JAPAN SPECIFIED RADIO TEST REPORT
for
JEICO

Industrial wireless remote controller
Model No.: JREMO 10K, JREMO 10K A, JREMO 10K B, JREMO 10K C, JREMO 10K D, JREMO 10K A+, JREMO 10KM

Prepared for	:	JEICO
Address	:	94-1, Choryang-ro, Dong-gu, Busan, Korea

Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road,Nanshan District, Shenzhen, 518054, China Tel: (86) 755-26066544 Fax: (86) 755-26014772

Report Number	:	R0217090086W
Date of Test	:	Sept. 15~Nov. 02, 2017
Date of Report	:	Nov. 02, 2017

TABLE OF CONTENTS

1. GENERAL INFORMATION....4
1.1. Description of Device (EUT)....4
1.2. Auxiliary Equipment Used during Test....5
1.3. Description of Test Facility....5
1.4. Measurement Uncertainty....5
1.5. Description of Test Modes....5
2. SUMMARY OF TEST....6
2.1. Summary of test result....6
2.2. Test Mode....7
3. FREQUENCY TOLERANCE TEST....8
3.1. Test Equipment....8
3.2. Test Configuration....9
3.3. Test Results....10
4. OCCUPIED BANDWIDTH (99%) TEST....12
4.1. Test Equipment....12
4.2. Test Configuration....12
4.3. Test Results....12
5. SPURIOUS EMISSIONS INTENSITY TEST....15
5.1. Test Equipment....15
5.2. Test Configuration....15
5.3. Test Results....15
6. ANTENNA POWER TEST....21
6.1. Test Equipment....21
6.2. Test Configuration....21
6.3. Test Results....21
7. LIMITATION OF COLLATERAL EMISSIONS OF RECEIVER TEST....22
7.1. Test Equipment....22
7.2. Test Configuration....22
7.3. Test Results....22
8. ADJACENT CHANNEL LEAKAGE POWER....25
8.1. Test Equipment....25
8.2. Test Configuration....25
8.3. Test Results....25
9. PHOTOS OF TEST SETUP....27

TEST REPORT

Applicant	:	JEICO
Manufacturer	:	JEI CORPORATION CO., LTD.
EUT	:	Industrial wireless remote controller
Model No.	:	JREMO 10K
Serial No.	:	JREMO 10K A, JREMO 10K B, JREMO 10K C, JREMO 10K D, JREMO 10K A+, JREMO 10KM
Trade Mark	:	N.A.
Rating	:	Input DC 6V, 15mA

Measurement Procedure Used:
MIC Notice No.88 Annex43
Certificate regulation article 38-2, Paragraph 1, item 8

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the MIC Notice No.88 Annex43 and Certificate regulation article 38-2, Paragraph 1, item 8 requirements.
This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Sept. 15~Nov. 02, 2017

Prepared by : (Tested Engineer / Winkey Wang)

Reviewer : (Project Manager / Tangcy. T)

Approved & Authorized Signer : (Manager / Tom Chen)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Industrial wireless remote controller
Model Number	:	JREMO 10K, JREMO 10K A, JREMO 10K B, JREMO 10K C, JREMO 10K D, JREMO 10K A+, JREMO 10KM (Note: All samples are the same except the model number and colour, so we prepare "JREMO 10K" for test only.)
Test Power Supply	:	DC 6V Battery
Frequency	:	429.2500~429.7375M
Number of Channels	:	40 Channels
Modulation Mode		GFSK
Antenna Type	:	MONOPOLE Antenna
Antenna Gain	:	1.5 dbi
Rated output Power	:	2.6 mw
Applicant	:	JEICO
Address	:	94-1, Choryang-ro, Dong-gu, Busan, Korea
Manufacturer	:	JEI CORPORATION CO., LTD.
Address	:	#94-1, Choryang-ro, Dong-gu, Busan, Korea
Date of receipt	:	Sept. 15, 2017
Date of Test	:	Sept. 15~Nov. 02, 2017

1.2. Auxiliary Equipment Used during Test

N/A

1.3. Description of Test Facility

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

FCC-Registration No.: 184111
Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111, July 31, 2017.

ISED-Registration No.: 8058A-1
Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

Test Location
All Emissions tests were performed at
Shenzhen Anbotek Compliance Laboratory Limited. at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road,Nanshan District, Shenzhen, 518054, China

1.4. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.1 dB (Horizontal) Ur = 4.3 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4dB

1.5. Description of Test Modes

The EUT has been tested under operating condition.
Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel Low(429.2500MHz), Channel Middle(429.4875MHz) and Channel High(429.7375MHz) are chosen for the final testing.

2. SUMMARY OF TEST

2.1. Summary of test result

CLAUSE (ARIB STD-T67)	TEST PARAMETER	RESULTS
Transmitter Parameters		
3.2 (1)	Antenna Power	PASS
3.2 (2)	Tolerances for Antenna Power	PASS
3.2 (4)	Frequency Tolerance	PASS
3.2 (5)	Modulation method	PASS
3.2 (10)	Permissible value for occupied bandwidth	PASS
3.2 (11)	Spurious Emissions	PASS
3.2 (6)	Frequency deviation	N/A
3.2 (7)	Modulation rate	N/A
3.2 (9)	Adjacent-channel leakage power	PASS
Receiver Parameters		
3.3 (2)	Secondary Radiated Emissions	PASS
Note: 1 N/A is an abbreviation for Not Applicable. 2 The EUT has been tested as an independent unit. And Continual Transmitting in maximum power (The new battery be used during Test)		

2.2. Test Mode

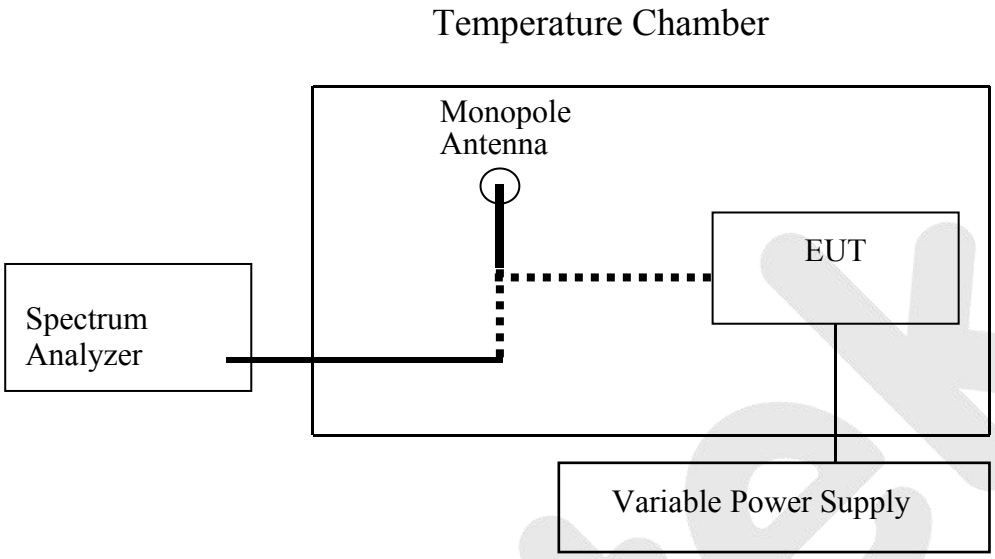
Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	429.2500	21	429.5000
2	429.2625	22	429.5125
3	429.2750	23	429.5250
4	429.2875	24	429.5375
5	429.3000	25	429.5500
6	429.3125	26	429.5625
7	429.3250	27	429.5750
8	429.3375	28	429.5875
9	429.3500	29	429.6000
10	429.3625	30	429.6125
11	429.3750	31	429.6250
12	429.3875	32	429.6375
13	429.4000	33	429.6500
14	429.4125	34	429.6625
15	429.4250	35	429.6750
16	429.4375	36	429.6875
17	429.4500	37	429.7000
18	429.4625	38	429.7125
19	429.4750	39	429.7250
20	429.4875	40	429.7375

3. FREQUENCY TOLERANCE TEST

3.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	May 27, 2017	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	May 27, 2017	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	May 27, 2017	1 Year
4.	Spectrum Analysis	Agilent	E4407B	US39390582	May 27, 2017	1 Year
5.	Spectrum Analysis	Agilent	N9038A	MY53227295	May 27, 2017	1 Year
6.	Preamplifier	SKET Electronic	BK1G18G30D	KD17503	May 27, 2017	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	May 27, 2017	1 Year
8.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	May 31, 2017	1 Year
9.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	May 31, 2017	1 Year
10.	Loop Antenna	Schwarzbeck	HFH2-Z2	100047	Apr. 03, 2017	1 Year
11.	Horn Antenna	Schewarzbeck	BBHA9170	9170-375	May 27, 2017	1 Year
12.	Pre-amplifier	SONOMA	310N	186860	May 27, 2017	1 Year
13.	Pre-amplifier	SKET Electronic	BK1G40G50A	KD25352	May 27, 2017	1 Year
14.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
15.	Power Sensor	DAER	RPR3006W	15I00041SN045	May 27, 2017	1 Year
16.	Power Sensor	DAER	RPR3006W	15I00041SN046	May 27, 2017	1 Year
17.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	May 27, 2017	1 Year
18.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	May 27, 2017	1 Year
19.	Signal Generator	Agilent	E4421B	MY41000743	May 27, 2017	1 Year
20.	DC Power supply	IVYTECH	IV6003	1601D6030007	May 26, 2017	1 Year
21.	TEMP&HUMI PROGRAMMABLE CHAMBER	Sertep	ZJ-HWHS80B	ZJ-17042804	Mar. 03, 2017	1 Year

3.2. Test Configuration



3.3. Test Results

Low Voltage: DC 5.4V

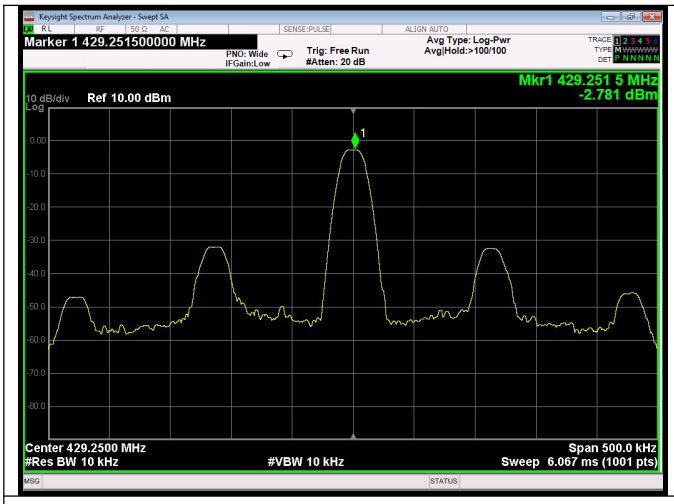
Frequency(MHz)	Reading(MHz)	Tolerance(ppm)	Limit(ppm)
429.2500	429.2514	3.26	4
429.4875	429.4856	-4.42	4
429.7375	429.7379	0.93	4

High Voltage: DC 6.6V

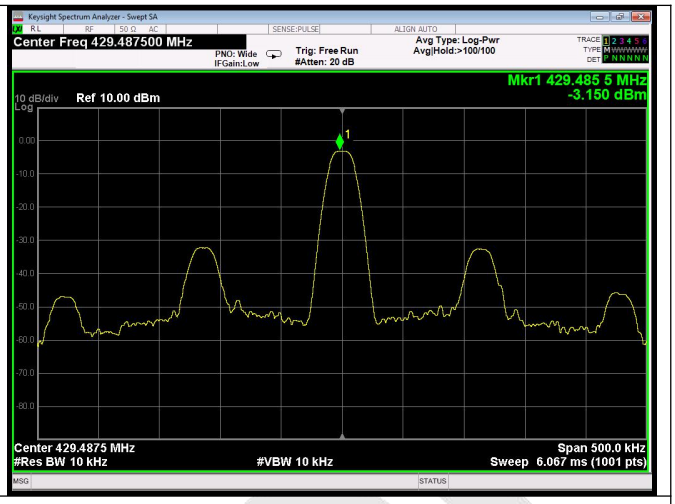
Frequency(MHz)	Reading(MHz)	Tolerance(ppm)	Limit(ppm)
429.2500	429.2516	3.73	4
429.4875	429.4851	-5.59	4
429.7375	429.7373	-0.47	4

Normal Voltage: DC 6V

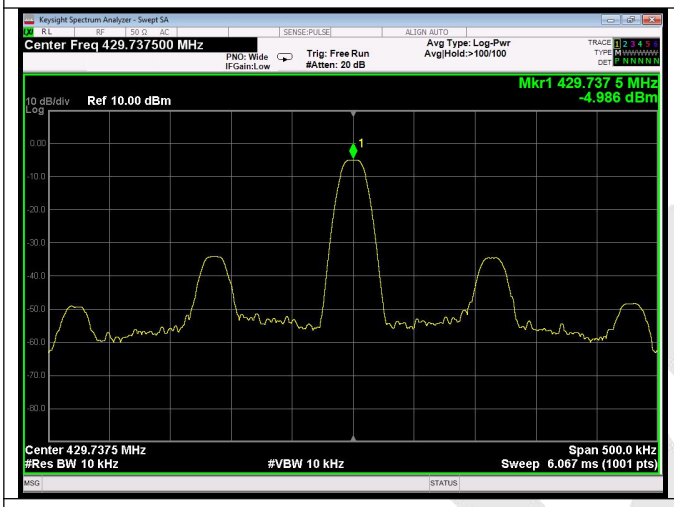
Frequency(MHz)	Reading(MHz)	Tolerance(ppm)	Limit(ppm)
429.2500	429.2515	3.49	4
429.4875	429.4855	-4.66	4
429.7375	429.7375	0	4



Frequency Error--429.2500MHz



Frequency Error--429.4875MHz



Frequency Error--429.7375MHz

/

/

4. OCCUPIED BANDWIDTH (99%) TEST

4.1. Test Equipment

Same as 3.1 Frequency tolerance measurement.

4.2. Test Configuration

Same as 3.2 Frequency tolerance measurement.

4.3. Test Results

The permissible value for a occupied bandwidth (the bandwidth such that the mean powers radiated below its lower-frequency limit and above its upper-frequency limit are each equal to 0.5% of the total mean power radiated by a given emission) in the 400MHz band shall be 8.5 kHz when the modulation is performed using the standard coded test signal at the same transmission speed as that of the modulation signal. However, for transmitters emitting radio waves in an occupied bandwidth over 8.5 kHz

Pass.
Please refer to the following data.

Low Voltage: DC 5.4V

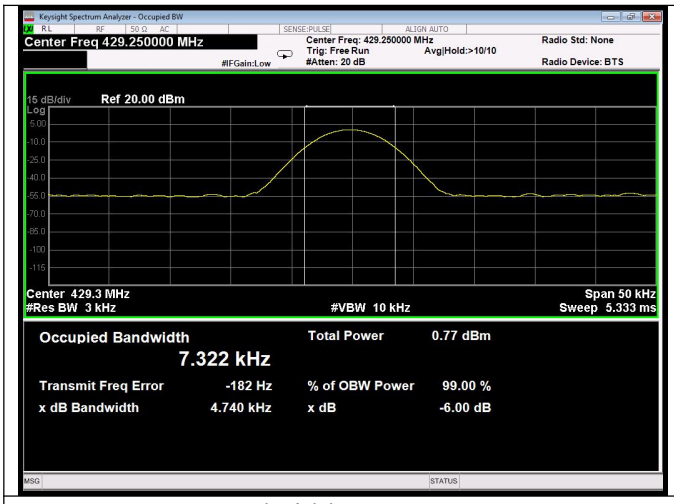
Frequency(MHz)	99% Bandwidth(MHz)	Limit (MHz)	Remark
429.2500	0.007325	≤8.5	Low Voltage: DC 5.4V
429.4875	0.007329	≤8.5	Low Voltage: DC 5.4V
429.7375	0.007315	≤8.5	Low Voltage: DC 5.4V

High Voltage: DC 6.6V

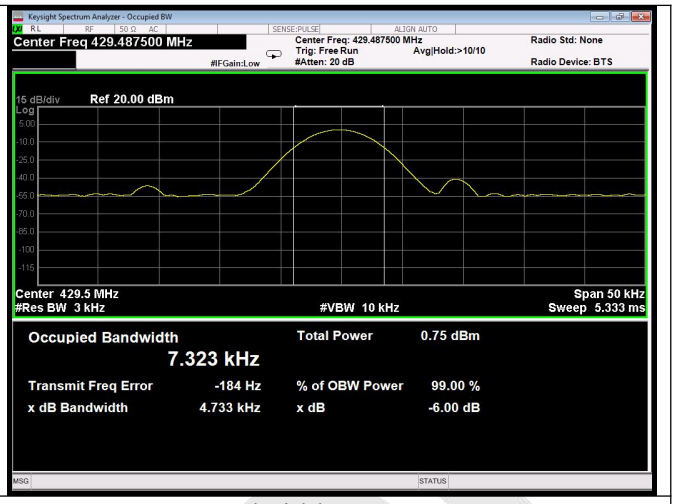
Frequency(MHz)	99% Bandwidth(MHz)	Limit (MHz)	Remark
429.2500	0.007326	≤8.5	Low Voltage: DC 6.6V
429.4875	0.007329	≤8.5	Low Voltage: DC 6.6V
429.7375	0.007317	≤8.5	Low Voltage: DC 6.6V

Normal Voltage: DC 6V

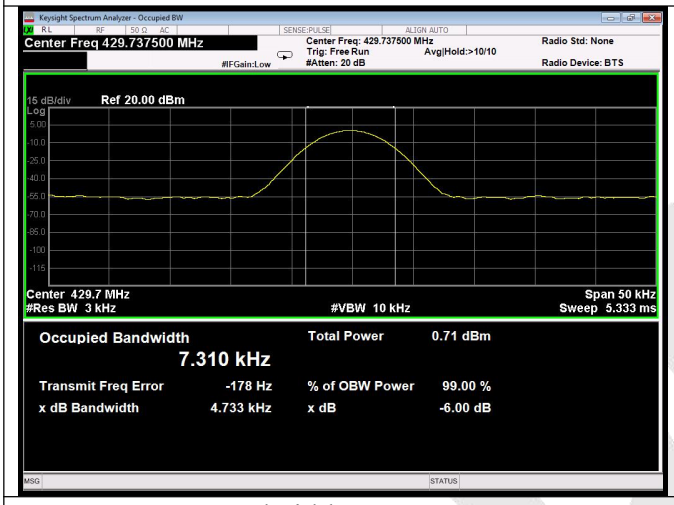
Frequency(MHz)	99% Bandwidth(MHz)	Limit (MHz)	Remark
429.2500	0.007322	≤8.5	Low Voltage: DC 6V
429.4875	0.007323	≤8.5	Low Voltage: DC 6V
429.7375	0.007310	≤8.5	Low Voltage: DC 6V



99% Bandwidth--429.2500MHz



99% Bandwidth--429.4875MHz



99% Bandwidth--429.7375MHz

/

/

5. SPURIOUS EMISSIONS INTENSITY TEST

5.1. Test Equipment

Same as 3.1 Frequency tolerance measurement.

5.2. Test Configuration

Same as 3.2 Frequency tolerance measurement.

5.3. Test Results

Scanning Bandwidth: 30~ 414.25MHz, 414.25~ 427.25MHz, 433.2375~ 446.2375MHz, 446.2375~ 1000MHz, 1000~ 6000MHz.

Low Voltage: DC 5.4V

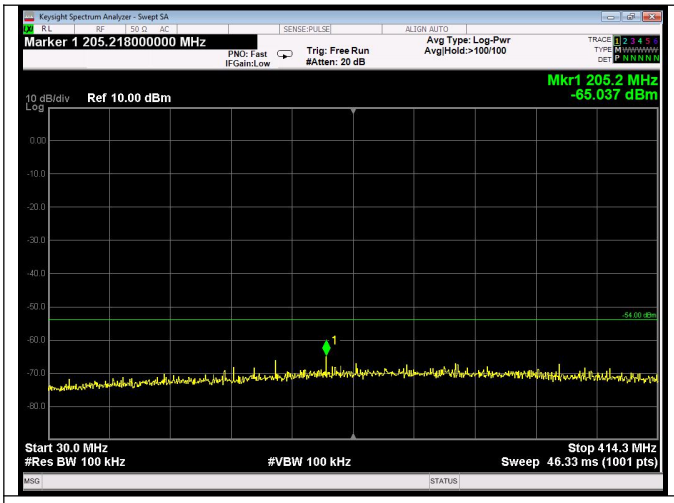
Frequency(MHz)	Reading(MHz)	Reading(dBm)	Scanning Bandwidth	Limit
429.2500	205.2001	-65.038	30~414.25 MHz	≤ -54dBm
	426.8992	-64.166	414.25~427.25 MHz	≤ -26dBm
	434.7206	-66.699	433.2375~446.2375 MHz	≤ -26dBm
	858.8005	-56.309	446.2375~1000MHz	≤ -54dBm
	1290.0008	-58.815	1000~6000MHz	≤ -54dBm
429.4875	288.2009	-65.846	30~414.25 MHz	≤ -54dBm
	426.7438	-65.408	414.25~427.25 MHz	≤ -26dBm
	434.7596	-66.366	433.2375~446.2375 MHz	≤ -26dBm
	858.8005	-56.509	446.2375~1000MHz	≤ -54dBm
	5940.0009	-58.038	1000~6000MHz	≤ -54dBm
429.7375	205.2008	-66.229	30~414.25 MHz	≤ -54dBm
	426.9386	-65.047	414.25~427.25 MHz	≤ -26dBm
	434.7469	-66.255	433.2375~446.2375 MHz	≤ -26dBm
	858.8008	-56.606	446.2375~1000MHz	≤ -54dBm
	2630.0007	-57.108	1000~6000MHz	≤ -54dBm

High Voltage: DC 6.6V

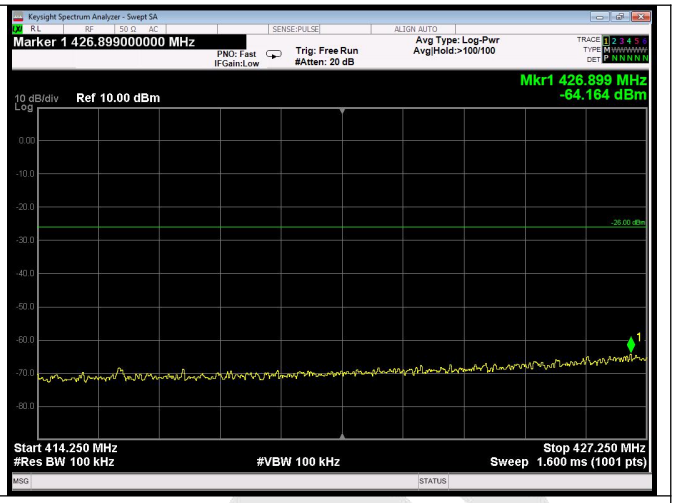
Frequency(MHz)	Reading(MHz)	Reading(dBm)	Scanning Bandwidth	Limit
429.2500	205.2005	-65.038	30~414.25 MHz	≤ -54dBm
	426.8996	-64.166	414.25~427.25 MHz	≤ -26dBm
	434.7209	-66.695	433.2375~446.2375 MHz	≤ -26dBm
	858.8008	-56.309	446.2375~1000MHz	≤ -54dBm
	1290.0006	-58.815	1000~6000MHz	≤ -54dBm
429.4875	288.2008	-65.846	30~414.25 MHz	≤ -54dBm
	426.7439	-65.405	414.25~427.25 MHz	≤ -26dBm
	434.7596	-66.366	433.2375~446.2375 MHz	≤ -26dBm
	858.8008	-56.508	446.2375~1000MHz	≤ -54dBm
	5940.0005	-58.036	1000~6000MHz	≤ -54dBm
429.7375	205.2009	-66.227	30~414.25 MHz	≤ -54dBm
	426.9385	-65.046	414.25~427.25 MHz	≤ -26dBm
	434.7466	-66.252	433.2375~446.2375 MHz	≤ -26dBm
	858.8008	-56.606	446.2375~1000MHz	≤ -54dBm
	2630.0006	-57.105	1000~6000MHz	≤ -54dBm

Normal Voltage: DC 6V

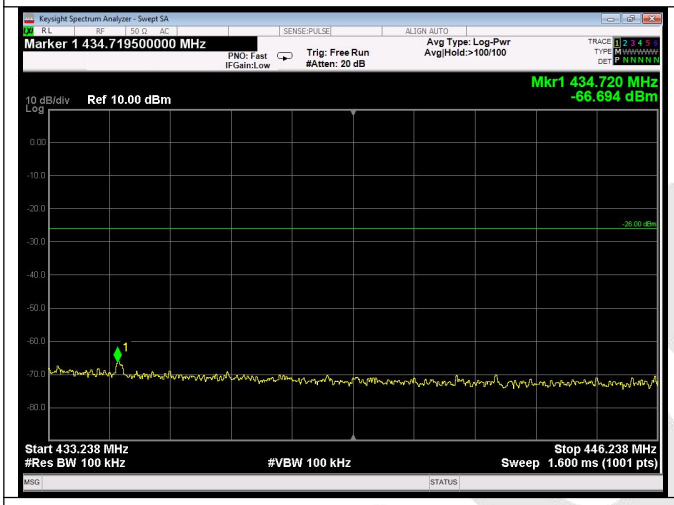
Frequency(MHz)	Reading(MHz)	Reading(dBm)	Scanning Bandwidth	Limit
429.2500	205.2000	-65.037	30~414.25 MHz	≤ -54dBm
	426.8990	-64.164	414.25~427.25 MHz	≤ -26dBm
	434.7200	-66.694	433.2375~446.2375 MHz	≤ -26dBm
	858.8000	-56.308	446.2375~1000MHz	≤ -54dBm
	1290.0000	-58.819	1000~6000MHz	≤ -54dBm
429.4875	288.2000	-65.845	30~414.25 MHz	≤ -54dBm
	426.7430	-65.401	414.25~427.25 MHz	≤ -26dBm
	434.7590	-66.360	433.2375~446.2375 MHz	≤ -26dBm
	858.8000	-56.506	446.2375~1000MHz	≤ -54dBm
	5940.0000	-58.035	1000~6000MHz	≤ -54dBm
429.7375	205.2000	-66.228	30~414.25 MHz	≤ -54dBm
	426.9380	-65.049	414.25~427.25 MHz	≤ -26dBm
	434.7460	-66.258	433.2375~446.2375 MHz	≤ -26dBm
	858.8000	-56.601	446.2375~1000MHz	≤ -54dBm
	2630.0000	-57.102	1000~6000MHz	≤ -54dBm



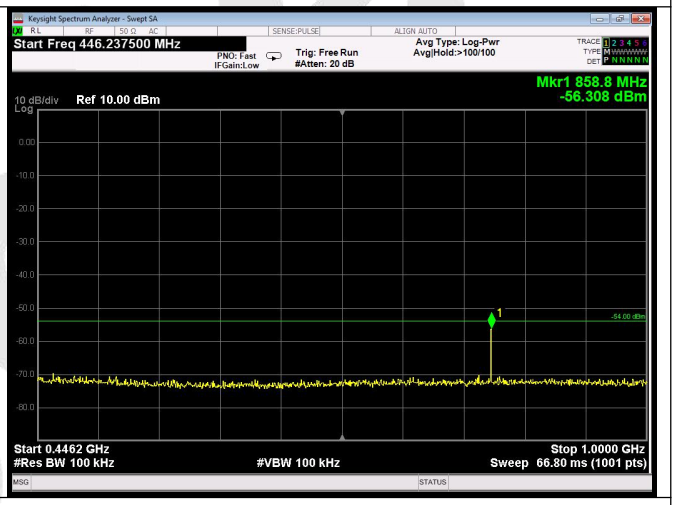
Low---30~ 414.25MHz



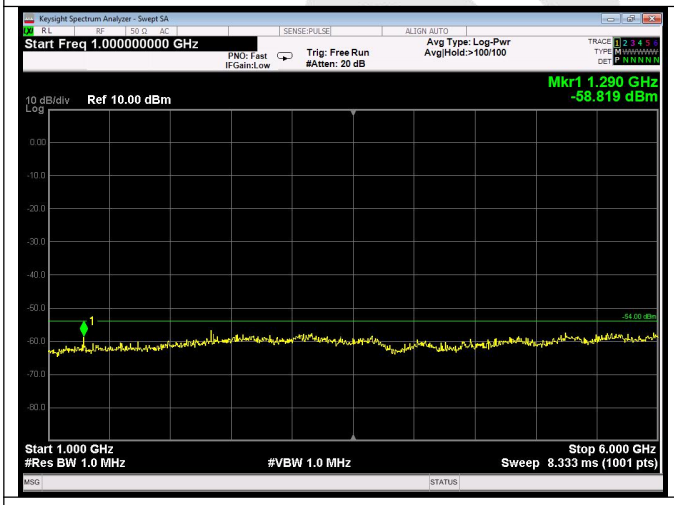
Low---414.25~ 427.25MHz



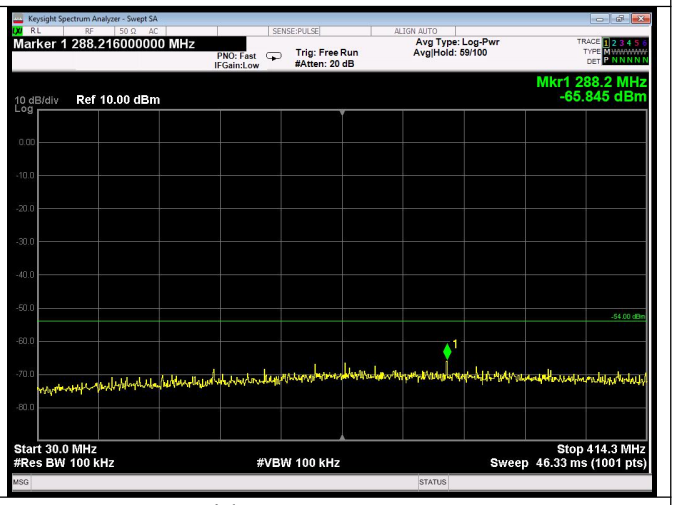
Low---433.2375~ 446.2375MHz



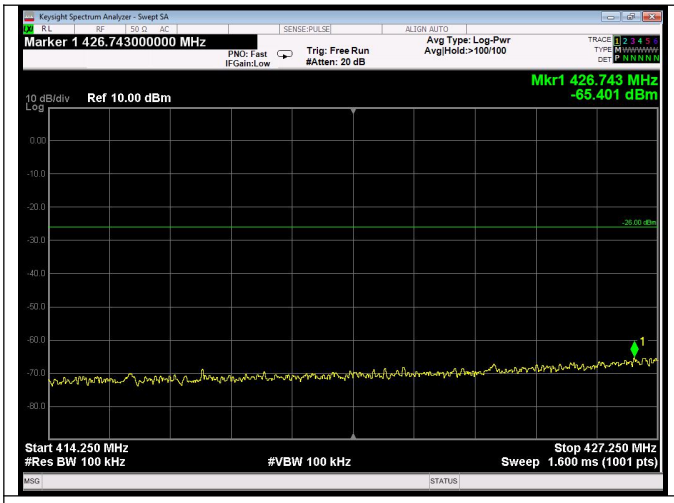
Low---446.2375~ 1000MHz



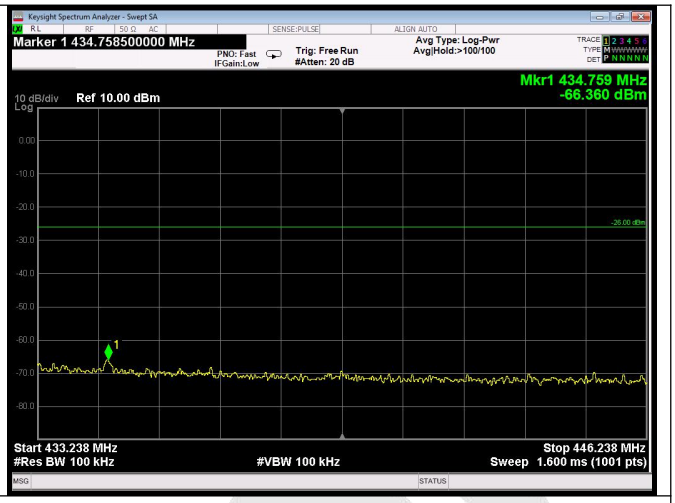
Low---1000~ 6000MHz



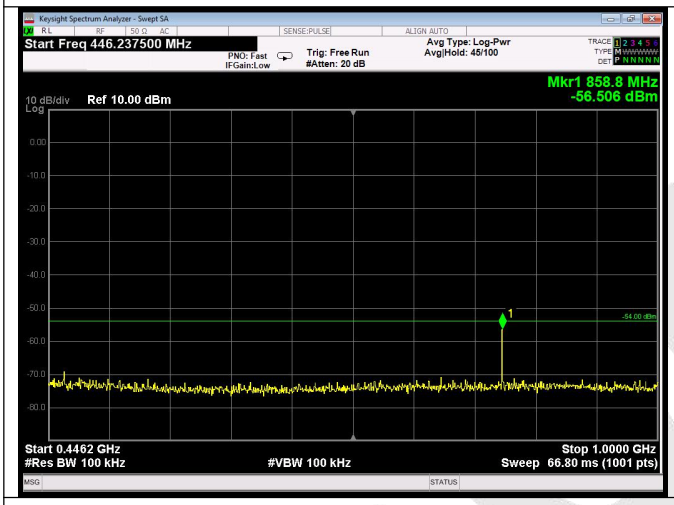
Mid---30~ 414.25MHz



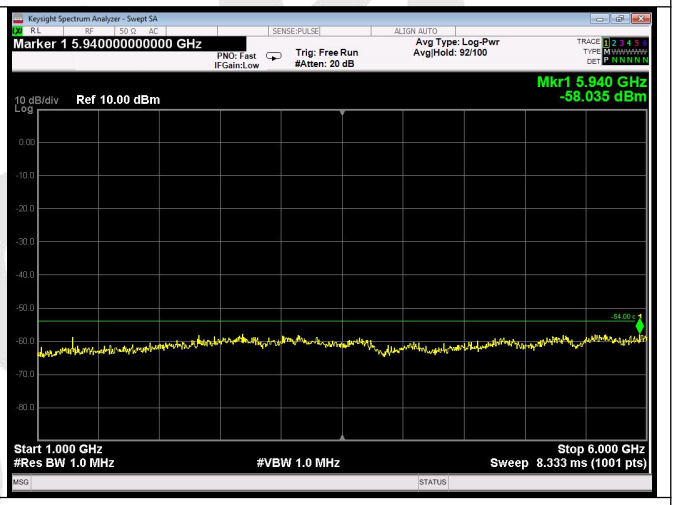
Mid---414.25~427.25MHz



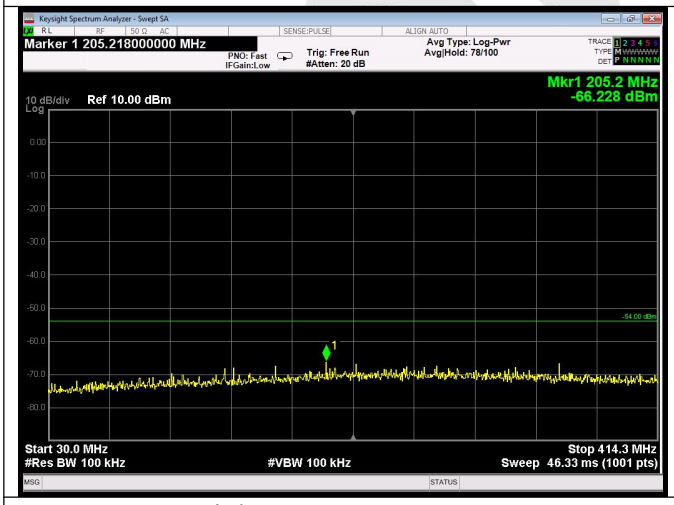
Mid---433.2375~446.2375MHz



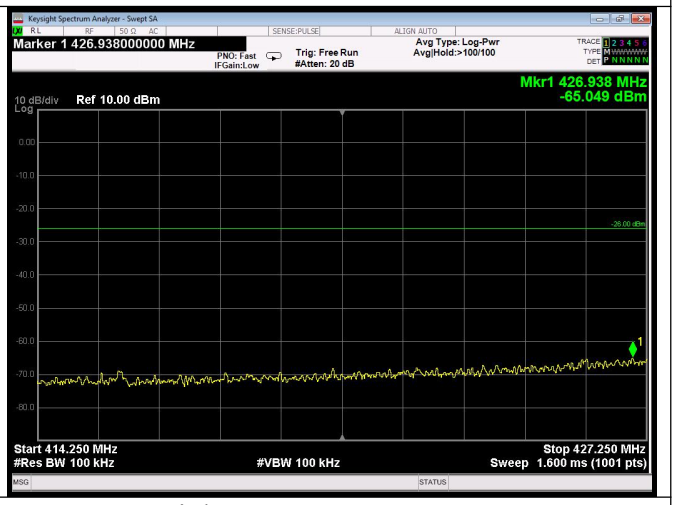
Mid---446.2375~1000MHz



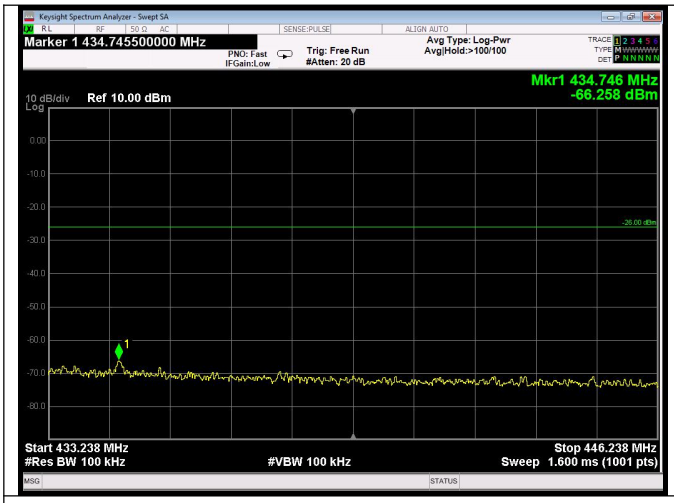
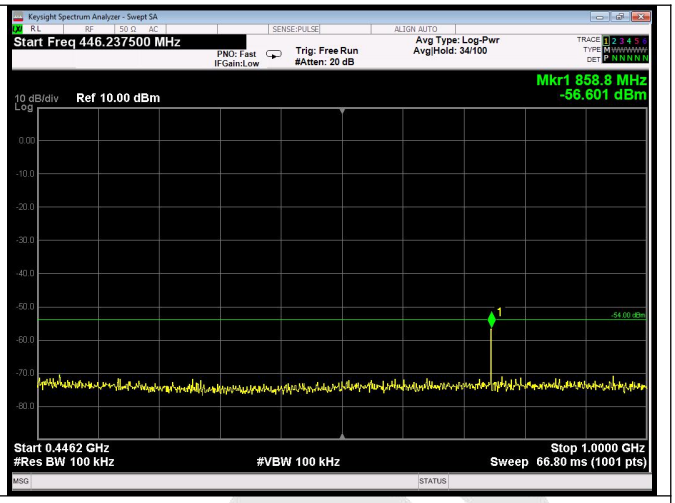
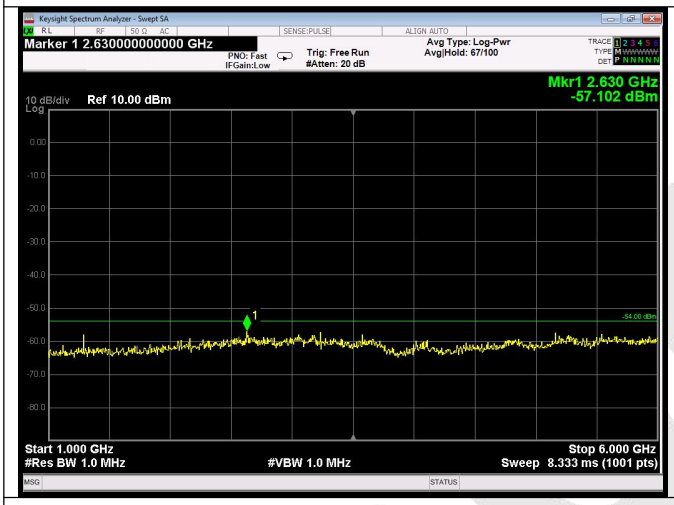
Mid---1000~6000MHz



High---30~ 414.25MHz



High---414.25~427.25MHz

	
High---433.2375~ 446.2375MHz	High---446.2375~ 1000MHz
	/
High---1000~ 6000MHz	/

6. ANTENNA POWER TEST

6.1. Test Equipment

Same as 3.1 Frequency tolerance measurement.

6.2. Test Configuration

Same as 3.2 Frequency tolerance measurement.

6.3. Test Results

Low Voltage: DC 5.4V

Channel	Channel Frequency (MHz)	conducted antenna power density (mW)	Rated Conducted power density (mW)	Antenna Power Error (mW) (-50%, +20%)
Low	429.2500	2.38	2.6	-8.46
Mid	429.4875	2.26	2.6	-13.08
High	429.7375	1.97	2.6	-24.23

High Voltage: DC 6.6V

Channel	Channel Frequency (MHz)	conducted antenna power density (mW)	Rated Conducted power density (mW)	Antenna Power Error (mW) (-50%, +20%)
Low	429.2500	2.36	2.6	-9.23
Mid	429.4875	2.24	2.6	-13.85
High	429.7375	1.96	2.6	-24.62

Normal Voltage: DC 6V

Channel	Channel Frequency (MHz)	conducted antenna power density (mW)	Rated Conducted power density (mW)	Antenna Power Error (mW) (-50%, +20%)
Low	429.2500	2.35	2.6	-9.62
Mid	429.4875	2.21	2.6	-15.00
High	429.7375	1.98	2.6	-23.85

7. LIMITATION OF COLLATERAL EMISSIONS OF RECEIVER TEST

7.1. Test Equipment

Same as 3.1 Frequency tolerance measurement.

7.2. Test Configuration

Same as 3.2 Frequency tolerance measurement.

7.3. Test Results

Scanning Bandwidth: 30~ 1000MHz, 1000~ 6000MHz.

Low Voltage: DC 5.4V

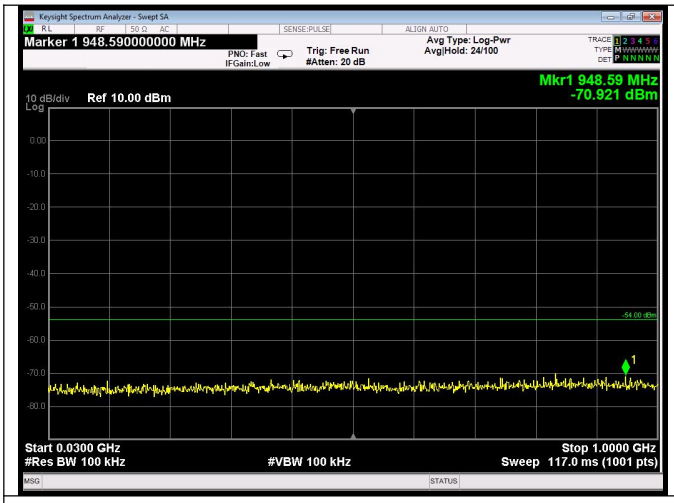
Frequency(MHz)	Reading(MHz)	Reading(dBm)	Scanning Bandwidth	Limit
429.2500	948.5901	-70.925	30~1000 MHz	≤ -54dBm
	2460.0005	-61.376	1000~6000 MHz	≤ -54dBm
429.4875	919.4906	-71.139	30~1000 MHz	≤ -54dBm
	2640.0008	-67.336	1000~6000 MHz	≤ -54dBm
429.7375	891.3609	-70.626	30~1000 MHz	≤ -54dBm
	4805.0006	-67.756	1000~6000 MHz	≤ -54dBm

High Voltage: DC 6.6V

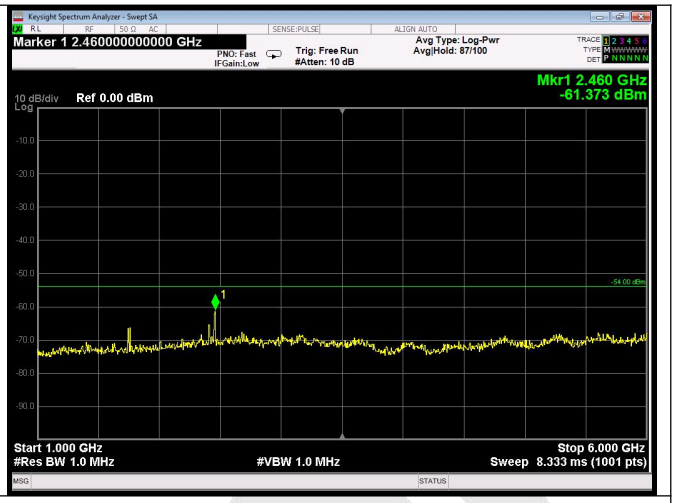
Frequency(MHz)	Reading(MHz)	Reading(dBm)	Scanning Bandwidth	Limit
429.2500	948.5905	-70.925	30~1000 MHz	≤ -54dBm
	2460.0006	-61.376	1000~6000 MHz	≤ -54dBm
429.4875	919.4909	-71.139	30~1000 MHz	≤ -54dBm
	2640.0006	-67.335	1000~6000 MHz	≤ -54dBm
429.7375	891.3605	-70.626	30~1000 MHz	≤ -54dBm
	4805.0006	-67.759	1000~6000 MHz	≤ -54dBm

Normal Voltage: DC 6V

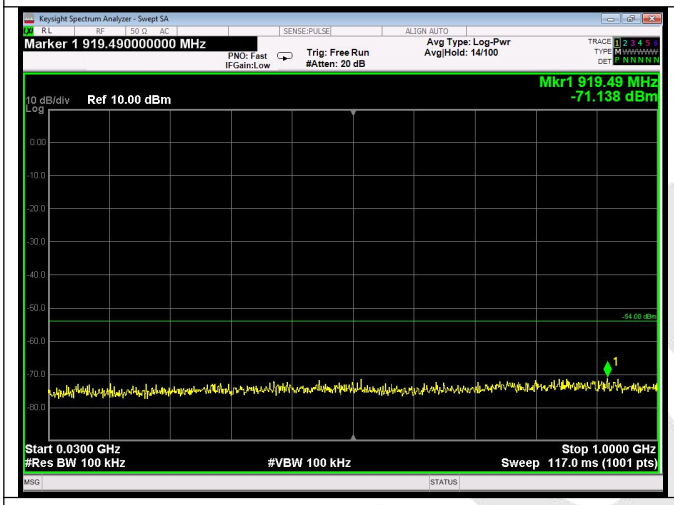
Frequency(MHz)	Reading(MHz)	Reading(dBm)	Scanning Bandwidth	Limit
429.2500	948.5900	-70.921	30~1000 MHz	≤ -54dBm
	2460.0000	-61.373	1000~6000 MHz	≤ -54dBm
429.4875	919.4900	-71.138	30~1000 MHz	≤ -54dBm
	2640.0000	-67.333	1000~6000 MHz	≤ -54dBm
429.7375	891.3600	-70.625	30~1000 MHz	≤ -54dBm
	4805.0000	-67.755	1000~6000 MHz	≤ -54dBm



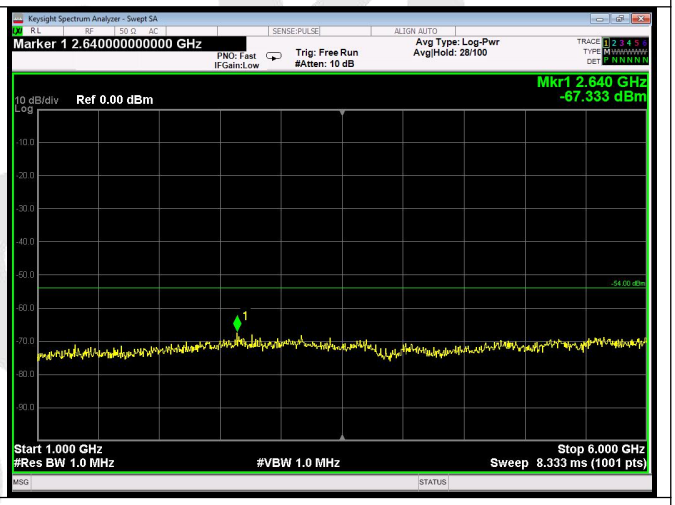
Low---30MHz~ 1GHz



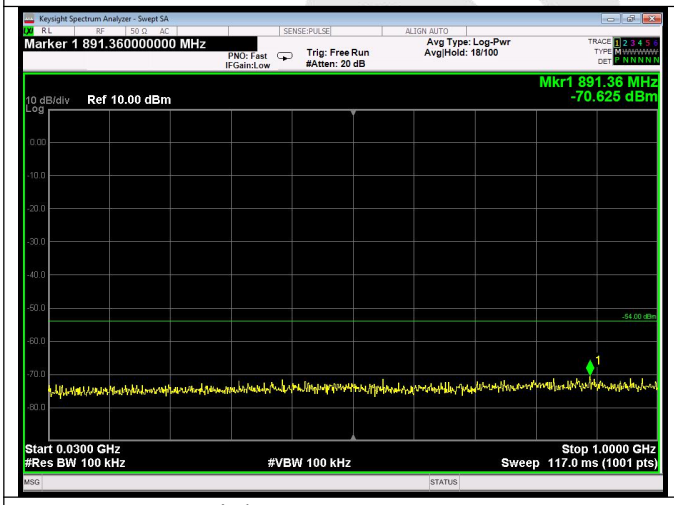
Low---1GHz~ 6GHz



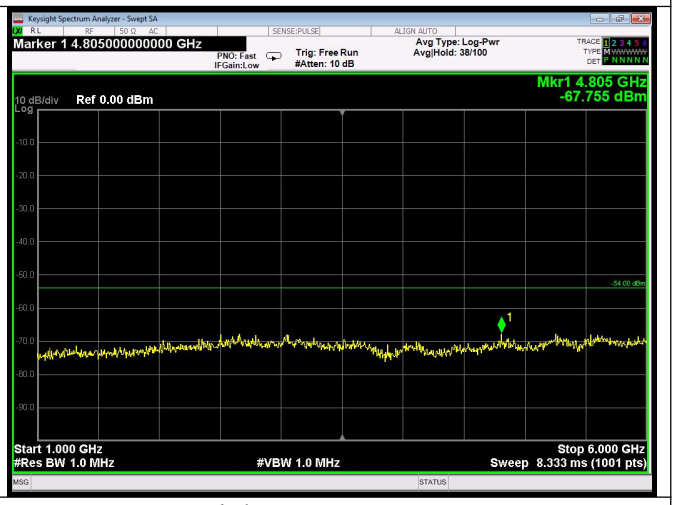
Mid---30MHz~ 1GHz



Mid---1GHz~ 6GHz



High---30MHz~ 1GHz



High---1GHz~ 6GHz

8. ADJACENT CHANNEL LEAKAGE POWER

8.1. Test Equipment

Same as 3.1 Frequency tolerance measurement.

8.2. Test Configuration

As for the adjacent-channel leakage power in the 400MHz band (the power radiated in a certain band of the adjacent channel separated from the carrier frequency at the specified frequency interval), the power radiated into the ±4.25 kHz band of the frequency 12.5 kHz distant from the carrier frequency shall be lower than the carrier power by 40 dB or more, when modulation is performed using the standard coded test signal at the same transmission speed as that of the modulation signal. However, for transmitters that emit radio waves in an occupied bandwidth over 8.5 kHz and up to 16 kHz, the power radiated into the ±8 kHz band of the frequency 25 kHz distant from the carrier frequency shall be lower than the carrier power by 40 dB or more.

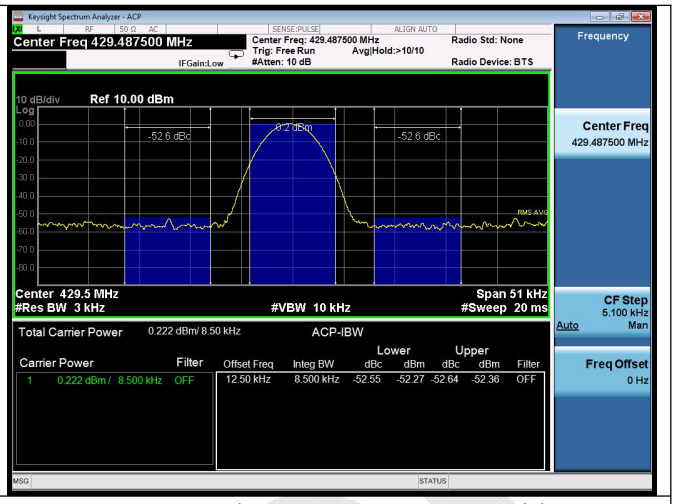
The limits are as follows:
±4.25KHz bandwidth at 12.5KHz detuning: -40dB

8.3. Test Results

Pass Please refer to the following pages.



Test Mode: 429.2500MHz---Low



Test Mode: 429.4875MHz---Mid



Test Mode: 429.7375MHz---High

/

/

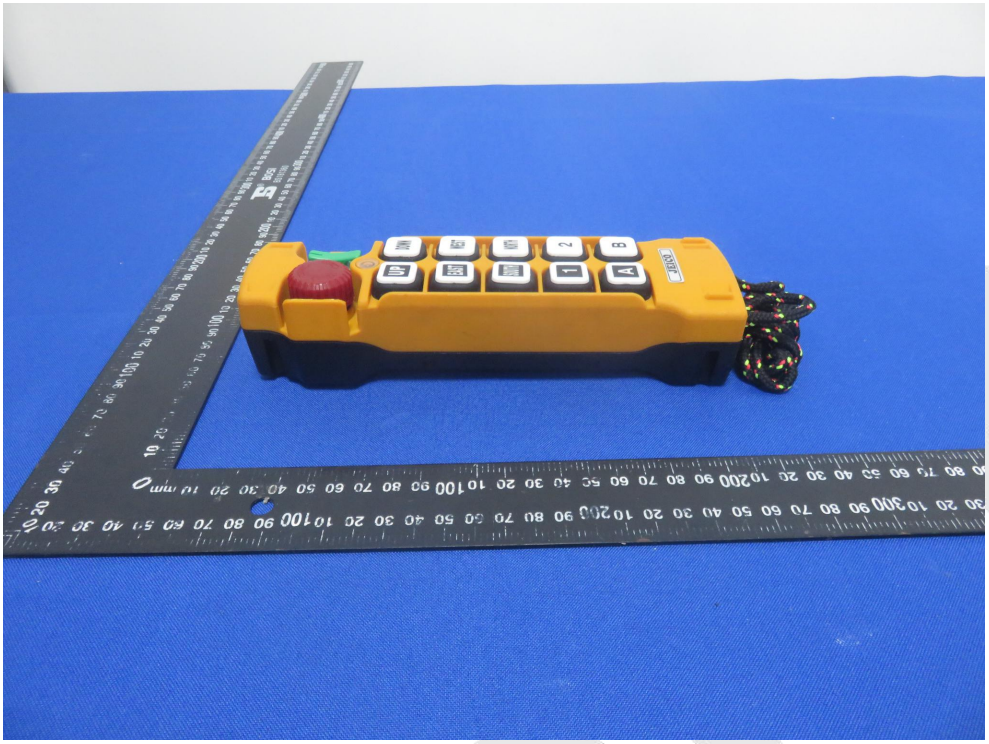
9. PHOTOS OF TEST SETUP



APPENDIX I (External Photos)

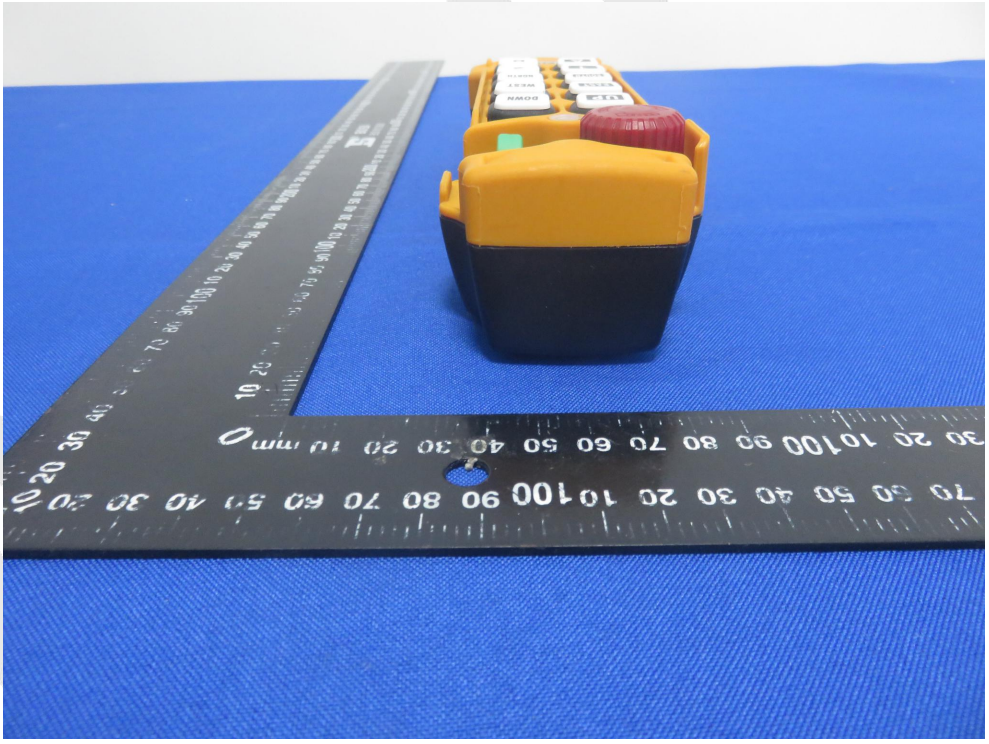


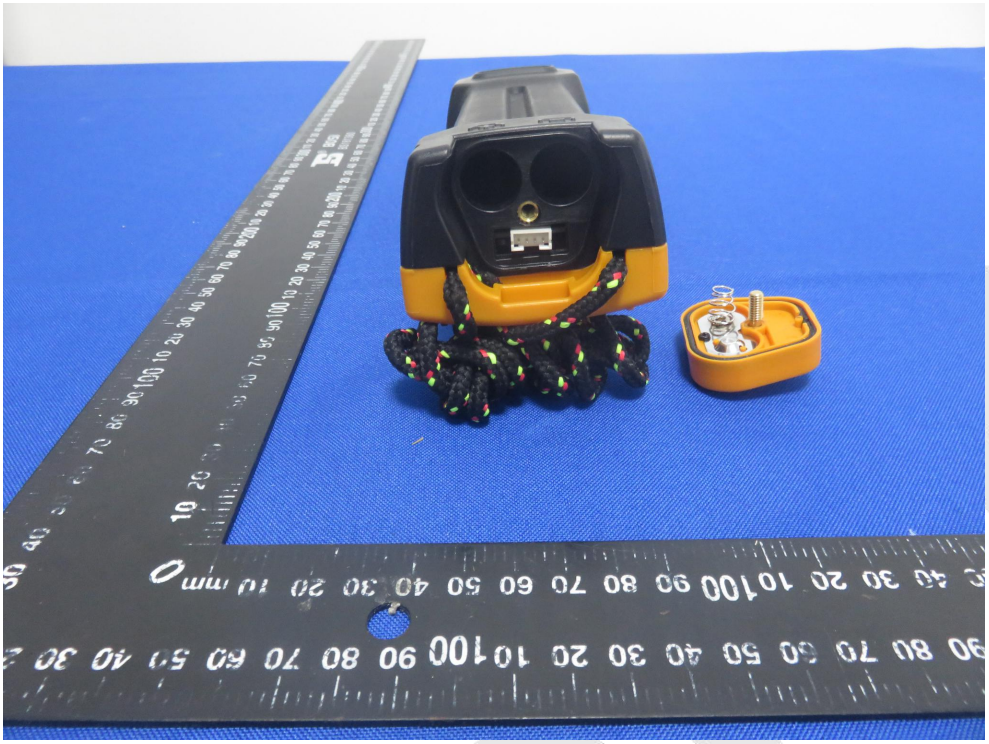




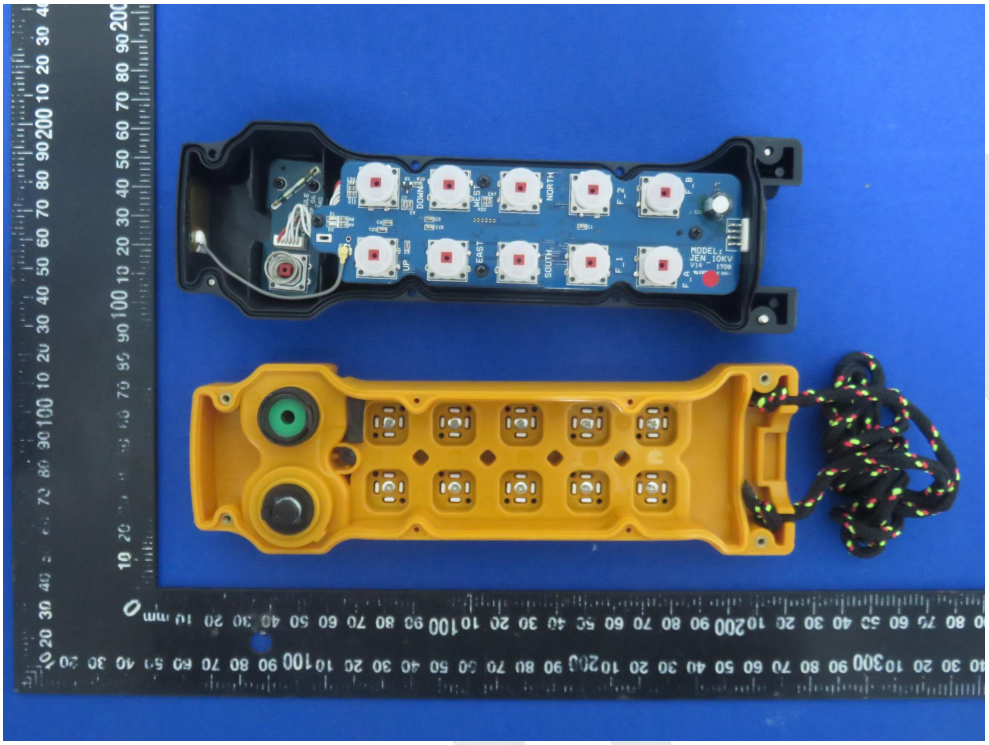


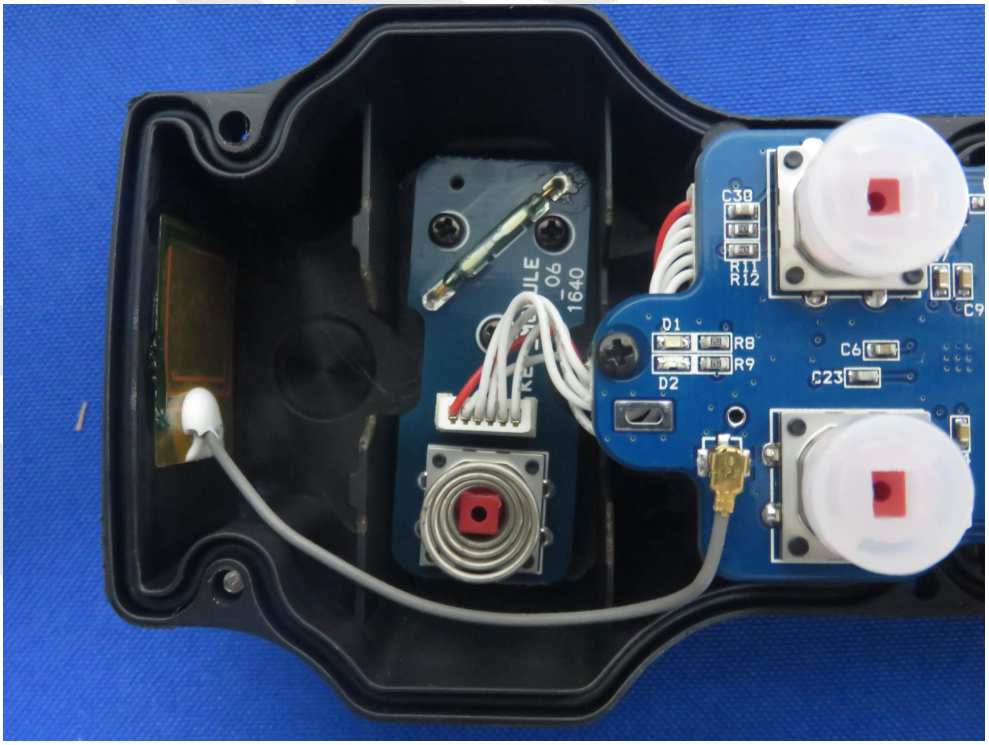

JETCO

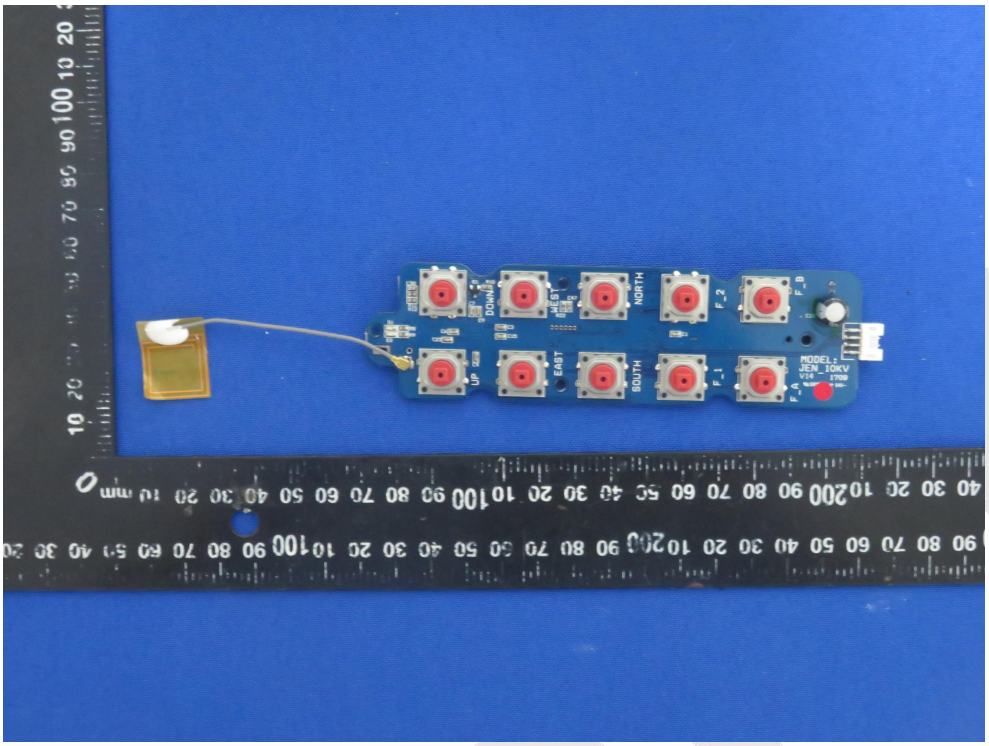


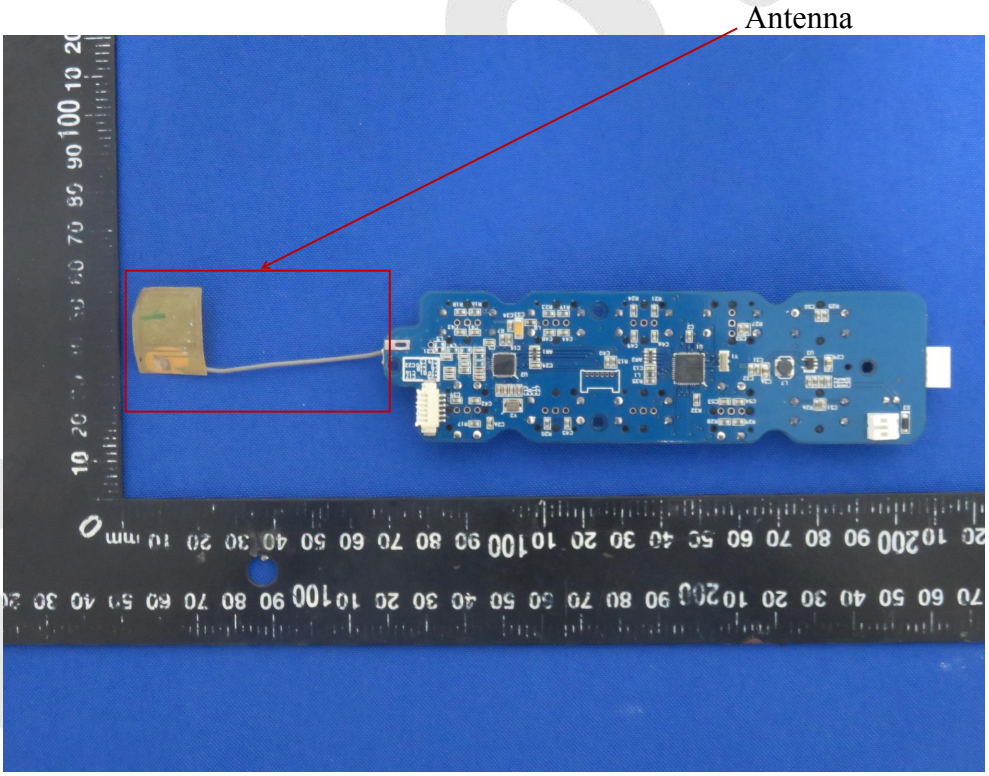


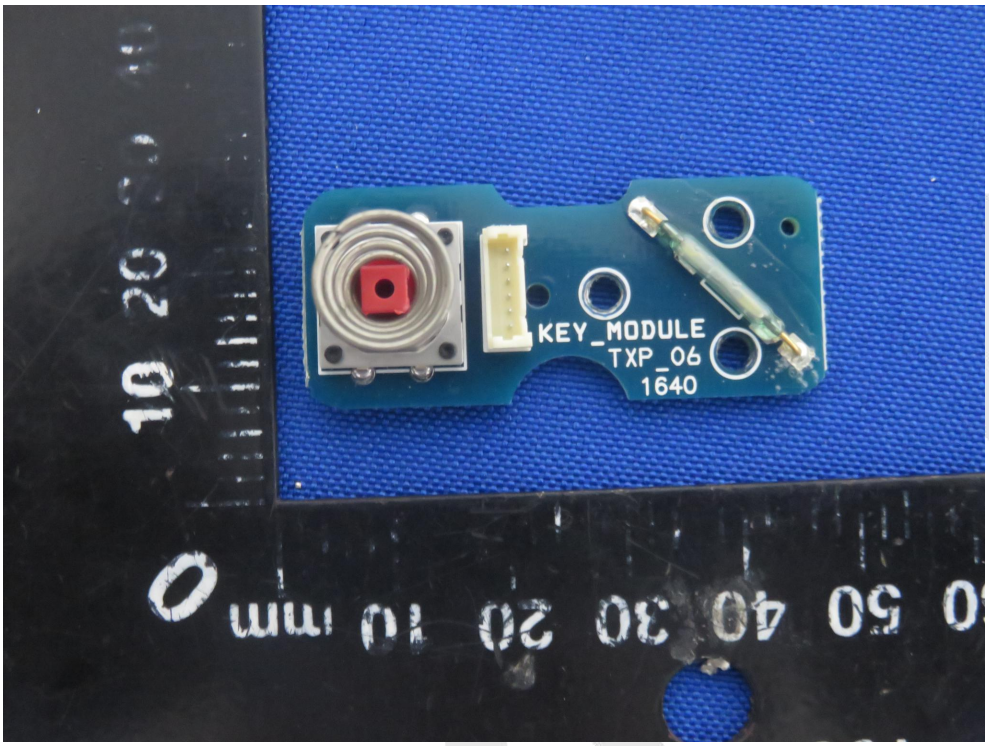
APPENDIX Ⅱ(Internal Photos)








Antenna


KEY_MODULE
TXP_06
1640

