

# XCAL-Harmonizer Multi-Smartphone based benchmarking solution

## Indoor Smartphone based Network QoS and QoE benchmarking

Easy to use, lightweight, scalable indoor/walk network test and benchmark platform, performing service testing on up to 12 smartphone devices and collection of RF scanner data, all controlled via a single easy to use GUI on a tablet device. Supplementary battery pack and XCAL-Solo hardware extends the use of the platform for up to 8 hours.

### XCAL-Harmonizer Overview

- **Deployment types**
  - Indoor Network Optimization
  - Operator and Service benchmarking
  - Small cell and DAS deployment verification
  - Deployed for discreet test requirements
- **User Groups**
  - Network Operators
  - Services Companies
  - System Vendors
  - Infrastructure leasing companies
  - Regulators
  - Train Operators
  - Mass gathering Hosting Venues (Stadiums, Concert Halls)
  - XCAP post processing software
  - Small cell and DAS deployment verification

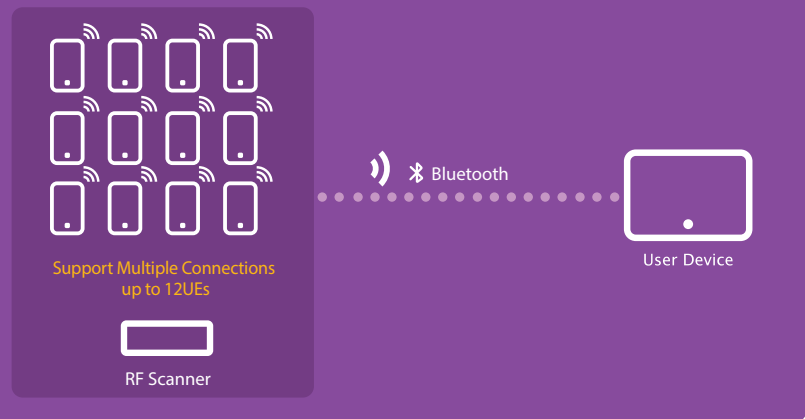
### Benefit

- Cost effective and Rapid deployment
- Using proven XCAL-Mobile platform to record full optimization dataset
- Part of the XCAL family of products, sharing commonality in log file format and analysis
- XCAP post processing software
- Small cell and DAS deployment verification

### Application of XCAL- Mobile based solution

Contents	Mobile	Solo	Harmonizer
Autocall Support	0	0	0
No. of test (Interwork) devices	1	1	12
Field Test	0	0	0
In-building Test	0	0	0
MOS test	0	0	0
Single Benchmarking Test	X	X	0

### XCAL-Harmonizer System Configuration



### Features

Configuration Setup	Management of Connection with UE	Connection/Disconnection available for each UE by Bluetooth Display Connection Status
	Measurement Scenario setting for Each UE	Support FTP, CSFB, VoLTE, Multi-call, HTTP, Ping, WiFi measurement, Email, SMS, Youtube, Multi-RAB, MULTI SESSION, MMS, TraceRT, Iperf, IDLE, MCPTT
Monitoring	Log data info	
	Display Autocall Status including Log data info	
In-building	Setup for In-building Measurement	Support setup function for In-building measurement
		Get address from GPS information
		DB selection of saved building available
		Choice of building type and type of measurement site available
MAP	Display location and result on Google Map in real time	Photographing and transmitting pictures of measured sites available
PCTEL iBflex Scanner Management	Support scan list	LTE Enhanced TopN signal(FD-LTE/TD-LTE)
		GSM color Code
		RSSI Scan (FD-LTE/TD-LTE/WCDMA/GSM/CDMA/EVDO)
		Blind Scan(FD-LTE/TD-LTE/WCDMA/GSM/CDMA/EVDO)
R&S TSMA scanner management	Support scan list	WiFi (AP scan)
		LTE Signal (FD-LTE/TD-LTE)
Log File Management	Log File Management Function for each device	<b>SGNR</b>
		Display a list of log file that saved at each mobile
		Support log file deleting function
		Support upload of log file through designated FTP server

# XCAL-Harmonizer

Multi Handy Solution embedded in Smart Phone

## H/W Specification

XCAL-HarmonizerKIT (4 Mobiles)		
Size	234x450x100(mm)	
Weight	3.1K	Box Only
Weight (4smart phones)	4.7Kg	Including 4 smart phones and 2 x20000mAh battery pack for 8 hour testing
XCAL-HarmonizerKIT (6 Mobiles)		
Size	320x450x100(mm)	
Weight	4.2Kg	Box Only
Weight (6smart phones)	6.4Kg	Including 6 smart phones and 3 x20000mAh battery pack for 8 hour testing
XCAL-HarmonizerKIT (8 Mobiles)		
Size	Open : 470x450x100(mm) Close : 234x450x200(mm)	Harmonizer(4 Mobiles) x 2
Weight	6.3Kg	Box Only
Weight (8smart phones)	9.7Kg	Including 8 smart phones and 4 x20000mAh battery pack for 8 hour testing
XCAL-HarmonizerKIT (12 Mobiles)		
Size	Open : 642x450x100(mm) Close : 320x450x200(mm)	Harmonizer(6 Mobiles) x 2
Weight	8.4Kg	Box Only
Weight (12smart phones)	12.9Kg	Including 12 smart phones and 6 x20000mAh battery pack for 8 hour testing

### XCAL-HarmonizerSW



# XCAL-Harmonizer Multi Handy Solution embedded in Smart Phone

## Flexible View Mode

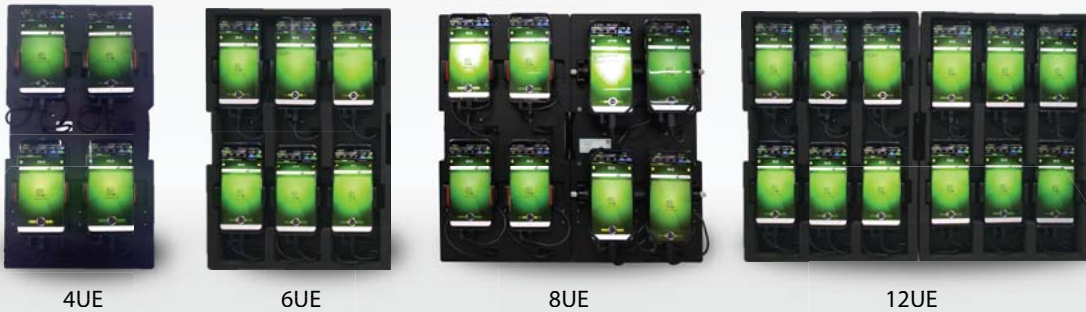
- Able to detect both device and Monitoring UI automatically for users
- **Combo Mode** supports both Harmonizer H/W and Solo at once via Bluetooth connection
- **Solo Mode** (Only controls device connected to Solo) : Solo 6UE
- **Harmonizer mode** (Only controls device connected to Harmonizer H/W) : Harmonizer 4UE/ 6UE / 8UE / 12UE
- **Combo mode** (Controls device connected to both Solo and Harmonizer H/W)  
: Harmonizer 4UE + Solo 4UE / Harmonizer 6UE + Solo 3UE

### Solo Mode

(Any combination of Solo and Mobile is available)



### Harmonizer Mode



### Combo Mode

(Any combination of Solo and Mobile is available)



## Regional offices

**South Korea (HQ)**  
Innowireless Co., Ltd.

Sales:  
salesteam@innowireless.co.kr  
Tel : +82-31-788-1700

**USA**  
Accuver Americas, Inc.

Sales:  
sales.usa@accuver.com  
Tech Support:  
support.usa@accuver.com  
Tel : +1-469-241-6100  
Fax : +1-469-241-6199

**UK**  
Accuver EMEA Ltd.

Sales:  
sales.emea@accuver.com  
Tech Support:  
support.emea@accuver.com  
Tel : +44-203-457-4486

**Poland**  
Accuver EMEA Sp.

Sales:  
sales.emea@accuver.com  
Tech Support:  
support.emea@accuver.com  
Tel : +44-203-457-4486

**Japan**  
Accuver Co., Ltd.

Sales:  
sales@accuver.jp  
Tech Support:  
inquiry\_aj@accuver.jp  
Tel : +81-3-6430-2581  
Fax : +81-3-6430-2589  
Website : www.accuver.jp

**Hong Kong**  
Accuver APAC Ltd.

Sales:  
sales.apac@accuver.com  
Tech Support:  
support.apac@accuver.com  
Tel : +852-2210-7004  
Fax : +852-2210-7017