

Quectel Wireless Solutions Company Limited

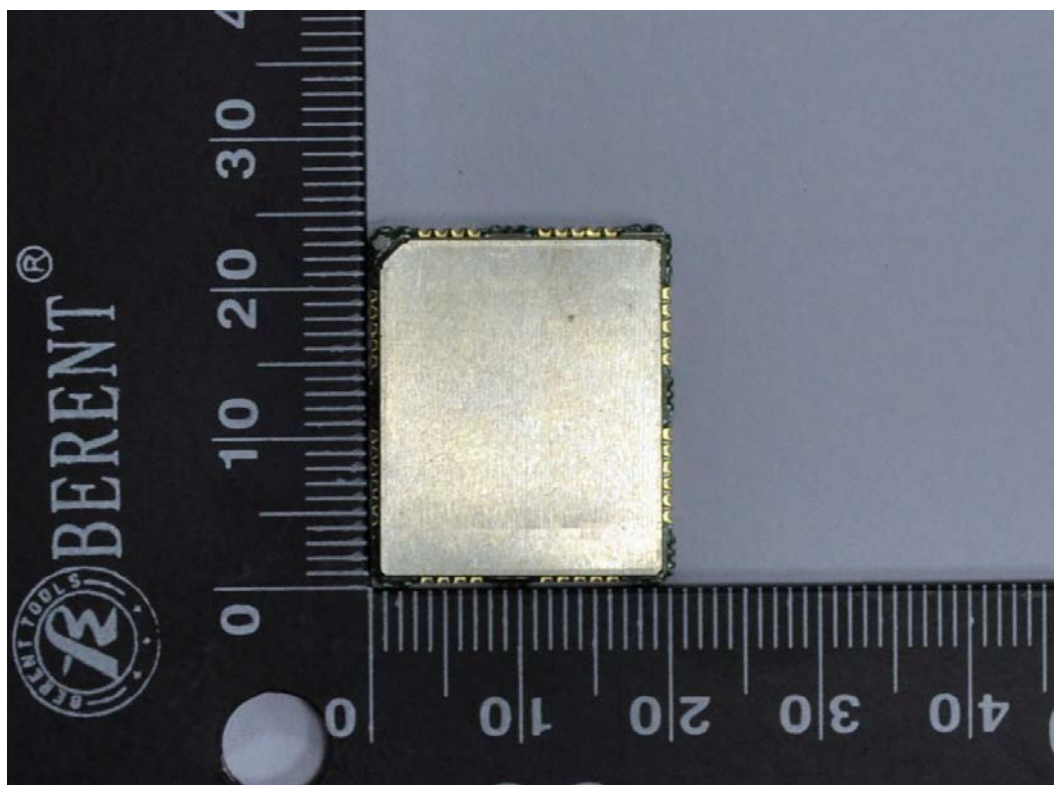
GSM/GPRS Module

Main Model:M95

March 10, 2012




Report No.: 12050015-FCC-R2-V1

(This report supersedes NONE)



Modifications made to the product : None

This Test Report is Issued Under the Authority of:

		
Back Huang Compliance Engineer	Alex Liu Technical Manager	

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RF Exposure Report

To: FCC 2.1091: 2012

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Laboratory Introduction

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Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC , RF/Wireless , Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless , Telecom
Taiwan	BSMI , NCC , NIST	EMC, RF, Telecom , Safety
Hong Kong	OFTA , NIST	RF/Wireless ,Telecom
Australia	NATA, NIST	EMC, RF, Telecom , Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF , Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC , RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom , Safety

Accreditations for Product Certifications

Country/Region	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC , RF , Telecom
Canada	IC FCB , NIST	EMC , RF , Telecom
Singapore	iDA, NIST	EMC , RF , Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC, (RCB 208)	RF , Telecom
Hong Kong	OFTA (US002)	RF , Telecom

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1. EXECUTIVE SUMMARY & EUT INFORMATION

The purpose of this test programmed was to demonstrate compliance of the Quectel Wireless Solutions Company Limited GSM/GPRS Module and model:M95 against the current Stipulated Standards. The GSM/GPRS Module has demonstrated compliance with the FCC 2.1091: 2012.

EUT Information

EUT

Description : GSM/GPRS Module

Main Model : M95

Antenna Gain : GSM 850: 1.5 dBi
PCS 1900: 1.5 dBi

Input Power : **SWITCHING POWER SUPPLY**
MODEL: P-050B
INPUT: 100V-240V, 50/60Hz, 0.3A
OUTPUT: 5.0V-2.0A
P/N: B2152-1116

Maximum Conducted Peak Power to Antenna : GSM850: 32.78 dBm
PCS1900: 29.19 dBm

Maximum Radiated ERP/EIRP : GSM850: 27.48 dBm / ERP
PCS1900: 26.46 dBm / EIRP

Classification Per Stipulated Test Standard : FCC 2.1091: 2012

2. TECHNICAL DETAILS

Purpose	Compliance testing of GSM/GPRS Module with stipulated standard
Applicant / Client	Quectel Wireless Solutions Company Limited Room 501, Building 13, No.99 TianZhou Road,Xuhui District, Shanghai
Manufacturer	Quectel Wireless Solutions Company Limited Room 501, Building 13, No.99 TianZhou Road,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:info@siemic.com
Test report reference number	12050015-FCC-R2-V1
Date EUT received	February 20, 2012
Standard applied	FCC 2.1091: 2012
Dates of test	March 5, 2012 to March 7, 2012
No of Units	#1
Equipment Category	PCE
Trade Name	Quectel
RF Operating Frequency (ies)	GSM850 TX : 824.2 ~ 848.8 MHz; RX : 869.2 ~ 893.8 MHz PCS1900 TX : 1850.2 ~ 1909.8 MHz; RX : 1930.2 ~ 1989.8 MHz
Number of Channels	300CH (PCS1900) and 125CH (GSM850)
Modulation	GSM / GPRS: GMSK
GPRS Multi-slot class	8/10/12
FCC ID	XMR201202M95

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)

GSM 850

Maximum peak output power at antenna input terminal: 32.78 (dBm)

Maximum peak output power at antenna input terminal: 1896.71 (mW)

Prediction distance: >20 (cm)

Predication frequency: 824.2 (MHz)

Antenna Gain (typical): 1.5 (dBi)

Antenna Gain (typical): 1.413 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.533 (mW/cm²)
MPE limit for general population exposure at prediction frequency: 0.549 (mW/cm²)

0.533 (mW/cm²) < 0.549 (mW/cm²)

PCS 1900

Maximum peak output power at antenna input terminal: 29.19 (dBm)
Maximum peak output power at antenna input terminal: 829.85 (mW)

Prediction distance: >20 (cm)
Predication frequency: 1909.8 (MHz)
Antenna Gain (typical): 1.5 (dBi)
Antenna Gain (typical): 1.413 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.233 (mW/cm²)
MPE limit for general population exposure at prediction frequency: 1 (mW/cm²)

0.233 (mW/cm²) < 1 (mW/cm²)

Result: Pass