RF SAFETY LAB
A NEXT GENERATION TEST LABORATORY™

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Time-Averaging Algorithm Validation Report

FCC ID:	**A3LSMS942JPN**
Model (s):	SC-51G, SCG36
Device Type:	Portable Handset
Report Issue Date:	December 19, 2025

Samsung Electronics, Co., Ltd.
129, Samsung-ro, Yeongtong-gu, Suwon-si
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Certification

The measurement evaluations presented in this report are based on the maximum performance of the tested device(s), which has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/ general population exposure federal limits in 47CFR § 1.1310 and has been tested in accordance with the measurement procedures specified within this report.

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ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 TESTING LABORATORY

BLOCKCHAIN VERIFIED

Steve Liu
President

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1. DUT Specifics

1.1. Time-Averaging Algorithm Verification

This report demonstrates that the Qualcomm® Smart Transmit enabled device is compliant under Tx varying transmission scenarios per Qualcomm's recommended test plan. Part 0 and Part 1 test reports complimenting this Time-Averaging Algorithm Validation Report are necessary for a comprehensive RF Exposure evaluation.

1.2. Device under Test

The manufacturer has confirmed that the device is within operational tolerances expected for production units and has the same physical, mechanical, and thermal characteristics expected for production units. The serial number of the device used for each test is indicated alongside the results.

1.3. Time-Averaging Algorithm for RF Exposure Compliance

This device is enabled with the Qualcomm® Smart Transmit Gen2 feature. This feature implements a time-averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with at all times.
Note that NFC operations are not enabled with Smart Transmit for this device.
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 sub-6 radio), for each characterized technology and band. Characterization is achieved by determining Plimit for WWAN sub-6/WLAN/BT that corresponds to the exposure design targets after accounting for all device design related uncertainties. The SAR characterization is denoted as SAR Char in this report.
Smart Transmit 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 settings and maximum tune up output power Pmax configured for this EUT for various transmit conditions (Device State Index DSI).

Table 1-1
SAR Design Calculations

SAR_design_target		
SAR_design_target < SAR_regulatory_limit × $10^{\frac{-Total\ Uncertainty}{10}}$		
	Head / Body 10g SAR	**Limbs 10g SAR**
Total Uncertainty	1.0 dB	1.0 dB
SAR_regulatory_limit	1.6 W/kg	4.0 W/kg
SAR_design_target	1.0 W/kg	2.5 W/kg

Table 1-2
DSI Descriptions

Scenario	Description	SAR Test Cases
Head (DSI = 1)	- Device positioned next to ear. - Receiver active.	*Head SAR per KDB Publication 648474 D04.*
Body-worn (DSI = 0)	- Device being use with a body-worn accessory	*Body-wornSAR per KDB Publication 648474 D04*
Hotspot (DSI = 0)	- Device transmits in hotspot mode near body. - Hotspot mode active.	*Hotspot SAR per KDB Publication 941225 D06.*
Phablet (DSI = 0)	- Device held to hand.	*Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D06.*

1.4. Time-Averaging Algorithm

Technical description includes detailed information regarding the implementation of the time-averaging algorithm and parameters used for this device.

1.5. Time-Averaging Algorithm Implementation

For this device, all WWAN, WLAN/Bluetooth technologies are controlled by the time-averaging algorithm.

1.6. Test Reduction

There is test reduction applied to this evaluation per Qualcomm 80-W2112-5 Appendix K for scenarios when a chipset and EFS version have already been fully assessed. The tests via power measurement are essential and the tests through RF exposure measurement are for the purpose of gaining a high confidence level. For this evaluation, essential conducted power measurement tests are required and performed to ensure that the Smart Transmit algorithm performs as expected and RF exposure measurements are excluded. Furthermore, as described in 80-W2112-5 Section 5.2.1, for time varying power transmission, one band per technology is considered.

1.7. Test Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r05, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D04v01 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)

2.1. SAR Characterization

Table 1-3
SAR Characterization

Exposure Scenario			Maximum Tune-Up Output Power*	Body-worn/ Hotspot/ Phablet	Head
DSI				DSI0	DSI1
Band/Mode	Antenna	Antenna Group	Pmax (dBm)	Plimit (dBm)	Plimit (dBm)
GSM 850	A	AG0	25.3	24.3	28.5
GSM 850	E	AG1	25.3	20.8	20.8
GSM 1900	A	AG0	22.1	18.8	27.1
UMTS Band 5	A	AG0	24.0	24.6	26.1
UMTS Band 5	E	AG1	24.0	21.5	20.0
LTE Band 12	A	AG0	24.0	25.7	28.6
LTE Band 12	E	AG1	24.0	21.0	19.0
LTE Band 13	A	AG0	24.0	26.0	27.5
LTE Band 13	E	AG1	24.0	22.0	21.0
LTE Band 5	A	AG0	24.0	25.4	26.9
LTE Band 5	E	AG1	24.0	21.5	20.0
LTE Band 66	A	AG0	23.5	16.0	25.4
LTE Band 4	A	AG0	23.5	16.0	25.4
LTE Band 2	A	AG0	23.5	17.0	26.3
LTE Band 41	B	AG0	22.0	18.0	32.2
LTE Band 41	F	AG1	22.0	18.5	16.0
NR Band n5	A	AG0	24.0	24.6	26.3
NR Band n5	E	AG1	24.0	23.0	20.0
NR Band n66	A	AG0	23.5	17.0	25.2
NR Band n66	F	AG1	23.5	17.5	16.5
NR Band n41 PC2 Switching	B	AG0	25.5	17.0	19.0
NR Band n41 PC2 Default	F	AG1	25.5	18.5	15.0
2.4 GHz WIFI	G	AG1	19.0	17.0	14.0
2.4 GHz WIFI	I	AG1	19.0	17.0	14.0
2.4 GHz WIFI	MIMO (G&I)	AG1	19.0	17.0	14.0
5 GHz WIFI	E	AG1	17.0	14.0	12.0
5 GHz WIFI	G	AG1	17.0	14.0	12.0
5 GHz WIFI	MIMO (G&E)	AG1	17.0	14.0	12.0
6 GHz WIFI	E	AG1	16.0	8.5	13.0
6 GHz WIFI	G	AG1	16.0	8.5	13.0
6 GHz WIFI	MIMO (G&E)	AG1	16.0	8.5	13.0
2.4 GHz Bluetooth	G	AG1	14.0	20.6	12.4
2.4 GHz Bluetooth	I	AG1	14.0	20.2	12.4
2.4 GHz Bluetooth	MIMO (G&I)	AG1	11.0	18.3	9.4

*Note all Plimit EFS and maximum tune up output power Pmax levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (e.g. LTE TDD).

The maximum time-averaged output power (dBm) for any Sub6 WWAN technology, band, and DSI = minimum of the "Plimit EFS" and "Maximum tune up output power Pmax", +1dB device uncertainty.

3. TAS Evaluation Test Cases

3.1. Part 2 Test Plan

Table 1-1
Part 2 Test Plan

Test Case	Test Scenario (Sub 6)	Tech	Band/Config	Antenna	DSI	Part 1 Measured Conducted Power [dBm]	Part 1 Measured SAR [W/kg]	Exposure Condition	Position, Distance	EFS Pmax [dBm]	EFS Plimit [dBm]	Measured Pmax [dBm]	Measured Plimit [dBm]
1	Time-varying Tx power transmission (Test Seq1/Test Seq2)	GSM Band #1, Test Seq 1	GPRS 850, 2 Tx Slots	E	0	20.32	0.626	Body Worn	Back, 5 mm	25.3	20.8	24.31	20.49
2		GSM Band #1, Test Seq 2	GPRS 850, 2 Tx Slots	E	0	20.32	0.626	Body Worn	Back, 5 mm	25.3	20.8	24.31	20.49
3		UMTS Band #1, Test Seq 1	UMTS B5	E	1	19.91	0.599	Head	Left Cheek, 0 mm	24	20	24.01	19.76
4		UMTS Band #1, Test Seq 2	UMTS B5	E	1	19.91	0.599	Head	Left Cheek, 0 mm	24	20	24.01	19.76
5		LTE Band #1, Test Seq 1	LTE B12, 1 RB, 0 RB Offset, QPSK	E	1	19.62	0.426	Head	Left Cheek, 0 mm	24	19	23.04	18.51
6		LTE Band #1, Test Seq 2	LTE B12, 1 RB, 0 RB Offset, QPSK	E	1	19.62	0.426	Head	Left Cheek, 0 mm	24	19	23.04	18.51
7		sub6 NR SA Band #1, Test Seq 1	NR n66, 1 RB, 240RB Offset, DFT-S-OFDM QPSK	A	0	17.39	0.798	Body Worn / Hotspot	Back, 5 mm	23.5	17	23.01	16.49
8		sub6 NR SA Band #1, Test Seq 2	NR n66, 1 RB, 240RB Offset, DFT-S-OFDM QPSK	A	0	17.39	0.798	Body Worn / Hotspot	Back, 5 mm	23.5	17	23.01	16.49
9		WLAN Band #1, Test Seq	5 GHz WLAN 802.11ac 20 MHz	E	1	11.77	0.496	Head	Left Cheek, 0 mm	17	12	16.21	11.85
10	call drop for conducted power test	UMTS	UMTS B5	E	1	19.91	0.599	Head	Left Cheek, 0 mm	24	20	24.01	19.76
11	Tech/Band/Ant switch for conducted power test	WLAN	5GHz WLAN 802.11ac 20 MHz BW	E	1	11.77	0.496	Head	Left Cheek, 0 mm	17	12	16.38	11.52
		LTE	LTE B41, 1RB, 0 RB Offset, QPSK	F	1	15.86	0.794	Head	Right Tilt, 0 mm	22	16	22.44	16.51
12	Time Window Switch (30s-100s-30s)	WLAN	5GHz WLAN 802.11ac 20 MHz BW	E	1	11.77	0.496	Head	Left Cheek, 0 mm	17	12	16.02	11.99
		LTE B5	LTE B5, 1 RB, 0 RB Offset, QPSK	E	1	19.78	0.626	Head	Left Cheek, 0 mm	24	20	24.03	19.89
13	Time Window Switch (100s-30s-100s)	LTE B5	LTE B5, 1 RB, 0 RB Offset, QPSK	E	1	19.78	0.626	Head	Left Cheek, 0 mm	24	20	24.03	19.89
		WLAN	5GHz WLAN 802.11ac 20 MHz BW	E	1	11.77	0.496	Head	Left Cheek, 0 mm	17	12	16.02	11.99
14	Exposure Category Switch (Head - Body - Head, 1-0-1)	UMTS B5	UMTS B5	E	1	19.91	0.599	Head	Left Cheek, 0 mm	24	20	24.01	19.76
			UMTS B5	E	0	21.19	0.836	Body Worn / Hotspot	Back, 5 mm	24	21.5	24.01	21.25
15	Exposure Category Switch (Body - Head - Body, 0-1-0)	UMTS B5	UMTS B5	E	0	21.19	0.836	Body Worn / Hotspot	Back, 5 mm	24	21.5	24.01	21.25
			UMTS B5	E	1	19.91	0.599	Head	Left Cheek, 0 mm	24	20	24.01	19.76
16	WLAN SAR Exposure Switch - DBS Test	2.4 GHz WLAN + 5 GHz WLAN	2.4 GHz WLAN 802.11g/n 20 MHz	I	1	14.37	0.513	Head	Right Cheek, 0 mm	17	14	16.33	13.76
			5 GHz WLAN 802.11ac 20 MHz	E	1	11.77	0.496	Head	Left Cheek, 0 mm	17	12	16.01	11.03
17	System Level Compliance Continuity	LTE + WLAN + BT	LTE B41, 1RB, 0 RB Offset, QPSK	F	0	19.32	1.040	Body Worn / Hotspot	Back, 5 mm	22	18.5	22.27	19.34
			5 GHz WLAN 802.11ac 20 MHz	E	0	13.95	0.660	Body Worn	Back, 5 mm	17	14	16.01	13.01
			2.4 GHz BT	G	0	14.42	0.243	Body Worn / Hotspot	Back, 5 mm	12	12	10.74	10.74

Part 1 Measured Conducted Powers were converted to frame average powers.

3.2. TAS Test Cases and Notes:

1. Time-varying Tx power transmission: Test cases 1-9 listed in the table above are selected to test with test sequences.
2. Change in call: Test case 10 is selected as UMTS B5 has one of the lowest Plimit among all technologies and bands.
3. Technology/Band/Antenna Switch: Test case 11 is selected for handover test from a technology/band/antenna within one technology group (5 GHz WLAN 802.11ac, DSI=1) to another technology/band in the same DSI (LTE B41, DSI=1).
4. Time Window Switch: Test cases 12-13 are selected for handover test between two bands with different time windows (LTE B5, 5 GHz WLAN 802.11ac) in the same DSI and antenna.
5. Exposure Category Switch: Test cases 14-15 are selected for handover test from one Exposure Category (UMTS B5 DSI=1 Head) to another (UMTS B5 DSI=0 Body-Worn/ Hotspot /Phablet) and back to the original exposure category (UMTS B5 DSI=1 Head).
6. Dual Band Simultaneous (DBS): Test Case 16 is selected for dual band simultaneous transmission test case for 2.4GHz WLAN and 5GHz WLAN.
7. System Level Compliance Continuity (WWAN – WLAN – BT) : Test Case 17 is selected for system level compliance continuity test case with LTE B41 + 5 GHz WLAN + BT technologies. This test is performed while the USB is disconnected.
8. All switching, and system level compliance continuity test cases are selected to be performed within the same antenna group.
9. For this device, all EN-DC combinations operate with antennas in different antenna groups. Therefore, no EN-DC SAR Exposure Switch testing was performed.

3.3. EFS Version Verification

Per Qualcomm's 80-W2112-5 document, embedded file system (EFS) version was verified for Smart Tx generation for relevant MCC settings.

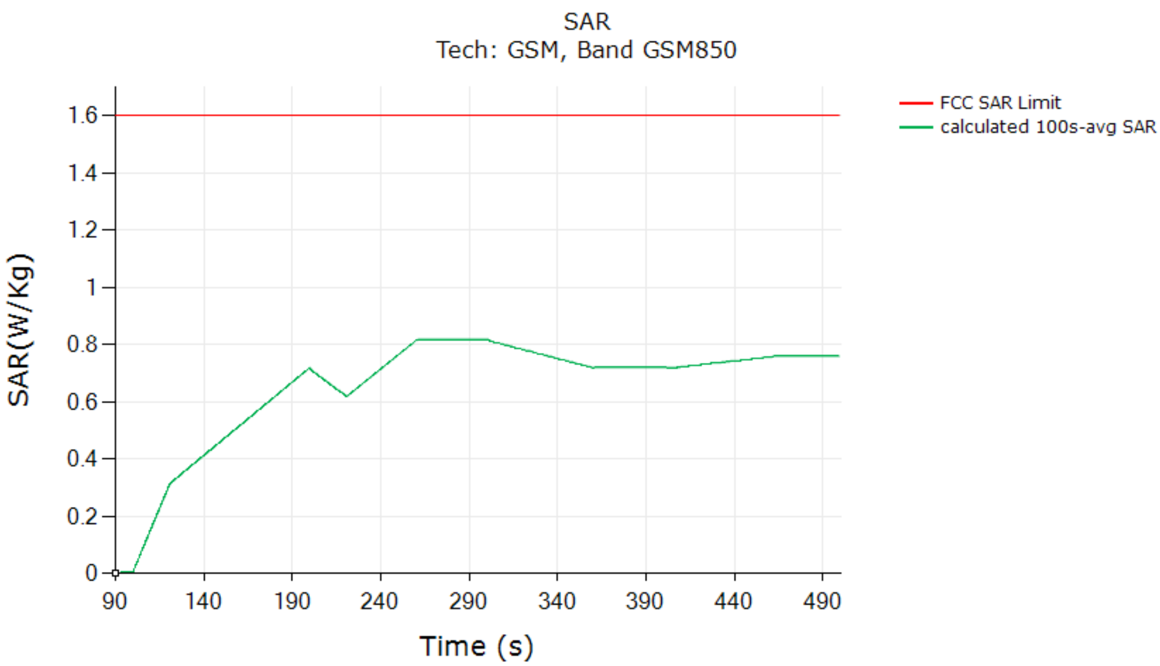
4. Part 2 Test Results

4.1. Conducted Tx Cases (Freq < 6 GHz)

Time-averaged conducted tx power is converted into time-averaged 1g SAR in the figures below. Please see below for time-averaged 1g SAR and SAR limit that the test result complies. Section 3 contains detailed information regarding the test configurations.

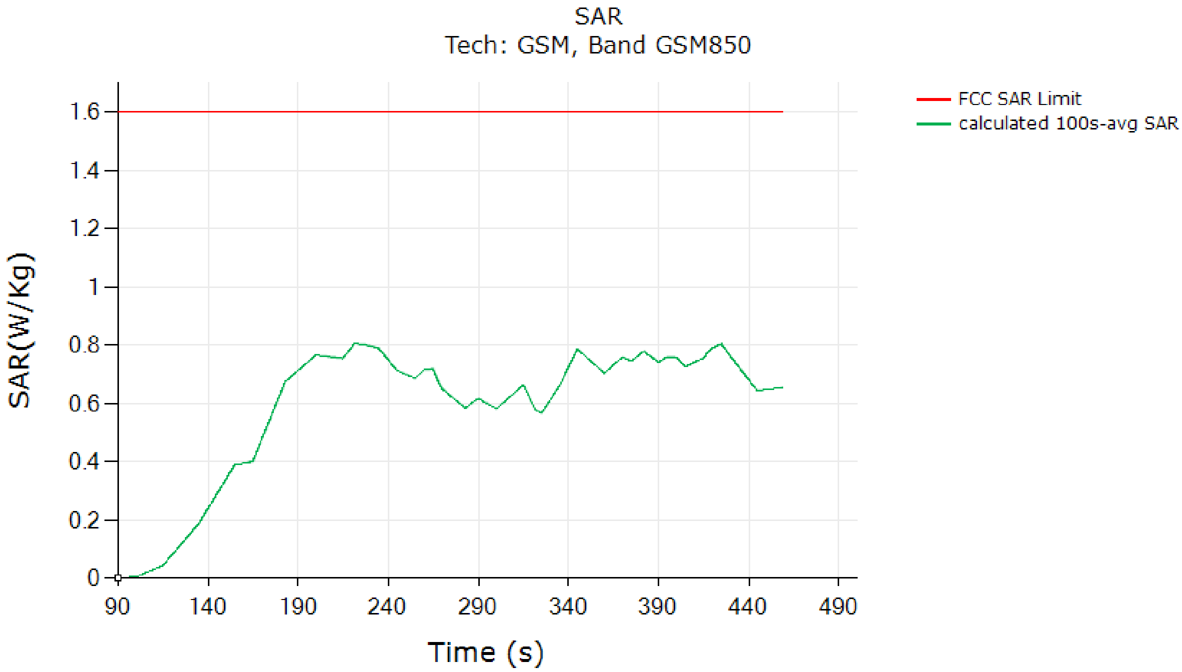
4.1.1. GPRS 850

Test Sequence 1



	W/kg
FCC SAR Limit	1.6
Max 100 sec time-averaged 1g SAR	0.818
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

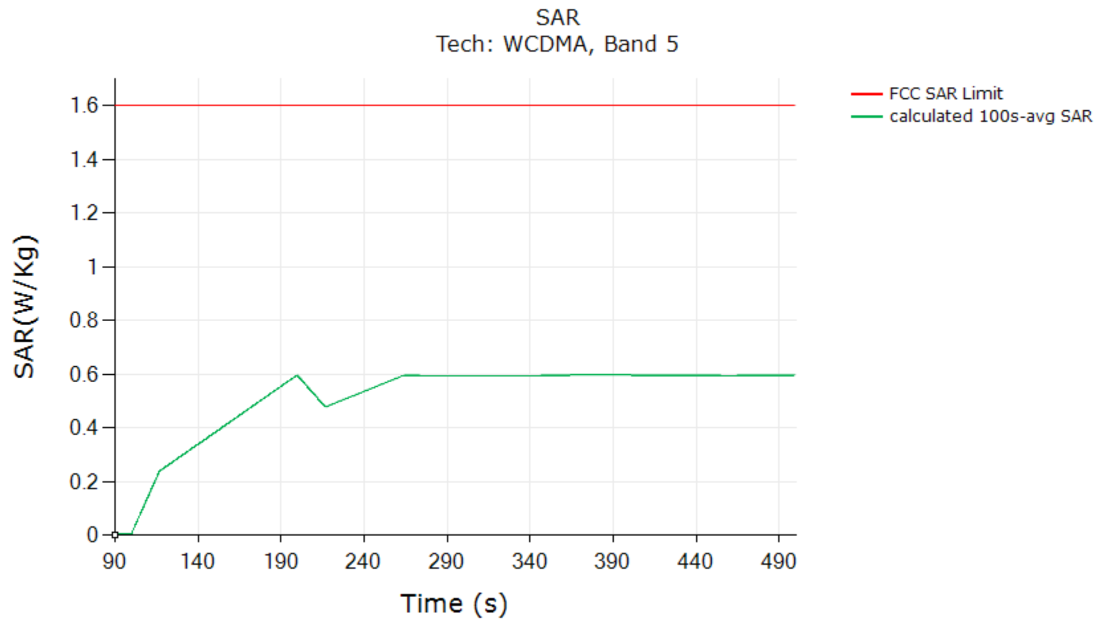
Test Sequence 2



	W/kg
FCC SAR Limit	1.6
Max 100 sec time-averaged 1g SAR	0.806
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

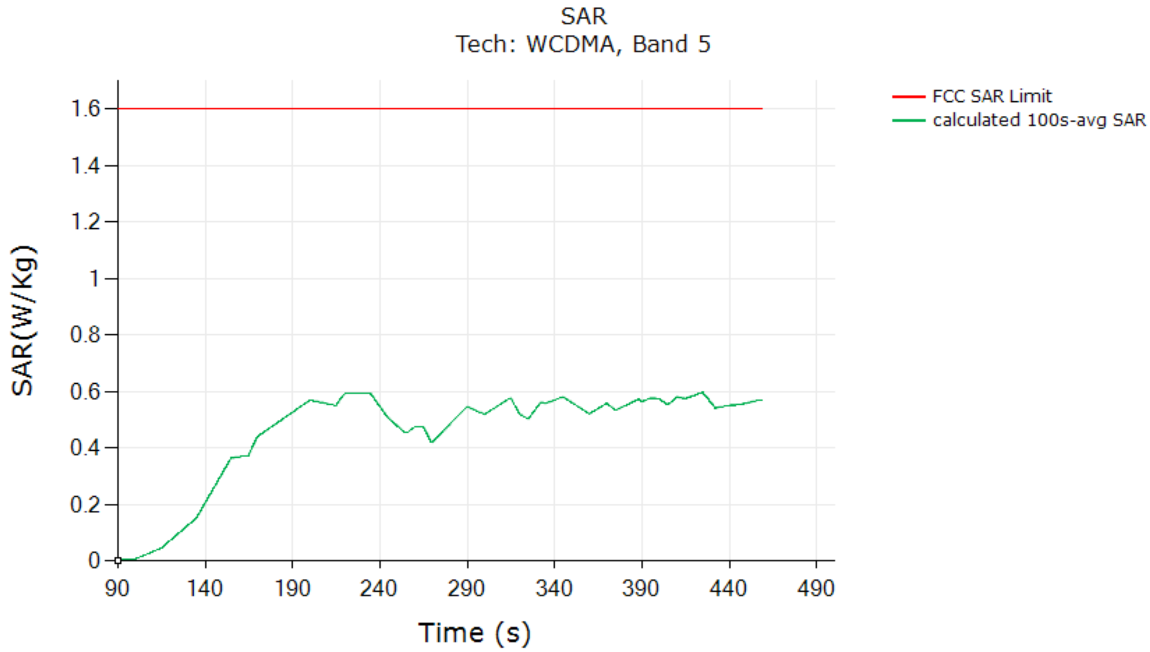
4.1.2. UMTS B5

<u>Test Sequence 1</u>



	W/kg
FCC SAR Limit	1.6
Max 100 sec time-averaged 1g SAR	0.597
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

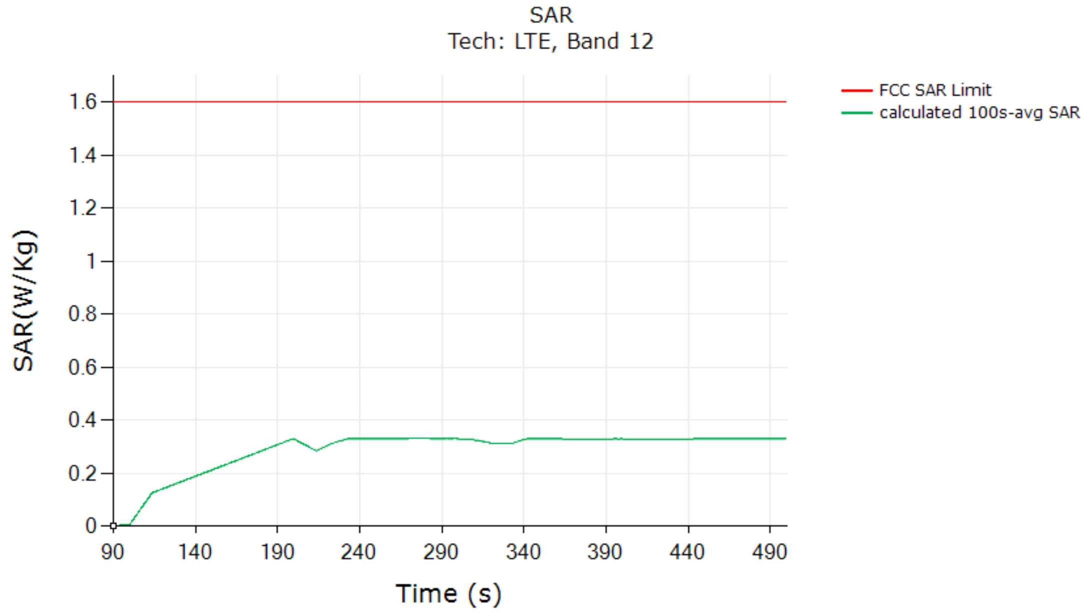
Test Sequence 2



	W/kg
FCC SAR Limit	1.6
Max 100 sec time-averaged 1g SAR	0.597
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

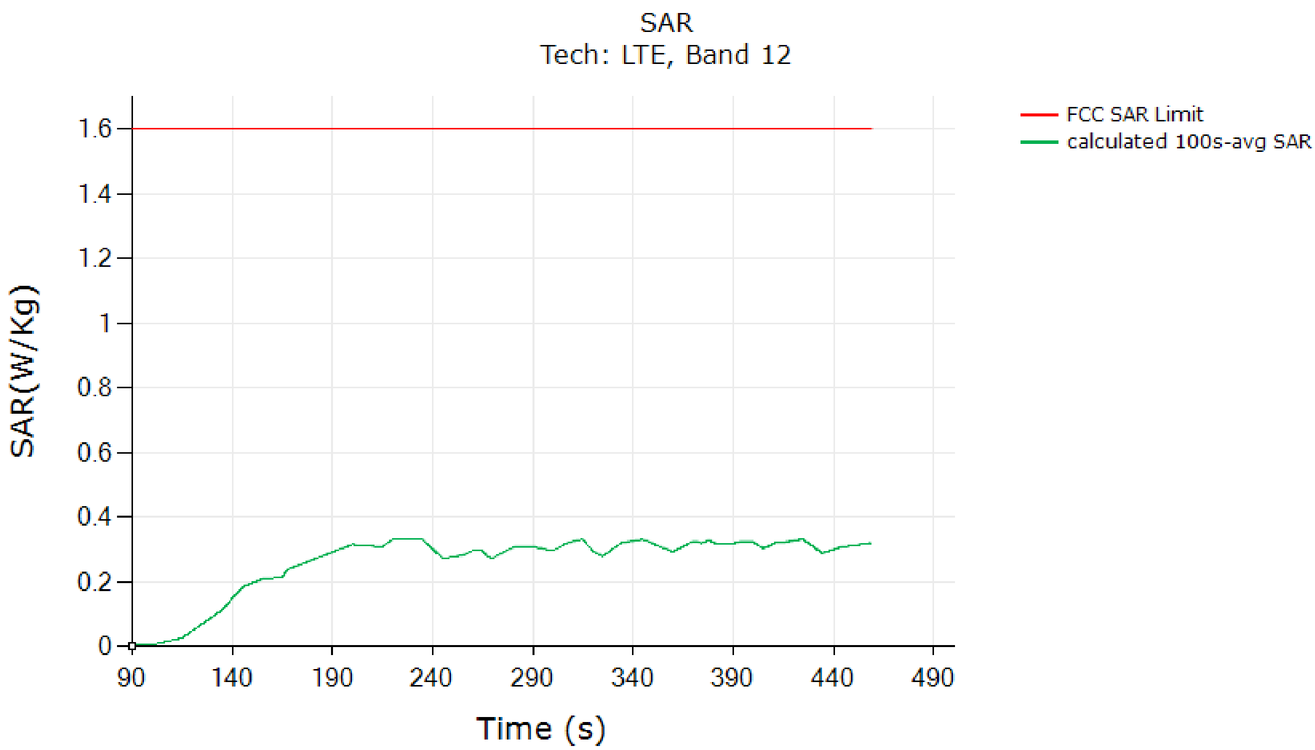
4.1.3. LTE B12

Test Sequence 1



	W/kg
FCC SAR Limit	1.6
Max 100 sec time-averaged 1g SAR	0.331
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

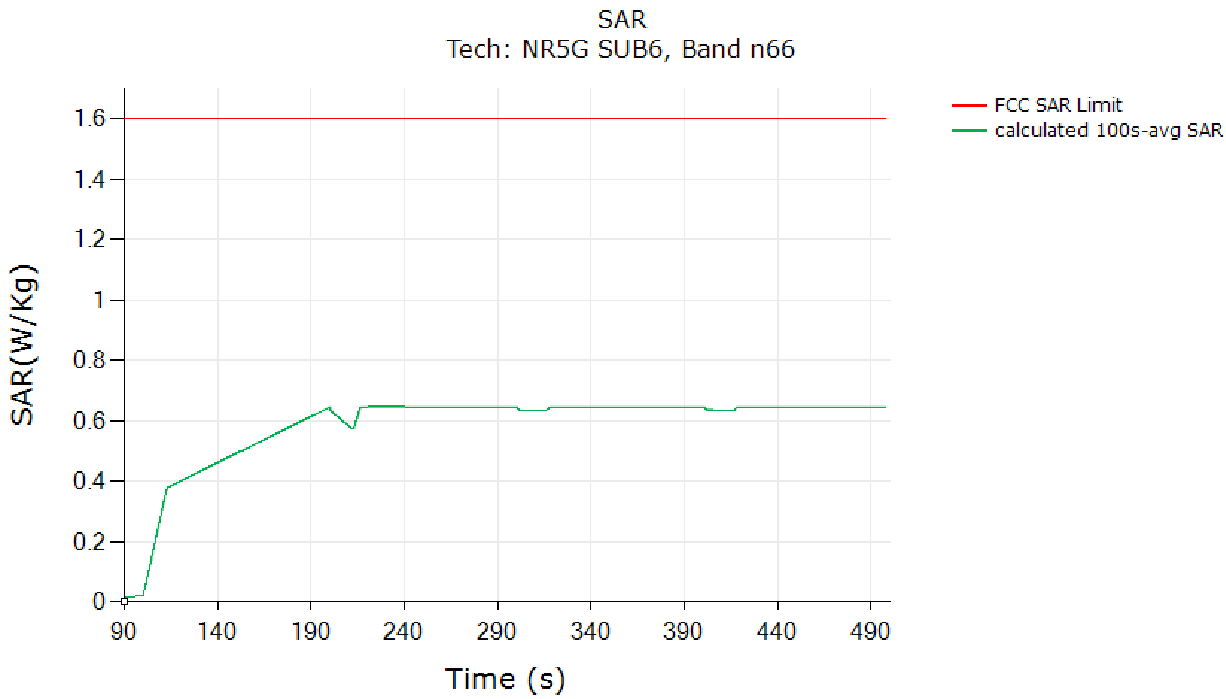
Test Sequence 2



	W/kg
FCC SAR Limit	1.6
Max 100 sec time-averaged 1g SAR	0.332
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

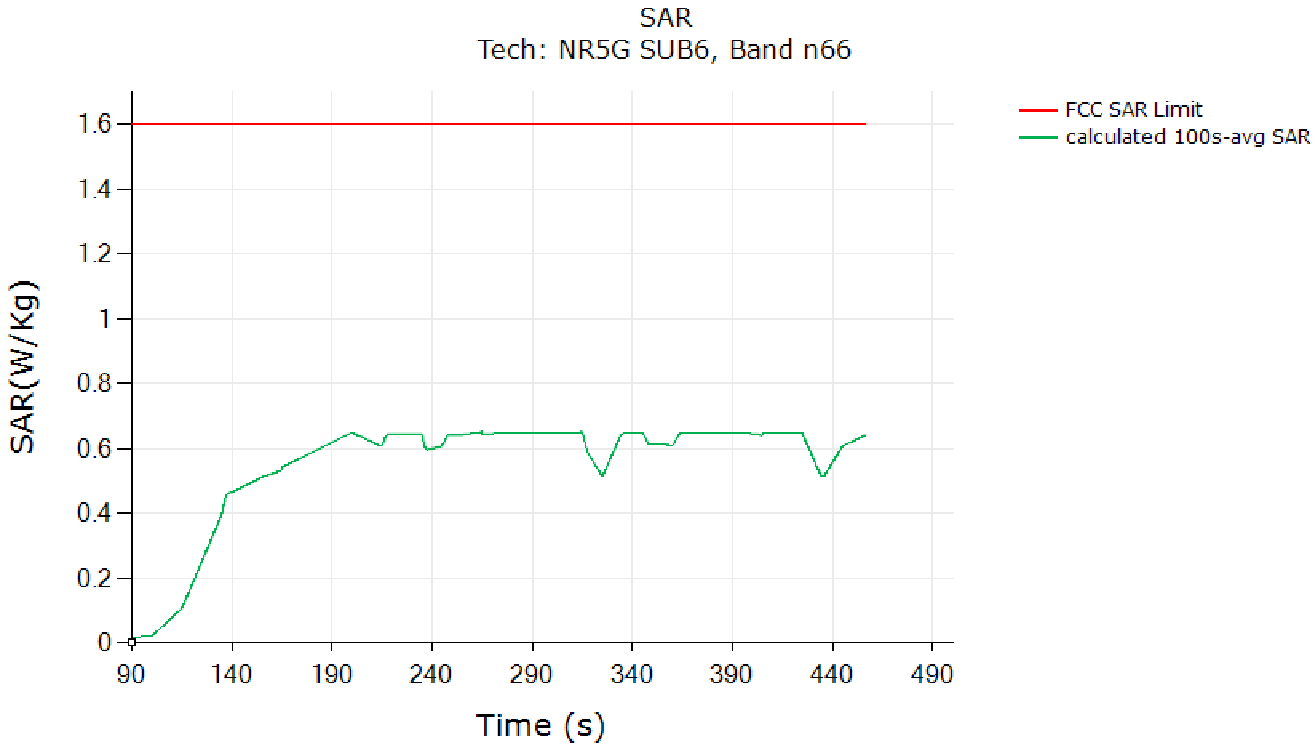
4.1.4. Sub6 NR n66

Test Sequence 1



	W/kg
FCC SAR Limit	1.6
Max 100 sec time-averaged 1g SAR	0.646
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

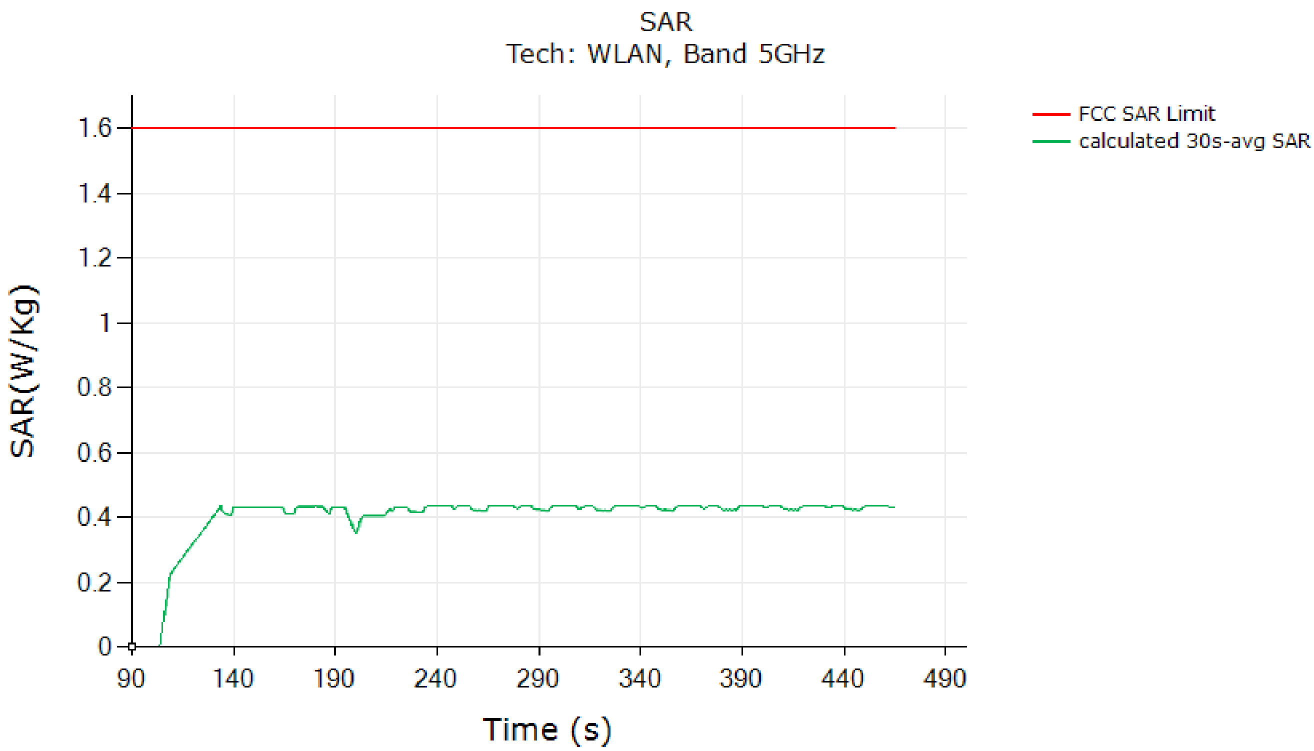
Test Sequence 2



	W/kg
FCC SAR Limit	1.6
Max 100 sec time-averaged 1g SAR	0.651
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

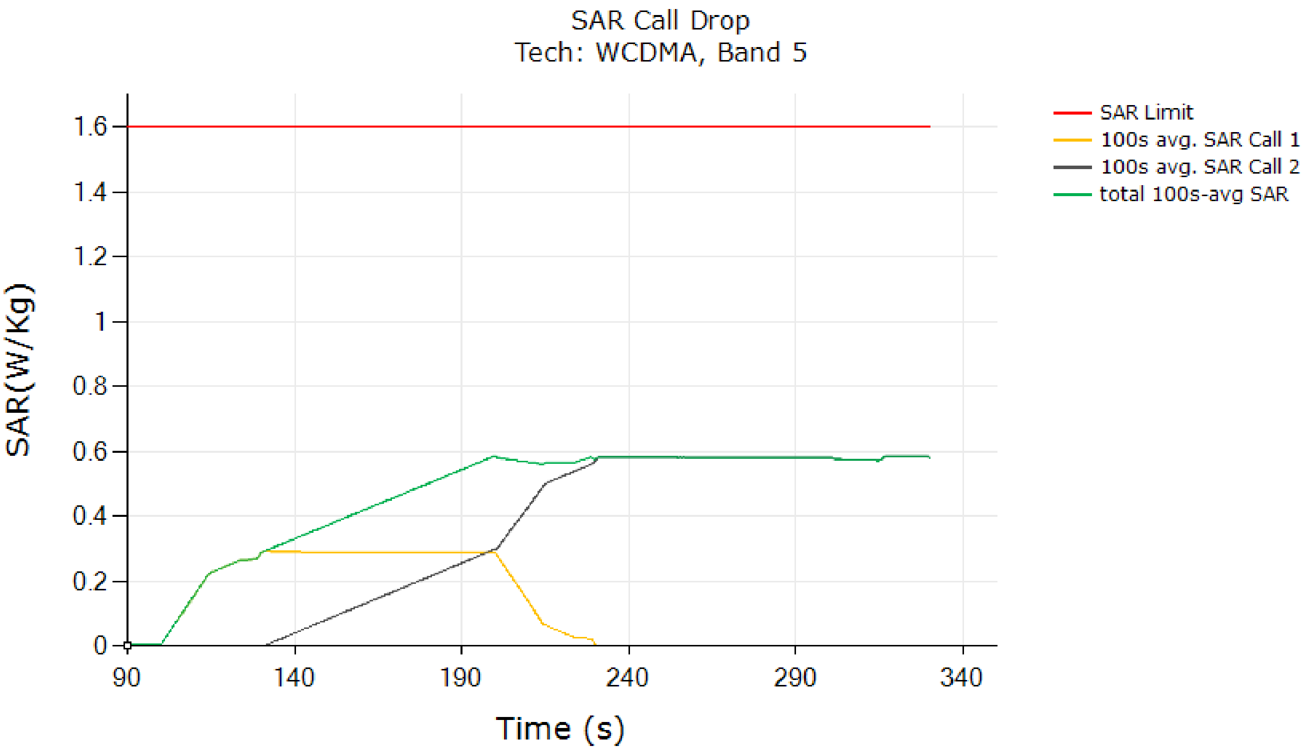
4.1.5. 5 GHz WLAN 802.11ac

Test Sequence 1



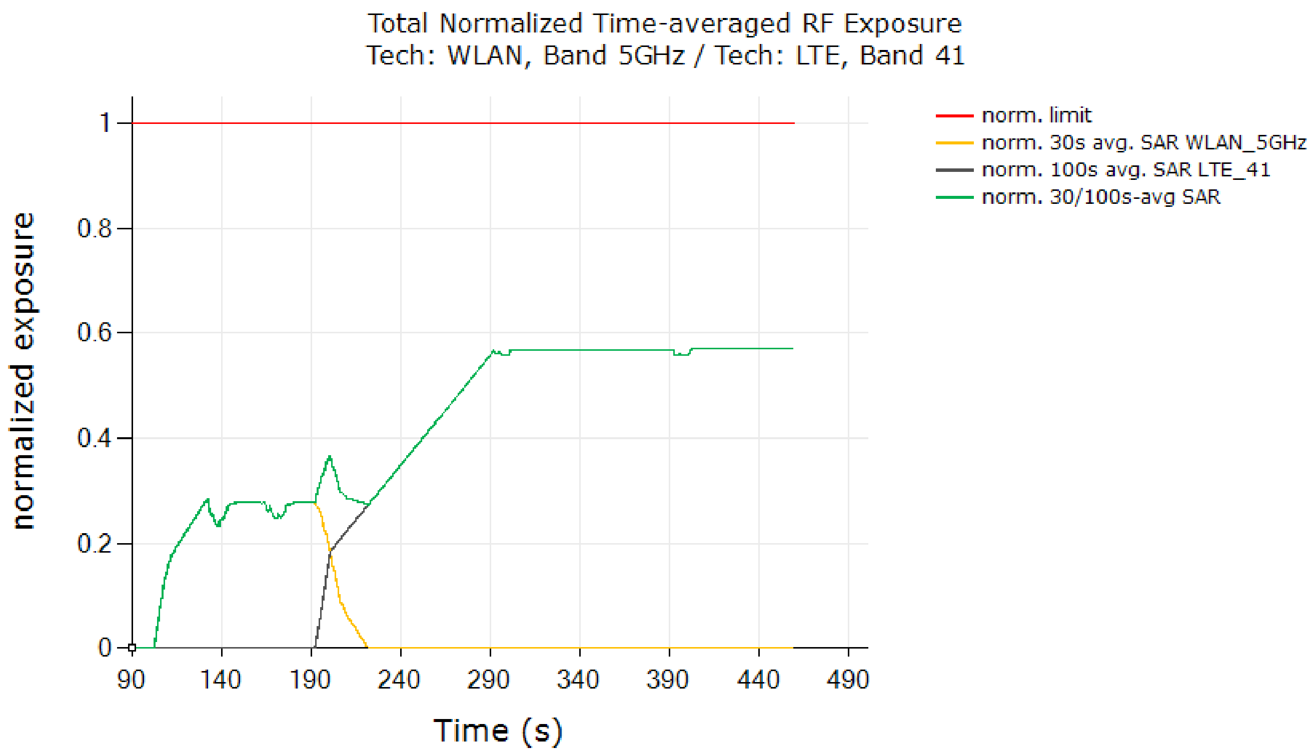
	W/kg
FCC SAR Limit	1.6
Max 30 sec time-averaged 1g SAR	0.436
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

4.1.6. Call Drop – UMTS B5



	W/kg
FCC SAR Limit	1.6
Max 100 sec time-averaged 1g SAR	0.587
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

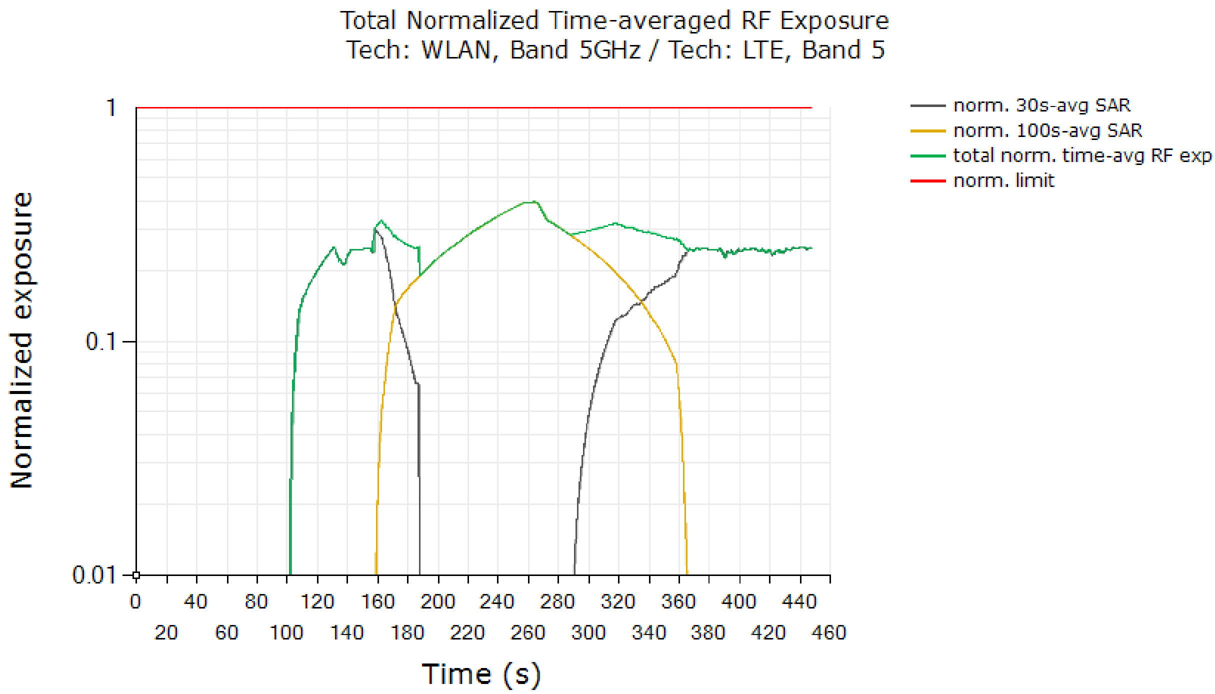
4.1.7. Tech/Band/Antenna Switch – 5 GHz WLAN Ant E to LTE B41 Ant F



	W/kg
FCC Normalized SAR Limit	1.0
Max time-averaged Normalized SAR	0.570
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

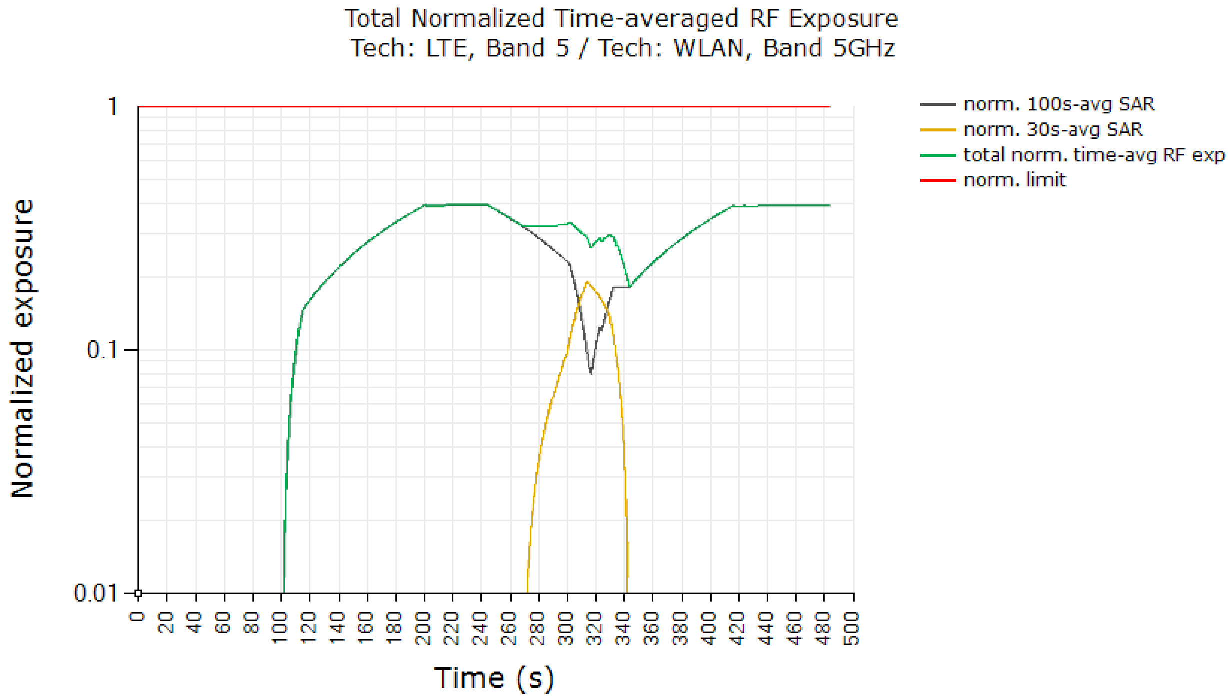
4.1.8. Time Window Switch

30 sec – 100 sec – 30 sec



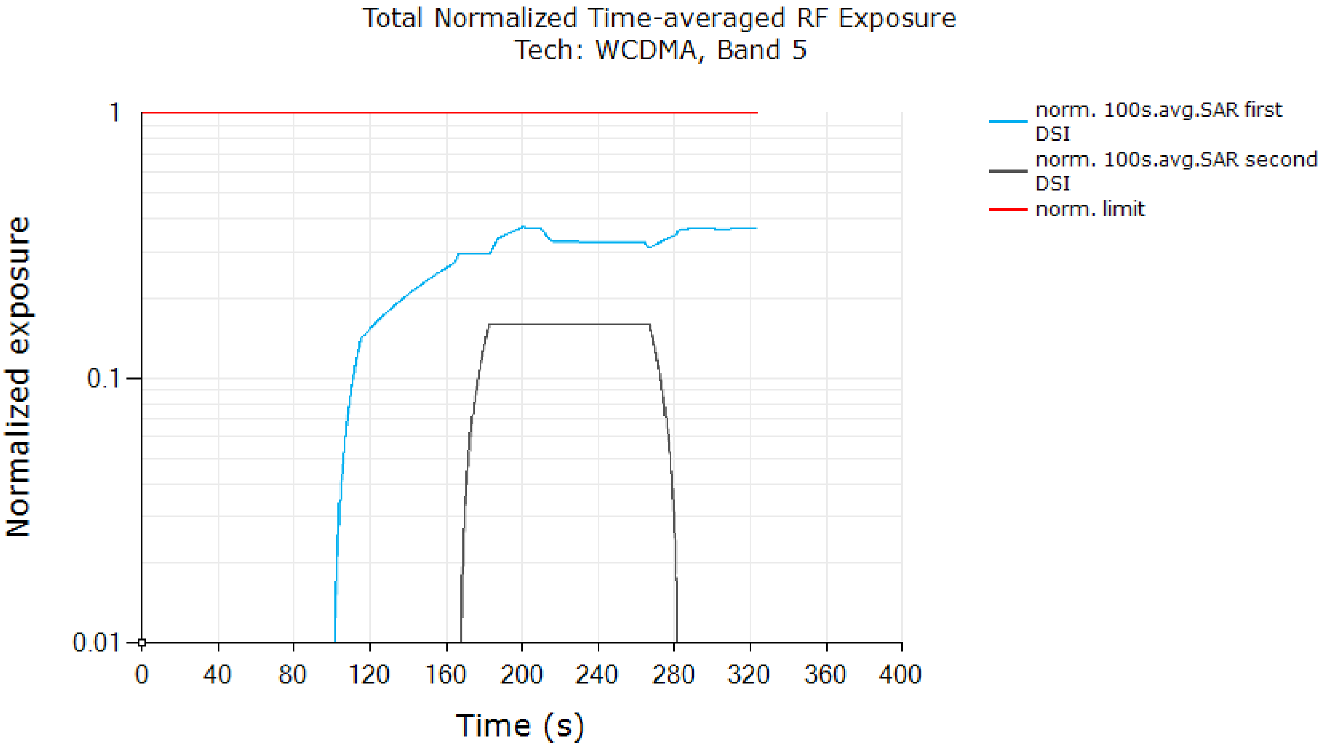
	W/kg
FCC Normalized SAR Limit	1.0
Max time-averaged Normalized SAR	0.398
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

100 sec – 30 sec – 100 sec



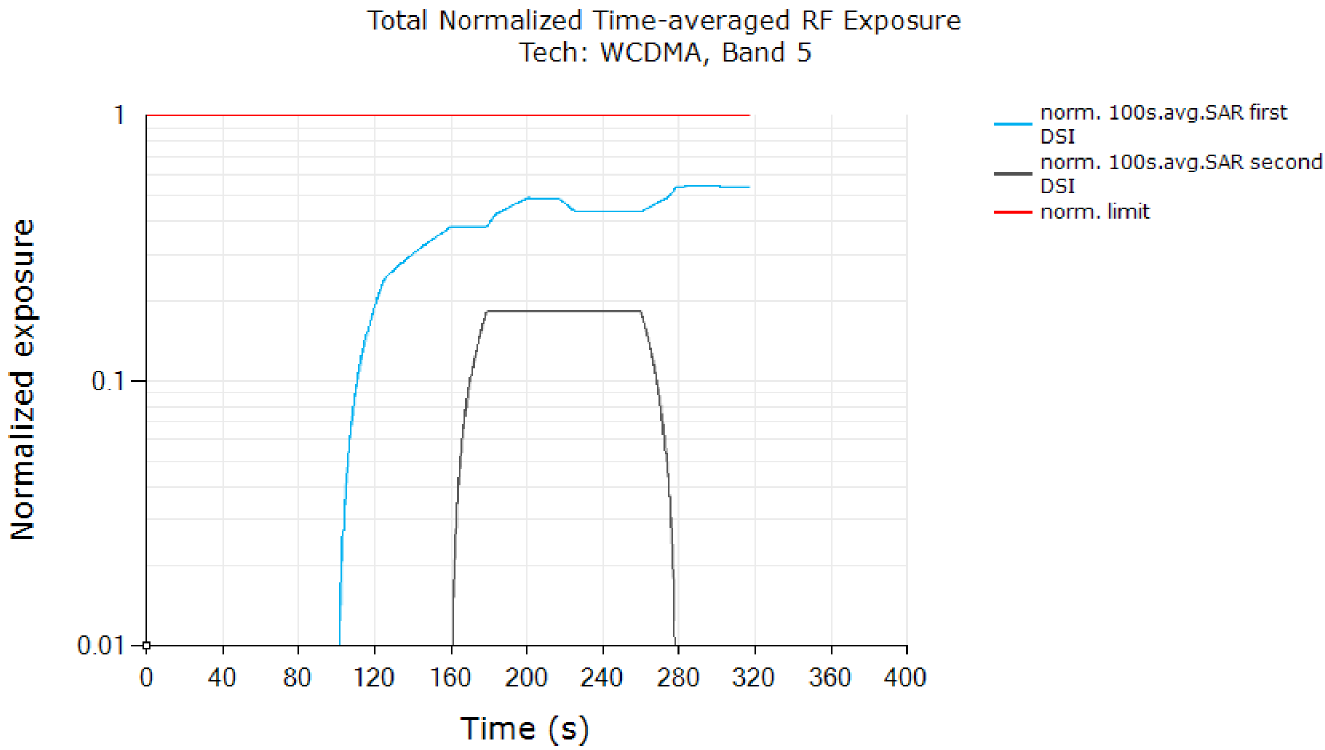
	W/kg
FCC Normalized SAR Limit	1.0
Max time-averaged Normalized SAR	0.395
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

4.1.9. Exposure Category Switch (Head – Body – Head)



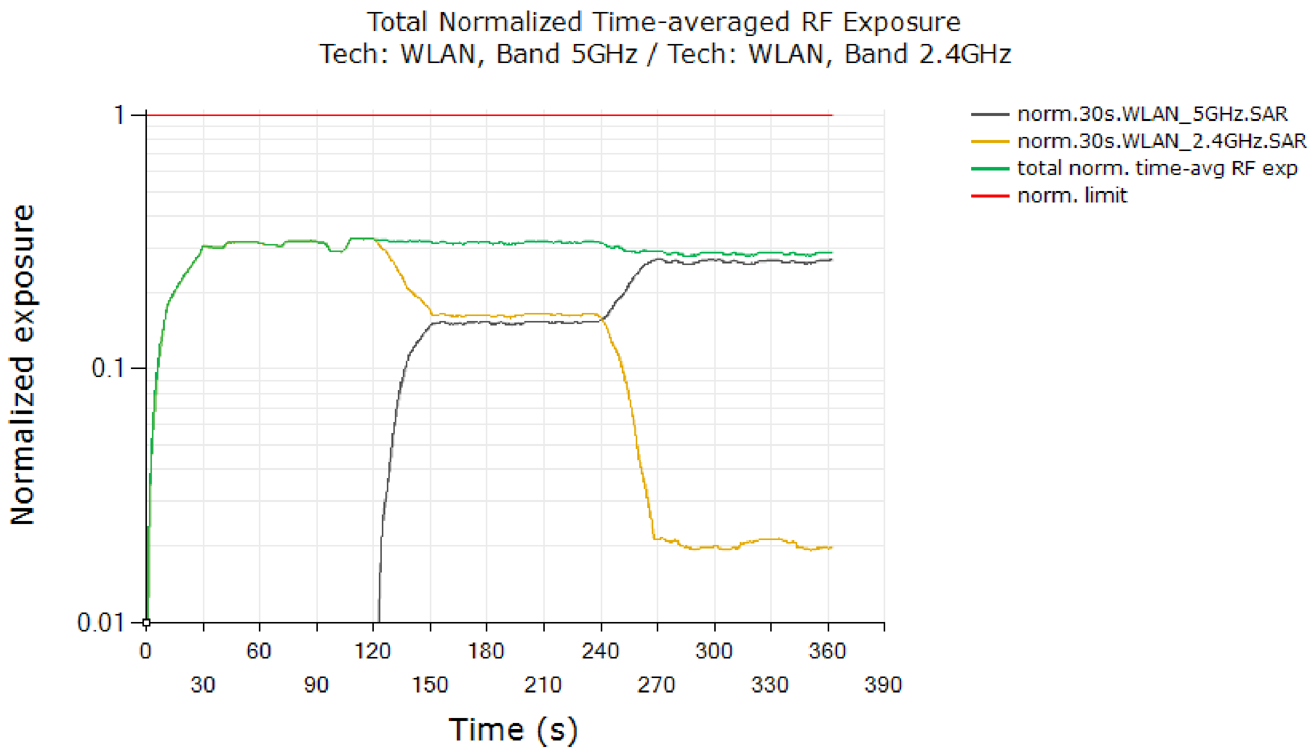
	W/kg
Normalized SAR Limit	1.0
Max 100 sec time-averaged Normalized SAR	0.372
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

4.1.10. Exposure Category Switch (Body – Head – Body)



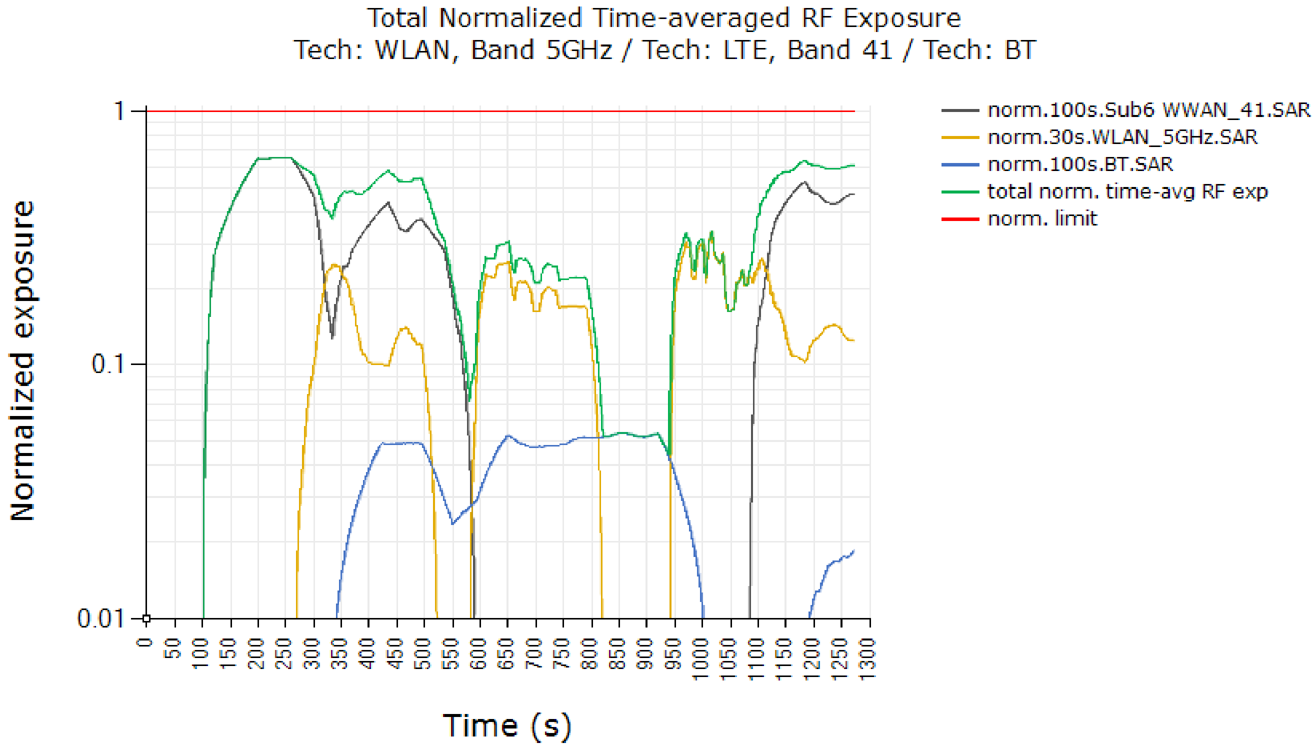
	W/kg
Normalized SAR Limit	1.0
Max 100 sec time-averaged Normalized SAR	0.539
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

4.1.11. Dual Band Simultaneous (DBS)



	W/kg
Normalized SAR Limit	1.0
Max time-averaged Normalized SAR	0.327
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

4.1.12. System Level Compliance Continuity (WWAN – WLAN – BT)



	W/kg
Normalized SAR Limit	1.0
Max time-averaged Normalized SAR	0.654
Validated: Max time-averaged SAR is within device uncertainty of measured SAR at Plimit	

5. Background on Radiofrequency (RF) Exposure Limits

5.1. Controlled Environment

Controlled environments are defined as locations where the RF field intensities have been adequately characterized by means of measurement or calculation and exposure is incurred by persons who are: aware of the potential for RF field exposure, cognizant of the intensity of the RF fields in their environment, aware of the potential health risks associated with RF field exposure and able to control their risk using mitigation strategies. 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.

5.2. Uncontrolled Environment

Uncontrolled environments are defined as locations where either insufficient assessment of RF fields have been conducted or where persons who are allowed access to these areas have not received proper RF field awareness/safety training and have no means to assess or, if required, to mitigate their exposure to RF fields. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed, or in which persons who may not be made fully aware of the potential for exposure, or cannot exercise control over their exposure. Members of the general public would fall under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

5.3. RF Exposure Limits for 100kHz – 6 GHz

Per FCC 47 CFR §1.1310, the SAR limits are applied for frequencies 100kHz ~ 6 GHz as shown below.

Table 5-1
Human Exposure to RF Radiation Limits FCC 47 CFR §1.1310 - SAR Basic Restrictions

Environment	Condition	**SAR**	Averaging volume
Uncontrolled / General Population	Head, Neck Trunk	**1.6 W/kg**	1g cube
	Extremity	**4.0 W/kg**	10g cube
Controlled	Head/Trunk	**8 W/kg**	1g cube
	Extremity / Limbs	**20 W/kg**	10g cube

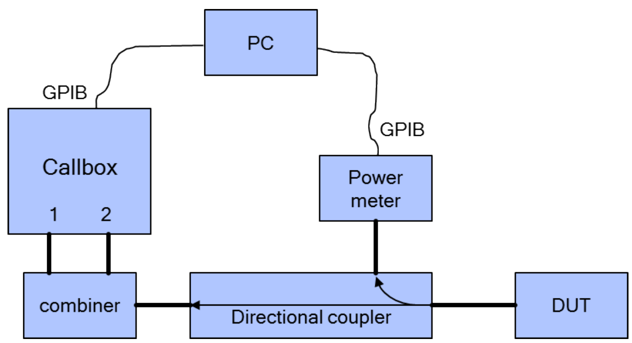
6. Technology Specific Test Setup Requirements

6.1. Measured and Reported SAR

When SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR.

6.2. Conducted Power Measurement Test Setup

Callbox and power meter are connected to the test PC and test scripts are custom made for automation. Power meter readings are periodically recorded every 0.1s for sub6 technologies. A running average of this measured Tx power over the time-averaging window is performed in the post-data processing to determine the time-averaged power.



To demonstrate compliance, all the conducted tx power measurement results were converted into 1g_or_10gSAR values by using the equation listed below:

$$1g\_or\_10gSAR\text{ (t)} = \frac{conducted\_Tx\_power(t)}{conducted\_Tx\_power\_Plimit} * 1g\_or\_10gSAR\_Plimit$$

$$\frac{\frac{1}{T_{SAR}}\int_{t-T_{SAR}}^{t} 1g\_or\_10gSAR(t)dt}{FCC\ SAR_{limit}} \leq 1$$

6.3. Test Procedures for Conducted Power Measurements

This section provides general conducted power measurement procedures to perform compliance test under dynamic transmission scenarios.

6.3.1. Time-varying Tx power scenario

This test is performed with the two pre-defined test sequences for all the technologies and bands selected in the test plan. The purpose of the test is to demonstrate the effectiveness of power limiting enforcement and that the time averaged transmit power when converted into 1g_ or 10g_SAR values does not exceed the regulatory limit at all times.

Test procedure

1. Measure P_{max}, measure P_{limit} and calculate $P_{reserve}$. Generate the test sequences for all the technologies and bands selected in the test plan. Test condition to measure P_{max}, P_{limit} and $P_{reserve}$ is:
   - □ Measure P_{max} with Smart Transmit disabled and callbox set to request maximum power.
   - □ Measure P_{limit} with Smart Transmit Peak exposure mode enabled, and callbox set to request maximum power.
   - □ Measure $P_{reserve}$ via test sequence 1 measurement
2. Set the EUT to the intended Smart Transmit exposure mode, then set callbox to request the EUT to transmit at pre-defined test sequence 1 (generated in Step 1), measure and record Tx power versus time. Once the measurement is done, extract instantaneous Tx power versus time, and convert the conducted Tx power into 1g_or_10g SAR value using Step 1.b result, and then perform running time-average to determine time-averaged 1g_or_10gSAR versus time as illustrated in figure below.

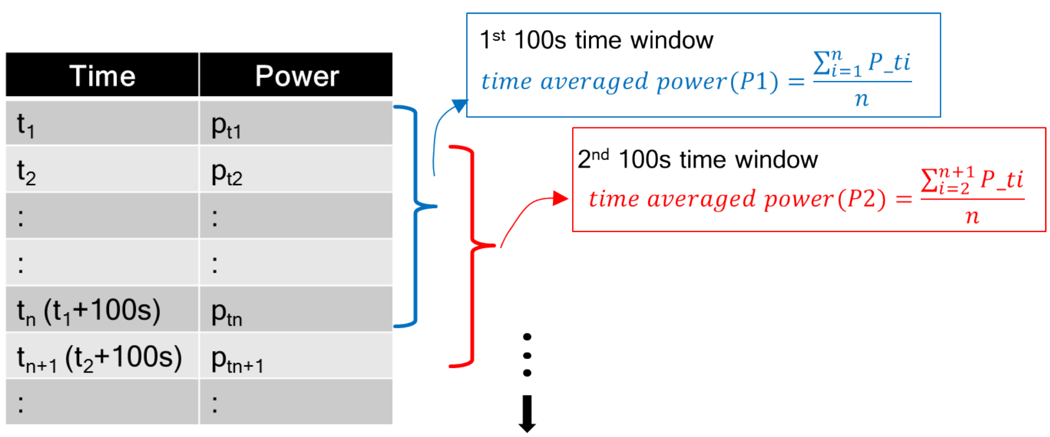


Figure 6-1
100s running average illustration

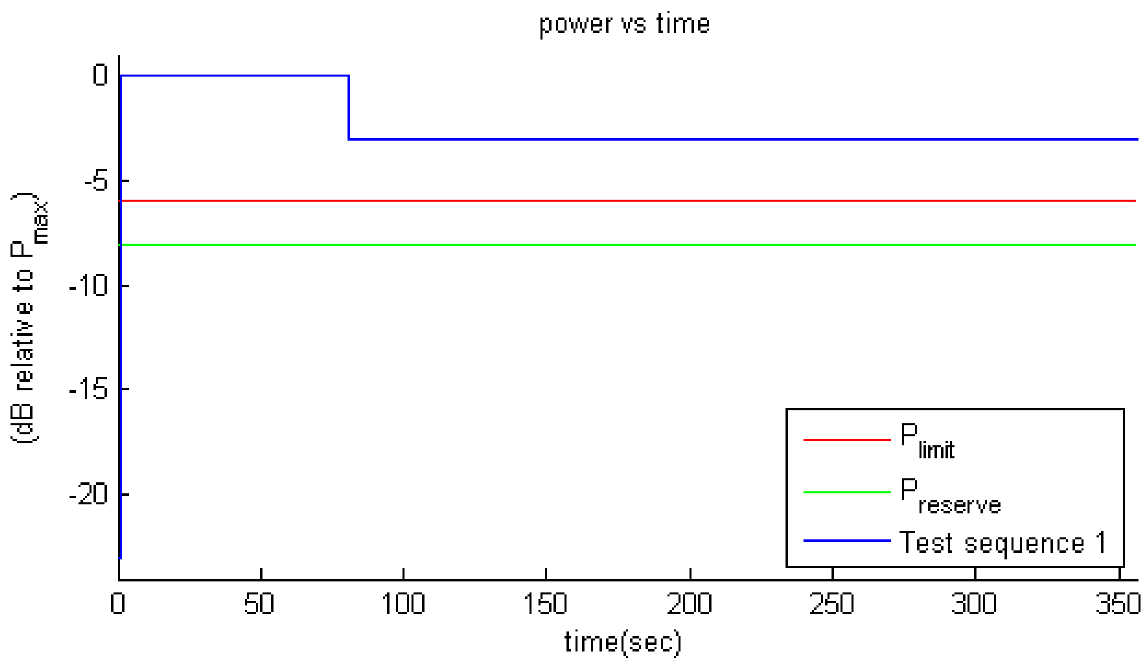
NOTE: In 1g_or_10gSAR (t) Eq. in Section 6.2, instantaneous Tx power is converted into instantaneous 1g_or_10gSAR value by applying the worst-case 1g_or_10gSAR value for each technology/band at P_{limit}

3. Make one plot containing:
    a. Computed time-averaged 1g_or_10gSAR versus time determined in Step 2
    b. Corresponding regulatory 1g_or_10gSAR_{limit} limit.
4. Repeat Steps 2~3 for pre-defined test sequence 2.
5. Repeat Steps 2~4 for all the selected technologies and bands.

The validation criteria is, at all times, the time-averaged 1g_or_10g AR versus time determined in Step 2 (and plotted in Step 4) shall not exceed the regulatory *1g_or_10g*SAR_{limit} limit.

Test Sequence 1 Waveform:

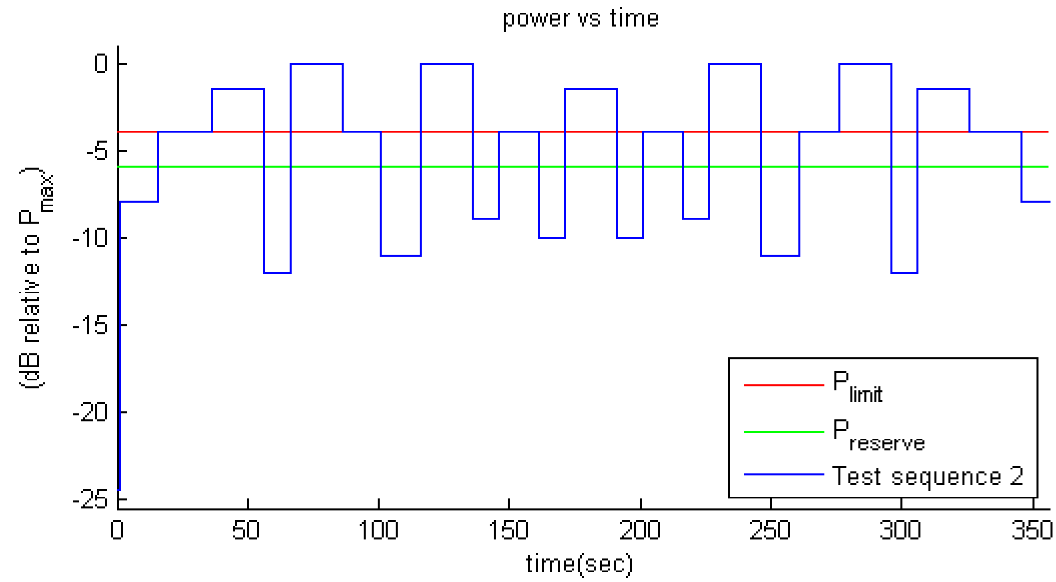
Based on the parameters above, the Test Sequence 1 is generated with one transition between high and low Tx powers. Here, high power = P_{max}; low power = $P_{max}/2$, and the transition occurs after 80 seconds at high power P_{max}. As long as the power enforcement is taking into effective during one 100s/60s time window, the validation test with this defined test sequence 1 is valid, otherwise, select other radio configuration (band/DSI within the same technology group) having lower P_{limit} for this test. The Test sequence 1 waveform is shown below:



Time duration (seconds)	dB relative to P_{limit} or $P_{reserve}$
80	P_{max}
270	$P_{max – 3dB}$

Test Sequence 2 Waveform:

Based on the parameters above, the Test Sequence 2 is generated as described in the table below, which contains two 170 second-long sequences (yellow and green highlighted rows) that are mirrored around the center row of 20s, resulting in a total duration of 360 seconds:



Time duration (seconds)	dB relative to P_{limit} or $P_{reserve}$
15	$P_{reserve}$ – 2
20	P_{limit}
20	(P_{limit} + P_{max})/2 averaged in mW and rounded to nearest 0.1 dB step
10	$P_{reserve}$ – 6
20	P_{max}
15	P_{limit}
15	$P_{reserve}$ – 5
20	P_{max}
10	$P_{reserve}$ – 3
15	P_{limit}
10	$P_{reserve}$ – 4
20	(P_{limit} + P_{max})/2 averaged in mW and rounded to nearest 0.1 dB step
10	$P_{reserve}$ – 4
15	P_{limit}
10	$P_{reserve}$ – 3
20	P_{max}
15	Preserve – 5
15	Plimit
20	Pmax
10	Preserve – 6
20	(Plimit + Pmax)/2 averaged in mW and rounded to nearest 0.1 dB step
20	Plimit
15	Preserve – 2

Test Sequence for WLAN Radios

Since WLAN radios do not have closed loop power control, average Tx power level of WLAN radios is indirectly varied by transmitting at varying duty cycles (i.e., varying UL data rates). Test sequence #1 described previously can be converted into duty cycle at P_{max}, i.e., duty cycle for an arbitrary Tx power level = (Tx power level / P_{max}).

Time duration (seconds)	Duty cycle (%)
80	100%
120	50%

6.3.2. Change in Call Scenario

This test is to demonstrate that Smart Transmit feature accurately accounts for the past Tx powers during time-averaging when a new call is established.

The call drop and re-establishment needs to be performed during power limit enforcement to demonstrate the continuity of RF exposure management and limiting in call change scenario.

Test procedure

1. Measure P_{limit} for the technology/band selected. Measure P_{limit} with Smart Transmit Peak exposure mode enabled, and callbox set to request maximum power.
2. Set EUT to the intended Smart Transmit exposure mode.
3. Establish radio link with callbox in technology/band selected.
4. Request EUT to transmit at 0 dBm for at least 360 seconds, followed by requesting EUT to transmit at maximum Tx power for about ~300 seconds, and drop the call then reestablish another call in the same radio configuration (i.e., same technology/band/channel) and continue callbox requesting EUT to transmit at maximum Tx power for the remaining time for a total test time of ~890 seconds. Measure and record Tx power versus time.
5. Once the measurement is done, extract instantaneous Tx power versus time, and convert the conducted Tx power into 1g_or_10gSAR value using Step 1 result, and then perform 360s running average to determine time-averaged 1g_or_10gSAR versus time.
6. Make one plot containing: (a) computed time-averaged 1g_or_10gSAR versus time determined in Step 4 for the 1st call, (b) computed time-averaged 1g_or_10gSAR versus time determined in Step 4 for the 2nd call, (c) combined time-averaged 1g_or_10gSAR of the 1st call and 2nd call versus time and (d) corresponding regulatory $1g\_or\_10gSAR_{limit}$ limit.

The validation criteria is, at all times, the combined time-averaged 1g_or_10gSAR versus time shall not exceed the regulatory $1g\_or\_10gSAR_{limit}$ limit.

6.3.3. Change in Technology and Band

This test is to demonstrate the correct power control by Smart Transmit during technology switches and/or band handovers.

Similar to the change in call test, the technology and band handover needs to be performed to validate the continuity of RF exposure limiting during the transition. The *Plimit* could vary with technology and band, but the instantaneous Tx power for a given band could be converted in 1g_or_10gSAR exposure using:

$$1g\_or\_10gSAR\ (t) = \frac{pointSAR(t)}{pointSARPlimit} * 1g\_or\_10gSAR\_Plimit$$

$$1g\_or\_10gSAR_1(t) = \frac{conducted\_Tx\_power\_1(t)}{conducted\_Tx\_power\_P_{limit\_1}} * 1g\_or\_10gSAR\_P_{limit\_1}$$

$$1g\_or\_10gSAR_2(t) = \frac{conducted\_Tx\_power\_2(t)}{conducted\_Tx\_power\_P_{limit\_2}} * 1g\_or\_10gSAR\_P_{limit\_2}$$

$$\frac{\frac{1}{T_{SAR}}\left[\int_{t-T_{SAR}}^{t_1} 1g\_or\_10gSAR_1(t)dt + \int_{t-T_{SAR}}^{t} 1g\_or\_10gSAR_2(t)dt\right]}{1g\_or\_10gSAR_{limit}} \leq 1$$

where, *conducted_Tx_power_1(t)*, $conducted\_Tx\_power\_P_{limit\_1}$, and $1g\_or\_10gSAR\_P_{limit\_1}$ correspond to the instantaneous Tx power, conducted Tx power at P_{limit}, and compliance *1g_or_10gSAR* values of technology1/band1 at P_{limit_1}; *conducted_Tx_power_2(t)*, $conducted\_Tx\_power\_P_{limit\_2}$, and $1g\_or\_10gSAR\_P_{limit\_2}$ correspond to the instantaneous Tx power, conducted Tx power at P_{limit}, and compliance *1g_or_10gSAR* values of technology2/band2 at P_{limit_2}. Transition from the technology1/band1 to the technology2/band2 happens at time-instant 't_1'.

Test procedure

1. Measure P_{limit} for both the technologies and bands selected. Measure P_{limit} with Smart Transmit Peak exposure mode enabled and callbox set to request maximum power.
2. Set EUT to intended Smart Transmit exposure mode.
3. Establish radio link with callbox in first technology/band selected.
4. Request EUT to transmit at 0 dBm for at least 360 seconds, followed by requesting EUT to transmit at maximum Tx power for about ~300 seconds, and then switch to second technology/band. Continue with callbox requesting EUT to transmit at maximum Tx power for the remaining time for a total test time. Measure and record Tx power versus time for the entire duration of the test.
5. Once the measurement is done, extract instantaneous Tx power versus time, and convert the conducted Tx power into *1g_or_10g*SAR value using corresponding technology/band Step 1 result, and then perform 360s running average to determine time- averaged 1gSAR versus time. Instantaneous Tx power is converted into instantaneous *1g_or_10g*SAR value by applying the worst-case 1gSAR value for the selected technologies/bands at P_{limit}
6. Make one plot containing: (a) computed time-averaged *1g_or_10g*SAR of the 1st technology/band versus time determined in Step 5, (b) computed time-averaged *1g_or_10g*SAR of the 2nd technology/band versus time determined in Step 5, (c) combined time-averaged *1g_or_10g*SAR of the 1st technology/band and 2nd technology/band versus time determined in Step 5 and (d) corresponding regulatory $1g\_or\_10gSAR_{limit}$ limit.

The validation criteria is, at all times, the combined time-averaged *1g_or_10g*SAR versus time shall not exceed the regulatory $1g\_or\_10gSAR_{limit}$ limit.

6.3.4. Change in Antenna

This test is to demonstrate the correct power control by Smart Transmit during antenna switches from primary to diversity. The test procedure is identical with switching antenna instead of technology/band. The validation criteria is, at all times, the time-averaged *1g_or_10g*SAR versus time shall not exceed the regulatory $1g\_or\_10gSAR_{limit}$ limit.

6.3.5. Change in Device State

This test is to demonstrate the correct power control by Smart Transmit during device state transitions from one device state (say, body-worn or hotspot or extremity) to another. The test procedure is identical with changing device state instead of technology/band. The validation criteria is, at all times, the time-averaged *1g_or_10g*SAR versus time shall not exceed the regulatory $1g\_or\_10gSAR_{limit}$ limit.

6.3.6. Change in Time Window

Test procedure

1. Measure P_{limit} for both the technologies and bands selected. Measure P_{limit} with Smart Transmit Peak exposure mode enabled, and callbox set to request maximum power.
2. Set EUT to intended Smart Transmit exposure mode.

Transition from 100s time window to 60s time window, and vice versa

3. Establish radio link with callbox in the technology/band having 100s time window.
4. Request EUT to transmit at 0 dBm for at least 100 seconds, followed by requesting EUT to transmit at maximum Tx power for about ~140 seconds, and then switch to second technology/band (having 60s time window). Continue with callbox requesting EUT to transmit at maximum Tx power for about ~60s in this second technology/band, and then switch back to the first technology/band. Continue with callbox requesting EUT to transmit at maximum Tx power for at least another 100s. Measure and record Tx power versus time for the entire duration of the test.
5. Once the measurement is done, extract instantaneous Tx power versus time, and convert the conducted Tx power into 1g_or_10gSAR value using corresponding technology/band Step 1 result, and then perform 100s running average to determine time-averaged 1g_or_10gSAR versus time as illustrated in Figure 5-1. Note that in Eq.(8a) & (8b), instantaneous Tx power is converted into instantaneous *1g_or_10g*SAR value by applying the worst-case *1g_or_10g*SAR value for the selected technologies/bands at P_{limit}.
6. ake one plot containing: (a) computed time-averaged *1g_or_10g*SAR of the 1st technology/band (having 100s time window) versus time determined in Step 5, (b) computed time-averaged *1g_or_10g*SAR of the 2nd technology/band (having 60s time window) versus time determined in Step 5, (c) combined time-averaged *1g_or_10g*SAR of (a) and (b), and (d) corresponding regulatory $1g\_or\_10gSAR_{limit}$ limit.

Transition from 60s time window to 100s time window, and vice versa

7. Establish radio link with callbox in the technology/band having 60s time window.
8. Request EUT to transmit at 0 dBm for at least 60 seconds, followed by requesting EUT to transmit at maximum Tx power for about ~80 seconds, and then switch to second technology/band (having 100s time window). Continue with callbox requesting EUT to transmit at maximum Tx power for about ~100s in this second technology/band, and then switch back to the first technology/band. Continue with callbox requesting EUT to transmit at maximum Tx power for at least another 140s. Measure and record Tx power versus time for the entire duration of the test.
9. Repeat above Step 5~6 procedures to generate the corresponding plots

The validation criteria is, at all times, the combined time-averaged 1g_or_10gSAR versus time shall not exceed the regulatory 1g_or_10gSARlimit limit.

6.3.7. Exposure Category Switch

This test is performed with the EUT being requested to transmit at maximum power in selected technology/band/antenna/DSI. The change in exposure category is preferably performed during Tx power enforcement (i.e., EUT forced to transmit at a sustainable level). One test is sufficient as this feature operation is independent of technology, band and antenna. Test procedure are:

In case of head to non-head to head exposure switch test, 'first DSI' in below test procedure refers to head DSI and 'second DSI' refers to non-head DSI. Similarly, in case of non-head to head to non-head exposure switch test, 'first DSI' in below test procedure refers to non-head DSI and 'second DSI' refers to head DSI.

1. Measure P_{limit} for all the technology(s)/band(s)/antenna(s)/DSI(s) selected following the above selection criteria. Measure P_{limit} with Smart Transmit Peak exposure mode <u>enabled</u> and callbox set to request maximum power.
2. Set EUT to intended Smart Transmit exposure mode. Establish radio link with first DSI and with callbox in the selected technology(s)/band(s)/antenna(s).
3. Request EUT to transmit at 0 dBm for at least 100 seconds, followed by requesting EUT to transmit at maximum Tx power for the active radio(s) for half of the regulatory time window, and then switch to the second DSI for ~10s, and switch back to the first DSI for at least one time window. Throughout this test, when switching between DSIs (i.e., switching between exposure categories), continue with callbox requesting EUT to transmit at maximum Tx power for the active radio(s). Measure and record Tx power versus time for the entire duration of the test.
4. Once the measurement is done, extract instantaneous Tx power versus time, and convert the conducted Tx power into 1g_or_10gSAR value (see Eq. (7a) and (7b)) using the corresponding P_{limit} measured in Step 1 and 1g_or_10gSAR value measured in Part 1 report, and then perform 100s running average to determine time-averaged 1g_or_10gSAR versus time as illustrated in Figure 5-1. Note that in Eq.(7a) & (7b), instantaneous Tx power is converted into instantaneous 1g_or_10gSAR value by applying the worst-case 1gSAR value for the selected technologies/bands at P_{limit} as reported in Part 1 report.
5. Make one plot containing: (a) computed time-averaged normalized 1g_or_10gSAR

of the selected technology(s)/band(s)/antenna(s) versus time determined in Step 5 for exposure under first DSI , (b) total time-averaged normalized exposure for exposure under first DSI if simultaneous transmission scenario was tested, and (c) normalized regulatory limit of 1.0.

6. Make another plot containing: (a) computed time-averaged 1g_or_10gSAR of the selected technology(s)/band(s)/antenna(s) versus time determined in Step 5 for exposure under second DSI, (b) total time-averaged normalized exposure for exposure under second DSI if simultaneous transmission scenario was tested, and (c) normalized regulatory limit of 1.0.

The validation criteria is, at all times, the time-averaged normalized exposure versus time shall not exceed the normalized limit of 1.0 for both first & second DSIs (i.e., both head exposure category and non-head exposure category).

6.3.8. SAR Exposure Switching

This test is to demonstrate that Smart Transmit feature is accurately accounts for switching in exposures among SAR from radio1 only, SAR from both radio1 and radio2, and SAR from radio2 only scenarios, and ensures total time-averaged RF exposure complies with the limit.

Test procedure:

1. Measure conducted Tx power corresponding to P_{limit} for radio1 and radio2 in selected band. Test condition to measure conducted P_{limit} is:
   - Establish device in call with the callbox for radio1 technology/band. Measure conducted Tx power corresponding to radio1 P_{limit} with Smart Transmit Peak exposure mode <u>enabled</u> and callbox set to request maximum power.
   - Repeat above step to measure conducted Tx power corresponding to radio2 P_{limit}. If radio2 is dependent on radio1 (for example, non-standalone mode of Sub6 NR requiring radio1 LTE as anchor), then establish radio1 + radio2 call with callbox, and request all down bits for radio1 LTE. In this scenario, with callbox requesting maximum power from radio2 Sub6 NR, measured conducted Tx power corresponds to radio2 P_{limit} (as radio1 LTE is at all-down bits)
2. Set EUT to intended Smart Transmit exposure mode for radio1 + radio2. In this description, it is assumed that radio2 has lower priority than radio1. Established device in radio1+radio2 call, and request all-down bits or low power on radio1, with callbox requesting UE to transmit at maximum power in radio2 for at least one time window. After one time window, set callbox to request UE to transmit at maximum power on radio1, i.e., all-up bits. Continue radio1+radio2 call with both radios at maximum power for at least one time window, and drop (or request all-down bits) radio2. Continue radio1 at maximum power for at least one time window. Record the conducted Tx power for both radio1 and radio2 for the entire duration of this test.
3. Once the measurement is done, extract instantaneous Tx power versus time for both radio1 and radio2 links. Similar to technology/band switch test, convert the conducted Tx power for both these radios into *1g_or_10g*SAR value using corresponding technology/band P_{limit} measured in Step 1, and then perform 360s running average to determine time-averaged *1g_or_10g*SAR versus time. Note that here it is assumed both radios have Tx frequencies < 3GHz, otherwise, 60s running average should be performed for radios having Tx frequency between 3GHz and 6GHz.

4. Make one plot containing: (a) computed time-averaged *1g_or_10g*SAR versus time determined in Step 3 and combined time-averaged *1g_or_10g*SAR versus time, and (b) corresponding regulatory $1g\_or\_10gSAR_{limit}$ limit.

The validation criteria is, at all times, the combined time-averaged 1g_or_10gSAR versus time shall not exceed the regulatory 1g_or_10gSARlimit limit.

6.3.9. SAR Exposure Switch between WLAN Transmitters

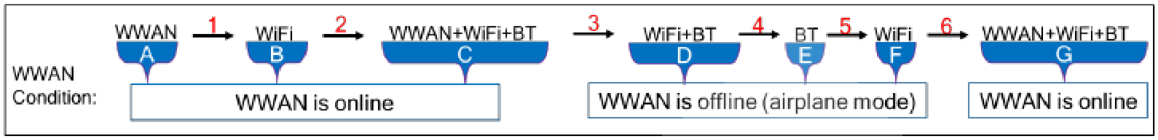
Test procedure:

1. Measure P_{limit} for WLAN radio1 and WLAN radio2 in selected band. Test condition to measure conducted P_{limit} is:
   - Establish a WLAN call in desired radio1 configuration. Measure conducted Tx power corresponding to WLAN radio1 P_{limit} with Smart Transmit Peak exposure mode <u>enabled</u> and callbox set to request maximum duty cycle.
   - Repeat above step to measure P_{limit} corresponding to WLAN radio2 configuration.
2. Set EUT to the intended Smart Transmit exposure mode. First, establish WLAN connection with the callbox in radio2 configuration at low duty cycle for one time window. After one time window, request radio2 configuration to transmit at maximum duty cycle for more than one time-window duration to test predominantly radio2 SAR exposure scenario. After at least one time-window, add radio1 configuration to the existing radio2 configuration call, and request both radio1 and radio2 to transmit at maximum duty cycle to test radio1 and radio2 SAR exposure scenario. After at least one more time-window, drop (or request low duty cycle) radio2 configuration to test predominantly radio1 SAR exposure scenario. Continue the test for at least one more time-window. Record the conducted Tx powers for both radio1 and radio2 configurations for the entire duration of this test.
3. Once the measurement is done, extract instantaneous Tx power versus time for both radio1 and radio2 configurations. Similar to technology/band switch test, convert the conducted Tx power for both these radios into 1g_or_10gSAR value (see Eq. (7a) and (7b)) using corresponding technology/band Plimit measured in Step 1, and then perform 30s running average to determine time-averaged 1g_or_10gSAR versus time as illustrated in Figure 5-1. Note that here all WLAN bands are averaged over the same time window (i.e., 30s for FCC, 360s for ICNIRP) inside Smart Transmit.
4. Make one plot containing: (a) computed normalized time-averaged 1g_or_10gSAR for radio1 configuration versus time determined in Step 3, (b) computed normalized time-averaged 1g_or_10gSAR for radio2 configuration versus time determined in Step 3, (c) computed total normalized time-averaged 1g_or_10gSAR versus time (sum of Steps (4.a) and (4.b)) determined in Step 3, and (d) corresponding normalized regulatory $1g\_or\_10gSAR_{limit}$ limit of 1.0.

The validation criteria is, at all times, the time-averaged 1g_or_10gSAR versus time shall not exceed the regulatory 1g_or_10gSARlimit limit.

6.3.10. System Level Compliance Continuity

6.3.10.1. WWAN/WLAN/BT Radio System Level Compliance Continuity



Test procedure:

1. Measure conducted Tx power corresponding to P_{limit} for all three (WWAN, WLAN & BT) technologies in the selected radio configurations. Test condition to measure conducted P_{limit} for each technology is:
   - Establish device in call with the callbox for the first technology in desired band. Measure conducted Tx power corresponding to the first technology P_{limit} with Smart Transmit Peak exposure mode <u>enabled</u> and callbox set to request maximum power (or maximum duty cycle in case of WLAN/BT).
   - Repeat above step to measure conducted Tx power corresponding to the remaining two technologies' P_{limit}. In the case of BT, measured conducted Tx power is compensated by tested duty cycle and BT_STANDALONE EFS parameter, i.e., measured P_{limit} = measured Plimit = conducted power measured in BT standalone condition/BT_Standalone.
2. Set EUT to the intended Smart Transmit exposure mode.
3. As depicted in Figure S-1, first
   i. Section A: Establish WWAN connection with the callbox in selected WWAN radio configuration. Request EUT to transmit at 0 dBm for at least one WWAN time window (100s or 60s), followed by requesting EUT to transmit at maximum Tx power for {one WWAN time window (T_{WWAN} = 100s if f < 3GHz or 60s if 3GHz < f < 6GHz for FCC, 360s for ICNIRP) + the maximum high power duration allowed in one T_{WWAN}}, denoted as T_{A_WWAN}.
   ii. Section B: After T_{A_WWAN}, drop WWAN connection and establish WLAN connection with the callbox in selected WLAN radio configuration and request EUT to transmit at maximum duty cycle (and maximum power) for {one WLAN time-window duration (T_{WLAN} = 30s for all WLAN frequency bands for FCC, 360s for ICNIRP) + the maximum high power duration allowed in one T_{WLAN}}, denoted T_{B_WLAN}.
   iii. Section C: After T_{B_WLAN} , add the selected WWAN and BT radios to have the simultaneous transmission of WWAN + WLAN + BT. Request WWAN radio to transmit at maximum power and request WLAN & BT radios to transmit at maximum duty cycle (and maximum power) for at least one max{T_{A_WWAN}, T_{B_WLAN}, T_{BT}}, where, T_{BT} = 100s for FCC, 360s for ICNIRP.
   iv. Section D: Drop WWAN connection and set WWAN modem into airplane mode. Continue requesting WLAN & BT radios to transmit at maximum duty cycle (and maximum power) for at least two times the max{ T_{WLAN}, T_{BT}}.

v. Section E: Drop WLAN connection. Continue requesting BT radio to transmit at maximum duty cycle (and maximum power). Continue the test for at least one T_{BT} .

vi. Section F: In the case of FCC time windows, after at least one T_{BT}, drop BT connection and establish back WLAN connection in selected radio configuration. Continue requesting WLAN radio to transmit at maximum duty cycle (and maximum power). Continue the test for at least one max{ T_{WLAN}, T_{BT}}. In the case of ICNIRP time windows, Section F is not required.

vii. Section G: Disable airplane mode and add WWAN and BT connections after Section F in the case of FCC time windows (Disable airplane mode and add WWAN and WLAN connections after Section E in the case of ICNIRP time windows) to have the simultaneous transmission of WWAN + WLAN + BT. Request WWAN radio to transmit at maximum power and request WLAN & BT radios to transmit at maximum duty cycle (and maximum power) for at least one max{T_{A_WWAN}, T_{B_WLAN}, T_{BT}}, where, T_{BT} = 100s for FCC, 360s for ICNIRP.

4. Once the measurement is done, extract instantaneous Tx power versus time for all WWAN, WLAN and BT radios in selected configurations. Similar to technology/band switch test, convert the conducted Tx power for both these radios into 1g_or_10gSAR value using corresponding technology/band P_{limit} measured in Step 1, and then perform running average over corresponding time-windows (i.e., 100s/60s for WWAN radio, 30s for WLAN radio and 100s for BT radio in case of FCC time-windows, and 360s for all of them in case of ICNIRP time-windows) to determine time-averaged 1g_or_10gSAR versus time as illustrated in Figure 5-1.

5. Make one plot containing: (a) computed normalized time-averaged 1g_or_10gSAR for WWAN radio configuration versus time determined in Step 4, (b) computed normalized time-averaged 1g_or_10gSAR for WLAN radio configuration versus time determined in Step 4,
(c) computed normalized time-averaged 1g_or_10gSAR for BT radio configuration versus time determined in Step 4, (d) computed total normalized time-averaged 1g_or_10gSAR versus time (sum of Steps (5.a), (5.b) and (5.c)) determined in Step 5, and (e) corresponding normalized regulatory *1g_or_10gSAR*$_{limit}$ limit of 1.0.

The validation criteria is, at all times, the time-averaged 1g_or_10gSAR versus time shall not exceed the regulatory *1g_or_10gSAR*$_{limit}$ limit.

7. Equipment List

Manufacturer	Model	Description	Serial Number	Calibration Date	Calibration Due	CBT
Amplifier Research	15S4G8AM1	RF Broadband Amplifier (4 - 8 GHz)	0554497			✓
Amplifier Research	5S1G4	RF Broadband Amplifier (800 MHz - 4.2 GHz)	331258			✓
Anritsu	S820E	Vector Network Analyzer	2348026	11/30/2023	11/30/2025	
Control Company	4040	Ambient Thermometer	250440190	7/17/2025	7/17/2027	
Control Company	4040	Ambient Thermometer	250440191	7/17/2025	7/17/2027	
Control Company	4040	Ambient Thermometer	250440199	7/17/2025	7/17/2027	
Anritsu	MG3691B	Signal Generator	054914	3/10/2024	3/10/2026	
Micro-Coax	UFB205A-0-0240-30x30	SMA M-F RF test Cable (DC - 18 GHz)	-			✓
Mini-Circuits	BW-N20W20+	20dB RF Fixed Attenuator (DC - 18 GHz)	-			✓
Mini-Circuits	BW-N20W20+	20dB RF Fixed Attenuator (DC - 18 GHz)	-			✓
Mini-Circuits	BW-S3W2+	3dB RF Fixed Attenuator (DC - 18 GHz)	-			✓
Mini-Circuits	BW-S3W2+	3dB RF Fixed Attenuator (DC - 18 GHz)	-			✓
Mini-Circuits	CBL-6FT-SMNM+	Precision Test Cable SMA/N (DC - 18 GHz)	3318			✓
Mini-Circuits	CBL-6FT-SMNM+	Precision Test Cable SMA/N (DC - 18 GHz)	3335			✓
Mini-Circuits	CBL-6FT-SMNM+	Precision Test Cable SMA/N (DC - 18 GHz)	3329			✓
Mini-Circuits	NF-SF50+	RF Adapter N Male to SMA Female (DC - 18 GHz)	-			✓
Mini-Circuits	VLF-6000+	Coaxial Low Pass Filter (DC - 6 GHz)	-			✓
Mini-Circuits	VLF-3000+	Coaxial Low Pass Filter (DC - 3 GHz)	-			✓
Mini-Circuits	VLF-1000+	Coaxial Low Pass Filter (DC - 1 GHz)	-			✓
Mitutoyo	CD-4"AX	Digital Caliper	B23243217	8/28/2025	8/28/2027	
Narda	24785-20	20 dB SMA Fixed Attenuator (DC - 4.0 GHz)	-			✓
Narda	4226-20 (26733)	20 dB SMA Directional Coupler (0.5 - 18 GHz)	0201			✓
Rohde & Schwarz	SMCV100B	R&S SMCV100B Vector Signal Generator (VSG)	103882	12/21/2023	12/21/2025	
Rohde & Schwarz	CMW500	CMW500 Radio Communication Test Station	1201.0002K50-167186-cf	1/12/2024	1/12/2026	
Anritsu	MT8000A	Radio Communication Test Station	6262261936	8/21/25	8/21/27	
Keysight	UXM E7515B	Radio Communication Test Station	MY60102066	2/4/25	2/28/26	
Rohde & Schwarz	CMW500	CMW500 Radio Communication Test Station	170732	1/14/25	1/14/26	
Rohde & Schwarz	NRP8S	Power Sensor	112237	8/1/25	8/1/26	
Rohde & Schwarz	NRP8S	Power Sensor	112236	7/31/25	7/31/26	
Rohde & Schwarz	NRP8S	Power Sensor	114183	3/10/25	3/10/26	
Rohde & Schwarz	NRP8S	Power Sensor	114184	3/10/25	3/10/26	
Rohde & Schwarz	NRP8S	Power Sensor	114343	6/10/25	6/10/26	

* Components calibrated before testing. Prior to testing, the measurement paths containing a cable, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator, power sensor, or VNA) 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.

8. Conclusion

The SAR evaluation indicates that the DUT is capable of compliance with the RF radiation exposure limits of the FCC, 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.