TCT 通测检测 TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID. ..... :	2BPBN-EC-C38BK	
Test Report No..... :	TCT250314E054	
Date of issue..... :	Mar. 21, 2025	
Testing laboratory ..... :	SHENZHEN TONGCE TESTING LAB	
Testing location/ address:	2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China	
Applicant's name..... :	ELECOM USA Inc.	
Address..... :	2102 Business Center Dr. Irvine, CA 92612, United States	
Manufacturer's name ... :	ELECOM Co., Ltd.	
Address..... :	Fushimimachi 4-1-1, Chuo-ku, Osaka City, Osaka, Japan 541-8765	
Standard(s) ..... :	FCC CFR Title 47 Part 15 Subpart C	
Product Name..... :	Power Bank	
Trade Mark ..... :	ELECOM	
Model/Type reference..... :	EC-C38BK, EC-C38, DE-C67-10000BK, DE-C67-10000WH, DE-C67-10000	
Rating(s)..... :	Rechargeable Li-ion Battery DC 3.85V	
Date of receipt of test item ..... :	Mar. 14, 2025	
Date (s) of performance of test..... :	Mar. 14, 2025 ~ Mar. 21, 2025	
Tested by (+signature) ... :	Rleo LIU	
Check by (+signature).... :	Beryl ZHAO	
Approved by (+signature):	Tomsin	

General disclaimer:

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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

1. General Product Information

1.1. EUT description

Product Name.....:	Power Bank
Model/Type reference.....:	EC-C38BK
Sample Number.....:	TCT250314E054-0101
Operation Frequency.....:	127.66kHz
Output power.....:	5W/7.5W/15W
Modulation Technology.....:	Load modulation
Antenna Type.....:	Inductive loop coil Antenna
Rating(s).....:	Rechargeable Li-ion Battery DC 3.85V

1.2. Model(s) list

No.	Model No.	Tested with
1	EC-C38BK	☒
Other models	EC-C38, DE-C67-10000BK, DE-C67-10000WH, DE-C67-10000	☐

Note: EC-C38BK is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names, color and packing. So the test data of EC-C38BK can represent the remaining models.

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2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Spurious Emission	§15.209(a)(f)	PASS

Note:

1. PASS: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

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3. General Information

3.1. Test environment and mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	23.6 °C	24.9 °C
Humidity:	52 % RH	50 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar
Test Mode:		
AC Mode:		
Mode 1	Charging + wireless charging(5W)+full load(10W)	
Mode 2	Charging + wireless charging(7.5W)+full load(7.5W)	
Mode 3	Charging + wireless charging(15W)	
DC Mode:		
Mode 4	wireless charging(5W)+full load(10W)	
Mode 5	wireless charging(7.5W)+full load(7.5W)	
Mode 6	wireless charging(15W)	
Remark	All modes have been tested. The worst mode (Mode 1) reported for Conducted emission test and Radiated emission test.	
The sample was placed 0.8m for the measurement below above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case(Z axis) are shown in Test Results of the following pages.		

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3.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Adapter	EP-TA200	R37M4PR7QD4SE3	/	SAMSUNG
Mobile Phone	SM-G9350	R28HA2ER3GT	/	SAMSUNG

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

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4. Facilities and Accreditations

4.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

  SHENZHEN TONGCE TESTING LAB

  Designation Number: CN1205

  The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A

  SHENZHEN TONGCE TESTING LAB

  CAB identifier: CN0031

  The testing lab has been registered by Innovation, Science and Economic Development Canada for radio equipment testing.

4.2. Location

SHENZHEN TONGCE TESTING LAB

Address: 2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

4.3. Measurement Uncertainty

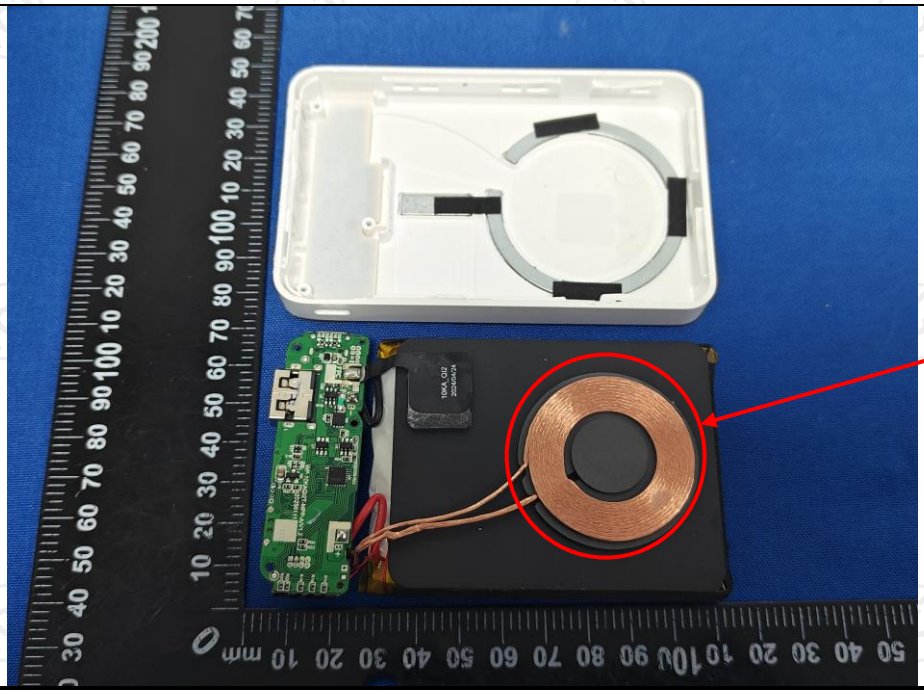
The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	± 3.10 dB
2	RF power, conducted	± 0.12 dB
3	Spurious emissions, conducted	± 0.11 dB
4	All emissions, radiated(<1 GHz)	± 4.56 dB
5	All emissions, radiated(1 GHz - 18 GHz)	± 4.22 dB
6	All emissions, radiated(18 GHz- 40 GHz)	± 4.36 dB

5. Test Results and Measurement Data

5.1. Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
E.U.T Antenna:	
The antennas are inductive loop coil antenna which permanently attached.	



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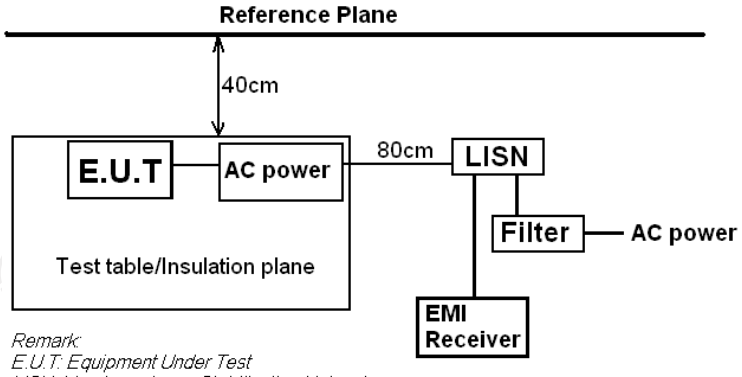
5.2. Conducted Emission

5.2.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2020</td></tr>
<tr><td>Frequency Range:</td><td>150 kHz to 30 MHz</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9 kHz, VBW=30 kHz, Sweep time=auto</td></tr>
<tr><td>Limits:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
</td></tr>
<tr><td>Test Setup:</td><td>


Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m
</td></tr>
<tr><td>Test Mode:</td><td>Refer to item 3.1</td></tr>
<tr><td>Test Procedure:</td><td>1. The E.U.T is connected to an adapter through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2020 on conducted measurement.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
</table>

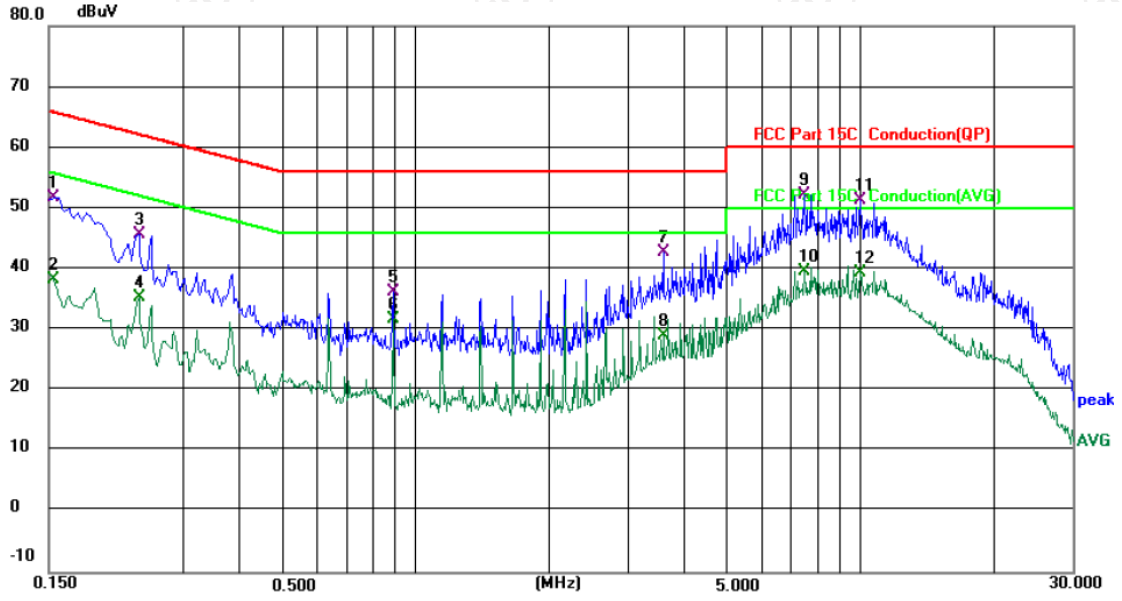
5.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Date of Cal.**	**Due Date**
EMI Test Receiver	R&S	ESCI3	100898	Jun. 27, 2024	Jun. 26, 2025
LISN	Schwarzbeck	NSLK 8126	8126453	Jan. 21, 2025	Jan. 20, 2026
Attenuator	N/A	10dB	164080	Jun. 27, 2024	Jun. 26, 2025
Line-5	TCT	CE-05	/	Jun. 27, 2024	Jun. 26, 2025
EMI Test Software	EZ_EMC	EMEC-3A1	1.1.4.2	/	/

5.2.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Site 844 Shielding Room | Phase: *L1* | Temperature: 23.6 (℃) | Humidity: 52 %

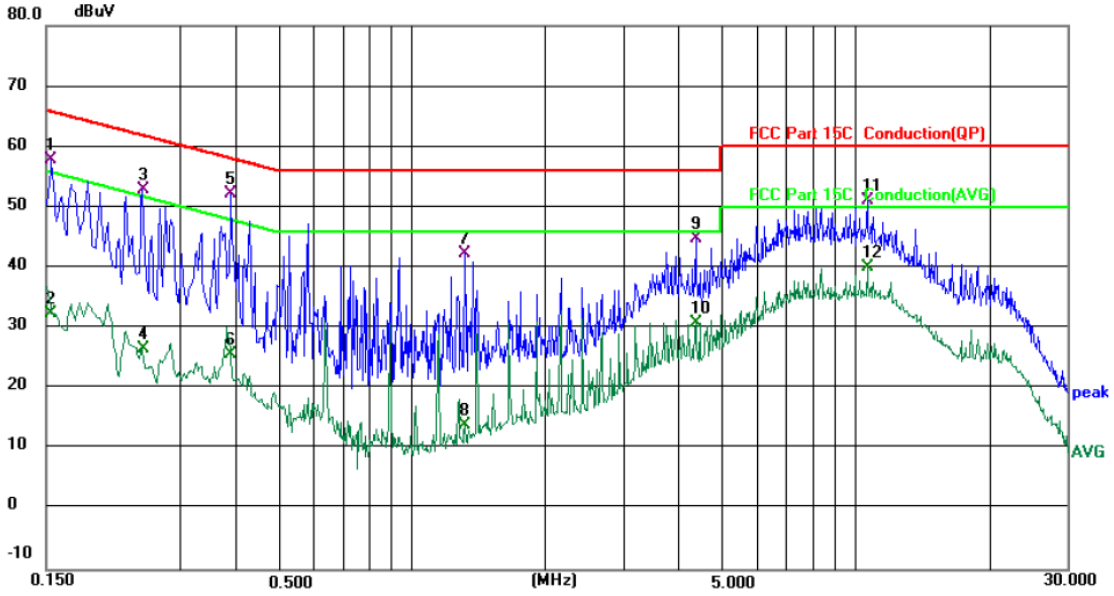
Limit: FCC Part 15C Conduction(QP) | Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1539	41.78	9.96	51.74	65.79	-14.05	QP	
2		0.1539	28.30	9.96	38.26	55.79	-17.53	AVG	
3		0.2379	35.75	9.93	45.68	62.17	-16.49	QP	
4		0.2379	25.31	9.93	35.24	52.17	-16.93	AVG	
5		0.8940	26.32	9.93	36.25	56.00	-19.75	QP	
6		0.8940	21.85	9.93	31.78	46.00	-14.22	AVG	
7		3.6139	32.68	10.11	42.79	56.00	-13.21	QP	
8		3.6139	19.01	10.11	29.12	46.00	-16.88	AVG	
9	*	7.5100	42.04	10.20	52.24	60.00	-7.76	QP	
10		7.5100	29.48	10.20	39.68	50.00	-10.32	AVG	
11		10.0180	41.02	10.28	51.30	60.00	-8.70	QP	
12		10.0180	29.14	10.28	39.42	50.00	-10.58	AVG	

Note:

Freq. = Emission frequency in MHz
Reading level (dBμV) = Receiver reading
Corr. Factor (dB) = LISN factor + Cable loss
Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)
Limit (dBμV) = Limit stated in standard
Margin (dB) = Measurement (dBμV) – Limits (dBμV)
Q.P. =Quasi-Peak
AVG =average
** is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz*

Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site 844 Shielding Room | Phase: N | Temperature: 23.6 (℃) | Humidity: 52 %

Limit: FCC Part 15C Conduction(QP) | Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1539	47.91	9.94	57.85	65.79	-7.94	QP	
2		0.1539	22.45	9.94	32.39	55.79	-23.40	AVG	
3		0.2460	43.03	9.93	52.96	61.89	-8.93	QP	
4		0.2460	16.55	9.93	26.48	51.89	-25.41	AVG	
5	*	0.3899	42.31	9.94	52.25	58.07	-5.82	QP	
6		0.3899	15.66	9.94	25.60	48.07	-22.47	AVG	
7		1.3180	32.36	9.98	42.34	56.00	-13.66	QP	
8		1.3180	3.99	9.98	13.97	46.00	-32.03	AVG	
9		4.3820	34.61	10.12	44.73	56.00	-11.27	QP	
10		4.3820	20.70	10.12	30.82	46.00	-15.18	AVG	
11		10.6420	40.65	10.35	51.00	60.00	-9.00	QP	
12		10.6420	29.66	10.35	40.01	50.00	-9.99	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBμV) = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)

Limit (dBμV) = Limit stated in standard

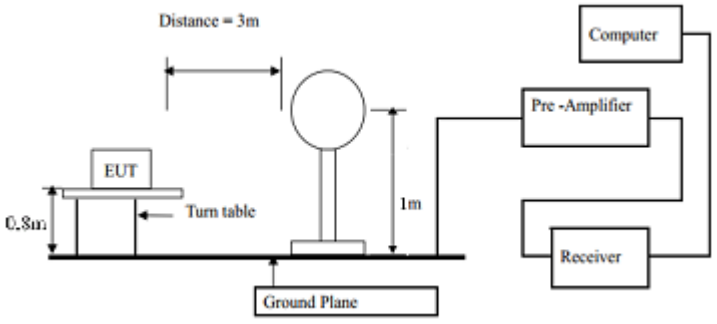
Margin (dB) = Measurement (dBμV) – Limits (dBμV)

Q.P. =Quasi-Peak AVG =average

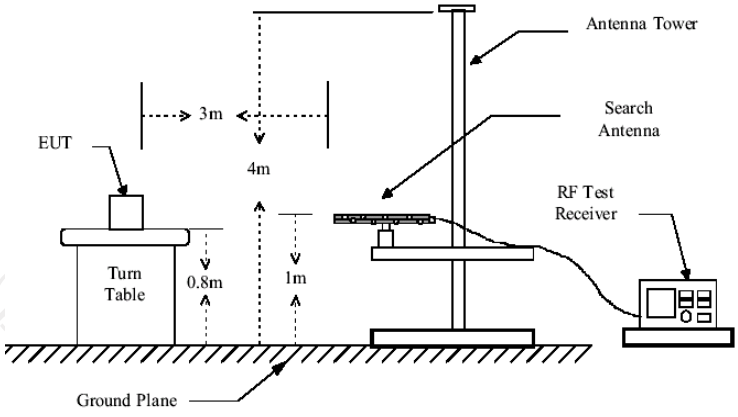
** is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz*

5.3. Radiated Spurious Emission Measurement

5.3.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2020</td></tr>
<tr><td>Frequency Range:</td><td>9 kHz to 25 GHz</td></tr>
<tr><td>Measurement Distance:</td><td>3 m</td></tr>
<tr><td>Antenna Polarization:</td><td>Horizontal & Vertical</td></tr>
<tr><td>Operation mode:</td><td>Refer to item 3.1</td></tr>
<tr><td>Receiver Setup:</td><td>
<table>
<tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>9kHz- 150kHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><td>Frequency</td><td>Field Strength (microvolts/meter)</td><td>Measurement Distance (meters)</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(KHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(KHz)</td><td>30</td></tr>
<tr><td>1.705-30</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td>For radiated emissions below 30MHz
 

30MHz to 1GHz</td></tr>
</table>

	
Test Procedure:	1. For the radiated emission test below 1GHz: The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level. 2. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 3. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 4. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=120 kHz for f < 1 GHz; VBW ≥RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for f 1 GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test mode:	Refer to section 3.1 for details
Test results:	PASS

5.3.2. Test Instruments

Radiated Emission Test Site (966)					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Date of Cal.**	**Due Date**
EMI Test Receiver	R&S	ESCI7	100529	Jan. 21, 2025	Jan. 20, 2026
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 27, 2024	Jun. 26, 2025
Pre-amplifier	HP	8447D	2727A05017	Jun. 27, 2024	Jun. 26, 2025
Pre-amplifier	SKET	LNPA_0118G-45	SK2021012102	Jan. 21, 2025	Jan. 20, 2026
Pre-amplifier	SKET	LNPA_1840G-50	SK202109203500	Jan. 21, 2025	Jan. 20, 2026
Loop antenna	Schwarzbeck	FMZB1519B	00191	Jun. 27, 2024	Jun. 26, 2025
Broadband Antenna	Schwarzbeck	VULB9163	340	Jun. 29, 2024	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jun. 29, 2024	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Jan. 23, 2025	Jan. 22, 2026
Coaxial cable	SKET	RE-03-D	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-03-M	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-03-L	/	Jun. 27, 2024	Jun. 26, 2025
Antenna Mast	Keleto	RE-AM	/	/	/
EMI Test Software	EZ_EMC	FA-03A2 RE+	1.1.4.2	/	/

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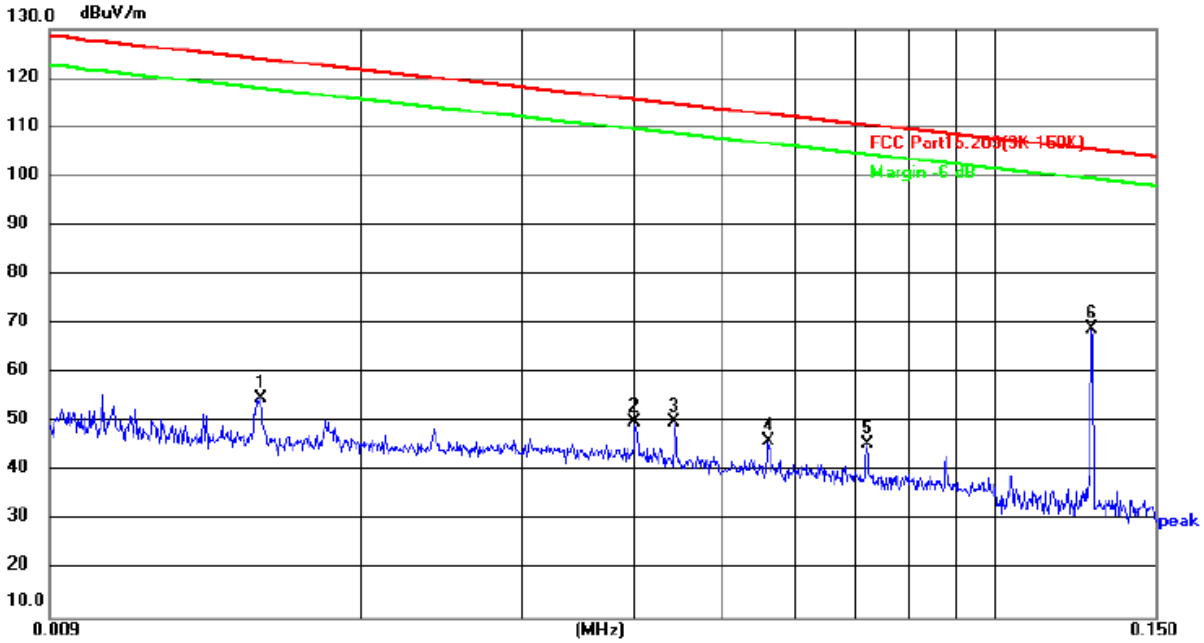
5.3.3. Test Data

Please refer to following diagram for individual

9KHz-30MHz

9KHz-150KHz:

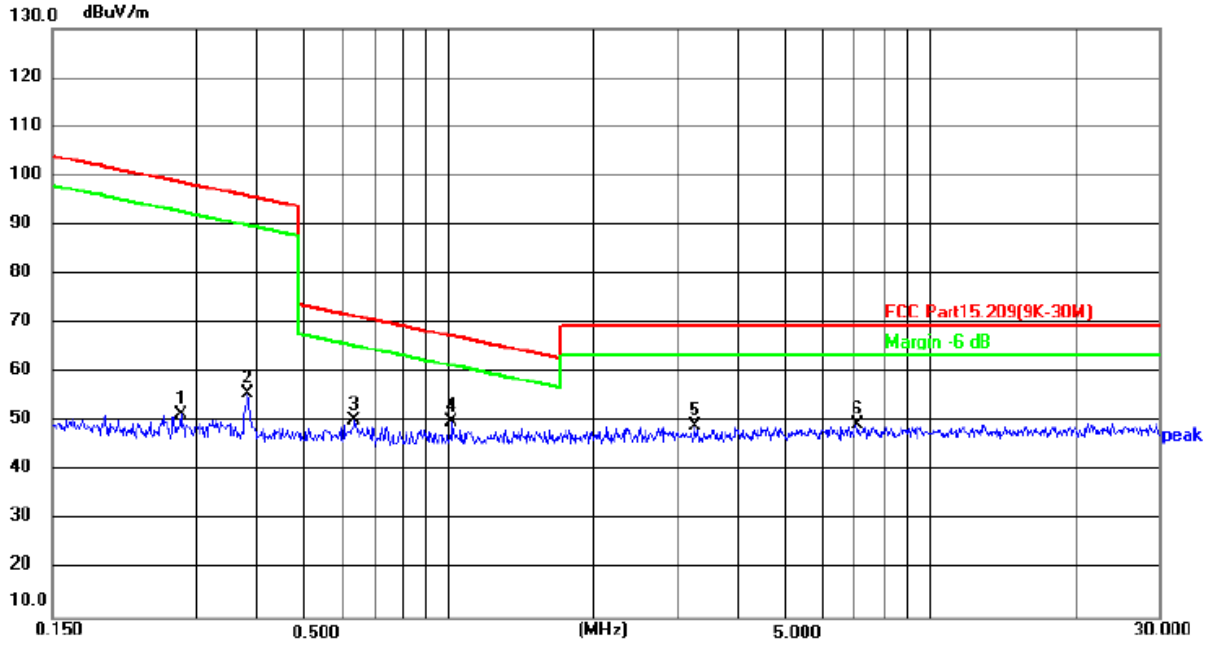


Site: 3m Anechoic Chamber Polarization: *Coaxial* Temperature: 24.8(℃) Humidity: 51 %

Limit: FCC Part15.209(9K-150K) Power:DC 3.85 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.0154	34.40	20.55	54.95	123.85	-68.90	peak	P	
2	0.0399	29.66	20.45	50.11	115.59	-65.48	peak	P	
3	0.0442	29.58	20.39	49.97	114.70	-64.73	peak	P	
4	0.0560	25.90	20.31	46.21	112.64	-66.43	peak	P	
5	0.0720	25.36	20.28	45.64	110.46	-64.82	peak	P	
6 *	0.1276	48.45	20.58	69.03	105.49	-36.46	peak	P	

150KHz-30MHz:



Site: 3m Anechoic Chamber Polarization: *Coaxial* Temperature: 24.8(℃) Humidity: 51 %

Limit: FCC Part15.209(9K-30M) Power:DC 3.85 V

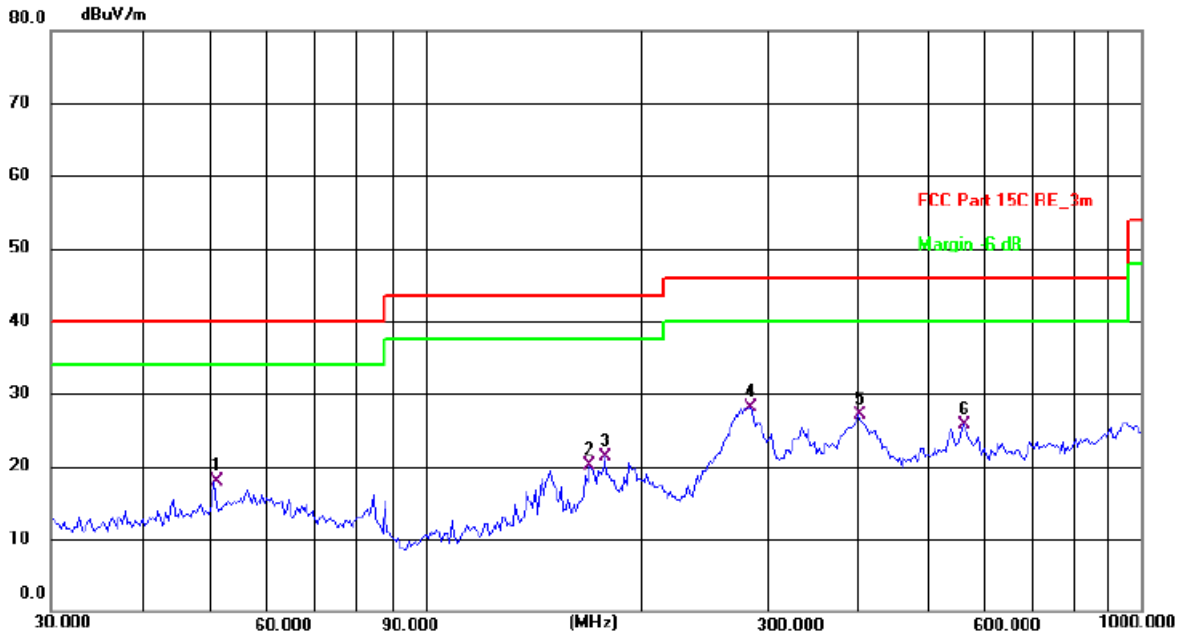
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.2776	30.45	20.96	51.41	98.74	-47.33	peak	P	
2	0.3830	34.48	21.13	55.61	95.94	-40.33	peak	P	
3	0.6385	28.81	21.63	50.44	71.51	-21.07	peak	P	
4 *	1.0205	27.64	22.40	50.04	67.45	-17.41	peak	P	
5	3.2531	22.04	27.00	49.04	69.50	-20.46	peak	P	
6	7.0249	14.96	34.40	49.36	69.50	-20.14	peak	P	

Note:

1. Both AC mode and Internal Battery Mode have been tested, only the worse mode (Internal Battery Mode which is the battery of the Apple watch is less than 1%) reported.

30MHz-1GHz

Horizontal:

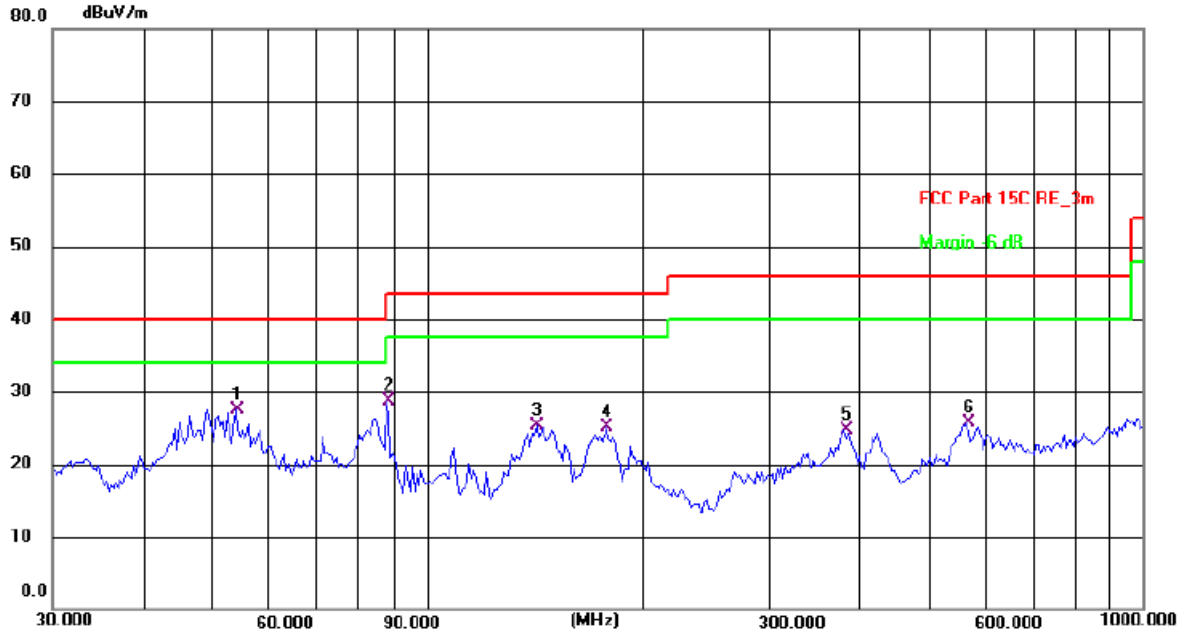


Site: 3m Anechoic Chamber1 Polarization: *Horizontal* Temperature: 24.9(C) Humidity: 50 %

Limit: FCC Part 15C RE_3m Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	50.7637	30.35	-12.35	18.00	40.00	-22.00	QP	P	
2	169.5990	31.91	-11.78	20.13	43.50	-23.37	QP	P	
3	178.1327	34.43	-13.11	21.32	43.50	-22.18	QP	P	
4 *	284.9767	39.85	-11.65	28.20	46.00	-17.80	QP	P	
5	401.8385	36.30	-9.12	27.18	46.00	-18.82	QP	P	
6	562.6624	32.05	-6.35	25.70	46.00	-20.30	QP	P	

Vertical:



Site: 3m Anechoic Chamber1 Polarization: *Vertical* Temperature: 24.9(C) Humidity: 50 %

Limit: FCC Part 15C RE_3m Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	54.0711	40.06	-12.55	27.51	40.00	-12.49	QP	P	
2 *	87.7248	45.38	-16.62	28.76	40.00	-11.24	QP	P	
3	142.3243	37.09	-11.87	25.22	43.50	-18.28	QP	P	
4	178.1327	38.31	-13.11	25.20	43.50	-18.30	QP	P	
5	382.5879	34.34	-9.57	24.77	46.00	-21.23	QP	P	
6	566.6223	31.87	-6.19	25.68	46.00	-20.32	QP	P	

Note:

Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

Appendix A: Photographs of Test Setup

Please refer to document Appendix No.: TCT250314E054-A

Appendix B: Photographs of EUT

Please refer to document Appendix No.: TCT250314E054-B & TCT250314E054-C

*****END OF REPORT*****

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