

5G New Radio

Test & Measurement Solutions

SeeGull® HBflex™ | SeeGull IBflex® | sub-6 GHz and mmWave



Be Ready for 5G

The promise of 5G is that it will usher in a new age of intelligent networking, encompassing both human communications and the Internet of Things. It's a game-changing technology that requires a full understanding of its capabilities. PCTEL offers the RF test tools you need to simplify the deployment of this intricate technology in the field.

Challenges of 5G Deployments

Accurate RF testing can help operators solve both pre-deployment and post-deployment 5G challenges.

Pre-deployment

- Introduction of new high frequency mmWave and mid-band spectrum
- Spectrum clearing on existing and new bands
- Accurate network baseline
- Precise planning and design of 5G networks

Post-deployment

- Integrating 5G New Radio (NR) technology
- Co-managing new 5G and existing legacy 4G LTE, LTE Advanced Pro and 3G networks
- Optimizing dense small cell deployments in a complex heterogeneous RAN network

Solution

PCTEL offers 5G NR measurements on its industry-leading *flex* scanning receivers, which combine portability and accuracy with the power to test multiple technologies and bands simultaneously. The *HBflex* scanning receiver supports both mmWave and sub-6 GHz testing in a single device, while the industry-proven *IBflex* supports sub-6 GHz 5G measurements.

The new *HBflex* and the 5G capable *IBflex* both support for 2G, 3G and 4G technologies in addition to 5G NR. Current *IBflex* scanning receivers can be upgraded into a 5G-capable *HBflex* or *IBflex*.

Why PCTEL?



Efficient Execution

Thorough and accurate RF data for better planning and more optimized rollout, with or without data from user equipment (UE).



ROI

Cost savings through field upgrade of existing *IBflex* scanning receivers to include 5G NR measurements or hardware upgrade from *IBflex* to *HBflex*.



Peace of Mind

Industry-leading reliable platform with high dynamic range, accuracy, and performance.



Productivity

Single-box solution for multi-technology, multi-band measurement support.



Flexibility

Support from multiple test vendors and on multiple operating systems for easy data collection and analysis.



Agile

Versatile tools designed for use in both indoor and outdoor environments.

5G Solution & Features



SeeGull HBflex



SeeGull IBflex

Designed for full performance during in-building walk tests and outdoor drive testig

Multi-Band

- 3GPP FR1 Bands, IBflex and HBflex (10MHz—6GHz)
- 3GPP FR2 Bands, HBflex (24GHz—40GHz)
- All existing 2G, 3G and 4G bands

Multi-Technology

- 5G NR
- LTE FDD
- TD-LTE
- NB-IoT
- UTMS
- GSM
- CDMA
- EV-DO
- TD-SCDMA
- WI-FI
- LAA

Multi-Application

- Spectrum Clearing
- Interference Management
- Baseline Testing
- Integration Testing
- Optimization Testing
- Operational Troubleshooting

5G NR Specifications (Preliminary)

5G New Radio (NR)		
Measurement Modes		NR TopN Signal : Synchronization channels (P-SS/S-S) & PBCH
Data Modes		PCI, PSS_RP [dBm], SSS_RP [dBm], PSS_RQ [dB], SSS_RQ [dB], SS_CINR [dB], RSPBCH_RP [dBm], RSPBCH_RQ [dB], RSPBCH_CINR [dB], SSB_RP [dBm], SSB_RQ [dB], SSB_CINR [dB], SSB_idx
Sub Carrier Spacing		15/30/120/240 KHz
Max. Number of Channels		24
Measurement Rates:		5/sec
Dynamic Range (CINR):		PSS/SSS CINR: -10 to + 40 dB PBCH DMRS CINR: -8 to + 40 dB
Min. Detection Level:	RP	-135 dBm (SCS @15 KHz)
Relative Accuracy (CINR):	PSS/SSS CINR	±2 dB
POWER MEASUREMENTS		
Measurement Rate (Maximum)	5G NR	11,050 ch/sec
Dynamic Range		-120 to -20 dBm @ 30 kHz
Absolute Accuracy		±1 dB (across Basic RF Input Power Range)
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)
Measurement Range		>90 dB
Measurement Rate (Single Sweep)		>270 MHz/sec
Accuracy		±1 dB (across Basic RF Input Power Range)

SeeGull HBflex Specifications

PHYSICAL	
Maximum Power (+9 to +17 VDC)	25W MAX
Size	10.10" D x 6.50" W x 4.40" H (255.3 mm D x 165.1mm W x 111.5mmH)
Weight	7.26 lbs (3.3kg)
Temperature Range	Operating: 0 °C to +50 °C; Storage: - 30 °C to +80°C
Host Data Communications Interface	USB 2.0, High Speed; Bluetooth
Data Storage	SD (32 GB)
Antenna Ports	RF(sub 6GHz, Bluetooth) : SMA Female (50 Ω); GPS: Male (50 Ω) SMB, RF (mmWave): 2.92mm Female
Safety (CE)	IEC 62368-1
EMC	EN 301 489 -1
Shock and Vibration	MIL-STD-810G, SAE J1455
RoHS	Compliant (6/6)
RF CHARACTERISTICS	
Frequency Range	Sub 6GHz - 10MHz - 6GHz mmWave : N257 (26.5-29.5GHz), N258 (24.25-27.5GHz), N260 (37-40GHz)
Internally Generated Spurious Response	-105 dBm (Typical)
Conducted Local Oscillator	- 55dBm (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)
Intermodulation-free Dynamic Range	2 tone @ -30 dBm, 40 GHz, -50 dBc (Typical),

Refer SeeGull IBflex Brochure for details on IBflex physical and RF specifications

Please contact your sales representative or email scanners@pctel.com for more details or to request an informative poster on **RF Interference**.

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Rev A Sept 2018