iBwave

MOBILE SURVEY

A simple, lightweight and affordable way to test, verify and document Public Safety networks.

iBwave Mobile Survey gives you a simple and seamless way to test, verify and document public safety networks. Easily capture measurement data for site surveys and grid testing, visualize results, automatically generate reports with one click with our easy-to-use iBwave Mobile Survey solution and the Epiq Solutions' PRiSM™ scanner. While on-site, you can also use the mobile app to take pictures, capture notes and save them to pushpins on the floorplan to refer to later in the iBwave Public Safety design software.

iBwave

iBwave Mobile Survey

Seamlessly test public safety networks

iBwave Mobile Survey gives you the flexibility to collect P25, LTE or 5G survey data on-site using the seamlessly integrated Epiq Solutions' PRiSM scanner (P25, LTE, 5G) or just your Android device (LTE, 5G, Wi-Fi).

Survey with Epiq Solutions' PRiSM scanner

> Technologies: P25, LTE, 5G

> KPIs: RSSI, RSRP, RSRQ, BER, SINR

> Seamless integration to iBwave Mobile Survey for a simplified end-to-end survey and design experience.

> Highly portable: weighs under 6 ounces (170 grams).

> Powered from the host device: simple USB-C connects to your Android device and laptops for power - no need for batteries or chargers.

> Web-based: works with the device's browser – no application to install.

> Works with unmodified devices: no device rooting necessary.

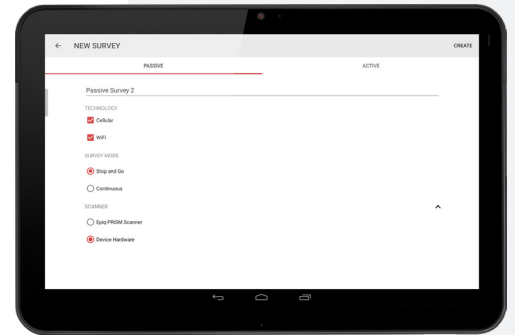> SDR-Driven: easily calibrated and upgraded with new capability without changing hardware.

Collect LTE survey data using just your Android device

> Technologies: LTE, 5G, 4G, 3G, 2G, 802.11 a/b/g/n/ac/ax
> Wi-Fi KPIs: RSSI, CCI, Throughput, and more.
> Cellular KPIs: RSSI, RSRP, RSRQ, SINR, and more.

Simple grid testing & pass/fail report

Perform grid testing and generate automatic Pass/Fail reports to easily submit to AHJs for approval.

Simply draw your grids over the floorplan in iBwave Mobile Survey, collect the measurements for each point using the seamless integration to the Epiq Solutions' PRiSM scanner, immediately visualize pass/fail results and generate the report for approval to the AHJs with one click.

> Draw grids with built-in guidelines to ensure adhering to regulations (ability to override).

> Easy-to-use interface simplifies the capture of the P25 measurement points on the grid.

> Quickly generate grid test results in a report to submit on-the-spot to the AHJ for approval.

> Set and modify pass/fail threshold settings for measurements used in grid test as needed to ensure accurate results.

iBwave Mobile Survey
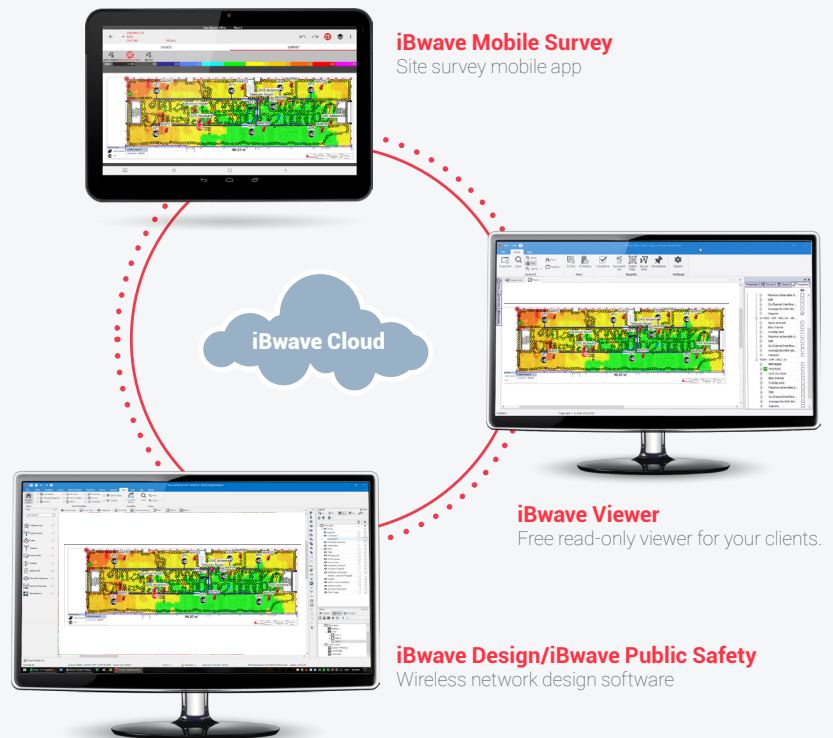
Collect & save site documentation to floorplan
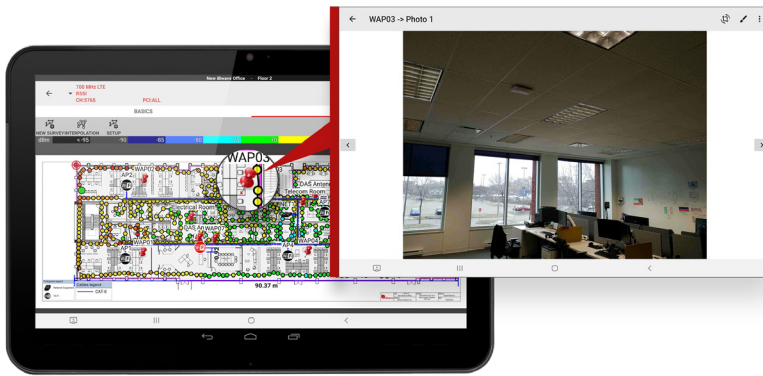
Use your mobile device's built-in camera to capture site images and videos as you walk the site and save them to geo-located pushpins on the floorplan. Add text or voice notes to note important details about what you're capturing. Once done, save it all to the cloud so you or your teammate can view your annotations on the floorplan as you do the design in iBwave desktop software.

Easily collaborate with your team and customers

Use iBwave cloud or iBwave's advanced cloud – iBwave Unity – to easily share survey data and site documentation gathered on-site. Save survey data and site documentation to the cloud to review during the design phase – and then use the cloud again to download and view the completed design plan as you walk the site doing your validation survey.

Also use iBwave's free read-only iBwave Viewer to share design plans and project information with your customers and other project stakeholders.

iBwave Mobile Survey
Site survey mobile app

iBwave Cloud

iBwave Viewer
Free read-only viewer for your clients.

iBwave Design/iBwave Public Safety
Wireless network design software

iBwave Mobile Survey

FEATURE SET

IBWAVE INTEGRATION

- Create a new project from scratch or from a template
- Download and upload projects from iBwave Cloud or iBwave Unity and work offline
- Transfer projects directly to/from iBwave Design through USB
- Store up to 10 GB of projects on iBwave Cloud
- Share projects from iBwave Cloud by email to external partners

SITE SURVEY

- Integrate with the Epiq Solutions' PRiSM scanner Display surrounding network signals (Network Scan)
- Internal data collection engine (Optional add-on module)
- Run interpolation of survey measurements (Optional add-on module)
- Capture site details, contact information and initial requirements
- Create, scale and geolocalize floor plans
- Add geolocated photo, text, video and audio annotations to floor plans
- Create geolocated pushpins with photo, text, video and audio annotations
- Draw and type text on photos
- Draw construction markup & cable routes on floor plans
- Integrate with 3rd party network test tools
- Share iBwave floor plans, transmitters & zones to apps on the same device
- Display back all received measurements on iBwave floor plans
- Save survey measurements in the project for access in iBwave Design

AS-BUILT DESIGN

- Submit design changes to iBwave Design for approval:
  - Update all component location and height
  - Update antenna azimuth, downtilt and mount orientation
  - Update cable routes and add measured length

REPORTING

- Generate reports from free iBwave Viewer (PDF, PPT, DOC, XLS and more)
  - Annotations & floor plans
  - Survey measurements (plots)
  - Equipment list
  - Prediction maps
- Generate a report on the mobile device (PDF)
  - Project summary
  - Annotations
  - Survey maps

COLLECTION MODULE

- Internal data collection engine:
  - Wi-Fi:
    - Technologies: 802.11 a/b/g/n/ac/ax
    - Wi-Fi KPIs: RSSI, CCI+O, Throughput and Channel (view KPI table)
  - Cellular:
    - Technologies: 2G, 3G, LTE and 5G
    - Cellular KPIs: RSSI, RSRP, RSRQ, SINR, and more (view KPI table)
- External data collection:
  - Epiq Solutions' PRiSM scanner
  - Technology: P25, LTE, 5G
  - P25 KPIs: BER, RSSI, SINR, Channel (view KPI table)
  - LTE KPIs: RSSI. RSRP, RSRQ, SINR, PCI and more
  - 5G KPIs: RSSI. RSRP, RSRQ, SINR, PCI and more

GRID TEST MODULE

- Import floorplan from iBwave Public Safety desktop or image on device
- Add grids and critical areas with built-in regulation guidelines
- Set your threshold for general and critical area.
- Capture P25 RF measurements at each point of interest
- Grid Test Pass/Fail report
- Real-time pass/fail indicators
- Integrate the Epiq Solutions PRiSM scanner with the iBwave Mobile Survey application.

INTERPOLATION MODULE

- Run interpolation of survey measurements on following KPIs:
  - Cellular: RSSI, RSCP, RSRP, RSRQ, Ec/No and SINR
  - Wi-Fi: RSSI and CCI+O

EPIQ SOLUTIONS' PRISM SCANNER SPECS

- FREQUENCY
  - Range: 70 MHz - 6 GHz
  - Accuracy: 1 ppm
- PHYSICAL
  - Size: 87 mm x 61 mm x 12 mm
  - Weight: 24 grams
- POWER
  - Power Input: USB-C
  - Power Consumption: 3W (Active)
- POWER MEASUREMENTS
  - Accuracy: ± 2 dB @ 25°C

TECHNICAL REQUIREMENTS

SOFTWARE REQUIREMENTS

- Android 8 or higher
- Android 10 or higher (Collection Module)

RECOMMENDED COMPATIBLE DEVICES

- Smartphones:
  - Samsung Galaxy S20 5G, S21, S22, S23
  - Samsung Galaxy Note10, Note20 5G
  - Samsung Galaxy XCover Pro
  - Samsung Galaxy A51
  - Google Pixel 6
- Tablets:
  - Samsung Galaxy Tab S8 5G
  - Samsung Galaxy Tab S7 5G
  - Galaxy Tab A 8.4 LTE

MINIMUM VERSION FOR COLLECTION TOOLS

- Accuver - XCAL-Harmony: 2.01.088
- Accuver - XCAL-Mobile: 4.13.268
- Infovista - TEMS Pocket: 14.3.1 (single device only)
- Enhancell - Echo One: 2.0.6
- Enhancell - Echo Plus: 2.0.9
- Falcon Smart - Falcon Kit: 1.10
- Keysight - Nemo Handy: 2.70
- Keysight - Nemo Walker Air: 1.60
- PCTEL - Seehawk Engage: 2.0.6
- PCTEL - Seehawk Engage+: 2.0.9
- PCTEL - SeeHawk Touch: 1.2
- Solutelia - WINd Pro: 4.1.0
- Rohde & Schwarz - QualiPoc: 15.0
- Rohde & Schwarz - QualiPoc Freerider: 16.2

Note: While iBwave Mobile Survey should work on most Android™ based phones & tablets, we cannot guarantee that they will be compatible with all of them. For integration with 3rd party collection tools, you should first contact your respective vendor to determine device requirements.

iBwave Mobile Survey

KPIS

NETWORK KPIs

KPI	Valid Range	Example	Comments
Operator	N/A	Rogers, Bell, Telus	
MCC	001 to 999	302	3-digit Mobile Country Code
MNC	00 to 999	720	2 or 3-digit Mobile Network Code
Frequency	300 MHz to 100 GHz	1900 MHz or 2.6 GHz	
Band Number	1 to 100	B2, B66	
Band Name	N/A	PCS, AWS	

GSM/EDGE KPIs

KPI	Valid Range	Example	Comments
LAC	0 to 65535	13000	Location Area Code
CID	0 to 65535	5781	Cell Identity
ARFCN	0 to 65535	129	Absolute RF Channel Number
RSSI	-120 to -20	-80 dBm	Received Signal Strength Indication

HSPA/UMTS KPIs

KPI	Valid Range	Example	Comments
LAC	0 to 65535	55100	Location Area Code
RNC ID	0 to 4095	43	Radio Network Controller Identity
Cell ID	0 to 65535	9942	Cell Identity
PSC	0 to 511	158	Primary Scrambling Code
DL_UARFCN	0 to 65535	412	UMTS Absolute RF Channel Number for DownLink
UL_UARFCN	0 to 65535	12	UMTS Absolute RF Channel Number for UpLink
RSSI	-120 to -20	-80 dBm	Received Signal Strength Indication
RSCP	-120 to -24	-90 dBm	Reference Signal Code Power
Ec/No	-24 to 1	-10 dB	Energy per chip over the Noise spectral density (Android 11 only)

LTE KPIs

KPI	Valid Range	Example	Comments
TAC	0 to 65535	25100	Tracking Area Code
eNodeB ID	0 to 1048575	50562	eNodeB Identity
Cell ID	0 to 255	23	Cell Identity
PCI	0 to 503	451	Physical Cell Identity
DL_EARFCN	0 to 70645	1075	E-UTRA Absolute RF Channel Number for DownLink
UL_EARFCN	18000 to 134280	19075	E-UTRA Absolute RF Channel Number for UpLink
Channel BW	1.4 to 20	15 MHz	Channel width or bandwidth, has only 6 possible values (1.4, 3, 5, 10, 15, or 20 MHz)
RSSI	-120 to -20	-80 dBm	Received Signal Strength Indication, range in Android is [-113, -51]
RSRP	-140 to -40	-107 dBm	Reference Signal Received Power, range in Android is [-140, -43]
RSRQ	-20 to -3	-12 dB	Reference Signal Received Quality
SINR	-20 to 50	25 dB	Signal-to-Interference-plus-Noise Ratio (typical values between -10 to 30)
CQI	1 to 15	10	Channel Quality Indicator (not reported by all devices)

iBwave Mobile Survey

5G KPIS

KPI	Valid Range	Example	Comments
Cell ID	0 to 68719476735	10	Cell Identity
NR-ARFCN	0 to 3279165	422000	New Radio Absolute RF Channel Number for Downlink
PCI	0 to 1007	300	Physical Cell Identity
TAC	0 to 16777215	842	Tracking Area Code
SS RSSI	-140 to -44 dBm	-90 dBm	Secondary Sync Block Received Signal Strength Indication
SS RSRP	-140 to -44 dBm	-100 dBm	Secondary Sync Signal Block Reference Signal Received Power
SS RSRQ	-43 to 20 dB	-3 dB	Secondary Sync Signal Block Reference Signal Received Quality
SS SINR	-23 to 40 dB	10 dB	Secondary Sync Signal Block Signal-to-Interference-plus-Noise Ratio

P25 KPIs (with Epiq Solutions' PRiSM Channel)

KPI	Valid Range	Example	Comments
BER	0 to 100 %	4 %	Bit Error Rate
RSSI	-120 to -20 dBm	-80 dBm	Received Signal Strength Indication
SINR	-23 to 40 dB	12 dB	Signal-to-Interference-plus-Noise Ratio
DAQ	1 to 5	4	Delivered Audio Quality Score

Wi-Fi KPIs

KPI	Example	Comments
SSID	iBwave	Service Set IDentifier
BSSID	d8:c7:c8:44:32:40	Basic Service Set IDentifier
Channel Number	1, 36	Wi-Fi Channel
RSSI	-65 dBm	Received Signal Strength Indication
CCI	4	Co-Channel Interference