

## 4.1.2 Max data rate without *ue-CategoryDL* and *ue-CategoryUL*

For NR, the approximate data rate for a given number of aggregated carriers in a band or band combination is computed as follows.

$$\text{data rate (in Mbps)} = 10^{-6} \cdot \sum_{j=1}^J \left( v_{\text{Layers}}^{(j)} \cdot Q_m^{(j)} \cdot f^{(j)} \cdot R_{\text{max}} \cdot \frac{N_{\text{PRB}}^{BW^{(j)},\mu} \cdot 12}{T_s^\mu} \cdot (1 - OH^{(j)}) \right)$$

wherein

J is the number of aggregated component carriers in a band or band combination

$R_{\text{max}} = 948/1024$

For the j-th CC,

$v_{\text{Layers}}^{(j)}$  is the maximum number of layers

$Q_m^{(j)}$  is the maximum modulation order

$f^{(j)}$  is the scaling factor

The scaling factor can take the values 1, 0.8, 0.75, and 0.4.

$f^{(j)}$  is signalled per band and per band per band combination

$\mu$  is the numerology (as defined in TS 38.211 [6])

$T_s^\mu$  is the average OFDM symbol duration in a subframe for numerology  $\mu$ , i.e.

$$T_s^\mu = \frac{10^{-3}}{14 \cdot 2^\mu} \text{ . Note that normal cyclic prefix is assumed.}$$

$N_{\text{PRB}}^{BW^{(j)},\mu}$  is the maximum RB allocation in bandwidth  $BW^{(j)}$  with numerology  $\mu$ , as defined in 5.3 TS 38.101-1 [2] and 5.3 TS 38.101-2 [3], where  $BW^{(j)}$  is the UE supported maximum bandwidth in the given band or band combination.

$OH^{(j)}$  is the overhead and takes the following values

[0.14], for frequency range FR1 for DL

[0.18], for frequency range FR2 for DL

[0.08], for frequency range FR1 for UL

[0.10], for frequency range FR2 for UL

NOTE: Only one of the UL or SUL carriers (the one with the higher data rate) is counted for a cell operating SUL.

The approximate maximum data rate can be computed as the maximum of the approximate data rates computed using the above formula for each of the supported band or band combinations.