FCC RF TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

Card Printer

ISSUED TO
Aisino Corporation

No.18A, Xingshikou Road, Haidian District, Beijing 100097, CHINA

Tested by: Xia Long
Xia Long
(Engineer)
Date Oct. 15. 2018

Approved by:
Wei Yanquan
(Chief Engineer)
Date Oct. 15. 2018

Report No.:	BL-SZ1880228-401
EUT Name:	Card Printer
Model Name:	RCK-600
Brand Name:	Aisino
Test Standard:	47 CFR Part 15 Subpart C
	RSS-210 Issue 9 (2016-8)
	RSS-Gen Issue 4 (2014-11)
FCC ID:	2AQYCRCK600
Test Conclusion:	Pass
Test Date:	Aug. 29, 2018 ~ Oct. 12, 2018
Date of Issue:	Oct. 15, 2018

Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong, P. R. China 518055
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Revision History

Version	Issue Date	Revisions Content
Rev. 01	Sep. 30, 2018	Initial Issue
Rev. 02	Oct. 15, 2018	Added the test of Frequency Stability

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1 ADMINISTRATIVE DATA (GENERAL INFORMATION)

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1. The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. The laboratory is a testing organization accredited by American Association for Laboratory Accreditation(A2LA) according to ISO/IEC 17025.The accreditation certificate is 4344.01. The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Laboratory Condition

Ambient Temperature	20℃ to 25℃
Ambient Relative Humidity	45% to 55%
Ambient Pressure	100 kPa to 102 kPa

1.4 Announce

(1) The test report reference to the report template version v6.1.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.

(5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.

(6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Aisino Corporation
Address	No.18A, Xingshikou Road, Haidian District, Beijing 100097, CHINA

2.2 Manufacturer Information

Manufacturer	Aisino Corporation
Address	No.18A, Xingshikou Road, Haidian District, Beijing 100097, CHINA

2.3 Factory Information

Factory	Jiangmen Dascom Computer Peripherals Co.,Ltd.
Address	No.399 ,Jin Xing Road,Jiang Hai District,Jiangmen City,Guang Dong Province ,P.R. China

2.4 General Description for Equipment under Test (EUT)

EUT Name	Card Printer
Under Test Model Name	RCK-600
Series Model Name	EZF-6900,Vivid S1
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only different on model name.
Hardware Version	23021062
Software Version	V2.109.0.1
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	USB Cable	
	Length (Approx.)	1.5 m
Ancillary Equipment 2	AC Power Cable	
	Length (Approx.)	1.8 m
Ancillary Equipment 3	Magnetic ring	

2.6 Technical Information

Network and Wireless connectivity	NFC

The requirement for the following technical information of the EUT was tested in this report:

Modulation Type	ASK
Product Type	☐ Mobile ☐ Portable ☒ Fix Location
Frequency Range	13.56 MHz
Receiver Categorization	3
Number of channel	1
Tested Channel	1
Antenna Type	PCB Antenna

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C (10-1-17 Edition)	Miscellaneous Wireless Communications Services
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
3	RSS-Gen (Issue 4, Nov. 2014)	General Requirements for Compliance of Radio Apparatus
4	RSS-210 (Issue 9, Aug. 2016)	Licence-Exempt Radio Apparatus: Category I Equipment

3.2 Verdict

No.	Description	FCC Part No.	ISED Part No.	Test Result	Verdict
1	Antenna Requirement	15.203	RSS-Gen 8.3	--	Pass Note
2	Emissions Bandwidth	15.215	RSS-Gen 6.6	ANNEX A.1	Pass
3	Field Strength of Fundamental Emissions	15.225(a)	RSS-210 B.6	ANNEX A.2	Pass
4	Radiated Emissions	15.225(d) 15.209	RSS-210 B.6	ANNEX A.3	Pass
5	Frequency Stability	15.225(e)	RSS-210 B.6	ANNEX A.4	Pass
6	Conducted Emission	15.207	RSS-Gen 8.8	ANNEX A.5	Pass
Note: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203 & RSS-Gen 8.3.					

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

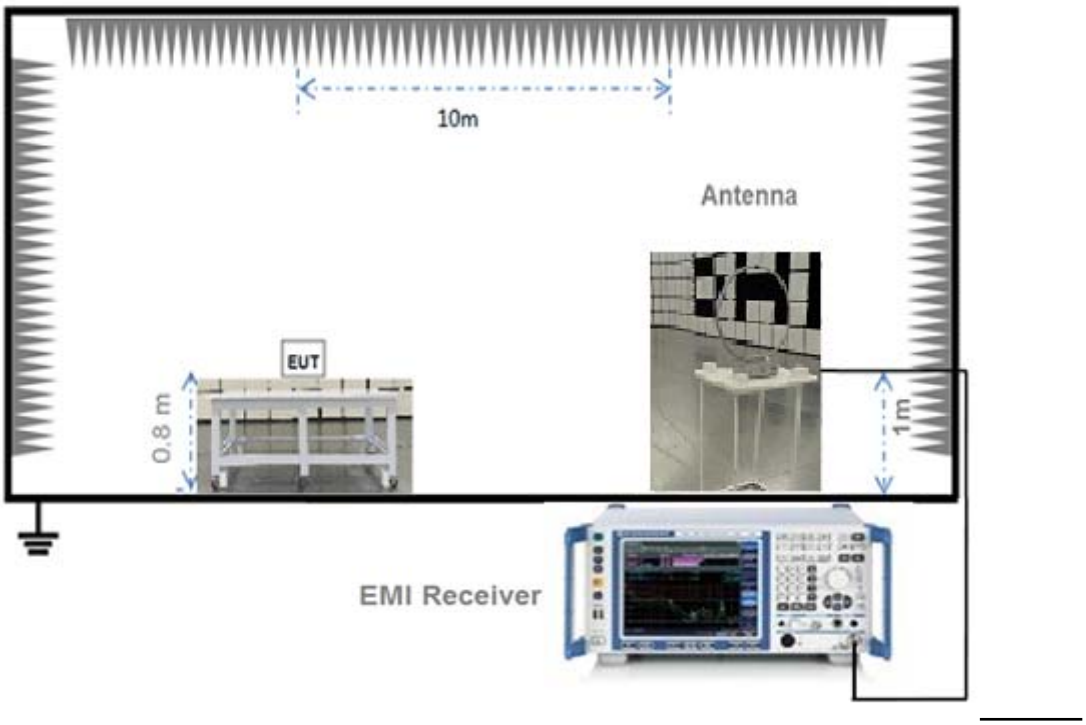
Relative Humidity	45% to 55%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+10℃ to +35℃
Working Voltage of the EUT	NV (Normal Voltage)	AC 100 V - AC 240V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-30	103118	2018.06.11	2019.06.10
Vector Signal Generator	ROHDE&SCHWARZ	SMBV100A	260592	2018.06.11	2019.06.10
Signal Generator	ROHDE&SCHWARZ	SMB100A	177746	2018.06.11	2019.06.10
Switch Unit with OSP-B157	ROHDE&SCHWARZ	OSP120	101270	2018.06.11	2019.06.10
Spectrum Analyzer	AGILENT	E4440A	MY45304434	2017.11.07	2018.11.06
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2018.06.21	2019.06.20
LISN	SCHWARZBECK	NSLK 8127	8127-687	2018.06.21	2019.06.20
Bluetooth Tester	ROHDE&SCHWARZ	CBT	101005	2018.06.11	2019.06.10
Power Splitter	KMW	DCPD-LDC	1305003215	--	--
Power Sensor	ROHDE&SCHWARZ	NRP-Z21	103971	2018.06.11	2019.06.10
Attenuator (20 dB)	KMW	ZA-S1-201	110617091	--	--
Attenuator (6 dB)	KMW	ZA-S1-61	1305003189	--	--
DC Power Supply	ROHDE&SCHWARZ	HMP2020	018141664	2018.06.21	2019.06.20
Temperature Chamber	ANGELANTIONI SCIENCE	NTH64-40A	1310	2018.06.26	2019.06.25
Test Antenna-Rod(9 kHz-30 MHz)	SCHWARZBECK	VAMP 9243	9243-556	2018.11.07	2019.11.08
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2018.07.22	2019.07.21
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2018.07.22	2019.07.21
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2018.07.11	2019.07.10
Test Antenna-Horn(15-26.5 GHz)	SCHWARZBECK	BBHA 9170	9170-305	2018.06.21	2019.06.20
Anechoic Chamber	EMC TECHNOLOGY LTD	21.1m*11.6 m*7.35m	N/A	2018.02.21	2019.02.20
Shielded Enclosure	ChangNing	CN-130701	130703	--	--

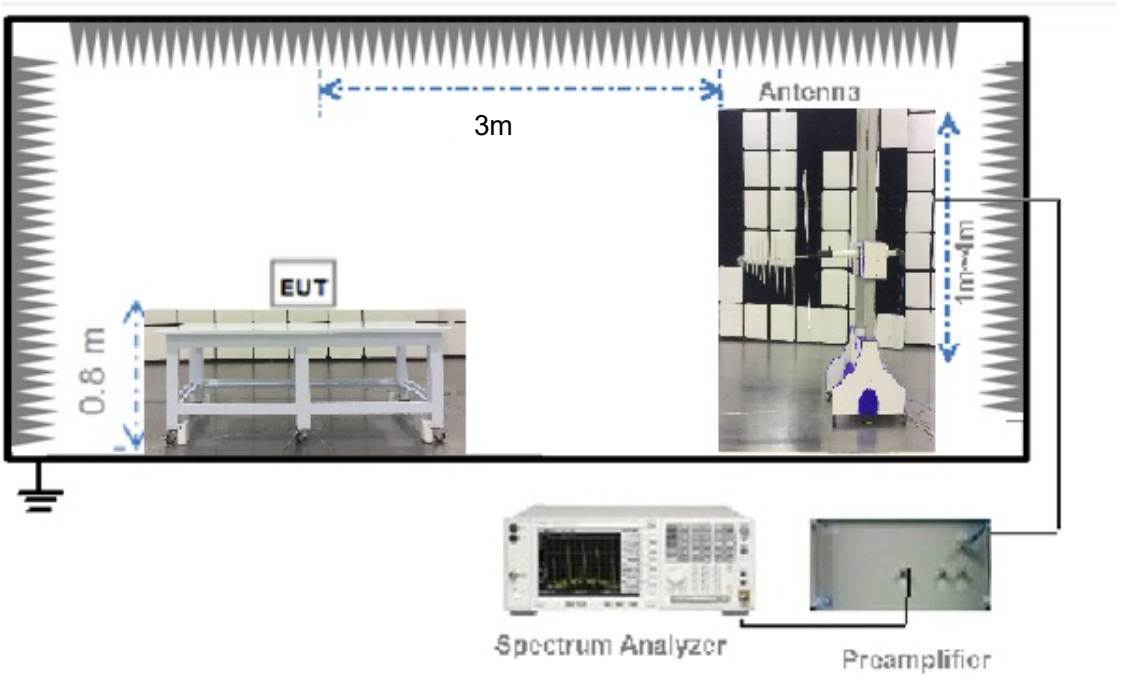
4.3 Description of Test Setup

4.3.1 For Radiated Test (Below 30 MHz)



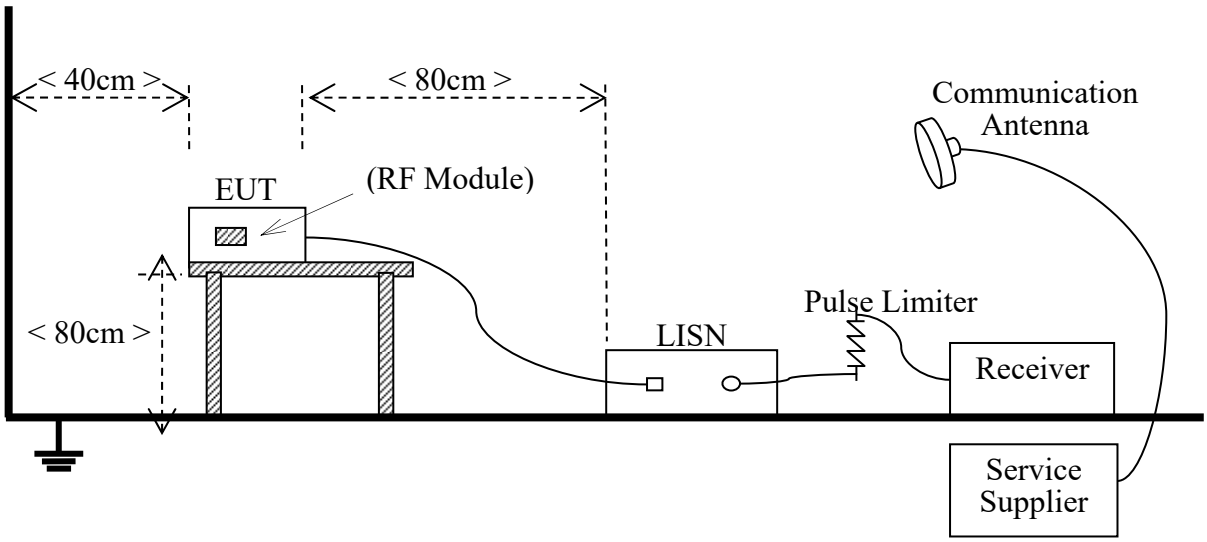
(Diagram 1)

4.3.2 For Radiated Test (30 MHz-1 GHz)



(Diagram 2)

4.3.3 For AC Power Supply Port Test



(Diagram 3)

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

RSS-Gen 8.3

The applicant for equipment certification, as per RSP-100, must provide a list of all antenna types that may be used with the licence-exempt transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna.

Licence-exempt transmitters that have received equipment certification may operate with different types of antennas. However, it is not permissible to exceed the maximum equivalent isotropically radiated power (e.i.r.p.) limits specified in the applicable standard (RSS) for the licence-exempt apparatus.

Testing shall be performed using the highest gain antenna of each combination of licence-exempt transmitter and antenna type, with the transmitter output power set at the maximum level.8 When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device’s antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

User manuals for transmitters equipped with detachable antennas shall also contain the following notice in a conspicuous location:

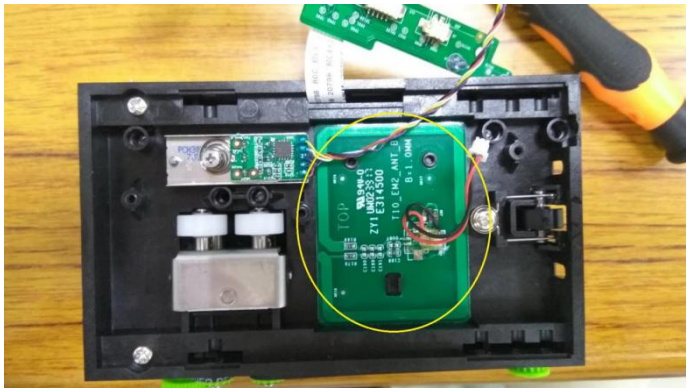
This radio transmitter (identify the device by certification number) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi).

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna design is used.

Reference Documents	Item
Photo	 

5.2 Emission Bandwidth

5.2.1 Definition

15.215(c);

Intentional radiators operating under the alternative provisions to the general emission limits must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

RSS-Gen 6.6

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth.

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

5.2.2 Test Setup

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

The 20dB bandwidth is measured with a spectrum analyzer connected via a receiver antenna placed near the EUT while the EUT is operating in transmission mode.

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth

RBW ≥ 1% of the 20 dB bandwidth & RBW = 1% to 5% OBW

VBW ≥ RBW & VBW = 3* RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.2.4 Test Result

Please refer to ANNEX A.1

5.3 Field Strength of Fundamental Emissions and Radiated Emissions

5.3.1 Limit

FCC §15.225(a), (b), (c); RSS-210 B.6

According to FCC section 15.225, for <30 MHz, Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set 10 meter away from the measuring antenna. The loop antenna was positioned 1 meter above the ground from the center of the loop. The measuring bandwidth was set to 10 KHz. (Note: During testing the receive antenna was rotated about its axis to maximize the emission from the EUT)

There was no detected Restricted bands and Radiated suprious emission below 30MHz. The 30m limit was converted to 3m Limit using square factor(x) as it was found by measurements as follows; 3 m Limit(dBuV/m) = 20log(X)+40log(30/3)= 20log(15848)+40log(30/3) = 124dBuV

Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency range (MHz)	Field Strength@30m		Field Strength@10m	Field Strength@3m
	μV/m	dBμV/m	dBμV/m	dBμV/m
Below 13.110	30	29.5	48.58	69.5
13.110 ~ 13.410	106	40.5	59.58	80.5
13.410 ~ 13.553	334	50.5	69.58	90.5
13.553 ~13.567	15848	84	103.08	124
13.567 ~ 13.710	334	50.5	69.58	90.5
13.710 ~14.010	106	40.5	59.58	80.5
Above 14.010	30	29.5	48.58	69.5

NOTE:

1. Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].
2. In the emission tables above, the tighter limit applies at the band edges.

FCC §15.225(d)

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)
0.009 - 0.490	2400/F(kHz)
0.490 - 1.705	24000/F(kHz)
1.705 - 30.0	30
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

Note:

1. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.
2. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.3.2 Test Setup

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented. The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

5.3.4 Test Result

Please refer to ANNEX A.2

5.4 Frequency Tolerance

5.4.1 Limit

FCC §15.225(e)

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

RSS-210 B.6

(a) at the temperatures of -30°C (-22°F), +20°C (+68°F) and +50°C (+122°F), and at the manufacturer's rated supply voltage; and

(b) at the temperature of +20° C (+68° F) and at ±15% of the manufacturer's rated supply voltage.

If the frequency stability limits are only met within a temperature range that is smaller than the -30° C to +50° C range specified in (a), the frequency stability requirement will be deemed to be met if the transmitter is automatically prevented from operating outside this smaller temperature range and if the published operating characteristics for the equipment are revised to reflect this restricted temperature range.

5.4.2 Test Setup

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

1. The test is performed in a Temperature Chamber.
2. The EUT is configured as MS + DC Power Supply.

5.4.4 Test Result

Please refer to ANNEX A.4.

5.5 Conducted Emission

5.5.1 Limit

FCC §15.207; RSS-Gen 8.8

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.5.2 Test Setup

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.
Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.5.4 Test Result

Please refer to ANNEX A.5.

ANNEX A TEST RESULT

A.1 Emission Bandwidth

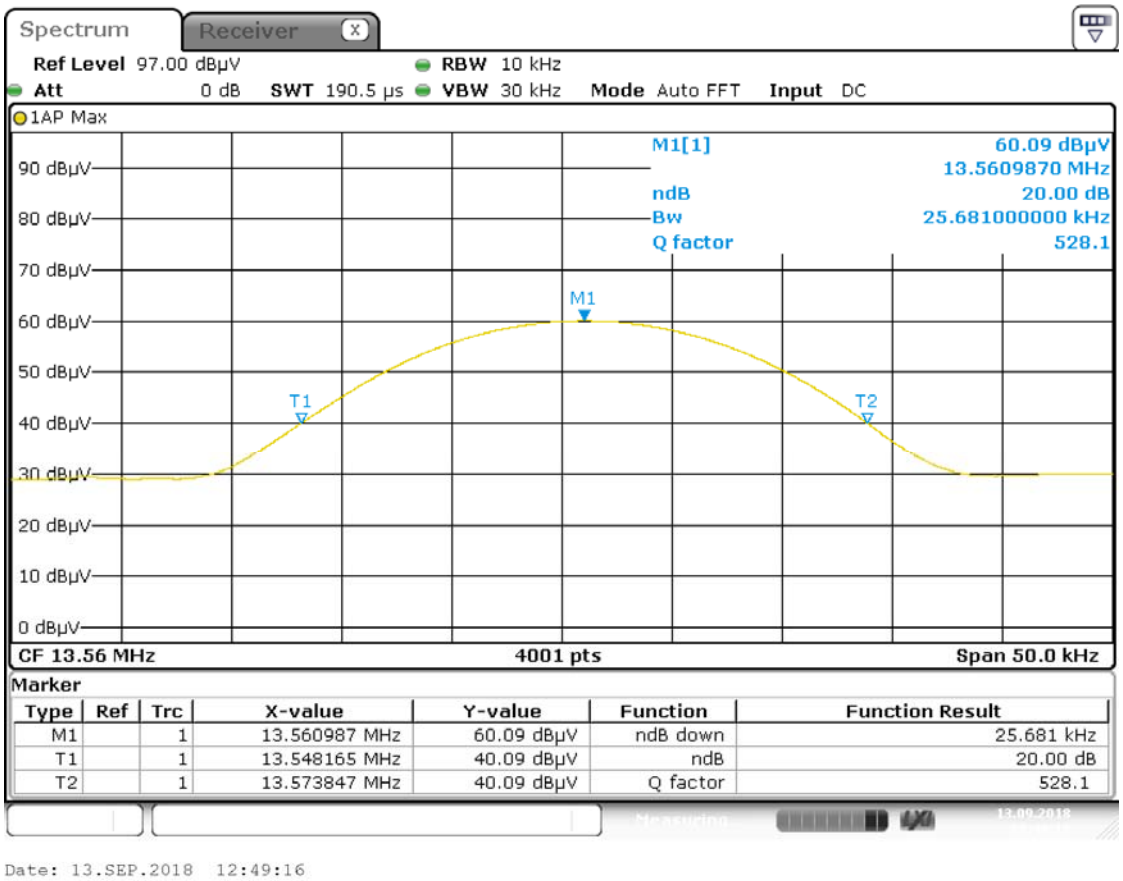
Contactless Card Reader Test Mode

Test Data

Frequency (MHz)	Emission Bandwidth (kHz)
13.56	25.681

Test plots

Emission Bandwidth



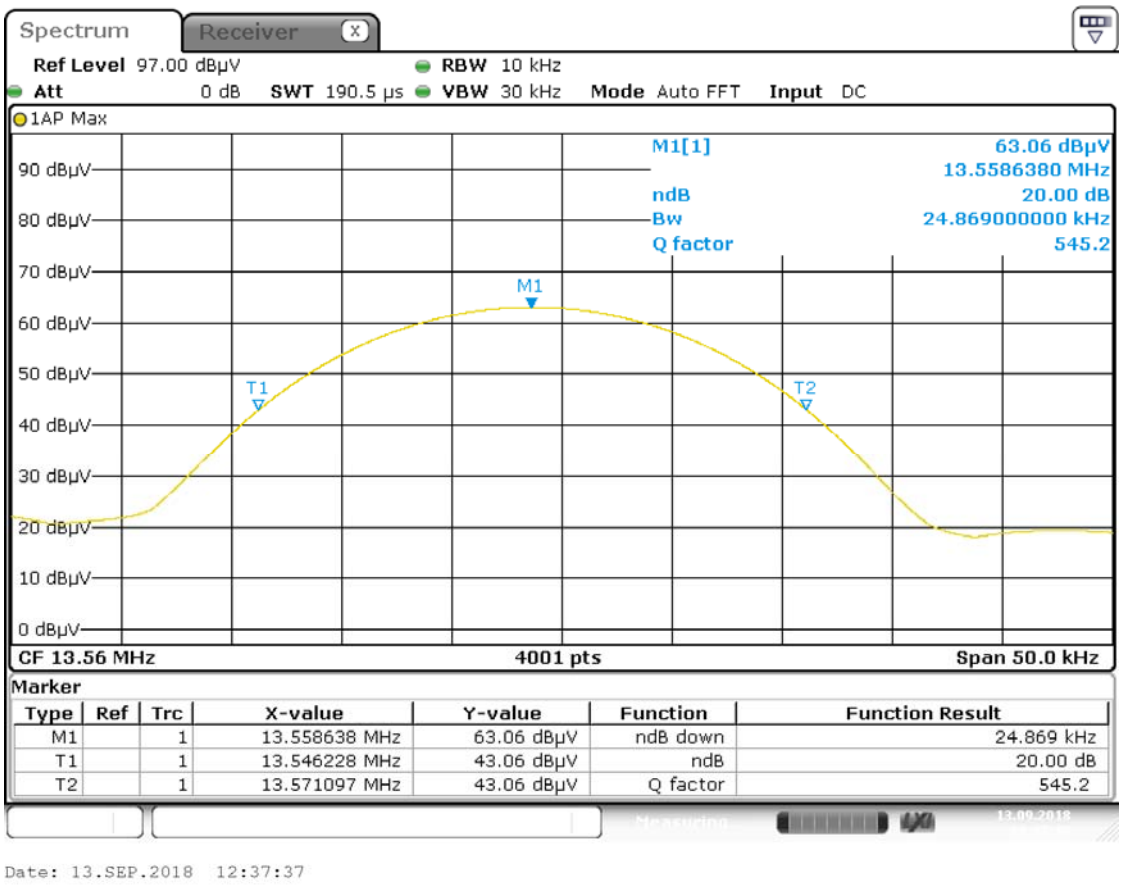
Smart Card Reader Test Mode

Test Data

Frequency (MHz)	Emission Bandwidth (kHz)
13.56	24.869

Test plots

Emission Bandwidth



A.2 Field Strength of Fundamental Emissions

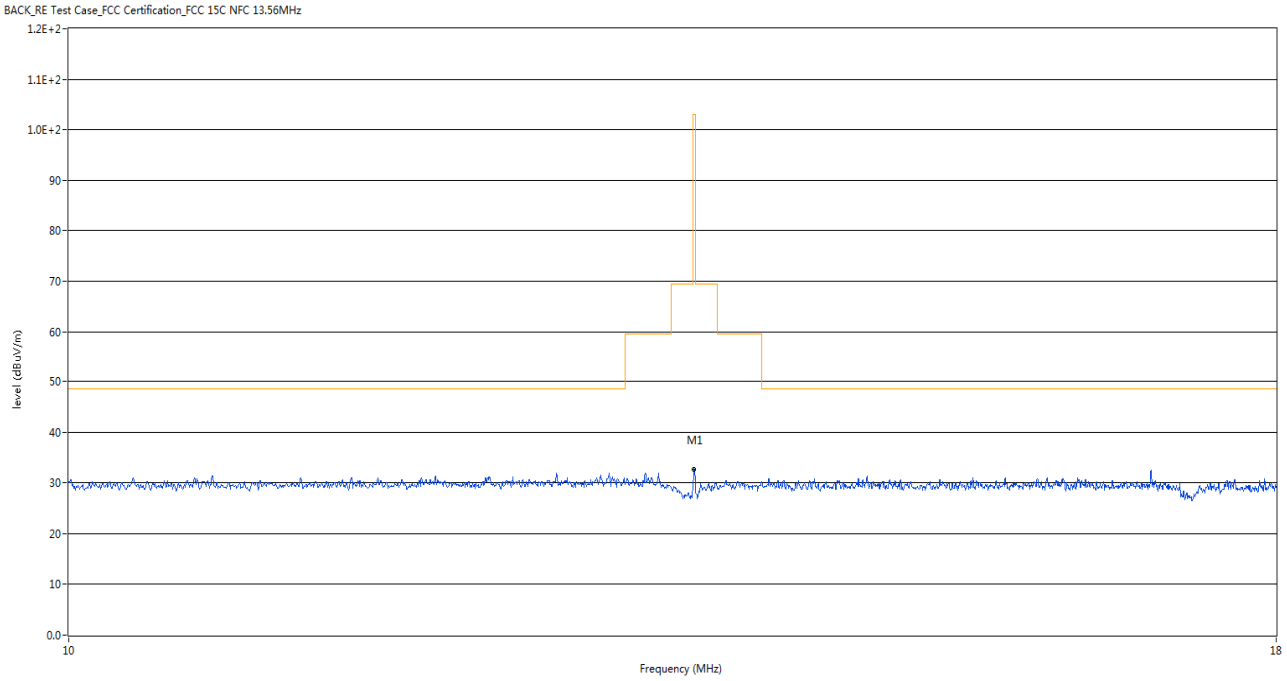
Contactless Card Reader Test Mode

Test Data

Field Strength of Fundamental Emissions Value					
Frequency (MHz)	Detector	Field Strength (dBuV/m)	Limit @3m (dBuV/m)	Antenna	Margin (dB)
13.558	PEAK	32.96	103.0	Vertical	70.04

Test Plot

ANT-LOOP ANT Vertical



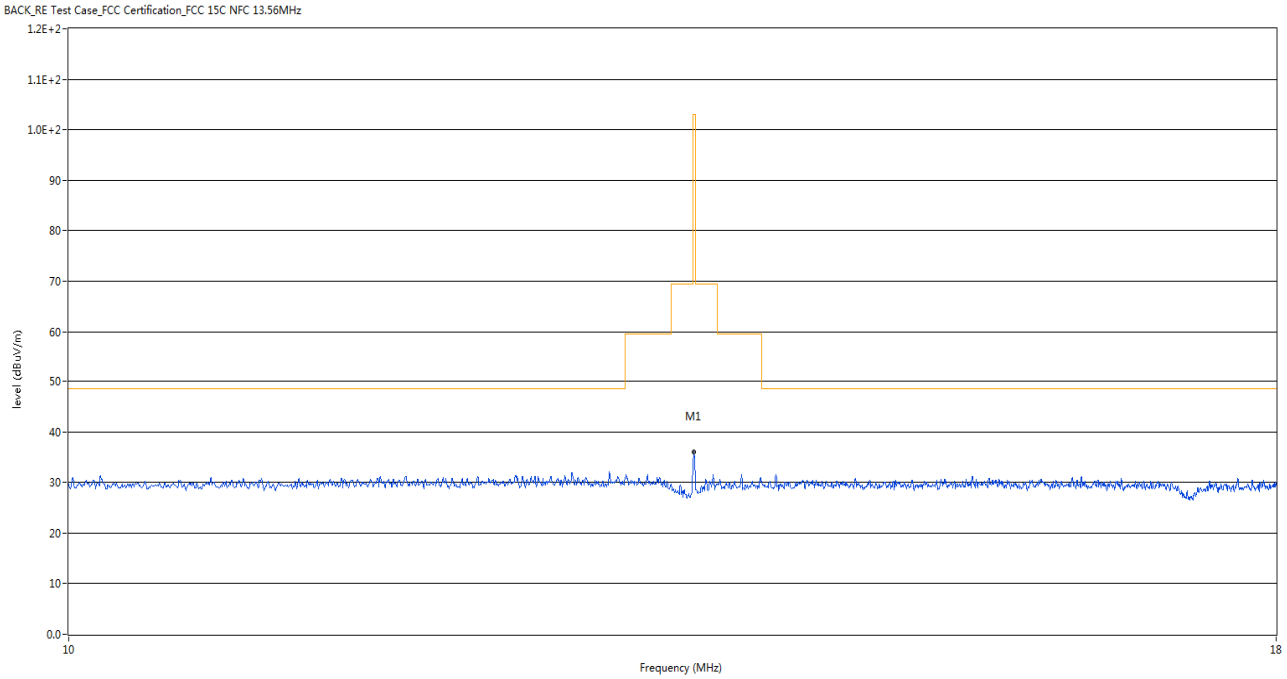
Smart Card Reader Test Mode

Test Data

Field Strength of Fundamental Emissions Value					
Frequency (MHz)	Detector	Field Strength (dBuV/m)	Limit @3m (dBuV/m)	Antenna	Margin (dB)
13.558	PEAK	36.72	103.0	Vertical	66.28

Test Plot

ANT-LOOP ANT Vertical

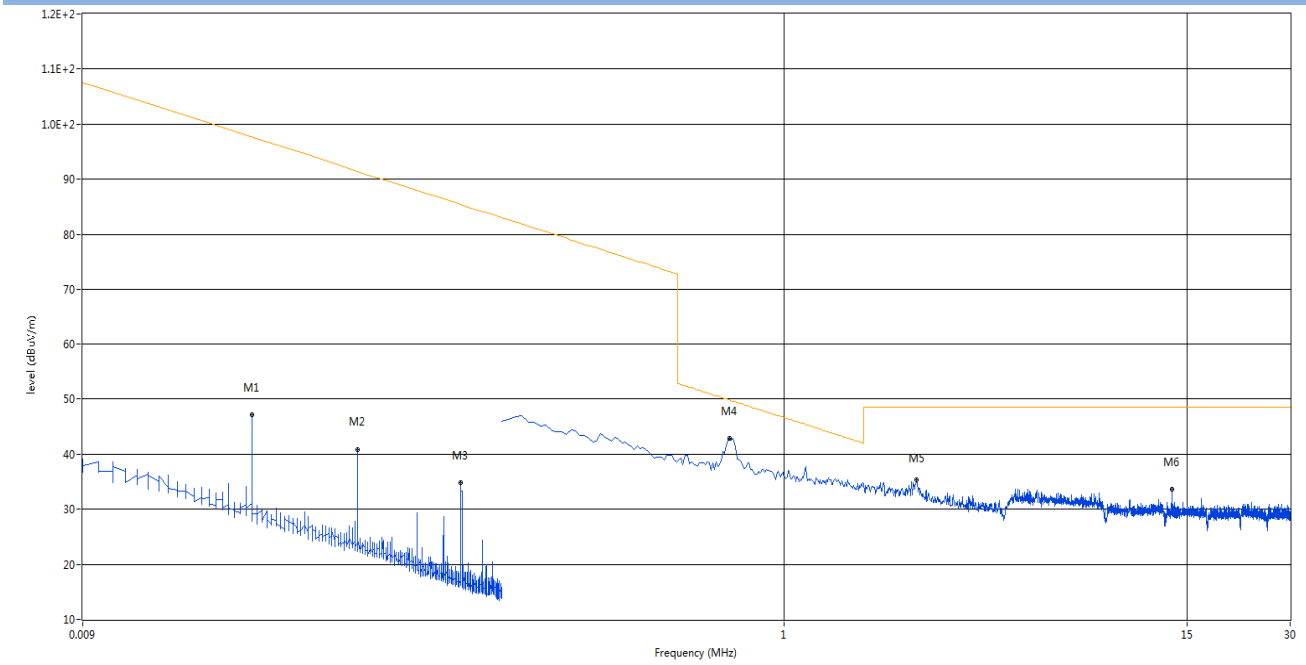


A.3 Radiated Emissions

Contactless Card Reader Test Mode

The Data and Plots (9 kHz ~ 30 MHz)

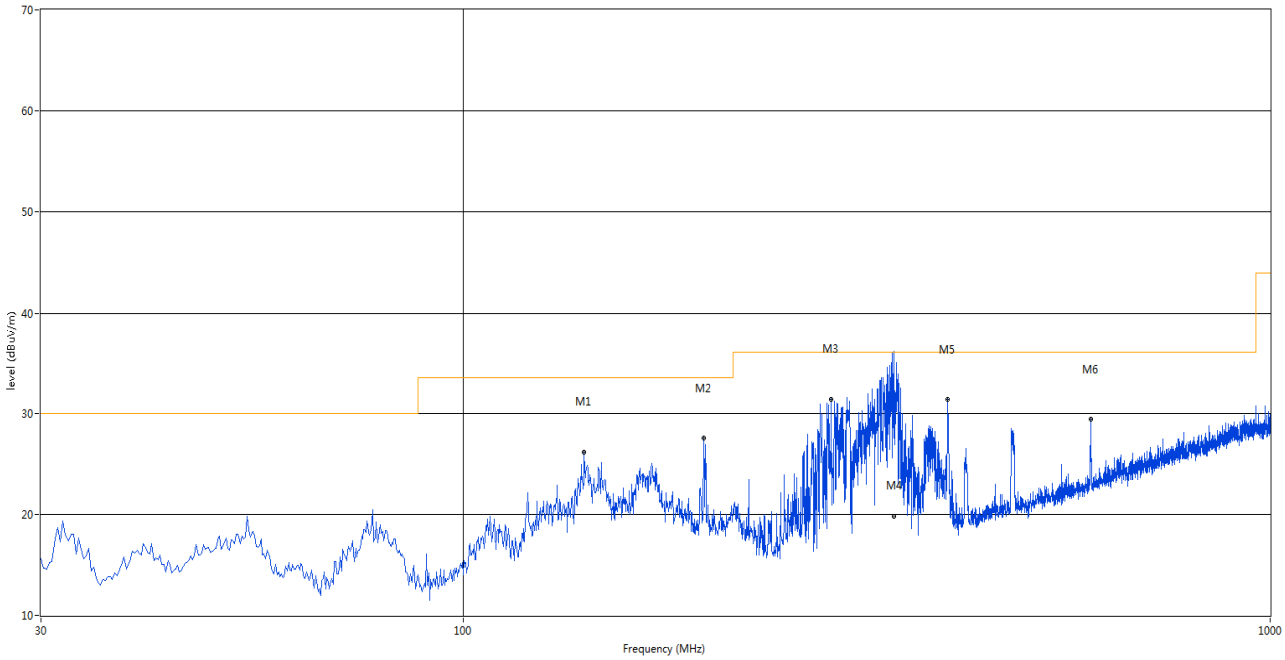
Below 30 MHz ANT Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Reading (dBuV)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	0.028	48.00	27.80	20.20	97.7	-49.70	Peak	17.00	100	Vertical	Pass
2	0.057	40.90	20.70	20.20	91.5	-50.60	Peak	360.00	100	Vertical	Pass
3	0.114	35.00	14.84	20.16	85.5	-50.50	Peak	0.00	100	Vertical	Pass
4	0.695	42.76	22.36	20.40	49.7	-6.94	Peak	120.00	100	Vertical	Pass
5	2.440	35.26	14.81	20.45	48.5	-13.24	Peak	102.00	100	Vertical	Pass
6	13.557	33.56	12.70	20.86	48.5	-14.94	Peak	49.00	100	Vertical	N/A

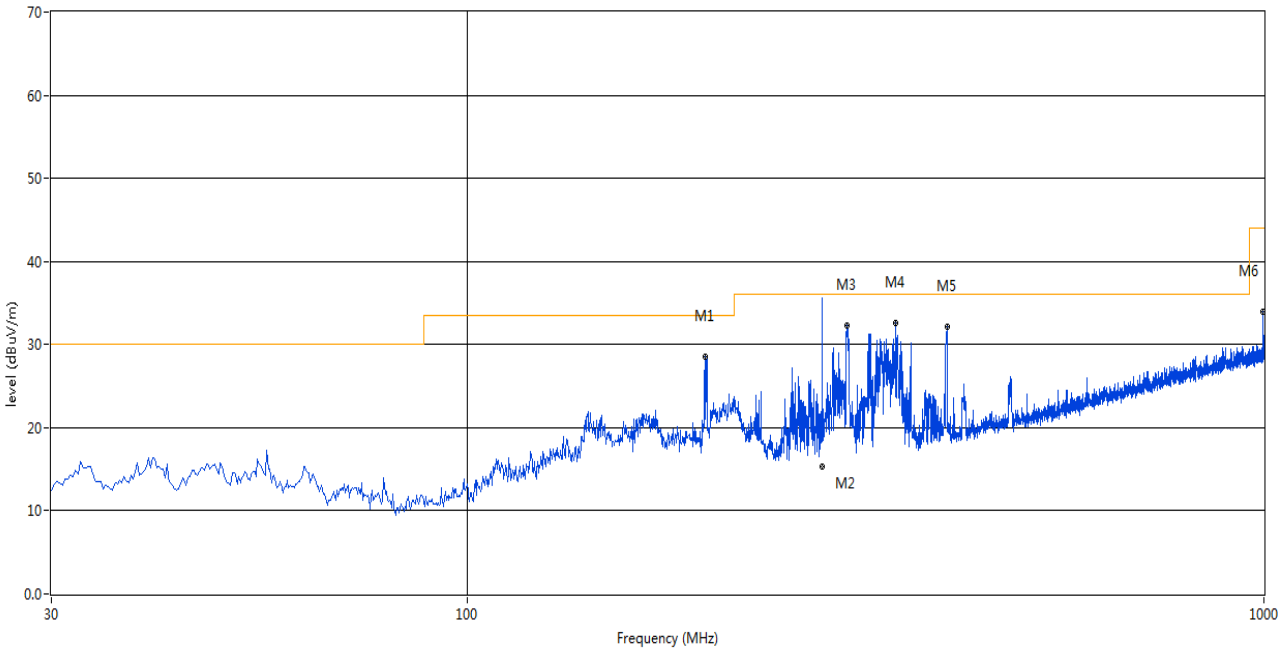
Test Data and Plots (30 MHz ~ 10th Harmonic)

30 MHz to 1 GHz, ANT Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Reading (dBuV)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	141.307	26.18	45.28	-19.10	33.5	-7.32	Peak	199.00	200	Vertical	Pass
2	198.538	27.51	49.70	-22.19	33.5	-5.99	Peak	91.00	100	Vertical	Pass
3	285.838	31.41	50.31	-18.90	36.0	-4.59	Peak	0.00	200	Vertical	Pass
4	341.529	34.38	51.92	-17.54	36.0	-1.62	Peak	0.00	100	Vertical	N/A
4*	341.529	19.77	37.31	-17.54	36.0	-16.23	QP	0.00	100	Vertical	Pass
5	398.358	31.33	47.54	-16.21	36.0	-4.67	Peak	0.00	200	Vertical	Pass
6	599.633	29.38	41.28	-11.90	36.0	-6.62	Peak	306.00	300	Vertical	Pass

30 MHz to 1 GHz, ANT Horizontal

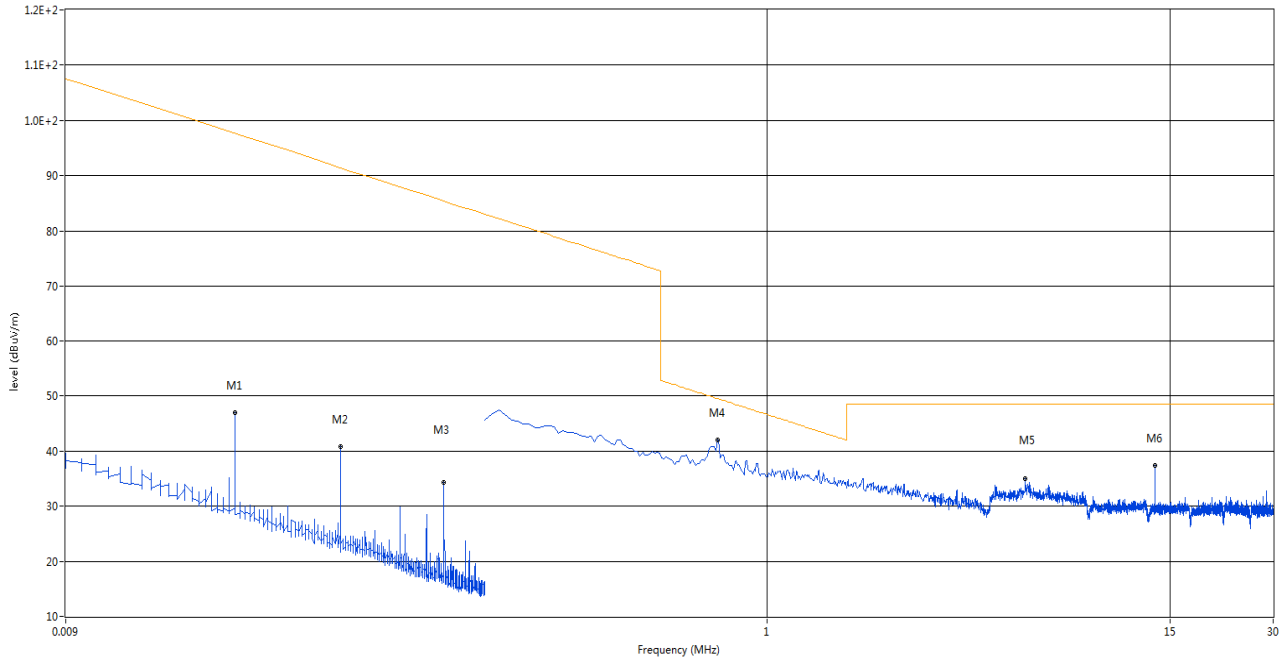


No.	Frequency (MHz)	Results (dBuV/m)	Reading (dBuV)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	198.538	28.56	50.75	-22.19	33.5	-4.94	Peak	60.00	400	Horizontal	Pass
2	278.541	32.89	52.21	-19.32	36.0	-3.11	Peak	67.00	273	Horizontal	N/A
2*	278.541	15.32	34.64	-19.32	36.0	-20.68	QP	67.00	273	Horizontal	Pass
3	299.418	32.30	50.95	-18.65	36.0	-3.70	Peak	111.00	300	Horizontal	Pass
4	345.008	32.61	50.04	-17.43	36.0	-3.39	Peak	218.00	200	Horizontal	Pass
5	400.055	32.17	48.32	-16.15	36.0	-3.83	Peak	123.00	300	Horizontal	Pass
6	997.818	33.88	40.38	-6.50	44.0	-10.12	Peak	293.00	100	Horizontal	Pass

Smart Card Reader Test Mode

The Data and Plots (9 kHz ~ 30 MHz)

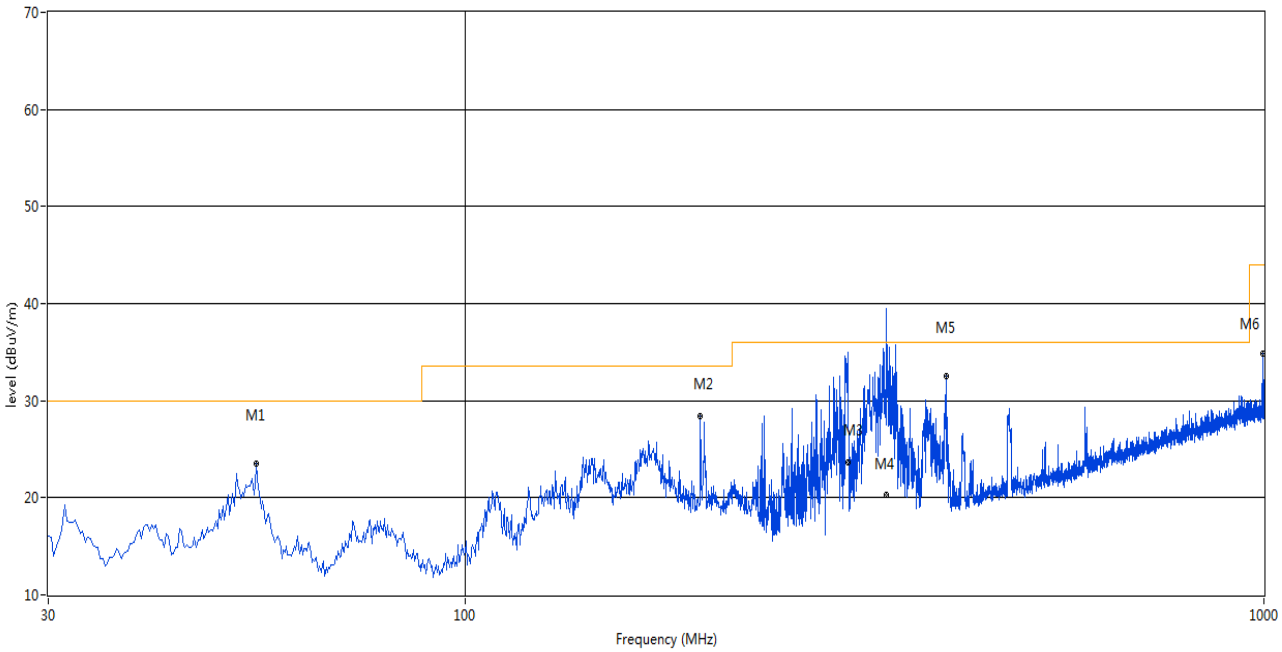
Below 30 MHz ANT Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Reading (dBuV)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	0.028	47.00	26.80	20.20	97.7	-50.70	Peak	148.00	100	Vertical	Pass
2	0.057	41.05	20.85	20.20	91.5	-50.45	Peak	157.00	100	Vertical	Pass
3	0.114	34.50	14.34	20.16	85.5	-51.00	Peak	42.00	100	Vertical	Pass
4	0.717	42.00	21.59	20.41	49.5	-7.50	Peak	257.00	100	Vertical	Pass
5	5.678	35.03	14.21	20.82	48.5	-13.47	Peak	186.00	100	Vertical	Pass
6	13.557	37.30	16.44	20.86	48.5	-11.20	Peak	160.00	100	Vertical	N/A

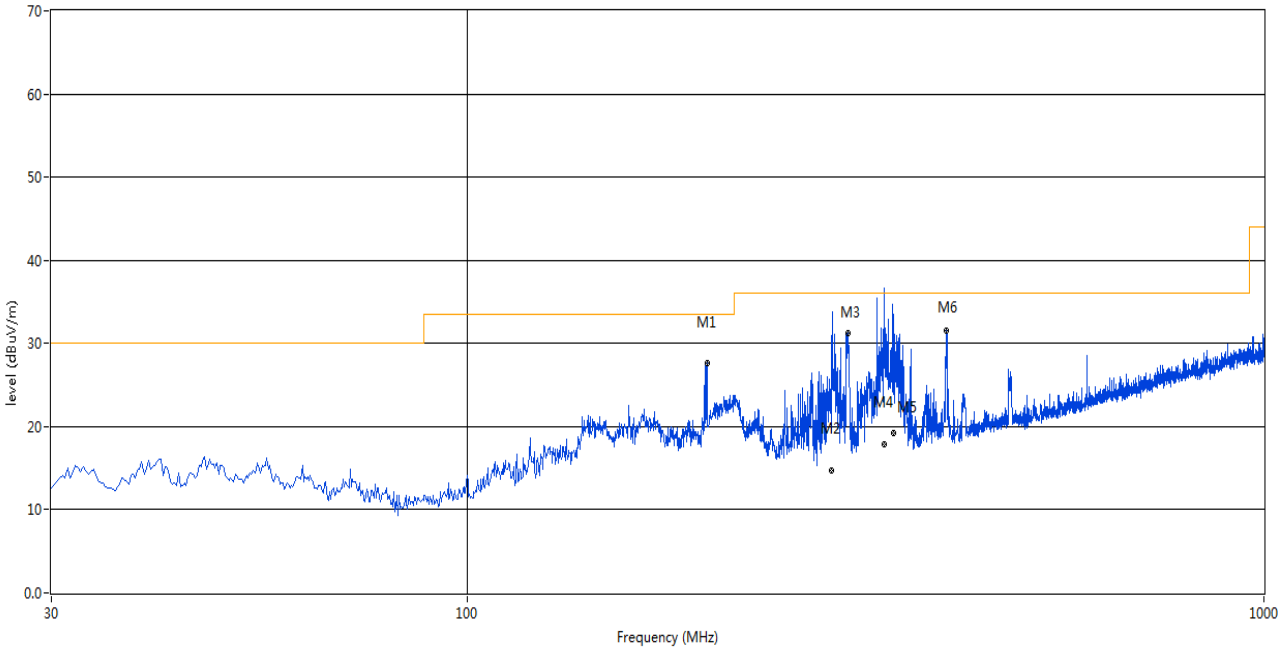
Test Data and Plots (30 MHz ~ 10th Harmonic)

30 MHz to 1 GHz, ANT Vertical



No.	Frequency (MHz)	Results (dBuV/m)	Reading (dBuV)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	54.735	23.53	43.98	-20.45	30.0	-6.47	Peak	211.00	100	Vertical	Pass
2	196.840	28.48	50.80	-22.32	33.5	-5.02	Peak	111.00	100	Vertical	Pass
3	301.601	34.22	52.66	-18.44	36.0	-1.78	Peak	360.00	101	Vertical	N/A
3*	301.601	23.63	42.07	-18.44	36.0	-12.37	QP	360.00	101	Vertical	Pass
4	336.433	34.61	52.19	-17.58	36.0	-1.39	Peak	360.00	110	Vertical	N/A
4*	336.433	20.30	37.88	-17.58	36.0	-15.70	QP	360.00	110	Vertical	Pass
5	399.813	32.52	48.76	-16.24	36.0	-3.48	Peak	180.00	400	Vertical	Pass
6	995.878	34.84	41.57	-6.73	44.0	-9.16	Peak	262.00	200	Vertical	Pass

30 MHz to 1 GHz, ANT Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Reading (dBuV)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	199.750	27.59	49.99	-22.40	33.5	-5.91	Peak	48.00	400	Horizontal	Pass
2	286.702	29.19	48.05	-18.86	36.0	-6.81	Peak	250.00	326	Horizontal	N/A
2*	286.702	14.66	33.52	-18.86	36.0	-21.34	QP	250.00	326	Horizontal	Pass
3	300.145	31.31	49.79	-18.48	36.0	-4.69	Peak	237.00	200	Horizontal	Pass
4	333.675	35.01	52.57	-17.56	36.0	-0.99	Peak	237.00	280	Horizontal	N/A
4*	333.675	17.92	35.48	-17.56	36.0	-18.08	QP	237.00	280	Horizontal	Pass
5	342.136	33.05	50.59	-17.54	36.0	-2.95	Peak	218.00	214	Horizontal	N/A
5*	342.136	19.25	36.79	-17.54	36.0	-16.75	QP	218.00	214	Horizontal	Pass
6	399.328	31.54	47.77	-16.23	36.0	-4.46	Peak	218.00	200	Horizontal	Pass

A.4 Frequency Stability

Contactless Card Reader Test Mode

OPERATING FREQUENCY:	13560000 Hz
REFERENCE VOLTAGE:	120 V
DEVIATION LIMIT:	±0.01%

VOLTAGE (%)	Test Conditions		Frequency(MHz)	Deviation(ppm)	Verdict
	Power (VDC)	Temperature (°C)			
100	120	+20°C(Ref)	13.560987	0.0073%	Pass
100		-20	N.A	N.A	
100		-10	N.A	N.A	
100		0	N.A	N.A	
100		+10	13.559270	0.0054%	
100		+20	13.559336	0.0049%	
100		+25	13.560752	0.0055%	
100		+30	13.559877	0.0009%	
100		+35	13.560263	0.0019%	
100		+50	N.A	N.A	
MAX(Battery End Point, 85)	102	+20	13.559345	0.0048%	
115	138	+20	13.561008	0.0074%	

Note 1:Because the working temperature range EUT supports is from +10°C to +35°C, so the value below +10°C and above +35°C are not measured.

Smart Card Reader Test Mode

OPERATING FREQUENCY:	13560000 Hz
REFERENCE VOLTAGE:	120 V
DEVIATION LIMIT:	±0.01%

VOLTAGE (%)	Test Conditions		Frequency(MHz)	Deviation(ppm)	Verdict
	Power (VDC)	Temperature (°C)			
100	120	+20°C(Ref)	13.559036	0.0071%	Pass
100		-30	N.A	N.A	
100		-20	N.A	N.A	
100		-10	N.A	N.A	
100		0	N.A	N.A	
100		+10	13.559565	0.0032%	
100		+20	13.559568	0.0032%	
100		+25	13.559841	0.0012%	
100		+30	13.560310	0.0023%	
100		+35	13.559881	0.0009%	
100		+50	N.A	N.A	
MAX(Battery End Point, 85)	102	+20	13.558968	0.0076%	
115	138	+20	13.561230	0.0091%	

Note 1:Because the working temperature range EUT supports is from +10°C to +35°C, so the value below +10°C and above +35°C are not measured.

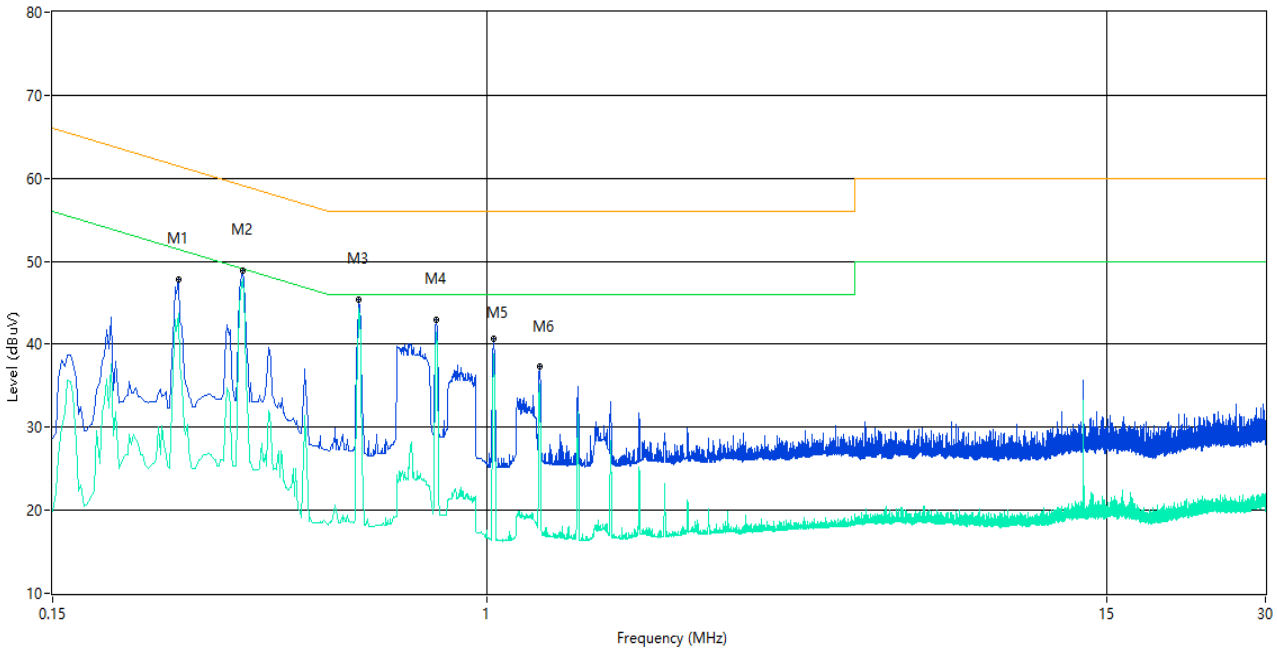
A.5 Conducted Emissions

Note 1: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

Contactless Card Reader Test Mode

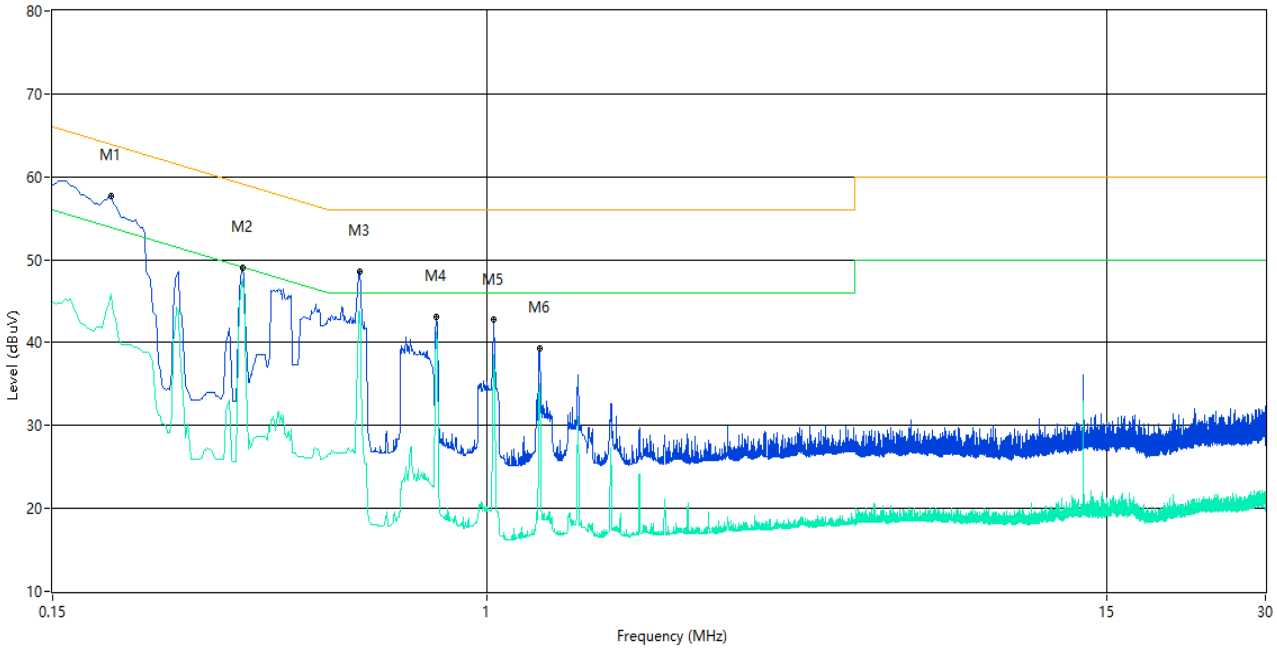
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Reading (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.260	47.8	37.76	10.04	61.4	-13.60	Peak	L Line	Pass
1**	0.260	43.8	33.76	10.04	51.4	-7.60	AV	L Line	Pass
2	0.344	48.9	38.86	10.04	59.1	-10.20	Peak	L Line	Pass
2**	0.344	47.8	37.76	10.04	49.1	-1.30	AV	L Line	Pass
3	0.572	45.4	35.35	10.05	56.0	-10.60	Peak	L Line	Pass
3**	0.572	44.3	34.25	10.05	46.0	-1.70	AV	L Line	Pass
4	0.800	42.9	32.85	10.05	56.0	-13.10	Peak	L Line	Pass
4**	0.800	41.2	31.15	10.05	46.0	-4.80	AV	L Line	Pass
5	1.028	40.7	30.64	10.06	56.0	-15.30	Peak	L Line	Pass
5**	1.028	37.6	27.54	10.06	46.0	-8.40	AV	L Line	Pass
6	1.262	37.3	27.23	10.07	56.0	-18.70	Peak	L Line	Pass
6**	1.262	33.0	22.93	10.07	46.0	-13.00	AV	L Line	Pass

PHASE N

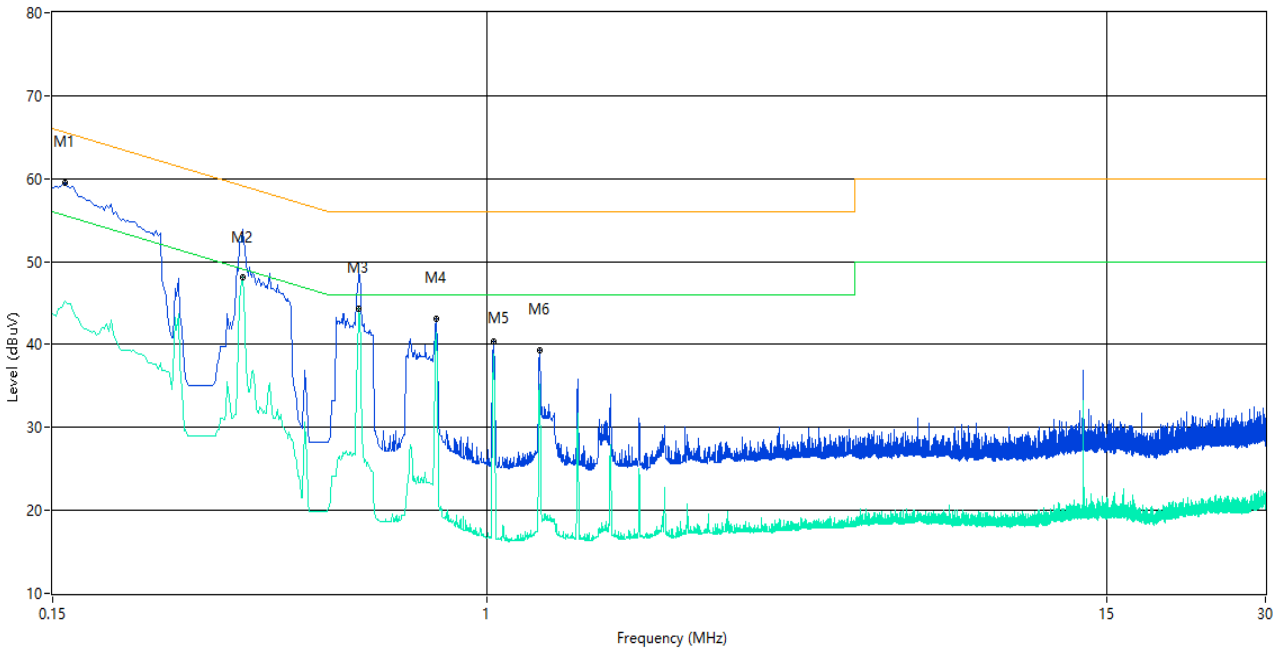


No.	Frequency (MHz)	Results (dBuV)	Reading (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.194	57.7	47.66	10.04	63.9	-6.20	Peak	N Line	Pass
1**	0.194	45.9	35.86`	10.04	53.9	-8.00	AV	N Line	Pass
2	0.344	49.0	38.96	10.04	59.1	-10.10	Peak	N Line	Pass
2**	0.344	47.6	37.56	10.04	49.1	-1.50	AV	N Line	Pass
3	0.574	48.6	38.55	10.05	56.0	-7.40	Peak	N Line	Pass
3**	0.574	43.7	33.65	10.05	46.0	-2.30	AV	N Line	Pass
4	0.802	43.1	33.05	10.05	56.0	-12.90	Peak	N Line	Pass
4**	0.802	41.3	31.25	10.05	46.0	-4.70	AV	N Line	Pass
5	1.030	42.8	32.74	10.06	56.0	-13.20	Peak	N Line	Pass
5**	1.030	38.6	28.54	10.06	46.0	-7.40	AV	N Line	Pass
6	1.258	39.2	29.13	10.07	56.0	-16.80	Peak	N Line	Pass
6**	1.258	35.0	24.93	10.07	46.0	-11.00	AV	N Line	Pass

Smart Card Reader Test Mode

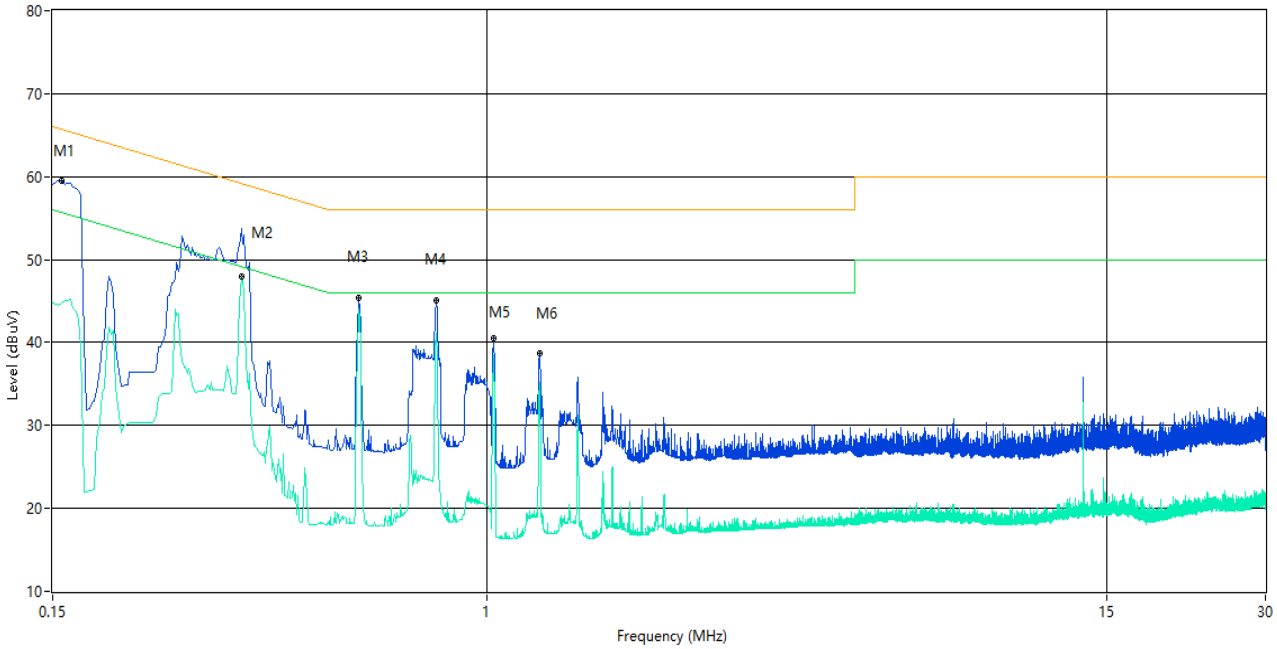
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Reading (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.158	59.5	49.46	10.04	65.6	-6.10	Peak	L Line	Pass
1**	0.158	45.2	35.16	10.04	55.6	-10.40	AV	L Line	Pass
2	0.344	53.8	43.76	10.04	59.1	-5.30	Peak	L Line	Pass
2**	0.344	48.2	38.16	10.04	49.1	-0.90	AV	L Line	Pass
3	0.572	48.6	38.55	10.05	56.0	-7.40	Peak	L Line	Pass
3**	0.572	44.3	34.25	10.05	46.0	-1.70	AV	L Line	Pass
4	0.800	43.2	33.15	10.05	56.0	-12.80	Peak	L Line	Pass
4**	0.800	41.5	31.45	10.05	46.0	-4.50	AV	L Line	Pass
5	1.030	40.4	30.34	10.06	56.0	-15.60	Peak	L Line	Pass
5**	1.030	38.9	28.84	10.06	46.0	-7.10	AV	L Line	Pass
6	1.260	39.3	29.23	10.07	56.0	-16.70	Peak	L Line	Pass
6**	1.260	35.2	25.13	10.07	46.0	-10.80	AV	L Line	Pass

PHASE N



No.	Frequency (MHz)	Results (dBuV)	Reading (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.156	59.5	49.46	10.04	65.7	-6.20	Peak	N Line	Pass
1**	0.156	44.8	34.76	10.04	55.7	-10.90	AV	N Line	Pass
2	0.342	53.7	43.66	10.04	59.2	-5.50	Peak	N Line	Pass
2**	0.342	48.0	37.96	10.04	49.2	-1.20	AV	N Line	Pass
3	0.572	45.4	35.35	10.05	56.0	-10.60	Peak	N Line	Pass
3**	0.572	44.1	34.05	10.05	46.0	-1.90	AV	N Line	Pass
4	0.802	45.1	35.05	10.05	56.0	-10.90	Peak	N Line	Pass
4**	0.802	41.0	30.95	10.05	46.0	-5.00	AV	N Line	Pass
5	1.028	40.5	30.44	10.06	56.0	-15.50	Peak	N Line	Pass
5**	1.028	37.9	27.84	10.06	46.0	-8.10	AV	N Line	Pass
6	1.258	38.7	28.63	10.07	56.0	-17.30	Peak	N Line	Pass
6**	1.258	35.1	25.03	10.07	46.0	-10.90	AV	N Line	Pass

ANNEX D TEST SETUP PHOTOS

Please refer the document “BL-SZ1880228-AE.PDF”.

ANNEX E EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ1880228-AW.PDF”.

ANNEX F EUT INTERNAL PHOTOS

Please refer the document “BL-SZ1880228-AI.PDF”.

--END OF REPORT--