

FCC Radio Test Report

FCC ID: 2AT7G-GTCOM-WM-01

Report No. : TB-FCC168807
Applicant : Global Tone Communication Technology Co., Ltd.
Equipment Under Test (EUT)
EUT Name : wireless microphone
Model No. : GTCOM-WM-01
Serial Model No. : N/A
Brand Name : languagebox
Receipt Date : 2019-09-05
Test Date : 2019-09-05 to 2019-09-26
Issue Date : 2019-09-27
Standards : FCC Part 15, Subpart C (15.236)
Test Method : ANSI C63.10: 2013
Conclusions : **PASS**

In the configuration tested, the EUT complied with the standards specified above,
The EUT technically complies with the FCC requirements

Test/Witness Engineer :  Garen

Engineer Supervisor :  Ivan Su

Engineer Manager :  Ray Lai

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

Contents

CONTENTS.....	2
1. GENERAL INFORMATION ABOUT EUT	5
1.1 Client Information.....	5
1.2 General Description of EUT (Equipment Under Test)	5
1.3 Block Diagram Showing the Configuration of System Tested.....	6
1.4 Description of Support Units	6
1.5 Description of Test Mode.....	6
1.6 Description of Test Software Setting	7
1.7 Measurement Uncertainty	7
1.8 Test Facility.....	8
2. TEST SUMMARY	9
3. TEST EQUIPMENT.....	10
4. CONDUCTED EMISSION TEST	11
4.1 Test Standard and Limit.....	11
4.2 Test Setup.....	11
4.3 Test Procedure.....	11
4.4 EUT Operating Mode	12
4.5 Test Data.....	12
5. RF POWER OUTPUT TEST	13
5.1 Test Standard and Limit.....	13
5.2 Test Setup.....	13
5.3 Test Procedure.....	13
5.4 EUT Operating Condition	13
5.5 Test Data.....	14
6. BANDWIDTH TEST	15
6.1 Test Standard and Requirement.....	15
6.2 Test Setup.....	15
6.2 Test Procedure.....	15
6.3 EUT Operating Condition	15
6.4 Test Data.....	15
7. EMISSION MASK TEST	16
7.1.1 Test Standard.....	16
7.1.2 Test Procedure	16
7.1.3 Test Limit	16
7.2 Test Setup.....	16
7.3 Test Data.....	17
8. RADIATED SPURIOUS EMISSION TEST	18
8.1 Test Standard and Limit.....	18
8.2 Test Setup.....	18
8.3 Test Procedure.....	19

8.4 Test Data..... 19

9. FREQUENCY STABILITY.....20

9.1 Test Standard and Limit..... 20

9.2 Test Setup..... 20

9.3 Test Procedure..... 20

9.4 Test Data..... 20

ATTACHMENT A--AVERAGE POWER OUTPUT TEST DATA.....21

ATTACHMENT B--BANDWIDTH TEST DATA.....22

ATTACHMENT C--EMISSION MASK TEST DATA24

ATTACHMENT D--RADIATED SPURIOUS EMISSION TEST DATE27

Revision History

Report No.	Version	Description	Issued Date
TB-FCC168807	Rev.01	Initial issue of report	2019-09-26

1. General Information about EUT

1.1 Client Information

Applicant	:	Global Tone Communication Technology Co., Ltd.
Address	:	1601, 16th Floor, No. 20 Shijingshan Road, Shijingshan District, Beijing,China
Manufacturer	:	Global Tone Communication Technology Co., Ltd.
Address	:	1601, 16th Floor, No. 20 Shijingshan Road, Shijingshan District, Beijing,China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	wireless microphone
Models No.	:	GTCOM-WM-01
Model Difference	:	N/A
Product Description	:	Operation Frequency: 657.215MHz~662.615MHz
	:	Number of Channel: 19 Channels
	:	Max Power Output: 3.27dBm
	:	Antenna Gain: 0 dBi Spiral Antenna
	:	Modulation Type: DQPSK
	:	Equipment System: Digital systems
Power Rating	:	DC 3.0V by AA Battery*2.
Software Version	:	UD-104R 201908 REV1.1
Hardware Version	:	201902 REV1.7
Connecting I/O Port(S)	:	Please refer to the User's Manual

Note:

Applicable Standards:FCC CFR 47 Part 2, & 15, KDB 206256 D01 vO2, ANSI C63.10- 2013, ANSI C63.26 2015

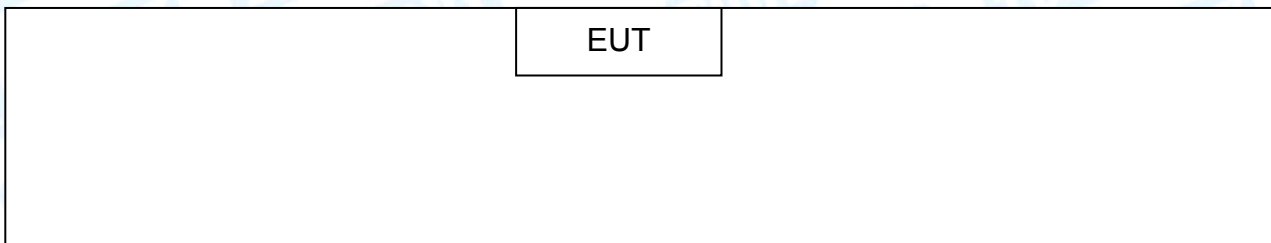
- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(2) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	657.215	06	659.015	17	662.315
01	657.515	07	659.315	18	662.615
02	657.815	----	----		
03	658.115	----->	----		
04	658.415	10	660.215		
05	658.715	----	----		

1.3 Block Diagram Showing the Configuration of System Tested

TX Mode



1.4 Description of Support Units

The EUT has been test as independent unit.

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test	
Final Test Mode	Description
N/A	N/A
For Radiated Test	
Final Test Mode	Description
Mode 1	TX Mode(Channel 00/10/18)

Note:

For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

- (1) According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels.
- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel & Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of RF mode.

1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz	± 3.42 dB
	150kHz to 30MHz	± 3.42 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	± 4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 4.40 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.20 dB

1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.

FCC Accredited Test Site Number: 854351.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

2. Test Summary

FCC Part 15 Subpart C(15.236)			
Standard Section	Test Item	Judgment	Remark
§ 15.236(d)(2)	RF Power Output	PASS	N/A
§ 15.236(f)(2)	Occupied Bandwidth	PASS	N/A
§ 15.236(g) § 8.3 of ETSI EN 300 422-1v1.4.2(2011-08)	Emission Mask	PASS	N/A
§ 15.236(g) § 8.4 of ETSI EN 300 422-1v1.4.2(2011-08)	Radiated Spurious Emission	PASS	N/A
§ 15.207	Line Conducted Emissions	N/A	N/A
§ 15.236(f)(3)	Frequency Stability vs. Temperature Frequency Stability vs. Voltage	PASS	N/A
Note: N/A is an abbreviation for Not Applicable.			

3. Test Equipment

Conducted Emission Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 13, 2019	Jul. 12, 2020
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jul. 13, 2019	Jul. 12, 2020
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 13, 2019	Jul. 12, 2020
LISN	Rohde & Schwarz	ENV216	101131	Jul. 13, 2019	Jul. 12, 2020
Radiation Emission Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 13, 2019	Jul. 12, 2020
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 13, 2019	Jul. 12, 2020
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Jan. 27, 2019	Jan. 26, 2020
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Jan. 27, 2019	Jan. 26, 2020
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.03, 2019	Mar. 02, 2020
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar.03, 2019	Mar. 02, 2020
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jan. 27, 2019	Jan. 26, 2020
Pre-amplifier	Sonoma	310N	185903	Mar.04, 2019	Mar. 03, 2020
Pre-amplifier	HP	8449B	3008A00849	Mar.03, 2019	Mar. 02, 2020
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar.03, 2019	Mar. 02, 2020
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna Conducted Emission					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 13, 2019	Jul. 12, 2020
Spectrum Analyzer	Rohde & Schwarz	ESCI	100010/007	Jul. 13, 2019	Jul. 12, 2020
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 13, 2019	Sep. 12, 2020
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 13, 2019	Sep. 12, 2020
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 13, 2019	Sep. 12, 2020
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 13, 2019	Sep. 12, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 13, 2019	Sep. 12, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 13, 2019	Sep. 12, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 13, 2019	Sep. 12, 2020

4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1 Test Standard: FCC Part 15.207

4.1.2 Test Limit

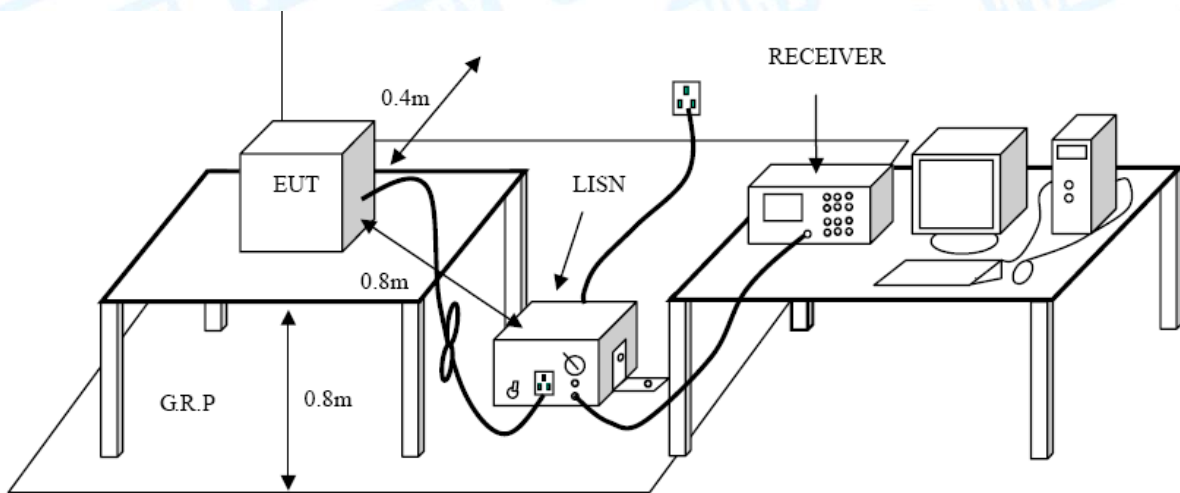
Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN is at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4 EUT Operating Mode

Please refer to the description of test mode.

4.5 Test Data

Dry Battery Power Supply, not applicable.

5. RF Power Output Test

5.1 Test Standard and Limit

5.1.1 Test Standard: FCC Part 15.236(d)(2)

5.1.2 Test Limit

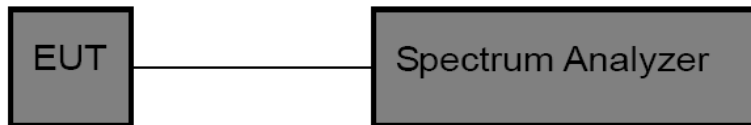
§15.236 Operation of wireless microphones in the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz and 614-698 MHz.

(d) The maximum radiated power shall not exceed the following values:

(2) In the 600 MHz guard band and the 600 MHz duplex gap: 20 mW EIRP.

Power Limit 20mW= 13dBm

5.2 Test Setup



5.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above.

- (1) Set the $RBW \geq \text{Bandwidth}$
- (2) Set $VBW \geq 3 * RBW$
- (3) Set $\text{Span} \geq 3 * RBW$
- (4) Sweep time=auto
- (5) Measurement points $\geq 2 \text{ span} / RBW$
- (6) Detector=Average
- (7) Trace mode= max hold.

Allow trace to fully stabilize, and then use peak marker function to determine the Average amplitude level.

- (8) Radiated RF power= Conduction measurement Level + Ant. Gain

5.4 EUT Operating Condition

The EUT was set to Continual Transmitting in maximum power, and new batteries are used during testing.

5.5 Test Data

Please refer to the Attachment A.

6. Bandwidth Test

6.1 Test Standard and Requirement

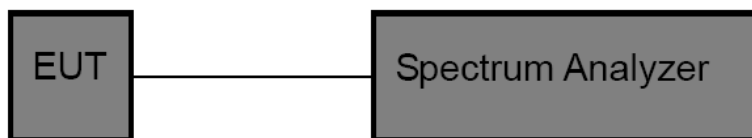
6.1.1 Test Standard: FCC Part 15.236(f)(2)

6.1.2 Test Limit

One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200 kHz.

6.1.3 Requirement: ANSI C63.26 sec. 5.4.3

6.2 Test Setup



6.2 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:
Bandwidth: RBW=10 kHz, VBW=30kHz.
- (3) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.

6.3 EUT Operating Condition

The EUT was set to continuously transmitting for the Bandwidth Test.

6.4 Test Data

Please refer to the Attachment B.

7. EMISSION MASK Test

7.1.1 Test Standard

(g) Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08), *Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement*. Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

7.1.2 Test Procedure

Measure the "Maximum Relative Level (dBc) at Specified Carrier Offsets" with the following spectrum analyser setup:

- Centre Frequency = f_c
- Span $\geq 5 \times B$
- Detector = RMS
- Trace Mode = Peak Hold
- RBW&VBW = 1 kHz
- Sweep time ≥ 2 s

7.1.3 Test Limit

The transmitter output spectrum shall be within the mask defined in figure 4. This mask may also be used for analogue.

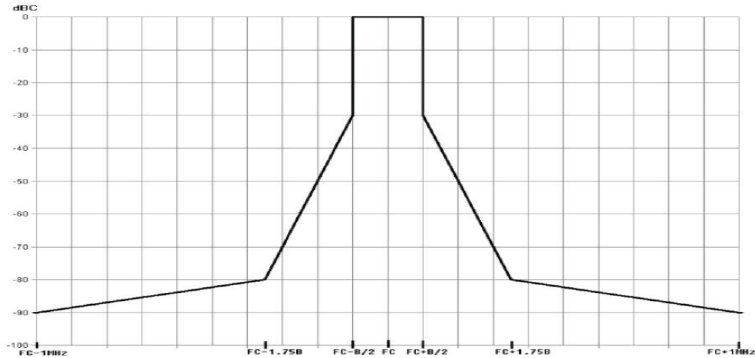
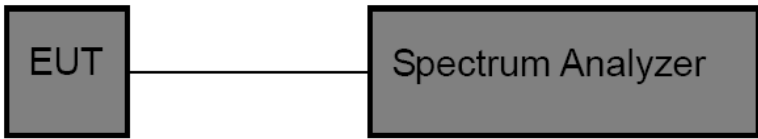


Figure 4: Spectrum mask for digital systems below 1 GHz

7.2 Test Setup



7.3 Test Data

Please refer to the Attachment C.

8. Radiated Spurious Emission Test

8.1 Test Standard and Limit

8.1.1 Test Standard: FCC Part 15.236(g)

Requirement: ETSI EN 300 422-1 V1.4.2

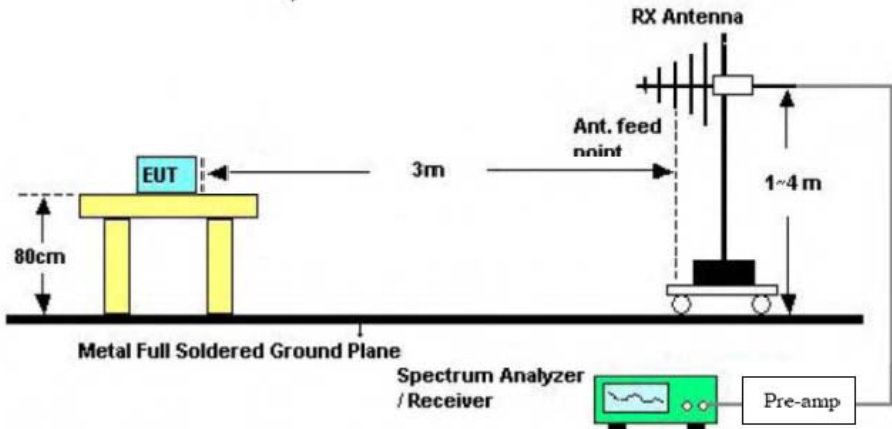
(g) Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in 58.3 of ETSI EN 300 422-1 V1.4.2 (2011-08), *Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement*. Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

8.1.2 Limits

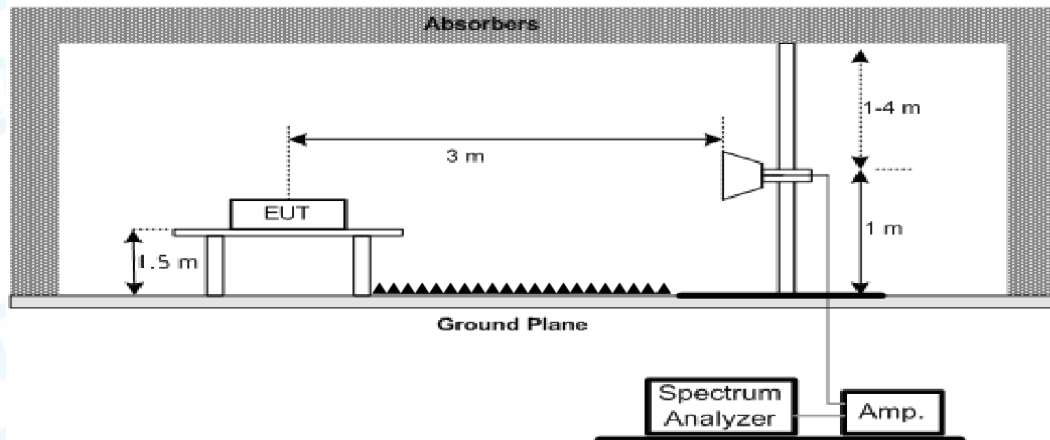
State	Frequency		
	47 MHz to 74 MHz 87,5 MHz to 137 MHz 174 MHz to 230 MHz 470 MHz to 862 MHz	Other Frequencies below 1 000 MHz	Frequencies above 1 000 MHz
Operation	4 nW	250 nW	1 µW
Standby	2 nW	2 nW	20 nW

8.2 Test Setup

A. Radiated Emission Test Set-Up Frequency Bellow 1 GHz.



B. Radiated Emission Test Set-Up Frequency Above 1 GHz.



8.3 Test Procedure

1. The EUT was placed on the top of the turntable in chamber.
2. The test shall be made in the transmitting mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. This measurement shall be repeated with the transmitter in standby mode where applicable.
4. For spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable.
5. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
6. Replace the EUT by standard antenna and feed the RF port by signal generator.
7. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
8. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
9. The level of the spurious emission is the power level of (8) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.
10. The measurement shall be repeated at the lowest and the highest channel of the stated frequency range.

8.4 Test Data

Please refer to the Attachment D.

9. Frequency stability

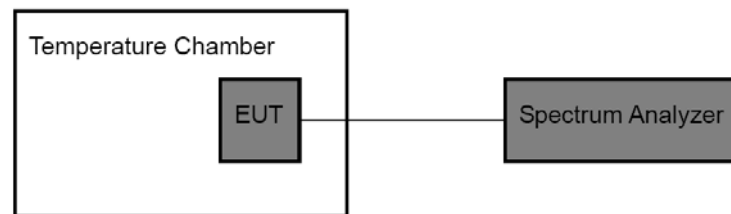
9.1 Test Standard and Limit

9.1.1 Test Standard: FCC 15.236(f)(3)

9.1.2 Test Limit

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.005\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery.

9.2 Test Setup



9.3 Test Procedure

The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 °C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15-second intervals. The worst case number used in the table below. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -20 °C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15-second intervals. The worst-case number was again used in the table below. This procedure was repeated in 10-degree increments up to $+50$ °C.

9.4 Test Data

Please refer to the Attachment E.

Attachment A--Average Power Output Test Data

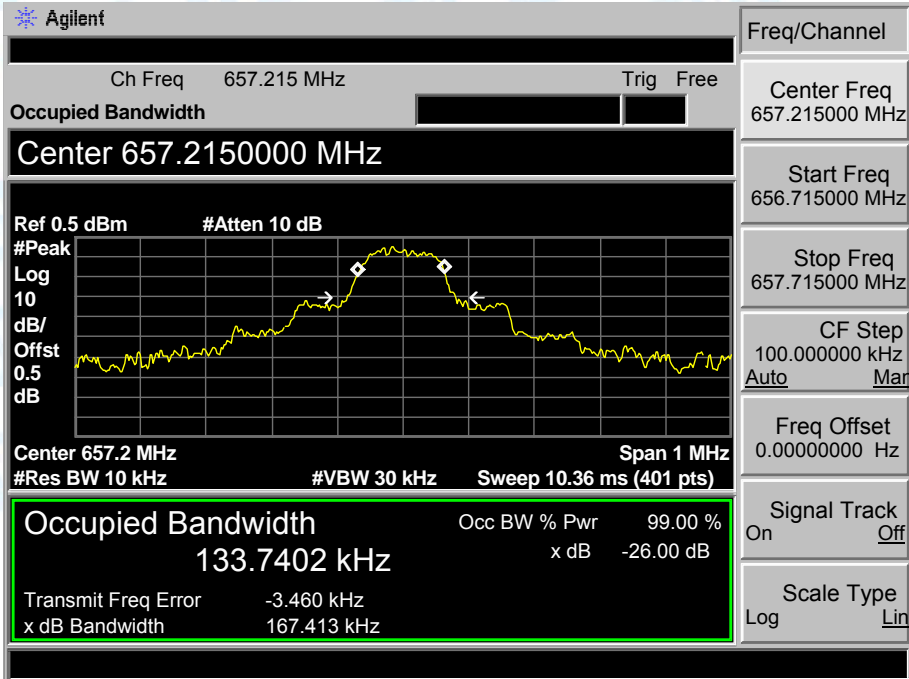
Frequency (MHz)	Conduction measurement Level (dBm)	Ant. Gain(dBi)	Radiated RF power(dBm)	limit (dBm)	Margin (dB)
657.215	3.20	0.00	3.20	13	-9.80
660.215	3.14	0.00	3.14		-9.86
662.615	3.27	0.00	3.27		-9.73

Note: Radiated RF power= Conduction measurement Level + Ant. Gain

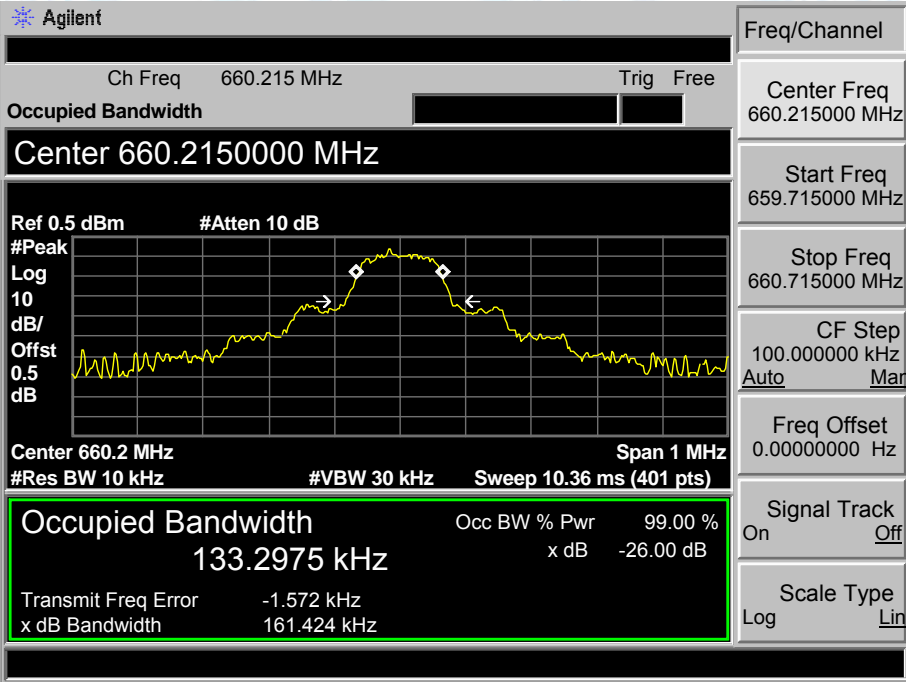
Attachment B--Bandwidth Test Data

Channel Frequency (MHz)	99% Bandwidth (KHz)	26dB Bandwidth (KHz)
657.215	133.7402	167.413
660.215	133.2975	161.424
662.615	134.8262	171.823

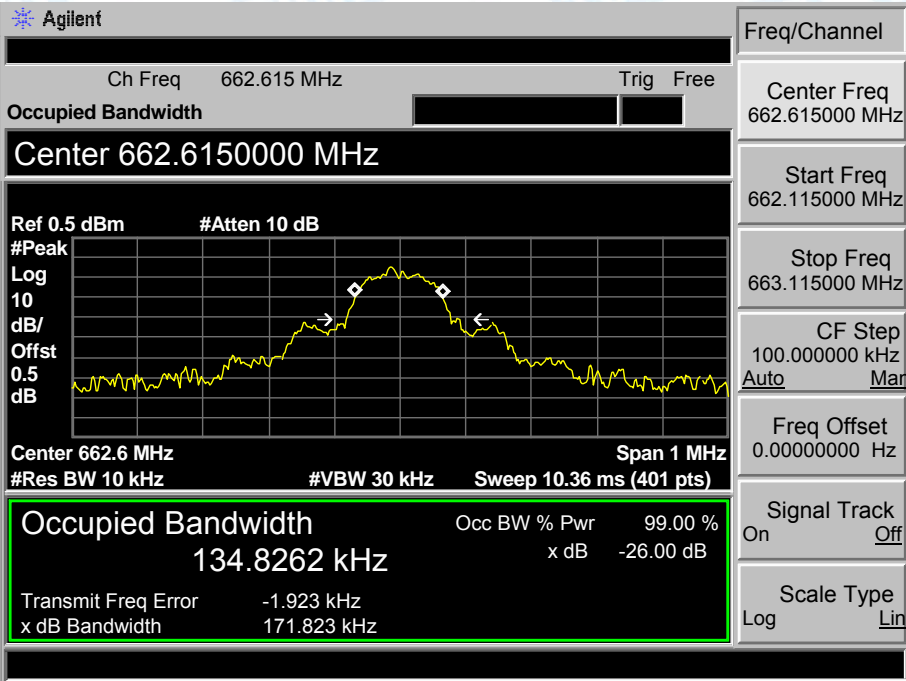
657.215 MHz



660.215 MHz

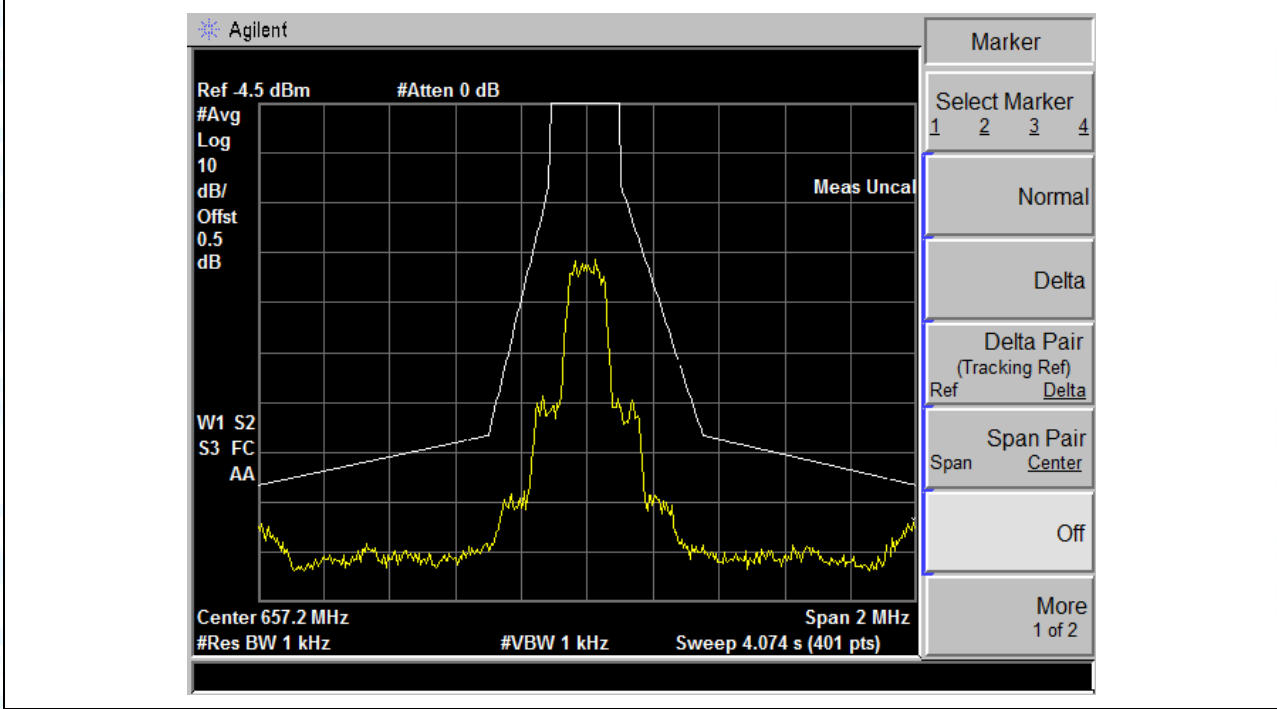


662.615 MHz

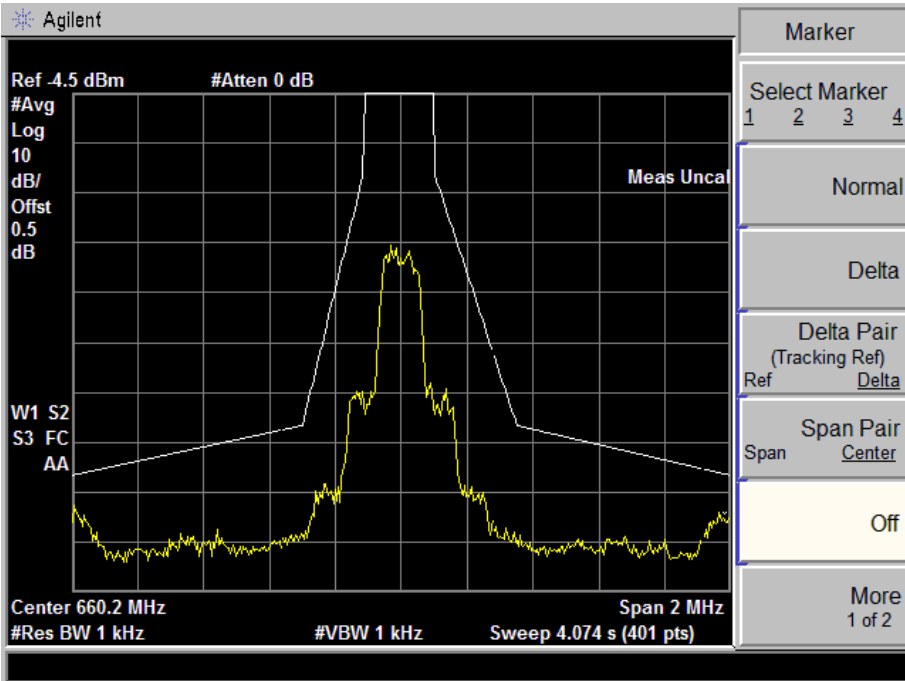


Attachment C--EMISSION MASK Test Data

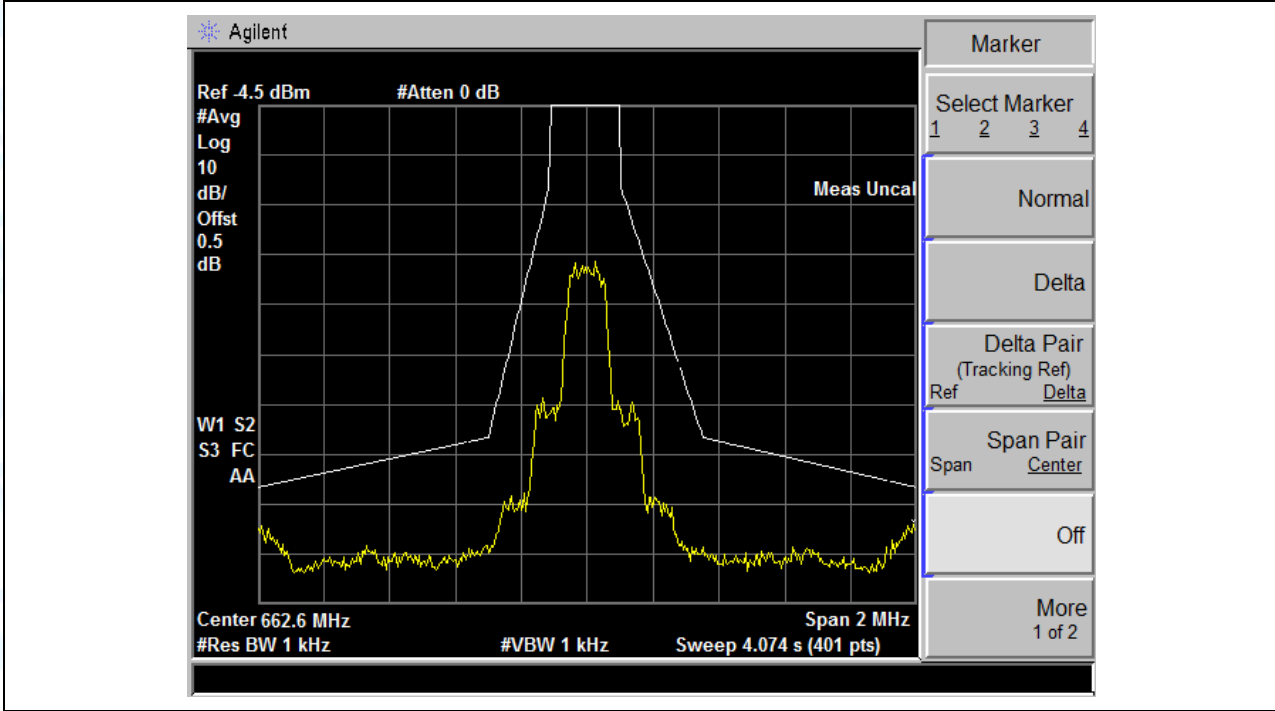
Temperature:	26°C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Voltage :	DC 3.0V (Normal)
Test Mode :	TX 657.215 MHz		
Result:	PASS		



Temperature:	26°C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Voltage :	DC 3.0V (Normal)
Test Mode :	TX 660.215 MHz		
Result:	PASS		



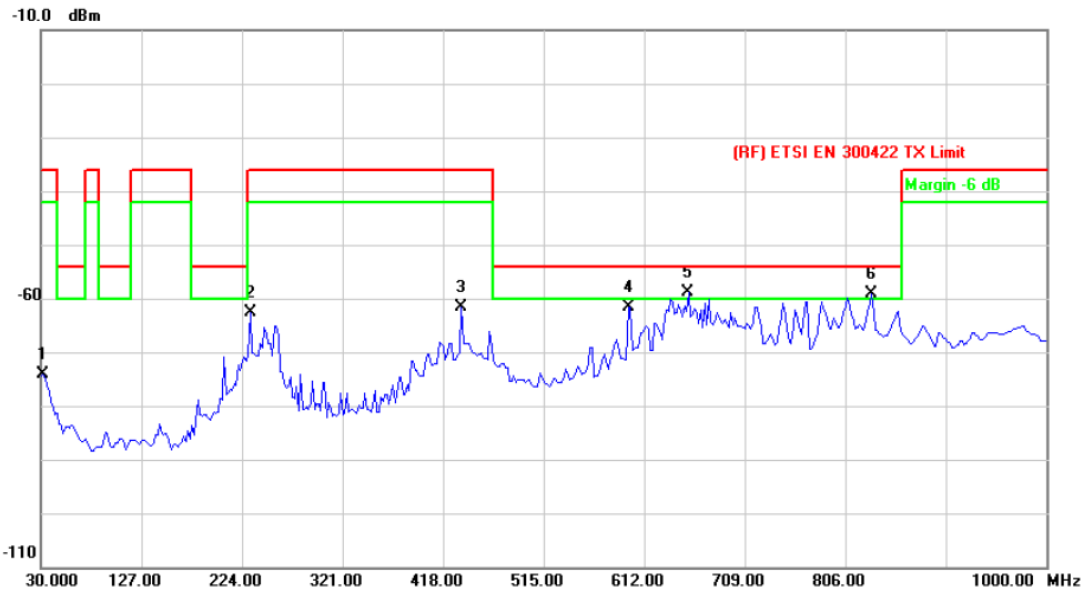
Temperature:	26°C	Relative Humidity:	60%
Pressure:	1010 hPa	Test Voltage :	DC 3.0V (Normal)
Test Mode :	TX 662.615 MHz		
Result:	PASS		



Attachment D--Radiated Spurious Emission Test Date

Below 1 GHz

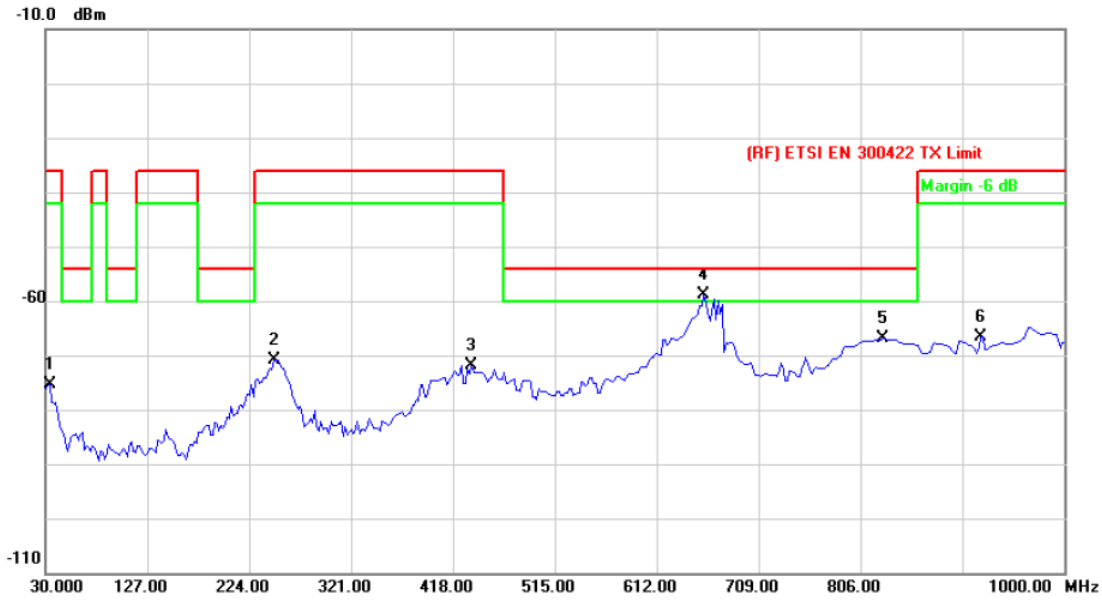
Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.0V		
Ant. Pol.	Horizontal		
Test Mode:	TX Mode 662.615 MHz		
Remark:	All channels were tested and only the worst channels were shown in the report.		



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector
1		31.9400	-74.30	0.15	-74.15	-36.00	-38.15	peak
2		233.6999	-63.84	1.20	-62.64	-36.00	-26.64	peak
3		437.3999	-64.04	2.53	-61.51	-36.00	-25.51	peak
4		598.4198	-64.80	3.09	-61.71	-54.00	-7.71	peak
5	*	654.6799	-64.56	5.79	-58.77	-54.00	-4.77	peak
6	!	831.2199	-67.28	8.18	-59.10	-54.00	-5.10	peak

Emission Level= Read Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.0V		
Ant. Pol.	Vertical		
Test Mode:	TX Mode 662.615 MHz		
Remark:	All channels were tested and only the worst channels were shown in the report.		



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector
1		33.8800	-66.31	-9.13	-75.44	-36.00	-39.44	peak
2		247.2800	-63.58	-7.19	-70.77	-36.00	-34.77	peak
3		437.3999	-69.15	-2.76	-71.91	-36.00	-35.91	peak
4	*	656.6200	-61.35	2.46	-58.89	-54.00	-4.89	peak
5		827.3400	-71.27	4.34	-66.93	-54.00	-12.93	peak
6		922.3999	-76.68	10.05	-66.63	-36.00	-30.63	peak

Emission Level= Read Level+ Correct Factor

Above 1 GHz

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.0V		
Ant. Pol.	Horizontal & Vertical		
Test Mode:	TX Mode 657.215MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBm)	Correction Factor (dB/m)	Emission Level	Peak limit (dBm)	Peak Margin (dB)
				Peak (dBm)		
1314.43	H	-44.24	3.57	-40.67	-30	-10.67
1971.65	H	-48.11	9.42	-38.69	-30	-8.69
---	H	---	---	---	---	---
1314.43	V	-45.59	3.57	-42.02	-30	-12.02
1971.65	V	-49.33	9.42	-39.91	-30	-9.91
---	V	---	---	---	---	---

Emission Level= Emission Level+ Correct Factor

Temperature:	25 °C		Relative Humidity:	55%		
Test Voltage:	DC 3.0V					
Ant. Pol.	Horizontal & Vertical					
Test Mode:	TX Mode 660.215MHz					
Remark:	No report for the emission which more than 20 dB below the prescribed limit.					
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBm)	Correction Factor (dB/m)	Emission Level	Peak limit (dBm)	Peak Margin (dB)
				Peak (dBm)		
1320.43	H	-45.17	3.57	-41.6	-30	-11.6
1980.65	H	-48.69	9.42	-39.27	-30	-9.27
---	H	---	---	---	---	---
1320.43	V	-46.41	3.57	-42.84	-30	-12.84
1980.65	V	-50.56	9.42	-41.14	-30	-11.14
---	V	---	---	---	---	---

Emission Level= Emission Level+ Correct Factor

Temperature:	25 °C	Relative Humidity:	55%
Test Voltage:	DC 3.0V		
Ant. Pol.	Horizontal & Vertical		
Test Mode:	TX Mode 662.615MHz		
Remark:	No report for the emission which more than 20 dB below the prescribed limit.		

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBm)	Correction Factor (dB/m)	Emission Level	Peak limit (dBm)	Peak Margin (dB)
				Peak (dBm)		
1325.23	H	-43.13	3.57	-39.56	-30	-9.56
1987.85	H	-46.3	9.42	-36.88	-30	-6.88
---	H	---	---	---	---	---
1325.23	V	-45.58	3.57	-42.01	-30	-12.01
1987.85	V	-49.59	9.42	-40.17	-30	-10.17
---	V	---	---	---	---	---

Emission Level= Emission Level+ Correct Factor

Attachment E--Frequency Stability Test Data

Pressure:	1010 hPa	Test Voltage :	DC 3.0V (Normal)
Test Mode :	TX 660.215MHz (Modulation)		
Remark:	All channels were tested and only the worst channels were shown in the report.		
Test Conditions	Measurement Frequency(MHz)	Test Voltage	Measurement Frequency(MHz)
-30° C	660.215	85%	660.215
-20° C	660.215	90%	660.215
-10° C	660.215	95%	660.215
0° C	660.215	100%	660.215
10° C	660.215	105%	660.215
20° C	660.215	110%	660.215
30° C	660.215	115%	660.215
40° C	660.215		
50° C	660.215		
Max. Deviation Frequency			0.000
Max. Frequency Error (ppm)			0.00
Limits			±0.005%
Result			PASS

-----END OF REPORT-----