TEST REPORT

Reference No.	:	WTS18S12132461W
FCC ID	:	2AE67-CR-2701
Applicant	:	Bulk Unlimited Corp
Address	:	199 Lee Ave. Suite 464, BROOKLYN, NY, NEW YORK, United States
Manufacturer	:	Shenzhen SeeMeHere Electronic Co., Ltd
Address	:	1st Floor, 2nd Floor, 3rd Floor, 5th Floor, Building B, TongFuYu Industrial Park, No.32 Hangkong Road, Sanwei Community, Hangcheng Street, Bao'an district, Shenzhen
Product Name	:	Party Box Karaoke
Model No.	:	CR-2701
Standards	:	FCC CFR47 Part 74
Date of Receipt sample	:	2018-11-15
Date of Test	:	2018-11-16 to 2018-12-14
Date of Issue	:	2018-12-14
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
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2 Laboratories Introduction

Waltek Services (Shenzhen) Co., Ltd is a professional third-party testing and certification laboratory with multi-year product testing and certification experience, established strictly in accordance with ISO/IEC 17025 requirements, and accredited by ILAC (International Laboratory Accreditation Cooperation) member. A2LA (American Association for Laboratory Accreditation, the certification number is 4243.01) of USA, CNAS (China National Accreditation Service for Conformity Assessment, the registration number is L3110) of China.Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC(The Federal Communications Commission), CEC(California energy efficiency), ISED (Innovation, Science and Economic Development Canada). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as Intertek(ETL-SEMKO), TÜV Rheinland, TÜV SÜD, etc.

Waltek Services (Shenzhen) Co., Ltd is one of the largest and the most comprehensive third party testing laboratory in China. Our test capability covered four large fields: safety test. ElectroMagnetic Compatibility(EMC), and energy performance, wireless radio. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

2.1 Test Facility

A. Accreditations for Conformity Assessment (International)

Country/Region	Scope Covered By	Scope	Note
USA	ISO/IEC 17025	FCC ID \ DOC \ VOC	1
Canada		IC ID \ VOC	2
Japan		MIC-T \ MIC-R	-
Europe		EMCD \ RED	-
Taiwan		NCC	-
Hong Kong		OFCA	-
Australia		RCM	-
India		WPC	-
Thailand		NTC	-
Singapore		IDA	-

Note:

1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476.
2. ISED Canada Registration No.: 7760A

B.TCBs and Notify Bodies Recognized Testing Laboratory.

Recognized Testing Laboratory of …	Notify body number
TUV Rheinland	Optional.
Intertek	
TUV SUD	
SGS	
Phoenix Testlab GmbH	0700
Element Materials Technology Warwick Ltd.	0891
Timco Engineering, Inc.	1177
Eurofins Product Service GmbH	0681

3 Test Summary

Test Items	Test Requirement	Test Method	Result
RF Ourput Power	74.861(e)(1)(ii)	ANSI/TIA-603-E:2016	PASS
Modulation Characteristics	2.1047(a)	ANSI/TIA-603-E:2016	N/A
Occupied Bandwidth	2.1049(c)(1)	ANSI/TIA-603-E:2016	PASS
Radiated Emissions	2.1053 & 74.861(e)(6)	ANSI/TIA-603-E:2016	PASS
Spurious emissions at antenna terminals	2.1051	ANSI/TIA-603-E:2016	PASS
Frequencies Stability	2.1055(a)(1)	ANSI/TIA-603-E:2016	PASS
RF Exposure	1.1307(b)(1)	KDB 447498 D01	PASS
Remark: PASS means that the test results complies with related requirements. N/A means that the test is not applicable for the EUT.			

4 Contents

5 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS18S12132461E	2018-11-15	2018-11-16 to 2018-12-14	2018-12-14	original	-	Valid

6 General Information

6.1 General Description of E.U.T

Items	Description
RF Output Power:	11.04dBm (Conducted)
Frequency Range:	580MHz
Antenna Type:	Integral Antenna
Antenna Gain:	2 dBi

6.2 Details of E.U.T

Rated Voltage:	Battery DC 3.7V

6.3 Test Equipment List and Details

3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP	100091	2018-04-29	2019-04-28
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	2018-04-09	2019-04-08
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2018-04-09	2019-04-08
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2018-09-12	2019-09-11
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2018-04-09	2019-04-08
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2018-04-09	2019-04-08
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2018-04-13	2019-04-12
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	2018-04-13	2019-04-12
9	Signal Generator	R&S	SMR20	100046	2018-09-12	2019-09-11
10	Smart Antenna	SCHWARZBECK	HA08	-	2018-04-09	2019-04-08
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	2018-09-12	2019-09-11
2.	Spectrum Analyzer	Agilent	N9020A	MY49100060	2018-09-12	2019-09-11

3.	Universal Radio Communication Tester	R&S	CMW 500	127818	2018-04-13	2019-04-12
4	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	2018-09-12	2019-09-11
4.	Modulation Analyzer	HP	8920B	-	2018-09-12	2019-09-11

7 RF Output power

Test requirement: FCC CFR47 Part 74 Section 74.861(e)(1)(ii)

Test method: Based on ANSI/TIA-603-E:2016

Limit: According to Part 74.861(e)(1)(ii), the EIRP shall not exceed 250mW (23.98 dBm).

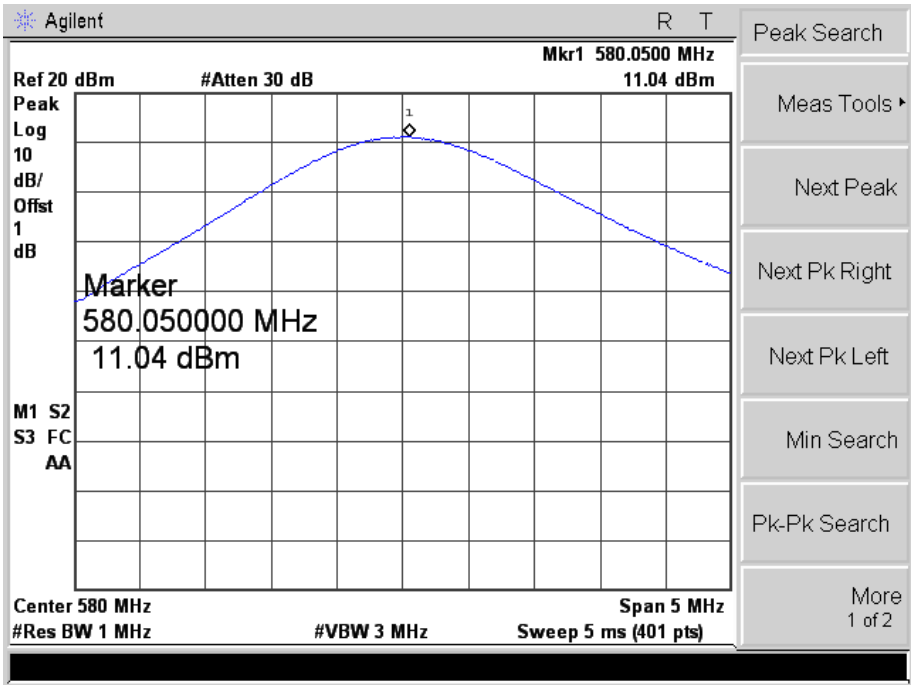
7.1 Test Procedure

The maximum peak output power was measured with a spectrum analyzer connected to the antenna terminal (conducted measurement) while EUT was operating in normal situation.

7.2 Test result

Channel	Frequency (MHz)	RF Stage Voltage (Vdc)	Collected Current (mA)	Output Power (dBm)	Limit (dBm)
/	580	3.7	0.35	11.04	24

Please refer to following plot:



8 Modulation Characteristics

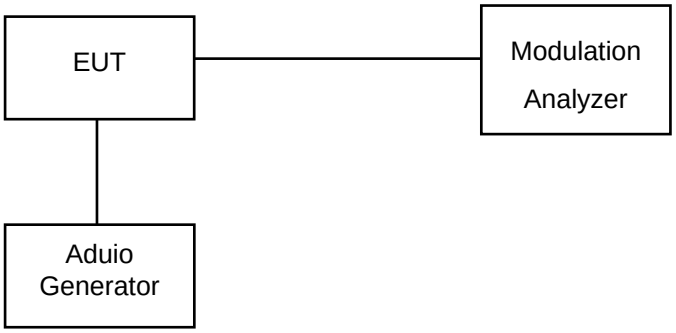
Test requirement: FCC CFR47 Part 2 Section 2.1047(a)

Test method: Based on ANSI/TIA-603-E:2016

Requirement: According to Part 2.1047(a), for Voice Modulated Communication Equipment, the frequency response of the audio modulating circuit over a range of 100Hz to 5000Hz shall be measured.

8.1 Test Procedure

(a) Test Configuration



(b) Audio Frequency Response:

1) Apply a 1000 Hz tone and adjust the audio frequency generator to produce 20% of the rated system deviation.

2) Set the test receiver to measure rms deviation and record the deviation reading as DEV_{REF} .

3) Set the audio frequency generator to the desired test frequency between 100 Hz and 5000 Hz.

4) Record the test receiver deviation reading as DEV_{FREQ} .

5) Calculate the audio frequency response at the present frequency as:

audio frequency response =$20lg(DEV_{FREQ}/ DEV_{REF})$

6) Repeat steps 4) through5) for all the desired test frequencies.

(c) Modulation Limiting:

1) Apply a 1000 Hz modulating signal to the transmitter from the audio frequency generator, and adjust the level to obtain 60% of full rated system deviation.

2) Measure both the instantaneous and steady-state deviation at and after the time of increasing the audio input level.

3) With the level from the audio frequency generator held constant at the level. obtained in step e), slowly vary the audio frequency from 300 Hz to 3000. Hz and observe the steady-state deviation. Record the maximum deviation.

4) Set the test receiver to measure peak negative deviation and repeat steps 1) through 3).

5) The values recorded in steps 3) and 4) are the modulation limiting.

8.2 Test Result

Not Application. The product only support digital modulation mode.

9 Occupied Bandwidth of Emission

Test requirement: FCC CFR47 Part 2 Section 2.1049©(1)

Test method: Based on ANSI/TIA-603-E:2016

Limit: According to FCC 74.861 (e)(5), the frequency emission bandwidth shall not exceed 200 kHz.

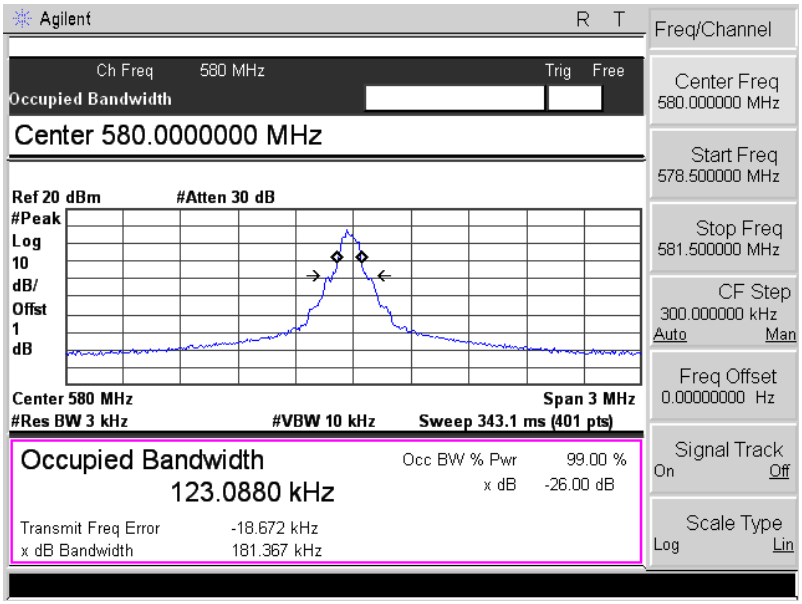
9.1 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and set it to any one convenient frequency within its operating range.

9.2 Test Result

Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)	Result
580.00	123.088	200	PASS

Test Plot:



10 Spurious Emissions at Antenna Terminals

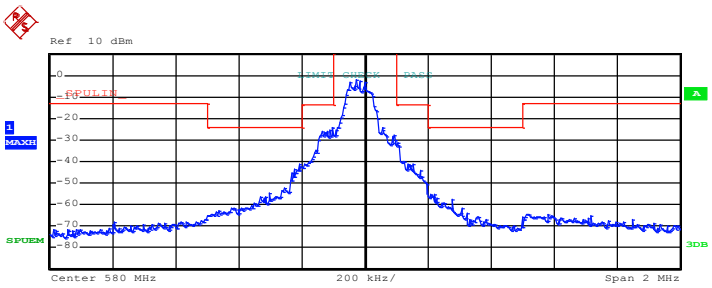
Test requirement:	FCC CFR47 Part 2 Section 2.1053
Test method:	Based on ANSI/TIA-603-E:2016
Limit:	According to Part 74.861 (e)(6), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule: (i) on any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB. (ii) on any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB. (iii) on any frequency removed from the operating frequency by more than 250 percent up to and the authorized bandwidth shall be attenuated below the un-modulated carrier by at least 43 + 10 Log (output power in watts)dB.

10.1 Test Procedure

1. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
2. Set the SA on Max-Hold Mode, and then keep the EUT in transmitting mode. Record all the signals from each channel until each one has been recorded.
3. Set the SA on View mode and then plot the result on SA screen.
4. Repeat above procedures until all frequencies measured were complete.

10.2 Test Data

Emission Mask Low Channel



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
579.000 M	579.500 M	1.00 k	579.496010 M	-66.62	-53.52
579.500 M	579.800 M	1.00 k	579.792200 M	-41.41	-17.45
579.800 M	579.900 M	1.00 k	579.897462 M	-24.32	-10.36
579.900 M	580.100 M	1.00 k	579.970968 M	-2.26	-13.30
580.100 M	580.200 M	1.00 k	580.101613 M	-30.98	-17.02
580.200 M	580.500 M	1.00 k	580.219355 M	-55.10	-31.14
580.500 M	581.000 M	1.00 k	580.517313 M	-64.41	-51.31

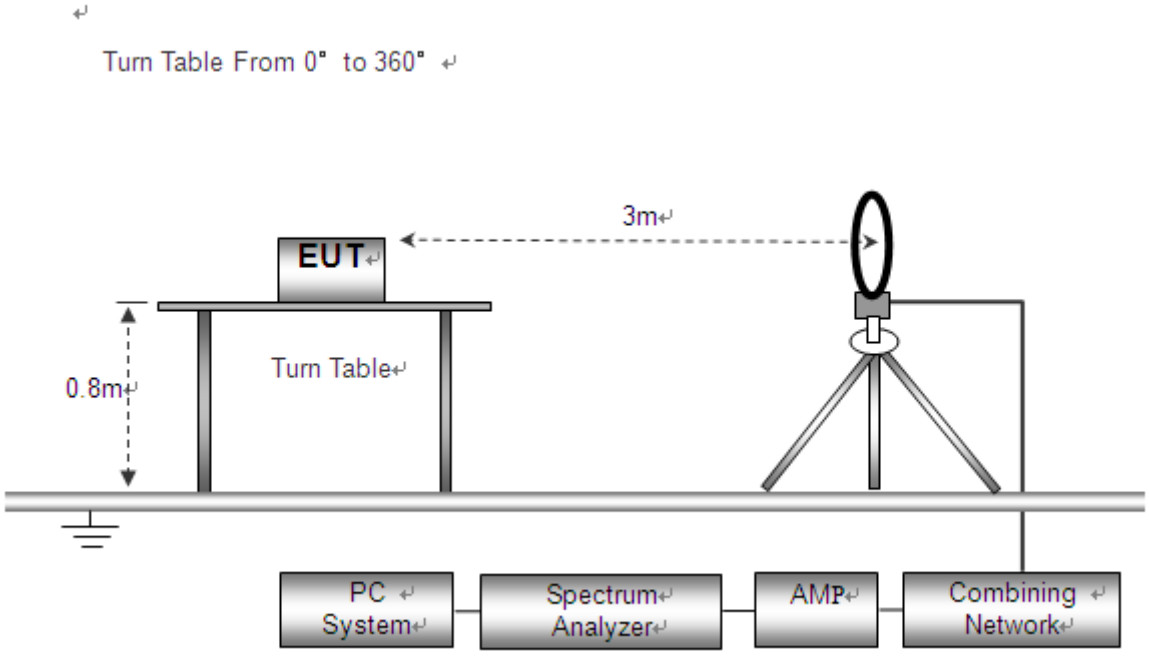
11 Radiated Emission Test

Test requirement:	FCC CFR47 Part 2 Section 2.1053
Test method:	Based on ANSI/TIA-603-E:2016
Limit:	According to Part 74.861 (e)(6), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule: (i) on any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB. (ii) on any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB. (iii) on any frequency removed from the operating frequency by more than 250 percent up to and the authorized bandwidth shall be attenuated below the un-modulated carrier by at least 43 + 10 Log (output power in watts)dB.

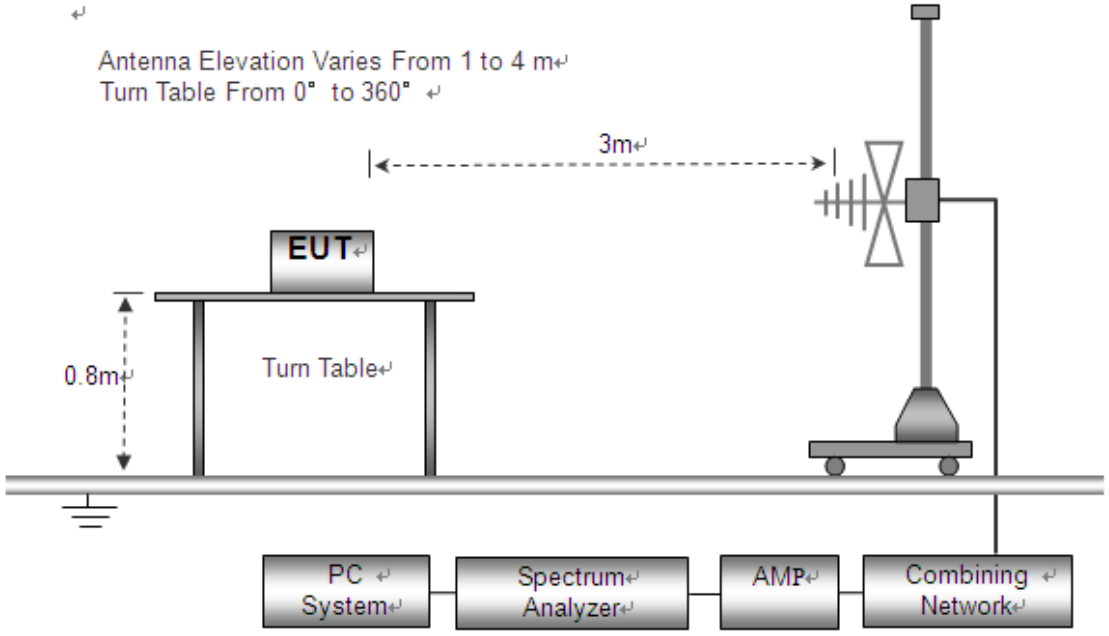
11.1 EUT Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4

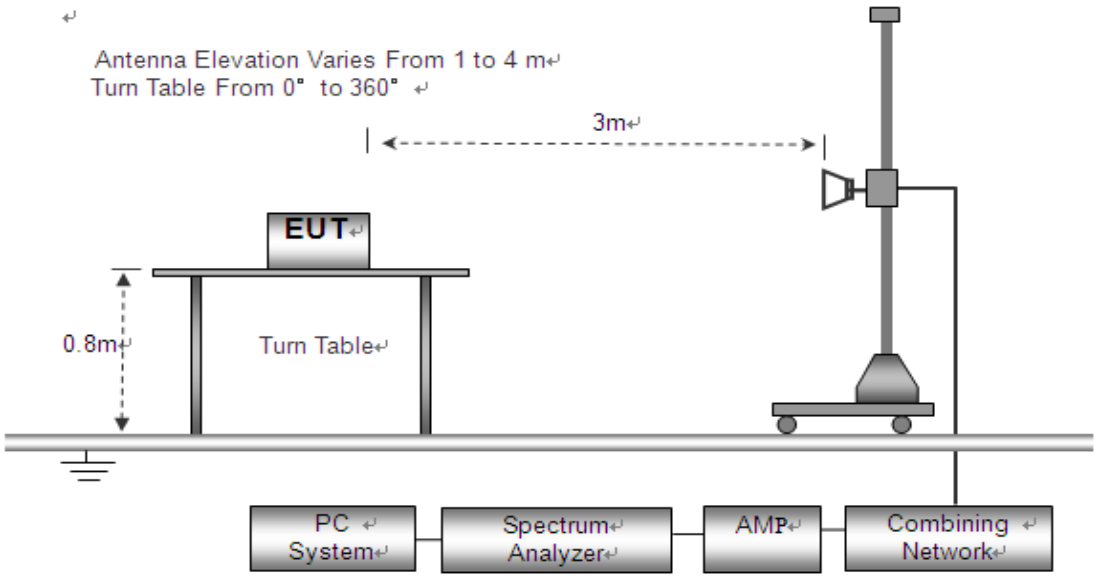
The test setup for emission measurement below 30MHz.



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz Emissions.



11.2 Spectrum Analyzer Setup

According to FCC Part 2 Section 2.1053 Rules, the system was tested 9KHz to 6000MHz.

Below 30MHz
Sweep Speed .....Auto
IF Bandwidth.....10kHz
Video Bandwidth.....10kHz
Resolution Bandwidth.....10kHz

30MHz ~ 1GHz
Start Frequency .....30 MHz
Stop Frequency.....1000MHz
Sweep Speed.....Auto
IF Bandwidth .....120 KHz
Video Bandwidth 300KHz
Quasi-Peak Adapter Bandwidth.....120 KHz
Quasi-Peak Adapter Mode .....Normal
Resolution Bandwidth 100KHz

Above 1GHz
Start Frequency .....1000 MHz
Stop Frequency.....7000MHz
Sweep Speed.....Auto
IF Bandwidth .....120 KHz
Video Bandwidth 3MHz
Quasi-Peak Adapter Bandwidth.....120 KHz
Quasi-Peak Adapter Mode .....Normal
Resolution Bandwidth 1MHz

11.3 Test Procedure

1. Place the transmitter to be tested on the turntable in the standard test site. The transmitter is Transmitting into a non-radiating load, which is placed on the turntable.
2. The output of the antenna was connected to the measuring receiver and a peak detector was used for the measurement as indicated on the report.
3. The transmitter was switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
4. The test antenna shall be raised and Lowed through the specified range of height until the measuring receiver detects a maximum signal level.
5. The transmitter shall than be rotated through 360^{o} in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
6. The test antenna shall be raised and Lowed again through the specified range of height until the measuring receiver detects a maximum signal level.
7. The maximum signal level detected by the measuring receiver shall be noted.
8. The measurement shall be repeated with the test antenna set to horizontal polarization.

9. Replace the antenna with a proper antenna (substitution antenna).
10. 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.
11. The substitution antenna shall be connected to a calibrated signal generator.
12. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
13. The test antenna shall be raised and Lowed through the specified range of the height to ensure that the maximum signal is received.
14. 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.
15. 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.
16. The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.
17. The radiation emission was tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
18. The EUT was under working mode during the final qualification test and the configuration was used to represent the worst case results.

11.4 Test Result

Test Frequency : 9kHz ~ 30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency : 30MHz ~ 5GHz

Frequency	Detector	Ant.	Antenna Height	Turntable Angle	Emission Level	Limit	Margin
(MHz)		Pol	(m)	(°)	(dBm)	(dBm)	(dB)
295.1469	Peak	H	1.5	125	-54.10	-13.00	-41.10
531.9635	Peak	V	1.5	136	-47.27	-13.00	-34.27
1158.266	Peak	H	1.5	142	-25.66	-13.00	-12.66
1158.266	Peak	V	1.5	254	-29.73	-13.00	-16.73
1739.597	Peak	H	1.5	252	-19.60	-13.00	-6.60
1739.597	Peak	V	1.5	36	-23.58	-13.00	-10.58
2321.299	Peak	H	1.5	45	-27.17	-13.00	-14.17
2321.299	Peak	V	1.5	258	-35.76	-13.00	-22.76

The measurements not record were more than 20 dB below the limit and not reported.

12 Frequency Stability

Test requirement:	FCC CFR47 Part 2 Section 2.1055(a)(a)
Test method:	Based on ANSI/TIA-603-E:2016
Limit:	According to FCC 74.86(e)(4), the frequency tolerance of the transmitter shall be 0.005 percent.

12.1 Test Configuration

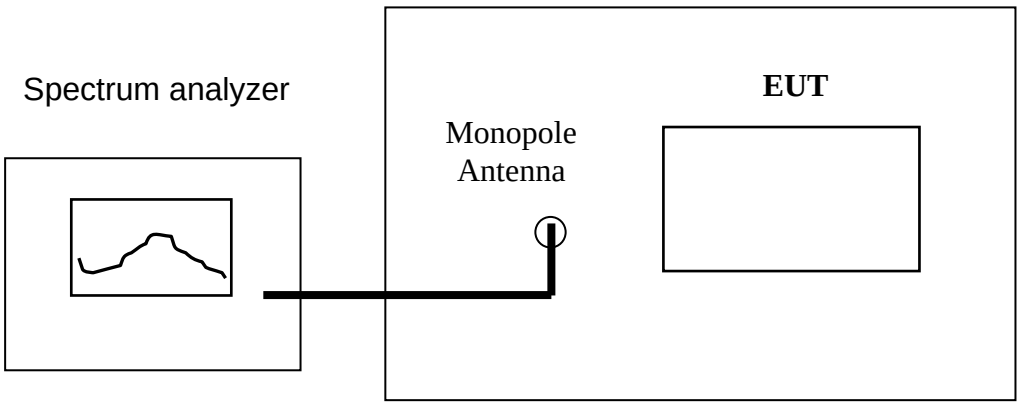


Figure 1

12.2 Test Procedure

A) Frequency stability versus input voltage

1. Setup the configuration per figure 1 for frequencies measured at an environmental chamber whose temperature is set to 20 ºC. Install new batteries in the EUT.
2. Set SA center frequency to the EUT operation frequency. Then set SA RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.
3. Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

B) Frequency stability versus environmental temperature

1. Setup the configuration per figure 1 for frequencies measured at an environmental chamber, Install new batteries in the EUT.
2. Turn on EUT and set SA center frequency to the EUT operation frequency, then set SA RBW to 30kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.
3. Set the temperature of chamber to 50ºC. 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 10ºC decreased per stage until the lowest temperature -30ºC is measured, record all measurement frequencies.

12.3 Test Result

a) Frequency stability versus input voltage

Power Supply	Reference Frequency (MHz)	Environment Temperature (ºC)	Frequency Measured	Frequency Tolerance (%)
3.7V,DC	580.00	20	580.005	0.00086
3.5V,DC	580.00	20	580.008	0.00138
4.2V,DC	580.00	20	580.010	0.00172

b) Frequency stability versus environmental temperature

Limit: 0.005%			
Environment Temperature (ºC)	Power Supply	Frequency Deviation measured with time Elapse(30 minutes)	
50	3.7V,DC	580.013	0.00224
40	3.7V,DC	580.014	0.00241
30	3.7V,DC	580.013	0.00224
20	3.7V,DC	580.022	0.00379
10	3.7V,DC	580.016	0.00276
0	3.7V,DC	580.014	0.00241
-10	3.7V,DC	580.014	0.00241
-20	3.7V,DC	580.005	0.00086
-30	3.7V,DC	580.008	0.00138

Test Result: The max frequency tolerance rating is 0.00379 % < 0.005%. Passed.

13 RF Exposure

Test Requirement: FCC Part 1.1307

Evaluation Method 447498 D01 General RF Exposure Guidance v06

13.1 Requirements

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR where

1. f(GHz) is the RF channel transmit frequency in GHz
2. Power and distance are rounded to the nearest mW and mm before calculation
3. The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

13.2 The procedures / limit

Frequency (GHz)	conducted power (dBm)	conducted power (mW)	Duty cycle	Source-based time-averaged maximum conducted output power (mW)	Minimum test separation distance required for the exposure conditions (mm)	Computed value	SAR Test Exclusion Thresholds(mW)
0.580125	11.04	12.71	1.00	12.71	5	1.9	3

Remark: Max. duty factor is 100% Calculation formula: Source-based time-averaged maximum conducted output power(mW) =Conducted peak power(mW)*Duty factor

======End of Report======