network, a reasonable choice of the group size is \( R=3 \). At time instant \( n \), the APs \( \beta \) that belong to group \( g_\beta[\kappa, n] \in \mathcal{G} \) may access idle chunk \((\kappa, n)\) in a predefined cyclic manner, determined by [21]

\[
g_\beta[\kappa, n] = \text{mod}(n + \kappa, R), \quad \in \mathcal{G}.
\]  

The term \( g_\beta[\kappa, n] \in \mathcal{G} \) determines whether or not a chunk \((\kappa, n)\) may be accessed by AP \( \beta \). Hence, (14) establishes a schedule to access idle chunks, i.e. chunks that are not protected by transmitting the BB. Thus, the CESAR mechanism ensures that at a particular time instant \( k \) only one group of APs may access idle resources, thereby mitigating the contention problem. Cyclicly shifting the AP groups in (14) over time ensures that after \( R \) slots an AP is granted access to all chunk that are sensed idle. The APs are numbered such that an AP is associated to its group by the relation \( \mathcal{G} = \{ \text{mod}(\beta, R) \} \). Then, the AP \( \beta \) may allocate chunk \((\kappa, n)\) to user \( \nu \) only if both of the following conditions hold:

1) \( \text{mod}(\beta, R)=\text{mod}(n + k, R) \) indicates that AP \( \beta \) may access chunk \((\kappa, n)\).

2) The threshold test (11) applied on chunk \((\kappa, n)\) holds true.

The second condition indicates that chunks already reserved by transmission of a BB signal retain unrestricted access to a given frequency resource unit \( k \), and continue to serve the users that have reserved those chunks. CESAR [21] and BB protocol for interference coordination in optical wireless network perfectly complement each other; the former mitigates collisions due to simultaneous access in contention through (14), while the latter facilitates interference aware selection of chunks reserved by transmitting the BB signal.

C. Avoiding CCI from preestablished links

The mechanism discussed earlier focussed on how an AP can determine the set of chunks that it is permitted to use so as to limit the CCI caused to users served by the neighbouring APs to a threshold value. However, UE \( \nu \) also suffers from CCI originating from pre-established links, which make no effort to limit the CCI caused to the newly entering link. Hence, the minimum SINR target may not be met for the cell-edge user served by the tagged AP if the user is served using the chunks that are in use in the neighbouring cell. To avoid scheduling UE \( \nu \) on a chunk where the CCI caused by pre-established would cause the minimum SINR target not to be met, an a priori estimate of SINR \( \hat{\gamma}_\nu[\kappa, n] \) is made as follows

\[
\hat{\gamma}_\nu[\kappa, n] = \frac{R^d_{\nu}[\kappa, n]}{I^d_{\nu}[\kappa, n - 1] + N}
\]  

where \( I^d_{\nu}[\kappa, n - 1] \) is the interference observed on the chunk \((\kappa, n-1)\). To ensure that the collisions are mitigated, the chunk can be assigned to user \( \nu \) only if

\[
\hat{\gamma}_\nu[\kappa, n] \geq \Gamma_{\text{min}}.
\]  

This information can be transmitted to the serving AP either using piggyback signalling or via dedicated control channel.