

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 10 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

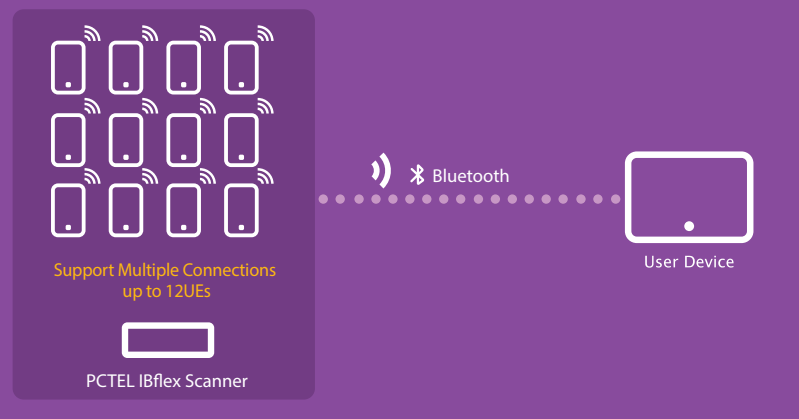
Benefit

- 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-buildin | 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) |
| Log File Management | Log File Management Function for each device | WiFi (AP scan) |
| | | 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

Specification

| Harmony Box(6 Mobile) | | |
|------------------------|---|---|
| Size | 320x450x100(mm) | |
| Weight | 3.2Kg | Box Only |
| Weight (6smart phones) | 5.2Kg | Including 6 smart phones and 3 x 2000mAh battery pack for 6 hour testing |
| Harmony Box(12 Mobile) | | |
| Size | 642*450*100(Close) 320*450*200(Open) | |
| Weight | 6.5Kg | Box Only |
| Weight (6smart phones) | 10.5Kg | Including 12 smart phones and 6 x 2000mAh battery pack for 6 hour testing |



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