

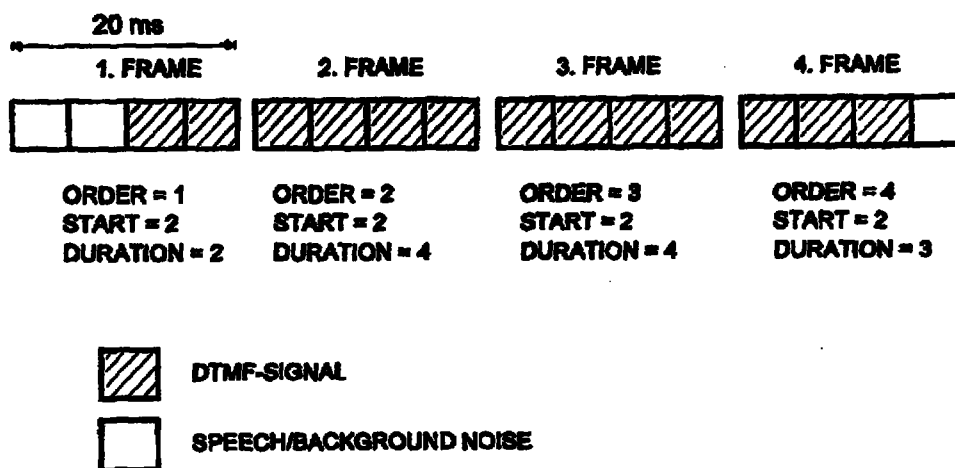
**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04Q 1/453, 1/457, H04M 11/06 // H04B 7/26, H04Q 7/20		A1	(11) International Publication Number: WO 96/32817
			(43) International Publication Date: 17 October 1996 (17.10.96)
(21) International Application Number: PC/PCT/96/00181		(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, (SG) SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 2 April 1996 (02.04.96)			
(30) Priority Data: 951765 12 April 1995 (12.04.95) FI			
(71) Applicant (for all designated States except US): NOKIA TELECOMMUNICATIONS OY (FI/FI); Mäkkylän puistotie 1, FIN-02600 Espoo (FI). <i>see 3B/306</i>			
(72) Inventor; and (75) Inventor/Applicant (for US only): VIRTANEN, Anna (FI/FI); Kauppaneuvoksentie 10 A 1, FIN-00200 Helsinki (FI).			
(74) Agent: OY KOLSTER AB; Iso Roobertinkatu 23, P.O. Box 148, FIN-00121 Helsinki (FI).			

Published*With international search report.**Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.*

(54) Title: TRANSMISSION OF VOICE-FREQUENCY SIGNALS IN A MOBILE TELEPHONE SYSTEM



(57) Abstract

According to the invention, when detecting the same DTMF signal at the transmitting end, successive DTMF frames relating to this signal are established. These frames are modified SID frames, and individual linking information (Order, Start, Duration) is added to each frame in addition to DTMF signal frequency pair information. This linking information indicates the duration of the DTMF signal from the first detection time period of the first modified SID frame to the frame concerned, including said frame. The individual linking information thus interlinks successive DTMF frames (frames 1 - 4) relating to the same DTMF signal. At the receiving end, in receiving DTMF frames, it is calculated at each error-free frame how long the DTMF signal has been received or should have been received. Only when the individual linking information of a received frame indicates that the duration of the DTMF signal is longer than the threshold value, for instance 40 ms, the DTMF signal indicated by the frequency pair information of the received frames is generated to a subscriber station. During the waiting period, background noise is generated.