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Willtek 8300

Griffin Fast Measurement Receiver

- Rapidly scans and samples high rates (1000 channels and 100,000 readings per second)
- Accurately measures across nine modes and a wide dynamic range
- Tests anywhere with a lightweight, portable and robust test device
- Verifies RF propagation/RF coverage and detects interference
- Covers far distances and short ranges to base stations with wide dynamic range

Willtek's Griffin Fast Measurement Receiver is the ideal choice for quickly and accurately performing a wide range of measurement functions in the RF channel. Using the latest RF and logic technologies, Griffin is the most effective measuring receiver available for planning and optimising cellular networks.

Griffin features a specially designed synthesizer that is capable of surveying up to 1,000 channels per second. This makes every drive test on RF propagation and RF coverage more productive as multiple channels and networks can be surveyed at the same time.

The measurement speed of Griffin allows to drive with 100 km/h or 60 mph surveying seven transmitters and still comply with the Lee-criteria for RF propagation.

The receiver is portable, robust and battery-powered, ensuring that it is ready for use in any environment. It can be supported by Willtek 8010 Hindsite™ software, running on a Windows-based notebook.

A focused, yet uncompromising test instrument...

Performance measurement

Willtek 8300 Griffin Fast Measurement Receiver assists operators in increasing network capacity and removing the effects of RF interference, maximising the performance of their infrastructure.

With its dynamic range and enhanced flexibility, it provides a focused, yet uncompromising test instrument for full-scale Lee-criteria drive testing on seven channels at 60 mph or 100 km/h.

High-speed receiver

The Griffin receiver features a specially designed synthesizer that allows surveying on up to 1000 channels per second and 100,000 readings per second. This helps to make every drive test more productive as multiple channels and networks can be surveyed simultaneously.

Unparalleled accuracy

The instrument has been modified to meet demands for increasingly accurate measurements. Starting with highly stable RF circuits, it includes a precision reference source and sophisticated linearity and temperature corrections to achieve unparalleled accuracy.

These, combined with thorough self-testing and overload detection, allow the receiver to yield highly reliable measurements.

Measurement modes

A key innovation in the receiver is its fast sampling rate, which enables a range of measurement modes. These modes cover applications ranging from field surveying, spectrum analysis and spectral occupancy to statistical measuring of the RF channel.

These functions are supported by a high-speed serial port that allows the data to be transferred to the accompanying notebook for detailed analysis.

Dynamic range

The receiver incorporates high-level mixing and a broadband, front-end overload detector. The detector measures the total RF power entering the receiver and raises an alarm if it rises to a level that could adversely affect measurements.

Portable and flexible

Packaged in a robust metal case, the receiver is designed for use in all environments. It is small, light and powered by two highly efficient batteries that are capable of running for up to 10 hours at a time.

It is also highly flexible and includes a range of features to meet today's surveying needs, as well as being upgradeable for any future needs.

Specifications

Griffin software

The Griffin series has onboard interface, instead it is controlled using front panel software (FPS) running on a PC using Microsoft Windows 95, 98 or NT 4.0. This provides bar-charts, graphs and data tables in addition to controlling and monitoring the devices.

Frequency

8301 (former SMR 9010)	800 to 1000 MHz
8302 (former SMR 9020)	1700 to 2000 MHz
Number of channels per second	1000
Tuning resolution	1 kHz
Tuning accuracy	2 kHz
Aging rate	1 kHz per year

Level measurement

Samples per second	100,000
Accuracy	1 dB
Maximum measurable input	0 dBm
Noise floor (200 kHz)	typ –112 dBm
Instantaneous dynamic range	80 dB
Maximum input (no damage)	20 dBm
Maximum DC at input	50 V
Input 3rd order intercept	> 30 dBm
RF input impedance	50 Ω
Input VSWR	typ. 1.6:1

Measurement features

Measurement modes	min/mean/max, histogram level crossing rate
Sequence modes	fixed, cycling, scanning
No. of samples	1 to 65,535 per measurement
No. of counters	5
Sampling interval	10 µs to 13.1 ms
Distance pulses	up to 500 per meter (on 35 m/s = 130 km/h = 80 mph)
Cycling memories	150
Noise filter	200 Hz to 12.5 kHz

Intermediate frequency

IF bandwidths	200 kHz or 15 kHz
IF frequency	10.7 MHz
IF outputs	I&Q
Output level	–98 to –18 dBm
Bandwidth	> 1 MHz

Rejection and blocking

Adjacent channel rejection	typ. 70 dB
In-band blocking	> 80 dB
Out-band blocking	> 100 dB
Image rejection	typ. 70 dB
Spurious signals (non harmonic)	< –90 dBm
IF rejection	> 70 dB

Connections

RF (input)	N-type
IF (output)	2 x SMA
Ext. frequency reference (in/out)	SMA
Distance transducer (input)	Lemo 1B
Auxiliary (in/out)	Lemo 1B
DC power (input)	Lemo 1B
RS-232-C	9-way D-type
Wheel encoder pulse input	TTL level
Auxiliary pulse input	TTL level
Raw battery voltage output	> +5.5 V
Detector output	25 mV per dB
Sampling pulse output	TTL level

Communications

RS-232-C baud rate	2.4 k to 56.7 k
RS-232-C control	X on/X off

General

DC Power	9.5 to 18 V, 2.5 A
Batteries	2 x 6 V, 4 AH, NIMH
Dimensions	240 x 170 x 92 mm
Weight	3.3 kg
Operating temperature	–10 to +40°C
Temperature (full accuracy)	+5 to +35°C
Operating humidity	0 to 90%, non-condensing

Ordering information

8301 Griffin Fast Measurement Receiver	
US cellular, GSM 900	M 100 501
8302 Griffin Fast Measurement Receiver	
US PCS, GSM 1800	M 100 502
8381 Griffin UMTS Down Converter	
for 8301, UMTS: 2000 to 2200 MHz	M 248 650
8382 Griffin Up Converter	
for 8301, 300 to 500 MHz	M 248 648
20 W CW Signal Generator	
battery powered (ST24SV)	
UMTS Downlink	M 100 707

Note: Specifications, terms and conditions are subject to change without prior notice.

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