

ELEMENT MATERIALS TECHNOLOGY



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RF Exposure Part 1 Test Report

Applicant Name:
Microsoft Corporation
One Microsoft Way
Redmond, WA 98052 USA

Date of Testing:
10/21/2025 – 11/03/2025
Test Site/Location:
Element, Columbia, MD, USA
Document Serial No.:
1M2510060088-01.C3K

FCC ID (Licensed): C3K2119
FCC ID (Unlicensed): C3K00002102A
APPLICANT: MICROSOFT CORPORATION

DUT Type: Modular Approval - Host Integration (Portable Computing Device)
Application Type: Class II Permissive Change
FCC Rule Part(s): CFR §2.1093
Model: 2114, HWB-Q94
Host Device Model Name: 2119
Permissive Change(s): Please see Change Document

Equipment Class	Band & Mode	Tx Frequency	SAR
			1g Body (W/kg)
DTS	2.4 GHz WIFI	2412 - 2472 MHz	0.80
NII	5 GHz WIFI	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz U-NII-4: 5845 - 5885 MHz	0.99

Only operations relevant to this permissive change were evaluated for compliance. Please see the original compliance evaluation in RF Exposure Technical Report S/N 1M2504010035-03.C3K (Rev1) for complete evaluation of all other operating modes.

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 2.4 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.

RJ Ortanez
Executive Vice President



The SAR Tick is an initiative of the Mobile & Wireless Forum (MWF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MWF. Further details can be obtained by emailing: sartick@mwfi.info.

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1 TEST LABORATORY INFORMATION

1.1 Introduction

This test report for device subject to testing at an accredited testing laboratory has been generated by the testing laboratory that tested the device. Detailed location and accredited information regarding the testing laboratories are provided below.

1.2 Test Laboratories Information

1.2.1 Testing Laboratory

Test Firm Name	ELEMENT MATERIALS TECHNOLOGY WASHINGTON DC LLC
Test Lab Location	7185 Oakland Mills Road, Columbia, MD 21046, United States Tel. +1.410.290.6652 / Fax +1.410.290.6654
Accreditation Info.	Lab Code. (ISED): 2451B
	CAB Identifier (NIST): US0110
	ISO/IEC 17025 (A2LA): CERT #2041.01
	
Measurement System No.	O, S

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2 DEVICE UNDER TEST

2.1 Equipment Description

The equipment under test (EUT), Model 2119, is a portable computing device that incorporates two previously certified transmitter modules. The first is a WLAN/Bluetooth module authorized under FCC ID: C3K00002102A, and the second is a cellular module authorized under FCC ID: C3K2119. No hardware or software modifications have been made to either module for the purposes of this host integration. This report evaluates the host device for compliance with the applicable FCC rules, including assessment of co-location and simultaneous transmission conditions involving the integrated modules.

2.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
UMTS 850	Data	826.40 - 846.60 MHz
UMTS 1750	Data	1712.4 - 1752.6 MHz
UMTS 1900	Data	1852.4 - 1907.6 MHz
LTE Band 71	Data	665.5 - 695.5 MHz
LTE Band 12	Data	699.7 - 715.3 MHz
LTE Band 13	Data	779.5 - 784.5 MHz
LTE Band 14	Data	790.5 - 795.5 MHz
LTE Band 26	Data	814.7 - 848.3 MHz
LTE Band 5	Data	824.7 - 848.3 MHz
LTE Band 66	Data	1710.7 - 1779.3 MHz
LTE Band 4	Data	1710.7 - 1754.3 MHz
LTE Band 25	Data	1850.7 - 1914.3 MHz
LTE Band 2	Data	1850.7 - 1909.3 MHz
LTE Band 30	Data	2307.5 - 2312.5 MHz
LTE Band 41	Data	2498.5 - 2687.5 MHz
LTE Band 48	Data	3552.5 - 3697.5 MHz
NR Band n71	Data	665.5 - 695.5 MHz
NR Band n12	Data	701.5 - 713.5 MHz
NR Band n14	Data	790.5 - 795.5 MHz
NR Band n26	Data	816.5 - 846.5 MHz
NR Band n5	Data	826.5 - 846.5 MHz
NR Band n66	Data	1712.5 - 1777.5 MHz
NR Band n25	Data	1852.5 - 1912.5 MHz
NR Band n2	Data	1852.5 - 1907.5 MHz
NR Band n30	Data	2307.5 - 2312.5 MHz
NR Band n41	Data	2501.01 - 2685 MHz
NR Band n48	Data	3555 - 3694.98 MHz
NR Band n77	Data	3455.01 - 3544.98 MHz; 3705 - 3975 MHz
2.4 GHz WIFI	Data	2412 - 2472 MHz
5 GHz WIFI	Data	U-NII-1: 5180 - 5240 MHz U-NII-2A: 5260 - 5320 MHz U-NII-2C: 5500 - 5720 MHz U-NII-3: 5745 - 5825 MHz U-NII-4: 5845 - 5885 MHz
6 GHz WIFI	Data	U-NII-5: 5935 - 6415 MHz U-NII-6: 6435 - 6515 MHz U-NII-7: 6535 - 6875 MHz U-NII-8: 6895 - 7115 MHz
2.4 GHz Bluetooth	Data	2402 - 2480 MHz

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2.1 Time-Averaging Algorithm for RF Exposure Compliance

This Device is enabled with the Qualcomm® Smart Transmit feature for 2G/3G/4G/5G modes and with the Qualcomm® FastConnect TAS feature for WLAN technologies. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. Refer to the original Compliance Summary document in the detailed description of Qualcomm® Smart Transmit and Qualcomm® FastConnect TAS features (report SN could be found in Section 2.6 – Bibliography).

Note that Bluetooth operation is not enabled with Smart Transmit.

The Smart Transmit algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target, below the predefined time-averaged power limit (i.e., Plimit for WWAN), for each characterized technology and band (see Original RF Exposure Part 0 Test Report, report SN can be found in Section 2.6 - Bibliography).

The FastConnect TAS algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target, below the predefined time-averaged power limit (i.e., Plimit for WLAN), for each characterized technology and band (see Original RF Exposure Part 0 Test Report, report SN can be found in Section 2.6 - Bibliography).

Smart Transmit and FastConnect TAS allows the device to transmit at higher power instantaneously, as high as Pmax, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit. Below table shows Plimit EFS for WWAN and Plimit BDF for WLAN settings and maximum tune up output power Pmax configured for this EUT for various transmit conditions (Device State Index DSI). Note that the device uncertainty for WWAN and WLAN is 1.0dB for this EUT.

Exposure Scenario			Maximum Tune-Up Output Power*	Body Motion
Averaging Volume				1g
Spacing				0mm
DSI				1
Technology/Band	Antenna	Antenna Group	P _{max}	P _{limit}
2.4 GHz WIFI	Chain 0	AG0	20.0	18.50
2.4 GHz WIFI	Chain 1	AG1	20.0	18.00
5 GHz WIFI - UNII-1	Chain 0	AG0	16.0	13.50
5 GHz WIFI - UNII-1	Chain 1	AG1	16.0	14.50
5 GHz WIFI - UNII-3	Chain 1	AG1	20.5	11.25
5 GHz WIFI - UNII-4	Chain 0	AG0	17.0	12.50
5 GHz WIFI - UNII-4	Chain 1	AG1	17.0	11.25

The purpose of this report (Part 1 test) is to demonstrate that the EUT meets FCC SAR limits when transmitting in static transmission scenario at maximum allowable time-averaged power levels.

*Maximum tune up output power P_{max} is used to configure EUT during RF tune up procedure. The maximum allowed output power is equal to maximum Tune up output power + 1dB device design uncertainty.

The maximum time-averaged output power (dBm) for any Sub6 WWAN/WLAN technology, band, and DSI = minimum of “ P_{limit} EFS” and “Maximum tune up output power P_{max} ” + 1dB device uncertainty. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication 447498 D04v01.

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2.2 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D04v01.

Note: Targets for 802.11ax/be RU operations can be found in 802.11ax/be RU SAR Exclusion Appendix in the original filing.

Note: Targets for all other bands/exposure conditions can be found in the original filing.

2.2.1 2.4 GHz SISO/MIMO WLAN Output Power

The below table is applicable in the following conditions:

- DSI= 1 (Motion)

Band	IEEE 802.11 Modulated Output Power (in dBm)																							
	SISO/SISO in MIMO												SISO/SISO in MIMO											
	Chain 0						Chain 1						Chain 0						Chain 1					
	b	g	n	ac	ax (SU)	be (SU)	b	g	n	ac	ax (SU)	be (SU)	b	g	n	ac	ax (SU)	be (SU)	b	g	n	ac	ax (SU)	be (SU)
Maximum / Nominal Power	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
2.4 GHz WLAN (20 MHz)	19.5	18.5	19.5	18.5	19.5	18.5	19.5	18.5	19.5	18.5	19.5	18.5	19.0	18.0	19.0	18.0	19.0	18.0	19.0	18.0	19.0	18.0	19.0	18.0
	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0	ch. 1: 16.0	15.0
	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0	ch. 2: 18.0	17.0
	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0	ch. 3: 19.0	18.0
	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5	ch. 10: 15.5	14.5
2.4 GHz WLAN (40MHz)	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5	ch. 12: 16.5	15.5
	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0	ch. 13: 9.0	8.0
	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5	ch. 11: 14.5	13.5
	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0	ch. 12: 13.0	12.0
	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0	ch. 13: -7.0	-8.0

2.2.2 5 GHz SISO/MIMO WLAN Output Power

The below table is applicable in the following conditions:

- DSI= 1 (Motion)

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Mode	Band	IEEE 802.11 Modulated Output Power (in dBm)																			
		SISO/SISO in MIMO										SISO/SISO in MIMO									
		Chain 0										Chain 1									
		a		n		ac		ax (SU)		be (SU)		a		n		ac		ax (SU)		be (SU)	
Maximum / Nominal Power		Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.	Max	Nom.
5 GHz WiFi (20MHz BW)	UNI-1	14.50	13.50	14.50	13.50	14.50	13.50	14.50	13.50	14.50	13.50	15.50	14.50	15.50	14.50	15.50	14.50	15.50	14.50	15.50	14.50
	UNI-2A	13.75	12.75	13.75	12.75	13.75	12.75	13.75	12.75	13.75	12.75	15.25	14.25	15.25	14.25	15.25	14.25	15.25	14.25	15.25	14.25
	UNI-2C	14.25	13.25	14.25	13.25	14.25	13.25	14.25	13.25	14.25	13.25	14.00	13.00	14.00	13.00	14.00	13.00	14.00	13.00	14.00	13.00
	UNI-3	14.25	13.25	14.25	13.25	14.25	13.25	14.25	13.25	14.25	13.25	12.25	11.25	12.25	11.25	12.25	11.25	12.25	11.25	12.25	11.25
	UNI-4	13.50	12.50	13.50	12.50	13.50	12.50	13.50	12.50	13.50	12.50	12.25	11.25	12.25	11.25	12.25	11.25	12.25	11.25	12.25	11.25
5 GHz WiFi (40MHz BW)	UNI-1	ch. 38: 13.00		14.50	13.50	14.50	13.50	14.50	13.50	14.50	13.50	ch. 38: 13.00		15.50	14.50	15.50	14.50	15.50	14.50	15.50	14.50
	UNI-2A			13.75	12.75	13.75	12.75	13.75	12.75	13.75	12.75			15.25	14.25	15.25	14.25	15.25	14.25	15.25	14.25
	UNI-2C	ch. 102: 12.00		14.25	13.25	14.25	13.25	14.25	13.25	14.25	13.25	ch. 102: 12.00		14.00	13.00	14.00	13.00	14.00	13.00	14.00	13.00
	UNI-3			14.25	13.25	14.25	13.25	14.25	13.25	14.25	13.25			12.25	11.25	12.25	11.25	12.25	11.25	12.25	11.25
	UNI-4			13.50	12.50	13.50	12.50	13.50	12.50	13.50	12.50			12.25	11.25	12.25	11.25	12.25	11.25	12.25	11.25
5 GHz WiFi (80MHz BW)	UNI-1					13.00	12.00	13.00	12.00	13.00	12.00					13.00	12.00	13.00	12.00	13.00	12.00
	UNI-2A					13.75	12.75	13.75	12.75	13.75	12.75					14.00	13.00	14.00	13.00	14.00	13.00
	UNI-2C	ch. 106: 13.50				14.25	13.25	14.25	13.25	14.25	13.25	ch. 106: 13.50				14.00	13.00	14.00	13.00	14.00	13.00
	UNI-3					14.25	13.25	14.25	13.25	14.25	13.25					12.25	11.25	12.25	11.25	12.25	11.25
	UNI-4					13.50	12.50	13.50	12.50	13.50	12.50					12.25	11.25	12.25	11.25	12.25	11.25
5 GHz WiFi (160MHz BW)	UNI-1/2A					12.00	11.00	12.00	11.00	12.00	11.00					12.00	11.00	12.00	11.00	12.00	11.00
	UNI-2C					8.50	7.50	8.50	7.50	8.50	7.50					8.50	7.50	8.50	7.50	8.50	7.50
	UNI-3/4					12.50	11.50	12.50	11.50	12.50	11.50					12.25	11.25	12.25	11.25	12.25	11.25

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2.1 DUT Antenna Locations

The overall dimensions of this device is > 200 mm. A diagram showing the location of the device antennas can be found in the DUT Antenna Diagram and SAR Test Setup Photographs Appendix. Exact dimensions and separation distances are shown in the Technical Descriptions in the original FCC filings.

Table 2-1
Device Edges/Sides for SAR Testing

Antenna	Back	Front	Top	Bottom	Right	Left
Chain 0	No	No	No	Yes	No	No
Chain 1	No	No	No	Yes	No	No

Note: Note: Per FCC KDB Publication 616217 D04v01r01, particular edges were not required to be evaluated for SAR based on the SAR exclusion threshold in KDB 447498 D04v01. Additional edges may have been evaluated for simultaneous transmission analysis.

2.2 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D04v01, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D04v01 4.3.2 procedures.

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Table 2-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Body
1	2.4 GHz WLAN MIMO	Yes
2	5 GHz WLAN MIMO	Yes
3	6 GHz WLAN MIMO	Yes
4	2.4 GHz Bluetooth Beam Forming	Yes
5	2.4 GHz WLAN Chain 0 + 2.4 GHz Bluetooth Chain 1	Yes
6	2.4 GHz Bluetooth Chain 0 + 2.4 GHz WLAN Chain 1	Yes
7	5 GHz WLAN Chain 0 + 2.4 GHz Bluetooth Chain 1	Yes
8	6 GHz WLAN Chain 0 + 2.4 GHz Bluetooth Chain 1	Yes
9	2.4 GHz Bluetooth Chain 0 + 5 GHz WLAN Chain 1	Yes
10	2.4 GHz Bluetooth Chain 0 + 6 GHz WLAN Chain 1	Yes
11	5 GHz WLAN MIMO + 2.4 GHz Bluetooth Chain 0	Yes
12	6 GHz WLAN MIMO + 2.4 GHz Bluetooth Chain 0	Yes
13	5 GHz WLAN MIMO + 2.4 GHz Bluetooth Chain 1	Yes
14	6 GHz WLAN MIMO + 2.4 GHz Bluetooth Chain 1	Yes
15	2.4 GHz WLAN MIMO + 5 GHz WLAN MIMO	Yes
16	2.4 GHz WLAN MIMO + 6 GHz WLAN MIMO	Yes
17	5 GHz WLAN MIMO + 2.4 GHz WLAN Chain 0	Yes
18	6 GHz WLAN MIMO + 2.4 GHz WLAN Chain 0	Yes
19	5 GHz WLAN MIMO + 2.4 GHz WLAN Chain 1	Yes
20	6 GHz WLAN MIMO + 2.4 GHz WLAN Chain 1	Yes
21	2.4 GHz Bluetooth Chain 0 + 2.4 GHz WLAN Chain 1 + 5 GHz WLAN Chain 1	Yes
22	2.4 GHz Bluetooth Chain 0 + 2.4 GHz WLAN Chain 1 + 6 GHz WLAN Chain 1	Yes
23	2.4 GHz WLAN Chain 0 + 5 GHz WLAN Chain 0 + 2.4 GHz Bluetooth Chain 1	Yes
24	2.4 GHz WLAN Chain 0 + 6 GHz WLAN Chain 0 + 2.4 GHz Bluetooth Chain 1	Yes
25	5 GHz WLAN MIMO + 2.4 GHz Bluetooth Chain 0 + 2.4 GHz WLAN Chain 1	Yes
26	6 GHz WLAN MIMO + 2.4 GHz Bluetooth Chain 0 + 2.4 GHz WLAN Chain 1	Yes
27	5 GHz WLAN MIMO + 2.4 GHz WLAN Chain 0 + 2.4 GHz Bluetooth Chain 1	Yes
28	6 GHz WLAN MIMO + 2.4 GHz WLAN Chain 0 + 2.4 GHz Bluetooth Chain 1	Yes
29	2.4 GHz WLAN Chain 0 + 5 GHz WLAN Chain 1	Yes
30	2.4 GHz WLAN Chain 0 + 6 GHz WLAN Chain 1	Yes
31	5 GHz WLAN Chain 0 + 2.4 GHz WLAN Chain 1	Yes
32	6 GHz WLAN Chain 0 + 2.4 GHz WLAN Chain 1	Yes
33	5 GHz WLAN Chain 1 + 2.4 GHz Bluetooth Chain 1	Yes
34	6 GHz WLAN Chain 1 + 2.4 GHz Bluetooth Chain 1	Yes
35	5 GHz WLAN Chain 0 + 2.4 GHz Bluetooth Chain 0	Yes
36	6 GHz WLAN Chain 0 + 2.4 GHz Bluetooth Chain 0	Yes
37	2.4 GHz WLAN MIMO + 5 GHz WLAN Chain 0	Yes
38	2.4 GHz WLAN MIMO + 6 GHz WLAN Chain 0	Yes
39	2.4 GHz WLAN MIMO + 5 GHz WLAN Chain 1	Yes
40	2.4 GHz WLAN MIMO + 6 GHz WLAN Chain 1	Yes
41	2.4 GHz WLAN Chain 1 + 5 GHz WLAN Chain 1	Yes
42	2.4 GHz WLAN Chain 1 + 6 GHz WLAN Chain 1	Yes
43	2.4 GHz WLAN Chain 0 + 5 GHz WLAN Chain 0	Yes
44	2.4 GHz WLAN Chain 0 + 6 GHz WLAN Chain 0	Yes
45	5 GHz WLAN MIMO + 2.4 GHz Bluetooth Beam Forming	Yes
46	6 GHz WLAN MIMO + 2.4 GHz Bluetooth Beam Forming	Yes
47	2.4 GHz WLAN Chain 0 + WWAN	Yes
48	2.4 GHz WLAN Chain 1 + WWAN	Yes
49	2.4 GHz Bluetooth Chain 0 + WWAN	Yes
50	2.4 GHz Bluetooth Chain 1 + WWAN	Yes
51	5 GHz WLAN Chain 0 + WWAN	Yes
52	5 GHz WLAN Chain 1 + WWAN	Yes
53	6 GHz WLAN Chain 0 + WWAN	Yes
54	6 GHz WLAN Chain 1 + WWAN	Yes
55	LTE + NR	Yes

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1. This device supports 2x2 MIMO Tx for WLAN 802.11b/a/g/n/ac/ax/be. 802.11b/a/g/n/ac/ax/be supports CDD and STBC and 802.11n/ac/ax/be additionally supports SDM.
2. This device supports Bluetooth Tethering.
3. For simultaneous scenarios 1-46, these WLAN simultaneous TX modes can also transmit simultaneously with the WWAN transmission modes.
4. 2.4 GHz WLAN Chain 0 and 2.4 GHz Bluetooth Chain 0 share the same antenna path and cannot transmit simultaneously.
5. 2.4 GHz WLAN Chain 1 and 2.4 GHz Bluetooth Chain 1 share the same antenna path and cannot transmit simultaneously.
6. 5 GHz WLAN and 6 GHz WLAN share the same antenna path and cannot transmit simultaneously.

2.3 Miscellaneous SAR Test Considerations

(A) WIFI/BT

This device supports IEEE 802.11ac with the following features:

- a) Up to 160 MHz Bandwidth only
- b) No aggregate channel configurations
- c) 2 Tx antenna output
- d) 256 QAM is supported
- e) TDWR and Band gap channels are supported

This device supports IEEE 802.11ax/be with the following features:

- a) Up to 320 MHz Bandwidth only for 5/6 GHz
- b) Up to 40 MHz Bandwidth only for 2.4 GHz
- c) 2 Tx antenna output
- d) Up to 1024 QAM is supported
- e) TDWR and Band gap channels are supported for 5/6 GHz
- f) MU-MIMO UL Operations are not supported

Per FCC Guidance, 802.11ax/be RU was considered a higher order 802.11 mode when compared to a/b/g/n/ac/be to apply KDB Publication 248227 D01v02r02 for OFDM mode selection. Therefore, SAR tests were not required for 802.11ax/be RU based on the maximum allowed output powers of OFDM modes and the reported SAR values.

This device supports channel 1-13 for 2.4 GHz WLAN. However, because channel 12/13 targets are not higher than that of channels 1-11, channels 1, 6, and 11 were considered for SAR testing per FCC KDB 248227 D01V02r02.

2.4 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D04v01 (General SAR Guidance)
- April 2019 TCB Workshop Notes (IEEE 802.11ax/be)
- FCC KDB Publication 616217 D04v01r02
- IEC 62479:2010
- SPEAG DASY6 System Handbook
- IEC/IEEE 63195-1:2022

2.5 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational

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tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 11.

2.6 Bibliography

Report Type	Report Serial Number
RF Exposure Part 1 Test Report – Original filing	1M2504010035-03.C3K (Rev1)
RF Exposure Part 2 WLAN Test Report – Original filing	1M2504010035-12.C3K
RF Exposure Part 2 WWAN Test Report – Original filing	1M2504010035-06.C3K
RF Exposure Compliance Summary Report – Original filing	1M2504010035-05.C3K
RF Exposure Part 0 Test Report – Original filing	1M2504010035-04.C3K

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3

LTE AND NR INFORMATION

LTE Information					
Frequency Range of each LTE transmission band	LTE Band 71: 665.5 - 695.5 MHz				
	LTE Band 12: 699.7 - 715.3 MHz				
	LTE Band 13: 779.5 - 784.5 MHz				
	LTE Band 14: 790.5 - 795.5 MHz				
	LTE Band 26: 814.7 - 848.3 MHz				
	LTE Band 5: 824.7 - 848.3 MHz				
	LTE Band 66: 1710.7 - 1779.3 MHz				
	LTE Band 4: 1710.7 - 1754.3 MHz				
	LTE Band 25: 1850.7 - 1914.3 MHz				
	LTE Band 2: 1850.7 - 1909.3 MHz				
	LTE Band 30: 2307.5 - 2312.5 MHz				
	LTE Band 48: 3552.5 - 3697.5 MHz				
	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
Channel Bandwidths	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 14: 5 MHz, 10 MHz				
	LTE Band 26: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz				
	LTE Band 5: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 30: 5 MHz, 10 MHz				
	LTE Band 48: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)	680.5 (133297)	695.5 (133447)		
LTE Band 71: 10 MHz	668 (133172)	680.5 (133297)	693 (133422)		
LTE Band 71: 15 MHz	670.5 (133197)	680.5 (133297)	690.5 (133397)		
LTE Band 71: 20 MHz	673 (133222)	680.5 (133297)	688 (133372)		
LTE Band 12: 1.4 MHz	699.7 (23017)	707.5 (23095)	715.3 (23173)		
LTE Band 12: 3 MHz	700.5 (23025)	707.5 (23095)	714.5 (23165)		
LTE Band 12: 5 MHz	701.5 (23035)	707.5 (23095)	713.5 (23155)		
LTE Band 12: 10 MHz	704 (23060)	707.5 (23095)	711 (23130)		
LTE Band 13: 5 MHz	779.5 (23205)	782 (23230)	784.5 (23255)		
LTE Band 13: 10 MHz	(N/A)	782 (23230)	(N/A)		
LTE Band 14: 5 MHz	790.5 (23305)	793 (23330)	795.5 (23355)		
LTE Band 14: 10 MHz	(N/A)	793 (23330)	(N/A)		
LTE Band 26: 1.4 MHz	814.7 (26697)	831.5 (26865)	848.3 (27033)		
LTE Band 26: 3 MHz	815.5 (26705)	831.5 (26865)	847.5 (27025)		
LTE Band 26: 5 MHz	816.5 (26715)	831.5 (26865)	846.5 (27015)		
LTE Band 26: 10 MHz	819 (26740)	831.5 (26865)	844 (26990)		
LTE Band 26: 15 MHz	821.5 (26765)	831.5 (26865)	841.5 (26965)		
LTE Band 5: 1.4 MHz	824.7 (20407)	836.5 (20525)	848.3 (20643)		
LTE Band 5: 3 MHz	825.5 (20415)	836.5 (20525)	847.5 (20635)		
LTE Band 5: 5 MHz	826.5 (20425)	836.5 (20525)	846.5 (20625)		
LTE Band 5: 10 MHz	829 (20450)	836.5 (20525)	844 (20600)		
LTE Band 66: 1.4 MHz	1710.7 (131979)	1745 (132322)	1779.3 (132665)		
LTE Band 66: 3 MHz	1711.5 (131987)	1745 (132322)	1778.5 (132657)		
LTE Band 66: 5 MHz	1712.5 (131997)	1745 (132322)	1777.5 (132647)		
LTE Band 66: 10 MHz	1715 (132022)	1745 (132322)	1775 (132622)		
LTE Band 66: 15 MHz	1717.5 (132047)	1745 (132322)	1772.5 (132597)		
LTE Band 66: 20 MHz	1720 (132072)	1745 (132322)	1770 (132572)		
LTE Band 4: 1.4 MHz	1710.7 (19667)	1732.5 (20175)	1754.3 (20393)		
LTE Band 4: 3 MHz	1711.5 (19665)	1732.5 (20175)	1753.5 (20385)		
LTE Band 4: 5 MHz	1712.5 (19675)	1732.5 (20175)	1752.5 (20375)		
LTE Band 4: 10 MHz	1715 (20000)	1732.5 (20175)	1750 (20350)		
LTE Band 4: 15 MHz	1717.5 (20025)	1732.5 (20175)	1747.5 (20325)		
LTE Band 4: 20 MHz	1720 (20050)	1732.5 (20175)	1745 (20300)		
LTE Band 25: 1.4 MHz	1850.7 (26047)	1862.5 (26365)	1914.3 (26683)		
LTE Band 25: 3 MHz	1851.5 (26055)	1862.5 (26365)	1913.5 (26675)		
LTE Band 25: 5 MHz	1852.5 (26065)	1862.5 (26365)	1912.5 (26665)		
LTE Band 25: 10 MHz	1855 (26090)	1862.5 (26365)	1910 (26640)		
LTE Band 25: 15 MHz	1857.5 (26115)	1862.5 (26365)	1907.5 (26615)		
LTE Band 25: 20 MHz	1860 (26140)	1862.5 (26365)	1905 (26590)		
LTE Band 2: 1.4 MHz	1850.7 (18607)	1880 (18900)	1909.3 (19193)		
LTE Band 2: 3 MHz	1851.5 (18615)	1880 (18900)	1908.5 (19185)		
LTE Band 2: 5 MHz	1852.5 (18625)	1880 (18900)	1907.5 (19175)		
LTE Band 2: 10 MHz	1855 (18650)	1880 (18900)	1905 (19150)		
LTE Band 2: 15 MHz	1857.5 (18675)	1880 (18900)	1902.5 (19125)		
LTE Band 2: 20 MHz	1860 (18700)	1880 (18900)	1900 (19100)		
LTE Band 30: 5 MHz	2307.5 (27685)	2310 (27710)	2312.5 (27735)		
LTE Band 30: 10 MHz	(N/A)	2310 (27710)	(N/A)		
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 48: 5 MHz	3552.5 (55265)	3600.8 (55748)	(N/A)	3649.2 (56232)	3697.5 (56715)
LTE Band 48: 10 MHz	3555 (55290)	3601.7 (55757)	(N/A)	3648.3 (56223)	3695 (56690)
LTE Band 48: 15 MHz	3557.5 (55315)	3602.5 (55765)	(N/A)	3647.5 (56215)	3692.5 (56665)
LTE Band 48: 20 MHz	3560 (55340)	3603.3 (55773)	(N/A)	3646.7 (56207)	3690 (56640)
UE Category	UL UE Cat 18, DL UE Cat 19				
Modulations Supported in UL	QPSK, 16QAM, 64QAM, 256QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3-6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 15. It supports carrier aggregation, downlink MIMO features as shown in the RF Conducted Powers section of this report. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 15 Features are not supported: Relay, HetNet, Enhanced MIMO, eCIC, eMBMS, Wi-Fi Offloading, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

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NR Information				
Frequency Range of each NR transmission band	NR Band n71: 665.5 - 695.5 MHz			
	NR Band n12: 701.5 - 713.5 MHz			
	NR Band n14: 790.5 - 798.5 MHz			
	NR Band n26: 816.5 - 846.5 MHz			
	NR Band n5: 826.5 - 846.5 MHz			
	NR Band n66: 1712.5 - 1777.5 MHz			
	NR Band n25: 1852.5 - 1912.5 MHz			
	NR Band n2: 1852.5 - 1907.5 MHz			
	NR Band n30: 2307.5 - 2312.5 MHz			
	NR Band n41: 2501.01 - 2585 MHz			
	NR Band n48: 3555 - 3894.98 MHz			
	NR Band n77: 3455.01 - 3544.98 MHz; 3705 - 3975 MHz			
	NR Band n71: 5 MHz, 10 MHz, 15 MHz, 20 MHz			
	NR Band n12: 5 MHz, 10 MHz, 15 MHz			
	NR Band n14: 5 MHz, 10 MHz			
	NR Band n26: 5 MHz, 10 MHz, 15 MHz, 20 MHz			
	NR Band n5: 5 MHz, 10 MHz, 15 MHz, 20 MHz			
	NR Band n66: 5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz			
	NR Band n25: 5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz			
	NR Band n2: 5 MHz, 10 MHz, 15 MHz, 20 MHz			
Channel Bandwidths	NR Band n30: 5 MHz, 10 MHz			
	NR Band n41: 10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz; 50 MHz, 60 MHz, 80 MHz, 90 MHz, 100 MHz			
	NR Band n48: 10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz			
	NR Band n77: 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz			
Channel Numbers and Frequencies (MHz)				
	NR Band n71: 5 MHz	665.5 (133100)	680.5 (136100)	695.5 (139100)
	NR Band n71: 10 MHz	668 (133600)	680.5 (136100)	693 (136600)
	NR Band n71: 15 MHz	670.5 (134100)	680.5 (136100)	690.5 (138100)
	NR Band n71: 20 MHz	673 (134600)	680.5 (136100)	688 (137600)
	NR Band n12: 5 MHz	701.5 (140300)	707.5 (141500)	713.5 (142700)
	NR Band n12: 10 MHz	704 (140800)	707.5 (141500)	711 (142200)
	NR Band n12: 15 MHz	706.5 (141300)	707.5 (141500)	708.5 (141700)
	NR Band n14: 5 MHz	790.5 (158100)	793 (158600)	795.5 (159100)
	NR Band n14: 10 MHz	793 (158600)	793 (158600)	793 (158600)
	NR Band n26: 5 MHz	816.5 (163300)	831.5 (166300)	846.5 (169300)
	NR Band n26: 10 MHz	819 (163800)	831.5 (166300)	844 (168800)
	NR Band n26: 15 MHz	821.5 (164300)	831.5 (166300)	841.5 (168300)
	NR Band n26: 20 MHz	824 (164800)	831.5 (166300)	839 (167800)
	NR Band n5: 5 MHz	826.5 (165300)	836.5 (167300)	846.5 (169300)
	NR Band n5: 10 MHz	829 (165800)	836.5 (167300)	844 (168800)
	NR Band n5: 15 MHz	831.5 (166300)	836.5 (167300)	841.5 (168300)
	NR Band n5: 20 MHz	834 (166800)	836.5 (167300)	839 (167800)
	NR Band n66: 5 MHz	1712.5 (342500)	1745 (349000)	1777.5 (355500)
	NR Band n66: 10 MHz	1715 (343000)	1745 (349000)	1775 (355000)
	NR Band n66: 15 MHz	1717.5 (343500)	1745 (349000)	1772.5 (354500)
Channel Numbers and Frequencies (MHz)	NR Band n66: 20 MHz	1720 (344000)	1745 (349000)	1770 (354000)
	NR Band n66: 25 MHz	1722.5 (344500)	1745 (349000)	1767.5 (353500)
	NR Band n66: 30 MHz	1725 (345000)	1745 (349000)	1765 (353000)
	NR Band n66: 40 MHz	1730 (346000)	1745 (349000)	1760 (352000)
	NR Band n25: 5 MHz	1852.5 (370500)	1882.5 (376500)	1912.5 (382500)
	NR Band n25: 10 MHz	1855 (371000)	1882.5 (376500)	1910 (382000)
	NR Band n25: 15 MHz	1857.5 (371500)	1882.5 (376500)	1907.5 (381500)
	NR Band n25: 20 MHz	1860 (372000)	1882.5 (376500)	1905 (381000)
	NR Band n25: 25 MHz	1862.5 (372500)	1882.5 (376500)	1902.5 (380500)
	NR Band n25: 30 MHz	1865 (373000)	1882.5 (376500)	1900 (380000)
	NR Band n25: 40 MHz	1870 (374000)	1882.5 (376500)	1895 (379000)
	NR Band n2: 5 MHz	1852.5 (370500)	1880 (376000)	1907.5 (381500)
	NR Band n2: 10 MHz	1855 (371000)	1880 (376000)	1905 (381000)
	NR Band n2: 15 MHz	1857.5 (371500)	1880 (376000)	1902.5 (380500)
	NR Band n2: 20 MHz	1860 (372000)	1880 (376000)	1900 (380000)
	NR Band n30: 5 MHz	2307.5 (461500)	2310 (462000)	2312.5 (462500)
	NR Band n30: 10 MHz	2310 (462000)	2310 (462000)	2310 (462000)
	NR Band n41: 10 MHz	2501.01 (500202)	2547 (509400)	2639.01 (527802)
	NR Band n41: 15 MHz	2503.5 (500700)	2548.26 (509652)	2637.75 (527550)
	NR Band n41: 20 MHz	2506.02 (501204)	2549.49 (509898)	2636.48 (527298)
	NR Band n41: 30 MHz	2511 (502200)	2552.01 (510402)	2634 (526800)
Channel Numbers and Frequencies (MHz)	NR Band n41: 40 MHz	2616.01 (523202)	2567.34 (513468)	2618.67 (523734)
	NR Band n41: 50 MHz	2521.02 (504204)	(N/A)	2664.99 (532998)
	NR Band n41: 60 MHz	2526 (505200)	2592.99 (518598)	2659.98 (531996)
	NR Band n41: 70 MHz	2531.01 (506202)	(N/A)	2665 (531000)
	NR Band n41: 80 MHz	2536.02 (507204)	(N/A)	2649.99 (529998)
	NR Band n41: 90 MHz	2541 (508200)	(N/A)	2644.98 (528996)
	NR Band n41: 100 MHz	2546.01 (509202)	2592.99 (518598)	2640 (528000)
	NR Band n48: 10 MHz	3555 (637000)	3601.68 (640112)	3648.33 (643222)
	NR Band n48: 15 MHz	3557.52 (637168)	3602.49 (640168)	3647.49 (643168)
	NR Band n48: 20 MHz	3560.01 (637334)	3603.33 (640222)	3646.68 (643112)
	NR Band n48: 30 MHz	3565.02 (637858)	3605.01 (640334)	3645 (643000)
	NR Band n48: 40 MHz	3570 (638000)	(N/A)	3639.98 (643332)
	NR Band n77 DoD: 10 MHz	3455.01 (630334)	3500.01 (633334)	3544.98 (636332)
	NR Band n77 DoD: 15 MHz	3457.5 (630500)	3500.01 (633334)	3542.49 (636166)
	NR Band n77 DoD: 20 MHz	3460.02 (630666)	3500.01 (633334)	3540 (636000)
	NR Band n77 DoD: 30 MHz	3465 (631000)	3500.01 (633334)	3534.99 (635666)
	NR Band n77 DoD: 40 MHz	3470.01 (631334)	(N/A)	3529.98 (635332)
	NR Band n77 DoD: 50 MHz	3475.02 (631668)	(N/A)	3525 (635000)
	NR Band n77 DoD: 60 MHz	(N/A)	3500.01 (633334)	(N/A)
	NR Band n77 DoD: 70 MHz	(N/A)	3500.01 (633334)	(N/A)
	NR Band n77 DoD: 80 MHz	(N/A)	3500.01 (633334)	(N/A)
	NR Band n77 DoD: 90 MHz	(N/A)	3500.01 (633334)	(N/A)
Channel Numbers and Frequencies (MHz)	NR Band n77 DoD: 100 MHz	(N/A)	3500.01 (633334)	(N/A)
	NR Band n77: 10 MHz	3705 (647000)	3759 (650900)	3813 (654200)
	NR Band n77: 15 MHz	3707.52 (647168)	3760.5 (650700)	3813.51 (654234)
	NR Band n77: 20 MHz	3710.01 (647334)	3762 (650800)	3813.99 (654266)
	NR Band n77: 30 MHz	3715.02 (647858)	3765 (651000)	3815.01 (654334)
	NR Band n77: 40 MHz	3720 (648000)	3768 (651200)	3816 (654400)
	NR Band n77: 50 MHz	3725.01 (648334)	3762.49 (651166)	(N/A)
	NR Band n77: 60 MHz	3730.02 (648668)	3803.34 (653566)	(N/A)
	NR Band n77: 70 MHz	3735 (649000)	3804.99 (653666)	(N/A)
	NR Band n77: 80 MHz	3740.01 (649334)	(N/A)	3840 (656000)
	NR Band n77: 90 MHz	3745.02 (649668)	(N/A)	3840 (656000)
	NR Band n77: 100 MHz	3750 (650000)	(N/A)	3840 (656000)
	SCS for NR Band n71, n12, n14, n26, n5, n66, n25, n2, n30	15 kHz		
	SCS for NR Band n41, n48, n77, n77 DoD	30 kHz		
	Modulations Supported in UL	DFT-s-OFDM, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM, QPSK, 16QAM, 64QAM, 256QAM		
	A-MPR (Additional MPR) disabled for SAR Testing?	YES		
	EN-DC and NR Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations		
	LTE Anchor Bands for NR Band n71	2/48/66		
	LTE Anchor Bands for NR Band n12	2/48/66		
	LTE Anchor Bands for NR Band n14	N/A		
	LTE Anchor Bands for NR Band n26	N/A		
	LTE Anchor Bands for NR Band n5	2/30/48/66		
	LTE Anchor Bands for NR Band n66	5/12/13/14/48/71		
	LTE Anchor Bands for NR Band n25	12/13/26/48		
	LTE Anchor Bands for NR Band n2	5/12/13/14/48/71		
	LTE Anchor Bands for NR Band n30	5/12/14		
	LTE Anchor Bands for NR Band n41	2/4/12/25/29/71/66		
	LTE Anchor Bands for NR Band n48	2/5/13/66		
	LTE Anchor Bands for NR Band n77	2/5/12/13/14/25/30/41/66/71		

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4 INTRODUCTION

The FCC and Innovation, Science, and Economic Development Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

4.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 4-1).

Equation 4-1
SAR Mathematical Equation

$$SAR = \frac{d}{dt} \left(\frac{dU}{dm} \right) = \frac{d}{dt} \left(\frac{dU}{\rho dv} \right)$$

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \frac{\sigma \cdot E^2}{\rho}$$

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m³)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

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5 DOSIMETRIC ASSESSMENT

5.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 5-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 5-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
 - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 5-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
 - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

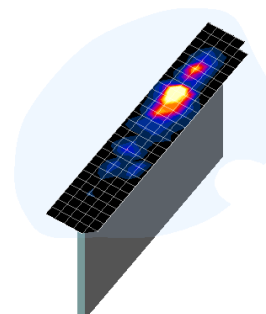


Figure 5-1
Sample SAR Area
Scan

Table 5-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*

Frequency	Maximum Area Scan Resolution (mm) ($\Delta x_{\text{area}}, \Delta y_{\text{area}}$)	Maximum Zoom Scan Resolution (mm) ($\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$)	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x,y,z)
			Uniform Grid	Graded Grid		
			$\Delta z_{\text{zoom}}(n)$	$\Delta z_{\text{zoom}}(1)^*$	$\Delta z_{\text{zoom}}(n>1)^*$	
≤ 2 GHz	≤ 15	≤ 8	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
2-3 GHz	≤ 12	≤ 5	≤ 5	≤ 4	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤ 5	≤ 4	≤ 3	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤ 4	≤ 3	≤ 2.5	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤ 2	≤ 2	≤ 1.5* $\Delta z_{\text{zoom}}(n-1)$	≥ 22

*Also compliant to IEEE 1528-2013 Table 6

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6 TEST CONFIGURATION POSITIONS

6.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon = 3$ and loss tangent $\delta = 0.02$.

6.2 SAR Testing per KDB Publication 616217 D04v01r02

Per FCC KDB Publication 616217 D04v01r02, When antennas are incorporated in the keyboard section of a device, SAR is required for the bottom surface of the keyboard. The SAR Exclusion Threshold in KDB 447498 D04v01 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom. Please see the exact antenna locations shown in the Technical Descriptions document.

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7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

7.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

7.3 RF Exposure Limits for Frequencies Below 6 GHz

Table 7-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (W/kg) or (mW/g)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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8.1 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

8.1.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

8.1.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.1.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 – 5.65 GHz in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification. Unless band gap channels are permanently disabled, SAR must be considered for these channels. Each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

8.1.4 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

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- 2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n/ax OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.1.5 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. Per April 2019 TCB Workshop guidance, 802.11ax was considered the highest order 802.11 mode. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

8.1.6 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.1.7 MIMO SAR considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB Publication 447498 D04v01 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is <1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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9.1 WLAN Conducted Powers

Table 9-1

2.4 GHz WLAN Measured P_{limit} Average RF Power for DSI = 1 (Motion) - Chain 0

2.4GHz WIFI (20MHz 802.11b SISO Chain 0)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	18.52
2437	6		18.64
2462	11		18.44

Table 9-2

2.4 GHz WLAN Measured P_{limit} Average RF Power for DSI = 1 (Motion) - Chain 1

2.4GHz WIFI (20MHz 802.11b SISO Chain 1)			
Freq. [MHz]	Channel	Detector	Conducted Power [dBm]
2412	1	Average	18.45
2437	6		18.25
2462	11		18.31

Table 9-3

5 GHz WLAN Measured P_{limit} Average RF Power for DSI = 1 (Motion) - Chain 0

5GHz WIFI (40MHz 802.11n SISO Chain 0)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5190	38	11.40
	5230	46	13.35
5GHz WIFI (80MHz 802.11ac SISO Chain 0)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-4	5885	171	12.25

Table 9-4

5 GHz WLAN Measured P_{limit} Average RF Power for DSI = 1 (Motion) - Chain 1

5GHz WIFI (40MHz 802.11n SISO Chain 1)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5190	38	11.31
	5230	46	14.30
5GHz WIFI (160MHz 802.11ac SISO Chain 1)			
Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-3/4	5815	163	10.88

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.

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- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.

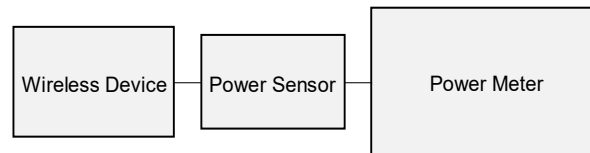


Figure 9-1
Power Measurement Setup

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10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Head Tissue Properties

Calibrated for Tests Performed on	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
11/03/2025	2450 Head	20.4	2100	1.712	39.055	1.670	39.500	2.51%	0.60%
			2110	1.710	39.055	1.670	39.480	2.38%	0.60%
			2120	1.726	39.815	1.687	39.490	2.31%	0.60%
			2130	1.705	39.041	1.706	39.289	1.62%	1.02%
			2140	1.825	39.003	1.800	39.200	1.39%	1.03%
			2150	1.850	39.568	1.833	39.182	0.93%	1.04%
			2160	1.887	39.011	1.855	39.126	0.65%	1.01%
			2170	1.875	39.006	1.865	39.123	-0.49%	0.98%
			2180	1.896	39.463	1.880	39.092	0.16%	0.96%
			2190	1.910	39.448	1.900	39.072	0.05%	0.96%
			2200	1.915	39.451	1.920	39.050	-0.10%	0.95%
			2210	1.850	39.367	1.864	39.009	-0.71%	0.92%
			2220	1.996	39.271	2.076	39.045	-1.09%	0.84%
			2230	2.022	39.189	2.051	39.007	-1.41%	0.72%
			2240	2.037	39.148	2.073	39.002	-1.74%	0.68%
			2250	4.579	39.117	4.608	39.000	-0.63%	-2.42%
			2260	4.582	39.103	4.618	39.040	-0.65%	-2.43%
			2270	4.603	39.167	4.628	39.030	-0.66%	-2.41%
			2280	4.600	39.141	4.620	39.020	-0.66%	-2.35%
			10/20/2025	5200-5800 Head	19.2	3100	4.633	39.136	4.650
3110	4.642	39.107				4.660	39.075	-0.61%	-2.41%
3120	4.691	39.073				4.676	39.063	-0.63%	-2.47%
3130	4.675	39.053				4.690	39.040	-0.43%	-2.61%
3140	4.691	39.089				4.706	39.029	-0.35%	-2.65%
3150	4.700	39.073				4.711	39.017	-0.30%	-2.63%
3160	4.714	39.064				4.727	39.006	-0.28%	-2.62%
3170	4.725	39.052				4.737	39.004	-0.27%	-2.62%
3180	4.739	39.047				4.748	39.003	-0.21%	-2.61%
3190	4.749	39.043				4.758	39.001	-0.19%	-2.60%
3200	4.759	39.040				4.768	39.000	-0.21%	-2.62%
3210	4.767	39.036				4.776	39.049	-0.23%	-2.66%
3220	4.774	39.033				4.783	39.046	-0.24%	-2.67%
3230	4.782	39.030				4.791	39.053	-0.25%	-2.68%
3240	4.790	39.027				4.799	39.060	-0.26%	-2.69%
3250	4.798	39.024				4.807	39.067	-0.27%	-2.70%
3260	4.806	39.021				4.815	39.074	-0.28%	-2.71%
3270	4.814	39.018				4.823	39.081	-0.29%	-2.72%
3280	4.822	39.015				4.831	39.088	-0.30%	-2.73%
11/03/2025	5200-5800 Head	19.8				3290	4.830	39.012	4.839
			3300	4.838	39.009	4.847	39.102	-0.32%	-2.75%
			3310	4.846	39.006	4.855	39.109	-0.33%	-2.76%
			3320	4.854	39.003	4.863	39.116	-0.34%	-2.77%
			3330	4.862	39.000	4.871	39.123	-0.35%	-2.78%
			3340	4.870	38.997	4.879	39.130	-0.36%	-2.79%
			3350	4.878	38.994	4.887	39.137	-0.37%	-2.80%
			3360	4.886	38.991	4.895	39.144	-0.38%	-2.81%
			3370	4.894	38.988	4.903	39.151	-0.39%	-2.82%
			3380	4.902	38.985	4.911	39.158	-0.40%	-2.83%
			3390	4.910	38.982	4.919	39.165	-0.41%	-2.84%
			3400	4.918	38.979	4.927	39.172	-0.42%	-2.85%
			3410	4.926	38.976	4.935	39.179	-0.43%	-2.86%
			3420	4.934	38.973	4.943	39.186	-0.44%	-2.87%
			3430	4.942	38.970	4.951	39.193	-0.45%	-2.88%
			3440	4.950	38.967	4.959	39.200	-0.46%	-2.89%
			3450	4.958	38.964	4.967	39.207	-0.47%	-2.90%
			3460	4.966	38.961	4.975	39.214	-0.48%	-2.91%
			3470	4.974	38.958	4.983	39.221	-0.49%	-2.92%
			3480	4.982	38.955	4.991	39.228	-0.50%	-2.93%

10.1 Test System Verification

Prior to SAR assessment, the system is verified to ±10% of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in the SAR System Validation Appendix.

Table 10-2
System Verification Results

System Verification TARGET & MEASURED																	
SAR System	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp. (C)	Liquid Temp. (C)	Input Power (W)	Source SN	Probe SN	DAE	Measured SAR 1g (W/kg)	1W Target SAR 1g (W/kg)	1W Normalized SAR 1g (W/kg)	Deviation 1g (%)	Measured SAR 10g (W/kg)	1W Target SAR 10g (W/kg)	1W Normalized SAR 10g (W/kg)	Deviation 10g (%)
O	2450	HEAD	11/03/2025	20.9	20.4	0.10	797	7718	1407	4.88	52.60	48.80	-7.22%	2.28	24.80	22.80	-8.06%
O	5250	HEAD	10/20/2025	19.5	19.2	0.05	1191	7718	1407	3.70	78.90	74.00	-6.21%	1.06	22.70	21.20	-6.61%
S	5250	HEAD	11/03/2025	20.7	19.8	0.05	1057	7661	1558	3.71	79.40	74.20	-6.55%	1.07	22.70	21.40	-5.73%
S	5600	HEAD	11/03/2025	20.7	19.8	0.05	1057	7661	1558	3.82	82.80	76.40	-7.73%	1.09	23.60	21.80	-7.63%
O	5750	HEAD	10/20/2025	19.5	19.2	0.05	1191	7718	1407	3.80	78.90	76.00	-3.68%	1.08	22.40	21.60	-3.57%
S	5750	HEAD	11/03/2025	20.7	19.8	0.05	1057	7661	1558	3.72	79.80	74.40	-6.77%	1.06	22.70	21.20	-6.61%
O	5850	HEAD	10/20/2025	19.5	19.2	0.05	1191	7718	1407	3.80	78.80	76.00	-3.55%	1.07	22.50	21.40	-4.89%
S	5850	HEAD	11/03/2025	20.7	19.8	0.05	1057	7661	1558	4.06	81.50	81.20	-0.37%	1.16	23.00	23.20	0.87%

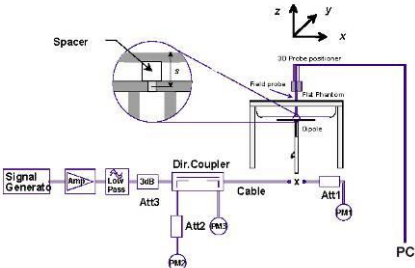


Figure 10-1
System Verification Setup Diagram



Figure 10-2
System Verification Setup Photo

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11 SAR DATA SUMMARY

11.1 2.4 GHz WLAN SISO Standalone SAR

Table 11-1
2.4 GHz WLAN - Motion, Plot A1

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]	Overall Plimit [dBm]
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	Chain 0	34946	98.19	0.11	2437.00	6	1.0	19.50	18.64	Bottom	0	0.409	1.219	1.018	0.508		22.4	22.4
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]	Overall Plimit [dBm]
Body	2.4 GHz WiFi / IEEE 802.11b	22	DSSS	Chain 1	34947	98.07	-0.03	2412.00	1	1.0	19.00	18.45	Bottom	0	0.690	1.135	1.020	0.799	Plot	19.9	19.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						

11.1 5 GHz WLAN SISO Standalone SAR

Table 11-2
5 GHz WLAN - Motion, Plot A2

Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	Chain 0	34947	99.61	-0.10	5190.00	38	U-NII-1	13.5	13.00	11.40	Bottom	0	0.398	1.445	1.004	0.577		15.3
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	Chain 0	34947	99.61	-0.02	5230.00	46	U-NII-1	13.5	14.50	13.35	Bottom	0	0.748	1.303	1.004	0.979		14.5
Body	5 GHz WiFi / IEEE 802.11ac	80	OFDM	Chain 0	34947	99.34	0.04	5855.00	171	U-NII-4	29.3	13.50	12.25	Bottom	0	0.667	1.334	1.007	0.896		13.9
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						
Exposure	Band / Mode	Bandwidth [MHz]	Service / Modulation	Ant.	Serial Number	Duty Cycle [%]	Power Drift [dB]	Frequency [MHz]	Channel #	U-NII band	Data Rate [Mbps]	Max Allowed Power [dBm]	Conducted Power [dBm]	Test Position	Spacing [mm]	Measured 1g SAR [W/kg]	Power Scaling Factor	Duty Cycle Scaling Factor	Reported 1g SAR [W/kg]	Plot #	Plimit [dBm]
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	Chain 1	34947	99.57	-0.14	5190.00	38	U-NII-1	13.5	13.00	11.31	Bottom	0	0.367	1.476	1.004	0.544		15.6
Body	5 GHz WiFi / IEEE 802.11n	40	OFDM	Chain 1	34947	99.57	-0.13	5230.00	46	U-NII-1	13.5	15.50	14.30	Bottom	0	0.750	1.338	1.004	0.992	Plot	15.5
Body	5 GHz WiFi / IEEE 802.11ac	160	OFDM	Chain 1	34947	99.38	-0.16	5815.00	163	U-NII-3/4	58.5	12.25	10.88	Bottom	0	0.599	1.371	1.006	0.826		13.0
ANSI/IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						

11.2 SAR Test Notes

General Notes:

- The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, FCC KDB Publication 447498 D04v01, and FCC KDB Publication 616217 D04v01r02.
- Batteries are fully charged at the beginning of the SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D04v01.
- This device uses Qualcomm Smart Transmit for 3G/4G/5G and FastConnect for WLAN operations to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, compliance for was assessed at the minimum of the time averaged power and the maximum output power for each band/mode/exposure condition (DSI).
- The orange highlights throughout the report represent the highest scaled SAR per Equipment Class.
- This device is equipped with a motion sensor for power reduction. Testing was performed at 25 mm on the worst case configuration based on the 0mm testing for all applicable antennas at max power to determine compliance for higher powers levels when the motion sensor is not tripped. Please refer to the original filing for detailed test results.

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9. This device uses Qualcomm FastConnect TAS for WLAN operations to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, compliance for was assessed at the minimum of the time averaged power and the maximum output power for each band/mode/exposure condition (DSI).

WLAN Notes:

10. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n/ax) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.1.4 for more information.
11. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.1.5 for more information.
12. When the maximum reported 1g averaged SAR is ≤ 0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
13. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
14. The device supports manufacturer's proprietary mechanism which can detect the motion of the device and then configure the power during portable scenarios. Details of this mechanism and evaluation can be found in the original Operational Description and the Power Reduction Verification Appendix in the original filing.

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The standalone reported SAR in the original filing was used to determine simultaneous transmission compliance as it is more conservative. Please see the original filing for complete evaluation of simultaneous transmission analysis

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13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, variability SAR tests were not required since measured SAR results for all frequency bands were less than 0.8 W/kg for 1g SAR.

13.2 Measurement Uncertainty

The measured SAR was <1.5 W/kg for 1g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

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14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	CBT	N/A	CBT	3051A00187
Agilent	N5182A	MXG Vector Signal Generator	5/30/2025	Annual	5/30/2026	MY48180366
Agilent	N5182A	MXG Vector Signal Generator	8/1/2025	Annual	8/1/2026	MY47420651
Agilent	8753ES	S-Parameter Vector Network Analyzer	1/6/2025	Annual	1/6/2026	MY40001472
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433974
Rohde & Schwarz	NRP2	Power Meter	5/23/2025	Annual	5/23/2026	103084
Anritsu	MA24106A	USB Power Sensor	5/29/2025	Annual	5/29/2026	1344554
Anritsu	MA24106A	USB Power Sensor	6/26/2025	Annual	6/26/2026	1827529
Insize	1108-150	Digital Caliper	2/25/2025	Annual	2/25/2026	711245294
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	240174346
Control Company	4052	Long Stem Thermometer	2/27/2024	Biennial	2/27/2026	240171096
Control Company	4040	Therm./ Clock/ Humidity Monitor	4/15/2024	Biennial	4/15/2026	240310280
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/15/2024	Biennial	10/15/2026	240763503
Testo	ALARM-HYGROMETER	ALARM-HYGROMETER	7/3/2025	Annual	7/3/2026	83316952
Keysight Technologies	N9020A	MXA Signal Analyzer	7/7/2025	Annual	7/7/2026	MY48010233
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MCL	BW-N3W5+	3dB Attenuator	CBT	N/A	CBT	2028
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	VLF-6000+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	31634
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	ZUDC10-83-S+	Directional Coupler	CBT	N/A	CBT	2050
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Seekonk	NC-100	Torque Wrench	4/2/2024	Biennial	4/2/2026	1262
SPEAG	DAK-3.5	Dielectric Assessment Kit	11/5/2024	Annual	11/5/2025	1277
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1237
SPEAG	MAIA	Modulation and Audio Interference Analyzer	N/A	N/A	N/A	1331
SPEAG	D2450V2	2450 MHz SAR Dipole	10/7/2025	Annual	10/7/2026	797
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/17/2024	Biennial	1/17/2026	1191
SPEAG	D5GHzV2	5 GHz SAR Dipole	2/21/2024	Biennial	2/21/2026	1057
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/5/2025	Annual	6/5/2026	1558
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/7/2025	Annual	4/7/2026	1407
SPEAG	EX3DV4	SAR Probe	4/8/2025	Annual	4/8/2026	7718
SPEAG	EX3DV4	SAR Probe	6/11/2025	Annual	6/11/2026	7661

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

Note: All equipment was used solely within its respective calibration period.

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15 MEASUREMENT UNCERTAINTIES

Note: The tables below represent the worst-case uncertainty budget among the uncertainty budgets of all testing laboratories listed in Section 1.2

SAR Uncertainty Budget based on IEEE 1528-2013 (0.3 GHz to 10 GHz)

a	b	c	d	e f(d,k)	f	g	h cx/f/e	i cxg/e	k
Uncertainty component	Reference	Tol. (± %)	Prob. dist.	Dvi.	ci (1g)	ci (10g)	1g ui (± %)	10g ui (± %)	vi
Measurement system									
Probe calibration	E.2.1	9.30	N	1	1	1	9.30	9.30	∞
Axial isotropy	E.2.2	0.25	N	1	0.707	0.707	0.18	0.18	∞
Hemispherical isotropy	E.2.2	1.30	N	1	0.707	0.707	0.92	0.92	∞
Boundary effect	E.2.3	2.00	R	1.73	1	1	1.15	1.15	∞
Linearity	E.2.4	0.30	R	1.73	1	1	0.17	0.17	∞
System detection limits	E.2.4	0.25	R	1.73	1	1	0.14	0.14	∞
Modulation response	E.2.5	4.80	R	1.73	1	1	2.77	2.77	∞
Readout electronics	E.2.6	0.30	N	1	1	1	0.30	0.30	∞
Response time	E.2.7	1.01	R	1.73	1	1	0.58	0.58	∞
Integration time	E.2.8	2.60	R	1.73	1	1	1.50	1.50	∞
RF ambient conditions - noise	E.6.1	3.00	R	1.73	1	1	1.73	1.73	∞
RF ambient conditions - reflections	E.6.1	3.00	R	1.73	1	1	1.73	1.73	∞
Probe positioner mechanical tolerance	E.6.2	0.04	R	1.73	1	1	0.02	0.02	∞
Probe positioning with respect to phantom shell	E.6.3	0.80	R	1.73	1	1	0.46	0.46	∞
Extrapolation, interpolation, and integration algorithms for max. SAR evaluation	E.5	4.00	R	1.73	1	1	2.31	2.31	∞
Test sample related									
Test sample positioning	E.4.2	3.12	N	1	1	1	3.12	3.12	35
Device holder uncertainty	E.4.1	1.67	N	1	1	1	1.67	1.67	5
Output power variation - SAR drift	E.2.9	5.00	R	1.73	1	1	2.89	2.89	∞
SAR scaling	E.6.5	0.00	R	1.73	1	1	0.00	0.00	∞
Phantom and tissue parameters									
Phantom shell uncertainty - shape, thickness and permittivity	E.3.1	7.60	R	1.73	1	1	4.39	4.39	∞
Uncertainty in SAR correction for deviations in permittivity and conductivity	E.3.2	0.00	N	1	1	1	0.00	0.00	∞
Liquid conductivity measurement	E.3.3	4.27	N	1	0.78	0.71	3.33	3.03	55
Liquid permittivity measurement	E.3.3	4.18	N	1	0.23	0.26	0.96	1.09	55
Liquid conductivity - temperature uncertainty	E.3.4	3.40	R	1.73	0.78	0.71	1.53	1.39	∞
Liquid permittivity - temperature uncertainty	E.3.4	0.60	R	1.73	0.23	0.26	0.08	0.09	∞
Liquid Conductivity - deviation from target values	E.3.2	5.00	R	1.73	0.64	0.43	1.85	1.24	∞
Liquid Permittivity - deviation from target values	E.3.2	5.00	R	1.73	0.60	0.49	1.73	1.41	∞
Combined standard uncertainty							13.1	12.9	150
Expanded uncertainty (95% confidence interval)							26.2	25.8	

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16 CONCLUSION

16.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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17 REFERENCES

- [1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.
- [2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.
- [3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.
- [4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.
- [5] IEEE Standards Coordinating Committee 39 –Standards Coordinating Committee 34 – IEEE Std. 1528-2013, IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.
- [6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.
- [7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.
- [8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 1 -124.
- [9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.
- [10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.
- [11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.
- [12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.
- [13] G. Hartsgrrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.
- [14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.
- [15] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.
- [16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.
- [17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.
- [18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.

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- [19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hochschule Zürich, Dosimetric Evaluation of the Cellular Phone.
- [20] IEC 62209-1, Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz), July 2016.
- [21] Innovation, Science, Economic Development Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 5, March 2015.
- [22] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2015
- [23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07
- [24] SAR Measurement Guidance for IEEE 802.11 Transmitters, KDB Publication 248227 D01
- [25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D03-D04
- [26] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04
- [27] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02
- [28] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D04
- [29] Anexo à Resolução No. 533, de 10 de Setembro de 2009.
- [30] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz), Mar. 2010.

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