# 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
- UMTS
- GSM[1]
- 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 mobile blind scan
- Dual polarization beamforming measurements[1]
- 4G/5G Dynamic Spectrum Sharing (DSS)[1]
- 4x2 MIMO Measurements[1]

### Applications

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

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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[2]

Maximize your investment with a scanner designed for 5G and beyond. The expanded mmWave and sub-8 GHz range covers every 5G band[2]. 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*™ Preliminary Specifications

## 5G New Radio (NR)

| | | |
|---|---|---|
| **Measurement modes** | | NR TopN Signal: Synchronization channels (P-SS/S-SS) & PBCH; Layer 3 Reporting: MIB (FR1 and FR2), 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-6 GHz), 64 (mmWave) |
| **Measurement rate (typical)** | | Single channel:<br>FR1: 49/sec (20 ms period)<br>FR2: 49/sec (20 ms period)<br><br>Multi-channel:<br>FR1 33/sec sub-8 GHz (20 ms period)<br>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)<br>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) |
| **Data modes** | | RP, RQ, CINR, Cyclic Prefix, Time Offsets, Delay Spread; RF Path Measurements (4x1, 4x2) |
| **Channel bandwidths** | | 1.4 / 3 / 5 / 10 / 15 / 20 MHz |
| **Max. number of channels** | | 48 |
| **Receive modes** | | SISO |
| **Transmit antenna configurations** | | 1, 2, 4 (with path measurement) |
| **Measurement rates** | Sync Channel RS | Single channel:<br>LTE FDD: 50/sec<br>TD-LTE: 33/sec<br><br>Multi-channel:<br>LTE FDD: 33/sec<br>TD-LTE: 25/sec |
| **Dynamic range (CINR) @ 10/15/20 MHz** | RS<br>P-SCH/S-SCH | -26 to + 40 dB<br>-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 |

## UMTS [WCDMA/HSPA(+)]

| | |
|---|---|
| **Measurement modes** | Top N Pilot |
| **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 |

## Multi-Technology

| | |
|---|---|
| **Concurrency** | High speed multi-technology measurements with zero degradation in performance |

## GPS

| | |
|---|---|
| **Type** | 72 channel internal receiver |
| **Position accuracy** | 2.5 meters |
| **Acquisition time** | Cold start: <26 sec; Hot start: <2 sec |
| **Sensitivity (tracking)** | >-150 dBm |

# G*flex*™ Preliminary Specifications

## Power Measurements

| | | |
|---|---|---|
| **Accuracy** | | ±1 dB (across basic RF input power range) |
| **Dynamic range** | | -120 to -20 dBm @ 30 kHz |
| **RSSI** | 5G NR, LTE<br>UMTS | 11,050 ch/sec (maximum, continguous channels)<br>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)** | 36W max. |
| **Size** | 6.42" W x 8.10" D x 2.14" H (163 mm W x 206 mm D x 54 mm H) |
| **Weight** | 4.3 lbs (1.95 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);<br>GPS: Male (50 Ω) SMB;<br>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<br>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) |

*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, including purpose-built Industrial IoT devices, antenna systems, and test and measurement solutions. Trusted by our customers for over 25 years, we solve complex wireless challenges to help organizations stay connected, transform, and grow.

**PCTEL, Inc.**

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

**>** pctel.com/scanning-receivers

[1] *Feature coming soon;* [2] *As of 3GPP Release 17 V17.2.0 (2021-06)*