



시험 성적서

TEST REPORT

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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E262041-0A	2026. 07. 02	Initial Issue	All



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1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	MSCL CO., LTD.
Address	69-8, Yangjinam-ro, Bucheon-si, Gyeonggi-do, Republic of Korea

1.2 Manufacturer Information

Applicant	MSCL CO., LTD.
Address	69-8, Yangjinam-ro, Bucheon-si, Gyeonggi-do, Republic of Korea

1.3 Test Laboratory Information

Laboratory	ICR Co., Ltd.
Address	112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
Telephone No.	+82-2-6351-9002
Fax No.	+82-2-6351-9007
KOLAS No.	KT652
KC & FCC	KR0165

1.4 Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	0.14%
Radio Frequency	0.00004%
All emissions, radiated (Under the 30 MHz)	2.10 dB
All emissions, radiated (Range 30 MHz ~ 1 GHz)	1.95 dB



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2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	Smart Lock
Model Name	MSP330
Additional Model Name	MSP300, MSP303
FCC ID	2BTUQ-MSP330
Power Supply	DC 6 V

2.2 Additional Information

Equipment Class	DXX-Low Power communications Device Transmitter
Device Type	Stand-alone
Operating Frequency	13.56 MHz
RF Output Power	38.6 dBuV/m
Number of Channel	1
Modulation Type	ASK
Antenna Type	Loop Antenna

2.3 Reason of Additional Model Name

NO	Family Model Name	Difference
1	MSP300	A model in the base model with only the fingerprint function removed
1	MSP303	The model in the base model without the fingerprint sensor and manual keys



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3. Test Summary

3.1 Test standards and results

FCC Part 15 Subpart C			
Clause	Test items	Applied	Results
§15.215 (c)	20 dB Bandwidth	■	PASS
§15.225 (e)	Frequency Stability Tolerance	■	PASS
§15.225 (a)(b)(c)	In-Band Emissions	■	PASS
§15.225 (d) & §15.209	Out-of-Band Emissions	■	PASS

3.1.1 Purpose of the test

- To determine whether the equipment under test fulfills the requirements of the standards stated in FCC Part 15 Subpart C Section 15.225.

3.1.2 Test Methodology

- Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2020. Radiated testing was performed at a distance of 3 m from EUT to the antenna.



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3.1.3 Configuration of Test System

Radiated emission test

- Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2020 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

3.2 Antenna requirement

- According to §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 use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section.

The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Result: Pass

The transmitter has a **Loop Antenna**



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4. Test Result

4.1. 20 dB Bandwidth

4.1.1 Test procedure

ANSI C63.10-2020 Clause 6.9.2

4.1.2 Limit

§15.215 (c)

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. In the case of intentional radiators operating under the provisions of subpart E, the emission bandwidth may span across multiple contiguous frequency bands identified in that subpart. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

4.1.3 Test data

Result : Pass

Mode	Frequency (MHz)	20dB BW (MHz)	Lower Measured Value (MHz)	Upper Measured Value (MHz)	Limit
ASK	13.56	0.00159	13.55955	13.56114	do not exceed range in 13.110- 14.010 MHz

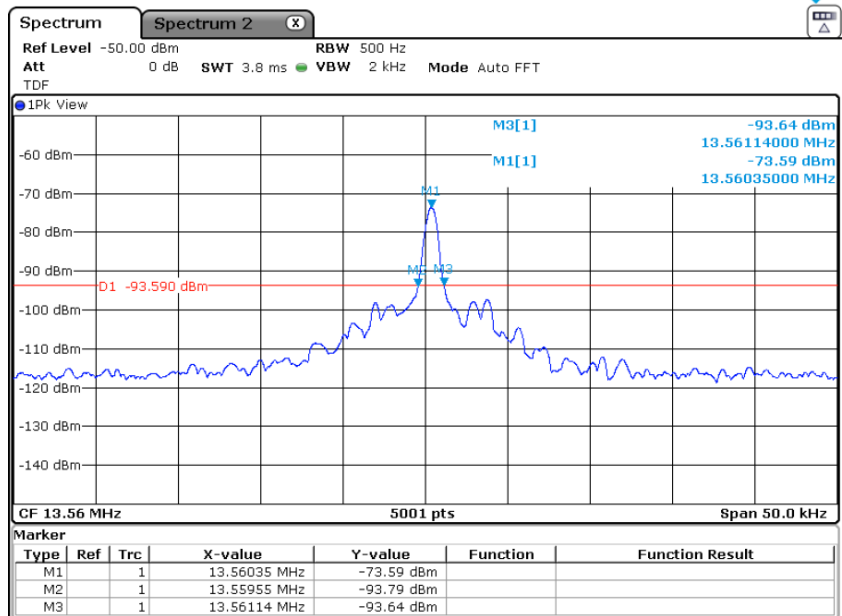


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20 dB Bandwidth



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4.2 Frequency Stability Tolerance

4.2.1 Test procedure

ANSI C63.10-2020 Clause 6.8

4.2.2 Limit

§15.225 (e)

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.2.3 Test data

Result : Pass

Reference Frequency : 13.56 MHz				
Environment Temperature (°C)	Power Supplied (V)	Measure Frequency (MHz)	Frequency deviation (Hz)	Deviation (%)
50	6	13.560270	270	0.002
40		13.560340	340	0.003
30		13.560380	380	0.003
20		13.560405	405	0.003
10		13.560425	425	0.003
0		13.560455	455	0.003
-10		13.560395	395	0.003
-20		13.560410	410	0.003
Environment Temperature (°C)	Power Supplied (V)	Measure Frequency (MHz)	Frequency deviation (Hz)	Deviation (%)
20	6.9 (115 %)	13.560400	400	0.003
	5.1 (85 %)	13.560360	360	0.003



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4.3 Radiated Emission

4.3.1 Test procedure

ANSI C63.10-2020 Clause 6.4, 6.5

4.3.2 Limit

§15.225 (a)(b)(c)(d)

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

Frequency (MHz)	Limit at 30m (dBuV/m)	Limit at 3m (dBuV/m)
13.110 to 13.410 and 13.710 to 14.010	40.5	80.5
13.410 to 13.553 and 13.567 to 13.710	50.5	90.5
13.553 to 13.567	84.0	124.0

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100 **	3
88–216	150 **	3
216–960	200 **	3
Above 960	500	3

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



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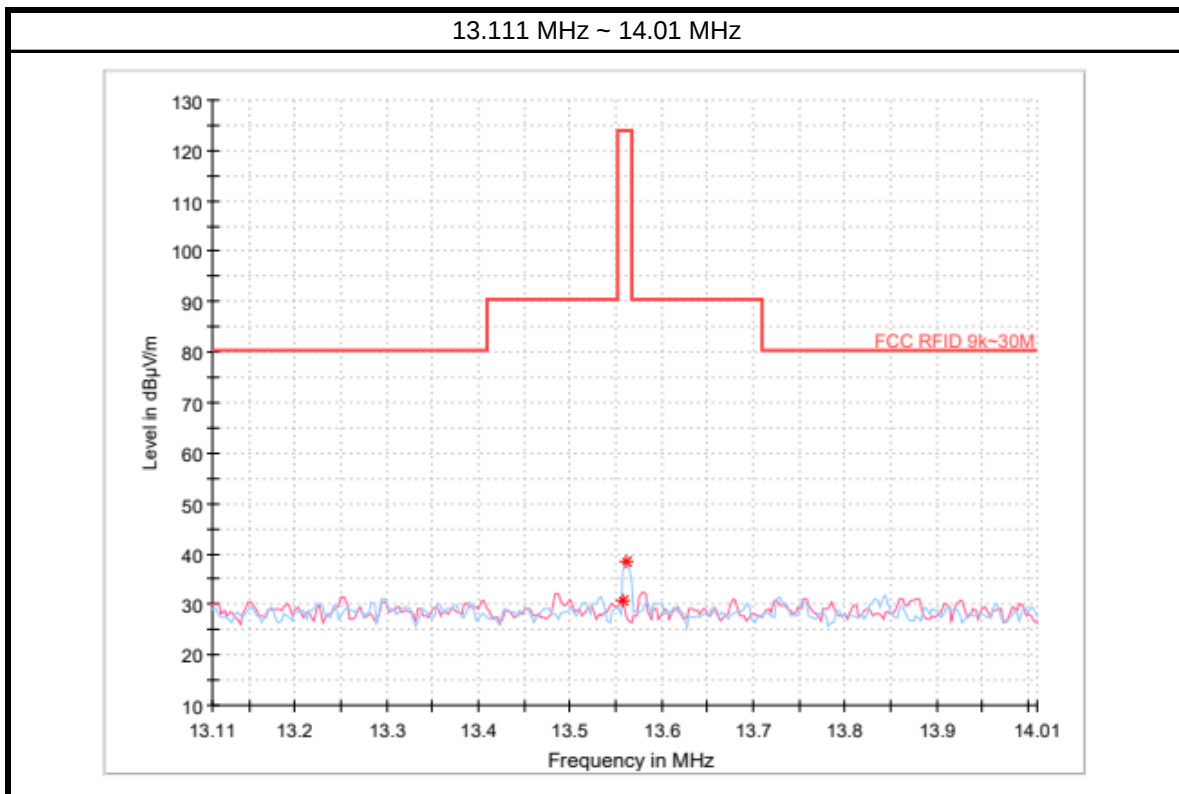
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4.3.3 Test data

Result : Pass

- 13.111 MHz ~ 14.01 MHz

Frequency (MHz)	Reading (dBUV/m)	Detector	Pol.	Factor (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dBUV/m)	note
13.562	18.40	MaxPeak	H	20.2	38.60	124.00	85.40	
13.559	10.45	MaxPeak	V	20.2	30.65	124.00	93.35	





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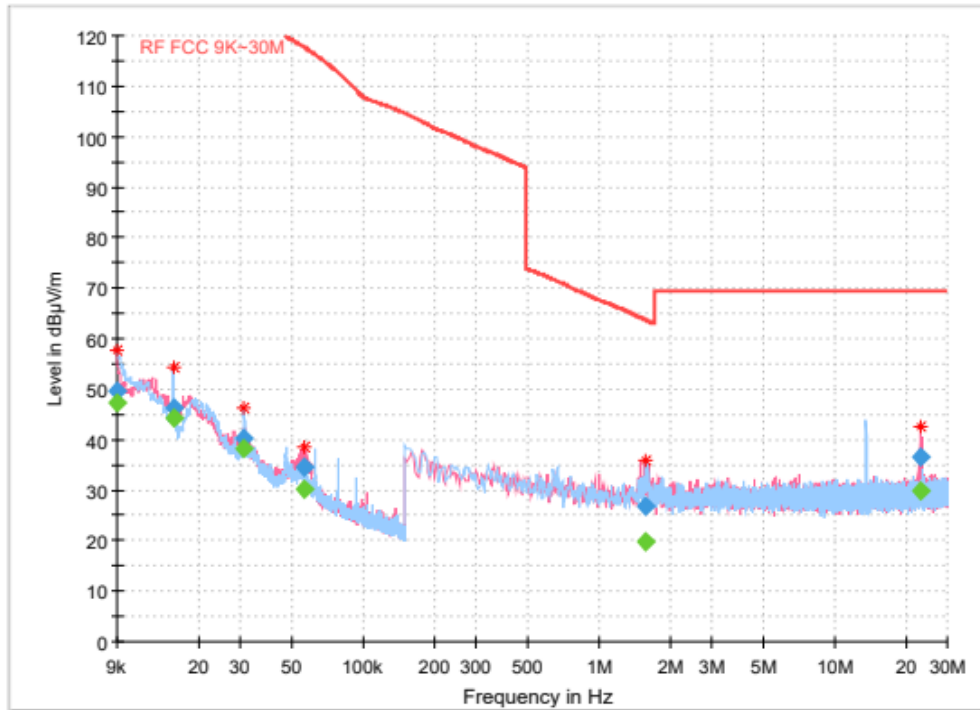
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- 9 kHz ~ 30 MHz

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
It was not found any emissions peaks found from the EUT.								

9 kHz ~ 30 MHz





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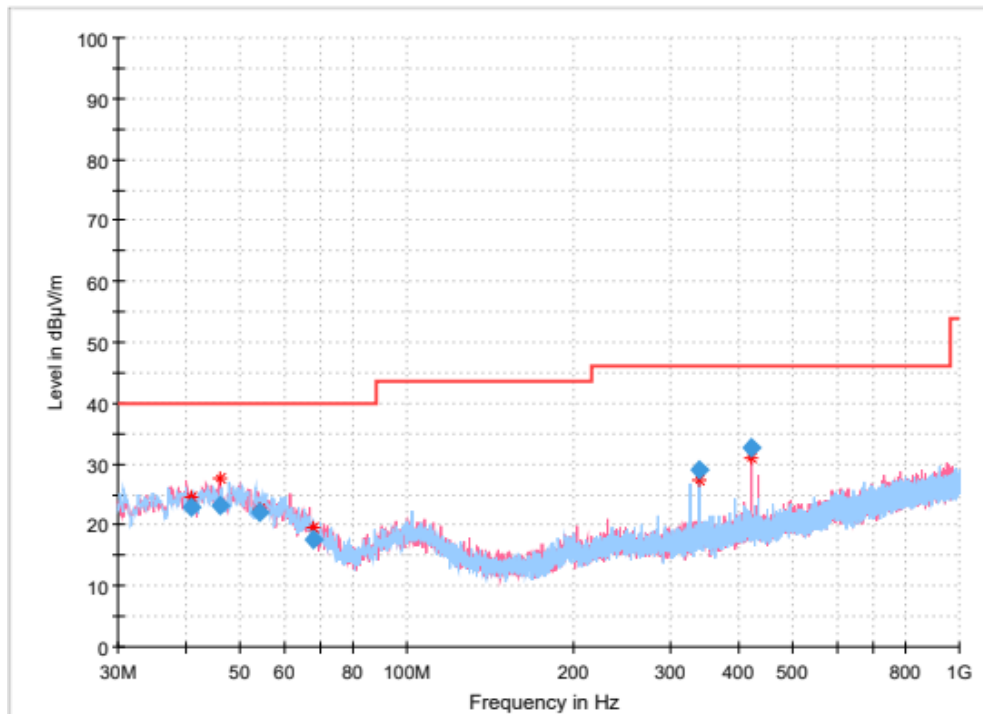
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- 30 MHz ~ 1 GHz

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
40.670	38.11	QK	H	-15.1	23.01	40.00	16.99	
46.005	37.51	QK	V	-14.4	23.11	40.00	16.89	
54.250	36.54	QK	H	-14.4	22.14	40.00	17.86	
67.733	35.38	QK	V	-17.9	17.48	40.00	22.52	
339.042	41.05	QK	H	-11.9	29.15	46.02	16.87	
420.425	42.48	QK	V	-9.8	32.68	46.02	13.34	

30 MHz ~ 1 GHz





5. Used equipment

	Description	Model Name	Manufacturer	Serial Number	Next Cal
■	SIGNAL GENERATOR	SMB100A	ROHDE & SCHWARZ	180607	2027-02-24
■	SPECTRUM ANALYZER	FSV30	ROHDE & SCHWARZ	103030	2027-02-23
■	DC POWER SUPPLY	E3632A	AGILANT	MY51300069	2027-02-24
■	CHAMBER	SH-641	ESPEC	92001266	2027-02-24
■	LOOP ANTENNA	HFH2-Z2	ROHDE & SCHWARZ	100271	2027-03-04
■	TRILOG BROADBAND ANTENNA	VULB 9162	SCHWARZBECK	142	2027-03-01
■	RF Pre Amplifier	SCU08	ROHDE&SCHWARZ	100745	2027-03-23
■	EMI TEST RECEIVER	ESR26	ROHDE&SCHWARZ	101461	2027-03-23

- END OF REPORT.