

AKCELL Mobile

4G/5G radio measurement application for smartphones

REFERENCE

FT-AKC-MOBILE

VERSION

2026.10

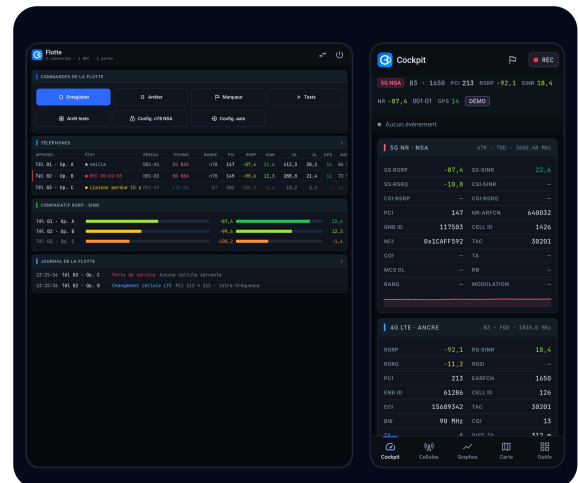
DATE

October 31, 2026

OVERVIEW

AKCELL Mobile turns commercial off-the-shelf smartphones, without modification or root access, into 4G and 5G measurement probes. The application records the KPIs of the 5G NR serving cell, its LTE anchor and the neighbor cells, as well as the network context and throughput, at a rate of 1, 2 or 4 samples per second; each sample is timestamped and tied to its GPS position or to its location on the floor plan.

Radio events are detected live and recorded with the session; statistics, network tests and exports complete the measurement. In fleet control mode, a tablet monitors and controls the devices in its vicinity over a direct local link, with no server: recordings, tests and markers are started across the whole fleet, under a single session name. Sessions are then post-processed in AKCELL Analyzer.



KEY POINTS

01 Real-time 5G NR and LTE measurement

NSA and SA: serving cell, LTE anchor, neighbor cells, radio quality, network context and throughput, at 1, 2 or 4 samples per second.

03 Statistics and exports

Distribution by level, histograms and quantiles; export of samples, events and routes, session report.

05 Fleet control without infrastructure

A tablet monitors the status of each device, compares the measurements and starts recordings, tests and markers.

02 Radio events detected live

Cell changes, 5G additions and releases, fallbacks, outages, degraded coverage and quality, with log and alerts.

04 Active network tests

Latency, DNS resolution, HTTPS response and multi-stream throughput, on one device or across the whole fleet.

06 Data under your control

Sessions stored on the device; no measurement is sent to a server.

APPLICATIONS

Drive testing and optimization

Coverage, quality, events and throughput measured along routes and clusters, before and after each optimization action.

Multi-operator benchmarking

One device per operator, a common route and test sequence, controlled and compared from a tablet.

Indoor acceptance testing

DAS and small cells: routes fixed on the floor plan, floor by floor, comparable from one visit to the next.

Quality of service and customer complaints

Measurement at the complaint location, network tests, events and results, timestamped and location-tagged.

01 Technologies and measurements

Technologies	5G NR (NSA EN-DC and SA), LTE; 3G (UMTS) and 2G (GSM) fallback
5G NR KPIs	SS-RSRP, SS-RSRQ, SS-SINR; CSI-RSRP, CSI-RSRQ, CSI-SINR, CQI and timing advance depending on the device
LTE KPIs	RSRP, RSRQ, RS-SINR, RSSI; CQI, timing advance and estimated distance
3G/2G fallback	UMTS: UARFCN, PSC, RSCP, Ec/No; GSM: ARFCN, BSIC, RSSI
Identification	PCI, NR-ARFCN or EARFCN, band, frequency, gNB and eNB IDs, cell ID, TAC, PLMN
Network context	Service state, data technology, NSA and carrier aggregation, data session, call state and voice technology (VoLTE, VoNR, CS fallback), roaming
Neighbor cells	Channel, band, PCI, RSRP, RSRQ and SINR, depending on the modem
Sampling rate	1, 2 or 4 samples per second

02 Radio events

Mobility	LTE and NR SA cell changes, intra- and inter-frequency; 5G NSA addition and release
Service	Technology change and 3G/2G fallback; loss and recovery of service, with outage duration
Network	TAC, PLMN, carrier aggregation and data session changes; call start and end
Quality	Degraded coverage and quality: adjustable thresholds, hysteresis
Reliability	Confirmation over several samples: an isolated gap in the measurements does not create an event
Handling	Log, user markers, vibration or audible alerts; events recorded and exported with the session

03 Display and statistics

Screens	Cockpit, cells, charts, map, events, statistics; two-column layout on tablets
Charts	1-, 5- or 15-minute time spans, freeze, shared cursor, quality background bands, serving cell timeline
Map	Base map with on-device cache; route colored by RSRP, SINR, RSRQ, cell or technology
Statistics	Live and per session: distribution by level, histograms, quantiles, technologies, cells, throughput
Quality scale	Five levels, adjustable boundaries

04 Positioning

Outdoor	Device GPS position; distance traveled
Indoor	Floor plans (PNG or JPG) calibrated on two reference points: scale and orientation, metric coordinates
Waypoints	Placed with a single tap on the plan; the current measurement is tied to the position
Floors	Several floors per survey

05 Network tests

Latency	TCP, 10 attempts: minimum, average, maximum, jitter and loss
DNS	Uncached resolution
HTTPS	Response time over 3 requests
Throughput	Multi-stream downlink and uplink: 1 to 8 connections, 5 to 60 s, live curve
Execution	Repeated runs; adjustable servers, number of streams, duration and latency target; results recorded in the session

06 Fleet control

Roles	Measurement device; fleet controller (tablet or smartphone)
Link	Local and direct between devices in proximity (Bluetooth and Wi-Fi), with no server or Internet connection
Console	Status, network, technology, band, PCI, RSRP, SINR, throughput, GPS and battery of each device; RSRP/SINR comparison
Commands	Recording, tests and synchronized marker, on one device or across the whole fleet
Log	Events from all devices, consolidated on the tablet
Sessions	Session name shared by all devices in a campaign

07 Data and exports

Storage	On the device; session details: summary, route map, events
Exports	CSV (samples and events), KML, GeoJSON, standalone HTML report, complete ZIP archive
Post-processing	Replay, analysis and comparison of sessions in AKCELL Analyzer
Privacy	No measurement sent to a server; network tests and base map exchange only their own traffic

SYSTEM REQUIREMENTS

Measurement device	4G or 5G smartphone running Android 10 or later, without root access
Advanced KPIs	5G NR CSI and CQI: Android 12 or later; 5G NR timing advance: Android 14 or later
Fleet control	Tablet or smartphone running Android 10 or later
Permissions	Precise location, phone state, notifications; access to devices in proximity for fleet control
Indoor	Floor plan of each level in image format
Language	French

AVAILABILITY

Availability and terms subject to quotation.
Demonstration, deployment and training on request.

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Available KPIs depend on the device, the modem and the network configuration.
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