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RF Exposure Evaluation Report

Report No. : CQASZ20190600441E-02
Applicant: Kool Brands, LLC.
Address of Applicant: P.O. box 41270 Reno, NV 89504
Manufacturer: LITE STAR ELECTRONICS TECHNOLOGY Co.,Ltd.
Address of Manufacturer: Xingchen Science park Lianbi Road, Wulian Industry Area, Fenggang Town, Dongguan City, China

Equipment Under Test (EUT):

Product: SEGA Genesis, Megadrive Bluetooth Control Pad
All Model No.: RET00143, RET00142, RB-SGA-012, RB-SGA-011
Test Model No.: RB-SGA-011
Brand Name: Retro-Bit
FCC ID: 2ARPV-G011TR
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Test: 2019-06-06 to 2019-06-12
Date of Issue: 2019-06-12
Test Result : PASS*

Tested By:

Daisy Qin

(Daisy Qin)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai
(Jack Ai)



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

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.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190600441E-02	Rev.01	Initial report	2019-06-12

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3 General Information

3.1 Client Information

Applicant:	Kool Brands, LLC.
Address of Applicant:	P.O. box 41270 Reno, NV 89504
Manufacturer:	LITE STAR ELECTRONICS TECHNOLOGY Co.,Ltd.
Address of Manufacturer:	Xingchen Science park Lianbi Road, Wulian Industry Area, Fenggang Town, Dongguan City, China

3.2 General Description of EUT

Product Name:	SEGA Genesis, Megadrive Bluetooth Control Pad
All Model No.:	RET00143, RET00142, RB-SGA-012, RB-SGA-011
Test Model No.:	RB-SGA-011
Trade Mark:	Retro-Bit
Hardware Version:	VER:08
Software Version:	REV:A1
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Test Software of EUT:	RDA Host Controller Tester – HCDT1 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	-1.42dBi
Power Supply:	lithium battery:DC3.7V, Charge by DC5V

Note:

1. The same product has two names.
2. All model: RET00143, RET00142, RB-SGA-012, RB-SGA-011

Only the model RB-SGA-011 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.

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:

$$\left[\frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

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

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.910	4±1	5	3.162
Middle(2441MHz)	4.290	4±1	5	3.162
Highest(2480MHz)	4.490	4±1	5	3.162
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.710	5±1	6	3.981
Middle(2441MHz)	5.070	5±1	6	3.981
Highest(2480MHz)	5.330	5±1	6	3.981
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	5.130	5±1	6	3.981
Middle(2441MHz)	5.600	5±1	6	3.981
Highest(2480MHz)	5.820	5±1	6	3.981

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune- up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	5.130	5±1	6	3.981	1.23	3.0
Middle (2441MHz)	5.600	5±1	6	3.981	1.24	
Highest (2480MHz)	5.820	5±1	6	3.981	1.25	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190600441E-01