



Test Report No.: FM200430N014



RF EXPOSURE REPORT

| | |
|-----------|---------------------------------------------------------------------------------------------|
| Applicant | Lenovo (Shanghai) Electronics Technology Co., Ltd. |
| Address | Section 304-305, Building No. 4, # 222, Meiyue Road, China (Shanghai) Pilot Free Trade Zone |

| | |
|-------------------------------------|-------------------------------------------------------------------------------------|
| Manufacturer or Supplier | Lenovo PC HK Limited |
| Address | 23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong, P.R.China |
| Product | Lenovo Smart Clock Essential |
| Brand Name | Lenovo |
| Model | Lenovo CD-4N341Y |
| Additional Model & Model Difference | N/A |
| Date of tests | Apr. 30, 2020 ~ Jun. 28, 2020 |

- FCC Part 2 (Section 2.1091)
- KDB 447498 D01
- IEEE C95.1

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

| | |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Tested by Andy Zhu Project Engineer / EMC Department | Approved by Glyn He Assistant Manager / EMC Department |
|  |  Date: Jul. 06, 2020 |

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RELEASE CONTROL RECORD

| ISSUE NO. | REASON FOR CHANGE | DATE ISSUED |
|--------------|-------------------|---------------|
| FM200430N014 | Original release | Jul. 06, 2020 |

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1. CERTIFICATION

PRODUCT: Lenovo Smart Clock Essential

BRAND NAME: Lenovo

MODEL NO.: Lenovo CD-4N341Y

ADDITIONAL MODEL: N/A

FCC ID: O57CD4N341Y

TEST SAMPLE: ENGINEERING SAMPLE

APPLICANT: Lenovo (Shanghai) Electronics Technology Co., Ltd.

TESTED DATES: Apr. 07, 2020 ~ Apr. 27, 2020

STANDARDS: FCC Part 2 (Section 2.1091)
KDB 447498 D01
IEEE C95.1



2. RF EXPOSURE LIMIT

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| FREQUENCY RANGE (MHz) | ELECTRIC FIELD STRENGTH (V/m) | MAGNETIC FIELD STRENGTH (A/m) | POWER DENSITY (mW/cm ²) | AVERAGE TIME (minutes) |
|--------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE | | | | |
| 300-1500 | ... | ... | F/1500 | 30 |
| 1500-100,000 | ... | ... | 1.0 | 30 |

F = Frequency in MHz

3. MPE CALCULATION FORMULA

$$Pd = (Pout * G) / (4 * pi * r^2)$$

where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

4. CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

| Frequency Band | Antenna Gain (dBi) | Antenna Type |
|------------------------------|--------------------|--------------|
| BT 2.4GHz | 2.6 | PIFA Antenna |
| Wi-Fi 2.4GHz | 2.6 | PIFA Antenna |
| Wi-Fi 5GHz (5150-5250MHz) | 2.96 | PIFA Antenna |
| Wi-Fi 5GHz (5250-5350MHz) | 2.96 | PIFA Antenna |
| Wi-Fi 5GHz (5500-5725MHz) | 2.96 | PIFA Antenna |
| Wi-Fi 5GHz (5725-5850MHz) | 2.96 | PIFA Antenna |

6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

The tuned conducted Average Power (declared by client)

| Mode | Frequency (MHz) | Target Power (dBm) | Tolerance (dBm) | Lower Tolerance (dBm) | Upper Tolerance (dBm) |
|----------------------|-----------------|--------------------|-----------------|-----------------------|-----------------------|
| BT (GFSK) | 2402-2480MHz | 7 | +2 | 5 | 9 |
| BT (8DPSK) | 2402-2480MHz | 3 | +2 | 1 | 5 |
| BT-LE (GFSK) | 2402-2480MHz | 5 | +2 | 3 | 7 |
| 802.11b | 2412-2462MHz | 15 | +2 | 13 | 17 |
| 802.11g | 2412-2462MHz | 16 | +2 | 14 | 18 |
| 802.11n HT20 | 2412-2462MHz | 16 | +2 | 14 | 18 |
| Wi-Fi 5GHz(Band1) | 5150-5250MHz | 16 | +4 | 12 | 20 |
| Wi-Fi 5GHz(Band2) | 5250-5350MHz | 16 | +4 | 16 | 20 |
| Wi-Fi 5GHz(Band3) | 5500-5725MHz | 16 | +4 | 12 | 20 |
| Wi-Fi 5GHz(Band4) | 5725-5850MHz | 16 | +4 | 12 | 20 |



The measured conducted Average Power

| Mode | Frequency (MHz) | Averaged Power (dBm) |
|-------------------|-----------------|----------------------|
| BT (GFSK) | 2441 | 8.61 |
| BT (8DPSK) | 2402 | 4.56 |
| BT-LE (GFSK) | 2402 | 6.48 |
| 802.11b | 2412 | 15.51 |
| 802.11g | 2437 | 17.07 |
| 802.11n HT20 | 2412 | 17.51 |
| Wi-Fi 5GHz(Band1) | 5190 | 18.99 |
| Wi-Fi 5GHz(Band2) | 5290 | 19.05 |
| Wi-Fi 5GHz(Band3) | 5610 | 18.91 |
| Wi-Fi 5GHz(Band4) | 5785 | 18.72 |

| FREQUENCY BAND (MHz) | MAX AVERAGE POWER (dBm) | ANTENNA GAIN (dBi) | DISTANCE (cm) | POWER DENSITY (mW/cm ²) | LIMIT (mW/cm ²) |
|----------------------|-------------------------|--------------------|---------------|-------------------------------------|-----------------------------|
| BT | 9 | 2.6 | 20 | 0.002876 | 1.0 |
| Wi-Fi 2.4GHz | 18 | 2.96 | 20 | 0.024816 | 1.0 |
| Wi-Fi 5GHz | 20 | 2.96 | 20 | 0.039330 | 1.0 |

CONCLUSION:

The BT and Wi-Fi can transmit simultaneously, but Wi-Fi 2.4G and Wi-Fi 5G can not transmit simultaneously, the formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 +etc. < 1

CPD = Calculation power density

LPD = Limit of power density

$(0.002876/1)+(0.039330/1) = 0.042206 < 1$, which is less than the "1" limit.

--- END ---