



Certificate of Calibration

Calibration Date: Feb 27, 2006

Equipment: Beacon Tester

Model Number: RT100A

Serial Number: 2265

WS Technologies Inc. certifies that this instrument has been calibrated to manufacturer specifications and accuracy at an ambient temperature of $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$ using instruments and standards which are traceable to the National Institute of Standards and Technology. The instruments or standards used for this calibration are calibrated on a schedule which is established to maintain traceability at the required accuracy level.

The recommended calibration interval is 24 months from the Calibration Date shown on this certificate.

A handwritten signature in black ink, appearing to read "Kevin A. Stone", is written over a horizontal line.

Quality Assurance

This certificate shall not be reproduced, except in full, without the written approval from WS Technologies Inc.

WS Technologies Inc.

Calibration Standards and Testing Instruments used:

Test Instruments	Serial #	Cal Date	Due Date
Stanford Research Systems FS725 10 MHz Rubidium Frequency Standard	65218	January 21, 2006	January 21, 2007
HP 436A RF Power Meter	2101A11043	January 20, 2006	January 20, 2007
HP 8284B Power Sensor/Attenuator Assembly	2349A02408/ 1801A01064	January 20, 2006	January 20, 2007
HP 33120A Function Generator	US36008058	January 20, 2006	January 20, 2007
HP 8657A Synthesized Signal Generator	3217A04506	January 21, 2006	January 21, 2007
LeCroy 9350AM Oscilloscope	93501702	January 23, 2006	January 23, 2007
WST Reference Beacon	WST001	May 5, 2005	May 5, 2006

Measurement Data:

Beacon Tester model:

- BT100A BT100AV^{triple}
 BT100D BT100AV^{double}
 BT100S BT100AVS

Serial Number:

2265

Date of Calibration:

Feb 27, 2006

Laboratory Temperature:

26 °C ± 3°C

Laboratory Relative Humidity:

17 % ± 10%

Before Calibration Condition:

- Initial testing found unit to be within calibration tolerances.
 Initial testing found unit not to be within calibration tolerances (see attached).
 Other New Unit

Parameter	Reference	Allowable Limits*		Measured Data	pass or fail
		Lower	Upper		
15 HEX ID	ADDD04CF5141801	must be exact		ADDD04CF5141801	√
406 Frequency	406.028 022 MHz	406.027 922 MHz	406.028 122 MHz	406.028066 MHz	√
406 Power	+37.5 dBm	+36.5 dBm	+38.5 dBm	+37 dBm	√
406 Modulation +Φ	+1.08 rad	+1.03 rad	+1.13 rad	+1.07 rad	√
406 Modulation -Φ	-1.12 rad	- 1.07 rad	-1.17 rad	-1.12 rad	√
406 Modulation rise time	180 μs	165 μs	195 μs	177 μs	√
406 Modulation fall time	180 μs	165 μs	195 μs	177 μs	√
406 Modulation symmetry	+ .003	- .002	+ .008	0.0	√
406 Modulation bit rate	400.5 bps	400.1 bps	400.9 bps	400.7 bps	√
406 CW Preamble	160 ms	158 ms	162 ms	160.1 ms	√
121 Frequency	121.500 000 MHz	121.499 900 MHz	121.500 100 MHz	121.500023 MHz	√
121 Peak Power	+15.2 dBm	+13.7 dBm	+16.7 dBm	+15 dBm	√
121 Sweep direction	upwards	must be upwards		Upwards	√
121 Audio frequency - lower	500 Hz	465 Hz	535 Hz	500 Hz	√
121 Audio frequency - Upper	1500 Hz	1455 Hz	1545 Hz	1500 Hz	√
121 Duty Cycle	40%	37%	43%	40%	√
121 Modulation Factor	85%	78%	92%	81%	√
121 Sweep repetition rate	3.0 Hz	2.87 Hz	3.13 Hz	3 Hz	√
243 Frequency	243.000 000 MHz	242.999 900 MHz	243.000 100 MHz	243.000015 MHz	√
243 Peak Power	+15.2 dBm	+13.7 dBm	+16.7 dBm	+14 dBm	√

* Allowable Limits derived from both test equipment accuracies and Beacon Tester stated accuracies.

Steve Tamaki
Technician - Print Name

Steve Tamaki
Signature

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