



FCC RF TEST REPORT

47 CFR FCC Part 15 Subpart C § 15.249

APPLICANT : Samsung Electronics Co., Ltd.
EQUIPMENT : MOBILE PHONE
BRAND NAME : SAMSUNG
MODEL NAME : SM-A300YZ
FCC ID : A3LSMA300YZ

The product was received on Sep. 29, 2014 and testing was completed on Oct. 21, 2014. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (SHENZHEN) INC.

No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR492906D	Rev. 01	Initial issue of report	Oct. 30, 2014

**1. SUMMARY OF THE TEST RESULT**

Applied Standard:				
Part	FCC Rule	Description of Test	Result	Under Limit
3.1	15.207	AC Power Line Conducted Emissions	Complies	14.64 dB at 0.340MHz
3.2	2.1049	20dB & 99% Occupied Bandwidth	Complies	-
3.3	15.249(a)	Field Strength of Fundamental Emissions	Complies	16.22 dB at 2441.000MHz
3.3	15.249(a)(d)	Radiated Spurious Emissions	Complies	7.61 dB at 30.970MHz
3.4	15.203	Antenna Requirements	Complies	-

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.3
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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))	2.5
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2. GENERAL INFORMATION

2.1 Applicant

Samsung Electronics Co., Ltd.

No.9 WeiWu Rd., Micro Electronic Industrial Park, Jingang Highway, Xiqing District, Tianjin, China

2.2 Manufacturer

Samsung Electronics Co., Ltd.

No.9 WeiWu Rd., Micro Electronic Industrial Park, Jingang Highway, Xiqing District, Tianjin, China

2.3 Product Details

For more detailed features description, please refer to the manufacturer's specifications or user's manual.

Product Feature	
Equipment	MOBILE PHONE
Brand Name	SAMSUNG
Model Name	SM-A300YZ
FCC ID	A3LSMA300YZ
GSM Operating Band(s)	GSM850/900/1800/1900MHz
GPRS/EGPRS Multislot Class	GPRS Class 33, EGPRS Class 33
WCDMA Operating Band(s)	FDD Band I/II/V/VIII
LTE Operating Band(s)	FDD Band 3/8/28
Wi-Fi Specification	2.4GHz 802.11b/g/n HT20
Bluetooth Version	Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
ANT+ Specification	2.4GHz
HW Version	REV0.0
SW Version	A300YZ.001
EUT Stage	Identical Prototype

Items	Description
Modulation	GFSK
Channel Bandwidth (99%)	0.888MHz
Max. Field Strength (Peak)	97.78dBμV/m
Max. Field Strength (Average)	47.88dBμV/m
ANT+ Channel Number	79
ANT+ Frequency Range	2402-2480MHz



2.4 Table for Test Modes

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode
AC Power Line Conducted Emissions	CTX
Field Strength of Fundamental Emissions	CTX
Bandwidth	CTX
Radiated Emissions	CTX

Note:

1. CTX=continuously transmitting.
2. The programmed RF utility, the engineering test program was provided and enabled to make EUT continuous transmit/receive.

**2.5 Table for Testing Locations**

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.		
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755- 3320-2398		
Test Site No.	Sporton Site No.		FCC Registration No.
	TH01-SZ	CO01-SZ	831040

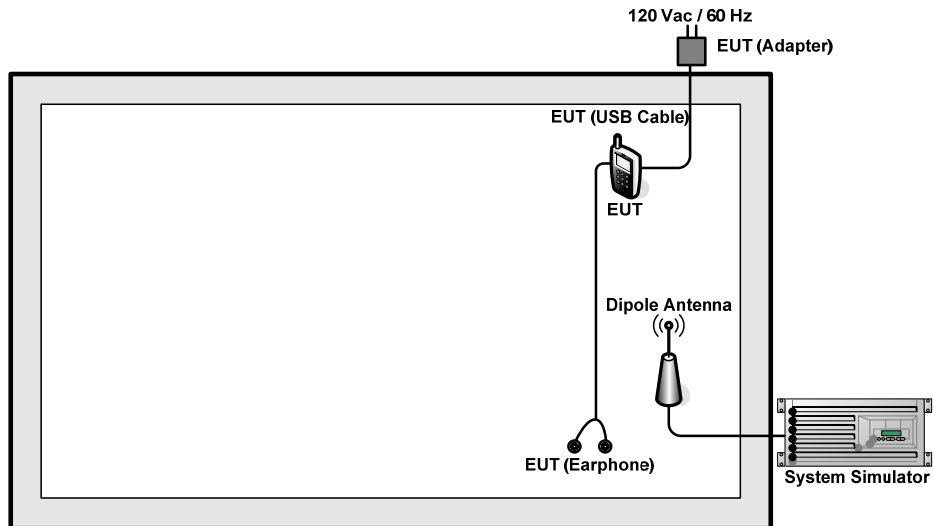
Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC Registration No.
	03CH01-KS		149928

2.6 Table for Supporting Units

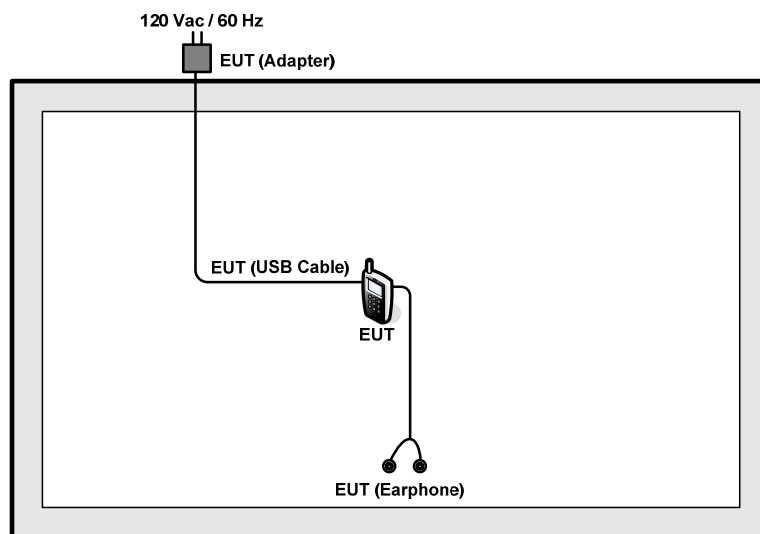
Support Unit	Manufacturer	Model	FCC ID
System Simulator	R&S	CMW 500	N/A

2.7 Test Configurations

<AC Conducted Emissions>



<Radiated Spurious Emissions>



3. TEST RESULT

3.1 AC Power Line Conducted Emissions Measurement

3.1.1 Limit

For a Low-power Radio-frequency device which is designed to be connected to the 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 below limits table.

Frequency (MHz)	QP Limit (dB μ V)	AV Limit (dB μ V)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

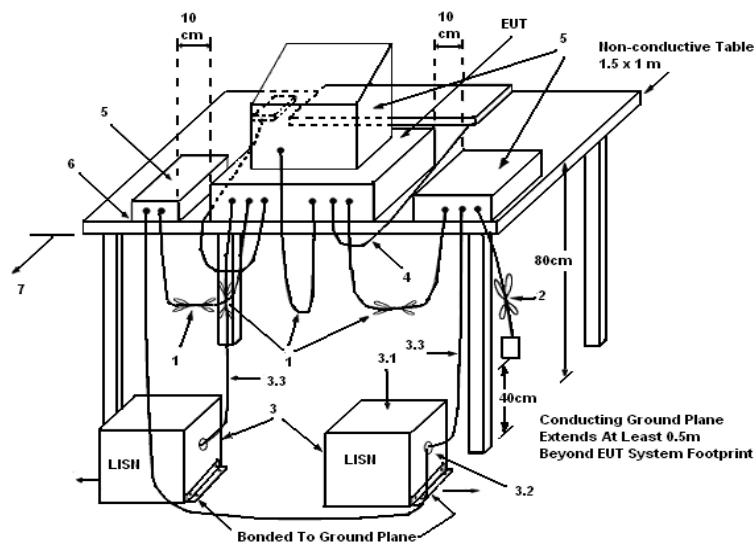
3.1.2 Measuring Instruments

Please refer to section 4 of equipment list in this report.

3.1.3 Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

3.1.4 Test Setup Layout



LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
- (3.1) All other equipment powered from additional LISN(s).
- (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
- (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

3.1.5 Test Deviation

There is no deviation with the original standard.



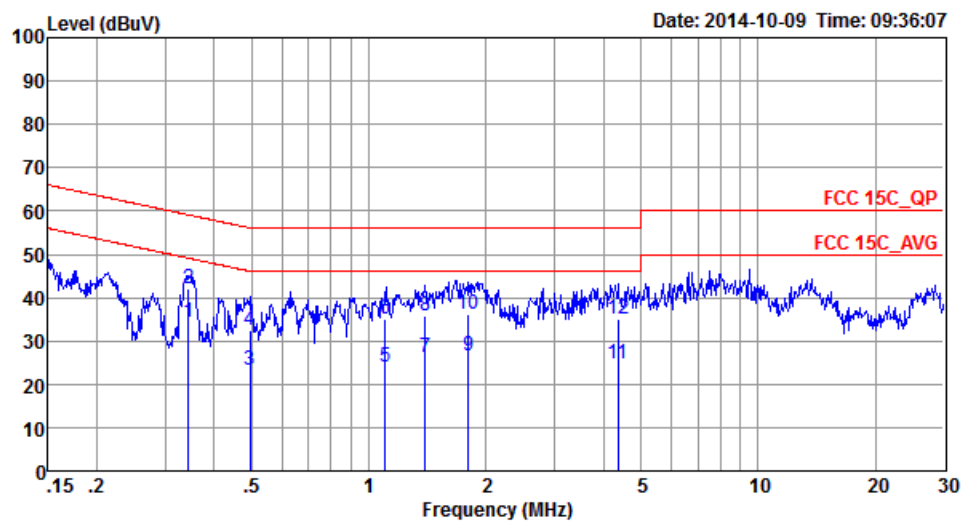
3.1.6 EUT Operation during Test

The EUT was placed on the test table and programmed in transmitting function.

3.1.7 Results of AC Power Line Conducted Emissions Measurement

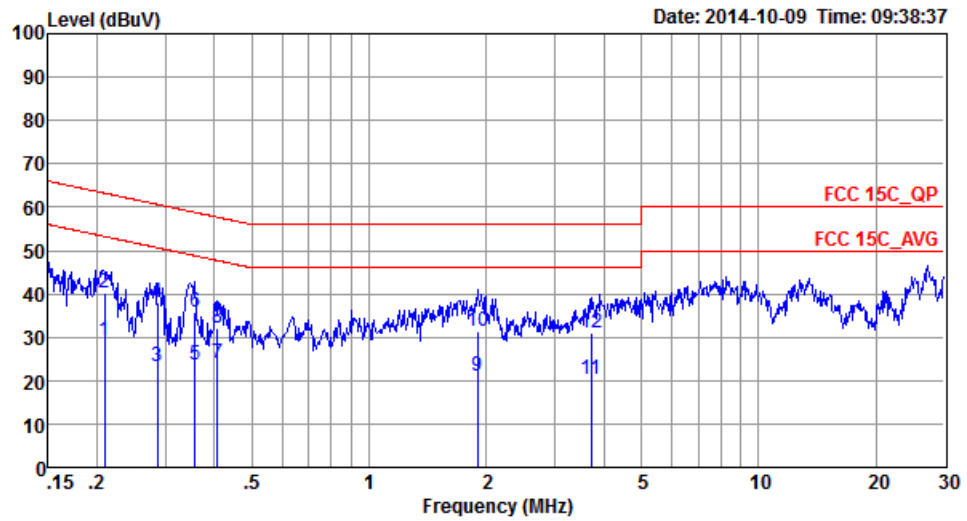
Test Date	Oct. 09, 2014	Test Site No.	CO01-SZ
Temperature	21~22℃	Humidity	41~42%
Test Engineer	Jack Tian	Configuration	ANT+ Transmitting Mode
Mode	GSM850 Idle + USB Cable (Charging from Adapter) + Earphone + ANT+TX		

Line



Site : CO01-SZ
Condition: FCC 15C_QP LISN_L_20140304 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.34	34.45	-14.64	49.09	23.99	0.27	10.19	Average
2	0.34	41.95	-17.14	59.09	31.49	0.27	10.19	QP
3	0.49	23.26	-22.84	46.10	12.80	0.30	10.16	Average
4	0.49	32.66	-23.44	56.10	22.20	0.30	10.16	QP
5	1.10	24.11	-21.89	46.00	13.70	0.25	10.16	Average
6	1.10	34.91	-21.09	56.00	24.50	0.25	10.16	QP
7	1.40	26.21	-19.79	46.00	15.80	0.24	10.17	Average
8	1.40	35.71	-20.29	56.00	25.30	0.24	10.17	QP
9	1.80	26.51	-19.49	46.00	16.10	0.23	10.18	Average
10	1.80	36.31	-19.69	56.00	25.90	0.23	10.18	QP
11	4.36	24.82	-21.18	46.00	14.20	0.39	10.23	Average
12	4.36	35.22	-20.78	56.00	24.60	0.39	10.23	QP

**Neutral**

Site : CO01-SZ

Condition: FCC 15C_QP LISN_N_20140304 NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.21	29.01	-24.22	53.23	18.41	0.32	10.28	Average
2	0.21	40.21	-23.02	63.23	29.61	0.32	10.28	QP
3	0.29	23.37	-27.26	50.63	12.80	0.36	10.21	Average
4 *	0.29	37.87	-22.76	60.63	27.30	0.36	10.21	QP
5	0.36	23.76	-25.02	48.78	13.20	0.38	10.18	Average
6	0.36	35.66	-23.12	58.78	25.10	0.38	10.18	QP
7	0.41	23.86	-23.82	47.68	13.30	0.39	10.17	Average
8	0.41	32.06	-25.62	57.68	21.50	0.39	10.17	QP
9	1.90	20.95	-25.05	46.00	10.39	0.37	10.19	Average
10	1.90	31.35	-24.65	56.00	20.79	0.37	10.19	QP
11	3.72	20.48	-25.52	46.00	9.81	0.45	10.22	Average
12	3.72	31.08	-24.92	56.00	20.41	0.45	10.22	QP

3.2 20dB and & 99% Occupied Bandwidth

3.2.1 Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emissions in the specific band.

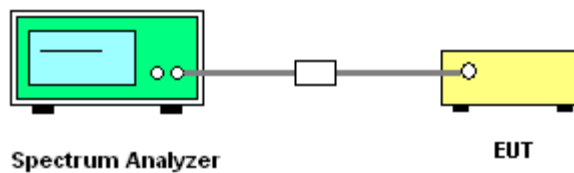
3.2.2 Measuring Instruments

Please refer to section 4 of equipment list in this report.

3.2.3 Test Procedures

1. The transmitter output port was connected to the spectrum analyzer.
2. Measured the spectrum width with highest power setting.

3.2.4 Test Setup Layout



3.2.5 Test Deviation

There is no deviation with the original standard.

3.2.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

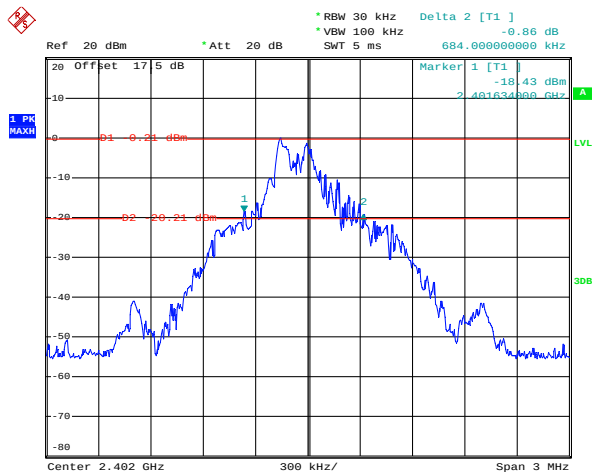


3.2.7 Test Result of 20dB Spectrum Bandwidth

Test Date	Oct. 11, 2014	Test Site No.	TH01-SZ
Temperature	24~26°C	Humidity	50~53%
Test Engineer	Fly Liang		

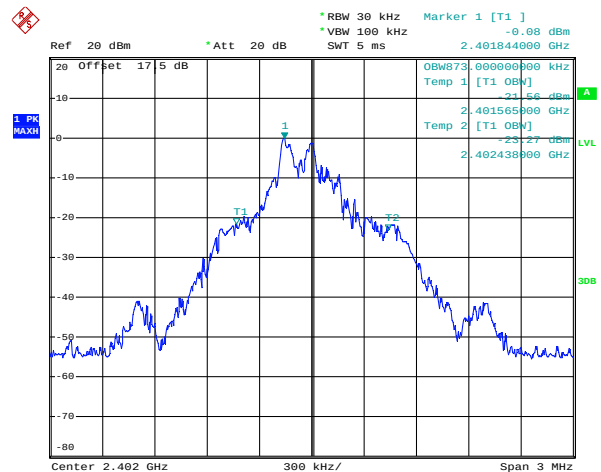
Frequency	20dB BW (MHz)	99% OBW (MHz)
2402MHz	0.684	0.873
2441MHz	0.732	0.882
2480MHz	0.714	0.888

20 dB Bandwidth Plot on 2402MHz



Date: 11.OCT.2014 15:05:59

99% Bandwidth Plot on 2402MHz



Date: 11.OCT.2014 14:25:37



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Report Issued Date : Oct. 30, 2014
Report Version : Rev. 01

3.3 Field Strength of Fundamental Emissions and Radiated Spurious Emissions

3.3.1 Limit

The field strength measured at 3 meters shall not exceed the limits in the following table:

Fundamental Frequencies(MHz)	Field Strength(millivolts/m)	
	Fundamental	Harmonics
902~928	50	0.5
2400~2483.5	50	0.5
5725~5875	50	0.5

Note: The limits shown in the above table are based on measurements using an average detector, except for the fundamental emission in the frequency band 902-928 MHz, which is based on measurements using a CISPR quasi-peak detector.

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general field strength limits listed in 15.209 as below, whichever is less stringent.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.3.2 Measuring Instruments

Please refer to section 4 of equipment list in this report.

3.3.3 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. 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. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.

Remark:

1. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
2. For average measurement: use duty cycle correction factor method per 15.35(c).

Duty cycle = On time/100 milliseconds

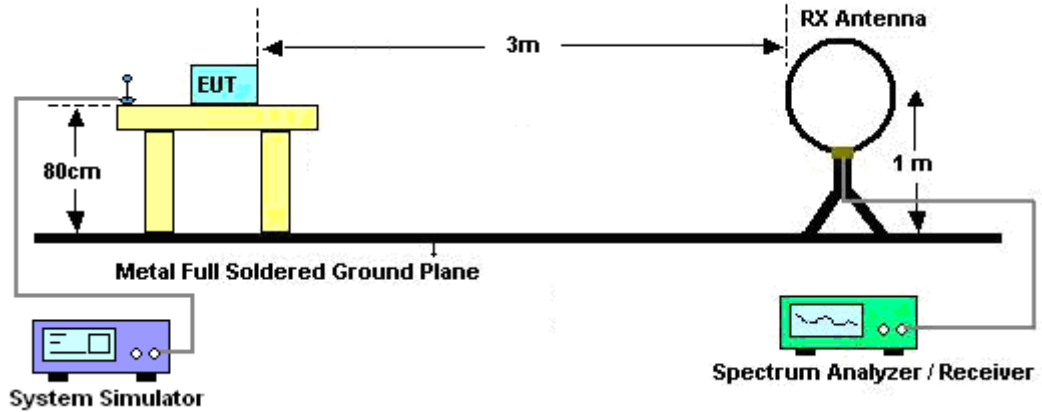
On time = $N1 \cdot L1 + N2 \cdot L2 + \dots + Nn-1 \cdot L_{Nn-1} + Nn \cdot Ln$

Where N1 is number of type 1 pulses, L1 is length of type 1 pulses, etc.

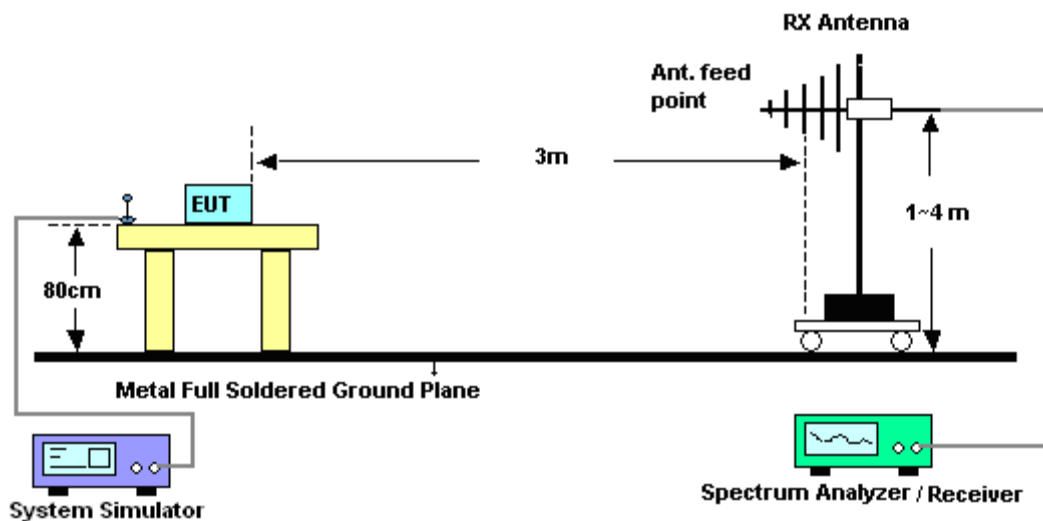
Average Emission Level = Peak Emission Level + $20 \cdot \log(\text{Duty cycle})$

3.3.4 Test Setup Layout

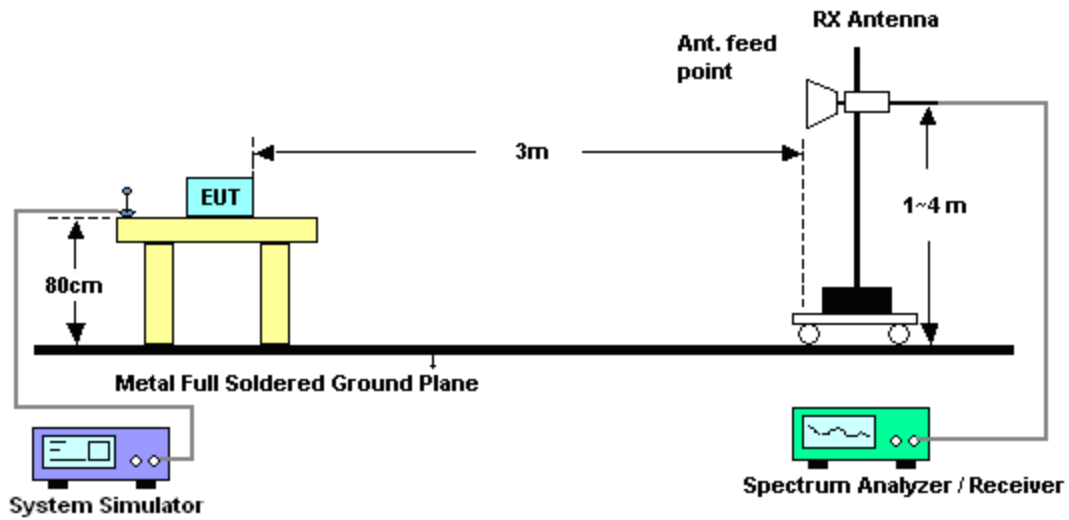
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.3.5 Test Deviation

There is no deviation with the original standard.

3.3.6 EUT Operation during Test

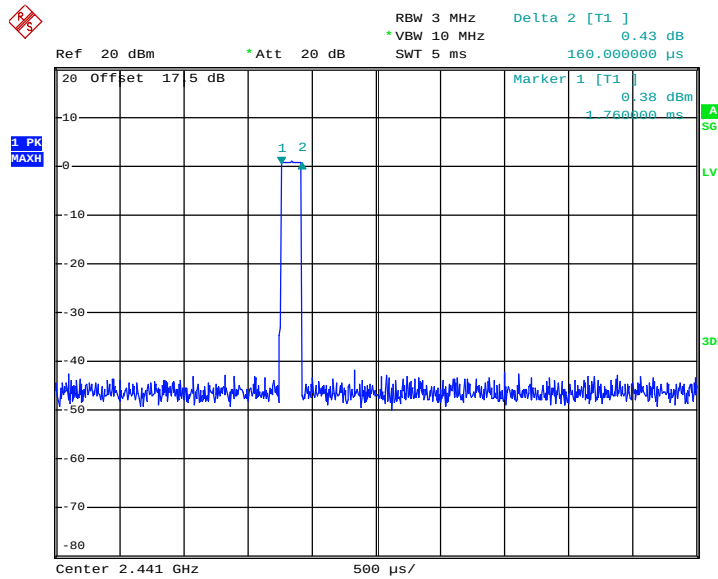
The EUT was programmed to be in continuously transmitting mode.

3.3.7 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

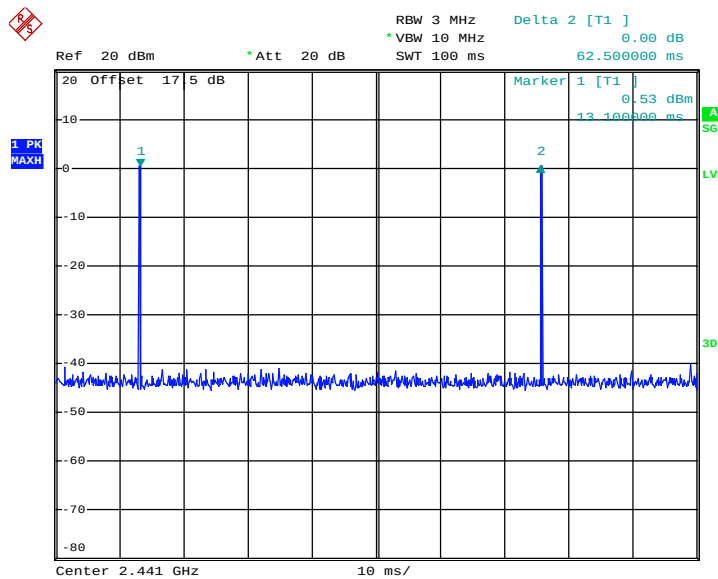
3.3.8 Duty cycle correction factor for average measurement

On time (One Pulse) Plot on 2441MHz



Date: 13.OCT.2014 14:47:58

On time (Count Pulses) Plot on 2441MHz



Date: 13.OCT.2014 15:01:56

Note:

1. Worst case Duty cycle = on time/100 milliseconds = $2 * 0.16 / 100 = 0.32 \%$
2. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -49.90 \text{ dB}$



3.3.9 Test Result of Radiated Spurious at Band Edges

Test Mode :	Mode 1	Temperature :	21~22°C
Test Channel :	00	Relative Humidity :	41~42%
		Test Engineer :	Feng Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2350.95	46.05	-27.95	74	47.96	31.82	2.61	36.34	100	160	Peak
2350.95	-3.85	-57.85	54	-	-	-	-	-	-	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2322.42	46.79	-27.21	74	48.87	31.76	2.59	36.43	135	62	Peak
2322.42	-3.11	-57.11	54	-	-	-	-	-	-	Average

Test Mode :	Mode 3	Temperature :	21~22°C
Test Channel :	78	Relative Humidity :	41~42%
		Test Engineer :	Feng Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.62	50.91	-23.09	74	51.68	32.34	2.68	35.79	100	165	Peak
2483.62	1.01	-52.99	54	-	-	-	-	-	-	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2495.53	47.02	-26.98	74	47.68	32.4	2.68	35.74	100	305	Peak
2495.53	-2.88	-56.88	54	-	-	-	-	-	-	Average

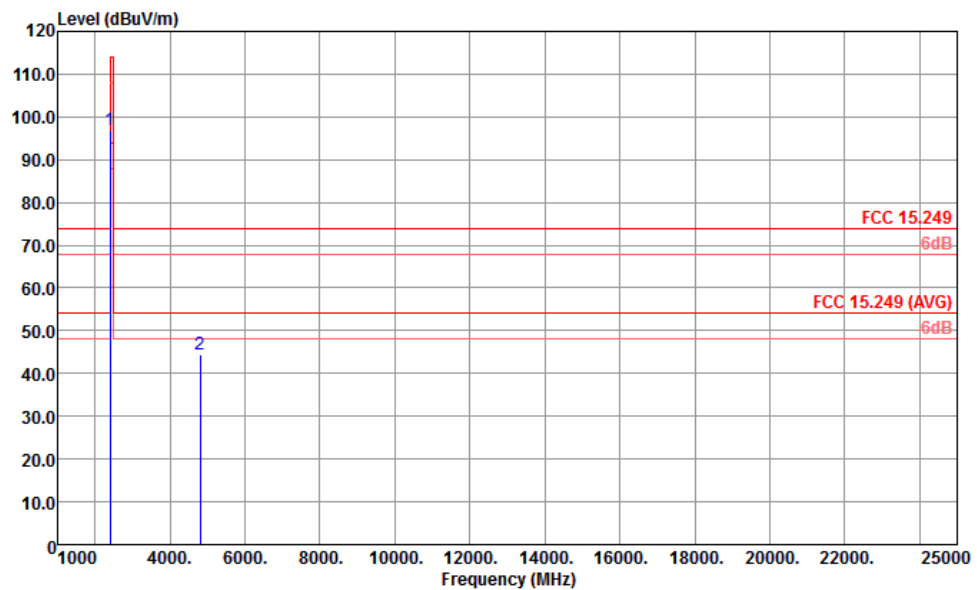
Note: Average Emission Level = Peak Emission Level + duty cycle correction factor (-49.90dB).



3.3.10 Test Result of Field Strength of Fundamental Emissions and Spurious Emissions

Note: Pre-scanned all test modes and only choose the worst case mode recorded in the test report for radiated spurious emission below 1GHz.

Test Date	Oct. 13, 2014 ~ Oct. 21, 2014	Test Engineer	Feng Wang
Temperature	21~22°C	Humidity	41~42%

2402MHz

Site : 03CH01-KS
Condition : FCC 15.249 3m HF-ANT-2014-8-1 HORIZONTAL

Plane : Y

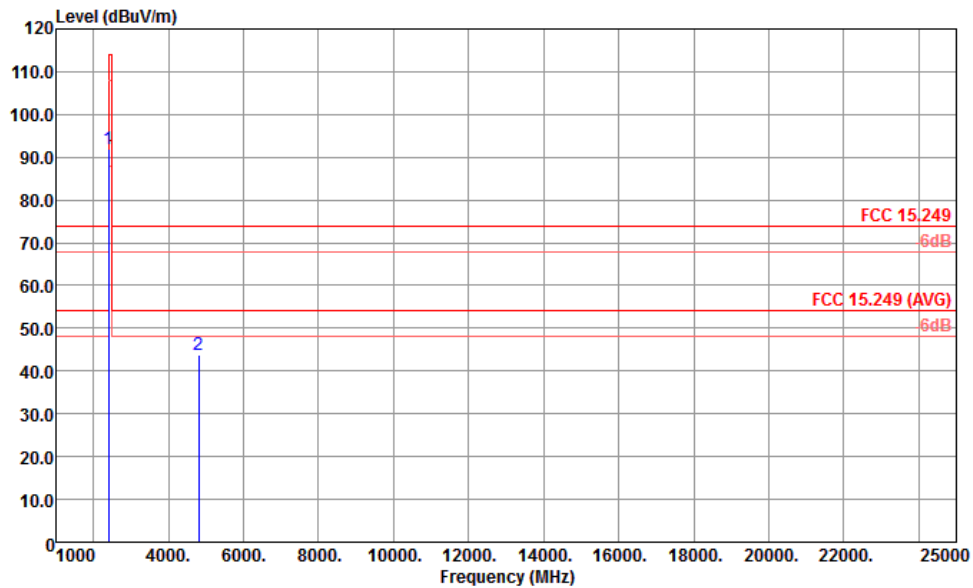
	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	2402.00	97.08	-16.92	114.00	98.50	32.01	2.65	36.08	100	160 Peak
2	4804.00	44.35	-29.65	74.00	42.96	34.20	3.78	36.59	105	267 Peak

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2402	97.08	-16.92	114	98.5	32.01	2.65	36.08	100	160	Peak
2402	47.18	-46.82	94	-	-	-	-	-	-	Average

Note: For average measurement: use duty cycle correction factor method per 15.35(c).

Average measurement was not performed if peak level went lower than the average limit.

Test result of emissions which are 20 dB lower than the limit is not reported per 15.31.



Site : 03CH01-KS
Condition : FCC 15.249 3m HF-ANT-2014-8-1 VERTICAL

Plane : Y

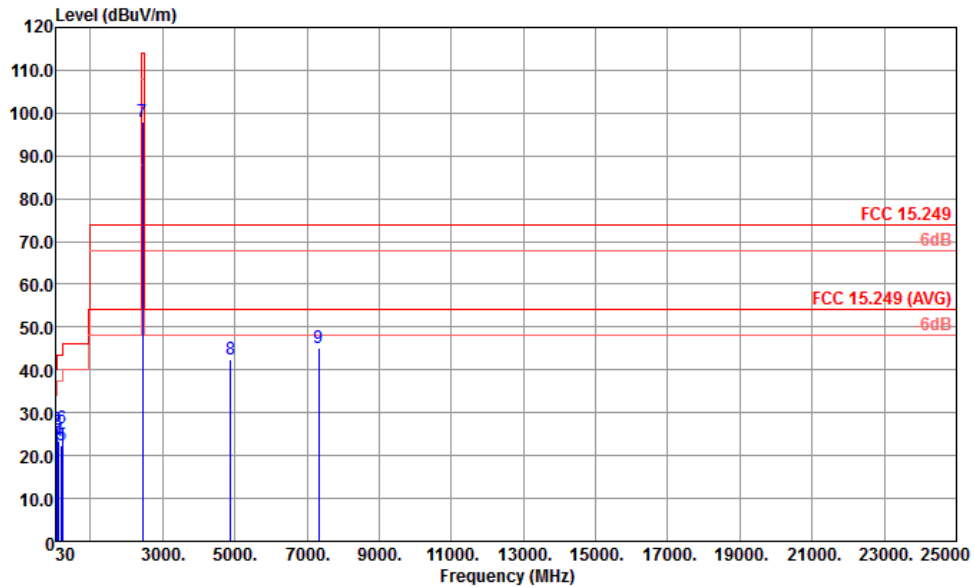
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2402.00	91.82	-22.18	114.00	93.24	32.01	2.65	36.08	135	62	Peak
2	4804.00	43.89	-30.11	74.00	42.50	34.20	3.78	36.59	157	29	Peak

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2402	91.82	-22.18	114	93.24	32.01	2.65	36.08	135	62	Peak
2402	41.92	-52.08	94	-	-	-	-	-	-	Average

Note: For average measurement: use duty cycle correction factor method per 15.35(c).

Average measurement was not performed if peak level went lower than the average limit.

Test result of emissions which are 20 dB lower than the limit is not reported per 15.31.

**2441MHz**

Site : 03CH01-KS
 Condition : FCC 15.249 3m LF_ANT_37879 HORIZONTAL

Plane : Y

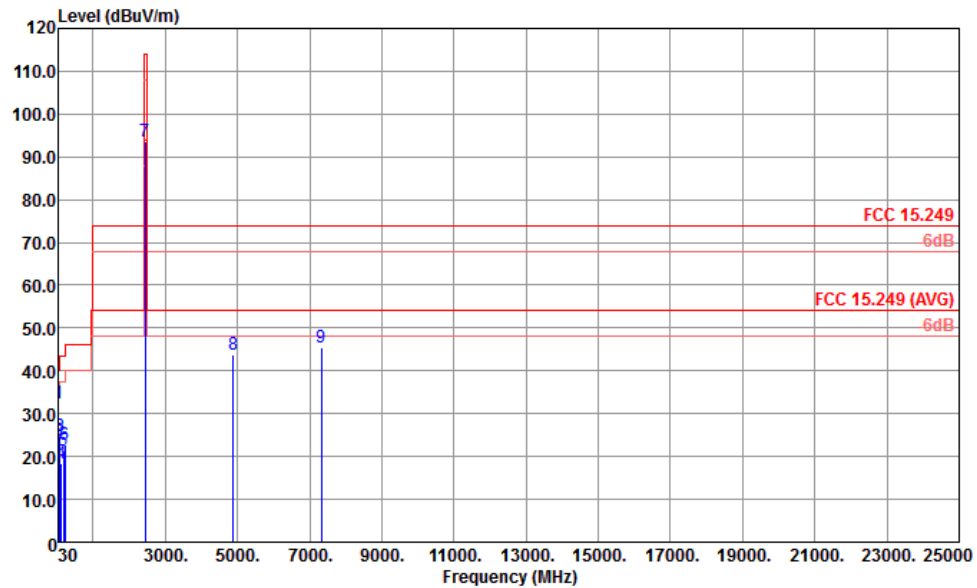
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	22.13	-17.87	40.00	35.40	19.20	0.19	32.66	---	---	Peak
2	67.83	25.92	-14.08	40.00	50.30	7.78	0.47	32.63	100	175	Peak
3	76.56	25.56	-14.44	40.00	48.84	8.77	0.60	32.65	---	---	Peak
4	112.45	23.40	-20.10	43.50	44.06	11.40	0.58	32.64	---	---	Peak
5	190.05	22.36	-21.14	43.50	43.95	10.17	0.71	32.47	---	---	Peak
6	222.06	26.29	-19.71	46.00	47.17	10.82	0.80	32.50	---	---	Peak
7	2441.00	97.78	-16.22	114.00	98.82	32.21	2.66	35.91	100	158	Peak
8	4882.00	42.55	-31.45	74.00	41.41	34.20	3.78	36.84	102	34	Peak
9	7324.00	45.05	-28.95	74.00	43.50	35.73	4.74	38.92	158	239	Peak

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2441	97.78	-16.22	114	98.82	32.21	2.66	35.91	100	158	Peak
2441	47.88	-46.12	94	-	-	-	-	-	-	Average

Note: For average measurement: use duty cycle correction factor method per 15.35(c).

Average measurement was not performed if peak level went lower than the average limit.

Test result of emissions which are 20 dB lower than the limit is not reported per 15.31.



Site : 03CH01-KS
 Condition : FCC 15.249 3m LF_ANT_37879 VERTICAL

Plane : Y

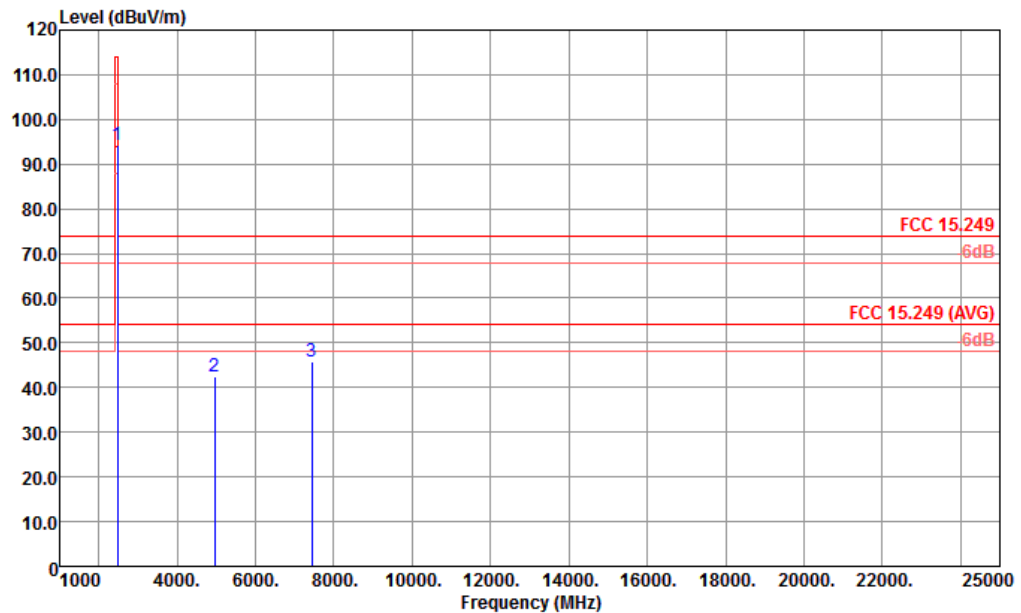
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.97	32.39	-7.61	40.00	46.15	18.71	0.19	32.66	109	204	Peak
2	47.46	23.86	-16.14	40.00	45.96	10.23	0.31	32.64	---	---	Peak
3	79.47	24.89	-15.11	40.00	47.92	9.02	0.60	32.65	---	---	Peak
4	113.42	18.41	-25.09	43.50	39.06	11.41	0.58	32.64	---	---	Peak
5	177.44	21.42	-22.08	43.50	42.41	10.66	0.83	32.48	---	---	Peak
6	213.33	22.71	-20.79	43.50	44.03	10.42	0.75	32.49	---	---	Peak
7	2441.00	93.65	-20.35	114.00	94.69	32.21	2.66	35.91	163	107	Peak
8	4882.00	43.85	-30.15	74.00	42.71	34.20	3.78	36.84	100	258	Peak
9	7324.00	45.32	-28.68	74.00	43.77	35.73	4.74	38.92	116	254	Peak

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2441	93.65	-20.35	114	94.69	32.21	2.66	35.91	163	107	Peak
2441	43.75	-50.25	94	-	-	-	-	-	-	Average

Note: For average measurement: use duty cycle correction factor method per 15.35(c).

Average measurement was not performed if peak level went lower than the average limit.

Test result of emissions which are 20 dB lower than the limit is not reported per 15.31.

**2480MHz**

Site : 03CH01-KS
 Condition : FCC 15.249 3m HF-ANT-2014-8-1 HORIZONTAL

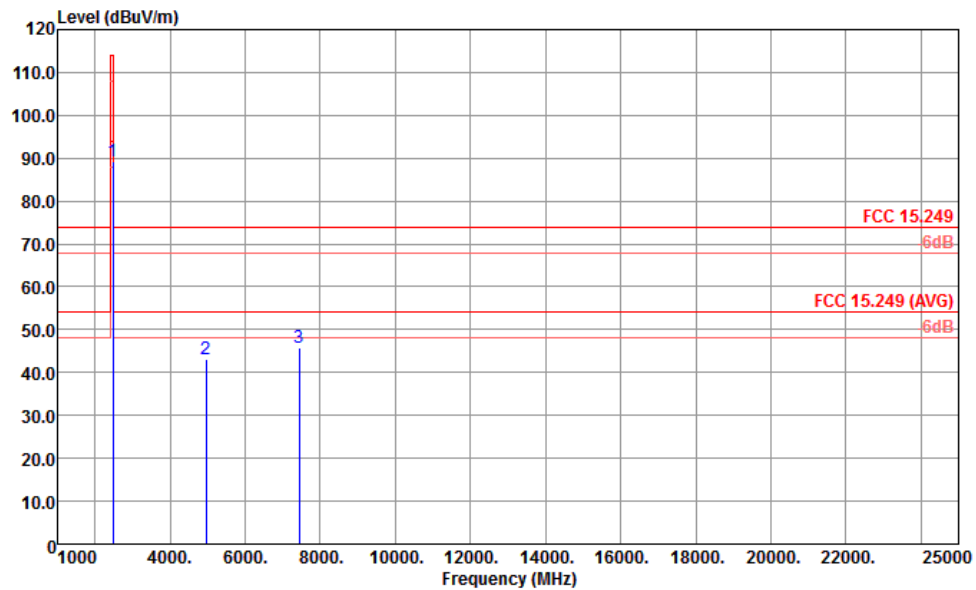
Plane	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2480.00	94.33	-19.67	114.00	95.11	32.34	2.67	35.79	100	156	Peak
2	4960.00	42.42	-31.58	74.00	41.59	34.20	3.78	37.15	102	324	Peak
3	7440.00	45.73	-28.27	74.00	44.06	35.78	4.80	38.91	123	25	Peak

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2480	94.33	-19.67	114	95.11	32.34	2.67	35.79	100	156	Peak
2480	44.43	-49.57	94	-	-	-	-	-	-	Average

Note: For average measurement: use duty cycle correction factor method per 15.35(c).

Average measurement was not performed if peak level went lower than the average limit.

Test result of emissions which are 20 dB lower than the limit is not reported per 15.31.



Site : 03CH01-KS
Condition : FCC 15.249 3m HF-ANT-2014-8-1 VERTICAL

Plane	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Loss	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2480.00	89.20	-24.80	114.00	89.98	32.34	2.67	35.79	100	305	Peak
2	4960.00	43.15	-30.85	74.00	42.32	34.20	3.78	37.15	116	305	Peak
3	7440.00	45.80	-28.20	74.00	44.13	35.78	4.80	38.91	167	69	Peak

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2480	89.2	-24.8	114	89.98	32.34	2.67	35.79	100	305	Peak
2480	39.3	-54.7	94	-	-	-	-	-	-	Average

Note: For average measurement: use duty cycle correction factor method per 15.35(c).

Average measurement was not performed if peak level went lower than the average limit.

Test result of emissions which are 20 dB lower than the limit is not reported per 15.31.



3.4 Antenna Requirements

3.4.1 Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

3.4.2 Antenna Connector Construction

Embedded in Antenna.



4. LIST OF MEASURING EQUIPMENT

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP30	101400	9kHz~30GHz	Mar. 03, 2014	Oct. 11, 2014	Mar. 02, 2015	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	0.3GHz~6GHz	Mar. 03, 2014	Oct. 11, 2014	Mar. 02, 2015	Conducted (TH01-SZ)
Power Sensor	Dare	RPR3006W	TH01SZ00019	0.3GHz~6GHz	Mar. 14, 2014	Oct. 11, 2014	Mar. 13, 2015	Conducted (TH01-SZ)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 05, 2013	Oct. 13, 2014~ Oct. 21, 2014	Nov. 04, 2014	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 04, 2014	Oct. 13, 2014~ Oct. 21, 2014	May 03, 2015	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 08, 2014	Oct. 13, 2014~ Oct. 21, 2014	Oct. 07, 2015	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 08, 2014	Oct. 13, 2014~ Oct. 21, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 08, 2014	Oct. 13, 2014~ Oct. 21, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 18, 2013	Oct. 13, 2014~ Oct. 21, 2014	Nov. 17, 2014	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 10, 2014	Oct. 13, 2014~ Oct. 21, 2014	Mar. 09, 2015	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161073	1MHz~1GHz	May 04, 2014	Oct. 13, 2014~ Oct. 21, 2014	May 03, 2015	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Dec. 10, 2013	Oct. 13, 2014~ Oct. 21, 2014	Dec. 09, 2014	Radiation (03CH01-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Oct. 13, 2014~ Oct. 21, 2014	NCR	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Oct. 13, 2014~ Oct. 21, 2014	NCR	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Oct. 13, 2014~ Oct. 21, 2014	NCR	Radiation (03CH01-KS)
ESCIO TEST Receiver	R&S	ESCI	100724	9kHz~3GHz	Feb. 21, 2014	Oct. 09, 2014	Feb. 20, 2015	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Mar. 04, 2014	Oct. 09, 2014	Mar. 03, 2015	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Mar. 04, 2014	Oct. 09, 2014	Mar. 03, 2015	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Dec. 17, 2013	Oct. 09, 2014	Dec. 16, 2014	Conduction (CO01-SZ)

Note: Test equipment calibration is traceable to the procedure of ISO17025.