SGS-CSTC Standards Technical Services Co., Ltd.

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SAR Evaluation Report

Application No.:	SZEM1312007022RF
Applicant:	KAN TSANG TECHNOLOGY LIMITED
Manufacturer:	Dong Guan Kan Tsang Industrial Co., Ltd.
Factory:	Dong Guan Kan Tsang Industrial Co., Ltd.
Product Name:	Clock Radio
Model No.(EUT):	KT-3128BTU
Add Model No.:	KT-3128BT, KT-3098BT, KT-3098BTU
FCC ID:	PAZ3128
Standards:	47 CFR Part 1.1307(2013)
	47 CFR Part 2.1093 (2013)
	KDB447498D01 General RF Exposure Guidance v05
Date of Receipt:	2014-01-24
Date of Test:	2014-02-18 to 2014-02-20
Date of Issue:	2014-04-01
Test Result :	**PASS***

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

2 Contents

3 General Information

3.1 Client Information

Applicant:	KAN TSANG TECHNOLOGY LIMITED
Address of Applicant:	Flat C5, 11/F., Wing Hing Industrial Bldg. 14 Hing Yip Street, Kwun Tong. Kowloon, Hong Kong
Manufacturer:	Dong Guan Kan Tsang Industrial Co., Ltd.
Address of Manufacturer:	No.5, LuYiYi Road, TangXia Town, Dong Guan City, (Keyuan Town A3) China.
Factory:	Dong Guan Kan Tsang Industrial Co., Ltd.
Address of Factory:	No.5, LuYiYi Road, TangXia Town, Dong Guan City, (Keyuan Town A3) China.

3.2 General Description of EUT

Product Name:	Clock Radio
Model No.:	KT-3128BT, KT-3128BTU, KT-3098BT, KT-3098BTU
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V2.1+EDR
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Test Equipment:	CBT
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Test equipment:	CBT
Sample Type:	Portable production
Antenna Type:	Integral
Antenna Gain:	0dBi
AC Adapter:	MODEL: MLF-A00060501000U0021 INPUT: 100-240V~ 50/60Hz 0.18Amax OUTPUT: 5V ⎓ 1A
Power Supply:	DC 5V 1A DC 3V (2*1.5V “AA” Size battery)
Test Voltage:	AC 120V 60Hz
DC Cable:	150cm(Unshielded with one ferrite core)
FM Antenna:	90cm(Unshielded)

Remark:
Model No.: KT-3128BT, KT-3128BTU, KT-3098BT, KT-3098BTU
Only the model KT-3128BTU was tested, since the circuit design, PCB layout, electrical components used, internal wiring and functions were identical for the above models, with difference on model No., color , clock board dismension and power panel.
Differences are as follows:
1) Only the color, model No and clock board dismension of product KT-3128BTU and KT-3098BTU are different, others are the same.
2) Only the color, model No and clock board dismension of product KT-3128BT and KT-3098BT are different, others are the same.
3) Only the color, model No and power panel of product KT-3128BTU and KT-3128BT are different, others are the same .
4) Only the color, model No and power panel of product KT-3098BTU and KT-3098BT are differet, others are the same.
Remark: The Bluetooth module are the same in the model KT-3128BT, KT-3128BTU, KT-3098BT and KT-3098BTU.

3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

Radiated Spurious Emission, Conducted Emissions were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 2082155555 Fax: +86 20 82075059

3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **ACMA**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

  The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

  The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584，G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

  SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01:2006-10 and Rules of procedure IECEE 02:2006-10, and the relevant IECEE CB-Scheme Operational documents.

3.5 Deviation from Standards

None.

3.6 Abnormalities from Standard Conditions

None.

3.7 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v05

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz 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 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

4.1.3 EUT RF Exposure

The Max Conducted Peak Output Power is 3.70dBm in lowest channel(2.402GHz);

The best case gain of the antenna is 0dBi.

EIRP= 3.70dBm + 0dBi = 3.70dBm

3.70dBm logarithmic terms convert to numeric result is nearly 2.3442mW

According to the formula. calculate the EIRP test result:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)]

General RF Exposure = (2.3442mW / 5 mm) x √2.402GHz = 0.7266 ①

SAR requirement:

S= 3.0 ② ;

① < ②.

So the SAR report is not required.