FCC Part 95 Rules
TEST REPORT

Test report
On Behalf of
QUANZHOU TEAMUP ELECTRONIC CO.,LTD
For
QUANZHOU TEAMUP ELECTRONIC CO.,LTD
Model No.: TM27,C27,CB-27
FCC ID: 2ARTJ-CB27

Prepared for :	**QUANZHOU TEAMUP ELECTRONIC CO.,LTD** **6th Floor,Second Building, No.26, Zishan Road, Jiangnan High-Tech Park, Licheng District,Quanzhou City,China**
Prepared By :	**Shenzhen HUAK Testing Technology Co., Ltd.** **1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China**
Date of Test:	**Nov. 23, 2018~Dec. 06, 2018**
Date of Report:	**Dec. 06 , 2018**
Report Number:	**HK1812061816E**

TEST RESULT CERTIFICATION

Applicant's name ..... :	QUANZHOU TEAMUP ELECTRONIC CO.,LTD
Address ..... :	6th Floor,Second Building, No.26, Zishan Road, Jiangnan High-Tech Park, Licheng District,Quanzhou City,China
Manufacture's Name ..... :	QUANZHOU TEAMUP ELECTRONIC CO.,LTD
Address ..... :	6th Floor,Second Building, No.26, Zishan Road, Jiangnan High-Tech Park, Licheng District,Quanzhou City,China
Product description	CB Radio
Brand Name	Radioddity , TEAMUP ,Uniden
Mode Name	TM27
Series model	C27,CB-27
Series model difference description	All the same except for brand name and model name, the corresponding relationship are as follow: TEAMUP is corresponding TM27,Radioddity is corresponding C27,Uniden is corresponding CB-27
Standards ..... :	FCC Rules and Regulations Part 95

Date of Test ..... :	
Date (s) of performance of tests ..... :	**Nov. 23, 2018~Dec. 06, 2018**
Date of Issue ..... :	**Dec. 06, 2018**
Test Result ..... :	**Pass**

Testing Engineer : Gary Qian

(Gary Qian)

Technical Manager : Eden Hu

(Eden Hu)

Authorized Signatory : Jason Zhou

(Jason Zhou)

Revision	Issue Date	Revisions	Revised By
V1.0	Dec. 06, 2018	Initial Issue	Jason Zhou

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

The EUT is a **CB Radio** designed for voice communication. It is designed by way of utilizing the AM modulation achieves the system operating.

A major technical description of EUT is described as following:

Hardware Version	20161010
Software Version	Ver1.1.0
Modulation	AM
Channel Separation	10KHz
Emission Designator	6K00A3E
Emission Bandwidth	5.4463KHz (10KHz)
Maximum Transmitter Power	35.861dBm(3.86W)
Number of Channels:	40
Rated Output power	4W (It was fixed by the manufacturer, any individual can't arbitrarily change it.)
Antenna Designation	Detachable
Antenna Type	External antenna
Antenna Gain	0dBi
Power Supply	DC 13.8V 1.5A by DC source
Limiting Voltage	DC 11.73 V~ 15.87V
Operation Frequency Range and Channel	Frequency Range: 26.965 MHz -27.405 MHz
	Bottom Channel: 26.965MHz Middle Channel: 27.185MHz Top Channel: 27.405MHz
Frequency Tolerance	1.098ppm

Channel List:

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	**26.965**	11	27.085	21	27.215	31	27.315
2	26.975	12	27.105	22	27.225	32	27.325
3	26.985	13	27.115	23	27.255	33	27.335
4	27.005	14	27.125	24	27.235	34	27.345
5	27.015	15	27.135	25	27.245	35	27.355
6	27.025	16	27.155	26	27.265	36	27.365
7	27.035	17	27.165	27	27.275	37	27.375
8	27.055	18	27.175	28	27.285	38	27.385
9	27.065	**19**	**27.185**	29	27.295	39	27.395
10	27.075	20	27.205	30	27.305	**40**	**27.405**

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: **2ARTJ-CB27**, filing to comply with the FCC Part 95 requirements.

1.3 TEST METHODOLOGY.

The radiated emission testing was performed according to the procedures of ANSI/TIA-603-E (2016)

1.4 TEST FACILITY

Site	Shenzhen HUAK Testing Technology Co., Ltd.
Location	1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China
Designation Number	CN1229
Test Firm Registration Number : 616276	

1.5 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

1.6 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

2.4 CONFIGURATION OF TESTED SYSTEM

Fig. 2-1 Configuration of Tested System

Table 2-1 Equipment Used in Tested System

Item	Equipment	Model No.	Identifier	Note
1	CB Radio	TM27	FCC ID: 2ARTJ-CB27	EUT

3. SUMMARY OF TEST RESULTS

FCC 47 CFR Part 95 Test Cases			
Test Item	**Test Requirement**	**Test Method**	**Result**
Maximum Transmitter Power	FCC CFR Part 95.967 FCC 47 CFR Part 2.1046(a)	ANSI/TIA-603-E-2016	PASS
Modulation Limit	FCC CFR Part 95.975 FCC 47 CFR Part 2.1047(a)(b)	ANSI/TIA-603-E-2016	PASS
Audio Frequency Response	FCC CFR Part 95.975 FCC 47 CFR Part 2.1047(a)	ANSI/TIA-603-E-2016	PASS
Emission Bandwidth	FCC CFR Part 95.973	ANSI/TIA-603-E-2016	PASS
Emission Mask	FCC CFR Part 95.979	ANSI/TIA-603-E-2016	PASS
Transmitter Radiated Spurious Emission	FCC CFR Part 95.979	ANSI/TIA-603-E-2016	PASS
Spurious Emission On Antenna Port	FCC 47 CFR Part 95.979	ANSI/TIA-603-E-2016	PASS
Frequency Stability	FCC CFR Part 95.965 FCC 47 CFR Part 2.1055 (a)(1)	ANSI/TIA-603-E-2016	PASS
Note: 1) N/A: In this whole report not application. 2) The EUT is External antenna			

LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Receiver	R&S	ESCI 7	HKE-010	2017/12/28	2019/12/26
Spectrum analyzer	Agilent	N9020A	HKE-048	2017/12/28	2018/12/27
Horn Antenna	Schewarzbeck	9120D	HKE-013	2017/12/28	2019/12/26
Preamplifier	EMCI	EMC051845SE	HKE-015	2017/12/28	2018/12/27
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	HKE-087	2017/12/28	2018/12/27
Preamplifier	Schwarzbeck	BBV 9743	HKE-006	2017/12/28	2018/12/27
Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	2017/12/28	2018/12/27
Loop Antenna	Schewarzbeck	FMZB 1519 B	HKE-014	2017/12/28	2018/12/27
Small environmental tester	ESPEC	SH-242	HKE-088	2018/03/02	2019/03/01
RF Communication Test Set	HP	HP8920B	HKE-089	2018/06/12	2019/06/11
ANTENNA	A.H.	SAS-521-4	HKE-091	2018/03/01	2020/02.28
ANTENNA	Schwarzbeck	9168	HKE-095	2018/03/01	2020/02.28
HORN ANTENNA	E.M.	EM-AH-10180	HKE-090	2018/03/01	2020/02.28
Signal Generator	AGILENT	E8257D	HKE-096	2018/09/21	2019/09/20
Vector Analyzer	Agilent	E4440A	HKE-079	2018/03/01	2019/02/28
RF Cable	R&S	1#	N/A	Each time	N/A
RF Cable	R&S	2#	N/A	Each time	N/A

4. DESCRIPTION OF TEST MODES

RF TEST MODES

The EUT (CB Radio) has been tested under normal operating condition. (The top channel, the middle channel and the bottom channel) are chosen for testing at each channel separation.

No.	TEST MODES	CHANNEL SEPARATION
1	Low Channel	10 KHz
2	Middle Channel	10 KHz
3	High Channel	10 KHz

Note: Only the result of the worst case was recorded in the report.

5. FREQUENCY TOLERANCE

5.1 PROVISIONS APPLICABLE

According to FCC §2.1055(a) (1)

The frequency stability shall be measured with variation of ambient temperature from –30 ºC to +50 ºC, and according to FCC 2.1055(d) (2), the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point which is specified by the manufacturer.

According to FCC §95.965

Each CBRS transmitter type must be designed such that the transmit carrier frequency (or in the case of SSB transmissions, the reference frequency) remains within 50 parts-per-million of the channel center frequencies specified in §95.963 under all normal operating conditions.

5.2 MEASUREMENT PROCEDURE

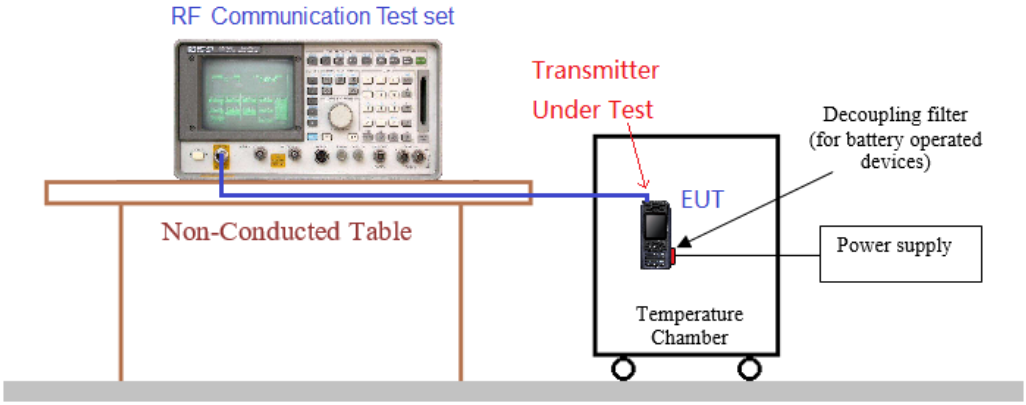
5.2.1 Frequency stability versus environmental temperature

1. Setup the configuration per figure 1 for frequencies measurement inside an environment chamber, Install new battery in the EUT.
2. Turn on EUT and set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1KHz and Video Resolution Bandwidth to 1KHz and Frequency Span to 50KHz.Record this frequency as reference frequency.
3. Set the temperature of chamber to 50℃. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.
4. Repeat step 2 with a 10℃ decreased per stage until the lowest temperature -30℃ is measured, record all measured frequencies on each temperature step.

5.2.2 Frequency stability versus input voltage

1. Setup the configuration per figure 1 for frequencies measured at temperature if it is within 15℃ to 25℃. Otherwise, an environment chamber set for a temperature of 20℃ shall be used. The EUT shall be powered by DC 13.8V.
2. Set SA center frequency to the EUT radiated frequency. Set SA Resolution Bandwidth to 1 KHz and Video Resolution Bandwidth to 1KHz. Record this frequency as reference frequency.
3. Supply the EUT primary voltage at the operating end point which is specified by manufacturer and record the frequency.

5.3 TEST SETUP BLOCK DIAGRAM



5.4 TEST RESULT

(1) Frequency stability versus input voltage (Supply nominal voltage is 13.8V)

Environment Temperature (℃)	Power (V)	Reference Frequency 26.965MHz	27.185MHz	27.405MHz	Limit: ppm
50	DC 13.8V	1.061	1.046	0.892	±50for CBRS
40	DC 13.8V	0.972	0.551	0.799	
30	DC 13.8V	0.609	0.509	0.702	
20	DC 13.8V	1.022	0.643	0.519	
10	DC 13.8V	0.888	0.645	0.932	
0	DC 13.8V	0.675	1.040	1.098	
-10	DC 13.8V	0.930	0.654	0.869	
-20	DC 13.8V	1.086	0.555	0.859	
-30	DC 13.8V	0.955	0.570	0.552	
Result	Pass				

(2) Frequency stability versus input voltage (Battery limiting voltage is 11.73V)

Environment Temperature (℃)	Power (V)	Reference Frequency 26.965MHz	27.185MHz	27.405MHz	Limit: ppm
50	DC11.73V	0.781	0.831	0.741	±50for CBRS
40	DC11.73V	0.884	0.945	0.881	
30	DC11.73V	1.037	0.789	0.761	
20	DC11.73V	1.039	0.894	0.898	
10	DC11.73V	0.711	0.690	0.686	
0	DC11.73V	0.769	0.504	0.749	
-10	DC11.73V	0.868	0.807	0.870	
-20	DC11.73V	1.091	0.902	1.010	
-30	DC11.73V	0.883	0.876	0.833	
Result	Pass				

(3) Frequency stability versus input voltage (Battery Fully Charged voltage is 15.87V)

Environment Temperature(℃)	Power	Reference Frequency			Limit:
	(V)	26.965MHz	27.185MHz	27.405MHz	ppm
50	DC 15.87V	0.757	0.677	0.869	±50for CBRS
40	DC 15.87V	0.939	0.778	0.546	
30	DC 15.87V	0.866	0.621	1.062	
20	DC 15.87V	0.795	0.628	0.723	
10	DC 15.87V	0.832	0.836	0.705	
0	DC 15.87V	0.829	1.046	0.782	
-10	DC 15.87V	0.583	0.969	0.581	
-20	DC 15.87V	0.633	0.589	1.090	
-30	DC 15.87V	0.605	0.878	0.831	
Result	Pass				

6. EMISSION BANDWIDTH

6.1 PROVISIONS APPLICABLE

According to §95.973

Each CBRS transmitter type must be designed such that the occupied bandwidth does not exceed the authorized bandwidth for the emission type under test.

(a) AM. The authorized bandwidth for emission type A3E is 8 kHz.

(b) SSB. The authorized bandwidth for emission types J3E, R3E, and H3E is 4 kHz.

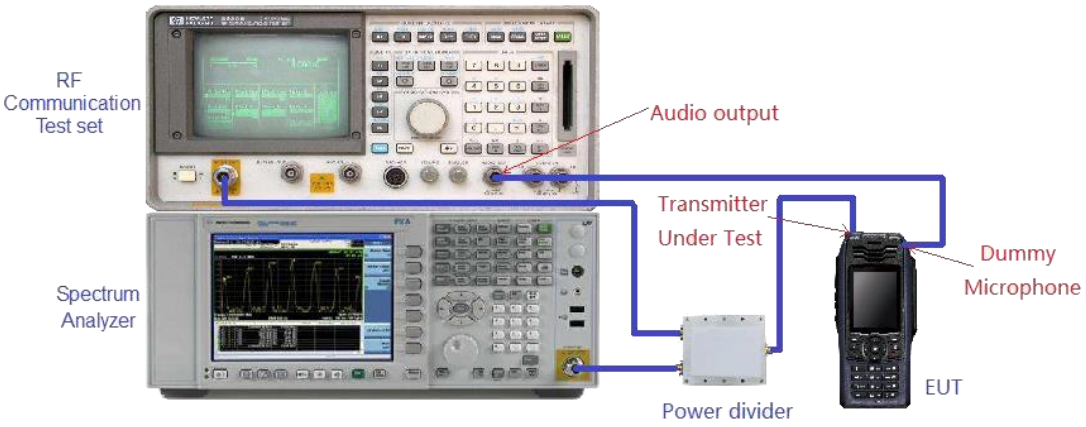
6.2 MEASUREMENT PROCEDURE

1). The EUT was modulated by 2.5 KHz Sine wave audio signal, The level of the audio signal employed is 16 dB greater than that necessary to produce 50% of rated system deviation. Rated system deviation is 2.5 kHz (10 kHz channel spacing).

2). Set SPA Center Frequency = fundamental frequency, RBW=300Hz.VBW= 1kHz, Span =30 KHz.

3). Set SPA Max hold. Mark peak, -26 dB.

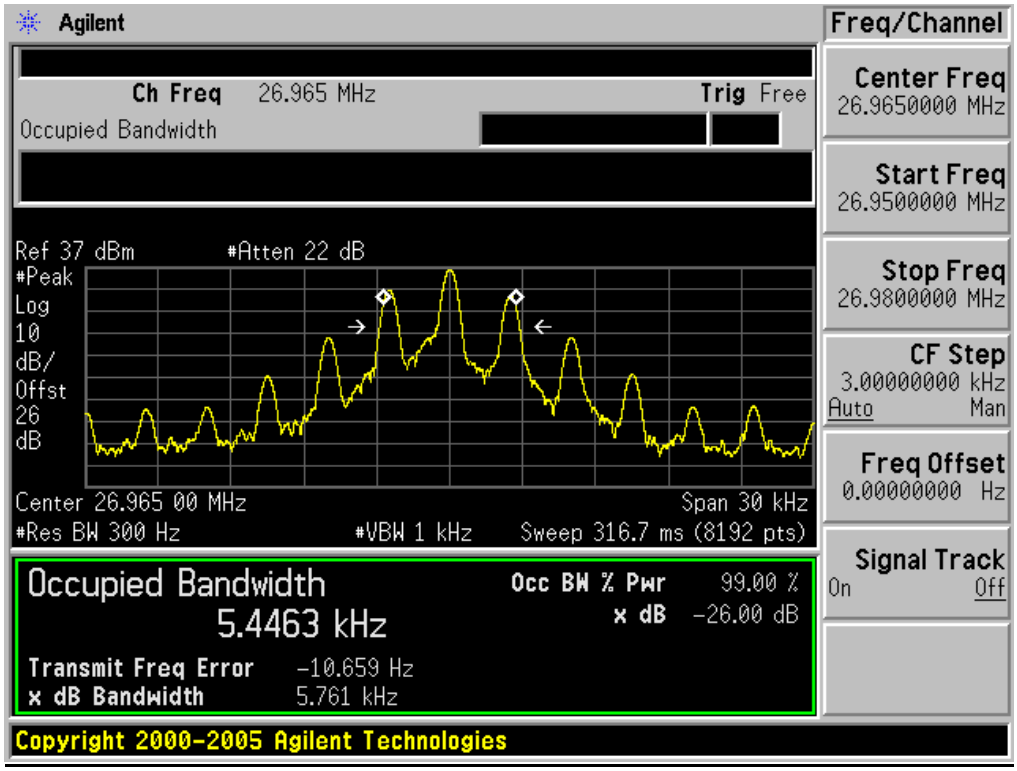
6.3 TEST SETUP BLOCK DIAGRAM



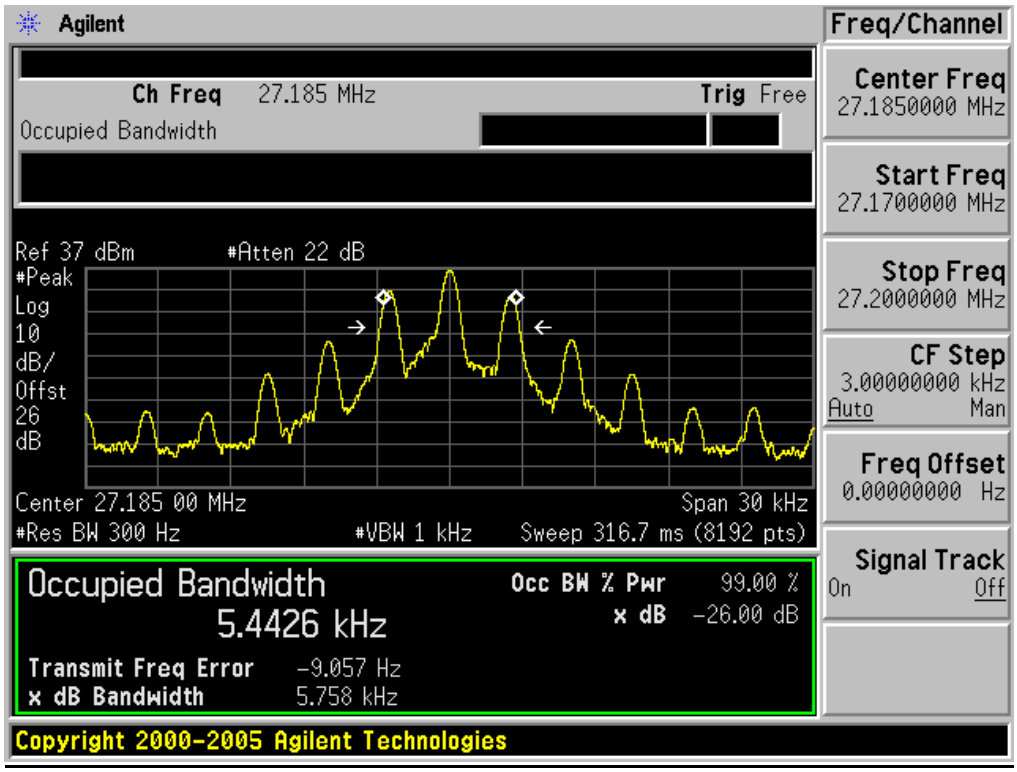
6.4 MEASUREMENT RESULT

99% Bandwidth Measurement Result			
Operating Frequency	10KHz Channel Separation(4W)		
	Test Data	Limits	Result
26.965MHz	5.4463 KHz	8 KHz	Pass
27.185MHz	5.4426 KHz	8 KHz	Pass
27.405MHz	5.4382 KHz	8 KHz	Pass

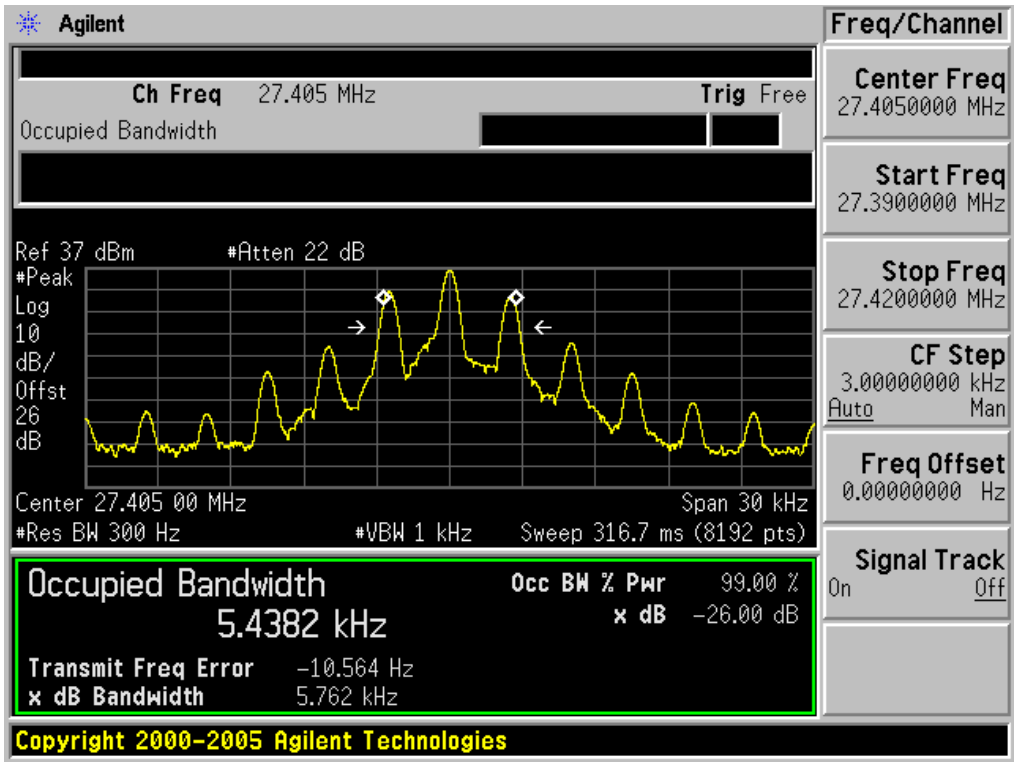
Occupied bandwidth of 26.965MHz(4W)



Occupied bandwidth of 27.185MHz(4W)



Occupied bandwidth of 27.405MHz(4W)



7. UNWANTED RADIATION

7.1 PROVISIONS APPLICABLE

According to §95.979

Each CBRS transmitter type must be designed to comply with the applicable unwanted emissions limits in this section.

(a) Attenuation requirements. The power of unwanted emissions must be attenuated below the transmitter output power in Watts (P) as specified in the applicable paragraphs listed in the following table:

Emission type	Paragraph
A3E	(1), (3), (5), (6)
H3E, J3E, R3E	(2), (4), (5), (6)

(1) 25 dB (decibels) in the frequency band 4 kHz to 8 kHz removed from the channel center frequency;

(2) 25 dB in the frequency band 2 kHz to 6 kHz removed from the channel center frequency;

(3) 35 dB in the frequency band 8 kHz to 20 kHz removed from the channel center frequency;

(4) 35 dB in the frequency band 6 kHz to 10 kHz removed from the channel center frequency;

(5) 53 + 10 log (P) dB in any frequency band removed from the channel center frequency by more than 250% of the authorized bandwidth.

(6) 60 dB in any frequency band centered on a harmonic (i.e., an integer multiple of two or more times) of the carrier frequency.

7.2 MEASUREMENT PROCEDURE

(1)On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.

(2)The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.

(3)The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.

(4)The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.

(5)The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.

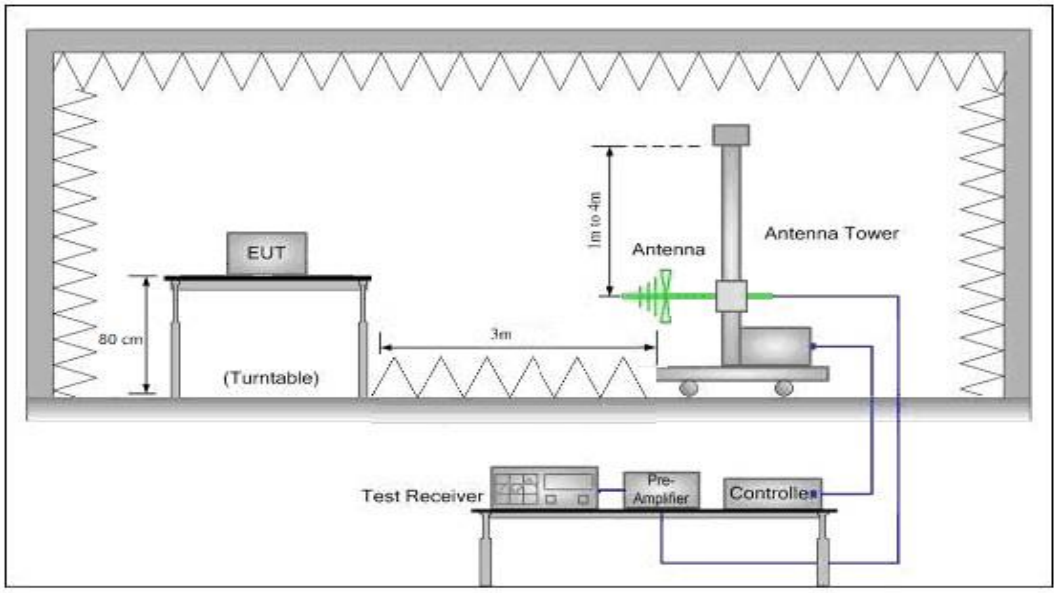
(6)The transmitter shall than be rotated through 360°in the horizontal plane, until the maximum signal level is detected by the measuring receiver.

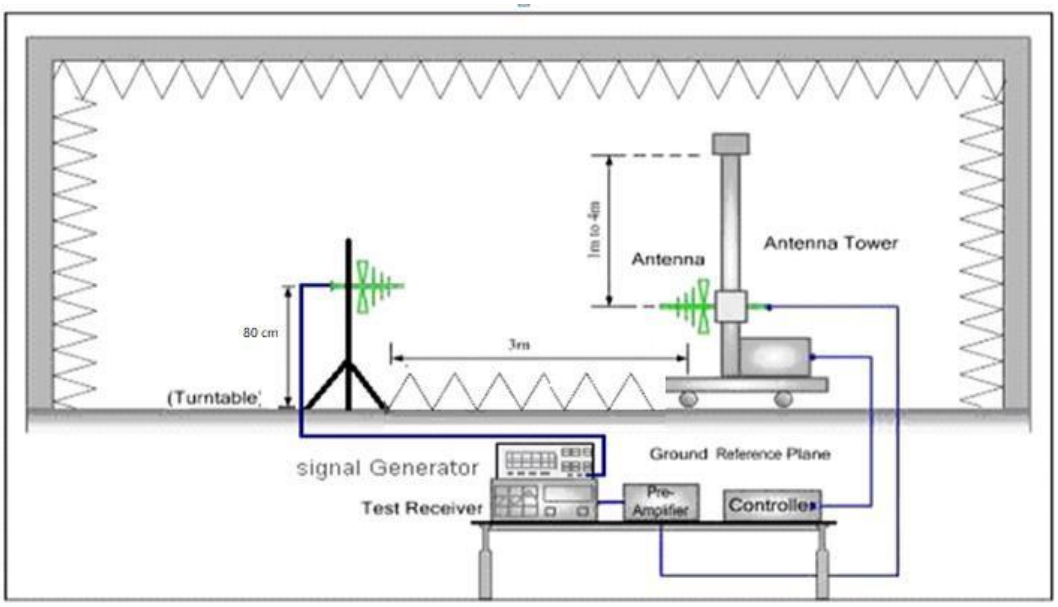
(7)The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
(8)The maximum signal level detected by the measuring receiver shall be noted.
(9)The measurement shall be repeated with the test antenna set to horizontal polarization.
(10) Replace the antenna with a proper Antenna (substitution antenna).
(11)The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
(12)The substitution antenna shall be connected to a calibrated signal generator.
(13)If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
(14)The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
(15)The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
(16)The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
(17)The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

7.3 TEST SETUP BLOCK DIAGRAM

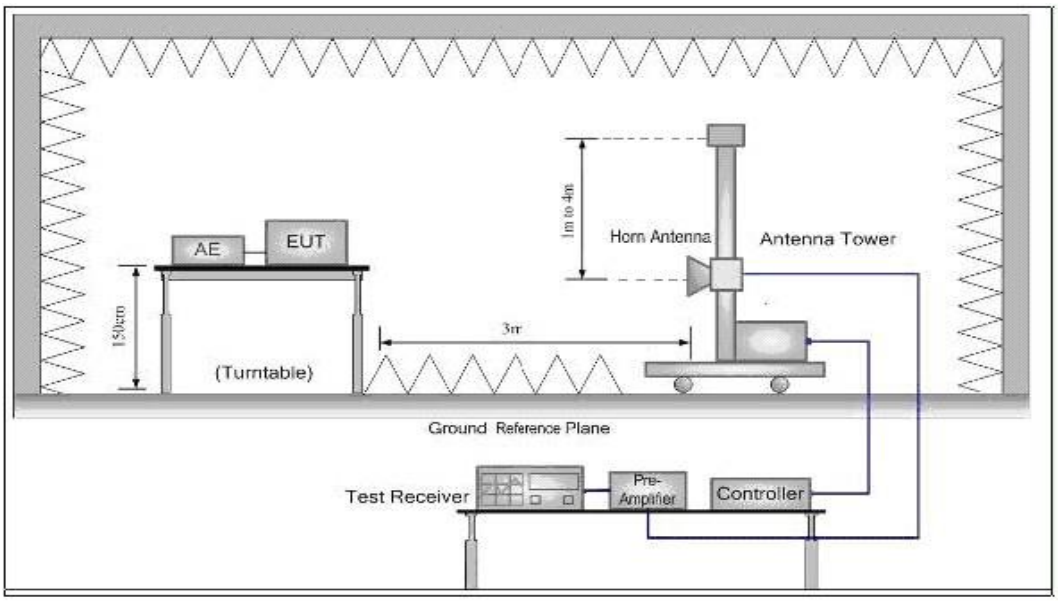
SUBSTITUTION METHOD: (Radiated Emissions)

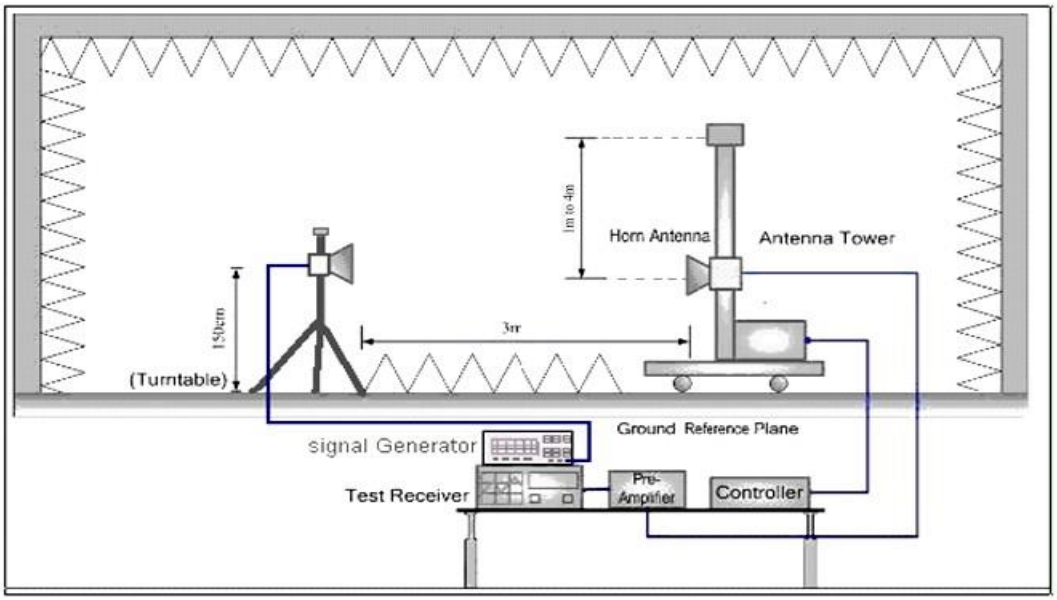
Radiated Below1GHz





Radiated Above 1 GHz





7.4 MEASUREMENT RESULTS:

(1)the unwanted emission should be attenuated below TP by at least 60 dB.
(2)Spurious emissions in dB =10 Log (TX(PWR) in Watts/0.001)-the absolute level.

Limit: 10 Log(4W/0.001)=36.02 dBm 36.02-60≈-24 dBm

Measurement Result for 10 KHz Channel Separation @ 26.965MHz-4W

Emission Frequency (MHz)	Ant. Polarity(H/V)	Measurement Result (dBm)	Limit (dBm)	Result(P/F)
26.965	H	0	0	pass
53.930	H	-35.5	-24	pass
80.90	H	-38.4	-24	pass
107.860	H	-42.2	-24	pass
134.825	H	-37.1	-24	pass
161.790	H	-36.2	-24	pass
188.755	H	-48.6	-24	pass
215.720	H	-43.1	-24	pass
242.685	H	-39.4	-24	pass
269.650	H	-40.8	-24	pass

Measurement Result for 10 KHz Channel Separation @ 26.965MHz-4W

Emission Frequency (MHz)	Ant. Polarity(H/V)	Measurement Result (dBm)	Limit (dBm)	Result(P/F)
26.965	V	0		pass
53.930	V	-30.2	-24	pass
80.90	V	-32.1	-24	pass
107.860	V	-46.9	-24	pass
134.825	V	-40.7	-24	pass
161.790	V	-48.7	-24	pass
188.755	V	-46.1	-24	pass
215.720	V	-30.4	-24	pass
242.685	V	-38.6	-24	pass
269.650	V	-33.4	-24	pass

Measurement Result for 10 KHz Channel Separation @ 27.185MHz-4W

Emission Frequency (MHz)	Ant. Polarity(H/H)	Measurement Result (dBm)	Limit (dBm)	Result(P/F)
27.185	V	0		pass
54.370	V	-39.6	-24	pass
81.555	V	-33.8	-24	pass
108.740	V	-37.7	-24	pass
135.925	V	-35.2	-24	pass
163.110	V	-30.2	-24	pass
190.295	V	-41.4	-24	pass
217.480	V	-48.5	-24	pass
244.665	V	-40.7	-24	pass
271.850	V	-43.7	-24	pass

Measurement Result for 10 KHz Channel Separation @ 27.185MHz-4W

Emission Frequency (MHz)	Ant. Polarity(H/V)	Measurement Result (dBm)	Limit (dBm)	Result(P/F)
27.185	H	0		pass
54.370	H	-40.1	-24	pass
81.555	H	-36.3	-24	pass
108.740	H	-35.9	-24	pass
135.925	H	-38.7	-24	pass
163.110	H	-41.8	-24	pass
190.295	H	-40.2	-24	pass
217.480	H	-39.7	-24	pass
244.665	H	-42.7	-24	pass
271.850	H	-36.6	-24	pass

Measurement Result for 10 KHz Channel Separation @ 27.405MHz-4W

Emission Frequency (MHz)	Ant. Polarity(H/H)	Measurement Result (dBm)	Limit (dBm)	Result(P/F)
27.405	V	0		pass
54.810	V	-37.2	-24	pass
82.215	V	-33.6	-24	pass
109.620	V	-40.6	-24	pass
137.025	V	-41.9	-24	pass
164.430	V	-38.1	-24	pass
191.835	V	-29.7	-24	pass
219.240	V	-42.7	-24	pass
246.645	V	-35.2	-24	pass
274.050	V	-40.2	-24	pass

Measurement Result for 25 KHz Channel Separation @ 27.405MHz-4W

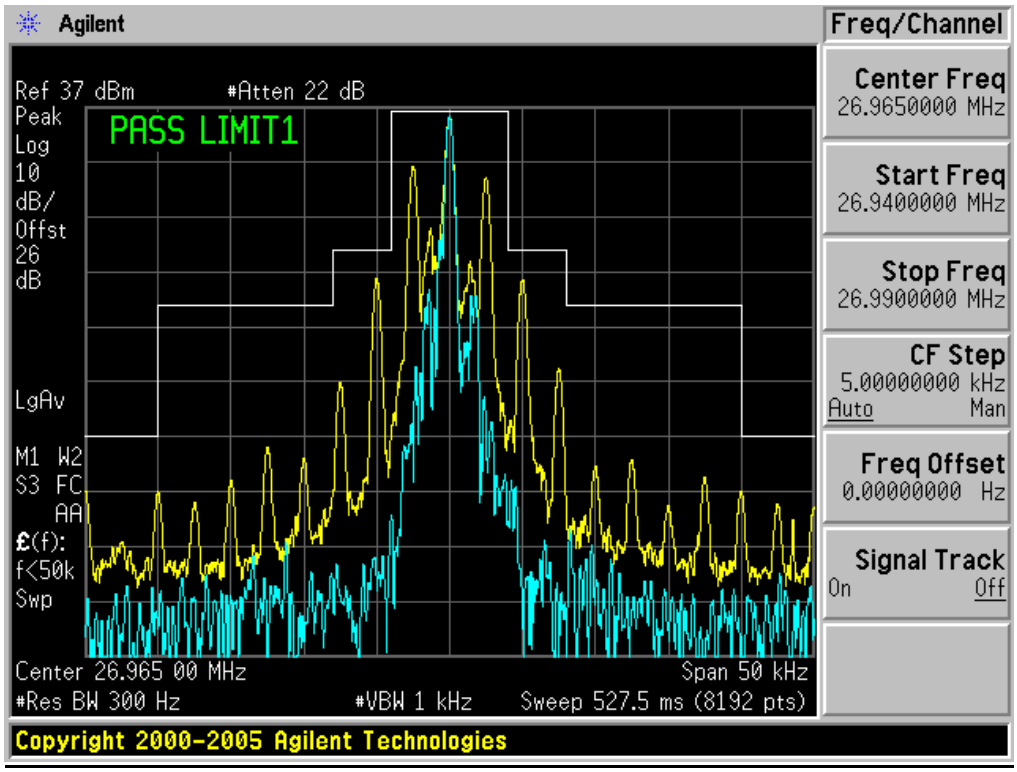
Emission Frequency (MHz)	Ant. Polarity(H/V)	Measurement Result (dBm)	Limit (dBm)	Result(P/F)
27.405	H	0		pass
54.810	H	-35.9	-24	pass
82.215	H	-38.6	-24	pass
109.620	H	-44.5	-24	pass
137.025	H	-29.8	-24	pass
164.430	H	-29.7	-24	pass
191.835	H	-30.1	-24	pass
219.240	H	-38.8	-24	pass
246.645	H	-39.6	-24	pass
274.050	H	-38.7	-24	pass

7.5 EMISSION MASK PLOT

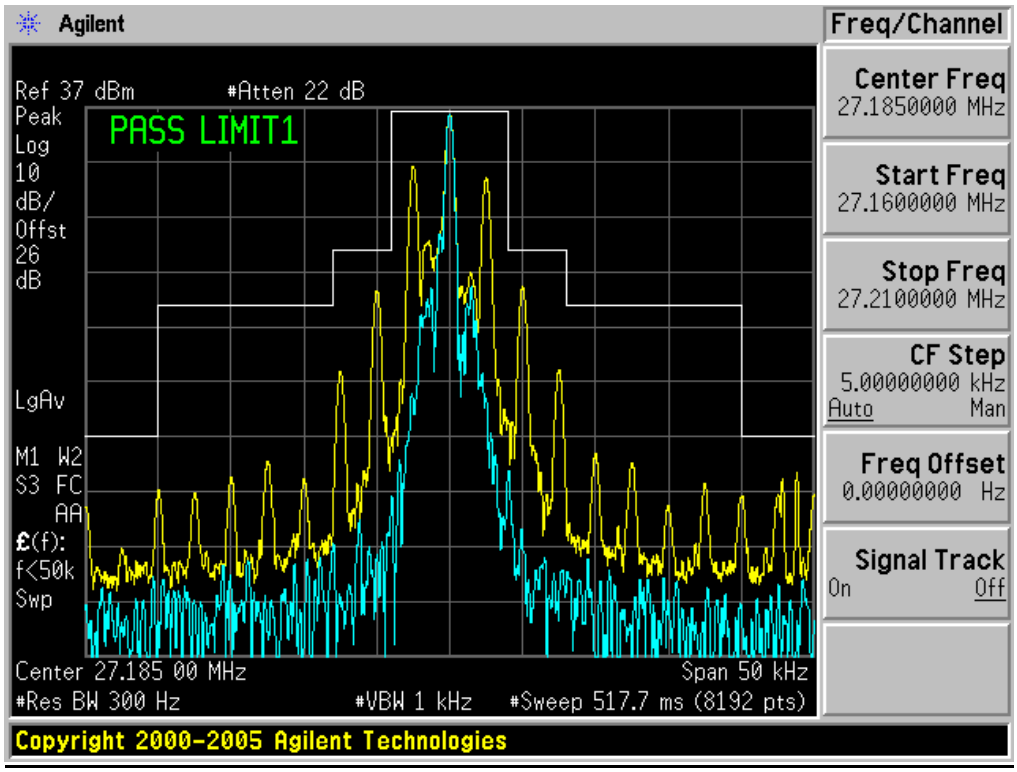
The detailed procedure employed for Emission Mask measurements are specified as following:

- The transmitter shall be AM modulated by a 2.5 kHz audio signal,
- The level of the audio signal employed is 16 dB greater than that necessary to produce 50% of rated system deviation

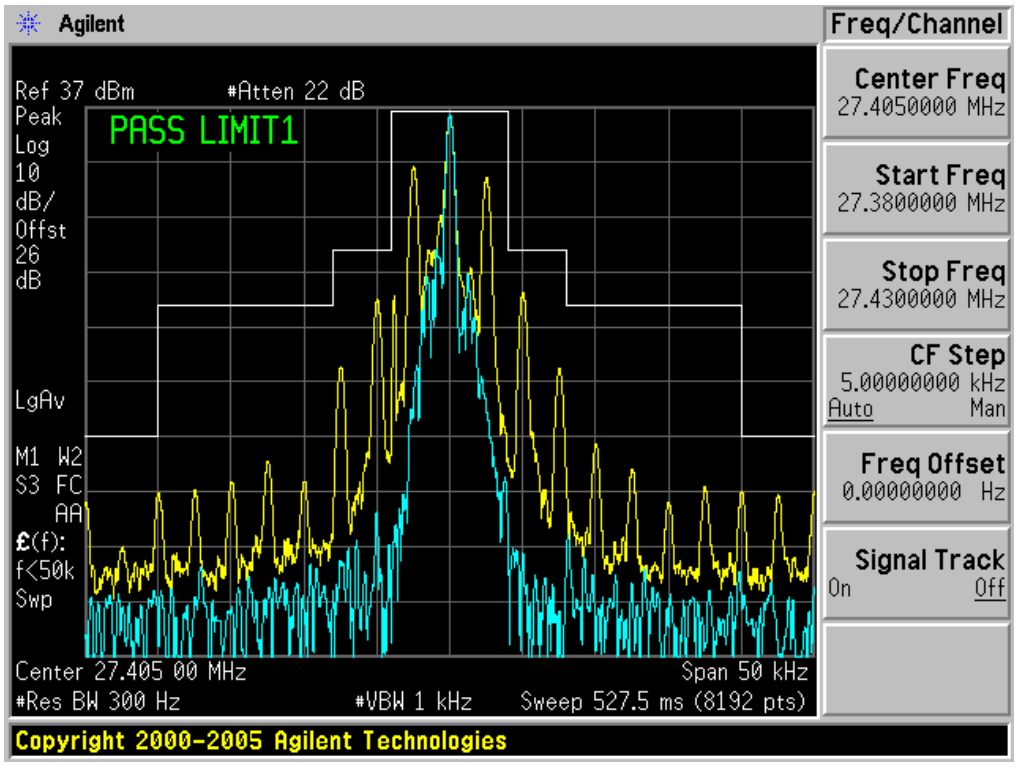
The Worst Emission Mask for 10 KHz bottom channel Separation-(4W)



The Worst Emission Mask for 10 KHz middle channel Separation -(4W)



The Worst Emission Mask for 10 KHz top channel Separation-(4W)



8. ASPURIOUS EMISSIONS AT ANTENNA TERMINALS

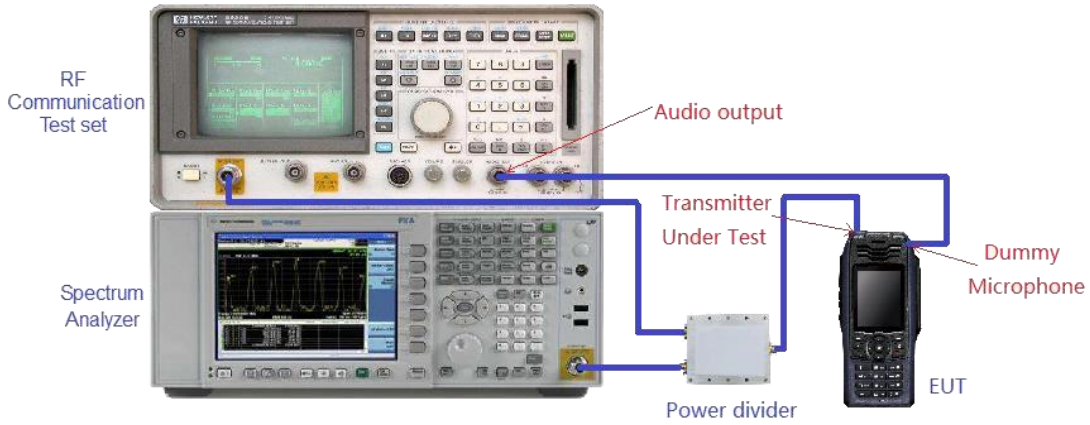
8.1.PROVISIONS APPLICABLE

According to FCC §2.1053 and §95.979

8.2.TEST PROCEDURE

The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100kHz for below 1GHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

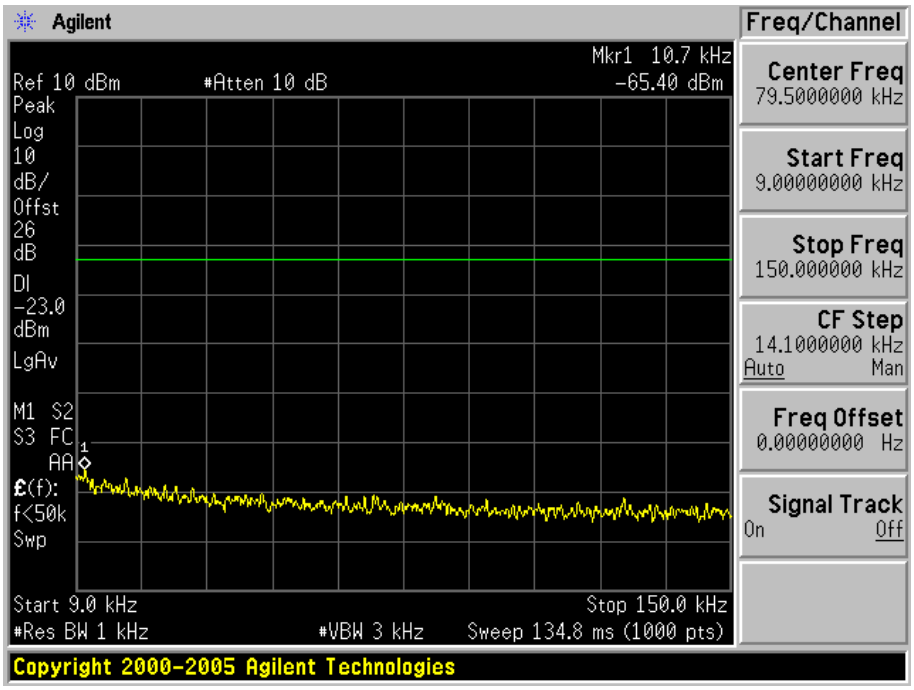
8.3 TEST CONFIGURATION



8.4 TEST RESULT

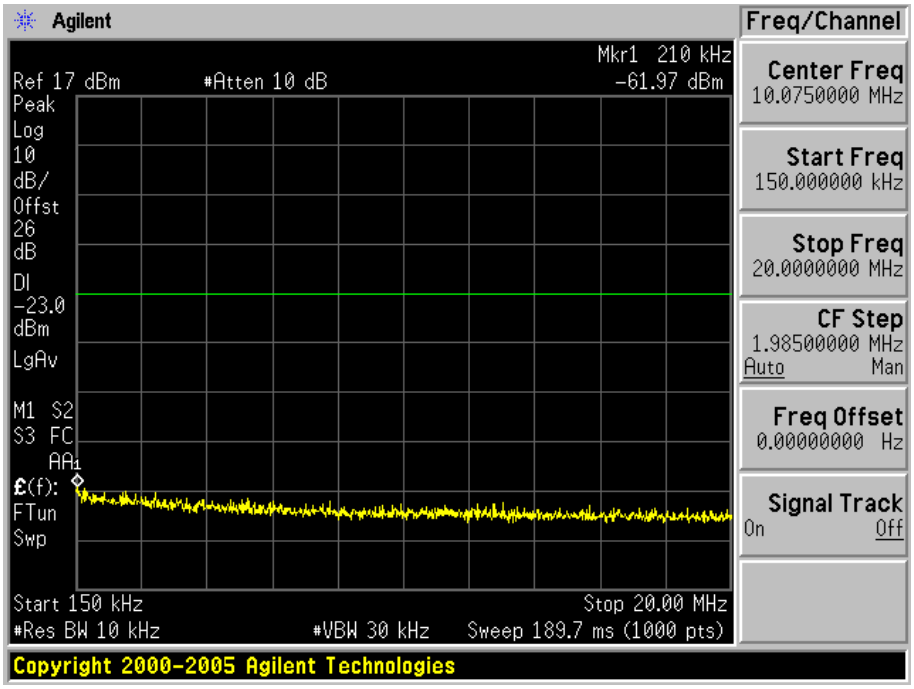
Conducted Spurious Emission @26.965 MHz With 10 KHz Channel Separation-4W

9KHz-150KHz



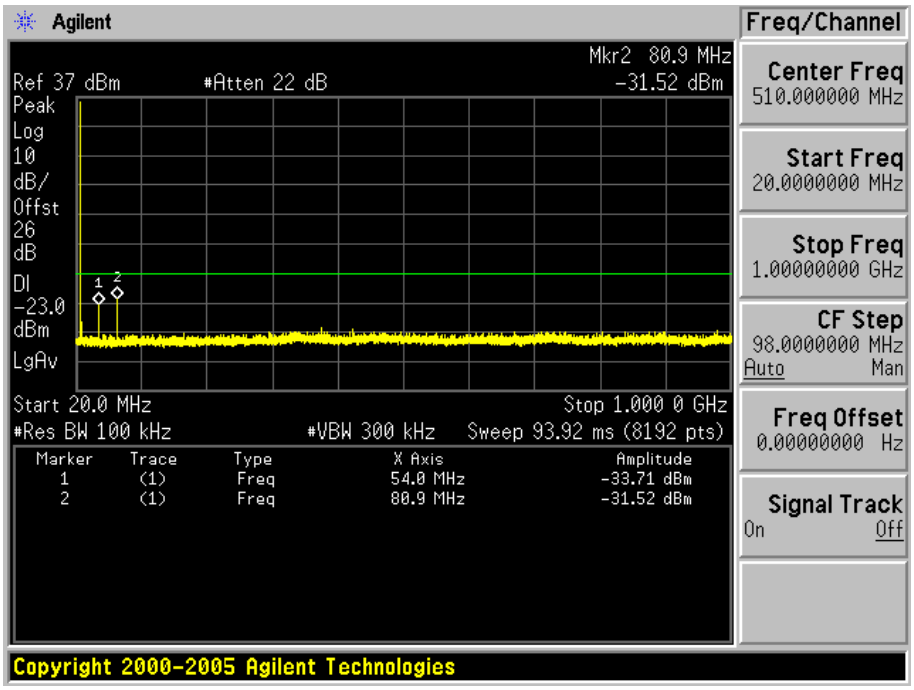
Conduct Spurious Emission @ 26.965 MHz With 10 KHz Channel Separation-4W

150KHz-20MHz



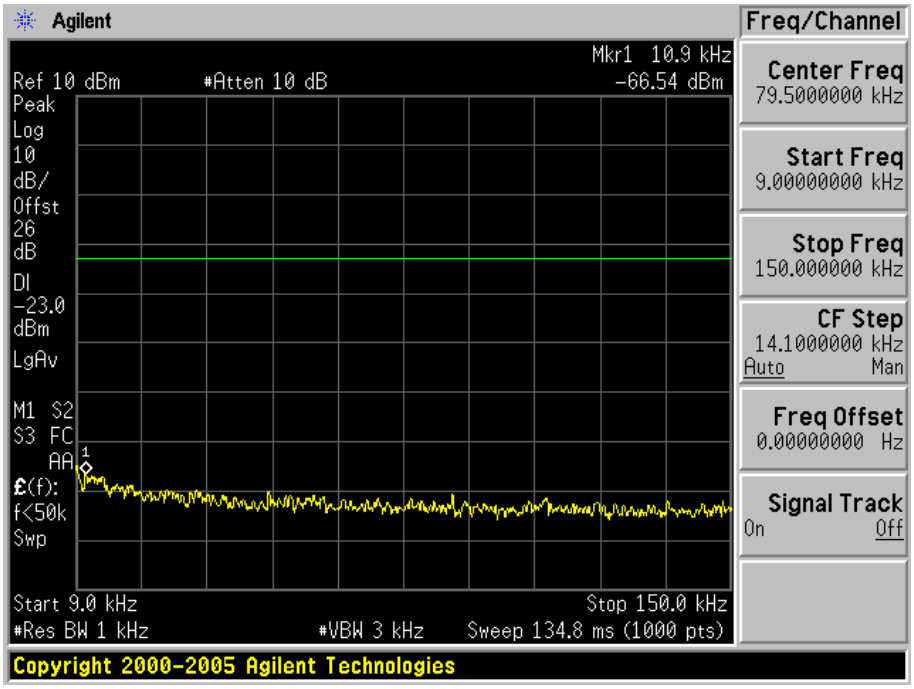
Conducted Spurious Emission @26.965 MHz With 10 KHz Channel Separation-4W

20MHz-1GHz



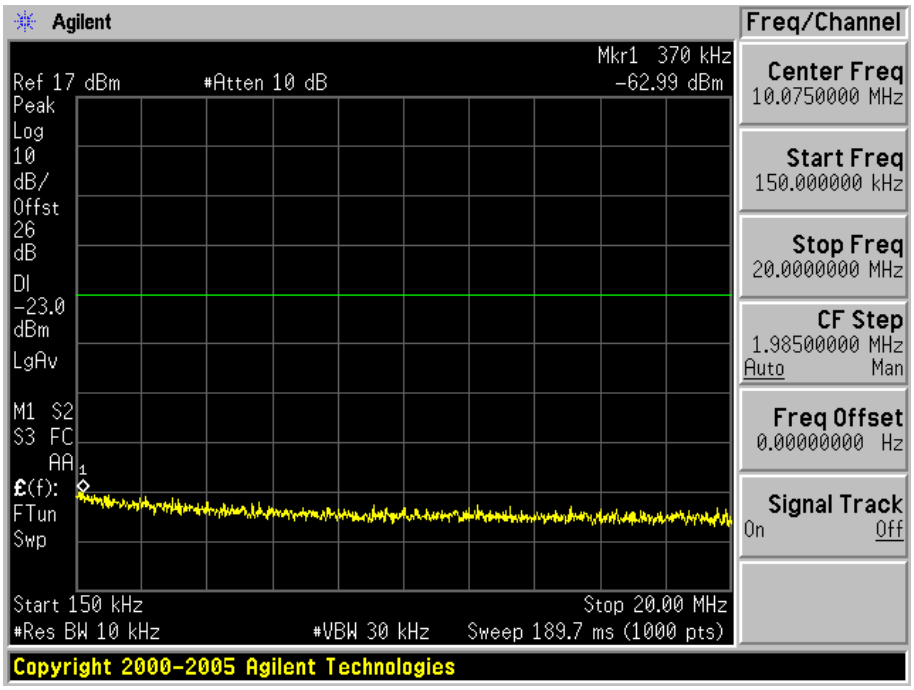
Conducted Spurious Emission@27.185 MHz With 10 KHz Channel Separation-4W

9KHz-150KHz



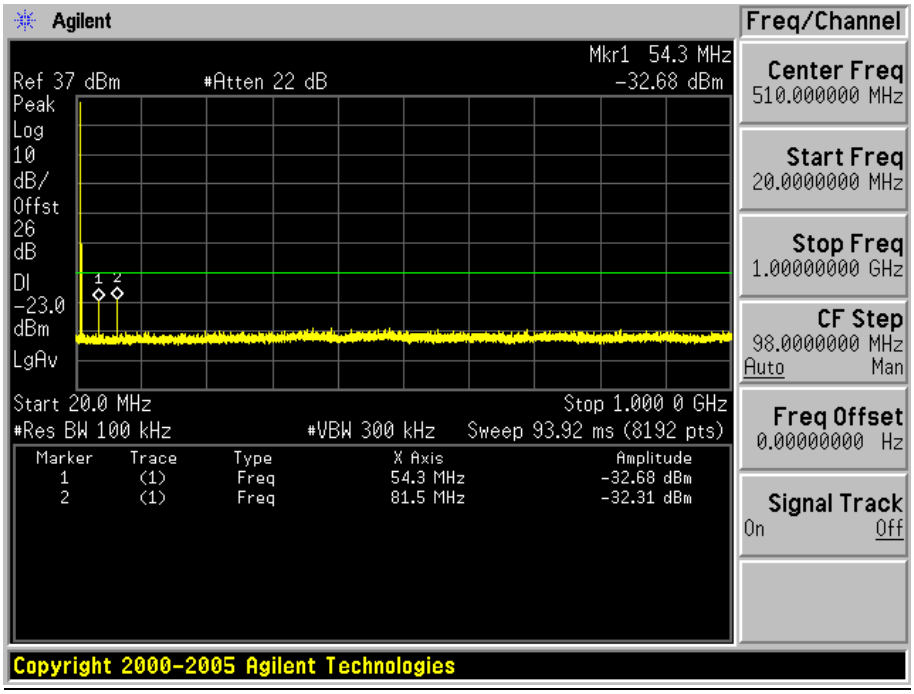
Conduct Spurious Emission @ 27.185 MHz With 10 KHz Channel Separation-4W

150KHz-20MHz



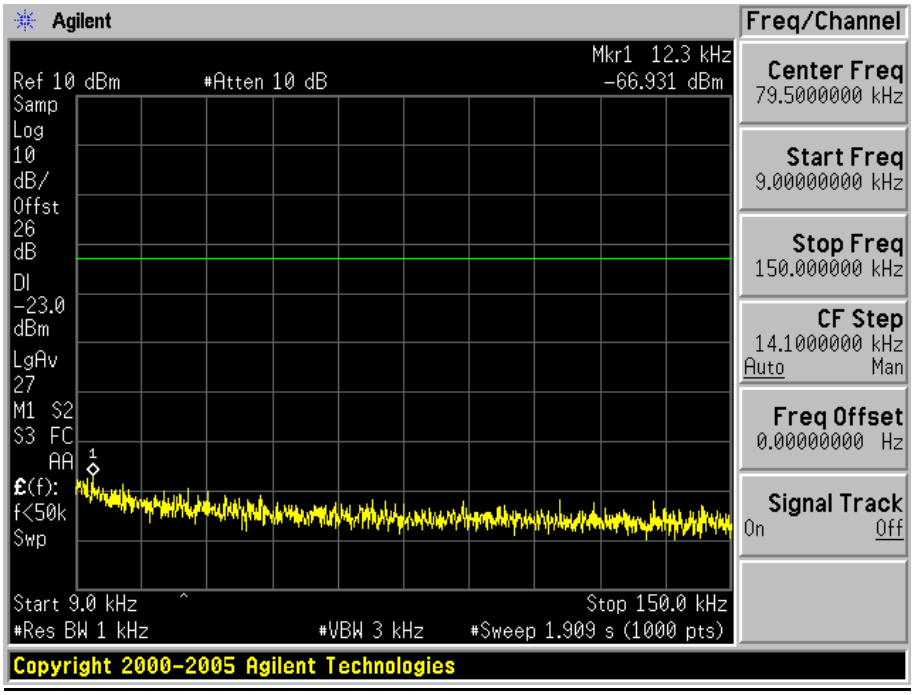
Conduct Spurious Emission @ 27.185 MHz With 10 KHz Channel Separation-4W

20MHz-1GHz



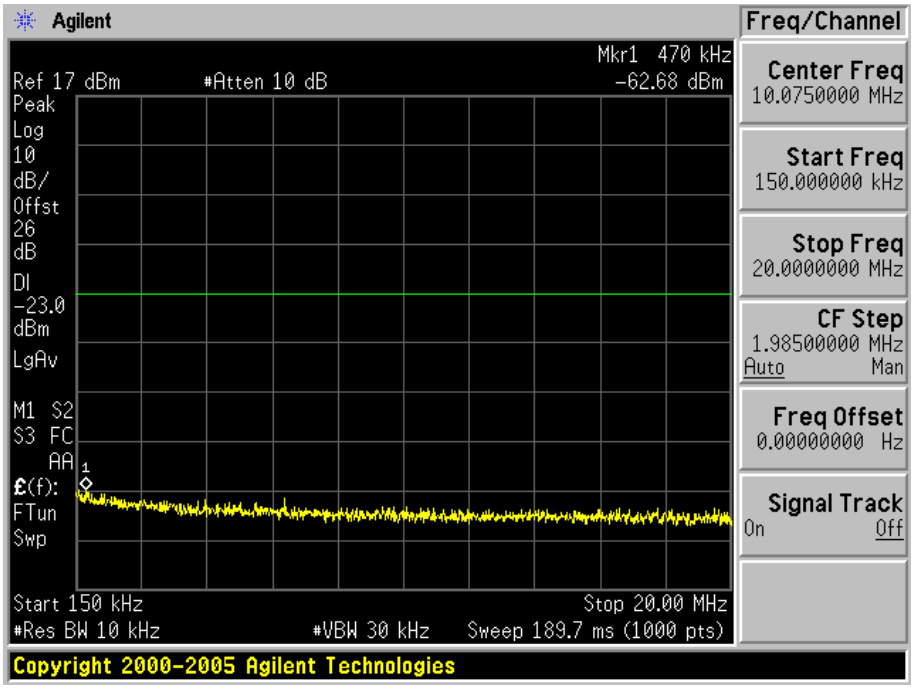
Conducted Spurious Emission@27.405 MHz With 10 KHz Channel Separation-4W

9KHz-150KHz



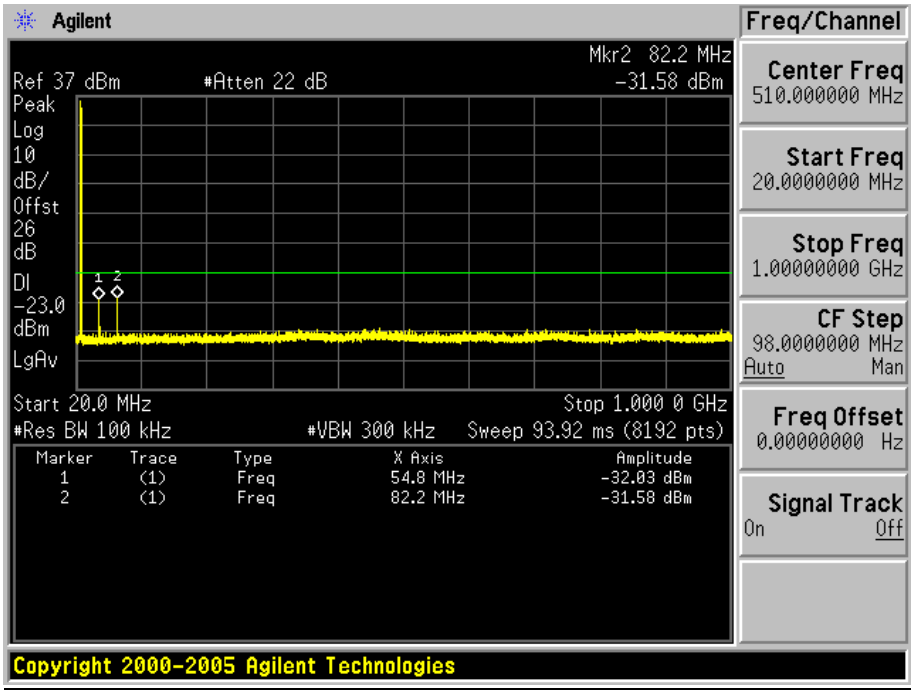
Conduct Spurious Emission @ 27.405 MHz With 10 KHz Channel Separation-4W

150KHz-20MHz



Conduct Spurious Emission @ 27.405 MHz With 10 KHz Channel Separation-4W

20MHz-1GHz



9. MAXIMUMN TRANSMITTER POWER

9.1 PROVISIONS APPLICABLE

Acorrding to FCC § 95.967

Each CBRS transmitter type must be designed such that the transmitter power can not exceed the following limits:

(a)When transmitting amplitude modulated (AM) voice signals, the mean carrier power must not exceed 4 Watts.

(b)When transmitting single sideband (SSB) voice signals, the peak envelope power must not exceed 12 Watts.

9.2 TEST PROCEDURE

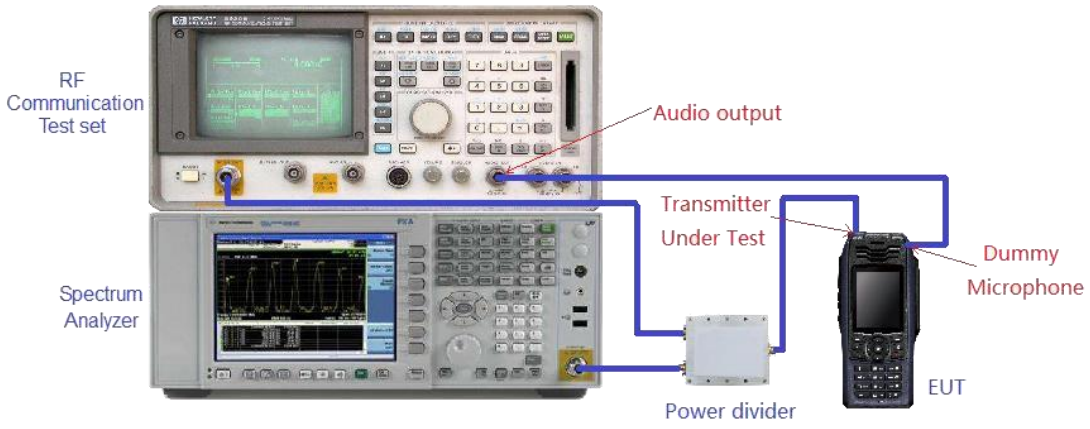
Conducted RF Output Power:

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Spectrum Analyzer Setting:

R B/W	VideoB/W
100 kHz	300 kHz

9.3 TEST CONFIGURATION



9.4 TEST RESULT

Conducted Power Measurement Results		
Channel Separation	**Channel**	**Measurement Result (W)**
		For (4W=36.02dBm)
10 KHz	Bottom(26.965MHz)	3.73W(35.712dBm)
	Middle(27.185MHz)	3.82W(35.823dBm)
	Top (27.405MHz)	3.86W(35.861dBm)

10. MODULATION CHARACTERISTICS

10.1 PROVISIONS APPLICABLE

According to Per FCC § 2.1047 and § 95.975:

Each CBRS transmitter type must be designed such that the modulation characteristics are in compliance with the rules in this section.

(a)When emission type A3E is transmitted with voice modulation, the modulation percentage must be at least 85%, but not more than 100%.

（b）When emission type A3E is transmitted by a CBRS transmitter having a transmitter output power of more than 2.5 W, the transmitter must contain a circuit that automatically prevents the modulation percentage from exceeding 100%.

10.2 MEASUREMENT METHOD

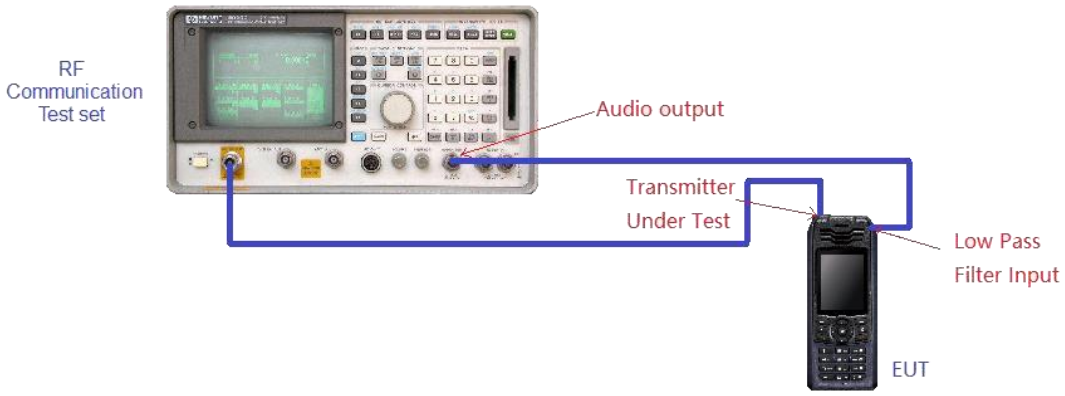
10.2.1 Modulation Limit

(1). Configure the EUT as shown in figure 1, adjust the audio input for 60% of rated system deviation at 1KHz using this level as a reference (0dB) and vary the input level from –20 to +20dB. Record the frequency deviation obtained as a function of the input level.

(2). Repeat step 1 with input frequency changing to 300, 600, 1000 and 2500Hz in sequence.

10.2.2 Audio Frequency Response

Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted.

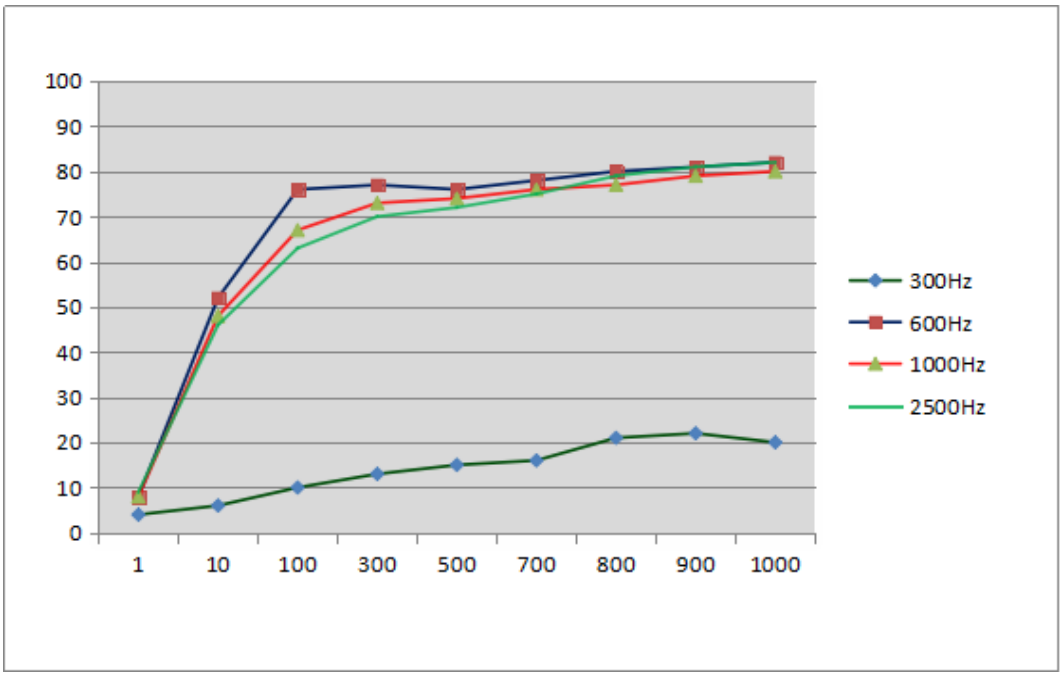


10.3 MEASUREMENT RESULT

(A). MODULATION LIMIT:

Top Channel @ 10 KHz Channel Separations

Modulation Level (mV)	Freq. At 300 Hz	Freq. At 600 Hz	Freq. At 1000 Hz	Freq. At 2500 Hz
1	4	8	8	9
10	6	52	48	46
100	10	76	67	63
300	13	77	73	70
500	15	76	74	72
700	16	78	76	75
800	21	80	77	79
900	22	81	79	81
1000	20	82	80	82



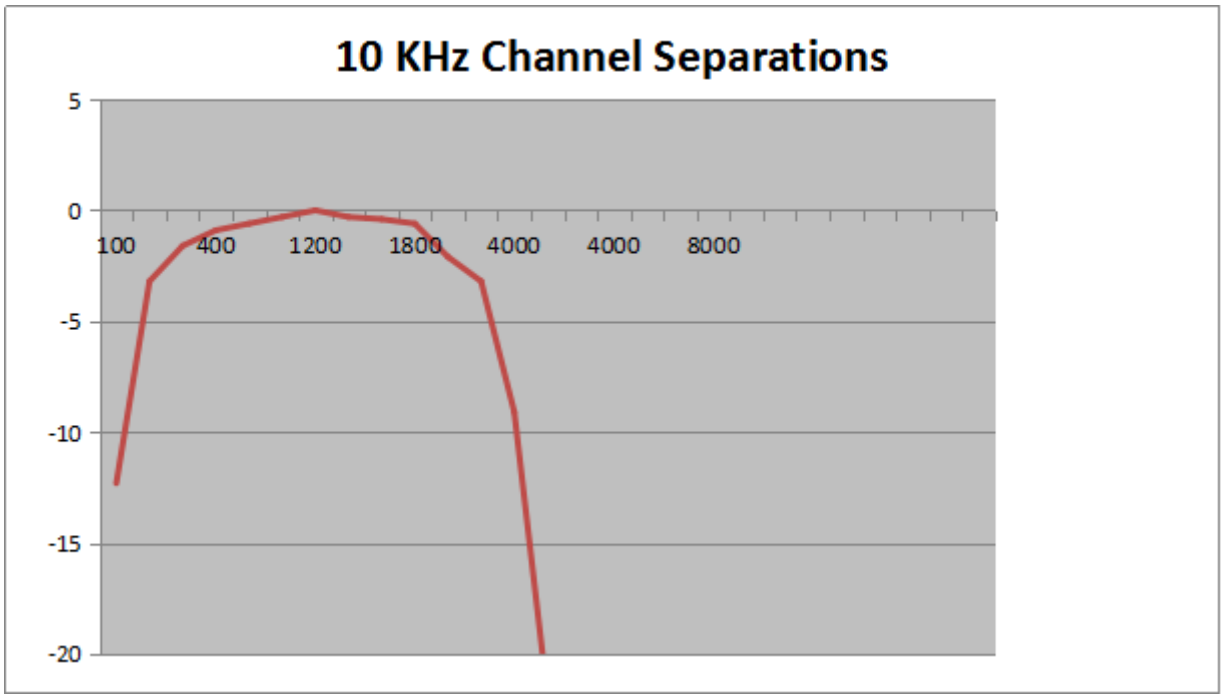
Note: All the modes had been tested, but only the worst data recorded in the report.

(B). AUDIO FREQUENCY RESPONSE:

Top Channel @10KHz Channel Separations

Frequency (Hz)	Audio Frequency Response(dB)	
	(KHz)	(dB)
100	0.02	-12.30
200	0.04	-3.20
300	0.08	-1.60
400	0.11	-0.90
800	0.23	-0.60
1000	0.29	-0.30
1200	0.39	0.00
1400	0.44	-0.30
1600	0.48	-0.40
1800	0.61	-0.60
2000	0.72	-2.10
3000	0.82	-3.20
4000	0.94	-9.10
6000	1.23	-21.90

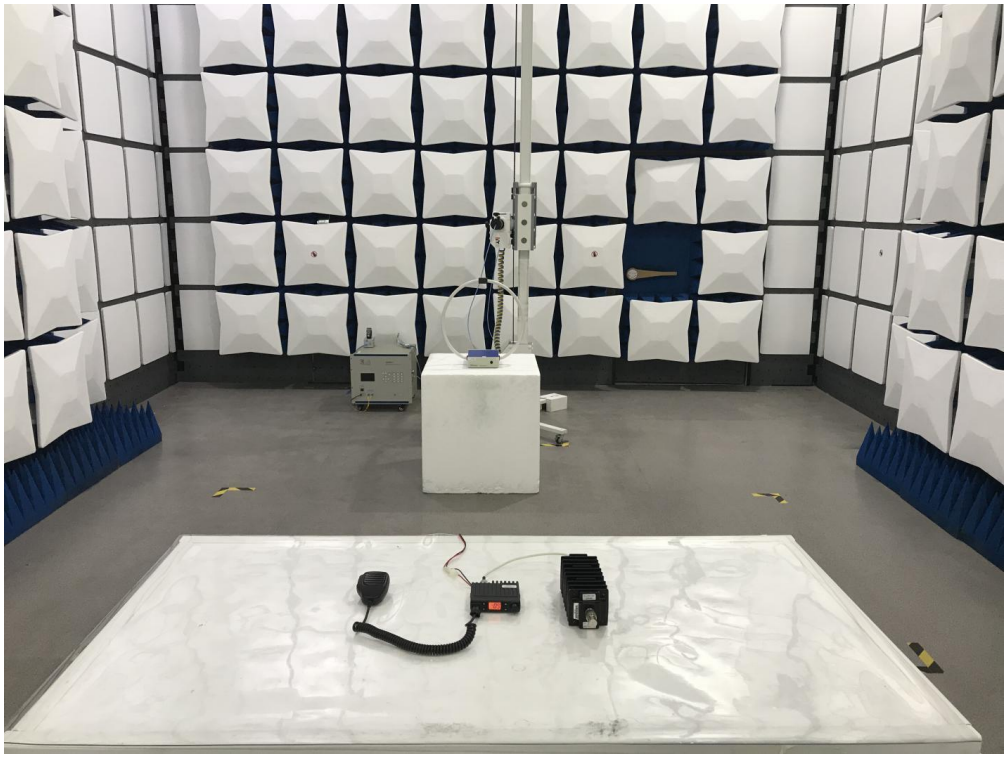
Audio Frequency Response@50%MI



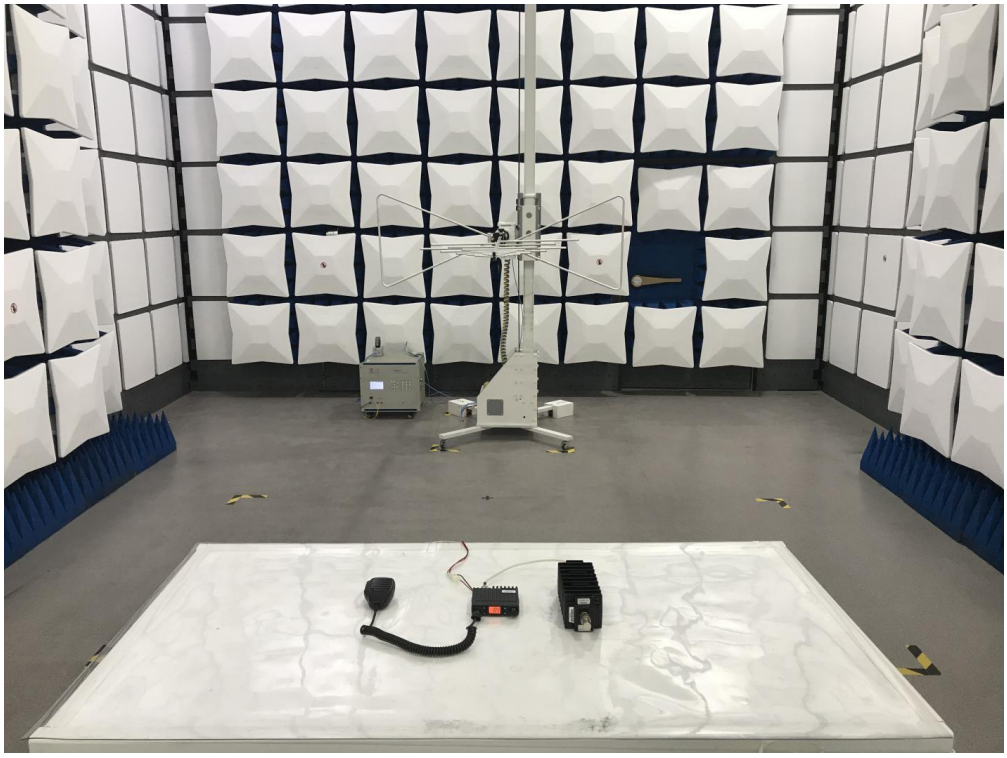
Note: All the modes had been tested, but only the worst data recorded in the report

APPENDIX I: PHOTOGRAPHS OF SETUP

RADIATED EMISSION TEST SETUP



RADIATED EMISSION ABOVE 1G TEST SETUP

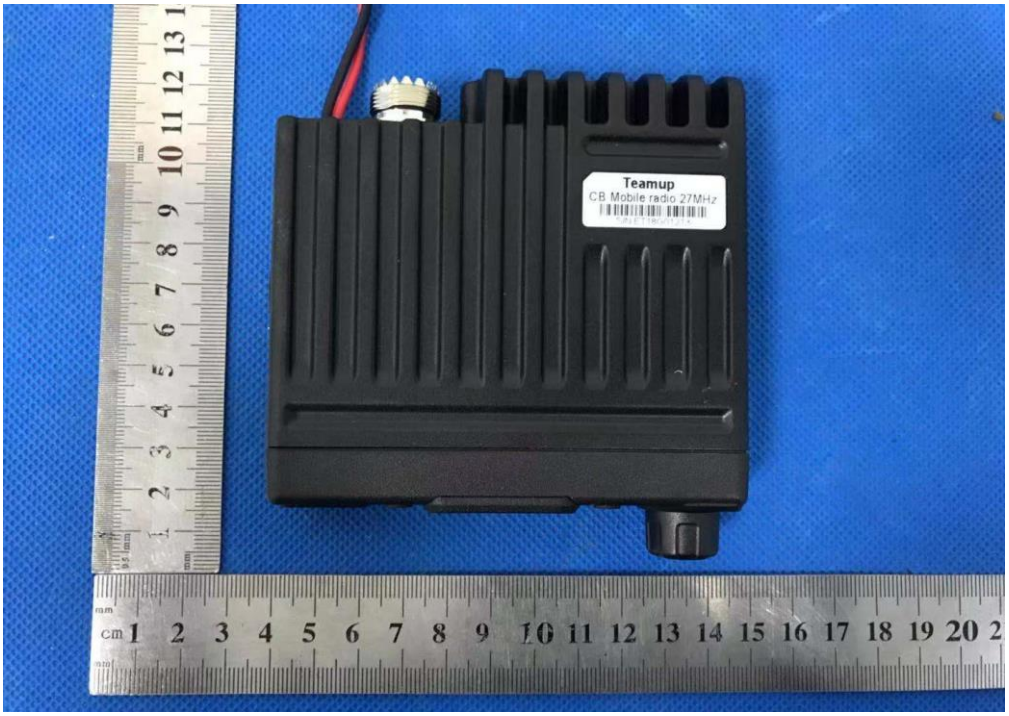


APPENDIX II: EXTERNAL VIEW OF EUT

TOTAL VIEW OF EUT

Part I

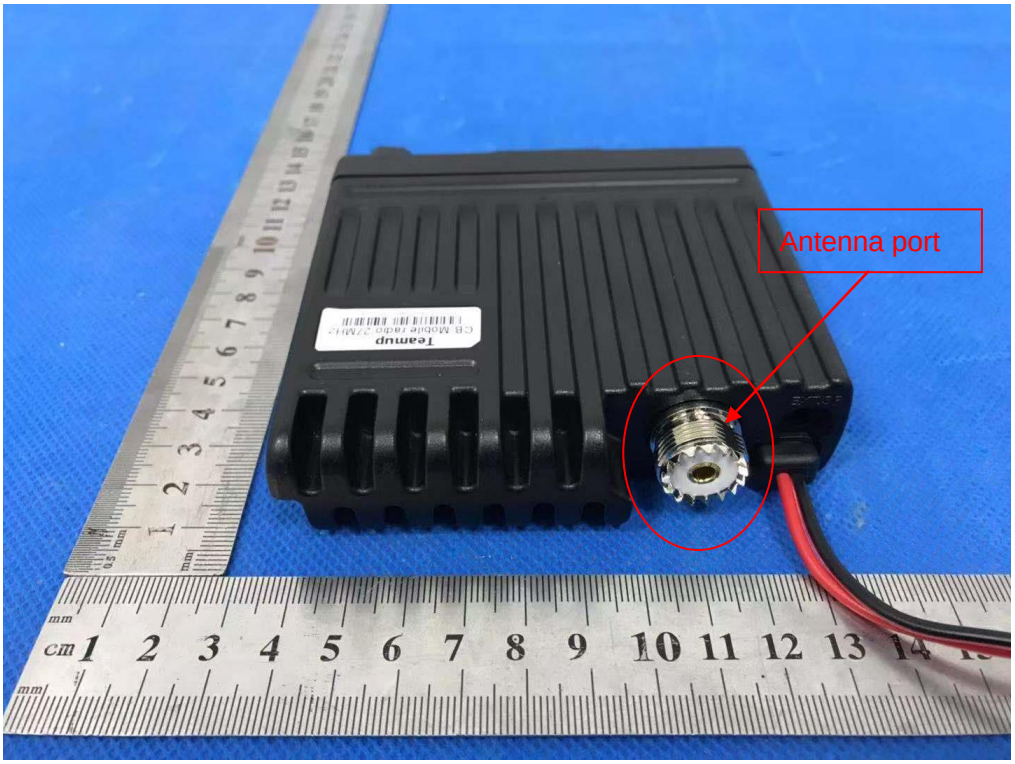
TOP VIEW OF EUT



BOTTOM VIEW OF EUT

FRONT VIEW OF EUT

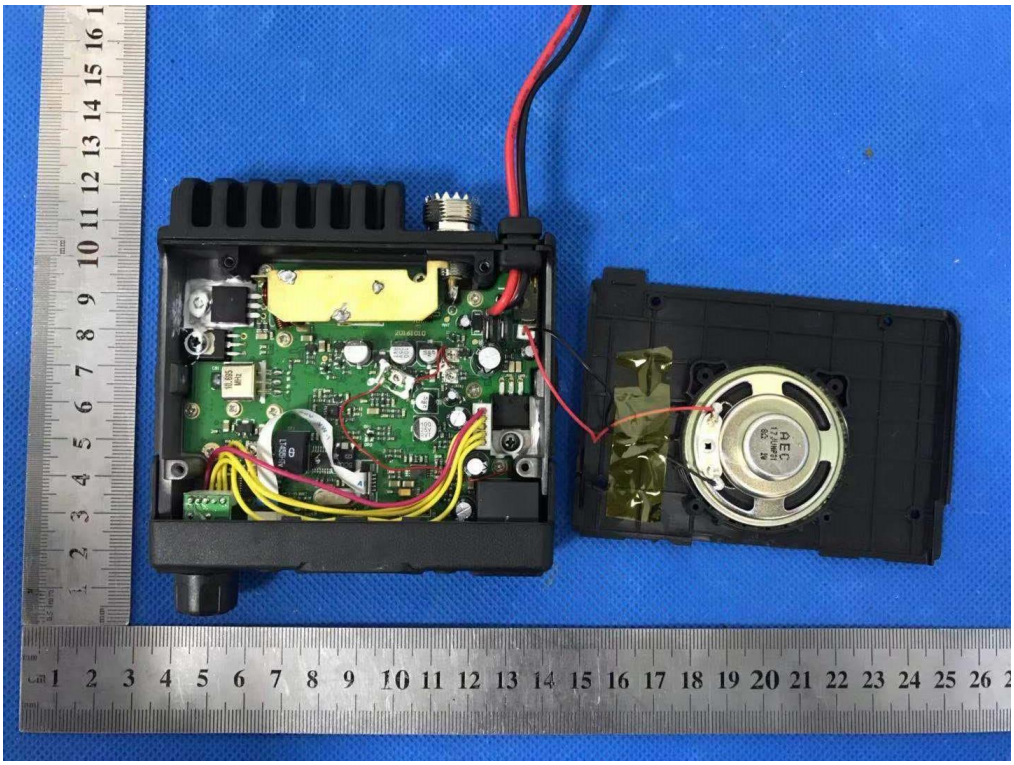
BACK VIEW OF EUT



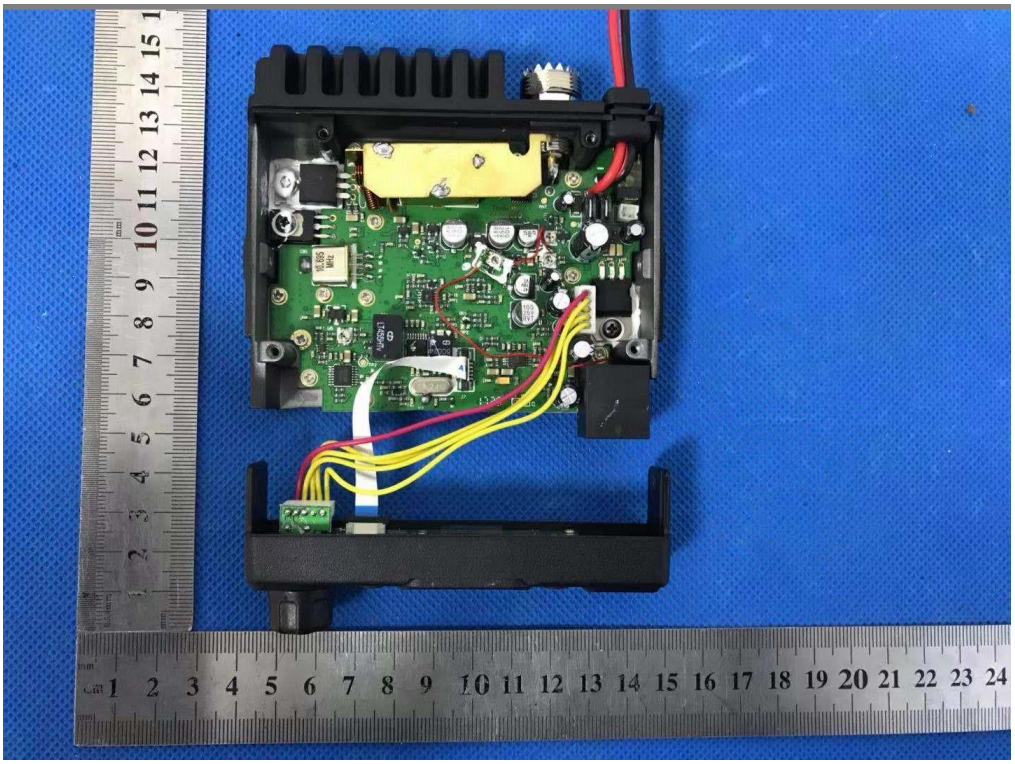
LEFT VIEW OF EUT

RIGHT VIEW OF EUT

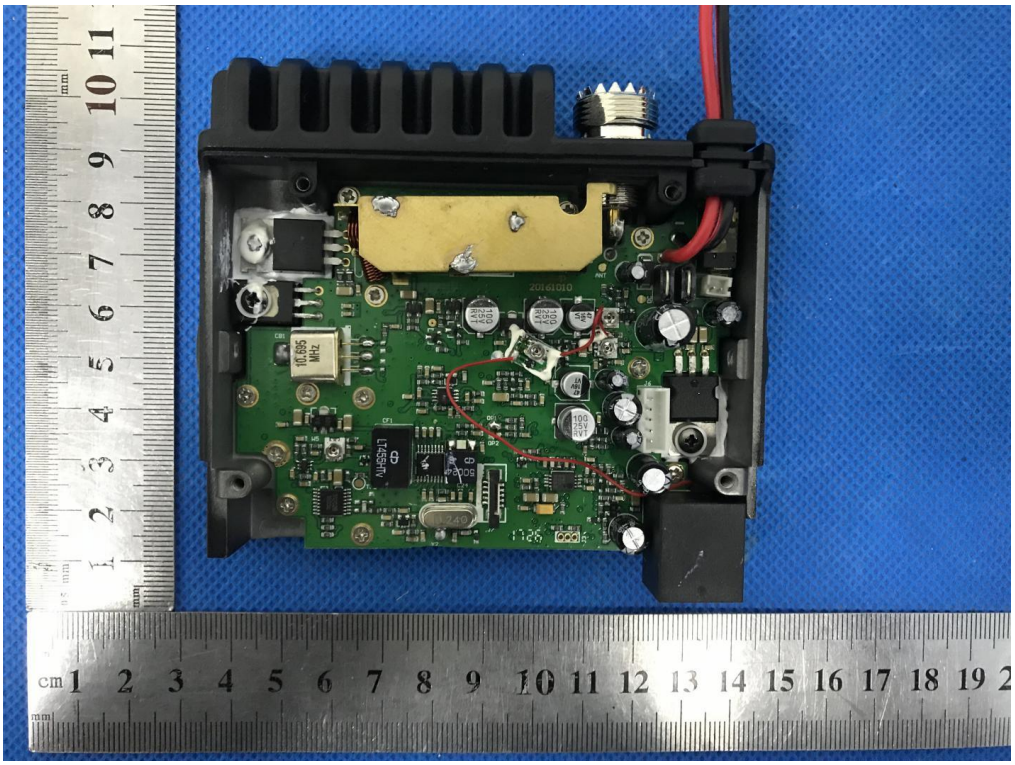
OPEN VIEW-1 OF EUT



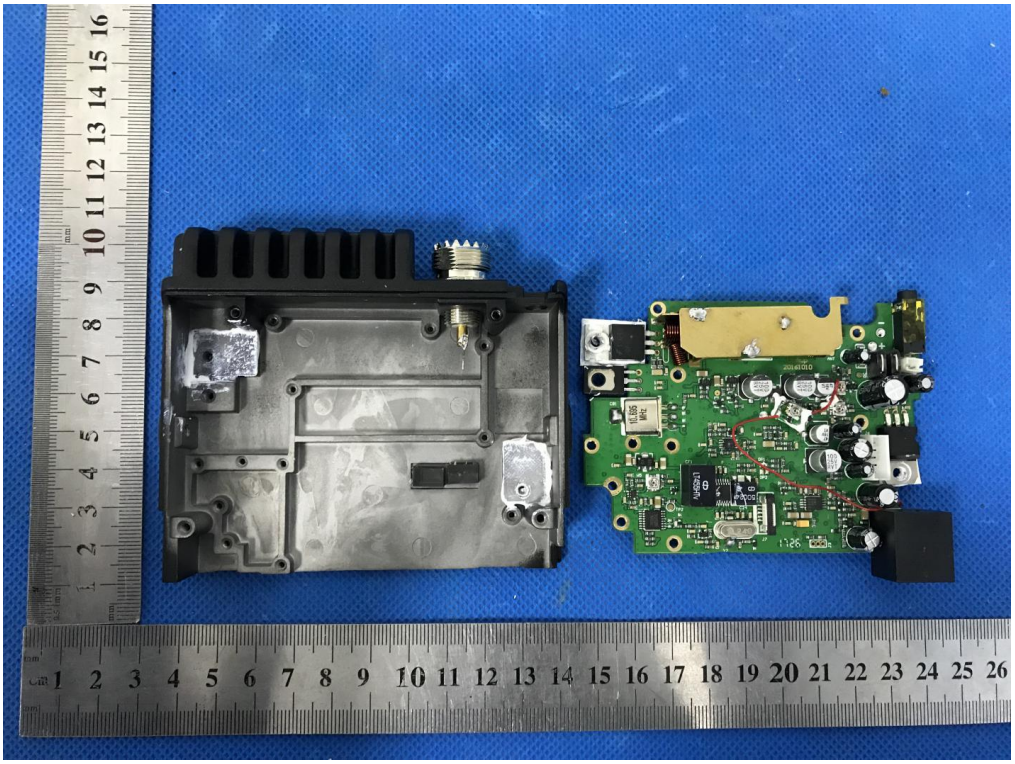
OPEN VIEW-2 OF EUT



OPEN VIEW-3 OF EUT-1



INTERNAL VIEW-1 OF EUT-1



INTERNAL VIEW-2 OF EUT-1