# DNETECH

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

Test Report No.	: W178R-D046
AGR No.	: A178A-072
Applicant	: SOLUM CO.,LTD.
Address	: 4,5,6th F, 357, Guseong-ro, Giheung-gu, Gyeonggi-do, Yongin-si, South Korea
Manufacturer	: SOLUM CO.,LTD.
Address	: 4,5,6th F, 357, Guseong-ro, Giheung-gu, Gyeonggi-do, Yongin-si, South Korea
Type of Equipment	: BLE Beacon Device
FCC ID.	: 2AFWN-TBHH01AP1
Model Name	: TBHH01AP1
Multiple Model Name	: N/A
Serial number	: N/A
Total page of Report	: 6 pages (including this page)
Date of Incoming	: August 08, 2017
Date of issue	: August 22, 2017

## 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: Approved by: Ki-Hong, Nam / Asst, Chief Engineer Keun-Young, Choi / Vice President **ONETECH** Corp. **ONETECH** Corp.

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EMC-003 (Rev.2)

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## **Revision History**

Issued Report No.	Issued Date	Revisions	Effect Section
W178R-D046	August 22, 2017	Initial Issue	All

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## **1. VERIFICATION OF COMPLIANCE**

Applicant : SOLUM CO.,LTD.

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Contact Person : Ki Dong, Lee / Senior Manager

Telephone No. : +82-31-210-6497

FCC ID : 2AFWN-TBHH01AP1

Model Name : TBHH01AP1

Serial Number : N/A

Date : August 22, 2017

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM		
KIND OF EQUIPMENT	BLE Beacon Device		
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		
Modifications on the Equipment to Achieve	None		
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 SOLUM CO.,LTD., Model TBHH01AP1 (referred to as the EUT in this report) is a BLE Beacon Device. The product specification described herein was obtained from product data sheet or user's manual.

Device Type	BLE Beacon Device		
Operating Frequency	2 402 MHz ~ 2 480 MHz		
RF Output Power	-1.09 dBm		
Number of Channel	40 Channel		
Modulation Type	GFSK		
Antenna Type	PCB Antenna		
Antenna Gain	1.72 dBi		
List of each Osc. or crystal Freq.(Freq. >= 1 MHz)	32 MHz		
Rated Supply Voltage	DC 3.0 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, the limit for General Population/Uncontrolled exposure is 1 mW/cm<sup>2</sup> for the device operating 1 500 ~ 100 000 MHz.

#### 4.2 EUT Description

Kind of EUT	BLE Beacon Device			
	□ Wireless Microphone: 494.000 MHz ~ 501.000 MHz			
	and 498.200 MHz ~ 505.200 MHz			
	□ WLAN: 2 412 MHz ~ 2 462 MHz			
Operating Frequency Band	□ WLAN: 5 180 MHz ~ 5 240 MHz			
	□ WLAN: 5 745 MHz ~ 5 825 MHz			
	□ Bluetooth: 2 402 MHz ~ 2 480 MHz			
	■ Bluetooth BLE: 2 402 MHz ~ 2 480 MHz			
MAX. RF OUTPUT POWER	-1.09 dBm			
Antenna Gain	1.72 dBi			
	□ MPE			
Exposure	□ SAR			
Evaluation Applied	■ N/A			

#### 4.3 Test Result

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

= (0.89/5) X  $\sqrt{2.440} = 0.28$ 

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

excluded SAR Test.

	Frequency (MHz)	Target Power	Max tune up	Max tune up	Separation	
		W/tolerance	power	power	distance	RF exposure
		(dBm)	(dBm)	(mW)	(mm)	
BLE (GFSK)	2 440	$-1.0 \pm 0.5$	-0.5	0.89	5	0.28

Tested by: Tae-Ho, Kim / Manager