# RF Exposure evaluation

## FOR

## GRENOPLUS IMATE ALL IN ONE DOCKING STATION (60W)

Model : GP-MB10

Issued to

GRENO TECHNOLOGY (HK) CO., LTD
ROOM 603, 6/F,HANG PONT COMMERCIAL BUILDING, 31TONKIN STREET,
SHEUNG SHA WAN, KOWLOON, HONGKONG
Issued by
WH Technology Corp.

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|---|---|---|
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# 1. GENERAL INFORMATION

| | | |
|---|---|---|
| **Applicant** | : | **GRENO TECHNOLOGY (HK) CO., LTD** |
| **Address** | : | **ROOM 603, 6/F,HANG PONT COMMERCIAL BUILDING, 31TONKIN STREET, SHEUNG SHA WAN, KOWLOON, HONGKONG** |
| **Manufacturer** | : | **GRENO TECHNOLOGY (HK) CO., LTD** |
| **Address** | : | **ROOM 603, 6/F,HANG PONT COMMERCIAL BUILDING, 31TONKIN STREET, SHEUNG SHA WAN, KOWLOON, HONGKONG** |
| **Factory** | : | **Stiger International Trade Investment Co.,Ltd** |
| **Address** | : | **2 Building, Standard Garden, Taishi Industrial Zone, Dongyong Town, Nansha District Guangzhou, Guangdong, P.R.China** |
| **EUT** | : | **Grenoplus iMate All in One Docking Station (60w)** |
| **Model Name** | : | **GP-MB10** |
| **FCC ID** | : | **2AROV-GPMB10** |
| **Trade Name** | : | **iMate** |
| **Model Differences** | : | **N/A** |

Is here with confirmed to comply with the requirements set out in the FCC Rules and Regulations Part 15 Subpart C and the measurement procedures were according to ANSI C63.10-2013. The said equipment in the configuration described in this report shows the maximum emission levels emanating

**FCC part 15 Subpart C**

Receipt Date : 11/01/2018 Final Test Date :12/30/2018

**Tested By:** **Reviewed by:**

Nov. 01, 2018 (Date)

Bing Chang/ Engineer

Dec. 30, 2018 (Date)

Bell Wei / Manager

Designation Number: TW2954

## EUT Specification

| | |
|---|---|
| EUT: | Grenoplus iMate All in One Docking Station (60w) |
| M/N: | GP-MB10 |
| Frequency band: (Operating) | ☐ WLAN:2.142G~2.462GHz<br>☐ WLAN:5.18G~5.32GHz/5.50GHz~5.70GHz<br>☐ WLAN:5.745G~5.825GHz<br>☐ Bluetooth:2.402GHz~2.480GHz<br>☐ Zigbee:2.405GHz~2.480GHz<br>☒ Others 110KHz-200KHz |
| Device category: | ☐ Portable (<20cm separation)<br>☒ Mobile (>20cm separation)<br>☐ Others ___ |
| Antenna diversity: | ☐ Single antenna<br>☐ Multiple antennas<br>☐ Tx diversity<br>☐ Rx diversity<br>☐ Tx/Rx diversity<br>☒ Coil Antenna |
| Antenna Type: | Coil Antenna |
| Antenna gain: | 0dBi |

## LIST OF TEST AND MEASUREMENT INSTRUMENTS

| Equipment | Model | Manufacture | Last Cal. | Next Cal. |
|---|---|---|---|---|
| Exposure Level Tester | ELT-400 | NARDA | Aug. 05, 2018 | Aug. 04, 2019 |
| Magnetic field probe 100cm2 | B-Field Probe 100 cm2 | NARDA | Aug. 05, 2018 | Aug. 04, 2019 |

# Applicable Standard

**FCC § 1.1307 & 1.1310**

According to the item 5.2 of KDB 680106 D01 RF Exposure Wireless Charging Apps V03: Inductive wireless power transfer applications that meet all of the following requirements are excluded from submitting an RF evaluation.

a) Power transfer frequency is less that 1 MHz.

b)Output power from each primary coil is less than or equal to 15 watts.

c) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.

d)Client device is placed directly in contact with the transmitter.

e) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

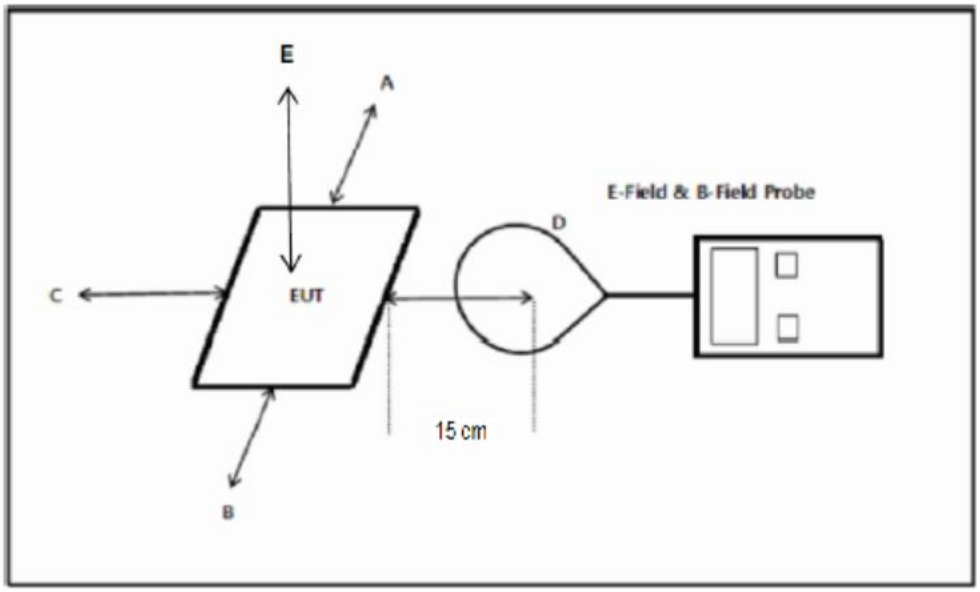
f) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

## Limits for Maximum Permissible Exposure (MPE)

| (B) Limits for General Population/Uncontrolled Exposure | | | | |
|---|---|---|---|---|
| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density ($mW/cm^2$) | Averaging Time (minutes) |
| (A) Limits for Occupational/Controlled Exposure | | | | |
| 0.3-3.0 | 614 | 1.63 | *100 | 6 |
| 3.0-30 | 1842/f | 4.89/f | $*900/f^2$ | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1,500 | | | f/300 | 6 |
| 1,500-100,000 | | | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | $*(180/f^2)$ | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | f/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

f = frequency in MHz; * = Plane-wave equivalent power density;

## EUT Setup：



## Test Procedure:

a) The RF exposure test was performed on 360 degree turn table in anechoic chamber.

b) The measurement probe was placed at test distance (10cm) which is between the edge of the charger and the geometric centre of probe.

c) The turn table was rotated 360d degree to search of highest strength.

d) The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.

e) The EUT were measured according to the dictates of KDB 680106D01v03

## Result:

a) Power transfer frequency is less that 1 MHz.

Yes,The device operates in the frequency 110kHz-200kHz.

b) Output power from each primary coil is less than or equal to 15 watts.

Yes,The maximum output power of the primary coil is Max 10W<15W.

c) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.

Yes,The transfer system including a charging system with only single primary coils is to detect and allow only between individual of coils.

d) Client device is placed directly in contact with the transmitter.

Yes,Client device is placed directly in contact with the transmitter.

e) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

No,The EUT Coupling surface area (Type: Cycle)

f) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

The EUT H-field strengths at 15 cm surrounding the device and 20 cm above the top surface are less than 50% the MPE limit.

# TEST DATA

**E and H field Strength**

**E-Filed Strength at 15 cm from the edges surrounding the EUT (V/m)**

| Frequency Range (MHz) | Position A (V/m) 15cm | Position B (V/m) 15cm | Position C (V/m) 15cm | Position D (V/m) 15cm | Position E (V/m) 20cm | Limits Test (V/m) |
|---|---|---|---|---|---|---|
| 0.110-0.200 | 1.60 | 1.73 | 2.14 | 1.68 | 2.46 | 614 |

**H-Filed Strength at 15 cm from the edges surrounding the EUT (A/m)**

| Frequency Range (MHz) | Position A (A/m) 15cm | Position B (A/m) 15cm | Position C (A/m) 15cm | Position D (A/m) 15cm | Position E (A/m) 20cm | Limits Test (A/m) |
|---|---|---|---|---|---|---|
| 0.110-0.200 | 0.29 | 0.21 | 0.31 | 0.19 | 0.28 | 1.63 |

## Testing photo

**---END--**