

Appendix D Probe, DAE and Dipole Calibration Certificates

Appendix D.1 Calibration certificate for Probe_SN7412

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client: **SGS**
Gyeonggi-do, Republic of Korea

Certificate No. **EX-7412_Mar24**

CALIBRATION CERTIFICATE

Object: **EX3DV4 - SN:7412**

Calibration procedure(s): **QA CAL-01.v10, QA CAL-12.v10, QA CAL-14.v7, QA CAL-23.v6,
QA CAL-25.v8**
Calibration procedure for dosimetric E-field probes

Calibration date: **March 18, 2024**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.
All calibrations have been conducted in the closed laboratory facility; environment temperature $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.
Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	30-Mar-23 (No. 217-03904/03905)	Mar-24
Power sensor NRP-291	SN: 103644	30-Mar-23 (No. 217-03804)	Mar-24
OCP DAK-3.5 (weighted)	SN: 1249	05-Oct-23 (OCP-DAK3 5-1249 Oct23)	Oct-24
OCP DAK-12	SN: 1016	05-Oct-23 (OCP-DAK12-1016 Oct23)	Oct-24
Reference 20 dB Attenuator	SN: CC2552 (20x)	30-Mar-23 (No. 217-03809)	Mar-24
DAE4	SN: 660	23-Feb-24 (No. DAE4-660_Feb24)	Feb-25
Reference Probe EX3DV4	SN: 7349	03-Nov-23 (No. EX3-7349_Nov23)	Nov-24

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	05-Apr-16 (in house check Jun-22)	In house check: Jun-24
Power sensor E4412A	SN: MY41498087	05-Apr-16 (in house check Jun-22)	In house check: Jun-24
Power sensor E4412A	SN: 060110210	05-Apr-16 (in house check Jun-22)	In house check: Jun-24
RF generator HP 6848C	SN: US3842U01700	04-Aug-99 (in house check Jun-22)	In house check: Jun-24
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

	Name	Function	Signature
Calibrated by	Joanna Llesha	Laboratory Technician	
Approved by	Sven Kohn	Technical Manager	
Issued: March 18, 2024			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

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Glossary

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices – Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f \leq 600$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 600$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 600$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from Isotropy)**: In a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

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Parameters of Probe: EX3DV4 - SN:7412

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k = 2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.43	0.38	0.44	$\pm 10.1\%$
DCP (mV) ^B	100.5	101.2	100.6	$\pm 4.7\%$

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max dev.	Max Unc ^E k = 2
0	CW	X	0.00	0.00	1.00	0.00	133.1	$\pm 2.9\%$	$\pm 4.7\%$
		Y	0.00	0.00	1.00		133.4		
		Z	0.00	0.00	1.00		133.3		
10352	Pulse Waveform (200Hz, 10%)	X	17.26	65.97	17.82	10.00	60.0	$\pm 2.9\%$	$\pm 9.6\%$
		Y	20.00	87.81	18.72		60.0		
		Z	20.00	90.65	20.23		60.0		
10353	Pulse Waveform (200Hz, 20%)	X	20.00	88.93	17.60	6.99	80.0	$\pm 1.7\%$	$\pm 9.6\%$
		Y	20.00	90.08	18.35		80.0		
		Z	20.00	93.20	20.39		80.0		
10354	Pulse Waveform (200Hz, 40%)	X	20.00	93.90	18.95	3.98	95.0	$\pm 1.5\%$	$\pm 9.6\%$
		Y	20.00	98.29	20.53		95.0		
		Z	20.00	99.93	22.35		95.0		
10355	Pulse Waveform (200Hz, 60%)	X	20.00	105.29	23.10	2.22	120.0	$\pm 1.2\%$	$\pm 9.6\%$
		Y	20.00	128.53	32.09		120.0		
		Z	20.00	110.39	25.93		120.0		
10387	QPSK Waveform, 1 MHz	X	1.80	68.18	16.09	1.00	150.0	$\pm 2.0\%$	$\pm 9.6\%$
		Y	1.93	71.09	17.16		150.0		
		Z	1.76	66.96	15.55		150.0		
10389	QPSK Waveform, 10 MHz	X	2.35	69.29	16.62	0.00	150.0	$\pm 0.9\%$	$\pm 9.6\%$
		Y	2.39	70.54	17.30		150.0		
		Z	2.34	66.74	16.23		150.0		
10396	64-QAM Waveform, 100 kHz	X	2.64	70.10	18.86	3.01	150.0	$\pm 1.1\%$	$\pm 9.6\%$
		Y	2.20	67.36	17.61		150.0		
		Z	2.63	69.09	18.23		150.0		
10399	64-QAM Waveform, 40 MHz	X	3.80	67.75	16.23	0.00	150.0	$\pm 0.8\%$	$\pm 9.6\%$
		Y	3.48	67.65	15.28		150.0		
		Z	3.46	66.87	15.75		150.0		
10414	WLAN CCDF, 64-QAM, 40 MHz	X	4.73	65.47	15.54	0.00	150.0	$\pm 2.2\%$	$\pm 9.6\%$
		Y	4.69	55.86	15.81		150.0		
		Z	4.79	65.35	15.44		150.0		

Note: For details on UID parameters see Appendix

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Linearization parameter uncertainty for maximum specified field strength.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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Parameters of Probe: EX3DV4 - SN:7412

Sensor Model Parameters

	C1 fF	C2 fF	α V ⁻¹	T1 mV ⁻²	T2 mV ⁻¹	T3 mS	T4 V ⁻²	T5 V ⁻¹	T6
x	39.3	290.47	35.01	10.95	0.00	5.02	1.27	0.09	1.00
y	32.8	244.86	35.63	4.46	0.30	5.02	0.12	0.23	1.00
z	44.7	332.58	35.40	11.94	0.00	5.06	0.84	0.22	1.00

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	-57.6°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Note: Measurement distance from surface can be increased to 3-4 mm for an Area Scan job.

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Parameters of Probe: EX3DV4 - SN:7412

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k = 2)
300	45.3	0.87	11.64	11.64	11.64	0.09	1.00	±13.3%
450	43.5	0.87	10.85	10.85	10.85	0.16	1.30	±13.3%
600	42.7	0.86	10.15	10.15	10.15	0.10	1.25	±13.3%
750	41.9	0.89	10.22	9.34	9.47	0.41	1.27	±11.0%
835	41.5	0.90	9.69	8.98	9.33	0.40	1.27	±11.0%
900	41.5	0.97	9.47	8.96	9.30	0.39	1.27	±11.0%
1450	40.5	1.20	8.50	8.05	8.29	0.35	1.27	±11.0%
1750	40.1	1.37	8.54	7.94	8.23	0.29	1.27	±11.0%
1900	40.0	1.40	8.41	7.90	8.12	0.31	1.27	±11.0%
1950	40.0	1.40	8.24	7.77	8.01	0.31	1.27	±11.0%
2300	39.5	1.67	8.00	7.54	7.80	0.32	1.27	±11.0%
2450	39.2	1.80	7.80	7.33	7.62	0.30	1.27	±11.0%
2600	39.0	1.96	7.64	7.19	7.47	0.30	1.27	±11.0%
3300	38.2	2.71	7.04	6.66	6.86	0.37	1.27	±13.1%
3500	37.9	2.91	6.98	6.60	6.80	0.36	1.27	±13.1%
3700	37.7	3.12	6.84	6.46	6.66	0.37	1.27	±13.1%
3900	37.5	3.32	6.77	6.40	6.60	0.37	1.27	±13.1%
4100	37.2	3.53	6.69	6.32	6.52	0.39	1.27	±13.1%
5200	36.0	4.66	5.83	5.49	5.70	0.32	1.60	±13.1%
5300	35.9	4.76	5.69	5.30	5.47	0.33	1.63	±13.1%
5500	35.6	4.98	4.82	4.54	4.70	0.38	1.61	±13.1%
5600	35.5	5.07	4.64	4.39	4.57	0.38	1.67	±13.1%
5900	35.3	5.27	4.83	4.53	4.72	0.37	1.78	±13.1%

^C Frequency validity above 300 MHz of ±100 MHz only applies for DASV v4.4 and higher (see Page 2), else it is restricted to +50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 160 and 220 MHz respectively. Validity of ConvF assessed at 5 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.

^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10% if SAR correction is applied.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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Parameters of Probe: EX3DV4 - SN:7412

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity ^F (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
6500	34.5	6.07	5.23	5.04	5.30	0.20	2.00	+18.6%
7000	33.9	8.65	5.46	5.24	5.53	0.20	2.00	±18.6%

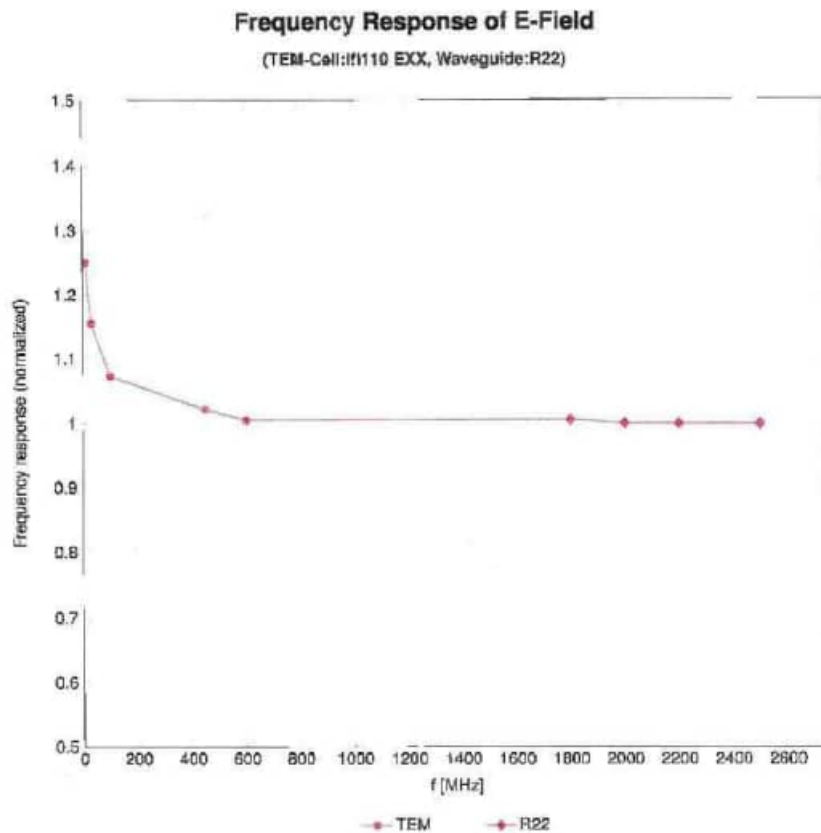
^C Frequency validity at 6.5 GHz is -800/+700 MHz, and ±700 MHz at or above 7 GHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F The probes are calibrated using tissue simulating liquids (TSL) that deviate for ϵ and σ by less than ±10% from the target values (typically better than ±6%) and are valid for TSL with deviations of up to ±10%.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz; below ±2% for frequencies between 3–6 GHz; and below ±4% for frequencies between 6–10 GHz at any distance larger than half the probe tip diameter from the boundary.

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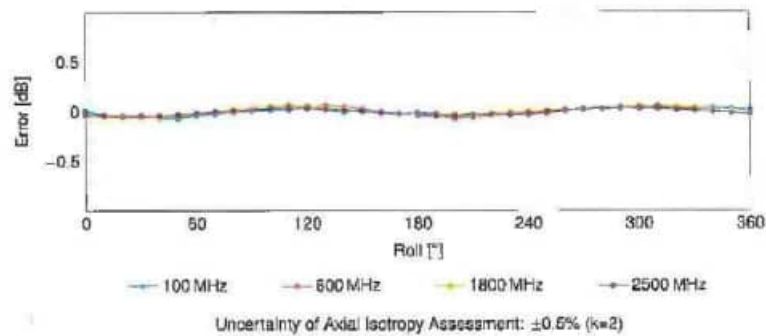
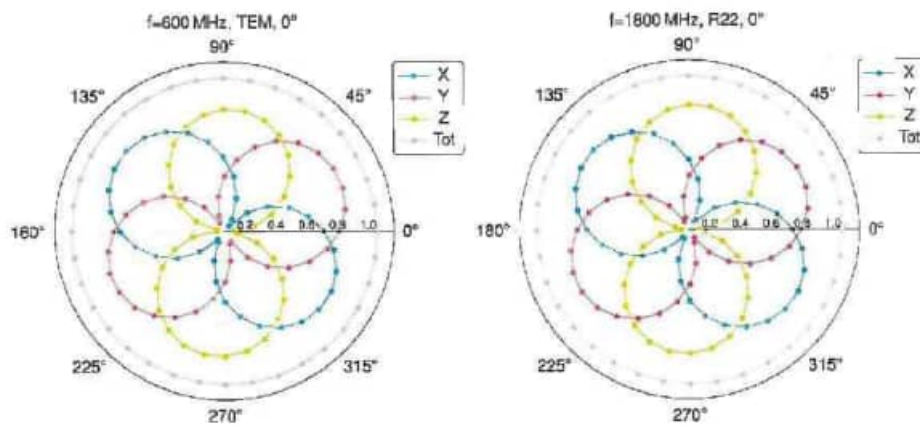


Uncertainty of Frequency Response of E-Field: $\pm 5.3\%$ ($k=2$)

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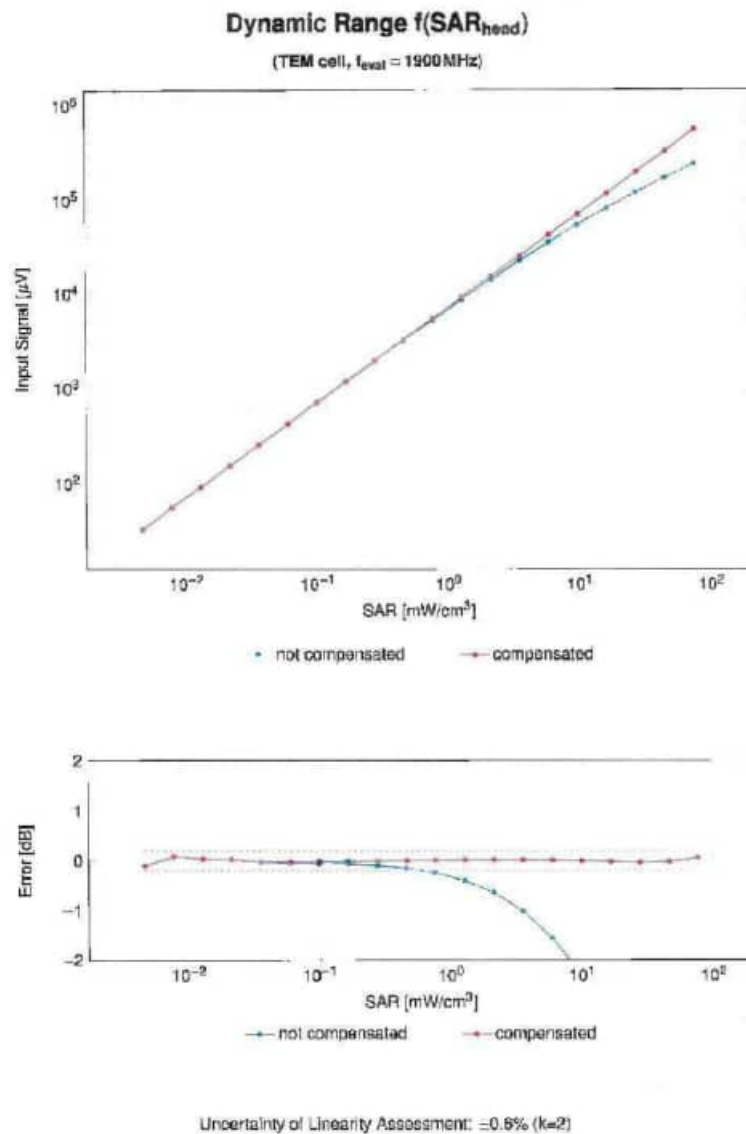
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Receiving Pattern (ϕ), $\theta = 0^\circ$



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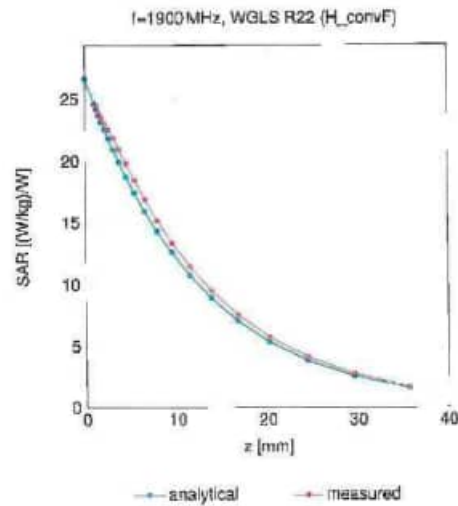
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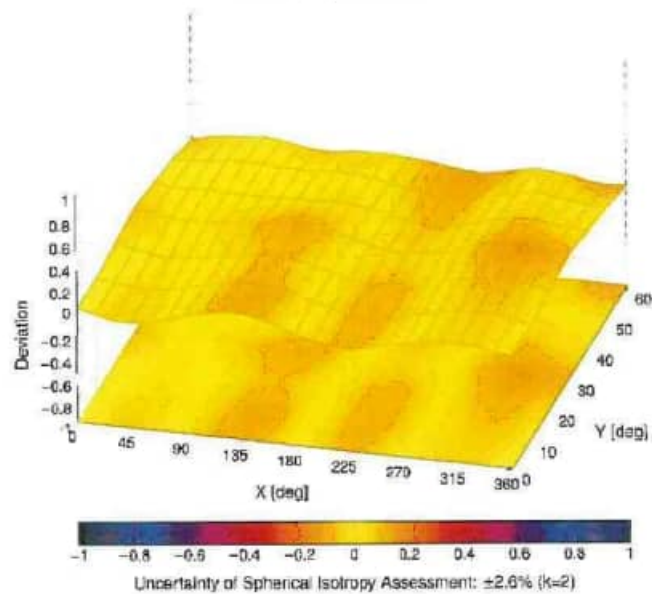
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Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f=800\text{MHz}$



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Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^a K = 2
0		CW	CW	0.00	±4.7
10010	CAB	SAR Validation (Square, 100ms, 10ms)	Test	10.00	±9.6
10011	CAC	UMTS-FDD (WCDMA)	WCDMA	2.91	±9.6
10012	CAB	IEEE 802.11b W-Fi 2.4GHz (DSSS, 1Mbps)	WLAN	1.57	±9.6
10013	CAB	IEEE 802.11g W-Fi 2.4GHz (DSSS-OFDM, 6Mbps)	WLAN	9.46	±9.6
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	±9.6
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	±9.6
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	9.56	±9.6
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	±9.6
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	±9.6
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	±9.6
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	±9.6
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	±9.6
10030	CAA	IEEE 802.15.1 Bluetooth (QPSK, DH1)	Bluetooth	5.30	±9.6
10031	CAA	IEEE 802.15.1 Bluetooth (QPSK, DH3)	Bluetooth	1.67	±9.6
10032	CAA	IEEE 802.15.1 Bluetooth (QPSK, DH5)	Bluetooth	1.16	±9.6
10033	CAA	IEEE 802.15.1 Bluetooth (P4-DQPSK, DH1)	Bluetooth	7.74	±9.6
10034	CAA	IEEE 802.15.1 Bluetooth (P4-DQPSK, DH3)	Bluetooth	4.53	±9.6
10035	CAA	IEEE 802.15.1 Bluetooth (P4-DQPSK, DH5)	Bluetooth	3.83	±9.6
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	±9.6
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	±9.6
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	±9.6
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	±9.6
10042	CAB	IS-54 / IS-136 FDD (TDMA-FDM, P4-DQPSK, Fullrate)	AMPS	7.78	±9.6
10044	CAA	IS-97/IS-136 FDD (TDMA-FDM, FM)	AMPS	0.00	±9.6
10048	CAA	DECT (TDD, TDMA-FDM, GFSK, Full Slot, 24)	DECT	13.80	±9.6
10049	CAA	DECT (TDD, TDMA-FDM, GFSK, Double Slot, 12)	DECT	10.79	±9.6
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28Mbps)	TD-SCDMA	11.21	±9.6
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	±9.6
10069	CAB	IEEE 802.11b W-Fi 2.4GHz (DSSS, 2Mbps)	WLAN	2.12	±9.6
10080	CAB	IEEE 802.11b W-Fi 2.4GHz (DSSS, 5.5Mbps)	WLAN	2.83	±9.6
10081	CAB	IEEE 802.11b W-Fi 2.4GHz (DSSS, 11Mbps)	WLAN	3.60	±9.6
10082	CAE	IEEE 802.11a W-Fi 5GHz (OFDM, 6Mbps)	WLAN	8.68	±9.6
10083	CAE	IEEE 802.11a W-Fi 5GHz (OFDM, 9Mbps)	WLAN	8.63	±9.6
10084	CAE	IEEE 802.11a W-Fi 5GHz (OFDM, 12Mbps)	WLAN	9.09	±9.6
10085	CAE	IEEE 802.11a W-Fi 5GHz (OFDM, 18Mbps)	WLAN	9.00	±9.6
10086	CAE	IEEE 802.11a W-Fi 5GHz (OFDM, 24Mbps)	WLAN	9.38	±9.6
10087	CAE	IEEE 802.11a W-Fi 5GHz (OFDM, 36Mbps)	WLAN	10.12	±9.6
10088	CAE	IEEE 802.11a W-Fi 5GHz (OFDM, 48Mbps)	WLAN	10.24	±9.6
10089	CAE	IEEE 802.11a W-Fi 5GHz (OFDM, 54Mbps)	WLAN	10.56	±9.6
10071	CAB	IEEE 802.11g W-Fi 2.4GHz (DSSS/OFDM, 9Mbps)	WLAN	9.63	±9.6
10072	CAB	IEEE 802.11g W-Fi 2.4GHz (DSSS/OFDM, 12Mbps)	WLAN	9.62	±9.6
10073	CAB	IEEE 802.11g W-Fi 2.4GHz (DSSS/OFDM, 18Mbps)	WLAN	9.94	±9.6
10074	CAB	IEEE 802.11g W-Fi 2.4GHz (DSSS/OFDM, 24Mbps)	WLAN	10.30	±9.6
10075	CAB	IEEE 802.11g W-Fi 2.4GHz (DSSS/OFDM, 36Mbps)	WLAN	10.77	±9.6
10076	CAB	IEEE 802.11g W-Fi 2.4GHz (DSSS/OFDM, 48Mbps)	WLAN	10.94	±9.6
10077	CAB	IEEE 802.11g W-Fi 2.4GHz (DSSS/OFDM, 54Mbps)	WLAN	11.00	±9.6
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	±9.6
10082	CAB	IS-54 / IS-136 FDD (TDMA-FDM, P4-DQPSK, Fullrate)	AMPS	4.77	±9.6
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	8.56	±9.6
10097	CAC	UMTS-FDD (HSDPA)	WCDMA	3.96	±9.6
10098	CAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.96	±9.6
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	±9.6
10100	CAF	LTE-FDD (SC-FDMA, 100% RB, 20MHz, QPSK)	LTE-FDD	5.87	±9.6
10101	CAF	LTE-FDD (SC-FDMA, 100% RB, 20MHz, 16-QAM)	LTE-FDD	6.42	±9.6
10102	CAF	LTE-FDD (SC-FDMA, 100% RB, 20MHz, 64-QAM)	LTE-FDD	8.60	±9.6
10103	CAH	LTE-TDD (SC-FDMA, 100% RB, 20MHz, QPSK)	LTE-TDD	9.29	±9.6
10104	CAH	LTE-TDD (SC-FDMA, 100% RB, 20MHz, 16-QAM)	LTE-TDD	9.97	±9.6
10105	CAH	LTE-TDD (SC-FDMA, 100% RB, 20MHz, 64-QAM)	LTE-TDD	10.01	±9.6
10108	CAH	LTE-FDD (SC-FDMA, 100% RB, 10MHz, QPSK)	LTE-FDD	5.80	±9.6
10109	CAH	LTE-FDD (SC-FDMA, 100% RB, 10MHz, 16-QAM)	LTE-FDD	6.43	±9.6
10110	CAH	LTE-FDD (SC-FDMA, 100% RB, 5MHz, QPSK)	LTE-FDD	5.75	±9.6
10111	CAH	LTE-FDD (SC-FDMA, 100% RB, 5MHz, 16-QAM)	LTE-FDD	6.44	±9.6

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10112	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	-9.6
10113	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	-9.6
10114	CAE	IEEE 802.11n (HT Greenfield, 13.5Mbps, BPSK)	WLAN	6.10	-9.6
10115	CAE	IEEE 802.11n (HT Greenfield, 61 Mbps, 16-QAM)	WLAN	6.49	-9.6
10116	CAE	IEEE 802.11n (HT Greenfield, 135Mbps, 64-QAM)	WLAN	6.15	-9.6
10117	CAE	IEEE 802.11n (HT Mixed, 13.5Mbps, BPSK)	WLAN	6.07	-9.6
10118	CAE	IEEE 802.11n (HT Mixed, 61Mbps, 16-QAM)	WLAN	6.59	-9.6
10119	CAE	IEEE 802.11n (HT Mixed, 135Mbps, 64-QAM)	WLAN	6.19	-9.6
10140	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	-9.6
10141	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.63	-9.6
10142	CAF	LTE-FDD (SC-FDMA, 100% RB, 3MHz, QPSK)	LTE-FDD	5.78	-9.6
10143	CAF	LTE-FDD (SC-FDMA, 100% RB, 3MHz, 16-QAM)	LTE-FDD	6.35	-9.6
10144	CAF	LTE-FDD (SC-FDMA, 100% RB, 3MHz, 64-QAM)	LTE-FDD	6.65	-9.6
10145	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	6.79	-9.6
10146	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	-9.6
10147	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	-9.6
10148	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	-9.6
10150	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.80	-9.6
10161	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	-9.6
10162	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	-9.6
10163	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.06	-9.6
10164	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	-9.6
10165	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	-9.6
10166	CAH	LTE-FDD (SC-FDMA, 50% RB, 5MHz, QPSK)	LTE-FDD	5.79	-9.6
10167	CAH	LTE-FDD (SC-FDMA, 50% RB, 5MHz, 16-QAM)	LTE-FDD	6.49	-9.6
10168	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	-9.6
10169	CAH	LTE-FDD (SC-FDMA, 50% RB, 5MHz, 64-QAM)	LTE-FDD	6.56	-9.6
10170	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	6.88	-9.6
10171	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.45	-9.6
10172	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.90	-9.6
10173	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.48	-9.6
10174	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	-9.6
10175	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	-9.6
10176	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	-9.6
10177	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	-9.6
10178	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	-9.6
10179	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	-9.6
10180	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	-9.6
10181	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	-9.6
10182	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	-9.6
10183	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	-9.6
10184	CAH	LTE-FDD (SC-FDMA, 1 RB, 5MHz, QPSK)	LTE-FDD	5.73	-9.6
10185	CAH	LTE-FDD (SC-FDMA, 1 RB, 5MHz, 16-QAM)	LTE-FDD	6.52	-9.6
10186	CAH	LTE-FDD (SC-FDMA, 1 RB, 5MHz, 64-QAM)	LTE-FDD	6.73	-9.6
10187	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	6.52	-9.6
10188	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.50	-9.6
10189	CAF	LTE-FDD (SC-FDMA, 1 RB, 5MHz, 64-QAM)	LTE-FDD	6.50	-9.6
10190	CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	6.72	-9.6
10191	CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.62	-9.6
10192	CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.90	-9.6
10193	AAE	IEEE 802.11n (HT Greenfield, 13.5Mbps, BPSK)	WLAN	6.50	-9.6
10194	CAF	LTE-FDD (SC-FDMA, 1 RB, 3MHz, QPSK)	LTE-FDD	5.78	-9.6
10195	CAF	LTE-FDD (SC-FDMA, 1 RB, 3MHz, 16-QAM)	LTE-FDD	6.51	-9.6
10196	CAF	LTE-FDD (SC-FDMA, 1 RB, 3MHz, 64-QAM)	LTE-FDD	6.50	-9.6
10197	AAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	-9.6
10198	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	-9.6
10199	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	-9.6
10200	AAQ	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	-9.6
10201	CAE	IEEE 802.11n (HT Greenfield, 6.5Mbps, BPSK)	WLAN	6.09	-9.6
10202	CAE	IEEE 802.11n (HT Greenfield, 39Mbps, 16-QAM)	WLAN	6.12	-9.6
10203	CAE	IEEE 802.11n (HT Greenfield, 65Mbps, 64-QAM)	WLAN	6.21	-9.6
10204	CAE	IEEE 802.11n (HT Mixed, 6.5Mbps, BPSK)	WLAN	6.10	-9.6
10205	CAE	IEEE 802.11n (HT Mixed, 39Mbps, 16-QAM)	WLAN	6.13	-9.6
10206	CAE	IEEE 802.11n (HT Mixed, 65Mbps, 64-QAM)	WLAN	6.27	-9.6
10207	CAE	IEEE 802.11n (HT Mixed, 7.2Mbps, BPSK)	WLAN	6.03	-9.6
10208	CAE	IEEE 802.11n (HT Mixed, 43.3Mbps, 16-QAM)	WLAN	6.13	-9.6
10209	CAE	IEEE 802.11n (HT Mixed, 72.2Mbps, 64-QAM)	WLAN	6.27	-9.6
10210	CAE	IEEE 802.11n (HT Mixed, 15Mbps, BPSK)	WLAN	6.06	-9.6
10211	CAE	IEEE 802.11n (HT Mixed, 90Mbps, 16-QAM)	WLAN	6.44	-9.6
10212	CAE	IEEE 802.11n (HT Mixed, 150Mbps, 64-QAM)	WLAN	6.08	-9.6

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10225	CAC	UMTS-FDD (HSPA+)	WCDMA	5.97	±0.6
10226	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4MHz, 16-QAM)	LTE-TDD	9.49	±0.6
10227	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4MHz, 64-QAM)	LTE-TDD	10.26	±0.6
10228	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4MHz, QPSK)	LTE-TDD	9.22	±0.6
10229	CAE	LTE-TDD (SC-FDMA, 1 RB, 3MHz, 16-QAM)	LTE-TDD	9.48	±0.6
10230	CAE	LTE-TDD (SC-FDMA, 1 RB, 3MHz, 64-QAM)	LTE-TDD	10.25	±0.6
10231	CAE	LTE-TDD (SC-FDMA, 1 RB, 3MHz, QPSK)	LTE-TDD	9.19	±0.6
10232	CAH	LTE-TDD (SC-FDMA, 1 RB, 5MHz, 16-QAM)	LTE-TDD	9.49	±0.6
10233	CAH	LTE-TDD (SC-FDMA, 1 RB, 5MHz, 64-QAM)	LTE-TDD	10.25	±0.6
10234	CAH	LTE-TDD (SC-FDMA, 1 RB, 5MHz, QPSK)	LTE-TDD	9.21	±0.6
10235	CAH	LTE-TDD (SC-FDMA, 1 RB, 10MHz, 16-QAM)	LTE-TDD	9.45	±0.6
10236	CAH	LTE-TDD (SC-FDMA, 1 RB, 10MHz, 64-QAM)	LTE-TDD	10.25	±0.6
10237	CAH	LTE-TDD (SC-FDMA, 1 RB, 10MHz, QPSK)	LTE-TDD	9.21	±0.6
10238	CAG	LTE-TDD (SC-FDMA, 1 RB, 15MHz, 16-QAM)	LTE-TDD	9.48	±0.6
10239	CAG	LTE-TDD (SC-FDMA, 1 RB, 15MHz, 64-QAM)	LTE-TDD	10.25	±0.6
10240	CAG	LTE-TDD (SC-FDMA, 1 RB, 15MHz, QPSK)	LTE-TDD	9.21	±0.6
10241	CAG	LTE-TDD (SC-FDMA, 50% RB, 1.4MHz, 16-QAM)	LTE-TDD	9.82	±0.6
10242	CAG	LTE-TDD (SC-FDMA, 50% RB, 1.4MHz, 64-QAM)	LTE-TDD	9.86	±0.6
10243	CAG	LTE-TDD (SC-FDMA, 50% RB, 1.4MHz, QPSK)	LTE-TDD	9.48	±0.6
10244	CAE	LTE-TDD (SC-FDMA, 50% RB, 3MHz, 16-QAM)	LTE-TDD	10.06	±0.6
10245	CAE	LTE-TDD (SC-FDMA, 50% RB, 3MHz, 64-QAM)	LTE-TDD	10.06	±0.6
10246	CAE	LTE-TDD (SC-FDMA, 50% RB, 3MHz, QPSK)	LTE-TDD	9.30	±0.6
10247	CAH	LTE-TDD (SC-FDMA, 50% RB, 5MHz, 16-QAM)	LTE-TDD	9.91	±0.6
10248	CAH	LTE-TDD (SC-FDMA, 50% RB, 5MHz, 64-QAM)	LTE-TDD	10.09	±0.6
10249	CAH	LTE-TDD (SC-FDMA, 50% RB, 5MHz, QPSK)	LTE-TDD	9.29	±0.6
10250	CAH	LTE-TDD (SC-FDMA, 50% RB, 10MHz, 16-QAM)	LTE-TDD	9.81	±0.6
10251	CAH	LTE-TDD (SC-FDMA, 50% RB, 10MHz, 64-QAM)	LTE-TDD	10.17	±0.6
10252	CAH	LTE-TDD (SC-FDMA, 50% RB, 10MHz, QPSK)	LTE-TDD	9.24	±0.6
10253	CAG	LTE-TDD (SC-FDMA, 50% RB, 15MHz, 16-QAM)	LTE-TDD	9.90	±0.6
10254	CAG	LTE-TDD (SC-FDMA, 50% RB, 15MHz, 64-QAM)	LTE-TDD	10.14	±0.6
10255	CAG	LTE-TDD (SC-FDMA, 50% RB, 15MHz, QPSK)	LTE-TDD	9.20	±0.6
10256	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4MHz, 16-QAM)	LTE-TDD	9.96	±0.6
10257	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4MHz, 64-QAM)	LTE-TDD	10.08	±0.6
10258	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4MHz, QPSK)	LTE-TDD	9.34	±0.6
10259	CAE	LTE-TDD (SC-FDMA, 100% RB, 3MHz, 16-QAM)	LTE-TDD	9.98	±0.6
10260	CAE	LTE-TDD (SC-FDMA, 100% RB, 3MHz, 64-QAM)	LTE-TDD	9.97	±0.6
10261	CAE	LTE-TDD (SC-FDMA, 100% RB, 3MHz, QPSK)	LTE-TDD	9.24	±0.6
10262	CAH	LTE-TDD (SC-FDMA, 100% RB, 5MHz, 16-QAM)	LTE-TDD	9.83	±0.6
10263	CAH	LTE-TDD (SC-FDMA, 100% RB, 5MHz, 64-QAM)	LTE-TDD	10.18	±0.6
10264	CAH	LTE-TDD (SC-FDMA, 100% RB, 5MHz, QPSK)	LTE-TDD	9.23	±0.6
10265	CAH	LTE-TDD (SC-FDMA, 100% RB, 10MHz, 16-QAM)	LTE-TDD	9.92	±0.6
10266	CAH	LTE-TDD (SC-FDMA, 100% RB, 10MHz, 64-QAM)	LTE-TDD	10.07	±0.6
10267	CAH	LTE-TDD (SC-FDMA, 100% RB, 10MHz, QPSK)	LTE-TDD	9.50	±0.6
10268	CAG	LTE-TDD (SC-FDMA, 100% RB, 15MHz, 16-QAM)	LTE-TDD	10.08	±0.6
10269	CAG	LTE-TDD (SC-FDMA, 100% RB, 15MHz, 64-QAM)	LTE-TDD	10.13	±0.6
10270	CAG	LTE-TDD (SC-FDMA, 100% RB, 15MHz, QPSK)	LTE-TDD	9.56	±0.6
10271	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel.10)	WCDMA	4.87	±0.6
10272	CAC	UMTS-FDD (HSUPA, Subtest 6, 3GPP Rel.10)	WCDMA	3.96	±0.6
10273	GAA	PHS (QPSK)	PHS	11.81	±0.6
10274	GAA	PHS (QPSK, BW 884 MHz, Roll-off 0.5)	PHS	11.81	±0.6
10275	GAA	PHS (QPSK, BW 884 MHz, Roll-off 0.35)	PHS	12.18	±0.6
10290	AAB	CDMA2000, RC1, SOSS, Full Rate	CDMA2000	3.91	±0.6
10291	AAB	CDMA2000, RC3, SOSS, Full Rate	CDMA2000	3.46	±0.6
10292	AAB	CDMA2000, RC3, SOSS, Full Rate	CDMA2000	3.39	±0.6
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	±0.6
10294	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.46	±0.6
10297	AAB	LTE-FDD (SC-FDMA, 50% RB, 20MHz, QPSK)	LTE-FDD	5.81	±0.6
10298	AAB	LTE-FDD (SC-FDMA, 50% RB, 3MHz, QPSK)	LTE-FDD	5.72	±0.6
10299	AAB	LTE-FDD (SC-FDMA, 50% RB, 3MHz, 16-QAM)	LTE-FDD	6.39	±0.6
10300	AAB	LTE-FDD (SC-FDMA, 50% RB, 3MHz, 64-QAM)	LTE-FDD	6.60	±0.6
10301	AAA	IEEE 802.16e WiMAX (25:16, 5ms, 10MHz, QPSK, PUSC)	WiMAX	12.03	±0.6
10302	AAA	IEEE 802.16e WiMAX (25:16, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	WiMAX	12.57	±0.6
10303	AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	±0.6
10304	AAA	IEEE 802.16e WiMAX (25:16, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	11.86	±0.6
10305	AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	WiMAX	15.04	±0.6
10306	AAA	IEEE 802.16e WiMAX (25:16, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	WiMAX	14.57	±0.6

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10307	AAA	IEEE 802.16e WiMAX (25:18, 10 ms, 10 MHz, QPSK, PUSC, 16 symbols)	WiMAX	14.48	±9.6
10308	AAA	IEEE 802.16e WiMAX (25:18, 10 ms, 10 MHz, 16QAM, PUSC)	WiMAX	14.46	±9.6
10309	AAA	IEEE 802.16e WiMAX (25:18, 10 ms, 10 MHz, 16QAM, AMC 2x3, 16 symbols)	WiMAX	14.58	±9.6
10310	AAA	IEEE 802.16e WiMAX (25:18, 10 ms, 10 MHz, QPSK, AMC 2x3, 16 symbols)	WiMAX	14.57	±9.6
10311	AAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	8.06	±9.6
10313	AAA	IDEN 1S	IDEN	10.51	±9.6
10314	AAA	IDEN 1S	IDEN	13.48	±9.6
10315	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	WLAN	1.71	±9.6
10316	AAE	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.35	±9.6
10317	AAE	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.98	±9.6
10352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	±9.6
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	8.99	±9.6
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	±9.6
10355	AAA	Pulse Waveform (200Hz, 80%)	Generic	2.22	±9.6
10356	AAA	Pulse Waveform (200Hz, 90%)	Generic	0.97	±9.6
10367	AAA	QPSK Waveform, 1 MHz	Generic	5.10	±9.6
10368	AAA	QPSK Waveform, 10 MHz	Generic	5.22	±9.6
10369	AAA	64-QAM Waveform, 100 kHz	Generic	6.27	±9.6
10369	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	±9.6
10400	AAF	IEEE 802.11ac WiFi (20 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.37	±9.6
10401	AAF	IEEE 802.11ac WiFi (40 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.80	±9.6
10402	AAF	IEEE 802.11ac WiFi (80 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.53	±9.6
10403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3.76	±9.6
10404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	±9.6
10406	AAB	CDMA2000, RCS, SC92, SCH0, Full Rate	CDMA2000	5.22	±9.6
10410	AAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	LTE-TDD	7.82	±9.6
10414	AAA	WLAN CCDF, 64-QAM, 40 MHz	Generic	8.54	±9.6
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	WLAN	1.54	±9.6
10416	AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
10417	AAE	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)	WLAN	8.14	±9.6
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)	WLAN	8.19	±9.6
10422	AAD	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	6.82	±9.6
10423	AAD	IEEE 802.11n (HT Greenfield, 42.3 Mbps, 16-QAM)	WLAN	9.47	±9.6
10424	AAD	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	±9.6
10425	AAD	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	±9.6
10426	AAD	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	±9.6
10427	AAD	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	±9.6
10430	AAE	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	±9.6
10431	AAE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	±9.6
10432	AAE	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.54	±9.6
10433	AAE	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	±9.6
10434	AAB	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	±9.6
10435	AAQ	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10447	AAE	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.66	±9.6
10448	AAE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.59	±9.6
10449	AAE	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.51	±9.6
10450	AAE	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	±9.6
10451	AAB	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.58	±9.6
10453	AAE	Validation (Square, 10 ms, 1 ms)	Test	10.00	±9.6
10456	AAD	IEEE 802.11ac WiFi (160 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.53	±9.6
10457	AAB	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	±9.6
10458	AAA	CDMA2000 (1xEV-DO, Rev. 0, 2 carriers)	CDMA2000	6.56	±9.6
10459	AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.26	±9.6
10460	AAB	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	±9.6
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.30	±9.6
10463	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.56	±9.6
10464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10465	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10466	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10467	AAQ	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10468	AAQ	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10469	AAQ	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.58	±9.6
10470	AAQ	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10471	AAQ	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6

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10472	AAG	LTE-TDD (SC-FDMA, 1 RB, 10MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10473	AAF	LTE-TDD (SC-FDMA, 1 RB, 15MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.80	±9.6
10474	AAF	LTE-TDD (SC-FDMA, 1 RB, 15MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10475	AAF	LTE-TDD (SC-FDMA, 1 RB, 15MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.67	±9.6
10477	AAG	LTE-TDD (SC-FDMA, 1 RB, 20MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10478	AAG	LTE-TDD (SC-FDMA, 1 RB, 20MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10479	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10480	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.18	±9.6
10481	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	±9.6
10482	AAD	LTE-TDD (SC-FDMA, 50% RB, 3MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.71	±9.6
10483	AAD	LTE-TDD (SC-FDMA, 50% RB, 3MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.39	±9.6
10484	AAD	LTE-TDD (SC-FDMA, 50% RB, 3MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.47	±9.6
10485	AAG	LTE-TDD (SC-FDMA, 60% RB, 5MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.59	±9.6
10486	AAG	LTE-TDD (SC-FDMA, 60% RB, 5MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.35	±9.6
10487	AAG	LTE-TDD (SC-FDMA, 50% RB, 5MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.40	±9.6
10488	AAG	LTE-TDD (SC-FDMA, 50% RB, 10MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.70	±9.6
10489	AAG	LTE-TDD (SC-FDMA, 50% RB, 10MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	±9.6
10490	AAG	LTE-TDD (SC-FDMA, 50% RB, 10MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
10491	AAF	LTE-TDD (SC-FDMA, 50% RB, 15MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.41	±9.6
10493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.55	±9.6
10494	AAG	LTE-TDD (SC-FDMA, 50% RB, 20MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10495	AAG	LTE-TDD (SC-FDMA, 50% RB, 20MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.37	±9.6
10496	AAG	LTE-TDD (SC-FDMA, 50% RB, 20MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
10497	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.57	±9.6
10498	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.40	±9.6
10499	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.68	±9.6
10500	AAD	LTE-TDD (SC-FDMA, 100% RB, 3MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.67	±9.6
10501	AAD	LTE-TDD (SC-FDMA, 100% RB, 3MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.44	±9.6
10502	AAD	LTE-TDD (SC-FDMA, 100% RB, 3MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.62	±9.6
10503	AAG	LTE-TDD (SC-FDMA, 100% RB, 5MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.72	±9.6
10504	AAG	LTE-TDD (SC-FDMA, 100% RB, 5MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	±9.6
10505	AAG	LTE-TDD (SC-FDMA, 100% RB, 5MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
10506	AAG	LTE-TDD (SC-FDMA, 100% RB, 10MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10507	AAG	LTE-TDD (SC-FDMA, 100% RB, 10MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.38	±9.6
10508	AAG	LTE-TDD (SC-FDMA, 100% RB, 10MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.55	±9.6
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.99	±9.6
10510	AAF	LTE-TDD (SC-FDMA, 100% RB, 15MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.40	±9.6
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 15MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.51	±9.6
10512	AAG	LTE-TDD (SC-FDMA, 100% RB, 20MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10513	AAG	LTE-TDD (SC-FDMA, 100% RB, 20MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.42	±9.6
10514	AAG	LTE-TDD (SC-FDMA, 100% RB, 20MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	±9.6
10515	AAA	IEEE 802.11b WiFi 2.4GHz (DSSS, 2Mbps, 99pc duty cycle)	WLAN	1.59	±9.6
10516	AAA	IEEE 802.11b WiFi 2.4GHz (DSSS, 5.5Mbps, 99pc duty cycle)	WLAN	1.57	±9.6
10517	AAA	IEEE 802.11b WiFi 2.4GHz (DSSS, 11Mbps, 99pc duty cycle)	WLAN	1.58	±9.6
10518	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 9Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
10519	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 12Mbps, 99pc duty cycle)	WLAN	8.39	±9.6
10520	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 18Mbps, 99pc duty cycle)	WLAN	8.12	±9.6
10521	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 24Mbps, 99pc duty cycle)	WLAN	7.97	±9.6
10522	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 36Mbps, 99pc duty cycle)	WLAN	8.45	±9.6
10523	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 48Mbps, 99pc duty cycle)	WLAN	8.08	±9.6
10524	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 54Mbps, 99pc duty cycle)	WLAN	8.27	±9.6
10525	AAD	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	WLAN	8.36	±9.6
10526	AAD	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	WLAN	8.42	±9.6
10527	AAD	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	WLAN	8.21	±9.6
10528	AAD	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	WLAN	8.36	±9.6
10529	AAD	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	WLAN	8.36	±9.6
10531	AAD	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	WLAN	8.43	±9.6
10532	AAD	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
10533	AAD	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	WLAN	8.38	±9.6
10534	AAD	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	WLAN	8.45	±9.6
10535	AAD	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	WLAN	8.45	±9.6
10536	AAD	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	WLAN	8.32	±9.6
10537	AAD	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
10538	AAD	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	WLAN	8.54	±9.6
10540	AAD	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	WLAN	8.39	±9.6

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10541	AAD	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	WLAN	8.48	±9.6
10542	AAD	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	WLAN	8.55	±9.6
10543	AAD	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	WLAN	8.65	±9.6
10544	AAD	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	WLAN	8.47	±9.5
10545	AAD	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	WLAN	8.55	±9.5
10546	AAD	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	WLAN	8.35	±9.6
10547	AAD	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	WLAN	8.49	±9.6
10548	AAD	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	WLAN	8.37	±9.6
10550	AAD	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	WLAN	8.38	±9.6
10551	AAD	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	WLAN	8.50	±9.6
10552	AAD	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	WLAN	8.42	±9.6
10553	AAD	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	WLAN	8.45	±9.6
10554	AAE	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	WLAN	8.48	±9.6
10555	AAE	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	WLAN	8.47	±9.6
10556	AAE	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	WLAN	8.50	±9.6
10557	AAE	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	WLAN	8.52	±9.6
10558	AAE	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	WLAN	8.61	±9.6
10560	AAE	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	WLAN	8.79	±9.6
10561	AAE	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	WLAN	8.56	±9.6
10562	AAE	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	WLAN	8.59	±9.6
10563	AAE	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	WLAN	8.77	±9.6
10564	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9Mbps, 90pc duty cycle)	WLAN	8.25	±9.6
10565	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12Mbps, 90pc duty cycle)	WLAN	8.45	±9.6
10566	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18Mbps, 90pc duty cycle)	WLAN	8.18	±9.6
10567	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24Mbps, 90pc duty cycle)	WLAN	8.00	±9.6
10568	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36Mbps, 90pc duty cycle)	WLAN	8.37	±9.6
10569	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48Mbps, 90pc duty cycle)	WLAN	8.10	±9.6
10570	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54Mbps, 90pc duty cycle)	WLAN	8.20	±9.6
10571	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10572	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10573	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 3.5Mbps, 90pc duty cycle)	WLAN	1.98	±9.6
10574	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11Mbps, 90pc duty cycle)	WLAN	1.96	±9.6
10575	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6Mbps, 90pc duty cycle)	WLAN	8.59	±9.6
10576	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10577	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10578	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
10579	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24Mbps, 90pc duty cycle)	WLAN	8.36	±9.6
10580	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36Mbps, 90pc duty cycle)	WLAN	8.76	±9.6
10581	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
10582	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54Mbps, 90pc duty cycle)	WLAN	8.67	±9.6
10583	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 6Mbps, 90pc duty cycle)	WLAN	8.59	±9.6
10584	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 9Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10585	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 12Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10586	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 18Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
10587	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 24Mbps, 90pc duty cycle)	WLAN	8.38	±9.6
10588	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 36Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10589	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 48Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
10590	AAD	IEEE 802.11a/n WiFi 5GHz (OFDM, 54Mbps, 90pc duty cycle)	WLAN	8.67	±9.6
10591	AAD	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	WLAN	8.63	±9.6
10592	AAD	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	WLAN	8.78	±9.6
10593	AAD	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	WLAN	8.94	±9.6
10594	AAD	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	WLAN	8.74	±9.6
10595	AAD	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	WLAN	8.74	±9.6
10596	AAD	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	WLAN	8.71	±9.6
10597	AAD	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	WLAN	8.72	±9.6
10598	AAD	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	WLAN	8.50	±9.6
10599	AAD	IEEE 802.11n (HT Mixed, 20MHz, MCS8, 90pc duty cycle)	WLAN	8.79	±9.6
10600	AAD	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	WLAN	8.68	±9.6
10601	AAD	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	WLAN	8.84	±9.6
10602	AAD	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	WLAN	9.03	±9.6
10603	AAD	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	WLAN	8.76	±9.6
10604	AAD	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	WLAN	8.97	±9.6
10605	AAD	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	WLAN	8.82	±9.6
10606	AAD	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	WLAN	8.64	±9.6
10607	AAD	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	WLAN	8.64	±9.6
10608	AAD	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	WLAN	8.77	±9.6

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10609	AAD	IEEE 802.11ac WiFi (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.57	±9.6
10610	AAD	IEEE 802.11ac WiFi (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.75	±9.6
10611	AAD	IEEE 802.11ac WiFi (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.70	±9.6
10612	AAD	IEEE 802.11ac WiFi (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10613	AAD	IEEE 802.11ac WiFi (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.94	±9.6
10614	AAD	IEEE 802.11ac WiFi (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.90	±9.6
10615	AAD	IEEE 802.11ac WiFi (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10616	AAD	IEEE 802.11ac WiFi (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.80	±9.6
10617	AAD	IEEE 802.11ac WiFi (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.81	±9.6
10618	AAD	IEEE 802.11ac WiFi (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.55	±9.6
10619	AAD	IEEE 802.11ac WiFi (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.86	±9.6
10620	AAD	IEEE 802.11ac WiFi (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.87	±9.6
10621	AAD	IEEE 802.11ac WiFi (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10622	AAD	IEEE 802.11ac WiFi (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.68	±9.6
10623	AAD	IEEE 802.11ac WiFi (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
10624	AAD	IEEE 802.11ac WiFi (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.95	±9.6
10625	AAD	IEEE 802.11ac WiFi (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.98	±9.6
10626	AAD	IEEE 802.11ac WiFi (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10627	AAD	IEEE 802.11ac WiFi (80 MHz, MCS1, 90pc duty cycle)	WLAN	8.85	±9.6
10628	AAD	IEEE 802.11ac WiFi (80 MHz, MCS2, 90pc duty cycle)	WLAN	8.71	±9.6
10629	AAD	IEEE 802.11ac WiFi (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10630	AAD	IEEE 802.11ac WiFi (80 MHz, MCS4, 90pc duty cycle)	WLAN	8.72	±9.6
10631	AAD	IEEE 802.11ac WiFi (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.81	±9.6
10632	AAD	IEEE 802.11ac WiFi (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9.6
10633	AAD	IEEE 802.11ac WiFi (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.83	±9.6
10634	AAD	IEEE 802.11ac WiFi (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.80	±9.6
10635	AAD	IEEE 802.11ac WiFi (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.81	±9.6
10636	AAE	IEEE 802.11ac WiFi (160 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10637	AAE	IEEE 802.11ac WiFi (160 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
10638	AAE	IEEE 802.11ac WiFi (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.88	±9.6
10639	AAE	IEEE 802.11ac WiFi (160 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10640	AAE	IEEE 802.11ac WiFi (160 MHz, MCS4, 90pc duty cycle)	WLAN	8.68	±9.6
10641	AAE	IEEE 802.11ac WiFi (160 MHz, MCS5, 90pc duty cycle)	WLAN	9.06	±9.6
10642	AAE	IEEE 802.11ac WiFi (160 MHz, MCS6, 90pc duty cycle)	WLAN	9.06	±9.6
10643	AAE	IEEE 802.11ac WiFi (160 MHz, MCS7, 90pc duty cycle)	WLAN	8.85	±9.6
10644	AAE	IEEE 802.11ac WiFi (160 MHz, MCS8, 90pc duty cycle)	WLAN	9.05	±9.6
10645	AAE	IEEE 802.11ac WiFi (160 MHz, MCS9, 90pc duty cycle)	WLAN	9.11	±9.6
10646	AAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2.7)	LTE-TDD	11.96	±9.6
10647	AAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2.7)	LTE-TDD	11.96	±9.6
10648	AAA	CDMA2000 (1x Advanced)	CDMA2000	3.45	±9.6
10649	AAF	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	8.81	±9.6
10650	AAF	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	±9.6
10651	AAF	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	±9.6
10652	AAF	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.81	±9.6
10653	AAF	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	10.00	±9.6
10654	AAB	Pulse Waveform (200Hz, 10%)	Test	6.99	±9.6
10655	AAB	Pulse Waveform (200Hz, 20%)	Test	3.85	±9.6
10656	AAB	Pulse Waveform (200Hz, 40%)	Test	2.22	±9.6
10657	AAB	Pulse Waveform (200Hz, 60%)	Test	0.97	±9.6
10658	AAB	Pulse Waveform (200Hz, 80%)	Test	2.18	±9.6
10659	AAA	Bluetooth Low Energy	Bluetooth	9.08	±9.6
10660	AAQ	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle)	WLAN	8.57	±9.6
10661	AAQ	IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.75	±9.6
10662	AAQ	IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.70	±9.6
10663	AAQ	IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.77	±9.6
10664	AAQ	IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.94	±9.6
10665	AAQ	IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.90	±9.6
10666	AAQ	IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.82	±9.6
10667	AAQ	IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.73	±9.6
10668	AAQ	IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.78	±9.6
10669	AAQ	IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)	WLAN	8.89	±9.6
10670	AAQ	IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle)	WLAN	8.80	±9.6
10671	AAQ	IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle)	WLAN	8.83	±9.6
10672	AAQ	IEEE 802.11ax (20 MHz, MCS12, 90pc duty cycle)	WLAN	8.81	±9.6
10673	AAQ	IEEE 802.11ax (20 MHz, MCS13, 90pc duty cycle)	WLAN	8.82	±9.6
10674	AAQ	IEEE 802.11ax (20 MHz, MCS14, 90pc duty cycle)	WLAN	8.85	±9.6
10675	AAQ	IEEE 802.11ax (20 MHz, MCS15, 90pc duty cycle)	WLAN	8.88	±9.6
10676	AAQ	IEEE 802.11ax (20 MHz, MCS16, 90pc duty cycle)	WLAN	8.89	±9.6
10677	AAQ	IEEE 802.11ax (20 MHz, MCS17, 90pc duty cycle)	WLAN	8.90	±9.6
10678	AAQ	IEEE 802.11ax (20 MHz, MCS18, 90pc duty cycle)	WLAN	8.91	±9.6
10679	AAQ	IEEE 802.11ax (20 MHz, MCS19, 90pc duty cycle)	WLAN	8.92	±9.6
10680	AAQ	IEEE 802.11ax (20 MHz, MCS20, 90pc duty cycle)	WLAN	8.93	±9.6
10681	AAQ	IEEE 802.11ax (20 MHz, MCS21, 90pc duty cycle)	WLAN	8.94	±9.6
10682	AAQ	IEEE 802.11ax (20 MHz, MCS22, 90pc duty cycle)	WLAN	8.95	±9.6
10683	AAQ	IEEE 802.11ax (20 MHz, MCS23, 90pc duty cycle)	WLAN	8.96	±9.6
10684	AAQ	IEEE 802.11ax (20 MHz, MCS24, 90pc duty cycle)	WLAN	8.97	±9.6
10685	AAQ	IEEE 802.11ax (20 MHz, MCS25, 90pc duty cycle)	WLAN	8.98	±9.6
10686	AAQ	IEEE 802.11ax (20 MHz, MCS26, 90pc duty cycle)	WLAN	8.99	±9.6

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10687	AAC	IEEE 802.11ax (20 MHz, MCS4, 99pc duty cycle)	WLAN	8.46	±9.6
10688	AAC	IEEE 802.11ax (20 MHz, MCS5, 99pc duty cycle)	WLAN	8.29	±9.6
10689	AAC	IEEE 802.11ax (20 MHz, MCS6, 99pc duty cycle)	WLAN	8.55	±9.6
10690	AAC	IEEE 802.11ax (20 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
10691	AAC	IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle)	WLAN	8.25	±9.6
10692	AAC	IEEE 802.11ax (20 MHz, MCS9, 99pc duty cycle)	WLAN	8.29	±9.6
10693	AAC	IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle)	WLAN	8.25	±9.6
10694	AAC	IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle)	WLAN	8.57	±9.6
10695	AAC	IEEE 802.11ax (40 MHz, MCS0, 99pc duty cycle)	WLAN	8.78	±9.6
10696	AAC	IEEE 802.11ax (40 MHz, MCS1, 99pc duty cycle)	WLAN	8.91	±9.6
10697	AAC	IEEE 802.11ax (40 MHz, MCS2, 99pc duty cycle)	WLAN	8.61	±9.6
10698	AAC	IEEE 802.11ax (40 MHz, MCS3, 99pc duty cycle)	WLAN	8.89	±9.6
10699	AAC	IEEE 802.11ax (40 MHz, MCS4, 99pc duty cycle)	WLAN	8.82	±9.6
10700	AAC	IEEE 802.11ax (40 MHz, MCS5, 99pc duty cycle)	WLAN	8.73	±9.6
10701	AAC	IEEE 802.11ax (40 MHz, MCS6, 99pc duty cycle)	WLAN	8.86	±9.6
10702	AAC	IEEE 802.11ax (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.70	±9.6
10703	AAC	IEEE 802.11ax (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.82	±9.6
10704	AAC	IEEE 802.11ax (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.56	±9.6
10705	AAC	IEEE 802.11ax (40 MHz, MCS10, 99pc duty cycle)	WLAN	8.88	±9.6
10706	AAC	IEEE 802.11ax (40 MHz, MCS11, 99pc duty cycle)	WLAN	8.66	±9.6
10707	AAC	IEEE 802.11ax (40 MHz, MCS0, 99pc duty cycle)	WLAN	8.32	±9.6
10708	AAC	IEEE 802.11ax (40 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
10709	AAC	IEEE 802.11ax (40 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.6
10710	AAC	IEEE 802.11ax (40 MHz, MCS3, 99pc duty cycle)	WLAN	8.29	±9.6
10711	AAC	IEEE 802.11ax (40 MHz, MCS4, 99pc duty cycle)	WLAN	8.39	±9.6
10712	AAC	IEEE 802.11ax (40 MHz, MCS5, 99pc duty cycle)	WLAN	8.87	±9.6
10713	AAC	IEEE 802.11ax (40 MHz, MCS6, 99pc duty cycle)	WLAN	8.33	±9.6
10714	AAC	IEEE 802.11ax (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.25	±9.6
10715	AAC	IEEE 802.11ax (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.45	±9.6
10716	AAC	IEEE 802.11ax (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.20	±9.6
10717	AAC	IEEE 802.11ax (40 MHz, MCS10, 99pc duty cycle)	WLAN	8.48	±9.6
10718	AAC	IEEE 802.11ax (40 MHz, MCS11, 99pc duty cycle)	WLAN	8.24	±9.6
10719	AAC	IEEE 802.11ax (80 MHz, MCS0, 99pc duty cycle)	WLAN	8.61	±9.6
10720	AAC	IEEE 802.11ax (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.67	±9.6
10721	AAC	IEEE 802.11ax (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.76	±9.6
10722	AAC	IEEE 802.11ax (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.55	±9.6
10723	AAC	IEEE 802.11ax (80 MHz, MCS4, 99pc duty cycle)	WLAN	8.70	±9.6
10724	AAC	IEEE 802.11ax (80 MHz, MCS5, 99pc duty cycle)	WLAN	8.80	±9.6
10725	AAC	IEEE 802.11ax (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.74	±9.6
10726	AAC	IEEE 802.11ax (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.72	±9.6
10727	AAC	IEEE 802.11ax (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.66	±9.6
10728	AAC	IEEE 802.11ax (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.65	±9.6
10729	AAC	IEEE 802.11ax (80 MHz, MCS10, 99pc duty cycle)	WLAN	8.64	±9.6
10730	AAC	IEEE 802.11ax (80 MHz, MCS11, 99pc duty cycle)	WLAN	8.67	±9.6
10731	AAC	IEEE 802.11ax (80 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
10732	AAC	IEEE 802.11ax (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.46	±9.6
10733	AAC	IEEE 802.11ax (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.40	±9.6
10734	AAC	IEEE 802.11ax (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.25	±9.6
10735	AAC	IEEE 802.11ax (80 MHz, MCS4, 99pc duty cycle)	WLAN	8.33	±9.6
10736	AAC	IEEE 802.11ax (80 MHz, MCS5, 99pc duty cycle)	WLAN	8.27	±9.6
10737	AAC	IEEE 802.11ax (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.35	±9.6
10738	AAC	IEEE 802.11ax (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.42	±9.6
10739	AAC	IEEE 802.11ax (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.26	±9.6
10740	AAC	IEEE 802.11ax (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.48	±9.6
10741	AAC	IEEE 802.11ax (80 MHz, MCS10, 99pc duty cycle)	WLAN	8.40	±9.6
10742	AAC	IEEE 802.11ax (80 MHz, MCS11, 99pc duty cycle)	WLAN	8.43	±9.6
10743	AAC	IEEE 802.11ax (160 MHz, MCS0, 99pc duty cycle)	WLAN	8.94	±9.6
10744	AAC	IEEE 802.11ax (160 MHz, MCS1, 99pc duty cycle)	WLAN	9.16	±9.6
10745	AAC	IEEE 802.11ax (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.95	±9.6
10746	AAC	IEEE 802.11ax (160 MHz, MCS3, 99pc duty cycle)	WLAN	9.11	±9.6
10747	AAC	IEEE 802.11ax (160 MHz, MCS4, 99pc duty cycle)	WLAN	9.04	±9.6
10748	AAC	IEEE 802.11ax (160 MHz, MCS5, 99pc duty cycle)	WLAN	8.93	±9.6
10749	AAC	IEEE 802.11ax (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.90	±9.6
10750	AAC	IEEE 802.11ax (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.79	±9.6
10751	AAC	IEEE 802.11ax (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.82	±9.6
10752	AAC	IEEE 802.11ax (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.81	±9.6

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10753	AAC	IEEE 802.11ax (160MHz, MCS10, 80ps duty cycle)	WLAN	9.03	-9.6
10754	AAC	IEEE 802.11ax (160MHz, MCS11, 80ps duty cycle)	WLAN	8.94	-9.6
10755	AAC	IEEE 802.11ax (160MHz, MCS0, 80ps duty cycle)	WLAN	8.64	-9.6
10756	AAC	IEEE 802.11ax (160MHz, MCS1, 99ps duty cycle)	WLAN	8.77	-9.6
10757	AAC	IEEE 802.11ax (160MHz, MCS2, 99ps duty cycle)	WLAN	8.77	-9.6
10758	AAC	IEEE 802.11ax (160MHz, MCS3, 99ps duty cycle)	WLAN	8.69	-9.6
10759	AAC	IEEE 802.11ax (160MHz, MCS4, 99ps duty cycle)	WLAN	8.08	-9.6
10760	AAC	IEEE 802.11ax (160MHz, MCS5, 99ps duty cycle)	WLAN	8.49	-9.6
10761	AAC	IEEE 802.11ax (160MHz, MCS6, 99ps duty cycle)	WLAN	8.58	-9.6
10762	AAC	IEEE 802.11ax (160MHz, MCS7, 99ps duty cycle)	WLAN	8.40	-9.6
10763	AAC	IEEE 802.11ax (160MHz, MCS8, 99ps duty cycle)	WLAN	8.53	-9.6
10764	AAC	IEEE 802.11ax (160MHz, MCS9, 99ps duty cycle)	WLAN	8.54	-9.6
10765	AAC	IEEE 802.11ax (160MHz, MCS10, 99ps duty cycle)	WLAN	8.54	-9.6
10766	AAC	IEEE 802.11ax (160MHz, MCS11, 99ps duty cycle)	WLAN	8.51	-9.6
10767	AAE	5G NR (CP-OFDM, 1 RB, 5MHz, QPSK, 15kHz)	5G NR FR1 TDD	7.99	-9.6
10768	AAE	5G NR (CP-OFDM, 1 RB, 10MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.01	-9.6
10769	AAE	5G NR (CP-OFDM, 1 RB, 15MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.01	-9.6
10770	AAE	5G NR (CP-OFDM, 1 RB, 20MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.02	-9.6
10771	AAE	5G NR (CP-OFDM, 1 RB, 25MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.02	-9.6
10772	AAE	5G NR (CP-OFDM, 1 RB, 30MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.23	-9.6
10773	AAE	5G NR (CP-OFDM, 1 RB, 40MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.03	-9.6
10774	AAE	5G NR (CP-OFDM, 1 RB, 50MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.02	-9.6
10775	AAE	5G NR (CP-OFDM, 50% RB, 5MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.31	-9.6
10776	AAE	5G NR (CP-OFDM, 50% RB, 10MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.30	-9.6
10777	AAE	5G NR (CP-OFDM, 50% RB, 15MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.30	-9.6
10778	AAE	5G NR (CP-OFDM, 50% RB, 20MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.54	-9.6
10779	AAE	5G NR (CP-OFDM, 50% RB, 25MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.42	-9.6
10780	AAE	5G NR (CP-OFDM, 50% RB, 30MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.38	-9.6
10781	AAE	5G NR (CP-OFDM, 50% RB, 40MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.08	-9.6
10782	AAE	5G NR (CP-OFDM, 50% RB, 50MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.43	-9.6
10783	AAE	5G NR (CP-OFDM, 100% RB, 5MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.31	-9.6
10784	AAE	5G NR (CP-OFDM, 100% RB, 10MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.26	-9.6
10785	AAE	5G NR (CP-OFDM, 100% RB, 15MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.40	-9.6
10786	AAE	5G NR (CP-OFDM, 100% RB, 20MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.36	-9.6
10787	AAE	5G NR (CP-OFDM, 100% RB, 25MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.44	-9.6
10788	AAE	5G NR (CP-OFDM, 100% RB, 30MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.39	-9.6
10789	AAE	5G NR (CP-OFDM, 100% RB, 40MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.37	-9.6
10790	AAE	5G NR (CP-OFDM, 100% RB, 50MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.39	-9.6
10791	AAE	5G NR (CP-OFDM, 1 RB, 5MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.83	-9.6
10792	AAE	5G NR (CP-OFDM, 1 RB, 10MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.92	-9.6
10793	AAE	5G NR (CP-OFDM, 1 RB, 15MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.95	-9.6
10794	AAE	5G NR (CP-OFDM, 1 RB, 20MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.82	-9.6
10795	AAE	5G NR (CP-OFDM, 1 RB, 25MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.84	-9.6
10796	AAE	5G NR (CP-OFDM, 1 RB, 30MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.82	-9.6
10797	AAE	5G NR (CP-OFDM, 1 RB, 40MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.01	-9.6
10798	AAE	5G NR (CP-OFDM, 1 RB, 50MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.89	-9.6
10799	AAE	5G NR (CP-OFDM, 1 RB, 60MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.93	-9.6
10800	AAE	5G NR (CP-OFDM, 1 RB, 80MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.89	-9.6
10801	AAE	5G NR (CP-OFDM, 1 RB, 90MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.87	-9.6
10802	AAE	5G NR (CP-OFDM, 1 RB, 100MHz, QPSK, 30kHz)	5G NR FR1 TDD	7.93	-9.6
10803	AAE	5G NR (CP-OFDM, 50% RB, 10MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.34	-9.6
10804	AAE	5G NR (CP-OFDM, 50% RB, 15MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.37	-9.6
10805	AAE	5G NR (CP-OFDM, 50% RB, 20MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.34	-9.6
10806	AAE	5G NR (CP-OFDM, 50% RB, 25MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.34	-9.6
10807	AAE	5G NR (CP-OFDM, 50% RB, 30MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.35	-9.6
10808	AAE	5G NR (CP-OFDM, 50% RB, 40MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.35	-9.6
10809	AAE	5G NR (CP-OFDM, 50% RB, 50MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.34	-9.6
10810	AAE	5G NR (CP-OFDM, 100% RB, 10MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.30	-9.6
10811	AAE	5G NR (CP-OFDM, 100% RB, 15MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.41	-9.6
10812	AAE	5G NR (CP-OFDM, 100% RB, 20MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.41	-9.6
10813	AAE	5G NR (CP-OFDM, 100% RB, 25MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.36	-9.6
10814	AAE	5G NR (CP-OFDM, 100% RB, 30MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.39	-9.6
10815	AAE	5G NR (CP-OFDM, 100% RB, 40MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.39	-9.6
10816	AAE	5G NR (CP-OFDM, 100% RB, 50MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.41	-9.6
10817	AAE	5G NR (CP-OFDM, 100% RB, 60MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.42	-9.6
10818	AAE	5G NR (CP-OFDM, 100% RB, 80MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.43	-9.6
10819	AAE	5G NR (CP-OFDM, 100% RB, 90MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.43	-9.6
10820	AAE	5G NR (CP-OFDM, 100% RB, 100MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.43	-9.6

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10829	AAF	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	6.40	±9.5
10830	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	±9.5
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	±9.5
10832	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	±9.5
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.5
10834	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	±9.5
10835	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.5
10836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	±9.5
10837	AAF	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±9.5
10839	AAF	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.5
10840	AAE	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	±9.5
10841	AAF	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	±9.5
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±9.5
10844	AAE	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.5
10846	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.5
10854	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.5
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.5
10856	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.5
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	±9.5
10858	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.5
10859	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.5
10860	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.5
10861	AAF	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±9.5
10863	AAF	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.5
10864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.5
10865	AAF	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.5
10866	AAF	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR1 TDD	5.68	±9.5
10868	AAF	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.5
10869	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.5
10870	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.66	±9.5
10871	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	±9.5
10872	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.62	±9.5
10873	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.5
10874	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.5
10875	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.76	±9.5
10876	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	±9.5
10877	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	±9.5
10878	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.5
10879	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	±9.5
10880	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	±9.5
10881	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.5
10882	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.65	±9.5
10883	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	±9.5
10884	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	±9.5
10885	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.5
10886	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.5
10887	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.76	±9.5
10888	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	±9.5
10889	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	±9.5
10890	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	±9.5
10891	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	±9.5
10892	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.5
10897	AAE	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	±9.5
10898	AAE	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.5
10899	AAB	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.5
10900	AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.5
10901	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	±9.5
10902	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.5
10903	AAD	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.5
10904	AAC	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.5
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.5
10906	AAD	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.69	±9.5
10907	AAE	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	±9.5
10908	AAC	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.5
10909	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	±9.5
10910	AAC	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.5

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10911	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.99	±9.6
10912	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10914	AAC	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	±9.6
10915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.6
10916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10918	AAE	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	±9.6
10919	AAC	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	±9.6
10920	AAB	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10921	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10922	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	±9.6
10923	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10925	AAC	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	±9.6
10926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	±9.6
10929	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	±9.6
10930	AAC	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	±9.6
10931	AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.91	±9.6
10932	AAC	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.91	±9.6
10933	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.91	±9.6
10934	AAC	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.91	±9.6
10935	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.91	±9.6
10936	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
10937	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	±9.6
10938	AAC	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.80	±9.6
10939	AAC	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	±9.6
10940	AAC	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	±9.6
10941	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10942	AAC	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10943	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	±9.6
10944	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	±9.6
10945	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10947	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
10948	AAC	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10949	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
10950	AAC	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10951	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	±9.6
10952	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.26	±9.6
10953	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.16	±9.6
10954	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	±9.6
10955	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	±9.6
10956	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	±9.6
10957	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	±9.6
10958	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	±9.6
10959	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	±9.6
10960	AAE	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	±9.6
10961	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.35	±9.6
10962	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	±9.6
10963	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	±9.6
10964	AAE	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	±9.6
10965	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	±9.6
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	±9.6
10967	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	±9.6
10968	AAD	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	±9.6
10972	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.50	±9.6
10979	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	±9.6
10974	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.26	±9.6
10978	AAA	ULLA BDR	ULLA	1.16	±9.6
10979	AAA	ULLA HDR4	ULLA	8.58	±9.6
10980	AAA	ULLA HDR8	ULLA	10.32	±9.6
10981	AAA	ULLA HDRp4	ULLA	3.19	±9.6
10982	AAA	ULLA HDRp8	ULLA	3.43	±9.6

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10963	AAC	5G NR DL (CP-OFDM, TM 3.1, 40MHz, 64-QAM, 15KHz)	5G NR FR1 TDD	9.31	±9.6
10964	AAB	5G NR DL (CP-OFDM, TM 3.1, 50MHz, 64-QAM, 15KHz)	5G NR FR1 TDD	9.42	±9.6
10985	AAC	5G NR DL (CP-OFDM, TM 3.1, 40MHz, 64-QAM, 30KHz)	5G NR FR1 TDD	9.54	±9.6
10986	AAB	5G NR DL (CP-OFDM, TM 3.1, 50MHz, 64-QAM, 30KHz)	5G NR FR1 TDD	9.60	±9.6
10987	AAC	5G NR DL (CP-OFDM, TM 3.1, 60MHz, 64-QAM, 30KHz)	5G NR FR1 TDD	9.63	±9.6
10988	AAB	5G NR DL (CP-OFDM, TM 3.1, 70MHz, 64-QAM, 30KHz)	5G NR FR1 TDD	9.68	±9.6
10989	AAC	5G NR DL (CP-OFDM, TM 3.1, 80MHz, 64-QAM, 30KHz)	5G NR FR1 TDD	9.73	±9.6
10990	AAB	5G NR DL (CP-OFDM, TM 3.1, 90MHz, 64-QAM, 30KHz)	5G NR FR1 TDD	9.82	±9.6
11003	AAA	5G NR DL (CP-OFDM, TM 3.1, 90MHz, 64-QAM, 15KHz)	5G NR FR1 TDD	10.24	±9.6
11004	AAA	5G NR DL (CP-OFDM, TM 3.1, 30MHz, 64-QAM, 30KHz)	5G NR FR1 TDD	10.75	±9.6
11005	AAA	5G NR DL (CP-OFDM, TM 3.1, 25MHz, 64-QAM, 15KHz)	5G NR FR1 FDD	8.70	±9.6
11006	AAA	5G NR DL (CP-OFDM, TM 3.1, 30MHz, 64-QAM, 15KHz)	5G NR FR1 FDD	8.85	±9.6
11007	AAA	5G NR DL (CP-OFDM, TM 3.1, 40MHz, 64-QAM, 15KHz)	5G NR FR1 FDD	8.88	±9.6
11008	AAA	5G NR DL (CP-OFDM, TM 3.1, 50MHz, 64-QAM, 15KHz)	5G NR FR1 FDD	8.91	±9.6
11009	AAA	5G NR DL (CP-OFDM, TM 3.1, 25MHz, 64-QAM, 30KHz)	5G NR FR1 FDD	8.75	±9.6
11010	AAA	5G NR DL (CP-OFDM, TM 3.1, 30MHz, 64-QAM, 30KHz)	5G NR FR1 FDD	8.96	±9.6
11011	AAA	5G NR DL (CP-OFDM, TM 3.1, 40MHz, 64-QAM, 30KHz)	5G NR FR1 FDD	8.98	±9.6
11012	AAA	5G NR DL (CP-OFDM, TM 3.1, 50MHz, 64-QAM, 30KHz)	5G NR FR1 FDD	9.08	±9.6
11013	AAB	IEEE 802.11be (320MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
11014	AAB	IEEE 802.11be (320MHz, MCS2, 99pc duty cycle)	WLAN	8.45	±9.6
11015	AAB	IEEE 802.11be (320MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
11016	AAB	IEEE 802.11be (320MHz, MCS4, 99pc duty cycle)	WLAN	8.44	±9.6
11017	AAB	IEEE 802.11be (320MHz, MCS5, 99pc duty cycle)	WLAN	8.41	±9.6
11018	AAB	IEEE 802.11be (320MHz, MCS6, 99pc duty cycle)	WLAN	8.40	±9.6
11019	AAB	IEEE 802.11be (320MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
11020	AAB	IEEE 802.11be (320MHz, MCS8, 99pc duty cycle)	WLAN	8.27	±9.6
11021	AAB	IEEE 802.11be (320MHz, MCS9, 99pc duty cycle)	WLAN	8.46	±9.6
11022	AAB	IEEE 802.11be (320MHz, MCS10, 99pc duty cycle)	WLAN	8.38	±9.6
11023	AAB	IEEE 802.11be (320MHz, MCS11, 99pc duty cycle)	WLAN	8.09	±9.6
11024	AAB	IEEE 802.11be (320MHz, MCS12, 99pc duty cycle)	WLAN	8.42	±9.6
11025	AAB	IEEE 802.11be (320MHz, MCS13, 99pc duty cycle)	WLAN	8.37	±9.6
11026	AAB	IEEE 802.11be (320MHz, MCS0, 99pc duty cycle)	WLAN	8.39	±9.6

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

Appendix D.2 Calibration certificate for DAE_SN567

Calibration Laboratory of
Schmid & Partner
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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 0108**

Client **SGS**
Gyeonggi-do, Republic of Korea

Certificate No: **DAE3-567_Feb24**

CALIBRATION CERTIFICATE

Object **DAE3 - SD 000 D03 AA - SN: 567**

Calibration procedure(s) **QA CAL-06.v30**
Calibration procedure for the data acquisition electronics (DAE)



Calibration date: **February 16, 2024**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&E critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Kaithley Multimeter Type 2001	SN: 0610278	29-Aug-23 (No:37421)	Aug-24
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	23-Jan-24 (in house check)	In house check: Jan-25
Calibrator Box V2.1	SE UMS 006 AA 1002	23-Jan-24 (in house check)	In house check: Jan-25

Calibrated by:	Name Dominique Steffen	Function Laboratory Technician	Signature
Approved by:	Name Sven Köhn	Function Technical Manager	Signature

Issued: February 16, 2024

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Certificate No: DAE3-567_Feb24

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Accreditation No.: **SCS 0108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1...+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.646 $\pm$ 0.02% (k=2)	404.382 $\pm$ 0.02% (k=2)	404.483 $\pm$ 0.02% (k=2)
Low Range	3.92682 $\pm$ 1.50% (k=2)	3.95906 $\pm$ 1.50% (k=2)	3.94509 $\pm$ 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	7.0 ° $\pm$ 1 °
---	-----------------

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	199997.63	0.16	0.00
Channel X + Input	20008.51	2.97	0.01
Channel X - Input	-19995.08	3.53	-0.02
Channel Y + Input	199994.79	-2.54	-0.00
Channel Y + Input	20006.68	1.05	0.01
Channel Y - Input	-19996.41	2.07	-0.01
Channel Z + Input	199998.46	0.73	0.00
Channel Z + Input	20004.07	-1.57	-0.01
Channel Z - Input	-19995.87	2.61	-0.01

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2004.54	0.11	0.01
Channel X + Input	204.82	0.28	0.14
Channel X - Input	-195.41	0.02	-0.01
Channel Y + Input	2004.06	-0.42	-0.02
Channel Y + Input	204.33	-0.35	-0.17
Channel Y - Input	-195.02	0.24	-0.12
Channel Z + Input	2004.68	0.21	0.01
Channel Z + Input	203.96	-0.49	-0.24
Channel Z - Input	-196.29	-0.94	0.48

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	2.90	1.35
	- 200	-0.35	-2.22
Channel Y	200	-3.28	-3.47
	- 200	2.64	2.26
Channel Z	200	3.63	3.45
	- 200	-4.54	-4.75

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	-1.42	-2.72
Channel Y	200	8.21	-	0.13
Channel Z	200	5.69	5.67	-

4. AD-Converter Values with Inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	18248	14238
Channel Y	16135	12885
Channel Z	15968	15810

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	1.33	-0.17	2.48	0.60
Channel Y	-0.25	-1.66	1.20	0.46
Channel Z	-0.04	-1.66	0.72	0.39

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kΩm)	Measuring (MΩm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

Appendix D.3 Calibration certificate for Dipole_SN1058

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Accreditation No.: **SCS 0108**

Client **SGS**
 Gyeonggi-do, Republic of Korea

Certificate No. **D3500V2-1058_Sep23**

CALIBRATION CERTIFICATE

Object **D3500V2 - SN:1058**

Calibration procedure(s) **QA CAL-22.v7**
Calibration Procedure for SAR Validation Sources between 3-10 GHz

Calibration date: **September 28, 2023**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	30-Mar-23 (No. 217-03804/03805)	Mar-24
Power sensor NRP-Z91	SN: 103244	30-Mar-23 (No. 217-03804)	Mar-24
Power sensor NRP-Z91	SN: 103245	30-Mar-23 (No. 217-03805)	Mar-24
Reference 20 dB Attenuator	SN: BH9394 (20k)	30-Mar-23 (No. 217-03809)	Mar-24
Type-N mismatch combination	SN: 310982 / 06327	30-Mar-23 (No. 217-03810)	Mar-24
Reference Probe EX3DV4	SN: 3503	07-Mar-23 (No. EX3-3503_Mar23)	Mar-24
DAE4	SN: 900	09-Aug-23 (No. DAE4-900_Aug23)	Aug-24
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB99512475	30-Oct-14 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: US37292763	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
RF generator R&S SMT-05	SN: 100972	15-Jun-15 (in house check Oct-22)	In house check: Oct-24
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

Calibrated by:	Name Paulo Pina	Function Laboratory Technician	Signature 
Approved by:	Name Sven Kühn	Technical Manager	Signature 

Issued: September 28, 2023

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Certificate No: D3500V2-1058_Sep23

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Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss:** This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	3400 MHz $\pm$ 1 MHz 3500 MHz $\pm$ 1 MHz	

Head TSL parameters at 3400 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	38.0	2.81 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	37.7 $\pm$ 6 %	2.87 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 3400 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.79 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	67.4 W/kg $\pm$ 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.56 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	25.6 W/kg $\pm$ 19.5 % (k=2)

Head TSL parameters at 3500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.9	2.91 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	37.6 $\pm$ 6 %	2.95 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 3500 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.56 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	65.3 W/kg $\pm$ 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.49 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.8 W/kg $\pm$ 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 3400 MHz

Impedance, transformed to feed point	44.1 Ω - 7.3 j Ω
Return Loss	- 20.0 dB

Antenna Parameters with Head TSL at 3500 MHz

Impedance, transformed to feed point	50.9 Ω - 6.1 j Ω
Return Loss	- 24.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.135 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
-----------------	-------

DASY5 Validation Report for Head TSL

Date: 28.09.2023

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 3500 MHz; Type: D3500V2; Serial: D3500V2 - SN:1058

Communication System: UID 0 - CW; Frequency: 3500 MHz, Frequency: 3400 MHz

Medium parameters used: $f = 3500$ MHz; $\sigma = 2.95$ S/m; $\epsilon_r = 37.6$; $\rho = 1000$ kg/m³

Medium parameters used: $f = 3400$ MHz; $\sigma = 2.87$ S/m; $\epsilon_r = 37.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(7.91, 7.91, 7.91) @ 3500 MHz, ConvF(7.91, 7.91, 7.91) @ 3400 MHz; Calibrated: 07.03.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn900; Calibrated: 09.08.2023
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=3500MHz/Zoom Scan,

dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 68.22 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 6.56 W/kg; SAR(10 g) = 2.49 W/kg

Smallest distance from peaks to all points 3 dB below = 8 mm

Ratio of SAR at M2 to SAR at M1 = 74.6%

Maximum value of SAR (measured) = 12.4 W/kg

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=3400MHz/Zoom Scan,

dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 70.44 V/m; Power Drift = 0.06 dB

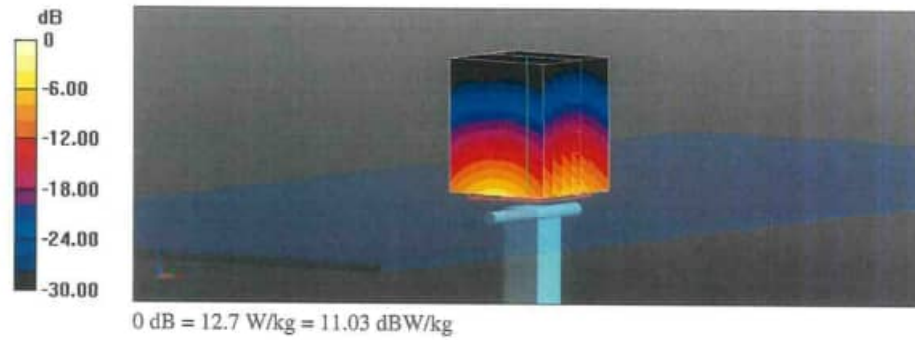
Peak SAR (extrapolated) = 17.9 W/kg

SAR(1 g) = 6.79 W/kg; SAR(10 g) = 2.56 W/kg

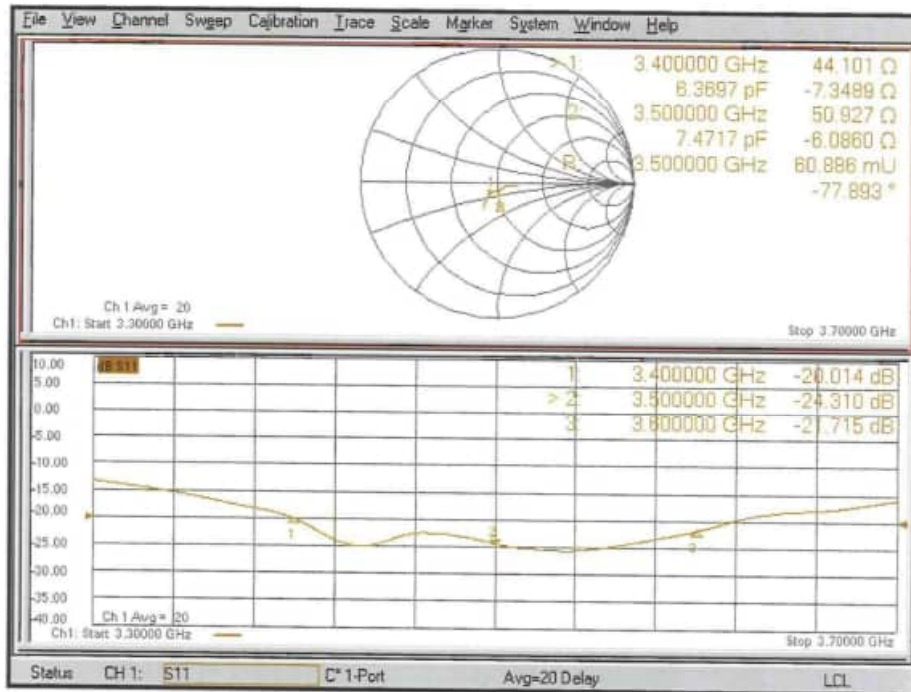
Smallest distance from peaks to all points 3 dB below = 8 mm

Ratio of SAR at M2 to SAR at M1 = 75.3%

Maximum value of SAR (measured) = 12.7 W/kg



Impedance Measurement Plot for Head TSL



Appendix D.4 Calibration certificate for Dipole_SN1005

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Accreditation No.: **SCS 0108**

Client **SGS**
Gyeonggi-do, Republic of Korea

Certificate No. **D3700V2-1005_Sep23**

CALIBRATION CERTIFICATE

Object **D3700V2 - SN:1005**

Calibration procedure(s) **QA CAL-22.v7**
Calibration Procedure for SAR Validation Sources between 3-10 GHz

Calibration date **September 27, 2023**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&E critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104776	30-Mar-23 (No. 217-03804/03805)	Mar-24
Power sensor NRP-Z91	SN: 103244	30-Mar-23 (No. 217-03804)	Mar-24
Power sensor NRP-Z91	SN: 103245	30-Mar-23 (No. 217-03805)	Mar-24
Reference 20 dB Attenuator	SN: 8H8394 (20K)	30-Mar-23 (No. 217-03809)	Mar-24
Type-N mismatch combination	SN: 310982 / 06327	30-Mar-23 (No. 217-03810)	Mar-24
Reference Probe EX3DV4	SN: 3503	07-Mar-23 (No. EX3-3503_Mar23)	Mar-24
DAE4	SN: 900	09-Aug-23 (No. DAE4-900_Aug23)	Aug-24
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: G639512475	30-Oct-14 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-22)	In house check: Oct-24
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

Calibrated by:	Name Kristin Pranjic	Function Laboratory Technician	Signature
Approved by:	Name Sven Kühn	Function Technical Manager	Signature

Issued: September 27, 2023

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Certificate No: D3700V2-1005_Sep23

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S Swiss Calibration Service

Accreditation No.: SCS 0108

Glossary:

TSL tissue simulating liquid
ConvF sensitivity in TSL / NORM x,y,z
N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss:** This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	3700 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.7	3.12 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	37.3 $\pm$ 6 %	3.10 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	-----	-----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.58 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	65.7 W/kg $\pm$ 19.9 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.0 W/kg $\pm$ 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.2 Ω - 7.3 j Ω
Return Loss	-22.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.139 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 27.09.2023

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 - SN:1005

Communication System: UID 0 - CW; Frequency: 3700 MHz

Medium parameters used: $f = 3700$ MHz; $\sigma = 3.1$ S/m; $\epsilon_r = 37.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(7.73, 7.73, 7.73) @ 3700 MHz; Calibrated: 07.03.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn900; Calibrated: 09.08.2023
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=3700MHz/Zoom Scan,

dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 68.70 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 18.5 W/kg

SAR(1 g) = 6.58 W/kg; SAR(10 g) = 2.41 W/kg

Smallest distance from peaks to all points 3 dB below = 8.4 mm

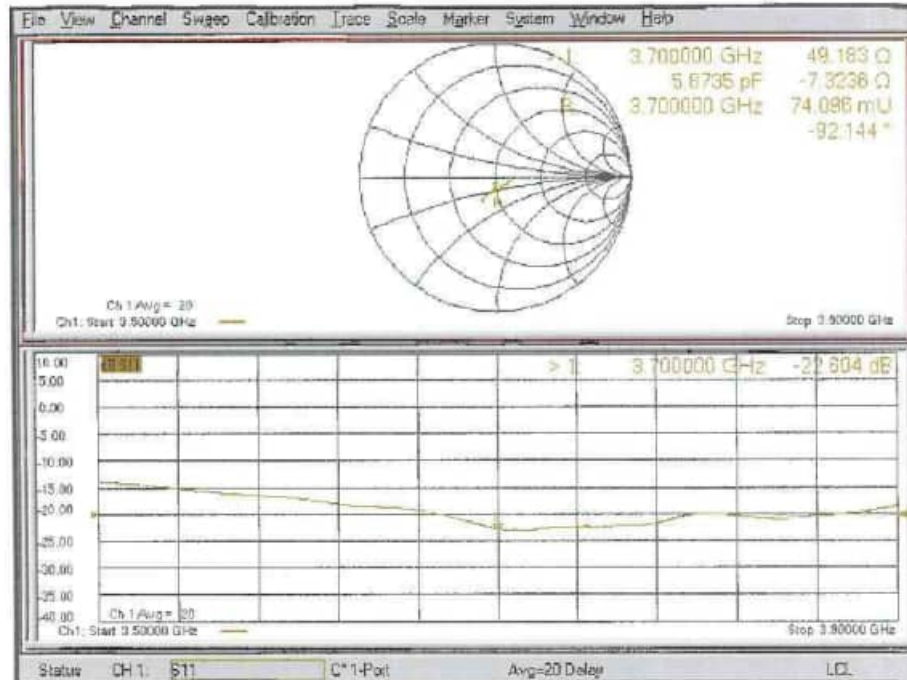
Ratio of SAR at M2 to SAR at M1 = 74.2%

Maximum value of SAR (measured) = 12.8 W/kg



0 dB = 12.8 W/kg = 11.06 dBW/kg

Impedance Measurement Plot for Head TSL



Appendix D.5 Calibration certificate for Dipole_SN1036

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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C Service suisse d'étalonnage
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S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client **SGS**
Gyeonggi-do, Republic of Korea

Certificate No. **D3900V2-1036_Sep23**

CALIBRATION CERTIFICATE

Object **D3900V2 - SN:1036**

Calibration procedure(s) **QA CAL-22.v7
Calibration Procedure for SAR Validation Sources between 3-10 GHz**

Calibration date: **September 27, 2023**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&E critical for calibration):

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	30-Mar-23 (No. 217-03804/03805)	Mar-24
Power sensor NRP-Z61	SN: 103244	30-Mar-23 (No. 217-03804)	Mar-24
Power sensor NRP-Z61	SN: 103245	30-Mar-23 (No. 217-03805)	Mar-24
Reference 20 dB Attenuator	SN: B19394 (20k)	30-Mar-23 (No. 217-03809)	Mar-24
Type-N mismatch combination	SN: 310982 / 06327	30-Mar-23 (No. 217-03810)	Mar-24
Reference Probe EX3DV4	SN: 3503	07-Mar-23 (No. EX3-3503_Mar23)	Mar-24
DAE4	SN: 900	06-Aug-23 (No. DAE4-900_Aug23)	Aug-24
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: G836512475	30-Oct-14 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: U537292783	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
RF generator R&S SMT-05	SN: 100972	15-Jun-15 (in house check Oct-22)	In house check: Oct-24
Network Analyzer Agilent E8358A	SN: U541060477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

Calibrated by: **Krzysztof Franjic** **Laboratory Technician**

Approved by: **Sven Kühn** **Technical Manager**

Issued: September 27, 2023

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D3900V2-1036_Sep23

Page 1 of 7

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary:

TSL tissue simulating liquid
ConvF sensitivity in TSL / NORM x,y,z
N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- DASY System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss:** This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	$dx, dy = 4.0 \text{ mm}$, $dz = 1.4 \text{ mm}$	Graded Ratio = 1.4 (Z direction)
Frequency	3900 MHz $\pm 1 \text{ MHz}$ 4100 MHz $\pm 1 \text{ MHz}$	

Head TSL parameters at 3900 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.5	3.32 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	37.1 $\pm$ 6 %	3.27 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL at 3900 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.80 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	68.0 W/kg $\pm$ 19.9 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.39 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.9 W/kg $\pm$ 19.5 % (k=2)

Head TSL parameters at 4100 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.2	3.53 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	36.9 $\pm$ 6 %	3.45 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	—	—

SAR result with Head TSL at 4100 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.77 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	67.8 W/kg $\pm$ 19.9 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.36 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.6 W/kg $\pm$ 19.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 3900 MHz

Impedance, transformed to feed point	47.4 Ω - 4.8 j Ω
Return Loss	- 24.9 dB

Antenna Parameters with Head TSL at 4100 MHz

Impedance, transformed to feed point	57.3 Ω - 1.1 j Ω
Return Loss	- 23.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.104 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 27.09.2023

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 3900 MHz; Type: D3900V2; Serial: D3900V2 - SN:1036

Communication System: UID 0 - CW; Frequency: 3900 MHz, Frequency: 4100 MHz

Medium parameters used: $f = 3900$ MHz; $\sigma = 3.27$ S/m; $\epsilon_r = 37.1$; $\rho = 1000$ kg/m³

Medium parameters used: $f = 4100$ MHz; $\sigma = 3.45$ S/m; $\epsilon_r = 36.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/ILC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: HX3DV4 - SN3503; ConvF(7.39, 7.39, 7.39) @ 3900 MHz, ConvF(7.26, 7.26, 7.26) @ 4100 MHz; Calibrated: 07.03.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAB4 Sn900; Calibrated: 09.08.2023
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=3900MHz/Zoom Scan,

dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 70.20 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 19.2 W/kg

SAR(1 g) = 6.8 W/kg; SAR(10 g) = 2.39 W/kg

Smallest distance from peaks to all points 3 dB below = 8 mm

Ratio of SAR at M2 to SAR at M1 = 73.9%

Maximum value of SAR (measured) = 13.4 W/kg

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=4100MHz/Zoom Scan,

dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 68.07 V/m; Power Drift = 0.09 dB

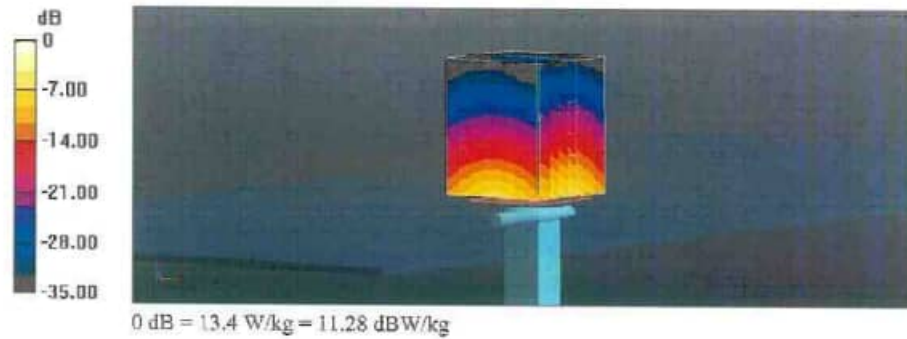
Peak SAR (extrapolated) = 19.1 W/kg

SAR(1 g) = 6.77 W/kg; SAR(10 g) = 2.36 W/kg

Smallest distance from peaks to all points 3 dB below = 8 mm

Ratio of SAR at M2 to SAR at M1 = 74%

Maximum value of SAR (measured) = 13.4 W/kg



Impedance Measurement Plot for Head TSL

