

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Beijing Miiw Technology Co., Ltd.

MIIW Dual-mode Keyboard
Model No.: MWBK01

FCC ID: 2AR3N-MWBK01

Prepared for : Beijing Miiw Technology Co., Ltd.
Address : RM101, Building A-1, Shunshijiaye Innovation Park, Beijing, China

Prepared by : Shenzhen Accurate Technology Co., Ltd.
Address : 1/F., Building A, Changyuan New Material Port, Science & Industry
Park, Nanshan District, Shenzhen, Guangdong, P.R. China

Tel: (0755) 26503290
Fax: (0755) 26503396

Report No. : ATE20190230
Date of Test : February 14-February 21, 2019
Date of Report : February 28, 2019

TABLE OF CONTENTS

Description	Page
Test Report Certification	
1. GENERAL INFORMATION	5
1.1. Description of Device (EUT).....	5
1.2. Carrier Frequency of Channels.....	5
1.3. Special Accessory and Auxiliary Equipment	6
1.4. Description of Test Facility	6
1.5. Measurement Uncertainty.....	6
2. MEASURING DEVICE AND TEST EQUIPMENT	7
3. OPERATION OF EUT DURING TESTING	8
3.1. Operating Mode.....	8
3.2. Configuration and peripherals	8
4. TEST PROCEDURES AND RESULTS	9
5. 6DB BANDWIDTH TEST.....	10
5.1. Block Diagram of Test Setup.....	10
5.2. The Requirement For Section 15.247(a)(2).....	10
5.3. EUT Configuration on Measurement	10
5.4. Operating Condition of EUT	10
5.5. Test Procedure	10
5.6. Test Result	11
6. MAXIMUM PEAK OUTPUT POWER TEST	13
6.1. Block Diagram of Test Setup.....	13
6.2. The Requirement For Section 15.247(b)(3).....	13
6.3. EUT Configuration on Measurement	13
6.4. Operating Condition of EUT	13
6.5. Test Procedure	13
6.6. Test Result	14
7. POWER SPECTRAL DENSITY TEST.....	16
7.1. Block Diagram of Test Setup.....	16
7.2. The Requirement For Section 15.247(e).....	16
7.3. EUT Configuration on Measurement	16
7.4. Operating Condition of EUT	16
7.5. Test Procedure	17
7.6. Test Result	17
8. BAND EDGE COMPLIANCE TEST	20
8.1. Block Diagram of Test Setup.....	20
8.2. The Requirement For Section 15.247(d)	20
8.3. EUT Configuration on Measurement	20
8.4. Operating Condition of EUT	20
8.5. Test Procedure	21
8.6. Test Result	21
9. RADIATED SPURIOUS EMISSION TEST	27
9.1. Block Diagram of Test Setup.....	27
9.2. The Limit For Section 15.247(d)	28
9.3. Restricted bands of operation	29
9.4. Configuration of EUT on Measurement	29

9.5.	Operating Condition of EUT	30
9.6.	Test Procedure	30
9.7.	Data Sample.....	31
9.8.	Test Result	31
10.	CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST	59
10.1.	Block Diagram of Test Setup.....	59
10.2.	The Requirement For Section 15.247(d)	59
10.3.	EUT Configuration on Measurement	59
10.4.	Operating Condition of EUT	59
10.5.	Test Procedure	60
10.6.	Test Result	60
11.	ANTENNA REQUIREMENT.....	62
11.1.	The Requirement	62
11.2.	Antenna Construction	62

Test Report Certification

Applicant : Beijing Miiw Technology Co., Ltd.
Address : RM101, Building A-1, Shunshijiaye Innovation Park, Beijing, China
EUT Description : MIIIW Dual-mode Keyboard
Model No. : MWBK01

Measurement Procedure Used:

**FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.10: 2013**

The EUT was tested according to DTS test procedure of August 24, 2018 KDB558074 D01 DTS Meas Guidance v05 for compliance to FCC 47CFR 15.247 requirements

The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and Shenzhen Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

Date of Test : February 14-February 21, 2019
Date of Report : February 28, 2019

Prepared by : _____
(Sean Yang, Engineer)

Approved & Authorized Signer : _____
(Sean Liu, Manager)



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	MIIIW Dual-mode Keyboard
Model Number	:	MWBK01
Bluetooth Version	:	V4.0 BLE
Frequency Range	:	2402-2480MHz
Modulation Type	:	GFSK
Number of Channels	:	40 channels
Channel Spacing	:	2MHz
Antenna Gain	:	0dBi
Antenna Type	:	PCB Antenna
Power Supply	:	DC 3V

1.2. Carrier Frequency of Channels

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

1.3.Special Accessory and Auxiliary Equipment

N/A

1.4.Description of Test Facility

EMC Lab	:	Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358
		Listed by Innovation, Science and Economic Development Canada (ISED) The Registration Number is 5077A-2
		Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193
		Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
Name of Firm	:	Shenzhen Accurate Technology Co., Ltd.
Site Location	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Cal. Interval
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 05, 2019	One Year
EMI Test Receiver	Rohde&Schwarz	ESR	101817	Jan. 05, 2019	One Year
Spectrum Analyzer	Rohde&Schwarz	FSV-40	101495	Jan. 05, 2019	One Year
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 05, 2019	One Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 05, 2019	One Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 05, 2019	One Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 05, 2019	One Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 05, 2019	One Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 05, 2019	One Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 05, 2019	One Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 05, 2019	One Year
Conducted Emission Measurement Software: ES-K1 V1.71					
Radiated Emission Measurement Software: EZ_EMV V1.1.4.2					

3. OPERATION OF EUT DURING TESTING

3.1. Operating Mode

The mode is used: **Transmitting mode**

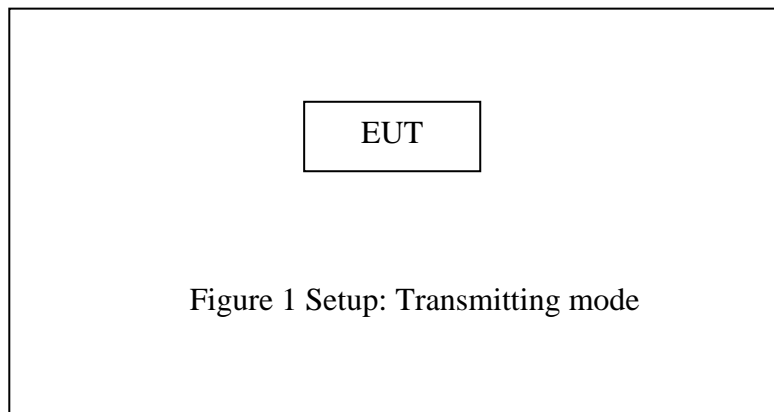
Low Channel: 2402MHz

Middle Channel: 2440MHz

High Channel: 2480MHz

Its duty cycle setting is greater than 98%.

3.2. Configuration and peripherals



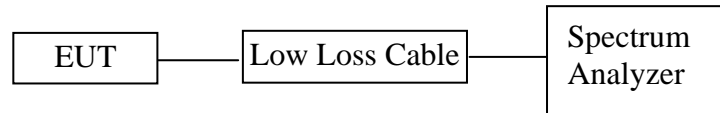
4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.207	Power Line Conducted Emission Test	N/A
Section 15.203	Antenna Requirement	Compliant

Note: The power supply mode of the EUT is DC 3V, According to the FCC standard requirements, conducted emission is not applicable.

5. 6DB BANDWIDTH TEST

5.1. Block Diagram of Test Setup



5.2. The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.3. EUT Configuration on Measurement

The equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

5.5. Test Procedure

5.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

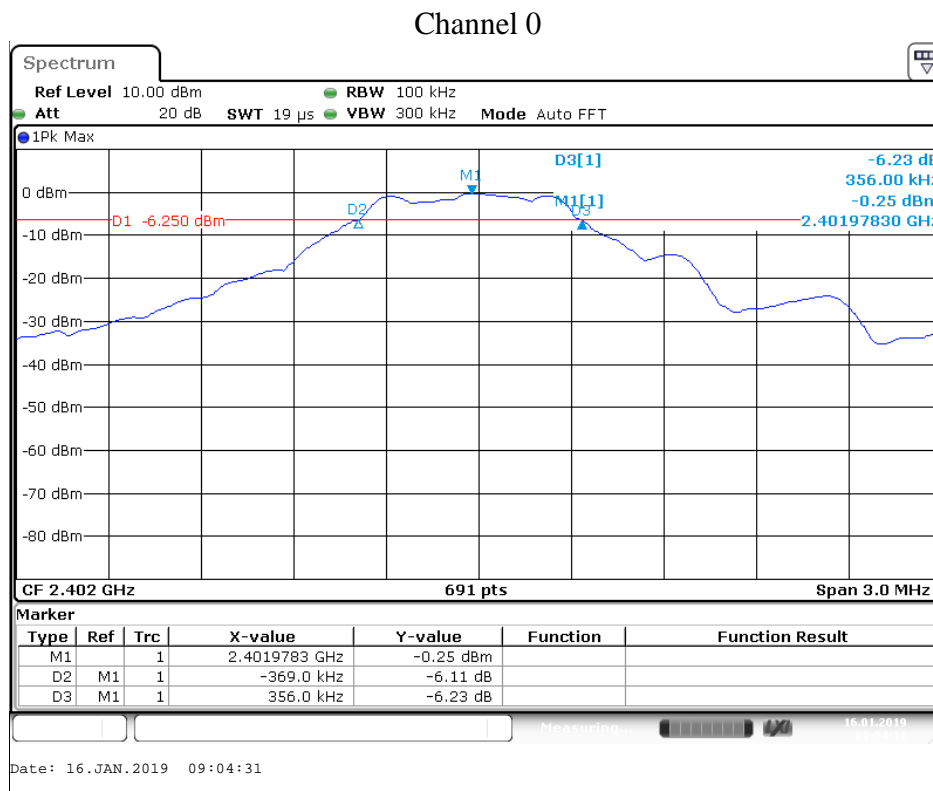
5.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

5.5.3. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

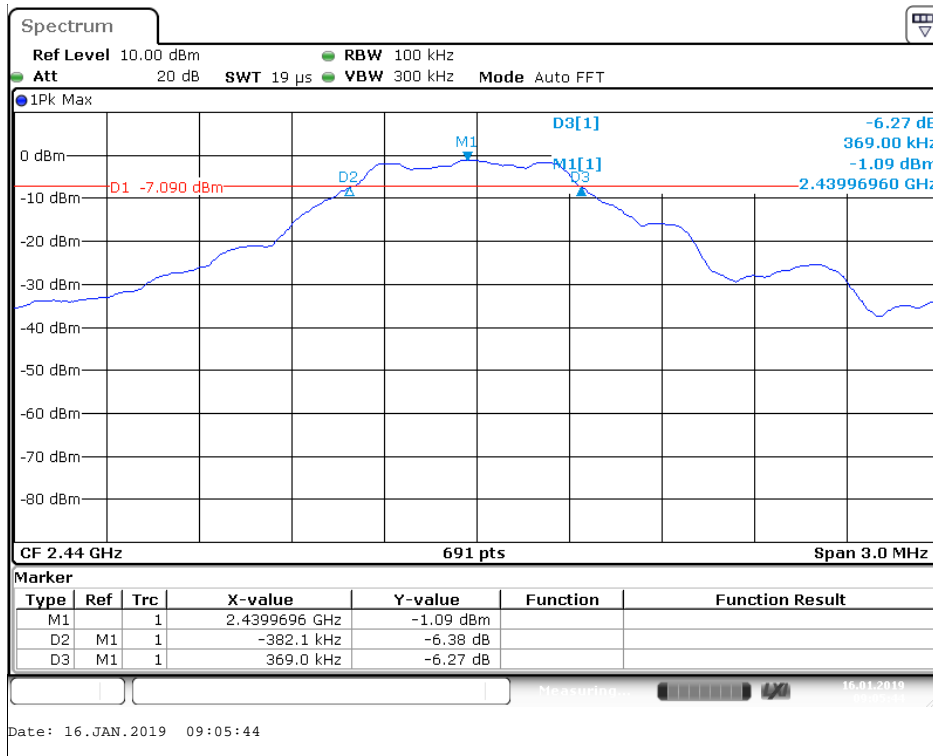
5.6. Test Result

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit(MHz)	Result
0	2402	0.725	0.5	Pass
19	2440	0.751	0.5	Pass
39	2480	0.734	0.5	Pass

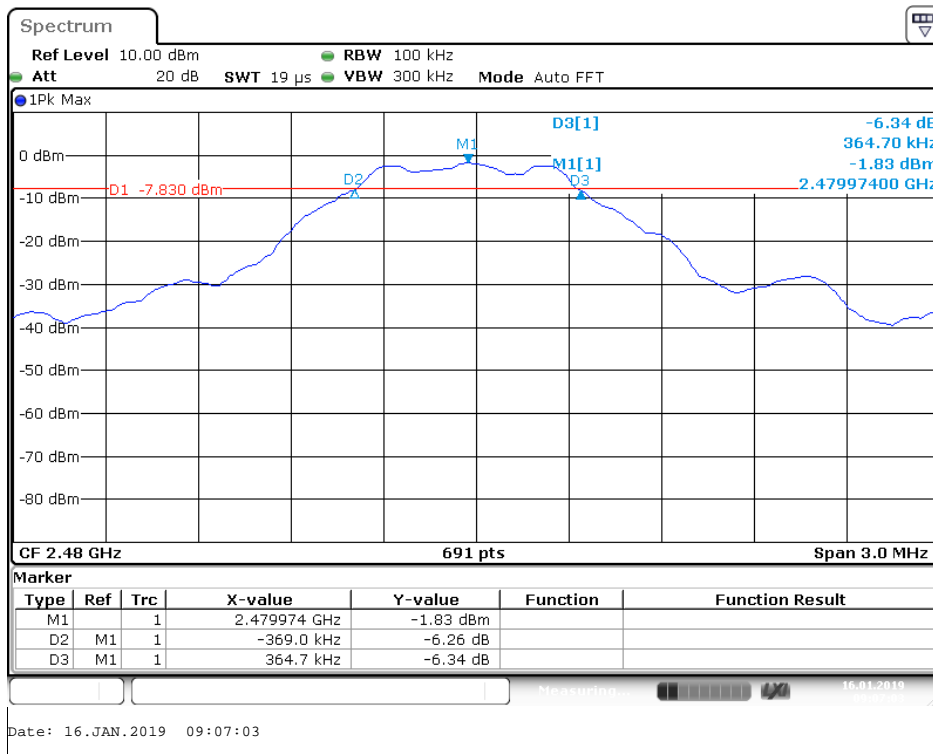
The spectrum analyzer plots are attached as below.



Channel 19

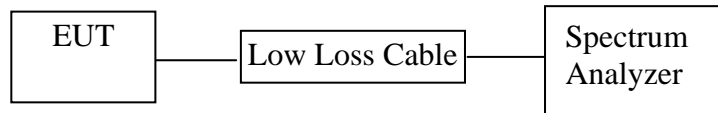


Channel 39



6. MAXIMUM PEAK OUTPUT POWER TEST

6.1. Block Diagram of Test Setup



6.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

6.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4. Operating Condition of EUT

6.4.1. Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

6.5. Test Procedure

6.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

6.5.2. Set RBW of spectrum analyzer to 3MHz and VBW to 10MHz.

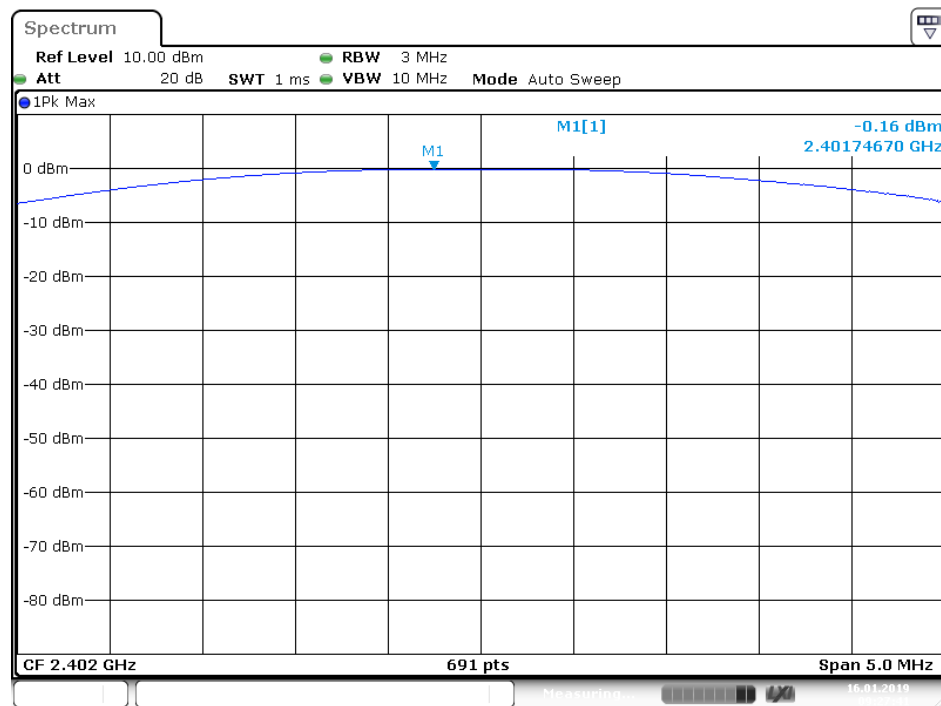
6.5.3. Measurement the maximum peak output power.

6.6. Test Result

Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Result
0	2402	-0.16	30	Pass
19	2440	-0.98	30	Pass
39	2480	-1.69	30	Pass

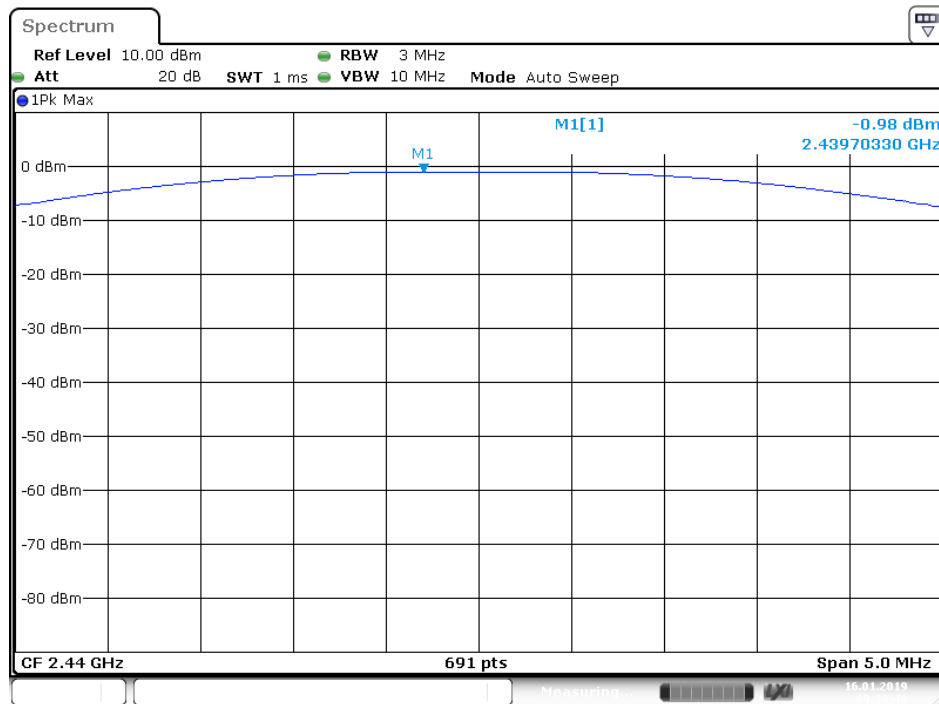
The spectrum analyzer plots are attached as below.

Channel 0

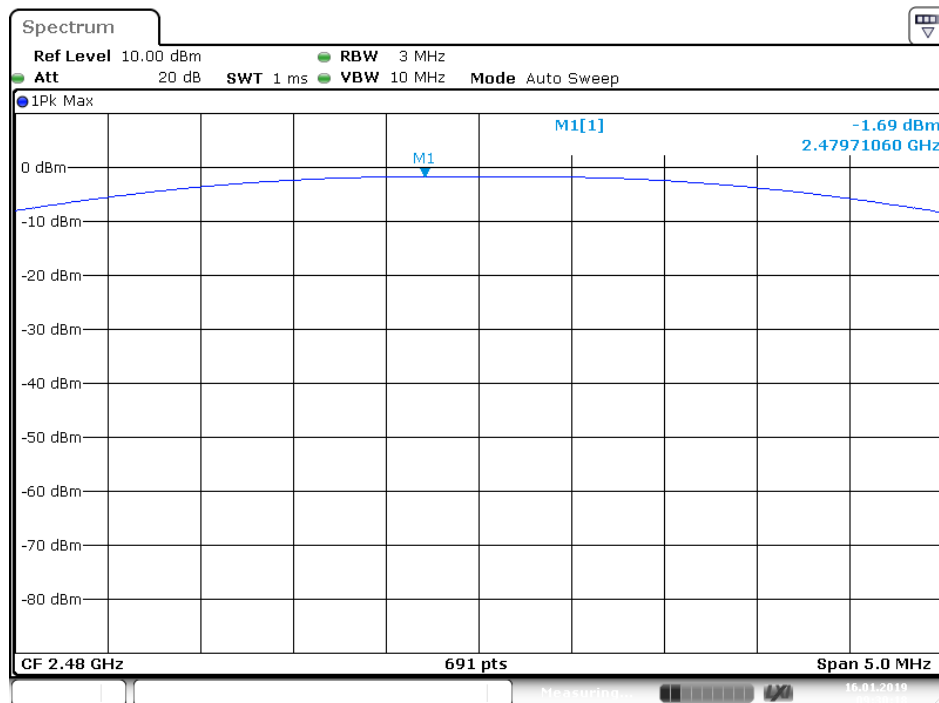


Date: 16.JAN.2019 09:27:41

Channel 19

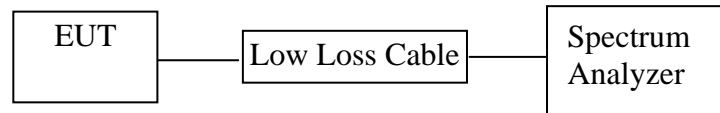


Channel 39



7. POWER SPECTRAL DENSITY TEST

7.1. Block Diagram of Test Setup



7.2. The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as Section 7.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

7.5. Test Procedure

7.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2. Measurement Procedure PKPSD:

7.5.3. This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS Channel center frequency.
2. Set the span to 1.5 times the DTS Channel bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3kHz) and repeat.

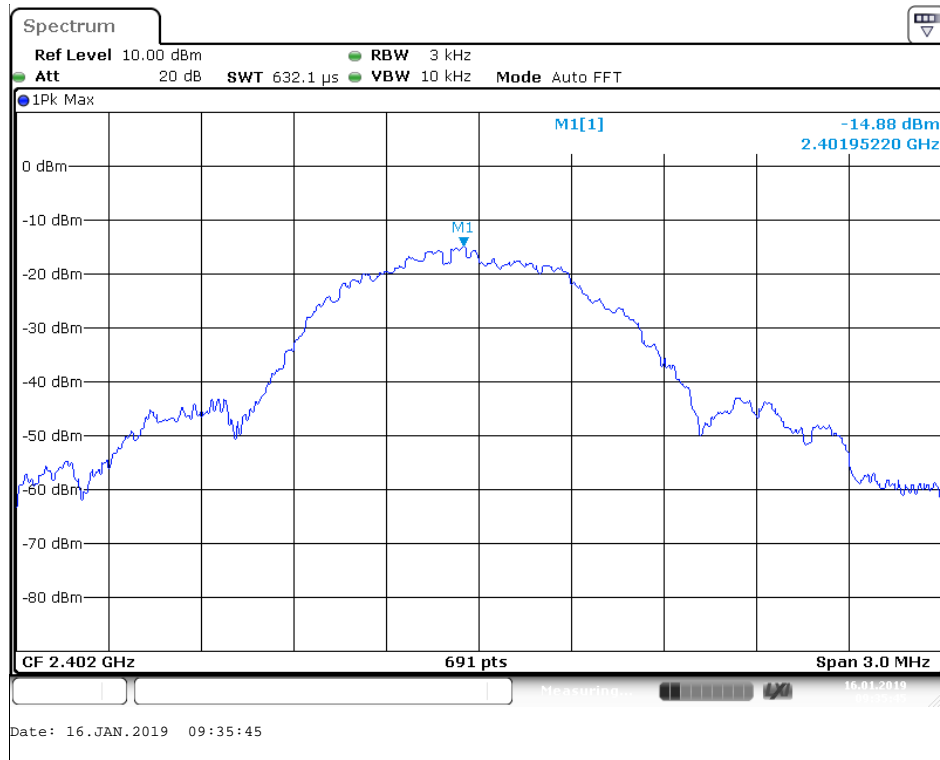
7.5.4. Measurement the maximum power spectral density.

7.6. Test Result

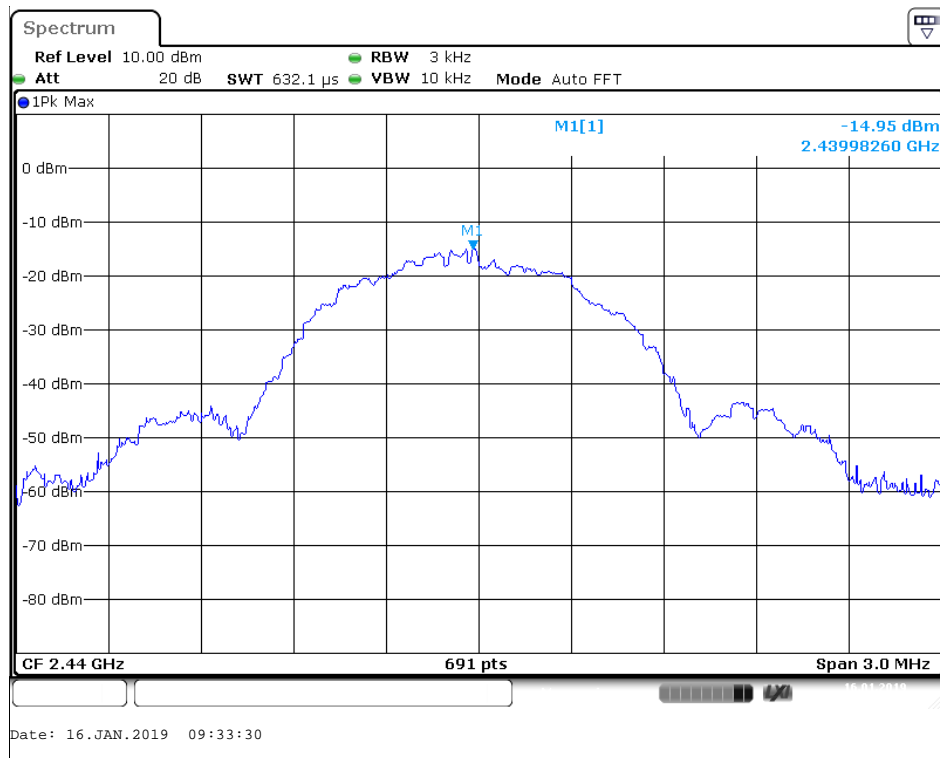
Channel	Frequency (MHz)	PSD (dBm/3KHz)	Limit (dBm/3KHz)	Result
0	2402	-14.88	8	Pass
19	2440	-14.95	8	Pass
39	2480	-15.62	8	Pass

The spectrum analyzer plots are attached as below.

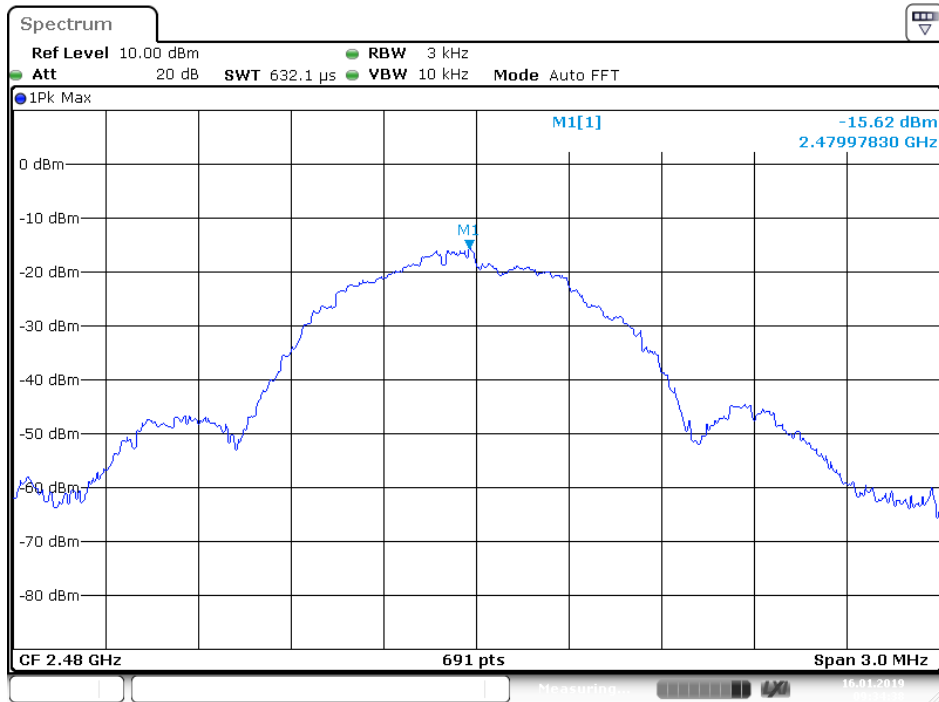
Channel 0



Channel 19



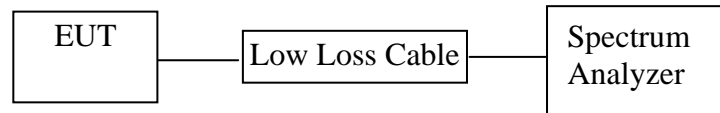
Channel 39



Date: 16.JAN.2019 09:34:38

8. BAND EDGE COMPLIANCE TEST

8.1. Block Diagram of Test Setup



8.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

8.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.4. Operating Condition of EUT

8.4.1. Setup the EUT and simulator as shown as Section 8.1.

8.4.2. Turn on the power of all equipment.

8.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

8.5. Test Procedure

Conducted Band Edge:

8.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

8.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

Radiate Band Edge:

8.5.3. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.

8.5.4. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

8.5.5. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

8.5.6. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

8.5.7. RBW=1MHz, VBW=1MHz

8.5.8. The band edges was measured and recorded.

8.6. Test Result

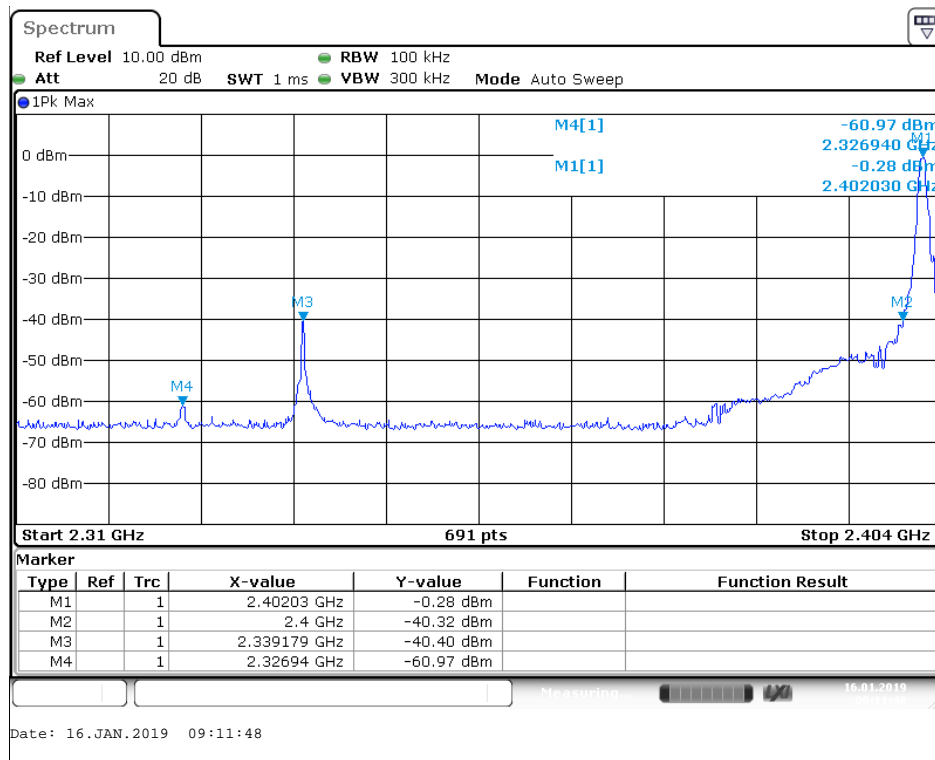
Pass.

Conducted Band Edge Result

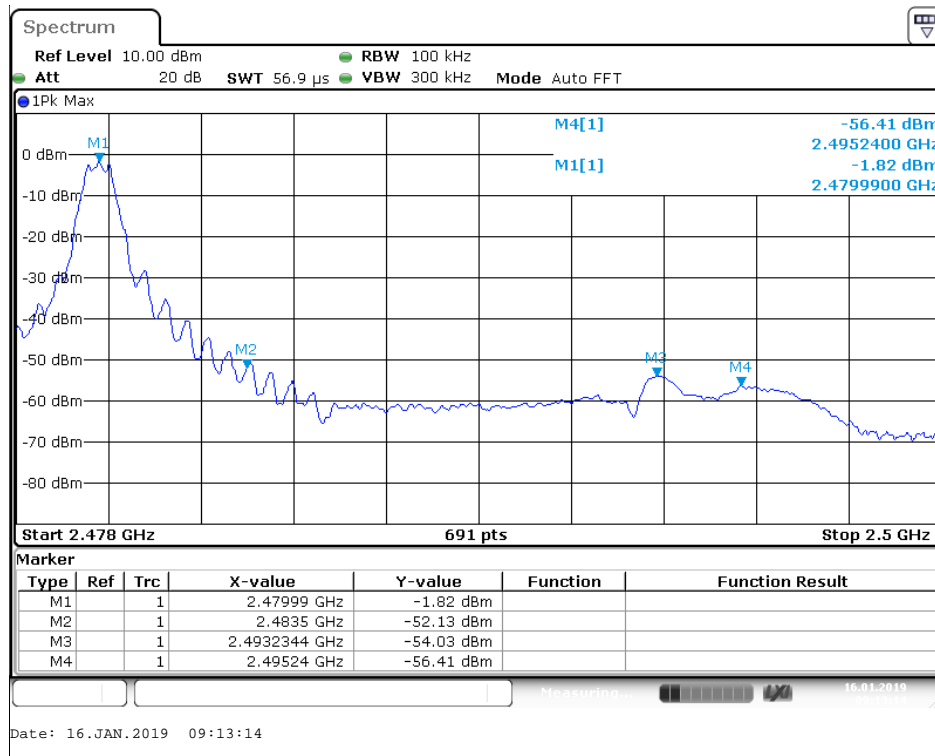
Channel	Frequency	Delta peak to band emission	Limit(dBc)
0	2402MHz	40.04	> 20
39	2480MHz	50.31	> 20

The spectrum analyzer plots are attached as below.

Channel 0



Channel 39



Radiated Band Edge Result


ACCURATE TECHNOLOGY CO., LTD.

 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
 Science & Industry Park,Nanshan Shenzhen,P.R.China

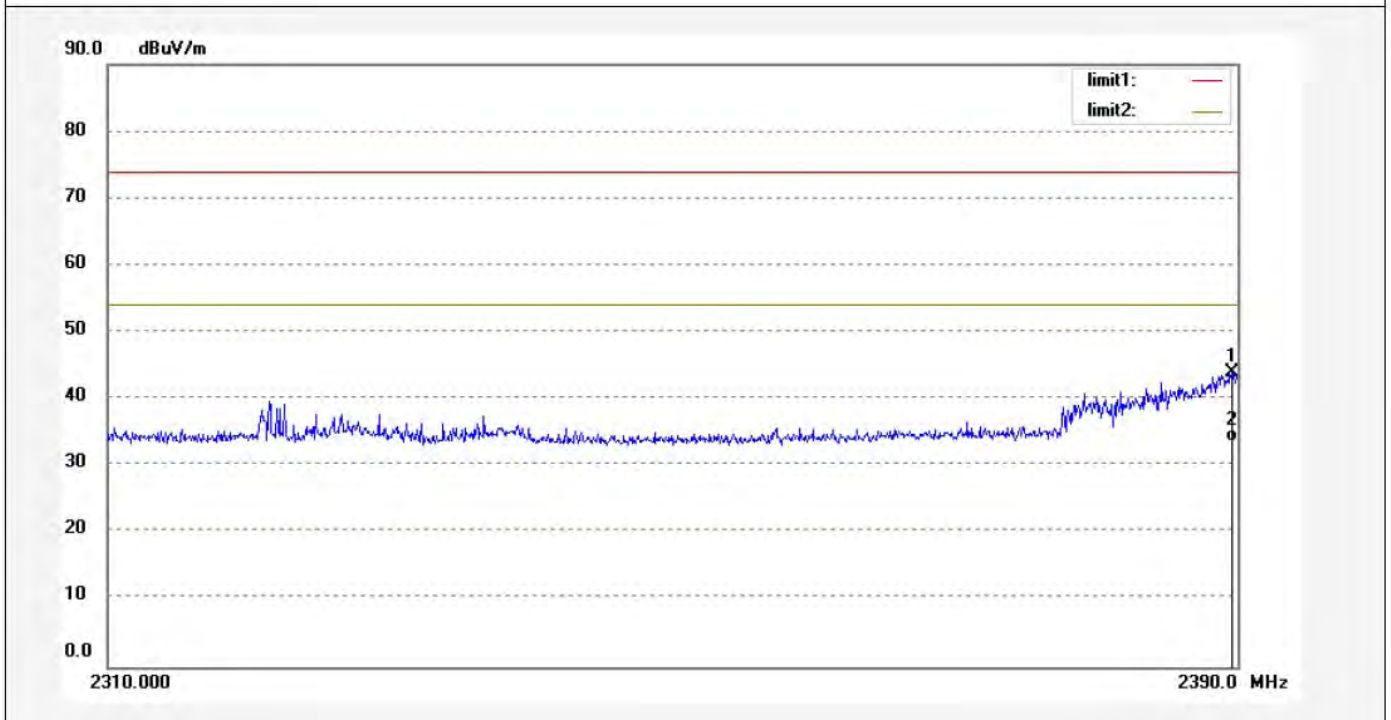
Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2019 #323	Polarization: Horizontal
Standard: FCC (Band Edge)	Power Source: DC 3V
Test item: Radiation Test	Date: 19/02/20/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MIIIW Dual-mode Keyboard	Engineer Signature: WADE
Mode: TX 2402MHz	Distance: 3m
Model: MWBK01	
Manufacturer: MIIIW	

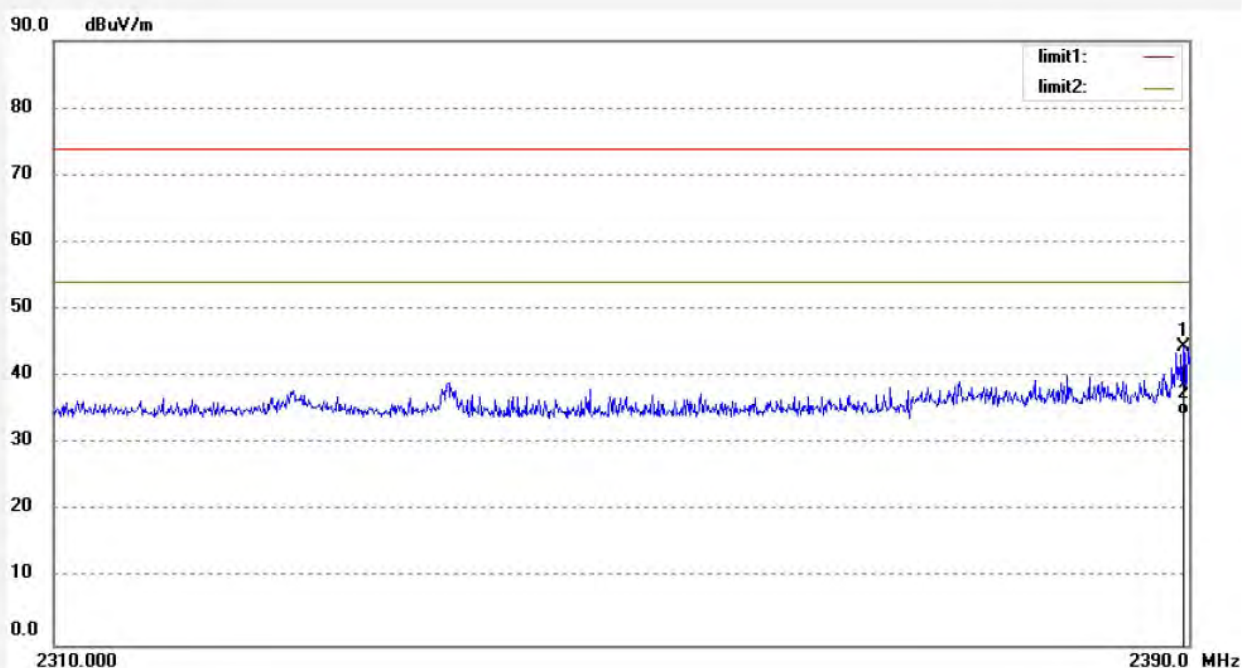
Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2389.600	43.16	0.79	43.95	74.00	-30.05	peak			
2	2389.600	32.86	0.79	33.65	54.00	-20.35	AVG			

Job No.: LGW2019 #322	Polarization: Vertical
Standard: FCC (Band Edge)	Power Source: DC 3V
Test item: Radiation Test	Date: 19/02/20/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MIIIW Dual-mode Keyboard	Engineer Signature: WADE
Mode: TX 2402MHz	Distance: 3m
Model: MWBK01	
Manufacturer: MIIIW	

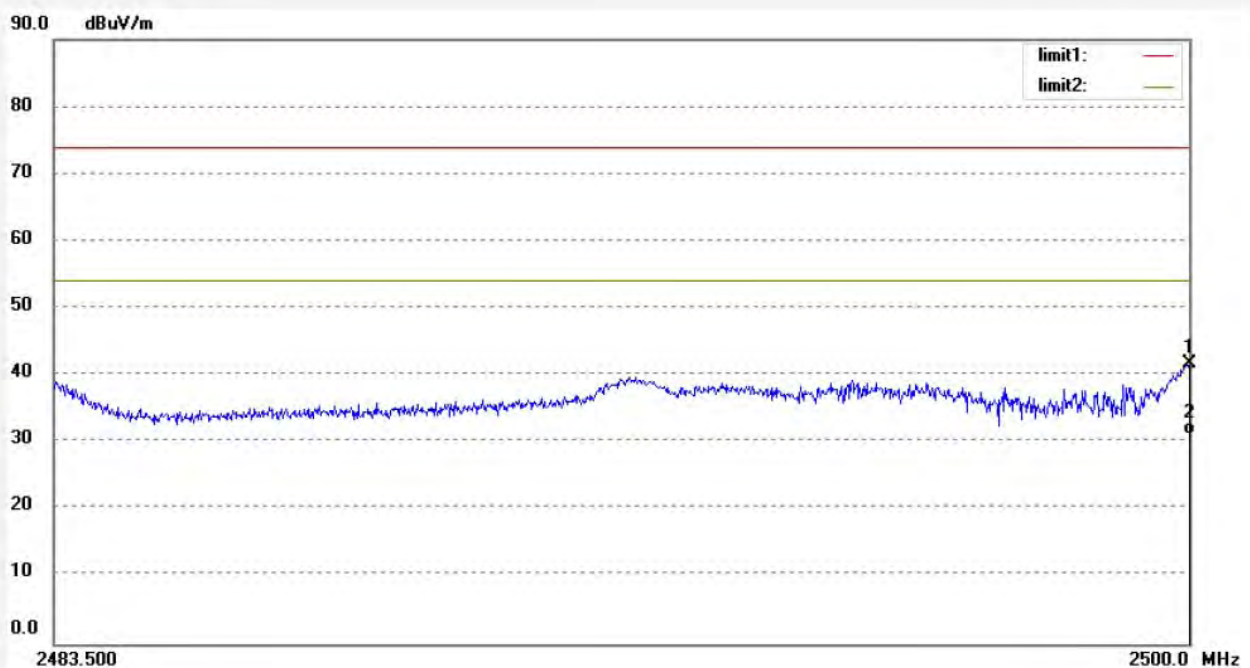
Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2389.600	43.56	0.79	44.35	74.00	-29.65	peak			
2	2389.600	33.45	0.79	34.24	54.00	-19.76	AVG			

Job No.: LGW2019 #328	Polarization: Horizontal
Standard: FCC (Band Edge)	Power Source: DC 3V
Test item: Radiation Test	Date: 19/02/20/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MIIIW Dual-mode Keyboard	Engineer Signature: WADE
Mode: TX 2480MHz	Distance: 3m
Model: MWBK01	
Manufacturer: MIIIW	

Note:

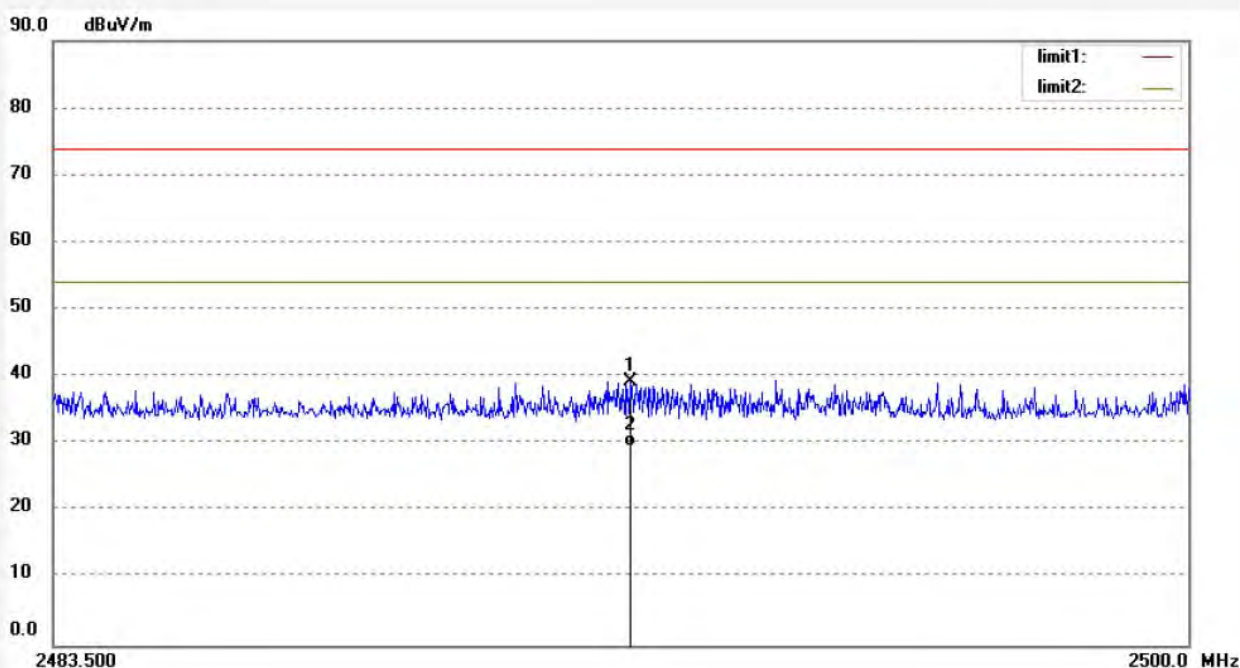


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2500.000	40.71	1.10	41.81	74.00	-32.19	peak			
2	2500.000	30.14	1.10	31.24	54.00	-22.76	AVG			

Job No.: LGW2019 #329
Standard: FCC (Band Edge)
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MIIIW Dual-mode Keyboard
Mode: TX 2480MHz
Model: MWBK01
Manufacturer: MIIIW

Polarization: Vertical
Power Source: DC 3V
Date: 19/02/20/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2491.882	38.24	1.10	39.34	74.00	-34.66	peak			
2	2491.882	28.45	1.10	29.55	54.00	-24.45	AVG			

Note:

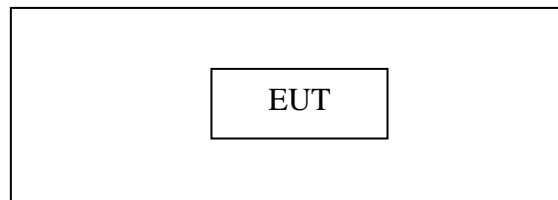
1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

9. RADIATED SPURIOUS EMISSION TEST

9.1. Block Diagram of Test Setup

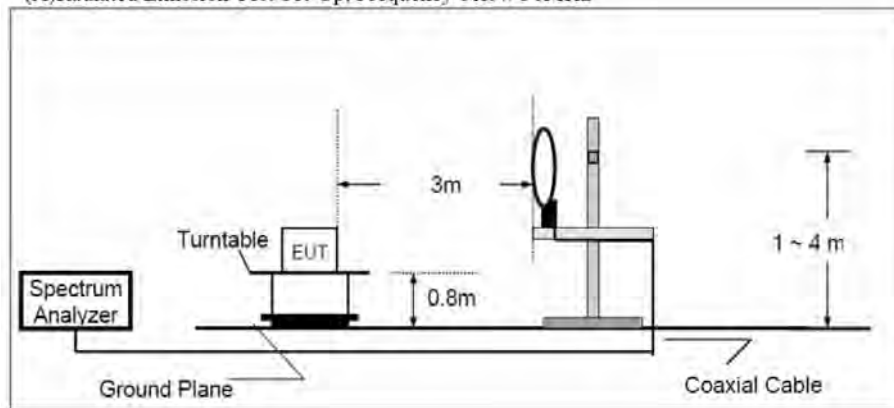
9.1.1. Block diagram of connection between the EUT and peripherals



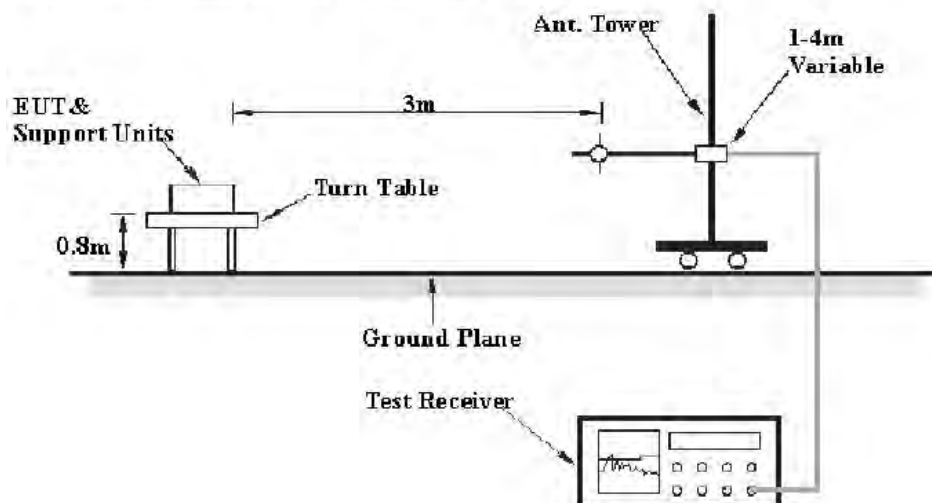
Setup: Transmitting mode

9.1.2. Semi-Anechoic Chamber Test Setup Diagram

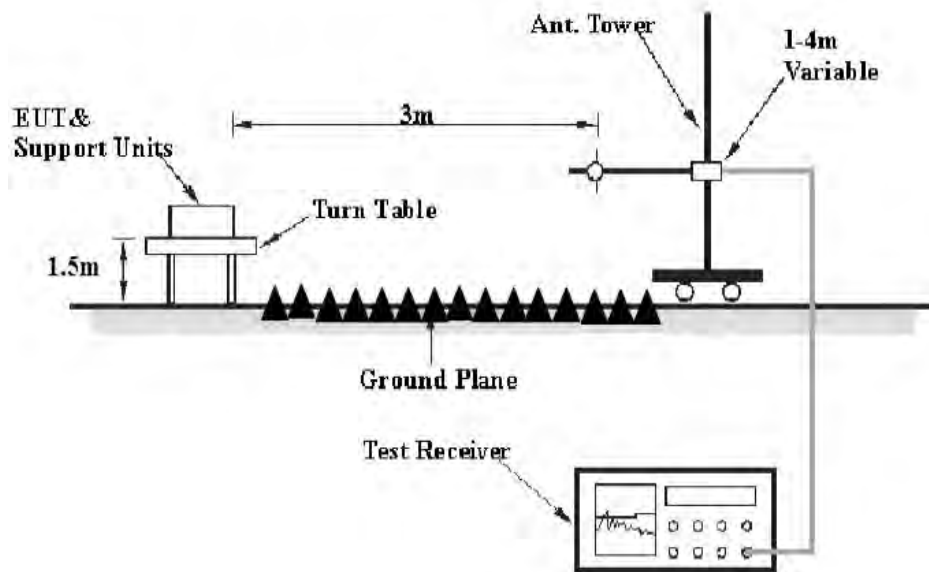
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(B) Radiated Emission Test Set-Up, Frequency 30MHz-1GHz



(C) Radiated Emission Test Set-Up, Frequency above 1GHz



9.2. The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

9.3. Restricted bands of operation

9.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

9.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.5. Operating Condition of EUT

9.5.1. Setup the EUT and simulator as shown as Section 9.1.

9.5.2. Turn on the power of all equipment.

9.5.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

9.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground (Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground (Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector. The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading.

9.7.Data Sample

Frequency (MHz)	Reading (dB μ v)	Factor (dB/m)	Result (dB μ v/m)	Limit (dB μ v/m)	Margin (dB)	Remark
X.XX	43.85	-22.22	21.63	43.5	-21.87	QP

Frequency(MHz) = Emission frequency in MHz

Reading(dB μ v) = Uncorrected Analyzer/Receiver reading

Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain

Result(dB μ v/m) = Reading(dB μ v) + Factor(dB/m)

Limit (dB μ v/m) = Limit stated in standard

Margin (dB) = Result(dB μ v/m) - Limit (dB μ v/m)

QP = Quasi-peak Reading

Calculation Formula:

Margin(dB) = Result (dB μ V/m)–Limit(dB μ V/m)

Result(dB μ V/m)= Reading(dB μ V)+ Factor(dB/m)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

9.8.Test Result

Pass.

The frequency range from 9kHz to 26.5GHz is checked.

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectrum analyzer plots are attached as below.

9kHz-30MHz test data

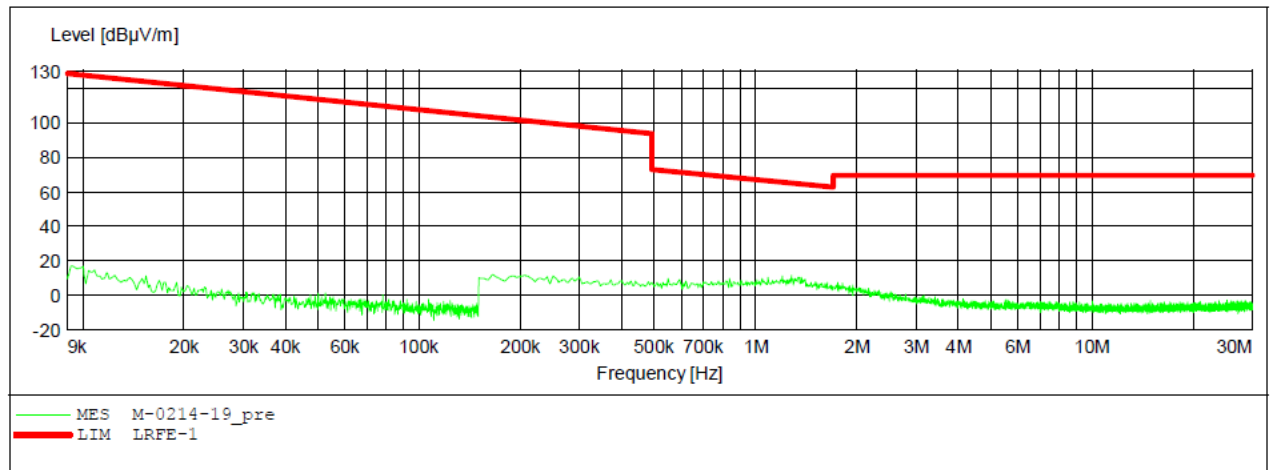
ACCURATE TECHNOLOGY CO.,LTD

FCC Part 15C 3M Radiated

EUT: MIIIW Dual-mode Keyboard M/N:MWBK01
 Manufacturer: MIIIW
 Operating Condition: TX 2402MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3V
 Comment: X
 Start of Test: 2019-2-14 /

SCAN TABLE: "LFRE Fin"

Short Description:			_SUB_STD VTERM2 1.70			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



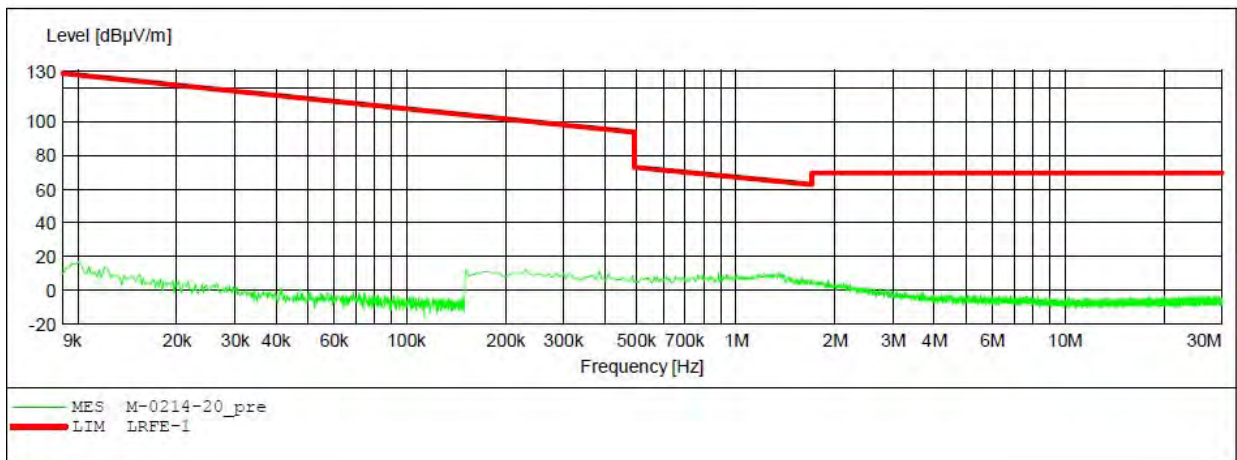
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: MIIIW Dual-mode Keyboard M/N:MWBK01
 Manufacturer: MIIIW
 Operating Condition: TX 2402MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3V
 Comment: Y
 Start of Test: 2019-2-14 /

SCAN TABLE: "LFRE Fin"

Short Description:		_SUB_STD_VTERM2 1.70					
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer	
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M	
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M	



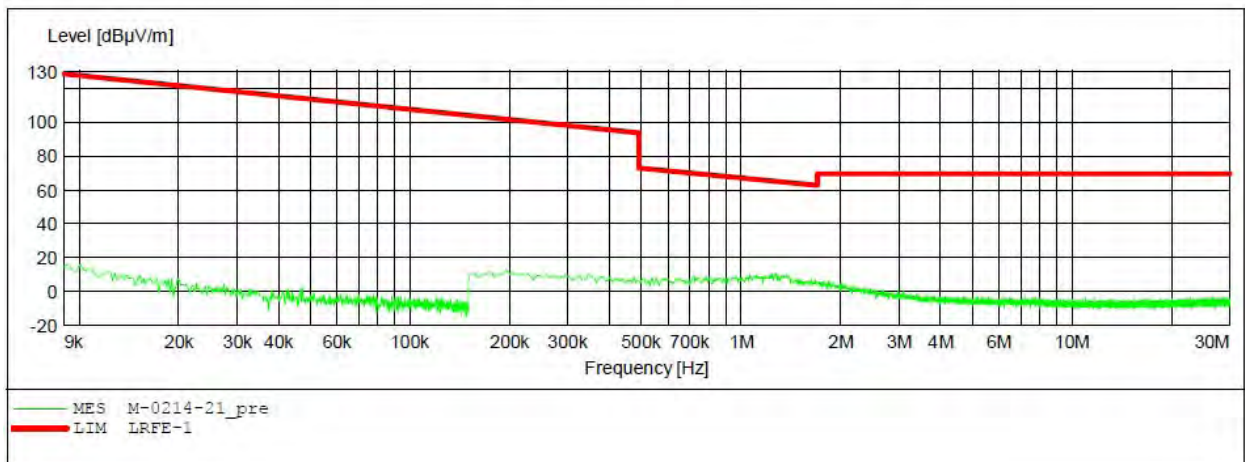
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: MIIIW Dual-mode Keyboard M/N:MWBK01
 Manufacturer: MIIIW
 Operating Condition: TX 2402MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3V
 Comment: Z
 Start of Test: 2019-2-14 /

SCAN TABLE: "LFE Fin"

Short Description: _SUB STD VTERM2 1.70			Detector	Meas. Time	IF Bandw.	Transducer
Start Frequency	Stop Frequency	Step Width	QuasiPeak	1.0 s	200 Hz	1516M
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	9 kHz	1516M
150.0 kHz	30.0 MHz	5.0 kHz				



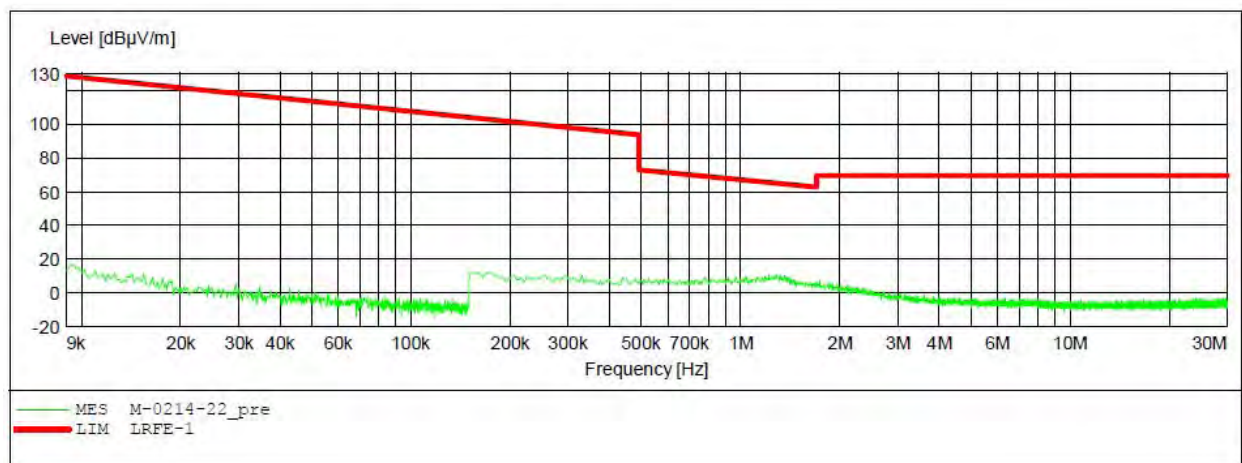
ACCURATE TECHNOLOGY CO.,LTD

FCC Part 15C 3M Radiated

EUT: MIIIW Dual-mode Keyboard M/N:MWBK01
 Manufacturer: MIIIW
 Operating Condition: TX 2440MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3V
 Comment: X
 Start of Test: 2019-2-14 /

SCAN TABLE: "LFRE Fin"

Short Description:			_SUB_STD_VTERM2 1.70			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



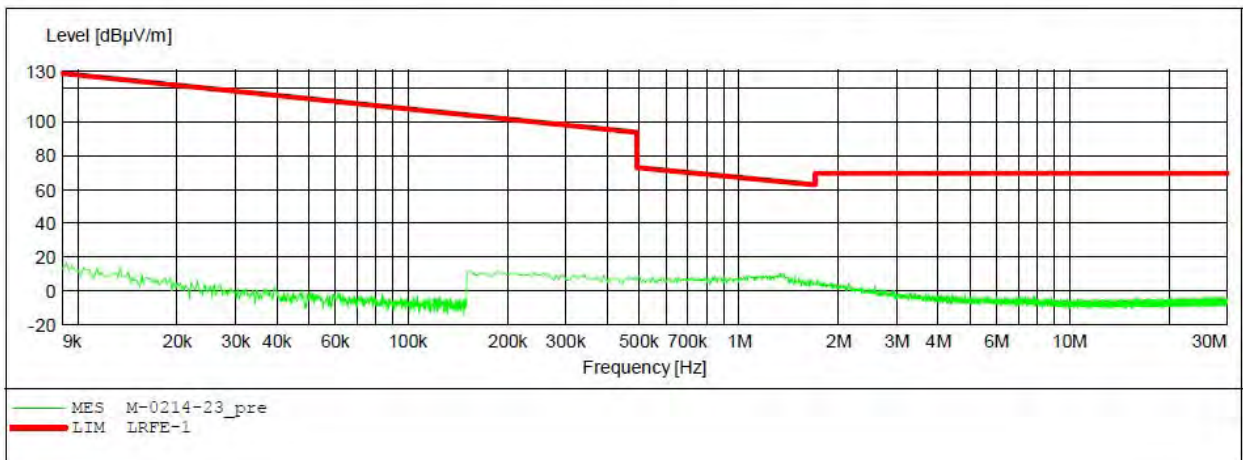
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: MIIIW Dual-mode Keyboard M/N:MWBK01
 Manufacturer: MIIIW
 Operating Condition: TX 2440MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3V
 Comment: Y
 Start of Test: 2019-2-14 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70			Detector	Meas. Time	IF Bandw.	Transducer
Start Frequency	Stop Frequency	Step Width				
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



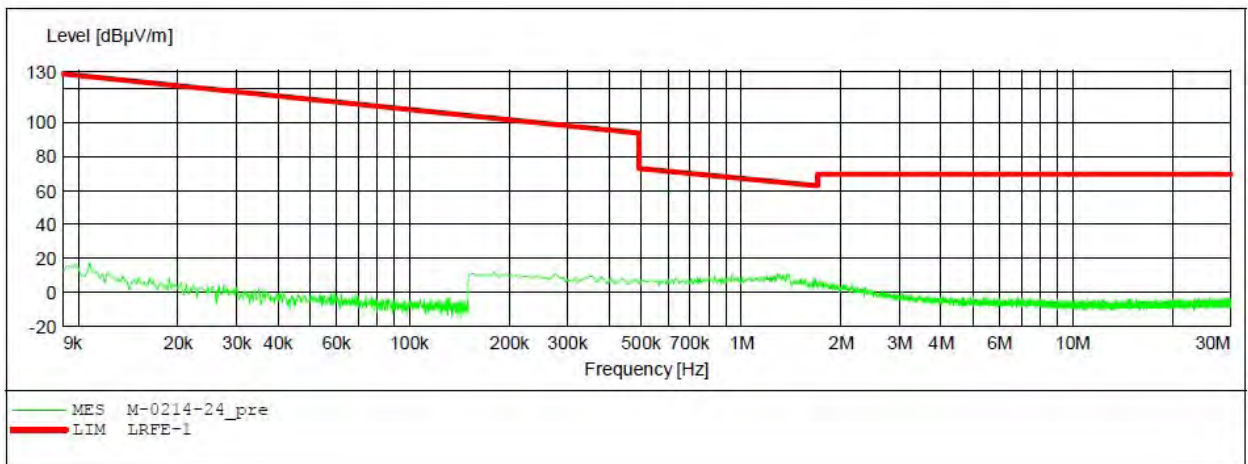
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: MIIIW Dual-mode Keyboard M/N:MWBK01
 Manufacturer: MIIIW
 Operating Condition: TX 2440MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3V
 Comment: Z
 Start of Test: 2019-2-14 /

SCAN TABLE: "LFE Fin"

Short Description:		_SUB_STD_VTERM2 1.70					
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer	
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M	
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M	



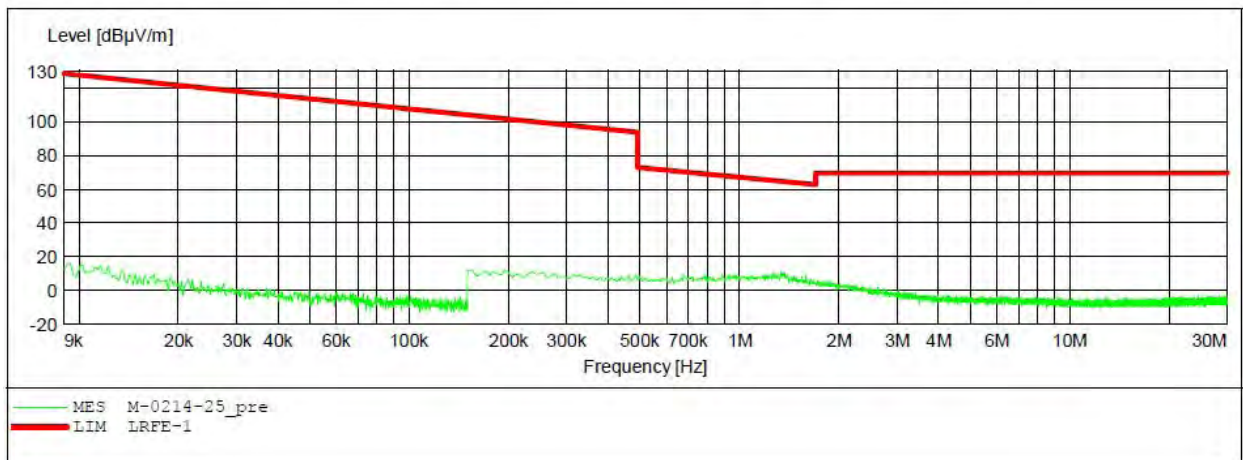
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: MIIIW Dual-mode Keyboard M/N:MWBK01
 Manufacturer: MIIIW
 Operating Condition: TX 2480MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3V
 Comment: X
 Start of Test: 2019-2-14 /

SCAN TABLE: "LFRE Fin"

Short Description:			_SUB_STD VTERM2 1.70				
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer	
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M	
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M	



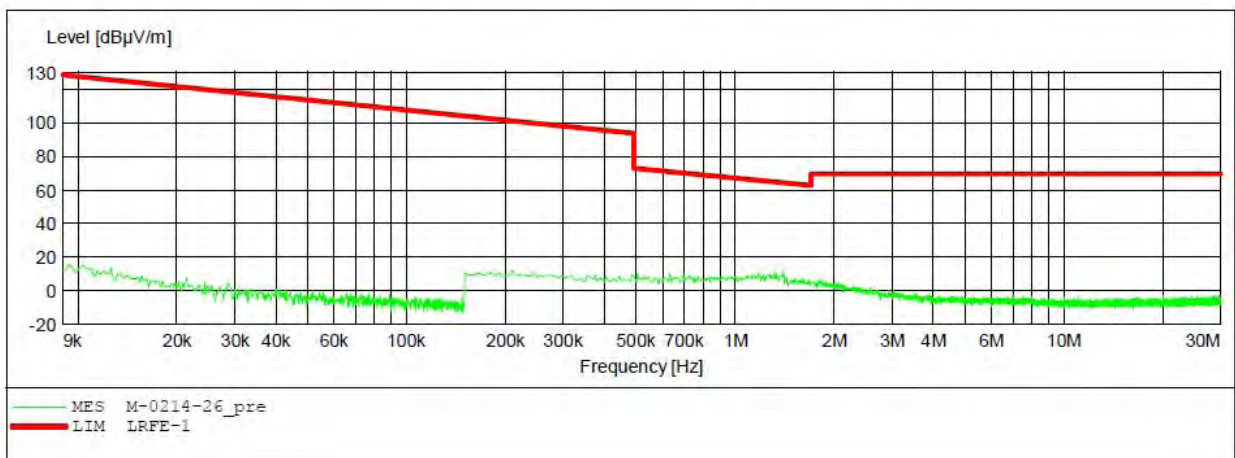
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: MIIIW Dual-mode Keyboard M/N:MWBK01
 Manufacturer: MIIIW
 Operating Condition: TX 2480MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3V
 Comment: Y
 Start of Test: 2019-2-14 /

SCAN TABLE: "LFRE Fin"

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



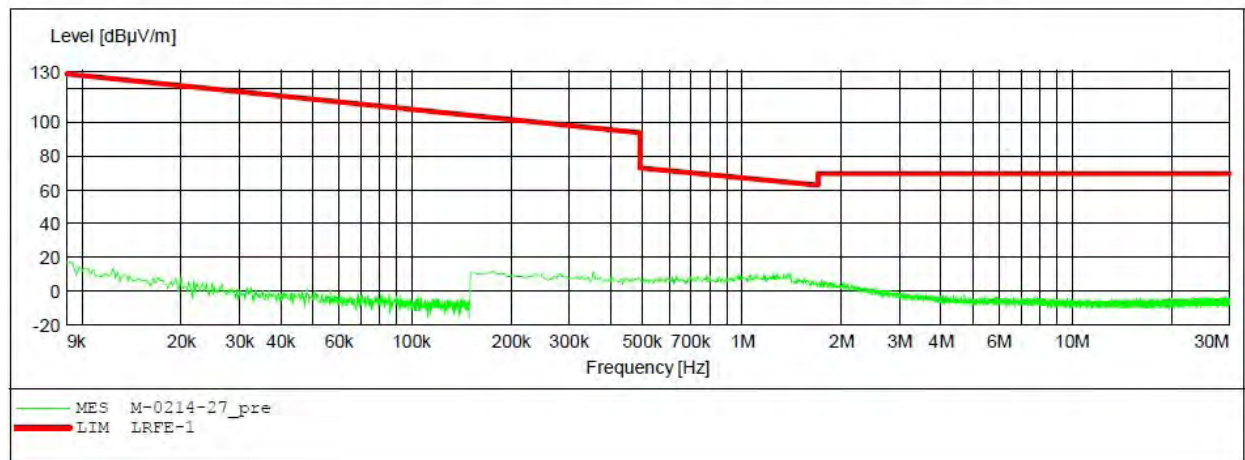
ACCURATE TECHNOLOGY CO., LTD

FCC Part 15C 3M Radiated

EUT: MIIIW Dual-mode Keyboard M/N:MWBK01
 Manufacturer: MIIIW
 Operating Condition: TX 2480MHz
 Test Site: 2# Chamber
 Operator: WADE
 Test Specification: DC 3V
 Comment: Z
 Start of Test: 2019-2-14 /

SCAN TABLE: "LFRE Fin"

Start	Stop	Step	_SUB STD	VTERM2	1.70	Detector	Meas.	IF	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M			
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M			



30MHz-1000MHz test data


ACCURATE TECHNOLOGY CO., LTD.

 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber

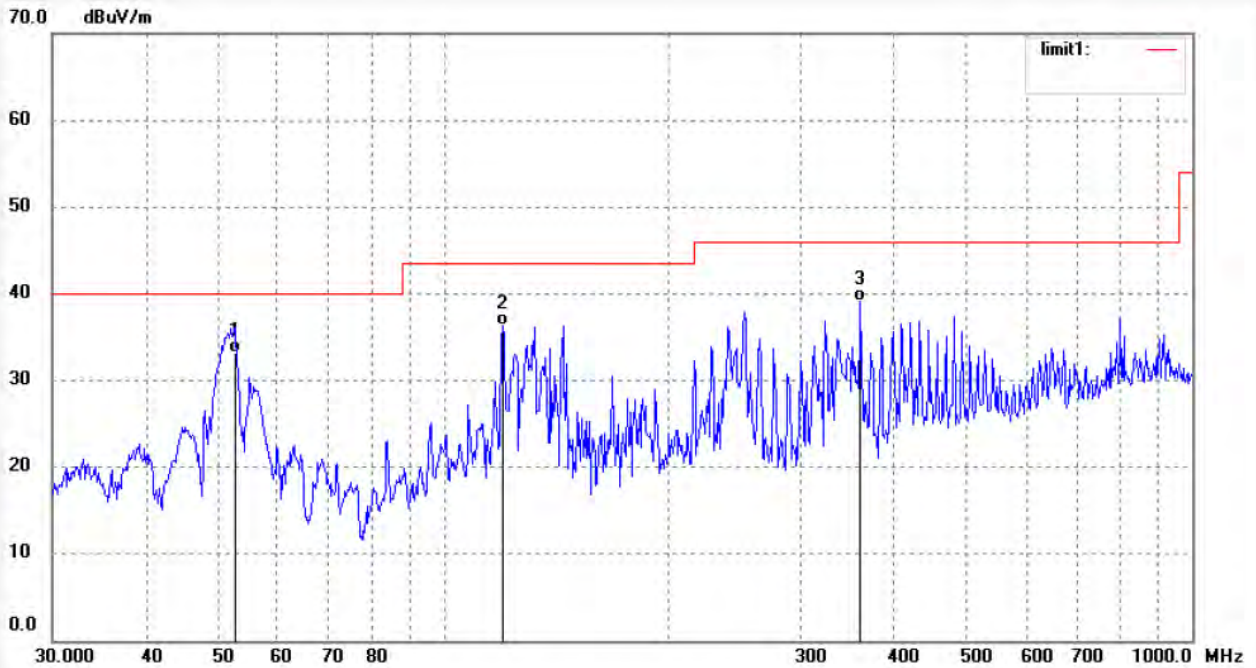
Tel:+86-0755-26503290

Fax:+86-0755-26503396

 Job No.: LGW2019 #358
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: MIIIW Dual-mode Keyboard
 Mode: TX 2402MHz
 Model: MWBK01
 Manufacturer: MIIIW

 Polarization: Horizontal
 Power Source: DC 3V
 Date: 19/02/20/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	52.5752	45.98	-12.77	33.21	40.00	-6.79	QP			
2	119.8555	49.43	-13.06	36.37	43.50	-7.13	QP			
3	360.4476	46.41	-7.26	39.15	46.00	-6.85	QP			

Job No.: LGW2019 #359

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: MIIIW Dual-mode Keyboard

Mode: TX 2402MHz

Model: MWBK01

Manufacturer: MIIIW

Polarization: Vertical

Power Source: DC 3V

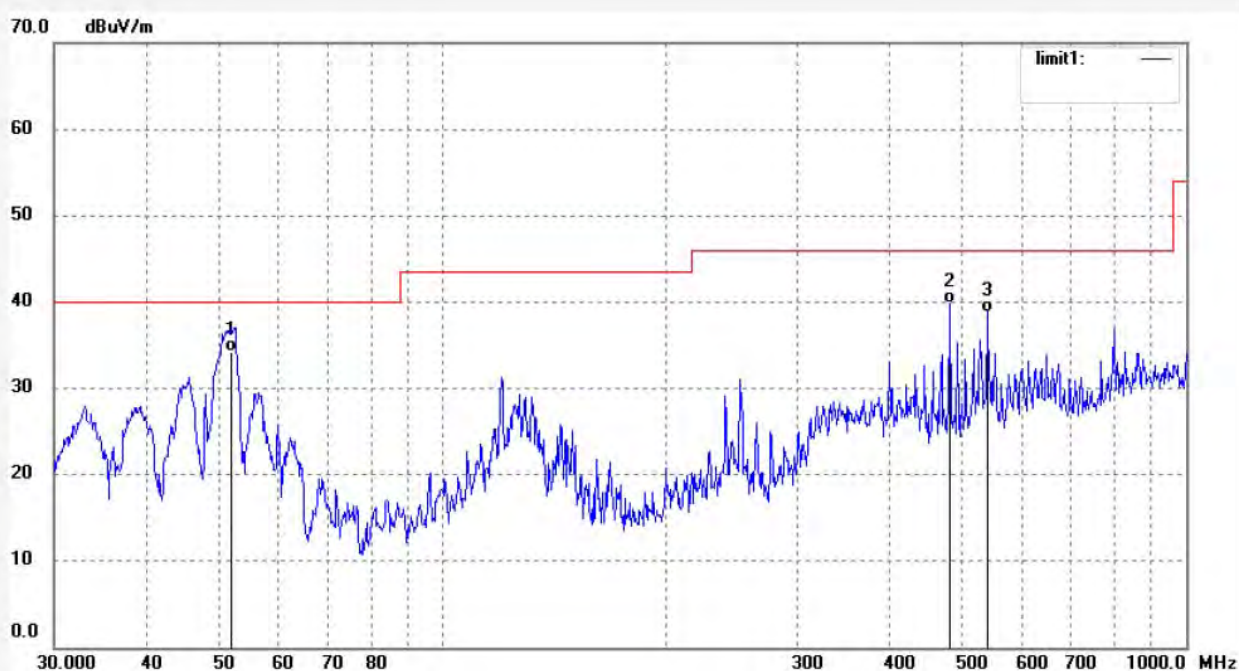
Date: 19/02/20/

Time:

Engineer Signature: WADE

Distance: 3m

Note:

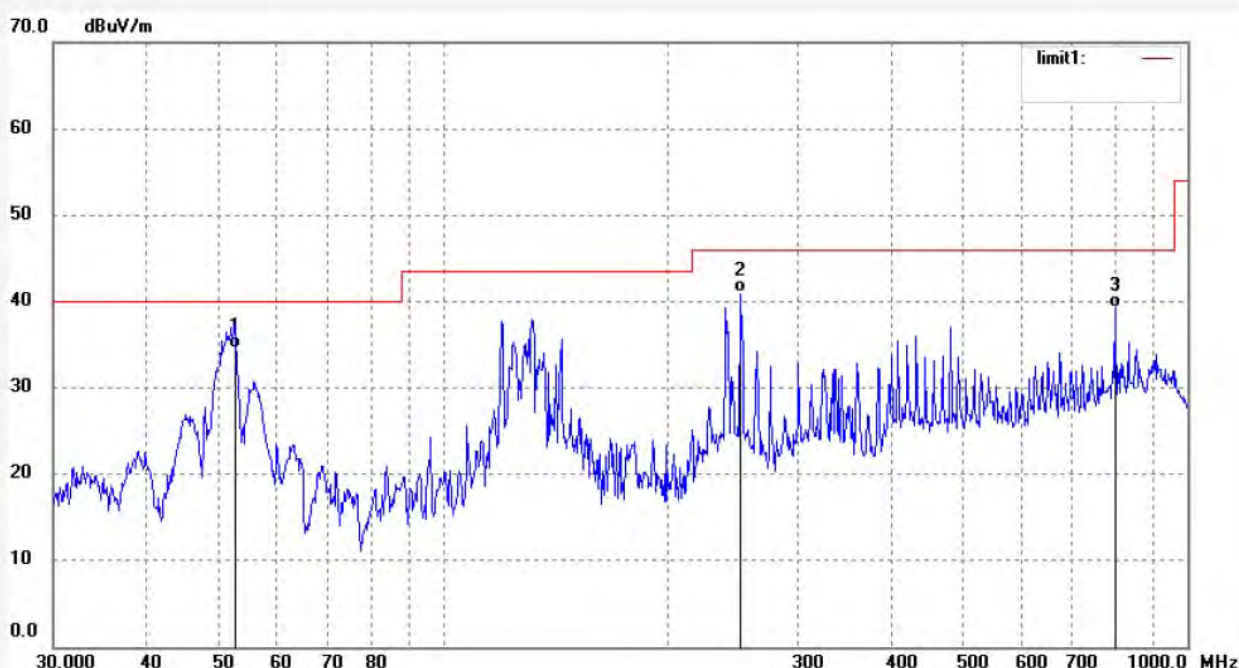


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	51.8430	46.91	-12.73	34.18	40.00	-5.82	QP			
2	480.5276	44.67	-4.88	39.79	46.00	-6.21	QP			
3	539.4774	42.20	-3.35	38.85	46.00	-7.15	QP			

Job No.: LGW2019 #361
 Standard: FCC Part 15C 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 23 C / 48 %
 EUT: MIIIW Dual-mode Keyboard
 Mode: TX 2440MHz
 Model: MWBK01
 Manufacturer: MIIIW

Polarization: Horizontal
 Power Source: DC 3V
 Date: 19/02/20/
 Time:
 Engineer Signature: WADE
 Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	52.5752	47.30	-12.77	34.53	40.00	-5.47	QP			
2	251.1803	51.49	-10.54	40.95	46.00	-5.05	QP			
3	798.9796	38.46	0.81	39.27	46.00	-6.73	QP			

Job No.: LGW2019 #360

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: MIIIW Dual-mode Keyboard

Mode: TX 2440MHz

Model: MWBK01

Manufacturer: MIIIW

Polarization: Vertical

Power Source: DC 3V

Date: 19/02/20/

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	52.0251	47.79	-12.73	35.06	40.00	-4.94	QP			
2	539.4774	43.00	-3.35	39.65	46.00	-6.35	QP			
3	798.9796	38.07	0.81	38.88	46.00	-7.12	QP			

Job No.: LGW2019 #362

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: MIIIW Dual-mode Keyboard

Mode: TX 2480MHz

Model: MWBK01

Manufacturer: MIIIW

Polarization: Horizontal

Power Source: DC 3V

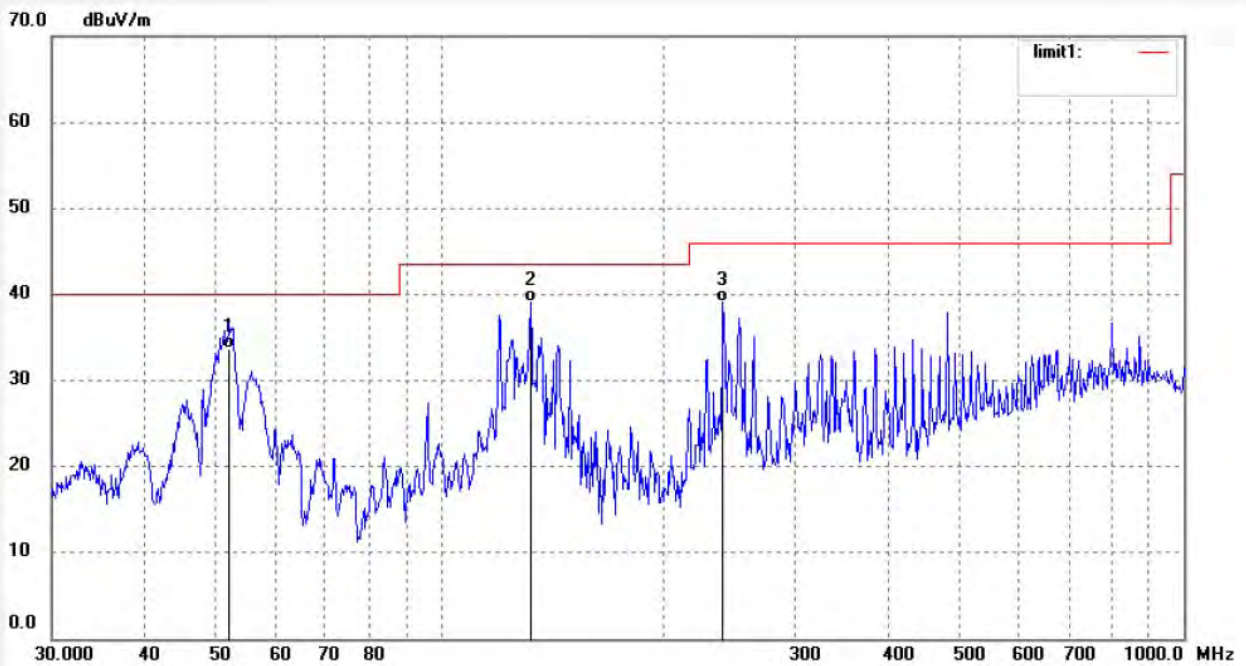
Date: 19/02/20/

Time:

Engineer Signature: WADE

Distance: 3m

Note:

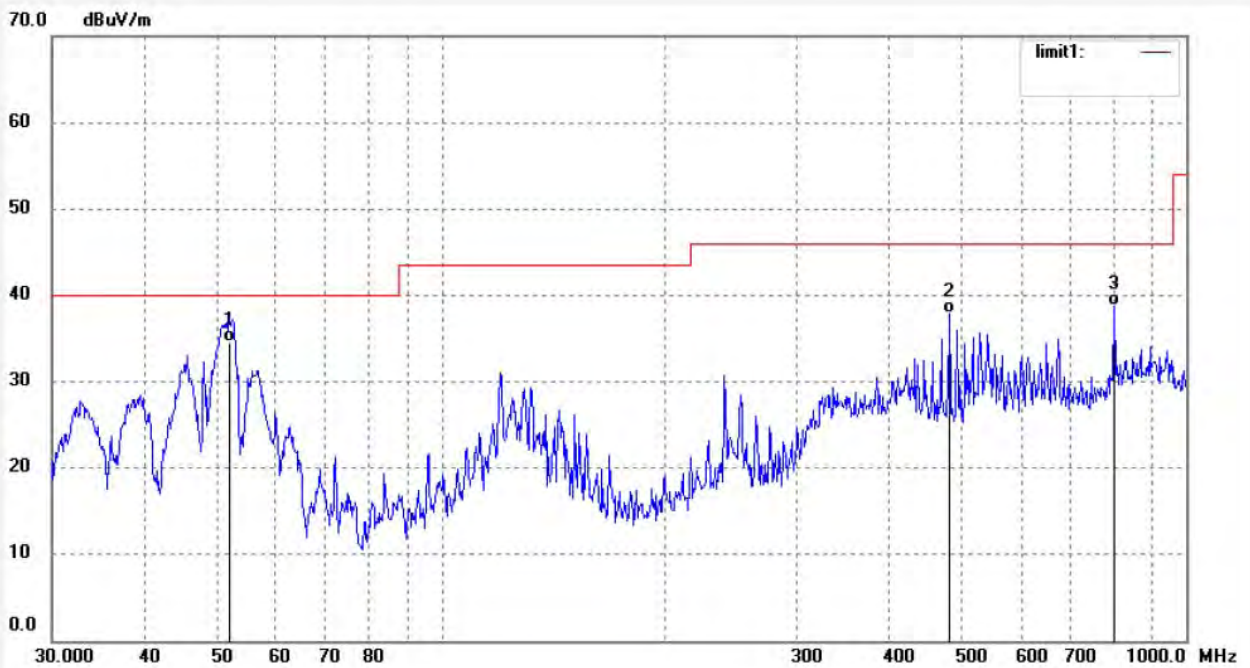


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	52.0251	46.43	-12.73	33.70	40.00	-6.30	QP			
2	132.2205	53.03	-13.84	39.19	43.50	-4.31	QP			
3	239.9874	49.65	-10.62	39.03	46.00	-6.97	QP			

Job No.: LGW2019 #363
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MIIIW Dual-mode Keyboard
Mode: TX 2480MHz
Model: MWBK01
Manufacturer: MIIIW

Polarization: Vertical
Power Source: DC 3V
Date: 19/02/20/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	51.8430	47.34	-12.73	34.61	40.00	-5.39	QP			
2	480.5276	42.71	-4.88	37.83	46.00	-8.17	QP			
3	801.7862	37.95	0.87	38.82	46.00	-7.18	QP			

18GHz-26.5GHz test data


ACCURATE TECHNOLOGY CO., LTD.

 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2019 #320

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: MIIIW Dual-mode Keyboard

Mode: TX 2402MHz

Model: MWBK01

Manufacturer: MIIIW

Polarization: Horizontal

Power Source: DC 3V

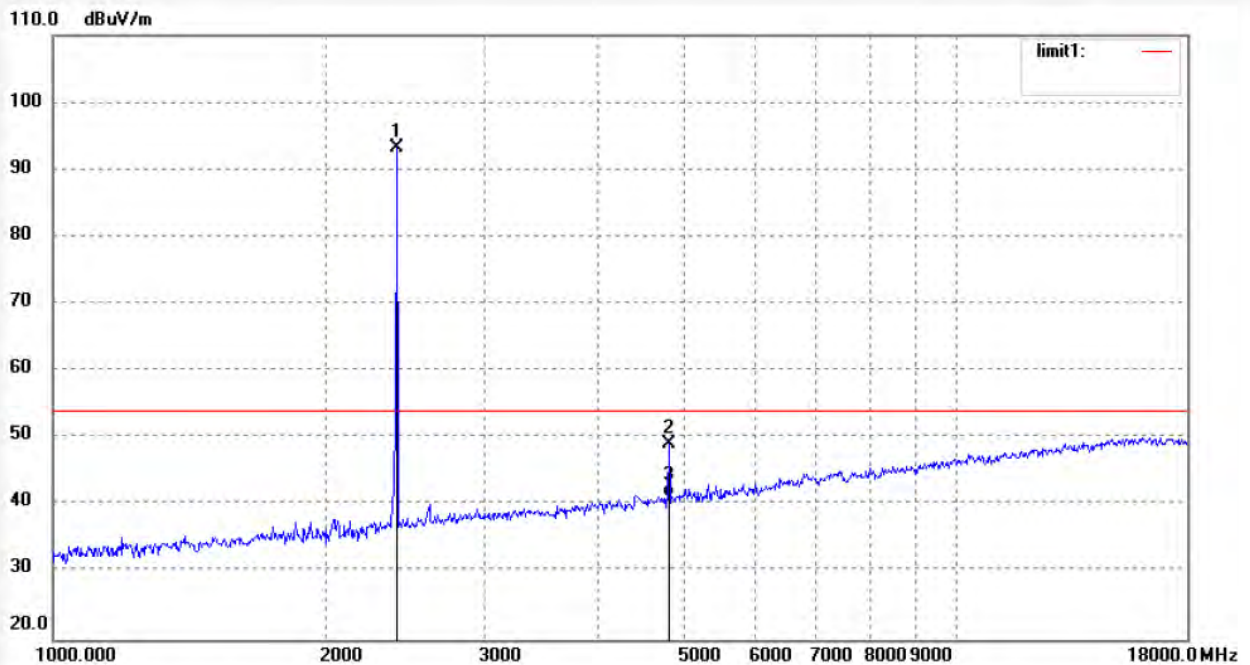
Date: 19/02/20/

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	92.32	0.89	93.21	/	/	peak			
2	4804.026	41.79	7.40	49.19	74.00	-24.81	peak			
3	4804.026	33.84	7.40	41.24	54.00	-12.76	AVG			

Job No.: LGW2019 #321

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: MIIIW Dual-mode Keyboard

Mode: TX 2402MHz

Model: MWBK01

Manufacturer: MIIIW

Polarization: Vertical

Power Source: DC 3V

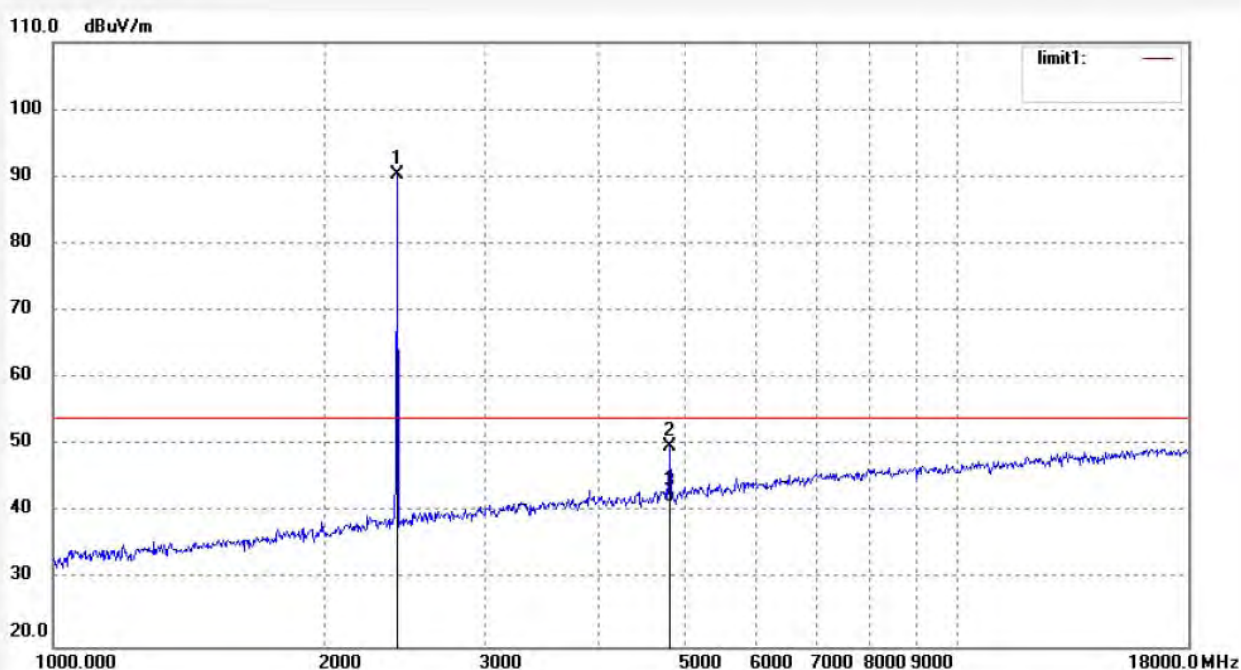
Date: 19/02/20/

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	89.34	0.89	90.23	/	/	peak			
2	4804.027	42.47	7.40	49.87	74.00	-24.13	peak			
3	4804.027	34.17	7.40	41.57	54.00	-12.43	AVG			

Job No.: LGW2019 #324

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: MIIIW Dual-mode Keyboard

Mode: TX 2440MHz

Model: MWBK01

Manufacturer: MIIIW

Polarization: Horizontal

Power Source: DC 3V

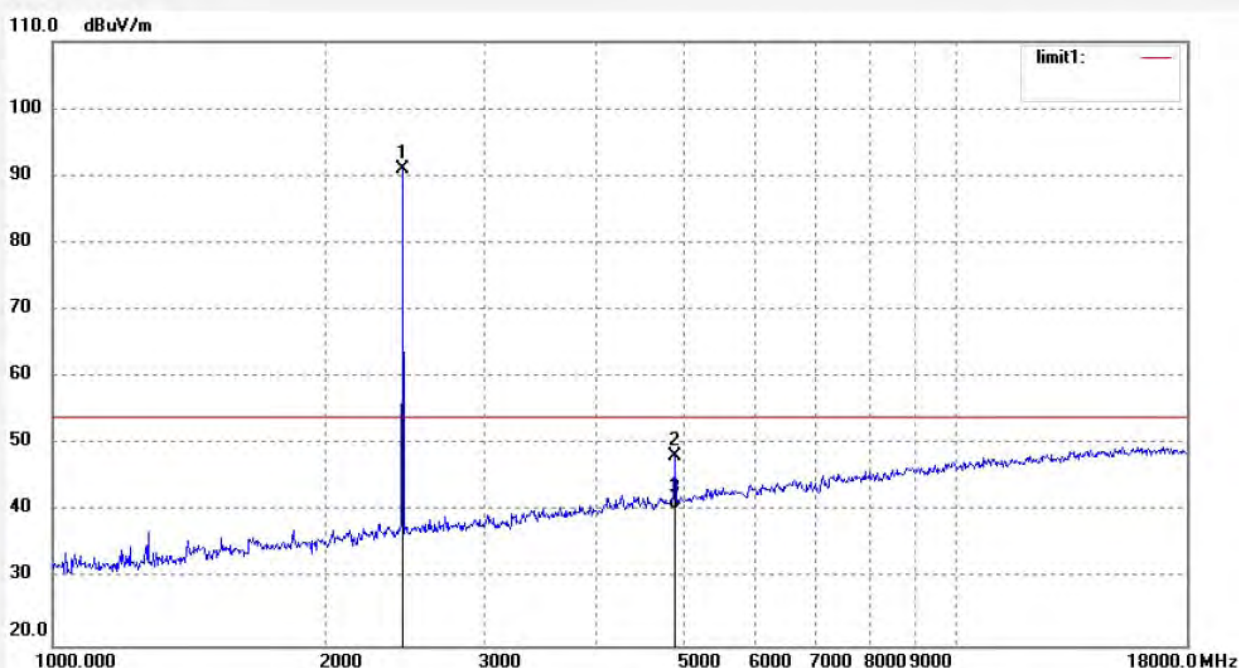
Date: 19/02/20/

Time:

Engineer Signature: WADE

Distance: 3m

Note:

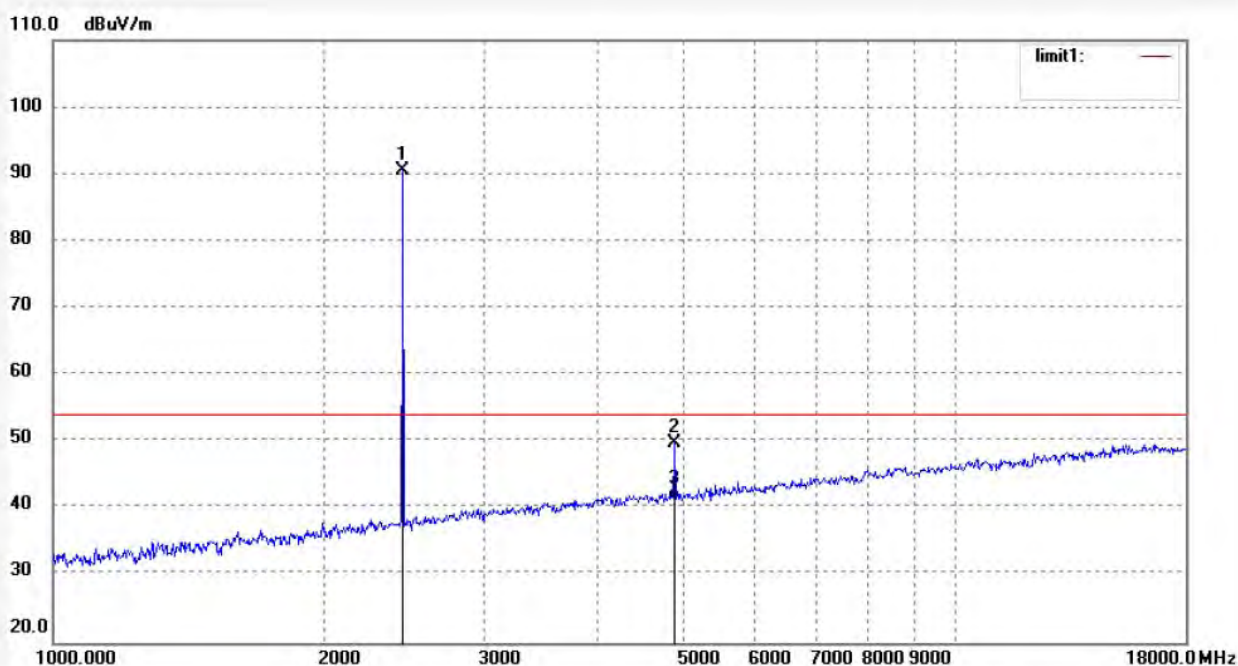


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	89.85	1.04	90.89	/	/	peak			
2	4880.028	40.19	8.10	48.29	74.00	-25.71	peak			
3	4880.028	32.35	8.10	40.45	54.00	-13.55	AVG			

Job No.: LGW2019 #325
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MIIIW Dual-mode Keyboard
Mode: TX 2440MHz
Model: MWBK01
Manufacturer: MIIIW

Polarization: Vertical
Power Source: DC 3V
Date: 19/02/20/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	89.54	1.04	90.58	/	/	peak			
2	4880.027	41.67	8.10	49.77	74.00	-24.23	peak			
3	4880.027	33.11	8.10	41.21	54.00	-12.79	AVG			

Job No.: LGW2019 #327

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: MIIIW Dual-mode Keyboard

Mode: TX 2480MHz

Model: MWBK01

Manufacturer: MIIIW

Polarization: Horizontal

Power Source: DC 3V

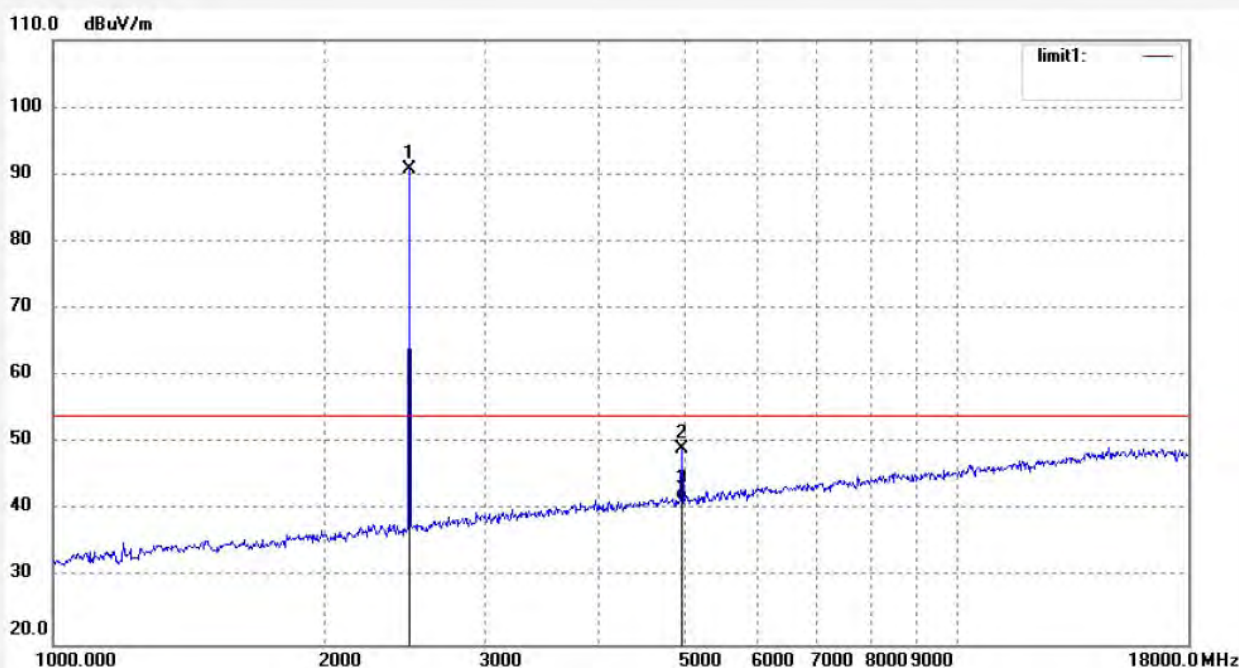
Date: 19/02/20/

Time:

Engineer Signature: WADE

Distance: 3m

Note:

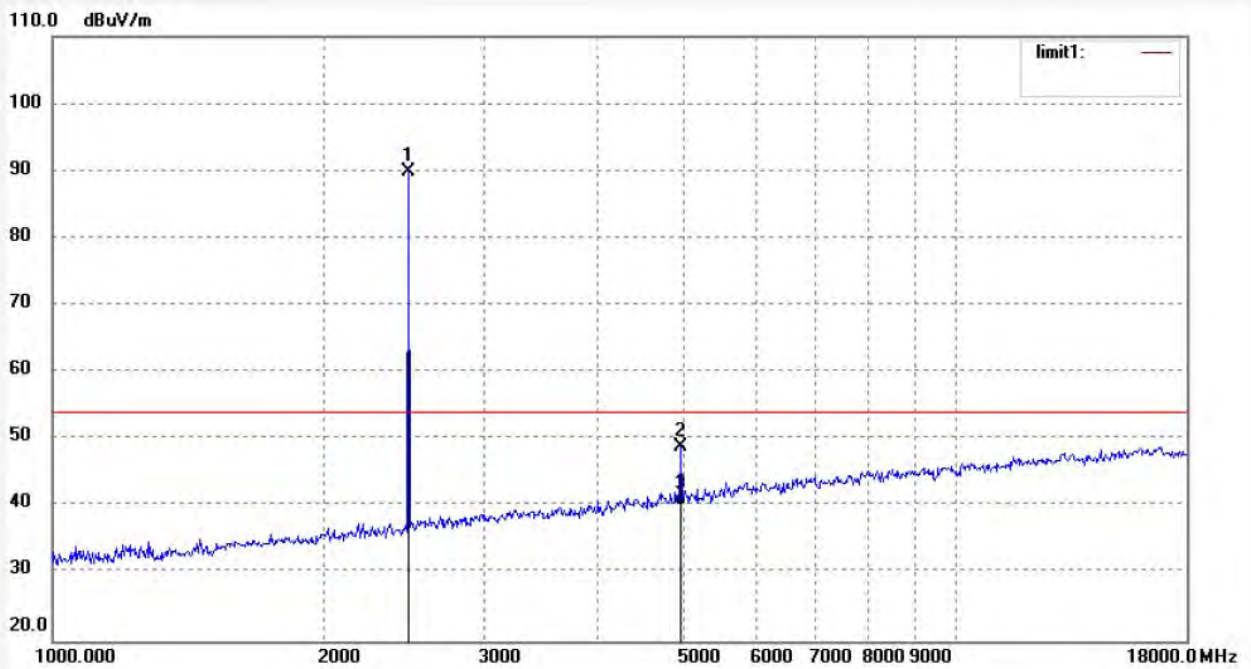


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	89.73	1.10	90.83	/	/	peak			
2	4960.029	40.57	8.60	49.17	74.00	-24.83	peak			
3	4960.029	32.94	8.60	41.54	54.00	-12.46	AVG			

Job No.: LGW2019 #326
Standard: FCC Part 15C 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: MIIIW Dual-mode Keyboard
Mode: TX 2480MHz
Model: MWBK01
Manufacturer: MIIIW

Polarization: Vertical
Power Source: DC 3V
Date: 19/02/20/
Time:
Engineer Signature: WADE
Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	88.74	1.10	89.84	/	/	peak			
2	4960.031	40.37	8.60	48.97	74.00	-25.03	peak			
3	4960.031	31.63	8.60	40.23	54.00	-13.77	AVG			

18GHz-26.5GHz test data



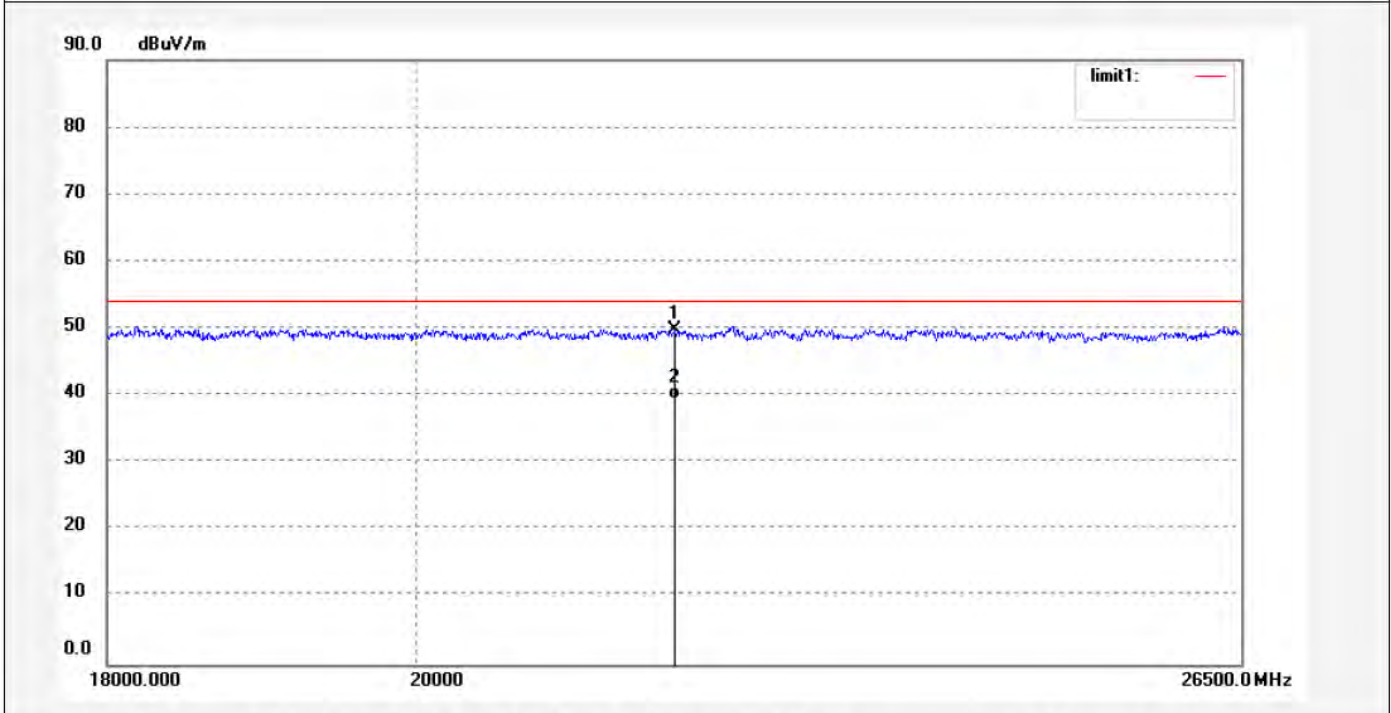
ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2019 #331	Polarization: Horizontal
Standard: FCC Part 15C 3M Radiated	Power Source: DC 3V
Test item: Radiation Test	Date: 19/02/20/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MIIIW Dual-mode Keyboard	Engineer Signature: WADE
Mode: TX 2402MHz	Distance: 3m
Model: MWBK01	
Manufacturer: MIIIW	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21848.779	10.63	39.13	49.76	74.00	-24.24	peak			
2	21848.779	0.28	39.13	39.41	54.00	-14.59	AVG			

Job No.: LGW2019 #330

Standard: FCC Part 15C 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: MIIIW Dual-mode Keyboard

Mode: TX 2402MHz

Model: MWBK01

Manufacturer: MIIIW

Polarization: Vertical

Power Source: DC 3V

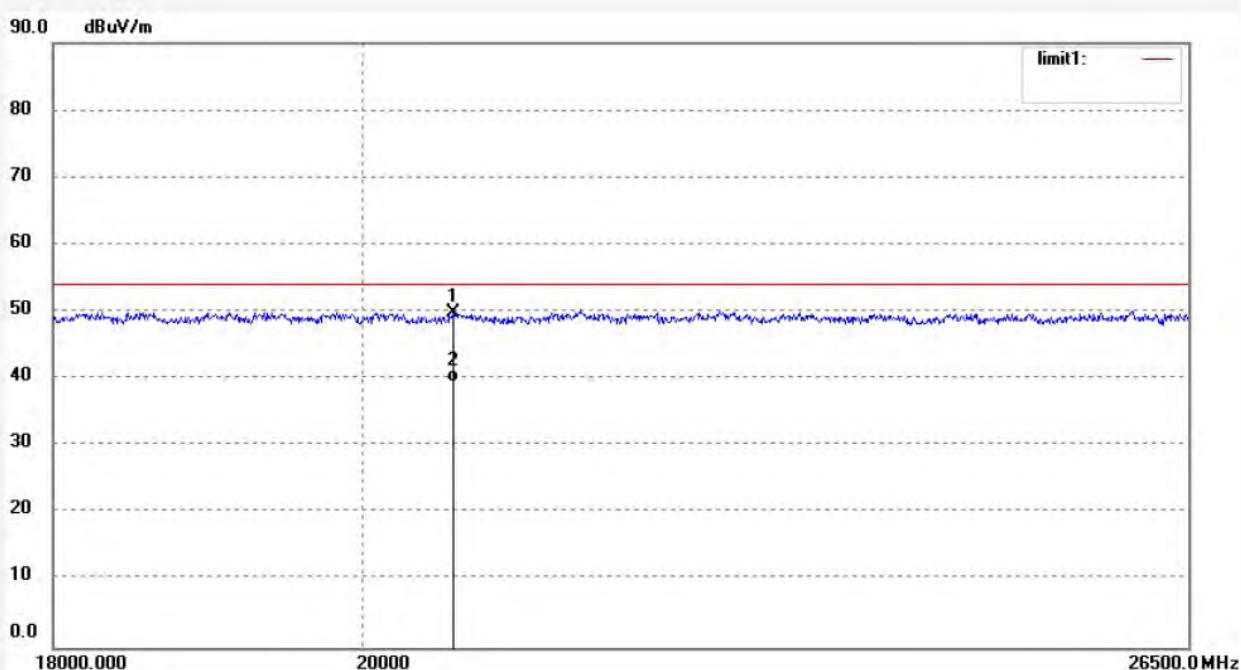
Date: 19/02/20/

Time:

Engineer Signature: WADE

Distance: 3m

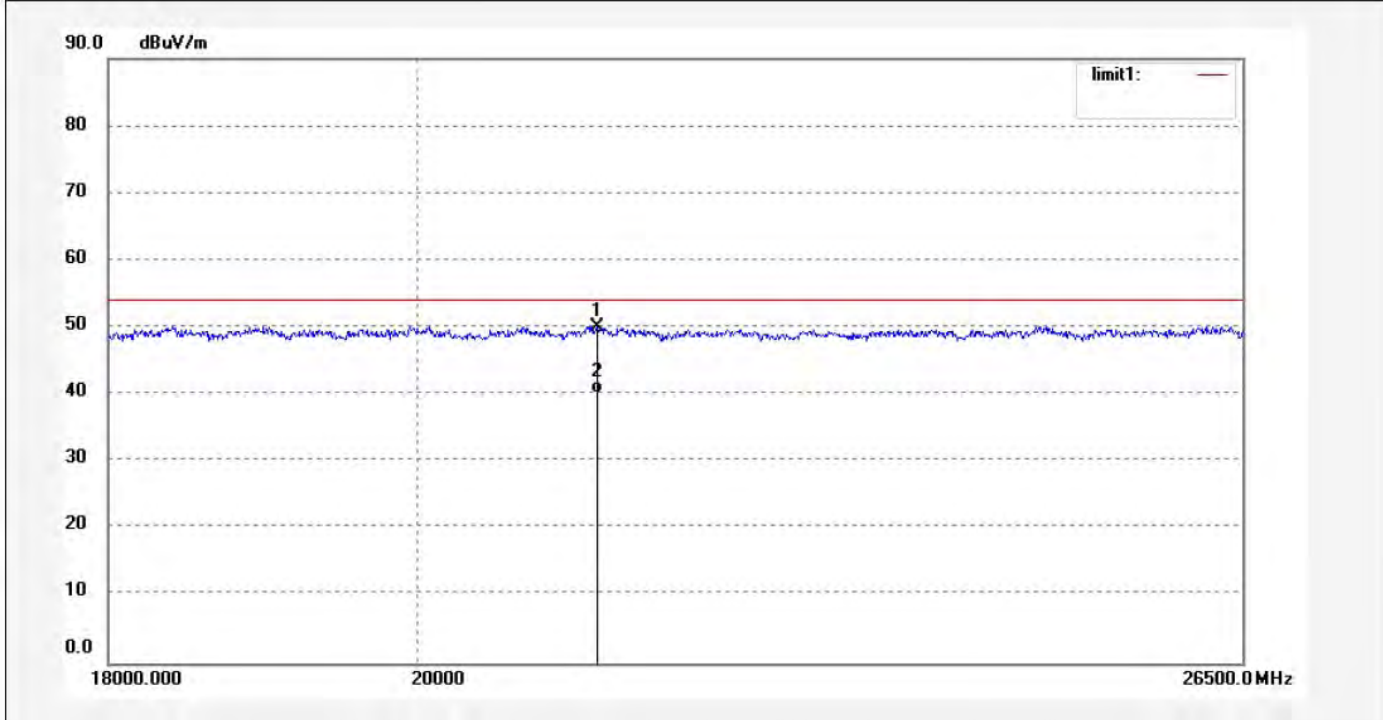
Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	20633.225	11.17	38.57	49.74	74.00	-24.26	peak			
2	20633.225	0.88	38.57	39.45	54.00	-14.55	AVG			

Job No.: LGW2019 #332	Polarization: Horizontal
Standard: FCC Part 15C 3M Radiated	Power Source: DC 3V
Test item: Radiation Test	Date: 19/02/20/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MIIIW Dual-mode Keyboard	Engineer Signature: WADE
Mode: TX 2440MHz	Distance: 3m
Model: MWBK01	
Manufacturer: MIIIW	

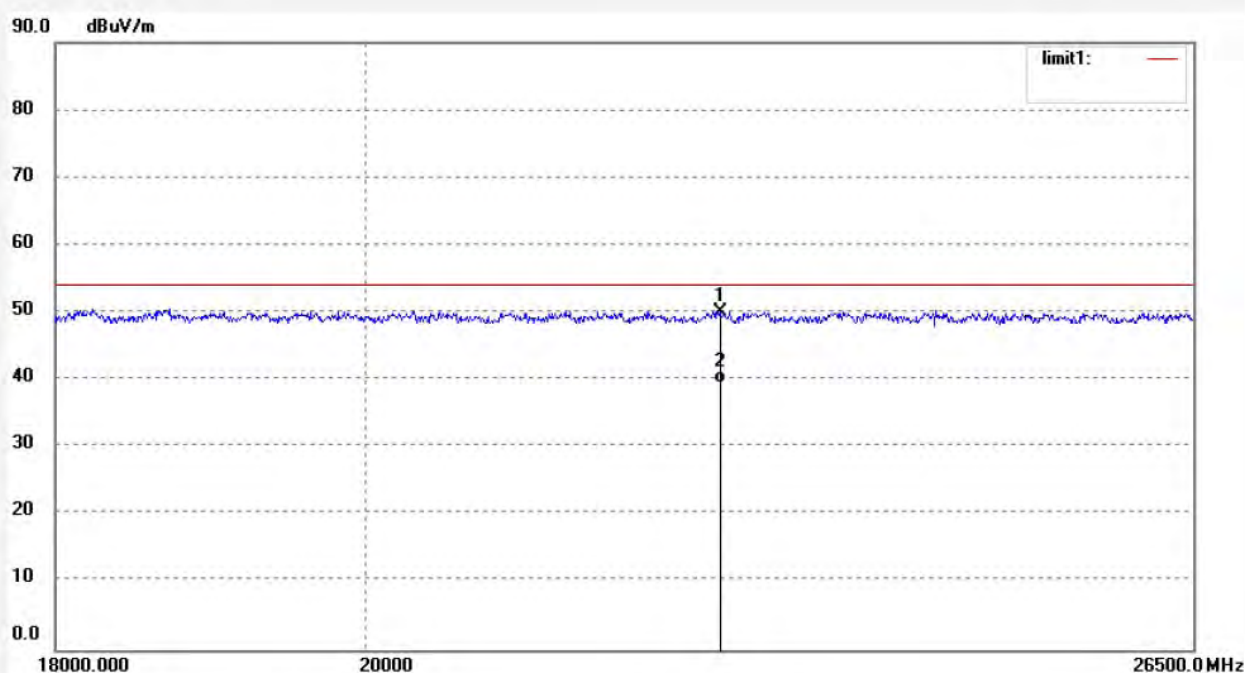
Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21265.178	11.59	38.47	50.06	74.00	-23.94	peak			
2	21265.178	1.77	38.47	40.24	54.00	-13.76	AVG			

Job No.: LGW2019 #333	Polarization: Vertical
Standard: FCC Part 15C 3M Radiated	Power Source: DC 3V
Test item: Radiation Test	Date: 19/02/20/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MIIIW Dual-mode Keyboard	Engineer Signature: WADE
Mode: TX 2440MHz	Distance: 3m
Model: MWBK01	
Manufacturer: MIIIW	

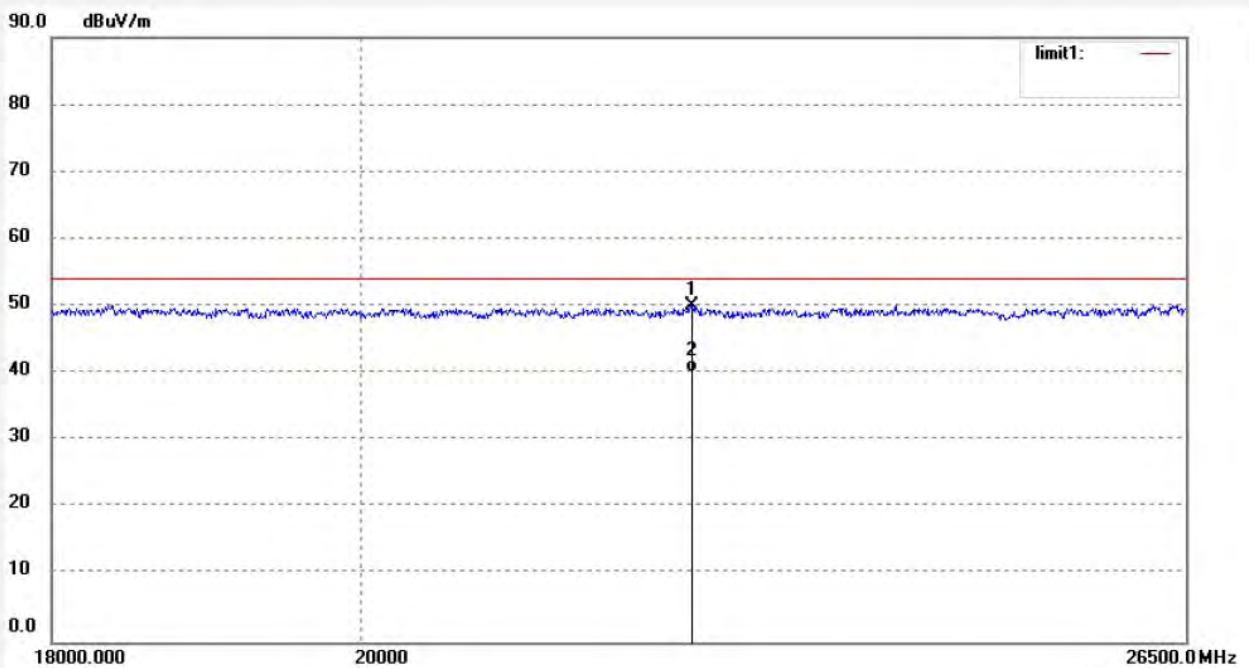
Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	22561.551	10.57	39.42	49.99	74.00	-24.01	peak			
2	22561.551	0.03	39.42	39.45	54.00	-14.55	AVG			

Job No.: LGW2019 #335	Polarization: Horizontal
Standard: FCC Part 15C 3M Radiated	Power Source: DC 3V
Test item: Radiation Test	Date: 19/02/20/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MIIIW Dual-mode Keyboard	Engineer Signature: WADE
Mode: TX 2480MHz	Distance: 3m
Model: MWBK01	
Manufacturer: MIIIW	

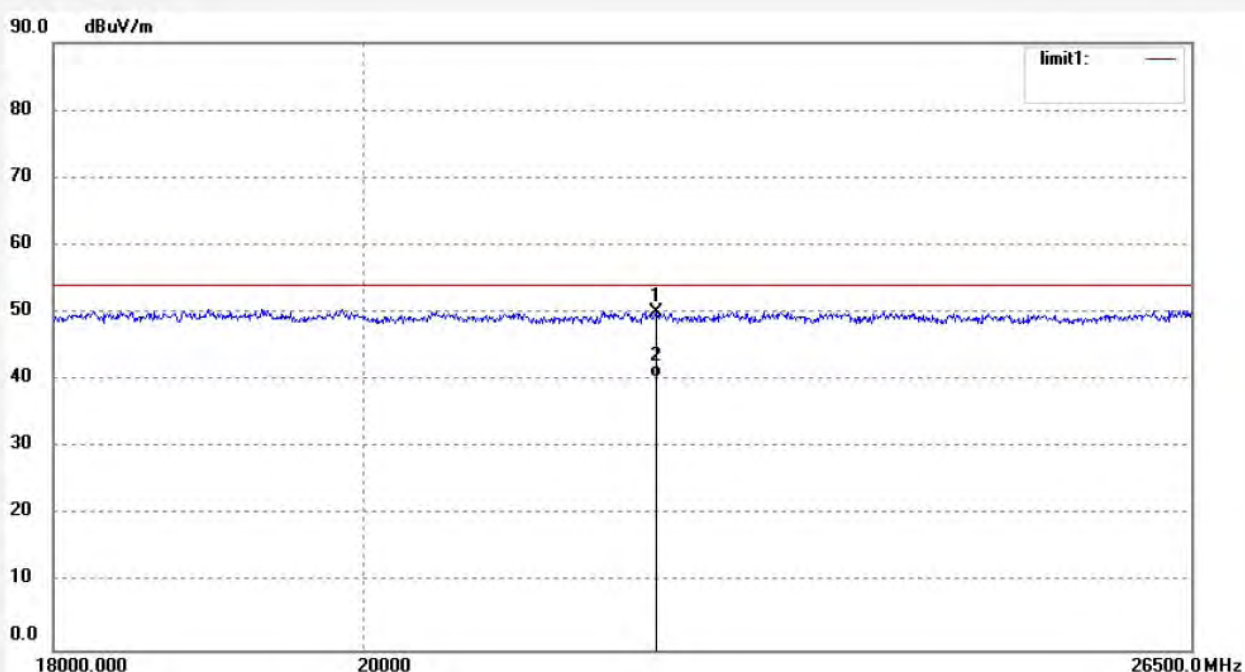
Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	22396.361	10.36	39.74	50.10	74.00	-23.90	peak			
2	22396.361	0.38	39.74	40.12	54.00	-13.88	AVG			

Job No.: LGW2019 #334	Polarization: Vertical
Standard: FCC Part 15C 3M Radiated	Power Source: DC 3V
Test item: Radiation Test	Date: 19/02/20/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: MIIIW Dual-mode Keyboard	Engineer Signature: WADE
Mode: TX 2480MHz	Distance: 3m
Model: MWBK01	
Manufacturer: MIIIW	

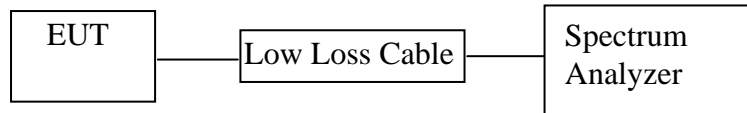
Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	22095.223	10.77	39.25	50.02	74.00	-23.98	peak			
2	22095.223	1.07	39.25	40.32	54.00	-13.68	AVG			

10. CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

10.1. Block Diagram of Test Setup



10.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

10.3. EUT Configuration on Measurement

The equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

10.4. Operating Condition of EUT

10.4.1. Setup the EUT and simulator as shown as Section 10.1.

10.4.2. Turn on the power of all equipment.

10.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

10.5. Test Procedure

10.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

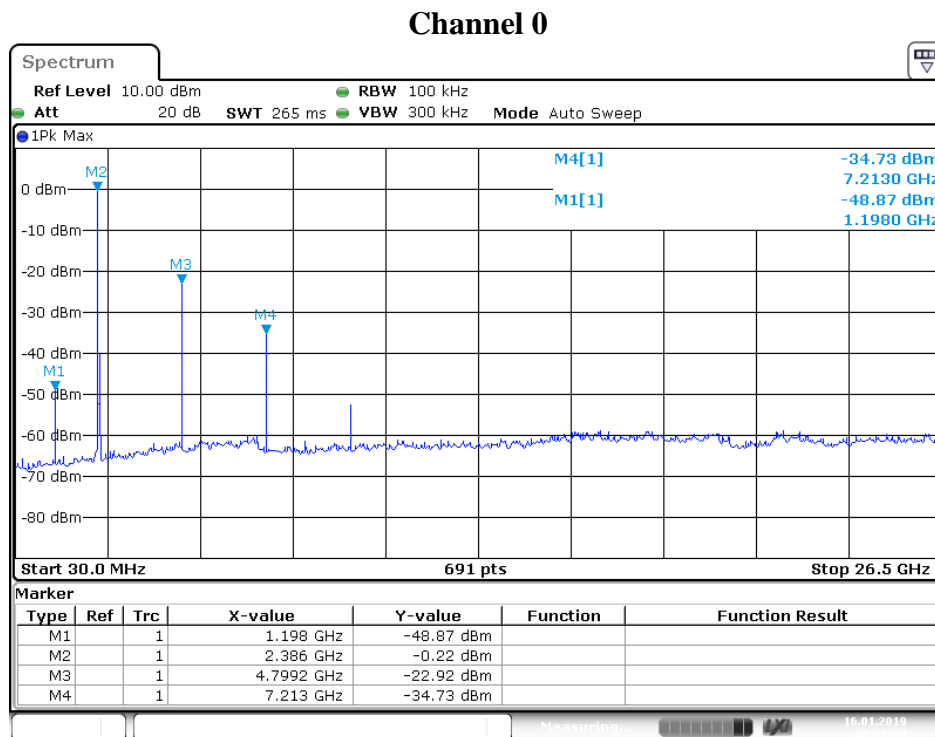
10.5.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz

10.5.3. The Conducted Spurious Emission was measured and recorded.

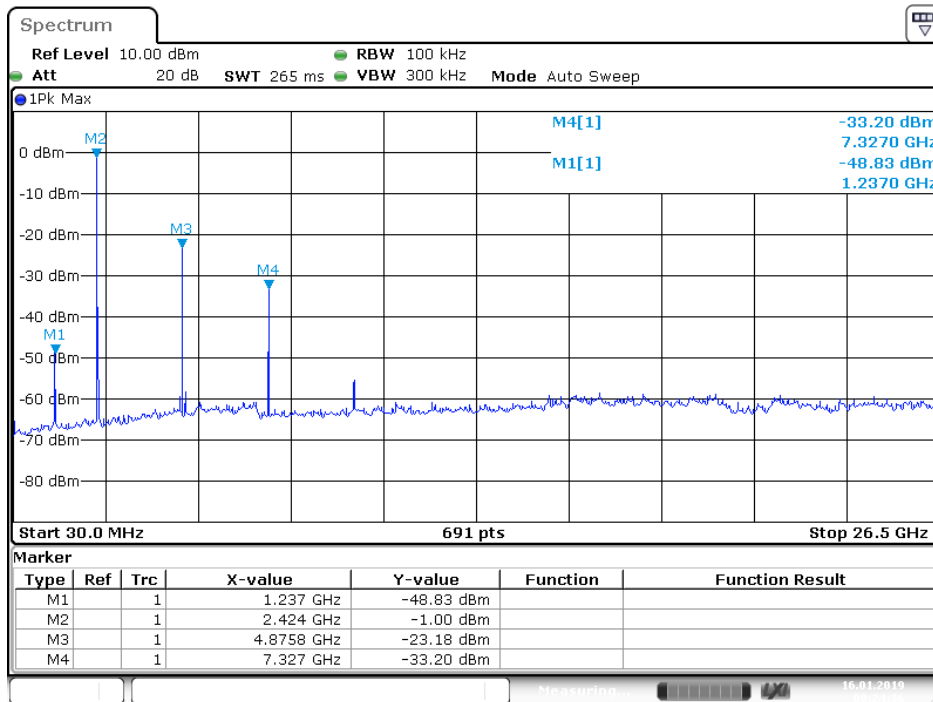
10.6. Test Result

Pass.

The spectrum analyzer plots are attached as below.

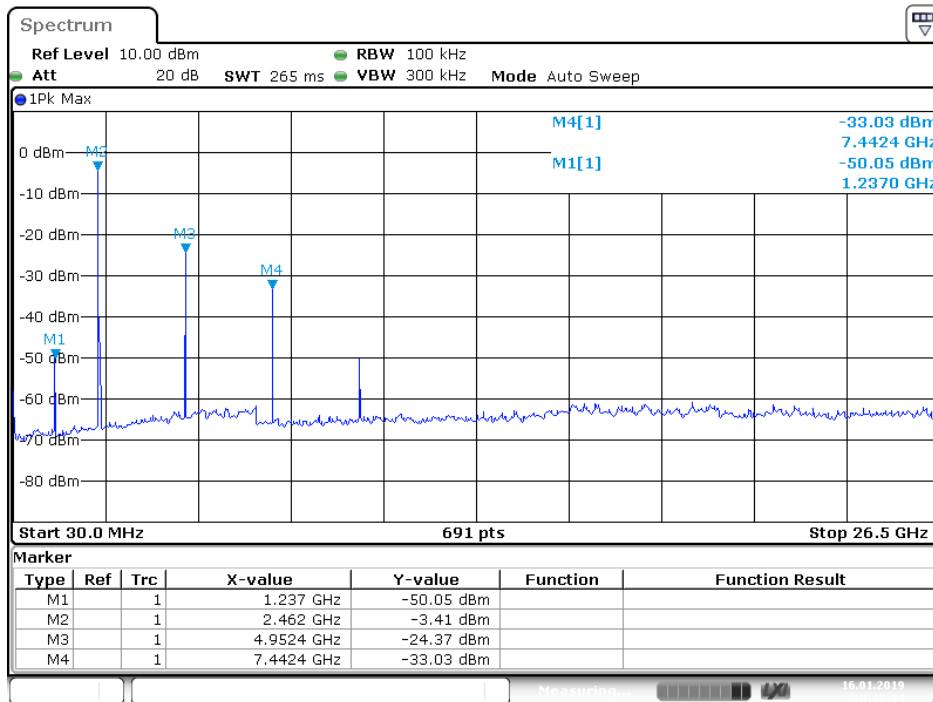


Channel 19



Date: 16.JAN.2019 09:24:36

Channel 39



Date: 16.JAN.2019 10:37:05

11.ANTENNA REQUIREMENT

11.1.The Requirement

According to Section 15.203, 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.

11.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.

******* End of Test Report *******