

TEST REPORT

Job No. : GPEM2505000512EC
Test Report No. : F690501-RF-EMC003753
Applicant : Master Lock Company
Product Name : Smart Lock
Model Name : YMB624
Standards : FCC Part 15 Subpart B
ICES-003 Issue 7:2020
FCC ID : MZR-YMB624
Date of Receipt : May 8, 2025
Date of Test : May 21, 2025
Date of Issue : June 11, 2025
Test Result : Complied

- 1) This test report does not assure KOLAS accreditation.
2) The results of this test report are effective only to the items tested.
3) The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received.

	Tested by (Name, signature)	Approved by (Name, signature)
Affirmation	DoHyeon Lee 	Paul Kang 

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Revision History

Revision	Report Number	Description
0	F690501-RF-EMC003753	Initial

1. Test Laboratory

1.1 General information

Name	SGS Korea Co., Ltd.		
- Branch Site	4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Republic of Korea		
	Tel. +82 31 428 5700		Fax. +82 31 427 5370
- Branch Site-3	35, Giheungdanji-ro 121beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea		
	Tel. +82 31 548 0710		Fax. +82 31 548 0719
- Branch Site-4	12, Dongtansandan 10-gil, Hwaseong-si, Gyeonggi-do, 18487, Republic of Korea		
	Tel. +82 31 8007 5302		Fax. +82 31 427 2370
Website	http://www.sgsgroup.kr/ee		

SGS Korea Co., Ltd. has been accredited by the agencies listed in the following table;

Accreditation	Accreditation bodies	Accreditation No.
KC	MSIT- RRA	KR0150
FCC	FCC (MRA)	
IC	IC (MRA)	
Vietnam-MIC	Vietnam-MIC	
Japan EMI	VCCI	C-14102, T-11156, R-13662, G-20037
KOLAS	KATS - KOLAS	Testing No.123
CBTL	IECEE	TL 146
SDPPI	SDPPI	-

2. General Information of E.U.T.

2.1 Applicant Information

Applicant	Master Lock Company
Applicant Address	6744 S. Howell Avenue Oak Creek, WI 53154, USA
Manufacturer	Master Lock Company
Manufacturer Address	Lot A10 Ba Thien II Industrial Park Thien Ke Ward Vinh Phuc Province, Vietnam

2.2 General Information of E.U.T.

Classification	Description
Product Name	Smart Lock
Model Name	YMB624
Alt. Model Name	Refer to Below Model differences
Model Differences	Refer to Below Model differences
Serial No.	-
EMI Classification	Class B
Internal Clock Frequency	2 480 Mhz
Rated Power	9 Vd.c. (1.5 Battery * 6)
Tested Power	9 Vd.c. (1.5 Battery * 6)
H/W Version	1.0
S/W Version	1.0
Port	-
Components	Exterior Keypad, Interior Lock, Reset Pin, Keys
Function	Digital Door Lock

Model Differences

Remark	Model	*Brand	Using mechanical keys	Keypad
Basic model	YMB624 (Tested Model)	Yale	Use	Touch screen
	YMB614 (Tested Model)	Yale	Use	Push button
	YMB634	Yale	X	Push button
	YMB644	Yale	X	Touch screen
Alternative model	MCB614	Master Lock	Use	Push button
	MCB624	Master Lock	Use	Touch screen
	MCB634	Master Lock	X	Push button
	MCB644	Master Lock	X	Touch screen

* The model name is classified according to the buyer's side

2.3 Configurations of E.U.T

Description	Model	Serial No.	Manufacturer	Note
YMB624 (Basic Model)				
Main Board	PC4M-B620S-E100 AU T1.6	-	-	-
Front Board	PC4F-B620S-E100 AU T1.45	-	-	-
NFC Antenna	-	-	-	-
YMB614 (Alt. Model)				
Main Board	PC4M-B620S-E100 AU T1.6	-	-	-
Front Board	PC4F-B610S-E100 AU T1.45	-	-	-
NFC Antenna	-	-	-	-

3. E.U.T. Operation and Test Configuration

3.1 Peripheral Equipments

Description	Model	Serial No.	Manufacturer	Note.
-	-	-	-	-

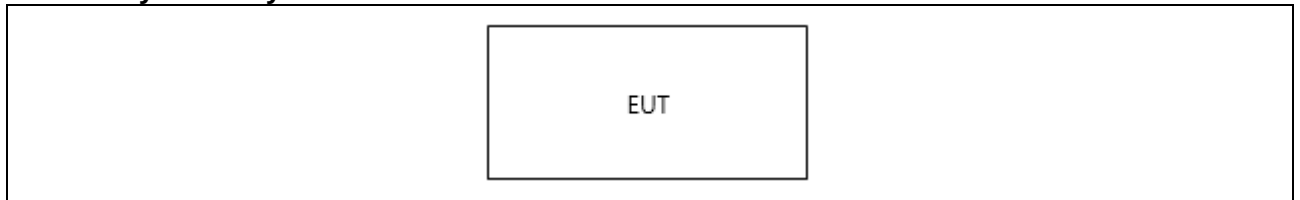
3.2 Cable List

Start		END		Cable Spec.		Used core
Name	I/O Port	Name	I/O Port	Length (m)	Shield	
EUT	-	-	-	-	-	-

3.3 Operating Modes and Conditions

Operating mode	Operating condition
01 PIN Code	Repeat opening and closing the door lock using the PIN Code.

3.4 Test System Layout



3.5 Modifications to the test items during testing

- ☒ No modifications done during testing
- ☐ Modification done during testing (see details below)

No.	Description of modification (if any)
1	
2	

4. Test Results

4.1 Summary

Test Items	Standards	Test Results
Conducted Emission	FCC Part 15 Subpart B Section 15.107 ICES-003 Issue 7:2020 ANSI C63.4a:2017	N/A
Radiated Emission	FCC Part 15 Subpart B Section 15.109 ICES-003 Issue 7:2020 ANSI C63.4a:2017	Complied

4.2 Note

- 1 Test Methods of all test items are performed according to the basic standard in subclause 4.1.
- 2

Emission Test

5.1 Test Method and Limits

Test Items	Measuring Frequency Range	RBW	Measuring Distance
Conducted Emission	0.15 MHz - 30 MHz	9 kHz	-
Radiated Emission	30 MHz - 1 GHz	120 kHz	10 m or 3 m
	Above 1 GHz	1 MHz	3 m

5.2 Test Limits

Frequency Range	Limits(dBμV)		Class
	Quasi-peak	CISPR-Average	
0.15 MHz - 0.5 MHz	79	66	Class A
0.5 MHz - 30 MHz	73	60	
0.15 MHz - 0.5 MHz	66 to 56 ^{Note1}	56 to 46 ^{Note1}	Class B
0.5 MHz - 5 MHz	56	46	
5 MHz - 30 MHz	60	50	

[Table 2.1 Conducted Emission Limits]

Frequency Range	Limits(dBμV/m)	Class
	Quasi-peak	
30 MHz - 88 MHz	39.0	Class A (10 m method)
88 MHz - 216 MHz	43.5	
216 MHz - 960 MHz	46.5	
960 MHz - 1 GHz	49.5	
30 MHz - 88 MHz	40.0	Class B (3 m method)
88 MHz - 216 MHz	43.5	
216 MHz - 960 MHz	46.0	
960 MHz - 1 GHz	54.0	

[Table 2.2 Radiated Emission Limits below 1 GHz_For FCC Part 15 Subpart B]

Frequency Range	Limits(dBμV/m)	Class
	Quasi-peak	
30 MHz - 88 MHz	40.0	Class A (10 m method)
88 MHz - 216 MHz	43.5	
216 MHz - 230 MHz	46.5	
230 MHz - 960 MHz	47.0	
960 MHz - 1 GHz	49.5	

30 MHz - 88 MHz	50.0	Class A (3 m method)
88 MHz - 216 MHz	54.0	
216 MHz - 230 MHz	56.9	
230 MHz - 960 MHz	57.0	
960 MHz - 1 GHz	60.0	
30 MHz - 88 MHz	30.0	Class B (10 m method)
88 MHz - 216 MHz	33.1	
216 MHz - 230 MHz	35.6	
230 MHz - 960 MHz	37.0	
960 MHz - 1 GHz	43.5	
30 MHz - 88 MHz	40.0	Class B (3 m method)
88 MHz - 216 MHz	43.5	
216 MHz - 230 MHz	46.0	
230 MHz - 960 MHz	47.0	
960 MHz - 1 GHz	54.0	

[Table 2.3 Radiated Emission Limits below 1 GHz_For ICES-003 Issue 7 : 2020]

Frequency Range	Limits(dBμV)		Class
	Peak	CISPR-Average	
Above 1 GHz	79.5	59.5	Class A
	74.0	54.0	Class B

[Table 2.4 Radiated Emission Limits Above 1 GHz_For FCC Part 15 Subpart B ^{Note2}]

Frequency Range	Limits(dBμV)		Class
	Peak	CISPR-Average	
Above 1 GHz	80.0	60.0	Class A
	74.0	54.0	Class B

[Table 2.5 Radiated Emission Limits Above 1 GHz_For ICES-003 Issue 7 : 2020]

Note 1. The lower limit shall apply at the transition frequencies. The limit decreases linearly with the logarithm of that frequency.

Note 2. The limits of class A equipment is extrapolated using an extrapolation factor of 20 dB/decade because it was measured at 3 m distance not 10 m distance.

5.3 Radiated Emission

5.3.1 Test Equipments

Equipment	Model	Manufacturer	Serial No	Cal Due. Date
EMI TEST RECEIVER	ESU40	R&S	100075	2026-01-17
TRILOG BROADBAND ANTENNA	VULB 9163	SCHWARZBECK	9163-437	2025-05-29
Double Ridged Horn Antenna	HF907	R&S	100208	2026-03-06
PRE-AMPLIFIER	AM-1431	MITEQ	1336160	2025-05-31
AMPLIFIER	SCU 18	R&S	10070	2025-08-21
RF Cable	EMH-1Lab-RE-01	-	-	2025-07-05
RF Cable	EMH-1Lab-RE-04	-	-	2025-07-05
RF Cable	EMH-1Lab-RE-05	-	-	2025-07-05
RF Cable	EMH-1Lab-RE-06	-	-	2025-07-05

Note. Measuring software is below

- Branch Site : ELECTRA(V5.02.0) from R&S
- Branch Site-3 : EMC32(V10.40.10) from R&S
- Branch Site-4 : EMC32(V10.40.10) from R&S

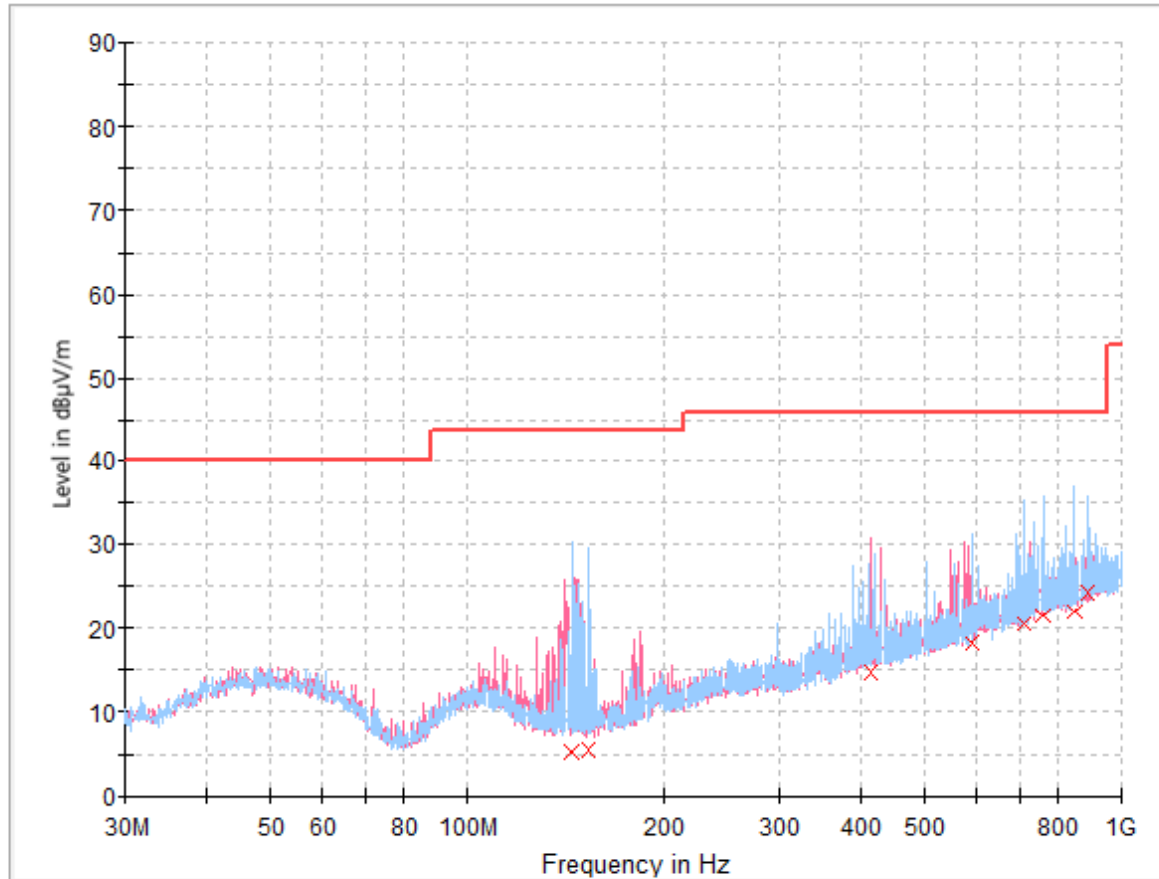
5.3.2 Environment Conditions

Test Site	10 m SEMI-ANECHOIC CHAMBER in Branch site-3
Temperature	(Minimum 19.9, Maximum 20.8) °C
Humidity	(Minimum 49.0, Maximum 50.0) % R.H.
Atmospheric Pressure	(Minimum 100.3, Maximum 100.3) kPa
Test Date	2025-05-21

5.3.3 Test Result

<Below 1 GHz (3 m method)>

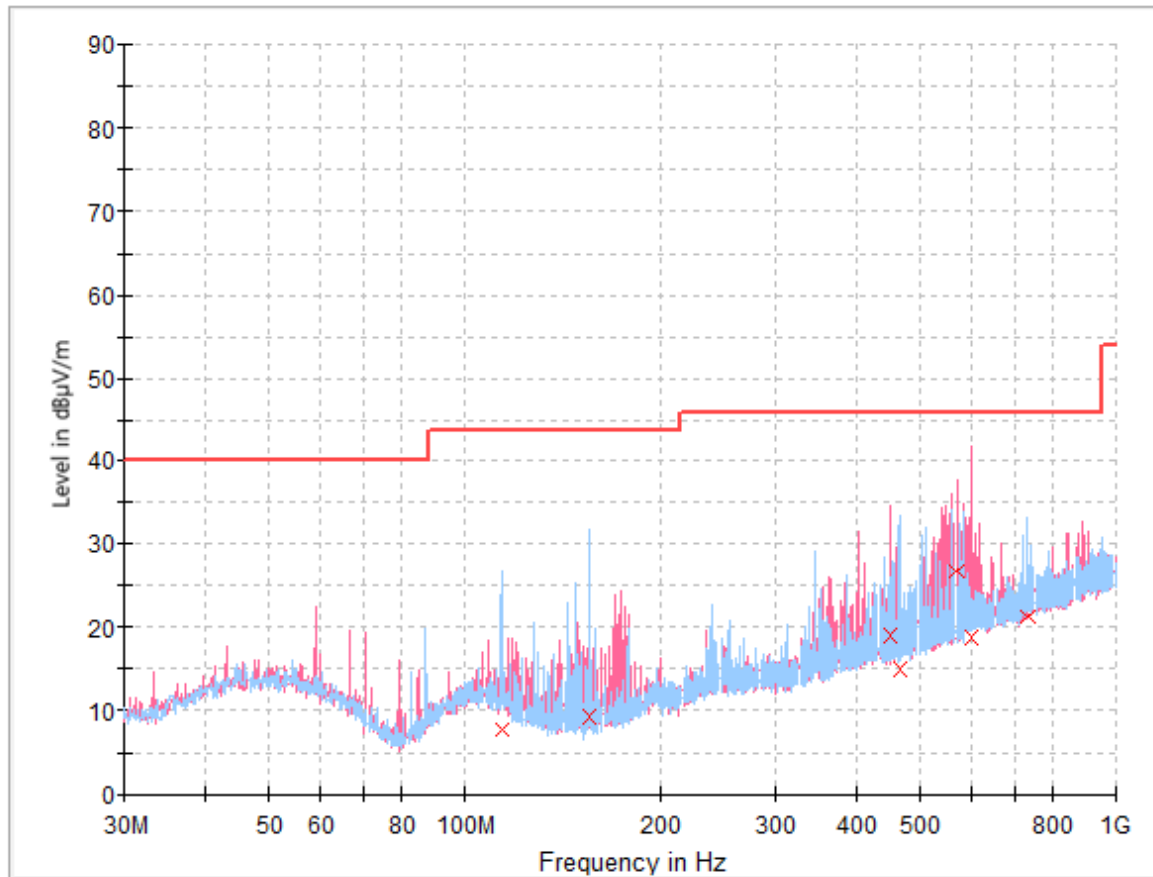
01 Mode(Basic Model) [FCC Part 15 Subpart B]



Final Result

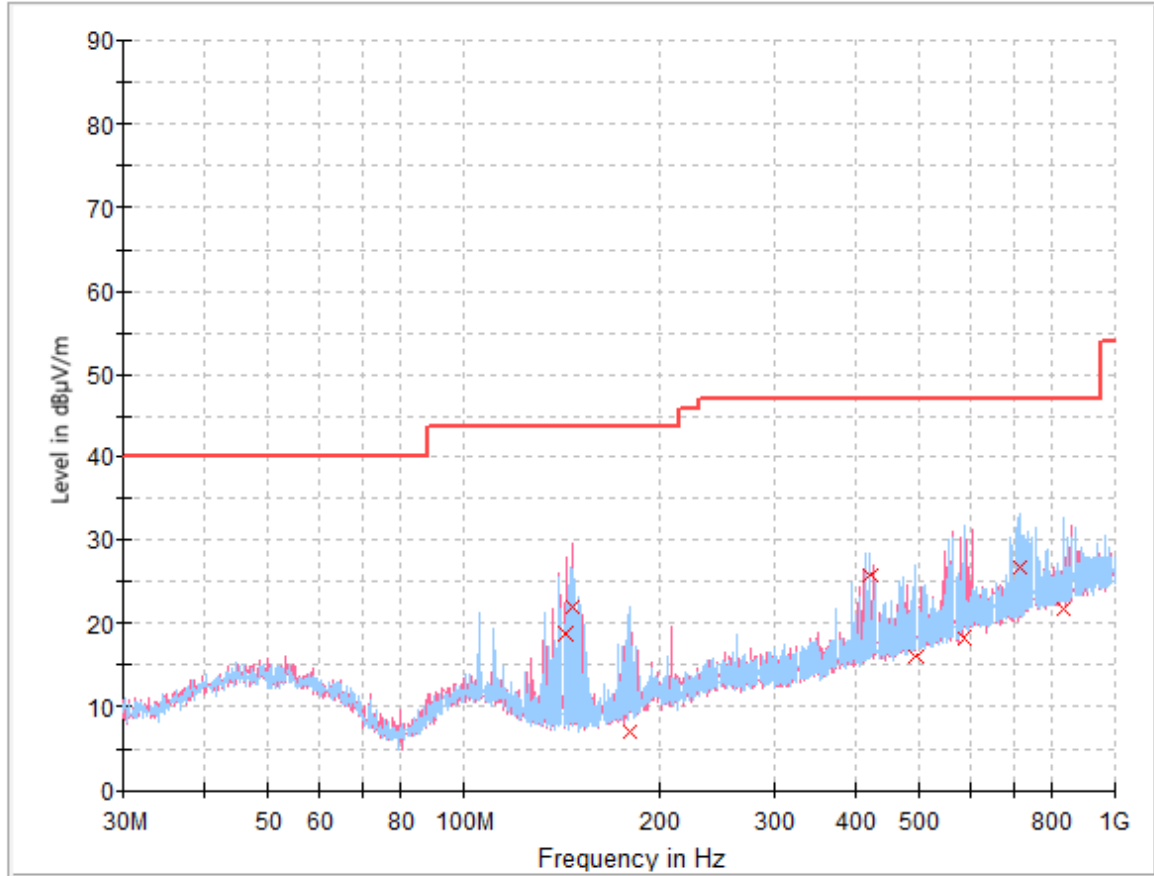
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (MHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
144.654	5.33	43.50	38.17	15 000.0	120.000	100.0	H	69.0	-22.7
153.869	5.58	43.50	37.92	15 000.0	120.000	100.0	H	262.0	-22.4
416.642	14.69	46.00	31.31	15 000.0	120.000	100.0	V	27.0	-13.3
590.757	18.42	46.00	27.58	15 000.0	120.000	200.0	H	0.0	-9.4
713.171	20.63	46.00	25.37	15 000.0	120.000	100.0	H	4.0	-8.1
759.828	21.52	46.00	24.48	15 000.0	120.000	100.0	H	4.0	-6.9
851.493	22.11	46.00	23.89	15 000.0	120.000	100.0	H	4.0	-6.1
887.286	24.25	46.00	21.75	15 000.0	120.000	100.0	H	344.0	-5.6

01 Mode(Alt. Model : YMB614) [FCC Part 15 Subpart B]

**Final Result**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
113.808	7.71	43.50	35.79	15 000.0	120.000	200.0	H	298.0	-19.9
155.324	9.26	43.50	34.24	15 000.0	120.000	200.0	H	298.0	-22.2
451.174	19.06	46.00	26.94	15 000.0	120.000	200.0	V	327.0	-12.9
466.112	15.14	46.00	30.86	15 000.0	120.000	200.0	H	298.0	-12.7
569.126	26.72	46.00	19.28	15 000.0	120.000	100.0	V	68.0	-10.5
601.718	18.80	46.00	27.20	15 000.0	120.000	100.0	V	68.0	-9.0
731.116	21.25	46.00	24.75	15 000.0	120.000	200.0	H	0.0	-7.4

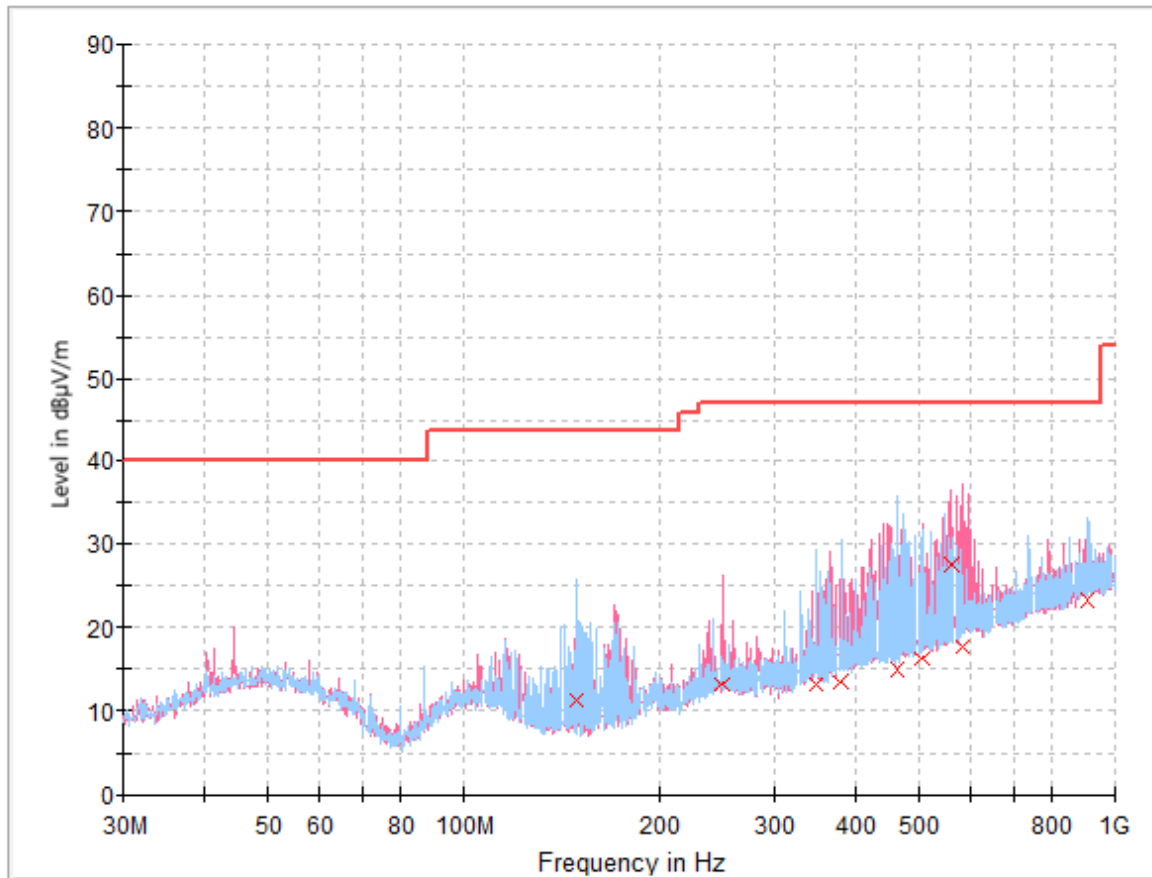
01 Mode(Basic Model) [ICES-003 Issue 7: 2020]



Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
143.878	18.90	43.50	24.60	15 000.0	120.000	100.0	V	31.0	-22.7
146.982	22.01	43.50	21.49	15 000.0	120.000	100.0	V	31.0	-22.7
180.835	7.12	43.50	36.38	15 000.0	120.000	200.0	H	8.0	-20.8
421.298	25.77	47.00	21.23	15 000.0	120.000	100.0	H	0.0	-13.2
494.145	15.97	47.00	31.03	15 000.0	120.000	200.0	H	333.0	-11.8
589.011	18.39	47.00	28.61	15 000.0	120.000	200.0	H	315.0	-9.4
719.476	26.83	47.00	20.17	15 000.0	120.000	200.0	H	8.0	-7.9
838.980	21.75	47.00	25.25	15 000.0	120.000	100.0	H	355.0	-6.3

01 Mode(Alt. Model : YMB614) [ICES-003 Issue 7: 2020]



Final Result

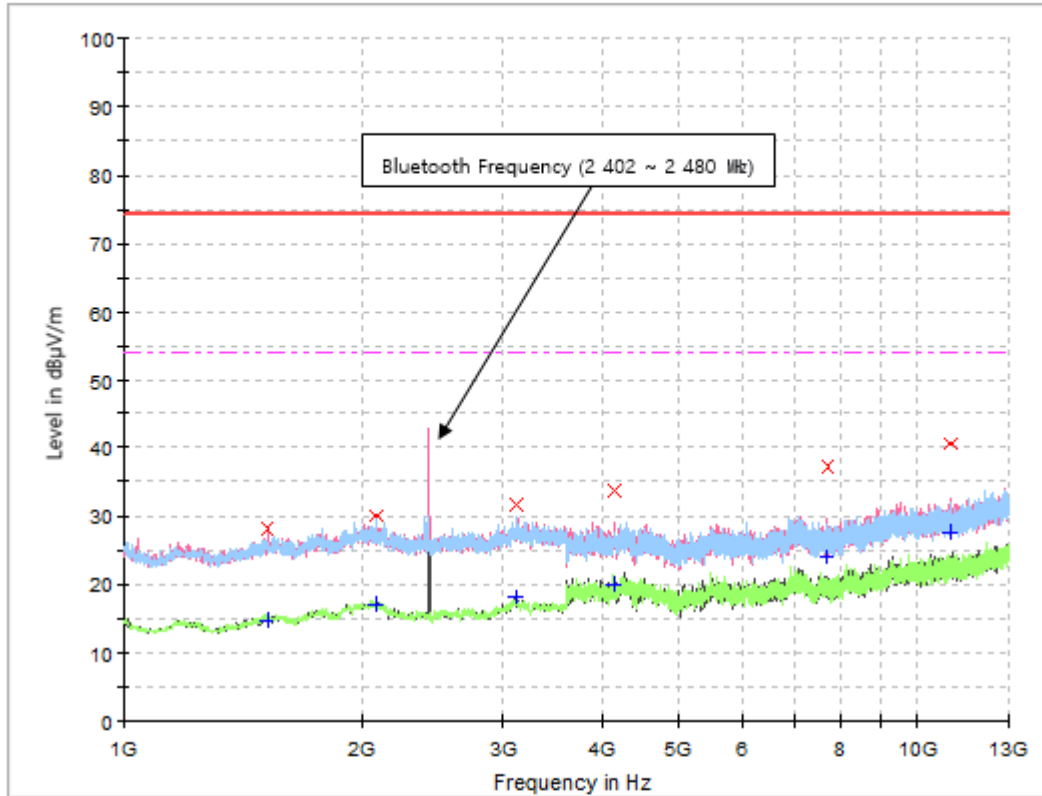
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
149.407	11.16	43.50	32.34	15 000.0	120.000	200.0	H	232.0	-22.6
248.929	13.28	47.00	33.72	15 000.0	120.000	200.0	V	164.0	-17.4
346.996	13.37	47.00	33.63	15 000.0	120.000	100.0	H	344.0	-14.6
379.782	13.64	47.00	33.36	15 000.0	120.000	100.0	H	271.0	-14.4
464.754	15.12	47.00	31.88	15 000.0	120.000	100.0	H	198.0	-12.7
506.852	16.27	47.00	30.73	15 000.0	120.000	100.0	V	153.0	-11.5
562.045	27.46	47.00	19.54	15 000.0	120.000	100.0	V	325.0	-10.5
581.639	17.82	47.00	29.18	15 000.0	120.000	100.0	V	325.0	-9.9
908.141	23.35	47.00	23.65	15 000.0	120.000	100.0	H	59.0	-5.2

Note. Measurement Uncertainty: See Appendix A

- POL H = Horizontal
- POL V = Vertical
- Margin = Limit – Quasi Peak
- Corr. = Antenna Factor + Cable loss – Amplifier Gain

<Above 1 GHz (3 m method)>

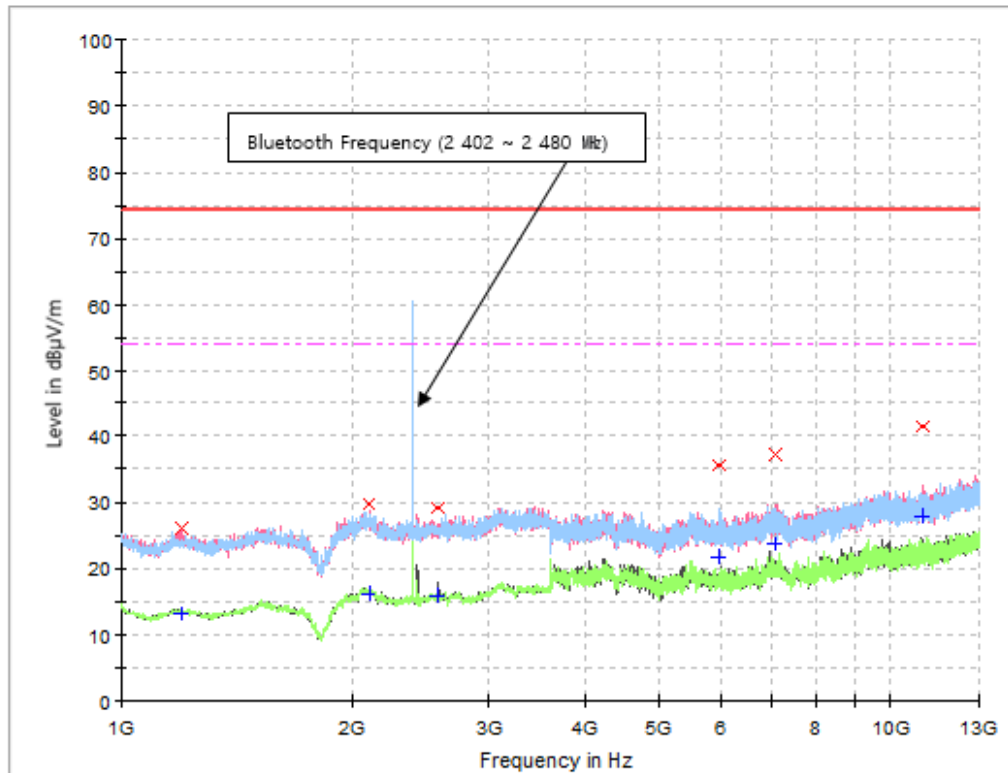
01 Mode(Basic Model)



Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (m)	Pol	Azimuth (deg)	Corr. (dB/m)
1 523.200	---	14.82	54.00	39.18	15 000.0	1 000.000	100.0	V	347.0	-16.8
1 523.200	28.17	---	74.00	45.83	15 000.0	1 000.000	100.0	V	347.0	-16.8
2 074.000	---	16.88	54.00	37.12	15 000.0	1 000.000	100.0	H	332.0	-13.2
2 074.000	30.19	---	74.00	43.81	15 000.0	1 000.000	100.0	H	332.0	-13.2
3 118.000	31.65	---	74.00	42.35	15 000.0	1 000.000	100.0	H	186.0	-10.5
3 118.000	---	18.01	54.00	35.99	15 000.0	1 000.000	100.0	H	186.0	-10.5
4 150.000	33.74	---	74.00	40.26	15 000.0	1 000.000	100.0	V	291.0	-8.4
4 150.000	---	20.06	54.00	33.94	15 000.0	1 000.000	100.0	V	291.0	-8.4
7 693.600	37.38	---	74.00	36.62	15 000.0	1 000.000	100.0	V	194.0	-4.6
7 693.600	---	23.87	54.00	30.13	15 000.0	1 000.000	100.0	V	194.0	-4.6
11 051.200	40.77	---	74.00	33.23	15 000.0	1 000.000	100.0	V	30.0	-0.6
11 051.200	---	27.51	54.00	26.49	15 000.0	1 000.000	100.0	V	30.0	-0.6

01 Mode(Alt. Model : YMB614)



Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	CAverage (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (MHz)	Height (m)	Pol	Azimuth (deg)	Corr. (dB/m)
1 198.000	28.30	---	74.00	47.70	15 000.0	1 000.000	100.0	V	0.0	-19.1
1 198.000	---	13.14	54.00	40.86	15 000.0	1 000.000	100.0	V	0.0	-19.1
2 098.000	---	16.16	54.00	37.84	15 000.0	1 000.000	100.0	V	128.0	-13.3
2 098.000	29.68	---	74.00	44.32	15 000.0	1 000.000	100.0	V	128.0	-13.3
2 584.000	---	15.89	54.00	38.11	15 000.0	1 000.000	100.0	V	0.0	-12.7
2 584.000	29.12	---	74.00	44.88	15 000.0	1 000.000	100.0	V	0.0	-12.7
5 982.400	35.70	---	74.00	38.30	15 000.0	1 000.000	100.0	H	314.0	-6.6
5 982.400	---	21.61	54.00	32.39	15 000.0	1 000.000	100.0	H	314.0	-6.6
7 110.400	---	23.71	54.00	30.29	15 000.0	1 000.000	100.0	V	330.0	-4.8
7 110.400	37.44	---	74.00	36.56	15 000.0	1 000.000	100.0	V	330.0	-4.8
10 994.800	---	27.82	54.00	26.18	15 000.0	1 000.000	100.0	V	354.0	-0.6
10 994.800	41.57	---	74.00	32.43	15 000.0	1 000.000	100.0	V	354.0	-0.6

Note. Measurement Uncertainty: See Appendix A

- AF = Antenna Factor
- POL H = Horizontal
- H = Height
- Corr. = AF + CL – AMP

- CL = Cable Loss
- POL V = Vertical
- Margin = Limit – Result
- ** The value of 'Level' includes 'Corr.'.

- AMP = Amplifier Gain
- A = Angle

Ex) In case

Freq ; 100 MHz, level ; 30 dB(μV/m), AF ; 10 dB/m, CL ; 4 dB, Amp ; 25 dB

Result = Level + AF + CL – Amp

$$= 30 + 10 + 4 - 25$$

$$= 19$$

Margin = Limit – Result

$$= 43.5 - 19$$

$$= 24.5$$

Appendix A: Measurement Uncertainty

Test Method		Measurement Uncertainty
Conducted Emission	ENV216	3.0 dB (The confidence level is 95 %, $k=2$)
	ESH2-Z5	2.8 dB (The confidence level is 95 %, $k=2$)
	ESH3-Z6	3.0 dB (The confidence level is 95 %, $k=2$)
Conducted Emission - Signal	ISN T800	5.3 dB (The confidence level is 95 %, $k=2$)
	ISNT8-Cat6	5.4 dB (The confidence level is 95 %, $k=2$)
	ISN S751	6.8 dB (The confidence level is 95 %, $k=2$)
Disturbance Voltage at Antenna Terminal		2.4 dB (The confidence level is 95 %, $k=2$)
Radiated Emission	9 kHz - 30 MHz	Horizontal 3.4 dB (The confidence level is 95 %, $k=2$)
		Vertical 3.4 dB (The confidence level is 95 %, $k=2$)
	30 MHz - 1 000 MHz	Horizontal 4.6 dB (The confidence level is 95 %, $k=2$)
		Vertical 5.0 dB (The confidence level is 95 %, $k=2$)
	1 GHz - 18 GHz	Horizontal 3.6 dB (The confidence level is 95 %, $k=2$)
		Vertical 3.6 dB (The confidence level is 95 %, $k=2$)

Table A.1 Measurement Uncertainty of Branch Site

Test Method		Measurement Uncertainty	
Conducted Emission	ENV216	3.3 dB	(The confidence level is 95 %, $k=2$)
	ESH3-Z6	3.3 dB	(The confidence level is 95 %, $k=2$)
	ESH2-Z5	3.1 dB	(The confidence level is 95 %, $k=2$)
	NNLK8129	3.2 dB	(The confidence level is 95 %, $k=2$)
Conducted Emission - Signal		ISN T800	5.5 dB (The confidence level is 95 %, $k=2$)
		ISN ST08	6.6 dB (The confidence level is 95 %, $k=2$)
Radiated Emission	9 kHz - 30 MHz	Horizontal	3.4 dB (The confidence level is 95 %, $k=2$)
		Vertical	3.4 dB (The confidence level is 95 %, $k=2$)
	30 MHz - 1 000 MHz	Horizontal	4.7 dB (The confidence level is 95 %, $k=2$)
		Vertical	5.0 dB (The confidence level is 95 %, $k=2$)
	1 GHz - 18 GHz	Horizontal	3.8 dB (The confidence level is 95 %, $k=2$)
		Vertical	3.8 dB (The confidence level is 95 %, $k=2$)

Table A.2 Measurement Uncertainty of Branch Site-3

Test Method		Measurement Uncertainty	
Conducted Emission	ENV216	3.5 dB	(The confidence level is 95 %, $k=2$)
	ESH2-Z6	3.4 dB	(The confidence level is 95 %, $k=2$)
	ESH3-Z5	3.4 dB	(The confidence level is 95 %, $k=2$)
	NNLK8129	3.4 dB	(The confidence level is 95 %, $k=2$)
Conducted Emission - Signal	ISN T800	5.6 dB	(The confidence level is 95 %, $k=2$)
	ISN ST08	5.6 dB	(The confidence level is 95 %, $k=2$)
Radiated Emission	9 kHz - 30 MHz (Triple Loop Ant.)	2.6 dB	(The confidence level is 95 %, $k=2$)
	9 kHz - 30 MHz (Loop Ant.)	Horizontal	4.2 dB (The confidence level is 95 %, $k=2$)
		Vertical	4.2 dB (The confidence level is 95 %, $k=2$)
	30 MHz - 1 000 MHz	Horizontal	5.4 dB (The confidence level is 95 %, $k=2$)
		Vertical	5.7 dB (The confidence level is 95 %, $k=2$)
	1 GHz - 18 GHz	Horizontal	4.6 dB (The confidence level is 95 %, $k=2$)
		Vertical	4.6 dB (The confidence level is 95 %, $k=2$)

Table A.3 Measurement Uncertainty of Branch Site-4

- End of Test Report -