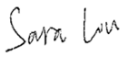
TEST REPORT

Electromagnetic compatibility of multimedia equipment

Report Number. ..... :	EFHZ18030268	
Date of issue ..... :	2018-Mar-13	
Approved by (+signature) ..... :	Sara Liu	
Issued Laboratory name..... :	Eurofins Product Testing Service (Shanghai) Co., Ltd. Hangzhou Branch	
Address ..... :	Room 301-307, 3/F, 1st Building, Huaye Hi-Tech Industrial Park, No.1180, Bin'an Road, Binjiang District, Hangzhou, Zhejiang Province, China, 310052	
Applicant's name..... :	Xindao B.V.	
Address ..... :	P.O. Box 3082, 2280 GB, Rijswijk, The Netherlands	
Manufacturer's name ..... :	/	
Address ..... :	/	
Standard(s)..... :	EN 55032:2015+AC:2016 EN 55024:2010+A1:2015 EN 61000-3-2:2014 EN 61000-3-3:2013	
Test item description ..... :	TECH PORTFOLIO WITH POWERBANK	
Trade Mark ..... :	N/A	
Model/Type reference ..... :	P772.64	
Rating(s)..... :	Input: DC 5 V; 1.0 A Output: DC 5 V; 2.1 A	
Date of receipt of test item ..... :	2018-Mar-06	
Date (s) of performance of test:	2018-Mar-12	
Summary of Test Results ..... :	**Pass**	

The Summary of Test Results based on a technical opinion belongs to the standard(s).

General disclaimer:

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Report Index

1. General Information

1.1. Description of device (EUT)

Test item description..... :	TECH PORTFOLIO WITH POWERBANK
Model/Type reference..... :	P772.64
Rating(s) ..... :	Input: DC 5 V; 1.0 A Output: DC 5 V; 2.1 A
AC Line ..... :	☐Shielded ☐Unshielded, ☐Detachable ☐Un-detachable ☒No applicable ☐Length:
DC Line ..... :	☐Shielded ☒Unshielded, ☒Detachable ☐Un-detachable ☐No applicable ☒Length: 16 cm

1.2. Difference between model numbers

None

1.3. EUT Operation modes

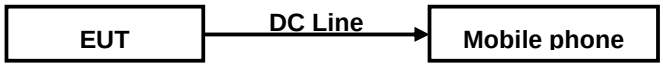
Mode #	Description	Test voltage
1	Discharging	DC 5 V
2	/	/
3	/	/

The Worst Test Mode		
Emission	Limits for radiated disturbance 30 MHz –6 GHz	☒Mode 1 ☐Mode 2 ☐Mode 3

1.4. Description of support units

Product Type	Manufacturer	Model	Serial No.
Mobile phone	iPhone	iPhone 6s	DNPQT4X8GRY7

1.5. Block diagram of test set-up



(EUT: TECH PORTFOLIO WITH POWERBANK)

1.6. General test conditions

Environmental reference conditions

If not defined otherwise by the Technical Committee responsible for the generic standard and/or the product standard the climatic conditions during the tests are to be within the limits specified by the manufacturer for the operation of the EUT and the test equipment.

The climatic conditions during the tests were within the following limits:

Ambient Temperature	Relative Humidity	Air pressure
15 to 35 °C	30 to 60 %	86 kPa – 106 kPa

If explicitly required in the test base (basic) the climatic values are recorded and documented separately for the respective test.

Measurement uncertainties

All tests are subject to measurement uncertainties. The overall measurement uncertainty of a measurement is defined as the range of which can be supposed that it contains the true value with a specified probability.

This probability is 95 % for the generally specified measurement uncertainty (so-called expanded measurement uncertainty).

The limits for emission measurements and the test levels for immunity tests in the applied standards were defined taking into consideration the accuracy limits for measurement and testing equipment required by the basic standards.

All measurement and test results of the EMC laboratory of Eurofins Product Testing Service (Shanghai) Co., Ltd. Hangzhou Branch fulfil the requirements for measurement uncertainties according to the standards applied.

1.7. Performance criteria

Performance criterion A
The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Performance criterion B
After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Performance criterion C
Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

2. Result Summary

EN 55032:2015+AC:2016		
Requirement – Test	**Result - Remark**	**Verdict**
Classification Class (A or B)	☐A ☒B	—
Limits of disturbance voltage at mains terminals	See 4.1	N/A
Limits of disturbance voltage at telecommunication terminals	See 4.2	N/A
Limits of disturbance voltage at antenna terminals	See 4.3	N/A
Limits of conducted disturbance between 1 GHz to 18 GHz	See 4.4	N/A
Limits for radiated disturbance 30 MHz –6 GHz	See 4.5	Pass
OUTDOOR UNITS – Limits for radiated disturbance between 1 GHz to 18 GHz	See 4.6	N/A
EN 55024:2010+A1:2015		
Requirement – Test	**Result - Remark**	**Verdict**
Electrostatic discharge immunity (ESD)	See 5.1	Pass
Radiated, radio-frequency, electromagnetic field immunity (RS)	See 5.2	Pass
Electrical fast transient/burst immunity (EFT/B)	See 5.3	N/A
Surge immunity	See 5.4	N/A
Immunity to conducted disturbances, induced by radio-frequency fields (CS)	See 5.5	N/A
Power frequency magnetic field immunity (PFMF)	See 5.6	N/A
Voltage dips, short interruptions and voltage variations immunity (DIPS)	See 5.7	N/A
EN 61000-3-2:2014		
Requirement – Test	**Result - Remark**	**Verdict**
Harmonic current emissions	See 4.7	N/A
EN 61000-3-3:2013		
Requirement – Test	**Result - Remark**	**Verdict**
Voltage Fluctuations and Flicker	See 4.8	N/A

Test case verdicts	
- test case does not apply to the test object .....:	N/A
- test object does meet the requirement .....:	P (Pass)
- test object does not meet the requirement .....:	F (Fail)

3. List of Test and Measurement Equipment

Disturbance voltage at mains terminals

Equipment	Manufacturer	Model	Serial Number	Cal. Due
LISN	Schwarzbeck	NSLK 8127	8127-892	2018-04-22
EMI Test Receiver	R&S	ESR3	102124	2018-12-22
Pulse Limiter	R&S	ESH3-Z2	357.8810.52	2018-04-22

Radiated electromagnetic disturbances

Equipment	Manufacturer	Model	Serial Number	Cal. Due
RF Preamp Amplifier	EMEC	EM330	060676	2018-12-22
Broadband Antenna	Schwarzbeck	9162	139	2019-04-21
EMI Test Receiver	R&S	ESVS30	829673/011	2018-09-04
EXA signal analyzer	KEYSIGHT	MY56070465	N9010A	2018-12-22

Harmonic current emissions & Voltage Fluctuations and Flicker

Equipment	Manufacturer	Model	Serial Number	Cal. Due
Harmonic/Flicker Test System	AMETEK	5001ix-CTS-400-413	1642A03401	2019-03-07

Electrostatic discharge immunity (ESD)

Equipment	Manufacturer	Model	Serial Number	Cal. Due
ESD Simulator	TESTQ	NSG437	1097	2018-12-22

Radiated, radio-frequency, electromagnetic field immunity (RS)

Equipment	Manufacturer	Model	Serial Number	Cal. Due
Signal Generator	R&S	SML02	100904	2018-04-22
Amplifier	Milmega	80RF1000-300	1074126	2018-12-22
Periodic Antenna	Schwarzbeck	STLP 9129	00017	2019-11-08
Field probe	PMM(Narda)	EP 601	511wx51163	2018-12-22
Power Meter	R&S	NRVD	833235/008	2018-04-22

Electrical fast transient/burst immunity (EFT/B)

Equipment	Manufacturer	Model	Serial Number	Cal. Due
IMU4000 Test System	EMC-PARTNER	IMU4000 F-D-V	1501	2018-12-22

Surge immunity

Equipment	Manufacturer	Model	Serial Number	Cal. Due
Surge Impulse Generator	EMC-PARTNER	MIG0603IN2	1517	2018-12-22

Immunity to conducted disturbances, induced by radio-frequency fields (CS)

Equipment	Manufacturer	Model	Serial Number	Cal. Due
Conducted Immunity Test System	FRANKONIA	CIT-10-75	126B1435/2016	2018-12-22
6db attenuator	FRANKONIA	75-A-FFN-06	1628	2018-12-22
Coupling/Decoupling Network	FRANKONIA	CDN M2+3	A2210421/2016	2018-12-22
EM-Clamp	FRANKONIA	EMCL-20	132A1290/2016	2018-12-22

Power frequency magnetic field immunity (PFMF)

Equipment	Manufacturer	Model	Serial Number	Cal. Due
IMU4000 Test System	EMC-PARTNER	IMU4000 F-D-V	1501	2018-12-22
External 16A Variac for Dips and Variations	EMC-PARTNER	VAR-EXT1000	1545	2018-12-22
Induction coil	EMC-PARTNER	MF1000-1	1560	2018-12-22

Voltage dips, short interruptions and voltage variations immunity (DIPS)

Equipment	Manufacturer	Model	Serial Number	Cal. Due
IMU4000 Test System	EMC-PARTNER	IMU4000 F-D-V	1501	2018-12-22
External 16A Variac for Dips and Variations	EMC-PARTNER	VAR-EXT1000	1545	2018-12-22

4. Test Conditions and Results (Emission)

4.1. Limits of disturbance voltage at mains terminals

<table>
<tr><td>Test Requirement:</td><td colspan="3">EN 55032:2015+AC:2016</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="3">150 kHz to 30 MHz</td></tr>
<tr><td rowspan="10">Limit:</td><td colspan="3">Limits – Class A</td></tr>
<tr><td rowspan="2">Frequency (MHz)</td><td colspan="2">Limit dB (μV)</td></tr>
<tr><td>Quasi-Peak</td><td>Average</td></tr>
<tr><td>0.15 to 0.5</td><td>79</td><td>66</td></tr>
<tr><td>0.5 to 30</td><td>73</td><td>60</td></tr>
<tr><td colspan="3">Limits – Class B</td></tr>
<tr><td rowspan="2">Frequency (MHz)</td><td colspan="2">Limit dB (μV)</td></tr>
<tr><td>Quasi-Peak</td><td>Average</td></tr>
<tr><td>0.15 to 0.5</td><td>66 to 56</td><td>56 to 46</td></tr>
<tr><td>0.5 to 5</td><td>56</td><td>46</td></tr>
<tr><td>5 to 30</td><td>60</td><td>50</td></tr>
<tr><td>Test Method:</td><td colspan="3">The AMN placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane. This distance was between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment were at least 0,8 m from the AMN. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN.</td></tr>
<tr><td colspan="4">Test Information</td></tr>
<tr><td>Ambient Temperature:</td><td colspan="3">/</td></tr>
<tr><td>Relative Humidity:</td><td colspan="3">/</td></tr>
<tr><td>Test model(s):</td><td colspan="3">/</td></tr>
<tr><td>Test date:</td><td colspan="3">/</td></tr>
<tr><td>Test Location:</td><td colspan="3">/</td></tr>
<tr><td>Test mode:</td><td colspan="3">/</td></tr>
<tr><td>Test results:</td><td colspan="3">☐Pass ☐Fail ☒N/A</td></tr>
<tr><td>Remark:</td><td colspan="3">This test isn’t applicable because the EUT doesn’t have relative function.</td></tr>
</table>

4.2. Limits of disturbance voltage at telecommunication terminals

<table>
<tr><td>Test Requirement:</td><td colspan="5">EN 55032:2015+AC:2016</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">150 kHz to 30 MHz</td></tr>
<tr><td rowspan="10">Limit:</td><td colspan="5">Limits – Class A</td></tr>
<tr><td rowspan="2">Frequency (MHz)</td><td colspan="2">Voltage Limits dB (μV)</td><td colspan="2">Current Limits dB (μA)</td></tr>
<tr><td>Quasi-Peak</td><td>Average</td><td>Quasi-Peak</td><td>Average</td></tr>
<tr><td>0.15 to 0.5</td><td>97 to 87</td><td>84 to 74</td><td>53 to 43</td><td>40 to 30</td></tr>
<tr><td>0.5 to 30</td><td>87</td><td>74</td><td>43</td><td>30</td></tr>
<tr><td colspan="5">Limits – Class B</td></tr>
<tr><td rowspan="2">Frequency (MHz)</td><td colspan="2">Voltage Limits dB (μV)</td><td colspan="2">Current Limits dB (μA)</td></tr>
<tr><td>Quasi-Peak</td><td>Average</td><td>Quasi-Peak</td><td>Average</td></tr>
<tr><td>0.15 to 0.5</td><td>84 to 74</td><td>74 to 64</td><td>40 to 30</td><td>30 to 20</td></tr>
<tr><td>0.5 to 30</td><td>74</td><td>64</td><td>30</td><td>20</td></tr>
<tr><td>Test Method:</td><td colspan="5">All power was connected to the system through Artificial Mains Network (AMN). All tested telecommunications lines were connected to an Asymmetric Artificial Network (AAN) and conducted voltage measurements on telecommunications lines were made at the output of the AAN. Where an AAN was not appropriate or available measurements were made using a Capacitive Voltage Probe and Current probe.</td></tr>
<tr><td colspan="6">Test Information</td></tr>
<tr><td>Ambient Temperature:</td><td colspan="5">/</td></tr>
<tr><td>Relative Humidity:</td><td colspan="5">/</td></tr>
<tr><td>Test model(s):</td><td colspan="5">/</td></tr>
<tr><td>Test date:</td><td colspan="5">/</td></tr>
<tr><td>Test Location:</td><td colspan="5">/</td></tr>
<tr><td>Test mode:</td><td colspan="5">/</td></tr>
<tr><td>Test results:</td><td colspan="5">☐Pass ☐Fail ☒N/A</td></tr>
<tr><td>Remark:</td><td colspan="5">This test isn’t applicable because the EUT doesn’t have relative function.</td></tr>
</table>

4.3. Limits of disturbance voltage at antenna terminals

<table>
<tr><td colspan="2">Test Requirement:</td><td colspan="6">EN 55032:2015+AC:2016</td></tr>
<tr><td colspan="2">Test Frequency Range:</td><td colspan="6">30 MHz to 2150 MHz</td></tr>
<tr><td rowspan="11">Limit:</td><td rowspan="2">Table clause</td><td rowspan="2">Frequency range (MHz)</td><td rowspan="2">Detector type/ bandwidth</td><td colspan="3">Class B limits dB(μV) 75 Ω</td></tr>
<tr><td>Other</td><td>Local Oscillator Fundamental</td><td>Local Oscillator Harmonics</td></tr>
<tr><td rowspan="2">a</td><td>30 to 950</td><td rowspan="9">For frequencies ≥1 GHz QP/120 kHz

For frequencies ≥1 GHz Peak/1 MHz</td><td>46</td><td>46</td><td>46</td></tr>
<tr><td>950 to 2 150</td><td>46</td><td>54</td><td>54</td></tr>
<tr><td>b</td><td>950 to 2 150</td><td>46</td><td>54</td><td>54</td></tr>
<tr><td rowspan="2">c</td><td>30 to 300</td><td rowspan="2">46</td><td rowspan="2">54</td><td>50</td></tr>
<tr><td>300 to 1 000</td><td>52</td></tr>
<tr><td rowspan="2">d</td><td>30 to 300</td><td rowspan="2">46</td><td rowspan="2">66</td><td>59</td></tr>
<tr><td>300 to 1 000</td><td>52</td></tr>
<tr><td rowspan="2">e</td><td>30 to 950</td><td rowspan="2">46</td><td>76</td><td>46</td></tr>
<tr><td>950 to 2 150</td><td>n/a</td><td>54</td></tr>
<tr><td colspan="6">a Television receivers (analogue or digital), video recorders and PC TV broadcast receiver tuner cards working in channels between 30 MHz and 1 GHz, and digital audio receivers.
b Tuner units (not the LNB) for satellite signal reception.
c Frequency modulation audio receivers and PC tuner cards.
d Frequency modulation car radios.
e Applicable to EUTs with RF modulator output ports (for example DVD equipment, video recorders, camcorders and decoders etc.) designed to connect to TV broadcast receiver tuner ports. Limits specified for the LO are for the RF modulator carrier signal and harmonics.</td></tr>
<tr><td colspan="2">Test Method:</td><td colspan="6">The measurement was performed in accordance with the requirement set in clause 5.4.
The antenna terminal of the sample and the signal generator were connected to the EMI receiver by means of coaxial cables and a resistive combining network having a minimum attenuation of 6dB.
The following results were those measured accordingly.</td></tr>
<tr><td colspan="8">Test Information</td></tr>
<tr><td colspan="2">Ambient Temperature:</td><td colspan="6">/</td></tr>
<tr><td colspan="2">Relative Humidity:</td><td colspan="6">/</td></tr>
<tr><td colspan="2">Test model(s):</td><td colspan="6">/</td></tr>
<tr><td colspan="2">Test date:</td><td colspan="6">/</td></tr>
<tr><td colspan="2">Test Location:</td><td colspan="6">/</td></tr>
<tr><td colspan="2">Test mode:</td><td colspan="6">/</td></tr>
<tr><td colspan="2">Test results:</td><td colspan="6">☐Pass ☐Fail ☒N/A</td></tr>
<tr><td colspan="2">Remark:</td><td colspan="6">This test isn’t applicable because the EUT doesn’t have relative function.</td></tr>
</table>

4.4. Limits of conducted disturbance between 1 GHz to 18 GHz

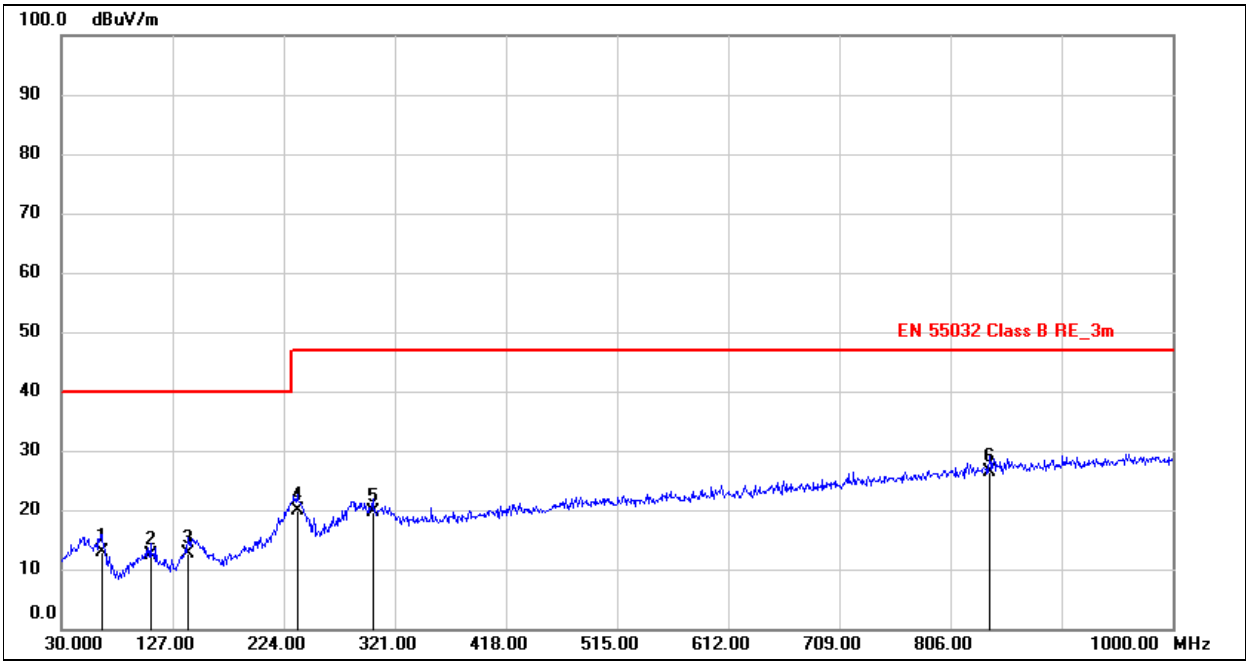
Test Requirement:	EN 55032:2015+AC:2016	
Test Frequency Range:	1 GHz to 18 GHz	
Limit:	**Frequency (GHz)**	**Power Limits dB (pW)**
		Average
	1 to 18	30
Test Method:	In the case of a detachable feed horn, the radiated emission of the LO leakage within − 7° of the main beam axis can be measured directly by a power measurement at the feed horn interface. If a suitable interface (typically types R120, C120) is available, a power meter or spectrum analyzer can be connected to the LNB via a suitable adapter. Due allowance shall be made for the feed losses between the available interface and the antenna flange.	
Test Information		
Ambient Temperature:	/	
Relative Humidity:	/	
Test model(s):	/	
Test date:	/	
Test Location:	/	
Test mode:	/	
Test results:	☐Pass ☐Fail ☒N/A	
Remark:	This test isn't applicable because the EUT doesn't have relative function.	

4.5. Limits for radiated disturbance 30 MHz to 6 GHz

<table>
<tr><td>Test Requirement:</td><td colspan="3">EN 55032:2015+AC:2016</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="3">30 MHz to 6 GHz</td></tr>
<tr><td rowspan="15">Limit:</td><td colspan="3">Limits – Class A</td></tr>
<tr><td>Frequency (MHz)</td><td colspan="2">Limit dB (µV/m) at 3m</td></tr>
<tr><td>30 to 230</td><td colspan="2">50 Quasi-Peak</td></tr>
<tr><td>230 to 1000</td><td colspan="2">57 Quasi-Peak</td></tr>
<tr><td>1000 to 3000</td><td colspan="2">56 Average, 76 Peak</td></tr>
<tr><td>3000 to 6000</td><td colspan="2">60 Average, 80 Peak</td></tr>
<tr><td colspan="3">Limits – Class B</td></tr>
<tr><td>Frequency (MHz)</td><td colspan="2">Limit dB (µV) at 3m</td></tr>
<tr><td>30 to 230</td><td colspan="2">40 Quasi-Peak</td></tr>
<tr><td>230 to 1000</td><td colspan="2">47 Quasi-Peak</td></tr>
<tr><td>1000 to 3000</td><td colspan="2">50 Average, 70 Peak</td></tr>
<tr><td>3000 to 6000</td><td colspan="2">54 Average, 74 Peak</td></tr>
<tr><td colspan="3">Limit dB (µV/m) - FM Receiver</td></tr>
<tr><td>Frequency (MHz)</td><td>Fundamental</td><td>Harmonics</td></tr>
<tr><td>30 to 230</td><td rowspan="3">60 Quasi-Peak</td><td>52 Quasi-Peak</td></tr>
<tr><td>230 to 300</td><td>52 Quasi-Peak</td></tr>
<tr><td>300 to 1000</td><td>56 Quasi-Peak</td></tr>
<tr><td>Test Method:</td><td colspan="3">Measurements were made in a 3-meter semi-anechoic chamber or Open Area Test Site that complies to CISPR 16. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter below 1GHz and 3 meter above 1GHz. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak detector below 1GHz and average detector above 1GHz) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.</td></tr>
<tr><td colspan="4">Test Information</td></tr>
<tr><td>Ambient Temperature:</td><td colspan="3">15 to 35 °C</td></tr>
<tr><td>Relative Humidity:</td><td colspan="3">30 to 60 %</td></tr>
<tr><td>Test model(s):</td><td colspan="3">P772.64</td></tr>
<tr><td>Test date:</td><td colspan="3">2018-Mar-12</td></tr>
<tr><td>Test Location:</td><td colspan="3">No.2, Wu Song Road, Yu Wu Industrial Area, Dongcheng District, Dongguan, Guangdong Province, China 523117</td></tr>
<tr><td>Test mode:</td><td colspan="3">☒Mode 1 ☐Mode 2 ☐Mode 3</td></tr>
<tr><td>Test results:</td><td colspan="3">☒Pass ☐Fail ☐N/A</td></tr>
<tr><td>Remark:</td><td colspan="3">The EUT highest internal frequency less 108 MHz, So don't need to test above 1GHz.</td></tr>
</table>

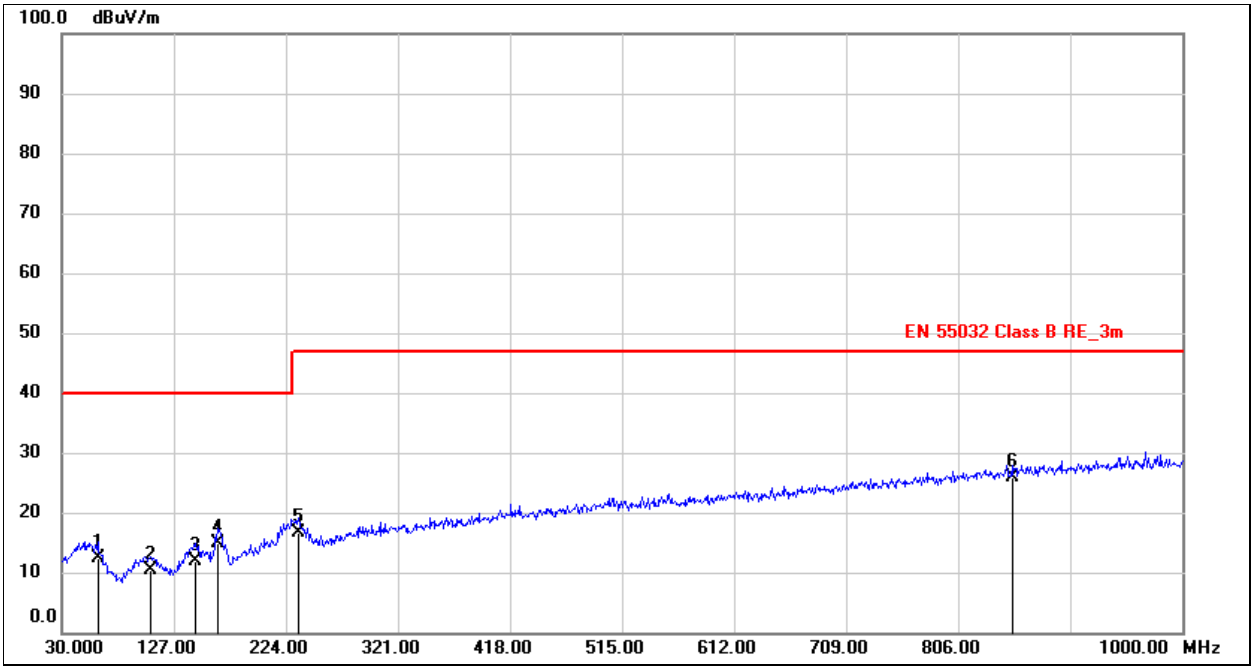
Graphical representation

EUT:	**TECH PORTFOLIO WITH POWERBANK**	**Polarization:**	**Horizontal**
Model:	**P772.64**	**Power Source:**	**DC 5 V**
Mode:	**Discharging**	**Date:**	**2018/3/12**
Temp./Hum.(%RH):	**21/54%RH**	**Time:**	**14:24:17**
Standard:	**EN 55032 Class B RE_3m**	**Distance:**	**3m**
Note:			



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	64.9200	32.35	-19.52	12.83	40.00	-27.17	QP
2	107.6000	31.42	-19.14	12.28	40.00	-27.72	QP
3	140.5800	34.88	-22.20	12.68	40.00	-27.32	QP
4	235.6400	37.22	-17.34	19.88	47.00	-27.12	QP
5	301.6000	34.97	-15.44	19.53	47.00	-27.47	QP
6	839.9500	32.41	-5.95	26.46	47.00	-20.54	QP

EUT:	**TECH PORTFOLIO WITH POWERBANK**	**Polarization:**	**Vertical**
Model:	**P772.64**	**Power Source:**	**DC 5 V**
Mode:	**Discharging**	**Date:**	**2018/3/12**
Temp./Hum.(%RH):	**21/54%RH**	**Time:**	**14:26:33**
Standard:	**EN 55032 Class B RE_3m**	**Distance:**	**3m**
Note:			



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	61.0400	30.57	-18.28	12.29	40.00	-27.71	QP
2	106.6300	29.45	-19.13	10.32	40.00	-29.68	QP
3	145.4299	33.98	-22.13	11.85	40.00	-28.15	QP
4	164.8300	36.24	-21.29	14.95	40.00	-25.05	QP
5	234.6700	33.90	-17.37	16.53	47.00	-30.47	QP
6	852.5600	31.55	-5.79	25.76	47.00	-21.24	QP

4.6. OUTDOOR UNITS – Limits for radiated disturbance between 1 GHz to 18 GHz

<table>
<tr><td>Test Requirement:</td><td colspan="2">EN 55032:2015+AC:2016</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="2">1 GHz to 18 GHz</td></tr>
<tr><td rowspan="6">Limit:</td><td colspan="2">Limits – LO leakage and spurious radiated emissions from the EUT, in the region outside +/- 7° of the main beam axis.</td></tr>
<tr><td>Frequency (GHz)</td><td>Limit dB (µV/m)</td></tr>
<tr><td>1 to 2,5</td><td>50 Average</td></tr>
<tr><td>2,5 to 18</td><td>64 Average</td></tr>
<tr><td colspan="2">Limits – LO leakage from the EUT, in the region within +/- 7° of the main beam axis.</td></tr>
<tr><td>Frequency (GHz)</td><td>Limit dB (µV/m)</td></tr>
<tr><td>Test Method:</td><td colspan="2">Measurements were made in a 3-meter Open Area Test Site that complies to CISPR 16. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter above 1GHz. The EUT was rotated 360° with the receive antenna located in horizontal and vertical polarities. Final measurements (average detector above 1GHz) were then performed by rotating the EUT 360°. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.</td></tr>
<tr><td colspan="3">Test Information</td></tr>
<tr><td>Ambient Temperature:</td><td colspan="2">/</td></tr>
<tr><td>Relative Humidity:</td><td colspan="2">/</td></tr>
<tr><td>Test model(s):</td><td colspan="2">/</td></tr>
<tr><td>Test date:</td><td colspan="2">/</td></tr>
<tr><td>Test Location:</td><td colspan="2">/</td></tr>
<tr><td>Test mode:</td><td colspan="2">/</td></tr>
<tr><td>Test results:</td><td colspan="2">☐Pass ☐Fail ☒N/A</td></tr>
<tr><td>Remark:</td><td colspan="2">This test isn’t applicable because the EUT doesn’t have relative function.</td></tr>
</table>

4.7. Harmonic current emissions

Test Requirement:	EN 61000-3-2:2014	
Limit classification in accordance with the standard:	☒	Class A
	☐	Class B
	☐	Class C with active input power > 25 W
	☐	Class C with active input power ≤ 25 W
	☐	Class D
Test Method:	This test consists on the measurement of harmonics components of the input current which may be produced by equipment having an input current up to and including 16 A per phase, and intended to be connected to public low-voltage distribution systems. The equipment is tested under specified conditions of operation.	
Test Information		
Ambient Temperature:	/	
Relative Humidity:	/	
Test model(s):	/	
Test date:	/	
Test Location:	/	
Test mode:	/	
Test results:	☐Pass ☐Fail ☒N/A	
Remark:	This test isn't applicable because the EUT doesn't have relative function.	

4.8. Voltage changes, voltage fluctuations and flicker

Test Requirement:	EN 61000-3-3:2013
Limits:	The value of Pst shall be not greater than 1.0 The value of Plt shall be not greater than 0.65 The value of d(t) during a voltage change shall not exceed 3.3 % for more than 500 ms The relative steady-state voltage change, dc shall not exceed 3.3 % The maximum relative voltage change dmax shall not exceed: a) 4 % without additional conditions b) 6 % for equipment which is: - switched manually, or - switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption c) 7 % for equipment which is - attended whilst in use (for example : hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as mowers, portable tools such as electric drills), or - switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.
Test Method:	This test consists on the measurement of voltage changes, voltage fluctuations and flicker which may be produced by equipment having an input current ≤ 16 A per phase, and intended to be connected to public low-voltage distribution systems. The equipment is tested under specified conditions of operation.
Test Information	
Ambient Temperature:	/
Relative Humidity:	/
Test model(s):	/
Test date:	/
Test Location:	/
Test mode:	/
Test results:	☐Pass ☐Fail ☒N/A
Remark:	This test isn't applicable because the EUT doesn't have relative function.

5. Test Conditions and Results (Immunity)

5.1. Electrostatic discharge immunity (ESD)

Test Requirement:	EN 55024:2010+A1:2015		
Basic Standard:	EN 61000-4-2:2009		
Test Levels:	**Discharge type**	**Discharge Level (kV)**	**Number of discharges per location (each polarity)**
	Air – Direct	±2, 4, 8	10
	Contact – Direct	±2, 4	25
	Contact – Indirect	±2, 4	25
Performance Criteria:	B		
Test Method:	Measurements were made on a ground plane that extends 0.5-meter minimum beyond all sides of the system under test and the minimum distance between the equipment under test and any laboratory walls or any other metallic surfaces shall be at least 1-meter. Air discharges were applied to non-metallic parts of the system. Contact discharges were applied to all accessible metallic parts. Discharges were also applied to the Horizontal and Vertical Coupling Planes, where applicable. Each discharge was applied at a rate of one (1) discharge per second.		
Test Information			
Ambient Temperature:	15 to 35 °C		
Relative Humidity:	30 to 60 %		
Air pressure:	86 kPa – 106 kPa		
Test model(s):	P772.64		
Test date:	2018-Mar-12		
Test Location:	No.2, Wu Song Road, Yu Wu Industrial Area, Dongcheng District, Dongguan, Guangdong Province, China 523117		
Test mode:	☒Mode 1 ☐Mode 2 ☐Mode 3		
Test results:	☒Pass ☐Fail ☐N/A		
Remark:	/		

5.1.1. Results for Electrostatic Discharges –Contact Discharges

Results for Electrostatic Discharges – Contact Discharges					
Test Point	**Positive Polarity**		**Negative Polarity**		**Observations**
	2 kV	**4 kV**	**2 kV**	**4 kV**	
VCP- Four Sides	Pass	Pass	Pass	Pass	☒1 ☐2 ☐3
HCP- Four Sides	Pass	Pass	Pass	Pass	☒1 ☐2 ☐3
DC Port	Pass	Pass	Pass	Pass	☒1 ☐2 ☐3

5.1.2. Results for Electrostatic Discharges – Air Discharges

Results for Electrostatic Discharges –Air Discharges							
Test Point	**Positive Polarity**			**Negative Polarity**			**Observations**
	2 kV	**4 kV**	**8 kV**	**2 kV**	**4 kV**	**8 kV**	
Button	Pass	Pass	Pass	Pass	Pass	Pass	☒1 ☐2 ☐3
Indicator light	Pass	Pass	Pass	Pass	Pass	Pass	☒1 ☐2 ☐3

5.1.3. Results Description

/ - Not performed or not required.
1 –No obvious change of function was found after the test.
2 –The function stopped during the test, but can be recoverable by itself operation after the test.
3 –The function stopped during the test, but can be recoverable manually after the test.

5.2. Radiated, radio-frequency, electromagnetic field immunity (RS)

Test Requirement:	EN 55024:2010+A1:2015		
Basic Standard:	EN 61000-4-3:2006+A1:2008+A2:2010		
Test Levels:	**Frequency (MHz)**	**(V/m)**	**Modulation**
	80 - 1000	3	80% AM (1kHz)
Performance Criteria:	A		
Test Method:	Measurements were made in a fully anechoic chamber and the indicated field strength was pre-calibrated prior to placement of the system under test. Tests were performed in both the horizontal and vertical polarities, where applicable. The antenna was placed 3 meters from the product under test. All sides of the EUT were investigated for anomalies.		
Test Information			
Ambient Temperature:	15 to 35 °C		
Relative Humidity:	30 to 60 %		
Air pressure:	86 kPa – 106 kPa		
Test model(s):	P772.64		
Test date:	2018-Mar-12		
Test Location:	No.2, Wu Song Road, Yu Wu Industrial Area, Dongcheng District, Dongguan, Guangdong Province, China 523117		
Test mode:	☒Mode 1 ☐Mode 2 ☐Mode 3		
Test results:	☒Pass ☐Fail ☐N/A		
Remark:	/		

5.2.1. Results for Radio-frequency electromagnetic field

Frequency (MHz)	EUT Side	Antenna Polarity	Field Strength	Observation	Results
80 - 1000	Front	Horizontal	3 V/m	☒1 ☐2 ☐3	Pass
80 - 1000	Left Side	Horizontal	3 V/m	☒1 ☐2 ☐3	Pass
80 - 1000	Right Side	Horizontal	3 V/m	☒1 ☐2 ☐3	Pass
80 - 1000	Rear	Horizontal	3 V/m	☒1 ☐2 ☐3	Pass
80 - 1000	Front	Vertical	3 V/m	☒1 ☐2 ☐3	Pass
80 - 1000	Left Side	Vertical	3 V/m	☒1 ☐2 ☐3	Pass
80 - 1000	Right Side	Vertical	3 V/m	☒1 ☐2 ☐3	Pass
80 - 1000	Rear	Vertical	3 V/m	☒1 ☐2 ☐3	Pass

5.2.2. Results Description

/ - Not performed or not required.
1 –No obvious change of function was found after the test.
2 –The function stopped during the test, but can be recoverable by itself operation after the test.
3 –The function stopped during the test, but can be recoverable manually after the test.

5.3. Electrical fast transient/burst immunity (EFT/B)

Test Requirement:	EN 55024:2010+A1:2015		
Basic Standard:	EN 61000-4-4:2012		
Test Levels:	**Measurement Point**	**(kV)**	**Repetition Frequency (kHz)**
	Input A.C. Power Ports	±1	5
	Input D.C. Power Ports	±0.5	5
	Signal Ports	±0.5	5
	Telecommunications Ports	±0.5	5
	xDSL	±0.5	100
Performance Criteria:	B		
Test Method:	Measurements were made on a ground plane that extends 1-meter minimum beyond all sides of the system under test. Mains power tests were conducted with the product connected to a Coupling/Decoupling Network (CDN). One of each unique interface was tested for a period of one (1) minute per polarity.		
Test Information			
Ambient Temperature:	/		
Relative Humidity:	/		
Air pressure:	/		
Test model(s):	/		
Test date:	/		
Test Location:	/		
Test mode:	/		
Test results:	☐Pass ☐Fail ☒N/A		
Remark:	This test isn't applicable because the EUT doesn't have relative function.		

5.4. Surge immunity

<table>
<tr><td>Test Requirement:</td><td colspan="3">EN 55024:2010+A1:2015</td></tr>
<tr><td>Basic Standard:</td><td colspan="3">EN 61000-4-5:2014+A1:2017</td></tr>
<tr><td rowspan="6">Test Levels:</td><td>Measurement Point</td><td>(kV)</td><td>Required Surge Waveform</td></tr>
<tr><td rowspan="2">Input A.C. Power Ports</td><td>±1(Line to Line)</td><td>Combination Wave (1.2/50μs Voltage, 8/20μs Current)</td></tr>
<tr><td>±2(Line to Earth)</td><td>Combination Wave (1.2/50μs Voltage, 8/20μs Current)</td></tr>
<tr><td>Input D.C. Power Ports</td><td>±0.5(Line to Earth)</td><td>Combination Wave (1.2/50μs Voltage, 8/20μs Current)</td></tr>
<tr><td>Signal Ports</td><td>±1.5 / 4</td><td>(10/700μs Voltage, Current)</td></tr>
<tr><td>Telecommunications Ports</td><td>±1.5 / 4</td><td>(10/700μs Voltage, Current)</td></tr>
<tr><td>Performance Criteria:</td><td colspan="3">B</td></tr>
<tr><td>Test Method:</td><td colspan="3">Mains power tests were conducted with the product connected to a Coupling/Decoupling Network (CDN). The test voltage was increased from the lowest indicated level up to the maximum level. Five (5) positive surges and five (5) negative surges were applied at each of phases of the A.C. waveform: 0°, 90°, 180° and 270°. Each surge was applied 60 seconds after the previous surge. Signal and Telecommunications ports were subject to five (5) positive and five (negative) surges applied through the appropriate Coupling/Decoupling Network (CDN).</td></tr>
<tr><td colspan="4">Test Information</td></tr>
<tr><td>Ambient Temperature:</td><td colspan="3">/</td></tr>
<tr><td>Relative Humidity:</td><td colspan="3">/</td></tr>
<tr><td>Air pressure:</td><td colspan="3">/</td></tr>
<tr><td>Test model(s):</td><td colspan="3">/</td></tr>
<tr><td>Test date:</td><td colspan="3">/</td></tr>
<tr><td>Test Location:</td><td colspan="3">/</td></tr>
<tr><td>Test mode:</td><td colspan="3">/</td></tr>
<tr><td>Test results:</td><td colspan="3">☐Pass ☐Fail ☒N/A</td></tr>
<tr><td>Remark:</td><td colspan="3">This test isn’t applicable because the EUT doesn’t have relative function.</td></tr>
</table>

5.5. Immunity to conducted disturbances, induced by radio-frequency fields (CS)

Test Requirement:	EN 55024:2010+A1:2015		
Basic Standard:	EN 61000-4-6:2014+AC:2015		
Test Levels:	**Measurement Point**	**(V rms)**	**Modulation**
	Input A.C. Power Ports	3	80% AM (1kHz)
	Input D.C. Power Ports	3	80% AM (1kHz)
	Signal Ports	3	80% AM (1kHz)
	Telecommunications Ports	3	80% AM (1kHz)
Performance Criteria:	A		
Test Method:	Measurements were made on a ground plane that extends 0.5-meter minimum beyond all sides of the system under test. The EUT was located 10cm above the reference ground plane and any associated I/O cables attached to the EUT were located between 30mm and 50mm above the ground plane. The indicated field was pre-calibrated prior to placement of the system under test.		
Test Information			
Ambient Temperature:	/		
Relative Humidity:	/		
Air pressure:	/		
Test model(s):	/		
Test date:	/		
Test Location:	/		
Test mode:	/		
Test results:	☐Pass ☐Fail ☒N/A		
Remark:	This test isn't applicable because the EUT doesn't have relative function.		

5.6. Power frequency magnetic field immunity (PFMF)

Test Requirement:	EN 55024:2010+A1:2015	
Basic Standard:	EN 61000-4-8:2010	
Test Levels:	**Frequency**	**A/m**
	50/60 Hz	1
Performance Criteria:	A	
Test Method:	Measurements were made on a ground plane that extends 1-meter minimum beyond all sides of the system under test. The EUT was located 80cm above the reference ground plane and the indicated field was pre-calibrated prior to placement of the system under test.	
Test Information		
Ambient Temperature:	/	
Relative Humidity:	/	
Air pressure:	/	
Test model(s):	/	
Test date:	/	
Test Location:	/	
Test mode:	/	
Test results:	☐Pass ☐Fail ☒N/A	
Remark:	This test item didn’t containing components susceptible to magnetic fields.	

5.7. Voltage dips, short interruptions and voltage variations immunity (DIPS)

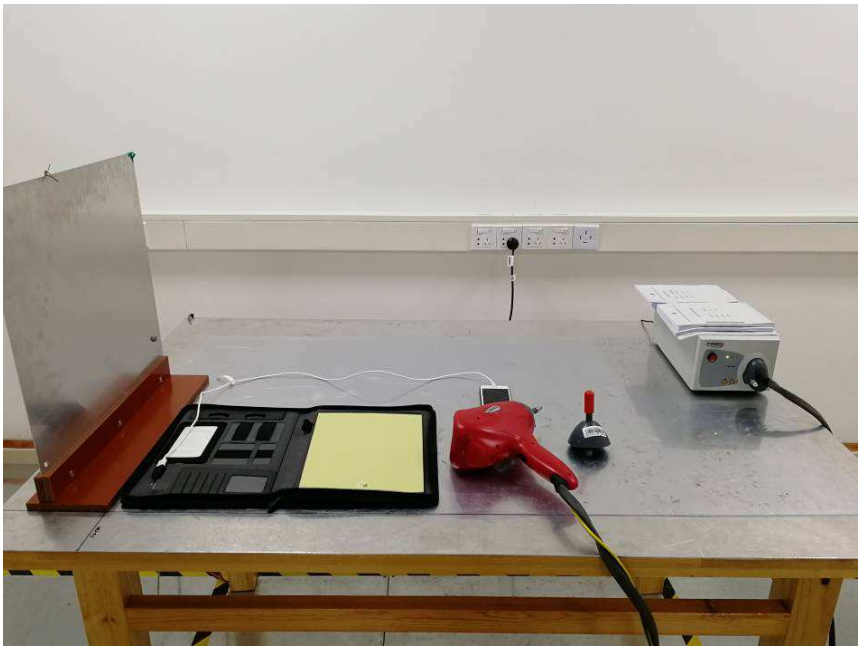
Test Requirement:	EN 55024:2010+A1:2015			
Basic Standard:	EN 61000-4-11:2004+A1:2017			
Test Levels:	**Voltage Reduction**	**Period (Cycles)**	**Sync Angle**	**Performance Criteria**
	>95%	0.5	0°; 180°	B
	30%	25	0°; 180°	C
	>95%	250	0°; 180°	C
Performance Criteria:	B&C			
Test Method:	The product was subjected to voltage dips and interruptions. Testing was performed with the product connected directly to a generator capable of simulating the voltage drops and interrupts as described.			
Test Information				
Ambient Temperature:	/			
Relative Humidity:	/			
Air pressure:	/			
Test model(s):	/			
Test date:	/			
Test Location:	/			
Test mode:	/			
Test results:	☐Pass ☐Fail ☒N/A			
Remark:	This test isn't applicable because the EUT doesn't have relative function.			

The test items were subcontracted to other lab.

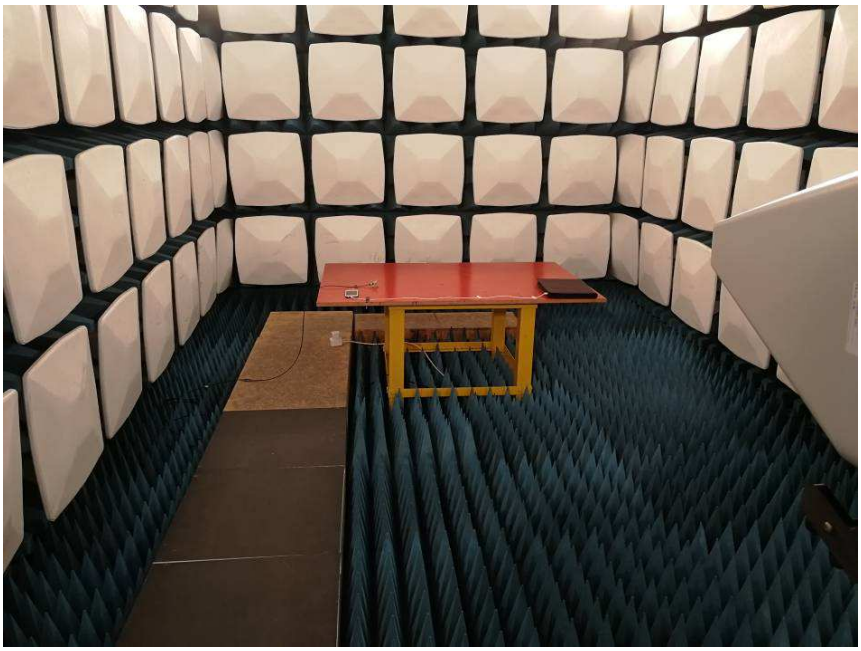
6. Photo of test setup

Set-up for radiated disturbance

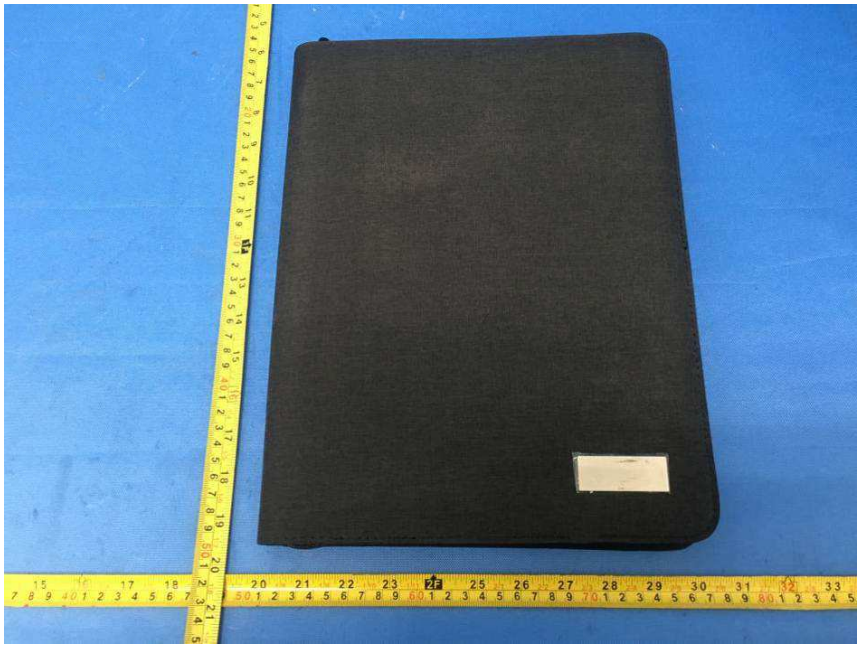
Set-up for Electrostatic discharge immunity (ESD)

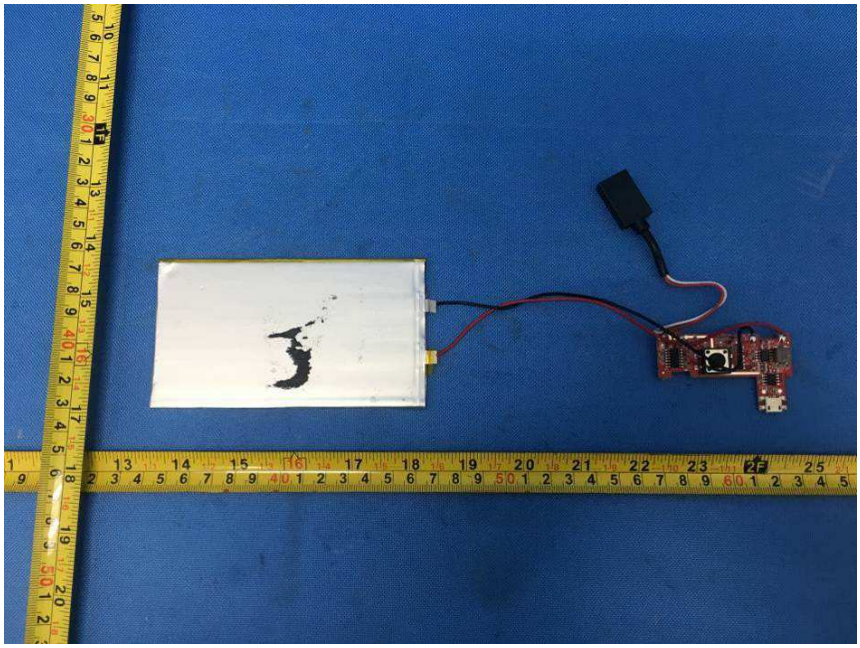


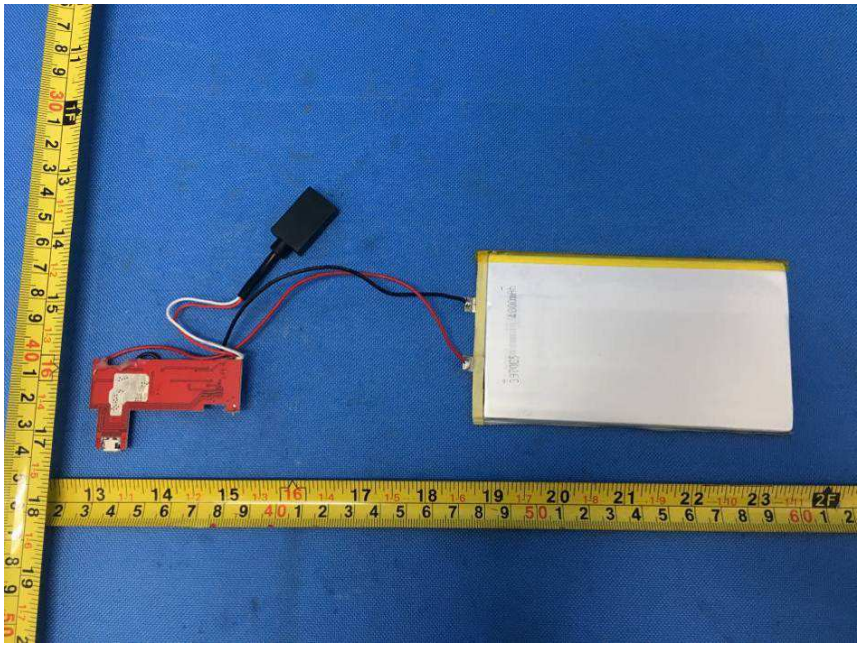
Set-up for Radiated, radio-frequency, electromagnetic field immunity (RS)



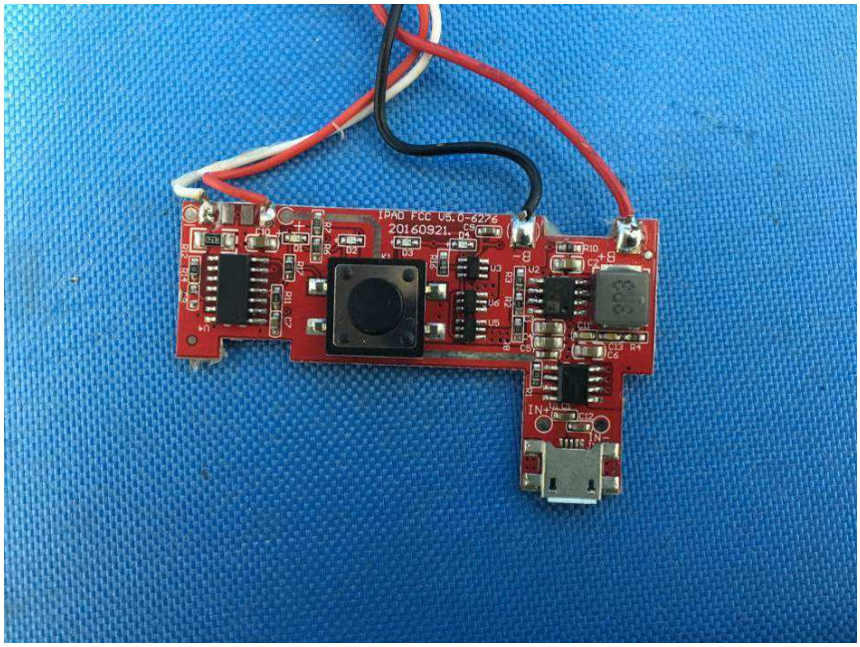
7. Photo of the EUT

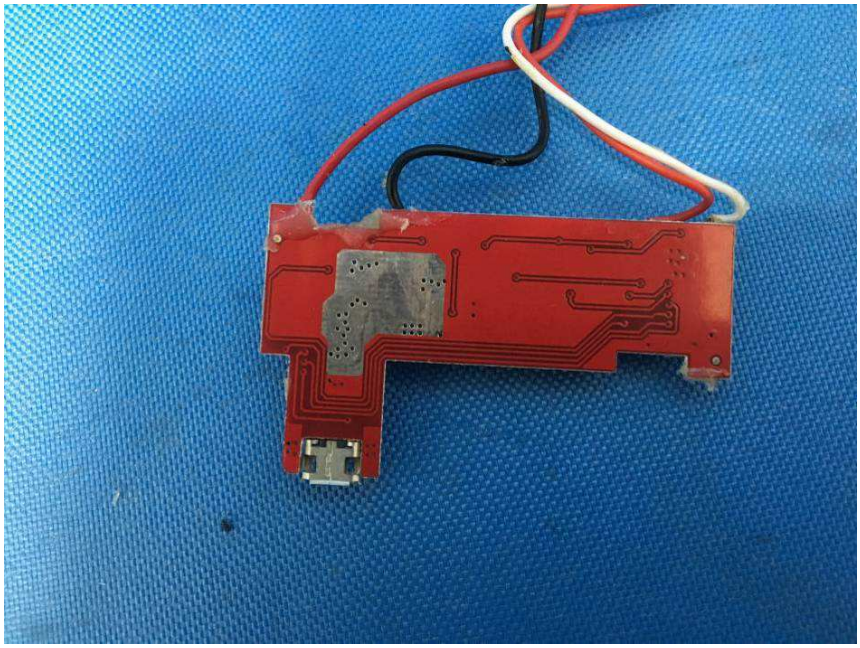







4000mAh


IPAD FCC V5.0-6276
20160921



*******End of report*******