

TEST REPORT



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Report No.:
CTK-2020-00075
Page (1) / (38) Pages

1. Client

- Name : ANOTO KOREA Corp.
- Address : Uspace2 #B-703, 670, Daewangpangyo-ro Bundang-gu, Seongnam-si,
Gyeonggi-do, Korea

2. Manufacturer

- Name : ANOTO KOREA Corp.
- Address : Uspace2 #B-703, 670, Daewangpangyo-ro Bundang-gu, Seongnam-si,
Gyeonggi-do, Korea

3. Use of Report : For FCC Certification and Canadian Certification

4. Test Sample / Model : Digital Pen / ANDANTE

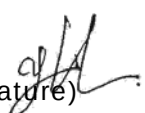
5. Date of Test : 2019-12-20 to 2019-12-27

6. Test Standard(method) used : FCC 47 CFR part 15 subpart C 15.247,
RSS-Gen Issue 5, RSS-247 Issue 2,
ANSI C63.10-2013

7. Testing Environment : Temp.: (21 ± 5) °C, Humidity: (48 ± 3) % R.H.

8. Test Results : Compliance

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

Affirmation	Tested by	Technical Manager
	Bong-seok Kim: (Signature) 	Young-taek Lee: (Signature) 

2020-01-02

Republic of KOREA **CTK Co., Ltd.**



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Page (2) / (38) Pages

REPORT REVISION HISTORY

Date	Revision	Page No
2020-01-02	Issued (CTK-2020-00075)	all

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1. General Product Description

1.1 Client Information

Company	ANOTO KOREA Corp.
Contact Point	Uspace2 #B-703, 670, Daewangpangyo-ro Bundang-gu, Seongnam-si, Gyeonggi-do, Korea
Contact Person	Name : Chulmin, In E-mail : Chulmin.in@anoto.com Tel : +32-600-0824

1.2 Product Information

FCC ID	ADM-ANDANTE
IC	23775-ANDANTE
Product Description	Digital Pen
Model name	ANDANTE
Operating Frequency	2 402 MHz - 2 480 MHz
RF Output Power	-4.77 dBm (0.333 mW)
Antenna Specification	Antenna type : Chip Antenna Peak Gain : 2.1 dBi
Number of channels	40
Channel Spacing	2 MHz
Type of Modulation	GFSK
Power Source	DC 3.7 V

1.3 Peripheral Devices

- For Conducted Measurement and Radiated Measurement

Device	Manufacturer	Model No.	Serial No.
Note Computer	SAMSUNG	NT560XBV	0Z8S91AM400511W
AC/DC Adapter	SAMSUNG	A13-040N2A	AD-4019A

2. Facility and Accreditations

2.1 Test Facility

The measurement facility is located at (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yong-in-si, Gyeonggi-do, Korea.

2.2 Laboratory Accreditations and Listings

Country	Agency	Registration Number
USA	FCC	805871
CANADA	ISED	8737A-2
KOREA	NRRA	KR0025

2.3 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

3. Test Specifications

3.1 Standards

FCC rule Section(s)	RSS rule Section(s)	Requirement(s)	Status (Note 1)	Test Condition
15.247(a)	RSS-15.247 5.2	6 dB Bandwidth	C	Conducted
15.247(e)	RSS-15.247 5.2	Transmitter power spectral density	C	
15.247(b)	RSS-15.247 5.4	Maximum peak conducted output power	C	
15.247(d)	RSS-15.247 5.5	Unwanted emission	C	
15.209	RSS-Gen 6.13	Transmitter emission	C	Radiated
15.207	RSS-Gen 8.8	AC Conducted Emission	C	Line Conducted
Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable				
Note 2: The data in this test report are traceable to the national or international standards.				
Note 3: The sample was tested according to the following specification: FCC Part 15.247, ANSI C63.10-2013, RSS-247 Issue 2, RSS-Gen Issue 5				

3.2 Mode of operation during the test

The EUT is operated in a manner representative of the typical of the equipments.
 During at testing, system components were manipulated within the confines of typical usage to maximize each emission. All modulation modes were tests.
 The results are only attached worst cases.

Test Frequency

Lowest channel	Middle channel	Highest channel
2 402 MHz	2 440 MHz	2 480 MHz

Test mode

Modulation
GFSK

3.3 Maximum Measurement Uncertainty

The value of the measurement uncertainty for the measurement of each parameter.
Coverage factor $k = 2$, Confidence levels of 95 %

Description	Uncertainty
Conducted RF Output Power	1.5 dB
Occupied Bandwidth	0.1 MHz
Unwanted Emission(conducted)	3.0 dB
Radiated Emissions ($f \leq 1$ GHz)	4.0 dB
Radiated Emissions ($f > 1$ GHz)	5.0 dB

3.4 Test Software

Conducted Test	Ics Pro Ver. 6.0.3
Radiated Test	TOYO EMI software EP5RE Ver. 5.1.0
Line Conducted Test	ESCI7, ESCI3 : EMC32 Ver. 8.50.0 ESR7 : EMC32 Ver. 8.53.0

4. Technical Characteristic Test

4.1 6dB Bandwidth

Test Procedures(ANSI C63.10-2013 6.9.2)

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Procedures(ANSI C63.10-2013 6.9.3)

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

Test Settings :

Center frequency = the highest, middle and the lowest channels

- a) RBW = 100 kHz
- b) VBW $\geq 3 \times$ RBW
- c) Detector = peak
- d) Trace mode = Max hold
- e) Sweep = auto couple
- f) Allow trace to fully stabilize
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Limit :

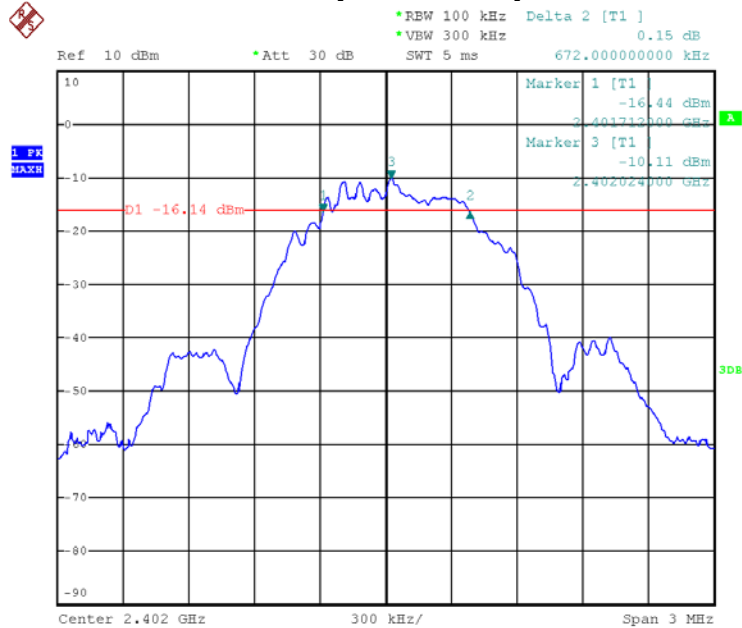
6 dB Bandwidth > 500 kHz

Test Data :

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	99 % Bandwidth [MHz]	Result
Low	2 402	0.672	1.044	Complies
Middle	2 440	0.672	1.044	Complies
High	2 480	0.672	1.044	Complies

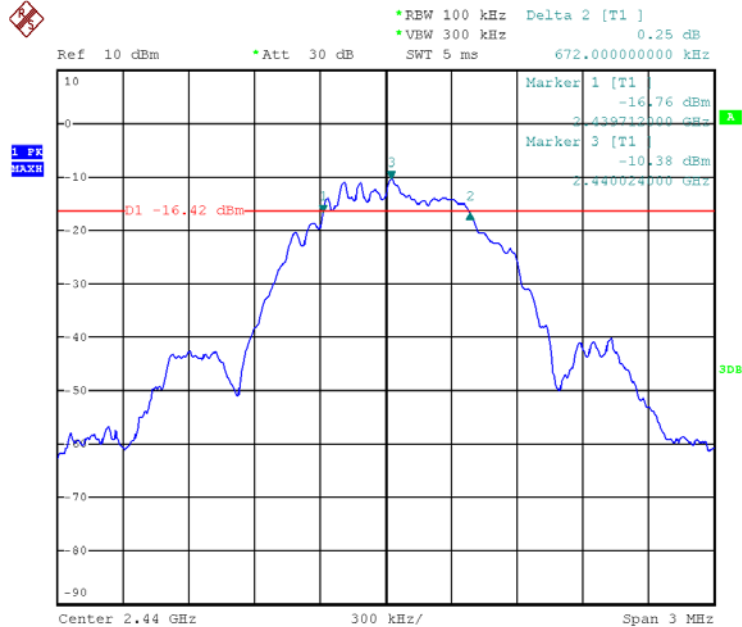
See next pages for actual measured spectrum plots.

6 dB Bandwidth [Low channel]

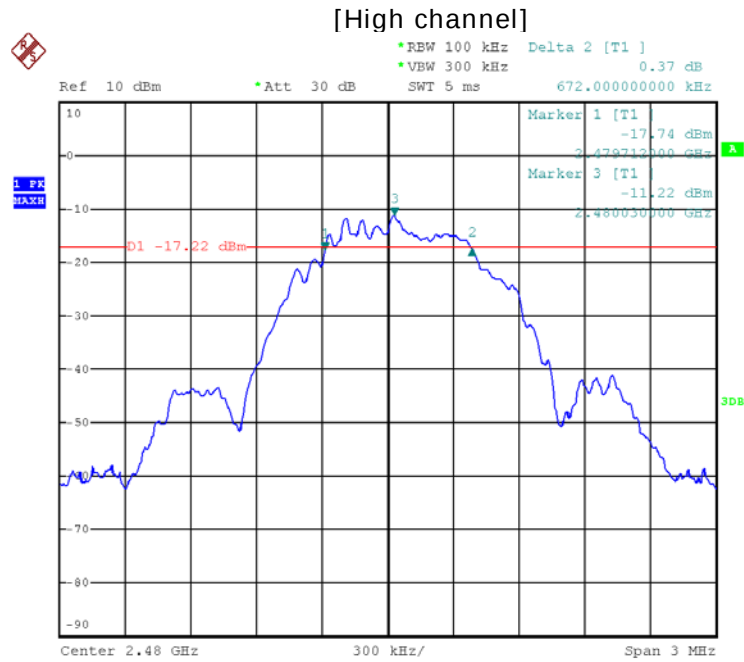


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[Middle channel]

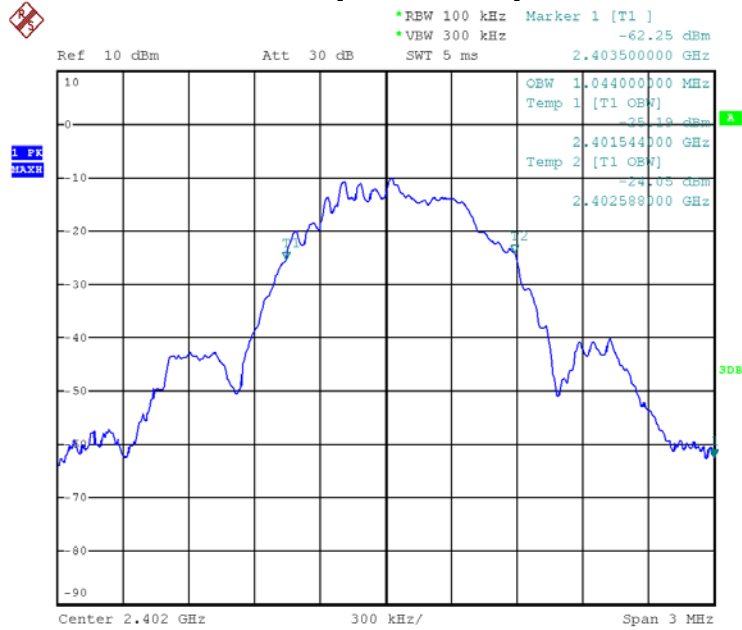


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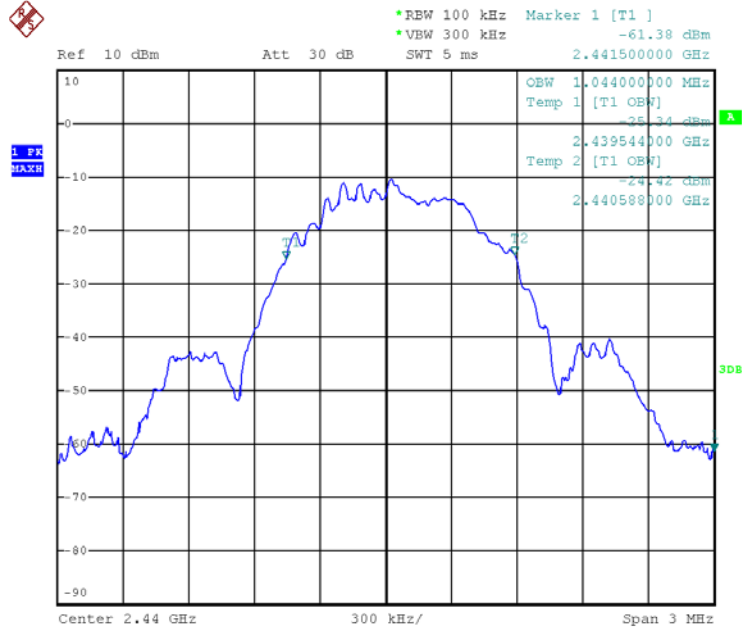
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99 % Bandwidth [Low channel]

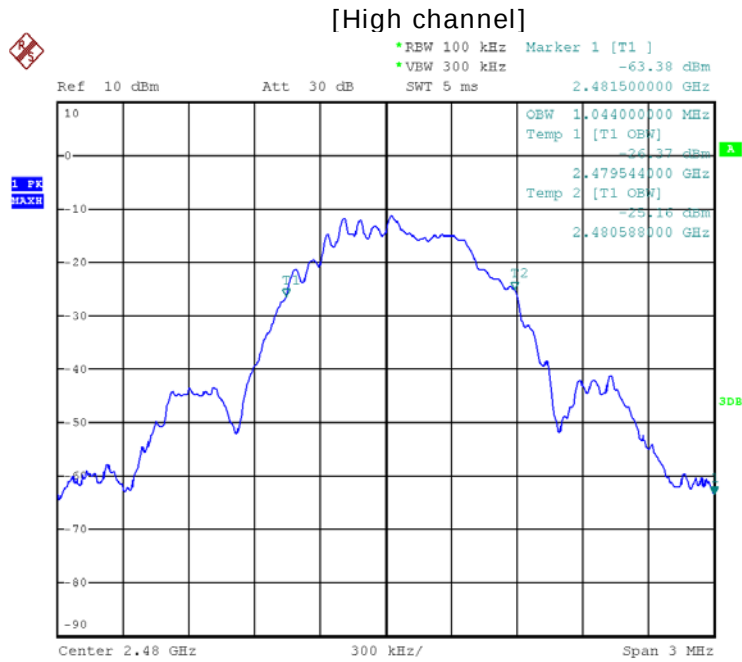


Date: 23.DEC.2019 17:56:53

[Middle channel]



Date: 23.DEC.2019 18:00:05



Date: 23.DEC.2019 18:02:00

4.2 Maximum peak Conducted Output Power

Test Procedures(ANSI C63.10-2013 11.9.1)

The following procedure can be used when the maximum available RBW of the instrument is less than the DTS bandwidth:

Test Settings:

Center frequency = the highest, middle and the lowest channels

- a) $RBW \geq DTS \text{ Bandwidth}$
- b) $VBW \geq 3 \times RBW$
- c) $span \geq 3 \times RBW$
- d) Sweep time = auto couple
- e) Detector = peak
- f) Trace mode = max hold
- g) Allow trace to fully stabilize
- h) Use peak marker function to determine the peak amplitude level.

Limit :

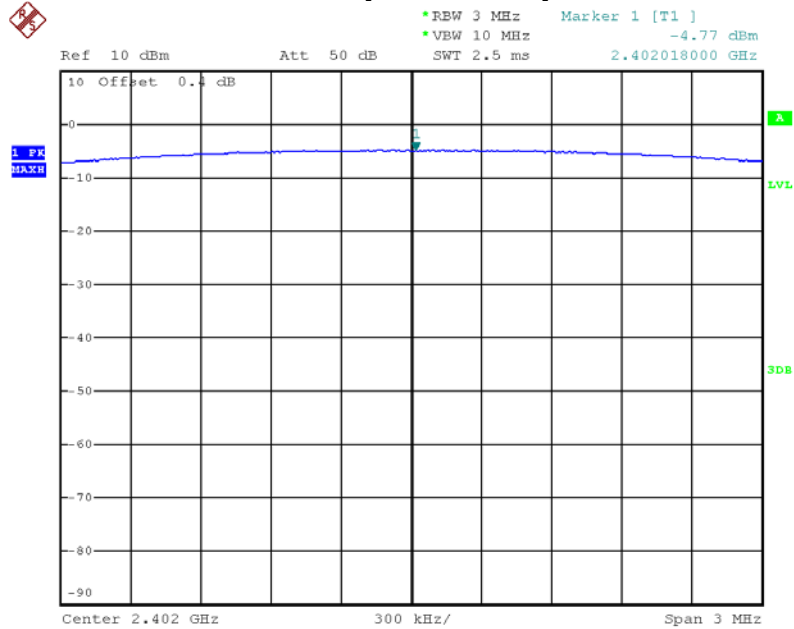
Maximum Output Power < 1 W (30 dBm)

Test Data :

Channel	Frequency [MHz]	Measurement data [dBm]	Limit [dBm]	Result
Low	2 402	-4.77	30	Complies
Middle	2 440	-5.17	30	Complies
High	2 480	-5.78	30	Complies

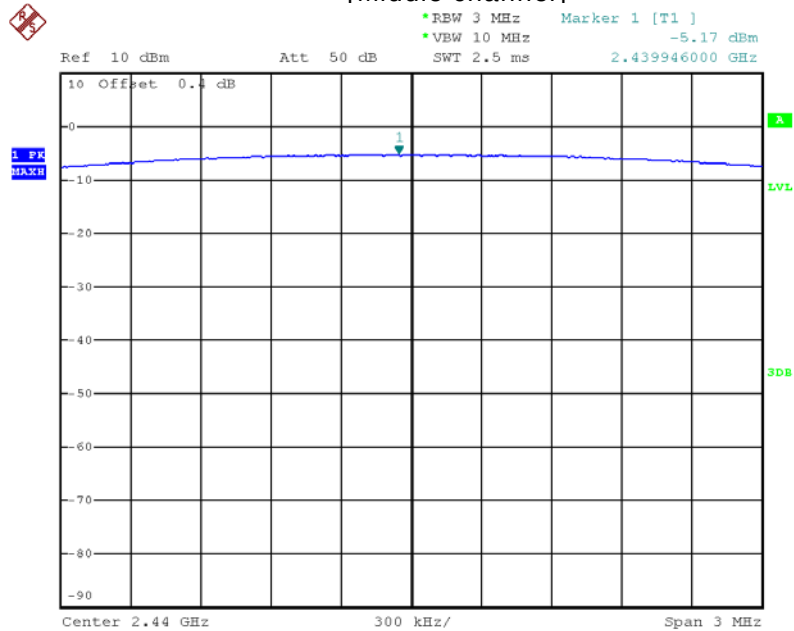
See next pages for actual measured spectrum plots.

Output Power [Low channel]

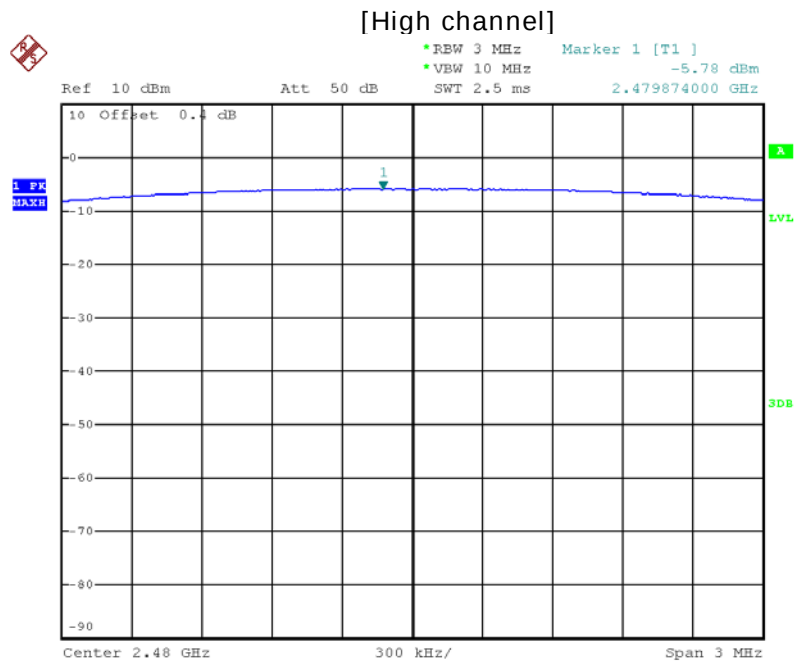


Date: 23.DEC.2019 17:54:49

[Middle channel]



Date: 23.DEC.2019 17:58:21



Date: 23.DEC.2019 18:01:15

4.3 Power Spectral Density

Test Procedures(ANSI C63.10-2013 11.10.2)

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance.

Test Settings:

Center frequency = the highest, middle and the lowest channels

- a) RBW : $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
- b) VBW $\geq 3 \times \text{RBW}$
- c) span $\geq 1.5 \times \text{DTS bandwidth}$
- d) Sweep time = auto couple
- e) Detector = peak
- f) Trace mode = max hold
- g) Allow trace to fully stabilize
- h) Use the peak marker function to determine the maximum amplitude level within the RBW.

Limit :

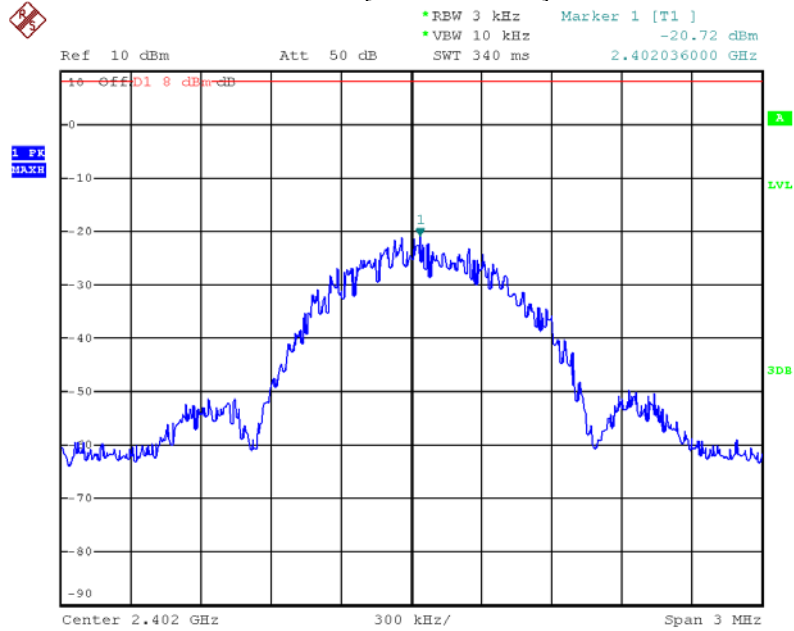
Power Spectral Density < 8 dBm @ 3 kHz BW

Test Data :

Channel	Frequency [MHz]	Measurement data [dBm]	Limit [dBm]	Result
Low	2 402	-20.72	8	Complies
Middle	2 440	-21.24	8	Complies
High	2 480	-21.78	8	Complies

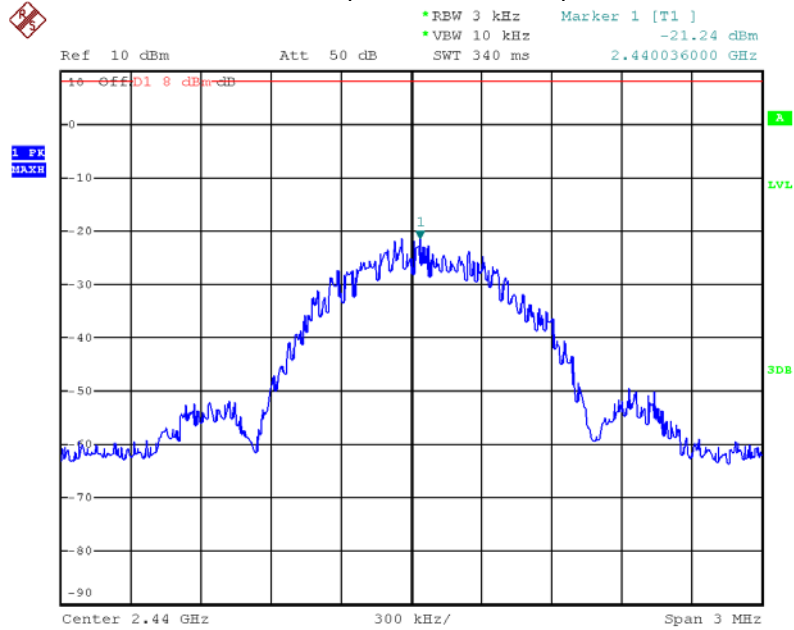
See next pages for actual measured spectrum plots.

[Low channel]

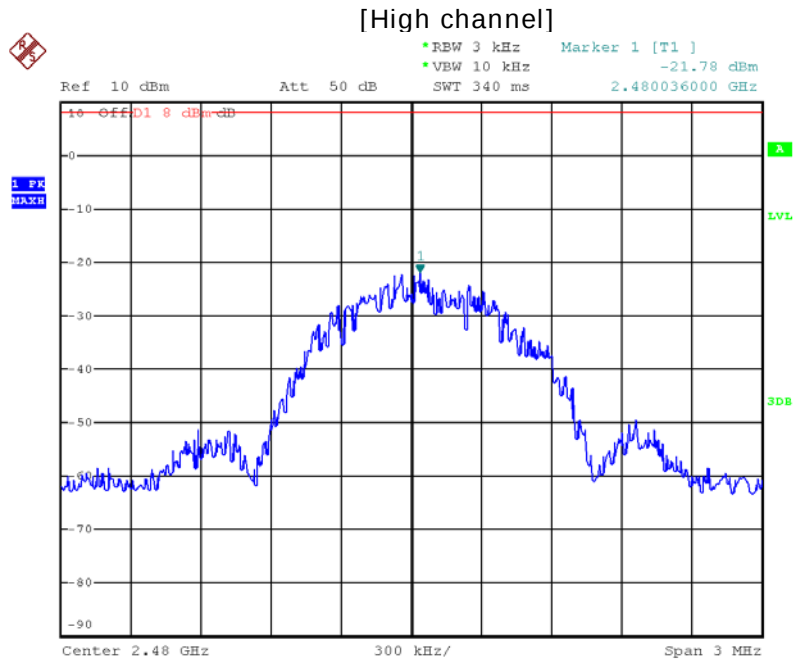


Date: 23.DEC.2019 17:55:06

[Middle channel]



Date: 23.DEC.2019 17:58:37



Date: 23.DEC.2019 18:01:32

4.4 Band Edge & Conducted Spurious emission

Test Procedures(ANSI C63.10-2013 11.11.3)

The Unwanted emission from the EUT were measured according to the dictates PKPSD measurement procedure in section 11.11 of ANSI C63.10-2013.

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Test Settings:

Center frequency = the highest, middle and the lowest channels

- | | |
|---|-----------------------------|
| a) RBW = 100 kHz | b) VBW $\geq 3 \times$ RBW |
| c) Detector = peak | d) Sweep time = auto couple |
| e) Trace mode= max hold | |
| f) Allow trace to fully stabilize | |
| g) Use the peak marker function to determine the maximum amplitude level. | |

Limit :

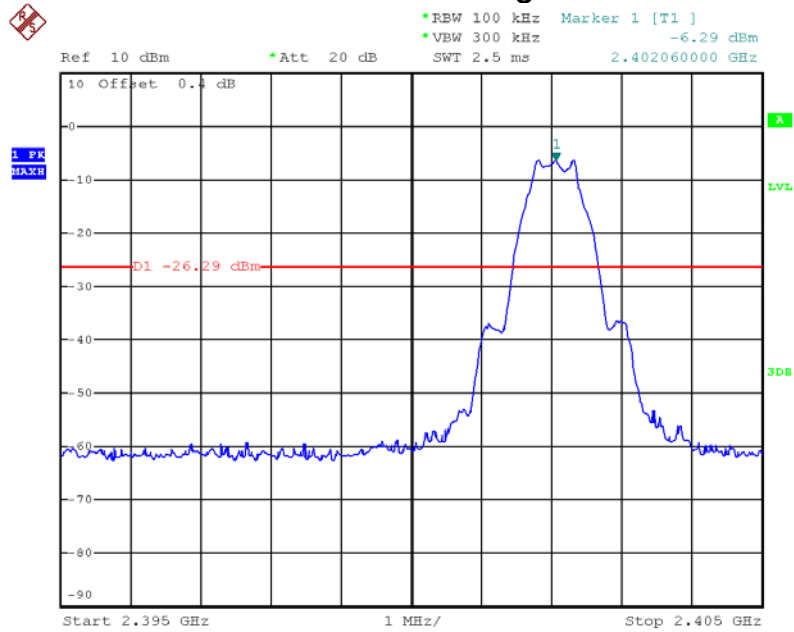
Emission level < 20 dBc

Test results: Complies

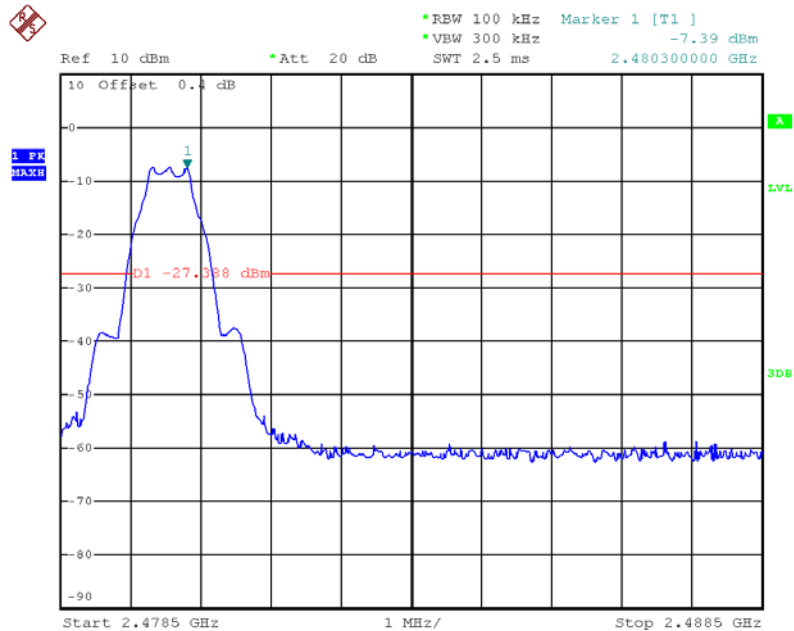
- All conducted emission in any 100kHz bandwidth outside of the spread spectrum band was at least 20dB lower than the highest in-band spectral density. Therefore the applying equipment meets the requirement.

See next pages for actual measured spectrum plots.

Band-edge

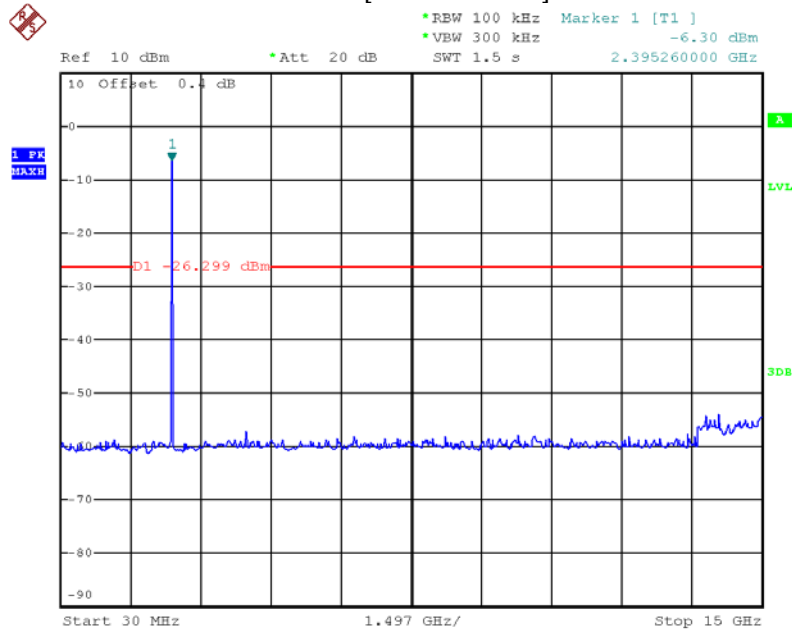


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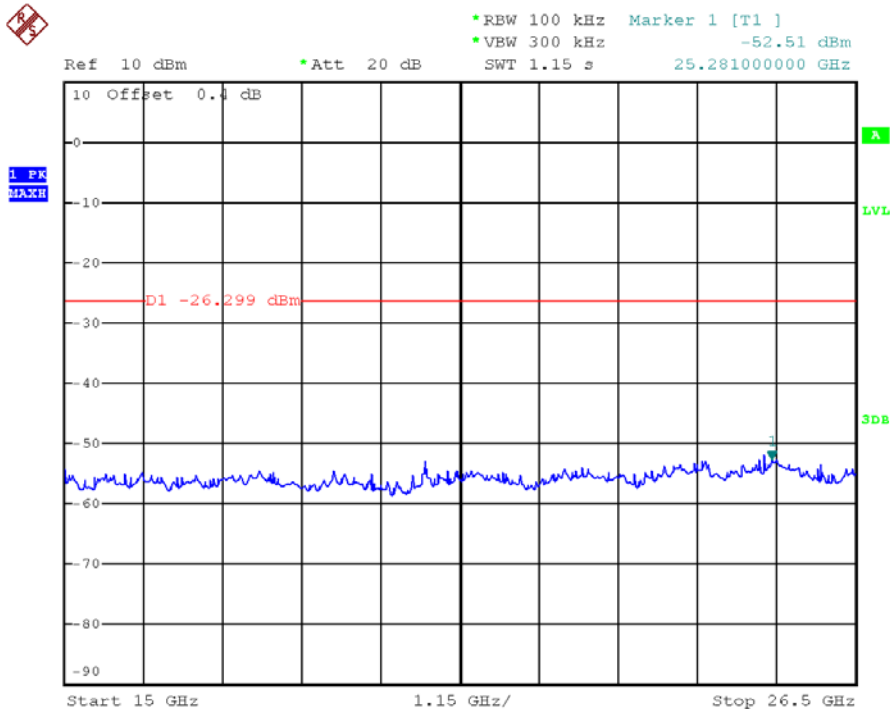


Date: 23.DEC.2019 18:02:46

Conducted Spurious emission [Low channel]

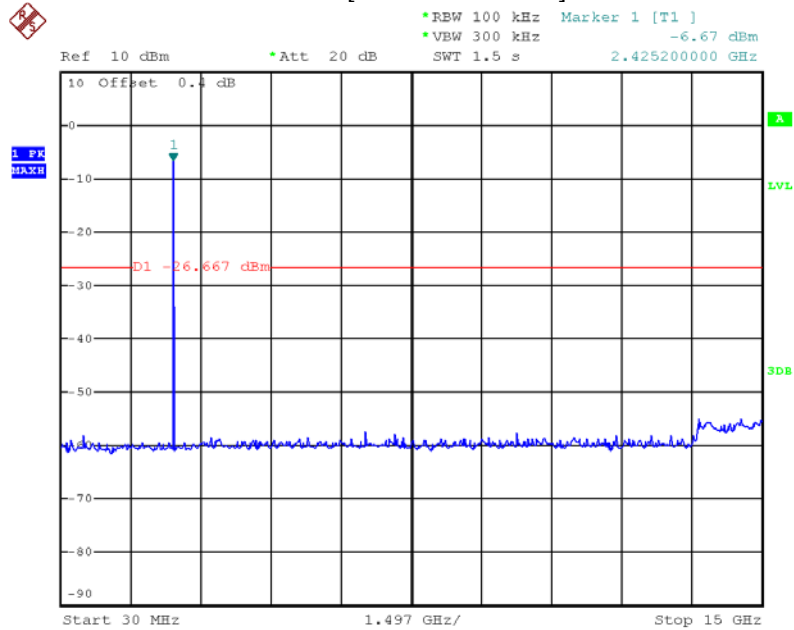


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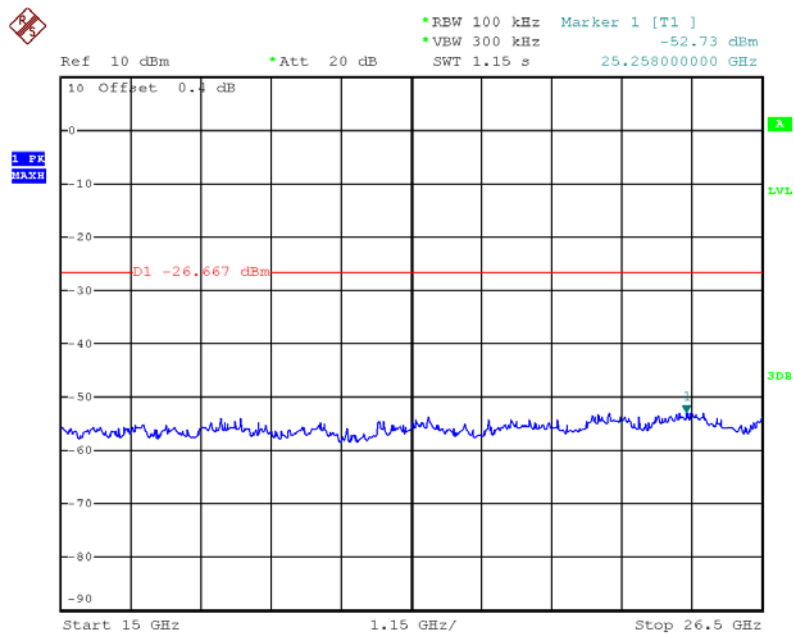


Date: 23.DEC.2019 17:57:38

[Middle channel]

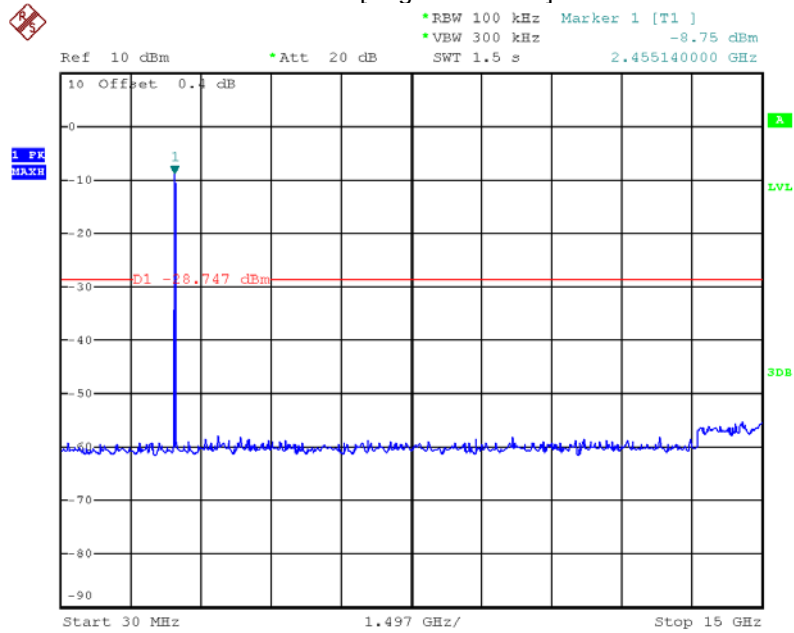


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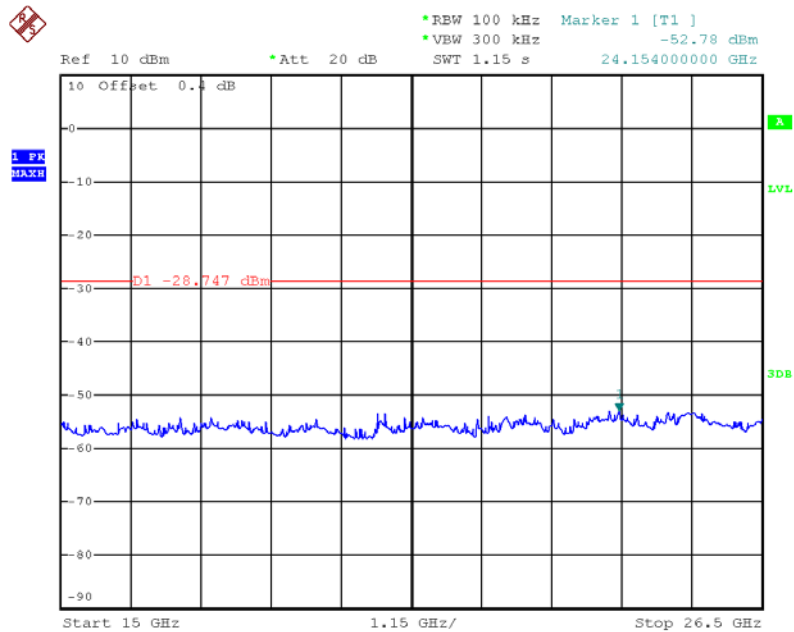


Date: 23.DEC.2019 18:00:43

[High channel]



Date: 23.DEC.2019 18:02:16



Date: 23.DEC.2019 18:02:30

4.5 Radiated Emission

Test Location

- ☒ 10 m SAC (test distance : ☐ 10 m, ☒ 3 m)
☒ 3 m SAC (test distance : 3 m)

Test Procedures

- 1) In the frequency range of 9 kHz to 30 MHz, magnetic field is measured with Loop Antenna. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
- 2) In the frequency range above 30 MHz, Bi-Log Test Antenna(30 MHz to 1 GHz) and Horn Test Antenna(above 1 GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is carried from 1m to 4m above the ground to determine the maximum value of the field strength. The emissions levels at both horizontal and vertical polarizations should be tested.

Instrument Settings

Frequency Range = 9 kHz ~ 25 GHz (2.4 GHz 10th harmonic)

- a) RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz, 9 kHz for $f < 30$ MHz
- b) VBW $\geq$ RBW
- c) Sweep time = auto couple

Limit :

Unwanted emissions that do not fall within the restricted frequency bands of Table 1 shall comply either with the limits specified in the applicable RSS or with those specified in this RSS-Gen.

Table 1. Restricted Frequency Bands*

MHz	MHz	MHz	MHz	MHz	GHz
0.09-0.11	8.37626-8.38675	73-74.6	399.9-410	2690-2900	10.6-12.7
¹ 0.495-0.505	8.41425-8.41475	74.8-75.2	608-614	3260-3267	13.25-13.4
2.1735-2.1905	12.29-12.293	108-121.94	960-1240	3332-3339	14.47-14.5
4.125-4.128	12.51975-12.52025	123-138	1300-1427	3345.8-3358	15.35-16.2
4.17725-4.17775	12.57675-12.57725	149.9-150.05	1435-1626.5	3600-4400	17.7-21.4
4.20725-4.20775	13.36-13.41	156.52475-156.52525	1645.5-1646.5	4500-5150	22.01-23.12
6.215-6.218	16.42-16.423	156.7-156.9	1660-1710	5350-5460	23.6-24
6.26775-6.26825	16.69475-16.69525	162.0125-167.17	1718.8-1722.2	7250-7750	31.2-31.8
6.31175-6.31225	16.80425-16.80475	167.72-173.2	2200-2300	8025-8500	36.43-36.5
8.291-8.294	25.5-25.67	240-285	2310-2390	9000-9200	² Above 38.6
8.362-8.366	37.5-38.25	322-335.4	2483.5-2500	9300-9500	

*Certain frequency bands listed in Table 6 and in band above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to the devices are set out in the 200- and 300-series of RSSs, such as RSS-210 and RSS-310, which contain the requirements that apply to licence-exempt radio apparatus.

Except when the requirements applicable to a given device state otherwise, emissions from licence-exempt transmitters shall comply with the field strength limits shown in Table 2. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission.

Table 2. General Field Strength Limits for Licence-Exempt Transmitters

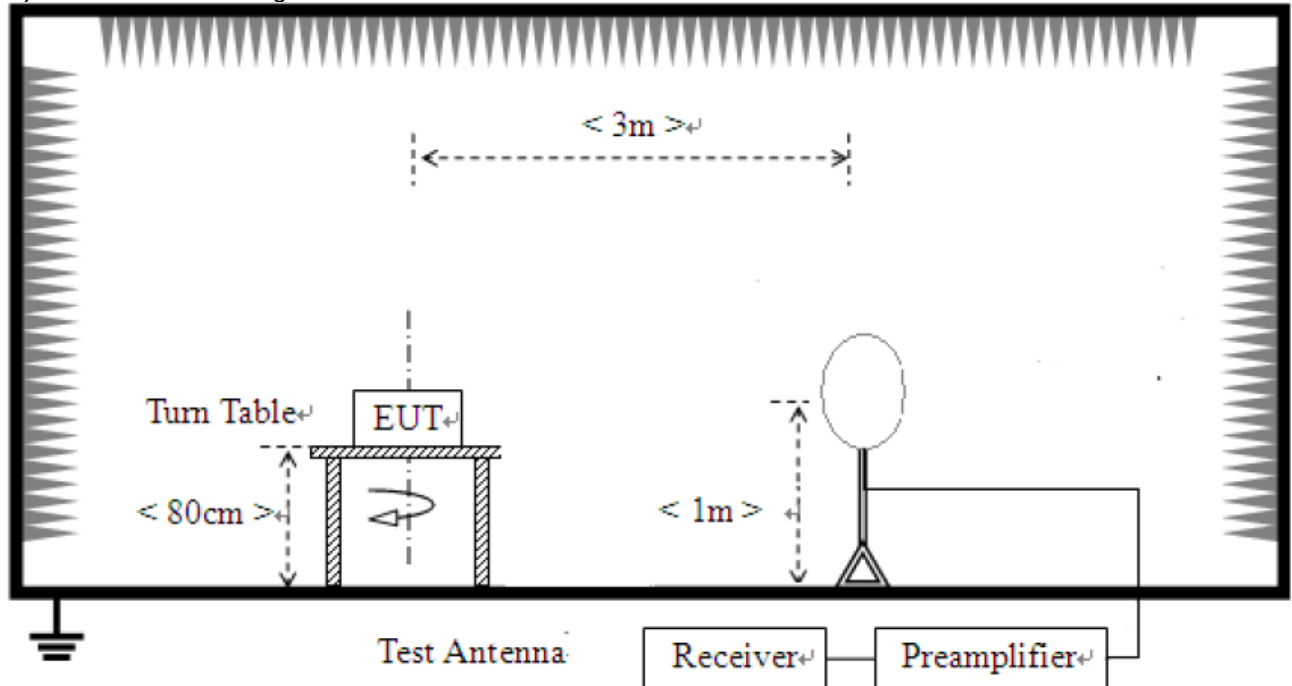
Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m	Deasurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705-30	30	-	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Note :

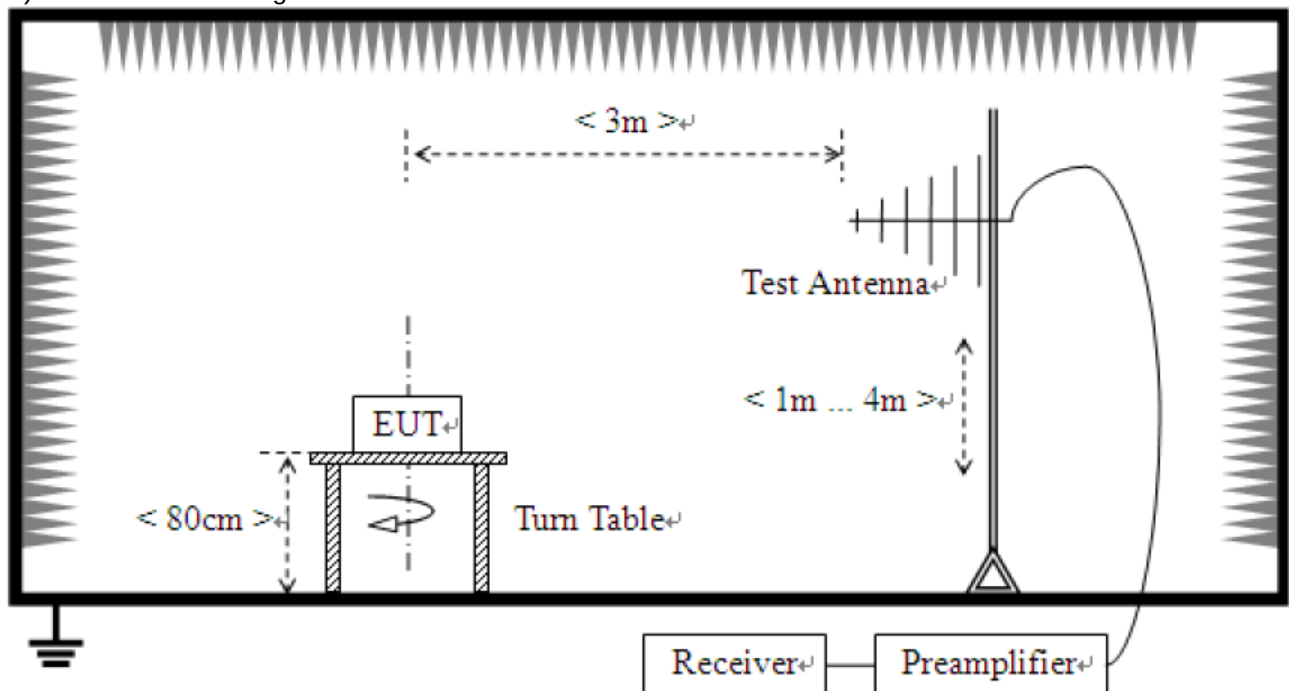
- 1) For above 1 GHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.
- 2) For above 1 GHz, limit field strength of harmonics : 54 dBuV/m@3m (AV) and 74 dBuV/m@3m (PK)
- 3) For measurement above 1GHz, the resolution bandwidth is set to 1 MHz and video bandwidth is set to 3 MHz for peak measurement.

Test Setup:

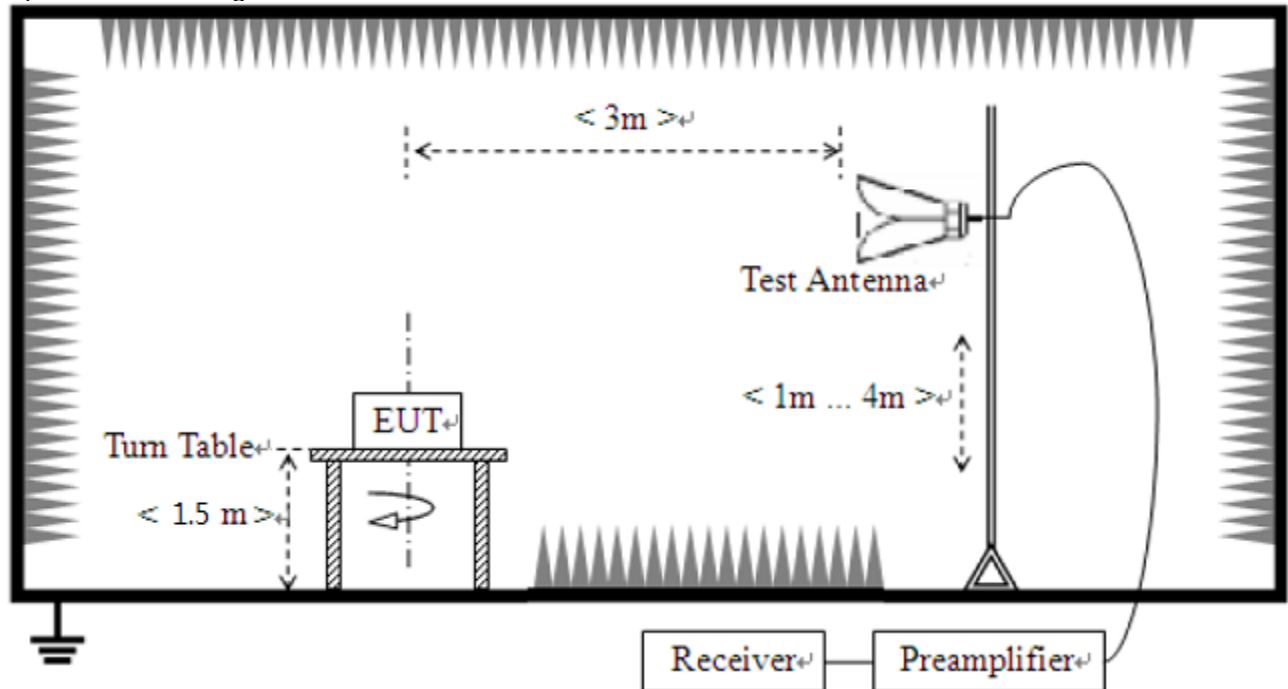
- 1) For field strength of emissions from 9 kHz to 30 MHz



- 2) For field strength of emissions from 30 MHz to 1 GHz

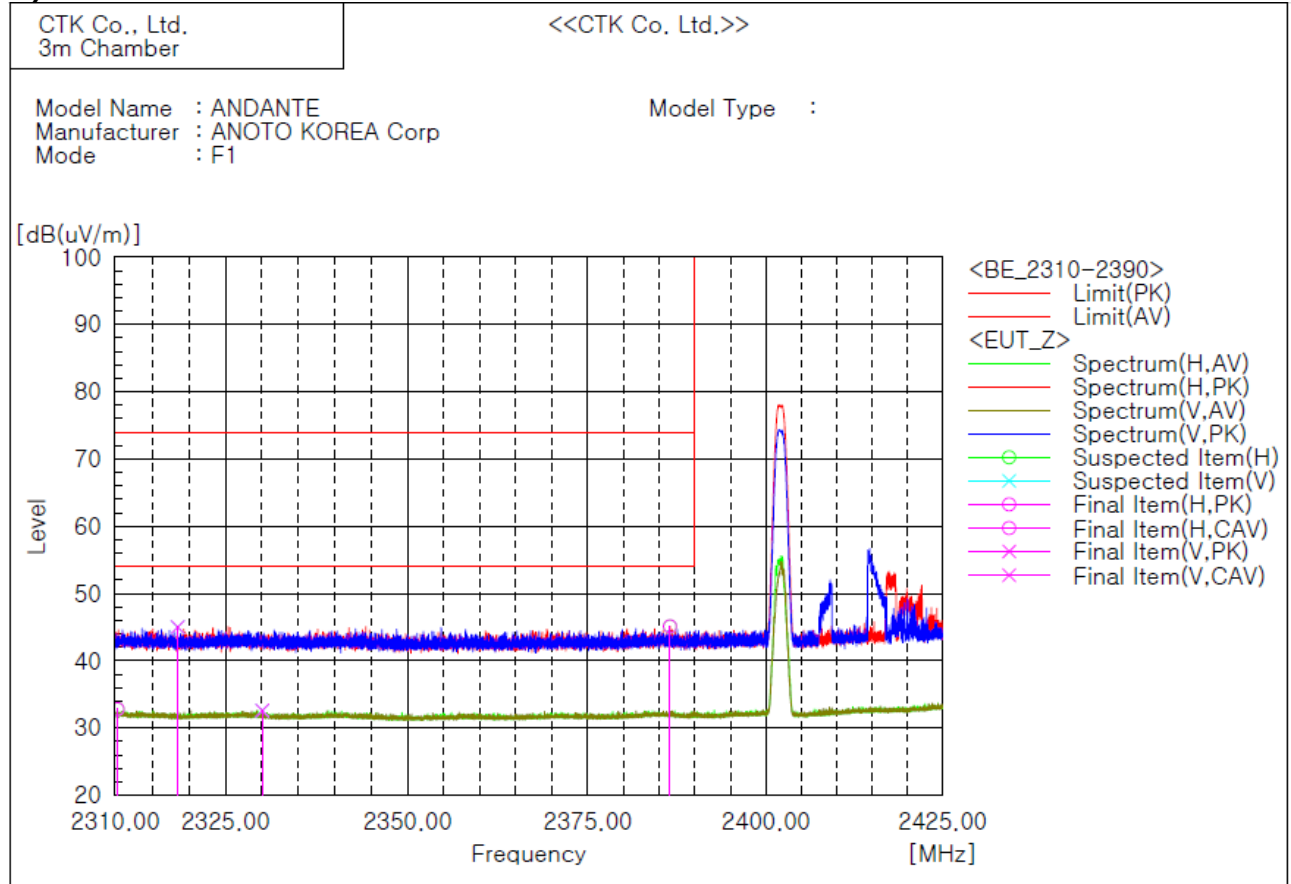


3) For field strength of emissions above 1 GHz



1. Restricted band edge test data

1) 2 310 MHz to 2 390 MHz



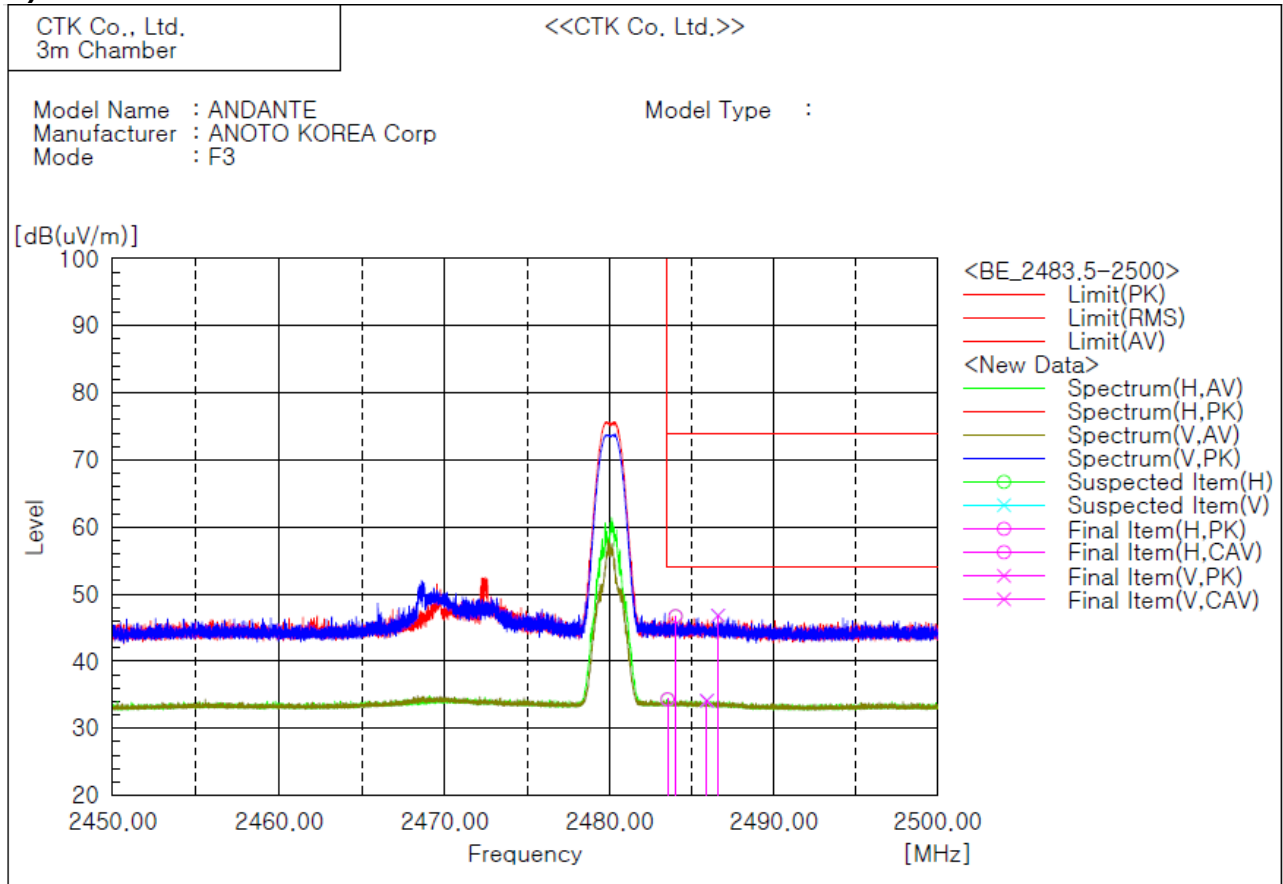
Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	2330.053	V	-----	27.8	4.8	-----	32.6	74.0	54.0	-----	21.4	223.6	0.0
2	2310.331	H	-----	27.7	5.1	-----	32.8	74.0	54.0	-----	21.2	354.0	0.0
3	2318.496	V	40.1	-----	4.9	45.0	-----	74.0	54.0	29.0	-----	99.8	0.1
4	2386.518	H	40.2	-----	4.9	45.1	-----	74.0	54.0	28.9	-----	99.8	228.8

Remark :

1. The Unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(X axis) and the worst case was recorded.
2. Result = Reading + c.f(correction factor)
3. Correction factor = Antenna factor + Cable loss - Amp Gain

2) 2 483.5 MHz to 2 500 MHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	2485.919	V	27.4	27.4	6.7	34.1	34.1	74.0	54.0	19.9	19.9	464.2	359.9
2	2483.525	H	27.6	27.6	6.7	34.3	34.3	74.0	54.0	19.7	19.7	464.2	0.0
3	2484.012	H	40.0	40.0	6.7	46.7	46.7	74.0	54.0	27.3	27.3	99.8	140.1
4	2486.600	V	40.1	40.1	6.7	46.8	46.8	74.0	54.0	27.2	27.2	224.1	355.2

Remark :

1. The Unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(X axis) and the worst case was recorded.
2. Result = Reading + c.f(correction factor)
3. Correction factor = Antenna factor + Cable loss - Amp Gain

2. Spurious test data

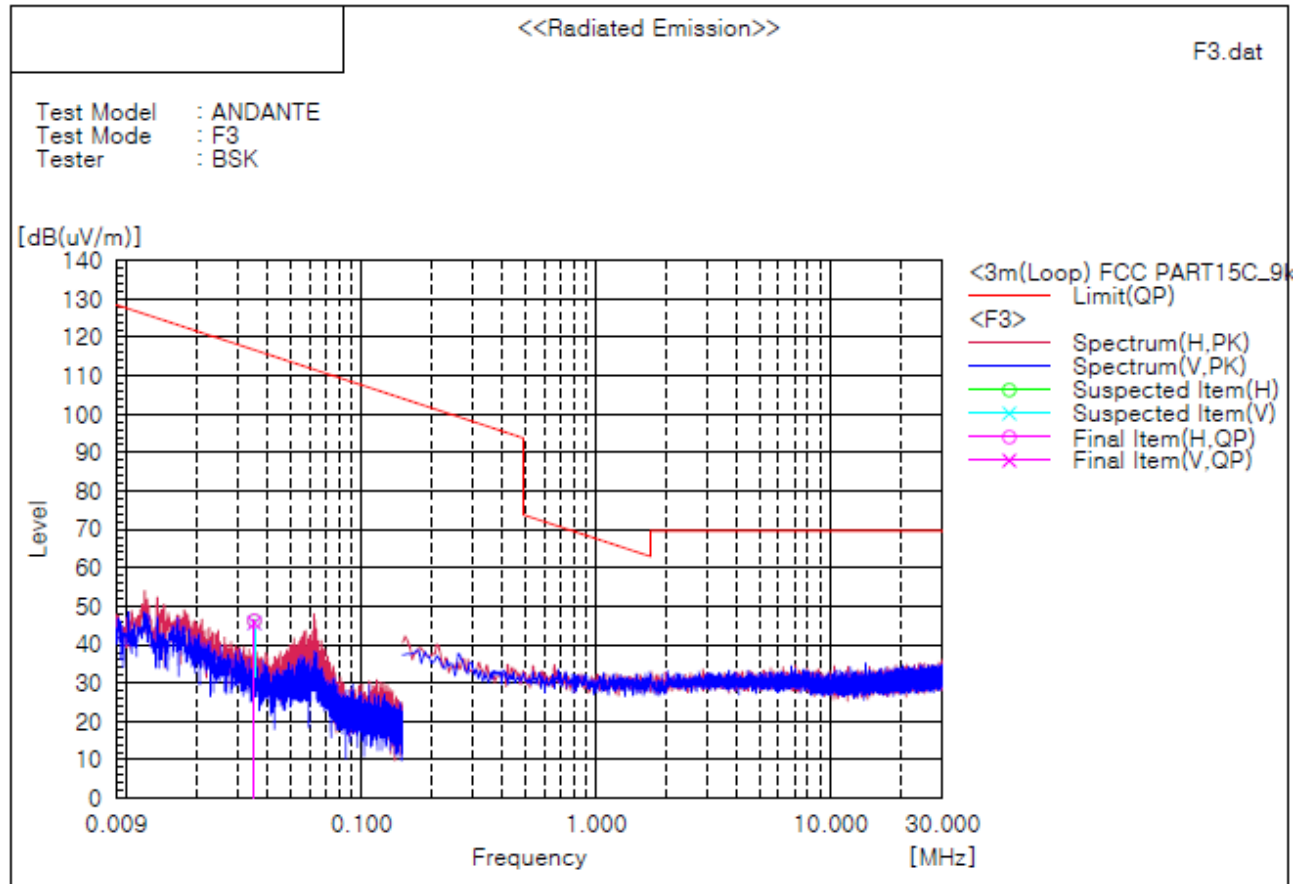
1) 9 kHz to 30 MHz

Test mode : High Channel(Worst case)

The requirements are:

☒ Complies

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	0.035	V	20.4	25.2	45.6	116.7	71.1	100.0	117.0
2	0.035	H	21.0	25.2	46.2	116.7	70.5	100.0	116.0

Remark

- The Unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(X axis) and the worst case was recorded.
- Result = Reading + c.f(Correction factor)
- Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain
- This data is the Peak(PK) value.

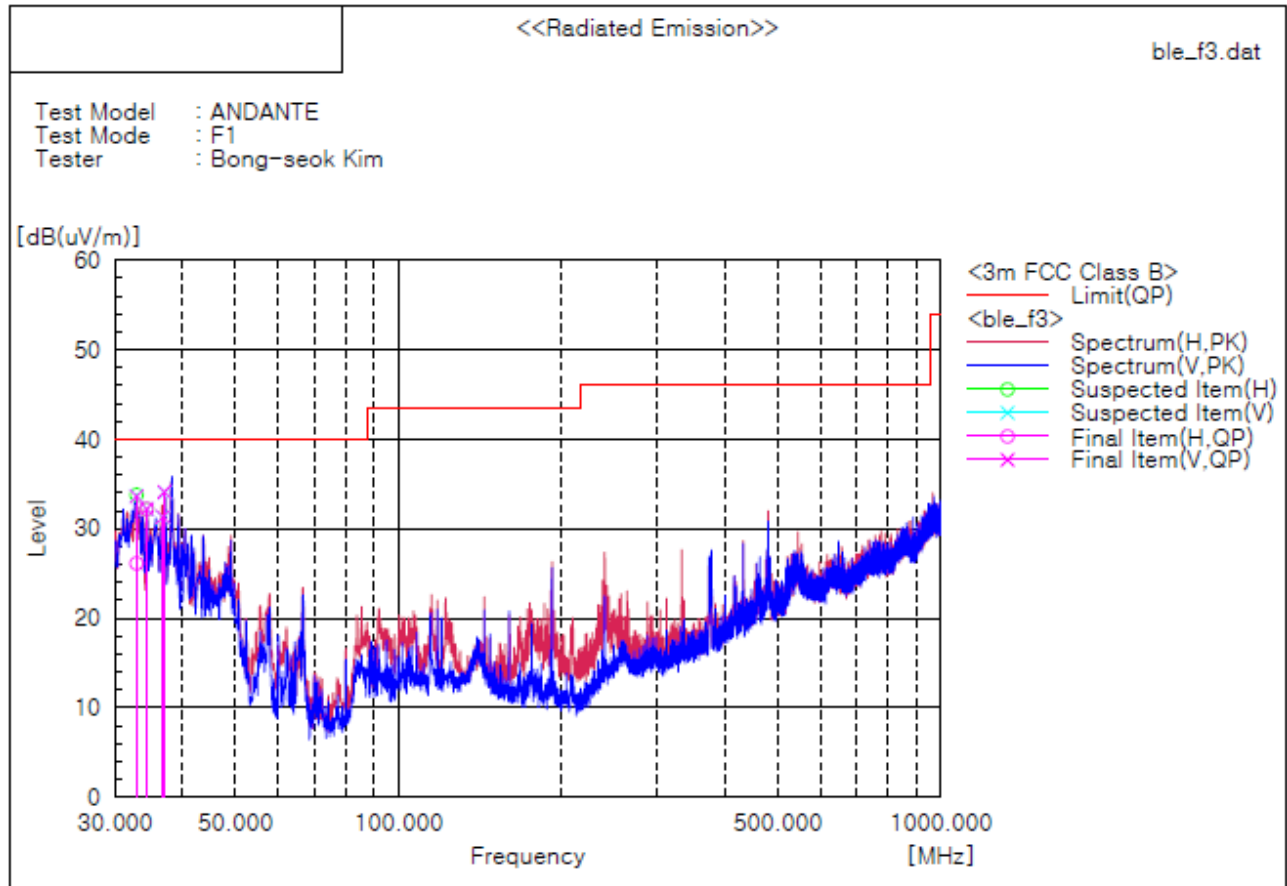
2) 30 MHz to 1 GHz

Test mode : Transmit, Low Channel(Worst case)

The requirements are:

☒ Complies

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	32.910	H	33.8	-7.7	26.1	40.0	13.9	291.0	354.0
2	32.910	V	41.3	-7.7	33.6	40.0	6.4	100.0	109.0
3	34.365	H	40.7	-8.5	32.2	40.0	7.8	100.0	73.0
4	34.365	V	40.7	-8.5	32.2	40.0	7.8	100.0	282.0
5	36.790	V	41.1	-9.8	31.3	40.0	8.7	208.0	67.0
6	37.033	V	44.0	-9.9	34.1	40.0	5.9	100.0	189.0

Remark :

1. The Unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(X axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain
4. This data is the Peak(PK) value.

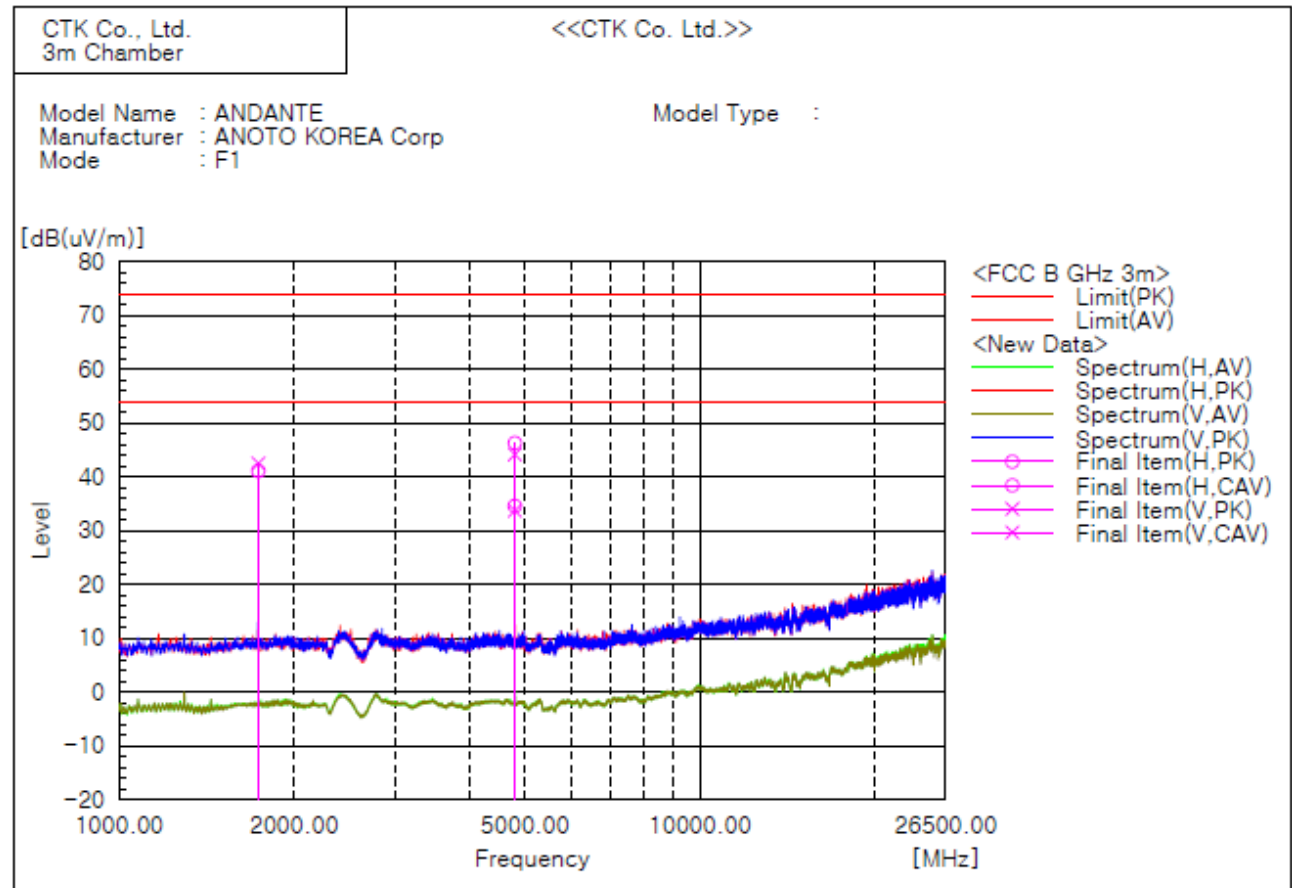
3) 1 GHz to 26.5 GHz

Test mode : Low Channel(Worst case)

The requirements are:

☒ Complies

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f. [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	4803.750	V	32.8	33.7	0.9	33.7	34.6	74.0	64.0	20.8	19.4	99.8	0.0
2	4803.750	H	33.7	34.6	0.9	34.6	35.5	74.0	64.0	19.4	18.0	99.8	355.0
3	4803.750	V	43.3	44.2	0.9	44.2	45.1	74.0	64.0	29.8	28.4	346.2	234.5
4	4806.875	H	45.4	46.3	0.9	46.3	47.2	74.0	64.0	27.7	26.3	99.8	159.0
5	1737.375	V	48.6	49.5	-6.1	42.5	43.4	74.0	64.0	31.5	30.1	99.8	247.0
6	1737.375	H	47.2	48.1	-6.1	41.1	42.0	74.0	64.0	32.9	31.5	234.3	155.8

Remarks

1. The worst emission was found in li-down position(X axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss - Amp Gain
4. This data is the Peak(PK) value.

4.6 AC Power Line Conducted Emissions

A radio apparatus that is designed to be connected to the public utility (AC) power line shall ensure that the radio frequency voltage, which is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz-30 MHz, shall not exceed the limits.

Instrument Settings

IF Band Width: 9 kHz

Test Procedures

The EUT was placed on a non-metallic table 0.8m above the metallic, grounded floor and 0.4m from the reference ground plane wall. The distance to other metallic surfaces was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

Limit

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average**
0.15 ~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50

* The level decreases linearly with the logarithm of the frequency.

** A linear average detector is required.

Test Results

The requirements are:

☒ Complies

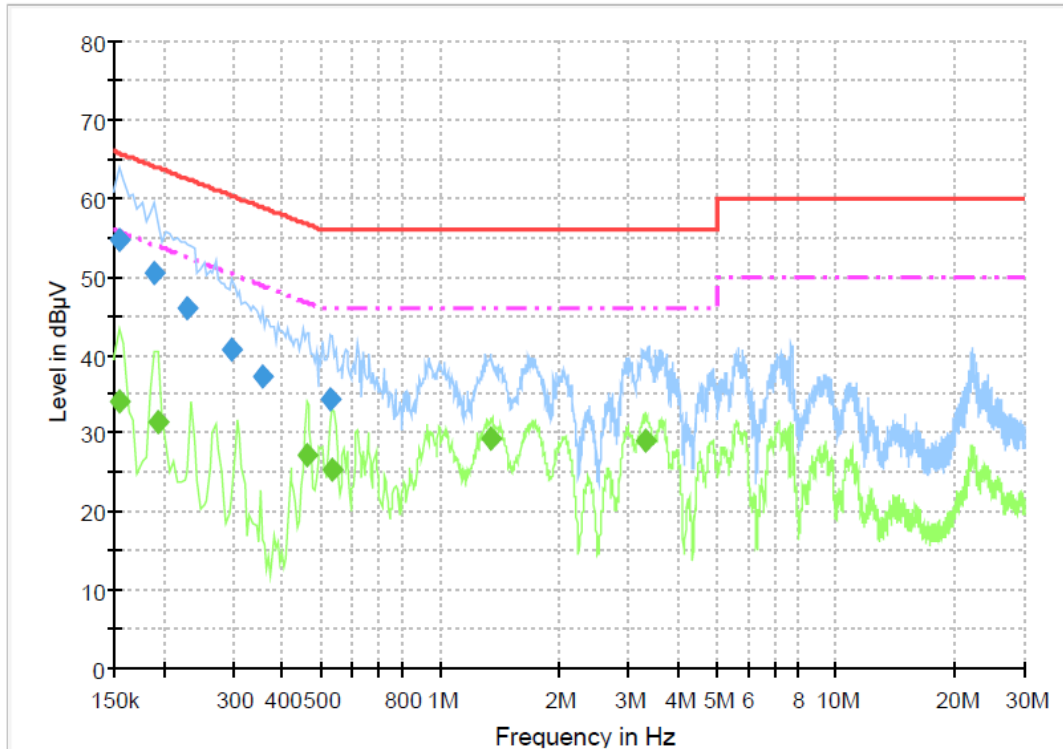
Frequency [MHz]	Measured Data [dBuV]	Margin [dB]	Remark
0.163	55.1	10.2	Quasi-peak

Remarks

The test was tested at the state of charge mode.

Test Data

Test mode : Charging
[L1]



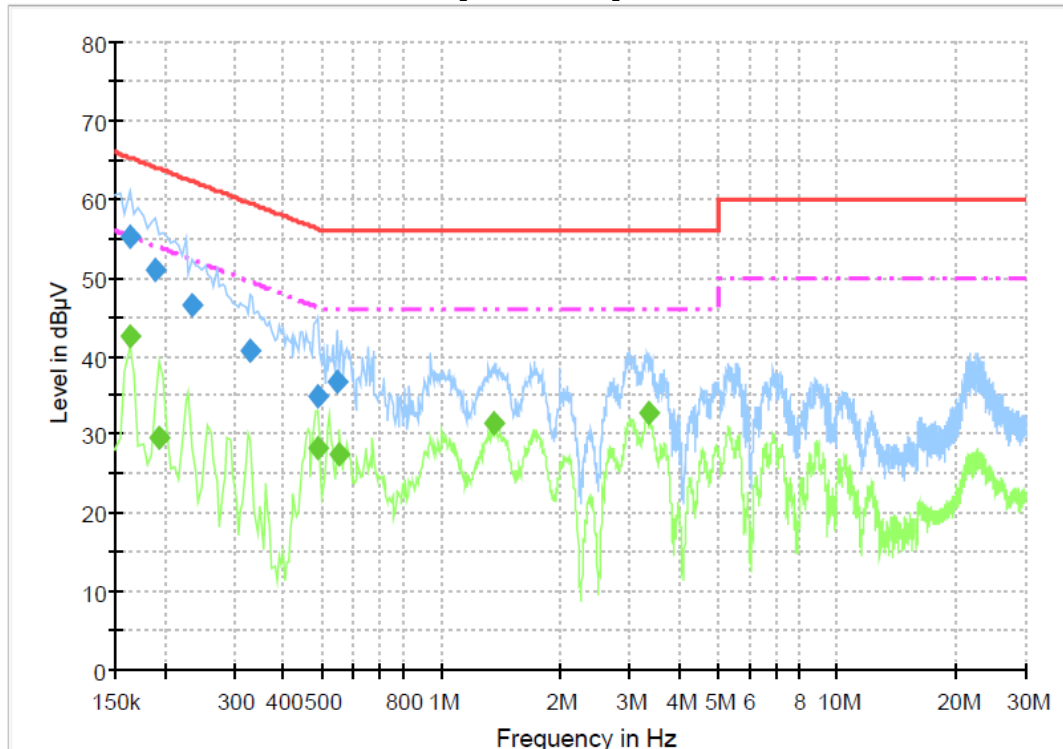
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154500	54.7	1000.0	9.000	On	L1	9.9	11.1	65.8
0.190500	50.4	1000.0	9.000	On	L1	10.0	13.6	64.0
0.231000	45.9	1000.0	9.000	On	L1	9.8	16.5	62.4
0.298500	40.7	1000.0	9.000	On	L1	9.8	19.6	60.3
0.357000	37.2	1000.0	9.000	On	L1	10.0	21.6	58.8
0.528000	34.2	1000.0	9.000	On	L1	10.0	21.8	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.154500	34.0	1000.0	9.000	On	L1	9.9	21.8	55.8
0.195000	31.4	1000.0	9.000	On	L1	10.0	22.4	53.8
0.460500	27.1	1000.0	9.000	On	L1	10.0	19.6	46.7
0.537000	25.3	1000.0	9.000	On	L1	10.0	20.7	46.0
1.347000	29.3	1000.0	9.000	On	L1	9.9	16.7	46.0
3.304500	28.9	1000.0	9.000	On	L1	9.8	17.1	46.0

[NEUTRAL]



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.163500	55.1	1000.0	9.000	On	N	10.0	10.2	65.3
0.190500	50.9	1000.0	9.000	On	N	10.0	13.1	64.0
0.235500	46.6	1000.0	9.000	On	N	9.8	15.7	62.3
0.330000	40.6	1000.0	9.000	On	N	9.9	18.9	59.5
0.487500	34.8	1000.0	9.000	On	N	10.0	21.4	56.2
0.546000	36.6	1000.0	9.000	On	N	10.0	19.4	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.163500	42.5	1000.0	9.000	On	N	10.0	12.8	55.3
0.195000	29.6	1000.0	9.000	On	N	10.0	24.2	53.8
0.487500	28.3	1000.0	9.000	On	N	10.0	17.9	46.2
0.555000	27.6	1000.0	9.000	On	N	10.0	18.4	46.0
1.356000	31.5	1000.0	9.000	On	N	9.9	14.5	46.0
3.336000	32.7	1000.0	9.000	On	N	9.8	13.3	46.0

APPENDIX A – Test Equipment Used For Tests

No.	Name of Equipment	Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date
1	SPECTRUM ANALYZER	R&S	FSP-30	100994	2019-10-16	2020-10-16
2	EMI Test Receiver	Rohde & Schwarz	ESCI7	100814	2019-10-22	2020-10-22
3	Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-126	2019-01-17	2021-01-17
4	Bilog Antenna	Schaffner	CBL6111C	2551	2019-04-17	2021-04-17
5	AMPLIFIER	SONOMA	310	291721	2019-01-28	2020-01-28
6	6dB Attenuator	R&S	DNF	272.4110.50-2	2019-10-25	2020-10-25
7	EMI Test Receiver	Rohde & Schwarz	ESU40	100336	2019-01-29	2020-01-29
8	Double Ridged Guide Antenna	ETS-Lindgren	3117	00154525	2019-02-22	2021-02-22
9	Double Ridged Guide Antenna	ETS-Lindgren	3116	00062916	2019-04-22	2021-04-22
10	Preamplifier	Agilent	8449B	3008A02011	2018-11-25	2020-11-25
11	Band Reject Filter	Micro Tronics	BRM50702	G233	2019-01-28	2020-01-28
12	Signal Generator	R&S	SMB100A	175528	20219-10-16	2020-10-16

No.	Name of Equipment	Manufacturer	Model No.	Serial No.	Check Date
1	RF Cable (conducted)	Junkosha Inc.	MWX221	1510S087	2019-02-02
2	RF Cable (Radiated)	HUBER+SUHNER	SUCOFLEX 104	MY27558/4	2019-02-02
3	RF Cable (Radiated)	HUBER+SUHNER	SUCOFLEX 104	N/A (below 1GHz)	2019-02-02
4	RF Cable (Radiated)	HUBER+SUHNER	SUCOFLEX 104	MY27573/4	2019-11-30
5	RF Cable (Radiated)	HUBER+SUHNER	SUCOFLEX 106	N/A (above 1GHz)	2019-11-30