

Dresden, Germany, Nov 30th – Dec 3rd, 1999

Liaison To : TSG-R2, TSG-R4

From : TSG-R1

Title : Liaison statement on minimum UE transmit power

RAN WG1 would like to thank RAN WG4 for their liaison statement R1-99h96, LS on UE minimum power (R4-99780) and RAN WG2 to their answer to the liaison from RAN WG4 R1-99i21, LS on FDD UE minimum transmission power (R2-99g58).

RAN WG1 understands that there may be some RF scenarios where the UE should transmit at a lower power than the currently specified minimum power of the 21dBm UE classe (-44dBm) in order to avoid blocking of the Node B or loss of coverage/capacity. However it is not clear to RAN WG1 how long or frequently a UE in such scenario should effectively need to transmit at a lower power than -44dBm considering the use of inner loop power control as a result the need to compensate fast fading. Therefore it is not clear when the UE should operate in compressed mode and it might be so that the UE should use compressed mode only for some frames and not continuously. Considering that the compressed mode is under the control of the UTRAN it is expected that the UE would have to be instructed to operate in compressed mode in a continuous fashion based on reported transmit code power. This may not meet the requirements considering the dynamic behaviour due to inner loop power control and degrade the performance.

In addition to the problem of controlling the use of compressed mode, it appears also that the use of compressed mode may not significantly help. Indeed in compressed mode the UE is expected to transmit at the noise level rather than no power so that the decrease of average power is not significant. As a consequence it is expected that the compressed mode would not solve the problem.

In conclusion RAN WG1 believes that the use of compressed mode would not solve the identified problem by WG4. Additionally RANWG1 identified practical problems with the use of compressed mode. Compressed mode is indeed under the control of the UTRAN and the use of compressed mode as a solution to the limited minimum power may require some more dynamic use of compressed mode considering the dynamic behaviour of the inner loop power control and would rely on information only known to the UE. Therefore RAN WG1 believes that the compressed mode solution is not appropriate. RAN WG1 recognises the desirability of decreasing the minimum transmit power below the -44 dBm limit for all UE power classes. RAN WG1 understands however that the feasibility of this is within the scope of RAN WG4.