PCTEL®
RF Solutions

SeeGull® EX*flex*™ | Scanning Receiver

Flexible Mobile Network Testing | PCTEL Performance

LTE FDD / TD-LTE / UMTS [WCDMA/HSPA(+)] / TD-SCDMA / GSM / CDMA / EV-DO

CHALLENGE:

In an evolving regulatory and competitive environment, mobile networks are more diverse than ever. New frequency bands, new technologies, and new business models increase the need for flexibility in network drive test and walk test equipment. Operators and managed service providers need equipment that functions worldwide and adapts as spectrum and technologies evolve. Equally important is the ability of the scanning receiver to combine adaptability with high accuracy measurements over years of intensive use. In addition to technical challenges, test equipment needs to be competitively priced, with flexible commercial options for both CAPEX and OPEX budgets.

SOLUTION: The SeeGull EX*flex* Scanning Receiver

The SeeGull EX*flex* combines the flexibility to test mobile networks on frequency bands from 150 MHz to 6 GHz with the proven performance and reliability of the SeeGull EX platform. It supports most major wireless technologies used around the world in a single unit. Unlike some competitive offerings which require additional hardware modules, the EX*flex* adds bands and technologies with a simple field upgrade. The EX*flex* combines cutting-edge performance and competitive pricing with a two-year standard warranty. The EX*flex* is quite possibly the last scanner you will ever need.
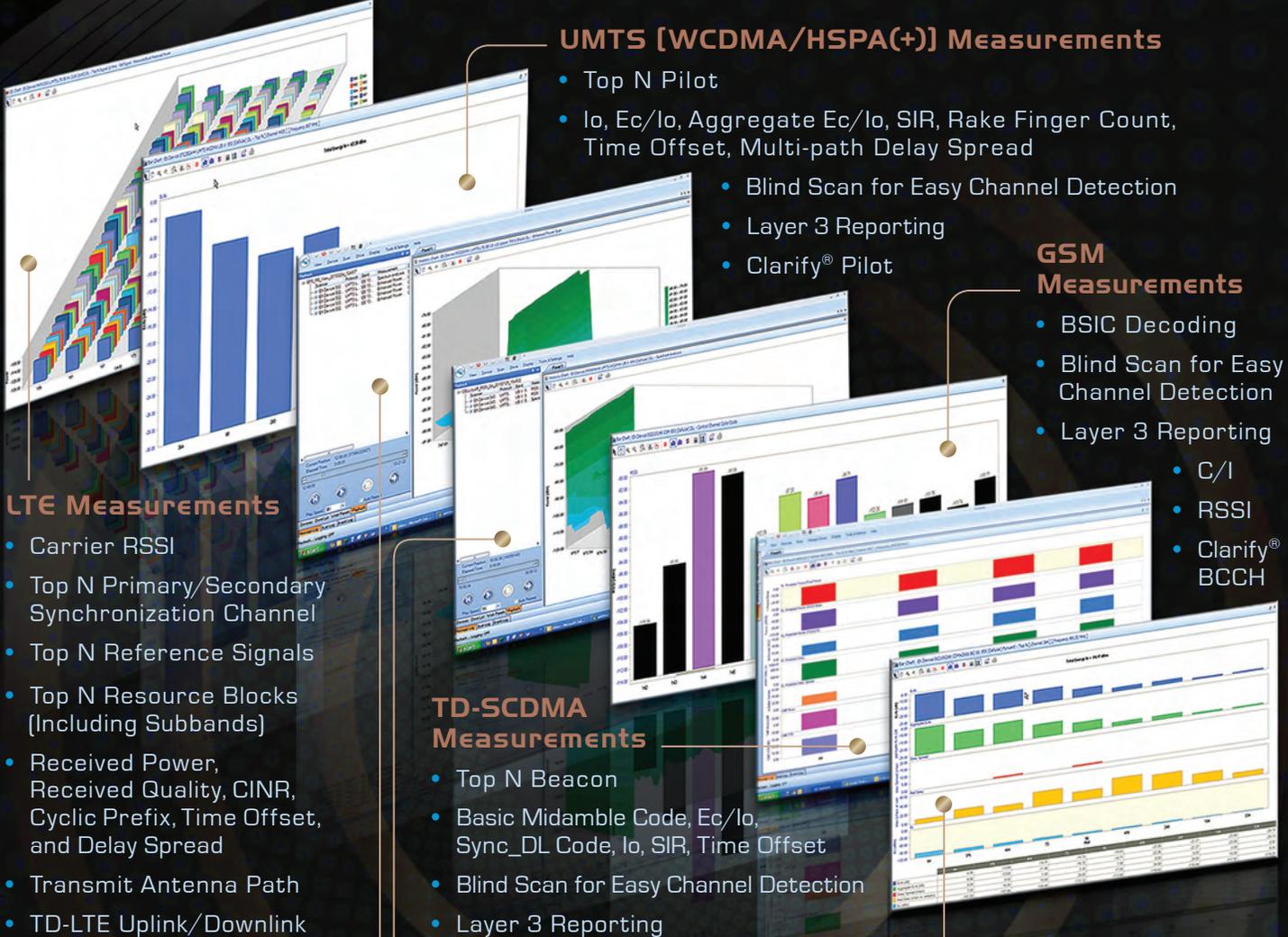
BENEFITS

Increase Productivity with Multi-Technology, Multi-Band Scanning

Future-Proof Investment: Band Range from 150 MHz to 6 GHz

Proven High Dynamic Range for Expanded Signal Detection

Advanced Analysis of LTE Resource Blocks and Subbands

Reduce Complexity by Eliminating the Need for Separate Modules

Improve In-Building Testing Productivity
- Test Multi-Operator Networks with One Unit
- Accurate CDMA/EV-DO Measurements with GPS Holdover
- Low Power Consumption Maximizes Battery Life

APPLICATIONS

Identify Sources of Interference with Spectrum Analysis

Plan, Baseline and Optimize Multi-Technology Networks

Maximize Network Data Capacity and Throughput

Conduct Site Surveys and Tune Models with CW Testing

Identify Antenna Connection Problems with Path Measurements

Test WiFi and Public Safety Networks with Power Measurements

Walk Test In-Building and Campus Venues with Portable Indoor Kit

SeeGull® EX*flex*™ | Scanning Receiver

Full Suite of Broadband Wireless Technology Measurements

UMTS [WCDMA/HSPA(+)] Measurements

- Top N Pilot
- Io, Ec/Io, Aggregate Ec/Io, SIR, Rake Finger Count, Time Offset, Multi-path Delay Spread
- Blind Scan for Easy Channel Detection
- Layer 3 Reporting
- Clarify® Pilot

GSM Measurements

- BSIC Decoding
- Blind Scan for Easy Channel Detection
- Layer 3 Reporting
- C/I
- RSSI
- Clarify® BCCH

LTE Measurements

- Carrier RSSI
- Top N Primary/Secondary Synchronization Channel
- Top N Reference Signals
- Top N Resource Blocks (Including Subbands)
- Received Power, Received Quality, CINR, Cyclic Prefix, Time Offset, and Delay Spread
- Transmit Antenna Path
- TD-LTE Uplink/Downlink Configuration and Uplink Pilot Time Slot
- TD-LTE Power Analysis of Resource Blocks, Slots, Frames, and Sub-frames
- Supports Measurements Over Entire Channel Bandwidths
- Blind Scan for Easy Channel Detection
- Layer 3 Reporting

TD-SCDMA Measurements

- Top N Beacon
- Basic Midamble Code, Ec/Io, Sync_DL Code, Io, SIR, Time Offset
- Blind Scan for Easy Channel Detection
- Layer 3 Reporting

Power Measurements

- RSSI: Total Channel Power
- Spectrum Analysis: High Sweep Rate Frequency/Amplitude
- Enhanced Power Scan (EPS™): Time-Stamped Power Measurements Selectable by Time and Frequency
- Out-of-Band Power Measurements

CDMA/EV-DO Measurements

- Top N PN
- Ec, Io, Ec/Io, Aggregate Ec/Io, Pilot Delay, Delay Spread
- Blind Scan for Easy Channel Detection

PCTEL
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RF
GPS
PWR
USB
GPS
SYS

SeeGull EX*flex* | Specifications*

LTE FDD and TD-LTE	Measurement Modes	Top N Synchronization Channel (P-SCH/S-SCH), Reference Signal, and Resource Block (Wideband, Subband)
	Data Modes	RSRP, RSRQ, CINR, Cyclic Prefix, Time Offsets, Delay Spread, Averaging (LTE FDD only)
	Channel Bandwidths	1.4 / 3 / 5 / 10 / 15 / 20 MHz
	Transmit Antenna Configurations	1, 2, 4
	Measurement Rates @ 10 MHz: Top N Sync Channel RS	LTE FDD: 50/sec; TD-LTE: 20/sec
	Dynamic Range (CINR) @ 20 MHz: P-SCH/S-SCH RS	-10 to +18 dB** / -20 to +40 dB**
	Min. Detection Level: RSRP	-140 dBm (RSRP@ 10 MHz)
	Relative Accuracy (CINR): P-SCH/S-SCH RS	±1 dB / ±1 dB
UMTS [WCDMA/HSPA(+)]	Measurement Modes	Top N Pilot
	Data Modes	Io, Ec/Io, Aggregate Ec/Io, SIR, Rake Finger Count, Time Offset, Delay Spread, Eps/Io, Ess/Io
	Channel Bandwidths	200 kHz / 3.84 MHz
	Measurement Rate	100/sec (High Speed Mode); 50/sec (High Dynamic Range Mode); 50/sec Pilots with Clarify® Option
	Top N CPICH Dynamic Range (Ec/Io)	-21.5 dB (High Speed Mode); -26 dB (High Dynamic Range Mode)**; -33 dB (High Dynamic Range) with Clarify® Option (via Post Processing)
	Min. Detection Level	-120 dBm (High Dynamic Range Mode)
	Relative Accuracy	±1 dB
TD-SCDMA	Measurement Modes	Top N Pilot
	Data Modes	Sync_DL: Ec/Io, Io, Time Offset, SIR / Midamble: Ec/Io, Io, Time Offset, SIR, Midamble Code
	Channel Bandwidths	200 kHz / 1.28 MHz
	Measurement Rate	50/sec
	Top N PN Dynamic Range, Ec/Io	-20 dB**
	Min. Detection Level	-110 dBm
	Relative Accuracy	±1 dB
GSM	Measurement Modes	Color Code
	Data Modes	BSIC, C/I, RSSI
	Channel Bandwidths	30 kHz / 200 kHz
	Measurement Rate	Up to 190 BSIC Decodes/sec; 160 Decodes/sec BCCH with Clarify® Option
	Dynamic Range	+2 dB C/I @ 90% BSIC Detection with <0.1% False Detection Rate / -18 dB C/I with Clarify® Option (via Post Processing)
	Min. BSIC Detection Level	-108 dBm
	Relative Accuracy	±1 dB
CDMA	Measurement Modes	Top N PN
	Data Modes	Ec, Io, Ec/Io, Aggregate Ec/Io, Pilot Delay, Delay Spread
	Channel Bandwidths	30 kHz / 1.25 MHz
	Measurement Rate	25/sec
	Top N PN Dynamic Range, Ec/Io	-28 dB**
	Min. PN Detection Level	-130 dBm
	Relative Accuracy	±1 dB
EV-DO	Measurement Modes	Top N PN
	Data Modes	Ec, Io, Ec/Io, Aggregate Ec/Io, Pilot Delay, Delay Spread
	Channel Bandwidths	30 kHz / 1.25 MHz
	Measurement Rate	18/sec
	Top N PN Dynamic Range, Ec/Io	-18.5 dB**
	Min. PN Detection Level	-120 dBm
	Relative Accuracy	±1 dB

Specifications are for single-technology scanning. **@ 90% Signal Detection with <0.1% False Detection Rate*

SeeGull EX*flex* | Specifications* [continued]

Power Measurements	RSSI MEASUREMENTS		
	Measurement Rate (Typical) LTE	10,000 ch/sec	
	UMTS [WCDMA/HSPA(+)]	7,000 ch/sec	
	GSM	3,000 ch/sec	
	CDMA	10,000 ch/sec	
	EV-DO	10,000 ch/sec	
	TD-SCDMA	10,000 ch/sec	
	Dynamic Range	-120 to -20 dBm @ 30 kHz	
	Absolute Accuracy	±1 dB (across Basic RF Input Power Range)	
	ENHANCED POWER SCAN (EPS™) MEASUREMENTS		
	Channel Bandwidths	5 kHz to 20 MHz in 2.5 kHz Increments	
	Measurement Rate	1,000 MHz/sec @ 5 MHz (Typical)	
	Absolute Accuracy	±1 dB (across Basic RF Input Power Range)	
	SPECTRUM ANALYSIS MEASUREMENTS		
	Measurement Range	>90 dB	
	Measurement Rate (Single Sweep)	>400 MHz/sec	
	Accuracy	±1 dB (across Basic RF Input Power Range)	
	LTE POWER ANALYSIS MEASUREMENTS (Available for TD-LTE Only)		
	Channel Bandwidths	1.4 / 3 / 5 / 10 / 15 / 20 MHz	
	Measurement Rate	50 msec @ 20 MHz	
	Accuracy	±1 dB (across Basic RF Input Power Range)	
RF Characteristics	Internally Generated Spurs	-102 dBm Max.	
	Conducted Local Oscillator	-75 dBm Max.	
	RF Operating Range: In-Band	-15 dBm Max.	
	Desensitization: Adjacent Channel	>50 dB (CDMA/EV-DO)	
	Adjacent Channel	>55 dB (All Other Technologies)	
	Alternate Channel	>65 dB	
	Safe RF Input Range	≤10 dBm	
	Frequency Accuracy	±0.05 ppm (GPS Locked); ±0.1 ppm (GPS Unlocked)	
GPS	Type	50 Channel Internal Receiver	
	Position Accuracy	±2.5 meter	
	Acquisition Time	Cold Start: <30 sec; Hot Start: <2 sec	
	Sensitivity (Tracking)	>-150 dBm	
Physical	Maximum Power (+8 to +16 VDC)	21W Max.; 17W Typical	
	Size	8.7" D x 3.7" W x 2.7" H (221 mm D x 94 mm W x 68.5 mm H)	
	Weight	1.6 lb (0.71 kg)	
	Temperature Range	Operating: 0°C to +50°C; Storage: -40°C to +85°C	
	Host Data Communications Interface	USB 2.0	
	RF Input	RF: SMA Female (50Ω); GPS: Male (50Ω) SMB	
	Safety (CE)	EN 60950-1	
	EMC	EN 301 489-1	
	Shock and Vibration	MIL-STD-810G, SAE J1455	
	RoHS	Compliant (6/6)	

* Specifications are for single-technology scanning.

The SeeGull EX*flex* supports LTE FDD, TD-LTE, UMTS [WCDMA/HSPA(+)], TD-SCDMA, GSM, CDMA, EV-DO operating bands currently deployed around the world.

Please contact your sales representative or email **RFS.Sales@pctel.com** for more details.