



REPORT No. : SZ16070156S01

RF EXPOSURE EVALUATION REPORT

APPLICANT : Vitalwell Electronics (Zhuhai) Pte.Ltd.
PRODUCT NAME : VW320BT-485 BusBeacon Transmitter
MODEL NAME : VW320BT-485
TRADE NAME : Vitalwell
BRAND NAME : Vitalwell
FCC ID : 2AJJTVW320-BBT
STANDARD(S) : 47CFR 2.1093
ISSUE DATE : 2016-08-25



SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

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DIRECTORY

TEST REPORT DECLARATION	3
1. TECHNICAL INFORMATION	4
1.1. IDENTIFICATION OF APPLICANT	4
1.2. IDENTIFICATION OF MANUFACTURER	4
1.3. EQUIPMENT UNDER TEST (EUT)	4
1.3.1. PHOTOGRAPHS OF THE EUT	5
1.3.2. IDENTIFICATION OF ALL USED EUT	6
1.4. APPLIED REFERENCE DOCUMENTS	6
2. DEVICE CATEGORY AND RF EXPOSURE LIMIT	7
3. RF EXPOSURE EVALUATION	8
ANNEX A GENERAL INFORMATION	9

Change History		
Issue	Date	Reason for change
1.0	2016-08-25	First edition



REPORT No. : SZ16070156S01

TEST REPORT DECLARATION

Applicant	Vitalwell Electronics (Zhuhai) Pte.Ltd.
Applicant Address	Blk D3#415/416, Southern Software Park, Tangjia, Zhuhai, Guangdong, China
Manufacturer	Vitalwell Electronics (Zhuhai) Pte.Ltd.
Manufacturer Address	Blk D3#415/416, Southern Software Park, Tangjia, Zhuhai, Guangdong, China
Product Name	VW320BT-485 BusBeacon Transmitter
Model Name	VW320BT-485
Brand Name	Vitalwell
HW Version	1.1
SW Version	1.21A
Standards	47CFR 2.1093; KDB 447498 D01 General RF Exposure Guidance v06
Issue Date	2016-08-25
SAR Evaluation	Not Required

Tested by : Chen Sheng kui
Chen Shengkui

Reviewed by : Liu Jun
Liu Jun

Approved by : Zeng Dexin
Zeng Dexin



1. TECHNICAL INFORMATION

Note: the following data is based on the information by the applicant.

1.1. Identification of Applicant

Company Name:	Vitalwell Electronics (Zhuhai) Pte.Ltd.
Address:	Blk D3#415/416 , Southern Software Park , Tangjia, Zhuhai, Guangdong, China

1.2. Identification of Manufacturer

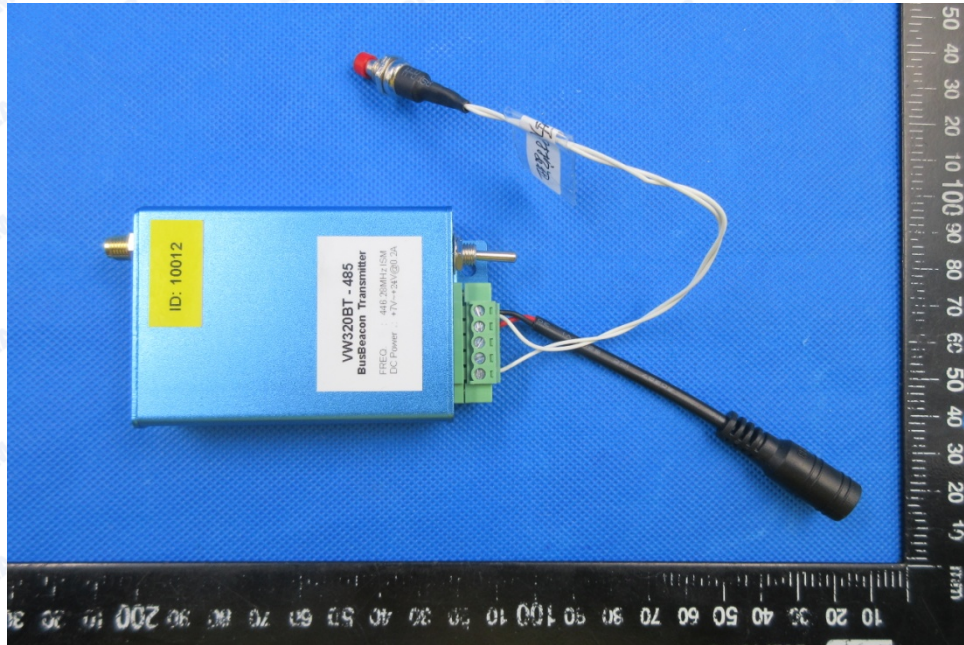
Company Name:	Vitalwell Electronics (Zhuhai) Pte.Ltd.
Address:	Blk D3#415/416 , Southern Software Park , Tangjia, Zhuhai, Guangdong, China

1.3. Equipment Under Test (EUT)

Model Name:	VW320BT-485
Trade Name:	Vitalwell
Brand Name:	Vitalwell
Hardware Version:	1.1
Software Version:	1.21A
Frequency Bands:	The frequency used in 446.28MHz
Modulation Mode:	FSK
Antenna type:	Dedicated Antenna

1.3.1. Photographs of the EUT

1. EUT front view



2. EUT rear view





1.3.2. Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	1.1	1.21A

1.4. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1093	Radiofrequency Radiation Exposure Evaluation: portable devices
2	KDB 447498 D01v06	General RF Exposure Guidance



2. DEVICE CATEGORY AND RF EXPOSURE LIMIT

Per user manual, this device is a transmitter. Based on 47CFR 2.1093, this device belongs to portable device category with General Population/Uncontrolled exposure.

Portable Devices:

47CFR 2.1093(b)

For purposes of this section, a portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

GENERAL POPULATION / UNCONTROLLED EXPOSURE

47CFR 2.1093(d) (2)

Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.



3. RF EXPOSURE EVALUATION

The E- field strength of the EUT is 53.41dB μ V/m in 3 meter, according to the KDB 412172, $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2$, for $d = 3$ meters. So the EIRP of EUT is -41.79dBm.

According to KDB 447498 section 4.3.1, the 1-g SAR test exclusion thresholds at test separation Distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$

The EIRP is **70 μ W**

Use **5mm** as the most conservative minimum test separation distance,

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] = 9.4 \times 10^{-6} \leq 3.0$$

So SAR evaluation is not required for this device.



ANNEX A GENERAL INFORMATION

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
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2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, Guangdong Province, P. R. China

***** END OF REPORT *****