시 험 성 적 서
TEST REPORT

성적서 번호 Report No.		ICRT-TR-E231002-0A
신청자 Client	기관명 Name	Aerobits Sp. z o.o.
	주 소 Address	Przestrzenna 11, 70-800 Szczecin, poland
시험대상품목 Sample description		idME (remoteID)
모델명 Type designation		idME Pro
정 격 Ratings		DC 5.0 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		28. Mar. 2023 ~ 10. Apr. 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 성 명 Name Seong-Hun, Jeong (서 명) (Signature)	기술책임자 Technical Manager 성 명 Name Tae-Yang, Yoon (서 명) (Signature)

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2023. 05. 04

주식회사 아이씨알 대표이사

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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E231002-0A	2023.05.04	Initial Issue	All

1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	Aerobits Sp. z o.o.
Address	Przestrzenna 11, 70-800 Szczecin, poland
Contact Person	Rafał Osypiuk
Telephone No.	0048 500 310 810
Fax No.	-
E-mail	rafal.osypiuk@aerobits.pl

1.2 Manufacturer Information

Manufacturer	Aerobits Sp. z o.o.
Address	Przestrzenna 11, 70-800 Szczecin, poland

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
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RRA No.	KR0165
KOLAS No.	KT652

2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	idME (remoteID)
Brand Name	-
Model Name	idME Pro,
Additional Model Name	idME+, idME
FCC ID	2A94B-13EA2A94B
Power Supply	DC 5.0 V

2.2 Additional Information

Equipment Class	DTS-Digital Transmission System	
Device Type	Stand-alone	
Operating Frequency	802.11b/g/n(HT20)	2 412 ㎒ ~ 2 462 ㎒
	802.11n(HT40)	2 422 ㎒ ~ 2 452 ㎒
	Bluetooth LE (1M/2M/Coded 500k/Coded 125k)	2 402 ㎒ ~ 2 480 ㎒
RF Output Power	802.11b	11.45 dBm
	802.11g	10.88 dBm
	802.11n(HT20)	9.94 dBm
	802.11n(HT40)	9.15 dBm
	Bluetooth LE 1Mbps	12.72 dBm
	Bluetooth LE 2Mbps	12.75 dBm
	Bluetooth LE Coded 500kbps	12.44 dBm
	Bluetooth LE Coded 125kbps	12.31 dBm
Number of Channel	802.11b/g/n(HT20)	11
	802.11n(HT40)	7
	Bluetooth LE (1M/2M/Coded 500k/Coded 125k)	40
Modulation Type	802.11b/g/n	BPSK, QPSK, QAM
	Bluetooth LE	GFSK
Antenna Type	Wire Antenna	
Antenna Gain	2.0 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 ㎽/㎠ for the device operating 1 500 ㎒ ~ 100 000 ㎒.

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

$E = \sqrt{(30 * P * G)} / D$, and $S = E^2 / Z = E^2 / 377$, because 1 ㎽/㎠ = 10 W/m²

S = Power density in ㎽/㎠, 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 filed strength in V/m, G = Numeric antenna gain, and D = distance in meter

Combing 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 ㎽ and cm, using P (㎽) = P (W) / 1 000, d (㎝) = 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 (㎝)	Power Density (㎽/㎝²) @ 20 ㎝ Separation	Limit (㎽/㎝²)
		(dBm)	(㎽)	Log	Linear			
BT LE 1Mbps	12.72 ± 1.0	13.72	23.55	2	1.58	1.72	0.0074	1.00
BT LE 2Mbps	12.75 ± 1.0	13.75	23.71			1.73	0.0075	
BT LE coded 500kbps	12.44 ± 1.0	13.44	22.08			1.67	0.0070	
BT LE coded 125kbps	12.31 ± 1.0	13.31	21.43			1.64	0.0068	
802.11b	11.45 ± 1.0	12.45	17.58			1.49	0.0055	
802.11g	10.88 ± 1.0	11.88	15.42			1.39	0.0049	
802.11n20	9.94 ± 1.0	10.94	12.42			1.25	0.0039	
802.11n40	9.15 ± 1.0	10.15	10.35			1.14	0.0033	

- Bluetooth and WIFI of this product use one ESP32 module. Since this module operates as one radio and only one transmission protocol is used per transmission slot for actual transmission, simultaneously transmission is not evaluated.

END OF REPORT.