PCTEL™
simplifying mobility

Better RF Data Better Decisions

WIRELESS NETWORK OPTIMIZATION SOLUTIONS

SeeGull® EX LTE Scanning Receiver

- *Top N Sync Channel (P-SCH/S-SCH) Power and Quality Measurements*
- *Top N Reference Signal (RS) Power and Quality Measurements*
- *New Top N Resource Block Power and Quality Measurements*
- *Top N Sync Channel, Reference Signal, and Resource Block CINR Measurements*
- *New Top N Averaging and Threshold Measurement Data Modes*
- *New Multi-Path Delay Spread Mode*
- *Uplink and Downlink Support (optional)*
- *Spectrum Analysis Measurements*
- *Narrow and Wide RSSI Measurements*
- *RSSI Enhanced Power Scan Mode*
- *High Performance 50-Channel GPS*

PCTEL's SeeGull® EX LTE Scanning Receiver provides RF Engineers with the essential measurement tools needed for planning, deployment, and optimization of emerging LTE networks.

Supporting the latest 3GPP specifications, the LTE scanning receiver is built on the field-proven SeeGull EX platform, and features a flexible set of measurement modes valuable for spectrum clearing, site deployment, network tuning and RF optimization.

The SeeGull EX LTE Scanning Receiver also provides an optional Uplink channel power measurement, which can be helpful in troubleshooting certain interference sources in the uplink band. With both RSSI and optional Spectrum Analysis measurement modes, the SeeGull EX offers RF Engineers the critical tools they need in a compact, rugged scanning Receiver.

WCDMA *GSM* *CDMA* *EV-DO* *CDMA-Japan* *TD-SCDMA* *iDEN* *WiMAX* ***LTE***

SeeGull® EX LTE Scanning Receiver

OPERATIONAL MODES

Top N Sync Signal Measurement
- Detects P-SCH and S-SCH synch signal presence
- Reports Received Quality (RQ) and Received Power (RP) measurements, physical Cell ID, cyclic prefix, antenna configuration and time offset

Top N Reference Signal Measurement
- Detects sector-specific reference signals
- Reports RSRQ, RSRP AND RSRQ*i*/RSRP*i* (with *i* = 1, 2 or 4 antenna transmissions), physical Cell ID, cyclic prefix, antenna configuration and time offset

Top N CINR Measurements
- Reports SCH_CINR, RS_CINR, and RB_RS_CINR

RSSI Measurement
- Measures Narrow or Wideband channel aggregate power

Spectrum Analysis Measurement
- Measures power with user selectable Resolution Bandwidths enabling "built-in" Spectrum Analyzer

Enhanced Power Scan Measurement
- New higher performance scan that provides selective time/frequency power measurements

Performance	
Top N Signal Measurements	
Top N Measurement Modes	Sync Channel (P-SCH/S-SCH) Scans Reference Signal Scans Resource Block Scans CINR Scans
Top N Measurement Bandwidths	1.4 / 3 / 5 / 10 MHz
Top N Sync Channel & Reference Signal	20 msec (@ 5 MHz)
Top N Min Detection Level	-10 to +18 dB CINR (P-SCH/S-SCH) -20 to +40 dB CINR (Reference Signal)
Top N Scan Relative Accuracy	± 1 dB (P-SCH/S-SCH) ± 1 dB (Reference Signal)
False Detection Rate	0.1%
RSSI and Enhanced Power Scan (EPS) Measurements	
Measurement Bandwidths	7.5 / 15 / 100 / 108 / 180 kHz (EPS) 100 kHz (RSSI) 1.4 / 3 / 5 / 10 / 15 / 20 MHz (EPS & RSSI)
RSSI Measurement Rate	13,000 ch/sec (Narrow/CW) Up to 3,000 ch/sec (Wide)
EPS Meaaurement Rate	1,000 MHz/sec @ 5 MHz (typical)
RSSI Detection Level	-108 to -20 dBm @ 100 kHz bandwidth
RSSI Absolute Accuracy	± 1.0 dB
Spectrum Analysis Measurements	
Measurement Range	> 90 dB
Measurement Rate	> 270 MHz/sec (with single sweep scan)

TECHNICAL SPECIFICATIONS

Standards Specification	
3GPP Standards	3GPP Release EUTRA 8 (Mar. 2009)

RF Specifications			
RF Identifier	**Band**	**Downlink in MHz (Forward)**	**Uplink in MHz (Reverse)**
Lower 700 A/B/C Band	12	728 - 746	698 - 716
Lower 700 B/C Band	17	734 - 746	704 - 716
Upper 700 C Band	13	746 - 757	776 - 787
Lower 800 Band (Japan)	18	860 - 875	815 - 830
Upper 800 Band (Japan)	19	875 - 890	830 - 845
900 UMTS Band	8	925 - 960	880 - 915
1500 Band (Japan)	11	1475.9 -1500.9	1427.9 - 1452.9
1510 Band (Japan)	21	1495.9 -1510.9	1447.9 - 1462.9
1800 Band	3	1805 - 1880	1710 - 1785
2100 UMTS Band	1	2110 - 2170	1920 - 1980
2100 AWS Band	4	2110 - 2155	1710 - 1755
2600 IMT Ext Band	7	2620 - 2690	2500 - 2570
Internally Generated Spurious Response	-110 dBm Maximum		
Conducted Local Oscillator	-75 dBm Maximum		
RF Input Power Range	-15 dBm Maximum (in-band) -5 dBm Maximum (out-of-band)		
Protection Against Spurious Response Interference	+88 dB Minimum		
Desensitization	Adjacent Channel > 55 dB Alternate Channel > 60 dB		
Safe RF Input Range	≤ 10 dB		

Physical		
EX		
Input Power	1.5 A max @ +8 to +16 VDC	
Size	8.7" L x 3.7" W x 2.7" H 221mm L x 94mm W x 68.5mm	
Weight	1.8 lbs. (0.82 kg)	
EX Mini		
Input Power	0.9 A Max @ +8 to +16 VDC	
Size	8.7" L x 3.7" W x 1.9" H 221mm L x 94mm W x 48.3mm H	
Weight	1 lb. (0.45 kg)	
Temperature Range	Operating: 0°C to +50°C Storage: -40°C to +85°C	
Input/Output	(2x) RF Input (1x) GPS Input (1x) Data (1x) Power	SMA Female (50 Ω)SMB Male (50 Ω) USB 2.0 Custom 2.5mm Plug
Certifications	USB 2.0 RoHS CE	

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CERTIFIED ISO 9001:2000
Specifications subject to change without notice
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