

**TSG RAN Working Group 1 Meeting #9
Dresden, Germany, November 30 - December 3**

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TSG CN WG3 #6
18th – 22nd October, 1999
Sophia Antipolis, France

N3-99359

From: TSG_CN WG3

To: TSG_RAN WG1

Subject: Liaison statement on 32k Multimedia Data rate

N3 has decided 32k data rate for Multimedia call as one of a Transparent data type for R99 service, which based on attached N3-99313. We ask R1 the study (ex. channel coding) of 32kbps radio bearer to meets the quality for Multimedia Telephony. In order to offer the service in R99, N3 ask to R1 to inform current study status regarding to the topic in the next meeting.

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Agenda Item : **Other Work Items**
Source : **NTT DoCoMo**
Title : **PIFAS and 32kbit/s Video Telephony call setup procedure**
Document for : **Discussion and Approval**
Related TS : **29.007, 27.001, 24.008**

1. Introduction

The supporting of PIAFS over 32kbit/s and 64kbit/s for UMTS has been agreed in previous meeting. But, the supporting of video telephony (3G-H.324/M) over 32kbit/s remains for further study. This document describes PIAFS over 32kbit/s and 64kbit/s call-setup procedure and video telephony over 32kbit/s call-setup procedures.

2. Call setup procedure between PHS and ISDN

2.1 PHS originating ISDN terminating call

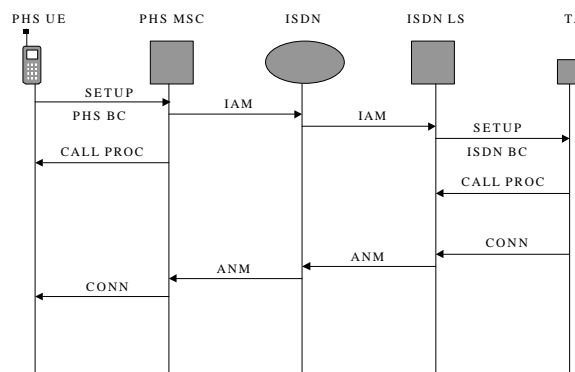


Figure 2.1: Message flow at mobile originating

- (1) PHS UE sends SETUP including PHS BC mentioned in table 2.1 or table 2.2.
- (2) PHS MSC performs the mapping of PHS BC to ISDN BC mentioned in table 2.3
- (3) PHS MSC sends IAM toward ISDN LS
- (4) ISDN LS sends SETUP including ISDN BC mentioned in table 2.4 or table 2.5.
- (5) TA assumes that incoming call is PIAFS and accepts the call as PIAFS.

2.2 ISDN originating ISDN terminating call

- (1) TA sends SETUP including ISDN BC mentioned in table 2.4 or table 2.5
- (2) ISDN LS sends IAM toward PHS MSC
- (3) PHS performs the mapping of ISDN BC to PHS BC mentioned in table 2.3
- (4) PHS MSC sends SETUP including PHS BC mentioned in table 2.1 or table 2.2.
- (5) PHS assumes that incoming call is PIAFS and accepts the call as PIAFS.

Table 2.1: 32kbit/s PIAFS description in PHS

PHS BC parameter field	setting
Information Transfer Capability	UDI
Information Transfer Rate	32kbit/s

Table 2.2: 64kbit/s PIAFS description in PHS

PHS BC parameter field	setting
Information Transfer Capability	UDI

Information Transfer Rate	64kbit/s
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Table 2.3: The mapping between PHS BC and ISDN BC

PHS BC	ISDN BC
Information Transfer Capability UDI	Information Transfer Capability UDI
Information Transfer Rate 32kbit/s 64kbit/s	Information Transfer Rate 64kbit/s
	User Information Layer 1 Protocol(note 1) V.110, I.460 & X.30
	Synchronous/Asynchronous(note 1) Synchronous
	User Rate 32kbit/s(note1)

Note 1: This information is contained when PIAFS over 32kbit/s call is initiated.

Table 2.4: 32kbit/s PIAFS description in ISDN

ISDN parameter field	setting
Information Transfer Capability	UDI
Information Transfer Rate	64kbit/s
User Information Layer1 Protocol	V.110, I.460 & X.30
User Rate	32kbit/s

Table 2.5: 64kbit/s PIAFS description in ISDN

ISDN parameter field	setting
Information Transfer Capability	UDI
Information Transfer Rate	64kbit/s

3. Call setup procedure in UMTS

<Assumption>

The following code points are added to UMTS BC IE(TS24.008) and "V.110" in Rate Adaptation is changed to "V.110 & I.460"

Table 3.1: Additional new code point and the change point

BC parameter field added new code point	Additional new code point or the change point
Other Rate Adaptation	PIAFS
Rate Adaptation	V.110 & I.460
Fixed Network User Rate	32kbit/s

3.1 mobile originating

- (1) UMTS UE sends SETUP including UMTS BC mentioned in table 3.2 or table 3.3.
- (2) UMTS MSC performs the mapping of UMTS BC to ISDN BC mentioned in table 3.6
- (3) UMTS MSC sends IAM.

3.2 mobile terminating

<Mutli numbering scheme>

- (1) UMTS MSC receives UMTS BC mentioned in table 3.2 or 3.3 by SEND_ROUTING_INFO message.
- (2) UMTS MSC sends SETUP including UMTS BC received.

<Single Numbering scheme>

- (1) UMTS MSC receives IAM including ISDN BC mentioned in table 2.4 and table 2.5.
- (2) UMTS MSC performs the mapping mentioned in table 3.7.
- (3) UMTS MSC send a SETUP including UMTS BC mentioned in 3.4 or 3.5.
- (4) UMTS UE assumes that the incoming call is PIAFS and sends CALL CONFIRMED including UMTS BC mentioned in table 3.2 or 3.3.

Table 3.2: 32kbit/s PIAFS description in PHS

BC parameter field	setting
Information Transfer Capability	UDI
Rate Adaptation	PIFAS
Synchronous/Asynchronous	Asynchronous
Connection Element	Non-transparent
Fixed Network User Rate	32kbit/s
WAIUR	14.4kbit/s or 28.8kbit/s

Other field settings remains for further study

Table 3.3: 64kbit/s PIAFS description in PHS

BC parameter field	setting
Information Transfer Capability	UDI
Rate Adaptation	PIFAS
Synchronous/Asynchronous	Asynchronous
Connection Element	Non-transparent
Fixed Network User Rate	64kbit/s
WAIUR	14.4kbit/s, 28.8kbit/s or 57.6kbit/s

Table 3.4: 32kbit/s service unidentified description in UMTS

BC parameter field	setting
Information Transfer Capability	UDI
Rate Adaptation	V.110 & I.460
Synchronous/Asynchronous	Synchronous
Connection Element	Transparent
Fixed Network User Rate	32kbit/s
WAIUR	-

Table 3.5: 64kbit/s service unidentified description in UMTS

BC parameter field	setting
Information Transfer Capability	UDI
Rate Adaptation	-
Synchronous/Asynchronous	Synchronous
Connection Element	Transparent
Fixed Network User Rate	64kbit/s
WAIUR	-

Table 3.6: The mapping of PIFAS

UMTS BC	ISDN BC
Information Transfer Capability	Information Transfer Capability
UDI	UDI
No compatible field	Information Transfer Rate 64kbit/s
Rate Adaptation	User Information Layer 1 Protocol(note1)
PIAFS	V.110, I.460 & X.30
Synchronous/Asynchronous	Synchronous/Asynchronous(note1)
Asynchronous	Synchronous
Connection Element	No comparable field
Non-transparent	
Fixed Network User Rate	User Rate(note 1)
32kbit/s	32kbit/s
64kbit/s	

Note 1: This information is contained when PIAFS over 32kbit/s call is initiated.

Table 3.7: The mapping of unidentified service

UMTS BC	ISDN BC
Information Transfer Capability UDI	Information Transfer Capability UDI
No compatible field	Information Transfer Rate 64kbit/s
Rate Adaptation V.110 & I.460	User Information Layer 1 Protocol(note1) V.110, I.460 & X.30
Synchronous/Asynchronous Synchronous	Synchronous/Asynchronous Synchronous
Connection Element Transparent	No comparable field
Fixed Network User Rate 32kbit/s 64kbit/s	User Rate(note 1) 32kbit/s

4. 32kbit/s Video Telephony call setup procedure

32kbit/s video telephony call setup procedure is almost the same as 32kbit/s PIAFS call setup procedure. The main different point is to be used H.223 & H.245 indication instead of PIFAS indication.

<Assumption>

The following code points are added to UMTS BC IE(TS24.008) and "V.110" in Rate Adaption is changed to "V.110 & I.460"

Table 4.1: Additional new code point and the change point

BC parameter field added new code point	Additional new code point or the change point
Other Rate Adaptation	H.223 & H.245
Fixed Network User Rate	32kbit/s

4.1 mobile originating

- (1) UMTS UE sends SETUP including UMTS BC mentioned in table 4.2.
- (2) UMTS MSC performs the mapping of UMTS BC to ISDN BC mentioned in table 4.4
- (3) UMTS MSC sends IAM.

4.2 Mobile terminating**<Mutli numbering scheme>**

- (1) UMTS MSC receives UMTS BC mentioned in table 4.2 by SEND_ROUTING_INFO message.
- (2) UMTS MSC sends SETUP including UMTS BC received.

<Single Numbering scheme>

- (3) UMTS MSC receives IAM including ISDN BC mentioned in table 4.6.
- (4) UMTS MSC performs the mapping mentioned in table 4.5.
- (5) UMTS MSC send a SETUP including UMTS BC mentioned in 4.3.
- (6) UMTS UE assumes that the incoming call is PIAFS and sends CALL CONFIRMED including UMTS BC mentioned in table 4.2.

Table 4.2: 32kbit/s 3G-H.324/M description in UMTS

BC parameter field	setting
Information Transfer Capability	UDI
Rate Adaptation	H.223 & H.245
Synchronous/Asynchronous	synchronous
Connection Element	transparent
Fixed Network User Rate	32kbit/s

Other field settings remains for further study

Table 4.3: 32kbit/s service unidentified description in UMTS

BC parameter field	setting
Information Transfer Capability	UDI
Rate Adaptation	V.110 & I.460
Synchronous/Asynchronous	Synchronous
Connection Element	Transparent
Fixed Network User Rate	32kbit/s

Table 4.4: The mapping of 3G-H.324/M

UMTS BC	ISDN BC
Information Transfer Capability UDI	Information Transfer Capability UDI
No compatible field	Information Transfer Rate 64kbit/s
Rate Adaptation H.223 & H.245	User Information Layer 1 Protocol(note1) V.110, I.460 & X.30
Synchronous/Asynchronous synchronous	Synchronous/Asynchronous(note1) Synchronous
Connection Element transparent	No comparable field
Fixed Network User Rate 32kbit/s	User Rate(note 1) 32kbit/s

Note 1: This information is contained when PIAFS over 32kbit/s call is initiated.

Table 4.5: The mapping of unidentified service

UMTS BC	ISDN BC
Information Transfer Capability UDI	Information Transfer Capability UDI
No compatible field	Information Transfer Rate 64kbit/s
Rate Adaptation V.110 & I.460	User Information Layer 1 Protocol(note1) V.110, I.460 & X.30
Synchronous/Asynchronous Synchronous	Synchronous/Asynchronous Synchronous
Connection Element Transparent	No comparable field
Fixed Network User Rate 32kbit/s	User Rate(note 1) 32kbit/s

5. Conclusion

The following changes are needed to support 32kbit/s PIFAS, 64kbit/s PIAFS and 32kbit/s video telephony.

(1)TS24.008 BC

The following code points are added to each field and "V.110" in Rate Adaptation is changed to "V.110 & I.460"

Table 3.1: Additional new code point and the change point

BC parameter field	Additional new code point or the change point
Other Rate Adaptation	PIAFS
Rate Adaptation	V.110 & I.460
Fixed Network User Rate	32kbit/s

(2)TS27.001

It should be possible that UE allows for re-negotiation of the following parameters.

- Connection Element
- Rate Adaptation(Other rate adaptation)
- Synchronous/Asynchronous

(3)TS29.007

Table 3.6 and Table 4.4 should be added to Table 7A in TS29.007.

Table 3.7 and Table 4.5 should be added to Table 7B in TS29.007.