



FCC&IC RF Test Report

Product Name: Wireless Modem

Model Number: E583C

Report No: SYBHZ(R)008092010EB-7

FCC ID: QISE583C-52

IC:6369A-E583C

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Notice 2

Modification Information:

Table 1 Modification Information

Modification Information	1	
	2	
	3	<i>Not Applicable!</i>
	4	
	5	
	6	
	7	



Contents

1	<u>Summary</u>	6
2	<u>Product Description</u>	7
2.1	PRODUCTION INFORMATION	7
3	<u>Test Site Description</u>	8
3.1	TESTING PERIOD	8
3.2	GENERAL SET UP DESCRIPTION	8
4	<u>Product Description</u>	9
4.1	TECHNICAL CHARACTERISTICS	9
4.2	EUT IDENTIFICATION LIST	11
5	<u>Main Test Instruments</u>	12
6	<u>Transmitter Measurements</u>	13
6.1	6dB BANDWIDTH MEASUREMENT	13
6.2	PEAK OUTPUT POWER	15
6.3	BAND EDGE SPURIOUS EMISSION	17
6.4	CONDUCTED RF SPURIOUS	19
6.5	POWER SPECTRAL DENSITY	21
6.6	RADIATED SPURIOUS EMISSION & SPURIOUS IN RESTRICTED BAND	23
6.7	CONDUCTED EMISSION AT POWER PORT	26
7	<u>System Measurement Uncertainty</u>	28
8	<u>Appendices</u>	29



1 Summary

The table below summarizes the measurements and results for the Wireless Modem E583C. Detailed results and descriptions are shown in the following pages.

Table 2 Summary of results

FCC Measurement Specification	Description	Result
15.247 (a) (2)	6dB bandwidth measurement	PASS
15.247 (b) (3)	Conducted Peak output power	PASS
15.247 (d)	Band edge compliance measurement	PASS
15.247 (d)	Conducted RF spurious	PASS
15.247 (e)	Power spectral density	PASS
15.247 (d) / 15.205 & 15.209	Radiated spurious emission & Radiated restricted band measurement	PASS
15.207	Conducted emission test for power port	PASS



2 Product Description

2.1 Production Information

2.1.1 General Description

E583C is a UMTS/GSM Wireless Modem It can be used as a WiFi Access Point, Max to 5 WiFi stations can be associating with E583C simultaneity. It also can be used as a USB modem by connecting with PC via USB cable. It supports wireless internet accessing function. The data service rate is HSUPA 5.75Mbps, and HSDPA 7.2Mbps. The WCDMA frequency is BAND I and BAND IV. The GPRS/EDGE frequency is 850/900/1800/1900 MHz, but only WCDMA BAND IV、GSM850 and PCS1900 test data included in this report. The WiFi frequency is 2.4G.

Note: Only WLAN function was considered in this report.

2.1.2 Support function and Service

The Wireless Modem E583C (EUT) support the function and service as follows:

Table 3 Service and Test mode List

Service Name	mode	Characteristic	Corresponding Test Mode	Note
Data	DSSS	Modulation: QPSK	TM1	
Data	OFDM	Modulation: 64QAM	TM2	



3 Test Site Description

The test site of:

***Huawei Technologies Co. Ltd.
P.O. Box 518129
Huawei base, bantian,
Longgang District, Shenzhen, China***

3.1 Testing Period

The test have been performed during the period of

Sep.01, 2010 to Sep.08, 2010

3.2 General Set up Description

The WLAN digitally modulated systems of the EUT can Support 2.4GHz Band. For compliance with FCC regulation 47CFR part15 subpart C and IC RSS-210 Issue 7, we set the EUT as following test modes to do all compliance tests.

WLAN MODE:

TM1: DSSS mode ,QPSK Modulation,11Mbps data rate

TM2: OFDM mode,64QAM Modulation,54 Mbps data rate



4 Product Description

4.1 Technical Characteristics

4.1.1 Frequency Range

Table 4 Frequency Range

Uplink band:	2400 to 2483.5 MHz	
Downlink band:	2400 to 2483.5 MHz	
Hop frequency support:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO

4.1.2 Channel Spacing / Separation

Table 5 Channel Spacing / raster

Channel spacing:	22 MHz
Channel raster:	5 MHz

4.1.3 Type of Emission

Table 6 Type of Emission

Emission Designation:	-
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According to CFR 47 (FCC) part 2, subpart C, section 2.201 and 2.202 and IC RSS-210 Issue 7

4.1.4 Antenna Information

Table 7 Antenna Information

Type:	Integrated / Internal
Maximum Gain(dBi):	1.0 (from 2400MHz to 2500MHz)

4.1.5 Environmental Requirements

Table 8 Environmental Requirements

Minimum temperature:	- 10 °C
Maximum temperature:	+ 45 °C
Relative Humidity:	5%-95%

4.1.6 Power Source

Table 9 Power Source

AC voltage nominal:	~120V
AC voltage range	~100V-240V
AC current maximal:	0.2A

4.1.7 Tune-up Procedure

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (9) and IC RSS-210 Issue 7.

Please reference the document Tune-up Procedure in TCF.

4.1.8 Applied DC Voltages and Currents

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8) and IC RSS-210 Issue 7.

The voltage and current in the final RF stage is:

Table 10 Applied RF module DC Voltages and Currents

Voltage:	 2.85V
Current:	100mA According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8)
	100mA IC According to RSS-210 Issue 7

4.2 EUT Identification List

4.2.1 Board Information

Table 11 Board Information

E583C Wireless Modem		
E583C		
Board and Module		
Equipment Designation / Description	Hardware Version	Remarks
MAINBOARD	WL1E583CT	E583C

4.2.2 Adapter Technical Data

AC/DCAdapter Model	HW-050100U1W
Manufacturer	Shen Zhen Huntkey Power Technology Co.,Ltd
Input Voltage	100-240V ~50/60Hz 0.2 A
Output Voltage	5V 1A
Rated Power	<3.5W
S/N	HKAA51085276

AC/DCAdapter Model	HW-050100U1W
Manufacturer	TECH-POWER INTERNATIONAL CO.,LTD
Input Voltage	100-240V ~50/60Hz 0.2 A
Output Voltage	5V 1A
Rated Power	<3.5W
S/N	TPAA62900079

4.2.3

Type:	Rechargeable Li-ion
Manufacturer:	Huawei Technologies Co., Ltd.
Battery Model:	HB7A1H
Rated capacity:	1400mAh
Nominal Voltage:	+3.7V
Charging Voltage:	+4.2V

4.2.4 FCC/IC Identification

Grantee Code: QIS
Product Code: E583C-52
FCC Identification: QISE583C-52
IC Identification: 6369A-E583C

5 Main Test Instruments

Table 12 Main Test Equipments

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until (MM.DD.YYYY)
Signal Analyzer	R&S	FSQ 40	100025	10.05.2010
Spectrum Analyzer	Agilent	E4440A	NA	07.26.2011
Test Receiver RF Unit	R&S	ESMI 1032.5640.53	829179/008	05.12.2011
Receiver	R&S	ESCS30	830245/018	04.21.2011
Pre-Amplifier	Agilent	8447D	2944A10146	05.11.2011
Pre-Amplifier	Agilent	83017A	3950M00246	04.04.2011
BiLog Antenna	Schaffner	CBL 6112B	2536	06.07.2011
Horn Antenna	R&S	HF906 4044.4507.02	359287/006	12.13.2010
Horn Antenna	ETS-Lindgren	3117	00062553	07.15.2011
Horn Antenna	ETS-Lindgren	3160	00060006	08.02.2011
Signal Generator	R&S	SMR 40	100325	05.12.2011
Artificial Mains Network	R&S	ENV4200	100001	05.11.2011
Universal Radio Communication Tester	R&S	CMU200	108035	08.21.2011



6 Transmitter Measurements

6.1 6dB bandwidth measurement

6.1.1 Test Conditions

Table 13 Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	23.5 °C
Relative humidity:	55%
Test Configurations:	TM1/TM2 at channel No.1, 6, 11

6.1.2 Test Specifications and Limits

6.1.2.1 Specification

CFR 47 (FCC) part 15.247 (a) (2) and KDB 558074
 IC RSS-210 Issue 7

6.1.2.2 Supporting Standards

Table 14 Supporting Standards:

ANSI/TIA-603-C:2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
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6.1.2.3 Limits

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Table 15 Limits

Limits	≥ 500kHz
--------	----------

6.1.3 Test Method and Setup

- (a) Connect test port of EUT to spectrum analyzer.
- (b) Set the EUT to transmit maximum output power at 2.4GHz, then set the measured frequency number and test the 6dB bandwidth with spectrum analyzer.

Test setup

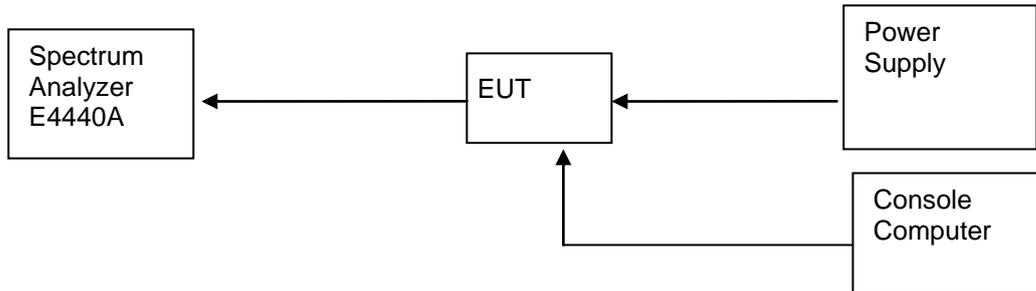


Figure 1. Test Set-up

6.1.4 Measurement Results

Table 16 Measurement Results

Test condition	Channel Position	Bandwidth Type	Channel Number	Frequency [GHz]	Measured Bandwidth [MHz]	Result
TM1	B	6dB Bandwidth	1	2.412	9.51	Pass
	M	6dB Bandwidth	6	2.437	9.81	Pass
	T	6dB Bandwidth	11	2.462	9.47	Pass
TM2	B	6dB Bandwidth	1	2.412	16.16	Pass
	M	6dB Bandwidth	6	2.437	15.92	Pass
	T	6dB Bandwidth	11	2.462	15.81	Pass

6.1.5 Conclusion

The equipment **PASSED** the requirement of this clause.
 For the measurement results refer to appendix A.



6.2 Peak output power

6.2.1 Test Conditions

Table 17 Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	23.5°C
Relative humidity:	55 %
Test Configurations:	TM1/TM2 at channel No.1, 6, 11

6.2.2 Test Specifications and Limits

6.2.2.1 Specification

CFR 47 (FCC) part 15.247 (b) (3) and KDB 558074
 IC RSS-210 Issue 7

6.2.2.2 Supporting Standards

Table 18 Supporting Standards:

ANSI C63.10	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
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6.2.2.3 Limits

Compliance with part 15.247 (b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level.

Table 19 Limits

2.4GHz and 5.8GHz system using digital modulation	1 Watt / 30 dBm
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6.2.3 Test Method and Setup

- (a) Connect test port of EUT to spectrum analyzer.
- (b) Set the EUT to transmit maximum output power.
- (c) Then set the EUT to transmit at high, middle and low frequency and measure the conducted output power separately.

Test setup

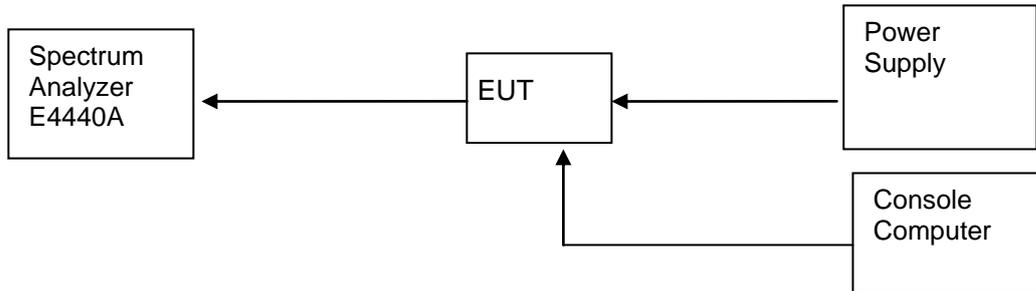


Figure 2. Test Set-up

6.2.4 Measurement Results

Table 20 Measurement Results

Test condition	Channel	Channel No.	Center Freq.[MHz]	Meas. Level (Cond.) [dBm]	Limit [dBm]	Result
TM1	Bottom	1	2412	16.54	< 30	Pass
	Middle	6	2437	16.52	< 30	Pass
	Top	11	2462	16.57	< 30	Pass
TM2	Bottom	1	2412	13.94	< 30	Pass
	Middle	6	2437	13.97	< 30	Pass
	Top	11	2462	14.06	< 30	Pass

6.2.5 Conclusion

The equipment **PASSED** the requirement of this clause.
 For the measurement results refer to appendix B.



6.3 Band edge spurious emission

6.3.1 Test Conditions

Table 21 Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	20°C
Relative humidity:	50 %
Test Configurations:	TM1/TM2 at channel No. 1, 11

6.3.2 Test Specifications and Limits

6.3.2.1 Specification

CFR 47 (FCC) part 15.247(d) and KDB 558074
 IC RSS-210 Issue 7

6.3.2.2 Supporting Standards

Table 22 Supporting Standards:

ANSI C63.10	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
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6.3.2.3 Limits

Compliance with part 15.247 (d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required.

Table 23 Limits

Band edge spurious:	20 dBc/100kHz
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6.3.3 Test Method and Setup

- (a) Connect test port of EUT to spectrum analyzer
- (b) Set the EUT to transmit maximum output power at 2.4GHz
- (c) Then set the EUT to transmit at high, low frequency and measure the conducted band edge spurious separately.

Test setup

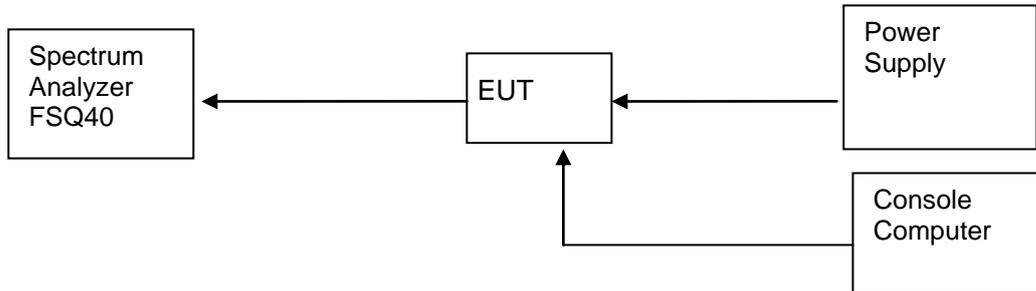


Figure 3. Test Set-up

6.3.4 Measurement Results

Table 24 Measurement Results

Test condition		Channel No.	Carrier Frequency [MHz]	Carrier Power [dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Result
TM1	Low Edge	1	2412	8.88	-31.42	-11.12	Pass
	High Edge	11	2462	9.08	-49.99	-10.92	Pass
TM2	Low Edge	1	2412	2.69	-33.31	-17.31	Pass
	High Edge	11	2462	2.98	-47.26	-17.02	Pass

6.3.5 Conclusion

The equipment **PASSED** the requirement of this clause.
 For the measurement results refer to appendix C.



6.4 Conducted RF spurious

6.4.1 Test Conditions

Table 25 Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	22 °C
Relative humidity:	53 %
Test Configurations:	TM1/TM2 at channel No.1, 6, 11

6.4.2 Test Specifications and Limits

6.4.2.1 Specification

CFR 47 (FCC) part 15.247 (d) and KDB 558074
 IC RSS-210 Issue 7

6.4.2.2 Supporting Standards

Table 26 Supporting Standards:

ANSI C63.10	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
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6.4.2.3 Limits

Compliance with part 15.247 (d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required.

Table 27 Limits

Band edge spurious:	20 dBc/100kHz
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6.4.3 Test Method and Setup

- (a) Connect test port of EUT to spectrum analyzer
- (b) Set the EUT to transmit maximum output power at 2.4GHz and.
- (c) Then set the EUT to transmit at high, middle and low frequency and measure the conducted band edge spurious separately.

Test setup

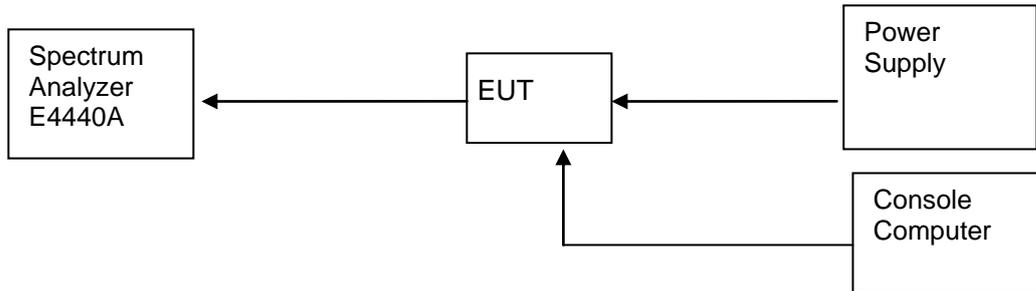


Figure 4. Test Set-up

6.4.4 Measurement Results

Table 28 Measurement Results

Test condition	Test Frequency Range	Channel No.	Carrier Frequency [MHz]	Carrier Power [dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Result
TM1	9kHz-26GHz	1	2412	3.02	-38.91	-16.98	Pass
	9kHz-26GHz	6	2437	4.71	-37.13	-15.29	Pass
	9kHz-26GHz	11	2462	3.09	-35.79	-16.91	Pass
TM2	9kHz-26GHz	1	2412	2.10	-36.97	-17.90	Pass
	9kHz-26GHz	6	2437	1.15	-39.08	-18.85	Pass
	9kHz-26GHz	11	2462	1.82	-35.46	-18.18	Pass

6.4.5 Conclusion

The equipment **PASSED** the requirement of this clause.
 For the measurement results refer to appendix D.



6.5 Power spectral density

6.5.1 Test Conditions

Table 29 Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	22 °C
Relative humidity:	53 %
Test Configurations:	TM1/TM2 at channel No.1, 6, 11

6.5.2 Test Specifications and Limits

6.5.2.1 Specification

CFR 47 (FCC) part 15.247 (e) and KDB 558074
 IC RSS-210 Issue 7

6.5.2.2 Supporting Standards

Table 30 Supporting Standards:

ANSI C63.10	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
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6.5.2.3 Limits

Compliance with part 15.247 (e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. The same method of determining the conducted output power shall be used to determine the power spectral density.

Table 31 Limits

Band edge spurious:	8 dBm/3kHz
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6.5.3 Test Method and Setup

- (a) Connect test port of EUT to spectrum analyzer
- (b) Set the EUT to transmit maximum output power at 2.4GHz and.
- (c) Then set the EUT to transmit at high, middle and low frequency and measure the conducted band edge spurious separately.

Test setup

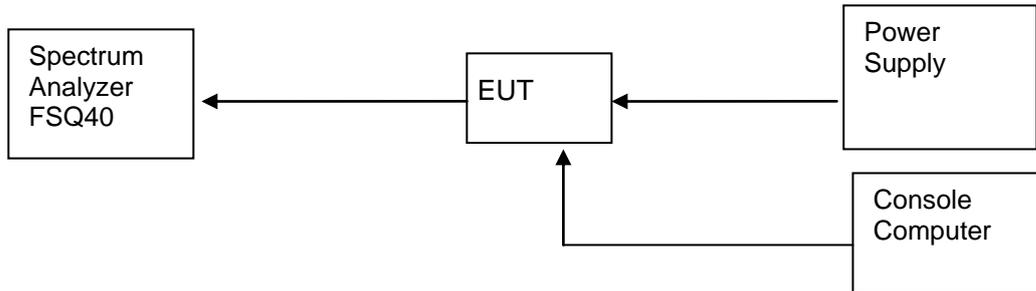


Figure 5. Test Set-up

6.5.4 Measurement Results

Table 32 Measurement Results

Test condition	Channel No.	Carrier Frequency [MHz]	Measured Power spectral density [dBm]	Limit [dBm]	Result
TM1	1	2412	-8.41	8	Pass
	6	2437	-8.46	8	Pass
	11	2462	-9.42	8	Pass
TM2	1	2412	-10.69	8	Pass
	6	2437	-10.52	8	Pass
	11	2462	-8.56	8	Pass

6.5.5 Conclusion

The equipment **PASSED** the requirement of this clause.
 For the measurement results refer to appendix E.

6.6 Radiated spurious emission & spurious in restricted band

6.6.1 Test Conditions

Table 33 Test Conditions

Preconditioning:	0.5 hour
Measured at:	enclosure
Ambient temperature:	25 °C
Relative humidity:	55 %
Test Configurations:	TM1/TM2 at channel No.1, 6, 11

6.6.2 Test Specifications and Limits

6.6.2.1 Specification

CFR 47 (FCC) part 15.247 (d), 15.205 & 15.209 and KDB 558074
 IC RSS-210 Issue 7

6.6.2.2 Supporting Standards

Table 34 Supporting Standards:

ANSI C63.10	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
ANSI C63.4: 2003	Methods of Measurement of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

6.6.2.3 Limits

According to part 15.247 (d) / 15.205 & 15.209, all spurious emission in the frequency range from 30MHz to 10th harmonics of carrier frequency should be meet the requirement of following table.

Table 35 Limits

Frequency (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance (meters)	Detector
0.009 - 0.490	2400/F(kHz)	20*lg(2400/F(kHz))	300	QP
0.490 - 1.705	24000/F(kHz)	20*lg(24000/F(kHz))	30	QP
1.705 - 30	30	29.5	30	QP
30 – 88	100	40	3	QP
88 – 216	150	43.5	3	QP
216 – 960	200	46	3	QP
960 -1000	500	54	3	QP
Above 1000	500	54	3	PK

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table 42).

6.6.3 Test Method and Setup

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4 (2003). The EUT was set-up on insulator 80cm above the Ground Plane. The

set-up and test methods were according to ANSI C63.4. The Radiated Disturbance measurements were made using a Rohde and Schwarz Test Receiver and control software.

A preliminary scan and a final scan of the emissions were made by using test script of software; the emissions were measured using a Quasi-Peak Detector below 1GHz, and AV detector above 1GHz. The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0° to 360°, The receive antenna has two polarizations V and H.

The EUT was communicated with the BTS simulator through Air interface. The EUT operated on the typical channel.

Measurement bandwidth: 30 MHz – 1000 MHz: 120 kHz

Measurement bandwidth: 1000 MHz – 10th Carrier Frequency: 1 MHz

Test set up

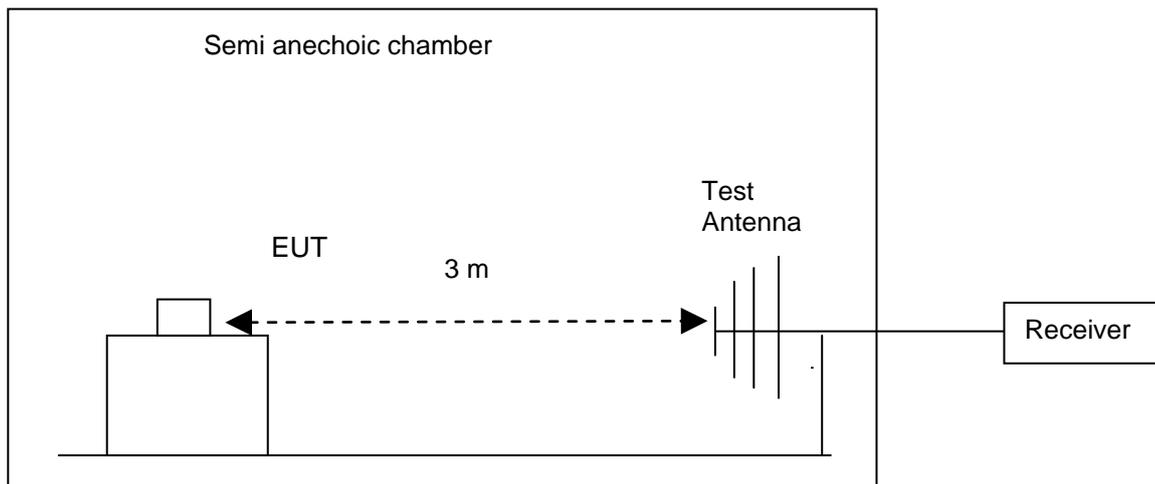


Figure 6. Test Set up

6.6.4 Measurement Results

Note 1: The following measurement results exceed the limit line is the carrier frequency.

Note 2: This test was carried out in all the test modes, here only the worst test result was shown.

Measured Result of channel: 1 (2412MHz)

Table 36 MEASUREMENT RESULT

Frequency (MHz)	Level (dBμV/m)	Transd (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Polarisation
34.620000	24.80	11.7	40.0	15.2	100.0	98.00	VERTICAL
96.000000	34.10	12.8	43.5	9.4	100.0	95.00	VERTICAL
172.800000	32.70	10.3	43.5	10.8	143.0	216.00	HORIZONTAL
211.200000	27.70	12.6	43.5	15.8	145.0	316.00	HORIZONTAL
288.000000	31.30	15.2	46.0	14.7	100.0	123.00	HORIZONTAL
938.220000	37.50	26.5	46.0	8.5	289.0	36.00	VERTICAL
1252.500000	14.80	-16.1	54.0	39.2	100.0	315.00	VERTICAL
2415.000000	35.20	-11.5	54.0	18.8	100.0	324.00	HORIZONTAL
3684.000000	24.40	-6.7	54.0	29.6	191.0	233.00	VERTICAL
4826.000000	27.00	-4.1	54.0	27.0	100.0	0.00	HORIZONTAL
7644.000000	27.60	1.7	54.0	26.4	124.0	45.00	VERTICAL
13819.000000	33.30	10.4	54.0	20.7	100.0	360.00	VERTICAL



2310.000000	38.60	36.8	54.0	15.4	120.0	30.00	HORIZONTAL
2483.500000	39.10	37.8	54.0	14.9	100.0	300.00	HORIZONTAL
2390.000000	48.10	33.5	54.0	5.9	150.0	326.00	HORIZONTAL
2500.000000	39.00	37.9	54.0	15.0	110.0	210.00	HORIZONTAL

Measured Result of channel: 7 (2442MHz)

Table 37 MEASUREMENT RESULT

Frequency (MHz)	Level (dBμV/m)	Transd (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Polarisation
34.620000	24.80	11.7	40.0	15.2	100.0	98.00	VERTICAL
96.000000	34.10	12.8	43.5	9.4	100.0	95.00	VERTICAL
172.800000	32.70	10.3	43.5	10.8	143.0	216.00	HORIZONTAL
211.200000	27.70	12.6	43.5	15.8	145.0	316.00	HORIZONTAL
288.000000	31.30	15.2	46.0	14.7	100.0	123.00	HORIZONTAL
938.220000	37.50	26.5	46.0	8.5	289.0	36.00	VERTICAL
1411.000000	15.60	-15.6	54.0	38.4	100.0	240.00	VERTICAL
2448.500000	32.60	-11.4	54.0	21.4	100.0	308.00	HORIZONTAL
3605.000000	24.20	-7.0	54.0	29.8	191.0	187.00	HORIZONTAL
7546.000000	28.10	1.6	54.0	25.9	177.0	31.00	VERTICAL
14281.000000	34.30	11.7	54.0	19.7	100.0	0.00	HORIZONTAL
17995.000000	37.30	17.3	54.0	16.7	121.0	288.00	VERTICAL
2500.000000	39.20	37.9	54.0	14.8	100.0	150.00	HORIZONTAL
2483.500000	39.50	37.8	54.0	14.5	110.0	320.00	HORIZONTAL
2310.000000	38.80	36.8	54.0	15.2	150.0	120.00	VERTICAL
2390.000000	40.50	33.5	54.0	13.5	140.0	30.00	HORIZONTAL

Measured Result of channel: 11 (2462MHz)

Table 38 MEASUREMENT RESULT

Frequency (MHz)	Level (dBμV/m)	Transd (dB)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Azimuth (deg)	Polarisation
34.620000	24.80	11.7	40.0	15.2	100.0	98.00	VERTICAL
96.000000	34.10	12.8	43.5	9.4	100.0	95.00	VERTICAL
172.800000	32.70	10.3	43.5	10.8	143.0	216.00	HORIZONTAL
211.200000	27.70	12.6	43.5	15.8	145.0	316.00	HORIZONTAL
288.000000	31.30	15.2	46.0	14.7	100.0	123.00	HORIZONTAL
938.220000	37.50	26.5	46.0	8.5	289.0	36.00	VERTICAL
1608.500000	16.70	-14.3	54.0	37.3	163.0	5.00	VERTICAL
2454.500000	31.80	-11.3	54.0	22.2	100.0	307.00	HORIZONTAL
4753.000000	25.40	-4.2	54.0	28.6	200.0	52.00	VERTICAL
7951.500000	28.60	1.9	54.0	25.4	100.0	246.00	VERTICAL
13641.000000	33.20	10.2	54.0	20.8	200.0	293.00	HORIZONTAL
17942.500000	37.20	16.9	54.0	16.8	105.0	200.00	VERTICAL
2310.800000	38.60	36.8	54.0	15.4	110.0	200.00	VERTICAL
2390.000000	40.00	33.5	54.0	14.0	120.0	300.00	VERTICAL
2483.500000	43.80	37.8	54.0	10.2	120.0	230.00	VERTICAL
2500.000000	39.70	37.9	54.0	14.3	150.0	120.00	VERTICAL

Note: Because the PK value is smaller than AV Limit line, so the AV value is certainly smaller than AV limit line.

6.6.5 Conclusion

The equipment **PASSED** the requirement of this clause.
 For the measurement results refer to appendix F.

6.7 Conducted Emission at Power Port

6.7.1 Test Conditions

Table 39 Test Conditions

Preconditioning:	0.5 hour
Measured at:	Power port
Ambient temperature:	23.5°C
Relative humidity:	55 %
Test Configurations:	TM1 at channel No. 7

6.7.2 Test Specifications and Limits

6.7.2.1 Specification

CFR 47 (FCC) part 15.207 and KDB 558074
IC RSS-210 Issue 7

6.7.2.2 Supporting Standards

Table 40 Supporting Standards:

ANSI C63.4: 2003	Methods of Measurement of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
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6.7.2.3 Limits

Compliance with part15.207, conducted emission must meet the requirement of following table.

Table 41 Limits

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

Note: * Decreases with the logarithm of the frequency.

6.7.3 Test Method and Setup

The Table-top EUT was placed upon a non-metallic table 0.8 m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.4: 2003.

Conducted Disturbance at AC Port measurements were undertaken on the L and N Lines. The emissions were measured using a Quasi-Peak Detector and Average Detector.

The EUT was communicated with the BTS simulator through Air interface, the BTS simulator controls the Wireless Modem to transmitter the maximum power which defined in specification of product. The Wireless Modem operated on the typical channel.

Measurement bandwidth (RBW) for 150kHz to 30 MHz: 9 kHz;

Test Set-up

The EUT was setup in the screened chamber and operated under nominal conditions.

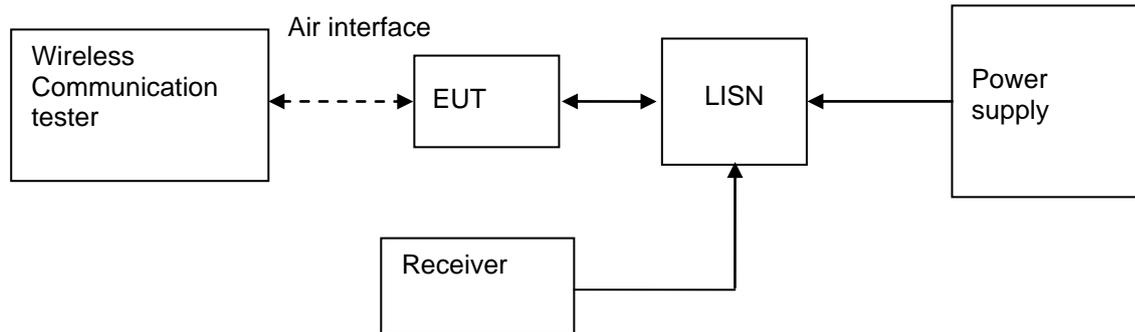


Figure 7. Test Set-up

6.7.4 Measurement Results

Table 42 MEASUREMENT RESULT:QP DECTER

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Line	PE
0.194000	41.80	10.1	64	22.2	N	FLO
0.368000	43.50	10.0	59	15.5	N	FLO
0.746000	40.50	10.1	56	15.5	N	FLO
0.888000	41.10	10.1	56	14.9	N	FLO
2.182000	39.00	10.1	56	17.0	N	FLO
18.560000	37.80	10.3	60	22.2	N	FLO

Table 43 MEASUREMENT RESULT:AV DECTER

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Line	PE
0.360000	26.70	10.0	49	22.3	N	FLO
0.668000	25.80	10.1	46	20.2	N	FLO
0.756000	24.90	10.1	46	21.1	N	FLO
1.010000	25.30	10.1	46	20.7	N	FLO
2.780000	24.90	10.2	46	21.1	N	FLO
5.276000	23.00	10.2	50	27.0	N	FLO
18.496000	20.80	10.3	50	29.2	N	FLO

6.7.5 Conclusion

The equipment **PASSED** the requirement of this clause.
 For the measurement results refer to appendix G.



7 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Table 44 System Measurement Uncertainty

Items		Extended Uncertainty
20dB bandwidth measurement	Magnitude (%)	U=0.2%; k=2
Peak output power	Power(dBm)	U=0.39dB; k=2
Band edge compliance measurement	Disturbance Power(dBm)	U=2.0dB; k=2
Conducted RF spurious	Disturbance Power(dBm)	U=0.4dB; k=2
Power spectral density	Disturbance Power(dBm)	U=0.4dB; k=2
Radiated spurious emission & Radiated restricted band measurement	Field strength (dB μ V/m)	U=2.2dB; k=2 U=5dB; k=2
Conducted emission test for power port	Disturbance Voltage(dB μ V)	U=4dB; k=2



8 Appendices

Appendix A	Measurement Results 6dB bandwidth measurement	7 pages
Appendix B	Measurement Results Peak output power	7 pages
Appendix C	Measurement Results Band edge compliance measurement	5 pages
Appendix D	Measurement Results Conducted RF spurious	19 pages
Appendix E	Measurement Results Power spectral density	7 pages
Appendix F	Measurement Results Radiated spurious emission	16 pages
Appendix G	Measurement Results Conducted emission test for power port	2 pages
Appendix H	Photos of Test Setup	4 pages

(END OF REPORT)