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
- WiFi 6
- 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

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G*flex*® Features & Benefits

FAST AND POWERFUL

Test Up to 120 5G Channels Simultaneously

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.

FUTURE PROOF

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

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.

PORTABLE & CONVENIENT

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

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.

FLEXIBLE

Support Government Applications with I/Q Testing

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.

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), SIBs 1-9 (FR1); SIB1 (FR2 - nrTopN mode only); 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
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 (eTopN mode only)
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

G*flex*® Specifications

WiFi 6

Wireless adapter	D-Link AX1800 Wi-Fi 6 USB Adapter DWA-X1850, ASUS Wi-Fi 6 AX1800 USB Wi-Fi Adapter
Radio configuration	802.11 a/n/ac/ax
Data modes	Signal Strength, Channel Number, Channel Bandwidth, BSSID, Device Name, SSID, Security Protocol, 802.11 Media, Beacon Interval, Channel Utilization
Frequency range	2.4 – 2.483 GHz; 5.15 – 5.85 GHz (subject to country regulations)
Measurement rates	5/sec (Typical)

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 +50°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.

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