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

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	3500 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 ℃	37.9	2.91 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) ℃	37.4 ± 6 %	2.90 mho/m ± 6 %
Head TSL temperature change during test	<1.0 ℃	—	—

SAR result with Head TSL

SAR averaged over 1 cm^3 (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	**66.7 W/kg ± 24.4 % (*k*=2)**
SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	100 mW input power	2.58 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**25.7 W/kg ± 24.2 % (*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	52.4Ω+ 2.93jΩ
Return Loss	- 28.6dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.047 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: 2022-10-20

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 3500 MHz; Type: D3500V2; Serial: D3500V2 - SN: 1090

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

Medium parameters used: f = 3500 MHz; σ = 2.9 S/m; ε_r = 37.41; ρ = 1000 kg/m^3

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN7464; ConvF(7.2, 7.2, 7.2) @ 3500 MHz; Calibrated: 2022-01-26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1556; Calibrated: 2022-01-12
- 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=3500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 63.06 V/m; Power Drift = 0.01 dB

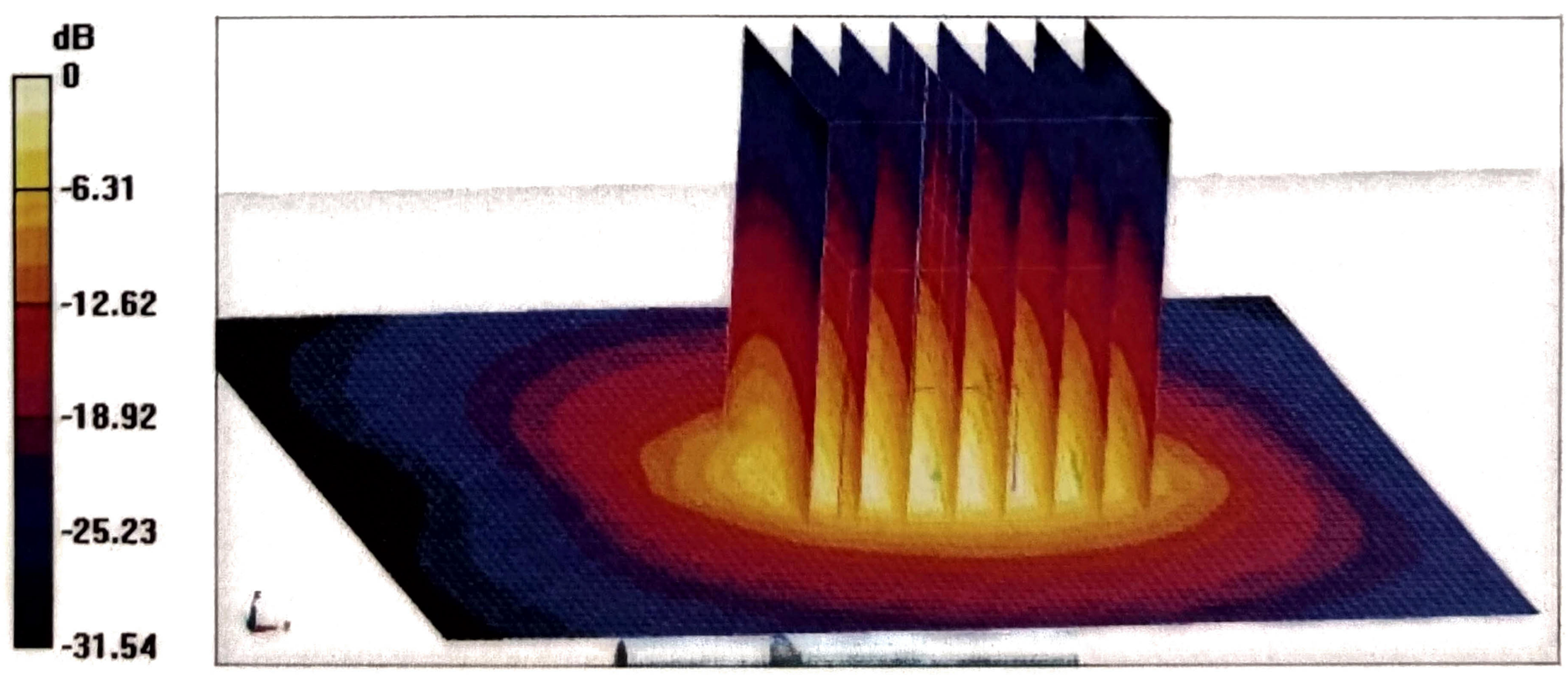
Peak SAR (extrapolated) = 16.9 W/kg

SAR(1 g) = 6.68 W/kg; SAR(10 g) = 2.58 W/kg

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

Ratio of SAR at M2 to SAR at M1 = 76.7%

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



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

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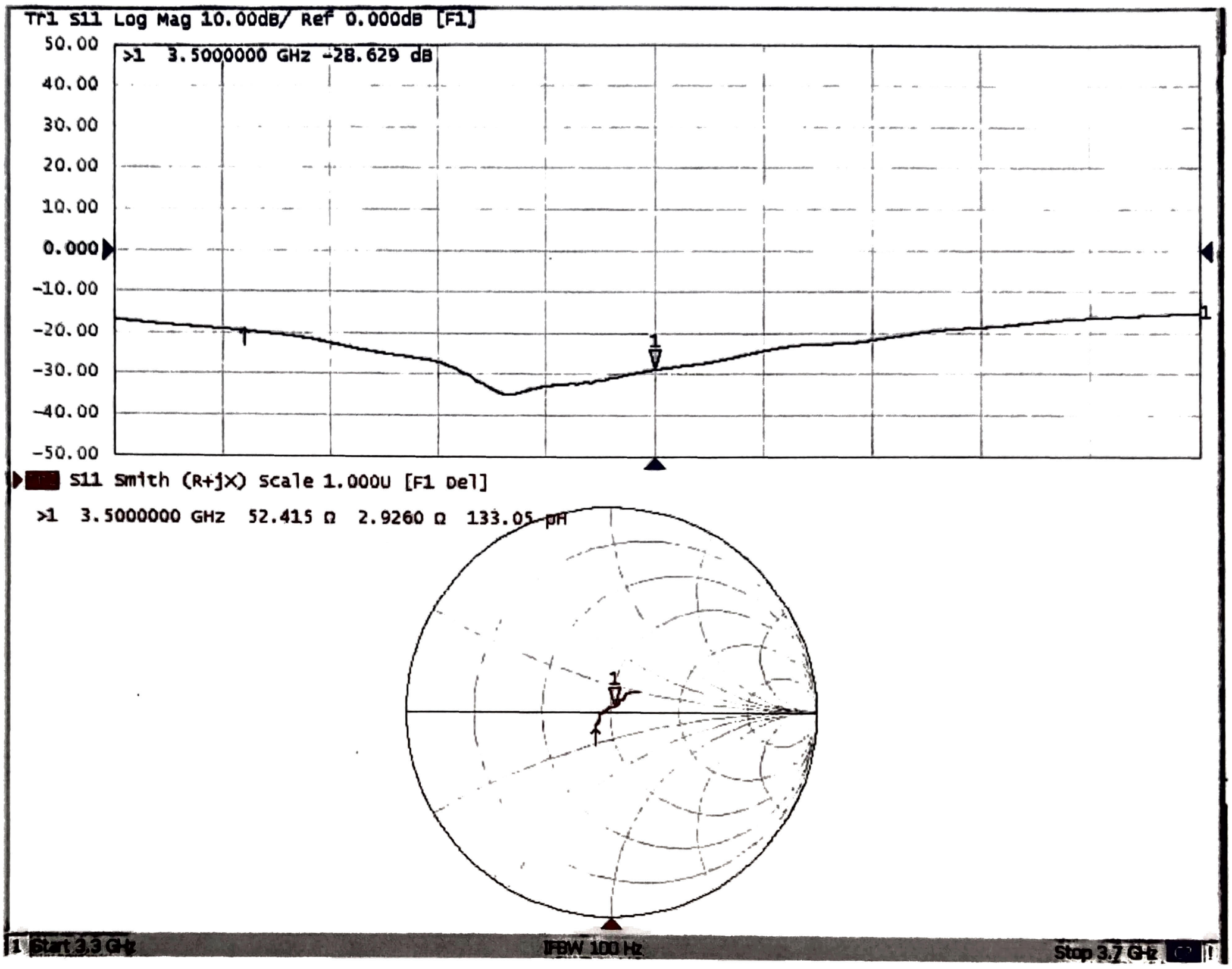
Impedance Measurement Plot for Head TSL