



A Test Lab Techno Corp.

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SAR Test Exclusion Evaluation



Test Report No.	: 1410FS16
Applicant	: ALATECH Technology Limited Co.
Manufacturer	: ZHEJIANG ALA FITNESS TECHNOLOGY LTD
Product Type	: Dual Mode Heart Rate Strap
Trade Name	: ALATECH
Model Number	: CS012
Dates of Received	: Oct. 02, 2014
Dates of Test	: Oct. 21, 2014
Dates of Issued	: Oct. 24, 2014
Test Specification	: 47 CFR § 2.1093 KDB 447498 D01 General RF Exposure Guidance v05r02 KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03 KDB 865664 D02 RF Exposure Reporting v01r01
Location of Test Lab.	: Chang-an Lab.

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
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4. This document may be altered or revised by A Test Lab Techno. Corp. personnel only, and shall be noted in the revision section of the document.

Approved By : Bill Hu
(Bill Hu)

Tested By : Sky Chou
(Sky Chou)



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1. Description of Equipment under Test (EUT)

Applicant	ALATECH Technology Limited Co.	
Applicant Address	39F., No.758, Jungming S. RD. Taichung, Taiwan, R.O.C.	
Manufacturer	ZHEJIANG ALA FITNESS TECHNOLOGY LTD	
Manufacturer Address	NO.99 GUANGHUA ROAD, TONGXIANG ECONOMIC DEVELOPMENT ZONE, ZHEJIANG, CHINA	
Product Type	Dual Mode Heart Rate Strap	
Trade Name	ALATECH	
Model Number	CS012	
FCC ID	YQOCS012	
Frequency Range	2457 (2.4GHz ANT)	
	2402 - 2480 MHz (Bluetooth v4.0 LE)	
Transmit Power (Avg. conducted power)	Band	Power (mW / dBm)
	ANT+ 2.4GHz	0.414 / -3.83
	Bluetooth v4.0 LE	0.442 / -3.55
Antenna Specification	1.08 dBi	
Antenna Designation	PCB Antenna	

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1093 & OET65 Supplement C. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.



2. SAR Test Exclusion

As RF exposure evaluation of portable device, SAR test is not required when the evaluation results . According to KDB 447498 4.3.1, unless excluded by specific FCC test procedures, portable devices shall include SAR data for equipment approval. SAR test necessity will be based on the exclusion result.

The test exclusion refers KDB 447498 as below:

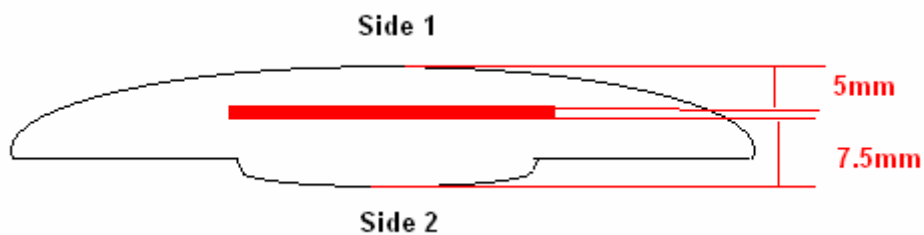
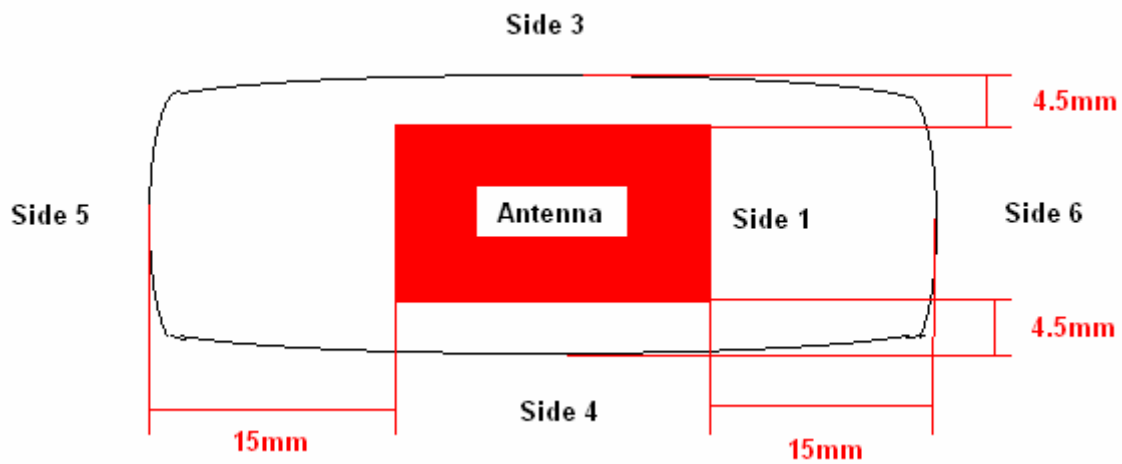
≤50mm:

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

≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

2.1 Antenna Distance

Distance of Antenna to edge		
Antenna	Side	Distance (mm)
WWAN	Side 1	5mm
WWAN	Side 2	7.5mm
WWAN	Side 3	4.5mm
WWAN	Side 4	4.5mm
WWAN	Side 5	15mm
WWAN	Side 6	15mm



2.2 Conducted Power

Band	CH	Frequency (MHz)	Packet Type	RF Conducted Output Power (dBm)
				Average
2.4GHz ANT	---	2457.0	---	-3.83
Bluetooth v4.0 LE	0	2402.0	---	-3.55
	19	2440.0	---	-3.78
	39	2480.0	---	-3.62

2.3 Evaluation Results

The evaluation of SAR test reduction according to KDB447498

SAR test is not required when the results showed "SAR is not required".

Transmitter and antenna implementation as below:

Band	Antenna
2.4GHz ANT	V
Bluetooth v4.0 LE	V

Simultaneous transmission configurations as below:

Condition	Side	Frequency Band	
		2.4GHz ANT	Bluetooth v4.0 LE
1	1	V	V
2	2	V	V
3	3	V	V
4	4	V	V
5	5	V	V
6	6	V	V

≤ 50 mm									
Antenna	Side	Band	Power (dBm)	Frequency (GHz)	distance (mm)	Power (mW)	Result	Limit	Exclusion considerations SAR _{1g}
2.4GHz ANT and Bluetooth v4.0 LE	1	2.4GHz ANT	-3.5	2.457	5.0	0	0	3	SAR is not required
		Bluetooth v4.0 LE	-3.5	2.402	5.0	0	0	3	SAR is not required
			-3.5	2.442	5.0	0	0	3	SAR is not required
			-3.5	2.480	5.0	0	0	3	SAR is not required
	2	2.4GHz ANT	-3.5	2.457	7.5	0	0	3	SAR is not required
		Bluetooth v4.0 LE	-3.5	2.402	7.5	0	0	3	SAR is not required
			-3.5	2.442	7.5	0	0	3	SAR is not required
			-3.5	2.480	7.5	0	0	3	SAR is not required
	3	2.4GHz ANT	-3.5	2.457	5.0	0	0	3	SAR is not required
		Bluetooth v4.0 LE	-3.5	2.402	5.0	0	0	3	SAR is not required
			-3.5	2.442	5.0	0	0	3	SAR is not required
			-3.5	2.480	5.0	0	0	3	SAR is not required
	4	2.4GHz ANT	-3.5	2.457	5.0	0	0	3	SAR is not required
		Bluetooth v4.0 LE	-3.5	2.402	5.0	0	0	3	SAR is not required
			-3.5	2.442	5.0	0	0	3	SAR is not required
			-3.5	2.480	5.0	0	0	3	SAR is not required
	5	2.4GHz ANT	-3.5	2.457	15.0	0	0	3	SAR is not required
		Bluetooth v4.0 LE	-3.5	2.402	15.0	0	0	3	SAR is not required
			-3.5	2.442	15.0	0	0	3	SAR is not required
			-3.5	2.480	15.0	0	0	3	SAR is not required
	6	2.4GHz ANT	-3.5	2.457	15.0	0	0	3	SAR is not required
		Bluetooth v4.0 LE	-3.5	2.402	15.0	0	0	3	SAR is not required
			-3.5	2.442	15.0	0	0	3	SAR is not required
			-3.5	2.480	15.0	0	0	3	SAR is not required

Estimated SAR:

≤ 50 mm						
Side	Band	Power (dBm)	Frequency (GHz)	distance (mm)	Power (mW)	Estimated SAR (mW/g)
						SAR _{1g}
1	2.4GHz ANT	-3.5	2.457	5.0	0	0
	Bluetooth v4.0 LE	-3.5	2.402	5.0	0	0
		-3.5	2.442	5.0	0	0
		-3.5	2.480	5.0	0	0
2	2.4GHz ANT	-3.5	2.457	7.5	0	0
	Bluetooth v4.0 LE	-3.5	2.402	7.5	0	0
		-3.5	2.442	7.5	0	0
		-3.5	2.480	7.5	0	0
3	2.4GHz ANT	-3.5	2.457	5.0	0	0
	Bluetooth v4.0 LE	-3.5	2.402	5.0	0	0
		-3.5	2.442	5.0	0	0
		-3.5	2.480	5.0	0	0
4	2.4GHz ANT	-3.5	2.457	5.0	0	0
	Bluetooth v4.0 LE	-3.5	2.402	5.0	0	0
		-3.5	2.442	5.0	0	0
		-3.5	2.480	5.0	0	0
5	2.4GHz ANT	-3.5	2.457	15.0	0	0
	Bluetooth v4.0 LE	-3.5	2.402	15.0	0	0
		-3.5	2.442	15.0	0	0
		-3.5	2.480	15.0	0	0
6	2.4GHz ANT	-3.5	2.457	15.0	0	0
	Bluetooth v4.0 LE	-3.5	2.402	15.0	0	0
		-3.5	2.442	15.0	0	0
		-3.5	2.480	15.0	0	0