

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

Test Report No. : OT-202-RWD-014

AGR No. : A19NA-063

Applicant : SOOIL Development Co., Ltd.

Address : 62, Yonggu-daero 2325beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, 16922, Korea

Manufacturer : SOOIL Development Co., Ltd (Heukseok)

Address : 62, Yonggu-daero 2325beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, 16922, Korea

Type of Equipment : Insulin Pump

FCC ID. : VF9DANAI5

Model Name : Diabecare DANA-i5

Serial number : N/A

Total page of Report : 7 pages (including this page)

Date of Incoming : December 30, 2019

Date of issue : February 10, 2020

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.

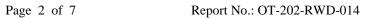
It is not a generally valid assessment of the features of the respective products of the mass-production.

Reviewed by:

Tae-Ho, Kim / Senior Manager ONETECH Corp. Approved by:

Ki-Hong, Nam / General Manager ONETECH Corp.

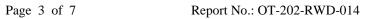
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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-202-RWD-014	February 10, 2020	Initial Release	All



Report No.: OT-202-RWD-014



1. VERIFICATION OF COMPLIANCE

Applicant : SOOIL Development Co., Ltd.

Address : 62, Yonggu-daero 2325beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, 16922, Korea

Contact Person: Geun-Sang, Lim / General Manager

Telephone No. : +82-2-2824-2133 FCC ID : VF9DANAI5

Model Name : Diabecare DANA-i5

Brand Name : Serial Number : N/A

Date: February 10, 2020

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



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2. GENERAL INFORMATION

2.1 Product Description

The SOOIL Development Co., Ltd., Model Diabecare DANA-i5 (referred to as the EUT in this report) is an Insulin Pump, Product specification information described herein was obtained from product data sheet or user's manual.

1	Tom product data street a management of the street of the	
DEVICE TYPE	Insulin Pump	
Temperature Range	1 °C ~ 40 °C	
Operating Frequency	2 402 MHz ~ 2 480 MHz	
Modulation Type	GFSK	
RF Output Power	125 kbps: -6.08 dBm 1 Mbps: -6.08 dBm	
ANTENNA TYPE	Chip Antenna	
ANTENNA GAIN	1.05 dBi	
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	32.768 kHz	
RATED SUPPLY VOLTAGE	DC 1.5 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 mW/cm² for the frequency range between 300 MHz and 1 500 MHz and 1.0 mW/cm² for the frequency range between 1 500 MHz and 100 000 MHz.

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

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

Where

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

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 mW and cm, using P(mW) = P(W) / 1000, d(cm) = 0.01 * d(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/cm²

Kind of EUT	d of EUT Insulin Pump		
	■ Portable (< 20 cm separation)		
Device Category	☐ Mobile (> 20 cm separation)		
	□ Others		
_	□ MPE		
Exposure Evaluation Applied	□ SAR		
	■ N/A		

Tested by: Hyung-Kwon, Oh / Assistant Manager

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4.2 Test Result for Bluetooth LE

According to the procedure, KDB 447498 D01, the standalone SAR test exclusion threshold is [(Max. Power of channel, including tune-up tolerance, mW)/(Mim. test separation distance, mm)] X [$\sqrt{f(GHz)}$] < 3 = (0.28/5) X $\sqrt{2.402}$ = 0.087

Conclusion: The SAR test exclusion threshold is less than 3, so the device meets the RF Exposure Requirement and are excluded from SAR Test.

Operating Mode	Frequency (MHz)	Target Power W/tolerance	Max tune up power	Max tune up power	Separation distance	RF exposure
		(dBm)	(dBm)	(mW)	(mm)	
Bluetooth LE	2 402.00	-6.50 ± 1.0	-5.50	0.28	5.00	0.087

Tested by: Hyung-Kwon, Oh / Assistant Manager

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