

# **ELEMENT MATERIALS TECHNOLOGY**

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# **PART 0 SAR CHAR REPORT**

**Applicant Name:** 

Samsung Electronics Co., Ltd. 129, Samsung-ro, Maetan dong, Yeongtong-gu, Suwon-si Gyeonggi-do, 16677, Korea Date of Testing: 06/29/2022-07/24/2022 Test Site/Location: Element, Columbia, MD, USA Document Serial No.: 1M2206140073-17.A3L

FCC ID: A3LSMF721JPN

APPLICANT: SAMSUNG ELECTRONICS CO., LTD

**Report Type:** Part 0 SAR Characterization

**DUT Type:** Portable Handset **Model(s):** SC-54C, SCG17

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

Test results reported herein relate only to the item(s) tested.







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## **DEVICE UNDER TEST**

#### 1.1 **Device Overview**

Band & Mode	Operating Modes	Tx Frequency			
GSWGPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz			
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz			
UMTS 850	Voice/Data	826.40 - 846.60 MHz			
LTE Band 12	Voice/Data	699.7 - 715.3 MHz			
LTE Band 13	Voice/Data	779.5 - 784.5 MHz			
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz			
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz			
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz			
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz			
2.4 GHz WLAN	Data	2412 - 2472 MHz			
U-NII-1	Data	5180 - 5240 MHz			
U-NII-2A	Data	5260 - 5320 MHz			
U-NII-2C	Data	5500 - 5720 MHz			
U-NII-3	Data	5745 - 5825 MHz			
U-NII-4	Data	5845 - 5885 MHz			
Bluetooth	Data	2402 - 2480 MHz			
NFC	Data	13.56 MHz			
(L. OL					

This device uses the Qualcomm® Gen1 Smart Transmit feature to control and manage transmitting power in real time and to ensure the time-averaged RF exposure is in compliance with the FCC requirement at all times for 2G/3G/4G WWAN operations. Additionally, this device supports WLAN/BT/NFC technologies, but the output power of these modems is not controlled by the Smart Transmit algorithm.

#### 1.2 Time-Averaging for SAR and Power Density

This device is enabled with Qualcomm<sup>®</sup> Gen1 Smart Transmit algorithm to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from 2G/3G/4G WWAN is in compliance with FCC requirements. This Part 0 report shows SAR characterization of WWAN radios for 2G/3G/4G. Characterization is achieved by determining P<sub>Limit</sub> for 2G/3G/4G that corresponds to the exposure design targets after accounting for all device design related uncertainties, i.e., SAR\_design\_target (< FCC SAR limit) for sub-6 radio. The SAR characterization is denoted as SAR Char in this report. Section 1.3 includes a nomenclature of the specific terms used in this report.

The compliance test under the static transmission scenario and simultaneous transmission analysis are reported in Part 1 report.

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#### 1.3 Nomenclature for Part 0 Report

Technology	Term	Description
	Plimit	Power level that corresponds to the exposure design target (SAR_design_target) after accounting for all device design related uncertainties
2G/3G/4G	P <sub>max</sub>	Maximum tune up output power
	SAR_design_target	Target SAR level < FCC SAR limit after accounting for all device design related uncertainties
	SAR Char	Table containing <i>Plimit</i> for all technologies and bands

#### 1.4 **Bibliography**

Report Type	Report Serial Number
RF Exposure Part 1 Test Report	1M2206140073-16.A3L

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## SAR AND POWER DENSITY MEASUREMENTS

#### **SAR Definition** 2.1

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density ( $\rho$ ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 2-1).

Equation 2-1 **SAR Mathematical Equation** 

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

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

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

where:

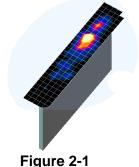
conductivity of the tissue-simulating material (S/m) mass density of the tissue-simulating material (kg/m<sup>3</sup>) ρ Ε Total RMS electric field strength (V/m)

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

#### 2.2 **SAR Measurement Procedure**

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

- 1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 2-1) and IEEE 1528-2013.
- 2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.



Sample SAR Area Scan

3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 2-1) and IEEE 1528-2013. On the

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basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):

- a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 2-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
- b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
- c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
- 4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

Table 2-1 Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04\*

	Maximum Area Scan	Maximum Zoom Scan	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan
Frequency	Resolution (mm) (Δx <sub>area</sub> , Δy <sub>area</sub> )	Resolution (mm) (Δx <sub>200m</sub> , Δy <sub>200m</sub> )	Uniform Grid	G	raded Grid	Volume (mm) (x,y,z)
			Δz <sub>zoom</sub> (n)	Δz <sub>zoom</sub> (1)*	Δz <sub>zoom</sub> (n>1)*	
≤ 2 GHz	≤ 15	≤8	≤5	≤4	≤ 1.5*Δz <sub>zoom</sub> (n-1)	≥ 30
2-3 GHz	≤ 12	≤5	≤5	≤4	$\leq 1.5*\Delta z_{zoom}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤5	≤ 4	≤3	$\leq 1.5*\Delta z_{zoom}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤4	≤3	≤2.5	$\leq 1.5*\Delta z_{zoom}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤2	≤2	$\leq 1.5*\Delta z_{zoom}(n-1)$	≥ 22

<sup>\*</sup>Also compliant to IEEE 1528-2013 Table 6

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# **SAR CHARACTERIZATION**

#### 3.1 **DSI** and **SAR** Determination

This device uses different Device State Index (DSI) to configure different time averaged power levels based on certain exposure scenarios. Depending on the detection scheme implemented in the smartphone, the worst-case SAR was determined by measurements for the relevant exposure conditions for that DSI. Detailed descriptions of the detection mechanisms are included in the operational description.

When 1g SAR and 10g SAR exposure comparison is needed, the worst-case was determined from SAR normalized to 1g or 10g SAR limit.

The device state index (DSI) conditions used in Table 3-1 represent different exposure scenarios.

Table 3-1 **DSI and Corresponding Exposure Scenarios** 

Scenario	Description	SAR Test Cases
Head (DSI = 2)	<ul><li>Device positioned next to head</li><li>Receiver Active</li></ul>	Head SAR per KDB Publication 648474 D04
Hotspot mode (DSI = 3)	<ul><li>Device transmits in hotspot mode near body</li><li>Hotspot Mode Active</li></ul>	Hotspot SAR per KDB Publication 941225 D06
Phablet Grip (DSI=1 or 4)	<ul> <li>Device is held with hand and grip sensor is triggered</li> <li>Grip sensor triggered or earjack is active</li> </ul>	Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D04
Phablet (DSI = 0)	<ul><li>Device is held with hand and grip sensor is not triggered</li><li>Distance grip sensor not triggered</li></ul>	Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D04
Body-worn (DSI = 0)	<ul> <li>Device being used with a body-worn accessory</li> </ul>	Body-worn SAR per KDB Publication 648474 D04

#### 3.2 **SAR Design Target**

SAR design target is determined by ensuring that it is less than FCC SAR limit after accounting for total device designed related uncertainties specified by the manufacturer (see Table 3-2).

> Table 3-2 SAR\_design\_target Calculations

SAR_design_target							
$SAR\_design\_target < SAR\_regulatory\_limit  imes 10^{rac{-Total\ Uncertainty}{10}}$							
1g SAR (W/kg)	10g SAR (W/kg)						
Total Uncertainty	1.0 dB	Total Uncertainty	1.0 dB				
SAR_regulatory_limit	1.6 W/kg	SAR_regulatory_limit	4.0 W/kg				
SAR_design_target	1.0 W/kg	SAR_design_target	2.5 W/kg				

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#### 3.3 **SAR Char**

SAR test results corresponding to Pmax for each antenna/technology/band/DSI can be found in Appendix A.

Plimit is calculated by linearly scaling with the measured SAR at the Ppart0 to correspond to the SAR\_design\_target. When Plimit < Pmax, Ppart0 was used as Plimit in the Smart Transmit EFS. When Plimit > Pmax and Ppart0=Pmax, calculated Plimit was used in the Smart Transmit EFS. All reported SAR obtained from the Ppart0 SAR tests was less than SAR\_Design\_target+ 1 dB Uncertainty. The final Plimit determination for each exposure scenario corresponding to SAR design target are shown in Table 3-3.

Table 3-3 **PLimit** Determination

Device State Index (DSI)	PLimit Determination Scenarios
0	The worst-case SAR exposure is determined as maximum SAR normalized to the limit (i.e. lowest $P_{limit}$ ) among:  1. Body Worn SAR  2. Extremity SAR measured at 8, 6 and 12 mm spacing for back, front, bottom respectively  3. Extremity SAR measured at 0 mm for all surfaces
1 or 4	Plimit is calculated based on 10g Extremity SAR at 0 mm for all surfaces
2	Plimit is calculated based on 1g Head SAR
3	P <sub>limit</sub> is calculated based on 1g Hotspot SAR at 10 and 5 mm

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# Table 3-4 SAR Characterizations

Exposure Senario		Body-Worn Phablet Max		Phablet Reduced	Head	Hotspot	Earjack	Maximum
Averaging Volume		1g	10g	10g	1g	1g	10g	Tune-Up
Spacing		15 mm	12, 8, 6, 0 mm	0 mm	0 mm	10, 5 mm	0 mm	Output Power*
DSI		0	0	1	2	3	4	TOWCI
Technology/Band	Antenna							Pmax
GSM 850	A	30.8		21.8	30.5	21.8	21.8	25.3
GSM 1900	A	26.0		16.8	36.0	16.8	16.8	22.3
UMTS 850	A	29.2		28.8	21.0	24.4	28.8	23.5
LTE Band 12	A	29.6		29.6	31.1	26.6	29.6	24.0
LTE Band 13	A	30.6		28.0	32.3	25.0	28.0	24.0
LTE Band 26/5 (Cell)	A	29.0		28.6	32.2	25.5	28.6	24.0
LTE Band 4 (AWS)	A	23.3		18.5	33.5	18.5	18.5	22.5
LTE Band 41	В	27	7.3	20.0	34.1	17.0	20.0	22.0

### Notes:

- 1. For all modes/bands, when Hotspot Mode (DSI=3) and Extremity sensor (DSI=1) are triggered at the same time, DSI=3 takes priority, thus the *Plimit* for DSI=3 is set to be less or equal to *Plimit* for DSI=1
- 2. When  $P_{max} < P_{limit}$ , the DUT will operate at a power level up to  $P_{max}$ .
- 3. Plimit for DSI=1 and DSI =4 are the same.
- 4. For all modes/bands, when RCV is active, DSI=2 takes priority over all levels.

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# **EQUIPMENT LIST**

### For SAR measurements

Model E4408C E4408C E4438C E4438C N5182A N5182A N5182A N5182A S7538S E5515C E5515C N4010A 155166 155166 155166 M12496A M12496A M12496A M12496A M12496A M24118 MA24118 MA24118 MA24118 M3201C M7821C M7	Description Spectrum Analyzer ESG Vector Signal Generator ESG Vector Signal Generator MXG Vector Signal Generator S-Parameter Vector Network Analyzer S-Parameter Vector Network Analyzer Wireless Communications Test Set Wireless Communications Test Set Wireless Communications Test Set Wireless Communications Test Set Amplifier Amplifier Power Meter Power Meter Power Meter Power Sensor Pulus Power Sensor Pulus Power Sensor Vector Network Analyzer Radio Communication Analyzer MT8821C Radio Communication Set Station Radio Communication Set Station Radio Communication Fest Station Radio Communication Test Station Radio Communica	Cal Date N/A 5/10/2022 N/A 5/10/2022 6/21/2022 7/6/2021 12/11/2022 12/11/2022 12/11/2022 12/11/2022 12/11/2022 12/11/2022 12/11/2022 1/14/2020 N/A CBT 9/15/2021 3/29/2022 3/29/2022 5/2/2022 5/5/2021 6/1/2022 7/7/2021 6/1/2022 7/7/2021 6/1/2022 7/7/2021 6/1/2022 7/7/2021 6/1/2022 7/2/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 5/5/2021 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022 6/1/2022	Gal Interval N/A Annual	Cal Due N/A 5/10/2023 5/10/2023 2/14/2023 6/21/2023 7/6/2022 2/11/2023 12/11/2023 12/11/2023 12/11/2023 13/12/2023 13/13/2023	Serial Number Mr45113245 (Mr45113245) (Mr45113245) (Mr45123245) (Mr45123255) (Mr474202555) (Mr4742025555) (Mr4742025555) (Mr4742025555) (Mr4742025555) (Mr47420255555) (Mr47420255555) (Mr47420255555) (Mr47420255555) (Mr47420255555) (Mr47420255555) (Mr474202555555) (Mr474202555555) (Mr474202555555) (Mr474202555555) (Mr474202555555) (Mr474202555555) (Mr474202555555) (Mr4742025555555) (Mr4742025555555) (Mr4742025555555) (Mr4742025555555) (Mr4742025555555) (Mr4742025555555555555555555555555555555555
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15S1G6 MIZ496A MIZ496A MIZ496A MIZ496A MIZ496A MIZ411B MS2028C MIR821C MIRRER	Amplifier Amplifier Power Meter Power Meter Power Meter Pulse Power Sensor Vector Network Analyzer Radio Communication Analyzer MT8821C Radio Communication Rest Station Luss Power Sensor Luss Power Sensor Luss Sensor Luss Station Luss Sensor Hommometer Lung Stem Thermometer Lung Stem Thermometer Lung Stem Thermometer Therm, / Clock/ Humidity Monitor Therm, / Clock/ Humidity Monitor Therm, / Clock/ Humidity Monitor CD-6'ASX Glnch Digital Caliper DC Power Analyzer GdB Attenuator Power Sensor Power Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2700 MHz	CBT 9/15/2021 3/31/2022 3/29/2022 3/29/2022 9/21/2021 5/4/2022 6/27/2022 3/31/2022 3/31/2022 3/31/2022 3/2/2021 8/2/2021 8/2/2021 19/28/2020	N/A Annual Biennial Biennial Biennial Biennial Annual Annual Annual Annual Annual Annual Annual Annual Annual Biennial Annual Biennial Annual Annual Annual Annual Annual N/A	CBT 9/15/2022 3/31/2023 3/32/2023 3/32/2023 3/32/2023 9/21/2022 5/4/2023 6/27/2023 3/31/2023 3/31/2023 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 2/16/2025 6/1/2023	433974 433971 1138001 1306009 1306009 1309008 120013 120013 1200133 6201895213 6201895213 620134418 6272337436 6272337436 6272337436 6272337436 1244512 200670633 200670633 1200670633 1139 12106180003 1139 12106180031
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MIZ-496A MIZ-496A MIZ-496A MIZ-4911B MM2-411B MM2-411B MM2-411B MM2-2411B MM3-2411B MM3-2410B MM	Power Meter Power Meter Power Sensor Pulse Power Sensor Vector Network Analyzer Radio Communication Analyzer MT8821C Radio Communication Analyzer MT8821C Radio Communication Fest Sensor Long Sensor Long Sensor Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Therm, / Clock/ Humidity Monitor Therm, / Clock/ Hu	3/31/2022 4/29/2022 4/29/2022 4/29/2022 4/29/2022 5/4/2022 6/27/2022 6/27/2022 3/31/2022 8/2/2021 8/2/2021 8/2/2021 8/2/2021 10/28/2020	Annual Biennial Biennial Biennial Triennial Triennial Triennial Annual N/A Annual N/A N/A N/A	3/31/2023 3/29/2023 4/29/2023 4/29/2023 9/21/2022 5/4/2023 6/27/2023 3/31/2023 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022	1138001 139009 1207470 139008 1207470 1399008 120157 120153 651885513 651885513 651885513 651184418 6201664756 6201574637 6272337436 6272337436 6272337437 1349514 1244512 200670633 200670633 16057418 210676043 1139 121061900031 1139 121061900031
MIZ-4966A MA2411B MA2411B MA2411B MS2028C MT8821C MT8821C MT8821C MT8821C MT8821C MT8821C MT8821C MT8800A MT8000A MT8000A MT8000A MT8000A MA24106A 4353 4353 4353 4040 4040 4040 500-196-30 N6705B N9020A BW-N6VU5+ PWR-4GHS BW-N20W5+ PWR-4GHS BW-N20W5+ NLP-1200+ NLP-1200+ NLP-2950+ VLF-60000+ VLF-60000+ VLF-60000+	Power Meter Pulse Power Sensor Pulse Power Sensor Pulse Power Sensor Vector Network Analyzer Radio Communication Analyzer MT8821C Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station USB Power Sensor Dong Stem Thermometer Long Stem Thermometer Therm, Clock / Humidity Monitor Therm, Clock / Humidity Monitor Therm, Clock / Humidity Monitor CD-6 ASX 6inch Digital Caliper DC Power Analyzer 6dB Attenuator Power Sensor Power Stensor	3/29/2022 4/29/2023 9/21/2021 5/4/2022 5/4/2022 5/24/2022 5/24/2022 9/26/2021 8/2/2021 8/2/2021 8/2/2021 10/28/2020 10/28	Annual Biennial Biennial Biennial Annual N/A	3/19/2023 4/29/2023 4/29/2023 4/29/2023 5/4/2023 5/24/2023 5/24/2023 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/11/2023 3/11/2023 3/11/2023 3/11/2023 5/5/2024 4/14/2023 CBT CBT CBT	136009 1200470 1339008 1201153 1359008 1201153 620114418 6201154617 620115461
MIZ-4966A MA2411B MA2411B MA2411B MS2028C MT8821C MT8821C MT8821C MT8821C MT8821C MT8821C MT8821C MT8800A MT8000A MT8000A MT8000A MT8000A MA24106A 4353 4353 4353 4040 4040 4040 500-196-30 N6705B N9020A BW-N6VU5+ PWR-4GHS BW-N20W5+ PWR-4GHS BW-N20W5+ NLP-1200+ NLP-1200+ NLP-2950+ VLF-60000+ VLF-60000+ VLF-60000+	Power Meter Pulse Power Sensor Pulse Power Sensor Pulse Power Sensor Vector Network Analyzer Radio Communication Analyzer MT8821C Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station USB Power Sensor Dong Stem Thermometer Long Stem Thermometer Therm, Clock / Humidity Monitor Therm, Clock / Humidity Monitor Therm, Clock / Humidity Monitor CD-6 ASX 6inch Digital Caliper DC Power Analyzer 6dB Attenuator Power Sensor Power Stensor	3/29/2022 4/29/2023 9/21/2021 5/4/2022 5/4/2022 5/24/2022 5/24/2022 9/26/2021 8/2/2021 8/2/2021 8/2/2021 10/28/2020 10/28	Annual Biennial Biennial Biennial Annual N/A	3/19/2023 4/29/2023 4/29/2023 4/29/2023 5/4/2023 5/24/2023 5/24/2023 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/11/2023 3/11/2023 3/11/2023 3/11/2023 5/5/2024 4/14/2023 CBT CBT CBT	136609 1207470 1389008 1201153 1389008 1201154153 6201154153 6201154153 6201154153 6201154153 6201154153 6201154153 6201154153 6272337438 6272337438 6272337438 1244512 200670633 200670633 100570418 670570418 670570418 670570418 670570418 670570418 670570418 670570418 670570418 670570418 670570418
MA2411B MS2028C MR3821C MR3800A MR3821G MR3821C MR3800A MR3821G MR3821C MR3800A MR3821G MR3821C MR3821	Pulse Power Sensor Pulse Power Sensor Pulse Power Sensor Vector Network Analyzer Radio Communication Analyzer MT8821C Radio Communication Analyzer MT8821C Radio Communication Analyzer MT8821C Radio Communication Analyzer MT8821C Radio Communication Test Station USB Power Sensor USB Power Sensor Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Therm./ Clock/ Humidity Monitor CD-67ASK Sinch Digital Caliper DC Power Analyzer MGA Signal Analyzer GdB Attenuator Power Sensor Dower Sensor Dower Stemsor DC to 16GH Predision Fixed Qd BAttenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2700 MHz	4/29/2022 9/21/2021 5/4/2022 6/27/2022 6/27/2022 3/31/2022 3/31/2022 8/2/2021 8/2/2021 6/1/2022 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 1/21/2021 2/16/2022 2/16/2022 4/14/2022 6/1/2021 6/1/20	Annual Biennial Biennial Biennial Triennial Triennial Triennial Annual N/A Annual N/A N/A N/A	4/19/2023 9/21/2022 5/4/2023 6/27/2023 6/27/2023 3/31/2023 3/31/2023 8/21/2022 8/21/2022 8/21/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2023 2/16/2025 5/5/2024 4/14/2023 6/12/2023 1/12/2024 1/12/2023 1/12	1207470 1390006 1200153 6261895213 6201144418 6201664756 6201524617 627233743 627233743 627233743 1349514 1244512 200670623 20067063 20067063 1267231741 147512 120067063 120067
MA2411B MS2028C MT8821C MT8821C MT8821C MT8821C MT8821C MT8000A MT8000A MT8000A MT8000A MT8000A MT8000A MT8000B MA24106A M323 4353 4353 4353 4353 4353 4040 M040 M040 M040 M090 M0705B M	Pulse Power Sensor  Vector Network Analyzer  Radio Communication Analyzer MT8821C  Radio Communication Test Station  Radio Communication Test Station  USB Power Sensor  USB Power Sensor  USB Power Sensor  USB Power Sensor  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Therm, Clock/ Hundidly Monitor  DC Power Analyzer  6dB Attenuator  Power Sensor  Power Sensor  Power Stensor	9/21/2021 5/4/2022 6/27/2022 5/24/2022 5/24/2022 5/24/2022 5/24/2022 5/24/2022 5/24/2021 8/2/2021 8/2/2021 8/2/2021 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 1/21/2022 5/5/2021 4/14/2022 5/5/2021 4/14/2022 CBT CBT CBT CBT	Annual Biennial Biennial Biennial Triennial Triennial Triennial Annual Annual Annual Annual Annual Annual Annual Annual Annual N/A Annual N/A N/A N/A	9/11/2022 5/4/2023 6/27/2023 5/24/2023 5/24/2023 3/31/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/11/2023 5/5/2024 4/14/2023 CBT CBT CBT CBT	139008 120153 G061895213 G061895213 G07144418 G07164478 G07154637 G07154637 G07154637 G07154637 G072337436 G072337436 G072337436 G072337436 G072337436 G070633 G00670633 G006706
MA2411B MS2028C MT8821C MT8821C MT8821C MT8821C MT8821C MT8000A MT8000A MT8000A MT8000A MT8000A MT8000A MT8000B MA24106A M323 4353 4353 4353 4353 4353 4040 M040 M040 M040 M090 M0705B M	Pulse Power Sensor  Vector Network Analyzer  Radio Communication Analyzer MT8821C  Radio Communication Test Station  Radio Communication Test Station  USB Power Sensor  USB Power Sensor  USB Power Sensor  USB Power Sensor  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Therm, Clock/ Hundidly Monitor  DC Power Analyzer  6dB Attenuator  Power Sensor  Power Sensor  Power Stensor	9/21/2021 5/4/2022 6/27/2022 5/24/2022 5/24/2022 5/24/2022 5/24/2022 5/24/2022 5/24/2021 8/2/2021 8/2/2021 8/2/2021 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 10/28/2020 1/21/2022 5/5/2021 4/14/2022 5/5/2021 4/14/2022 CBT CBT CBT CBT	Annual Biennial Biennial Biennial Triennial Triennial Triennial Annual Annual Annual Annual Annual Annual Annual Annual Annual N/A Annual N/A N/A N/A	9/11/2022 5/4/2023 6/27/2023 5/24/2023 5/24/2023 3/31/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/11/2023 5/5/2024 4/14/2023 CBT CBT CBT CBT	139008 120153 G061895213 G061895213 G07144418 G07164478 G07154637 G07154637 G07154637 G07154637 G072337436 G072337436 G072337436 G072337436 G072337436 G070633 G00670633 G006706
MS2028C MT8821C MT8821C MT8821C MT8821C MT8821C MT8020A MT8000A MT8000A MT8000A MT8000A MA24106A 4353 4353 4353 4353 4000 M000 M000 M0000 M0000 M0000 M0000 M0000 M0000 M0000 M0000 M0000 M00000 M00000 M00000 M00000 M00000 M00000 M00000 M00000 M00000 M000000	Vector Network Analyzer Radio Communication Analyzer MT8821C Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station USB Power Sensor USB Power Sensor Long Stem Thermometer Dong Stem Thermometer Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor Therm./ Stock/ Humidity Monitor Therm./ Stock/ Humidity Monitor Therm./ Stock/ Humidity Monitor Therm./ Power Analyzer MXA Signal Analyzer d6B Attenuator Power Sensor Power Attenuator DC to 18GH Predision Fixed 2d d8 Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2700 MHz	S/4/2022     S/4/2022     S/24/2022     S/24/2022     S/3/31/2022     S/2/2021     S/3/2022	Annual Biennial Biennial Biennial Triennial Triennial Triennial Annual Annual Annual N/A Annual N/A N/A	5/4/2023 5/24/2023 3/31/2023 3/31/2023 3/31/2023 8/2/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2025 5/5/2024 4/14/2023 CBT CBT CBT CBT CBT	1204153 G261895213 G261895213 G201164418 G2011664756 G2011544817 G2011544817 G201154617 G20115467
MT8821C MT8821C MT88221C MT88221C MT8823C MT8000A MT8000A MT8000A MT8000A MA24106A M	Radio Communication Analyzer MT8821C Radio Communication Test Station USB Power Sensor Long Stem Test Station Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Therm, Clock/ Humidity Monitor Therm, Cl	6/27/2022 5/24/2022 5/24/2022 5/24/2022 5/26/2021 5/26/2021 8/2/2021 8/2/2021 8/2/2021 8/2/2021 10/28/2020 10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/12/2021 4/14/2022 6/BT 5/3/2022 CBT CBT CBT CBT	Annual Biennial Biennial Biennial Triennial Triennial Triennial Annual Annual Annual Annual Annual N/A Annual N/A N/A N/A	6/21/2023 5/24/2023 5/24/2023 9/26/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2023 1/21/2023 3/21/2023 5/5/2024 4/24/2023 CBT CBT CBT CBT	6251895213 620164418 620164418 620164418 620154438 627233437 627233437 1349514 120457052 200670633 200670633 1200670633 1139 12106190021 12106190021 12106190021 12106190021
MT8821C MT8821C MT8822C MT8020A MT8020A MT8000A MT8000A MT8000A MA24106A 4353 4353 4353 4353 4040 4040 500-196-30 N6705B N9000A N8705B N9000A BW-N80W5+ PWR-4GHS BW-N20W5+ PWR-4GHS BW-N20W5+ NP-1200+ NP-2950- VIF-60000+ VIF-60000+ VIF-60000+	Radio Communication Analyzer MT8821C Radio Communication Test Station USB Power Sensor Long Stem Test Station Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Therm, Clock/ Humidity Monitor Therm, Cl	5/14/2022   5/14/2022   5/14/2022   5/14/2021   5/14/2021   5/14/2021   5/14/2021   5/14/2021   5/14/2021   5/14/2021   5/14/2022   5/14/2021   5/14/2022   5/14/2021   5/14/2022   5/14/2021   5/14/2022   5/14/2021   5/14/2022   5/14/2021   5/14	Annual Biennial Biennial Biennial Biennial Biennial Annual N/A Annual N/A Annual N/A N/A	5/24/2023 3/31/2023 3/26/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/12/2023 3/12/2023 2/16/2025 CBT CBT CBT CBT	6201144418 6201664756 6201254637 6272337438 6272337438 6272337436 6272337437 1349514 1244512 200670623 200670623 200670623 200670623 1105754118 2100271000 A20238413 M748010233 11390 112265 N/A N/A N/A
MT8821C MT8821C MT8822C MT8020A MT8020A MT8000A MT8000A MT8000A MA24106A 4353 4353 4353 4353 4040 500-196-30 N6705B N9000A N9000A SW-N6V9+ PWR-4GHS SW-N20W5+ PWR-4GHS SW-N20W5+ PWR-2095 W-N20W5+ NP-22950- VIF-60000+ VIF-60000+ VIF-60000+	Radio Communication Analyzer MT8821C Radio Communication Analyzer MT8821C Radio Communication Analyzer MT8821C Radio Communication Radiyzer MT8821C Radio Communication Rest Station Radio Communication Rest Station Radio Communication Test Station Radio Communication Test Station USB Power Sensor USB Power Sensor USB Power Sensor Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor CD-6*ASK Sinch Digital Caliper DC Power Analyzer MXA Signal Analyzer 6dB Attenuator Power Sensor Power Stemsor Power Stemsor DC to 18 GKH Predision Fixed 20 dB Attenuator Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2000 MHz	5/14/2022   5/14/2022   5/14/2022   5/14/2021   5/14/2021   5/14/2021   5/14/2021   5/14/2021   5/14/2021   5/14/2021   5/14/2022   5/14/2021   5/14/2022   5/14/2021   5/14/2022   5/14/2021   5/14/2022   5/14/2021   5/14/2022   5/14/2021   5/14	Annual Biennial Biennial Biennial Biennial Biennial Annual N/A Annual N/A Annual N/A N/A	5/24/2023 3/31/2023 3/26/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/12/2023 3/12/2023 2/16/2025 CBT CBT CBT CBT	6201144418 6201664756 6201254637 6272337438 6272337438 6272337436 6272337437 1349514 1244512 200670623 200670623 200670623 200670623 1105754118 2100271000 A20238413 M748010233 11390 112265 N/A N/A N/A
MT8821C MT8821C MT8000A MT8000A MT8000A MT8000A MA24106A 4353 4353 4353 4353 4040 4040 M040 M040B M040	Radio Communication Analyzer MT8821C Radio Communication Analyzer MT8821C Radio Communication Test Station USB Power Sensor USB Power Sensor Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Therm / Clock/ Humidity Monitor CD-67ASK Sinch Digital Caliper DC Power Analyzer MXA Signal Analyzer 6dB Attenuator Power Sensor Do Test Signal Stem Stem Stem Stem Stem Thermom Communication Stem Thermometer DC To 164F Precision Fixed Stem Stem Stem Stem Stem Stem Stem Stem	3/31/2022 9/26/2021 8/2/2021 8/2/2021 8/2/2021 8/2/2021 8/2/2021 10/28/2020 10/28/2020 10/28/2020 1/21/2021 2/16/2022 4/14/2022 CBT CBT CBT	Annual Annual Annual Annual Annual Annual Annual Annual Biennial Biennial Biennial Triennial Triennial Triennial Annual N/A Annual N/A N/A N/A	3/31/2023 9/26/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 6/1/2023 10/28/2022 10/28/2022 10/28/2022 1/22/2023 2/16/2025 5/5/2024 4/14/2023 CBT CBT CBT	6201664756 6201524637 6272337438 6272337438 6272337437 1349514 1349514 1240512 200670623 200670633 160574418 1210202100 A20238413 MY53004059 MY48010233 1139 12108109029 12108190029 12226 N/A N/A
MT8821C MT8000A MT8000A MT8000A MT8000A MM2000A MM2000A MM24106A MA24106A MA24106A M353 4353 4353 4353 4353 M900 M6705B N9000A N6705B N9000A N6705B N9000A N6705B N9000A NF20WS N	Radio Communication Analyzer MT8821C Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station USB Power Sensor Long Stern Thermometer Long Stern Thermometer Therm./ Clock/ Humidity Monitor T	9/26/2021 8/2/2021 8/2/2021 8/2/2021 8/2/2021 8/2/2021 8/2/2021 6/1/2022 7/7/2021 10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/12/2021 4/14/2022 5/5/2021 4/14/2022 CBT CBT CBT CBT	Annual Annual Annual Annual Annual Annual Annual Biennial Biennial Biennial Triennial Triennial Annual Annual N/A Annual N/A N/A N/A	9/16/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/11/2023 3/11/2023 5/5/2024 4/14/2023 CBT CBT CBT	6201524637 6272337436 6272337436 6272337436 6272337437 1349514 1244512 200670623 200670623 200670635 160574418 212022103 A20238413 MYS300400023 1139 12108190029 1226 N/A
MT8821C MT8000A MT8000A MT8000A MT8000A MM2000A MM2000A MM24106A MA24106A MA24106A M353 4353 4353 4353 4353 M900 M6705B N9000A N6705B N9000A N6705B N9000A N6705B N9000A NF20WS N	Radio Communication Analyzer MT8821C Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station USB Power Sensor Long Stern Thermometer Long Stern Thermometer Therm./ Clock/ Humidity Monitor T	9/26/2021 8/2/2021 8/2/2021 8/2/2021 8/2/2021 8/2/2021 8/2/2021 6/1/2022 7/7/2021 10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/12/2021 4/14/2022 5/5/2021 4/14/2022 CBT CBT CBT CBT	Annual Annual Annual Annual Annual Annual Annual Biennial Biennial Biennial Triennial Triennial Annual Annual N/A Annual N/A N/A N/A	9/16/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/11/2023 3/11/2023 5/5/2024 4/14/2023 CBT CBT CBT	6272337438 6272337437 6272337437 1349514 1244512 200670623 200670623 200670633 200670633 100274418 210202100 A0238413 MY53004059 MY48010233 1139 12108190029 1226 N/A N/A
MT8000A MT8000A MT8000A MT8000A MT8000A MA24106A MA24106A 4353 4353 4353 4000 4000 500-196-30 N6705B N9020A BW-N20W5+ PWR-4GHS BW-N20W5+ RUP-1200+ NUP-2950- VUE-60000+ VUE-60000+ VUE-60000+	Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station USB Power Sensor USB Power Sensor Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor CD-6*ASK Sinch Digital Caliper DC Power Analyzer MXA Signal Analyzer 6dB Attenuator Power Sensor Power Attenuator DC to 18GH Predision Fixed 2d dB Attenuator Low Pass Filter DC to 2700 MHz	8/2/2021 8/2/2021 8/2/2021 8/2/2021 6/1/2022 6/1/2022 10/28/2020 10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/12/2022 3/12/2021 3/12/2022 5/5/2021 6/8/2022 5/8/2022 CBT CBT CBT CBT	Annual Annual Annual Annual Annual Annual Biennial Biennial Biennial Annual Triennial Triennial Annual Annual Annual Annual Annual Annual N/A Annual N/A N/A	8/2/2022 8/2/2022 8/2/2022 6/1/2023 6/1/2023 10/28/2022 10/28/2022 10/28/2022 11/21/2023 3/12/2023 3/12/2023 3/12/2023 CBT 5/3/2023 CBT CBT CBT CBT	6272337438 6272337437 6272337437 1349514 1244512 200670623 200670623 200670633 200670633 100274418 210202100 A0238413 MY53004059 MY48010233 1139 12108190029 1226 N/A N/A
MT8000A MT8000A MT8000A MA24106A MA24106A M3233 4353 4353 4040 4040 M090 MN900B MN90B MN9	Radio Communication Test Station Radio Communication Test Station Radio Communication Test Station USB Power Sensor USB Power Sensor Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor CD-67-83K 6inch Digital Caliper DC Power Analyzer MSA Signal Analyzer 6dB Attenuator Power Sensor Power Stemsor DC to 18 GHz Precision Fixed 20 dB Attenuator Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz	8/2/2021 8/2/2021 8/2/2021 8/2/2021 16/1/2022 7/7/2021 10/28/2020 10/28/2020 10/28/2020 1/21/2022 2/16/2022 5/5/2021 4/14/2022 CBT CBT CBT CBT	Annual Annual Annual Annual Annual Biennial Biennial Biennial Triennial Triennial Annual Annual N/A Annual N/A N/A N/A	8/2/2022 8/2/2022 8/2/2022 8/2/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT	6272337436 6272337436 6272337431 1349514 1244512 200670623 200670633 160574418 210202100 MY48010233 1139 12108190029 1226 N/A
MT8000A MA24106A MA24106A MA24106A 4353 4353 4353 4000 500-196-30 N6705B N9020A SW-N6W05+ PWR-4GHS SW-N20W5+ PWR-4GHS SW-N20W5 VILF-60000+ VILF-60000+ VILF-60000+ VILF-60000+	Radio Communication Test Station  USB Power Sensor  USB Power Sensor  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Clock Humidity Monitor  Therm/, Clock Humidity Monitor  CD-6*ASK Sinch Digital Caliper  DC Power Analyzer  MXA Signal Analyzer  6dB Attenuator  Power Sensor  Power Stemsor  DC to 18GKP Predision Fixed 20 dB Attenuator  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 2700 MHz	8/2/2021 6/1/2022 6/1/2022 7/7/2021 10/28/2020 10/28/2020 10/28/2020 1/21/2022 5/5/2021 2/16/2022 5/5/2021 CBT 5/3/2022 CBT CBT CBT	Annual Annual Annual Biennial Biennial Biennial Annual Biennial Annual Triennial Annual Annual Annual Annual Annual Annual Annual Annual Annual N/A Annual N/A	8/2/2022 6/1/2023 7/7/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT	6272337437 1349514 1244512 200670623 200670633 160574418 21202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A
MT8000A MA24106A MA24106A MA24106A 4353 4353 4353 4000 500-196-30 N6705B N9020A SW-N6W05+ PWR-4GHS SW-N20W5+ PWR-4GHS SW-N20W5 VILF-60000+ VILF-60000+ VILF-60000+ VILF-60000+	Radio Communication Test Station  USB Power Sensor  USB Power Sensor  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Clock Humidity Monitor  Therm/, Clock Humidity Monitor  CD-6*ASK Sinch Digital Caliper  DC Power Analyzer  MXA Signal Analyzer  6dB Attenuator  Power Sensor  Power Stemsor  DC to 18GKP Predision Fixed 20 dB Attenuator  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 2700 MHz	8/2/2021 6/1/2022 6/1/2022 7/7/2021 10/28/2020 10/28/2020 10/28/2020 1/21/2022 5/5/2021 2/16/2022 5/5/2021 CBT 5/3/2022 CBT CBT CBT	Annual Annual Annual Biennial Biennial Biennial Annual Biennial Annual Triennial Annual Annual Annual Annual Annual Annual Annual Annual Annual N/A Annual N/A	8/2/2022 6/1/2023 7/7/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT	6272337437 1349514 1244512 200670623 200670633 160574418 21202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A
MA24106A MA24106A 4353 4353 4353 4353 4000 4000 500-196-30 N67058 N9020A BW-N6W5+ PWR-4GH5 BW-N20W5+ NLP-1200+ NLP-2550+ VLF-6000+ VLF-6000+ VLF-6000+	USB Power Sensor  USB Power Sensor  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Therm,/ Clock/ Humidity Monitor  Thermometer Analyzer  6dB Attenuator  Power Sensor  Power Sensor  DC to 16 HG Precision Fixed 2 dB Attenuator  Low Pass Filter DC to 1000 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 2700 MHz	6/1/2022 ////2022 ////2021 10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/12/2021 2/16/2022 2/16/2022 CBT 5/3/2022 CBT CBT CBT	Annual Annual Biennial Biennial Biennial Biennial Annual Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	6/1/2023 7/7/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2023 3/12/2023 3/12/2023 2/16/2025 CBT CBT CBT CBT	1349514 1244512 200670623 200670635 200670635 160574418 210202100 A20238413 MY53004059 MY4810023 1139 12108190029 1226 N/A
MA24106A 4353 4353 4353 4040 4040 500.196-30 N6705B N9020A BW-NEW5+ PWR-4GHS BW-N20W5 HW-120W5 NUP-1200+ NUP-2950+ VLF-6000+ VLF-6000+	USB Power Sensor  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Therm, Clock/ Hundidly Monitor  CD-6*ASK Binch Digital Caliper  DC Power Analyzer  MXA Signal Analyzer  6dB Attenuator  Power Sensor  DC 18 GRY Perdision Fixed 20 dB Attenuator  Low Pass Filter DC to 1000 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 5000 MHz	7/7/2021 10/28/2020 10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/11/2021 2/16/2022 5/5/2021 4/14/2022 CBT CBT CBT CBT	Annual Biennial Biennial Biennial Annual Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	7/7/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/12/2023 2/16/2025 5/5/2024 4/14/2023 CBT CBT CBT CBT	1244512 200670623 200670633 200670635 160574418 210202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A
MA24106A 4353 4353 4353 4040 4040 500.196-30 N6705B N9020A BW-NEW5+ PWR-4GHS BW-N20W5 HW-120W5 NUP-1200+ NUP-2950+ VLF-6000+ VLF-6000+	USB Power Sensor  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Long Stem Thermometer  Therm, Clock/ Hundidly Monitor  CD-6*ASK Binch Digital Caliper  DC Power Analyzer  MXA Signal Analyzer  6dB Attenuator  Power Sensor  DC 18 GRY Perdision Fixed 20 dB Attenuator  Low Pass Filter DC to 1000 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 5000 MHz	7/7/2021 10/28/2020 10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/11/2021 2/16/2022 5/5/2021 4/14/2022 CBT CBT CBT CBT	Annual Biennial Biennial Biennial Annual Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	7/7/2022 10/28/2022 10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/12/2023 2/16/2025 5/5/2024 4/14/2023 CBT CBT CBT CBT	1244512 200670623 200670633 200670635 160574418 210202100 A20238413 MYY53004059 MY48010233 1139 12108190029 1226 N/A
4353 4353 4353 4040 4040 500-196-30 N6705B N9020A BW-N6W5+ PWR-4GHS BW-N20W5+ BW-N20W5+ NLP-1200+ NLP-2500+ VLF-6000+ VLF-6000+	Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Long Stem Thermometer Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor CD-6*ASK Sinch Digital Caliper DC Power Analyzer MXA Signal Analyzer 6dB Attenuator Power Sensor Power Stemantor DC to 18GH Predision Fixed 20 dB Attenuator Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2000 MHz	10/28/2020 10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/12/2021 2/16/2022 5/5/2021 4/14/2022 CBT CBT CBT CBT	Biennial Biennial Biennial Annual Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	10/28/2022 10/28/2022 10/28/2022 1/21/2023 3/12/2023 3/12/2023 2/16/2025 5/5/2024 4/14/2023 CBT CBT CBT	200670623 200670633 200670633 160574418 210202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A
4353 4353 4040 4040 500-196-30 N6705B N9020A BW-N6W5+ PWR-4GHS BW-N20W5 BW-N20W5 NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	Long Stem Thermometer Long Stem Thermometer Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor CD-674X Singh Digital Caliper DC Power Analyzer MXA Signal Analyzer 6dB Attenuator Power Sensor Power Attenuator DC to 18 GHz Precision Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz	10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/12/2021 2/16/2022 5/5/2021 4/14/2022 CBT 5/3/2022 CBT CBT CBT	Biennial Biennial Annual Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	10/28/2022 10/28/2022 1/21/2023 1/21/2023 2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT	200670633 200670635 160574418 210202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A
4353 4353 4040 4040 500-196-30 N6705B N9020A BW-N6W5+ PWR-4GHS BW-N20W5 BW-N20W5 NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	Long Stem Thermometer Long Stem Thermometer Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor CD-674X Singh Digital Caliper DC Power Analyzer MXA Signal Analyzer 6dB Attenuator Power Sensor Power Attenuator DC to 18 GHz Precision Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz	10/28/2020 10/28/2020 10/28/2020 1/21/2022 3/12/2021 2/16/2022 5/5/2021 4/14/2022 CBT 5/3/2022 CBT CBT CBT	Biennial Biennial Annual Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	10/28/2022 10/28/2022 1/21/2023 1/21/2023 2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT	200670633 200670635 160574418 210202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A
4353 4040 4040 500-196-30 N6705B N9020A BW-NEW5+ PWR-4GHS BW-N20W5+ NLP-1200+ NLP-2590+ VLF-6000+ VLF-6000+	Long Stem Thermometer Therm./ Clock/ Humidity Monitor Therm./ Clock/ Humidity Monitor CD-6*ASK Binch Digital Caliper DC Power Analyzer MXA Signal Analyzer 608 Attenuator Power Sensor Power Attenuator DC to 18GHz Predision Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 5000 MHz	10/28/2020 1/21/2022 3/12/2021 2/16/2022 5/5/2021 4/14/2022 CBT 5/3/2022 CBT CBT CBT	Biennial Annual Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	10/28/2022 1/21/2023 3/12/2023 2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT	200670635 160574418 210202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A N/A
4040 4040 500-196-30 N6705B N9020A BW-N80W5+ PWR-4GHS BW-N20W5 BW-N20W5+ NLP-1200+ NLP-1200+ VLF-6000+ VLF-6000+	Therm, Clock/ Humidity Monitor Therm, Clock/ Humidity Monitor CD-67ASX 6inch Digital Caliper DC Power Analyzer MXA Signal Analyzer 6dB Attenuator Power Sensor Power Attenuator DC to 18 GHz Precision Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 2700 MHz	1/21/2022 3/12/2021 2/16/2022 5/5/2021 4/14/2022 CBT 5/3/2022 CBT CBT CBT	Annual Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	1/21/2023 3/12/2023 2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT	160574418 210202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A N/A
4040 500-196-30 N6705B N9020A BW-N6W5+ PWR-4GH5 BW-N20W5 BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	Therm, Clock / Humidity Monitor CD-6'ASX 6inch Digital Caliper DC Power Analyzer MXA Signal Analyzer 6dB Attenuator Power Sensor Power Attenuator DC 10 18GH Freedison Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 6000 MHz	3/12/2021 2/16/2022 5/5/2021 4/14/2022 CBT 5/3/2022 CBT CBT CBT	Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	3/12/2023 2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT	210202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A N/A
4040 500-196-30 N6705B N9020A BW-N6W5+ PWR-4GH5 BW-N20W5 BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	Therm, Clock / Humidity Monitor CD-6'ASX 6inch Digital Caliper DC Power Analyzer MXA Signal Analyzer 6dB Attenuator Power Sensor Power Attenuator DC 10 18GH Freedison Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 6000 MHz	3/12/2021 2/16/2022 5/5/2021 4/14/2022 CBT 5/3/2022 CBT CBT CBT	Biennial Triennial Triennial Annual N/A Annual N/A N/A N/A	3/12/2023 2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT	210202100 A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A N/A
500-196-30 N6705B N9020A BW-N6W5+ PWR-4GHS BW-N20W5 BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	CD-6*ASK Binch Digital Caliper  DC Power Analyzer  MXA Signal Analyzer  6dB Attenuator  Power Sensor  Power Sensor  DC to 18GH Predision Fixed 20 dB Attenuator  Low Pass Filter DC to 1000 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 2000 MHz	2/16/2022 5/5/2021 4/14/2022 CBT 5/3/2022 CBT CBT CBT CBT	Triennial Triennial Annual N/A Annual N/A N/A N/A N/A	2/16/2025 5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT CBT	A20238413 MY53004059 MY48010233 1139 12108190029 1226 N/A N/A
N6705B N9020A BW-N6W5+ PWR-4GH5 BW-N20W5 BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	DC Power Analyzer MXA Signal Analyzer MSA Signal Analyzer GBB Attenuator Power Sensor Power Attenuator DC to 18 GHz Precision Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 6000 MHz	5/5/2021 4/14/2022 CBT 5/3/2022 CBT CBT CBT	Triennial Annual N/A Annual N/A N/A N/A N/A	5/5/2024 4/14/2023 CBT 5/3/2023 CBT CBT CBT CBT	MY53004059 MY48010233 1139 12108190029 1226 N/A N/A
N6705B N9020A BW-N6W5+ PWR-4GH5 BW-N20W5 BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	MXA Signal Analyzer 6dB Attenuator Power Sensor Power Attenuator DC to 18 GHz Precision Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 6000 MHz	4/14/2022 CBT 5/3/2022 CBT CBT CBT CBT	Triennial Annual N/A Annual N/A N/A N/A N/A	4/14/2023 CBT 5/3/2023 CBT CBT CBT CBT	MY53004059 MY48010233 1139 12108190029 1226 N/A N/A
N9020A BW-N6W5+ PWR-4GH5 BW-N20W5+ BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+	MXA Signal Analyzer 6dB Attenuator Power Sensor Power Attenuator DC to 18 GHz Precision Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 6000 MHz	4/14/2022 CBT 5/3/2022 CBT CBT CBT CBT	Annual N/A Annual N/A N/A	4/14/2023 CBT 5/3/2023 CBT CBT CBT CBT	MY48010233 1139 12108190029 1226 N/A N/A
BW-N6W5+ PWR-4GHS BW-N20W5 BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	6dB Attenuator Power Sensor Power Attenuator DC to 18 GHz Precision Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2000 MHz Low Pass Filter DC to 2000 MHz	CBT 5/3/2022 CBT CBT CBT CBT	N/A Annual N/A N/A N/A	CBT 5/3/2023 CBT CBT CBT CBT	1139 12108190029 1226 N/A N/A
PWR-4GHS BW-N20W5 BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	Power Sensor  Power Attenuator  DC to 18 GHz Precision Fixed 20 dB Attenuator  Low Pass Filter DC to 1000 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 5000 MHz	5/3/2022 CBT CBT CBT CBT	Annual N/A N/A N/A	5/3/2023 CBT CBT CBT CBT	12108190029 1226 N/A N/A
PWR-4GHS BW-N20W5 BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	Power Sensor  Power Attenuator  DC to 18 GHz Precision Fixed 20 dB Attenuator  Low Pass Filter DC to 1000 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 5000 MHz	5/3/2022 CBT CBT CBT CBT	Annual N/A N/A N/A	5/3/2023 CBT CBT CBT CBT	12108190029 1226 N/A N/A
BW-N20W5+ BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	Power Attenuator  DC to 18 GHz Precision Fixed 20 dB Attenuator  Low Pass Filter DC to 1000 MHz  Low Pass Filter DC to 2700 MHz  Low Pass Filter DC to 6000 MHz	CBT CBT CBT CBT	N/A N/A N/A	CBT CBT CBT CBT	1226 N/A N/A
BW-N20W5+ NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	DC to 18 GHz Precision Fixed 20 dB Attenuator Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 6000 MHz	CBT CBT CBT	N/A N/A	CBT CBT CBT	N/A N/A
NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 6000 MHz	CBT CBT	N/A	CBT CBT	N/A
NLP-1200+ NLP-2950+ VLF-6000+ VLF-6000+	Low Pass Filter DC to 1000 MHz Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 6000 MHz	CBT CBT	N/A	CBT CBT	N/A
NLP-2950+ VLF-6000+ VLF-6000+	Low Pass Filter DC to 2700 MHz Low Pass Filter DC to 6000 MHz	CBT		CBT	
VLF-6000+ VLF-6000+	Low Pass Filter DC to 6000 MHz		N/A		N/A
VLF-6000+	Low Pass Filter DC to 6000 MHz				
VLF-6000+		7/6/2021	Annual	7/6/2022	31634
ZUDC10-83-S+	Low Pass Filter DC to 6000 MHz	CBT	N/A	CBT	N/A
	Directional Coupler	CBT	N/A	CBT	2050
ZUDC10-83-S+	Directional Coupler				
		9/15/2021	Annual	9/15/2022	2111
4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
ISF-100	Torque Wrench	//8/2021	Annual	//8/2022	47639-29
NC-100	Torque Wrench (8" lb)	8/5/2020	Biennial	8/5/2022	N/A
	Wideband Radio Communication Tester		Annuai		128633
CMW500	Wideband Radio Communication Tester	3/29/2022	Annual	3/29/2023	171075
			Annual		162125
CMW500	Wideband Radio Communication Tester	4/7/2022	Annual	4/7/2023	167283
DAK-3.5	Dielectric Assessment Kit	1/6/2022	Annual	1/6/2023	1278
					1091
DAK-12	Dielectric Assessment Kit (10MHz - 3GHz)	3/21/2022	Annual	3/21/2023	1102
					1379
CLA13	13 MHz SAR Dipole	9/16/2021	Annual	9/16/2022	1002
D750V3	750 MHz SAR Dinole	5/9/2022	Annual	5/9/2023	1003
					1046
D835V2	835 MHz SAR Dipole	4/14/2022	Annual	4/14/2023	4d119
D835V2	835 MHz SAR Dipole	5/9/2022	Annual	5/9/2023	4d180
					1008
D1750V2	1750 MHz SAR Dipole	10/22/2021	Annual	10/22/2022	1150
D1900V2					5d148
					5d149
D2450V2	2450 MHz SAR Dipole	8/18/2021	Annual	8/18/2022	719
D2450V2	2450 MHz SAR Dinole	11/25/2021	Annual	11/25/2022	981
					1004
D2600V2	2600 MHz SAR Dipole	11/12/2019	Triennial	11/12/2022	1071
D5GHzV2		1/10/2022	Annual	1/10/2023	1057
					665
DAE4	Dasy Data Acquisition Electronics	3/16/2022	Annual	3/16/2023	1272
DAF4					1323
DAŁ4	Dasy Data Acquisition Electronics	6/14/2022	Annual	6/14/2023	1334
DAE4	Dasy Data Acquisition Electronics	11/11/2021	Annual	11/11/2022	1466
DAF4			Annual		1502
DAE4	Dasy Data Acquisition Electronics	2/21/2022	Annual	2/21/2023	1645
DAE4	Dasy Data Acquisition Electronics	5/10/2022	Annual	5/10/2023	1678
					1680
EX3DV4	SAR Probe	6/9/2022	Annual	6/9/2023	7402
EX3DV4	SAR Prohe		Annual		7409
			Annual		7417
EX3DV4	SAR Probe	3/21/2022	Annual	3/21/2023	7527
	CAD Probo				7538
		,,			
EX3DV4	SAR Probe	9/20/2021	Annual	9/20/2022	7552
EX3DV4	SAR Probe	11/15/2021	Annual	11/15/2022	7565
	SAR Probe		Annual		7640
FX3DV4		2/24/2022 5/18/2022	Annual	2/24/2023 5/18/2023	7660
	D1900V2 D1900V2 D1900V2 D2450V2 D2450V2 D2450V2 D2500V2 D2600V2 D2600V2 D3660V2 DAE4 DAE4 DAE4 DAE4 DAE4 DAE4 DAE4 DAE4	TSF-100	TSF-100	TSF-100	TSF-100

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

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# MEASUREMENT UNCERTAINTIES

### For SAR Measurements

R Measurements									
a	b	С	d	e=	f	g	h =	i =	k
				f(d,k)			c x f/e	c x g/e	
	IEEE	Tol.	Prob.		Ci	Ci	1gm	10gms	
Uncertainty Component	1528 Sec.	(± %)	Dist.	Div.	1gm	10 gms	u <sub>i</sub>	u <sub>i</sub>	Vi
							(± %)	(± %)	
Measurement System									
Probe Calibration	E.2.1	7	N	1	1	1	7.0	7.0	∞
Axial Isotropy	E.2.2	0.25	Ν	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	Ζ	1	0.7	0.7	0.9	0.9	8
Boundary Effect	E.2.3	2	R	1.732	1	1	1.2	1.2	8
Linearity	E.2.4	0.3	Ν	1	1	1	0.3	0.3	8
System Detection Limits	E.2.4	0.25	R	1.732	1	1	0.1	0.1	8
Modulation Response	E.2.5	4.8	R	1.732	1	1	2.8	2.8	8
Readout Electronics	E.2.6	0.3	Ν	1	1	1	0.3	0.3	∞
Response Time	E.2.7	0.8	R	1.732	1	1	0.5	0.5	8
Integration Time	E.2.8	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E.6.1	3	R	1.732	1	1	1.7	1.7	8
RF Ambient Conditions - Reflections	E.6.1	3	R	1.732	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.732	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E.6.3	6.7	R	1.732	1	1	3.9	3.9	8
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	4	R	1.732	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E.4.2	3.12	N	1	1	1	3.1	3.1	35
Device Holder Uncertainty	E.4.1	1.67	Ν	1	1	1	1.7	1.7	5
Output Power Variation - SAR drift measurement	E.2.9	5	R	1.732	1	1	2.9	2.9	∞
SAR Scaling	E.6.5	0	R	1.732	1	1	0.0	0.0	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	E.3.3	4.3	N	1	0.78	0.71	3.3	3.0	76
Liquid Permittivity - measurement uncertainty	E.3.3	4.2	N	1	0.23	0.26	1.0	1.1	75
Liquid Conductivity - Temperature Uncertainty	E.3.4	3.4	R	1.732	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Unceritainty		0.6	R	1.732	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	E.3.4 E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)	•		RSS	ı		•	12.2	12.0	191
Expanded Uncertainty			k=2				24.4	24.0	
(95% CONFIDENCE LEVEL)									

The above measurement uncertainties are according to IEEE Std. 1528-2013

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