

# APPLICATION NOTE

**MD8470A**

**Signalling Tester**

**Videophone Version**

**ANRITSU CORPORATION**

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# MD8470A Signalling Tester Application Note - Videophone Version -



Video Call

Anritsu Corporation  
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Ver 1.0

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# 1. Glossary of Terms



3GPP: 3<sup>rd</sup> Generation Partnership Project  
3G-324M: H.324 modified by 3GPP  
AMR: Adaptive Multi-Rate  
CCSRL: Control Channel Segmentation and Reassembly Layer  
H.223: Multiplexing Protocol for Low bit-rate Multimedia Communication  
H.245: Control Protocol for Multimedia Communication  
H.263: Video coding for Low bit-rate Communication  
H.324: Terminal for Low bit-rate Multimedia Communication  
MAC: Medium Access Control  
MPEG-4: Moving Picture Experts Group phase 4  
NSRP: Numbered Simple Retransmission Protocol  
PHY: Physical layer  
RLC: Radio Link Control  
UE: User Equipment  
WNS: Wireless Network Simulator

# 2. Reference Standards

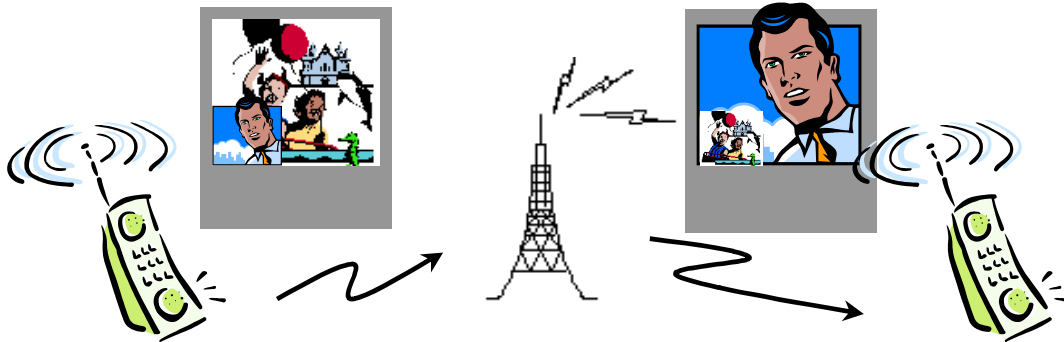


- 3GPP TR26.110
- 3GPP TR26.111
- ITU-T Recommendation H.223
- ITU-T Recommendation H.245
- ITU-T Recommendation H.263
- ITU-T Recommendation H.324

### 3. What is a Videophone?



A videophone supports video communications as recommended in 3G-324M. It sends and receives video and audio from a camera.

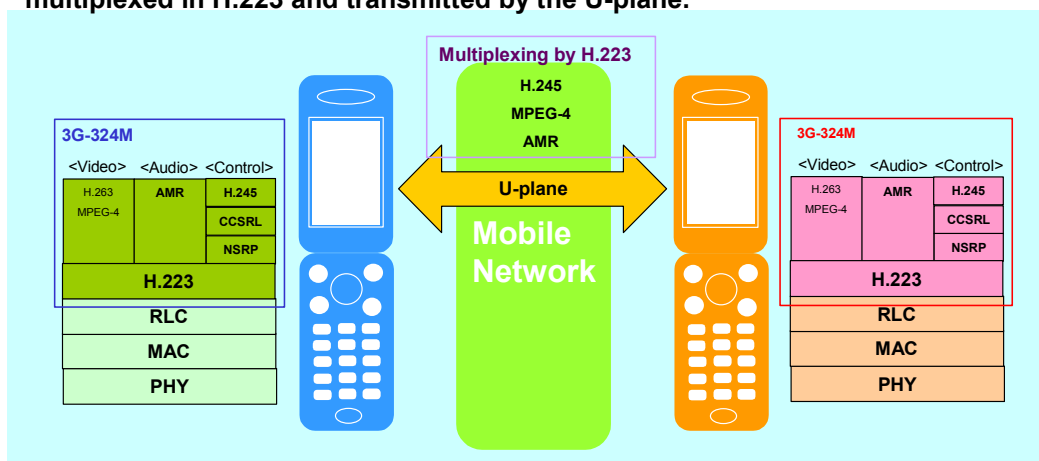


\*MMS is standardised by 3GPP and OMA.

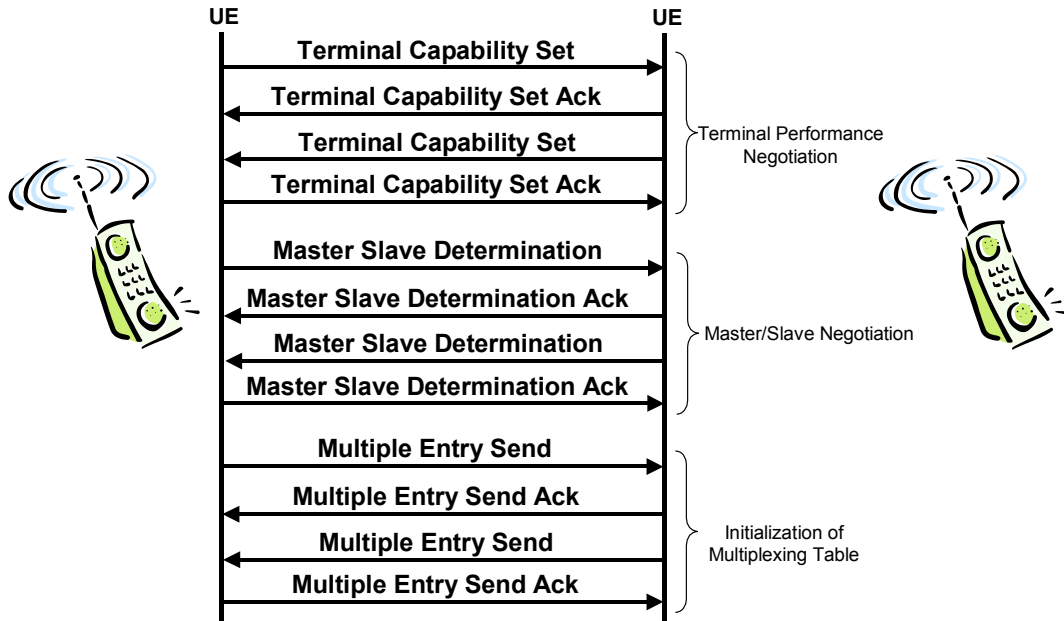
### 4. Structure of a Videophone



- UE negotiates data sending/receiving by circuit switching using the H.245 protocol.
- H.245 is segment allocated by the CCSRL and retransmission control is performed by the NSRP.
- The video data is coded in MPEG-4 and the audio is coded in AMR.
- The video and audio data and the control message (H.245) are all multiplexed in H.223 and transmitted by the U-plane.



## 5. Flow of Videophone Protocol (H.245) (1/2)

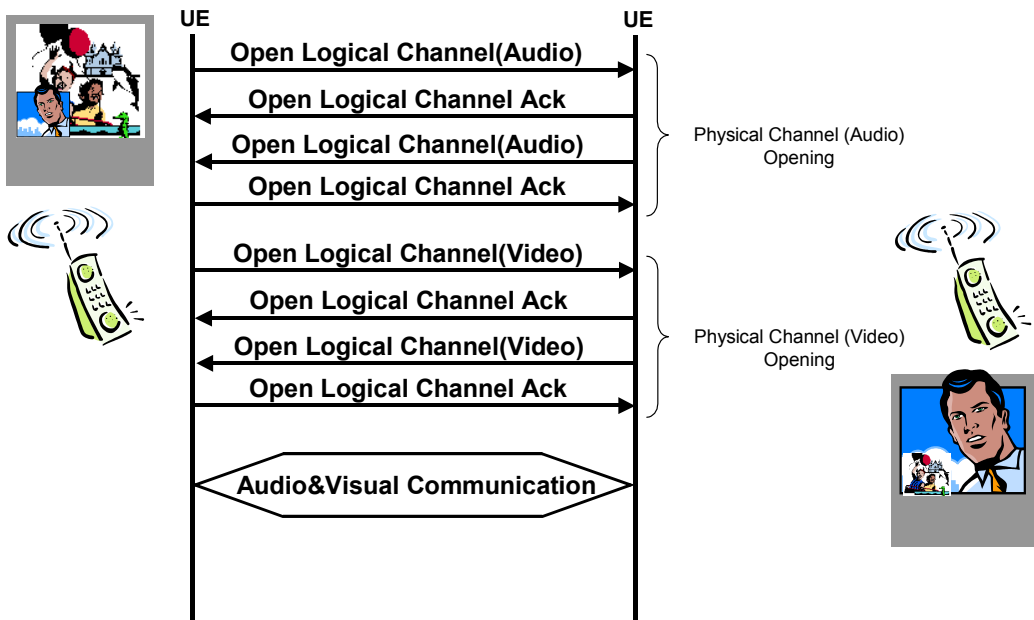


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## 5. Flow of Videophone Protocol (H.245) (2/2)



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## 6. Testing Videophones



### 6-1. Simple Tests of Videophone Functions



### 6-2. Connecting with Other UEs



### 6-3. Connecting with Moppet (TV Phone)



### 6-4. Checking H.245 Traces

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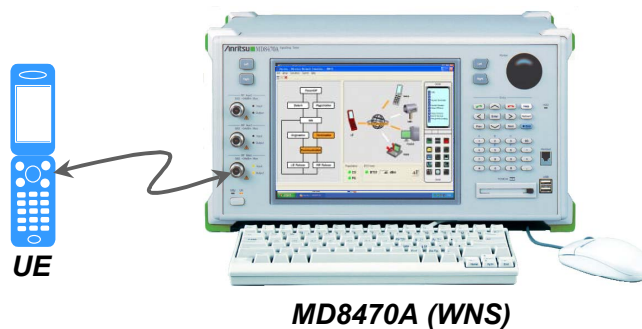
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## 6-1. Simple Tests of Videophone Functions (1/2)



### ● Required Hardware & Software



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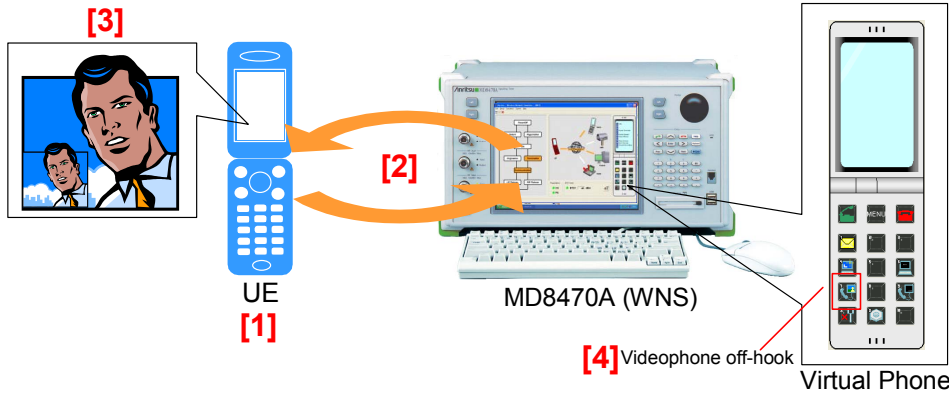
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## 6-1. Simple Tests of Videophone Functions (2/2)



### ● Loopback Tests

- ✓ Videophone call from UE [1]
- ✓ H.245 negotiation between UE and MD8470A [2]
- ✓ UE audio and video data looped-back by MD8470A [3]
- ✓ Receive test performed by off-hooking Virtual Phone videophone [4]



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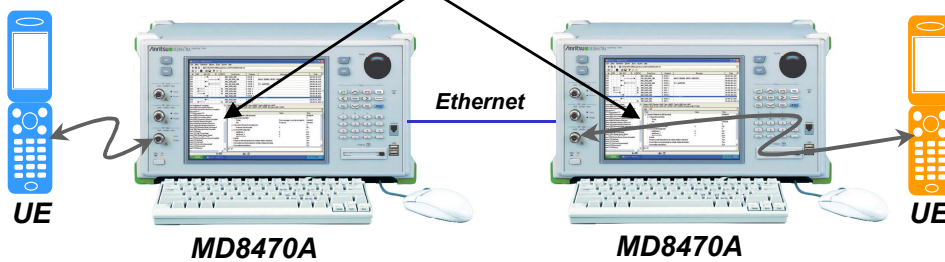
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## 6-2. Connecting with Other UEs (1/2)



### ● Required Hardware & Software

Standard Attached Scenario:  
W01\_video.dll / W02\_video.dll



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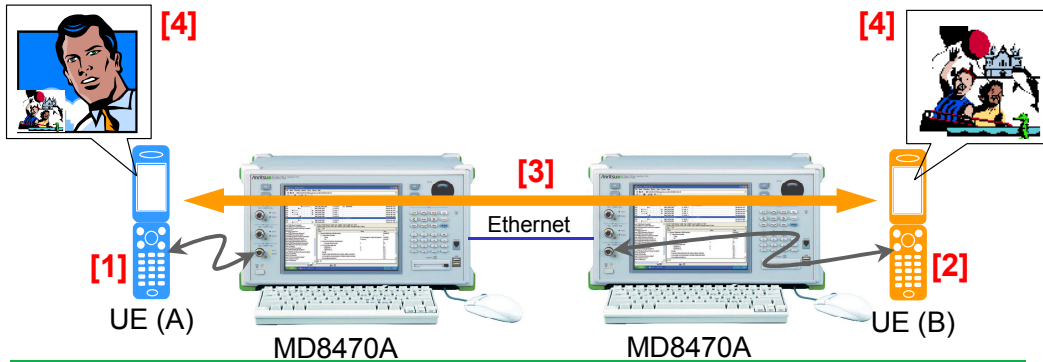
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## 6-2. Connecting with Other UEs (2/2)



- UE Two-way Test (using U-plane over Ethernet)
  - ✓ Videophone call from UE (A) [1]
  - ✓ UE (B) receiving call performs off-hook [2]
  - ✓ H.245 negotiation between UE (A) and UE (B) [3]
  - ✓ Videophone connection [4]
  - ✓ Videophone calling also possible from UE (B)



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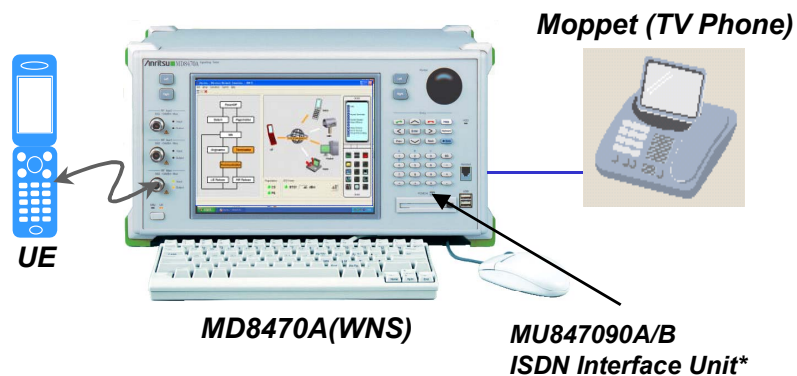
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## 6-3. Connecting with Moppet (TV Phone) (1/2)



- Required Hardware & Software



\*Paid option

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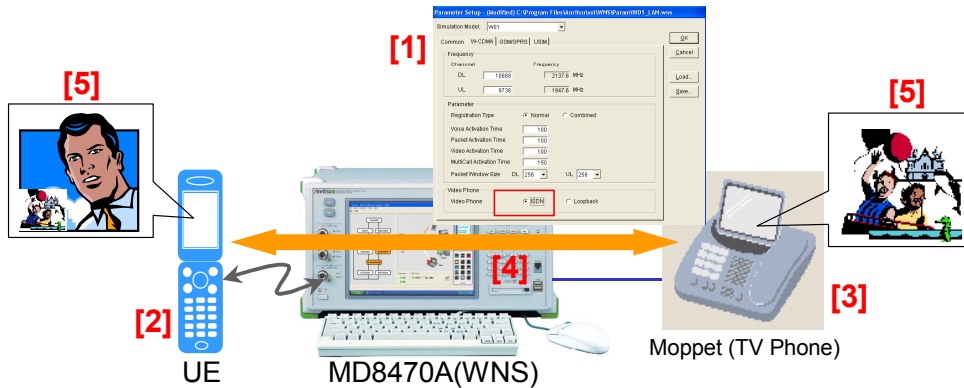
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## 6-3. Connecting with Moppet (TV Phone) (2/2)



- ISDN Two-way Test
  - ✓ Select ISDN at Videophone Parameter Setup [1]
  - ✓ Videophone call from UE [2]
  - ✓ Moppet (TV Phone) receiving call off-hooks [3]
  - ✓ H.245 negotiation between UE and Moppet (TV Phone) [4]
  - ✓ Connection with videophone [5]
  - ✓ Videophone calling also possible from Moppet (TV Phone)



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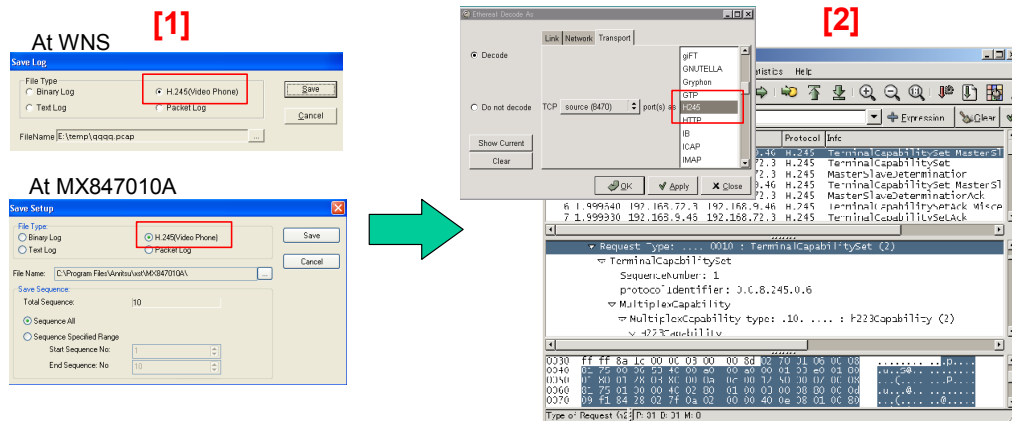
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## 6-4. Checking H.245 Traces



- Checking H.245 Traces with Ethereal (Version 0.10.8)
  - ✓ Videophone testing (also possible for any of 5-1~5-3)
  - ✓ Stop test and specify File Type at Save of Trace Data as H.245. When trace data is saved, a file is created in the pcap format. [1]
  - ✓ Open the pcap file with Ethereal to decode H.245. [2]



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## 7. Advantages of MD8470A



- **Connection tests for various videophones**

When using the MD8470A for performing videophone tests, various tests of videophone connections using simple loopback, UE two-way, and the ISDN interface can be performed.

- **Independent of actual network conditions**

Compared to testing using an online network, the connection environment is stable and the test reproducibility is high so testing can be performed with good efficiency. Moreover, it is also possible to perform testing of base stations that do not offer a videophone service.

- **Able to retrieve and analyze wireless and H.245 protocols**

The wireless and H.245 protocols used when testing can be saved, which is useful for analyzing any unexplained points.



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