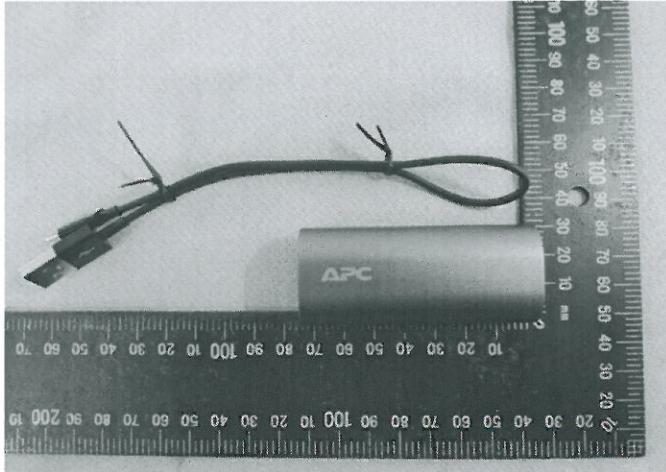
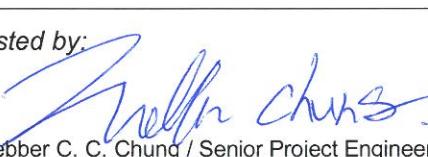
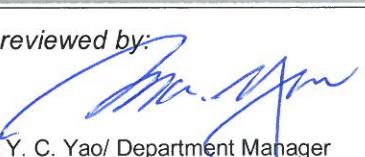


Prüfbericht-Nr.: Test Report No.:	10050333 001	Auftrags-Nr.: Order No.:	114032867	Seite 1 von 19 Page 1 of 19	
Kunden-Referenz-Nr.: Client Reference No.:	385686	Auftragsdatum: Order date.:	10 Feb. 2015		
Auftraggeber: Client:	American Power Conversion Holding Inc., Taiwan Branch 3F., No. 205, Sec. 3, Beixin Rd., 231 Xindian Dist. New Taipei City, Taiwan, R.O.C				
Prüfgegenstand: Test item:	Power Bank				
Bezeichnung / Typ-Nr.: Identification / Type No.:	M3XXXXYY (XXX, YY = A-Z, “-“ or Blank)				
Auftrags-Inhalt: Order content:	TUV Rheinland - EMC service				
Prüfgrundlage: Test specification:	FCC 47 CFR Part 15, Subpart B: 2014				
Wareneingangsdatum: Date of receipt:	10 Feb. 2015				
Prüfmuster-Nr.: Test sample No.:	A000165873-001 A000165873-002				
Prüfzeitraum: Testing period:	Refer to test report				
Ort der Prüfung: Place of testing:	TÜV Rheinland Taiwan Ltd.				
Prüflaboratorium: Testing laboratory:	TÜV Rheinland Taiwan Ltd. Taichung Branch Office				
Prüfergebnis*: Test result*:	Pass				
					
geprüft von / tested by: 	kontrolliert von / reviewed by: 				
09 Apr. 2015 Webber C. C. Chung / Senior Project Engineer	09 Apr. 2015 Max Y. C. Yao / Department Manager				
Datum Date	Name/Stellung Name/Position	Unterschrift Signature	Datum Date	Name/Stellung Name/Position	Unterschrift Signature
Sonstiges / Other: FCC Verification test report.					
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:			Prüfmuster vollständig und unbeschädigt Test item complete and undamaged		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(all) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(all) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested					
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugswise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

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Test Report No.:

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TEST SUMMARY

5.1 CONDUCTED EMISSION PER SECTION 15.107, FCC 47 CFR PART 15 SUBPART B
RESULT: Pass

5.2 RADIATED EMISSION PER SECTION 15.109, FCC 47 CFR PART 15 SUBPART B
RESULT: Pass

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4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	10
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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report.

2 Test Sites

2.1 Test Facilities

Laboratory:

TUV Rheinland Taiwan Ltd. Taichung Branch Office
No.9, Lane 36, Minsheng Rd., Sec. 3, Daya District, Taichung City 428, Taiwan, R.O.C.

Test Facility:

TÜV Rheinland Taiwan Ltd.
11F., No.758, Sec. 4, Bade Rd., Songshan Dist., Taipei City 105, Taiwan, R.O.C.

The Federal Communications Commission has reviewed the technical characteristics of the radiated and conducted emission facilities and has found these test sites to be in compliance with the requirements under 47 CFR section 2.948. The registration number: 365730.

The Industry Canada has reviewed the technical characteristics of the radiated and conducted emission facilities and has found these test sites to be in compliance with the Canadian requirements. The filing number: 9465A.

The test facility is accredited by TAF (member of ILAC), under number 0759 according to ISO/IEC 17025:2005.

TÜV Rheinland Taiwan Ltd. is accredited by the Federal Communications Commission as a Conformity Assessment Body under Designation Number TW1065 and Test Firm Registration#: 799772.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

For EMI/ Conduction Measurement (Taipei: Shield Room)

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibration Due Date
1	EMI Test Receiver	R&S	ESCI7	100797	2015/12/27
2	LISN (1 phase)	R&S	ENV216	101243	2015/05/30
3	LISN	Rolf Heine	NNB-2/16Z	99080	2015/08/25

For EMI/Radiation Measurement (Taipei: Semi-Anechoic Chamber)

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibration Due Date
1	Test Receiver	R&S	ESR7	101062	2015/08/30
2	Spectrum Analyzer	R&S	FSV-40	1000921	2015/12/16
3	Pre-Amplifier	HP	8447F	2805A03335	2015/08/22
4	Pre-Amplifier	Com-Power	PAM-840	461257	2015/08/25
5	Pre-Amplifier	EM Electronics	EM30180	060558	2015/11/04
6	Bilog Antenna	TESEQ	CBL6111D	29802	2015/07/04
7	Horn Antenna	ETS-Lindgren	3117	00138160	2017/01/16
8	Horn Antenna	Com-Power	AH-840	101029	2016/09/26
9	Loop Antenna	Schwarzbeck	FMZB 1513	1513-076	2016/10/21

2.3 Calibration

All equipment requiring calibration is calibrated periodically by the manufacturer or accredited calibration services according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.4 Abbreviations

PASS	means 'complied with requirement'	N/A	means 'not applicable'
FAIL	means 'not complied'	N.C.R.	means 'no calibration required'

2.5 Measurement Uncertainty

Table 2: Measurement Uncertainty

Testing Item	Frequency Range	Uncertainty
Conducted Emission (Shield Room)	150kHz - 30MHz	2.47 dB
Radiated Emission (966 Chamber: 3m)	30MHz - 1000MHz	2.80 dB
Radiated Emission (10m OATS: 10m)	30MHz - 1000MHz	2.80 dB
Radiated Emission (966 Chamber: 3m)	Above 1GHz	3.04 dB

Note:

The uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3 General Product Information

3.1 Product Function and Intended Use

The tested sample is a “**Power Bank**” with type designation as described on the cover page for new approval. The tested sample is a portable power pack device with internal Li-ion batteries provides a charging source for you daily used mobile devices such as smart-phones, tablet devices, digital cameras, and other gadgets that can be charged with standard USB DC 5V power.

The suffix “XXX” is for indicate product color, no technical difference, “YYY” is for marketing purpose only.

Definition of variable(s):

Variable:	Range of variable:	Content:
XXX	A-Z, “-“ or Blank	Indicate product color, no technical difference.
YYY	A-Z, “-“ or Blank	For marketing purpose only

3.2 Ratings and Physical Characteristics

Type Designation: M3XXXYYY

Input rating: DC 5V, 1.0A

Output rating: DC 5V, 1.0A

Safety Protection Class: Class III

Battery Cell: LG/ LGABD11865

For details, refer to rating labels and Specification.

3.3 System Details

Table 3: Interfaces present on the EUT

No.	Interface	Interface Classification
1	Micro USB-A Port	For DC 5V input power.
2	USB type A Port	For DC 5V output power.

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3.4 Noise Generating

- 1) Circuits design
- 2) IC circuits

3.5 Noise Suppressing Parts

Please refer to Attachment Photo Documentation for details.

3.6 Submitted Documents

- 1) User's Manual
- 2) Circuit Diagram
- 3) Block Diagram
- 4) Rating Label

4 Test Set-up and Operation Modes

4.1 Test Methodology

The test methodology used is based on the requirement of 47 CFR PART 15, section 15.31, 15.33, 15.35, 15.107 and 15.109.

The test methods, which have been used, are based on ANSI C63.4. The final used method is recorded in test procedure of section 5.1 and 5.2 of this report.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Independent Operation Modes

The tested sample was connected to a USB power adapter for charge mode and connected to a load (5Ω) for discharge mode for EMI tests as described in this report.

The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C 63.4.

The pre-test mode for EMI test listed in this report:

- A. Discharge Mode
- B. Charge Mode
- C. Discharge + Charge Mode

The final-test mode for EMI test listed in this report:

- A. Discharge Mode (for radiation test)
- B. Discharge + Charge Mode (for conduction test)

Refer to Test setup in chapter 4.5.

4.3 Special Accessories and Auxiliary Equipment

The subject sample was tested as an independent unit with the following equipment:

No.	Description	Manufacturer	Model No.	Serial No.
1	USB Power Adapter	Apple	A1401	0012ADU00
2	Load (Resistance)	N/A	N/A	N/A

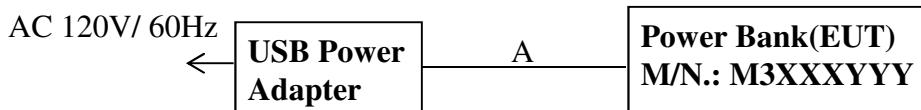
4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the constructional data form or technical construction file or refer to the attachment photo document of test report. No additional measures were employed to achieve compliance.

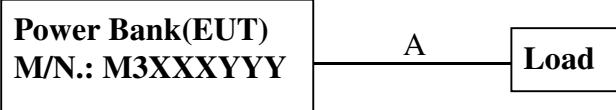
4.5 Test Setup

The test setup was realized on a non-conducted table of 80cm height during all the tests.
 The test arrangement is configured and set according to manufacturer's installations.

Charge Mode:



Discharge Mode:



Discharge + Charge Mode



Cable description:

Signal Cable Type	Signal Cable Description
A USB Cable	Shielded, 0.5m
B USB Cable	Shielded, 0.5m

5 Test Results EMISSION

5.1 Conducted Emission per section 15.107, 47 CFR part 15 subpart B

RESULT:

Pass

Date of Testing	:	24 Feb. 2015
Test Procedure	:	ANSI C63.4 (2009) Clause 7.3
Deviations from standard	:	
test procedure	:	None
Frequency Range	:	0.15 – 30MHz
Limits	:	FCC Part 15 Subpart B Section 15.107 (a) Class B
Kind of Test Site	:	Shielded room

Test Setup

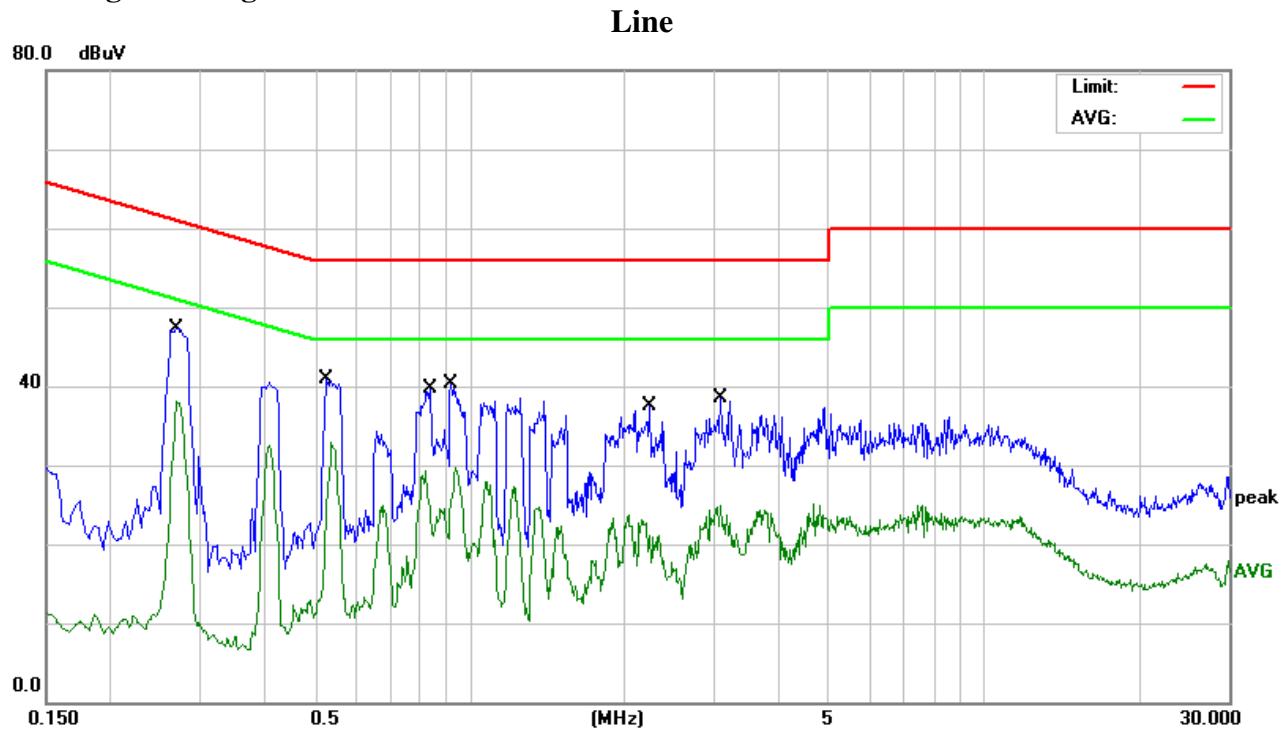
The following setup caused the highest disturbance:

Input Voltage	:	AC 120V, 60Hz (for USB Power Adapter)
	:	DC 5V (for EUT)
Operating Condition	:	ANSI C63.4 (2009) Clause 6.2
Operational Mode	:	See 4.2
Temperature	:	22.2 °C
Relative Humidity	:	52 %

For test results, please refer to next page.

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Test Report No.:

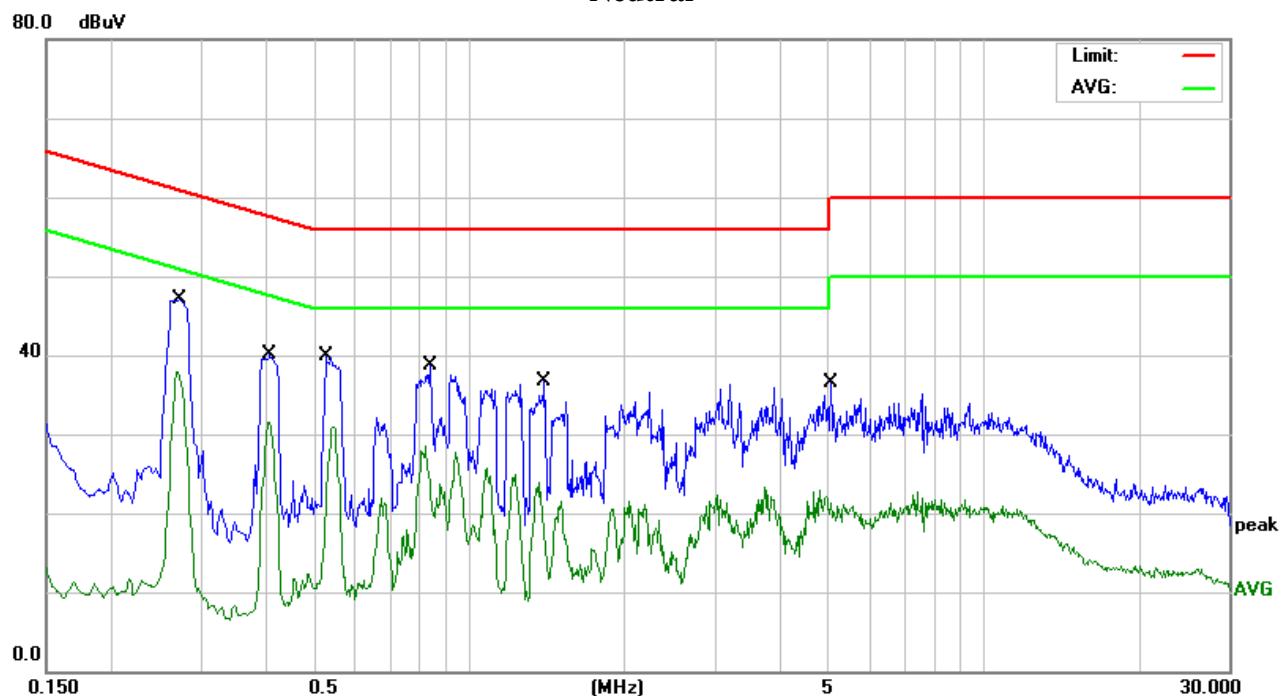
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Figure 1: Conducted Emission, 0.15 – 30 MHz
Discharge + Charge Mode


No.	Frequency (MHz)	Factor ()	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2700	9.62	36.02	45.64	61.12	-15.48	QP	P	
2	0.2700	9.62	27.84	37.46	51.12	-13.66	AVG	P	
3	0.5260	9.63	28.82	38.45	56.00	-17.55	QP	P	
4	0.5260	9.63	14.36	23.99	46.00	-22.01	AVG	P	
5	0.8420	9.63	26.37	36.00	56.00	-20.00	QP	P	
6	0.8420	9.63	13.50	23.13	46.00	-22.87	AVG	P	
7	0.9220	9.63	27.73	37.36	56.00	-18.64	QP	P	
8	0.9220	9.63	15.05	24.68	46.00	-21.32	AVG	P	
9	2.2380	9.64	23.99	33.63	56.00	-22.37	QP	P	
10	2.2380	9.64	10.95	20.59	46.00	-25.41	AVG	P	
11	3.0780	9.67	23.64	33.31	56.00	-22.69	QP	P	
12	3.0780	9.67	14.20	23.87	46.00	-22.13	AVG	P	

Note: Level = Reading + Factor

Margin = Level – Limit

Discharge + Charge Mode
Neutral


No.	Frequency (MHz)	Factor ()	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2740	9.64	36.21	45.85	60.99	-15.14	QP	P	
2	0.2740	9.64	27.41	37.05	50.99	-13.94	AVG	P	
3	0.4100	9.64	28.98	38.62	57.65	-19.03	QP	P	
4	0.4100	9.64	21.04	30.68	47.65	-16.97	AVG	P	
5	0.5260	9.64	27.14	36.78	56.00	-19.22	QP	P	
6	0.5260	9.64	12.93	22.57	46.00	-23.43	AVG	P	
7	0.8420	9.64	24.73	34.37	56.00	-21.63	QP	P	
8	0.8420	9.64	12.02	21.66	46.00	-24.34	AVG	P	
9	1.3980	9.65	23.18	32.83	56.00	-23.17	QP	P	
10	1.3980	9.65	8.11	17.76	46.00	-28.24	AVG	P	
11	5.0420	9.71	21.35	31.06	60.00	-28.94	QP	P	
12	5.0420	9.71	11.03	20.74	50.00	-29.26	AVG	P	

Note: Level = Reading + Factor

Margin = Level – Limit

5.2 Radiated Emission per section 15.109, 47 CFR part 15 subpart B

RESULT:**Pass**

Date of Testing : 24 Feb. 2015
Test Procedure : ANSI C63.4 (2009) Clause 8.3
Deviations from standard
test procedure : None
Frequency Range : 30 – 1000MHz, and above 1GHz
Limits : FCC Part 15 Subpart B Section 15.109 (a) Class B
Kind of Test Site : 966 Semi-anechoic chamber (3m distance)

The highest frequency of the internal sources of the EUT is
 below 1.705M, per client request measuring up to 1000MHz
 1.705-108M, measuring up to 1000MHz
 108-500MHz, measuring up to 2000MHz
 500-1000MHz, measuring up to 5000MHz
 above 1000MHz, measuring up to 5th harmonic of the highest frequency or 40GHz, which is

Note: The highest frequency is 1.265MHz. It was measured up to 1GHz as described in this test report.

Test Setup

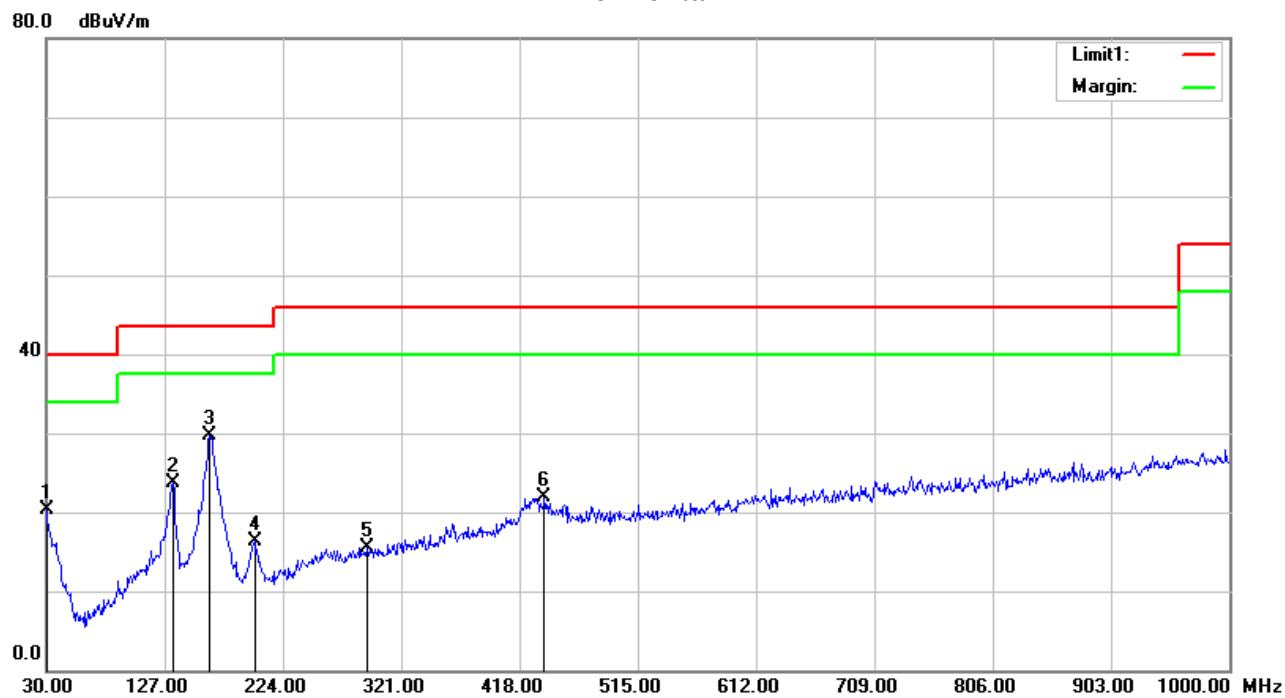
The following setup caused the highest disturbance:

Input Voltage : AC 120V, 60Hz (for USB Power Adapter)
 DC 5V (for EUT)
Operating Condition : ANSI C63.4 (2009) Clause 6.2
Operational Mode : See 4.2
Temperature : 18 °C
Relative Humidity : 52 %

For test results, please refer to next page.

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Figure 2: Radiated Emission, 30 – 1000 MHz
Discharge Mode
Horizontal


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (°)	P/F	Remark
1	30.0000	-5.86	26.18	20.32	40.00	-19.68	QP	200	84	P	
2	133.7900	-12.65	36.34	23.69	43.50	-19.81	QP	200	158	P	
3	163.8600	-14.21	43.93	29.72	43.50	-13.78	QP	200	179	P	
4	200.7200	-14.69	31.09	16.40	43.50	-27.10	QP	100	192	P	
5	292.8700	-10.60	26.16	15.56	46.00	-30.44	QP	400	341	P	
6	438.3700	-8.21	30.13	21.92	46.00	-24.08	QP	100	130	P	

Note: Level = Reading + Factor

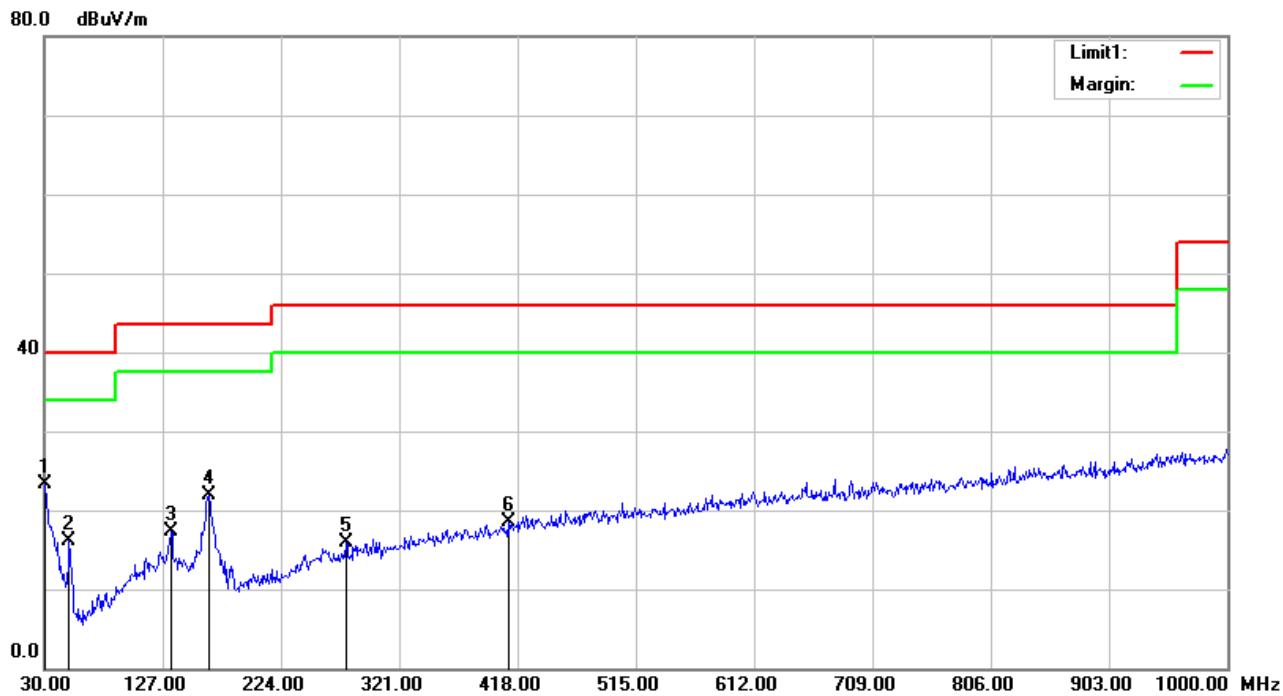
Margin = Level - Limit

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Discharge Mode

Vertical



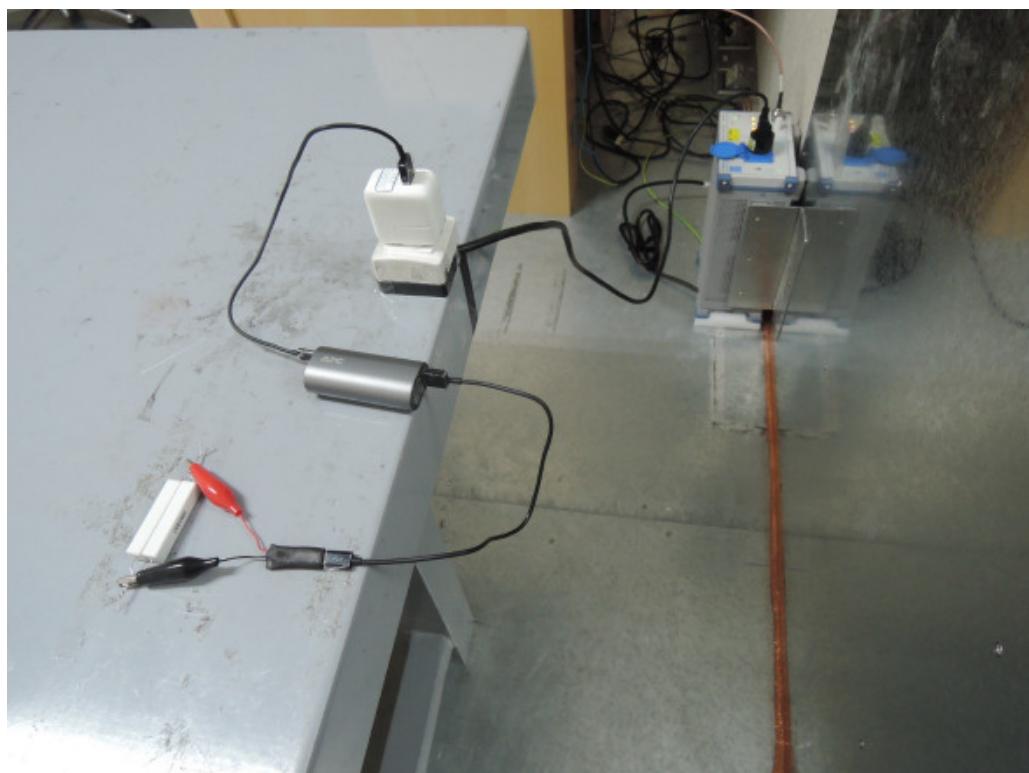
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (°)	P/F	Remark
1	30.0000	-5.86	29.09	23.23	40.00	-16.77	QP	100	360	P	
2	50.3700	-17.23	33.39	16.16	40.00	-23.84	QP	100	304	P	
3	133.7900	-12.65	30.01	17.36	43.50	-26.14	QP	300	102	P	
4	164.8300	-14.30	36.24	21.94	43.50	-21.56	QP	300	259	P	
5	277.3500	-11.16	27.00	15.84	46.00	-30.16	QP	300	360	P	
6	410.2400	-8.58	27.11	18.53	46.00	-27.47	QP	200	0	P	

Note: Level = Reading + Factor

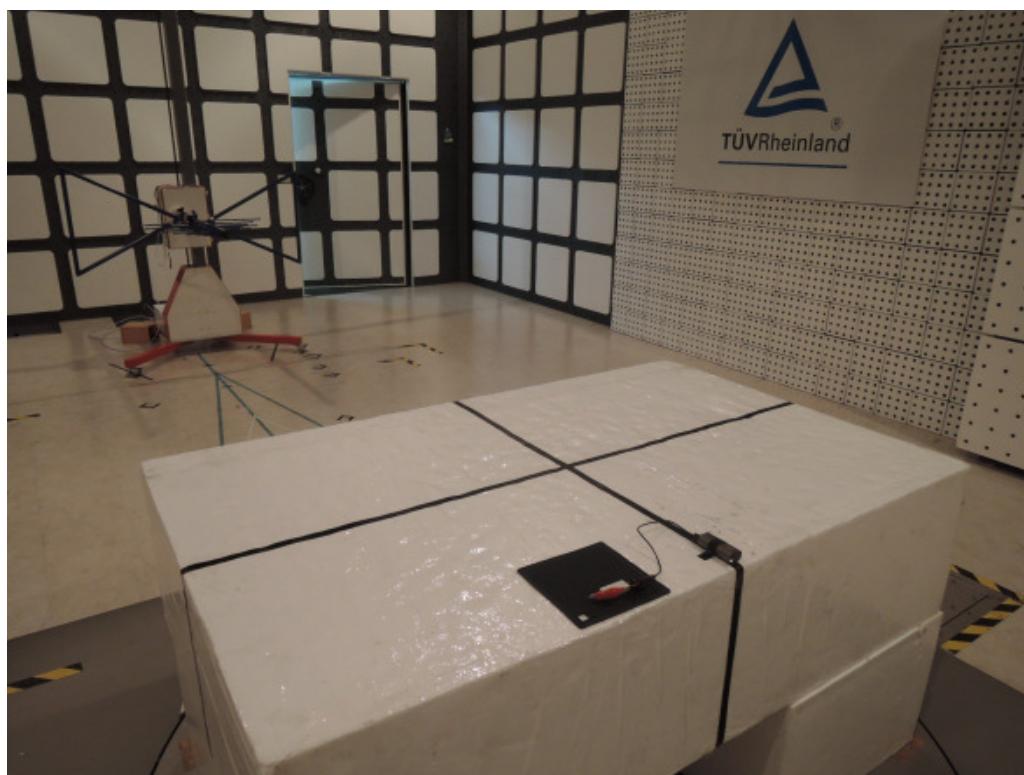
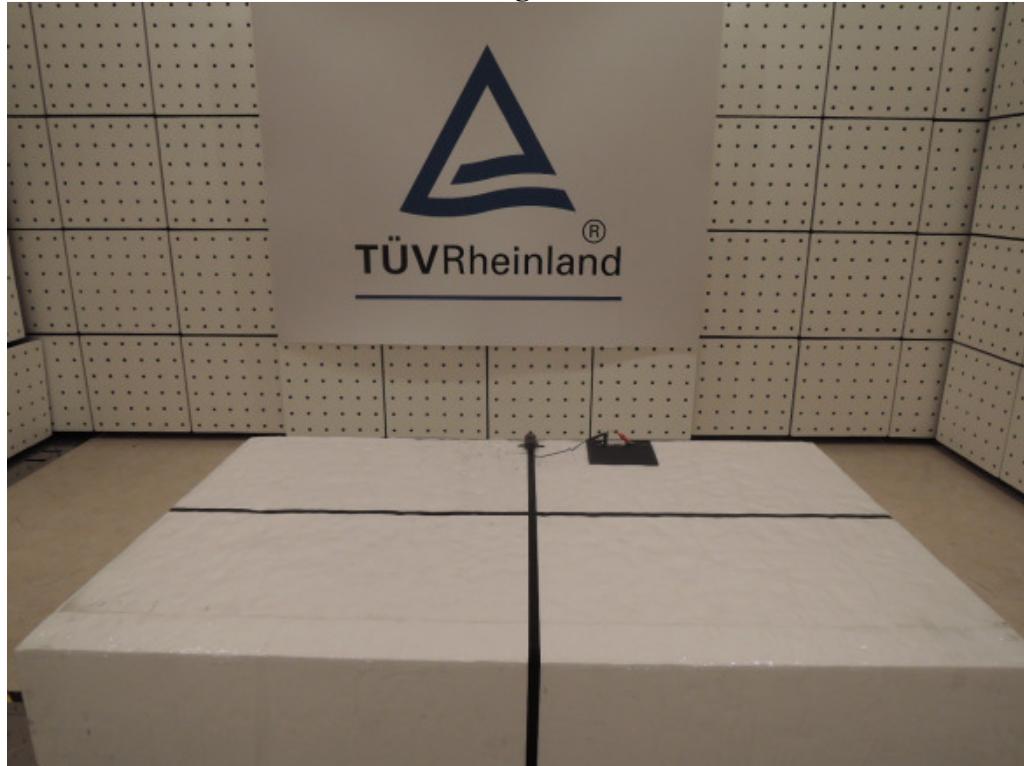
Margin = Level - Limit

6 Photographs of Test Setup

Picture 1: Test setup for Conducted Emission; 0.15 - 30 MHz
Discharge + Charge Mode



**Picture 2: Test setup for Radiated Emission; 30 MHz- 1000 MHz
Discharge Mode**



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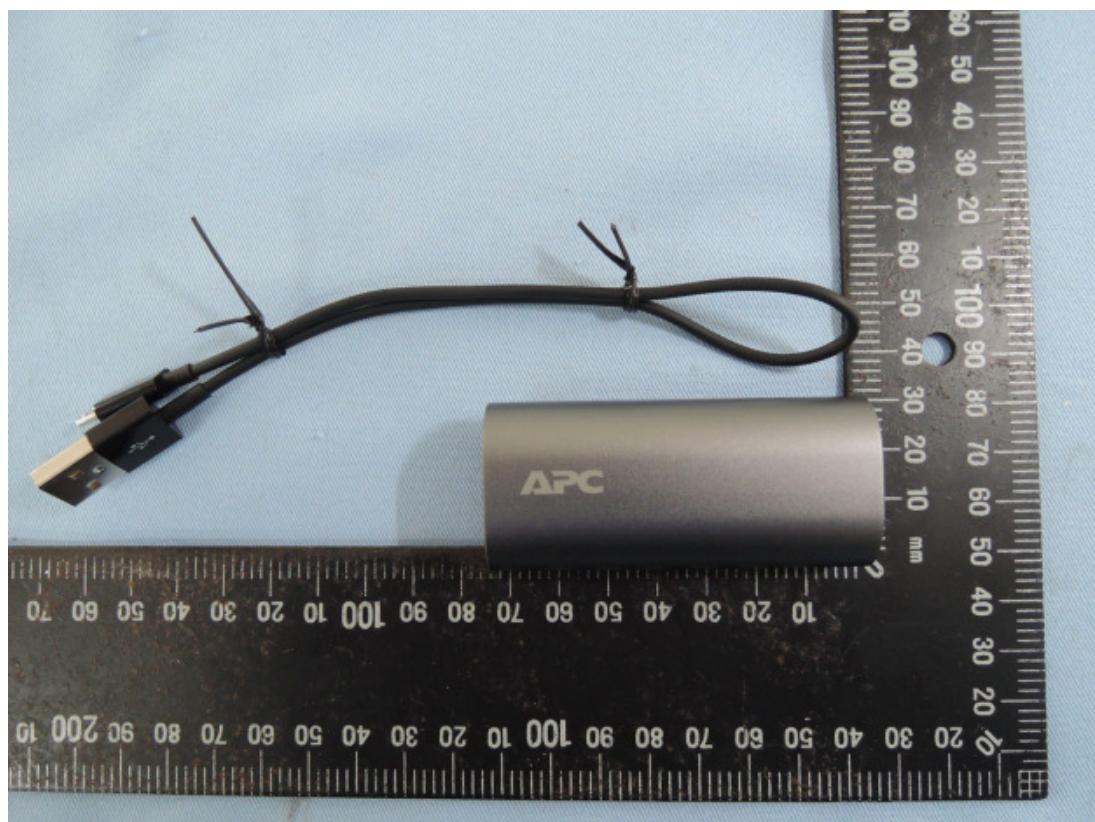
9 List of Pictures

PICTURE 1: TEST SETUP FOR CONDUCTED EMISSION; 0.15 - 30 MHz	17
PICTURE 2: TEST SETUP FOR RADIATED EMISSION; 30-1000 MHz	18

ATTACHMENT**Photo Documentation**

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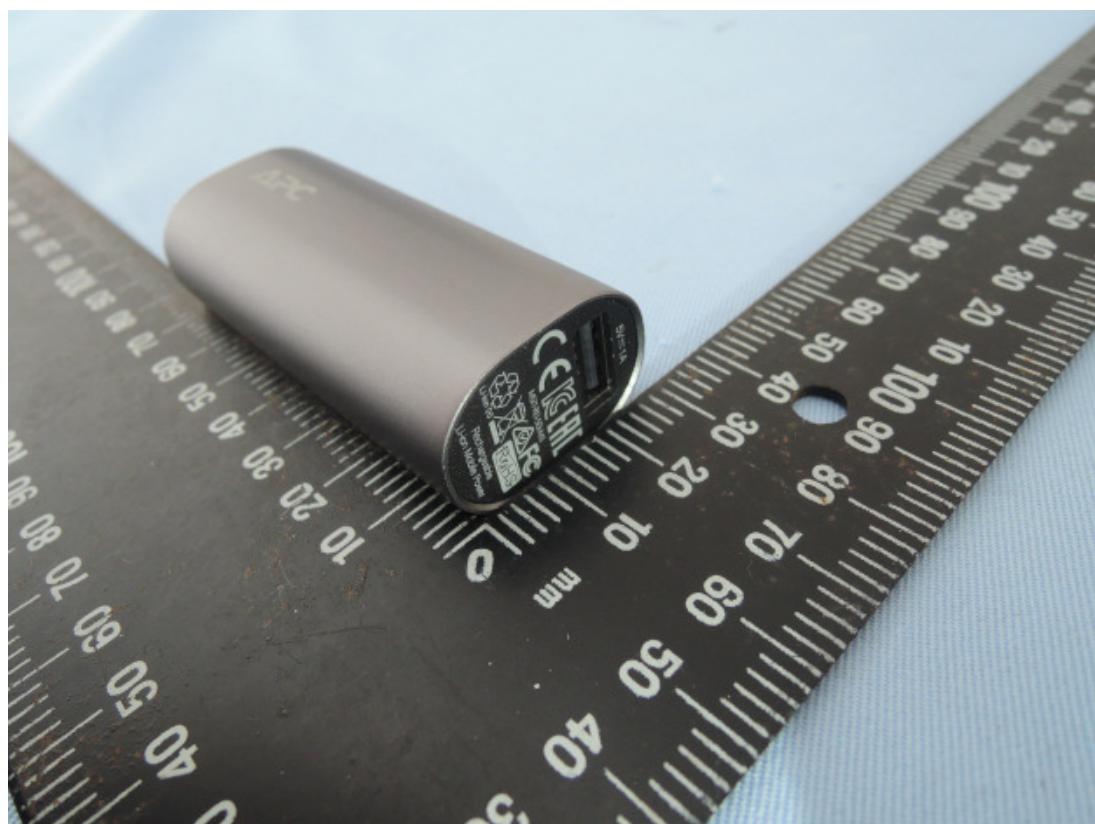
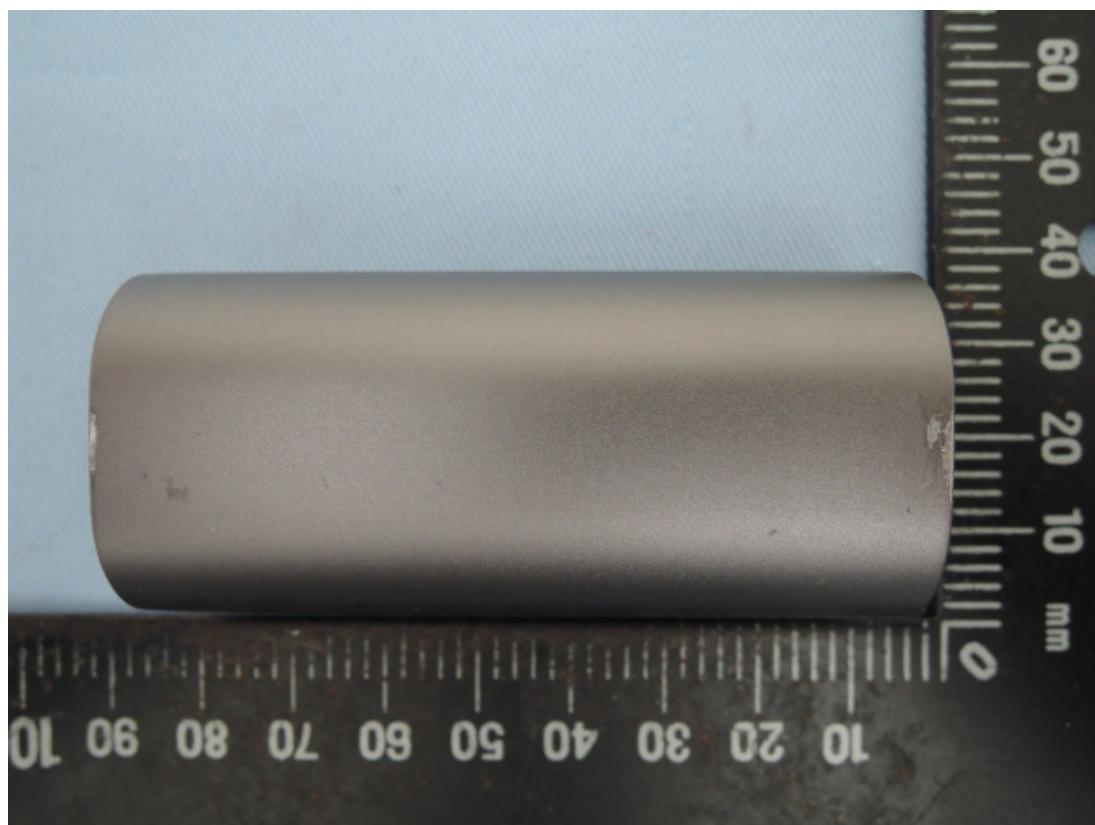
Report No.: 10050333 001

Product: Power BankType Designation: M3XXXXYYY (XXX, YYY = A-Z, “-“ or Blank)

ATTACHMENT**Photo Documentation**

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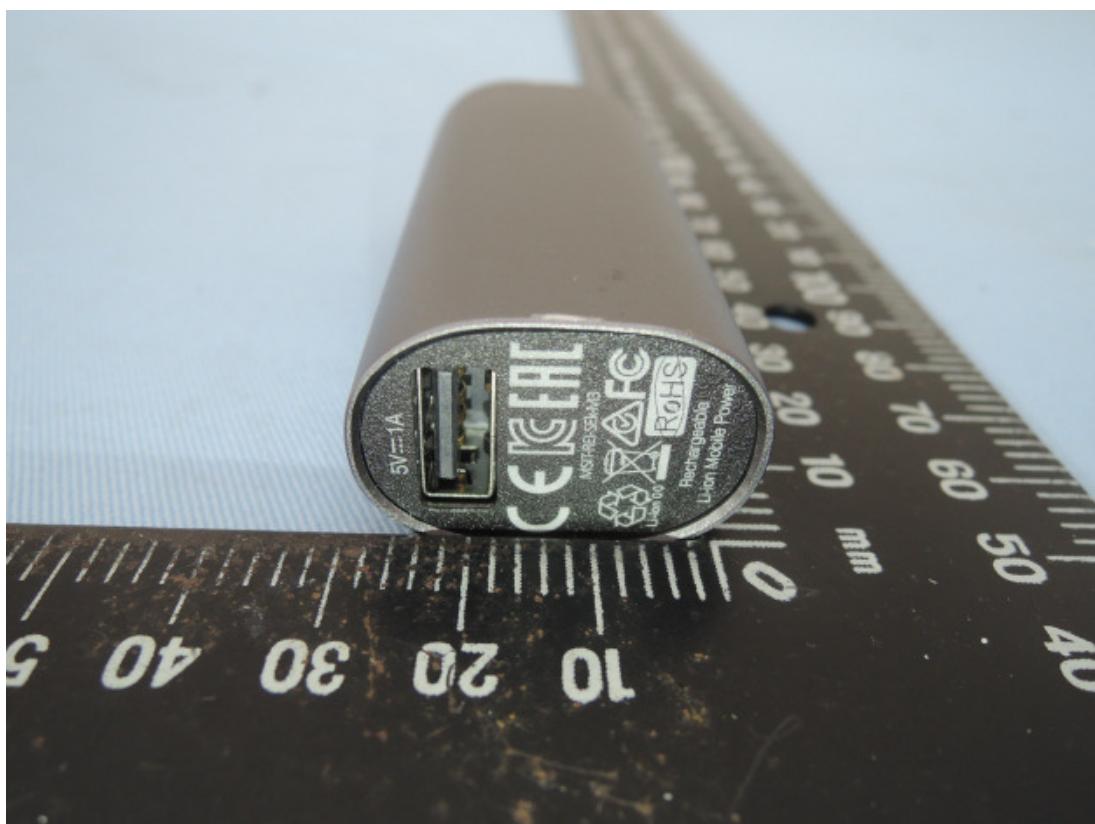
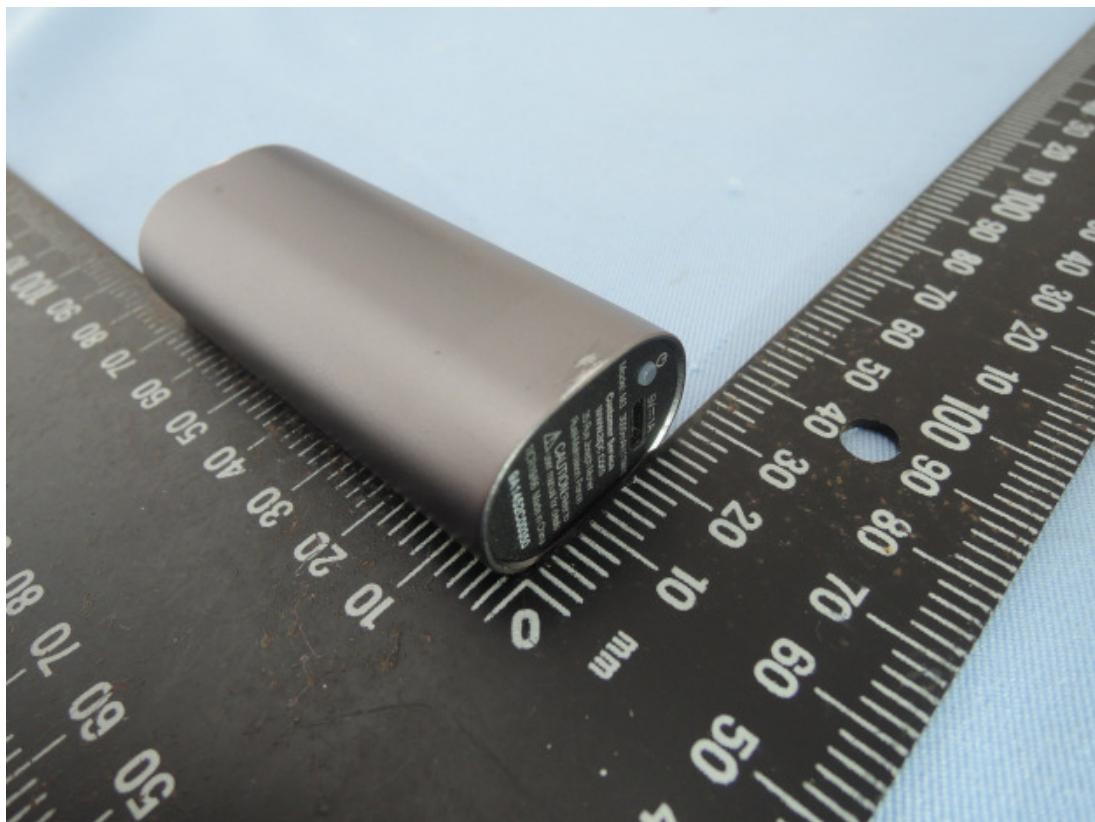
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Product: Power BankType Designation: M3XXXXYYY (XXX, YYY = A-Z, “-“ or Blank)

ATTACHMENT**Photo Documentation**

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Product: Power BankType Designation: M3XXXXYYY (XXX, YYY = A-Z, “-“ or Blank)

ATTACHMENT

Photo Documentation

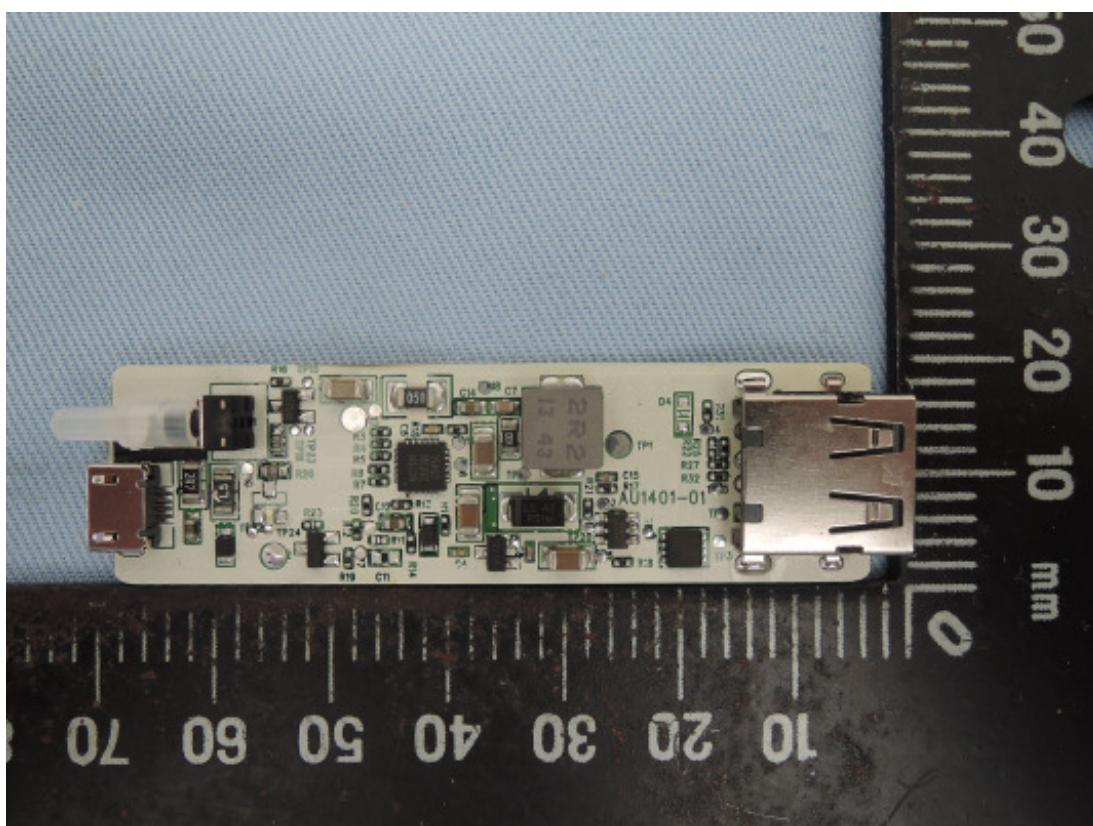


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Product: Power Bank

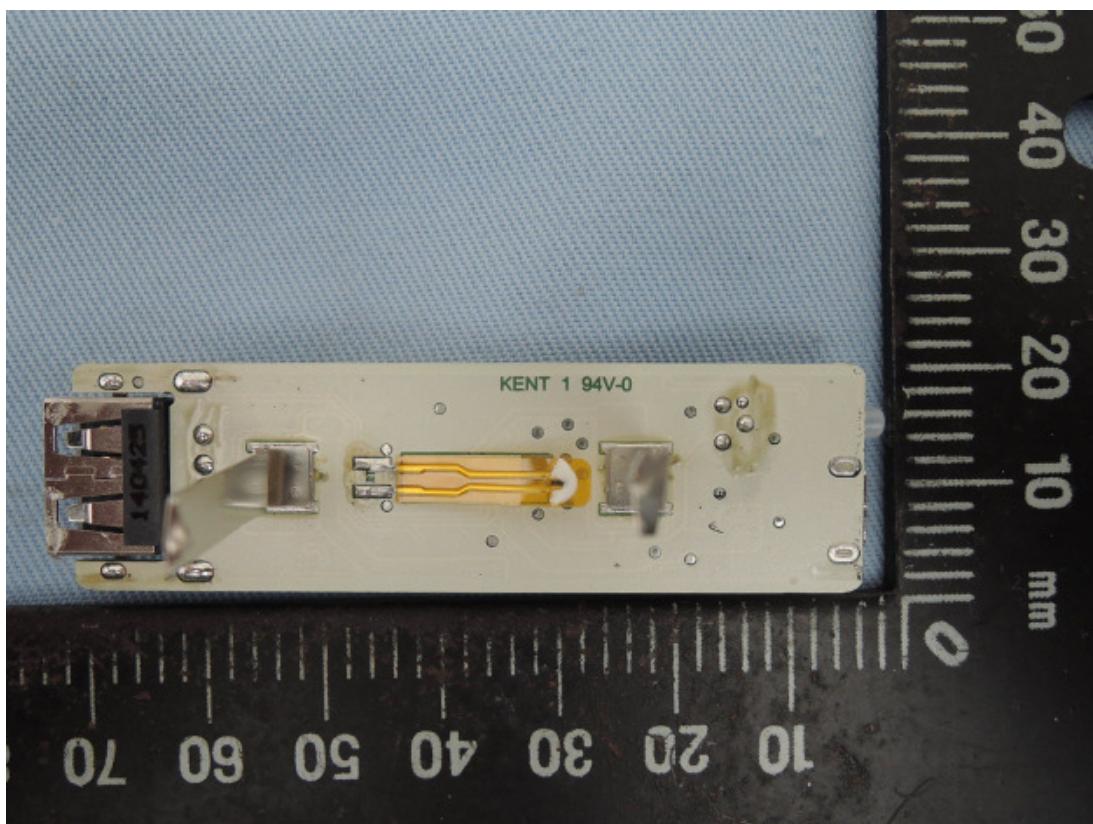
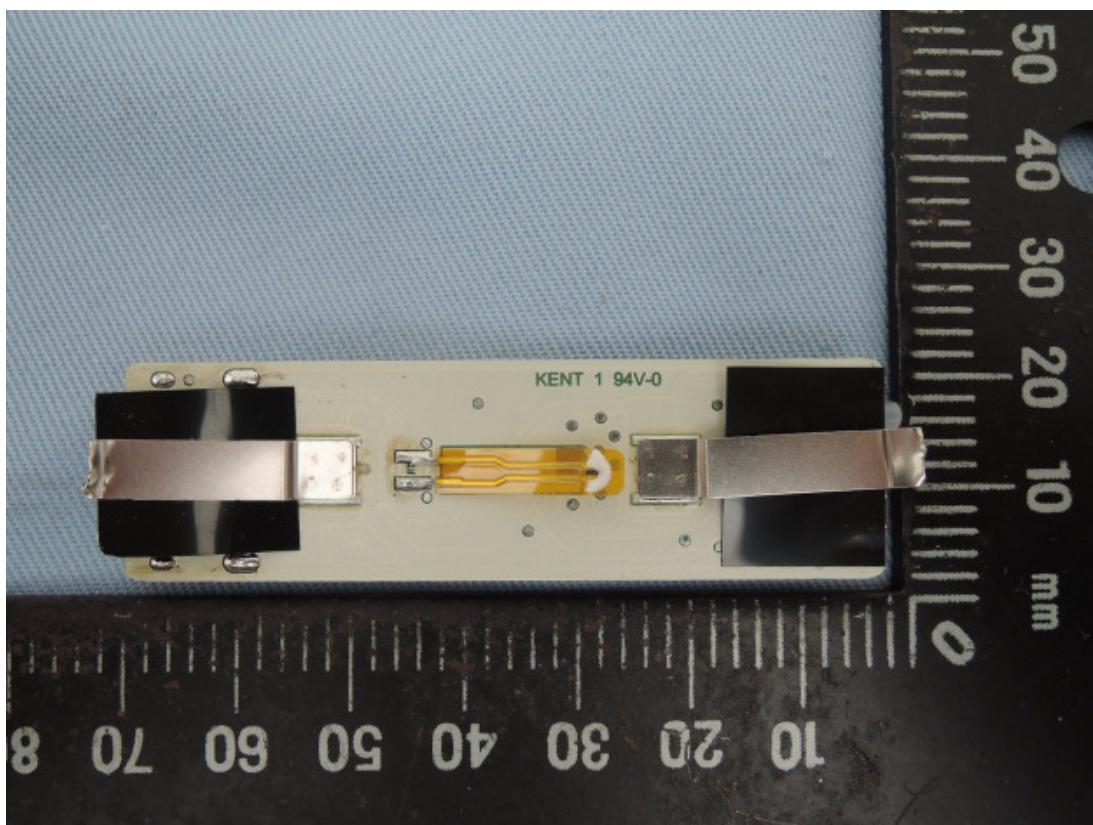
Type Designation: M3XXXXYYY (XXX, YYY = A-Z, “-“ or Blank)



ATTACHMENT**Photo Documentation**

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Report No.: 10050333 001

Product: Power BankType Designation: M3XXXXYYY (XXX, YYY = A-Z, “-“ or Blank)

ATTACHMENT**Photo Documentation**

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Report No.: 10050333 001

Product: Power BankType Designation: M3XXXXYYY (XXX, YYY = A-Z, “-“ or Blank)