

Client **7layers**

Certificate No: **24J02Z000050**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN : 7612

Calibration Procedure(s) FF-Z11-004-02
Calibration Procedures for Dosimetric E-field Probes

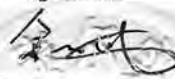
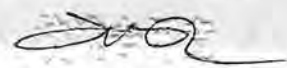
Calibration date: March 20, 2024

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&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Power sensor NRP-Z91	101547	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Power sensor NRP-Z91	101548	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Reference 10dBAttenuator	18N50W-10dB	19-Jan-23(CTTL, No.J23X00212)	Jan-25
Reference 20dBAttenuator	18N50W-20dB	19-Jan-23(CTTL, No.J23X00211)	Jan-25
Reference Probe EX3DV4	SN 3846	31-May-23(SPEAG, No.EX-3846_May23)	May-24
DAE4	SN 1555	24-Aug-23(SPEAG, No.DAE4-1555_Aug23)	Aug-24
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	12-Jun-23(CTTL, No.J23X05434)	Jun-24
Network Analyzer E5071C	MY46110673	25-Dec-23(CTTL, No.J23X13425)	Dec-24
Reference 10dBAttenuator	BT0520	11-May-23(CTTL, No.J23X04061)	May-25
Reference 20dBAttenuator	BT0267	11-May-23(CTTL, No.J23X04062)	May-25
OCP DAK-12	SN 1174	25-Oct-23(SPEAG, No.OCP-DAK12-1174_Oct23)	Oct-24

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: March 24, 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 $\theta=0$ 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:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- 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 $\theta=0$ ($f \leq 900\text{MHz}$ in TEM-cell; $f > 1800\text{MHz}$: waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E^2 -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 (no uncertainty required). 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}; VR_{x,y,z}:** A,B,C 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 $f \leq 800\text{MHz}$) and inside waveguide using analytical field distributions based on power measurements for $f > 800\text{MHz}$. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued 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 $\pm 50\text{MHz}$ to $\pm 100\text{MHz}$.
- 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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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7612

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc ($k=2$)
Norm($\mu V/(V/m)^2$) ^A	0.66	0.60	0.82	$\pm 10.0\%$
DCP(mV) ^B	112.4	101.5	114.0	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu V}$	C	D dB	VR mV	Max Dev.	Max Unc ^E ($k=2$)
0	CW	X	0.0	0.0	1.0	0.00	225.6	$\pm 2.3\%$	$\pm 4.7\%$
		Y	0.0	0.0	1.0		204.0		
		Z	0.0	0.0	1.0		258.7		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	1.60	60.38	5.67	10.00	60	$\pm 4.8\%$	$\pm 9.6\%$
		Y	20.00	76.00	11.00		60		
		Z	1.64	60.00	5.81		60		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	1.21	60.00	3.75	6.99	80	$\pm 4.0\%$	$\pm 9.6\%$
		Y	1.02	60.00	4.20		80		
		Z	1.05	60.00	4.68		80		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	0.01	131.90	0.68	3.98	95	$\pm 3.0\%$	$\pm 9.6\%$
		Y	28.00	68.00	5.00		95		
		Z	48.00	68.00	5.00		95		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	4.42	159.22	13.32	2.22	120	$\pm 2.3\%$	$\pm 9.6\%$
		Y	8.20	159.94	11.25		120		
		Z	14.69	153.05	3.41		120		
10387-AAA	QPSK Waveform, 1 MHz	X	0.58	61.20	9.38	1.00	150	$\pm 6.7\%$	$\pm 9.6\%$
		Y	0.51	61.65	8.32		150		
		Z	0.69	61.68	9.72		150		
10388-AAA	QPSK Waveform, 10 MHz	X	1.34	64.25	12.64	0.00	150	$\pm 1.4\%$	$\pm 9.6\%$
		Y	1.27	64.35	12.49		150		
		Z	1.32	63.42	12.33		150		
10396-AAA	64-QAM Waveform, 100 kHz	X	1.97	67.41	18.00	3.01	150	$\pm 2.6\%$	$\pm 9.6\%$
		Y	1.68	65.90	18.25		150		
		Z	2.04	68.00	18.28		150		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.10	65.99	15.10	0.00	150	$\pm 5.8\%$	$\pm 9.6\%$
		Y	4.23	66.76	15.85		150		
		Z	4.22	65.91	15.12		150		

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 E^2 -field uncertainty inside TSL (see Page 5).

^B Numerical linearization parameter: uncertainty not required.

^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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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7612

Sensor Model Parameters

	C1 fF	C2 fF	α V ⁻¹	T1 ms.V ⁻²	T2 ms.V ⁻¹	T3 ms	T4 V ⁻²	T5 V ⁻¹	T6
X	14.71	104.78	32.36	1.99	0.00	4.90	0.61	0.00	1.02
Y	13.77	110.22	39.74	10.88	0.00	4.90	0.00	0.00	1.03
Z	17.75	127.06	32.61	7.96	0.00	4.90	0.71	0.00	1.02

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	16.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

DASY/EASY – Parameters of Probe: EX3DV4 – SN:7612

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz] ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	41.9	0.89	11.40	11.40	11.40	0.16	1.25	±12.7%
835	41.5	0.90	10.96	10.96	10.96	0.15	1.39	±12.7%
900	41.5	0.97	10.87	10.87	10.87	0.15	1.37	±12.7%
1450	40.5	1.20	9.72	9.72	9.72	0.38	0.80	±12.7%
1750	40.1	1.37	9.20	9.20	9.20	0.26	1.12	±12.7%
1900	40.0	1.40	8.83	8.83	8.83	0.27	1.05	±12.7%
2100	39.8	1.49	8.75	8.75	8.75	0.28	1.03	±12.7%
2300	39.5	1.67	8.46	8.46	8.46	0.67	0.67	±12.7%
2450	39.2	1.80	8.20	8.20	8.20	0.61	0.71	±12.7%
2600	39.0	1.96	8.01	8.01	8.01	0.67	0.70	±12.7%
3300	38.2	2.71	7.65	7.65	7.65	0.50	0.86	±13.9%
3500	37.9	2.91	7.45	7.45	7.45	0.43	1.05	±13.9%
3700	37.7	3.12	7.18	7.18	7.18	0.45	1.06	±13.9%
3900	37.5	3.32	6.90	6.90	6.90	0.40	1.46	±13.9%
4100	37.2	3.53	6.98	6.98	6.98	0.40	1.15	±13.9%
4200	37.1	3.63	6.88	6.88	6.88	0.35	1.35	±13.9%
4400	36.9	3.84	6.78	6.78	6.78	0.35	1.35	±13.9%
4600	36.7	4.04	6.68	6.68	6.68	0.45	1.20	±13.9%
4800	36.4	4.25	6.63	6.63	6.63	0.45	1.25	±13.9%
4950	36.3	4.40	6.43	6.43	6.43	0.45	1.25	±13.9%
5250	35.9	4.71	5.75	5.75	5.75	0.45	1.30	±13.9%
5600	35.5	5.07	5.06	5.06	5.06	0.55	1.20	±13.9%
5750	35.4	5.22	5.20	5.20	5.20	0.55	1.20	±13.9%

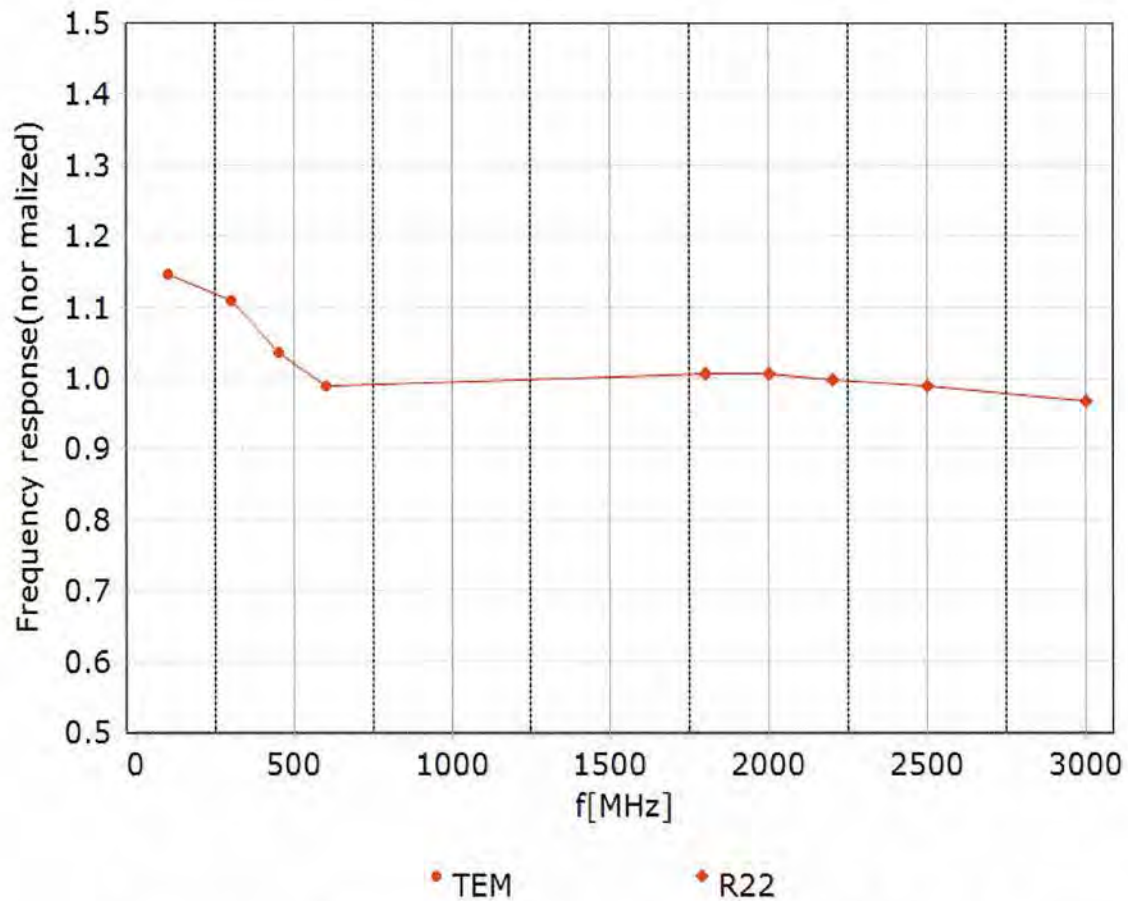
^C Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^F At frequency up to 6 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)

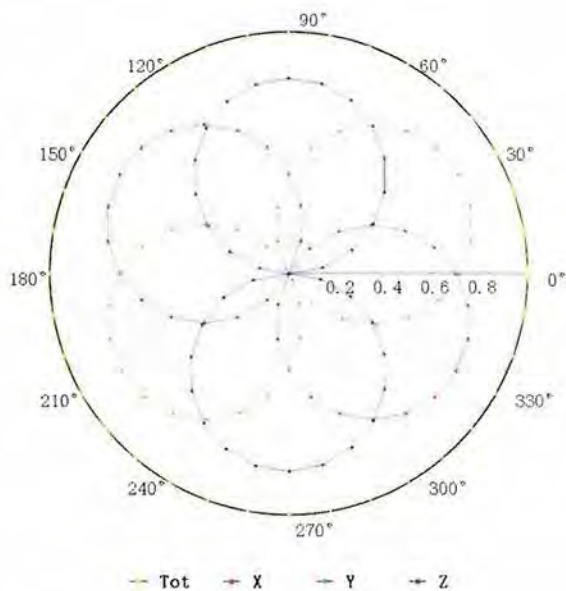


Uncertainty of Frequency Response of E-field: $\pm 7.4\%$ ($k=2$)

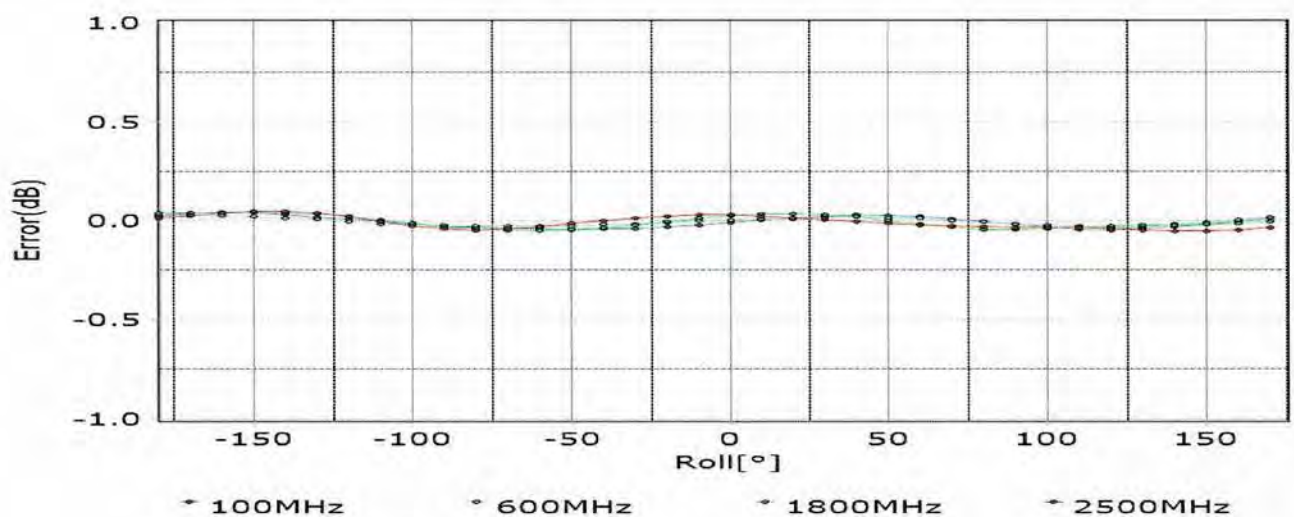
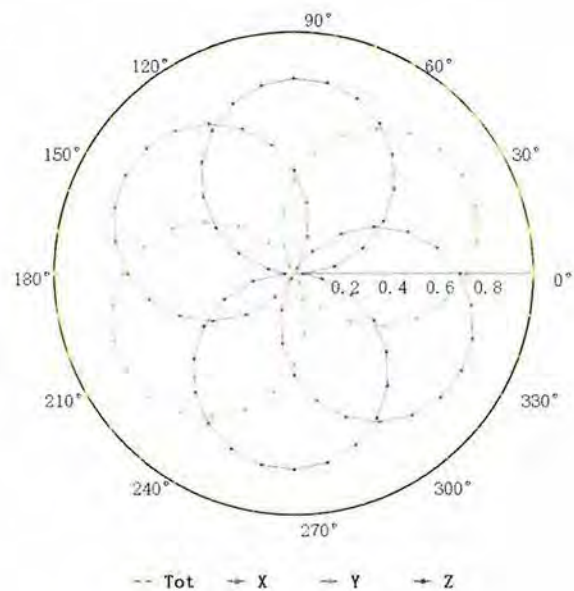
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Receiving Pattern (Φ), $\theta=0^\circ$

f=600 MHz, TEM



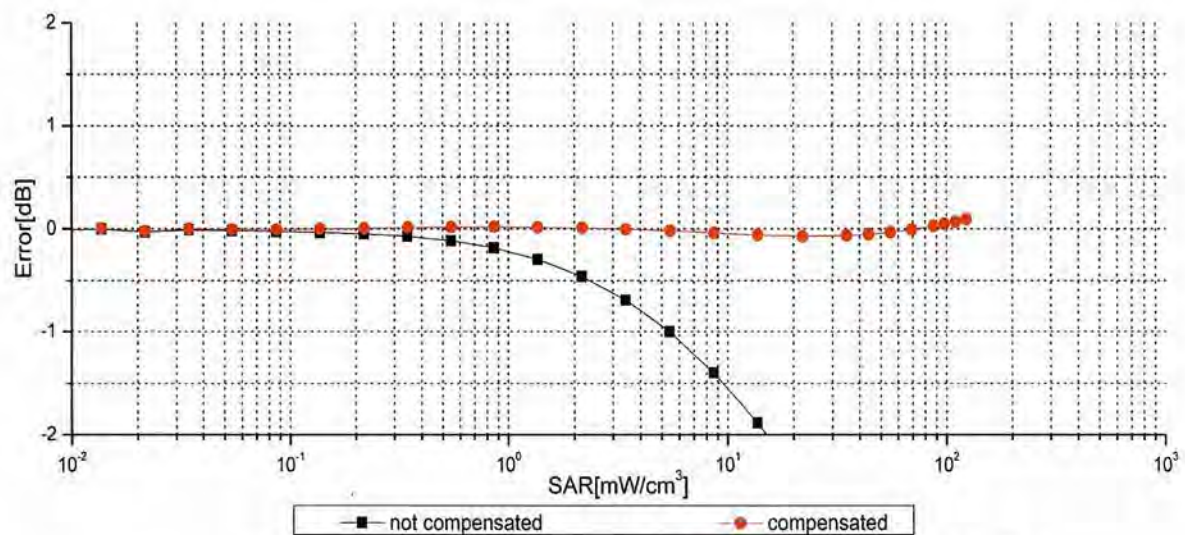
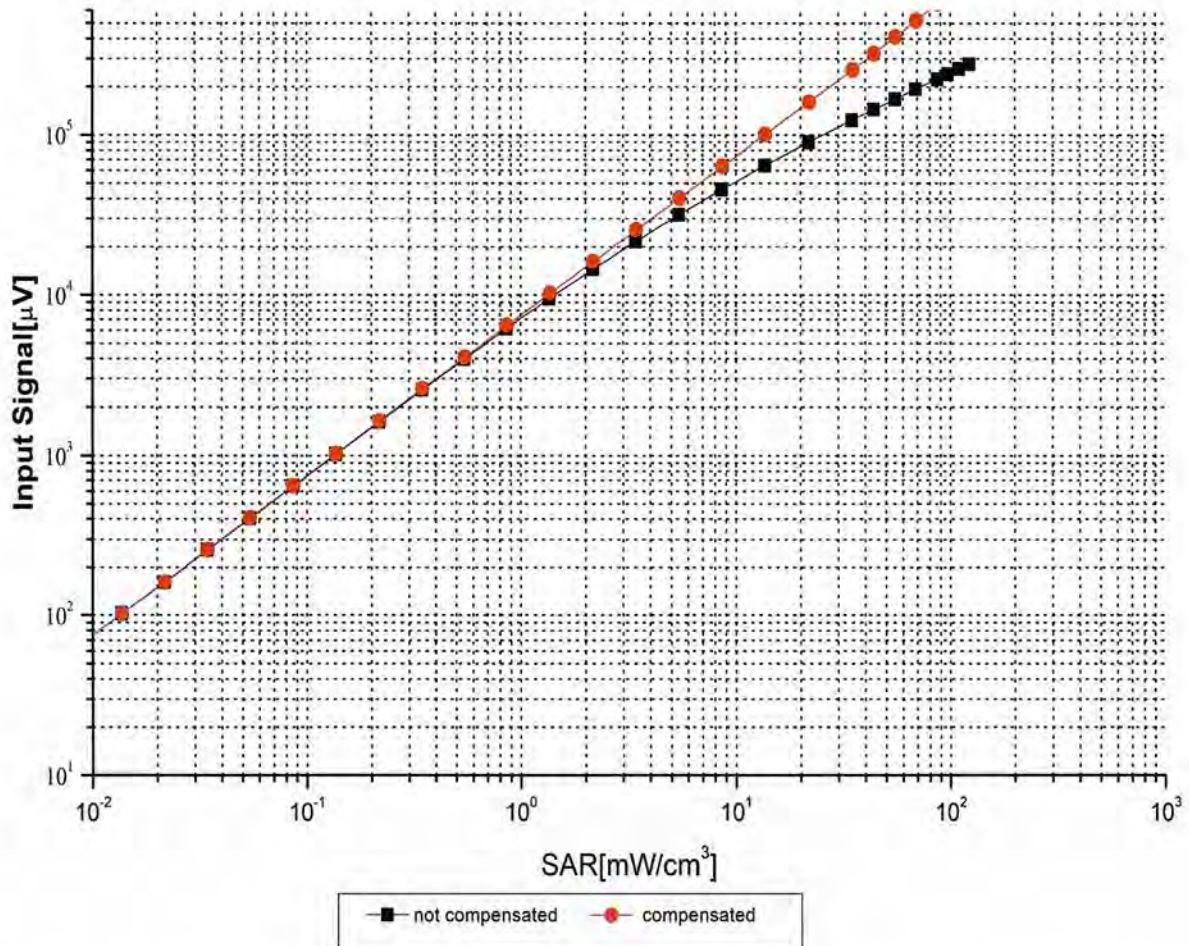
f=1800 MHz, R22



Uncertainty of Axial Isotropy Assessment: $\pm 1.2\%$ ($k=2$)

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Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f = 900 \text{ MHz}$)



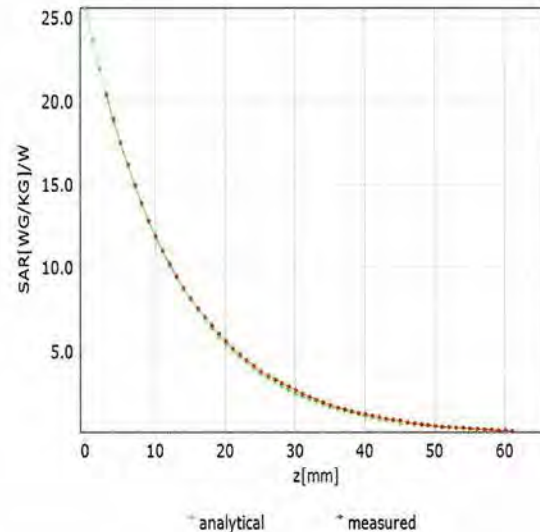
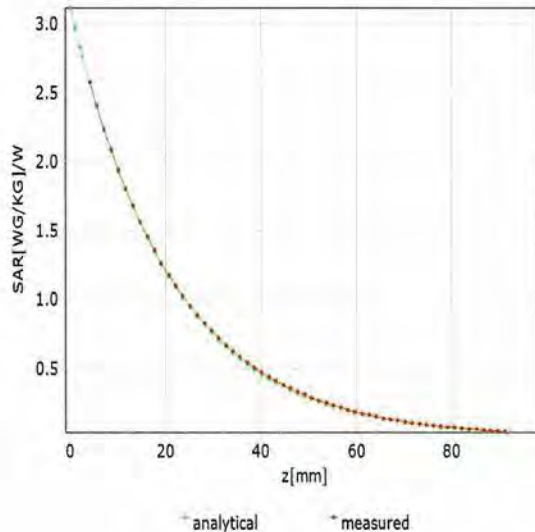
Uncertainty of Linearity Assessment: $\pm 0.9\%$ ($k=2$)

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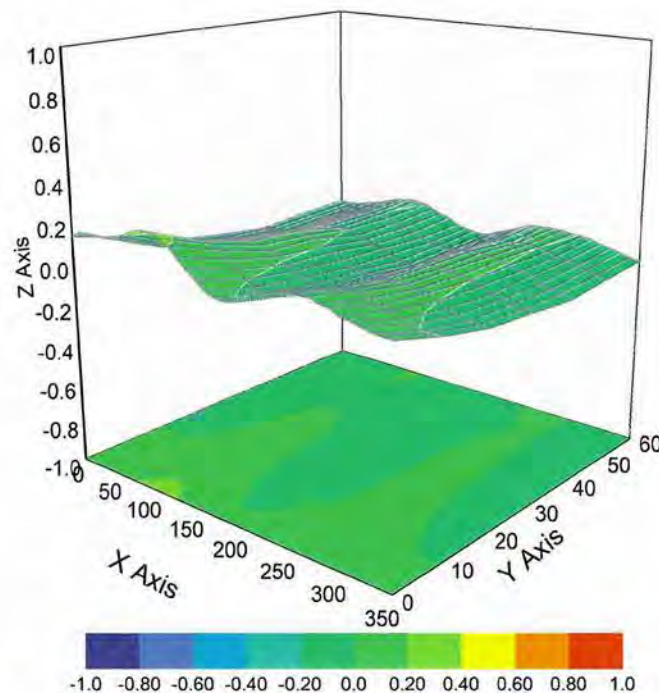
Conversion Factor Assessment

f=750 MHz,WGLS R9(H_convF)

f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: $\pm 3.2\%$ ($k=2$)



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<http://www.caict.ac.cn>**Appendix: Modulation Calibration Parameters**

UID	Rev	Communication System Name	Group	PAR (dB)	UncE (k=2)
0		CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 %
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	± 9.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	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	6.56	± 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 (GFSK, DH1)	Bluetooth	5.30	± 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	± 9.6 %
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6 %
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6 %
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	± 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-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, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, 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, 1.28 Mcps)	TD-SCDMA	11.01	± 9.6 %
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	± 9.6 %
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	± 9.6 %
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	± 9.6 %
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	± 9.6 %
10062	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	± 9.6 %
10063	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	± 9.6 %
10064	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	± 9.6 %
10065	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	± 9.6 %
10066	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	± 9.6 %
10067	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	± 9.6 %
10068	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10069	CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	± 9.6 %
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	± 9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	± 9.6 %
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	± 9.6 %
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	± 9.6 %
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	± 9.6 %
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	± 9.6 %
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	± 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	± 9.6 %
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	± 9.6 %
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	± 9.6 %
10097	CAC	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	DAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %
10099	CAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAC	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %



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10102	CAB	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	DAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %
10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAG	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAG	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAG	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAG	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAD	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAD	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAC	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAC	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAF	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAF	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAG	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 %
10167	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 %
10168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAG	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAF	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	AAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10181	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	CAG	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAI	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	CAG	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %



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10187	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAE	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	AAD	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAE	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAE	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	AAE	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAF	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAF	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %
10220	AAF	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAD	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAD	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAD	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	DAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAB	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAD	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAG	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAB	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 %
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAD	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %
10260	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %
10261	CAG	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10266	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %



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10269	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAB	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAD	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAD	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAD	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAG	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	CAG	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	CAG	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	CAG	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	CAG	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	CAG	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	CAF	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %
10300	CAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10301	CAC	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	WiMAX	12.03	± 9.6 %
10302	CAB	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3CTRL)	WiMAX	12.57	± 9.6 %
10303	CAB	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	12.52	± 9.6 %
10304	CAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	WiMAX	11.86	± 9.6 %
10305	CAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	15.24	± 9.6 %
10306	CAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC)	WiMAX	14.67	± 9.6 %
10307	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC)	WiMAX	14.49	± 9.6 %
10308	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	WiMAX	14.46	± 9.6 %
10309	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3)	WiMAX	14.58	± 9.6 %
10310	AAB	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3)	WiMAX	14.57	± 9.6 %
10311	AAB	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	± 9.6 %
10313	AAD	iDEN 1:3	iDEN	10.51	± 9.6 %
10314	AAD	iDEN 1:6	iDEN	13.48	± 9.6 %
10315	AAD	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc dc)	WLAN	1.71	± 9.6 %
10316	AAD	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	± 9.6 %
10317	AAA	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc dc)	WLAN	8.36	± 9.6 %
10352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	± 9.6 %
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	6.99	± 9.6 %
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	± 9.6 %
10355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2.22	± 9.6 %
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	± 9.6 %
10387	AAA	QPSK Waveform, 1 MHz	Generic	5.10	± 9.6 %
10388	AAA	QPSK Waveform, 10 MHz	Generic	5.22	± 9.6 %
10396	AAA	64-QAM Waveform, 100 kHz	Generic	6.27	± 9.6 %
10399	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	± 9.6 %
10400	AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc dc)	WLAN	8.37	± 9.6 %
10401	AAA	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc dc)	WLAN	8.60	± 9.6 %
10402	AAA	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc dc)	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	AAD	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	± 9.6 %
10410	AAA	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub=2,3,4,7,8,9)	LTE-TDD	7.82	± 9.6 %
10414	AAA	WLAN CCDF, 64-QAM, 40MHz	Generic	8.54	± 9.6 %
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc dc)	WLAN	1.54	± 9.6 %
10416	AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10417	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Long)	WLAN	8.14	± 9.6 %
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc, Short)	WLAN	8.19	± 9.6 %
10422	AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	± 9.6 %
10423	AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	± 9.6 %
10424	AAE	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	± 9.6 %
10425	AAE	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	± 9.6 %
10426	AAE	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	± 9.6 %



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10427	AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	± 9.6 %
10430	AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	± 9.6 %
10431	AAC	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	± 9.6 %
10432	AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10433	AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	± 9.6 %
10434	AAG	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	± 9.6 %
10435	AAA	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10447	AAA	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	± 9.6 %
10448	AAA	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.53	± 9.6 %
10449	AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.51	± 9.6 %
10450	AAA	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	± 9.6 %
10451	AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	± 9.6 %
10453	AAC	Validation (Square, 10ms, 1ms)	Test	10.00	± 9.6 %
10456	AAC	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc dc)	WLAN	8.63	± 9.6 %
10457	AAC	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	± 9.6 %
10458	AAC	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	± 9.6 %
10459	AAC	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	± 9.6 %
10460	AAC	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	± 9.6 %
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.30	± 9.6 %
10463	AAD	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10465	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10466	AAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10467	AAA	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10468	AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10469	AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.56	± 9.6 %
10470	AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10471	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10472	AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10473	AAA	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.82	± 9.6 %
10474	AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10475	AAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10477	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.32	± 9.6 %
10478	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.57	± 9.6 %
10479	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10480	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.18	± 9.6 %
10481	AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10482	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.71	± 9.6 %
10483	AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, Sub)	LTE-TDD	8.39	± 9.6 %
10484	AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.47	± 9.6 %
10485	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.59	± 9.6 %
10486	AAB	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.38	± 9.6 %
10487	AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.60	± 9.6 %
10488	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.70	± 9.6 %
10489	AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10490	AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10491	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.41	± 9.6 %
10493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10494	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10495	AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.37	± 9.6 %
10496	AAE	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10497	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10498	AAE	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Sub)	LTE-TDD	8.40	± 9.6 %
10499	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Sub)	LTE-TDD	8.68	± 9.6 %
10500	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Sub)	LTE-TDD	7.67	± 9.6 %
10501	AAF	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Sub)	LTE-TDD	8.44	± 9.6 %
10502	AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Sub)	LTE-TDD	8.52	± 9.6 %



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10503	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Sub)	LTE-TDD	7.72	± 9.6 %
10504	AAB	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Sub)	LTE-TDD	8.31	± 9.6 %
10505	AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Sub)	LTE-TDD	8.54	± 9.6 %
10506	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10507	AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Sub)	LTE-TDD	8.36	± 9.6 %
10508	AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Sub)	LTE-TDD	8.55	± 9.6 %
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Sub)	LTE-TDD	7.99	± 9.6 %
10510	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Sub)	LTE-TDD	8.49	± 9.6 %
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Sub)	LTE-TDD	8.51	± 9.6 %
10512	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Sub)	LTE-TDD	7.74	± 9.6 %
10513	AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Sub)	LTE-TDD	8.42	± 9.6 %
10514	AAE	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Sub)	LTE-TDD	8.45	± 9.6 %
10515	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10516	AAE	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc dc)	WLAN	1.57	± 9.6 %
10517	AAF	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc dc)	WLAN	1.58	± 9.6 %
10518	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc dc)	WLAN	8.23	± 9.6 %
10519	AAF	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc dc)	WLAN	8.39	± 9.6 %
10520	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc dc)	WLAN	8.12	± 9.6 %
10521	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc dc)	WLAN	7.97	± 9.6 %
10522	AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %
10523	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc dc)	WLAN	8.08	± 9.6 %
10524	AAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc dc)	WLAN	8.27	± 9.6 %
10525	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc dc)	WLAN	8.36	± 9.6 %
10526	AAF	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc dc)	WLAN	8.42	± 9.6 %
10527	AAF	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc dc)	WLAN	8.21	± 9.6 %
10528	AAF	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc dc)	WLAN	8.36	± 9.6 %
10529	AAF	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc dc)	WLAN	8.36	± 9.6 %
10531	AAF	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc dc)	WLAN	8.43	± 9.6 %
10532	AAF	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10533	AAE	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc dc)	WLAN	8.38	± 9.6 %
10534	AAE	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc dc)	WLAN	8.45	± 9.6 %
10535	AAE	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc dc)	WLAN	8.45	± 9.6 %
10536	AAF	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc dc)	WLAN	8.32	± 9.6 %
10537	AAF	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc dc)	WLAN	8.44	± 9.6 %
10538	AAF	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc dc)	WLAN	8.54	± 9.6 %
10540	AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc dc)	WLAN	8.39	± 9.6 %
10541	AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc dc)	WLAN	8.46	± 9.6 %
10542	AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc dc)	WLAN	8.65	± 9.6 %
10543	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc dc)	WLAN	8.65	± 9.6 %
10544	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc dc)	WLAN	8.47	± 9.6 %
10545	AAC	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %
10546	AAC	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc dc)	WLAN	8.35	± 9.6 %
10547	AAC	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc dc)	WLAN	8.49	± 9.6 %
10548	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc dc)	WLAN	8.37	± 9.6 %
10550	AAC	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc dc)	WLAN	8.38	± 9.6 %
10551	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc dc)	WLAN	8.50	± 9.6 %
10552	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc dc)	WLAN	8.42	± 9.6 %
10553	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc dc)	WLAN	8.45	± 9.6 %
10554	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc dc)	WLAN	8.48	± 9.6 %
10555	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc dc)	WLAN	8.47	± 9.6 %
10556	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc dc)	WLAN	8.50	± 9.6 %
10557	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc dc)	WLAN	8.52	± 9.6 %
10558	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc dc)	WLAN	8.61	± 9.6 %
10560	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc dc)	WLAN	8.73	± 9.6 %
10561	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc dc)	WLAN	8.56	± 9.6 %
10562	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc dc)	WLAN	8.69	± 9.6 %
10563	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc dc)	WLAN	8.77	± 9.6 %
10564	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc dc)	WLAN	8.25	± 9.6 %
10565	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc dc)	WLAN	8.45	± 9.6 %



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10566	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc dc)	WLAN	8.13	± 9.6 %
10567	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc dc)	WLAN	8.00	± 9.6 %
10568	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc dc)	WLAN	8.37	± 9.6 %
10569	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc dc)	WLAN	8.10	± 9.6 %
10570	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc dc)	WLAN	8.30	± 9.6 %
10571	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10572	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc dc)	WLAN	1.99	± 9.6 %
10573	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10574	AAC	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc dc)	WLAN	1.98	± 9.6 %
10575	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10576	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10577	AAC	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10578	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10579	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10580	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10581	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10582	AAD	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10583	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc dc)	WLAN	8.59	± 9.6 %
10584	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc dc)	WLAN	8.60	± 9.6 %
10585	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc dc)	WLAN	8.70	± 9.6 %
10586	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc dc)	WLAN	8.49	± 9.6 %
10587	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc dc)	WLAN	8.36	± 9.6 %
10588	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc dc)	WLAN	8.76	± 9.6 %
10589	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc dc)	WLAN	8.35	± 9.6 %
10590	AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc dc)	WLAN	8.67	± 9.6 %
10591	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc dc)	WLAN	8.63	± 9.6 %
10592	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10593	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc dc)	WLAN	8.64	± 9.6 %
10594	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10595	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc dc)	WLAN	8.74	± 9.6 %
10596	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc dc)	WLAN	8.71	± 9.6 %
10597	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc dc)	WLAN	8.72	± 9.6 %
10598	AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc dc)	WLAN	8.50	± 9.6 %
10599	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc dc)	WLAN	8.79	± 9.6 %
10600	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10601	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc dc)	WLAN	8.82	± 9.6 %
10602	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc dc)	WLAN	8.94	± 9.6 %
10603	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc dc)	WLAN	9.03	± 9.6 %
10604	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc dc)	WLAN	8.76	± 9.6 %
10605	AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc dc)	WLAN	8.97	± 9.6 %
10606	AAC	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10607	AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc dc)	WLAN	8.64	± 9.6 %
10608	AAC	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc dc)	WLAN	8.77	± 9.6 %
10609	AAC	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc dc)	WLAN	8.57	± 9.6 %
10610	AAC	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc dc)	WLAN	8.78	± 9.6 %
10611	AAC	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10612	AAC	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10613	AAC	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc dc)	WLAN	8.94	± 9.6 %
10614	AAC	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc dc)	WLAN	8.59	± 9.6 %
10615	AAC	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10616	AAC	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc dc)	WLAN	8.82	± 9.6 %
10617	AAC	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc dc)	WLAN	8.81	± 9.6 %
10618	AAC	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc dc)	WLAN	8.58	± 9.6 %
10619	AAC	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc dc)	WLAN	8.86	± 9.6 %
10620	AAC	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc dc)	WLAN	8.87	± 9.6 %
10621	AAC	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10622	AAC	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc dc)	WLAN	8.68	± 9.6 %
10623	AAC	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc dc)	WLAN	8.82	± 9.6 %
10624	AAC	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc dc)	WLAN	8.96	± 9.6 %



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10625	AAC	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc dc)	WLAN	8.96	± 9.6 %
10626	AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10627	AAC	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc dc)	WLAN	8.88	± 9.6 %
10628	AAC	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc dc)	WLAN	8.71	± 9.6 %
10629	AAC	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10630	AAC	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc dc)	WLAN	8.72	± 9.6 %
10631	AAC	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc dc)	WLAN	8.81	± 9.6 %
10632	AAC	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10633	AAC	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc dc)	WLAN	8.83	± 9.6 %
10634	AAC	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc dc)	WLAN	8.80	± 9.6 %
10635	AAC	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10636	AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc dc)	WLAN	8.83	± 9.6 %
10637	AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc dc)	WLAN	8.79	± 9.6 %
10638	AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc dc)	WLAN	8.86	± 9.6 %
10639	AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc dc)	WLAN	8.85	± 9.6 %
10640	AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc dc)	WLAN	8.98	± 9.6 %
10641	AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc dc)	WLAN	9.06	± 9.6 %
10642	AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc dc)	WLAN	9.06	± 9.6 %
10643	AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc dc)	WLAN	8.89	± 9.6 %
10644	AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc dc)	WLAN	9.05	± 9.6 %
10645	AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc dc)	WLAN	9.11	± 9.6 %
10646	AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10647	AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2,7)	LTE-TDD	11.96	± 9.6 %
10648	AAC	CDMA2000 (1x Advanced)	CDMA2000	3.45	± 9.6 %
10652	AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	± 9.6 %
10653	AAC	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	± 9.6 %
10654	AAC	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	± 9.6 %
10655	AAC	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	± 9.6 %
10658	AAC	Pulse Waveform (200Hz, 10%)	Test	10.00	± 9.6 %
10659	AAC	Pulse Waveform (200Hz, 20%)	Test	6.99	± 9.6 %
10660	AAC	Pulse Waveform (200Hz, 40%)	Test	3.98	± 9.6 %
10661	AAC	Pulse Waveform (200Hz, 60%)	Test	2.22	± 9.6 %
10662	AAC	Pulse Waveform (200Hz, 80%)	Test	0.97	± 9.6 %
10670	AAC	Bluetooth Low Energy	Bluetooth	2.19	± 9.6 %
10671	AAD	IEEE 802.11ax (20MHz, MCS0, 90pc dc)	WLAN	9.09	± 9.6 %
10672	AAD	IEEE 802.11ax (20MHz, MCS1, 90pc dc)	WLAN	8.57	± 9.6 %
10673	AAD	IEEE 802.11ax (20MHz, MCS2, 90pc dc)	WLAN	8.78	± 9.6 %
10674	AAD	IEEE 802.11ax (20MHz, MCS3, 90pc dc)	WLAN	8.74	± 9.6 %
10675	AAD	IEEE 802.11ax (20MHz, MCS4, 90pc dc)	WLAN	8.90	± 9.6 %
10676	AAD	IEEE 802.11ax (20MHz, MCS5, 90pc dc)	WLAN	8.77	± 9.6 %
10677	AAD	IEEE 802.11ax (20MHz, MCS6, 90pc dc)	WLAN	8.73	± 9.6 %
10678	AAD	IEEE 802.11ax (20MHz, MCS7, 90pc dc)	WLAN	8.78	± 9.6 %
10679	AAD	IEEE 802.11ax (20MHz, MCS8, 90pc dc)	WLAN	8.89	± 9.6 %
10680	AAD	IEEE 802.11ax (20MHz, MCS9, 90pc dc)	WLAN	8.80	± 9.6 %
10681	AAG	IEEE 802.11ax (20MHz, MCS10, 90pc dc)	WLAN	8.62	± 9.6 %
10682	AAF	IEEE 802.11ax (20MHz, MCS11, 90pc dc)	WLAN	8.83	± 9.6 %
10683	AAA	IEEE 802.11ax (20MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10684	AAC	IEEE 802.11ax (20MHz, MCS1, 99pc dc)	WLAN	8.26	± 9.6 %
10685	AAC	IEEE 802.11ax (20MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10686	AAC	IEEE 802.11ax (20MHz, MCS3, 99pc dc)	WLAN	8.28	± 9.6 %
10687	AAE	IEEE 802.11ax (20MHz, MCS4, 99pc dc)	WLAN	8.45	± 9.6 %
10688	AAE	IEEE 802.11ax (20MHz, MCS5, 99pc dc)	WLAN	8.29	± 9.6 %
10689	AAD	IEEE 802.11ax (20MHz, MCS6, 99pc dc)	WLAN	8.55	± 9.6 %
10690	AAE	IEEE 802.11ax (20MHz, MCS7, 99pc dc)	WLAN	8.29	± 9.6 %
10691	AAB	IEEE 802.11ax (20MHz, MCS8, 99pc dc)	WLAN	8.25	± 9.6 %
10692	AAA	IEEE 802.11ax (20MHz, MCS9, 99pc dc)	WLAN	8.29	± 9.6 %
10693	AAA	IEEE 802.11ax (20MHz, MCS10, 99pc dc)	WLAN	8.25	± 9.6 %
10694	AAA	IEEE 802.11ax (20MHz, MCS11, 99pc dc)	WLAN	8.57	± 9.6 %
10695	AAA	IEEE 802.11ax (40MHz, MCS0, 90pc dc)	WLAN	8.78	± 9.6 %



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10696	AAA	IEEE 802.11ax (40MHz, MCS1, 90pc dc)	WLAN	8.91	± 9.6 %
10697	AAA	IEEE 802.11ax (40MHz, MCS2, 90pc dc)	WLAN	8.61	± 9.6 %
10698	AAA	IEEE 802.11ax (40MHz, MCS3, 90pc dc)	WLAN	8.89	± 9.6 %
10699	AAA	IEEE 802.11ax (40MHz, MCS4, 90pc dc)	WLAN	8.82	± 9.6 %
10700	AAA	IEEE 802.11ax (40MHz, MCS5, 90pc dc)	WLAN	8.73	± 9.6 %
10701	AAA	IEEE 802.11ax (40MHz, MCS6, 90pc dc)	WLAN	8.86	± 9.6 %
10702	AAA	IEEE 802.11ax (40MHz, MCS7, 90pc dc)	WLAN	8.70	± 9.6 %
10703	AAA	IEEE 802.11ax (40MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10704	AAA	IEEE 802.11ax (40MHz, MCS9, 90pc dc)	WLAN	8.56	± 9.6 %
10705	AAA	IEEE 802.11ax (40MHz, MCS10, 90pc dc)	WLAN	8.69	± 9.6 %
10706	AAC	IEEE 802.11ax (40MHz, MCS11, 90pc dc)	WLAN	8.66	± 9.6 %
10707	AAC	IEEE 802.11ax (40MHz, MCS0, 99pc dc)	WLAN	8.32	± 9.6 %
10708	AAC	IEEE 802.11ax (40MHz, MCS1, 99pc dc)	WLAN	8.55	± 9.6 %
10709	AAC	IEEE 802.11ax (40MHz, MCS2, 99pc dc)	WLAN	8.33	± 9.6 %
10710	AAC	IEEE 802.11ax (40MHz, MCS3, 99pc dc)	WLAN	8.29	± 9.6 %
10711	AAC	IEEE 802.11ax (40MHz, MCS4, 99pc dc)	WLAN	8.39	± 9.6 %
10712	AAC	IEEE 802.11ax (40MHz, MCS5, 99pc dc)	WLAN	8.67	± 9.6 %
10713	AAC	IEEE 802.11ax (40MHz, MCS6, 99pc dc)	WLAN	8.33	± 9.6 %
10714	AAC	IEEE 802.11ax (40MHz, MCS7, 99pc dc)	WLAN	8.26	± 9.6 %
10715	AAC	IEEE 802.11ax (40MHz, MCS8, 99pc dc)	WLAN	8.45	± 9.6 %
10716	AAC	IEEE 802.11ax (40MHz, MCS9, 99pc dc)	WLAN	8.30	± 9.6 %
10717	AAC	IEEE 802.11ax (40MHz, MCS10, 99pc dc)	WLAN	8.48	± 9.6 %
10718	AAC	IEEE 802.11ax (40MHz, MCS11, 99pc dc)	WLAN	8.24	± 9.6 %
10719	AAC	IEEE 802.11ax (80MHz, MCS0, 90pc dc)	WLAN	8.81	± 9.6 %
10720	AAC	IEEE 802.11ax (80MHz, MCS1, 90pc dc)	WLAN	8.87	± 9.6 %
10721	AAC	IEEE 802.11ax (80MHz, MCS2, 90pc dc)	WLAN	8.76	± 9.6 %
10722	AAC	IEEE 802.11ax (80MHz, MCS3, 90pc dc)	WLAN	8.55	± 9.6 %
10723	AAC	IEEE 802.11ax (80MHz, MCS4, 90pc dc)	WLAN	8.70	± 9.6 %
10724	AAC	IEEE 802.11ax (80MHz, MCS5, 90pc dc)	WLAN	8.90	± 9.6 %
10725	AAC	IEEE 802.11ax (80MHz, MCS6, 90pc dc)	WLAN	8.74	± 9.6 %
10726	AAC	IEEE 802.11ax (80MHz, MCS7, 90pc dc)	WLAN	8.72	± 9.6 %
10727	AAC	IEEE 802.11ax (80MHz, MCS8, 90pc dc)	WLAN	8.66	± 9.6 %
10728	AAC	IEEE 802.11ax (80MHz, MCS9, 90pc dc)	WLAN	8.65	± 9.6 %
10729	AAC	IEEE 802.11ax (80MHz, MCS10, 90pc dc)	WLAN	8.64	± 9.6 %
10730	AAC	IEEE 802.11ax (80MHz, MCS11, 90pc dc)	WLAN	8.67	± 9.6 %
10731	AAC	IEEE 802.11ax (80MHz, MCS0, 99pc dc)	WLAN	8.42	± 9.6 %
10732	AAC	IEEE 802.11ax (80MHz, MCS1, 99pc dc)	WLAN	8.46	± 9.6 %
10733	AAC	IEEE 802.11ax (80MHz, MCS2, 99pc dc)	WLAN	8.40	± 9.6 %
10734	AAC	IEEE 802.11ax (80MHz, MCS3, 99pc dc)	WLAN	8.25	± 9.6 %
10735	AAC	IEEE 802.11ax (80MHz, MCS4, 99pc dc)	WLAN	8.33	± 9.6 %
10736	AAC	IEEE 802.11ax (80MHz, MCS5, 99pc dc)	WLAN	8.27	± 9.6 %
10737	AAC	IEEE 802.11ax (80MHz, MCS6, 99pc dc)	WLAN	8.36	± 9.6 %
10738	AAC	IEEE 802.11ax (80MHz, MCS7, 99pc dc)	WLAN	8.42	± 9.6 %
10739	AAC	IEEE 802.11ax (80MHz, MCS8, 99pc dc)	WLAN	8.29	± 9.6 %
10740	AAC	IEEE 802.11ax (80MHz, MCS9, 99pc dc)	WLAN	8.48	± 9.6 %
10741	AAC	IEEE 802.11ax (80MHz, MCS10, 99pc dc)	WLAN	8.40	± 9.6 %
10742	AAC	IEEE 802.11ax (80MHz, MCS11, 99pc dc)	WLAN	8.43	± 9.6 %
10743	AAC	IEEE 802.11ax (160MHz, MCS0, 90pc dc)	WLAN	8.94	± 9.6 %
10744	AAC	IEEE 802.11ax (160MHz, MCS1, 90pc dc)	WLAN	9.16	± 9.6 %
10745	AAC	IEEE 802.11ax (160MHz, MCS2, 90pc dc)	WLAN	8.93	± 9.6 %
10746	AAC	IEEE 802.11ax (160MHz, MCS3, 90pc dc)	WLAN	9.11	± 9.6 %
10747	AAC	IEEE 802.11ax (160MHz, MCS4, 90pc dc)	WLAN	9.04	± 9.6 %
10748	AAC	IEEE 802.11ax (160MHz, MCS5, 90pc dc)	WLAN	8.93	± 9.6 %
10749	AAC	IEEE 802.11ax (160MHz, MCS6, 90pc dc)	WLAN	8.90	± 9.6 %
10750	AAC	IEEE 802.11ax (160MHz, MCS7, 90pc dc)	WLAN	8.79	± 9.6 %
10751	AAC	IEEE 802.11ax (160MHz, MCS8, 90pc dc)	WLAN	8.82	± 9.6 %
10752	AAC	IEEE 802.11ax (160MHz, MCS9, 90pc dc)	WLAN	8.81	± 9.6 %
10753	AAC	IEEE 802.11ax (160MHz, MCS10, 90pc dc)	WLAN	9.00	± 9.6 %
10754	AAC	IEEE 802.11ax (160MHz, MCS11, 90pc dc)	WLAN	8.94	± 9.6 %



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10755	AAC	IEEE 802.11ax (160MHz, MCS0, 99pc dc)	WLAN	8.64	± 9.6 %
10756	AAC	IEEE 802.11ax (160MHz, MCS1, 99pc dc)	WLAN	8.77	± 9.6 %
10757	AAC	IEEE 802.11ax (160MHz, MCS2, 99pc dc)	WLAN	8.77	± 9.6 %
10758	AAC	IEEE 802.11ax (160MHz, MCS3, 99pc dc)	WLAN	8.69	± 9.6 %
10759	AAC	IEEE 802.11ax (160MHz, MCS4, 99pc dc)	WLAN	8.58	± 9.6 %
10760	AAC	IEEE 802.11ax (160MHz, MCS5, 99pc dc)	WLAN	8.49	± 9.6 %
10761	AAC	IEEE 802.11ax (160MHz, MCS6, 99pc dc)	WLAN	8.58	± 9.6 %
10762	AAC	IEEE 802.11ax (160MHz, MCS7, 99pc dc)	WLAN	8.49	± 9.6 %
10763	AAC	IEEE 802.11ax (160MHz, MCS8, 99pc dc)	WLAN	8.53	± 9.6 %
10764	AAC	IEEE 802.11ax (160MHz, MCS9, 99pc dc)	WLAN	8.54	± 9.6 %
10765	AAC	IEEE 802.11ax (160MHz, MCS10, 99pc dc)	WLAN	8.54	± 9.6 %
10766	AAC	IEEE 802.11ax (160MHz, MCS11, 99pc dc)	WLAN	8.51	± 9.6 %
10767	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	± 9.6 %
10768	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10769	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10770	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10771	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10772	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	± 9.6 %
10773	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	± 9.6 %
10774	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	± 9.6 %
10775	AAC	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10776	AAC	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10778	AAC	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10780	AAC	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10781	AAC	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	± 9.6 %
10782	AAC	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10783	AAC	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	± 9.6 %
10784	AAC	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	± 9.6 %
10785	AAC	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10786	AAC	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10787	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	± 9.6 %
10788	AAC	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10789	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10790	AAC	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10791	AAC	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	± 9.6 %
10792	AAC	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	± 9.6 %
10793	AAC	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	± 9.6 %
10794	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10795	AAC	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	± 9.6 %
10796	AAC	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	± 9.6 %
10797	AAC	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	± 9.6 %
10798	AAC	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10799	AAC	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10801	AAC	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	± 9.6 %
10802	AAC	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	± 9.6 %
10803	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	± 9.6 %
10805	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10809	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10810	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10812	AAD	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10817	AAD	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10818	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10819	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	± 9.6 %
10820	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	± 9.6 %
10821	AAC	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10822	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %



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10823	AAC	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10824	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	± 9.6 %
10825	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10827	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	± 9.6 %
10828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	± 9.6 %
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10830	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	± 9.6 %
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	± 9.6 %
10832	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	± 9.6 %
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10834	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	± 9.6 %
10835	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	± 9.6 %
10837	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	± 9.6 %
10839	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	± 9.6 %
10840	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	± 9.6 %
10841	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	± 9.6 %
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	± 9.6 %
10844	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10846	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10854	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10856	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	± 9.6 %
10858	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	± 9.6 %
10859	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	± 9.6 %
10860	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10861	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	± 9.6 %
10863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	± 9.6 %
10865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	± 9.6 %
10866	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10868	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	± 9.6 %
10869	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10870	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	± 9.6 %
10871	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10872	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	± 9.6 %
10873	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10874	AAD	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10875	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10876	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	± 9.6 %
10877	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	± 9.6 %
10878	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10879	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	± 9.6 %
10880	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	± 9.6 %
10881	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	± 9.6 %
10882	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	± 9.6 %
10883	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	± 9.6 %
10884	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	± 9.6 %
10885	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	± 9.6 %
10886	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	± 9.6 %
10887	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	± 9.6 %
10888	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	± 9.6 %
10889	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	± 9.6 %
10890	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	± 9.6 %
10891	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	± 9.6 %
10892	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	± 9.6 %
10897	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	± 9.6 %
10898	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %



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10899	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	± 9.6 %
10900	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10901	AAD	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10902	AAD	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10903	AAD	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10904	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10906	AAD	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	± 9.6 %
10907	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	± 9.6 %
10908	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10909	AAD	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	± 9.6 %
10910	AAD	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 9.6 %
10911	AAD	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	± 9.6 %
10912	AAD	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10914	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	± 9.6 %
10915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	± 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	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10919	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	± 9.6 %
10920	AAD	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	± 9.6 %
10921	AAD	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	± 9.6 %
10922	AAD	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	± 9.6 %
10923	AAD	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	AAD	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	5.84	± 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	5.52	± 9.6 %
10929	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10930	AAD	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	± 9.6 %
10931	AAD	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10932	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10933	AAA	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10934	AAA	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10935	AAA	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	± 9.6 %
10936	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10937	AAB	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	± 9.6 %
10938	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	± 9.6 %
10939	AAB	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	± 9.6 %
10940	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	± 9.6 %
10941	AAB	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	± 9.6 %
10942	AAB	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	± 9.6 %
10943	AAB	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	± 9.6 %
10944	AAB	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	± 9.6 %
10945	AAB	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	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10948	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10949	AAB	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	± 9.6 %
10950	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	± 9.6 %
10951	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	± 9.6 %
10952	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	± 9.6 %
10953	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	± 9.6 %
10954	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	± 9.6 %
10955	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	± 9.6 %
10956	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	± 9.6 %
10957	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	± 9.6 %



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10958	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	± 9.6 %
10959	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	± 9.6 %
10960	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	± 9.6 %
10961	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	± 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	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	± 9.6 %
10964	AAB	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	± 9.6 %
10965	AAB	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	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	± 9.6 %
10968	AAB	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	± 9.6 %
10972	AAB	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	± 9.6 %
10973	AAB	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	± 9.6 %
10974	AAB	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.28	± 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 %
10983	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	± 9.6 %
10984	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	± 9.6 %
10985	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	± 9.6 %
10986	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	± 9.6 %
10987	AAC	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	± 9.6 %
10988	AAB	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	± 9.6 %
10989	AAC	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.33	± 9.6 %
10990	AAB	5G NR DL (CP-OFDM, TM 3.1, 90 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.52	± 9.6 %
11003	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	10.24	± 9.6 %
11004	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	10.73	± 9.6 %
11005	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.70	± 9.6 %
11006	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.55	± 9.6 %
11007	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.46	± 9.6 %
11008	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.51	± 9.6 %
11009	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.76	± 9.6 %
11010	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.95	± 9.6 %
11011	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.96	± 9.6 %
11012	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.68	± 9.6 %
11013	AAA	IEEE 802.11be (320MHz, MCS1, 99pc duty cycle)	WLAN	8.47	± 9.6 %
11014	AAA	IEEE 802.11be (320MHz, MCS2, 99pc duty cycle)	WLAN	8.45	± 9.6 %
11015	AAA	IEEE 802.11be (320MHz, MCS3, 99pc duty cycle)	WLAN	8.44	± 9.6 %
11016	AAA	IEEE 802.11be (320MHz, MCS4, 99pc duty cycle)	WLAN	8.44	± 9.6 %
11017	AAA	IEEE 802.11be (320MHz, MCS5, 99pc duty cycle)	WLAN	8.41	± 9.6 %
11018	AAA	IEEE 802.11be (320MHz, MCS6, 99pc duty cycle)	WLAN	8.40	± 9.6 %
11019	AAA	IEEE 802.11be (320MHz, MCS7, 99pc duty cycle)	WLAN	8.29	± 9.6 %
11020	AAA	IEEE 802.11be (320MHz, MCS8, 99pc duty cycle)	WLAN	8.27	± 9.6 %
11021	AAA	IEEE 802.11be (320MHz, MCS9, 99pc duty cycle)	WLAN	8.46	± 9.6 %
11022	AAA	IEEE 802.11be (320MHz, MCS10, 99pc duty cycle)	WLAN	8.36	± 9.6 %
11023	AAA	IEEE 802.11be (320MHz, MCS11, 99pc duty cycle)	WLAN	8.09	± 9.6 %
11024	AAA	IEEE 802.11be (320MHz, MCS12, 99pc duty cycle)	WLAN	8.42	± 9.6 %
11025	AAA	IEEE 802.11be (320MHz, MCS13, 99pc duty cycle)	WLAN	8.37	± 9.6 %
11026	AAA	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.

Client: 7layers

Certificate No: 24J02Z000853

CALIBRATION CERTIFICATE

Object D750V3 - SN: 1200

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: November 7, 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.

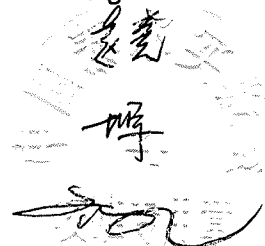
All calibrations have been conducted in the closed laboratory facility: environment temperature (22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7517	21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)	Feb-25
DAE4	SN 1588	13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)	Sep-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

	Name	Function
Calibrated by:	Zhao Jing	SAR Test Engineer
Reviewed by:	Lin Jun	SAR Test Engineer
Approved by:	Qi Dianyuan	SAR Project Leader

Signature



Issued: November 15, 2024

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E-mail: emf@caict.ac.cn

http://www.caict.ac.cn

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:

- a) 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-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- c) DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. 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%.



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<http://www.caict.ac.cn>**Measurement Conditions**

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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	41.7 $\pm$ 6 %	0.90 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.42 W/kg $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	5.55 W/kg $\pm$ 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.5Ω- 5.04jΩ
Return Loss	- 25.2dB

General Antenna Parameters and Design

Electrical Delay (one direction)	0.939 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

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DASY5 Validation Report for Head TSL

Date: 2024-11-07

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1200

Communication System: UID 0, CW; Frequency: 750 MHz

Medium parameters used: $f = 750$ MHz; $\sigma = 0.903$ S/m; $\epsilon_r = 41.65$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(9.85, 9.85, 9.85) @ 750 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.97 V/m; Power Drift = -0.01 dB

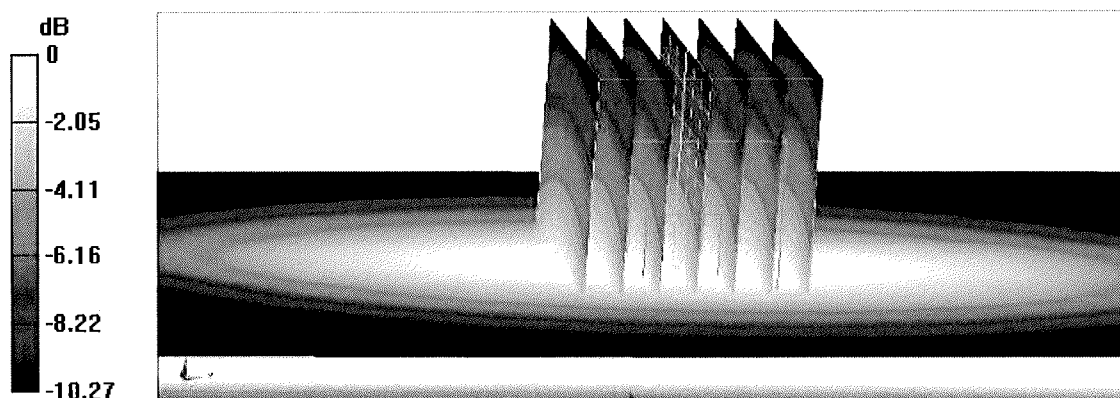
Peak SAR (extrapolated) = 3.39 W/kg

SAR(1 g) = 2.13 W/kg; SAR(10 g) = 1.4 W/kg

Smallest distance from peaks to all points 3 dB below = 17 mm

Ratio of SAR at M2 to SAR at M1 = 63.5%

Maximum value of SAR (measured) = 2.92 W/kg



0 dB = 2.92 W/kg = 4.65 dBW/kg



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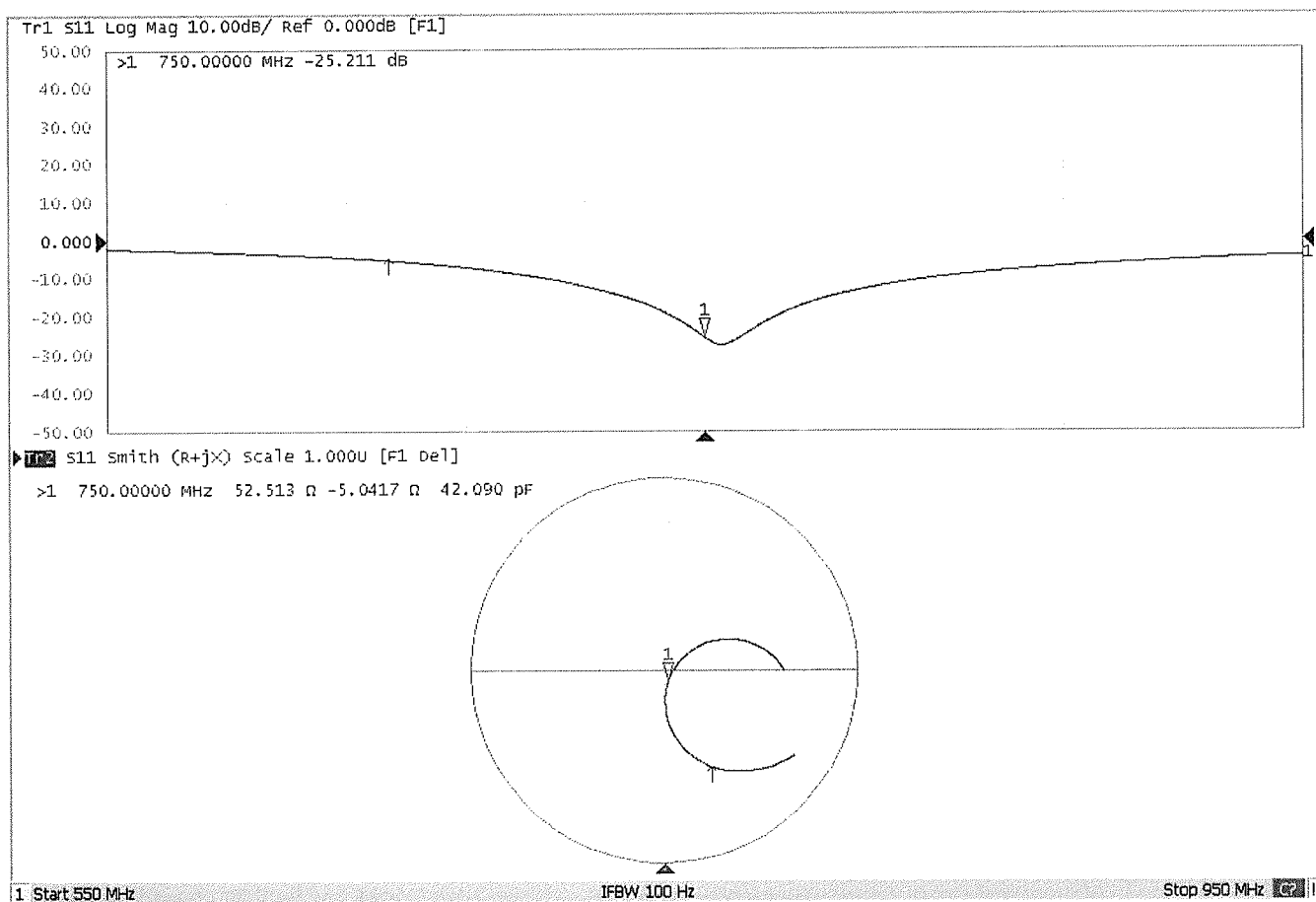
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Impedance Measurement Plot for Head TSL



Client **7layers**

Certificate No: **24J02Z000854**

CALIBRATION CERTIFICATE

Object D835V2 - SN: 4d265

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: November 4, 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&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7517	21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)	Feb-25
DAE4	SN 1588	13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)	Sep-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

	Name	Function
Calibrated by:	Zhao Jing	SAR Test Engineer
Reviewed by:	Lin Jun	SAR Test Engineer
Approved by:	Qi Dianyuan	SAR Project Leader

Signature



Issued: November 15, 2024

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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:

- a) 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-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- c) DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. 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%.



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

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	41.6 $\pm$ 6 %	0.92 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.44W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.63 W/kg $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.60 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	6.33 W/kg $\pm$ 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.4Ω- 1.88jΩ
Return Loss	- 32.1dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.304 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 2024-11-04

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d265

Communication System: UID 0, CW; Frequency: 835 MHz

Medium parameters used: $f = 835$ MHz; $\sigma = 0.916$ S/m; $\epsilon_r = 41.57$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(9.85, 9.85, 9.85) @ 835 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 58.33 V/m; Power Drift = -0.01 dB

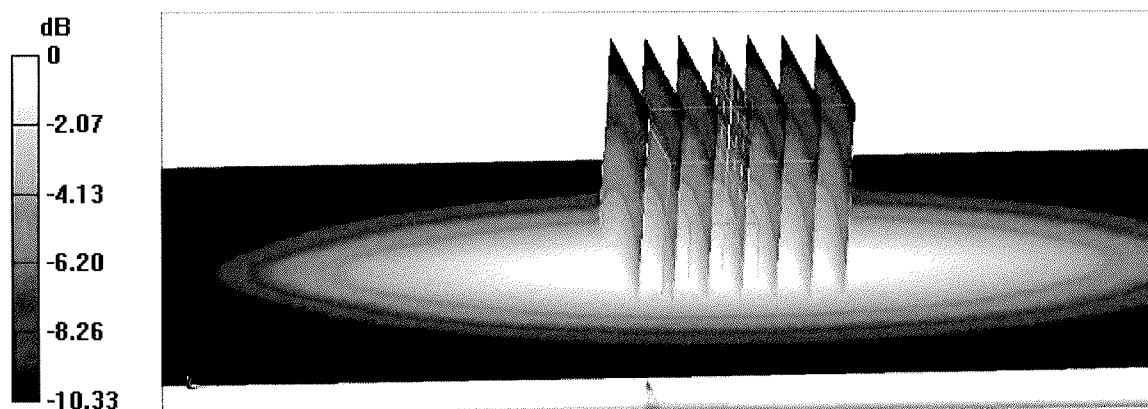
Peak SAR (extrapolated) = 3.87 W/kg

SAR(1 g) = 2.44 W/kg; SAR(10 g) = 1.6 W/kg

Smallest distance from peaks to all points 3 dB below = 17.5 mm

Ratio of SAR at M2 to SAR at M1 = 63.5%

Maximum value of SAR (measured) = 3.35 W/kg



0 dB = 3.35 W/kg = 5.25 dBW/kg



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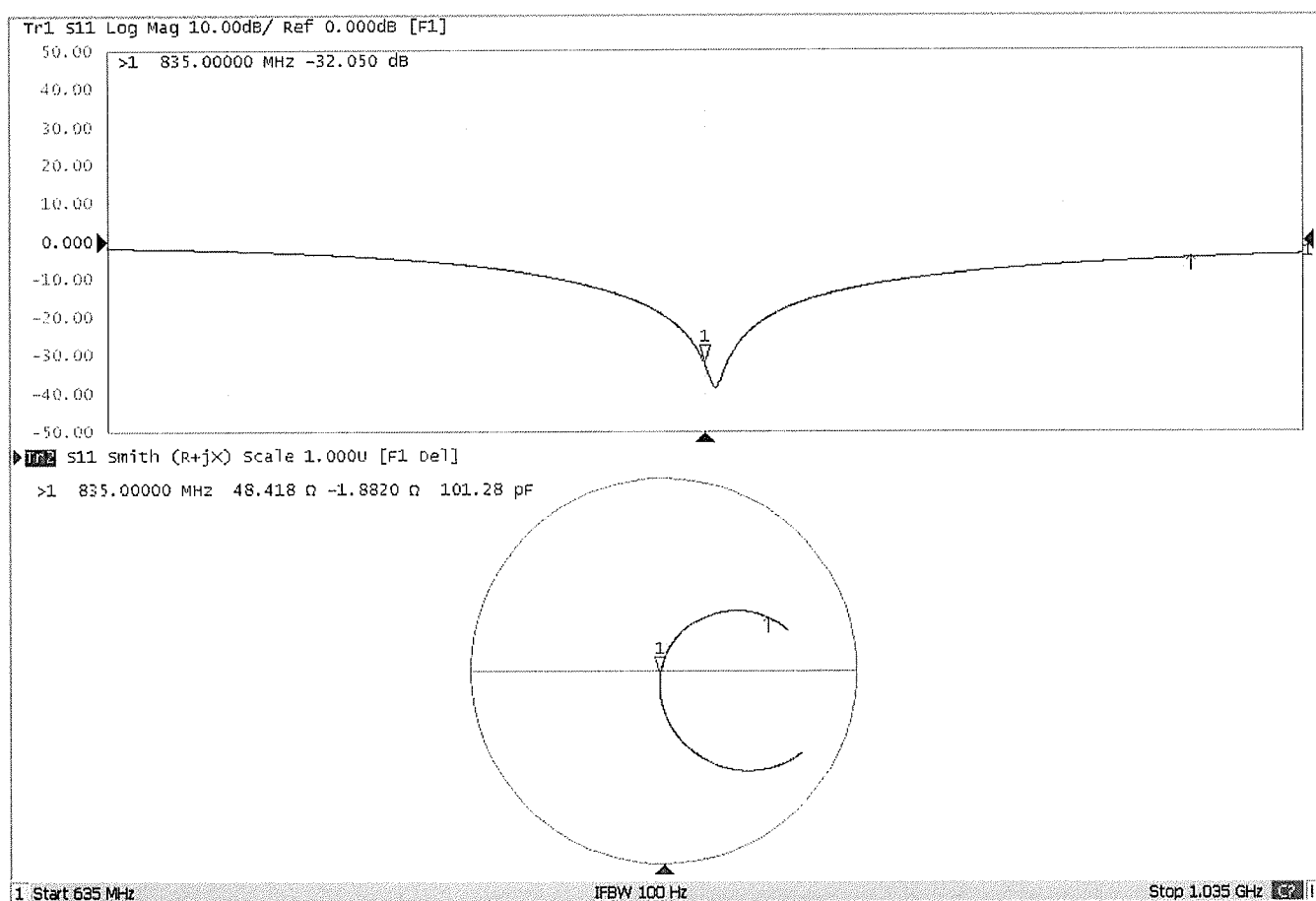
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Tel: +86-10-62304633-2117

E-mail: emf@caict.ac.cn

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Impedance Measurement Plot for Head TSL



Client: 7layers

Certificate No: 24J02Z000857

CALIBRATION CERTIFICATE

Object D1950V3 - SN: 1229

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: November 7, 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&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7517	21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)	Feb-25
DAE4	SN 1588	13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)	Sep-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 15, 2024

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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:

- a) 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-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- c) DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. 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%.



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<http://www.caict.ac.cn>**Measurement Conditions**

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1950 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	40.7 $\pm$ 6 %	1.39 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.8 W/kg $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.18 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	20.9 W/kg $\pm$ 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$47.3\Omega + 2.24j\Omega$
Return Loss	- 28.9dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.098 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 2024-11-07

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1950 MHz; Type: D1950V2; Serial: D1950V2 - SN: 1229

Communication System: UID 0, CW; Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950$ MHz; $\sigma = 1.385$ S/m; $\epsilon_r = 40.68$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.95, 7.95, 7.95) @ 1950 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 103.1 V/m; Power Drift = 0.00 dB

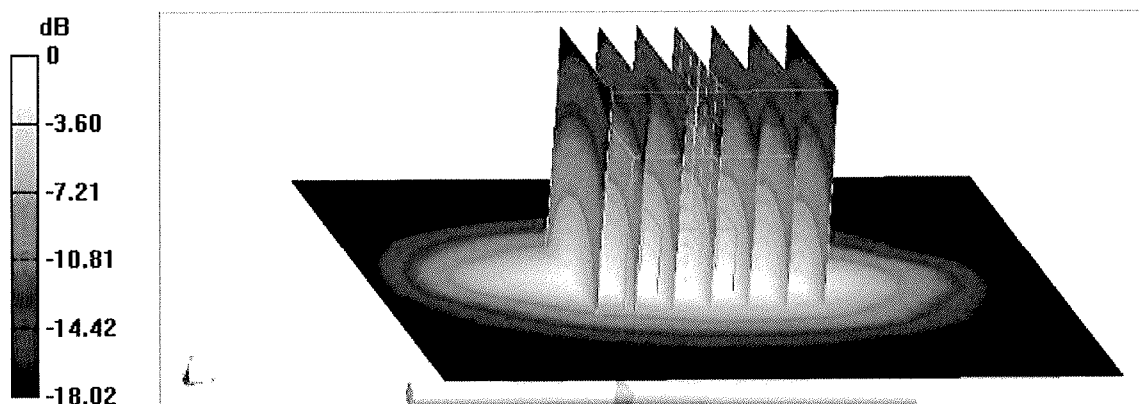
Peak SAR (extrapolated) = 19.3 W/kg

SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.18 W/kg

Smallest distance from peaks to all points 3 dB below = 9.1 mm

Ratio of SAR at M2 to SAR at M1 = 53.3%

Maximum value of SAR (measured) = 15.9 W/kg



0 dB = 15.9 W/kg = 12.01 dBW/kg



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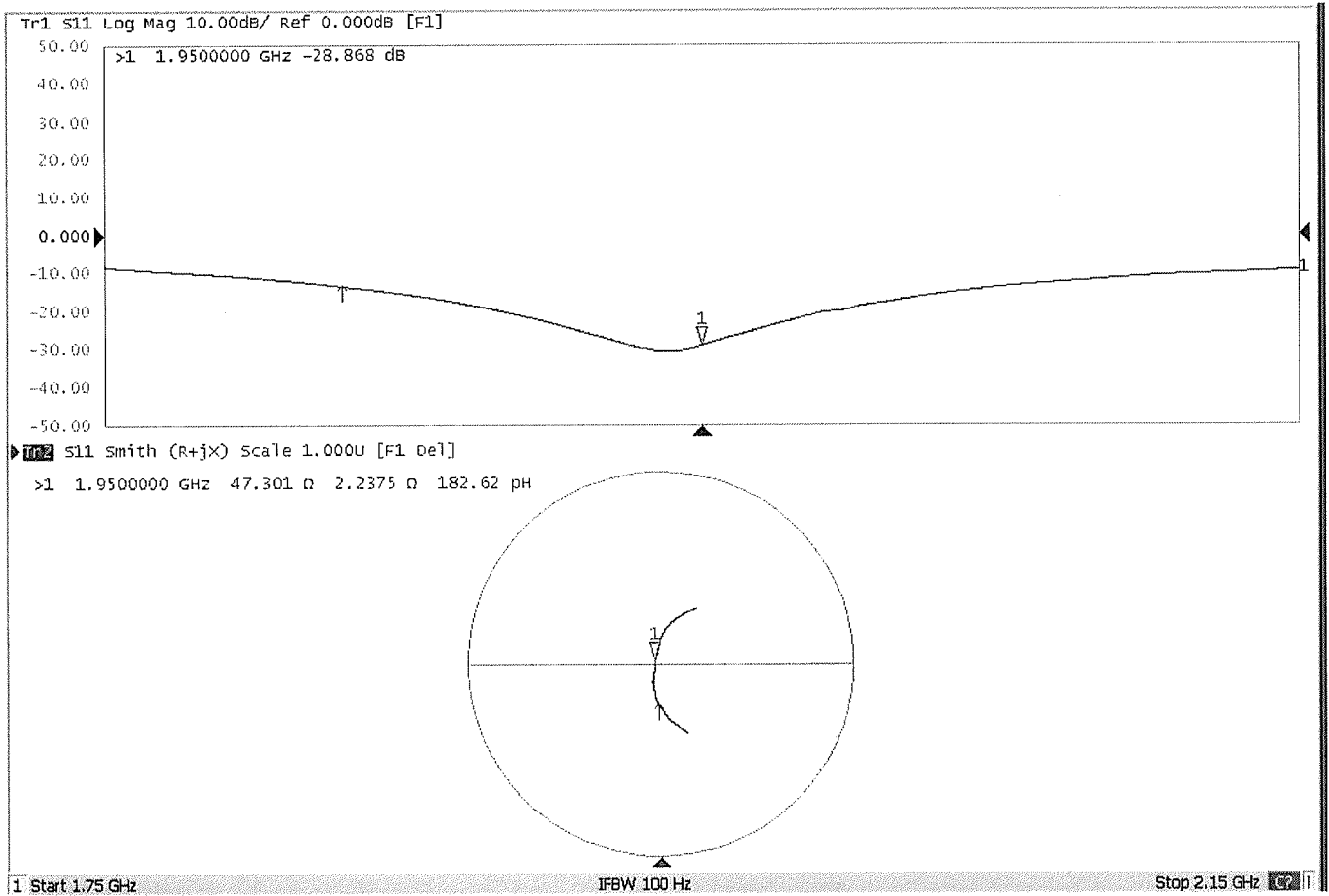
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2117

E-mail: cttl@chinattl.com

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Impedance Measurement Plot for Head TSL



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Client

7layers

Certificate No: 24J02Z000859

CALIBRATION CERTIFICATE

Object D2450V2 - SN: 1048

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

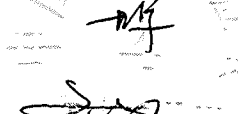
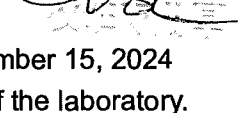
Calibration date: November 6, 2024

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&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7517	21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)	Feb-25
DAE4	SN 1588	13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)	Sep-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 15, 2024

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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-mounted 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:

- DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. 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%.



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<http://www.caict.ac.cn>**Measurement Conditions**

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	40.1 $\pm$ 6 %	1.81 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	53.3 W/kg $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	6.14 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.6 W/kg $\pm$ 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	47.4Ω+ 9.16jΩ
Return Loss	- 20.2dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.059 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 2024-11-06

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 1048

Communication System: UID 0, CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.809$ S/m; $\epsilon_r = 40.08$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(7.37, 7.37, 7.37) @ 2450 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 107.2 V/m; Power Drift = 0.00 dB

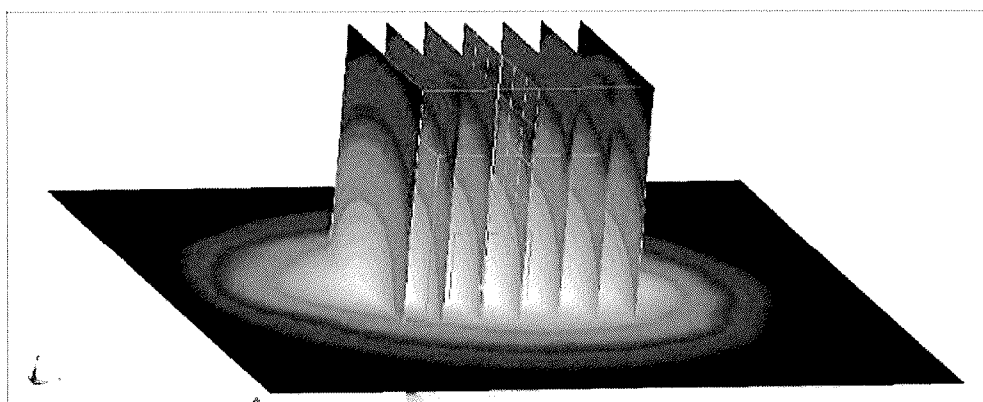
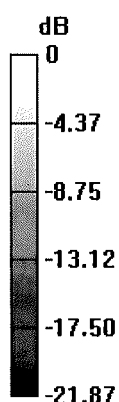
Peak SAR (extrapolated) = 27.1 W/kg

SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.14 W/kg

Smallest distance from peaks to all points 3 dB below = 8.5 mm

Ratio of SAR at M2 to SAR at M1 = 49.5%

Maximum value of SAR (measured) = 22.1 W/kg



0 dB = 22.1 W/kg = 13.44 dBW/kg



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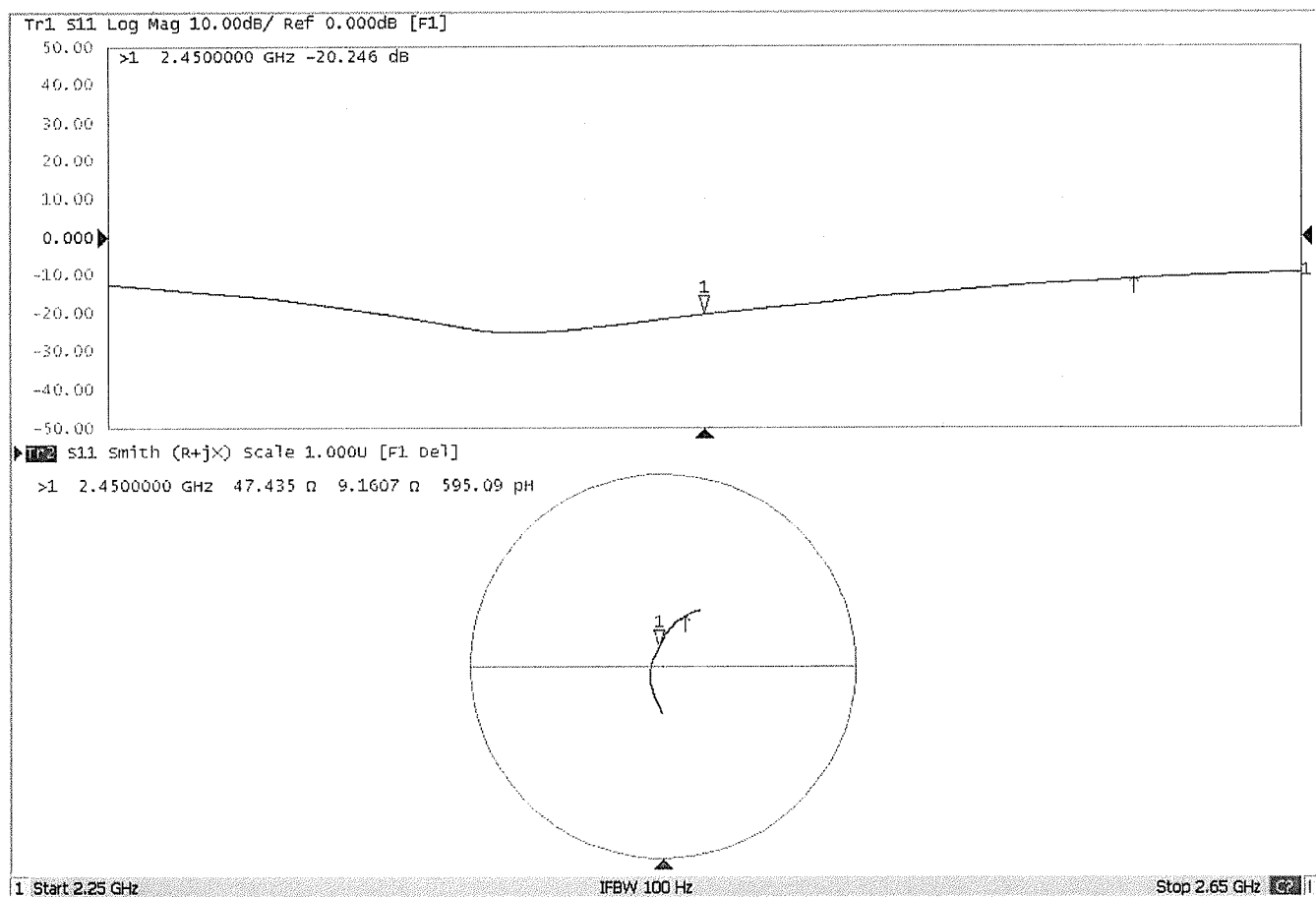
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2117

E-mail: cttl@chinattl.com

<http://www.caict.ac.cn>

Impedance Measurement Plot for Head TSL





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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 **7-Layers (Auden)**

Certificate No: **D2550V2-1022_Sep22**

CALIBRATION CERTIFICATE

Object **D2550V2 - SN:1022**

Calibration procedure(s) **QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**

Calibration date: **September 22, 2022**

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 NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: BH9394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23
Reference Probe EX3DV4	SN: 7349	31-Dec-21 (No. EX3-7349_Dec21)	Dec-22
DAE4	SN: 601	31-Aug-22 (No. DAE4-601_Aug22)	Aug-23
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Sven Kühn	Technical Manager	

Issued: September 23, 2022

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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	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2550 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.1	1.91 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	37.4 $\pm$ 6 %	1.95 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	250 mW input power	13.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	53.0 W/kg $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.2 W/kg $\pm$ 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω - 4.0 j Ω
Return Loss	- 27.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.157 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: 22.09.2022

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2550 MHz; Type: D2550V2; Serial: D2550V2 - SN:1022

Communication System: UID 0 - CW; Frequency: 2550 MHz

Medium parameters used: $f = 2550$ MHz; $\sigma = 1.95$ S/m; $\epsilon_r = 37.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.85, 7.85, 7.85) @ 2550 MHz; Calibrated: 31.12.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 31.08.2022
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 113.1 V/m; Power Drift = 0.06 dB

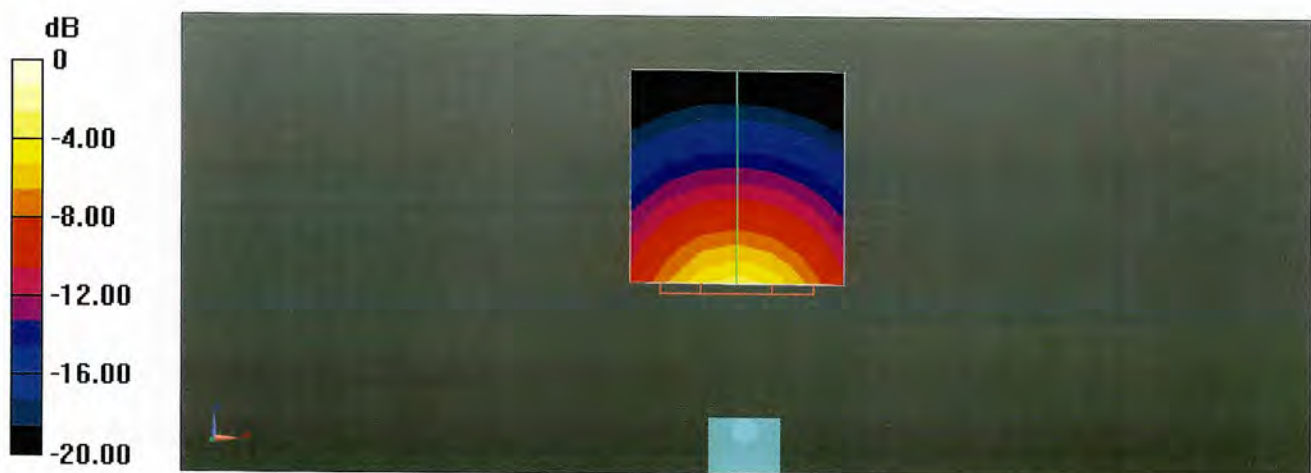
Peak SAR (extrapolated) = 27.5 W/kg

SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.13 W/kg

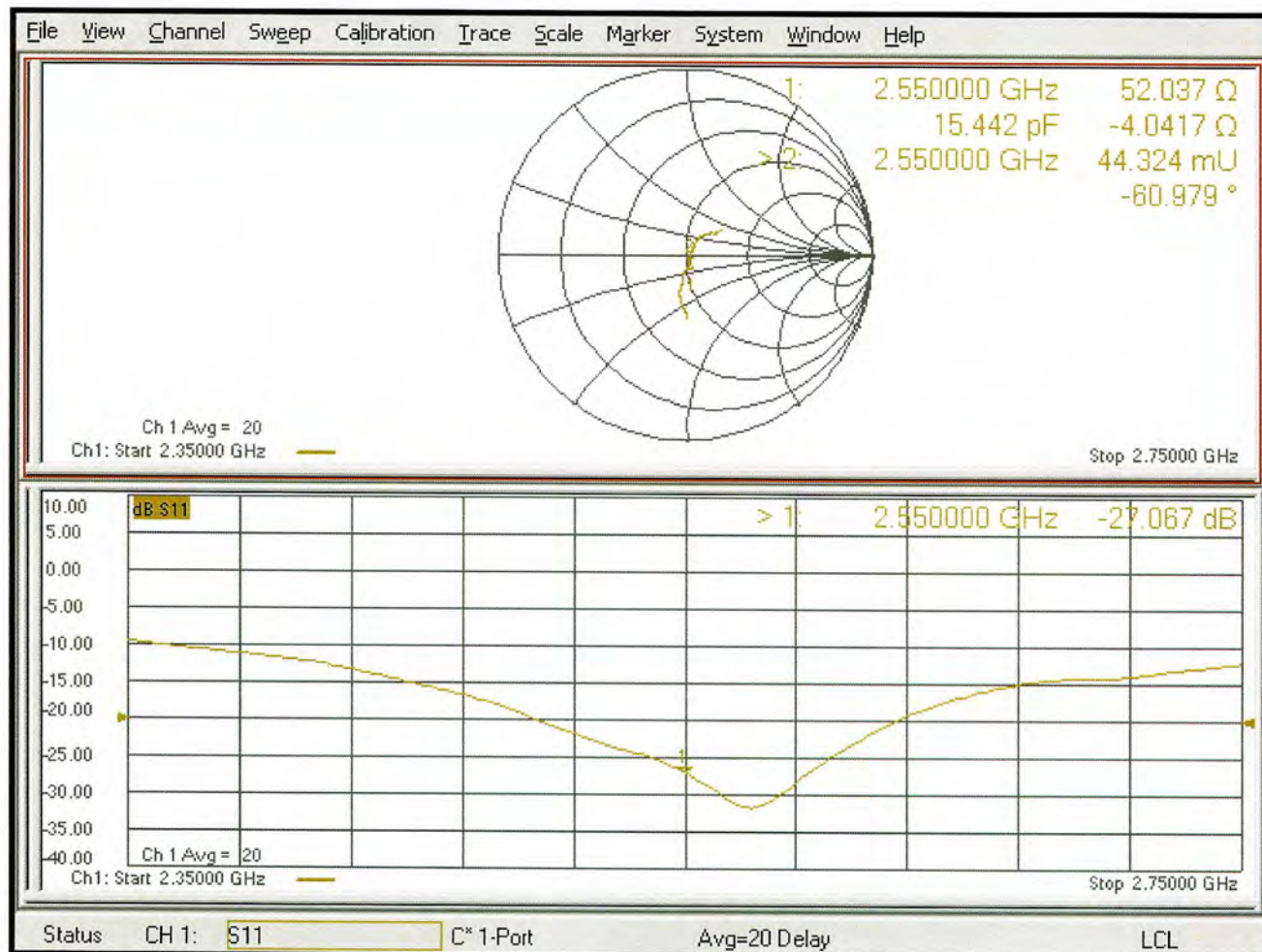
Smallest distance from peaks to all points 3 dB below = 9 mm

Ratio of SAR at M2 to SAR at M1 = 49%

Maximum value of SAR (measured) = 22.6 W/kg



Impedance Measurement Plot for Head TSL



D2550V2 - SN: 1022 Extended Dipole Calibrations

Referring to KDB 865664 D01, if dipoles are verified in return loss ($< -20\text{dB}$, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

D2550V2 - SN: 1022						
2550MHz Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
9.22.2022	-27.1		52		-4	
9.21.2023	-23.13	-14.66	54.77	2.77	-5.52	-1.52

<Justification of the extended calibration>

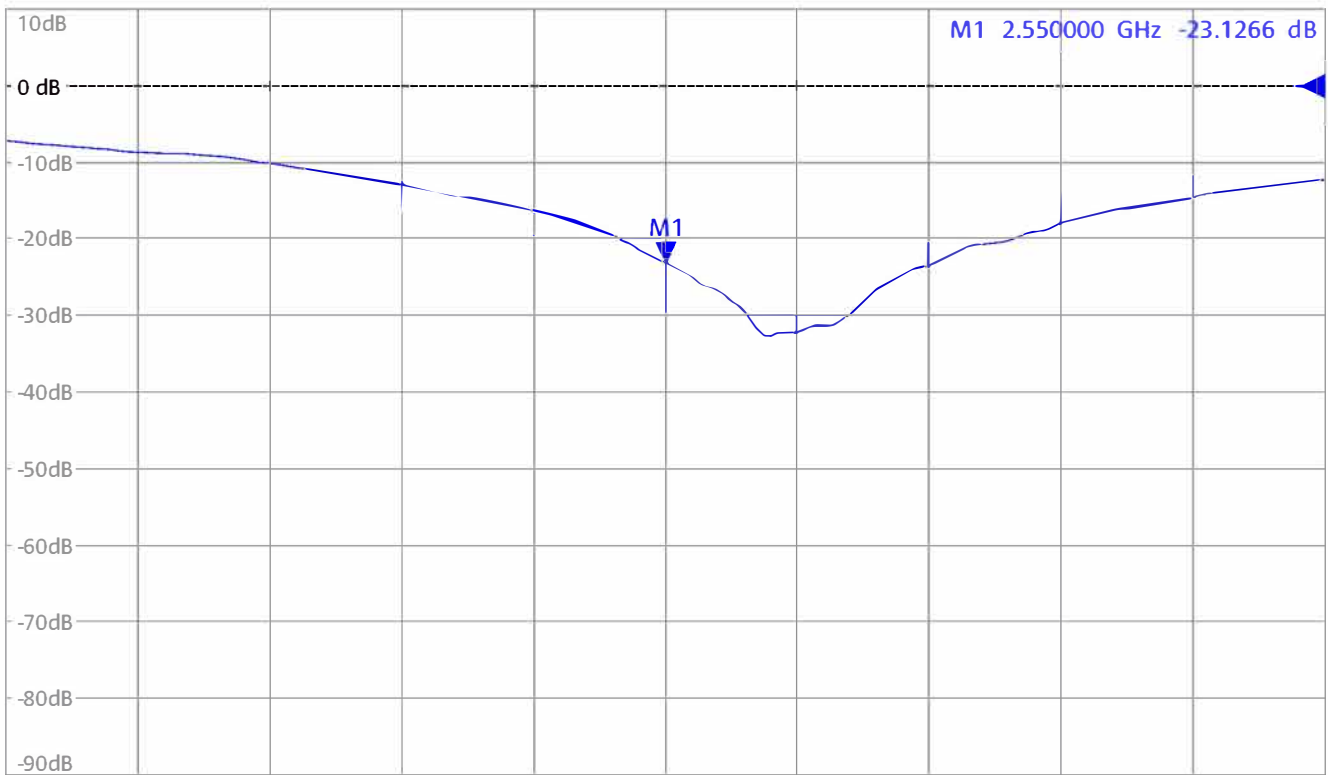
The return loss is $< -20\text{dB}$, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Dipole Verification Data>

Head 2550MHz _2023.09.21

Trc1 — S11 dB Mag 10 dB/ Ref 0 dB Cal

1

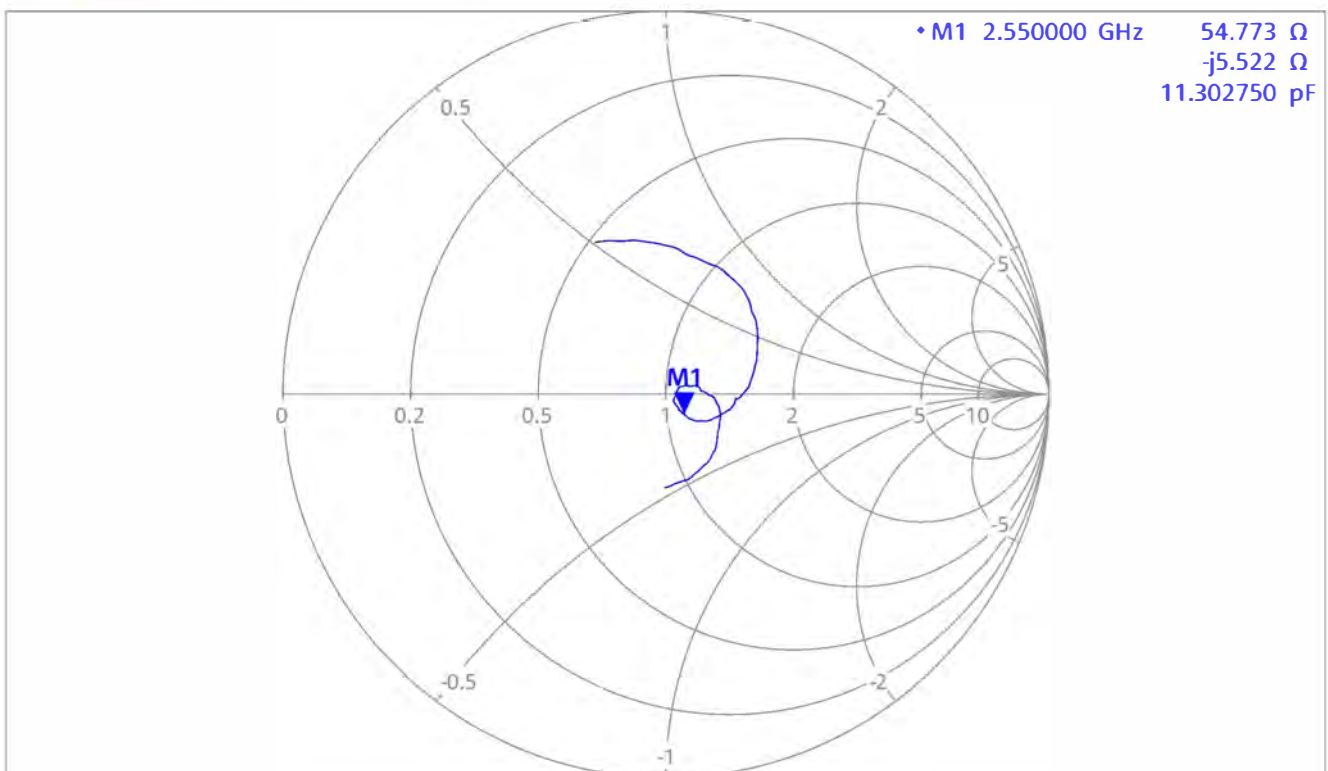


Ch1 Start 2.35 GHz Pwr -10 dBm Bw 10 kHz Refl OSM P1

Stop 2.75 GHz

Trc2 — S11 Smith 200 mU/ Ref 1 U Cal

2



Ch1 Start 2.35 GHz Pwr -10 dBm Bw 10 kHz Refl OSM P1

Stop 2.75 GHz

Client **7layers**

Certificate No: **24J02Z000860**

CALIBRATION CERTIFICATE

Object D3500V2 - SN: 1111

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: November 11, 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&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7517	21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)	Feb-25
DAE4	SN 1588	13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)	Sep-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 15, 2024

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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:

- a) 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-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- c) DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. 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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
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	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	38.0 $\pm$ 6 %	2.80 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	---	---

SAR result with Head TSL at 3400 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.74 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	67.5 W/kg $\pm$ 24.4 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	25.5 W/kg $\pm$ 24.2 % (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	37.8 $\pm$ 6 %	2.92 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	---	---

SAR result with Head TSL at 3500 MHz

SAR averaged over 1 cm³ (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 $\pm$ 24.4 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.48 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.8 W/kg $\pm$ 24.2 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 3400 MHz

Impedance, transformed to feed point	42.4Ω- 0.85jΩ
Return Loss	- 21.6dB

Antenna Parameters with Head TSL at 3500 MHz

Impedance, transformed to feed point	48.6Ω+ 3.70jΩ
Return Loss	- 27.9dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.043 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

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DASY5 Validation Report for Head TSL

Date: 2024-11-11

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 3500 MHz; Type: D3500V2; Serial: D3500V2 - SN: 1111

Communication System: CW; Frequency: 3400 MHz, CW; Frequency: 3500 MHz,

Medium parameters used: $f = 3400$ MHz; $\sigma = 2.8$ S/m; $\epsilon_r = 38.04$; $\rho = 1000$ kg/m³,

Medium parameters used: $f = 3500$ MHz; $\sigma = 2.922$ S/m; $\epsilon_r = 37.75$; $\rho = 1000$ kg/m³,

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(6.95, 6.95, 6.95) @ 3400 MHz; ConvF(6.72, 6.72, 6.72) @ 3500 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 57.90 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 17.0 W/kg

SAR(1 g) = 6.74 W/kg; SAR(10 g) = 2.55 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 77.3%

Maximum value of SAR (measured) = 12.2 W/kg

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

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 56.01 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 16.9 W/kg

SAR(1 g) = 6.58 W/kg; SAR(10 g) = 2.48 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 76.5%

Maximum value of SAR (measured) = 12.1 W/kg



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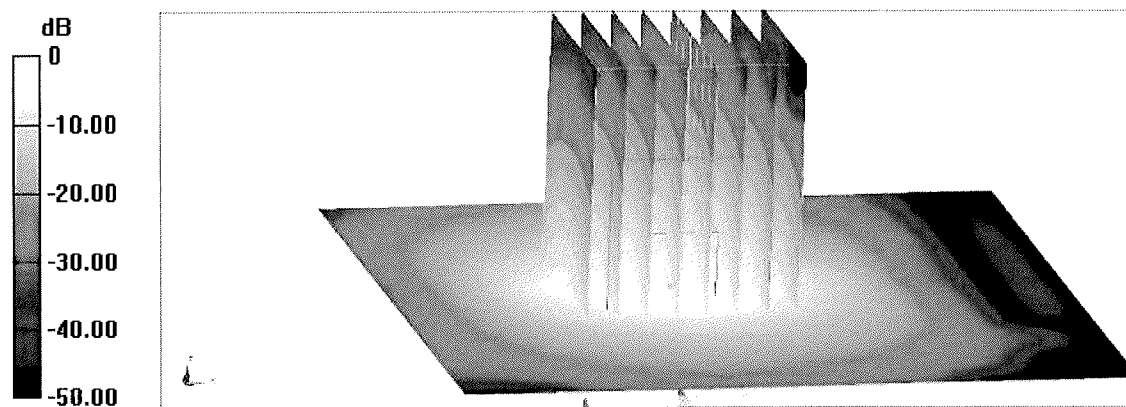
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0 dB = 12.1 W/kg = 10.83 dBW/kg



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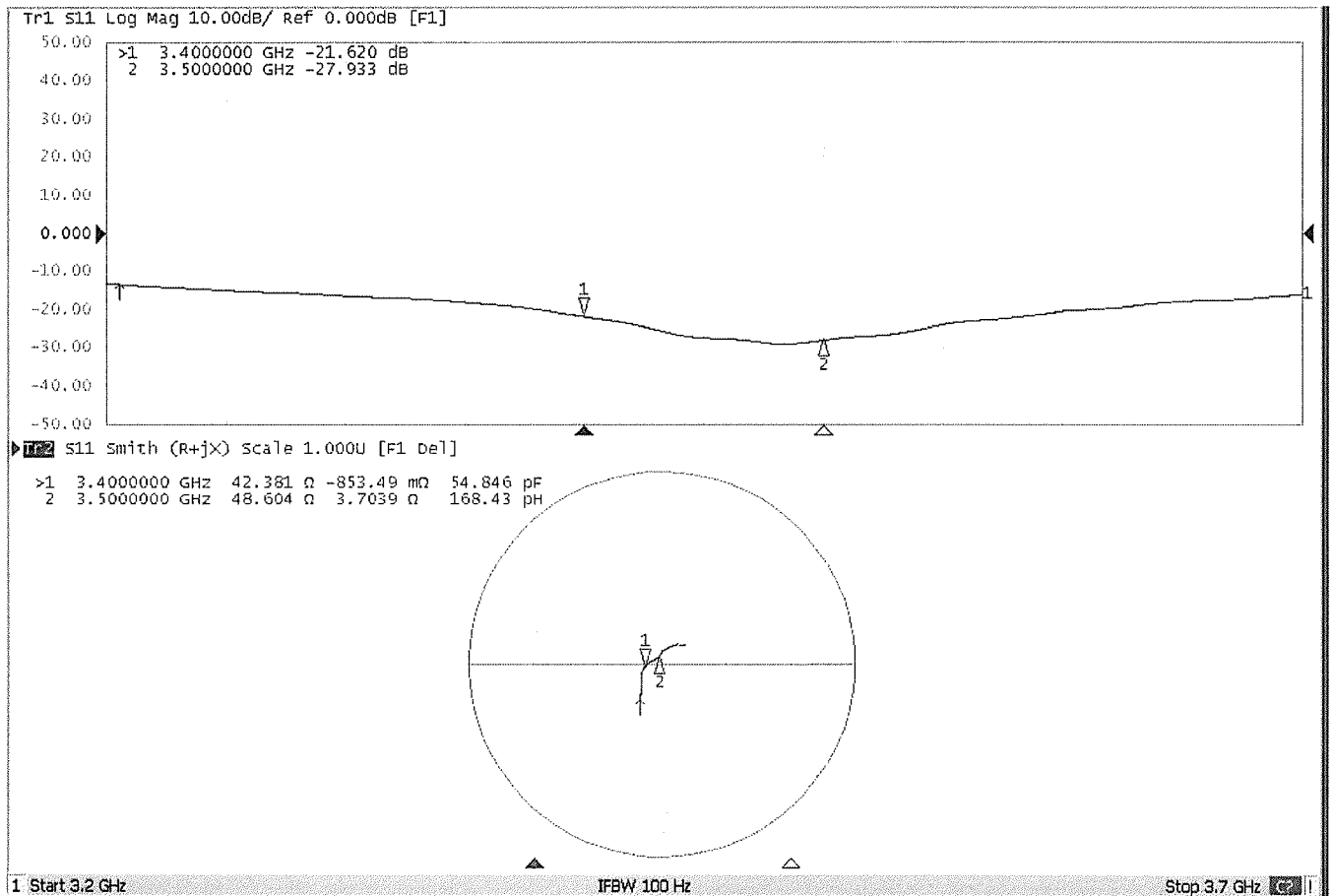
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Impedance Measurement Plot for Head TSL



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Certificate No:

24J02Z000861

CALIBRATION CERTIFICATE

Object D3700V2 - SN: 1082

Calibration Procedure(s)

FF-Z11-003-01

Calibration Procedures for dipole validation kits

Calibration date:

November 8, 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.

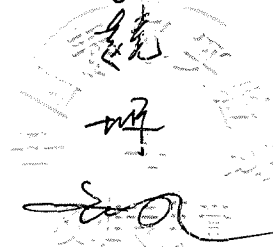
All calibrations have been conducted in the closed laboratory facility: environment temperature $(22\pm3)^{\circ}\text{C}$ and humidity $<70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7517	21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)	Feb-25
DAE4	SN 1588	13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)	Sep-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

	Name	Function
Calibrated by:	Zhao Jing	SAR Test Engineer
Reviewed by:	Lin Jun	SAR Test Engineer
Approved by:	Qi Dianyuan	SAR Project Leader

Signature



Issued: November 15, 2024

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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:

- a) 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-mounted Wireless Communication Devices- Part 1528: Human Models, Instrumentation and Procedures (Frequency range of 4 MHz to 10 GHz)", October 2020
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

- c) DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. 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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
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 at 3700 MHz

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	37.0 $\pm$ 6 %	3.11 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 3700 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.68 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	66.6 W/kg $\pm$ 24.4 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.43 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.2 W/kg $\pm$ 24.2 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 3700 MHz

Impedance, transformed to feed point	44.6Ω+ 2.53jΩ
Return Loss	- 24.0dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.048 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

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DASY5 Validation Report for Head TSL

Date: 2024-11-08

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 - SN: 1082

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

Medium parameters used: $f = 3700$ MHz; $\sigma = 3.108$ S/m; $\epsilon_r = 37.04$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(6.56, 6.56, 6.56) @ 3700 MHz;
Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial:
1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

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

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 67.22 V/m; Power Drift = -0.02 dB

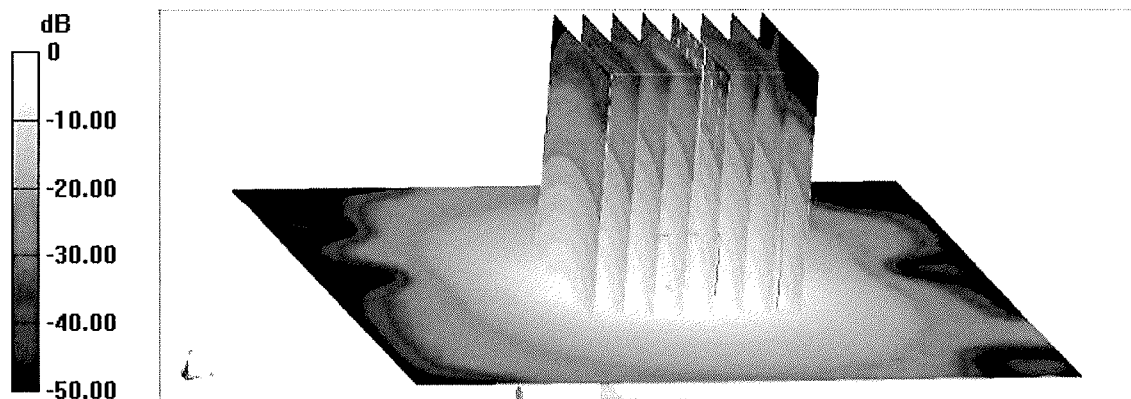
Peak SAR (extrapolated) = 18.1 W/kg

SAR(1 g) = 6.68 W/kg; SAR(10 g) = 2.43 W/kg

Smallest distance from peaks to all points 3 dB below = 7.9 mm

Ratio of SAR at M2 to SAR at M1 = 75.1%

Maximum value of SAR (measured) = 12.6 W/kg



0 dB = 12.6 W/kg = 11.00 dBW/kg



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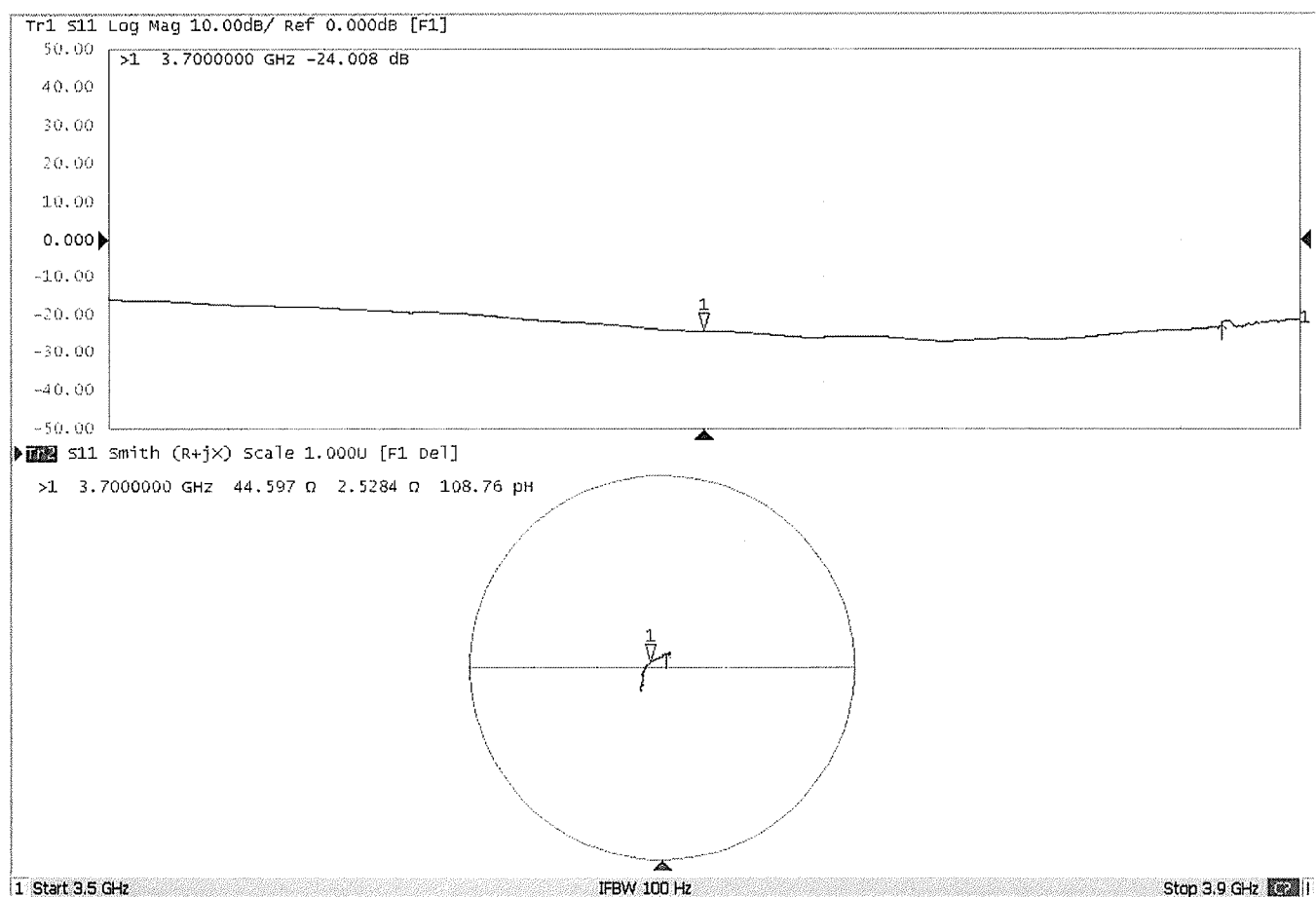
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Impedance Measurement Plot for Head TSL



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Certificate No:

24J02Z000862

CALIBRATION CERTIFICATE

Object D3900V2 - SN: 1055

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: November 7, 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 $(22\pm3)^{\circ}\text{C}$ and humidity $<70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7517	21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)	Feb-25
DAE4	SN 1588	13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)	Sep-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 15, 2024

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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-mounted 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:

- DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. 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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
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	3900 MHz $\pm$ 1 MHz 4100 MHz $\pm$ 1 MHz	

Head TSL parameters at 3900MHz

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	37.3 $\pm$ 6 %	3.31 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 3900MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.82 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	68.2 W/kg $\pm$ 24.4 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.5 W/kg $\pm$ 24.2 % (k=2)

Head TSL parameters at 4100MHz

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	36.8 $\pm$ 6 %	3.50 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 4100MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.81 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	68.0 W/kg $\pm$ 24.4 % (k=2)
SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	23.2 W/kg $\pm$ 24.2 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 3900MHz

Impedance, transformed to feed point	47.2Ω- 3.24jΩ
Return Loss	- 27.1dB

Antenna Parameters with Head TSL at 4100MHz

Impedance, transformed to feed point	59.7Ω+ 2.44jΩ
Return Loss	- 20.8dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.011 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

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DASY5 Validation Report for Head TSL

Date: 2024-11-07

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 3900 MHz; Type: D3900V2; Serial: D3900V2 - SN: 1055

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

Medium parameters used: $f = 3900$ MHz; $\sigma = 3.309$ S/m; $\epsilon_r = 37.28$; $\rho = 1000$ kg/m³

Medium parameters used: $f = 4100$ MHz; $\sigma = 3.5$ S/m; $\epsilon_r = 36.78$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(6.4, 6.4, 6.4) @ 3900 MHz; ConvF(6.43, 6.43, 6.43) @ 4100 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration /Pin=100mW, d=10mm, f=3900 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 63.07 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 20.0 W/kg

SAR(1 g) = 6.82 W/kg; SAR(10 g) = 2.35 W/kg

Smallest distance from peaks to all points 3 dB below = 7.6 mm

Ratio of SAR at M2 to SAR at M1 = 73.2%

Maximum value of SAR (measured) = 13.3 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=4100 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 62.04 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 20.6 W/kg

SAR(1 g) = 6.81 W/kg; SAR(10 g) = 2.33 W/kg

Smallest distance from peaks to all points 3 dB below = 7.6 mm

Ratio of SAR at M2 to SAR at M1 = 71.9%

Maximum value of SAR (measured) = 13.6 W/kg



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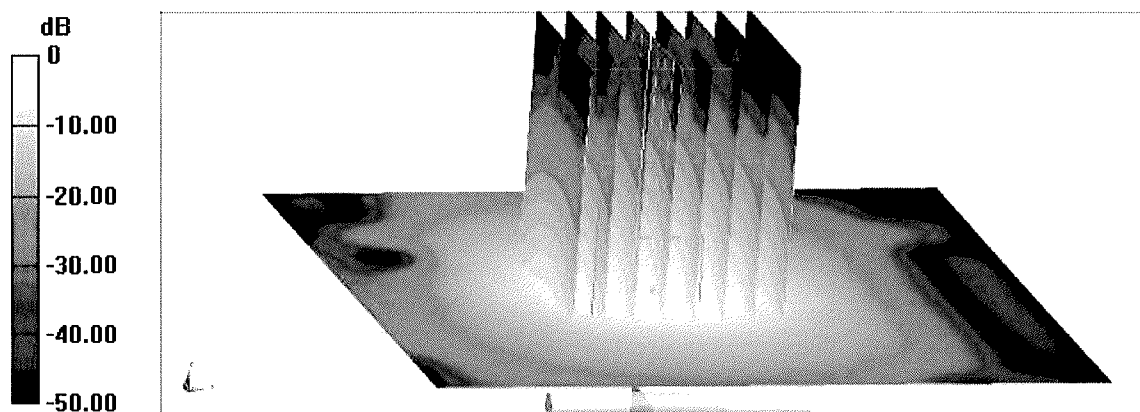
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0 dB = 13.6 W/kg = 11.34 dBW/kg



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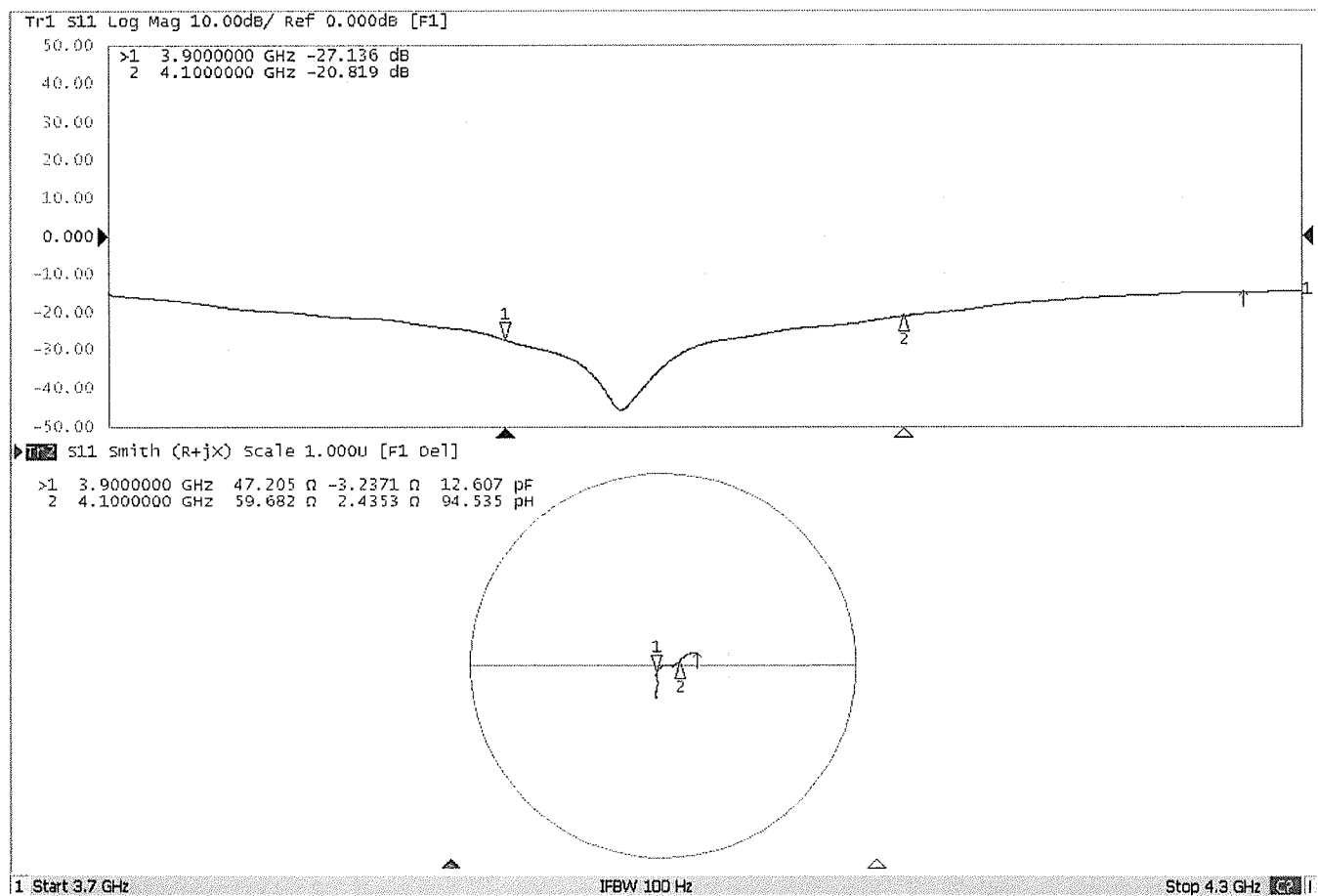
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Impedance Measurement Plot for Head TSL



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Client

7layers

Certificate No: 24J02Z000865

CALIBRATION CERTIFICATE

Object D5GHzV2 - SN: 1315

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

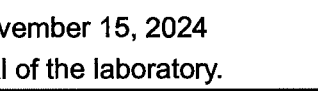
Calibration date: November 5, 2024

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 $(22\pm3)^{\circ}\text{C}$ and humidity $<70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106276	17-May-24 (CTTL, No. J24X04107)	May-25
Power sensor NRP6A	101369	17-May-24 (CTTL, No. J24X04107)	May-25
Reference Probe EX3DV4	SN 7517	21-Feb-24(CTTL-SPEAG, No. 24J02Z80008)	Feb-25
DAE4	SN 1588	13-Sep-24(CTTL-SPEAG, No. 24J02Z000713)	Sep-25
Secondary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	25-Dec-23 (CTTL, No. J23X13426)	Dec-24
NetworkAnalyzer E5071C	MY46110673	25-Dec-23 (CTTL, No. J23X13425)	Dec-24
OCP DAK-3.5(weighted)	1040	22-Jan-24(SPEAG, No.OCP-DAK3.5-1040_Jan24)	Jan-25

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 15, 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
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-mounted 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:

- DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. 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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
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	5250 MHz $\pm$ 1 MHz 5600 MHz $\pm$ 1 MHz 5750 MHz $\pm$ 1 MHz	

Head TSL parameters at 5250MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	35.8 $\pm$ 6 %	4.70 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5250MHz

SAR averaged over 1	(1 g) of Head TSL	Condition	
SAR measured		100 mW input power	7.73 W/kg
SAR for nominal Head TSL parameters		normalized to 1W	77.3 W/kg $\pm$ 24.4 % (k=2)
SAR averaged over 10	(10 g) of Head TSL	Condition	
SAR measured		100 mW input power	2.16 W/kg
SAR for nominal Head TSL parameters		normalized to 1W	21.6 W/kg $\pm$ 24.2 % (k=2)



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Head TSL parameters at 5600MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.2 ± 6 %	5.08 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5600MHz

SAR averaged over 1 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.18 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	81.7 W/kg ± 24.4 % (k=2)
SAR averaged over 10 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	22.7 W/kg ± 24.2 % (k=2)

Head TSL parameters at 5750MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.0 ± 6 %	5.24 mho/m ± 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL at 5750MHz

SAR averaged over 1 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.73 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	77.1 W/kg ± 24.4 % (k=2)
SAR averaged over 10 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.13 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.2 W/kg ± 24.2 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL at 5250MHz

Impedance, transformed to feed point	49.2Ω- 1.60jΩ
Return Loss	- 34.8dB

Antenna Parameters with Head TSL at 5600MHz

Impedance, transformed to feed point	53.2Ω+ 4.15jΩ
Return Loss	- 25.9dB

Antenna Parameters with Head TSL at 5750MHz

Impedance, transformed to feed point	49.3Ω+ 4.49jΩ
Return Loss	- 26.8dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.099 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feed-point 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 feed-point may be damaged.

Additional EUT Data

Manufactured by	SPEAG
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DASY5 Validation Report for Head TSL

Date: 2024-11-05

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1315

Communication System: CW; Frequency: 5250 MHz, Frequency: 5600 MHz,
Frequency: 5750 MHz

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.698$ S/m; $\epsilon_r = 35.84$; $\rho = 1000$ kg/m³

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.077$ S/m; $\epsilon_r = 35.24$; $\rho = 1000$ kg/m³

Medium parameters used: $f = 5750$ MHz; $\sigma = 5.241$ S/m; $\epsilon_r = 35.02$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7517; ConvF(5.43, 5.43, 5.43) @ 5250 MHz; ConvF(4.83, 4.83, 4.83) @ 5600 MHz; ConvF(4.95, 4.95, 4.95) @ 5750 MHz; Calibrated: 2024-02-21
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1588; Calibrated: 2024-09-13
- Phantom: MFP_V5.1C (20deg probe tilt); Type: QD 000 P51 Cx; Serial: 1062
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration /Pin=100mW, d=10mm, f=5250 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 61.02 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 32.1 W/kg

SAR(1 g) = 7.73 W/kg; SAR(10 g) = 2.16 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 64.4%

Maximum value of SAR (measured) = 18.7 W/kg

Dipole Calibration /Pin=100mW, d=10mm, f=5600 MHz/Zoom Scan,

dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 60.79 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 38.0 W/kg

SAR(1 g) = 8.18 W/kg; SAR(10 g) = 2.27 W/kg

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 60.8%

Maximum value of SAR (measured) = 20.4 W/kg



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Dipole Calibration /Pin=100mW, d=10mm, f=5750 MHz/Zoom Scan,
dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 59.50 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 37.3 W/kg
SAR(1 g) = 7.73 W/kg; SAR(10 g) = 2.13 W/kg
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 59.4%
Maximum value of SAR (measured) = 19.7 W/kg



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Impedance Measurement Plot for Head TSL

Appendix D. Conducted Power Result

Full Power								
Band	WCDMA II (Ant 2)			WCDMA II	WCDMA V (Ant0)			WCDMA V
TX Channel	9262	9400	9538	Max. Tune-up Power (dBm)	4132	4182	4233	Max. Tune-up Power (dBm)
Rx Channel	9662	9800	9938		4357	4407	4458	
Frequency (MHz)	1852.4	1880	1907.6		826.4	836.4	846.6	
RMC 12.2K	23.90	23.98	24.08	24.50	23.72	23.79	23.95	24.50
HSDPA Subtest-1	22.84	22.86	23.02	23.50	22.70	22.74	22.87	23.50
HSDPA Subtest-2	22.92	22.90	22.98	23.50	22.63	22.70	22.88	23.50
HSDPA Subtest-3	22.37	22.34	22.48	23.00	22.25	22.22	22.31	23.00
HSDPA Subtest-4	22.31	22.40	22.49	23.00	22.29	22.19	22.34	23.00
DC-HSDPA Subtest-1	22.81	22.87	22.95	23.50	22.69	22.77	22.86	23.50
DC-HSDPA Subtest-2	22.84	22.86	22.94	23.50	22.70	22.68	22.86	23.50
DC-HSDPA Subtest-3	22.30	22.28	22.34	23.00	22.21	22.18	22.36	23.00
DC-HSDPA Subtest-4	22.28	22.27	22.35	23.00	22.22	22.26	22.23	23.00
HSUPA Subtest-1	22.86	22.92	23.05	23.50	22.74	22.80	22.98	23.50
HSUPA Subtest-2	20.87	20.97	21.02	21.50	20.70	20.77	20.89	21.50
HSUPA Subtest-3	21.88	21.98	22.06	22.50	21.76	21.79	21.94	22.50
HSUPA Subtest-4	20.82	20.90	21.04	21.50	20.70	20.73	21.04	21.50
HSUPA Subtest-5	22.88	22.92	23.03	23.50	22.75	22.78	22.96	23.50

Reduce Power				
Band	WCDMA II (Ant 2)			WCDMA II
TX Channel	9262	9400	9538	Max. Tune-up Power (dBm)
Rx Channel	9662	9800	9938	
Frequency (MHz)	1852.4	1880	1907.6	
RMC 12.2K	22.55	22.61	22.66	23.00
HSDPA Subtest-1	21.42	21.37	21.58	22.00
HSDPA Subtest-2	21.53	21.49	21.57	22.00
HSDPA Subtest-3	20.92	20.86	21.01	21.50
HSDPA Subtest-4	20.87	20.94	21.02	21.50
DC-HSDPA Subtest-1	21.28	21.37	21.50	22.00
DC-HSDPA Subtest-2	21.42	21.44	21.52	22.00
DC-HSDPA Subtest-3	20.84	20.85	20.81	21.50
DC-HSDPA Subtest-4	20.77	20.79	20.83	21.50
HSUPA Subtest-1	21.47	21.53	21.52	22.00
HSUPA Subtest-2	19.35	19.54	19.50	20.00
HSUPA Subtest-3	20.48	20.51	20.54	21.00
HSUPA Subtest-4	19.31	19.48	19.61	20.00
HSUPA Subtest-5	21.43	21.45	21.53	22.00

Full Power

LTE Band 5 (AriD)									
BW	Modulation	RB Size	RB Offset	Low	Mid	High	3DPP MPR	Max. Time-up (dBm)	Max. Time-up (dBm)
		Channel		2040	2052	2060			
10M	QPSK	Frequency (MHz)	820	835.5	844				
		1	0	22.97	23.14	23.01	0	24.5	0
		1	24	23.09	23.15	23.11	0	24.5	0
		1	49	22.86	22.92	22.78	0	24.5	0
		25	0	22.01	22.14	21.99	1	23.5	0
		25	12	22.66	22.78	22.16	1	23.5	0
		25	25	21.91	22.12	22.01	1	23.5	0
		50	0	21.96	22.16	22.07	1	23.5	0
		50	0	22.13	22.28	22.14	1	23.5	0
		1	24	22.10	22.32	22.23	1	23.5	0
	16QAM	1	49	22.16	22.10	21.93	1	23.5	0
		25	0	21.08	21.15	21.18	2	22.5	0
		25	12	21.29	21.23	21.03	2	22.5	0
		25	25	21.18	21.12	20.85	2	22.5	0
		50	0	20.99	21.19	21.00	2	22.5	0
		1	0	21.44	21.37	21.16	2	22.5	0
		1	24	21.25	21.40	21.45	2	22.5	0
		1	49	20.95	21.15	21.20	2	22.5	0
		25	0	20.23	20.16	20.21	3	21.5	0
		25	12	20.00	20.24	20.16	3	21.5	0
20M	QPSK	Channel	2040	2052	2060				
		1	0	22.94	22.77	22.87	0	24.5	0
		1	12	23.08	22.84	23.12	0	24.5	0
		1	24	22.92	22.97	22.87	0	24.5	0
		12	0	22.65	21.98	22.08	1	23.5	0
		12	6	22.01	21.98	22.08	1	23.5	0
		12	13	21.73	21.84	22.11	1	23.5	0
		25	0	21.68	22.03	22.00	1	23.5	0
		1	0	22.11	22.08	22.20	1	23.5	0
		1	12	22.15	22.30	22.20	1	23.5	0
	16QAM	1	24	21.94	21.93	21.82	1	23.5	0
		12	0	20.85	21.19	20.90	2	22.5	0
		12	6	21.05	20.95	20.98	2	22.5	0
		12	13	21.17	20.87	21.17	2	22.5	0
		25	0	20.96	20.99	21.13	2	22.5	0
		1	0	21.23	21.24	21.35	2	22.5	0
		1	12	21.10	21.45	21.26	2	22.5	0
		12	24	20.75	21.23	20.90	2	22.5	0
		12	0	20.68	20.17	20.15	3	21.5	0
		12	6	19.96	20.12	20.29	3	21.5	0
30M	QPSK	Channel	2040	2052	2060				
		1	0	23.00	22.78	22.95	0	24.5	0
		1	7	22.93	22.96	23.11	0	24.5	0
		1	14	22.65	22.58	22.75	0	24.5	0
		8	0	21.73	21.98	22.02	1	23.5	0
		8	3	21.94	22.04	21.99	1	23.5	0
		8	7	21.77	21.76	22.12	1	23.5	0
		15	0	21.99	21.94	21.88	1	23.5	0
		1	0	21.88	22.09	22.20	1	23.5	0
		1	7	22.16	22.11	22.31	1	23.5	0
	16QAM	1	14	22.16	21.76	22.17	1	23.5	0
		8	0	20.90	21.11	21.10	2	22.5	0
		8	3	21.34	21.07	21.14	2	22.5	0
		8	7	20.91	20.84	20.91	2	22.5	0
		15	0	21.00	20.77	21.01	2	22.5	0
	64QAM	1	0	21.28	20.98	21.35	2	22.5	0
		1	7	21.13	21.42	21.19	2	22.5	0
		1	14	20.83	20.93	20.89	2	22.5	0
		8	0	20.26	20.08	19.89	3	21.5	0
		8	3	19.89	19.99	20.29	3	21.5	0
		8	7	19.83	20.15	19.86	3	21.5	0
		15	0	20.03	20.25	20.04	3	21.5	0
1.4M	QPSK	Channel	2047	2052	2063				
		1	0	22.72	23.02	22.95	0	24.5	0
		1	2	23.13	23.07	23.10	0	24.5	0
		1	5	22.56	22.76	22.83	0	24.5	0
		3	0	22.71	22.74	23.13	0	24.5	0
		3	1	23.12	23.02	23.09	0	24.5	0
		3	5	22.76	22.63	23.05	0	24.5	0
		8	0	21.78	21.99	22.01	1	23.5	0
		1	0	22.66	22.20	22.00	1	23.5	0
		1	2	21.85	22.27	22.15	1	23.5	0
	16QAM	1	5	21.85	21.87	21.94	1	23.5	0
		3	0	21.91	21.96	22.08	1	23.5	0
		3	1	22.17	22.06	22.07	1	23.5	0
		3	3	21.97	21.71	22.03	1	23.5	0
		8	0	20.70	20.99	21.13	2	22.5	0
		1	0	21.16	21.06	21.39	2	22.5	0
		1	2	21.01	21.30	21.26	2	22.5	0
		1	5	20.67	21.05	20.90	2	22.5	0
		3	0	21.08	20.96	21.22	2	22.5	0
		3	1	21.03	20.89	21.09	2	22.5	0
1.4M	64QAM	3	3	20.88	21.01	20.87	2	22.5	0
		8	0	19.95	19.97	20.07	3	21.5	0

LTE Band 17 (AriD)									
BW	Modulation	RB Size	RB Offset	Low	Mid	High	3DPP MPR	Max. Time-up (dBm)	Max. Time-up (dBm)
		Channel		2376	2376	2386			
10M	QPSK	Frequency (MHz)	709	716	711				
		1	0	22.87	22.95	22.89	0	24.5	0
		1	24	22.92	22.96	22.94	0	24.5	0
		1	49	22.83	22.93	22.85	0	24.5	0
		25	0	21.82	21.89	21.86	1	23.5	0
		25	12	21.81	21.89	21.85	1	23.5	0
		25	25	21.89	21.84	21.84	1	23.5	0
		50	0	21.73	21.96	21.95	1	23.5	0
		1	0	21.85	22.02	21.94	1	23.5	0
		1	24	21.86	22.09	22.09	1	23.5	0
	16QAM	1	49	21.94	22.08	22.14	1	23.5	0
		25	0	20.85	20.92	20.75	2	22.5	0
		25	12	20.96	20.95	20.78	2	22.5	0
		25	25	21.08	21.04	20.94	2	22.5	0
		50	0	20.94	20.94	20.75	2	22.5	0
		1	0	20.88	21.03	20.77	2	22.5	0
		1	24	20.85	21.07	20.99	2	22.5	0
		1	49	20.89	21.12	21.16	2	22.5	0
		25	0	19.88	19.91	19.91	3	21.5	0
		25	12	19.88	19.96	19.79	3	21.5	0
20M	QPSK	Channel	2376	2376	2386				
		1	0	22.65	22.95	22.74	0	24.5	0
		1	12	22.79	22.93	22.88	0	24.5	0
		1	24	22.89	22.73	22.97	0	24.5	0
		12	0	21.89	21.91	21.76	1	23.5	0
		12	6	21.86	21.73	21.78	1	23.5	0
		12	13	21.86	21.67	21.59	1	23.5	0
		25	0	21.72	21.85	21.73	1	23.5	0
		1	0	21.79	21.92	21.76	1	23.5	0
		1	12	21.77	21.90	22.15	1	23.5	0
	16QAM	1	24	21.70	22.16	22.13	1	23.5	0
		12	0	20.57	20.87	20.68	2	22.5	0
		12	6	20.71	20.70	20.59	2	22.5	0
		12	13	21.13	21.00	20.83	2	22.5	0
		25	0	20.81	20.92	20.86	2	22.5	0
		1	0	20.70	20.88	20.80	2	22.5	0
		1	12	20.93	21.04	20.79	2	22.5	0
		1	24	20.70	21.09	21.07	2	22.5	0
		12	0	19.68	19.96	19.96	3	21.5	0
		12	6	19.76	19.89	19.83	3	21.5	0
20M	64QAM	12	13	19.96	19.97	19.91	3	21.5	0
		25	0	19.78	19.84	19.85	3	21.5	0

LTE Band 41 (2548 ~ 2655MHz) PC3 (AriD)									
BW	Modulation	RB Size	RB Offset	Low	Low Mid	High	3DPP	MPR	Max. Time-up
		Channel		4024	4090	4140			
20M	QPSK	Frequency (MHz)	2588	2605	2648				
		1	0	23.30	23.33	23.26	0	25	
		1	50	23.25	23.29	23.22	0	25	
		1	99	23.31	23.41	23.32	0	25	
		50	0	22.25	22.29	22.25	1	24	
		50	25	22.27	22.37	22.28	1	24	
		50	50	22.26	22.36	22.25	1	24	
		100	0	22.25	22.34	22.27	23.24	23.27	23.24
	16QAM	1	0	22.15	22.38	21.36	2	23	
		1	50	22.06	22.26	22.01	1	24	
		1	99	22.07	22.27	22.06	1	24	
		50	0	21.17	21.38	21.36	2	23	
		50	25	21.19	21.31	21.24	2	23	
		50	50	21.36	21.43	21.25	2	23	
		100	0	21.31	21.39	21.19	23	23	21.19
		1	0	21.15	21.44	21.26	2	23	
64QAM	1	50	21.63	21.51	21.53	2	23		
	1	99	21.68	21.78	21.58	2	23		
	50	0	20.36	20.39	20.47	3	22		
	50	25	20.24	20.38	20.11	3	22		
	50	50	20.17	20.38	20.14	3	22		
	100	0	20.16	20.39	20.06	23	22		
	BW Modulation	Channel	4024	4090	4140	3DPP	MPR	Max. Time-up	
		Frequency (MHz)	2592.5	2600	2647.5				
40M	QPSK	1	0	23.27	23.25	23.27	0	25	
		1	37	23.31	23.35	23.27	0	25	
		1	74	23.06	23.37	23.19	0	25	
		36	0	22.09	22.14	22.28	1	24	
		36	24	22.35	22.36	22.34	1	24	
		36	39	22.25	22.03	22.04	1	24	
		75	0	22.33	22.34	22.03	1	24	
		1	0	22.07	22.26	22.04	1	24	
	16QAM	1	37	22.03	22.18	22.30	2	24	
		1	74	21.44	21.21	21.25	2	23	
		36	0	21.16	21.28	21.25	2	23	
		36	19	21.26	21.44	21.28	2	23	
		36	39	21.27	21.44	21.13	2	23	
		75	0	21.12	21.34	21.02	2	23	
		1	0	21.18	21.17	21.08	2	23	
		1	37	21.15	21.18	21.47	2	23	
64QAM	1	74	21.41	21.32	21.18	2	23		
	36	0	20.16	20.16	20.49	3	22		
	36	19	20.04	20.20	20.03	3	22		
	36	39	20.07	20.06	20.06	3	22		
	75	0	20.23	20.38	20.10	3	22		
	BW Modulation	Channel	4090	4090	4104	3DPP	MPR	Max. Time-up	
		Frequency (MHz)	2592	2600	2648				
	80M	QPSK	1	0	23.18	23.14	23.30	0	25
1			24	23.15	23.38	23.16	0	25	
1			49	23.32	23.31	22.29	0	25	
25			0	22.27	22.27	22.07	1	24	
25			12	22.28	22.09	22.09	1	24	
25			25	22.09	22.34	22.03	1	24	
50			0	22.11	22.02	22.25	1	24	
1			23	22.13	22.17	22.05	24	24	22.05
16QAM		1	24	22.03	22.08	22.07	1	24	
		1	49	22.40	22.33	22.21	1	24	
		25	0	21.15	21.15	21.13	2	23	
		25	12	21.19	21.46	21.08	2	23	
		25	25	21.30	21.33	21.04	2	23	
		50	0	21.14	21.27	21.02	2	23	
		50	24	21.08	21.44	21.22	2	23	
		1	24	21.33	21.39	21.44	2	23	
64QAM	1	49	21.56	21.62	21.45	2	23		
	25	0	20.33	20.33	20.33	3	22		
	25	12	20.30	20.26	20.10	3	22		
	25	25	20.24	20.10	20.05	3	22		
	50	0	20.08	20.21	20.05	3	22		
	BW Modulation	Channel	4096	4096	4104	3DPP	MPR	Max. Time-up	
		Frequency (MHz)	2547.5	2600	2652.5				
	160M	QPSK	1	0	23.22	23.23	23.15	0	25
1			12	23.30	23.28	23.06	0	25	
1			24	23.38	23.38	23.36	0	25	
12			0	22.07	22.20	22.01	1	24	
12			6	22.09	22.40	22.04	1	24	
12			13	22.06	22.42	22.18	1	24	
25			0	22.07	22.20	22.27	1	24	
1			0	22.19	22.11	22.01	1	24	
16QAM		1	12	22.05	22.12	22.03	1	24	
		1	24	22.20	22.48	21.31	24	24	21.31
		12	0	21.11	21.15	21.12	2	23	
		12	6	21.16	21.42	21.24	2	23	
		12	13	21.29	21.31	21.31	2	23	
		25	0	21.19	21.16	21.06	2	23	
		1	0	21.22	21.29	21.10	2	23	
		1	12	21.40	21.36	21.24	2	23	
64QAM	1	24	21.70	21.74	21.44	2	23		
	12	0	20.25	20.26	20.54	3	22		
	12	6	20.17	20.23	20.12	3	22		
	25	0	20.30	20.26	20.10	3	22		
	25	0	20.27	20.25	20.01	3	22		

Full Power

LTE Band 41 (2545 ~ 2650MHz) PC2 (Ant2)											
BW	Modulation	RB Size	RB Offset	Low	Low Mid	High	sgpp	MPE	Max. Turn-up (dBm)		
		Channel	40240	40920	41140						
20M	QPSK	Frequency (MHz)	2545	2560	2545						
		1	50	25.24	25.41	25.53	0	27			
		1	50	25.21	25.40	25.40	0	27			
		1	50	25.41	25.44	25.42	0	27			
		50	0	24.34	24.40	24.31	1	26			
		50	25	24.36	24.41	24.38	1	26			
	16QAM	1	0	24.25	24.34	24.61	1	26			
		1	50	24.69	24.62	24.48	1	26			
		1	50	24.34	24.60	24.35	1	26			
		50	0	23.46	23.46	23.60	2	25			
		50	25	23.27	23.69	23.38	2	25			
		100	0	23.60	23.65	23.61	2	25			
20M	16QAM	100	0	23.36	23.58	23.58	2	25			
		1	0	23.65	23.79	23.32	2	25			
		1	50	23.60	23.75	23.66	2	25			
		1	50	23.40	23.64	23.37	2	25			
		50	0	22.46	22.42	22.45	3	24			
		50	25	22.80	22.65	22.42	3	24			
	64QAM	50	50	22.29	22.68	22.47	3	24			
		100	0	22.57	22.41	22.48	3	24			
		Channel 40216 40916 41165 ZDPF MPE Max. Turn-up (dBm)									
		Channel	40216	40916	41165	ZDPF	MPE	Max. Turn-up (dBm)			
		Frequency (MHz)	2562.5	2565	2567.5						
		1	0	25.25	25.38	25.23	0	27			
15M	QPSK	1	37	25.23	25.32	25.24	0	27			
		1	74	25.40	25.25	25.35	0	27			
		36	0	24.14	24.24	24.20	1	26			
		36	19	24.30	24.40	24.25	1	26			
		36	36	24.31	24.20	24.21	1	26			
		75	0	24.11	24.33	24.34	1	26			
	16QAM	1	0	24.23	24.40	24.41	1	26			
		1	37	24.41	24.44	24.41	1	26			
		1	74	24.22	24.44	24.21	1	26			
		36	0	23.47	23.40	23.40	2	25			
		36	19	23.68	23.46	23.36	2	25			
		36	36	23.44	23.50	23.50	2	25			
15M	16QAM	75	0	23.35	23.56	23.47	2	25			
		75	0	23.67	23.46	23.46	2	25			
		1	37	23.40	23.73	23.49	2	25			
	64QAM	1	74	23.36	23.61	23.18	2	25			
		36	0	22.30	22.25	22.33	3	24			
		36	19	22.53	22.57	22.41	3	24			
5M	QPSK	36	36	22.28	22.63	22.40	3	24			
		75	0	22.57	22.42	22.45	3	24			
		Channel 40196 40996 41196 ZDPF MPE Max. Turn-up (dBm)									
		Channel	40196	40996	41196	ZDPF	MPE	Max. Turn-up (dBm)			
		Frequency (MHz)	2567.5	2565	2567.5						
		1	0	25.20	25.25	25.16	0	27			
10M	QPSK	1	0	25.11	25.21	25.05	0	27			
		1	49	25.30	25.42	25.29	0	27			
		25	0	24.13	24.24	24.17	1	26			
		25	12	24.33	24.35	24.26	1	26			
		25	25	24.29	24.30	24.19	1	26			
		50	0	24.30	24.24	24.20	1	26			
	16QAM	1	24	24.53	24.48	24.30	1	26			
		1	49	24.30	24.53	24.33	1	26			
		25	0	23.31	23.38	23.48	2	25			
		25	12	23.22	23.41	23.31	2	25			
		25	25	23.44	23.58	23.39	2	25			
		50	0	23.61	23.67	23.14	2	25			
10M	16QAM	1	24	23.60	23.56	23.38	2	25			
		1	49	23.30	23.40	23.30	2	25			
		25	0	22.42	22.34	22.28	3	24			
		25	12	22.51	22.45	22.25	3	24			
		25	25	22.24	22.62	22.30	3	24			
		50	0	22.40	22.54	22.45	3	24			
5M	QPSK	Channel 40165 40965 41165 ZDPF MPE Max. Turn-up (dBm)									
		Channel	40165	40965	41165	ZDPF	MPE	Max. Turn-up (dBm)			
		Frequency (MHz)	2567.5	2565	2567.5						
		1	0	25.16	25.26	25.09	0	27			
		1	12	25.03	25.20	25.24	0	27			
		1	24	25.36	25.23	25.26	0	27			
5M	16QAM	12	0	24.20	24.20	24.14	1	26			
		12	6	24.34	24.22	24.23	1	26			
		12	13	24.27	24.26	24.11	1	26			
		25	0	24.13	24.10	24.10	1	26			
		1	0	24.28	24.30	24.48	1	26			
		1	12	24.56	24.40	24.40	1	26			
5M	16QAM	1	24	24.10	24.40	24.16	1	26			
		12	0	23.37	23.29	23.45	2	25			
		12	6	23.24	23.52	23.31	2	25			
		12	13	23.50	23.55	23.24	2	25			
		25	0	23.19	23.41	23.42	2	25			
		1	0	23.64	23.75	23.22	2	25			
5M	64QAM	1	12	23.44	23.64	23.47	2	25			
		1	24	23.30	23.62	23.31	2	25			
		12	0	22.50	22.46	22.23	3	24			
		12	13	22.11	22.56	22.39	3	24			
		25	0	22.43	22.25	22.46	3	24			
		25	0	22.43	22.25	22.46	3	24			

LTE Band 41 (2545 ~ 2650MHz) PC3 For SAR (Ant2)											
BW	Modulation	RB Size	RB Offset	Low	Low Mid	High Mid	High	sgpp	MPE	Max. Turn-up (dBm)	
		Channel	40240	40920	41140						
20M	QPSK	Frequency (MHz)	2545	2560	2545						
		1	0	25.20	25.32	25.30	25.26	0	25		
		1	50	25.25	25.32	25.24	25.22	0	25		
		1	99	25.31	25.38	25.34	25.32	0	25		
		50	0	22.25	22.34	22.28	22.28	1	24		
		50	25	22.27	22.35	22.31	22.28	1	24		
	16QAM	1	0	22.15	22.31	22.23	22.24	1	24		
		1	50	22.26	22.30	22.24	22.21	1	24		
		1	99	22.40	22.41	22.25	22.26	1	24		
		50	0	21.17	21.38	21.37	21.36	2	23		
		50	25	21.19	21.38	21.35	21.24	2	23		
		100	0	21.30	21.42	21.18	21.25	2	23		
64QAM	100	0	21.21	21.35	21.16	21.16	2	23			
	1	0	21.15	21.40	21.25	21.26	2	23			
	1	50	21.50	21.50	21.41	21.53	2	23			
	1	99	21.48	21.60	21.60	21.58	2	23			
	50	0	20.38	20.38	20.15	20.47	3	22			
	50	25	20.34	20.35	20.28	20.11	3	22			
20M	QPSK	Channel	40216	40916	41165	ZDPF	MPE	Max. Turn-up (dBm)			
		Frequency (MHz)	2562.5	2565.5	2568.5	2647.5					
		1	0	23.27	23.27	23.25	23.27	0	25		
		1	37	23.07	23.35	23.28	23.27	0	25		
		1	74	23.06	23.35	23.30	23.19	0	25		
		36	0	22.09	22.17	22.15	22.26	1	24		
	16QAM	36	19	22.35	22.42	22.23	22.13	1	24		
		36	36	22.25	22.53	22.43	22.13	1	24		
		75	0	22.33	22.30	22.17	22.03	1	24		
		1	0	22.07	22.15	22.20	22.04	1	24		
		1	37	22.41	22.44	22.41	22.41	1	24		
		1	74	22.41	22.22	22.2	22.2	1	24		
64QAM	1	148	22.41	22.22	22.2	22.2	1	24			
	36	19	21.25	21.11	21.32	21.32	2	23			
	36	36	21.27	21.44	21.30	21.13	2	23			
	75	0	21.13	21.34	21.23	21.02	2	23			
	1	0	21.18	21.18	21.30	21.06	2	23			
	1	37	21.45	21.49	21.28	21.14	2	23			
20M	QPSK	Channel	40216	40916	41165	ZDPF	MPE	Max. Turn-up (dBm)			
		Frequency (MHz)	2562.5	2565.5	2568.5	2647.5					
		1	0	23.19	23.14	23.26	23.30	0	25		
		1	24	23.15	23.37	23.28	23.16	0	25		
		1	48	23.32	23.33	23.32	23.30	0	25		
		25	0	22.10	22.24	22.24	22.07	1	24		
	16QAM	25	12	22.28	22.27	22.18	22.07	1	24		
		25	25	22.38	22.36	22.26	22.03	1	24		
		1	0	22.11	22.06	22.27	22.05	1	24		
		1	0	22.13	22.07	22.28	22.02	1	24		
		1	34	22.03	22.07	22.27	22.01	1	24		
		1	48	22.40	22.30	22.19	22.11	1	24		
64QAM	25	0	21.10	21.16	21.13	21.13	2	23			
	24	0	21.13	21.41	21.21	21.06	2	23			
	25	25	21.30	21.30	21.52	21.04	2	23			
	50	0	21.14	21.34	21.07	21.02	2	23			
	1	21.08	21.43	21.09	21.22	2	23				
	24	0	21.13	21.40	21.21	21.06	2	23			
20M	QPSK	1	49	21.06	21.63	21.38	21.45	2	23		
		25	0	20.23	20.46	20.46	20.23	3	22		
		25	12	20.26	20.31	20.45	20.13	3	22		
		25	25	20.24	20.10	20.37	20.05	3	22		
		50	0	20.25	20.26	20.29	20.05	3	22		
		50	25	20.25	20.26	20.29	20.05	3	22		
	16QAM	Channel	40216	40916	41165	ZDPF	MPE	Max. Turn-up (dBm)			
		Frequency (MHz)	2562.5	2565.5	2568.5	2647.5					
		1	0	23.22	23.24	23.24	23.15	0	25		
		1	24	23.26	23.26	23.28	23.16	0	25		
		12	0	22.07	22.27	22.16	22.04	1	24		
		12	13	22.06	22.37	22.26	22.04	1	24		
20M	QPSK	25	0	22.09	22.41	22.29	22.18	1	24		
		25	0	22.07	22.28	22.06	22.07	1	24		
		1	0	22.07	22.07	22.07	22.07	1	24		
		1	12	22.05	22.08	22.04	22.03	1	24		
		24	21.26	22.47	22.11	22.31	1	24			
		12	0	21.11	21.18	21.11	21.12	2	23		
	16QAM	12	13	21.29	21.43	21.17	21.31	2	23		
		1	0	21.11	21.18	21.11	21.12	2	23		
		1	0	21.22	21.30	21.30	21.10	2	23		
		1	12	21.40	21.31	21.32	21.20	2	23		
		1	24	21.28	21.67	21.67	21.44	2	23		
		12	0	20.25	20.25	20.19	20.54	3	22		
64QAM	12	6	20.17	20.28	20.19	20.12	3	22			
	1	13	20.07	20.36	20.29	20.11	3	22			
	25	0	20.27	20.25	20.05	20.01	3	22			
	1	13	20.27	20.25	20.05	20.01	3	22			
	1	13	20.27	20.25	20.05	20.01	3	22			
	1	13	20.27	20.25	20.05	20.01	3	22			

Reduce Power

LTE Band 41 (2545 ~ 2655MHz)_PC3 For SAR (Ant2)										
BW	Modulation	RB Size	RB Offset	Low	Low Mid	High Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)	
		Channel		40240	40500	40770	41140			
		Frequency (MHz)		2555	2581	2608	2645			
20M	QPSK	1	0	20.73	20.80	20.74	20.71	0	22.5	
		1	50	20.75	20.81	20.75	20.67	0	22.5	
		1	99	20.77	20.83	20.79	20.77	0	22.5	
		50	0	19.69	19.77	19.71	19.65	1	21.5	
		50	25	19.75	19.79	19.74	19.66	1	21.5	
		50	50	19.66	19.74	19.68	19.58	1	21.5	
	16QAM	100	0	19.65	19.80	19.73	19.64	1	21.5	
		1	0	19.68	19.87	19.66	19.73	1	21.5	
		1	50	19.77	19.92	19.76	19.74	1	21.5	
		1	99	19.70	19.98	19.78	19.69	1	21.5	
		50	0	18.74	18.79	18.81	18.76	2	20.5	
		50	25	18.71	18.83	18.76	18.70	2	20.5	
	64QAM	50	50	18.68	18.75	18.69	18.67	2	20.5	
		100	0	18.76	18.82	18.77	18.79	2	20.5	
		1	0	18.72	18.71	18.65	18.70	2	20.5	
		1	50	18.68	18.72	18.63	18.75	2	20.5	
		1	99	18.62	18.70	18.59	18.60	2	20.5	
		50	0	17.81	17.78	17.79	17.66	3	19.5	
		50	25	17.79	17.81	17.77	17.72	3	19.5	
		50	50	17.66	17.73	17.72	17.60	3	19.5	
15M	QPSK	100	0	17.69	17.80	17.79	17.68	3	19.5	
		Channel		40215	40495	40785	41165	3GPP MPR (dB)	Max. Tune-up (dBm)	
		Frequency (MHz)		2552.5	2580.5	2609.5	2647.5			
		1	0	20.71	20.74	20.69	20.61	0	22.5	
		1	37	20.64	20.76	20.63	20.52	0	22.5	
		1	74	20.75	20.81	20.73	20.68	0	22.5	
	16QAM	36	0	19.68	19.72	19.58	19.56	1	21.5	
		36	19	19.67	19.64	19.60	19.61	1	21.5	
		36	39	19.65	19.67	19.60	19.51	1	21.5	
		75	0	19.61	19.70	19.66	19.59	1	21.5	
		1	0	19.66	19.83	19.58	19.58	1	21.5	
		1	37	19.75	19.84	19.74	19.64	1	21.5	
	64QAM	1	74	19.63	19.89	19.63	19.58	1	21.5	
		36	0	18.59	18.68	18.68	18.68	2	20.5	
		36	19	18.56	18.72	18.61	18.67	2	20.5	
		36	39	18.54	18.64	18.56	18.59	2	20.5	
		75	0	18.72	18.71	18.71	18.74	2	20.5	
		1	0	18.63	18.66	18.51	18.61	2	20.5	
		1	37	18.63	18.67	18.53	18.66	2	20.5	
		1	74	18.53	18.59	18.52	18.51	2	20.5	
10M	QPSK	36	0	17.70	17.71	17.78	17.62	3	19.5	
		36	19	17.74	17.78	17.73	17.62	3	19.5	
		36	39	17.59	17.58	17.61	17.51	3	19.5	
		75	0	17.58	17.70	17.68	17.59	3	19.5	
	16QAM	Channel		40190	40490	40790	41190	3GPP MPR (dB)	Max. Tune-up (dBm)	
		Frequency (MHz)		2550	2580	2610	2650			
		1	0	20.63	20.66	20.71	20.60	0	22.5	
		1	24	20.70	20.66	20.62	20.62	0	22.5	
		1	49	20.62	20.73	20.72	20.76	0	22.5	
		25	0	19.65	19.72	19.57	19.59	1	21.5	
	64QAM	25	12	19.66	19.69	19.67	19.51	1	21.5	
		25	25	19.64	19.63	19.66	19.57	1	21.5	
		50	0	19.63	19.67	19.62	19.56	1	21.5	
		1	0	19.57	19.75	19.60	19.66	1	21.5	
		1	24	19.70	19.77	19.71	19.59	1	21.5	
		1	49	19.68	19.96	19.69	19.63	1	21.5	
5M	QPSK	25	0	18.73	18.73	18.73	18.65	2	20.5	
		25	12	18.68	18.70	18.64	18.63	2	20.5	
		25	25	18.64	18.61	18.64	18.61	2	20.5	
		50	0	18.61	18.70	18.74	18.67	2	20.5	
	16QAM	1	0	18.60	18.65	18.62	18.63	2	20.5	
		1	24	18.61	18.69	18.62	18.70	2	20.5	
		1	49	18.60	18.56	18.51	18.58	2	20.5	
		25	0	17.76	17.74	17.68	17.53	3	19.5	
		25	12	17.72	17.66	17.76	17.61	3	19.5	
		25	25	17.62	17.68	17.68	17.56	3	19.5	
	64QAM	50	0	17.64	17.66	17.71	17.59	3	19.5	
		Channel		40165	40485	40805	41215	3GPP MPR (dB)	Max. Tune-up (dBm)	
		Frequency (MHz)		2547.5	2579.5	2611.5	2652.5			
		1	0	20.60	20.76	20.60	20.59	0	22.5	
		1	12	20.72	20.75	20.65	20.52	0	22.5	
		1	24	20.76	20.88	20.77	20.70	0	22.5	
		12	0	19.54	19.66	19.67	19.52	1	21.5	
		12	6	19.70	19.73	19.69	19.61	1	21.5	
20M	QPSK	12	13	19.55	19.66	19.66	19.60	1	21.5	
		25	0	19.64	19.78	19.62	19.55	1	21.5	
	16QAM	1	0	19.64	19.77	19.63	19.66	1	21.5	
		1	12	19.68	19.91	19.61	19.70	1	21.5	
		1	24	19.68	19.94	19.75	19.64	1	21.5	
		12	0	18.71	18.70	18.66	18.71	2	20.5	
		12	6	18.68	18.76	18.67	18.64	2	20.5	
		12	13	18.59	18.72	18.57	18.56	2	20.5	
	64QAM	25	0	18.67	18.77	18.73	18.74	2	20.5	
		1	0	18.57	18.68	18.57	18.58	2	20.5	
		1	12	18.67	18.66	18.61	18.74	2	20.5	
		1	24	18.54	18.69	18.56	18.55	2	20.5	
		12	0	17.67	17.64	17.75	17.58	3	19.5	
		12	6	17.69	17.68	17.64	17.71	3	19.5	
		12	13	17.65	17.71	17.69	17.55	3	19.5	
		25	0	17.57	17.72	17.77	17.64	3	19.5	

LTE Band 41 (2545 ~ 2655MHz)_PC2 For SAR (Ant2)										
BW	Modulation	RB Size	RB Offset	Low	Low Mid	High Mid	High	3GPP MPR (dB)	Max. Tune-up (dBm)	
		Channel		40240	40500	40770	41140			
		Frequency (MHz)		2555	2581	2608	2645			
20M	QPSK	1	0	23.28	23.35	23.32	23.25	0	24.5	
		1	50	23.31	23.37	23.30	23.31	0	24.5	
		1	99	23.33	23.43	23.41	23.36	0	24.5	
		50	0	22.37	22.38	22.31	22.28	1	23.5	
		50	25	22.39	22.42	22.38	22.31	1	23.5	
		50	50	22.31	22.37	22.32	22.23	1	23.5	
	16QAM	100	0	22.30	22.37	22.26	22.31	1	23.5	
		1	0	22.57	22.67	22.67	22.56	1	23.5	
		1	50	22.54	22.71	22.63	22.61	1	23.5	
		1	99	22.48	22.76	22.70	22.57	1	23.5	
		50	0	21.37	21.46	21.40	21.34	2	22.5	
		50	25	21.46	21.49	21.45	21.37	2	22.5	
	64QAM	50	50	21.36	21.42	21.37	21.30	2	22.5	
		100	0	21.33	21.48	21.44	21.31	2	22.5	
		1	0	21.41	21.54	21.52	21.57	2	22.5	
		1	50	21.42	21.46	21.54	21.51	2	22.5	
		1	99	21.47	21.50	21.61	21.46	2	22.5	
		50	0	20.43	20.45	20.44	20.37	3	21.5	
		50	25	20.47	20.48	20.40	20.34	3	21.5	
		50	50	20.36	20.42	20.38	20.29	3	21.5	
15M	QPSK	100	0	20.37	20.50	20.43	20.35	3	21.5	
		Channel		40215	40495	40785	41165	3GPP MPR (dB)	Max. Tune-up (dBm)	
		Frequency (MHz)		2552.5	2580.5	2609.5	2647.5			
		1	0	23.13	23.27	23.28	23.12	0	24.5	
		1	37	23.19	23.29	23.23	23.29	0	24.5	
		1	74	23.31	23.31	23.32	23.28	0	24.5	
	16QAM	36	0	22.36	22.35	22.24	22.25	1	23.5	
		36	19	22.30	22.39	22.27	22.25	1	23.5	
		36	39	22.20	22.26	22.31	22.15	1	23.5	
		75	0	22.18	22.32	22.19	22.26	1	23.5	
		1	0	22.56	22.65	22.53	22.43	1	23.5	
		1	37	22.51	22.69	22.57	22.46	1	23.5	
	64QAM	1	74	22.47	22.65	22.66	22.46	1	23.5	
		36	0	21.23	21.42	21.38	21.19	2	22.5	
36		19	21.37	21.42	21.40	21.32	2	22.5		
36		39	21.31	21.34	21.35	21.25	2	22.5		
75		0	21.25	21.33	21.39	21.28	2	22.5		
1		0	21.35	21.52	21.50	21.51	2	22.5		
1		37	21.27	21.41	21.53	21.40	2	22.5		
1		74	21.45	21.40	21.59	21.41	2	22.5		
10M	QPSK	36	0	20.28	20.38	20.30	20.29	3	21.5	
		36	19	20.33	20.41	20.36	20.30	3	21.5	
		36	39	20.32	20.35	20.24	20.20	3	21.5	
		75	0	20.28	20.41	20.28	20.21	3	21.5	
		Channel		40190	40490	40790	41190	3GPP MPR (dB)	Max. Tune-up (dBm)	
		Frequency (MHz)		2550	2580	2610	2650			
	1	0	23.21	23.26	23.25	23.12	0	24.5		
10M	QPSK	1	24	23.25	23.31	23.25	23.24	0	24.5	
		1	49	23.32	23.33	23.29	23.34	0	24.5	
		25	0	22.28	22.37	22.30	22.17	1	23.5	
		25	12	22.38	22.30	22.31	22.29	1	23.5	
		25	25	22.16	22.28	22.22	22.20	1	23.5	
		50	0	22.27	22.30	22.23	22.25	1	23.5	
	16QAM	1	0	22.54	22.60	22.55	22.54	1	23.5	
		1	24	22.43	22.64	22.57	22.47	1	23.5	
		1	49	22.43	22.61	22.62	22.55	1	23.5	
		25	0	21.31	21.39	21.34	21.25	2	22.5	
		25	12	21.41	21.34	21.32	21.28	2	22.5	
		25	25	21.25	21.36	21.36	21.20	2	22.5	
	64QAM	50	0	21.23	21.40	21.37	21.22	2	22.5	
		1	0	21.32	21.40	21.42	21.55	2	22.5	
		1	24	21.28	21.35	21.51	21.43	2	22.5	
		1	49	21.43	21.35	21.60	21.40	2	22.5	
		25	0	20.40	20.40	20.39	20.36	3	21.5	
		25	12	20.37	20.44	20.26	20.31	3	21.5	
		25	25	20.30	20.35	20.33	20.26	3	21.5	
		50	0	20.32	20.47	20.38	20.32	3	21.5	
5M	Modulation	Channel		40165	40485	40805	41215	3GPP MPR (dB)	Max. Tune-up (dBm)	
		Frequency (MHz)		2547.5	2579.5	2611.5	2652.5			
5M	QPSK	1	0	23.15	23.28	23.20	23.18	0	24.5	
		1	12	23.22	23.36	23.24	23.26	0	24.5	
		1	24	23.21	23.29	23.33	23.23	0	24.5	
		12	0	22.34	22.30	22.20	22.27	1	23.5	
		12	6	22.33	22.31	22.30	22.21	1	23.5	
		12	13	22.29	22.35	22.25	22.11	1	23.5	
	16QAM	25	0	22.20	22.34	22.17	22.25	1	23.5	
		1	0	22.42	22.63	22.66	22.51	1	23.5	
		1	12	22.50	22.64	22.62	22.53	1	23.5	
		1	24	22.36	22.71	22.55	22.44	1	23.5	
		12	0	21.22	21.39	21.37	21.31	2	22.5	
		12	6	21.34	21.41	21.40	21.23	2	22.5	
	64QAM	12	13	21.23	21.35	21.31	21.20	2	22.5	
		25	0	21.32	21.35	21.34	21.16	2	22.5	
		1	0	21.29	21.51	21.40	21.51	2	22.5	
		1	12	21.37	21.40	21.53	21.42	2	22.5	
		1	24	21.33	21.48	21.51	21.37	2	22.5	
		12	0	20.33	20.31	20.31	20.31	3	21.5	
		12	6	20.33	20.39	20.35	20.22	3	21.5	
		12	13	20.34	20.39	20.27	20.22	3	21.5	
25	0	20.36	20.36	20.39	20.24	3	21.5			

Full Power

CA 41C Ant2(2545 - 2655) Full Power												
Combination 20MHz+20MHz (100RB+100RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40240	2555	40438	2574.8	QPSK	1	99	1	0	23.24	25.0		
				16QAM	1	99	1	0	23.31	24.0		
				64QAM	1	99	1	0	21.39	23.0		
40591	2590.1	40789	2609.9	QPSK	1	99	1	0	23.33	25.0		
				16QAM	1	99	1	0	22.46	24.0		
				64QAM	1	99	1	0	21.44	23.0		
40942	2625.2	41140	2645	QPSK	1	99	1	0	23.27	25.0		
				16QAM	1	99	1	0	22.28	24.0		
				64QAM	1	99	1	0	21.30	23.0		
Combination 20MHz+15MHz (100RB+75RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40240	2555	40411	2572.1	QPSK	1	99	1	0	23.22	25.0		
				16QAM	1	99	1	0	22.18	24.0		
				64QAM	1	99	1	0	21.37	23.0		
40616	2592.6	40787	2609.7	QPSK	1	99	1	0	23.27	25.0		
				16QAM	1	99	1	0	22.31	24.0		
				64QAM	1	99	1	0	21.40	23.0		
40991	2630.1	41162	2647.2	QPSK	1	99	1	0	23.15	25.0		
				16QAM	1	99	1	0	22.17	24.0		
				64QAM	1	99	1	0	21.15	23.0		
Combination 15MHz+20MHz (75RB+100RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40218	2552.8	40389	2569.9	QPSK	1	74	1	0	23.10	25.0		
				16QAM	1	74	1	0	22.22	24.0		
				64QAM	1	74	1	0	21.28	23.0		
40593	2590.3	40764	2607.4	QPSK	1	74	1	0	23.32	25.0		
				16QAM	1	74	1	0	22.44	24.0		
				64QAM	1	74	1	0	21.42	23.0		
40969	2627.9	41140	2645	QPSK	1	74	1	0	23.20	25.0		
				16QAM	1	74	1	0	22.25	24.0		
				64QAM	1	74	1	0	21.28	23.0		
Combination 15MHz+15MHz (75RB+75RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40215	2552.5	40365	2567.5	QPSK	1	74	1	0	23.12	25.0		
				16QAM	1	74	1	0	22.19	24.0		
				64QAM	1	74	1	0	21.36	23.0		
40615	2592.5	40765	2607.5	QPSK	1	74	1	0	23.23	25.0		
				16QAM	1	74	1	0	22.44	24.0		
				64QAM	1	74	1	0	21.40	23.0		
41015	2632.5	41165	2647.5	QPSK	1	74	1	0	23.16	25.0		
				16QAM	1	74	1	0	22.15	24.0		
				64QAM	1	74	1	0	21.20	23.0		
Combination 20MHz+10MHz (100RB+50RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40240	2555	40384	2569.4	QPSK	1	99	1	0	23.09	25.0		
				16QAM	1	99	1	0	22.24	24.0		
				64QAM	1	99	1	0	21.34	23.0		
40641	2595.1	40785	2609.5	QPSK	1	99	1	0	23.26	25.0		
				16QAM	1	99	1	0	22.33	24.0		
				64QAM	1	99	1	0	21.36	23.0		
41041	2635.1	41185	2649.5	QPSK	1	99	1	0	23.16	25.0		
				16QAM	1	99	1	0	22.16	24.0		
				64QAM	1	99	1	0	21.21	23.0		
Combination 10MHz+20MHz (50RB+100RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40195	2550.5	40339	2564.9	QPSK	1	49	1	0	23.14	25.0		
				16QAM	1	49	1	0	22.19	24.0		
				64QAM	1	49	1	0	21.26	23.0		
40596	2590.6	40740	2605	QPSK	1	49	1	0	23.29	25.0		
				16QAM	1	49	1	0	22.39	24.0		
				64QAM	1	49	1	0	21.32	23.0		
40996	2630.6	41140	2645	QPSK	1	49	1	0	23.15	25.0		
				16QAM	1	49	1	0	22.23	24.0		
				64QAM	1	49	1	0	21.18	23.0		
Combination 15MHz+10MHz (75RB+50RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40215	2552.5	40335	2564.5	QPSK	1	74	1	0	23.15	25.0		
				16QAM	1	74	1	0	22.26	24.0		
				64QAM	1	74	1	0	21.26	23.0		
40641	2595.1	40761	2607.1	QPSK	1	74	1	0	23.20	25.0		
				16QAM	1	74	1	0	22.31	24.0		
				64QAM	1	74	1	0	21.43	23.0		
41067	2637.7	41187	2649.7	QPSK	1	74	1	0	23.12	25.0		
				16QAM	1	74	1	0	22.13	24.0		
				64QAM	1	74	1	0	21.15	23.0		
Combination 10MHz+15MHz (50RB+75RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40193	2550.3	40313	2562.3	QPSK	1	49	1	0	23.11	25.0		
				16QAM	1	49	1	0	22.21	24.0		
				64QAM	1	49	1	0	21.27	23.0		
40619	2592.9	40739	2604.9	QPSK	1	49	1	0	23.30	25.0		
				16QAM	1	49	1	0	22.43	24.0		
				64QAM	1	49	1	0	21.40	23.0		
41045	2635.5	41165	2647.5	QPSK	1	49	1	0	23.20	25.0		
				16QAM	1	49	1	0	22.27	24.0		
				64QAM	1	49	1	0	21.22	23.0		
Combination 20MHz+5MHz (100RB+25RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40240	2555	40357	2566.7	QPSK	1	99	1	0	23.22	25.0		
				16QAM	1	99	1	0	22.27	24.0		
				64QAM	1	99	1	0	21.27	23.0		
40665	2597.5	40782	2609.2	QPSK	1	99	1	0	23.30	25.0		
				16QAM	1	99	1	0	22.34	24.0		
				64QAM	1	99	1	0	21.43	23.0		
41090	2640	41207	2651.7	QPSK	1	99	1	0	23.25	25.0		
				16QAM	1	99	1	0	22.15	24.0		
				64QAM	1	99	1	0	21.20	23.0		
Combination 5MHz+20MHz (25RB+100RB)												
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	max Tune-up (dBm)		
					RB Size	RB offset	RB Size	RB offset				
40173	2548.3	40290	2560	QPSK	1	24	1	0	23.19	25.0		
				16QAM	1	24	1	0	22.16	24.0		
				64QAM	1	24	1	0	21.29	23.0		
40598	2590.8	40715	2602.5	QPSK	1	24	1	0	23.27	25.0		
				16QAM	1	24	1	0	22.42	24.0		
				64QAM	1	24	1	0	21.30	23.0		
41023	2633.3	41140	2645	QPSK	1	24	1	0	23.16	25.0		
				16QAM	1	24	1	0	22.18	24.0		
				64QAM	1	24	1	0	21.20	23.0		

Full Power

Full Power									
m1 (SCS 30 kHz) 2545MHz-2656MHz (Ant2)									
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	SCPP	Max. Tune-up (MHz)	Max. Tune-up (MHz)
		Channel	Frequency (MHz)	2595	2600.01	2604.99			
100M	DFT-s-OFDM P2/BPSK	1	1	23.43	23.38	23.50	0	24.5	
		1	137	23.33	23.19	23.30	0	24.5	
		1	271	23.28	23.37	23.33	0	24.5	
		135	0	22.87	22.74	22.84	0.5	24.0	
		135	69	23.19	23.36	23.31	0	24.5	
		135	138	22.91	22.72	22.94	0.5	24.0	
		270	0	22.68	22.74	22.83	0.5	24.0	
		1	1	23.47	23.43	23.54	0	24.5	
		1	137	23.08	23.24	23.27	0	24.5	
		1	271	23.02	23.12	23.21	0	24.5	
	DFT-s-OFDM QPSK	135	0	22.42	22.48	22.42	1	23.5	
		135	69	23.35	23.32	23.40	0	24.5	
		135	138	22.13	22.28	22.37	1	23.5	
		270	0	22.32	22.30	22.48	1	23.5	
		1	1	21.72	21.78	21.99	1	23.5	
		DFT-s-OFDM SQAM	1	1	20.68	20.76	20.90	2.5	22.0
		DFT-s-OFDM SQAM	1	1	18.38	18.34	18.58	4.5	20.0
	MCS Index	Channel	Frequency (MHz)	518904	520902	523000	SCPP	Max. Tune-up	
	DFT-s-OFDM QPSK	1	1	23.39	23.25	23.42	0	24.5	
	MCS Index	Channel	Frequency (MHz)	511682	520902	523000	SCPP	Max. Tune-up	
80M	DFT-s-OFDM QPSK	1	1	23.20	23.40	23.34	0	24.5	
70M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	516880	520902	523998	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	2650	2650.01	2676.99	MPR		
60M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	519904	520902	523600	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	2578.02	2600.01	2633	MPR		
50M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	514882	520902	523998	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	2570.01	2600.01	2633.99	MPR		
40M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	513904	520902	523998	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	2565	2600.01	2634.99	MPR		
30M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	510908	520902	523998	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	2564.99	2600.01	2634.99	MPR		
20M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	510485	520902	523600	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	2552.49	2600.01	2647.5	MPR		
15M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	510485	520902	523600	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	2550	2600.01	2647.99	MPR		
10M	DFT-s-OFDM QPSK	1	1	23.38	23.33	23.42	0	24.5	

Full Power									
n77 (SCS 30 kHz) 3450MHz-3550MHz (Ant2)									
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	SCPP	Max. Tune-up (MHz)	Max. Tune-up (MHz)
		Channel	Frequency (MHz)	3500.01	3505.01	3509.99			
100M	DFT-s-OFDM P2/BPSK	1	1	23.50	23.41	0	24.5		
		1	137	23.41	23.41	0	24.5		
		1	271	23.24	23.24	0	24.5		
		135	0	23.08	23.08	0.5	24.0		
		135	69	23.44	23.44	0	24.5		
		135	138	22.99	22.99	0.5	24.0		
		270	0	22.88	22.88	0.5	24.0		
		1	1	23.62	23.62	0	24.5		
		1	137	23.50	23.50	0	24.5		
		1	271	23.41	23.41	0	24.5		
DFT-s-OFDM QPSK	DFT-s-OFDM QPSK	135	0	22.55	22.55	1	23.5		
		135	69	23.59	23.59	0	24.5		
		135	138	22.38	22.38	1	23.5		
		270	0	22.47	22.47	1	23.5		
		1	1	22.84	22.84	1	23.5		
		DFT-s-OFDM SQAM	1	1	21.10	21.10	2.5	22.0	
		DFT-s-OFDM SQAM	1	1	18.70	18.70	4.5	20.0	
	MCS Index	Channel	Frequency (MHz)	633000	633334	633666	SCPP	Max. Tune-up	
	DFT-s-OFDM QPSK	1	1	23.43	23.46	23.36	0	24.5	
	MCS Index	Channel	Frequency (MHz)	626880	633334	634000	SCPP	Max. Tune-up	
80M	DFT-s-OFDM QPSK	1	1	23.33	23.33	23.13	0	24.5	
70M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	632334	633334	634332	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3485.01	3500.01	3514.99	MPR		
60M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	632000	633334	634666	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3486	3500.01	3518.99	MPR		
50M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	631666	633334	635000	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3476.02	3500.01	3525	MPR		
40M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	631334	633334	635332	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3476.01	3500.01	3528.99	MPR		
30M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	631000	633334	635666	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3468	3500.01	3534.99	MPR		
20M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	630666	633334	636000	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3465.02	3500.01	3540	MPR		
15M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	630334	633334	636332	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3463.01	3500.01	3544.99	MPR		
10M	DFT-s-OFDM QPSK	1	1	23.43	23.33	23.10	0	24.5	

Full Power									
n77 (SCS 30 kHz) 3700MHz-3900MHz (Ant2)									
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	SCPP	Max. Tune-up (MHz)	Max. Tune-up (MHz)
		Channel	Frequency (MHz)	3750	3840	3930			
100M	DFT-s-OFDM P2/BPSK	1	1	23.00	23.08	22.95	0	24.5	
		1	137	22.92	23.01	22.91	0	24.5	
		1	271	22.95	23.07	22.94	0	24.5	
		135	0	22.57	22.59	22.67	0.5	24.0	
		135	69	22.99	23.08	22.95	0	24.5	
		135	138	22.60	22.55	22.57	0.5	24.0	
		270	0	22.43	22.63	22.68	0.5	24.0	
		1	1	23.61	23.16	22.98	0	24.5	
		1	137	22.98	23.05	22.90	0	24.5	
		1	271	22.98	22.91	22.96	0	24.5	
DFT-s-OFDM QPSK	DFT-s-OFDM QPSK	135	0	22.17	22.16	22.08	1	23.5	
		135	69	22.93	22.99	22.90	0	24.5	
		135	138	22.74	22.03	21.86	1	23.5	
		270	0	22.00	22.12	22.07	1	23.5	
		1	1	21.86	22.10	21.85	1	23.5	
		DFT-s-OFDM SQAM	1	1	20.54	20.68	20.76	2.5	22.0
		DFT-s-OFDM SQAM	1	1	18.36	18.50	18.30	4.5	20.0
	MCS Index	Channel	Frequency (MHz)	648668	659000	662332	SCPP	Max. Tune-up	
	DFT-s-OFDM QPSK	1	1	23.06	23.12	22.81	0	24.5	
	MCS Index	Channel	Frequency (MHz)	649334	659000	662666	SCPP	Max. Tune-up	
80M	DFT-s-OFDM QPSK	1	1	22.89	23.15	22.85	0	24.5	
70M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	649000	659000	663000	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3735	3840	3948	MPR		
60M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	648668	659000	663332	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3736.02	3840	3954.99	MPR		
50M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	648334	659000	663666	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3725.01	3840	3954.99	MPR		
40M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	648000	659000	664000	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3725	3840	3960	MPR		
30M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	647666	659000	664332	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3716.02	3840	3964.99	MPR		
20M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	647334	659000	664666	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3716.01	3840	3968.99	MPR		
15M	DFT-s-OFDM QPSK	Channel	Frequency (MHz)	647000	659000	665000	SCPP	Max. Tune-up	
		MCS Index	Frequency (MHz)	3716	3840	3975	MPR		
10M	DFT-s-OFDM QPSK	1	1	22.83	23.04	23.06	0	24.5	

Full Power

EN-DC n77 (SCS 30 kHz) 3450MHz-3550MHz (Ant4)										
BW	MCS Index	RB Size	RB Offset	Min	SCPP	Max				
		Channel	Frequency (MHz)	Power (dB)	MPR	Turn-up (dB)				
100M	DFT-s-OFDM P12 BPSK	1	1	22.77	0	24.5				
		1	137	22.79	0	24.5				
		1	271	22.74	0	24.5				
		135	0	22.45	0.5	24.0				
		135	69	22.77	0	24.5				
		135	138	22.28	0.5	24.0				
		270	0	22.38	0.5	24.0				
		1	1	22.88	0	24.5				
		1	137	22.80	0	24.5				
	DFT-s-OFDM QPSK	1	1	22.79	0	24.5				
		1	271	21.84	1	23.5				
		135	69	22.84	0	24.5				
		135	138	21.84	1	23.5				
		270	0	21.83	1	23.5				
		1	1	21.71	1	23.5				
		1	1	20.23	2.5	22.0				
		1	1	18.14	4.5	20.0				
		1	1	18.14	4.5	20.0				
DFT-s-OFDM 16QAM	1	1	21.71	1	23.5					
	1	1	20.23	2.5	22.0					
DFT-s-OFDM 64QAM	1	1	18.14	4.5	20.0					
	1	1	18.14	4.5	20.0					
BW	MCS Index	Channel	Frequency (MHz)	63900	63334	63986				
90M	SCPP	Max	Turn-up	1485	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.70	22.58	22.83	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
90M	SCPP	Max	Turn-up	1485.02	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.84	22.86	22.82	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
90M	SCPP	Max	Turn-up	1485.01	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.85	22.79	22.66	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
90M	SCPP	Max	Turn-up	1485.01	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.84	22.67	22.58	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
90M	SCPP	Max	Turn-up	1485.02	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.69	22.80	22.53	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63134	63334	63332				
50M	SCPP	Max	Turn-up	3475.01	3500.01	3525.99				
	SCPP	Max	Turn-up	1	1	22.85	22.69	22.58	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
40M	SCPP	Max	Turn-up	3475.02	3500.01	3525.99				
	SCPP	Max	Turn-up	1	1	22.85	22.69	22.58	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
30M	SCPP	Max	Turn-up	3485	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.61	22.61	22.61	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
20M	SCPP	Max	Turn-up	3485.02	3500.01	3540				
	SCPP	Max	Turn-up	1	1	22.80	22.76	22.82	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
10M	SCPP	Max	Turn-up	3485.01	3500.01	3540.99				
	SCPP	Max	Turn-up	1	1	22.55	22.63	22.83	0	24.5

n77 (SCS 30 kHz) 3450MHz-3550MHz (UL MIMO)(Ant2+4)										
BW	MCS Index	RB Size	RB Offset	Min	SCPP	Max				
		Channel	Frequency (MHz)	63334	Turn-up (dB)	Turn-up (dB)				
100M	CP-OFDM P12 BPSK	NA	NA		0	24.5				
		NA	NA		0	24.5				
		NA	NA		0	24.5				
		NA	NA		0.5	24.0				
		NA	NA		0	24.5				
		NA	NA		0.5	24.0				
		NA	NA		0.5	24.0				
		1	1	22.96	0	24.5				
		1	137	22.83	0	24.5				
	CP-OFDM QPSK	1	271	22.87	0	24.5				
		137	0	20.96	2	22.5				
		137	68	22.84	0	24.5				
		137	136	20.82	2	22.5				
		273	0	20.85	2	22.5				
		1	1	21.97	2	22.5				
		CP-OFDM 16QAM	1	1	20.38	3.5	21.0			
		CP-OFDM 64QAM	1	1	17.41	6.5	18.0			
		BW	MCS Index	Channel	Frequency (MHz)	63900	63334	63986		
	SCPP		Max	Turn-up	1485	3500.01	3504.99			
	SCPP		Max	Turn-up	1	1	22.88	22.92	22.84	0
	BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986			
SCPP		Max	Turn-up	1485.02	3500.01	3504.99				
SCPP		Max	Turn-up	1	1	22.92	22.89	22.82	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
	SCPP	Max	Turn-up	1485.01	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.85	22.87	22.93	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
	SCPP	Max	Turn-up	1485	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.81	22.94	22.87	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
	SCPP	Max	Turn-up	1485.01	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.89	22.87	22.85	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
	SCPP	Max	Turn-up	1485	3500.01	3504.99				
	SCPP	Max	Turn-up	1	1	22.83	22.81	22.87	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
	SCPP	Max	Turn-up	1485.02	3500.01	3540				
	SCPP	Max	Turn-up	1	1	22.82	22.84	22.92	0	24.5
BW	MCS Index	Channel	Frequency (MHz)	63986	63334	63986				
	SCPP	Max	Turn-up	1485.01	3500.01	3540.99				
	SCPP	Max	Turn-up	1	1	22.81	22.85	22.88	0	24.5

EN-DC n77 (SCS 30 kHz) 3700MHz-3980MHz (Ant4)												
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	SCPP	Max				
		Channel	Frequency (MHz)	Power (dB)	Power (dB)	Power (dB)	Turn-up (dB)	Turn-up (dB)				
100M	DFT-s-OFDM P12 BPSK	1	1	22.83	22.80	22.80	0	24.5				
		1	137	22.81	22.88	22.71	0	24.5				
		1	271	22.80	22.87	22.69	0	24.5				
		135	0	22.57	22.51	22.45	0.5	24.0				
		135	69	22.76	22.91	22.89	0	24.5				
		135	138	22.51	22.45	22.48	0.5	24.0				
		270	0	22.34	22.46	22.37	0.5	24.0				
		1	1	22.85	22.89	22.89	0	24.5				
		1	137	22.82	22.97	22.83	0	24.5				
		1	271	22.79	22.95	22.88	0	24.5				
		135	0	21.91	21.98	21.96	1	23.5				
		135	69	22.83	22.83	22.85	0	24.5				
DFT-s-OFDM QPSK	135	138	21.88	21.96	21.90	1	23.5					
	270	0	21.80	21.92	21.83	1	23.5					
	1	1	21.56	21.58	21.54	1	23.5					
	1	1	20.20	20.33	20.31	2.5	22.0					
	1	1	18.06	18.11	18.02	4.5	20.0					
	BW	MCS Index	Channel	Frequency (MHz)	64668	65000	65232	SCPP	Max			
	90M	SCPP	Max	Turn-up	3745.02	3840	3843.98	MPR	Turn-up			
90M	SCPP	Max	Turn-up	1	1	22.84	22.79	22.89	0	24.5		
BW	MCS Index	Channel	Frequency (MHz)	64934	65000	65208	SCPP	Max				
90M	SCPP	Max	Turn-up	3745.01	3840	3843.98	MPR	Turn-up				
90M	SCPP	Max	Turn-up	1	1	22.87	22.77	22.91	0	24.5		
70M	DFT-s-OFDM QPSK	BW	MCS Index	Channel	Frequency (MHz)	64668	65000	65232	SCPP	Max		
		90M	SCPP	Max	Turn-up	3735	3840	3843	MPR	Turn-up		
		1	1	22.87	22.84	22.70	0	24.5				
		BW	MCS Index	Channel	Frequency (MHz)	64668	65000	65232	SCPP	Max		
		90M	SCPP	Max	Turn-up	3745.02	3840	3843.98	MPR	Turn-up		
		60M	SCPP	Max	Turn-up	1	1	22.82	22.90	22.85	0	24.5
		BW	MCS Index	Channel	Frequency (MHz)	64934	65000	65208	SCPP	Max		
90M	SCPP	Max	Turn-up	3745.01	3840	3843.98	MPR	Turn-up				
50M	SCPP	Max	Turn-up	1	1	22.74	22.88	22.85	0	24.5		
40M	DFT-s-OFDM QPSK	BW	MCS Index	Channel	Frequency (MHz)	64668	65000	65208	SCPP	Max		
		90M	SCPP	Max	Turn-up	3735	3840	3843	MPR	Turn-up		
		1	1	22.87	22.75	22.85	0	24.5				
		BW	MCS Index	Channel	Frequency (MHz)	64668	65000	65208	SCPP	Max		
		90M	SCPP	Max	Turn-up	3745.01	3840	3843.98	MPR	Turn-up		
		30M	SCPP	Max	Turn-up	1	1	22.79	22.71	22.78	0	24.5
		BW	MCS Index	Channel	Frequency (MHz)	64734	65000	65488	SCPP	Max		
20M	SCPP	Max	Turn-up	3745.01	3840	3843.98	MPR	Turn-up				
20M	SCPP	Max	Turn-up	1	1	22.82	22.84	22.71	0	24.5		
10M	DFT-s-OFDM QPSK	BW	MCS Index	Channel	Frequency (MHz)	64700	65000	65500	SCPP	Max		
		90M	SCPP	Max	Turn-up	3745.01	3840	3843.98	MPR	Turn-up		
		1	1	22.83	22.98	22.97	0	24.5				

n77 (SCS 30 kHz) 3700MHz-3980MHz (UL MIMO)(Ant2+4)											
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP	Max			
		Channel	Frequency (MHz)	Power (dB)	Power (dB)	Power (dB)	Turn-up (dB)	Turn-up (dB)			
100M	CP-OFDM P12 BPSK	NA	NA				0	24.5			
		NA	NA				0	24.5			
		NA	NA				0	24.5			
		NA	NA				0.5	24.0			
		NA	NA				0	24.5			
		NA	NA				0.5	24.0			
		NA	NA				0.5	24.0			
		1	1	22.87	22.96	22.89	0	24.5			
	CP-OFDM QPSK	1	137	22.86	22.82	22.84	0	24.5			
		1	271	22.81	22.88	22.83	0	24.5			
		137	0	20.91	20.83	20.82	2	22.5			
		137	68	22.81	22.86	22.85	0	24.5			
		137	136	20.90	20.86	20.88	2	22.5			
		273	0	20.85	20.99	20.87	2	22.5			
		1	1	21.99	21.85	21.91	2	22.5			
		CP-OFDM 16QAM	1	1	20.24	20.08	20.10	3.5	21.0		
	CP-OFDM 64QAM	1	1	17.32	17.30	17.25	6.5	18.0			
	BW	MCS Index	Channel	Frequency (MHz)	24.88	24.88	24.832	3GPP	Max	Turn-up	
		MCS Index	Channel	Frequency (MHz)	22.85	22.89	22.87	0	24.5		
		80M	CP-OFDM QPSK	1	Channel	64334	68000	68068	3GPP	Max	Turn-up
MCS Index			Channel	Frequency (MHz)	3740.01	3840	3838.98	MPR			
80M	CP-OFDM QPSK		1	Channel	22.81	22.94	22.83	0	24.5		
	MCS Index		Channel	Frequency (MHz)	44600	58000	58000	3GPP	Max	Turn-up	
	72M	CP-OFDM QPSK	1	Channel	3715	3840	3838.98	3GPP	Max	Turn-up	
		MCS Index	Channel	Frequency (MHz)	1	22.80	22.88	22.84	0	24.5	
60M		CP-OFDM QPSK	1	Channel	64668	68000	68332	3GPP	Max	Turn-up	
		MCS Index	Channel	Frequency (MHz)	3730.02	3840	3838.98	MPR			
	60M	CP-OFDM QPSK	1	Channel	22.81	22.85	22.81	0	24.5		
		MCS Index	Channel	Frequency (MHz)	44710	58000	58330	3GPP	Max	Turn-up	
50M		CP-OFDM QPSK	1	Channel	3729.01	3840	3838.98	3GPP	Max	Turn-up	
		MCS Index	Channel	Frequency (MHz)	1	22.85	22.93	22.89	0	24.5	
	40M	CP-OFDM QPSK	1	Channel	64000	58000	64000	3GPP	Max	Turn-up	
		MCS Index	Channel	Frequency (MHz)	3720	3840	3838.98	MPR			
40M		CP-OFDM QPSK	1	Channel	22.83	22.91	22.86	0	24.5		
		MCS Index	Channel	Frequency (MHz)	44760	58000	58320	MPR			
	30M	CP-OFDM QPSK	1	Channel	3715.02	3840	3838.98	3GPP	Max	Turn-up	
		MCS Index	Channel	Frequency (MHz)	1	22.84	22.87	22.83	0	24.5	
30M		CP-OFDM QPSK	1	Channel	64734	68000	64668	3GPP	Max	Turn-up	
		MCS Index	Channel	Frequency (MHz)	3715.01	3840	3838.98	MPR			
	20M	CP-OFDM QPSK	1	Channel	22.81	22.81	22.85	0	24.5		
		MCS Index	Channel	Frequency (MHz)	44700	58000	58300	MPR			
10M		CP-OFDM QPSK	1	Channel	3705	3840	3835	3GPP	Max	Turn-up	
		MCS Index	Channel	Frequency (MHz)	1	22.85	22.89	22.85	0	24.5	

Reduce Power

n41 (SCS 30 kHz) 2545MHz-2655MHz (Ant2)										
BW	MCS Index	RB Size		RB Offset	Low		Mid		High	Max Tune-up (dBm)
		Channel	Frequency (MHz)		518000	520002	522998			
100M	DFT-s-OFDM P2/BPSK	1	1	22.46	22.45	22.55	23.5			
		1	137	22.49	22.33	22.34	23.5			
		1	271	22.41	22.46	22.40	23.5			
		135	0	21.93	21.77	22.00	23.0			
		135	69	22.21	22.51	22.45	23.5			
		135	138	21.95	21.80	22.00	23.0			
		270	0	21.82	21.77	22.06	23.0			
		1	1	22.62	22.45	22.70	23.5			
	DFT-s-OFDM QPSK	1	137	22.21	22.28	22.30	23.5			
		1	271	22.04	22.14	22.36	23.5			
		135	0	21.57	21.61	21.54	22.5			
		135	69	22.40	22.48	22.52	23.5			
		135	138	21.18	21.30	21.50	22.5			
		270	0	21.39	21.44	21.60	22.5			
	DFT-s-OFDM 16QAM	1	1	20.74	20.68	21.13	22.5			
	DFT-s-OFDM 64QAM	1	1	19.71	19.85	19.94	21.0			
	DFT-s-OFDM 256QAM	1	1	17.45	17.42	17.68	19.0			
BW	MCS Index	Channel			518004	520002	522000	Max. Tune-up		
90M	DFT-s-OFDM QPSK	1	1	22.44	22.39	22.50	23.5			
BW	MCS Index	Channel			517002	520002	522996	Max. Tune-up		
80M	DFT-s-OFDM QPSK	1	1	22.31	22.38	22.45	23.5			
BW	MCS Index	Channel			516000	520002	523998	Max. Tune-up		
70M	DFT-s-OFDM QPSK	1	1	22.39	22.29	22.23	23.5			
BW	MCS Index	Channel			515004	520002	525000	Max. Tune-up		
60M	DFT-s-OFDM QPSK	1	1	22.35	22.44	22.53	23.5			
BW	MCS Index	Channel			514002	520002	529998	Max. Tune-up		
50M	DFT-s-OFDM QPSK	1	1	22.46	22.41	22.68	23.5			
BW	MCS Index	Channel			513000	520002	530998	Max. Tune-up		
40M	DFT-s-OFDM QPSK	1	1	22.37	22.34	22.41	23.5			
BW	MCS Index	Channel			510996	520002	530998	Max. Tune-up		
20M	DFT-s-OFDM QPSK	1	1	22.49	22.36	22.56	23.5			
BW	MCS Index	Channel			510498	520002	530998	Max. Tune-up		
15M	DFT-s-OFDM QPSK	1	1	22.35	22.44	22.45	23.5			
BW	MCS Index	Channel			510000	520002	529998	Max. Tune-up		
10M	DFT-s-OFDM QPSK	1	1	22.35	22.39	22.49	23.5			

n77 (SCS 30 kHz) 3450MHz-3550MHz (Ant2)									
BW	MCS Index	RB Size		RB Offset	Low		Mid		Max. Tune-up (dBm)
		Channel			Frequency (MHz)				
		1	1		20.75	20.73	20.75	21.5	
100M	DFT-s-OFDM P2/BPSK	1	137		20.70			21.5	
		1	271		20.47			21.5	
		135	0		20.34			21.0	
		135	69		20.64			21.0	
		135	138		20.18			21.0	
		270	0		20.20			21.0	
		1	1		20.81			21.5	
		1	137		20.73			21.5	
	DFT-s-OFDM QPSK	1	271		20.66			21.5	
		135	0		19.74			20.5	
		135	69		20.65			21.5	
		135	138		19.64			20.5	
		270	0		19.70			20.5	
		1	1		20.08			20.5	
	DFT-s-OFDM 16QAM	1	1		18.30			19.0	
	DFT-s-OFDM 64QAM	1	1		18.30			19.0	
	DFT-s-OFDM 256QAM	1	1		18.27			19.0	
BW	MCS Index	Channel			633000	633334	633668	Max. Tune-up	
90M	DFT-s-OFDM QPSK	1	1		20.29	20.52	20.39	21.5	
BW	MCS Index	Channel			632668	633334	634000	Max. Tune-up	
80M	DFT-s-OFDM QPSK	1	1		20.44	20.65	20.18	21.5	
BW	MCS Index	Channel			632334	633334	634332	Max. Tune-up	
70M	DFT-s-OFDM QPSK	1	1		20.23	20.33	20.41	21.5	
BW	MCS Index	Channel			632000	633334	634668	Max. Tune-up	
60M	DFT-s-OFDM QPSK	1	1		20.41	20.67	20.62	21.5	
BW	MCS Index	Channel			631668	633334	635000	Max. Tune-up	
50M	DFT-s-OFDM QPSK	1	1		20.41	20.63	20.43	21.5	
BW	MCS Index	Channel			631334	633334	635332	Max. Tune-up	
40M	DFT-s-OFDM QPSK	1	1		20.51	20.55	20.34	21.5	
BW	MCS Index	Channel			631000	633334	635668	Max. Tune-up	
30M	DFT-s-OFDM QPSK	1	1		20.42	20.39	20.55	21.5	
BW	MCS Index	Channel			630668	633334	636000	Max. Tune-up	
20M	DFT-s-OFDM QPSK	1	1		20.36	20.53	20.36	21.5	
BW	MCS Index	Channel			630334	633334	636332	Max. Tune-up	
10M	DFT-s-OFDM QPSK	1	1		20.42	20.45	20.58	21.5	

n77 (SCS 30 kHz) 3700MHz-3800MHz (Ant2)									
BW	MCS Index	RB Size		RB Offset	Low		Mid		Max. Tune-up (dBm)
		Channel			Frequency (MHz)				
		1	1		650000	650000	652000		
100M	DFT-s-OFDM P2/BPSK	1	1		20.13	20.33	19.88	21.5	
		1	137		20.00	20.25	20.02	21.5	
		1	271		20.21	20.23	20.01	21.5	
		135	0		19.68	19.63	19.96	21.0	
		135	69		19.92	20.02	20.04	21.5	
		135	138		19.70	19.59	19.72	21.0	
		270	0		19.59	19.75	19.79	21.0	
		1	1		20.10	20.34	20.23	21.5	
	DFT-s-OFDM QPSK	1	137		20.05	20.11	20.17	21.5	
		1	271		20.09	19.98	20.05	21.5	
		135	0		19.53	19.52	19.07	20.5	
		135	69		19.99	20.18	19.99	21.5	
		135	138		19.03	19.10	19.02	20.5	
		270	0		19.13	19.17	19.13	20.5	
	DFT-s-OFDM 16QAM	1	1		18.91	19.21	19.10	20.5	
	DFT-s-OFDM 64QAM	1	1		17.57	17.85	17.95	19.0	
	DFT-s-OFDM 256QAM	1	1		17.45	17.66	17.63	19.0	
BW	MCS Index	Channel			648888	650000	662332	Max. Tune-up	
90M	DFT-s-OFDM QPSK	1	1		19.99	20.11	20.00	21.5	
BW	MCS Index	Channel			648334	650000	662668	Max. Tune-up	
80M	DFT-s-OFDM QPSK	1	1		20.19	20.20	19.96	21.5	
BW	MCS Index	Channel			648000	650000	663000	Max. Tune-up	
70M	DFT-s-OFDM QPSK	1	1		19.97	20.10	20.14	21.5	
BW	MCS Index	Channel			648668	650000	663332	Max. Tune-up	
60M	DFT-s-OFDM QPSK	1	1		20.20	20.12	19.88	21.5	
BW	MCS Index	Channel			648334	650000	663668	Max. Tune-up	
50M	DFT-s-OFDM QPSK	1	1		20.09	20.18	19.74	21.5	
BW	MCS Index	Channel			648000	650000	664000	Max. Tune-up	
40M	DFT-s-OFDM QPSK	1	1		19.92	20.06	20.14	21.5	
BW	MCS Index	Channel			647668	650000	664332	Max. Tune-up	
30M	DFT-s-OFDM QPSK	1	1		20.10	20.24	19.73	21.5	
BW	MCS Index	Channel			647334	650000	664668	Max. Tune-up	
20M	DFT-s-OFDM QPSK	1	1		20.11	20.14	19.99	21.5	
BW	MCS Index	Channel			647000	650000	665000	Max. Tune-up	
10M	DFT-s-OFDM QPSK	1	1		20.04	19.97	20.14	21.5	

Reduce Power

EN-DC n77 (SCS 30 kHz) 3450MHz-3550MHz (Ant4)									
BW	MCS Index	RB Size	RB Offset	Channel	Mid	Max. Turn-up (dBm)			
				Frequency (MHz)	3500.01				
100M	DFT-s-OFDM PUSCH	1	1		20.99	22.5			
		1	137		20.99	22.5			
		1	271		20.86	22.5			
		135	0		20.56	22.0			
		135	69		20.88	22.5			
		135	138		20.47	22.0			
	DFT-s-OFDM QPSK	1	1		20.56	22.0			
		1	1		21.07	22.5			
		1	137		20.54	22.5			
		1	271		20.89	22.5			
		135	0		20.02	21.5			
		135	69		21.03	22.5			
	DFT-s-OFDM 16QAM	1	1		18.40	20.0			
		1	1		18.40	20.0			
	DFT-s-OFDM 64QAM	1	1		18.40	20.0			
		1	1		18.35	20.0			
BW	MCS Index			Channel	633000	633334	633668	Max. Turn-up	
90M	DFT-s-OFDM QPSK	1	1		20.89	21.01	20.96	22.5	
BW	MCS Index			Channel	632668	633334	634000	Max. Turn-up	
80M	DFT-s-OFDM QPSK	1	1		20.76	21.03	20.73	22.5	
BW	MCS Index			Channel	632334	633334	634332	Max. Turn-up	
70M	DFT-s-OFDM QPSK	1	1		20.72	20.84	20.90	22.5	
BW	MCS Index			Channel	632000	633334	634668	Max. Turn-up	
60M	DFT-s-OFDM QPSK	1	1		20.75	21.00	20.82	22.5	
BW	MCS Index			Channel	631668	633334	635000	Max. Turn-up	
50M	DFT-s-OFDM QPSK	1	1		20.75	20.91	20.90	22.5	
BW	MCS Index			Channel	631334	633334	635332	Max. Turn-up	
40M	DFT-s-OFDM QPSK	1	1		20.79	21.05	20.82	22.5	
BW	MCS Index			Channel	631000	633334	635668	Max. Turn-up	
30M	DFT-s-OFDM QPSK	1	1		20.79	20.90	20.77	22.5	
BW	MCS Index			Channel	630668	633334	636000	Max. Turn-up	
20M	DFT-s-OFDM QPSK	1	1		20.78	21.00	20.65	22.5	
BW	MCS Index			Channel	630334	633334	636332	Max. Turn-up	
10M	DFT-s-OFDM QPSK	1	1		20.68	20.94	20.82	22.5	

n77 (SCS 30 kHz) 3450MHz-3550MHz (UL MIMO)(Ant2+4)									
BW	MCS Index	RB Size	RB Offset	Channel	Mid	Max. Turn-up (dBm)			
				Frequency (MHz)	3500.01				
100M	CP-OFDM PUSCH	NA	NA			19.0			
		NA	NA			19.0			
		NA	NA			19.0			
		NA	NA			19.0			
		NA	NA			19.0			
		NA	NA			19.0			
	CP-OFDM QPSK	1	1		17.82	19.0			
		1	137		17.70	19.0			
		1	271		17.73	19.0			
		137	0		17.69	19.0			
		137	68		17.76	19.0			
		137	136		17.71	19.0			
	CP-OFDM 16QAM	1	1		17.65	19.0			
		1	1		17.47	19.0			
	CP-OFDM 64QAM	1	1		17.81	19.0			
		1	1		17.81	19.0			
BW	MCS Index			Channel	633000	633334	633668	Max. Turn-up	
90M	CP-OFDM QPSK	1	1		17.55	17.75	17.60	19.0	
BW	MCS Index			Channel	632668	633334	634000	Max. Turn-up	
80M	CP-OFDM QPSK	1	1		17.63	17.65	17.60	19.0	
BW	MCS Index			Channel	632334	633334	634332	Max. Turn-up	
70M	CP-OFDM QPSK	1	1		17.74	17.79	17.79	19.0	
BW	MCS Index			Channel	632000	633334	634668	Max. Turn-up	
60M	CP-OFDM QPSK	1	1		17.65	17.79	17.72	19.0	
BW	MCS Index			Channel	631668	633334	635000	Max. Turn-up	
50M	CP-OFDM QPSK	1	1		17.72	17.66	17.71	19.0	
BW	MCS Index			Channel	631334	633334	635332	Max. Turn-up	
40M	CP-OFDM QPSK	1	1		17.50	17.80	17.52	19.0	
BW	MCS Index			Channel	631000	633334	635668	Max. Turn-up	
30M	CP-OFDM QPSK	1	1		17.67	17.76	17.79	19.0	
BW	MCS Index			Channel	630668	633334	636000	Max. Turn-up	
20M	CP-OFDM QPSK	1	1		17.62	17.71	17.65	19.0	
BW	MCS Index			Channel	630334	633334	636332	Max. Turn-up	
10M	CP-OFDM QPSK	1	1		17.78	17.75	17.79	19.0	

EN-DC n77 (SCS 30 kHz) 3700MHz-3980MHz (Ant4)									
BW	MCS Index	RB Size	RB Offset	Channel	Low	Mid	High	Max. Turn-up (dBm)	
				Frequency (MHz)	3750	3840	3930		
100M	DFT-s-OFDM PUSCH	1	1		20.94	21.05	20.84	22.5	
		1	137		20.87	21.04	20.74	22.5	
		1	271		20.82	21.02	20.77	22.5	
		135	0		20.70	20.84	20.60	22.0	
		135	69		20.78	20.98	20.93	22.5	
		135	138		20.59	20.61	20.63	22.0	
	DFT-s-OFDM QPSK	1	1		20.46	20.54	20.48	22.0	
		1	1		20.96	21.12	20.97	22.5	
		1	137		20.85	21.09	20.89	22.5	
		1	271		20.93	21.00	20.95	22.5	
		135	0		19.96	20.00	20.12	21.5	
		135	69		20.88	21.06	20.94	22.5	
	DFT-s-OFDM 16QAM	1	1		19.65	19.64	19.68	21.5	
		1	1		18.33	18.42	18.40	20.0	
	DFT-s-OFDM 64QAM	1	1		18.33	18.42	18.40	20.0	
		1	1		18.46	18.37	18.42	20.0	
BW	MCS Index			Channel	649668	650000	650332	Max. Turn-up	
90M	DFT-s-OFDM QPSK	1	1		20.93	20.96	20.91	22.5	
BW	MCS Index			Channel	649334	650000	650668	Max. Turn-up	
80M	DFT-s-OFDM QPSK	1	1		20.81	20.94	20.83	22.5	
BW	MCS Index			Channel	649000	650000	650300	Max. Turn-up	
70M	DFT-s-OFDM QPSK	1	1		20.76	21.01	20.78	22.5	
BW	MCS Index			Channel	648668	650000	650332	Max. Turn-up	
60M	DFT-s-OFDM QPSK	1	1		20.79	20.94	20.78	22.5	
BW	MCS Index			Channel	648334	650000	650668	Max. Turn-up	
50M	DFT-s-OFDM QPSK	1	1		20.82	21.01	20.59	22.5	
BW	MCS Index			Channel	648000	650000	650900	Max. Turn-up	
40M	DFT-s-OFDM QPSK	1	1		20.87	21.04	20.90	22.5	
BW	MCS Index			Channel	647668	650000	650332	Max. Turn-up	
30M	DFT-s-OFDM QPSK	1	1		20.67	20.98	20.64	22.5	
BW	MCS Index			Channel	647334	650000	650668	Max. Turn-up	
20M	DFT-s-OFDM QPSK	1	1		20.85	21.05	20.93	22.5	
BW	MCS Index			Channel	647000	650000	650900	Max. Turn-up	
10M	DFT-s-OFDM QPSK	1	1		20.78	20.94	20.93	22.5	

n77 (SCS 30 kHz) 3700MHz-3980MHz (UL MIMO)(Ant2+4)									
BW	MCS Index	RB Size	RB Offset	Channel	Low	Mid	High	Max. Turn-up (dBm)	
					650000	650800	652000		
		Frequency (MHz)			3750	3840	3930		
100M	CP-OFDM PUSCH	NA	NA					19.0	
		NA	NA					19.0	
		NA	NA					19.0	
		NA	NA					19.0	
		NA	NA					19.0	
		NA	NA					19.0	
	CP-OFDM QPSK	1	1		17.51	17.84	17.49	19.0	
		1	137		17.40	17.38	17.45	19.0	
		1	271		17.33	17.53	17.42	19.0	
		137	0		17.34	17.28	17.31	19.0	
		137	68		17.42	17.52	17.39	19.0	
		137	136		17.35	17.26	17.29	19.0	
	CP-OFDM 16QAM	273	0		17.19	17.35	17.22	19.0	
		1	1		17.18	17.23	17.37	19.0	
	CP-OFDM 64QAM	1	1		17.19	17.41	17.25	19.0	
		1	1		17.13	17.29	17.36	19.0	
BW	MCS Index	Channel			649668	650000	650332	Max. Turn-up	
90M	CP-OFDM QPSK	1	1		17.40	17.38	17.50	19.0	
BW	MCS Index	Channel			649334	650000	650668	Max. Turn-up	
80M	CP-OFDM QPSK	1	1		17.42	17.52	17.39	19.0	
BW	MCS Index	Channel			649000	650000	650300	Max. Turn-up	
70M	CP-OFDM QPSK	1	1		17.29	17.28	17.39	19.0	
BW	MCS Index	Channel			648668	650000	650332	Max. Turn-up	
60M	CP-OFDM QPSK	1	1		17.33	17.47	17.35	19.0	
60M	CP-OFDM QPSK	Channel			648334	650000	650668	Max. Turn-up	
		1	1		17.25	17.91	17.34	19.0	
50M	CP-OFDM QPSK	1	1		17.49	17.40	17.42	19.0	
BW	MCS Index	Channel			648000	650000	650400	Max. Turn-up	
40M	CP-OFDM QPSK	1	1		17.30	17.44	17.34	19.0	
BW	MCS Index	Channel			647668	650000	650332	Max. Turn-up	
30M	CP-OFDM QPSK	1	1		17.35	17.23	17.42	19.0	
30M	MCS Index	Channel			647334	650000	650668	Max. Turn-up	
		1	1		17.19	17.91	17.34	19.0	
20M	CP-OFDM QPSK	1	1		17.27	17.47	17.31	19.0	
BW	MCS Index	Channel			647000	650000	650500	Max. Turn-up	
10M	CP-OFDM QPSK	1	1		17.23	17.43	17.33	19.0	

2.4GHz WLAN		Ant1				
Mode	Channel	Frequency (MHz)	Average power (dBm)	Time-to-Lock	Power Setting	
802.11b Mbps	1	2412	17.23	10.00	10.00	
	6	2437	17.01	10.00	10.00	
	11	2462	16.99	10.00	10.00	
802.11g Mbps	1	2412	15.30	17.00	14.00	
	6	2437	15.14	17.00	14.00	
	11	2462	15.07	17.00	14.00	
802.11n HT20 MCS0	1	2412	16.06	10.00	13.00	
	6	2437	15.29	10.00	13.00	
	11	2462	15.02	10.00	13.00	
802.11n HT40 MCS0	3	2442	16.06	10.00	9.00	
	7	2442	16.04	10.00	12.00	
	11	2462	15.99	10.00	12.00	
802.11n HT40 MCS9	1	2412	16.04	10.00	10.00	
	6	2437	15.74	10.00	10.00	
	11	2462	15.56	10.00	10.00	
802.11n HE20 MCS0	13	2472	15.74	10.00	13.00	
	3	2442	16.04	10.00	9.00	
	7	2442	16.04	10.00	12.00	
802.11n HE40 MCS0	11	2462	15.56	10.00	12.00	
	1	2412	16.05	10.00	7.00	
	7	2442	16.04	10.00	9.00	
802.11n HE20 MCS9_RU20	13	2472	15.74	10.00	7.00	
	1	2412	16.02	10.00	10.00	
	7	2442	16.04	10.00	10.00	
802.11n HE20 MCS9_RU20	13	2472	15.72	10.00	10.00	
	1	2412	16.04	10.00	10.00	
	7	2442	16.04	10.00	10.00	
802.11n HE20 MCS9_RU100	13	2472	15.97	10.00	13.00	
	1	2412	16.04	10.00	10.00	
	7	2442	16.04	10.00	10.00	

2.4GHz WLAN		Ant2				
Mode	Channel	Frequency (MHz)	Average power (dBm)	Time-to-Lock	Power Setting	
802.11b Mbps	1	2412	17.23	10.00	10.00	
	6	2437	17.01	10.00	10.00	
	11	2462	16.99	10.00	10.00	
802.11g Mbps	1	2412	15.30	17.00	14.00	
	6	2437	15.14	17.00	14.00	
	11	2462	15.07	17.00	14.00	
802.11n HT20 MCS0	1	2412	16.06	10.00	13.00	
	6	2437	15.29	10.00	13.00	
	11	2462	15.02	10.00	13.00	
802.11n HT40 MCS0	3	2442	16.06	10.00	9.00	
	7	2442	16.04	10.00	12.00	
	11	2462	15.99	10.00	12.00	
802.11n HT40 MCS9	1	2412	16.04	10.00	10.00	
	6	2437	15.74	10.00	10.00	
	11	2462	15.56	10.00	10.00	
802.11n HE20 MCS0	13	2472	15.74	10.00	13.00	
	3	2442	16.04	10.00	9.00	
	7	2442	16.04	10.00	12.00	
802.11n HE40 MCS0	11	2462	15.56	10.00	12.00	
	1	2412	16.05	10.00	7.00	
	7	2442	16.04	10.00	9.00	
802.11n HE20 MCS9_RU20	13	2472	15.74	10.00	7.00	
	1	2412	16.02	10.00	10.00	
	7	2442	16.04	10.00	10.00	
802.11n HE20 MCS9_RU20	13	2472	15.72	10.00	10.00	
	1	2412	16.04	10.00	10.00	
	7	2442	16.04	10.00	10.00	
802.11n HE20 MCS9_RU100	13	2472	15.97	10.00	13.00	
	1	2412	16.04	10.00	10.00	
	7	2442	16.04	10.00	10.00	

5GHz WLAN		Ant1				
Mode	Channel	Frequency (MHz)	Average power (dBm)	Time-to-Lock	Power Setting	
802.11a 54Mbps	36	5160	16.23	10.00	14.00	
	40	5200	16.01	10.00	14.00	
	44	5240	16.08	10.00	14.00	
802.11a HT20 MCS0	48	5280	16.12	10.00	13.00	
	36	5160	15.16	10.00	12.00	
	40	5200	15.07	10.00	12.00	
802.11a HT40 MCS0	48	5280	15.97	10.00	13.00	
	36	5160	15.90	10.00	11.00	
	40	5200	15.84	10.00	11.00	
802.11a VHT20 MCS0	40	5200	15.27	10.00	12.00	
	44	5240	15.27	10.00	12.00	
	48	5280	15.27	10.00	12.00	
802.11a VHT40 MCS0	36	5160	15.14	10.00	12.00	
	40	5200	15.07	10.00	12.00	
	44	5240	15.07	10.00	12.00	
802.11a VHT40 MCS9	40	5200	15.27	10.00	11.00	
	44	5240	15.27	10.00	11.00	
	48	5280	15.27	10.00	11.00	
802.11a HE20 MCS0	42	5310	15.89	10.00	11.00	
	36	5160	15.27	10.00	12.00	
	40	5200	15.21	10.00	12.00	
802.11a HE20 MCS9	40	5200	15.07	10.00	12.00	
	44	5240	15.07	10.00	12.00	
	48	5280	15.07	10.00	12.00	
802.11a HE40 MCS0	36	5160	15.14	10.00	11.00	
	40	5200	15.07	10.00	11.00	
	44	5240	15.07	10.00	11.00	
802.11a HE20 MCS0_RU100	40	5200	15.26	10.00	7.00	
	44	5240	15.26	10.00	7.00	
	48	5280	15.26	10.00	7.00	
802.11a HE20 MCS0_RU20	36	5160	15.04	10.00	9.00	
	40	5200	15.04	10.00	9.00	
	44	5240	15.04	10.00	9.00	
802.11a HE20 MCS0_RU20	36	5160	15.04	10.00	11.00	
	40	5200	15.04	10.00	11.00	
	44	5240	15.04	10.00	11.00	
802.11a HE20 MCS0_RU100	36	5160	15.26	10.00	13.00	
	40	5200	15.26	10.00	13.00	
	48	5280	15.26	10.00	13.00	

5GHz WLAN		Ant1				
Mode	Channel	Frequency (MHz)	Average power (dBm)	Time-to-Lock	Power Setting	
802.11a Mbps	52	5360	16.28	10.00	10.00	
	56	5400	16.11	10.00	10.00	
	60	5440	16.11	10.00	10.00	
802.11a HT20 MCS0	56	5400	16.34	10.00	10.00	
	52	5360	16.28	10.00	10.00	
	60	5440	16.28	10.00	10.00	
802.11a HT40 MCS0	52	5360	16.30	10.00	11.00	
	56	5400	16.30	10.00	11.00	
	60	5440	16.30	10.00	11.00	
802.11a VHT20 MCS0	52	5360	16.07	10.00	10.00	
	56	5400	16.07	10.00	10.00	
	60	5440	16.07	10.00	10.00	
802.11a VHT40 MCS0	54	5370	16.28	10.00	11.00	
	58	5410	16.28	10.00	11.00	
	62	5450	16.28	10.00	11.00	
802.11a VHT40 MCS9	54	5370	16.15	10.00	11.00	
	58	5410	16.15	10.00	11.00	
	62	5450	16.15	10.00	11.00	
802.11a HE20 MCS0	56	5400	16.16	10.00	12.00	
	52	5360	16.33	10.00	12.00	
	60	5440	16.34	10.00	12.00	
802.11a HE20 MCS9	56	5400	16.34	10.00	11.00	
	52	5360	16.34	10.00	11.00	
	60	5440	16.34	10.00	11.00	
802.11a HE20 MCS9_RU20	56	5400	16.34	10.00	7.00	
	52	5360	16.34	10.00	7.00	
	60	5440	16.34	10.00	7.00	
802.11a HE20 MCS9_RU20	56	5400	16.34	10.00	9.00	
	52	5360	16.34	10.00	9.00	
	60	5440	16.34	10.00	9.00	
802.11a HE20 MCS9_RU20	56	5400	16.34	10.00	11.00	
	52	5360	16.34	10.00	11.00	
	60	5440	16.34	10.00	11.00	
802.11a HE20 MCS9_RU100	56	5400	16.34	10.00	13.00	
	52	5360	16.34	10.00	13.00	
	60	5440	16.34	10.00	13.00	

5GHz WLAN		Ant1				
Mode	Channel	Frequency (MHz)	Average power (dBm)	Time-to-Lock (s)	Power Setting	
802.11a Mbps	100	5200	17.48	10.00	12.00	
	116	5260	17.07	10.00	14.00	
	124	5280	16.23	10.00	10.00	
	132	5300	16.01	10.00	10.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
802.11a HT20 MCS0	156	5360	16.73	10.00	12.00	
	124	5280	16.26	10.00	12.00	
	132	5300	16.09	10.00	12.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
	156	5360	16.01	10.00	10.00	
802.11a HT40 MCS0	160	5380	16.86	10.00	12.00	
	124	5280	16.23	10.00	10.00	
	132	5300	16.09	10.00	11.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
	156	5360	16.01	10.00	10.00	
802.11a VHT20 MCS0	160	5380	16.73	10.00	12.00	
	124	5280	16.26	10.00	12.00	
	132	5300	16.09	10.00	12.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
	156	5360	16.01	10.00	10.00	
802.11a VHT40 MCS0	160	5380	16.86	10.00	12.00	
	124	5280	16.23	10.00	10.00	
	132	5300	16.09	10.00	11.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
	156	5360	16.01	10.00	10.00	
802.11a VHT40 MCS9	160	5380	16.73	10.00	11.00	
	124	5280	16.26	10.00	11.00	
	132	5300	16.09	10.00	11.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
	156	5360	16.01	10.00	10.00	
802.11a HE20 MCS0	160	5380	16.86	10.00	12.00	
	124	5280	16.23	10.00	12.00	
	132	5300	16.09	10.00	12.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
	156	5360	16.01	10.00	10.00	
802.11a HE40 MCS0	160	5380	16.86	10.00	12.00	
	124	5280	16.23	10.00	12.00	
	132	5300	16.09	10.00	12.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
	156	5360	16.01	10.00	10.00	
802.11a HE40 MCS9	160	5380	16.73	10.00	11.00	
	124	5280	16.26	10.00	11.00	
	132	5300	16.09	10.00	11.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
	156	5360	16.01	10.00	10.00	
802.11a HE20 MCS9_RU20	160	5380	16.86	10.00	7.00	
	124	5280	16.23	10.00	7.00	
	132	5300	16.09	10.00	7.00	
	140	5320	16.01	10.00	6.00	
	148	5340	16.01	10.00	6.00	
	156	5360	16.01	10.00	6.00	
802.11a HE20 MCS9_RU20	160	5380	16.86	10.00	9.00	
	124	5280	16.23	10.00	9.00	
	132	5300	16.09	10.00	9.00	
	140	5320	16.01	10.00	8.00	
	148	5340	16.01	10.00	8.00	
	156	5360	16.01	10.00	8.00	
802.11a HE20 MCS9_RU20	160	5380	16.86	10.00	11.00	
	124	5280	16.23	10.00	11.00	
	132	5300	16.09	10.00	11.00	
	140	5320	16.01	10.00	10.00	
	148	5340	16.01	10.00	10.00	
	156	5360	16.01	10.00	10.00	
802.11a HE20 MCS9_RU100	160	5380	16.86	10.00	13.00	
	124	5280	16.23	10.00	13.00	
	132	5300	16.09	10.00	13.00	
	140	5320	16.01	10.00	11.00	
	148	5340	16.01	10.00	11.00	
	156	5360	16.01	10.00	11.00	

Conducted Power					
2.4GHz WLAN		Ant2			
Mode	Channel	Frequency (MHz)	Average power (dBm)	Time-to-Lock (s)	Power Setting (dBm)
802.11b Mbps	1	2412	17.16	10.00	10.00
	6	2437	17.41	10.00	10.00
	11	2462	16.90	10.00	10.00
802.11g Mbps	1	2412	15.00	17.00	14.00
	6	2437	15.06	17.00	14.00
	11	2462	15.00	17.00	14.00
802.11n HT20 MCS0	1	2412	16.06	10.00	13.00
	6	2437	15.84	10.00	13.00
	11	2462	15.88	10.00	13.00
802.11n HT40 MCS0	3	2442	16.04	10.00	9.00
	7	2442	16.04	10.00	12.00
	11	2462	16.04	10.00	12.00
802.11n HE20 MCS0	13	2472	16.16	10.00	13.00
	3	2442	16.04	10.00	9.00
	7	2442	16.04	10.00	12.00
802.11n HE40 MCS0	11	2462	16.13	10.00	12.00
	1	2412	16.07	10.00	7.00
	7	2442	16.04	10.00	9.00
802.11n HE20 MCS9_RU20	13	2472	16.16	10.00	7.00
	1	2412	16.10	10.00	10.00
	7	2442	16.04	10.00	10.00
802.11n HE20 MCS9_RU20	13	2472	16.14	10.00	10.00
	1	2412	16.04	10.00	10.00
	7	2442	16.04	10.00	10.00
802.11n HE20 MCS9_RU100	13	2472	16.30	10.00	13.00
	1	2412	16.04	10.00	10.00
	7	2442	16.04	10.00	10.00

5GHz WLAN		Ant2				
Mode	Channel	Frequency (MHz)	Average power (dBm)	Time-to-Lock	Power Setting	
802.11a Mbps	36	5160	16.17	10.00	14.00	
	40	5200	16.14	10.00	14.00	
	44	5240	16.08	10.00	14.00	
802.11a+HT2 MCS0	36	5160	16.08	10.00	14.00	
	40	5200	16.06	10.00	14.00	
	44	5240	16.00	10.00	14.00	
802.11a+HT2 MCS1	36	5160	15.99	10.00	14.00	
	40	5200	15.97	10.00	14.00	
	44	5240	15.91	10.00	14.00	
802.11a+HT2 MCS2	36	5160	15.90	10.00	14.00	
	40	5200	15.88	10.00	14.00	
	44	5240	15.82	10.00	14.00	
802.11a+VHT2 MCS0	36	5160	15.93	10.00	14.00	
	40	5200	15.91	10.00	14.00	
	44	5240	15.85	10.00	14.00	
802.11a+VHT2 MCS1	36	5160	15.84	10.00	14.00	
	40	5200	15.82	10.00	14.00	
	44	5240	15.76	10.00	14.00	
802.11a+VHT2 MCS2	36	5160	15.75	10.00	14.00	
	40	5200	15.73	10.00	14.00	
	44	5240	15.67	10.00	14.00	
802.11a+HE2 MCS0, PUS0	36	5160	8.76	10.00	7.50	
	40	5200	8.74	10.00	7.50	
	44	5240	8.68	10.00	7.50	
802.11a+HE2 MCS1, PUS0	36	5160	8.64	10.00	7.50	
	40	5200	8.62	10.00	7.50	
	44	5240	8.56	10.00	7.50	
802.11a+HE2 MCS2, PUS0	36	5160	8.55	10.00	7.50	
	40	5200	8.53	10.00	7.50	
	44	5240	8.47	10.00	7.50	
802.11a+HE2 MCS0, PUS1	36	5160	12.49	10.00	11.00	
	40	5200	12.47	10.00	11.00	
	44	5240	12.41	10.00	11.00	
802.11a+HE2 MCS1, PUS1	36	5160	12.40	10.00	11.00	
	40	5200	12.38	10.00	11.00	
	44	5240	12.32	10.00	11.00	
802.11a+HE2 MCS2, PUS1	36	5160	12.31	10.00	11.00	
	40	5200	12.29	10.00	11.00	
	44	5240	12.23	10.00	11.00	

Appendix E. Simultaneous Multi-band Transmission Evaluation

The simultaneous transmission evaluation and analysis is shown as below.

< Body Worn Exposure Condition >(Single Band)

WWAN Band	Exposure Position (10mm)	1	2	3	4	5	6	7	1+2+6 Summed 1g SAR (W/kg)	1+3+5 Summed 1g SAR (W/kg)	1+4+7 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN_ANT1	2.4GHz WLAN_ANT2	2.4GHz WLAN_ANT1+ 2	5GHz WLAN_ANT1	5GHz WLAN_ANT2	5GHz WLAN_ANT1+ 2			
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
WCDMA Band 2	Front	0.557	0.216	0.104	0.232	0.380	0.187	0.206	0.960	1.041	0.995
	Back	0.629	0.266	0.015	0.348	0.234	0.239	0.150	1.134	0.878	1.127
WCDMA Band 5	Front	0.375	0.216	0.104	0.232	0.380	0.187	0.206	0.778	0.859	0.813
	Back	1.062	0.266	0.015	0.348	0.234	0.239	0.150	1.567	1.311	1.560
LTE Band 5	Front	0.835	0.216	0.104	0.232	0.380	0.187	0.206	1.238	1.319	1.273
	Back	1.059	0.266	0.015	0.348	0.234	0.239	0.150	1.564	1.308	1.557
LTE Band 17	Front	0.861	0.216	0.104	0.232	0.380	0.187	0.206	1.264	1.345	1.299
	Back	1.021	0.266	0.015	0.348	0.234	0.239	0.150	1.526	1.270	1.519
LTE Band 41	Front	0.292	0.216	0.104	0.232	0.380	0.187	0.206	0.695	0.776	0.730
	Back	0.245	0.266	0.015	0.348	0.234	0.239	0.150	0.750	0.494	0.743
NR Band n41	Front	0.523	0.216	0.104	0.232	0.380	0.187	0.206	0.926	1.007	0.961
	Back	0.965	0.266	0.015	0.348	0.234	0.239	0.150	1.470	1.214	1.463
NR Band n77	Front	0.584	0.216	0.104	0.232	0.380	0.187	0.206	0.987	1.068	1.022
	Back	0.586	0.266	0.015	0.348	0.234	0.239	0.150	1.091	0.835	1.084

< Hotspot Exposure Condition >(Single Band)

WWAN Band	Exposure Position (10mm)	1	2	3	4	5	6	7	1+2+6 Summed 1g SAR (W/kg)	1+3+5 Summed 1g SAR (W/kg)	1+4+7 Summed 1g SAR (W/kg)
		WWAN	2.4GHz WLAN_ANT1	2.4GHz WLAN_ANT2	2.4GHz WLAN_ANT1+ 2	5GHz WLAN_ANT1	5GHz WLAN_ANT2	5GHz WLAN_ANT1+ 2			
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
WCDMA Band 2	Front	0.557	0.216	0.104	0.232	0.380	0.187	0.206	0.960	1.041	0.995
	Back	0.629	0.266	0.015	0.348	0.234	0.239	0.150	1.134	0.878	1.127
	Left side		0.090	0.073	0.085	0.304	0.120	0.161	0.210	0.377	0.246
	Right side	0.107							0.107	0.107	0.107
	Top side	1.032	0.038	0.138	0.204	0.148	0.188	0.169	1.258	1.318	1.405
	Bottom side		0.184	0.040	0.186	0.341	0.125	0.214	0.309	0.381	0.400
WCDMA Band 5	Front	0.375	0.216	0.104	0.232	0.380	0.187	0.206	0.778	0.859	0.813
	Back	1.062	0.266	0.015	0.348	0.234	0.239	0.150	1.567	1.311	1.560
	Left side		0.090	0.073	0.085	0.304	0.120	0.161	0.210	0.377	0.246
	Right side	0.127							0.127	0.127	0.127
	Top side	0.180	0.038	0.138	0.204	0.148	0.188	0.169	0.406	0.466	0.553
	Bottom side	0.126	0.184	0.040	0.186	0.341	0.125	0.214	0.435	0.507	0.526
LTE Band 5	Front	0.835	0.216	0.104	0.232	0.380	0.187	0.206	1.238	1.319	1.273
	Back	1.059	0.266	0.015	0.348	0.234	0.239	0.150	1.564	1.308	1.557
	Left side		0.090	0.073	0.085	0.304	0.120	0.161	0.210	0.377	0.246
	Right side	0.111							0.111	0.111	0.111
	Top side	0.138	0.038	0.138	0.204	0.148	0.188	0.169	0.364	0.424	0.511
	Bottom side	0.109	0.184	0.040	0.186	0.341	0.125	0.214	0.418	0.490	0.509
LTE Band 17	Front	0.861	0.216	0.104	0.232	0.380	0.187	0.206	1.264	1.345	1.299
	Back	1.021	0.266	0.015	0.348	0.234	0.239	0.150	1.526	1.270	1.519
	Left side		0.090	0.073	0.085	0.304	0.120	0.161	0.210	0.377	0.246
	Right side	0.110							0.110	0.110	0.110
	Top side	0.341	0.038	0.138	0.204	0.148	0.188	0.169	0.567	0.627	0.714
	Bottom side	0.321	0.184	0.040	0.186	0.341	0.125	0.214	0.630	0.702	0.721
LTE Band 41	Front	0.292	0.216	0.104	0.232	0.380	0.187	0.206	0.695	0.776	0.730
	Back	0.245	0.266	0.015	0.348	0.234	0.239	0.150	0.750	0.494	0.743
	Left side		0.090	0.073	0.085	0.304	0.120	0.161	0.210	0.377	0.246
	Right side	0.000							0.000	0.000	0.000
	Top side	0.368	0.038	0.138	0.204	0.148	0.188	0.169	0.594	0.654	0.741
	Bottom side		0.184	0.040	0.186	0.341	0.125	0.214	0.309	0.381	0.400
NR Band n41	Front	0.523	0.216	0.104	0.232	0.380	0.187	0.206	0.926	1.007	0.961
	Back	0.965	0.266	0.015	0.348	0.234	0.239	0.150	1.470	1.214	1.463
	Left side		0.090	0.073	0.085	0.304	0.120	0.161	0.210	0.377	0.246
	Right side	0.050							0.050	0.050	0.050
	Top side	0.972	0.038	0.138	0.204	0.148	0.188	0.169	1.198	1.258	1.345
	Bottom side		0.184	0.040	0.186	0.341	0.125	0.214	0.309	0.381	0.400
NR Band n77	Front	0.584	0.216	0.104	0.232	0.380	0.187	0.206	0.987	1.068	1.022
	Back	0.586	0.266	0.015	0.348	0.234	0.239	0.150	1.091	0.835	1.084
	Left side		0.090	0.073	0.085	0.304	0.120	0.161	0.210	0.377	0.246
	Right side	0.187							0.187	0.187	0.187
	Top side	1.088	0.038	0.138	0.204	0.148	0.188	0.169	1.314	1.374	1.461
	Bottom side	0.294	0.184	0.040	0.186	0.341	0.125	0.214	0.603	0.675	0.694

< Body Worn Exposure Condition > (ENDC)

WWAN Band (LTE)	WWAN Band (NR)	Exposure Position (10mm)	1	2	3	4	5	6	7	8	1+2+3+7 Summed 1g SAR (W/kg)	1+2+4+6 Summed 1g SAR (W/kg)	1+2+5+8 Summed 1g SAR (W/kg)
			LTE	NR	2.4GHz WLAN_ANT1	2.4GHz WLAN_ANT2	2.4GHz WLAN_ANT1+ 2	5GHz WLAN_ANT1	5GHz WLAN_ANT2	5GHz WLAN_ANT1+ 2			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
LTE Band 41 (Ant2)	NR n77 (Ant4)	Front	0.292	0.556	0.216	0.104	0.232	0.380	0.187	0.206	1.251	1.332	1.286
		Back	0.245	0.458	0.266	0.015	0.348	0.234	0.239	0.150	1.208	0.952	1.201

< Hotspot Exposure Condition > (ENDC)

WWAN Band (LTE)	WWAN Band (NR)	Exposure Position (10mm)	1	2	3	4	5	6	7	8	1+2+3+7 Summed 1g SAR (W/kg)	1+2+4+6 Summed 1g SAR (W/kg)	1+2+5+8 Summed 1g SAR (W/kg)
			LTE	NR	2.4GHz WLAN_ANT1	2.4GHz WLAN_ANT2	2.4GHz WLAN_ANT1+ 2	5GHz WLAN_ANT1	5GHz WLAN_ANT2	5GHz WLAN_ANT1+ 2			
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
LTE Band 41 (Ant2)	NR n77 (Ant4)	Front	0.292	0.556	0.216	0.104	0.232	0.380	0.187	0.206	1.251	1.332	1.286
		Back	0.245	0.458	0.266	0.015	0.348	0.234	0.239	0.150	1.208	0.952	1.201
		Left side			0.090	0.073	0.085	0.304	0.120	0.161	0.210	0.377	0.246
		Right side	0.000								0.000	0.000	0.000
		Top side	0.368		0.038	0.138	0.204	0.148	0.188	0.169	0.594	0.654	0.741
		Bottom side		1.008	0.184	0.040	0.186	0.341	0.125	0.214	1.317	1.389	1.408