3GPP TSG RAN WG1 Meeting #11
San Diego, USA, 29 Feb – 3 March 2000

***Document* R1-00-0282**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.222	CR	027	Current Version:	V3.1.1

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #7	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio	X	Core Network	

Source: LGIC **Date:** Feb 24th, 2000

Subject: Editorial modification of shifting parameter calculation for turbo code puncturing

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification	X		Release 99	X
				Release 00	

Reason for change: When ΔN_i is calculated as 0 for parity sequence of turbo code, then q value cannot be defined for the corresponding parity sequence. Actually, in that case nothing is necessary to be done in the rate matching block for that sequence. Therefore some clarification may be necessary.

Clauses affected: 4.2.7.1.2 Turbo encoded TrCHs

Other specs affected:

Other 3G core specifications		→ List of CRs:
Other GSM core specifications		→ List of CRs:
MS test specifications		→ List of CRs:
BSS test specifications		→ List of CRs:
O&M specifications		→ List of CRs:

Other comments:

<--------- double-click here for help and instructions on how to create a CR.

4.2.7.1.2 Turbo encoded TrCHs

If repetition is to be performed on turbo encoded TrCHs, i.e. $DN_{i,j} > 0$, the parameters in section 4.2.7.1.1 are used.

If puncturing is to be performed, the parameters below shall be used. Index *b* is used to indicate systematic (*b*=1), 1st parity (*b*=2), and 2nd parity bit (*b*=3).

a = 2 when *b*=2

a = 1 when *b*=3

$$\Delta N_i = \begin{cases} \lfloor \Delta N_{i,j}/2 \rfloor, & b = 2 \\ \lceil \Delta N_{i,j}/2 \rceil, & b = 3 \end{cases}$$

If ΔN_i is calculated as 0 for *b*=2 or *b*=3, then the following procedure and the rate matching algorithm of section 4.2.7.3 don't need to be performed for the corresponding parity bit stream.

$X_i = \lfloor N_{i,j}/3 \rfloor$,

$q = \lfloor X_i / |\Delta N_i| \rfloor$

if($q \leq 2$)

for x=0 to F_i-1

$S[I_F[(3x+b-1) \bmod F_i]] = x \bmod 2$; end for

else

if q is even

then $q' = q - gcd(q, F_i)/ F_i$ -- where $gcd(q, F_i)$ means greatest common divisor of q and F_i

-- note that q' is not an integer, but a multiple of 1/8

else $q' = q$

endif

for x=0 to F_i –1

$r = \lceil x*q' \rceil \bmod F_i$;

$S[I_F[(3r+b-1) \bmod F_i]] = \lceil x*q' \rceil \operatorname{div} F_i$;

endfor

endif

For each radio frame, the rate-matching pattern is calculated with the algorithm in section 4.2.7.3, where:

X_i is as above,

$e_{ini} = (a \cdot S(n_i) \cdot |\Delta N_i| + X_i) \bmod (a \cdot X_i)$, if $e_{ini} = 0$ then $e_{ini} = a \cdot X_i$.

$e_{plus} = a \cdot X_i$

$e_{minus} = a \cdot |\Delta N_i|$