RF Test Report

Applicant	:	Grand Mate Co., Ltd
Product Type	:	Remote controller
Trade Name	:	GRAND MATE
Model Number	:	TX581, TX580, TX550, TX551
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C ANSI C63.10:2013
Receive Date	:	Jul. 02, 2018
Test Period	:	Jul. 16 ~ Jul. 18, 2018
Issue Date	:	Aug. 08, 2018

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330
Test Firm MRA designation number: TW0010

Revision History

Rev.	Issue Date	Revisions	Revised By
00	Aug. 08, 2018	Initial Issue	Janet Chao

Verification of Compliance

Issued Date: Aug. 08, 2018

Applicant	:	Grand Mate Co., Ltd
Product Type	:	Remote controller
Trade Name	:	GRAND MATE
Model Number	:	TX581, TX580, TX550, TX551
FCC ID	:	UMPTX581
EUT Rated Voltage	:	DC 4.5V (AAA Battery * 3 PCS)
Test Voltage	:	DC 4.5V (AAA Battery * 3 PCS)
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C ANSI C63.10:2013
Test Result	:	Complied
Performing Lab.	:	A Test Lab Techno Corp. No. 140-1, Changan Street, Bade District, Taoyuan City 33465, Taiwan (R.O.C) Tel：+886-3-2710188 / Fax：+886-3-2710190 Taiwan Accreditation Foundation accreditation number: 1330 http://www.atl-lab.com.tw/e-index.htm

A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By	:	Fly Lu	Reviewed By	:	Eric Ou Yang
(Manager)		(Fly Lu)	(Testing Engineer)		(Eric Ou Yang)

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1 General Information

1.1. Summary of Test Result

Reference	Test	Results	Remark
FCC			
15.207	Ac Power Conducted Emission	N/A	This device uses DC power source.
15.231(a)	Transmitter Deactivation Time	PASS	----
15.231(b)	Transmitter Radiated Emissions	PASS	----
15.231(c)	20 dB Bandwidth	PASS	----
CFR 47 Part 15.231(2010) / ANSI C63.10:2013			

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conducted Emission	9kHz ~ 150KHz	2.7
	150kHz ~ 30MHz	2.8
Radiated Emission	30MHz ~ 1000MHz	5.7
	1000MHz ~ 18000MHz	5.5
	18000MHz ~ 26500MHz	4.8
	26500MHz ~ 40000MHz	4.8
RF Bandwidth	4.96%	

2 EUT Description

Applicant	Grand Mate Co., Ltd No. 30 Lugong S 2nd Rd, Lugang Town, Changhua Hsien 505, Taiwan
Manufacturer	Grand Mate Co., Ltd No. 30 Lugong S 2nd Rd, Lugang Town, Changhua Hsien 505, Taiwan
Product Type	Remote controller
Trade Name	GRAND MATE
Model Number	TX581, TX580, TX550, TX551
Model different description	Due to market demand, several series models are added. The difference is that the appearance, LCD and circuit design are different, but rest of the spare parts such as printed circuit boards remain the same.
FCC ID	UMPTX581
Frequency Range	434 MHz
Modulation Type	ASK
Number of Channels	1 Channel
Antenna Type	PCB Antenna
Antenna Gain	0.5 dBi
Operate Temp. Range	0 ~ 50 ℃

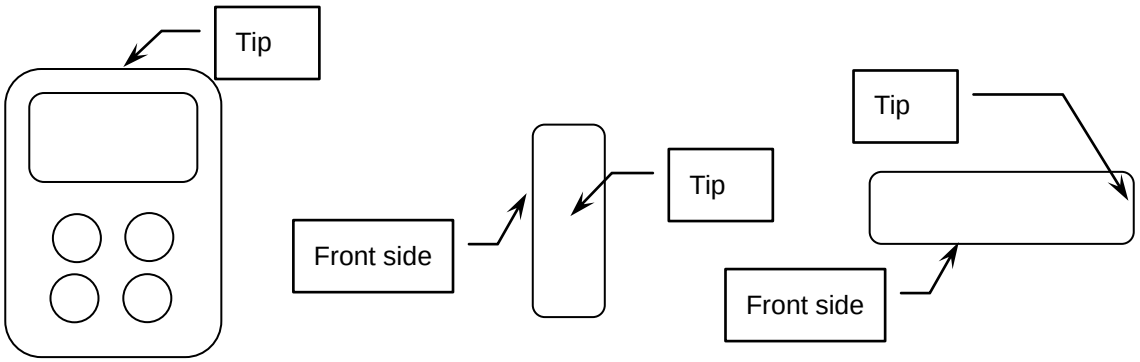
3 Test Methodology

3.1. Mode of Operation

Test Mode
Mode 1: Transmitter Mode
Mode 2: Continuous TX Mode

Then, the above highest fundamental level mode of the configuration of the EUT and antenna was chosen for all final test items.

By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that “X axis” position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

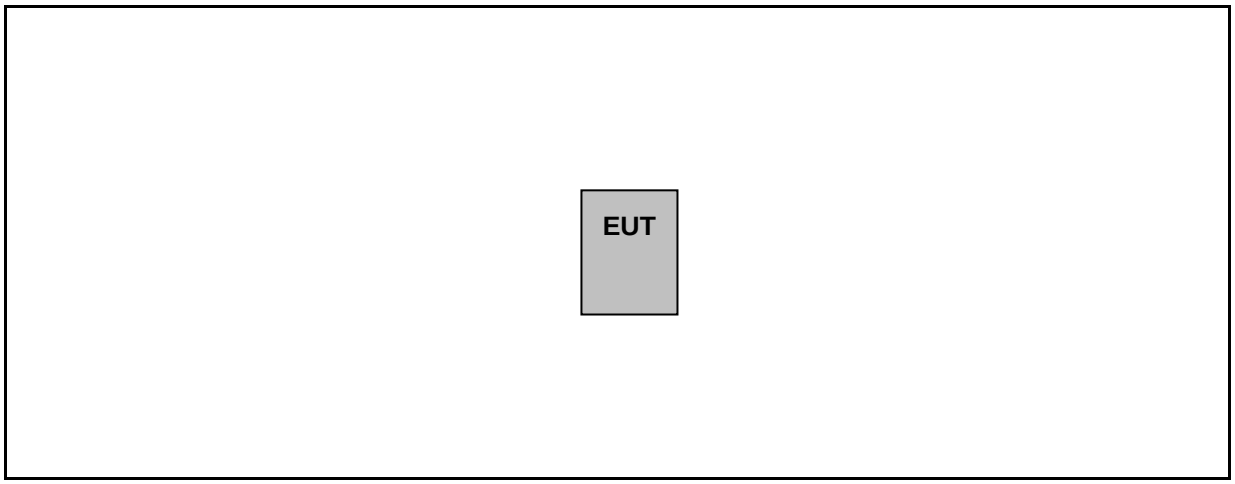


Note: The test data for model number: TX580, TX550, TX551 only need to be re-evaluated for Below 1GHz and other test items please refer to the test data of model number: TX581.

3.2. EUT Exercise Software

1.	Setup the EUT shown on “Configuration of Test System Details.”
2.	Turn on the power of all equipment.
3.	The EUT will start to operate function.

3.3. Configuration of Test System Details



Devices Description					
Product		Manufacturer	Model Number	Serial Number	Power Cord
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3.4. Test Instruments

For Radiated Emissions

Test Period: Jul. 16 ~ Jul. 17, 2018

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Loop Antenna	COM-POWER CORPORATION	AL-130	121014	03/13/2018	1 year
Spectrum Analyzer (10Hz~44GHz)	Keysight	N9010A	MY52221312	01/15/2018	1 year
Pre Amplifier (1~26.5GHz)	Agilent	8449B	3008A02237	10/16/2017	1 year
Pre Amplifier (100KHz~1.3GHz)	Agilent	8447D	2944A11119	01/10/2018	1 year
Broadband Antenna	Schwarzbeck	VULB9168	416	10/26/2017	1 year
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/22/2018	1 year
RF Cable	EMCI	EMC104-N-N-6000	TE01-1	02/20/2018	1 year
Microwave Cable	EMCI	EMC104-SM-SM-13000	170814	10/31/2017	1 year
Microwave Cable	EMCI	EMC102-KM-KM-14000	151001	02/20/2018	1 year

For Conducted

Test Period: Jul. 17 ~ Jul. 18, 2018

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer (20Hz~26.5GHz)	Agilent	N9020A	US47520902	09/21/2017	1 year

Note: N.C.R. = No Calibration Request.

3.5. Test Site Environment

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	950

3.6. Radiated Emissions Measurement

■ Limit

According to FCC Part 15.231(b) and requirement:

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

Fundamental and harmonics emission limits

Frequency range	Average Field Strength of Fundamental		Peak Field Strength of Fundamental
(MHz)	(μV/m@3m)	(dBμV/m@3m)	(dBμV/m@3m)
434	11000.01	80.83	100.83

General Radiated emission Limit

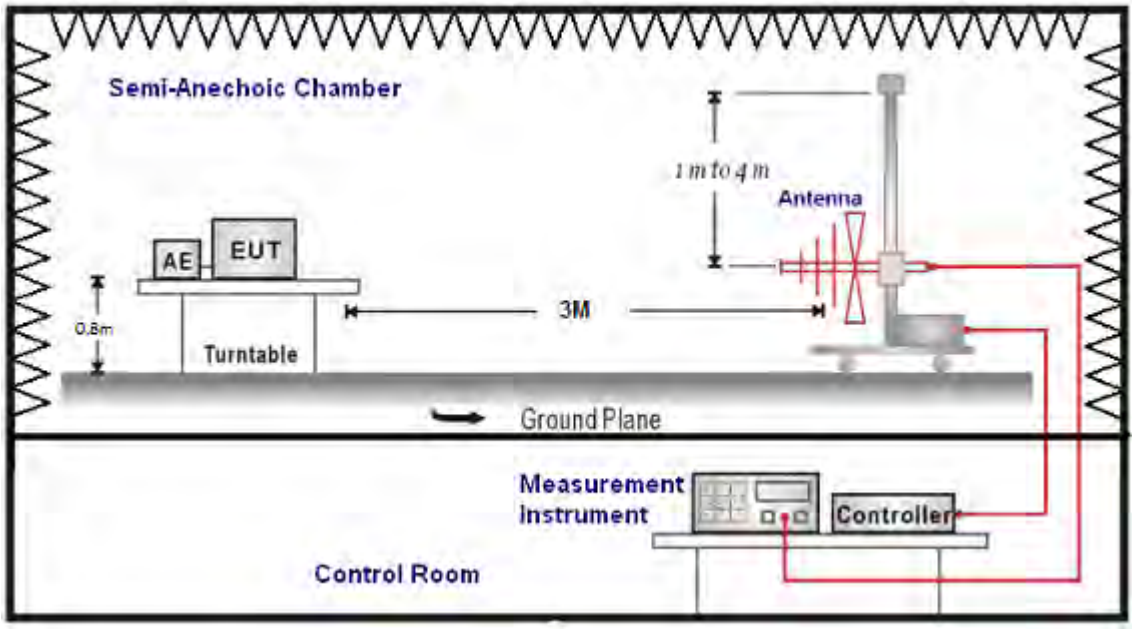
Frequency range	Field Strength of Fundamental	Field Strength of Harmonics
(MHz)	(uV/m at 3m)	(uV/m at 3m)
40.66 to 40.70	2250 (67.04 dBuV)	225 (47.04 dBuV)
70 to 130	1250 (61.94 dBuV)	125 (41.94 dBuV)
130 to 174	1250 (61.94 dBuV) to 3750 (71.48 dBuV)	125 (41.94 dBuV) to 375 (51.48 dBuV)
174 to 260	3750 (71.48 dBuV)	375 (51.48 dBuV)
260 to 470	3750 (71.48 dBuV) to 12500 (81.94 dBuV)	375 (51.48 dBuV) to 1250 (61.94 dBuV)
470 and above	12500 (81.94 dBuV)	1250 (61.94 dBuV)

Remark: 1. The table above tighter limit applies at the band edges.

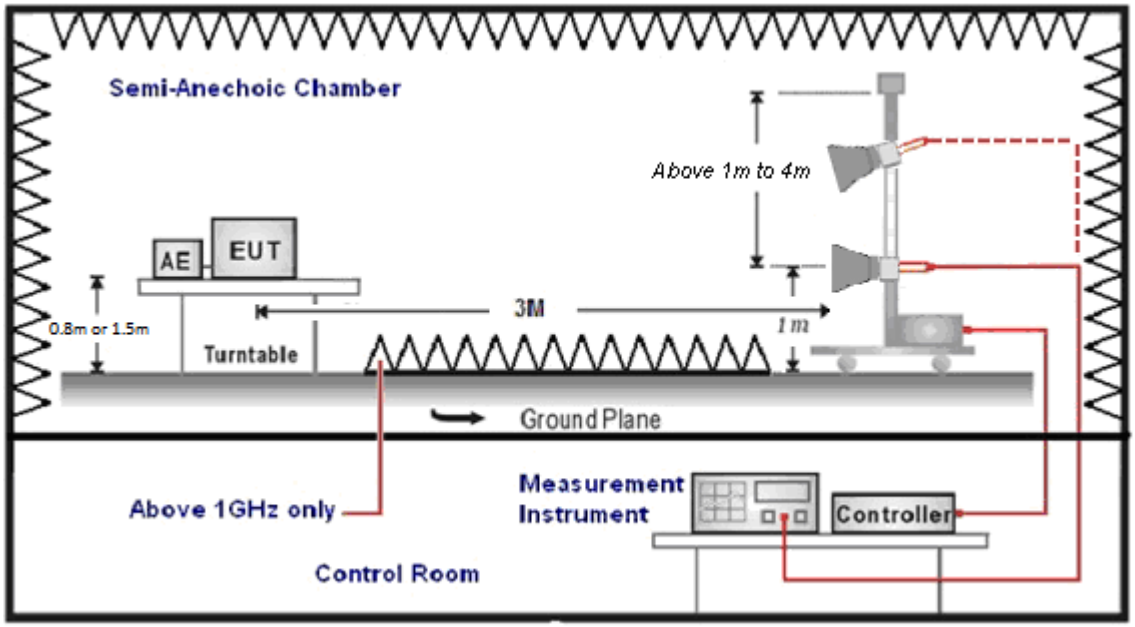
2. The measurement distance in meters, which that between form closest point of EUT to instrument antenna.

■ **Setup**

Below 1GHz



Above 1GHz



■ Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 or 1.5 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 50 MHz to 500 MHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 9 kHz to 5GHz is investigated.
For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.
A nonconductive material surrounded the EUT to supporting the EUT for standing on tree orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.
SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.
The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).
The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro colts per meter (dBuV/m).

The actual field is intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

(2) Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency : Transmitter Output < +30dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

Data of measurement within this frequency range without mark in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

■ Calculation of Average Factor

The output field strengths of specification in accordance with the FCC rules specify measurements with an average detector. During the test, a spectrum analyzer incorporating a peak detector was used. Therefore, a reduction factor can be applied to the resultant peak signal level and compared to the limit for measurement instrumentation incorporating an average detector.
Please see the diagrams below.

(*) When the field strength (or envelope power) is not constant or when it is in pulses, and an averaging detector is specified to be used, the value of field strength or power over one complete pulse train, excluding blanking intervals, shall be averaged as long as the pulse train does not exceed 0.1 seconds. In cases where the pulse train exceeds 0.1 seconds, the average value (of field strength or output power) shall be determined during a 0.1 second interval during which the field strength or power is at its maximum value.

3.7. 20 dB Bandwidth Measurement

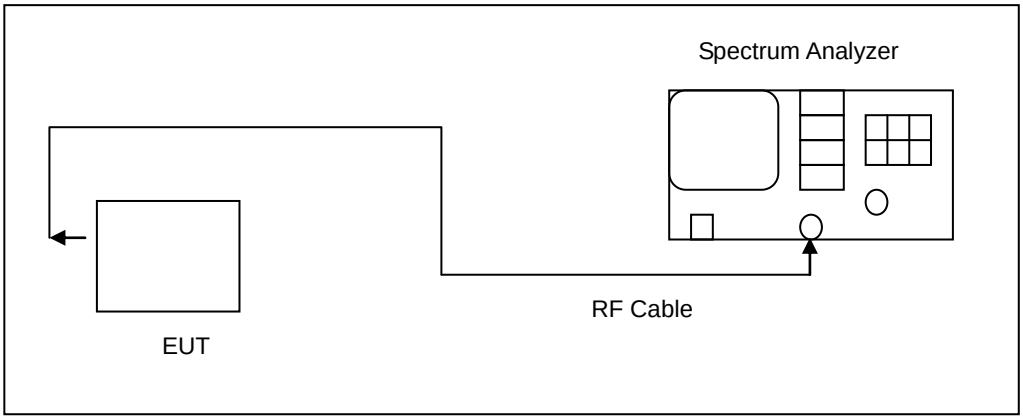
■ Limit

According to FCC Part 15.231(c) requirement:

The 20dB bandwidth shall be no wider than 0.25% of the centre frequency for devices operating between 70-900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the centre frequency.

B.W Limit = 0.25% * f (MHz) = 0.25% * 434 MHz = 1085 kHz

■ Test Setup



■ Test Procedure

20dB Bandwidth

The RF output port of the Equipment-Under-Test is directly coupled to the input of the analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The RF function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = 1 MHz
2. RBW ≥ 1% of the 20dB span
3. VBW ≥ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The EUT was transmitting at its maximum data rate. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20dB down one side of the emission. The marker-delta function and marker was moved to the other side of the emission until it was even with the reference marker. The marker-delta reading at this point was the 20dB bandwidth of the emission.

4 Test Results

Annex A. Conducted Test Results

20 dB Bandwidth Measurement

Test Mode	Mode 2	
Frequency (MHz)	20 dB Bandwidth (KHz)	Limited (KHz)
434	68.14	1085

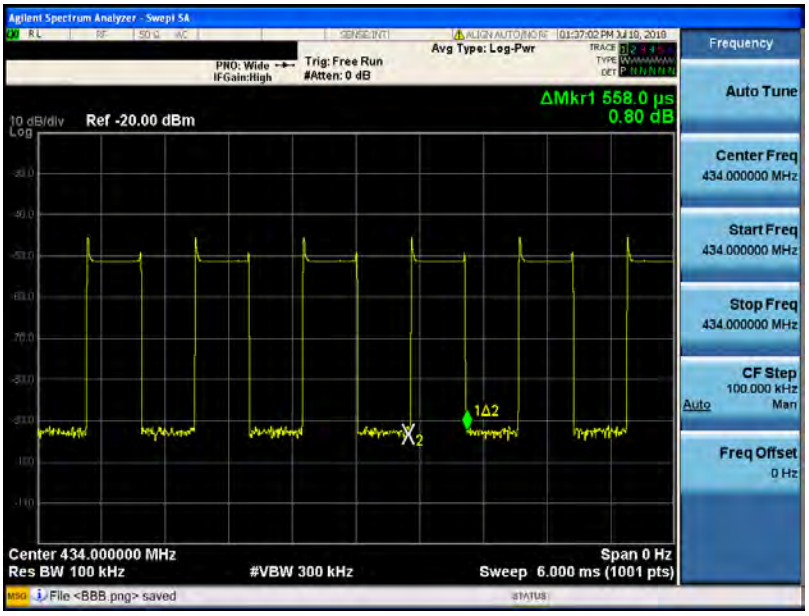
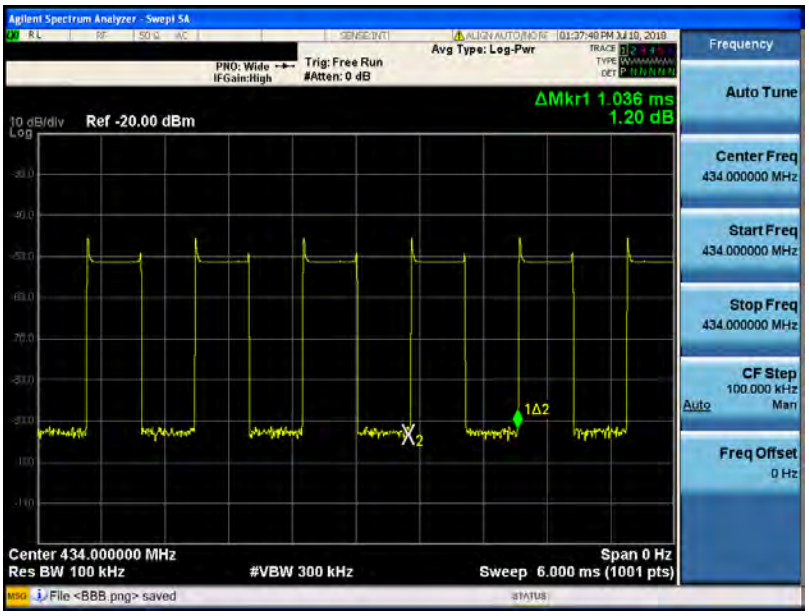
■ **Test Graphs**

20 dB Bandwidth

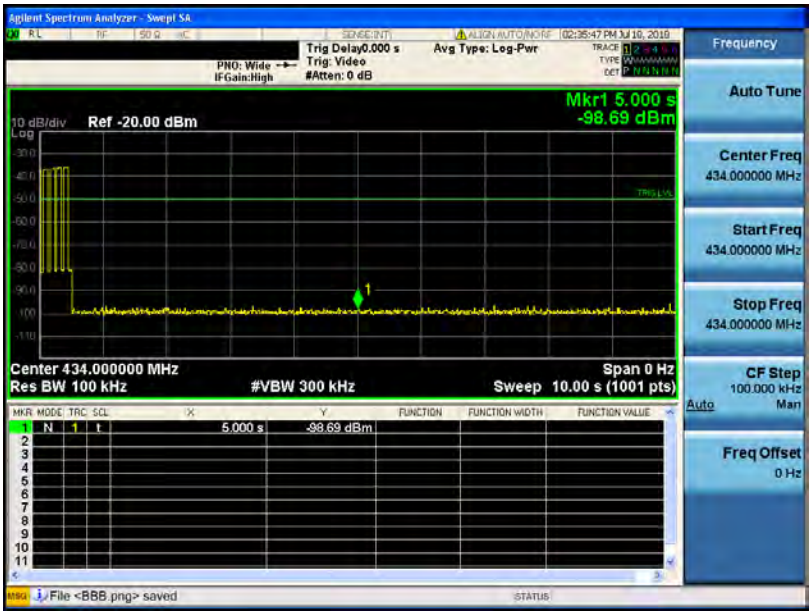
Mode 2

Annex B. Radiated Emissions Measurement

Duty Cycle Test Diagrams

Mode 2	
On	
On+Off	

The EUT was complied with the requirement of FCC 15.231 (a) (1), which employed a switch that will automatically deactivate the transmitter within less than 5 seconds of being released.

Mode 2


Duty Cycle Results

Test Mode	Mode 2	
Item	Results	Note
Ton	0.558 ms	-----
Ton+off	1.036 ms	-----
Duty Cycle	0.538	-----
Averaging Factor (20 log * Duty Cycle)	-5.38	-----

Please see the diagrams below.

Note:

1. RB=100 KHz, VB=300 KHz, SPAN=0
2. Duty Cycle= $\frac{\text{Ton}}{\text{Ton+off}}$

Fundamental Frequency Test Results

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Fundamental	Power:	DC 4.5V
Frequency:	434MHz	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2		
Ant.Polar.:	Horizontal		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	433.9100	65.18	-0.83	64.35	80.83	-16.48	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Fundamental	Power:	DC 4.5V
Frequency:	434MHz	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2		
Ant.Polar.:	Vertical		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	433.9100	66.68	-0.83	65.85	80.83	-14.98	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Below 1GHz

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Harmonic	Power:	DC 4.5V
Test Mode:	Mode 1	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Description:	Model Number: TX581		

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
93.0500	43.54	-11.99	31.55	43.50	-11.95	QP	H
199.7500	30.26	-7.90	22.36	43.50	-21.14	QP	H
371.4400	28.08	-2.43	25.65	46.00	-20.35	QP	H
518.8800	34.48	0.48	34.96	46.00	-11.04	QP	H
646.9200	29.16	3.10	32.26	46.00	-13.74	QP	H
773.9900	31.01	5.87	36.88	46.00	-9.12	QP	H
120.2100	34.03	-8.29	25.74	43.50	-17.76	QP	V
236.6100	28.53	-6.35	22.18	46.00	-23.82	QP	V
378.2300	32.99	-2.28	30.71	46.00	-15.29	QP	V
608.1200	29.17	2.59	31.76	46.00	-14.24	QP	V
772.0500	30.98	5.85	36.83	46.00	-9.17	QP	V
931.1300	28.32	8.53	36.85	46.00	-9.15	QP	V

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Harmonic	Power:	DC 4.5V
Test Mode:	Mode 1	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Description:	Model Number: TX580		

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
93.0500	39.76	-11.99	27.77	43.50	-15.73	QP	H
159.9800	28.61	-5.40	23.21	43.50	-20.29	QP	H
263.7700	28.71	-5.08	23.63	46.00	-22.37	QP	H
450.0100	28.59	-0.38	28.21	46.00	-17.79	QP	H
639.1600	29.25	3.00	32.25	46.00	-13.75	QP	H
776.9000	30.74	5.92	36.66	46.00	-9.34	QP	H
108.5700	45.62	-9.46	36.16	43.50	-7.34	QP	V
145.4300	37.59	-5.87	31.72	43.50	-11.78	QP	V
373.3800	29.54	-2.39	27.15	46.00	-18.85	QP	V
494.6300	30.79	0.09	30.88	46.00	-15.12	QP	V
645.9500	29.14	3.10	32.24	46.00	-13.76	QP	V
775.9300	31.86	5.92	37.78	46.00	-8.22	QP	V

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Harmonic	Power:	DC 4.5V
Test Mode:	Mode 1	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Description:	Model Number: TX550		

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
93.0500	40.94	-11.99	28.95	43.50	-14.55	QP	H
239.5200	29.26	-6.11	23.15	46.00	-22.85	QP	H
371.4400	28.37	-2.43	25.94	46.00	-20.06	QP	H
490.7500	32.68	0.06	32.74	46.00	-13.26	QP	H
606.1800	29.73	2.56	32.29	46.00	-13.71	QP	H
772.0500	31.15	5.85	37.00	46.00	-9.00	QP	H
106.6300	43.89	-9.83	34.06	43.50	-9.44	QP	V
248.2500	27.30	-5.73	21.57	46.00	-24.43	QP	V
439.3400	28.27	-0.68	27.59	46.00	-18.41	QP	V
629.4600	29.40	2.88	32.28	46.00	-13.72	QP	V
774.9600	31.48	5.89	37.37	46.00	-8.63	QP	V
898.1500	28.99	8.01	37.00	46.00	-9.00	QP	V

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Harmonic	Power:	DC 4.5V
Test Mode:	Mode 1	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Description:	Model Number: TX551		

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
93.0500	40.06	-11.99	28.07	43.50	-15.43	QP	H
152.2200	29.41	-5.57	23.84	43.50	-19.66	QP	H
306.4500	28.15	-3.59	24.56	46.00	-21.44	QP	H
520.8200	33.24	0.52	33.76	46.00	-12.24	QP	H
634.3100	30.72	2.94	33.66	46.00	-12.34	QP	H
773.9900	30.95	5.87	36.82	46.00	-9.18	QP	H
93.0500	48.95	-11.99	36.96	43.50	-6.54	QP	V
145.4300	30.39	-5.87	24.52	43.50	-18.98	QP	V
419.9400	32.47	-1.22	31.25	46.00	-14.75	QP	V
617.8200	29.13	2.72	31.85	46.00	-14.15	QP	V
774.9600	30.60	5.89	36.49	46.00	-9.51	QP	V
939.8600	28.39	8.67	37.06	46.00	-8.94	QP	V

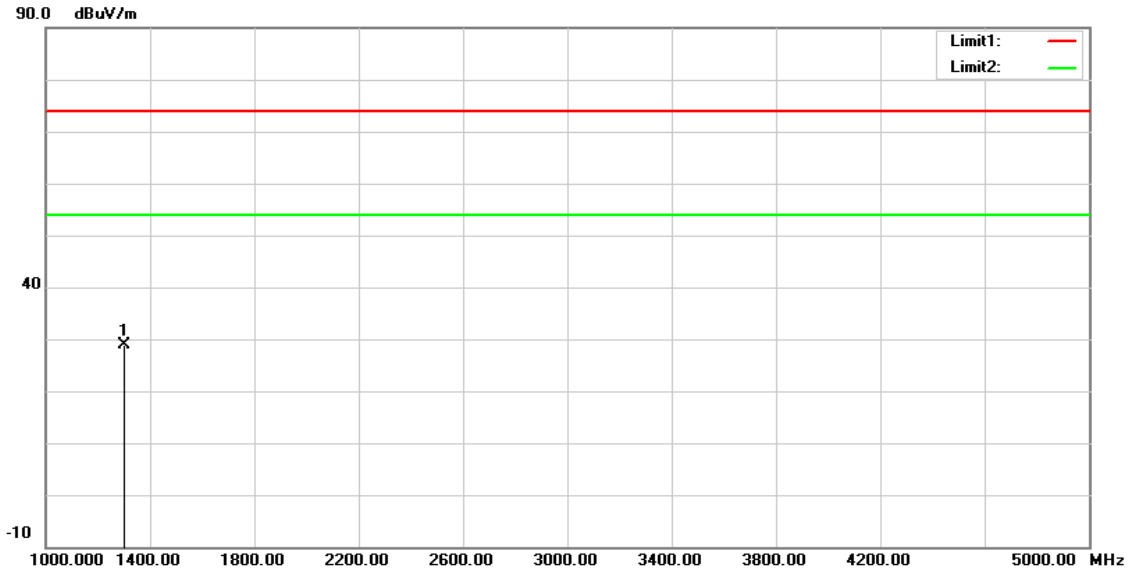
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Above 1GHz

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Harmonic	Power:	DC 4.5V
Frequency:	434MHz	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



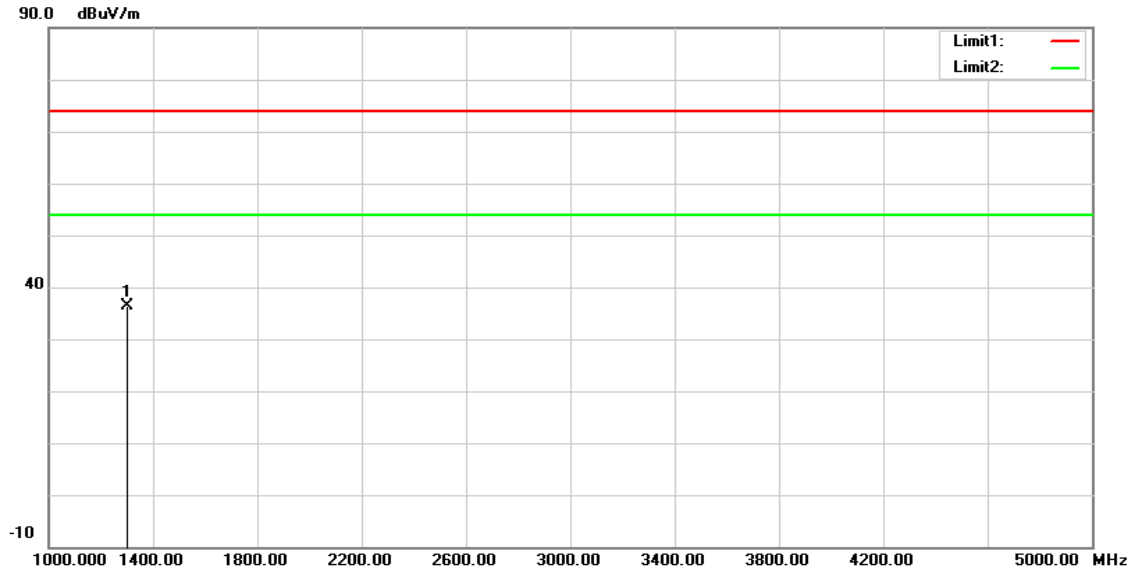
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1302.000	34.76	-5.95	28.81	74.00	-45.19	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Harmonic	Power:	DC 4.5V
Frequency:	434MHz	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1302.000	42.21	-5.95	36.26	74.00	-37.74	peak

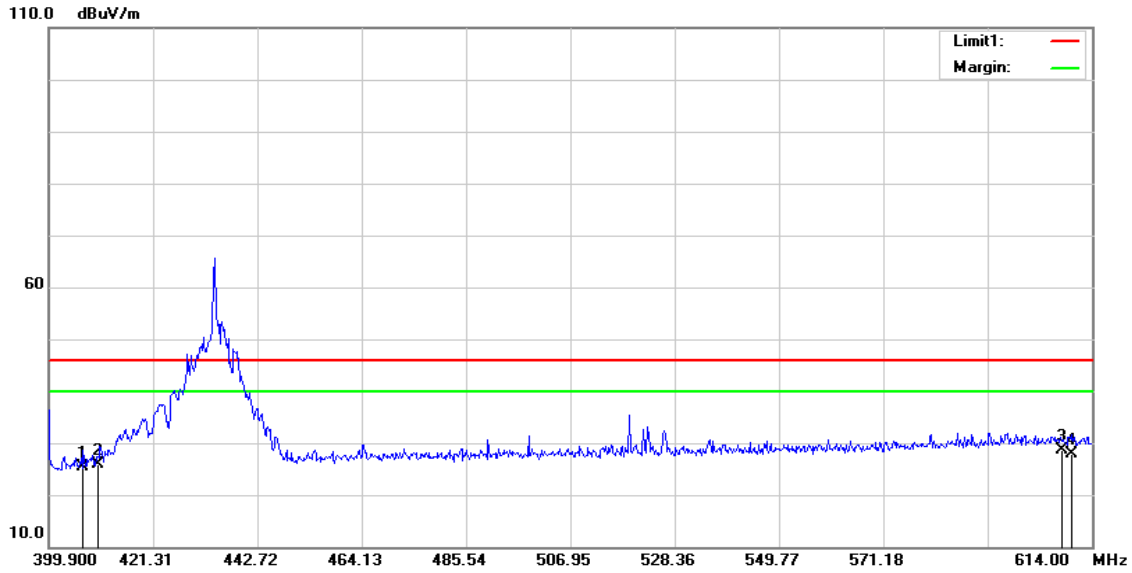
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Band edge

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Band edge	Power:	DC 4.5V
Frequency:	434MHz	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



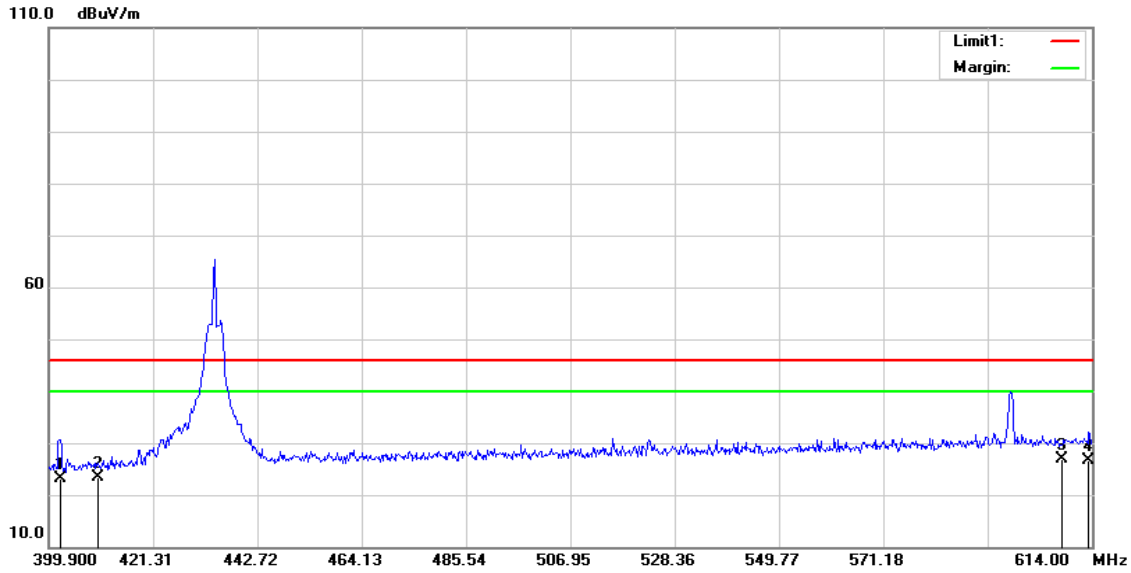
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	406.9653	26.93	-1.59	25.34	46.00	-20.66	peak
2	410.0000	27.43	-1.50	25.93	46.00	-20.07	peak
3	608.0000	25.96	2.59	28.55	46.00	-17.45	peak
4	609.9320	25.38	2.61	27.99	46.00	-18.01	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	FCC Part 15.231	Test Distance:	3m
Test item:	Band edge	Power:	DC 4.5V
Frequency:	434MHz	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	402.2551	24.83	-1.72	23.11	46.00	-22.89	peak
2	410.0000	24.80	-1.50	23.30	46.00	-22.70	peak
3	608.0000	24.24	2.59	26.83	46.00	-19.17	peak
4	613.3577	24.09	2.66	26.75	46.00	-19.25	peak

Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.