SAR Evaluation Report

Application No.:	HKEM1804000205AV
Applicant:	OnTel Products Corporation
Address of Applicant:	21 Law Drive Fairfield, NJ 07004
Buyer:	OnTel Products Corporation
Equipment Under Test (EUT):	
EUT Name:	Micro Mechanic
Model No.:	18002
Country of Origin:	China
Country of Destination:	USA
FCC ID:	2AOXK18004
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2018-04-16
Date of Test:	2018-04-17 to 2018-04-19
Date of Issue:	2018-04-19
Test Result :	**PASS***

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:
CHEN Jian-feng, Jeffrey

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2018-04-19		*Original*

3 Contents

4 General Information

4.1 General Description of EUT

Power supply:	DC 12V
For BT:	
Bluetooth Version:	V4.0 dual mode
Modulation Type	GFSK, π/4DQPSK, 8DPSK
Number of Channels	79
Operation Frequency	2402MHz to 2480MHz
Spectrum Spread Technology	Frequency Hopping Spread Spectrum(FHSS)
Antenna Type:	PCB Antenna
Antenna Gain:	0.55dBi
For BLE:	
Frequency Range:	2402MHz to 2480MHz
Bluetooth Version:	V4.0 BLE
Modulation Type:	GFSK
Number of Channels:	40
Antenna Type:	PCB Antenna
Antenna Gain:	0.55dBi

4.2 Test Location

All tests were performed at:

SGS IECC Limited (Member of the SGS Group (SGS SA))
No. 16-B, Yip Wo Street, On Lok Tsuen, Fanling, N.T., Hong Kong
Tel: +852 2305 2570 Fax: +852 2756 4480.

4.3 Test Facility

The test facility is recognized or accredited by the following organizations:

- **HOKLAS (Lab Code: 125)**
  SGS IECC Limited has been accepted by HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a HOKLAS Accredited Laboratory, this laboratory meets the requirements of ISO/IEC 17025:2005 an it has been accredited for performing specific test as listed in the scope of accreditation within the test category of Electrical and Electronic Products.

- **FCC Recognized Accredited Test Firm(CAB Registration No.: 446297)**
  SGS IECC Limited has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: HK0010, Test Firm Registration Number: 446297.

- **Industry Canada (Registration No.: 5193A-2)**
  The 3m Alternative Semi-anechoic chamber of SGS IECC Limited has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. **5193A-2**.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

5.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation[17]
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

5.1.3 EUT RF Exposure

For BT:

The Max. power (including tune-up tolerance) is -9.72 dBm on the lowest channe 2.402 GHz (*)

-9.72 dBm logarithmic terms convert to numeric result is nearly 0.11 mW

According to the formula. calculate the test exclusion thresholds:

$$General\ RF\ Exposure = \frac{Max.\ Power\ of\ channel, including\ tune{-}up\ tolerance, mW}{(min.\ test\ separation\ distance, mm) * \sqrt{f\ (GHz)}}$$

$$General\ RF\ Exposure = (0.11\ mW / 5\ mm)\ x\ \sqrt{2.402\ GHz} = 0.03 \quad (1)$$

SAR requirement:

$$S = 3.0 \quad (2)$$

(1) < (2)

So the SAR report is not required.

(*) Max. power refer to Report No.:HKEM180400020502

For BLE:

The Max. power (including tune-up tolerance) is -9.38 dBm on the lowest channe 2.402 GHz (*)
-9.38 dBm logarithmic terms convert to numeric result is nearly 0.12 mW
According to the formula. calculate the test exclusion thresholds:

$$General\ RF\ Exposure = \frac{Max.\ Power\ of\ channel,\ including\ tune{-}up\ tolerance,\ mW}{(min.\ test\ separation\ distance,mm) * \sqrt{f\ (GHz)}}$$

$$General\ RF\ Exposure = (0.12\ mW / 5\ mm)\ x\ \sqrt{2.402\ GHz} = 0.04 \qquad (1)$$

SAR requirement:

$$S = 3.0 \qquad (2)$$

(1) < (2)
So the SAR report is not required.

(*) Max. power refer to Report No.:HKEM180400020501

- End of the Report -