FCC/IC REPORT

Applicant:	Remote Tech LLC
Address of Applicant:	310 ALDER RD, DOVER DE 19904 USA
Equipment Under Test (EUT)	
Product Name:	smart key
Model No.:	RT-BE4T
FCC ID:	2AOKM-TY12
Canada IC:	24223-TY12
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.231 RSS-Gen Issue 5 March 2019 RSS-210 Issue 10 December 2019 Annex A Section A.1.1
Date of sample receipt:	19 Jun., 2020
Date of Test:	19 Jun., to 24 Jul., 2020
Date of report issue:	10 Sep., 2020
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	*27 Jul., 2020*	*Original*
01	*10 Sep., 2020*	*Update Page 1, 6, 10, 16, 17, 27*

Prepared By: Yaro Wu ***Date:*** *10 Sep., 2020*

Test Engineer

Check By: Winner Zhang ***Date:*** *10 Sep., 2020*

Project Engineer

3 Contents

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4 Test Summary

Test Item	Test Standard Section		Result
	FCC	IC	
Antenna requirement	15.203	RSS-GEN 6.8	Pass
Field strength of the fundamental signal	15.231 (b)	RSS-210 Annex A Section A.1.2 (a)	Pass
Spurious emissions	15.231 (b)/15.209	RSS-210 Annex A Section A.1.2 (b)	Pass
20dB Bandwidth	15.231 (c)	RSS-210 Annex A Section A.1.3	Pass
Duration time	15.231 (a)(1)	RSS-210 Annex A Section A.1.1 (a)	Pass
Frequency stability	/	RSS-GEN Section 8.11	Pass
Conducted Emission	15.207	RSS-GEN Section 8.8	N/A

Remarks:

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *N/A: The EUT not applicable of the test item.*
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 C63.4-2014* *ANSI C63.10-2013*

5 General Information

5.1 Client Information

Applicant:	Remote Tech LLC
Address:	310 ALDER RD, DOVER DE 19904 USA
Manufacturer:	Remote Tech LLC
Address:	310 ALDER RD, DOVER DE 19904 USA

5.2 General Description of E.U.T.

Product Name:	smart key
Model No.:	RT-BE4T
Operation Frequency:	312.1MHz / 314.3MHz
Channel numbers:	2
Modulation type:	FSK
Antenna Type:	PCB antenna
Antenna gain:	0 dBi
Power supply:	DC 3V (CR2032 battery)
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

5.3 Test mode

Transmitting mode:	Keep the EUT in transmitting mode with modulation（new battery used）				
Pre-Test Mode:					
CCIS has verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:					
Axis	Frequency	X	Y	Z	
Field Strength(dBuV/m)	312.1MHz	74.02	70.16	71.38	
	314.3MHz	72.14	69.89	70.13	
Final Test Mode:					
According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup”: X axis (see the test setup photo)					

5.4 Description of Support Units

N/A

5.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.20 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**

Shenzhen Zhongjian Nanfang Testing 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 Shenzhen Zhongjian Nanfang Testing 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 17025:2005 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

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

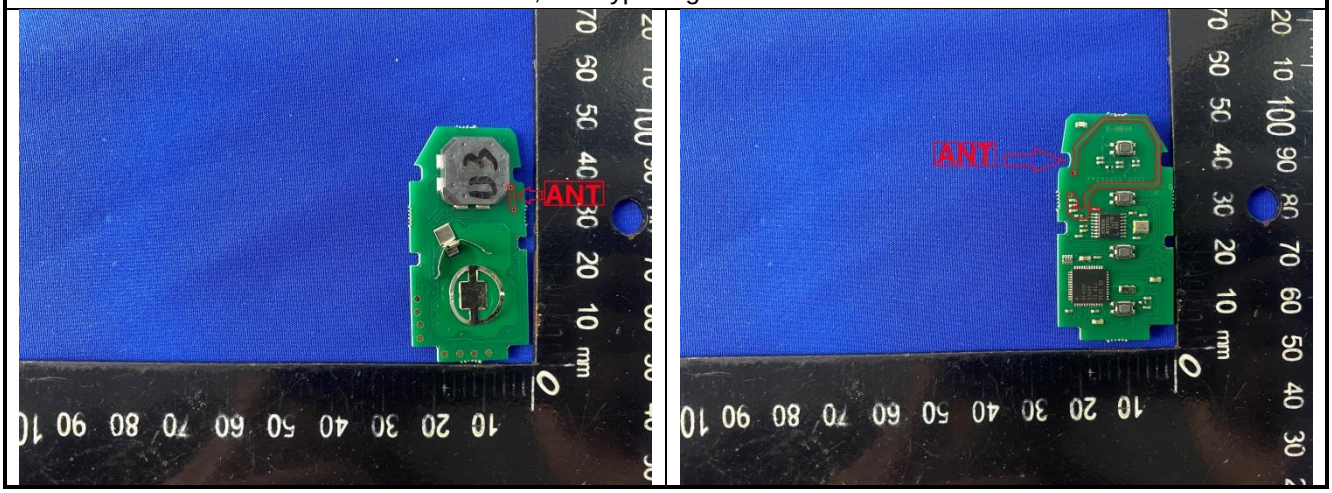
5.9 Test Instruments list

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	07-22-2017	07-21-2020
				07-22-2020	07-21-2023
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-18-2020	03-17-2021
Broadband Antenna	SCHWARZBECK	VUBA9117	359	06-22-2017	06-21-2020
				06-22-2020	06-21-2023
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-18-2020	03-17-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2017	06-21-2020
				06-22-2020	06-21-2023
Horn Antenna	SCHWARZBECK	BBHA9170	582	11-18-2019	11-17-2020
Loop Antenna	SCHWARZBECK	FMZB1519 B	00044	03-18-2020	03-17-2021
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-18-2020	03-17-2021
Pre-amplifier	CD	PAP-1G18	11804	03-18-2020	03-17-2021
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-18-2020	03-17-2021
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-18-2019	11-17-2021
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-18-2020	03-17-2021
Simulated Station	Anritsu	MT8820C	6201026545	03-18-2020	03-17-2021
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-18-2020	03-17-2021
Cable	MICRO-COAX	MFR64639	K10742-5	03-18-2020	03-17-2021
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-18-2020	03-17-2021
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	09-25-2019	09-24-2020
Temperature Humidity Chamber	HengPu	HPGDS-500	20140828008	11-01-2019	10-31-2020

6 Test results and Measurement Data

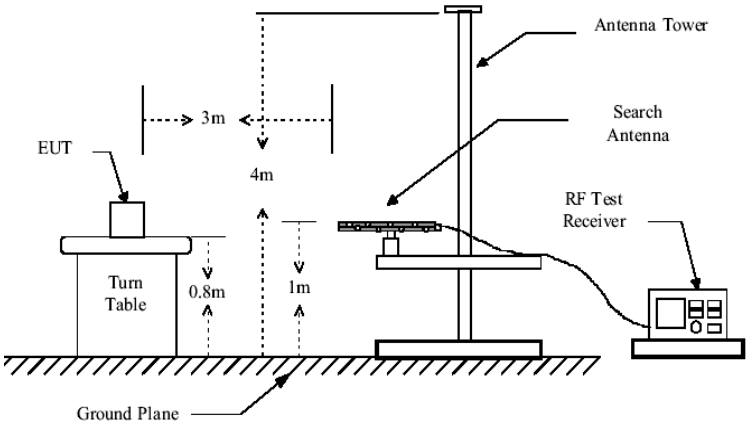
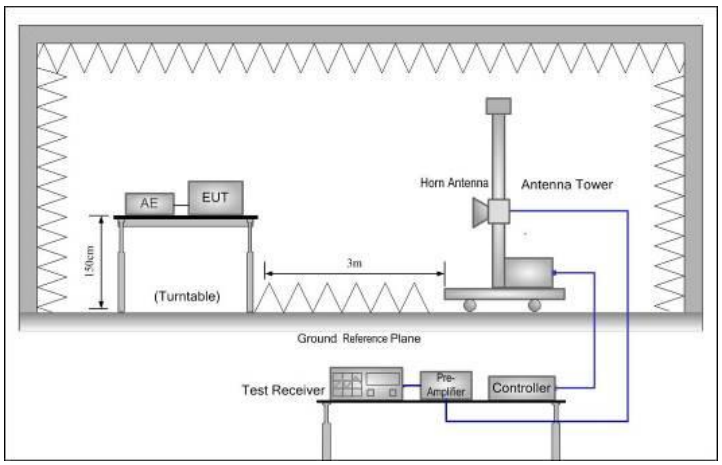
6.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
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.	
E.U.T Antenna:	
The EUT make use of a PCB antenna, The typical gain of the antenna is 0 dBi.	



6.2 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part15 C Section 15.231(a) and 15.209
RSS-210 Annex A Section A.1.2</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">30MHz to 3500MHz</td></tr>
<tr><td>Test site:</td><td colspan="5">Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td rowspan="4">Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td rowspan="5">Limit:
(Field strength of the fundamental signal)</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td colspan="2" rowspan="2">312.1MHz</td><td colspan="2">75.45</td><td>Average Value</td></tr>
<tr><td colspan="2">95.45</td><td>Peak Value</td></tr>
<tr><td colspan="2" rowspan="2">314.3 MHz</td><td colspan="2">75.58</td><td>Average Value</td></tr>
<tr><td colspan="2">95.58</td><td>Peak Value</td></tr>
<tr><td rowspan="8">Limit:
(Spurious Emissions)</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td colspan="2">30MHz-88MHz</td><td colspan="2">40.0</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2">88MHz-216MHz</td><td colspan="2">43.5</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2">216MHz-960MHz</td><td colspan="2">46.0</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2">960MHz-1GHz</td><td colspan="2">54.0</td><td>Quasi-peak Value</td></tr>
<tr><td colspan="2" rowspan="2">Above 1GHz</td><td colspan="2">54.0</td><td>Average Value</td></tr>
<tr><td colspan="2">74.0</td><td>Peak Value</td></tr>
<tr><td colspan="5">Or The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level whichever limit permits higher field strength.</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">a. 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.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. 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.
d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. 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.</td></tr>
</table>

Test setup:	Below 1GHz  Above 1GHz 
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

6.2.1 Field Strength Of The Fundamental Signal

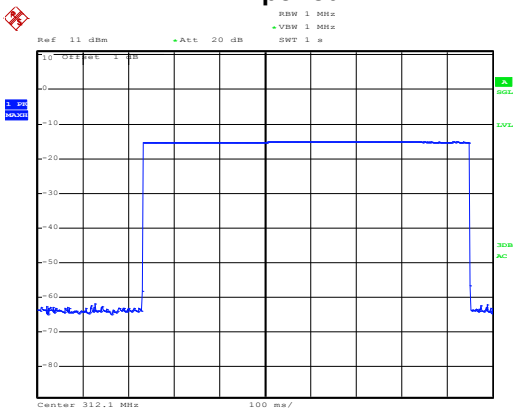
312.1MHz:

Peak value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
312.1	44.84	18.73	2.98	0.00	66.55	95.45	-28.90	Vertical
312.1	52.31	18.73	2.98	0.00	74.02	95.45	-21.43	Horizontal
Average value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
312.1	41.84	18.73	2.98	0.00	63.55	75.45	-11.9	Vertical
312.1	47.59	18.73	2.98	0.00	69.3	75.45	-6.15	Horizontal

314.3MHz:

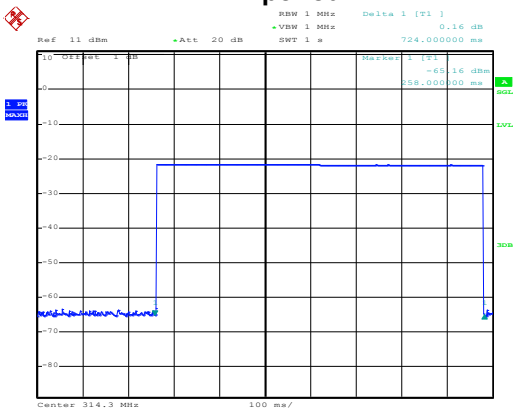
Peak value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
314.3	40.80	18.73	2.98	0.00	62.51	95.58	-33.07	Vertical
314.3	50.43	18.73	2.98	0.00	72.14	95.58	-23.44	Horizontal
Average value								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
314.3	37.16	18.73	2.98	0.00	58.87	75.58	-16.71	Vertical
314.3	47.16	18.73	2.98	0.00	68.87	75.58	-6.71	Horizontal

312.1MHz
T period:



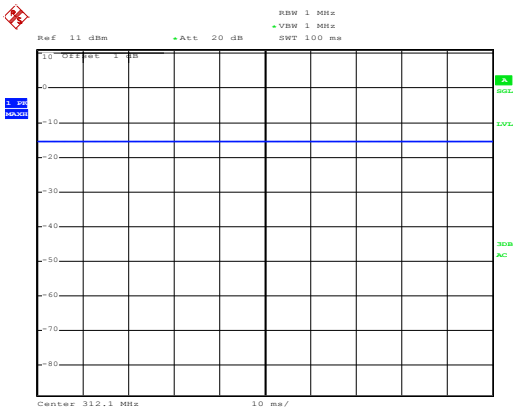
Date: 16.JUL.2020 10:13:29

314.3MHz
T period:



Date: 22.JUN.2020 17:11:25

T on time slot:



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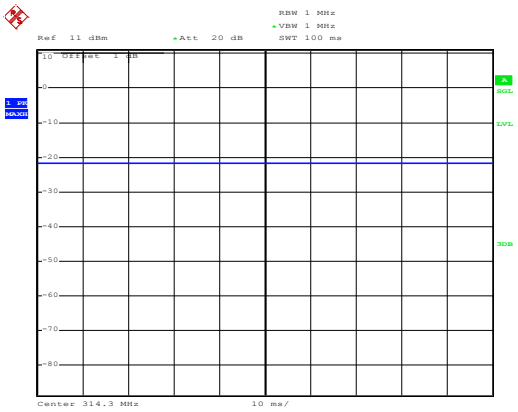
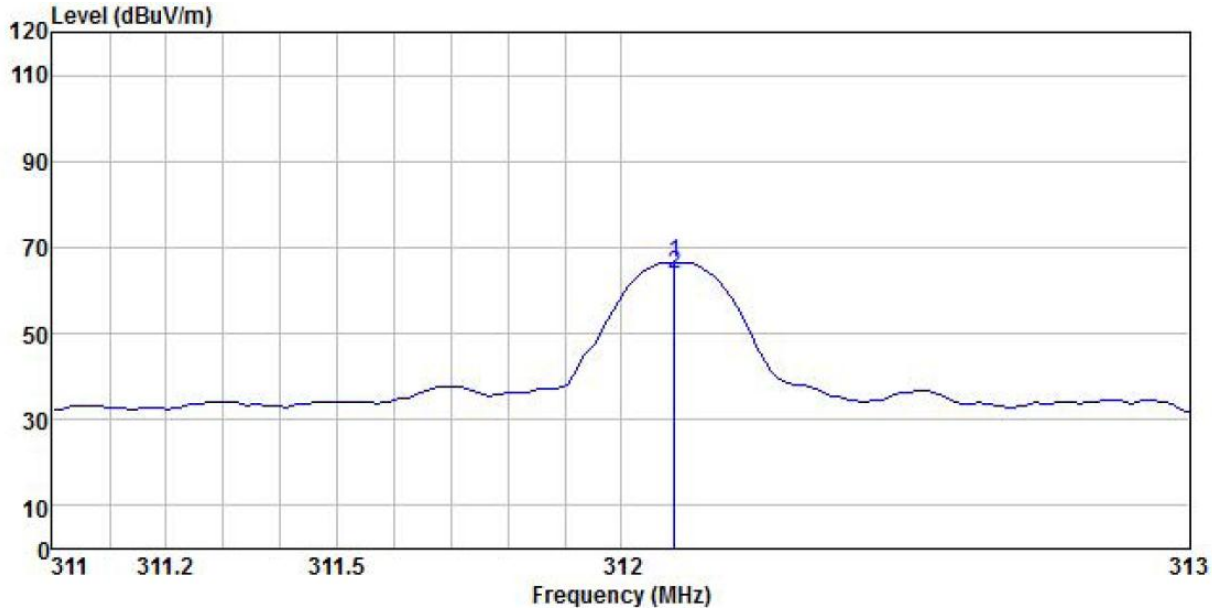
T on time slot:



Date: 22.JUN.2020 17:10:59

Test Plots:

Product Name:	smart key	Product Model:	RT-BE4T
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	312.1 MHz	Polarization:	Vertical
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

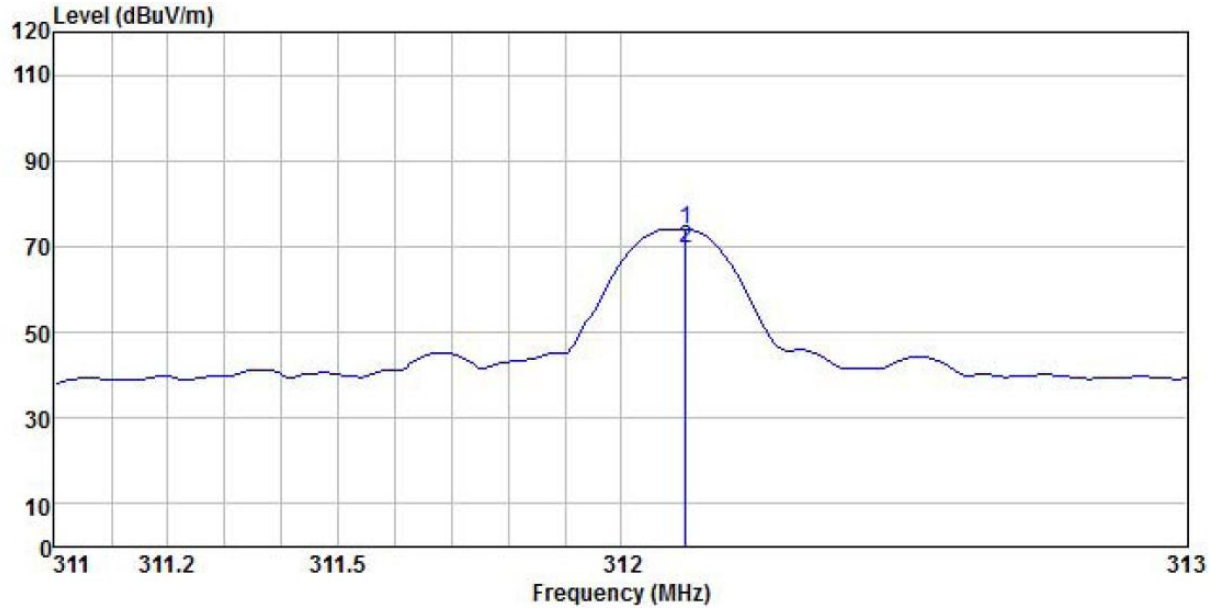


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	312.094	44.84	18.73	2.98	0.00	0.00	66.55	------	------	Peak
2	312.094	41.84	18.73	2.98	0.00	0.00	63.55	------	------	Average

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*

Product Name:	smart key	Product Model:	RT-BE4T
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	312.1 MHz	Polarization:	Horizontal
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

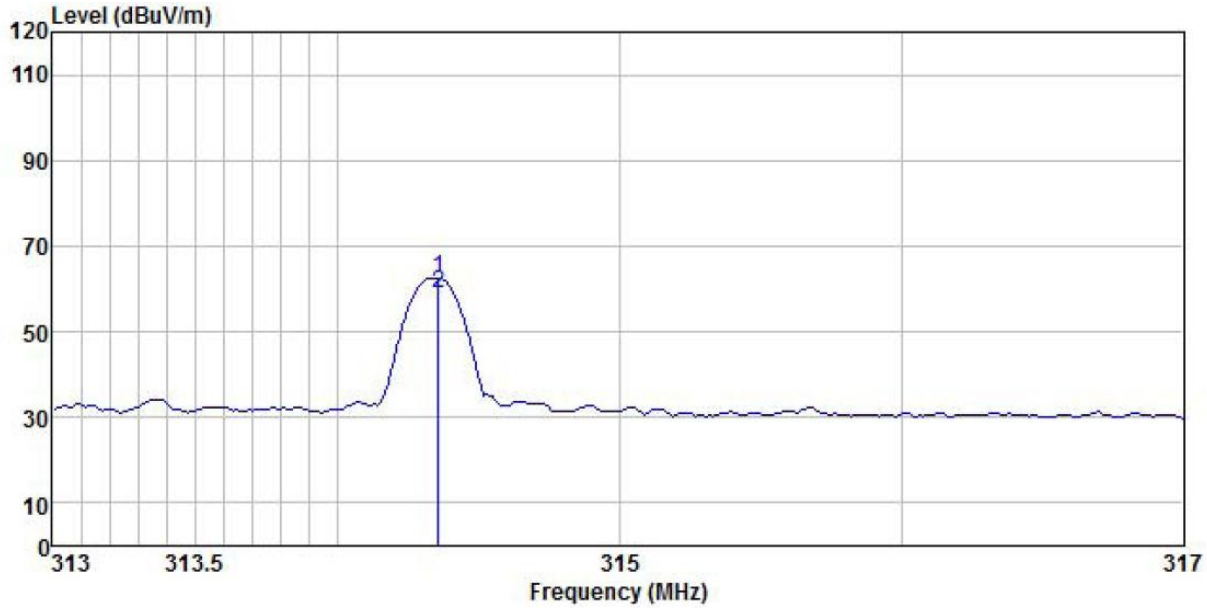


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	312.113	52.31	18.73	2.98	0.00	0.00	74.02	------	------	Peak
2	312.113	47.59	18.73	2.98	0.00	0.00	69.30	------	------	Average

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.

Product Name:	smart key	Product Model:	RT-BE4T
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	314.3 MHz	Polarization:	Vertical
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

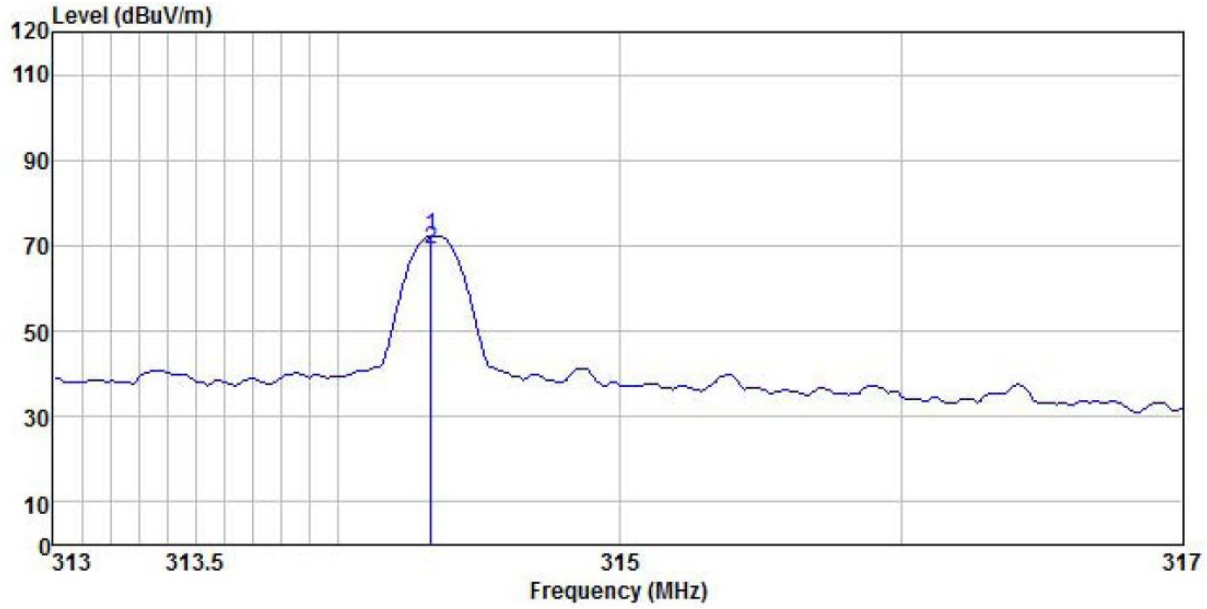


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	314.361	40.80	18.73	2.98	0.00	0.00	62.51	------	------	Peak
2	314.361	37.16	18.73	2.98	0.00	0.00	58.87	------	------	Average

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.

Product Name:	smart key	Product Model:	RT-BE4T
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	314.3 MHz	Polarization:	Horizontal
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%



	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	314.331	50.43	18.73	2.98	0.00	0.00	72.14	------	------	Peak
2	314.331	47.16	18.73	2.98	0.00	0.00	68.87	------	------	Average

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.

6.2.2 Spurious Emissions

312.1MHz:

Below 1GHz (30MHz-1000MHz)								
Peak value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
624.20	26.66	20.00	3.90	0.00	50.56	75.45	/	Vertical
936.30	16.98	20.80	4.20	0.00	41.98	75.45	/	Vertical
624.20	29.46	20.00	3.90	0.00	53.36	75.45	/	Horizontal
936.30	16.46	20.80	4.20	0.00	41.46	75.45	/	Horizontal
Average value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
624.20	25.71	20.00	3.90	0.00	49.61	55.45	/	Vertical
936.30	14.61	20.80	4.20	0.00	39.61	55.45	/	Vertical
624.20	28.15	20.00	3.90	0.00	52.05	55.45	/	Horizontal
936.30	14.56	20.80	4.20	0.00	39.56	55.45	/	Horizontal
Remark: Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.								

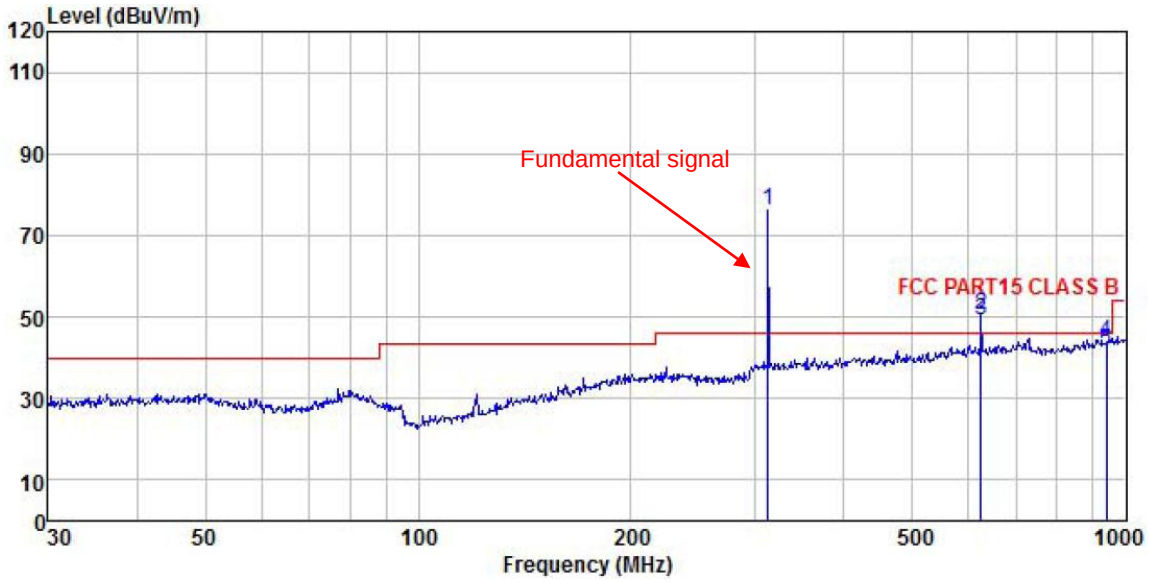
314.3MHz:

Below 1GHz (30MHz-1000MHz)								
Peak value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
628.60	24.71	20.02	3.89	0.00	48.62	75.58	/	Vertical
942.90	16.98	22.80	4.20	0.00	43.98	75.58	/	Vertical
628.60	28.71	20.02	3.89	0.00	52.62	75.58	/	Horizontal
942.90	16.45	22.80	4.20	0.00	43.45	75.58	/	Horizontal
Average value								
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
628.60	23.58	20.02	3.89	0.00	47.49	55.58	/	Vertical
942.90	14.58	22.80	4.20	0.00	41.58	55.58	/	Vertical
628.60	28.20	20.02	3.89	0.00	52.11	55.58	/	Horizontal
942.90	14.28	22.80	4.20	0.00	41.28	55.58	/	Horizontal
Remark: Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.								

Test Plots:

312.1MHz:

Product Name:	smart key	Product Model:	RT-BC3
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

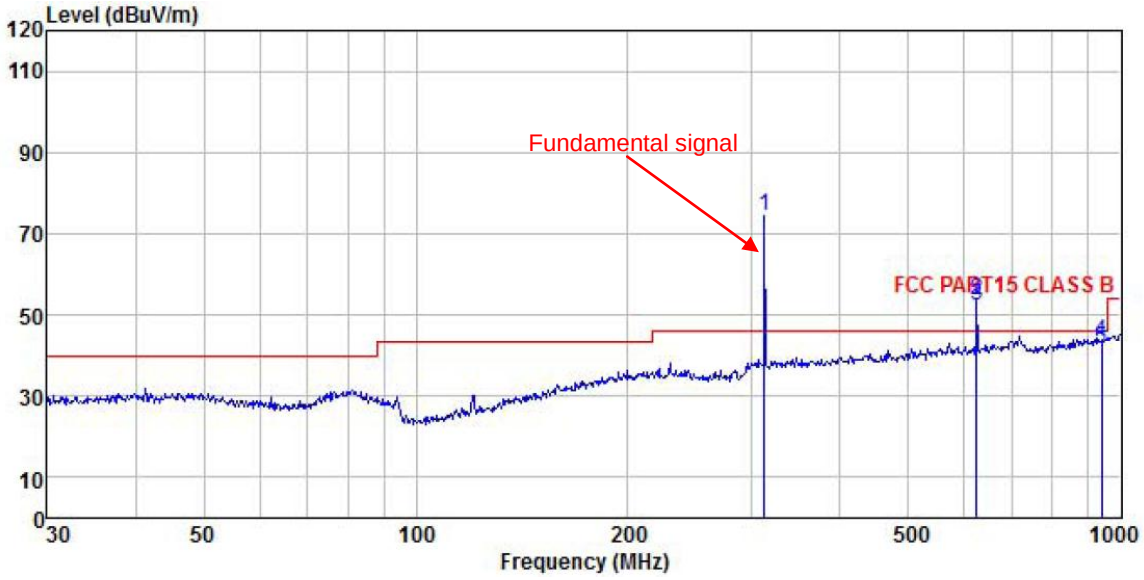


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1 *	312.179	54.57	18.73	2.98	0.00	0.00	76.28	46.00	30.28	Peak
2 *	625.078	26.66	20.00	3.90	0.00	0.00	50.56	46.00	4.56	Peak
3 *	625.078	25.17	20.00	3.90	0.00	0.00	49.07	46.00	3.07	Average
4	938.158	16.98	22.76	4.09	0.00	0.00	43.83	46.00	-2.17	Peak
5	938.158	14.61	22.76	4.09	0.00	0.00	41.46	46.00	-4.54	Average

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:	smart key	Product Model:	RT-BC3
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

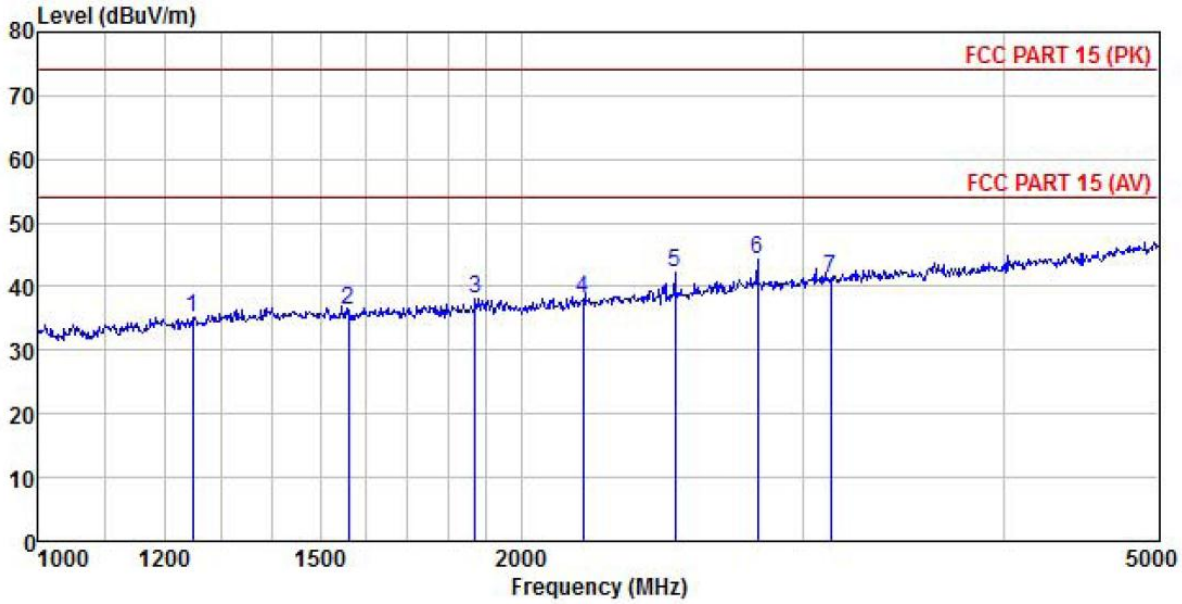


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1 *	312.179	52.54	18.73	2.98	0.00	0.00	74.25	46.00	28.25	Peak
2 *	625.078	29.46	20.00	3.90	0.00	0.00	53.36	46.00	7.36	Peak
3 *	625.078	28.15	20.00	3.90	0.00	0.00	52.05	46.00	6.05	Average
4	938.158	16.46	22.76	4.09	0.00	0.00	43.31	46.00	-2.69	Peak
5	938.158	14.56	22.76	4.09	0.00	0.00	41.41	46.00	-4.59	Average

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:	smart key	Product Model:	RT-BC3
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	1 GHz ~ 5 GHz	Polarization:	Vertical
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

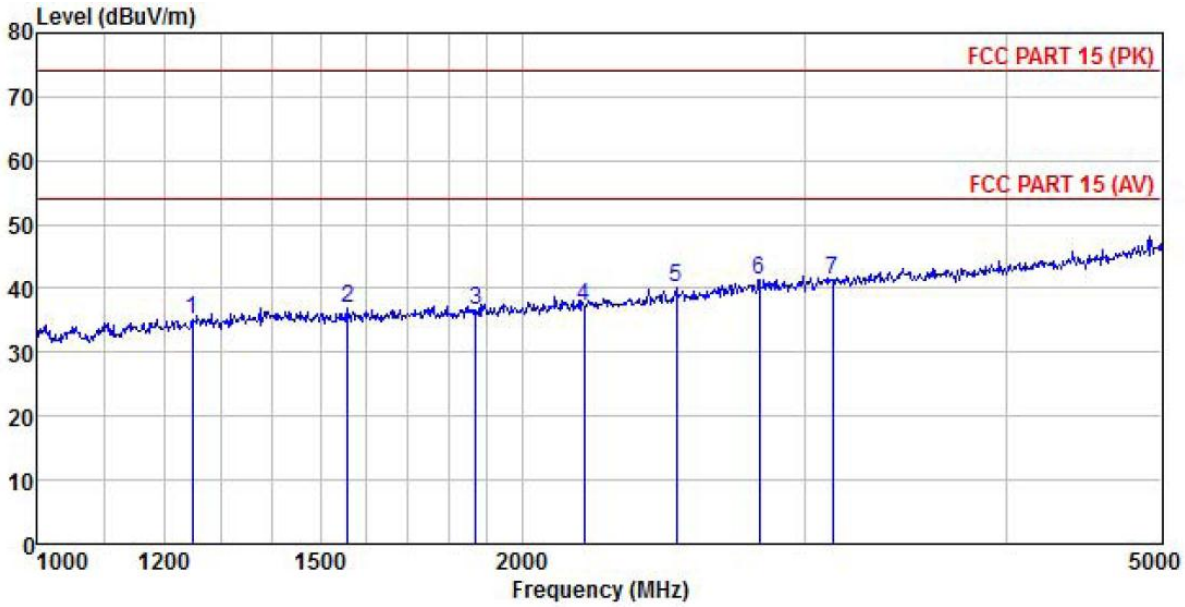


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	1248.699	47.42	24.56	3.01	1.22	41.05	35.16	74.00	-38.84	Peak
2	1561.761	47.55	24.98	3.38	1.38	41.03	36.26	74.00	-37.74	Peak
3	1873.261	48.66	25.50	3.78	1.54	41.37	38.11	74.00	-35.89	Peak
4	2186.248	47.47	26.52	4.08	1.64	41.68	38.03	74.00	-35.97	Peak
5	2494.681	50.75	27.28	4.38	1.70	41.91	42.20	74.00	-31.80	Peak
6	2810.210	51.34	28.00	4.66	1.83	41.65	44.18	74.00	-29.82	Peak
7	3120.124	47.38	28.48	5.00	1.97	41.45	41.38	74.00	-32.62	Peak

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:	smart key	Product Model:	RT-BC3
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	1 GHz ~ 5 GHz	Polarization:	Horizontal
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%



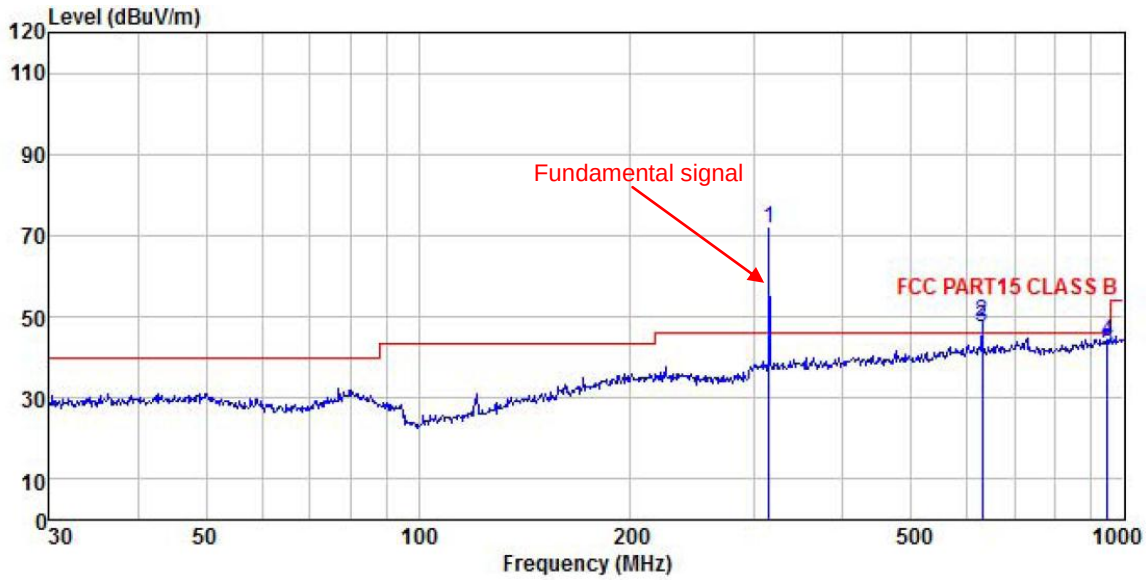
	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	1248.699	47.25	24.56	3.01	1.22	41.05	34.99	74.00	-39.01	Peak
2	1559.250	48.28	24.98	3.38	1.38	41.03	36.99	74.00	-37.01	Peak
3	1873.261	47.06	25.50	3.78	1.54	41.37	36.51	74.00	-37.49	Peak
4	2186.248	46.65	26.52	4.08	1.64	41.68	37.21	74.00	-36.79	Peak
5	2494.681	48.71	27.28	4.38	1.70	41.91	40.16	74.00	-33.84	Peak
6	2810.210	48.36	28.00	4.66	1.83	41.65	41.20	74.00	-32.80	Peak
7	3120.124	47.43	28.48	5.00	1.97	41.45	41.43	74.00	-32.57	Peak

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.*

314.3MHz:

Product Name:	smart key	Product Model:	RT-BC3
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

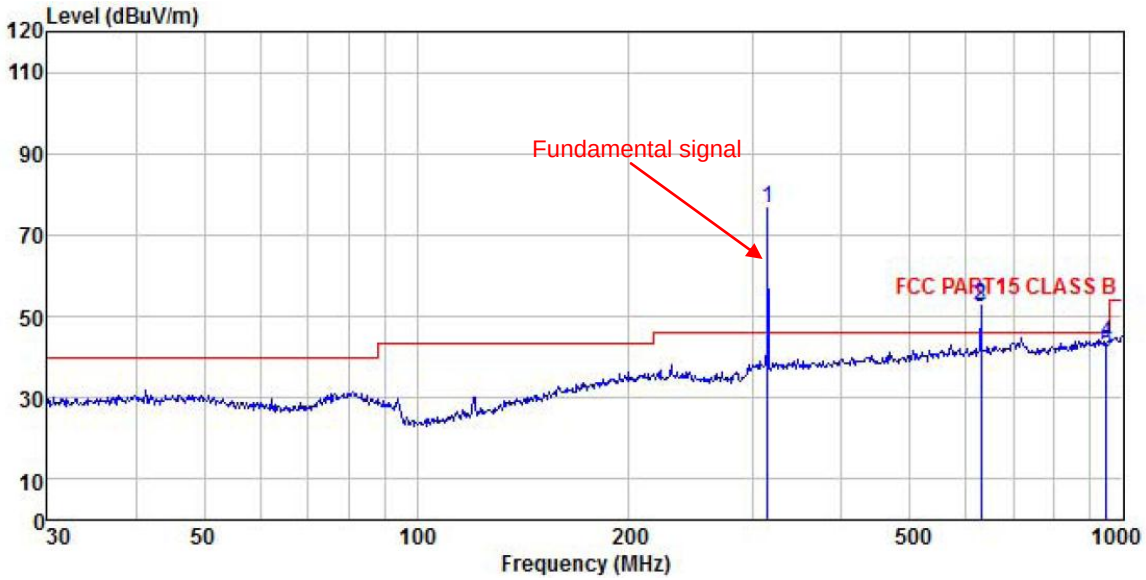


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1 *	314.377	49.99	18.73	2.98	0.00	0.00	71.70	46.00	25.70	Peak
2 *	629.477	24.71	20.02	3.89	0.00	0.00	48.62	46.00	2.62	Peak
3 *	629.477	23.58	20.02	3.89	0.00	0.00	47.49	46.00	1.49	Average
4	948.761	16.98	22.80	4.20	0.00	0.00	43.98	46.00	-2.02	Peak
5	948.761	14.58	22.80	4.20	0.00	0.00	41.58	46.00	-4.42	Average

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:	smart key	Product Model:	RT-BC3
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

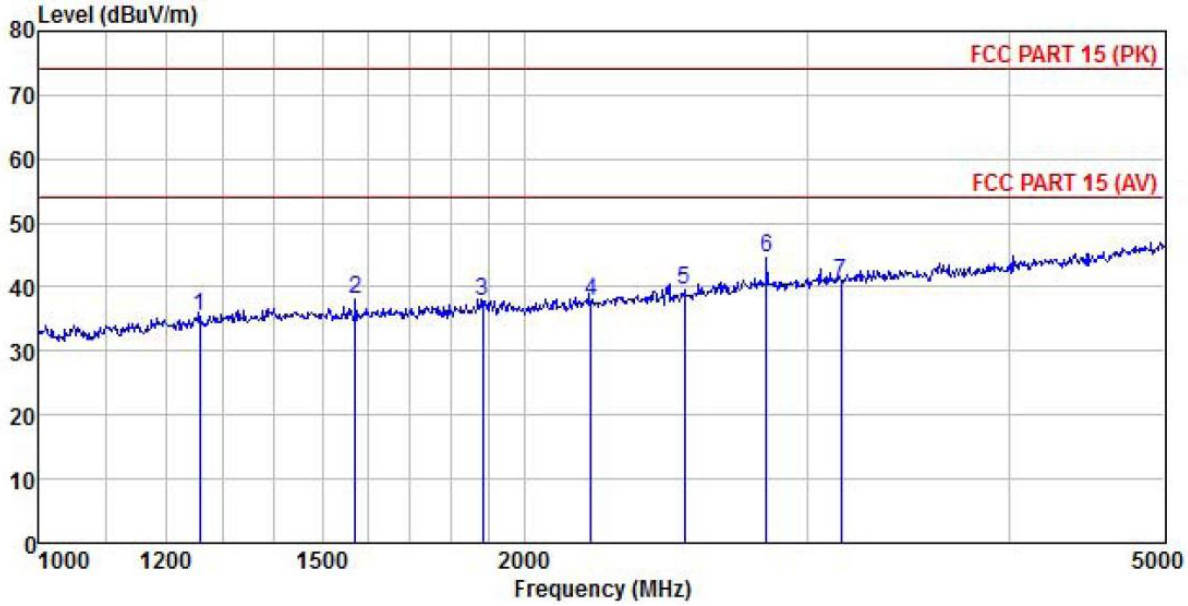


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1 *	314.377	54.84	18.73	2.98	0.00	0.00	76.55	46.00	30.55	
2 *	629.477	28.71	20.02	3.89	0.00	0.00	52.62	46.00	6.62	Peak
3 *	629.477	28.20	20.02	3.89	0.00	0.00	52.11	46.00	6.11	Average
4	948.761	16.45	22.80	4.20	0.00	0.00	43.45	46.00	-2.55	Peak
5	948.761	14.28	22.80	4.20	0.00	0.00	41.28	46.00	-4.72	Average

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:	smart key	Product Model:	RT-BC3
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	1 GHz ~ 5 GHz	Polarization:	Vertical
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

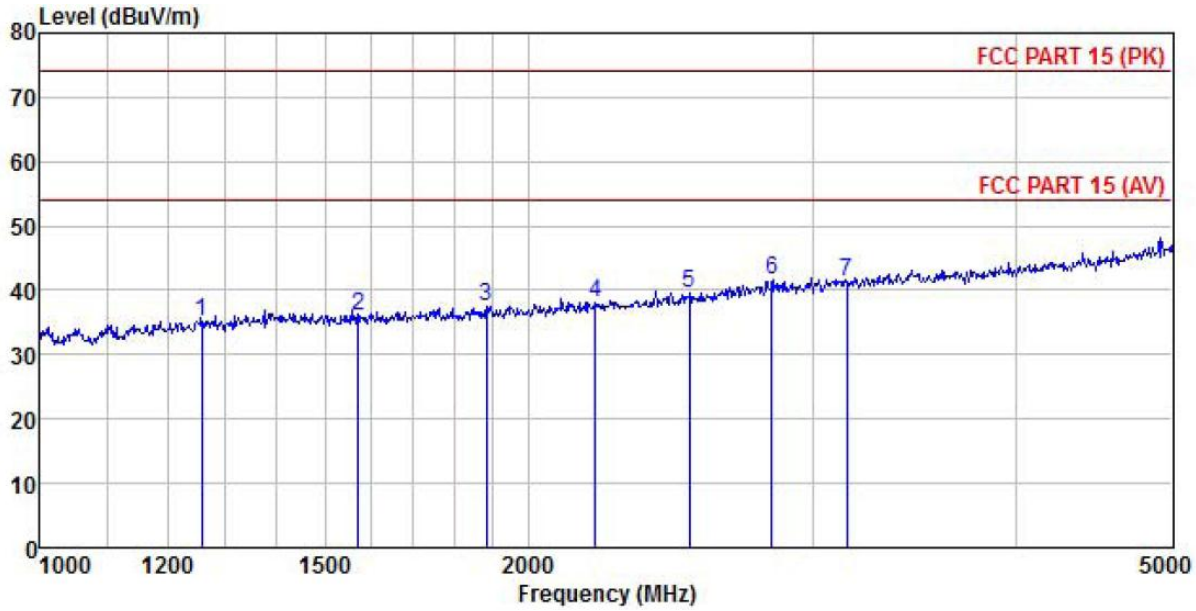


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	1258.788	47.49	24.62	3.02	1.23	41.05	35.31	74.00	-38.69	Peak
2	1571.848	49.24	24.96	3.39	1.39	41.03	37.95	74.00	-36.05	Peak
3	1885.359	48.33	25.55	3.79	1.55	41.40	37.82	74.00	-36.18	Peak
4	2200.368	47.29	26.56	4.09	1.64	41.68	37.90	74.00	-36.10	Peak
5	2514.837	48.01	27.33	4.40	1.70	41.90	39.54	74.00	-34.46	Peak
6	2828.360	51.69	28.05	4.69	1.83	41.63	44.63	74.00	-29.37	Peak
7	3145.333	46.60	28.49	5.01	1.98	41.44	40.64	74.00	-33.36	Peak

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:	smart key	Product Model:	RT-BC3
Test By:	Yaro	Test mode:	Tx mode
Test Frequency:	1 GHz ~ 5 GHz	Polarization:	Horizontal
Test Voltage:	DC 3V	Environment:	Temp: 24℃ Huni: 57%

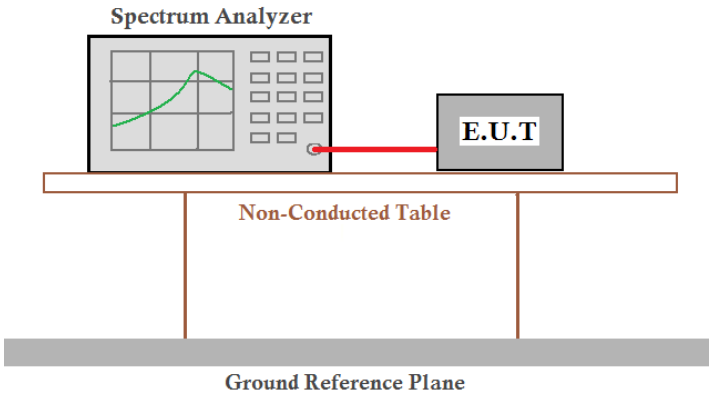


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	1258.788	47.22	24.62	3.02	1.23	41.05	35.04	74.00	-38.96	Peak
2	1571.848	47.26	24.96	3.39	1.39	41.03	35.97	74.00	-38.03	Peak
3	1885.359	48.02	25.55	3.79	1.55	41.40	37.51	74.00	-36.49	Peak
4	2200.368	47.57	26.56	4.09	1.64	41.68	38.18	74.00	-35.82	Peak
5	2514.837	48.00	27.33	4.40	1.70	41.90	39.53	74.00	-34.47	Peak
6	2828.360	48.70	28.05	4.69	1.83	41.63	41.64	74.00	-32.36	Peak
7	3145.333	47.33	28.49	5.01	1.98	41.44	41.37	74.00	-32.63	Peak

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.*

6.3 20dB Bandwidth

Test Requirement:	FCC Part15 C Section 15.231 (c) RSS-210 Annex A Section A.1.3
Receiver setup:	RBW=1kHz, VBW=3kHz, detector: Peak
Limit:	The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points. 4. Read 20dB bandwidth.
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

312.1MHz:

20dB bandwidth (MHz)	Limit (MHz)	99% Occupy Bandwidth (MHz)	Results
0.039	0.78075	0.037	Passed

Note: 20dB bandwidth Limit= Fundamental frequency×0.25%=312.1×0.25%=0.78075MHz

314.3MHz:

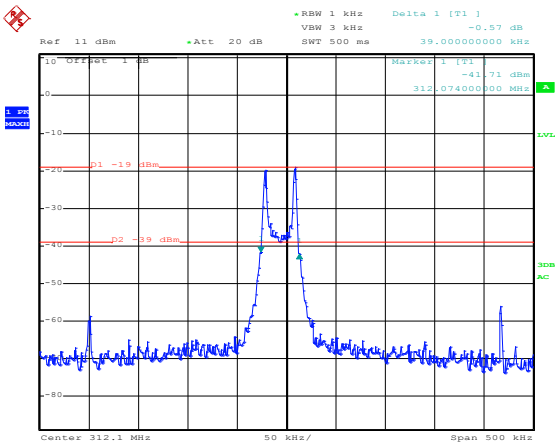
20dB bandwidth (MHz)	Limit (MHz)	99% Occupy Bandwidth (MHz)	Results
0.038	0.78575	0.037	Passed

Note: 20dB bandwidth Limit= Fundamental frequency×0.25%=314.3×0.25%=0.78575MHz

Test plot as follows:

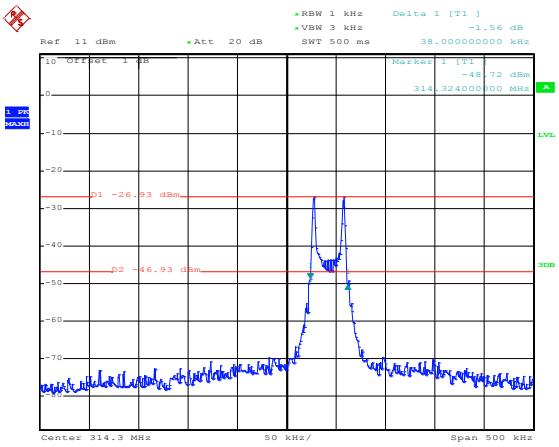
20dB Bandwidth

312.1MHz



Date: 16.JUL.2020 10:11:17

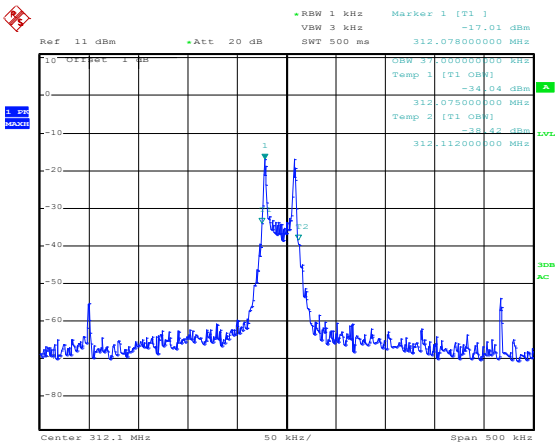
314.3MHz



Date: 22.JUN.2020 17:10:06

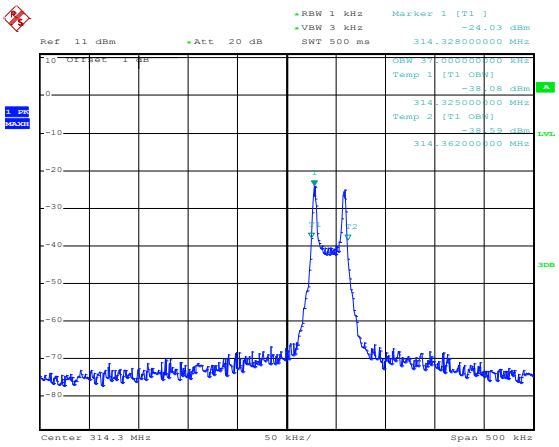
99% Occupy Bandwidth

312.1MHz



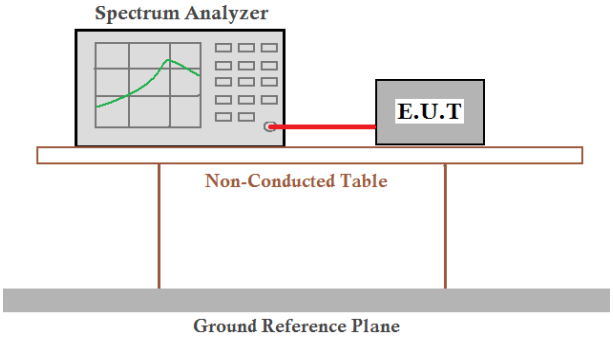
Date: 16.JUL.2020 10:11:49

314.3MHz



Date: 22.JUN.2020 17:08:09

6.4 Duration Time

Test Requirement:	FCC Part15 C Section 15.231 (a) (1) RSS-210 Annex A Section A.1.1 (a)
Receiver setup:	RBW=100kHz, VBW=300kHz, span=0Hz, detector: Peak
Limit:	Not more than 5 seconds
Test mode:	Transmitting mode
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Single scan the transmission, and read the transmission time.
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

312.1MHz:

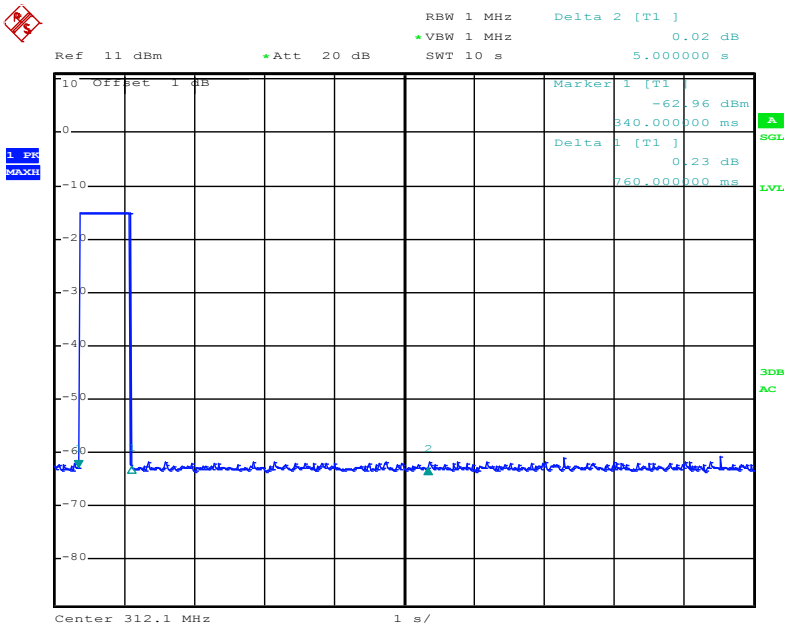
Duration time (second)	Limit (second)	Result
0.76	<5.0	Pass

314.3MHz:

Duration time (second)	Limit (second)	Result
1	<5.0	Pass

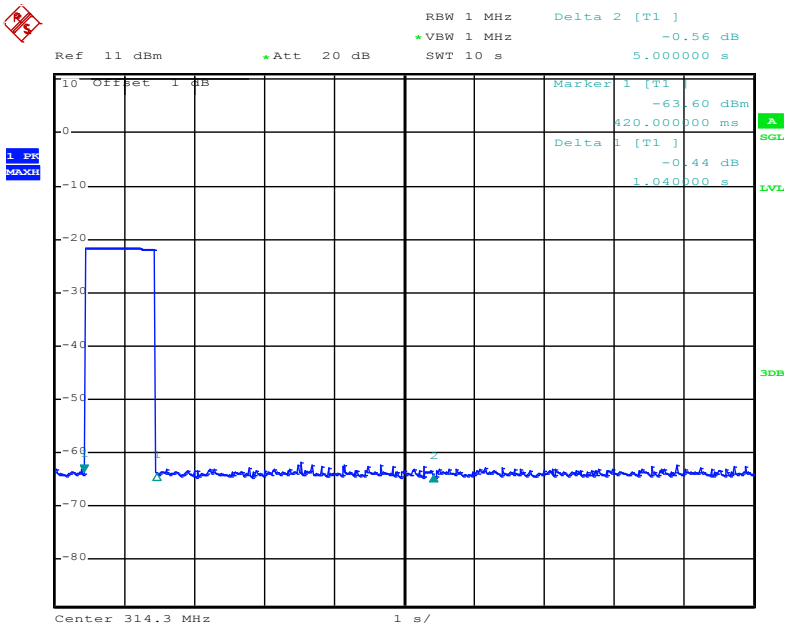
Test plot as follows:

312.1MHz



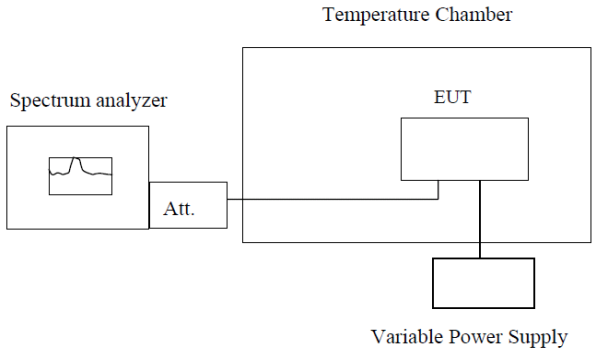
Date: 16.JUL.2020 10:13:08

314.3MHz



Date: 22.JUN.2020 17:12:09

6.5 Frequency Stability

Test Requirement:	RSS-GEN Section 8.11
Limit:	kept within at least the central 80% of its permitted operating frequency band.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. The EUT is installed in an environment test chamber with external power source. 2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT. 3. A sufficient stabilization period at each temperature is used prior to each frequency measurement. 4. When temperature is stabled, measure the frequency stability. 5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

312.1MHz:

Voltage vs. Frequency Stability

Test conditions		Measurement Frequency (MHz)	Limit (MHz)
Temp(℃)	Voltage(ac)		
20	3.2V	312.1086	281 ~ 449
	3.0V	312.1100	
	2.5V	312.1089	
Note: EUT stops working when the supply voltage is lower than DC 2.5V.			

Temperature vs. Frequency Stability

Test conditions		Frequency(MHz)	Limit (MHz)
Voltage(dc)	Temp(℃)		
3 V	-20	312.1082	281 ~ 449
	-10	312.1084	
	0	312.1083	
	10	312.1087	
	20	312.1100	
	30	312.1096	
	40	312.1095	
	50	312.1099	

314.3MHz:

Voltage vs. Frequency Stability

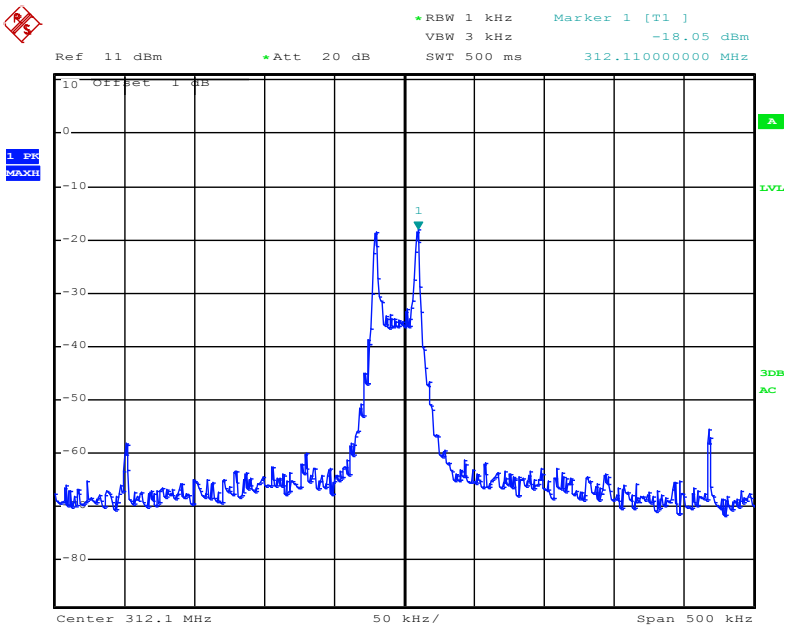
Test conditions		Measurement Frequency (MHz)	Limit (MHz)
Temp(℃)	Voltage(ac)		
20	3.2V	314.3267	281 ~ 449
	3.0V	314.3270	
	2.5V	314.3263	
Note: EUT stops working when the supply voltage is lower than DC 2.5V.			

Temperature vs. Frequency Stability

Test conditions		Frequency(MHz)	Limit (MHz)
Voltage(dc)	Temp(℃)		
3 V	-20	314.3261	281 ~ 449
	-10	314.3264	
	0	314.3266	
	10	314.3268	
	20	314.3270	
	30	314.3265	
	40	314.3267	
	50	314.3269	

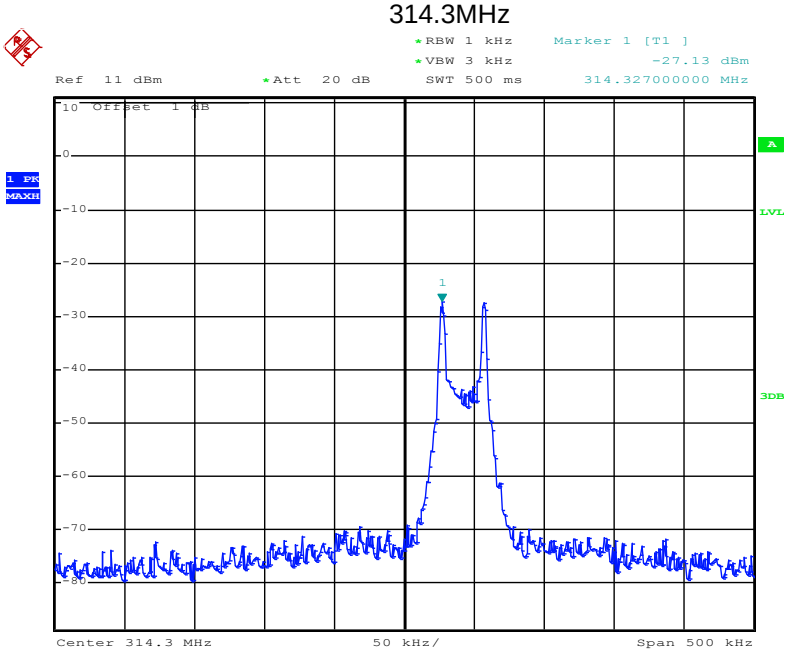
Test plot as follows (worst case):

312.1MHz



Date: 16.JUL.2020 10:10:29

314.3MHz



Date: 22.JUN.2020 17:08:52