

FIG 1A PRIOR ART

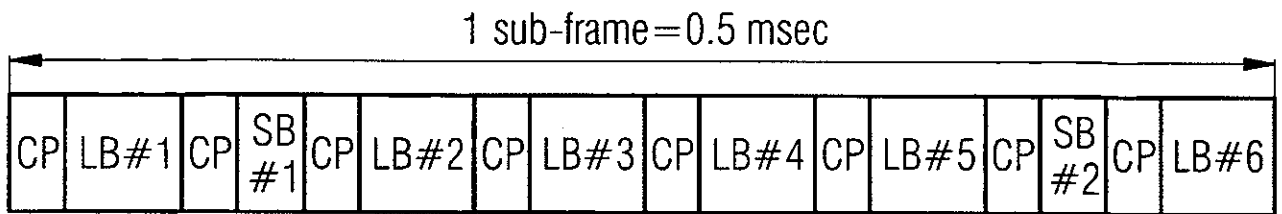


FIG 1B PRIOR ART

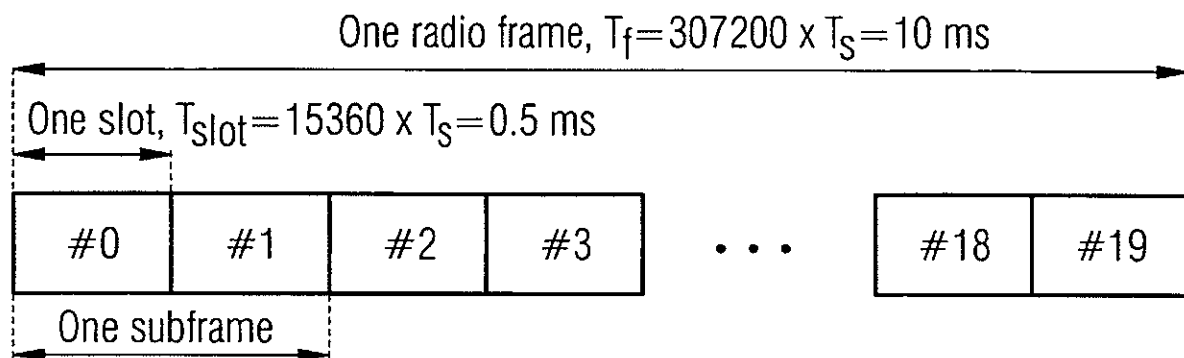


FIG 1C PRIOR ART

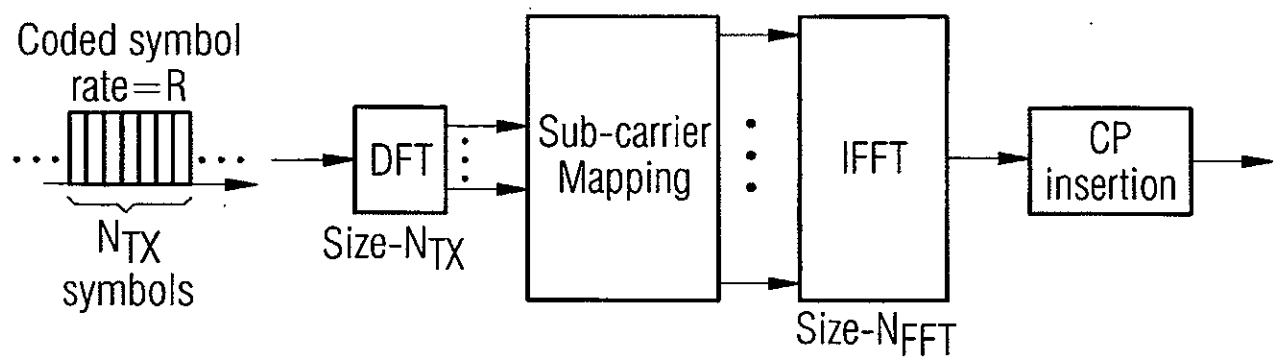


FIG 2

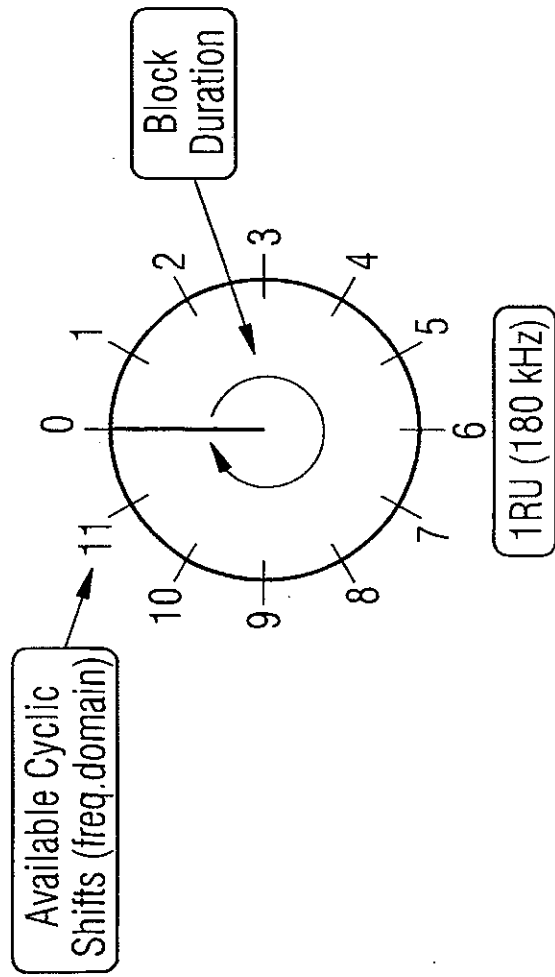


FIG 3

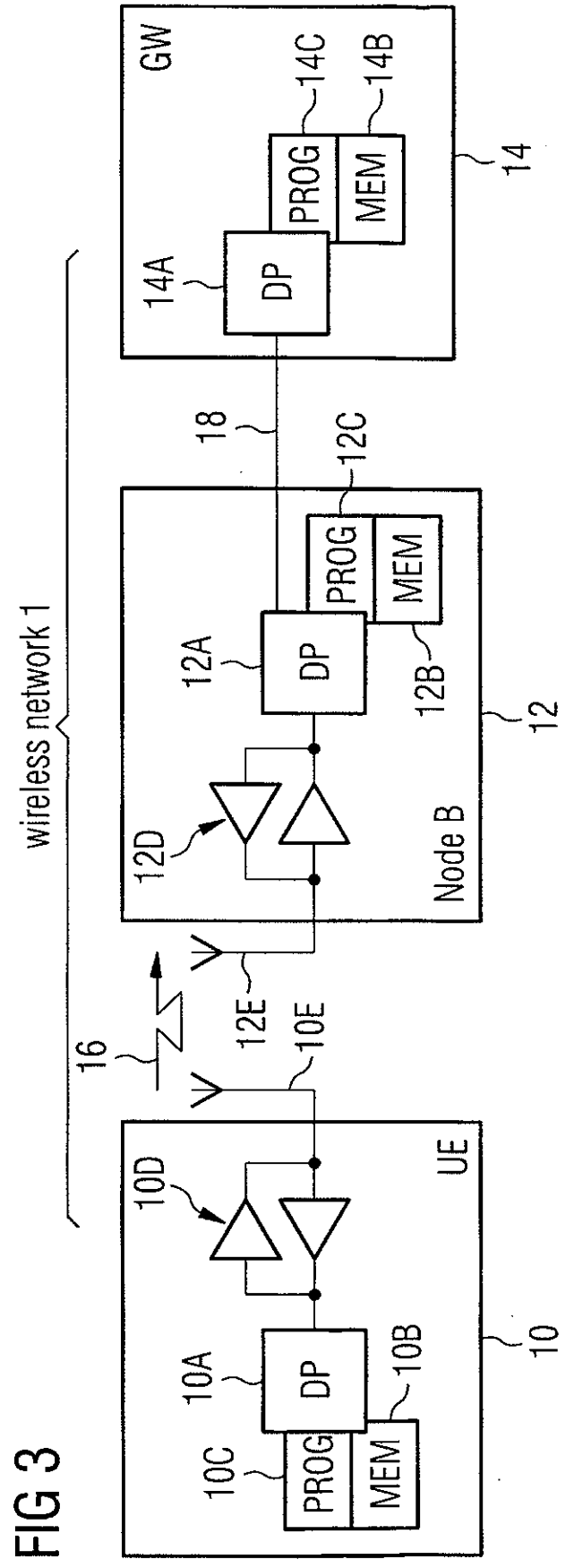


FIG 4A

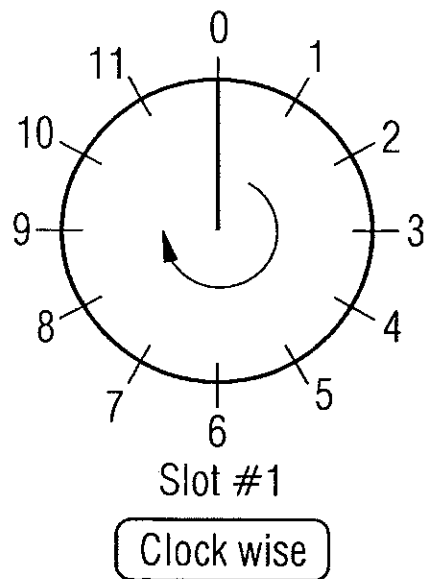


FIG 4B

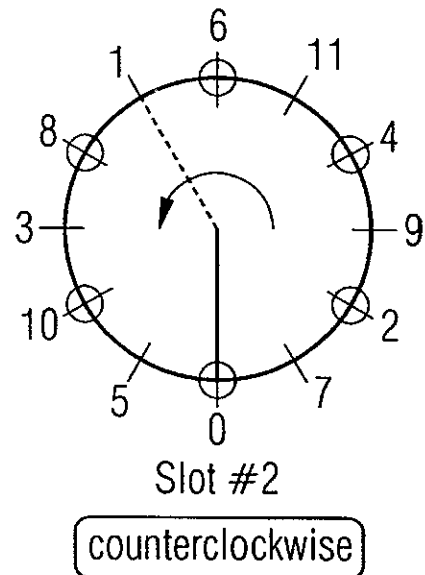


FIG 5

| Resource number | Cyclic shift slot #1 | Cyclic shift slot #2 |
|-----------------|----------------------|----------------------|
| 0               | 0                    | 6                    |
| 1               | 1                    | 11                   |
| 2               | 2                    | 4                    |
| 3               | 3                    | 9                    |
| 4               | 4                    | 2                    |
| 5               | 5                    | 7                    |
| 6               | 6                    | 0                    |
| 7               | 7                    | 5                    |
| 8               | 8                    | 10                   |
| 9               | 9                    | 3                    |
| 10              | 10                   | 8                    |
| 11              | 11                   | 1                    |

FIG 6

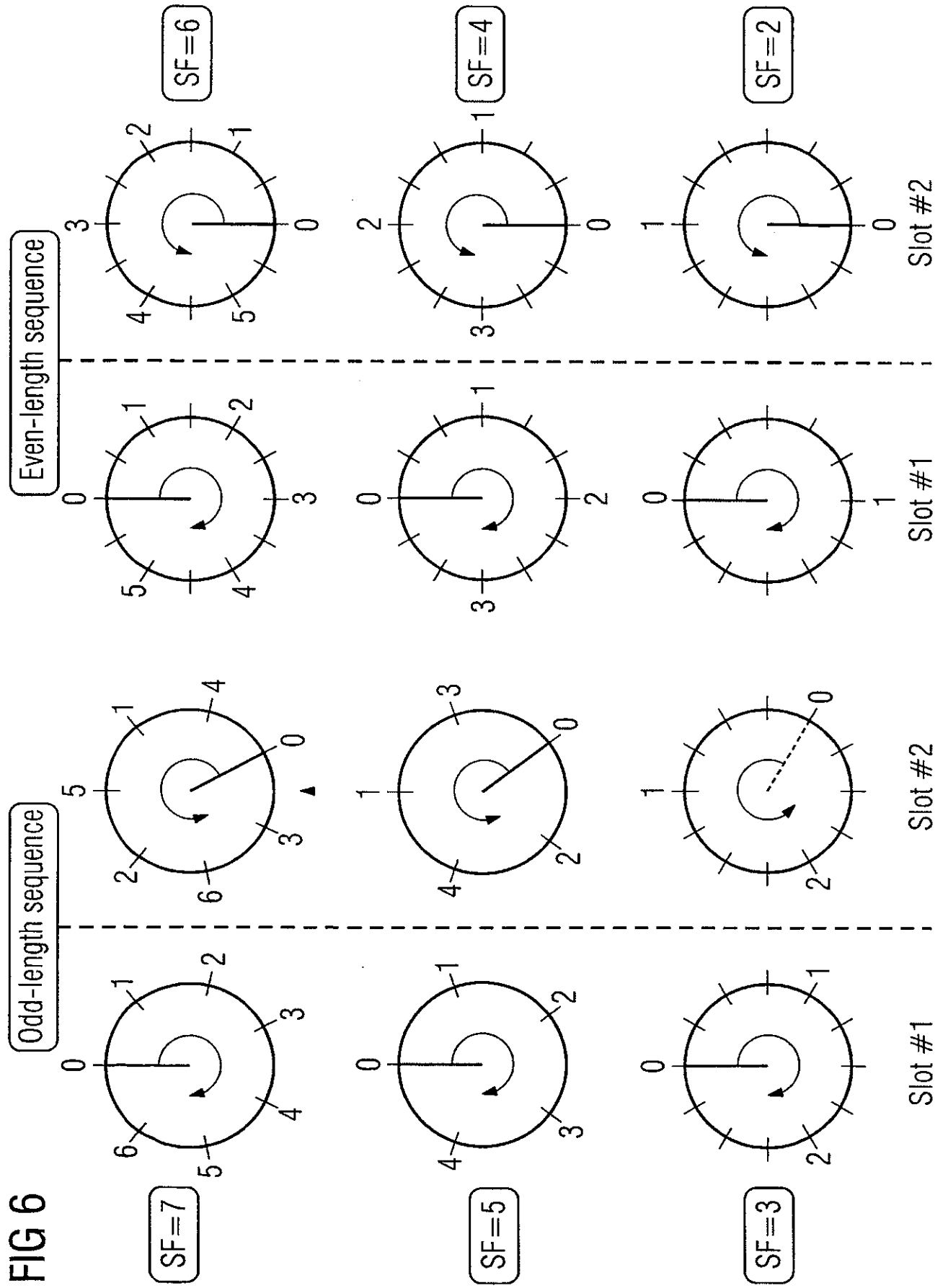


FIG 7

| Resource number | Cyclic shift<br>slot #1 | Cyclic shift<br>slot #2 |      |      |      |      |      |
|-----------------|-------------------------|-------------------------|------|------|------|------|------|
|                 |                         | SF=2                    | SF=3 | SF=4 | SF=5 | SF=6 | SF=7 |
| 0               | 0                       | 1                       | 1    | 2    | 1    | 3    | 5    |
| 1               | 1                       | 0                       | 0    | 1    | 3    | 2    | 1    |
| 2               | 2                       | -                       | 2    | 0    | 0    | 1    | 4    |
| 3               | 3                       | -                       | -    | 3    | 2    | 0    | 0    |
| 4               | 4                       | -                       | -    | -    | 4    | 5    | 3    |
| 5               | 5                       | -                       | -    | -    | -    | 4    | 6    |
| 6               | 6                       | -                       | -    | -    | -    | -    | 2    |

FIG 8 PRIOR ART

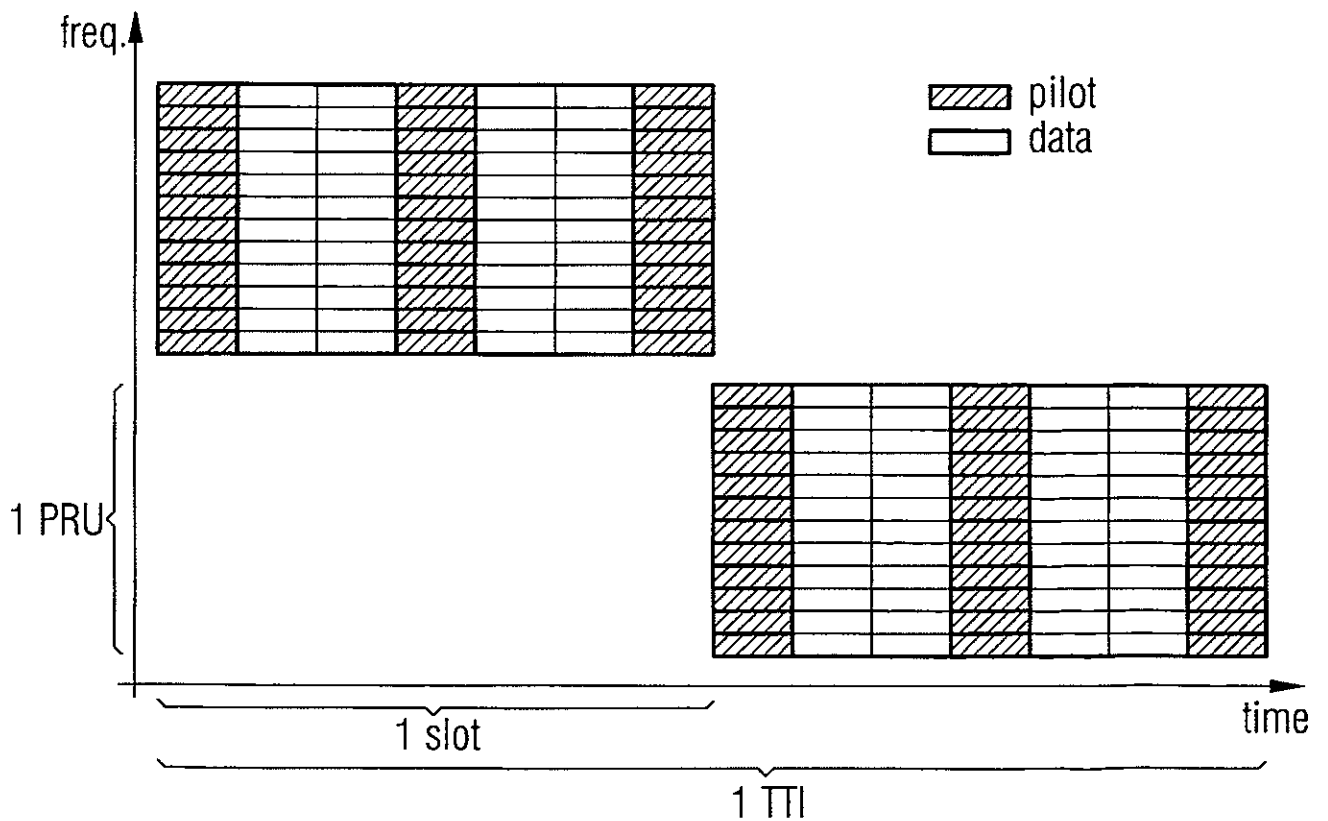


FIG 9

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| Data Slot #1 |                  |    |    |   | Slot #2          |    |   |   |                                  |
|--------------|------------------|----|----|---|------------------|----|---|---|----------------------------------|
| Cyclic shift | Block-level code |    |    |   | Block-level code |    |   |   |                                  |
|              | 0                | 1  | 2  | 3 | 0                | 1  | 2 | 3 |                                  |
| 0            | 0                |    | 12 |   | 15               |    | 3 |   | 3rd ACK/NACK resource (implicit) |
| 1            |                  | 6  |    |   |                  | 11 |   |   |                                  |
| 2            | 1                |    | 13 |   | 14               |    | 2 |   |                                  |
| 3            |                  | 7  |    |   |                  | 10 |   |   |                                  |
| 4            | 2                |    | 14 |   | 13               |    | 1 |   |                                  |
| 5            |                  | 8  |    |   |                  | 9  |   |   |                                  |
| 6            | 3                |    | 15 |   | 12               |    | 0 |   |                                  |
| 7            |                  | 9  |    |   |                  | 8  |   |   |                                  |
| 8            | 4                |    | 16 |   | 17               |    | 5 |   |                                  |
| 9            |                  | 10 |    |   |                  | 7  |   |   |                                  |
| 10           | 5                |    | 17 |   | 16               |    | 4 |   |                                  |
| 11           |                  | 11 |    |   |                  | 6  |   |   |                                  |

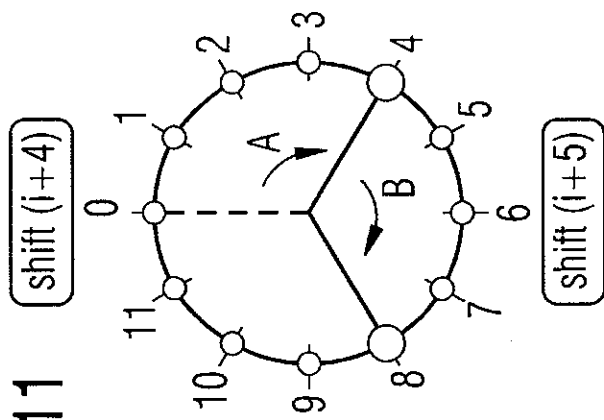
  

| Pilot Slot #1 |                  |    |    | Slot #2          |   |    |  |
|---------------|------------------|----|----|------------------|---|----|--|
| Cyclic shift  | Block-level code |    |    | Block-level code |   |    |  |
|               | 0                | 1  | 2  | 0                | 1 | 2  |  |
| 0             | 0                |    | 12 |                  | 3 | 15 |  |
| 1             |                  | 6  |    | 11               |   |    |  |
| 2             | 1                |    | 13 |                  | 2 | 14 |  |
| 3             |                  | 7  |    | 10               |   |    |  |
| 4             | 2                |    | 14 |                  | 1 | 13 |  |
| 5             |                  | 8  |    | 9                |   |    |  |
| 6             | 3                |    | 15 |                  | 0 | 12 |  |
| 7             |                  | 9  |    | 8                |   |    |  |
| 8             | 4                |    | 16 |                  | 5 | 17 |  |
| 9             |                  | 10 |    | 7                |   |    |  |
| 10            | 5                |    | 17 |                  | 4 | 16 |  |
| 11            |                  | 11 |    | 6                |   |    |  |

FIG 10

| cell-specific<br>permutation | TII index |     |     |     |     |     |     |     |     |     |      |      |
|------------------------------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
|                              | i         | i+1 | i+2 | i+3 | i+4 | i+5 | i+6 | i+7 | i+8 | i+9 | i+10 | i+11 |
| 1                            | 0         | 1   | 3   | 6   | 10  | 3   | 9   | 4   | 0   | 9   | 0    | 1    |
| 2                            | 1         | 4   | 9   | 4   | 1   | 0   | 1   | 4   | 9   | 4   | 1    | 4    |
| 3                            | 2         | 7   | 3   | 2   | 4   | 8   | 4   | 3   | 5   | 10  | 2    | 7    |
| 4                            | 3         | 10  | 9   | 11  | 6   | 4   | 7   | 3   | 2   | 5   | 3    | 10   |
| 5                            | 4         | 1   | 2   | 8   | 8   | 11  | 9   | 1   | 10  | 11  | 4    | 1    |
| 6                            | 5         | 4   | 8   | 6   | 11  | 8   | 1   | 1   | 7   | 6   | 5    | 4    |
| 7                            | 6         | 6   | 1   | 2   | 0   | 2   | 2   | 11  | 2   | 0   | 6    | 6    |
| 8                            | 7         | 9   | 7   | 0   | 3   | 11  | 6   | 11  | 11  | 7   | 7    | 9    |
| 9                            | 8         | 0   | 0   | 9   | 5   | 6   | 8   | 9   | 7   | 1   | 8    | 0    |
| 10                           | 9         | 3   | 6   | 6   | 7   | 2   | 11  | 9   | 4   | 8   | 9    | 3    |
| 11                           | 10        | 6   | 0   | 4   | 10  | 10  | 2   | 8   | 0   | 2   | 10   | 6    |
| 12                           | 11        | 9   | 6   | 2   | 1   | 7   | 6   | 8   | 9   | 9   | 11   | 9    |

FIG 11



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FIG 12

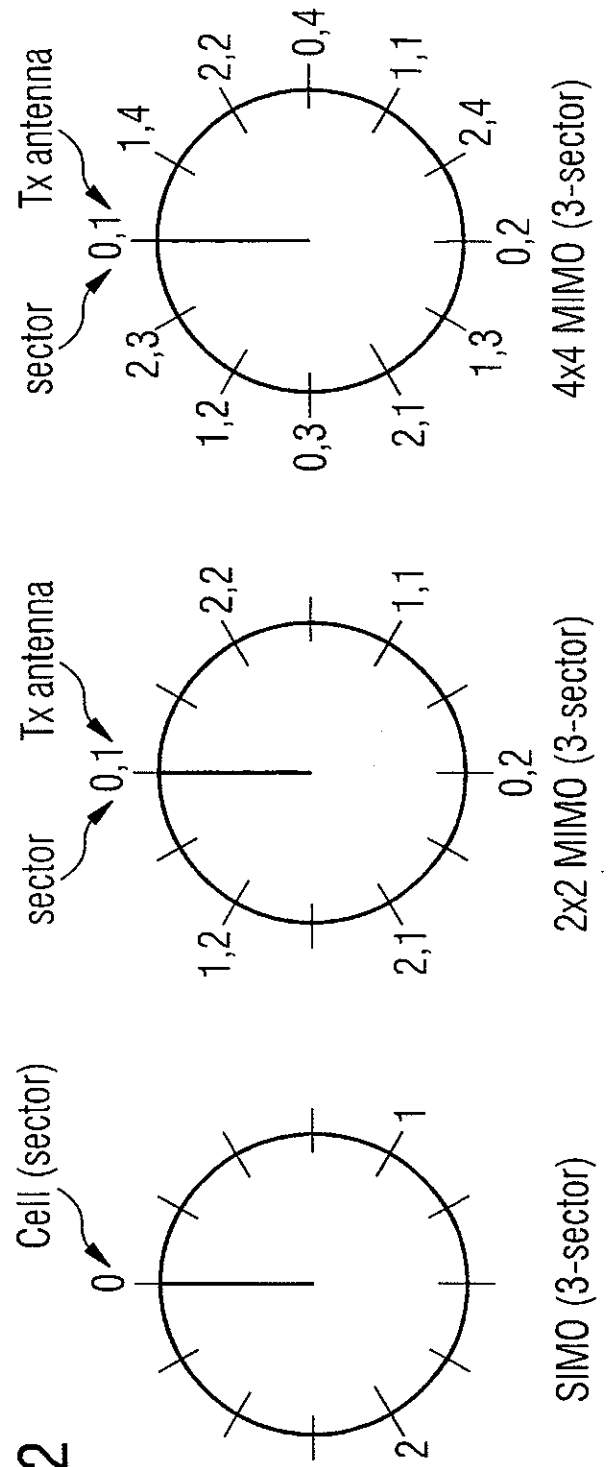


FIG 13

| Cyclic shift resource | Slot #1 |     |     |     |     |     |     |
|-----------------------|---------|-----|-----|-----|-----|-----|-----|
|                       | LB1     | LB2 | LB3 | LB4 | LB5 | LB6 | LB7 |
| 0                     | 0       | 0   | 0   | 0   | 0   | 0   | 0   |
| 1                     | 1       | 3   | 5   | 7   | 9   | 11  | 6   |
| 2                     | 2       | 2   | 2   | 2   | 2   | 2   | 1   |
| 3                     | 3       | 5   | 7   | 9   | 11  | 1   | 7   |
| 4                     | 4       | 4   | 4   | 4   | 4   | 4   | 2   |
| 5                     | 5       | 7   | 9   | 11  | 1   | 3   | 8   |
| 6                     | 6       | 6   | 6   | 6   | 6   | 6   | 3   |
| 7                     | 7       | 9   | 11  | 1   | 3   | 5   | 9   |
| 8                     | 8       | 8   | 8   | 8   | 8   | 8   | 4   |
| 9                     | 9       | 11  | 1   | 3   | 5   | 7   | 10  |
| 10                    | 10      | 10  | 10  | 10  | 10  | 10  | 5   |
| 11                    | 11      | 1   | 3   | 5   | 7   | 9   | 11  |

FIG 14

| m <sub>LB</sub> | Slot #1 |     |     |     |     |     |     |
|-----------------|---------|-----|-----|-----|-----|-----|-----|
|                 | LB1     | LB2 | LB3 | LB4 | LB5 | LB6 | LB7 |
| 0               | 0       | 2   | 1   | 2   | 3   | 3   | 4   |
| 0               | 0       | 2   | 1   | 2   | 3   | 3   | 4   |

ACK/NACK

CQI

Reference signal LB

Information LB

FIG 15

|             |             | Slot1 |      |      |      |      |
|-------------|-------------|-------|------|------|------|------|
| CS resource | Parameter a | mLB0  | mLB1 | mLB2 | mLB3 | mLB4 |
| 0           | 0           | 0     | 0    | 0    | 0    | 0    |
| 0           | 1           | 1     | 1    | 1    | 1    | 1    |
| 1           | 0           | 6     | 2    | 6    | 10   | 6    |
| 1           | 1           | 7     | 3    | 7    | 11   | 7    |
| 2           | 0           | 4     | 4    | 4    | 4    | 2    |
| 2           | 1           | 5     | 5    | 5    | 5    | 3    |
| 3           | 0           | 10    | 6    | 10   | 2    | 8    |
| 3           | 1           | 11    | 7    | 11   | 3    | 9    |
| 4           | 0           | 2     | 8    | 8    | 8    | 4    |
| 4           | 1           | 3     | 9    | 9    | 9    | 5    |
| 5           | 0           | 8     | 10   | 2    | 6    | 10   |
| 5           | 1           | 9     | 11   | 3    | 7    | 11   |

FIG 16

|       |  | Slot1 |     |     |     |     |     |     |
|-------|--|-------|-----|-----|-----|-----|-----|-----|
| Cell: |  | LB1   | LB2 | LB3 | LB4 | LB5 | LB6 | LB7 |
| 0     |  | 1     | 7   | 8   | 9   | 1   | 9   | 4   |
| 1     |  | 8     | 4   | 3   | 10  | 4   | 8   | 11  |
| 2     |  | 2     | 9   | 4   | 8   | 7   | 2   | 2   |
| 3     |  | 4     | 1   | 6   | 2   | 6   | 11  | 0   |
| 4     |  | 7     | 0   | 2   | 11  | 3   | 5   | 9   |
| 5     |  | 3     | 11  | 10  | 1   | 9   | 4   | 7   |
| 6     |  | 6     | 3   | 1   | 5   | 8   | 0   | 10  |
| 7     |  | 10    | 5   | 7   | 7   | 5   | 7   | 3   |
| 8     |  | 5     | 8   | 5   | 6   | 0   | 6   | 8   |
| 9     |  | 9     | 10  | 9   | 4   | 10  | 1   | 6   |
| 10    |  | 0     | 6   | 0   | 0   | 2   | 10  | 1   |
| 11    |  | 11    | 2   | 11  | 3   | 11  | 3   | 5   |

FIG 17

