

Agenda item:

Source: Nokia
Title: Number of dedicated pilot bits and Tx diversity performance
Document for: Discussion

Summary:

Due to need to support low bit rate services like speech on SF 256 DL channel there is a need to reduce the number of dedicated pilot bits. As that has got implications to Tx diversity performance in general, some simulation for refined closed loop mode 2 were performed in order to get an idea how big is the effect. Simulation assumptions were:

Radio channel:	1-tap Rayleigh
UE speed:	10 km/h
TPC:	ON
Feedback bit error rate	0, 4, 10 %
N_{DP}	8, 4, 2
Channel estimation	Dedicated pilot/common pilot
Verification:	OFF
SF	256
CRC	16
Data rate	8 kbps

Table 1 shows results for case when channel estimation is done from dedicated pilot only. In case of Table 2, channel estimation is from common pilot only. Note that no verification has been used.

Table 1. Performance loss of refined mode 2 as a function of dedicated pilot bits and feedback BER when compared to having 8 pilot bits. Channel estimation is done from dedicated pilots only.

Feedback BER	# of dedicated pilot bits	
	2	4
0 %	1.9	0.5
4 %	1.8	0.5

Table 2. Performance loss of refined mode 2 as a function of dedicated pilot bits and feedback BER. Reference case is feedback BER = 0 % and # of dedicated pilot bits = 8. Channel estimation is from common pilot only.

Feedback BER	# of dedicated pilot bits		
	2	4	8
0 %	0.9	0.2	0
4 %	1.3	0.7	0.6
10 %	2.7	2.3	2.3