



MPE REPORT

FCC ID: 2AXIE-SW02WU

Date of issue: Oct. 28, 2020

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|---------------------|------------------------------------------------------------------------------------------------------|
| Report number: | MTi20082708-2E2 |
| Sample description: | SMART MINI CORD |
| Model(s): | HKWL-SW02WU, CS-MINI-CORD |
| Applicant: | HANK SMART TECH CO., LTD |
| Address: | Unit 1419, floor 14th, Block5, Cloud Park Phase 2, Bantian street, Longgang District, Shenzhen China |
| Date of test: | Oct. 19, 2020 to Oct. 28, 2020 |

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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| TEST RESULT CERTIFICATION | |
|----------------------------------|------------------------------------------------------------------------------------------------------|
| Applicant's name: | HANK SMART TECH CO., LTD |
| Address: | Unit 1419, floor 14th, Block5, Cloud Park Phase 2, Bantian street, Longgang District, Shenzhen China |
| Manufacture's name: | HANK SMART TECH CO., LTD |
| Address: | Unit 1419, floor 14th, Block5, Cloud Park Phase 2, Bantian street, Longgang District, Shenzhen China |
| Product name: | SMART MINI CORD |
| Trademark: | N/A |
| Model and/or type reference: | HKWL-SW02WU |
| Serial model: | CS-MINI-CORD |
| RF exposure procedures: | KDB 447498 D01 v06 |

This device described above has been tested by Shenzhen Microtest Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by: *Demi Mu*

Demi Mu Oct. 28, 2020

Reviewed by: *Leo Su*

Leo Su Oct. 28, 2020

Approved by: *Tom Xue*

Tom Xue Oct. 28, 2020



RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

| 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 | *300/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 |
| 300-1,500 | | | f/1500 | 30 |
| 1,500-100,000 | | | 1.0 | 30 |

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

MPE Calculation Method

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm(20cm)

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

WIFI:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

802.11n HT40: 2422-2452MHz,

Power density limited: 1mW/ cm²

Antenna Type: Wifi Antenna: PCB Mounted Embedded Antenna;

WIFI antenna gain: 0dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}=10^{(0/10)}=1$

| Channel Freq. (MHz) | modulation | conducted power | Tune-up power | Max | | Antenna | Evaluation result at 20cm | Power density Limits |
|---------------------|-------------|-----------------|---------------|---------------|-----------|---------|------------------------------------|-----------------------|
| | | (dBm) | (dBm) | tune-up power | | Gain | Power density(mW/cm ²) | (mW/cm ²) |
| | | Ant A | Ant A | (dBm) | (mW) | Numeric | | |
| 2412 | 802.11b | 16.39 | 16±1 | 17 | 50.118723 | 1 | 0.00997 | 1 |
| 2437 | | 15.58 | 16±1 | 17 | 50.118723 | 1 | 0.00997 | 1 |
| 2462 | | 15.67 | 16±1 | 17 | 50.118723 | 1 | 0.00997 | 1 |
| 2412 | 802.11g | 14.9 | 14±1 | 15 | 31.622777 | 1 | 0.00629 | 1 |
| 2437 | | 14.93 | 14±1 | 15 | 31.622777 | 1 | 0.00629 | 1 |
| 2462 | | 14.75 | 14±1 | 15 | 31.622777 | 1 | 0.00629 | 1 |
| 2412 | 802.11n H20 | 15.04 | 15±1 | 16 | 39.810717 | 1 | 0.00792 | 1 |
| 2437 | | 14.95 | 15±1 | 16 | 39.810717 | 1 | 0.00792 | 1 |
| 2462 | | 14.77 | 15±1 | 16 | 39.810717 | 1 | 0.00792 | 1 |
| 2422 | 802.11n H40 | 15.15 | 15±1 | 16 | 39.810717 | 1 | 0.00792 | 1 |
| 2437 | | 15.03 | 15±1 | 16 | 39.810717 | 1 | 0.00792 | 1 |
| 2452 | | 15.07 | 15±1 | 16 | 39.810717 | 1 | 0.00792 | 1 |

Conclusion:

For the max result: $0.00997 \leq 1.0$ for 1g SAR, No SAR is required.

----END OF REPORT----