Foreign Trade Corporation dba. Technocel

Application
For
Certification

FCC ID: SZQ-T150

Wireless Charger

Model: VUBLADE-T

Brand: TYLT

Transmitter

Report No.: 160718016SZN-001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-15]

Prepared and Checked by:	Approved by:
Sign on file	Digitally signed by Kidd Yang Location: Intertek Testing Services
Harry Wu Engineer	Kidd Yang Senior Project Engineer Date: September 26, 2016

TRF No.: FCC 15C_Tx_b

Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch
6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: www.china.intertek-etlsemko.com

LIST OF EXHIBITS

INTERTEK TESTING SERVICES

MEASUREMENT / TECHNICAL REPORT

Applicant: Foreign Trade Corporation dba. Technocel
Address: 130 W Cochran St. Simi Valley, California, United State

Manufacturer: Salcomp (Shenzhen) Co., Ltd.
Address: Salcomp Road, Furong Industrial Area, Xinqiao, Shajing, Baoan District, Shenzhen 518125 China.

MODEL: VUBLADE-T

FCC ID: SZQ-T150

This report concerns (check one:) Original Grant ___X___ Class II Change _____

Equipment Type: DCD-Low Power Transmitter Below 1705 kHz

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No ___X___

If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date
of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes _____ No ___X___

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-1-15 Edition] provision.

Report prepared by:

Harry Wu
Intertek Testing Services Shenzhen Ltd.
Kejiyuan Branch
6F, Block D, Huahan Building, Langshan Road,
Nanshan District, Shenzhen, P. R. China
Phone: (86 755) 8614 0716
Fax: (86 755) 8601 6751

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List of attached file

Exhibit Type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated photos	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photos	external photos.pdf
Internal Photo	Internal Photos	internal photos.pdf
Schematics	Circuit Diagram	circuit.pdf
Operation Description	Technical Description	descri.pdf
Block Diagram	Block Diagram	block.pdf
ID Label / Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Letter of Agency	agency.pdf

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The equipment under test (EUT) is a Wireless Charger operating at the frequency of 130KHz. The EUT is powered by DC15V from Adapter. You can charge your phone or other compatible device without the hassle of untangling charger cables. Just put your phone on the charging plate to start charging.

Antenna Type: Integral antenna (embedded coil antenna)
For electronic filing, the brief circuit description is saved with filename: descri.pdf.

1.2 Related Submittal(s) Grants

This is an application for certification of the Wireless Charging portion.
And there is no corresponding unit for certification.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Radiated emission measurement was performed in Semi-anechoic chamber. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

1.4 Test Facility

The Semi-Anechoic chamber and shield room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.10 (2013).

The EUT was powered by DC 15V from the Adapter with AC 120V 60Hz input during the testing, only the worst data was reported in this report.

For maximizing emissions below 30 MHz, the EUT was rotated through 360°, the centre of the loop antenna was placed 1 meter above the ground, and the antenna polarization was changed. For maximizing emission at and above 30 MHz, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data report in Exhibit 3.0.

The rear of unit was flushed with the rear of the table when it was powered by adapter up to 1GHz.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on turntable, which enabled the Engineer to maximize emissions through its placement in the three orthogonal axes.

2.2 EUT Exercising Software

N/A.

2.3 Special Accessories

AC/DC adaptor with ferrite.

2.4 Equipment Modification

Any modifications installed previous to testing by Foreign Trade Corporation dba. Technocel will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

2.5 Measurement Uncertainty

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

2.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List:

Description	Manufacturer	Model No.
Mobile Phone	Samsung	SM-G9350
AC/DC adaptor with ferrite	Salcomp	S57A02

EXHIBIT 3

EMISSION RESULTS

3.0 Emission Results

Data is included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF – AG + PD + AV

where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in –dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF – AG + PD + AV

Example

Assume a receiver reading of 62.0dBμV is obtained. The antenna factor of 7.4dB and cable factor of 1.6dB is added. The amplifier gain of 29dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0dB, and the resultant average factor was –10dB. The net field strength for comparison to the appropriate emission limit is 32dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0dBμV
AF = 7.4dB
CF = 1.6dB
AG = 29.0dB
PD = 0dB

AV = –10dB

FS = 62 + 7.4 + 1.6 – 29 + 0 + (–10) = 32dBμV/m

Level in μV/m = Common Antilogarithm [(32dBμV/m)/20] = 39.8μV/m

3.2 Radiated Emission Data and Configuration Photograph

Worst Case Radiated Emission
At
55.802 MHz

Judgement: Passed by 9.1 dB

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos.pdf.

TEST PERSONNEL:

Sign on file

Harry Wu, Engineer
Typed / Printed Name

September 9, 2016
Date

Company: Foreign Trade Corporation dba. Technocel
Date of Test: September 9, 2016
Model: VUBLADE-T
Operating Mode: Transfer initiation & termination mode at 130KHz

Table 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Vertical	0.130	34.4	0.0	14.8	49.2	105.3	-56.1
Vertical	0.390	20.5	0.0	15.1	35.6	95.8	-60.2
Horizontal	30.970	24.0	20.0	17.3	21.3	40.0	-18.7
Horizontal	317.605	32.2	20.0	15.9	28.1	46.0	-17.9
Horizontal	505.300	29.7	20.0	20.7	30.4	46.0	-15.6
Vertical	37.275	32.1	20.0	14.1	26.2	40.0	-13.8
Vertical	55.802	42.6	20.0	8.3	30.9	40.0	-9.1
Vertical	503.360	33.9	20.0	20.6	34.5	46.0	-11.5

NOTES:

1. Average detector is used for 9~90 KHz, 110~490 KHz and Quasi-Peak detector is used for other frequency band.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 0.3- meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Loop Antenna was used for the frequency band below 30MHz.

5. The formula of limit at frequencies below 30MHz is extrapolated according to FCC part 15.31 (f) as below.
   Limit dBuV/m at 3m = Limit dBuV/m at 300m + 40log(300/3) dB
   Limit dBuV/m at 3m = Limit dBuV/m at 30m + 40log(30/3) dB

Test Engineer: Harry Wu

3.3 Conducted Emission and Data Configuration Photograph

Worst Case Conducted Configuration
at
15.873 MHz

Judgement: Passed by 10.9 dB margin

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

TEST PERSONNEL:

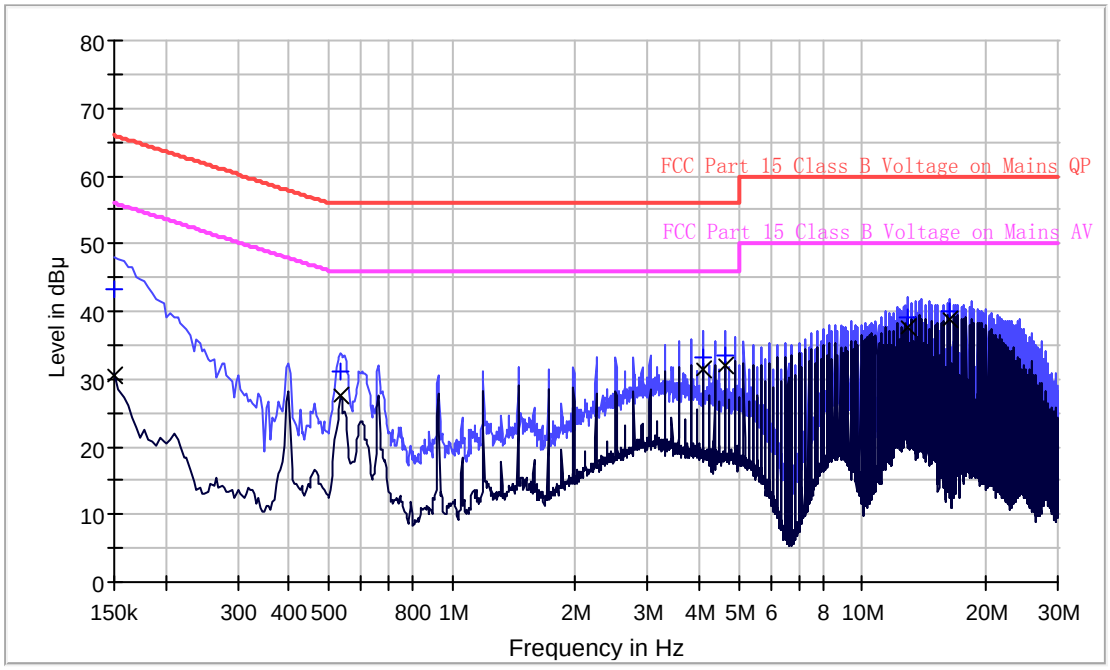
Sign on file

Harry Wu, Engineer
Typed/Printed Name

September 9, 2016
Date

Company: Foreign Trade Corporation dba. Technocel
Date of Test: September 9, 2016
Model: VUBLADE-T
Operating Mode: Transfer initiation & termination mode at 130KHz

Conducted Emission Test - FCC



Limit and Margin QP

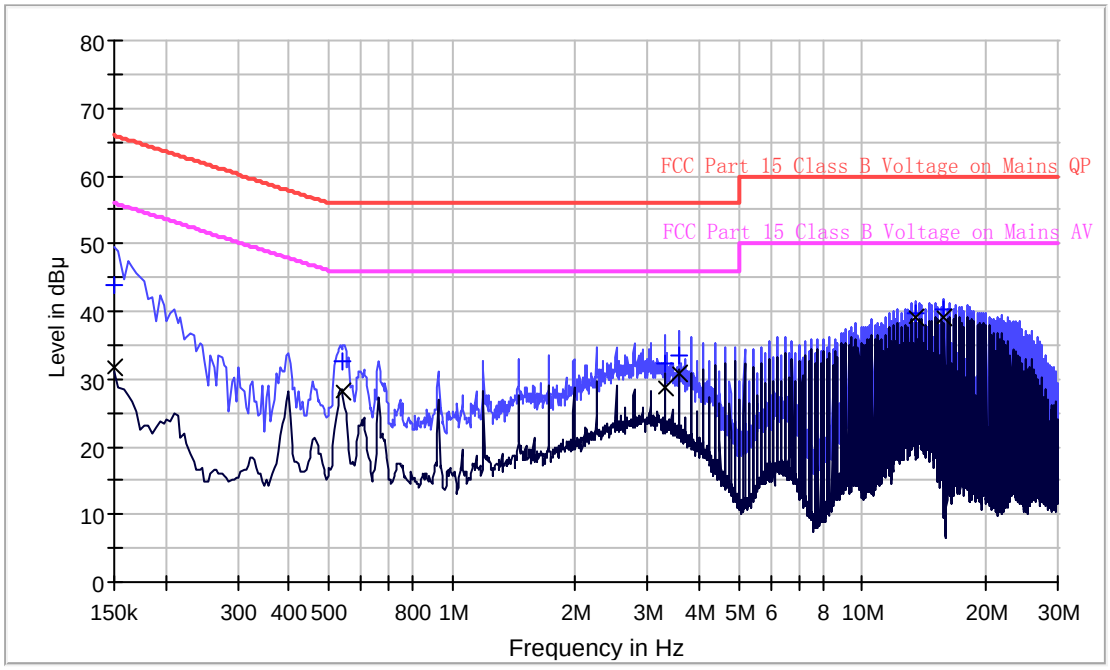
Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.150000	43.3	L1	9.6	22.7	66.0
0.534000	31.2	L1	9.7	24.8	56.0
4.098000	33.0	L1	9.8	23.0	56.0
4.626000	33.5	L1	9.8	22.5	56.0
12.949000	39.2	L1	10.0	20.8	60.0
16.385000	40.0	L1	10.1	20.0	60.0

Limit and Margin AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.150000	30.4	L1	9.6	25.6	56.0
0.534000	27.6	L1	9.7	18.4	46.0
4.098000	31.3	L1	9.8	14.7	46.0
4.626000	32.0	L1	9.8	14.0	46.0
12.949000	37.7	L1	10.0	12.3	50.0
16.385000	38.8	L1	10.1	11.2	50.0

Company: Foreign Trade Corporation dba. Technocel
Date of Test: September 9, 2016
Model: VUBLADE-T
Operating Mode: Transfer initiation & termination mode at 130KHz

Conducted Emission Test - FCC



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.150000	44.0	N	9.6	22.0	66.0
0.538000	32.6	N	9.7	23.4	56.0
3.309000	32.2	N	9.8	23.8	56.0
3.574000	33.4	N	9.8	22.6	56.0
13.489000	39.6	N	10.0	20.4	60.0
15.873000	40.2	N	10.1	19.8	60.0

Limit and Margin AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.150000	31.8	N	9.6	24.2	56.0
0.538000	28.3	N	9.7	17.7	46.0
3.309000	28.7	N	9.8	17.3	46.0
3.574000	30.8	N	9.8	15.2	46.0
13.489000	39.0	N	10.0	11.0	50.0
15.873000	39.1	N	10.1	10.9	50.0

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 Equipment Photographs

For electronic filing, photographs of the tested EUT are saved with filename: external photos.pdf and internal photos.pdf.

EXHIBIT 5

PRODUCT LABELLING

5.0 **Product Labelling**

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 Technical Specifications

For electronic filing, the block diagram of the tested EUT is saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 7

INSTRUCTION MANUAL

7.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold / leased in the United States.

EXHIBIT 8

MISCELLANEOUS INFORMATION

8.0 **Miscellaneous Information**

This miscellaneous information includes emission measuring procedure.

8.1 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of transmitter operating under Part 15, Subpart C rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.10 (2013).

The Transmitter equipment under test (EUT) is placed on a styrene turntable which is four feet in diameter, up to 1GHz 0.8m in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjust through all three orthogonal axes to obtain maximum emission levels. For maximizing emissions below 30 MHz, the EUT was rotated through 360°, the centre of the loop antenna was placed 1 meter above the ground, and the antenna polarization was changed. For maximizing emission at and above 30 MHz, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed.

The IF bandwidth used for measurement of radiated signal strength was 10 KHz for emission below 30 MHz and 120 KHz for emission from 30 MHz to 1000 MHz.

For radiated emission, the frequency range scanned is 9KHz to 1GHz. For line conducted emissions, the range scanned is 150 KHz to 30 MHz.

EXHIBIT 9

TEST EQUIPMENT LIST

9.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-12	BiConiLog Antenna	ETS	3142E	00166158	15-Sep-2015	15-Sep-2016
SZ185-01	EMI Receiver	R&S	ESCI	100547	23-Jan-2016	23-Jan-2017
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	11-May-2016	11-May-2017
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	23-Jan-2016	23-Jan-2017
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	16-Apr-2016	16-Apr-2018
SZ062-02	RF Cable	RADIALL	RG 213U	--	27-Jun-16	27-Dec-2016
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	6-Apr-2016	6-Oct-2016
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	6-Apr-2016	6-Oct-2016
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	--	23-May-2016	23-May-2017
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	3-Nov-2015	3-Nov-2016
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	3-Nov-2015	3-Nov-2016
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	1-Jul-2016	1-Jul-2017
SZ188-03	Shielding Room	ETS	RFD-100	4100	17-Aug-2016	17-Aug-2018

10.0 **Annex**

Document History

Report No.	Issue Date	Comments
160718016SZN-001	September 26, 2016	Original