

Source: Japan
Title: Definition of H.320 type Xb (2B channels) terminals
Purpose: Discussion

The definition of terminal types need rationalization in the light of the recent addition of new audio coding G.723.1 and G.729 which complicates TABLE 2/H.320.

This document presents a history how the current types have been developed to find a way for sorting out this rather messy situation.

1. Table 1 shows all possible types for the 2 B channels case. Other 1 B or 3-6 B cases will be resolved in a similar way once the 2 B case is resolved.

Table 1 Definition of H.320 terminal type - Type Xb (using 2 B channels)

type	G.711	G.722	G.728	G.723.1	G.729	H.320 90/12 (Note 1)	H.320 93/03	H.320 rev determined 96/06
#1	X					b1, b4 (Note 2)	b4	
#2	X	X				b2, b5 (Note 2)	b5	
#3	X		X				b1 (Note 2)	
#4	X			X				b4
#5	X				X			
#6	X	X	X			b3 (Note 2)	b2/3 (Note 2)	
#7	X	X		X				
#8	X	X			X			
#9	X		X	X				b1
#10	X		X		X			
#11	X			X	X			
#12	X	X	X	X				
#13	X	X	X		X			
#14	X	X		X	X			b5
#15	X		X	X	X			
#16	X	X	X	X	X			b2/3

Note 1 - Part of the TABLE 2/H.320 90/12 for Type Xa and Xb terminals

Mode	a	b1	b2	b3	b4	b5
a0 B (audio only)	X	X	X	X	X	X
a1 B (G.728)	X	X	X	X		
b1 2B (G.711)		X	X	X	X	X
b2 2B (G.722)			X	X		X
b3 2B (G.728)				X		

At this time of H.320 establishment, G.728 was not yet finalized.

Note 2 - The above b1 and b2 are self contradictory in that Type b1 and Type b2 have G.728 codec but does not support G.728 operational mode. This was corrected in H.320 93/03 by redefining thpe b1 and merging types b2 and b3 into type b2/3.

2. We can see the current H.320 revision determined in June 1996 is quite incomplete in the definition of terminal types, it lacks existing types among other things in the list (see Appendix).
3. One way would be to define a complete set of types in terms of supported audio codecs, but this approach requires 16 different types for the more than 1 B cases. This is beyond the practical usefulness of the table.
4. Another way would be to radically simplify the table to indicate only mandatory mode of operation which shall be supported by Type X, Y, Z terminals and any other mode of operation being chosen as the outcome of the H.242 capability exchange.
5. Our relief is that the terminal type is used for only explanation of the H.320 specifications. Interoperability is not affected by the change of this explanation; it is governed by the mandatory audio coding G.711 and H.242 procedures.

END

TABLE 2/H.320

Visual telephone terminal types

[Editor's note: Relationship between added modes (a2, a3, b4, b5, q4 and q5) and Type X needs careful review. Note that the terminal type is defined as a combination of transfer rates and audio codecs supported.]

Mode		Type X (NOTE 2)										Type Y (NOTE 3)					Type Z	
Transfer rate	Audio coding	a	b ₁	b _{2/3}	b ₄	b ₅	q ₁	q _{2/3}	q ₄	q ₅	1	2	3	4	5			
a ₀ B	G.711 (NOTE 4)	X	X	X	X	X	X	X	X	X								
a ₁ B	G.728	X	X	X			X	X										
a ₂ B	G.723.1 (NOTE 6)	X	X	X	X	X	X	X	X	X								
a ₃ B	G.729	X	X	X			X	X										
b ₁ 2B	G.711		X	X	X	X	X	X	X	X								
b ₂ 2B	G.722			X		X		X		X								
b ₃ 2B	G.728		X	X			X	X										
b ₄ 2B	G.723.1 (NOTE 6)		X	X	X	X	X	X	X	X								
b ₅ 2B	G.729			X		X		X		X								
q ₁ nB	G.711 (NOTE 5)						X	X	X	X								
q ₂ nB	G.722 (NOTE 5)							X		X								
q ₃ nB	G.728 (NOTE 5)						X	X										
q ₄ nB	G.723.1 (NOTE 6)						X	X	X	X								
q ₅ nB	G.729							X		X								
g H ₀	G.722										X	X	X	X	X			
h 2H ₀	G.722											X	X	X	X			
i 3H ₀	G.722												X	X	X			
j 4H ₀	G.722													X	X			
k H ₁₁	G.722															X		
l 5H ₀	G.722														X			
m H ₁₂	G.722																X	

NOTE 1 – "X" means the terminal of the given type is able to work in the given mode.

NOTE 2 – Types Xb₄ and Xb₅ are defined to take into account that G.728 had not yet been recommended when this Recommendation was first established.

NOTE 3 – Terminal of this type must conform to § 3.3.2.2.

NOTE 4 – If a visual telephone interworks with a wideband speech terminal, G.722 audio may be used instead of G.711 audio.

NOTE 5 – q = c/d/e/f corresponds to n = 3/4/5/6, respectively. Since transfer rates of multiple B are defined hierarchically, Type Xf₁, for example, supports all of (a₁, b₁, c₁, d₁, e₁, f₁) and (b₃, c₃, d₃, e₃, f₃) modes.

NOTE 6 – For G.723.1 audio, a channel shall be allocated as specified in Recommendation H.221. The audio data and their packet formats are described in Recommendations G.723.1 and H.223. Use of bits not required for G.723.1 audio coding is specified in Recommendation H.221.