



SAR EVALUATION REPORT
CLASS II PERMISSIVE CHANGE

FCC 47 CFR § 2.1093
IEEE Std 1528-2013

For
WIRELESS INPUT DEVICE

FCC ID: C3K1708
Model Number: 1708

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REVISION HISTORY

Rev.	Date	Revisions	Revised By
V1	11/17/2016	Initial Issue	--

Table of Contents

1. Attestation of Test Results 4

2. Test Specification, Methods and Procedures..... 5

3. Device Under Test (DUT) Information 5

 3.1. *DUT Description* 5

 3.2. *Wireless Technologies*..... 5

 3.3. *Nominal and Maximum Output Power*..... 5

 3.4. *Separation Distance* 5



4. Standalone SAR Test Exclusion Considerations..... 6

1. Attestation of Test Results

Applicant Name	Microsoft Corporation	
FCC ID	C3K1708	
Model Name	1708	
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013	
Exposure Category	SAR Limits (W/Kg)	
	Peak spatial-average(1g of tissue)	Extremities (hands, wrists, ankles, etc.) (10g of tissue)
General population / Uncontrolled exposure	1.6	4

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government (NIST Handbook 150, Annex A). This report is written to support regulatory compliance of the applicable standards stated above.

Approved & Released By: 	Prepared By: 
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2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528-2013, the following FCC Published RF exposure KDB procedures:

- 447498 D01 General RF Exposure Guidance v06

3. Device Under Test (DUT) Information

3.1. DUT Description

Device Dimension	Overall (Length x Width): 156 mm x 110 mm
Back Cover	<input checked="" type="checkbox"/> Normal Battery Cover
Battery Options	2 – AA Batteries
Wireless Router (Hotspot)	Not Supported
Wi-Fi Direct	Not Supported
Simultaneous Tx	Simultaneous Transmission is not supported

3.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode
Wi-Fi	2.4 GHz	802.11g 802.11n (HT20)
	5 GHz	802.11a 802.11n (HT20)
	Does this device support bands 5.60 ~ 5.65 GHz? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	Does this device support Band gap channel(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Bluetooth	2.4 GHz	Version 4.0

3.3. Nominal and Maximum Output Power

RF Air interface	Mode	Max. RF Output Power (dBm)
Wi-Fi 2.4 GHz	802.11g	9.5
	802.11n HT20	9.5
Wi-Fi 5 GHz	802.11a	9.5
	802.11n HT20	9.5
Bluetooth		9.0

Maximum tune-up tolerance limit for Wi-Fi 2.4GHz and Wi-Fi 5GHz is 9.50 dBm. These power levels qualify for exclusion of SAR testing. Refer to §4 for Standalone SAR Test Exclusion Considerations.

Maximum tune-up tolerance limit for Bluetooth is 9.00 dBm. This power level qualifies for exclusion of SAR testing. Refer to §4 for Standalone SAR Test Exclusion Considerations.

3.4. Separation Distance

The EUT is a handheld device. The minimum antenna to user separation distance that will be encountered in normal use is 0mm.

4. Standalone SAR Test Exclusion Considerations

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:

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

Extremity Exposure Condition

RF Air Interface	Max. tune-up tolerance limit		Min. test separation distance (mm)	Frequency (GHz)	SAR test exclusion Result*
	(dBm)	(mW)			
Wi-Fi 2.4GHz	9.5	9	0	2.462	2.8
Wi-Fi 5GHz	9.5	9	0	5.825	4.3
Bluetooth	9.0	8	0	2.480	2.5

Conclusion:

*: The computed values are ≤ 7.5 ; therefore, Wi-Fi 2.4GHz, Wi-Fi 5GHz and Bluetooth qualify for Standalone SAR test exclusion.

END OF REPORT