





















## Occupied Bandwidth

| Mode       | LTE Band 2 : 99%OBW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
|------------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BW         | 1.4MHz                   |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | QPSK                     | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM |
| Lowest CH  | 1.09                     | 1.09  | 2.71  | 2.72  | 4.49  | 4.50  | 9.03  | 8.99  | 13.46 | 13.46 | 18.50 | 18.54 |
| Middle CH  | 1.09                     | 1.09  | 2.72  | 2.72  | 4.50  | 4.50  | 9.07  | 9.01  | 13.46 | 13.49 | 18.38 | 18.26 |
| Highest CH | 1.09                     | 1.09  | 2.74  | 2.73  | 4.49  | 4.50  | 9.05  | 9.03  | 13.40 | 13.40 | 18.30 | 18.38 |
| Mode       | LTE Band 2 : 99%OBW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
| BW         | 1.4MHz                   |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | 64QAM                    |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | 1.09                     |       | 2.72  |       | 4.50  |       | 9.05  |       | 13.43 |       | 18.30 |       |
| Middle CH  | 1.09                     |       | 2.72  |       | 4.54  |       | 9.01  |       | 13.43 |       | 18.46 |       |
| Highest CH | 1.09                     |       | 2.72  |       | 4.51  |       | 9.13  |       | 13.46 |       | 18.42 |       |

| Mode       | LTE Band 4 : 99%OBW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
|------------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BW         | 1.4MHz                   |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | QPSK                     | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM |
| Lowest CH  | 1.09                     | 1.09  | 2.72  | 2.74  | 4.50  | 4.49  | 9.07  | 9.01  | 13.43 | 13.37 | 18.26 | 18.46 |
| Middle CH  | 1.09                     | 1.09  | 2.72  | 2.73  | 4.49  | 4.52  | 9.05  | 9.03  | 13.46 | 13.43 | 18.30 | 18.22 |
| Highest CH | 1.09                     | 1.09  | 2.71  | 2.70  | 4.49  | 4.50  | 9.11  | 9.03  | 13.46 | 13.40 | 18.34 | 18.22 |
| Mode       | LTE Band 4 : 99%OBW(MHz) |       |       |       |       |       |       |       |       |       |       |       |
| BW         | 1.4MHz                   |       | 3MHz  |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | 64QAM                    |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | 1.09                     |       | 2.73  |       | 4.48  |       | 9.03  |       | 13.46 |       | 18.34 |       |
| Middle CH  | 1.09                     |       | 2.72  |       | 4.52  |       | 9.03  |       | 13.43 |       | 18.30 |       |
| Highest CH | 1.10                     |       | 2.72  |       | 4.48  |       | 8.99  |       | 13.49 |       | 18.42 |       |

| Mode       | LTE Band 5 : 99%OBW(MHz) |       |      |       |      |       |       |       |        |       |       |       |
|------------|--------------------------|-------|------|-------|------|-------|-------|-------|--------|-------|-------|-------|
| BW         | 1.4MHz                   |       | 3MHz |       | 5MHz |       | 10MHz |       | 1.4MHz | 3MHz  | 5MHz  | 10MHz |
| Mod.       | QPSK                     | 16QAM | QPSK | 16QAM | QPSK | 16QAM | QPSK  | 16QAM | 64QAM  | 64QAM | 64QAM | 64QAM |
| Lowest CH  | 1.09                     | 1.09  | 2.72 | 2.72  | 4.51 | 4.48  | 9.03  | 9.01  | 1.09   | 2.72  | 4.49  | 9.01  |
| Middle CH  | 1.09                     | 1.10  | 2.72 | 2.72  | 4.48 | 4.49  | 9.03  | 9.01  | 1.09   | 2.73  | 4.50  | 9.07  |
| Highest CH | 1.09                     | 1.09  | 2.72 | 2.72  | 4.50 | 4.50  | 9.03  | 9.03  | 1.09   | 2.73  | 4.49  | 9.03  |



| Mode       | LTE Band 7 : 99%OBW(MHz) |       |      |       |       |       |       |       |       |       |       |       |
|------------|--------------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BW         | 1.4MHz                   |       | 3MHz |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | QPSK                     | 16QAM | QPSK | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM |
| Lowest CH  | -                        | -     | -    | -     | 4.49  | 4.52  | 9.01  | 9.03  | 13.46 | 13.43 | 18.34 | 18.34 |
| Middle CH  | -                        | -     | -    | -     | 4.50  | 4.51  | 9.05  | 9.03  | 13.40 | 13.43 | 18.18 | 18.26 |
| Highest CH | -                        | -     | -    | -     | 4.50  | 4.50  | 9.01  | 9.01  | 13.40 | 13.46 | 18.30 | 18.54 |
| Mode       | LTE Band 7 : 99%OBW(MHz) |       |      |       |       |       |       |       |       |       |       |       |
| BW         | -                        |       | -    |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | -                        | -     | -    | -     | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | -                        | -     | -    | -     | 4.51  |       | 9.05  |       | 13.43 |       | 18.38 |       |
| Middle CH  | -                        | -     | -    | -     | 4.49  |       | 9.05  |       | 13.40 |       | 18.38 |       |
| Highest CH | -                        | -     | -    | -     | 4.50  |       | 9.01  |       | 13.40 |       | 18.34 |       |

| Mode       | LTE Band 38 : 99%OBW(MHz) |       |      |       |       |       |       |       |       |       |       |       |
|------------|---------------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| BW         | 1.4MHz                    |       | 3MHz |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | QPSK                      | 16QAM | QPSK | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM | QPSK  | 16QAM |
| Lowest CH  | -                         | -     | -    | -     | 4.52  | 4.49  | 8.99  | 8.99  | 13.37 | 13.43 | 18.34 | 18.50 |
| Middle CH  | -                         | -     | -    | -     | 4.48  | 4.50  | 8.99  | 9.01  | 13.49 | 13.43 | 18.50 | 18.30 |
| Highest CH | -                         | -     | -    | -     | 4.49  | 4.49  | 9.05  | 9.01  | 13.46 | 13.46 | 18.14 | 18.34 |
| Mode       | LTE Band 38 : 99%OBW(MHz) |       |      |       |       |       |       |       |       |       |       |       |
| BW         | -                         |       | -    |       | 5MHz  |       | 10MHz |       | 15MHz |       | 20MHz |       |
| Mod.       | -                         | -     | -    | -     | 64QAM |       | 64QAM |       | 64QAM |       | 64QAM |       |
| Lowest CH  | -                         | -     | -    | -     | 4.49  |       | 9.05  |       | 13.40 |       | 18.42 |       |
| Middle CH  | -                         | -     | -    | -     | 4.50  |       | 8.95  |       | 13.40 |       | 18.18 |       |
| Highest CH | -                         | -     | -    | -     | 4.49  |       | 9.01  |       | 13.43 |       | 18.34 |       |



## For CA

| Mode       | LTE Band 7 : 99%OBW(MHz) |             |             |             |
|------------|--------------------------|-------------|-------------|-------------|
| QPSK       |                          |             |             |             |
| BW         | 10MHz+20MHz              | 15MHz+5MHz  | 15MHz+10MHz | 15MHz+15MHz |
| Lowest CH  | 27.99                    | -           | 23.48       | 28.65       |
| Middle CH  | 27.93                    | -           | 23.43       | 28.47       |
| Highest CH | 27.99                    | -           | 23.38       | 28.65       |
| BW         | 15MHz+20MHz              | 20MHz+10MHz | 20MHz+15MHz | 20MHz+20MHz |
| Lowest CH  | 32.87                    | 28.05       | 32.87       | 37.48       |
| Middle CH  | 32.59                    | 27.93       | 32.66       | 37.48       |
| Highest CH | 32.73                    | 28.11       | 33.01       | 37.64       |

| Mode       | LTE Band 7 : 99%OBW(MHz) |             |             |             |
|------------|--------------------------|-------------|-------------|-------------|
| 16QAM      |                          |             |             |             |
| BW         | 10MHz+20MHz              | 15MHz+5MHz  | 15MHz+10MHz | 15MHz+15MHz |
| Lowest CH  | 28.11                    | -           | 23.58       | 28.53       |
| Middle CH  | 27.93                    | -           | 23.43       | 28.53       |
| Highest CH | 27.93                    | -           | 23.48       | 28.59       |
| BW         | 15MHz+20MHz              | 20MHz+10MHz | 20MHz+15MHz | 20MHz+20MHz |
| Lowest CH  | 32.73                    | 28.05       | 32.94       | 37.88       |
| Middle CH  | 32.59                    | 28.05       | 32.66       | 37.56       |
| Highest CH | 32.87                    | 27.99       | 32.87       | 37.64       |

| Mode       | LTE Band 7 : 99%OBW(MHz) |             |             |             |
|------------|--------------------------|-------------|-------------|-------------|
| 64QAM      |                          |             |             |             |
| BW         | 10MHz+20MHz              | 15MHz+5MHz  | 15MHz+10MHz | 15MHz+15MHz |
| Lowest CH  | 27.87                    | -           | 23.48       | 28.59       |
| Middle CH  | 27.81                    | -           | 23.33       | 28.47       |
| Highest CH | 27.87                    | -           | 23.48       | 28.71       |
| BW         | 15MHz+20MHz              | 20MHz+10MHz | 20MHz+15MHz | 20MHz+20MHz |
| Lowest CH  | 32.87                    | 27.99       | 32.80       | 37.56       |
| Middle CH  | 32.59                    | 27.87       | 32.66       | 37.48       |
| Highest CH | 32.87                    | 28.05       | 32.80       | 37.56       |



| Mode       | LTE Band 38 : 99%OBW(MHz) |             |             |             |
|------------|---------------------------|-------------|-------------|-------------|
| Mod.       | QPSK                      |             | 16QAM       |             |
| BW         | 15MHz+15MHz               | 20MHz+20MHz | 15MHz+15MHz | 20MHz+20MHz |
| Lowest CH  | 28.65                     | 37.96       | 28.71       | 37.80       |
| Middle CH  | 28.77                     | 37.88       | 28.65       | 37.88       |
| Highest CH | 28.65                     | 37.80       | 28.59       | 37.96       |

| Mode       | LTE Band 38 : 99%OBW(MHz) |             |   |    |
|------------|---------------------------|-------------|---|----|
| Mod.       | 64QAM                     |             | - |    |
| BW         | 15MHz+15MHz               | 20MHz+20MHz | - | -  |
| Lowest CH  | 28.65                     | 37.80       | - | -  |
| Middle CH  | 28.65                     | 37.80       | - | -  |
| Highest CH | 28.59                     | 37.80       | - | -- |



















