

TEST REPORT



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1. Report No : DRTFCC2311-0144

2. Customer

• Name (FCC) : AMOSENSE / Name (IC) : AMOSENSE CO.,LTD.

• Address (FCC) : 19-1BL, 90, 4Sandan 5 gil, Jiksan-eup Cheonan-Si, Chungcheongnam-Do South Korea
Address (IC) : 19-1BL, 90, 4sandan 5-gil, Jiksan-eup Cheonan-si Chungcheongnam-do 31040 Korea
(Republic Of)

3. Use of Report : Class II Permissive Change

4. Product Name / Model Name : UNIT ASSY-UWB&BLE MASTER / ASUNBM02

FCC ID : 2AS9T-ASUNBM

IC : 27298-ASUNBM

5. FCC Regulation(s): Part 15.247

IC Standard(s): RSS-247 Issue 3, RSS-Gen Issue 5

Test Method used: KDB558074 D01v05r02, ANSI C63.10-2013

6. Date of Test : 2023.11.06 ~ 2023.11.20

7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing

8. Testing Environment : See appended test report.

9. Test Result : Refer to the attached test result.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

This test report is not related to KOLAS accreditation.

Affirmation	Tested by	Technical Manager
	Name : SeungMin Gil 	Name : JaeJin Lee  (Signature)

2023 . 11 . 22 .

Dt&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2311-0144	Nov, 22. 2023	Initial issue	SeungMin Gil	JaeJin Lee

Table of Contents

1. General Information	4
1.1. Description of EUT	4
1.2. Declaration by the applicant / manufacturer	4
1.3. Testing Laboratory	5
1.4. Testing Environment.....	5
1.5. Measurement Uncertainty.....	5
1.6. Test Equipment List	6
2. Test Methodology	7
2.1. EUT Configuration.....	7
2.2. EUT Exercise.....	7
2.3. General Test Procedures	7
2.4. Instrument Calibration	7
2.5. Description of Test Modes.....	7
3. Antenna Requirements	8
4. Summary of Test Results	9
5. Test Result	10
5.1. 6 dB Bandwidth	10
5.1.1. Test Setup.....	10
5.1.2. Test Procedures	10
5.1.3. Test Results.....	10
5.2. Unwanted Emissions (Radiated).....	13
5.2.1. Test Setup.....	15
5.2.2. Test Procedures	15
5.2.3. Test Results.....	16
5.3. Occupied Bandwidth.....	17
5.3.1. Test Setup.....	17
5.3.2. Test Procedures	17
5.3.3. Test Results.....	17
APPENDIX I	20
APPENDIX II	21

1. General Information

1.1. Description of EUT

Equipment Class	Digital Transmission System (DTS)
Product Name(s)	UNIT ASSY-UWB&BLE MASTER, UNIT ASSY-UWB&BLE SLAVE
Model Name(s)	ASUNBM02, ASUNBM03
Firmware Version Identification Number	1.00
EUT Serial Number	No Specified
Power Supply	DC 12 V
Frequency Range	2 402 MHz ~ 2 480 MHz
Modulation Technique (Data rate)	GFSK (1Mbps)
Antenna Specification	Antenna Type: Chip Antenna Gain: 2.36 dBi (PK)

1.2. Declaration by the applicant / manufacturer

N/A

1.3. Testing Laboratory

Dt&C Co., Ltd.		
The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042.		
The test site complies with the requirements of Part 2.948 according to ANSI C63.4-2014.		
- FCC & IC MRA Designation No. : KR0034		
- ISED#: 5740A		
www.dtnc.net		
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1.4. Testing Environment

Ambient Condition	
▪ Temperature	+20 °C ~ +22 °C
▪ Relative Humidity	+40 % ~ +46 %

1.5. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C63.4-2014 and ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
Antenna-port conducted emission	1.0 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (1 GHz Below)	4.8 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (1 GHz ~ 18 GHz)	4.8 dB (The confidence level is about 95 %, $k = 2$)
Radiated emission (18 GHz Above)	4.9 dB (The confidence level is about 95 %, $k = 2$)

1.6. Test Equipment List

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	22/12/16	23/12/16	MY48011700
Spectrum Analyzer	Agilent Technologies	N9020A	23/06/23	24/06/23	US47360812
Spectrum Analyzer	Agilent Technologies	N9020A	22/12/16	23/12/16	MY50110097
Receiver	Rohde Schwarz	ESCI3	23/06/23	24/06/23	100798
DC Power Supply	Agilent Technologies	66332A	22/12/16	23/12/16	GB37470198
DC Power Supply	SM techno	SDP30-5D	23/06/23	24/06/23	305DMG291
DC Power Supply	SM techno	SDP30-5D	23/06/23	24/06/23	305DMG304
Multimeter	FLUKE	17B+	22/12/16	23/12/16	36390701WS
Signal Generator	Rohde Schwarz	SMBV100A	22/12/16	23/12/16	255571
Signal Generator	ANRITSU	MG3695C	22/12/16	23/12/16	173501
Thermohygrometer	BODYCOM	BJ5478	22/12/16	23/12/16	120612-1
Thermohygrometer	BODYCOM	BJ5478	22/12/16	23/12/16	120612-2
Thermohygrometer	BODYCOM	BJ5478	23/06/23	24/06/23	N/A
Loop Antenna	ETS-Lindgren	6502	22/04/22	24/04/22	203480
Hybrid Antenna	Schwarzbeck	VULB 9160	22/12/16	23/12/16	3362
Horn Antenna	ETS-Lindgren	3117	23/06/23	24/06/23	00143278
Horn Antenna	A.H.Systems Inc.	SAS-574	23/06/23	24/06/23	155
PreAmplifier	tsj	MLA-0118-B01-40	22/12/16	23/12/16	1852267
PreAmplifier	tsj	MLA-1840-J02-45	23/06/23	24/06/23	16966-10728
PreAmplifier	H.P	8447D	22/12/16	23/12/16	2944A07774
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	23/06/23	24/06/23	8
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	23/06/23	24/06/23	1
High Pass Filter	Wainwright Instruments	WHNX8.0/26.5-6SS	23/06/23	24/06/23	3
Attenuator	Hefei Shunze	SS5T2.92-10-40	23/06/23	24/06/23	16012202
Attenuator	Aeroflex/Weinschel	56-3	23/06/23	24/06/23	Y2370
Attenuator	SMAJK	SMAJK-2-3	23/06/23	24/06/23	3
Attenuator	SMAJK	SMAJK-2-3	23/06/23	24/06/23	2
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2496A MA2490A	22/12/16	23/12/16	1338004 1249303
Cable	DT&C	Cable	23/01/04	24/01/04	G-2
Cable	HUBER+SUHNER	SUCOFLEX 100	23/01/04	24/01/04	G-3
Cable	DT&C	Cable	23/01/04	24/01/04	G-4
Cable	OMT	YSS21S	23/01/04	24/01/04	G-5
Cable	Junkosha	MWX241	23/01/03	24/01/03	mmW-1
Cable	Junkosha	MWX241	23/01/03	24/01/03	mmW-4
Cable	HUBER+SUHNER	SUCOFLEX100	23/01/04	24/01/04	M-1
Cable	HUBER+SUHNER	SUCOFLEX100	23/01/04	24/01/04	M-2
Cable	JUNKOSHA	MWX241/B	23/01/04	24/01/04	M-3
Cable	JUNKOSHA	J12J101757-00	23/01/04	24/01/04	M-7
Cable	HUBER+SUHNER	SUCOFLEX106	23/01/04	24/01/04	M-9
Cable	DT&C	Cable	23/01/04	24/01/04	RFC-42
Cable	Dt&C	Cable	23/01/04	24/01/04	RFC-69
Test Software	tsj	Radiated Emission Measurement	NA	NA	Version 2.00.0185
Test Software	tsj	Noise Terminal Measurement	NA	NA	Version 2.00.0185

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.

Note2: The cable is not a regular calibration item, so it has been calibrated by Dt&C itself.

2. Test Methodology

The measurement procedures described in the ANSI C63.10-2013 and the guidance provided in KDB558074 D01v05r02 were used in measurement of the EUT.

The EUT was tested per the guidance of KDB558074 D01v05r02. And ANSI C63.10-2013 was used to reference appropriate EUT setup and maximizing procedures of radiated spurious emission and AC line conducted emission testing.

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT was operated in the test mode to fix the TX frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

2.3. General Test Procedures

Conducted Emissions

The power-line conducted emission test procedure is not described on the KDB558074 D01v05r02.

So this test was fulfilled with the requirements in Section 6.2 of ANSI C63.10-2013.

The EUT is placed on the wooden table, which is 0.8 m above ground plane and the conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and Average detector.

Radiated Emissions

Basically the radiated tests were performed with KDB558074 D01v05r02. But some requirements and procedures like test site requirements, EUT setup and maximizing procedure were fulfilled with the requirements in Section 5 and 6 of the ANSI C63.10-2013 as stated on section 12.1 of the KDB558074 D01v05r02.

The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

2.4. Instrument Calibration

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.5. Description of Test Modes

The EUT has been tested with the operating condition for maximizing the emission characteristics. A test program is used to control the EUT for staying in continuous transmitting. The Bluetooth low energy mode with below low, middle and high channels were tested and reported.

Test Mode	Description	Tested Frequency (MHz)		
		Lowest Frequency	Middle Frequency	Highest Frequency
TM 1	BT LE(1 Mbps)_ANT 2	2 402	2 440	2 480
TM 2	BT LE(1 Mbps)_ANT 1	2 402	2 440	2 480

EUT Operation test setup

- Test Software: 1.00
- Power setting: Default of EUT

3. Antenna Requirements

■ **According to Part 15.203**

“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 this section.”

The antenna is permanently attached on the device.

Therefore this E.U.T complies with the requirement of Part 15.203

4. Summary of Test Results

FCC part section(s)	RSS section(s)	Test Description	Limit	Test Condition	Status Note 1
15.247(a)	RSS-247[5.2]	6 dB Bandwidth	> 500 kHz	Conducted	C
15.247(b)	RSS-247[5.4]	Maximum Peak Output Power	< 1 Watt (conducted), FCC & IC < 4 Watt (e.i.r.p), IC		NT
15.247(d)	RSS-247[5.5]	Unwanted Emissions(Conducted)	20 dBc in any 100 kHz BW		NT
15.247(e)	RSS-247[5.2]	Power Spectral Density	< 8 dBm / 3 kHz		NT
-	RSS-Gen[6.7]	Occupied Bandwidth (99 %)	NA		C
15.247(d) 15.205 15.209	RSS-247[5.5] RSS-Gen[8.9] RSS-Gen[8.10]	Unwanted Emissions(Radiated)	Part 15.209 limits (Refer to section 5.5)	Radiated	C Note 3
15.207	RSS-Gen [8.8]	AC Power-Line Conducted Emissions	Part 15.207 limits (Refer to section 5.6)	AC Line Conducted	NA Note 4
15.203	-	Antenna Requirements	Part 15.203 (Refer to section 3)	-	C

Note 1: **C**=Comply **NC**=Not Comply **NT**=Not Tested **NA**=Not Applicable

Note 2: For radiated emission tests below 30 MHz were performed on semi-anechoic chamber which is correlated with OATS.

Note 3: Both antennas were investigated and the worst case data are reported.

This test item was performed in three orthogonal EUT positions and the worst case data was reported.

Note 4: This device is installed in a car. Therefore the power source is a battery of car.

5. Test Result

5.1. 6 dB Bandwidth

■ Test Requirements and limit, Part 15.247(a) & RSS-247 [5.2]

The bandwidth at 6 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the EUT's antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

The minimum permissible 6 dB bandwidth is 500 kHz.

5.1.1. Test Setup

Refer to the APPENDIX I.

5.1.2. Test Procedures

- KDB558074 D01v05r02 - Section 8.2
 - ANSI C63.10-2013 – Section 11.8.2
1. Set resolution bandwidth (RBW) = 100 kHz
 2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
 3. Detector = **Peak**.
 4. Trace mode = **max hold**.
 5. Sweep = **auto couple**.
 6. Allow the trace to stabilize.
 7. Option 1 - Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
Option 2 - The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW $\geq 3 \times$ RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

5.1.3. Test Results

Test Mode	Tested Channel	Test Results (MHz)
TM 1	Lowest	0.667
	Middle	0.674
	Highest	0.667

6 dB Bandwidth

TM 1 Test Channel : Lowest



6 dB Bandwidth

TM 1 Test Channel : Middle



6 dB Bandwidth

TM 1 Test Channel : Highest



5.2. Unwanted Emissions (Radiated)

■ Test Requirements and limit,

Part 15.247(d), Part 15.205, Part 15.209 & RSS-247 [5.5], RSS-Gen [8.9], RSS-Gen [8.10]

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of Part 15.247 the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

- Part 15.209 & RSS-Gen[8.9]: General requirements

Frequency (MHz)	FCC Limit (uV/m)	IC Limit (uA/m)	Measurement Distance (m)
0.009 – 0.490	2 400 / F (kHz)	6.37/F (F in kHz)	300
0.490 – 1.705	24 000 / F (kHz)	63.7/F (F in kHz)	30
1.705 – 30.0	30	0.08	30

Frequency (MHz)	FCC Limit (uV/m)	IC Limit (uV/m)	Measurement Distance (m)
30 ~ 88	100 **	100	3
88 ~ 216	150 **	150	3
216 ~ 960	200 **	200	3
Above 960	500	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.

- Part 15.205(a): Restricted band of operation

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.414 25 ~ 8.414 75	108 ~ 121.94	1 300 ~ 1 427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1 435 ~ 1 626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.173 5 ~ 2.190 5	12.519 75 ~ 12.520 25	149.9 ~ 150.05	1 645.5 ~ 1 646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.576 75 ~ 12.577 25	156.524 75 ~ 156.525 25	1 660 ~ 1 710	8.025 ~ 8.5	22.01 ~ 23.12
4.177 25 ~ 4.177 75	13.36 ~ 13.41	156.7 ~ 156.9	1 718.8 ~ 1 722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.207 25 ~ 4.207 75	16.42 ~ 16.423	162.012 5 ~ 167.17	2 200 ~ 2 300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.694 75 ~ 16.695 25	167.72 ~ 173.2	2 310 ~ 2 390	10.6 ~ 12.7	36.43 ~ 36.5
6.267 75 ~ 6.268 25	16.804 25 ~ 16.804 75	240 ~ 285	2 483.5 ~ 2 500	13.25 ~ 13.4	Above 38.6
6.311 75 ~ 6.312 25	25.5 ~ 25.67	322 ~ 335.4	2 655 ~ 2 900		
8.291 ~ 8.294	37.5 ~ 38.25	399.90 ~ 410	3 260 ~ 3 267		
8.362 ~ 8.366	73 ~ 74.6	608 ~ 614	3 332 ~ 3 339		
8.376 25 ~ 8.386 75	74.8 ~ 75.2	960 ~ 1 240	3 345.8 ~ 3 358		
			3 600 ~ 4 400		

- RSS-Gen[8.10]: Restricted frequency bands

MHz	MHz	MHz	MHz	MHz	GHz
0.090 ~ 0.110	8.362 ~ 8.366	73 ~ 74.6	608 ~ 614	3 345.8 ~ 3 358	9.0 ~ 9.2
0.495 ~ 0.505	8.376 25 ~ 8.386 75	74.8 ~ 75.2	960 ~ 1 427	3 500 ~ 4 400	9.3 ~ 9.5
2.173 5 ~ 2.190 5	8.414 25 ~ 8.414 75	108 ~ 138	1 435 ~ 1 626.5	4 500 ~ 5 150	10.6 ~ 12.7
3.020 ~ 3.026	12.29 ~ 12.293	149.9 ~ 150.05	1 645.5 ~ 1 646.5	5 350 ~ 5 460	13.25 ~ 13.4
4.125 ~ 4.128	12.519 75 ~ 12.520 25	156.524 75 ~	1 660 ~ 1 710	7 250 ~ 7 750	14.47 ~ 14.5
4.177 25 ~ 4.177 75	12.576 75 ~ 12.577 25	156.525 25	1 718.8 ~ 1 722.2	8 025 ~ 8 500	15.35 ~ 16.2
4.207 25 ~ 4.207 75	13.36 ~ 13.41	156.7 ~ 156.9	2 200 ~ 2 300		17.7 ~ 21.4
5.677 ~ 5.683	16.42 ~ 16.423	162.01 25 ~ 167.17	2 310 ~ 2 390		22.01 ~ 23.12
6.215 ~ 6.218	16.694 75 ~ 16.695 25	167.72 ~ 173.2	2 483.5 ~ 2 500		23.6 ~ 24.0
6.267 75 ~ 6.268 25	16.804 25 ~ 16.804 75	240 ~ 285	2 655 ~ 2 900		31.2 ~ 31.8
6.311 75 ~ 6.312 25	25.5 ~ 25.67	322 ~ 335.4	3 260 ~ 3 267		36.43 ~ 36.5
8.291 ~ 8.294	37.5 ~ 38.25	399.90 ~ 410	3 332 ~ 3 339		Above 38.6

5.2.1. Test Setup

Refer to the APPENDIX I.

5.2.2. Test Procedures

1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

Note: Measurement Instrument Setting for Radiated Emission Measurements.

- KDB558074 D01v05r02 - Section 8.6
- ANSI C63.10-2013 – Section 11.12

1. Frequency Range Below 1 GHz

RBW = 100 or 120 kHz, VBW = 3 x RBW, Detector = Peak or Quasi Peak

2. Frequency Range > 1 GHz

Peak Measurement > 1 GHz

RBW = 1 MHz, VBW = 3 MHz, Detector = Peak, Sweep time = Auto, Trace mode = Max Hold until the trace stabilizes

Average Measurement > 1 GHz

1. RBW = 1 MHz (unless otherwise specified).
2. VBW $\geq$ 3 x RBW.
3. Detector = RMS (Number of points $\geq$ 2 x Span / RBW)
4. Averaging type = power (i.e., RMS).
5. Sweep time = auto.
6. Perform a trace average of at least 100 traces.
7. A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:
 - 1) If power averaging (RMS) mode was used in step 4, then the applicable correction factor is $10 \log(1 / D)$, where D is the duty cycle.
 - 2) If linear voltage averaging mode was used in step 4, then the applicable correction factor is $20 \log(1 / D)$, where D is the duty cycle.
 - 3) If a specific emission is demonstrated to be continuous ($\geq$ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

Test Mode	T _{on} (ms)	T _{on} + T _{off} (ms)	D = T _{on} / (T _{on} + T _{off})	DCCF = 10 log(1 / D) (dB)
TM 1	0.396	0.624	0.634 6	1.97

Note1: Where, T= Transmission duration / D= Duty cycle

5.2.3. Test Results

- Test Notes

- The radiated emissions were investigated 9 kHz to 25 GHz. And no other spurious and harmonic emissions were found below listed frequencies.
- Information of Distance Correction Factor
For finding emissions, measurements may be performed at a distance closer than that specified in the regulations.
In this case, the distance factor is applied to the result.
- Calculation of distance correction factor
At frequencies below 30 MHz = $40 \log(\text{tested distance} / \text{specified distance})$
At frequencies at or above 30 MHz = $20 \log(\text{tested distance} / \text{specified distance})$
When distance factor is "N/A", the measurements were performed at the specified distance and distance factor is not applied.
- Sample Calculation.
 $\text{Margin} = \text{Limit} - \text{Result}$ / $\text{Result} = \text{Reading} + \text{TF} + \text{DCCF} + \text{DCF}$ / $\text{TF} = \text{AF} + \text{CL} + \text{HL} + \text{AL} - \text{AG}$
Where, TF = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, HL = High pass filter Loss, AL = Attenuator Loss, DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

Frequency Range : 9 kHz ~ 25 GHz_TM 1

▪ Lowest Channel

Frequency (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2 389.38	H	X	PK	50.03	4.48	N/A	N/A	54.51	74.00	19.49
2 389.07	H	X	AV	39.71	4.48	1.97	N/A	46.16	54.00	7.84
4 803.58	H	Z	PK	56.02	1.64	N/A	N/A	57.66	74.00	16.34
4 803.76	H	Z	AV	48.15	1.64	1.97	N/A	51.76	54.00	2.24
7 205.32	H	X	PK	49.34	7.01	N/A	N/A	56.35	74.00	17.65
7 205.27	H	X	AV	38.59	7.01	1.97	N/A	47.57	54.00	6.43

▪ Middle Channel

Frequency (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4 879.70	H	Z	PK	54.33	1.79	N/A	N/A	56.12	74.00	17.88
4 879.78	H	Z	AV	46.45	1.80	1.97	N/A	50.22	54.00	3.78
7 319.44	H	X	PK	48.62	6.64	N/A	N/A	55.26	74.00	18.74
7 319.17	H	X	AV	38.66	6.64	1.97	N/A	47.27	54.00	6.73

▪ Highest Channel

Frequency (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	TF (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2 485.59	H	X	PK	50.04	5.02	N/A	N/A	55.06	74.00	18.94
2 485.05	H	X	AV	40.08	5.01	1.97	N/A	47.06	54.00	6.94
4 959.62	H	Z	PK	51.55	2.52	N/A	N/A	54.07	74.00	19.93
4 959.74	H	Z	AV	42.88	2.52	1.97	N/A	47.37	54.00	6.63
7 440.65	H	X	PK	47.51	7.61	N/A	N/A	55.12	74.00	18.88
7 440.44	H	X	AV	36.67	7.61	1.97	N/A	46.25	54.00	7.75

5.3. Occupied Bandwidth

■ Test Requirements, RSS-Gen [6.7]

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99 % emission bandwidth, as calculated or measured.

5.3.1. Test Setup

Refer to the APPENDIX I.

5.3.2. Test Procedures

The 99 % power bandwidth was measured with a calibrated spectrum analyzer.

The resolution bandwidth (RBW) shall be in the range of 1 % to 5 % of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately $3 \times \text{RBW}$.

5.3.3. Test Results

Test Mode	Tested Channel	Test Results (MHz)
TM 1	Lowest	1.073
	Middle	1.076
	Highest	1.068

Occupied Bandwidth

TM 1 Test Channel : Lowest



Occupied Bandwidth

TM 1 Test Channel : Middle



Occupied Bandwidth

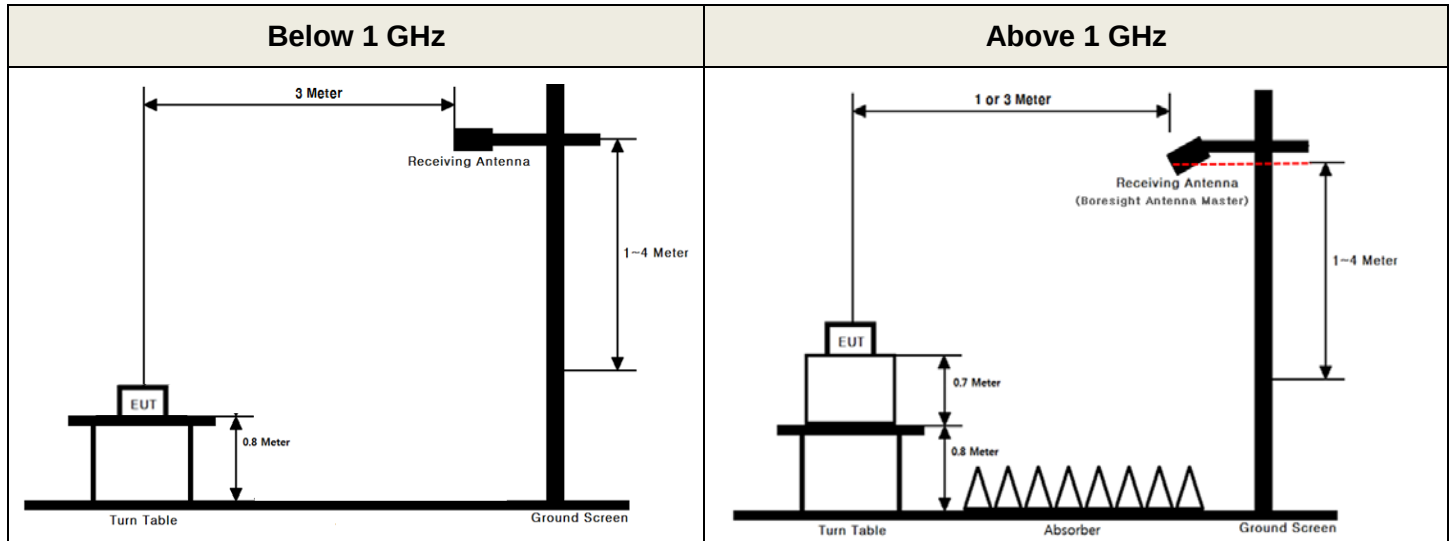
TM 1 Test Channel : Highest



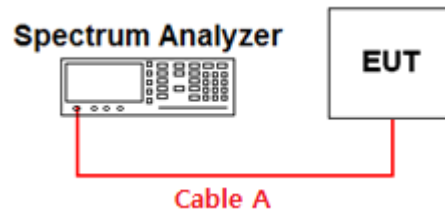
APPENDIX I

Test set up diagrams

▪ Radiated Measurement



▪ Conducted Measurement



Path loss information

Frequency (GHz)	Path Loss (dB)	Frequency (GHz)	Path Loss (dB)
0.03	0.25	15	4.81
1	1.00	20	5.91
2.402 & 2.440 & 2.480	1.75	25	6.32
5	2.84	-	-
10	3.77	-	-

Note 1 : The path loss from EUT to Spectrum analyzer was measured and used for test.

Path loss (S/A's correction factor) = Cable A

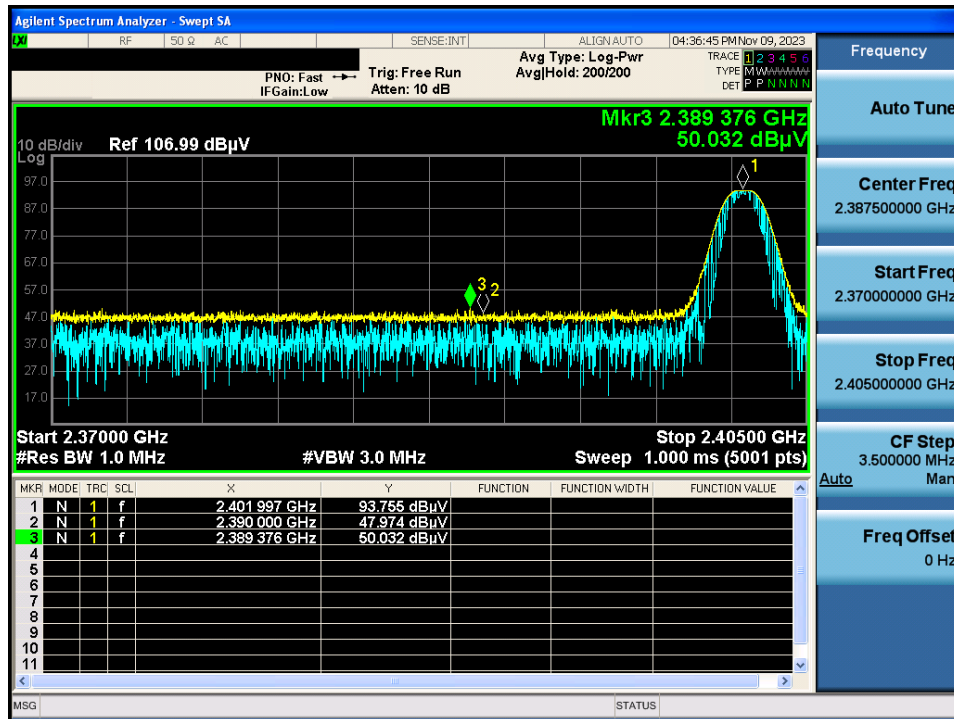
(Attenuator, Applied only when it was used externally)

APPENDIX II

Unwanted Emissions (Radiated) Test Plot

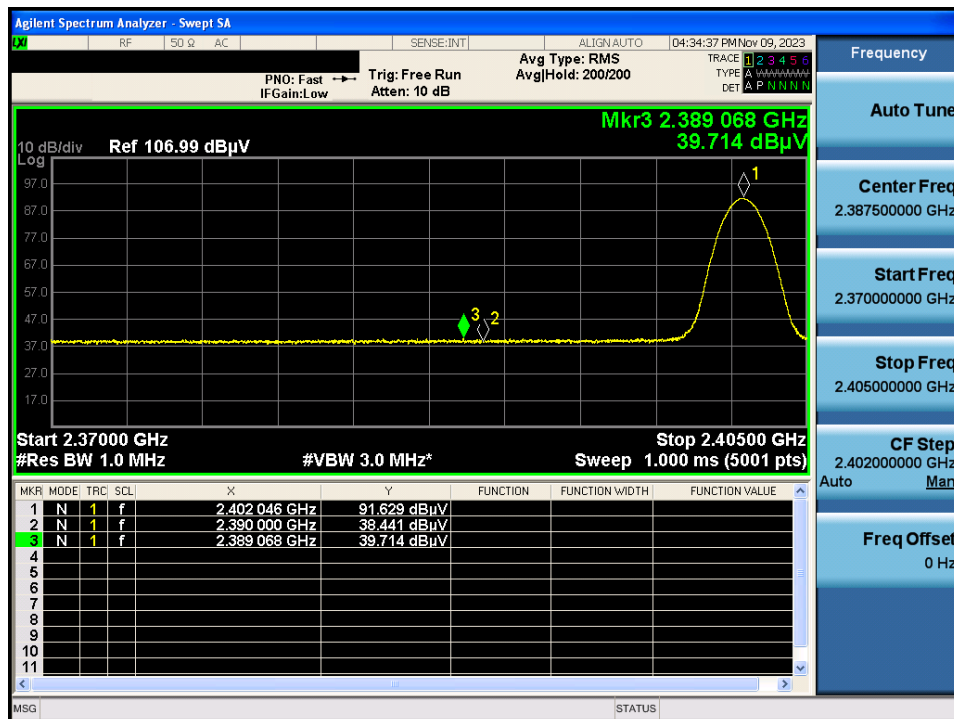
TM 1 & Lowest & X & Hor

Detector Mode : PK



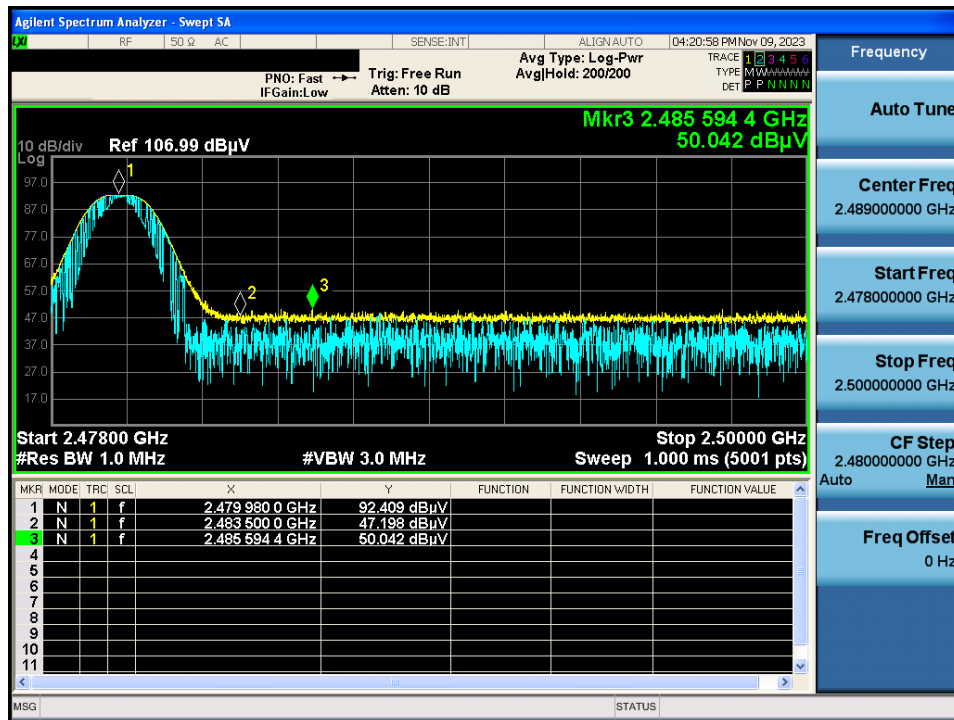
TM 1 & Lowest & X & Hor

Detector Mode : AV



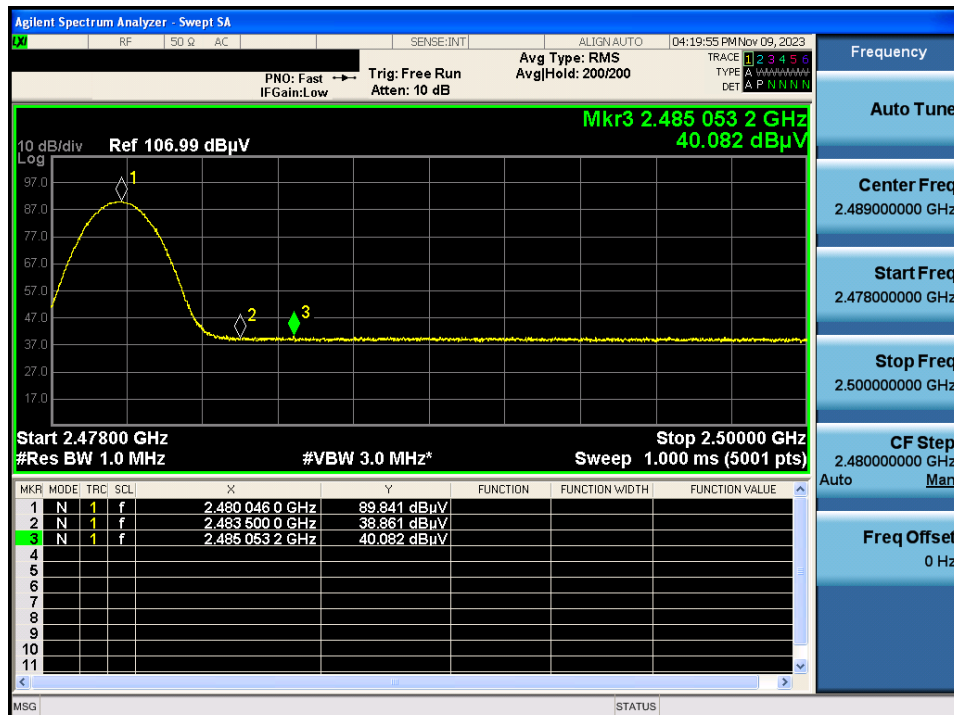
TM 1 & Highest & X & Hor

Detector Mode : PK



TM 1 & Highest & X & Hor

Detector Mode : AV



TM 1 & Lowest & Z & Hor

Detector Mode : AV

