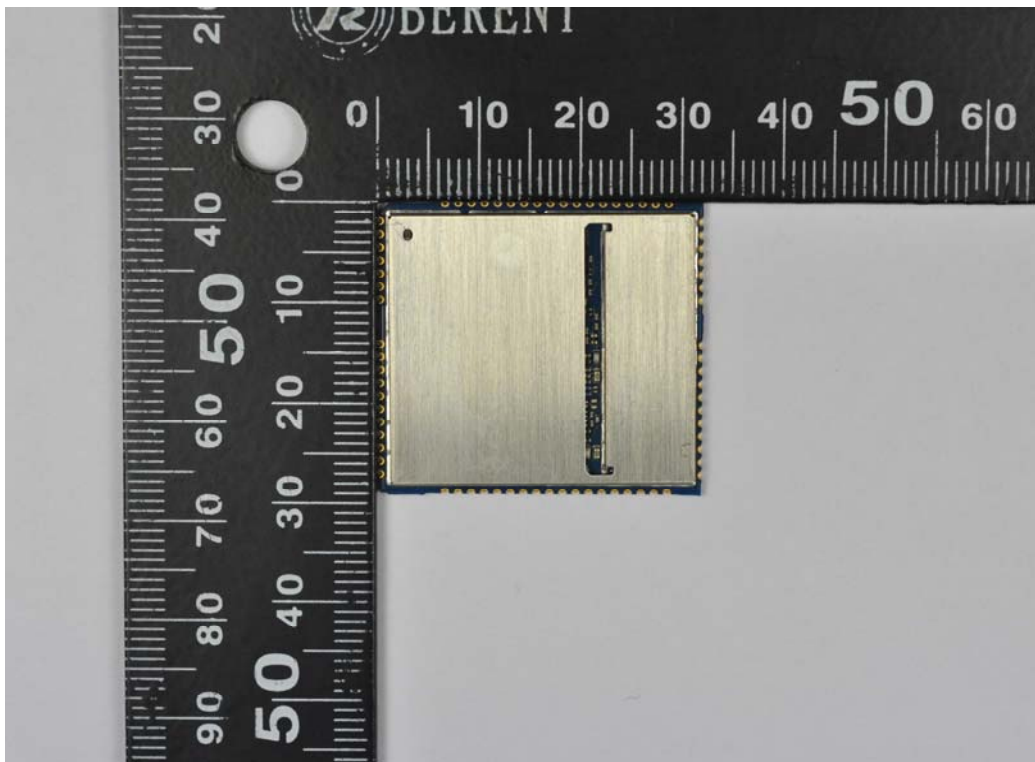


Quectel Wireless Solutions Co., Ltd.

UMTS/HSPA+ Module




Main Model: UC20
Serial Model: UC20 Mini PCIe

January 9, 2014
Report No.: 13050053-FCC-H1
(This report supersedes NONE)



Modifications made to the product : None

This Test Report is Issued Under the Authority of:

		
William Long Compliance Engineer	Alex Liu Technical Manager	

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Test result presented in this test report is applicable to the representative sample only.

RF Exposure Evaluation Report

To: FCC 1.1307 FCC 2.1091: 2013

SIEMIC, INC.
Accessing global markets



Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management through out a project. Our extensive experience with China, Asia Pacific, North America, European, and international compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC , RF/Wireless , Telecom
Canada	EMC, RF/Wireless , Telecom
Taiwan	EMC, RF, Telecom , Safety
Hong Kong	RF/Wireless ,Telecom
Australia	EMC, RF, Telecom , Safety
Korea	EMI, EMS, RF , Telecom, Safety
Japan	EMI, RF/Wireless, Telecom
Singapore	EMC , RF , Telecom
Europe	EMC, RF, Telecom , Safety

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1. EXECUTIVE SUMMARY & EUT INFORMATION

The purpose of this test programme was to demonstrate compliance of the Quectel Wireless Solutions Co., Ltd., UMTS/HSPA+ Module and model: UC20 against the current Stipulated Standards. The UMTS/HSPA+ Module has demonstrated compliance with the FCC Part 22(H) & FCC Part 24(E): 2013.

EUT Information

EUT Description	UMTS/HSPA+ Module
Main Model	UC20
Serial Model	UC20 Mini PCIe
Antenna Gain	UMTS-FDD Band V/GSM850: 1 dBi UMTS-FDD Band II/PCS1900: 1 dBi
Maximum Conducted AV Power to Antenna	UMTS-FDD Band V : 22.53 dBm UMTS-FDD Band II : 22.53 dBm
Maximum Radiated ERP/EIRP	UMTS-FDD Band V : 23.22dBm / ERP UMTS-FDD Band II : 23.33 dBm / EIRP
Temperature	-10°C - 55°C
Classification Per Stipulated Test Standard	FCC Part 22(H) & FCC Part 24(E): 2013

2. TECHNICAL DETAILS

Purpose	Compliance testing of UMTS/HSPA+ Module with stipulated standard
Applicant / Client	Quectel Wireless Solutions Co., Ltd. Room 501, Building 13, No.99 TianZhouRoad,Xuhui District, Shanghai
Manufacturer	Quectel Wireless Solutions Co., Ltd. Room 501, Building 13, No.99 TianZhouRoad,Xuhui District, Shanghai
Laboratory performing the tests	SIEMIC (Nanjing-China) Laboratories NO.2-1,Longcang Dadao, Yuhua Economic Development Zone, Nanjing, China Tel: +86(25)86730128/86730129 Fax: +86(25)86730127 Email: China@siemic.com.cn
Test report reference number	13050053-FCC-H1
Date EUT received	December 30, 2013
Standard applied	FCC Part 22(H) & FCC Part 24(E): 2013
Dates of test	January 3, 2014
No of Units	#1
Equipment Category	PCB
Trade Name	N/A
RF Operating Frequency (ies)	UMTS-FDD Band V TX : 826.4 ~ 846.6 MHz; RX : 871.4 ~ 891.6 MHz UMTS-FDD Band II TX :1852.4 ~ 1907.6 MHz; RX : 1932.4 ~ 1987.6 MHz
Number of Channels	UMTS-FDD Band V : 102CH UMTS-FDD Band II : 277CH
Modulation	UMTS-FDD: QPSK
FCC ID	XMR201312UC20

3. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FCC §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission’s guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz
 * = Plane-wave equivalent power density

Test Data

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm²)
 P = power input to the antenna (in appropriate units, e.g., mW).
 G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.
 R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

1> The maximum power density at a distance of 0.2 m for WCDMA BAND V is shown as below:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max Tune up power (dBm)	Average Output Power (mW)	The maximum sourced based time-averaged transmit power(mW)	Calculated RF Exposure (mW/m ²)	Limit (mW/m ²)
1.0	1.259	23.5	223.872	281.838	0.0561	0.551

2> The maximum power density at a distance of 0.2 m for WCDMA BAND II is shown as below:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max Tune up power (dBm)	Average Output Power (mW)	The maximum sourced based time-averaged transmit power(mW)	Calculated RF Exposure (mW/m ²)	Limit (mW/m ²)
1.0	1.259	23.5	223.872	281.838	0.0561	1.0

Result: Pass