Report on the RF Testing of:

KING JIM CO., LTD.
Digital Typewriter “pomera”, Model: DM250US
FCC ID: 2AWV4-DM250US

In accordance with FCC Part15 Subpart C

Prepared for: KING JIM CO., LTD.
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COMMERCIAL-IN-CONFIDENCE

Document Number: JPD-TR-24003-0

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EXECUTIVE SUMMARY – Result: Complied
A sample of this product was tested and the result above was confirmed in accordance with FCC Part15 Subpart C.

Certificate #3686.03

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1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-24003-0	First Issue	Refer to the cover page

1.2 Standards

CFR47 FCC Part 15 Subpart C

1.3 Test methods

ANSI C63.10-2013
KDB 558074 D01 15.247 Meas Guidance v05r02

1.4 Deviation from standards

None

1.5 List of applied test(s) of the EUT

Test item section	Test item	Condition	Result	Remark
15.247(a)(2)	DTS Bandwidth / Occupied Bandwidth (99%)	Conducted	PASS	-
15.247(b)(3)	Maximum conducted (average) output power	Conducted	PASS	-
15.247(d)	Band Edge Compliance of RF Conducted Emissions	Conducted	PASS	-
15.247(d) 15.205 15.209	Spurious Emissions	Conducted	PASS	-
		Radiated	PASS	-
15.247(d) 15.205 15.209	Restricted Bands of Operation	Radiated	PASS	-
15.247(e)	Transmitter Power Spectral Density	Conducted	PASS	-
15.207	AC Power Line Conducted Emissions	Conducted	PASS	-

1.6 Test information

None

1.7 Test set up

Table-top

1.8 Test period

19-December-2023 - 10-January-2024

2 Equipment Under Test

All information in this chapter was provided by the applicant.

2.1 EUT information

Applicant	KING JIM CO., LTD. 2-10-18, Higashi-Kanda, Chiyoda-ku, Tokyo, 101-0031, Japan Phone: +(81) 3-3864-8080
Equipment Under Test (EUT)	Digital Typewriter “pomera”
Model number	DM250US
Serial number	D250K312217, D250K312218
Trade name	KING JIM
Number of sample(s)	2
EUT condition	Prototype
Power rating	Battery: DC 5 V
Size	(W) 263 mm × (D) 120 mm × (H) 18 mm
Environment	Indoor and Outdoor use
Terminal limitation	-10 ˚C to 55 ˚C
Hardware version	Pre-Production
Software version	0.1.0.16
Firmware version	Not applicable
RF Specification	
Protocol	IEEE802.11b, IEEE802.11g, IEEE802.11n (HT20),
Frequency range	IEEE802.11b /11g /11n (HT20): 2412 MHz-2462 MHz
Number of RF Channels	11 Channels
Modulation type	IEEE802.11b: DSSS (DBPSK, DQPSK, CCK) IEEE802.11g / 11n (HT20): OFDM (BPSK, QPSK, 16QAM, 64QAM)
Data rate	IEEE802.11b: 1, 2, 5.5, 11Mbps IEEE802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps IEEE802.11n (HT20 LGI): 6.5, 13, 19.5, 26, 39, 52, 58.5, 65Mbps IEEE802.11n (HT20 SGI): 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2Mbps
Channel separation	5 MHz
Conducted power	66.988 mW (IEEE802.11b) 218.776 mW (IEEE802.11g) 172.982 mW (IEEE802.11n: HT20)
Antenna type	Internal antenna
Antenna gain	+2.0 dBi

2.2 Modification to the EUT

The table below details modifications made to the EUT during the test project.

Modification State	Description of Modification	Modification fitted by	Date of Modification
Model: DM250US, Serial Number: D250K312217, D250K312218			
0	As supplied by the applicant	Not Applicable	Not Applicable

2.3 Variation of family model(s)

2.3.1 List of family model(s)

Not applicable

2.3.2 Reason for selection of EUT

Not applicable

2.4 Operating channels and frequencies

Channel	Frequency [MHz]
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

2.5 Description of test mode

The EUT had been tested under operating condition.
There are three channels have been tested as following:

Tested Channel [11b, 11g, 11n(HT20)]	Frequency [MHz]
Low	2412
Middle	2437
High	2462

The pre-test has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates.

Tested Channel	Modulation Type	Data Rate
Low, Middle, High	IEEE802.11b: DSSS	1Mbps
Low, Middle, High	IEEE802.11g: OFDM	6Mbps
Low, Middle, High	IEEE802.11n (HT20 LGI): OFDM	MCS0 (6.5Mbps)

The field strength of spurious emissions was measured at each position of all three axis X, Y and Z to compare the level, and the maximum noise.
The worst emission was found in Y-axis.
Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports.

2.6 Operating flow

- Tx mode

i) Test program setup to the Software
ii) Select a Test mode
[IEEE802.11b, IEEE802.11g, IEEE802.11n (HT20)]
Operating frequency: Channel Low: 2412MHz, Channel Middle: 2437MHz, Channel High: 2462MHz
iii) Start test mode

- Rx mode

i) Test program setup to the Software
ii) Select a Test mode
[IEEE802.11b, IEEE802.11g, IEEE802.11n (HT20)]
Operating frequency: Channel Low: 2412MHz, Channel Middle: 2437MHz, Channel High: 2462MHz
iii) Start test mode

3 Configuration of Equipment

Numbers assigned to equipment on the diagram in “3.3 System configuration” correspond to the list in “3.1 Equipment used” and “3.2 Cable(s) used”.
This test configuration is based on the manufacture’s instruction.
Cabling and setup(s) were taken into consideration and test data was taken under worse case condition.

3.1 Equipment used

No.	Equipment	Company	Model No.	Serial No.	FCC ID/DoC	Comment
1	Digital Typewriter “pomera”	KING JIM	DM250US	D250K312217 D250K312218	2AWV4-DM250US	EUT
2	AC Adapter	KING JIM	CP0151UA	N/A	DoC	*

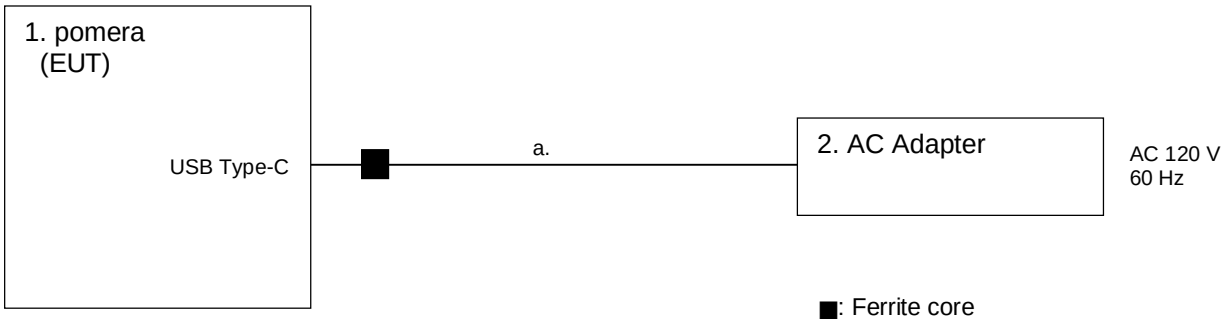
*:AC power line Conducted Emission Test.

3.2 Cable(s) used

No.	Equipment	Length[m]	Shield	Connector	Comment
a	USB cable (for AC Adapter)	1.0	No	Plastic	*

*:AC power line Conducted Emission Test.

3.3 System configuration



4 Test Result

4.1 DTS Bandwidth / Occupied Bandwidth (99%)

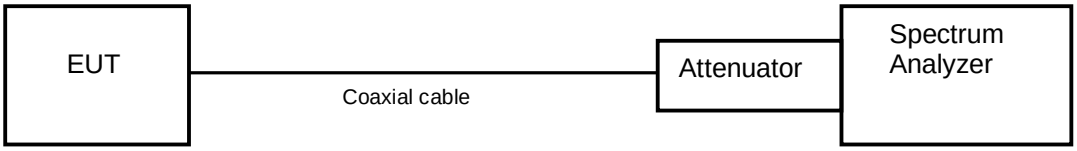
4.1.1 Measurement procedure

[FCC 15.247(a)(2), KDB 558074 D01 v05r02, Section 8.2]

The bandwidth at 6dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
a) RBW = 100kHz.
b) VBW ≥ 3 x RBW.
c) Sweep time = auto-couple.
d) Detector = peak.
e) Trace mode = max hold.

- Test configuration



4.1.2 Limit

The minimum permissible 6 dB bandwidth is 500 kHz.

4.1.3 Measurement result

Date : 10-January-2024
Temperature : 21.2 [˚C]
Humidity : 45.6 [%] Test engineer :
Test place : Shielded room No.4 Tadahiro Seino

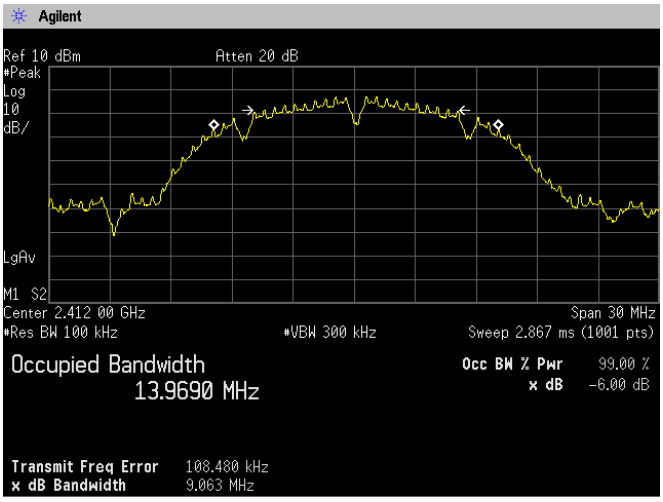
Channel	DTS Bandwidth [MHz]		
	IEEE802.11b	IEEE802.11g	IEEE802.11n (HT20)
Low	9.063	15.104	15.136
Middle	8.578	15.138	15.127
High	9.025	15.130	15.144

Channel	Occupied Bandwidth (99%) [MHz]		
	IEEE802.11b	IEEE802.11g	IEEE802.11n (HT20)
Low	13.969	16.292	17.445
Middle	13.943	16.300	17.457
High	13.865	16.304	17.463

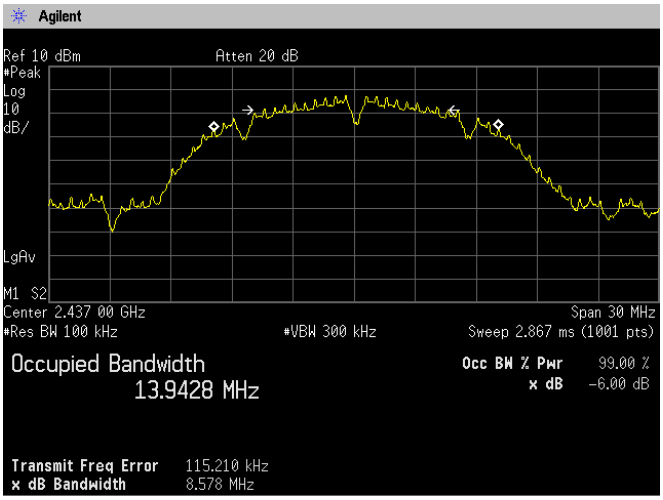
4.1.4 Trace data

[IEEE802.11b]

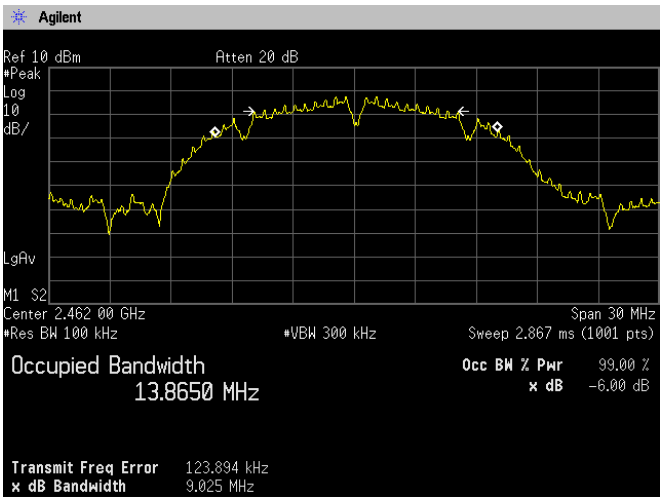
Channel Low



Channel Middle

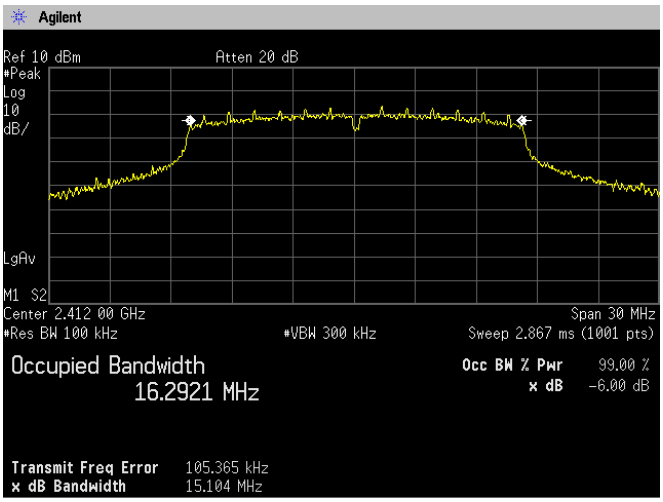


Channel High

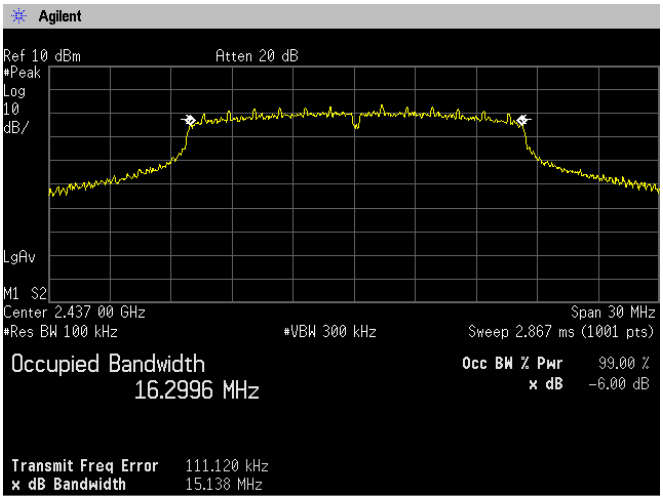


[IEEE802.11g]

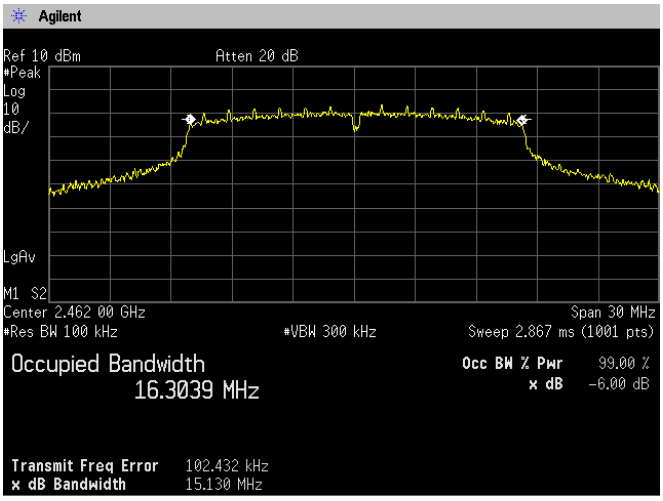
Channel Low



Channel Middle

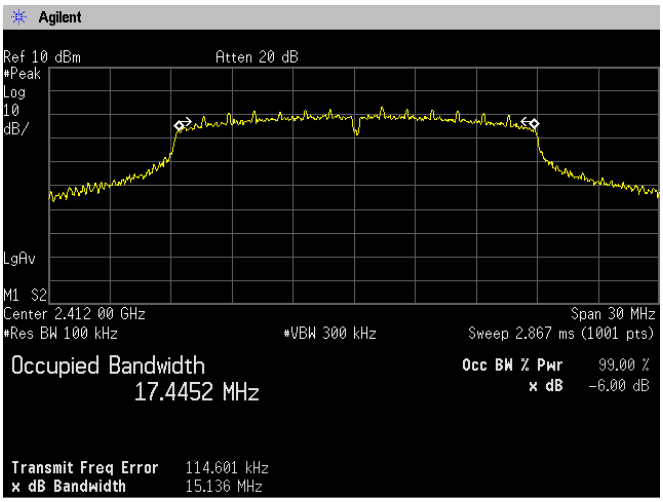


Channel High

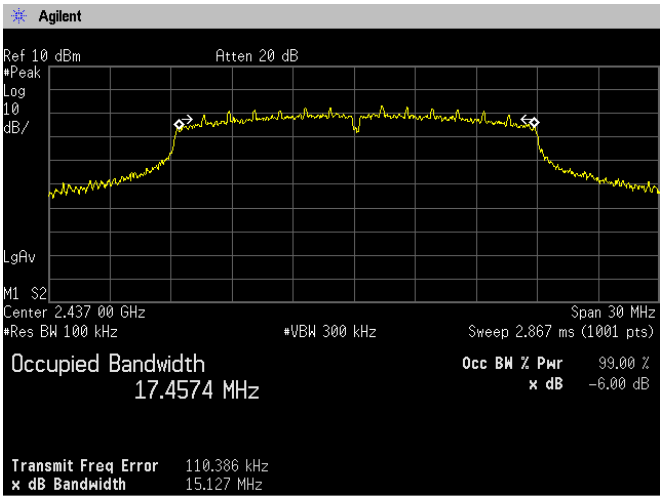


[IEEE802.11n (HT20)]

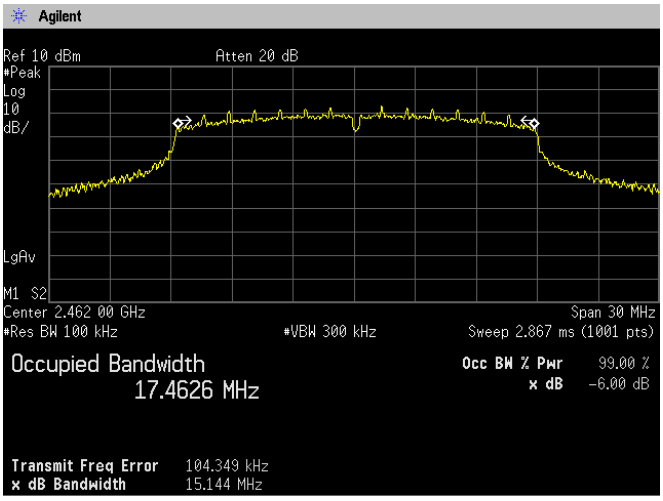
Channel Low



Channel Middle



Channel High



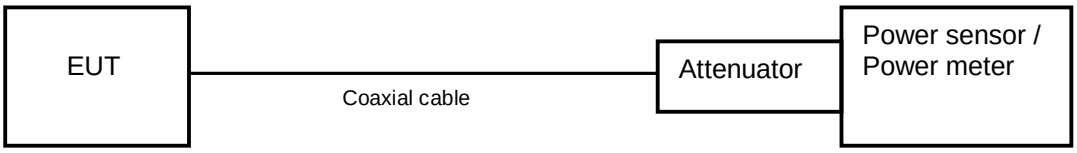
4.2 Maximum Conducted Output Power

4.2.1 Measurement procedure

[FCC 15.247(b)(3), KDB 558074 D01 v05r02, Section 8.3.1.3]

The peak power is measured with a power sensor connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

- Test configuration



4.2.2 Limit

1 W (1000 mW) or less

4.2.3 Measurement result

Date	:	10-January-2024			
Temperature	:	21.2 [˚C]			
Humidity	:	45.6 [%]	Test engineer	:	
Test place	:	Shielded room No.4			Tadahiro Seino

[IEEE802.11b]
Battery Full

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Peak Output Power (mW)	Limit (mW)	Result
Low	2412	7.65	10.39	18.04	63.680	≦1000	PASS
Middle	2437	7.79	10.39	18.18	65.766	≦1000	PASS
High	2462	7.87	10.39	18.26	66.988	≦1000	PASS

[IEEE802.11g]
Battery Full

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Peak Output Power (mW)	Limit (mW)	Result
Low	2412	13.01	10.39	23.40	218.776	≦1000	PASS
Middle	2437	12.50	10.39	22.89	194.536	≦1000	PASS
High	2462	12.17	10.39	22.56	180.302	≦1000	PASS

[IEEE802.11n (HT20)]
Battery Full

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Peak Output Power (mW)	Limit (mW)	Result
Low	2412	11.77	10.39	22.16	164.437	≦1000	PASS
Middle	2437	11.75	10.39	22.14	163.682	≦1000	PASS
High	2462	11.99	10.39	22.38	172.982	≦1000	PASS

Calculation;
Reading (dBm) + Factor (dB) = Level (dBm)
10logP = Level (dBm)
$P = 10^{(\text{Maximum Peak Output Power} / 10)}$ (mW)

4.3 Band Edge Compliance of RF Conducted Emissions

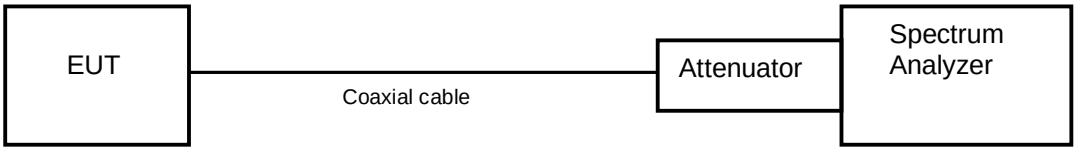
4.3.1 Measurement procedure

[FCC 15.247(d), KDB 558074 D01 v05r02, Section 8.5]

The Band Edge is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
a) Span = Arbitrary setting. (Setting suitable for measurement.)
b) RBW = 100kHz.
c) VBW ≥ 3 x RBW
d) Sweep time = auto-couple.
e) Detector = peak.
f) Trace mode = max hold.

- Test configuration



4.3.2 Limit

In any 100 kHz bandwidth outside the frequency band the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

4.3.3 Measurement result

Date : 10-January-2024
Temperature : 21.2 [˚C]
Humidity : 45.6 [%]
Test place : Shielded room No.4

Test engineer : Tadahiro Seino

[IEEE802.11b]

Channel	Frequency (MHz)	RF Power Level (dBm)	Band-edge Frequency (MHz)	Band-edge Level (dBm)	Difference Level (dBm)	Limit (dBm)	Result
Low	2412	-2.96	2397.60	-51.32	48.36	At least 20dB below from peak of RF	PASS
High	2462	-2.45	2484.06	-55.01	52.56	At least 20dB below from peak of RF	PASS

[IEEE802.11g]

Channel	Frequency (MHz)	RF Power Level (dBm)	Band-edge Frequency (MHz)	Band-edge Level (dBm)	Difference Level (dBm)	Limit (dBm)	Result
Low	2412	-6.77	2399.60	-38.75	31.98	At least 20dB below from peak of RF	PASS
High	2462	-7.26	2483.66	-48.23	40.97	At least 20dB below from peak of RF	PASS

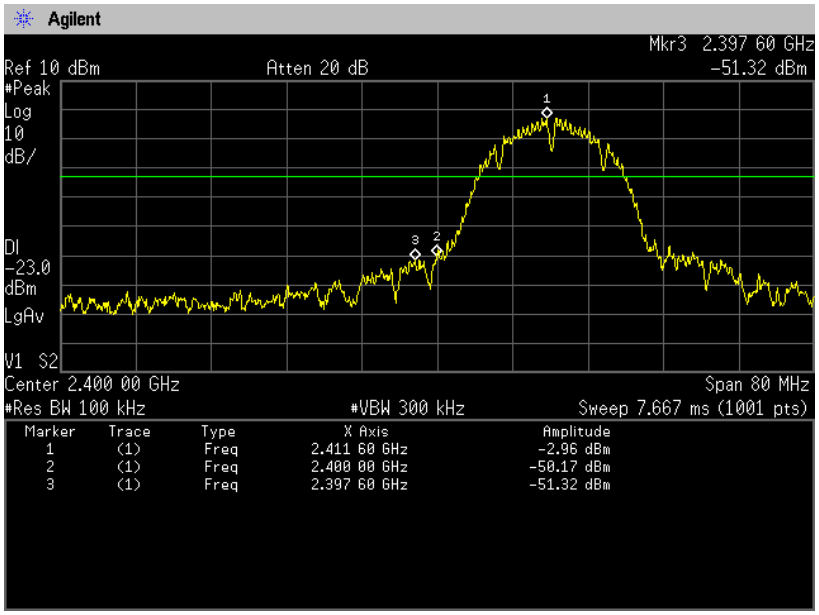
[IEEE802.11n (HT20)]

Channel	Frequency (MHz)	RF Power Level (dBm)	Band-edge Frequency (MHz)	Band-edge Level (dBm)	Difference Level (dBm)	Limit (dBm)	Result
Low	2412	-7.11	2399.28	-38.46	31.35	At least 20dB below from peak of RF	PASS
High	2462	-6.97	2483.58	-50.37	43.40	At least 20dB below from peak of RF	PASS

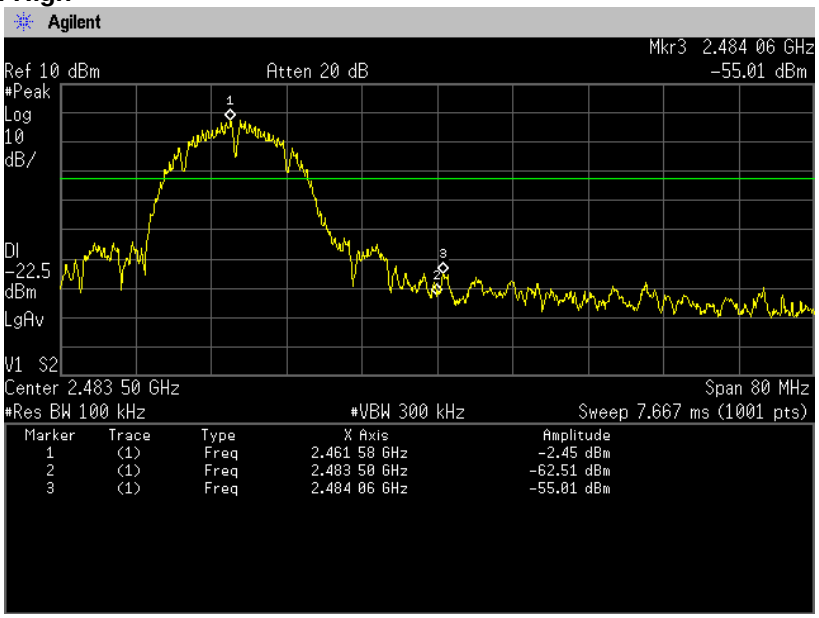
4.3.4 Trace data

[IEEE802.11b]

Channel Low

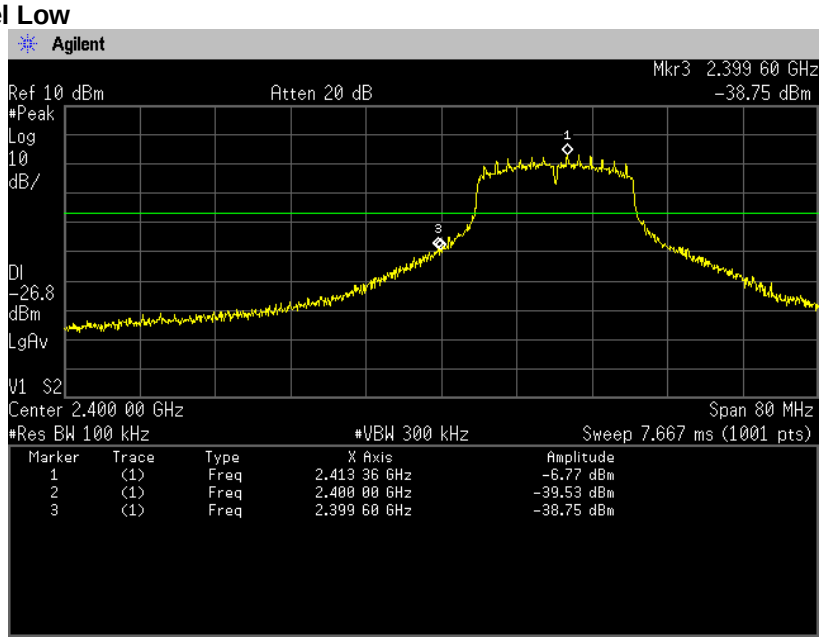


Channel High

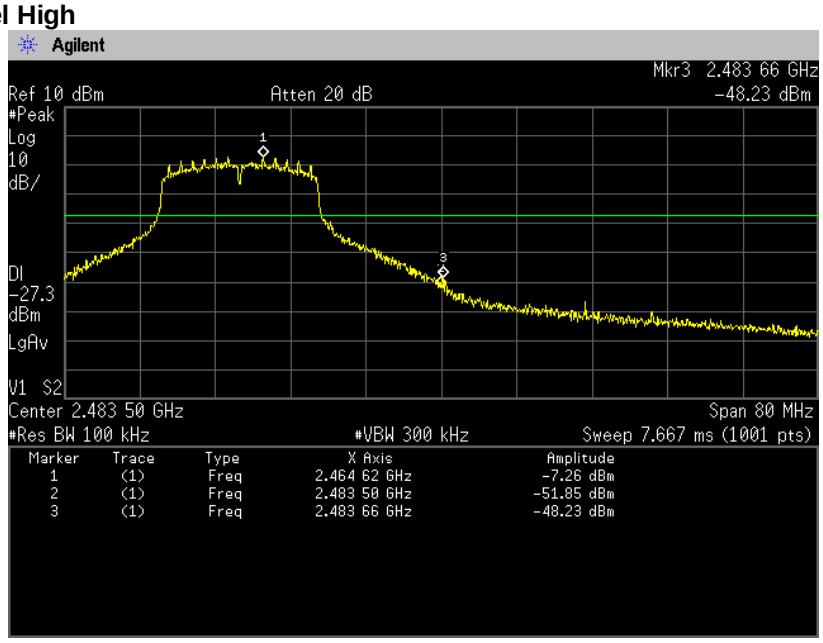


[IEEE802.11g]

Channel Low

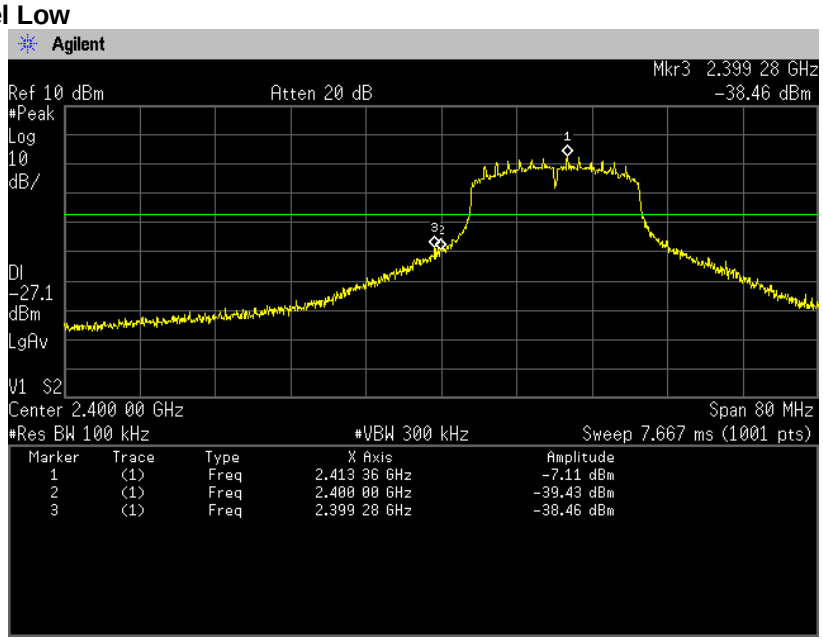


Channel High

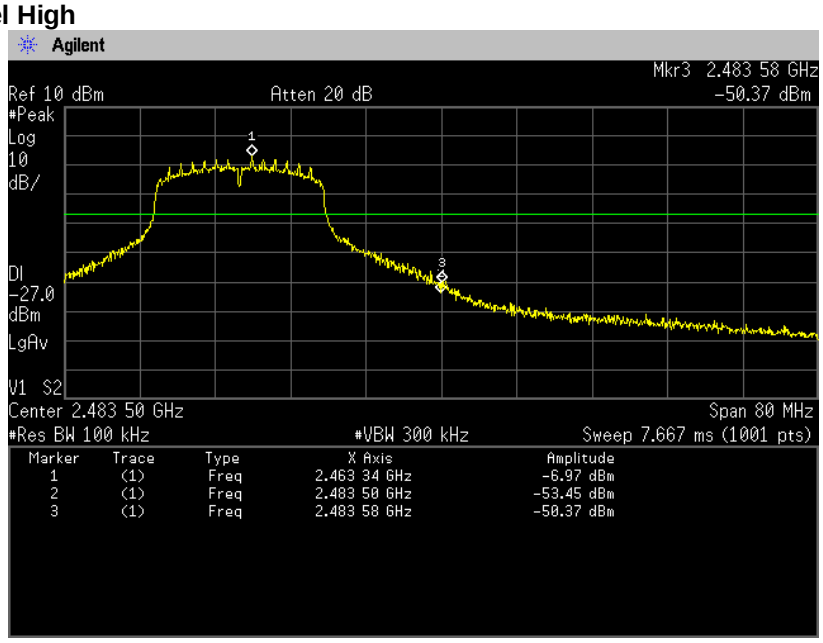


[IEEE802.11n (HT20)]

Channel Low



Channel High



4.4 Spurious Emissions - Conducted -

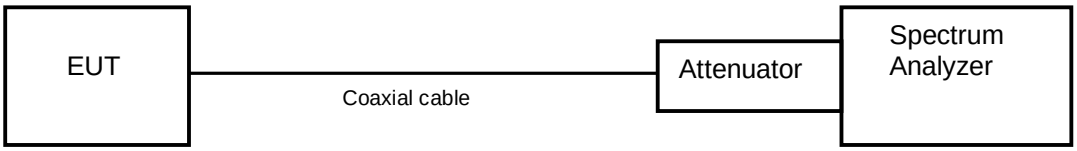
4.4.1 Measurement procedure

[FCC 15.247(d), KDB 558074 D01 v05r02, Section 8.5]

The spurious emissions (Conducted) are measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
a) Span = wide enough to fully capture the emission being measured.
b) RBW = 100 kHz.
c) VBW ≥ RBW.
d) Sweep time = auto-couple.
e) Detector = peak.
f) Trace mode = max hold.

- Test configuration



4.4.2 Limit

In any 100 kHz bandwidth outside the frequency band the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

4.4.3 Measurement result

Date : 10-January-2024
Temperature : 21.2 [˚C]
Humidity : 45.6 [%] Test engineer :
Test place : Shielded room No.4 Tadahiro Seino

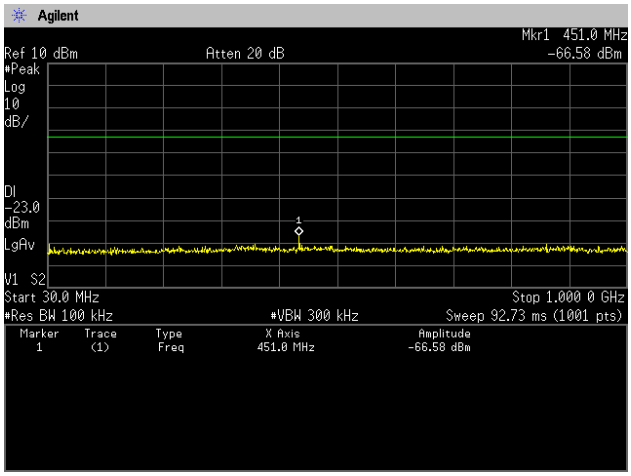
[IEEE802.11b、IEEE802.11g、IEEE802.11n (HT20)]

Channel	Frequency [MHz]	Limit [dB]	Results Chart	Result
Low	2412	At least 20dB below from peak of RF	See the trace Data	PASS
Middle	2437	At least 20dB below from peak of RF	See the trace Data	PASS
High	2462	At least 20dB below from peak of RF	See the trace Data	PASS

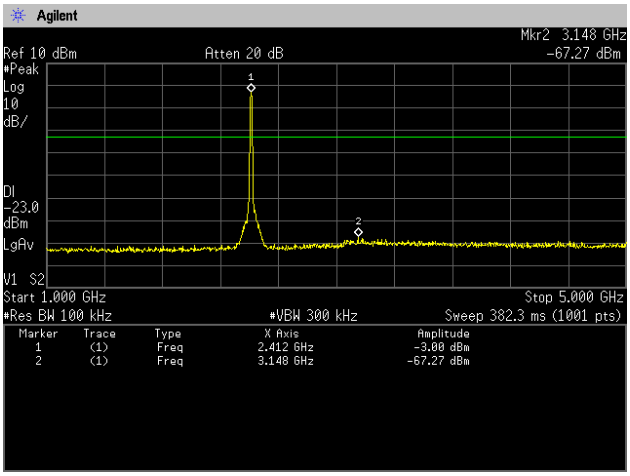
4.4.4 Trace data

[IEEE802.11b]
Channel Low

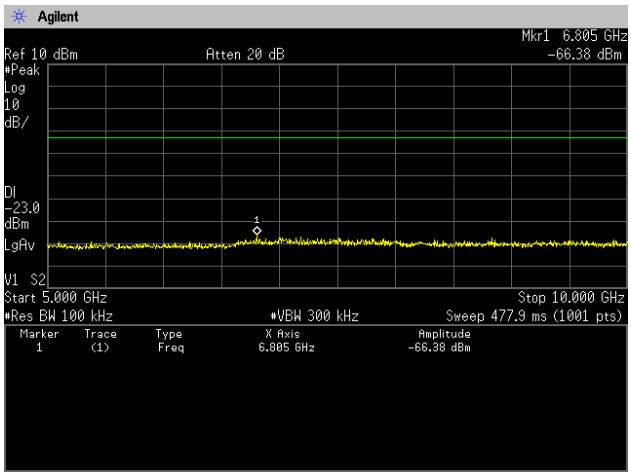
30MHz-1GHz



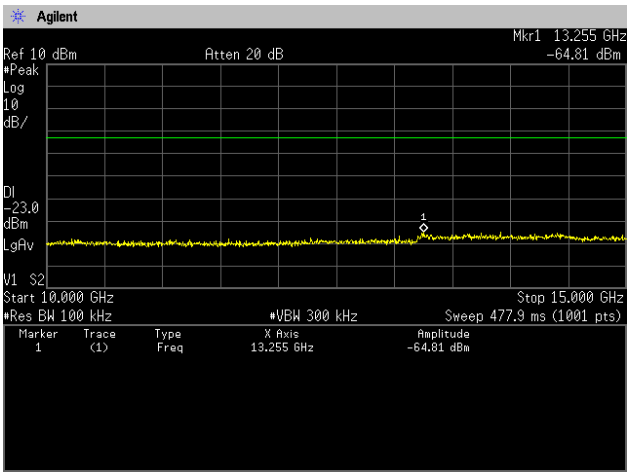
1GHz-5GHz



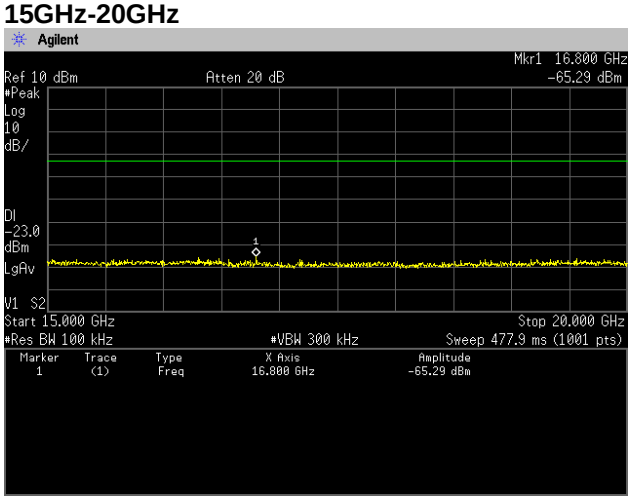
5GHz-10GHz



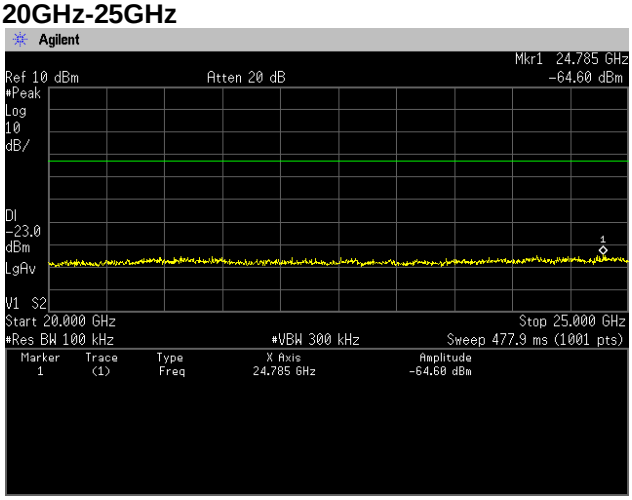
10GHz-15GHz



15GHz-20GHz

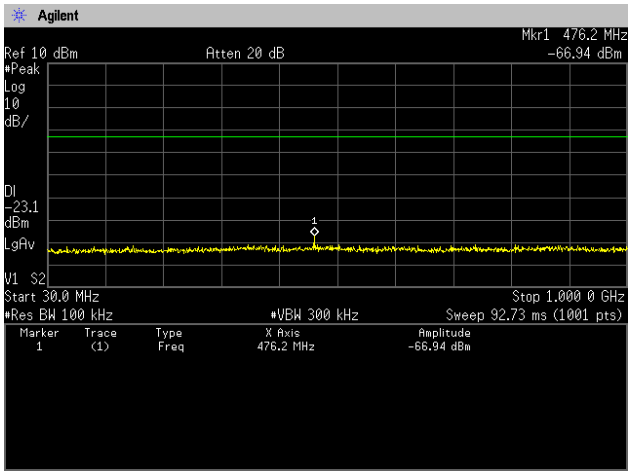


20GHz-25GHz

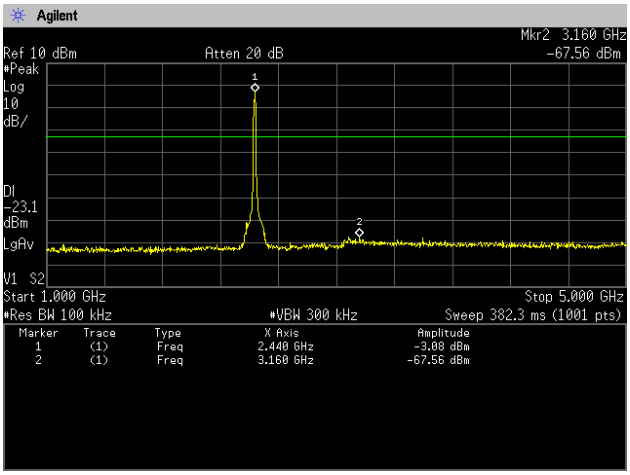


Channel Middle

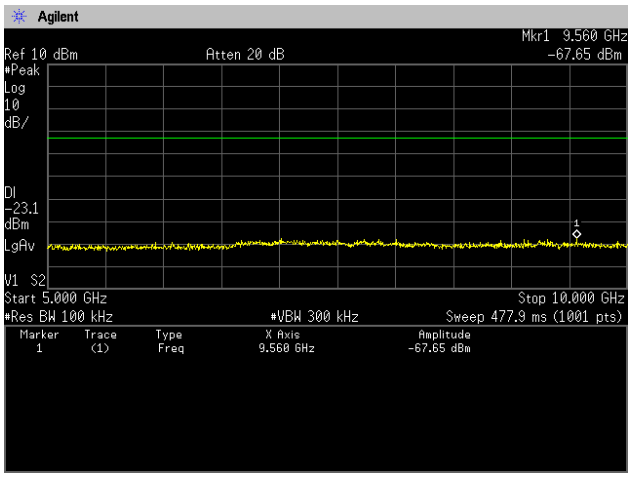
30MHz-1GHz



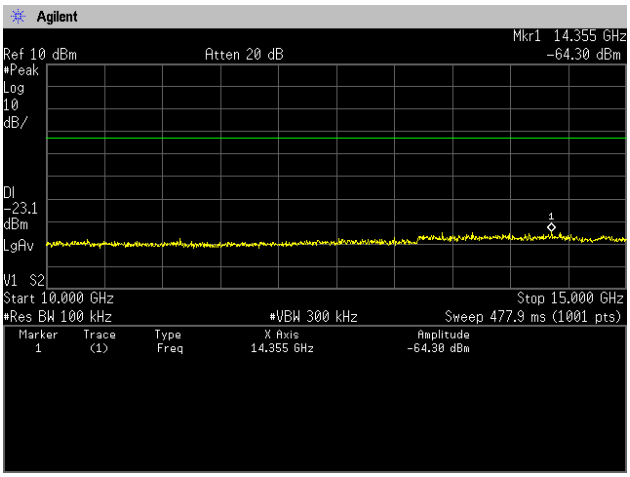
1GHz-5GHz



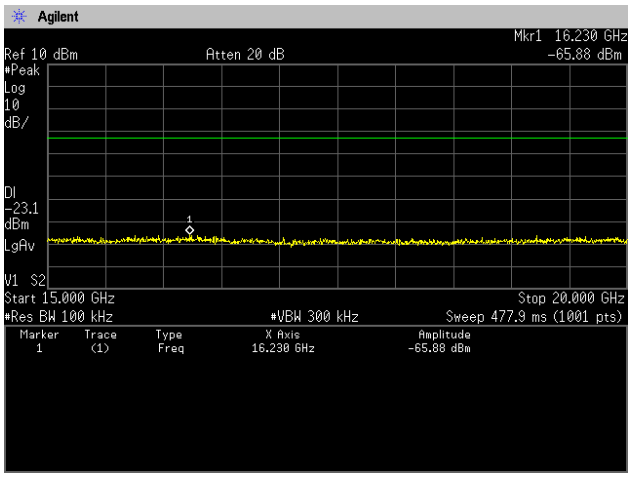
5GHz-10GHz



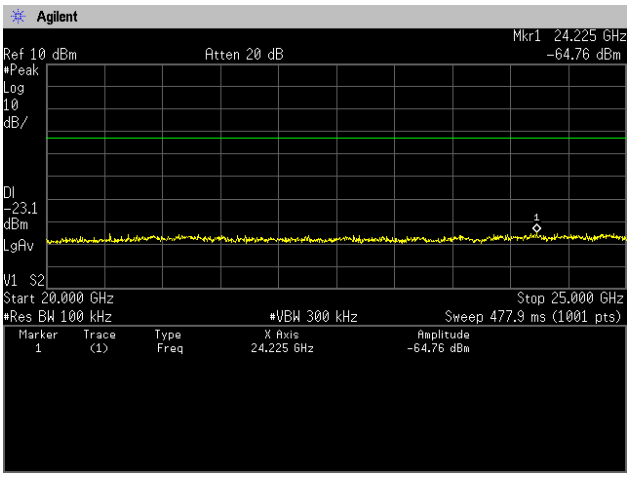
10GHz-15GHz



15GHz-20GHz

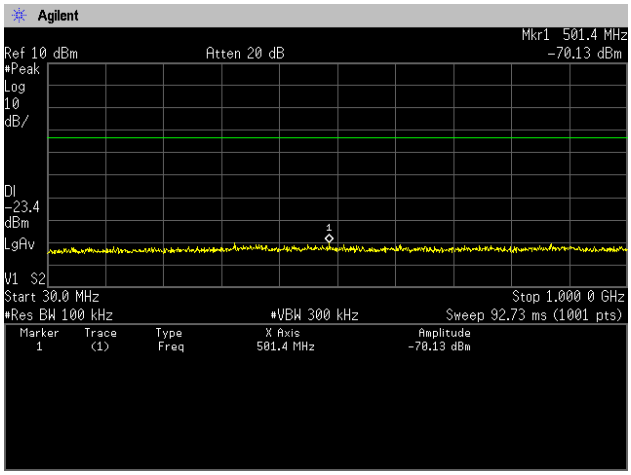


20GHz-25GHz

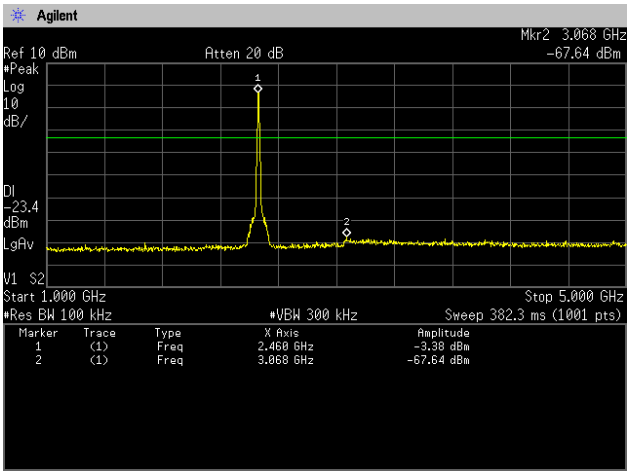


Channel High

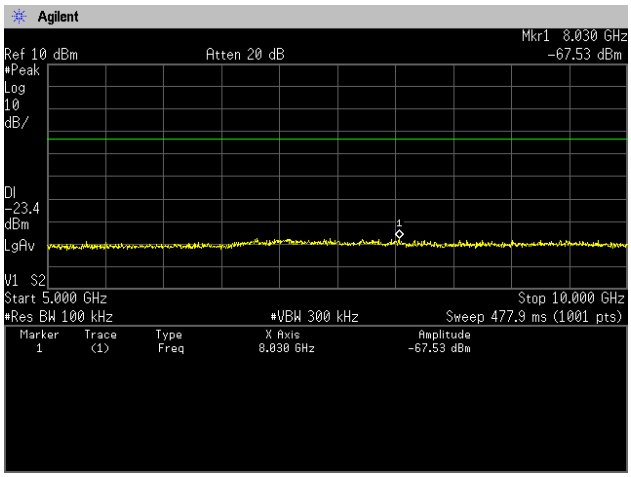
30MHz-1GHz



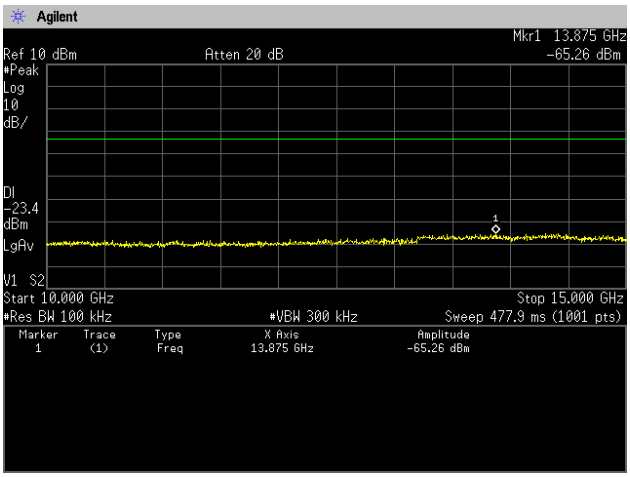
1GHz-5GHz



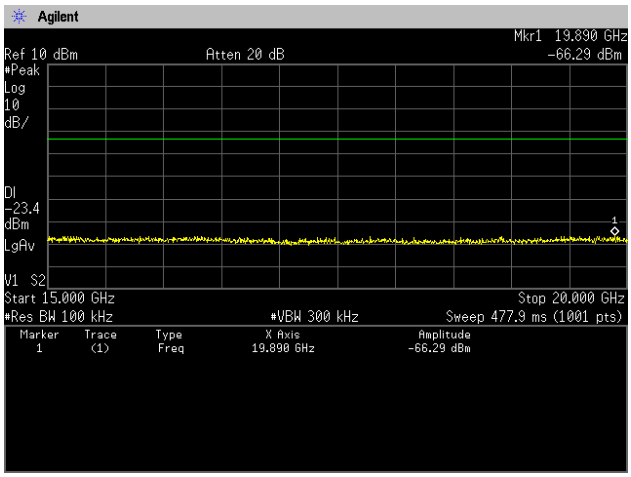
5GHz-10GHz



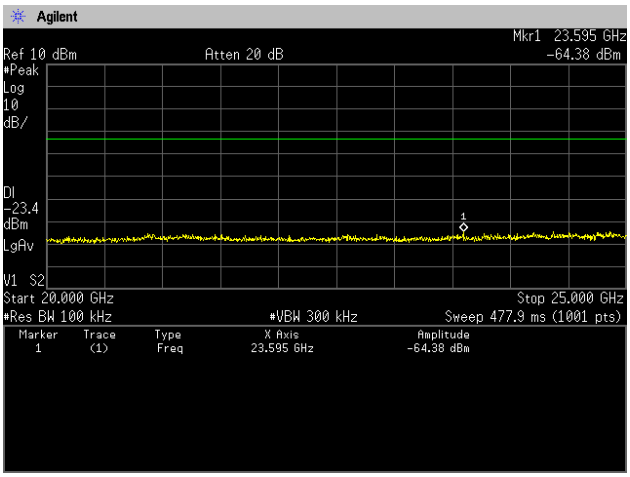
10GHz-15GHz



15GHz-20GHz

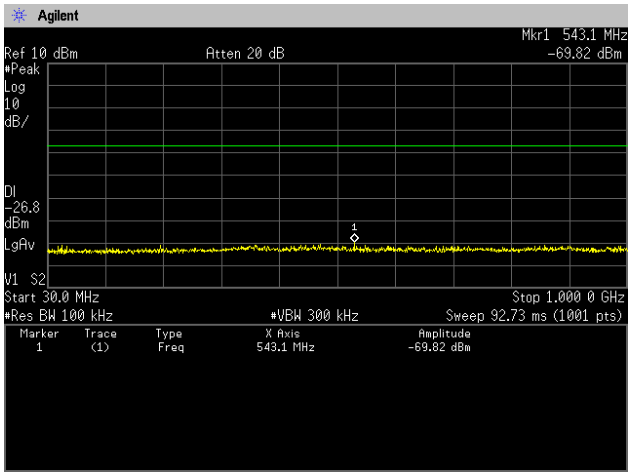


20GHz-25GHz

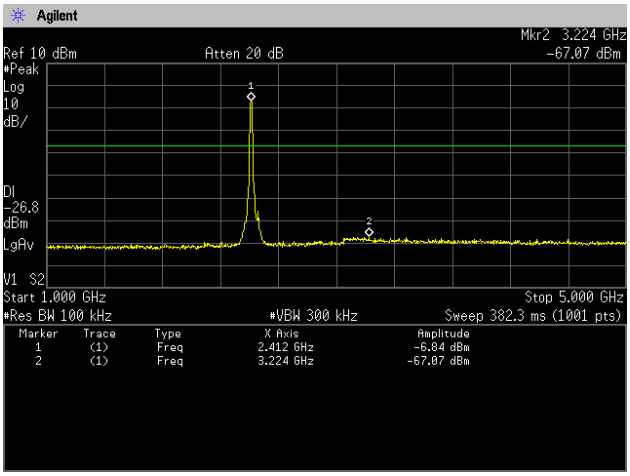


[IEEE802.11g]
Channel Low

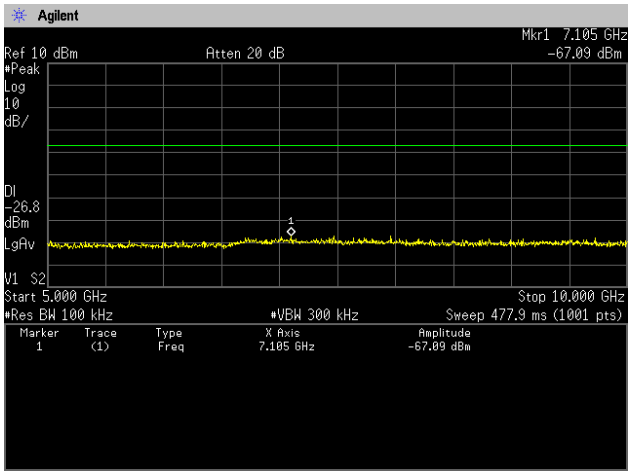
30MHz-1GHz



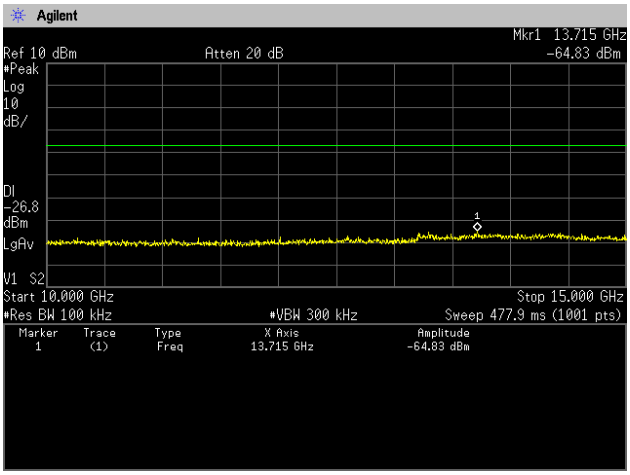
1GHz-5GHz



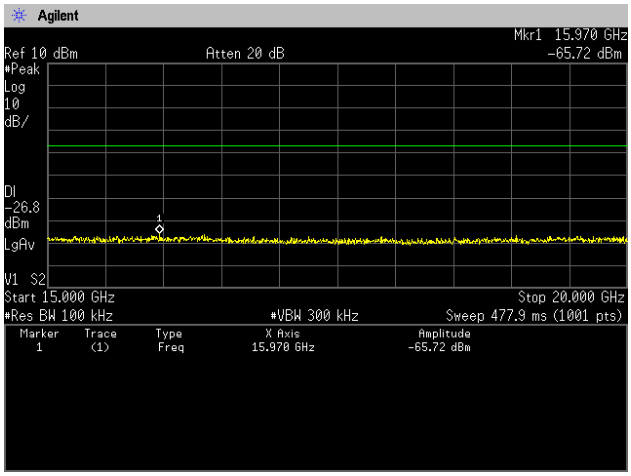
5GHz-10GHz



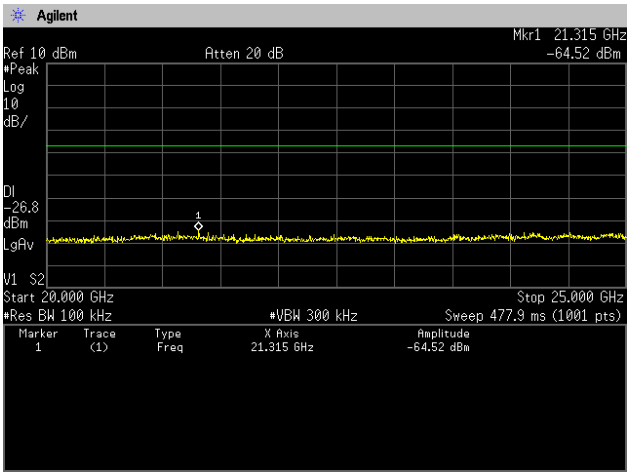
10GHz-15GHz



15GHz-20GHz

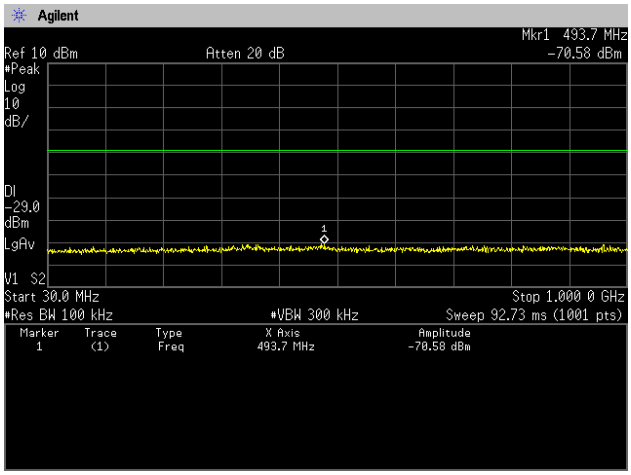


20GHz-25GHz

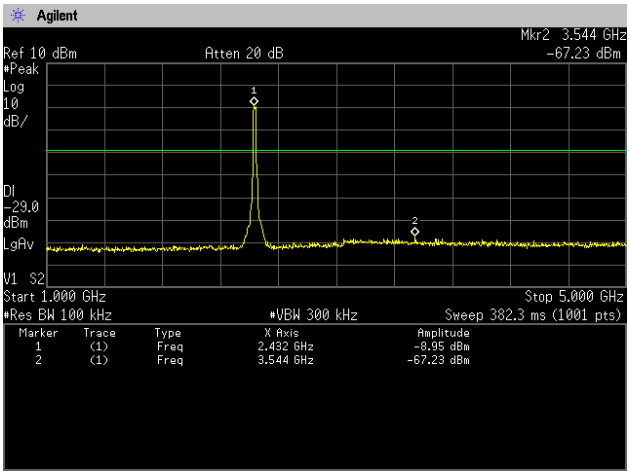


Channel Middle

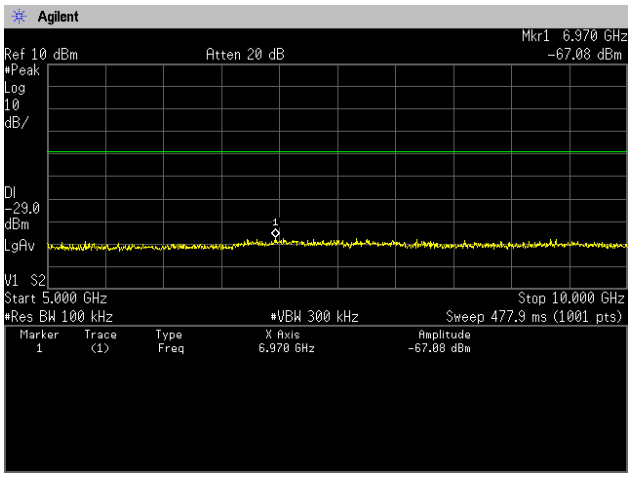
30MHz-1GHz



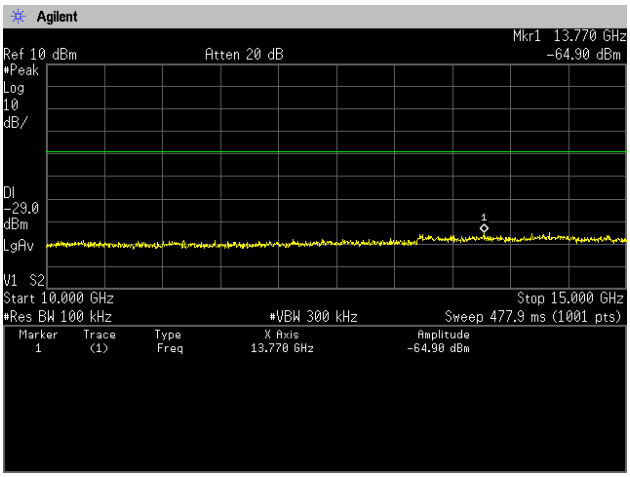
1GHz-5GHz



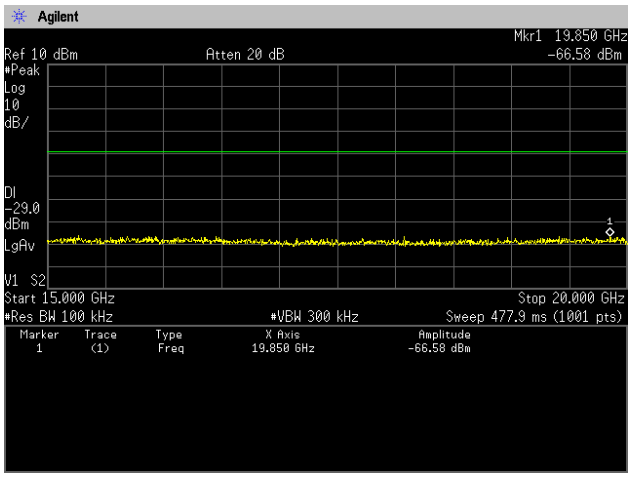
5GHz-10GHz



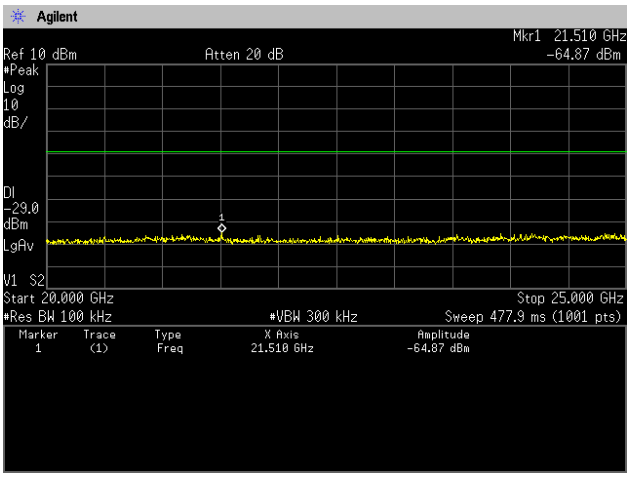
10GHz-15GHz



15GHz-20GHz

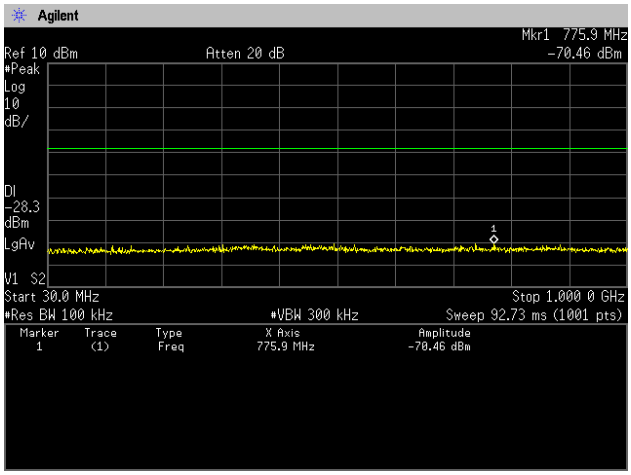


20GHz-25GHz

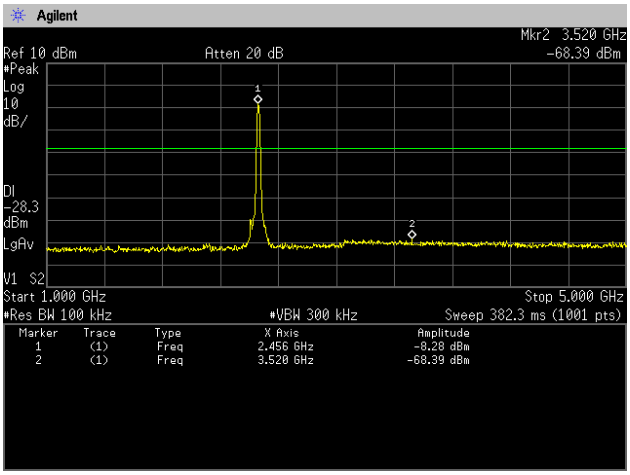


Channel High

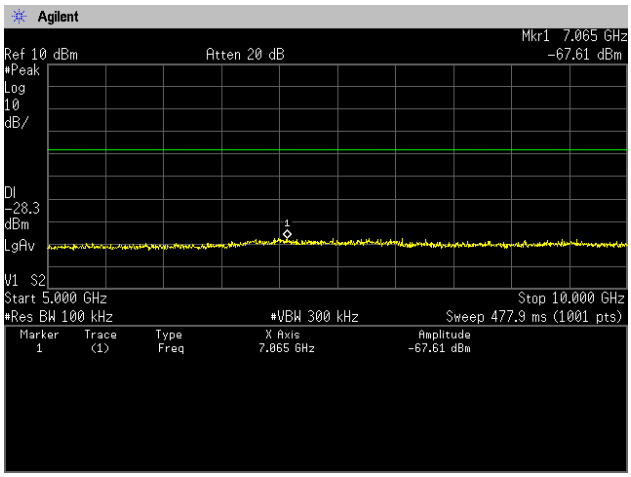
30MHz-1GHz



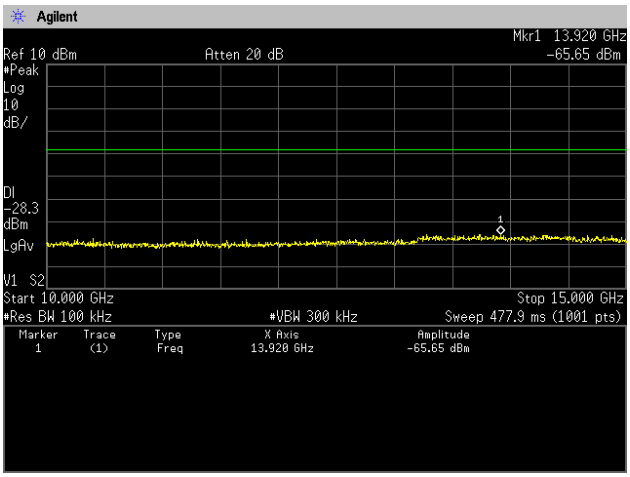
1GHz-5GHz



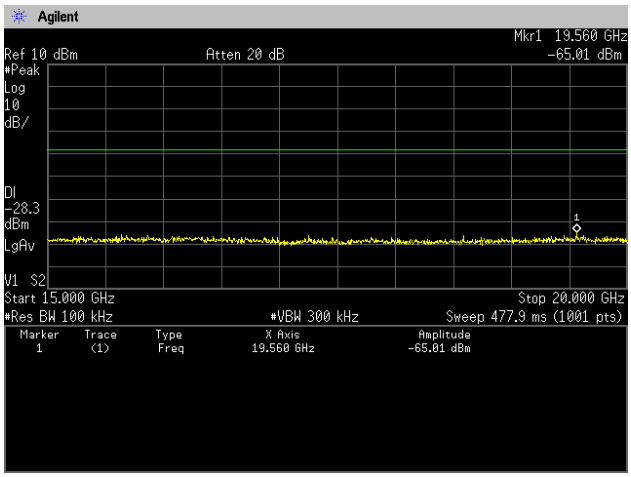
5GHz-10GHz



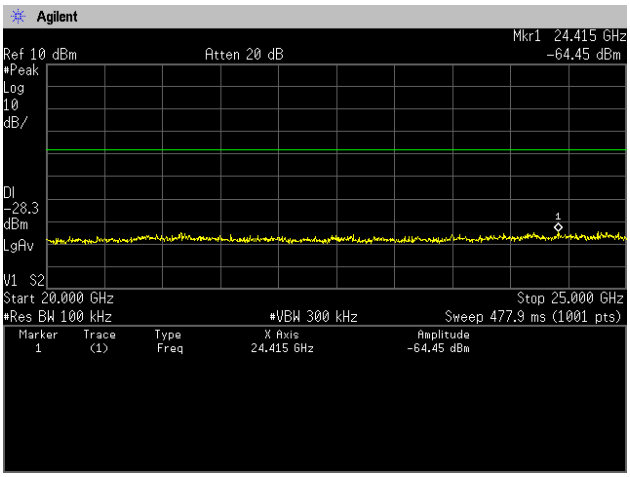
10GHz-15GHz



15GHz-20GHz

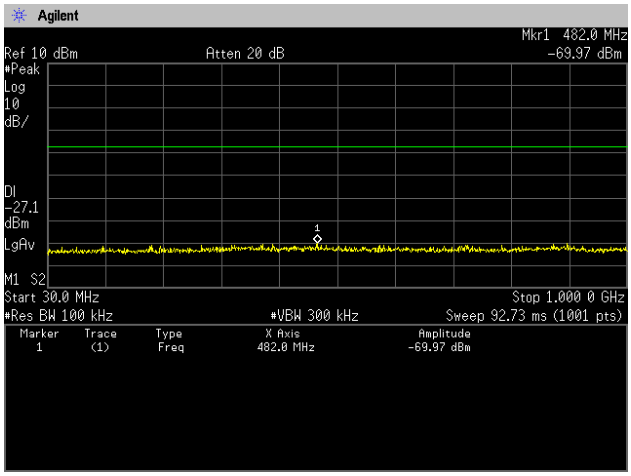


20GHz-25GHz

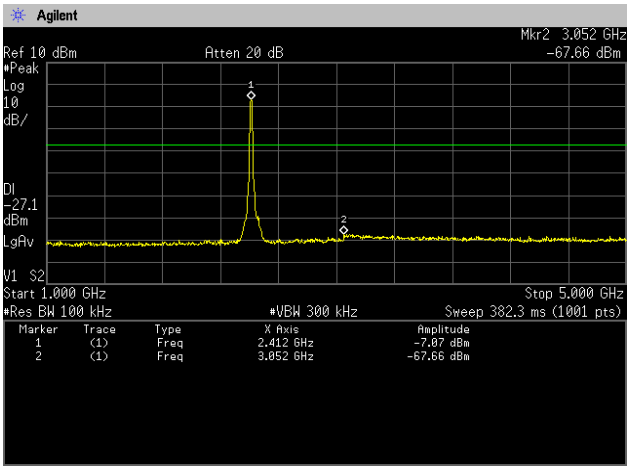


[IEEE802.11n (HT20)]
Channel Low

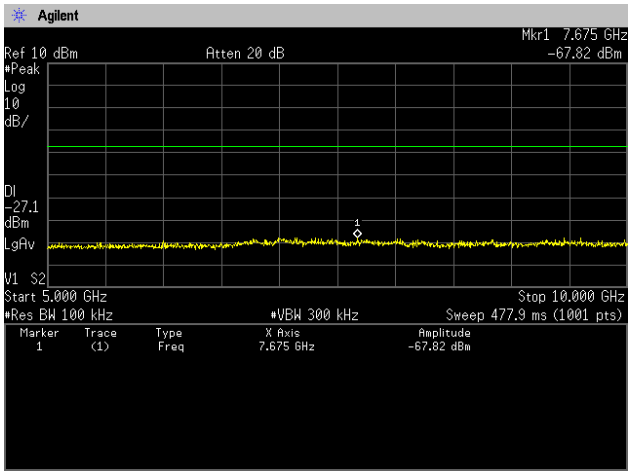
30MHz-1GHz



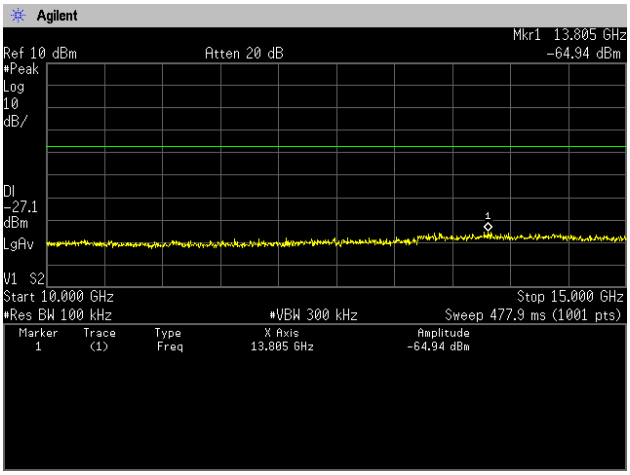
1GHz-5GHz



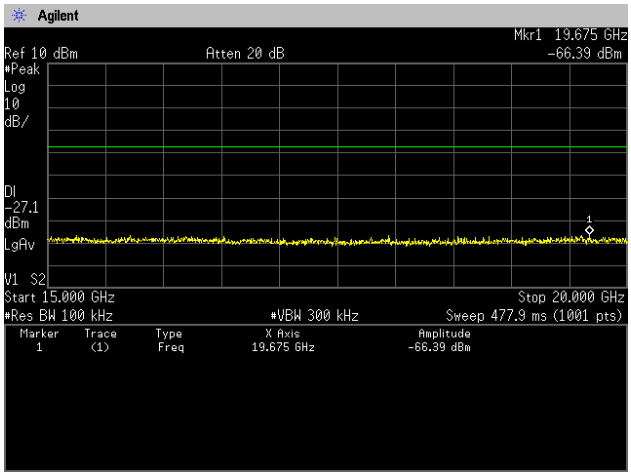
5GHz-10GHz



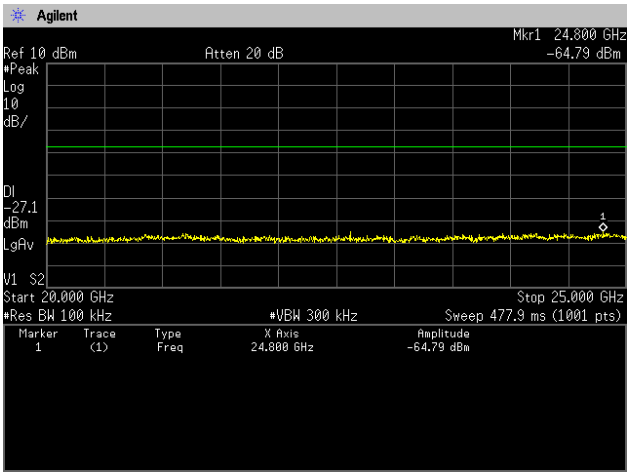
10GHz-15GHz



15GHz-20GHz

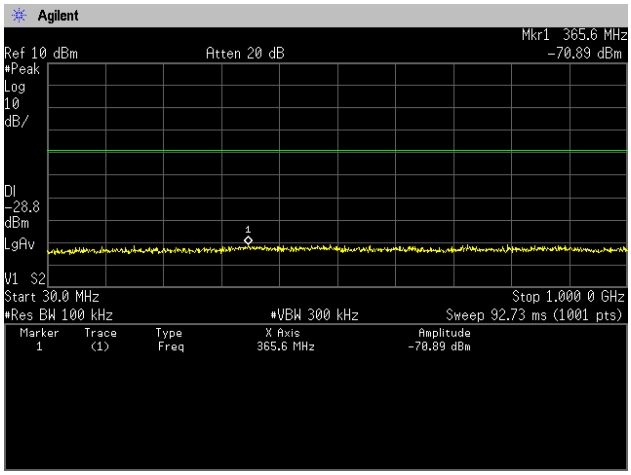


20GHz-25GHz

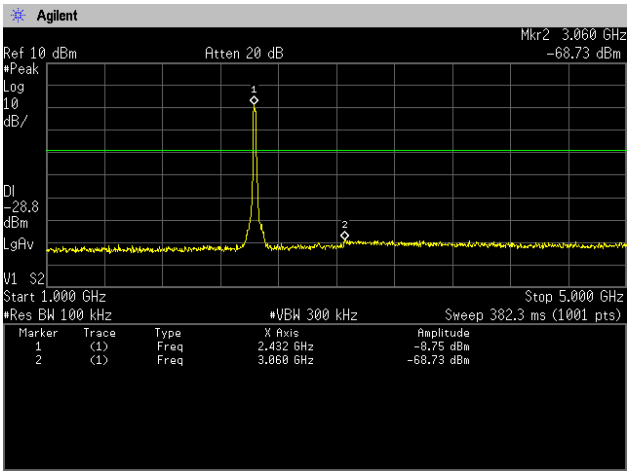


Channel Middle

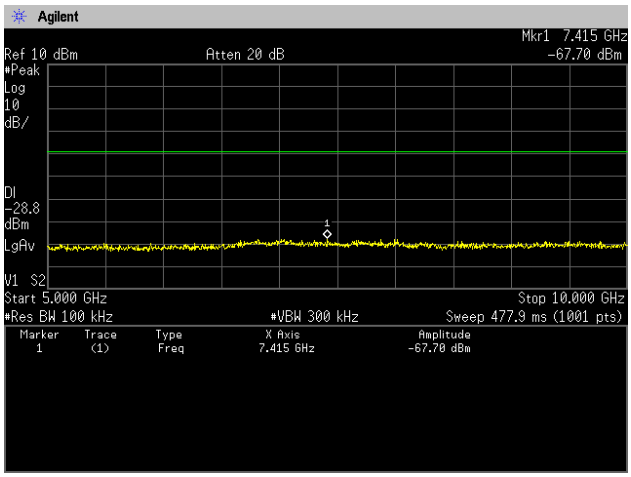
30MHz-1GHz



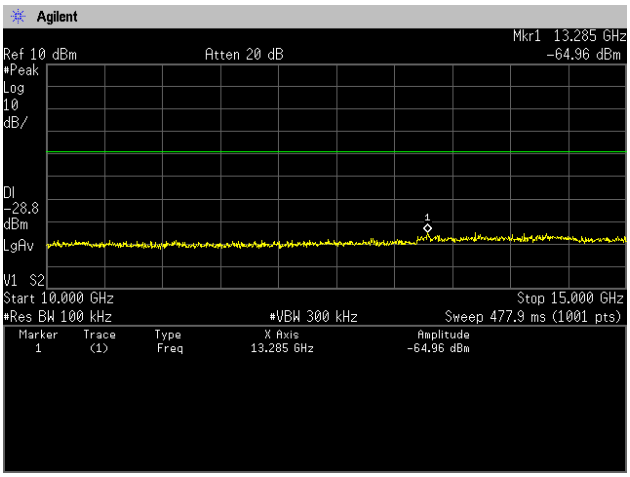
1GHz-5GHz



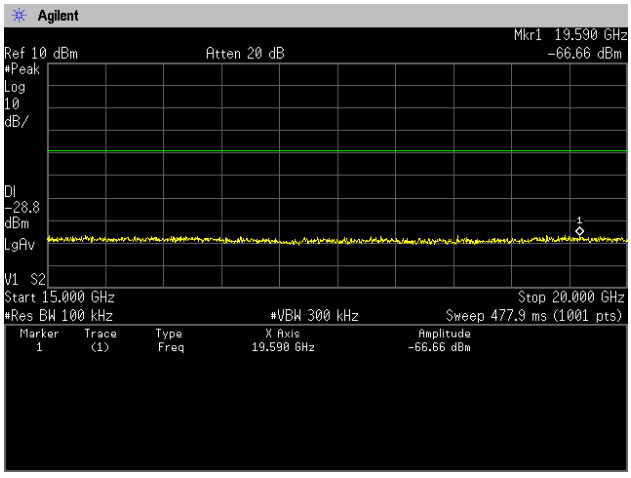
5GHz-10GHz



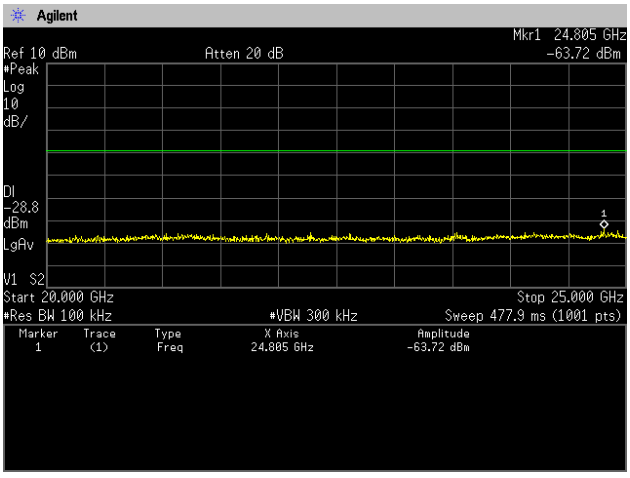
10GHz-15GHz



15GHz-20GHz

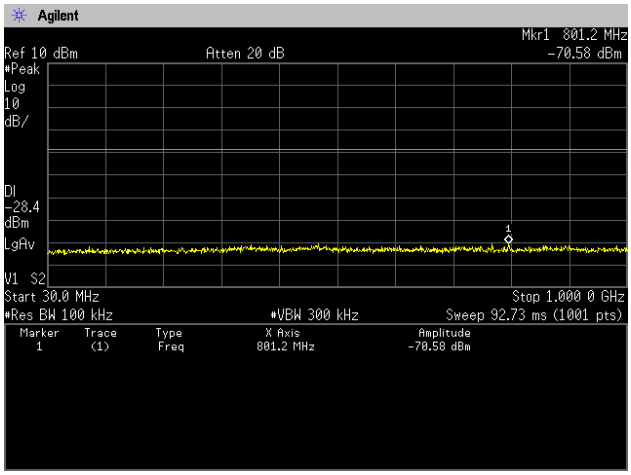


20GHz-25GHz

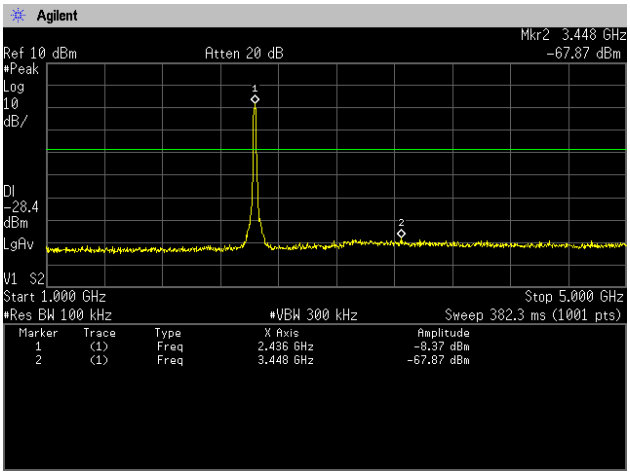


Channel High

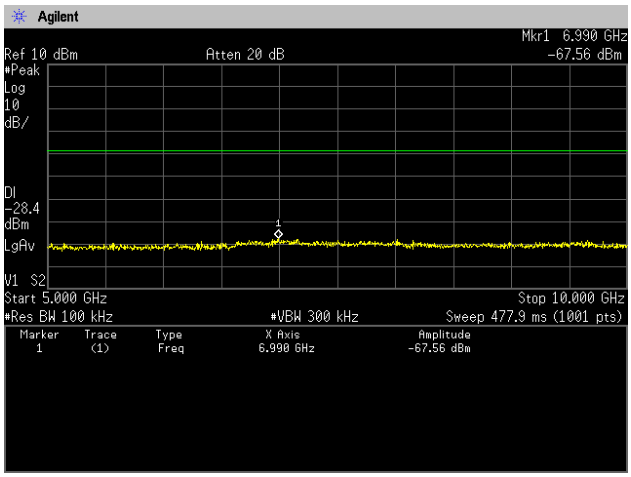
30MHz-1GHz



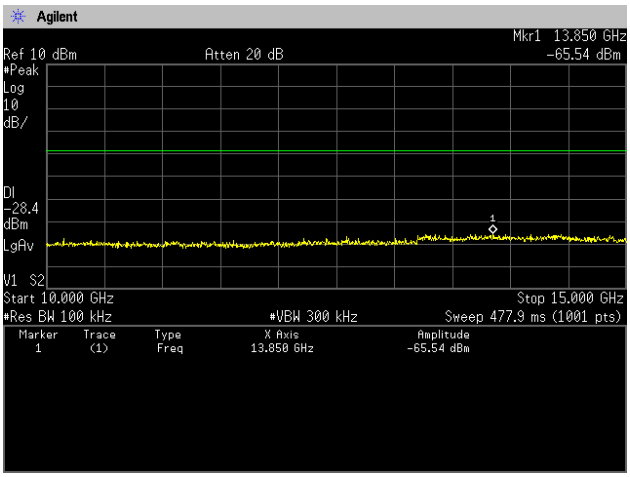
1GHz-5GHz



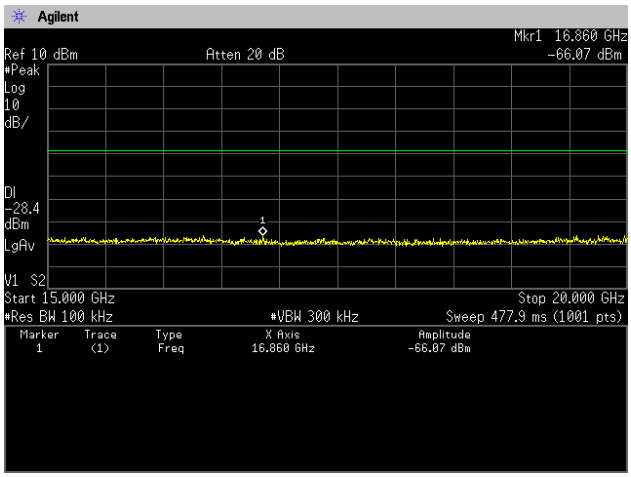
5GHz-10GHz



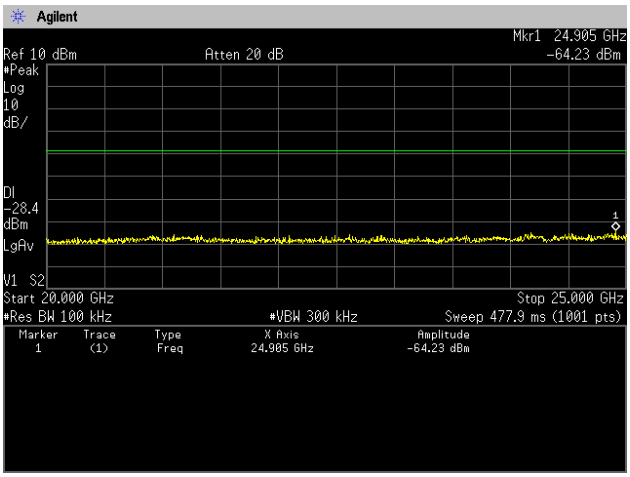
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



4.5 Spurious Emissions - Radiated -

4.5.1 Measurement procedure

[FCC 15.247(d), 15.205, 15.209, KDB 558074 D01 v05r02, Section 8.6]

Test was applied by following conditions.

Test method	:	ANSI C63.10
Frequency range	:	9 kHz to 25 GHz
Test place	:	3m Semi-anechoic chamber
EUT was placed on	:	Styrofoam table / (W) 1.0 × (D) 1.0 × (H) 0.8 m (below 1 GHz) Styrofoam table / (W) 0.6 × (D) 0.6 ×(H)1.5 m (above 1 GHz)
Antenna distance	:	3 m
Test receiver setting		Below 1 GHz
- Detector	:	Average (9 kHz-90 kHz, 110 kHz-490 kHz), Quasi-peak
- Bandwidth	:	200 Hz, 120 kHz
Spectrum analyzer setting		Above 1 GHz
- Peak	:	RBW=1 MHz, VBW=3 MHz, Span=0 Hz, Sweep=auto
- Average	:	11b: RBW=1 MHz, VBW=10Hz, Span=0 Hz, Sweep=auto Display mode=Linear 11g, 11n: RBW=1 MHz, VBW=1kHz, Span=0 Hz, Sweep=auto Display mode=Linear

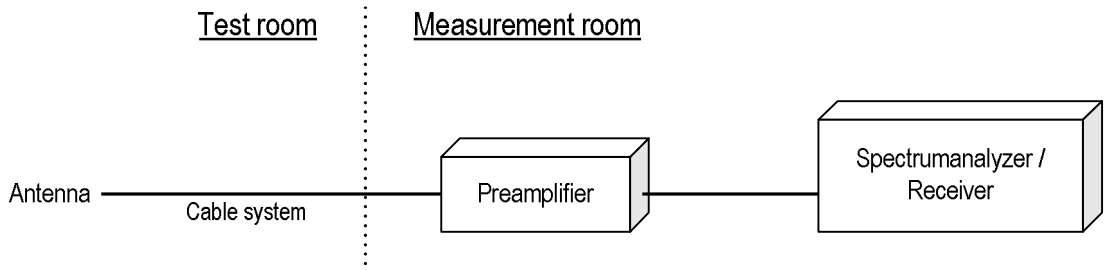
Average Measurement Setting [VBW]

mode	Duty Cycle (%)	Ton [µs]	Toff [µs]	1/Ton (kHz)	Determined VBW Setting
11b	98.94	8.415	0.09	0.119	10Hz
11g	93.06	1.394	0.104	0.717	1kHz
11n(HT20)	92.55	1.305	0.105	0.766	1kHz

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 937606.

Radiated emission measurements are performed at 3m distance with the broadband antenna (Loop antenna, Biconical antenna, Log periodic antenna and Double ridged guide antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1m to 4m and stopped at height producing the maximum emission. As for the Loop antenna, it is positioned with its plane vertical, and the center of the Loop antenna is 1m above the ground plane.
The EUT is Placed on a turntable, which is 0.8m/1.5m above ground plane. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. The test results represent the worst cases emission for each emission with manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation. Sufficient time for the EUT, support equipment, and test equipment are allowed in order for them to warm up to their normal operating condition.

- Test configuration



4.5.2 Calculation method

[9 kHz to 150 kHz]
Emission level = Reading + (Ant factor + Cable system loss)
Margin = Limit – Emission level

[150 kHz to 25 GHz]
Emission level = Reading + (Ant factor + Cable system loss - Amp. Gain)
Margin = Limit – Emission level

Example:
Limit @ 4824.0 MHz: 74.0 dBuV/m (Peak Limit)
S.A Reading = 49.5 dBuV Cable system loss = 8.4 dB
Result = 49.5 + 8.4 = 45.1 dBuV/m
Margin = 74.0 - 45.1 = 16.1 dB

4.5.3 Limit

Frequency [MHz]	Field strength		Distance [m]
	[uV/m]	[dBuV/m]	
0.009-0.490	2400 / F [kHz]	20logE [uV/m]	300
0.490-1.705	24000 / F [kHz]	20logE [uV/m]	30
1.705-30	30	29.5	30
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Note:
1. The lower limit shall apply at the transition frequencies.
2. Emission level [dBuV/m] = 20log Emission [uV/m]
3. As shown in 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition modulation.

4.5.4 Test data

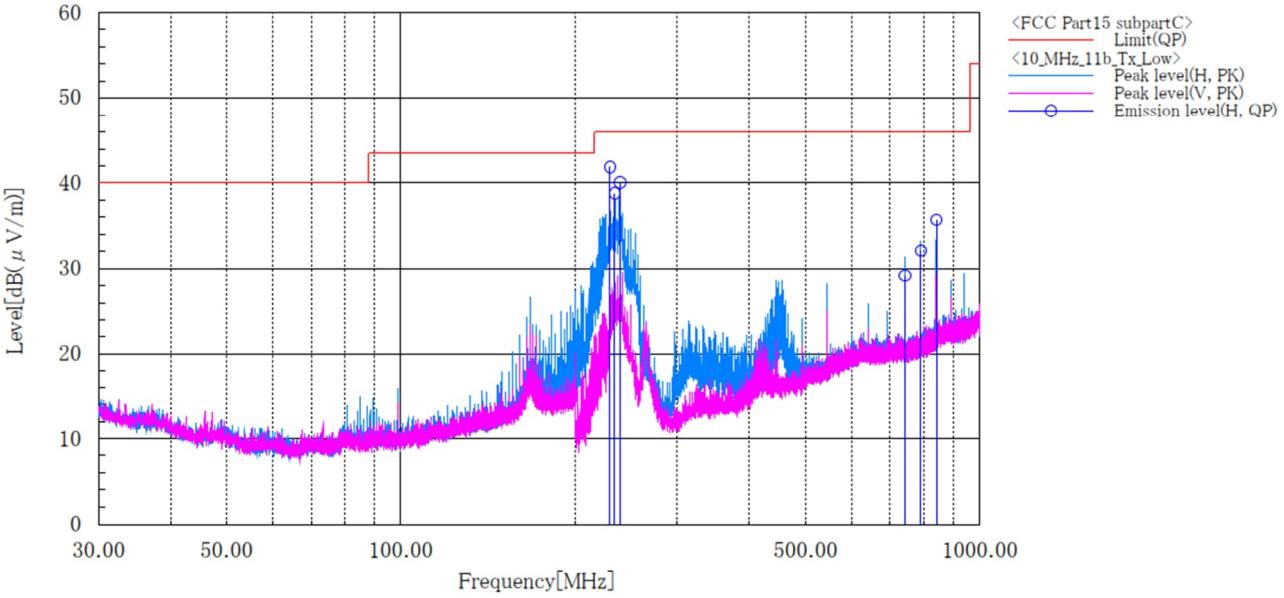
Date	:	18~19-December-2023			
Temperature	:	20.8 [˚C]			
Humidity	:	30.5 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	21~22-December-2023			
Temperature	:	20.1 [˚C]			
Humidity	:	31.2 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

4.5.4.1 Transmission mode

[11b]
Channel Low
BELOW 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.1 [° C], 31.2 [%]
Test mode	: WLAN 11b_Tx	コメント	: Ch:1 (2412MHz)



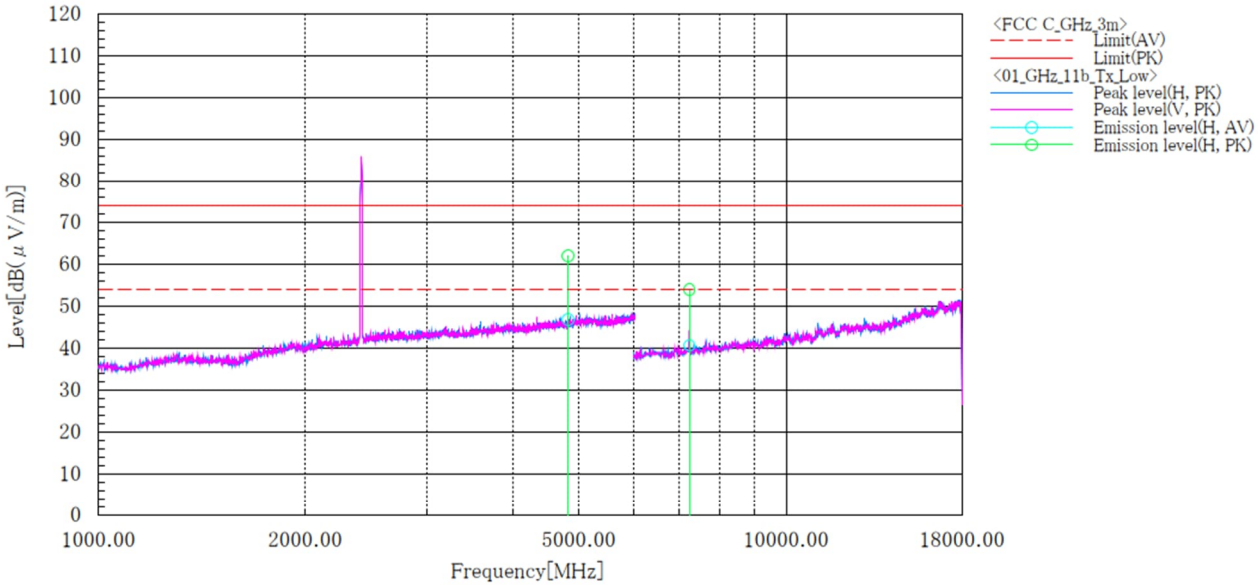
Final Result

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	229.970	H	58.4	-16.5	41.9	46.0	4.1	138.0	0.0
2	234.290	H	55.2	-16.4	38.8	46.0	7.2	133.0	11.0
3	238.790	H	56.4	-16.3	40.1	46.0	5.9	137.0	0.0
4	742.530	H	35.4	-6.2	29.2	46.0	16.8	215.0	0.0
5	792.030	H	37.5	-5.4	32.1	46.0	13.9	100.0	0.0
6	841.530	H	40.1	-4.4	35.7	46.0	10.3	100.0	63.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

[11b]
Channel Low
ABOVE 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part.15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.8 [° C], 30.5 [%]
Test mode	: WLAN 11b_Tx	Note1	: Ch:1 (2412MHz)



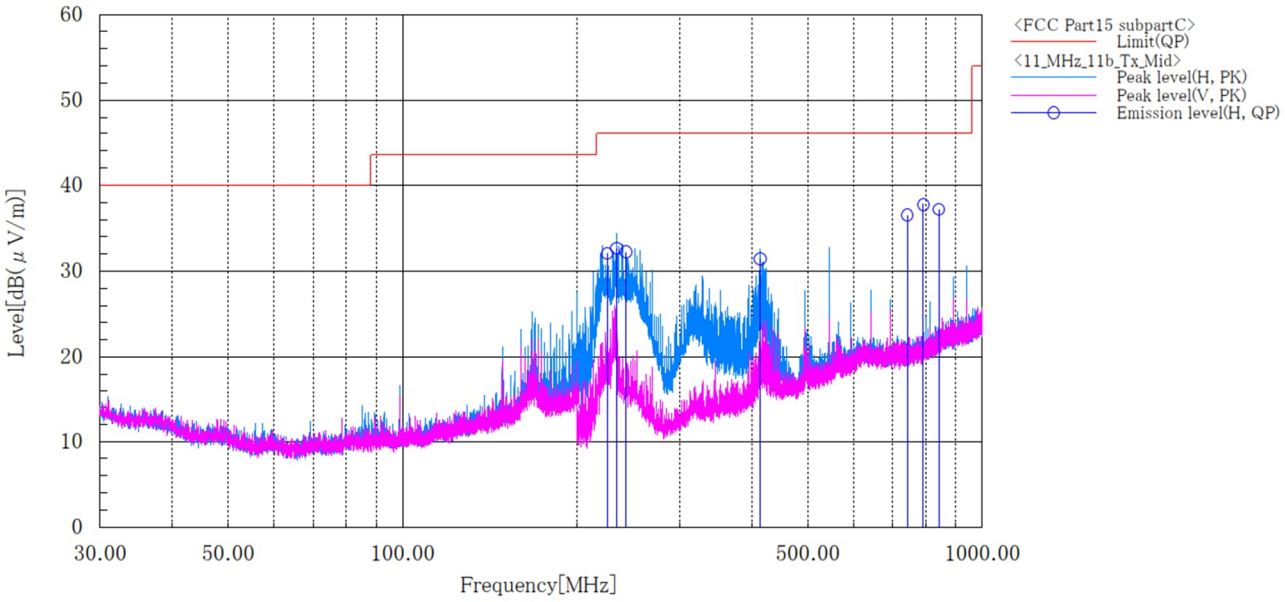
Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result AV [dB(μV/m)]	Result PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]
1	4824.000	H	33.9	49.1	12.9	46.8	62.0	54.0	74.0	7.2	12.0	100.0	245.0
2	7236.000	H	33.3	46.7	7.3	40.6	54.0	54.0	74.0	13.4	20.0	100.0	182.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

[11b]
Channel Middle
BELOW 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter ″pomera″	Standard	: FCC Part15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.1 [° C], 31.2 [%]
Test mode	: WLAN 11b_Tx	コメント	: Ch:6 (2437MHz)



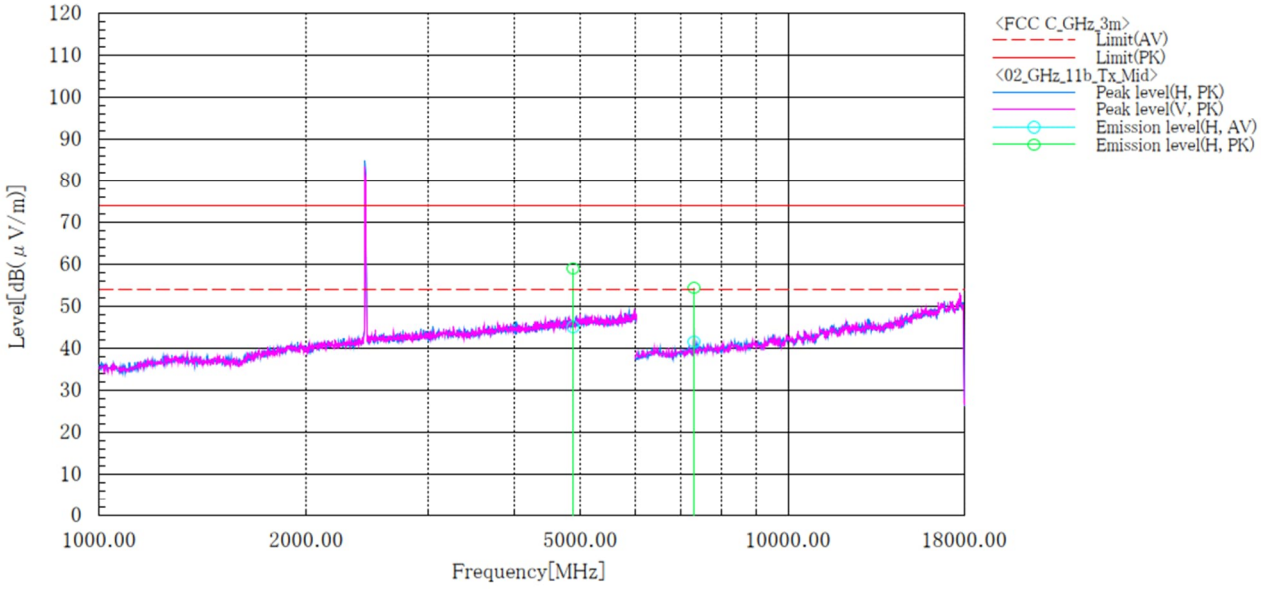
Final Result

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	225.380	H	48.6	-16.6	32.0	46.0	14.0	127.0	0.0
2	234.230	H	49.1	-16.4	32.7	46.0	13.3	133.0	0.0
3	243.030	H	48.3	-16.1	32.2	46.0	13.8	141.0	0.0
4	414.280	H	42.7	-11.3	31.4	46.0	14.6	242.0	160.0
5	742.530	H	42.7	-6.2	36.5	46.0	9.5	109.0	335.0
6	792.030	H	43.1	-5.4	37.7	46.0	8.3	100.0	307.0
7	841.530	H	41.6	-4.4	37.2	46.0	8.8	100.0	61.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

[11b]
Channel Middle
ABOVE 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part.15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.8 [° C], 30.5 [%]
Test mode	: WLAN 11b_Tx	Note1	: Ch:6 (2437MHz)



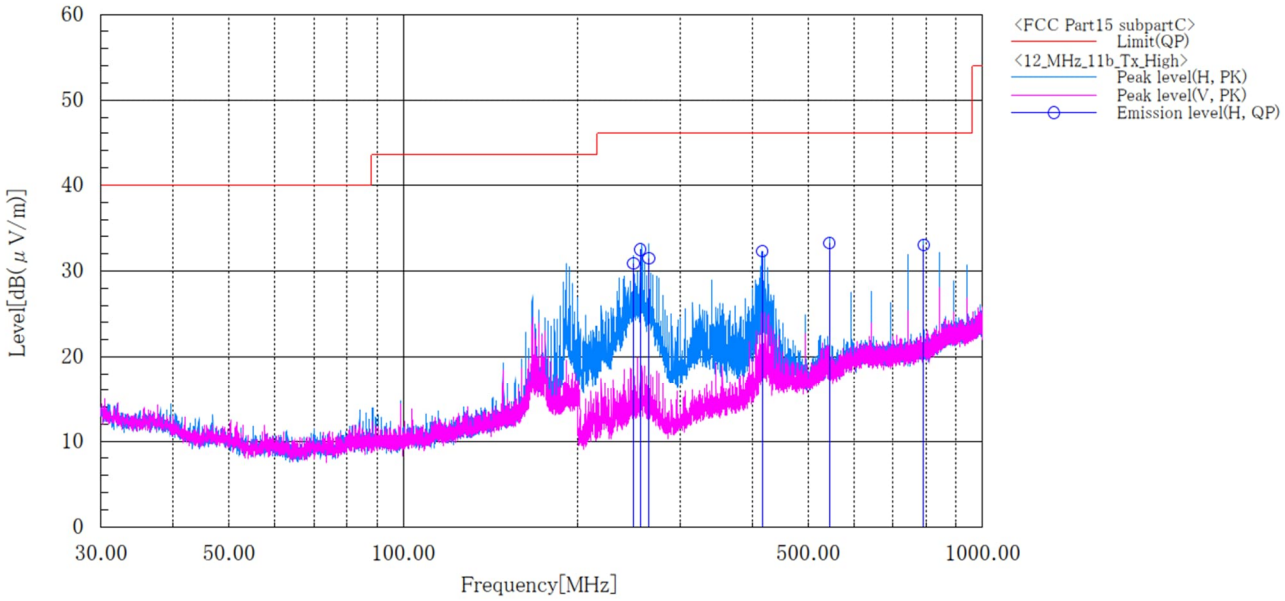
Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result AV [dB(μV/m)]	Result PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]
1	4874.000	H	32.1	46.1	13.0	45.1	59.1	54.0	74.0	8.9	14.9	100.0	244.0
2	7311.000	H	34.2	47.0	7.4	41.6	54.4	54.0	74.0	12.4	19.6	100.0	183.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

[11b]
Channel High
BELOW 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.1 [° C], 31.2 [%]
Test mode	: WLAN 11b_Tx	コメント	: Ch:11 (2462MHz)



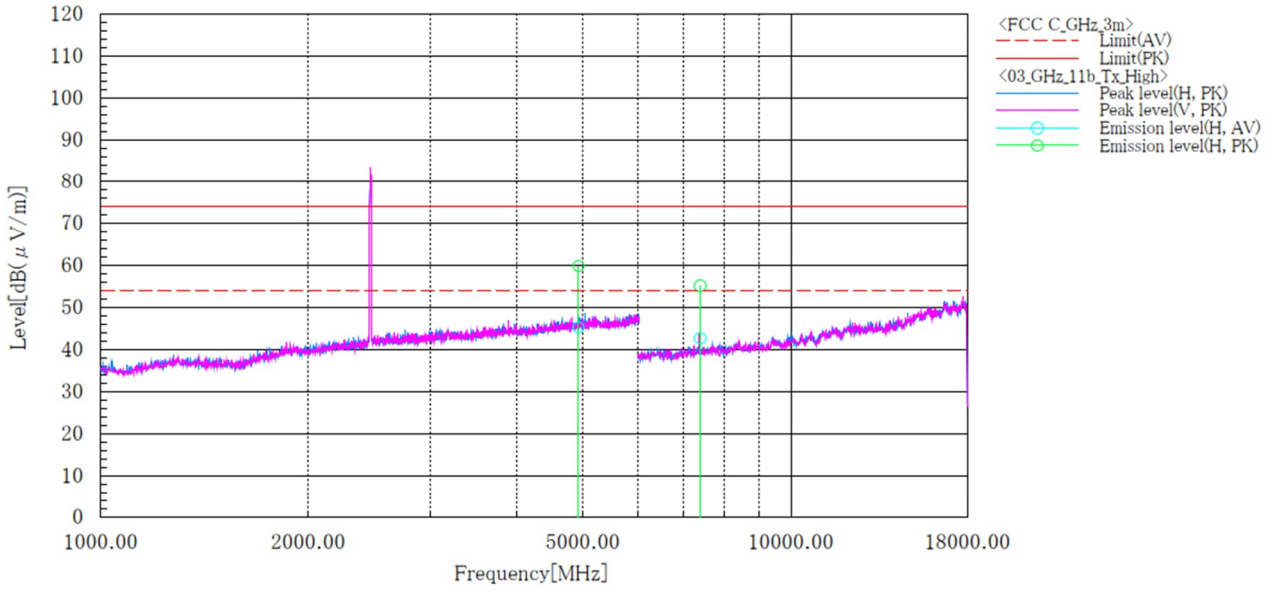
Final Result

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	249.620	H	46.9	-16.0	30.9	46.0	15.1	134.0	0.0
2	256.240	H	48.1	-15.6	32.5	46.0	13.5	100.0	0.0
3	265.090	H	46.6	-15.1	31.5	46.0	14.5	108.0	0.0
4	416.420	H	43.5	-11.2	32.3	46.0	13.7	100.0	15.0
5	544.520	H	42.5	-9.3	33.2	46.0	12.8	154.0	0.0
6	792.030	H	38.4	-5.4	33.0	46.0	13.0	100.0	78.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

[11b]
Channel High
ABOVE 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part.15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.8 [° C], 30.5 [%]
Test mode	: WLAN 11b_Tx	Note1	: Ch:11 (2462MHz)



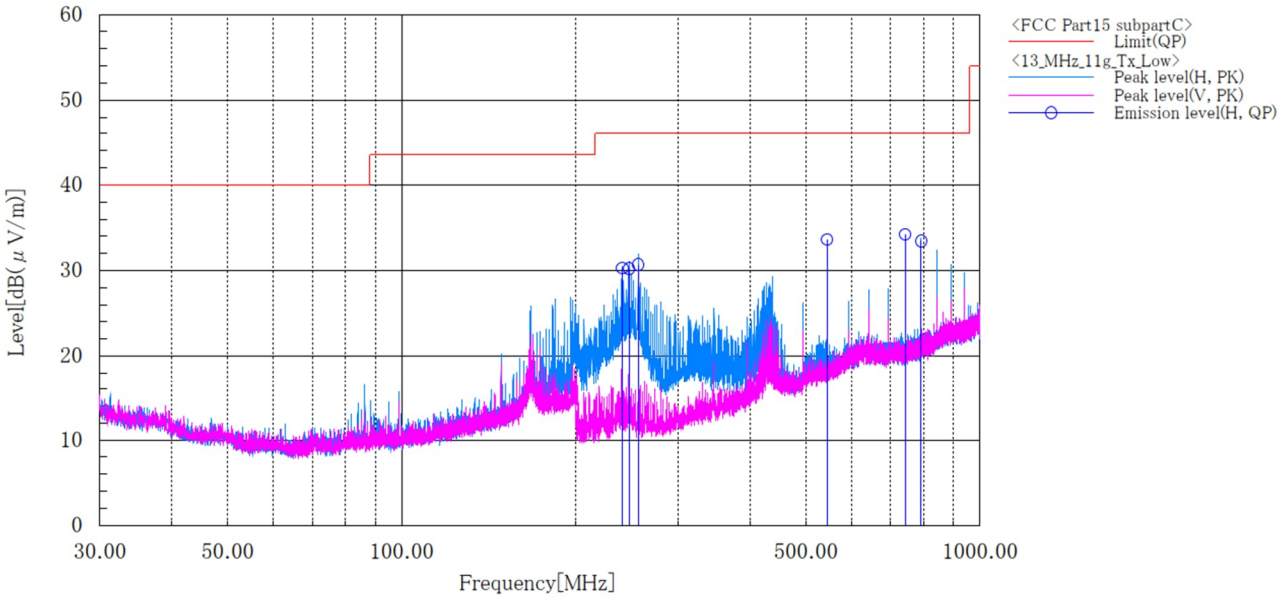
Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result AV [dB(μV/m)]	Result PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]
1	4924.000	H	32.2	46.7	13.1	45.3	59.8	54.0	74.0	8.7	14.2	100.0	241.0
2	7386.000	H	35.0	47.5	7.7	42.7	55.2	54.0	74.0	11.3	18.8	100.0	178.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

[11g]
Channel Low
BELOW 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.1 [° C], 31.2 [%]
Test mode	: WLAN 11g_Tx	コメント	: Ch:1 (2412MHz)



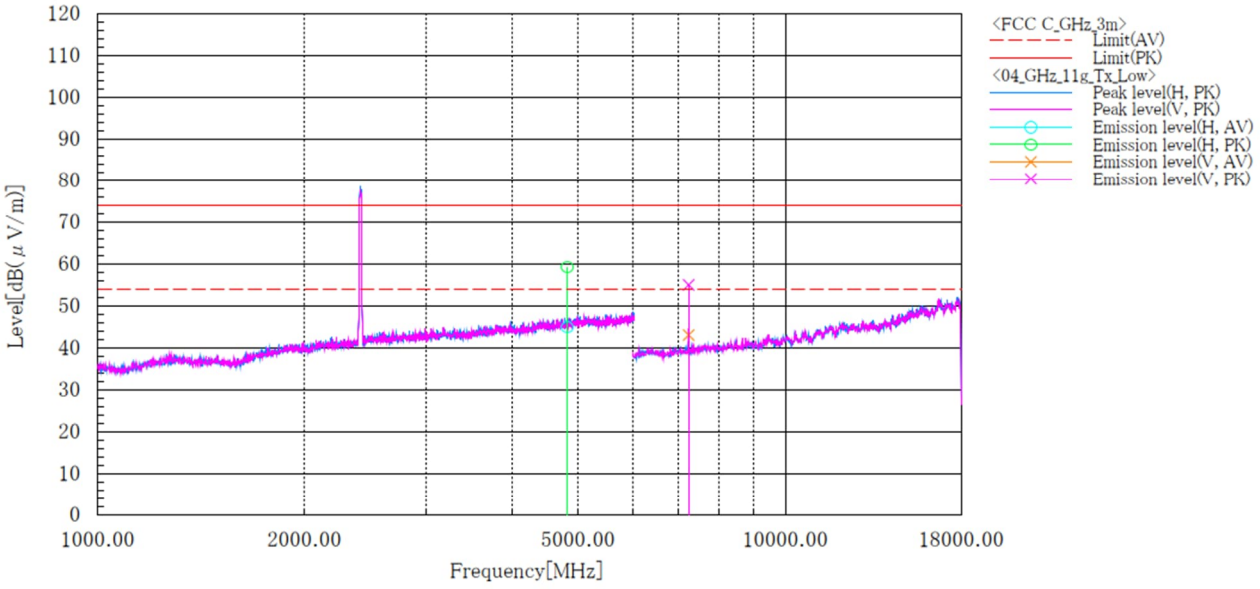
Final Result

No.	Frequency	Pol	Reading QP	c.f	Result QP	Limit QP	Margin QP	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[deg]
1	240.820	H	46.5	-16.2	30.3	46.0	15.7	138.0	0.0
2	247.480	H	46.2	-16.0	30.2	46.0	15.8	127.0	0.0
3	256.310	H	46.3	-15.6	30.7	46.0	15.3	100.0	0.0
4	544.520	H	42.9	-9.3	33.6	46.0	12.4	151.0	351.0
5	742.528	H	40.4	-6.2	34.2	46.0	11.8	107.0	338.0
6	792.026	H	38.8	-5.4	33.4	46.0	12.6	107.0	0.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

[11g]
Channel Low
ABOVE 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part.15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.8 [° C], 30.5 [%]
Test mode	: WLAN 11g_Tx	Note1	: Ch:1 (2412MHz)



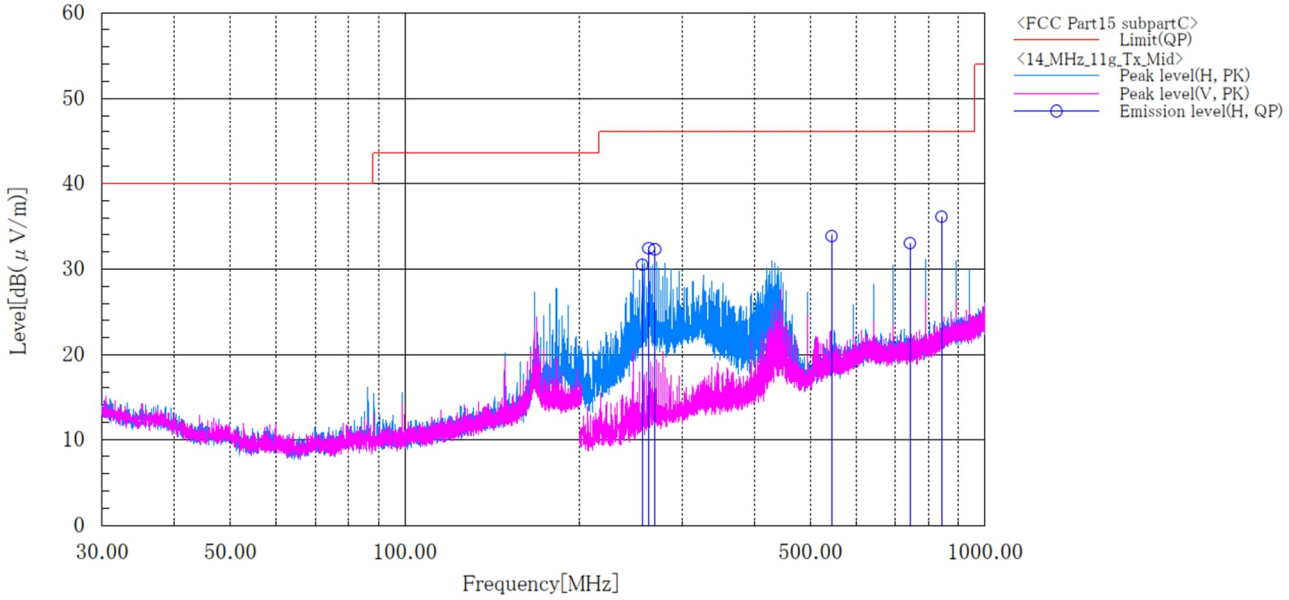
Final Result

No.	Frequency	Pol	Reading AV	Reading PK	c.f	Result AV	Result PK	Limit AV	Limit PK	Margin AV	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[deg]
1	4824.000	H	32.1	46.4	12.9	45.0	59.3	54.0	74.0	9.0	14.7	100.0	179.0
2	7236.000	V	35.8	47.7	7.3	43.1	55.0	54.0	74.0	10.9	19.0	190.0	178.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

[11g]
Channel Middle
BELOW 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.1 [° C], 31.2 [%]
Test mode	: WLAN 11g_Tx	コメント	: Ch:6 (2437MHz)



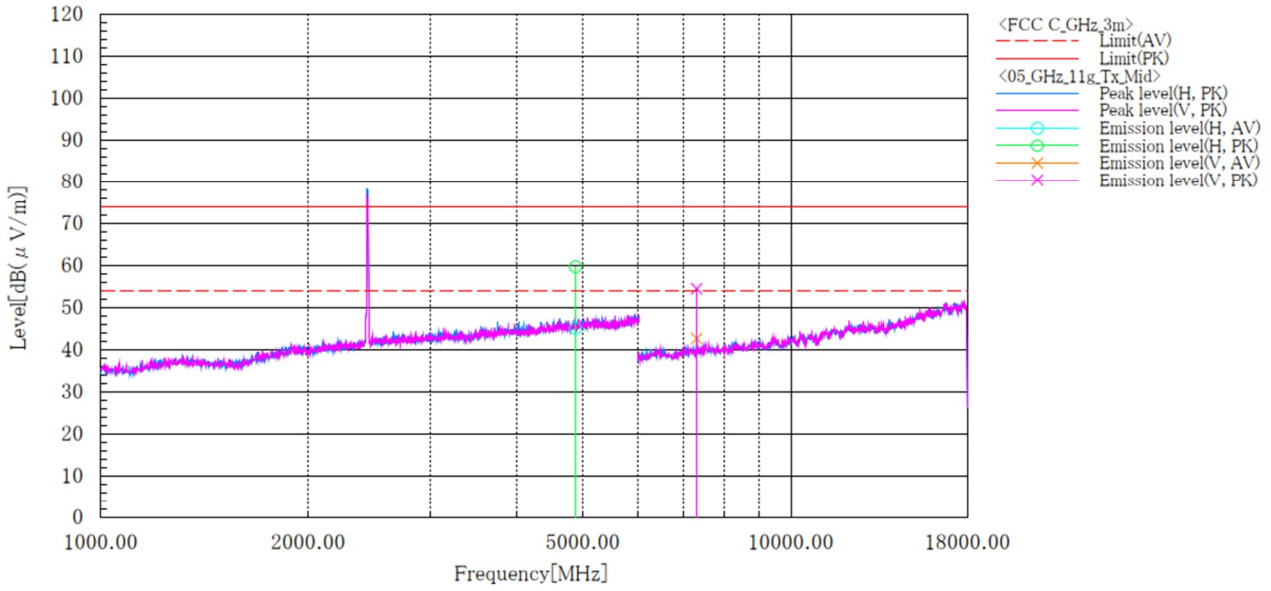
Final Result

No.	Frequency	Pol	Reading QP	c.f	Result QP	Limit QP	Margin QP	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[deg]
1	256.338	H	46.1	-15.6	30.5	46.0	15.5	104.0	0.0
2	262.927	H	47.7	-15.3	32.4	46.0	13.6	100.0	0.0
3	269.586	H	47.2	-14.9	32.3	46.0	13.7	106.0	0.0
4	544.520	H	43.1	-9.3	33.8	46.0	12.2	153.0	0.0
5	742.528	H	39.2	-6.2	33.0	46.0	13.0	111.0	54.0
6	841.538	H	40.5	-4.4	36.1	46.0	9.9	100.0	68.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

[11g]
Channel Middle
ABOVE 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part.15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.8 [° C], 30.5 [%]
Test mode	: WLAN 11g_Tx	Note1	: Ch:6 (2437MHz)



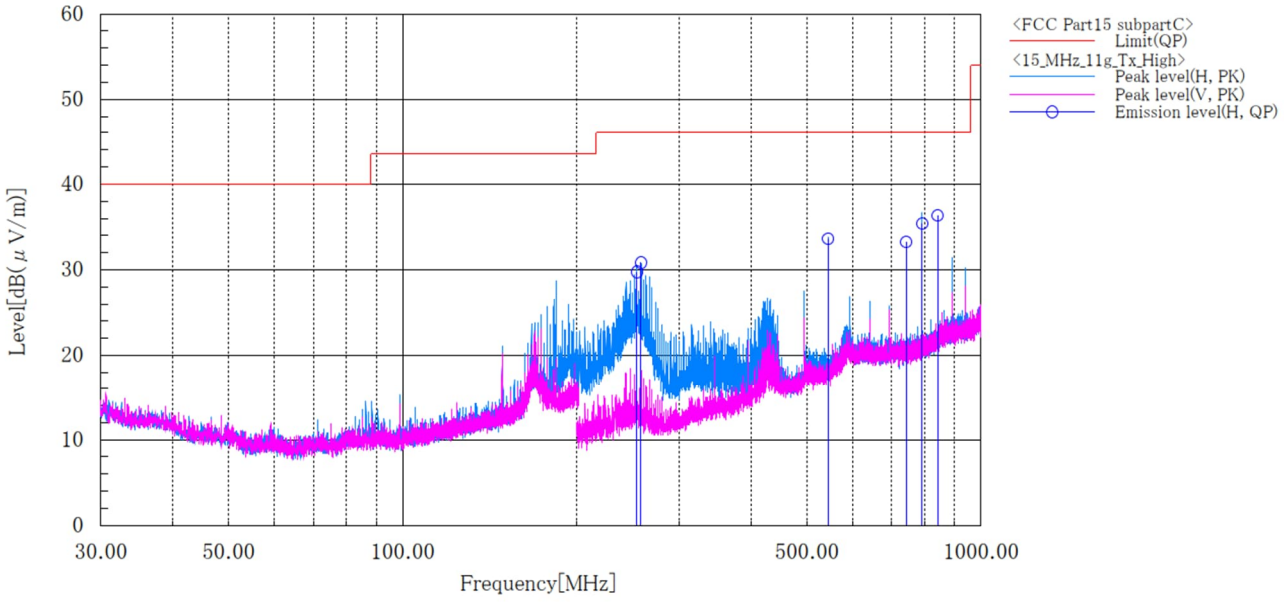
Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result AV [dB(μV/m)]	Result PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]
1	4874.000	H	32.1	46.7	13.0	45.1	59.7	54.0	74.0	8.9	14.3	100.0	179.0
2	7311.000	V	35.2	47.1	7.4	42.6	54.5	54.0	74.0	11.4	19.5	169.0	156.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

[11g]
Channel High
BELOW 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.1 [° C], 31.2 [%]
Test mode	: WLAN 11g_Tx	コメント	: Ch:11 (2462MHz)



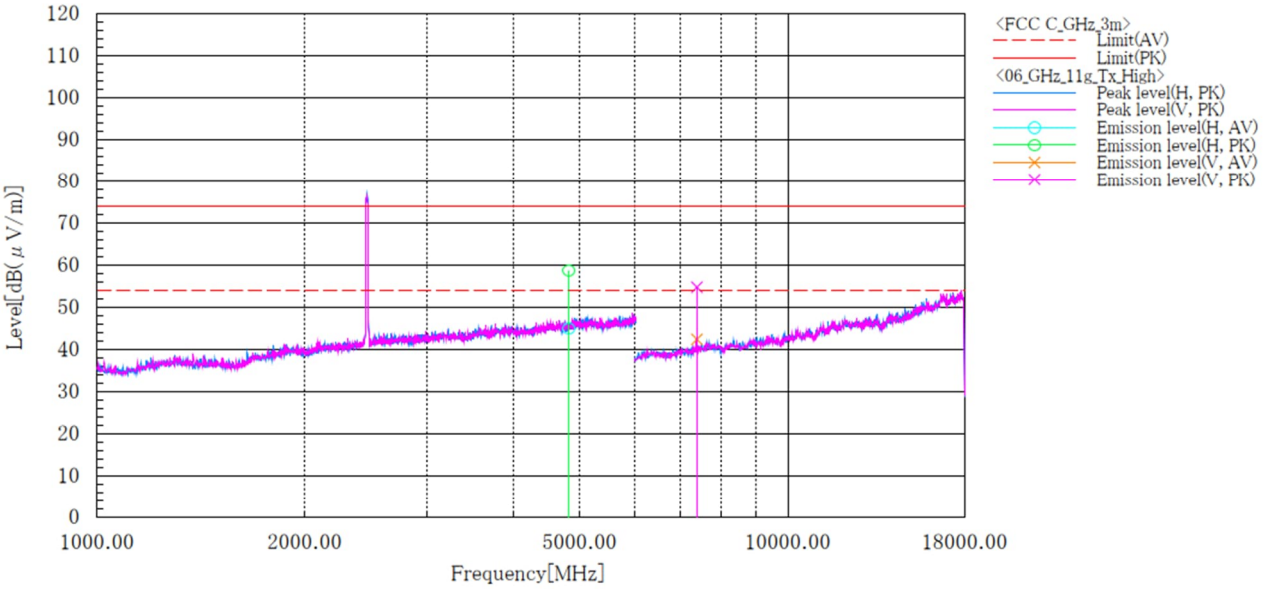
Final Result

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	254.074	H	45.4	-15.7	29.7	46.0	16.3	126.0	0.0
2	258.484	H	46.3	-15.5	30.8	46.0	15.2	100.0	0.0
3	544.518	H	42.9	-9.3	33.6	46.0	12.4	144.0	0.0
4	742.528	H	39.4	-6.2	33.2	46.0	12.8	112.0	53.0
5	792.030	H	40.8	-5.4	35.4	46.0	10.6	110.0	0.0
6	841.534	H	40.7	-4.4	36.3	46.0	9.7	100.0	64.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

[11g]
Channel High
ABOVE 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part.15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.8 [° C], 30.5 [%]
Test mode	: WLAN 11g_Tx	Note1	: Ch:11 (2462MHz)



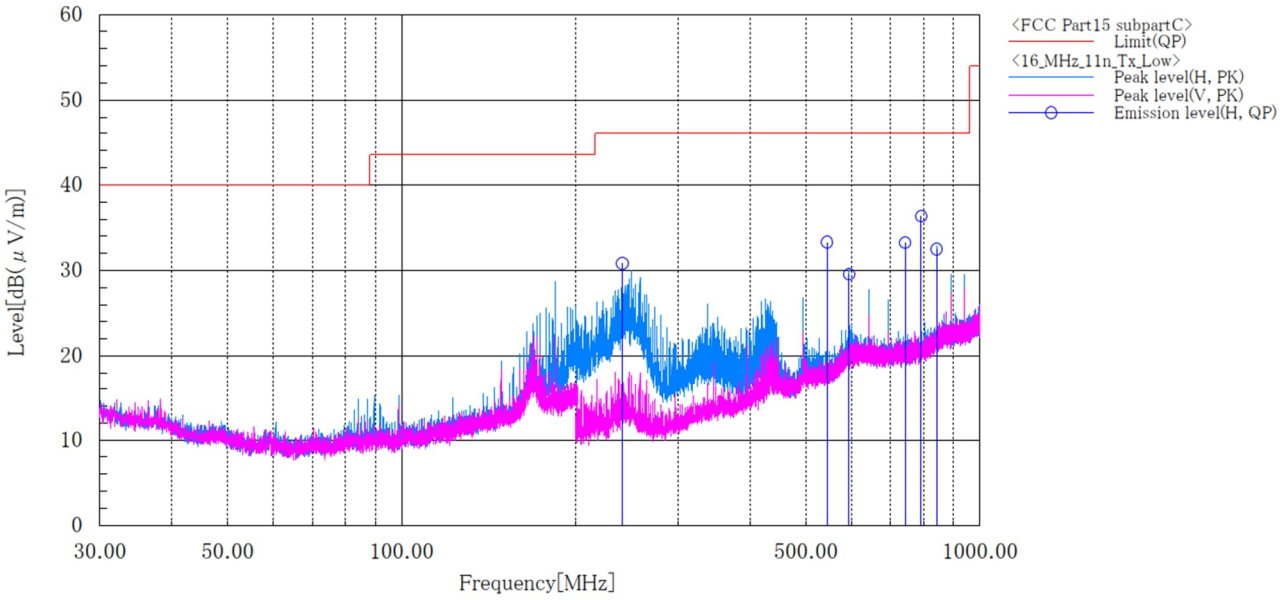
Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result AV [dB(μV/m)]	Result PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]
1	4824.000	H	32.0	45.9	12.9	44.9	58.8	54.0	74.0	9.1	15.2	100.0	171.0
2	7386.000	V	34.7	47.1	7.7	42.4	54.8	54.0	74.0	11.6	19.2	152.0	163.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

[11n(HT20)]
Channel Low
BELOW 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter ″pomera″	Standard	: FCC Part15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.1 [° C], 31.2 [%]
Test mode	: WLAN 11n(HT20)_Tx	コメント	: Ch:1 (2412MHz)



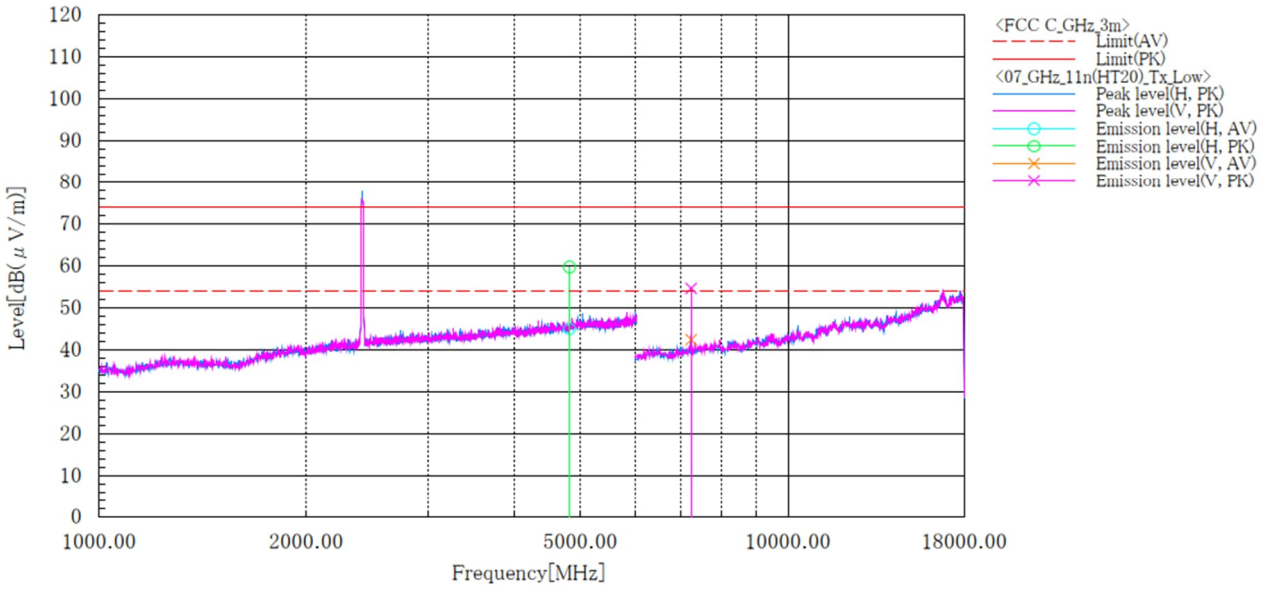
Final Result

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	240.810	H	47.0	-16.2	30.8	46.0	15.2	127.0	0.0
2	544.522	H	42.6	-9.3	33.3	46.0	12.7	150.0	0.0
3	594.026	H	37.3	-7.8	29.5	46.0	16.5	152.0	0.0
4	742.532	H	39.4	-6.2	33.2	46.0	12.8	112.0	341.0
5	792.030	H	41.7	-5.4	36.3	46.0	9.7	105.0	20.0
6	841.532	H	36.9	-4.4	32.5	46.0	13.5	100.0	352.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

[11n(HT20)]
Channel Low
ABOVE 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part.15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.8 [° C], 30.5 [%]
Test mode	: WLAN 11n(HT20)_Tx	Note1	: Ch:1 (2412MHz)



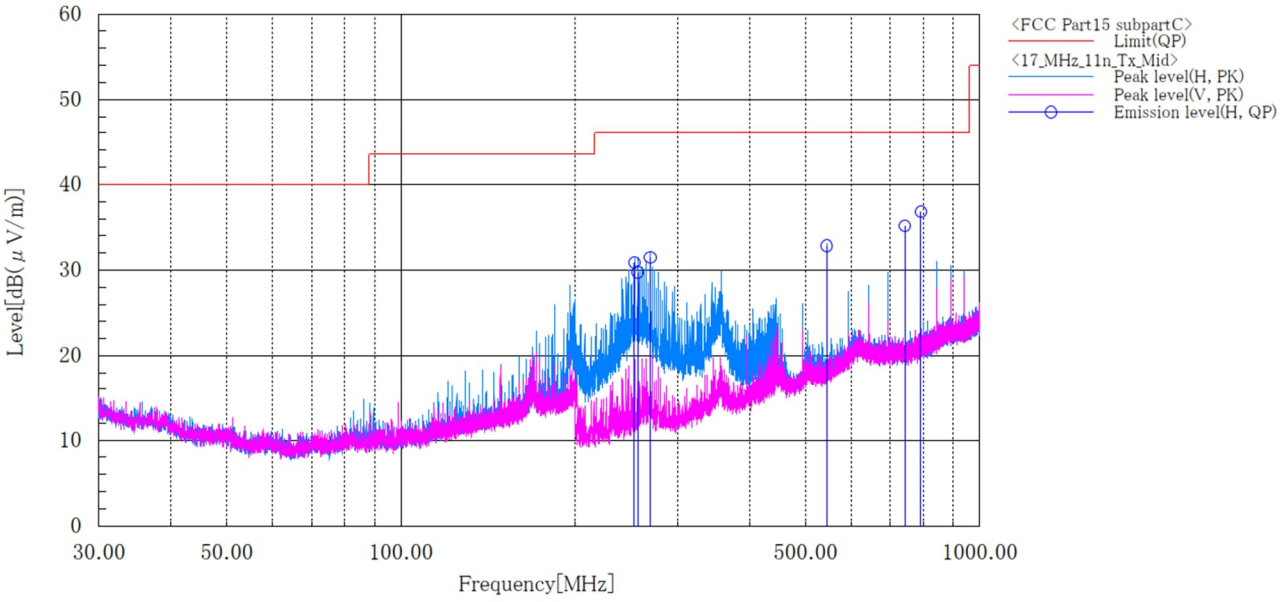
Final Result

No.	Frequency	Pol	Reading AV	Reading PK	c.f	Result AV	Result PK	Limit AV	Limit PK	Margin AV	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[deg]
1	4824.000	H	32.0	46.8	12.9	44.9	59.7	54.0	74.0	9.1	14.3	100.0	172.0
2	7236.000	V	35.1	47.3	7.3	42.4	54.6	54.0	74.0	11.6	19.4	154.0	177.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

[11n(HT20)]
Channel Middle
BELOW 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.1 [° C], 31.2 [%]
Test mode	: WLAN 11n(HT20)_Tx	コメント	: Ch:6 (2437MHz)



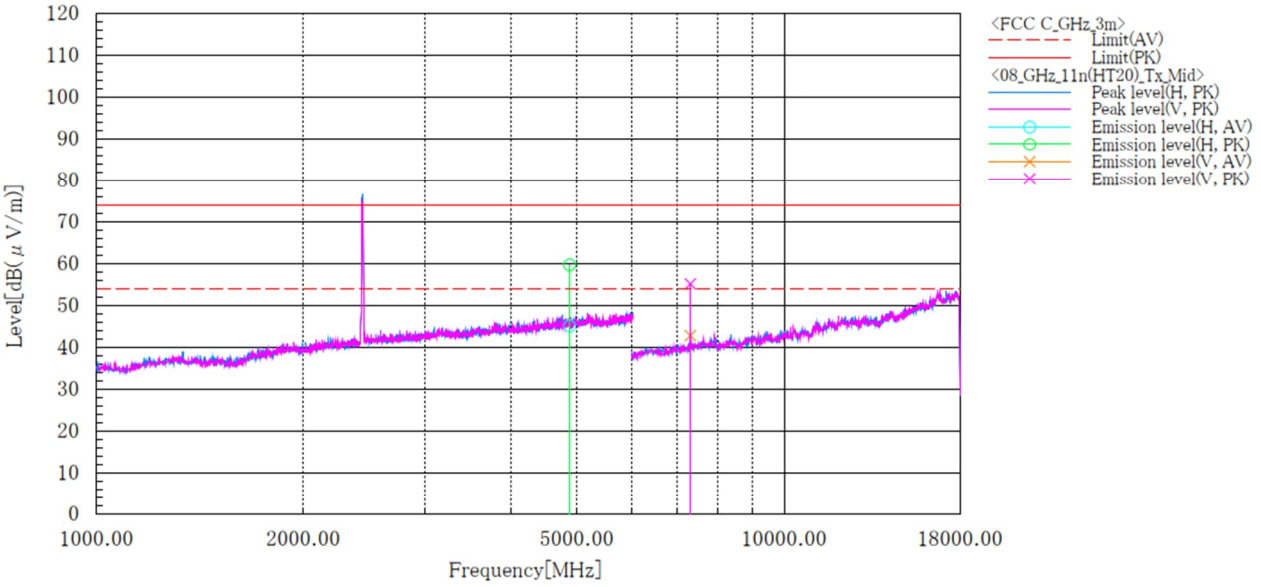
Final Result

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	253.050	H	46.7	-15.8	30.9	46.0	15.1	100.0	0.0
2	256.268	H	45.3	-15.6	29.7	46.0	16.3	100.0	0.0
3	269.526	H	46.4	-14.9	31.5	46.0	14.5	100.0	0.0
4	544.522	H	42.1	-9.3	32.8	46.0	13.2	164.0	0.0
5	742.528	H	41.4	-6.2	35.2	46.0	10.8	108.0	344.0
6	792.030	H	42.2	-5.4	36.8	46.0	9.2	104.0	326.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

[11n(HT20)]
Channel Middle
ABOVE 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part.15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.8 [° C], 30.5 [%]
Test mode	: WLAN 11n(HT20)_Tx	Note1	: Ch:6 (2437MHz)



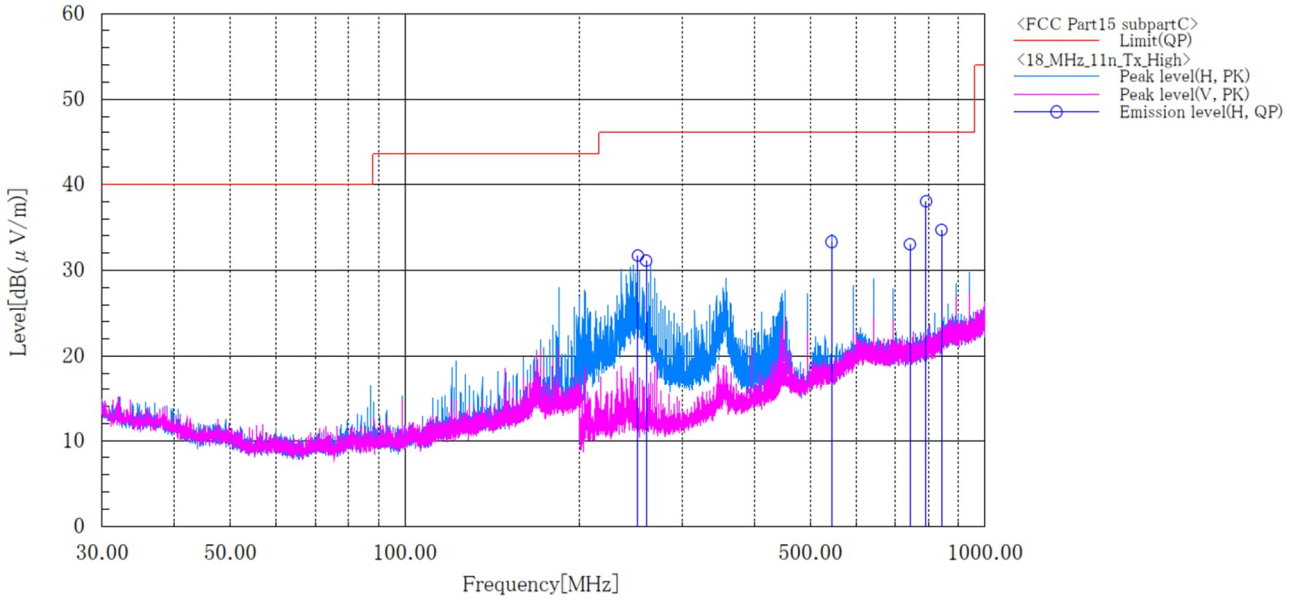
Final Result

No.	Frequency	Pol	Reading AV	Reading PK	c.f	Result AV	Result PK	Limit AV	Limit PK	Margin AV	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[deg]
1	4874.000	H	32.1	46.7	13.0	45.1	59.7	54.0	74.0	8.9	14.3	100.0	173.0
2	7311.000	V	35.4	47.8	7.4	42.8	55.2	54.0	74.0	11.2	18.8	143.0	156.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

[11n(HT20)]
Channel High
BELOW 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter ″pomera″	Standard	: FCC Part15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.1 [° C], 31.2 [%]
Test mode	: WLAN 11n(HT20)_Tx	コメント	: Ch:11 (2462MHz)



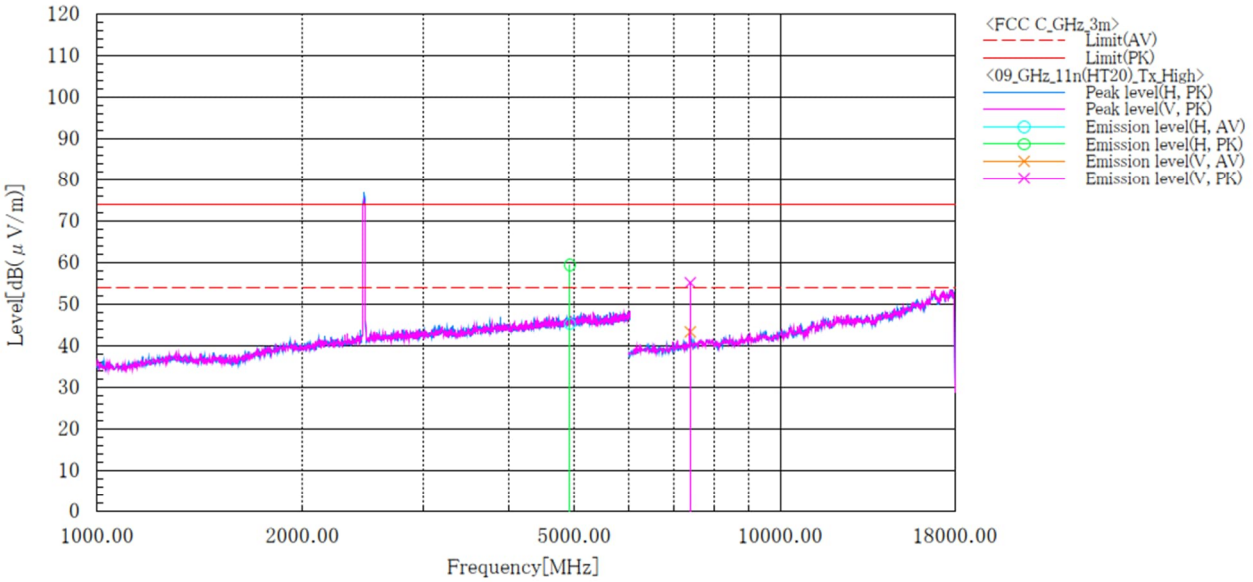
Final Result

No.	Frequency	Pol	Reading QP	c.f	Result QP	Limit QP	Margin QP	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[deg]
1	251.849	H	47.6	-15.9	31.7	46.0	14.3	100.0	0.0
2	260.690	H	46.5	-15.4	31.1	46.0	14.9	100.0	0.0
3	544.518	H	42.6	-9.3	33.3	46.0	12.7	152.0	3.0
4	742.530	H	39.2	-6.2	33.0	46.0	13.0	110.0	339.0
5	792.032	H	43.4	-5.4	38.0	46.0	8.0	111.0	324.0
6	841.536	H	39.1	-4.4	34.7	46.0	11.3	100.0	61.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

[11n(HT20)]
Channel High
ABOVE 1GHz

Company name	: KING JIM CO., LTD.	Sheet No.	:
EUT	: Digital Typewriter "pomera"	Standard	: FCC Part.15 subpart C
Model No.	: DM250US	Operator	: T.Seino
Serial No.	: D250K312217	Temp,Hum,Atm	: 20.8 [° C], 30.5 [%]
Test mode	: WLAN 11n(HT20)_Tx	Note1	: Ch:11 (2462MHz)



Final Result

No.	Frequency	Pol	Reading AV	Reading PK	c.f	Result AV	Result PK	Limit AV	Limit PK	Margin AV	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[deg]
1	4924.000	H	32.1	46.3	13.1	45.2	59.4	54.0	74.0	8.8	14.6	100.0	170.0
2	7386.000	V	35.6	47.5	7.7	43.3	55.2	54.0	74.0	10.7	18.8	149.0	164.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

4.6 Restricted Band of Operation

4.6.1 Measurement procedure

[FCC 15.247(d), 15.205, 15.209, KDB 558074 D01 v05r02, Section 8.6]

Test was applied by following conditions.

Test method	:	ANSI C63.10
Test place	:	3m Semi-anechoic chamber
EUT was placed on	:	Styrofoam table / (W) 1.0 × (D) 1.0 × (H) 0.8 m (below 1 GHz) Styrofoam table / (W) 0.6 × (D) 0.6 ×(H) 1.5 m (above 1 GHz)
Antenna distance	:	3m
Spectrum analyzer setting		
- Peak	:	RBW=1 MHz, VBW=3 MHz, Span=Arbitrary setting, Sweep=auto
- Average	:	11b: RBW=1 MHz, VBW=10Hz, Span=0 Hz, Sweep=auto Display mode=Linear 11g, 11n: RBW=1 MHz, VBW=1kHz, Span=0 Hz, Sweep=auto Display mode=Linear

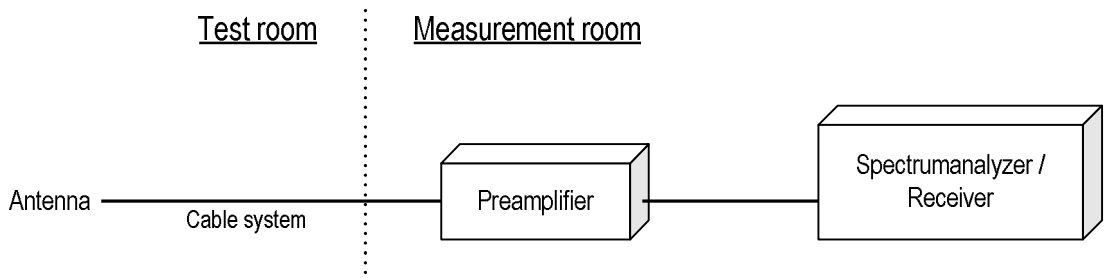
Average Measurement Setting [VBW]

Mode	Duty Cycle (%)	Ton [µs]	Toff [µs]	1/Ton (kHz)	Determined VBW Setting
11b	98.94	8.415	0.09	0.119	10Hz
11g	93.06	1.394	0.104	0.717	1kHz
11n(HT20)	92.55	1.305	0.105	0.766	1kHz

Although these tests were performed other than open area test site, adequate comparison measurements
were confirmed against 30 m open are test site.
Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 937606.

Radiated emission measurements are performed at 3m distance with the broadband antenna (Double ridged guide antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1m to 4m and stopped at height producing the maximum emission.
The EUT is Placed on a turntable, which is 0.8m/1.5m above ground plane. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. The test results represent the worst case emission for each emission with manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation. Sufficient time for the EUT, support equipment, and test equipment are allowed in order for them to warm up to their normal operating condition.

- Test configuration



4.6.2 Limit

Emission at the boundary of the restricted band provided by 15.205 shall be lower than 15.209 limit.

4.6.3 Measurement Result

[IEEE802.11b、IEEE802.11g、IEEE802.11n (HT20)]

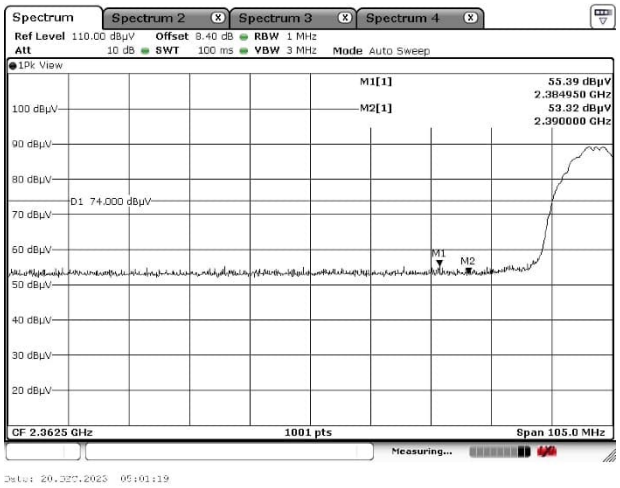
Channel	Frequency [MHz]	Results Chart	Result
Low	2412	See the Trace Data	Pass
High	2462	See the Trace Data	Pass

4.6.4 Test data

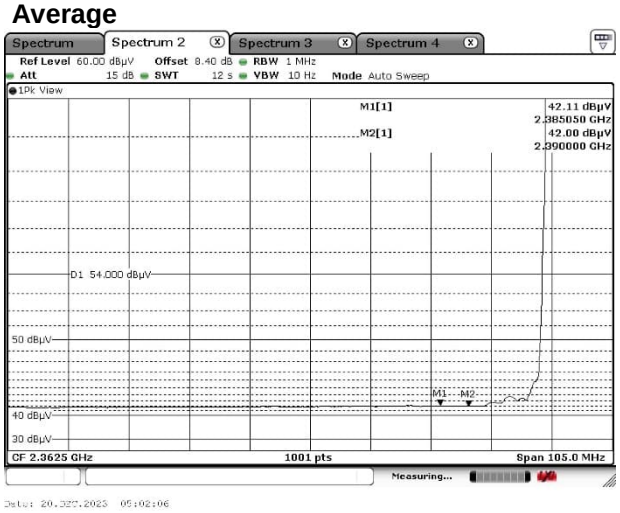
Date : 19-December-2023
Temperature : 20.9 [˚C]
Humidity : 31.1 [%] Test engineer : Tadahiro Seino
Test place : 3m Semi-anechoic chamber

[IEEE802.11b]

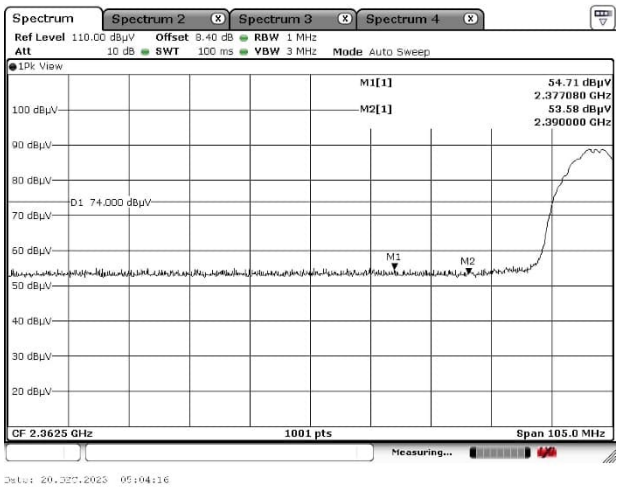
Channel Low
Horizontal
Peak



Average



Vertical
Peak



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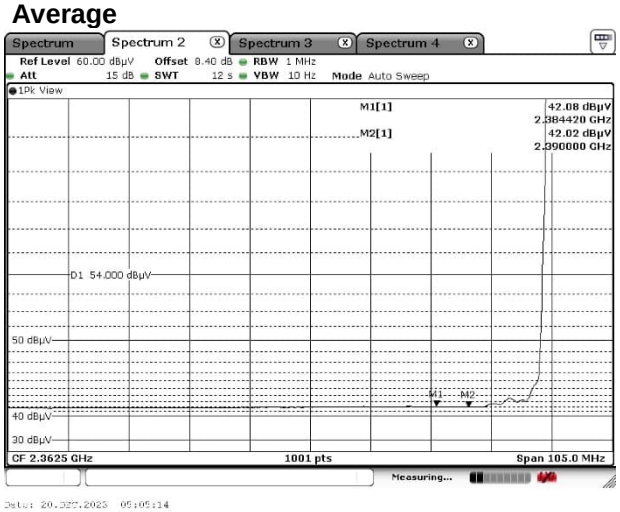
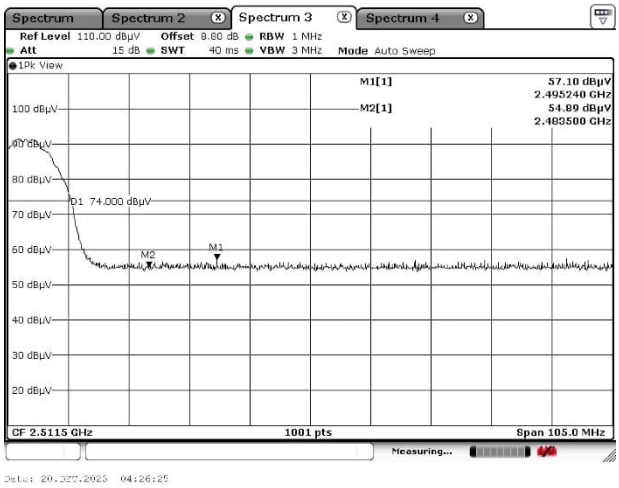
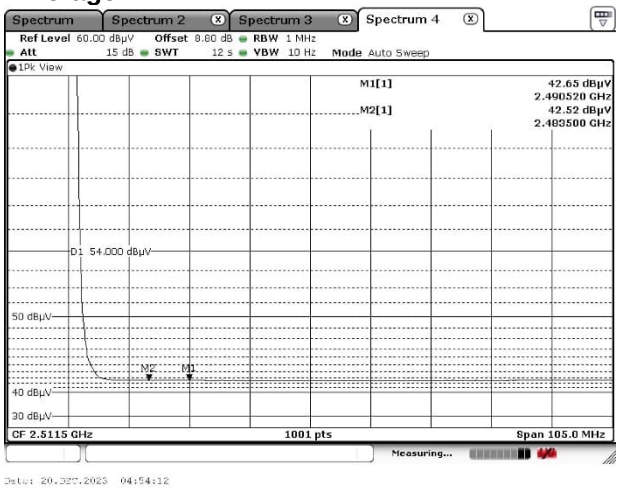


[IEEE802.11b]

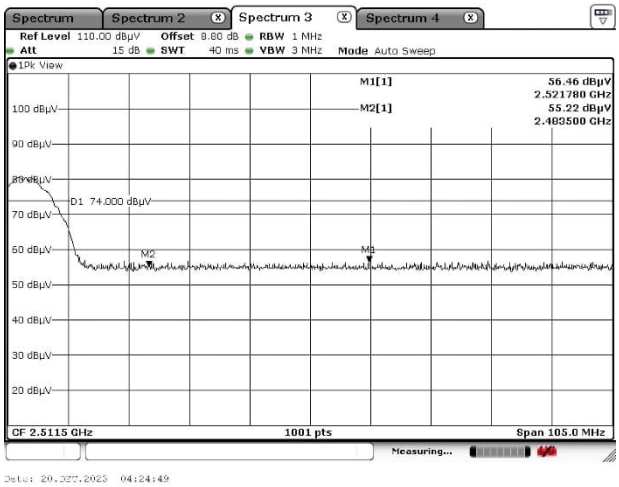
Channel High
Horizontal
Peak



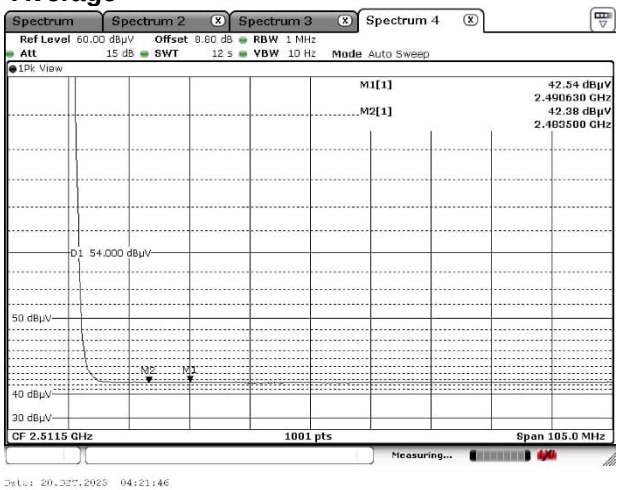
Average



Vertical
Peak

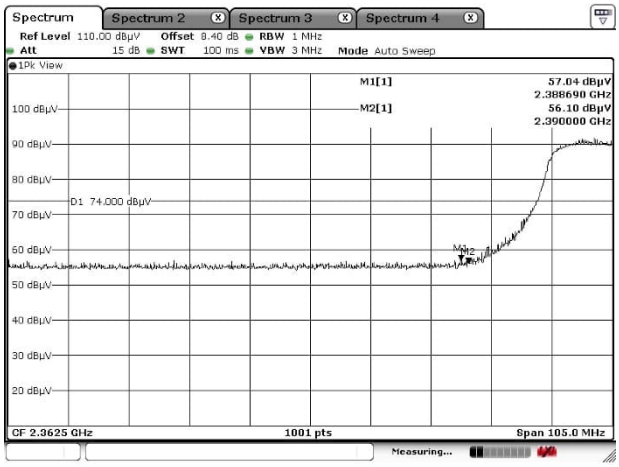


Average



[IEEE802.11g]

Channel Low
Horizontal
Peak



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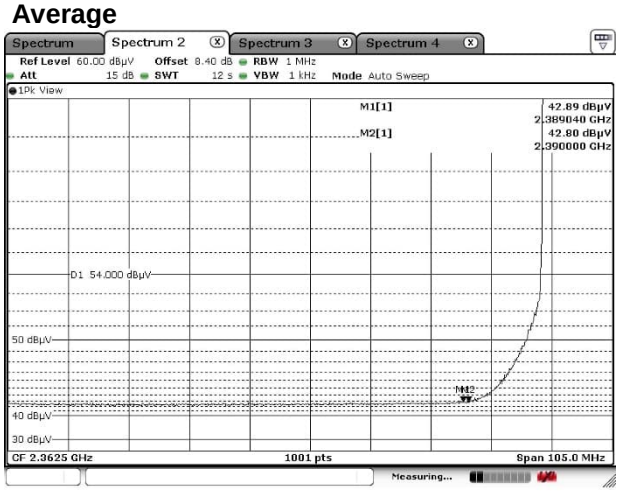
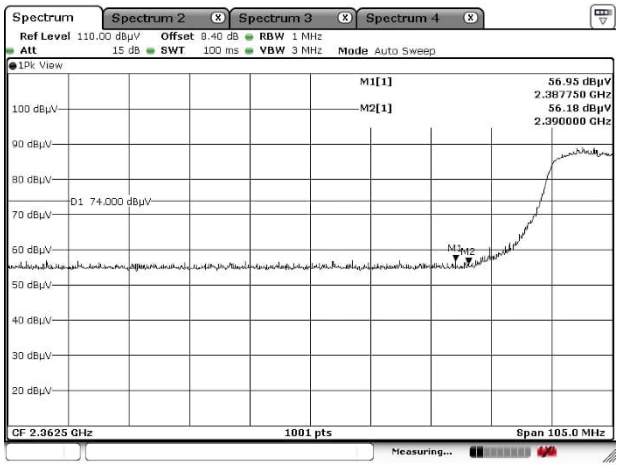


Vertical
Peak



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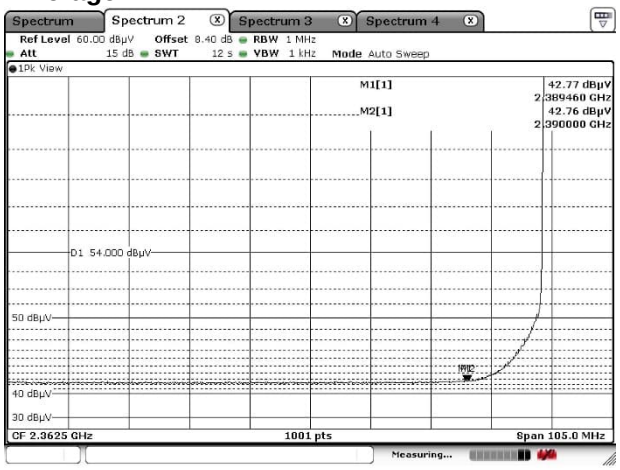
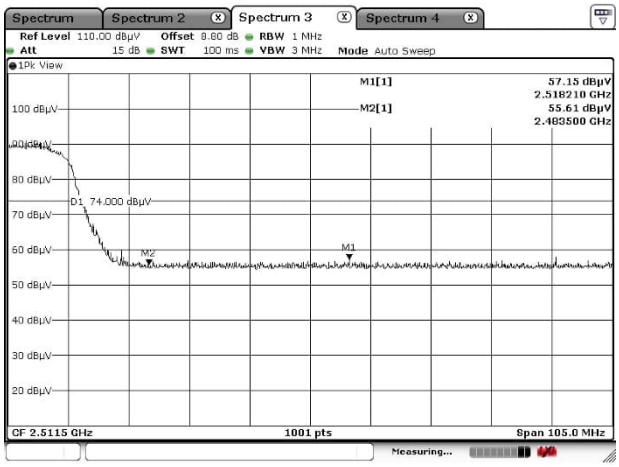
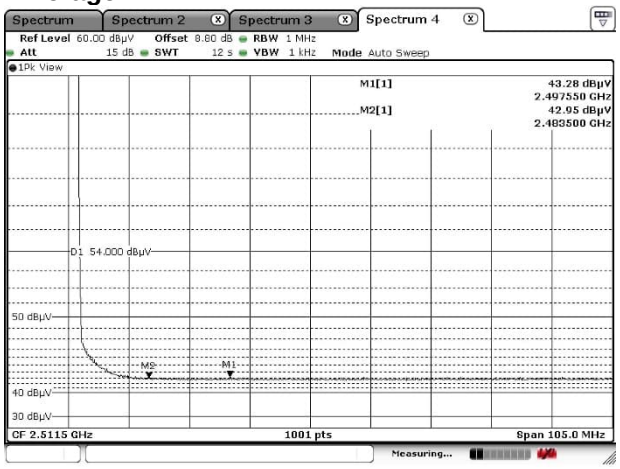


[IEEE802.11g]

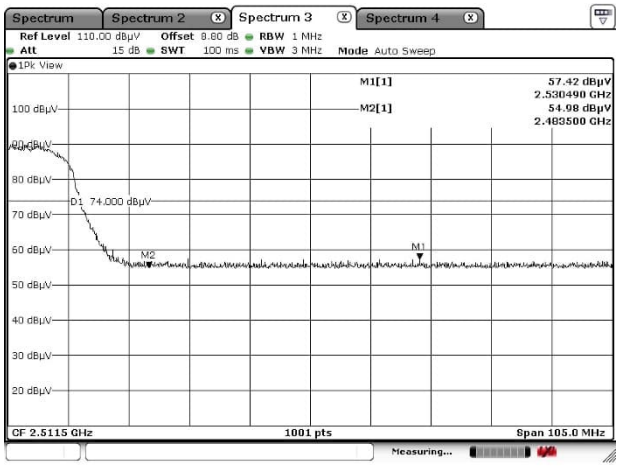
Channel High
Horizontal
Peak



Average



Vertical
Peak



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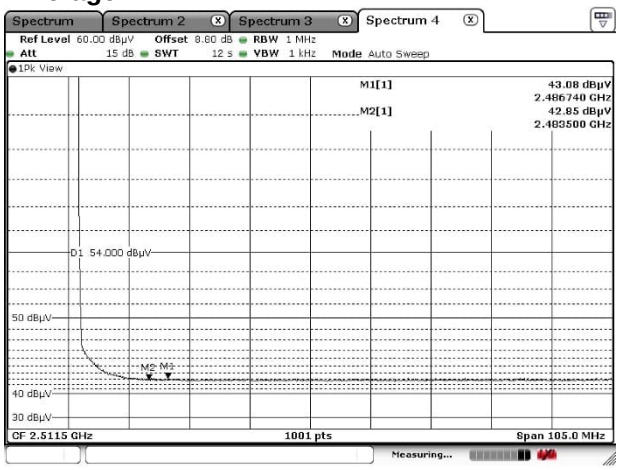
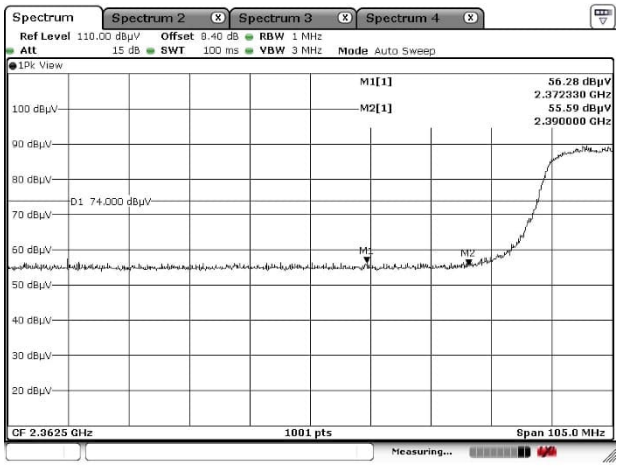
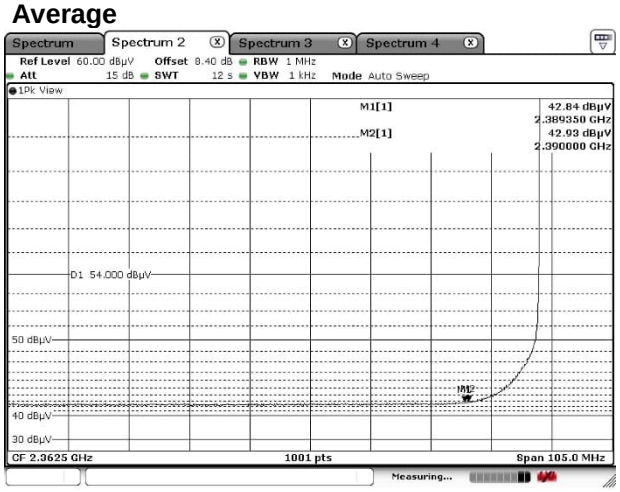


[IEEE802.11n (HT20)]

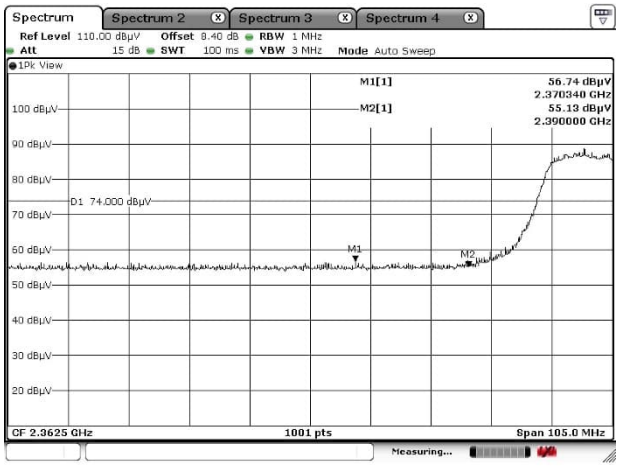
Channel Low
Horizontal
Peak



Average



Vertical
Peak



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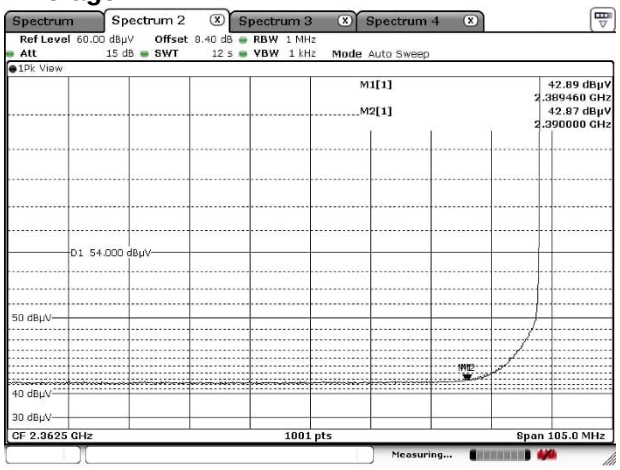
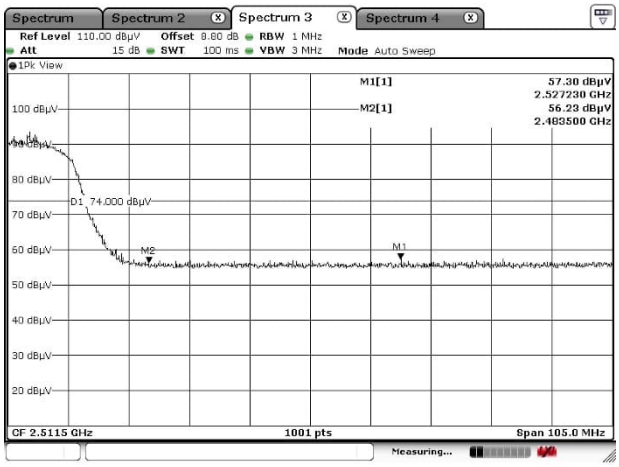


[IEEE802.11n (HT20)]

Channel High
Horizontal
Peak



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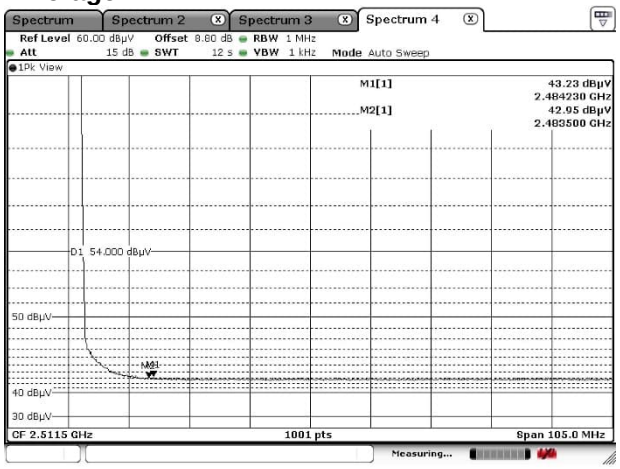
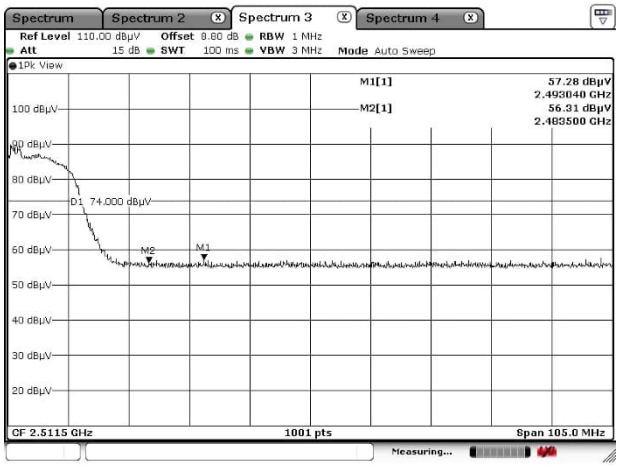
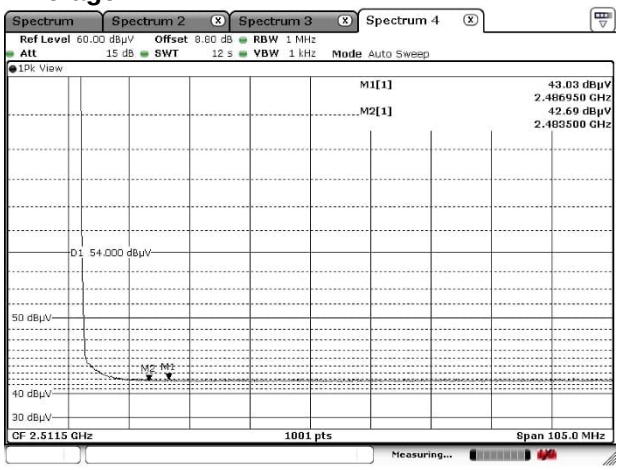


Vertical
Peak



Average



4.7 Transmitter Power Spectral Density

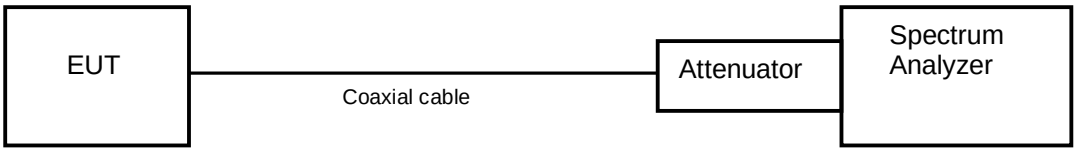
4.7.1 Measurement procedure

[FCC 15.247(e), KDB 558074 D01 v05r02, Section 8.4]

The peak power is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
a) Span = 1.5 times the 6 dB bandwidth.
b) RBW = 3kHz - 100kHz.
c) VBW ≥ 3 x RBW.
d) Sweep time = auto-couple.
e) Detector = peak.
f) Trace mode = max hold.

- Test configuration



4.7.2 Limit

The peak power spectral density shall not be greater than 8 dBm in any 3 kHz band.

4.7.3 Measurement result

Date	:	10-January-2024		
Temperature	:	21.2 [˚C]		
Humidity	:	45.6 [%]	Test engineer	:
Test place	:	Shielded room No.4		Tadahiro Seino

[IEEE802.11b]

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2412	-16.17	10.39	-5.78	8.00	13.78	PASS
Middle	2437	-17.17	10.39	-6.78	8.00	14.78	PASS
High	2462	-16.30	10.39	-5.91	8.00	13.91	PASS

Calculation;
Transmitter Power Spectral Density Level (Margin) = Limit – (Reading + Factor)

[IEEE802.11g]

Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2412	-20.89	10.39	-10.50	8.00	18.50	PASS
Middle	2437	-20.75	10.39	-10.36	8.00	18.36	PASS
High	2462	-20.20	10.39	-9.81	8.00	17.81	PASS

Calculation;
Transmitter Power Spectral Density Level (Margin) = Limit – (Reading + Factor)

[IEEE802.11n (HT20)]

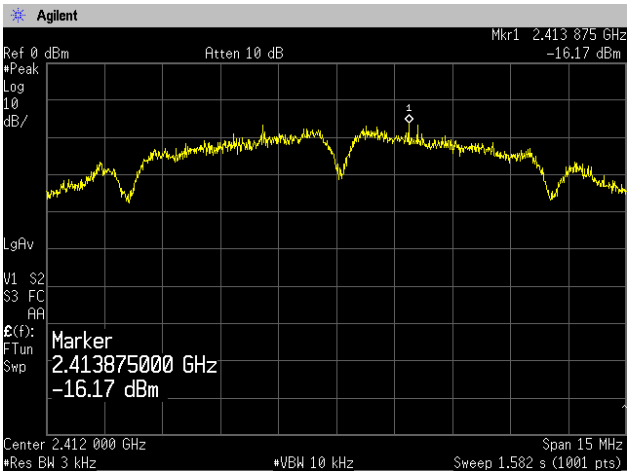
Channel	Center Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dBm)	Result
Low	2412	-21.24	10.39	-10.85	8.00	18.85	PASS
Middle	2437	-21.70	10.39	-11.31	8.00	19.31	PASS
High	2462	-21.01	10.39	-10.62	8.00	18.62	PASS

Calculation;
Transmitter Power Spectral Density Level (Margin) = Limit – (Reading + Factor)

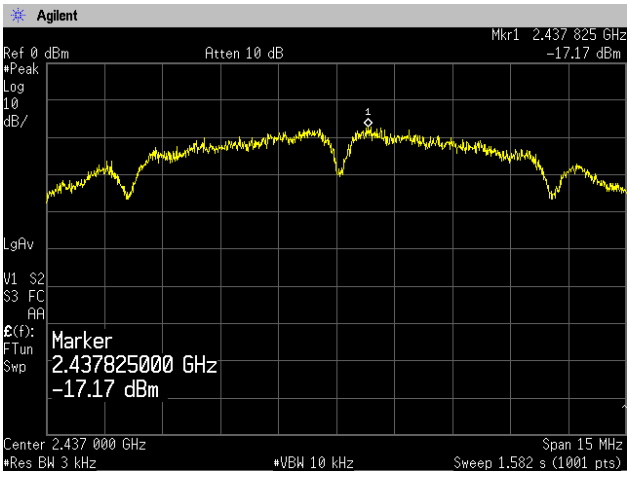
4.7.4 Trace data

[IEEE802.11b]

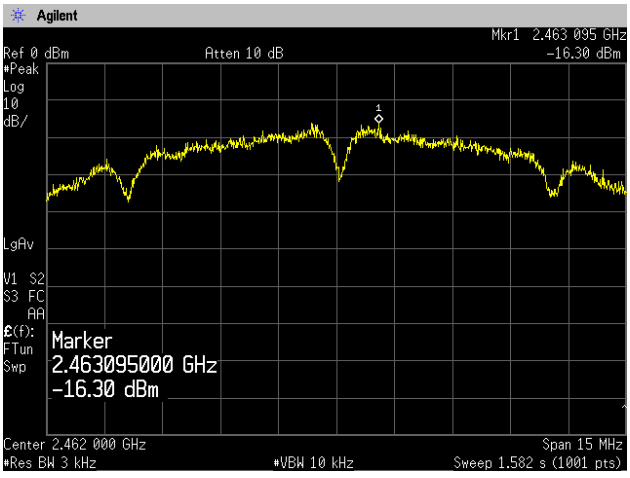
Channel Low



Channel Middle

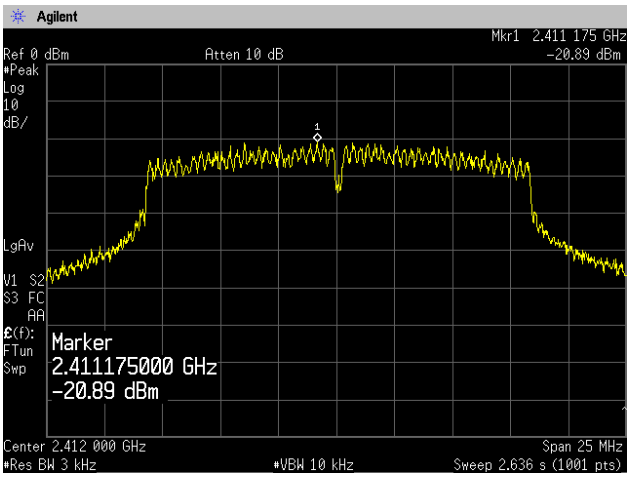


Channel High

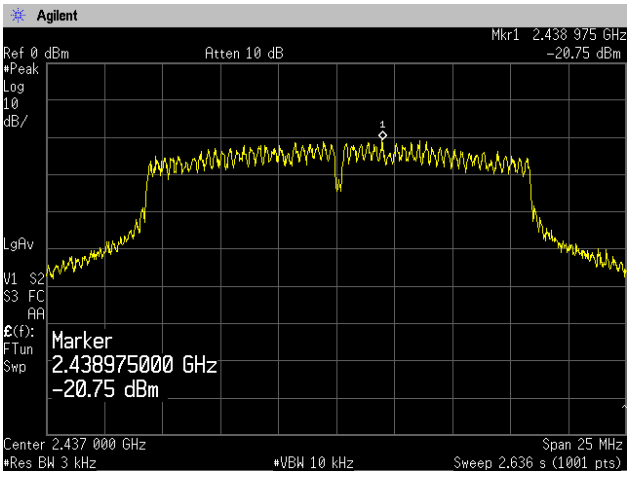


[IEEE802.11g]

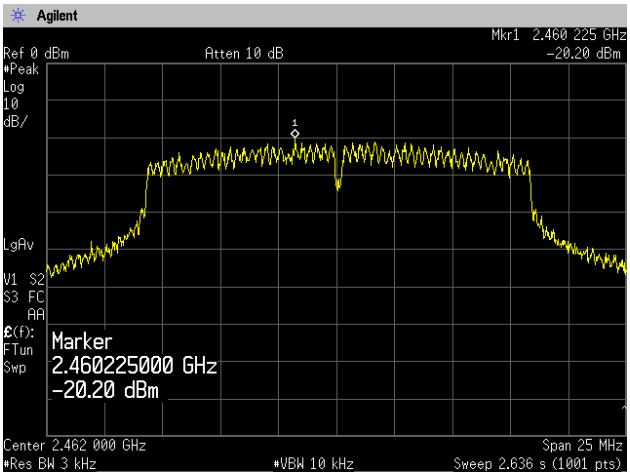
Channel Low



Channel Middle

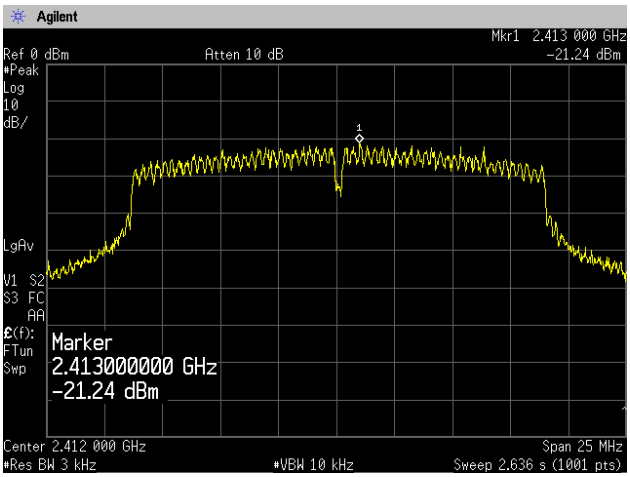


Channel High

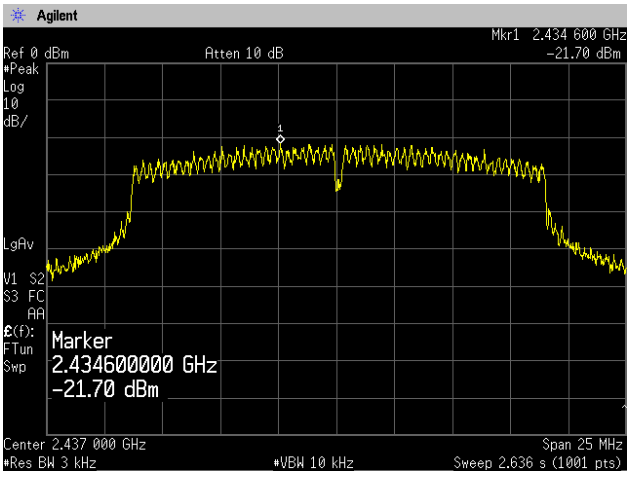


[IEEE802.11n (HT20)]

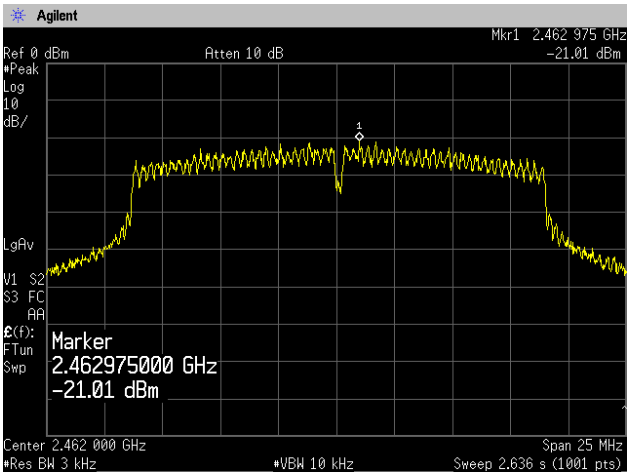
Channel Low



Channel Middle



Channel High



4.8 AC Power Line Conducted Emissions

4.8.1 Measurement procedure

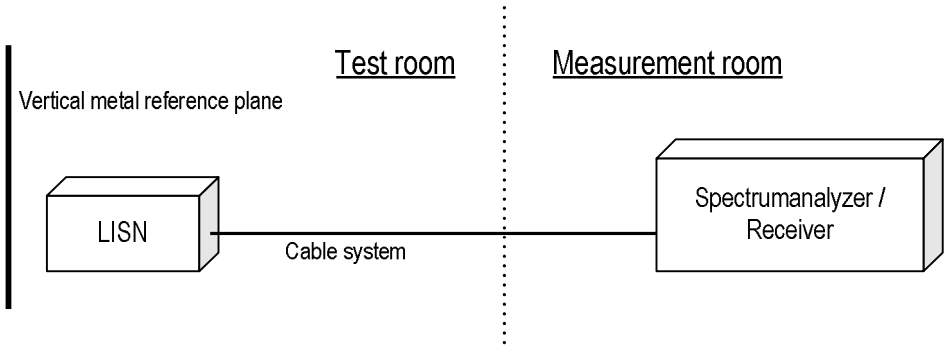
[FCC 15.207]

Test was applied by following conditions.

Test method	:	ANSI C63.10
Frequency range	:	0.15 MHz to 30 MHz
Test place	:	3m Semi-anechoic chamber
EUT was placed on	:	FRP table / (W) 2.0 × (D) 1.0 × (H) 0.8 m
Vertical Metal Reference Plane	:	(W) 2.0 × (H) 2.0 m, 0.4 m away from EUT
Test receiver setting		
- Detector	:	Quasi-peak, Average
- Bandwidth	:	9 kHz

EUT and peripherals are connected to 50Ω/50 μH Line Impedance Stabilization Network (LISN) which are connected to reference ground plane, and are placed 80cm away from EUT. Excess of AC power cable is bundled in center.
LISN for peripheral is terminated in 50Ω.
EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Maximum emission configuration is determined by manipulating the EUT, peripherals, interconnecting cables. Then, emission measurements are performed with test receiver in above setting to each current-carrying conductor of the mains port. Sufficient time for EUT, peripherals and test equipment is provided in order for them to warm up to their normal operating condition. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits.

- Test configuration



4.8.2 Calculation method

Emission level = Reading + (LISN. Factor + Cable system loss)
Margin = Limit – Emission level

Example:
Limit @ 0.403 MHz: 57.8 dBμV(Quasi-peak)
: 47.8 dBμV(Average)
(Quasi peak)Reading = 22.7 dBμV c.f. = 10.4 dB
Emission level = 22.7 + 10.4 = 33.1 dBμV
Margin = 57.8 – 33.1 = 24.7 dB
(Average) Reading = 6.5 dBμV c.f. = 10.4 dB
Emission level = 6.5 + 10.4 = 16.9 dBμV
Margin = 47.8 – 16.9 = 30.9 dB

4.8.3 Limit

Frequency [MHz]	Limit	
	QP [dBuV]	AV [dBuV]
0.15-0.5	66-56*	56-46*
0.5-5	56	46
5-30	60	50

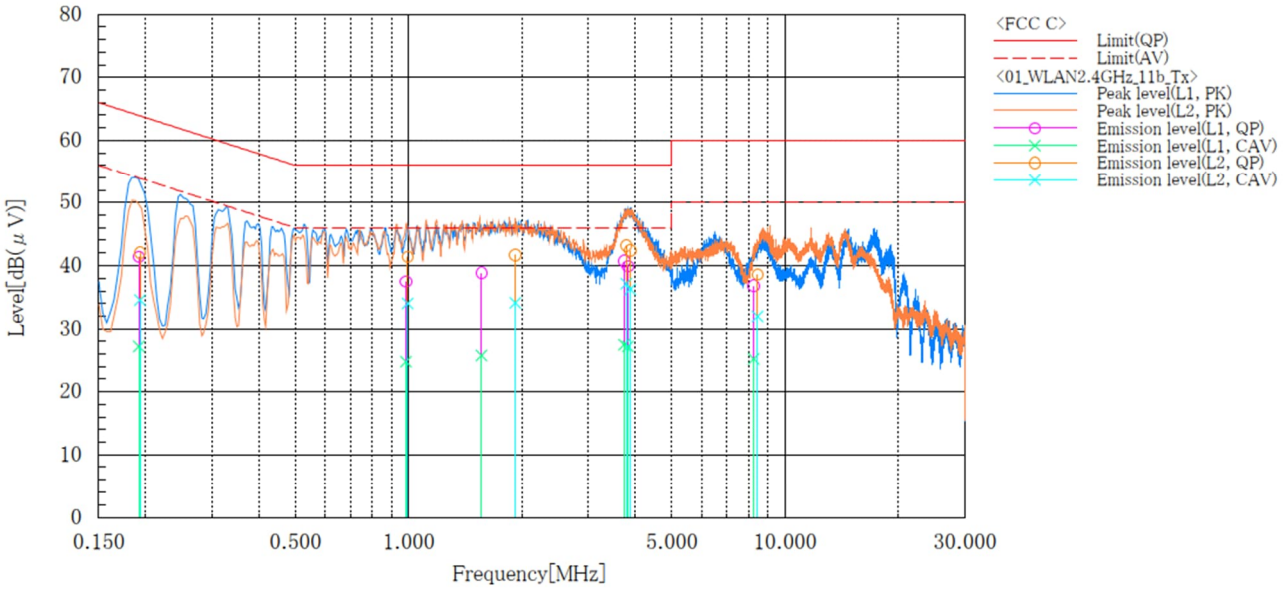
*: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

4.8.4 Test data

Date : 26-December-2023
Temperature : 21.1 [°C]
Humidity : 30.7 [%] Test engineer :
Test place : 3m Semi-anechoic chamber Tadahiro Seino

Company name : KING JIM CO., LTD.
EUT : Digital Typewriter "pomera"
Model No. : DM250US
Serial No. : D250K312217
Test mode : WLAN 11b_Tx

Sheet No. :
Standard : FCC Part 15 subpart C
Operator : T.Seino
Temp,Hum,Atm : 21.1 [° C], 30.7 [%]
Note1 : Ch:1 (2412MHz)



Final Result

--- L1 ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.192	31.0	16.8	10.4	41.4	27.2	63.9	53.9	22.5	26.7
2	0.982	27.2	14.5	10.3	37.5	24.8	56.0	46.0	18.5	21.2
3	1.559	28.4	15.4	10.4	38.8	25.8	56.0	46.0	17.2	20.2
4	3.737	30.2	17.0	10.5	40.7	27.5	56.0	46.0	15.3	18.5
5	3.822	29.4	16.7	10.5	39.9	27.2	56.0	46.0	16.1	18.8
6	8.249	25.9	14.3	10.9	36.8	25.2	60.0	50.0	23.2	24.8

--- L2 ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result CAV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin CAV [dB]
1	0.193	31.7	24.1	10.4	42.1	34.5	63.9	53.9	21.8	19.4
2	0.993	31.1	23.7	10.3	41.4	34.0	56.0	46.0	14.6	12.0
3	1.920	31.3	23.7	10.4	41.7	34.1	56.0	46.0	14.3	11.9
4	3.780	32.6	26.5	10.6	43.2	37.1	56.0	46.0	12.8	8.9
5	3.883	31.8	25.6	10.6	42.4	36.2	56.0	46.0	13.6	9.8
6	8.457	27.6	20.9	11.0	38.6	31.9	60.0	50.0	21.4	18.1

5 Antenna requirement

According to FCC section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
The antenna is a special antenna mounted inside of the EUT. Therefore, the EUT complies with the antenna requirement of FCC section 15.203.

6 Measurement Uncertainty

Expanded uncertainties stated are calculated with a coverage Factor k=2.
Please note that these results are not taken into account when measurement uncertainty considerations contained in ETSI TR 100 028 Parts 1 and 2 determining compliance or non-compliance with test result.

Test item	Measurement uncertainty
Conducted emission, AMN (9 kHz – 150 kHz)	±3.7 dB
Conducted emission, AMN (150 kHz – 30 MHz)	±3.3 dB
Radiated emission (9kHz – 30 MHz)	±3.8 dB
Radiated emission (30 MHz – 1000 MHz)	±5.4 dB
Radiated emission (1 GHz – 6 GHz)	±4.6 dB
Radiated emission (6 GHz – 18 GHz)	±4.7 dB
Radiated emission (18 GHz – 40 GHz)	±6.3 dB
Radio Frequency	$\pm 1.3 * 10^{-8}$
RF power, conducted	±0.7 dB
Adjacent channel power	±1.5 dB
Temperature	±0.6 °C
Humidity	±1.2 %
Voltage (DC)	±0.4 %
Voltage (AC, <10kHz)	±0.2 %

Judge	Measured value and standard limit value	
PASS	Case1	Standard limit value; +Uncertainty; -Uncertainty; Measured value Even if it takes uncertainty into consideration, a standard limit value is fulfilled.
	Case2	Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.
FAIL	Case3	Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.
	Case4	Even if it takes uncertainty into consideration, a standard limit value isn't fulfilled.

7 Laboratory Information

Testing was performed and the report was issued at:

TÜV SÜD Japan Ltd. Yonezawa Testing Center

Address: 5-4149-7 Hachimanpara, Yonezawa-shi, Yamagata, 992-1128 Japan
Phone: +81-238-28-2881

Accreditation and Registration
A2LA
Certificate #3686.03

VLAC
Accreditation No.: VLAC-013

BSMI
Laboratory Code: SL2-IN-E-6018, SL2-A1-E-6018

Innovation, Science and Economic Development Canada
ISED#: 4224A

VCCI Council
Registration number: A-0166

Appendix A. Test Equipment

Antenna port conducted test

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
Spectrum analyzer	Agilent Technologies	E4440A	US44302655	31-Oct-2024	06-Oct-2023
Attenuator	HUBER+SUHNER	6810.19.A	N/A(2397)	30-Sep-2024	20-Sep-2023
Power meter	ROHDE&SCHWARZ	NRP2	103269	31-Mar-2024	13-Mar-2023
Power sensor	ROHDE&SCHWARZ	NRP-Z81	102467	31-Mar-2024	13-Mar-2023

Radiated emission

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI receiver	ROHDE&SCHWARZ	ESW44	103171	31-Oct-2024	19-Oct-2023
Spectrum analyzer	ROHDE&SCHWARZ	FSV40	101732	30-Apr-2024	07-Apr-2023
Preamplifier	SONOMA	310	37270	30-Sep-2024	21-Sep-2023
Loop antenna	ROHDE&SCHWARZ	HFH2-Z2	100515	30-Apr-2024	21-Apr-2023
Attenuator	TOYO Connector	NA-PJ-6	N/A(S507)	31-Mar-2024	15-Mar-2023
Biconical antenna	Schwarzbeck	VHBB9124/BBA9106	1333	30-Jun-2024	12-Jun-2023
Log periodic antenna	Schwarzbeck	VUSLP9111B	346	31-Dec-2024	22-Dec-2023
Attenuator	TOYO Connector	NA-PJ-6/6dB	N/A(S541)	30-Sep-2024	21-Sep-2023
Attenuator	TAMAGAWA.ELEC	CFA-10/3dB	N/A(S503)	31-Jul-2024	20-Jul-2023
Preamplifier	SONOMA	310	372170	30-Sep-2024	21-Sep-2023
Attenuator	AEROFLEX	26A-10	081217-08	31-Dec-2024	19-Dec-2023
Double ridged guide antenna	ETS LINDGREN	3117	00052315	31-Jul-2024	11-Jul-2023
Attenuator	HUBER+SUHNER	6803.17.B	N/A(2340)	30-Jun-2024	22-Jun-2023
Double ridged guide antenna	A.H.Systems Inc.	SAS-574	469	31-Aug-2024	08-Aug-2023
Preamplifier	TSJ	MLA-1840-B03-35	1240332	31-Aug-2024	08-Aug-2023
Notch Filter	Micro-Tronics	BRM50702	G433	30-Sep-2024	20-Sep-2023
Microwave cable	HUBER+SUHNER	SUCOFLEX104/9m	800690/4	31-Oct-2024	20-Oct-2023
		SUCOFLEX104/1m	my24610/4	31-Dec-2024	20-Dec-2023
		SUCOFLEX104/9m	2001099/4	31-Oct-2024	20-Oct-2023
		SUCOFLEX104/1m	MY32976/4	31-Oct-2024	20-Oct-2023
		SUCOFLEX104/2m	SN MY28404/4	31-Dec-2024	20-Dec-2023
		SUCOFLEX104/7m	41625/6	31-Oct-2024	20-Oct-2023
PC	DELL	OPTIPLEX9010	00186-228-073-851	N/A	N/A
Software	TOYO Technica	ES10/RE-AJ	Ver.2021.10.001	N/A	N/A
Absorber	RIKEN	PFP30	N/A	N/A	N/A
3m Semi an-echoic Chamber	TOKIN	N/A	N/A(9002-NSA)	31-May-2024	28-May-2023
3m Semi an-echoic Chamber	TOKIN	N/A	N/A(9002-SVSWR)	31-May-2024	29-May-2023

Conducted emission at mains port

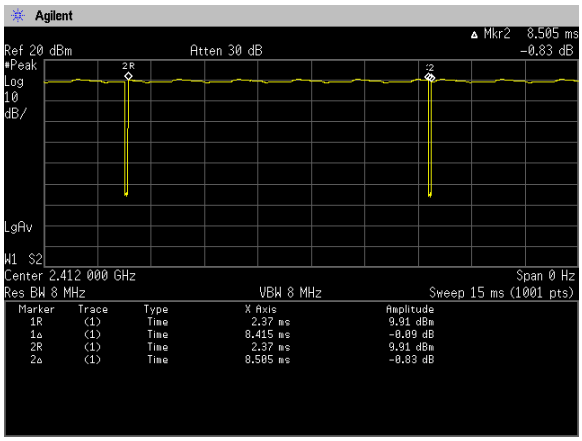
Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI receiver	ROHDE&SCHWARZ	ESW44	103171	31-Oct-2024	19-Oct-2023
Attenuator	HUBER+SUHNER	6810.01.A	N/A (S411)	31-Dec-2024	20-Dec-2023
Line impedance stabilization network	Kyoritsu Electrical Works, Ltd.	TNW-407F2	12-17-110-2	30-Jun-2024	22-Jun-2023
Microwave cable	HUBER+SUHNER	SUCOFLEX104/5m	MY33601/4	31-Oct-2024	20-Oct-2023
Microwave cable	HUBER+SUHNER	SUCOFLEX104/2m	MY37268/4	31-Oct-2024	20-Oct-2023
Coaxial cable	HUBER+SUHNER	RG214/U/10m	N/A (S194)	31-Oct-2024	20-Oct-2023
PC	DELL	OPTIPLEX9010	00186-228-073-851	N/A	N/A
Software	TOYO Technica	ES10/RE-AJ	Ver.2021.10.001	N/A	N/A

*: The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.

Appendix B. Duty Cycle

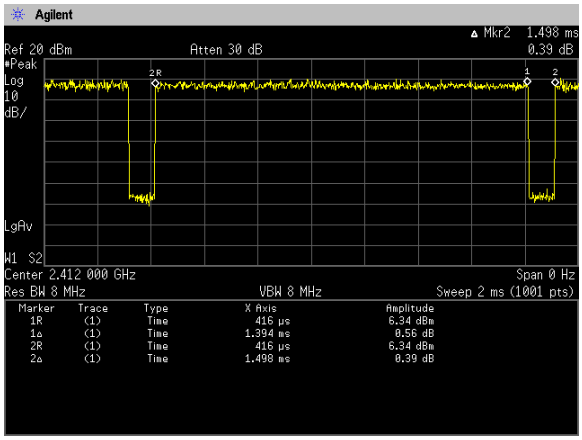
[Plot & Calculation]

11b



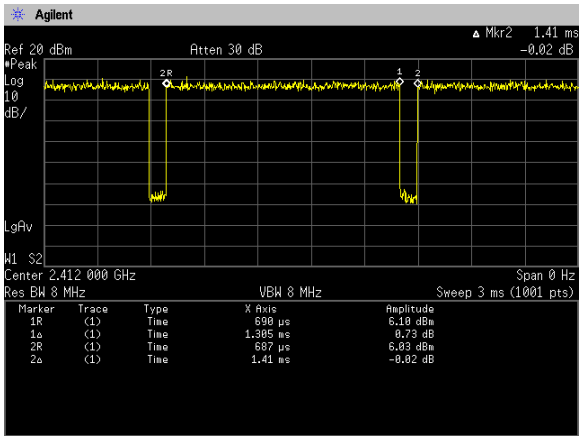
Duty Cycle = Ton / (Ton + Toff) = 8.415[ms] / (8.415[ms] + 0.09[ms]) =98.94[%]

11g



Duty Cycle = Ton / (Ton + Toff) = 1.394[ms] / (1.394[ms] + 0.104[ms]) =93.06[%]

11n (HT20)



Duty Cycle = Ton / (Ton + Toff) = 1.305[ms] / (1.305[ms] + 0.105[ms]) =92.55[%]