FCC REPORT

Applicant:	PORTMAN ELECTRONICS (DONGGUAN) CO., LTD.
Address of Applicant:	NO#10, Luyi 2 Road, Keyuancheng, Tangxia Town, DONGGUAN CITY, GUANGDONG PROVINCE CHINA 523718

Equipment Under Test (EUT)

Product Name:	CAR ALARM
Model No.:	181TWSP-1, 181TWXPR-1
FCC ID:	TBQT4-SS2W-1
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247
Date of sample receipt:	06 Jul., 2021
Date of Test:	07 Jul., to 18 Aug., 2021
Date of report issued:	18 Aug., 2021
Test Result:	PASS *

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

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	*18 Aug., 2021*	*Original*

Tested by: Mike.ou ***Date:*** *18 Aug., 2021*

Test Engineer

Reviewed by: Winner Zhang ***Date:*** *18 Aug., 2021*

Project Engineer

3 Contents

Page

1 COVER PAGE 1
2 VERSION 2
3 CONTENTS 3
4 TEST SUMMARY 4
5 GENERAL INFORMATION 5
5.1 CLIENT INFORMATION 5
5.2 GENERAL DESCRIPTION OF E.U.T. 5
5.3 TEST ENVIRONMENT AND MODE 6
5.4 DESCRIPTION OF SUPPORT UNITS 6
5.5 MEASUREMENT UNCERTAINTY 6
5.6 ADDITIONS TO, DEVIATIONS, OR EXCLUSIONS FROM THE METHOD 6
5.7 LABORATORY FACILITY 6
5.8 LABORATORY LOCATION 6
5.9 TEST INSTRUMENTS LIST 7
6 TEST RESULTS AND MEASUREMENT DATA 8
6.1 ANTENNA REQUIREMENT 8
6.2 CONDUCTED EMISSIONS 9
6.3 CONDUCTED OUTPUT POWER 10
6.4 20DB OCCUPY BANDWIDTH 12
6.5 CARRIER FREQUENCIES SEPARATION 14
6.6 HOPPING CHANNEL NUMBER 16
6.7 DWELL TIME 18
6.8 PSEUDORANDOM FREQUENCY HOPPING SEQUENCE 20
6.9 BAND EDGE 21
6.9.1 Conducted Emission Method 21
6.10 SPURIOUS EMISSION 23
6.10.1 Conducted Emission Method 23
6.10.2 Radiated Emission Method 25
7 TEST SETUP PHOTO 31
8 EUT CONSTRUCTIONAL DETAILS 32

4 Test Summary

Test Items	Section in CFR 47	Result
Antenna Requirement	15.203 & 15.247 (b)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(2)	Pass
20dB Occupied Bandwidth	15.247 (a)(1) (i)	Pass
Carrier Frequencies Separation	15.247 (a)(1)	Pass
Hopping Channel Number	15.247 (a)(1) (i)	Pass
Dwell Time	15.247 (a)(1) (i)	Pass
Spurious Emission	15.205 & 15.209	Pass

Remark:

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *N/A: Not Applicable.*
3. *The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).*

Test Method:	*ANSI C63.10-2013* *KDB 558074 D01 15.247 Meas Guidance v05r02*

5 General Information

5.1 Client Information

Applicant:	PORTMAN ELECTRONICS (DONGGUAN) CO., LTD.
Address:	NO#10, Luyi 2 Road, Keyuancheng, Tangxia Town, DONGGUAN CITY, GUANGDONG PROVINCE CHINA 523718
Manufacturer/Factory:	DONGGUAN PORTMAN ELECTRONIC SCIENCE AND TECHNOLOGY CO., LTD.
Address:	NO.10, LUYI 2 ROAD, TANGXIA TOWN, DONGGUAN CITY GUANGDONG PROVINCE

5.2 General Description of E.U.T.

Product Name:	CAR ALARM
Model No.:	181TWSP-1, 181TWXPR-1
Operation Frequency:	905 MHz~925MHz
Number of channel:	25
Modulation type:	FSK
Modulation technology:	FHSS
Antenna Type:	Helix antenna
Antenna gain:	-1.25 dBi
Power supply:	DC3.0V (CR2450 Battery)
Remark:	Model No.: 181TWSP-1, 181TWXPR-1 were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name.
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

Operation Frequency							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	905.4MHz	7	911.0MHz	14	916.6MHz	21	922.2MHz
1	906.2MHz	8	911.8MHz	15	917.4MHz	22	923.0MHz
2	907.0MHz	9	912.6MHz	16	918.2MHz	23	923.8MHz
3	907.8MHz	10	913.4MHz	17	919.0MHz	24	924.6MHz
4	908.6MHz	11	914.2MHz	18	919.8MHz		
5	909.4MHz	12	915.0MHz	19	920.6MHz		
6	910.2MHz	13	915.8MHz	20	921.4MHz		
Remark: Channel 0, 12 &24 selected for FSK							

5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test Modes:	
Non-hopping mode:	Keep the EUT in continuous transmitting mode with worst case data rate.
Hopping mode:	Keep the EUT in hopping mode.
The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working with a fresh battery, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

5.4 Description of Support Units

The EUT has been tested as an independent unit.

5.5 Measurement Uncertainty

@3m semi-anechoic chamber	
Parameters	Expanded Uncertainty
Radiated Emission (9kHz ~ 30MHz)	±3.13 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.45 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.34 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±5.34 dB (k=2)

5.6 Additions to, deviations, or exclusions from the method

No

5.7 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://www.ccis-cb.com

5.9 Test Instruments list

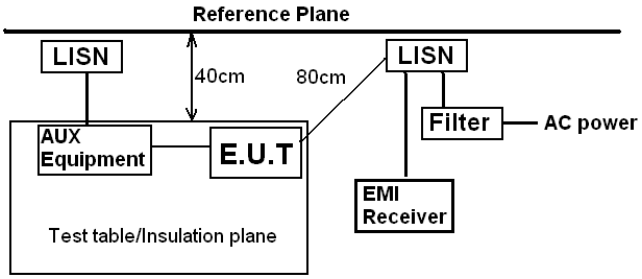
Radiated Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m SAC	SAEMC	9m*6m*6m	966	01-19-2021	01-18-2024
Loop Antenna	SCHWARZBECK	FMZB1519B	00044	03-03-2021	03-02-2022
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-03-2021	03-02-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-03-2021	03-02-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-18-2021	06-17-2022
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-18-2020	11-17-2021
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Test Software	Tonscend	TS+	Version: 3.0.0.1		
Pre-amplifier	HP	8447D	2944A09358	03-03-2021	03-02-2022
Pre-amplifier	CD	PAP-1G18	11804	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-18-2020	11-17-2021
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-03-2021	03-02-2022
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-03-2021	03-02-2022
Cable	MICRO-COAX	MFR64639	K10742-5	03-03-2021	03-02-2022
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-03-2021	03-02-2022

6 Test results and measurement data

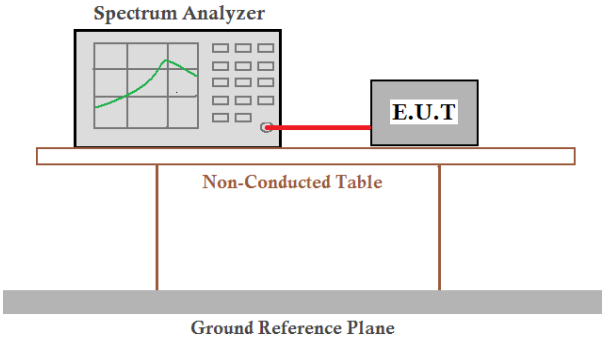
6.1 Antenna Requirement

Standard requirement:	FCC Part 15 C Section 15.203 & 247(b)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
E.U.T Antenna:	
The antenna is an Helix antenna which permanently attached, and the best case gain of the antenna is -1.25 dBi.	

6.2 Conducted Emissions

Test Requirement:	FCC Part 15 C Section 15.207
Test Frequency Range:	150 kHz to 30 MHz
Class / Severity:	Class B
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto
Limit:	Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50 * Decreases with the logarithm of the frequency.
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4-2014 on conducted measurement.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Hopping mode
Test results:	N/A(The EUT is powered by DC 3V)

6.3 Conducted Output Power

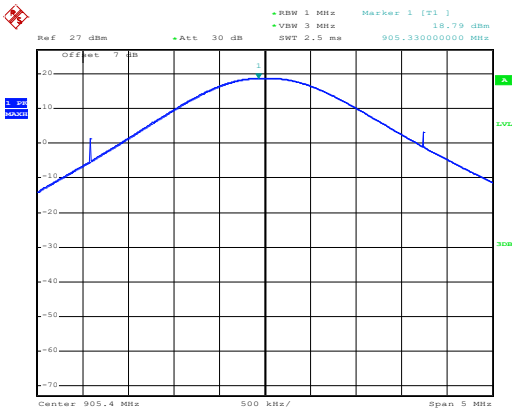
Test Requirement:	FCC Part 15 C Section 15.247 (b)(2)
Receiver setup:	RBW=1MHz, VBW=3MHz, Detector=Peak
Limit:	For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Non-hopping mode
Test results:	Pass

Measurement Data:

Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
FSK mode			
Lowest channel	18.79	24.00	Pass
Middle channel	18.72	24.00	Pass
Highest channel	18.63	24.00	Pass

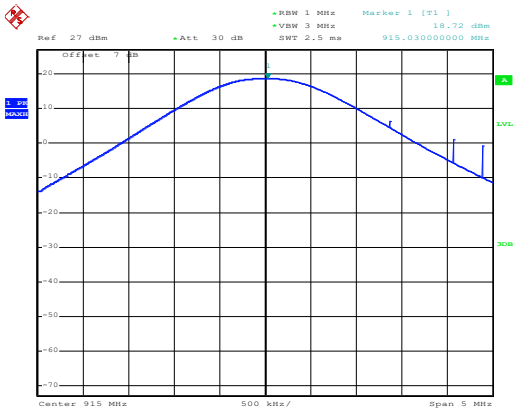
Test plot as follows:

Modulation mode: FSK



Date: 10.AUG.2021 19:35:54

Lowest channel



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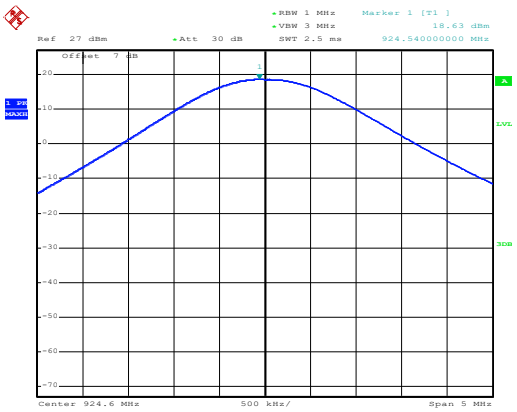
Middle channel



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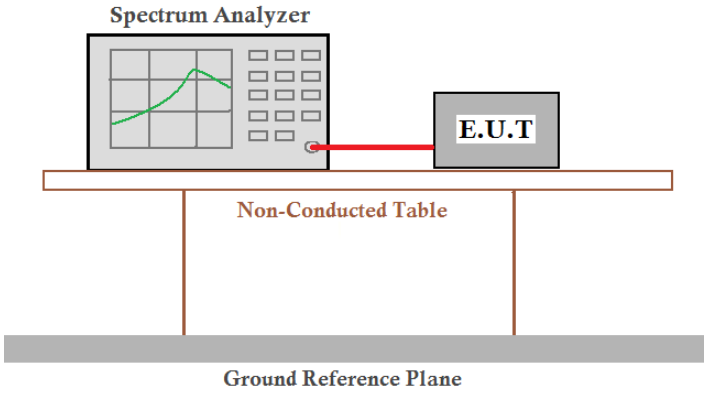
Highest channel

6.4 20dB Occupy Bandwidth

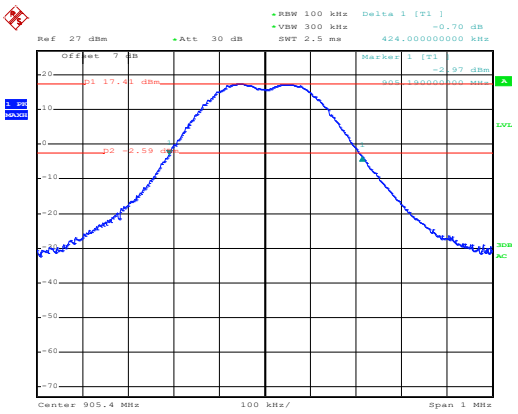
Test Requirement:	FCC Part 15 C Section 15.247 (a)(1)(i)
Receiver setup:	RBW=100 kHz, VBW=300 kHz, detector=Peak
Limit:	250KHz < 20dB < =500KHz
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Non-hopping mode
Test results:	Pass

Measurement Data:

20dB Occupy Bandwidth (kHz)			
Lowest	Middle	Highest	Result
424	426	428	PASS

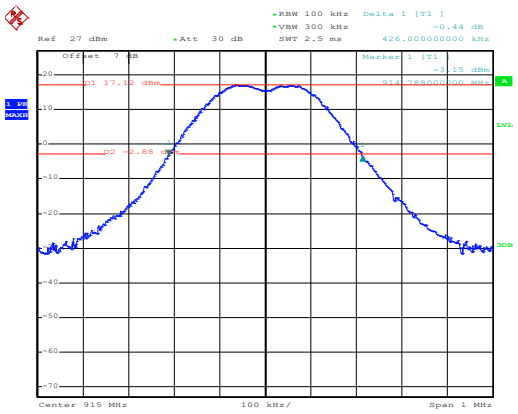
Test plot as follows:

Modulation mode: TX



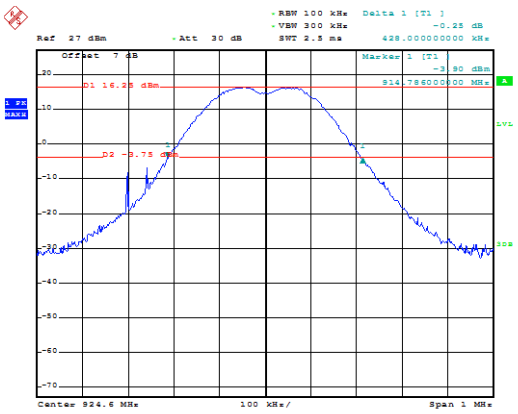
Date: 17.AUG.2021 15:06:49

Lowest channel



Date: 17.AUG.2021 15:50:55

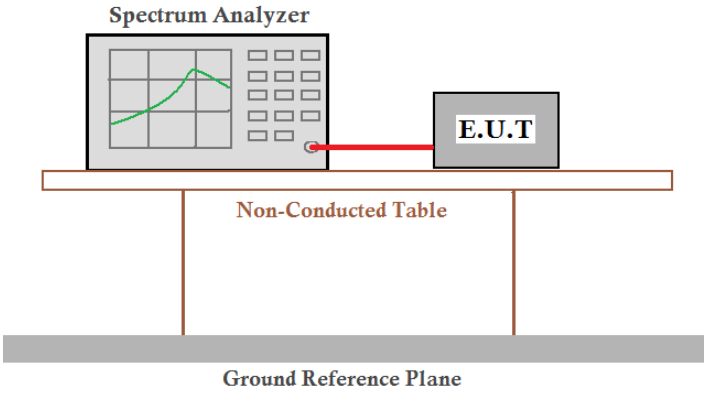
Middle channel



Date: 17.AUG.2021 16:00:44

Highest channel

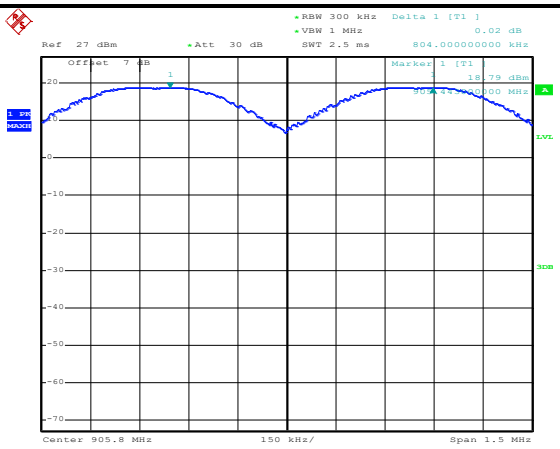
6.5 Carrier Frequencies Separation

Test Requirement:	FCC Part 15 C Section 15.247 (a)(1)
Receiver setup:	RBW=300 kHz, VBW=1 MHz, detector=Peak
Limit:	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Hopping mode
Test results:	Pass

Measurement Data

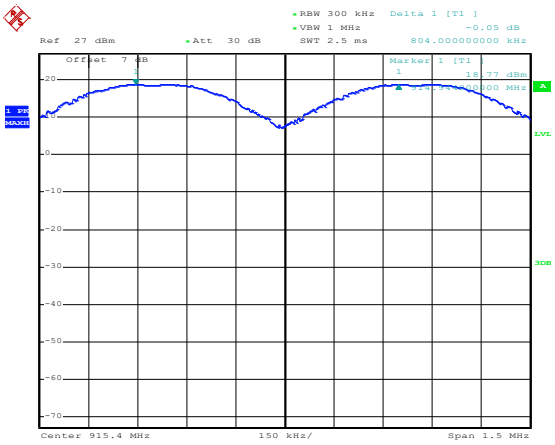
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
FSK			
Lowest	804	424	Pass
Middle	804	426	Pass
Highest	804	428	Pass

Test plot as follows:



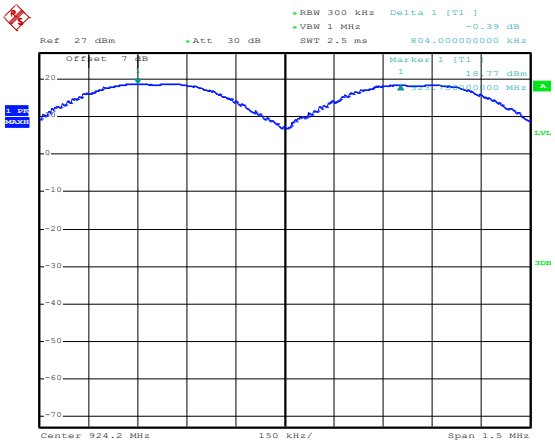
Date: 17.AUG.2021 16:21:08

Lowest channel



Date: 17.AUG.2021 16:22:11

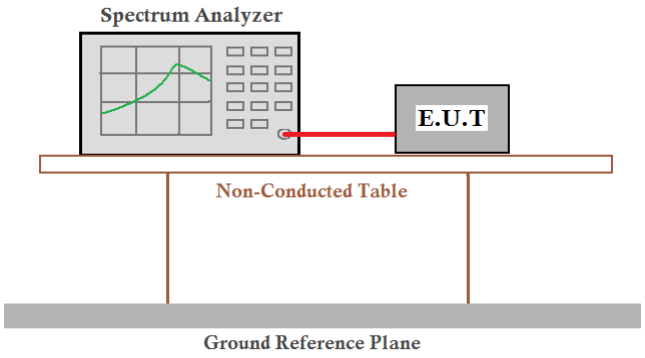
Middle channel



Date: 17.AUG.2021 16:22:53

Highest channel

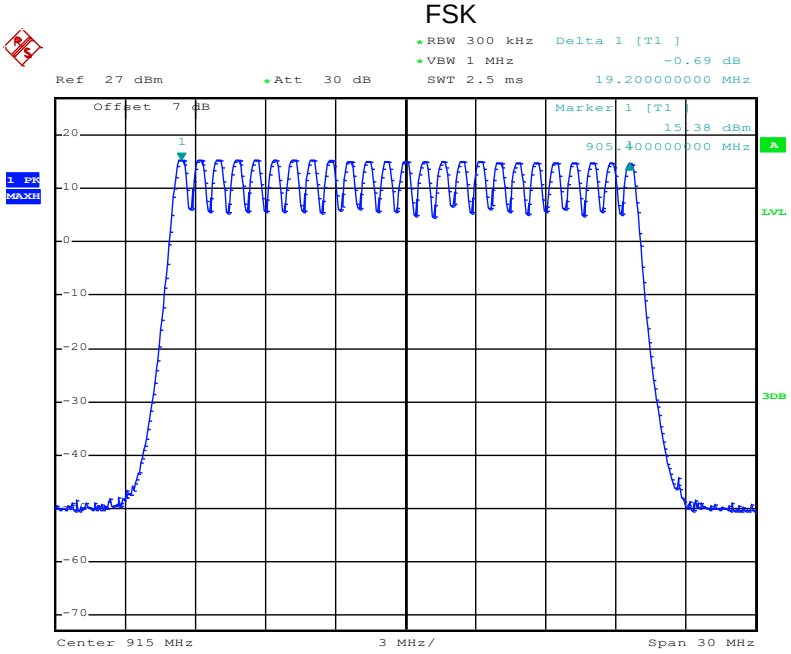
6.6 Hopping Channel Number

Test Requirement:	FCC Part 15 C Section 15.247 (a)(1)(i)
Receiver setup:	RBW=300 kHz, VBW=1 MHz, Detector=Peak
Limit:	25 channels
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Hopping mode
Test results:	Pass

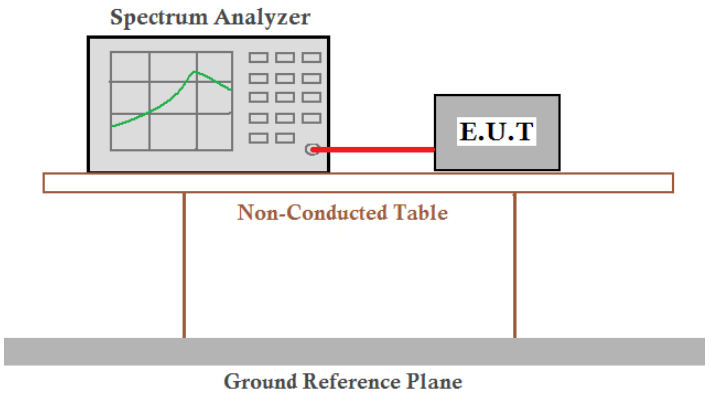
Measurement Data:

Mode	Hopping channel numbers	Limit	Result
FSK	25	25	Pass

Test plot as follows:



6.7 Dwell Time

Test Requirement:	FCC Part 15 C Section 15.247 (a)(1)(i)
Receiver setup:	RBW=1 MHz, VBW=1 MHz, Span=0 Hz, Detector=Peak
Limit:	Occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Hopping mode
Test results:	Pass

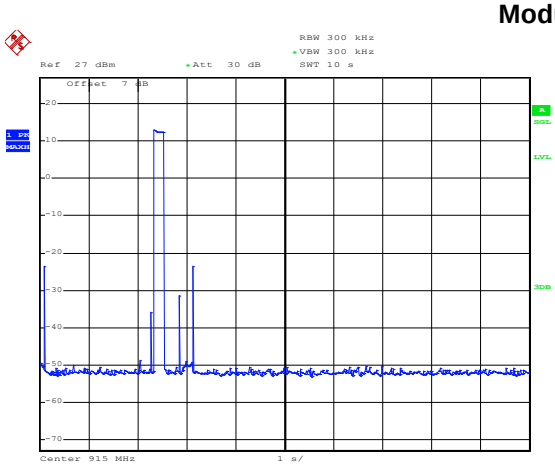
Measurement Data:

Mode	10 second period (numbers)	Dwell time (second)	Limit (second)	Result
FSK	1	0.210	0.4	Pass

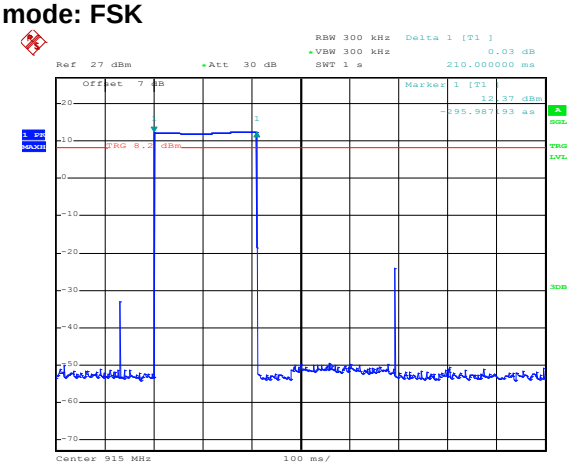
Note:
Calculation Formula: Dwell time = Ton time per hop * Hopping numbers
For example:
Time slot=0.210*1 =0.210ms

Test plot as follows:

Modulation mode: FSK



10S



1S

6.8 Pseudorandom Frequency Hopping Sequence

Test Requirement:	FCC Part 15 C Section 15.247 (a)(1) requirement:

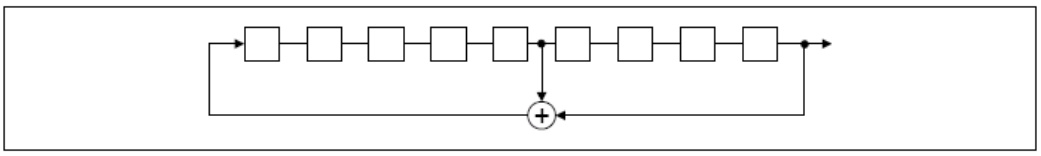
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively. Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

EUT Pseudorandom Frequency Hopping Sequence

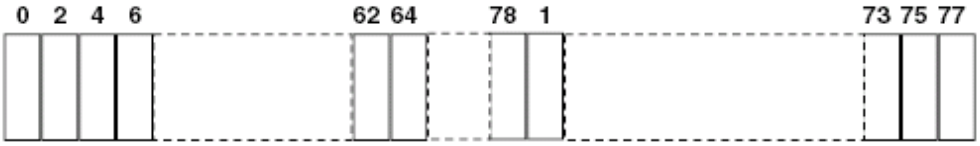
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized with nine ones.

• Number of shift register stages: 9
• Length of pseudo-random sequence: 2^9 -1 = 511 bits
• Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:

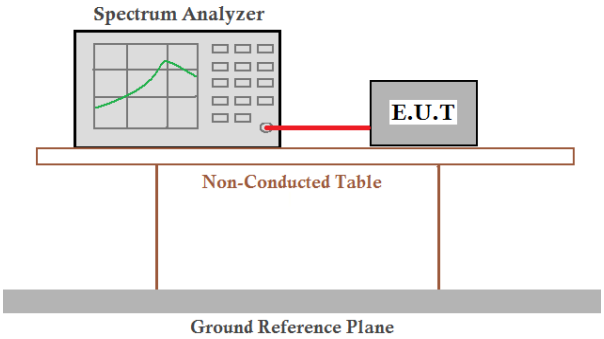


Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

6.9 Band Edge

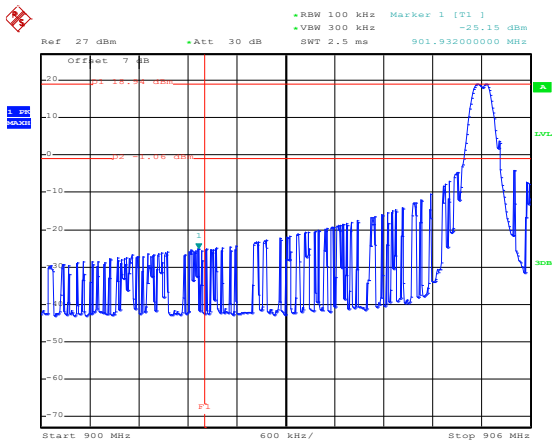
6.9.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)
Receiver setup:	RBW=100 kHz, VBW=300 kHz, Detector=Peak
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Non-hopping mode and hopping mode
Test results:	Pass

Test plot as follows:

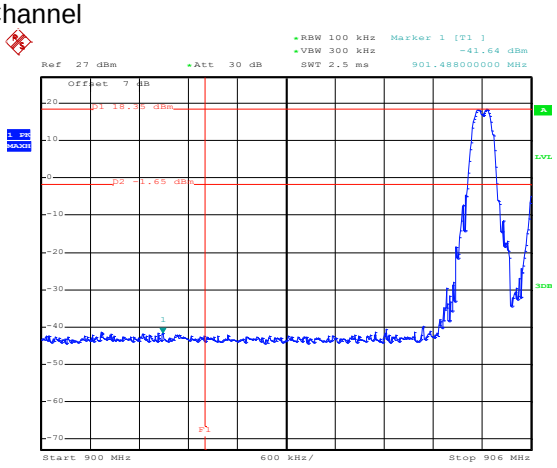
FSK

Lowest Channel



Date: 10.AUG.2021 19:45:34

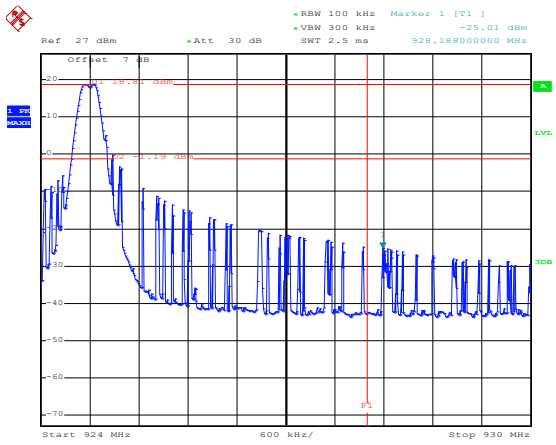
No-hopping mode



Date: 17.AUG.2021 16:30:46

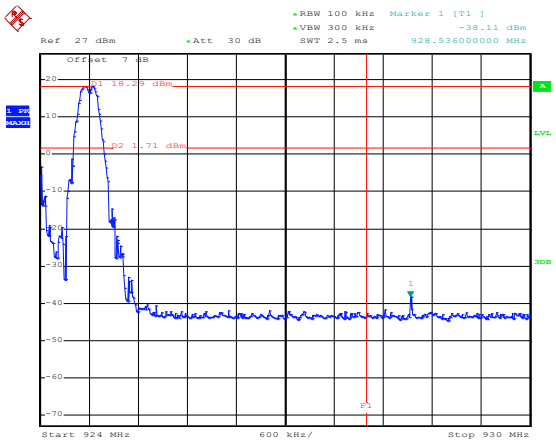
Hopping mode

hightest Channel



Date: 10.AUG.2021 19:47:40

No-hopping mode

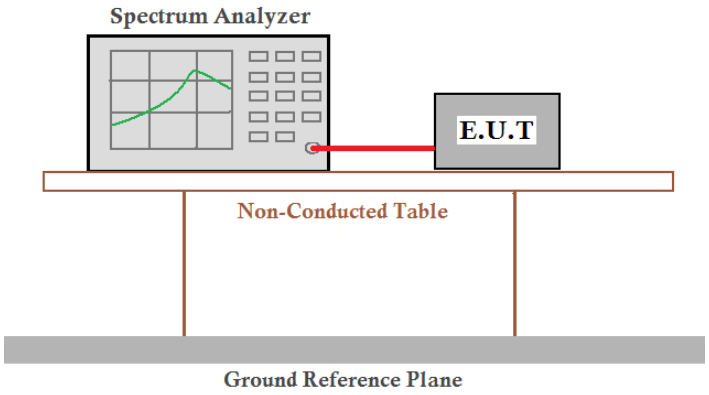


Date: 17.AUG.2021 16:27:45

Hopping mode

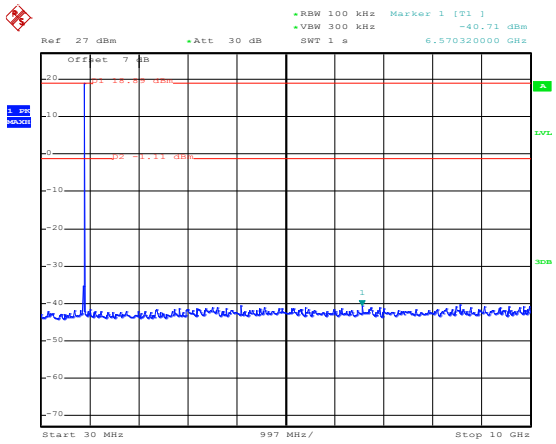
6.10 Spurious Emission

6.10.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Non-hopping mode
Test results:	Pass

Test plot as follows:

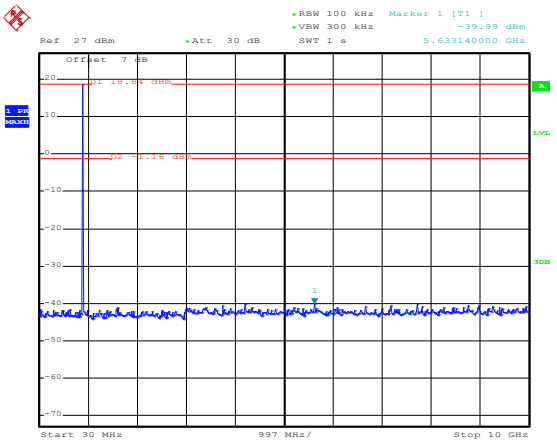
Lowest channel



Date: 10.AUG.2021 19:49:42

30MHz~10GHz

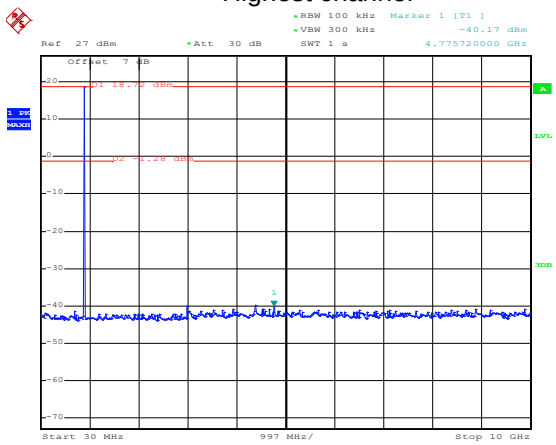
Middle channel



Date: 10.AUG.2021 19:51:09

30MHz~10GHz

Highest channel



Date: 10.AUG.2021 19:49:03

30MHz~10GHz

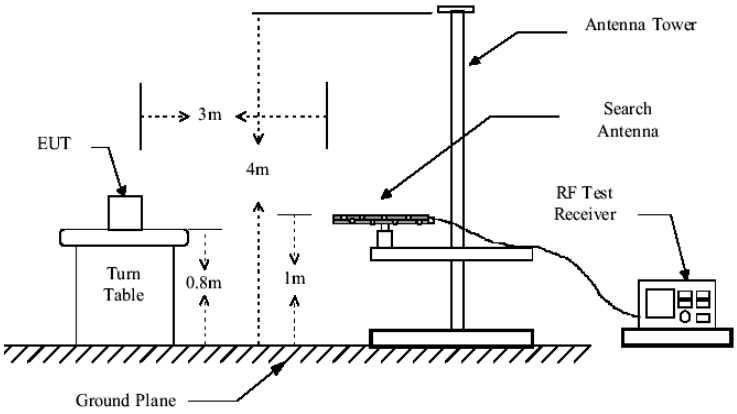
6.10.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209				
Test Frequency Range:	9 kHz to 10 GHz				
Test Distance:	3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value

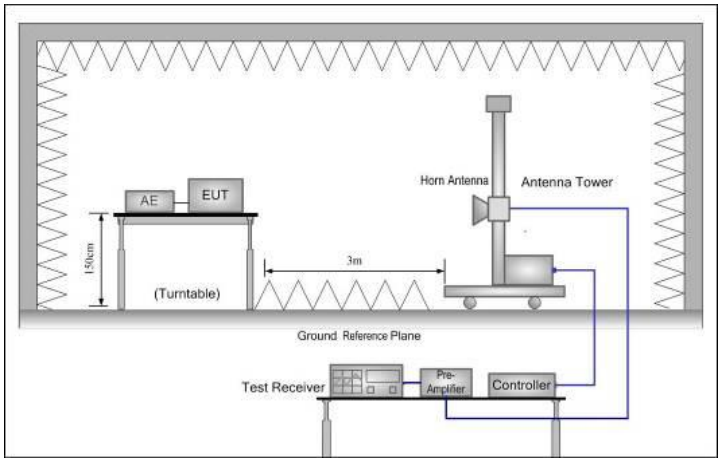
Limit:	Frequency	Limit (dBuV/m @3m)	Remark
	30MHz-88MHz	40.0	Quasi-peak Value
	88MHz-216MHz	43.5	Quasi-peak Value
	216MHz-960MHz	46.0	Quasi-peak Value
	960MHz-1GHz	54.0	Quasi-peak Value
	Above 1GHz	54.0	Average Value
		74.0	Peak Value

Test setup:

Below 1GHz



Above 1GHz



Test Procedure:

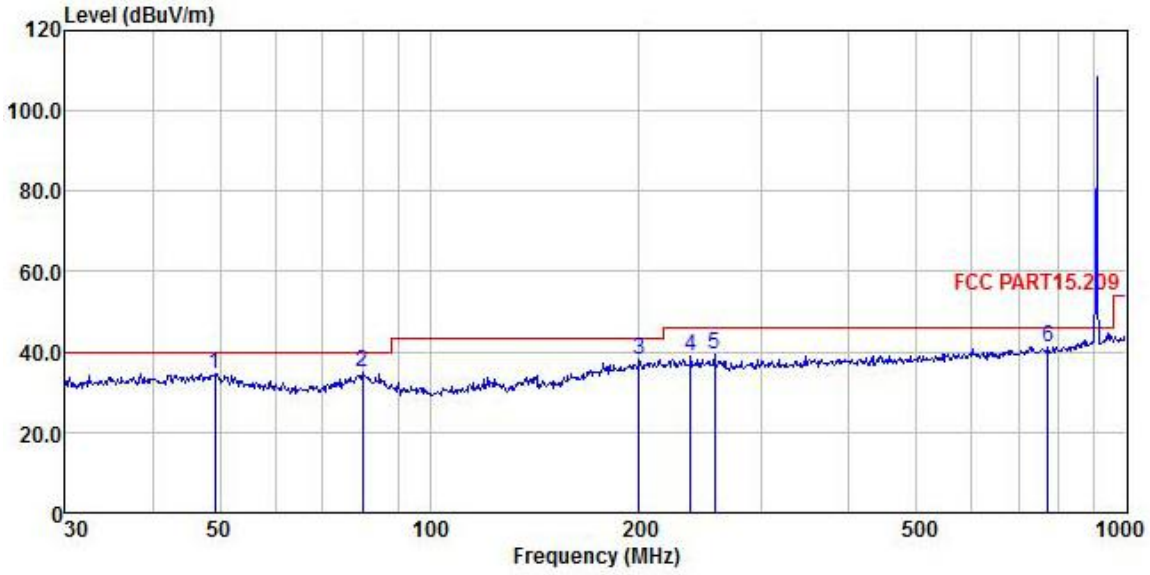
1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz) /1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna

	tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Non-hopping mode
Test results:	Pass
Remark:	1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case. 2. 9 kHz to 30 MHz is noise floor, so only shows the data of above 30MHz in this report.

Measurement Data (worst case):

Below 1GHz:

Product Name:	CAR ALARM	**Product Model:**	181TWSP-1
Test By:	Mike	**Test mode:**	Tx mode
Test Frequency:	30 MHz ~ 1 GHz	**Polarization:**	Vertical
Test Voltage:	DC 3V	**Environment:**	Temp: 24℃ Huni: 57%

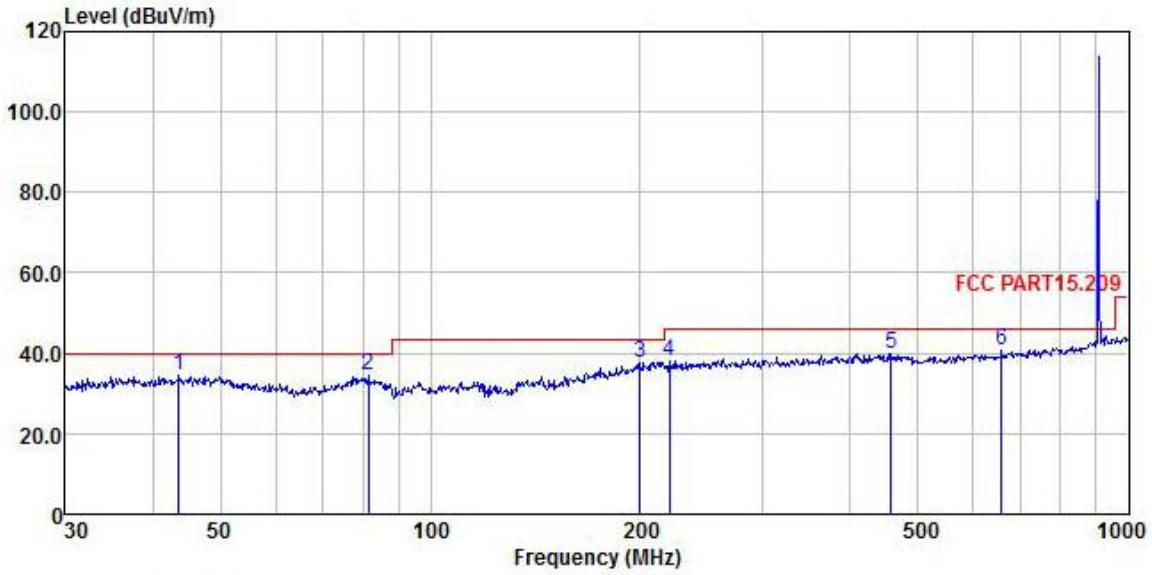


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	49.187	21.10	13.15	0.48	0.00	34.73	40.00	-5.27	QP
2	80.081	21.38	12.80	0.69	0.00	34.87	40.00	-5.13	QP
3	199.986	18.16	18.30	1.43	0.00	37.89	43.50	-5.61	QP
4	236.645	19.04	18.45	1.52	0.00	39.01	46.00	-6.99	QP
5	256.521	19.39	18.53	1.58	0.00	39.50	46.00	-6.50	QP
6	771.449	17.60	20.73	3.03	0.00	41.36	46.00	-4.64	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	CAR ALARM	Product Model:	181TWSP-1
Test By:	Mike	Test mode:	Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	43.659	21.04	12.87	0.46	0.00	34.37	40.00	-5.63	QP
2	81.497	21.34	12.45	0.69	0.00	34.48	40.00	-5.52	QP
3	199.986	17.85	18.30	1.43	0.00	37.58	43.50	-5.92	QP
4	219.845	18.41	18.38	1.48	0.00	38.27	46.00	-7.73	QP
5	457.507	18.60	19.23	2.21	0.00	40.04	46.00	-5.96	QP
6	658.836	17.83	20.18	2.72	0.00	40.73	46.00	-5.27	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Above 1GHz:

Test channel: Lowest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarization
1810.75	60.29	-21.35	38.94	74.00	35.06	Horizontal
2715.50	68.08	-17.59	50.49	74.00	23.51	Horizontal
4526.46	62.19	-3.60	58.59	74.00	15.41	Horizontal
1810.75	64.97	-21.35	43.62	74.00	30.38	Vertical
2715.50	65.50	-17.59	47.91	74.00	26.09	Vertical
4526.46	62.06	-3.60	58.46	74.00	15.54	Vertical
Detector: Average Value						
Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarization
1810.75	54.84	-21.35	33.49	54.00	20.51	Horizontal
2715.50	61.79	-17.59	44.20	54.00	9.80	Horizontal
4526.46	56.79	-3.60	53.19	54.00	0.81	Horizontal
1810.75	56.16	-21.35	34.81	54.00	19.19	Vertical
2715.50	59.08	-17.59	41.49	54.00	12.51	Vertical
4526.46	56.18	-3.60	52.58	54.00	1.42	Vertical
Remark:						
1. Final Level =Receiver Read level + Factor.						
2. The emission levels of other frequencies are very lower than the limit and not show in test report.						

Test channel: Middle channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarization
1830.00	60.45	-21.35	39.10	74.00	34.90	Horizontal
2745.00	68.33	-17.59	50.74	74.00	23.26	Horizontal
4575.00	62.22	-3.60	58.62	74.00	15.38	Horizontal
1830.00	64.93	-21.35	43.58	74.00	30.42	Vertical
2745.00	65.39	-17.59	47.80	74.00	26.20	Vertical
4575.00	61.60	-3.60	58.00	74.00	16.00	Vertical
Detector: Average Value						
Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarization
1830.00	54.46	-21.35	33.11	54.00	20.89	Horizontal
2745.00	61.73	-17.59	44.14	54.00	9.86	Horizontal
4575.00	56.15	-3.60	52.55	54.00	1.45	Horizontal
1830.00	55.73	-21.35	34.38	54.00	19.62	Vertical
2745.00	59.20	-17.59	41.61	54.00	12.39	Vertical
4575.00	55.75	-3.60	52.15	54.00	1.85	Vertical
Remark:						
1. Final Level =Receiver Read level + Factor.						
2. The emission levels of other frequencies are very lower than the limit and not show in test report.						

Test channel: Highest channel						
Detector: Peak Value						
Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarization
1849.20	60.34	-21.35	38.99	74.00	35.01	Horizontal
2773.80	68.21	-17.59	50.62	74.00	23.38	Horizontal
4623.00	62.53	-3.60	58.93	74.00	15.07	Horizontal
1849.20	65.13	-21.35	43.78	74.00	30.22	Vertical
2773.80	65.43	-17.59	47.84	74.00	26.16	Vertical
4623.00	61.70	-3.60	58.10	74.00	15.90	Vertical
Detector: Average Value						
Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Polarization
1849.20	54.65	-21.35	33.30	54.00	20.70	Horizontal
2773.80	61.98	-17.59	44.39	54.00	9.61	Horizontal
4623.00	56.08	-3.60	52.48	54.00	1.52	Horizontal
1849.20	55.76	-21.35	34.41	54.00	19.59	Vertical
2773.80	59.61	-17.59	42.02	54.00	11.98	Vertical
4623.00	56.16	-3.60	52.56	54.00	1.44	Vertical

Remark:

1. Final Level =Receiver Read level + Factor.

2. The emission levels of other frequencies are very lower than the limit and not show in test report.