# RF Exposure Report

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|---|---|---|
| **FCC ID** | : | **E2K-DWWPT2101** |
| **Brand Name** | : | **DELL** |
| **Equipment** | : | **Docking Accessory** |
| **Model Name** | : | **K21A** |
| **Applicant** | : | **DELL Inc.**<br>**One Dell Way, Round Rock, TX 78682, USA** |
| **Standard** | : | **47 CFR PART 1.1307** |

**We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 1.1307 and it complies with applicable limit.**

**Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.**

**The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.**

Cona Huang

**Approved by: Cona Huang / Deputy Manager**

Testing Laboratory 1190

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## Revision History

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FA173029 | Rev. 01 | Initial issue of report | Dec. 08, 2021 |
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# 1. Description of Equipment Under Test (EUT)

| Product Feature & Specification | |
|---|---|
| EUT Type | Docking Accessory |
| Brand Name | DELL |
| Model Name | K21A |
| FCC ID | E2K-DWWPT2101 |
| Frequency Range | 127kHz |
| Mode | FSK/ASK |
| Date of Test | Nov. 30, 2021 |
| DUT Stage | Production Unit |

# 2. Measurement Equipment

| Instrument | Manufacturer | Model No. | Serial No. | Freq Rang | Last Cal. | Due Date |
|---|---|---|---|---|---|---|
| Electric and Magnetic field Probe-Analyzer | Narda S.T.S / PMM | EHP 200AC | 170WX80309 | 3KHz~30MHz | Oct. 26, 2021 | Oct. 25, 2022 |

# 3. Test Mode

This device has been tested in the following charging conditions as below:

| Test Mode | Client device | Test Setup Configuration | Charging Current Condition |
|---|---|---|---|
| | Samsung S9+ | Test w/ Client Device installed | < 10% Battery status |

Remark:

1. The EUT (WPTC transmitter) is charged with client device with zero separation, and the device have top / mid. / bottom coil and we had check the client device battery three level <10% / 50% / >90% or EUT at stand by state that worst case is client device set to < 10% Battery status was performed.

# 4. RF Exposure Limit Introduction

§ 1.1310 The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency(RF) radiation as specified in § 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of § 2.1093 of this chapter.

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

f = frequency in MHz

* = Plane-wave equivalent power density

(1) Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure. The phrase fully aware in the context of applying these exposure limits means that an exposed person has received written and/or verbal information fully explaining the potential for RF exposure resulting from his or her employment. With the exception of transient persons, this phrase also means that an exposed person has received appropriate training regarding work practices relating to controlling or mitigating his or her exposure. Such training is not required for transient persons, but they must receive written and/or verbal information and notification (for example, using signs) concerning their exposure potential and appropriate means available to mitigate their exposure. The phrase exercise control means that an exposed person is allowed to and knows how to reduce or avoid exposure by administrative or engineering controls and work practices, such as use of personal protective equipment or time averaging of exposure.

(2) General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

# 5. RF Exposure Evaluation

1. The device supported bottom / mid. / top charging Coil, the difference is the coil position and just for use with different sizes of mobile phones and only one coil will be active in the same time, we used one position to found the highest coil and use that coil to do further testing on other surface edge.
2. The device power transfer frequency is less than 1MHz and the output power from each primary coil is less than or equal to 15 watts and the client device is placed directly in contact with the transmitter and the device is meet mobile exposure condution.
3. The equipment under test was placed on a wooden desk inside of shield room. The isotropic field probe was used to measure the field strength for 6 EUT surfaces, the detail setup photo please refer to Appendix A.
4. Per KDB 680106 D01v03r01, RF exposure evaluation at 15 cm surrounding the device and 20cm above the top surface. Emissions between 50 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 1.63 A/m and aggregate H-field strengths from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

| Position | H-Field Measurement (A/m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Distance (cm) | A | B | C | D | E | F | 50% limit |
| | 20cm | 20cm | 15cm | 15cm | 15cm | 15cm | |
| Top Coil | 0.7595 | 0.6850 | 0.3110 | 0.3294 | 0.3586 | 0.3245 | 0.815 |
| Mid Coil | 0.1593 | - | - | - | - | - | 0.815 |
| bottom Coil | 0.1749 | - | - | - | - | - | 0.815 |

## Conclusion:

The field strength limit refers to Part 1.1310 and the test result of exposure evaluation is compliant with 50% of the MPE limit.