

TSG RAN Meeting #16
Marco Island, FL, USA, 4 - 7 June 2002

RP-020297

Title CRs (Rel-4 and Rel-5 Category A) to TR 25.943
Source TSG RAN WG4
Agenda Item 7.4.4

RAN4 Tdoc	Spec	Curr Ver	New Ver	CR	R	Cat	Ph	Title	Acronym
R4-020785	25.943	4.1.0	4.2.0	2		F	Rel-4	Correction of error in Annex A	TEI4
R4-020786	25.943	5.0.1	5.1.0	3		A	Rel-5	Correction of error in Annex A	TEI4

CHANGE REQUEST

⌘ **25.943 CR 2** ⌘ rev **-** ⌘ Current version: **4.1.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Correction of delay spread for RA model in Annex A		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI4	Date:	⌘ 17/5/2002
Category:	⌘ F	Release:	⌘ Rel-4
	Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

Reason for change:	⌘ The channel models of 25.943 were designed in a two-step process. In the first step a general channel shape was found for each environment based on COST 259 (described in Annex A of 25.943). In the second step sets of channel taps for each model were generated according to the general shapes and put these into tables. Unfortunately, an error in the normalization of the time scale for the RA model occurred in the second step by not including the non-fading path in the rms delay spread calculation. Although not a serious concern (the realism of the model did not suffer) it causes an inconsistency between the RA model and the shape described as a "simplified model" in Annex A. The difference between the two is that the RA model has an rms delay spread of 100 ns, while the shape in Annex presently has an rms delay spread of only 71 ns.
Summary of change:	⌘ The parameter $\sigma_{\tau,1}$ is changed from 0.1 μ s to 0.14 μ s. In this way the rms delay spread of the "simplified model" in Annex A will also have 100 ns delay spread. The 10-tap RA model described in the main body of the report is not changed.
Consequences if not approved:	⌘ The RA model in Clause 5 will not be consistent with the model described in Annex A.

Clauses affected:	⌘ A.3		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘ Equivalent CRs in other Releases: CR3 cat. A to 25.943 v5.0.1		

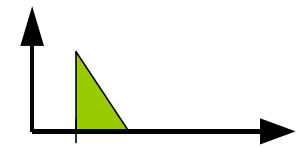
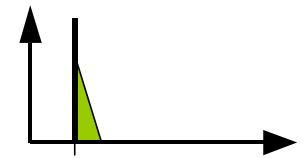
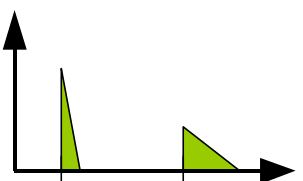
A.3 Reduced complexity models

It is possible to reduce the complexity of the COST 259 model by approximating the continuous distributions with a small number of cases, selected to be typical representations of the channel in common environments. We propose a set of models with fixed parameters as shown in Table A.3. The selected parameters correspond to the COST 207/GSM models with one important difference namely the delay spread value for the Typical Urban channel. This has been reduced to better correspond to typical measurement results.

A cluster in the models outlined here is represented by a number NP independent Rayleigh-fading paths with Classical Doppler spectrum, randomly distributed in the interval $[\tau_i, \tau_i + k \cdot \sigma_{\tau,i}]$. Preliminary assignments are NP = 20 and k = 4.

The fast fading (property 3 in Table A.2) should be included in the model as a Doppler frequency

Table A.3: Reduced complexity channel model parameters

Environment	Channel shape	Channel parameters	
Typical Urban	One exponential cluster consisting of NP Rayleigh-fading paths	NC = 1 P1 = 1 $\tau_1 = 0 \mu\text{s}$ $\sigma_{\tau,1} = 0.5 \mu\text{s}$	
Rural Area	One exponential cluster consisting of NP-1 Rayleigh-fading paths and 1 non-fading path.	NC = 1 P1 = 1 $\tau_1 = 0 \mu\text{s}$ $\sigma_{\tau,1} = 0.10.14 \mu\text{s}$ Add one deterministic (non-fading) path with: $f_D = 0.7 \cdot f_{\text{Max}}$ P2 = 0.43 $\tau_2 = 0$ in order to get Ricean fading	
Hilly Terrain	Two exponential clusters each consisting of NP/2 Rayleigh-fading paths each	NC = 2 P1 = 1 $\tau_1 = 0 \mu\text{s}$ $\sigma_{\tau,1} = 0.29 \mu\text{s}$ P2 = 0.04 $\tau_2 = 15 \mu\text{s}$ $\sigma_{\tau,2} = 1 \mu\text{s}$	

CHANGE REQUEST

⌘ **25.943 CR 3** ⌘ rev **-** ⌘ Current version: **5.0.1** ⌘

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Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Correction of delay spread for RA model in Annex A		
Source:	⌘ RAN WG4		
Work item code:	⌘ TEI4	Date:	⌘ 17/5/2002
Category:	⌘ A	Release:	⌘ Rel-5
	<i>Use <u>one</u> of the following categories:</i> F (correction) A (corresponds to a correction in an earlier release) B (addition of feature), C (functional modification of feature) D (editorial modification) Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		<i>Use <u>one</u> of the following releases:</i> 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)

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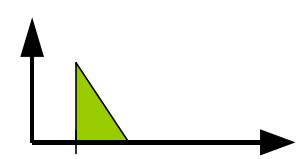
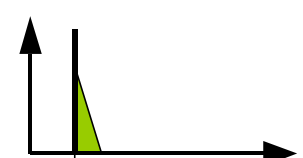
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