

# FCC TEST REPORT

For

**C1021ECL,1021EC**

**Model Number: C1021EC, Ring 201, C1021ECL,C1021**

**FCC ID: T38C1021ECL**

**Report Number : WT138001644**

Test Laboratory : Shenzhen Academy of Metrology and Quality Inspection

National Digital Electronic Product Testing Center

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## TEST REPORT DECLARATION

Applicant : Cellon Communications Technology(Shenzhen)Co., Ltd.  
Address : 13/F, Skyworth Building C Gaoxin S. Ave. 1st, High-Tech industrial Park NanShan, ShenZhen  
Manufacturer : Cellon Communications Technology(Shenzhen)Co., Ltd.  
Address : 13/F, Skyworth Building C Gaoxin S. Ave. 1st, High-Tech industrial Park NanShen, ShenZhen  
EUT Description : C1021ECL,1021EC  
Model No : C1021EC, Ring 201, C1021ECL,C1021  
Trade mark : Ring, enspire, Claro  
Serial Number : 357428021365392  
: 357428021365418  
FCC ID : **T38C1021ECL**

Test Standards:

### FCC Part 15 Subpart B 15.107, 15.109 (2012)

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

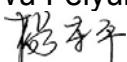
Project Engineer:



Date: July 2, 2013

(Wu Feiyun)

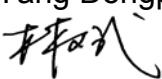
Checked by:



Date: July 2, 2013

(Yang Dongping)

Approved by:



Date: July 2, 2013

(Lin Bin)

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## 1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	FCC Rules	Test Results
Conducted Disturbance	15.107	Pass
Radiation Emission	15.109	Pass

Remark: "N/A" means "Not applicable."

## 2. GENERAL INFORMATION

### 2.1. Report information

- 2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.
- 2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

### 2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at Bldg. of Metrology & Quality Inspection, Longzhu Road, Nanshan District, Shenzhen, Guangdong, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Committee for Laboratories (CNAS) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is L0579.

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number are 446246 806614 994606(semi anechoic chamber).

The Laboratory is registered to perform emission tests with Industry Canada (IC), and the registration number is 11177A-1 11177A-2.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is E2024086Z02.

Measurement Uncertainty

Conducted Emission  
9kHz~30MHz 3.5dB

Radiated Emission  
30MHz~1000MHz 4.5dB  
1GHz~18GHz 4.6dB

### 3. PRODUCT DESCRIPTION

#### 3.1. EUT Description

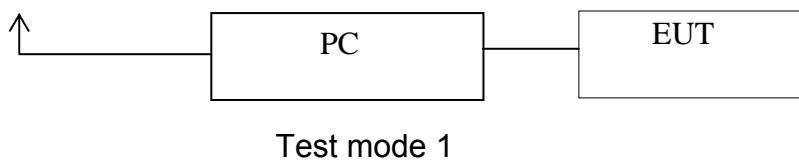
Table 2 Specification of the Equipment under Test

Product Type:	Mobile Phone
Hardware Revision :	P1
Software Revision :	TBD
FCC-ID:	T38C1021ECL
Frequency:	GSM 850: 824.2-848.8MHz; PCS 1900: 1850.2-1909.8MHz
Type(s) of Modulation:	GMSK
Antenna Type:	Internal
Operating voltage:	Internal battery, 110V AC Adapter; 3.4V (Low)/ 4.2V (Nominal)/ 4.2V (Max)

The models C1021EC, Ring 201, C1021ECL,C1021 are identical in all aspects, except client model designation. Tests were performed on model C1021ECL.

#### 3.2. Block Diagram of EUT Configuration

Power Supply



#### 3.3. Operating Condition of EUT

Test mode 1: Connect to PC

#### 3.4. Support Equipment List

Name	Model No	S/N	Manufacturer
Notebook	R51	--	IBM
Adaptor for Notebook	02K6654	--	IBM
Computer	9439	L3BDF2K	Lenovo
Keyboard (USB)	SK-8825 (L)	02553778	Lenovo
Mouse (USB)	MO28UOL	4418011108	Lenovo
Monitor	9227-AE1	V1TDB38	Lenovo
Printer	BJC-265SP	EVX81604	CANON
Adaptor for Printer	AD-300	---	CANON
MODEM	TM-EC5656V	03402406009	TP-Link
Adaptor for modem	EI-41-AD9010	---	---

### **3.5. Test Conditions**

Date of test: June 1-June 26, 2013

Date of EUT Receive: May.28,2013

Temperature:24 °C

Relative Humidity: (58-59)%

### **3.6. Modifications**

No modification was made.

## 4. TEST EQUIPMENT USED

### 4.1. Test Equipment Used to Measure Conducted Disturbance

Table 2 Conducted Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	LAST CALIB	Period
SB3319	EMI Test Receiver	R&S	ESCS30	Jan.21,2013	1 Year
SB4357	AMN	R&S	ENV216	Jan.21,2013	1 Year

### 4.2. Test Equipment Used to Measure Radiated Disturbance

Table 3 Radiated Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	LAST CALIB	Period
SB3436	EMI Test Receiver	Rohde & Schwarz	ESI26	Jan.21,2013	1 Year
SB5472/02	Bilog Antenna	SCHWARZBECK	VULB9163	Jan.21,2013	1 Year

## 5. CONDUCTED DISTURBANCE TEST

### 5.1. Test Standard and Limit

#### 5.1.1. Test Standard

FCC Part 15: Section 15.107

#### 5.1.2. Test Limit

Table 4 Conducted Disturbance Test Limit (Class B)

Frequency	Power Port limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15MHz ~ 0.5MHz	66~56*	56~46*
0.5MHz ~ 5 MHz	56	46
5 MHz ~ 30MHz	60	50

\* Decreasing linearly with logarithm of the frequency

### 5.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

### 5.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

### 5.4. Test Data

The emissions don't show in below are too low against the limits, the test curves are shown in the next page.

Table 5 Conducted Disturbance Test Data at mains Port

L

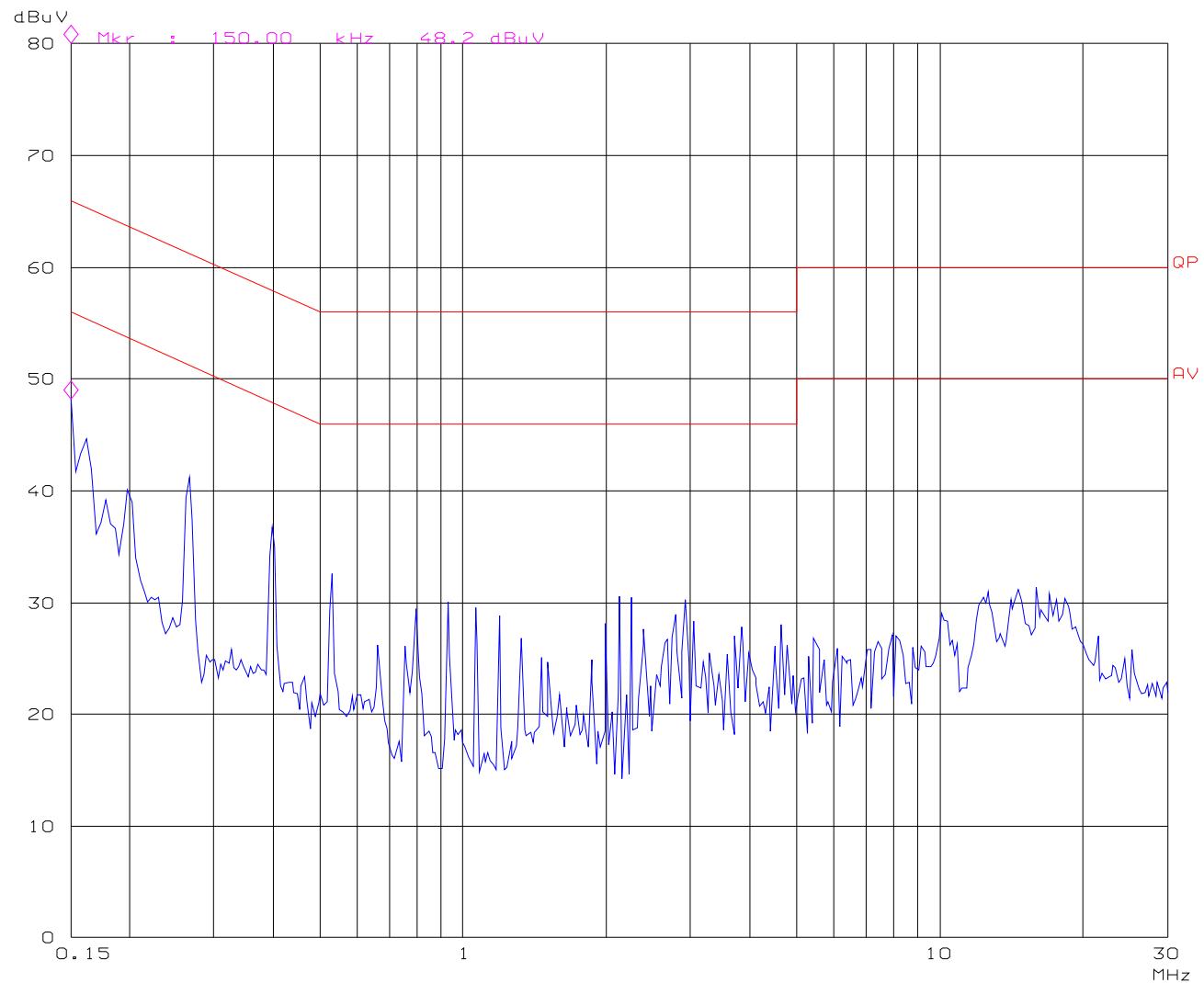
Frequency	QP level	QP Limit	AV level	AV Limit	QP read	AV read	Factor	QP margin	AV margin
0.150	43.1	66	26.5	56	33.4	16.8	9.7	22.9	29.5
0.267	40.4	61.2	37.8	51.2	30.7	28.1	9.7	20.8	13.4
0.401	36.8	57.8	34.7	47.8	27.1	25.0	9.7	21.0	13.1
0.528	31.1	56	30.6	46	21.3	20.8	9.8	24.9	15.4
0.803	28.1	56	27.3	46	18.3	17.5	9.8	27.9	18.7
0.936	27.3	56	26.5	46	17.5	16.7	9.8	28.7	19.5

N

Frequency	QP level	QP Limit	AV level	AV Limit	QP read	AV read	Factor	QP margin	AV margin
0.162	45.9	65.4	37.1	55.4	36.2	27.4	9.7	19.5	18.3
0.266	41.2	61.2	38.8	51.2	31.5	29.1	9.7	20.0	12.4
0.401	34.8	57.8	32.6	47.8	25.1	22.9	9.7	23.0	15.2
0.527	32.2	56	30.9	46	22.4	21.1	9.8	23.8	15.1
1.323	32.5	56	28.7	46	22.7	18.9	9.8	23.5	17.3
1.524	32.3	56	28.5	46	22.5	18.7	9.8	23.7	17.5

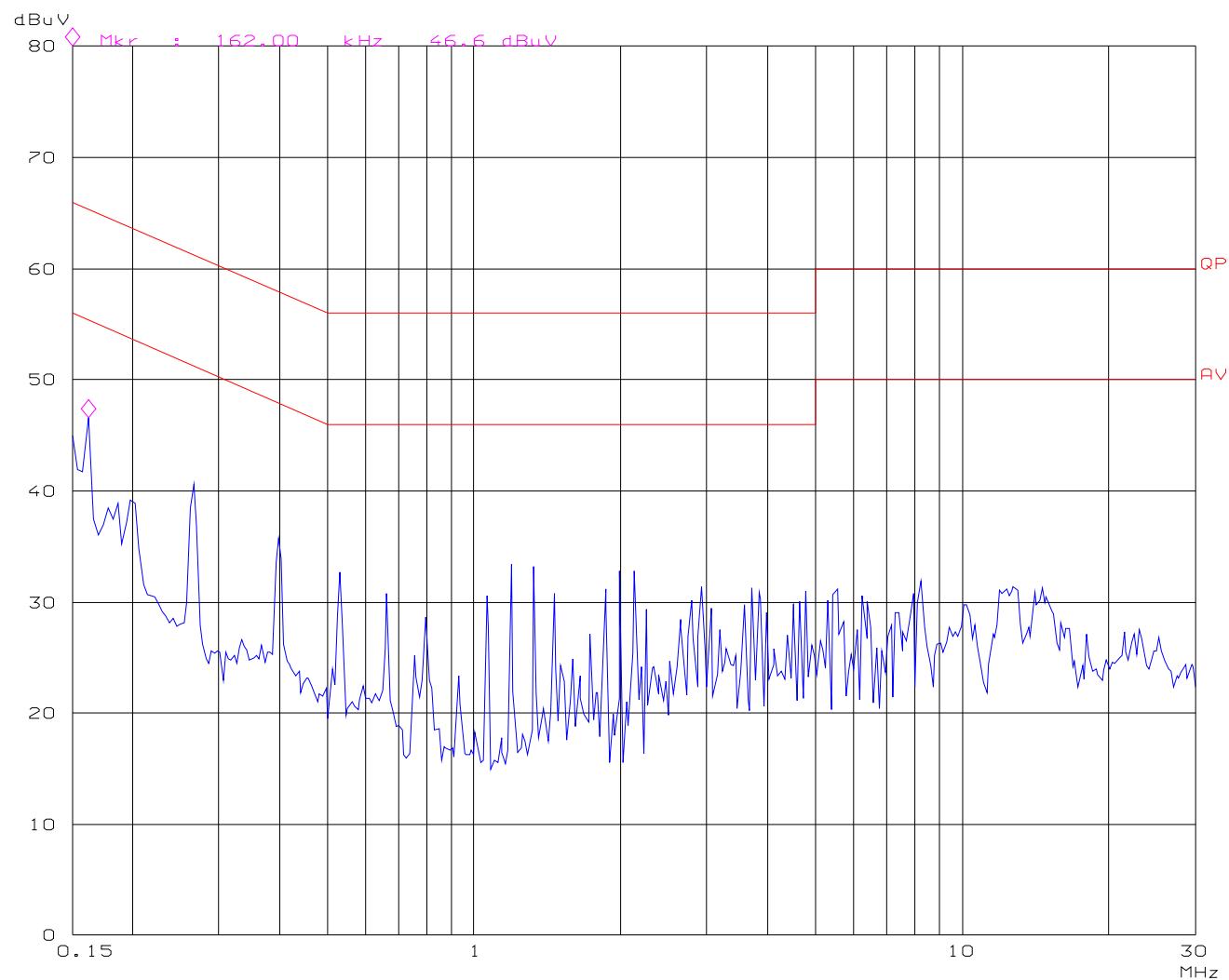
## Conducted Disturbance

EUT: C1201ECL-1  
Op Cond: CONNECT TO PC  
Test Spec: L  
Comment: AC 120V/60Hz



## Conducted Disturbance

EUT: C1201ECL-1  
Op Cond: CONNECT TO PC  
Test Spec: N  
Comment: AC 120V/60Hz



## 6. RADIATION DISTURBANCE TEST

### 6.1. Test Standard and Limit

#### 6.1.1. Test Standard

FCC Part 15: Section 15.109

#### 6.1.2. Test Limit

Table 6 Radiation Disturbance Test Limit for FCC (Class B)

Frequency	Limit (dB $\mu$ V/m)
	Quasi-peak Level
30MHz~88MHz	40.0
88MHz~216MHz	43.5
216MHz~960MHz	46.0
>960MHz	54.0

\* The lower limit shall apply at the transition frequency.

\* The test distance is 3m.

### 6.2. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set **3 meters** away from the receiving antenna, which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

### 6.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

### 6.4. Test Data

The emissions don't show in below are too low against the limits, the test curves are shown in the next page.

**Table 7 Radiated Disturbance Test Data**

Frequency MHz	Cable Loss(dB)	Antenna Factor(dB)	Readings(dB μ V/m)	Level(dB μ V/m)	Polarity(H/V)	Turntable Angle(deg)	Antenna Height(m)	Limits(dB μ V/m)	Margin(d B)
191.990	2.4	9.9	26.4	38.7	H	0	1.0	43.5	4.8
609.478	4.1	18.8	17.4	40.3	H	360	2.0	46.0	5.7
609.478	4.1	18.8	13.8	36.7	V	0	1.0	46.0	9.3

# Radiated Emission

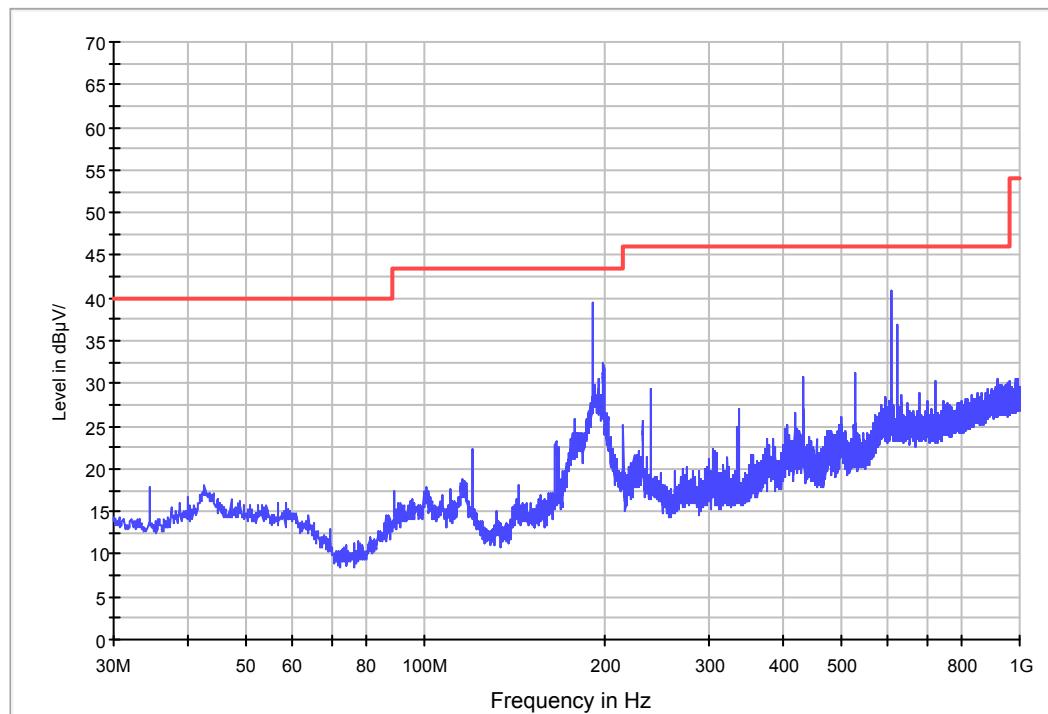
## EUT Information

EUT Model name: C1201ECL  
Operater Mode: Connect to PC  
Comment:

## Common Information

Test Description: SMQ NETC EMC Lab.3m Chamber  
Customer  
Antenna Position: Horizontal  
Operator Name:  
Comment1:  
Comment2:

Field strength 30M-1GHz



# Radiated Emission

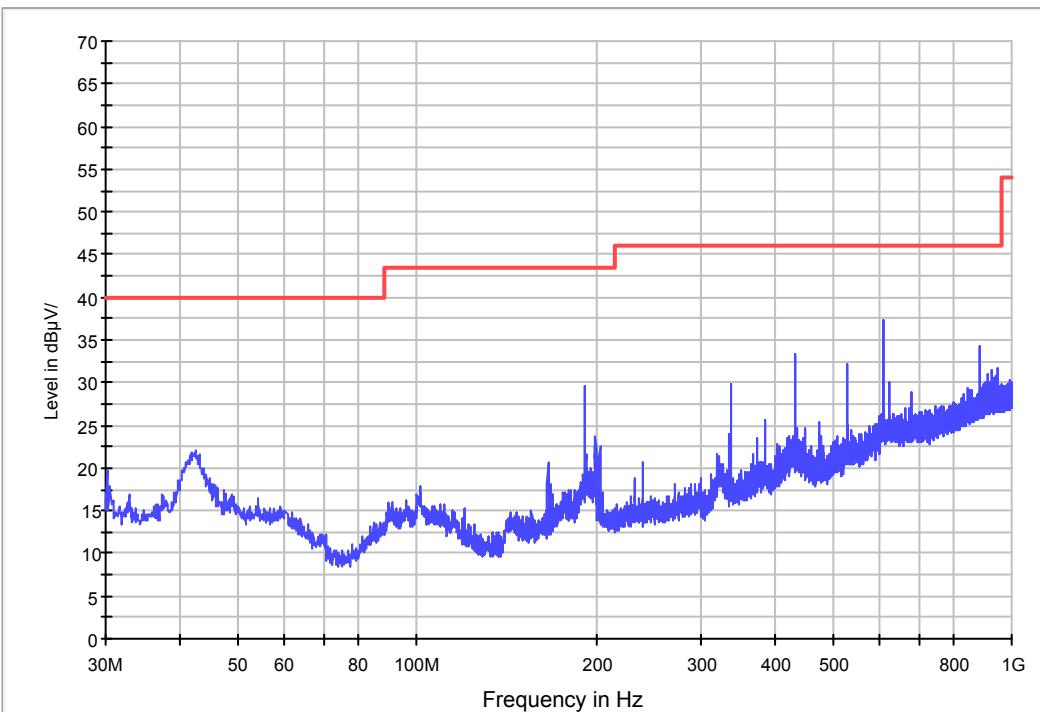
## EUT Information

EUT Model name: C1201ECL  
Operator Mode: Connect to PC  
Comment:

## Common Information

Test Description: SMQ NETC EMC Lab.3m Chamber  
Customer  
Antenna Position: Vertical  
Operator Name:  
Comment1:  
Comment2:

Field strength 30M-1GHz



# Radiated Emission

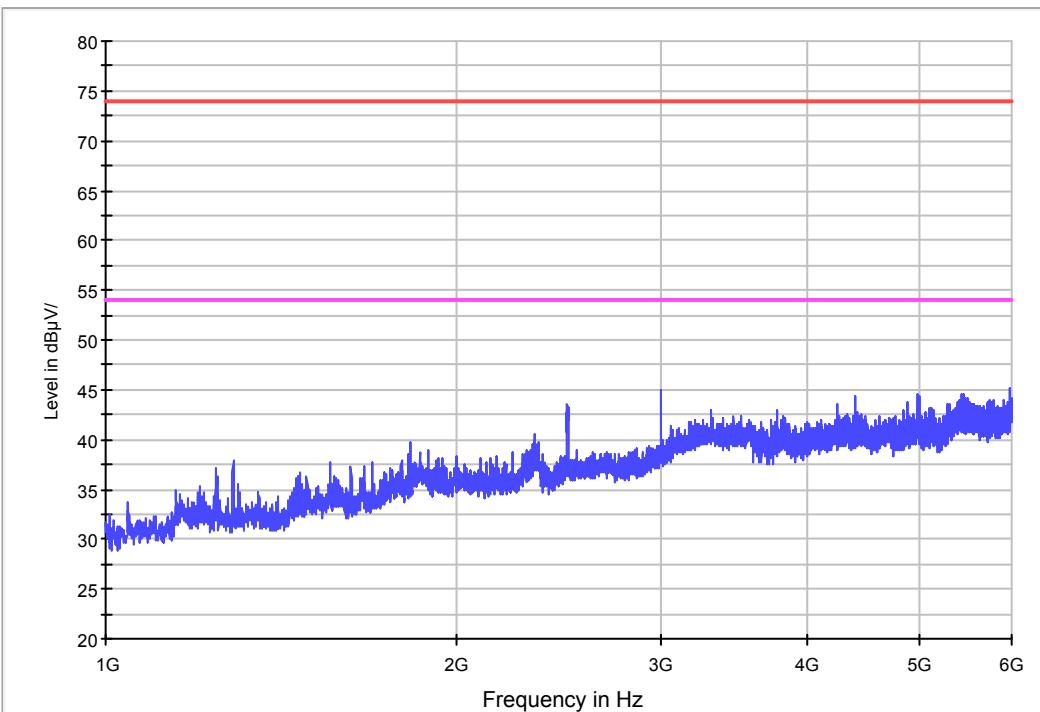
## EUT Information

EUT Model name: C1201ECL  
Operator Mode: Connect to PC  
Comment:

## Common Information

Test Description: SMQ NETC EMC Lab.3m Chamber  
Customer  
Antenna Position: Horizontal  
Operator Name:  
Comment1:  
Comment2:

Field strength 1-6GHz



# Radiated Emission

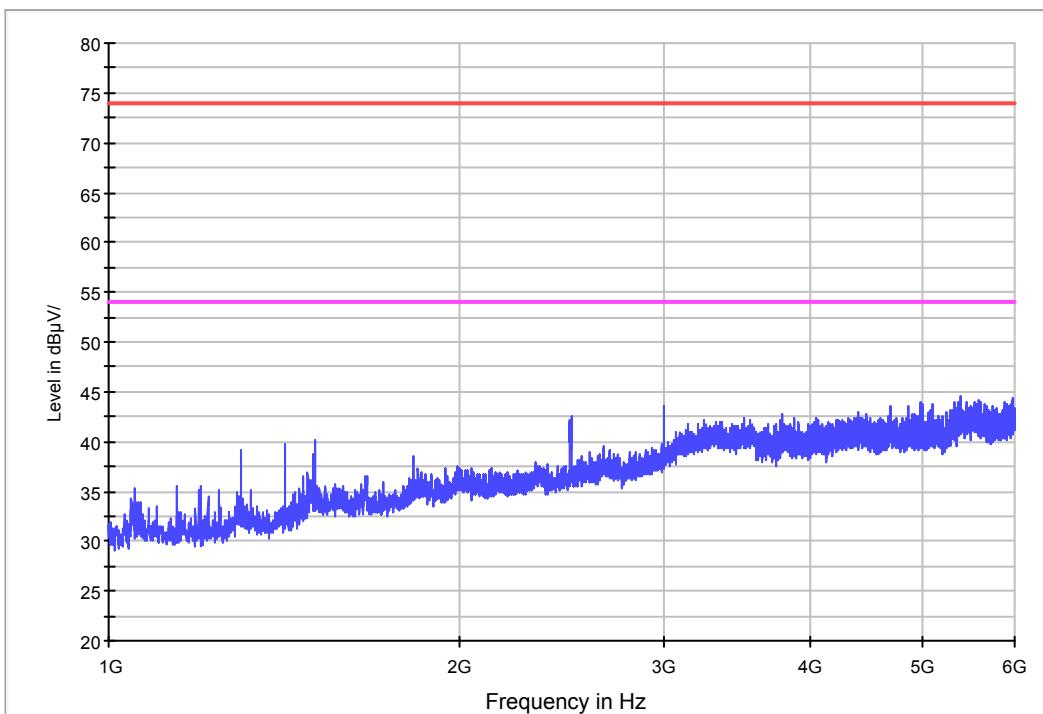
## EUT Information

EUT Model name: C1201ECL  
Operator Mode: Connect to PC  
Comment:

## Common Information

Test Description: SMQ NETC EMC Lab.3m Chamber  
Customer  
Antenna Position: Vertical  
Operator Name:  
Comment1:  
Comment2:

Field strength 1-6GHz



## **APPENDIX I TEST PICTURE**

## Photo 1 Conducted Disturbance Test



## Photo 2 Radiated Disturbance Test



**Photo 3 Radiated Disturbance Test**

