilog Antenna	SCHAFFNER	CBL 6112B	22237	30MHz ~ 1GHz	Sep. 18, 2015	Sep. 17, 2016
Loop Antenna	TESTQ	HLA6120	31244	9 kHz~30 MHz	Feb.02, 2015	Feb.01, 2017