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|--|--|--|---|--|--|
| <b>Prüfbericht-Nr.:</b><br><i>Test Report No.:</i>   | <b>50050477 007</b>  | <b>Auftrags-Nr.:</b><br><i>Order No.:</i>                  | <b>164058674</b>  | Seite 1 von 10<br><i>Page 1 of 10</i>            |  |
| <b>Kunden-Referenz-Nr.:</b><br><i>Client Reference No.:</i>  | N/A  | <b>Auftragsdatum:</b><br><i>Order date:</i>                | <b>22.03.2016</b>   |  |  |
| <b>Auftraggeber:</b><br><i>Client:</i>   | Lenovo Information Products (Shenzhen) Co., Ltd., Futian free trade zone, 3 Guang Lan RD, Shenzhen, Guangdong 518038, P.R. China |  |   |  |  |
| <b>Prüfgegenstand:</b><br><i>Test item:</i>  | ThinkVision X24 Pro Wireless Charging Stand  |  |   |  |  |
| <b>Bezeichnung / Typ-Nr.:</b><br><i>Identification / Type No.:</i>   | HH-1601  |  |   |  |  |
| <b>Auftrags-Inhalt:</b><br><i>Order content:</i>   | RF Exposure report   |  |   |  |  |
| <b>Prüfgrundlage:</b><br><i>Test specification:</i>  | FCC Part 1.1310<br>Industry Canada Safety Code 6   |  |   |  |  |
| <b>Wareneingangsdatum:</b><br><i>Date of receipt:</i>  | 05.05.2016   | Refer to photo document                                    |   |  |  |
| <b>Prüfmuster-Nr.:</b><br><i>Test sample No.:</i>  | A000355351-002,<br>A000355351-003  |  |   |  |  |
| <b>Prüfzeitraum:</b><br><i>Testing period:</i>   | 10.05.2016 - 22.07.2016  |  |   |  |  |
| <b>Ort der Prüfung:</b><br><i>Place of testing:</i>  | Shenzhen Academy of Metrology and Quality Inspection   |  |   |  |  |
| <b>Prüflaboratorium:</b><br><i>Testing laboratory:</i>   | TÜV Rheinland (Shenzhen) Co., Ltd.   |  |   |  |  |
| <b>Prüfergebnis*:</b><br><i>Test result*:</i>  | Pass   |  |   |  |  |
| <b>geprüft von / tested by:</b>  |   | <b>kontrolliert von / reviewed by:</b>                     |  |  |  |
| 19.07.2016   | Sam Lin / Assistant Manager  | 28.07.2016   | Winnie Hou / Technical Certifier  |  |  |
| <b>Datum</b><br><i>Date</i>  | <b>Name / Stellung</b><br><i>Name / Position</i>   | <b>Unterschrift</b><br><i>Signature</i>                    | <b>Datum</b><br><i>Date</i>   | <b>Name / Stellung</b><br><i>Name / Position</i> |  |
|  |  |  |   | <b>Unterschrift</b><br><i>Signature</i>          |  |
| <b>Sonstiges / Other:</b>  | This report for A4WP wireless charging function.   |  |   |  |  |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br><i>Condition of the test item at delivery:</i>   | Prüfmuster vollständig und unbeschädigt<br><i>Test item complete and undamaged</i>   |  |   |  |  |
| * Legende:   | 1 = sehr gut<br>P(ass) = entspricht o.g. Prüfgrundlage(n)  | 2 = gut<br>F(all) = entspricht nicht o.g. Prüfgrundlage(n) | 3 = befriedigend<br>F(all) = entspricht nicht o.g. Prüfgrundlage(n)                   | 4 = ausreichend<br>N/A = nicht anwendbar         | 5 = mangelhaft<br>N/T = nicht getestet |
| Legend:  | 1 = very good<br>P(ass) = passed a.m. test specification(s)  | 2 = good<br>F(ail) = failed a.m. test specification(s)     | 3 = satisfactory<br>F(ail) = failed a.m. test specification(s)                        | 4 = sufficient<br>N/A = not applicable           | 5 = poor<br>N/T = not tested           |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i> |  |  |   |  |  |

**Prüfbericht - Nr.:** 50050477 007  
*Test Report No.*

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## TEST SUMMARY

### 5.1.1 ELECTROMAGNETIC FIELDS

*RESULT: Pass*

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## 1. General Remarks

### 1.1 Complementary Materials

None.

## 2. Test Sites

### 2.1 Test Facilities

Test Facilities 1: Shenzhen Academy of Metrology and Quality Inspection

Address:

Test Facilities 1: No. 4 Tongfa Rd., Nanshan, Shenzhen, China

The tests at the test sites have been conducted under the supervision of a TÜV engineer.

### 2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

| Kind of Equipment                                  | Manufacturer | Type    | S/N    | Calibrated until |
|--|--------------|---------|--------|------------------|
| <b>Radio Frequency Electromagnetic Field (SMQ)</b> |              |         |        |                  |
| Electric Field Meter                               | NARDA        | NBM-520 | D-0830 | Sep. 5, 2016     |
| E-Field Probe                                      | NARDA        | EF-0391 | D-0710 | Sep. 5, 2016     |

## 3. General Product Information

### 3.1 Product Function and Intended Use

The EUT is wireless charging stand which is only can be used for the specified display by connected with Type C connector. And the product also can be used as a transmitter of wireless charger. The product also contains Mini DP connector and USB 3.0 port.

It supports Bluetooth Low Energy and A4WP technology.

For details refer to the User Manual, Technical Description and Circuit Diagram.

### 3.2 Ratings and System Details

**Table 2: Technical Specification of EUT**

| Technical Specification      | Value                                       |
|------------------------------|---|
| Kind of Equipment:           | ThinkVision X24 Pro Wireless Charging Stand |
| Type Designation:            | HH-1601                                     |
| Type of Equipment:           | Stand-alone equipment                       |
| Wireless Technology:         | A4WP Wireless Charging                      |
| Operating Frequency Range:   | 6.78 MHz                                    |
| Operating Voltage:           | DC 20V via marketed AC/DC adapter           |
| Operating Temperature Range: | 0°C to 35°C                                 |

### 3.3 Independent Operation Modes

The basic operation modes are:

- A. A4WP wireless charging
  - 1. Charging
    - i. Minimum load
    - ii. Medium load
    - iii. Maximum load
- B. Bluetooth Low Energy operating
  - 1. Transmitting
    - i. Low channel
    - ii. Middle channel
    - iii. High channel
  - 2. Receiving
    - i. Low channel
    - ii. Middle channel
    - iii. High channel
- C. USB 3.0 connect to PC with data transferring
- D. Mini Display port connect to PC with data transferring
- E. Off

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

### 3.5 Submitted Documents

- Block Diagram
- PCB Layout
- Rating Label
- Photo Documentation
- Circuit Diagram
- Bill of Material
- Instruction Manual

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5.

### 4.3 Special Accessories and Auxiliary Equipment

The EUT was tested together with the following accessories:

**Table 3: List of Accessories and Auxiliary Equipment**

| Description  | Manufacturer | Model               | S/N          |
|--------------|--------------|---------------------|--------------|
| Notebook PC  | Lenovo       | ThinkPad X240       | SL10F31638   |
| Mobile Phone | Apple        | MG4J2 CH/A          | F17NTK2QG5MV |
| Display      | LENOVO       | ThinkVision X24 Pro | --           |

**Table 4: List of Cable**

| Interface(s)/Port(s): | Max. cable length, shielding | Cable classification |
|-----------------------|------------------------------|----------------------|
| USB port              | Shielded, 170cm              | USB cable            |
| Mini-Display port     | Shielded, 170cm              | Mini-Display cable   |

### 4.4 Countermeasures to Achieve ERM Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF). No additional measures were employed to achieve compliance.

## 5. Test Results

### 5.1 Test Requirements & Test Suites

#### 5.1.1 Electromagnetic Fields

**RESULT:**
**Pass**

Test standard : FCC Part 1.1310  
 Health Canada's Safety Code 6  
 Measure distance : 10cm  
 Limits : Table 1 of FCC Part 1.1310  
 Table 3 of Safety Code 6  
 Kind of test site : Shielded room

**Test setup:**

Date of testing : 2016-05-10 to 2016-07-22  
 Input Voltage : DC 20V via AC/DC adapter  
 Operation mode : A+B  
 Ambient temperature : 22°C  
 Relative humidity : 51%  
 Atmospheric pressure : 101.0 kPa

**Table 5: Test result of Electromagnetic Fields**

| Measure Position           | Front  | Left   | Right  | Rear   |
|----------------------------|--------|--------|--------|--------|
| Max. Measure E-field (V/m) | 5.55   | 6.27   | 5.58   | 5.97   |
| Max. H-field (A/m)         | 0.015  | 0.017  | 0.015  | 0.016  |
| FCC E-field Limit (V/m)    | 121.53 | 121.53 | 121.53 | 121.53 |
| IC E-field Limit (V/m)     | 33.46  | 33.46  | 33.46  | 33.46  |
| FCC H-field Limit (A/m)    | 0.323  | 0.323  | 0.323  | 0.323  |
| IC H-field Limit (A/m)     | 0.108  | 0.108  | 0.108  | 0.108  |
| Conclusion                 | Pass   | Pass   | Pass   | Pass   |

**Note:**

- 1) FCC E-field Limit =  $824/f$ , f in MHz
- 2) IC E-field Limit =  $87/f^{1/2}$ , f in MHz
- 3) Measurement was made from all sides with 10cm measure from the center of the probe to the edge of the device. The maximum level was recorded.



## 6. Photographs of the Test Set-Up

Photograph 1: Setup for Electromagnetic Fields



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