

FCC Test Report

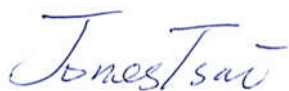
APPLICANT : NCXX Inc.
EQUIPMENT : LTE USB Modem
BRAND NAME : NCXX Inc.
MODEL NAME : UX302NC-R
FCC ID : SLKUX302NC-R
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

The product was received on Dec. 12, 2017 and testing was completed on Apr. 13, 2017. We, Sporton International (KunShan) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (KunShan) INC., the test report shall not be reproduced except in full.



Prepared by: James Huang / Manager



Approved by: Jones Tsai / Manager



Sporton International (KunShan) INC.

No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC6D1201	Rev. 01	Initial issue of report	May. 08, 2017



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	Under limit 13.64 dB at 0.474 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 10.56 dB at 398.700 MHz



1. General Description

1.1. Applicant

NCXX Inc.

2-32-1, Kunuginome, Hanamaki, Iwate-Pref 025-0323, Japan

1.2. Manufacturer

NCXX Inc.

2-32-1, Kunuginome, Hanamaki, Iwate-Pref 025-0323, Japan

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE USB Modem
Brand Name	NCXX Inc.
Model Name	UX302NC-R
FCC ID	SLKUX302NC-R
EUT supports Radios application	GPRS/EDGE/WCDMA/HSPA/ HSPA+ (16QAM uplink is not supported)/
IMEI Code	Conduction: N/A Radiation: N/A
HW Version	LWDM130A2-1
SW Version	V2.0.0.j
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz
Antenna Type	WWAN : Fixed Internal Antenna
Type of Modulation	GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : BPSK (Uplink) HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (16QAM uplink is not supported)

1.5. Modification of EUT

No modifications are made to the EUT during all test items.



1.6. Test Location

Test Site	Sporton International (KunShan) INC.		
Test Site Location	No.3-2, Pingxiang Road, Kunshan Development Zone, Jiangsu, China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC Registration No.
	CO01-KS	03CH02-KS	418269

1.7. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC 47 CFR FCC Part 15 Subpart B
- ♦ ANSI C63.4-2014

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.



2. Test Configuration of Equipment Under Test

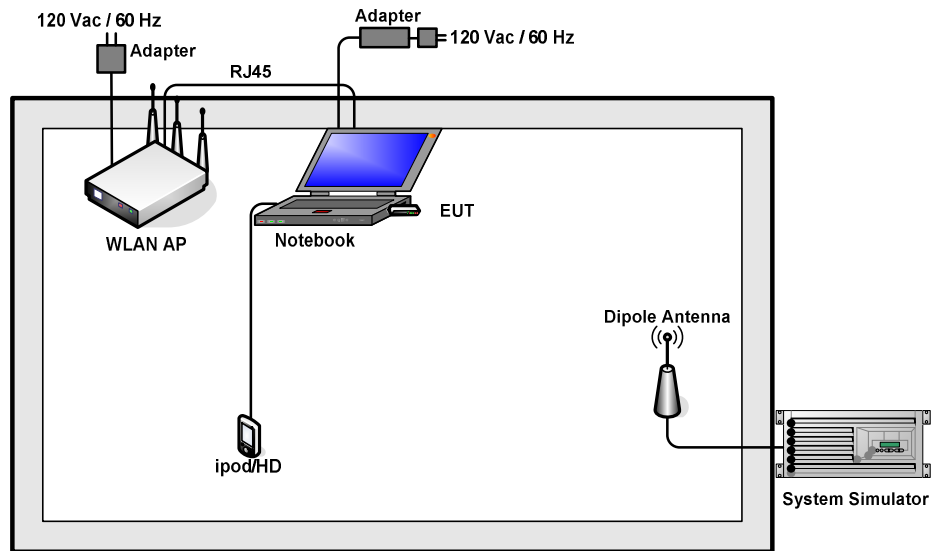
2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
AC Conducted Emission	Mode 1: GPRS 850 Idle + USB Charging form Notebook
Radiated Emissions	Mode 1: GPRS 850 Idle + USB Charging form Notebook

2.2. Connection Diagram of Test System



2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	LINKSYS	WRT600N	Q87-WRT600NV11	N/A	Unshielded, 1.8 m
3.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded, 1.8 m
4.	Notebook	Lenovo	G480	PRC4	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
5.	Notebook	DELL	Latitude3440	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
6.	iPod	Apple	A1199	FCC DoC	Unshielded, 1.2 m	N/A
7.	Hard Disk	Lenovo	F310	DoC	shielded, 0.5 m	N/A

2.4. EUT Operation Test Setup

The EUT was in GPRS idle mode and charging from notebook during the testing.

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

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 within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (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.

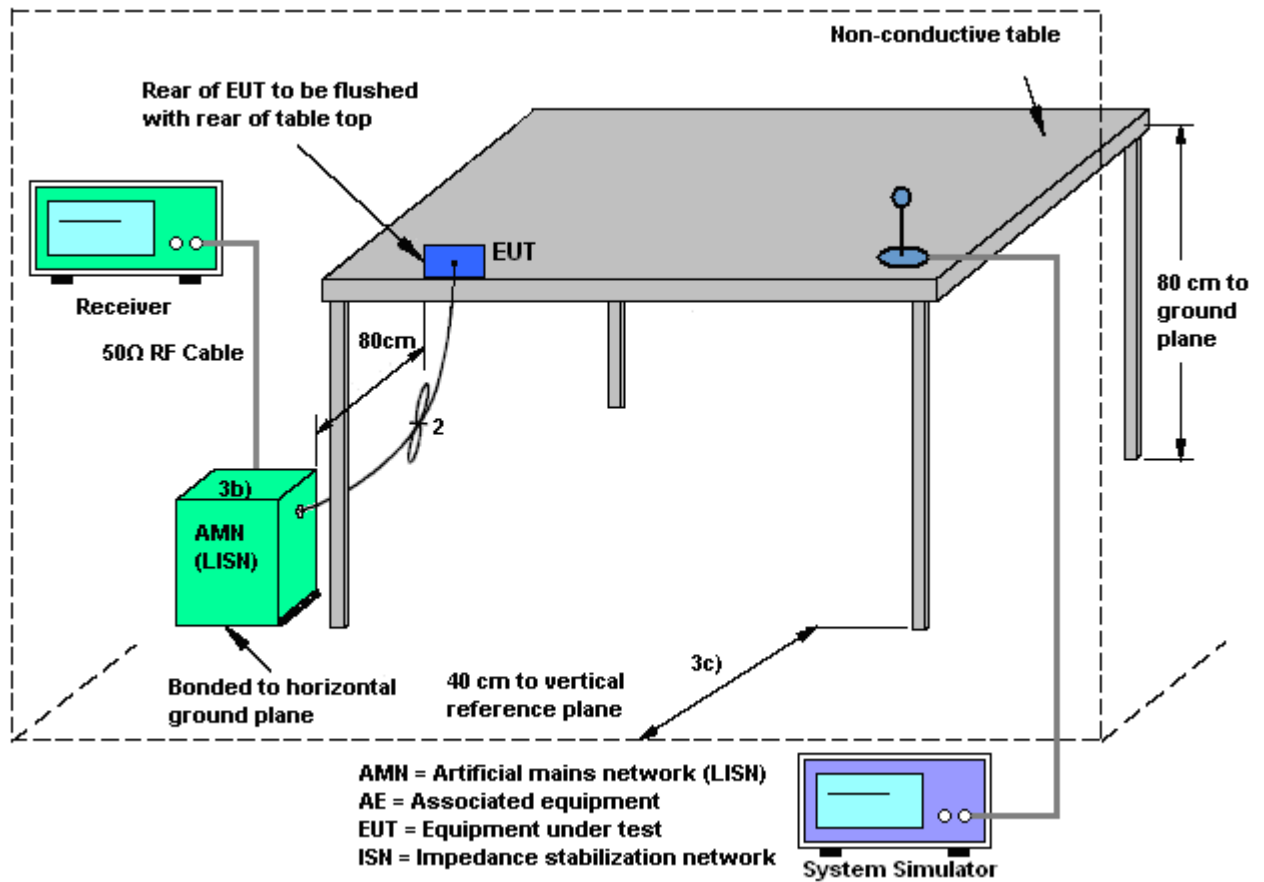
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedure

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

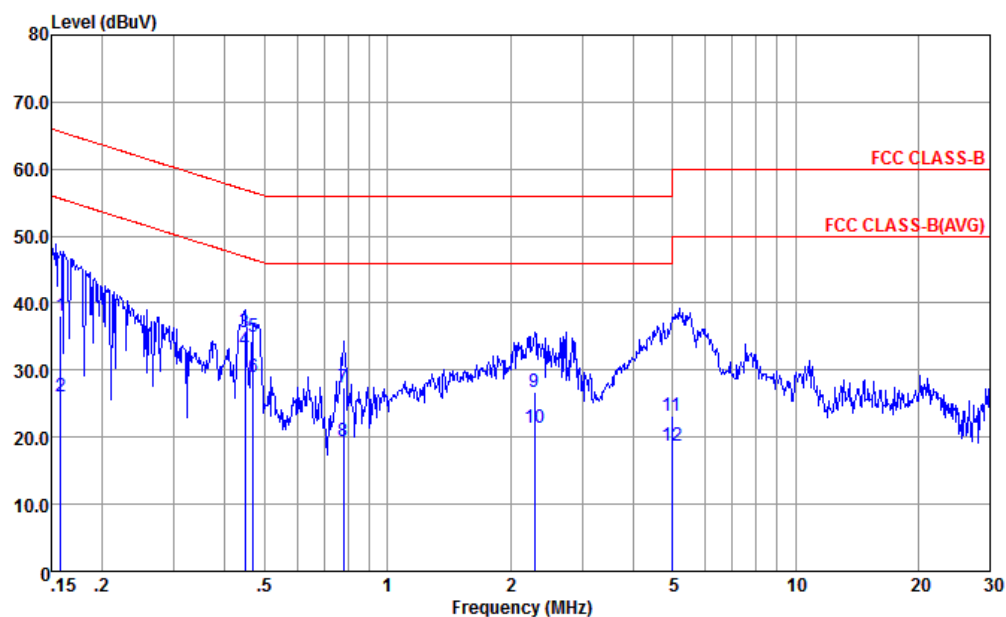
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Eligah Wang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GPRS 850 Idle + USB Charging form Notebook		

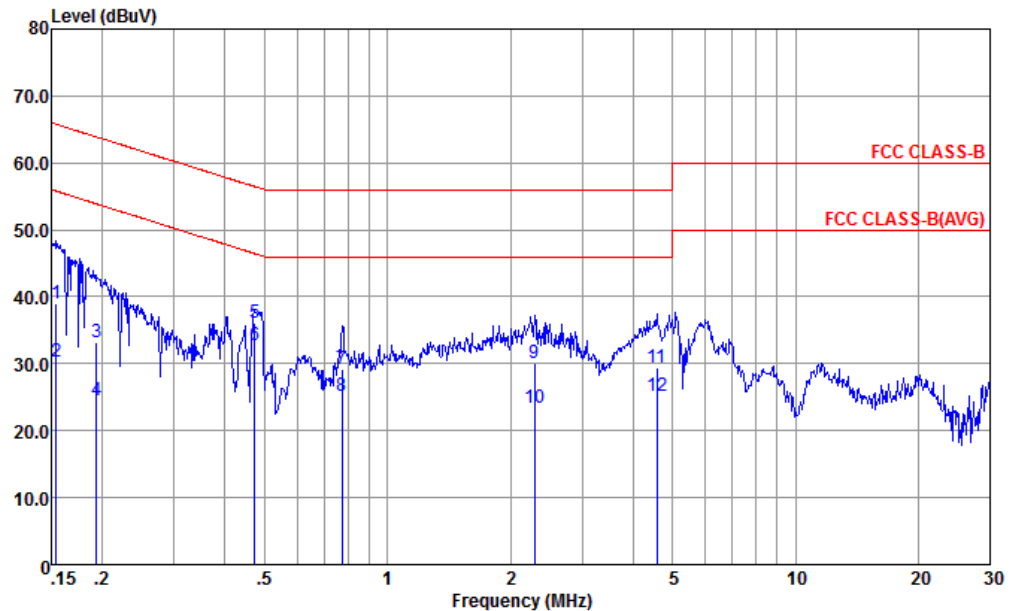


Site : CO01-KS
Condition : FCC CLASS-B LISN-L-20151024 LINE
Project : (FC) 6D1201
Mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.158	38.16	-27.40	65.56	27.30	0.48	10.38	QP
2	0.158	26.16	-29.40	55.56	15.30	0.48	10.38	Average
3	0.447	35.72	-21.21	56.93	25.30	0.23	10.19	QP
4 *	0.447	33.02	-13.91	46.93	22.60	0.23	10.19	Average
5	0.469	35.02	-21.52	56.54	24.60	0.23	10.19	QP
6	0.469	29.02	-17.52	46.54	18.60	0.23	10.19	Average
7	0.779	27.32	-28.68	56.00	16.91	0.24	10.17	QP
8	0.779	19.32	-26.68	46.00	8.91	0.24	10.17	Average
9	2.297	26.68	-29.32	56.00	16.30	0.18	10.20	QP
10	2.297	21.48	-24.52	46.00	11.10	0.18	10.20	Average
11	4.978	23.23	-32.77	56.00	12.80	0.19	10.24	QP
12	4.978	18.73	-27.27	46.00	8.30	0.19	10.24	Average



Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Eligah Wang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GPRS 850 Idle + USB Charging form Notebook		



Site : CO01-KS
Condition : FCC CLASS-B LISM-N-20151024 NEUTRAL
Project : (FC) 6D1201
Mode : Mode 1

	Freq	Level	Over	Limit	Read	LISM	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.154	38.99	-26.79	65.78	28.30	0.30	10.39	QP
2	0.154	30.29	-25.49	55.78	19.60	0.30	10.39	Average
3	0.193	33.25	-30.64	63.89	22.60	0.31	10.34	QP
4	0.193	24.45	-29.44	53.89	13.80	0.31	10.34	Average
5	0.474	36.11	-20.34	56.45	25.60	0.32	10.19	QP
6 *	0.474	32.81	-13.64	46.45	22.30	0.32	10.19	Average
7	0.775	29.12	-26.88	56.00	18.60	0.35	10.17	QP
8	0.775	25.12	-20.88	46.00	14.60	0.35	10.17	Average
9	2.297	30.17	-25.83	56.00	19.59	0.38	10.20	QP
10	2.297	23.47	-22.53	46.00	12.89	0.38	10.20	Average
11	4.574	29.50	-26.50	56.00	18.90	0.36	10.24	QP
12	4.574	25.20	-20.80	46.00	14.60	0.36	10.24	Average

3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2. Measuring Instruments

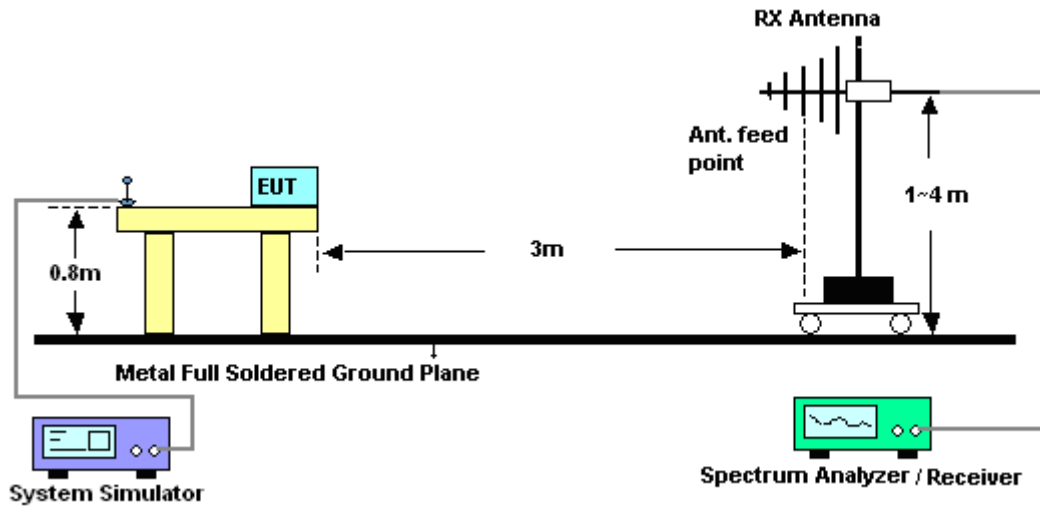
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

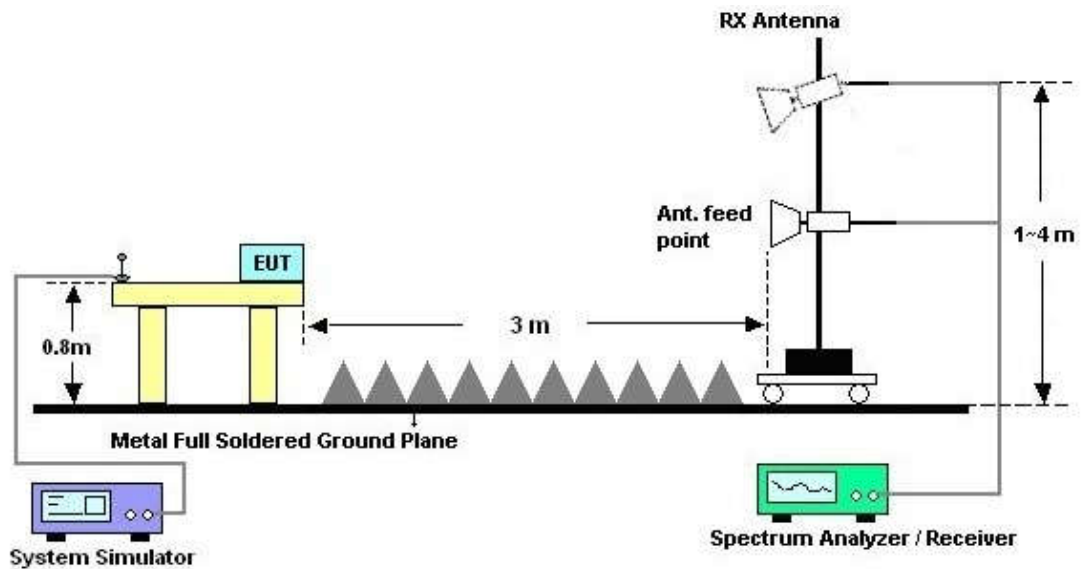
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBμV/m) = 20 log Emission level (μV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



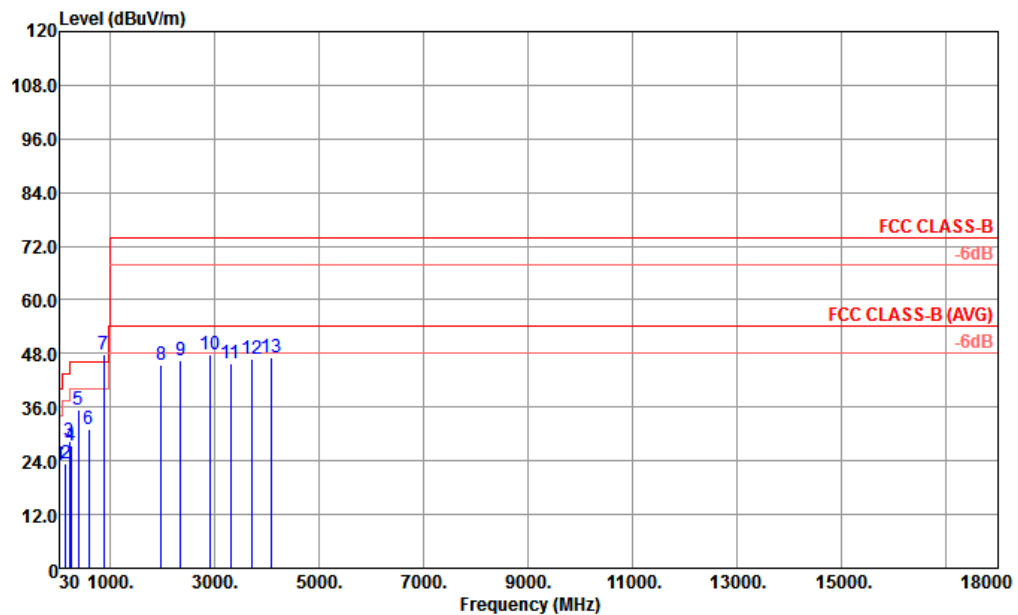
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Leo Liao	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	GPRS 850 Idle + USB Charging form Notebook		
Remark :	#7 is system simulator signal which can be ignored.		

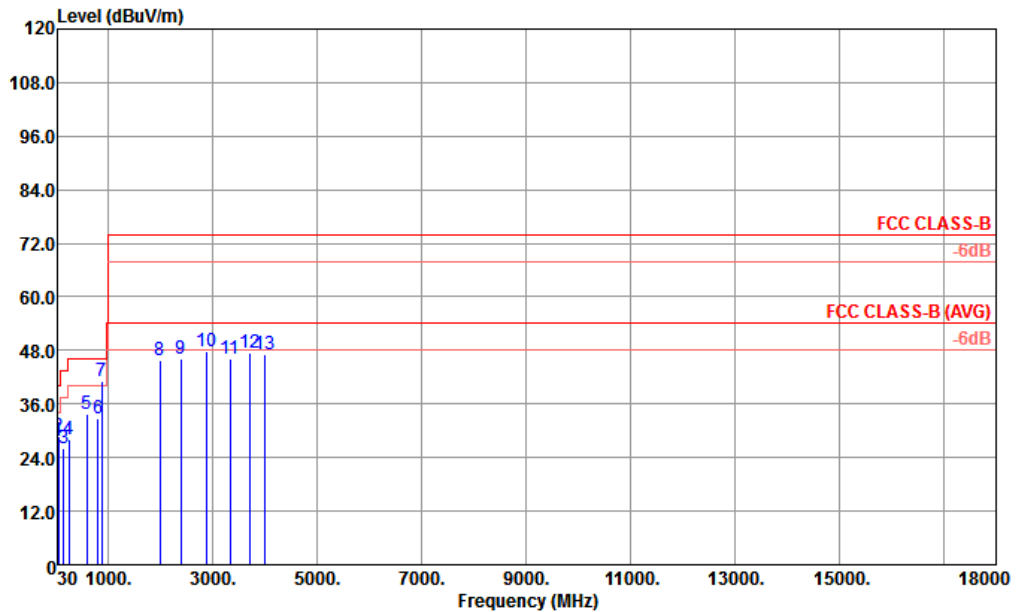


Site : 03CH02-KS
Condition : FCC CLASS-B 3m 966-02 LF ANT HORIZONTAL
Project : (FC) 6D1201
Mode : 1
IMEI : 351692061334081

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	22.92	-17.08	40.00	28.76	25.80	0.11	31.75	---	---	Peak
2	153.12	23.41	-20.09	43.50	37.13	17.46	0.33	31.51	---	---	Peak
3	223.32	28.55	-17.45	46.00	42.87	16.27	0.45	31.04	---	---	Peak
4	253.83	27.37	-18.63	46.00	40.55	17.43	0.50	31.11	---	---	Peak
5	398.70	35.44	-10.56	46.00	39.95	25.11	0.92	30.54	100	0	Peak
6	598.90	31.25	-14.75	46.00	34.91	24.34	0.90	28.90	---	---	Peak
7 *	881.00	47.69			45.69	27.45	1.58	27.03	---	---	Peak
8	1974.00	45.57	-28.43	74.00	45.75	30.21	4.47	34.86	---	---	Peak
9	2356.00	46.51	-27.49	74.00	43.02	31.36	5.62	33.49	---	---	Peak
10	2916.00	47.93	-26.07	74.00	40.87	32.39	2.95	28.28	---	---	Peak
11	3315.00	45.83	-28.17	74.00	37.26	33.56	5.97	30.96	---	---	Peak
12	3717.00	46.89	-27.11	74.00	37.60	34.37	6.34	31.42	---	---	Peak
13	4095.00	47.26	-26.74	74.00	37.70	34.98	6.39	31.81	---	---	Peak



Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Leo Liao	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GPRS 850 Idle + USB Charging form Notebook		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH02-KS
Condition : FCC CLASS-B 3m 966-02 LF ANT VERTICAL
Project : (FC) 6D1201
Mode : 1
IMEI : 351692061334081

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	34.86	27.69	-12.31	40.00	34.75	24.55	0.12	31.73	---	---	Peak
2	55.11	28.82	-11.18	40.00	46.38	13.90	0.15	31.61	100	150	Peak
3	153.12	26.03	-17.47	43.50	39.75	17.46	0.33	31.51	---	---	Peak
4	253.83	28.00	-18.00	46.00	41.18	17.43	0.50	31.11	---	---	Peak
5	598.90	33.73	-12.27	46.00	37.39	24.34	0.90	28.90	---	---	Peak
6	804.70	32.81	-13.19	46.00	32.46	26.66	1.46	27.77	---	---	Peak
7 !	881.00	41.01			39.01	27.45	1.58	27.03	---	---	Peak
8	1992.00	45.91	-28.09	74.00	45.81	30.36	4.46	34.72	---	---	Peak
9	2398.00	46.02	-27.98	74.00	42.27	31.40	5.56	33.21	---	---	Peak
10	2874.00	47.84	-26.16	74.00	40.67	32.27	2.85	27.95	---	---	Peak
11	3339.00	46.11	-27.89	74.00	37.47	33.60	5.96	30.92	---	---	Peak
12	3717.00	47.43	-26.57	74.00	38.14	34.37	6.34	31.42	---	---	Peak
13	4002.00	47.10	-26.90	74.00	37.88	34.86	6.10	31.74	---	---	Peak



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Apr. 29, 2016	Apr. 09, 2017	Apr. 28, 2017	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2016	Apr. 09, 2017	Oct. 12, 2017	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2016	Apr. 09, 2017	Oct. 12, 2017	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 13, 2016	Apr. 09, 2017	Oct. 12, 2017	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Aug. 09, 2016	Apr. 13, 2017	Aug. 08, 2017	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz, MAX 30dB	Apr. 22, 2016	Apr. 13, 2017	Apr. 21, 2017	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz~2GHz	Aug. 20, 2016	Apr. 13, 2017	Aug. 19, 2017	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 22, 2016	Apr. 13, 2017	Oct. 21, 2017	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz~1000MHz / 32 dB	Apr. 22, 2016	Apr. 13, 2017	Apr. 21, 2017	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1~26.5GHz Gain 30dB	Oct. 13, 2016	Apr. 13, 2017	Oct. 12, 2017	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	Apr. 13, 2017	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Apr. 13, 2017	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Apr. 13, 2017	NCR	Radiation (03CH02-KS)

NCR: No Calibration Required



5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.3dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.2dB
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Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.7dB
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