REPORT No. : SZ15110081S01

RF EXPOSURE EVALUATION REPORT

APPLICANT	:	SHENZHEN CHIPSEA TECHNOLOGIES CO.,LTD
PRODUCT NAME	:	CSM3510
MODEL NAME	:	CSM3510
TRADE NAME	:	N/A
BRAND NAME	:	Chipsea
FCC ID	:	2AGM5CSM3510
STANDARD(S)	:	47CFR 2.1093 KDB 447498 D01 General RF Exposure Guidance v05r02
ISSUE DATE	:	2015-12-03

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.MEASUREMENT OF CONDUCTED PEAK OUTPUT POWER 8

4. RF EXPOSURE EVALUATION 8

ANNEX A GENERAL INFORMATION 9

Change History		
Issue	Date	Reason for change
1.0	2015-12-03	First edition

TEST REPORT DECLARATION

Applicant	SHENZHEN CHIPSEA TECHNOLOGIES CO.,LTD
Applicant Address	9F,Block A,Garden City Digital Building,No.1079 Nanhai Road,Nanshan District,Shenzhen
Manufacturer	SHENZHEN CHIPSEA TECHNOLOGIES CO.,LTD
Manufacturer Address	9F,Block A,Garden City Digital Building,No.1079 Nanhai Road,Nanshan District,Shenzhen
Product Name	CSM3510
Model Name	CSM3510
Brand Name	Chipsea
HW Version	0002
SW Version	CS-08
Test Standards	47CFR 2.1093; KDB 447498 D01 General RF Exposure Guidance v05r02
Issue Date	2015-12-03
SAR Evaluation	Not Required

Tested by : Liu Jun

Liu Jun

Reviewed by : Zhu Zhan

Zhu Zhan

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:	SHENZHEN CHIPSEA TECHNOLOGIES CO.,LTD
Address:	9F,Block A,Garden City Digital Building,No.1079 Nanhai Road,Nanshan District,Shenzhen

1.2. Identification of Manufacturer

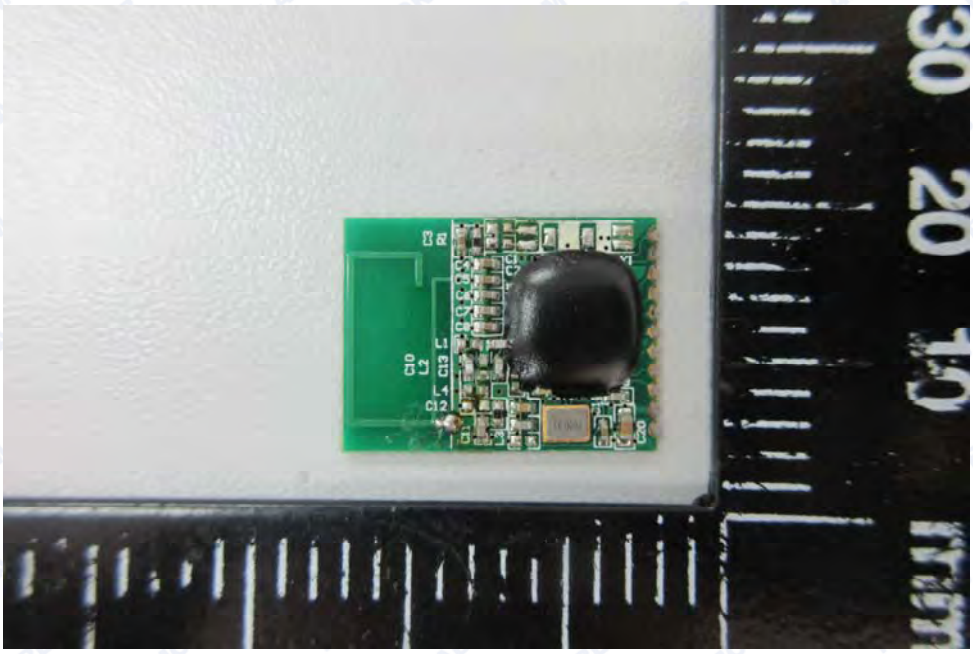
Company Name:	SHENZHEN CHIPSEA TECHNOLOGIES CO.,LTD
Address:	9F,Block A,Garden City Digital Building,No.1079 Nanhai Road,Nanshan District,Shenzhen

1.3. Equipment Under Test (EUT)

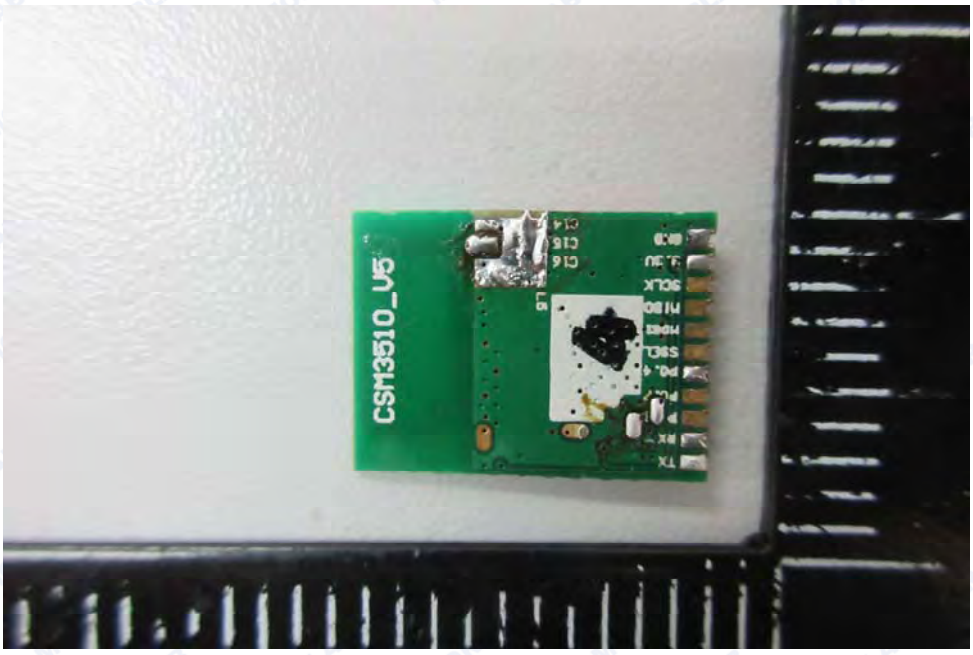
Model Name:	CSM3510
Trade Name:	N/A
Brand Name:	Chipsea
Hardware Version:	0002
Software Version:	CS-08
Frequency Bands:	Bluetooth 4.0:2402-2480MHz;
Modulation Mode:	Bluetooth 4.0: GFSK;
Antenna type:	Fixed Internal Antenna
Development Stage:	Identical prototype

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#	0002	CS-08

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 D01v05r02**	General RF Exposure Guidance

2. DEVICE CATEGORY AND RF EXPOSURE LIMIT

Per user manual, this device is a Bluetooth Module. 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. MEASUREMENT OF CONDUCTED PEAK OUTPUT POWER

1. Bluetooth Average output power

Band	Channel	Frequency (MHz)	Output Power(dBm)
			GFSK
BT	0	2402	-1.88
	19	2440	-1.88
	39	2480	-2.73

4. RF EXPOSURE EVALUATION

The device only incorporates a Bluetooth transmitter, so standalone SAR evaluation is required for Bluetooth and simultaneous SAR is not required.

Standalone transmission SAR evaluation

According to KDB 447498 section 4.3.1, the 1-g SAR test exclusion thresholds at test separation Distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)] ≤ 3.0
The maximum tune-up limit power is **0.708mW @ 2.402GHz**
When Bluetooth module, use **5mm** as the most conservative minimum test separation distance,
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)] =**0.22** ≤ 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
Telephone:	+86 755 36698555
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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 *****