



FCC Test Report

Equipment : Digitizer I/O device
Brand Name : Lenovo
Model No. : SU8E-11H04MI-01A
FCC ID : PU5-TP00065AWD
Standard : 47 CFR FCC Part 15.209
Operating Band : 510 kHz - 1705kHz
FCC Classification : DCD
Applicant : Wistron Corporation
Manufacturer : 21F, No. 88, Sec. 1, Hsin Tai Wu Rd.,
Hsichih Dist, New Taipei City 221, Taiwan R.O.C.

The product sample received on Jul. 31, 2014 and completely tested on Aug. 12, 2014. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 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:

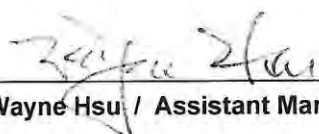

Wayne Hsu / Assistant Manager



Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Support Equipment.....	6
1.3	Testing Applied Standards	6
1.4	Testing Location Information.....	6
1.5	Measurement Uncertainty	7
2	TEST CONFIGURATION OF EUT	8
2.1	The Worst Case Modulation Configuration	8
2.2	The Worst Case Measurement Configuration.....	8
2.3	Test Setup Diagram	9
3	TRANSMITTER TEST RESULT	11
3.1	AC Power-line Conducted Emissions	11
3.2	Transmitter Radiated Emissions	19
3.3	Emission Bandwidth	31
4	TEST EQUIPMENT AND CALIBRATION DATA	33

APPENDIX A. TEST PHOTOS

APPENDIX B. PHOTOGRAPHS OF EUT

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]:0.154845MHz 40.30 (Margin 15.44dB) - AV 57.76 (Margin 7.98dB) - QP	FCC 15.207	Complied
3.2	15.209	Transmitter Radiated Emissions	[dBuV/m at 3m]:145.43MHz 40.25 (Margin 3.25dB) - PK	FCC 15.209	Complied
3.3	-	Emission Bandwidth	20dB Bandwidth 33.285 [kHz]	N/A	Complied



SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-327-0973

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information		
Frequency Range		510 kHz - 1705kHz
Modulation Mode	Ch. Frequency (kHz)	Field Strength (dBuV/m)
Side Switch	531.25	52.96
Tip Switch	562.50	47.87
Eraser Switch	593.75	52.71
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)
☐	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.:
☒	Mounted radio (EUT intended for a limited host system) Host System : Tablet PC Brand Name / Model No.: Lenovo / TP00065A FCC ID : PU5-TP00065AUC, PU5-TP00065A
☐	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)	
☒	100.00%

1.1.5 EUT Operational Condition

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

1.2 Support Equipment

Support Equipment Information				
AC Adapter	Brand Name	Lenovo	Model Name	ADLX36NCT2A
	Power Rating	I/P: 100 - 240 Vac, 50-60Hz, 1.5 A, O/P: 12 Vdc, 3 A		
	Power Cord	1 meter, non-shielded cable, w/o ferrite core		
Battery	Brand Name	Lenovo	Model Name	SB10F46442
	Power Rating	7.4 Vdc, 4750mAh		
Stylus	Brand Name	Lenovo	Model Name	-

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 C63.10-2009

1.4 Testing Location Information

Testing Location			
☒	HWA YA	ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973	
Test Condition	Test Site No.	Test Engineer	Test Environment
AC Conduction	CO04-HY	Zeus	25°C / 43%
RF Conducted	TH06-HY	Cain	23.2°C / 69.7%
Radiated Emission	03CH02-HY	Daniel	25.3°C / 61%

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		±2.2 dB
Emission bandwidth		±1.4 %
Unwanted emissions, conducted	9 – 150 kHz	±0.3 dB
	0.15 – 30 MHz	±0.4 dB
	30 – 1000 MHz	±0.5 dB
All emissions, radiated	9 – 150 kHz	±2.4 dB
	0.15 – 30 MHz	±2.2 dB
	30 – 1000 MHz	±2.5 dB
Temperature		±0.8 °C
Humidity		±3 %
DC and low frequency voltages		±3 %
Time		±1.4 %
Duty Cycle		±1.4 %

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

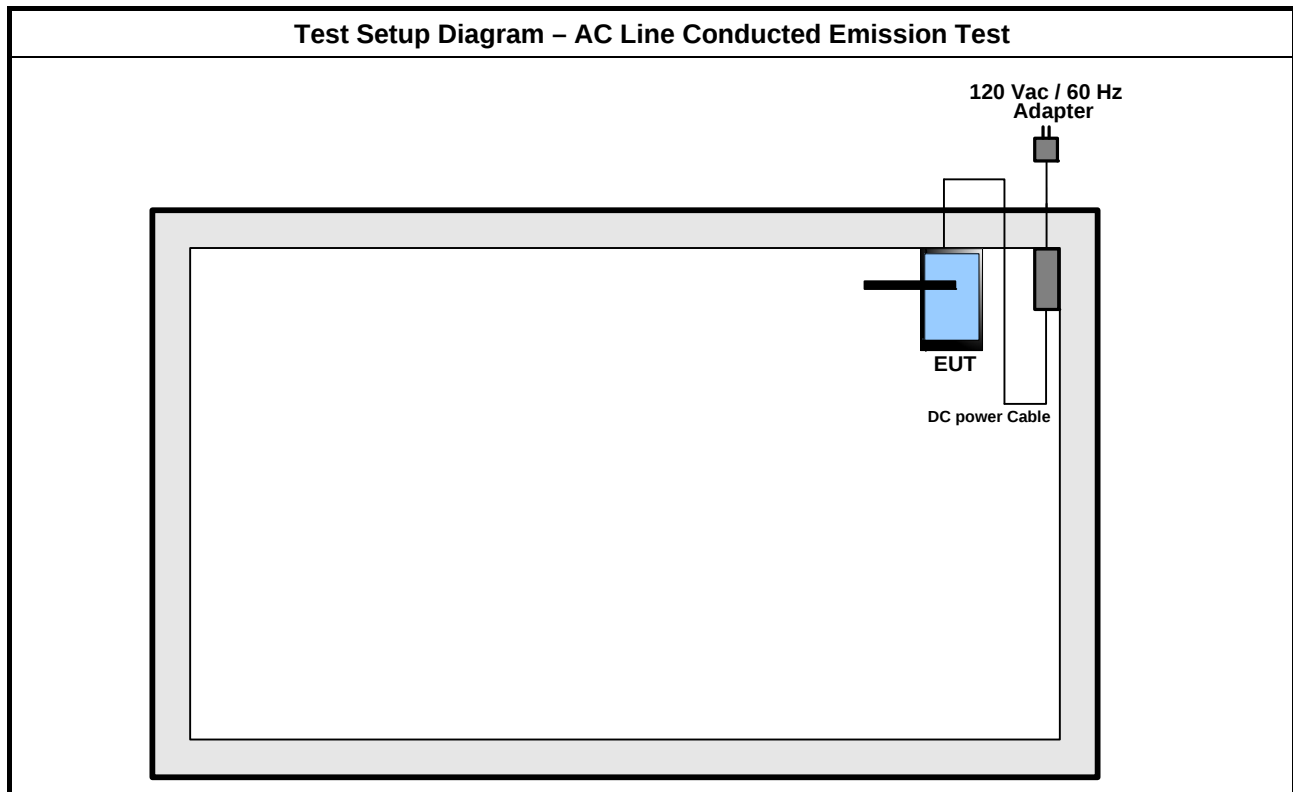
Modulation Mode	Test Channel Frequencies (kHz)	Field Strength (dBuV/m at 1m)
Side Switch	531.25 kHz	52.96

2.2 The Worst Case Measurement Configuration

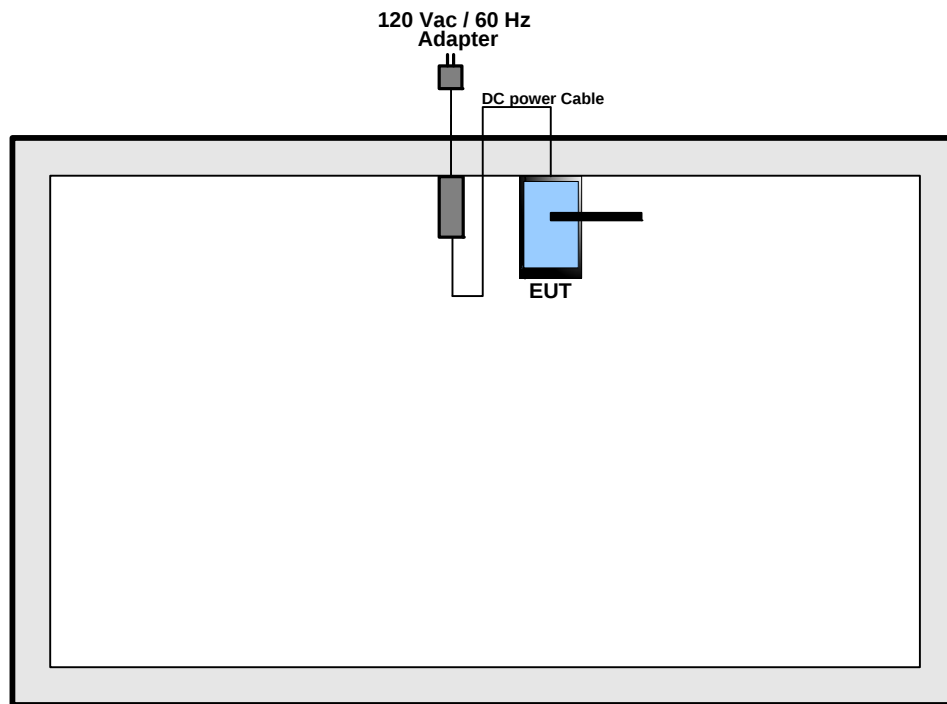
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	AC Power & RFID-Read/Write

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 will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed three orthogonal planes. The worst planes is Z.		
Operating Mode	Operating Mode Description		
1	AC Power & RFID-Read/Write		
Modulation Mode	Side Switch		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			

2.3 Test Setup Diagram



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.

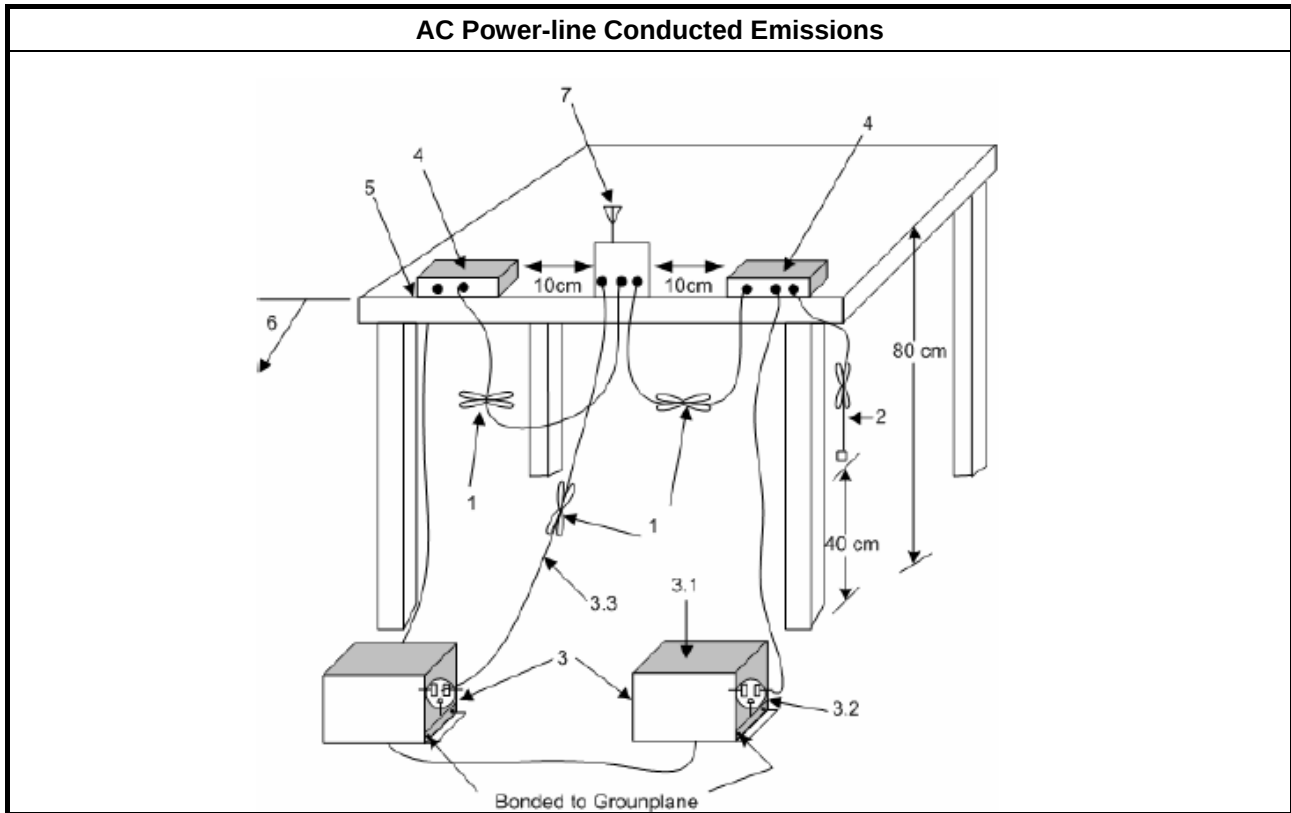
3.1.2 Measuring Instruments

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

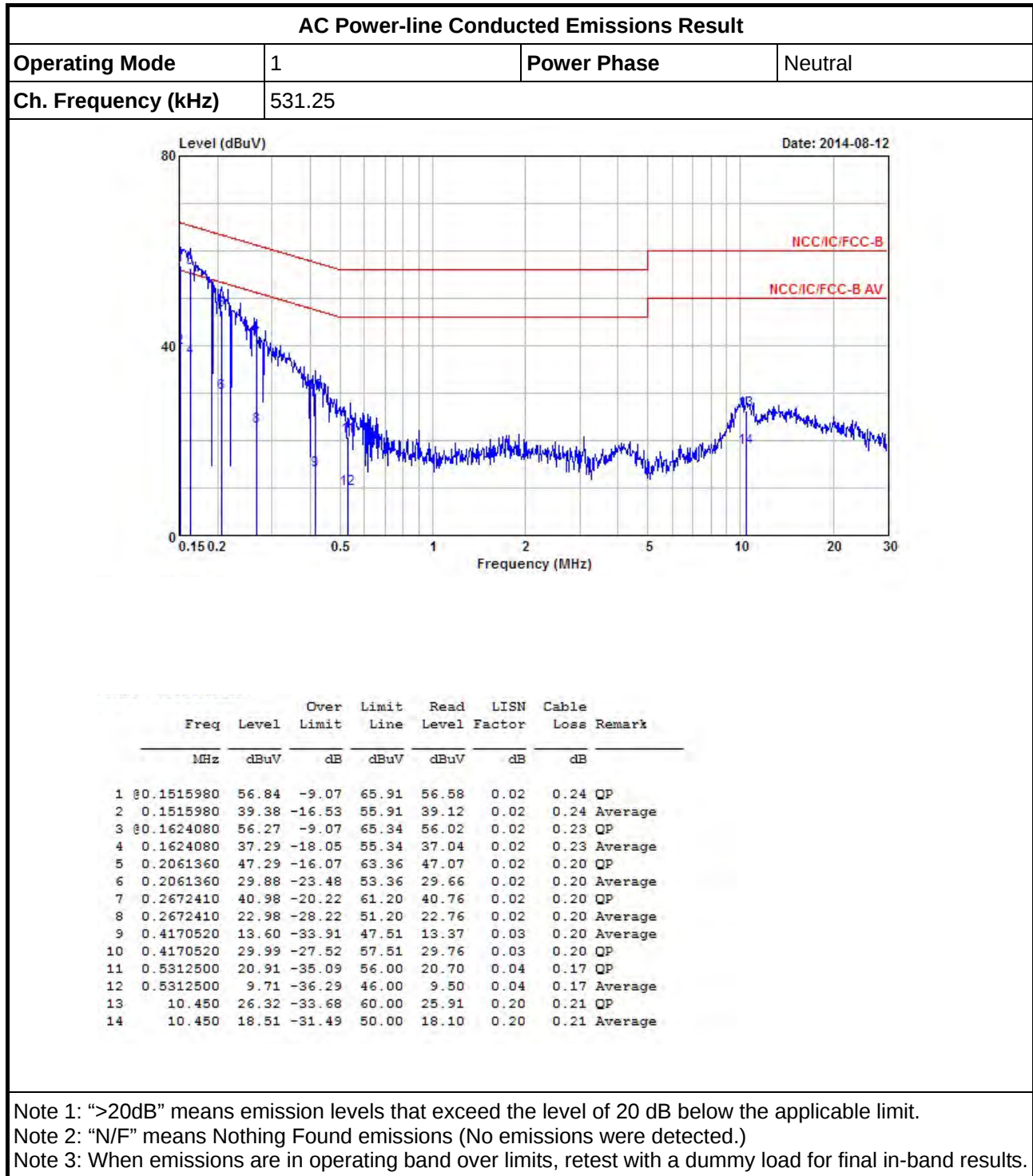
3.1.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10-2009, 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

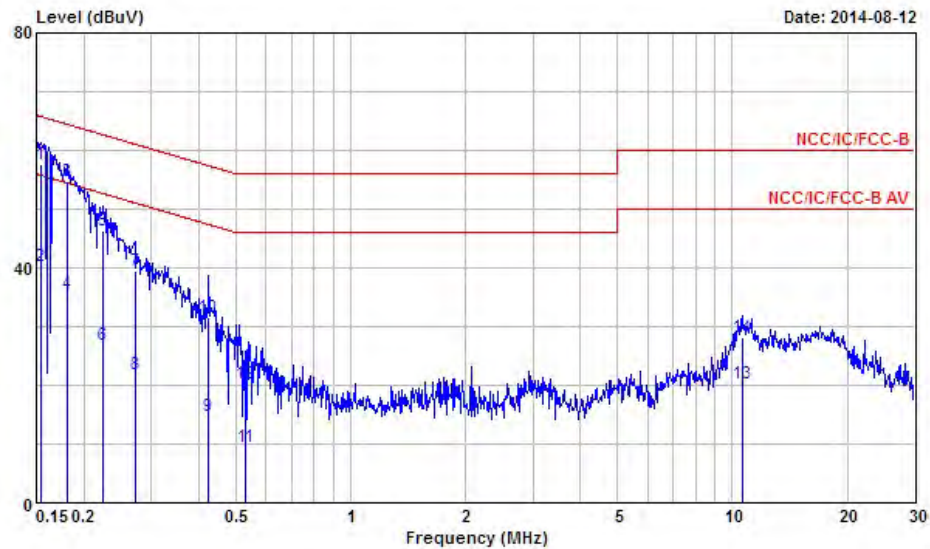


3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Ch. Frequency (kHz)	531.25		

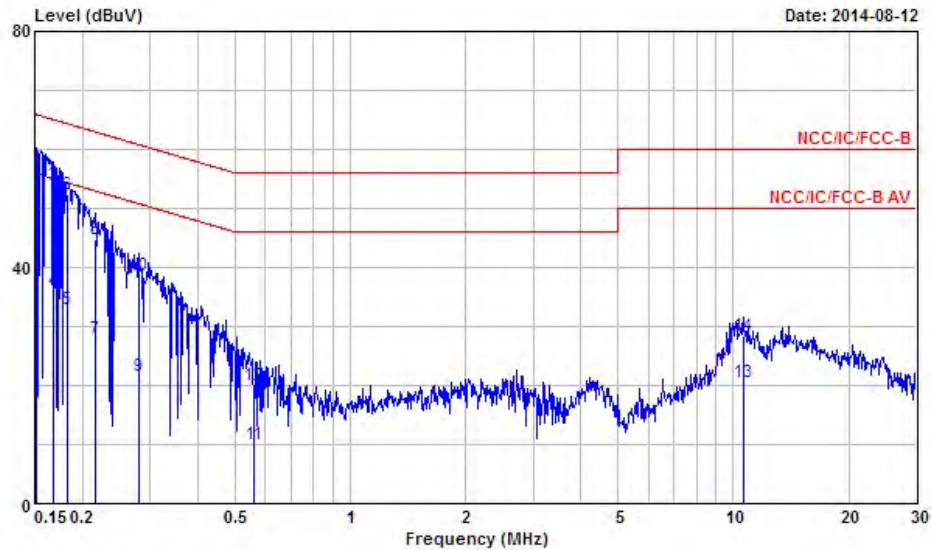


	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1548450	57.76	-7.98	65.74	57.49	0.03	0.24	QP
2	0.1548450	40.30	-15.44	55.74	40.03	0.03	0.24	Average
3	0.1815220	54.68	-9.74	64.42	54.44	0.03	0.21	QP
4	0.1815220	35.60	-18.82	54.42	35.36	0.03	0.21	Average
5	0.2243730	46.41	-16.25	62.66	46.18	0.03	0.20	QP
6	0.2243730	26.89	-25.77	52.66	26.66	0.03	0.20	Average
7	0.2715230	39.59	-21.48	61.07	39.36	0.03	0.20	QP
8	0.2715230	21.91	-29.16	51.07	21.68	0.03	0.20	Average
9	0.4237340	14.66	-32.71	47.37	14.44	0.03	0.19	Average
10	0.4237340	31.49	-25.88	57.37	31.27	0.03	0.19	QP
11	0.5312500	9.47	-36.53	46.00	9.26	0.04	0.17	Average
12	0.5312500	20.35	-35.65	56.00	20.14	0.04	0.17	QP
13	10.620	20.35	-29.65	50.00	19.94	0.20	0.21	Average
14	10.620	28.11	-31.89	60.00	27.70	0.20	0.21	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.

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Ch. Frequency (kHz)	562.50		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1515980	55.81	-10.10	65.91	55.55	0.02	0.24	QP
2	0.1515980	37.82	-18.09	55.91	37.56	0.02	0.24	Average
3	0.1685440	53.89	-11.14	65.03	53.65	0.02	0.22	QP
4	0.1685440	35.99	-19.04	55.03	35.75	0.02	0.22	Average
5	0.1824860	32.80	-21.57	54.37	32.57	0.02	0.21	Average
6	0.1824860	52.30	-12.07	64.37	52.07	0.02	0.21	QP
7	0.2150610	27.96	-25.05	53.01	27.74	0.02	0.20	Average
8	0.2150610	44.64	-18.37	63.01	44.42	0.02	0.20	QP
9	0.2802930	21.48	-29.33	50.81	21.26	0.02	0.20	Average
10	0.2802930	38.59	-22.22	60.81	38.37	0.02	0.20	QP
11	0.5625000	10.11	-35.89	46.00	9.91	0.04	0.16	Average
12	0.5625000	19.97	-36.03	56.00	19.77	0.04	0.16	QP
13	10.620	20.44	-29.56	50.00	20.03	0.20	0.21	Average
14	10.620	28.43	-31.57	60.00	28.02	0.20	0.21	QP

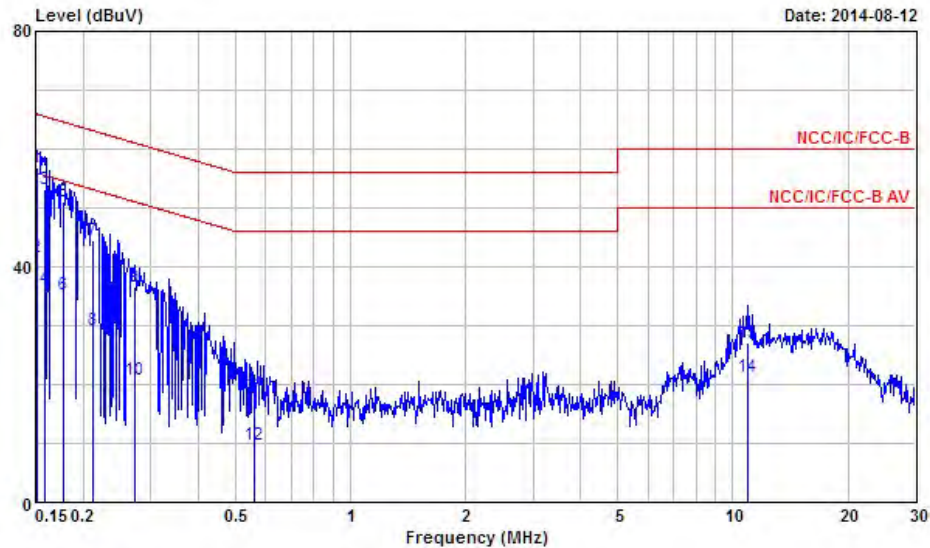
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

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.

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Ch. Frequency (kHz)	562.50		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1507970	56.81	-9.15	65.96	56.54	0.03	0.24	QP
2	0.1507970	41.48	-14.48	55.96	41.21	0.03	0.24	Average
3	0.1590020	53.23	-12.29	65.52	52.97	0.03	0.23	QP
4	0.1590020	36.34	-19.18	55.52	36.08	0.03	0.23	Average
5	0.1777150	50.93	-13.66	64.59	50.68	0.03	0.22	QP
6	0.1777150	35.15	-19.44	54.59	34.90	0.03	0.22	Average
7	0.2116700	44.57	-18.57	63.14	44.34	0.03	0.20	QP
8	0.2116700	29.17	-23.97	53.14	28.94	0.03	0.20	Average
9	0.2715230	36.59	-24.48	61.07	36.36	0.03	0.20	QP
10	0.2715230	20.91	-30.16	51.07	20.68	0.03	0.20	Average
11	0.5625000	18.43	-37.57	56.00	18.23	0.04	0.16	QP
12	0.5625000	9.66	-36.34	46.00	9.46	0.04	0.16	Average
13	10.900	27.13	-32.87	60.00	26.71	0.20	0.22	QP
14	10.900	21.30	-28.70	50.00	20.88	0.20	0.22	Average

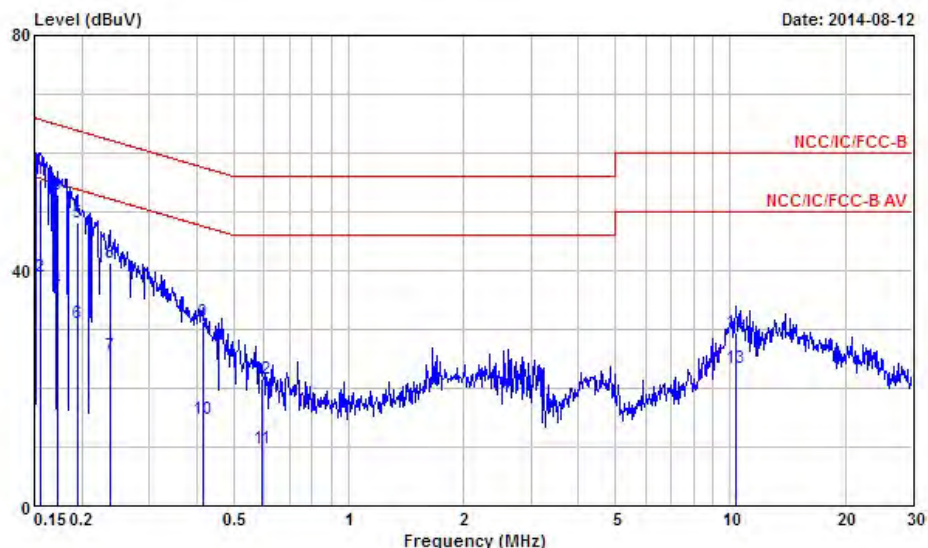
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

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	Neutral
Ch. Frequency (kHz)	593.75		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1556680	55.61	-10.08	65.69	55.35	0.02	0.24	QP
2	0.1556680	39.03	-16.66	55.69	38.77	0.02	0.24	Average
3	0.1730690	53.02	-11.79	64.81	52.78	0.02	0.22	QP
4	0.1730690	36.76	-18.05	54.81	36.52	0.02	0.22	Average
5	0.1944650	48.10	-15.74	63.84	47.88	0.02	0.20	QP
6	0.1944650	31.17	-22.67	53.84	30.95	0.02	0.20	Average
7	0.2365810	25.41	-26.81	52.22	25.19	0.02	0.20	Average
8	0.2365810	41.19	-21.03	62.22	40.97	0.02	0.20	QP
9	0.4170520	31.40	-26.11	57.51	31.17	0.03	0.20	QP
10	0.4170520	14.67	-32.84	47.51	14.44	0.03	0.20	Average
11	0.5937500	9.70	-36.30	46.00	9.50	0.04	0.16	Average
12	0.5937500	21.64	-34.36	56.00	21.44	0.04	0.16	QP
13	10.340	23.31	-26.69	50.00	22.90	0.20	0.21	Average
14	10.340	29.43	-30.57	60.00	29.02	0.20	0.21	QP

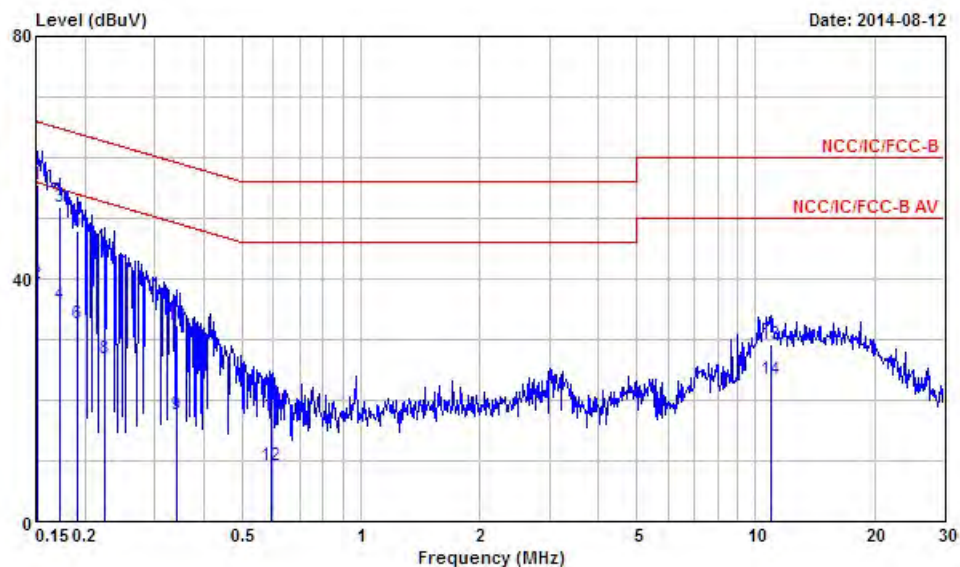
Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

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.

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Ch. Frequency (kHz)	593.75		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1515980	55.46	-10.45	65.91	55.19	0.03	0.24	QP
2	0.1515980	39.24	-16.67	55.91	38.97	0.03	0.24	Average
3	0.1721540	51.89	-12.97	64.86	51.64	0.03	0.22	QP
4	0.1721540	35.78	-19.08	54.86	35.53	0.03	0.22	Average
5	0.1903870	47.85	-16.17	64.02	47.61	0.03	0.21	QP
6	0.1903870	32.54	-21.48	54.02	32.30	0.03	0.21	Average
7	0.2231870	42.51	-20.19	62.70	42.28	0.03	0.20	QP
8	0.2231870	26.90	-25.80	52.70	26.67	0.03	0.20	Average
9	0.3409970	17.76	-31.42	49.18	17.53	0.03	0.20	Average
10	0.3409970	32.28	-26.90	59.18	32.05	0.03	0.20	QP
11	0.5937500	17.42	-38.58	56.00	17.22	0.04	0.16	QP
12	0.5937500	9.21	-36.79	46.00	9.01	0.04	0.16	Average
13	10.900	29.32	-30.68	60.00	28.90	0.20	0.22	QP
14	10.900	23.41	-26.59	50.00	22.99	0.20	0.22	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.

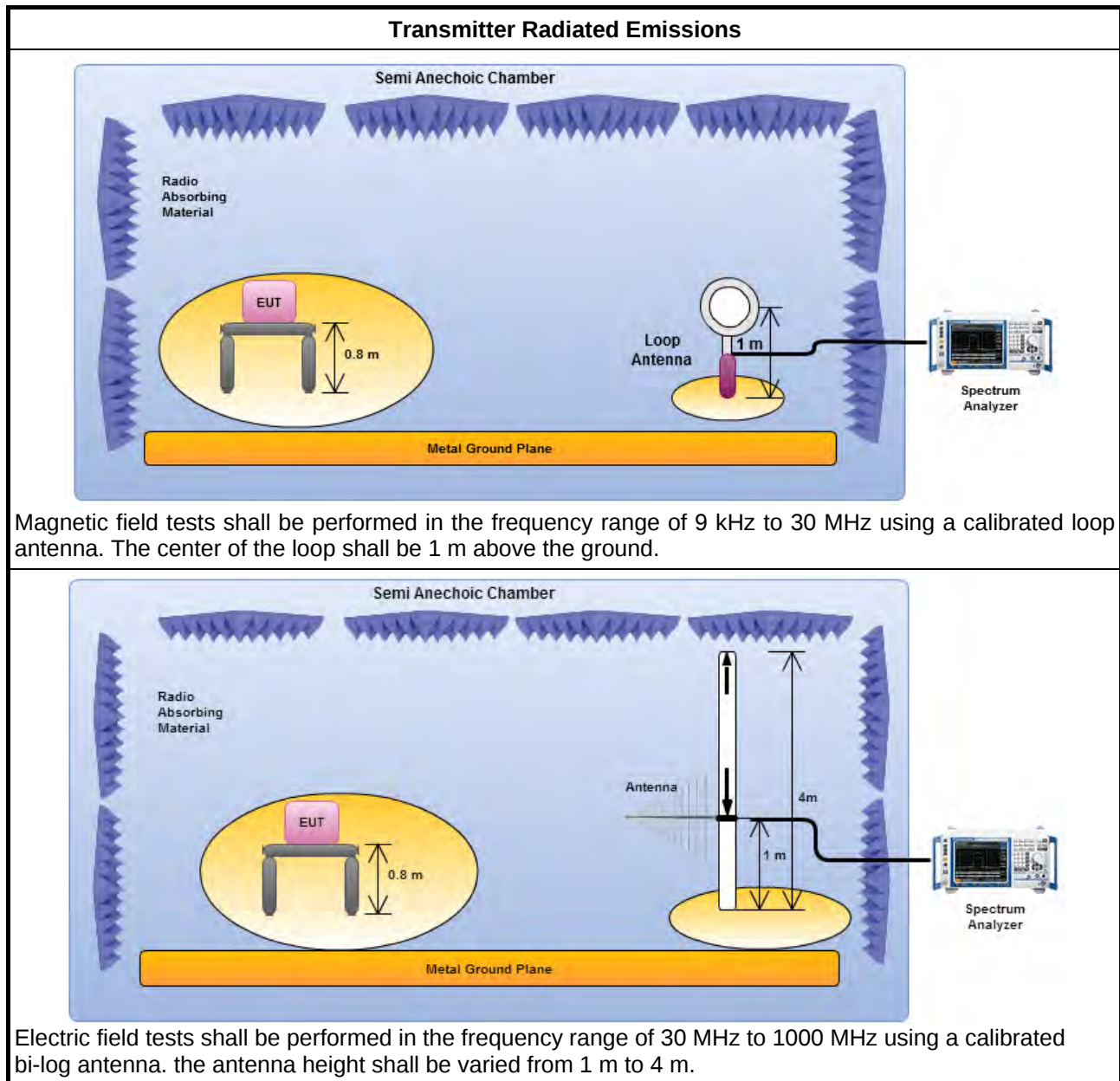
3.2.2 Measuring Instruments

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

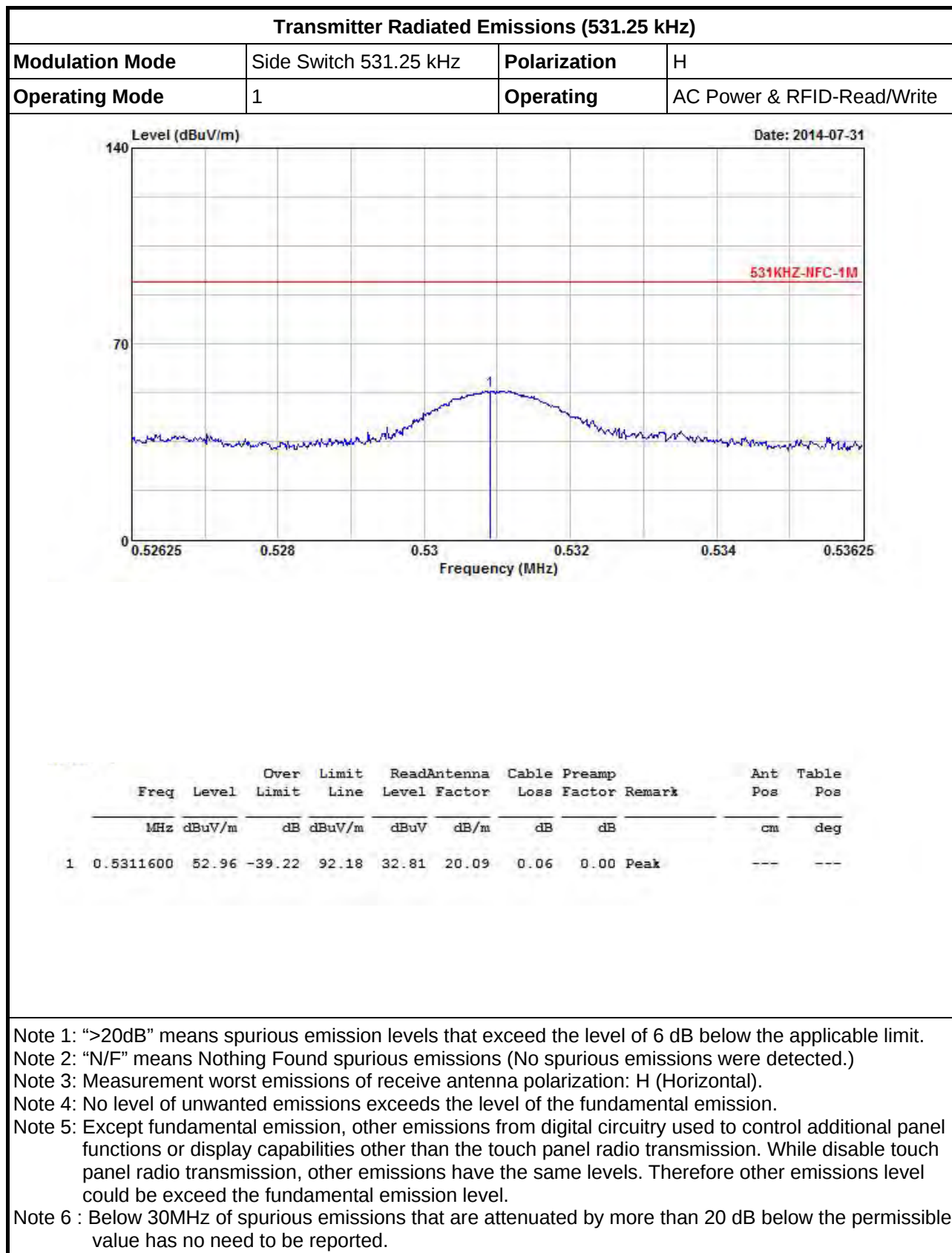
3.2.3 Test Procedures

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

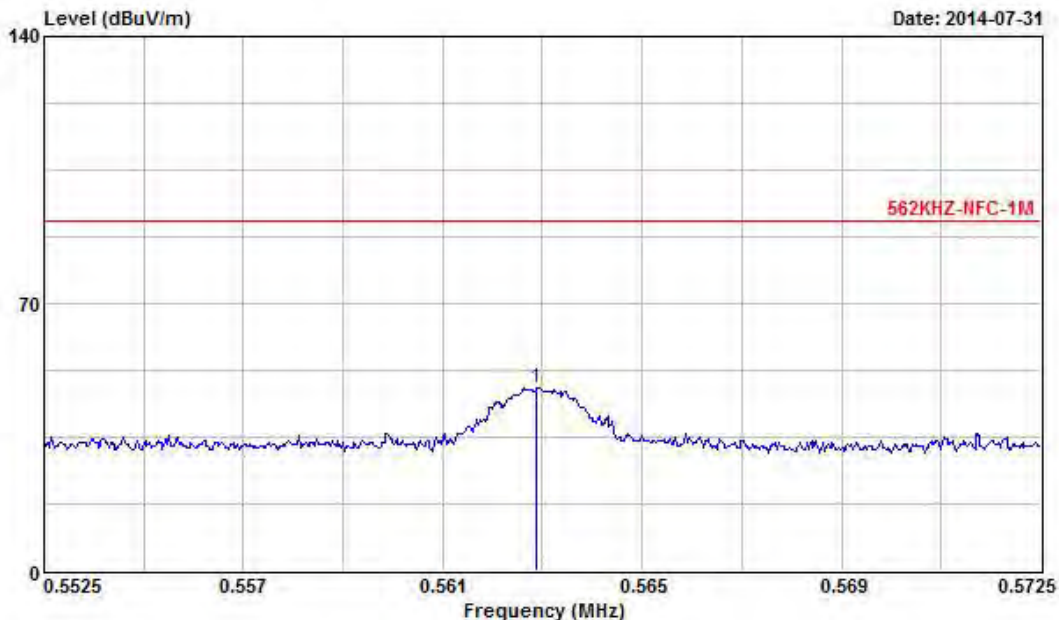


3.2.5 Transmitter Radiated Emissions (Below 30MHz)



Transmitter Radiated Emissions (562.50 kHz)

Modulation Mode	Tip Switch 562.50 kHz	Polarization	H
Operating Mode	1	Operating	AC Power & RFID-Read/Write



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	0.5623800	47.87	-43.82	91.69	27.70	20.07	0.10	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).

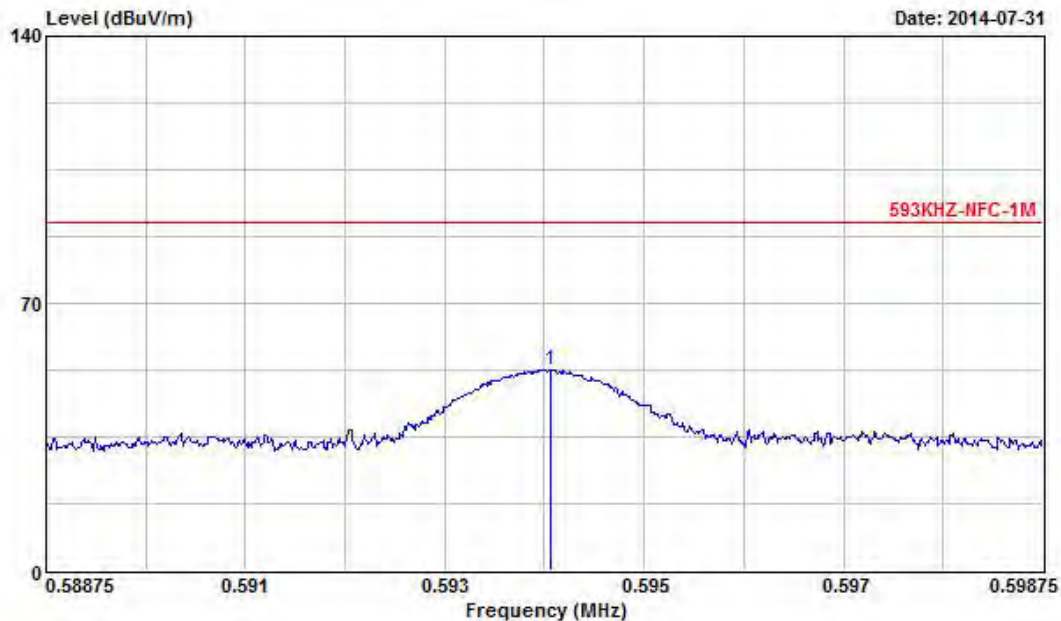
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

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 (593.75 kHz)

Modulation Mode	Eraser Switch 593.75 kHz	Polarization	H
Operating Mode	1	Operating	AC Power & RFID-Read/Write



Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Preamp Loss	Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 @ 0.5938100	52.71	-38.51	91.22	32.55	20.06	0.10	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.)

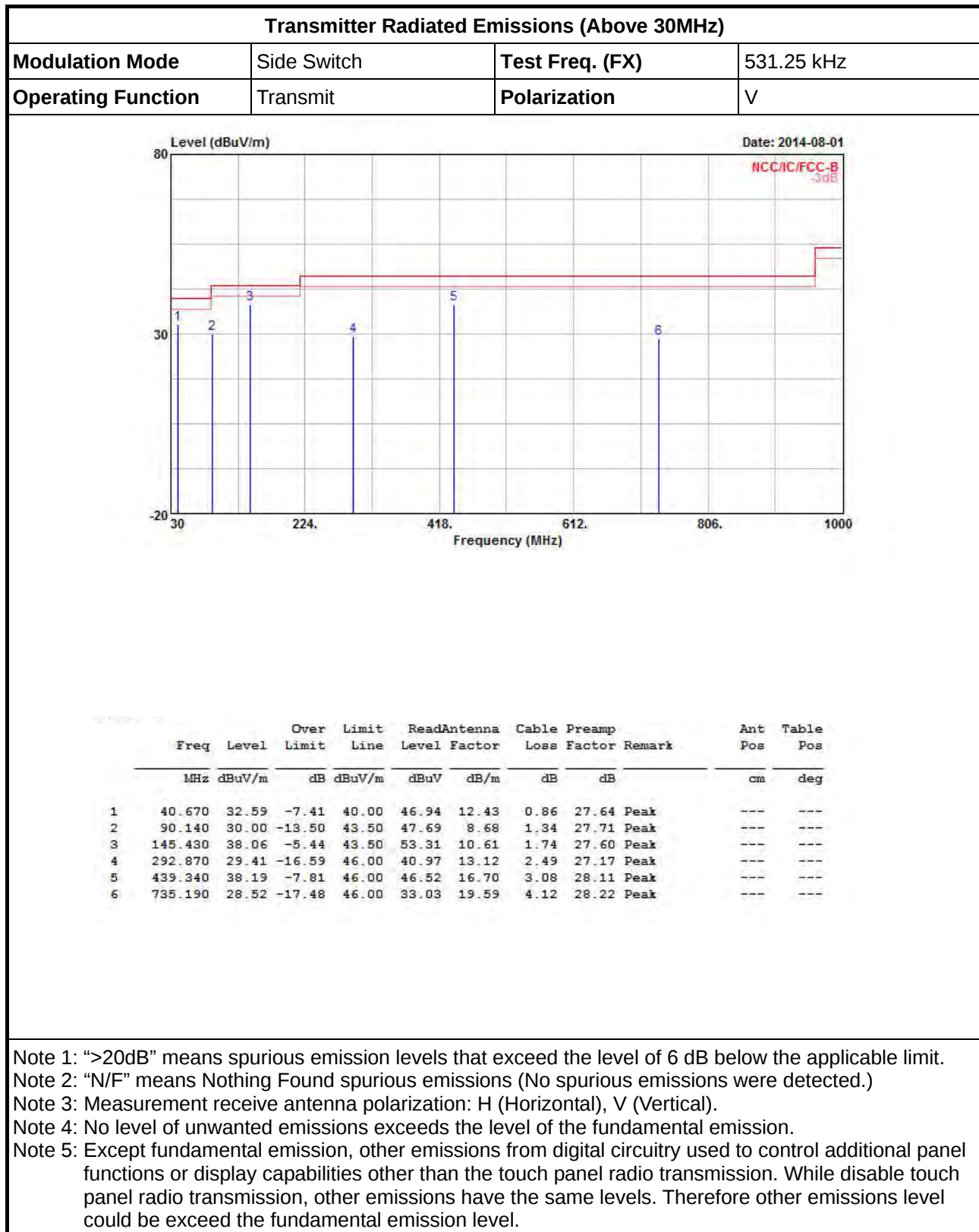
Note 3: Measurement worst emissions of receive antenna polarization: H (Horizontal).

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.

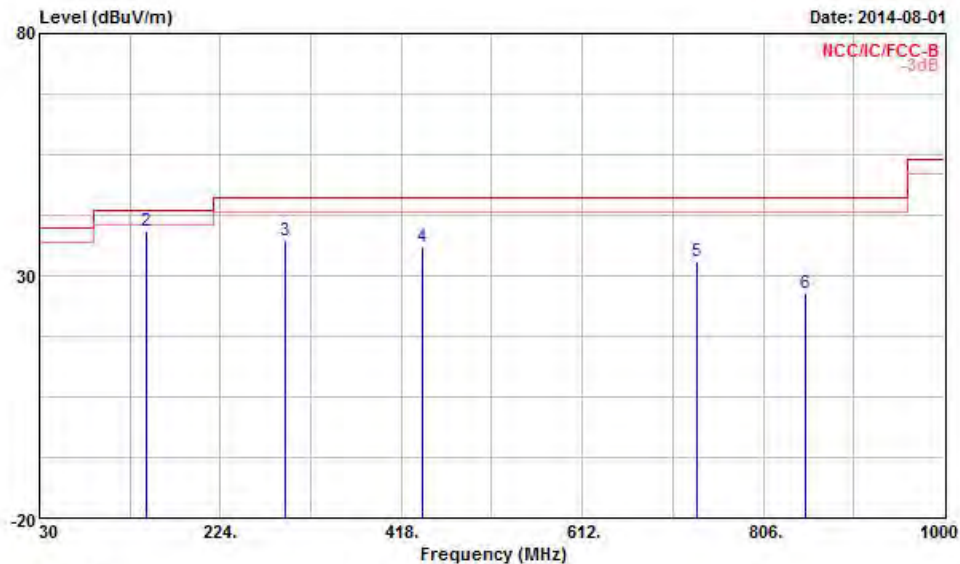
Note 6 : Below 30MHz of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.2.6 Transmitter Radiated Emissions (Above 30MHz)



Transmitter Radiated Emissions (Above 30MHz)

Modulation Mode	Side Switch	Test Freq. (FX)	531.25 kHz
Operating Function	Transmit	Polarization	H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	30.000	24.47	-15.53	40.00	33.06	18.47	0.75	27.81	Peak	---
2	145.430	39.34	-4.16	43.50	54.59	10.61	1.74	27.60	Peak	---
3	292.870	37.31	-8.69	46.00	48.87	13.12	2.49	27.17	Peak	---
4	440.310	35.94	-10.06	46.00	44.27	16.70	3.09	28.12	Peak	---
5	734.220	32.82	-13.18	46.00	37.34	19.59	4.11	28.22	Peak	---
6	851.590	26.32	-19.68	46.00	29.35	20.36	4.52	27.91	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.)

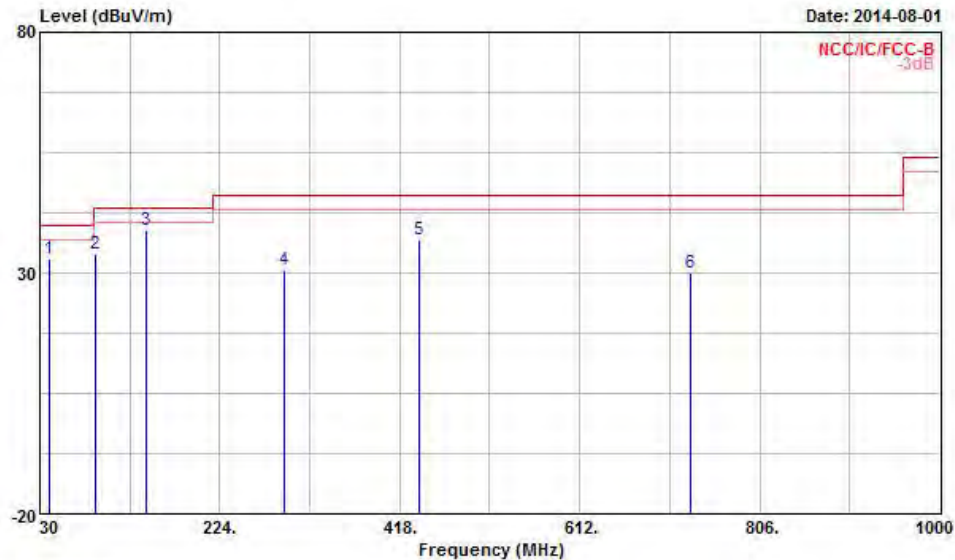
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical).

Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

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	Tip Switch	Test Freq. (FX)	562.50 kHz
Operating Function	Transmit	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	40.670	33.03	-6.97	40.00	47.38	12.43	0.86	27.64	Peak	---	---
2	90.140	33.98	-9.52	43.50	51.67	8.68	1.34	27.71	Peak	---	---
3	145.430	38.74	-4.76	43.50	53.99	10.61	1.74	27.60	Peak	---	---
4	292.870	30.65	-15.35	46.00	42.21	13.12	2.49	27.17	Peak	---	---
5	439.340	37.06	-8.94	46.00	45.39	16.70	3.08	28.11	Peak	---	---
6	731.310	29.95	-16.05	46.00	34.52	19.56	4.10	28.23	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.)

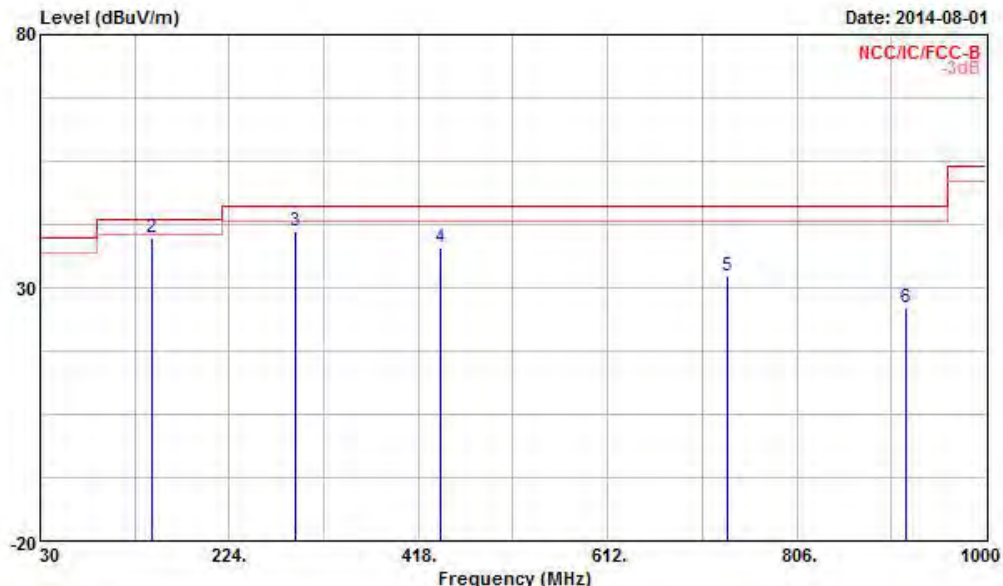
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical).

Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

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	Tip Switch	Test Freq. (FX)	562.50 kHz
Operating Function	Transmit	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Factor	Remark	Ant Pos	Table Pos
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB		cm	deg
1	30.000	23.76	-16.24	40.00	32.35	18.47	0.75	27.81	Peak	---	---
2 @	145.430	39.93	-3.57	43.50	55.18	10.61	1.74	27.60	Peak	---	---
3	291.900	41.11	-4.89	46.00	52.68	13.11	2.49	27.17	Peak	---	---
4	440.310	37.93	-8.07	46.00	46.26	16.70	3.09	28.12	Peak	---	---
5	734.220	32.15	-13.85	46.00	36.67	19.59	4.11	28.22	Peak	---	---
6	917.550	26.04	-19.96	46.00	28.55	20.63	4.61	27.75	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.)

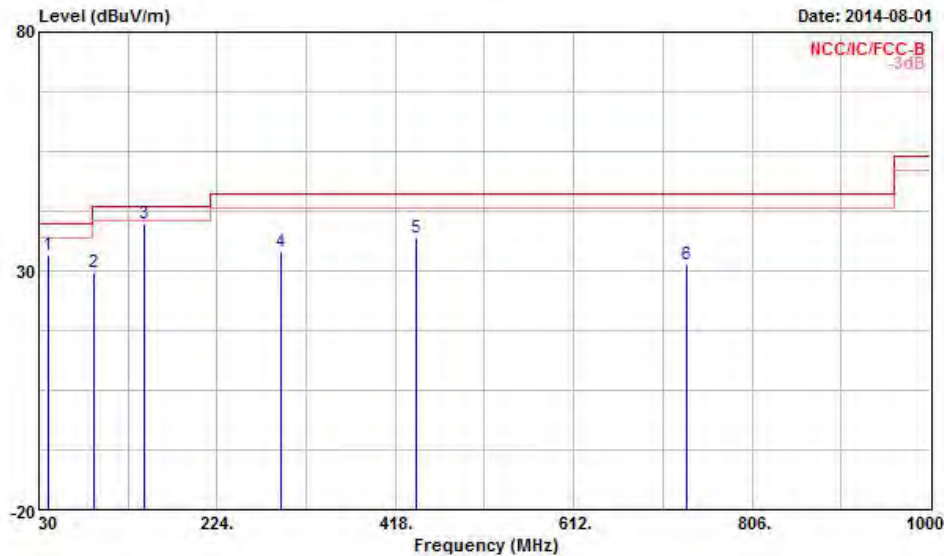
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical).

Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

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	Eraser Switch	Test Freq. (FX)	593.75 kHz
Operating Function	Transmit	Polarization	V



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	40.670	33.34	-6.66	40.00	47.69	12.43	0.86	27.64	Peak	---
2	90.140	29.70	-13.80	43.50	47.39	8.68	1.34	27.71	Peak	---
3	145.430	39.72	-3.78	43.50	54.97	10.61	1.74	27.60	Peak	---
4	292.870	33.84	-12.16	46.00	45.40	13.12	2.49	27.17	Peak	---
5	440.310	36.99	-9.01	46.00	45.32	16.70	3.09	28.12	Peak	---
6	734.220	31.40	-14.60	46.00	35.92	19.59	4.11	28.22	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.)

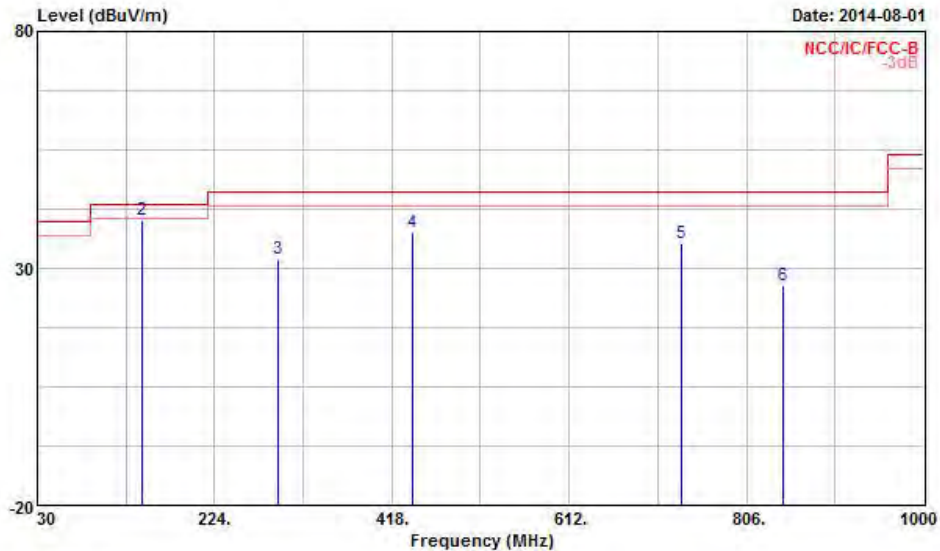
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical).

Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.

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	Eraser Switch	Test Freq. (FX)	593.75 kHz
Operating Function	Transmit	Polarization	H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	30.000	24.94	-15.06	40.00	33.53	18.47	0.75	27.81	Peak	---
2	145.430	40.25	-3.25	43.50	55.50	10.61	1.74	27.60	Peak	---
3	292.870	31.94	-14.06	46.00	43.50	13.12	2.49	27.17	Peak	---
4	440.310	37.68	-8.32	46.00	46.01	16.70	3.09	28.12	Peak	---
5	734.220	35.41	-10.59	46.00	39.93	19.59	4.11	28.22	Peak	---
6	846.740	26.35	-19.65	46.00	29.45	20.33	4.50	27.93	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.

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

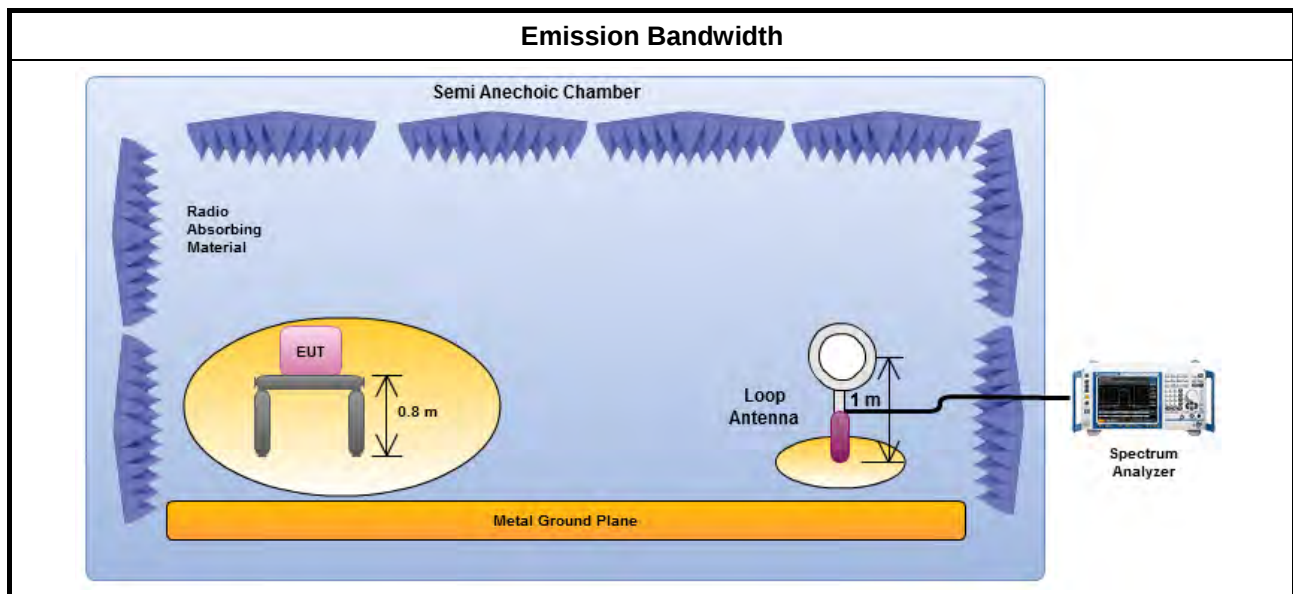
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

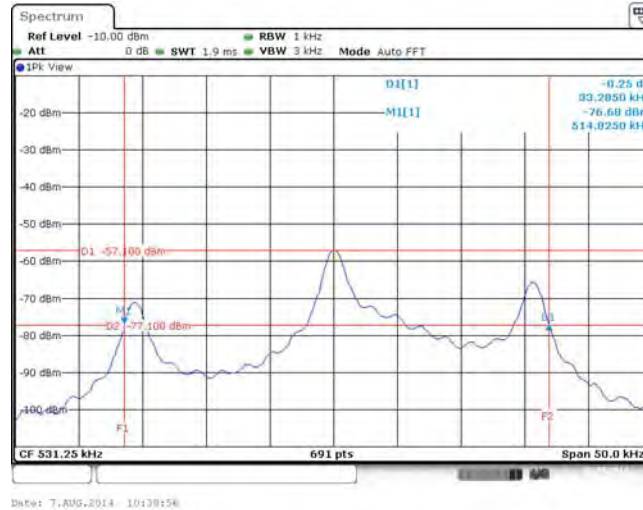
Test Method
☒ For the emission bandwidth refer ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
☒ For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.

3.3.4 Test Setup

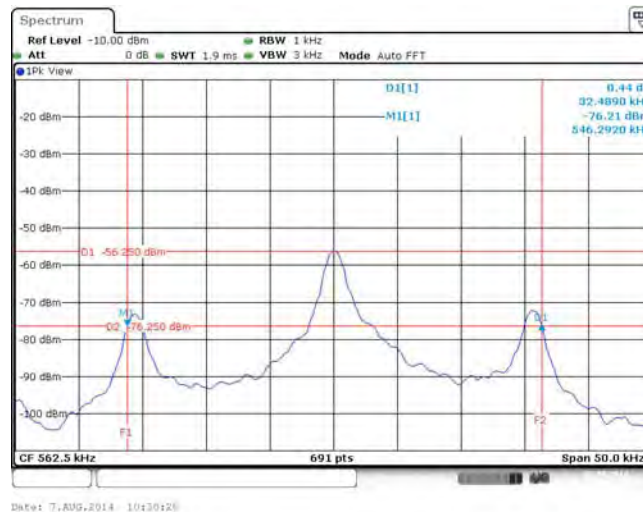


3.3.5 Test Result of Emission Bandwidth

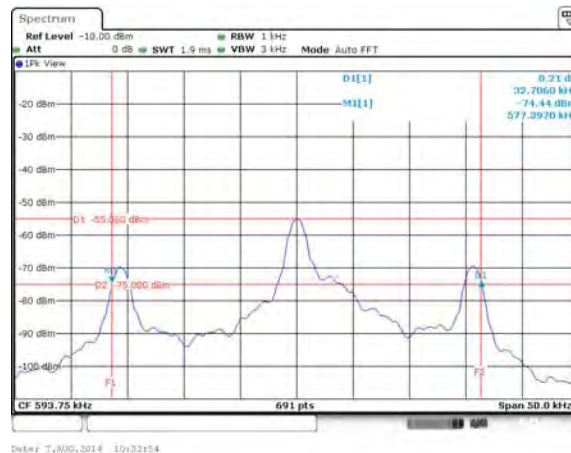
Emission Bandwidth Plot – 531.25 kHz



Emission Bandwidth Plot – 562.50 kHz



Emission Bandwidth Plot – 593.75 kHz



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz ~ 2.75GHz	Mar. 26, 2014	AC Conduction
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 21, 2014	AC Conduction
RF Cable-CON	HUBER+SUHNER	RG213/U	0-7611832020001	9kHz ~ 30MHz	Oct. 30, 2013	AC Conduction
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	AC Conduction

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV 40	101013	9kHz~40GHz	Jan. 25, 2014	RF Conducted
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jun. 26, 2014	RF Conducted

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



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9kHz ~ 40GHz	Oct. 03, 2013	Radiation
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 11, 2014	Radiation
Amplifier	Agilent	8447D	2944A11149	100kHz ~ 1.3GHz	Jul. 22, 2014	Radiation
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	Nov. 09, 2013	Radiation
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 10, 2013	Radiation
Turn Table	Chaintek Instruments	3000	MF7802058	0~ 360 degree	N/A	Radiation
Antenna Mast	MF	MF7802	MF78020820 5	1 ~ 4 m	N/A	Radiation

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	TESEQ	HLA 6120	31244	9 kHz - 30 MHz	Dec. 02, 2012	Radiation

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