



Full

TEST REPORT

No. ECIT-2013-0076-FCC-EMC

For

Client : Micron Electronics LLC

Production : AAGPS-3G

Model Name : VL3000

Hardware Version: VL3000_V1.02

Software Version: VL3000B01V03

FCC ID: ZKQ-0508201300001

Issued date: 2013-08-13

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of ECIT Shanghai.

Test Laboratory:

ECIT Shanghai, East China Institute of Telecommunications

Add: 7F, G Area, No.668, Beijing East Road, Huangpu District, Shanghai, P. R. China

Tel: (+86)-021-63843300, E-Mail: welcome@ecit.org.cn



CONTENTS

1. TEST LABORATORY	3
1.1. TESTING LOCATION	3
1.2. TESTING ENVIRONMENT	3
1.3. PROJECT DATA	3
1.4. SIGNATURE	3
2. CLIENT INFORMATION	4
2.1. APPLICANT INFORMATION	4
2.2. MANUFACTURER INFORMATION	4
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	5
3.1. ABOUT EUT	5
3.2. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST	5
4. REFERENCE DOCUMENTS	6
4.1. REFERENCE DOCUMENTS FOR TESTING	6
5. TEST RESULTS	7
5.1. SUMMARY OF TEST RESULTS	7
5.2. STATEMENTS	7
6. TEST EQUIPMENTS UTILIZED	8
6.1 RADIATED EMISSION EQUIPMENTS LIST	8
6.1 CE EQUIPMENTS LIST	8
7. SYSTEM CONFIGURATION DURING TEST	9
7.1 TEST MODE	9
7.2 CONNECTION DIAGRAM OF TEST SYSTEM	9
8. MEASUREMENT RESULTS	10
8.1 RADIATED EMISSION 30MHZ-12.75GHZ	10
8.2 CONDUCTED EMISSION	13



1. Test Laboratory

1.1. Testing Location

Company Name: ECIT Shanghai, East China Institute of Telecommunications
Address: 7F, G Area, No. 668, Beijing East Road, Huangpu District, Shanghai,
P. R. China
Postal Code: 200001
Telephone: (+86)-021-63843300
Fax: (+86)-021-63843301
FCC registration No: 489729

1.2. Testing Environment

Normal Temperature: 15-35°C
Relative Humidity: 30-60%

1.3. Project data

Project Leader: Liujianquan
Testing Start Date: 16-05, 2013
Testing End Date: 27-05, 2013

1.4. Signature

You Jinjun
(Testing Engineer)

Yu Naiping
(Reviewed this test report)

Zheng Zhongbin
Director of the laboratory
(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name: Micron Electronics LLC
Address /Post: 601 N. Congress Ave, Suite 439 Florida,USA
Country: USA
Telephone: 561-450-5022

2.2. Manufacturer Information

Company Name: Shanghai SIMCOM LTD
Address /Post: Building A, SIM Technology Building, No.633 Jinzhong Road,
Changning District, Shanghai, China
Country: China
Telephone: +86-21-32523134

3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	AAGPS-3G
Model name	VL3000B01V03
Serial Number or IMEI	012813000278822
TX Frequency	GSM850: 824MHz to 849MHz; GSM1900: 1850MHz to 1910MHz; WCDMA BAND II: 1850MHz to 1910MHz; WCDMA BAND V: 824MHz to 849MHz;
RX Frequency	GSM850: 869MHz to 894MHz; GSM1900: 1930MHz to 1990MHz; WCDMA BAND II: 1930MHz to 1990MHz; WCDMA BAND V: 869MHz to 894MHz;
HW Version	VL3000_V1.02
SW Version	VL3000B01V03

3.2. Internal Identification of AE used during the test

AE ID*	Description	Model	SN
AE1	Adapter	P12-050150 US	NA
AE2	Battery	LI-VL3000-SIM-SAN	NA
AE3	Desktop PC	OptiPlex 790 DT	X8RP1 A01 APCC
AE4	Data Cable	NA	NA
AE5	LAN Cable	NA	NA
AE6	VGA Cable	NA	NA
AE7	Keyboard	KB212-B	CN-0Y88XT-65890-12I-005Q-A00
AE8	Mouse	MS111-P	CN-011D3V-71581-19J-1A64
AE9	Monitor	P2312Ht	CN-0WPKD9-74445-1B7-AW BS

*AE ID: is used to identify the test sample in the lab internally.

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices	10-1-10 Edition
ANSI C63.4	Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2009

5. Test Results

5.1. Summary of Test Results

Items	Test List	Clause in FCC rules	Verdict
1	Radiated Emission	15.109(a)	Pass
2	Conducted Emission	15.107(a)	Pass

5.2. Statements

The VL 3000, supporting GSM850/GSM1900/WCDMA band II and V, manufactured by Shanghai SIMCOM LTD. is a new product for testing. ECIT only performed test cases which identified with Pass/Fail/Inc result in section 5.1.

ECIT has verified that the compliance of the tested device specified in section 3 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 4 of this test report.

6. Test Equipments Utilized

6.1 Radiated Emission Equipments list

No.	Name	Type	Series Number	Producer	Cal. Due Date
1	Universal Radio Communication Tester	CMU200	123102	R&S	2013-09-09
2	Test Receiver	ESU40	100307	R&S	2013-11-07
3	Trilog Antenna	VULB9163	19-162515	Schwarzbeck	2014-11-11
4	Double Ridged Guide Antenna	ETS3117	135885	ETS	2014-04-29

6.1 CE Equipments list

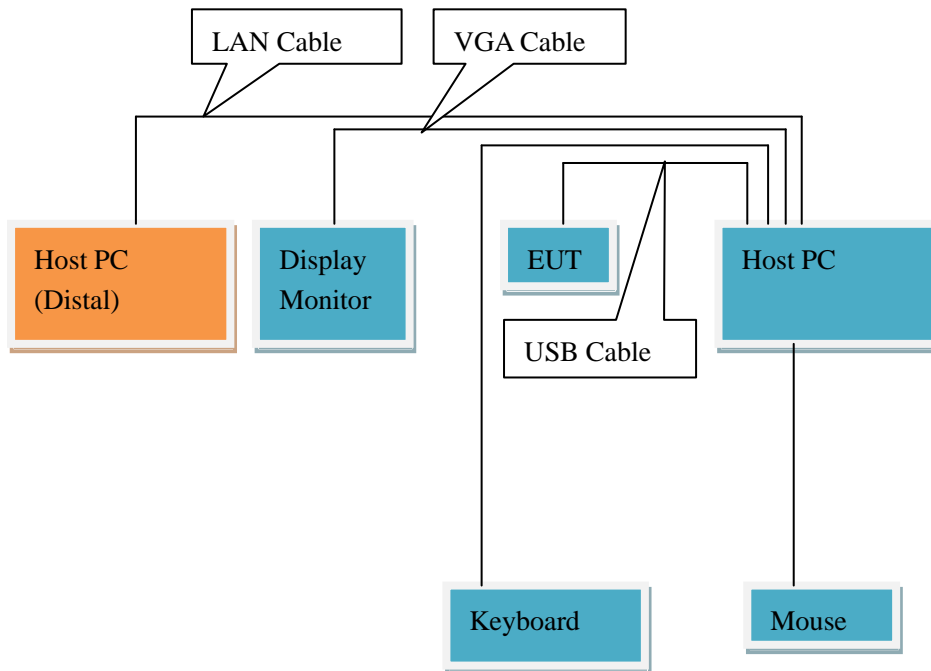
No.	Name	Type	Series Number	Producer	Cal. Due Date
1	Universal Radio Communication Tester	CMU200	123124	R&S	2013-09-09
2	Test Receiver	ESCI	101235	R&S	2013-11-07
3	2-Line V-Network	ENV216	101380	R&S	2013-11-07

7. System Configuration during Test

7.1 Test Mode

Test Item	Function Type
AC Conducted Emission	Mode 1: Idle +GPS+USB cable (Data Link with PC) <Figure 1> Mode 2: Idle +Adapter+ GPS<Figure 2>
Radiated Emission	Mode 1: Idle + GPS+USB cable (Data Link with PC) <Figure 1> Mode 2: Idle +Adapter+ GPS <Figure 2>
Remark: 1. All test modes are performed, only the worst cases test data are recorded in this report. 2. Data Link with PC means data application transferred mode between EUT and PC.	

7.2 Connection Diagram of Test System



<Figure 1>



<Figure 2>

8. Measurement Results

Only the worst test result was shown in this report.

8.1 Radiated Emission 30MHz-12.75GHz

Method of Measurement

For 30-1000MHz, the EUT was placed on the top of a rotating 0.8-m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement. Tested in accordance with the procedures of ANSI C63.4-2009, section 8.3.

For 1000-12750MHz, The maximal emission value was acquired by adjusting the antenna height, The table was rotated 360 degree to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.

Limits for Radiated Emission at a measuring distance of 3m

Frequency Range (MHz)	Quasi-Peak (dBuV/m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Frequency Range (MHz)	Peak (dBuV/m)	Average (dBuV/m)
Above 1000	74	54

Test conditions

Frequency Range (MHz)	RBW/VBW	Sweep Time (s)
30-1000	120KHz/300KHz	5
1000-12750	1MHz/1MHz	10

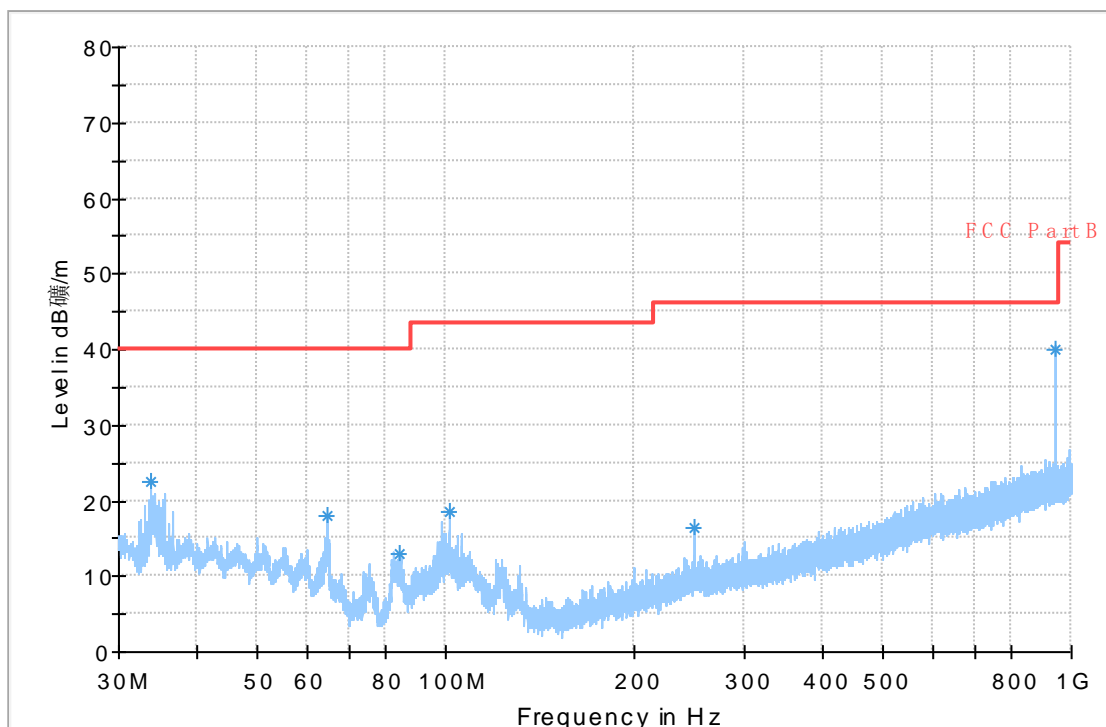
Uncertainty Measurement

The measurement uncertainty is 3.92dB (k=1.96).

Test Results

Frequency Range:

30MHz – 1GHz



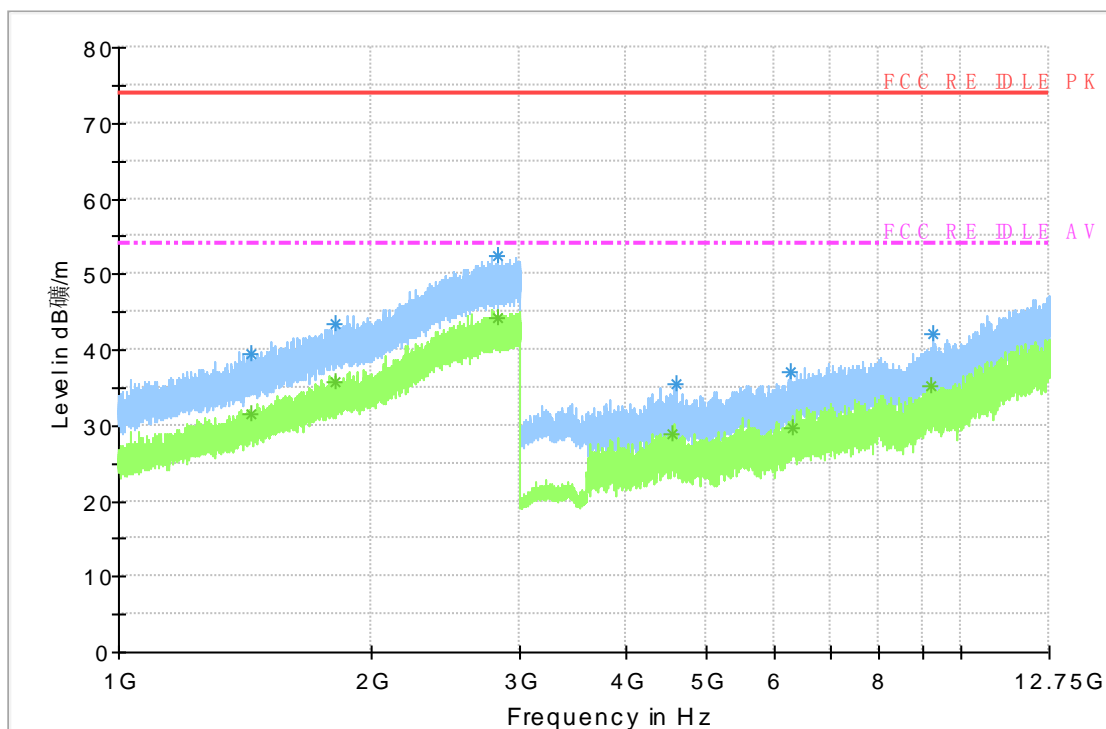
Frequency MHz	PEAK dBuV/m	Mea.Tim e ms	RBW KHz	Height cm	Polarity	Azimuth deg	Corr. dB	Margin dB	Limit dBuV/m
250.028333	16.5	1000.0	120.0	100.0	V	97.0	-23.1	29.5	46
101.198000	18.4	1000.0	120.0	300.0	H	206.0	-24.9	25.1	43.5
64.693667	18.1	1000.0	120.0	100.0	V	97.0	-27.8	21.9	40
33.783000	22.4	1000.0	120.0	100.0	V	244.0	-26.7	17.6	40
941.412000	40.0	1000.0	120.0	100.0	V	0.0	-9.0	6	46
84.029000	13.0	1000.0	120.0	200.0	V	350.0	-28.4	27	40

Note:

1. Emission level(QP)=Raw value by receiver + Corr(Antenna factor + cable loss - preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.

Frequency Range:

1GHz – 12.75GHz



Frequency MHz	Peak dBuV/ m	Mea. Time ms	RBW KHz	Height cm	Polarit y	Azimuth deg	Corr dB	Margin dB	Limit dBuV/ m
1433.266667	39.5	20.0	1000.0	150.0	H	0.0	-3.6	34.5	74.0
1807.933333	43.5	20.0	1000.0	150.0	H	263.0	0.4	30.5	74.0
2820.066667	52.6	20.0	1000.0	150.0	V	292.0	8.9	21.4	74.0
4586.975000	35.5	20.0	1000.0	150.0	H	167.0	-1.0	38.5	74.0
6285.425000	37.0	20.0	1000.0	150.0	V	0.0	1.4	37	74.0
9280.625000	42.0	20.0	1000.0	150.0	V	7.0	5.4	32	74.0

Note:

1. Emission level(peak or average)=Raw value by receiver + Corr(Antenna factor+ cable loss - preamplifier gain)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.

8.2 Conducted Emission

Method of Measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies with the band 150 kHz to 30MHz shall not exceed the limits. Both lines of the power mains connected to the EUT were checked for maximum conducted interference. Tested in accordance with the procedures of ANSI C63.4-2009, section 7.3

Limit of Conducted Emission

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

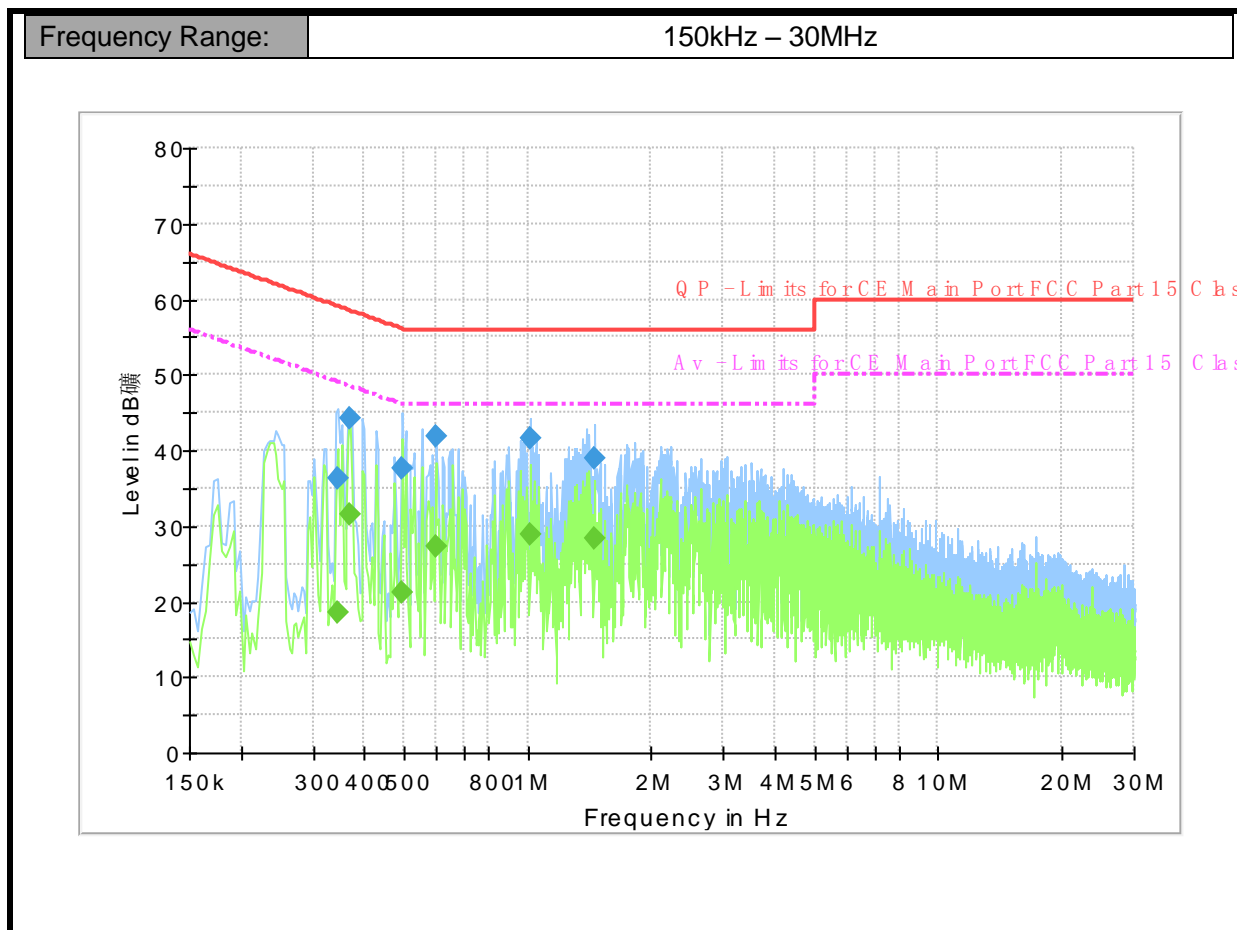
*Decreases with the logarithm of the frequency

Test Condition in Charging Mode

Uncertainty Measurement

The measurement uncertainty is 2.69dB (k=1.96).

Test Results





Frequency MHz	Quasi-Peak dBuV	Meas. Time ms	RBW KHz	Filter	Line	Corr. dB	Margin dB	Limit dBuV
0.344025	36.3	5000.0	9.000	On	N	12.6	22.8	59.1
0.370144	44.3	5000.0	9.000	On	L1	12.6	14.2	58.5
0.497006	37.7	5000.0	9.000	On	N	12.6	18.3	56.0
0.597750	41.8	5000.0	9.000	On	L1	12.6	14.2	56.0
1.015650	41.6	5000.0	9.000	On	L1	12.6	14.4	56.0
1.452206	38.8	5000.0	9.000	On	L1	12.6	17.2	56.0

Frequency MHz	Average dBuV	Meas. Time ms	RBW KHz	Filter	Line	Corr. dB	Margin dB	Limit dBuV
0.344025	18.6	5000.0	9.000	On	N	12.6	30.5	49.1
0.370144	31.6	5000.0	9.000	On	L1	12.6	16.9	48.5
0.497006	21.3	5000.0	9.000	On	N	12.6	24.8	46.0
0.597750	27.3	5000.0	9.000	On	L1	12.6	18.7	46.0
1.015650	28.9	5000.0	9.000	On	L1	12.6	17.1	46.0
1.452206	28.3	5000.0	9.000	On	L1	12.6	17.7	46.0

Note:

1. Emission level(quasi-peak or Average peak)=Raw value by receiver + Corr(Insertion loss+cable loss)
2. The raw value is used to calculate by software which is not shown in the sheet.
3. Margin=limit value – emission level.

*****End the Report*****