RF Exposure Evaluation Declaration

Product Name	:	GSM/GPRS Module
Model No.	:	HiloNCV2
FCC ID	:	VW3HILONCV2
IC	:	9140A-HILONCV2

Applicant	:	Sagemcom
Address	:	250 route de l'empereur, 92848, France

Date of Receipt	:	Sep. 29, 2010
Issued Date	:	Oct. 09, 2010
Report No.	:	109S034R-RF-US
Report Version	:	V2.3

Test Report Certification

Issued Date : Oct. 09, 2010
Report No. : 109S034R-RF-US

QuieTek

Product Name	:	GSM/GPRS Module
Applicant	:	Sagemcom
Address	:	250 route de l'empereur, 92848, France
Manufacturer	:	Sagemcom
Address	:	250 route de l'empereur, 92848, France
Model No.	:	HiloNCV2
FCC ID	:	VW3HILONCV2
IC	:	9140A-HILONCV2
EUT Voltage	:	Normal 3.7V/High 4.5V/Low 3.3V
Brand Name	:	Sagemcom
Applicable Standard	:	FCC OET Bulletin 65, ICNIRP Guidelines RSS-102: Issue 4, 2010
Test Result	:	Complied
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392, IC Lab Code: 4075B

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(Engineering Manager: Dream Cao)

Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC, NVLAP**
Japan	**:**	**VCCI**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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NVLAP Lab Code : 200347-0

Testing Laboratory 1313

LinKou Testing Laboratory :
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TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

NVLAP Lab Code: 200533-0

Testing Laboratory 0914

Suzhou (China) Testing Laboratory :
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NVLAP Lab Code : 200743-0

Testing Laboratory 1596

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4*pi*r2)

Where

Pd = power density in mW/cm2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.
The temperature and related humidity: 18℃and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

1.3.1. Conducted Power Analysis

Table 1

No. of timeslots	1	2	3	4
Duty Cycle	1 : 8	1 : 4	1 : 2.66	1 : 2
Timebased avg. power compared to slotted avg. power	-9 dB	-6 dB	-4.25 dB	-3 dB

This device just supports GPRS Class 10 with maximum 2 slots uplink.

The following table shows the conducted power measured and time based average power calculated:

Table 2

Frequency Band	Modulation	Timeslots	Power Measured (dBm)	Time based average power (Calculated)
GSM850	GMSK	1	32.32	**23.32**
GSM850	GMSK	2	29.30	23.30
PCS1900	GMSK	1	29.38	**20.38**
PCS1900	GMSK	2	26.36	20.36

1.3.2. Host Platform Analysis

The MPE calculation was performed for the maximum antenna gain maybe used of stand-alone condition. According to FCC Part2.1091(c) requirement, the maximum ERP (below 1.5GHz) is 1.5W and (above 1.5GHz) is 3W. Conjunction with FCC Part22H&24E requirements, the following table shows the maximum antenna gain allowed for stand-alone situation.

According to FCC rules, maximum ERP allowed is 7W (38.45dBm) for Part22H, maximum EIRP is 2W (33dBm) for Part24E.

Table 3

System	Mode	Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Duty Cycle (%)	PAR (dB)	EIRP (dBm)
GSM850	GPRS	824.2~848.8	32.32	8.28	12.5	9	31.60
PCS1900	GPRS	1850.2~1909.8	29.38	3.62	12.5	9	24.00

1.3.3. MPE Evaluation Result

The device used should cover the following conditions:

1) The antenna-to-user distance of all transmitters(for example: WLAN, Bluetooth) above is 20cm or larger;
2) The maximum antenna gain of the device does not exceed the values listed in table 3.

Note: other antennas of different communication systems may be installed in the host platform as long as they are not collocated to the device antenna (distance > 20cm).

Test Mode	Frequency Band (MHz)	EIRP (dBm)	Distance (cm)	Power Density Seq (mW/cm^2)	MPE Limit (mW/cm^2)
GPRS850	824~849	31.60	20	0.29	0.55
GPRS1900	1850~1910	24.00	20	0.05	1.00