



시험 성적서

TEST REPORT

페이지(page) : (1) / (총(Total) 7)

성적서 번호 Report No.		ICRT-TR-E230011-0A	
신청자 Client	기관명 Name	COBO Co.,Ltd.	
	주 소 Address	204-1ho, 417, Samseong-ro, Gangnam-gu, Seoul, Korea	
시험대상품목 Sample description		COBOBLOCKS	
모델명 Type designation		CBBLK-R22	
정 격 Ratings		DC 3.7 V	
시험장소 Place of test		☒ 고정시험(Inside test) ☐ 현장시험(Field test) 주소지(Address): 112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea	
시험기간 Date of test		10. Nov. 2022 ~ 02. Jan. 2023	
시험방법/항목 Test Method/Item		FCC rule §1.1310	
시험결과 Test Results		Refer to 3. Maximum Permissible Exposure	
확 인 Affirmation	작성자 Tested by	기술책임자 Technical Manager	
	성 명 Name Seong-Hun, Jeong (서명) (Signature)	성 명 Name Tae-Yang, Yoon (서명) (Signature)	
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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E230011-0A	2022.01.02	Initial Issue	All



1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	COBO Co.,Ltd.
Address	204-1ho, 417, Samseong-ro, Gangnam-gu, Seoul, Korea
Contact Person	Seokiu Chun
Telephone No.	82-10-9018-3047
Fax No.	-
E-mail	chunsj@snue.ac.kr

1.2 Manufacturer Information

Manufacturer	COBO Co.,Ltd.
Address	204-1ho, 417, Samseong-ro, Gangnam-gu, Seoul, Korea

1.3 Test Laboratory Information

Conducted tests were performed at	
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
RRA No.	KR0165
KOLAS No.	KT652



2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	COBOBLOCKS
Brand Name	-
Model Name	CBBLK-R22
Additional Model Name	-
FCC ID	2A9DS-CBBLK-R22
Power Supply	DC 3.7 V

2.2 Additional Information

Equipment Class	DTS-Digital Transmission System
Device Type	Stand-alone
Operating Frequency	2 402 MHz ~ 2 480 MHz
RF Output Power	-29.24 dBm
Number of Channel	40
Modulation Type	GFSK
Antenna Type	Chip Antenna
Antenna Gain	2.05 dBi
Antenna Operating Mode	Single Antenna Equipment with only one antenna

2.3 Mode of operation during the test

- The EUT is continuous transmission mode during the test with set at Low Channel, Middle Channel, and High Channel. To get a maximum radiated emission levels from the EUT, the EUT was moved throughout the XY, YZ, XZ planes.

2.4 Modifications of EUT

- None



3. Maximum Permissible Exposure

3.1 RF Exposure calculation

According to the FCC rule §1.1310 the limit for General Population/Uncontrolled exposure is 1 mW/cm² for the device operating 1 500 MHz ~ 100 000 MHz.

The electric field generated for a 1 mW/cm² exposure is calculated as follows:

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

S = Power density in mW/cm², Z = Impedance of free space, 377 Ω

P = Power input to the external antenna

(Output power from the EUT antenna port (dBm) – cable loss (dB)),

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 (mW) = P (W) / 1 000, d (cm) = 0.01 * d (m)

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



3.2 Result

According to above equation, the following result was obtained.

Operating Mode	Target Power W / tolerance	Max tune up power		Antenna Gain		Safe Distance (cm)	Power Density (mW/cm ²) @ 20 cm Separation	Limit (mW/cm ²)
		(dBm)	(mW)	Log	Linear			
LE_Car	-29.24 ± 1.0	-28.24	0.0015	2.05	1.60	0.01	0.0000005	1.00

According to above table, for Band(LE_Car), safe distance,

$$D = 0.282 * \sqrt{(0.0015 * 1.6)/1.00} = 0.01 \text{ cm.}$$

For getting power density at 20 cm separation in above table, following formula was used.

$$S = P * G / (4\pi * R^2) = (0.0015 * 1.6 / (4 * \pi * 20^2)) = 0.000 \text{ 000 5}$$

- END -