

EMF TEST REPORT

Test Report No. : OT-22O-RWD-042
Reception No. : 2209002882
Applicant : NCM Co., Ltd.
Address : 9.Ansantekom 1-gil,Sangnok-gu, Ansan-si, Gyeonggi-do, Korea 15523
Manufacturer : Ncm Co.,Ltd
Address : 9.Ansantekom 1-gil,Sangnok-gu, Ansan-si, Gyeonggi-do, Korea 15523
Type of Equipment : PERSONAL HYGIENE APPLIANCE REMOTE CONTROLLER
FCC ID. : 2ASMT-S20
Model Name : S-20
Serial number : N/A
Total page of Report : 7 pages (including this page)
Date of Incoming : October 04, 2022
Date of issue : November 03, 2022

SUMMARY

The equipment complies with the regulation; **FCC PART 15 SUBPART C Section 15.247**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

This report is not correlated with the "KS Q ISO/IEC 17025 and KOLAS accreditation" of Korean Laboratory Accreditation Scheme.

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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-22O-RWD-042	November 03, 2022	Initial Release	All

1. VERIFICATION OF COMPLIANCE

Applicant : NCM Co., Ltd.

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FCC ID : 2ASMT-S20

Model Name : S-20

Brand Name : ICERA

Serial Number : N/A

Date : November 03, 2022

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM
E.U.T. DESCRIPTION	PERSONAL HYGIENE APPLIANCE REMOTE CONTROLLER
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.10: 2013
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT	Certification
AUTHORIZATION REQUESTED	
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

- The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. GENERAL INFORMATION

2.1 Product Description

The NCM Co., Ltd., Model S-20 (referred to as the EUT in this report) is a PERSONAL HYGIENE APPLIANCE REMOTE CONTROLLER. The product specification described herein was obtained from product data sheet or user's manual.

Device Type	PERSONAL HYGIENE APPLIANCE REMOTE CONTROLLER
Temperature Range	3 °C ~ 40 °C
Operating Frequency	2.422 MHz
MAX. RF OUTPUT POWER	5.19 dBm
Number of Channel	1 Channel
Modulation Type	FSK
Antenna Type	PCB Antenna
Antenna Gain	-2.40 dBi
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	3.58 MHz
Rated Supply Voltage	DC 4.5 V

2.2 Alternative type(s)/model(s); also covered by this test report.

- None

3. EUT MODIFICATIONS

- None

4. MAXIMUM PERMISSIBLE EXPOSURE

4.1 RF Exposure Calculation

According to the FCC rule 1.1310 table 1B, the limit for the maximum permissible RF exposure for an uncontrolled environment are $f/1500 \text{ mW/cm}^2$ for the frequency range between 300 MHz and 1 500 MHz and 1.0 mW/cm^2 for the frequency range between 1 500 MHz and 100 000 MHz.

The electric field generated for a 1 mW/cm^2 exposure is calculated as follows:

$$E = \sqrt{(30 * P * G) / d}, \text{ and } S = E^2 / Z = E^2 / 377, \text{ because } 1 \text{ mW/cm}^2 = 10 \text{ W/m}^2$$

Where

S = Power density in mW/cm^2 , Z = Impedance of free space, 377Ω

E = Electric field strength in V/m , G = Numeric antenna gain, and d = distance in meter

Combining equations and rearranging the terms to express the distance as a function of the remaining variable

$$d = \sqrt{(30 * P * G) / (377 * 10 S)}$$

Changing to units of mW and cm , using $P (\text{mW}) = P (\text{W}) / 1000$, $d (\text{cm}) = 0.01 * d (\text{m})$

$$d = 0.282 * \sqrt{(P * G) / S}$$

Where

d = distance in cm , P = Power in mW , G = Numeric antenna gain, and S = Power density in mW/cm^2

4.2 EUT Description

Kind of EUT	PERSONAL HYGIENE APPLIANCE REMOTE CONTROLLER
Device Category	<input checked="" type="checkbox"/> Portable (< 20 cm separation) <input type="checkbox"/> Mobile (> 20 cm separation) <input type="checkbox"/> Others
Exposure	<input checked="" type="checkbox"/> MPE
Evaluation Applied	<input type="checkbox"/> SAR <input type="checkbox"/> N/A

4.3 Calculated MPE Safe Distance

According to the procedure, KDB 447498 D01, the standalone SAR test exclusion threshold is

$$[(\text{Max. Power of channel, including tune-up tolerance, mW}) / (\text{Min. test separation distance, mm})] \times [\sqrt{f(\text{GHz})}] < 3$$
$$= (4.16/5) \times \sqrt{2.422} = 1.295$$

Mode	Frequency (MHz)	Target Power W/tolerance (dBm)	Max tune up power (dBm)	Max tune up power (mW)	Separation distance (mm)	RF exposure
GFSK	2 422	5.19 ± 1.0	6.19	4.16	5	1.295

Conclusion:

SAR evaluation for general population exposure conditions by measurement or numerical simulation is not required.