G*flex*®

Compact Scanner for Multi-Operator 2G-5G Testing

Scanning Receiver | 10 MHz - 8 GHz | 24 - 48 GHz

The G*flex*® scanning receiver is the next generation of mobile network testing from PCTEL®. Designed to support drive testing, walk testing, and government applications for 2G-5G and beyond, the G*flex* sets a new standard for power, portability, and flexibility in a 5G and mmWave capable scanner. A single lightweight G*flex* scanner can collect all the mmWave and sub-8 GHz data you need for drive test, walk test, and government applications in one pass, with one unit.

Technologies

- 5G NR
- LTE FDD
- TD-LTE
- NB-IoT
- UMTS
- GSM
- Spectrum analysis and custom power measurements for any channel

Features

- Measures up to 120 5G channels
- Ultra-fast concurrent 5G/4G/3G/2G testing
- I/Q streaming ready
- 20/100 MHz wide step IF filter
- 5G/4G/3G/2G mobile blind scan
- Dual polarization beamforming measurements
- 4G/5G Dynamic Spectrum Sharing (DSS)
- 4x2 and 2x2 LTE MIMO Measurements

Applications

- 5G network optimization
- Multi-operator network benchmarking
- Spectrum clearing
- Network troubleshooting
- In-building wireless
- Signal intelligence
- Interference detection
- Coverage assurance

MADE IN THE USA
of U.S. and imported parts

PCTEL

G*flex*® Features & Benefits

FAST AND POWERFUL

Streamline your operations with a single-unit scanning receiver that does the work of multiple devices. One G*flex* scanner has the power to test 120 5G channels simultaneously across mmWave and sub-8 GHz bands. You can even add 4G measurements with zero degradation in performance.

Test Up to 120 5G Channels Simultaneously

FUTURE PROOF

Maximize your investment with a scanner designed for 5G and beyond. The expanded mmWave and sub-8 GHz range covers every 5G band[1]. With a 20/100 MHz wide step IF filter, it's also the first purpose-built drive test/walk test scanner that measures the full 5G bandwidth.

Measure the Full Channel on Every 5G Band[1]

PORTABLE & CONVENIENT

Save time and simplify setup with a single lightweight, compact scanner unit for complete 2G-5G indoor and outdoor testing on every operator network. The G*flex* is easy to integrate into your test setup, with support from multiple software platforms. It even includes a hot-swappable battery pack for easy all-day walk testing.

Benchmark Multi-Operator 2G-5G with One Unit

FLEXIBLE

Get the accurate data you need in any testing scenario, including I/Q testing for government applications such as signal intelligence. The field-upgradeable G*flex* scanner supports a wide variety of network configurations, including 5G dual polarization beamforming, 4G/5G dynamic spectrum sharing, and every 5G SSB beam periodicity.

Support Government Applications with I/Q Testing

G*flex*® Specifications

5G New Radio (NR)

Measurement modes		NR TopN Signal: Synchronization channels (P-SS/S-SS) & PBCH; Layer 3 Reporting: MIB (FR1 and FR2), SIB1 (FR1); Dual polarization beamforming measurements; Blind Scan; Mobile Blind Scan	
Data modes		PCI, PSS-RP [dBm], SSS-RP [dBm], PSS-RQ [dB], SSS-RQ [dB], PSS-CINR [dB], SSS-CINR [dB], RSPBCH-RP [dBm], RSPBCH-RQ [dB], RSPBCH-CINR [dB], SSB-RP [dBm], SSB-RQ [dB], SSB-CINR [dB], SSB-idx, SSB-RSSI, SSS-Delay-Spread, Time Offset	
Sub carrier spacing		15/30/120/240 kHz	
Max. number of channels		60 (sub-8 GHz), 60 (mmWave)	
Max. number of PCIs		16 (sub-8 GHz), 16 (mmWave)	
Max. number of beams/PCI		8 (sub-8 GHz), 64 (mmWave)	
Measurement rate (typical)		Single channel: FR1: 44/sec (20 ms period) FR2: 44/sec (20 ms period)	Multi-channel: FR1 33/sec sub-8 GHz (20 ms period) FR2: 25/sec mmWave (20 ms period)
Dynamic range (CINR)		PSS/SSS CINR: -21 to +33 dB (sub-8 GHz), -21 to +28 dB (mmWave) PBCH DMRS CINR: -16 to +40 dB	
Min. detection level	RP	SCS @15 kHz: -135 dBm, SCS @30 kHz: -132 dBm, SCS @120 kHz: -131 dBm, SCS @240 kHz: -130 dBm	
Accuracy (CINR)	PSS/SSS, PBCH DMRS	±2 dB	
SSB periodicities supported		5 ms, 10 ms, 20 ms, 40 ms, 80 ms, 160 ms	

LTE FDD and TD-LTE

Measurement modes		Top N Synchronization Channel Reference Signal (P-SCH/S-SCH) and Resource Block (Wideband, Subband), Dynamic Spectrum Sharing (DSS), Layer 3 Reporting, Blind Scan, Mobile Blind Scan	
Data modes		RP, RQ, CINR, Cyclic Prefix, Time Offsets, Delay Spread; RF Path Measurements (4x1, 4x2); MIMO: Condition Number, ECQI, EPUT	
Channel bandwidths		1.4 / 3 / 5 / 10 / 15 / 20 MHz	
Max. number of channels		48	
Receive modes		SISO; MIMO (2x2, 4x2)	
Transmit antenna configurations		1, 2, 4 (with path measurement)	
Measurement rates	Sync Channel RS	Single channel: LTE FDD: 50/sec TD-LTE: 33/sec	Multi-channel: LTE FDD: 33/sec TD-LTE: 25/sec
Dynamic range (CINR) @ 10/15/20 MHz	RS P-SCH/S-SCH	-26 to + 40 dB -10 to +18 dB	
Min. detection level	P-SCH/S-SCH & RS	-147 dBm (RSRP @ 15 kHz)	
Accuracy (CINR)	P-SCH/S-SCH & RS	±1 dB	
Max. number of PCIs		24	

NB-IoT

Measurement modes		Top N NRS (Narrowband Reference Signal), NPSS (Narrowband Primary Synchronization Signal), and NSSS (Narrowband Secondary Synchronization Signal), Layer 3 Reporting, Blind Scan*, Mobile Blind Scan*, Layer 3 Reporting*
Data modes		NRS: RP, RQ, RSSI, CINR, Time Offset; NPSS: RP, RQ, RSSI, CINR; NSSS: RP, RQ, RSSI, CINR, Time Offset
Operation mode		In-Band, Guard Band, Stand-alone
Channel bandwidths		180 kHz
Max. number of channels		48
Measurement rates		5/sec
Dynamic range (CINR)	NRS	-10 to + 40 dB
Min. detection level	NRS RP	-138 dBm
Accuracy (CINR)	NRS	±2 dB
Max. number of PCIs		16

UMTS [WCDMA/HSPA(+)]

Measurement modes	Top N Pilot, Layer 3 Reporting, Blind Scan, Mobile Blind Scan
Data modes	Io, Ec/Io, Aggregate Ec/Io, SIR, Rake Finger Count, Time Offset, Delay Spread
Channel bandwidths	200 kHz / 3.84 MHz
Max. number of channels	32
Measurement rate	50/sec (high dynamic range mode only)
Top N CPICH dynamic range (Ec/Io)	-26 dB
Min. detection level	-127 dBm
Accuracy	±1 dB
Max. number of Pilots	32

GSM

Measurement modes	Color Code, Layer 3 Reporting, Blind Scan, Mobile Blind Scan
Data modes	BSIC, C/I, RSSI
Channel bandwidths	30 kHz / 200 kHz
Measurement rates	Up to 400 BSIC Decodes/sec
Dynamic range	+2 dB C/I
Min. basic detection level	-110 dBm
Accuracy	±1 dB

**Feature coming soon*

G*flex*® Specifications

Multi-Technology		
Concurrency		High speed multi-technology measurements with zero degradation in performance
GPS/GNSS		
Supported navigation systems		Galileo, GPS, GLONASS, BeiDou, QZSS
Type		72 channel internal receiver
Position accuracy		2.5 meters
Acquisition time		Cold start: <26 sec; Hot start: <2 sec
Sensitivity (tracking)		>-150 dBm
Power Measurements		
Accuracy		±1 dB (across basic RF input power range)
Dynamic range		-120 to -20 dBm @ 30 kHz
RSSI	5G NR, LTE UMTS	11,050 ch/sec (maximum, continguous channels) 4,250 ch/sec (maximum, continguous channels)
Enhanced Power Scan (EPS)	5 kHz to 20 MHz in 2.5 kHz increments	1,000 MHz/sec @ 5 MHz (typical)
Spectrum analysis	Range: >90 dB	>270 MHz/sec (single sweep)
Physical		
Maximum power (+9 to +17 VDC)		40W max.
Size		6.42" W x 8.13" D x 2.37" H (163 mm W x 207 mm D x 60 mm H)
Weight		4.8 lbs (2.18 kg)
Temperature range		Operating: 0°C to +45°C; Storage: - 30°C to +80°C
Humidity		5% to 95% relative humidity, non-condensing
Host data communications interface		USB 3.0, 10/100/1000 Ethernet RJ-45, 10-GigE SFP+, Bluetooth®
Data storage		Micro -SDXC (128 GB)
Antenna ports		RF (sub 8 GHz, Bluetooth): SMA Female (50 Ω); GPS: Male (50 Ω) SMB; RF (mmWave): 2.4 mm Female
Safety		EN 62368-1
EMC		EU 2014/53/EU
Shock and vibration		SAE J1455
RoHS		Directive 2011/65/EU and amendment 2015/863 (RoHS 3)
RF Characteristics		
Frequency range		Sub 8 GHz: 10 MHz – 8 GHz mmWave: 24.25-44 GHz (continuous), 47.2-48.2 GHz (continuous)
Internally generated spurious response		-105 dBm (typical)
RF operating range	In-Band	- 20 dBm max.
Desensitization	Adjacent channel	>50 dB (20MHz RBW)
Safe RF input range		≤ +0 dBm
Frequency accuracy		±0.05 ppm (GPS Locked); ± 0.1 ppm (GPS unlocked)
Conducted local oscillator		-55 dBm (typical)
Intermodulation-free dynamic range		2 tone @ -25 dBm, 8 GHz, +10 dBm typical TOI; @ -40 dBm, 8 GHz, -10 dBm typical TOI; @ -25 dBm, 24.25-40 GHz, -3 dBm typical TOI; @ -40 dBm, 24.25-40 GHz, -10 dBm typical TOI; @ -40 dBm, 40-44 GHz, 47.2-48.2 GHz, -12 dBm typical TOI

Supported bands, technologies, data modes, software features, and frequency ranges vary by scanning receiver configuration. Upgrades may be available for previously purchased scanning receivers. Please contact a sales representative for more information.

Solving Complex Wireless Challenges

PCTEL is a leading global provider of wireless technology solutions, including purpose-built Industrial IoT devices, antenna systems, and test and measurement products. Trusted by our customers for over 25 years, we solve complex wireless challenges to help organizations stay connected, transform, and grow.

PCTEL, Inc.

T: +1 301 515 0036 | pctel.com | NASDAQ: PCTI

For more information about the G*flex* scanning receiver, contact your sales representative or visit

> pctel.com/scanning-receivers

[1] *As of 3GPP Release 17 V17.2.0 (2021-06)*