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SOURCE: JAPAN
TITLE : COMMENTS ON RECOMMENDATIONS H.221 AND H.200/AV242

Teleconference Working Group, set up by the Ministry of Post and Telecommunications for studying teleconferencing services and composed of videophone/audiographic experts from carriers/manufacturers in Japan, has been studying "system aspects" of audiovisual services. As an intermediate study result, some comments on Recommendations H.221 (frame structure for a 64-1920 kbit/s channel) and AV242 (AV communication procedure) have been obtained as detailed in the following Annexes;

Annex 1 Proposed improvements to H.221
Annex 2 Comments on Recommendation H.221
Annex 3 Comments on draft Recommendation AV242

This document is submitted for the consideration of the Specialists Group members or their colleagues, expecting that these system related Recommendations would be completed at the same time with the px64 codec Recommendation H.261. Major proposals are summarized as follows;

H.221 (pp. 44-62 of TD XV/99-E, March 1989)

1. Audiographic Capability is defined to indicate that a terminal can handle AV270 series protocol for audiographic conferencing. Likewise, Videophone Capability is defined on the assumption that Application Channel protocols would be different between Audiographic and Videophone. The objective is to make "system aspects" Recommendations cover all the audiovisual systems and allow widest possible intercommunications.

2. Capability and Command BAS codes are defined for the data rate so that its negotiation as well as invocation could be made between terminals. It is also proposed all the available date rates are indicated instead of adopting a "hierarchical" approach.

3. The term "AC (Application Channel)" is used for two meanings; physical bit positions of octet 17-80 in the 8th sub-channel and the logical channel associated with an Application Channel protocol handler. Distinction should be made between these two to avoid confusion.

4. The word "data" is confusing, meaning a signal directed to the data port associated with a data handler or a signal which is neither audio nor logical AC. Proper wordings are needed.

5. FAS is used for the multiple connection numbering. BAS codes for "out-of-sync" and "connection number" are use for acknowledgment. This two way process would secure the connection numbering.

AV242 (issued in April 1989 by the Special Rapporteur on Q.4/XV, N. Kenyon)

1. Data Capability is introduced in a non-hierachical way. See also Item 2/H.221 above. The rationale is that it is required for the negotiation of Audiographic Conferencing and that future addition of new rates is allowed without causing misunderstanding in existing terminals.

2. Capability for handling Application Channel protocol is defined. See also Item 1/H.221 above.

3. Initialization of multiple channels is clarified. See also Item 5/H.221 above.

4. Recovery procedure should be defined for two possible channel faults; loss of frame alignment and loss of channel.

5. How to establish calls for the multiple channel configuration should be described.

6. A channel renumbering procedure should be described for the case when one of the multiple channels is lost.

7. The word "channel" is used for two meanings; physical channel such as a B or H0 channel and logical channel such as an initial or additional channel. "Connection" may be appropriate for the former meaning.

8. Distinction should be made between "sequence" and "procedure" in the light of the former being building blocks of the latter.

9. Mode 0 should be distinguished between framed and unframed.

END

Annex 1 to Doc. #515

Title : Proposed improvements to H.221

Source: Japan

Date : May, 1989

1. Introduction

H.221 is one of the most important infrastructure Recommendations applied to all the audiovisual services. A subcommittee, set up by the Ministry of Post and Telecommunications for studying teleconferencing services and composed of videophone/audiographic experts from carriers/manufacturers in Japan, has been studying H.221 and other related Recommendations from various point of view. Discussions in the subcommittee resulted in proposals for improvements to these (draft) Recommendations.

2. Structure of H.221

It is noted that the present revised version of H.221 (see TD.99, SGXV March '89 Meeting) contains not only service-common specifications but service-oriented specifications for services such as videophone and videoconference (ex. "Video and other command"). If we are to follow this structure, it needs to be questioned whether there are other particular services to be taken account of in H.221. In this context, audiographic services seem to lack full attention.

On the contrary, if we decide H.221 to be as neutral as possible, service-specific specifications would have to be removed from H.221 to form a separate Recommendation.

Following the first approach mentioned above, some additions to H.221 are proposed from audiographic service point of view.

3. Proposals

Annex 1 contains the proposed new list of BAS Codes. In order to avoid referencing to other BAS Codes which are not subject to changes, the entire list is reproduced; however, the proposed changes are marked with solid lines in the margin.

The proposals are summarized as follows;

i) Allocate an attribute for Audiographic Capability for indicating that the terminal has the capability of handling protocols to be defined in the AV.270 series Recommendations. Now that the BAS Code "100 Terminal Capability" is almost fully ocupied, it is proposed to expand "101 Video Capability" to include this attribute. This would necessitate "101" to be renamed "101 Terminal Capability (2)". Likewise, an attribute for

Videophone Capability is assigned on the assumption that Application Channel Protocol would be different between Audiographic and Videophone.

ii) Attributes for AC Protocol Command are provisionally added to "010 Video and other Commands". It is for further study whether AC Protocol should be selected on "command", or could be automatically selected in the course of negotiation.

iii) Attributes for the Data Rates are allocated in the BAS Code "101 Terminal Capability (2)" as well as in "011 Data Command", so that negotiation and invocation of the data rate could be made between terminals. The rates are chosen on the following basis;

- for rates below 8 kbit/s: rates presently listed in H.221 are chosen,
- for rates above 8 kbit/s: n x 8 kbit/s(n=1-7) is chosen: other rates are dropped because of decreased importance in the ISDN era.

It is further proposed that "hierarchical" structure not be introduced for the Data Rates, but the terminal should indicate all the data rates that it is capable of communicating at.

Annex 2 illustrates some examples of negotiation sequence between the same/different type of terminals based on the proposed BAS Codes. Note that AC Command sequence(F,A=0,(010) [12] and [13]) may be deleted as a result of further study mentioned in ii) above.

Annex 1/H.221 Attribute 000 used for BAS Encoding

Attribute Bits b_0 - b_2	Attrib. Value Bits b_3 - b_7 [decimal]	Meaning
000 Audio coding	0 0000 [0]	"Neutralized channel" (the 62.4 kbit/s user data are unused)
		PCM G.711 (truncated to 7 bits) (Note 1) (Note 2)
	S 0010 [2/18]	A law; data at 0 or 6.4 kbit/s Mode 0F
	S 0011 [3/19]	mu law; data at 0 or 6.4 kbit/s Mode 0F
	S 0001 [1/17]	32 kbit/s ADPCM (Note 3) data at 24 or 30.4 kbit/s
		64 kbit/s unframed mode (Note 4)
	0 0100 [4]	PCM A law Mode 0
	0 0101 [5]	PCM mu law Mode 0
	0 0110 [6]	SB-ADPCM G.722 Mode 1 (Note 5)
	0 0111 [7]	0 kbit/s; data at 64 kbit/s Mode 10
		Variable bit rate audio coding
	S 1000 [8/24]	G.722 56 kbit/s; data at 0 or 6.4 kbit/s Mode 2
	S 1001 [9/25]	G.722 48 kbit/s; data at 8 or 14.4 kbit/s Mode 3
	S 1010 [10/26]	Reserved for audio coding at bit rates less than 48 kbit/s (Note 6)
	S 1011 [11/27]	32 kbit/s audio; data at 24 or 30.4 kbit/s (Note 6)
	S 1100 [12/28]	Reserved for audio coding at bit rates less than 48 kbit/s (Note 6)
	S 1101 [13/29]	16 kbit/s audio; data at 40 or 46.4 kbit/s (Note 6)
	S 1110 [14/30]	Reserved for audio coding at bit rates less than 48 kbit/s (Note 6)
	S 1111 [15/31]	0 kbit/s; data at 56 or 62.4 kbit/s Mode 9 (Note 7)
	1 0000 [16]	Free
	1 01xx [20-23]	Free

Annex 2/H.221 Attribute 001 used for BAS encoding

Attribute Bits b_0 - b_2	Attrib. Value Bits b_3 - b_7 [decimal]	Meaning
001 Transfer Rate		mB
	0 0000 [0]	64 kbit/s (1B)
	0 0001 [1]	2x64 kbit/s (2B)
	0 0010 [2]	3x64 kbit/s (3B)
	0 0011 [3]	4x64 kbit/s (4B)
	0 0100 [4]	5x64 kbit/s (5B)
	0 0101 [5]	6x64 kbit/s (6B)
	0 0110 [6]	Reserved
	0 0111 [7]	Reserved
		nH0
	0 1000 [8]	384 kbit/s (1H0)
	0 1001 [9]	2x384 kbit/s (2H0)
	0 1010 [10]	3x384 kbit/s (3H0)
	0 1011 [11]	4x384 kbit/s (4H0)
	0 1100 [12]	5x384 kbit/s (5H0)
	0 1101 [13]	Reserved
		H11/H12
	0 1110 [14]	1536 kbit/s (H11)
	0 1111 [15]	1920 kbit/s (H12)
		Multiple connections
	1 0000 [16]	Not synchronized to initial connection (out-of-sync BAS)
	1 0001 [17]	Initial connection in multi-connection structure
	1 0010 [18]	Second connection
	1 0011 [19]	Third connection
	1 0100 [20]	Fourth connection
	1 0101 [21]	Fifth connection
	1 0110 [22]	Sixth connection
	1 xxxx [23-31]	Reserved

Annex 7/H.221 Attribute 111 used for BAS encoding

Attribute Bits b_0 - b_2	Attrib. Value Bits b_3 - b_7 [decimal]	Meaning
111 Escape Index Table	under study	

Annex 3/H.221 Attribute 100 used for BAS encoding

Attribute Bits b_0 - b_2	Attrib. Value Bits b_3 - b_7 [decimal]	Meaning
100 Terminal Capability (1)	0 0000 [0]	Audio capability Neutral (Note 1)
	0 0001 [1]	G.725 Type 0 - A law (Note 2)
	0 0010 [2]	G.725 Type 0 - mu law
	0 0011 [3]	G.725 Type 1 - G.722
	0 0100 [4]	G.725 Type 2 - G.722 + data
	0 0101 [5]	AV242 Type 3 - G.722 + 16 kbit/s + data + video
	0 0110 [6]	Reserved for audio capability
	0 0111 [7]	Reserved for national use
	0 1xxx [9-15]	Reserved
	0 1000 [16]	Non-standard video capability (Note 3)
		Transfer rate capability
	1 0001 [17]	2B transfer rate capability (Note 4)
	1 0010 [18]	3B transfer rate capability (Note 4)
	1 0011 [19]	4B transfer rate dapability (Note 4)
	1 0100 [20]	5B transfer rate dapability (Note 4)
	1 0101 [21]	6B transfer rate dapability (Note 4)
	1 0110 [22]	Reserved for transfer rate capability (for zero octet substitution, Note 6)
	1 0111 [23]	Reserved for national use
	1 1000 [24]	H0 trasfer rate capability (Note 5)
	1 1001 [25]	2H0 trasfer rate capability (Note 5)
	1 1010 [26]	3H0 trasfer rate capability (Note 5)
	1 1011 [27]	4H0 trasfer rate capability (Note 5)
	1 1100 [28]	5H0 trasfer rate capability (Note 5)
	1 1101 [29]	Reserved
	1 1110 [30]	H11 trasfer rate capability
	1 1111 [31]	H12 trasfer rate capability

Annex 4/H.221 Attribute 010 used for BAS encoding

Attribute Bits b_0 - b_2	Attrib. Value Bits b_3 - b_7 [decimal]	Meaning
010 Video and Other Command		Video Command
	0 0000 [0]	No video; video switched OFF
	0 0001 [1]	Standard video to Rec. H.261
	0 0010 [2]	Video ON, using improved algorithm
	0011 (3)	
	|	Reserved
	1011(11)	
		AC Protocol Command
	1100(12)	Audio Graphic Confernce Protocol ON
	1101(13)	Videophone Protocol ON
	1110(14)	Reserved
	1111(15)	Reserved
		C&I
	1 0000 [16]	Freeze Picture Request
	1 0001 [17]	Fast Update Request
	1 0010 [18]	Video Loop Request (Note 1)
	1 0011 [19]	Digital Loop Request (Note 1)
	1 01xx [20-23]	Reserved
		Trasfer Rate Related Command
	1 1000 [24]	Switch off BAS in additional connections
	1 1001 [25]	Switch on BAS in additional connections
	1 1010 [26]	Turn on H0 - 6B compatibility mode (Note 2)
	1 1011 [27]	Turn on zero octet substitution
	1 11xx [28-30]	Reserved
	1 1111 [31]	Transfer to non-standard system mode

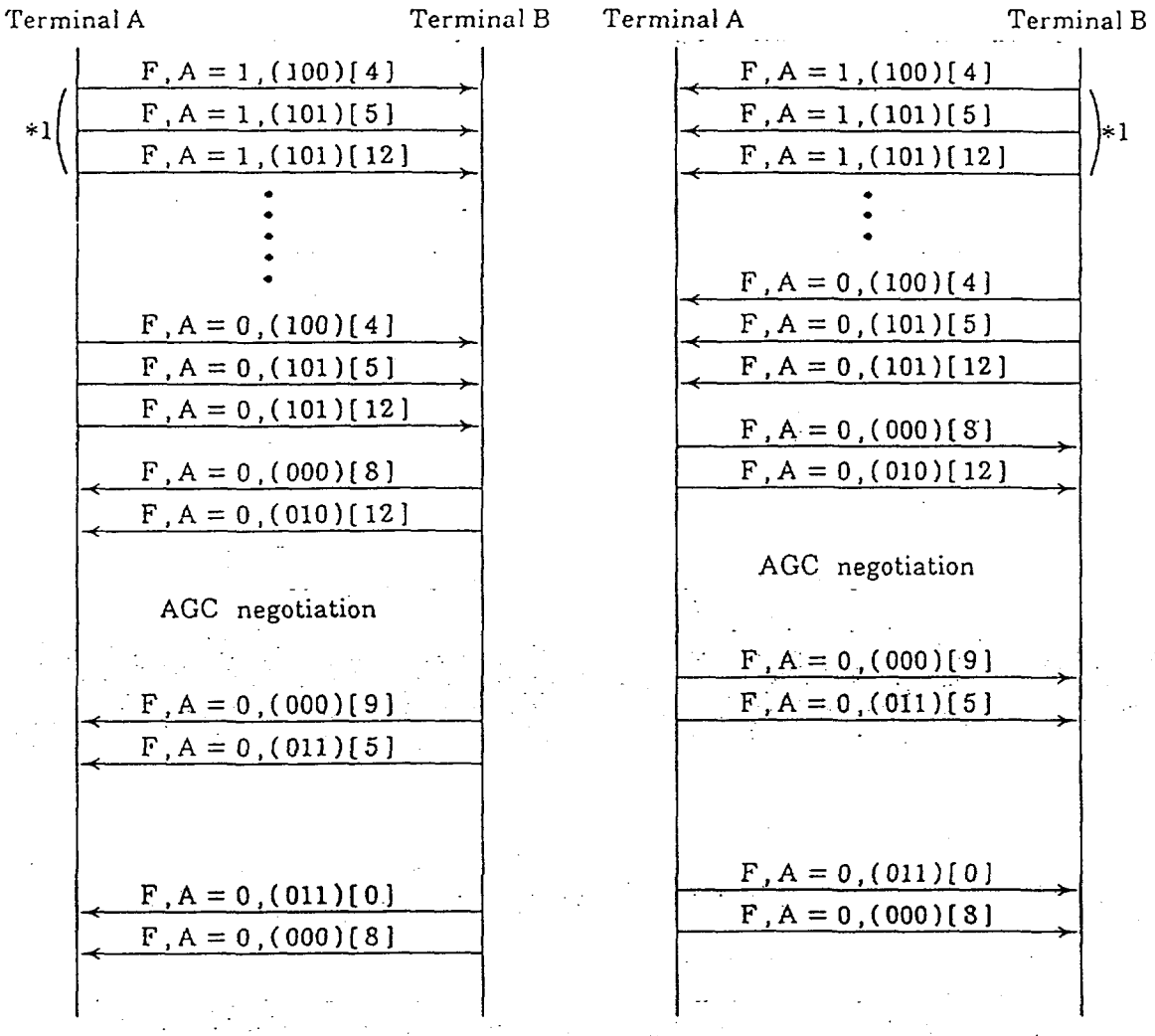
Annex 5/H.221 Attribute 011 used for BAS encoding

Attribute Bits b_0 - b_2	Attrib. Value Bits b_3 - b_7 [decimal]	Meaning
011 Data Command	0 0000 [0]	No data; data switched OFF
	0 0001 [1]	300 bit/s in AC assigned to data (Bit 8 of last three octets in each frame)
	0 0010 [2]	1200 bit/s in AC assigned to data (Bit 8 of last 12 octets in each frame)
	0 0011 [3]	4800 bit/s in AC assigned to data (Bit 8 of last 48 octets in each frame)
	0 0100 [4]	6400 bit/s in AC assigned to data (Whole of AC)
	0 0101 [5]	8000 bit/s assigned to data (BIt 7)
	0110 (6)	16kbps assigned to data (Bit 7&6)
	0111 (7)	24kbps assigned to data (Bit 7,6&5)
	1000 (8)	32kbps assigned to data (Bit 7,6,5&4)
	1001 (9)	40kbps assigned to data (Bit 7,6,5,4&3)
	1010(10)	48kbps assigned to data (Bit 7,6,5,4,3&2)
	1011(11)	56bps assigned to data (Bit 7,6,5,4,3,2&1)
	0 1100 [12]	Timeslot 2 of multi-connection structure assigned to data
	0 1101 [13]	Data in Timeslot 2 switched off
	0 1110 [14]	Timeslot 4 of multi-connection structure assinged to data
	0 1111 [15]	Data in Timeslot 4 switched
	1 0xxx [16-23]	Reserved for communicating the status of the data terminal equipment interfaces
	1 1xxx [24-30]	Reserved
	1 1111 [31]	Variable rate data; Data switched on (Note 1)

Annex 6/H.221 Attribute 101 used for BAS encoding

Attribute Bits b_0 -b_2	Attrib.Value Bits b_3 -b_7	Meaning
		Data Capability
101	0 0000 (0)	Reserved
Terminal	0001 (1)	300bps in AC data capability (Bit 8 of last three octets in each frame)
Capability (2)	0010 (2)	1200bps in AC data capability (Bit 8 of last 12 octets in each frame)
	0011 (3)	4800bps in AC data capability (Bit 8 of last 48 octets in each frame)
	0100 (4)	6400bps in AC data capability (whole of AC)
	0101 (5)	8000bps data capability (Bit 7)
	0110 (6)	16kbps data capability (Bit 7&6)
	0111 (7)	24kbps data capability (Bit 7,6&5)
	1000 (8)	32kbps data capability (Bit 7,6,5&4)
	1001 (9)	40kbps data capability (Bit 7,6,5,4&3)
	1010(10)	48kbps data capability (Bit 7,6,5,4,3&2)
	1011(11)	56kbps data capability (Bit 7,6,5,4,3,2&1)
		AC Protocol Capability
	1100(12)	standard Audio Graphic Confernce Protocol (to AV.270 series)
	1101(13)	standard Videophone Protocol (to AV. 230 series)
	1110(14)	Reserved
	1111(15)	Reserved
	1 xxxx	Reserved for Video Capability

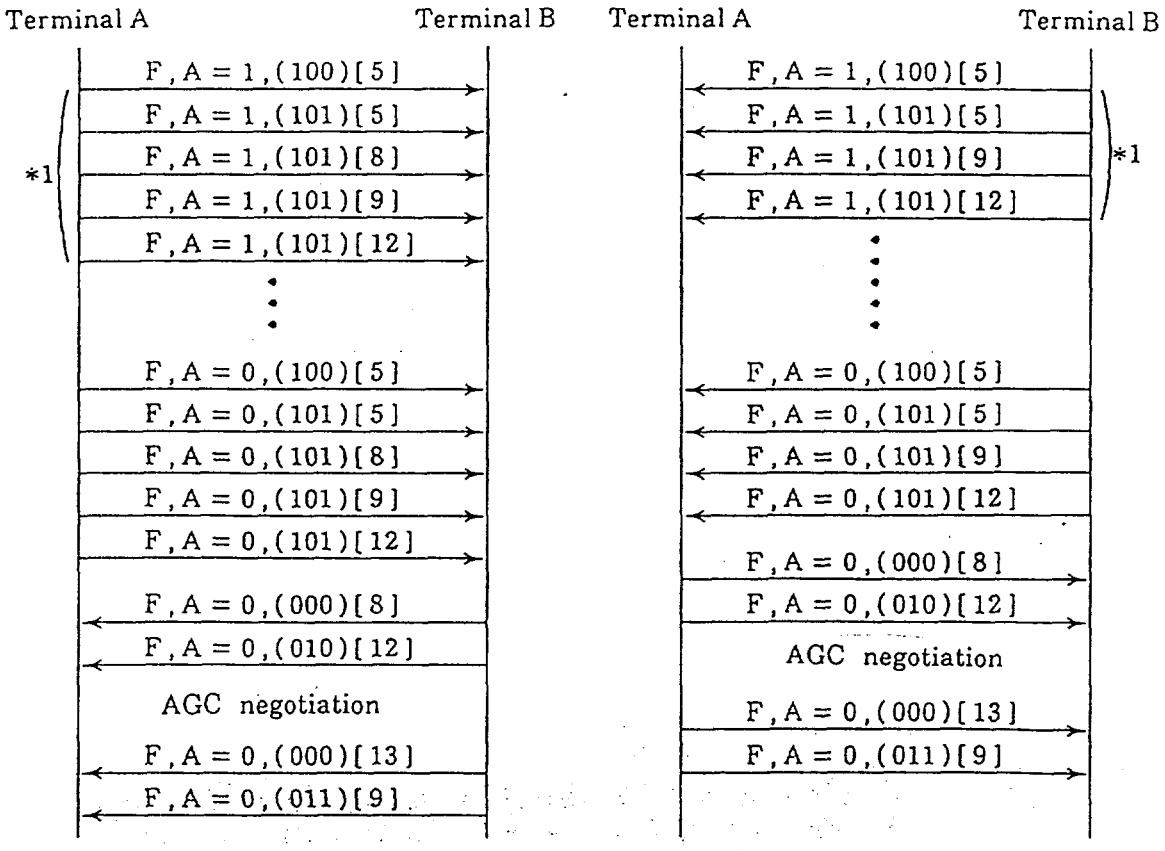
Annex 2



48Kb/s Audio , 8Kb/s Data , AC Protocol AGC
Terminal A : AGC terminal
Terminal B : AGC terminal

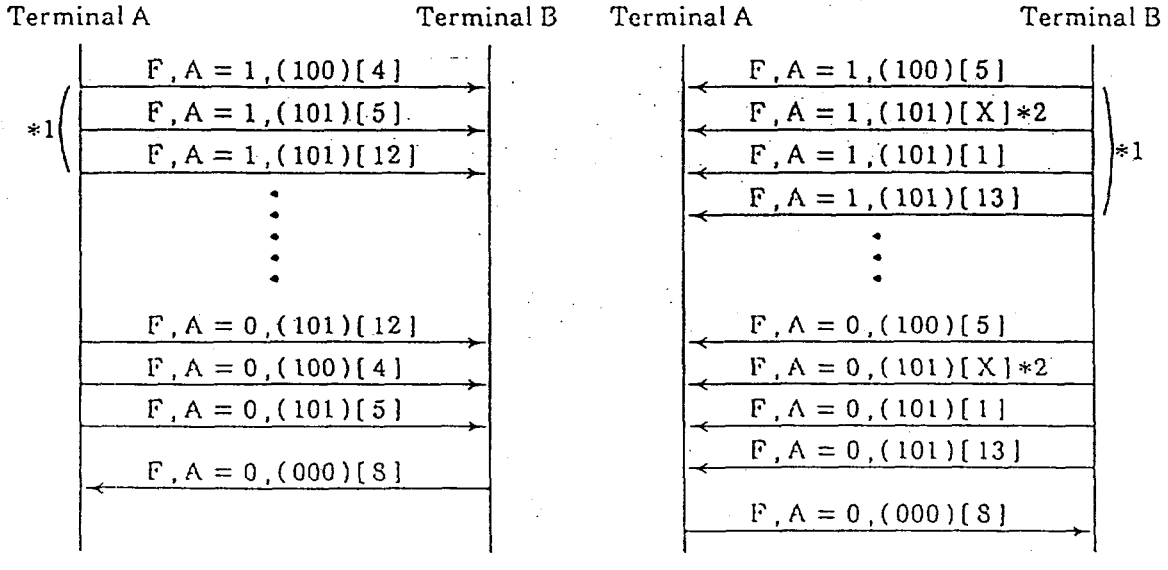
*1 : Repetition

Fig.1 Negotiation Sequence Sample 1



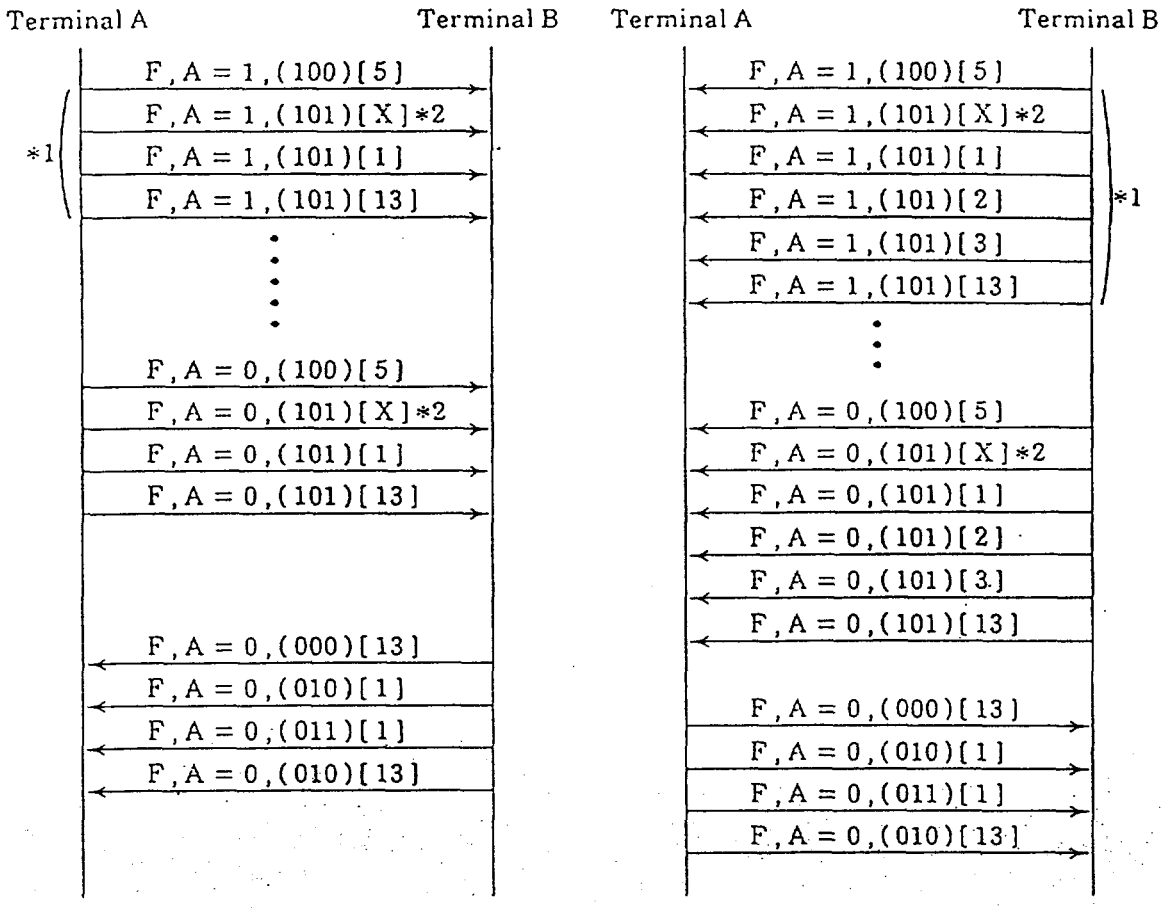
16Kb/s Audio, 40Kb/s Data, AC Protocol AGC
Terminal A: AGC terminal
Terminal B: AGC terminal
*1: Repetition

Fig.2 Negotiation Sequence Sample 2



56Kb/s Audio
Terminal A: AGC terminal
Terminal B: VP terminal
*1: Repetition
*2: Video Capability

Fig.3 Negotiation Sequence Sample 3



16Kb/s Audio , 300b/s Data , 40 Kb/s Video , AC Protocol VP

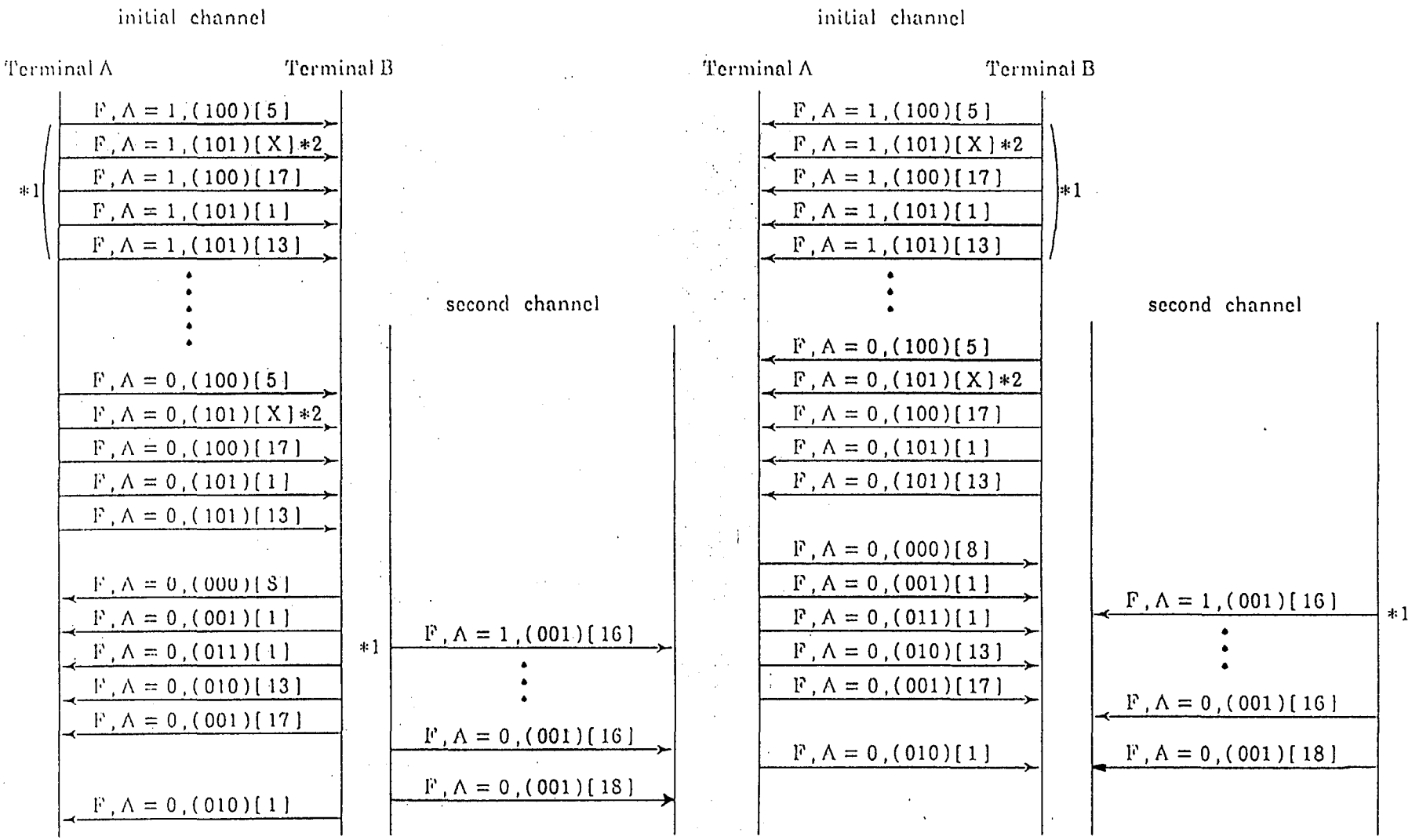
Terminal A : VP terminal

Terminal B : VP terminal

*1 : Repetition

*2 : Video Capability

Fig.4 Negotiation Sequence Sample 4



56Kb/s Audio, 300b/s Data, 56Kb/s Video, AC Protocol VP

Terminal A : VP terminal

Terminal B : VP terminal

*1 : Repetition

*2 : Video Capability

Fig.5 Negotiation Sequence Sample 5

Annex 2 to Doc. #515

SOURCE: JAPAN
TITLE : COMMENTS ON RECOMMENDATION H.221

This document describes some comments on the current revised text of Recommendation H.221 (pp. 44-62 of TD XV/99-E, March 1989), which are categorized into;

- Suggestions for structural improvements,
- Suggestions for substantial clarification,
- Suggestions for editorial clarification,
- Editorial corrections.

Since the study is still ongoing, these comments are not yet firm for proposals at the moment. Many of them are questions rather than answers.

It is noted that a companion document is addressed to the problem of how to include audiographic conferencing (AGC) aspects in H.221.

1. Suggestions for structural improvements

1) Demarcations among H.221, G.725, AV242, AV300 series

What contents should best be in what Recommendations? BAS codes are listed up in the current H.221 but without detailed definition. How to use them are described in G.725 or AV242. One alternative may be to include necessary BAS codes in each Recommendation. For example, communication procedure related BAS codes in AV242, video C&I related BAS codes in H.261? When contents of system aspects Recommendations become materialized, this point would be worth considering for a more systematic set of audiovisual Recommendations.

2) Negotiation and invocation

Communication procedures require negotiation and invocation. Both of them should be defined in principle in the same layer protocol as a pair. In the audiovisual communication procedures, negotiation is carried out with Capability BAS codes and invocation with Command BAS codes. These are defined as follows in the current text;

Facility	Capability	Command
Transfer rate	defined	defined
Audio coding	defined	defined
Video coding		
algorithm	defined	defined
parameter	to be defined	not included
Data handling		
rate	not included	defined
protocol	not included	not included
AC handling		
rate	not included	defined
protocol	not included	not included

Is this status sufficient?

2. **Suggestions for substantial clarification**

1) AC, p.45

There is confusion when we read "Application Channel". Sometimes it means physical bit positions of octet 17-80 in the 8th sub-channel (Service Channel). Sometimes it means logical channel associated with an Application Channel protocol handler which interprets the binary information or message in the bit positions 17-80 of Service Channel according to the application.

We understand that the basic role of Rec. H.221 is in providing a demultiplexing rule for the following logical channels with their respective decoder or protocol handler; FAS, BAS, Audio, Video, Data and Application Channel as in Attachment 1.

Hence, physical bit positions should be reworded as eg. Application Channel Position (ACP) to avoid confusion. ACP is obviously used for transmitting not only Application Channel codewords, but also video and data.

2) Multiple connection numbering, p.50

We support the use of FAS (R1-R3) for multiple connection numbering, because FAS is intended for frame alignment. Multiple channel synchronization is considered as part of frame alignment. Two drawbacks of this method were being slower and not protected against errors.

In the multiple connection operation, we must first compensate differential delay using N1-N4 which is transmitted once every multiframe. Validation of the connection number can be performed in parallel with that of the multiframe number. Hence there would be no additional synchronization delay due to the use of FAS for multiple connection numbering.

As to the protection of transmission error, we can utilize the additional connection number BAS code which indicates the received connection number in FAS back to the transmitting side. This two-way process would secure the connection numbering in addition to the validation method for the received multiframe/connection number code.

> Note: Unfortunately there is no description on how to secure the multiframe number reception in the current text.

Attachment 2 summarizes a proposed procedure for multiple connection synchronization.

3) Establishing additional channels

The calling side of the initial connection initiates to establish additional connections?

How should we ensure that the calls following the initial call are associated with it, by sub-address, by the caller's identification number, or by other means?

4) 3rd paragraph of § 2.7.1, p. 50

The first two hyphenated items imply that the additional connection

number BAS code can be used both for forward channel number indication and for backward confirmation. Since the channel is bi-directional, this is not possible.

If only BAS is used for the multiple connection numbering, we need an additional BAS code to indicate "in-sync".

5) § 4, p.52

Separate Application Channel protocols may be defined according to the application; eg videophone, audiographic conferencing, etc. In that case, AC protocol capability BAS codes should be defined.

6) Annex 1, p.55

There is confusion in the word "data" throughout the text. The first meaning is a signal directed to the "data handler" in Attachment 1. The second meaning is a signal which is neither audio, nor logical AC signal. The third meaning is a general signal which is neither FAS nor BAS.

It is suggested to use "data" for the first meaning only. Other words can replace "data" for the remaining two purposes.

According to this guideline, for example, BAS<00000> can be worded as "the whole capacity of 62.4 kbit/s is unused". BAS<S1101> can be worded as "AC/non-audio at 6.4/40 kbit/s or 0/46.4 kbit/s".

7) Note 2 of Annex 1, p.55

In the current text, S=0 only implies that 6.4 kbit/s in ACP (cf 2-1) above) is assigned to logical Application Channel. This should be explicitly described. Suggested wording is;

"The S bit set to 0 indicates that the Application Channel is set up using the 6.4 kbit/s in Service Channel, while the S bit set to 1 indicates that the 6.4 kbit/s in Service Channel is merged with other non-audio signal to form a single user path. The method for merging is shown in Figure A1 for the 14.4 kbit/s case".

8) Annex 3, p.58

a. "1B transfer rate capability" BAS code is missing.

b. Data capability codes should be recovered. According to the policy in Item 9 of Annex 2 to the WP XV/1 report (p. 8 of TD XV/99-E), existing terminals cannot understand new Data Command BAS codes to be defined in the future even if they are standard terminals. § 11 of Draft Rec. AV242 is addressed to this problem. The method, however, relies on the capability codes, suggesting that we should have data capability codes.

c. Audiographic conferencing protocol handling capability should be added in the capability BAS codes. AGC protocol is projected to be defined in AV270 series Recommendations.

9) Low speed data in Annex 5, p.61

When one of <00001> - <00111> is invoked, should S bit in Attribute 000 be 0 or 1 or both are allowed? If S=0 is allowed to <00011> - 4800

bit/s in AC, only 6400 - 4800 = 1600 bit/s is directed to the AC handler? If only S=1 is allowed and video is on, remaining 1600 bit/s in Service Channel is directed to the video decoder?

10) 64 kbit/s data in Annex 5, p.61

When BAS<011 01100> is invoked in a 4B connection, for example, the second connection loses FAS and BAS. The connection numbering in the remaining three connections becomes incomplete. These may cause no problem because both of the transmitter and the receiver can be aware of the status. When data transmission is over, BAS<011 01101> is sent, and then the second channel should be recovered.

This recovery process as well as connection renumbering is also required when one or more connections are lost due to unknown reasons, and is not yet defined in the current text.

3. Suggestions for editorial clarification

1) 4th hyphenated item, p.44

This statement is true for Phase C but false for Phase B. For Phase B, we rely on A bit of FAS and/or BAS codes on the return link.

2) 1st paragraph of BAS, p.45

We have now introduced some C&I in "Video and Other Command" BAS codes in addition to command BAS and capability BAS codes.

3) § 5, p. 52

If there is received neither "video on" nor "data on", should the "non-audio signal" defined by BAS attribute 000 codes be directed to the "data handler" in Attachment 1 without receiving any explicit "Data Command" BAS?

4) Caption for Figure 3, p.54

Connection	R3	R2	R1
First	0	0	0
Second	0	0	1
...			
Sixth	1	0	1

or

Connection	R3	R2	R1
First	0	0	1
Second	0	1	0
...			
Sixth	1	1	0

5) Annex 1, p.55

<S0001> and <S1011> differs in meaning?

6) Annex 3, p.58

<00111> and <10111> be removed to Attribute 111?

7) Annexes 1-6, BAS in additional channels

Most of the BAS codes are transmitted through the initial connection. Only limited number of BAS codes are transmitted through additional

connections. These should be indicated with asterisks, for example.

It is understood that the following BAS codes are only transmitted through additional connections.

- <001 10000> Out-of-sync BAS
- <001 10010> Second connection
- ...
- <001 10110> Sixth connection

To drop FAS and BAS in additional channels, <000 00111> Mode 10 is also transmitted through the additional channel. What BAS codes to resume framing there?

8) § 3/Appendix 1, p.121 of AP IX-59-E

"ECMA standards" should be replaced by appropriate "CCITT standards".

4. Editorial corrections

1) 2nd line of Introduction, p.44

"a single 64 kbit/s channel" → single or multiple B/H0 channels or single H11/H12 channel

2) 4th line of AC, p.45

command → control

3) The last paragraph of § 3, p.52

Add H.200/AV242 after G.725.

4) Note 2 of Annex 3, p.59

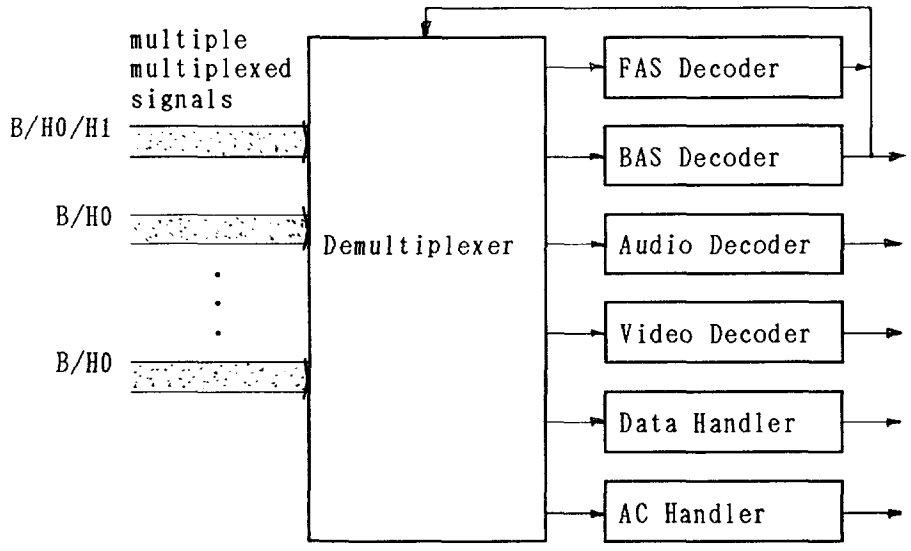
G.72y → G.725

5) 3rd line of § 1/Appendix 1, p.121 of AP IX-59-E

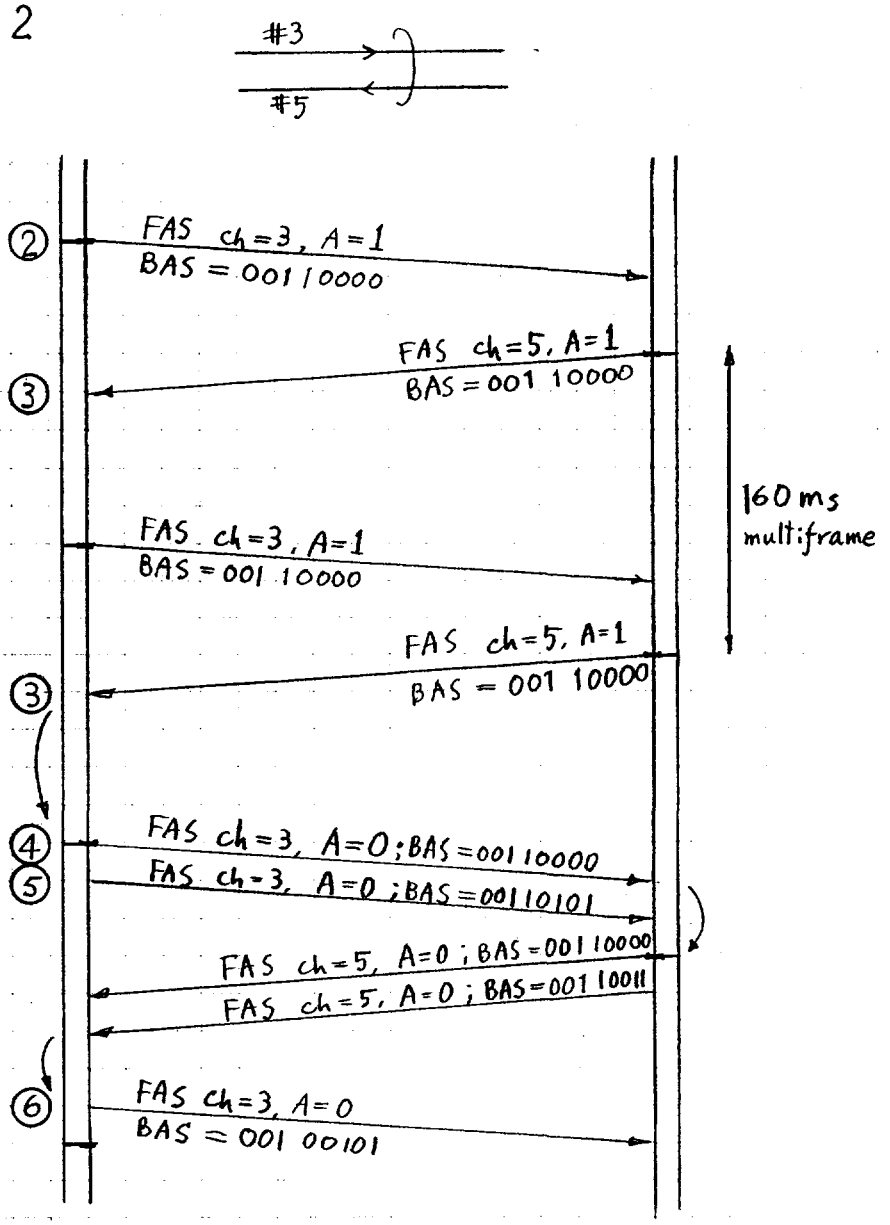
150 Hz bit/s → 50 bit/s

END

Attachment 1 Transmission decoder structure conforming to H.221



Attachment 2



Multiple connection synchronization procedure in additional channels

Operation of the local terminal is as follows;

1. Establish an additional call.

2. Start framed transmission, setting R1-R3 of FAS to the transmitting connection number and A bit to 1, and setting BAS to "out-of-sync" code.

3. Search framing in the received signal from the distant terminal. If multiframe is detected successfully (a couple of times successively for protection against transmission errors), differential delay to the initial channel is compensated.

4. When delay is compensated, set A bit to 0.

5. When the connection number is identified, send BAS code indicating the connection number to the distant terminal.

6. When all the received connection numbers in received BAS coincide the transmitted connection numbers, start the full capacity transmission by sending transfer rate BAS.

Annex 3 to Doc. #515

SOURCE : Japan
TITLE : Comments on draft recommendation AV242

This document describes some comments on the current draft AV242 (which Mr. Kenyon, a special rapporteur for Question XV/4, kindly prepared), some of which are derived from the requirements of Audio Graphic Conferencing (items 1 and 2). As for these comments, a companion document will be available that describes the background of the requirements. Other comments are not directly related to the topics of this meeting, but they have been included to speed up the drafting.

1 Definition of data capability in BAS codes (section 2.4)

Data capability should be defined in the terminal capability BAS codes for the following reasons.

(1) It is required for the negotiation of Audio Graphic Conferencing.
(2) It is not well-balanced to define only command or invocation codes.
(3) When data capability is not defined, it is impossible to add command BAS codes with a new data-rate, because they cannot be decoded by existing terminals and cause mis-routing of data information. Expansibility of data-rate is thus limited.

Data capability should be defined in a non-hierarchical way in order to avoid putting a burden on terminals and maintain the expansibility of data-rate. Terminals operating at several bitrates have to send data capability BAS several times. As for bitrates, we cannot see a necessity for higher bitrates than 8kbit/s except multiples of 8kbit/s.

2 Definition of capability for handling Application Channel protocol (section 2.5?)

Application Channel is planned to be used for transmitting control signals such as C&I, but its protocol has not yet been well discussed. From the viewpoint of protocol structure, a simple protocol such as a bit-oriented one is desirable for videophone that puts little burden on

terminals, while a systematic and, therefore, heavy protocol is necessary for Audio Graphic Conferencing. Taking these considerations into account, we think at least two different Application Channel protocols need to be standardized and such protocol handling capability should then be defined in the terminal capability BAS. (Adopting this approach, communication with a simple terminal having no AC protocol will become easier because Application Channel is not allowed to be opened in this case.)

The decision of Application Channel protocol to be used in the communication might be made in two ways, i.e.,

(1) The protocol is uniquely determined from the protocol capabilities of both terminals.
(2) Special command BAS codes are prepared that determine the protocol in the transmitting direction.

The former approach seems reasonable when we consider that the protocol has to be the same in both directions and does not change in one communication, while the latter approach allows the addition of new protocol definitions in the future.

3 Initialization of multiple channels (section 6.1)

In the current H.221, a channel number can be carried in two alternatives; FAS and BAS. Considering that FAS is intended for frame alignment and receiving channel status of "out of sync." is indicated in BAS, we propose the two way method, i.e., FAS indicates a channel number of the sending channel, while BAS indicates a channel number of the receiving channel and can be used for acknowledgement of correct channel reception. An example of this procedure is shown in the companion document (Comments on H.221).

4 Recovery procedure from channel faults (section 6.5)

There are two fault conditions regarding channels in AV242; unexpected loss of frame alignment and loss of channel, but there is no description of the difference between these conditions. Further, a unified and reasonable approach of dealing with each fault status (loss of alignment/loss of channel, initial channel/additional channel) seems missing in the current recovery procedure.

5 Call establishment (section 8)

Description of multiple channel configurations is missing.

6 Channel renumbering

When one of the multiple channels is lost, each channel has to be renumbered in a certain way, and this renumbering procedure had better be defined in AV242.

7 "Channel"

In the draft, the word "channel" is used for two meanings. The first meaning is a physical channel or connection such as a B channel and H0 channel. Second meaning is a logical channel such as an initial and additional channel. In order to avoid confusion, the word "connection" should be used for the former meaning as in the modified H.221.

8 Clarification of "sequence" and "procedure" (section 6.1)

"Sequence" and "procedure" are defined hierarchically and a sequence is prepared to be used or referred to in a procedure as building block. In section 6.1, however, there are some descriptions of contents of sequences where the contents of procedures should be explained. This causes confusion and should be clarified as follows.

(1) The second sentence of the second paragraph of section 6.1 Single Channel should now read only "Sequence A is then followed."

(2) The first sentence of the third paragraph of section 6.1 Single Channel should now read "If sequence A failed, then ..."

(3) The first sentence of the fourth paragraph of section 6.1 Single Channel should now read "If sequence A is completed successfully, then ..."

(4) The fifth paragraph of section 6.1 Single Channel is deleted, and a description of the time duration allowed for sequence A is added.

9 Mode 0 with/without framing

In the negotiation procedure, mode 0 with framing is used, but the difference between "mode 0" and "mode 0 with framing" is not clearly explained. This may cause confusion.

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