TCT 通测检测
TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID: 2AUFA-DGSTV300BK

Product: 2.4GHz Wireless Backlit Keyboard

Model No.: DGSTV300BK

Additional Model No.: N/A

Trade Mark: N/A

Report No.: TCT190827E019

Issued Date: Sep. 06, 2019

Issued for:

EFAN ACCESSORY CO., LTD.

ROOM#703, SILICON VALLEY BUILDING, NO.3 YUNFENG ROAD, DALANG STREET, LONGHUA DISTRICT, SHENZHEN, GUANGDONG, China

Issued By:

Shenzhen Tongce Testing Lab.

1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

FAX: +86-755-27673332

Note: *This report shall not be reproduced except in full, without the written approval of Shenzhen Tongce Testing Lab. This document may be altered or revised by Shenzhen Tongce Testing Lab. personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample.*

TABLE OF CONTENTS

1. Test Certification 3
2. Test Result Summary 4
3. EUT Description 5
4. General Information 6
4.1. Test Environment and Mode 6
4.2. Description of Support Units 6
5. Facilities and Accreditations 7
5.1. Facilities 7
5.2. Location 7
5.3. Measurement Uncertainty 7
6. Test Results and Measurement Data 8
6.1. Antenna Requirement 8
6.2. Conducted Emission 9
6.3. Radiated Emission Measurement 13
6.4. 20dB Occupied Bandwidth 25
Appendix A: Photographs of Test Setup
Appendix B: Photographs of EUT

1. Test Certification

Product:	2.4GHz Wireless Backlit Keyboard
Model No.:	DGSTV300BK
Additional Model No.:	N/A
Trade Mark:	**N/A**
Applicant:	EFAN ACCESSORY CO., LTD.
Address:	ROOM#703, SILICON VALLEY BUILDING, NO.3 YUNFENG ROAD, DALANG STREET, LONGHUA DISTRICT, SHENZHEN, GUANGDONG, China
Manufacturer:	EFAN ACCESSORY CO., LTD.
Address:	ROOM#703, SILICON VALLEY BUILDING, NO.3 YUNFENG ROAD, DALANG STREET, LONGHUA DISTRICT, SHENZHEN, GUANGDONG, China
Date of Test:	Aug. 28, 2019 – Sep. 05, 2019
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249 ANSI C63.10:2013

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:	Kevin Huang ***Kevin Huang***	***Date:***	***Sep. 05, 2019***
Reviewed By:	Beryl Zhao ***Beryl Zhao***	***Date:***	***Sep. 06, 2019***
Approved By:	Tomsin ***Tomsin***	***Date:***	***Sep. 06, 2019***

2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna Requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Field Strength of Fundamental	§15.249 (a)	PASS
Spurious Emissions	§15.249 (a) (d)/ §15.209	PASS
Band Edge	§15.249 (d)/ §15.205	PASS
20dB Occupied Bandwidth	§15.215 (c)	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.

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

3. EUT Description

Product:	2.4GHz Wireless Backlit Keyboard
Model No.:	DGSTV300BK
Additional Model No.:	N/A
Trade Mark:	**N/A**
Operation Frequency:	2402MHz - 2476MHz
Number of Channel:	75
Modulation Technology:	FSK
Antenna Type:	PCB Antenna
Antenna Gain:	0dBi
Power Supply:	Rechargeable Li-ion Battery DC 3.7V

Operation Frequency Each of Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	20	2422MHz	40	2442MHz	60	2462MHz
1	2403MHz	21	2423MHz	41	2443MHz	61	2463MHz
…	…	…	…	…	…	…	…
10	2412MHz	30	2432MHz	50	2452MHz	70	2472MHz
11	2413MHz	31	2433MHz	51	2453MHz	71	2473MHz
…	…	…	…	…	…	…	…
18	2420MHz	38	2440MHz	58	2460MHz	74	2476MHz
19	2421MHz	39	2441MHz	59	2461MHz	-	

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel	2402MHz
The Middle channel	2444MHz
The Highest channel	2476MHz

4. General Information

4.1. Test Environment and Mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	25.0 °C	25.0 °C
Humidity:	55 % RH	55 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar
Test Mode:		
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations with Fully-charged battery	
The sample was placed 0.8m & 1.5m for the measurement below & above 1GHz 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.		

4.2. 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
/	/	/	/	/

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.

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

5. Facilities and Accreditations

5.1. Facilities

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

- FCC - Registration No.: 645098
  Shenzhen Tongce Testing Lab
  The 3m Semi-anechoic chamber 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-1
  The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab
Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China
TEL: +86-755-27673339

5.3. Measurement Uncertainty

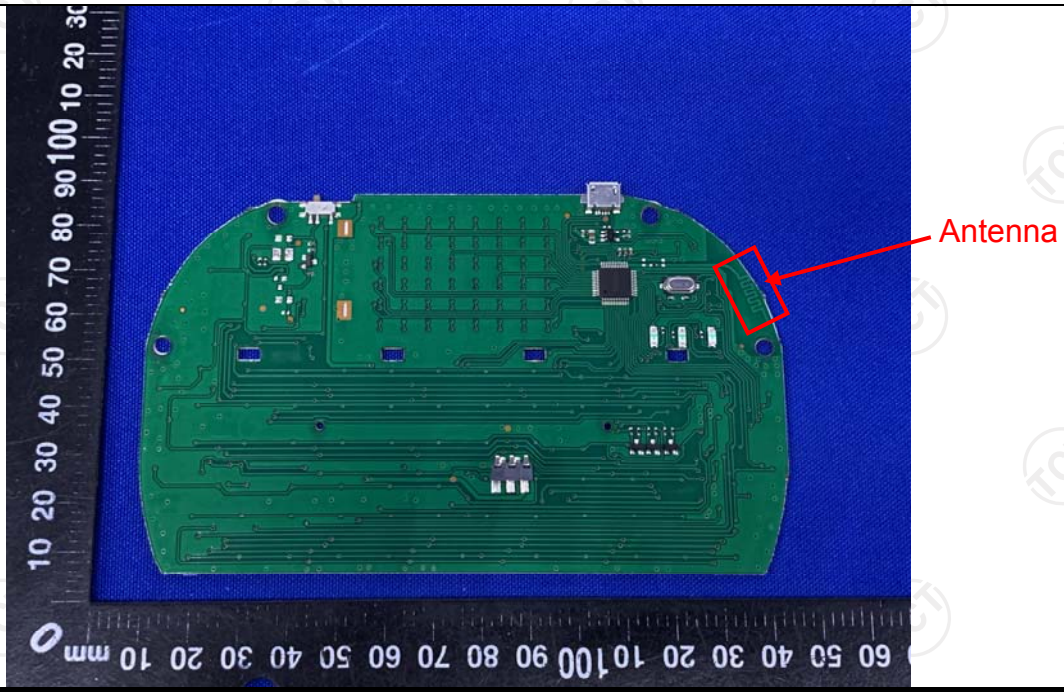
The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	±2.56dB
2	RF power, conducted	±0.12dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1GHz)	±3.92dB
5	All emissions, radiated(>1GHz)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

6. Test Results and Measurement Data

6.1. 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 EUT antenna is PCB antenna which permanently attached, and the best case gain of the antenna is 0dBi.	



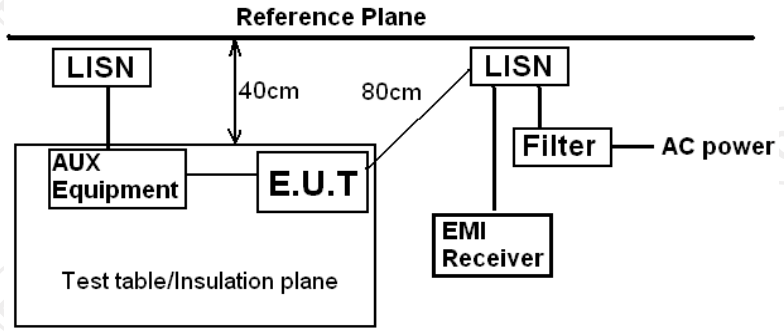
6.2. Conducted Emission

6.2.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Frequency Range:	150 kHz to 30 MHz
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto
Limits:	

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

Test Setup:



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

Test Mode: Transmitting mode with modulation

Test Procedure:

1. The E.U.T and simulators are connected to the main power 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 C63.10:2013 on conducted measurement.

Test Result: PASS

6.2.2. Test Instruments

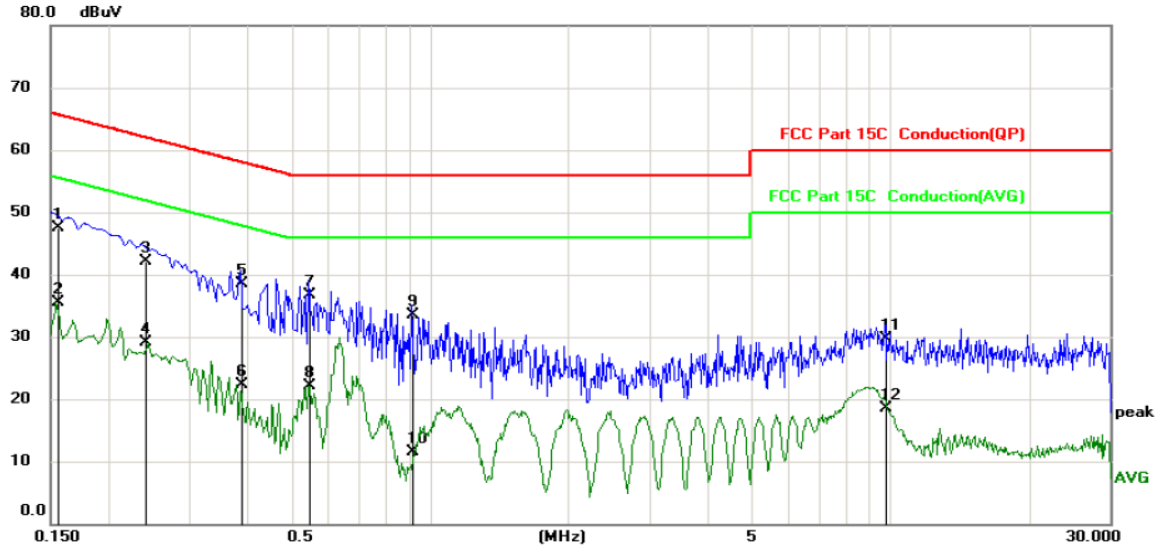
Conducted Emission Shielding Room Test Site (843)				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Test Receiver	R&S	ESPI	101402	Sep. 17, 2019
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 20, 2019
Coax cable (9KHz-30MHz)	TCT	CE-05	N/A	Sep. 16, 2019
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.2.3. Test data

Please refer to following diagram for individual

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



Site | Phase: *L1* | Temperature: 25

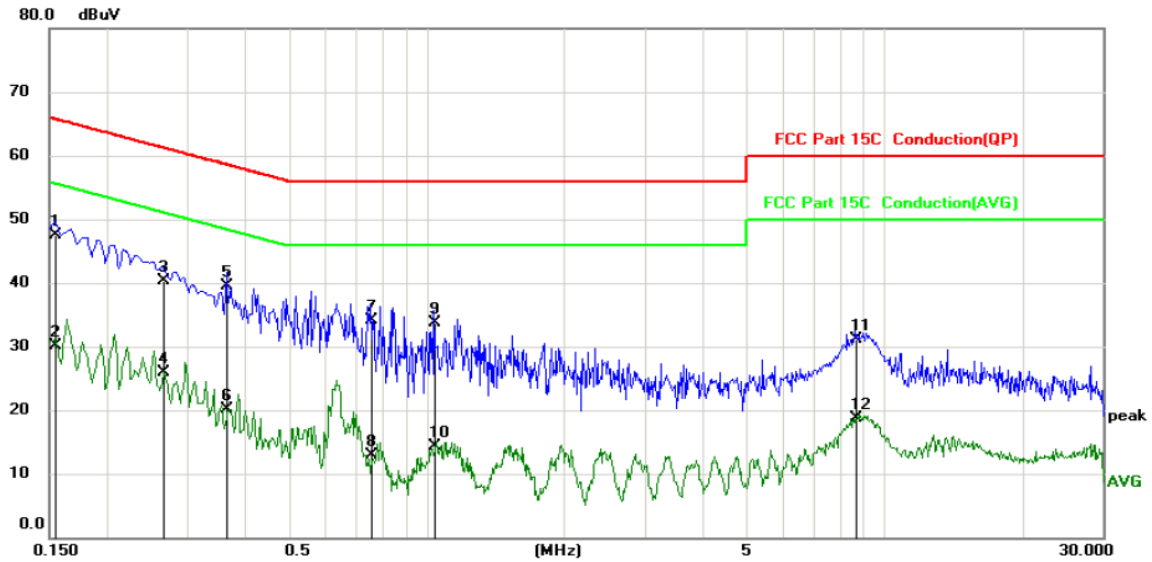
Limit: FCC Part 15C Conduction(QP) | Power: | Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1556	37.44	10.12	47.56	65.70	-18.14	QP	
2		0.1556	25.38	10.12	35.50	55.70	-20.20	AVG	
3		0.2416	32.06	10.13	42.19	62.04	-19.85	QP	
4		0.2416	19.01	10.13	29.14	52.04	-22.90	AVG	
5		0.3885	28.46	10.13	38.59	58.10	-19.51	QP	
6		0.3885	12.14	10.13	22.27	48.10	-25.83	AVG	
7		0.5460	26.54	10.13	36.67	56.00	-19.33	QP	
8		0.5460	12.04	10.13	22.17	46.00	-23.83	AVG	
9		0.9150	23.47	10.12	33.59	56.00	-22.41	QP	
10		0.9150	1.33	10.12	11.45	46.00	-34.55	AVG	
11		9.7260	19.65	10.15	29.80	60.00	-30.20	QP	
12		9.7260	8.30	10.15	18.45	50.00	-31.55	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 | Phase: N | Temperature: 25

Limit: FCC Part 15C Conduction(QP) | Power: | Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1545	37.44	10.12	47.56	65.75	-18.19	QP	
2		0.1545	19.96	10.12	30.08	55.75	-25.67	AVG	
3		0.2670	30.26	10.13	40.39	61.21	-20.82	QP	
4		0.2670	15.87	10.13	26.00	51.21	-25.21	AVG	
5		0.3660	29.47	10.13	39.60	58.59	-18.99	QP	
6		0.3660	9.99	10.13	20.12	48.59	-28.47	AVG	
7		0.7575	24.06	10.12	34.18	56.00	-21.82	QP	
8		0.7575	2.84	10.12	12.96	46.00	-33.04	AVG	
9		1.0410	23.66	10.12	33.78	56.00	-22.22	QP	
10		1.0410	4.11	10.12	14.23	46.00	-31.77	AVG	
11		8.6730	20.94	10.14	31.08	60.00	-28.92	QP	
12		8.6730	8.49	10.14	18.63	50.00	-31.37	AVG	

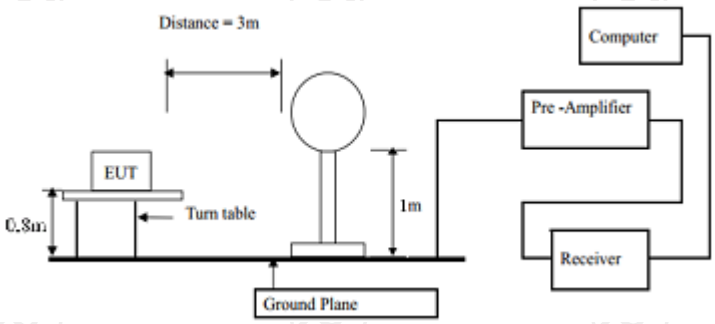
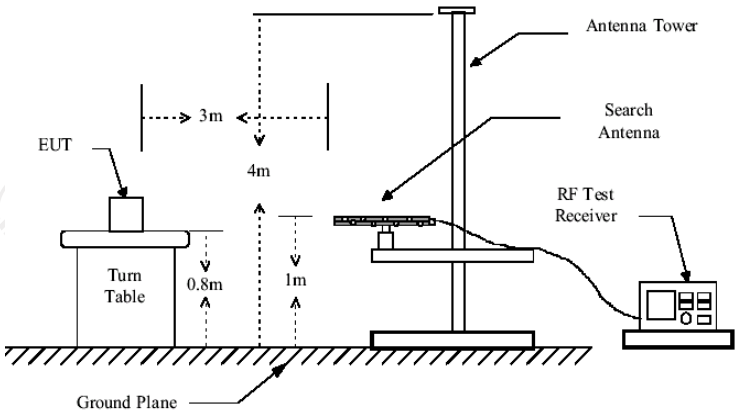
Note:

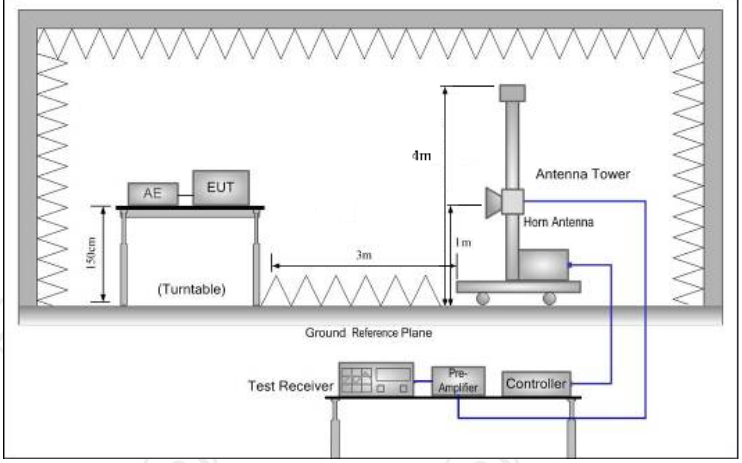
Freq. = Emission frequency in MHz
Reading level (dBµV) = Receiver reading
Corr. Factor (dB) = LISN factor + Cable loss
Measurement (dBµV) = Reading level (dBµV) + Corr. Factor (dB)
Limit (dBµV) = Limit stated in standard
Margin (dB) = Measurement (dBµV) – Limits (dBµV)
Q.P. =Quasi-Peak
AVG =average
**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

6.3. Radiated Emission Measurement

6.3.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</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>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>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit(Field strength of the fundamental signal):</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td rowspan="2">2400MHz-2483.5MHz</td><td>94.00</td><td>Average Value</td></tr>
<tr><td>114.00</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Limit(Spurious Emissions):</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(KHz)</td><td>Quasi-peak Value</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(KHz)</td><td>Quasi-peak Value</td></tr>
<tr><td>1.705-30</td><td>30</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>74.0</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Limit (band edge) :</td><td>Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.</td></tr>
<tr><td>Test Procedure:</td><td>1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber in below 1GHz, 1.5m above the ground in above 1GHz. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</td></tr>
</table>

	4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test setup:	For radiated emissions below 30MHz  30MHz to 1GHz  Above 1GHz (The diagram below shows the test setup that is utilized to make the measurements for emission from 1GHz to the tenth harmonic of the highest fundamental frequency or to 40GHz emissions, whichever is lower.)

	
Test results:	PASS

6.3.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Test Receiver	ROHDE&SCHWARZ	ESIB7	100197	Sep. 17, 2019
Spectrum Analyzer	ROHDE&SCHWARZ	FSQ40	200061	Sep. 20, 2019
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 16, 2019
Pre-amplifier	HP	8447D	2727A05017	Sep. 16, 2019
Loop antenna	ZHINAN	ZN30900A	12024	Oct. 20, 2019
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 16, 2019
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Oct. 20, 2019
Horn Antenna	A-INFO	LB-180400-KF	J211020657	Sep. 16, 2019
Antenna Mast	Keleto	RE-AM	N/A	N/A
Coax cable (9KHz-1GHz)	TCT	RE-low-01	N/A	Sep. 16, 2019
Coax cable (9KHz-40GHz)	TCT	RE-high-02	N/A	Sep. 16, 2019
Coax cable (9KHz-1GHz)	TCT	RE-low-03	N/A	Sep. 16, 2019
Coax cable (9KHz-40GHz)	TCT	RE-high-04	N/A	Sep. 16, 2019
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.3.3. Test Data

Field Strength of Fundamental

Frequency (MHz)	Emission PK (dBuV/m)	Horizontal /Vertical	Limits PK (dBuV/m)	Margin (dB)
2402	86.53	H	114	-27.47
2402	86.02	V	114	-27.98
2444	85.11	H	114	-28.89
2444	84.21	V	114	-29.79
2476	83.79	H	114	-30.21
2476	85.69	V	114	-28.31

Frequency (MHz)	Emission AV (dBuV/m)	Horizontal /Vertical	Limits AV (dBuV/m)	Margin (dB)
2402	73.59	H	94	-20.41
2402	74.75	V	94	-19.25
2444	72.28	H	94	-21.72
2444	74.46	V	94	-19.54
2476	72.15	H	94	-21.85
2476	73.14	V	94	-20.86

Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

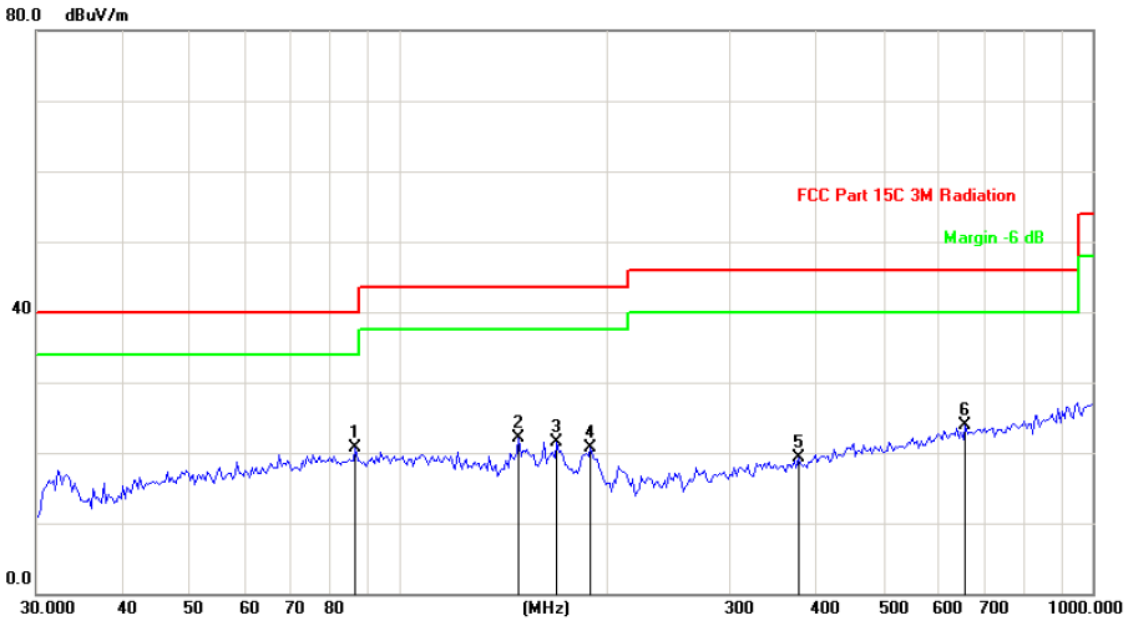
Note: *1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor.*

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

3. For fundamental frequency, RBW >20dB BW , VBW>=RBW, PK detector is for PK value, RMS detector is for AV value.

Frequency Range (30MHz-1GHz)

Horizontal:

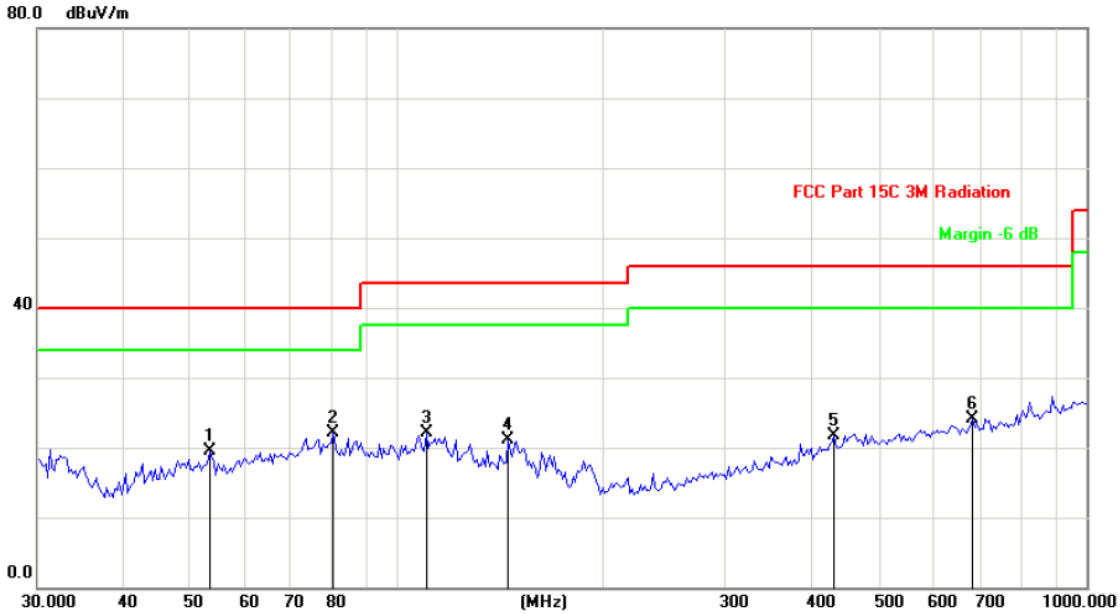


Site | Polarization: ***Horizontal*** | Temperature: 25

Limit: FCC Part 15C 3M Radiation | Power: DC 3.7V | Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	86.6867	33.24	-12.49	20.75	40.00	-19.25	peak
2		148.9175	38.28	-16.24	22.04	43.50	-21.46	peak
3		168.9970	36.93	-15.41	21.52	43.50	-21.98	peak
4		189.1076	35.25	-14.50	20.75	43.50	-22.75	peak
5		376.5227	28.61	-9.29	19.32	46.00	-26.68	peak
6		655.9766	29.46	-5.57	23.89	46.00	-22.11	peak

Vertical:



Site | Polarization: *Vertical* | Temperature: 25

Limit: FCC Part 15C 3M Radiation | Power: DC 3.7V | Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		53.3794	30.33	-10.81	19.52	40.00	-20.48	peak
2	*	80.8042	38.33	-16.20	22.13	40.00	-17.87	peak
3		110.0818	30.90	-8.89	22.01	43.50	-21.49	peak
4		144.7899	37.36	-16.17	21.19	43.50	-22.31	peak
5		430.3053	30.35	-8.57	21.78	46.00	-24.22	peak
6		684.2259	29.57	-5.50	24.07	46.00	-21.93	peak

Note: *1. Measurements were conducted in all channels (high, middle, low), and the worst case (low channel) was submitted only.*
2. Any value more than 10dB below limit have not been specifically reported.

Above 1GHz

Low channel: 2402MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
4804.00	H	51.07	---	-3.94	47.13	---	74	54	-6.87
7206.00	H	49.61	---	0.52	50.13	---	74	54	-3.87
---	---	---	---	---	---	---	---	---	---
4804.00	V	49.87	---	-3.94	45.93	---	74	54	-8.07
7206.00	V	46.52	---	0.52	47.04	---	74	54	-6.96
---	---	---	---	---	---	---	---	---	---

Middle channel: 2444MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
4888.00	H	52.09	---	-3.98	48.11	---	74	54	-5.89
7332.00	H	49.15	---	0.57	49.72	---	74	54	-4.28
---	---	---	---	---	---	---	---	---	---
4888.00	V	51.36	---	-3.98	47.38	---	74	54	-6.62
7332.00	V	49.12	---	0.57	49.69	---	74	54	-4.31
---	---	---	---	---	---	----	---	---	---

High channel: 2476MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBμV)	AV reading (dBμV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBμV/m)	AV limit (dBμV/m)	Margin (dB)
					Peak (dBμV/m)	AV (dBμV/m)			
4952.00	H	53.03	---	-3.98	49.05	---	74	54	-4.95
7428.00	H	48.53	---	0.57	49.10	---	74	54	-4.90
---	---	---	---	---	---	---	---	---	---
4952.00	V	52.43	---	-3.98	48.45	---	74	54	-5.55
7428.00	V	50.33	---	0.57	50.90	---	74	54	-3.10
---	---	---	---	---	---	---	---	---	---

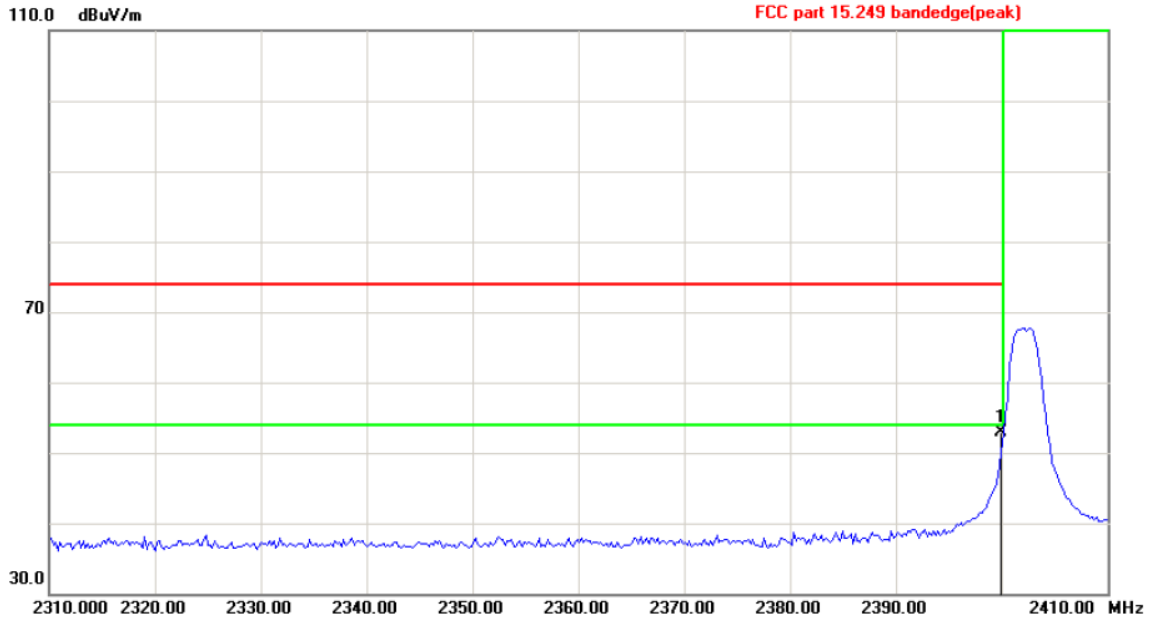
Note:

1. *Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier*
2. *Margin (dB) = Emission Level (Peak) (dBμV/m)-Average limit (dBμV/m)*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
4. *Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.*
5. *Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.*
6. *All the restriction bands are compliance with the limit of 15.209.*

Band Edge Requirement

Lowest channel 2402:

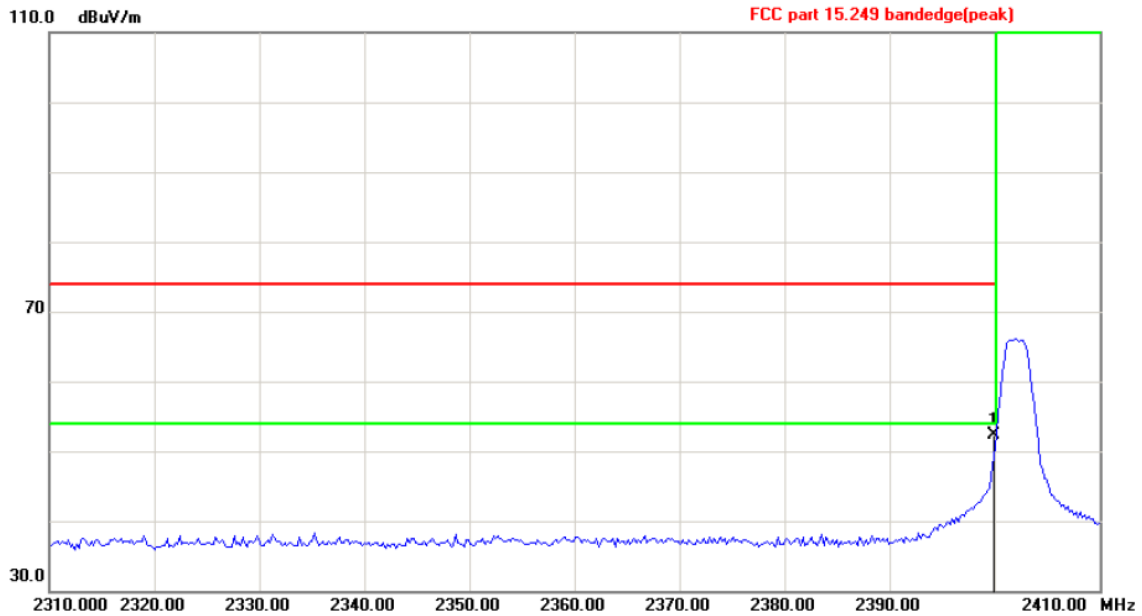
Horizontal:



Site	Polarization: *Horizontal*	Temperature:	25
Limit: FCC part 15.249 bandedge(peak)	Power: DC 3.7V	Humidity:	55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	2400.000	65.92	-13.02	52.90	74.00	-21.10	peak

Vertical:

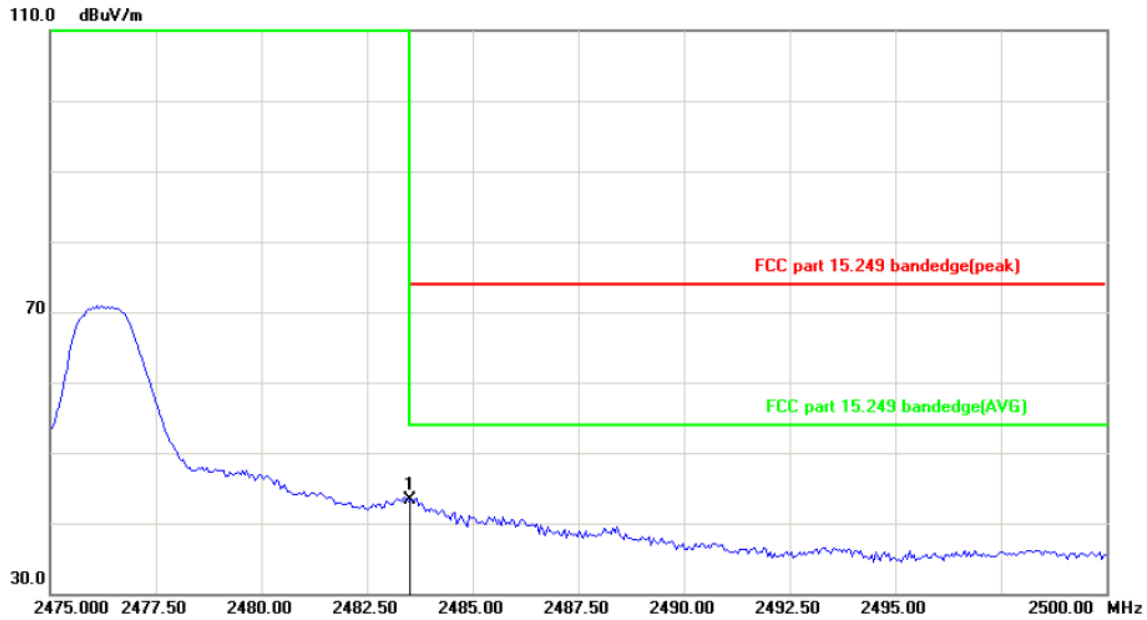


Site	Polarization: *Vertical*	Temperature:	25
Limit: FCC part 15.249 bandedge(peak)	Power: DC 3.7V	Humidity:	55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	2400.000	65.28	-13.02	52.26	74.00	-21.74	peak

Highest channel 2476:

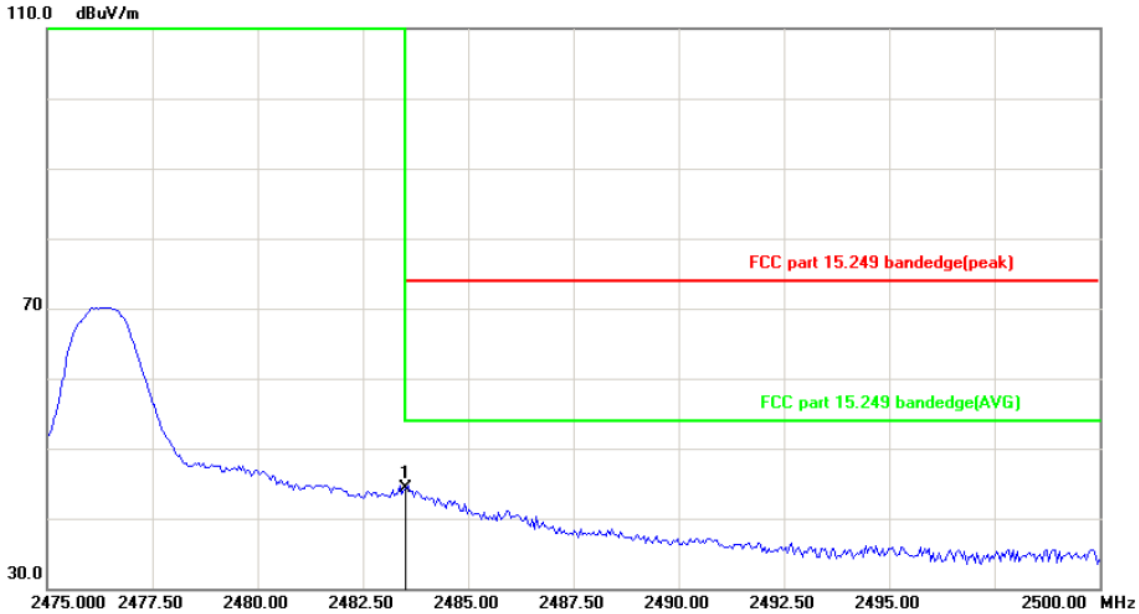
Horizontal:



Site	Polarization: *Horizontal*	Temperature:	25
Limit: FCC part 15.249 bandedge(peak)	Power: DC 3.7V	Humidity:	55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	2483.500	58.87	-15.51	43.36	74.00	-30.64	peak

Vertical:



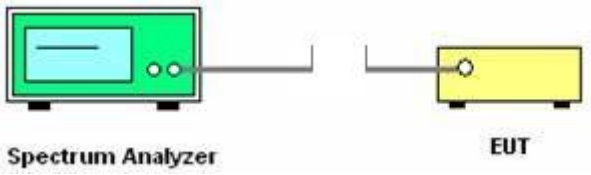
Site	Polarization: *Vertical*	Temperature:	25
Limit: FCC part 15.249 bandedge(peak)	Power: DC 3.7V	Humidity:	55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	2483.500	59.87	-15.51	44.36	74.00	-29.64	peak

Note: *Measurements were conducted in all channels (high, middle, low), and the worst case (low channel) was submitted only.*

6.4. 20dB Occupied Bandwidth

6.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)
Test Method:	ANSI C63.10: 2013
Limit:	N/A
	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW≥1% of the 20 dB bandwidth; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold. 4. Measure and record the results in the test report.
Test setup:	
Test Mode:	Transmitting mode with modulation
Test results:	PASS

6.4.2. Test Instruments

RF Test Room				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	R&S	FSU	200054	Sep. 20, 2019

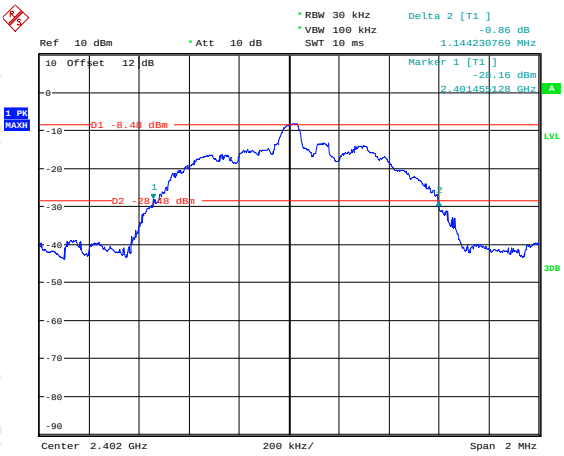
Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.4.3. Test data

Test Channel	20dB Occupy Bandwidth (kHz)	Limit	Conclusion
Lowest	1144.23	---	PASS
Middle	1189.10	---	PASS
Highest	1227.56	---	PASS

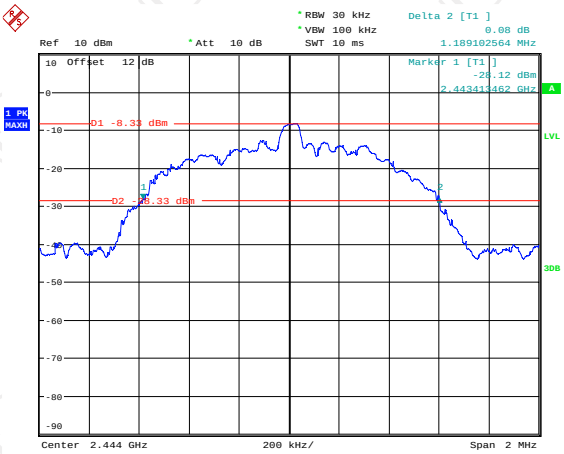
Test plots as follows:

Lowest channel



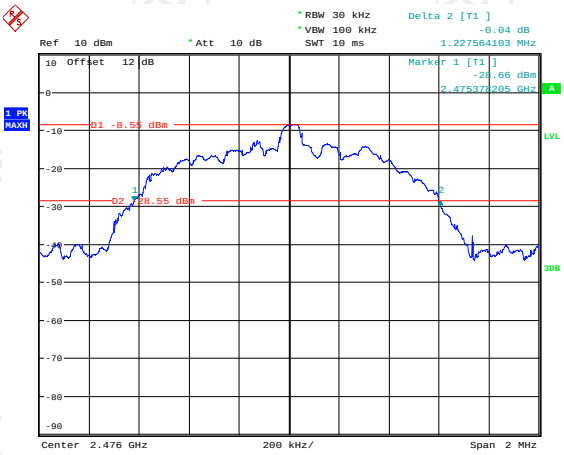
Date: 2.SEP.2019 15:36:39

Middle channel



Date: 2.SEP.2019 15:39:35

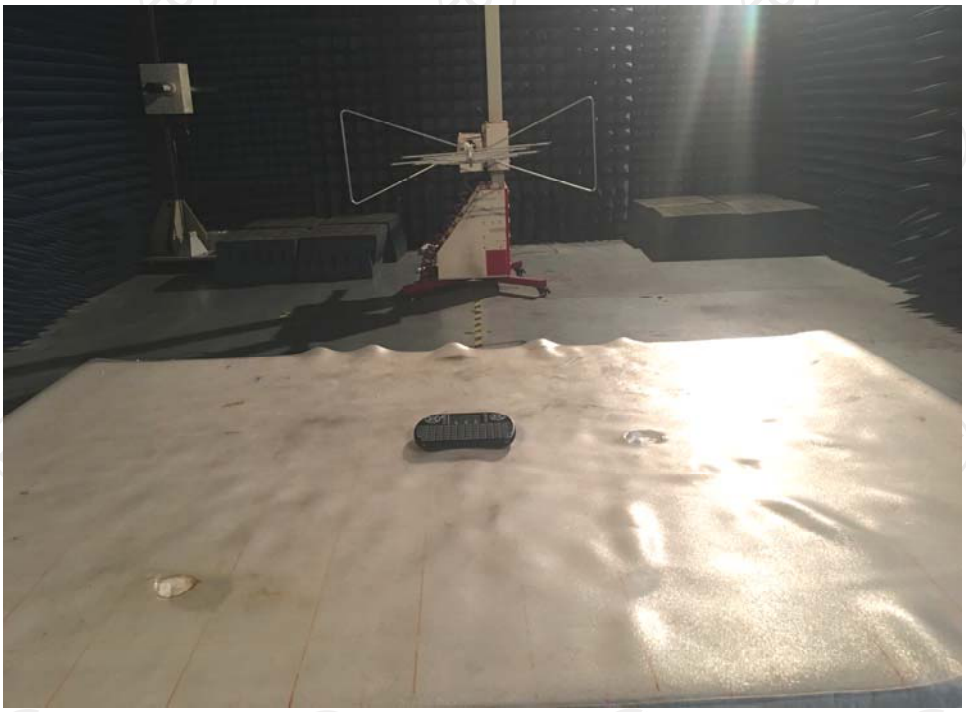
Highest channel

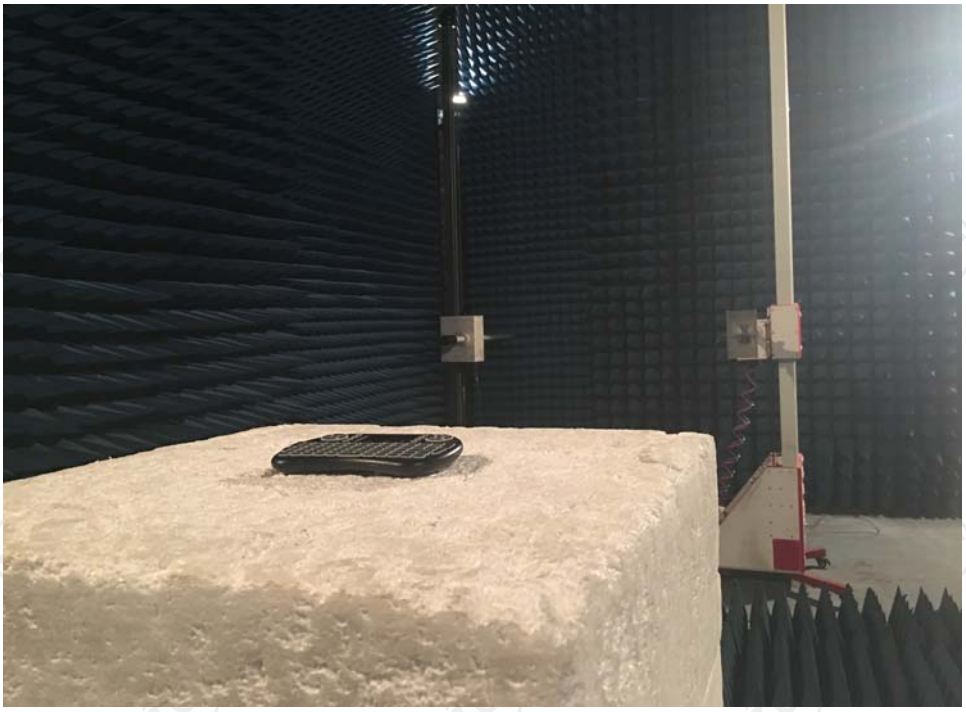


Date: 2.SEP.2019 15:41:05

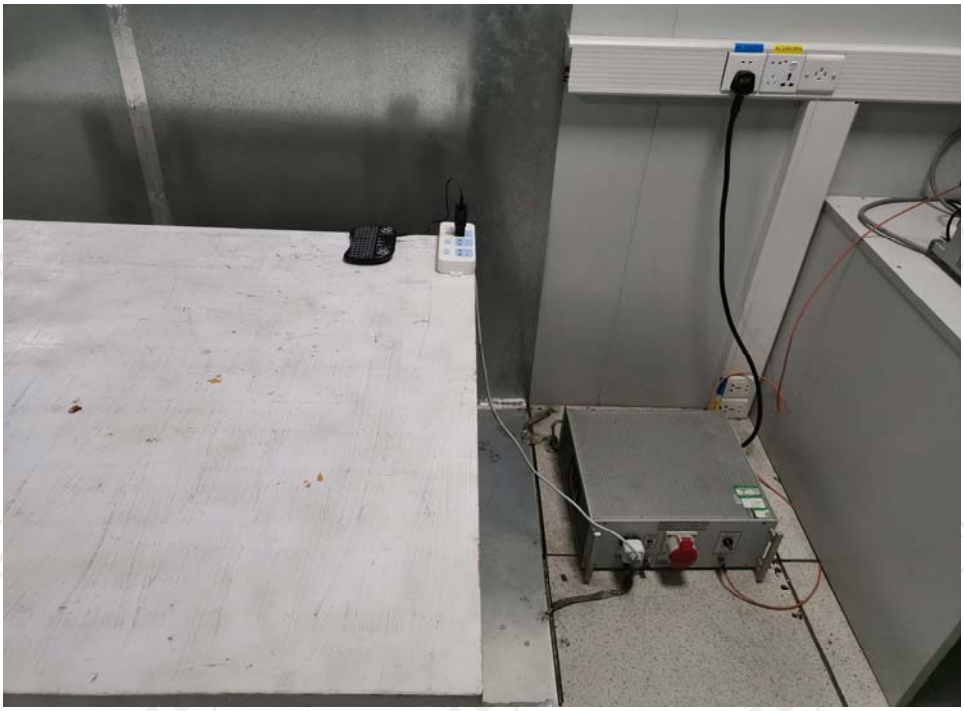
Appendix A: Photographs of Test Setup

Product: 2.4GHz Wireless Backlit Keyboard
Model: DGSTV300BK
Radiated Emission





Conducted Emission



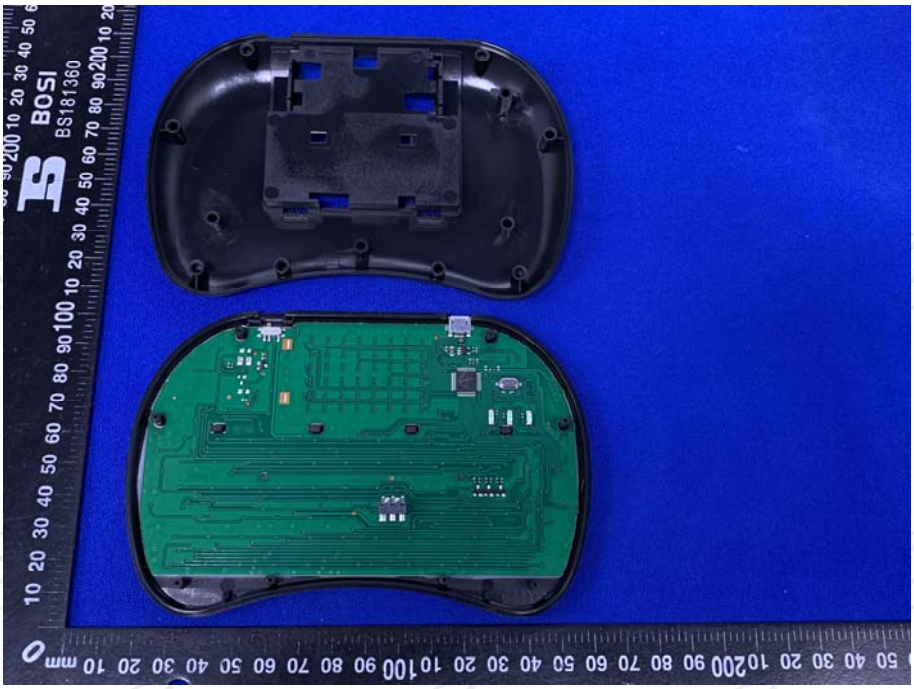
Appendix B: Photographs of EUT

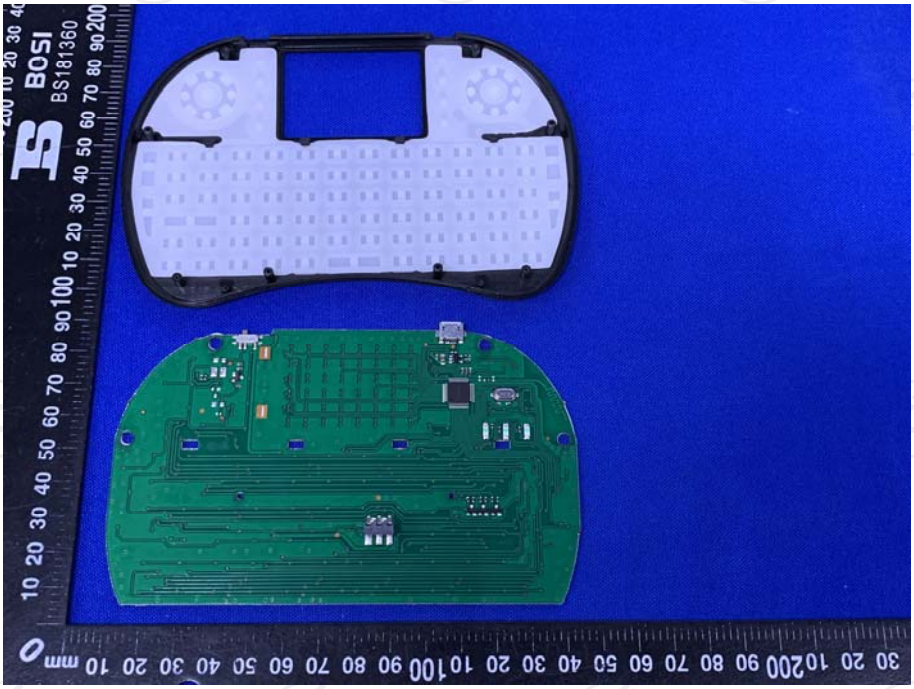
Product: 2.4GHz Wireless Backlit Keyboard

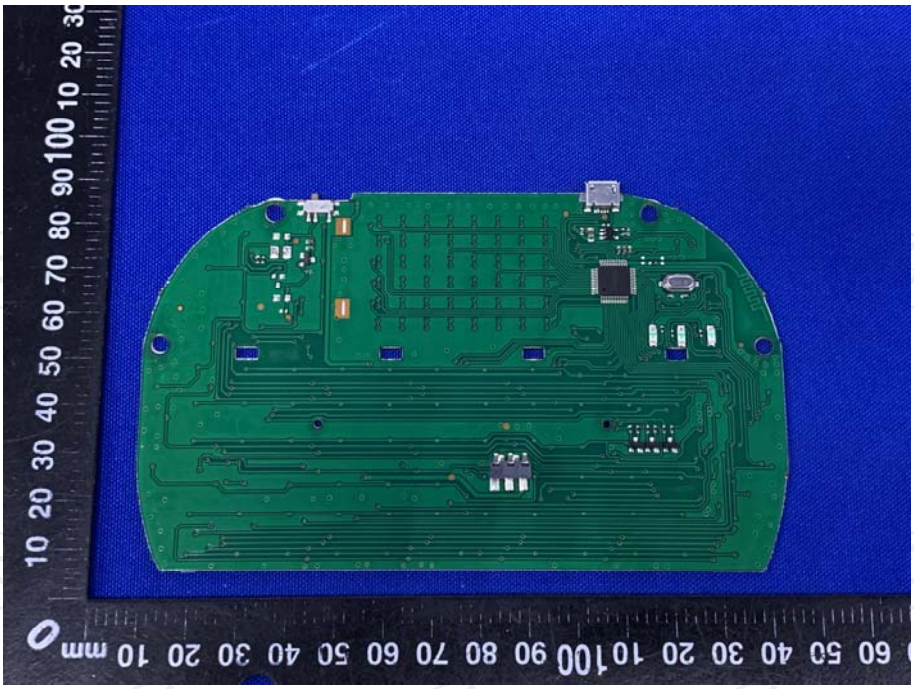
Model: DGSTV300BK

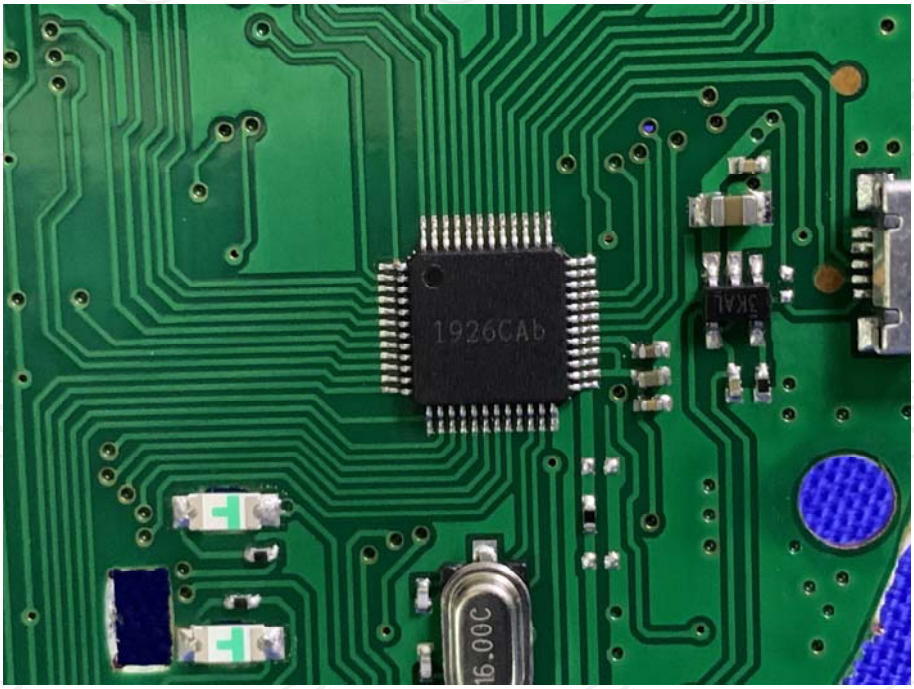
External Photos

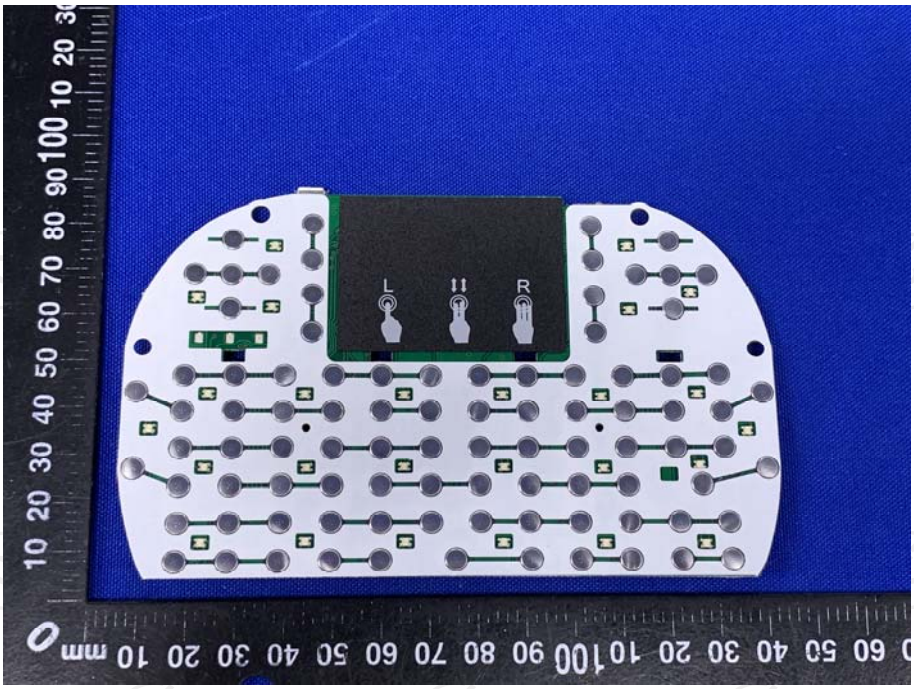
Product: 2.4GHz Wireless Backlit Keyboard
Model: DGSTV300BK
Internal Photos

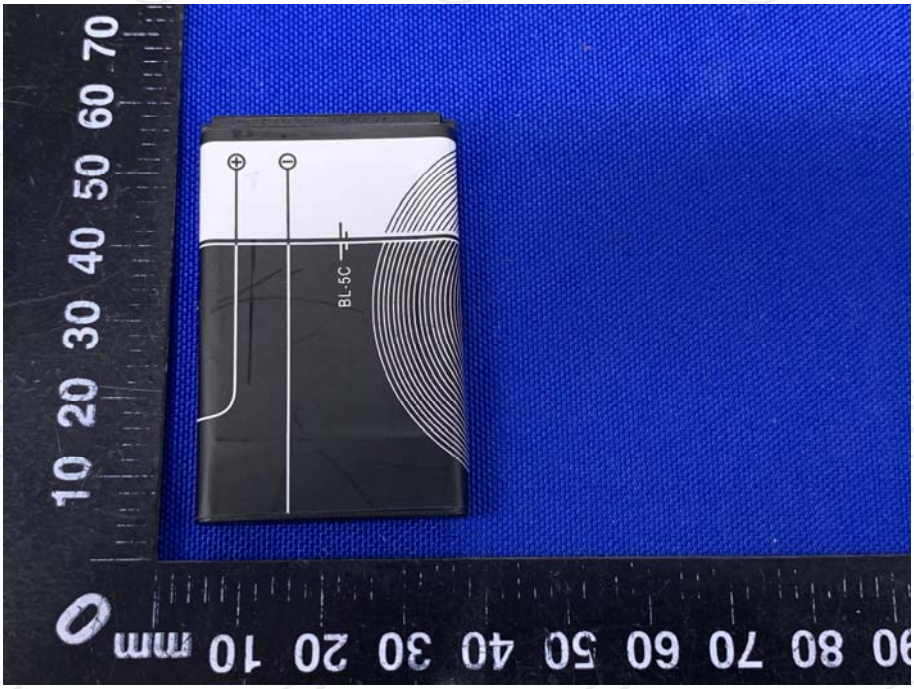

BOSI
BS181360


BOSI
BS181360




1926CAb
3KAL
16.00C


L
R


BL-5C

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