TEST REPORT

KCTL Inc.
65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
- Date of Receipt : 2019-09-27

2. Use of Report : -

3. Name of Product and Model : Mobile Phone / SM-A515F/DSN

4. Manufacturer and Country of Origin : SAMSUNG ELECTRONICS VIETNAM CO.,LTD./ Vietnam

5. FCC ID : A3LSMA515FN

6. Date of Test : 2019-10-07 to 2019-11-20

7. Test Standards : FCC Part 15 Subpart C, 15.225

8. Test Results : Refer to the test result in the test report

Affirmation	Tested by	Technical Manager
	Name : Kwonse Kim (Signature)	Name : Gyungnam Park (Signature)

2019-11-22

KCTL Inc.

Report revision history

Date	Revision	Page No
2019-11-11	Initial report	-
2019-11-21	Updated	4, 6, 10, 14, 15~17
2019-11-22	Updated	1, 15, 16~18

Note. The report No. KR19-SRF0168-B is superseded by the report No. KR19-SRF0168-C.

CONTENTS

1. General information

Client	:	Samsung Electronics Co., Ltd.
Address	:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Manufacturer	:	SAMSUNG ELECTRONICS VIETNAM CO.,LTD.
Address	:	Kcn Yen Binh1, huyen pho Yen Tinh Thai Nguyen Vietnam
Laboratory	:	KCTL Inc.
Address	:	65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Accreditations	:	FCC Site Designation No: KR0040, FCC Site Registration No: 687132 VCCI Registration No. : R-20080, G-20078, C-20059, T-20056 Industry Canada Registration No. : 8035A KOLAS No.: KT231

2. Device information

Equipment under test	:	Mobile Phone
Model	:	SM-A515F/DSN
Derivative model	:	SM-A515F/N
Modulation technique	:	Bluetooth(BDR/EDR)_ GFSK, π/4DQPSK, 8DPSK Bluetooth(BLE), ANT+_GFSK WIFI(802.11b/g/n20/n40/ac20/ac40/ac80)_DSSS, OFDM NFC_ASK LTE_QPSK, 16QAM WCDMA_QPSK GSM_GMSK, 8-PSK
Number of channels	:	Bluetooth(BDR/EDR), ANT+_79ch / Bluetooth(BLE)_40ch 11 ch: 802.11b/g/n_HT20 UNII-1: 4 ch (20 ㎒), 2 ch (40 ㎒), 1 ch (80 ㎒) UNII-2A: 4 ch (20 ㎒), 2 ch (40 ㎒), 1 ch (80 ㎒) UNII-2C: 12 ch (20 ㎒), 6 ch (40 ㎒), 3 ch (80 ㎒) UNII-3: 5 ch (20 ㎒), 2 ch (40 ㎒), 1 ch (80 ㎒)
Power source	:	DC 3.85 V
Antenna specification	:	LTE/WCDMA_FPCB Antenna WIFI/Bluetooth(BDR/EDR/BLE)/ANT+_FPCB Antenna NFC_FPCB Antenna
Antenna gain	:	WIFI/Bluetooth(BDR/EDR/BLE)/ANT+ : -4.70 ㏈i UNII-1 -4.10 ㏈i UNII-2A -4.74 ㏈i UNII-2C -3.92 ㏈i UNII-3 -4.40 ㏈i

Frequency range	:	Bluetooth(BDR/EDR/BLE), ANT+_2 402 ㎒ ~ 2 480 ㎒ 2 412 ㎒ ~ 2 462 ㎒ (802.11b/g/n_HT20) UNII-1: 5 180 ㎒ ~ 5 240 ㎒ (802.11a/n_HT20/ac_VHT20) UNII-1: 5 190 ㎒ ~ 5 230 ㎒ (802.11n_HT40/ac_VHT40) UNII-1: 5 210 ㎒ (802.11ac_VHT80) UNII-2A: 5 260 ㎒ ~ 5 320 ㎒ (802.11a/n_HT20/ac_VHT20) UNII-2A: 5 270 ㎒ ~ 5 310 ㎒ (802.11n_HT40/ac_VHT40) UNII-2A: 5 290 ㎒ (802.11ac_VHT80) UNII-2C: 5 500 ㎒ ~ 5 720 ㎒ (802.11a/n_HT20/ac_VHT20) UNII-2C: 5 510 ㎒ ~ 5 710 ㎒ (802.11n_HT40/ac_VHT40) UNII-2C: 5 530 ㎒ ~ 5 690 ㎒ (802.11ac_VHT80) UNII-3: 5 745 ㎒ ~ 5 825 ㎒ (802.11a/n_HT20/ac_VHT20) UNII-3: 5 755 ㎒ ~ 5 795 ㎒ (802.11n_HT40/ac_VHT40) UNII-3: 5 775 ㎒ (802.11ac_VHT80) NFC_13.56 ㎒ LTE Band 2_1 850.7 ㎒ ~ 1 909.3 ㎒ LTE Band 4_1 710.7 ㎒ ~ 1 754.3 ㎒ LTE Band 5_824.7 ㎒ ~ 848.3 ㎒ LTE Band 12_699.7 ㎒ ~ 715.3 ㎒ LTE Band 13_779.5 ㎒ ~ 784.5 ㎒ LTE Band 17_706.5 ㎒ ~ 713.5 ㎒ LTE Band 26_824.7 ㎒ ~ 848.3 ㎒, 814.7 ㎒ ~ 823.3 ㎒ LTE Band 41_2 498.5 ㎒ ~ 2 687.5 ㎒ LTE Band 66_1 710.7 ㎒ ~ 1 779.3 ㎒ GSM 850_824.2 ㎒ ~ 848.8 ㎒ GSM 1900_1 850.2 ㎒ ~ 1 909.8 ㎒ WCDMA 850_826.4 ㎒ ~ 846.6 ㎒ WCDMA 1700_1 712.4 ㎒ ~ 1 752.6 ㎒ WCDMA 1910_1 852.4 ㎒ ~ 1 907.6 ㎒
Software version	:	A515F.001
Hardware version	:	REV0.1
Test device serial No.	:	Conducted(R38M908K75A, 352349/11/002988/6, 352349/11/002989/4) Radiated(R38M90ATJRB, R38M90ATDEX, R38MAOA8WJE)
Operation temperature	:	-30 ℃ ~ 50 ℃

2.1. Accessory information

Equipment	Manufacturer	Model	Serial No.	Power source
Earphone	Samsung Electronics Co., Ltd.	EHS61ASFBE	-	-
Travel Adapter	Samsung Electronics Co., Ltd.	EP-TA200	R37M6LAKG31DK3	AC 100-240V 50-60 Hz, 9.0V-1.67A 5.0V-2.0A
Micro USB Data Cable	Samsung Electronics Co., Ltd.	-	-	-

2.2. Information about derivative model

The difference between basic model and derivative models is:

SM-A515F/N
- It does not support Dual-Sim card, support Single-Sim card and changed from Dual SIM tray to single SIM tray.

2.3. Frequency/channel operations

This device contains the following capabilities:
WIFI(2.4㎓ band 802.11b/g/n(HT20), 5㎓ band 802.11a/n(HT20/HT40)/ac(VHT/20/40/80)), Bluetooth(BDR/EDR/BLE), NFC, ANT+
LTE Band 2, LTE Band 4, LTE Band 5, LTE Band 12, LTE Band 13, LTE Band 17, LTE Band 26, LTE Band41, WCDMA 850, WCDMA 1700, WCDMA 1900, GSM 850, GSM 1900

Ch.	Frequency (㎒)
01	13.56

Table 2.3.1. NFC

3. Antenna requirement

Requirement of FCC part section 15.203:
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 transmitter has permanently attached FPCB Antenna (internal antenna) on board.

4. Summary of tests

FCC Part section(s)	Parameter	Test results
15.225(a)	In-band Fundamental Emission	Pass
15.225(b)	In-band Spurious Emission	Pass
15.225(c)	In-band Spurious Emission	Pass
15.225(a) 15.209	Out-of–band Spurious Emission	Pass
	Frequency Stability Tolerance	Pass
15.215(c)	20 dB Bandwidth	Pass
15.207(a)	Conducted emissions	Pass

Notes:

1. All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2. These tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
3. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z. It was determined that Y orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in Y orientation
4. The test procedure(s) in this report were performed in accordance as following.
   - ANSI C63.10-2013

5. Measurement uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

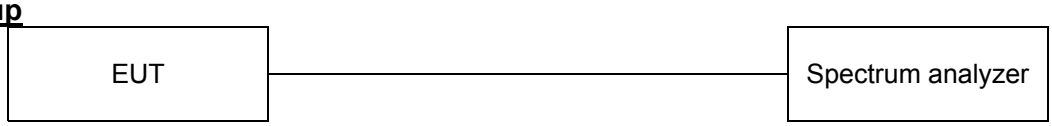
All measurement uncertainty values are shown with a coverage factor of k=2 to indicated a 95 % level of confidence. The measurement data shown herein meets of exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded uncertainty	
Radiated spurious emissions	9 ㎑ ~ 30 ㎒	2.28 dB
	30 ㎒ ~ 300 ㎒	4.98 dB
	300 ㎒ ~ 1 000 ㎒	5.14 dB
	1 ㎓ ~ 6 ㎓	6.70 dB
	Above 6 ㎓	6.60 dB
Conducted emissions	9 ㎑ ~ 150 ㎑	3.66 dB
	150 ㎑ ~ 30 ㎒	3.26 dB

6. Test results

6.1. 20 dB Bandwidth & 99% Bandwidth

Test setup



Limit

According to §15.215(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test procedure

ANSI C63.10-2013 - Section 6.9.2

Test settings

The occupied bandwidth is measured as the width of the spectral envelope of the modulated signal, at an amplitude level reduced from a reference value by a specified ratio (or in decibels, a specified number of dB down from the reference value). Typical ratios, expressed in dB, are −6 dB, −20 dB, and −26 dB, corresponding to 6 dB BW, 20 dB BW, and 26 dB BW, respectively. In this subclause, the ratio is designated by "−xx dB." The reference value is either the level of the unmodulated carrier or the highest level of the spectral envelope of the modulated signal, as stated by the applicable requirement. Some requirements might specify a specific maximum or minimum value for the "−xx dB" bandwidth; other requirements might specify that the "−xx dB" bandwidth be entirely contained within the authorized or designated frequency band.

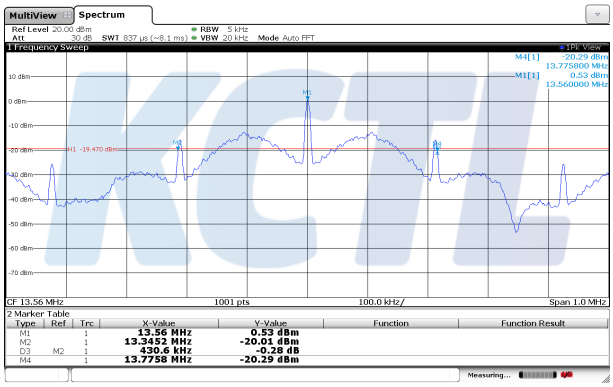
a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. Span: Two times and five times the OBW.
b) RBW = 1 % to 5 % of the OBW and VBW ≥ 3 x RBW
c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation.
d) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target "−xx dB down" requirement; that is, if the requirement calls for measuring the −20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.
e) Detector: peak
f) Trace mode: max hold.
g) Allow the trace to stabilize.
h) Determine the "−xx dB down amplitude" using ((reference value) − xx). Alternatively, this calculation may be made by using the marker-delta function of the instrument.
i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).
j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "−xx dB down amplitude" determined in step h). If a marker is below this "−xx dB down amplitude" value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of

the spectral display, such that the marker is at or slightly below the "−xx dB down amplitude" determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.

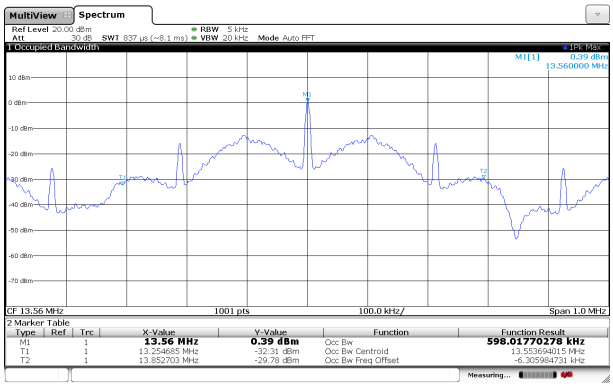
Test results

Frequency [MHz]	20 dB Bandwidth [MHz]		Limit [MHz]	Occupied Bandwidth (99 % BW) [MHz]	20 dB Bandwidth [MHz]
13.56	Lowest Frequency	13.345 2	13.110	0.598	0.430 6
	Highest Frequency	13.775 8	14.010		

NOTE: We took the insertion loss of the cable loss into consideration within the measuring instrument.



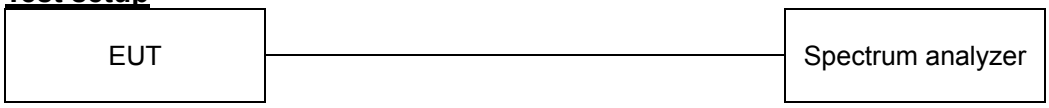
20 dB Bandwidth



Occupied Bandwidth

6.2. Frequency tolerance

Test setup



Limit

15.225 (e) The frequency tolerance of the carrier signal shall be maintained within ±0.01 % of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85 % to 115 % of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

Test procedure

ANSI C63.10-2013 - Section 6.8.1

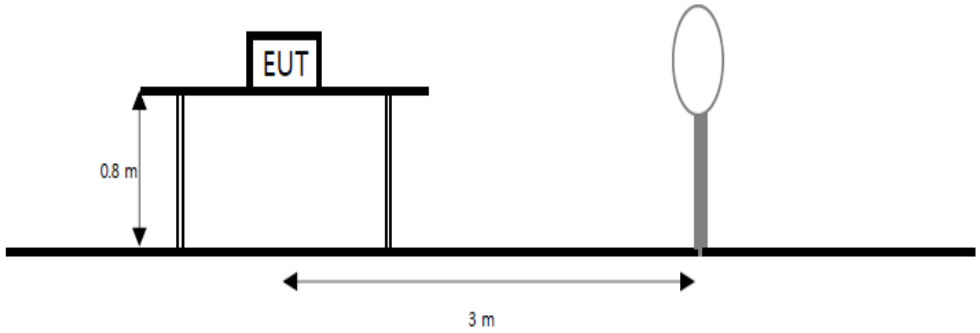
Test results

Voltage	Voltage	TEMP	Maintaining time	Measure frequency	Frequency deviation	Deviation
[%]	[V]	[℃]		[㎐]	[㎐]	[%]
100	3.85	20	Startup	13 559 967	33.00	0.000 24
			2 minutes	13 559 968	32.00	0.000 24
			5 minutes	13 559 967	33.00	0.000 24
			10 minutes	13 559 967	33.00	0.000 24
		-20	Startup	13 559 971	29.00	0.000 21
			2 minutes	13 559 972	28.00	0.000 21
			5 minutes	13 559 972	28.00	0.000 21
			10 minutes	13 559 972	28.00	0.000 21
		-10	Startup	13 559 971	29.00	0.000 21
			2 minutes	13 559 971	29.00	0.000 21
			5 minutes	13 559 971	29.00	0.000 21
			10 minutes	13 559 970	30.00	0.000 22
		0	Startup	13 559 969	31.00	0.000 23
			2 minutes	13 559 969	31.00	0.000 23
			5 minutes	13 559 969	31.00	0.000 23
			10 minutes	13 559 969	31.00	0.000 23
		10	Startup	13 559 969	31.00	0.000 23
			2 minutes	13 559 968	32.00	0.000 24
			5 minutes	13 559 968	32.00	0.000 24
			10 minutes	13 559 969	31.00	0.000 23
		25	Startup	13 559 963	37.00	0.000 27
			2 minutes	13 559 963	37.00	0.000 27
			5 minutes	13 559 963	37.00	0.000 27
			10 minutes	13 559 963	37.00	0.000 27
		30	Startup	13 559 966	34.00	0.000 25
			2 minutes	13 559 966	34.00	0.000 25
			5 minutes	13 559 965	35.00	0.000 26
			10 minutes	13 559 966	34.00	0.000 25
		40	Startup	13 559 965	35.00	0.000 26
			2 minutes	13 559 965	35.00	0.000 26
			5 minutes	13 559 965	35.00	0.000 26
			10 minutes	13 559 965	35.00	0.000 26
		50	Startup	13 559 964	36.00	0.000 27
			2 minutes	13 559 964	36.00	0.000 27
			5 minutes	13 559 964	36.00	0.000 27
			10 minutes	13 559 963	37.00	0.000 27
85	3.27	20	Startup	13 559 963	37.00	0.000 27
			2 minutes	13 559 964	36.00	0.000 27
			5 minutes	13 559 962	38.00	0.000 28
			10 minutes	13 559 963	37.00	0.000 27
115	4.43	20	Startup	13 559 963	37.00	0.000 27
			2 minutes	13 559 962	38.00	0.000 28
			5 minutes	13 559 962	38.00	0.000 28
			10 minutes	13 559 963	37.00	0.000 27

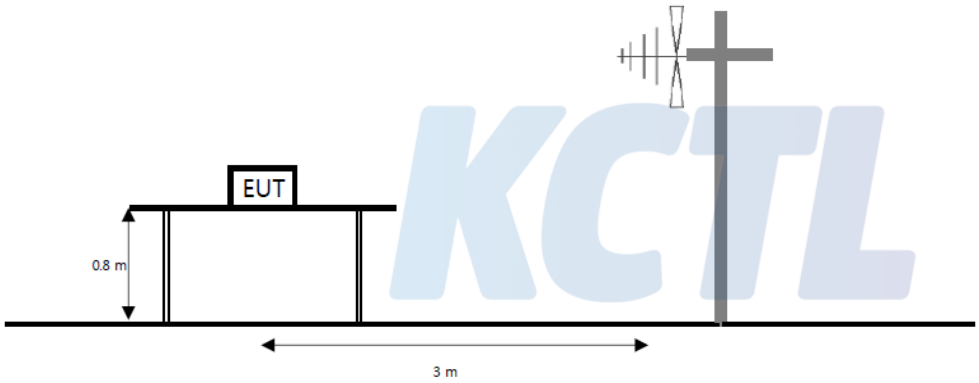
6.3. Radiated spurious emissions

Test setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 9 ㎑ to 30 ㎒ Emissions



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ emissions.



Limit

15.225 (a) The field strength of any emission within the band 13.553-13.567 ㎒ shall not exceed 15, 848 microvolts/meter at 30 meters.

15.225 (b) With in the bands 13.410-13.553 ㎒ and 13.567-13.710 ㎒, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

15.225 (c) With in the bands 13.110-13.410 ㎒ and 13.710-14.010 ㎒, the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

15.225 (d) The Field Strength of any emissions appearing outside of the 13.110-14.010 ㎒ band shall not exceed the general radiated emission limits in 15.209.

Frequency (㎒)	Field Strength (㎶/m)	Measurement distance (meters)
0.009-0.490	2400/F(㎑)	300
0.490-1.705	24000/F(㎑)	30
1.705-30.0	30(29.54 dB㎶/m)	30
30.0-88.0	100(40 dB㎶/m)	3
88-216	150(43.5 dB㎶/m)	3
216-960	200 (46 dB㎶/m)	3
Above 960	500 (53.98 dB㎶/m)	3

Test procedure
ANSI C63.10-2013 - Section 6.4, 6.5

Test settings

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in table
3. VBW ≥ 3 x RBW
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table. RBW as a function of frequency

Frequency	RBW
9 ㎑ to 150 ㎑	200 ㎐ to 300 ㎐
0.15 ㎒ to 30 ㎒	9 ㎑ to 10 ㎑
30 ㎒ to 1 000 ㎒	100 ㎑ to 120 ㎑
> 1 000 ㎒	1 ㎒

Notes:

1. *f* <30 ㎒, extrapolation factor of 40 dB/decade of distance. F_d = 40log(D_m/Ds)
   f ≥30 ㎒, extrapolation factor of 20 dB/decade of distance. F_d = 20log(D_m/Ds)
   Where:
   F_d= Distance factor in dB
   D_m= Measurement distance in meters
   D_s= Specification distance in meters
2. Measurements were performed at 3m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in § 15.31(f)(2). Extrapolation Factor = 40 log10(30/3) = 40 dB.
3. Factors(dB) = Antenna factor(dB/m) + Cable loss(dB) + or Amp. gain(dB) + or F_d(dB)
4. Result = Reading + Cable loss + Amp gain + Ant. factor - Distance factor
5. The worst-case emissions are reported however emissions whose levels were not within 20 dB of respective limits were not reported.
6. All measurements were recorded using a spectrum analyzer employing a quasi-peak detector.
7. Below 30 ㎒ frequency range, all orientations about parallel, perpendicular, and ground-parallel were investigated then reported and the worse orientations of Face-on and Face-off were set for final test.
8. Face-on = Parallel, Face-off = Perpendicular

Test results for fundamental

15.225 (a) 13.553-13.567 ㎒

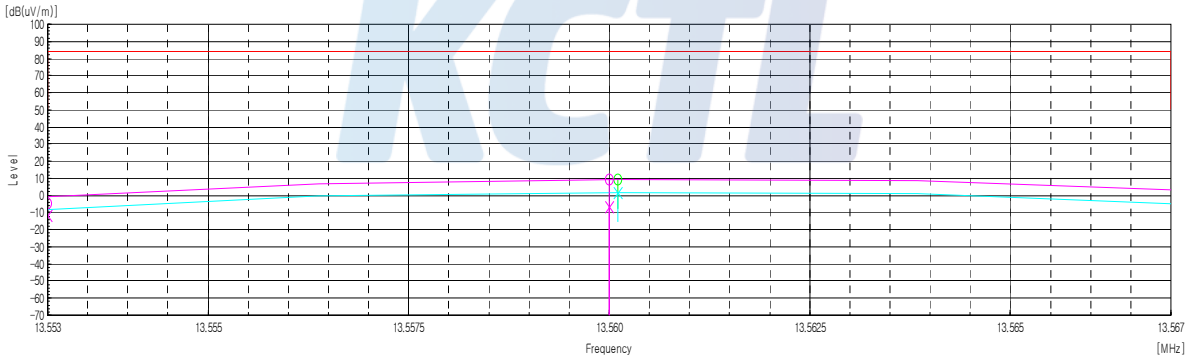
[Face-on]

Frequency	Reading	Antenna Factor	Amp. + Cable	Distance Factor	Result	Limit	Margin
(㎒)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Quasi peak data							
13.56	60.10	20.27	-31.27	40.00	9.10	84.00	74.90

[Face-off]

Frequency	Reading	Antenna Factor	Amp. + Cable	Distance Factor	Result	Limit	Margin
(㎒)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Quasi peak data							
13.56	44.20	20.27	-31.27	40.00	-6.80	84.00	90.80

Face-on/Face-off



Test results for in-band & out-band (9 ㎑ to 30 ㎒)

15.225 (b,c) 13.110-14.010 ㎒

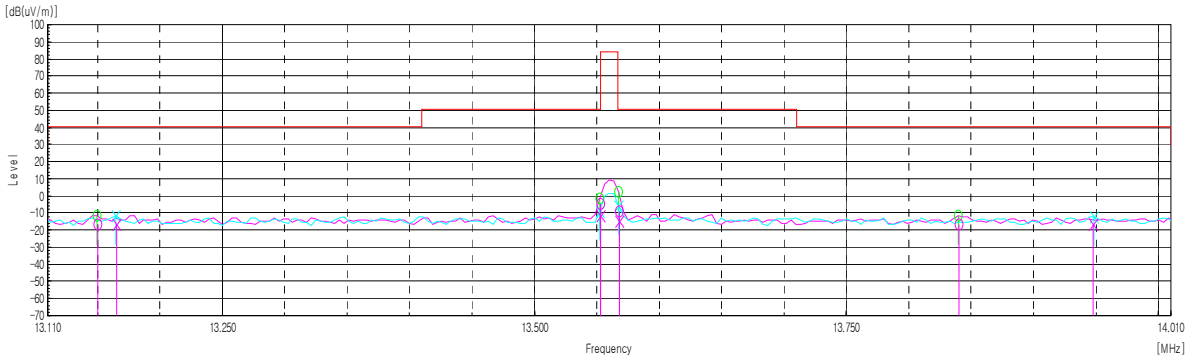
[Face-on]

Frequency	Reading	Antenna Factor	Amp. + Cable	Distance Factor	Result	Limit	Margin
(㎒)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Quasi peak data							
13.15	34.20	20.26	-31.26	40.00	-16.80	40.51	57.31
13.55	46.10	20.27	-31.27	40.00	-4.90	50.47	55.37
13.57	41.60	20.27	-31.27	40.00	-9.40	50.47	59.87
13.84	34.20	20.28	-31.18	40.00	-16.70	40.51	57.21

[Face-off]

Frequency	Reading	Antenna Factor	Amp. + Cable	Distance Factor	Result	Limit	Margin
(㎒)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Quasi peak data							
13.17	34.20	20.26	-31.26	40.00	-16.80	40.51	57.31
13.55	39.20	20.27	-31.27	40.00	-11.80	50.47	62.27
13.57	35.90	20.27	-31.27	40.00	-15.10	50.47	65.57
13.95	34.20	20.28	-31.18	40.00	-16.70	40.51	57.21

Face-on/Face-off



Test results (9 ㎑ to 30 ㎒)

15.225 (d) 0.009-30 ㎒

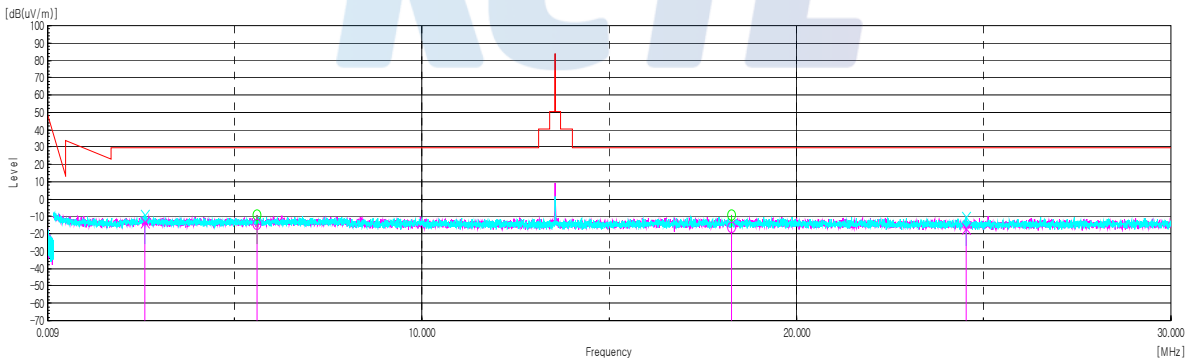
[Face-on]

Frequency	Reading	Antenna Factor	Amp. + Cable	Distance Factor	Result	Limit	Margin
(㎒)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Quasi peak data							
5.61	36.70	20.29	-31.69	40.00	-14.70	29.54	44.24
18.27	34.40	20.56	-31.06	40.00	-16.10	29.54	45.64

[Face-off]

Frequency	Reading	Antenna Factor	Amp. + Cable	Distance Factor	Result	Limit	Margin
(㎒)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Quasi peak data							
2.61	38.30	20.12	-31.92	40.00	-13.50	29.54	43.04
24.53	33.10	20.97	-30.87	40.00	-16.80	29.54	46.34

Face-on/Face-off

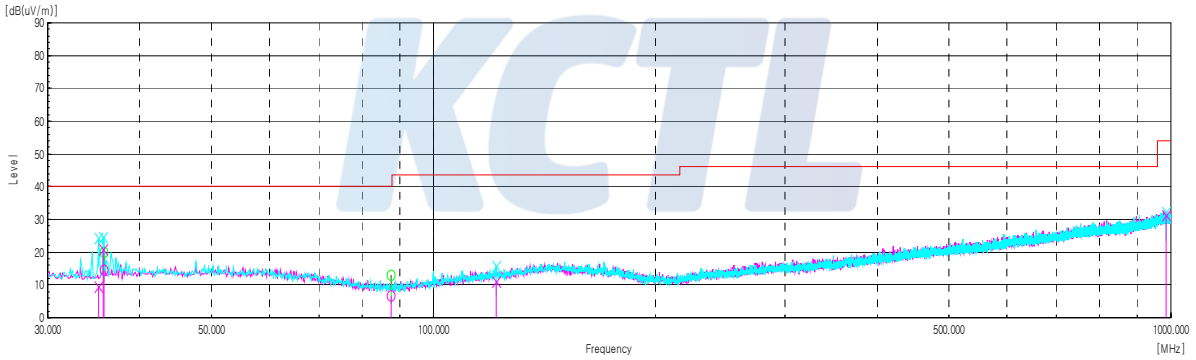


Test results (Below 1 000 ㎒)

15.225 (d) 30-1000 ㎒

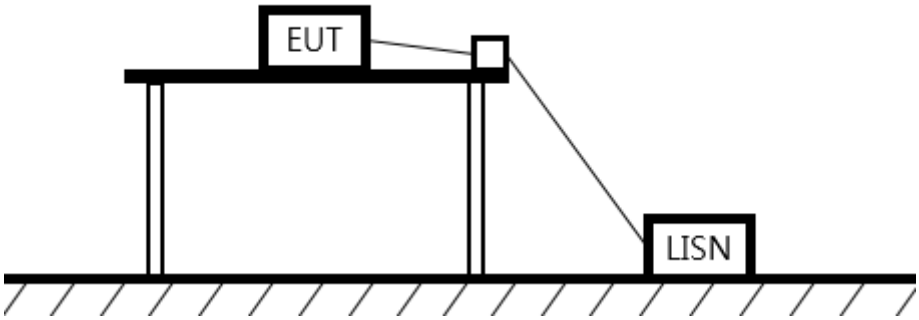
Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	Distance Factor	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Quasi peak data								
35.21	V	22.70	17.44	-30.55	-	9.60	40.00	30.40
35.70	V	33.80	17.54	-30.54	-	20.70	40.00	19.30
35.82	H	27.70	17.56	-30.53	-	14.60	40.00	25.40
87.72	H	22.20	13.75	-29.50	-	6.50	40.00	33.50
121.67	V	22.90	17.30	-29.06	-	11.20	43.50	32.30
986.54	V	24.10	30.13	-22.81	-	31.40	54.00	22.60

Horizontal/Vertical



6.4. AC Conducted emission

Test setup



Limit

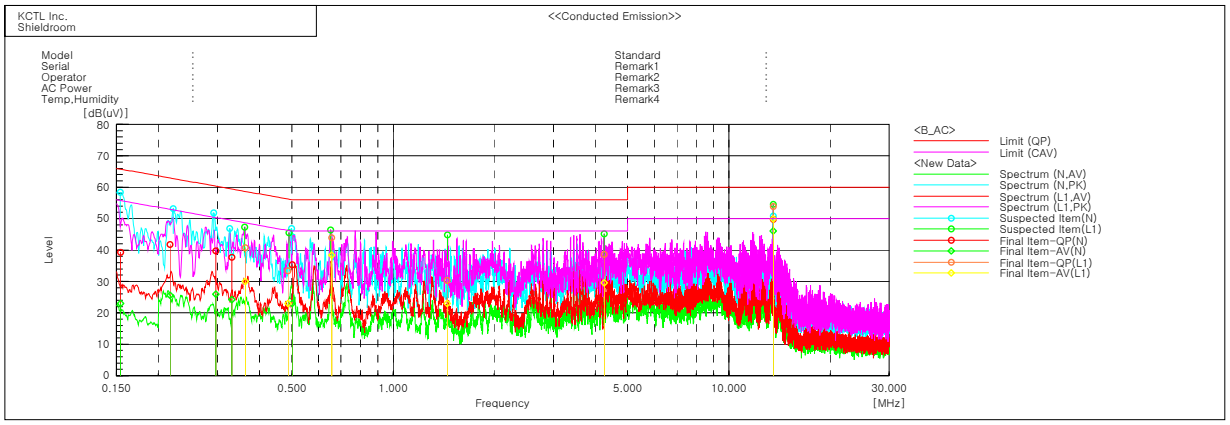
According to 15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 ㎑ to 30 ㎒, shall not exceed the limits in the following table, as measured using a 50uH/50 ohm line impedance stabilization network (LISN). Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequencies ranges.

Frequency of Emission (㎒)	Conducted limit (dB㎶/m)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

Measurement procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 ㎝ in which is located 40 ㎝ away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a 50Ω/50μH LISN, which is an input transducer to a spectrum analyzer or an EMI/Field Intensity ㅡ Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 ㎒ to 30 ㎒.
5. The measurements were made with the detector set to peak amplitude within a bandwidth of 10 ㎑ or to quasi-peak and average within a bandwidth of 9 ㎑. The EUT was in transmitting mode during the measurements.

Test results



Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15439	29.4	13.0	9.9	39.3	22.9	65.8	55.8	26.5	32.9
2	0.21677	32.0	15.8	9.8	41.8	25.6	62.9	52.9	21.1	27.3
3	0.29694	30.1	16.3	9.7	39.8	26.0	60.3	50.3	20.5	24.3
4	0.33115	28.0	14.6	9.7	37.7	24.3	59.4	49.4	21.7	25.1
5	0.50045	25.3	13.1	9.9	35.2	23.0	56.0	46.0	20.8	23.0
6	13.56053	39.9	36.1	9.9	49.8	46.0	60.0	50.0	10.2	4.0

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.36316	31.0	20.2	9.8	40.8	30.0	58.7	48.7	17.9	18.7
2	0.48618	23.6	13.2	9.8	33.4	23.0	56.2	46.2	22.8	23.2
3	0.65593	34.1	28.5	9.8	43.9	38.3	56.0	46.0	12.1	7.7
4	1.45013	20.6	13.2	9.7	30.3	22.9	56.0	46.0	25.7	23.1
5	4.25295	29.0	19.9	9.6	38.6	29.5	56.0	46.0	17.4	16.5
6	13.5602	44.0	40.0	9.9	53.9	49.9	60.0	50.0	6.1	0.1

7. Measurement equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Spectrum Analyzer	R&S	FSW50	101013	20.05.13
Spectrum Analyzer	R&S	FSV40	100988	20.01.04
Temp & Humid Chamber	ESPEC CORP.	SH-641	92005476	20.07.30
EMI TEST RECEIVER	R&S	ESCI7	100732	20.08.22
Bi-Log Antenna	SCHWARZBECK	VULB 9168	583	20.05.04
Amplifier	SONOMA INSTRUMENT	310N	284608	20.08.22
COAXIAL FIXED ATTENUATOR	Agilent	8491B-003	2708A18758	20.05.04
AMPLIFIER	L-3 Narda-MITEQ	JS44-18004000-33 -8P	2000997	20.08.01
LOOP Antenna	R&S	HFH2-Z2	100355	20.08.24
Antenna Mast	Innco Systems	MA4640-XP-ET	-	-
Turn Table	Innco Systems	DT2000	79	-
TWO-LINE V - NETWORK	R&S	ENV216	101358	20.04.05
EMI TEST RECEIVER	R&S	ESCI	100001	20.08.22
Vector Signal Generator	R&S	SMBV100A	257566	20.01.04
Signal Generator	R&S	SMR40	100007	20.05.13
Cable Assembly	RadiAll	2301761768000PJ	1724.659	-
Cable Assembly	gigalane	RG-400	-	-
Cable Assembly	HUER+SUHNER	SUCOFLEX 104	MY4342/4	-

End of test report