

# XCAL-Harmony 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-Harmony 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

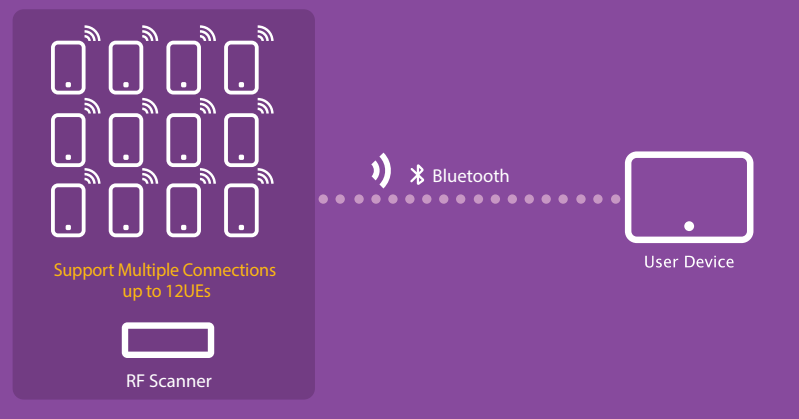
### Benefit

- 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	Harmony
Autocall Support	O	O	O
No. of test (Interwork) devices	1	1	12
Field Test	O	O	O
In-building Test	O	O	O
MOS test	O	O	O
Single Benchmarking Test	X	X	O

### XCAL-Harmony 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
Monitoring	Log data info	
	Display Autocall Status including Log data info	
In-building	Setup for In-building Measurement	Display Autocall Statistics including RF/Cell info, Signaling msg, Call history
		Support setup function for In-building measurement
		Get address from GPS information
		DB selection of saved building available
MAP	Display location and result on Google Map in real time	Choice of building type and type of measurement site available
		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>5GNR</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-Harmony Multi Handy Solution embedded in Smart Phone

## H/W Specification

XCAL-Harmonizer (4 Mobiles)		
Size	234x450x100(mm)	
Weight	3.1K	Box Only
Weight (4smart phones)	4.7Kg	Including 4 smart phones and 2 x2000mAh battery pack for 8 hour testing
XCAL-Harmonizer (6 Mobiles)		
Size	320x450x100(mm)	
Weight	4.2Kg	Box Only
Weight (6smart phones)	6.4Kg	Including 6 smart phones and 3 x2000mAh battery pack for 8 hour testing
XCAL-Harmonizer (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 x2000mAh battery pack for 8 hour testing
XCAL-Harmonizer (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 x2000mAh battery pack for 8 hour testing



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