

SHENZHEN DNS INDUSTRIES CO., LTD

TEST REPORT

SCOPE OF WORK

FCC TESTING–PW47Y2A, 24998

REPORT NUMBER

180719025SZN-001

ISSUE DATE

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SHENZHEN DNS INDUSTRIES CO., LTDApplication
For
Certification**FCC ID: ZBC24998****Wireless Charger Power Bank****Model: PW47Y2A**
Additional Model: **24998**

Report No.: 180719025SZN-001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 18, mention 47 CFR [10-1-17]

Prepared and Checked by:**Approved by:****Leo Li**
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Date: 3 August 2018

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GENERAL INFORMATION

Applicant / Company: SHENZHEN DNS INDUSTRIES CO., LTD
23/F Building A, Shenzhen International Innovation
Center, No.1006 Shennan Road, Futian, Shenzhen,
China.

Equipment Under Test (EUT):

Product Description: Wireless Charger Power Bank
Model: PW47Y2A, 24998
Brand Name: DNS, omars, mworks!
Nominal operating frequency 110-205KHz
Maximum RF energy generated 5W

Sample Receipt Date: 19 July 2018
Test Conducted Date: 19 July 2018 to 31 July 2018
Issue Date: 03 August 2018
Test Site and Location: Intertek Testing Services Shenzhen Ltd. Longhua
Branch
1F/2F, Building B, QiaoAn Scientific Technology
Park, Shangkeng Community, Guanhu Subdistrict,
Longhua District, Shenzhen, P.R. China

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List of attached file

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

EXHIBIT 1

SUMMARY OF TEST RESULTS

1.0 Summary of Test results

Wireless Charger Power Bank

Model: PW47Y2A

FCC ID: ZBC24998

TEST ITEM	REFERENCE	RESULTS
Field Strength Limit	18.305	Pass

EXHIBIT 2
GENERAL DESCRIPTION

2.0 General Description

2.1 Product Description

The Equipment Under Test (EUT) is a Wireless Charger Power Bank operating at 110-205 kHz. The EUT designed to work with client devices is incapable of transmitting any form of intelligent communication wirelessly. The EUT is powered by DC 3.7V, 8000mAh rechargeable battery which can be charged by USB port. The EUT cannot operate when charging. The EUT cannot support USB output and wireless output at the same time. The product is sold with a 12cm length shielded USB cable. For more detailed features description, please refer to the user's manual.

The Model: 24998 is the same as the Model: PW47Y2A in hardware and electronic aspect. The difference in model number and appearance serve as marketing strategy.

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

2.2 Related Submittal(s) Grants

This is an application for certification of a wireless charger. And related report for FCC SDOC is subjected to report number: 180719026SZN-001.

2.3 Test Methodology

Radiated emission measurements were performed according to the FCC procedures in MP-5, "Methods of Measurements of Radio Noise Emissions from Industrial, Scientific and Medical equipment (February 1986)", 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.

2.4 Test Facility

The Semi-Anechoic chamber used to collect the radiated data is **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 1F/2F, Building B, QiaoAn Scientific Technology Park, Shangheng Community, Guanhu Subdistrict, Longhua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with File Number: CN1188.

EXHIBIT 3
SYSTEM TEST CONFIGURATION

3.0 System Test Configuration

3.1 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 MP5-1986.

The EUT was powered by DC 3.7V, 8000mAh rechargeable battery during the test, and cannot be operated when charging. Only the worst case data was shown in the 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. This step by step procedure for maximizing emissions led to the data report in Exhibit 4.0.

The EUT was operated standalone and placed in the central of the turntable.

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

3.2 EUT Exercising Software

N/A.

3.3 Special Accessories

USB shielded cable.

3.4 Measurement Uncertainty

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

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

3.5 Equipment Modification

Any modifications installed previous to testing by SHENZHEN DNS INDUSTRIES CO., LTD will be incorporated in each production model sold / leased in the United States.

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

3.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List:

Description	Manufacturer	Detail
Mobile phone	SAMSUNG	S7

EXHIBIT 4

MEASUREMENT RESULTS

4.0 Measurement Results

Data is included of the 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.

4.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG - AV$$

where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB
- AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where

- FS = Field Strength in dB μ V/m
- RR = RA - AG - AV in dB μ V
- LF = CF + AF in dB

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$$RA = 52.0 \text{ dB}\mu\text{V/m}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$AV = 5.0 \text{ dB}$$

$$FS = RR + LF$$

$$FS = 18 + 9 = 27 \text{ dB}\mu\text{V/m}$$

$$RR = 18.0 \text{ dB}\mu\text{V}$$

$$LF = 9.0 \text{ dB}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(27 \text{ dB}\mu\text{V/m})/20] = 22.4 \mu\text{V/m}$$

4.2 Radiated Emission Configuration Photograph

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

4.3 Radiated Spurious Emission

Worst Case Radiated Spurious Emission
at
0.146MHz

Judgement: Passed by 3.0dB margin

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

Applicant: SHENZHEN DNS INDUSTRIES CO., LTD

Date of Test: July 31, 2018

Model: PW47Y2A

Worst Case Operating Mode: Power transfer

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)
Horizontal	0.009	48.2	0.0	11.2	59.4	63.5	-4.1
Horizontal	0.038	48.3	0.0	7.9	56.2	63.5	-7.3
Horizontal	0.075	38.0	0.0	8.0	46.0	63.5	-17.5
Horizontal	0.146	53.2	0.0	7.3	60.5	63.5	-3.0
Horizontal	0.295	50.8	0.0	7.0	57.8	63.5	-5.7
Horizontal	0.508	45.8	0.0	6.7	52.5	63.5	-11.0
Horizontal	30.000	33.8	0.0	13.2	47.0	63.5	-16.5

- Notes:
1. Peak Detector Data unless otherwise stated.
 2. All measurements were made at 3 meter. Harmonic emissions not detected at the 3-meter distance 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 is used for the emission under 30MHz.
 5. Limits at 3 meter for radiated emissions below 30 MHz is converted from the Limits at 300 meter according to the Formula:

$$\text{Limits at 3 meter (dB}\mu\text{V/m)} = \text{Limits at 30 meter (dB}\mu\text{V/m)} + 20 \log(300/3)$$
 6. Other emissions more than 20dB below the limit are not reported.
 7. The measurement uncertainty is $\pm 4.8\text{dB}$ at a level of confidence of 95%.

EXHIBIT 5
EQUIPMENT PHOTOGRAPHS

5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.pdf & internal photos.pdf.

EXHIBIT 6
PRODUCT LABELLING

6.0 Product Labeling

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

EXHIBIT 7
TECHNICAL SPECIFICATIONS

7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 8
INSTRUCTION MANUAL

8.0 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 9
MISCELLANEOUS INFORMATION

9.0 Miscellaneous Information

This miscellaneous information includes emission measuring procedure.

9.1 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of Industrial, Scientific and Medical equipment operating under FCC methods of measurements of radio noise emissions from Industrial, Scientific and Medical equipment.

Initial measurements are made near the EUT with the measuring antenna 3 meters from the nearest part of the EUT. The dummy load specified in Sections 3.6 is used, as applicable. The EUT is rotated about its horizontal axis on the turntable, and the polarization and height of the receiving antenna are varied to obtain the highest field strength on the particular frequency under observation. Measurements at the 3 meter distance are made in a large room or outdoors; with the equipment and antenna located so as to minimize effects due to reflections from the building structure or other items in the field. For measurements above ICE: and at 3 meters, an antenna of small aperture (i.e. , a small horn, without its reflector) is used, because the field over the area of a large antenna would be non-uniform, and such an antenna would not have the gain normally expected.

At each test frequency, the reading of the field strength meter is observed during the heating cycle as the following factors are varied:

- (1) EUT orientation;
- (2) Antenna orientation;
- (3) Antenna polarization

9.2 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.

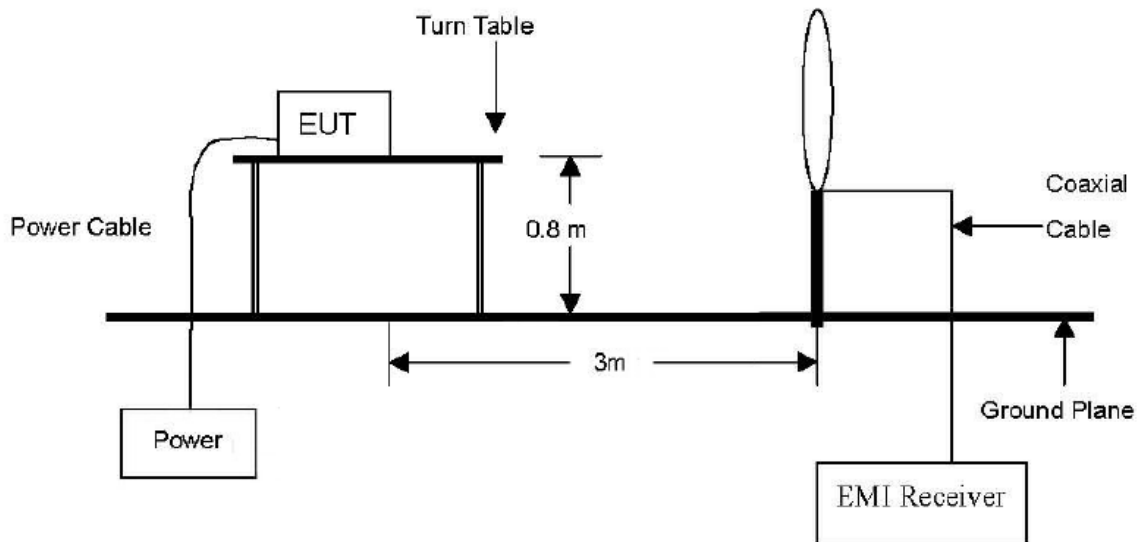


EXHIBIT 10
CONFIDENTIALITY REQUEST

10.0 Confidentiality Request

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

EXHIBIT 11
TEST EQUIPMENT LIST

11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-12	BiConiLog Antenna	ETS	3142E	00166158	20-Sep-2017	20-Sep-2018
SZ185-01	EMI Receiver	R&S	ESCI	100547	24-Jan-2018	24-Jan-2019
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	11-May-2018	11-May-2019
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	5-Jun-2018	5-Jun-2019
SZ056-06	Signal Analyzer	R&S	FSV 40	101101	5-Jun-2018	5-Jun-2019
SZ181-04	Preamplifier	Agilent	8449B	3008A024 74	24-Jan-2018	24-Jan-2019
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	16-Jan-2017	16-Jan-2019
SZ062-02	RF Cable	RADIALL	RG 213U	--	8-Jul-2018	8-Jan-2019
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	6-Mar-2018	6-Sep-2018
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	6-Mar-2018	6-Sep-2018
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02	--	5-Jun-2018	5-Jun-2019

***** End of Report*****