

## Angela Hsiao

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**From:** oetech@fcc.gov  
**Sent:** Wednesday, March 11, 2020 6:18 AM  
**To:** TCBMail  
**Subject:** Response to Inquiry to FCC (Tracking Number 584840) (TCB)

### **Inquiry on 08/12/2019 :**

#### **Inquiry:**

Submitting PAG for FCC IDs YESTX91513; TC323619 and YESTX91511B; TC640713

We are submitting a PAG in order to determine the RF Exposure evaluation requirements for two Part 18 wireless power transfer devices, as required by KDB 680106 D01 v03 Section 2)d).

The device was improperly certified by the TCB without having gone through the required PAG procedure, so the approvals were set aside by the FCC with the following correspondence (reference number 444400):

“Grants for Application TC640713 for FCC ID YESTX91511B and TC 323619 for FCC ID YESTX91513 are set set-aside because the applications are not in accordance with the provisions of the commission rules:1. incorrect extrapolation factor of 40dB/decade, instead of the Part 18 20dB/decade extrapolation factor. 2. Inappropriately using the same RF Exposure reports for part 15 devices not in accordance with commission policy.3. Advertising and Claiming use conditions not approved for the grant conditions. The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of the original e-mail date may result in application dismissal pursuant to Section 2.917(c).”

The lab is working on resolving the first finding, but asking for clarification of the second and third findings produced this further message from the FCC:

“At this point the devices cannot be authorized under Part 18 since I does not meet the intent of local usage. Please file a PAG as per our KDB guidance on wireless charging for any other consideration.”

Please provide guidance for this matter.

Thank you.

### **FCC response on 08/14/2019**

Hello.

As per KDB 680106 D01 v03 Section 2(c):

"For WPT systems designed to provide power over a distance; for example, to facilitate charging multiple client devices simultaneously or for loosely coupled systems that permit operation at distance, the requirement to generate and use RF energy locally as specified in Section 18.107(c) may not be met. For any system where there is a separation distance between the primary and client; for example, where the client devices are not inserted or placed directly on the charger, prior approval from the FCC is required for authorization under Part 18.

At the present time, FCC considers "local" under Part 18 rules to be less than 1m distance. In order to obtain Part 18 equipment authorization, additional information must be submitted to detail how the WPT devices will not charge client's beyond the 1m local distance. Additionally, it has been further noted in the user's manual,

and by recent manufacture's public announcement, that their WPT devices are advertised as being capable of operating with "coverage area similiar to Wi-Fi at distances up to 80 feet (24 meters)". Here is an excerpt of the manufacture's public announcement:

Creating a coverage area similar to Wi-Fi, Powercast's RF wirelesspower transmitters automatically power enabled products that come within rangefor smart, carefreewireless charging. Charging range and rate depend on a device's powerconsumption; power-hungry products charge best at close range, while thetransmitters can power low-power devices such as sensors up to 80 feet (24 meters).The transmitters use the 915-MHz ISM band to send RF energy over the air toPowercast's tiny Powerharvester® receiver chip embedded in products,which converts it to usable direct current (DC) to either directly powerbatteryless devices, or recharge devices' batteries. The robust technologycomplies with the FCC's current one-watt power limit for Part 15 deployments,but has power capabilities well beyond that to evolve as FCC standards evolve.

Last, please provide additional details specific to the WPT load modulation characteristics for the two WPT devices referenced in this inquiry. After review of TC 323619 and TC 640713 Part 18 WPT applications, the provided technical specifications identified both WPT devices designed to use Direct Sequence Spread Spectrum modulation. Please confirm that the WPT devices comply with load modulation requirement in KDB 680106 D01 Section 2(a):

*Systems that use loadimpedance changes also called load modulation on the client device at the fundamental transferfrequency with limited communication for the sole purpose of load management may be authorizedunder Part 18. The load modulation must be integral to transfer system power management andcontrol, and must be used only to the extent necessary to enable safe and efficient operation such asrapid shut-down in response to over-voltage conditions, reporting of charging status and identificationof invalid devices. For devices authorized under Part 18 such load modulation may not be used tocommunicate any other information, such as prioritization of devices for charging and the transfer ofany other data, for example extended system data, images or music.*

---Reply from Customer on 08/21/2019---

Please see Powercast response below.

This illuminated packaging and labeling application necessarily has a small separation distance between the primary (WPT) and the client (multiple lighted packages). However, for these devices, the requirement that the client be 1 meter or less from the WPT is met. The clients do not illuminate with adequate performance beyond 1 meter from the WPT. Powercast will update the manual to specify that the distance between the WPT and client must be less than or equal to 1 meter.

Regarding the WiFi coverage announcement, this statement is incorrect for the devices sought to be certified and has been removed from the company's website.

Regarding load modulation, the WPT does not use load modulation.

Both WPTs use a Direct Sequence Spread Spectrum (DSSS) chip and occupy a bandwidth similar to a Direct Sequence Spread Spectrum device. However, there is no data exchange between the WPT and the clients.

Thank you.

---Reply from Customer on 08/26/2019---

Please help to review the applicant response above from 8/21 and please help to respond.

Thank you.

**FCC response on 08/28/2019**

Hello.

Please note that the issues in KDB inquiry 651454 are now being continued in 584840; that is,...

--Reply from Customer on 08/26/2019--- Mitchell Lazarus

The applicant is addressing these issues in PAG no. 584840 submitted by its TCB, Bureau Veritas Consumer Products Services Inc., on Wednesday, August 21, 2019, and related documents.

More importantly, we are still waiting for a new compliance report to be submitted which uses Part 18 20dB/decade extrapolation factor. Being that the first test report exhibit was submitted using an incorrect extrapolation factor of 40dB/decade, we would require a detailed explanation in the revised test report to indicate how a marginally compliant device using a 40dB/dec extrapolation factor would comply using a 20dB/decade extrapolation factor. In other words, was the device's output level reduced by more than 30dB in order to achieve the limit?

Also, DSSS modulation (as referenced in the device's modulation specifications) is typically authorized and used for Part 15 communications; so, DSSS modulation cannot be permitted under Part 18 rules at this time.

---Reply from Customer on 08/29/2019---

The device was retested and passed with the correct 20dB/decade extrapolation factor.

The test lab provided this explanation for the earlier, incorrect readings at 40 dB/decade and their assurance that the current, 20dB/decade readings are correct:

"The original data below 30MHz improperly measured the noise floor, not the device. Those data consisted of max-hold peak readings and there was no pre-amp. The 1MHz reading in the original set is noise floor (21dB is typical for the analyzer). Because the wrong limit correction factor was used at the time, the fact that the measured noise floor at 1MHz was over the limit was not noticed. This measurement does not accurately represent the emissions of the product at 1MHz.

The loop antenna used for the new, 20 dB/decade data set has a built-in pre-amp. (In the data tables, the pre-amp gain is included in the antenna factor.) This improves the measured signal-noise ratio at the spectrum analyzer. With this improved test set-up, the measurement at 1MHz is an accurate measurement of the product's emissions."

The device does not send data and does not use DSSS. Earlier references to DSSS were incorrect. We have removed all references to DSSS from the manuals.

The updated compliance report and manuals will be provided next week.

Thank you.

**FCC response on 08/30/2019**

Hello.

From a policy perspective, we are still not clear how the WPT devices comply with the Part 18 use within 1m "local" requirement. Please provide evidence how the manufacture intends to limit radiation beyond 1m distance; especially, since the manufacture, as of today, continues to advertise WPT charging over distance on their website.

Technically speaking, the lab's revised test report appears to contain serious reported errors in the measured results; particularly with the purported -97.3dB/m correction factor at 914.737 MHz on page 7 of 35 of 4370216 test report rev2 document. Please provide correction factors documentation for Sunol JB1, including all associated cable loss factors and preamplifiers in order to clarify how the the aforementioned -97.3 dB/m correction factor is achieved.

---Reply from Customer on 09/23/2019---

Hello,

The clients do not illuminate with adequate performance beyond 1 meter from the WPT because the output power of either WPT is limited (both less than 1W, 446.7mW for TX91511B, 741.3mW for TX91513). The manual has been updated to specify a 1 meter maximum distance. The professional installation and the structure of the store shelves along with instructions in the manual ensure the clients are within 1 meter of the WPT. The WPTs will be professionally installed in a commercial setting and there will be no sales to consumers.

The current marketing material on the website is for the existing Part 15 WPTs. This material will not be used for these Part 18 WPTs. The Part 18 WPT marketing material will clearly represent the use case and the local requirement of 1 meter.

The lab is currently editing the report.

The updated manuals are attached.

Thank you.

**FCC response on 09/24/2019**

Hello.

Thanks for your response; however, on Aug 30, 2019, we requested evidence how the manufacture intends to limit the products radiation within the 1m local distance. Providing a statement in lieu of evidence will not satisfy our requirement to assess the device's radiative field strength decay plots over distance, in the form of practical data. Furthermore, we have now requested multiple revisions of the EMC test report in order to clarify serious ambiguous measurement and reporting errors. Please attach a lab company signed and written statement which addresses all the EMC concerns raised in this KDB inquiry. Last, we still await the revised EMC report to include all the information, as requested on Aug 30, 2019.

Thank you.

---Reply from Customer on 02/24/2020---

Powercast has requested the TCB to provide the attached updated test reports based on the results of the call between Powercast and FCC.

These reports include updated EMC test reports and a new additional report for field strength measurements and performance data from Keystone Compliance.

Please review.

Thank you.

**FCC response on 03/11/2020**

Thanks for submitting an updated EMC test report, and the Keystone Compliance field strength measurement report.

In general, we accept the test chamber results; however, we request Part 18 test site equivalency examination data in the form of practical data to be submitted, as specified in Section 2.1 of MP-5: 1986. We also request removing all ANSI C63.4/CISPR 22 test method information starting on page 21 of 43 of the EMC test report, as Part 18 of the rules require test setups according to MP-5 not ANSI C63.4 or CISPR.

**Attachment Details:**

[User manual - TX91511B](#)

[User manual - TX91511B](#)

[User manual - TX91513](#)

[ES1365-1 FCC Part 18 Final report revised](#)

[ES2174-2 Final report rev](#)

[Keystone compliance 1911-140E powercast report - Rev A](#)

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