



Full

TEST REPORT

No. ECIT-2013-0030-EMC

For

Client : D-Link Corporation

Production : HSPA+ module

Model Name : DWM-800A

Hardware Version: 1.0

Software Version: 1.0

FCC ID: KA2WM800AA1

Issued date: 2013-05-17

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

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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: 03-25, 2013
Testing End Date: 05-17, 2013

1.4. Signature

Liu Guandong
(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: D-Link Corporation
Address /Post: 17595 Mt. Herrmann, Fountain Valley, California, United States
Country: United States
Telephone: +886-2-6600-0123

2.2. Manufacturer Information

Company Name: Shanghai BroadMobi Communication Technology Co., Ltd
Address /Post: Rm.901, Building9, No.1515 Gumei Rd.,Xuhui District, Shanghai,
P.R.China
Country: China
Telephone: (+86)-21-60913308-837

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

3.1. About EUT

EUT Description	HSPA+ module
Model name	DWM-800A
Serial Number or IMEI	355189036255117
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	1.0
SW Version	1.0

3.2. Internal Identification of AE used during the test

AE ID*	Description	Model	SN
AE1	DC power supply	DS-3050M	011806242
AE2	Laptop	LENOVO T420i	P1-5LEDR
AE3	Data Cable	NA	NA

*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 DWM-800A, supporting GSM850/GSM1900/WCDMA band II and V, manufactured by Shanghai BroadMobi Communication Technology Co., 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

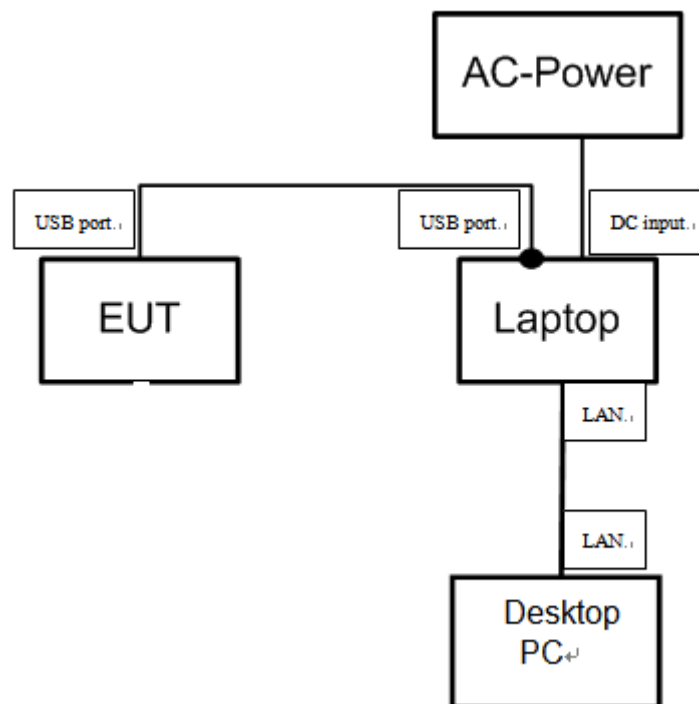
No.	Name	Type	Series Number	Producer	Cal. Due Date
1	Universal Radio Communication Tester	CMU200	123124	R&S	2013-09-09
2	Test Receiver	ESCI	101235	R&S	2013-11-07
3	2-Line V-Network	ENV216	101380	R&S	2013-11-07

7. System Configuration during Test

7.1 Test Mode

Test Item	Function Type
AC Conducted Emission	Mode 1: GSM850Idle <Figure 1> Mode 2: GSM1900Idle <Figure 1> Mode 3: WCDMA BAND II Idle<Figure 1> Mode 4: WCDMA BAND V Idle <Figure 1>
Radiated Emission	Mode 1: GSM850Idle <Figure 1> Mode 2: GSM1900Idle <Figure 1> Mode 3: WCDMA BAND II Idle<Figure 1> Mode 4: WCDMA BAND V Idle <Figure 1>
Remark: 1. All test modes are performed, only the worst cases test data are recorded in this report.	

7.2 Connection Diagram of Test System



<Figure 1>

8. Measurement Results

Only the worst test result was shown in this report.

8.1 Radiated Emission

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 1000-6000MHz, 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
1000-6000	1MHz/1MHz	10

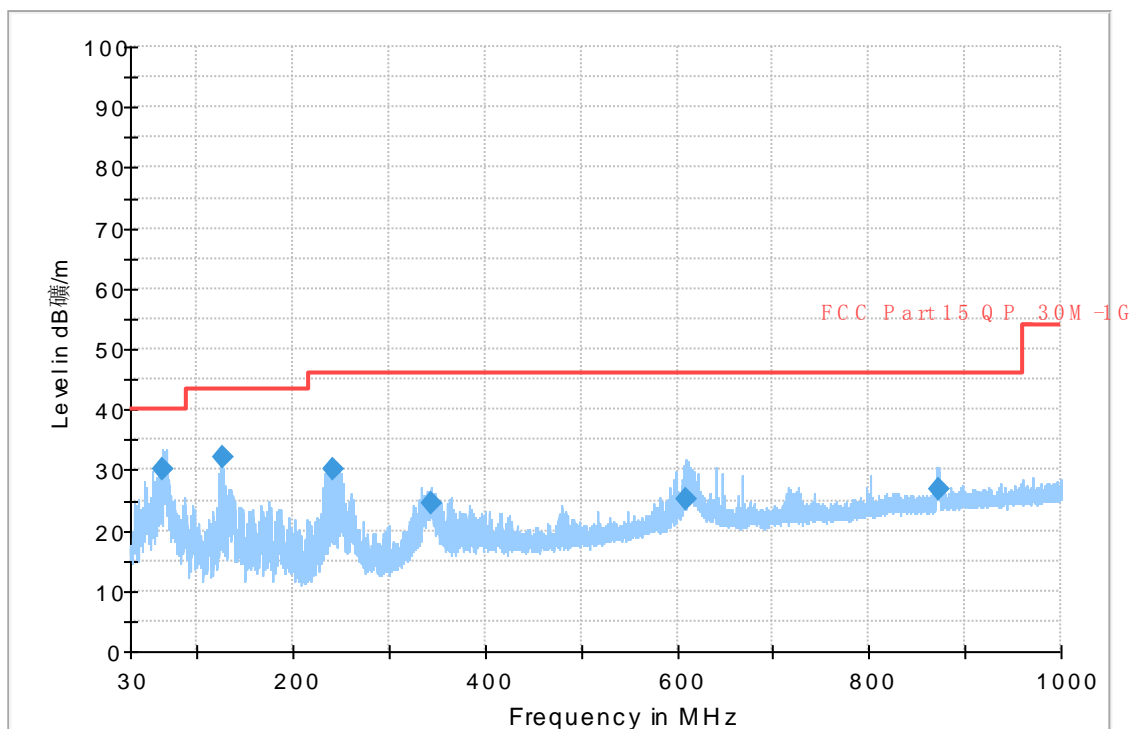
Uncertainty Measurement

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

Test Results

Frequency Range:

30MHz – 1GHz



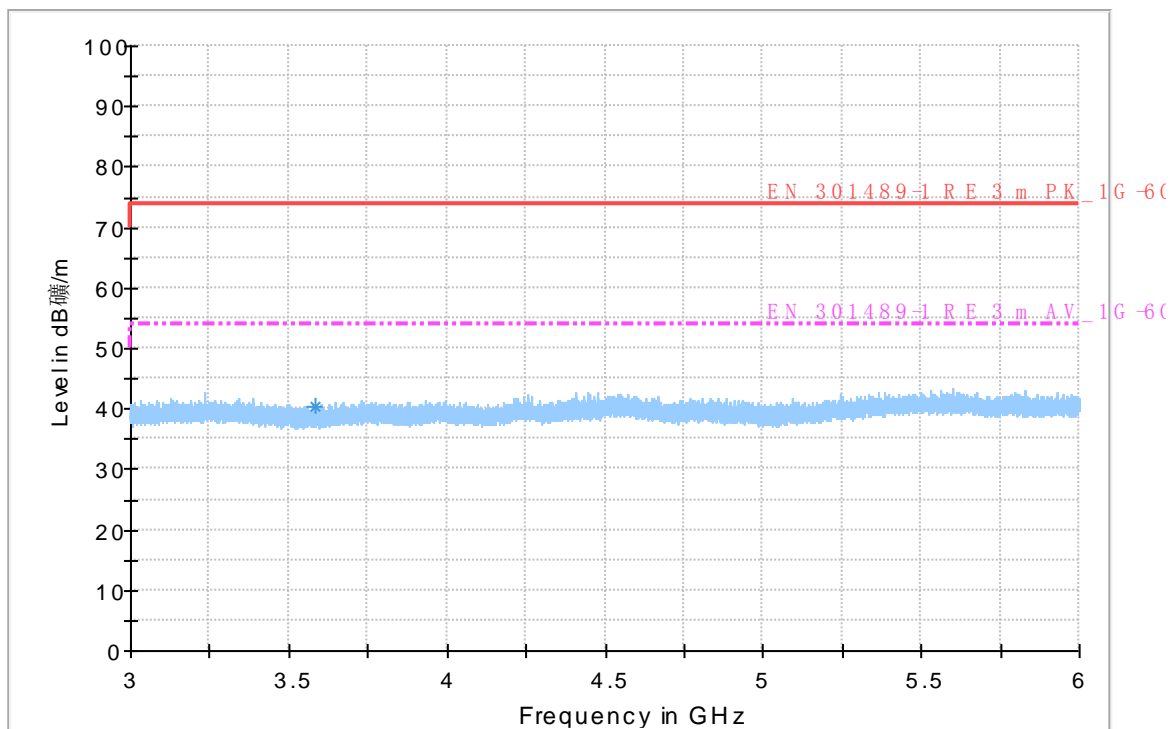
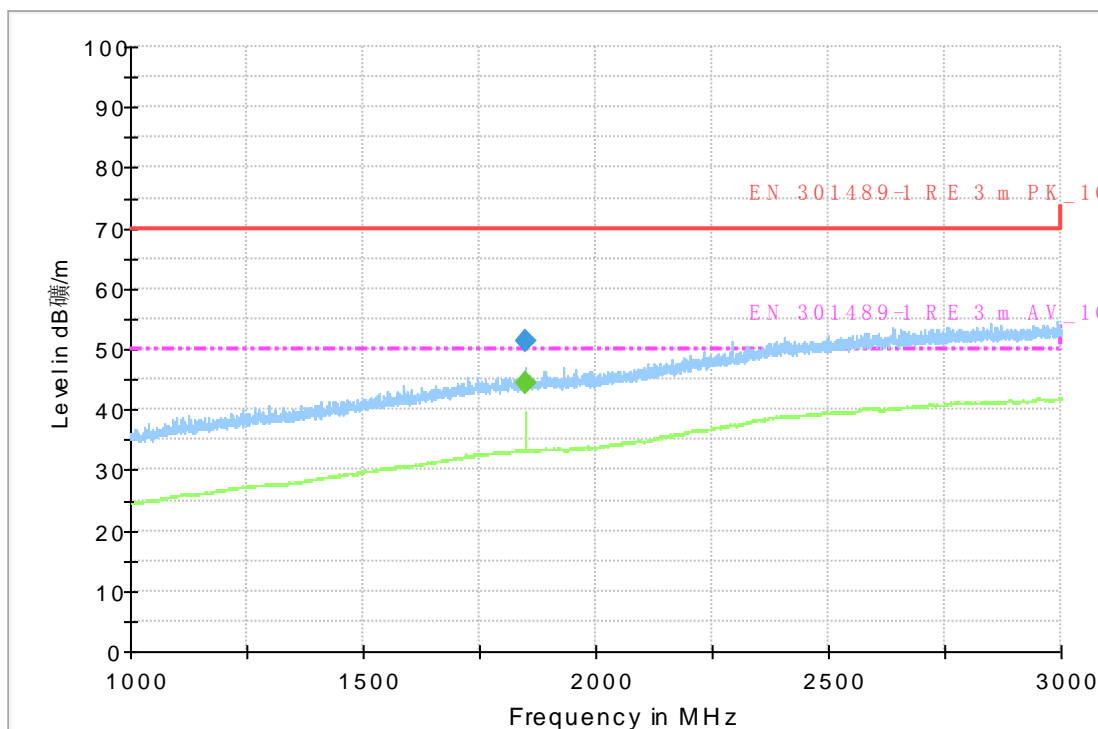
Frequency MHz	QP dBuV/m	Mea.Time ms	RBW KHz	Height cm	Polarity	Azimuth deg	Corr. dB	Margin dB	Limit dBuV/m
64.4	30.1	1000.0	120	100.0	V	45.0	-26.3	9.9	40.0
125.1	32.1	1000.0	120	100.0	V	199.0	-26.5	11.4	43.5
241.4	30.1	1000.0	120	100.0	V	133.0	-22.1	15.9	46.0
343.5	24.5	1000.0	120	100.0	V	268.0	-18.7	21.5	46.0
609.7	25.2	1000.0	120	200.0	H	35.0	-12.2	20.8	46.0

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 – 6GHz



Frequency MHz	Peak dBuV/m	Mea.Time ms	RBW KHz	Height cm	Polarity	Azimuth deg	Corr. dB	Margin dB	Limit dBuV/m
1849.8	51.3	100.0	1000	150.0	V	220.0	2.0	18.7	70.0
Frequency MHz	Average dBuV/m	Mea.Time ms	RBW KHz	Height cm	Polarity	Azimuth deg	Corr. dB	Margin dB	Limit dBuV/m
1849.8	44.2	100.0	1000	150.0	V	209.0	2.0	5.8	50.0
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

Voltage (V)	Frequency (Hz)	RBW	Sweep Time (s)
120	60	9 KHz	1

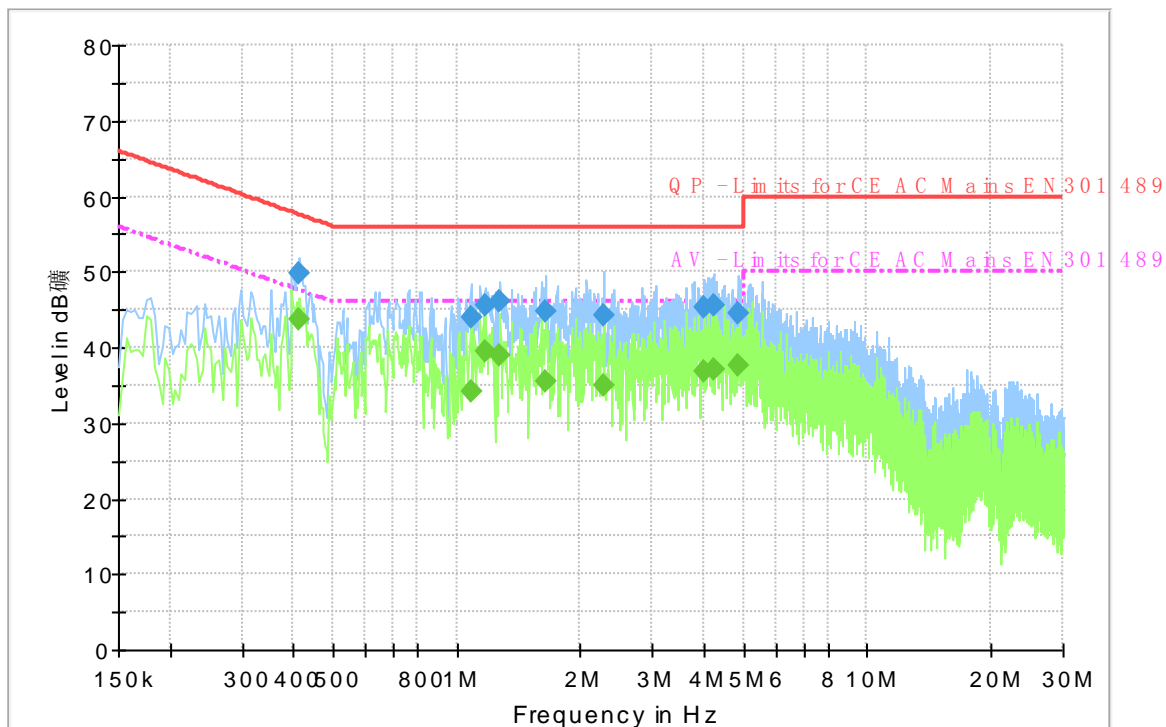
Uncertainty Measurement

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

Test Results

Frequency Range:

150kHz – 80MHz



Frequency MHz	Quasi-Peak dBuV	Meas. Time ms	RBW KHz	Filter	Line	Corr. dB	Margin dB	Limit dBuV
0.414919	49.9	5000.0	9.000	On	N	12.6	7.6	57.5
1.082812	43.9	5000.0	9.000	On	L1	12.6	12.1	56.0
1.172362	45.5	5000.0	9.000	On	N	12.6	10.5	56.0
1.276838	46.0	5000.0	9.000	On	N	12.6	10.0	56.0
1.646231	44.7	5000.0	9.000	On	L1	12.6	11.3	56.0
2.276812	44.1	5000.0	9.000	On	L1	12.6	11.9	56.0
Frequency MHz	Average dBuV	Meas. Time ms	RBW KHz	Filter	Line	Corr. dB	Margin dB	Limit dBuV
0.414919	43.7	5000.0	9.000	On	N	12.6	3.9	47.5
1.082812	34.2	5000.0	9.000	On	L1	12.6	11.8	46.0
1.172362	39.5	5000.0	9.000	On	N	12.6	6.5	46.0
1.276838	39.0	5000.0	9.000	On	N	12.6	7.0	46.0
1.646231	35.6	5000.0	9.000	On	L1	12.6	10.4	46.0
2.276812	34.9	5000.0	9.000	On	L1	12.6	11.1	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*****