

CERTIFICATE OF ACCREDITATION

In terms of section 22(2) (b) of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006 (Act 19 of 2006), read with sections 23(1), (2) and (3) of the said Act I hereby certify that:-

**BUSINESS ENTERPRISES AT
UNIVERSITY OF PRETORIA (PTY) LTD
Co. reg no: 1998/025347/07**

Facility Accreditation Number: **745**

is a South African National Accreditation System accredited Calibration laboratory
provided that all SANAS conditions and requirements are complied with

This certificate is valid as per the scope as stated in the accompanying schedule of accreditation,
Annexure "A", bearing the above accreditation number for

RADIO FREQUENCY METROLOGY

The facility is accredited in accordance with the recognised International Standard

ISO/IEC 17025:2005

*The accreditation demonstrates technical competency for a defined scope and the operation of a
laboratory quality management system*

While this certificate remains valid, the Accredited Facility named above is authorised to
use the relevant SANAS accreditation symbol to issue facility reports and/or certificates

**Mr R Josias
Acting Chief Executive Officer**

**Effective Date: 26 May 2009
Certificate Expires: 30 June 2011**

ANNEXURE A

SCHEDULE OF ACCREDITATION

RADIO FREQUENCY METROLOGY

Laboratory Accreditation Number: 745

Permanent Address of Laboratory: Business Enterprise at University of Pretoria (Pty) Ltd South Campus, Building 9 Pretoria 0002 Tel : (012) 420-3629 Fax : (012) 362 5000 Email : wimpie.odendaal@eng.up.ac.za		Technical Signatories : Prof. J W Odendaal : Mr L Naudé Nominated Representative : Prof. J W Odendaal Issue No. : 07 Date of Issue : 12 March 2010 Expiry Date: : 30 June 2011			
ITEM	FUNCTION	RANGE OF MEASURED QUANTITY	NOMINAL FREQUENCY	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm)	NOTES
1	Antenna Gain	5 dBi to 30 dBi	8.2 GHz to 12,4 GHz	0,5 dB	
2	Power Density	0 mW/cm ² to 10 mW/cm ²	800 MHz to 1 000 MHz 1 700 MHz to 2 200 MHz 2 300 MHz to 2 700 MHz	1 mW/cm ² (1 dB)	
3	Attenuation (50 Ω)	0 dB to 120 dB	20 MHz to 300 MHz 300 MHz to 1 000 MHz	0,7 dB 1,1 dB	1
4	RF Field Strength	-15 dB to +30 dB	20 MHz to 300 MHz 300 MHz to 1 000 MHz	2,0 dB 2,0 dB	2
5	Antenna Factor	-10 dB/m to -50 dB/m	20 MHz to 300 MHz 300 MHz to 1 000 MHz	1,4 dB 1,5 dB	3
6	On-site accreditation for Items 3,4 and 5				

Original date of accreditation: 1997

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Notes:

1. Only used for antenna/site substitution in measuring system verifications
2. Normalised site attenuation of Open Area Test Sites (SANS 216-1-5:2004/CISPR 16-1-5:2003)
3. Substitution method at defined height of 2 m (Reference Antenna Method)

The CMC, expressed as an expanded uncertainty of measurement, is stated as the standard uncertainty of measurement multiplied by a coverage factor $k = 2$, corresponding to a confidence level of approximately 95%

ISSUED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM

Field Manager