



FCC RADIO TEST REPORT

FCC ID : 2A4B7-1021
Equipment : Contactless Sleep Tracker and Wake Light
Model Name : V4E6N2
Applicant : Blueberry Cornel LLC
2150 S. Central Expressway Suite 200
McKinney, TX 75070
Standard : FCC 47 CFR Part 15.255

The product was received on May 16, 2022 and testing was performed from May 16, 2022 to Jul. 16, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures ANSI C63.10-2013 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



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Appendix A. AC Conducted Emission Test Result	



History of this test report

Report No.	Version	Description	Issued Date
FR1D2427-01G	01	Initial issue of report	Jul. 28, 2022

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Limit	Result (PASS/FAIL)
3.4	§15.215(c) §15.255(e)	Emission Bandwidth	20dB bandwidth Within 57 ~ 71GHz	Pass
3.5	§15.255(c)(3)	Peak EIRP & Peak Conducted power	EIRP < 10dBm Conducted power < -10dBm	Pass
3.6	§15.255(d)	Transmitter Spurious Emissions	§15.255(d)	Pass
3.7	§15.255(f)	Frequency Stability for Temperature & Voltage	Within 57 ~ 71GHz	Pass
4	§15.207	AC Power Conducted Emission	§15.207	Pass

Declaration of Conformity:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to report "Uncertainty of Evaluation".

Comments and Explanations:

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Alan Liu

Report Producer: Lucy Wu



1 General Description

1.1 Feature of Equipment Under Test

Product Feature	
Equipment	Contactless Sleep Tracker and Wake Light
Model Name	V4E6N2
FCC ID	2A4B7-1021
EUT supports Radios application	WLAN 11b/g/n HT20 WLAN 11a/n HT20 Bluetooth BR/EDR/LE 60GHz

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Frequency Range	62 - 63.1GHz
Antenna Type	Embedded Antennas in the PCB
Antenna Gain	6dBi
Antenna directional gain	16.79dBi
Type of Modulation	SFCW

Note: Antenna directional gain = 6dBi + 10log (12 antenna elements) = 16.79dBi

1.3 Modification of EUT

No modifications are made to the EUT during all test items.

1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. CO05-HY (TAF Code: 1190)
Remark	The AC Conducted Emission test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory.

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No. 03CH11-HY, 03CH15-HY, 03CH18-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW1190 and TW3786

1.5 Applied Standards

- ♦ FCC 47 CFR Part 2, 15.255
- ♦ ANSI C63.10-2013

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

For radiated measurement, , the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find Y Plane as worst plane.

For transmitter spurious emissions

Test Configuration		
Mode 1	Antenna Group1	62.5GHz
Mode 2	Antenna Group2	62.5GHz
Mode 3	WLAN (2.4GHz) 802.11g Ch11 + Antenna Group2	2462MHz + 62.5GHz
Mode 4	WLAN (5GHz) 802.11a Ch36 + Antenna Group2	5180MHz + 62.5GHz

Note: For transmitter spurious emissions, the test modes 1, 2, 3, and 4 are set frequency sweep stopped in accordance with the FCC 15.31(c) for millimeter-wave signal.

For EIRP/99% OBW/6dB BW/20dB BW

Test Configuration		
Mode 1	Antenna Group1 SFCW mode	62 ~ 63.1GHz
Mode 2	Antenna Group2 SFCW mode	62 ~ 63.1GHz

Note: The SFCW is used during test.

For Frequency Stability

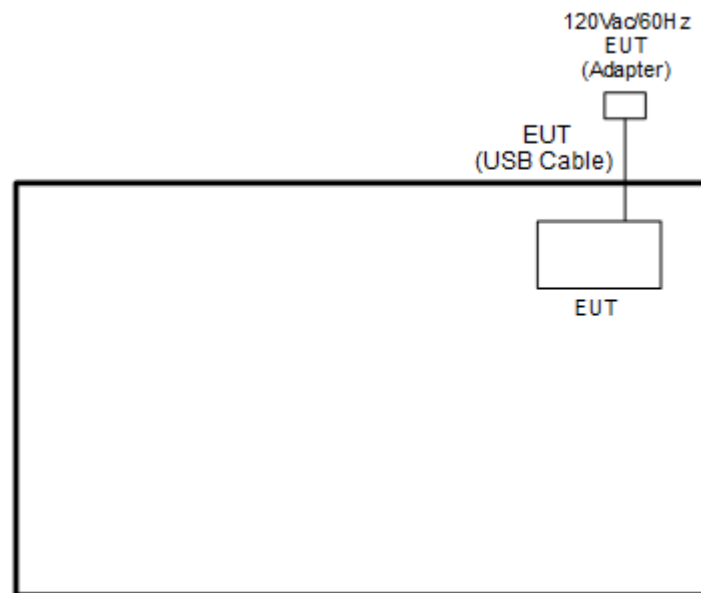
Test Configuration		
Mode 1	Antenna Group1	62GHz and 63.1GHz
Mode 2	Antenna Group2	62GHz and 63.1GHz

Note: The continuous wave is used during test.

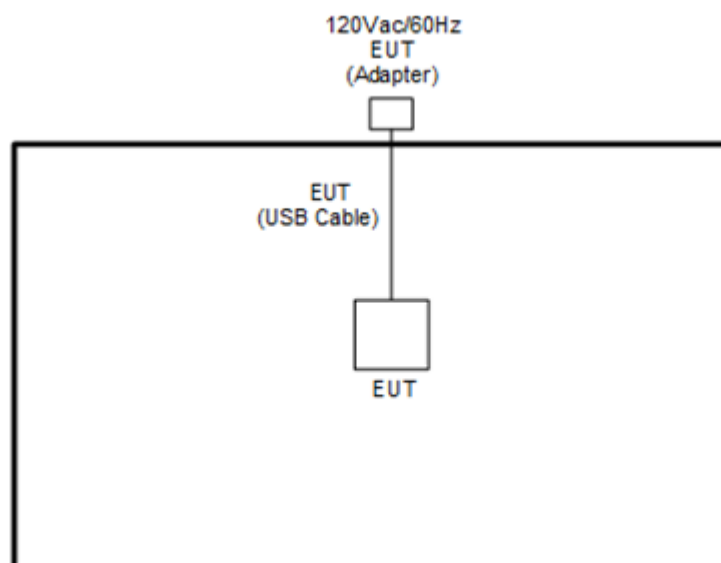
Test Cases	
AC Conducted Emission	Mode 1 :Non-ISM band Group1 SFCW Mode + AP31 Adapter

2.2 Connection Diagram of Test System

<AC Conducted Emission>



<60 GHz Tx Mode>





2.3 Far Field Condition for Frequency above 18GHz

Horn Antenna	Frequency (GHz)	Antenna Dimension A (mm)	Wavelength (λ) (m)	Far field R (m) $\geq 2A^2 / \lambda$	Measurement Distance (D) (m)	Distance Factor $20 \cdot \log(D)$ (dB)
BBHA 9170	18	60	0.0167	0.43	1	0.00
	40	60	0.0075	0.96		
QWH-UPRR00	40	48	0.0075	0.61	0.87	-1.21
	57	48	0.0053	0.87		
QWH-VPRR00	57	38	0.0053	0.54	0.62	-4.15
	65	38	0.0046	0.62		
QWH-EPRR00	60	31	0.0050	0.38	0.6	-4.44
	90	31	0.0033	0.6		
QWH-FPRR00	90	21	0.0033	0.26	0.42	-7.54
	140	21	0.0021	0.42		
QWH-GPRR00	140	14	0.0021	0.18	0.26	-11.7
	200	14	0.0015	0.26		

Note: The measurement distance may be far than the measurement distance above.

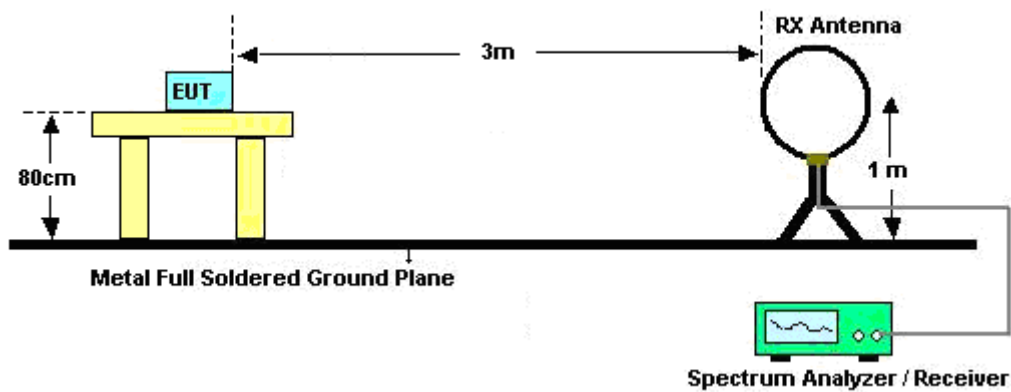
3 Radiated Test Items

3.1 Measuring Instruments

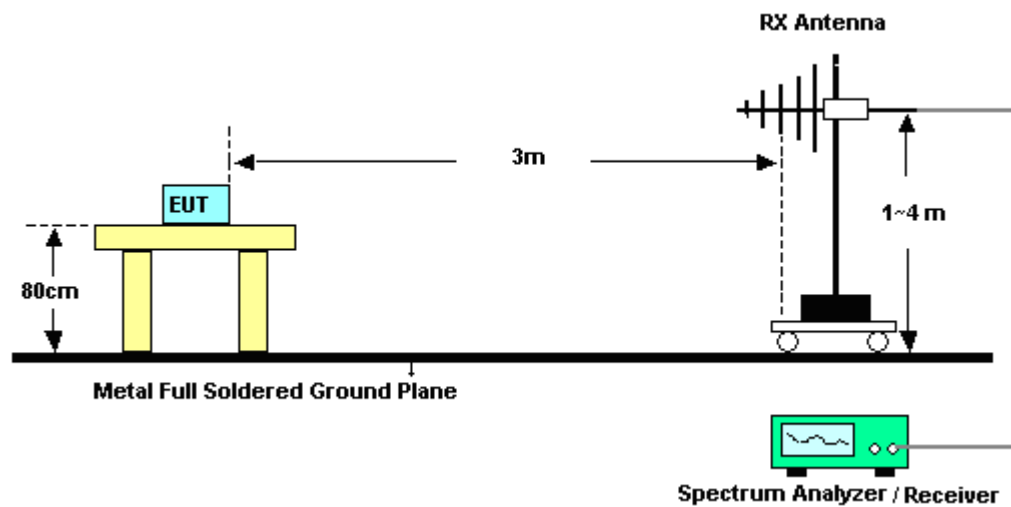
See list of measuring instruments of this test report.

3.2 Test Setup

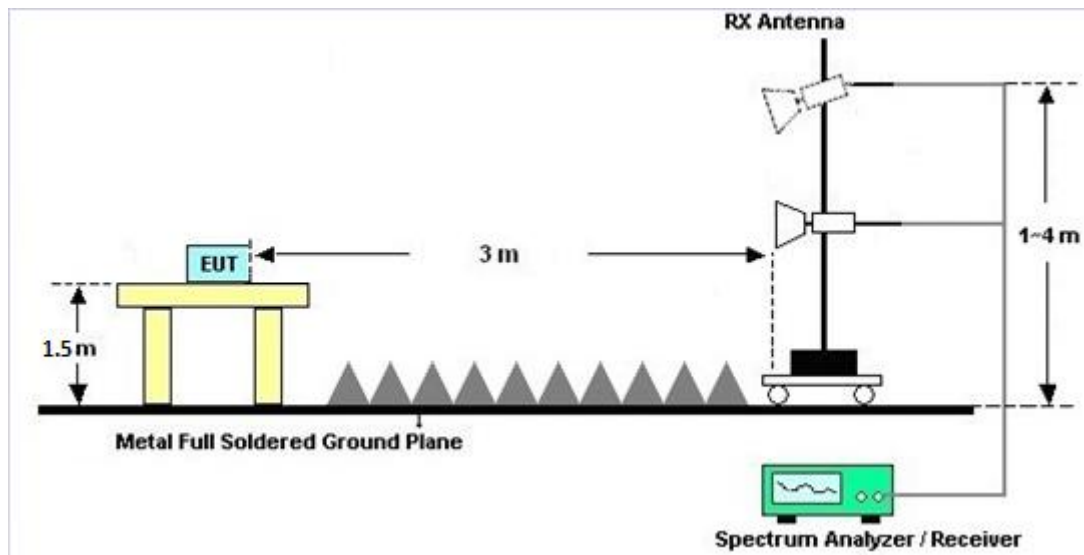
For radiated emissions from 9kHz to 30MHz



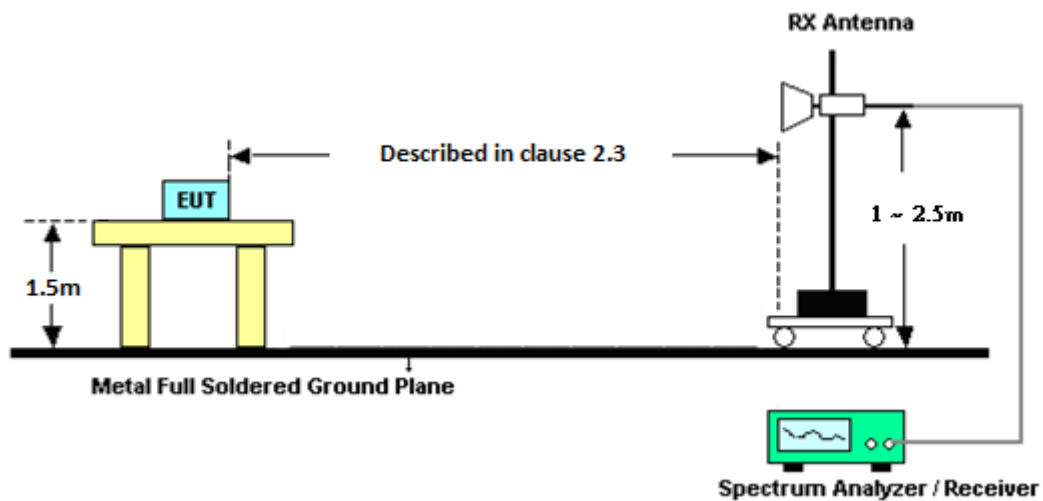
For radiated emissions from 30MHz to 1GHz



For radiated emissions 1GHz to 18GHz



For radiated emissions above 18GHz



3.3 Test Result of Radiated Test

Please refer to Clause 3.6.



3.4 Emission Bandwidth

3.4.1 Description of Emission Bandwidth Measurement

99% Occupied Bandwidth and 6dB Bandwidth are for reporting only.

Limit for 20 dB Bandwidth: Per Part15.215(C), the device shall operate in the 57 - 71 GHz band.

The emission bandwidth (EBW) is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least the specified amount below the maximum level of the modulated carrier.

3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

The testing follows ANSI C63.10-2013 Section 9.3.

3.4.4 Test Results

<Antenna Group1 SFCW mode>

Temperature	21.1 ~ 23.5℃	Relative Humidity	61.4 ~ 65.3%
Test Engineer	Eric Jeng		
99% Occupied Bandwidth (GHz)		Limit (GHz)	
1.214676		Report Only	
6dB Bandwidth (GHz)		Limit (GHz)	
1.0404		Report Only	
20dB Bandwidth Measurement			
Bandwidth (GHz)	Low Frequency (GHz)	High Frequency (GHz)	Result
1.2941	61.8305	63.1246	Pass

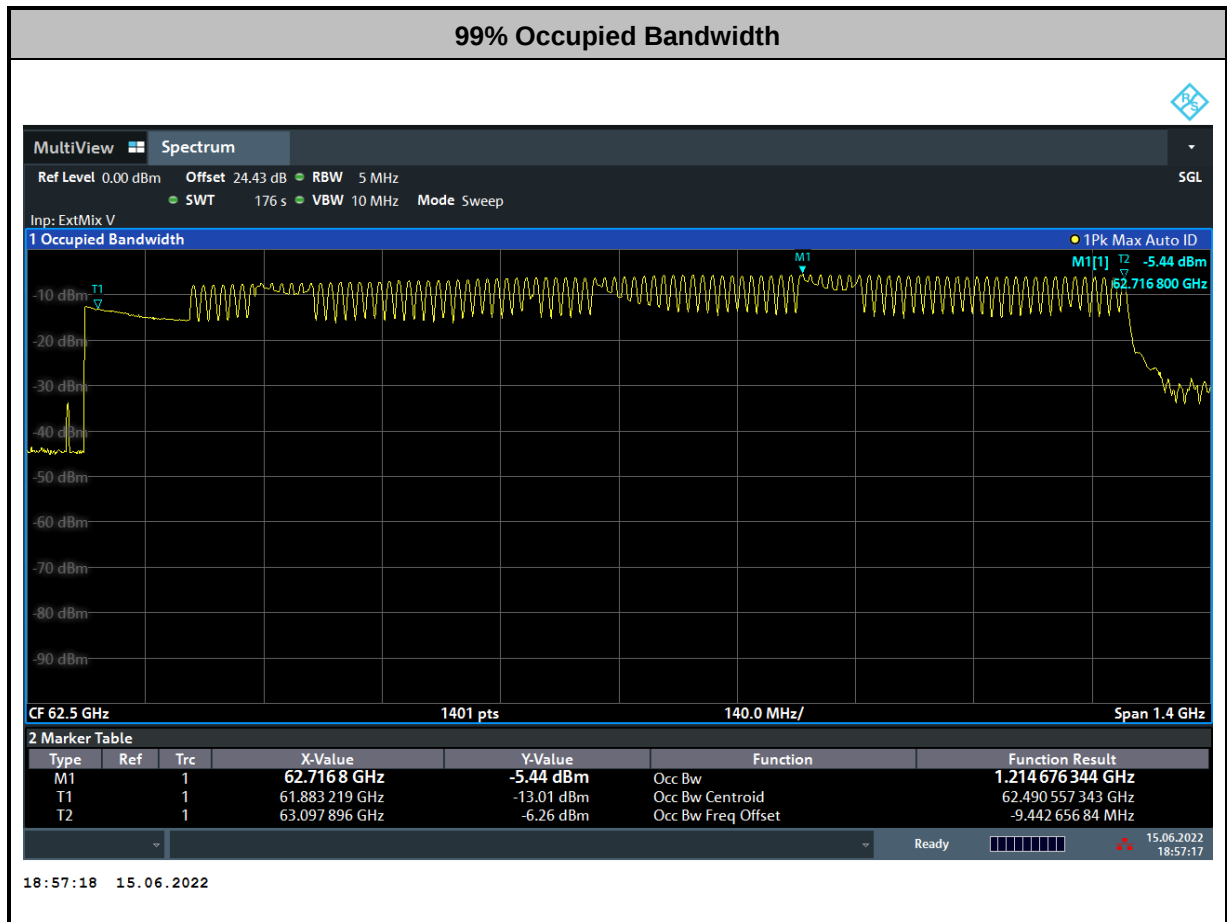
<Antenna Group2 SFCW mode>

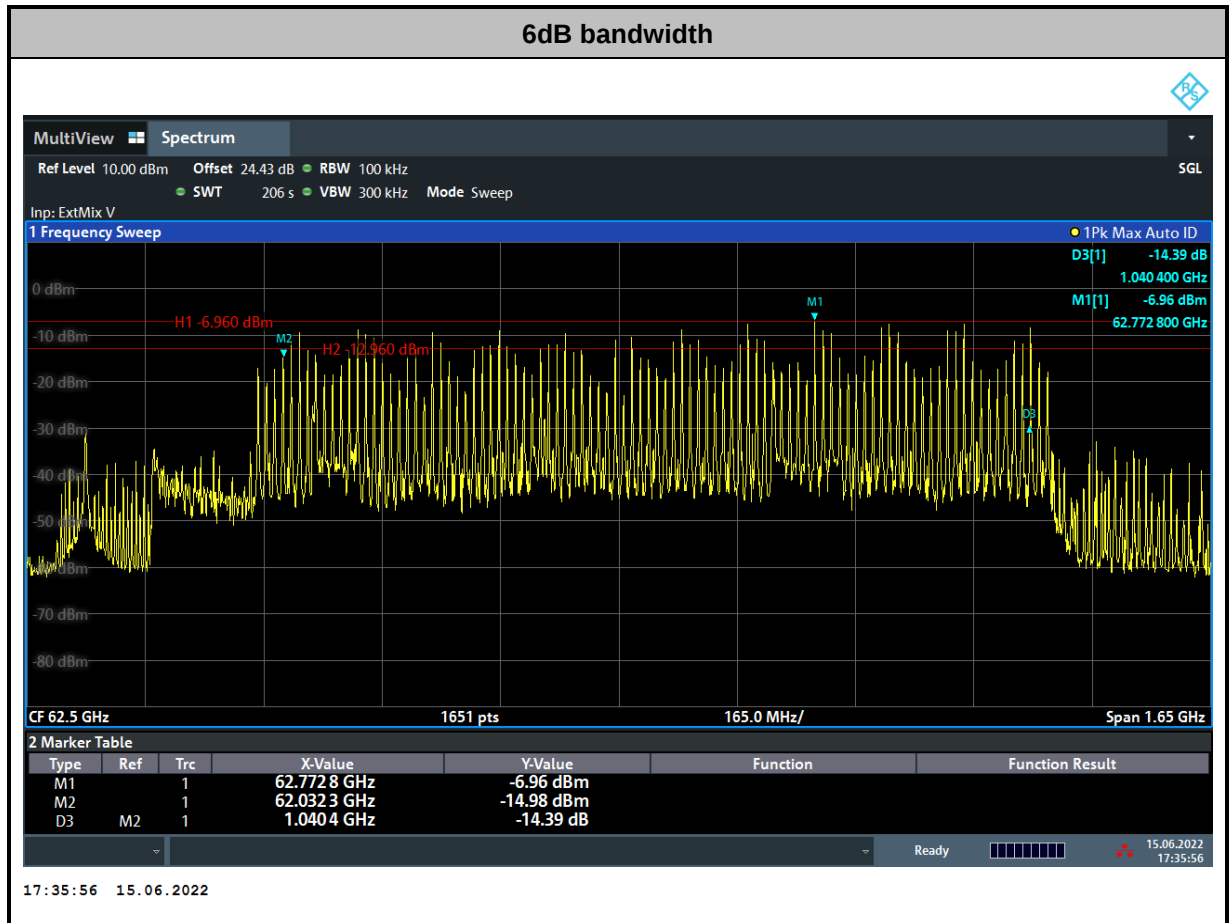
Temperature	21.1 ~ 23.5℃	Relative Humidity	61.4 ~ 65.3%
Test Engineer	Eric Jeng		
99% Occupied Bandwidth (GHz)		Limit (GHz)	
1.253706		Report Only	
6dB Bandwidth (GHz)		Limit (GHz)	
1.0324		Report Only	
20dB Bandwidth Measurement			
Bandwidth (GHz)	Low Frequency (GHz)	High Frequency (GHz)	Result
1.2915	61.831	63.1225	Pass

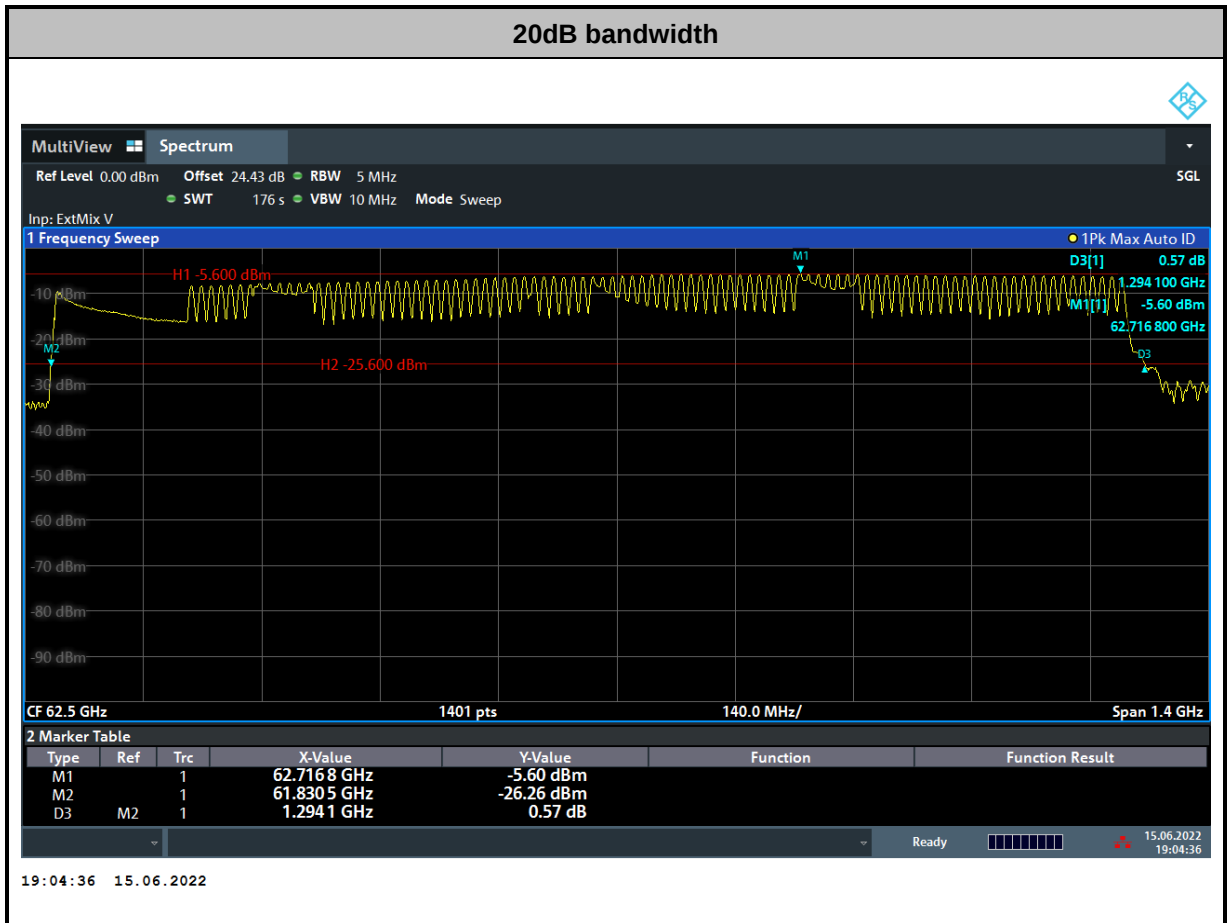


3.4.5 Test Plots

<Antenna Group1 SFCW mode>

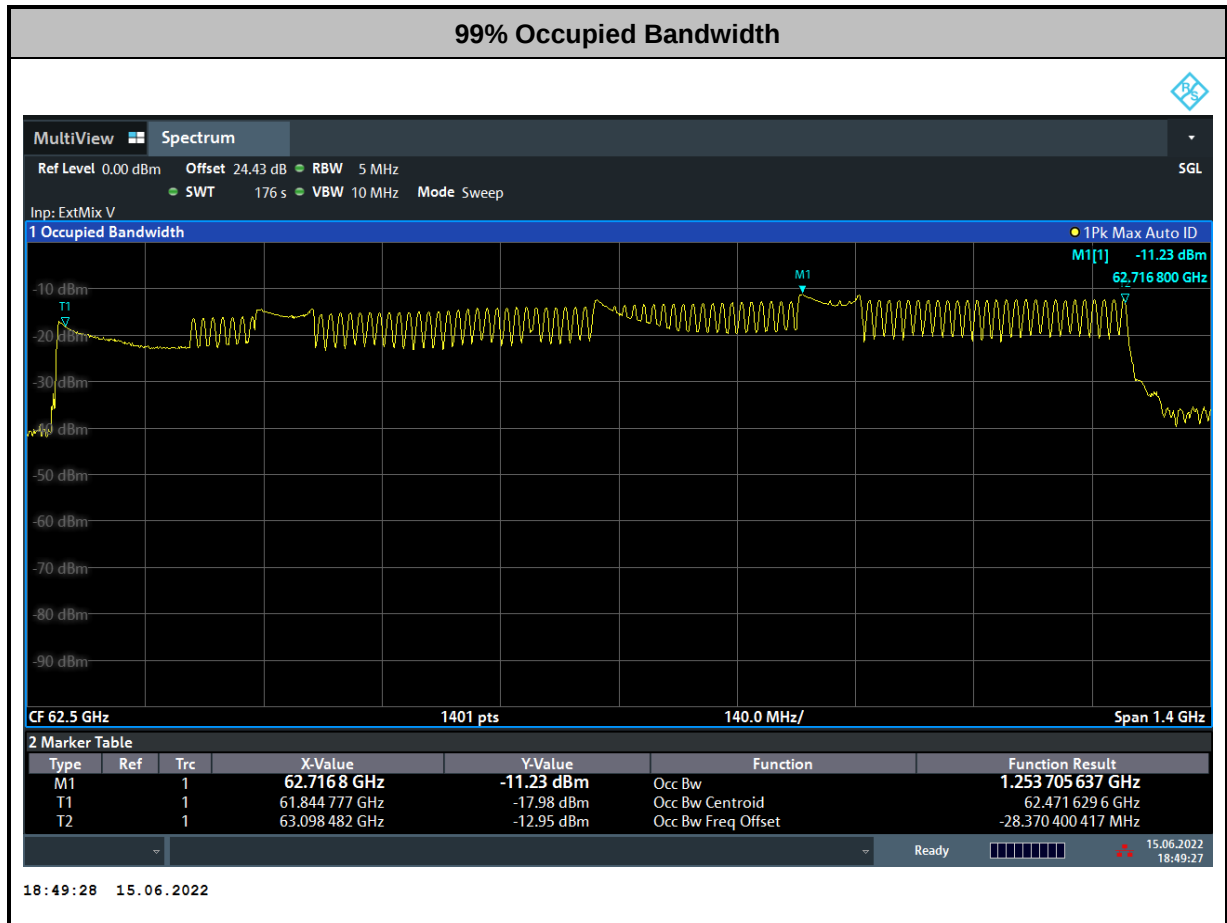


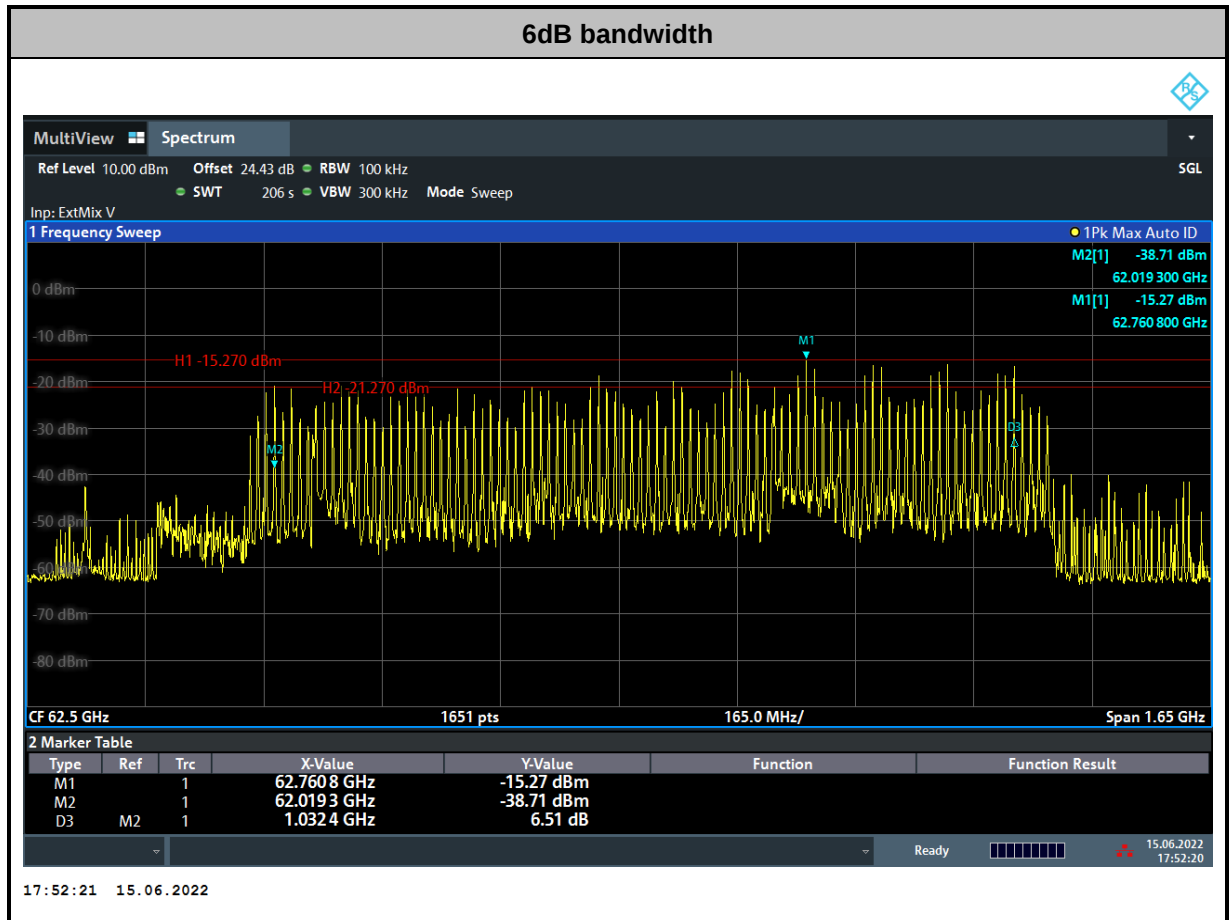


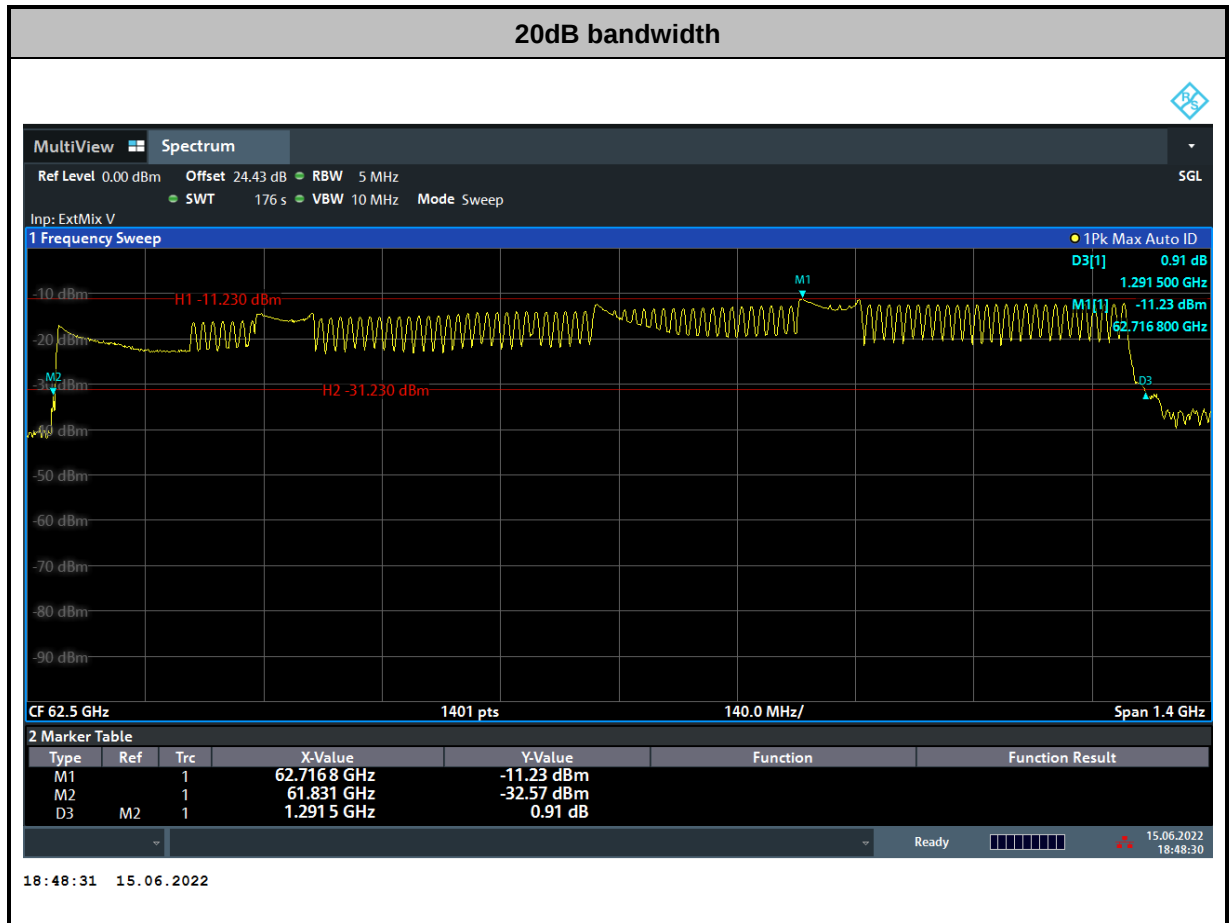




<Antenna Group2 SFCW mode>









3.5 EIRP Power Measurement

3.5.1 Test Limit

Regulation	Product Type	Peak EIRP Power (dBm)	Peak Conducted power (dBm)
FCC 15.255 (c) (3)	The field disturbance sensors are employed for fixed operation	10	-10

3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

3.5.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013 clause 9.5 and 9.11

3.5.4 Test Results

<Antenna Group1 SFCW mode>

Temperature		21.1 ~ 23.5℃		Relative Humidity		61.4 ~ 65.3%		
Test Engineer		Eric Jeng						
EIRP Power Measurement								
Frequency (GHz)	Measure Dist. (m)	Measure Ant Gain (dBi)	DSO (mV)	Power measured (dBm)	Emeas (dBuV/m)	EIRP (dBm)	EIRP Limit (dBm) Peak	Result
62.5	0.63	22.4	14.218	-39.14	111.64	2.92	10	PASS

Peak Conducted Power Measurement					
Frequency (GHz)	Peak EIRP (dBm)	Antenna gain(dBi)	Conducted power (dBm)	Limit (dBm)	Result
62.5	2.92	16.79	-13.87	-10	PASS



<Antenna Group2 SFCW mode>

Temperature		21.1 ~ 23.5℃		Relative Humidity		61.4 ~ 65.3%		
Test Engineer		Eric Jeng						
EIRP Power Measurement								
Frequency (GHz)	Measure Dist. (m)	Measure Ant Gain (dBi)	DSO (mV)	Power measured (dBm)	E meas (dBuV/m)	EIRP (dBm)	EIRP Limit (dBm) Peak	Result
62.5	0.63	22.4	6.3924	-44.81	105.97	-2.75	10	PASS

Peak Conducted Power Measurement					
Frequency (GHz)	Peak EIRP (dBm)	Antenna gain(dBi)	Conducted power (dBm)	Limit (dBm)	Result
62.5	-2.75	16.79	-19.54	-10	PASS

For radiated emissions, calculate the field strength (E) in dBμV/meter.

$$E = 126.8 - 20 \cdot \log(\lambda) + P - G$$

where:

E : is the field strength of the emission at the measurement distance, in dBμV/m

P : is the power measured at the output of the test antenna, in dBm

λ: is the wavelength of the emission under investigation [300/fMHz], in m

G : is the gain of the test antenna, in dBi For radiated emissions, calculate the EIRP (dBm). If the measurement was performed in the far field, calculate the EIRP.

$$EIRP = E - \text{meas} + 20 \cdot \log(d - \text{meas}) - 104.7$$

where:

EIRP : is the equivalent isotopically radiated power, in dBm

E-meas. : is the field strength of the emission at the measurement distance, in dBμV/m

d-meas. : is the measurement distance, in m

NOTE 1: The comparison method which replaces EUT with a signal generator is used to find the correct conversion factor between "DSO(mV)" & "Power Measured(dBm)".

NOTE 2: Conducted Power (dBm) = EIRP (dBm) - antenna gain (dBi)

Calculation example:

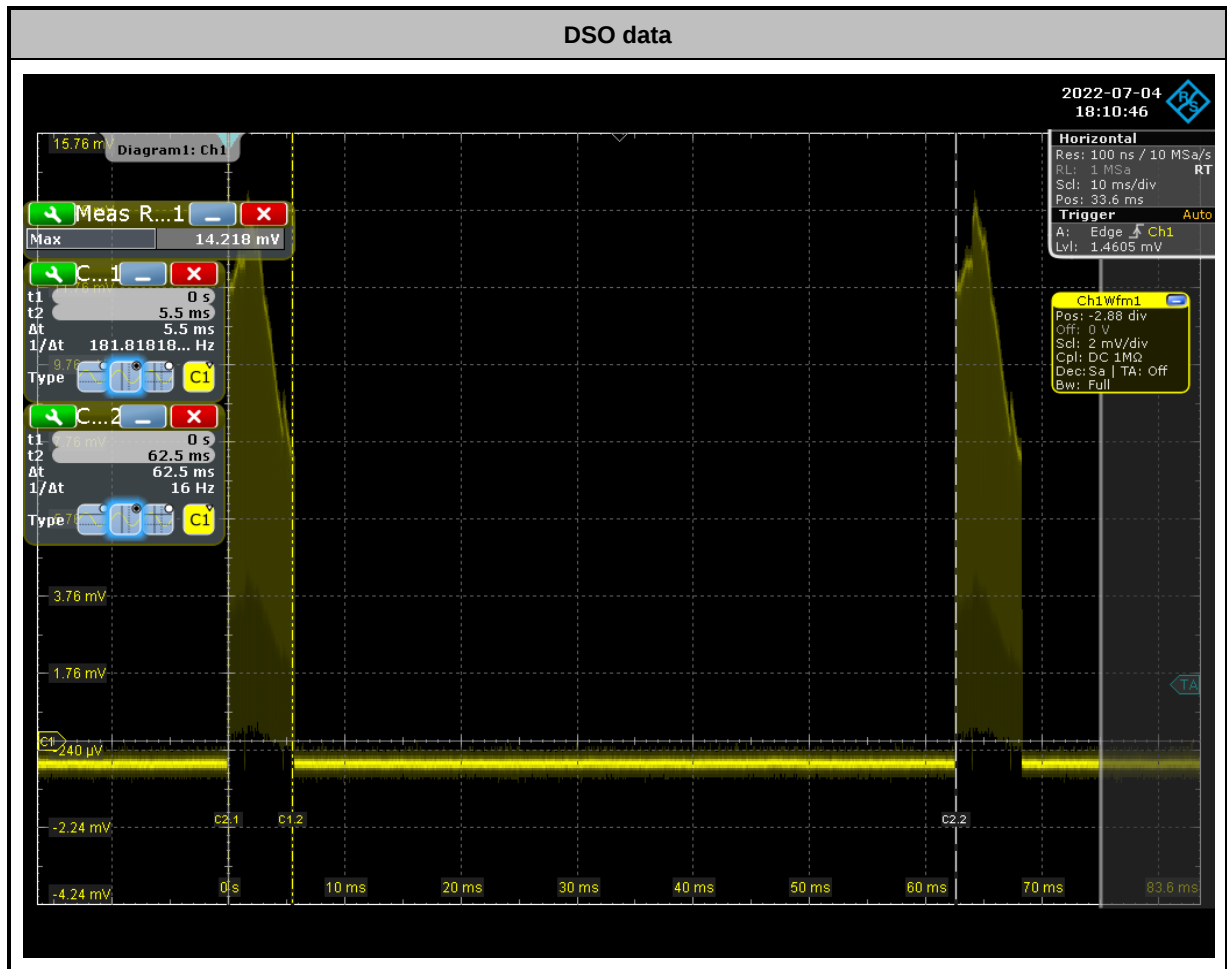
$$E(\text{dBuV/m}) = 126.8 - 20 \cdot \log(\lambda) + P - G, \text{ where } f=60\text{GHz}, P= -10\text{dBm}, G= 24\text{dBi}, \text{ then } E = 138.8 (\text{dBuV/m})$$

$$EIRP (\text{dBm}) = E(\text{dBuV/m}) + 20 \cdot \log(d) - 104.7 = 138.8 (\text{dBuV/m}) + 20 \cdot \log(d=1) - 104.7 = 31.4\text{dBm}$$

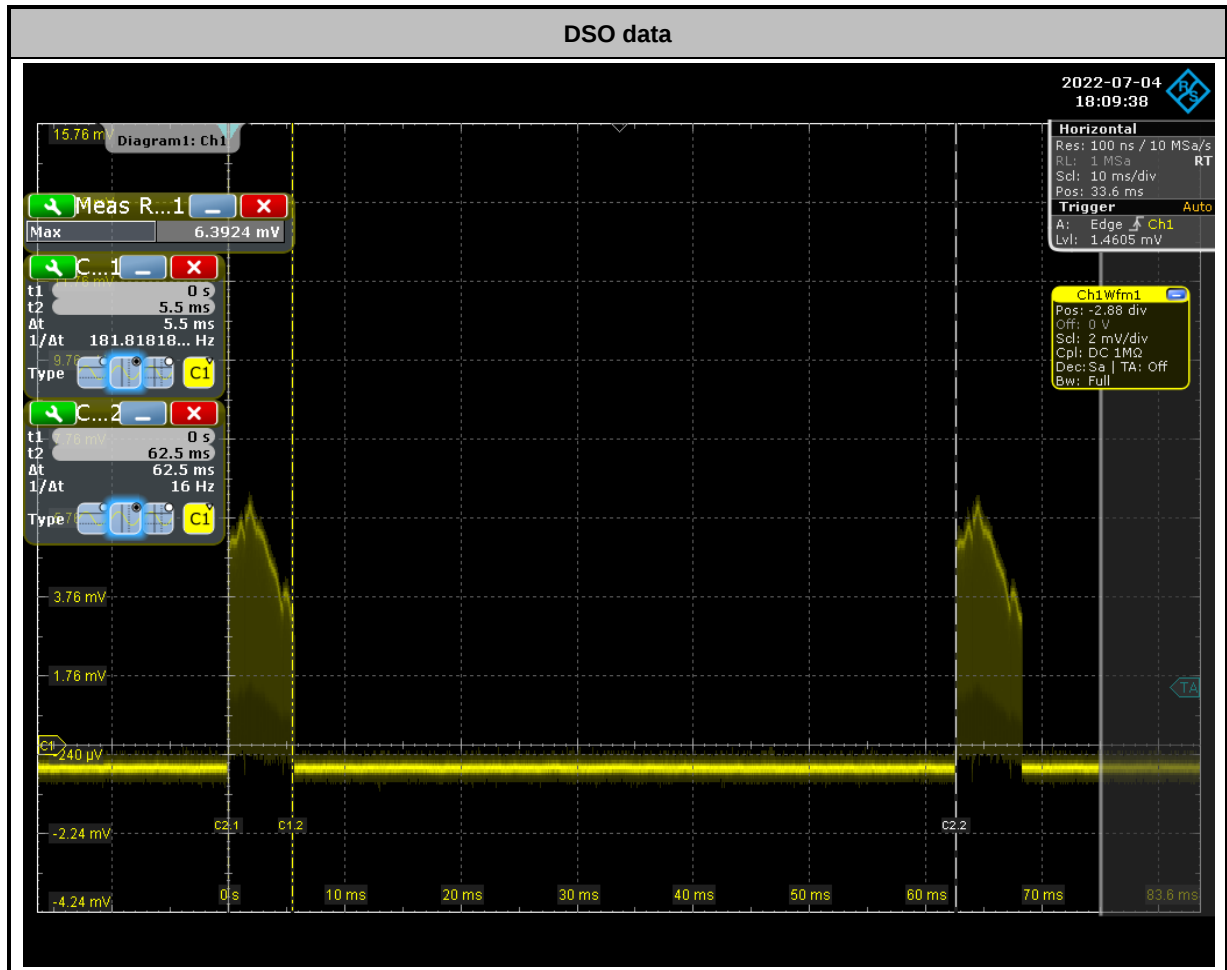


3.5.5 Test Plots

<Antenna Group1 SFCW mode>



<Antenna Group2 SFCW mode>





3.6 Transmit Spurious Emission

3.6.1 Limit of Radiated Spurious Emission

Frequency Range	Limit
Below 40GHz	Follow 15.209
Above 40GHz	90 pW/cm ² @ 3m (equivalent EIRP 102uW, -10dBm)
Note1: For the applicable limit, see FCC 15.255 (d)	
Note2: Spurious emissions shall not exceed the level of fundamental emission.	

3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013, clause 9.12 and 9.13.

For above 40GHz emission:

$$\text{EIRP} = \text{Prx} - \text{Grx} + \text{Free space loss} = \text{Prx} - \text{Grx} + 20 \cdot \log(4 \pi d / \lambda)$$

Which

Prx = Read Level

Grx = Rx Antenna Gain

A distance factor is offset and formula is $20 \cdot \log(D1/D2)$

Which

D1 = Specification distance = 3m

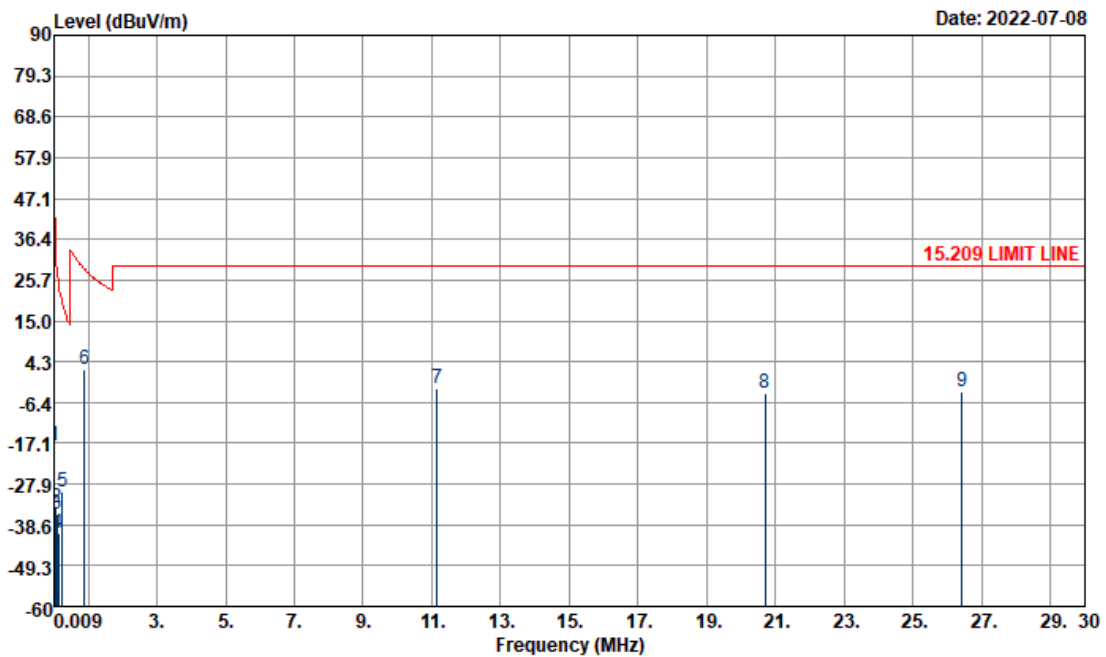
D2 = Measurement distance



3.6.4 Test Result

<Below 30MHz>

Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	9KHz to 30MHz	Test Polarization	Horizontal
Test Configuration	Mode 1: Antenna Group1 62.5GHz		

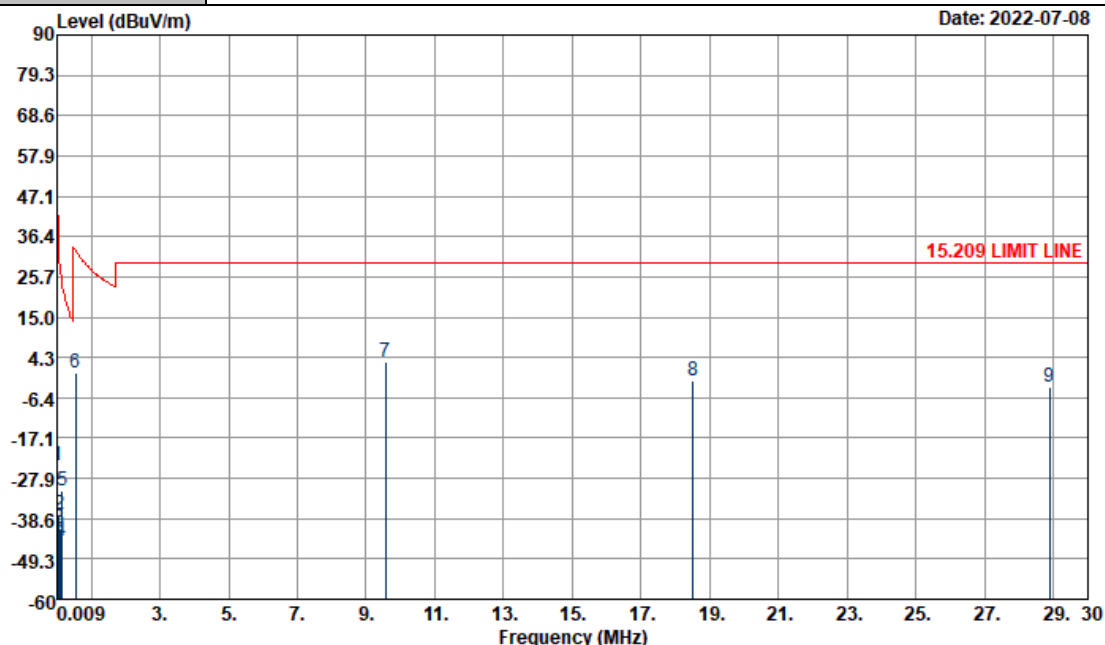


Site : 03CH11-HY
Condition : 15.209 LIMIT LINE 3m LOOP_100488_220513 HORIZONTAL
Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg
1	0.02	-17.90	-59.84	41.94	42.43	19.52	0.15	---	Average
2	0.07	-34.09	-65.12	31.03	26.17	19.60	0.14	---	Average
3	0.10	-35.79	-63.78	27.99	24.57	19.50	0.14	---	QP
4	0.14	-40.89	-65.89	25.00	19.47	19.50	0.14	---	Average
5	0.26	-30.05	-49.39	19.34	30.36	19.44	0.15	---	Average
6	0.89	2.39	-26.25	28.64	22.86	19.40	0.13	---	QP
7	11.14	-2.85	-32.35	29.50	17.59	19.40	0.16	---	QP
8	20.70	-3.89	-33.39	29.50	16.00	19.91	0.20	---	QP
9	26.43	-3.39	-32.89	29.50	15.87	20.50	0.24	---	QP



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	9KHz to 30MHz	Test Polarization	Vertical
Test Configuration	Mode 1: Antenna Group1 62.5GHz		

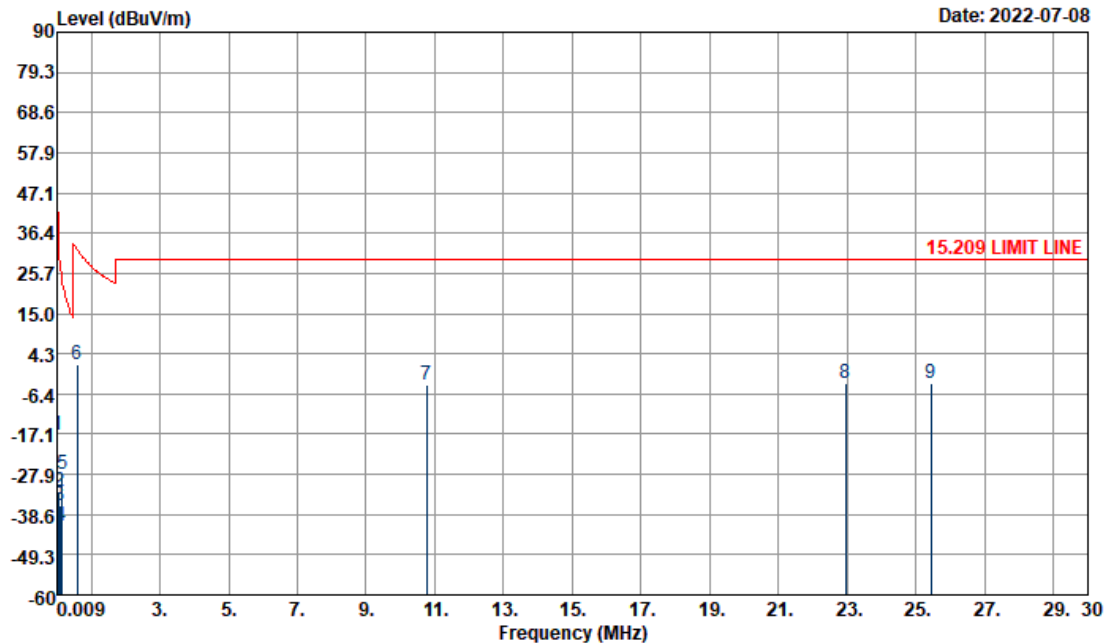


Site : 03CH11-HY
Condition : 15.209 LIMIT LINE 3m LOOP_100488_220513 VERTICAL
Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg
1	0.02	-24.52	-66.46	41.94	35.81	19.52	0.15	---	Average
2	0.07	-37.57	-68.59	31.02	22.69	19.60	0.14	---	Average
3	0.10	-41.00	-69.00	28.00	19.36	19.50	0.14	---	QP
4	0.12	-44.74	-70.95	26.21	15.62	19.50	0.14	---	Average
5	0.17	-31.29	-54.37	23.08	29.06	19.50	0.15	---	Average
6	0.54	0.34	-32.57	32.91	20.79	19.40	0.15	---	QP
7	9.56	2.92	-26.58	29.50	23.37	19.40	0.15	---	QP
8	18.52	-2.10	-31.60	29.50	18.06	19.65	0.19	---	QP
9	28.88	-3.62	-33.12	29.50	15.63	20.50	0.25	---	QP



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	9KHz to 30MHz	Test Polarization	Horizontal
Test Configuration	Mode 2: Antenna Group2 62.5GHz		

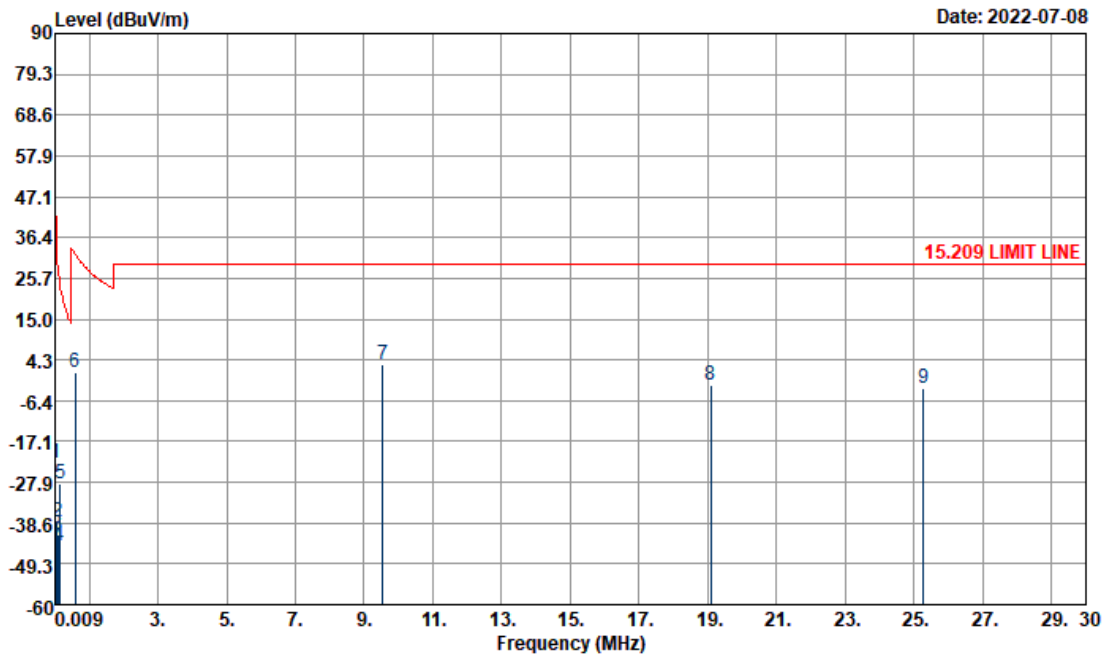


Site : 03CH11-HY
Condition : 15.209 LIMIT LINE 3m LOOP_100488_220513 HORIZONTAL
Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg
1	0.02	-17.18	-59.12	41.94	43.15	19.52	0.15	---	Average
2	0.07	-32.36	-63.38	31.02	27.90	19.60	0.14	---	Average
3	0.10	-36.02	-64.01	27.99	24.34	19.50	0.14	---	QP
4	0.14	-41.53	-66.53	25.00	18.83	19.50	0.14	---	Average
5	0.16	-27.84	-51.30	23.46	32.51	19.50	0.15	---	Average
6	0.59	1.45	-30.77	32.22	21.91	19.40	0.14	---	QP
7	10.76	-3.85	-33.35	29.50	16.60	19.40	0.15	---	QP
8	22.95	-3.78	-33.28	29.50	15.81	20.19	0.22	---	QP
9	25.43	-3.70	-33.20	29.50	15.63	20.44	0.23	---	QP



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	9KHz to 30MHz	Test Polarization	Vertical
Test Configuration	Mode 2: Antenna Group2 62.5GHz		



Site : 03CH11-HY

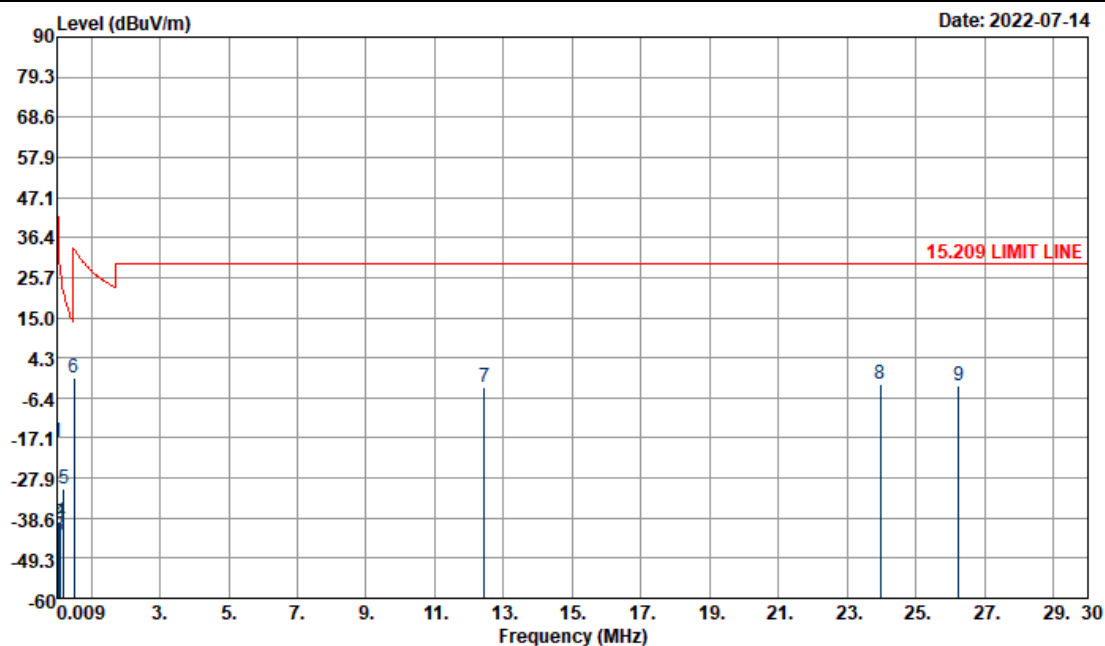
Condition : 15.209 LIMIT LINE 3m LOOP_100488_220513 VERTICAL

Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg
1	0.02	-22.79	-64.73	41.94	37.54	19.52	0.15	---	Average
2	0.07	-38.27	-69.29	31.02	21.99	19.60	0.14	---	Average
3	0.10	-41.60	-69.60	28.00	18.76	19.50	0.14	---	QP
4	0.11	-44.47	-70.93	26.46	15.89	19.50	0.14	---	Average
5	0.15	-28.37	-52.32	23.95	31.98	19.50	0.15	---	Average
6	0.59	0.99	-31.23	32.22	21.45	19.40	0.14	---	QP
7	9.55	3.03	-26.47	29.50	23.48	19.40	0.15	---	QP
8	19.08	-2.23	-31.73	29.50	17.87	19.70	0.20	---	QP
9	25.28	-3.30	-32.80	29.50	16.04	20.43	0.23	---	QP



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	9KHz to 30MHz	Test Polarization	Horizontal
Test Configuration	Mode 3: WLAN (2.4GHz) 802.11g Ch11 2462MHz + Antenna Group2 62.5GHz		

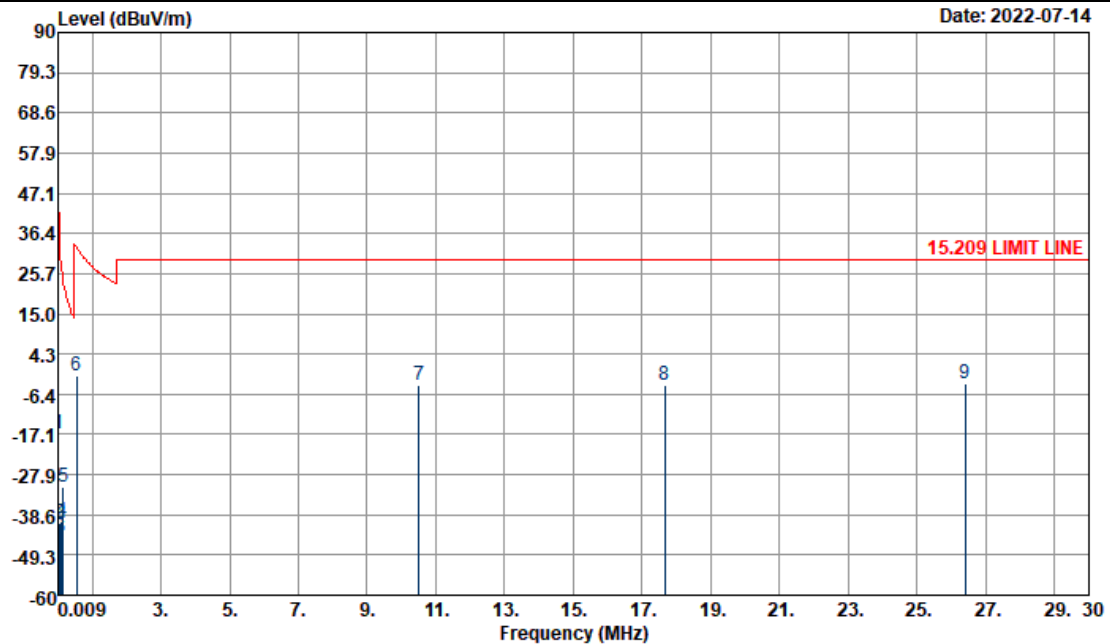


Site : 03CH11-HY
Condition : 15.209 LIMIT LINE 3m LOOP_100488_220513 HORIZONTAL
Project : 1D2427-01

	Freq	Level	Over	Limit	ReadAntenna	Cable	A/Pos	T/Pos	Remark
	MHz	dBUV/m	Limit	Line	Level	Factor	Loss		
			dB	dBUV/m	dBuV	dB/m	dB	cm	deg
1	0.02	-18.27	-60.21	41.94	42.06	19.52	0.15	---	Average
2	0.07	-40.01	-71.31	31.30	20.25	19.60	0.14	---	Average
3	0.10	-43.30	-71.28	27.98	17.06	19.50	0.14	---	QP
4	0.12	-39.47	-65.81	26.34	20.89	19.50	0.14	---	Average
5	0.20	-30.92	-52.46	21.54	29.43	19.50	0.15	---	Average
6	0.51	-1.01	-34.42	33.41	19.44	19.40	0.15	---	QP
7	12.44	-3.72	-33.22	29.50	16.72	19.40	0.16	---	QP
8	23.97	-2.77	-32.27	29.50	16.71	20.30	0.22	---	QP
9	26.24	-3.17	-32.67	29.50	16.10	20.50	0.23	---	QP



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	9KHz to 30MHz	Test Polarization	Vertical
Test Configuration	Mode 3: WLAN (2.4GHz) 802.11g Ch11 2462MHz + Antenna Group2 62.5GHz		

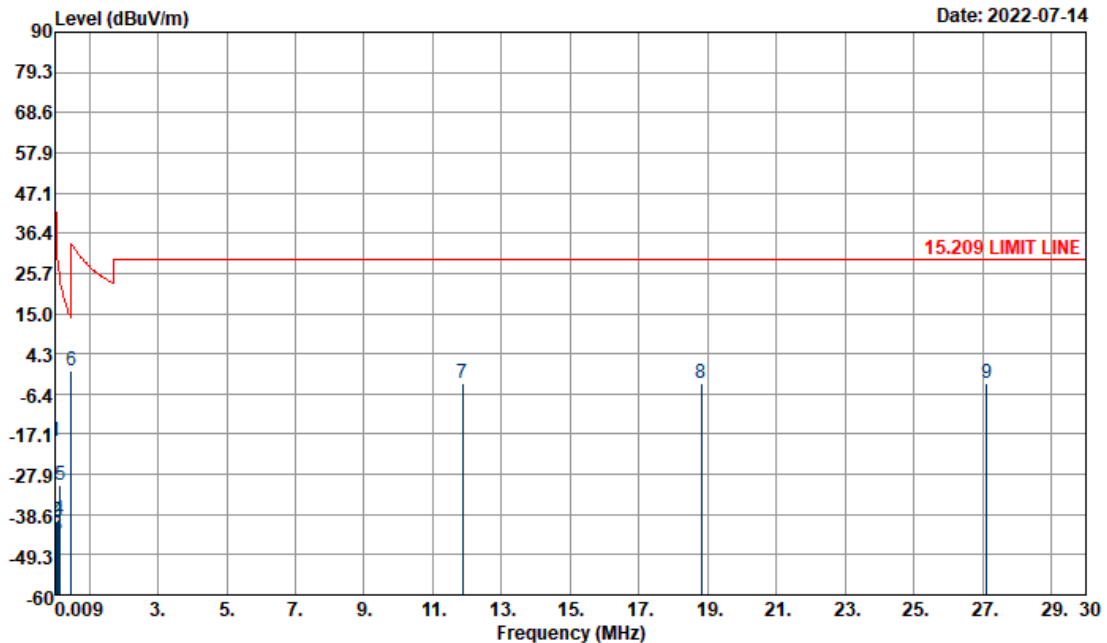


Site : 03CH11-HY
Condition : 15.209 LIMIT LINE 3m LOOP_100488_220513 VERTICAL
Project : 1D2427-01

	Freq	Level	Over	Limit	ReadAntenna	Cable	A/Pos	T/Pos	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss		
			dB	dBuV/m	dBuV	dB/m	dB	cm	deg
1	0.02	-16.96	-58.88	41.92	43.38	19.51	0.15	---	Average
2	0.07	-40.71	-72.05	31.34	19.55	19.60	0.14	---	Average
3	0.10	-44.37	-72.41	28.04	15.99	19.50	0.14	---	QP
4	0.12	-40.45	-66.36	25.91	19.91	19.50	0.14	---	Average
5	0.15	-31.22	-55.15	23.93	29.13	19.50	0.15	---	Average
6	0.56	-1.71	-34.39	32.68	18.75	19.40	0.14	---	QP
7	10.50	-3.96	-33.46	29.50	16.49	19.40	0.15	---	QP
8	17.66	-3.87	-33.37	29.50	16.37	19.57	0.19	---	QP
9	26.40	-3.54	-33.04	29.50	15.72	20.50	0.24	---	QP



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	9KHz to 30MHz	Test Polarization	Horizontal
Test Configuration	Mode 4: WLAN (5GHz) 802.11a Ch36 5180MHz + Antenna Group2 62.5GHz		

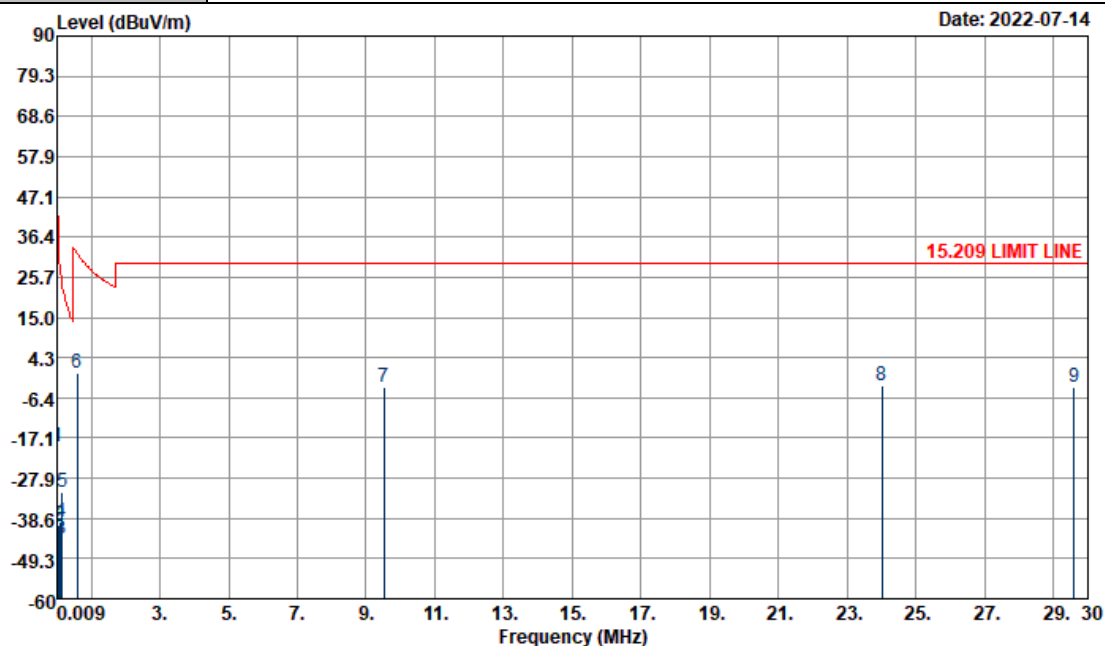


Site : 03CH11-HY
Condition : 15.209 LIMIT LINE 3m LOOP_100488_220513 HORIZONTAL
Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg
1	0.02	-19.02	-60.96	41.94	41.31	19.52	0.15	---	Average
2	0.07	-40.17	-70.39	30.22	20.09	19.60	0.14	---	Average
3	0.10	-44.05	-72.08	28.03	16.31	19.50	0.14	---	QP
4	0.12	-39.78	-66.03	26.25	20.58	19.50	0.14	---	Average
5	0.15	-30.88	-54.90	24.02	29.47	19.50	0.15	---	Average
6	0.49	-0.37	-14.17	13.80	20.08	19.40	0.15	---	QP
7	11.87	-3.80	-33.30	29.50	16.64	19.40	0.16	---	QP
8	18.81	-3.63	-33.13	29.50	16.49	19.68	0.20	---	QP
9	27.13	-3.63	-33.13	29.50	15.63	20.50	0.24	---	QP



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	9KHz to 30MHz	Test Polarization	Vertical
Test Configuration	Mode 4: WLAN (5GHz) 802.11a Ch36 5180MHz + Antenna Group2 62.5GHz		



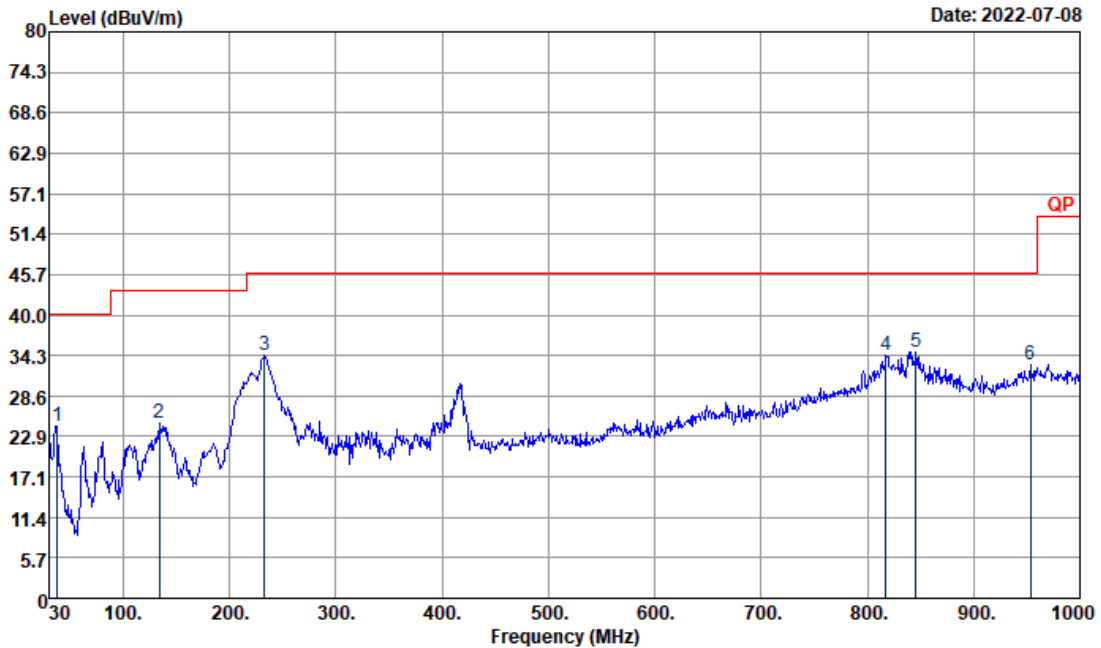
Site : 03CH11-HY
Condition : 15.209 LIMIT LINE 3m LOOP_100488_220513 VERTICAL
Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg
1	0.02	-19.62	-61.56	41.94	40.71	19.52	0.15	---	Average
2	0.06	-40.20	-71.60	31.40	20.06	19.60	0.14	---	Average
3	0.10	-44.15	-71.62	27.47	16.21	19.50	0.14	---	QP
4	0.12	-39.66	-65.94	26.28	20.70	19.50	0.14	---	Average
5	0.16	-31.52	-55.03	23.51	28.83	19.50	0.15	---	Average
6	0.60	0.11	-31.89	32.00	20.57	19.40	0.14	---	QP
7	9.52	-3.70	-33.20	29.50	16.75	19.40	0.15	---	QP
8	24.02	-3.33	-32.83	29.50	16.15	20.30	0.22	---	QP
9	29.60	-3.77	-33.27	29.50	15.48	20.50	0.25	---	QP



<30MHz to 1GHz>

Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Horizontal
Test Configuration	Mode 1: Antenna Group1 62.5GHz		



Site : 03CH11-HY

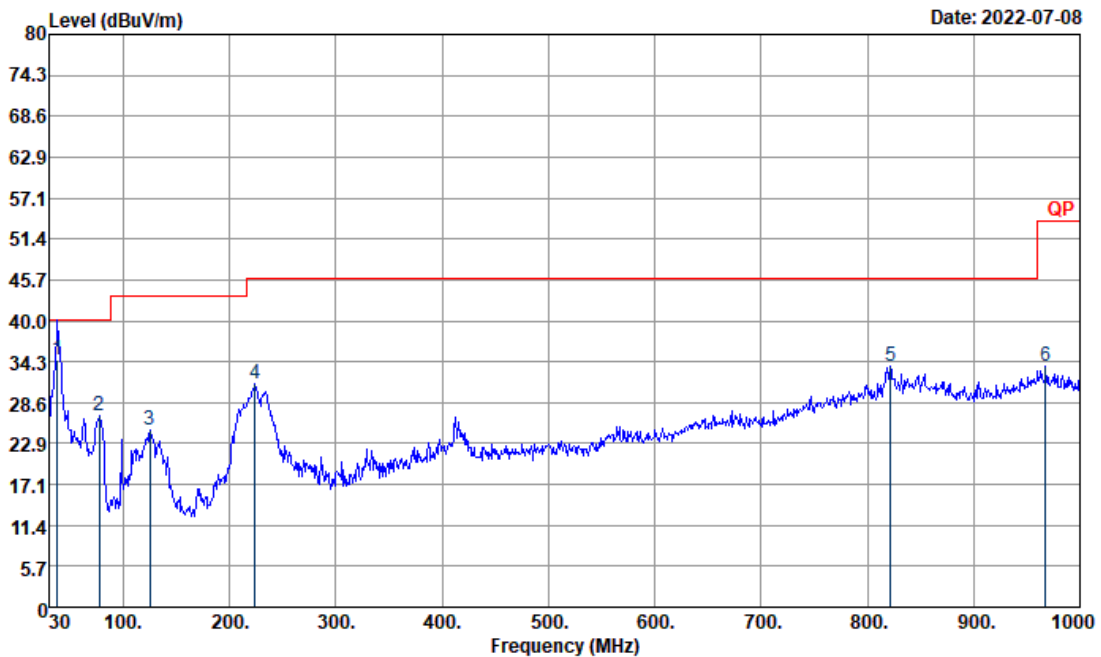
Condition : QP 3m BI-LOG 35414-211009 HORIZONTAL

Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	37.76	24.32	-15.68	40.00	35.16	20.60	0.85	32.41	---	---	Peak
2	133.79	24.71	-18.79	43.50	37.90	17.34	1.74	32.43	---	---	Peak
3	232.73	34.23	-11.77	46.00	48.00	16.20	2.27	32.38	---	---	Peak
4	817.64	34.43	-11.57	46.00	32.47	27.88	4.23	31.66	---	---	Peak
5	845.77	34.86	-11.14	46.00	31.56	28.97	4.29	31.51	---	---	Peak
6	953.44	33.08	-12.92	46.00	27.63	30.57	4.59	30.87	---	---	Peak



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Vertical
Test Configuration	Mode 1: Antenna Group1 62.5GHz		

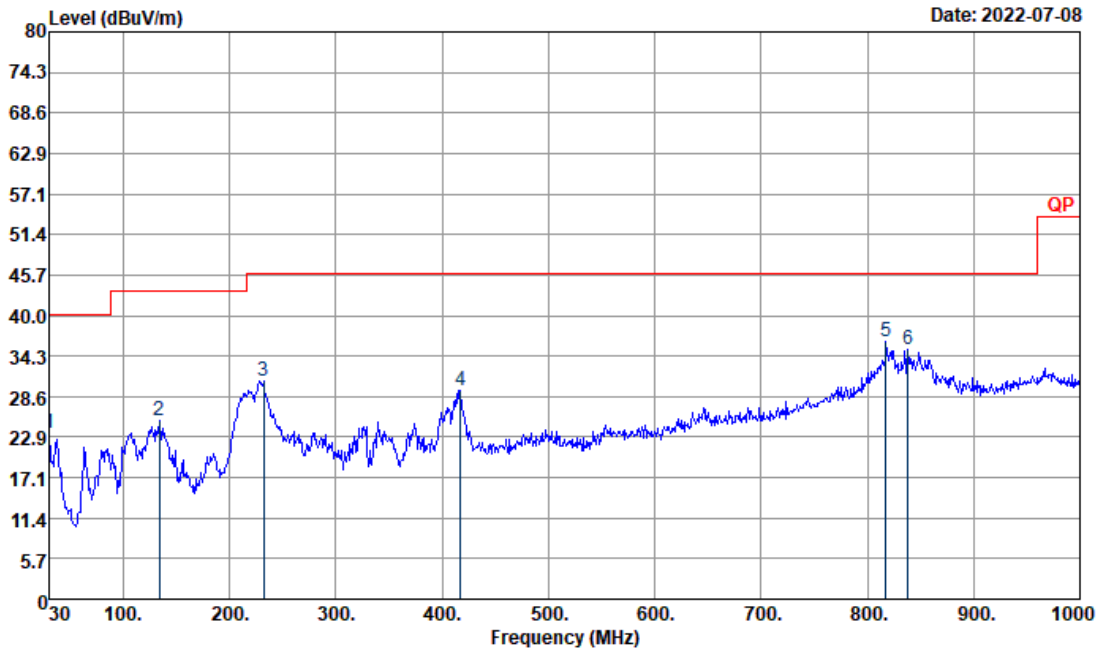


Site : 03CH11-HY
Condition : QP 3m BI-LOG 35414-211009 VERTICAL
Project : 1D2427-01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	cm	deg
1	37.76	34.50	-5.50	40.00	45.34	20.60	0.85	32.41	100	210 QP
2	77.53	26.79	-13.21	40.00	44.96	12.82	1.30	32.43	---	Peak
3	125.06	24.65	-18.85	43.50	37.89	17.34	1.68	32.42	---	Peak
4	224.00	31.12	-14.88	46.00	45.81	15.37	2.22	32.42	---	Peak
5	821.52	33.57	-12.43	46.00	31.53	27.92	4.24	31.64	---	Peak
6	967.99	33.68	-20.32	54.00	27.47	30.98	4.62	30.77	---	Peak



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Horizontal
Test Configuration	Mode 2: Antenna Group2 62.5GHz		



Site : 03CH11-HY

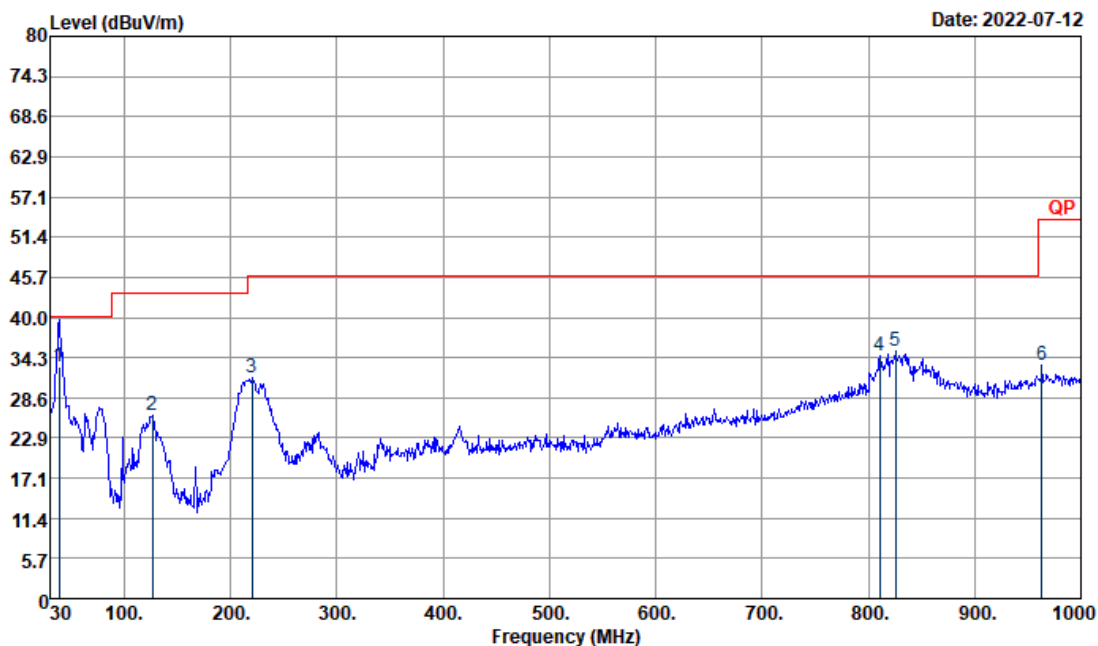
Condition : QP 3m BI-LOG 35414-211009 HORIZONTAL

Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	23.50	-16.50	40.00	30.42	24.27	0.94	32.36	---	---	Peak
2	133.79	25.23	-18.27	43.50	38.42	17.34	1.74	32.43	---	---	Peak
3	231.76	30.76	-15.24	46.00	44.65	16.10	2.26	32.39	---	---	Peak
4	417.03	29.51	-16.49	46.00	35.70	22.37	3.04	31.77	---	---	Peak
5	817.64	36.39	-9.61	46.00	34.43	27.88	4.23	31.66	---	---	Peak
6	838.01	35.25	-10.75	46.00	32.38	28.61	4.27	31.55	---	---	Peak



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Vertical
Test Configuration	Mode 2: Antenna Group2 62.5GHz		

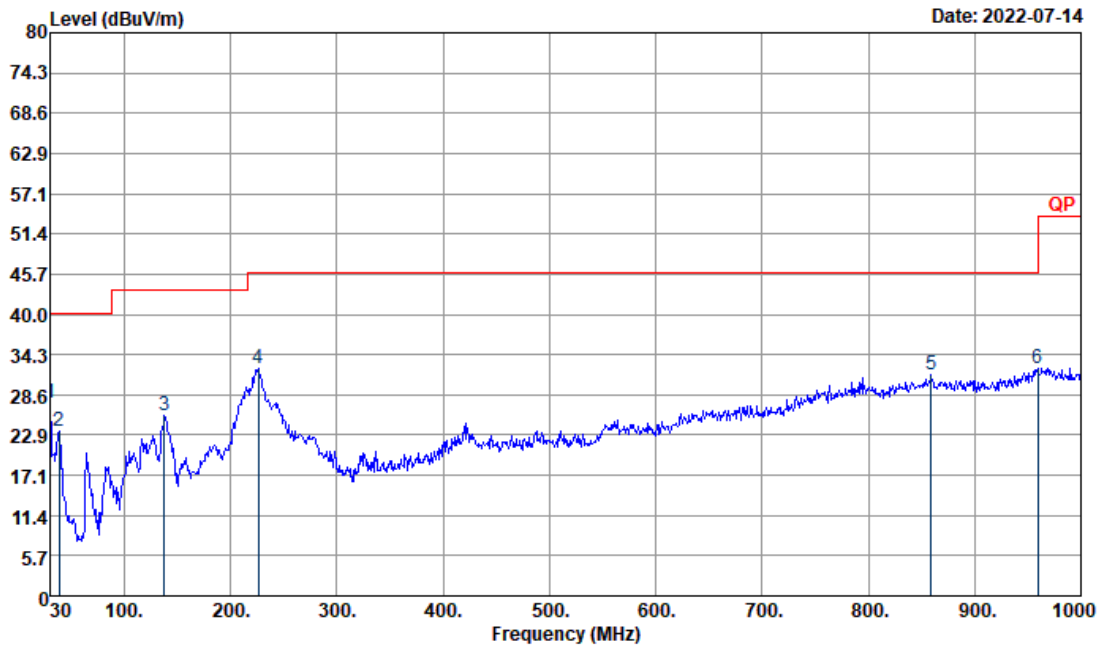


Site : 03CH11-HY
Condition : QP 3m BI-LOG 35414-211009 VERTICAL
Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	38.73	33.00	-7.00	40.00	44.50	19.95	0.86	32.42	100	42	QP
2	126.03	26.16	-17.34	43.50	39.39	17.34	1.69	32.42	---	---	Peak
3	220.12	31.41	-14.59	46.00	46.43	15.08	2.20	32.44	---	---	Peak
4	810.85	34.55	-11.45	46.00	32.61	27.91	4.21	31.69	---	---	Peak
5	825.40	35.13	-10.87	46.00	32.93	28.04	4.25	31.62	---	---	Peak
6	963.14	33.25	-20.75	54.00	27.16	30.98	4.61	30.81	---	---	Peak



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Horizontal
Test Configuration	Mode 3: WLAN (2.4GHz) 802.11g Ch11 2462MHz + Antenna Group2 62.5GHz		

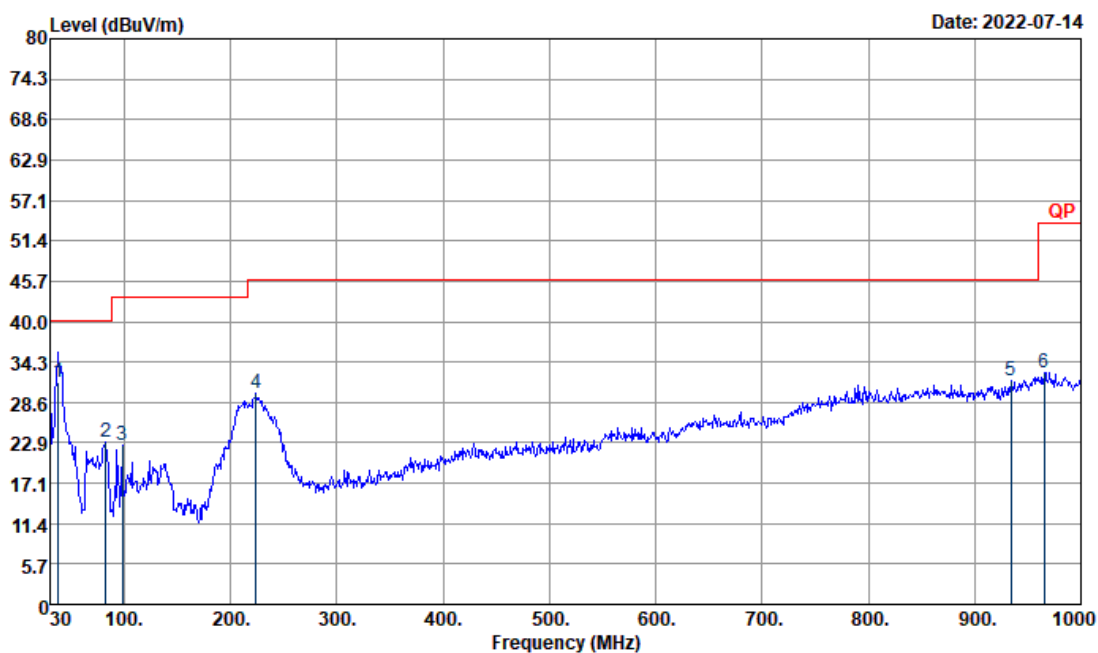


Site : 03CH11-HY
Condition : QP 3m BI-LOG 35414-211009 HORIZONTAL
Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	27.48	-12.52	40.00	34.40	24.27	0.94	32.36	---	---	Peak
2	38.73	23.39	-16.61	40.00	34.89	19.95	0.86	32.42	---	---	Peak
3	137.67	25.58	-17.92	43.50	38.87	17.23	1.76	32.44	---	---	Peak
4	225.94	32.27	-13.73	46.00	46.77	15.54	2.23	32.41	---	---	Peak
5	859.35	31.34	-14.66	46.00	27.79	29.15	4.33	31.44	---	---	Peak
6	959.26	32.35	-13.65	46.00	26.46	30.87	4.60	30.83	---	---	Peak



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Vertical
Test Configuration	Mode 3: WLAN (2.4GHz) 802.11g Ch11 2462MHz + Antenna Group2 62.5GHz		

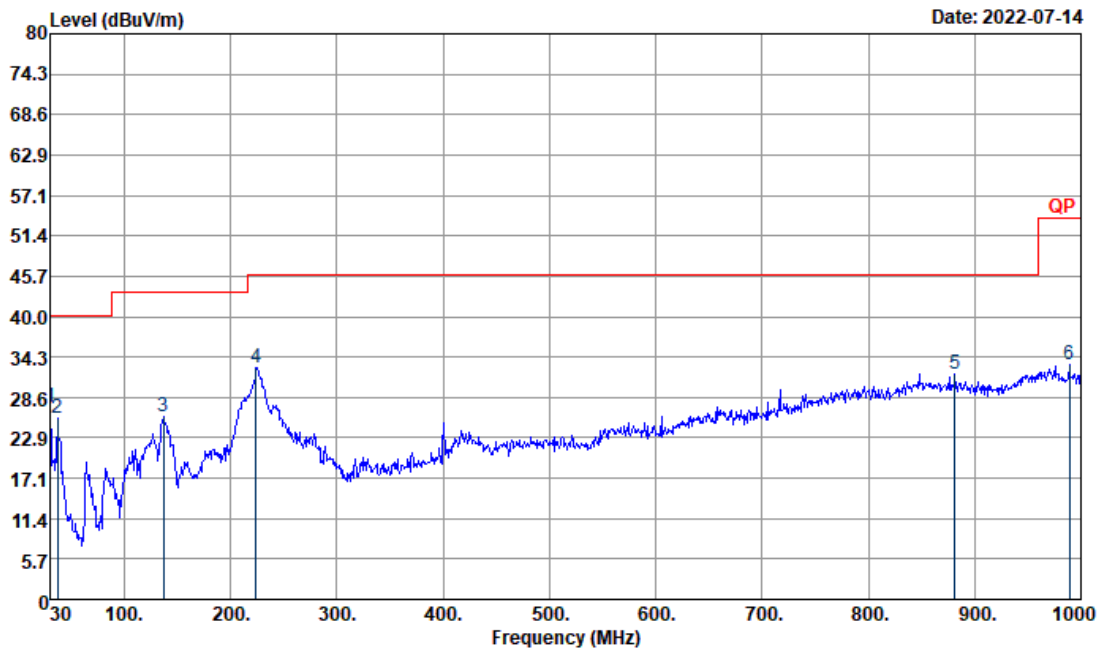


Site : 03CH11-HY
Condition : QP 3m BI-LOG 35414-211009 VERTICAL
Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Preamp Loss Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm deg
1	37.76	31.33	-8.67	40.00	42.17	20.60	0.85	32.41	100 63 QP
2	82.38	22.96	-17.04	40.00	40.64	13.26	1.34	32.42	--- --- Peak
3	97.90	22.62	-20.88	43.50	37.98	15.41	1.47	32.38	--- --- Peak
4	224.00	29.83	-16.17	46.00	44.52	15.37	2.22	32.42	--- --- Peak
5	934.04	31.66	-14.34	46.00	27.40	29.55	4.54	31.00	--- --- Peak
6	965.08	32.83	-21.17	54.00	26.65	31.02	4.61	30.79	--- --- Peak



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Horizontal
Test Configuration	Mode 4: WLAN (5GHz) 802.11a Ch36 5180MHz + Antenna Group2 62.5GHz		

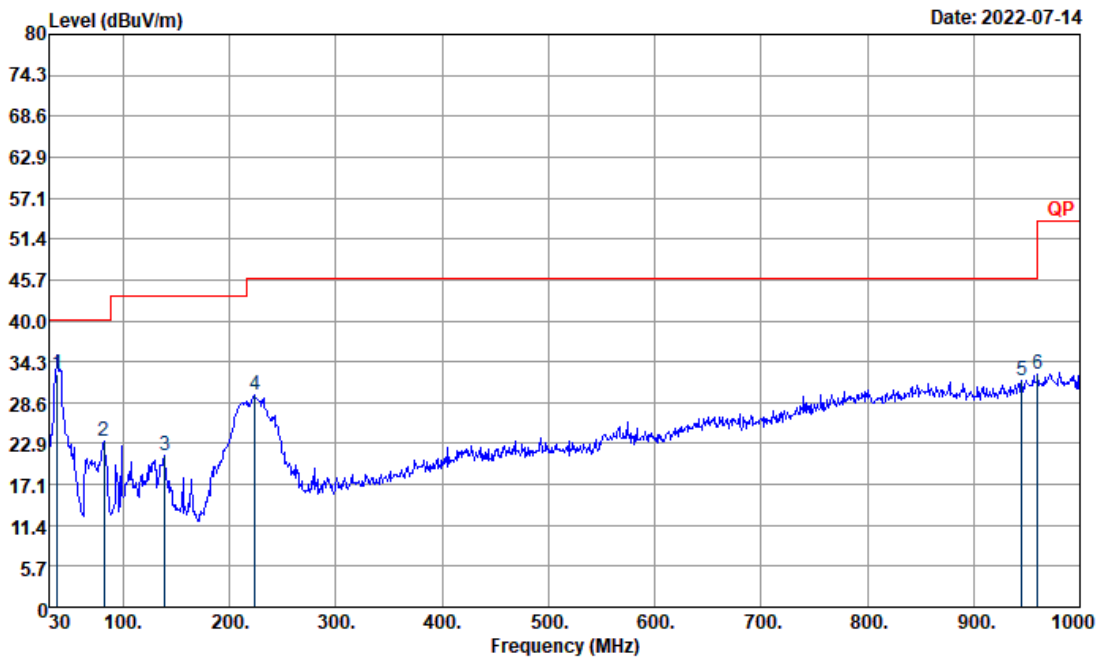


Site : 03CH11-HY
Condition : QP 3m BI-LOG 35414-211009 HORIZONTAL
Project : 1D2427-01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	27.10	-12.90	40.00	34.02	24.27	0.94	32.36	---	---	Peak
2	36.79	25.54	-14.46	40.00	35.92	21.05	0.84	32.40	---	---	Peak
3	136.70	25.83	-17.67	43.50	39.10	17.25	1.76	32.44	---	---	Peak
4	224.00	32.73	-13.27	46.00	47.42	15.37	2.22	32.42	---	---	Peak
5	881.66	31.85	-14.15	46.00	28.46	28.92	4.41	31.33	---	---	Peak
6	989.33	33.10	-20.90	54.00	27.10	30.27	4.66	30.63	---	---	Peak



Temperature	20.1 ~ 21.5℃	Relative Humidity	56.2 ~ 67.6%
Test Engineer	Troye Hsieh	Test Distance	3m
Test Range	30MHz to 1GHz	Test Polarization	Vertical
Test Configuration	Mode 4: WLAN (5GHz) 802.11a Ch36 5180MHz + Antenna Group2 62.5GHz		



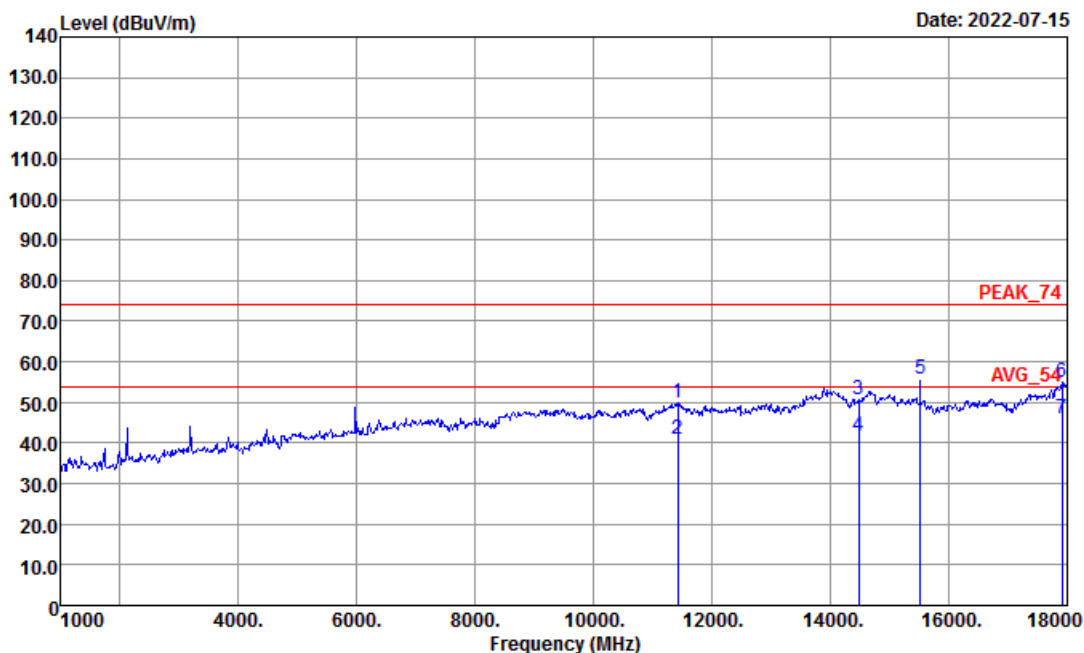
Site : 03CH11-HY
Condition : QP 3m BI-LOG 35414-211009 VERTICAL
Project : 1D2427-01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	cm	deg
1	37.76	32.44	-7.56	40.00	43.28	20.60	0.85	32.41	100	63 QP
2	81.41	23.08	-16.92	40.00	40.89	13.14	1.33	32.42	---	Peak
3	138.64	21.21	-22.29	43.50	34.48	17.24	1.77	32.44	---	Peak
4	224.00	29.63	-16.37	46.00	44.32	15.37	2.22	32.42	---	Peak
5	945.68	31.73	-14.27	46.00	26.77	30.18	4.57	30.92	---	Peak
6	960.23	32.64	-21.36	54.00	26.69	30.92	4.60	30.83	---	Peak



<1GHz to 18GHz>

Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Horizontal
Test Configuration	Mode 1: Antenna Group1 62.5GHz		
Remark	15518MHz Average = Peak + Duty cycle correction factor (See section 3.6.5)		



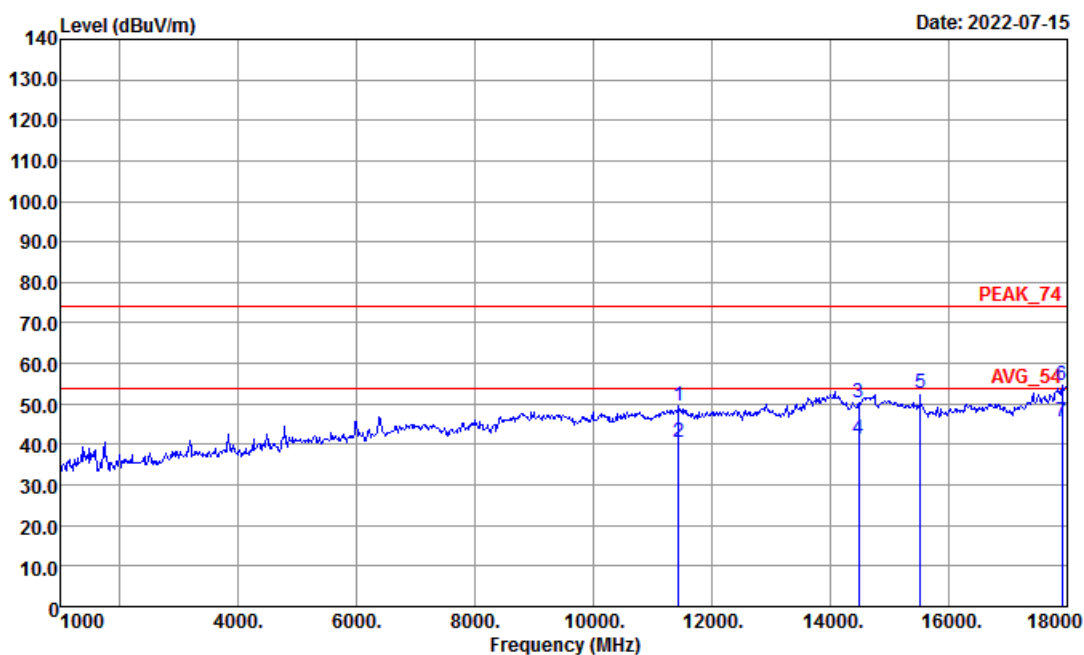
Site : 03CH15-HY

Condition : PEAK_74 3m 9D120_02038_20210804 HORIZONTAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Cable	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	11421	49.86	-24.14	74	58.66	39.04	12.96	60.8	-	-	P
2	11421	41.07	-12.93	54	49.87	39.04	12.96	60.8	-	-	A
3	14481	50.65	-23.35	74	59.03	40.52	14.57	63.47	-	-	P
4	14481	41.86	-12.14	54	50.24	40.52	14.57	63.47	-	-	A
5	15518	55.67	-18.33	74	64.84	38.16	15.11	62.44	218	92	P
-	15518	34.63	-19.37	54	-	-	-	-	-	-	A
6	17915	54.83	-19.17	74	53.47	42.33	16.31	57.28	-	-	P
7	17915	46.04	-7.96	54	44.68	42.33	16.31	57.28	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Vertical
Test Configuration	Mode 1: Antenna Group1 62.5GHz		
Remark	15518MHz Average = Peak + Duty cycle correction factor (See section 3.6.5)		



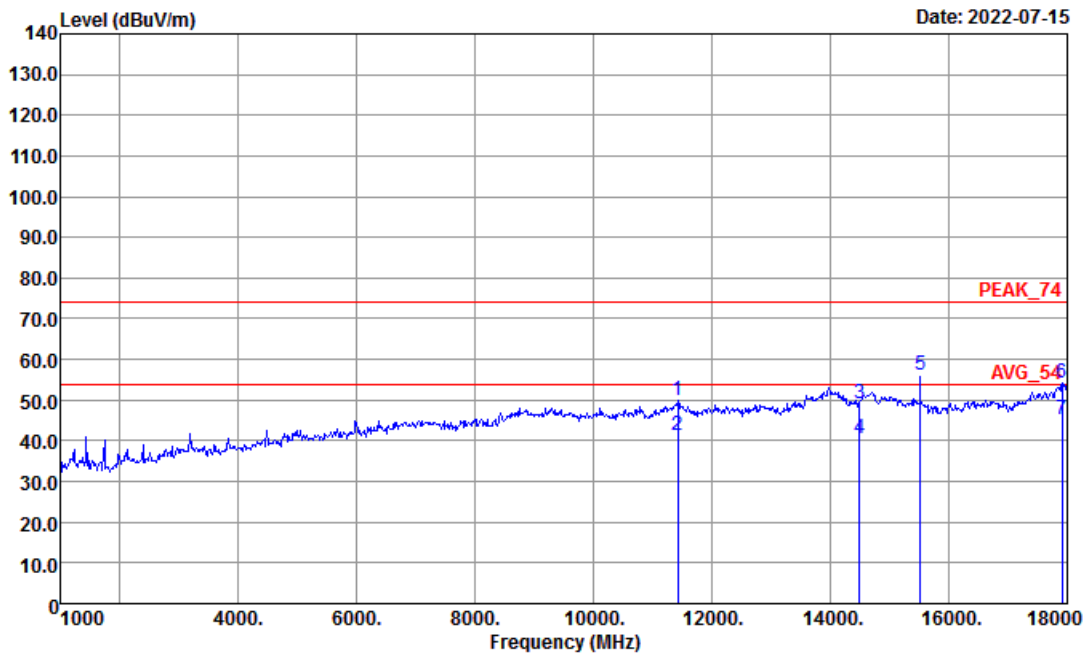
Site : 03CH15-HY

Condition : PEAK_74 3m 9D120_02038_20210804 VERTICAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Cable	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	11438	49.38	-24.62	74	58.22	38.99	12.96	60.79	-	-	P
2	11438	40.59	-13.41	54	49.43	38.99	12.96	60.79	-	-	A
3	14481	50.13	-23.87	74	58.51	40.52	14.57	63.47	-	-	P
4	14481	41.34	-12.66	54	49.72	40.52	14.57	63.47	-	-	A
5	15518	52.52	-21.48	74	61.69	38.16	15.11	62.44	100	135	P
-	15518	31.48	-22.52	54	-	-	-	-	-	-	A
6	17915	54.45	-19.55	74	53.09	42.33	16.31	57.28	-	-	P
7	17915	45.66	-8.34	54	44.3	42.33	16.31	57.28	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Horizontal
Test Configuration	Mode 2: Antenna Group2 62.5GHz		
Remark	15518MHz Average = Peak + Duty cycle correction factor (See section 3.6.5)		



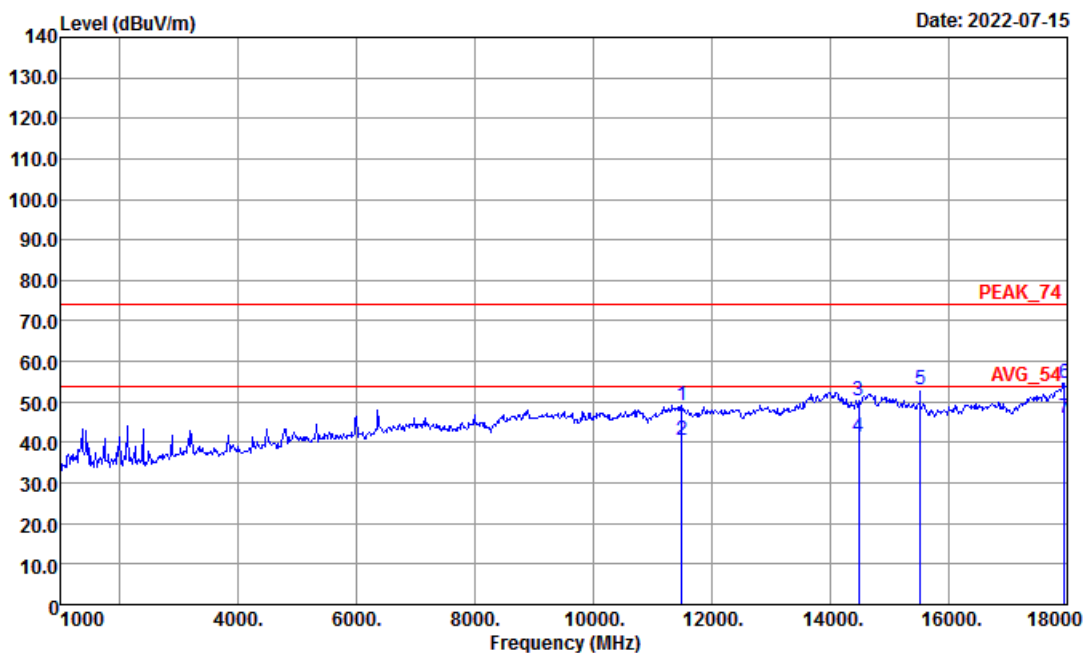
Site : 03CH15-HY

Condition : PEAK_74 3m 9D120_02038_20210804 HORIZONTAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Cable	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	11421	49.96	-24.04	74	58.76	39.04	12.96	60.8	-	-	P
2	11421	41.17	-12.83	54	49.97	39.04	12.96	60.8	-	-	A
3	14498	49.27	-24.73	74	57.68	40.5	14.58	63.49	-	-	P
4	14498	40.48	-13.52	54	48.89	40.5	14.58	63.49	-	-	A
5	15518	56.1	-17.9	74	65.27	38.16	15.11	62.44	351	69	P
-	15518	35.06	-18.94	54	-	-	-	-	-	-	A
6	17915	54.1	-19.9	74	52.74	42.33	16.31	57.28	-	-	P
7	17915	45.31	-8.69	54	43.95	42.33	16.31	57.28	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Vertical
Test Configuration	Mode 2: Antenna Group2 62.5GHz		
Remark	15518MHz Average = Peak + Duty cycle correction factor (See section 3.6.5)		



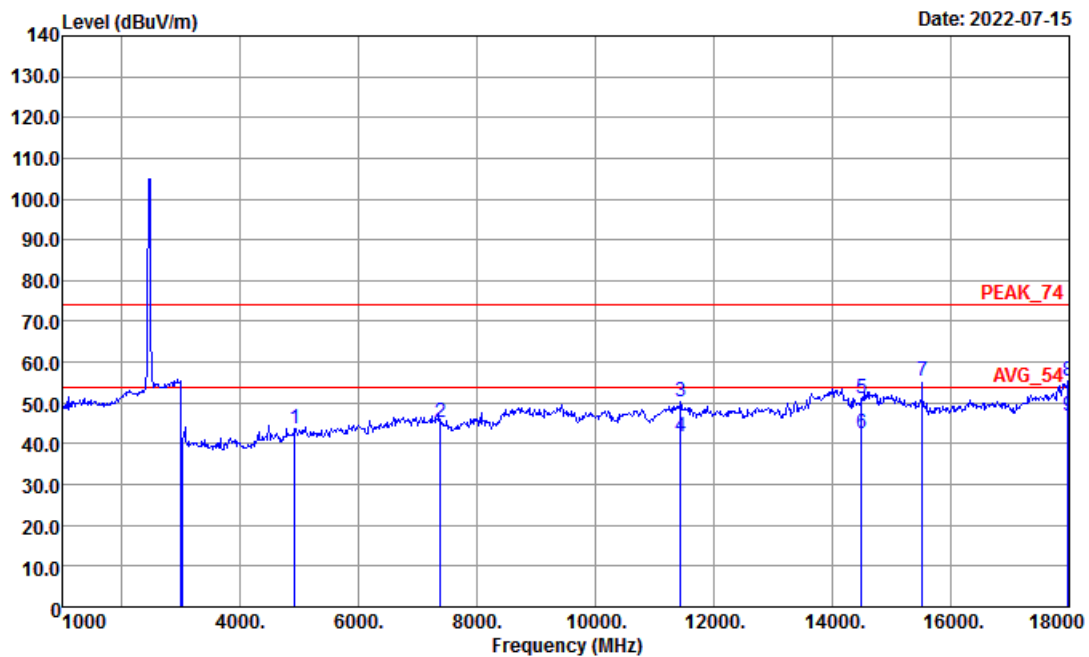
Site : 03CH15-HY

Condition : PEAK_74 3m 9D120_02038_20210804 VERTICAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Cable	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	11489	49.22	-24.78	74	58.17	38.83	12.98	60.76	-	-	P
2	11489	40.43	-13.57	54	49.38	38.83	12.98	60.76	-	-	A
3	14481	50.18	-23.82	74	58.56	40.52	14.57	63.47	-	-	P
4	14481	41.39	-12.61	54	49.77	40.52	14.57	63.47	-	-	A
5	15518	53.01	-20.99	74	62.18	38.16	15.11	62.44	250	158	P
-	15518	31.97	-22.03	54	-	-	-	-	-	-	A
6	17949	54.66	-19.34	74	52.94	42.64	16.32	57.24	-	-	P
7	17949	45.87	-8.13	54	44.15	42.64	16.32	57.24	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Horizontal
Test Configuration	Mode 3: WLAN (2.4GHz) 802.11g Ch11 2462MHz + Antenna Group2 62.5GHz		
Remark	1. The 2.4GHz WiFi fundamental signal is exempted against limit. 2. 15518MHz Average = Peak + Duty cycle correction factor (See section 3.6.5) 3. Path loss = Cable loss + 3G high pass filter loss		



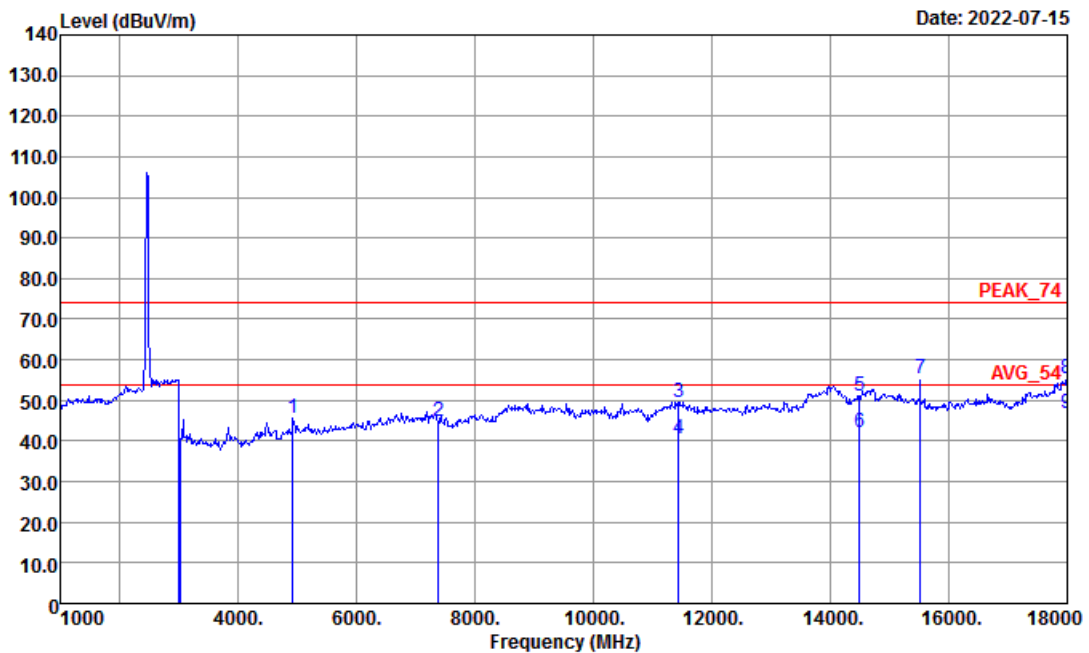
Site : 03CH15-HY

Condition : PEAK_74 3m 9D120_02038_20210804 HORIZONTAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	4924	43.86	-30.14	74	60.41	32.7	9.37	58.62	-	-	P
2	7386	45.09	-28.91	74	55.48	36.18	11.46	58.03	-	-	P
3	11438	50.38	-23.62	74	58.69	38.99	13.49	60.79	-	-	P
4	11438	41.59	-12.41	54	49.9	38.99	13.49	60.79	-	-	A
5	14498	51.11	-22.89	74	58.91	40.5	15.19	63.49	-	-	P
6	14498	42.32	-11.68	54	50.12	40.5	15.19	63.49	-	-	A
7	15518	55.53	-18.47	74	64.18	38.16	15.63	62.44	300	94	P
-	15518	34.49	-19.51	54	-	-	-	-	-	-	A
8	17983	55.54	-18.46	74	52.81	42.95	16.97	57.19	-	-	P
9	17983	46.75	-7.25	54	44.02	42.95	16.97	57.19	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Vertical
Test Configuration	Mode 3: WLAN (2.4GHz) 802.11g Ch11 2462MHz + Antenna Group2 62.5GHz		
Remark	1. The 2.4GHz WiFi fundamental signal is exempted against limit. 2. 15518MHz Average = Peak + Duty cycle correction factor (See section 3.6.5) 3. Path loss = Cable loss + 3G high pass filter loss		



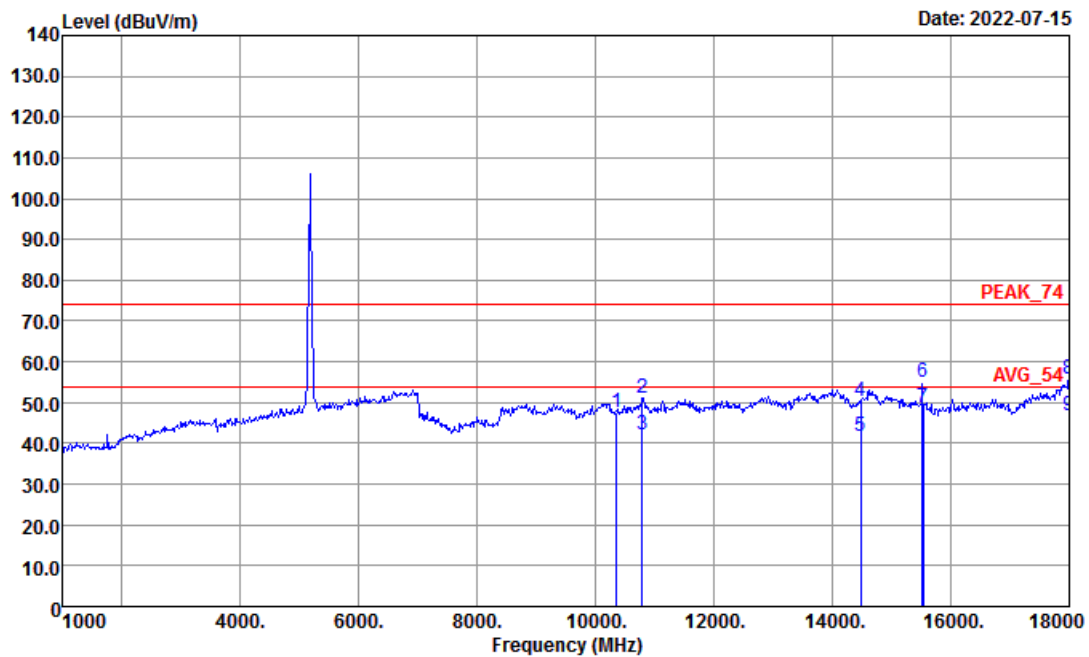
Site : 03CH15-HY

Condition : PEAK_74 3m 9D120_02038_20210804 VERTICAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	4924	45.45	-28.55	74	62	32.7	9.37	58.62	-	-	P
2	7386	44.91	-29.09	74	55.3	36.18	11.46	58.03	-	-	P
3	11438	49.53	-24.47	74	57.84	38.99	13.49	60.79	-	-	P
4	11438	40.74	-13.26	54	49.05	38.99	13.49	60.79	-	-	A
5	14498	50.94	-23.06	74	58.74	40.5	15.19	63.49	-	-	P
6	14498	42.15	-11.85	54	49.95	40.5	15.19	63.49	-	-	A
7	15518	55.4	-18.6	74	64.05	38.16	15.63	62.44	200	163	P
-	15518	34.36	-19.64	54	-	-	-	-	-	-	A
8	18000	55.49	-18.51	74	52.58	43.1	16.98	57.17	-	-	P
9	18000	46.7	-7.3	54	43.79	43.1	16.98	57.17	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Horizontal
Test Configuration	Mode 4: WLAN (5GHz) 802.11a Ch36 5180MHz + Antenna Group2 62.5GHz		
Remark	1. The 5GHz WiFi fundamental signal is exempted against limit. 2. 15518MHz Average = Peak + Duty cycle correction factor (See section 3.6.5) 3. Path loss = Cable loss + 6.75G high pass filter loss		



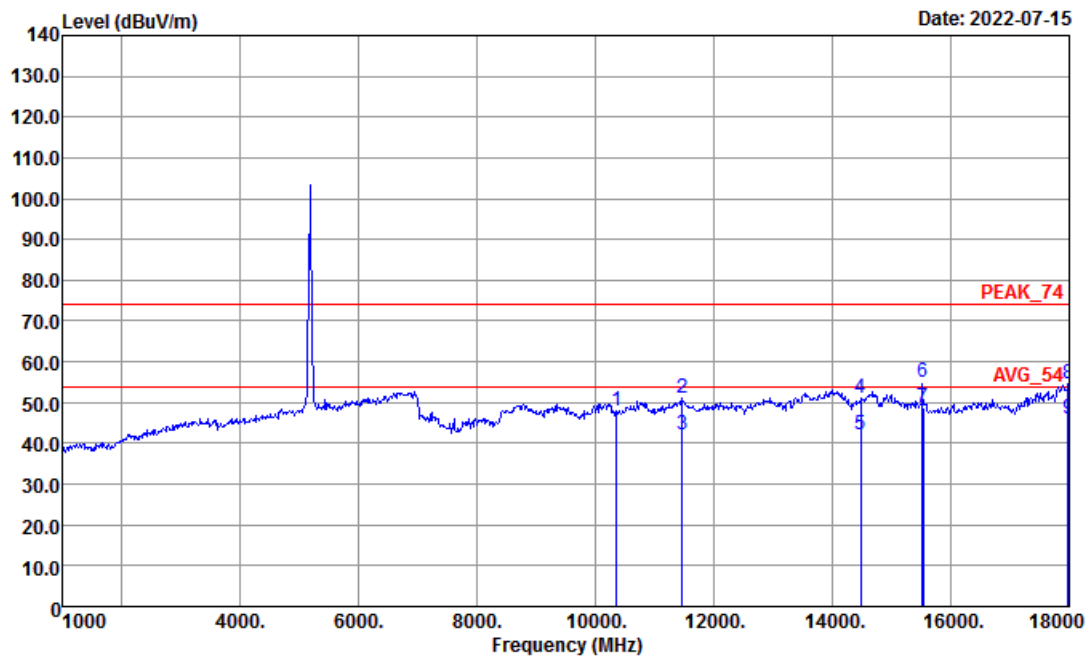
Site : 03CH15-HY

Condition : PEAK_74 3m 9D120_02038_20210804 HORIZONTAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	10360	47.41	-26.59	74	56.81	38.46	12.73	60.59	-	-	P
2	10792	51.08	-22.92	74	60.06	38.98	12.95	60.91	-	-	P
3	10792	42.29	-11.71	54	51.27	38.98	12.95	60.91	-	-	A
4	14481	50.47	-23.53	74	58.41	40.52	15.01	63.47	-	-	P
5	14481	41.68	-12.32	54	49.62	40.52	15.01	63.47	-	-	A
6	15518	55.11	-18.89	74	63.92	38.16	15.47	62.44	300	94	P
-	15518	34.07	-19.93	54	-	-		-	-	-	A
7	15540	48.56	-25.44	74	57.29	38.12	15.48	62.33	-	-	P
8	18000	55.67	-18.33	74	52.93	43.1	16.81	57.17	-	-	P
9	18000	46.88	-7.12	54	44.14	43.1	16.81	57.17	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	3m
Test Range	1GHz to 18GHz	Test Polarization	Vertical
Test Configuration	Mode 4: WLAN (5GHz) 802.11a Ch36 5180MHz + Antenna Group2 62.5GHz		
Remark	1. The 5GHz WiFi fundamental signal is exempted against limit. 2. 15518MHz Average = Peak + Duty cycle correction factor (See section 3.6.5) 3. Path loss = Cable loss + 6.75G high pass filter loss		



Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	10360	47.95	-26.05	74	57.35	38.46	12.73	60.59	-	-	P
2	11472	51.02	-22.98	74	59.62	38.88	13.29	60.77	-	-	P
3	11472	42.23	-11.77	54	50.83	38.88	13.29	60.77	-	-	A
4	14481	51.01	-22.99	74	58.95	40.52	15.01	63.47	-	-	P
5	14481	42.22	-11.78	54	50.16	40.52	15.01	63.47	-	-	A
6	15518	55.02	-18.98	74	63.83	38.16	15.47	62.44	200	163	P
-	15518	33.98	-20.02	54	-	-	-	-	-	-	A
7	15540	48.62	-25.38	74	57.35	38.12	15.48	62.33	-	-	P
8	17983	54.66	-19.34	74	52.1	42.95	16.8	57.19	-	-	P
9	17983	45.87	-8.13	54	43.31	42.95	16.8	57.19	-	-	A

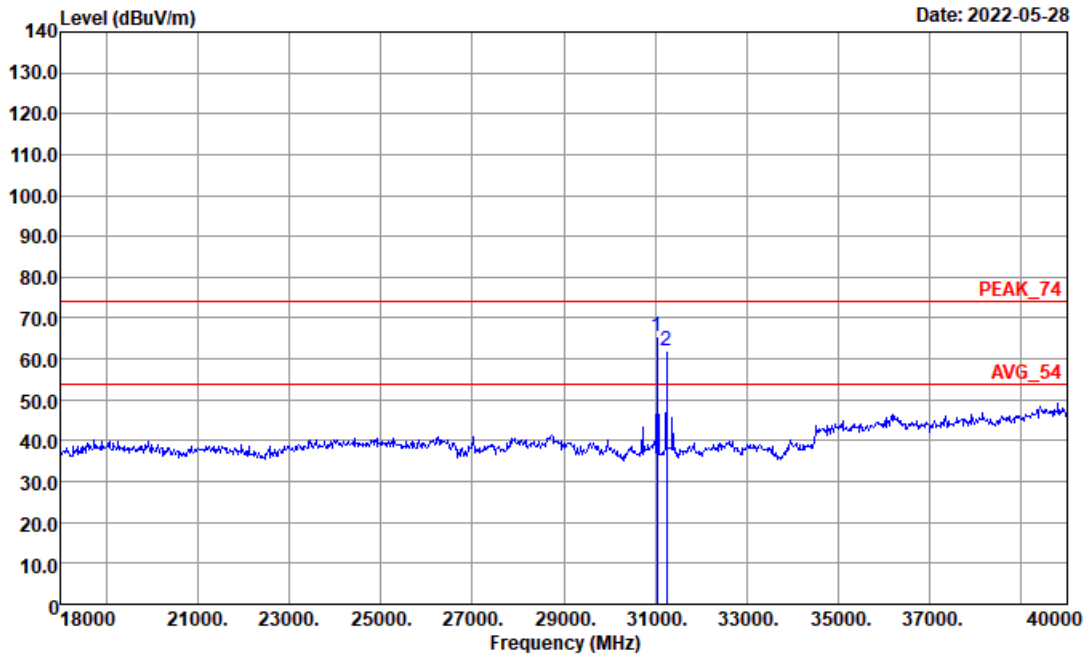
Remark:

- The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.
- The emission level close to 18GHz is checked that the average emission level is noise floor only.



<18GHz to 40GHz>

Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Horizontal
Test Configuration	Mode 1: Antenna Group1 62.5GHz		
Remark	1. Average = Peak + Duty cycle correction factor(See section 3.6.5) 2. Path loss = Cable loss + Distance Factor(-9.54dB)		



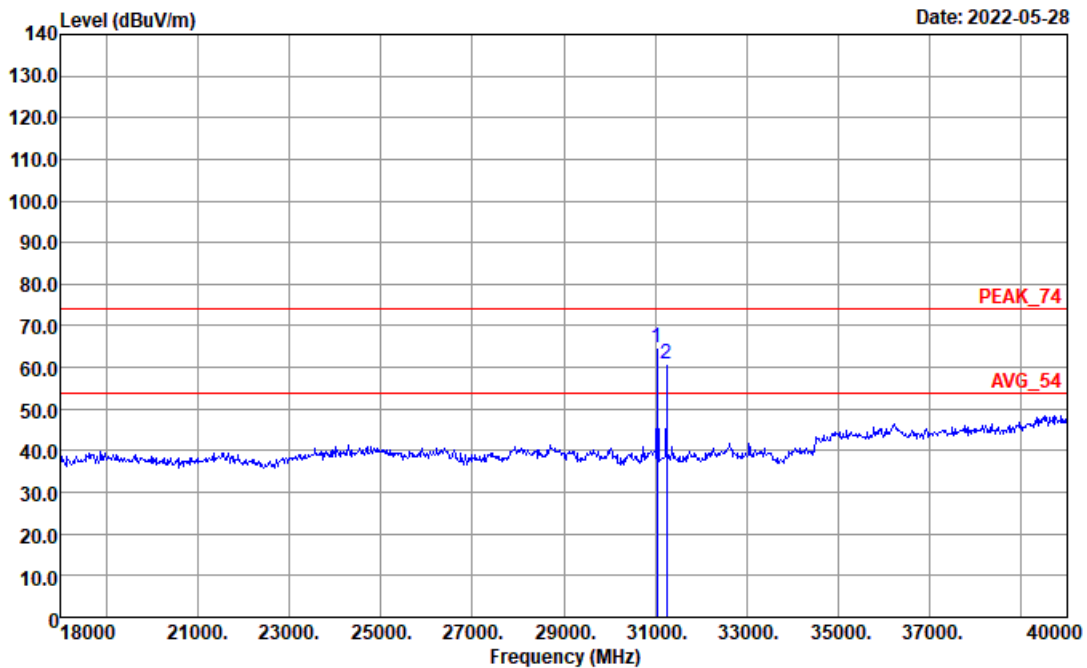
Site : 03CH20-HY

Condition : PEAK_74 1m SHF ANT_9170_00993 HORIZONTAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	31040	65.53	-8.47	74	82.63	40.9	-1.95	56.05	150	181	P
-	31040	44.49	-9.51	54	-	-	-	-	-	-	A
2	31250	61.95	-12.05	74	79.29	40.9	-1.94	56.3	150	181	P
-	31250	40.91	-13.09	54	-	-	-	-	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Vertical
Test Configuration	Mode 1: Antenna Group1 62.5GHz		
Remark	1. Average = Peak + Duty cycle correction factor(See section 3.6.5) 2. Path loss = Cable loss + Distance Factor(-9.54dB)		



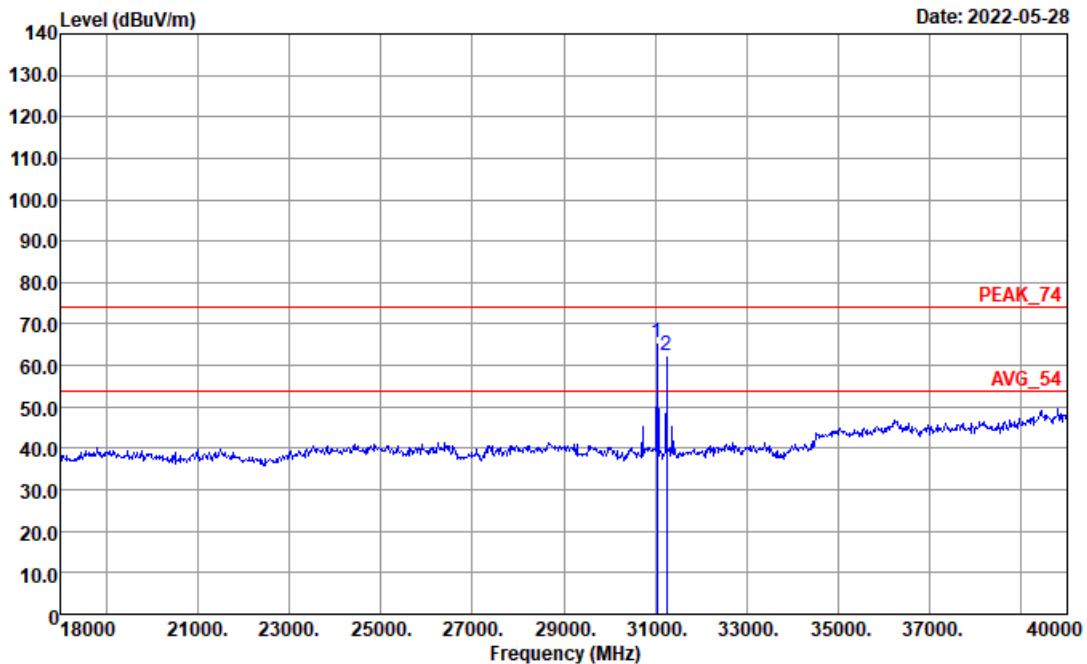
Site : 03CH20-HY

Condition : PEAK_74 1m SHF ANT_9170_00993 VERTICAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	31040	64.55	-9.45	74	81.65	40.9	-1.95	56.05	150	189	P
-	31040	43.51	-10.49	54	-	-	-	-	-	-	A
2	31250	60.96	-13.04	74	78.3	40.9	-1.94	56.3	150	184	P
-	31250	39.92	-14.08	54	-	-	-	-	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Horizontal
Test Configuration	Mode 2: Antenna Group2 62.5GHz		
Remark	1. Average = Peak + Duty cycle correction factor(See section 3.6.5) 2. Path loss = Cable loss + Distance Factor(-9.54dB)		



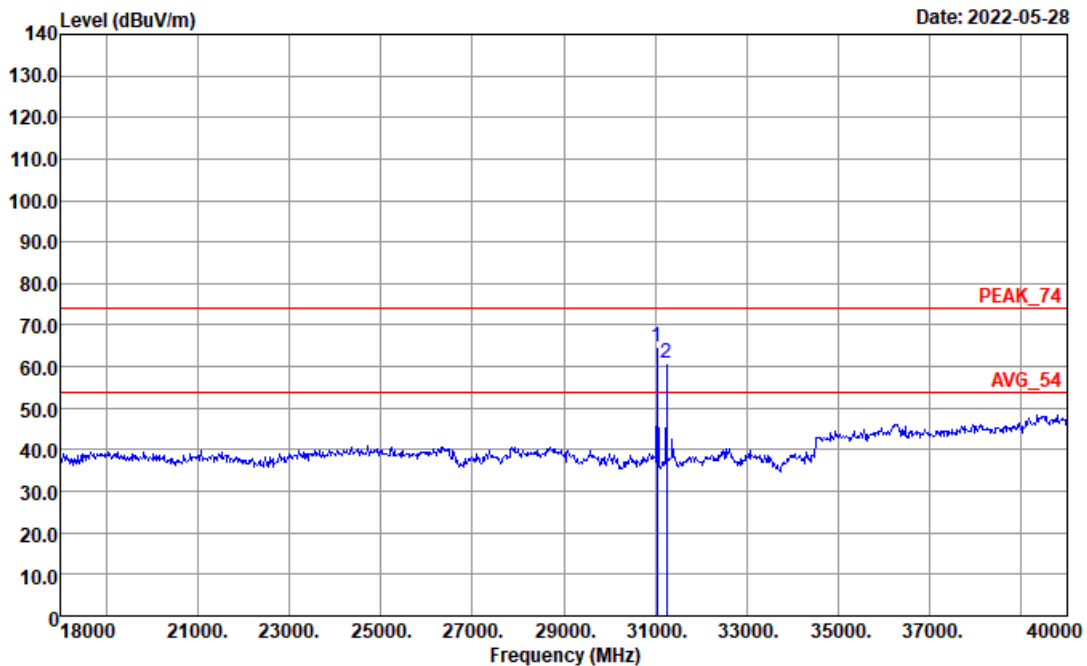
Site : 03CH20-HY

Condition : PEAK_74 1m SHF ANT_9170_00993 HORIZONTAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	31040	65.45	-8.55	74	82.55	40.9	-1.95	56.05	150	185	P
-	31040	44.41	-9.59	54	-	-	-	-	-	-	A
2	31250	62.39	-11.61	74	79.73	40.9	-1.94	56.3	150	181	P
-	31250	41.35	-12.65	54	-	-	-	-	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Vertical
Test Configuration	Mode 2: Antenna Group2 62.5GHz		
Remark	1. Average = Peak + Duty cycle correction factor(See section 3.6.5) 2. Path loss = Cable loss + Distance Factor(-9.54dB)		



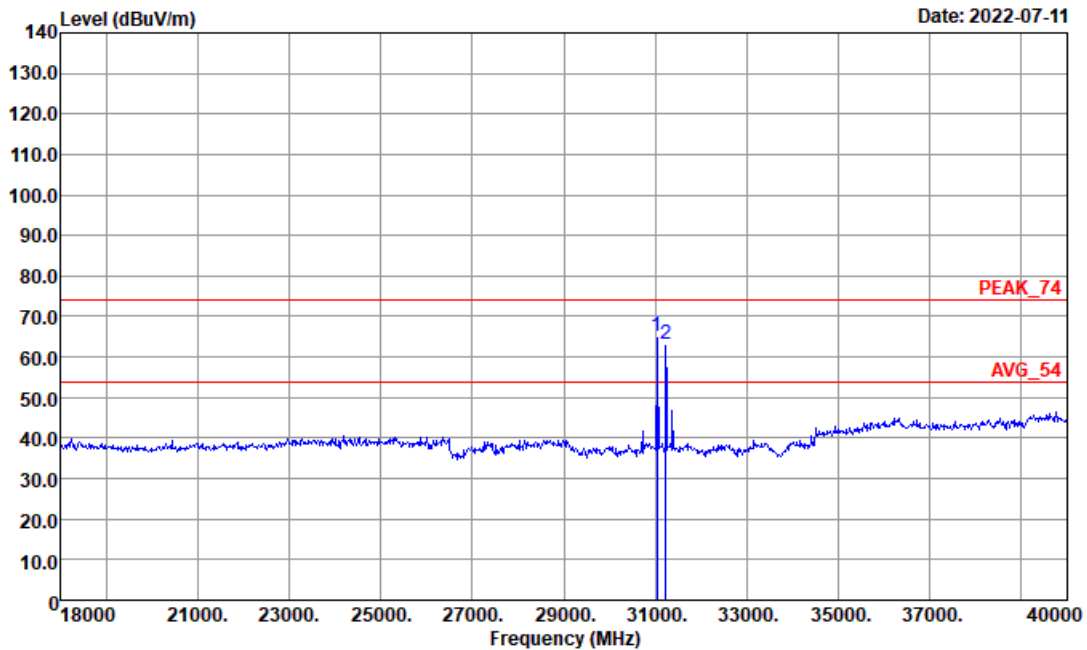
Site : 03CH20-HY

Condition : PEAK_74 1m SHF ANT_9170_00993 VERTICAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	31040	64.64	-9.36	74	81.74	40.9	-1.95	56.05	150	189	P
-	31040	43.6	-10.4	54	-	-	-	-	-	-	A
2	31250	60.81	-13.19	74	78.15	40.9	-1.94	56.3	150	185	P
-	31250	39.77	-14.23	54	-	-	-	-	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Horizontal
Test Configuration	Mode 3: WLAN (2.4GHz) 802.11g Ch11 2462MHz + Antenna Group2 62.5GHz		
Remark	1. Average = Peak + Duty cycle correction factor(See section 3.6.5) 2. Path loss = Cable loss + Distance Factor(-9.54dB)		



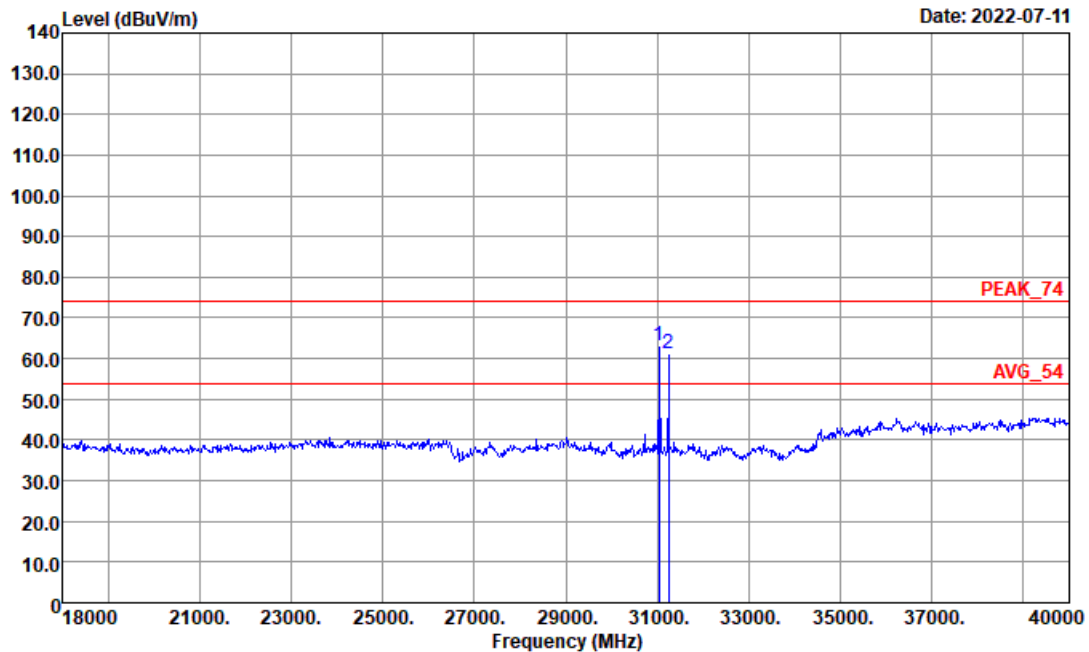
Site : 03CH15-HY

Condition : PEAK_74 1m SHF_00993_211130 HORIZONTAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	31040	65.1	-8.9	74	81.91	40.9	-2.11	55.6	150	185	P
-	31040	44.06	-9.94	54	-	-	-	-	-	-	A
2	31236	63.08	-10.92	74	79.83	40.9	-2.05	55.6	150	181	P
-	31236	42.04	-11.96	54	-	-	-	-	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Vertical
Test Configuration	Mode 3: WLAN (2.4GHz) 802.11g Ch11 2462MHz + Antenna Group2 62.5GHz		
Remark	1. Average = Peak + Duty cycle correction factor(See section 3.6.5) 2. Path loss = Cable loss + Distance Factor(-9.54dB)		

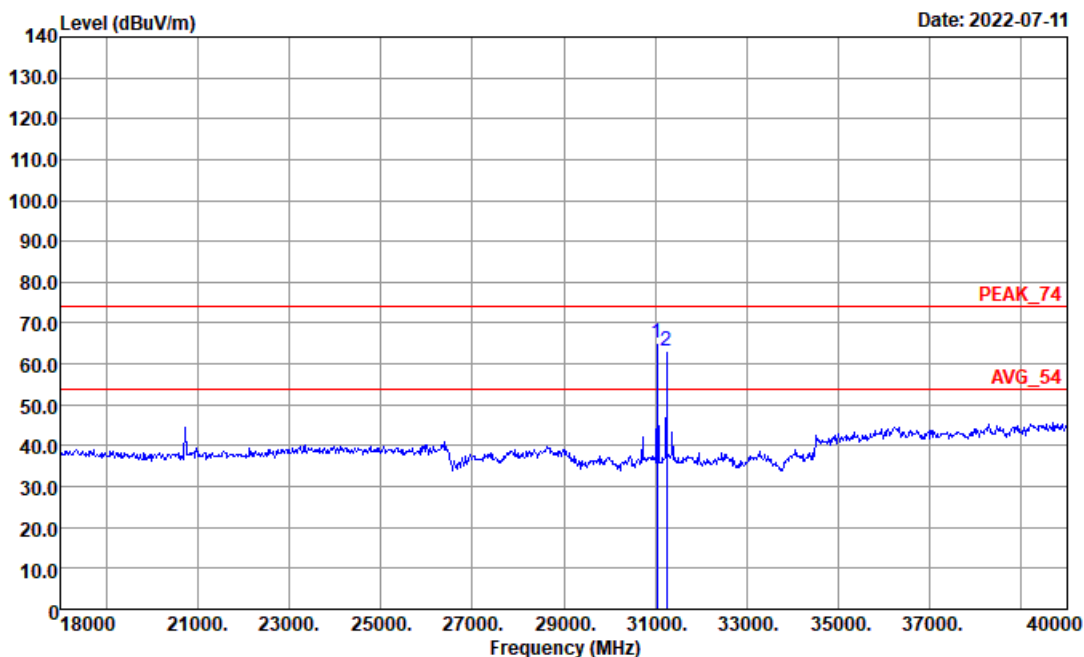


Site : 03CH15-HY
Condition : PEAK_74 1m SHF_00993_211130 VERTICAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	31040	62.98	-11.02	74	79.79	40.9	-2.11	55.6	150	189	P
-	31040	41.94	-12.06	54	-	-	-	-	-	-	A
2	31250	61.04	-12.96	74	77.79	40.9	-2.05	55.6	150	185	P
-	31250	40	-14	54	-	-	-	-	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Horizontal
Test Configuration	Mode 4: WLAN (5GHz) 802.11a Ch36 5180MHz + Antenna Group2 62.5GHz		
Remark	1. Average = Peak + Duty cycle correction factor(See section 3.6.5) 2. Path loss = Cable loss + Distance Factor(-9.54dB)		



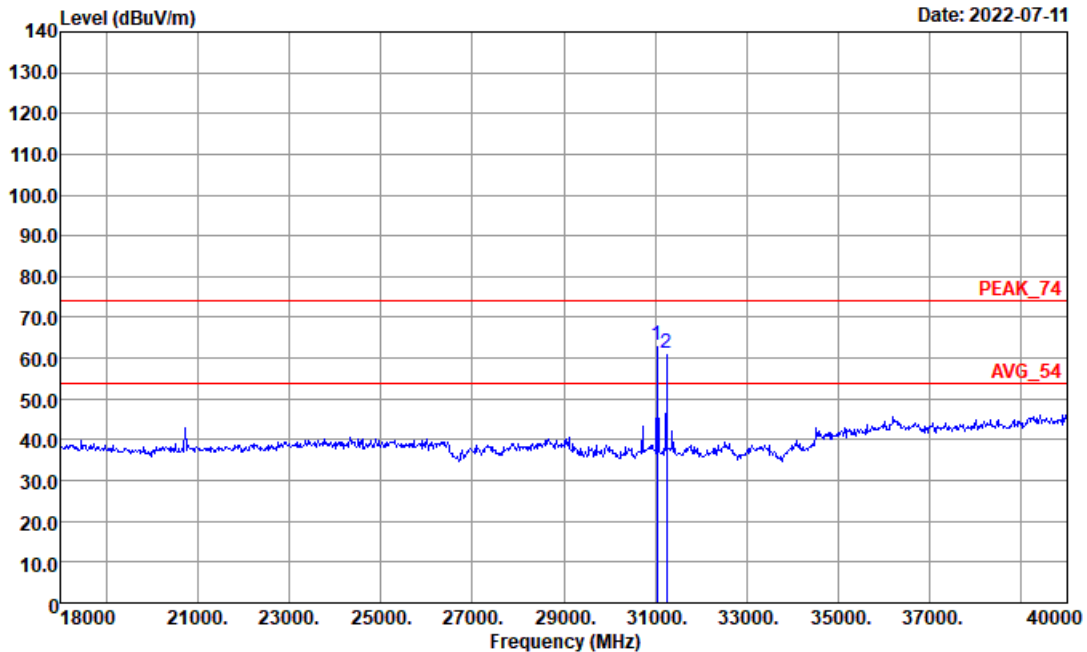
Site : 03CH15-HY

Condition : PEAK_74 1m SHF_00993_211130 HORIZONTAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	31040	65.17	-8.83	74	81.98	40.9	-2.11	55.6	150	185	P
-	31040	44.13	-9.87	54	-	-	-	-	-	-	A
2	31250	63.13	-10.87	74	79.88	40.9	-2.05	55.6	150	181	P
-	31250	42.09	-11.91	54	-	-	-	-	-	-	A



Temperature	22.1 ~ 23.1℃	Relative Humidity	55 ~ 60%
Test Engineer	Leo Li	Test Distance	1m
Test Range	18GHz to 40GHz	Test Polarization	Vertical
Test Configuration	Mode 4: WLAN (5GHz) 802.11a Ch36 5180MHz + Antenna Group2 62.5GHz		
Remark	1. Average = Peak + Duty cycle correction factor(See section 3.6.5) 2. Path loss = Cable loss + Distance Factor(-9.54dB)		



Site : 03CH15-HY

Condition : PEAK_74 1m SHF_00993_211130 VERTICAL

Mark	Freq.	Level	Over	Limit	Read	Ant	Path	Preamp	Ant	Table	Peak
			Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)
1	31040	63.08	-10.92	74	79.89	40.9	-2.11	55.6	150	189	P
-	31040	42.04	-11.96	54	-	-	-	-	-	-	A
2	31250	61.14	-12.86	74	77.89	40.9	-2.05	55.6	150	185	P
-	31250	40.1	-13.9	54	-	-	-	-	-	-	A

Remark: The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.



<40GHz to 200GHz>

Temperature	21.1 ~ 23.5℃	Relative Humidity	61.4 ~ 65.3%
Test Engineer	Eric Jeng	Test Range	40GHz to 200GHz
Test Configuration	Mode 1: Antenna Group1 62.5GHz		

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
40 - 57	22.64	0.87	46.0831	-96.83
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-52.69	3	0.0048	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
71 - 90	22.4	0.6	88.7156	-91.02
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-45.9	3	0.0227	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
90 - 140	22.4	0.43	135.3336	-78.7
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-32.64	3	0.4814	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
140 - 200	22.8	0.27	170.616	-76.44
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-31.72	3	0.5950	90	PASS



Temperature	21.1 ~ 23.5℃	Relative Humidity	61.4 ~ 65.3%
Test Engineer	Eric Jeng	Test Range	40GHz to 200GHz
Test Configuration	Mode 2: Antenna Group2 62.5GHz		

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
40 - 57	22.64	0.87	48.322	-96.91
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-52.77	3	0.0047	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
71 - 90	22.4	0.6	88.7806	-91.09
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-45.97	3	0.0224	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
90 - 140	22.4	0.43	135.4276	-78.57
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-32.51	3	0.4961	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
140 - 200	22.8	0.27	170.761	-76.36
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm ²)	Limit (pW/cm ²)	Test Result
-31.64	3	0.6061	90	PASS



Temperature	21.1 ~ 23.5℃	Relative Humidity	61.4 ~ 65.3%
Test Engineer	Eric Jeng	Test Range	40GHz to 200GHz
Test Configuration	Mode 3: WLAN (2.4GHz) 802.11g Ch11 2462MHz + Antenna Group2 62.5GHz		

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
40 - 57	22.64	0.87	45.9741	-95.69
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-51.55	3	0.0062	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
71 - 90	22.4	0.6	88.8016	-91.12
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-46	3	0.0222	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
90 - 140	22.4	0.43	135.4566	-78.67
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-32.61	3	0.4848	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
140 - 200	22.8	0.27	170.63	-76.37
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-31.65	3	0.6047	90	PASS



Temperature	21.1 ~ 23.5℃	Relative Humidity	61.4 ~ 65.3%
Test Engineer	Eric Jeng	Test Range	40GHz to 200GHz
Test Configuration	Mode 4: WLAN (5GHz) 802.11a Ch36 5180MHz + Antenna Group2 62.5GHz		

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
40 - 57	22.64	0.87	46.2261	-95.65
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-51.51	3	0.0062	90	PASS

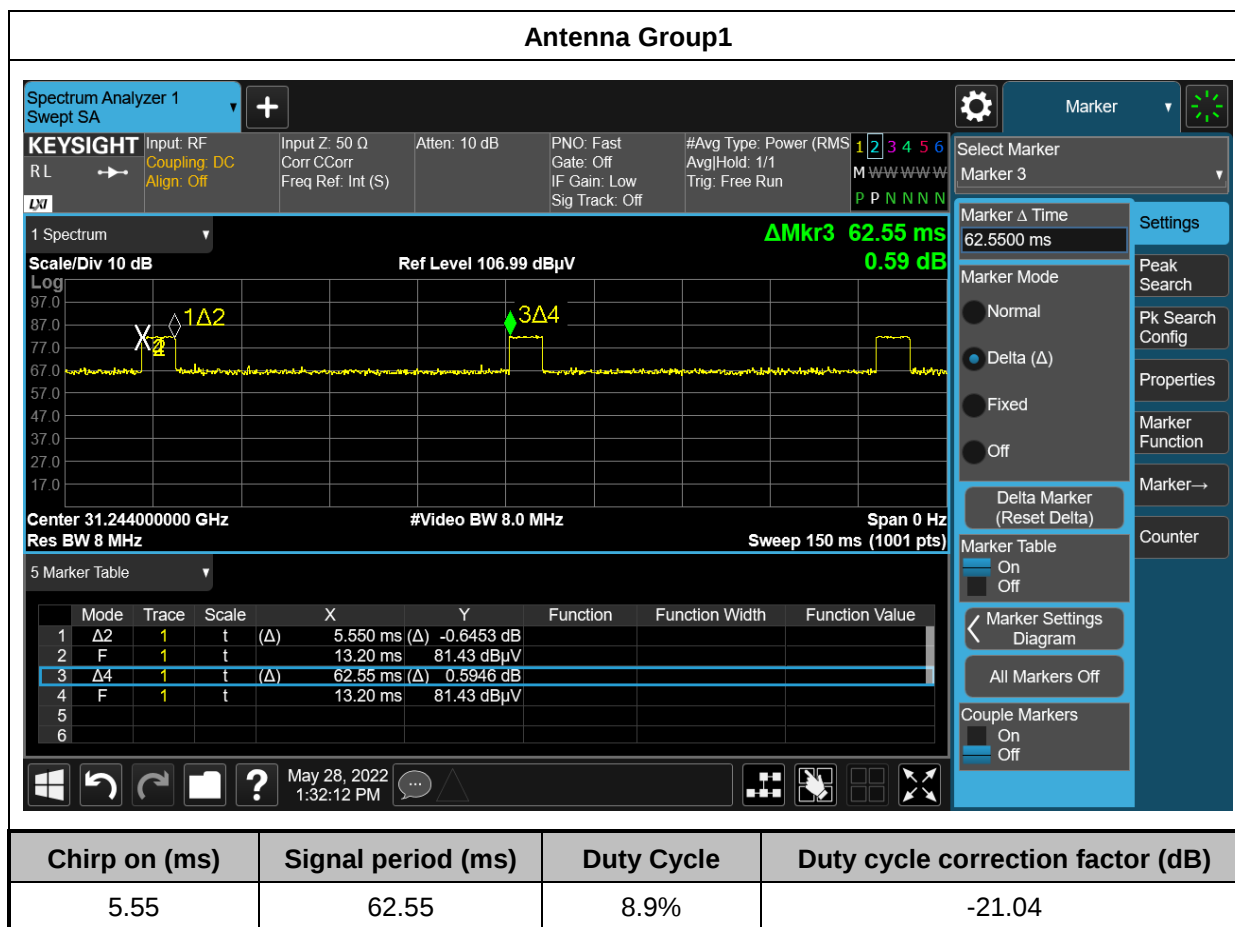
Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
71 - 90	22.4	0.6	88.7546	-91.12
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-46	3	0.0222	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
90 - 140	22.4	0.43	135.3706	-78.58
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-32.52	3	0.4949	90	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
140 - 200	22.8	0.27	170.607	-76.38
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-31.66	3	0.6033	90	PASS



3.6.5 Test Result for Duty cycle correction factor

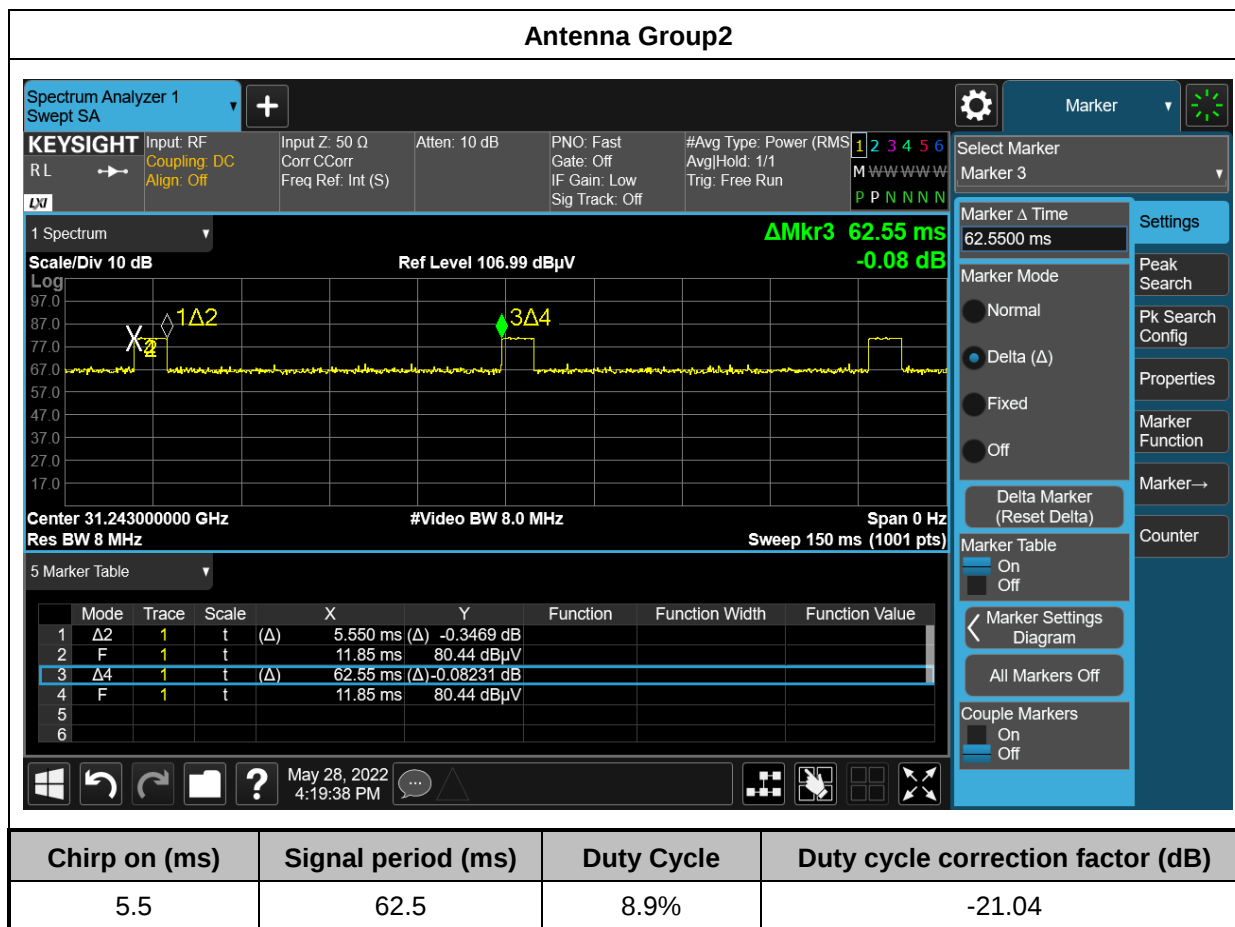


Note:

Duty cycle of harmonic is same with fundamental signal.

Duty cycle correction factor follows C63.10 Section 7.5.0

Duty cycle correction factor = $20 \cdot \log(\text{Duty Cycle})$



Note:

Duty cycle of harmonic is same with fundamental signal.

Duty cycle correction factor follows C63.10 Section 7.5.

Duty cycle correction factor = $20 \cdot \log (\text{Duty Cycle})$



3.7 Frequency Stability

3.7.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency range, 57GHz – 71GHz.

3.7.2 Measuring Instruments

See list of measuring equipment of this test report.

3.7.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013 clause 9.14

3.7.4 Test Result

Test Engineer	Eric Jeng			
Test Conditions	Antenna Group1 62GHz			Limit
Test Temperature (°C)	Voltage (Volt)	Measured Frequency (MHz)	Delta Frequency (±kHz)	Result
35	120	61997.123	40	pass
30	120	61996.983	-100	
20	120	61997.083	0	
10	120	61997.043	-40	
0	120	61997.063	-20	
20	102	61996.983	-100	
20	138	61997.103	20	

Test Engineer	Eric Jeng			
Test Conditions	Antenna Group1 63.1GHz			Limit
Test Temperature (°C)	Voltage (Volt)	Measured Frequency (MHz)	Delta Frequency (±kHz)	Result
35	120	63097.063	0	pass
30	120	63096.983	-80	
20	120	63097.063	0	
10	120	63097.043	-20	
0	120	63096.943	-120	
20	102	63097.043	-20	
20	138	63097.023	-40	



Test Engineer	Eric Jeng			
Test Conditions	Antenna Group2 62GHz			Limit
Test Temperature (°C)	Voltage (Volt)	Measured Frequency (MHz)	Delta Frequency (±kHz)	Result
35	120	61997.023	-100	pass
30	120	61996.983	-140	
20	120	61997.123	0	
10	120	61997.103	-20	
0	120	61997.043	-80	
20	102	61997.023	-100	
20	138	61997.063	-60	

Test Engineer	Eric Jeng			
Test Conditions	Antenna Group2 63.1GHz			Limit
Test Temperature (°C)	Voltage (Volt)	Measured Frequency (MHz)	Delta Frequency (±kHz)	Result
35	120	63097.143	80	pass
30	120	63097.103	40	
20	120	63097.063	0	
10	120	63097.063	0	
0	120	63097.143	80	
20	102	63097.063	0	
20	138	63097.103	40	

4 AC conducted Emission Measurement

4.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

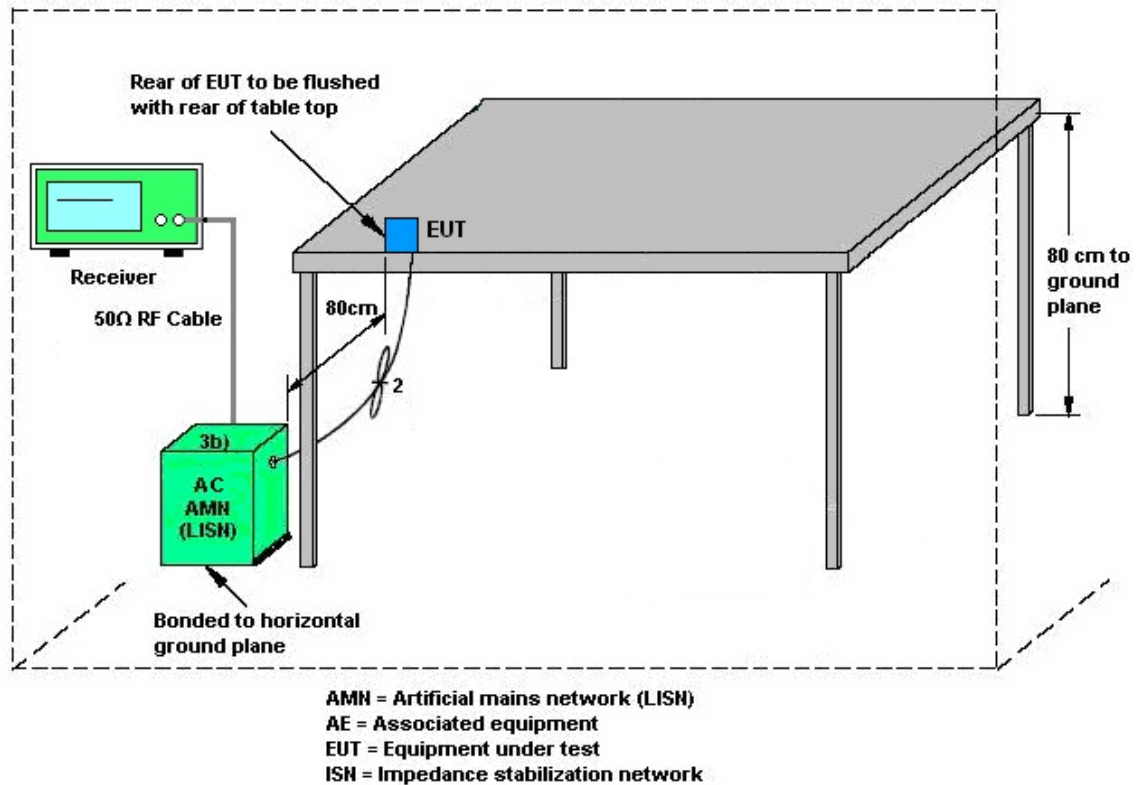
4.2 Measuring Instruments

See list of measuring equipment of this test report.

4.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

4.4 Test Setup



4.5 Test Result of AC Conducted Emission

Please refer to Appendix A.



5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jul. 15, 2022	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9kHz~3.6GHz	Dec. 01, 2021	Jul. 15, 2022	Nov. 30, 2022	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Nov. 17, 2021	Jul. 15, 2022	Nov. 16, 2022	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 03, 2021	Jul. 15, 2022	Dec. 02, 2022	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32	N/A	N/A	N/A	Jul. 15, 2022	N/A	Conduction (CO05-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-FN	00691	N/A	Jul. 28, 2021	Jul. 15, 2022	Jul. 27, 2022	Conduction (CO05-HY)
LISN Cable	MVE	RG-400	260260	N/A	Dec. 30, 2021	Jul. 15, 2022	Dec. 29, 2022	Conduction (CO05-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 09, 2021	Jul. 08, 2022~Jul. 14, 2022	Oct. 08, 2022	Radiation (03CH11-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	May 13, 2022	Jul. 08, 2022~Jul. 14, 2022	May 12, 2023	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 10, 2021	Jul. 08, 2022~Jul. 14, 2022	Dec. 09, 2022	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 15, 2021	Jul. 08, 2022~Jul. 14, 2022	Oct. 14, 2022	Radiation (03CH11-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20MHz~8.4GHz	Oct. 21, 2021	Jul. 08, 2022~Jul. 14, 2022	Oct. 20, 2022	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz-40GHz	Mar. 10, 2022	Jul. 08, 2022~Jul. 14, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz-30MHz	Mar. 10, 2022	Jul. 08, 2022~Jul. 14, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	30MHz-18GHz	Mar. 10, 2022	Jul. 08, 2022~Jul. 14, 2022	Mar. 09, 2023	Radiation (03CH11-HY)
Filter	Wainwright	WHK20/1000C7/40SS	SN2	20M High Pass	Sep. 13, 2021	Jul. 08, 2022~Jul. 14, 2022	Sep. 12, 2022	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Jul. 08, 2022~Jul. 14, 2022	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Jul. 08, 2022~Jul. 14, 2022	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Jul. 08, 2022~Jul. 14, 2022	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Jul. 08, 2022~Jul. 14, 2022	N/A	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Nov. 26, 2021	Jul. 08, 2022~Jul. 14, 2022	Nov. 25, 2022	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTM-303B	TP200880	QA-3-031	Sep. 30, 2021	Jul. 08, 2022~Jul. 14, 2022	Sep. 29, 2022	Radiation (03CH11-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02038	1GHz~18GHz	Aug. 04, 2021	May 28, 2022~ Jul. 15, 2022	Aug. 03, 2022	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00993	18GHz~40GHz	Nov. 30, 2021	May 28, 2022~ Jul. 15, 2022	Nov. 29, 2022	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055006	1GHz~18GHz	May 05, 2022	May 28, 2022~ Jul. 15, 2022	May 04, 2023	Radiation (03CH15-HY)
Preamplifier	EM Electronics	EM01G18G	060803	1GHz-18GHz	Dec. 16, 2021	May 28, 2022~ Jul. 15, 2022	Dec. 15, 2022	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	060715	18-40GHz	Dec. 24, 2021	May 28, 2022~ Jul. 15, 2022	Dec. 23, 2022	Radiation (03CH15-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20MHz~8.4GHz	Oct. 21, 2021	May 28, 2022~ Jul. 15, 2022	Oct. 20, 2022	Radiation (03CH15-HY)
Spectrum Analyzer	Keysight	N9010B	MY60240520	10Hz~44GHz	Dec. 23, 2021	May 28, 2022~ Jul. 15, 2022	Dec. 22, 2022	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	May 28, 2022~ Jul. 15, 2022	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	May 28, 2022~ Jul. 15, 2022	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24(k5)	RK-000451	N/A	N/A	May 28, 2022~ Jul. 15, 2022	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104, 102E	MY9838/4PE, 508405/2E, 582185/4	30MHz~18G	May 12, 2022	May 28, 2022~ Jul. 15, 2022	May 11, 2023	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	804011/2, 804012/2	30MHz-40GHz	Jan. 04, 2022	May 28, 2022~ Jul. 15, 2022	Jan. 03, 2023	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 10, 2022	May 28, 2022~ Jul. 15, 2022	Mar. 09, 2023	Radiation (03CH15-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV3044	101009	9kHz to 44GHz	Nov. 11, 2021	May 16, 2022~ Jul. 16, 2022	Nov. 10, 2022	Radiation (03CH18-HY)
Spectrum Analyzer	Rohde & Schwarz	FSW43	101456	9kHz to 44GHz	Feb. 28, 2022	May 16, 2022~ Jul. 16, 2022	Feb. 27, 2023	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	RPG FS-Z60	100986	40GHz to 60GHz	Apr. 09, 2021	May 16, 2022~ Jul. 16, 2022	Apr. 08, 2024	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	RPG FS-Z75	101557	50 GHz to 75 GHz	Apr. 06, 2021	May 16, 2022~ Jul. 16, 2022	Apr. 05, 2024	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	FSZ-90	101811	60GHz to 90GHz	Nov. 16, 2021	May 16, 2022~ Jul. 16, 2022	Nov. 15, 2024	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	RPG FS-Z140	101128	90GHz to 140GHz	Oct. 26, 2020	May 16, 2022~ Jul. 16, 2022	Oct. 25, 2023	Radiation (03CH18-HY)
Harmonic Mixer	Rohde & Schwarz	RPG FS-Z220	101014	140GHz to 220GHz	Dec. 06, 2021	May 16, 2022~ Jul. 16, 2022	Dec. 05, 2024	Radiation (03CH18-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Antenna	Quinstar	QWH-UPRR00	QWH-UPRR00-01	40-60 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-VPRR00	1371800009	50-75 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-VPRR00	1371800008	50-75 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-EPRR00	1372000000	60-90 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-FPRR00	1011500008	90-140 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Antenna	Quinstar	QWH-GPRR00	QWH-GPRR00-01	140-220 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Low noise amplifier	Eravant	SBL-5037531850-1515-E1	07115-01	50 ~ 75 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801589/2	N/A	Nov. 30, 2021	May 16, 2022~ Jul. 16, 2022	Nov. 29, 2022	Radiation (03CH18-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801607/2	N/A	Nov. 30, 2021	May 16, 2022~ Jul. 16, 2022	Nov. 29, 2022	Radiation (03CH18-HY)
Detector	Quinstars	QEA-FBFBVP	2672009	50 ~ 75 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Amplifier	Quinstars	QLW-50754530-I2	953600006	50 ~ 75 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Oscilloscope	Rohde & Schwarz	RTO 1002	400025	600MHz, 10GSa/sec	Sep. 25, 2021	May 16, 2022~ Jul. 16, 2022	Sep. 24, 2022	Radiation (03CH18-HY)
Power Meter	Agilent	E4419B	GB43312306	N/A	Apr. 12, 2022	May 16, 2022~ Jul. 16, 2022	Apr. 11, 2023	Radiation (03CH18-HY)
Power Sensor	Keysight	V8486A	MY60170002	50 ~ 75 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Signal Generator	Anritsu	MG3710A	6261943042	100kHz ~ 40GHz	May 23, 2022	May 23, 2022~ Jul. 16, 2022	May 22, 2023	Radiation (03CH18-HY)
Active Frequency Multiplier	Eravant	SFA-503753416-15KF-E1	03099-01	50 ~ 75 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)
Thermal Chamber	ESPEC	SU-641	92013721	-30℃ ~70℃	Oct. 21, 2021	May 16, 2022~ Jul. 16, 2022	Oct. 20, 2022	Radiation (03CH18-HY)
AC Power Source	AC POWER	AFC-500W	F104070011	50Hz~60Hz	Sep. 14, 2021	May 16, 2022~ Jul. 16, 2022	Sep. 13, 2022	Radiation (03CH18-HY)
Attenuator	SAGE	STA-30-15-M2	18953-02	50 ~ 75 GHz	Jul. 06, 2021	May 16, 2022~ Jul. 16, 2022	Jul. 05, 2024	Radiation (03CH18-HY)

Note: (*) Equipment manufacturer's Calibration Certificate.

6 Uncertainty of Evaluation

Test Item	Uncertainty
AC Power Conducted Emission Measurement (150 kHz ~ 30 MHz)	±3.1dB
Radiated Emission Measurement (9 kHz ~ 30 MHz)	±3.7dB
Radiated Emission Measurement (30 MHz ~ 1000 MHz)	±5.8dB
Radiated Emission Measurement (1 GHz ~ 18 GHz)	±5.3dB
Radiated Emission Measurement (18 GHz ~ 40 GHz)	±5.6dB
Radiated Emission Measurement (40 GHz ~ 140 GHz)	±5.6dB
Radiated Emission Measurement (140 GHz ~ 200 GHz)	±6.6dB
Emission Bandwidth	±110 KHz
Frequency Stability	±100 KHz
Temperature	±1.4°C

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)



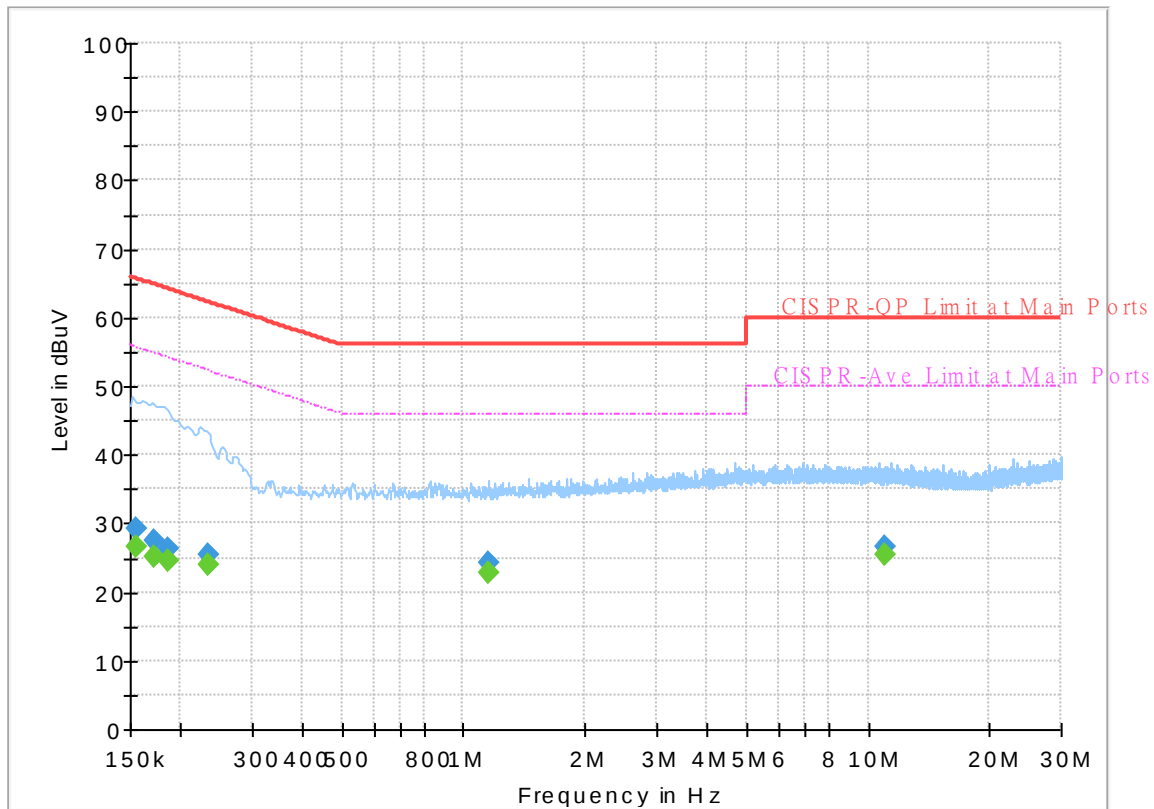
Appendix A. AC Conducted Emission Test Results

Test Engineer :	Calvin Wang	Temperature :	23~26℃
		Relative Humidity :	45~55%

EUT Information

Report NO : 1D2427-01
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Line

Full Spectrum



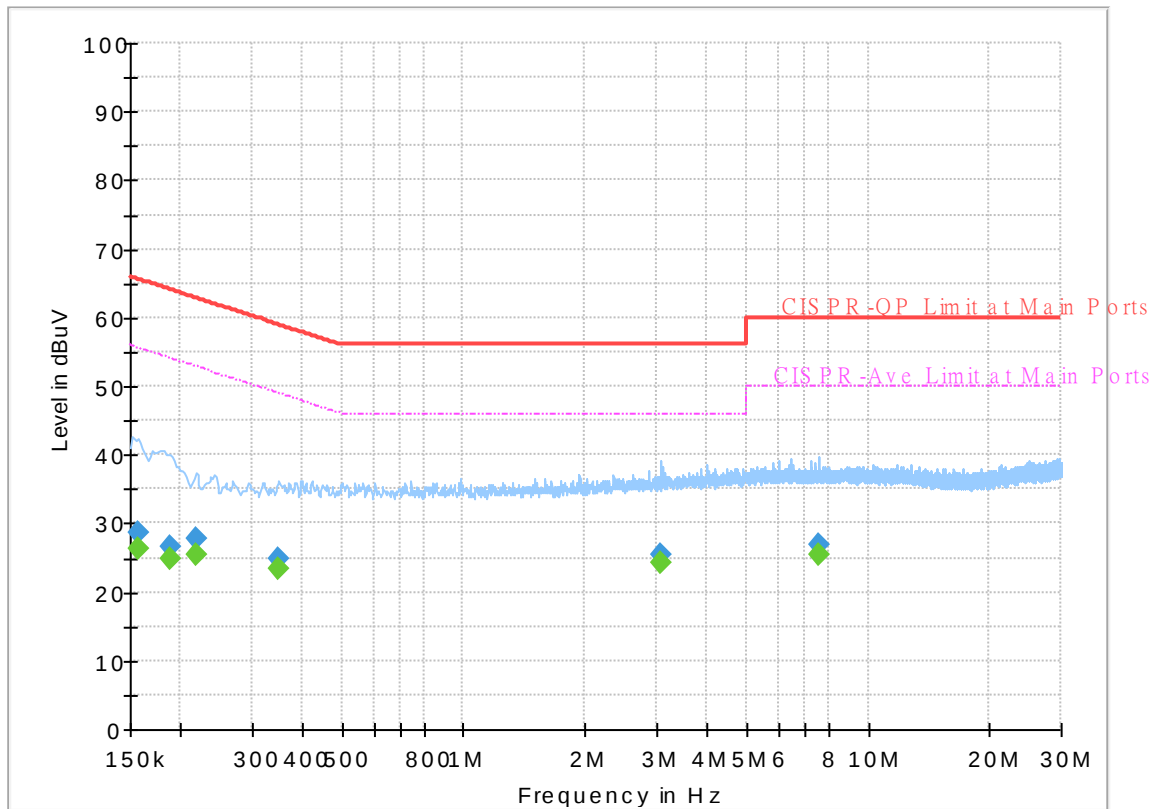
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.154500	---	26.66	55.75	29.09	L1	OFF	19.6
0.154500	29.11	---	65.75	36.64	L1	OFF	19.6
0.172500	---	25.08	54.84	29.76	L1	OFF	19.6
0.172500	27.37	---	64.84	37.47	L1	OFF	19.6
0.186000	---	24.51	54.21	29.70	L1	OFF	19.6
0.186000	26.28	---	64.21	37.93	L1	OFF	19.6
0.233250	---	23.91	52.33	28.42	L1	OFF	19.6
0.233250	25.36	---	62.33	36.97	L1	OFF	19.6
1.155750	---	22.91	46.00	23.09	L1	OFF	19.7
1.155750	24.26	---	56.00	31.74	L1	OFF	19.7
10.965750	---	25.32	50.00	24.68	L1	OFF	20.1
10.965750	26.65	---	60.00	33.35	L1	OFF	20.1

EUT Information

Report NO : 1D2427-01
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156750	---	26.28	55.63	29.35	N	OFF	19.6
0.156750	28.60	---	65.63	37.03	N	OFF	19.6
0.188250	---	24.85	54.11	29.26	N	OFF	19.6
0.188250	26.70	---	64.11	37.41	N	OFF	19.6
0.217500	---	25.39	52.91	27.52	N	OFF	19.6
0.217500	27.92	---	62.91	34.99	N	OFF	19.6
0.350250	---	23.27	48.96	25.69	N	OFF	19.6
0.350250	24.92	---	58.96	34.04	N	OFF	19.6
3.077250	---	24.27	46.00	21.73	N	OFF	19.7
3.077250	25.58	---	56.00	30.42	N	OFF	19.7
7.586250	---	25.37	50.00	24.63	N	OFF	20.0
7.586250	26.94	---	60.00	33.06	N	OFF	20.0

—THE END—