eoCal™

MAIN FEATURES

- Adiabatic TEM (ATEM) cell with suppression of first higher-order modes
- Operating frequency from DC to 6 GHz
- Electric field strength up to 15 kV_{rms}/m
- 50 Ω characteristic impedance
- Mean VSWR of 1.2
- SMA female connectors
- Ideal for use with electric field probes eoProbe™ with specific holders

TYPICAL APPLICATIONS

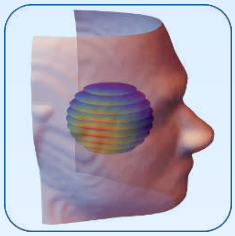
- Electric field probe calibration
- SAR studies in Petri dishes
- Exposure of biological media to EM waves
- EMC pre compliance for electronic boards
- HPEM exposure of integrated circuits

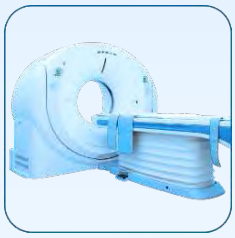
Health
Science
Defence
Aerospace
Telecommunications

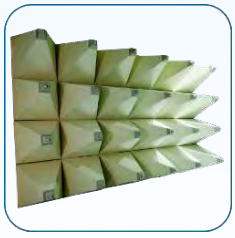
PRODUCTS LINE

Single model:

- HF6







Your **key partner** for **electromagnetism** in **harsh environment**

PERFORMANCE SPECIFICATIONS

		Min	Typical	Max	Unit
Frequency bandwidth	DC to	6	6.4		GHz
Characteristic impedance			50		Ω
Insertion loss				1	dB
Return loss		12			dB
VSWR[1]			1.20	1.65	
E field strength				2	kV_{rms}/m
Input power				44	dBm
EFSWR[2] (measured inside ATEM cell) @	100 MHz		1.03	1.10	
	126 MHz		1.03	1.10	
	158 MHz		1.03	1.10	
	200 MHz		1.03	1.10	
	251 MHz		1.04	1.10	
	316 MHz		1.04	1.10	
	398 MHz		1.03	1.10	
	501 MHz		1.03	1.10	
	631 MHz		1.03	1.10	
	794 MHz		1.04	1.10	
	1000 MHz		1.03	1.10	
	1260 MHz		1.05	1.20	
	1580 MHz		1.24	1.30	
	2000 MHz		1.07	1.40	
	2510 MHz		1.23	1.45	
	3160 MHz		1.07	1.50	
	3980 MHz		1.17	1.55	
	5010 MHz		1.53	1.60	
	6310 MHz		1.25	1.65	

[1] Voltage Standing Wave Ratio defined by ratio |Vmax|/|Vmin|
[2] Electric Field Standing Wave Ratio defined by ratio |Emax|/|Emin| in the quiet zone of ATEM cell (H ∈ {6.25,11.25} mm and D ∈ {-20,+20} mm)

USEFUL EQUATIONS

	Equation[3]
Electric field strength	E_{ATEM} [dBV_{rms}/m] = P_{ATEM} [dBm] + 22.18
	E_{ATEM} [V_{rms}/m] = 12.85 x 10^(P_{ATEM} [dBm] / 20)

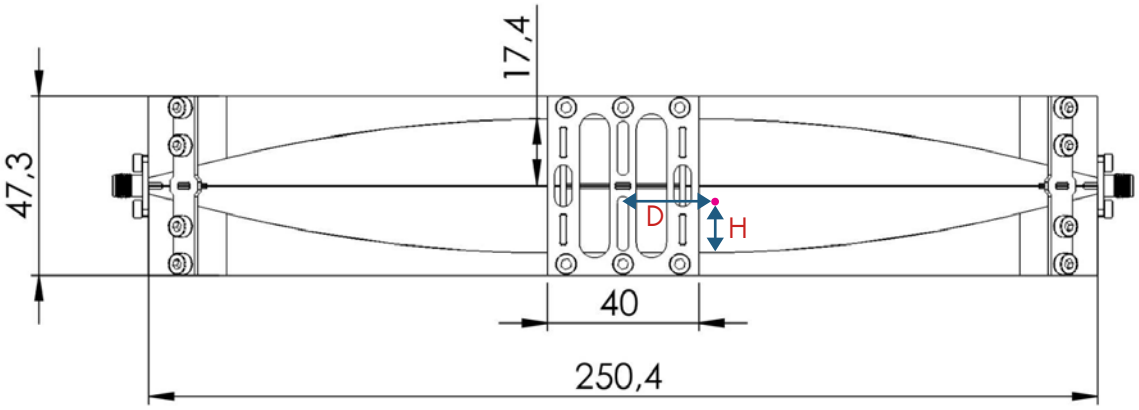
[3] P_{ATEM}: ATEM cell input power - E_{ATEM}: E field strength between ground planes and septum in the central zone of ATEM cell

MECHANICAL SPECIFICATIONS

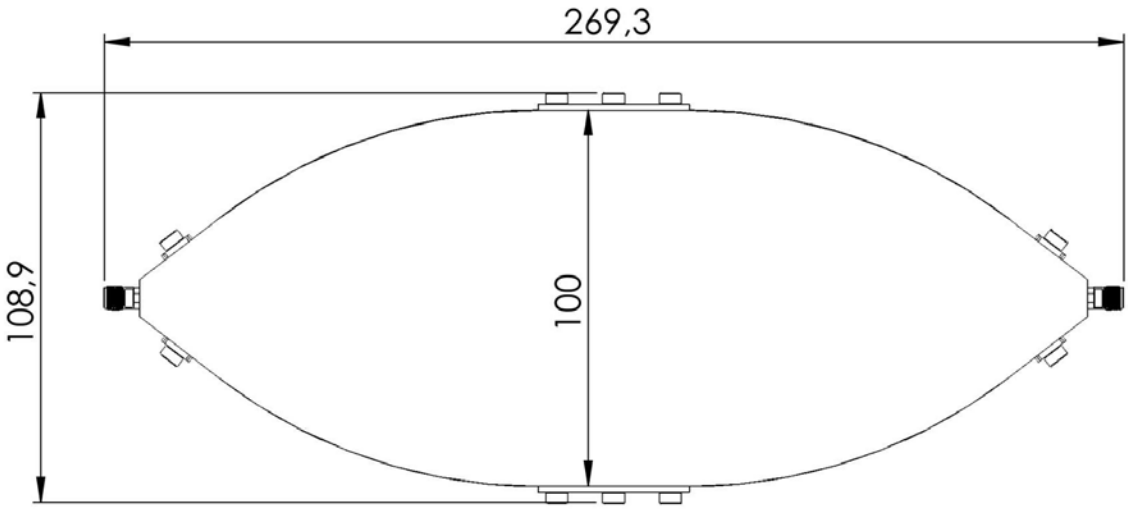
		Min	Typical	Max	Unit
Overall dimensions	width		108.9		mm
	depth		269.3		
	height		47.3		
Weight			1		kg

ATEM CELL - Drawings at scale 1:2 - Dimensions in mm (± 0.1 mm unless otherwise noted)

front view



top view



ENVIRONMENTAL SPECIFICATIONS

	Min	Typical	Max	Unit
Temperature	10		50	°C
Pressure	690		2 000	hPa
Relative humidity (non-condensing)			90	%
RF connector durability	500			mating
Storage	only in its original case in a clean, dry environment			
ATEM cell cleaning	use cloth lightly moistened with isopropyl alcohol			

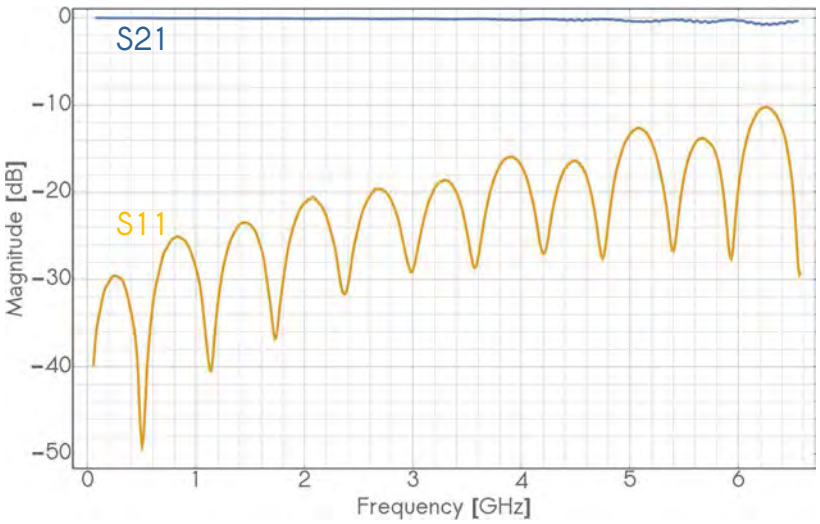
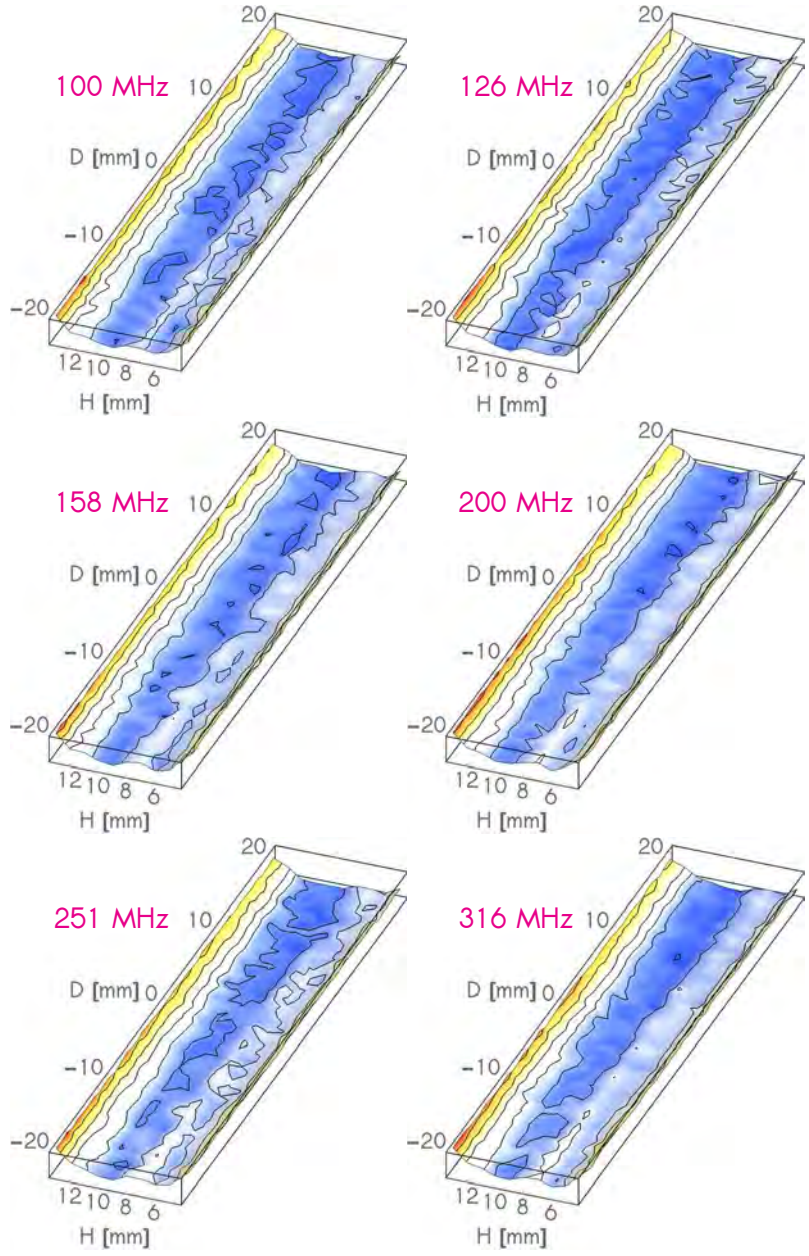
PACKAGING INFORMATION

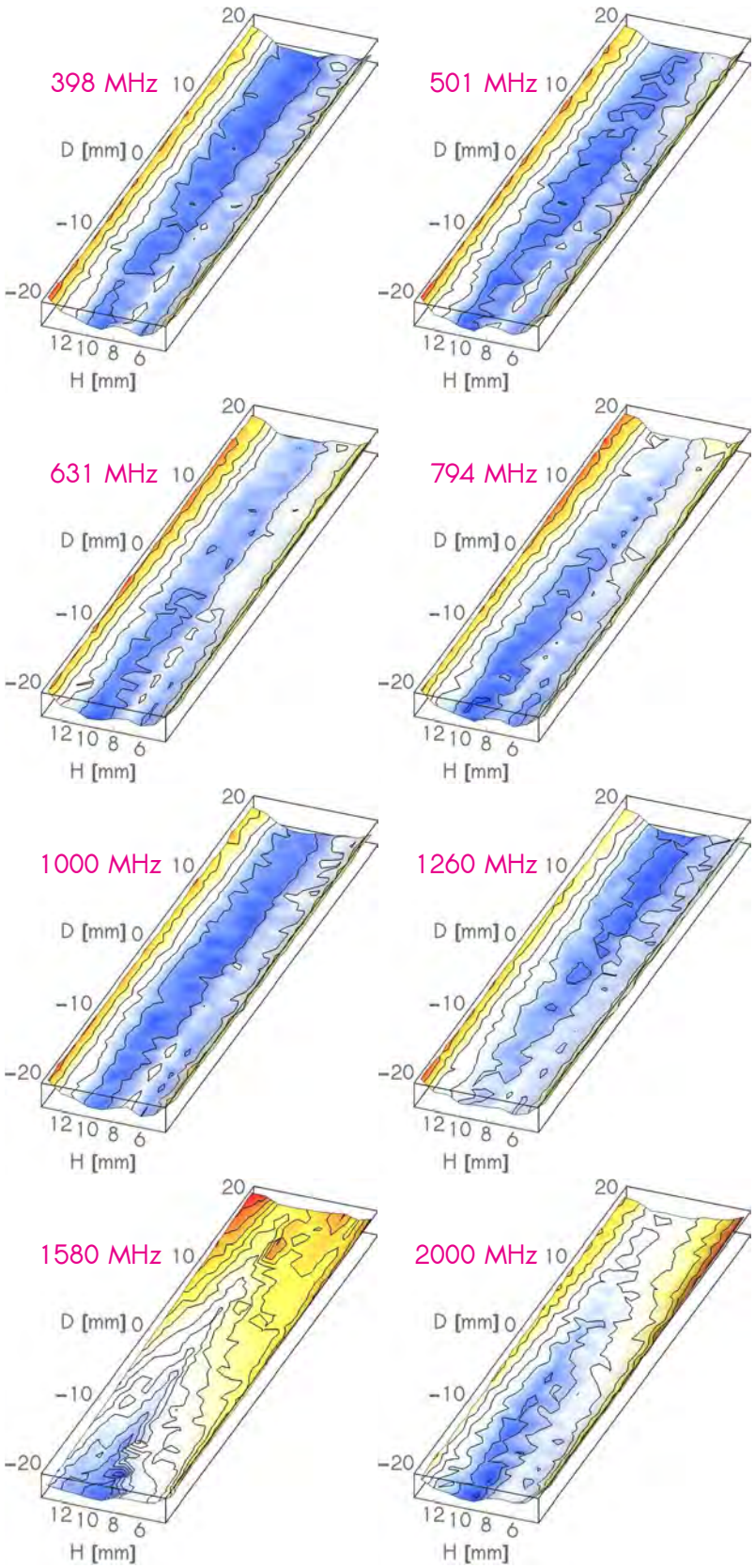
	Contents
ATEM cell	delivered with a routine test report
Transport case	cardboard with protective foam (W x D x H = 385 x 275 x 80 mm)
User guide	cf. eoSystem User Guide PDF file GU-eoSystem

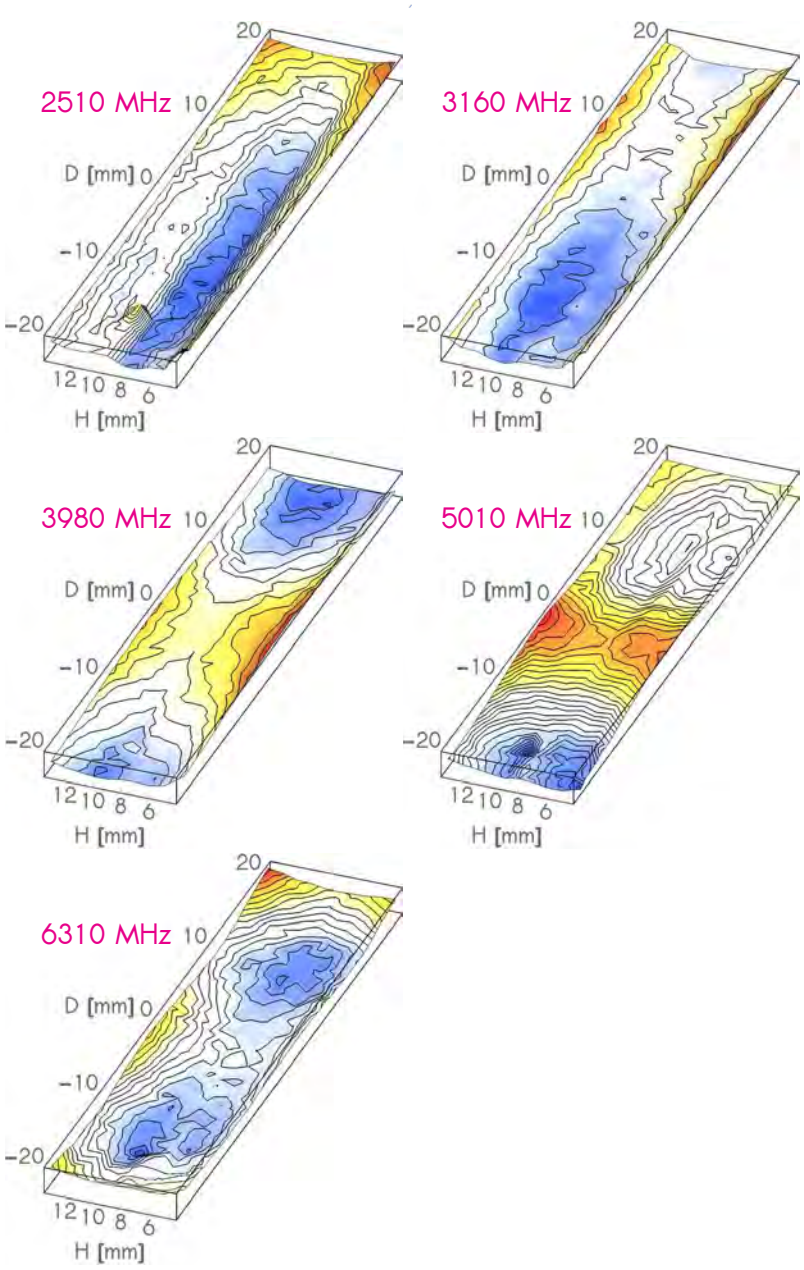
COMPATIBLE DEVICES & ACCESSORIES

	Device-related data sheet	Use	Outline schematic
Probe calibration cell eoCal™	FT20-eoProbe-09.pdf	Required setup for probe calibration in air or in any fluid	

TYPICAL CHARACTERISTICS

ATEM cell	DUT and Conditions[4]	Measurement
S parameter	VNA[5] **Anritsu 37 397 C** Calibration **SOLT**	
E-field map ✦ 10 points/decade ✦ contour lines every 0.2 dB ✦ 1-mm sampling step	Probe **eoProbe ET5-air** Conv. **eoSense HF-0.1-6.4-1S** Source **Agilent 83640B** Digitizer **Keysight N9030A** see front view for D & H definitions	





[4] All measurements provided above were performed at the following conditions:
- Temperature of 22 ± 2 °C
- Pressure of 985 ± 15 hPa
- Relative humidity of 55 ± 20 %
- Test equipment warm up time of 1 hour

[5] Vector Network Analyzer

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