



Report No.: FCC2004229 File Reference No.: 2020-05-22

Applicant: Shenzhen Star Sources Electronic Technology Co., Ltd.

Product: wireless numeric keypad

Model No.: ST-WKP310, IH-KP2050, ST-WKP302,

ST-WKP301, ST-WKP303, ST-WKP305,

IH-KP2050PAE, IH-KP2050PAU, IH-KP2050PAP,

IH-KP2050PAG

Brand Name: N/A

Test Standards: FCC Part 15.249

Test Result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.4&FCC Part 15 Subpart

C, Paragraph 15.249 regulations for the evaluation of

electromagnetic compatibility

Approved By

# Jack Chung

Jack Chung

Manager

Dated: May 22, 2020

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

# SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com

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# **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

## **CNAS-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

# FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

# Industry Canada (IC) — Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

## **A2LA (Certification Number:5013.01)**

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

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# Test Report Conclusion

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The report refers only to the sample tested and does not apply to the bulk.

11.0

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Photo of Test Setup and EUT View.

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#### 1.0 General Details

#### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le

Village, Nanshan District, Shenzhen, China

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189 For 3m Anechoic Chamber

# 1.2 Applicant Details

Applicant: Shenzhen Star Sources Electronic Technology Co., Ltd.

Address: Room1102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District, Shenzhen, China

Telephone: +86-755-86397260 Fax: +86-755-26609516

#### 1.3 Description of EUT

Product: wireless numeric keypad

Manufacturer: Shenzhen Star Sources Electronic Technology Co., Ltd.

Address: Room1102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District,

Shenzhen, China

Brand Name: N/A

Model Number: ST-WKP310

Additional Model IH-KP2050, ST-WKP302, ST-WKP301, ST-WKP303, ST-WKP305, Name IH-KP2050PAE, IH-KP2050PAU, IH-KP2050PAP, IH-KP2050PAG

Input Voltage: DC1.5V, 1 pcs AAA battery

Modulation Type: GFSK

Operation Frequency 2403.85-2479.85MHz

Software Version: V01 Hardware Version: V01

Channel List:

Channel	1	2	3	4	5	6	7	8
Frequency (MHz)	2403.85	2426.85	2441.85	2463.85	2407.85	2422.85	2445.85	2466.85
Channel	9	10	11	12	13	14	15	16
Frequency (MHz)	2414.85	2436.85	2459.85	2473.85	2419.85	2439.85	2453.85	2479.85

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Antenna Designation PCB antenna with gain 2.0dBi Max

1.4 Submitted Sample: 2 Samples

1.5 Test Duration

2020-04-20 to 2020-05-22

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Conducted Emissions Uncertainty =3.6dB

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

Terry Tang

The sample tested by

Print Name: Terry Tang

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2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2019-06-21	2020-06-20
LISN	R&S	EZH3-Z5	100294	2019-06-21	2020-06-20
LISN	R&S	EZH3-Z5	100253	2019-06-21	2020-06-20
Ultra Broadband ANT	R&S	HL562	100157	2019-06-21	2020-06-20
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2019-06-21	2020-06-20
Loop Antenna	EMCO	6507	00078608	2018-06-25	2021-06-24
Spectrum	R&S	FSIQ26	100292	2019-06-21	2020-06-20
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2019-06-21	2021-06-20
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-07-09	2021-07-08
Power meter	Anritsu	ML2487A	6K00003613	2019-08-22	2020-08-21
Power sensor	Anritsu	MA2491A	32263	2019-08-22	2020-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2021-07-03
9*6*6 Anechoic			N/A	2018-02-07	2021-02-06
EMI Test Receiver	RS	ESVB	826156/011	2019-06-21	2020-06-20
EMI Test Receiver	RS	ESH3	860904/006	2019-06-21	2020-06-20
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2019-06-21	2020-06-20
Spectrum	HP/Agilent	E4407B	MY50441392	2019-06-21	2020-06-20
Spectrum	RS	FSP	1164.4391.38	2019-01-20	2020-01-19
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA		2019-06-21	2020-06-20
RF Cable	Zhengdi	7m		2019-06-21	2020-06-20
RF Switch	EM	EMSW18	060391	2019-06-21	2020-06-20
Pre-Amplifier	Schwarebeck	BBV9743	#218	2019-06-21	2020-06-20
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2019-06-21	2020-06-20
LISN	SCHAFFNER	NNB42	00012	2020-01-07	2021-01-06

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## 3.0 Technical Details

## 3.1 Summary of test results

The	EUT	has	been	tested	accordi	ng to	the f	following	specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	PASS	Complies
FCC Part 15, Paragraph 15.209	Radiated Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	PASS	Complies

## 3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.249, ANSI C63.4:2014 and ANSI C63.10:2013

## 4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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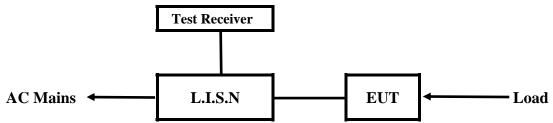
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## 5. Power Line Conducted Emission Test

## 5.1 Schematics of the test

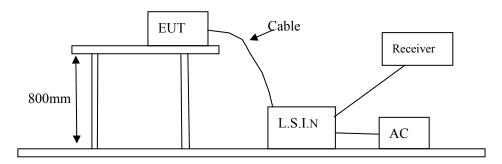


EUT: Equipment Under Test

## 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2014. The Frequency spectrum From 0.15 MHz to 30MHz was investigated. The LISN used was 50 ohm/50 uH as specified by section 5.1 of ANSI C63.4-2014.

## Block diagram of Test setup



## 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2014. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

One channels are provided to the EUT

## A. EUT

Device	Manufacturer	Model	FCC ID
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		ST-WKP310, IH-KP2050,	
wireless numeric keypad		ST-WKP302, ST-WKP301,	
	Shenzhen Star Sources	ST-WKP303, ST-WKP305,	
	Electronic Technology Co., Ltd.	IH-KP2050PAE,	ZJEST-WKP310
	Electronic Technology Co., Etc.	IH-KP2050PAU,	
		IH-KP2050PAP,	
		IH-KP2050PAG	

## B. Internal Device

Device	Manufacturer	Model	FCC ID/SDOC
N/A			

## C. Peripherals

Device	Manufacturer	Model	Rating
N/A			

## 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2014

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

## 5.5 Power line conducted Emission Limit according to Paragraph 15.107 and 15.207

Eng guar av (MHz)	Class A Li	nits (dBµV) Class B Limits		nits (dBµV)
Frequency(MHz)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
$0.15 \sim 0.50$	79.0	66.0	66.0~56.0*	56.0~46.0*
$0.50 \sim 5.00$	73.0	60.0	56.0	46.0
$5.00 \sim 30.00$	73.0	60.0	60.0	50.0

Notes:

- 1. \*Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

# 5.6 Test Results:

N/A

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

## Note: EUT powered by AAA battery, this test item not applicable.

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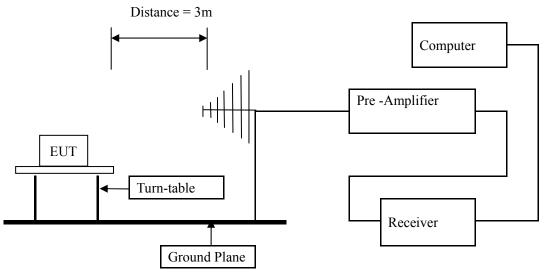
Date: 2020-05-22



#### **6** Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz (Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.

# **Block diagram of Test setup**



- 6.2 Configuration of The EUT
  Same as section 5.3 of this report
- 6.3 EUT Operating Condition
  Same as section 5.4 of this report.

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## 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

## A FCC Part 15 Subpart C Paragraph 15.249(a) Limit

Fundamental Frequency	Field Strength of Fundamental (3m)			Field S	trength of Harmo	nics (3m)
(MHz)	mV/m	dBuV/m		uV/m	dBu	V/m
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)

Note:

- 1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)
- 2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

# B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dBμV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
- 5. For radiated emissions below 30MHz, it was the floor noise.
- 6. Full charged battery was used during tests.X,Y,Z axies all have been tested ,only worse case is reported.

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## 6.5 Test result

## A Fundamental & Harmonics Radiated Emission Data

Product:	wireless numeric keypad	Test Mode:	Keep transmitting-Low Channel
Test Item:	Fundamental Radiated Emission	Temperature:	25℃
	Data		
Test Voltage:	DC1.5V	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2403.85	91.14 (PK)	Н	114/94	-2.86
2403.85	80.33 (PK)	V	114/94	-13.67
4807.7	45.46 (PK)	Н	74/54	-8.54
4807.7	40.87 (PK)	V	74/54	-13.13
7211.55		H/V	74/54	
9615.4		H/V	74/54	
12019.25		H/V	74/54	
14423.1		H/V	74/54	
16826.95		H/V	74/54	
19230.8		H/V	74/54	
21634.65		H/V	74/54	
24038.5		H/V	74/54	

Note: (1) PK= Peak, AV= Average

- (2) Emission Level = Reading Level + Antenna Factor + Cable Loss Pre-Amplifier
- (3)Margin=Emission-Limits
- (4)According to section 15.35(b), the peak limit is 20dB higher than the average limit
- (5) For test purpose, keep EUT continuous transmitting
- (6) The PK emission level less than the AV limit. No necessary to record the AV emission level.

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Product:	wireless numeric keypad	Test Mode:	Keep transmitting-Middle Channel
Test Item:	Fundamental Radiated Emission	Temperature:	25℃
	Data		
Test Voltage:	DC1.5V	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2441.85	91.34 (PK)	Н	114/94	-2.66
2441.85	80.04 (PK)	V	114/94	-13.96
4883.7	47.94 (PK)	Н	74/54	-6.06
4884.7	45.68 (PK)	V	74/54	-8.32
7325.55		H/V	74/54	
9767.4		H/V	74/54	
12209.25		H/V	74/54	
14651.1		H/V	74/54	
17092.95		H/V	74/54	
19534.8		H/V	74/54	
21976.65		H/V	74/54	
24418.5		H/V	74/54	

Note: (1) PK= Peak, AV= Average

- (2) Emission Level = Reading Level + Antenna Factor + Cable Loss Pre-Amplifier
- (3)Margin=Emission-Limits
- (4)According to section 15.35(b), the peak limit is 20dB higher than the average limit
- (5) For test purpose, keep EUT continuous transmitting
- (6) The PK emission level less than the AV limit. No necessary to record the AV emission level.

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Product:	wireless numeric keypad	Test Mode:	Keep transmitting-High Channel
Test Item:	Fundamental Radiated Emission	Temperature:	25℃
	Data		
Test Voltage:	DC1.5V	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2479.85	91.17 (PK)	Н	114/94	-2.83
2479.85	80.18 (PK)	V	114/94	-13.82
4959.7	40.06 (PK)	Н	74/54	-13.94
4959.7	40.53 (PK)	V	74/54	-13.47
7439.55		Н	74/54	
7439.55		V	74/54	
9919.4		H/V	74/54	
12399.25		H/V	74/54	
14879.1		H/V	74/54	
17358.95		H/V	74/54	
19838.8		H/V	74/54	
22318.65		H/V	74/54	
24798.5		H/V	74/54	

Note: (1) PK= Peak, AV= Average

- (2) Emission Level = Reading Level + Antenna Factor + Cable Loss Pre-Amplifier
- (3)Margin=Emission-Limits
- (4)According to section 15.35(b), the peak limit is 20dB higher than the average limit
- (5) For test purpose, keep EUT continuous transmitting
- (6) The PK emission level less than the AV limit. No necessary to record the AV emission level.

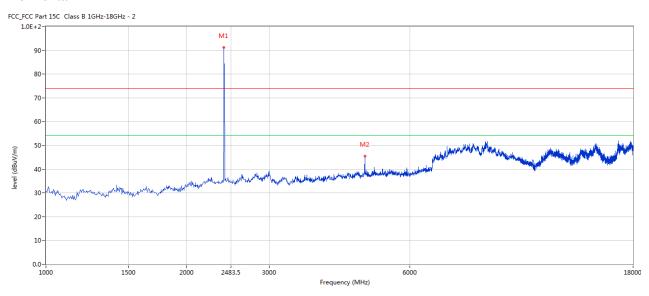
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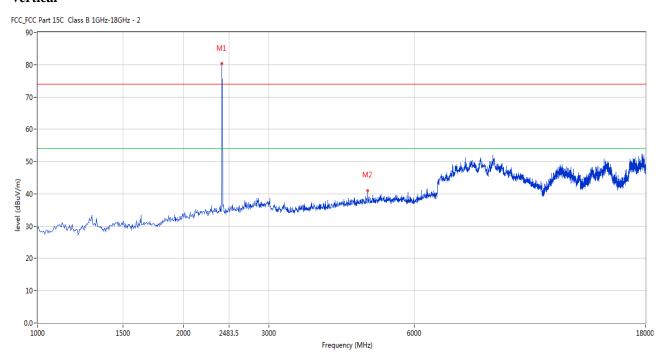


Please refer to the following test plots for details: Low Channel

#### **Horizontal**



## Vertical



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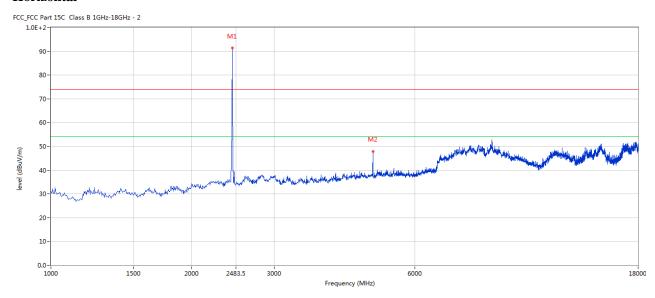
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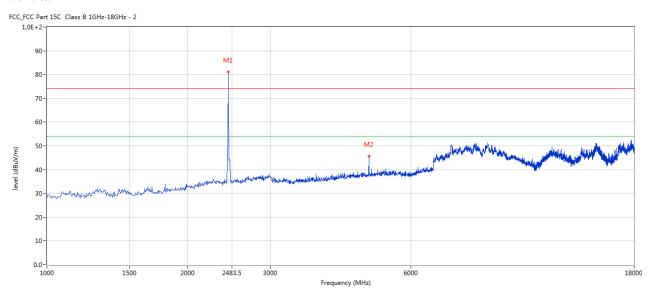


Please refer to the following test plots for details: Middle Channel

#### **Horizontal**



#### Vertical



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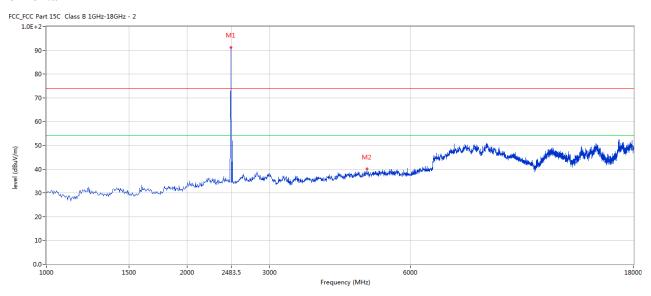
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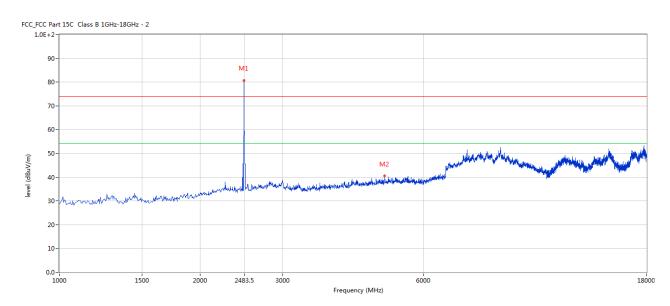


Please refer to the following test plots for details: High Channel

#### **Horizontal**



#### Vertical



For emission above 18GHz and Below 30MHz, It is only the floor noise. No necessary to take down.

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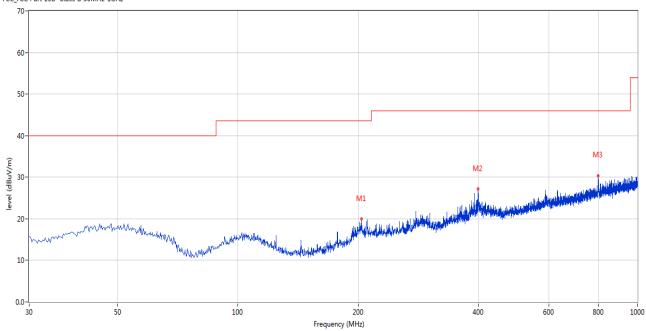
# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

**Results:** Pass

Please refer to following diagram for individual

FCC\_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency	Results	Factor (dB)	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)		(dBuV/m)	(dB)		(o)	(cm)		
1	203.829	19.93	-13.50	43.5	-23.57	Peak	77.00	200	Н	Pass
2	398.508	27.15	-8.65	46.0	-18.85	Peak	360.00	200	Н	Pass
3	796.836	30.41	-3.06	46.0	-15.59	Peak	93.00	100	Н	Pass

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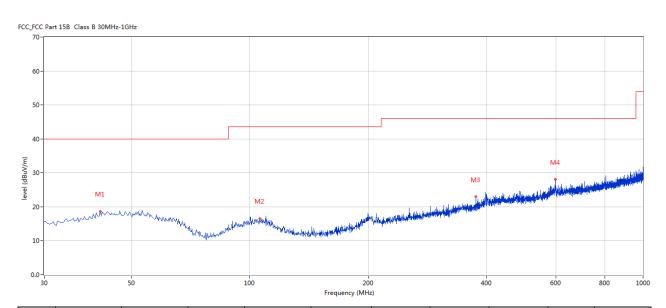


# Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

**Results:** Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
1	41.637	18.68	-11.82	40.0	-21.32	Peak	8.00	100	V	Pass
2	105.884	16.60	-13.29	43.5	-26.90	Peak	192.00	100	V	Pass
3	375.719	22.97	-9.39	46.0	-23.03	Peak	360.00	200	V	Pass
4	598.520	28.09	-5.12	46.0	-17.91	Peak	81.00	100	V	Pass

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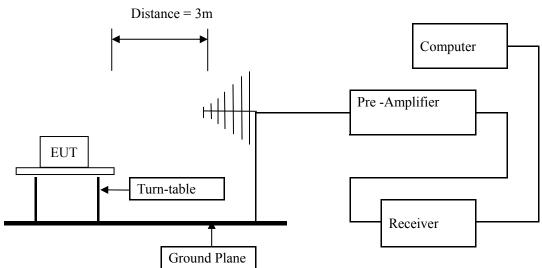


## 7. Band Edge

#### 7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) Set Spectrum as RBW=1MHz,VBW=3MHz and Peak detector used
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

# 7. 2 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing

# 7.3 Configuration of The EUT

Same as section 5.3 of this report

## 7.4 EUT Operating Condition

Same as section 5.4 of this report.

#### 7.5 Band Edge Limit

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.

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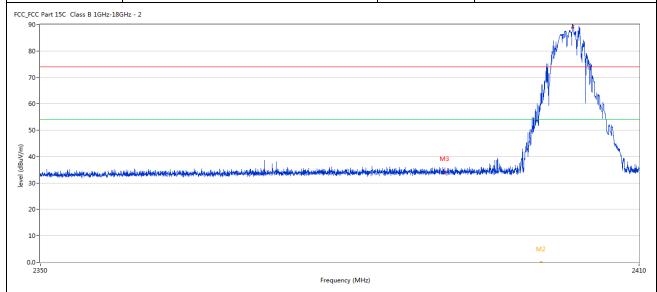
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## 7.6 Test Result

Product:	wireless numeric keypad	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC1.5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
2**	2400.007	44.62	-3.57	54.0	-9.38	AV	223.00	100	Н	Pass
2	2400.007	62.70	-3.57	74.0	-11.30	Peak	223.00	100	Н	Pass
3	2390.015	35.97	-3.53	54.0	-18.03	Peak	356.00	100	Н	Pass
				•						

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Pr	oduct:	V	vireless i	numeric key	/pad	Detect	tor		Vertical	
N	Mode		Keeping	g Transmitti	ng	Test Vol	tage		DC1.5V	-
Tem	perature		24	deg. C,		Humid	lity		56% RH	
Test	t Result:			Pass			-			
	t 15C Class B 1GHz-18	BGHz - 2								
90-									M1	
70-										
60-									<i>]</i>	
50-										
	الإرسان والمستعدد المستعدد الم	أنفاق والمستوان والم	والدوالة والمداورة	والمراجعة والمستقال والمست	إمار عندانة إمارية والمراجعة والمراج	. Janggaph - Activity on the House	M3			
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40- 30-	Person of the second season of	يعلم والمراجع والمراع	disemental aktish disebenak	મુંદ્રોક્ષ્ટ્રામીન્ટ્રના નિર્માત કરીએ જિલ્લો અને	lad aifadhan ag meirich fa da ja dhun	, Herft and Lander, Was then all types,	M3	nakan alpata wakan M	12	HA CHESTANA
30- 20-	Person of the second comments in the second of the second comments in the second comments i	ini k <sub>ara</sub> nga paga paga paga paga paga paga paga p	di secima andri addici de disc andre	المجافزة المنافزة الم	ini qibilan qi minini pi birini di b		M3	nakina alpada izibana	12	2
30- 20- 10- 0.0- 2350	Frequency	Results	Factor	Limit	менеруунун онд он онд даач он онд		M3 Table (o)	Height	ANT	Verdict
30- 20- 10- 0.0- 2350		Results (dBuV/m)	Factor (dB)	program we not prove	Frequency (MH	z)	M3 Table (o)	T		<u></u>
30- 20- 10- 0.0- 2350	Frequency			Limit	Frequency (MH	z)	Table (o)	Height		Verdict Pass
30- 20- 10-	Frequency (MHz)	(dBuV/m)	(dB)	Limit (dBuV/m)	Frequency (MH  Over Limit (dB)	Detector		Height (cm)	ANT	Verdict

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P	roduct:	V	vireless 1	numeric key	/pad	Polarit	У	F	Iorizonta	ıl
	Mode		Keeping	g Transmitti	ng	Test Volta	age		DC1.5V	
Ter	nperature		24	4 deg. C,		Humidi	ty	;	56% RH	-
Tes	st Result:			Pass						
_FCC Pa	art 15C Class B 1GHz-1	8GHz - 2								
80-				hylrdd '						
70-				7 (II/V)						
60-				·						
-		, All	1 1	1	TTY					
50-					Tts					
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40- 30-	man der desta azisideja, valideta jel	A Park A Park			The Marie and the second	Mikhamatangadhilikaharah Mackidiy	a de degra en esca de de desgra de la colonida de l	e general de film de l'ariales	المستعمل الم	desira pirtidas lampidatis stabili
40- 30- 20- 10-	and the state of t	A Property of the second			M2	o'th dear a companiel to de are e de dear de la tra	udi dan erina di disebut	uspaneddiffen, die fersyla	algustalpen ett kommune mende et	d de service de la companya de la c
30- 20-	nun der eigen zwielen und der ge-	almost the second of the secon			M2 2483.5 Frequency (MHz	o Philippine and medicility of a section of the legislature of the leg	a daga on an an di sidaga	aquinadolflau, tha borage	المراجعة	hora polekka kilomyddia aleb
40- 30- 20- 10- 0.0- 2470	Frequency	Results	Factor	Limit	2483.5		Table (o)	Height	ANT	25 Verdict
20- 10- 2470		Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	2483.5 Frequency (MHz		Table (o)		The second secon	
40- 30- 20- 10-	Frequency				2483.5 Frequency (MHz	Detector	Table (o)	Height	The second secon	25  Verdict  Pass

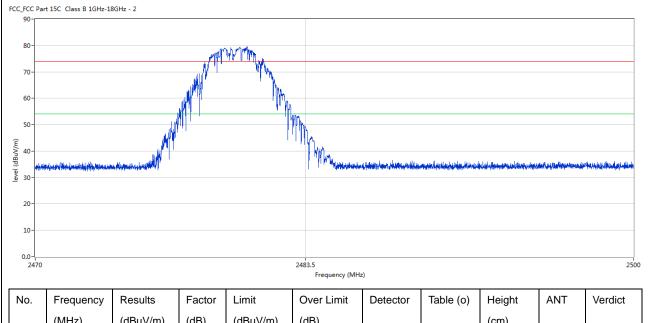
	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
	2**	2483.499	44.66	-3.57	54.0	-9.34	AV	257.00	100	Н	Pass
	2	2483.499	56.28	-3.57	74.0	-17.72	Peak	257.00	100	Н	Pass
Ц	2	2483.499	56.28	-3.57	74.0	-17.72	Реак	257.00	100	Н	J

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Product:	wireless 1	numeric keypad	Detector	Vertical
Mode	Keeping	g Transmitting	Test Voltage	DC1.5V
Temperature	24	l deg. C,	Humidity	56% RH
Test Result:		Pass		1
2483.5MHz	PK (dBμV/m)		Limit	$74~dB\mu V/m$
2483.5MHz	AV (dBμV/m)		Limit	54 dBμV/m



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
2	2483.500	49.79	-3.57	54.0	-4.21	Peak	0.00	100	V	Pass

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# 8.0 Antenna Requirement

## **Applicable Standard**

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 shall be considered sufficient to comply with the provisions of this section.

This product has a PCB antenna. The antenna gain is 2.0dBi Max. It fulfills the requirement of this section. Test Result: Pass

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Product: wireless numeric keypad				Test Mode:	Keep transmitting		
Mode Keeping Transmitting			Г	Test Voltage DC1.5V			.5V
Temperature 24 deg. C,				Humidity	56% RH		
Test Result:	Pass			Detector PK			ζ
0dB Bandwidth	2.285MHz						
	Delta 1 [T1]		RBW	30 ki	Hz RI	7 Att	30 dB
Ref Lvl	0	0.41 dB	VBW	100 ki	Hz		
0 dBm	2.28456	914 MHz	SWT	' 14 ms	s Uı	nit	dBm
0				<b>v</b> <sub>1</sub>	[T1]	-32	.23 dBm
						2.40191	483 GHz
-10		T T		<u>^</u> 1	[T1]	O	.41 dB
	Λ			$\nabla_2$		2.28456	914 MHz
-20	<u> </u>	1		V 2	[T1]	-12	.36 dBm
	/ V		₩	V 4/1 /		2.40303	707 GHz
-30 -D1 -32.36	1 M				1 1M		
-D1 -32.36	dBill				1		1
-40	and when the same of the same						
The same						$\mathcal{M}$	
-50					W	1	Myh
-60							0 4
-70							
-80							
-90							
- 90							
100							
100 Center 2.40	3012024 GHz	500 kHz	/			Sna	n 5 MHz

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Product:	wireless numeric keypad	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC1.5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK
20dB Bandwidth	2.280MHz		
	Delta 1 [T1]	RBW 30 kHz	RF Att 30 dB
Ref Lvl 0 dBm	0.50 dB 2.27955912 MHz	VBW 100 kHz SWT 14 ms	Unit dBm
0		<b>▼</b> 1 [T	1] -32.01 dBm
-10		1 [T	2.43991784 GHz
			2.27955912 MHz
-20	/\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	MM V	2.44104008 GHz
-30		W W	1
—D1 -31.9	7 dBm	V-2	1MA
-40	Halle war and the same of the		
-50			
-60			
-70			
-80			
-90			
-100 Conton 2	44102505 GV-		Smarr F MV-
	44102505 GHz 500	KHZ/	Span 5 MHz
Date: 19.	MAY.2020 09:55:35		

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Product: wireless numeric keypad			Test Mode:	Keep transmitting			
Mode	Keeping Transmitting	<u></u>	Test Voltage		DC1.5V		
Temperature	24 deg. C,		Humidity		56% RH		
Test Result:	esult: Pass		Detector	Detector		PK	
20dB Bandwidth	2.285MHz						
Ref Lvl	Delta 1 [T1] -0.11		RBW 30 k 7BW 100 k		F Att	30 dB	
0 dBm	2.28456914		SWT 14 m		nit	dBm	
-10 -20 -30 -10 -30 -10 -32.7 -40 -50 -60 -70 -80	72 dBm			[T1] [T1]	-12	283 GHz 211 dB 914 MHz 507 GHz	1MA
-100							
Center 2. Date: 19.	48 GHz .MAY.2020 09:59:47	500 kHz/	,		Spa	n 5 MHz	

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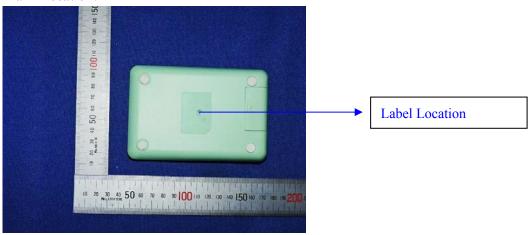


## 10.0 FCC ID Label

#### FCC ID: ZJEST-WKP310

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

## **Mark Location:**



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# 11.0 Photo of testing

11.1 Conducted test View

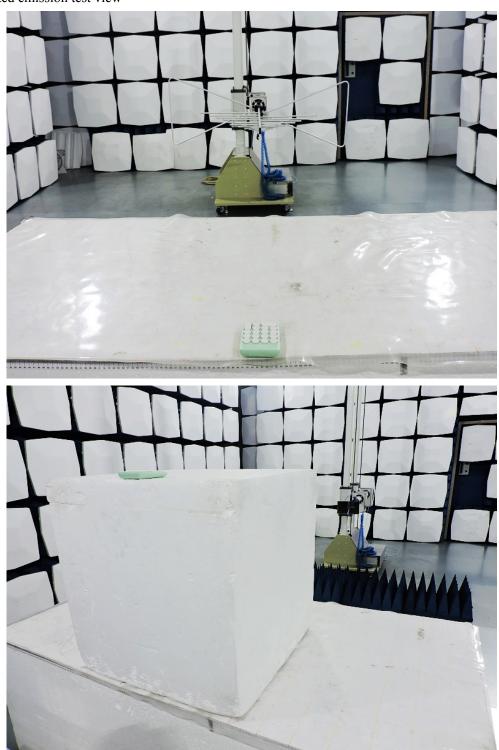
N/A

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## 11.2 Radiated emission test view



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## 11.3 Photographs – EUT

## Outside View





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Outside View





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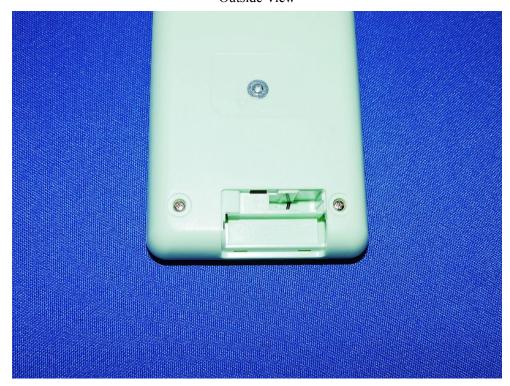
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Outside View



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Inside view





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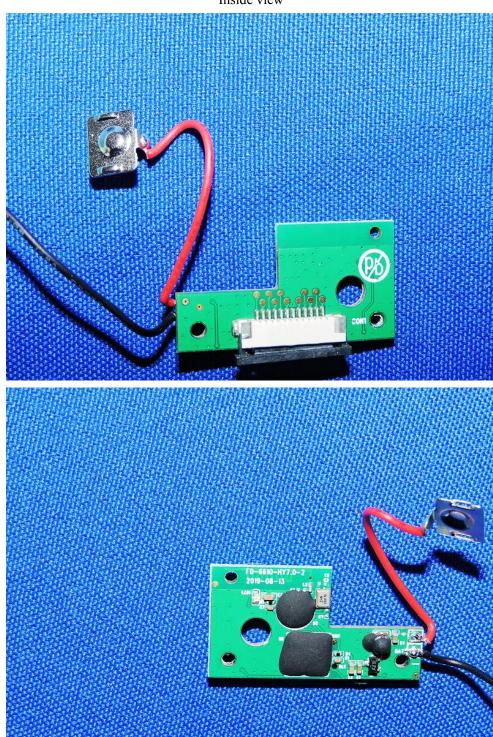
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# Inside view



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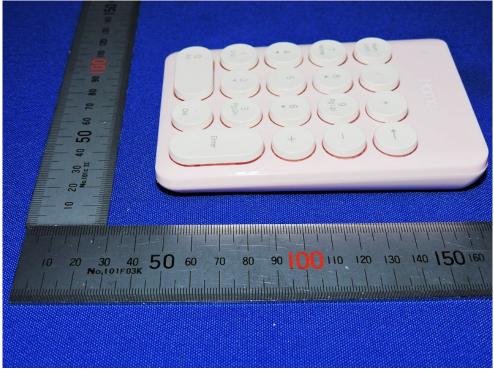
Report No.: FCC2004229

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Outside View





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Outside View





-- End of the report--

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