

**Agenda Item:** 15.1  
**Source:** CSELT  
**Title:** Draft proposal for Admission Control strategy  
**Document for:** Discussion and Decision

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This document contains a proposed Admission Control algorithm based on the actual cell load and on the required service criteria. If the UE realizes that there is no cell available for the provision of the required service, the UE does not attempt to access the network. This would ensure that the UE avoids wasting power affecting the quality of other communications. In this case the UE can inform the best serving BS of the situation and a re-negotiation of resources can be initiated.

If the call set up is possible, the proposed algorithm ensures that the UE always establishes the call on the most suitable cell, thus minimizing the interference to other users. In this case, the algorithm proposed herein can be considered as an optimisation of the cell re-selection algorithm presented in section 2.2 of TSGR2#6(99)794 (in case a RACH has to be sent to the network, i.e., at call set up).

*In the DL:*

1DL] When the UE has to require a given service to the network it evaluates whether:

$$(MAX\_T\_BS\_SEL\_tx\_p - T\_BS\_SEL\_tx\_p) > UE\_SER\_rx\_p + (BS\_SEL\_tx\_p - UE\_rx\_p) + Acc\_marg\_SER$$

where:

MAX_T_BS_SEL_tx_p	maximum total transmitted power of the BS the UE is currently camped on (to be transmitted on the broadcast channel)
T_BS_SEL_tx_p	total transmitted power of the BS the UE is currently camped on
(BS_SEL_tx_p - UE_rx_p)	Path loss
Acc_marg_SER	suitable margin chosen by the operator which can vary depending on the service (default value: 0) (to be transmitted on the broadcast channel)
UE_SER_rx_p	target power which has to be received by the UE; it can be evaluated on the basis of the known target C/I (Carrier to Interference ratio) required by the relevant service, considering $I = UE\_rx\_p * Ort\_fact$ where Ort_fact is the orthogonality factor which depends on the scenario.

*In the UL:*

1UL] When the UE has to require a given service to the network it evaluates whether:

$$\text{MAX\_I\_rx\_BS} - \text{I\_rx\_BS} > \text{UE\_SER\_tx\_p} - (\text{BS\_SEL\_tx\_p} - \text{UE\_rx\_p})$$

where:

MAX_I_rx_BS	maximum total interference power accepted by the BS the UE is currently camped on (to be set by the operator and to be transmitted on the broadcast channel)
I_rx_BS	total interference power currently received by the BS (to be transmitted on the broadcast channel)
UE_SER_tx_p	power which has to be transmitted by the UE; it can be approx evaluated on the basis of the known target C/I (Carrier to Interference ratio) at the base station which is required by the relevant service, considering $I = I_{rx\_BS}$

2] If the above conditions are true, the UE can attempt a call set up in the cell it is currently camped on.

3] If at least one of the above conditions is false, the UE can not attempt a call set up in the cell it is currently camped on. Each of the remaining cells belonging to the candidate list is checked.

If none of them is compliant with the above conditions, the UE does not try any call set up and it can inform the best serving BS accordingly.