

Report on the RF Testing of:

SEKONIC CORPORATION
Radio TX Module, Model: Model PR
FCC ID: PFK-TXMPR



In accordance with FCC Part 15 Subpart C

Prepared for: SEKONIC CORPORATION
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COMMERCIAL-IN-CONFIDENCE

Document Number: JPD-TR-26077-0

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Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Japan Ltd. document control rules.

EXECUTIVE SUMMARY – Result: Complied

A sample of this product was tested and the result above was confirmed in accordance with FCC Part 15 Subpart C.



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1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-26077-0	First Issue	Refer to the cover page

1.2 Standards

CFR47 FCC Part 15 Subpart C

1.3 Test methods

ANSI/USEMCSC C63.10-2020/Cor 1-2023, ANSI C63.10-2020/Cor 1-2023

1.4 Deviation from standards

None

1.5 List of applied test(s) of the EUT

Test item section	Test item	Condition	Result	Remark
2.1049	20dB Bandwidth / Occupied Bandwidth	Conducted	PASS	-
15.249(a), (b), (c), (d), (e) 15.205 15.209 15.35(b)	Spurious Emissions (Field Strength of Fundamental and Harmonics)	Radiated	PASS	-
15.249(c), (d) 15.205 15.209	Restricted Bands of Operation	Radiated	PASS	-
15.207	AC Power Line Conducted Emissions	Conducted	PASS	-

1.6 Test set up

Table-top

1.7 Test period

1-June-2026 - 12-June-2026

2 Equipment Under Test

2.1 EUT information

Applicant	SEKONIC CORPORATION 7-24-14, Oizumi Gakuen Cho, Nerima-ku, Tokyo 178-8686 Japan Phone: +81-3-3978-2335
Equipment Under Test (EUT)	Radio TX Module
Model number	Model PR
Serial number	ES2_0002 (with Occupied Bandwidth test) ES2_0004 (with Other tests)
Trade name	SEKONIC
Number of sample(s)	2
EUT condition	Pre-Production
Power rating	DC 3.0 V
Size	(W) 28.96 × (D) 24.89 × (H) 8.4 mm
Environment	Indoor and Outdoor use
Terminal limitation	-15 °C to 65 °C
Hardware version	Ver.111
Software version	Not applicable
Firmware version	Ver.01.00
RF Specification	
Frequency range	2403.9986 MHz-2479.3136 MHz
Number of RF Channels	20 Channels
Modulation method/Data rate	MSK (500 kbps)
Output power	108.0 dBuV/m
Antenna type	Internal antenna
Antenna gain	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: Model PR, Serial Number: ES2_0002, ES2_0004			
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	2403.9986
2	2411.9967
3	2416.9955
4	2421.9943
5	2426.9930
6	2446.9882
7	2453.9864
8	2479.3136
9	2406.9979
10	2429.9923
11	2432.9916
12	2435.9908
13	2438.9901
14	2451.3204
15	2456.6524
16	2459.6517
17	2462.3177
18	2465.3170
19	2468.3162
20	2471.3155

2.5 Operating mode

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

Tested Channel	Frequency [MHz]
Low	2403.9986
Middle	2438.9901
High	2479.3136

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	MSK	500kbps

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 and the worst case recorded.

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 JIG 3
- ii) Select a Test mode
Operating frequency: Channel Low: 2403.9986MHz, Channel Middle: 2438.9901MHz,
Channel High: 2479.3136MHz, Data rate: 500kbps
- 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”.

Cabling and setup(s) were taken into consideration and test data was taken under worse case condition.

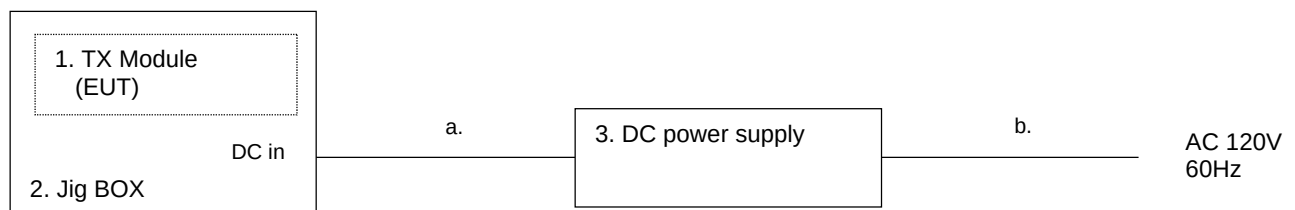
3.1 Equipment used

No.	Equipment	Company	Model No.	Serial No.	FCC ID/DoC	Comment
1	Radio TX Module	SEKONIC	Model PR	ES2_0002 ES2_0004	PFK-TXMPR	EUT
2	Jig BOX	-	JIG 3	-	-	-
3	DC power supply	KIKUSUI	PMX35-3A	BP001454	-	-

3.2 Cable(s) used

No.	Equipment	Length[m]	Shield	Connector	Comment
a	DC cable	2.0	No	Plastic	-
b	AC power cord	2.2	No	Plastic	-

3.3 System configuration



Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in “3.1 Equipment(s) used” and “3.2 Cable(s) used”.

4 Test Result

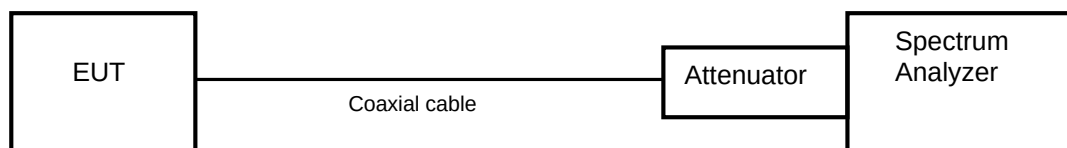
4.1 20dB Bandwidth / Occupied Bandwidth

4.1.1 Measurement procedure

[FCC 2.1049, ISSED RSS-Gen 6.7]

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99% bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

- Test configuration



4.1.2 Limit

None

4.1.3 Measurement result

Date : 12-June-2026

Temperature : 23.8 [°C]

Humidity : 51.4 [%]

Test place : Shielded room No.3

Test engineer :

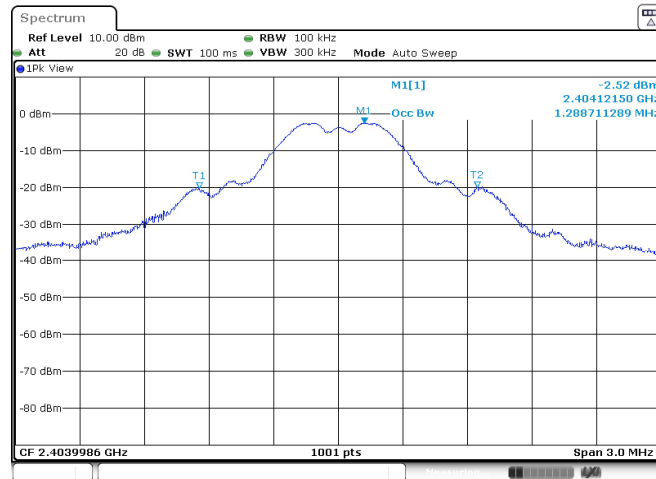
Taiki Watanabe

Band	Channel	Frequency (MHz)	Test Result (MHz)	
			Occupied Bandwidth	20dB Bandwidth
Low	1	2403.9986	1.2887113	1.1748
Middle	13	2438.9901	1.2797203	1.1628
High	8	2479.3136	1.3156843	1.3277

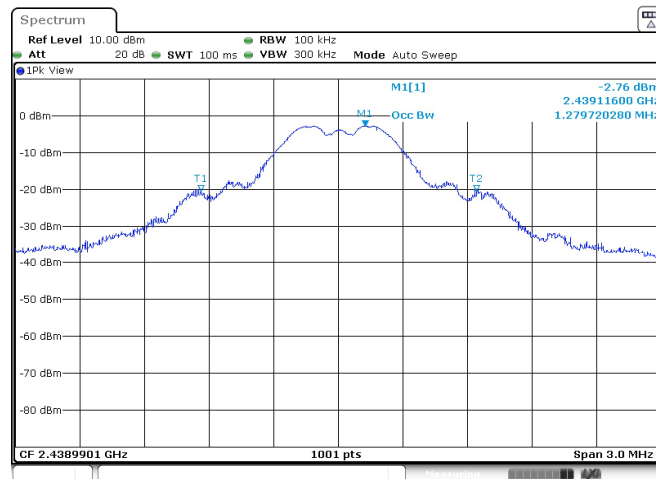
4.1.4 Trace data

[Occupied Bandwidth / 500kbps]

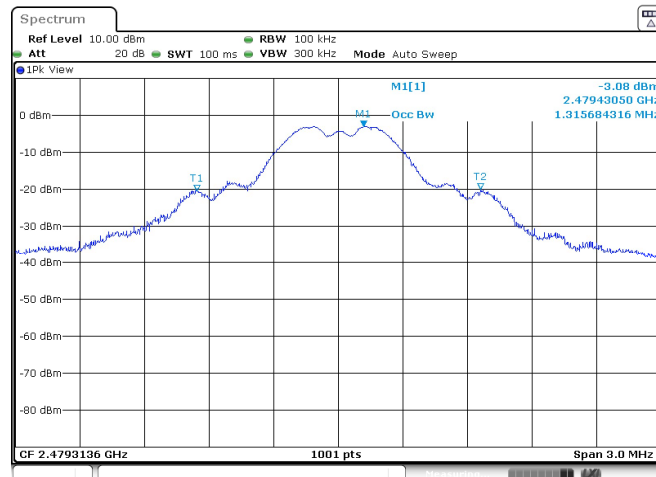
Channel: Low



Channel: Middle



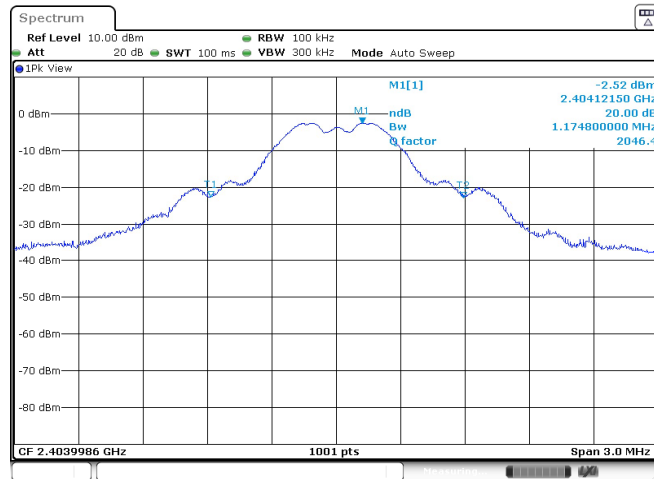
Channel: High



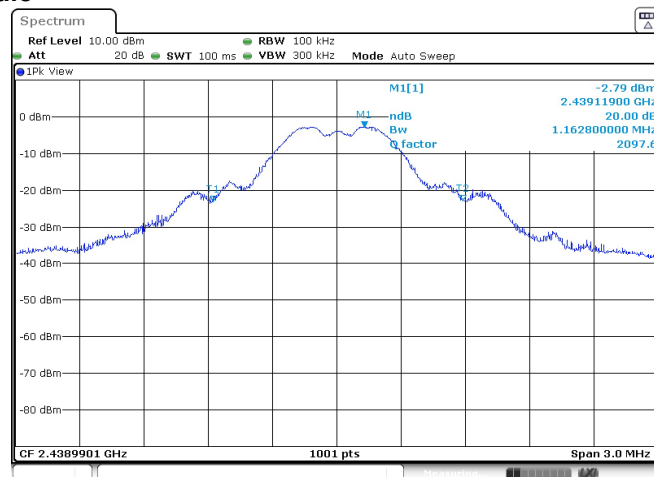
4.1.5 Trace data

[20dB Bandwidth / 500kbps]

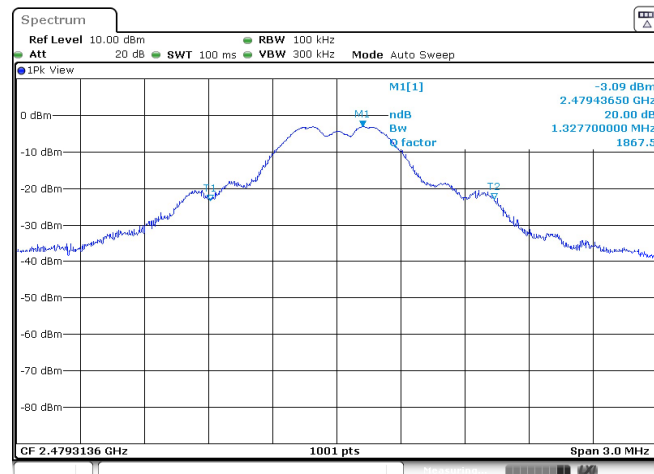
Channel: Low



Channel: Middle



Channel: High



4.2 Spurious Emissions - Field Strength of Fundamental and Harmonics -

4.2.1 Measurement procedure

[FCC 15.205, 15.209, 15.249(a), (b), (c), (d), (e), 15.35(b), ISSED RSS-210 Annex B.10, RSS-Gen 6.13.2, 7.3, 8.2, 8.9]

Test was applied by following conditions.

Test method	: ANSI C63.10
Frequency range	: 9kHz to 25GHz
Test place	: 3m Semi-anechoic chamber
EUT was placed on	: Styrofoam table / (W)0.6m × (D)0.6m × (H)0.8m (below 1GHz) Styrofoam table / (W)0.3m × (D)0.3m × (H)1.5m (above 1GHz)
Antenna distance	: 3m
Test receiver setting	Below 1GHz
- Detector	: Average (9kHz-90kHz, 110kHz-490kHz), Quasi-peak
- Bandwidth	: 200Hz, 120kHz
Spectrum analyzer setting	Above 1GHz
- Peak	: RBW=1MHz, VBW=3MHz, Span=0Hz, Sweep=auto
- Average	: Peak reading + DCF

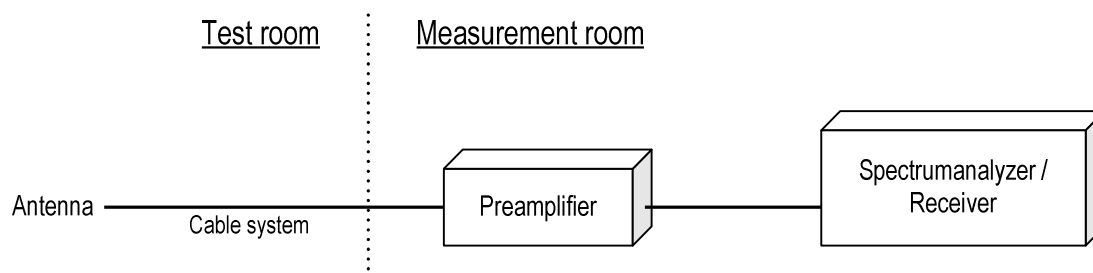
Average Measurement [DCF]

Data rate	Duty cycle (%)	T _{on} (ms)	100ms Window	1/T _{on} (kHz)	Duty cycle factor 20log (Dc %) (dB)
500kbps	5.19	0.52	10	1.923	-20

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area 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 414788.

Radiated emission measurements are performed at 3m distance with the broadband antenna (Loop antenna, Biconical antenna, Log periodic antenna, Double ridged guide antenna and Broad-band horn 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 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



4.2.2 Calculation method

[9kHz to 150kHz]

Emission level = Reading + (Ant factor + Cable system loss)

Margin = Limit – Emission level

[150kHz to 25GHz]

Emission level = Reading + (Ant factor + Cable system loss - Amp. Gain)

Margin = Limit – Emission level

Example:

Limit @ 4804.0MHz : 74.0dBuV/m (Peak Limit)

S.A Reading = 39.9dBuV Cable system loss = 8.3dB

Result = 39.9 + 8.3 = 48.2dBuV/m

Margin = 74.0 - 48.2 = 25.8dB

4.2.3 Limit

Fundamental Frequency [MHz]	Field strength of fundamental		Field strength of harmonics		Distance [m]
	[mV/m]	[dBuV/m]	[mV/m]	[dBuV/m]	
2400-2483.5	50	20logE [uV/m]	500	20logE [uV/m]	3

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 1000MHz, 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 20dB under any condition modulation.

4.2.4 Test data

Date	: 1-June-2026		
Temperature	: 21.5 [°C]		
Humidity	: 54.2 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: 2-June-2026		
Temperature	: 20.0 [°C]		
Humidity	: 50.0 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>

<500kbps>

Channel Low

Peak

(P)	Frequency [MHz]	Reading [dBμV/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]
H	2403.999	98.8	8.2	-	107.0	114	7.0
V	2403.999	92.8	8.2	-	101.0	114	13.0
H	2247.990	59.3	7.7	-	67.0	74	7.0
H	2559.984	61.5	9.0	-	70.5	74	3.5
H	4807.998	48.2	12.6	-	60.8	74	13.2
V	4807.998	49.1	12.6	-	61.7	74	12.3
H	7212.231	59.5	6.6	-	66.1	74	7.9
V	7212.252	59.2	6.6	-	65.8	74	8.2

Average

(P)	Frequency [MHz]	Reading [dBμV/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]
H	2403.999	98.8	8.2	20	87.0	94	7.0
V	2403.999	92.8	8.2	20	81.0	94	13.0
H	2247.990	59.3	7.7	20	47.0	54	7.0
H	2559.984	61.5	9.0	20	50.5	54	3.5
H	4807.998	48.2	12.6	20	40.8	54	13.2
V	4807.998	49.1	12.6	20	41.7	54	12.3
H	7212.231	59.5	6.6	20	46.1	54	7.9
V	7212.252	59.2	6.6	20	45.8	54	8.2

Channel Middle

Peak

(P)	Frequency [MHz]	Reading [dBμV/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]
H	2438.990	98.9	8.9	-	107.8	114	6.2
V	2438.990	91.3	8.9	-	100.2	114	13.8
H	2283.198	61.0	7.8	-	68.8	74	5.2
H	2595.000	60.3	9.1	-	69.4	74	4.6
H	4877.980	50.3	12.6	-	62.9	74	11.1
V	4877.980	48.7	12.6	-	61.3	74	12.7
H	7317.579	60.5	6.9	-	67.4	74	6.6
V	7317.524	59.9	6.9	-	66.8	74	7.2

Average

(P)	Frequency [MHz]	Reading [dB μ V/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
H	2438.990	98.9	8.9	20	87.8	94	6.2
V	2438.990	91.3	8.9	20	80.2	94	13.8
H	2283.198	61.0	7.8	20	48.8	54	5.2
H	2595.000	60.3	9.1	20	49.4	54	4.6
H	4877.980	50.3	12.6	20	42.9	54	11.1
V	4877.980	48.7	12.6	20	41.3	54	12.7
H	7317.579	60.5	6.9	20	47.4	54	6.6
V	7317.524	59.9	6.9	20	46.8	54	7.2

Channel High Peak

(P)	Frequency [MHz]	Reading [dB μ V/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
H	2479.314	99.0	9.0	-	108.0	114	6.0
V	2479.314	93.1	9.0	-	102.1	114	11.9
H	2350.000	58.0	8.3	-	66.3	74	7.7
H	2622.587	57.2	9.0	-	66.2	74	7.8
H	4958.668	51.4	12.7	-	64.1	74	9.9
V	4958.668	49.5	12.7	-	62.2	74	11.8
H	7437.356	60.8	7.2	-	68.0	74	6.0
V	7438.280	56.3	7.2	-	63.5	74	10.5

Average

(P)	Frequency [MHz]	Reading [dB μ V/m]	c.f [dB(1/m)]	Duty cycle factor [dB(1/m)]	Result [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
H	2479.314	99.0	9.0	20	88	94	6.0
V	2479.314	93.1	9.0	20	82.1	94	11.9
H	2350.000	58.0	8.3	20	46.3	54	7.7
H	2622.587	57.2	9.0	20	46.2	54	7.8
H	4958.668	51.4	12.7	20	44.1	54	9.9
V	4958.668	49.5	12.7	20	42.2	54	11.8
H	7437.356	60.8	7.2	20	48	54	6.0
V	7438.280	56.3	7.2	20	43.5	54	10.5

Note:

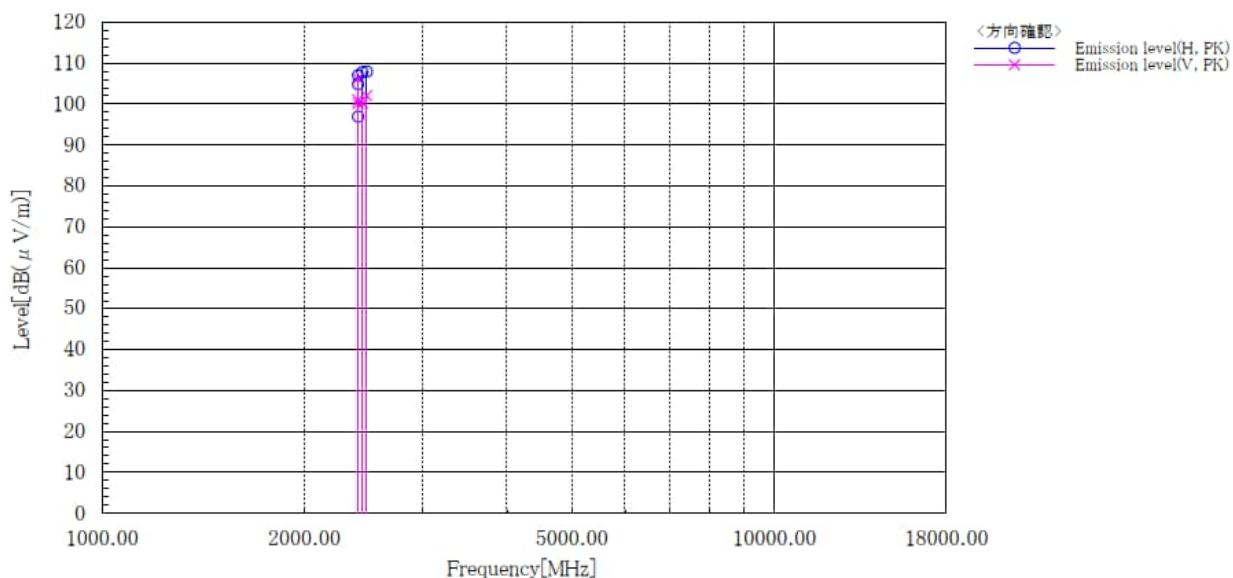
No emission was detected in the receive mode.

[Transmission mode]**Electric field strength of carrier wave**

* The worst emission was found in Y-axis.

Company name : SEKONIC CORPORATION
 EUT : Radio TX Module
 Model No. : Model PR
 Serial No. : ES2_0004
 Test mode : 2.4GHz_MSK_500k_Tx

Sheet No. : 01
 Standard : FCC Part.15 subpart C
 Operator : T.Watanabe
 Temp,Hum,Atm : 21.5 [°C], 54.2 [%]
 Note1 : CH:Low (2402MHz)

**Final Result**

No.	Frequency	Pol	Reading	c. f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		PK [dB(μV)]	[dB(1/m)]	PK [dB(μV/m)]	PK [dB(μV/m)]	PK [dB]	[cm]	[deg]	
1	2403.999	H	88.8	8.2	97.0	114.0	17.0	193.0	235.0	X axis
2	2403.999	V	98.0	8.2	106.2	114.0	7.8	150.0	3.0	X axis
3	2403.999	H	98.8	8.2	107.0	114.0	7.0	148.0	13.0	Y axis
4	2403.999	V	92.8	8.2	101.0	114.0	13.0	264.0	287.0	Y axis
5	2403.999	H	96.7	8.2	104.9	114.0	9.1	100.0	60.0	Z axis
6	2403.999	V	92.0	8.2	100.2	114.0	13.8	193.0	359.0	Z axis
7	2438.990	H	98.9	8.9	107.8	114.0	6.2	140.0	13.0	Y axis
8	2438.990	V	91.3	8.9	100.2	114.0	13.8	166.0	236.0	Y axis
9	2479.314	H	99.0	9.0	108.0	114.0	6.0	251.0	14.0	Y axis
10	2479.314	V	93.1	9.0	102.1	114.0	11.9	216.0	278.0	Y axis

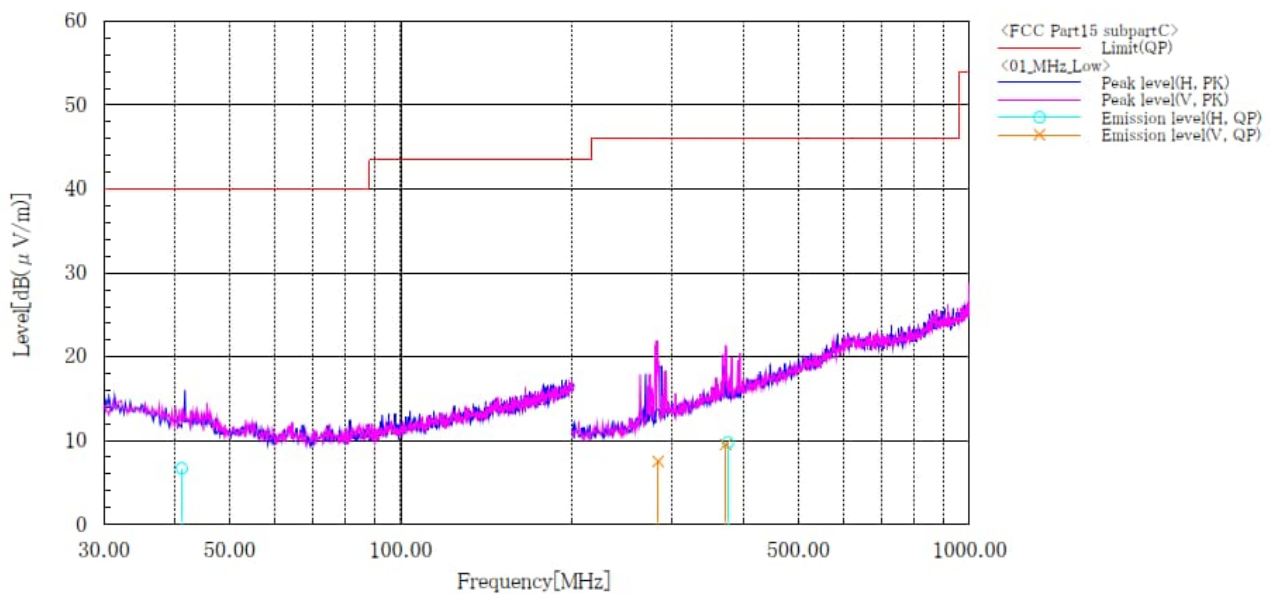
Note:

Limit: 114 dBμV/m

Channel: Low
BELOW 1 GHz

Company name : SEKONIC CORPORATION
 EUT : Radio TX Module
 Model No. : Model PR
 Serial No. : ES2,0004
 Test mode : 2.4GHz_MSK_500k_Tx

Sheet No. : 01
 Standard : FCC Part15 subpart C
 Operator : T.Watanabe
 Temp,Hum,Atm : 22.0 [°C] 50.0 [%]
 Note1 : CH:Low (2403.9986MHz)


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]	Remark
1	41.190	H	21.6	-14.9	6.7	40.0	33.3	119.0	304.0	
2	283.300	V	21.8	-14.3	7.5	46.0	38.5	199.0	221.0	
3	373.120	V	21.7	-12.2	9.5	46.0	36.5	100.0	91.0	
4	376.500	H	21.9	-12.1	9.8	46.0	36.2	179.0	90.0	

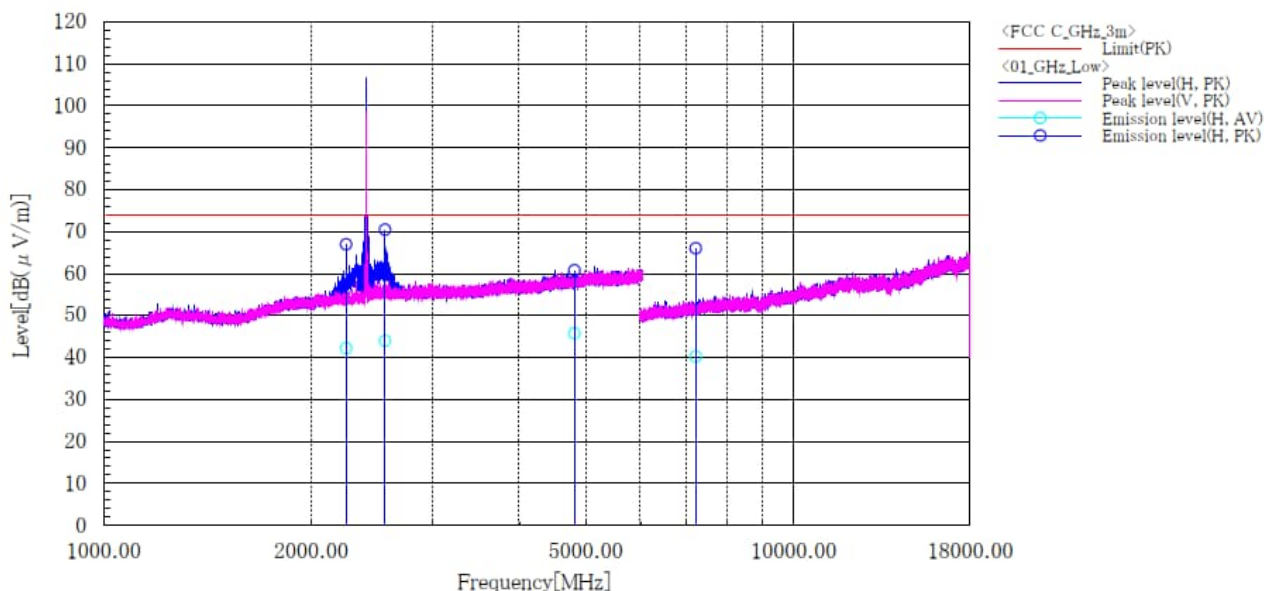
Note:

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

Channel: Low
ABOVE 1 GHz

Company name : SEKONIC CORPORATION
 EUT : Radio TX Module
 Model No. : Model: Model PR
 Serial No. : ES2_0004
 Test mode : 2.4GHz_MSK_500k_Tx

Sheet No. : 01
 Standard : FCC Part.15 subpart C
 Operator : T.Watanabe
 Temp,Hum,Atm : 21.5 [°C], 54.2 [%]
 Note1 : CH:Low (2403.9986MHz)


Final Result

No.	Frequency [MHz]	Pol	Reading PK [dB(μV)]	c. f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]	Remark
1	2247.990	H	59.3	7.7	67.0	74.0	7.0	134.0	354.0	
2	2559.984	H	61.5	9.0	70.5	74.0	3.5	230.0	18.0	
3	4807.998	H	48.2	12.6	60.8	74.0	13.2	167.0	341.0	
4	4807.998	V	49.1	12.6	61.7	74.0	12.3	192.0	195.0	
5	7212.231	H	59.5	6.6	66.1	74.0	7.9	210.0	235.0	
6	7212.252	V	59.2	6.6	65.8	74.0	8.2	100.0	153.0	

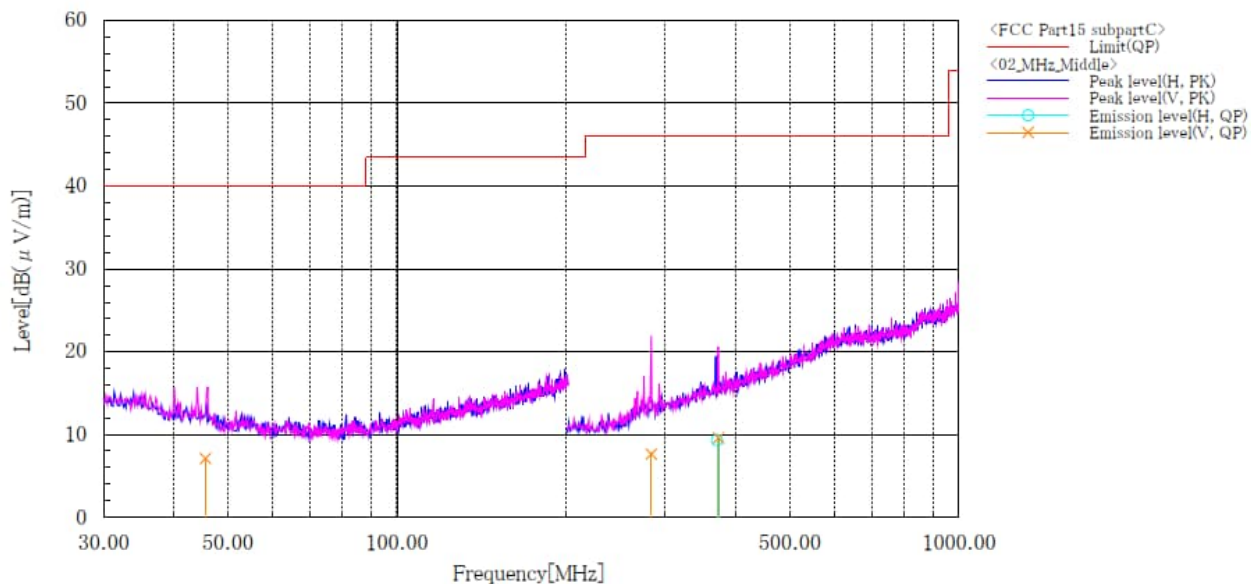
Note:

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.

Channel: Middle
BELOW 1 GHz

Company name : SEKONIC CORPORATION
 EUT : Radio TX Module
 Model No. : Model PR
 Serial No. : ES2_0004
 Test mode : 2.4GHz_MSK_500k_Tx

Sheet No. : 02
 Standard : FCC Part15 subpart C
 Operator : T.Watanabe
 Temp,Hum,Atm : 22.0 [°C] 50.0 [%]
 Note1 : CH:Middle (2438.9901MHz)


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]	Remark
1	45.618	V	22.5	-15.4	7.1	40.0	32.9	149.0	6.0	
2	283.194	V	21.9	-14.3	7.6	46.0	38.4	199.0	248.0	
3	371.400	H	21.5	-12.2	9.3	46.0	36.7	191.0	263.0	
4	374.004	V	21.8	-12.2	9.6	46.0	36.4	165.0	325.0	

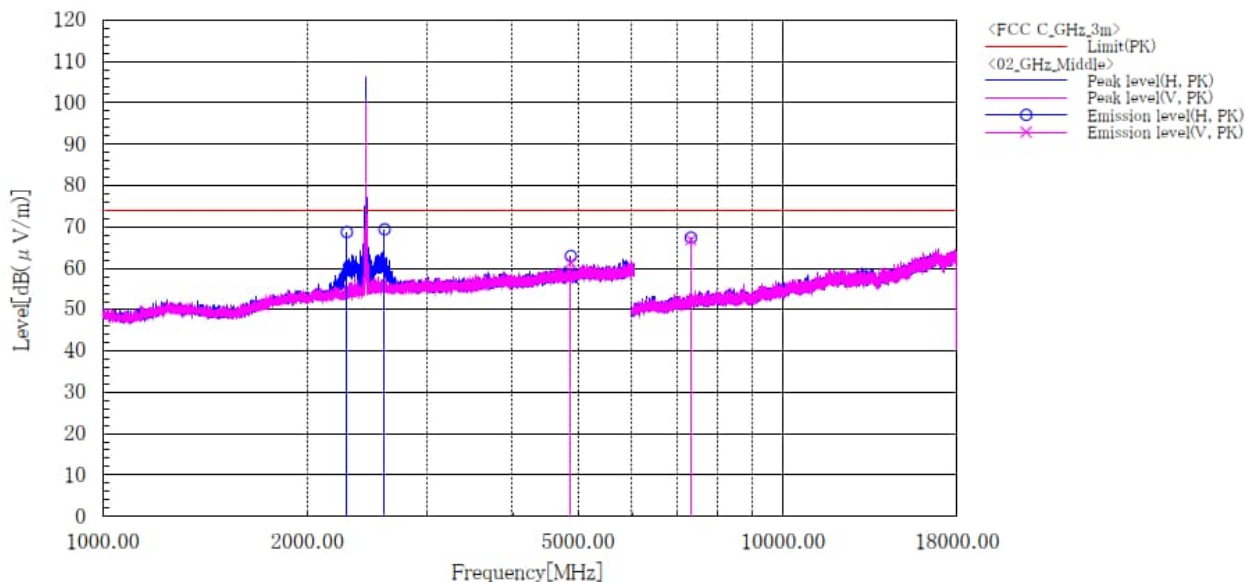
Note:

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.

Channel: Middle
ABOVE 1 GHz

Company name : SEKONIC CORPORATION
 EUT : Radio TX Module
 Model No. : Model PR
 Serial No. : ES2_0004
 Test mode : 2.4GHz_MSK_500k_Tx

Sheet No. : 02
 Standard : FCC Part.15 subpart C
 Operator : T.Watanabe
 Temp,Hum,Atm : 21.5 [°C], 54.2 [%]
 Note1 : CH:Middle (2438.9901MHz)


Final Result

No.	Frequency [MHz]	Pol	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]	Remark
1	2283.198	H	61.0	7.8	68.8	74.0	5.2	156.0	1.0	
2	2595.000	H	60.3	9.1	69.4	74.0	4.6	195.0	21.0	
3	4877.980	H	50.3	12.6	62.9	74.0	11.1	100.0	52.0	
4	4877.980	V	48.7	12.6	61.3	74.0	12.7	120.0	244.0	
5	7317.579	H	60.5	6.9	67.4	74.0	6.6	211.0	230.0	
6	7317.524	V	59.9	6.9	66.8	74.0	7.2	100.0	140.0	

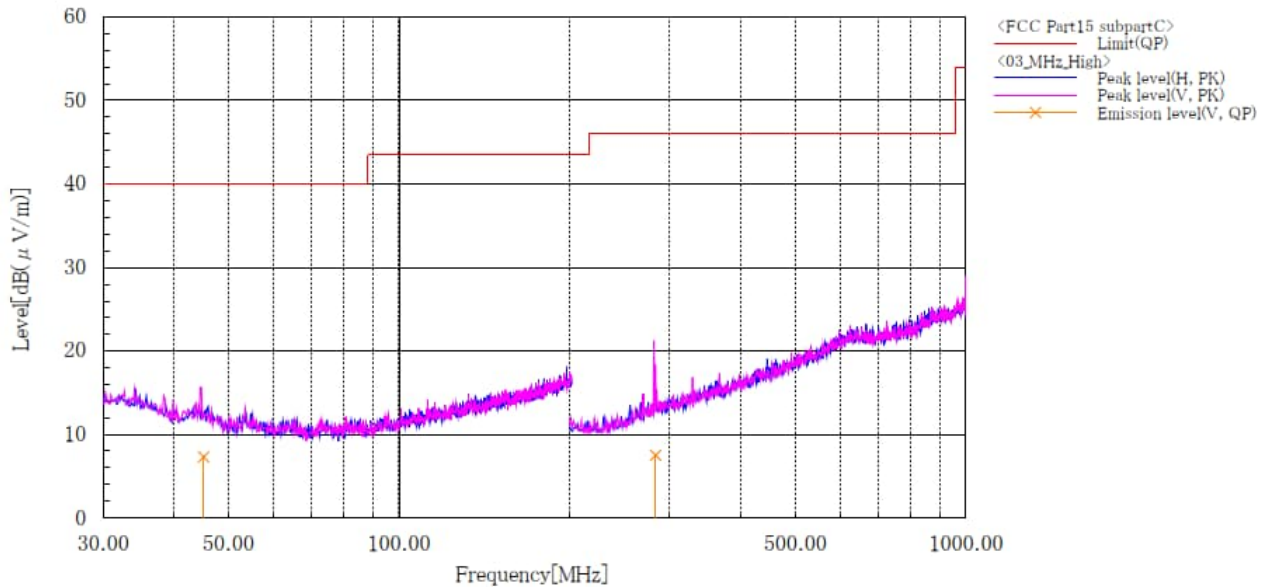
Note:

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

Channel: High
BELOW 1 GHz

Company name : SEKONIC CORPORATION
 EUT : Radio TX Module
 Model No. : Model PR
 Serial No. : ES2_0004
 Test mode : 2.4GHz_MSK_500k_Tx

Sheet No. : 03
 Standard : FCC Part15 subpart C
 Operator : T.Watanabe
 Temp,Hum,Atm : 22.0 [°C] 50.0 [%]
 Note1 : CH:High (2479.3136MHz)


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]	Remark
1	45.132	V	22.7	-15.4	7.3	40.0	32.7	100.0	134.0	
2	283.350	V	21.8	-14.3	7.5	46.0	38.5	149.0	296.0	

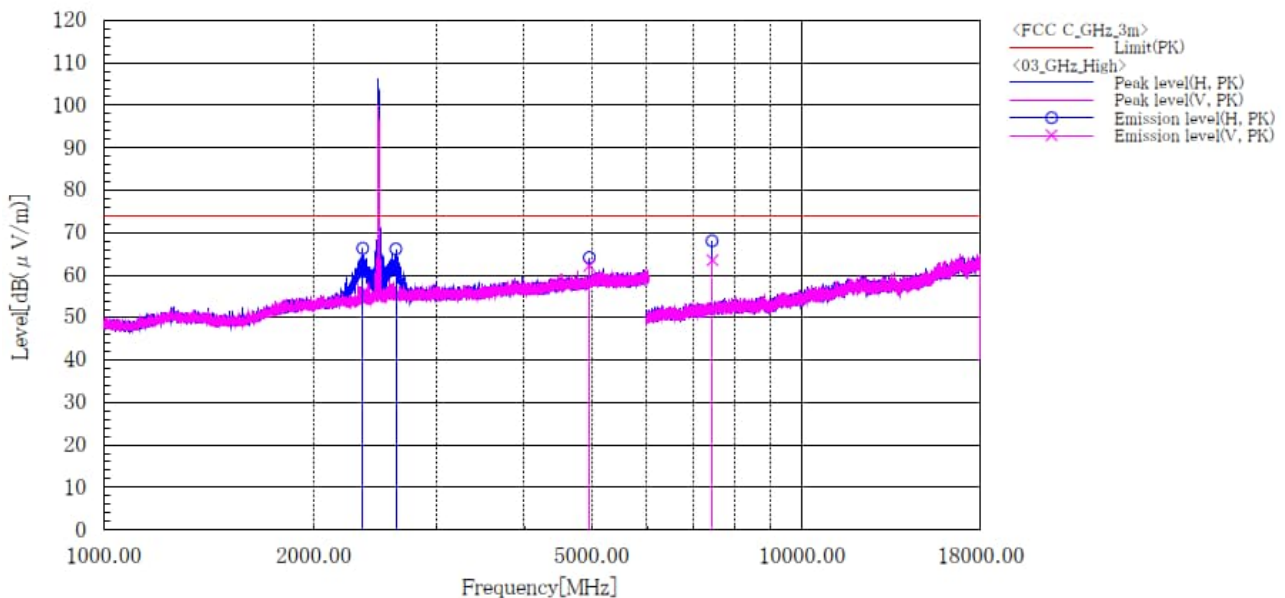
Note:

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

Channel: High
ABOVE 1 GHz

Company name : SEKONIC CORPORATION
 EUT : Radio TX Module
 Model No. : Model PR
 Serial No. : ES2_0004
 Test mode : 2.4GHz_MSK_500k_Tx

Sheet No. : 03
 Standard : FCC Part.15 subpart C
 Operator : T.Watanabe
 Temp,Hum,Atm : 21.5 [°C], 54.2 [%]
 Note1 : CH:High (2479.3136MHz)


Final Result

No.	Frequency [MHz]	Pol	Reading PK [dB(μV)]	c. f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [deg]	Remark
1	2350.000	H	58.0	8.3	66.3	74.0	7.7	177.0	0.0	
2	2622.587	H	57.2	9.0	66.2	74.0	7.8	133.0	11.0	
3	4958.668	H	51.4	12.7	64.1	74.0	9.9	114.0	346.0	
4	4958.668	V	49.5	12.7	62.2	74.0	11.8	150.0	177.0	
5	7437.356	H	60.8	7.2	68.0	74.0	6.0	208.0	263.0	
6	7438.280	V	56.3	7.2	63.5	74.0	10.5	207.0	251.0	

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.

4.3 Restricted Band of Operation

4.3.1 Measurement procedure

[FCC 15.205, 15.209, 15.249(c), (d), ISSED RSS-Gen 8.10]

Test was applied by following conditions.

Test method : ANSI C63.10
 Test place : 3m Semi-anechoic chamber
 EUT was placed on : Styrofoam table / (W)0.3m × (D)0.3m × (H)1.5m (above 1GHz)
 Antenna distance : 3m

Spectrum analyzer setting

- Peak : RBW=1MHz, VBW=3MHz, Span=10MHz, Sweep=auto
 - Delta : RBW=300kHz, VBW=300kHz, Span=40MHz, Sweep=auto
 - Average : Peak reading + DCF

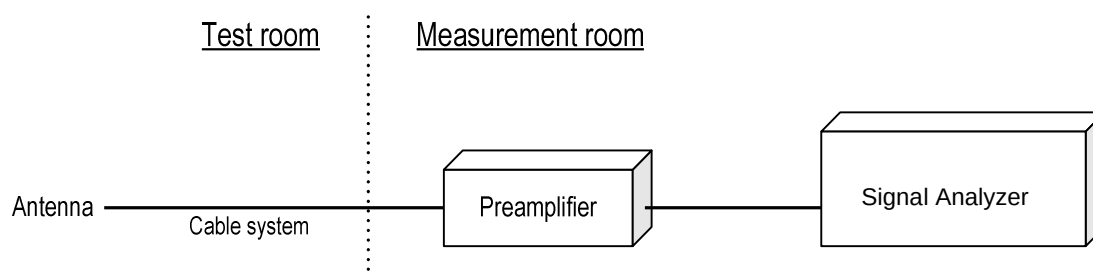
Average Measurement [DCF]

Data rate	Duty cycle (%)	T _{on} (ms)	100ms Window	1/T _{on} (kHz)	Duty cycle factor 20log (Dc %) (dB)
500kbps	5.19	0.52	10	1.923	-20

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area 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 414788.

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 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



4.3.2 Limit

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

4.3.3 Measurement result

Channel	Frequency [MHz]	Results Chart	Result
Low	2403.9986	See the Trace Data	Pass
High	2479.3136	See the Trace Data	Pass

4.3.4 Test data

Date : 2-June-2026

Temperature : 20.0 [°C]

Humidity : 50.0 [%]

Test place : 3m Semi-anechoic chamber

Test engineer :

Taiki Watanabe

<500kbps>

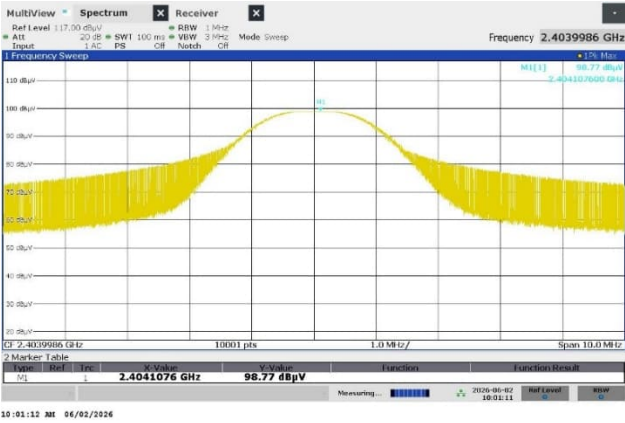
Peak

(P)	Frequency [MHz]	Reading [dBμV/m]	c.f [dB(1/m)]	Marker Delta [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]
H	2390	98.77	8.2	45.01	61.96	74	12.04
V	2390	92.84	8.2	44.95	56.09	74	17.91
H	2483.5	98.96	8.9	35.04	72.82	74	1.18
V	2483.5	93.12	8.9	35.47	66.55	74	7.45

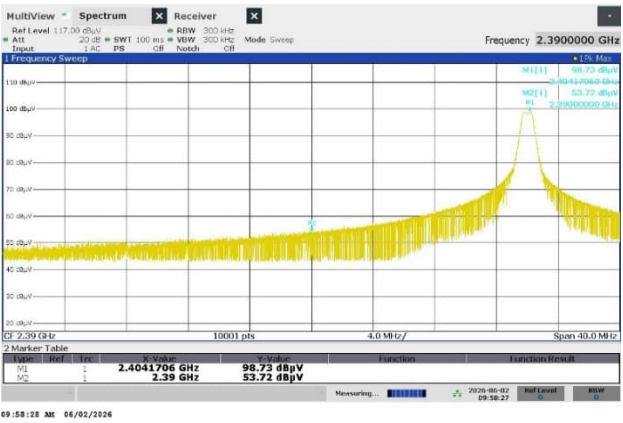
Average

(P)	Frequency [MHz]	Peak Result [dBμV/m]	DCF [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]
H	2390	61.96	-20	41.96	54	12.04
V	2390	56.09	-20	36.09	54	17.91
H	2483.5	72.82	-20	52.82	54	1.18
V	2483.5	66.55	-20	46.55	54	7.45

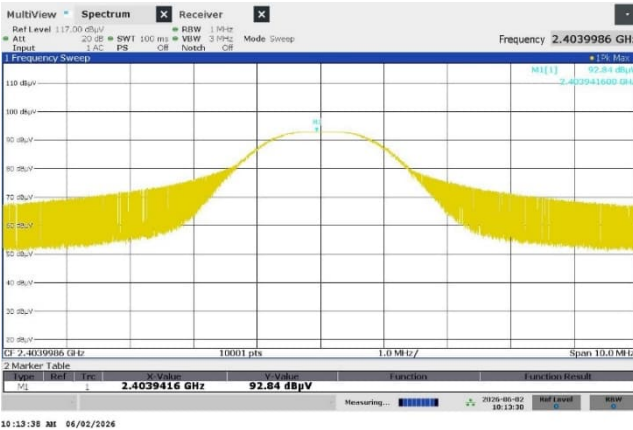
<500kbps>
Channel Low
Horizontal
Peak



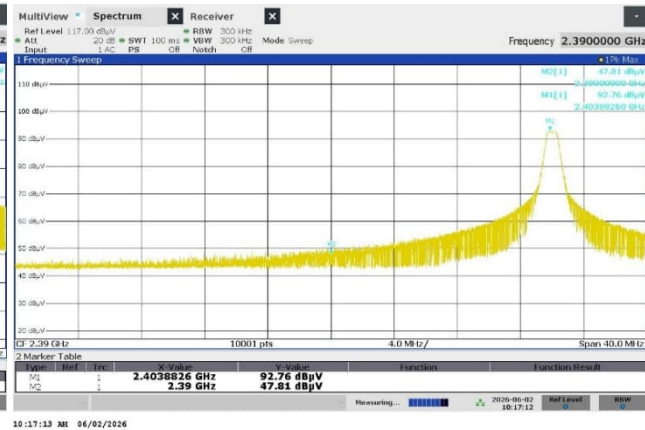
Maker Delta



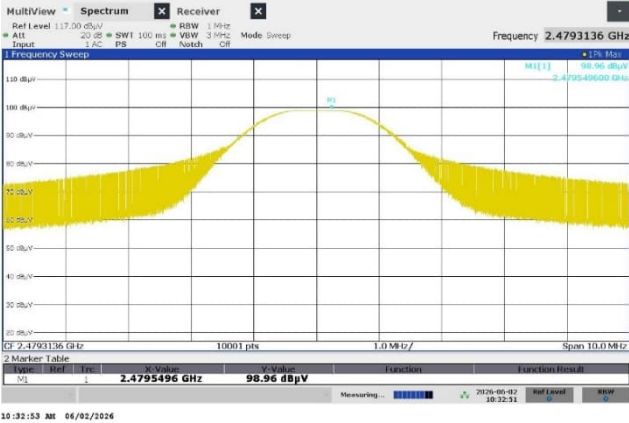
Channel Low
Vertical
Peak



Maker Delta

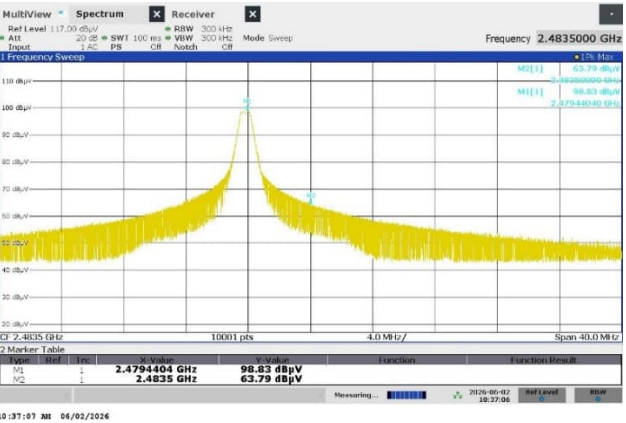


Channel High
Horizontal
Peak



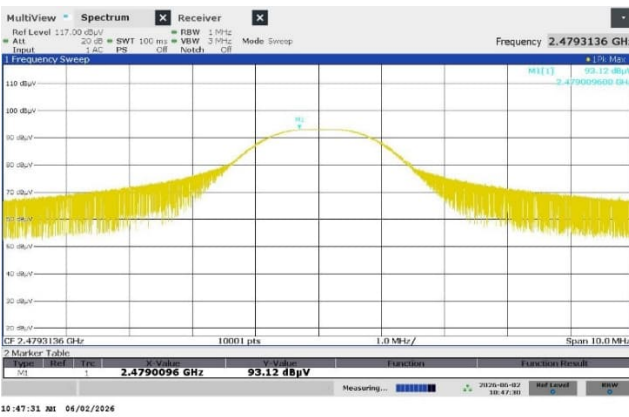
10:32:53 AM 06/02/2026

Marker Delta



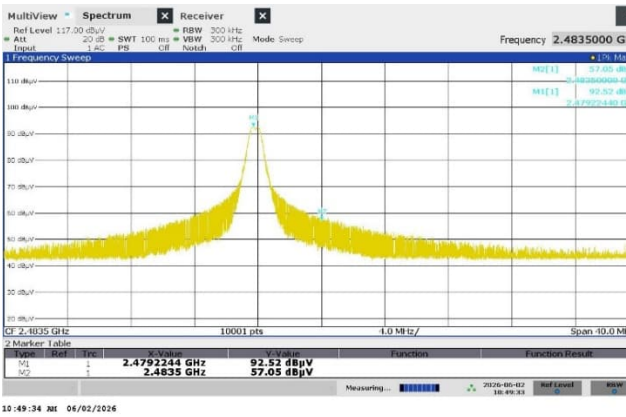
10:37:01 AM 06/02/2026

Channel High
Vertical
Peak



10:47:31 AM 06/02/2026

Marker Delta



10:49:34 AM 06/02/2026

4.4 AC Power Line Conducted Emissions

4.4.1 Measurement procedure

[FCC 15.207, ISED RSS-Gen 8.8]

Test was applied by following conditions.

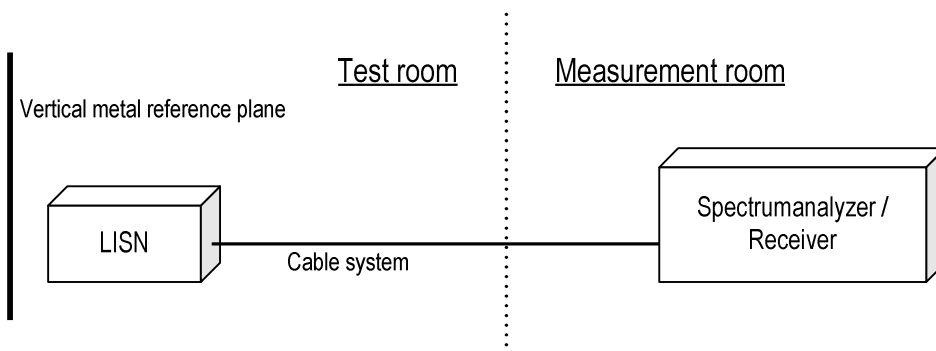
Test method	: ANSI C63.10
Frequency range	: 0.15 MHz to 30 MHz
Test place	: 3 m Semi-anechoic chamber
EUT was placed on	: FRP table / (W)2.0 m × (D)1.0 m × (H)0.8 m
Vertical Metal Reference Plane	: (W)2.0 m × (H)2.0 m 0.4 m away from EUT
Test receiver setting	
- Detector	: Quasi-peak, Average
- Bandwidth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

EUT and peripherals are connected to 50Ω/50μH 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



4.4.2 Calculation method

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

Margin = Limit – Emission level

Example:

Limit @ 6.770 MHz : 60.0 dB μ V(Quasi-peak)

: 50.0 dB μ V(Average)

(Quasi peak) Reading = 41.2 dB μ V c.f = 10.3 dB

Emission level = 41.2 + 10.3 = 51.5 dB μ V

Margin = 60.0 – 51.5 = 8.5 dB

(Average) Reading = 35.0 dB μ V c.f = 10.3 dB

Emission level = 35.0 + 10.3 = 45.3 dB μ V

Margin = 50.0 – 45.3 = 4.7 dB

4.4.3 Limit

Frequency [MHz]	Limit	
	QP [dB μ V]	AV [dB μ V]
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.

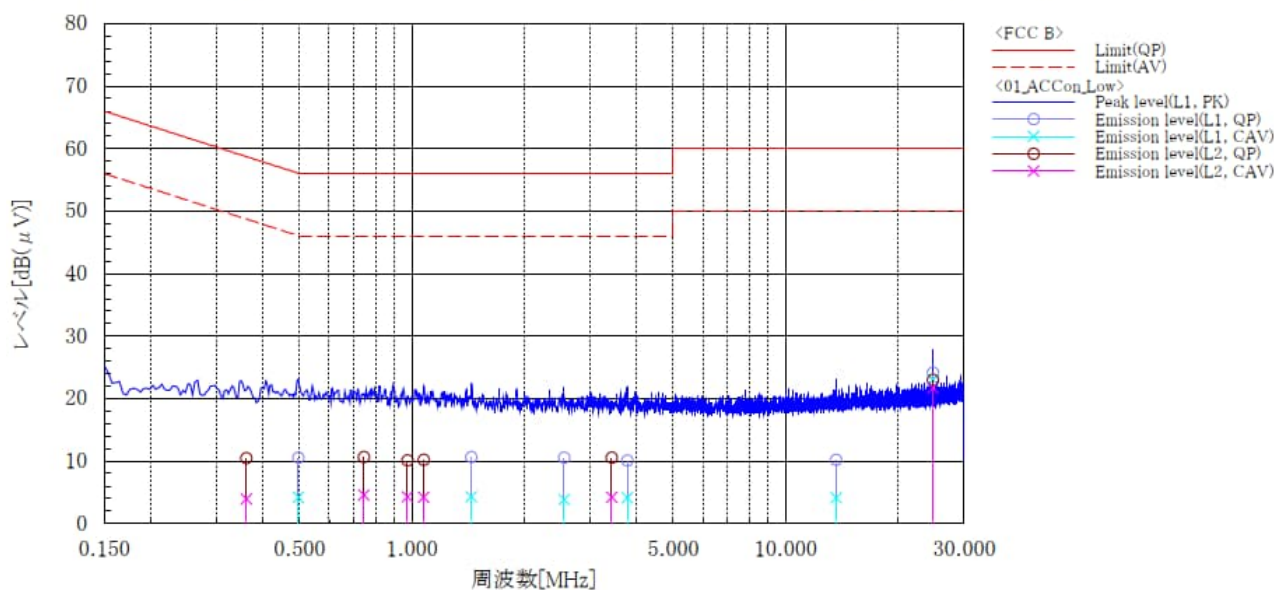
4.4.4 Test data

Date : 2-June-2026
 Temperature : 20.0 [°C]
 Humidity : 50.0 [%]
 Test place : 3m Semi-anechoic chamber

Test engineer : Taiki Watanabe

Company name : SEKONIC CORPORATION
 EUT : Radio TX Module
 Model No. : Model PR
 Serial No. : ES2_0004
 Test mode : 2.4GHz_MSK_500k_Tx

Sheet No. : 01
 Standard : FCC Part 15 C
 Operator : T.Watanabe
 Temp,Hum,Atm : 22.0 [°C] 50.0 [%]
 Note1 : CH:Low (2403.9986MHz)



Final Result

— L1 —										
No.	Frequency	Reading QP	Reading CAV	c. f	Result QP	Result CAV	Limit QP	Limit AV	Margin QP	Margin CAV
	[MHz]	[dB(μ V)]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]	[dB]
1	0.497	0.2	-6.1	10.3	10.5	4.2	56.0	46.0	45.5	41.8
2	1.443	0.3	-6.0	10.3	10.6	4.3	56.0	46.0	45.4	41.7
3	2.554	0.1	-6.6	10.4	10.5	3.8	56.0	46.0	45.5	42.2
4	3.768	-0.3	-6.3	10.4	10.1	4.1	56.0	46.0	45.9	41.9
5	13.639	-0.4	-6.5	10.6	10.2	4.1	60.0	50.0	49.8	45.9
6	24.805	13.3	12.2	10.8	24.1	23.0	60.0	50.0	35.9	27.0
— L2 —										
No.	Frequency	Reading QP	Reading CAV	c. f	Result QP	Result CAV	Limit QP	Limit AV	Margin QP	Margin CAV
	[MHz]	[dB(μ V)]	[dB(μ V)]	[dB]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB(μ V)]	[dB]	[dB]
1	0.361	0.1	-6.4	10.3	10.4	3.9	58.7	48.7	48.3	44.8
2	0.745	0.3	-5.8	10.3	10.6	4.5	56.0	46.0	45.4	41.5
3	0.975	-0.2	-6.0	10.3	10.1	4.3	56.0	46.0	45.9	41.7
4	1.077	-0.1	-6.1	10.3	10.2	4.2	56.0	46.0	45.8	41.8
5	3.429	0.1	-6.2	10.4	10.5	4.2	56.0	46.0	45.5	41.8
6	24.804	12.2	10.8	10.8	23.0	21.6	60.0	50.0	37.0	28.4

Note: No emission were observed during Conducted testing.

5 Antenna requirement

According to FCC section 15.203, an intentional radiator shall be designed to ensure that no antenna other than 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

The reported measurement uncertainty is based on a value obtained by multiplying standard uncertainty by coverage factor of $k=2$, and a level of confidence becomes 95 %.

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)	± 3.7 dB
Radiated emission (30 MHz – 1000 MHz)	± 5.4 dB
Radiated emission (1 GHz – 6 GHz)	± 5.1 dB
Radiated emission (6 GHz – 18 GHz)	± 4.8 dB
Radiated emission (18 GHz – 40 GHz)	± 6.0 dB
Radio Frequency	$\pm 0.9 \times 10^{-7}$
RF power, conducted	± 0.6 dB
Effective radiated power	± 4.3 dB
Radiated spurious emissions	± 4.4 dB
Adjacent channel power	± 1.5 dB
Bandwidth	± 2.8 %
Temperature	± 0.6 °C
Humidity	± 1.2 %
Voltage (DC)	± 0.4 %
Voltage (AC, <10kHz)	± 0.2 %

Judge	Measured value and standard limit value	
PASS	Standard limit value +Uncertainty -Uncertainty Measured value Even if it takes uncertainty into consideration, a standard limit value is fulfilled.	
	Standard limit value +Uncertainty -Uncertainty Measured value Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.	
FAIL	Standard limit value +Uncertainty -Uncertainty Measured value Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.	
	Standard limit value +Uncertainty -Uncertainty Measured value 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	ROHDE&SCHWARZ	FSV40	101731	31-Jul-2026	31-Jul-2025
Microwave cable	HUBER+SUHNER	SUCOFLEX102/0.3m	800900/2	31-Dec-2026	16-Dec-2025
Attenuator	Weinschel	56-10	J4180	30-Sep-2026	09-Sep-2025

Radiated emission

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI receiver	ROHDE&SCHWARZ	ESW44	103171	31-Jan-2027	20-Jan-2026
Preamplifier	SONOMA	310	372170	30-Sep-2026	10-Sep-2025
Loop antenna	TESEQ	HLA6121	65079	31-Aug-2026	12-Aug-2025
Attenuator	TOYO Connector	NA-PJ-6/6dB	N/A(S542)	30-Jun-2026	18-Jun-2025
Biconical antenna	Schwarzbeck	VHBB9124/BBA9106	1145	31-Oct-2026	23-Oct-2025
Log-periodic antenna	Schwarzbeck	VUSLP9111B	#343	28-Feb-2027	04-Feb-2026
Attenuator	TOYO Connector	NA-PJ-6/6dB	N/A(S541)	30-Sep-2026	11-Sep-2025
Attenuator	TAMAGAWA.ELEC	CFA-01/3dB	N/A(S503)	31-Jul-2026	09-Jul-2025
Preamplifier	Techno Science Japan	MLA-0118-J02-40	23050008	30-Jun-2027	19-Jun-2026
Double ridged guide antenna	ETS LINDGREN	3117	00052315	30-Sep-2026	24-Sep-2025
Attenuator	HUBER+SUHNER	6803.17.B	N/A(2340)	31-Dec-2026	18-Dec-2025
DRGH antenna	A.H.Systems Inc.	SAS-574	469	30-Sep-2026	17-Sep-2025
Preamplifier	Techno Science Japan	MLA-1840-B03-35	1240332	30-Sep-2026	17-Sep-2025
Notch Filter	Micro-Tronics	BRM50702	G433	30-Sep-2026	10-Sep-2025
Microwave cable	HUBER+SUHNER	SUCOFLEX104/9m	800690/4	31-Oct-2026	21-Oct-2025
		SUCOFLEX104/1m	my24610/4	31-Dec-2026	17-Dec-2025
		SUCOFLEX104/9m	2001102/4	31-Dec-2026	17-Dec-2025
		SUCOFLEX104/1m	MY32976/4	31-Dec-2026	17-Dec-2025
		SUCOFLEX104/2m	SN MY28404/4	31-Dec-2026	17-Dec-2025
		SUCOFLEX106/7m	41625/6	31-Dec-2026	17-Dec-2025
Software	TOYO Technica	ES10/RE-AJ	Ver.2023.01.001	N/A	N/A
Absorber	RIKEN	PFP30	N/A	N/A	N/A
3m Semi-anechoic Chamber	TOKIN	N/A	N/A(9002-NSA)	31-May-2026	15-May-2025
3m Semi-anechoic Chamber	TOKIN	N/A	N/A(9002-SVSWR)	31-May-2026	15-May-2025

Conducted emission at mains port

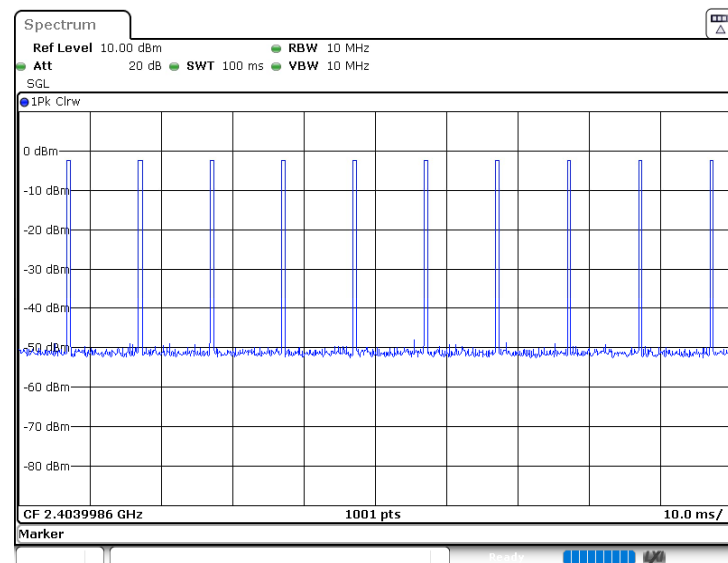
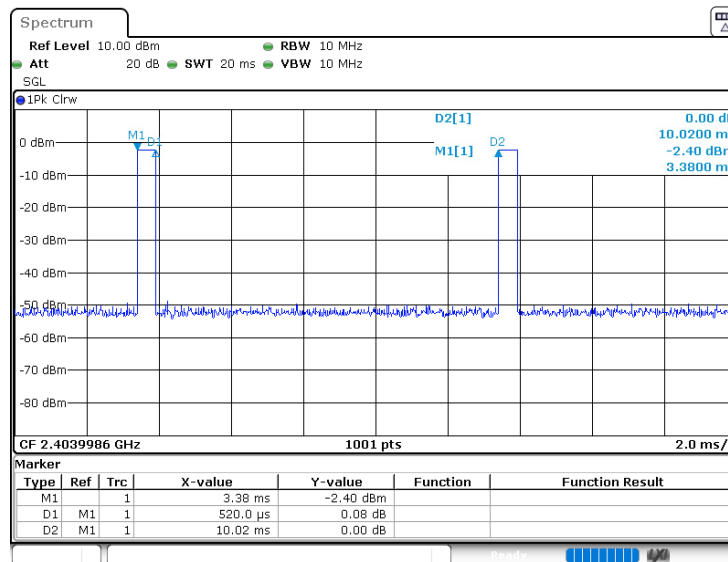
Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI receiver	ROHDE&SCHWARZ	ESW44	103171	31-Jan-2027	20-Jan-2026
Attenuator	HUBER+SUHNER	6810.01.A	N/A(S411)	31-Dec-2026	18-Dec-2025
Line impedance stabilization network for EUT	Kyoritsu Technology Corporation	TNW-407F2	12-17-110-2	30-Jun-2027	18-Jun-2026
Microwave cable	HUBER+SUHNER	SUCOFLEX104/5m	MY33601/4	31-Dec-2026	18-Dec-2025
Microwave cable	HUBER+SUHNER	SUCOFLEX104/2m	MY37290/4	31-Dec-2026	16-Dec-2025
Coaxial cable	HUBER+SUHNER	RG214/U/10m	N/A(S194)	31-Dec-2026	17-Dec-2025
Software	TOYO Corporation	EP5/CE-AJ	0611193/V5.4.11	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]

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Duty Cycle Factor Calculation

RF duty cycle factor: Calculation according to RF burst Para 15.35 (c)

Pulse width is 0.52ms

There are 10 pulses in 100ms window

$0.52\text{ms} \times 10 = 5.2\text{ms}$, It is 5.2ms in 100ms

Duty cycle: $5.2/100 = 0.052$

Duty cycle factor: $20\log(0.052) = -25.67\text{dB}$

Maximum is used duty cycle according to Para 15.35 (b): 20dB