

SAR EVALUATION REPORT

**FCC 47 CFR § 2.1093
IEEE Std. 1528-2013**

For

Wireless Headphone

MODEL NUMBER: S52A

REPORT NUMBER: 4792176316-1-SAR-1

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Prepared for

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Revision History

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V0	June 2, 2026	Initial Issue	\

Note:

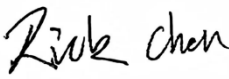
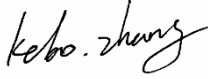
- 1) This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
- 2) The measurement result for the sample received is <Pass> according to < IEEE Std. 1528>when <Simple Acceptance> decision rule is applied.

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1. Attestation of Test Results

Applicant Name	SONOS, INC.		
Address	301 COROMAR DR. GOLETA, CA 93117, USA		
Manufacturer	SONOS, INC.		
Address	301 COROMAR DR. GOLETA, CA 93117, USA		
EUT Name	Wireless Headphone		
Model	S52A		
Sample Received Date	April 1, 2026		
Sample Status	Normal		
Sample ID	9543703		
Date of Tested	April 1, 2026 to June 2, 2026		
Applicable Standards	FCC 47 CFR § 2.1093 IEEE Std. 1528-2013 KDB publication		
SAR Limits (W/Kg)			
Exposure Category	Peak spatial-average (1g of tissue)	Extremities (hands, wrists, ankles, etc.) (10g of tissue)	
General population / Uncontrolled exposure	1.6	4	
Occupational / Controlled exposure	8	20	
The Highest Reported SAR (W/kg)			
RF Exposure Conditions	Equipment Class		
	DTS	U-NII	DSS
Head 1-g (0 mm)	1.217	0.580	0.365
Extremity 10-g (0 mm)	0.495	0.279	0.157
Simultaneous Transmission (Head 1-g)	1.582	0.945	1.582
Simultaneous Transmission (Extremity 10-g)	0.551	0.335	0.551
Test Results	Pass		
Prepared By:  Rick Chen Laboratory Engineer Associate	Reviewed By:  Kebo Zhang Operations Leader	Approved By:  Stephen Guo Laboratory Manager	

2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with IEEE Std.1528-2013 and the following FCC Published RF exposure KDB procedures:

- 447498 D01 General RF Exposure Guidance v06
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 248227 D01 802.11 Wi-Fi SAR v02r02

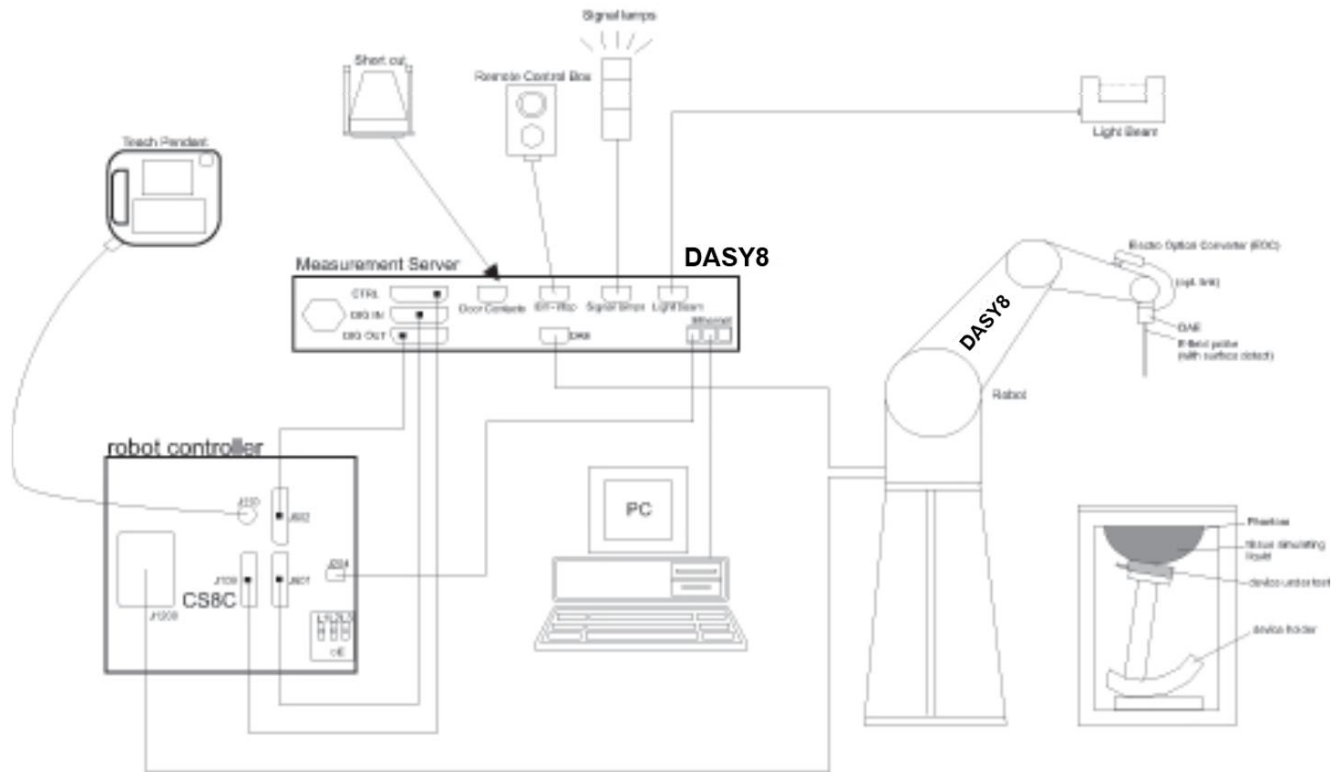
3. Facilities and Accreditation

Test Location	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Address	Room 101, Building 2, No.4, Information Road, Songshan Lake, Dongguan, Guangdong, China.
Accreditation Certificate	<p>A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch has been assessed and proved to be in compliance with A2LA.</p> <p>FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p>ISED (Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p>VCCI (Registration No.: C-20202, G-20240, R-20248 and T-20202) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch has been assessed and proved to be in compliance with VCCI, the membership No. is 3793. Facility Name: Chamber E, the VCCI registration No. is G-20240 and R-20248 Shielding Room F, the VCCI registration No. is C-20202 and T-20202</p>
Description	All measurement facilities use to collect the measurement data are located at Room 101, Building 2, No.4, Information Road, Songshan Lake, Dongguan, Guangdong, China.

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY8 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win 10 and the DASY8 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in Db) is specified in the standards for compliance testing. For example, a 2 Db range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 Db is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 mm $\pm$ 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2)$ mm $\pm$ 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° $\pm$ 1°	20° $\pm$ 1°
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}	≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.				
* When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in Db from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan (FCC only)

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be greater than the step size in Z-direction.

4.3. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations and is traceable to recognized national standards.

Name of equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
ENA Network Analyzer	Keysight	E5080A	MY55100583	2026.09.11
Dielectric Probe kit	SPEAG	SM DAK 040 SA	1155	2028.02.26
DC power supply	Keysight	E36103A	MY55350020	2026.09.11
Signal Generator	Rohde & Schwarz	SME06	837633\001	2026.12.25
Vector Signal Generator	Rohde & Schwarz	SMW200A	1412.0000K02-102983-sZ	2026.09.11
BI-Directional Coupler	KRYTAR	1850	54733	2026.09.11
Peak and Average Power Sensor	Keysight	E9325A	MY62220002	2026.09.11
Peak and Average Power Sensor	Keysight	E9325A	MY62220003	2026.09.11
Dual Channel PK Power Meter	Keysight	N1912A	MY55416024	2026.09.11
Amplifier	CORAD TECHNOLOGY LTD	AMF-4D-00400600-50-30P	1983561	NCR
Dosimetric E-Field Probe	SPEAG	EX3DV4	7733	2026.09.07
Data Acquisition Electronic	SPEAG	DAE4	1739	2026.09.07
Dipole Kit 2450 MHz	SPEAG	D2450V2	977	2027.12.25
Dipole Kit 5 GHz	SPEAG	D5GHzV2	1231	2027.12.24
Software	SPEAG	DASY8	N/A	NCR
Phantom	SPEAG	SAM 8.0	2100	NCR
Thermometer	/	GX-138	150709653	2026.09.15
Thermometer	VICTOR	ITHX-SD-5	18470005	2026.09.11

Note:

1) Per KDB865664D01 v01r04 requirements for dipole calibration, the test laboratory has adopted three-year extended calibration interval. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.

- There is no physical damage on the dipole;
 - System check with specific dipole is within 10% of calibrated value;
 - The most recent return-loss result, measured at least annually, deviates by no more than 20% from the previous measurement.
 - The most recent measurement of the real or imaginary parts of the impedance, measured at least annually is within 5Ω from the previous measurement.
- 2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be $\leq 30\%$, for a confidence interval of $k = 2$. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std. 1528-2013 is not required in SAR reports submitted for equipment approval.

Therefore, the measurement uncertainty is not required.

6. Device Under Test (DUT) Information

6.1. DUT Description

DUT is a Wireless Headphone with barcode reader with 2.4GHz/5GHz and BT/BLE capabilities.

6.2. Wireless Technology

Wireless technology	Frequency band
Wi-Fi	2.4 GHz
Wi-Fi	5 GHz
BT/BLE	2.4 GHz

7. Conducted Output Power Measurement and tune-up tolerance

7.1. Test Results of 2.4GHz Wi-Fi

Mode	Freq(MHz)	Conducted AV Output Power (dBm)	Tune-up Limit (dBm)
		ANT1	
802.11b	2412	19.34	19.5
	2437	18.94	19.5
	2462	19.00	19.5
802.11g	2412	17.32	17.5
	2437	17.02	17.5
	2462	15.80	16.0
802.11n 20M	2412	16.21	17.0
	2437	16.44	17.0
	2462	15.14	16.0

Mode	Freq(MHz)	Conducted AV Output Power (dBm)	Tune-up Limit (dBm)
		ANT2	
802.11b	2412	19.39	19.5
	2437	19.12	19.5
	2462	18.96	19.5
802.11g	2412	17.18	17.5
	2437	17.29	17.5
	2462	16.20	17.0
802.11n 20M	2412	17.65	18.0
	2437	17.70	18.0
	2462	15.08	16.0

Note:

- 1) The output power of the device was set to transmit at maximum power for all tests.
- 2) As per KDB 447498 D01 sec.4.1.d) at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit.

7.2. Test Results of 5GHz Wi-Fi

Band	Mode	BW (MHz)	Ch.#	Freq. (MHz)	Result[dBm]	Tune-up (dBm)
					ANT1	
5G WIFI	802.11a 6Mbps	20	36	5180	16.27	17.00
			40	5200	16.67	17.00
			48	5240	16.42	17.00
			52	5260	16.47	17.00
			56	5280	15.77	17.00
			64	5320	16.26	17.00
			100	5500	17.28	18.00
			116	5580	17.47	18.00
			140	5700	15.70	16.00
			149	5745	16.10	16.50
			157	5785	15.59	16.50
			165	5825	15.47	16.50
	802.11n HT0	20	36	5180	16.24	17.00
			40	5200	16.52	17.00
			48	5240	16.35	17.00
			52	5260	15.22	17.00
			56	5280	15.52	17.00
			64	5320	16.18	17.00
			100	5500	17.38	18.00
			116	5580	17.56	18.00
			140	5700	14.61	15.00
			149	5745	15.75	16.00
			157	5785	15.31	16.00
			165	5825	15.41	16.00

Band	Mode	BW (MHz)	Ch.#	Freq. (MHz)	Result[dBm]	Tune-up (dBm)
					ANT2	
5G WIFI	802.11a 6Mbps	20	36	5180	15.72	16.00
			40	5200	15.94	16.00
			48	5240	15.77	16.00
			52	5260	13.61	14.50
			56	5280	14.02	14.50
			64	5320	14.18	14.50
			100	5500	14.63	15.50
			116	5580	14.96	15.50
			140	5700	14.95	15.50
			149	5745	14.20	14.50
			157	5785	14.00	14.50
			165	5825	14.09	14.50
	802.11n HT0	20	36	5180	14.61	16.00
			40	5200	15.74	16.00
			48	5240	15.23	16.00
			52	5260	13.13	14.50
			56	5280	13.79	14.50
			64	5320	14.06	14.50
			100	5500	14.49	15.50
			116	5580	14.82	15.50
			140	5700	13.99	15.50
			149	5745	13.77	14.50
			157	5785	14.02	14.50
			165	5825	13.98	14.50

Note:

- 1) The output power of the device was set to transmit at maximum power for all tests.
- 2) As per KDB 447498 D01 sec.4.1.d) at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit.

7.3. Test Results of BT

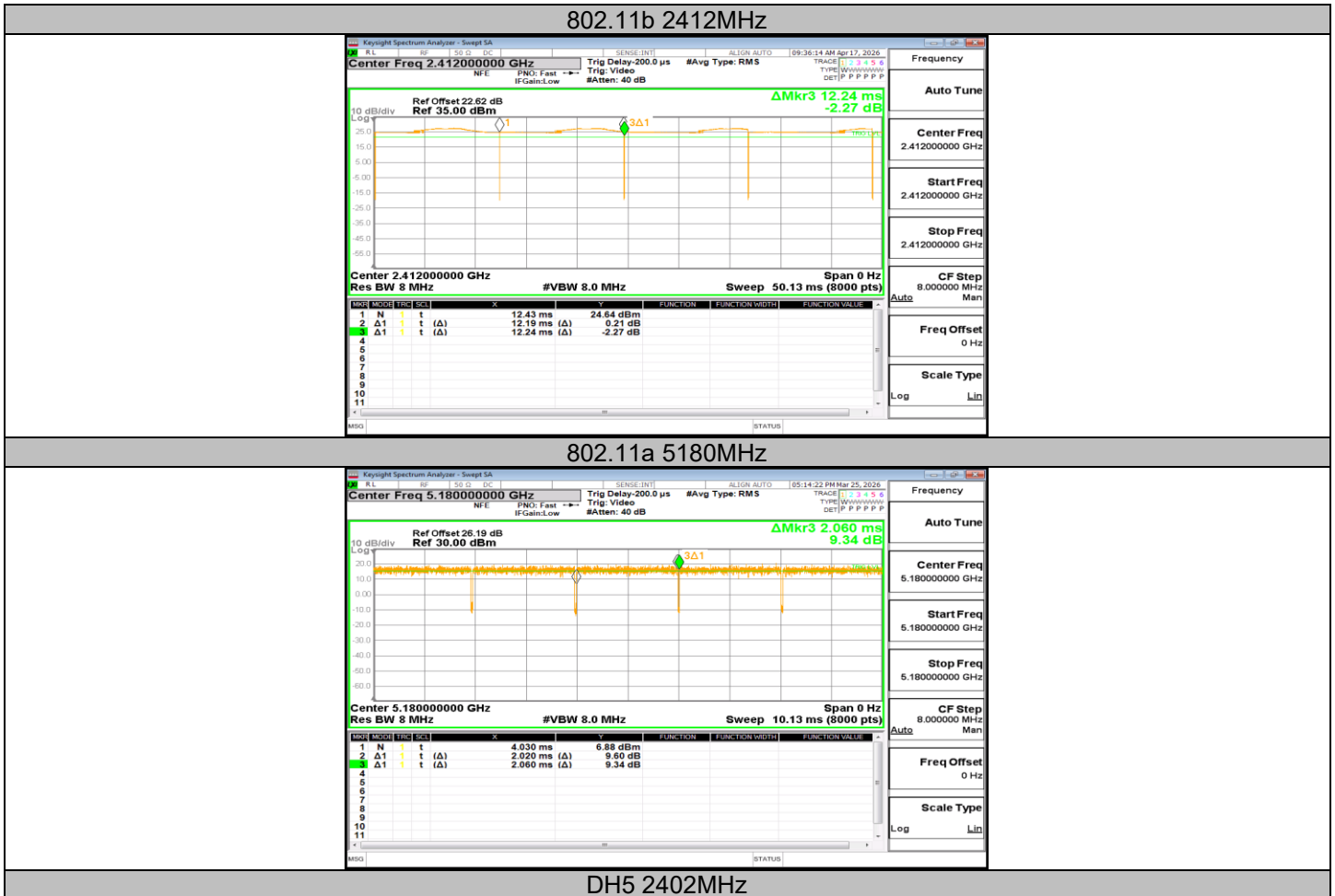
Mode	Freq(MHz)	Conducted AV Output (dBm) ANT1	Tune-up Limit (dBm)
DH5	2402	12.96	14.00
	2441	13.85	14.00
	2480	12.88	14.00
3DH5	2402	10.83	12.50
	2441	12.36	12.50
	2480	10.94	12.50
1M	2402	6.46	8.00
	2440	7.26	8.00
	2480	6.15	8.00
2M	2404	6.46	8.00
	2440	7.22	8.00
	2478	6.34	8.00
QHS P2	2404	11.83	13.00
	2440	12.45	13.00
	2478	12.06	13.00
QHS P6	2404	11.92	13.00
	2440	12.51	13.00
	2478	12.15	13.00

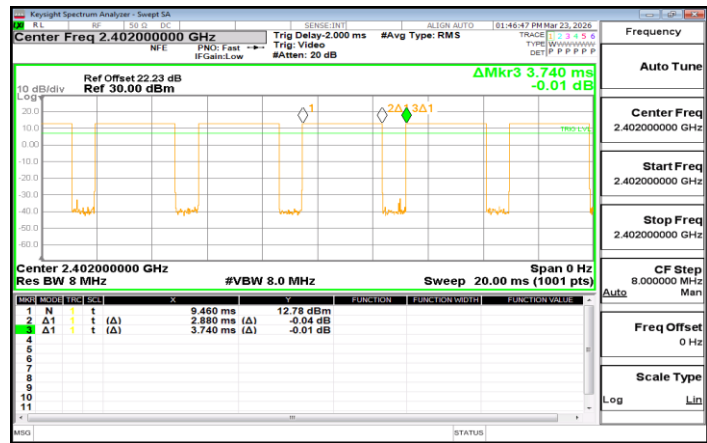
Note:

- 1) The output power of the device was set to transmit at maximum power for all tests.
- 2) As per KDB 447498 D01 sec.4.1.d) at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit.
- 3) The maximum output power mode DH5 was selected as the primary mode to test SAR for Bluetooth mode. SAR measurement is not required for the other modes, when the secondary mode is ≤ 0.25 dB higher than the primary mode.

7.4. Duty Cycle

Test Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)
802.11b	12.19	12.24	0.9959	99.59
802.11a	2.02	2.06	0.9806	98.06
DH5	2.88	3.74	0.7701	77.01





8. Test Configuration

8.1. Wi-Fi Test Configuration

For Wi-Fi SAR testing, a communication link is set up with the testing software for Wi-Fi mode test. During the test, at each test frequency channel, the EUT is operated at the RF continuous emission mode. The test procedures in KDB 248227D01 are applied.

8.1.1. Initial Test Position Procedure

For exposure condition with multiple test position, such as handsets operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all position in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is $\leq 0.4\text{W/kg}$, no additional testing for the remaining test position is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR position until the reported SAR result is $\leq 0.8\text{W/kg}$ or all test position are measured. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is $> 0.8\text{W/kg}$, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is $\leq 1.2\text{W/kg}$ or all required channels are tested.

8.1.2. Initial Test Configuration Procedure

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required (see section 5.3.2 of KDB 248227D01). SAR test reduction of subsequent highest output test channels is based on the reported SAR of the initial test configuration.

For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.

When the reported SAR of the initial test configuration is $> 0.8\text{W/kg}$, SAR measurement is required for the subsequent next highest measured output power channel(s) in the initial test configuration until the reported SAR is $\leq 1.2\text{W/kg}$ or all required channels are tested.

8.1.3. Sub Test Configuration Procedure

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units.

When the highest reported SAR for the initial test configuration, according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is $\leq 1.2\text{W/kg}$, SAR is not required for that subsequent test configuration.

8.1.4. 2.4GHz Wi-Fi SAR Test Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions.

A) 802.11b DSSS SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either a 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 (section 3.1 of KDB 248227D01) for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration 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.

B) 2.4GHz 802.11g/n OFDM SAR Test Exclusion Requirements

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3 of KDB 248227D01). SAR is not required for the following 2.4 GHz OFDM conditions.

- 1) When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
- 2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

C) SAR Test Requirements for OFDM configurations

When SAR measurement is required for 802.11 g/n OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

8.1.5. 5GHz Wi-Fi SAR Test Procedures

U-NII-1 and U-NII-2A Bands

For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following:

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.
- 2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.
- 3) The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

U-NII-2C and U-NII-3 Bands

The frequency range covered by these bands 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, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures.

When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands 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. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

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. 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.

8.2.2.4GHz BT SAR Test Requirements

2.4GHz BT operating modes are tested independently according to the service requirements in each frequency band for each antenna. DH5/3DH5/1M/2M/QHS P2/QHS P6 SISO modes are tested on the maximum average output power mode.

8.3.Repeated measurements

Repeated measurements are required only when the measured SAR is ≥ 0.80 W/kg.¹⁸ If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with $\leq 20\%$ variation, only one repeated measurement is required to reaffirm that the results are not expected to have substantial variations, which may introduce significant compliance concerns. A second repeated measurement is required only if the measured result for the initial repeated measurement is within 10% of the SAR limit and vary by more than 20%, which are often related to device and measurement setup difficulties. The following procedures are applied to determine if repeated measurements are required. The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.¹⁹ The repeated measurement results must be clearly identified in the SAR report. All measured SAR, including the repeated results, must be considered to determine compliance and for reporting according to KDB Publication 690783.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).

9. RF Exposure Conditions

Wireless technologies	RF Exposure Conditions	DUT-to-User Separation
WLAN/BT	Head	0 mm
WLAN/BT	Extremity	0 mm

Note:

Refer to the "4792176316-1-SAR-1_Appendix A Photo" for the antenna location diagram.

The device is classified as a headset configuration, where head SAR was evaluated with a 0 mm test separation distance. Due to the product's form factor allowing limb-touching and neck-worn deployment, additional SAR testing was executed for the front-limb position and the respective chassis edges closest to the transmitting antenna. For details, please refer to Section 11, '11.Measured and Reported (Scaled) SAR Results'.

10. Dielectric Property Measurements & System Check

10.1. Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within $\pm 2^\circ\text{C}$ of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

Tissue Dielectric Parameters

FCC KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	ϵ_r	σ (S/m)	ϵ_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

IEEE Std 1528-2013

Refer to Table 3 within the IEEE Std 1528-2013 Dielectric Property Measurements Results:

Liquid	Freq.	Liquid Parameters				Deviation(%)		Limit (%)	Temp. (°C)	Test Date
		Measured		Target						
		ϵ _r	σ	ϵ _r	σ	ϵ _r	σ			
Head 2450	2400	40.300	1.820	39.29	1.76	2.57	3.41	±5	20.9	April 7, 2026
	2450	40.400	1.880	39.20	1.80	3.06	4.44			
	2480	40.100	1.900	39.16	1.83	2.40	3.83			
Head 2450	2400	40.400	1.810	39.29	1.76	2.83	2.84	±5	20.6	April 13, 2026
	2450	40.400	1.860	39.20	1.80	3.06	3.33			
	2480	40.300	1.870	39.16	1.83	2.91	2.19			
Head 5250	5160	35.600	4.510	36.03	4.61	-1.19	-2.17	±5	20.7	April 14, 2026
	5250	35.700	4.680	35.93	4.71	-0.64	-0.64			
	5340	35.300	4.800	35.83	4.80	-1.48	0.00			
Head 5600	5500	35.300	4.970	35.64	4.96	-0.95	0.20	±5	21.4	April 15, 2026
	5600	35.200	5.040	35.53	5.07	-0.93	-0.59			
	5700	34.400	5.270	35.41	5.17	-2.85	1.93			
Head 5750	5660	34.600	4.950	35.46	5.13	-2.43	-3.51	±5	21.2	May 7, 2026
	5750	34.500	5.010	35.36	5.22	-2.43	-4.02			
	5840	34.400	5.120	35.27	5.30	-2.47	-3.40			
Head 5250	5160	35.700	4.500	36.03	4.61	-0.92	-2.39	±5	21.0	June 1,2026
	5250	35.600	4.590	35.93	4.71	-0.92	-2.55			
	5340	35.500	4.680	35.83	4.80	-0.92	-2.50			
Head 5600	5500	36.300	4.920	35.64	4.96	1.85	-0.81	±5	20.8	June 1,2026
	5600	36.300	5.040	35.53	5.07	2.17	-0.59			
	5700	36.200	5.130	35.41	5.17	2.23	-0.77			
Head 5750	5660	35.700	5.120	35.46	5.13	0.68	-0.19	±5	21.3	June 2,2026
	5750	35.600	5.190	35.36	5.22	0.68	-0.57			
	5840	35.500	5.300	35.27	5.30	0.65	0.00			

10.2. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ± 0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1GHz) and 15 mm (below 1GHz) from dipole center to the simulating liquid surface.
- For area scan, standard grid spacing for head measurements is 15 mm in x- and y- dimension (≤ 2 GHz), 12 mm in x- and y-dimension (2-4 GHz) and 10 mm in x- and y- dimension (4-6GHz).
- For zoom scan, $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}} \leq 2$ GHz - ≤ 8 mm, 2-4 GHz - ≤ 5 mm and 4-6 GHz- ≤ 4 mm; $\Delta z_{\text{zoom}} \leq 3$ GHz - ≤ 5 mm, 3-4 GHz- ≤ 4 mm and 4-6 GHz- ≤ 2 mm.
- Distance between probe sensors and phantom surface was set to 3 mm except for 5 GHz band. For 5 GHz band, Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was set to 100 mW or 250 mW depend on the certificate of the dipoles.
- The results are normalized to 1 W input power.

System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

T.S. Liquid		Measured Results		Target (Ref. value)	Delta (%)	Limit (%)	Temp. (°C)	Test Date
		Result of 0.1W input power (W/Kg)	Normalize to 1W (W/Kg)					
Head 2450	1-g	5.040	50.40	52.80	-4.55	±10	20.9	April 7, 2026
	10-g	2.360	23.60	24.40	-3.28			
Head 2450	1-g	5.320	53.20	52.80	0.76	±10	20.6	April 13, 2026
	10-g	2.490	24.90	24.40	2.05			
Head 5250	1-g	7.630	76.30	77.50	-1.55	±10	20.7	April 14, 2026
	10-g	2.210	22.10	21.80	1.38			
Head 5600	1-g	7.980	79.80	82.70	-3.51	±10	21.4	April 15, 2026
	10-g	2.270	22.70	23.10	-1.73			
Head 5750	1-g	7.760	77.60	77.90	-0.39	±10	21.2	May 7, 2026
	10-g	2.230	22.30	21.50	3.72			
Head 5250	1-g	7.740	77.40	77.50	-0.13	±10	21.0	June 1, 2026
	10-g	2.130	21.30	21.80	-2.29			
Head 5600	1-g	8.160	81.60	82.70	-1.33	±10	20.8	June 1, 2026
	10-g	2.330	23.30	23.10	0.87			
Head 5750	1-g	7.690	76.90	77.90	-1.28	±10	21.3	June 2, 2026
	10-g	2.250	22.50	21.50	4.65			

11. Measured and Reported (Scaled) SAR Results

11.1. SAR Test Reduction criteria are as follows:

- Reported SAR(W/kg) for Wi-Fi Measured SAR* Maximum Output Power scaling factor Duty Cycle scaling factor
- Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)

11.2. General Notes:

- 1) As per KDB447498 D01, all SAR measurement results are scaled to the maximum tune-up tolerance limit to demonstrate SAR compliance.
- 2) As per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8 \text{ W/kg}$ for 1-g or 2.0 W/kg for 10-g respectively, when the transmission band is $\leq 100 \text{ MHz}$.
 - $\leq 0.6 \text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4 \text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200 \text{ MHz}$.When the maximum output power variation across the required test channels is $> \frac{1}{2} \text{ dB}$, instead of the middle channel, the highest output power channel must be used.
- 3) As per KDB865664 D01 for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8 \text{ W/Kg}$; if the deviation among the repeated measurement is $\leq 20\%$, and the measured SAR $< 1.45 \text{ W/Kg}$, only one repeated measurement is required.
- 4) As per KDB865664 D02, SAR plot is only required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination; Plots are also required when the measured SAR is $> 1.5 \text{ W/kg}$, or $> 7.0 \text{ W/kg}$ for occupational exposure. The published RF exposure KDB procedures may require additional plots; for example, to support SAR to peak location separation ratio test exclusion and/or volume scan post-processing (Refer to appendix B for detailed SAR plots).
- 5) Additional SAR tests in simultaneous transmission fixed power reduction scenario are also tested in some frequency bands and required test positions for the SAR worst case, which are only used to ensure simultaneous transmission SAR test exclusion. The standalone SAR compliance still uses the SAR results tested at the maximum output power level.

11.3.SAR Test Results of 2.4GHz Wi-Fi

ANT1										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured 1-g (W/Kg)	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.				
Head	802.11 b	Back Surface	0	1/2412	19.5	19.34	99.59	0.464	-0.02	0.483
Head	802.11 b	Back Surface	0	6/2437	19.5	18.94	99.59	0.597	0.12	0.682
Head	802.11 b	Back Surface	0	11/2462	19.5	19.00	99.59	0.465	0.00	0.524
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured 10-g (W/Kg)	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.				
Extremity	802.11 b	Front Surface	0	1/2412	19.5	19.34	99.59	0.228	0.02	0.238
Extremity	802.11 b	Bottom Edge	0	1/2412	19.5	19.34	99.59	0.135	-0.09	0.141
Extremity	802.11 b	Front Surface	0	6/2437	19.5	18.94	99.59	0.206	0.06	0.235
Extremity	802.11 b	Front Surface	0	11/2462	19.5	19.00	99.59	0.200	0.01	0.225

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) 802.11b is the maximum power mode, so there is no need to test other modes.
- 3) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 4) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Bottom Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

ANT2										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured 1-g (W/Kg)	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.				
Head	802.11 b	Back Surface	0	1/2412	19.5	19.39	99.59	1.140	-0.03	1.174
Head	802.11 b	Back Surface	0	6/2437	19.5	19.12	99.59	0.912	0.00	0.999
Head	802.11 b	Back Surface	0	11/2462	19.5	18.96	99.59	1.070	-0.03	1.217
Worst mode retest										
Head	802.11 b	Back Surface	0	1/2412	19.5	19.39	99.59	1.100	0.05	1.133
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured 10-g (W/Kg)	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.				
Extremity	802.11 b	Front Surface	0	1/2412	19.5	19.39	99.59	0.481	-0.03	0.495
Extremity	802.11 b	Bottom Edge	0	1/2412	19.5	19.39	99.59	0.229	-0.18	0.236
Extremity	802.11 b	Front Surface	0	6/2437	19.5	19.12	99.59	0.448	0.03	0.491
Extremity	802.11 b	Front Surface	0	11/2462	19.5	18.96	99.59	0.421	0.01	0.479

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) 802.11b is the maximum power mode, so there is no need to test other modes.
- 3) Due to $1.140/1.100 = 1.04 < 1.20$, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.
- 4) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 5) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Bottom Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

11.1.SAR Test Results of 5GHz Wi-Fi U-NII-1

ANT2										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		1-g (W/Kg)		
Head	802.11 a	Back Surface	0	40/5200	16.0	15.94	98.06	0.209	-0.08	0.216
Head	802.11 a	Back Surface	0	36/5180	16.0	15.72	98.06	0.196	-0.14	0.213
Head	802.11 a	Back Surface	0	48/5240	16.0	15.77	98.06	0.200	0.03	0.215
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	802.11 a	Front Surface	0	40/5200	16.0	15.94	98.06	0.107	-0.01	0.111
Extremity	802.11 a	Bottom Edge	0	40/5200	16.0	15.94	98.06	0.166	0.12	0.172
Extremity	802.11 a	Bottom Edge	0	36/5180	16.0	15.72	98.06	0.164	-0.05	0.178
Extremity	802.11 a	Bottom Edge	0	48/5240	16.0	15.77	98.06	0.198	-0.04	0.213

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) 802.11a is the maximum power mode, so there is no need to test other modes.
- 3) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 4) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Bottom Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

11.2.SAR Test Results of 5GHz Wi-Fi U-NII-2A

ANT1										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		1-g (W/Kg)		
Head	802.11 a	Back Surface	0	52/5260	17.0	16.47	98.06	0.277	-0.07	0.319
Head	802.11 a	Back Surface	0	56/5280	17.0	15.77	98.06	0.320	-0.06	0.433
Head	802.11 a	Back Surface	0	64/5320	17.0	16.26	98.06	0.325	0.02	0.393
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	802.11 a	Front Surface	0	52/5260	17.0	16.47	98.06	0.133	-0.04	0.153
Extremity	802.11 a	Bottom Edge	0	52/5260	17.0	16.47	98.06	0.145	-0.08	0.167
Extremity	802.11 a	Front Surface	0	56/5280	17.0	15.77	98.06	0.177	0.01	0.240
Extremity	802.11 a	Front Surface	0	64/5320	17.0	16.26	98.06	0.189	0.03	0.229

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) 802.11a is the maximum power mode, so there is no need to test other modes.
- 3) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 4) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Bottom Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

ANT2										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		1-g (W/Kg)		
Head	802.11 a	Back Surface	0	64/5320	14.5	14.18	98.06	0.200	0.01	0.220
Head	802.11 a	Back Surface	0	52/5260	14.5	13.61	98.06	0.191	-0.05	0.239
Head	802.11 a	Back Surface	0	56/5280	14.5	14.02	98.06	0.228	-0.06	0.260
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	802.11 a	Front Surface	0	64/5320	14.5	14.18	98.06	0.122	-0.08	0.134
Extremity	802.11 a	Bottom Edge	0	64/5320	14.5	14.18	98.06	0.253	0.07	0.278
Extremity	802.11 a	Bottom Edge	0	52/5260	14.5	13.61	98.06	0.219	-0.01	0.274
Extremity	802.11 a	Bottom Edge	0	56/5280	14.5	14.02	98.06	0.232	-0.04	0.264

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) 802.11a is the maximum power mode, so there is no need to test other modes.
- 3) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 4) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Bottom Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

11.3.SAR Test Results of 5GHz Wi-Fi U-NII-2C

ANT1										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		1-g (W/Kg)		
Head	802.11 a	Back Surface	0	116/5580	18.0	17.47	98.06	0.422	0.02	0.486
Head	802.11 a	Back Surface	0	100/5500	18.0	17.28	98.06	0.434	0.18	0.522
Head	802.11 a	Back Surface	0	140/5700	16.0	15.70	98.06	0.380	0.01	0.415
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	802.11 a	Front Surface	0	116/5580	18.0	17.47	98.06	0.200	0.10	0.230
Extremity	802.11 a	Bottom Edge	0	116/5580	18.0	17.47	98.06	0.175	-0.01	0.202
Extremity	802.11 a	Front Surface	0	100/5500	18.0	17.28	98.06	0.183	-0.03	0.220
Extremity	802.11 a	Front Surface	0	140/5700	16.0	15.70	98.06	0.246	0.01	0.269

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) 802.11a is the maximum power mode, so there is no need to test other modes.
- 3) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 4) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Bottom Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

ANT2										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		1-g (W/Kg)		
Head	802.11 a	Back Surface	0	116/5580	15.5	14.96	98.06	0.162	-0.02	0.187
Head	802.11 a	Back Surface	0	100/5500	15.5	14.63	98.06	0.234	-0.06	0.292
Head	802.11 a	Back Surface	0	140/5700	15.5	14.95	98.06	0.190	-0.02	0.220
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	802.11 a	Front Surface	0	116/5580	15.5	14.96	98.06	0.073	0.08	0.084
Extremity	802.11 a	Bottom Edge	0	116/5580	15.5	14.96	98.06	0.131	-0.07	0.151
Extremity	802.11 a	Bottom Edge	0	100/5500	15.5	14.63	98.06	0.177	-0.09	0.221
Extremity	802.11 a	Bottom Edge	0	140/5700	15.5	14.95	98.06	0.135	0.19	0.156

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) 802.11a is the maximum power mode, so there is no need to test other modes.
- 3) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 4) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Bottom Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

11.4.SAR Test Results of 5GHz Wi-Fi U-NII-3

ANT1										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		1-g (W/Kg)		
Head	802.11 a	Back Surface	0	149/5745	16.5	16.10	98.06	0.412	-0.07	0.461
Head	802.11 a	Back Surface	0	157/5785	16.5	15.59	98.06	0.403	0.15	0.507
Head	802.11 a	Back Surface	0	165/5825	16.5	15.47	98.06	0.449	0.04	0.580
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	802.11 a	Front Surface	0	149/5745	16.5	16.10	98.06	0.224	-0.03	0.250
Extremity	802.11 a	Bottom Edge	0	149/5745	16.5	16.10	98.06	0.203	0.05	0.227
Extremity	802.11 a	Front Surface	0	157/5785	16.5	15.59	98.06	0.213	-0.01	0.268
Extremity	802.11 a	Front Surface	0	165/5825	16.5	15.47	98.06	0.216	-0.03	0.279

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) 802.11a is the maximum power mode, so there is no need to test other modes.
- 3) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 4) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Bottom Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

ANT2										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		1-g (W/Kg)		
Head	802.11 a	Back Surface	0	149/5745	14.5	14.20	98.06	0.189	-0.09	0.207
Head	802.11 a	Back Surface	0	157/5785	14.5	14.00	98.06	0.177	-0.09	0.203
Head	802.11 a	Back Surface	0	165/5825	14.5	14.09	98.06	0.210	-0.05	0.235
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	802.11 a	Front Surface	0	149/5745	14.5	14.20	98.06	0.111	0.08	0.121
Extremity	802.11 a	Bottom Edge	0	149/5745	14.5	14.20	98.06	0.140	-0.12	0.153
Extremity	802.11 a	Bottom Edge	0	157/5785	14.5	14.00	98.06	0.132	-0.07	0.151
Extremity	802.11 a	Bottom Edge	0	165/5825	14.5	14.09	98.06	0.143	-0.01	0.160

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) 802.11a is the maximum power mode, so there is no need to test other modes.
- 3) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 4) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Bottom Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

11.5.SAR Test Results of BT

BT ANT										
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		1-g (W/Kg)		
Head	DH5	Back Surface	0	39/2441	14.0	13.85	77.01	0.269	-0.02	0.362
Head	DH5	Back Surface	0	0/2402	14.0	12.96	77.01	0.221	-0.01	0.365
Head	DH5	Back Surface	0	78/2480	14.0	12.88	77.01	0.188	0.00	0.316
RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Ch./Freq.	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	DH5	Front Surface	0	39/2441	14.0	13.85	77.01	0.042	0.05	0.056
Extremity	DH5	Top Edge	0	39/2441	14.0	13.85	77.01	0.103	0.02	0.138
Extremity	DH5	Top Edge	0	0/2402	14.0	12.96	77.01	0.095	0.02	0.157
Extremity	DH5	Top Edge	0	78/2480	14.0	12.88	77.01	0.079	0.02	0.133

Note:

- 1) The SAR testing was set to transmit at maximum power for all tests.
- 2) DH5 is the maximum power mode, so there is no need to test other modes.
- 3) Duty Cycle scaling factor = maximum duty cycle / Duty cycle (%)
- 4) For extremity SAR evaluation, the front surface and surrounding edge are tested. For front surface, the EUT is placed horizontal and contact against the flat phantom. for surrounding edge(Top Edge), the EUT is placed vertical and make the center of the antenna contact against the flat phantom.

12.Simultaneous Transmission SAR Analysis

The EUT Simultaneous Transmission combination as below:

NO	Combination
1	2.4GHz Wi-Fi+BT
2	5GHz Wi-Fi+BT

12.1. Simultaneous Transmission calculation

ANT1					
RF Exposure Condition	Test Position	Result Summary			
		2.4G WiFi	U-NII-1/-2A	U-NII-2C	U-NII-3
Head	Back Surface	0.682	0.433	0.522	0.580
Extremity	Front Surface	0.238	0.240	0.269	0.279
	Bottom Edge	0.141	0.167	0.202	0.227

ANT2						
RF Exposure Condition	Test Position	Result Summary				
		2.4G WiFi	U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
Head	Back Surface	1.217	0.216	0.260	0.292	0.235
Extremity	Front Surface	0.495	0.111	0.134	0.084	0.121
	Bottom Edge	0.236	0.213	0.278	0.221	0.160

BT ANT		
RF Exposure Condition	Test Position	Result Summary
		BT
Head	Back Surface	0.365
Extremity	Front Surface	0.056
	Top Edge	0.157

ANT1+BT ANT			
Simultaneous Transmission	RF Exposure Condition	Test Position	Results
2.4GHz Wi-Fi+BT	Head	Back Surface	1.047
	Extremity	Front Surface	0.294
		Top Edge	0.157
		Bottom Edge	0.141

ANT2+BT ANT			
Simultaneous Transmission	RF Exposure Condition	Test Position	Results
2.4GHz Wi-Fi+BT	Head	Back Surface	1.582
	Extremity	Front Surface	0.551
		Top Edge	0.157
		Bottom Edge	0.236

ANT1+BT ANT			
Simultaneous Transmission	RF Exposure Condition	Test Position	Results
5GHz Wi-Fi+BT	Head	Back Surface	0.945
	Extremity	Front Surface	0.335
		Top Edge	0.157
		Bottom Edge	0.227

ANT2+BT ANT			
Simultaneous Transmission	RF Exposure Condition	Test Position	Results
5GHz Wi-Fi+BT	Head	Back Surface	0.657
	Extremity	Front Surface	0.190
		Top Edge	0.157
		Bottom Edge	0.278

Appendixes

Refer to separated files for the following appendixes.

4792176316-1-SAR-1_App A Photo

4792176316-1-SAR-1_App B System Check Plots

4792176316-1-SAR-1_App C Highest Test Plots

4792176316-1-SAR-1_App D Cal. Certificates

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