

Report No.: TW2405039E

Applicant: Shenzhen Jian Yi KeJi Youxian Gongsi

Product: Wireless Receiver

Model No.: **BK07** 

Trademark: **BESIGN** 

Test Standards: FCC Part 15.249

It is herewith confirmed and found to comply with the Test result:

requirements set up by ANSI C63.10 & FCC Part 15 Subpart C, 15.249 regulations for the evaluation

electromagnetic compatibility

Approved By

Terry Tang

Manager

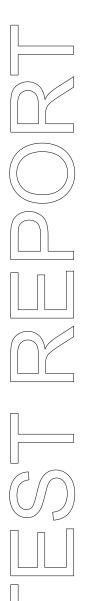
Dated: May 15, 2024

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:**

#### 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

CAB identifier: CN0033

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## Test Report Conclusion

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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 JianYi KeJi Youxian Gongsi

Address: Rm401, Unit 1, B1 Bulding, Bqu, Jinhuhuayuan, Jinhu Road, Qingshuihejiedao, Luohu

District, Shenzhen 518024, China

#### 1.3 Description of EUT

Product: Wireless Receiver

Manufacturer: Shenzhen Surething Industry And Commerce Development Co.,Ltd.

Address: Building 6,1st Phase of Fu'an Industrial City, 99th Dayang Road, Fuhai Town,

Bao'an District, Shenzhen, China.

Trademark: BESIGN
Model Number: BK07
Additional Model Name N/A

Rating: Input: DC5V

Serial No.: 2405

Hardware Version: BTC02-AB5635B-V3.0.pcb

Software Version: BTC02\_AB5635B\_BK07\_240426\_00001E9B\_CB061FB2.upd

Operation Frequency: 2402-2480MHz

Modulation Type: GFSK, Л/4DQPSK, 8DPSK

Number of Channels: 79 Channel Separation: 1MHz

Antenna Designation PCB antenna with gain 2.0dBi maximum (Get from the antenna specification)

#### 1.4 Submitted Sample: 2 Samples

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#### 1.5 Test Duration

2024-05-07 to 2024-05-15

#### 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

The sample tested by

Print Name: Andy Xing

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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	2023-07-14	2024-07-13		
LISN	R&S	EZH3-Z5	100294	2023-07-14	2024-07-13		
LISN	R&S	EZH3-Z5	100253	2023-07-14	2024-07-13		
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2023-07-14	2024-07-13		
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17		
Spectrum	R&S	FSIQ26	100292	2023-07-14	2024-07-13		
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17		
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2024-07-17		
Power meter	Anritsu	ML2487A	6K00003613	2023-07-14	2024-07-13		
Power sensor	Anritsu	MA2491A	32263	2023-07-14	2024-07-13		
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17		
9*6*6 Anechoic			N/A	2022-07-26	2025-07-25		
EMI Test Receiver	RS	ESVB	826156/011	2023-07-14	2024-07-13		
EMI Test Receiver	RS	ESCS 30	834115/006	2023-07-14	2024-07-13		
Spectrum	HP/Agilent	E4407B	MY50441392	2023-07-14	2024-07-13		
Spectrum	RS	FSP	1164.4391.38	2023-07-14	2024-07-13		
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	1	2023-07-14	2024-07-13		
RF Cable	Zhengdi	7m		2023-07-14	2024-07-13		
Pre-Amplifier	Schwarebeck	BBV9743	#218	2023-07-14	2024-07-13		
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2023-07-14	2024-07-13		
LISN	SCHAFFNER	NNB42	00012	2023-07-14	2024-07-13		
ESPI Test Receiver	R&S	ESPI 3	100379	2023-07-14	2024-07-13		
LISN	R&S	EZH3-Z5	100294	2023-07-14	2024-07-13		

#### 2.2 Automation Test Software

#### For Conducted Emission Test

Name	Version		
EZ-EMC	Ver.EMC-CON 3A1.1		

#### For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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#### 3.0 Technical Details

#### 3.1 Summary of test results

The EU	Γ has been	tested a	according	to the	following	specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	N/A	N/A
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
FCC Part 15.215(c)	20dB bandwidth	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

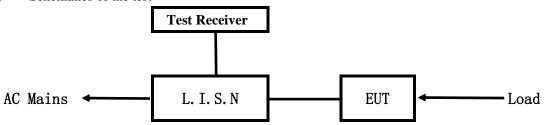
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#### 5.0 Power Line Conducted Emission Test

#### 5.1 Schematics of the test



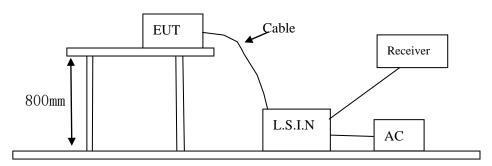
**EUT: Equipment Under Test** 

#### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

Test Voltage: N/A

Block diagram of Test setup



#### 5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

79 channels are provided to the EUT

#### A. EUT

Device	Manufacturer	Model	FCC ID
Wireless Receiver	Shenzhen Surething Industry And	BK07	2A2IXBK07
	Commerce Development Co.,Ltd.	DKU/	ZAZIADKU/

#### B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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#### C. Peripherals

Device	Manufacturer	Model	Rating
N/A			

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

- 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 15.207

Frequency	Limits (dB μ V)			
(MHz)	Quasi-peak Level	Average Level		
$0.15 \sim 0.50$	66.0~56.0*	56.0~46.0*		
$0.50 \sim 5.00$	56.0	46.0		
5.00 ~ 30.00	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

Note: EUT used in a car, this test not applicable

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#### 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 9kHz to 25 GHz was investigated. The frequency spectrum is set as follows:

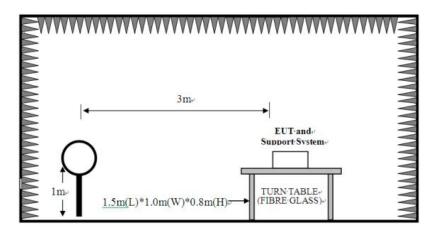
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
Above 1GHZ	Peak	1MHz	10Hz	Average

(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**

For radiated emissions from 9kHz to 30MHz

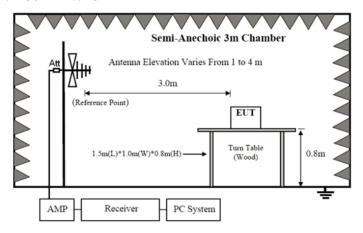


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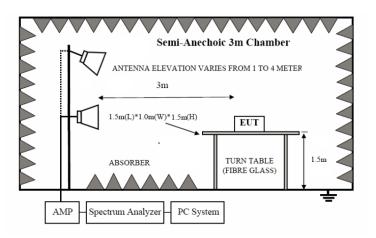
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For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



- 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.
- 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	tal Frequency Field Strength of Fundamental (3m)		Field Strength of Harmonics (3m)		
(MHz)	mV/m	dBuV/m	uV/m	dBuV/m	

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2400-2483.5 50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)
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Note:

- 1. RF Field Strength  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 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 (dB µ V/m)
0.009-0.490	3	20log(2400/F(kHz)) +40log (300/3)
0.490-1.705	3	20log(24000/F(kHz)) +40log (30/3)
1.705-30	3	69.5
30-80	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 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. The three modulation modes of GFSK, Pi/4D-QPSK and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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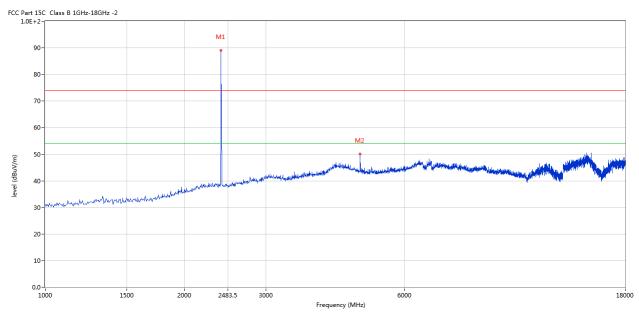


#### 6.5 Test result

#### A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details: Low Channel-2402MHz

#### **Horizontal**



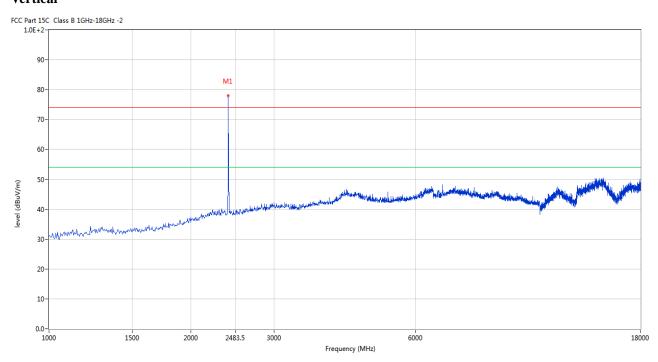
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	89.16	-3.57	114.0	-24.84	Peak	283.00	100	Horizontal	Pass
2	4802.799	50.11	3.12	74.0	-23.89	Peak	316.00	100	Horizontal	Pass

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#### Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	77.90	-3.57	114.0	36.10	Peak	338.00	100	Vertical	Pass

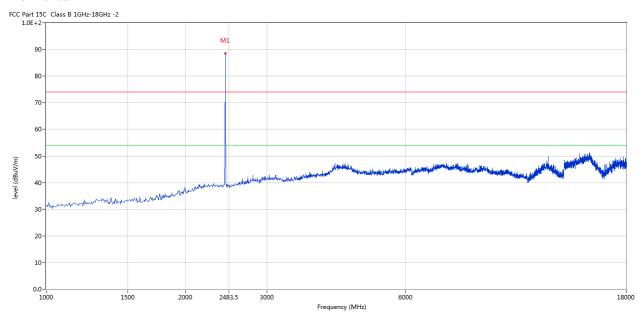
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Please refer to the following test plots for details: Middle Channel-2441MHz

#### **Horizontal**



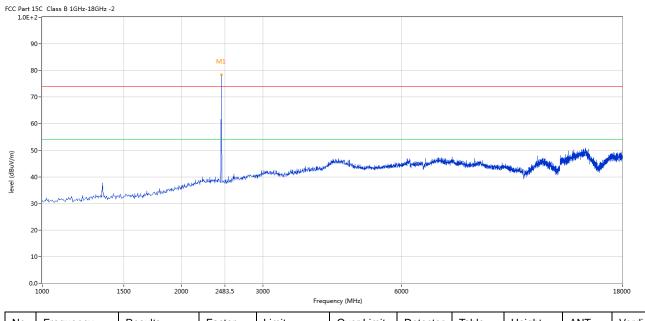
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	88.49	-3.57	114.0	-25.51	Peak	273.00	100	Horizontal	Pass

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#### Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	78.27	-3.57	114.0	-35.73	Peak	103.00	100	Vertical	Pass

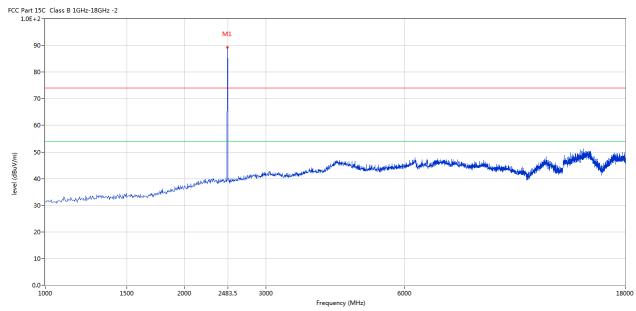
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Please refer to the following test plots for details: High Channel-2480MHz

#### **Horizontal**



Ī	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
	1	2480	89.36	-3.57	114.0	-24.64	Peak	275.00	100	Horizontal	Pass

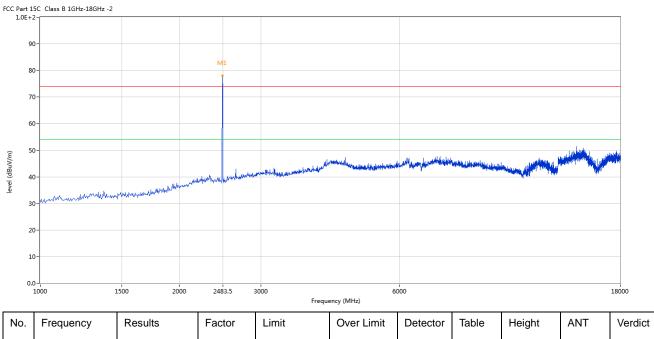
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#### Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	78.06	-3.57	114.0	-35.94	Peak	99.00	100	Vertical	Pass

Note: (1) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier

- (2) Margin=Emission-Limits
- (3) According to section 15.35(b), the peak limit is 20dB higher than the average limit
- (4) For test purpose, keep EUT continuous transmitting
- (5) For emission above 18GHz and Below 30MHz, It is only the floor noise and less than the limit for more than 20dB. No necessary to take down.
- (6) the measured PK value less than the AV limit.

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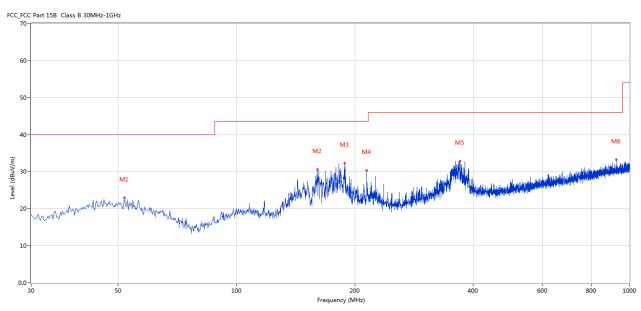


# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

**Results:** Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	51.820	22.97	-11.42	40.0	17.03	Peak	132.00	100	Horizontal	Pass
2	160.675	30.57	-16.32	43.5	12.93	Peak	280.00	100	Horizontal	Pass
3	188.555	32.35	-14.39	43.5	11.15	Peak	234.00	100	Horizontal	Pass
4	214.496	30.37	-13.58	43.5	13.13	Peak	0.00	100	Horizontal	Pass
5	369.900	32.84	-9.57	46.0	13.16	Peak	201.00	100	Horizontal	Pass
6	925.329	33.28	-1.69	46.0	12.72	Peak	284.00	100	Horizontal	Pass

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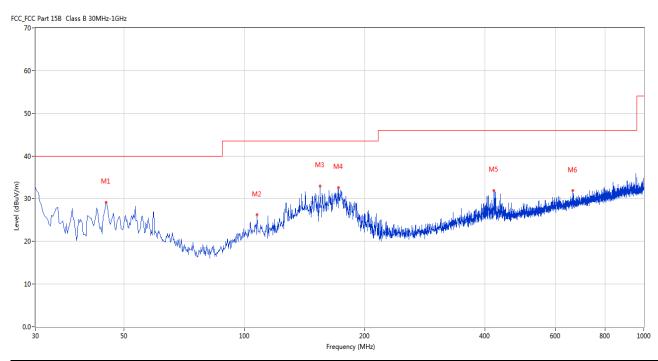


#### Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	45.031	29.11	-11.41	40.0	10.89	Peak	333.00	100	Vertical	Pass
2	107.581	26.17	-13.40	43.5	17.33	Peak	238.00	100	Vertical	Pass
3	154.856	32.94	-16.78	43.5	10.56	Peak	226.00	100	Vertical	Pass
4	171.827	32.55	-15.91	43.5	10.95	Peak	317.00	100	Vertical	Pass
5	421.540	31.87	-8.10	46.0	14.13	Peak	0.00	100	Vertical	Pass
6	663.979	31.84	-4.40	46.0	14.16	Peak	101.00	100	Vertical	Pass

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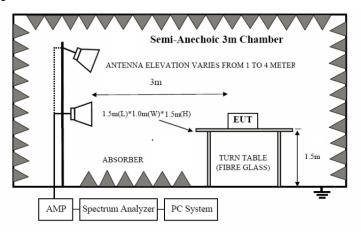


#### 7. Band Edge

#### 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 for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (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.

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

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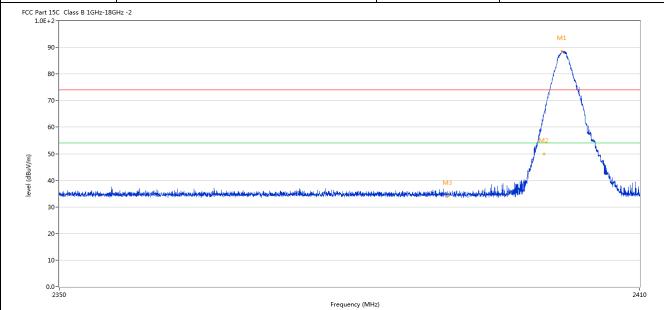
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#### 7.6 Test Result

Product:	Wireless Receiver	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC5.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2401.902	88.48	-3.57	74.0	14.48	Peak	281.00	100	Horizontal	N/A
2	2400.012	65.44	-3.57	74.0	-8.56	Peak	281.00	100	Horizontal	Pass
2**	2400.012	49.94	-3.57	54.0	-4.06	AV	281.00	100	Horizontal	Pass
3	2390.010	34.10	-3.53	74.0	-39.90	Peak	57.00	100	Horizontal	Pass

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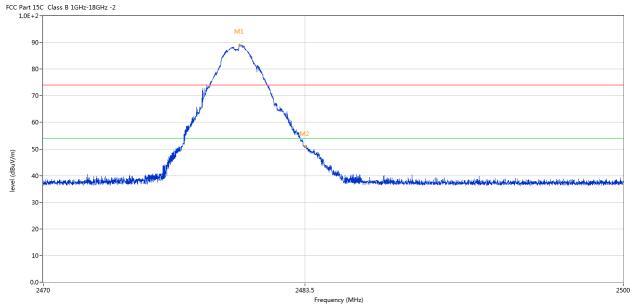
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	Product:		Wireless	Receiver		Detect	or		Vertical	
	Mode	]	Keeping Tr	ansmitting		Test Vol	tage		DC5.0V	
Te	emperature		24 de	g. C,		Humid	ity		56% RH	
Те	est Result:		Pa	SS						
	rt 15C Class B 1GHz-18GH E+2-	lz -2			<u>'</u>					
	90-									
	80-							N	<b>м</b> 1	
								/	M	
	70-									
	60-							M2	-	
									- V	
<del>-</del>	50-									
BuV/m)	50-									
evel (dBuV/m)	40-	eron dadentis vita independentis consensation	udjegdboothe dooj dushper ifd widhe	in Africa ( page our met out out out of the second	hoderanderni del fililitatione	M3	prijeksi syala layaksinya shapili	Harryanith	W. Markle	
level (dBuV/m)	40-	erne dddferli i wei is heliya hesonaedis	<u>nigiyadi sanis di seji ni sejeni delenika</u> l	rins, filologija dagina oznami po sis indepelacija i izvo	kodu madasiri bil filifik katangi		المراجعة الم	Marga cuttle par	V V V V V V V V V V V V V V V V V V V	addid Argh of account
level (dBuV/m)	30-	pagadakan unga banasa kaga manda	algegi de konstru de 1944 au septe de Hendellen la	المسترا المعارض المسترسية والمتأونة	الإسطاعة الأفافة المطاون والمعاون والمعاونة المعاونة المعاونة المعاونة المعاونة المعاونة المعاونة المعاونة الم		المتعارض المتعارض والمتعارض والمتعار	langu maka pa	V A A A A A A A A A A A A A A A A A A A	alitil a jedy jdy accepts.
level (dBuV/m)	40-	one dalk olu ve sidene komune elle	ndjegddraeth drei awlyd i llfiwldiw l	rim Afrikasilya dapira ya masto wi yinili pinda shi ugu	kadu andersidd fill thisioci		स्थानेत्रे कृति के कृतिकार कृतिकार कृतिकार क्षा	Hamparatik Par	V A A BOOK	ndidle jede de angere.
level (dBuV/m)	30-	grandski od v Verishdere skrevne vite	adgegildensier der 1924 aus der Wilderlichen i	<del>in hiji dala dara para para di alaba</del> birga	الإسأن عبسان ينافأ أغلبه والأراقة		સ્ટ્રાંસિંગ નુક્રને ન <sub>િ</sub> પંત્રુપ્તિ નિવાનો અને પ્રેસી	harra custa de la companya	V Andrew Market	while the state of the same
	30- 20-	gray, ddadh odir 1966 ishdiren korsuman ellas	adjeglikovski dovej a ukprolitika i tagi	મંત્રનો ફેર્ક્સનો ફેર્ક્સ હોય	kraki azorkei johkh fiftik di jihond		मानियां कृति कृतिकृतिकार्यक्ष में कृतिकृतिकार्यक्ष में स्थिति	Alberta world for	V AND BOOK	مسروان المستحد
	40- other model and consistent	eng disk oktivis shereshawarek	nghy gibbonith display a shipe i filipulika i	المرابعة والمرابعة المرابعة والمرابعة والمرابع	Frequency (MHz)		pri kiri yak i <sub>n</sub> ingkanasa vi siki	Marga wash	V day	
(m/\ngn   dBn/\/m)	30 - 20 - 2350	Results	Factor	Limit			Table		ANT	2410
	40				Frequency (MHz)	na pro a site a site and find a find	and the state of t	Height (cm)		2410
No.	30- 20- 10- 2350	Results	Factor	Limit	Frequency (MHz)  Over Limit	name and assessments of the desired	Table	Height		2410
	30- 20- 10- 0.0- 2350 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz)  Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	<sup>2410</sup> Verdic

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Product:	Wireless Receiver	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC5.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		
FCC Part 15C Class B 1GHz-18GHz -2		<u> </u>	



No.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
1	2480.115	89.04	-3.57	74.0	15.04	Peak	282.00	100	Horizontal	N/A
2	2483.500	50.82	-3.57	74.0	-23.18	Peak	269.29	100	Horizontal	Pass

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]	Pro	oduct:		Wireless	Receiver		Detec	tor		Vertical		
	M	Iode	I	Keeping Tr	ansmitting		Test Vo	ltage		DC5.0V		
Te	mp	perature		24 de	g. C,		Humic	lity		56% RH		
Te	est l	Result:		Pas	ss							
	rt 15C E+2-	Class B 1GHz-18GH	z -2			1						
	90-											
	80-			M1								
	70-			M	4							
	60-				****							
(w//	50-				M2							
level (dBuV/m)	50-	يرادا والمراد والمدارة والمدارة والمدارة والمدارة	- January Brand		M2	May large population large construction and a superior	handig in the hill beautiful and in the hand	te kasilindan katika sa	وعلقه فغ إن أوناف بالمنافق م	<u> politica de la casa de</u>	priiselika ja	
level (dBuV/m)		And the second s	marine de la companya		M2	Marting path distingues which we waster	harittisis tila tili tansi onto some och i	المستراطة المتراطة ا	magikadi misak cap pin makan	popular on the section of the sectio	yeada ahli qaba holada	
level (dBuV/m)	40-	north de service de la constitución			M2	Maringal Millianes with a marine	haridisis dan dispersionis semperiol	المسارعة المتعادة الم	marija di imisal consiste nakoni	popular and in pink part or a hand, of	A STATE OF THE STA	
level (dBuV/m)	40- 30-	madd, drawar negwada ulmaddi dalai kad	marina de la compansión de		M2	ade gygladid began vide a negara	lundin a fin de la periode in constru	المستثنة فالماسية فأسيد	mariadi, mini ne shanban	ngilis natin jingurus sanif		
level (dBuV/m)	40- 30- 20-				M2	adag yak kilik lipeng wak a naga sana	harden de Arben ar en	h-hardinkoloniddhara	maryidandii, milad oyoloy da madaana	gging orași Majargou (a. 1808). P	produced land	
level (dBuV/m)	40- 30- 20-				M2		hardis after blogarine en mari	h-hardde kesteni Abhusa	modeli-kidolejih nazavi	agilian national or place of the second	2500	
(m/\ngp) level (dBu/\n)	40- 30- 20- 10- 0.0- 247		Results	Factor		5	Detector	Table	Height	ANT		
	30- 20- 10- 247	170	Results (dBuV/m)	Factor (dB)	2483.	; Frequency (MHz)					2500	
	30- 20- 10- 247	requency			2483.	Frequency (MHz)  Over Limit		Table	Height		2500	

Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.

2. The three modulation modes of GFSK, Pi/4D-QPSK and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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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 with gain 2.0dBi maximum. It fulfills the requirement of this section.

Test Result: Pass

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#### 9.0 20dB Bandwidth Measurement

#### **Test Configuration**



#### **Test Procedure**

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

#### Limit

N/A

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#### **Test Result**

Product:	Wir	eless Rece	iver		Te	st Mode:		Keep tran	nsmitting	
Mode	Keep	ing Transn	nitting		Tes	st Voltage		DC5	5.0V	
Temperature		24 deg. C,			Н	lumidity		56%	RH	
Test Result:		Pass			Γ	Detector		P	K	
OdB Bandwidth								-		
	Marker	1 [T1 r	ndB]	RI	ВW	30 k	Hz R	F Att	20 dB	
Ref Lvl	ndB	20	.00 dB	VE	ВW	100 k	Ηz			
10 dBm	BW 89	5.791583	317 kHz	SV	TV	8.5 m	s U	nit	dBr	n
10						▼1	[T1]	- 5	5.11 dBn	n
								2.40191	1884 GHz	Z
0			1			ndB		20	0.00 dB	
				$\Lambda J$		BW <b>V</b> T1		35.79158	3317 kHz 4.56 dBn	
-10				<u> </u>	$\forall$	V ± -	[ + + ]	2.40155		
		f	$\sim$		\	<b>,</b> ∇ <sub>T</sub> 2		-25	5.45 dBn	n
-20		Ti			$\dashv$	T2		2.40244	1790 GHz	3
		X				T.				110
-30					+	~~~				1
	-	1					$\sim$			
-40					+		+			ł
-50	mend						(m	M		
										1
-60										
-70										
-70										1
-80					$\dashv$					1
-90										
Center 2.40	2 GHz		300	kHz/				Spa	an 3 MHz	<b>_</b> :

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GFSK										
Product:		Wirel	ess Receiv	ver	- 1	Test Mode:		Keep tra	nsmitting	
Mode		Keepin	g Transmi	tting	7	Test Voltage		DC	5.0V	
Temperature		24	4 deg. C,			Humidity		56%	6 RH	
Test Result:	Pass Detector PK									
20dB Bandwidth		8	890kHz							
F.		Marker 1 [T1 ndB] RBW 30 kHz		Hz R	F Att	20 dB				
Ref Lvl		ndB		00 dB	VBW		Hz		1-	
10 dBm		BW 889	779559	912 kHz	SWT	8.5 m	is U	nit	dBm	
						▼1	[T1]	- 4	.42 dBm	A
0								2.44000	902 GHz	
				_		ndi BW	8	20 89.77955	.00 dB 912 kHz	
-10					1/4	DW ▼T1	[T1]	-24	.06 dBm	
-10				-/				2.43955	210 GHz	
			<i>^</i>	40	Ŧ	<b>√</b> T2	[T1]	-24	.04 dBm	
-20			T.V			T2		2.44044	188 GHZ	1MA
			كمم			N.				
-30			/			*	- avi			
-40		-								
-40	_						J.	M		
-50	- Jack	-						1		
-60										
-70										
-80										
-90	4.4 677			300	kHz/			G	- 3 MI	
Center 2				300	KHZ/			spa	n 3 MHz	
Date: 11	.MAY.2	024 15	:30:25							

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Mode         Keeping Transmitting         Test Voltage         DC5.0V           Temperature         24 deg. C,         Humidity         56% RH           Test Result:         Pass         Detector         PK           0dB Bandwidth         890kHz             Marker 1 [T1 ndB]         RBW         30 kHz         RF Att         20 dB           Ref Lv1         ndB         20.00 dB         VBW         100 kHz         LD         LD         dBm           10 dBm         BW         889.77955912 kHz         SWT         8.5 ms         Unit         dBm         2.48000902 GHz         CD	Product:		Wirel	ess Receiv	ver		Test M	lode:		Keep tra	ansmitting	
Temperature 24 deg. C, Humidity 56% RH  Test Result: Pass Detector PK  0dB Bandwidth 890kHz  Ref Lv1 ndB 20.00 dB VBW 100 kHz 10 dBm BW 889.77955912 kHz SWT 8.5 ms Unit dBm  10												
Test Result:    Pass												
## Ref Lvl   Marker 1 [Tl ndB]   RBW   30 kHz   RF Att   20 dB   ndB   20.00 dB   VBW   100 kHz   10 dBm   BW   889.77955912 kHz   SWT   8.5 ms   Unit   dBm   2.48000902 GHz   2.48000902 GHz   2.47955210 GHz   2.4795210 GHz   2.47955210 GHz   2.4795210 GHz   2.47955210 GHz   2.4795210 GHz   2.4795210 GHz   2.4795210 GHz   2.4795210 GHz   2.4795												
Ref Lv1 ndB 20.00 dB VBW 100 kHz  10 dBm BW 889,77955912 kHz SWT 8.5 ms Unit dBm    Vi [T1]			8	890kHz								
10 dBm BW 889.77955912 kHz SWT 8.5 ms Unit dBm  10	$\triangle$	Ma	arker	1 [T1 n				30 kH	z R	F Att	20 dB	
10  0  10  10  10  10  10  10  10  10	Ref Lvl	no	dB	20.	00 dB	VBV	VBW 100 kHz		z			
T1 (T1) -1.19 dBn 2.48000 902 GHz  BW 859.77955 912 kHz  VT (T1) -2.198 dBn 2.47955210 GHz  -20 IMAX T2 2.48041 58 GHz  -40 -50 -60 -70 -80		BV	w 889	.779559	12 kHz	SW	г 8	.5 ms	U	nit	dBr	n
1	10							<b>V</b> 1 [	T1]	- 5	.19 dBn	1
-10 -10 -20 -20 -20 -30 -40 -50 -60 -70 -80										2.48000	902 GHz	Z
-10 -20 -20 -30 -40 -50 -60 -70 -80	U									20	.00 dB	
-20 1MAX -30 -40 -50 -60 -70 -80					\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	\π.				9.77955 -24		n
-20 1MAX -30 -40 -50 -60 -70 -80	-10					1			[ + + ]	2.47955		
-30 -40 -50 -60 -70 -80				r	M	,	1	<b>▽</b> <sub>Т</sub> 2		-24	.79 dBn	n
-30 -40 -50 -60 -70 -80				T1			T	2		2.48044	188 GHz	1 N
-40 -50 -60 -70 -80				لمم			1	7				
-50 -60 -70 -80	-30			/				4				1
-50 -60 -70 -80			1					A	7			
-60 -70 -80	-40		Ţ						1			1
-60 -70 -80	5.0	, N	لمر						- Fr	1/2		
-70 -80	-50	politic land								-	marin	1
-70 -80												
-80	-60											1
-80												
	-70											
-90	-80											
-90[												
Center 2.48 GHz 300 kHz/ Span 3 MHz	·	48 GHz			300	kHz/	L			L Spa	ın 3 MHz	<b>⊥</b>

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T/4DQPSK Product:	Wir	eless Rece	iver		Т	est Mode:		Keep tran	smitting	
Mode		ng Transm				est Voltage		DC5.		
Temperature		24 deg. C,				Humidity		56%		
Test Result:		Pass			_	Detector		PK		
20dB Bandwidth		1.275MHz								
A Dunawidin		1 [T1 r		D.	BW	30 k	H-2 D	F Att	20 dB	
Ref Lvl	ndB		.00 dB		BW		Hz	1100	20 02	
10 dBm	BW :	1.274549	010 MHz	S	WТ	8.5 m	s U	nit	dBr	n
10				I		<b>V</b> 1	[T1]	_ 5	.10 dBm	]
						V 1	[ + + ]	2.40212		Z
0				1		ndE		20	.00 aB	1
			A A A	X A		BW		1.27454	910 MHz	
-10			J V V	1		<b>▽</b> 11	[T1]	-25	.08 dBm	1
		M	· · ·	0	Ų°			2.40136	573 GHz	
-20		r l				7	. [11]	2.40264	.00 dBm	
1MAX							<b>T</b>			11
-30										
-40	M						h	Λ.		
-50	\							Mary Carlotter	manganganan	
-60										
-70										
-80										
-00										
-90	CH-		200	1-17 /					- 2 2	]
Center 2.402	GHZ		300	kHz/				Spa	n 3 MHz	

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Л/4DQPSK						
Product:	Wireless F	Receiver	Te	est Mode:	Keep tr	ansmitting
Mode	Keeping Tra	nsmitting	Те	st Voltage	DC	C5.0V
Temperature	24 deg	g. C,	H	Iumidity	569	% RH
Test Result:	Pas	s	I	Detector		PK
20dB Bandwidth	1.275N	МHz				
F.	Marker 1 [	T1 ndB]	RBW	30 kHz	RF Att	20 dB
Ref Lvl	ndB	20.00 dB	VBW	100 kHz		
10 dBm	BW 1.27	454910 MHz	SWT	8.5 ms	Unit	dBm
10				<b>V</b> 1 [	r1] -	4.44 dBm
					2.4410	
0		1		ndB	21	0.00 aB
		$\Lambda\Lambda\Lambda$	$\Lambda$	BW <b>_ ▽</b> 11	1.2745	4910 MHz 4.42 dBm
-10	_	~ c^\\	W 6	Ay _	2.4403	6573 GHz
	/			<b>▽</b>   <sub>1</sub> 2	[T1] -2	4.38 dBm
-20	T			T2	2.4416	1028 GHz
-30	, v			T.	ţ	1MA
-40	W				try.	
-50					00	
-60						
-70						
			T			
-80						
-90						
Center 2.4	41 GHz	300 k	Hz/		Spa	an 3 MHz
Date: 11.1	MAY.2024 15:42	: 46				

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Product:		Wire	less Receiv	ver		Test	Mode:		Keep transmitting		
Mode			g Transmi				Voltage			5.0V	
Temperature			4 deg. C,				nidity			6 RH	
Test Result:			Pass				tector			PK	
OdB Bandwidth		1	.275MHz								
<u> </u>	1		1 [T1 n	ndB]	RB	W	30 ki	Hz Ri	F Att	20 dB	
Ref Lvl	r	ndB	20.	00 dB	VB	W	100 ki	Ηz			
10 dBm	E	3W :	1.274549	10 MHz	SW	T	8.5 ms	5 Ui	nit	dBm	ı
10							▼1	[T1]	-5	.18 dBm	I_
									2.48000	902 GHz	•
0						$\top$	ndB		20	.00 dB	
				$\Lambda\Lambda$	<i>. . . .</i>		BW <b>▽</b> ⊤1		1.27454	910 MHz	
-10			- 0.0	<del>\</del> \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	U J	بالأمر	v.	[ + + ]	2.47936	573 GHz	Ì
			/*	V			\AT 5		-25	.40 dBm	
-20		т	pl.			+	\rightarrow \right	г2	2.48064	028 GHz	
-30		7					Ì	Z.			1
-40								m	Λ.		
-50	, , , ,								-	www	
-60											
-70											
-80						+					
-90 Center 2.	.48 GHz		L	300	kHz/		Į.		l Sna	n 3 MHz	L

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DPSK				-		<del></del>			
Product:	Wire	eless Receiv	ver		Test Mode:		Keep tra	nsmitting	
Mode	Keepii	ng Transmi	tting	1	Test Voltage		DC	5.0V	
Temperature	2	24 deg. C,			Humidity		56% RH		
Test Result:		Pass	Detector				F	PΚ	
20dB Bandwidth	1	.244MHz							
/E	Marker	1 [T1 r	ndB]	RBW	30 ki	ız RI	F Att	20 dB	
Ref Lvl	ndB	20.	00 dB	VBW	100 ki	Ηz			
10 dBm	BW	1.244488	898 MHz	SWT	8.5 ms	s Ur	nit	dBm	ı
10					▼1	[T1]	-5	.05 dBm	
							2.40200	902 GHz	A
0					ndB		20	.00 dB	
			Λ Λ <i>λ</i>	A A	BW		1.24448	898 MHz	
-10		-	/\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Local	<b>▽</b> ±1	[T1]	-24	.86 dBm	
			<u> </u>	V			2.40139	579 GHz	
-20		1			1	r + + 1	2.40264	028 GHz	
1MAX		Y							1M2
-30									
-40	1						$\wedge \wedge$		
-50						`	<u> </u>	wanted	
-60									
-70									
-80									
-90	402 GH		200	1-11- /				- 2 2477	Į.
Center 2.	4UZ GHZ		300	kHz/			Spa	n 3 MHz	

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BDPSK										
Product:		ess Receive			est Mode:			nsmitting		
Mode		g Transmitti	ng		est Voltage			5.0V		
Temperature	2	4 deg. C,			Humidity		56% RH			
Test Result:		Pass			Detector		F	PΚ		
20dB Bandwidth										
<u>k</u>	Marker	1 [T1 nd	B]	RBW	30 kF	Iz RI	? Att	20 dB		
Ref Lvl	ndB		0 dB	VBW	100 kH					
10 dBm	BW 1	.2444889	8 MHz	SWT	8.5 ms	5 Ur	nit	dBm	ı	
					▼1	[T1]	- 4	.48 dBm	_	
							2.44000	902 GHz	A	
0			1		ndH		20	.00 dB		
			$\Lambda\Lambda\Lambda$	Æ	вw <b>∨</b> т1	5 em 2 - 2	1.24448	898 MHz		
-10		_ ^~^	<del>/ V V \</del>	<u>~~\</u>	\ \	[T1]	2.43939	.29 dBm 579 GHz		
				V	Var 2	[T1]	-24	.44 dBm		
-20	T	<i></i>			7	2	2.44064	028 GHz		
1MAX -30					}	<u>K</u>			1M2	
-40	1						ΛΛ			
-50							-	echony		
-60										
-70										
-80										
-90				/						
Center 2.4	44 GHz		300 k	Hz/			Spa	n 3 MHz		

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8DPSK	Wireless Receiver											
Product:		Wirel	ess Receiv	ver		Т	est Mode:		Keep tra	nsmitting		
Mode		Keepin	g Transmi	tting		Te	est Voltage	;	DC	5.0V		
Temperature		2	4 deg. C,			]	Humidity		56%	6 RH		
Test Result:						Detector		Detector				
20dB Bandwidth		1.	244MHz									
F		Marker	1 [T1 n		R	BW	30 k	Hz R	F Att	20 dB		
Ref Lvl		ndB		00 dB		BW		Hz				
10 dBm		BW 1	.244488	98 MHz	S	WT	8.5 m	s U	nit	dBm		
							▼1	[T1]	- 5	.29 dBm	A	
0									2.48000	902 GHz		
Ŭ							nd: BW		20	.00 dB		
1.0				$\wedge M$	\ _{	Ţ	BW <b>V</b> T1		-25	898 MHz		
-10			~~~	~ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	- <del> 00</del> 0-0-	7	1 1		2.47939	579 GHz		
			$\int \mathbf{V} \cdot \mathbf{v}$			¥	V		-25	.47 dBm		
-20		Т	/				7	T2	2.48064	028 GHz	1MA	
								<b>X</b>			1112	
-30											9	
		Į.						l f				
-40								+			1	
	Λ	r C							MΛ			
-50	<del></del>	<u>,                                      </u>						,	A 11 F	-Augusta		
-60												
-70												
-80												
-90	40.00				1 ** '					2		
Center 2.				300	KHZ/				Spa	n 3 MHz		
Date: 11	11.MAY.2024 15:51:03											

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#### 10.0 FCC ID Label

#### FCC ID: 2A2IXBK07

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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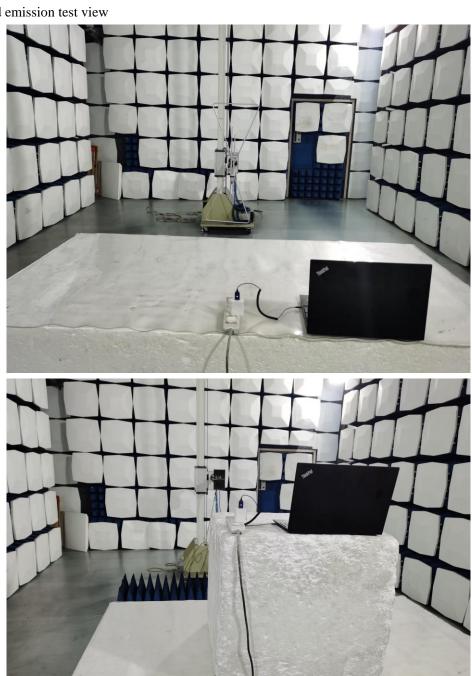


11.0 Photo of testing

11.1 Conducted test View

N/A

Radiated emission test view



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

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#### 11.2 Photographs – EUT

Outside View





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Outside View





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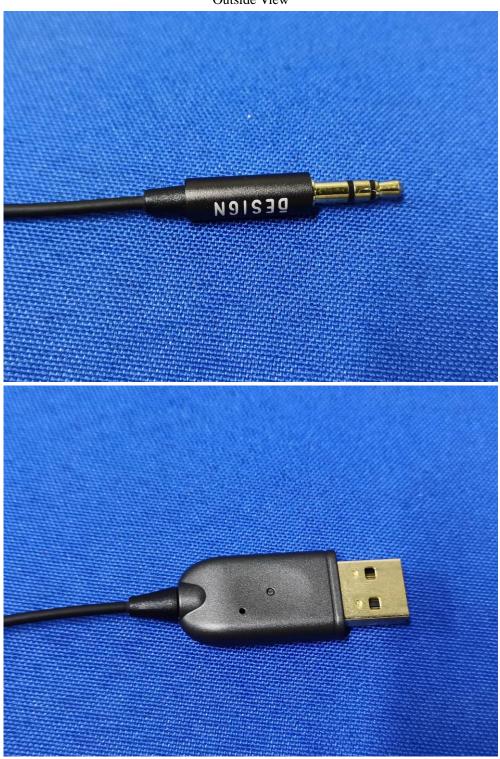
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Outside View



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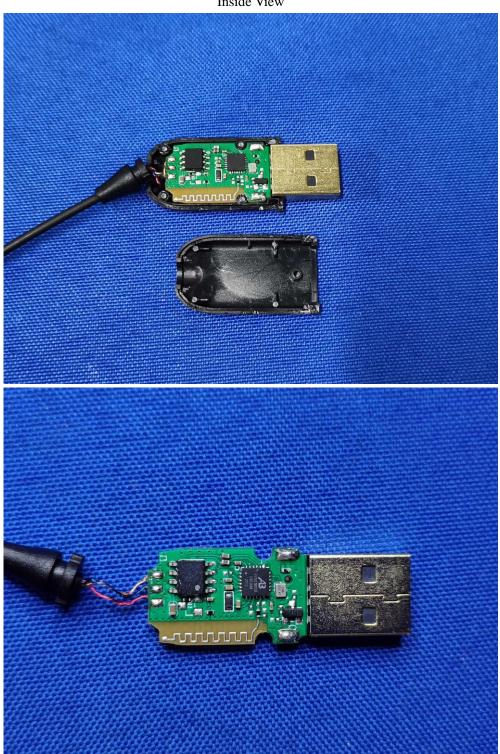
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Inside View



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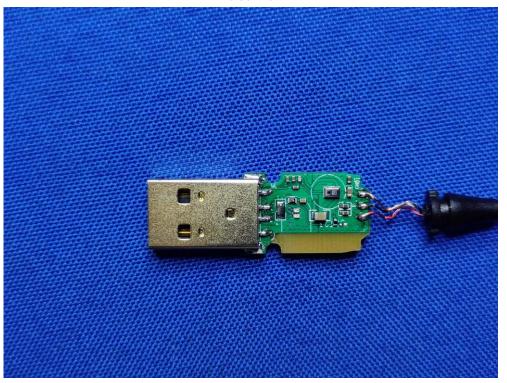
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adopt any other remedies which may be appropriate.

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Inside View



-- End of the report--