

FCC PART 15C TEST REPORT FOR CERTIFICATION  
On Behalf of

SUNVALLEYTEK INTERNATIONAL, INC.

VAVA Docking Station

Model Number: VA-DK001

FCC ID: 2AFDGVA-DK001

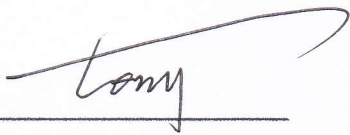
|               |                                                                      |
|---------------|----------------------------------------------------------------------|
| Prepared for: | SUNVALLEYTEK INTERNATIONAL, INC.                                     |
|               | 46724 Lakeview Blvd, Fremont, California, United States, 94538-6529. |
|               |                                                                      |
| Prepared By:  | EST Technology Co., Ltd.                                             |
|               | Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China  |
|               | Tel: 86-769-83081888-808                                             |

|                 |                    |
|-----------------|--------------------|
| Report Number:  | ESTE-R1803014      |
| Date of Test:   | Mar. 01 ~ 12, 2018 |
| Date of Report: | Mar. 12, 2018      |

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## EST Technology Co., Ltd.

|                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                       |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Applicant:</b>                                                                                                                                                                                        | SUNVALLEYTEK INTERNATIONAL, INC.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                       |                    |
| <b>Address:</b>                                                                                                                                                                                          | 46724 Lakeview Blvd, Fremont, California, United States, 94538-6529.                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                       |                    |
| <b>Manufacturer:</b>                                                                                                                                                                                     | Shenzhen Nearby Express Technology Development Company Limited                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                       |                    |
| <b>Address:</b>                                                                                                                                                                                          | 333 Bulong Raod, Jialianda Industrial Park, Building, Longgang District, Shenzhen, China                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                       |                    |
| <b>E.U.T:</b>                                                                                                                                                                                            | VAVA Docking Station                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                       |                    |
| <b>Model Number:</b>                                                                                                                                                                                     | VA-DK001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                       |                    |
| <b>Power Supply:</b>                                                                                                                                                                                     | DC 20V From Adapter Input AC 100-240V~50/60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                       |                    |
| <b>Test Voltage:</b>                                                                                                                                                                                     | AC 120V/60Hz<br>AC 240V/60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                       |                    |
| <b>Trade Name:</b>                                                                                                                                                                                       | VAVA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Serial No.:</b>                                                                                                    | -----              |
| <b>Date of Receipt:</b>                                                                                                                                                                                  | Mar. 01, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Date of Test:</b>                                                                                                  | Mar. 01 ~ 12, 2018 |
| <b>Test Specification:</b>                                                                                                                                                                               | FCC Rules and Regulations Part 15 Subpart C:2017<br>ANSI C63.10:2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                       |                    |
| <b>Test Result:</b>                                                                                                                                                                                      | <p>The device described above is tested by EST Technology Co., Ltd. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart C requirements.</p> <p>This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd.</p> |                                                                                                                       |                    |
| <b>Date:</b> Mar. 12, 2018                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                       |                    |
| <b>Prepared by:</b>                                                                                                                                                                                      | <b>Reviewed by:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Approved by:</b>                                                                                                   |                    |
| <br>_____<br>Ring / Assistant                                                                                         | <br>_____<br>Tony / Engineer                                                                                                                                                                                                                                                                                                                                                                                                                               | <br>_____<br>Iceman Hu / Manager |                    |
| <b>Other Aspects:</b>                                                                                                                                                                                    | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                       |                    |
| <i>Abbreviations: OK/P=passed    fail/F=failed    n.a/N=not applicable    E.U.T=equipment under tested</i>                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                       |                    |
| <i>This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                       |                    |

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

|                     |   |                      |
|---------------------|---|----------------------|
| Product Name        | : | VAVA Docking Station |
|                     |   |                      |
| FCC ID              | : | 2AFDGVA-DK001        |
|                     |   |                      |
| Model Number        | : | VA-DK001             |
|                     |   |                      |
| Operation frequency | : | 126.5 kHz            |
|                     |   |                      |
| Number of channel   | : | 1                    |
|                     |   |                      |
| Antenna             | : | Coil, 0 dBi.         |
|                     |   |                      |
| Modulation          | : | MSK                  |
|                     |   |                      |
| Max output power    | : | 9W                   |
|                     |   |                      |
| Sample Type         | : | Prototype production |

## 2. SUMMARY OF TEST

### 2.1. Summary of test result

| Description of Test Item      | Standard                                | Results |
|-------------------------------|-----------------------------------------|---------|
| Power Line Conducted Emission | FCC Part 15: 15.207<br>ANSI C63.10:2013 | PASS    |
| Radiated Emission             | FCC Part 15: 15.209<br>ANSI C63.10:2013 | PASS    |

## 2.2. Test Facilities

|               |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC Lab       | : | <p>Certificated by CNAS, CHINA<br/>Registration No.: L5288<br/>Date of registration: November 13, 2017</p> <p>Certificated by A2LA, USA<br/>Registration No.: 4366.01<br/>Date of registration: November 07, 2017</p> <p>Certificated by FCC, USA<br/>Designation Number: CN1215<br/>Registration No.: 722932<br/>Date of registration: November 21, 2017</p> <p>Certificated by Industry Canada<br/>Registration No.: 9405A<br/>Date of registration: December 03, 2015</p> <p>Certificated by VCCI, Japan<br/>Registration No.: R-13663; C-14103<br/>Date of registration: July 25, 2017<br/>This Certificate is valid until: July 24, 2020</p> <p>Certificated by TUV Rheinland, Germany<br/>Registration No.: UA 50195514 0001<br/>Date of registration: February 07, 2015</p> <p>Certificated by TUV/PS, Shenzhen<br/>Registration No.: SCN1017<br/>Date of registration: January 27, 2011</p> <p>Certificated by Intertek ETL SEMKO<br/>Registration No.: 2011-RTL-L2-64<br/>Date of registration: April 28, 2011</p> <p>Certificated by Nemko, Hong Kong<br/>Registration No.: 175193<br/>Date of registration: May 4, 2011</p> |
| Name of Firm  | : | EST Technology Co., Ltd.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Site Location | : | Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### 2.3. Measurement uncertainty

| Test Item                                                  | Uncertainty                       |
|------------------------------------------------------------|-----------------------------------|
| Uncertainty for Conduction emission test                   | $\pm 3.48\text{dB}$               |
| Uncertainty for spurious emissions test<br>(30MHz-1GHz)    | $\pm 4.60\text{ dB(Polarize: H)}$ |
|                                                            | $\pm 4.68\text{ dB(Polarize: V)}$ |
| Uncertainty for spurious emissions test<br>(1GHz to 18GHz) | $\pm 4.96\text{dB}$               |
| Uncertainty for radio frequency                            | $7 \times 10^{-8}$                |
| Uncertainty for conducted RF Power                         | $0.20\text{dB}$                   |
| Uncertainty for Power density test                         | $0.26\text{dB}$                   |

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

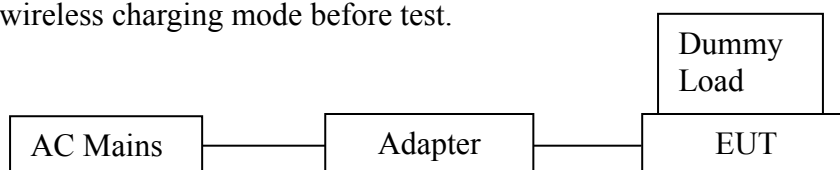
### 2.4. Assistant equipment used for test

#### 2.4.1. Adapter

M / N : KT120A2000600M3  
 Manufacturer : SHEN ZHEN KUANTEN LIMITED  
 INPUT : AC 100-240V~50/60Hz, 1.8A Max.  
 OUTPUT : DC 20.0V, 6.0A

### 2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 meter high above ground. EUT was beset into wireless charging mode before test.



(EUT: VAVA Docking Station )

## 2.6. Test mode

| Mode                                                                   |            |
|------------------------------------------------------------------------|------------|
| TX + Wireless Charging                                                 | Full Load  |
|                                                                        | Half Load  |
|                                                                        | Empty Load |
| Remark: The “Full Load” is worst case, will be recorded in the report. |            |

## 2.7. Channel List

| Channel No. | Frequency (kHz) |
|-------------|-----------------|
| 1           | 126.5           |



## 2.8. Test Equipment

### 2.8.1. For conducted emission test

| Equipment                | Manufacturer    | Model No.    | Serial No. | Calibration Body | Last Cal.  | Next Cal. |
|--------------------------|-----------------|--------------|------------|------------------|------------|-----------|
| EMI Test Receiver        | Rohde & Schwarz | ESHS30       | 832354     | CEPREI           | June 17,17 | 1 Year    |
| Artificial Mains Network | Rohde & Schwarz | ENV216       | 101260     | CEPREI           | June 17,17 | 1 Year    |
| Pulse Limiter            | Rohde & Schwarz | ESH3-Z2      | 101100     | CEPREI           | June 17,17 | 1 Year    |
| Test Software            | Audix           | e3-6.111221a | N/A        | N/A              | N/A        | N/A       |

### 2.8.2. For radiated emission test(9 kHz-30MHz)

| Equipment           | Manufacturer    | Model No.    | Serial No. | Calibration Body | Last Cal.     | Next Cal. |
|---------------------|-----------------|--------------|------------|------------------|---------------|-----------|
| EMI Test Receiver   | Rohde & Schwarz | ESR7         | 101780     | CEPREI           | June 17,17    | 1 Year    |
| Active Loop Antenna | SCHWARZB ECK    | FMZB1519     | 1519-038   | CEPREI           | October 08,17 | 1 Year    |
| Test Software       | Audix           | e3-6.111221a | N/A        | N/A              | N/A           | N/A       |

### 2.8.3. For radiated emissions test (30-1000MHz)

| Equipment         | Manufacturer    | Model No.    | Serial No. | Calibration Body | Last Cal.  | Next Cal. |
|-------------------|-----------------|--------------|------------|------------------|------------|-----------|
| EMI Test Receiver | Rohde & Schwarz | ESR7         | 101780     | CEPREI           | June 17,17 | 1 Year    |
| Bilog Antenna     | Teseq           | CBL 6111D    | 27090      | CEPREI           | June 08,17 | 1 Year    |
| Test Software     | Audix           | e3-6.111221a | N/A        | N/A              | N/A        | N/A       |

### 2.8.4. For radiated emission test(above 1GHz)

| Equipment                    | Manufacturer    | Model No.    | Serial No.    | Calibration Body | Last Cal.   | Next Cal. |
|------------------------------|-----------------|--------------|---------------|------------------|-------------|-----------|
| Horn Antenna                 | SCHWARZB ECK    | BBHA 9120 D  | BBHA9120D1002 | CEPREI           | June 08,17  | 1 Year    |
| Horn Antenna                 | SCHWARZB ECK    | BBHA9170     | BBHA9170242   | CEPREI           | June 08,17  | 1 Year    |
| Signal Amplifier             | SCHWARZB ECK    | BBV9718      | 9718-212      | CEPREI           | March 12,17 | 1 Year    |
| Spectrum Analyzer            | Rohde & Schwarz | FSV          | 103173        | CEPREI           | June 17,17  | 1 Year    |
| PSA Series Spectrum Analyzer | Agilent         | E4447A       | MY50180031    | CEPREI           | June 16,17  | 1 Year    |
| Test Software                | Audix           | e3-6.111221a | N/A           | N/A              | N/A         | N/A       |

## 2.8.5. For connect EUT antenna terminal test

| Equipment         | Manufacturer    | Model No. | Serial No.     | Calibration Body | Last Cal.  | Next Cal. |
|-------------------|-----------------|-----------|----------------|------------------|------------|-----------|
| Spectrum Analyzer | Rohde & Schwarz | FSV       | 103173         | CEPREI           | June 17,17 | 1 Year    |
| Spectrum Analyzer | Agilent         | E4408B    | MY44211<br>139 | CEPREI           | June 17,17 | 1 Year    |

### 3 POWER LINE CONDUCTED EMISSION TEST

#### 3.1 Limit

| Frequency       | Maximum RF Line Voltage          |                               |
|-----------------|----------------------------------|-------------------------------|
|                 | Quasi-Peak Level<br>dB( $\mu$ V) | Average Level<br>dB( $\mu$ V) |
| 150kHz ~ 500kHz | 66 ~ 56*                         | 56 ~ 46*                      |
| 500kHz ~ 5MHz   | 56                               | 46                            |
| 5MHz ~ 30MHz    | 60                               | 50                            |

Notes: 1. \* Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

#### 3.2 Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS30) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

#### 3.3. Test Result

**PASS.** (All emissions not reported below are too low against the prescribed limits.)

## 3.4. Test data

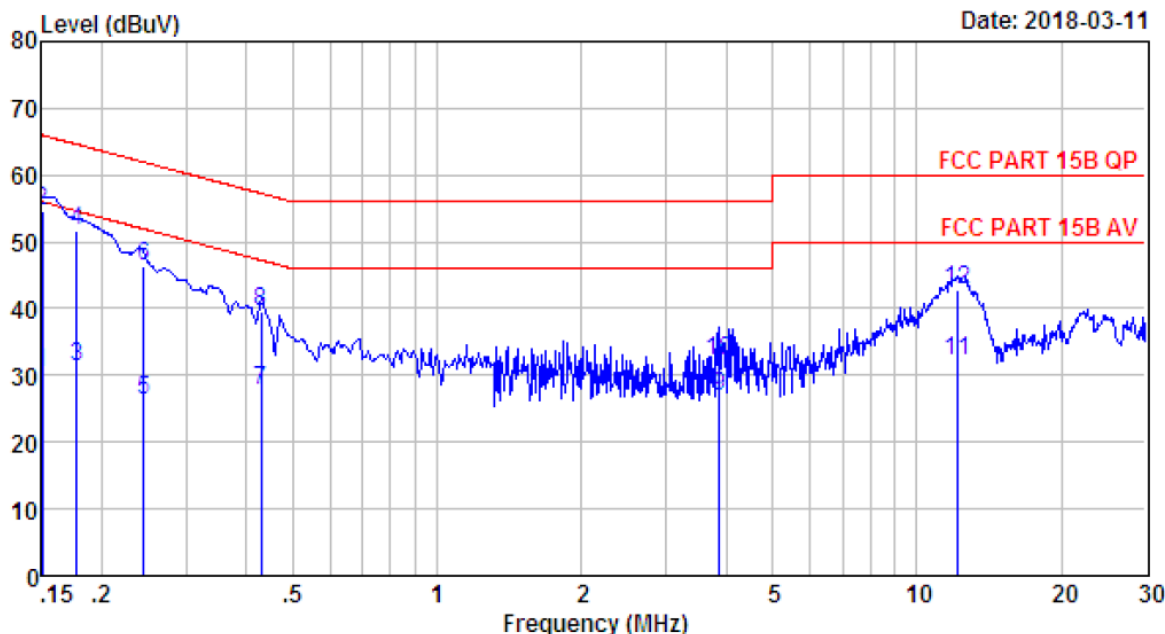
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Data: 5

File: \\Est-celtest data\2018\T\TAI KE WEI.EM6 (12)

Date: 2018-03-11



Site no : 844 Shield Room Data no. : 5  
 Env. / Ins. : Temp:23.3'C Humi:51% Press:101.50kPa LINE Phase : LINE  
 Limit : FCC PART 15B QP  
 Engineer : Viking  
 EUT : VAVA Docking Station  
 Power : DC 20V From Adapter Input AC 120V/60Hz  
 M/N : VA-DK001  
 Test Mode : TX Mode+Charging

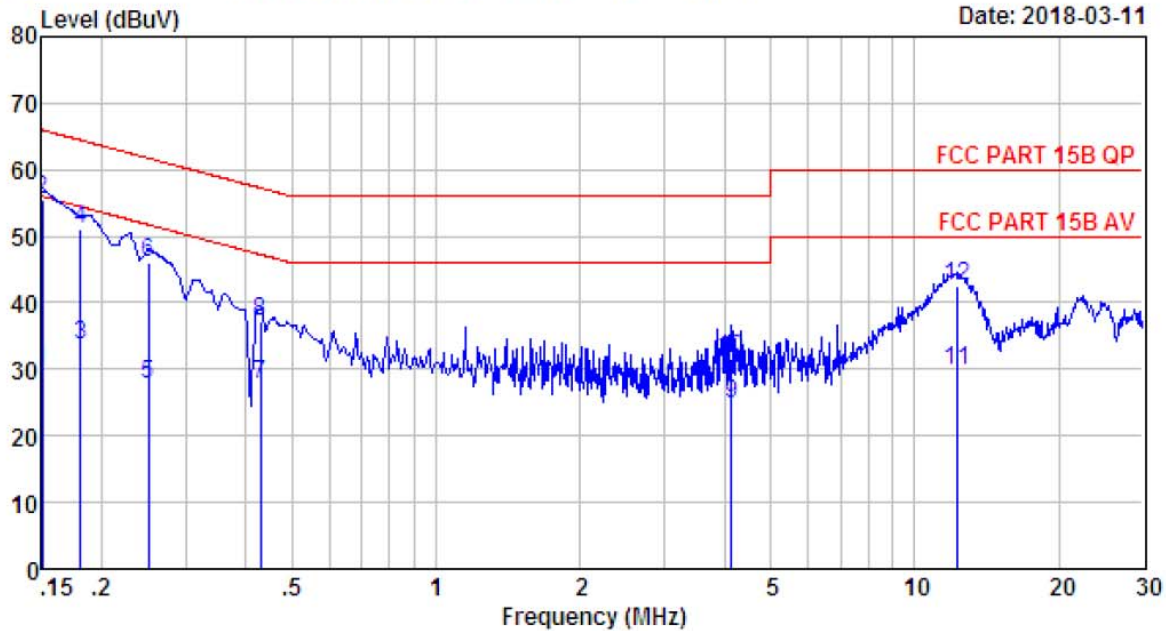
|    | Freq.<br>(MHz) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV) | Limits<br>(dBuV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.150          | 9.73                   | 9.69                  | 11.00             | 30.42                       | 56.00            | 25.58          | Average |
| 2  | 0.150          | 9.73                   | 9.69                  | 35.24             | 54.66                       | 66.00            | 11.34          | QP      |
| 3  | 0.178          | 9.73                   | 9.77                  | 11.76             | 31.26                       | 54.59            | 23.33          | Average |
| 4  | 0.178          | 9.73                   | 9.77                  | 32.01             | 51.51                       | 64.59            | 13.08          | QP      |
| 5  | 0.244          | 9.72                   | 9.92                  | 6.50              | 26.14                       | 51.95            | 25.81          | Average |
| 6  | 0.244          | 9.72                   | 9.92                  | 26.65             | 46.29                       | 61.95            | 15.66          | QP      |
| 7  | 0.431          | 9.72                   | 9.92                  | 7.98              | 27.62                       | 47.24            | 19.62          | Average |
| 8  | 0.431          | 9.72                   | 9.92                  | 19.88             | 39.52                       | 57.24            | 17.72          | QP      |
| 9  | 3.881          | 9.76                   | 9.99                  | 7.00              | 26.75                       | 46.00            | 19.25          | Average |
| 10 | 3.881          | 9.76                   | 9.99                  | 12.36             | 32.11                       | 56.00            | 23.89          | QP      |
| 11 | 12.124         | 9.84                   | 10.09                 | 12.30             | 32.23                       | 50.00            | 17.77          | Average |
| 12 | 12.124         | 9.84                   | 10.09                 | 22.82             | 42.75                       | 60.00            | 17.25          | QP      |

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

Data: 7

File: \\Est-ce\test data\2018\T\TAI KE WEI\EM6 (12)

Date: 2018-03-11



Site no : 844 Shield Room Data no. : 7  
 Env. / Ins. : Temp:23.3°C Humi:51% Press:101.50kPa LINE Phase : NEUTRAL  
 Limit : FCC PART 15B QP  
 Engineer : Viking  
 EUT : VAVA Docking Station  
 Power : DC 20V From Adapter Input AC 120V/60Hz  
 M/N : VA-DK001  
 Test Mode : TX Mode+Charging

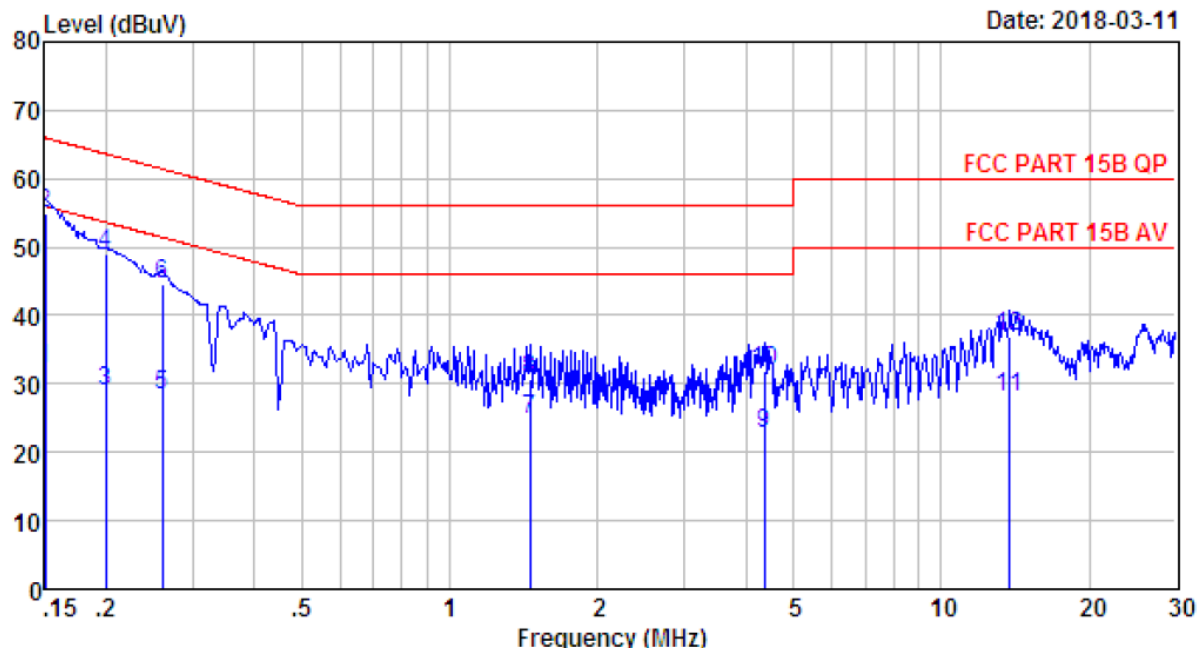
|    | Freq.<br>(MHz) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV) | Limits<br>(dBuV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.150          | 9.61                   | 9.69                  | 10.60             | 29.90                       | 56.00            | 26.10          | Average |
| 2  | 0.150          | 9.61                   | 9.69                  | 36.06             | 55.36                       | 66.00            | 10.64          | QP      |
| 3  | 0.181          | 9.62                   | 9.77                  | 14.35             | 33.74                       | 54.46            | 20.72          | Average |
| 4  | 0.181          | 9.62                   | 9.77                  | 31.74             | 51.13                       | 64.46            | 13.33          | QP      |
| 5  | 0.251          | 9.62                   | 9.92                  | 8.07              | 27.61                       | 51.73            | 24.12          | Average |
| 6  | 0.251          | 9.62                   | 9.92                  | 26.44             | 45.98                       | 61.73            | 15.75          | QP      |
| 7  | 0.431          | 9.64                   | 9.92                  | 8.09              | 27.65                       | 47.24            | 19.59          | Average |
| 8  | 0.431          | 9.64                   | 9.92                  | 17.64             | 37.20                       | 57.24            | 20.04          | QP      |
| 9  | 4.136          | 9.88                   | 10.00                 | 5.06              | 24.94                       | 46.00            | 21.06          | Average |
| 10 | 4.136          | 9.88                   | 10.00                 | 11.58             | 31.46                       | 56.00            | 24.54          | QP      |
| 11 | 12.253         | 10.06                  | 10.10                 | 9.59              | 29.75                       | 50.00            | 20.25          | Average |
| 12 | 12.253         | 10.06                  | 10.10                 | 22.45             | 42.61                       | 60.00            | 17.39          | QP      |

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

Data: 9

File: \\Est-celtest data\2018\TITAI KE WEI\EM6 (12)

Date: 2018-03-11



Site no : 844 Shield Room Data no. : 9  
 Env. / Ins. : Temp:23.3'C Humi:51% Press:101.50kPa LINE Phase : LINE  
 Limit : FCC PART 15B QP  
 Engineer : Viking  
 EUT : VAVA Docking Station  
 Power : DC 20V From Adapter Input AC 240V/60Hz  
 M/N : VA-DK001  
 Test Mode : TX Mode+Charging

|    | Freq.<br>(MHz) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV) | Limits<br>(dBuV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.150          | 9.73                   | 9.69                  | 12.80             | 32.22                       | 56.00            | 23.78          | Average |
| 2  | 0.150          | 9.73                   | 9.69                  | 35.58             | 55.00                       | 66.00            | 11.00          | QP      |
| 3  | 0.200          | 9.73                   | 9.77                  | 9.29              | 28.79                       | 53.62            | 24.83          | Average |
| 4  | 0.200          | 9.73                   | 9.77                  | 29.48             | 48.98                       | 63.62            | 14.64          | QP      |
| 5  | 0.260          | 9.72                   | 9.92                  | 8.83              | 28.47                       | 51.42            | 22.95          | Average |
| 6  | 0.260          | 9.72                   | 9.92                  | 25.08             | 44.72                       | 61.42            | 16.70          | QP      |
| 7  | 1.456          | 9.73                   | 9.95                  | 5.20              | 24.88                       | 46.00            | 21.12          | Average |
| 8  | 1.456          | 9.73                   | 9.95                  | 11.08             | 30.76                       | 56.00            | 25.24          | QP      |
| 9  | 4.361          | 9.76                   | 9.99                  | 3.01              | 22.76                       | 46.00            | 23.24          | Average |
| 10 | 4.361          | 9.76                   | 9.99                  | 12.21             | 31.96                       | 56.00            | 24.04          | QP      |
| 11 | 13.768         | 9.86                   | 10.11                 | 8.00              | 27.97                       | 50.00            | 22.03          | Average |
| 12 | 13.768         | 9.86                   | 10.11                 | 16.90             | 36.87                       | 60.00            | 23.13          | QP      |

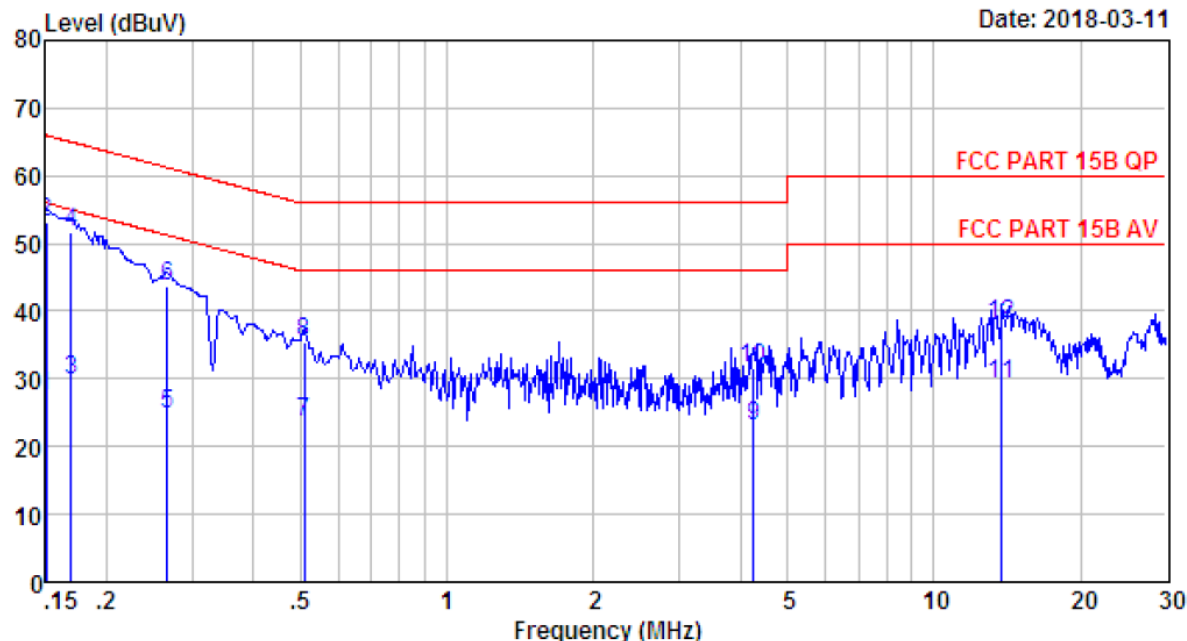
Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



Data: 11

File: \\Est-celtest data\2018\T\TAI KE WEI.EM6 (12)

Date: 2018-03-11



Site no : 844 Shield Room Data no. : 11  
 Env. / Ins. : Temp:23.3°C Humi:51% Press:101.50kPa LINE Phase : NEUTRAL  
 Limit : FCC PART 15B QP  
 Engineer : Viking  
 EUT : VAVA Docking Station  
 Power : DC 20V From Adapter Input AC 240V/60Hz  
 M/N : VA-DK001  
 Test Mode : TX Mode+Charging

|    | Freq.<br>(MHz) | LISN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV) | Limits<br>(dBuV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.150          | 9.61                   | 9.69                  | 8.20              | 27.50                       | 56.00            | 28.50          | Average |
| 2  | 0.150          | 9.61                   | 9.69                  | 33.82             | 53.12                       | 66.00            | 12.88          | QP      |
| 3  | 0.169          | 9.61                   | 9.69                  | 10.37             | 29.67                       | 54.99            | 25.32          | Average |
| 4  | 0.169          | 9.61                   | 9.69                  | 32.43             | 51.73                       | 64.99            | 13.26          | QP      |
| 5  | 0.266          | 9.62                   | 9.92                  | 5.13              | 24.67                       | 51.25            | 26.58          | Average |
| 6  | 0.266          | 9.62                   | 9.92                  | 24.08             | 43.62                       | 61.25            | 17.63          | QP      |
| 7  | 0.510          | 9.65                   | 9.92                  | 4.03              | 23.60                       | 46.00            | 22.40          | Average |
| 8  | 0.510          | 9.65                   | 9.92                  | 15.97             | 35.54                       | 56.00            | 20.46          | QP      |
| 9  | 4.269          | 9.89                   | 9.99                  | 3.00              | 22.88                       | 46.00            | 23.12          | Average |
| 10 | 4.269          | 9.89                   | 9.99                  | 11.66             | 31.54                       | 56.00            | 24.46          | QP      |
| 11 | 13.768         | 10.08                  | 10.11                 | 9.00              | 29.19                       | 50.00            | 20.81          | Average |
| 12 | 13.768         | 10.08                  | 10.11                 | 17.92             | 38.11                       | 60.00            | 21.89          | QP      |

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

## 4 RADIATED EMISSION TEST

### 4.1 Limit

#### 4.1.1 15.209 limits

| Frequency (MHz) | Field Strength( $\mu\text{V/m}$ ) | Distance(m) |
|-----------------|-----------------------------------|-------------|
| 0.009-0.490     | 2400/F(kHz)                       | 300         |
| 0.490-1.705     | 24000/F(kHz)                      | 30          |
| 1.705-30        | 30                                | 30          |
| 30-88           | 100                               | 3           |
| 88-216          | 150                               | 3           |
| 216-960         | 200                               | 3           |
| Above 960       | 500                               | 3           |

- Remark : (1) Emission level  $\text{dB}\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$   
 (2) The smaller limit shall apply at the cross point between two frequency bands.  
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

#### 4.1.2 15.205 Restricted bands of operation

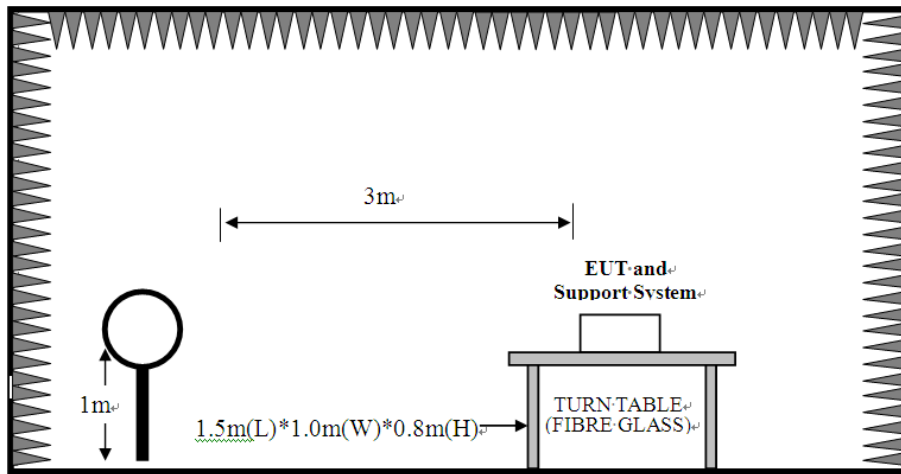
| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138             | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.7 - 156.9         | 2690 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 322 - 335.4           | 3600 - 4400     | ( <sup>2</sup> ) |

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

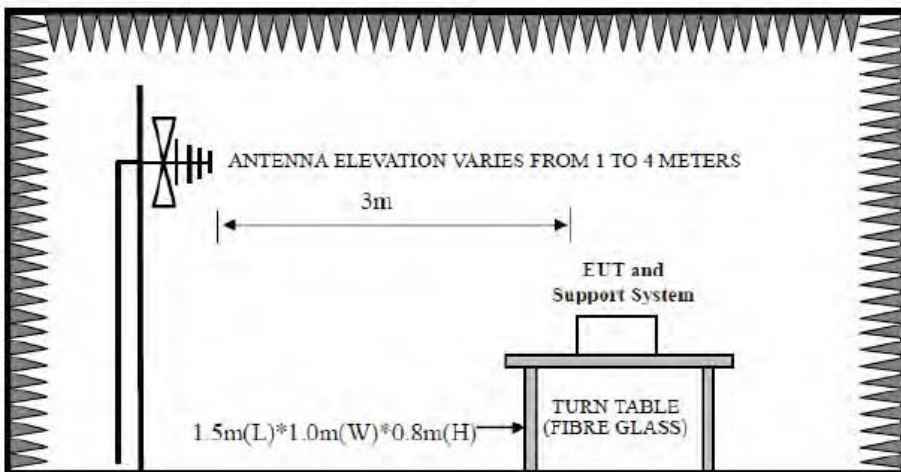


## 4.2. Block Diagram of Test setup

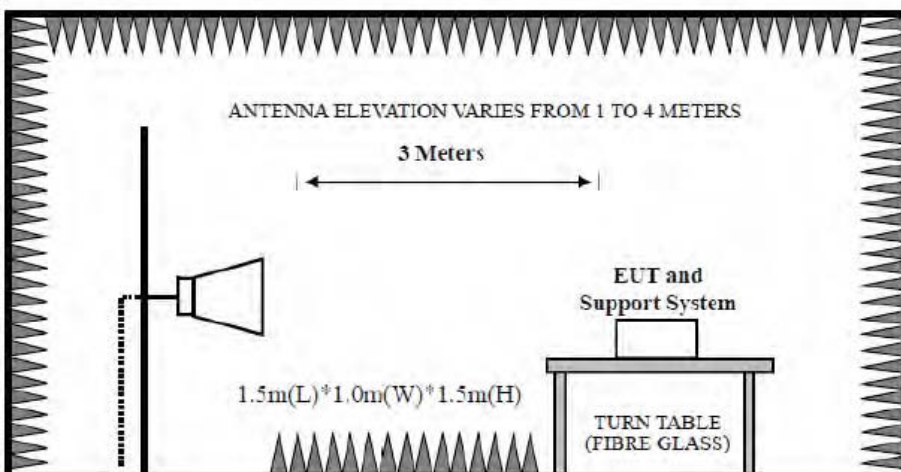
9kHz~30MHz



30~1000MHz



Above 1GHz



### 4.3. Test Procedure

EUT was placed on a turn table, which is 0.8 meter high above ground for 9kHz~1000MHz test, and which is 1.5 meter high above ground for above 1GHz test. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

The test frequency analyzer system was set to Peak Detect (200Hz RBW in 9kHz to 150kHz and 10kHz RBW in 150kHz to 30MHz) Function and Specified Bandwidth with Maximum Hold Mode.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 1MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz PEAK detector, 1MHz/1MHz for PAEK measurement, PEAK detector, 1MHz/10Hz for Average measurement

### 4.4. Test Result

#### **PASS.**

All the emissions from 9kHz to 1000 MHz were comply with 15.209 limits.

Note: 1、For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

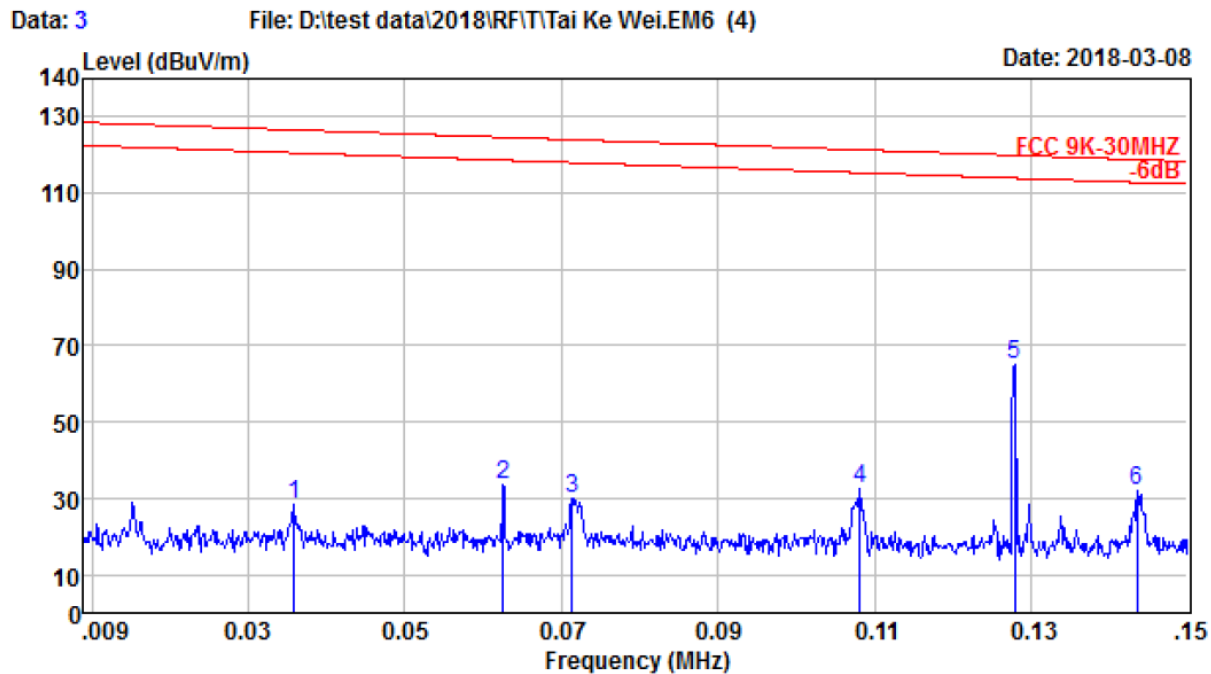
2、The frequency 2402MHz 、2440MHz and 2480 MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.

## 4.5. Test Data

9 kHz – 30 MHz

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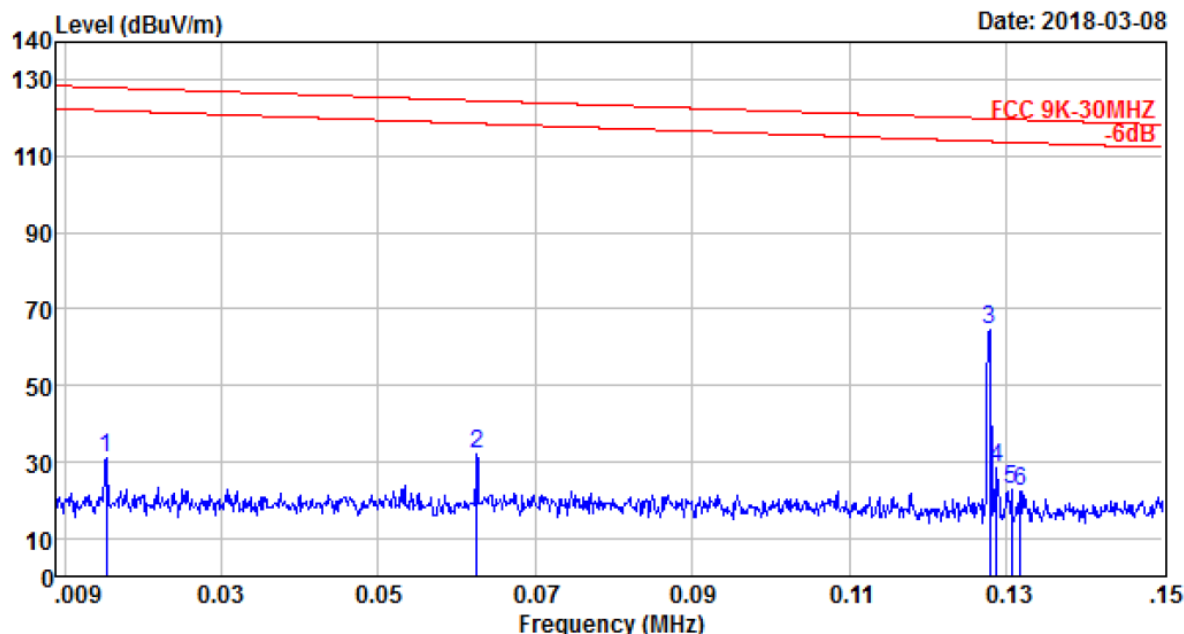
Site no. : 1# 966 Chamber Data no. : 3  
 Dis. / Ant. : 3m FMZB 1513 Ant. pol. : VERTICAL  
 Limit : FCC 9K-30MHz  
 Env. / Ins. : Temp:23.6';Humi:52%;Press:101.52kPa  
 Engineer : Viking  
 EUT : VAVA Docking Station  
 Power : DC 20V From Adapter Input AC 120V/60Hz  
 M/N : VA-DK001  
 Test Mode : TX Mode+Charging

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 0.04           | 20.47                   | 0.00                  | 7.70              | 28.17                         | 126.58            | 98.41          | QP     |
| 2 | 0.06           | 20.43                   | 0.00                  | 13.06             | 33.49                         | 124.65            | 91.16          | QP     |
| 3 | 0.07           | 20.43                   | 0.00                  | 9.77              | 30.20                         | 124.02            | 93.82          | QP     |
| 4 | 0.11           | 20.35                   | 0.01                  | 11.95             | 32.31                         | 121.37            | 89.06          | QP     |
| 5 | 0.13           | 20.39                   | 0.01                  | 44.52             | 64.92                         | 119.94            | 55.02          | QP     |
| 6 | 0.14           | 20.39                   | 0.01                  | 11.41             | 31.81                         | 118.81            | 87.00          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

Data: 4 File: D:\test data\2018\RF\T\Tai Ke Wei.EM6 (4)

Date: 2018-03-08



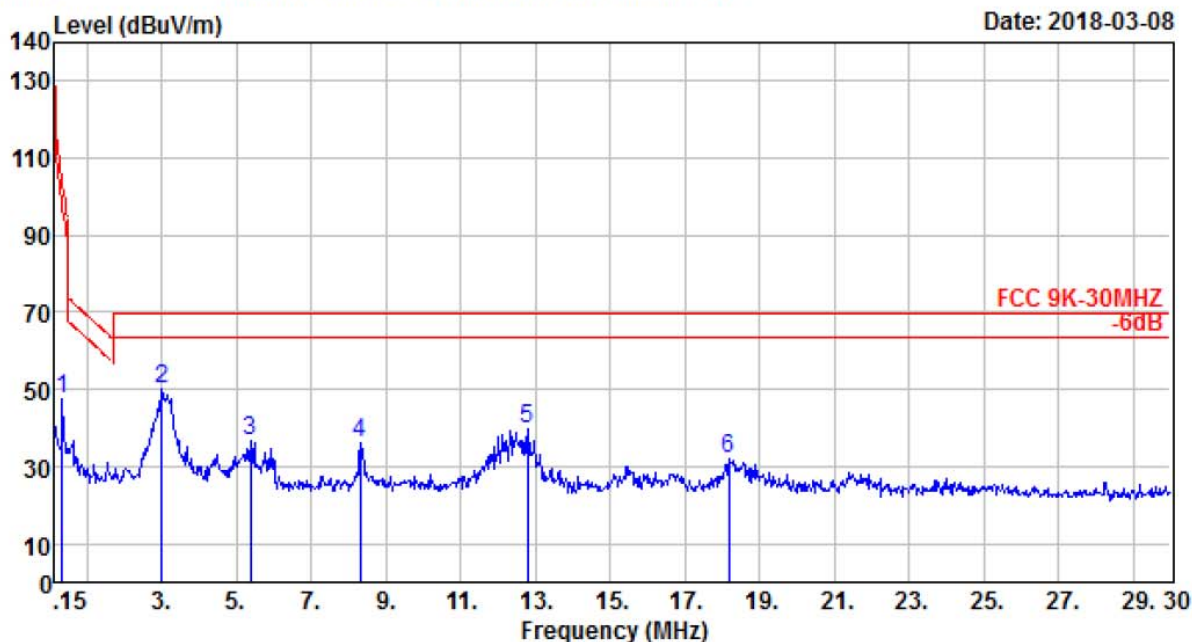
Site no. : 1# 966 Chamber Data no. : 4  
 Dis. / Ant. : 3m FMZB 1513 Ant. pol. : HORIZONTAL  
 Limit : FCC 9K-30MHz  
 Env. / Ins. : Temp:23.6';Humi:52%;Press:101.52kPa  
 Engineer : Viking  
 EUT : VAVA Docking Station  
 Power : DC 20V From Adapter Input AC 120V/60Hz  
 M/N : VA-DK001  
 Test Mode : TX Mode+Charging

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 0.02           | 20.32                   | 0.00                  | 10.57             | 30.89                         | 128.06            | 97.17          | QP     |
| 2 | 0.06           | 20.43                   | 0.00                  | 11.59             | 32.02                         | 124.65            | 92.63          | QP     |
| 3 | 0.13           | 20.39                   | 0.01                  | 43.96             | 64.36                         | 119.94            | 55.58          | QP     |
| 4 | 0.13           | 20.39                   | 0.01                  | 8.12              | 28.52                         | 119.87            | 91.35          | QP     |
| 5 | 0.13           | 20.39                   | 0.01                  | 2.28              | 22.68                         | 119.74            | 97.06          | QP     |
| 6 | 0.13           | 20.39                   | 0.01                  | 2.02              | 22.42                         | 119.66            | 97.24          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

Data: 1 File: D:\test data\2018\RF\T\Tai Ke Wei.EM6 (4)

Date: 2018-03-08



Site no. : 1# 966 Chamber Data no. : 1  
 Dis. / Ant. : 3m FMZB 1513 Ant. pol. : HORIZONTAL  
 Limit : FCC 9K-30MHZ  
 Env. / Ins. : Temp:23.6'; Humi:52%; Press:101.52kPa  
 Engineer : Viking  
 EUT : VAVA Docking Station  
 Power : DC 20V From Adapter Input AC 120V/60Hz  
 M/N : VA-DK001  
 Test Mode : TX Mode+Charging

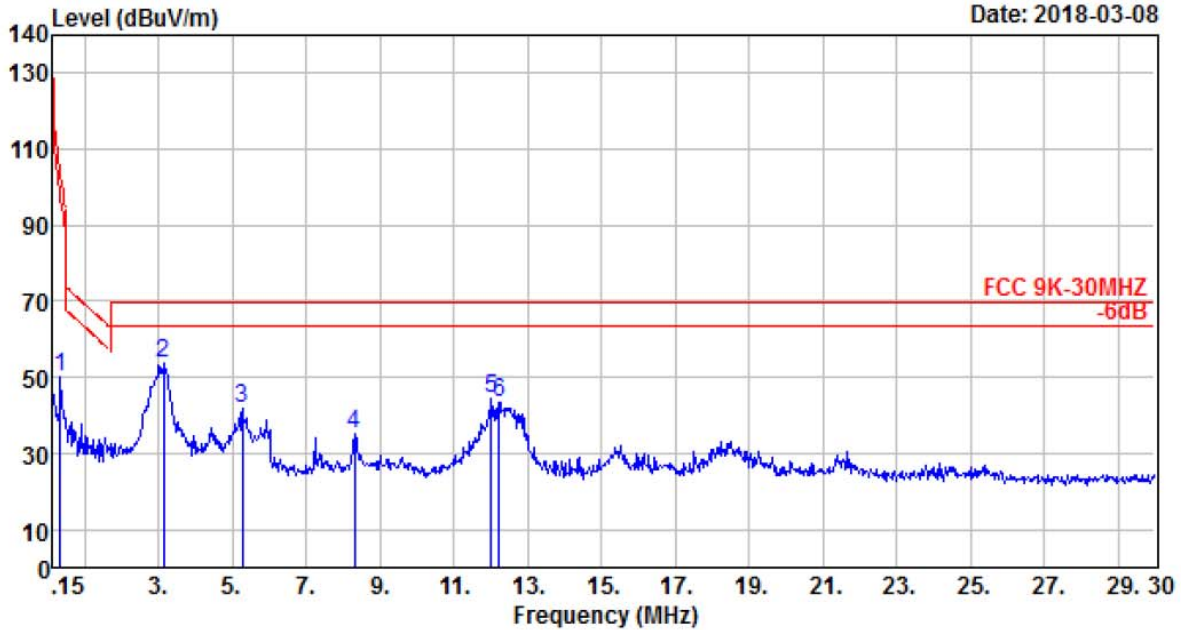
|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBUV) | Emission<br>Level<br>(dBUV/m) | Limit<br>(dBUV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 0.36           | 20.31                   | 0.02                  | 26.95             | 47.28                         | 103.26            | 55.98          | QP     |
| 2 | 3.02           | 20.28                   | 0.03                  | 29.85             | 50.16                         | 69.54             | 19.38          | QP     |
| 3 | 5.37           | 20.32                   | 0.06                  | 16.33             | 36.71                         | 69.54             | 32.83          | QP     |
| 4 | 8.33           | 20.34                   | 0.13                  | 15.74             | 36.21                         | 69.54             | 33.33          | QP     |
| 5 | 12.81          | 20.29                   | 0.16                  | 19.55             | 40.00                         | 69.54             | 29.54          | QP     |
| 6 | 18.18          | 20.21                   | 0.22                  | 11.40             | 31.83                         | 69.54             | 37.71          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.



Data: 2 File: D:\test data\2018\RF\T\Tai Ke Wei.EM6 (4)

Date: 2018-03-08



Site no. : 1# 966 Chamber Data no. : 2  
Dis. / Ant. : 3m FMZB 1513 Ant. pol. : VERTICAL  
Limit : FCC 9K-30MHZ  
Env. / Ins. : Temp:23.6'; Humi:52%; Press:101.52kPa  
Engineer : Viking  
EUT : VAVA Docking Station  
Power : DC 20V From Adapter Input AC 120V/60Hz  
M/N : VA-DK001  
Test Mode : TX Mode+Charging

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 0.36           | 20.31                   | 0.02                  | 30.02             | 50.35                         | 103.26            | 52.91          | QP     |
| 2 | 3.14           | 20.29                   | 0.04                  | 33.26             | 53.59                         | 69.54             | 15.95          | QP     |
| 3 | 5.28           | 20.33                   | 0.06                  | 21.26             | 41.65                         | 69.54             | 27.89          | QP     |
| 4 | 8.33           | 20.34                   | 0.13                  | 14.41             | 34.88                         | 69.54             | 34.66          | QP     |
| 5 | 12.03          | 20.31                   | 0.17                  | 23.89             | 44.37                         | 69.54             | 25.17          | QP     |
| 6 | 12.24          | 20.31                   | 0.18                  | 23.16             | 43.65                         | 69.54             | 25.89          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
2. Margin= Limit - Emission Level.  
3. The emission levels that are 20dB below the official limit are not reported.

30-1000 MHz

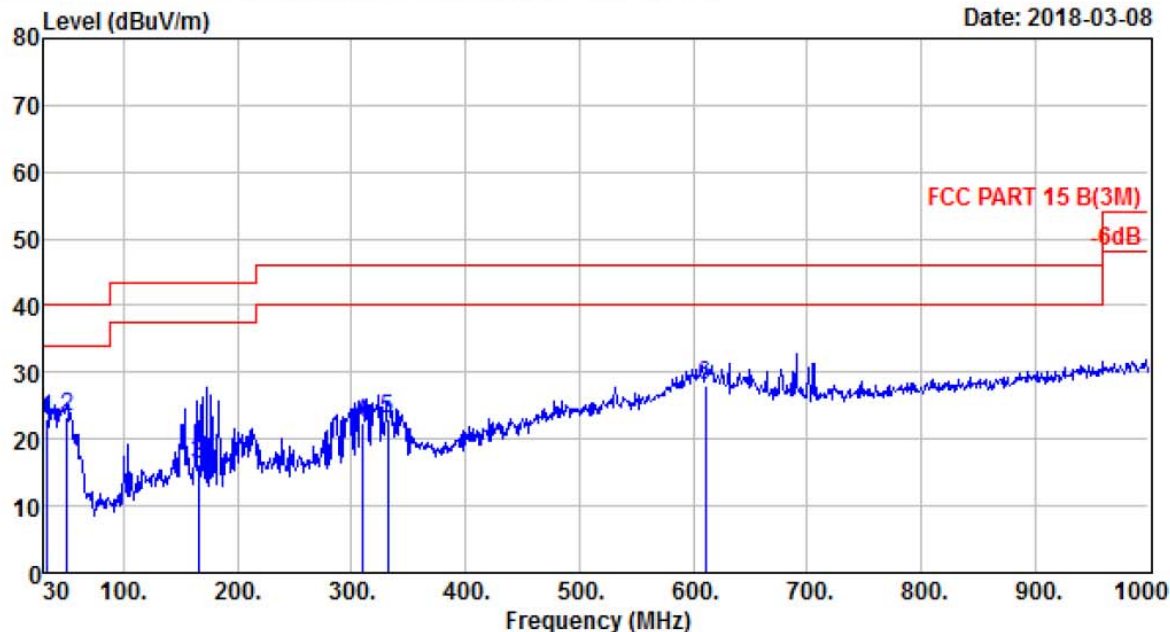
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Data: 5

File: D:\test data\2018\RF\T\Tai Ke Wei.EM6 (6)

Date: 2018-03-08



Site no. : 1# 966 Chamber Data no. : 5  
 Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL  
 Limit : FCC PART 15 B(3M)  
 Env. / Ins. : Temp:23.6'; Humi:52%; Press:101.52kPa  
 Engineer : Viking  
 EUT : VAVA Docking Station  
 Power : DC 20V From Adapter Input AC 120V/60Hz  
 M/N : VA-DK001  
 Test Mode : TX Mode+Charging

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 32.91          | 16.35                   | 0.35                  | 6.44              | 23.14                         | 40.00             | 16.86          | QP     |
| 2 | 50.37          | 8.20                    | 0.50                  | 14.55             | 23.25                         | 40.00             | 16.75          | QP     |
| 3 | 165.80         | 10.22                   | 1.38                  | 4.52              | 16.12                         | 43.50             | 27.38          | QP     |
| 4 | 309.36         | 13.89                   | 2.08                  | 6.51              | 22.48                         | 46.00             | 23.52          | QP     |
| 5 | 331.67         | 14.45                   | 2.20                  | 6.51              | 23.16                         | 46.00             | 22.84          | QP     |
| 6 | 611.03         | 20.42                   | 3.24                  | 4.47              | 28.13                         | 46.00             | 17.87          | QP     |

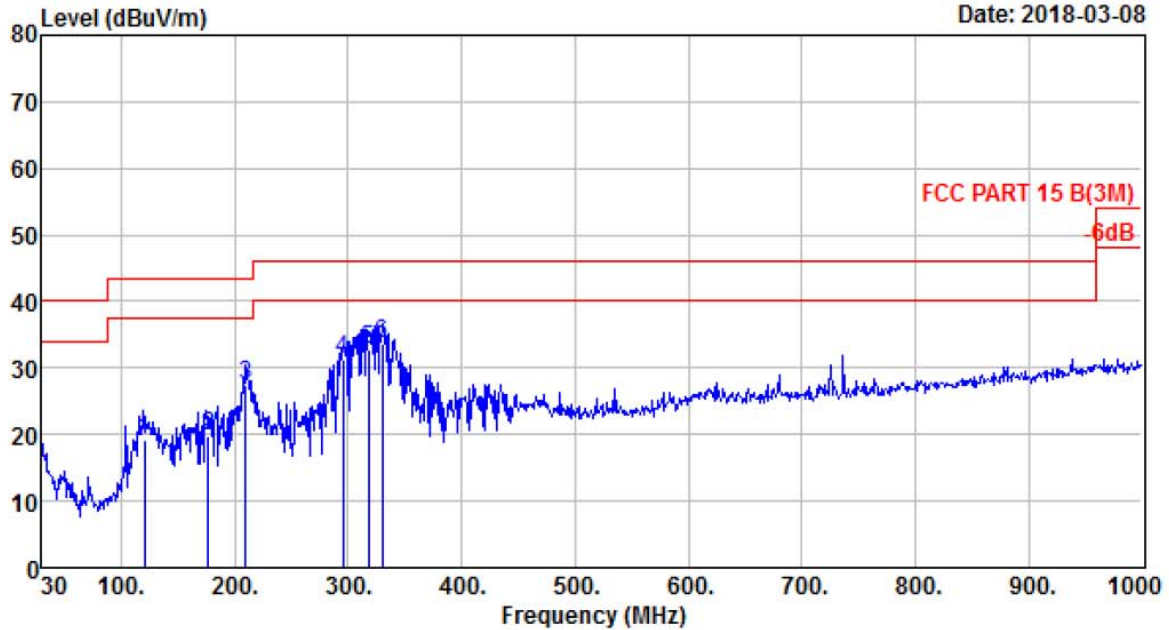
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.



Data: 6

File: D:\test data\2018\RF\T\Tai Ke Wei.EM6 (6)

Date: 2018-03-08



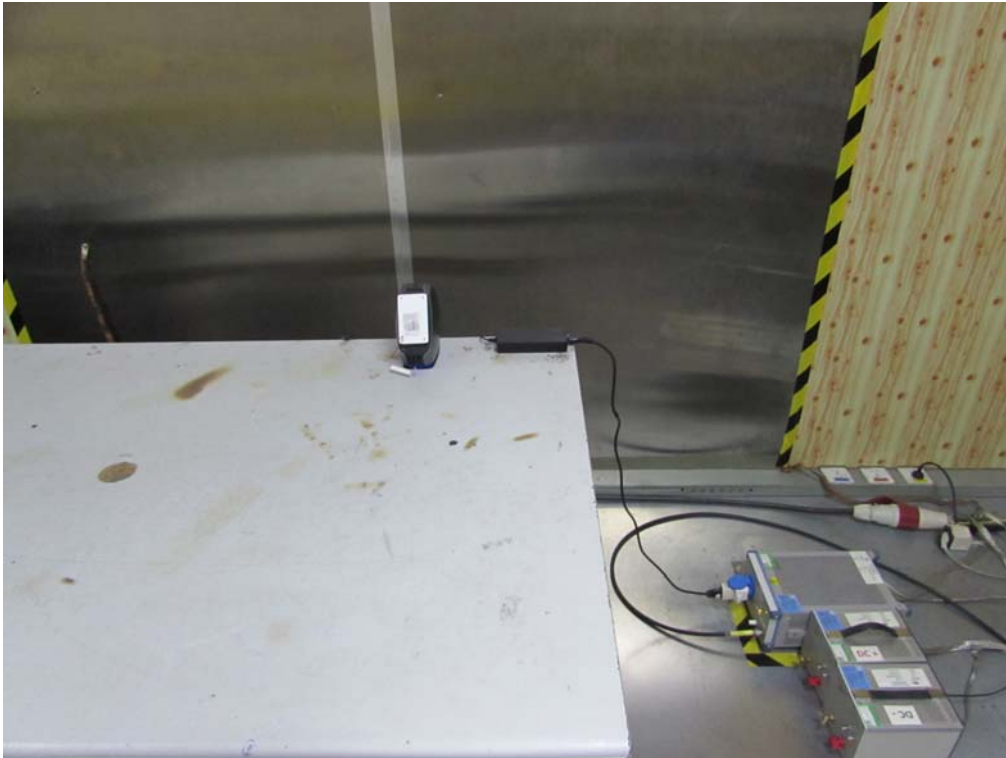
Site no. : 1# 966 Chamber Data no. : 6  
 Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15 B(3M)  
 Env. / Ins. : Temp:23.6';Humi:52%;Press:101.52kPa  
 Engineer : Viking  
 EUT : VAVA Docking Station  
 Power : DC 20V From Adapter Input AC 120V/60Hz  
 M/N : VA-DK001  
 Test Mode : TX Mode+Charging

|   | Freq.<br>(MHz) | ANT<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|-------------------------|-----------------------|-------------------|-------------------------------|-------------------|----------------|--------|
| 1 | 120.21         | 11.60                   | 1.14                  | 6.45              | 19.19                         | 43.50             | 24.31          | QP     |
| 2 | 176.47         | 9.67                    | 1.42                  | 8.75              | 19.84                         | 43.50             | 23.66          | QP     |
| 3 | 209.45         | 8.82                    | 1.53                  | 17.04             | 27.39                         | 43.50             | 16.11          | QP     |
| 4 | 295.78         | 13.64                   | 2.03                  | 15.57             | 31.24                         | 46.00             | 14.76          | QP     |
| 5 | 318.09         | 14.14                   | 2.13                  | 16.62             | 32.89                         | 46.00             | 13.11          | QP     |
| 6 | 329.73         | 14.40                   | 2.19                  | 17.05             | 33.64                         | 46.00             | 12.36          | QP     |

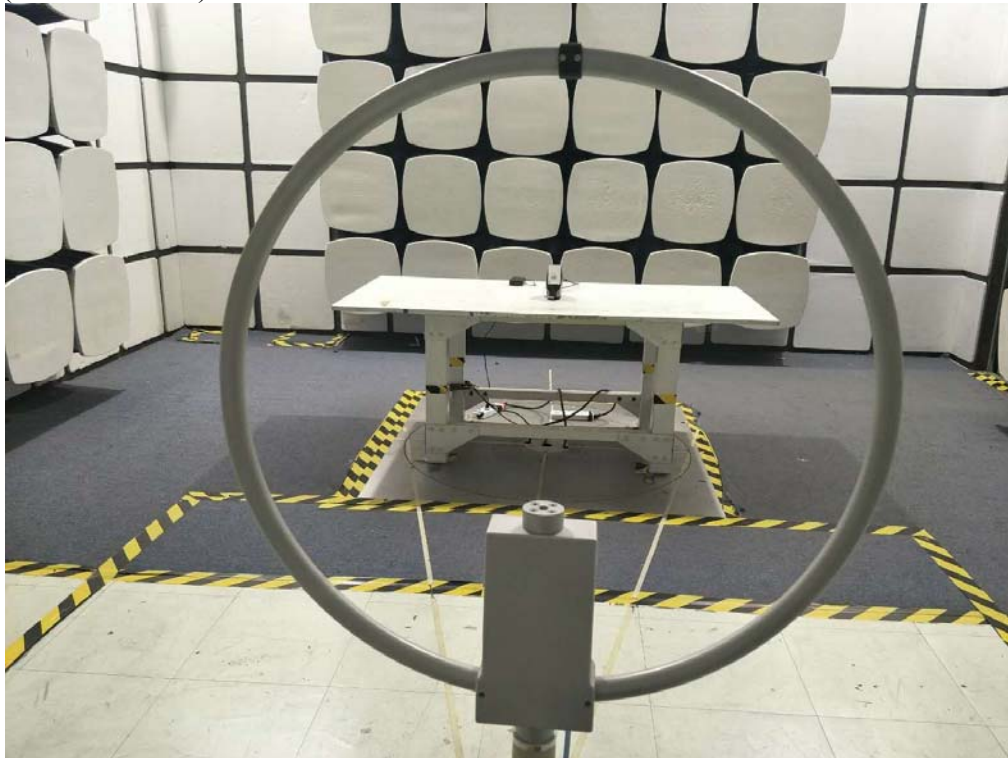
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. Margin= Limit - Emission Level.  
 3. The emission levels that are 20dB below the official limit are not reported.

## 5 TEST SETUP PHOTO

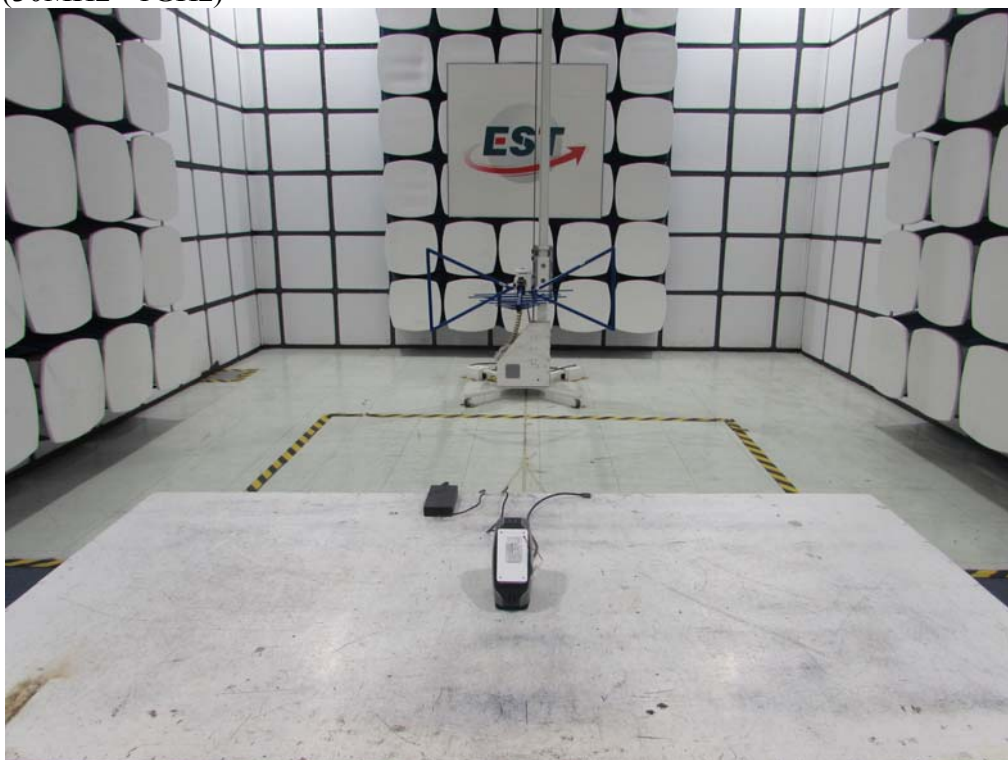
Conducted Test



Radiated Test (9kHz-30 MHz)



Radiated Test (30MHz - 1GHz)





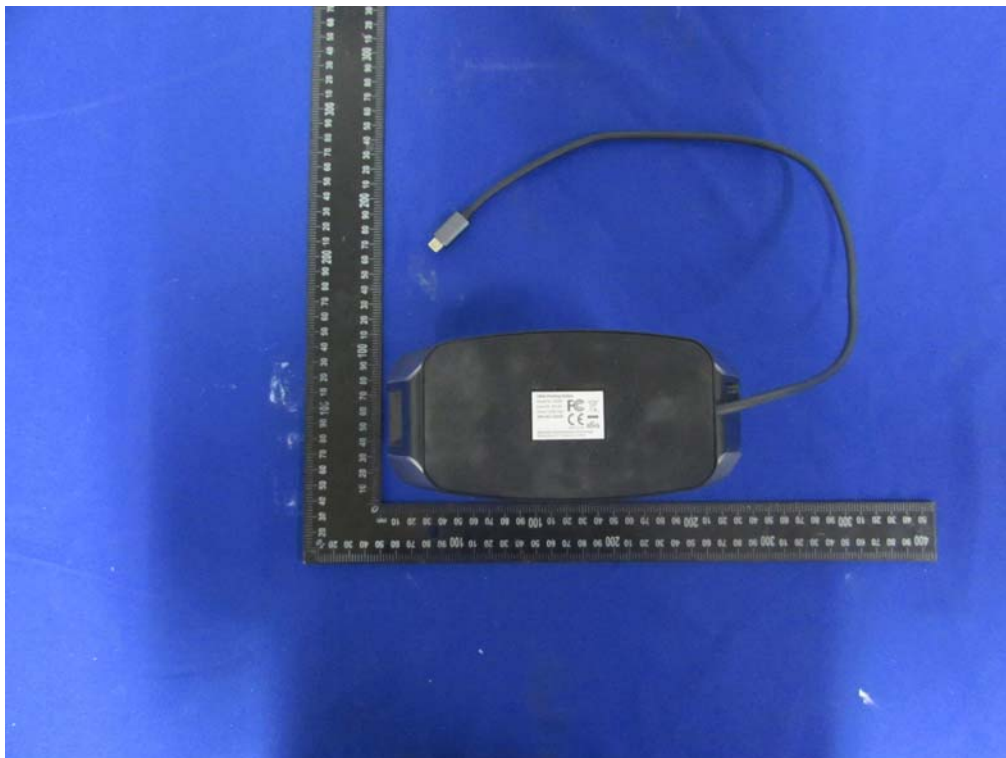
## 6 PHOTO EUT

### External Photos

M/N: VA-DK001



**External Photos**  
M/N: VA-DK001



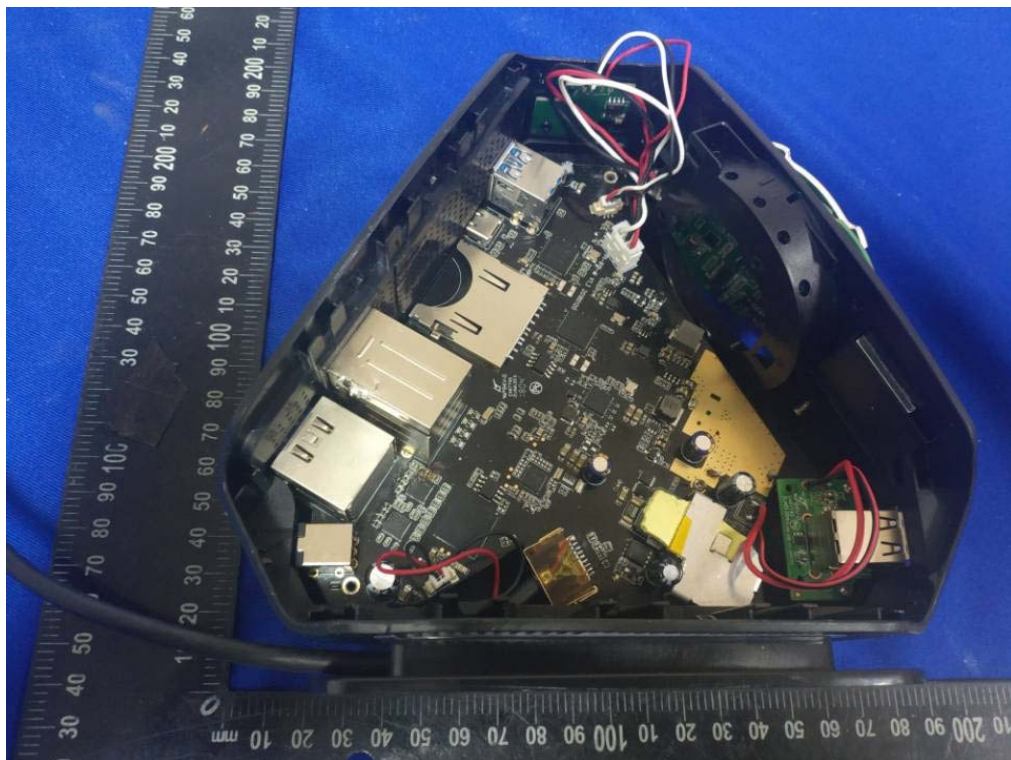
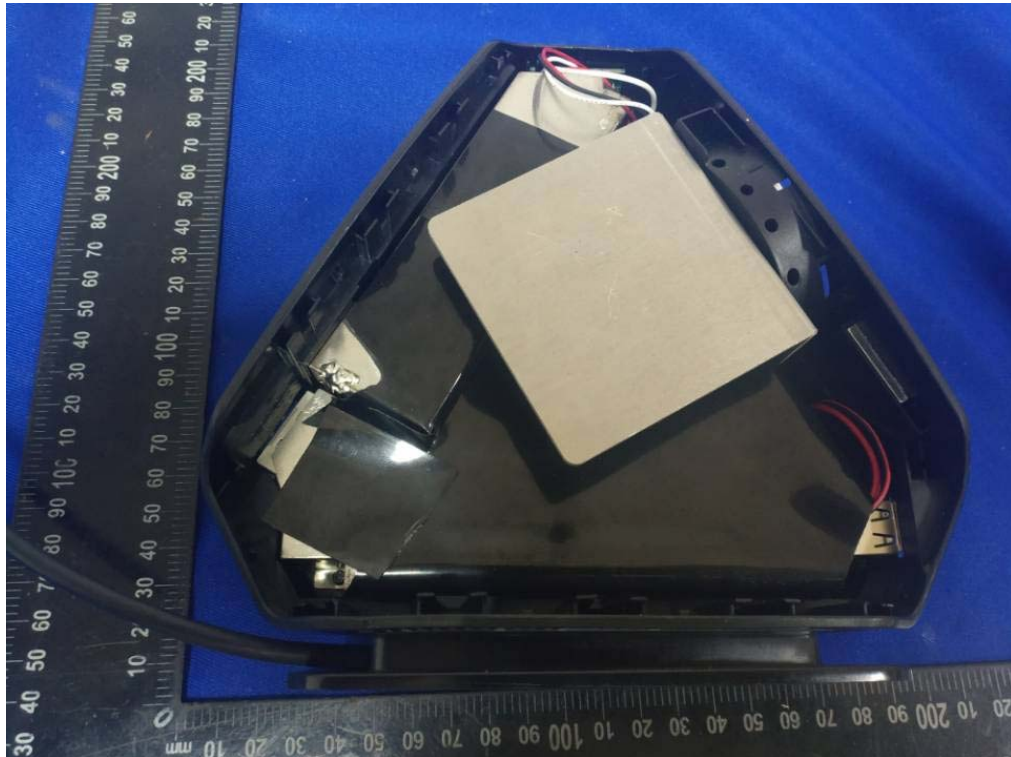
**External Photos**  
M/N: VA-DK001





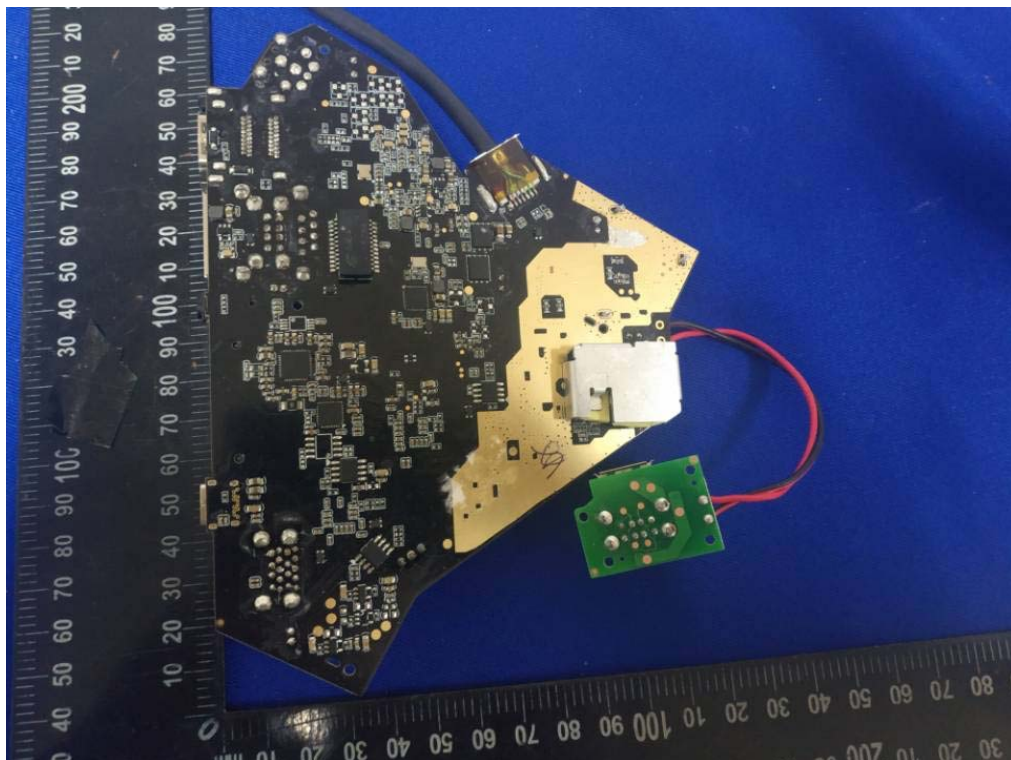
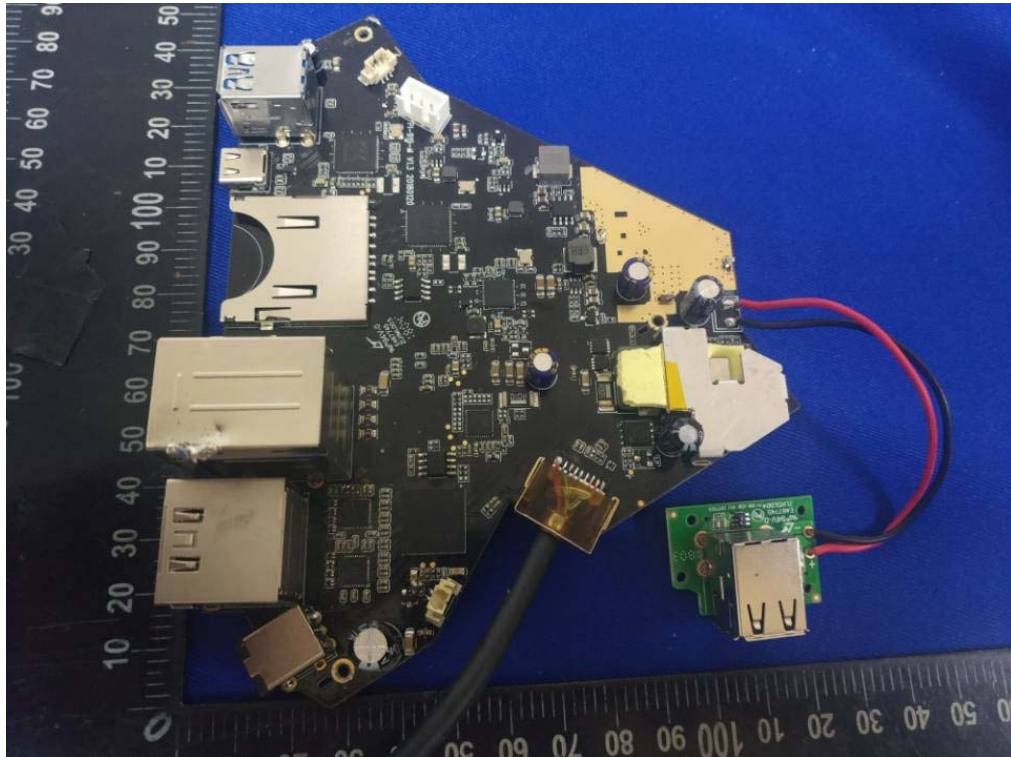
### Internal Photos

M/N: VA-DK001



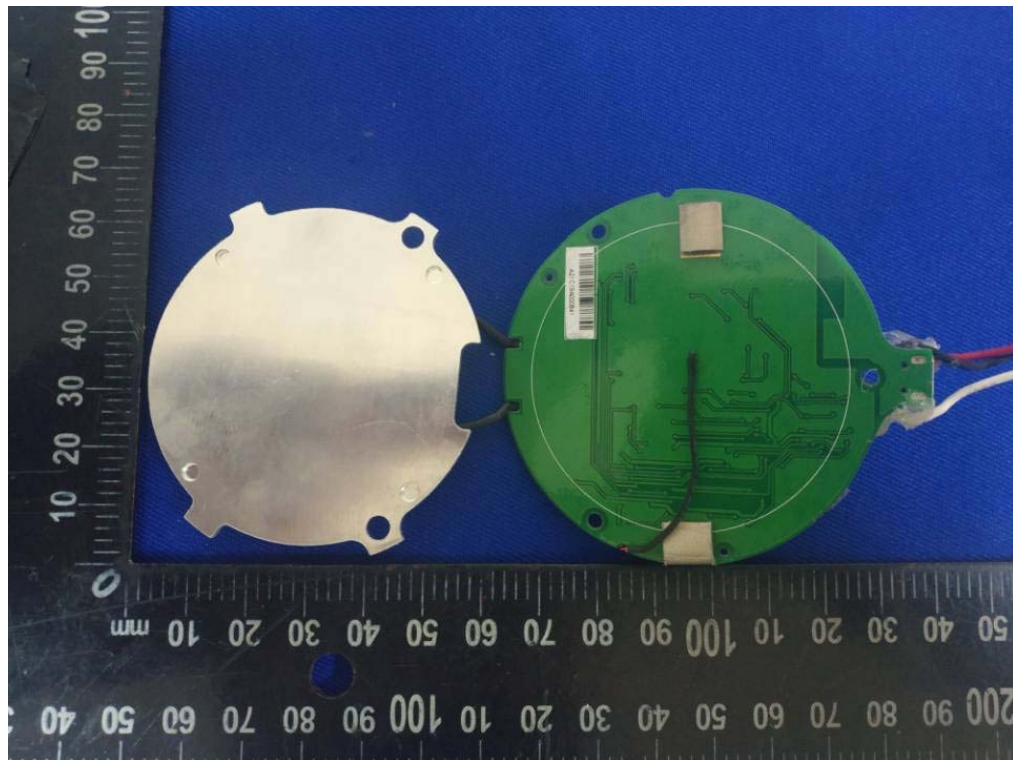
### Internal Photos

M/N: VA-DK001

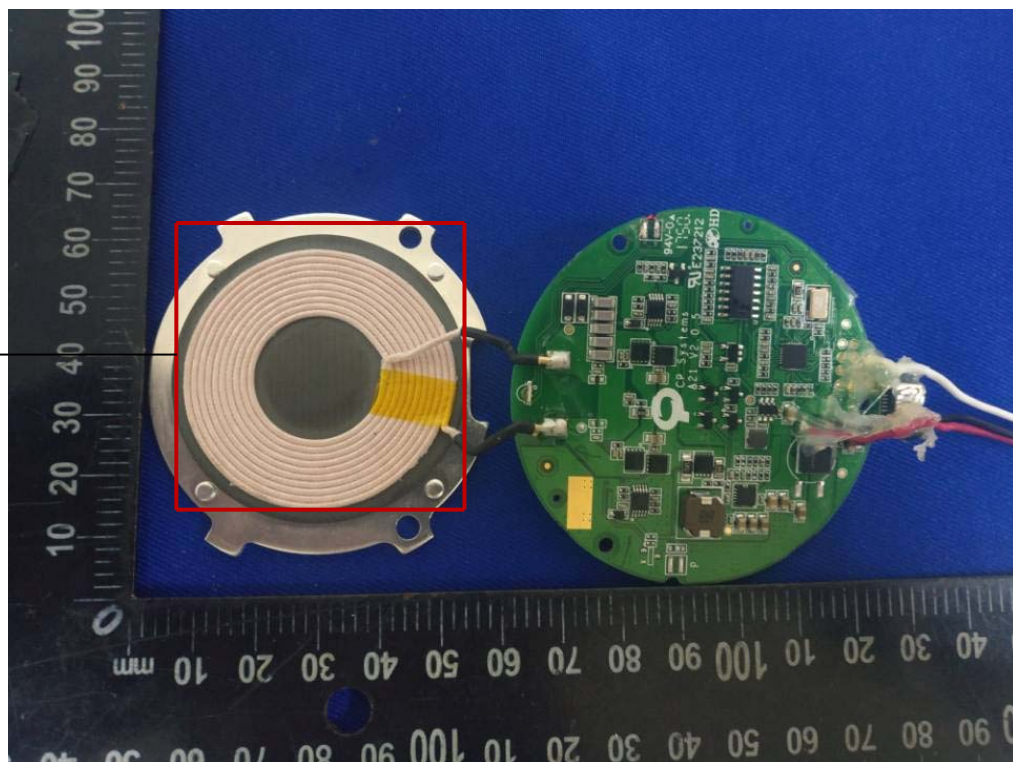




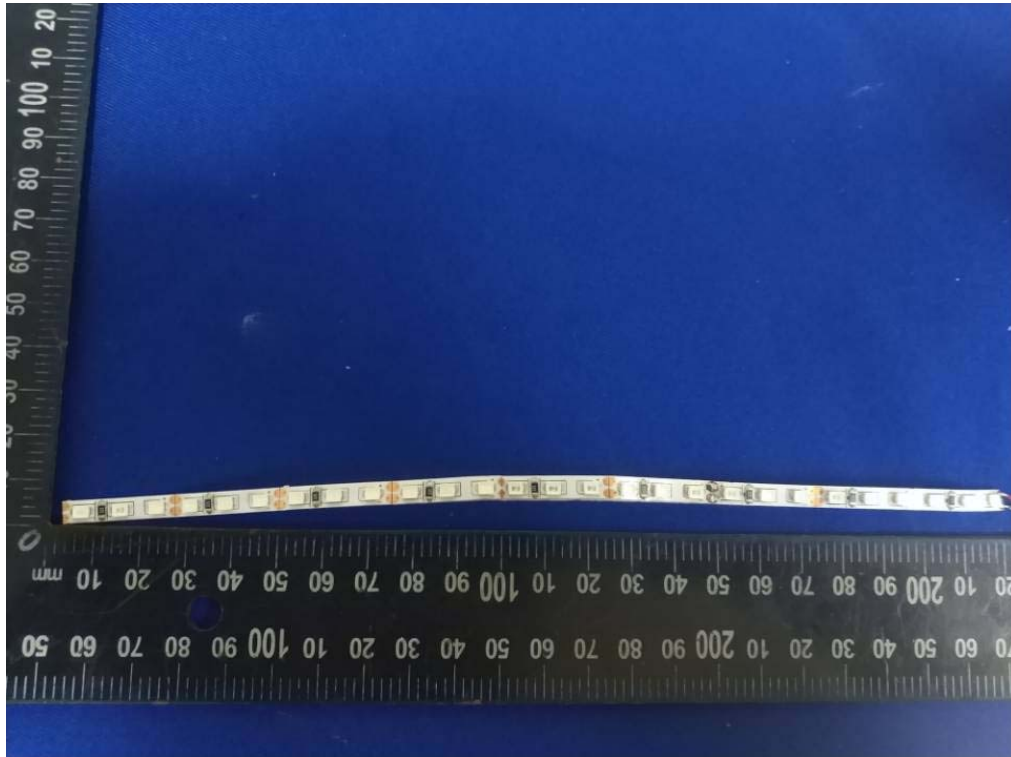
**Internal Photos**  
M/N: VA-DK001



Wireless  
Charging  
Coil



**Internal Photos**  
M/N: VA-DK001



**Adapter Photos**

