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- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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(54) **Title:** METHODS USING HARQ-ACK CODEBOOKS FOR MULTI-FLOW COMMUNICATIONS AND RELATED WIRELESS TERMINALS AND RADIO NETWORK NODES

Figure 4

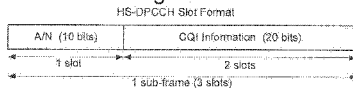


Figure 5A

Site - 1 Schedules 1 Stream					
S1	S2	S1	S2	S1	S2
A	A	N	A	D	A
A	N	N	N	D	N
A	AA	N	AA	D	AA
A	AN	N	AN	D	AN
A	NA	N	NA	D	NA
A	NN	N	NN	D	NN
A	D	N	D		

Figure 5B

Site - 2 Schedules 1 Stream					
S1	S2	S1	S2	S1	S2
A	A	A	N	A	D
N	A	N	N	N	D
AA	A	AA	N	AA	D
AN	A	AN	N	AN	D
NA	A	NA	N	NA	D
NN	A	NN	N	NN	D
D	A	D	N		

Figure 5C

Site - 1 Schedules 2 Streams					
S1	S2	S1	S2	S1	S2
AA	A	AN	A	D	A
AN	N	AN	N	D	N
AA	AA	AN	AA	D	AA
AA	AN	AN	AN	D	AN
AA	NA	AN	NA	D	NA
AA	NN	AN	NN	D	NN
AA	D	AN	D		
NA	A	NN	A		
NA	N	NN	N		
NA	AA	NN	AA		
NA	AN	NN	AN		
NA	NA	NN	NA		
NA	NN	NN	NN		
NA	D	NN	D		

Figure 5D

Site - 2 Schedules 2 Streams					
S1	S2	S1	S2	S1	S2
A	AA	A	AN	A	D
N	AA	N	AN	N	D
AA	AA	AA	AN	AA	D
AN	AA	AN	AN	AN	D
NA	AA	NA	AN	NA	D
NN	AA	NN	AN	NN	D
D	AA	D	AN		
A	NA	A	NN		
N	NA	N	NN		
AA	NA	AA	NN		
AN	NA	AN	NN		
NA	NA	NA	NN		
NN	NA	NN	NN		
D	NA	D	NN		

(57) **Abstract:** At least one transport data block is transmitted from a first sector of a network over a downlink to a wireless terminal during a time resource element for a multi-flow downlink transmission to the wireless terminal, and at least one transport data block is transmitted from a second sector of the network over a downlink to the wireless terminal during the time resource element for the multi-flow downlink transmission. A feedback message is received for the time resource element from the wireless terminal, wherein the feedback message includes a HARQ-ACK codeword selected from a HARQ-ACK codebook providing HARQ-ACK feedback for the at least one transport data block transmitted from the first sector and for the at least one transport data block transmitted from the second sector. The HARQ-ACK codeword is interpreted for the at least one transport data block transmitted from the first sector based on the first sector being a primary sector for the multi-flow downlink transmission.

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INTERNATIONAL SEARCH REPORT

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PCT/SE2013/050285

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: H04B, H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, PAJ, WPI data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	3rd Generation Partnership Project (3GPP); R1-114174, Uplink control channel structure and timing, HSDPA Multiflow Data; 2011-11-08; figure 2; Chapter 1, 2.1, 2.2.2 and 2.2.2.1 --	1-19
Y	3rd Generation Partnership Project (3GPP); TSG-RAN WG1 Meeting #66; R1-112875; 25.212 CR 0296 Introduction of 8C-HSDPA, 2011-08-22, http://www.3gpp.org/ftp/tsg_ran/wg1_rl1/TSGR1_66/Docs/ ; Table 15B, 15C.1 and 15C.2. Chapter 4.7.3, Chapter 4.7.3A and Chapter 4.7.3B.1 --	1-19
A	WO 2008041098 A2 (NOKIA CORP ET AL), 10 April 2008 (2008-04-10); page 8, paragraph [0003] -- -----	4-10, 18

 Further documents are listed in the continuation of Box C. See patent family annex.

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"&" document member of the same patent family

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WO	2008041098 A2	10/04/2008	EP	2087630 A2	12/08/2009
			US	20080144561 A1	19/06/2008
			US	7864738 B2	04/01/2011
