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Report Template Version: V03

Report Template Revision Date: Mar.1st, 2017

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RF Exposure Evaluation Report

Report No.: CQASZ20180700035E-02

Applicant: Hopwell Electronics

Address of Applicant: RM 1507, Tower A, Viking Technology & Business Centre, 93 Ta Chuen Ping

St, Kwai Chung, Hong Kong, China

Manufacturer: Hopwell Electronics

Address of Manufacturer: RM 1507, Tower A, Viking Technology & Business Centre, 93 Ta Chuen Ping

St, Kwai Chung, Hong Kong, China

Equipment Under Test (EUT):

Product: Car Entertainment System

Model No.: JSD-520, K501, K502, K503, K504, K505, K601, K602, K603, K701, K702,

K703, K705, SX-660, 658, 646, 662, 665, 667, 668, 659, 6283, 6250, 6239,

6242, 6252, 6287, 6248, 6292, 5247, 5249, 5250

Test Model No.: JSD-520

Brand Name: N/A

FCC ID: 2ABQZ-JSD

Standards: 47 CFR Part 1.1307

47 CFR Part 2.1093

KDB447498D01 General RF Exposure Guidance v06

Date of Test: 2018-07-11 to 2018-07-30

Date of Issue: 2018-07-30
Test Result: PASS*

Tested By:

Martin Lee)

Martin Lee

Reviewed By:

(Jack Ai)

Approved By:

(Jack Ai)



The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

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

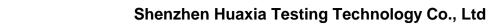


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1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20180700035E-02	Rev.01	Initial report	2018-07-30





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3 General Information

3.1 Client Information

Applicant:	Hopwell Electronics	
Address of Applicant:	RM 1507, Tower A, Viking Technology & Business Centre, 93 Ta Chuen Ping St, Kwai Chung, Hong Kong, China	
Manufacturer:	Hopwell Electronics	
Address of Manufacturer:	RM 1507, Tower A, Viking Technology & Business Centre, 93 Ta Chuen Ping St, Kwai Chung, Hong Kong, China	

3.2 General Description of EUT

Product Name:	Car Entertainment System	
Model No.:	JSD-520, K501, K502, K503, K504, K505, K601, K602, K603, K701, K702, K703, K705, SX-660, 658, 646, 662, 665, 667, 668, 659, 6283, 6250, 6239, 6242, 6252, 6287, 6248, 6292, 5247, 5249, 5250	
Test Model No.:	JSD-520	
Trade Mark:	N/A	
Hardware Version:	V1.0	
Software Version:	V1.0	
Operation Frequency:	2402MHz~2480MHz	
Bluetooth Version:	V4.0	
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)	
Modulation Type:	GFSK, π/4DQPSK, 8DPSK	
Number of Channel:	79	
Hopping Channel Type:	Adaptive Frequency Hopping systems	
Sample Type:	fix production	
Test Software of EUT:	FCCAssist V1.6 (manufacturer declare)	
Antenna Type:	PCB antenna	
Antenna Gain:	2.0dBi	
Power Supply:	DC12V	

Note:

All model: JSD-520, K501, K502, K503, K504, K505, K601, K602, K603, K701, K702, K703, K705, SX-660, 658, 646, 662, 665, 667, 668, 659, 6283, 6250, 6239, 6242, 6252, 6287, 6248, 6292, 5247, 5249, 5250

Only the model JSD-520 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.



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4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

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)] \cdot [$\sqrt{f(GHz)}$] \leq 3.0 for 1-g SAR and \leq 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



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4.1.3 EUT RF Exposure

For BT:

Measurement Data

GFSK mode		
Test channel	Peak Output Power (dBm)	
Lowest	1.950	
Middle	2.640	
Highest	2.820	
π/4DQPSK mode		
Test channel	Peak Output Power (dBm)	
Lowest	0.150	
Middle	0.910	
Highest	1.070	
8DPSK mode		
Test channel	Peak Output Power (dBm)	
Lowest	0.620	
Middle	1.320	
Highest	1.450	

The Max Conducted Peak Output Power is 2.820dBm in lowest channel(2.480GHz);

The best case gain of the antenna is 2.0dBi.

EIRP= 2.820dBm + 2.0dBi = 4.820dBm

4.820dBm logarithmic terms convert to numeric result is nearly 3.034mW

According to the formula. calculate the EIRP test result:

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

General RF Exposure = $(3.034 \text{mW} / 5 \text{ mm}) \times \sqrt{2.480 \text{GHz}} = 0.956 \text{ }\bigcirc$

SAR requirement:

S= 3.0 ②;

(1) < (2).

So the SAR report is not required.

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20180700035E-01