Service Interruption Test

MD8470A
Signalling Tester
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1. Glossary

SMS: Short Message Service  
MMS: Multimedia Messaging Service  
UE: User Equipment  
WNS: Wireless Network Simulator

2. What is a Service Interruption Test?

- The service interruption test performs SMS and MMS termination at the UE during voice communication, and voice or SMS/MMS termination at the UE during packet communication.
## 3. Testing Service Interruptions

| 3-1. Testing SMS Termination during Voice Call |
| 3-2. Testing Voice Call during HSDPA Packet Communication |
| 3-3. Testing Video Call during W-CDMA Packet Communication |
| 3-4. Testing MMS during Video Call |
| 3-5. Testing End-to-End Voice Call during HSDPA Packet Communication |

### 3-1. Testing SMS Termination during Voice Call (1/2)

- **Required Hardware and Software:**
  - **UE MD8470A**
  - **Handset**
  - **WNS: Wireless Network Simulator**
  - **SMS Center**
3-1. Testing SMS Termination during Voice Call (2/2)

- **Sending SMS to UE during Voice Call**
  - Make voice connection from UE and check voice call between UE and handset. [1]
  - Create message with SMSC and send to UE. [2]
  - Check operation when SMS terminated during voice communication. [3]

3-2. Testing Voice Call during HSDPA Packet Communication (1/3)

- **Required Hardware and Software:**

  - **UE**
  - **Handset**
  - **MD8470A (WNS)**
  - **SMSC**
  - **WNS: Wireless Network Simulator**
  - **Server**
3-2. Testing Voice Call during HSDPA Packet Communication (2/3)

- **Packet Rate Setting**
  - WNS supports setting of W-CDMA/HSDPA Packet Rate at test start.
  - Easy packet communications testing for each bearer environment. [1]

![Packet Rate Setting Table]

- **Voice Termination at UE during Packet Communication**
  - Perform packet connection from UE and check packet connection condition. [1]
  - Terminate voice call from Virtual Phone. [3]
  - Check operation at voice calling during packet communication. [4]

![Voice Communication Diagram]
3-3. Testing Video Call during W-CDMA Packet Communication (1/3)

- Required Hardware and Software:

3-3. Testing Video Call during W-CDMA Packet Communication (2/3)

- Packet Rate Setting
  - WNS supports setting of W-CDMA/HSDPA Packet Rate at test start.
  - Easy packet communications testing for each bearer environment. [1]
3-3. Testing Video Call during W-CDMA Packet Communication (3/3)

- **Video Termination at UE during Packet Communication**
  - Perform packet connection from UE and check packet connection conditions. [1]
  - Make video call using Virtual Phone to UE. [3]
  - Check operation at video calling during packet communication. [4]

![Diagram of video call setup]

3-4. Testing MMS during Video Call (1/2)

- **Required Hardware and Software:**

![Diagram of MMS setup]
3-4. Testing MMS during Video Call (2/2)

- **Sending MMS to UE during Video Call**
  - Make video call connection from UE and check video call conditions. [1]
  - Create MMS message from MMS server and send to UE. [2]
  - Check operation when MMS terminates during video communication. [3]

3-5. Testing End-to-End Voice Call during HSDPA Packet Communication (1/2)

- **Required Hardware** and **Software**:

(*) Requires Second RF Option and two W-CDMA/HSPA Signalling Units
3-5. Testing End-to-End Voice Call during HSDPA Packet Communication (2/2)

- **Voice Termination at UE during Packet Communication**
  - Perform packet connection from UE (A) and check packet connection conditions. [1]  
  - Perform packet connection from UE (B) and check packet connection conditions. [2]  
  - New built-in IP Performance Monitor function supports real-time monitoring of data throughput performance. [3]  
  - Make voice call using UE (A) to UE (B). [4]  
  - Check operation at voice calling during packet communication. [5]

4. List of Service Interruption Tests (1/2)

**Service Interruption (Multi-Call) Test**

The following service interruption tests can be performed using WNS.

**WNS (W-CDMA/HSDPA)**

<table>
<thead>
<tr>
<th>Status</th>
<th>Voice Call Interruption</th>
<th>Video Call Interruption</th>
<th>SMS Interruption</th>
<th>MMS Interruption</th>
</tr>
</thead>
<tbody>
<tr>
<td>During Voice Call</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>During Packet Comm. *1</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>During Video Call</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

- O: Testable (WNS)  
- O: Testable (Sample Scenario)

*1: Requires MX847010A-11 HSDPA Software Option for HSDPA

**WNS (GSM/GPRS/EGPRS)**

<table>
<thead>
<tr>
<th>Status</th>
<th>Voice Call Interruption</th>
<th>SMS Interruption</th>
<th>MMS Interruption</th>
</tr>
</thead>
<tbody>
<tr>
<td>During Voice Call</td>
<td>O</td>
<td>O</td>
<td>*3</td>
</tr>
<tr>
<td>During Packet Comm. *2</td>
<td>O *2</td>
<td>*3</td>
<td>O *3</td>
</tr>
</tbody>
</table>

- O: Testable (WNS)  
- O: Testable (Sample Scenario)

*2: Requires MX847010A-01 EGPRS Software Option for EGPRS

*3: Only when packet data not sent

Because the MD8470A implements a web server and video call loopback function, one unit supports some interruption tests without other external equipment.
4. List of Service Interruption Tests (2/2)

Service Interruption (Multi-Call) Test in End-to-End Test Environment

Using CNS (Couple-UE Network Simulator), it is possible to perform various service interruption tests in an end-to-end test environment with an MD8470A, such as voice call termination from another UE during IP packet communication.

<table>
<thead>
<tr>
<th>CNS (W-CDMA/HSDPA UE to W-CDMA/HSDPA UE)</th>
<th>Status</th>
<th>Interruption</th>
<th>Voice Call Interruption</th>
<th>Video Call Interruption</th>
<th>SMS Interruption</th>
<th>MMS Interruption</th>
</tr>
</thead>
<tbody>
<tr>
<td>During E-to-E Voice Call</td>
<td>O</td>
<td>O</td>
<td></td>
<td></td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>During E-to-E Video Call</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CNS: Couple-UE Network Simulator

<table>
<thead>
<tr>
<th>CNS (GSM/GPRS/EGPRS UE to GSM/GPRS/EGPRS UE)</th>
<th>Status</th>
<th>Interruption</th>
<th>Voice call Interruption</th>
<th>SMS Interruption</th>
<th>MMS Interruption</th>
</tr>
</thead>
<tbody>
<tr>
<td>During E-to-E Voice Call</td>
<td>O</td>
<td>*3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>During E-to-E Video Call</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

O: Testable (CNS)

*1: Requires MX8470A-11 HSDPA Software Option for HSDPA

*2: Requires MX8470A-01 EGPRS Software option for EGPRS case

*3: Only when packet data not sent during packet communication.

5. Advantages of MD8470A

- **Simple Service Interruption Testing**
  Using the MD8470A, SMS interruptions during voice communications and voice interrupts during packet communications can be tested simply.

- **No Need for PC or Other Equipment**
  Since the MD8470A has a built-in web server and video call loopback functions, testing can be performed using one unit without the need for a PC or other equipment.

- **Capture and Analyze Wireless Protocol**
  Since wireless protocol logs at competition testing can be saved, troubleshooting problems is simple.
Supplementary Services

Video Call

Voice Call

Packet Call

SMS

MMS

Browsing

Music

Games

Streaming

DRM