



## Radio Frequency Exposure Evaluation Report

FOR:

Apple Inc.

Model Name:

A1962

Product Description:  
Siri Remote

FCC ID: BCGA1962  
ISED ID: 579C-A1962

Applied Rules and Standards:  
CFR 47 Part 2.1093  
FCC KDB 447498 D01 General RF Exposure Guidance v06

Test Report #: SAR-APPLE-207-17001-FCC-SAR-EX

DATE: 2017-08-25



A2LA Accredited

IC recognized #  
3462B-1

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## 1. Assessment

The following device was evaluated against the limits for general population uncontrolled exposure specified in CFR 47 Part 2.1093 according to SAR evaluation exclusion requirements specified in FCC regulation as listed in KDB 447498.

The device meets the requirements for SAR exclusion as stipulated by the above given FCC rules.

Company	Description	Model #
Apple Inc.	Siri Remote	A1962

### Responsible for Testing Laboratory:

2017-08-25	Compliance	Peter Nevermann (Director RC&E)	
Date	Section	Name	Signature

### Responsible for the Report:

2017-08-25	Compliance	James Donnellan (Sr. EMC Test Engineer)	
Date	Section	Name	Signature

The test results of this test report relate exclusively to the test item specified in Section 3.  
CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

## 2. Administrative Data

### 2.1. Identification of the Testing Laboratory Issuing the Test Report

<b>Company Name:</b>	CETECOM Inc.
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<b>Director Radio Communications and EMC</b>	Peter Nevermann
<b>Responsible Project Leader</b>	James Donnellan

### 2.2. Identification of the Client

<b>Applicant's Name:</b>	Apple Inc.
<b>Street Address:</b>	1 Infinite Loop
<b>City/Zip Code</b>	Cupertino, CA 95014
<b>Country</b>	USA

### 2.3. Identification of the Manufacturer

<b>Applicant's Name:</b>	Apple Inc.
<b>Street Address:</b>	1 Infinite Loop
<b>City/Zip Code</b>	Cupertino, CA 95014
<b>Country</b>	USA

### 3. Equipment under Assessment

<b>Model No</b>	A1962
<b>HW Version</b>	Rev 01
<b>SW Version</b>	v0046
<b>FCC-ID</b>	BCGA1962
<b>IC ID</b>	579C-A1962
<b>FWIN:</b>	v0046
<b>HVIN:</b>	A1962
<b>PMN:</b>	Siri Remote
<b>Product Description</b>	Siri Remote
<b>Device Category</b>	<input type="checkbox"/> Fixed Installation <input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Mixed Mobile and Portable
<b>Frequency Range / number of channels</b>	2402 MHz (Ch. 0) – 2480 (Ch.39), 40 channels for Bluetooth LE
<b>Type(s) of Modulation</b>	Bluetooth LE with GFSK modulation.
<b>Modes of Operation</b>	Advertising and connected mode of operation
<b>Max. declared antenna gain</b>	IFA Internal antenna: Antenna Gain: 3.5 dBi @ 2.4 GHz.
<b>Minimum distance of antenna or radiating parts to user</b>	5 mm or less
<b>Max. declared conducted output power including tune up</b>	6.5 dBm
<b>Max. measured conducted output power</b>	6.3 dBm
<b>Power Supply/ Rated Operating Voltage Range</b>	Dedicated Battery Pack Vmin: 3.0 VDC/ Vnom: 3.7 VDC / Vmax: 4.3 VDC
<b>Operating Temperature Range</b>	0 °C to 35 °C
<b>Other Radios included in the device</b>	N/A
<b>Co-located Transmitters/ Antennas</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Sample Revision</b>	<input type="checkbox"/> Prototype <input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-Production
<b>Exposure Category</b>	<input type="checkbox"/> Occupational/ Controlled <input checked="" type="checkbox"/> General Population/ Uncontrolled

## 4. FCC Exemption Limits for Routine Evaluation

### 4.1. FCC SAR test exclusions

FCC SAR Test exclusion are set by KDB 447498 General RF Exposure Guidance v06 Section: 4.3.1.  
Standalone SAR test exclusion considerations

a) For 100 MHz to 6 GHz and test separation distances  $\leq 50$  mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

The test exclusions are applicable only when the minimum *test separation distance* is  $\leq 50$  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 according to 4.1 f) is applied to determine SAR test exclusion.

### 4.2. Stand-Alone SAR Evaluation Exclusion

According to KDB 447498, SAR evaluation can be excluded if the following equation is satisfied:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$

- The maximum RF channel power for the device under evaluation is 6.5 dBm Or 4.46 mW for the Bluetooth LE

Using the above equation for the worst case power of the BT radio:

$$[(4.46 \text{ mW}) / (5\text{mm})] \cdot [\sqrt{2.480}] = 1.40$$

## 5. Conclusion:

- SAR testing for FCC is excluded for Bluetooth LE because the numeric thresholds of 1.40 is less than the 3.0 FCC limit for 1g SAR.



## 6. Revision History

Date	Report Name	Changes to report	Report prepared by
2017-08-25	SAR-APPLE-207-17002-FCC-SAR-EX	Initial Version	James Donnellan