RF Test Report

Report No.	:	FCCBVJI-WAY-P22090003-1R1
Customer	:	CanTops Co., Ltd.
Customer Address	:	A-1002, Digital Empire BLDG, 16, Deogyeong-daero 1556beon-gil, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea
Manufacturer	:	CanTops Co., Ltd.
Manufacturer Address:		A-1002, Digital Empire BLDG, 16, Deogyeong-daero 1556beon-gil, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea
Use of Report	:	Certification
Model Name	:	CTS-pCOM
FCC ID	:	RMN-CTS-pCOM-2nd
Date of Test	:	2022.09.30 to 2022.10.05
Test Method Used	:	FCC 47 CFR PART 15 Subpart C (Section §15.249)
Testing Environment	:	Refer to the Test Condition

Test Result : ☒ **Pass** ☐ **Fail**

ISSUED BY:	BV CPS ADT Korea Ltd., EMC/RF Laboratory
ADDRESS:	Innoplex No.2 106, Sinwon-ro 306, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea 16675
TEST LOCATION:	HeungAn-daero 49, DongAn-gu, Anyang-si, Gyeonggi-do, Korea, 14119

Tested by

Name : Donghwa Shin (Signature)

Technical Manager

Name : Jungwoo Kim (Signature)

2022. 12. 29

BV CPS ADT Korea Ltd.

RELEASE CONTROL RECORD

REPORT NO.	REASON FOR CHANGE	DATE ISSUED
FCCBVJI-WAY-P22090003-1	Original release	2022.11.04
FCCBVJI-WAY-P22090003-1R1	Page 8, 13, 20, 21, 22 update	2022.12.29

Table of Contents

1 Summary of Test Results

The EUT has been tested according to the following specifications

Applied Standard : FCC Part 15, Subpart C 15.249)				
FCC Part Section(s)	**Test Description**	**Limit**	**Test Result**	**Reference**
15.207	AC Conducted Emissions (150 kHz – 30 MHz)	< FCC 15.207 limits	N/A	-
15.215	Channel Bandwidth Measurement	N/A	PASS	Section 3.2
15.209 15.249 15.249 (d)	Radiated Emission and Bandedge Measurement	Meet the requirement of limit. minimum passing margin is -4.7 dB at 2390 MHz.	PASS	Section 3.3
15.203	Antenna Requirement	< FCC 15.207 limits	PASS	Section 3.1

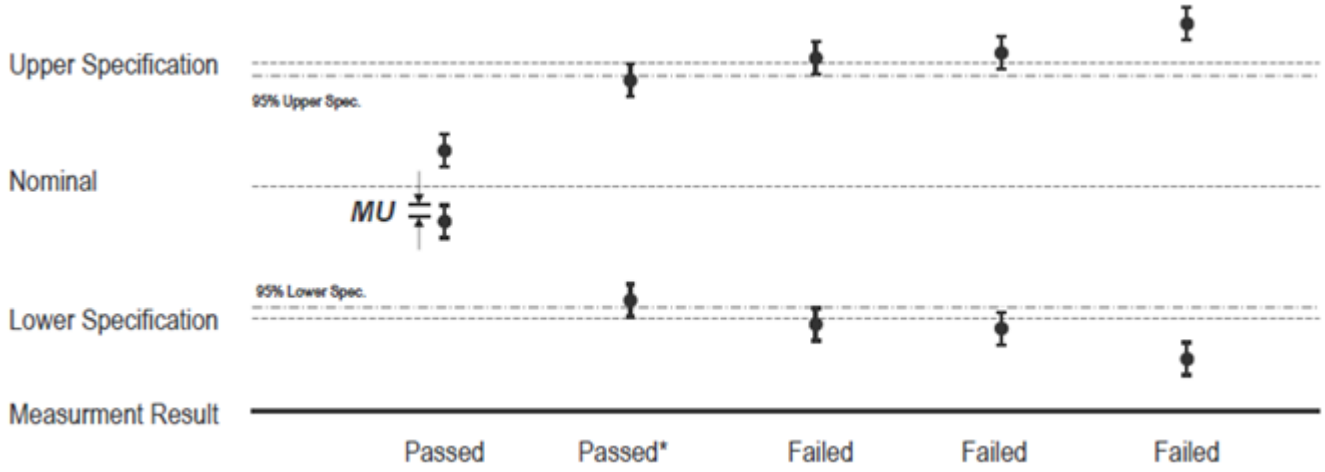
NOTES

1) The general test methods used to test on this devices are ANSI C63.10.

2) Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

3) This device using DC Power, the AC Conducted emission test is exempted.

1.1 Decision Rules for Statement of Conformity



QUA-52 Decision Rule(QA Document) was applied.

Step 1) : Reference Check, Daily Check, Peripheral device Check

Step 2) : Re-test Procedure (Repeat the test maximum 3 times, Different Test Engineer)

1) If the original test results are subject to retesting and the judgement is unclear, the retest is carried out.
2) If the result of the first retest is the same as the initial test, the judgement is made based on the value.
3) If the result of the first retest differ from the results of the initial test, the second re-test is carried out.
4) After completion of the second retest, the average of the three test results is determined as the final result. However, if the deviation of the three test values is more than 5 % of the reference value, the technical manager should review the reproducibility of the test from the beginning.

1.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2

Measurement Items	Frequency Range	Expanded Uncertainty U = *k*Uc (*k* = 2)
Conducted Emissions at main ports	150 kHz – 30 MHz	2.99
Radiated Spurious Emissions	9 kHz – 30 MHz	1.92
	30 MHz – 1 GHz	4.00
	30 MHz – 18 GHz	5.68
	18 GHz – 26.5 GHz	5.24

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k = 2.

2 General Information

2.1 General Description of EUT

Product	pCOM
Brand	CanTops Co., Ltd.
Factory	-
Model	CTS-pCOM
Identification No. of EUT	-
FCC Series Model	CTS-pCOM, CTS-pCOM-08, CTS-pCOM-16, CTS-pCOM-A8, CTS-pCOM-AF
Model Difference	Model difference based on marketing purpose
Power Supply	DC 24 V
Modulation Type	GFSK
Transfer Rate	-
Operating Frequency	2 402 – 2 480 ㎒
Number of Channel	79 Channels
Output Power	-3.21 dBm
Antenna Type	Chip Antenna
Antenna Connector	Internal
H/W Version	1.05
S/W Version	2.4

NOTES

1) The above equipment has been tested by **Bureau Veritas Consumer Products Services ADT Korea**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2) The following antennas were provided to the EUT.

Antenna	Type	Connector	Peak Gain (dBi)
			2.4 GHz
GFSK	Chip Antenna	Internal	2.1

3) List of Accessories

Accessories	Brand	Model	Manufacturer	Specification
-	-	-	-	-

4) Auxiliary test equipment

Accessories	Brand	Model	Manufacturer	Specification
Notebook PC	Samsung Electronics., Ltd.	NT950XBV	Samsung Electronics Suzhou Computer Co., Ltd.	-
Notebook Adaptor	Samsung Electronics., Ltd.	PSCV650105A	Samsung Electronics., Ltd.	Input : AC 100 - 240 V 50 – 60 Hz Output : DC 19 V

2.2 Description of Test Mode

[Test Channel of EUT]

Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
0	2 402	20	2 422	40	2 442	60	2 462
1	2 403	21	2 423	41	2 443	61	2 463
2	2 404	22	2 424	42	2 444	62	2 464
3	2 405	23	2 425	43	2 445	63	2 465
4	2 406	24	2 426	44	2 446	64	2 466
5	2 407	25	2 427	45	2 447	65	2 467
6	2 408	26	2 428	46	2 448	66	2 468
7	2 409	27	2 429	47	2 449	67	2 469
8	2 410	28	2 430	48	2 450	68	2 470
9	2 411	29	2 431	49	2 451	69	2 471
10	2 412	30	2 432	50	2 452	70	2 472
11	2 413	31	2 433	51	2 453	71	2 473
12	2 414	32	2 434	52	2 454	72	2 474
13	2 415	33	2 435	53	2 455	73	2 475
14	2 416	34	2 436	54	2 456	74	2 476
15	2 417	35	2 437	55	2 457	75	2 477
16	2 418	36	2 438	56	2 458	76	2 478
17	2 419	37	2 439	57	2 459	77	2 479
18	2 420	38	2 440	58	2 460	78	2 480
19	2 421	39	2 441	59	2 461	-	-

2.2.1 Test Mode Applicability and Tested Channel Details

Following channel(s) was(were) selected for the final test as listed below :

EUT Configure mode	Applicable to				Description
	RE < 1G	RE ≥ 1G	PLC	APCM	
A	-	-	-	-	Powered by Adaptor
B	√	√	-	√	Powered by DC Power Supply

Where RE ≥ 1 G : Radiated Emission above 1 GHz
RE < 1 G : Radiated Emission below 1 GHz
PLC : Power Line Conducted Emission
APCM : Antenna Port Conducted Measurement

Radiated Emission Test (Below 1 GHz)

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
B	0 to 78	0	GFSK

Radiated Emission Test (Above 1 GHz)

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type
B	0 to 78	0, 38, 78	GFSK

Test Condition

Applicable to	Environmental Conditions	Test Voltage	Tested by
RE < 1G	(21.9 ± 2) °C, (46.5 ± 3) % R.H.	DC 24 V	Donghwa Shin
RE ≥ 1G	(21.9 ± 2) °C, (46.5 ± 3) % R.H.	DC 24 V	Donghwa Shin
APCM	(21.9 ± 2) °C, (46.5 ± 3) % R.H.	DC 24 V	N/A

2.3 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards.

FCC CFR 47 Part 15, Subpart C (§15.249)
RSS-Gen Issue 5
ANSI C63.10-2013

All test items in this test report have been performed and recorded as per the above standards.

2.4 Test Equipment

Test Equipment is traceable to the National Institute of Standards and Technology (NIST). Measurement antenna used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Equipment	Model	Serial Number	Manufacturer	Description	Cal Date	Cal Due
Loop Antenna	HFH2-Z2E	349806	R&S	Active Loop Antenna, 30 MHz	2022-02-18	2023-02-18
Bi-log Antenna	VULB 9163	1099	Schwarzbeck	Trilog Antenna, 3 GHz (with 6 dB ATT.)	2022-09-03	2023-09-03
Horn Antenna	HF907	102772	R&S	Horn Antenna, 18 GHz	2021-12-03	2022-12-03
Horn Antenna	BBHA9170	00955	Schwarzbeck	15 - 40 GHz, 10 W (cont.) 25 W (peak)	2021-12-13	2022-12-13
Amplifier	SCU08F2	8400016	R&S	Signal Conditioning Unit, 8 GHz	2021-11-23	2022-11-23
Amplifier	SCU-18F	180111	R&S	Signal Conditioning Unit, 18 GHz	2021-11-23	2022-11-23
Amplifier	JS44-18004000-33-8P	2142086	L3 Narda-MITEQ	Amplifier, 40 GHz	2021-11-29	2022-11-29
Signal analyzer	FSW50	101403	R&S	DC Coupled : 2 Hz to 50 GHz AC Coupled : 10 MHz to 50 GHz	2021-11-22	2022-11-22
Attenuator	PE7087-10	1712-2	Pasternack	10 dB Atten / 2 W / DC to 26 GHz	2021-06-04	2023-06-04
High Pass Filter	HPM17543	28	Micro-Tronics	3 GHz High Pass Filter	2021-06-04	2023-06-04
EMI Receiver	ESR	102529	R&S	DC ~ 7 GHz	2021-06-04	2022-11-23
Signal Generator	SMB100A	MY41006053	R&S	100 kHz ~ 40 GHz	2021-06-04	2023-06-03
Signal analyzer	FSV30	103631	R&S	10 Hz to 30 GHz / 1W	2021-11-22	2022-11-22
Power Splitter	1579	71667	Weinschel	DC to 26.5 GHz / 0.5 W	2021-11-30	2022-11-30
Power Meter	NRX	103577	R&S	CW mode: -20 to +20 dBm	2022-03-17	2023-03-17
Power Sensor	NRP-Z211	102376	R&S	Two Path Diode Power Sensor, Frequency range : 10 MHz to 8 GHz / Level range: -60 dBm to +20 dBm	2022-03-17	2023-03-17
Attenuator	40AH2W-10	1	Aeroflex	DC to 40 GHz / 10 dB / 2 W	2021-06-04	2022-11-30
LISN	ENV216	102437	R&S	9 kHz - 30 MHz	2021-11-23	2022-11-23
EMI Test Receiver	ESR	102529	R&S	9 kHz - 3.6 GHz	2021-11-23	2022-11-23

3 Test Results

3.1 Antenna Requirement

Except from §15.203 of the FCC Rules/Regulations:

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 the section.

- The antenna(s) of the EUT are Permanently attached.
- There are no provisions for connection to an external antenna.

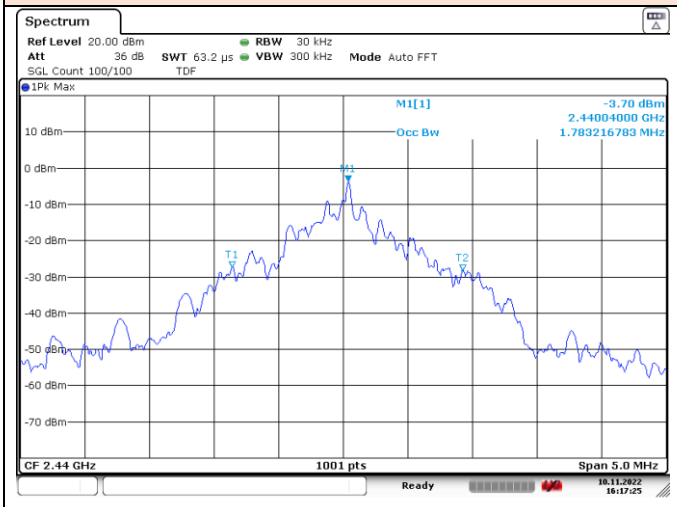
Result

The EUT complies with the requirement of §15.203

3.2 Channel Bandwidth Measurement

Test Mode	Channel	Frequency [MHz]	20 dB BW [MHz]
GFSK	Lowest	2 402	1.559
	Middle	2 440	1.645
	Highest	2 480	1.583
Worst Result			1.645

Test Mode	Channel	Frequency [MHz]	99 BW [MHz]
GFSK	Lowest	2 402	1.773
	Middle	2 440	1.783
	Highest	2 480	1.763
Worst Result			1.783

99 % Bandwidth	20 dB Bandwidth Worst Case
	

3.3 Transmitter Radiated Emission

3.3.1 Regulation

§15.249(a) : Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

§15.209(a) : Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permItted under other sections of this part, e.g., §§15.231 and 15.241.

3.3.2 Test Procedure

Spurious Radiated Emissions

1. The preliminary radiated measurement were performed to determine the frequency producing the maximum emissions in an semi-anechoic chamber at a distance of 3 meters.
2. The EUT was placed on the top of the 0.8-meter height, 1 x 1.5 meter non-metallic table. To find the maximum emission levels, the height of a measuring antenna was changed and the turntable was rotated 360^{O}.
3. The antenna polarization was also changed from vertical to horizontal. The spectrum was scanned from 9 kHz to 30 MHz using the loop antenna, and from 30 to 1000 MHz using the Bi-Log antenna, and from 1000 MHz to 26500 MHz using the horn antenna.
4. To obtain the final measurement data, the EUT was arranged on a turntable situated on a 4 x 4 meter in an semi-anechoic chamber. The EUT was tested at a distance 3 meters.
5. Each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector fuction with specified bandwidth.
6. The 0.8 m height is for below 1 GHz testing, and 1.5 m is for above 1GHz testing.

- Procedure for unwanted emissions measurements below 1 000 MHz

The procedure for unwanted emissions measurements below 1 000 MHz is as follows:

a) Follow the requirements in 12.7.4.

b) Compliance shall be determined using CISPR quasi-peak detection; however, peak detection is permitted as an alternative to quasi-peak detection.

- Procedure for average unwanted emissions measurements above 1 000 MHz

Method VB-A is averaging using reduced video bandwidth. The procedure for this method is as follows:

a) RBW = 1 MHz.

b) Video bandwidth:

   1) If the EUT is configured to transmit with D ≥ 98 %, then set VBW ≤ RBW / 100 (i.e., 10 kHz), but not less than 10 Hz.

   2) If the EUT D is < 98%, then set VBW ≥ 1 / T, where T is defined in item a1) of 12.2.

c) Video bandwidth mode or display mode:

1) The instrument shall be set with video filtering applied in the power domain. Typically, this requires setting the detector mode to RMS (power averaging) and setting the average-VBW type to power (rms).

2) As an alternative, the instrument may be set to linear detector mode. Video filtering shall be applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode to accomplish this. Others have a setting for average-VBW type, which can be set to "voltage" regardless of the display mode.

d) Detector = peak.

e) Sweep time = auto.

f) Trace mode = max hold.

g) Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 % duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of 1/x, where D is the duty cycle. For example, use at least 200 traces if the duty cycle is 25 %. (If a specific emission is demonstrated to be continuous—i.e., 100 % duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 50 traces should be averaged.)

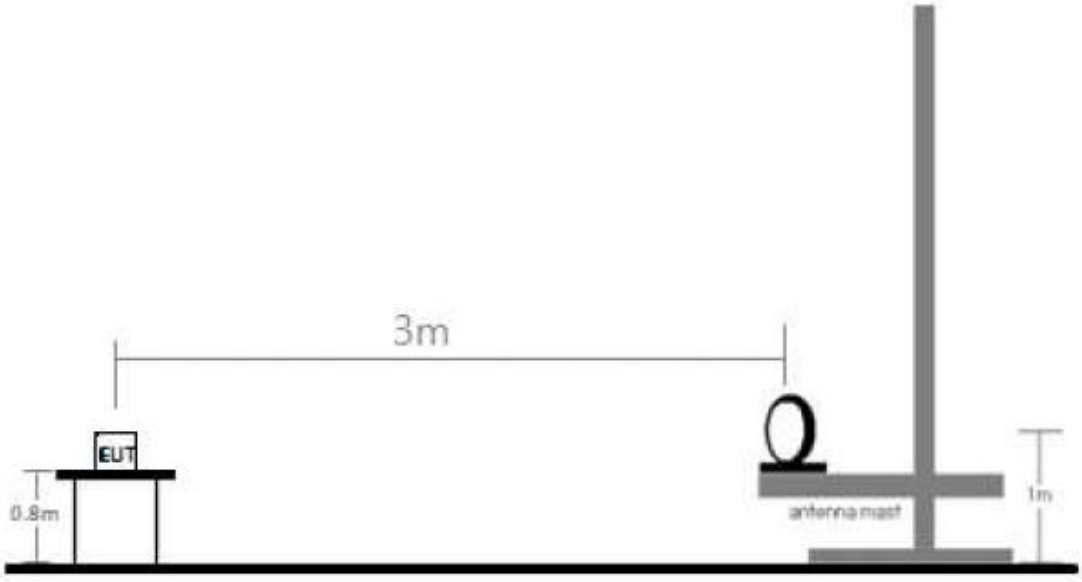
- Sample Calculation

- Field Strength Level [dBµV/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m] + Duty Cycle Correction [dB]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable loss [dB]
- Margin [dB] = Field Strength Level [dBµV/m] – Limit [dBµV/m]

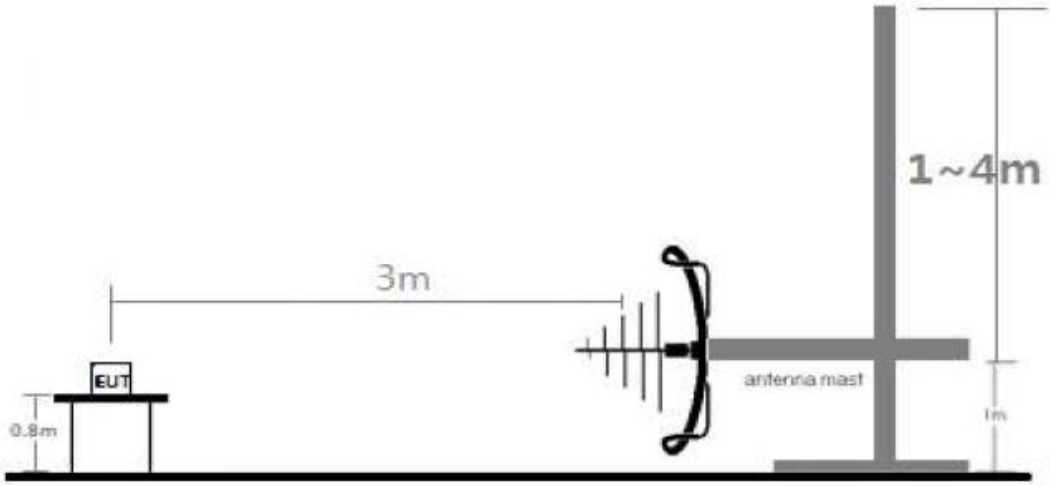
3.3.3 Deviation from Test Standard

No deviation.

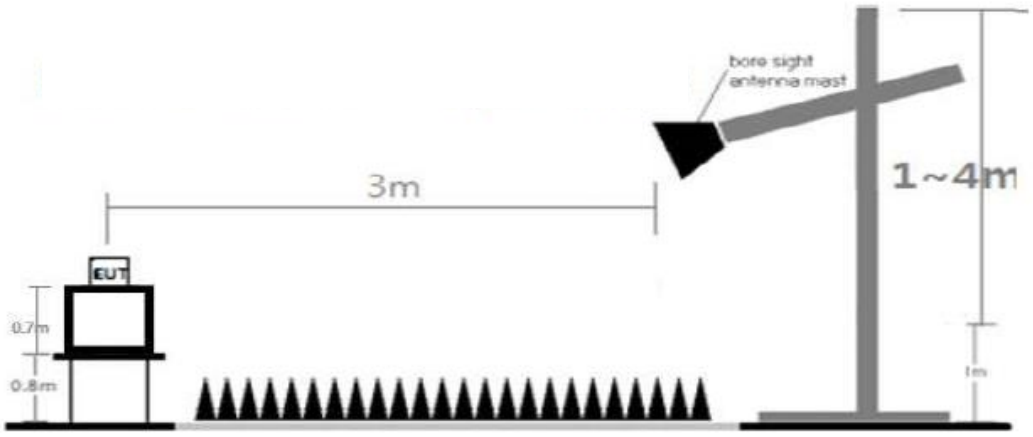
3.3.4 Test Setup

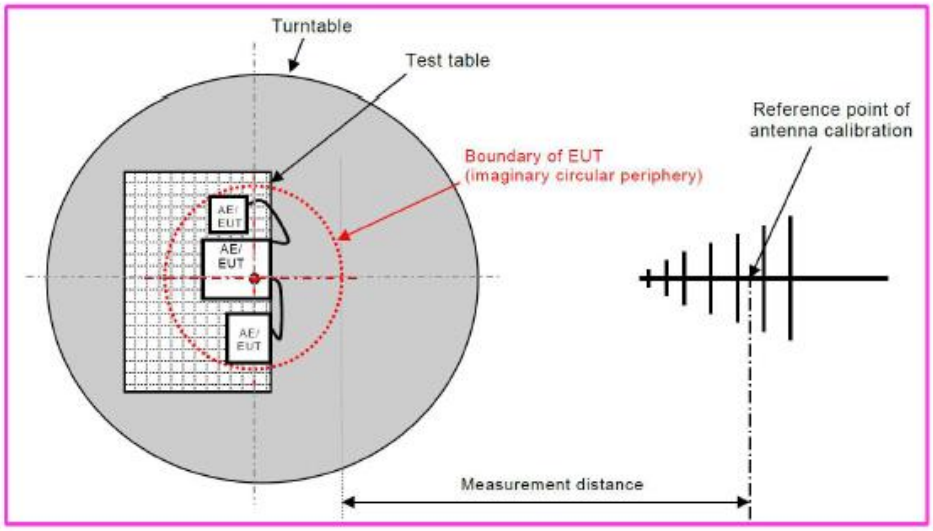


[Radiated Emission Test Setup Below 30 MHz]



[Radiated Emission Test Setup Below 1 GHz]



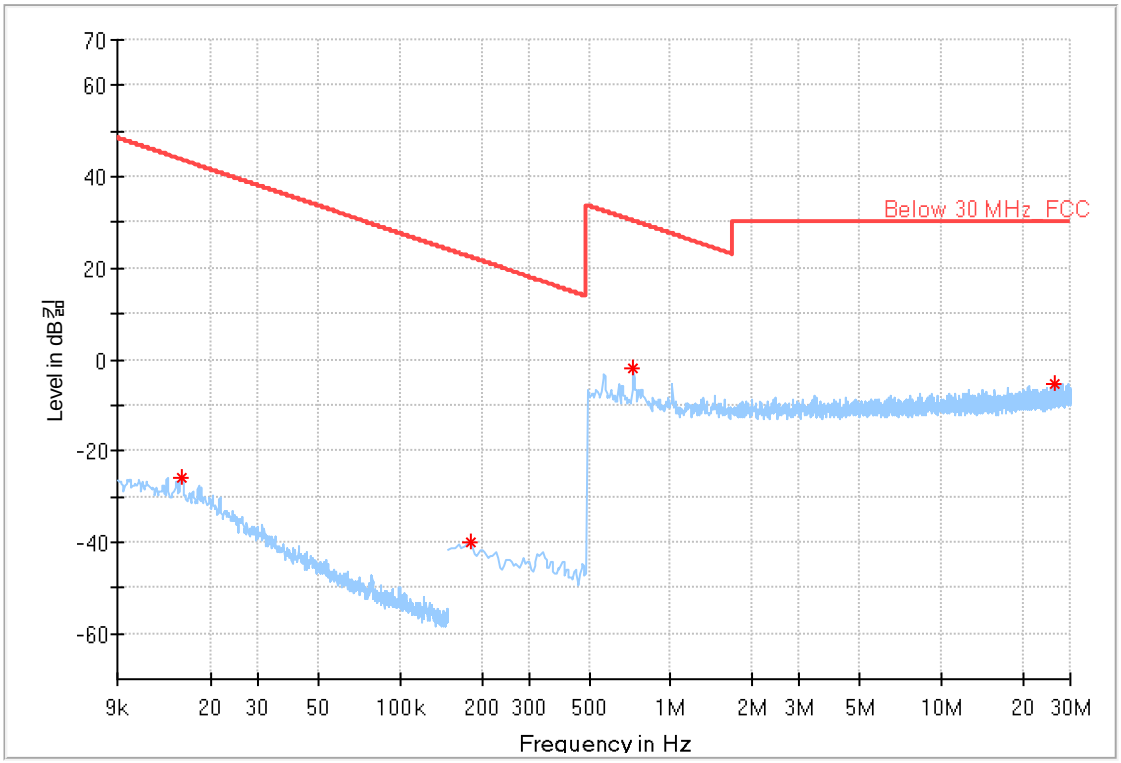


[Radiated Emission Test Setup Above 1 GHz]

3.3.5 Test Result of Radiated Spurious Emission

3.3.5.1 Radiated Emissions (Below 30 MHz)

GFSK

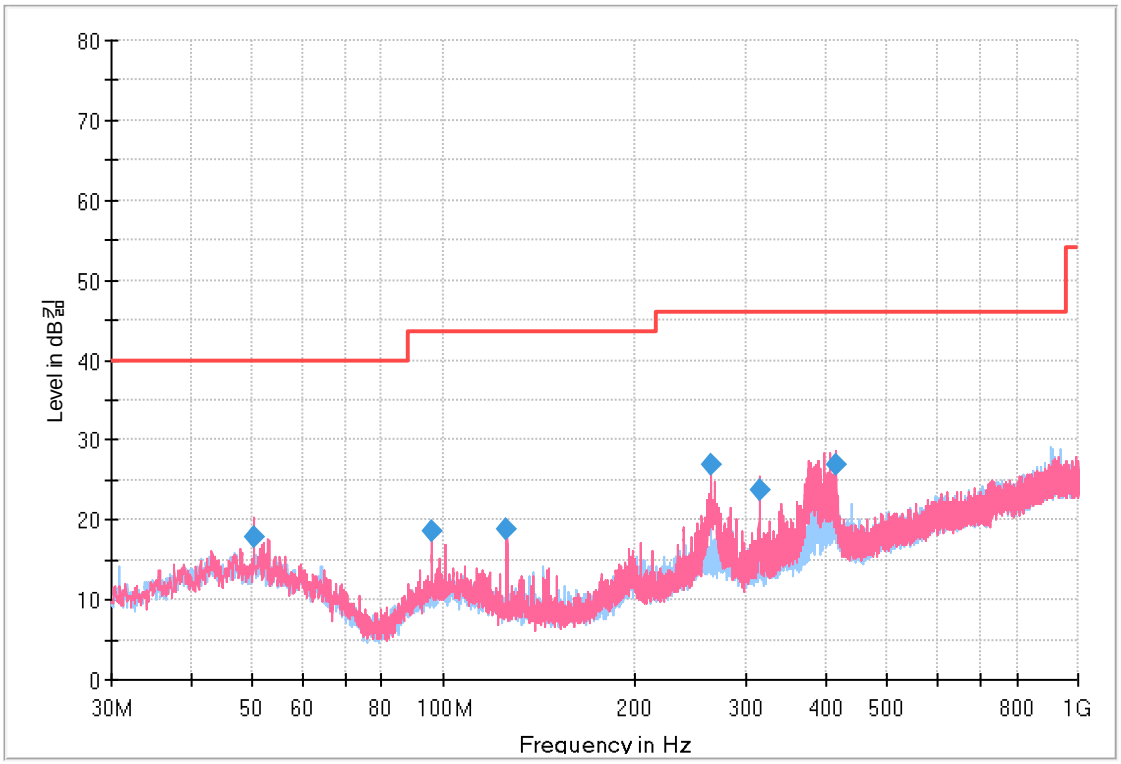


FCC

Frequency [MHz]	QuasiPeak Reading Value [dBuV]	QuasiPeak [dBuV/m]	Distance Correction Factor [dB]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Correction Factor [dB/m]
0.02	33.54	-25.96	-80.00	43.72	69.68	100.00	Parallel	198.00	-59.50
0.18	19.30	-40.10	-80.00	22.37	62.47	100.00	Parallel	280.00	-59.40
26.25	11.06	-5.44	-40.00	30.00	35.44	100.00	Parallel	131.00	-16.50

3.3.5.2 Radiated Emissions (Below 1 GHz)

GFSK

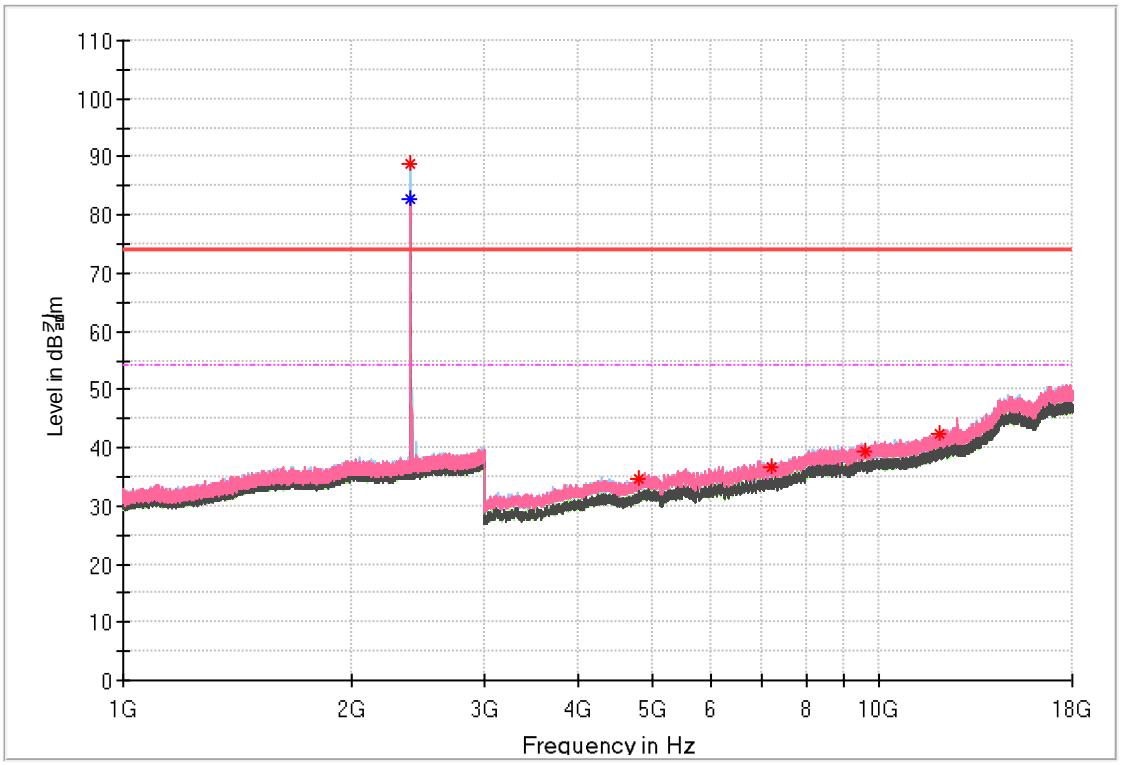


Frequency [MHz]	Quasi Reading Value [dBuV]	Quasi Peak [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Correction Factor [dB/m]
50.32	37.68	17.98	40.00	22.02	130	V	358	-19.70
96.01	41.70	18.60	43.50	24.90	126	V	358	-23.10
125.84	44.15	18.95	43.50	24.55	104	V	231	-25.20
264.26	47.94	26.84	46.00	19.16	104	H	23	-21.10
314.79	43.65	23.75	46.00	22.25	100	V	349	-19.90
415.09	43.67	26.87	46.00	19.13	104	H	339	-16.80

Remarks
1. Quasi Peak(dBµV/m) = Quasi Peak Reading Value(dBµV/m) + Correction Factor(dB)
2. Correction Factor(dB) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin(dB) = (Quasi Peak) Limit (dBµV/m) – (Quasi Peak) Result (dBµV/m)

3.5.5.3 Radiated Emissions (Above 1 GHz)

RSE_GFSK_2 402 MHz

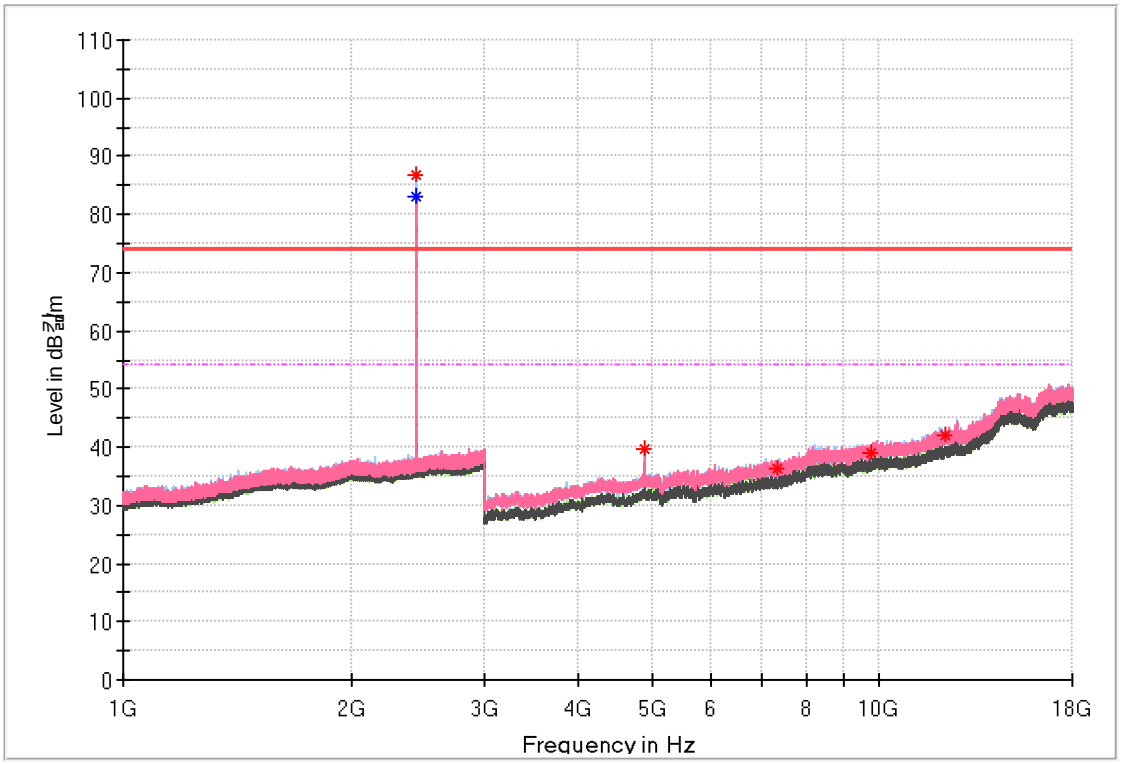


Frequency [MHz]	Peak Reading Value [dBuV]	Peak Result [dBuV/m]	DCCF [dB]	Height [cm]	Pol [H/V]	Azimuth [deg]	Correction Factor [dB/m]	Peak Margin [dB]	Peak Limit [dBuV/m]
2 401.88	85.51	88.91	---	300	V	169	3.40	5.07	93.98
4 804.22	31.89	34.69	---	200	V	32	2.80	39.31	74.00
7 206.09	29.39	36.79	---	100	V	284	7.40	37.21	74.00
9 608.44	29.02	39.52	---	100	V	92	10.50	34.48	74.00

Remarks

1. Peak Result(dBuV/m) = Peak Reading Value(dBuV) + Correction Factor(dB/m)
2. AVG Result(dBuV/m) = AVG Reading Value(dBuV) + DCCF + Correction Factor(dB/m)
3. DCCF(Duty Cycle Correction Factor) = 10 x Log(1/Duty Cycle)
4. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + Distance Factor (dB)
5. Margin(dB) = (Peak/AVG) Limit (dBuV/m) – (Peak/AVG) Result (dBuV/m)
6. * - indicates frequency in Restricted Band.
7. fundamental field strength limit : 50 mV/m = 93.98 dBuV/m

RSE_GFSK_2 440 MHz

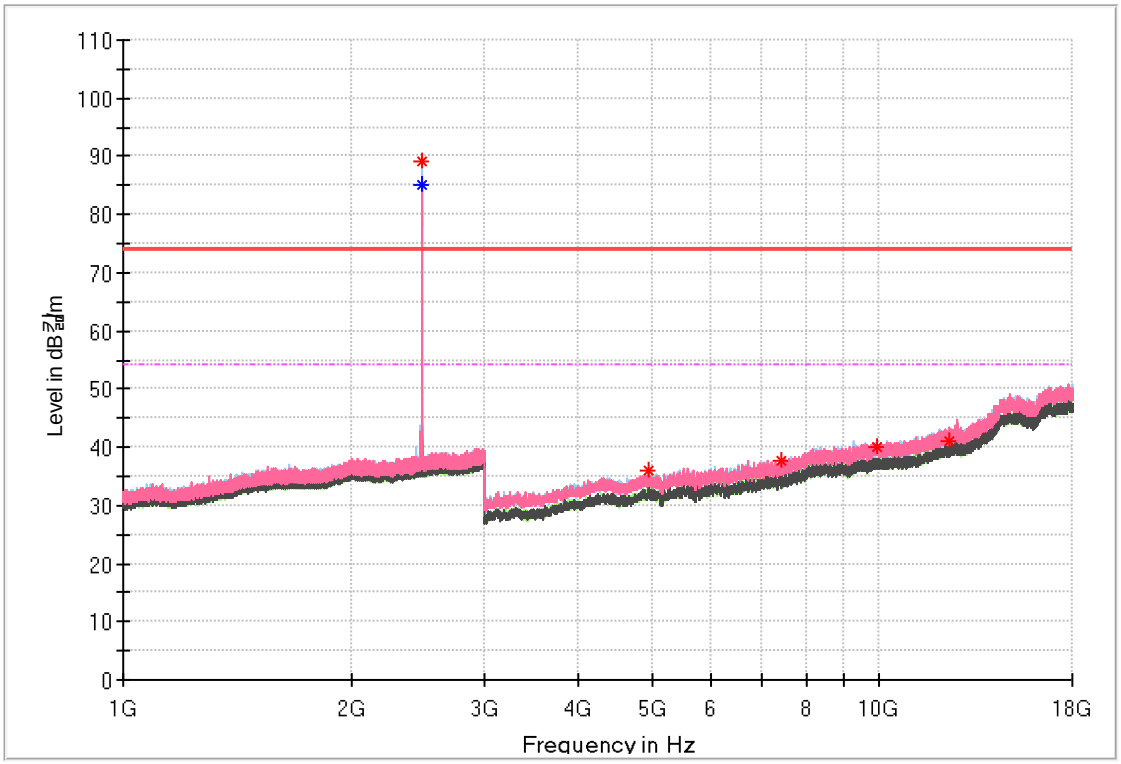


Frequency [MHz]	Peak Reading Value [dBuV]	Peak Result [dBuV/m]	DCCF [dB]	Height [cm]	Pol [H/V]	Azimuth [deg]	Correction Factor [dB/m]	Peak Margin [dB]	Peak Limit [dBuV/m]
2 440.06	83.28	86.78	---	300	V	230	3.50	7.20	93.98
4 879.69	36.73	39.83	---	300	V	21	3.10	34.17	74.00
7 320.94	28.77	36.27	---	400	V	337	7.50	37.73	74.00
9 760.78	28.43	39.13	---	100	H	212	10.70	34.87	74.00

Remarks

1. Peak Result(dBuV/m) = Peak Reading Value(dBuV) + Correction Factor(dB/m)
2. AVG Result(dBuV/m) = AVG Reading Value(dBuV) + DCCF + Correction Factor(dB/m)
3. DCCF(Duty Cycle Correction Factor) = 10 x Log(1/Duty Cycle)
4. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + Distance Factor (dB)
5. Margin(dB) = (Peak/AVG) Limit (dBuV/m) – (Peak/AVG) Result (dBuV/m)
6. * - indicates frequency in Restricted Band.
7. fundamental field strength limit : 50 mV/m = 93.98 dBuV/m

RSE GFSK_2 480 MHz



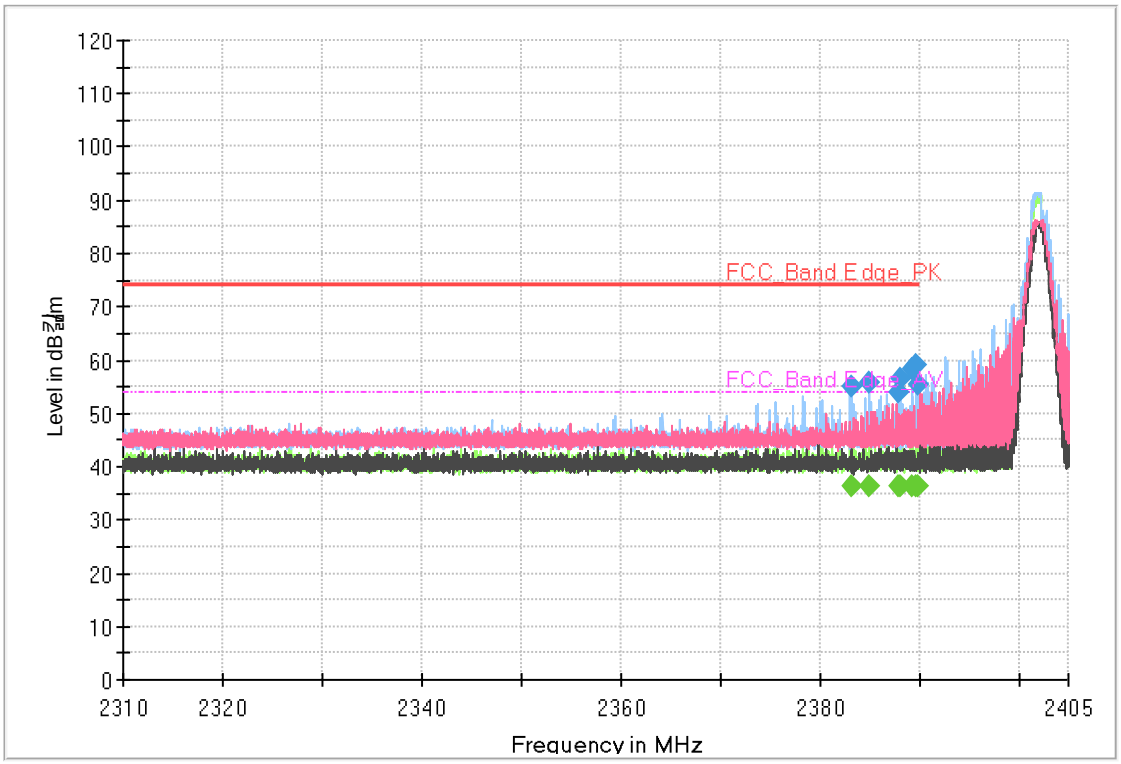
Frequency [MHz]	Peak Reading Value [dBuV]	Peak Result [dBuV/m]	DCCF [dB]	Height [cm]	Pol [H/V]	Azimuth [deg]	Correction Factor [dB/m]	Peak Margin [dB]	Peak Limit [dBuV/m]
2 480.13	85.52	89.22	---	400	V	253	3.70	4.76	74.00
4 959.84	32.74	36.04	---	300	H	161	3.30	37.96	74.00
7 440.00	29.88	37.58	---	300	V	0	7.70	36.42	74.00
9 920.63	28.96	40.06	---	400	V	129	11.10	33.94	74.00

Remarks

1. Peak Result(dBuV/m) = Peak Reading Value(dBuV) + Correction Factor(dB/m)
2. AVG Result(dBuV/m) = AVG Reading Value(dBuV) + DCCF + Correction Factor(dB/m)
3. DCCF(Duty Cycle Correction Factor) = 10 x Log(1/Duty Cycle)
4. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + Distance Factor (dB)
5. Margin(dB) = (Peak/AVG) Limit (dBuV/m) – (Peak/AVG) Result (dBuV/m)
6. * - indicates frequency in Restricted Band.
7. fundamental field strength limit : 50 mV/m = 93.98 dBuV/m

3.5.5.5 Restricted Band Edge Measurements

Band Edge_GFSK_2 402 MHz

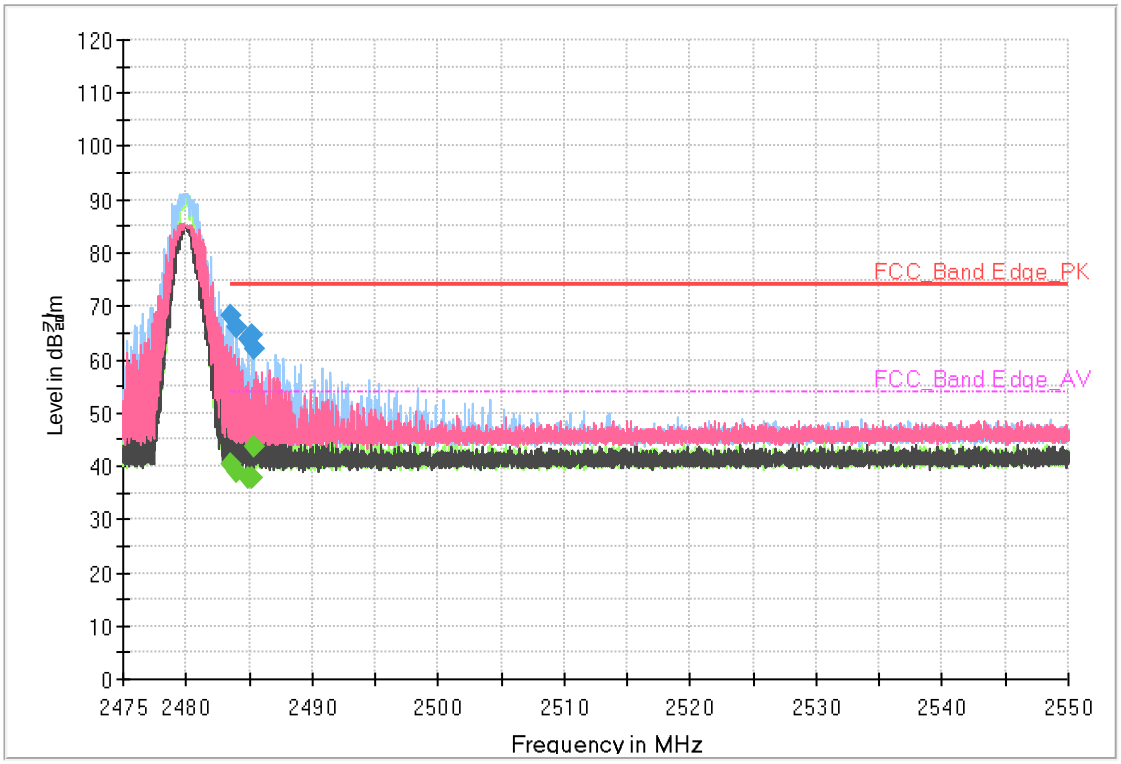


Frequency [MHz]	Peak Reading Value [dBuV]	Peak Result [dBuV/m]	AVG Reading Value [dBuV]	AVG Result [dBuV/m]	DCCF [dB]	Height [cm]	Pol [H/V]	Azimuth [deg]	Correction Factor [dB/m]	Peak Margin [dB]	Peak Limit [dBuV/m]	AVG Margin [dB]	AVG Limit [dBuV/m]
2 383.24	51.70	55.00	---	---	---	305	H	246	3.30	19.00	74.00	---	---
2 383.24	---	---	32.89	38.25	2.06	305	H	246	3.30	---	---	15.75	54.00
2 387.83	50.65	53.95	---	---	---	293	H	241	3.30	20.05	74.00	---	---
2 387.83	---	---	32.92	38.28	2.06	293	H	241	3.30	---	---	15.72	54.00
2 389.25	54.94	58.24	---	---	---	302	H	247	3.30	15.76	74.00	---	---
2 389.25	---	---	33.07	38.43	2.06	302	H	247	3.30	---	---	15.57	54.00

Remarks

1. Peak Result(dBuV/m) = Peak Reading Value(dBuV) + Correction Factor(dB/m)
2. AVG Result(dBuV/m) = AVG Reading Value(dBuV) + DCCF + Correction Factor(dB/m)
3. DCCF(Duty Cycle Correction Factor) = 10 x Log(1/Duty Cycle)
4. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + Distance Factor (dB)
5. Margin(dB) = (Peak/AVG) Limit (dBuV/m) – (Peak/AVG) Result (dBuV/m)

Band Edge_GFSK_2 480 MHz



Frequency [MHz]	Peak Reading Value [dBuV]	Peak Result [dBuV/m]	AVG Reading Value [dBuV]	AVG Result [dBuV/m]	DCCF [dB]	Height [cm]	Pol [H/V]	Azimuth [deg]	Correction Factor [dB/m]	Peak Margin [dB]	Peak Limit [dBuV/m]	AVG Margin [dB]	AVG Limit [dBuV/m]
2 483.53	64.39	68.09	---	---	---	250	H	280	3.70	5.91	74.00	---	---
2 483.53	---	---	36.60	42.36	2.06	250	H	280	3.70	---	---	11.64	54.00
2 484.86	60.27	63.97	---	---	---	277	H	350	3.70	10.03	74.00	---	---
2 484.86	---	---	34.06	39.82	2.06	277	H	273	3.70	---	---	14.18	54.00
2 485.36	58.45	62.15	---	---	---	334	H	268	3.70	11.85	74.00	---	---
2 485.36	---	---	40.01	45.77	2.06	334	H	268	3.70	---	---	8.23	54.00

Remarks

1. Peak Result(dBuV/m) = Peak Reading Value(dBuV) + Correction Factor(dB/m)
2. AVG Result(dBuV/m) = AVG Reading Value(dBuV) + DCCF + Correction Factor(dB/m)
3. DCCF(Duty Cycle Correction Factor) = 10 x Log(1/Duty Cycle)
4. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + Distance Factor (dB)
5. Margin(dB) = (Peak/AVG) Limit (dBuV/m) – (Peak/AVG) Result (dBuV/m)

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services Korea. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

Test Firm Name : BV CPS ADT Korea Ltd.

Main Address :Innoplex No.2 106, Sinwon-ro 306, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675 KOREA

Satellite Address : Bureau Veritas Bldg, HeungAn-daero 49, DongAn-gu, Anyang-si, Gyeonggi-do, 14119, KOREA

FCC

Designation Number : KR0158
Test Firm Registration Number : 666061

ISED

Designation Number : KR0158
Test Firm Registration Number : 25944 (Main)
Test Firm Registration Number : 26316 (Satellite)

If you have any comments, please feel free to contact us at the following:

Email: Meyer.Shin@bureauveritas.com
Web Site: www.bureauveritas.co.kr/cps/eaw

The address and road map of all our labs can be found in our web site also.

- End of report -