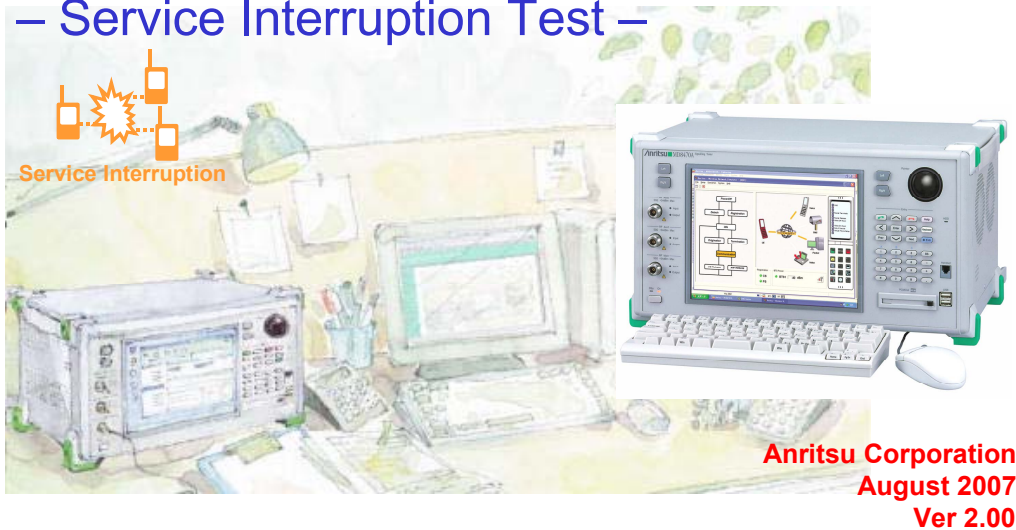


Service Interruption Test

MD8470A
Signalling Tester

MD8470A Signalling Tester Application Note

– Service Interruption Test –



Anritsu Corporation
August 2007
Ver 2.00

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Slide 1

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Contents

1. Glossary
2. What is a Service Interruption Test?
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
4. List of Service Interruption Tests
5. Advantages of MD8470A



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Slide 2

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1. Glossary

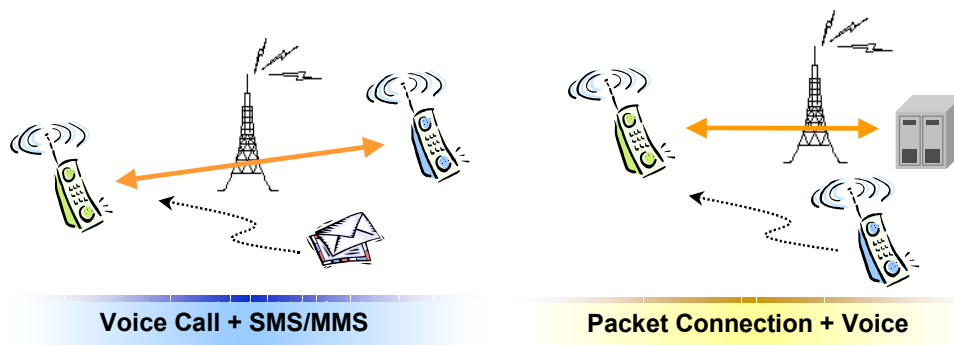


SMS:	Short Message Service
MMS:	Multimedia Messaging Service
UE:	User Equipment
WNS:	Wireless Network Simulator

2. What is a Service Interruption Test?



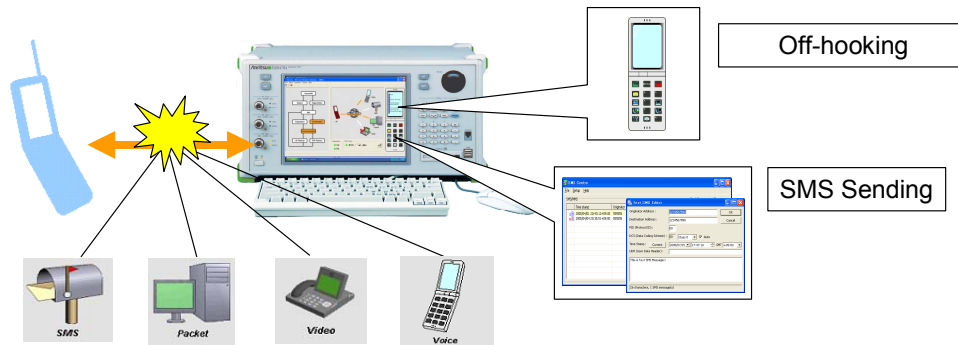
- The service interruption test performs SMS and MMS termination at the UE during voice communication, and voice or SMS/MMS termination at the UE during packet communication.



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



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Slide 5

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



- Required Hardware and Software:



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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]



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Slide 7

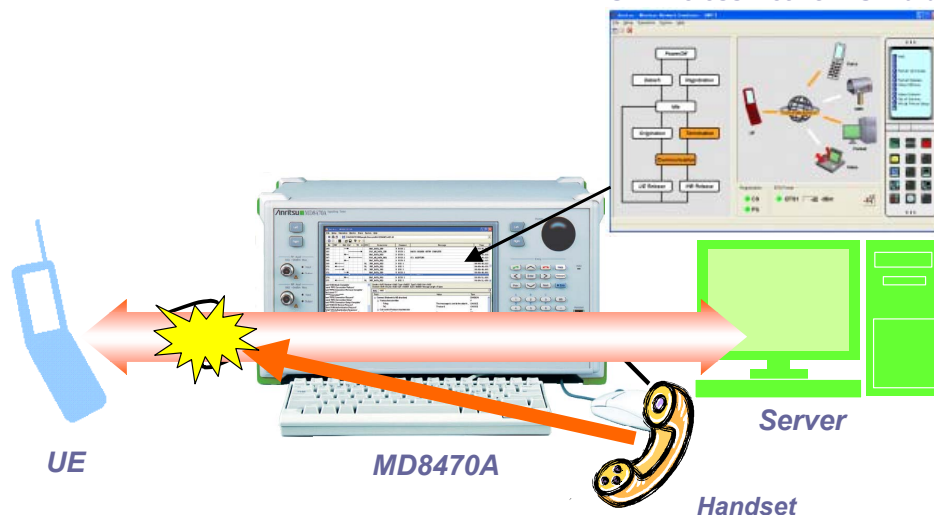
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3-2. Testing Voice Call during HSDPA Packet Communication (1/3)



- Required Hardware and Software:

WNS: Wireless Network Simulator



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Slide 8

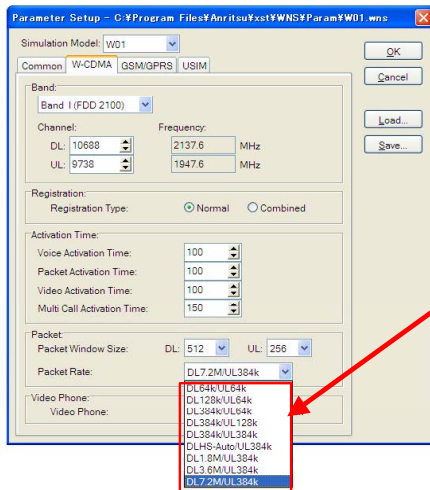
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3-2. Testing Voice Call during HSDPA Packet Communication (2/3)



• 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	
DL:64k / UL:64k	W-CDMA
DL:128k / UL:64k	
DL:384k / UL:64k	
DL:384k / UL:128k	
DL:384k / UL:384k	
DL:HS-Auto / UL:384k	HSDPA
DL:1.8M / UL:384k	
DL:3.6M / UL:384k	
DL:7.2M / UL:384k	

[1]



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Slide 9

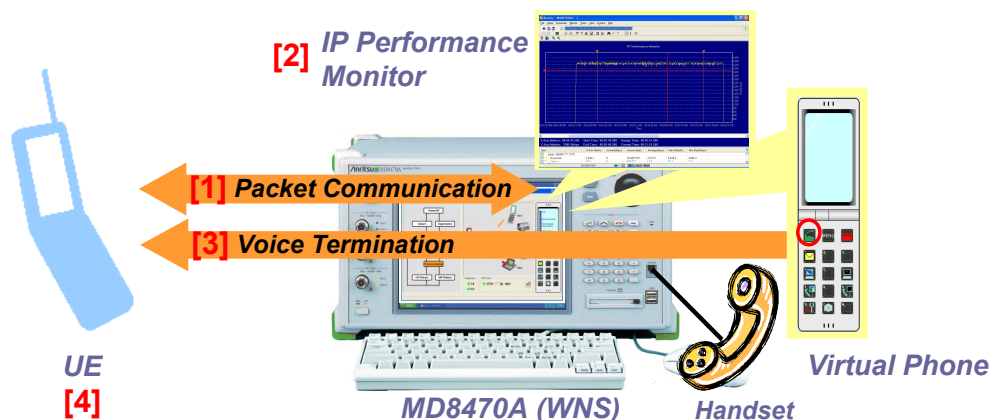
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3-2. Testing Voice Call during HSDPA Packet Communication (3/3)



• Voice Termination at UE during Packet Communication

- ✓ Perform packet connection from UE and check packet connection condition. [1]
- ✓ New built-in IP Performance Monitor function supports real-time monitoring of data throughput performance. [2]
- ✓ Terminate voice call from Virtual Phone. [3]
- ✓ Check operation at voice calling during packet communication. [4]



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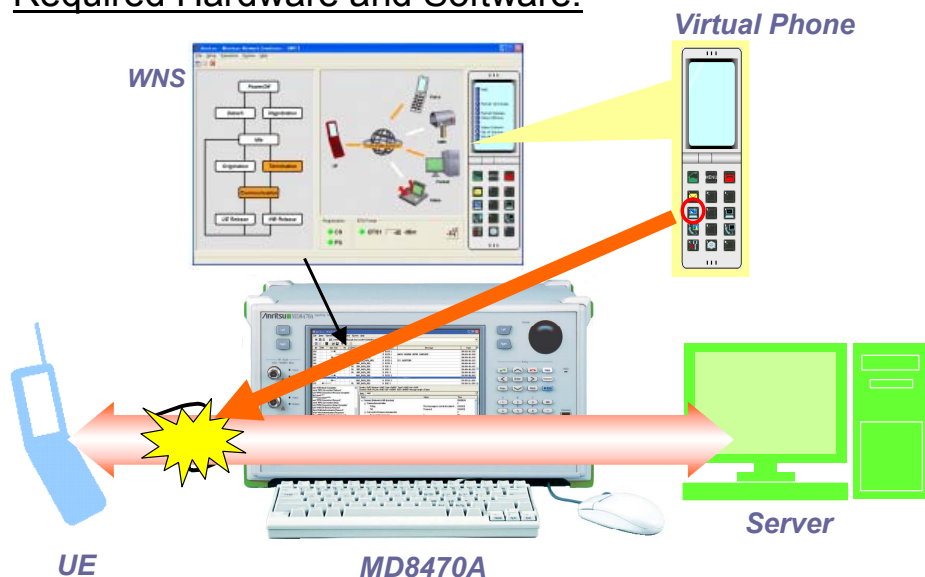
Slide 10

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3-3. Testing Video Call during W-CDMA Packet Communication (1/3)



- Required Hardware and Software:



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Slide 11

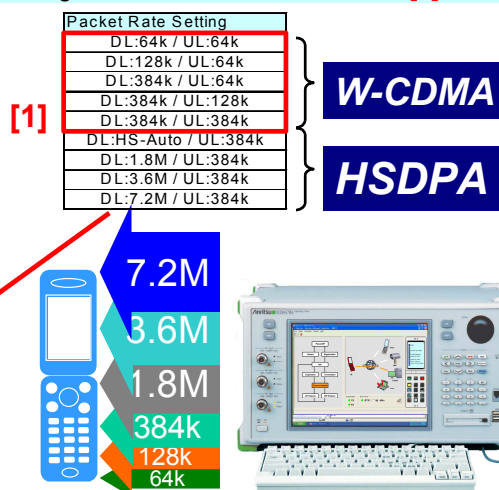
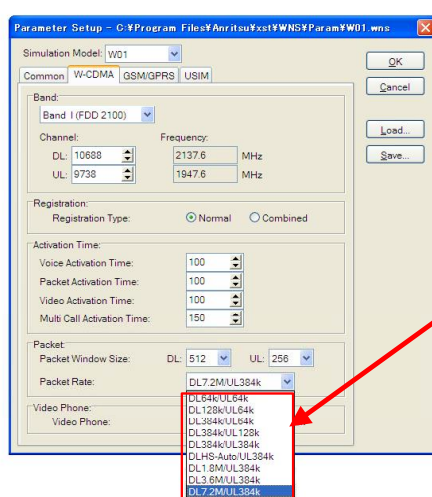
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3-3. Testing Video Call during W-CDMA Packet Communication (2/3)



- Packet Rate Setting

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



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Slide 12

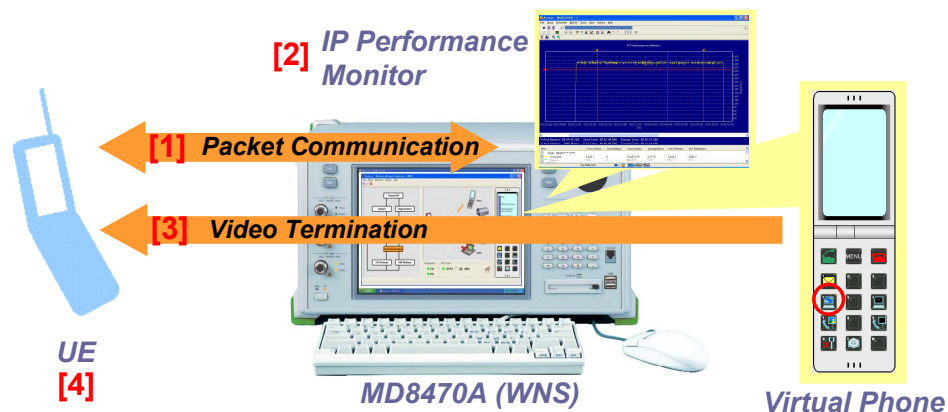
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3-3. Testing Video Call during W-CDMA Packet Communication (3/3)



- Video Termination at UE during Packet Communication

- ✓ Perform packet connection from UE and check packet connection conditions. [1]
- ✓ New built-in IP Performance Monitor function supports real-time monitoring of data throughput performance. [2]
- ✓ Make video call using Virtual Phone to UE. [3]
- ✓ Check operation at video calling during packet communication. [4]



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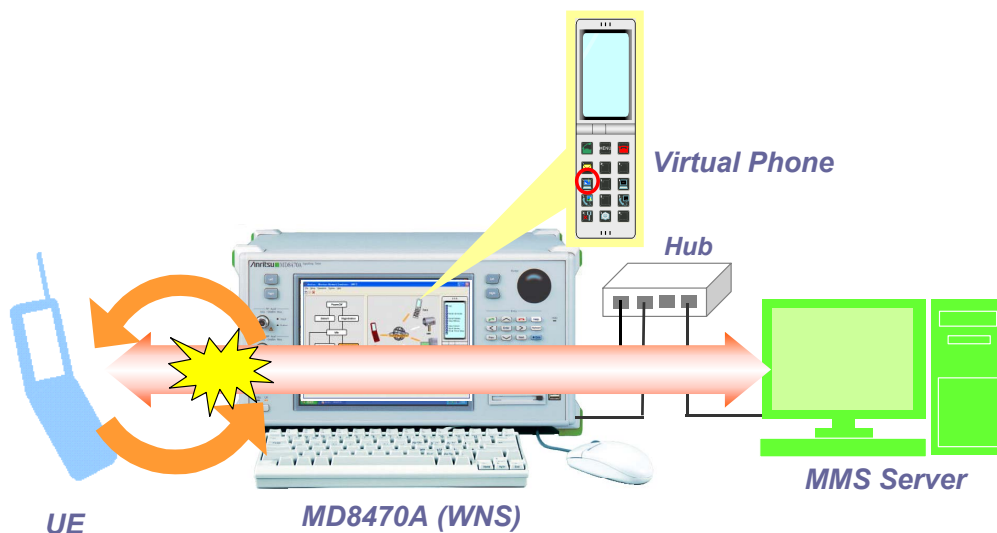
Slide 13

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



- Required Hardware and Software:



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Slide 14

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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]



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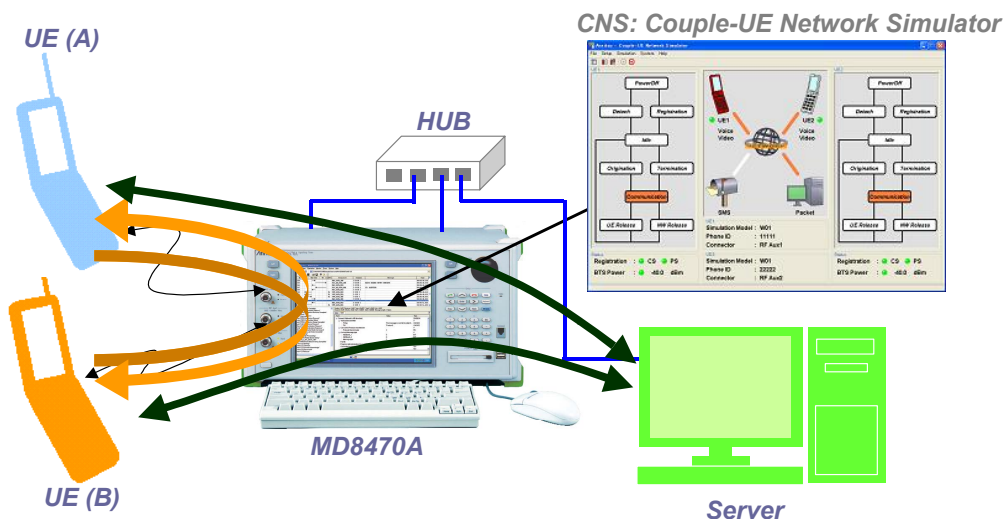
Slide 15

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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

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Slide 16

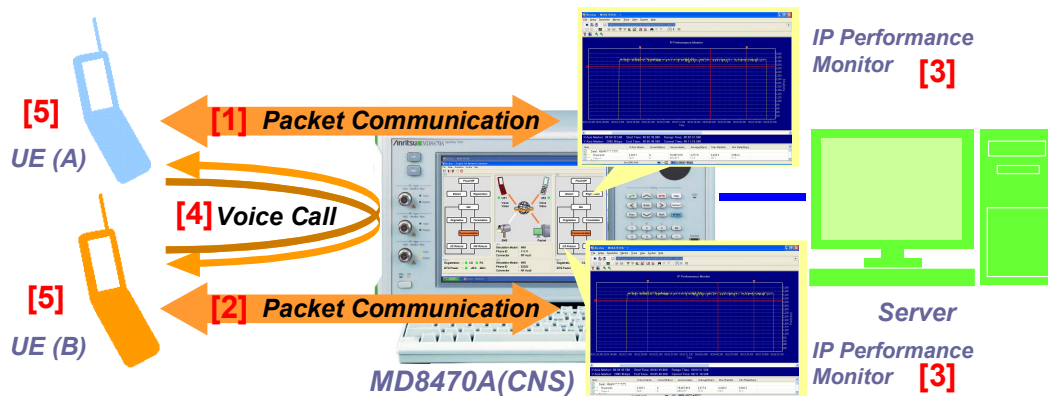
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3-5. Testing End-to-End Voice Call during HSDPA Packet Communication (2/2)



• 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]



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Slide 17

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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)

Interruption Status	Voice Call Interruption	Video Call Interruption	SMS Interruption	MMS Interruption
During Voice Call	O		O	O
During Packet Comm.*1	O	O	O	O
During Video Call			O	O

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

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

WNS (GSM/GPRS/EGPRS)

Interruption Status	Voice Call Interruption	SMS Interruption	MMS Interruption
During Voice Call	O	O	O
During Packet Comm.*2	O *3	O *3	O *3

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.



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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.

CNS (W-CDMA/HSDPA UE to W-CDMA/HSDPA UE)

Interruption	Voice Call Interruption	Video Call Interruption	SMS Interruption	MMS Interruption
Status				
During E-to-E Voice Call			○	○
During Packet Comm.*1	○	○	○	○
During E-to-E Video Call			○	○

○: Testable (CNS)

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

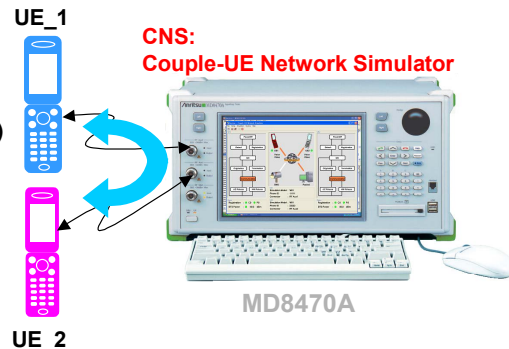
CNS (GSM/GPRS/EGPRS UE to GSM/GPRS/EGPRS UE)

Interruption	Voice call Interruption	SMS Interruption	MMS Interruption
Status			
During E-to-E Voice Call		○	○
During Packet Comm.*2	○ *3	○ *3	○ *3

○: Testable (CNS)

*2: Requires MX847010A-01 EGPRS Software option for EGPRS case

*3: Only when packet data not sent



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Slide 19

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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.

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Slide 20

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Slide 21

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