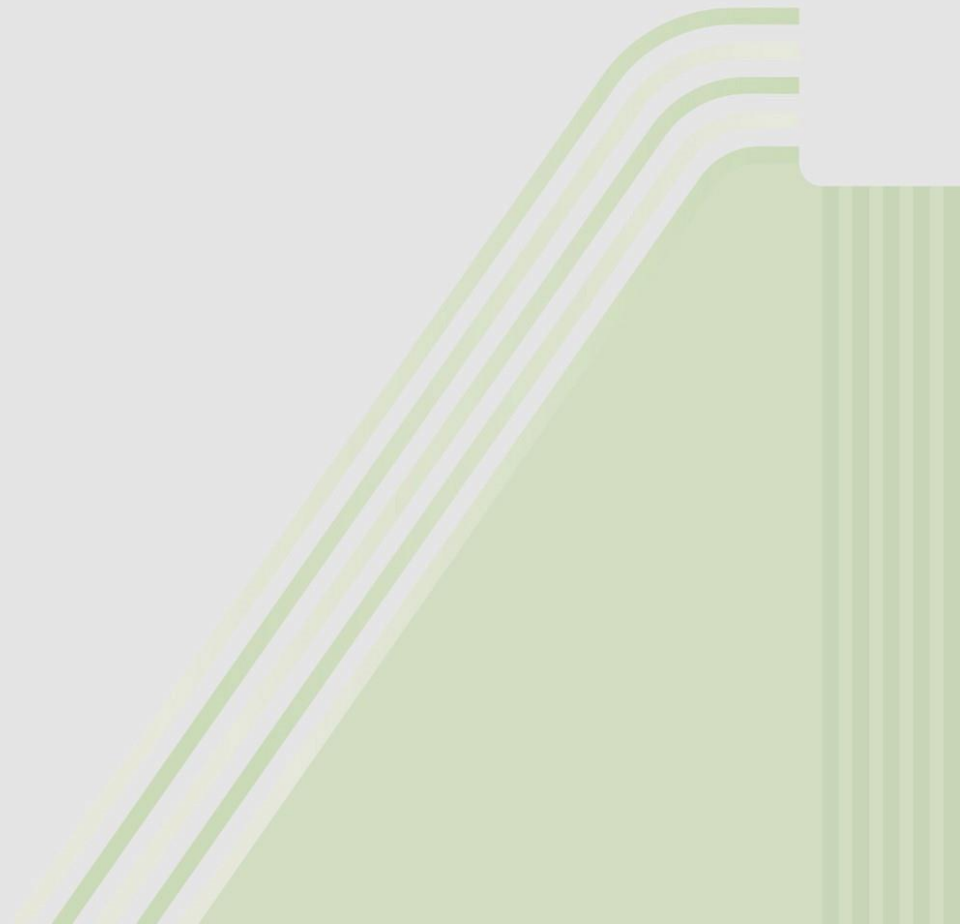




Signalling Tester MD8475B



MD8475B Signalling Tester



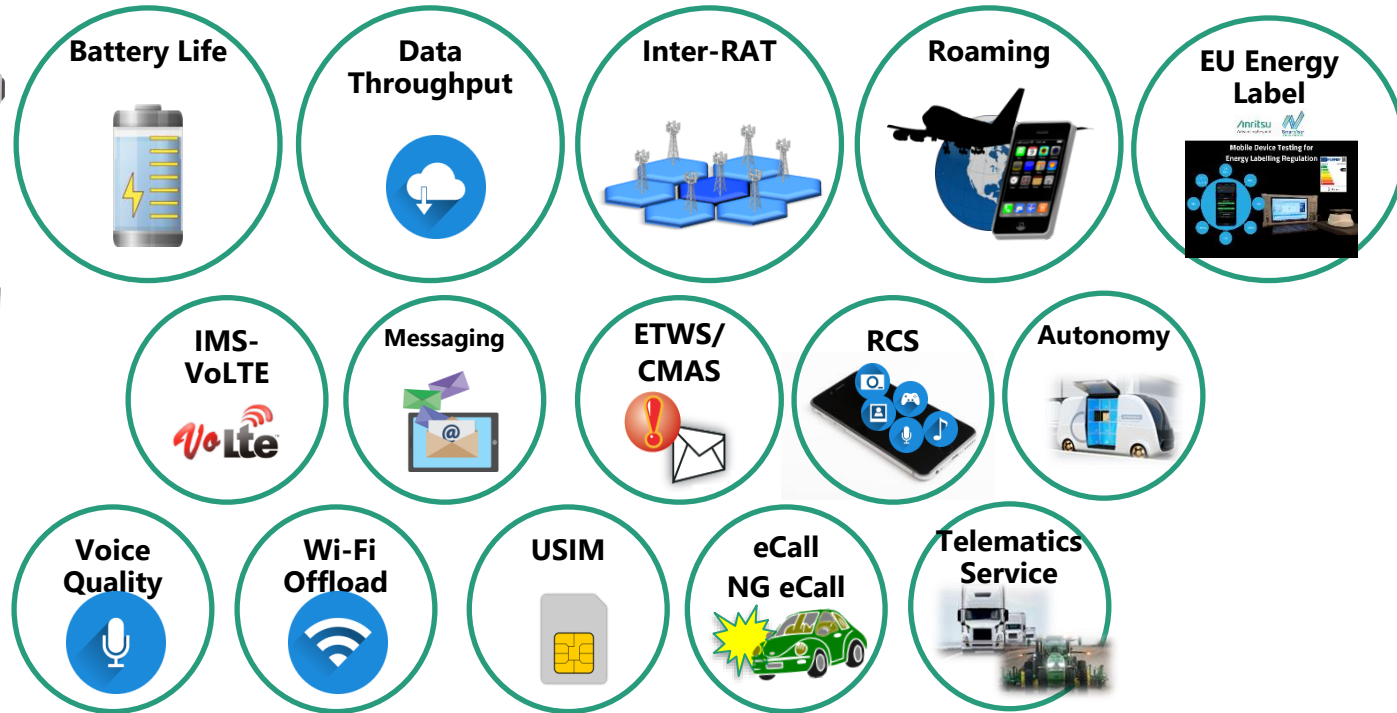
- LTE-A 3CA/4CA tests with 8 Tx and 4 Rx RF signals (up to 6 GHz)
- 2G to 4G system tests (W/G/C2K/EVDO/TDS/LTE)
- CA mobility tests
- Throughput tests at 1 Gbps
- Easy UE connection using integrated RF front-end

All-in-One Wireless Device Tests

Base Station simulator makes them available to evaluate and application development.



MD8475B Signalling Tester



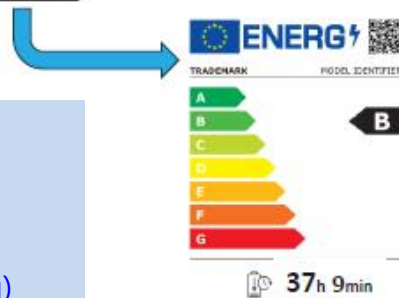
- Device battery life and heat-generation tests
- Strong mobile application tests using simple GUI and built-in IMS server
- Roaming and complex mobility tests

The EU Regulation of Energy Labelling for smartphones and Tablets was published in the Original Journal of EU on the 20th of September 2023 and after 21 months of transition period will **become mandatory on the 20th of June 2025**.

→ UE and tablets placed in EU market will require Energy Label.

Anritsu MD8475B and SmartViser test application provides energy labelling automatic test solution according to the following test process.

✓ Call/Web browsing/Video streaming/Data transfer/Video playback/Idle



MD8475B Configuration

HW: MD8475B, 002, 071(x2units)

SW: 50B, 70B(w/050, SS110)

Parameter: Refer below

[DocsRoom - European Commission \(europa.eu\)](https://docsroom.com/european-commission/europa.eu)

Energy Class - This is calculated with the Energy Efficiency Index score.

Battery Endurance - How long does it take for the device to go from 100% battery to 0% with the testing loop

[News: SmartViser and Anritsu unite to optimise testing for Energy Labelling regulation for smartphones and tablets with Strategic Partnership | Anritsu Europe](#)

SmartStudio - Easy Operation with State-Machine GUI

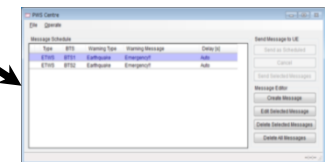
- Interactive test environment **without complex test scripts**
- Built-in IMS server
- Network parameter settings matching user test environment
- Automatic call setting matching DUT ability
- Unique graphical SMS/PWS Centre applications for SMS/CMAS/ETWS service



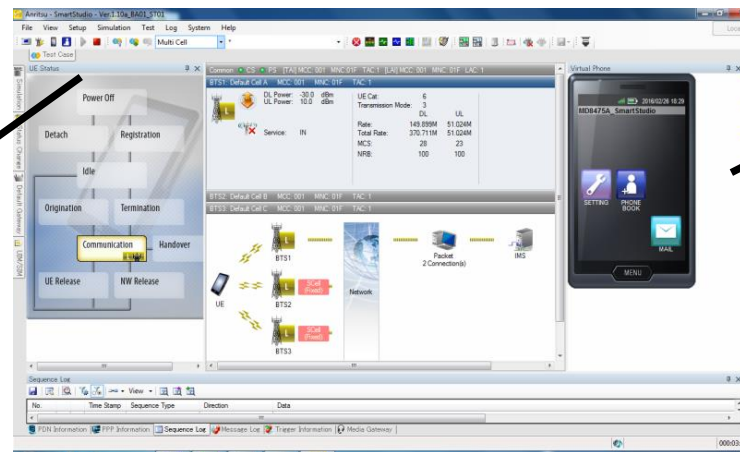
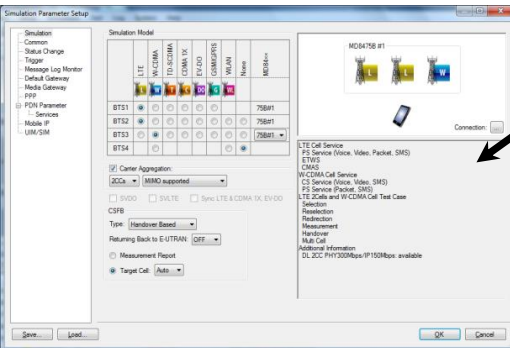
IMS Services



SMS Centre



Various System Configurations



Extensive Network Parameters

LTE FDD
LTE TDD

W-CDMA
HSPA evo
DC-HSDPA

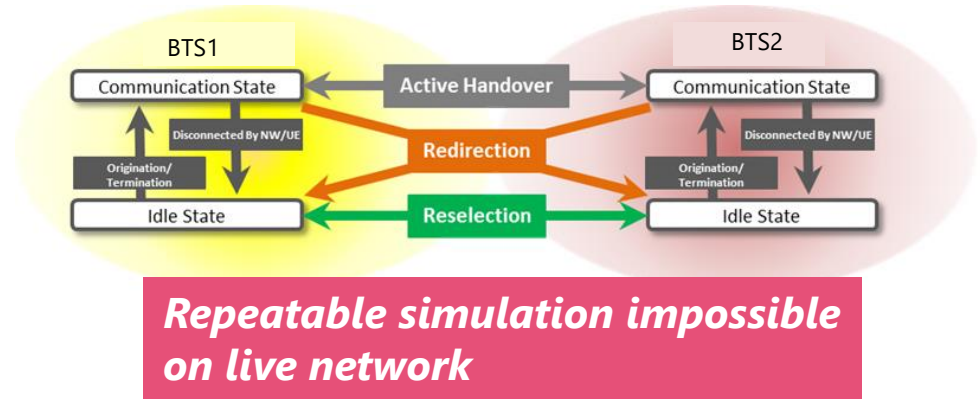
GSM
GPRS
EGPRS

CDMA2000
1X/1xEV-DO

TD-SCDMA
TD-HSPA

SmartStudio supports multi-system simulation without complex test scripts.

- Cell Selection & Reselection
- Handover (Intra/Inter-RAT)
 - Redirection/Active HO
- CSFB/e1xCSFB
- SRVCC
- Roaming



- 2-cell Configuration

| BTS1 \ BTS2 | LTE | W-CDMA | GSM | CDMA2000 | TD-SCDMA | WLAN |
|-------------|-----|--------|-----|----------|----------|------|
| LTE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| W-CDMA | ✓ | ✓ | ✓ | n/a | n/a | ✓ |
| GSM | ✓ | ✓ | ✓ | n/a | ✓ | ✓ |
| CDMA2000 | ✓ | n/a | n/a | n/a | n/a | ✓ |
| TD-SCDMA | ✓ | n/a | ✓ | n/a | ✓ | ✓ |
| WLAN | ✓ | ✓ | ✓ | ✓ | ✓ | n/a |

- 3-cell Configuration

| BTS1/BTS2 \ BTS3 | LTE/LTE |
|------------------|---------|
| LTE | ✓ |
| W-CDMA | ✓ |
| GSM | ✓ |
| CDMA2000 | ✓ |
| TD-SCDMA | ✓ |

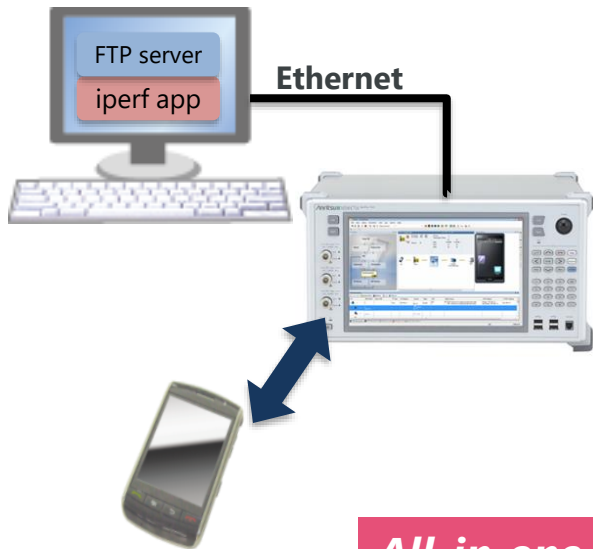
- 4-cell Configuration

| BTS1/BTS2 \ BTS3/BTS4 | LTE/LTE |
|-----------------------|---------|
| LTE/LTE | ✓ |

- Built-in IP packet generator simplifies data throughput test environment
- Easier data throughput test automation with good repeatability

Conventional throughput testing

- Must adjust radio layer and server settings for each application
- Performance depends on PC specifications and Ethernet load



All-in-one throughput tests up to 1 Gbps

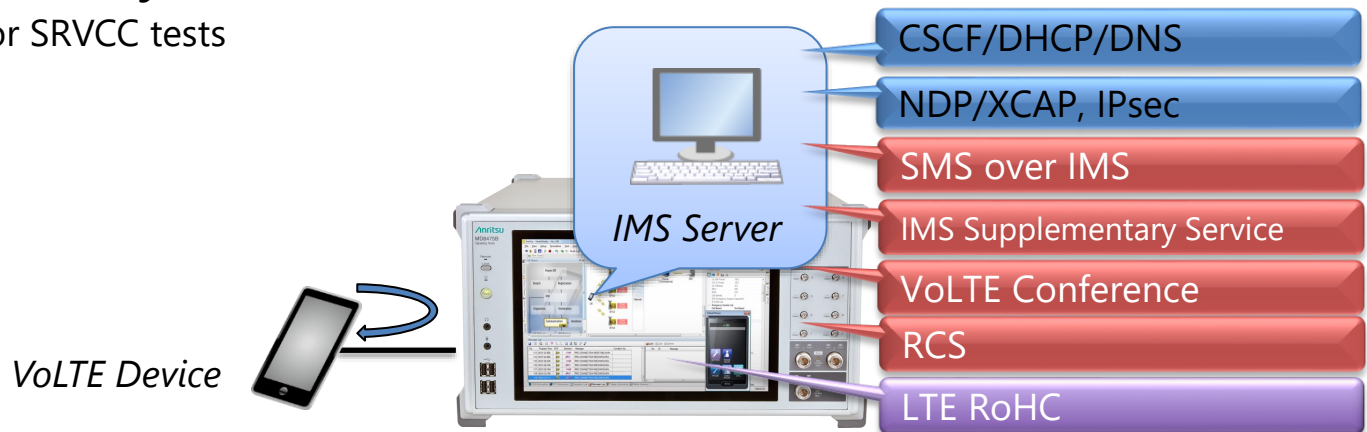
Throughput testing with MD8475B

- Single GUI for adjusting application radio layer and server settings
- Performance independent of PC specifications and Ethernet load

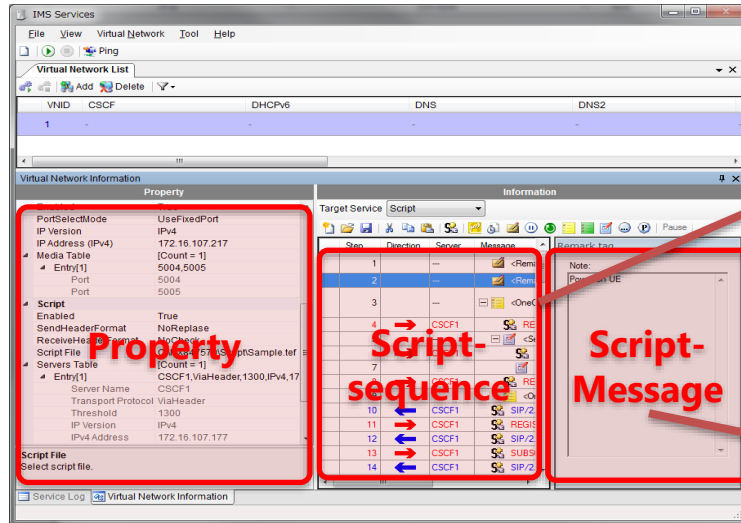


Key Unique Points

- ✓ **Ease-of-use**
 - SmartStudio GUI for easy IMS test configuration and setting
 - No complex test scripts
- ✓ **Comprehensive IMS Tests**
 - Supports wide test range, including irregular and supplementary services tests
 - Add-in Service PSAP supports emergency test and loopback voice data test functions
- ✓ **Analysis and Debug**
 - Simultaneous Wireshark and signalling protocol logging
- ✓ **Built-in Servers**
 - All-in-one IMS and application servers
 - Small footprint without external server
- ✓ **Multi-RAT Expandability**
 - Expandability for SRVCC tests



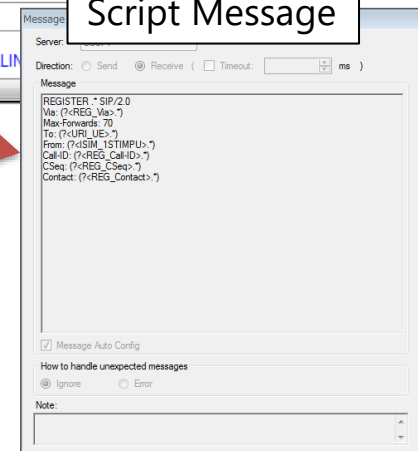
- Test sequence scripting using script interface to confirm SIP/XCAP operation and perform test



Script Sequence

| Step | Direction | Server | Message | Note |
|------|-----------|--------|-----------------------------------|--------------|
| 23 | | --- | <Wait> 1000ms | |
| 24 | | | <Sentence> End | |
| 25 | | | <OneOf> End | |
| 26 | → | CSCF1 | REGISTER.* SIP/2.0 | |
| 27 | ← | CSCF1 | SIP/2.0 200 OK | |
| 28 | | --- | <Pause> ContinueNextStep | |
| 29 | | --- | <Remark> | Power on UE |
| 30 | → | CSCF1 | REGISTER.* SIP/2.0 | 1st REGISTER |
| 31 | ← | CSCF1 | SIP/2.0 401 Unauthorized | Unauthorized |
| 32 | → | CSCF1 | REGISTER.* SIP/2.0 | 2nd REGISTER |
| 33 | ← | CSCF1 | SIP/2.0 200 OK | REGISTER |
| 34 | → | CSCF1 | SUBSCRIBE.* SIP/2.0 | |
| 35 | ← | CSCF1 | SIP/2.0 200 OK | |
| 36 | ← | CSCF1 | NOTIFY tel:%DEFINE.CALLIN SIP/2.0 | |

Script Message



Property Area:

- Set network parameters such as IP Address

Script Area:

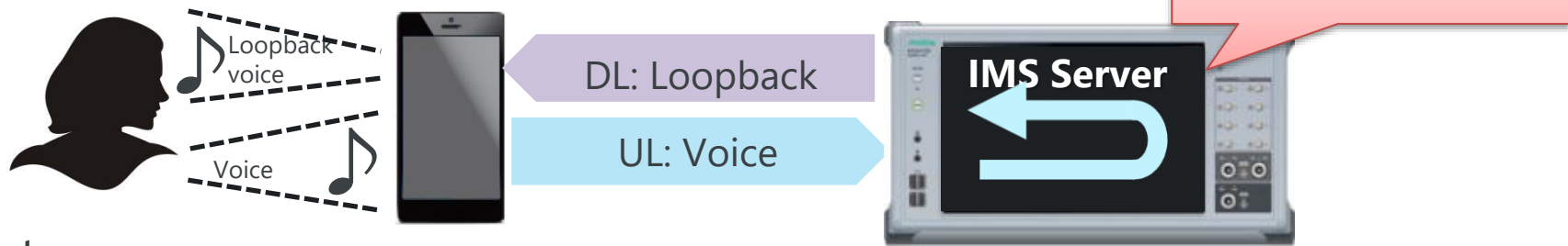
- Edit and run message sequence between UE and CSCF, and UE and server (Ut interface)

Sample Script:

- Registration
- Voice (VoLTE) MO/MT
- SMS (over IMS) send/receive
- Communication barring

VoLTE Quality Test - RTP Frame Control

Check operation at abnormal condition and establish current consumption at stable call



■ Features

■ VoLTE Loopback

Loopback voice and video data to UE



DL: Loopback voice/video

UL: Voice/video



Loopback data delay and loss also supported
(Delay, Loss, Edit CMR (Codec Mode Request))

*Supported by this option

■ Mute/Silent (DTX)

Send SID frame periodically to UE.



DL: SID frame

UL: Voice



*Supported by this option

■ Fixed Pattern

Send fixed voice data pattern to UE



DL: Fixed pattern

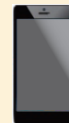
UL: Voice



*Supported by this option

■ No Data

Supports UE connection but does not send any data



DL: No data

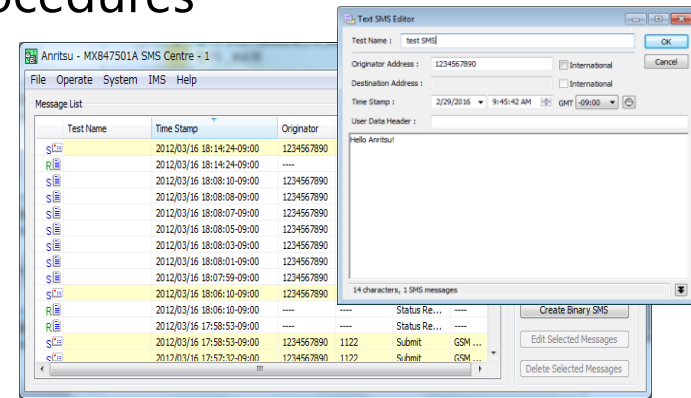
UL: Voice



*Supported by this option

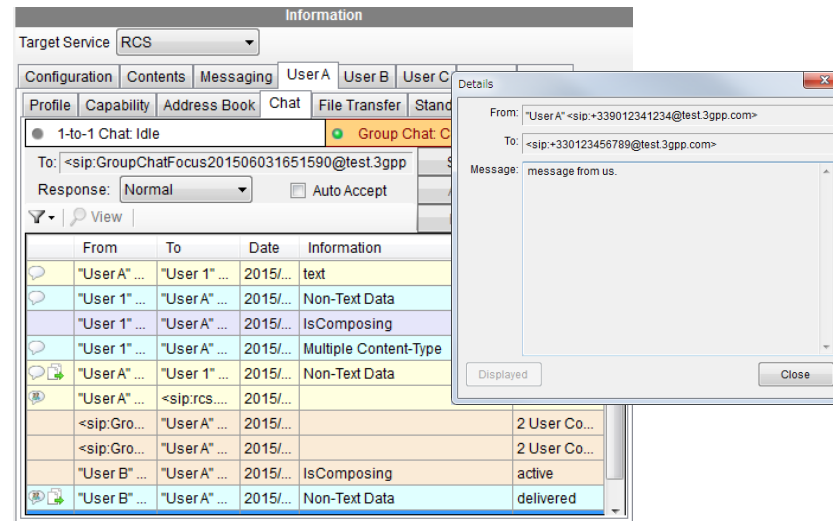
Requires RTP frame control option

- Built-in SMS Centre supports both procedures
 - SMS over SGSN
 - SMS over IMS



SMS Centre

- Built-in IMS server supports RCS features
 - 1-to-1 chat
 - Group chat
 - Standalone messaging



RCS Service

Requires RCS option

Message Service Test - Public Warning System

- Public Warning System (PWS) message test
 - Earthquake Tsunami Warning System (ETWS) on LTE/WCDMA
 - Primary Notification
 - Secondary Notification
 - Commercial Mobile Alert Service (CMAS) on LTE/W-CDMA/CDMA2000/GSM



ETWS (LTE/W)

Send Message to UE

Message Editor

System: LTE/W-CDMA Type: ETWS BTS1 BTS2

Delay Time: Auto Manual 1

Common Setting
Serial Number: 3000

Primary Notification
Message ID: 1100
Warning Type Value: Earthquake
 Activate Emergency User Alert
 Activate Popup on the Display
 Add Warning Security Information
Time Stamp: 2012/09/13 21:43:26 GMT: -09:00

Secondary Notification
Message ID: 1100 Same Primary Notification
Repetition Period: 2
Number of Broadcasts Requested: 1
Si-Periodicity: r32
 Send Schedule Message
Message Contents Type: Text
Data Coding Scheme: 01 Language Code:
Number of Segments: Auto Manual 1
Warning Message:
Emergency!!

PWS Centre

| Type | BTS | Warning Type | Warning Message | Delay [s] |
|------|------|--------------|-----------------|-----------|
| ETWS | BTS1 | Earthquake | Emergency!! | Auto |
| ETWS | BTS2 | Earthquake | Emergency!! | Auto |

CMAS (LTE/W/G)

Message Editor

System: LTE/W-CDMA Type: CMAS BTS1 BTS2

Delay Time: Auto Manual 1

Common Setting
Serial Number: 3000

Concurrent Warning Notification
Message ID: 1100
Repetition Period: 2
Number of Broadcasts Requested: 1
Si-Periodicity: r32
 Send Schedule Message
Message Contents Type: Text
Data Coding Scheme: 01 Language Code:
Number of Segments: Auto Manual 1
Warning Message:
Emergency!!

CMAS (CDMA2000)

Message Editor

System: CDMA2000 Type: CMAS BTS1 BTS2

Delay Time: Auto Manual 1

Message Center Time Stamp (UTC) Validity Period Absolute (UTC)
2012/09/13 21:45:03 2012/09/13 21:45:03

Validity Period Relative
Valid until specified time 5 minutes

Priority Indicator: Emergency Language Indicator: Unknown or unspecified

Alert on Message Delivery: Use Mobile default alert
 Category: Presidential-Level Alert

Call-Back Number
Address:
Digit Mode: 4-bit DTMF digits Number Type: Unknown
Number Plan: Unknown

Message Display Mode: Immediate Display

User Data
 recordType02
identifier: 1100 alert handling: Presidential-Level Alert
expires: 2012/07/0 20:40:00 language: Unknown or unspecified

recordType01
category: Geo response type: Shelter severity: Extreme
urgency: Immediate certainty: Observed

recordType00 (Alert text)
char set: 7-bit ASCII
Emergency!!

- Abnormal testing with easy setup

- Attach Reject

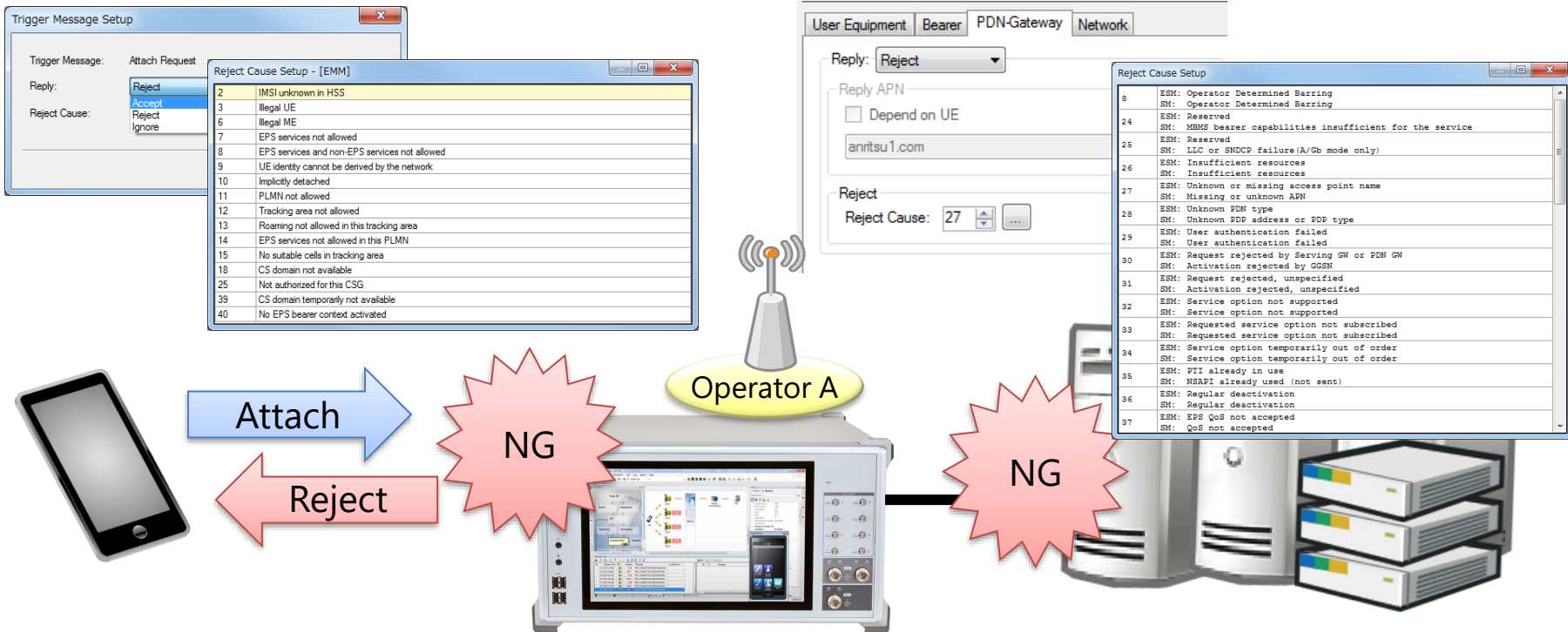
Setting specific triggering messages when the terminal connects to the base station can be used to reject terminal connection requests.

(LTE, W-CDMA, GSM, TD-SCDMA systems supported)

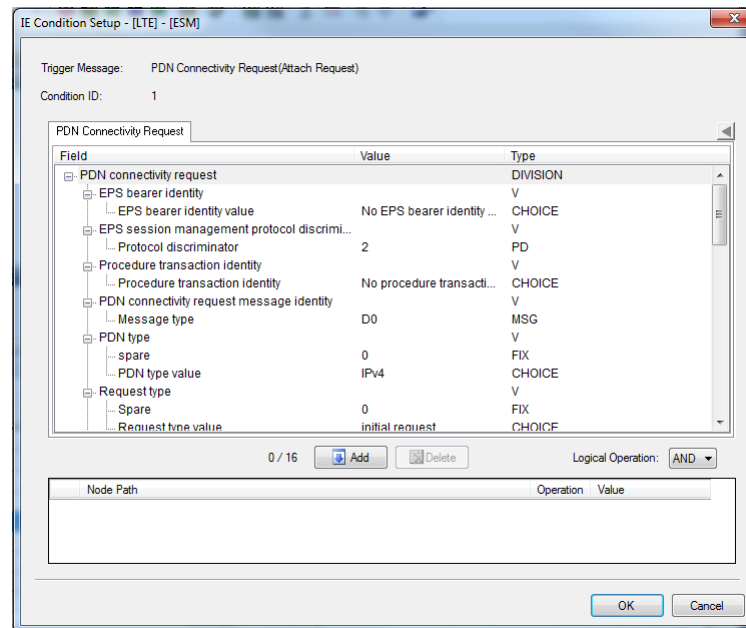
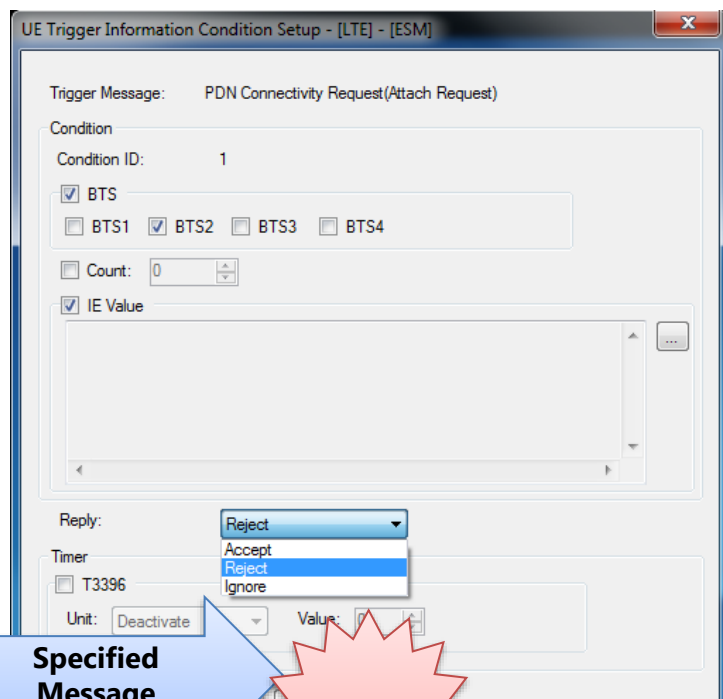
- APN Reject

Setting specific triggering messages when the terminal connects to the network server can be used to reject terminal connection requests.

(LTE, W-CDMA, GSM, TD-SCDMA, EVDO systems supported)



- Abnormal testing with easy setup
 - UE Message Reject
 - Sets reject condition when MD8475A receives specified message from UE

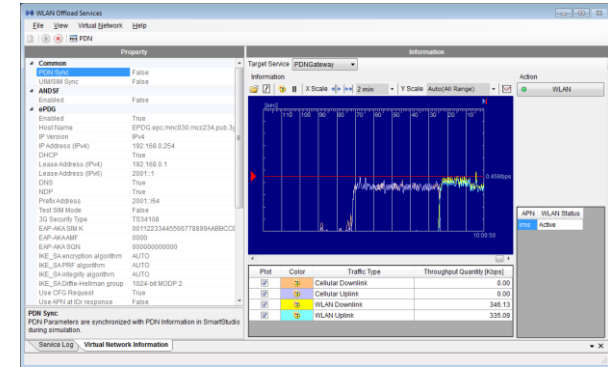
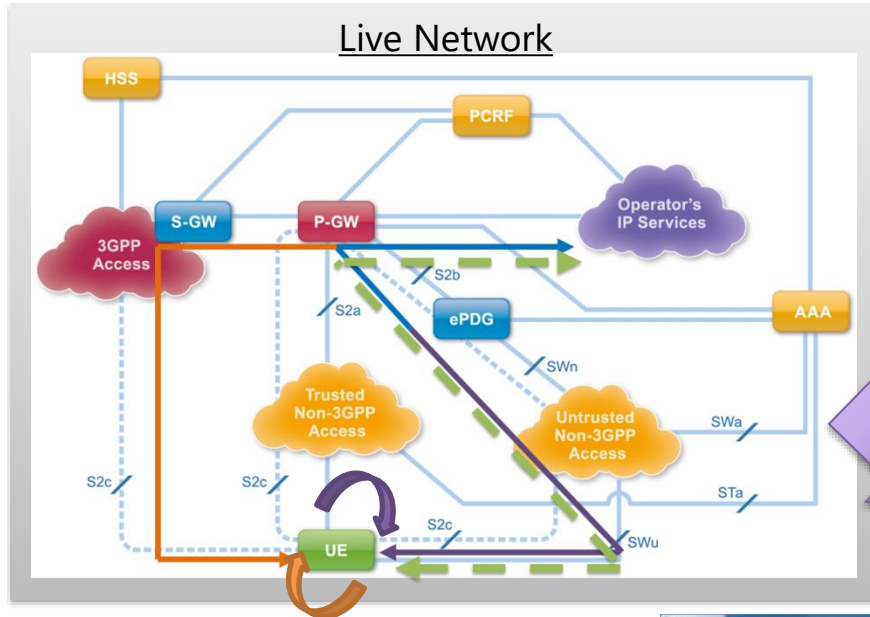


Note: The UE Trigger Information Condition can specify several conditions at one UE Message to Accept, Reject or Ignore according to setting.

e.g. One Specified Message -> Condition A -> Reject
-> Condition B -> Ignore
-> Condition C -> Accept

WLAN Calling - WLAN Offload Application

SmartStudio supports various IMS and ePDG parameters required for application tests



WLAN Offload Services

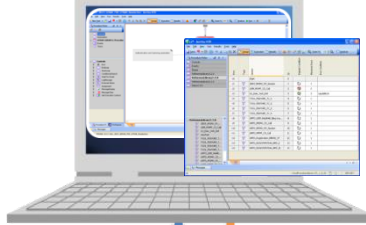


IMS Services

- Note: ePDG might be on external PC due to downlink data switching method
- Requires commercial WLAN-AP (CISCO AIR-SAP2602E-x-K9 recommended)

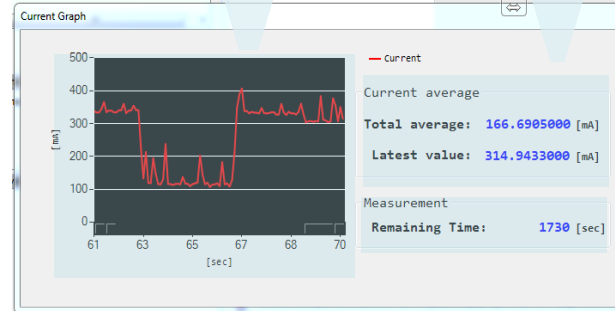
Battery Consumption Test - SmartStudio Manager

SmartStudio Manager

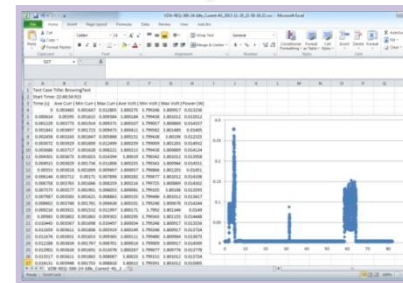


Current consumption vs time plot

Running average and latest measured current value



Each raw data sample saved to Report folder as CSV file



MD8475B



Power Supply

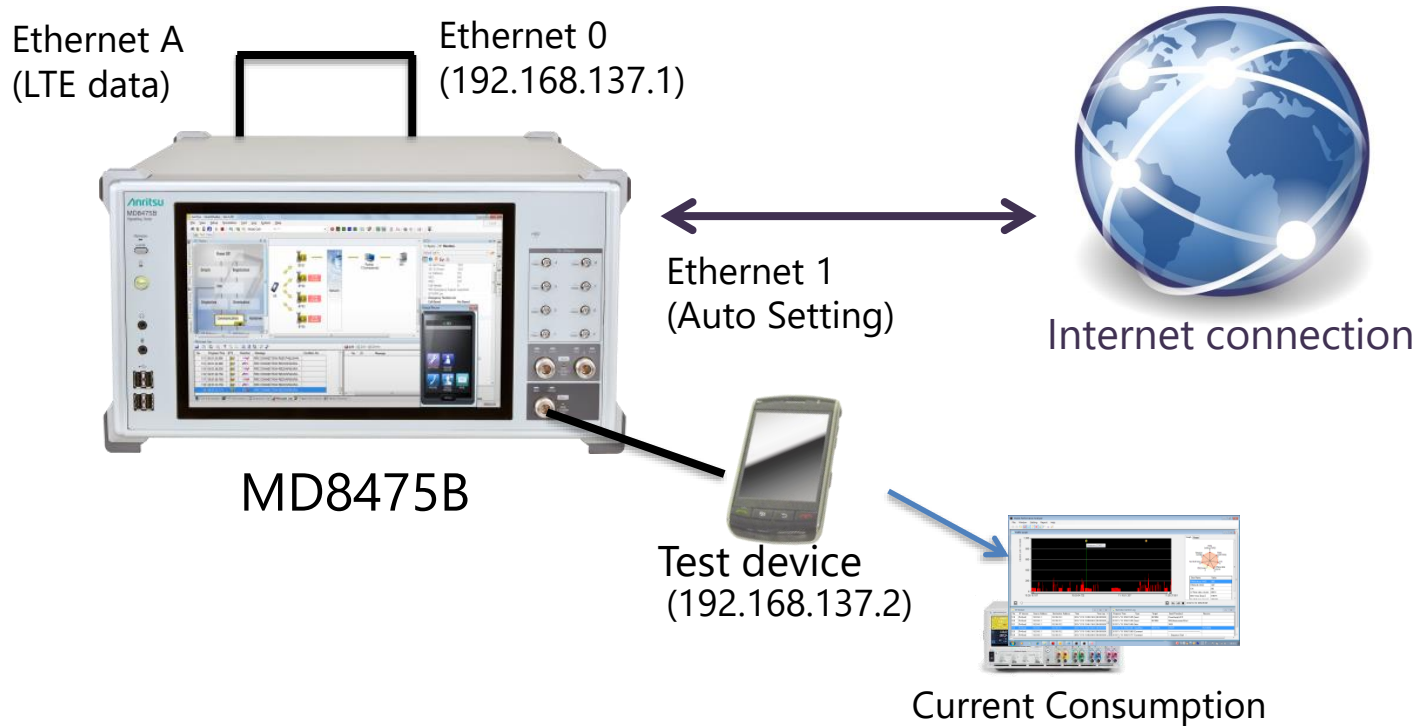


Basic TS09 Tests

- Stand-by Test
- Talk Time Test
- Packet Switch Transfer Test
- Browsing Test
- Streaming Content Test
- Video Telephony Test
- FTP Download Test

Easily simulation for complex applications

- Stable operation check and current consumption under real Smartphone usage conditions



- ◆ **8 Tx and 4 Rx RF Signals for CA**
- ◆ **1.2 Gbps Throughput Test for 3CCs 4x4MIMO in All-in-One MD8475B**
- ◆ **Multi-system Platform**
 - W-CDMA/HSPA/HSPA evo/DC-HSDPA, GSM/GPRS/EGPRS
 - CDMA2000 1X/EV-DO, TD-SCDMA/HSPA
- ◆ **Easy Operation with State-Machine Based “SmartStudio” GUI**
- ◆ **2-cell IntraRAT/InterRAT Platform**
 - 2-cell/3-cell IntraRAT: LTE 3-cell, W-CDMA 2-cell, GSM 2-cell, TDS 2-cell
 - 2 system InterRAT: LTE/LTE/W, LTE/LTE/G, LTE/LTE/C2K, LTE/LTE/TD
- ◆ **Built-in IMS Service Functions**
 - CSCF/DHCP/DNS Server Functions
 - NDP/XCAP/GBA/Early Media Functions
 - IMS Supplementary Services
 - RTP Control for VoLTE Quality Test
 - RCS (Rich Communication Suite)
 - Script-based I/F for Advanced Tests
- ◆ **Built-in SMS Centre**
- ◆ **Built-in PWS Centre**
 - ETWS (LTE/W-CDMA/GSM)
 - CMAS (LTE/W-CDMA/GSM/cdma2000)
- ◆ **Built-in UE/Network Trigger Functions**
 - Sub-normal conditions (LTE/W-CDMA/GSM/TD-SCDMA)
- ◆ **WLAN Offloading**
 - EAP Authentication
 - ePDG Access
 - ANDSF Policy Distribution
- ◆ **Automation**
 - Remote SmartStudio Control
 - Script-based Automation Engine
 - More than 160 sample test cases included



SmartStudio

The Anritsu logo is displayed in a bold, teal-colored font. Below it, the tagline "Advancing beyond" is written in a black, sans-serif font. The background features a light green gradient with several curved, parallel lines in shades of green and yellow on the right side.

Anritsu

Advancing beyond