TEST REPORT

CTK Co., Ltd.
(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9970
Fax: +82-31-624-9501

Report No.: CTK-2023-00258

1. Applicant

◦ Name : SJI Co.,Ltd

◦ Address : 54-33, Dongtanhana 1-gil, Hwaseong-si, Gyeonggi-do, Republic of Korea

◦ Date of Receipt : 2022-10-25

2. Manufacturer

◦ Name : SJI Co.,Ltd

◦ Address : 54-33, Dongtanhana 1-gil, Hwaseong-si, Gyeonggi-do, Republic of Korea

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

4. Test Sample / Model : UWB Radio Communication Device / UWM210

5. Date of Test : 2022-11-24 to 2023-01-20

6. Test Standard(method) used : FCC 47 CFR part 15 subpart F 15.519, RSS-220, RSS-Gen, ANSI C63.10-2013

7. Testing Environment : Temp.: (23 ± 1) ℃, Humidity: (51 ± 3) % R.H.

8. Test Results : Compliance

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

(Address : 5, 221beon-gil, Dongbu-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This report cannot be reproduced or copied without the written consent of CTK.

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

Remark. This report is not related to KOLAS accreditation and relevant regulation.

2023-01-20

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REPORT REVISION HISTORY

Date	Revision	Page No
2023-01-20	Issued (CTK-2023-00258)	all

CONTENTS

1. General Product Description

1.1 Applicant Information

Company	SJI Co.,Ltd
Contact Point	54-33, Dongtanhana 1-gil, Hwaseong-si, Gyeonggi-do, Republic of Korea
Contact Person	Name : Lee sangyoung E-mail : sylee@seongji.co.kr Tel : +82-31-239-8194 Fax : -

1.2 Product Information

FCC ID	2AS8LUWM210	
IC	25119-UWM210	
Product Description	UWB Radio Communication Device	
Model name	UWM210	
Variant Model name	-	
Frequency	5 Channel : 6 489.6 MHz 9 Channel : 7 987.2 MHz	
Frequency range	5 Channel : 6 225 – 6 766 MHz 9 Channel : 7 719 – 8 268 MHz	
RF Output Power(e.i.r.p)	5 Channel :	Mean Power : -54.8 dBm/MHz Peak power : -8.26 dBm/50MHz
	9 Channel :	Mean Power : -52.3 dBm/MHz Peak power : -5.26 dBm/50MHz
Antenna Type	Chip Antenna	
Antenna Gain	5 Channel : Peak Gain : 4.8 dBi 9 Channel : Peak Gain : 4.9 dBi	
Number of channels	2	
Power Source	DC 3.3 V	
FVIN	1.0	
Test Software(Version)	Tera term (Version 4.8.5)	
Type of use	module	

1.3 Peripheral Devices

-For Conducted Measurement and Radiated Measurement

Device	Manufacturer	Model No.	Serial No.
Notebook	HP Inc.	HP Probook 455 G7	5CD0234DWW
AC Adapter	HP Inc.	TPN-LA16	PA-1650-20HL

2. Facility and Accreditations

2.1 Laboratory Accreditations and Listings

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

2.2 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

Section in FCC	Section in RSS	Requirement(s)	Status (Note 1)	Test Condition
15.503, 15.519(b)	RSS-220, 5.1.a	10 dB Bandwidth	C	Radiated
15.519(a)(1)	RSS-220, 5.3.1	Cessation Time	C	
15.519(e)	RSS-220, 5.3.1.g	Maximum peak Power	C	
15.519(c)	RSS-220, 5.3.1.d	Maximum Average emission in the range of 3100- 10600 MHz	C	
15.519(c)	RSS-220, 5.3.1.d	Radiate emission Above 960 MHz	C	
15.519(d)	RSS-220, 5.3.1.e	Radiate emission in the 1164 -1240 MHz and 1559-1610 MHz	C	
15.519(c), (a)	RSS-220, 5.3.1.c	Radiate Emissions Below 960 MHz	C	
15.207(a)	RSS-Gen	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 15.519, ANSI C63.10-2013, RSS-Gen, RSS-220				
Note 4: The tests were performed according to the method of measurements prescribed in KDB 393764.				

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

Operating channels
6 489.6 MHz
7 987.2 MHz

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 (C.L. : Approx. 95%, k=2)
Occupied Bandwidth	0.1 MHz (C.L. : Approx. 95%, k=2)
Unwanted Emission(conducted)	3.0 dB (C.L. : Approx. 95%, k=2)
Radiated Emissions (f ≤ 1 GHz)	4.0 dB (C.L. : Approx. 95%, k=2)
Radiated Emissions (f > 1 GHz)	5.0 dB (C.L. : Approx. 95%, k=2)

4. Technical Characteristic Test

4.1 10dB Bandwidth

Test Procedures(15.503(a), 15.519(b), ANSI C63.10-2013 10.1)

UWB bandwidth. For the purpose of this subpart, the UWB bandwidth is the frequency band bounded by the points that are 10 dB below the highest radiated emission, as based on the complete transmission system including the antenna. The upper boundary is designated f_H and the lower boundary is designated f_L. The frequency at which the highest radiated emission occurs is designated f_M.

The UWB bandwidth of a device operating under the provisions of this section must be contained between 3100 MHz and 10,600 MHz.

Test Settings :

Center frequency = the operating channel

a) RBW = 1 MHz

b) VBW ≥ 3 x RBW

c) Detector = Peak

d) Trace mode = Max hold

e) Sweep = auto

f) Trace mode : max hold

g) Span was set wide enough to capture the 10dB points of the signal

h) 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 10 dB relative to the maximum level measured in the fundamental emission.

Limit :

10 dB Bandwidth ≥ 500 MHz

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Test Data :

F_M (MHz)	F_L (MHz)	F_H (MHz)	10 dB Bandwidth (MHz)
6 489.6	6 184.0	6 795.0	611.0
7 987.2	7 667.0	8 306.0	639.0

Test mode : 6 489.6 MHz, 5 Channel

Test mode : 7 987.2 MHz, 9 Channel

4.2 Cessation Time

Test Procedures(15.519(a)(1))

A UWB device operating under the provisions of this section shall transmit only when it is sending information to an associated receiver. The UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgement from the associated receiver that its transmission is being received. An acknowledgment of reception must continue to be received by the UWB intentional radiator at least every 10 seconds or the UWB device must cease transmitting.

Test Settings :

Center frequency = the operating channel

a) RBW ≥ 1 MHz

b) VBW ≥ 3 x RBW

c) span ≥ 0

d) Detector = peak

Limit :

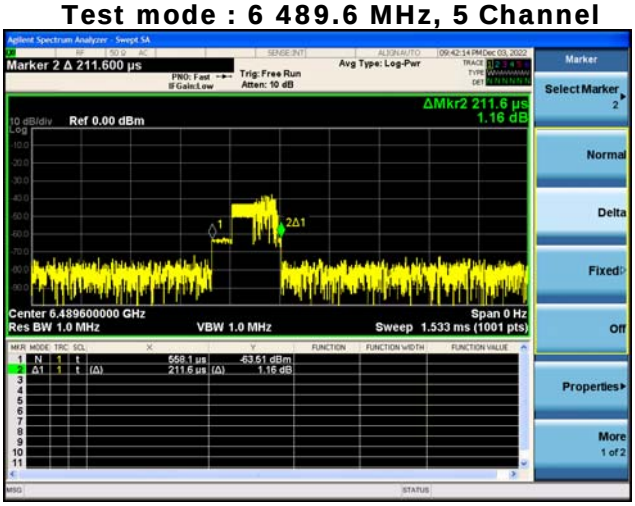
Transmission shall cease in less than 10 s

Test Data :

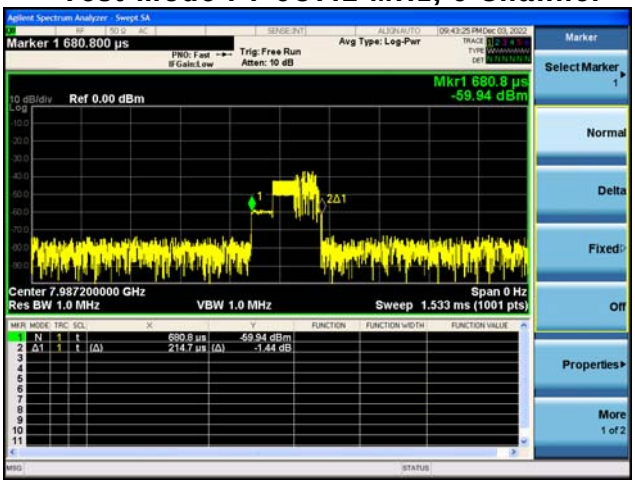
Cessation Time	Result
0.211 6 ms	Complies
0.214 7 ms	Complies

See next pages for actual measured spectrum plots.

Test mode : 6 489.6 MHz, 5 Channel



Test mode : 7 987.2 MHz, 9 Channel



4.3 Maximum Average Emissions

Test Procedures(15.519(c), ANSI C63.10-2013 10.3.7)

The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz

Test Settings :

Center frequency = f_M

a) RBW : 1 MHz

b) VBW ≥ 3 x RBW

c) Detector = Average(RMS)

d) Sweep time = auto couple

e) Trace mode= max hold

f) Allow trace to fully stabilize

Limit :

Maximum Peak Power < -41.3 dBm (EIRP)

Test Data :

Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Result
6 489.6	-54.8	-41.30	Complies
7 987.2	-52.3	-41.30	Complies

Note:
-EIRP= Reading - 95.2

4.4 Maximum Peak Power

Test Procedures(15.519(e), ANSI C63.10-2013 10.3.5, 6)

There is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs, f_M. That limit is 0 dBm EIRP. It is acceptable to employ a different resolution bandwidth, and a correspondingly different peak emission limit, following the procedures described in § 15.521.

Test Settings :

Center frequency = f_M

a) RBW : 1 MHz

b) VBW ≥ 3 x RBW

c) Detector = peak

d) Sweep time = auto couple

e) Trace mode= max hold

f) Allow trace to fully stabilize

Limit :

Maximum Peak Power < 0 dBm/50MHz(EIRP)

Test Data :

Frequency [MHz]	Peak Power [dBm/50MHz]	Limit [dBm/50MHz]	Result
6 489.6	-8.26	0.00	Complies
7 987.2	-5.26	0.00	Complies

Note:

-EIRP= Reading - 95.2 + $Corr_{dB}$

4.5 Radiated Emission

Test Location

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

Test Procedures(15.209, 15.519, ANSI C63.10-2013 10.2, 3)

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 rage 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.

Test Settings :

Frequency Range = 9 kHz ~ 40 GHz

a) RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz, 9 kHz for f < 30 MHz

b) VBW ≥ RBW

c) Sweep time = auto couple

Limit :

The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in § 15.209. The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

Table 1

Frequency in MHz	EIRP in dBm
960-1610	−75.3
1610-1990	−63.3
1990-3100	−61.3
3100-10600	−41.3
Above 10600	−61.3

In addition to the radiated emission limits specified in the table in paragraph 15.519(c) of this section, UWB transmitters operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of no less than 1 kHz:

Table 2

Frequency in MHz	EIRP in dBm
1164-1240	−85.3
1559-1610	−85.3

FCC Part 15 § 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 :

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 3. General Field Strength Limits for Licence-Exempt Transmitters

Frequency(MHz)	Field Strength (uA/m)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measurement Distance (meters)
0.009-0.490	6.37/F (F in kHz)	2400/F(kHz)	48.5 - 13.8	300
0.490-1.705	63.7/F (F in kHz)	24000/F(kHz)	33.8 - 23	30
1.705-30	0.08	30	29.5	30
30-88	-	100**	40	3
88-216	-	150**	43.5	3
216-960	-	200**	46	3
Above 960	-	500	54	3

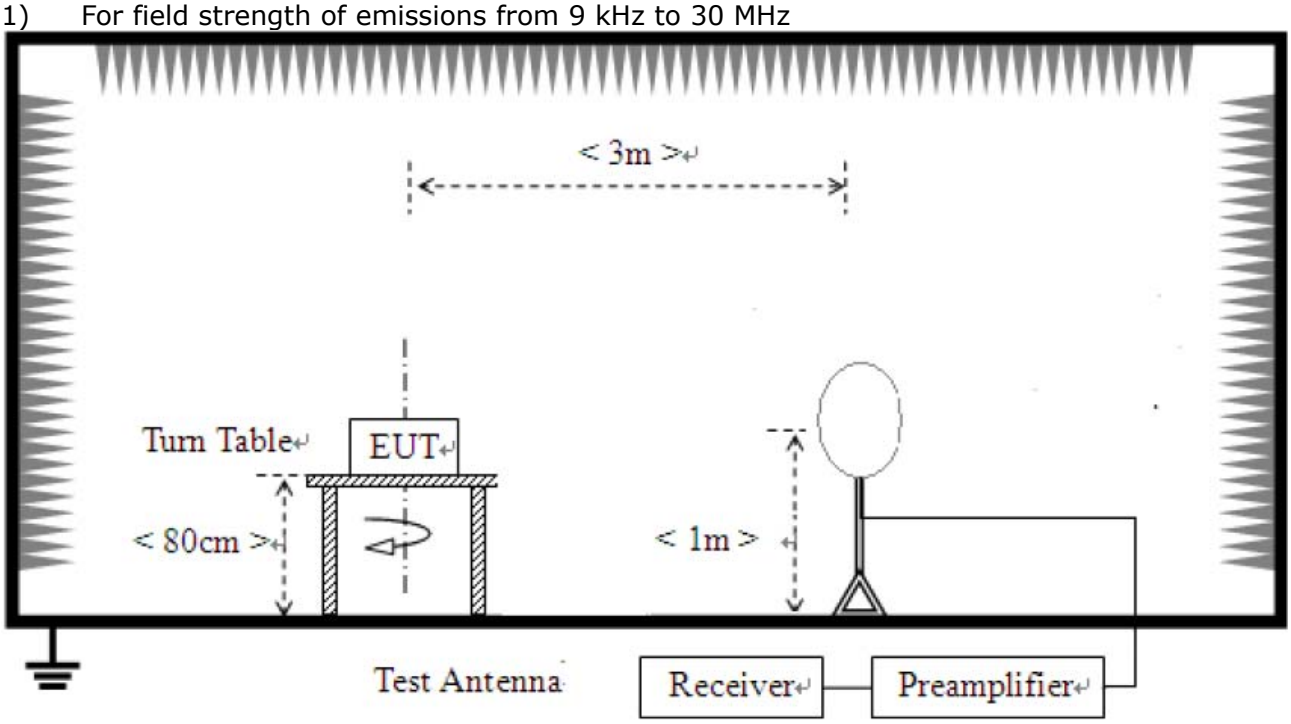
** Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.

Note :

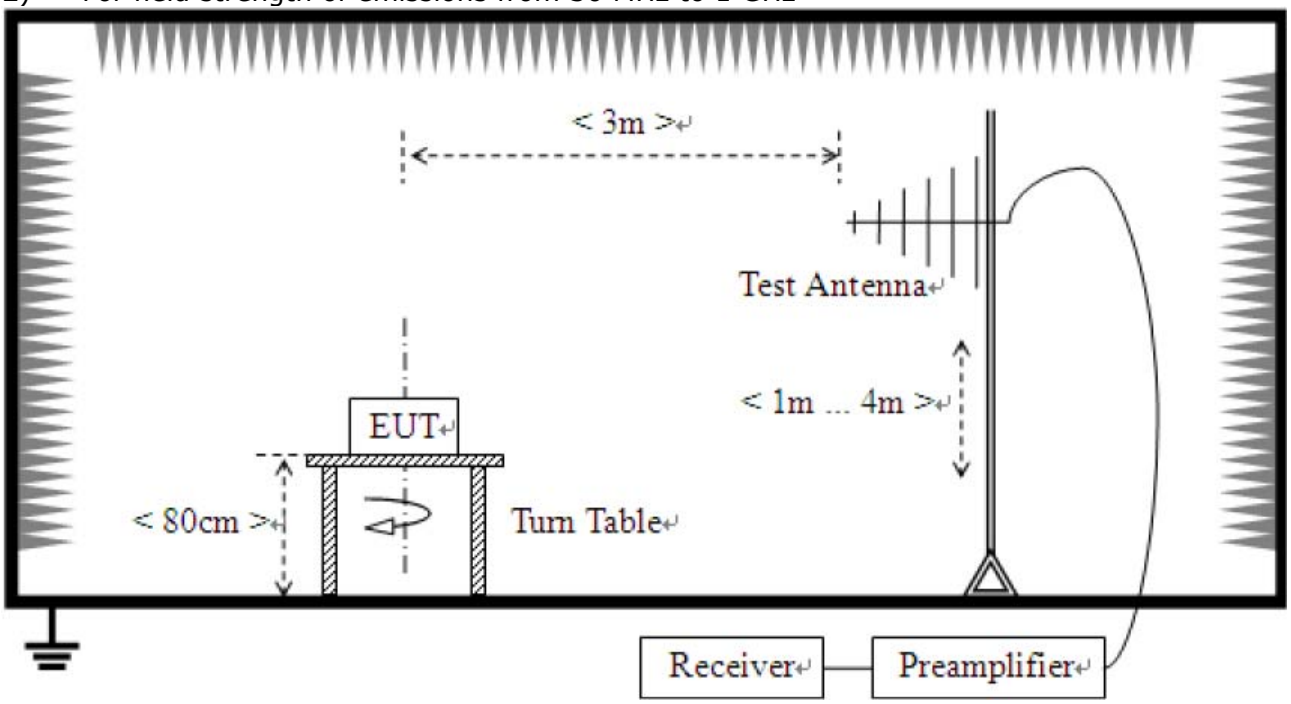
1) For above 1 GHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.
2) For above 1 GHz, limit field strength of 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 and detector is peak for peak measurement and detector RMS and Trace Averaging type for average measurement.

Test Setup:

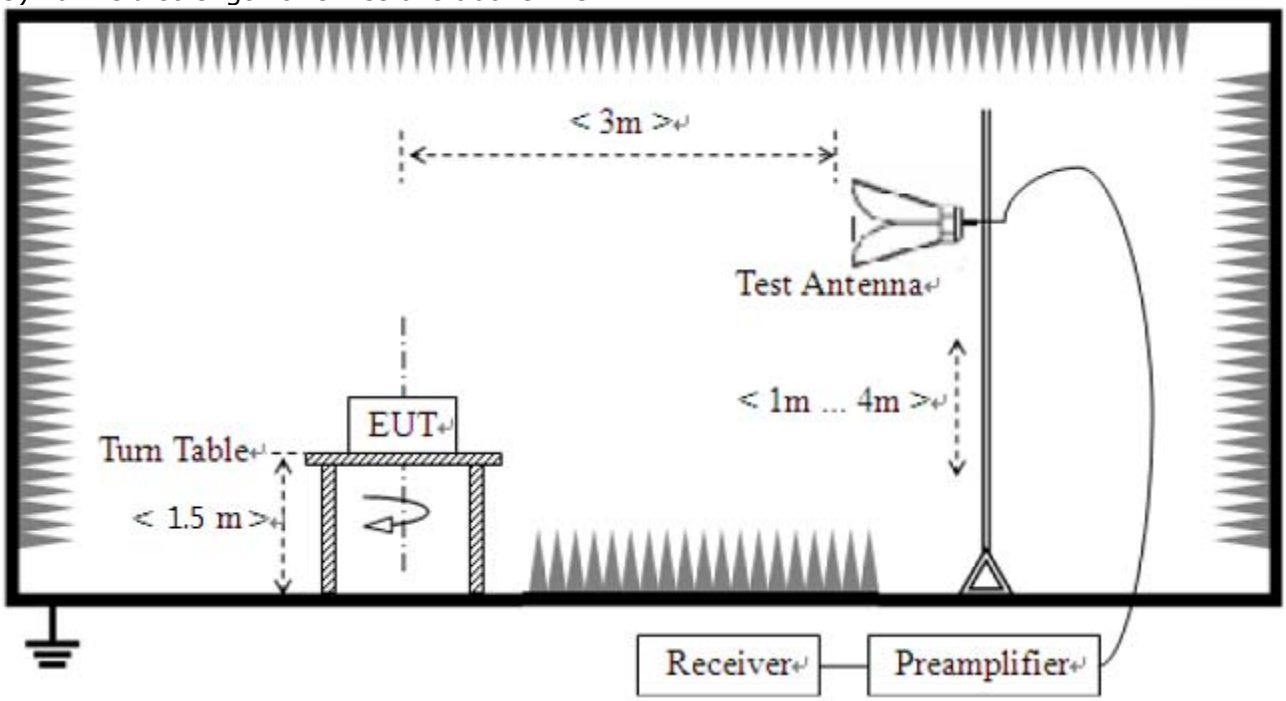
1) For field strength of emissions from 9 kHz to 30 MHz



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



3) For field strength of emissions above 1 GHz

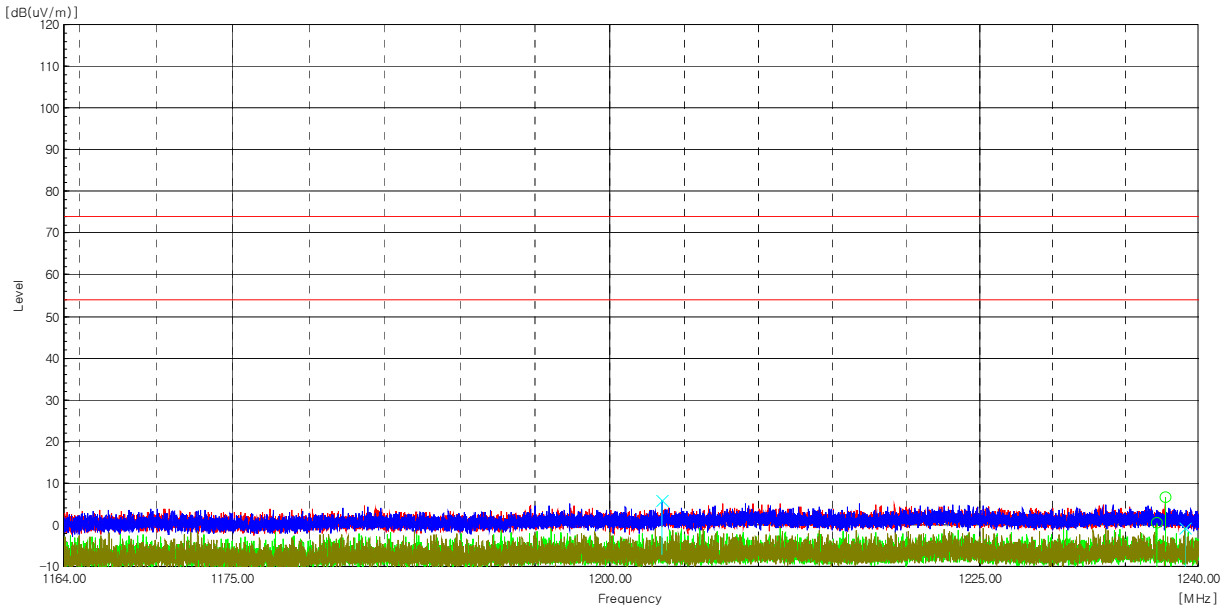


Test results

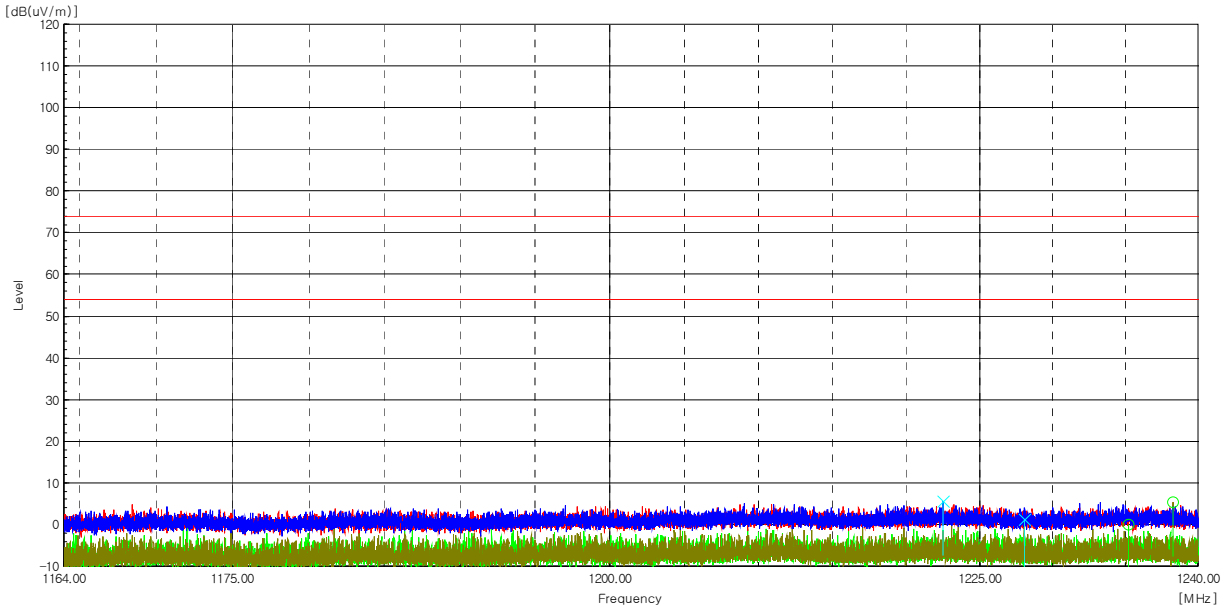
1) Spurious Ⅰ

1. 1 164 MHz to 1 240 MHz

Test mode : 6 489.6 MHz, 5 Channel(Worst case)



Test mode : 7 987.2 MHz, 9 Channel(Worst case)



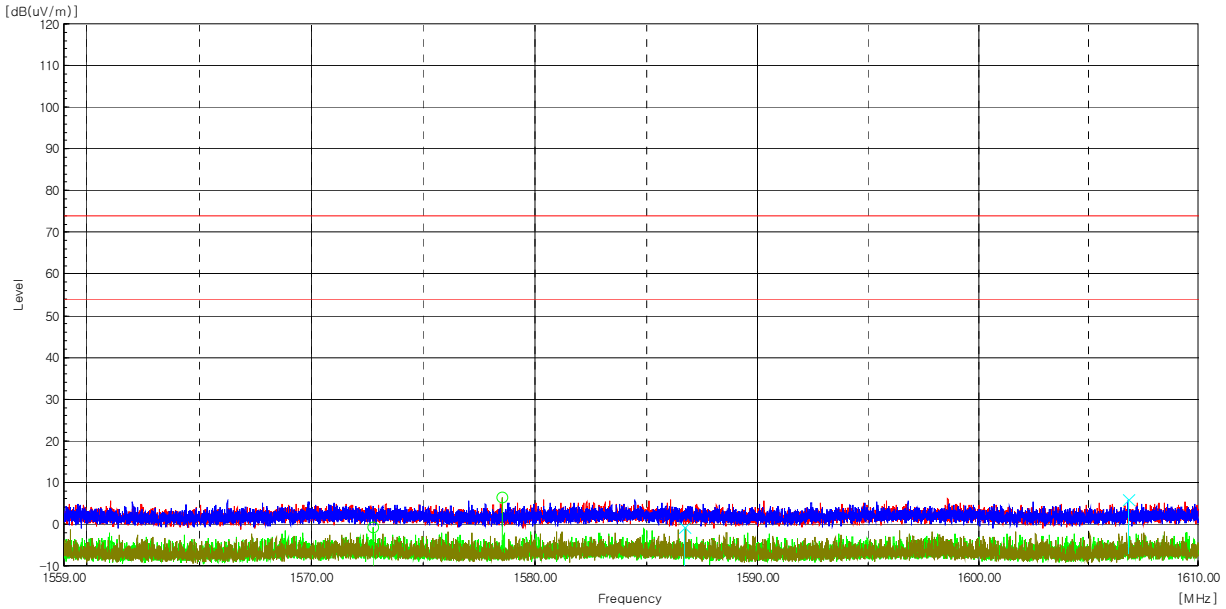
Frequency [MHz]	Pol.	Reading [dBuV]	Space Loss [dB]	EIRP[dBuV]	Limit[dBuV]	Margin[dB]	Remark
No peak found							

Remarks

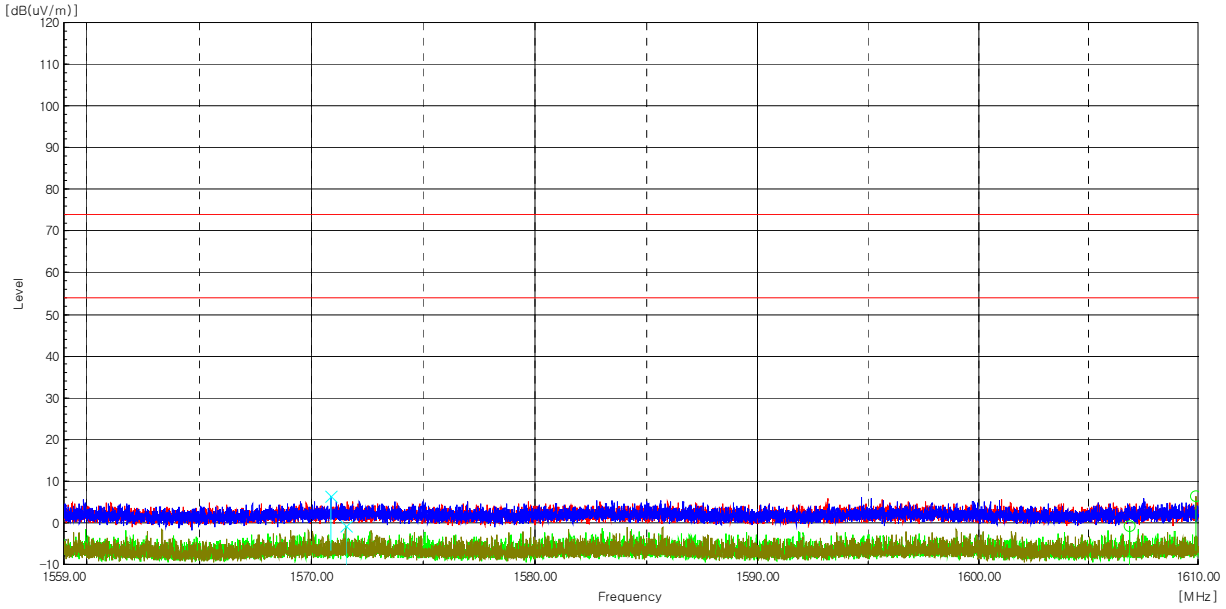
1. The Unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(X axis) and the worst case was recorded.
2. Result = Reading + c.f(correction factor).
3. Correction factor = Antenna factor + Cable loss - Amp Gain.
4. Average emission setting: RBW=1kHz; VBW=3kHz.
5. E (dBuv/m) = EIRP (dBm) + 95.23, example, E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

2. 1 559 MHz to 1 610 MHz

Test mode : 6 489.6 MHz, 5 Channel(Worst case)



Test mode : 7 987.2 MHz, 9 Channel(Worst case)



Frequency [MHz]	Pol.	Reading [dBuV]	Space Loss [dB]	EIRP[dBuV]	Limit[dBuV]	Margin[dB]	Remark
No peak found							

Remarks

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.
4. Average emission setting: RBW=1kHz; VBW=3kHz.
5. E (dBuv/m) = EIRP (dBm) + 95.23, example, E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

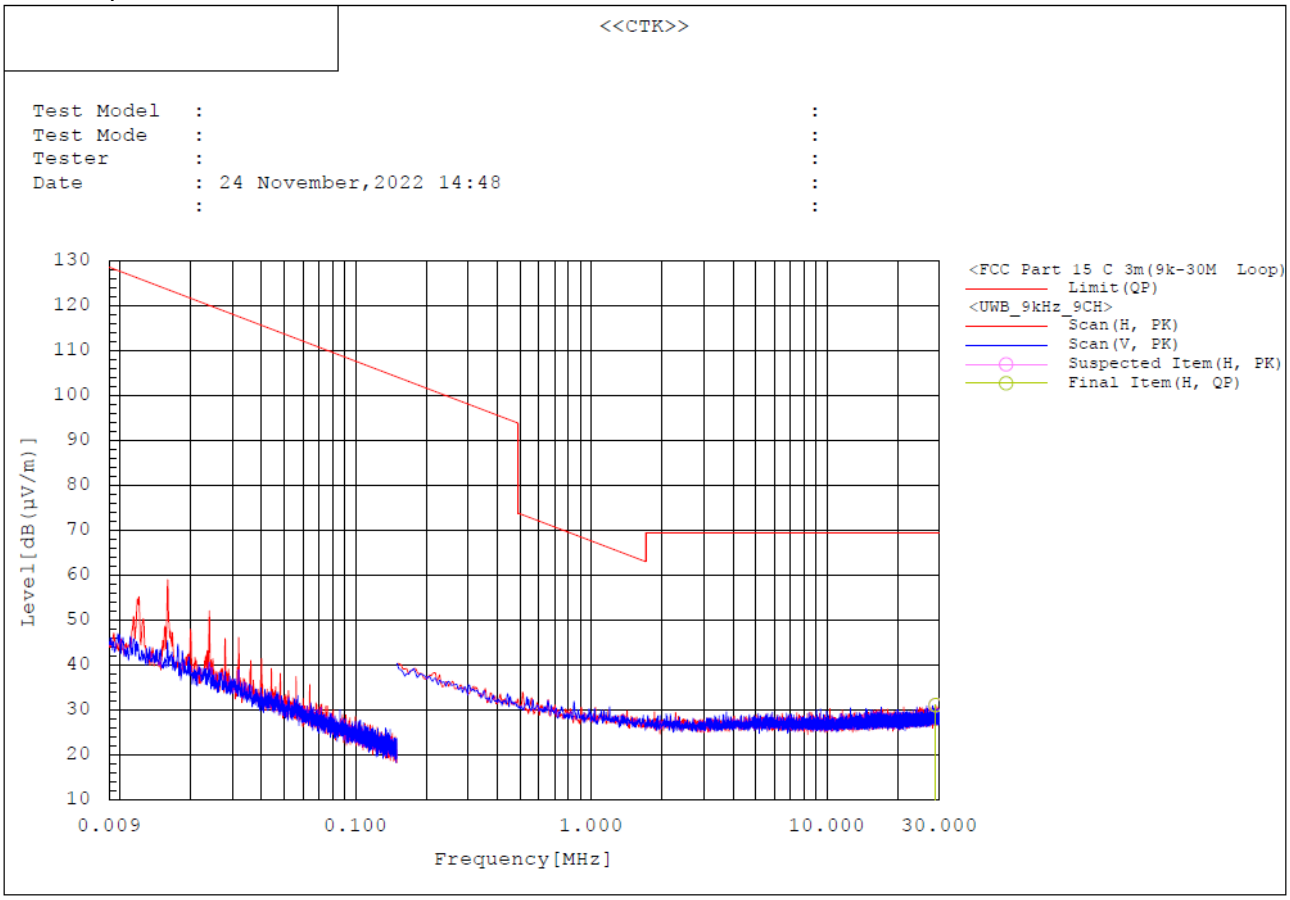
2) Spurious Ⅱ

1. 9 kHz to 30 MHz

Test mode : 6 489.6 MHz, 5 Channel(Worst case)

The requirements are:

☒ Complies



c	Pol.	Reading [dBuV]	Space Loss [dB]	EIRP[dBuV]	Limit[dBuV]	Margin[dB]	Remark
No peak found							

Note :

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(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator

* Reading data is the peak value.

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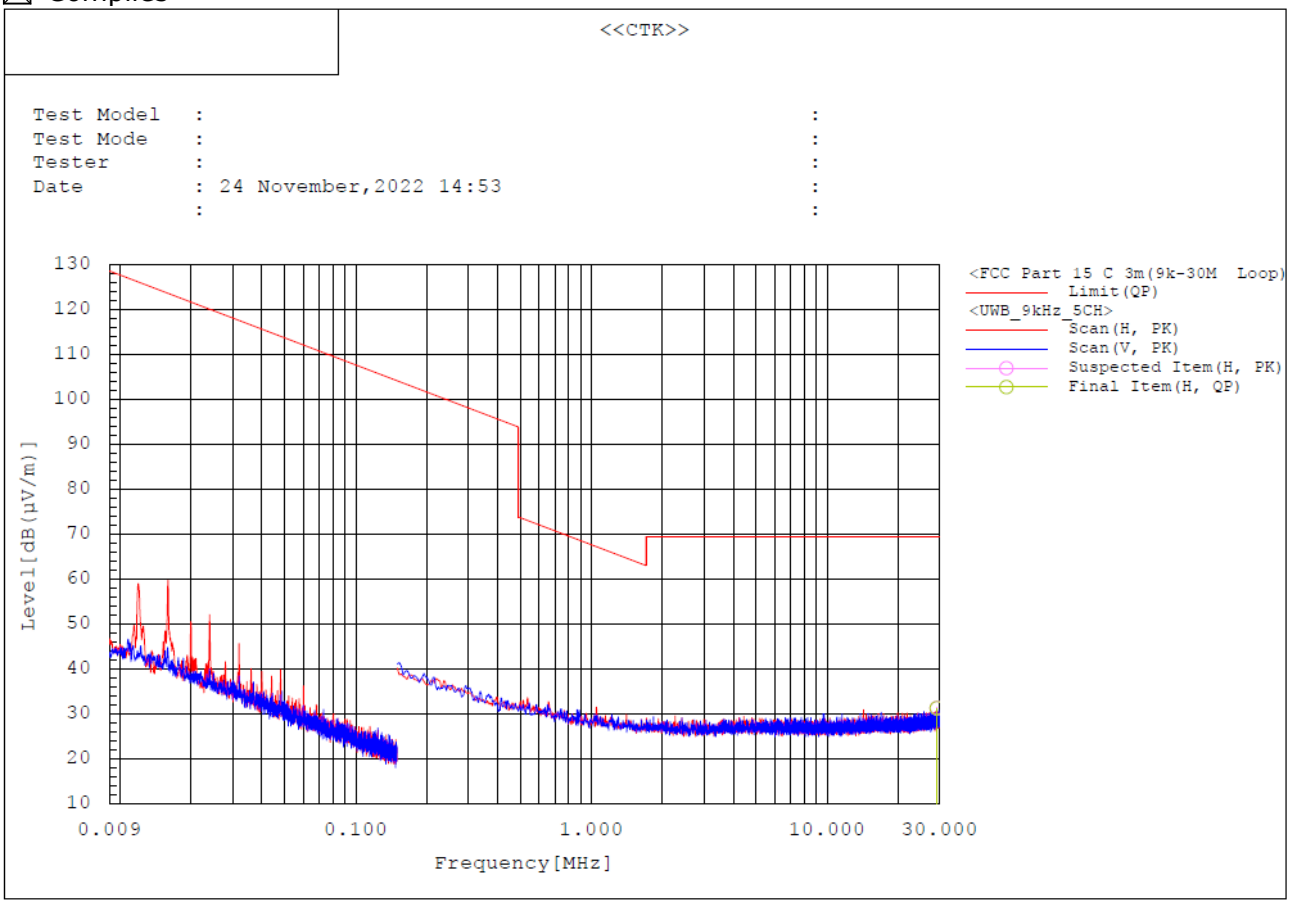
Test mode : 7 987.2 MHz, 9 Channel(Worst case)

The requirements are:
☒ Complies



Frequency [MHz]	Pol.	Reading [dBuV]	Space Loss [dB]	EIRP[dBuV]	Limit[dBuV]	Margin[dB]	Remark
No peak found							

Note :
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(Z axis) and the worst case was recorded.
2. Result = Reading + c.f(correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator

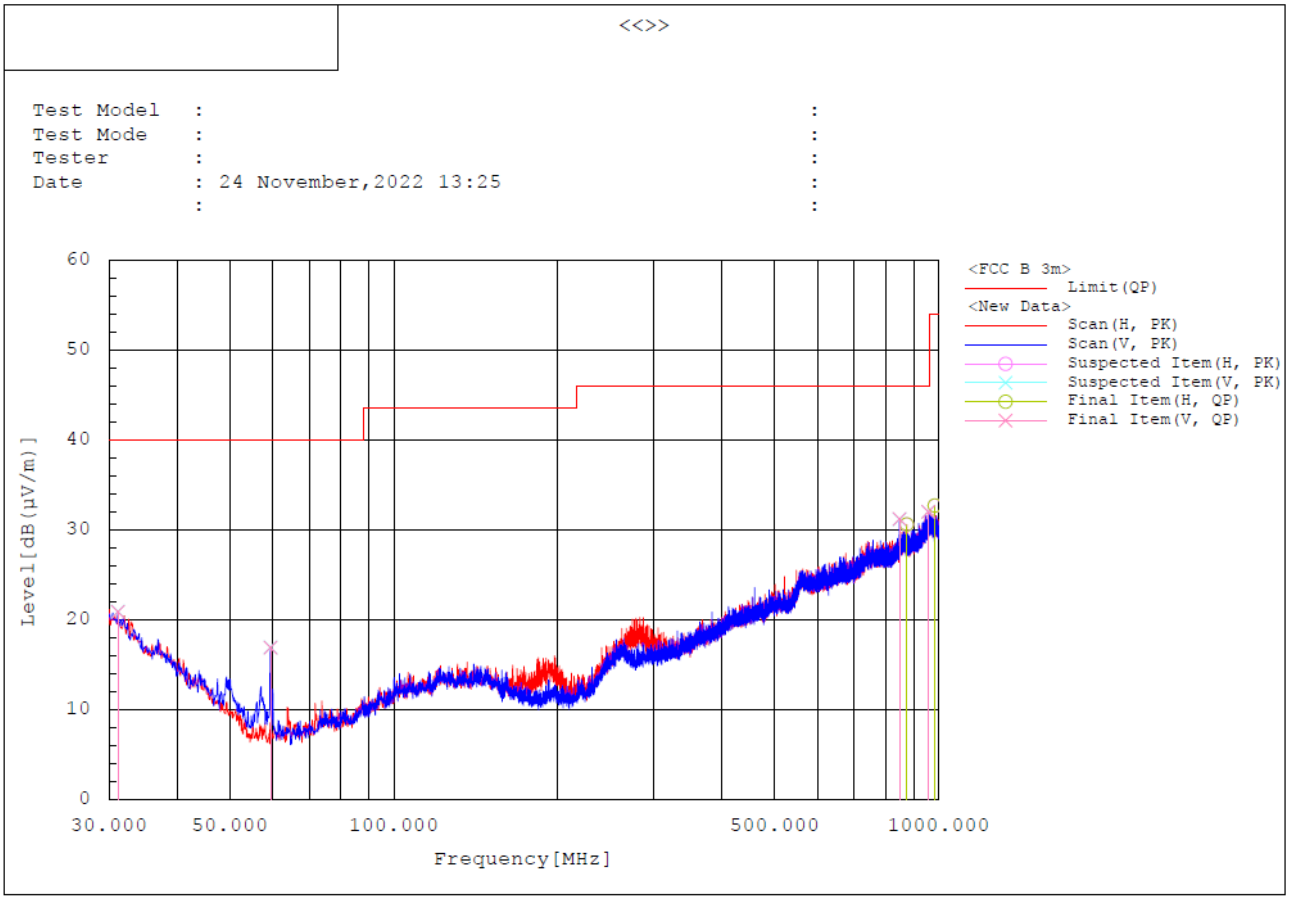
* Reading data is the peak value.

2. 30 MHz to 1 GHz

Test mode : 6 489.6 MHz, 5 Channel(Worst case)

The requirements are:
☒ Complies

Test Data



Final Result

No.	Frequency [MHz]	Pol	Reading QP [dB(µV)]	c.f [dB(1/m)]	Result QP [dB(µV/m)]	Limit QP [dB(µV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	31.164	V	27.9	-7.0	20.9	40.0	19.1	299.9	217.8
2	59.391	V	36.4	-19.5	16.9	40.0	23.1	100.0	2.1
3	847.516	V	28.1	3.1	31.2	46.0	14.8	299.9	16.5
4	873.609	H	27.1	3.5	30.6	46.0	15.4	200.1	112.7
5	956.932	V	25.9	6.1	32.0	46.0	14.0	200.1	359.1
6	983.413	H	26.4	6.3	32.7	54.0	21.3	300.0	359.0

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(Z 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

* Reading data is the peak value.

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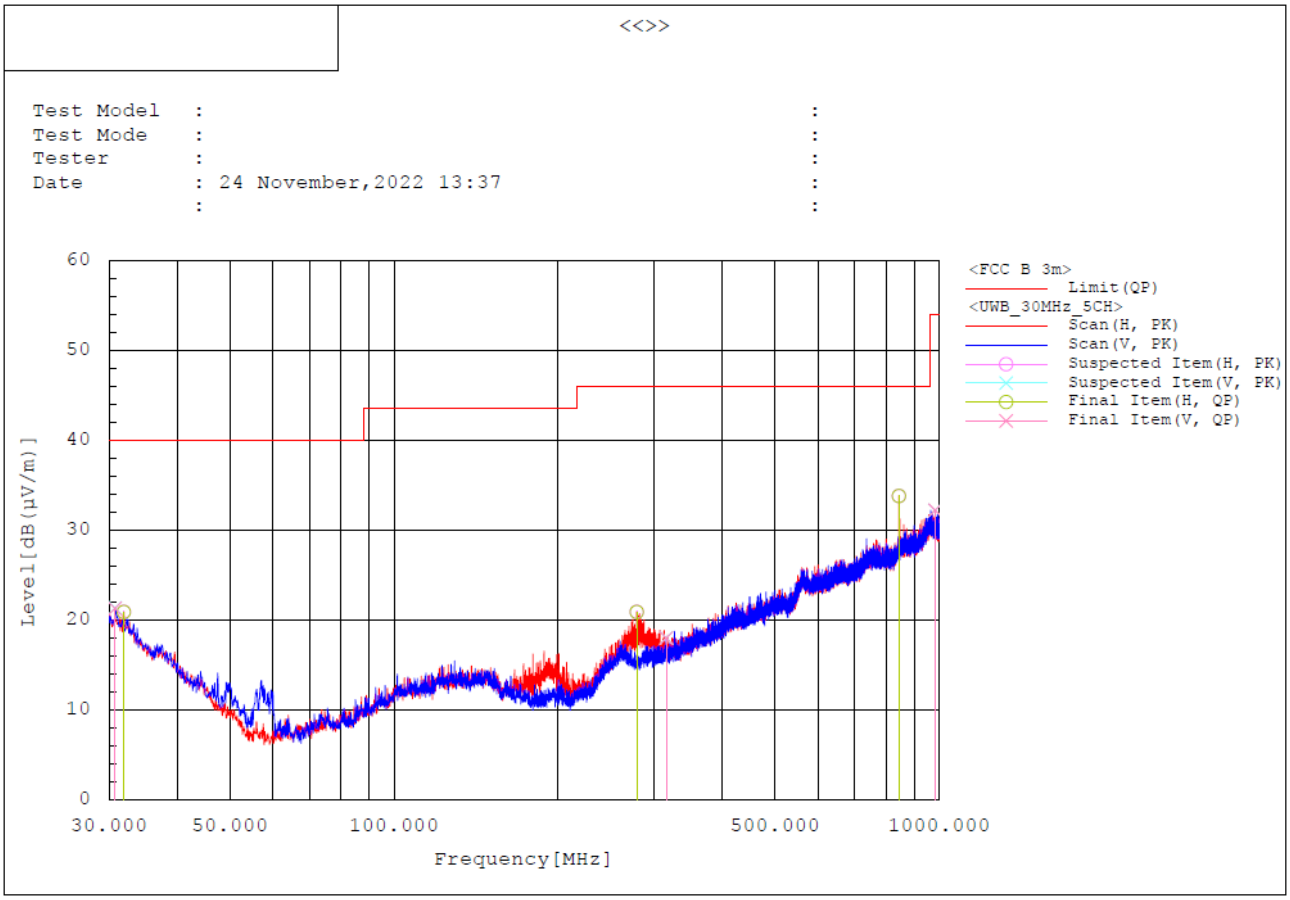
Test mode : 7 987.2 MHz, 9 Channel(Worst case)

The requirements are:
☒ Complies

Test Data



Final Result

No.	Frequency [MHz]	Pol	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	30.776	V	28.1	-6.8	21.3	40.0	18.7	300.0	80.9
2	31.940	H	28.4	-7.5	20.9	40.0	19.1	100.0	167.8
3	843.345	H	31.0	2.8	33.8	46.0	12.2	300.1	144.8
4	983.025	V	25.9	6.3	32.2	54.0	21.8	99.9	338.9
5	278.611	H	31.5	-10.6	20.9	46.0	25.1	100.0	358.0
6	315.762	V	27.6	-9.6	18.0	46.0	28.0	300.0	46.7

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(Z 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

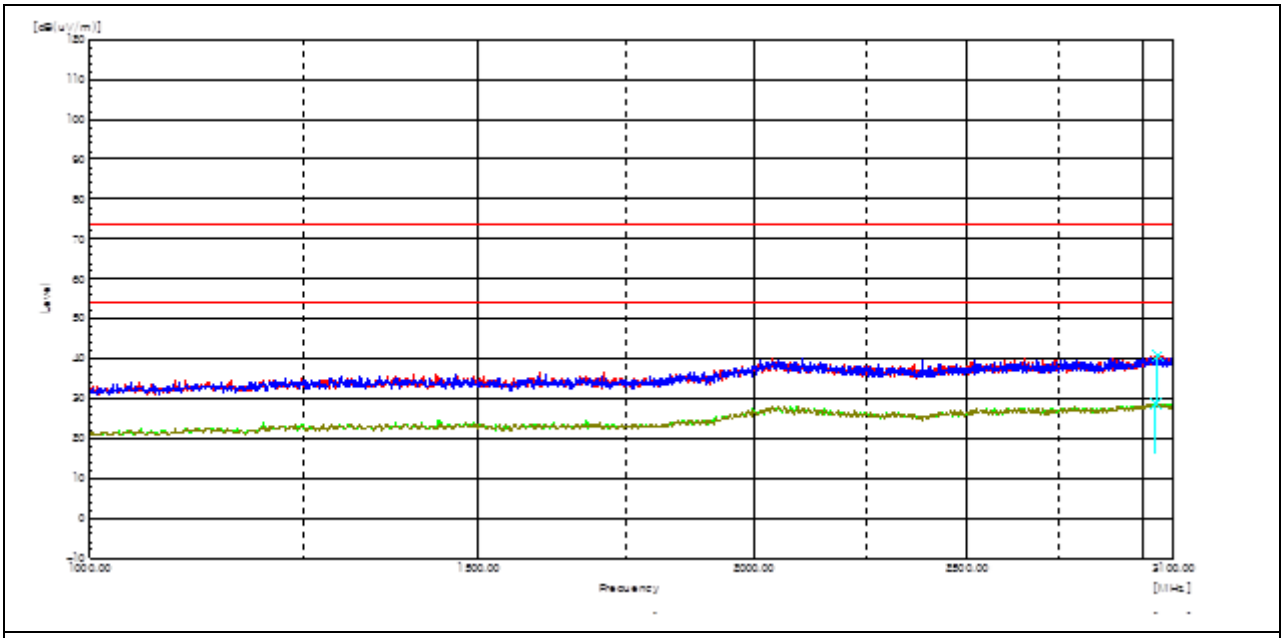
* Reading data is the peak value.

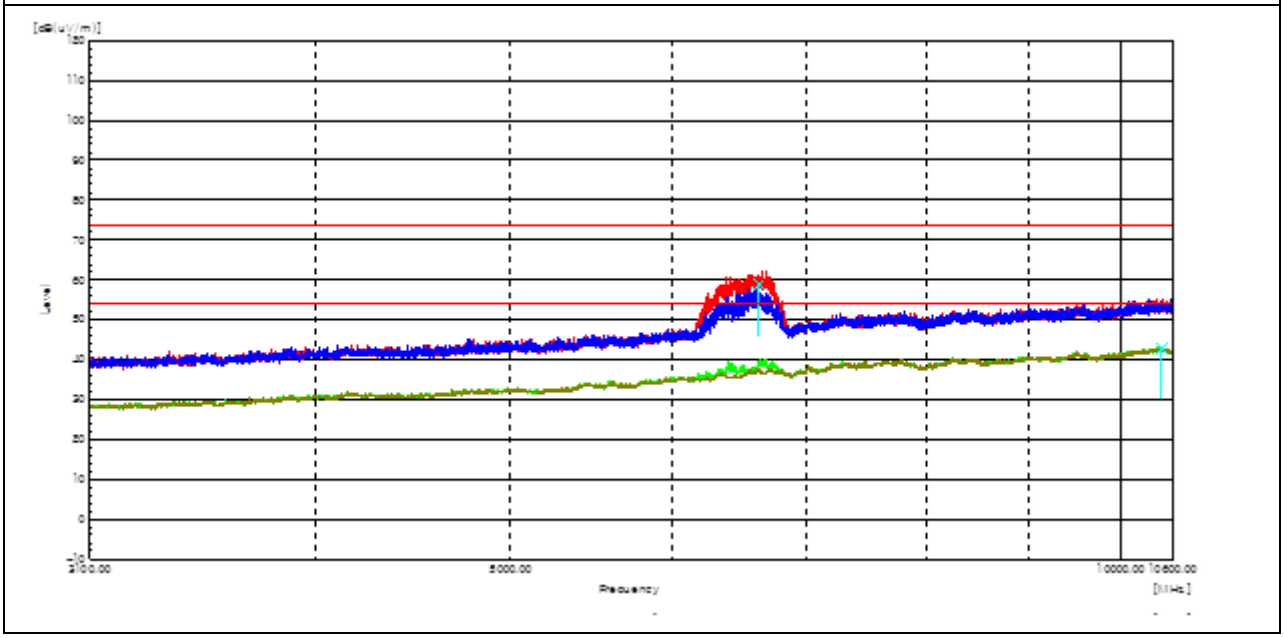
3. 1.0 GHz to 40 GHz

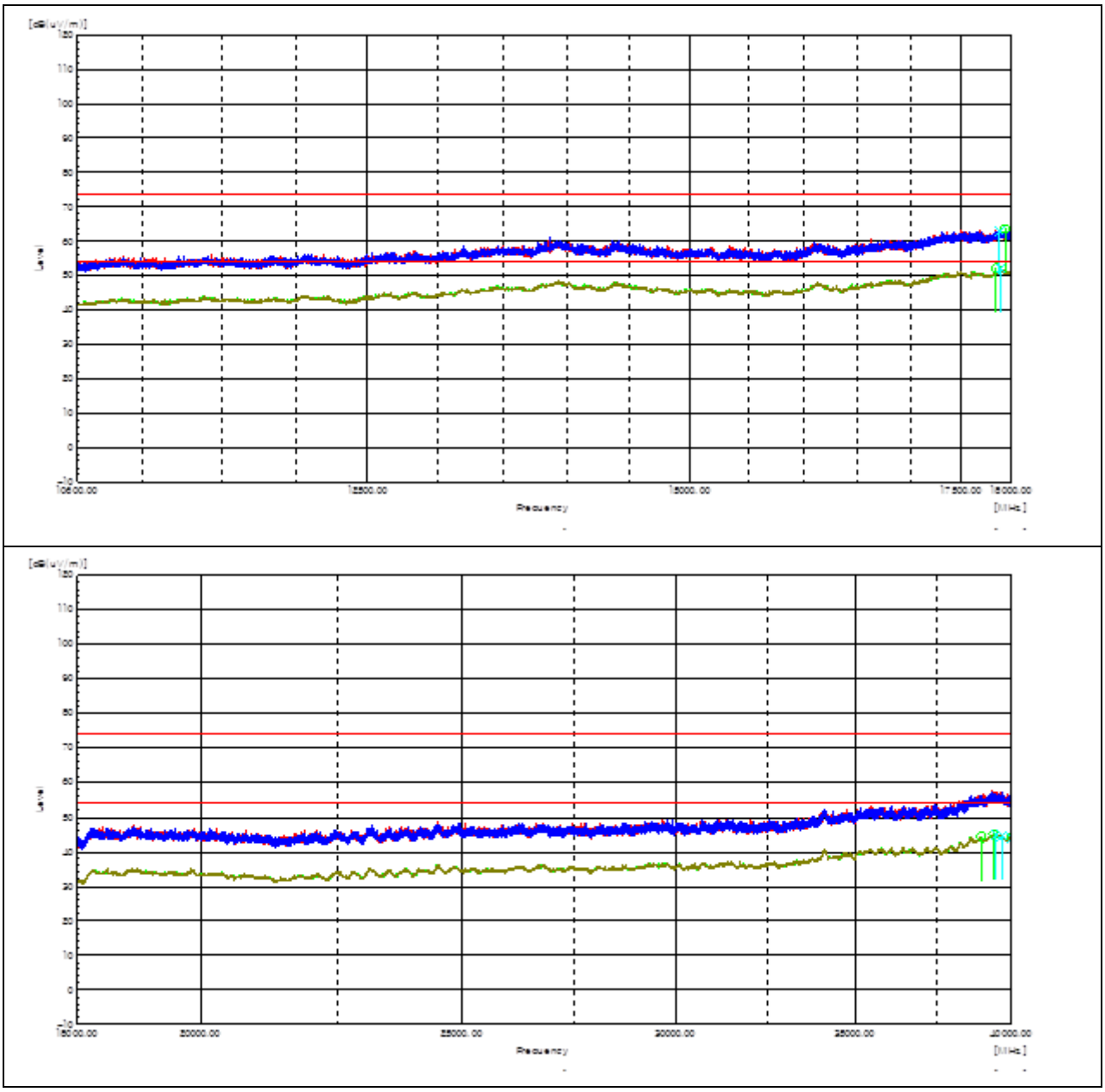
Test mode : 6 489.6 MHz, 5 Channel(Worst case)

The requirements are:
☒ Complies

Test Data







Frequency [MHz]	Pol.	Reading [dBuV]	Space Loss [dB]	EIRP[dBuV]	Limit[dBuV]	Margin[dB]	Remark
No peak found							

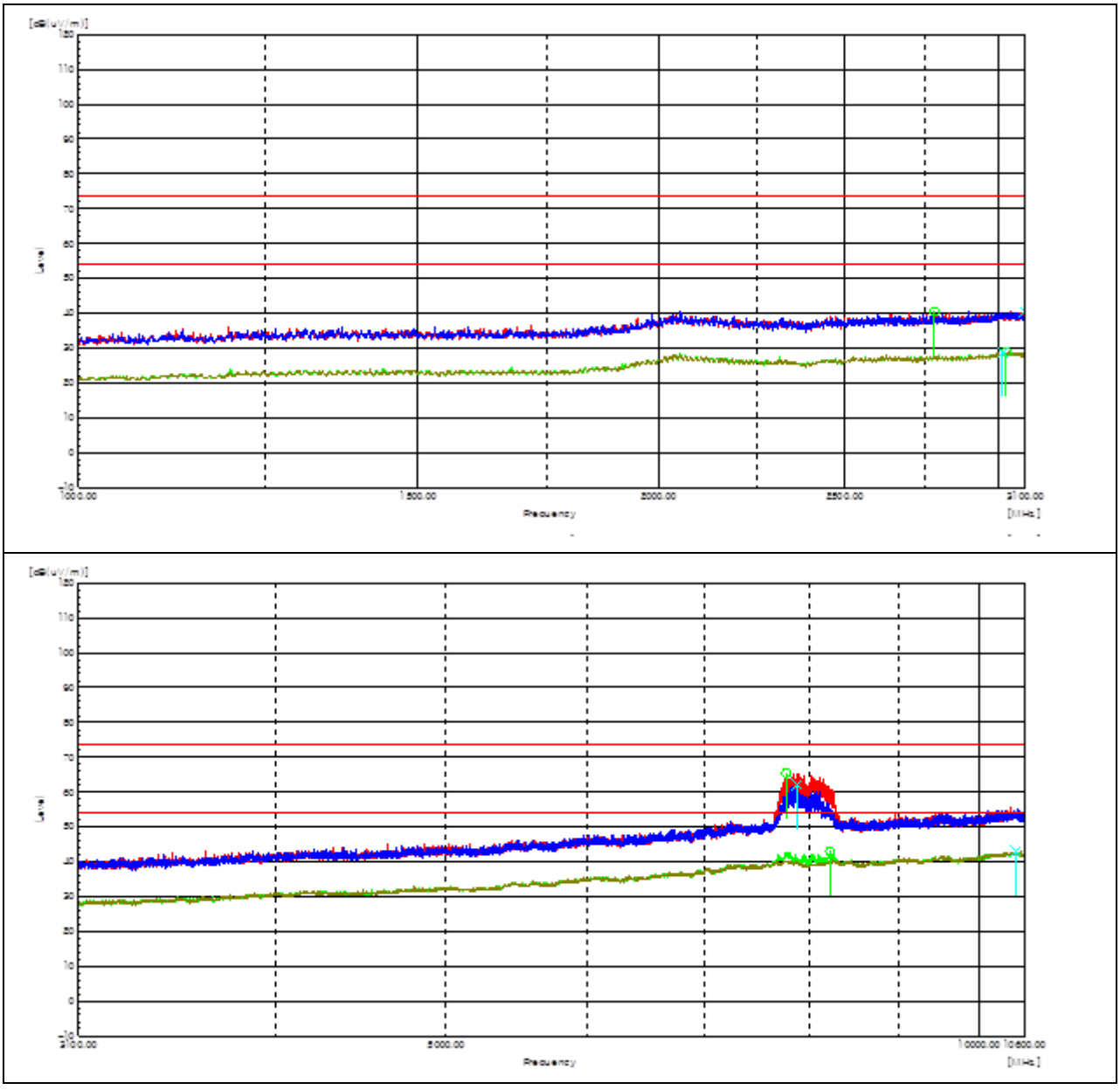
Remarks

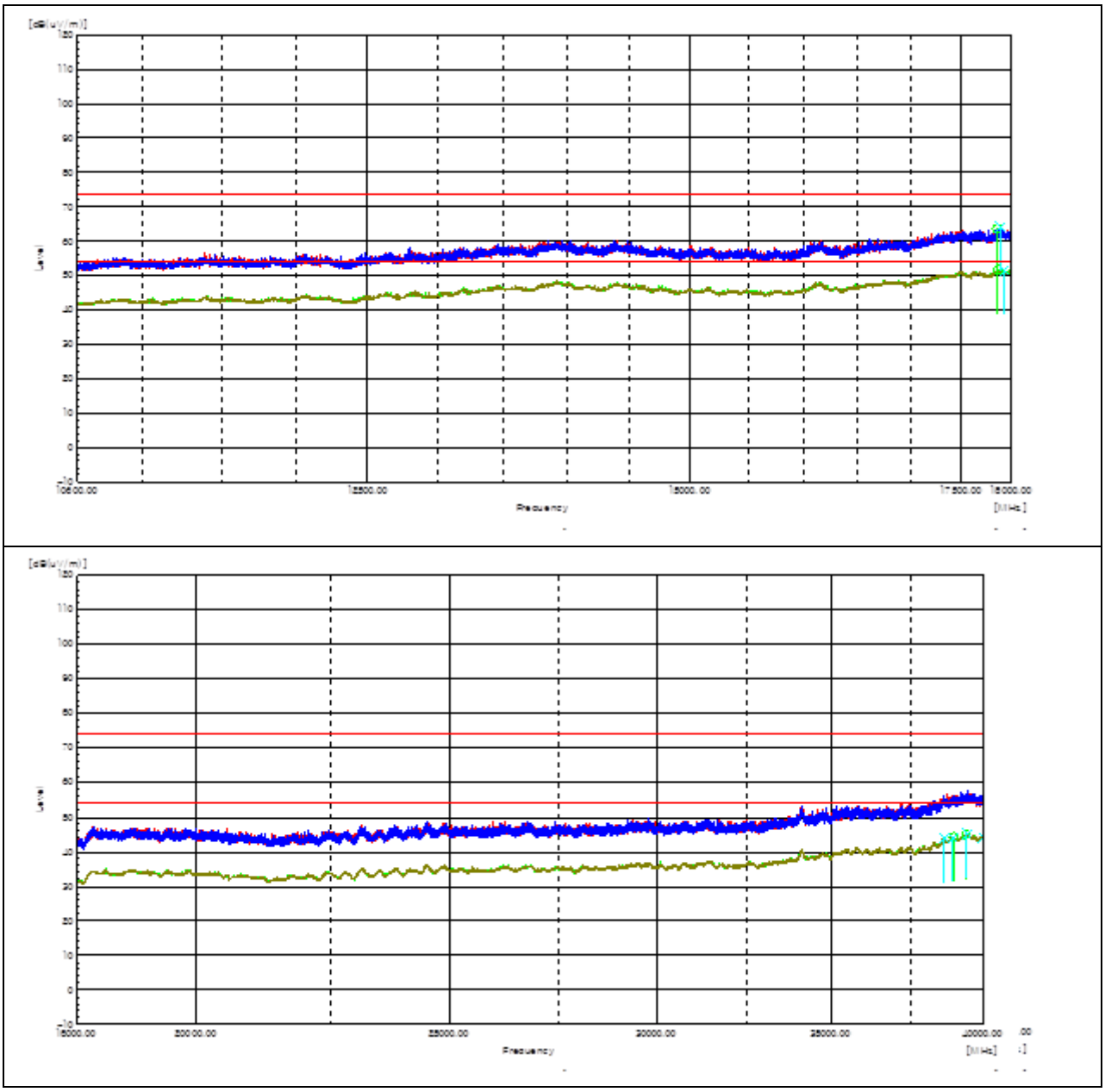
1. The Unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(X axis) and the worst case was recorded.
2. Result = Reading + c.f(correction factor)
3. Correction factor = Antenna factor + Cable loss - Amp Gain
4. BLE and UWB do not operate at the same time.

Test mode : 7 987.2 MHz, 9 Channel(Worst case)

The requirements are:
☒ Complies

Test Data





Frequency [MHz]	Pol.	Reading [dBuV]	Space Loss [dB]	EIRP[dBuV]	Limit[dBuV]	Margin[dB]	Remark
No peak found							

Remarks

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
4. BLE and UWB do not operate at the same time.

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

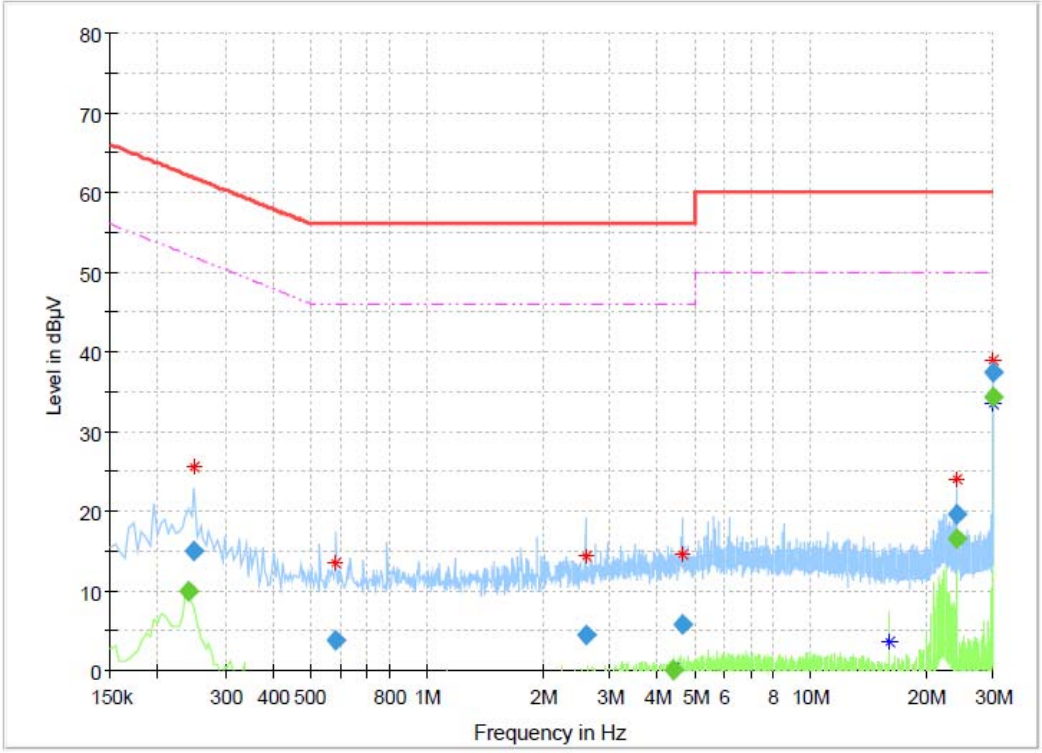
* The level decreases linearly with the logarithm of the frequency.
** A linear average detector is required.

CTK Co., Ltd.
(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9970
Fax: +82-31-624-9501

Test Results :

The requirements are:
☒ Complies

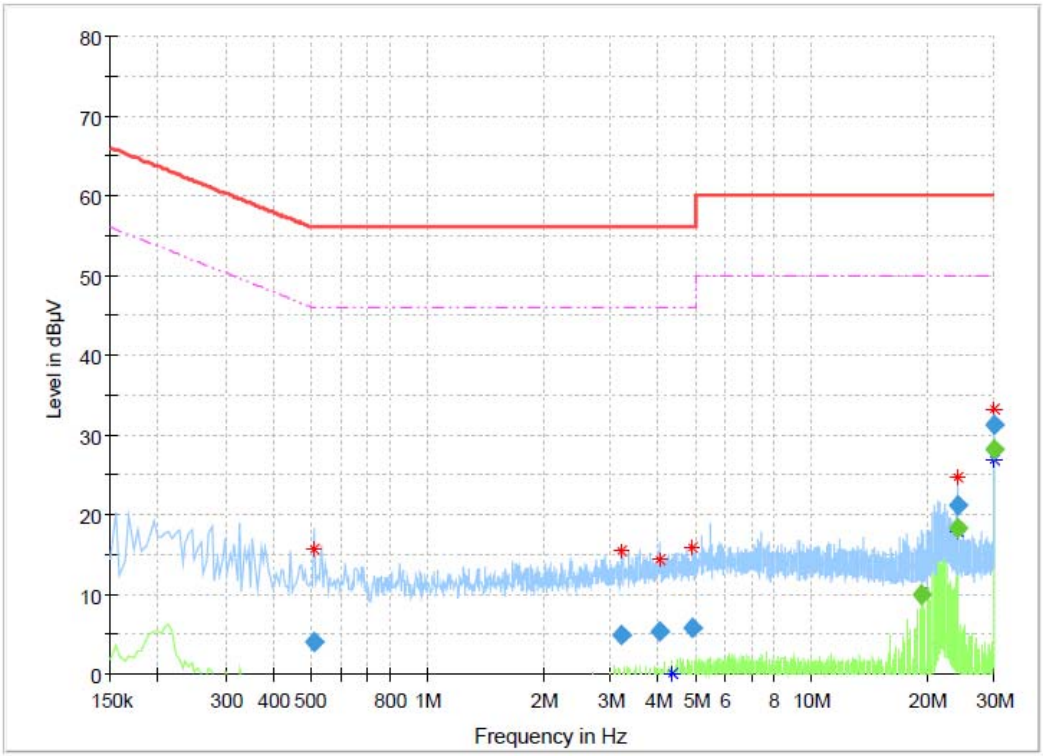
Test mode : 6 489.6 MHz, 5 Channel(Worst case)
[L1]



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.240000	---	9.84	52.10	42.26	15000.0	9.000	L1	ON	9.7
0.249000	14.91	---	61.79	46.89	15000.0	9.000	L1	ON	9.6
0.582000	3.75	---	56.00	52.25	15000.0	9.000	L1	ON	10.0
2.598000	4.41	---	56.00	51.59	15000.0	9.000	L1	ON	9.8
4.380000	---	0.10	46.00	45.90	15000.0	9.000	L1	ON	9.7
4.582500	---	-0.08	46.00	46.08	15000.0	9.000	L1	ON	9.8
4.632000	5.75	---	56.00	50.25	15000.0	9.000	L1	ON	9.8
16.039500	---	-0.54	50.00	50.54	15000.0	9.000	L1	ON	10.0
24.000000	19.55	---	60.00	40.45	15000.0	9.000	L1	ON	10.0
24.000000	---	16.47	50.00	33.53	15000.0	9.000	L1	ON	10.0
30.000000	---	34.24	50.00	15.76	15000.0	9.000	L1	ON	10.1
30.000000	37.29	---	60.00	22.71	15000.0	9.000	L1	ON	10.1

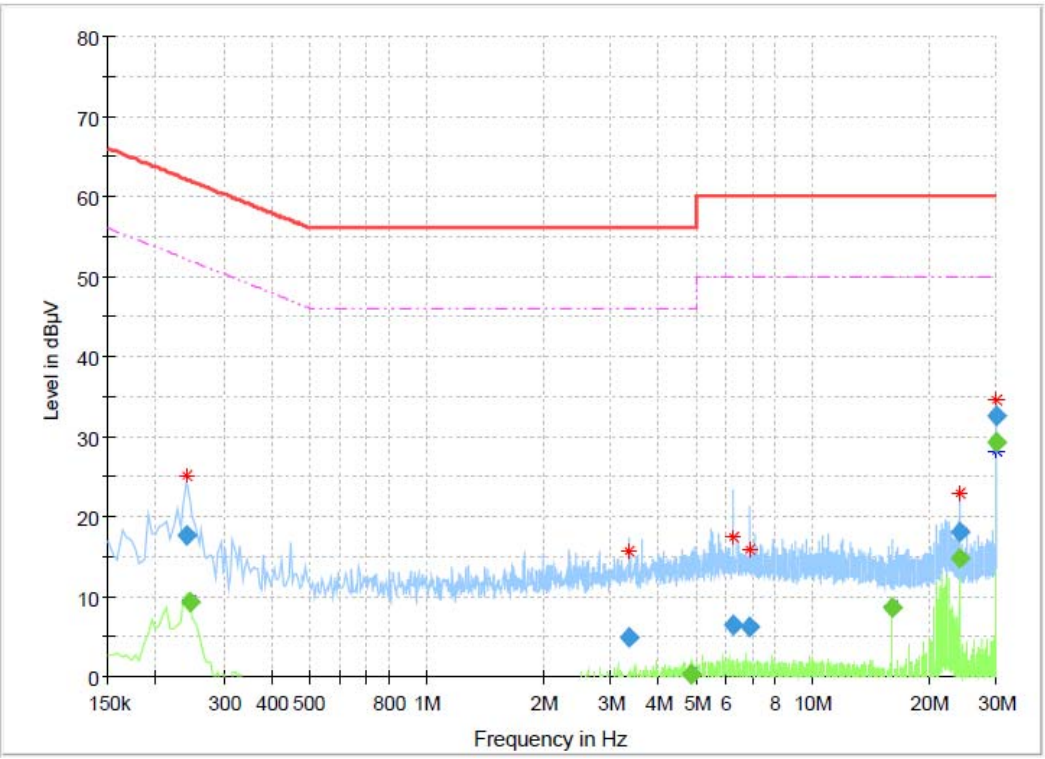
[NEUTRAL]



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.510000	3.96	---	56.00	52.04	15000.0	9.000	N	ON	9.9
3.070500	---	-0.80	46.00	46.80	15000.0	9.000	N	ON	9.8
3.219000	4.79	---	56.00	51.21	15000.0	9.000	N	ON	9.8
4.033500	5.26	---	56.00	50.74	15000.0	9.000	N	ON	9.8
4.362000	---	-0.07	46.00	46.07	15000.0	9.000	N	ON	9.8
4.542000	---	-0.07	46.00	46.07	15000.0	9.000	N	ON	9.9
4.893000	5.71	---	56.00	50.29	15000.0	9.000	N	ON	9.9
19.306500	---	9.99	50.00	40.01	15000.0	9.000	N	ON	10.2
24.000000	21.15	---	60.00	38.85	15000.0	9.000	N	ON	10.1
24.000000	---	18.35	50.00	31.65	15000.0	9.000	N	ON	10.1
29.998500	---	28.15	50.00	21.85	15000.0	9.000	N	ON	10.2
29.998500	31.29	---	60.00	28.71	15000.0	9.000	N	ON	10.2

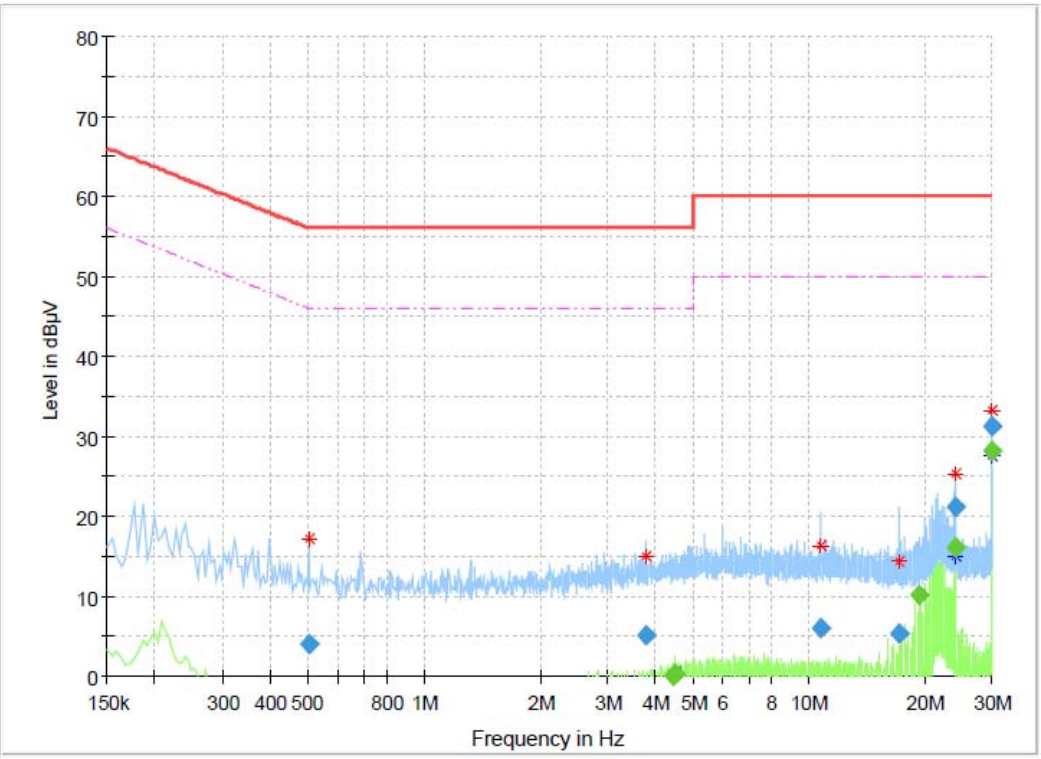
Test mode : 7 987.2 MHz, 9 Channel(Worst case)
[L1]



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.240000	17.68	---	62.10	44.42	15000.0	9.000	L1	ON	9.7
0.244500	---	9.15	51.94	42.80	15000.0	9.000	L1	ON	9.7
3.354000	4.94	---	56.00	51.06	15000.0	9.000	L1	ON	9.7
3.939000	---	-0.37	46.00	46.37	15000.0	9.000	L1	ON	9.7
4.875000	---	0.16	46.00	45.84	15000.0	9.000	L1	ON	9.8
6.247500	6.28	---	60.00	53.72	15000.0	9.000	L1	ON	10.1
6.877500	6.14	---	60.00	53.86	15000.0	9.000	L1	ON	10.0
16.057500	---	8.50	50.00	41.50	15000.0	9.000	L1	ON	10.0
24.000000	17.99	---	60.00	42.01	15000.0	9.000	L1	ON	10.0
24.000000	---	14.67	50.00	35.33	15000.0	9.000	L1	ON	10.0
29.998500	---	29.20	50.00	20.80	15000.0	9.000	L1	ON	10.1
29.998500	32.45	---	60.00	27.55	15000.0	9.000	L1	ON	10.1

[NEUTRAL]



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.501000	3.90	---	56.00	52.10	15000.0	9.000	N	ON	9.9
2.859000	---	-0.94	46.00	46.94	15000.0	9.000	N	ON	9.8
3.768000	5.14	---	56.00	50.86	15000.0	9.000	N	ON	9.8
4.434000	---	0.01	46.00	45.99	15000.0	9.000	N	ON	9.9
4.515000	---	0.24	46.00	45.76	15000.0	9.000	N	ON	9.9
10.806000	5.97	---	60.00	54.03	15000.0	9.000	N	ON	10.0
17.268000	5.27	---	60.00	54.73	15000.0	9.000	N	ON	10.1
19.306500	---	10.02	50.00	39.98	15000.0	9.000	N	ON	10.2
23.995500	---	16.12	50.00	33.88	15000.0	9.000	N	ON	10.1
24.000000	21.09	---	60.00	38.91	15000.0	9.000	N	ON	10.1
29.998500	---	28.21	50.00	21.79	15000.0	9.000	N	ON	10.2
30.000000	31.11	---	60.00	28.89	15000.0	9.000	N	ON	10.2

APPENDIX A – Test Equipment Used For Tests

No.	Name of Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Signal Analyzer	Agilent	N9020A	MY50200512	2022-03-28	2023-03-28
2	Signal Generator	Rohde & Schwarz	SMB100A	175528	2022-03-25	2023-03-25
3	EMI TEST RECEIVER	Rohde & Schwarz	ESW44	102039	2022-05-04	2023-05-04
4	Spectrum Analyzer	R&S	FSV40	101574	2022-01-12 2023-01-11	2023-01-12 2024-01-11
5	Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-125	2022-04-15	2024-04-15
6	Bilog Antenna	TESEQ	CBL6111D	60654	2021-09-03	2023-09-03
7	AMPLIFIER	SONOMA INSTRUMENT	310N	411011	2022-08-10	2023-08-10
8	ATTENUATOR	PASTERNACK	PE7AP006-06	L2021050400002 3	2022-08-10	2023-08-10
9	Preamplifier	Agilent	8449B	3008A00620	2022-05-10	2023-05-10
10	Double Ridged Guide Antenna	ETS-Lindgren	3115	00078895	2022-04-14	2023-04-14
11	Horn Antenna	SCHWARZBECK	BBHA9170	01153	2022-10-31	2023-10-31
12	Low Noise Amplifier	TESTEK	TK-PA1840H	210124-L	2022-11-09	2023-11-09
13	LISN	R&S	ENV216	102698	2022-05-13	2023-05-13
14	Dual-Tracking DC Power Supply	Topward Electric Instruments Co.,Ltd.	6303D	711196	2022-04-15	2023-04-15
15	DC Power Supply	HP	E3632A	KR75305831	2022-07-14	2023-07-14

No.	Cable	Manufacturer	Model No.	Serial No.	Check Date
1	RF Cable(conducted)	Junkosha Inc.	MWX221	2008S240	2022-06-02
2	RF Cable (9kHz-1GHz Radiated)	Canare Corporation	L-5D2W	N/A	2022-09-21
3	RF Cable (9kHz-1GHz Radiated)	HUBER+SUHNER	SUCOFLEX 104	MY27558/4	2022-09-21
4	RF Cable (1GHz-18GHz Radiated)	Junkosha Inc.	MWX221	2008S246	2022-04-14
5	RF Cable (1GHz-18GHz Radiated)	Rosenberger	NONE	1520.9927.00	2022-04-14
6	RF Cable (1GHz-18GHz Radiated)	Sensorview Co., LTD	9S18	TPC2204060007	2022-04-14
7	RF Cable (18GHz-26.5GHz Radiated)	HUBER+SUHNER	SUCOFLEX 102	MY2372/2	2022-04-14
8	RF Cable (18GHz-26.5GHz Radiated)	HUBER+SUHNER	SUCOFLEX 102	MY073/2	2022-04-14
9	RF Cable (18GHz-26.5GHz Radiated)	Sensorview Co., LTD	9S40	TP210713-001	2022-04-14
10	RF Cable (26.5GHz-40GHz Radiated)	Sensorview Co., LTD	2P92MST-9A40-2P92MST	TP22004060009	2022-04-14

-END-