FIG 1A

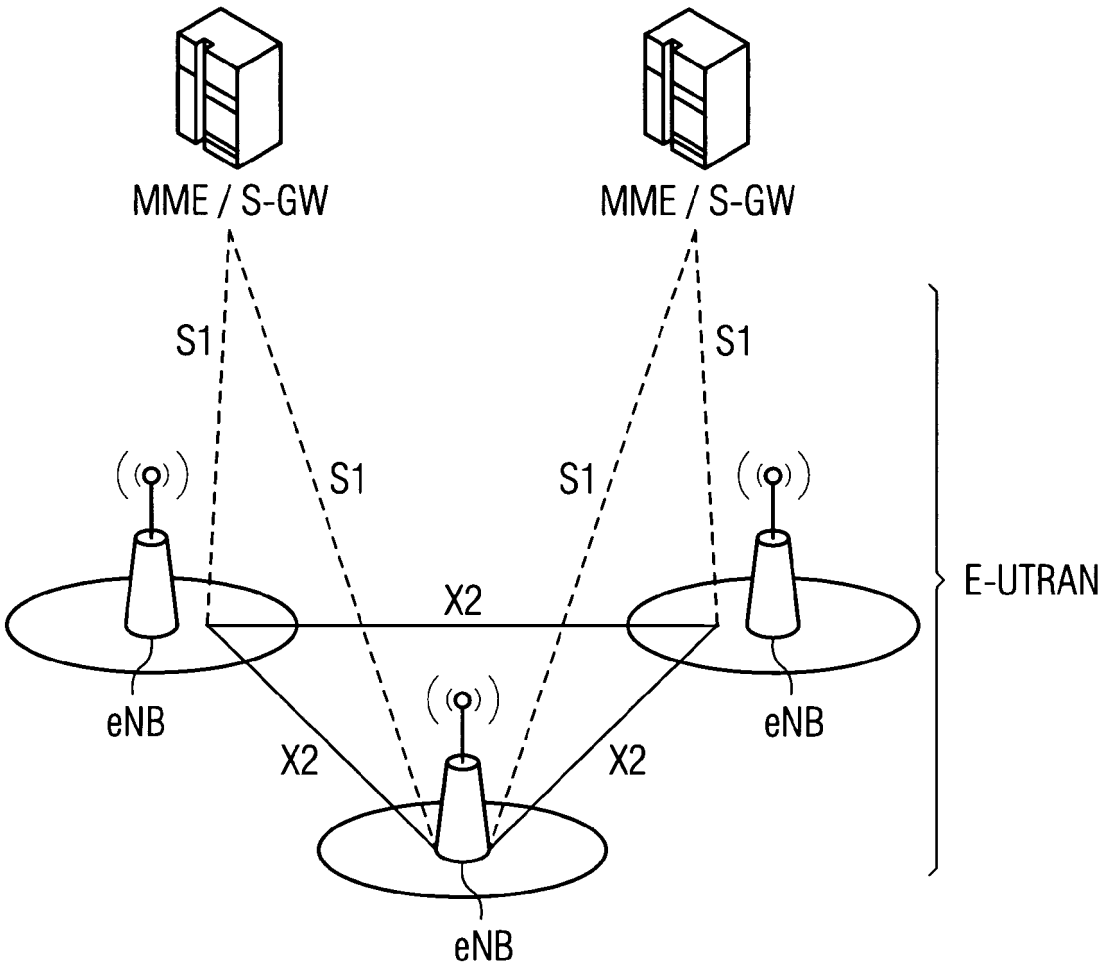


FIG 1B Part 1

Table 6.10.5.2.-1: Mapping from CSI reference signal configuration to (k', l') for normal cyclic prefix.

	CSI reference signal configuration	Number of CSI reference signals configured					
		1 or 2		4		8	
		(k', l')	n_S mod2	(k', l')	n_S mod2	(k', l')	n_S mod2
Frame structure type 1 and 2	0	(9, 5)	0	(9, 5)	0	(9, 5)	0
	1	(11, 2)	1	(11, 2)	1	(11, 2)	1
	2	(9, 2)	1	(9, 2)	1	(9, 2)	1
	3	(7, 2)	1	(7, 2)	1	(7, 2)	1
	4	(9, 5)	1	(9, 5)	1	(9, 5)	1
	5	(8, 5)	0	(8, 5)	0		
	6	(10, 2)	1	(10, 2)	1		
	7	(8, 2)	1	(8, 2)	1		
	8	(6, 2)	1	(6, 2)	1		
	9	(8, 5)	1	(8, 5)	1		
	10	(3, 5)	0				
	11	(2, 5)	0				
	12	(5, 2)	1				
	13	(4, 2)	1				
	14	(3, 2)	1				
	15	(2, 2)	1				
	16	(1, 2)	1				
	17	(0, 2)	1				
	18	(3, 5)	1				
	19	(2, 5)	1				
Frame structure type 2 only	20	(11, 1)	1	(11, 1)	1	(11, 1)	1
	21	(9, 1)	1	(9, 1)	1	(9, 1)	1
	22	(7, 1)	1	(7, 1)	1	(7, 1)	1
	23	(10, 1)	1	(10, 1)	1		
	24	(8, 1)	1	(8, 1)	1		
	25	(6, 1)	1	(6, 1)	1		
	26	(5, 1)	1				
	27	(4, 1)	1				
	28	(3, 1)	1				
	29	(2, 1)	1				
	30	(1, 1)	1				
	31	(0, 1)	1				

FIG 1B Part 2

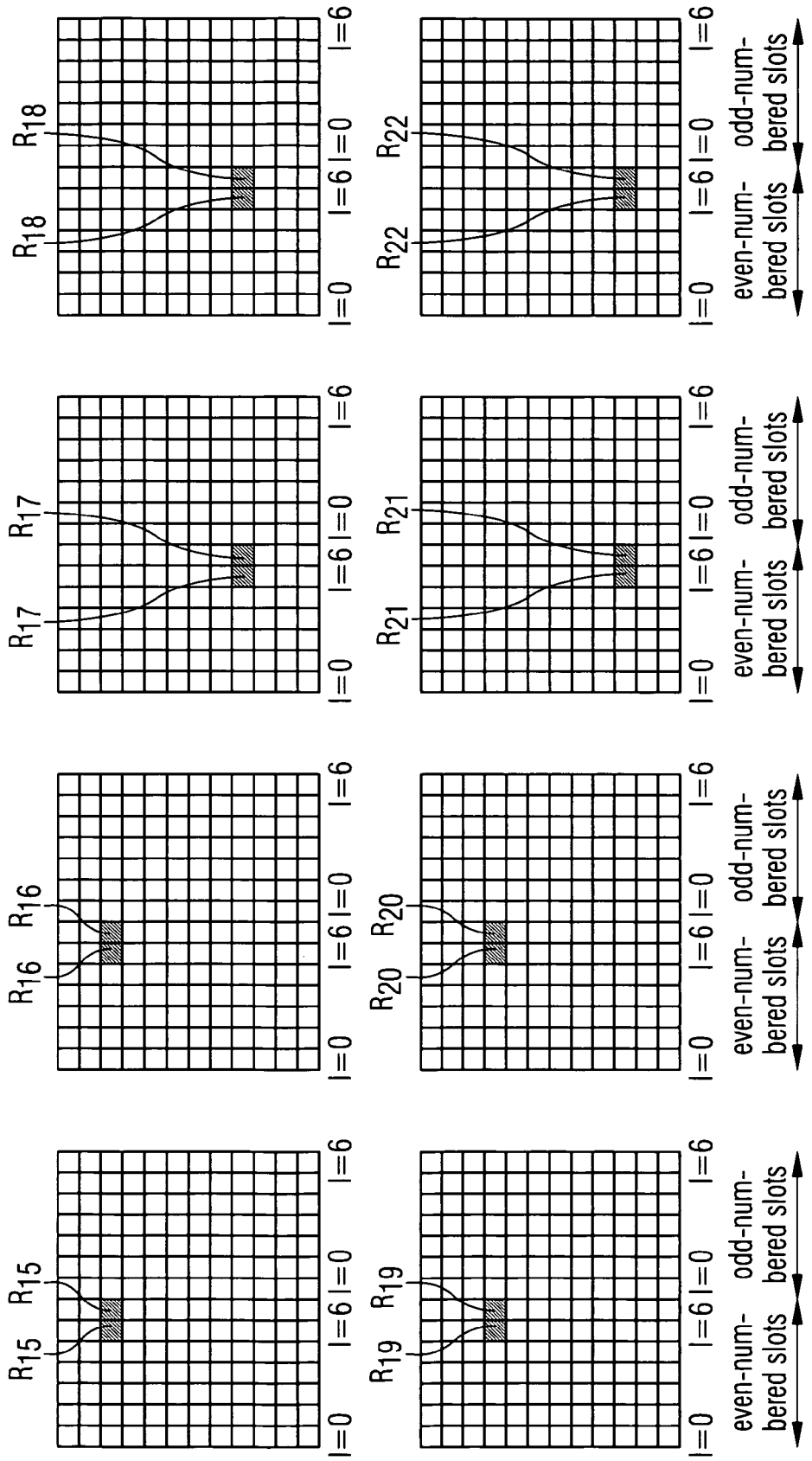


Figure 6.10.5.2-1: Mapping of CSI reference signals (CSI configuration 0, normal cyclic prefix).

FIG 1C Part 1

Table 6.10.5.2.-2: Mapping from CSI reference signal configuration to (k', l') for extended cyclic prefix.

	CSI reference signal configuration	Number of CSI reference signals configured					
		1 or 2		4		8	
		(k', l')	n_S mod2	(k', l')	n_S mod2	(k', l')	n_S mod2
Frame structure type 1 and 2	0	(11, 4)	0	(11, 4)	0	(11, 4)	0
	1	(9, 4)	0	(9, 4)	0	(9, 4)	0
	2	(10, 4)	1	(10, 4)	1	(10, 4)	1
	3	(9, 4)	1	(9, 4)	1	(9, 4)	1
	4	(5, 4)	0	(5, 4)	0		
	5	(3, 4)	0	(3, 4)	0		
	6	(4, 4)	1	(4, 4)	1		
	7	(3, 4)	1	(3, 4)	1		
	8	(8, 4)	0				
	9	(6, 4)	0				
	10	(2, 4)	0				
	11	(0, 4)	0				
	12	(7, 4)	1				
	13	(6, 4)	1				
	14	(1, 4)	1				
	15	(0, 4)	1				
FR	16	(11, 1)	1	(11, 1)	1	(11, 1)	1
	17	(10, 1)	1	(10, 1)	1	(10, 1)	1
	18	(9, 1)	1	(9, 1)	1	(9, 1)	1
	19	(5, 1)	1	(5, 1)	1		
	20	(4, 1)	1	(4, 1)	1		
	21	(3, 1)	1	(3, 1)	1		
	22	(8, 1)	1				
	23	(7, 1)	1				
	24	(6, 1)	1				
	25	(2, 1)	1				
	26	(1, 1)	1				
	27	(0, 1)	1				

FIG 1C Part 2

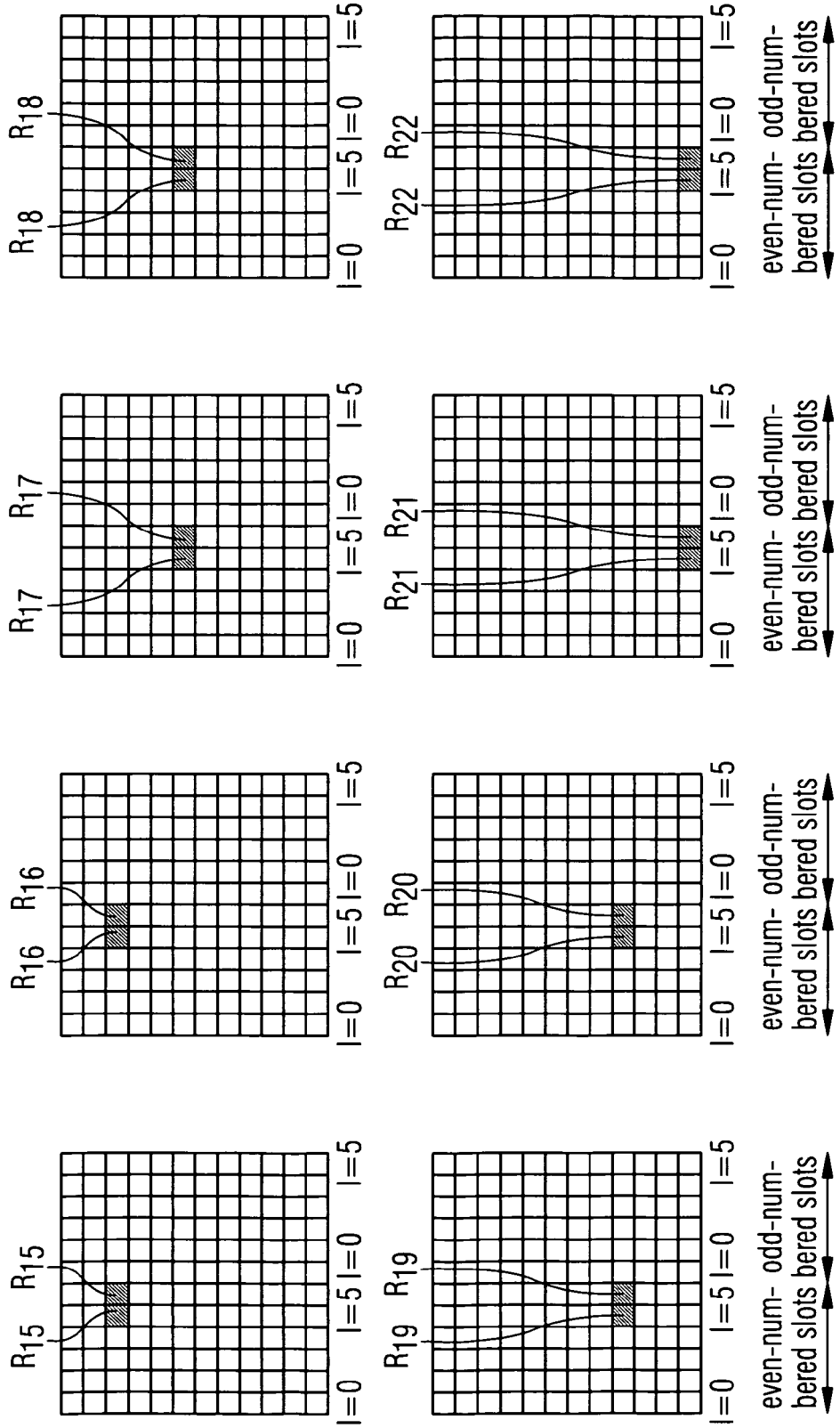


Figure 6.10.5.2-2: Mapping of CSI reference signals (CSI configuration 0, extended cyclic prefix).

FIG 1D

Table 6.10.5.3-1: CSI reference signal subframe configuration.

CSI-RS-Subframe Config I_{CSI-RS}	CSI-RS periodicity T_{CSI-RS} (subframes)	CSI-RS subframe offset Δ_{CSI-RS} (subframes)
0-4	5	I_{CSI-RS}
5-14	10	$I_{CSI-RS}-5$
15-34	20	$I_{CSI-RS}-15$
35-74	40	$I_{CSI-RS}-35$
75-154	80	$I_{CSI-RS}-75$

FIG 1E

Table 6.11.1.1-1: Root indices for the primary synchronization signal.

$N_{ID}^{(2)}$	Root index u
0	25
1	29
2	34

FIG 1F

Table 7.2.3-0: PDSCH transmission scheme assumed for CQI reference resource

Transmission mode	Transmission scheme of PDSCH
1	Single-antenna port, port 0
2	Transmit diversity
3	Transmit diversity if the associated rank indicator is 1, otherwise large delay CDD
4	Closed-loop spatial multiplexing
5	Multi-user MIMO
6	Closed-loop spatial multiplexing with a single transmission layer
7	If the number of PBCH antenna ports is one, Single-antenna port, port 0; otherwise Transmit diversity
8	If the UE is configured without PMI/RI reporting: if the number of PBCH antenna ports is one, single-antenna port, port 0; otherwise transmit diversity If the UE is configured with PMI/RI reporting: closed-loop spatial multiplexing
9	Closed-loop spatial multiplexing with up to 8 layer transmission, ports 7-14 (see subclause 7.1.5B)

FIG 1G

Table 7.2.3-1: 4-bit CQI Table

CQI index	modulation	code rate x 1024	efficiency
0	out of range		
1	QPSK	78	0.1523
2	QPSK	120	0.2344
3	QPSK	193	0.3770
4	QPSK	308	0.6016
5	QPSK	449	0.8770
6	QPSK	602	1.1758
7	16QAM	378	1.4766
8	16QAM	490	1.9141
9	16QAM	616	2.4063
10	64QAM	466	2.7305
11	64QAM	567	3.3223
12	64QAM	666	3.9023
13	64QAM	772	4.5234
14	64QAM	873	5.1152
15	64QAM	948	5.5547

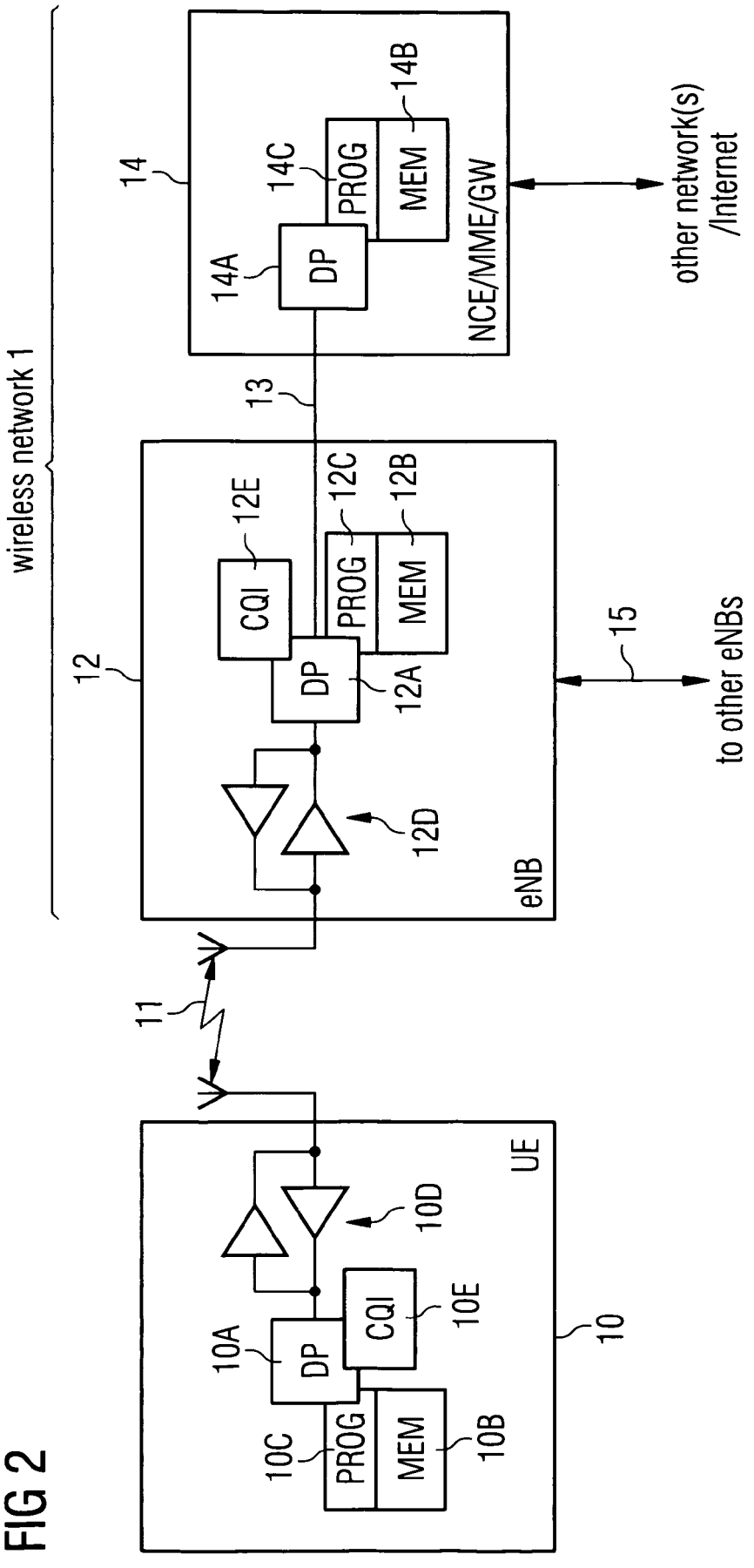

wireless network 1
14
14B
14C
PROG
MEM
14A
DP
NCE/MME/GW
other network(s)
/Internet
13
12
12E
12C
12B
CQI
PROG
MEM
DP
12A
15
to other eNBs
12D
eNB
11
UE
10D
10A
DP
CQI
10E
10
10C
PROG
MEM
10B

FIG 2

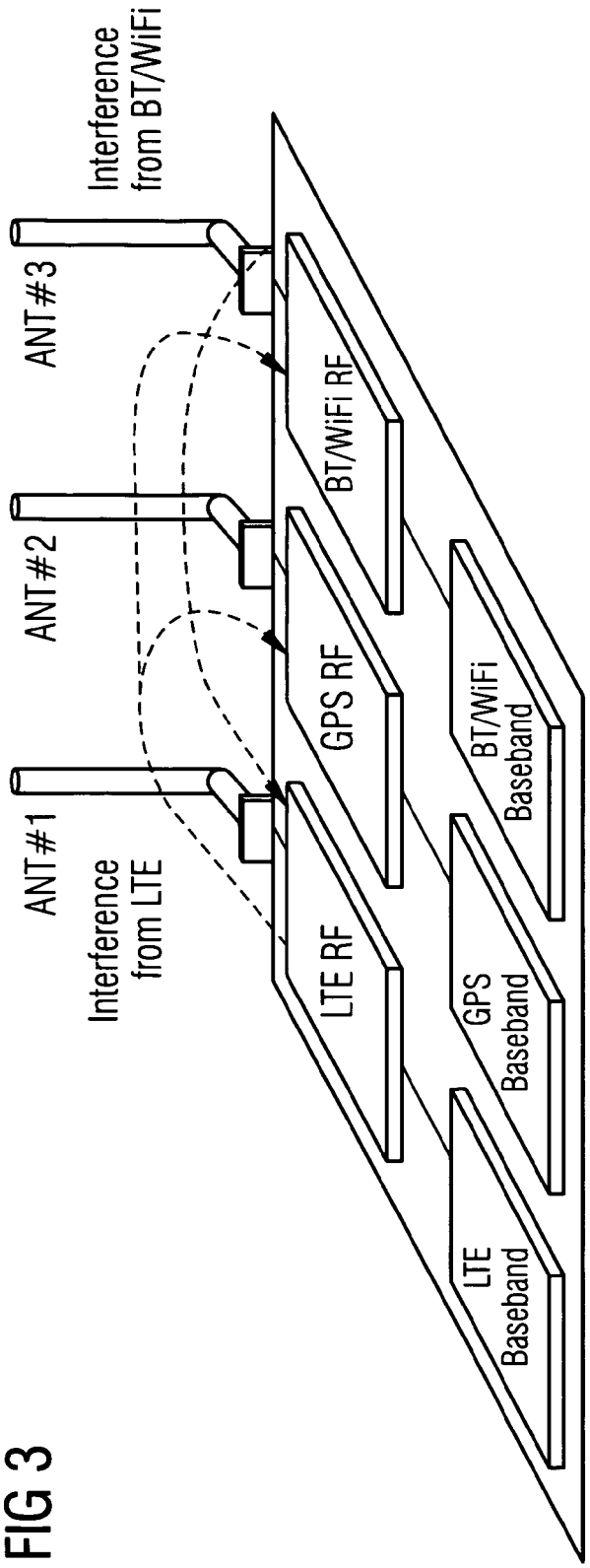

Interference from BT/WiFi
ANT#3
ANT#2
ANT#1
Interference from LTE
BT/WiFi RF
GPS RF
LTE RF
BT/WiFi Baseband
GPS Baseband
LTE Baseband

FIG 3

FIG 4A

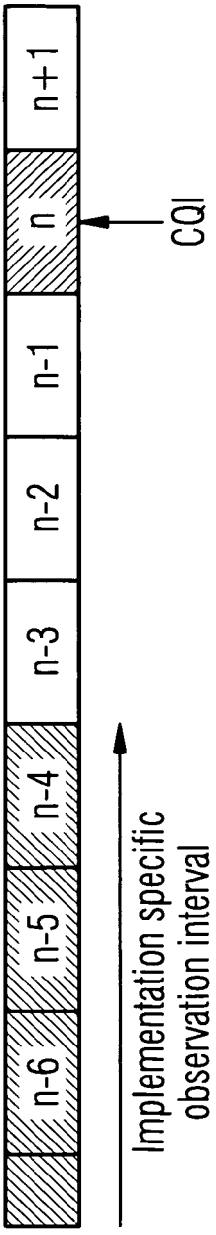
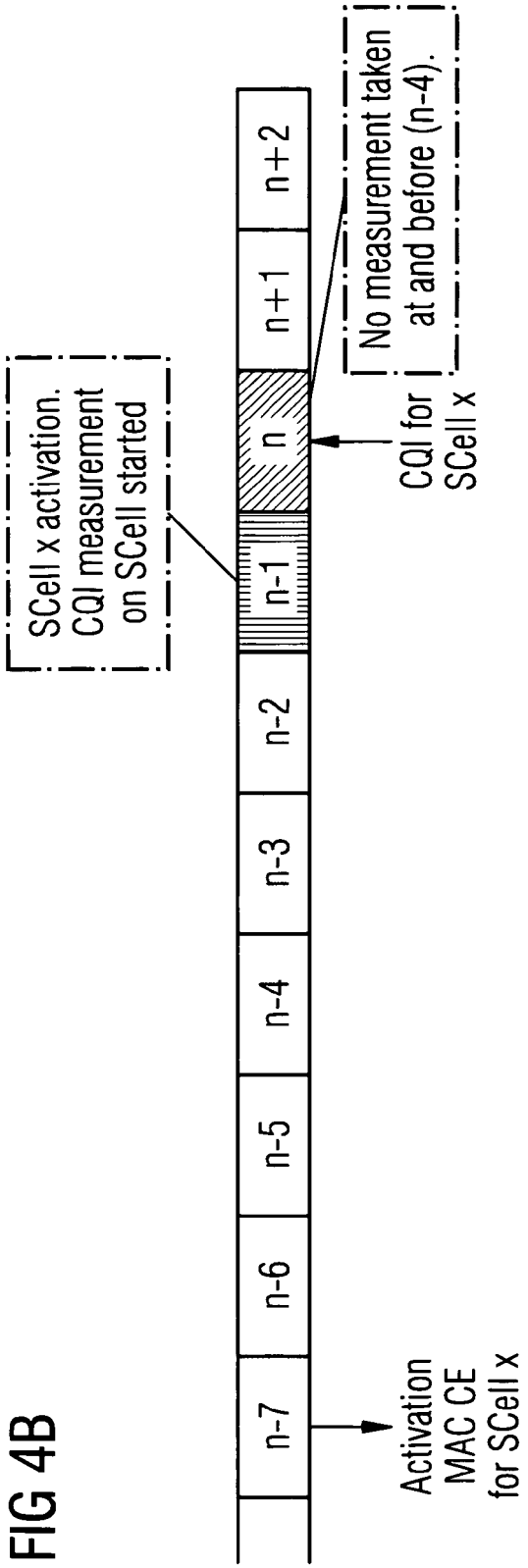

n-6
n-5
n-4
n-3
n-2
n-1
n
n+1
CQI
Implementation specific observation interval

FIG 4B


n-7
n-6
n-5
n-4
n-3
n-2
n-1
n
n+1
n+2
Activation MAC CE for SCell x
SCell x activation. CQI measurement on SCell started
CQI for SCell x
No measurement taken at and before (n-4).

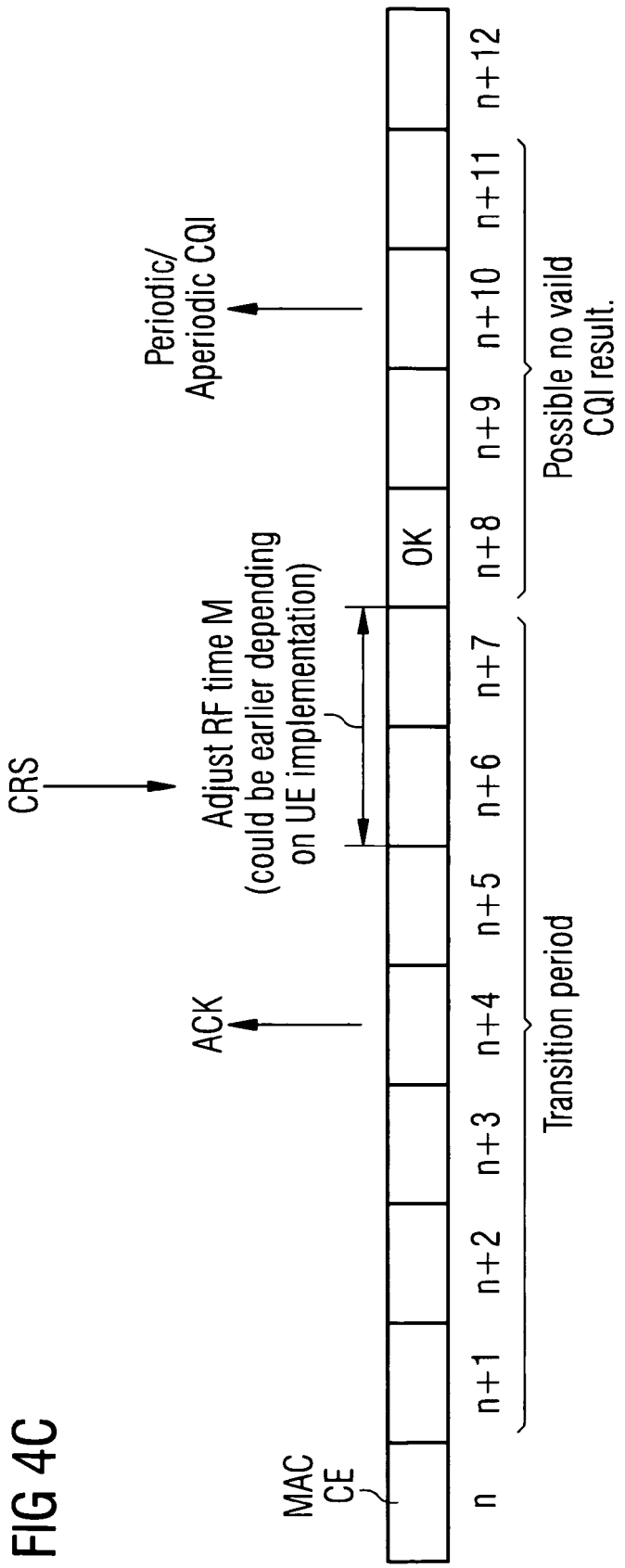

MAC CE
n
n+1
n+2
n+3
n+4
n+5
n+6
n+7
n+8
n+9
n+10
n+11
n+12
ACK
CRS
Adjust RF time M (could be earlier depending on UE implementation)
OK
Periodic/ Aperiodic CQI
Transition period
Possible no vaild CQI result.

FIG 4C

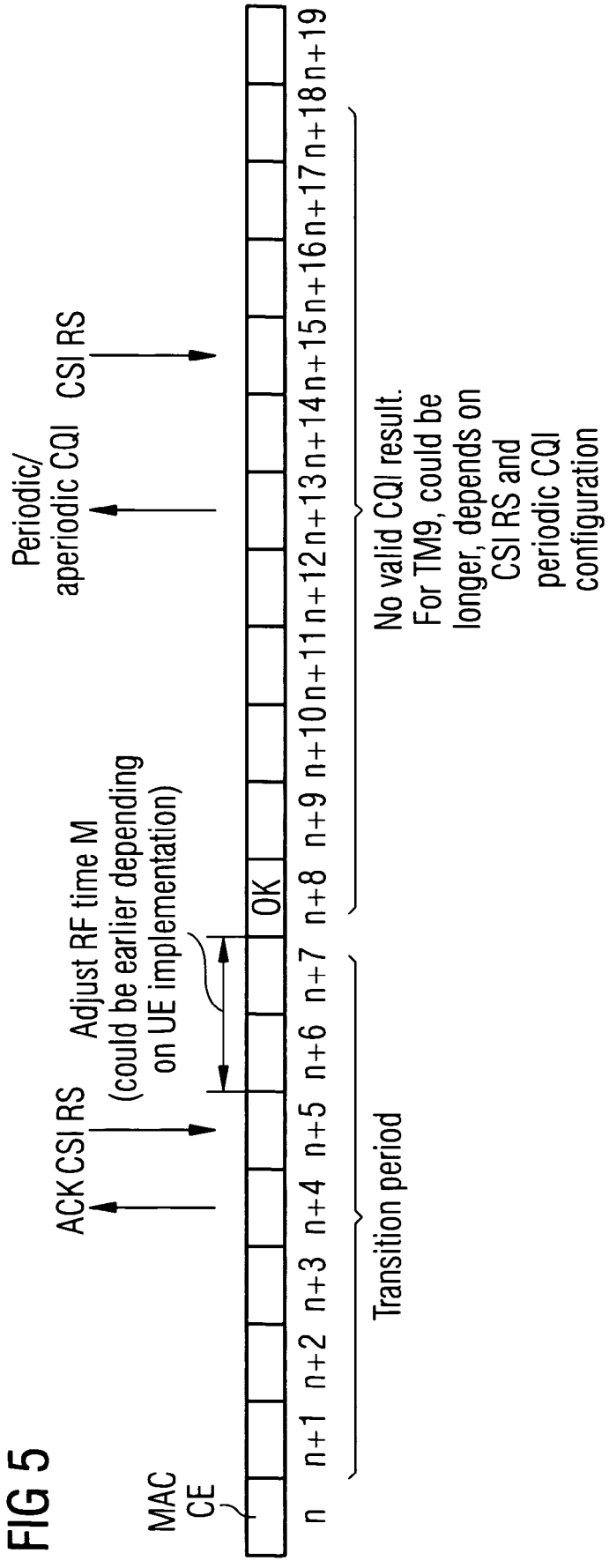
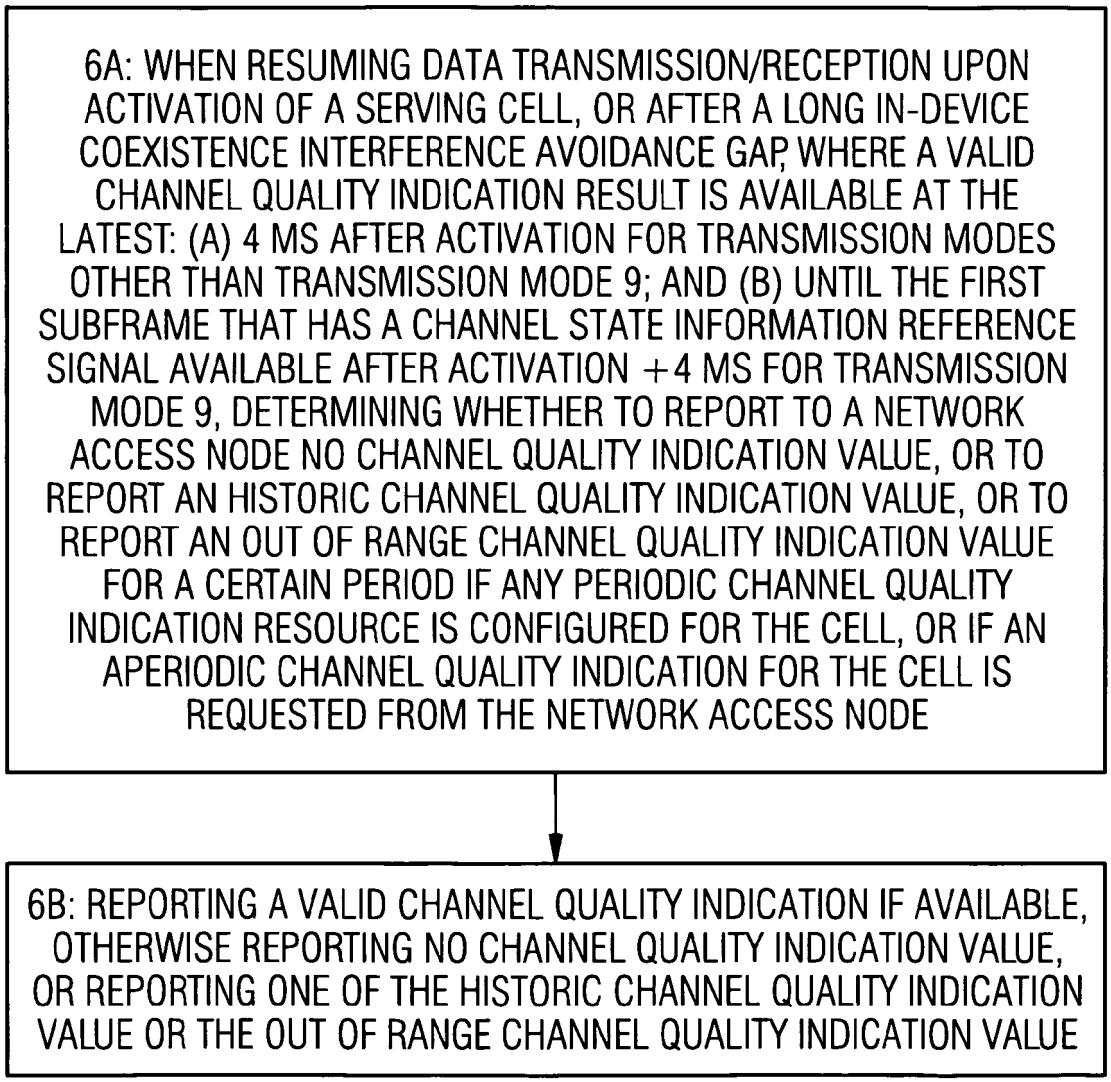

MAC CE
n
n+1
n+2
n+3
n+4
n+5
n+6
n+7
n+8
n+9
n+10
n+11
n+12
n+13
n+14
n+15
n+16
n+17
n+18
n+19
ACK CSI RS
Adjust RF time M
(could be earlier depending on UE implementation)
OK
Periodic/ aperiodic CQI
CSI RS
Transition period
No valid CQI result. For TM9, could be longer, depends on CSI RS and periodic CQI configuration

FIG 5

FIG 6


6A: WHEN RESUMING DATA TRANSMISSION/RECEPTION UPON ACTIVATION OF A SERVING CELL, OR AFTER A LONG IN-DEVICE COEXISTENCE INTERFERENCE AVOIDANCE GAP, WHERE A VALID CHANNEL QUALITY INDICATION RESULT IS AVAILABLE AT THE LATEST: (A) 4 MS AFTER ACTIVATION FOR TRANSMISSION MODES OTHER THAN TRANSMISSION MODE 9; AND (B) UNTIL THE FIRST SUBFRAME THAT HAS A CHANNEL STATE INFORMATION REFERENCE SIGNAL AVAILABLE AFTER ACTIVATION +4 MS FOR TRANSMISSION MODE 9, DETERMINING WHETHER TO REPORT TO A NETWORK ACCESS NODE NO CHANNEL QUALITY INDICATION VALUE, OR TO REPORT AN HISTORIC CHANNEL QUALITY INDICATION VALUE, OR TO REPORT AN OUT OF RANGE CHANNEL QUALITY INDICATION VALUE FOR A CERTAIN PERIOD IF ANY PERIODIC CHANNEL QUALITY INDICATION RESOURCE IS CONFIGURED FOR THE CELL, OR IF AN APERIODIC CHANNEL QUALITY INDICATION FOR THE CELL IS REQUESTED FROM THE NETWORK ACCESS NODE
6B: REPORTING A VALID CHANNEL QUALITY INDICATION IF AVAILABLE, OTHERWISE REPORTING NO CHANNEL QUALITY INDICATION VALUE, OR REPORTING ONE OF THE HISTORIC CHANNEL QUALITY INDICATION VALUE OR THE OUT OF RANGE CHANNEL QUALITY INDICATION VALUE