

Report No.: TBR-C-202209-0002-2 Page: 1 of 30

FCC Radio Test Report

FCC ID: 2AZI3-RC528

Report No.	TBR-C-202209-0002-2	
Applicant	SHENZHEN KERUI SMART TECHNOLOGY CO., LTD	
Equipment Under	st (EUT)	
EUT Name	Motion Sensor Alarm Transmitter	
Model No.	RC528	
Series Model No.	P6+RC528	
Brand Name	SECRUI STECHRO	
Sample ID	202209-0002_01-01	
Receipt Date	2022-09-13	
Test Date	2022-09-13 to 2022-09-21	
Issue Date	2022-09-21	
Standards	FCC Part 15, Subpart C (15.231(a))	
Test Method	ANSI C63.10:2013	
Conclusions	PASS	

In the configuration tested, the EUT complied with the standards specified above,

Camille

Ray Lai

The EUT technically complies with the FCC requirements

Caustle 4

INAN SU fory Lai.

Test/Witness Engineer

Engineer Supervisor

Engineer Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0



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Revision History

Report No.	Version	Description	Issued Date
TBR-C-202209-0002-2	Rev.01	Initial issue of report	2022-09-21
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1. General Information about EUT

1.1 Client Information

Applicant		SHENZHEN KERUI SMART TECHNOLOGY CO., LTD
Address		Room 1501, T2, Jinlitong Building, No. 1100, Xingye Road, Xin'an Street, Bao'an District, Shenzhen, Guangdong, China
Manufacturer : SHENZHEN KE		SHENZHEN KERUI SMART TECHNOLOGY CO., LTD
Address		Room 1501, T2, Jinlitong Building, No. 1100, Xingye Road, Xin'an Street, Bao'an District, Shenzhen, Guangdong, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Motion Sensor Alarm Transmitter		
Model(s)		RC528, P6+RC528		
Model Difference		All PCB boards and circuit diagrams are the same, the only difference is that appearance color.		
Product		Operation Frequency:	433.92 MHz	
		Output Power:	67.57 dBuV/m (PK Max.) 58.99 dBuV/m (AV Max.)	
Description		Antenna Type:	PCB Antenna	
THE REAL		Antenna Gain:	-8.57dBi	
		Modulation Type:	ООК	
Power Rating):	DC 3.0V by button cell		
Software Version	1	N/AKR-RC528-2246-AThe antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.		
Hardware Version	•			
Remark	÷			

Note:

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (2) Antenna description

Brand	Model Name	Туре	Antenna Gain(dBi)
N/A	N/A	PCB Ant.	-3



1.3 Block Diagram Showing the Configuration of System Tested

TX Mode



1.4 Description of Support Units

The EUT has been test as an independent unit.

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

	Test Items	Note
2	Conducted Emission	Continuously transmitting
	Radiated Emission	Continuously transmitting
200	Bandwidth	Continuously transmitting
and a second	Duty Cycle	Continuously transmitting
	Release Time	Normal Mode

Note:

- (1) During the testing procedure, the continuously transmitting mode was programmed by the customer.
- (2) The EUT is considered a Mobile unit, and it was pre-tested on the positioned of each 3 axis: X axis, Y axis and Z axis. The worst case was found positioned on Z-plane. There for only the test data of this Z-plane were used for radiated emission measurement test.



1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of transmitting mode.

RF Power Setting in Test SW:	DEF
------------------------------	-----

1.7 Measurement Uncertainty

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

Test Item	Parameters	Expanded Uncertainty (U _{Lab})	
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	±3.50 dB ±3.10 dB	
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB	
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.20 dB	
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB	



1.8 Test Facility

The testing was performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at: 1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351 Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A.

2. Test Summary

FCC Part 15 Subpart (15.231(a))					
Standard Section Test Item Judgment Ref					
15.203	Antenna Requirement	PASS	N/A		
15.207	Conducted Emission	N/A	N/A		
ang	Release Time	PASS	N/A		
	Radiation Emission	PASS	N/A		
15.231 —	20 dB Bandwidth	PASS	N/A		
EU ST	Duty Cycle	PASS	N/A		

3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	FA-03A2RE



4. Test Equipment

Radiation Emission T	est		1		
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jun. 23, 2022	Jun. 22, 2023
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jun. 23, 2022	Jun. 22, 2023
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 23, 2022	Jun. 22, 2023
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Feb. 27, 2022	Feb.26, 2024
Horn Antenna	ETS-LINDGREN	3117	00143207	Feb. 26, 2022	Feb.25, 2024
Horn Antenna	ETS-LINDGREN	BBHA 9170	BBHA9170582	Feb. 26, 2022	Feb.25, 2024
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Feb. 26, 2022	Feb.25, 2024
Pre-amplifier	Sonoma	310N	185903	Feb. 26, 2022	Feb.25, 2023
Pre-amplifier	HP	8449B	3008A00849	Feb. 26, 2022	Feb.25, 2023
Pre-amplifier	SKET	LNPA_1840G-50	SK201904032	Feb. 26, 2022	Feb.25, 2023
Cable	HUBER+SUHNER	100	SUCOFLEX	Feb. 26, 2022	Feb.25, 2023
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna Conducted I	Emission				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jun. 23, 2022	Jun. 22, 2023
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 23, 2022	Jun. 22, 2023
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 01, 2022	Aug. 31, 2023
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 01, 2022	Aug. 31, 2023
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 01, 2022	Aug. 31, 2023
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO26	Sep. 01, 2022	Aug. 31, 2023
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO29	Sep. 01, 2022	Aug. 31, 2023
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO31	Sep. 01, 2022	Aug. 31, 2023
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO33	Sep. 01, 2022	Aug. 31, 2023



5. Conducted Emission Test

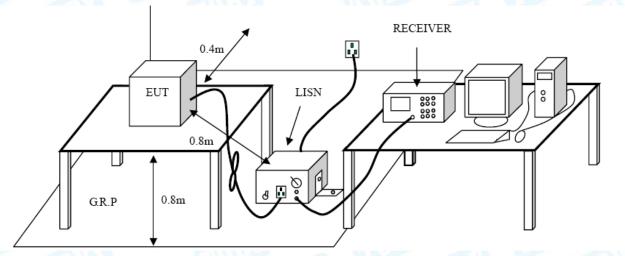
- 5.1 Test Standard and Limit
 - 5.1.1Test Standard FCC 15.207
 - 5.1.2 Test Limit

Fraguanay	Maximum RF Line Voltage (dBμV)					
Frequency	Quasi-peak Level	Average Level				
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *				
500kHz~5MHz	56	46				
5MHz~30MHz	60	50				

Conducted Emission Test Limit

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
- 5.2 Test Setup





5.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

The EUT must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

5.4 Deviation From Test Standard

No deviation

5.5 Test Data

N/A, no USB or AC charging port was provided, therefore, it's not applicable



6. Radiated Emission Test

- 6.1 Test Standard and Limit
 - 6.1.1 Test Standard
 - FCC 15.231
 - 6.1.2 Test Limit

According to FCC 15.231(a) requirement:

In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m	Field Strength of Spurious Emissions (microvolt/meter) at 3m
40.66~40.70	2250	225
70~130	1250	125
130~174	1250 to 3750(**)	125 to 375(**)
174~260	3750	375
260~470	3750 to 12500(**)	375 to 1250(**)
Above 470	12500	1250

** Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

- (1) for the band 130~174 MHz, uV/m at 3 meters= 56.81818(F)-6136.3636;
- (2) for the band 260~470 MHz, uV/m at 3 meter= 41.6667(F)-7083.3333.
- (3) The maximum permitted unwanted emissions level is 20 dB below the maximum permitted fundamental level. In addition field strength of any emissions which appear inside of the restriction band shall not exceed the general radiated emissions limits in FCC Part15.209.

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3

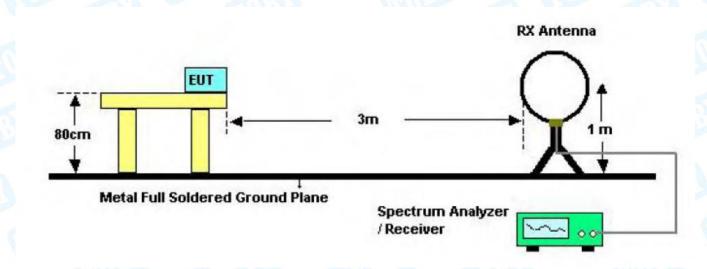


Above 960	500	3
Note:		
(1) The tighter limit applies a	at the band edges.	
(2) For above 30MHz:		
Emission Level(dBuV/m)	=20log Emission Level(uV	//m)
For 0.009~0.490MHz:		
Emission Level(dBuV/m)	=20log Emission Level(uV	//m) +40log(300/3)
For 0.049~30MHz:		
Emission Level(dBuV/m)	=20log Emission Level(u\	//m) +40log(30/3)

So the field strength of emission limits have been calculated in below table.

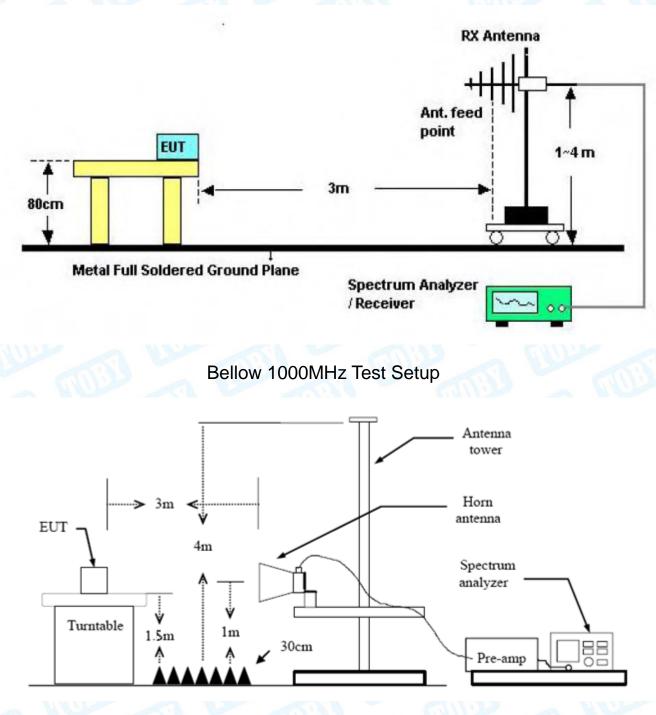
Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolt/meter) at 3m
433.92 MHz	80.82 (Average)
433.92 MHz	100.82 (Peak)

6.2 Test Setup



Below 30MHz Test Setup





Above 1GHz Test Setup



6.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.
- 6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

6.6 Test Data

Please refer to the Attachment A.



7. Bandwidth

7.1 Test Standard and Limit

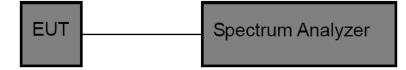
7.1.1 Test Standard FCC 15.231

7.1.2 Test Limit

The 99%bandwidth of the emissions shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. So the emission bandwidth limits have been calculated in below table.

Fundamental Frequency	20 dB Bandwidth Limits (MHz)
433.92MHz	1.0848

7.2 Test Setup



7.3 Test Procedure

- (1) Set Spectrum Analyzer Center Frequency= Fundamental Frequency, RBW=10 kHz, VBW= 30 kHz, Span= 1 MHz.
- (2) Measured the spectrum width with power higher than 20 dB below carrier.

7.4 Deviation From Test Standard

No deviation

7.5 EUT Operating Condition

The Equipment Under Test was Programmed to be in continuously transmitting mode.

7.6 Test Data

Please refer to the Attachment C.

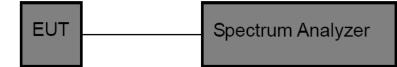


8. Release Time Measurement

- 8.1 Test Standard and Limit
 - 8.1.1 Test Standard FCC 15.231
 - 8.1.2 Test Limit

According to FCC 15.231a, A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

8.2 Test Setup



8.3 Test Procedure

- (1) Setup the EUT as show in the block diagram above.
- (2) Set Spectrum Analyzer Centre Frequency= Fundamental Frequency, RBW=100 kHz, VBW= 300 kHz, Span= 0 Hz. Sweep Time= 5 Seconds.
- (3) Setup the EUT as normal operation and press Transmitter button.
- (4) Set Spectrum Analyzer View, Delta Mark time.
- 8.4 Deviation From Test Standard

No deviation

8.5 EUT Operating Condition

The EUT was set to work in transmitting mode.

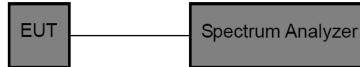
8.6 Test Data

Please refer to the Attachment D.



9. Duty Cycle

- 9.1 Test Standard and Limit
 - 9.1.1 Test Standard FCC 15.231
- 9.2 Test Setup



9.3 Test Procedure

- (1) The EUT was placed on a turntable which is 0.8m above ground plane.
- (2) Set EUT operating in continuous transmitting mode.
- (3) Set the Spectrum Analyzer to the transmitter carrier frequency, and set the spectrum analyzer resolution bandwidth (RBW) to 100 kHz and video bandwidth (VBW) to 300 kHz, Span was set to 0 Hz.
- (4) The Duty Cycle was measured and recorded.
- 9.4 Deviation From Test Standard

No deviation

9.5 EUT Operating Condition

The EUT was programmed to be in transmitting mode.

9.6 Test Data

Please refer to the Attachment E.



10. Antenna Requirement

10.1 Standard Requirement

10.1.1 Standard

FCC Part 15.203

10.1.2 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

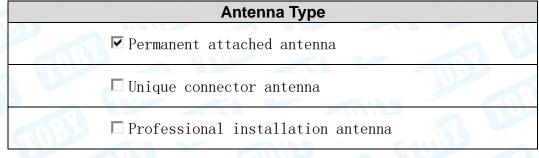
10.1 Deviation From Test Standard

No deviation

10.2 Antenna Connected Construction

The gains of the antenna used for transmitting is -3 dBi, and the antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

The EUT antenna is an PCB Antenna. It complies with the standard requirement.





Attachment A-- Radiated Emission Test Data

9 KHz to 30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

30MHz-1GHz

GHZ					200					14
Temp	pera	ature:	23.9	°C		alle	Rel	ative Humid	lity: 44	1%
Test	Vol	tage:	DC :	3V					GRU	20
Ant.	Pol	•	Hori	zonta	al	~	1111			-
Test	Мо	de:	TX	Node	0	C:D		CUL LA	2	
Rem	ark	:		-	t for the	emission w	hich more	than 10 dB b	elow the	
80.0	dB	uV/m								
70								2 X		
60									C 3M Radiation	\$
50								Margin -6-df	}	
40								× ·	3 <u>4</u> 5 * * *	
30					-					, Hurwen peak
20								unan M Mulu	longeneethorie	
10	humumu	un half and a strong and half have	which on the for	windents	an annual garden	al and a second s	when when when			
0										
-10										
-20 30	.000		60.00			(MHz)	30	0.00		1000.000
No	D.	Freque (MH	-		ading BuV)	Factor (dB/m)	Level (dBuV/m	Limit) (dBuV/m)	Margin (dB)	Detector
1		407.5	145	54	4.23	-18.27	35.96	46.00	-10.04	peak
2	*	434.0	651	8	5.03	-17.46	67.57	46.00	21.57	peak
3		543.2	742	53	3.21	-14.55	38.66	46.00	-7.34	peak
4		651.9	417	5	1.70	-12.45	39.25	46.00	-6.75	peak

Emission Level= Read Level+ Correct Factor

49.05

63.75

-10.57

-8.92

38.48

54.83

46.00

46.00

-7.52

8.83

peak

peak

760.7036

869.1302

5

6 X



		Fundam	ental and Harmonics Re	acult		
		r unuan		-5011		
Frequency	Peak Level	AV Factor(dBµV/m)	Average Level	Limit(dBµV/m)	Limit(dBµV/m)	Conclusion
(MHz)	(dBµV/m)	(see Attachment D)	(dBµV/m)	(average)	(Peak)	Conclusion
434.0651	67.57	-8.58	58.99	80.80	100.80	PASS
869.1302	54.83	-8.58	46.25	60.80	80.80	PASS



emper	ature:	23.9	l°C		Rela	ative Humid	lity: 44	4%
est Vo	Itage:	DC 3	3V			130		Un
Ant. Po	Ι.	Verti	ical		av	-	21	5
Test Mo	ode:	TX	Mode			2 646		
Remark	:		eport for cribed lin	the emission v nit.	which more t	han 10 dB b	elow the	000
80.0 dB	uV/m							
70						2		
						2 X		
60						(RF)FCC 15C	3M Radiation	ş –
50						Margin -6-dB		
40					— ———————————————————————————————————	1 4 X X	5	
30						1	5 X	un om hore
								(Marcine)
20						and the second of	and and we have the	
20 	end by anti-the tenter	monorthy	Murrowskin	, and the second second	Mar Marine Marine	unidaria Mandarala	and and an and a second	
Abrahan	nad the second	Humansha	Murromation	an and the second	And and pressing and and and	unselent Windowski	no bear from the north	
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10		manun du	Mangapation	and the second	Matana and and and and and and and and and	ensedented WT What and		
10		60.00	Augustinesian n	WHz)	300.0	parsonal MC Wheek and he		1000.00
100	Freque (MH	60.00 ency	Readin (dBuV	(MHz)	300.0 Level		Margin	
10 , , , , , , , , , , , , , , , , , , ,	Freque	60.00 ency łz)	Readin	(MHz) Ig Factor (dB/m)	300.0 Level	Dimit	Margin	1000.00
10	Freque (MH	60.00 ency łz) 5145	Readin (dBuV	(MHz) Ig Factor (dB/m)	300.0 Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	1000.00 Detecto
10	Freque (MH 407.5	60.00 ency 1z) 6145 651	Readin (dBuV 56.48	(мнг) g Factor (dB/m) -18.27 -17.46	300.0 Level (dBuV/m) 38.21	Limit (dBuV/m) 46.00	Margin (dB) -7.79	Detector peak
10	Freque (MH 407.5 434.0	60.00 ency iz) 6145 651 0269	Readin (dBuV 56.48 85.01	(мнг) g Factor (dB/m) -18.27 -17.46 -15.88	300.0 Level (dBuV/m) 38.21 67.55	Limit (dBuV/m) 46.00 46.00	Margin (dB) -7.79 21.55	1000.00
10	Freque (MH 407.5 434.0 489.0	60.00 ency 12) 6145 651 9269 2742	Readin (dBuV 56.48 85.01 42.17	(мнг) g Factor (dB/m) -18.27 -17.46 -15.88 -14.55	300.0 Level (dBuV/m) 38.21 67.55 26.29	Limit (dBuV/m) 46.00 46.00	Margin (dB) -7.79 21.55 -19.71	Detector peak peak

		Fundam	nental and Harmonics Re	esult		
Frequency (MHz)	Peak Level (dBµV/m)	AV Factor(dBµV/m) (see Attachment D)	Average Level (dBμV/m)	Limit(dBµV/m) (average)	Limit(dBµV/m) (Peak)	Conclusion
434.0651	67.55	-8.58	58.97	80.80	100.80	PASS
869.1302	53.29	-8.58	44.71	60.80	80.80	PASS



1GHz -6GHz

emper	rature:	23.9	€C	1		C -		Rela	tive Hun	nidity:	44	%
est Vo	ltage:	DC	3V	AU	200	1	3	-13		1		6
nt. Po	ol.	Hori	izonta	al	TIT					UPP		-
est Mo	ode:	TX	Mode			2		n li			1	162
Remark	k:	The	peal	k value	<average< td=""><td>je li</td><td>mit, S</td><td>So only</td><td>show the</td><td>peak va</td><td>alue</td><td></td></average<>	je li	mit, S	So only	show the	peak va	alue	
90.0 d	BuV/m											
80												
									(RF) FCC	PART 15C (PEAK	1
70												
60	4								(RF) FCC	PART 15C (AVG)	
50	×	X		3 X		4						
40		المليد فدقد فدرا	and a second second	senter toward	have made and the	w. Kanada	warmen with	numerican	the portion had a dedres had	approximate durates	TIMATUR	htter pea
10 m m m m m m m m m m m m m m m m m m m	Constant in the second of the second se	Mar and										
30	- Marine and Marine	MAN PROVIDENCE										
20												
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20 10 0												
20 10 0	00 1500.00	2000.00	250	0.00 3	000.00 (M	Hz)	400	0.00 4	500.00 500	0.00 55	00.00	6000.0
20 10 0 -10 1000.0	1		1					0.00 4 evel				
20 10 0	00 1500.00 Frequer (MHz	псу	Rea	00.00 3 ading BuV)	Facto	or	Le	evel	500.00 500 Limit (dBuV/n	Març	gin	6000.0
20 10 -10 1000.0	Frequer	ncy)	Re (dl	ading	Facto	or 1)	Le (dBu	evel	Limit	Marg	gin 3)	
20 10 -10 1000.0	Frequer (MHz	ncy) 00	Rea (dl	ading BuV)	Facto (dB/m	or 1) 3	Le (dBu 51	evel uV/m)	Limit (dBuV/n	Març n) (dE	gin 3) 92	Detecto
No. 1 *	Frequer (MHz 1735.0	ncy) 00	Re: (dl 69	ading BuV) 9.31	Facto (dB/m -18.23	or 1) 3	Le (dBu 51 48	evel JV/m) .08	Limit (dBuV/n 74.00	Marg n) (dE -22.5	gin 3) 92 01	Detecto peak

Emission Level= Read Level+ Correct Factor



	Average Value											
Frequency (MHz)	Peak Level (dBuV/m)	AV Factor(dBµV/m) (see Attachment D)	Average value (dBuV/m)	Limit Line (dBuV/m)	Over limit (dB)	Conclusion						
1735.000	51.08	-8.58	42.5	54.00	-11.5	PASS						
2170.000	48.99	-8.58	40.41	54.00	-13.59	PASS						
2605.000	43.36	-8.58	34.78	54.00	-19.22	PASS						
3550.000	41.90	-8.58	33.32	54.00	-20.68	PASS						



23.9 ℃			
23.90		Relative Humidity:	44%
DC 3V	Can De	A THE	
Vertical	N.		
TX Mode		No al	134
The peak value <	average limit, So	o only show the peak v	alue.
		(RF) FCC PART 15C	PEAK)
		(RF) FCC PART 15C	(AVG)
3 4			
2 A A A Market	have all water and madeline to make	when we have a proper and the stand of the s	And the second s
Merita market and a			
	Vertical TX Mode	Vertical TX Mode The peak value < average limit, So	Vertical TX Mode The peak value < average limit, So only show the peak value (RF) FCC PART 15C ((RF) FCC PART 15C ((RF) FCC PART 15C ()

No.	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	Detector	
1 *	1735.000	72.66	-18.23	54.43	74.00	-19.57	peak	
2	1980.000	55.64	-17.07	38.57	74.00	-35.43	peak	
3	2170.000	61.19	-16.44	44.75	74.00	-29.25	peak	
4	2605.000	58.31	-15.10	43.21	74.00	-30.79	peak	

Emission Level= Read Level+ Correct Factor



	Average Value											
Frequency (MHz)	Peak Level (dBuV/m)	AV Factor(dBμV/m) (see Attachment D)	Average value (dBuV/m)	Limit Line (dBuV/m)	Over limit (dB)	Conclusion						
1735.000	54.43	-8.58	45.85	54.00	-8.15	PASS						
1980.000	38.57	-8.58	29.99	54.00	-24.01	PASS						
2170.000	44.75	-8.58	36.17	54.00	-17.83	PASS						
2605.000	43.21	-8.58	34.63	54.00	-19.37	PASS						

Other harmonics emissions are lower than 20dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV. And AV is calculated by the following: Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.

Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values.

- Average Values=Peak Values+20log (Duty Cycle)
- (2) Emission Level= Reading Level + Probe Factor +Cable Loss
- (3) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Pulse Desensitization Correction Factor

Note:

1)The Smallest Pulse Width (PW)= 0.400ms

(2) 2/PW=2/0.400(ms)= 5kHz<100 kHz

Because 2/PW<RBW, so the PDCF is not needed.



Attachment C--Bandwidth Data

Temperature	:	25℃
Relative Humidity		65 %
Pressure		1010 hPa
Test Power	:	DC 3V
	63	

Frequency (MHz)	20 dBc Bandwidth (kHz)	Limit (kHz)	Resu
433.92	176.71	1084.8	PASS
Coupling: AC	Input Z: 50 Q. Atten: 10 dB Trig: Free Run Center Freq: 433 920 Corr CCorr RCal Preamp: Off Gate: Off Avg Hold >10/10 Freq Ref. Int (S) #IF Gain: Low Radio Std: None	0000 MHz	T
1 Graph Scale/Div 10.0 dB Log 20.0 10.0 20.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0	Ref Value 30.00 dBm		
Center 433.9200 MHz #Res BW 10.000 kHz	#Video BW 30.000 kHz*	Span Syan Sweep 6.20 ms (1	500 kHz 001 pts)
2 Metrics Cccupied Band Transmit Freq E x dB Bandwidth	176.71 kHz Total Point Error 3.200 kHz % of OE	ower 0.93 dBm BW Power 99.00 % -20.00 dB	10
	Sep 13, 2022		



Attachment D-- Release Time Measurement Data

Temperature	:	25 ℃
Relative Humidity		65 %
Pressure	:	1010 hPa
Test Power	:	DC 3V
IEST FOWER	Ŀ	DC 3V

ase Time(s)		Limit (s)				Result		
1.220	00	50	5	1000	1	PASS		
Spectrum Analyzer 1 Swept SA	• +							
KEYSIGHT Input: RF RL ++ Coupling: AC Align: Auto/No RF	Input Z: 50 Ω Corr CCorr RCal Freq Ref: Int (S)	Atten: 20 dB Preamp: Off	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	Avg Type: Log-Power Trig: Free Run	1 2 3 4 5 6 W W W W W W P N N N N N			
1 Spectrum v Scale/Div 10 dB	l.		Ref Level 10.0) dBm		ΔMkr1 1.220 s 0.18 dE		
Log								
0.00								
-10.0								
-30.0								
-40.0								
-50.0								
-60.0	สะสสราใหญ่สุดใหม่สามาระบาท	X		1D2	andraation produced feel and an	Andrewall Andrewall		
-70.0								
-80.0								
Center 433.920000 MHz #Res BW 1.0 MHz						Span 0 H: Sweep 5.00 s (1001 pts		
	Sep 13, 2022 5:15:16 PM	$\square \land$						



Attachment E--Duty Cycle Data

Please refer the following pages:

- Plot 1: transmit once in 100ms, there are two kinds of pulse, the small pulses total 11, the large pulses total 14.
- Plot 2: one small pulse in a time period of 0.33 ms
- Plot 3: one large pulse in a time period of 0.96 ms

Duty Cycle=ON/Total= (0.33 *12+0.96*11)/39=37.23% 20log (Duty Cycle) =-8.58 Average=Peak Value+ 20log (Duty Cycle), AV=PK-8.58

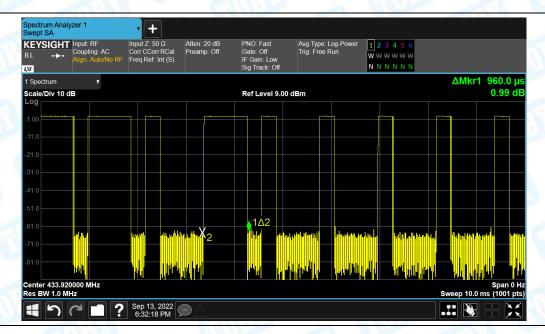


Plot 1



TB-RF-074-1.0

-----END OF REPORT-----







Plot 2