

FCC

EMC

TEST REPORT

ISSUED BY  
Shenzhen BALUN Technology Co., Ltd.

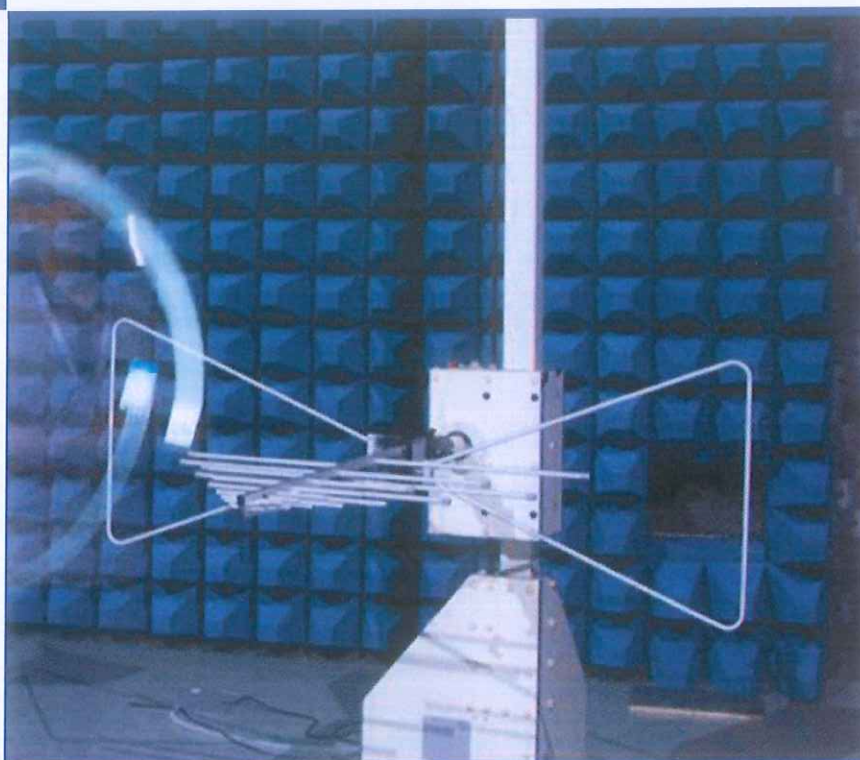


FOR

**Smart Projector**

ISSUED TO  
Guizhou CVIM Technology Co., Ltd

4th Floor, 5th R&D Building, Zunyi Software Park, Xiazi Town, Xipu  
New District, Zunyi, Guizhou, China



Tested by: Xia Long  
Xia Long

(Engineer)

Date Nov. 02, 2017

Approved by: Wei Yanquan

Wei Yanquan

(Chief Engineer)

Date Nov. 02, 2017

Report No.: BL-SZ1790192-401

EUT Name: Smart Projector

Model Name: H8

Brand Name: WOWOTO

Test Standard: 47 CFR Part 15 Subpart B

FCC ID: 2AKWS-HDSERIES

Test Conclusion: Pass

Test Date: Sep. 22, 2017 ~ Sep. 26, 2017

Date of Issue: Nov. 02, 2017

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**Revision History**

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Oct. 12, 2017</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Nov. 02, 2017</u>	<u>Change the software version on page 5</u>

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## 1 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
Fax Number	+86 755 6182 4271

### 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	<p>The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1.</p> <p>The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.</p> <p>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.</p> <p>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.</p>
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°C
Ambient Relative Humidity	45% - 55%
Ambient Pressure	100 kPa - 102 kPa

### 1.4 Announce

- (1) The test report refer to the BALUN report mode v6.5.
- (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	Guizhou CVIM Technology Co., Ltd
Address	4th Floor, 5th R&D Building, Zunyi Software Park, Xiazi Town, Xipu New District, Zunyi, Guizhou, China

### 2.2 Manufacturer Information

Manufacturer	Guizhou CVIM Technology Co., Ltd
Address	4th Floor, 5th R&D Building, Zunyi Software Park, Xiazi Town, Xipu New District, Zunyi, Guizhou, China

### 2.3 Factory Information

Factory	Huizhou Goldenchip Electronics Co., Ltd
Address	Factory workshop, No.12, Songyang Road, Zhongkai High-tech Zone, Huizhou City, Guangdong, China

### 2.4 General Description for Equipment under Test (EUT)

EUT Name	Smart Projector
Model Name Under Test	H8
Series Model Name	H8,H1,H2,H9,H10,D6,D8,D9,D10
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only different on model name.
Hardware Version	TDB
Software Version	CVIM-WWT-D900E-v1.05-7632
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A
Network and Wireless connectivity	Bluetooth, WIFI

## 2.5 Ancillary Equipment

Ancillary Equipment 1	Adapter 1	
	Brand Name	DELTA
	Model No.	ADP-40KD AB
	Serial No.	N/A
	Rated Input	100-240 V~, 1.2 A, 50/60 Hz
	Rated Output	19 V=, 2.1 A
Ancillary Equipment 2	Adapter 2	
	Brand Name	Huntkey
	Model No.	HKA04019021-6D
	Serial No.	N/A
	Rated Input	100-240 V~, 1 A, 50/60 Hz
	Rated Output	19 V=, 2.1 A
Ancillary Equipment 3	Adapter 3	
	Brand Name	DELTA
	Model No.	ADP65JH AB
	Serial No.	N/A
	Rated Input	100-240 V~, 1.5 A, 50/60 Hz
	Rated Output	19 V=, 3.42 A
Ancillary Equipment 4	Adapter 4	
	Brand Name	Huntkey
	Model No.	HKA06519034-6J
	Serial No.	N/A
	Rated Input	100-240 V~, 1.5 A, 50/60 Hz
	Rated Output	19 V=, 3.42 A
Ancillary Equipment 5	HDMI Cable	
	Length (Approx.)	1.2 m
Ancillary Equipment 6	Remote Control	

## 2.6 Technical Information

Note: Not applicable.



### 3 SUMMARY OF TEST RESULTS

#### 3.1 Test Standards

No.	Identity	Document Title
1	FCC 47 CFR Part 15 Subpart B (10-1-16 Edition)	Unintentional Radiators
2	ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low- Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

#### 3.2 Verdict

No.	Description	FCC Rule	Test Verdict	Result
1	Radiated Emission	15.109	Pass	Annex A .1
2	Conducted Emission, AC Ports	15.107	Pass	Annex A .2

#### 3.3 Test Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions (9 kHz-30 MHz)	3.23 dB
Radiated emissions (30 MHz-1 GHz)	4.30 dB
Radiated emissions (1 GHz-18 GHz)	4.81 dB
Radiated emissions (18 GHz-40 GHz)	5.71 dB

## 4 GENERAL TEST CONFIGURATIONS

### 4.1 Test Environments

Environment Parameter	Selected Values During Tests			
	Temperature	Voltage	Relative Humidity	Ambient Pressure
Normal Temperature, Normal Voltage (NTNV)	23°C~26°C	AC 120 V/60 Hz or AC 230 V/50 Hz	50%-55%	100 to 102 kPa

### 4.2 Test Equipment List

Radiated Emission Test For Frequency Below 1 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWA RZ	ESRP	101036	2017.06.22	2018.06.21	<input checked="" type="checkbox"/>
Test Antenna- Bi-Log	SCHWARZBECK	VULB 9163	9163-977	2016.07.19	2018.07.18	<input checked="" type="checkbox"/>
Test Antenna- Horn	SCHWARZBECK	BBHA 9120D	9120D-1600	2016.07.12	2018.07.11	<input type="checkbox"/>
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60 *7.35m	N/A	2016.08.09	2018.08.08	<input checked="" type="checkbox"/>

Radiated Emission Test For Frequency Above 1 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2016.09.09	2018.09.07	<input checked="" type="checkbox"/>
Test Antenna- Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2015.07.22	2018.07.20	<input type="checkbox"/>
Test Antenna- Horn	SCHWARZBECK	BBHA 9120D	9120D-1148	2015.07.22	2018.07.20	<input checked="" type="checkbox"/>
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2019.02.20	<input checked="" type="checkbox"/>

Conducted Emission Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWA RZ	ESRP	101036	2017.06.22	2018.06.21	<input checked="" type="checkbox"/>
LISN	SCHWARZBECK	NSLK 8127	8127-687	2017.06.22	2018.06.21	<input checked="" type="checkbox"/>
LISN	SCHWARZBECK	NNLK 8129	8129-462	2016.09.14	2018.09.12	<input type="checkbox"/>
AMN	SCHWARZBECK	NNBM8124	8124-509	2017.06.22	2018.06.21	<input type="checkbox"/>
AMN	SCHWARZBECK	NNBM8124	8124-510	2017.06.22	2018.06.21	<input type="checkbox"/>
ISN	TESEQ	ISN T800	34449	2017.06.22	2018.06.21	<input type="checkbox"/>
Shielded Enclosure	ChangNing	CN-130701	130703	N/A	N/A	<input checked="" type="checkbox"/>



### 4.3 Test Enclosure list

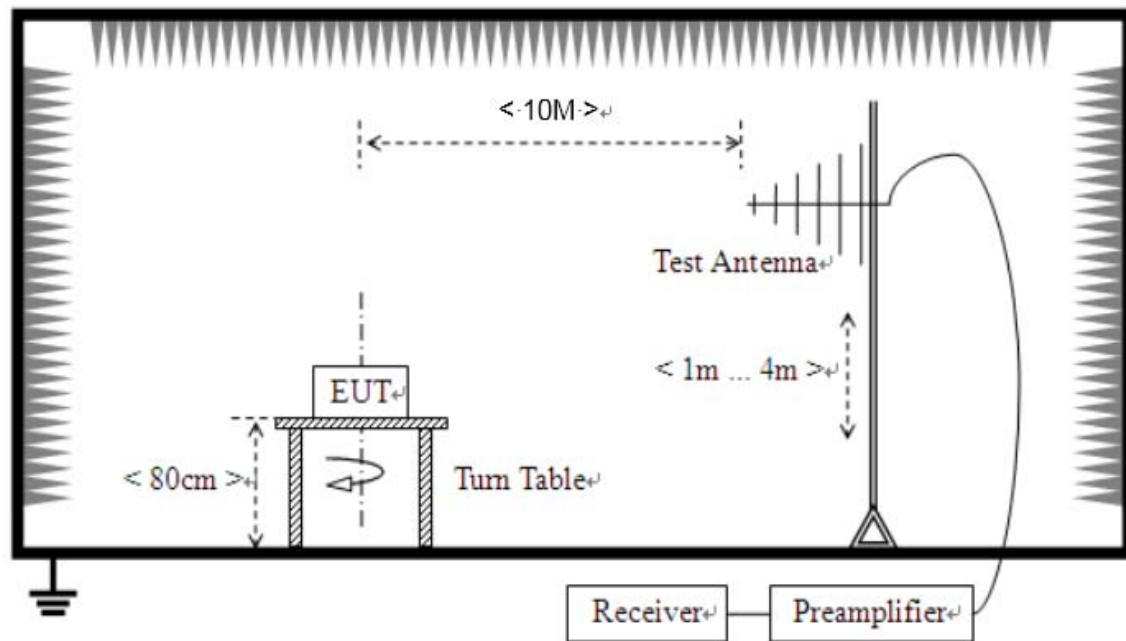
Description	Manufacturer	Model	Serial No.	Length	Description	Use
PC	Dell	015K3N	N/A	N/A	Special Handled	<input type="checkbox"/>
Laptop	Lenovo	E31-80	R3026PU9	N/A	N/A	<input checked="" type="checkbox"/>
Printer	HP	DESKJET 1000	N/A	N/A	N/A	<input type="checkbox"/>
Keyboard	Logitech	Y-BP62a	N/A	N/A	N/A	<input type="checkbox"/>
Mouse	Logitech	M100	N/A	N/A	N/A	<input checked="" type="checkbox"/>
USB disk	Kingston	N/A	N/A	N/A	N/A	<input checked="" type="checkbox"/>
TF Card	Kingston	N/A	N/A	N/A	N/A	<input checked="" type="checkbox"/>
VGA Cable	N/A	N/A	N/A	1.5 m	Shielded with core	<input type="checkbox"/>
HDMI Cable	N/A	N/A	N/A	1.5 m	Shielded with core	<input type="checkbox"/>
DVI Cable	N/A	N/A	N/A	1.5 m	Shielded with core	<input type="checkbox"/>
Coaxial video cable	N/A	N/A	N/A	2.0 m	Shielded with core	<input type="checkbox"/>
iPhone	Apple	A1586	N/A	N/A	N/A	<input type="checkbox"/>
Phone	MI	M4	N/A	N/A	N/A	<input type="checkbox"/>
Bluetooth Earphone	SAMSUNG	Gear Circle	N/A	N/A	N/A	<input type="checkbox"/>
GPS/GLONASS Vector signal generator	R&S	N5172B EXG	N/A	N/A	N/A	<input type="checkbox"/>
WIFI Router	TP-LINK	TL-WDR7500	N/A	N/A	N/A	<input checked="" type="checkbox"/>
Earphone	N/A	OPPO	N/A	1.1 m	N/A	<input checked="" type="checkbox"/>
Car Battery	Camel	55530	N/A	N/A	12 V/55 Ah	<input type="checkbox"/>
Artificial load	N/A	N/A	N/A	N/A	2.5 $\Omega$ /100 W	<input type="checkbox"/>
Artificial load	N/A	N/A	N/A	N/A	5 $\Omega$ /100 W	<input type="checkbox"/>
Electronic Load	ITECH	IT8511	N/A	N/A	N/A	<input type="checkbox"/>
USB Cable	N/A	N/A	N/A	1.5 m	Shielded with core	<input type="checkbox"/>
DC Power Supply	ITECH	IT6863A	60001401068 7210006	N/A	N/A	<input type="checkbox"/>
LCD Monitor	SAMSUNG	UA32C4000P	N/A	N/A	N/A	<input type="checkbox"/>
LCD Monitor	Dell	U241HB	N/A	N/A	N/A	<input type="checkbox"/>
RJ45 Cable	N/A	N/A	N/A	1.5 m	Shielded with core	<input checked="" type="checkbox"/>

## 4.4 Test Configurations

Test Configurations (TC) No.	Description
TC01	<u>The TF Card Play Test Mode</u> EUT + Adapter + Battery + Remote Control + Mouse + Earphone + TF Card + Laptop + HDMI Cable + USB Disk + BT Link + WIFI Link(2.4G) + RJ45 Cable
TC02	<u>The USB Disk Play Test Mode</u> EUT + Adapter + Battery + Remote Control + Mouse + Earphone + TF Card + Laptop + HDMI Cable + USB Disk + BT Link + WIFI Link(5G) + RJ45 Cable
TC03	<u>The HDMI Play Test Mode</u> EUT + Adapter + Battery + Remote Control + Mouse + Earphone + TF Card + Laptop + HDMI Cable + USB Disk + BT Link + 5.8G SRD + RJ45 Cable

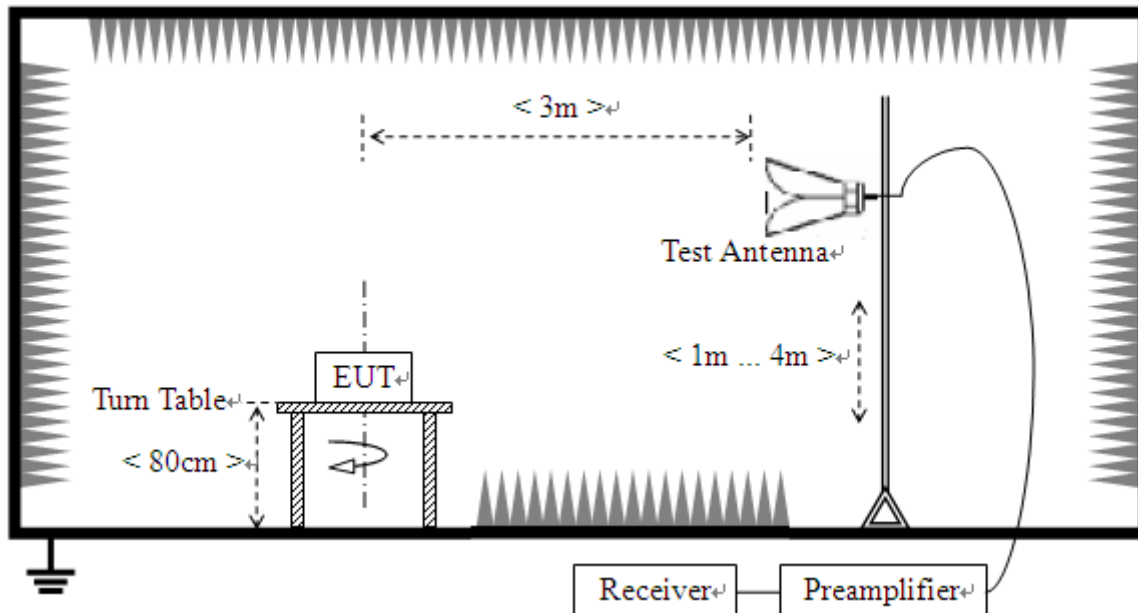
## 4.5 Test Setups

### Test Setup 1



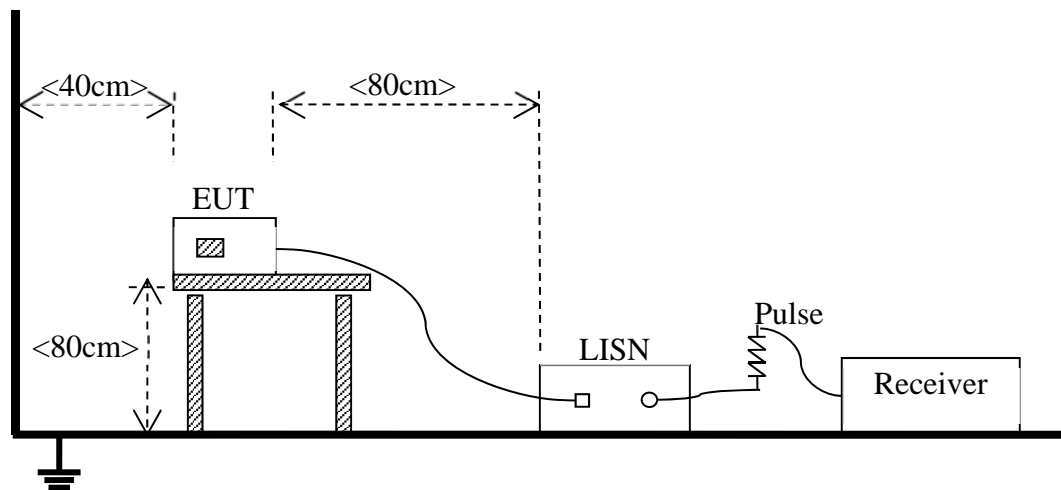
(For Radiated Emission Test (30 MHz-1 GHz))

### Test Setup 2



(For Radiated Emission Test (above 1 GHz))

### Test Setup 3



(For Conducted Emission, AC Ports Test)

## 4.6 Test Conditions

Test Case	Test Conditions	
Radiated Emission	Test Env.	NTNV
	Test Setup	Test Setup 1&2
	Test Configuration	TC01~TC03 <sup>Note</sup>
Conducted Emission, AC Ports	Test Env.	NTNV
	Test Setup	Test Setup 3
	Test Configuration	TC01~TC03 <sup>Note</sup>
Note: Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report. The TF Card Play Test Mode is the worst mode in this report.		

## 5 TEST ITEMS

### 5.1 Emission Tests

#### 5.1.1 Radiated Emission

##### 5.1.1.1 Limit

Frequency range (MHz)	Class B (at 3 m)		Class B (at 10 m)	Class A (at 10 m)	
	Field Strength ( $\mu\text{V/m}$ )	Field Strength (dB $\mu\text{V/m}$ )	Field Strength (dB $\mu\text{V/m}$ )	Field Strength ( $\mu\text{V/m}$ )	Field Strength (dB $\mu\text{V/m}$ )
30 - 88	100	40	30	90	39
88 - 216	150	43.5	33.5	150	43.5
216 - 960	200	46	36	210	46.4
Above 960	500	54	44	300	49.5

NOTE:

- 1) Field Strength (dB $\mu\text{V/m}$ ) =  $20 \cdot \log [\text{Field Strength } (\mu\text{V/m})]$ .
- 2) In the emission tables above, the tighter limit applies at the band edges.

##### 5.1.1.2 Test Setup

Refer to 4.5 section (test setup 1 to test setup 2) for radiated emission test, the photo of test setup please refer to ANNEX B.

##### 5.1.1.3 Test Procedure

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.

An initial pre-scan was performed in the chamber using the EMI Receiver in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bi-Log antenna with 2 orthogonal polarities.

##### 5.1.1.4 Test Result

Please refer to ANNEX A.1.



## 5.1.2 Conducted Emission

### 5.1.2.1 Test Limit

Frequency range (MHz)	Class A	
	Quasi-peak (dB $\mu$ V)	Average (dB $\mu$ V)
0.15 - 0.50	79	66
0.50 - 30	73	60

Frequency range (MHz)	Class B	
	Quasi-peak (dB $\mu$ V)	Average (dB $\mu$ V)
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

#### NOTE:

- 1) The lower limit shall apply at the band edges.
- 2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50 MHz.

### 5.1.2.2 Test Setup

Refer to 4.5 section test (test setup 3) for conducted emission, the photo of test setup please refer to ANNEX B.

### 5.1.2.3 Test Procedure

The EUT is connected to the power mains through a LISN which provides 50  $\Omega$ /50  $\mu$ H of coupling impedance for the measuring instrument. The test frequency range is from 150 kHz to 30 MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are 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.

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.

### 5.1.2.4 Test Result

Please refer to ANNEX A.2.

## ANNEX A TEST RESULTS

### A.1 Radiated Emission

Note 1: The symbol of “--” in the table which means not application.

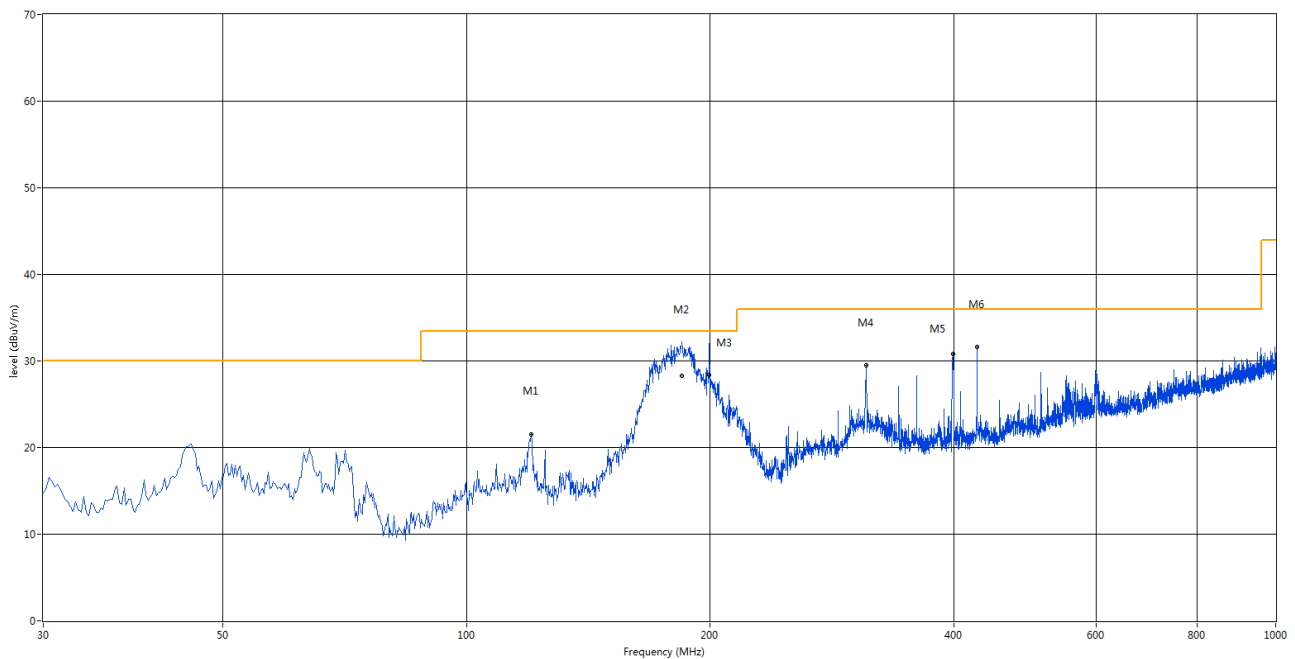
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: The differences of adapters only influence the results of Radiated Emission below 1GHz, so we only test the model HKA06519034-6J adapter above 1GHz.

#### Test Data and Plots

##### The TF Card Play Test Mode (with Adapter ADP-40KD AB)

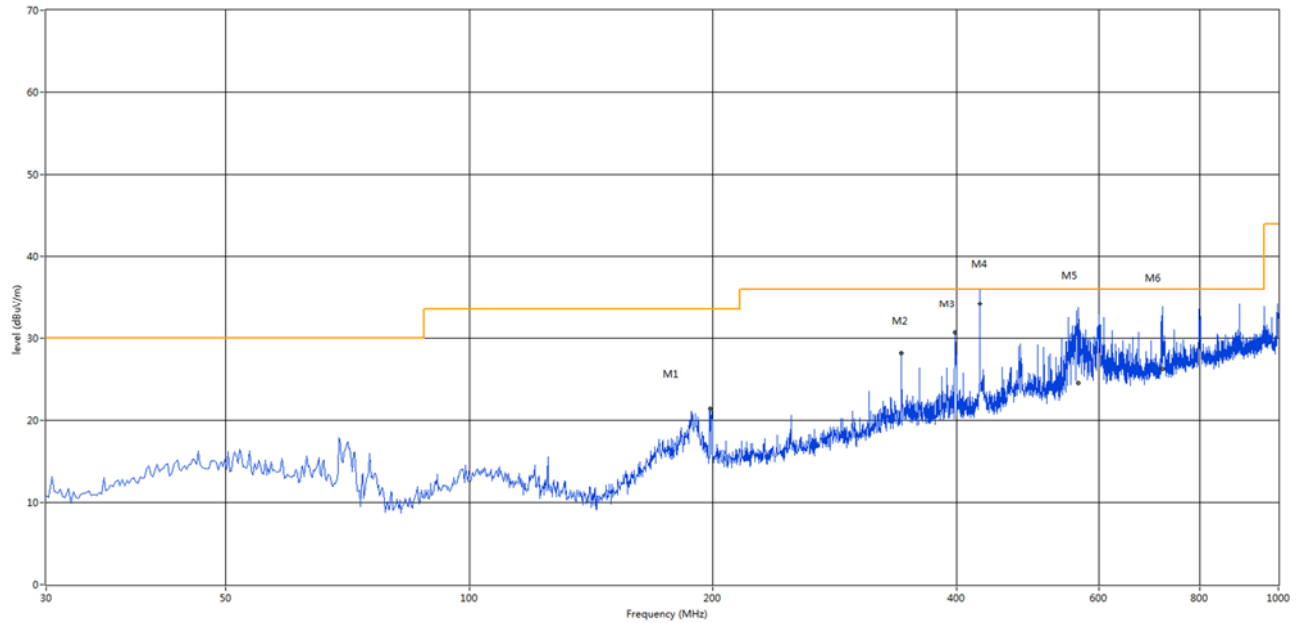
##### A.1.1 Test Antenna Vertical, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	120.210	21.48	-21.81	33.5	12.02	Peak	360.00	100	Vertical	Pass
2	185.099	32.04	-21.01	33.5	1.46	Peak	188.00	112	Vertical	N/A
2*	185.099	28.22	-21.01	33.5	5.28	QP	188.00	112	Vertical	Pass
3	199.475	33.60	-19.42	33.5	-0.10	Peak	318.00	105	Vertical	N/A
3*	199.475	28.37	-19.42	33.5	5.13	QP	318.00	105	Vertical	Pass
4	312.027	29.48	-16.12	36.0	6.52	Peak	342.00	200	Vertical	Pass
5	399.085	30.80	-13.77	36.0	5.20	Peak	7.00	200	Vertical	Pass
6	427.458	31.62	-12.99	36.0	4.38	Peak	72.00	100	Vertical	Pass

## A.1.2 Test Antenna Horizontal, 30 MHz – 1 GHz

RE Test Case\_FCC Certification\_FCC 15B ClassB 30MHz-1GHz

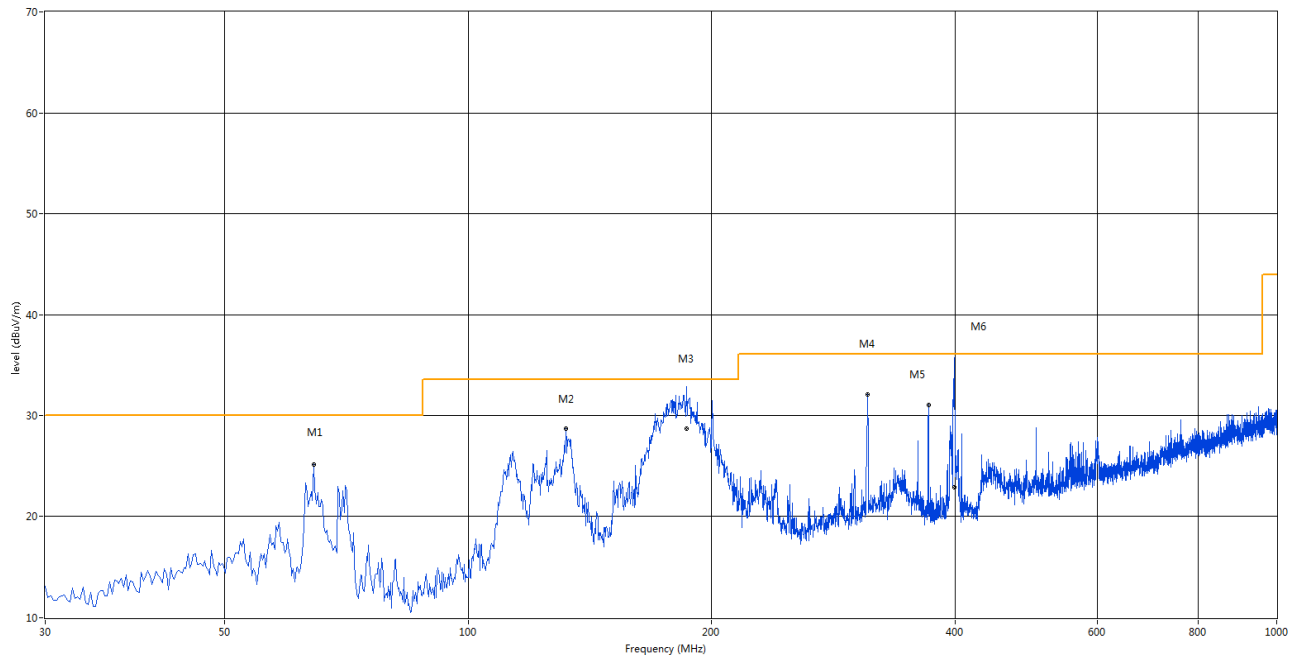


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	198.538	21.41	-19.53	33.5	12.09	Peak	61.00	100	Horizontal	Pass
2	342.098	28.11	-14.90	36.0	7.89	Peak	352.00	100	Horizontal	Pass
3	398.358	30.64	-13.82	36.0	5.36	Peak	164.00	100	Horizontal	Pass
4	427.499	37.27	-12.99	36.0	-1.27	Peak	96.00	258	Horizontal	N/A
4*	427.499	34.16	-12.99	36.0	1.84	QP	96.00	258	Horizontal	Pass
5	566.392	34.96	-10.21	36.0	1.04	Peak	360.00	176	Horizontal	N/A
5*	566.392	24.49	-10.21	36.0	11.51	QP	360.00	176	Horizontal	Pass
6	719.209	32.85	-7.61	36.0	3.15	Peak	219.00	131	Horizontal	N/A
6*	719.209	26.23	-7.61	36.0	9.77	QP	219.00	131	Horizontal	Pass

## Test Data and Plots

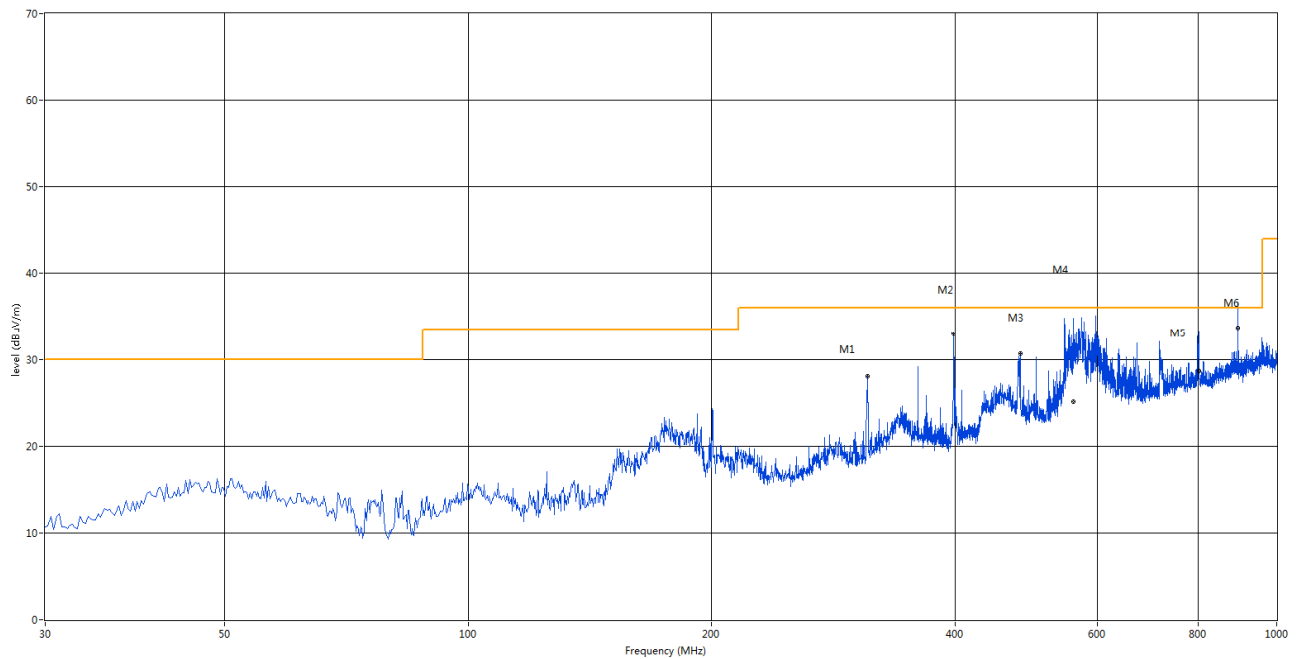
### The TF Card Play Test Mode (with Adapter HKA04019021-6D)

#### A.1.3 Test Antenna Vertical, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	64.435	25.15	-20.75	30.0	4.85	Peak	0.00	100	Vertical	Pass
2	132.092	28.71	-23.29	33.5	4.79	Peak	140.00	100	Vertical	Pass
3	186.583	32.80	-20.82	33.5	0.70	Peak	130.00	113	Vertical	N/A
3*	186.583	28.64	-20.82	33.5	4.86	QP	130.00	113	Vertical	Pass
4	312.027	32.05	-16.12	36.0	3.95	Peak	1.00	100	Vertical	Pass
5	370.955	31.00	-14.56	36.0	5.00	Peak	314.00	100	Vertical	Pass
6	398.900	29.47	-13.75	36.0	6.53	Peak	7.00	112	Vertical	N/A
6*	398.900	22.87	-13.75	36.0	13.13	QP	7.00	112	Vertical	Pass

#### A.1.4 Test Antenna Horizontal, 30 MHz – 1 GHz

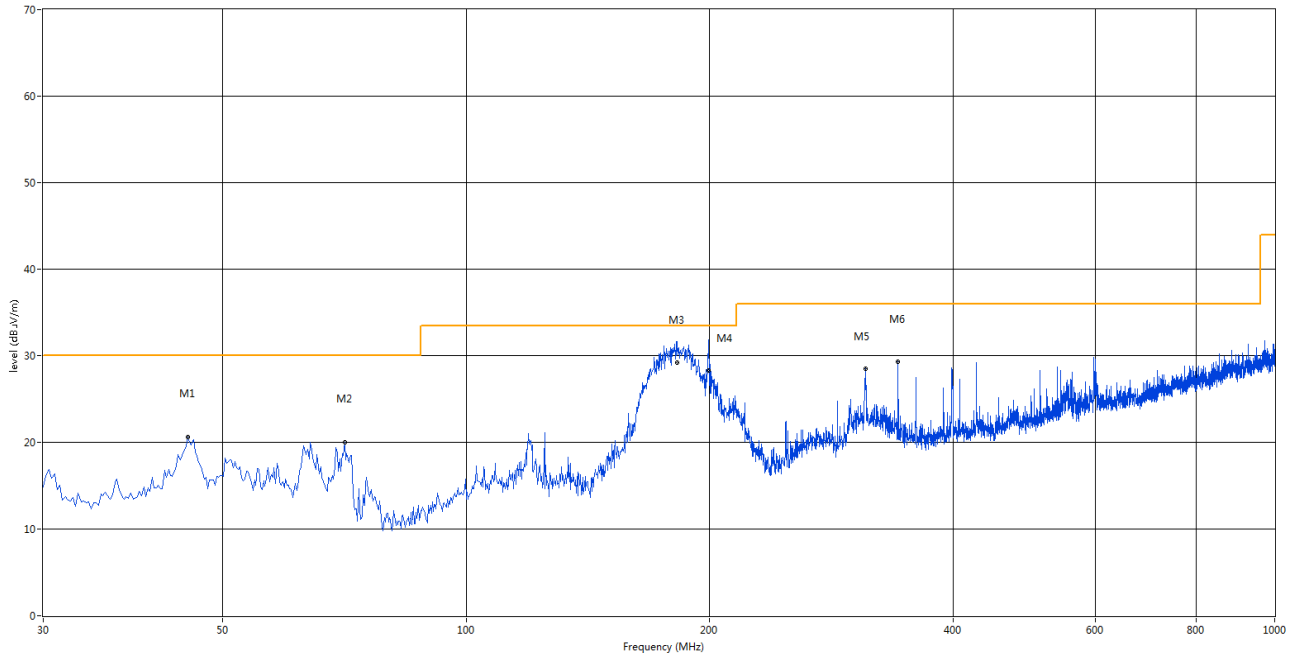


No.	Frequency (MHz)	Results (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	312.027	28.02	-16.12	36.0	7.98	Peak	314.00	200	Horizontal	Pass
2	398.600	32.98	-13.80	36.0	3.02	Peak	0.00	100	Horizontal	Pass
3	482.020	30.62	-12.04	36.0	5.38	Peak	48.00	200	Horizontal	Pass
4	560.766	37.19	-10.35	36.0	-1.19	Peak	360.00	140	Horizontal	N/A
4*	560.766	25.14	-10.35	36.0	10.86	QP	360.00	140	Horizontal	Pass
5	801.938	34.59	-6.26	36.0	1.41	Peak	217.00	110	Horizontal	N/A
5*	801.938	28.66	-6.26	36.0	7.34	QP	217.00	110	Horizontal	Pass
6	896.025	36.61	-4.73	36.0	-0.61	Peak	179.00	114	Horizontal	N/A
6*	896.025	33.73	-4.73	36.0	2.27	QP	179.00	114	Horizontal	Pass

## Test Data and Plots

### The TF Card Play Test Mode (with Adapter ADP65JH AB)

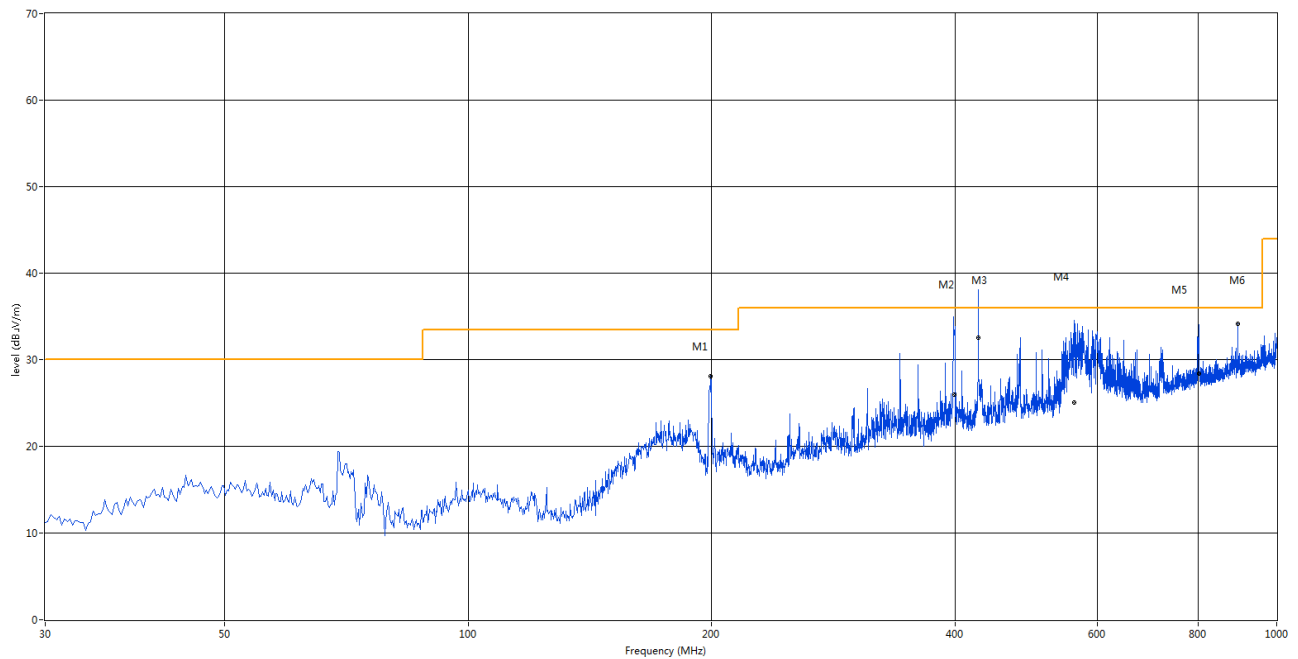
#### A.1.5 Test Antenna Vertical, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	45.278	20.58	-19.29	30.0	9.42	Peak	253.00	100	Vertical	Pass
2	70.740	20.02	-23.19	30.0	9.98	Peak	20.00	100	Vertical	Pass
3	182.636	32.58	-21.22	33.5	0.92	Peak	147.00	115	Vertical	N/A
3*	182.636	29.11	-21.22	33.5	4.39	QP	147.00	115	Vertical	Pass
4	199.526	33.14	-19.42	33.5	0.36	Peak	273.00	159	Vertical	N/A
4*	199.526	28.27	-19.42	33.5	5.23	QP	273.00	159	Vertical	Pass
5	312.027	28.48	-16.12	36.0	7.52	Peak	263.00	100	Vertical	Pass
6	342.098	29.27	-14.90	36.0	6.73	Peak	291.00	200	Vertical	Pass



### A.1.6 Test Antenna Horizontal, 30 MHz – 1 GHz

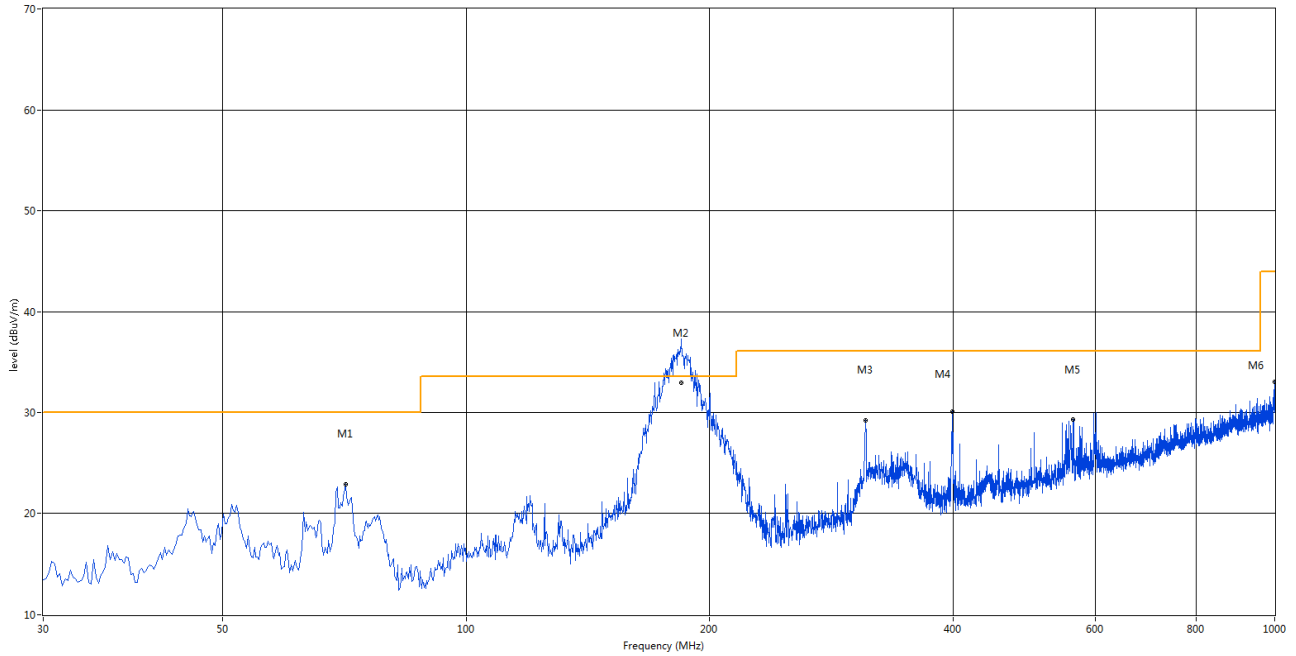


No.	Frequency (MHz)	Results (dBμV/m)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	199.508	28.00	-19.42	33.5	5.50	Peak	48.00	200	Horizontal	Pass
2	399.656	33.07	-13.73	36.0	2.93	Peak	167.00	202	Horizontal	N/A
2*	399.656	25.92	-13.73	36.0	10.08	QP	167.00	202	Horizontal	Pass
3	427.499	35.55	-12.99	36.0	0.45	Peak	72.00	199	Horizontal	N/A
3*	427.499	32.48	-12.99	36.0	3.52	QP	72.00	199	Horizontal	Pass
4	561.323	36.69	-10.34	36.0	-0.69	Peak	353.00	159	Horizontal	N/A
4*	561.323	25.00	-10.34	36.0	11.00	QP	353.00	159	Horizontal	Pass
5	801.624	34.28	-6.26	36.0	1.72	Peak	155.00	121	Horizontal	N/A
5*	801.624	28.33	-6.26	36.0	7.67	QP	155.00	121	Horizontal	Pass
6	896.024	36.68	-4.73	36.0	-0.68	Peak	210.00	105	Horizontal	N/A
6*	896.024	34.18	-4.73	36.0	1.82	QP	210.00	105	Horizontal	Pass

## Test Data and Plots

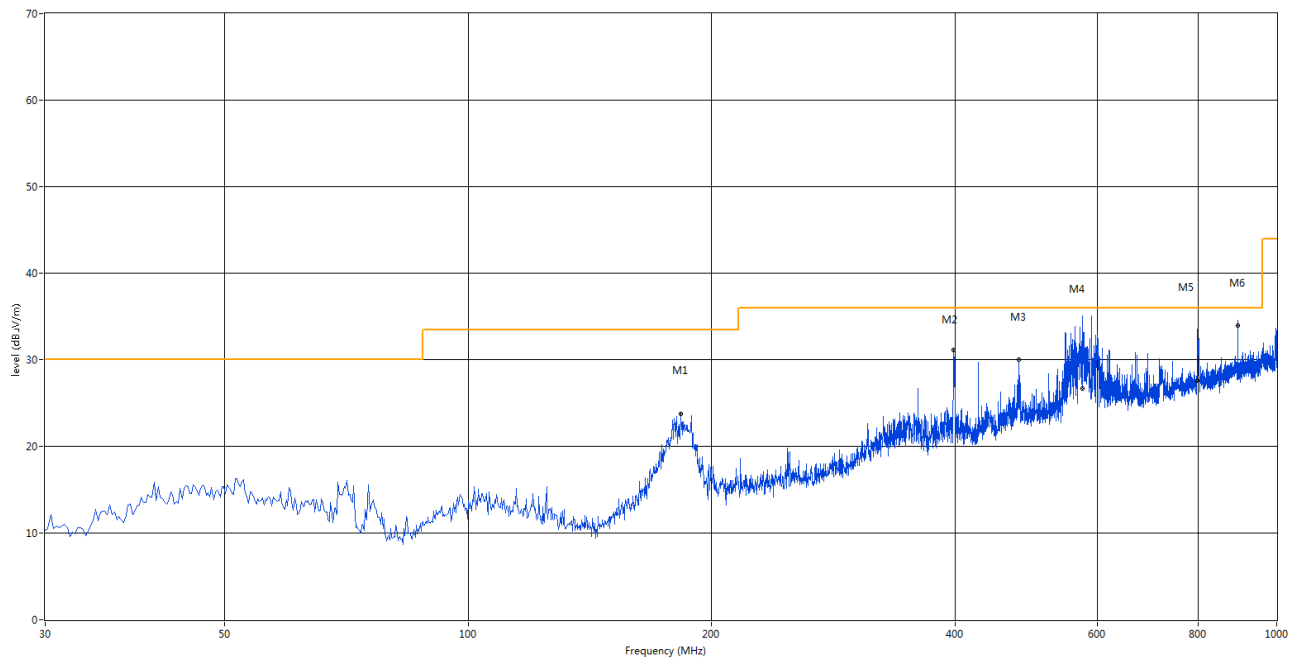
### The TF Card Play Test Mode (with Adapter HKA06519034-6J)

#### A.1.7 Test Antenna Vertical, 30 MHz – 1 GHz



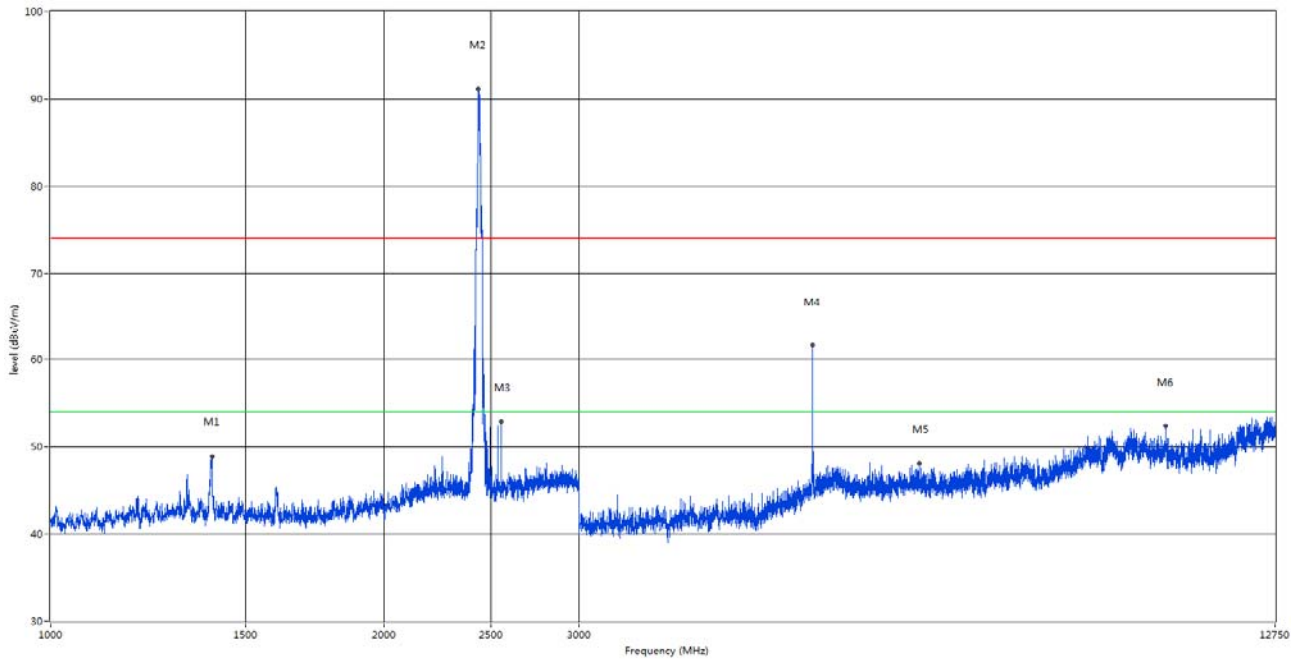
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	70.982	22.90	-23.28	30.0	7.10	Peak	319.00	200	Vertical	Pass
2	184.429	37.16	-21.01	33.5	-3.66	Peak	181.00	118	Vertical	N/A
2*	184.429	32.95	-21.01	33.5	0.55	QP	181.00	118	Vertical	Pass
3	312.027	29.22	-16.12	36.0	6.78	Peak	360.00	100	Vertical	Pass
4	399.813	30.07	-13.72	36.0	5.93	Peak	24.00	100	Vertical	Pass
5	563.258	29.25	-10.35	36.0	6.75	Peak	75.00	200	Vertical	Pass
6	999.758	32.98	-3.67	44.0	11.02	Peak	343.00	200	Vertical	Pass

### A.1.8 Test Antenna Horizontal, 30 MHz – 1 GHz



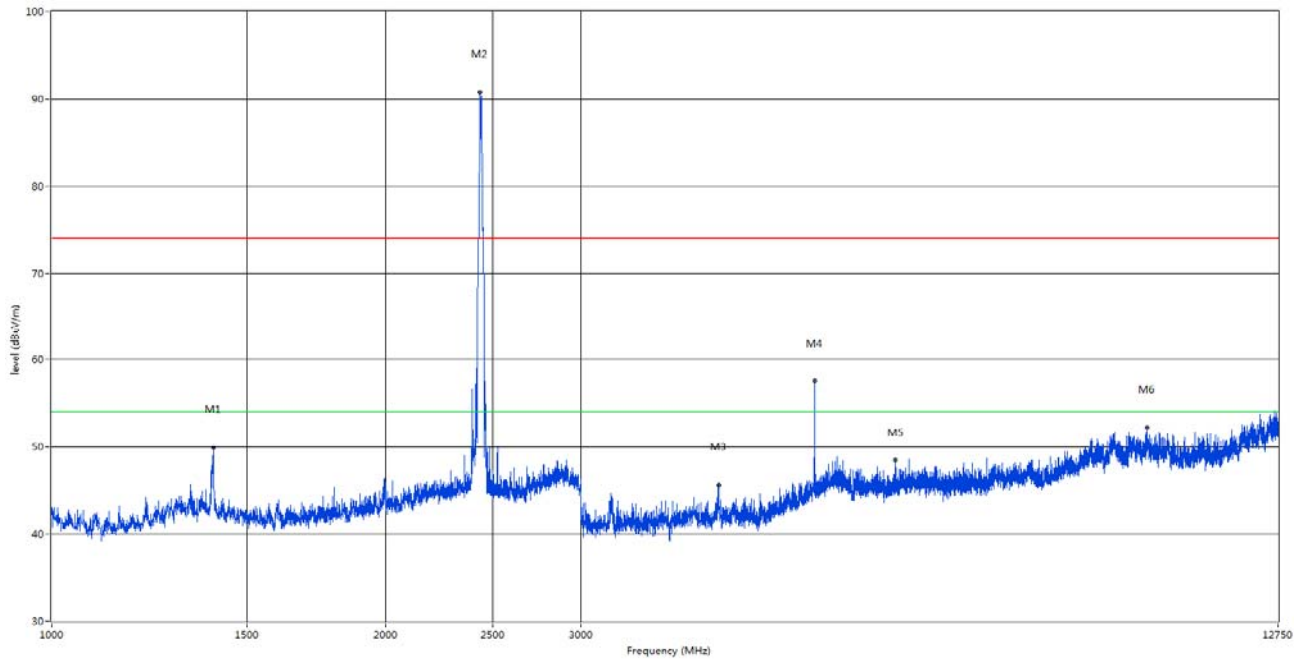
No.	Frequency (MHz)	Results (dB $\mu$ V/m)	Factor (dB)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	183.260	23.72	-21.13	33.5	9.78	Peak	253.00	100	Horizontal	Pass
2	398.358	31.11	-13.82	36.0	4.89	Peak	109.00	100	Horizontal	Pass
3	479.353	29.96	-12.09	36.0	6.04	Peak	41.00	100	Horizontal	Pass
4	574.172	37.27	-9.93	36.0	-1.27	Peak	349.00	190	Horizontal	N/A
4*	574.172	26.65	-9.93	36.0	9.35	QP	349.00	190	Horizontal	Pass
5	798.408	33.17	-6.41	36.0	2.83	Peak	113.00	116	Horizontal	N/A
5*	798.408	27.57	-6.41	36.0	8.43	QP	113.00	116	Horizontal	Pass
6	896.024	36.47	-4.73	36.0	-0.47	Peak	215.00	105	Horizontal	N/A
6*	896.024	33.96	-4.73	36.0	2.04	QP	215.00	105	Horizontal	Pass

### A.1.9 Test Antenna Vertical, 1 GHz – 6 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1400.000	48.86	-5.47	74.0	25.14	Peak	258.00	100	Vertical	Pass
2	2433.500	91.12	-2.10	74.0	-17.12	Peak	116.90	100	Vertical	N/A
3	2552.500	52.91	-1.58	74.0	21.09	Peak	217.80	100	Vertical	Pass
4	4874.000	61.70	12.27	74.0	12.30	Peak	137.60	100	Vertical	N/A
5	6086.000	48.08	12.72	74.0	25.92	Peak	191.20	100	Vertical	Pass
6	10159.625	52.45	18.87	74.0	21.55	Peak	199.80	100	Vertical	Pass

# A.1.10 Test Antenna Horizontal, 1 GHz – 6 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1399.500	49.93	-5.48	74.0	24.07	Peak	343.20	100	Horizontal	Pass
2	2433.500	90.76	-2.10	74.0	-16.76	Peak	228.80	100	Horizontal	N/A
3	3994.000	45.61	9.25	74.0	28.39	Peak	355.10	100	Horizontal	Pass
4	4874.000	57.53	12.27	74.0	16.47	Peak	360.00	100	Horizontal	N/A
5	5760.000	48.48	12.82	74.0	25.52	Peak	146.40	100	Horizontal	Pass
6	9715.438	52.22	18.70	74.0	21.78	Peak	0.80	100	Horizontal	Pass

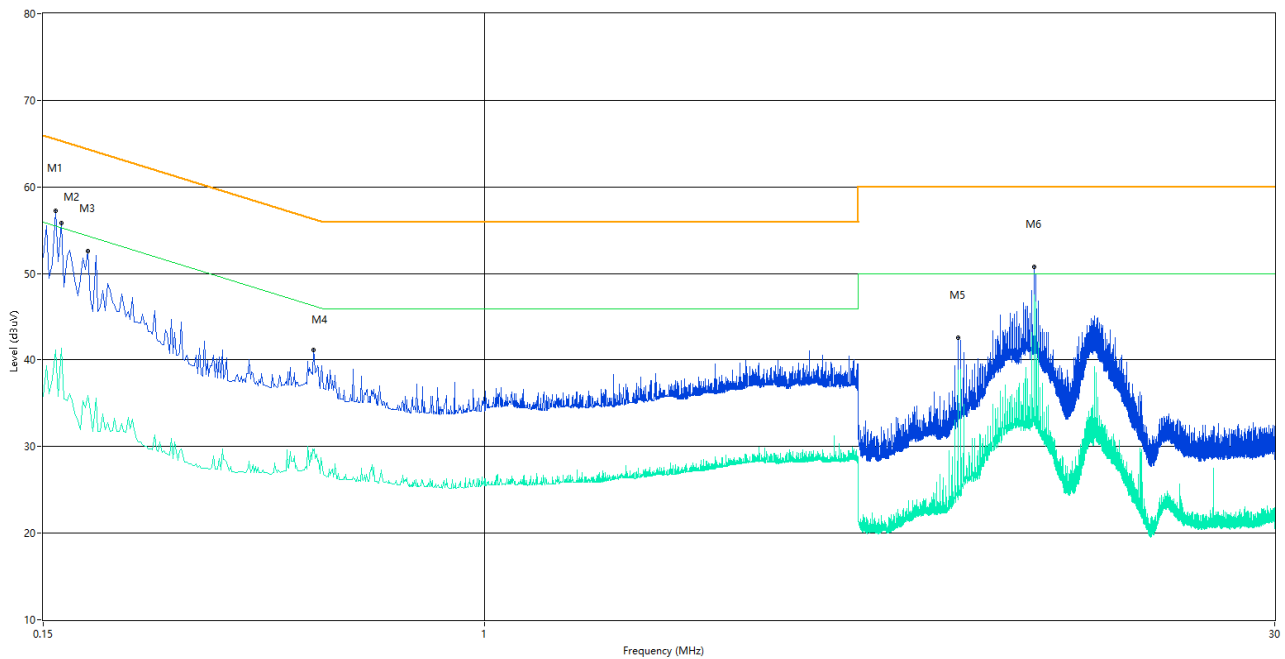
## A.2 Conducted Emission

### Test Data and Plots

#### The TF Card Play Test Mode (with Adapter ADP-40KD AB)

Note: 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. 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.

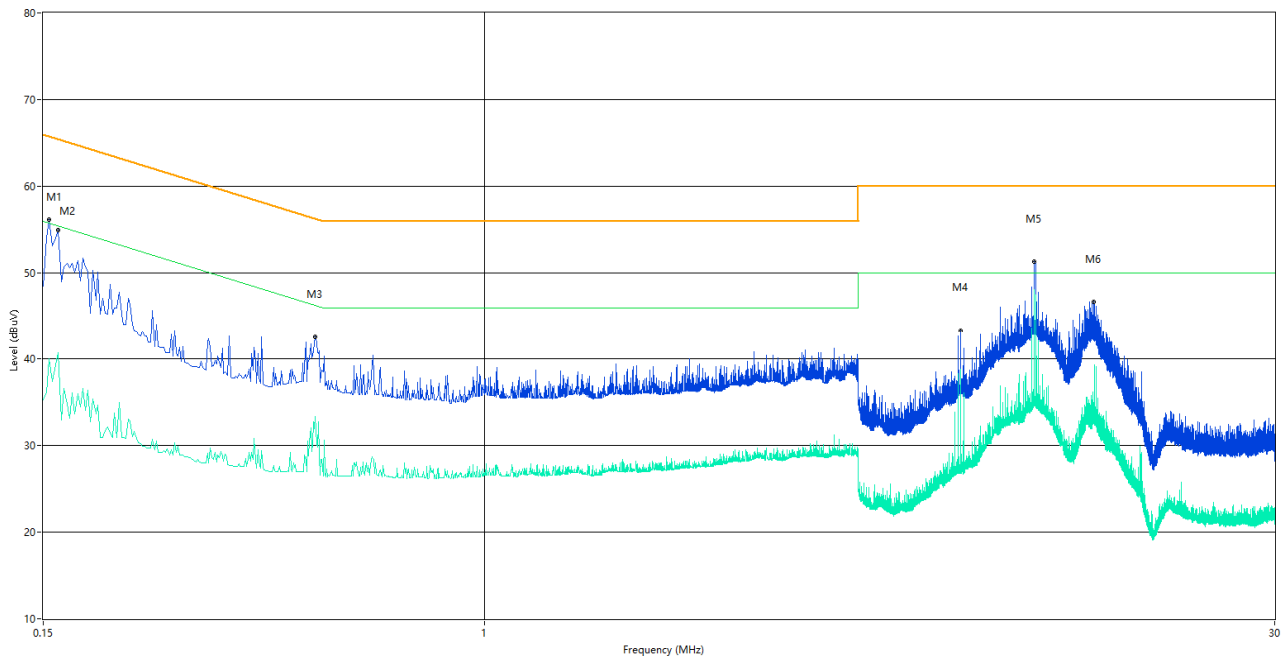
#### A.2.1 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.158	57.3	10.41	65.6	8.30	Peak	L Line	Pass
1**	0.158	41.1	10.41	55.6	14.50	AV	L Line	Pass
2	0.162	55.9	9.85	65.4	9.50	Peak	L Line	Pass
2**	0.162	41.3	9.85	55.4	14.10	AV	L Line	Pass
3	0.182	52.6	10.46	64.4	11.80	Peak	L Line	Pass
3**	0.182	35.8	10.46	54.4	18.60	AV	L Line	Pass
4	0.480	41.1	11.23	56.3	15.20	Peak	L Line	Pass
4**	0.480	29.5	11.23	46.3	16.80	AV	L Line	Pass
5	7.678	42.5	9.93	60.0	17.50	Peak	L Line	Pass
5**	7.678	38.7	9.93	50.0	11.30	AV	L Line	Pass
6	10.656	50.8	10.61	60.0	9.20	Peak	L Line	Pass
6**	10.656	46.4	10.61	50.0	3.60	AV	L Line	Pass



## A.2.2 N Phase

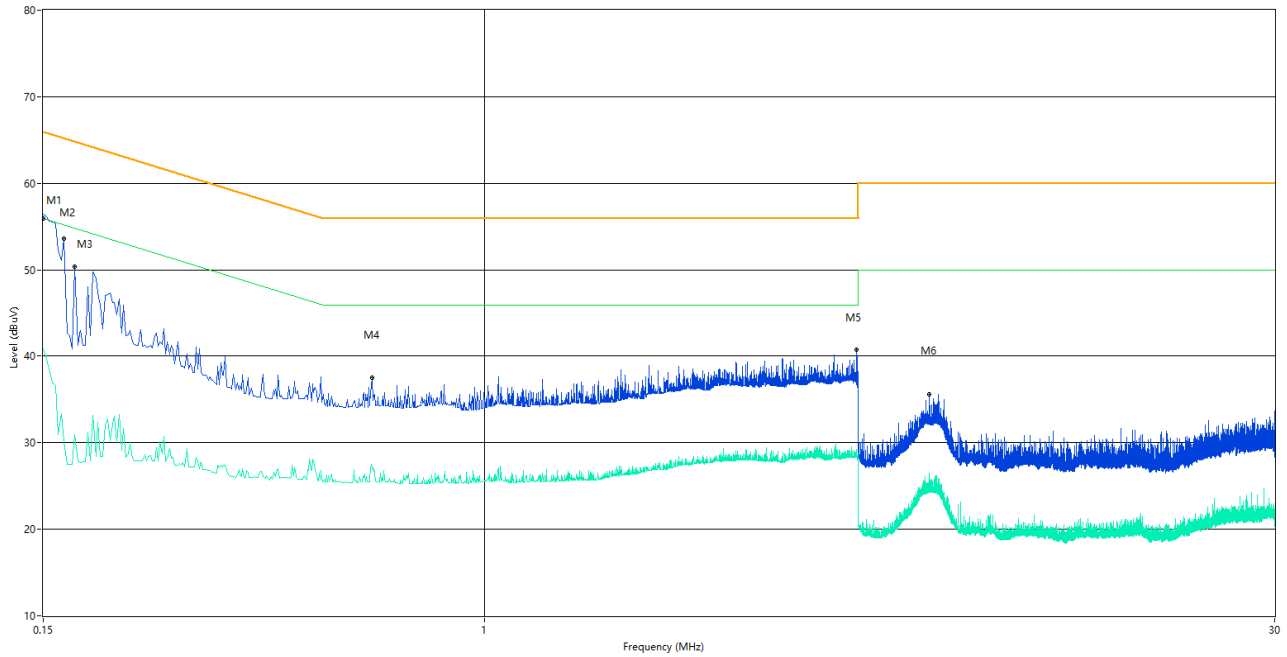


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.154	56.2	9.99	65.8	9.60	Peak	N Line	Pass
1**	0.154	40.0	9.99	55.8	15.80	AV	N Line	Pass
2	0.160	55.0	10.29	65.5	10.50	Peak	N Line	Pass
2**	0.160	40.7	10.29	55.5	14.80	AV	N Line	Pass
3	0.484	42.5	10.85	56.3	13.80	Peak	N Line	Pass
3**	0.484	33.4	10.85	46.3	12.90	AV	N Line	Pass
4	7.774	43.3	9.99	60.0	16.70	Peak	N Line	Pass
4**	7.774	38.8	9.99	50.0	11.20	AV	N Line	Pass
5	10.656	54.16	10.61	60.0	5.84	Peak	N Line	N/A
5*	10.656	49.82	10.61	60.0	10.18	QP	N Line	Pass
5**	10.656	48.23	10.61	50.0	1.77	AV	N Line	Pass
6	13.760	46.6	11.27	60.0	13.40	Peak	N Line	Pass
6**	13.760	34.9	11.27	50.0	15.10	AV	N Line	Pass

## Test Data and Plots

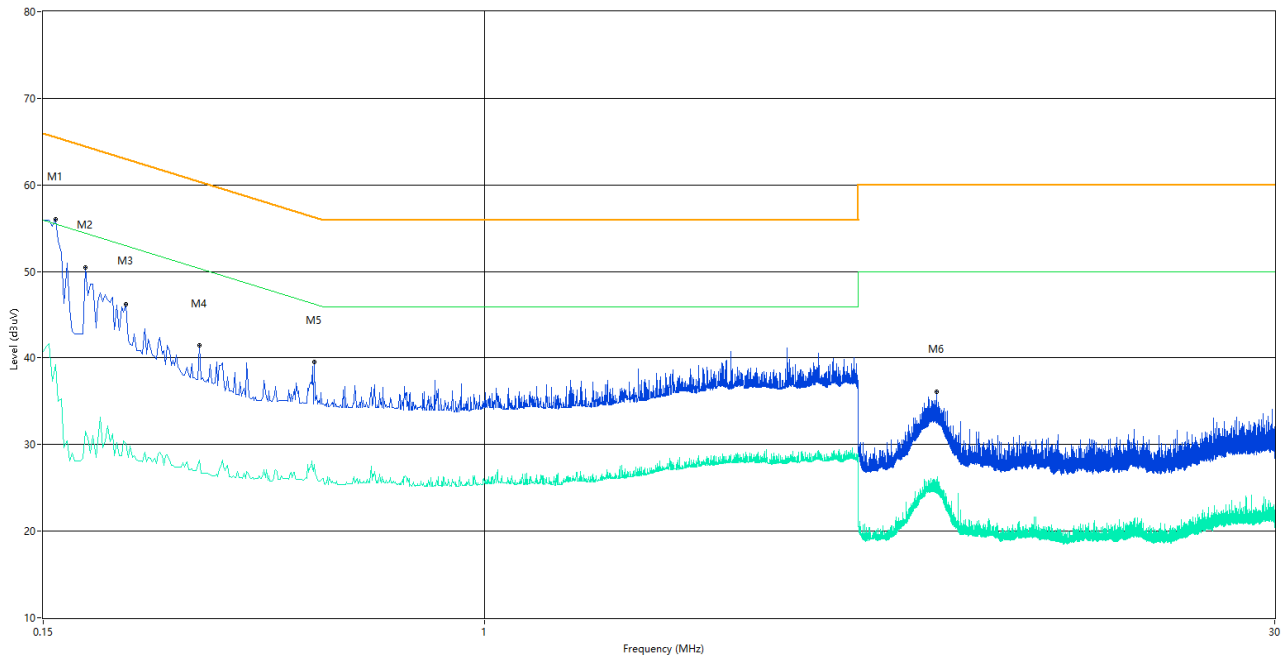
### The TF Card Play Test Mode (with Adapter HKA04019021-6D)

#### A.2.3 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.150	56.5	9.70	66.0	9.50	Peak	L Line	Pass
1**	0.150	40.8	9.70	56.0	15.20	AV	L Line	Pass
2	0.164	53.6	9.41	65.3	11.70	Peak	L Line	Pass
2**	0.164	30.1	9.41	55.3	25.20	AV	L Line	Pass
3	0.172	50.4	9.39	64.9	14.50	Peak	L Line	Pass
3**	0.172	30.9	9.39	54.9	24.00	AV	L Line	Pass
4	0.618	37.5	11.23	56.0	18.50	Peak	L Line	Pass
4**	0.618	27.2	11.23	46.0	18.80	AV	L Line	Pass
5	4.956	40.7	10.09	56.0	15.30	Peak	L Line	Pass
5**	4.956	28.5	10.09	46.0	17.50	AV	L Line	Pass
6	6.788	35.5	10.11	60.0	24.50	Peak	L Line	Pass
6**	6.788	24.1	10.11	50.0	25.90	AV	L Line	Pass

## A.2.4 N Phase

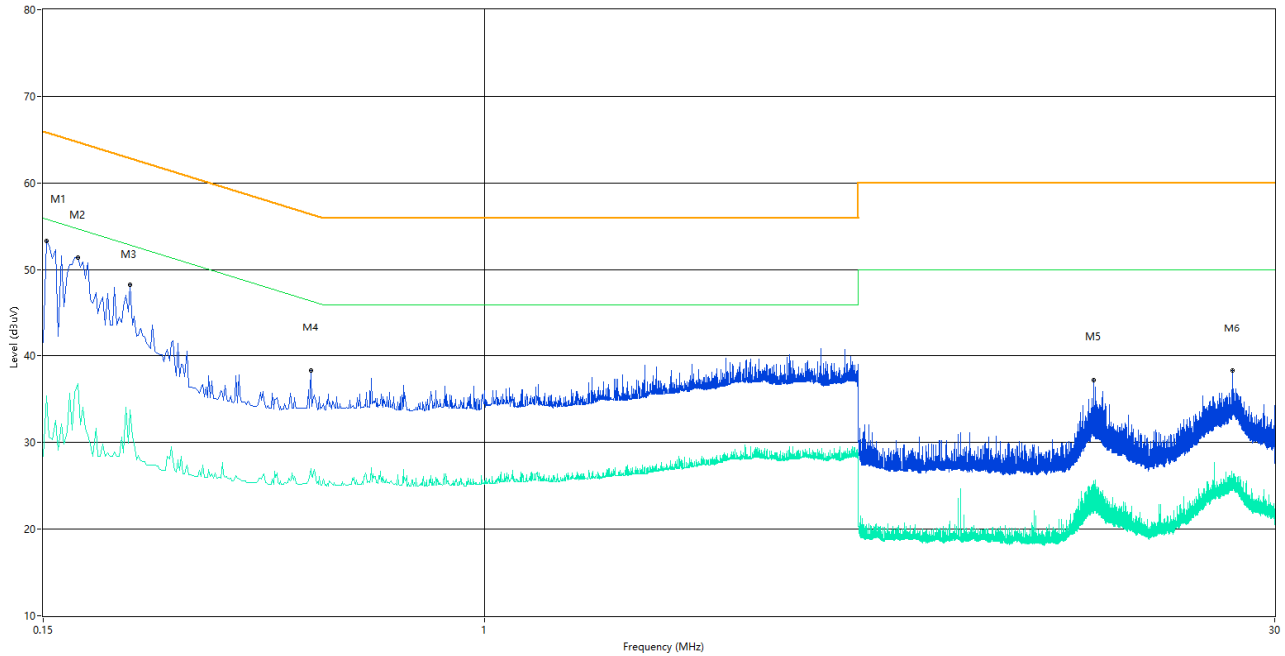


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.158	56.1	10.41	65.6	9.50	Peak	N Line	Pass
1**	0.158	39.2	10.41	55.6	16.40	AV	N Line	Pass
2	0.180	50.5	10.47	64.5	14.00	Peak	N Line	Pass
2**	0.180	31.5	10.47	54.5	23.00	AV	N Line	Pass
3	0.214	46.3	10.30	63.0	16.70	Peak	N Line	Pass
3**	0.214	30.1	10.30	53.0	22.90	AV	N Line	Pass
4	0.294	41.4	10.11	60.4	19.00	Peak	N Line	Pass
4**	0.294	28.2	10.11	50.4	22.20	AV	N Line	Pass
5	0.482	39.5	11.13	56.3	16.80	Peak	N Line	Pass
5**	0.482	27.7	11.13	46.3	18.60	AV	N Line	Pass
6	7.006	36.1	10.05	60.0	23.90	Peak	N Line	Pass
6**	7.006	25.6	10.05	50.0	24.40	AV	N Line	Pass

## Test Data and Plots

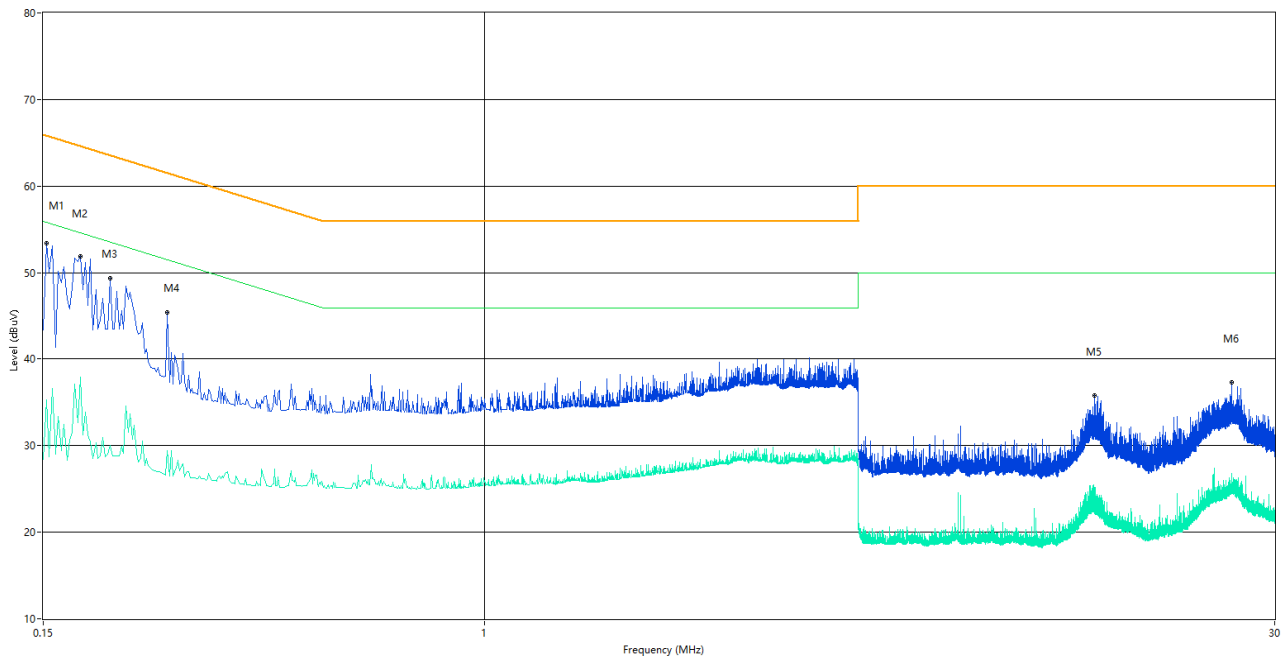
### The TF Card Play Test Mode (with Adapter ADP65JH AB)

#### A.2.5 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.152	53.3	9.78	65.9	12.60	Peak	L Line	Pass
1**	0.152	35.4	9.78	55.9	20.50	AV	L Line	Pass
2	0.174	51.4	9.53	64.8	13.40	Peak	L Line	Pass
2**	0.174	36.7	9.53	54.8	18.10	AV	L Line	Pass
3	0.218	48.3	11.34	62.9	14.60	Peak	L Line	Pass
3**	0.218	33.7	11.34	52.9	19.20	AV	L Line	Pass
4	0.474	38.3	10.95	56.4	18.10	Peak	L Line	Pass
4**	0.474	26.9	10.95	46.4	19.50	AV	L Line	Pass
5	13.746	37.2	11.35	60.0	22.80	Peak	L Line	Pass
5**	13.746	23.3	11.35	50.0	26.70	AV	L Line	Pass
6	25.038	38.3	11.75	60.0	21.70	Peak	L Line	Pass
6**	25.038	25.6	11.75	50.0	24.40	AV	L Line	Pass

## A.2.6 N Phase

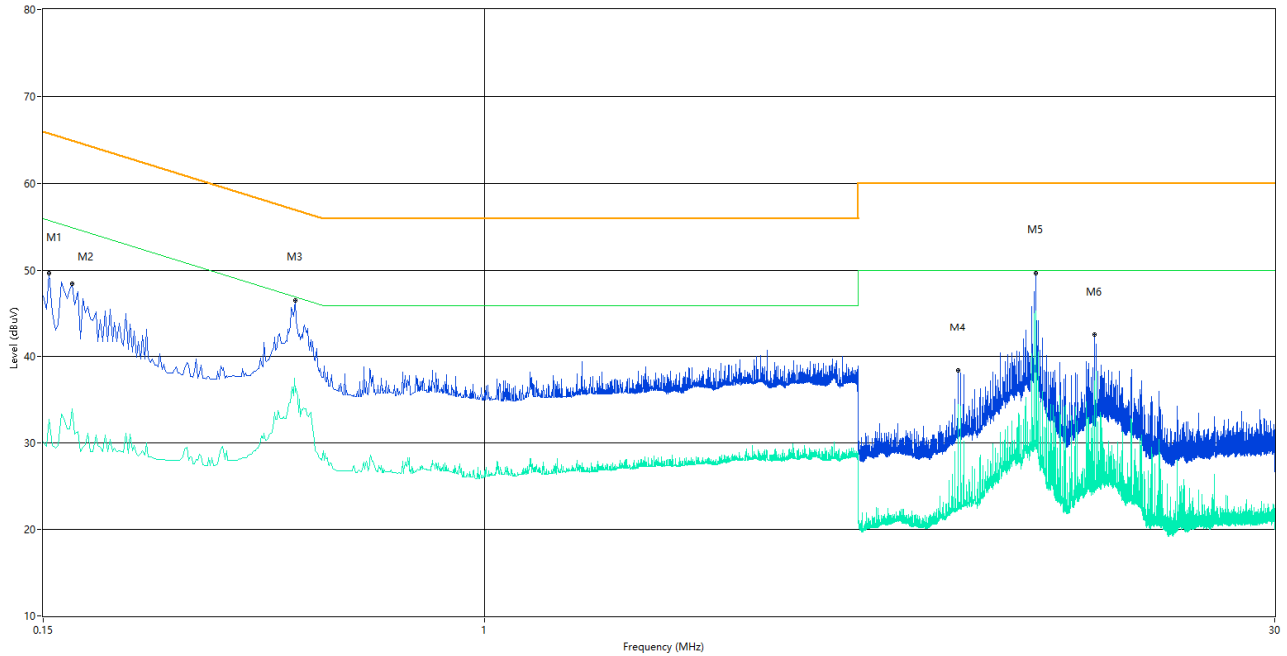


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.152	53.4	9.78	65.9	12.50	Peak	N Line	Pass
1**	0.152	35.3	9.78	55.9	20.60	AV	N Line	Pass
2	0.176	51.9	9.84	64.7	12.80	Peak	N Line	Pass
2**	0.176	37.9	9.84	54.7	16.80	AV	N Line	Pass
3	0.200	49.4	9.29	63.6	14.20	Peak	N Line	Pass
3**	0.200	30.0	9.29	53.6	23.60	AV	N Line	Pass
4	0.256	45.5	9.57	61.6	16.10	Peak	N Line	Pass
4**	0.256	29.4	9.57	51.6	22.20	AV	N Line	Pass
5	13.812	35.8	11.32	60.0	24.20	Peak	N Line	Pass
5**	13.812	22.8	11.32	50.0	27.20	AV	N Line	Pass
6	24.904	37.3	11.68	60.0	22.70	Peak	N Line	Pass
6**	24.904	26.8	11.68	50.0	23.20	AV	N Line	Pass

## Test Data and Plots

### The TF Card Play Test Mode (with Adapter HKA06519034-6J)

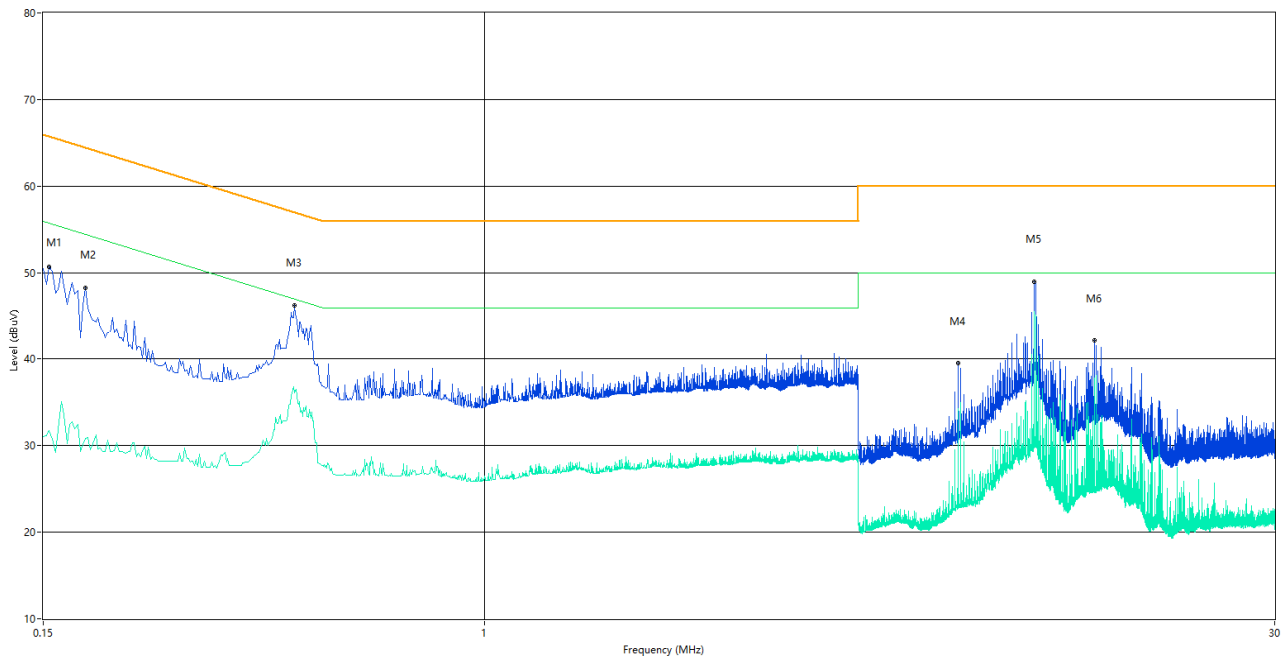
#### A.2.7 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.154	49.6	9.99	65.8	16.20	Peak	L Line	Pass
1**	0.154	32.7	9.99	55.8	23.10	AV	L Line	Pass
2	0.170	48.5	9.24	65.0	16.50	Peak	L Line	Pass
2**	0.170	34.0	9.24	55.0	21.00	AV	L Line	Pass
3	0.444	46.6	10.51	57.0	10.40	Peak	L Line	Pass
3**	0.444	35.9	10.51	47.0	11.10	AV	L Line	Pass
4	7.678	38.4	9.93	60.0	21.60	Peak	L Line	Pass
4**	7.678	34.4	9.93	50.0	15.60	AV	L Line	Pass
5	10.750	49.7	10.39	60.0	10.30	Peak	L Line	Pass
5**	10.750	45.3	10.39	50.0	4.70	AV	L Line	Pass
6	13.822	42.5	11.24	60.0	17.50	Peak	L Line	Pass
6**	13.822	37.2	11.24	50.0	12.80	AV	L Line	Pass



## A.2.8 N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.154	50.7	9.99	65.8	15.10	Peak	N Line	Pass
1**	0.154	31.7	9.99	55.8	24.10	AV	N Line	Pass
2	0.180	48.3	10.47	64.5	16.20	Peak	N Line	Pass
2**	0.180	30.8	10.47	54.5	23.70	AV	N Line	Pass
3	0.442	46.3	10.54	57.0	10.70	Peak	N Line	Pass
3**	0.442	36.1	10.54	47.0	10.90	AV	N Line	Pass
4	7.678	39.5	9.93	60.0	20.50	Peak	N Line	Pass
4**	7.678	34.3	9.93	50.0	15.70	AV	N Line	Pass
5	10.654	49.0	10.55	60.0	11.00	Peak	N Line	Pass
5**	10.654	45.6	10.55	50.0	4.40	AV	N Line	Pass
6	13.822	42.1	11.24	60.0	17.90	Peak	N Line	Pass
6**	13.822	37.7	11.24	50.0	12.30	AV	N Line	Pass

## **ANNEX B TEST SETUP PHOTOS**

Please refer the document “BL-SZ1790192-AE.PDF”.

## **ANNEX C EUT EXTERNAL PHOTOS**

Please refer the document “BL-SZ1790192-AW.PDF”.

## **ANNEX D EUT INTERNAL PHOTOS**

Please refer the document “BL-SZ1790192-AI.PDF”.

--END OF REPORT--