FCC Test Report

Equipment	:	**LCD Signature Pad**
Brand Name	:	**Wacom**
Model No.	:	**STU-541**
FCC ID	:	**HV4STU541**
Standard	:	**47 CFR FCC Part 15.209**
Operating Band	:	**531.25kHz～593.75kHz**
FCC Classification	:	**DCD**
Applicant	:	**Wacom Co., Ltd.** 2-510-1, Toyonodai, Kazo-shi, Saitama 349-1148 Japan
Manufacturer	:	**Refer to section 1.1.1**

The product sample received on Jun. 27, 2016 and completely tested on Jul. 05, 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

Table of Contents

Summary of Test Result

Conformance Test Specifications					
Report Clause	**Ref. Std. Clause**	**Description**	**Measured**	**Limit**	**Result**
1.1.3	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]:2.21MHz 31.18 (Margin 14.82dB) - AV 38.94 (Margin 17.06dB) - QP	FCC 15.207	Complied
3.2	15.209	Transmitter Radiated Emissions	[dBuV/m at 30m]:125.06MHz 28.70 (Margin 14.80dB) - QP	FCC 15.209	Complied
3.3	15.215(c)	Emission Bandwidth	99% Bandwidth 35.89 [kHz]	N/A	Complied

Revision History

Report No.	Version	Description	Issued Date
FR662424-01AS	Rev. 02	Initial issue of report	Jul. 25, 2016

1 General Description

1.1 Information

1.1.1 Manufacturer Information

Manufacturer 1	Wacom Co., Ltd. 2-510-1 Toyonodai Kazo-shi, Saitama 349-1148 Japan
Manufacturer 2	Qisda Corporation 157 & 159, Shan-Ying Road, Gueishan, Taoyuan 333, Taiwan
Manufacturer 3	Qisda (Suzhou) Co., Ltd. 169, Zhujiang Road, New District, Suzhou, Jiangsu Province, P.R. China
Manufacturer 4	Qisda Optronics (Suzhou) Co., Ltd. 169, Zhujiang Road, New District, Suzhou, Jiangsu 215129, P.R. China
Manufacturer 5	Qisda Mexicana S.A. De C.V. Calzada Venustiano Carranza, No. 88 Col. Plutarco Elias Calles, Mexocali B.C. Mexico C.P 21376 Mexico

1.1.2 RF General Information

RF General Information		
Frequency Range	**Ch. Frequency (kHz)**	**Channel Number**
531.25kHz～593.75kHz	531.25 / 562.5 / 593.75kHz	3

Note 1: Field strength performed peak level at 1m.

1.1.3 Antenna Information

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

1.1.4 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.: …
☐	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: …
☐	Other:

1.1.5 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)**
☒ 100.00%	0

1.1.6 EUT Operational Condition

Supply Voltage	☐ AC mains	☒ DC	
Type of DC Source	☐ Internal DC supply	☐ External AC adapter	☒ From System

1.2 Accessories and Support Equipment

Accessories Information				
USB Cable	Brand Name	Hotron and Dongwei	Model Name	STJ-A357
	Signal Line	2.97 meter, non-shielded cable, with two ferrite core		
LCD	Brand Name	TIANMA	Model Name	TM050RDHG04
Digital Pen	Brand Name	Wacom	Model Name	UP-6710

Support Equipment - AC Conduction and Radiated Emission			
No.	**Equipment**	**Brand Name**	**Model Name**
1	Notebook	DELL	E5540
2	AC Adapter for NB	DELL	LA65NS2-01

Support Equipment - RF Conducted			
No.	**Equipment**	**Brand Name**	**Model Name**
1	Notebook	DELL	E5540
2	AC Adapter for NB	DELL	HA65NM130

Support Equipment - Radiated Emission(9kHz~30MHz)			
No.	**Equipment**	**Brand Name**	**Model Name**
1	Notebook	DELL	E5540
2	AC Adapter for NB	DELL	LA65NS2-01

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
- 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, Taoyuan 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**
AC Conduction		CO04-HY	Ryan	22°C / 56%	05/07/2016
RF Conducted		TH01-HY	Lisa	23°C / 63%	05/07/2016
Radiated Emission		03CH03-HY	Daniel	24.2°C / 56%	02/07/2016

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, 26dB bandwidth		±0.5%
RF output power, conducted		±0.1 dB
Power density, conducted		±0.5 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
	N/A	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
	N/A	N/A
Temperature		±0.8 °C
Humidity		±5 %
DC and low frequency voltages		±0.9%
Time		±1.4 %
Duty Cycle		±0.5 %

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Modulation Mode	Field Strength (dBuV/m at 1m)
ASK	50.40

2.2 Test Channel Frequencies Configuration

Modulation Mode	Test Channel Frequencies (kHz)
ASK	562.5kHz

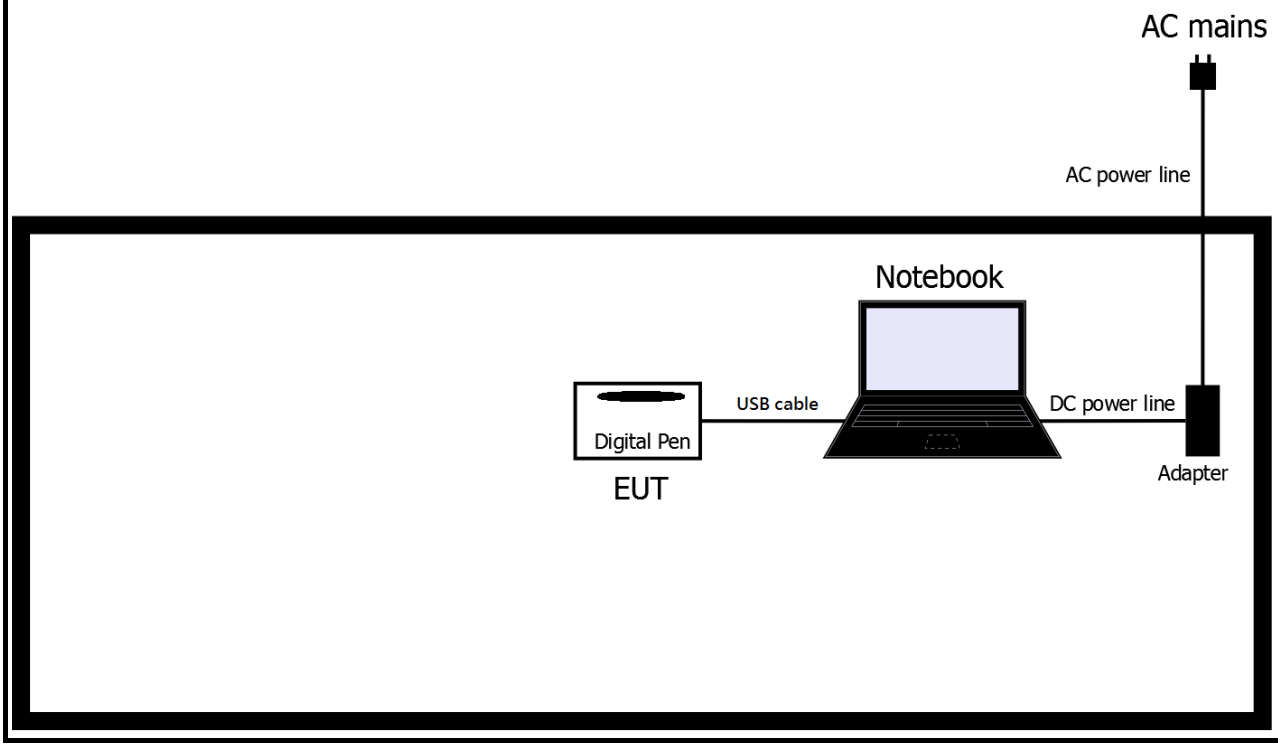
2.3 The Worst Case Measurement Configuration

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	EUT with Notebook via USB cable

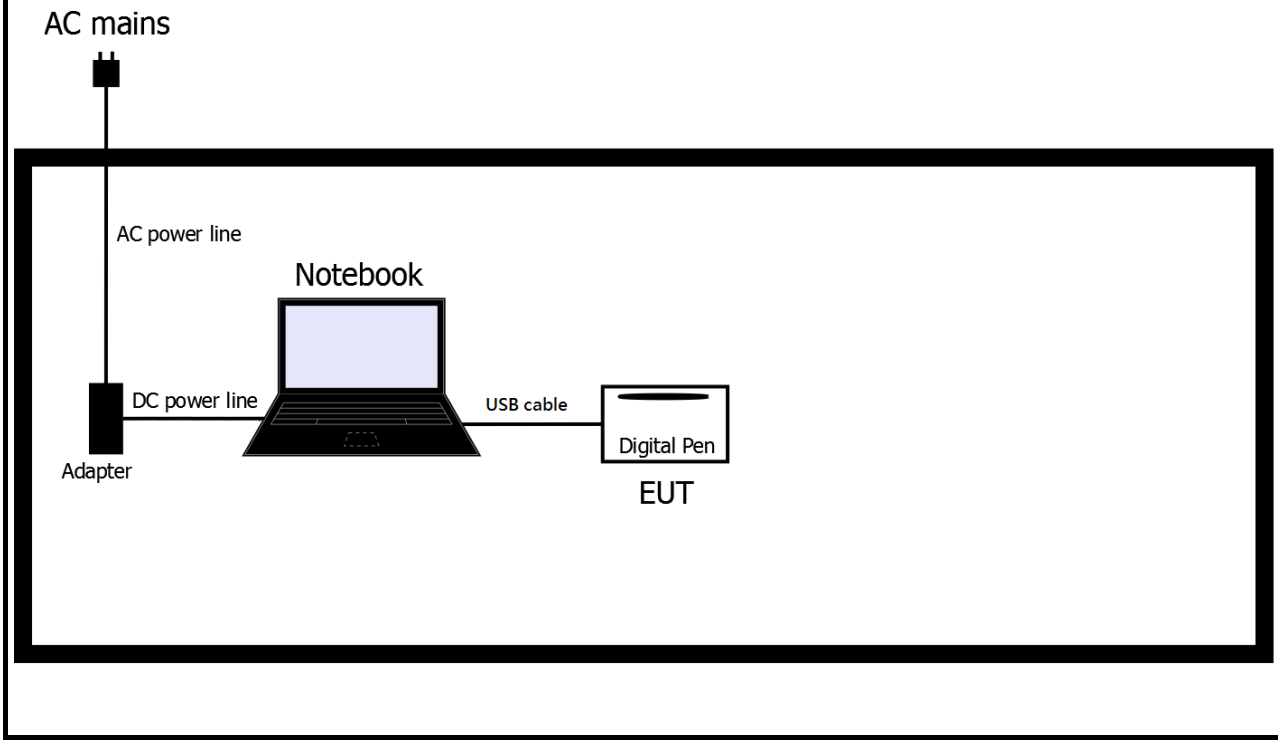
The Worst Case Mode for Following Conformance Tests			
Tests Item	Emission Bandwidth, Field Strength of Fundamental Emissions Transmitter Radiated Unwanted Emissions		
Test Condition	Radiated measurement		
User Position	☐ EUT will be placed in fixed position.		
	☒ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed three orthogonal planes.		
	☐ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions.		
Operating Mode	EUT with Notebook via USB cable		
Modulation Mode	ASK		
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 Emission 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

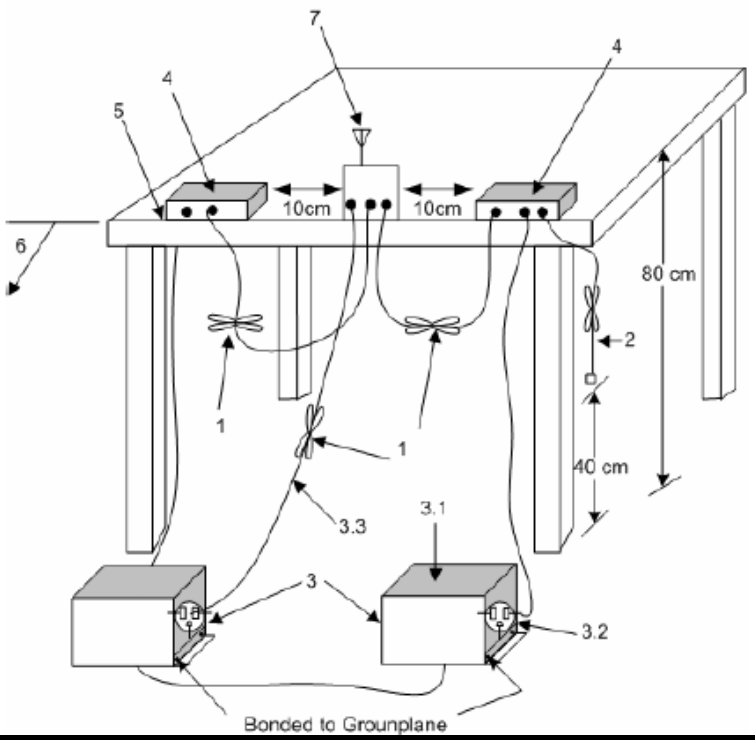
Refer a test equipment and calibration data table in this test report.

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.

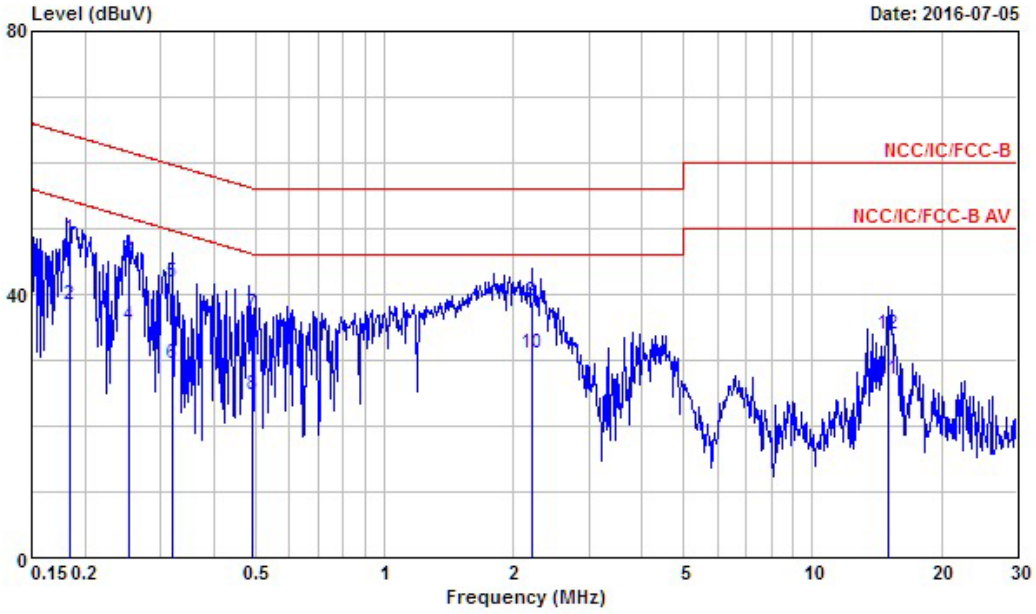
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of DC Power-line Conducted Emissions

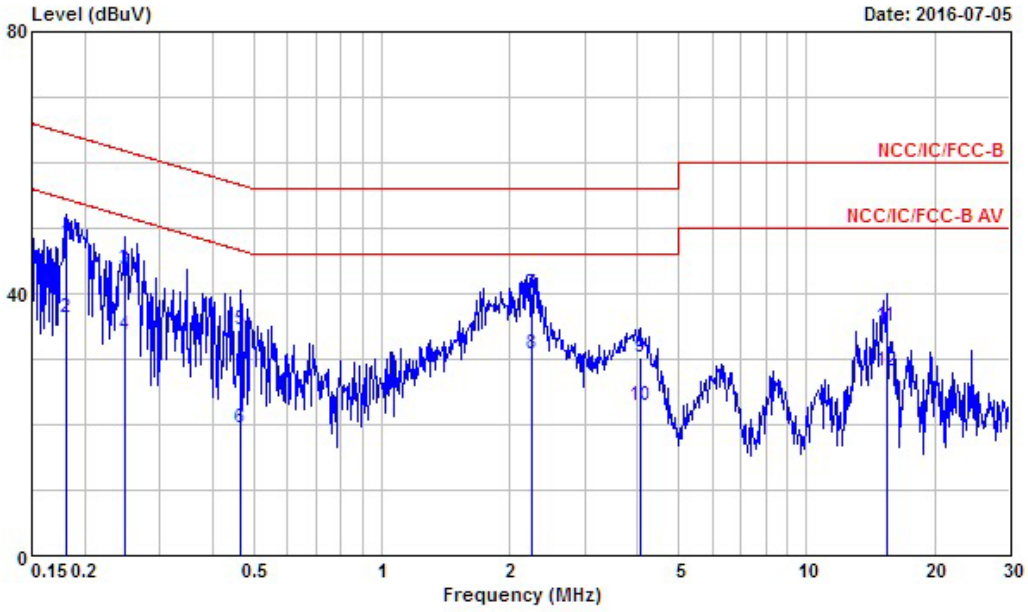
DC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Ch. Frequency (kHz)	562.5		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	@0.1833850	48.39	-15.94	64.33	48.00	0.11	0.28	QP
2	@0.1833850	38.32	-16.01	54.33	37.93	0.11	0.28	Average
3	@0.2534510	45.17	-16.47	61.64	44.83	0.11	0.23	QP
4	@0.2534510	35.28	-16.36	51.64	34.94	0.11	0.23	Average
5	@0.3199920	41.77	-17.94	59.71	41.48	0.12	0.17	QP
6	0.3199920	29.52	-20.19	49.71	29.23	0.12	0.17	Average
7	0.4913480	37.14	-19.00	56.14	36.92	0.12	0.10	QP
8	0.4913480	24.74	-21.40	46.14	24.52	0.12	0.10	Average
9	@ 2.210	38.94	-17.06	56.00	38.52	0.15	0.27	QP
10	@ 2.210	31.18	-14.82	46.00	30.76	0.15	0.27	Average
11	15.070	27.15	-22.85	50.00	26.61	0.34	0.20	Average
12	15.070	33.98	-26.02	60.00	33.44	0.34	0.20	QP

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.

DC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Ch. Frequency (kHz)	562.5		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	@0.1815220	47.97	-16.45	64.42	47.59	0.11	0.27	QP
2	@0.1815220	36.44	-17.98	54.42	36.06	0.11	0.27	Average
3	@0.2481360	43.73	-18.09	61.82	43.38	0.11	0.24	QP
4	@0.2481360	33.67	-18.15	51.82	33.32	0.11	0.24	Average
5	0.4636720	34.52	-22.11	56.63	34.30	0.12	0.10	QP
6	0.4636720	19.60	-27.03	46.63	19.38	0.12	0.10	Average
7	@ 2.260	40.08	-15.92	56.00	39.66	0.15	0.27	QP
8	@ 2.260	30.86	-15.14	46.00	30.44	0.15	0.27	Average
9	4.070	30.32	-25.68	56.00	30.05	0.17	0.10	QP
10	4.070	22.90	-23.10	46.00	22.63	0.17	0.10	Average
11	15.390	35.08	-24.92	60.00	34.56	0.32	0.20	QP
12	15.390	28.18	-21.82	50.00	27.66	0.32	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

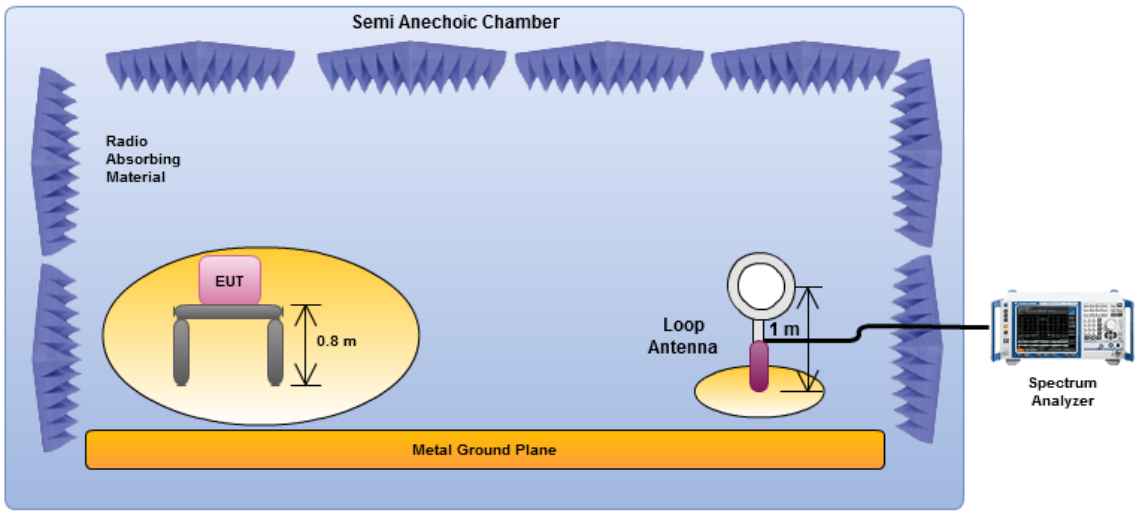
Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

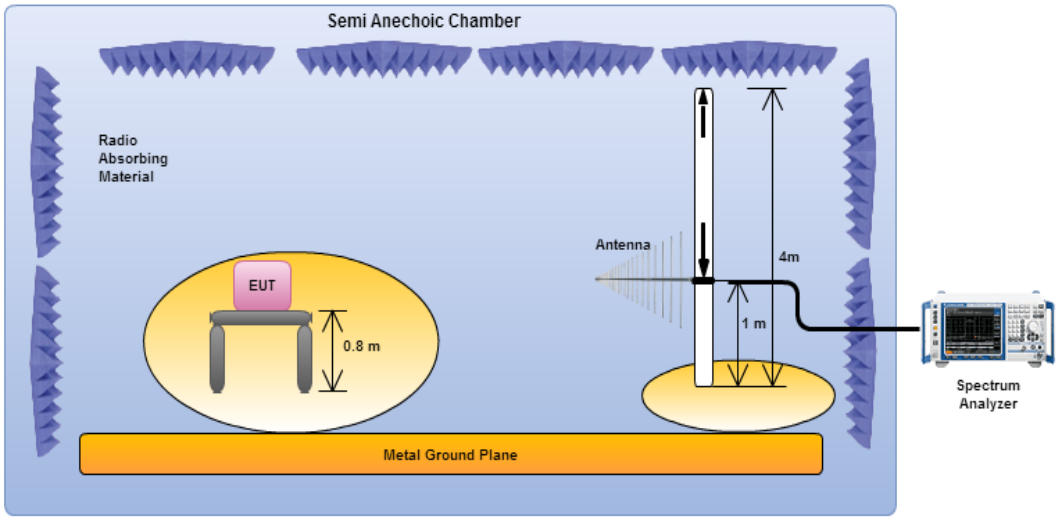
Test Method	
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1 GHz and test distance is 30m.
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz. The frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 30MHz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



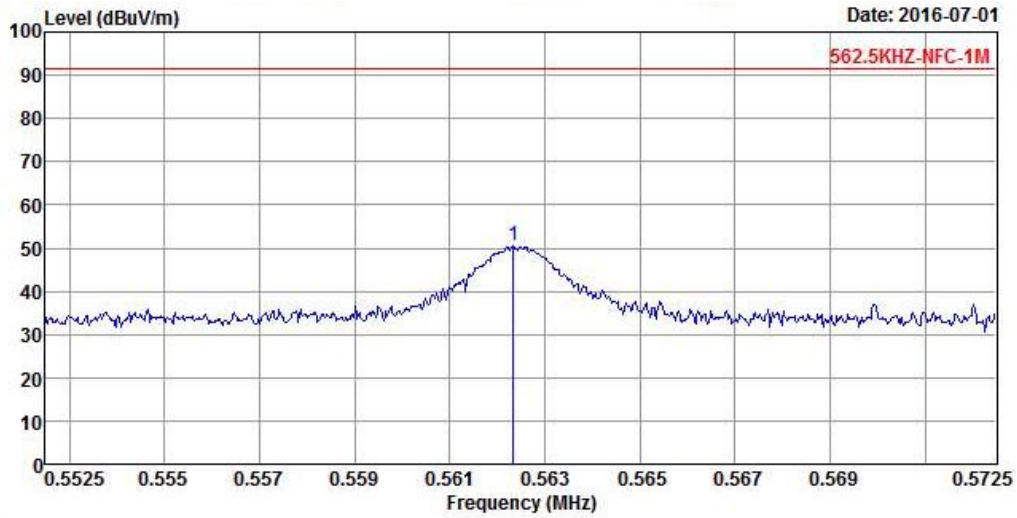
Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna. the antenna height shall be varied from 1 m to 4 m.

3.2.5 Transmitter Radiated Emissions (Below 30MHz)

Transmitter Carrier Output Levels Result for Normal Condition (1m to 3m)			
Test Distance (m)	1		
Emission Freq. (MHz)	**Field Strength (dBuV/m@1m)**	**Distance Factor (dB)**	**Field Strength (dBuV/m@3m)**
0.562	50.4	-19.08	31.32
Field Strength (3m) = [Field Strength (1m)] + [Distance Factor]			

Transmitter Carrier Output Levels Result for Normal Condition (1m to 30m)						
Test Distance (m)	1					
Emission Freq. (MHz)	**Field Strength (dBuV/m@1m)**	**Distance Factor (dB)**	**Field Strength (dBuV/m@30m)**	**Limit (dBuV/m@30m)**	**Level Type**	**Pass/Fail**
0.562	50.4	-59.08	-8.68	32.61	PK	Pass
Field Strength (30m) = [Field Strength (1m)] + [Distance Factor]						

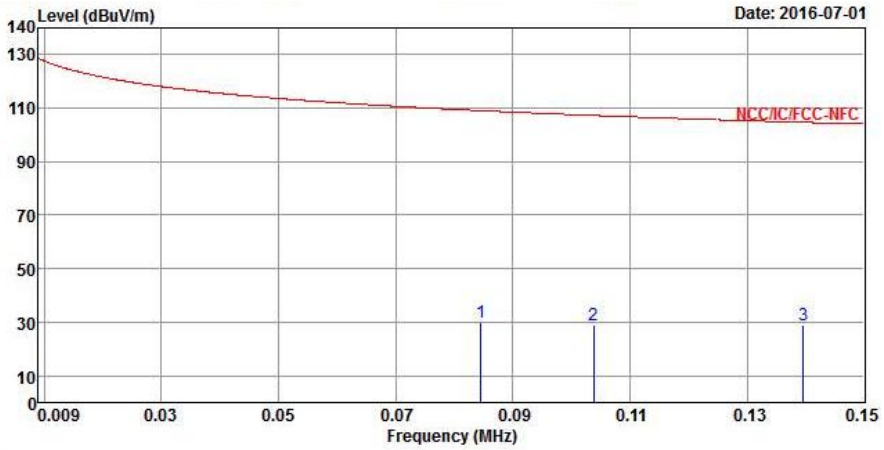
Transmitter Radiated Emissions (562.5 kHz)			
Modulation Mode	ASK	**Polarization**	H
Operating Mode	1	**Test Distance**	1 m



	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	0.562	50.40	-41.29	91.69	29.48	20.71	0.21	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.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.

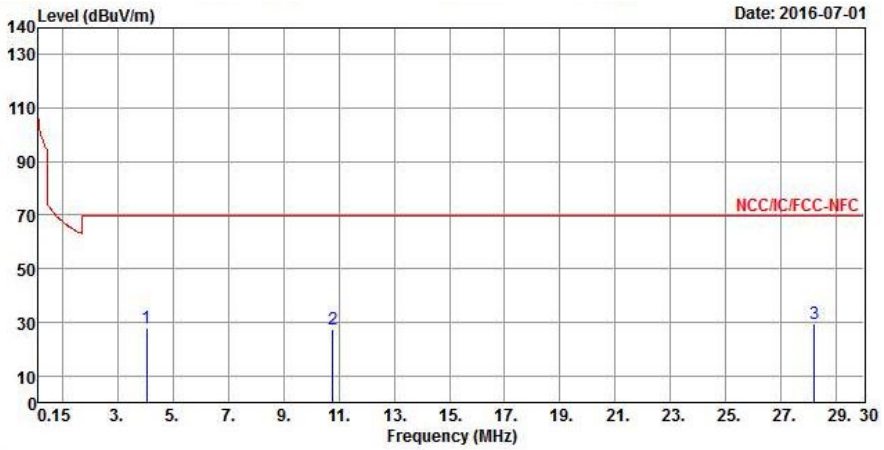
Transmitter Radiated Emissions (9kHz~30MHz)			
Modulation Mode	ASK	**Polarization**	H
Operating Mode	1	**Test Distance**	3 m



	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	0.085	29.74	-79.32	109.06	8.49	21.10	0.15	0.00	Peak
2	0.104	28.90	-78.39	107.29	7.64	21.10	0.16	0.00	Peak
3	0.140	29.13	-75.58	104.71	7.91	21.06	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.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.
Note 6 : Below 30MHz of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

Transmitter Radiated Emissions (9kHz~30MHz)			
Modulation Mode	ASK	**Polarization**	H
Operating Mode	1	**Test Distance**	3 m

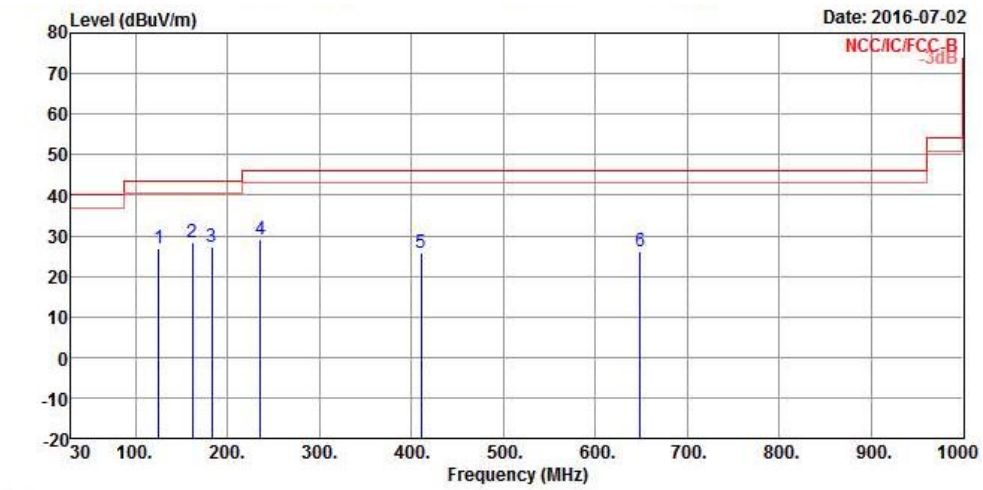


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	4.064	28.09	-41.45	69.54	7.21	20.52	0.36	0.00	Peak
2	10.788	27.42	-42.12	69.54	5.66	21.32	0.44	0.00	Peak
3	28.190	29.64	-39.90	69.54	7.21	21.66	0.77	0.00	Peak

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.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.
Note 6 : Below 30MHz of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.2.6 Transmitter Radiated Emissions (Above 30MHz)

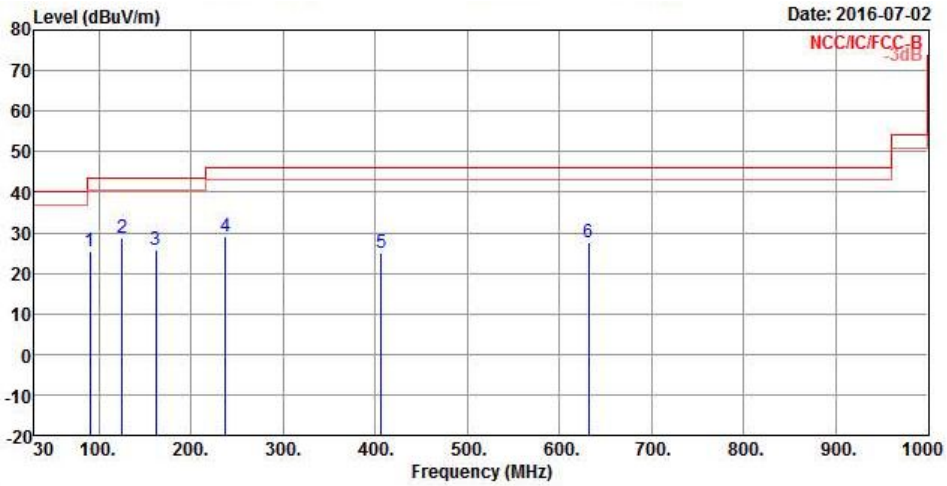
Transmitter Radiated Emissions (Above 30MHz)			
Modulation Mode	ASK	**Test Freq. (FX)**	562.5 kHz
Operating Mode	1	**Polarization**	V



	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	125.060	26.82	-16.68	43.50	33.63	18.73	1.73	27.27	QP
2	161.920	28.39	-15.11	43.50	37.15	16.34	2.00	27.10	QP
3	183.260	27.27	-16.23	43.50	36.54	15.57	2.16	27.00	QP
4	235.640	29.13	-16.87	46.00	35.94	17.62	2.41	26.84	QP

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.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.

Transmitter Radiated Emissions (Above 30MHz)			
Modulation Mode	ASK	**Test Freq. (FX)**	562.5 kHz
Operating Mode	1	**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	90.140	25.52	-17.98	43.50	36.20	15.28	1.45	27.41	QP
2	125.060	28.70	-14.80	43.50	35.51	18.73	1.73	27.27	QP
3	161.920	25.89	-17.61	43.50	34.65	16.34	2.00	27.10	QP
4	237.580	28.92	-17.08	46.00	35.53	17.81	2.42	26.84	QP

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.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.

3.3 Emission Bandwidth

3.3.1 Emission Bandwidth Limit

Emission Bandwidth Limit
N/A

3.3.2 Measuring Instruments

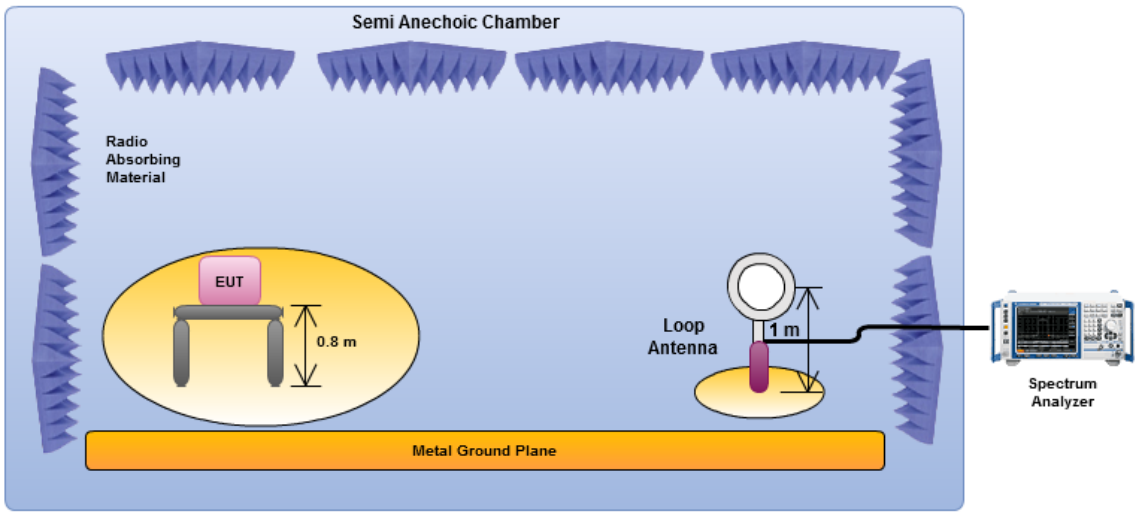
Refer a test equipment and calibration data table in this test report.

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

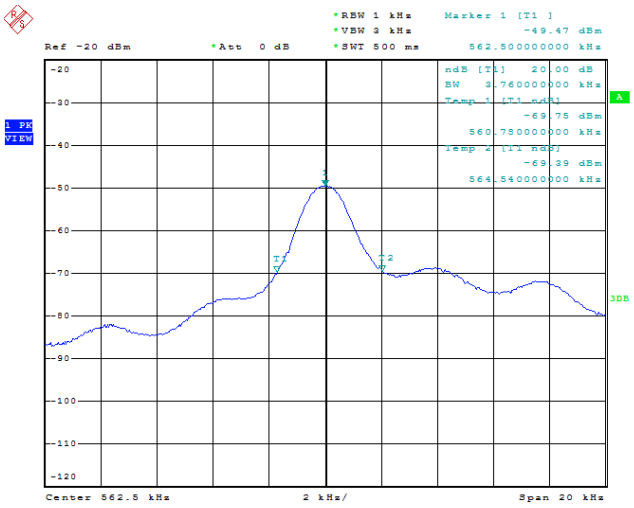
Emission Bandwidth



3.3.5 Test Result of Emission Bandwidth

Occupied Channel Bandwidth Result					
Modulation Mode	Frequency (kHz)	20dB Bandwidth (kHz)	F_L at 20dB BW (kHz)	F_H at 20dB BW (kHz)	99% Bandwidth (kHz)
ASK	562.5	3.76	560.78	564.54	10.16
Limit		**N/A**	**N/A**	**N/A**	**N/A**
Result		**Complied**			

Emission Bandwidth Plot



4 Test Equipment and Calibration Data

AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
EMC Receiver	KEYSIGHT	N9038A	MY54130031	20Hz ~ 8.4GHz	14/04/2016	13/04/2017
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	26/01/2016	25/01/2017
LISN (Support Unit)	R&S	ENV216	101295	9kHz ~ 30MHz	04/11/2015	03/11/2016
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	30/10/2015	29/10/2016
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	NCR	NCR

RF Conducted

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9KHz~40GHz	16/02/2016	15/02/2017

Radiation Emissions

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Last Cal.	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	28/11/2015	27/11/2016
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	10/05/2016	09/05/2017
Spectrum	R&S	FSV40	101513	9kHz ~ 40GHz	16/02/2016	15/02/2017
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30MHz ~ 1GHz	18/09/2015	17/09/2016
Loop Antenna	TESEQ	HLA 6120	31244	9 kHz~30 MHz	02/02/2015	01/02/2017