Consensus Discussion

Overview

- Starting from mellitz_3ck_01b_0320 proposal
- Show draft captures and edits
- Discuss and modify
- Close comments

mellitz_3ck_01b_0320 Parameter Proposal

Clause/Annex	Type	β_x	ρ_x	N	N_{bx}	ERL
162.9.3.4	Tx Host	0	0.618	800	0	TBD
162.9.4.5	Rx Host	0	0.618	800	0	TBD
162.11.3	CA	0	0.618	7000	0	TBD
163.9.1.1	Tx Chip	0	0.618	200	TBD	TBD
163.9.2.1	Rx Chip	0	0.618	200	TBD	TBD
163.10.2	Channel	0	0.618	3500	TBD	TBD
120F.3.1.1	Tx Chip	0	0.618	200	TBD	TBD
120F.3.2.1	Rx Chip	0	0.618	200	TBD	TBD
120F.4.3	Channel	0	0.618	2000	TBD	TBD
120G.3.1.3	Host/Module	0	0.618	800	0	TBD

Clause 162

151 / 266 85%

162.9.3.4 Transmitter effective return loss (ERL)

ERL of the transmitter at TP2 is computed using the procedure in 93A.5 with the values in Table 162–10. Parameters that do not appear in Table 162–10 take values from Table 162–15. The value of T_{fx} is twice the delay from TP2 to the beginning of the TP2 test fixture MDI connector being used. ~~N_{bx} is set to the value of N_b in Table 162–15.~~

Table 162–10—Transmitter and receiver ERL parameter values

Parameter	Symbol	Value	Units	
Transition time associated with a pulse	T_r	0.01	ns	
Incremental available signal loss factor	β_x	TBD	GHz	0
Permitted reflection from a transmission line external to the device under test	ρ_x	TBD	—	0.618
Length of the reflection signal	N	TBD	UI	800
Equalizer length associated with reflection signal	N_{bx}	TBD	UI	0

Transmitter ERL at TP2 shall meet Equation (162–6).

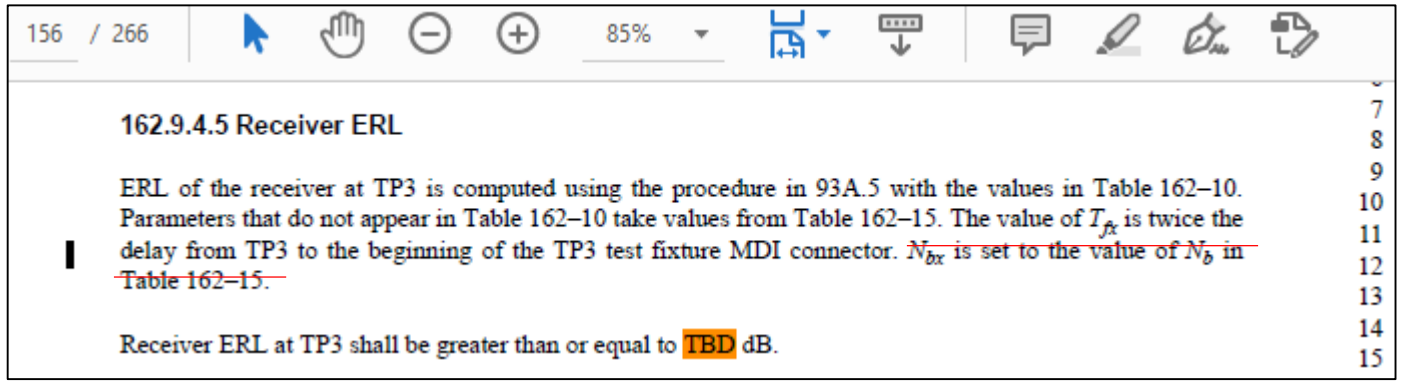
$$ERL \geq TBD \quad \text{(dB)} \qquad (162\text{–}6)$$

where

ERL	is the effective return loss in dB
v_f	is the steady-state voltage, defined in 162.9.3.1.2
$p(k)$	is the linear fit pulse at preset 1 (no equalization) (see 162.9.3.1.2)

Nb is currently 12 in table 162-15

Values in these slides are from mellitz_3ck_01b_0320 proposal



156 / 266 85%

162.9.4.5 Receiver ERL

ERL of the receiver at TP3 is computed using the procedure in 93A.5 with the values in Table 162–10. Parameters that do not appear in Table 162–10 take values from Table 162–15. The value of T_{fx} is twice the delay from TP3 to the beginning of the TP3 test fixture MDI connector. N_{bx} is set to the value of N_b in Table 162–15.

Receiver ERL at TP3 shall be greater than or equal to TBD dB.

Nb is currently 12 in table 162-15

Edited on the previous slide:

Table 162–10—Transmitter and receiver ERL parameter values

Parameter	Symbol	Value	Units	
Transition time associated with a pulse	T_r	0.01	ns	
Incremental available signal loss factor	β_x	TBD	GHz	0
Permitted reflection from a transmission line external to the device under test	ρ_x	TBD	—	0.618
Length of the reflection signal	N	TBD	UI	800
Equalizer length associated with reflection signal	N_{bx}	TBD	UI	0

Values in these slides are from mellitz_3ck_01b_0320 proposal

158 / 266 85%

162.11.3 Cable assembly ERL

ERL of the cable assembly at TP1 and at TP4 are computed using the procedure in 93A.5 with the values in Table 162–14. Parameters that do not appear in Table 162–14 take values from Table 162–15. The value of T_{fx} is twice the delay from TP1 or TP4 to the connector of the specific cable assembly test fixture. Note that test fixtures are specified in 162B.1. ~~N_{bx} is set to the value of N_b in Table 162–15.~~

Cable assembly ERL at TP1 and at TP4 shall be greater than or equal to TBD dB for cable assemblies that have a COM less than 4 dB.

162.11.4 Differential to common-mode return loss

The cable assembly differential to common-mode return loss shall meet the requirements of TBD.

Table 162–14—Cable assembly ERL parameter values

Parameter	Symbol	Value	Units	
Transition time associated with a pulse	T_r	TBD	ns	
Incremental available signal loss factor	β_x	TBD	GHz	0
Permitted reflection from a transmission line external to the device under test	ρ_x	TBD	—	0.618
Length of the reflection signal	N	TBD	UI	7000
Equalizer length associated with reflection signal	N_{bx}	TBD	UI	0

Nb is currently 12 in table 162-15

Values in these slides are from mellitz_3ck_01b_0320 proposal

Clause 163

85%

163.9.1.1 Transmitter ERL

ERL of the transmitter at TP0a is computed using the procedure in 93A.5 with the values in Table 163–6. Parameters that do not appear in Table 163–6 take values from Table 163–10. The value of T_{fx} is twice the delay from TP0 to TP0a. ~~N_{bx} is set to the value of N_b in Table 163–10.~~

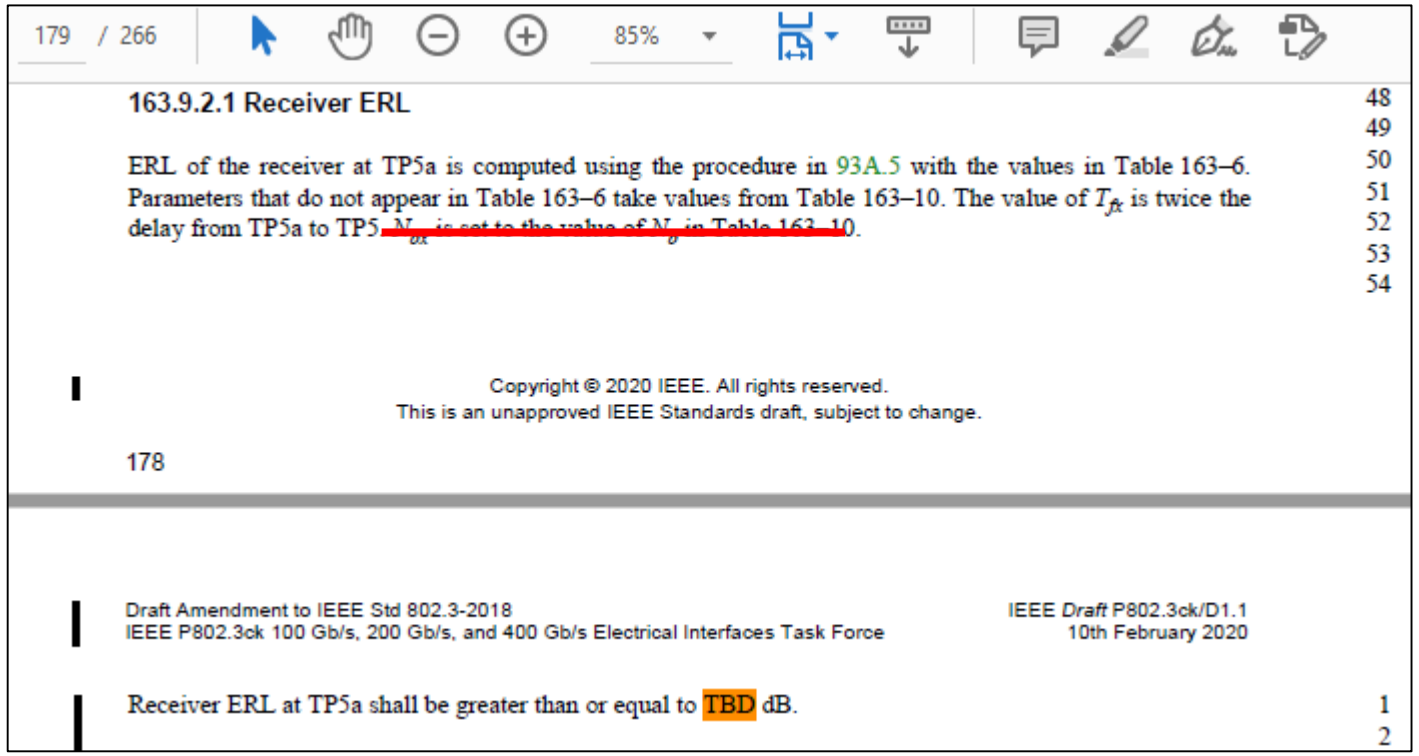
Table 163–6—Transmitter and receiver ERL parameter values

Parameter	Symbol	Value	Units
Transition time associated with a pulse	T_r	0.01	ns
Incremental available signal loss factor	β_x	~~1.7~~ 0	GHz
Permitted reflection from a transmission line external to the device under test	ρ_x	~~0.32~~ 0.618	—
Length of the reflection signal	N	200	UI

Add row for Nbx similar to Table 162-10 TBD

Transmitter ERL at TP0a shall be greater than or equal to TBD dB.

Values in these slides are from mellitz_3ck_01b_0320 proposal



179 / 266 85%

163.9.2.1 Receiver ERL

ERL of the receiver at TP5a is computed using the procedure in 93A.5 with the values in Table 163–6. Parameters that do not appear in Table 163–6 take values from Table 163–10. The value of T_{fx} is twice the delay from TP5a to TP5. ~~N_{bx} is set to the value of N_b in Table 163–10.~~

Receiver ERL at TP5a shall be greater than or equal to TBD dB.

Values in these slides are from mellitz_3ck_01b_0320 proposal

Edited on the previous slide:

Table 163–6—Transmitter and receiver ERL parameter values

Parameter	Symbol	Value	Units
Transition time associated with a pulse	T_r	0.01	ns
Incremental available signal loss factor	β_x	~~1.7~~ 0	GHz
Permitted reflection from a transmission line external to the device under test	ρ_x	~~0.32~~ 0.618	—
Length of the reflection signal	N	200	UI
Add row for Nbx similar to Table 162-10		TBD	

163.10.2 Channel ERL

ERL of the channel at TP0 and at TP5 are computed using the procedure in 93A.5 with the values in Table 163–11. Parameters that do not appear in Table 163–11 take values from Table 163–10. The value of T_{fx} is 0 ~~N_{bx} is set to the value of N_b in Table 163–10~~.

Channel ERL at TP0 and at TP5 shall be greater than or equal to ~~10 dB~~. TBD

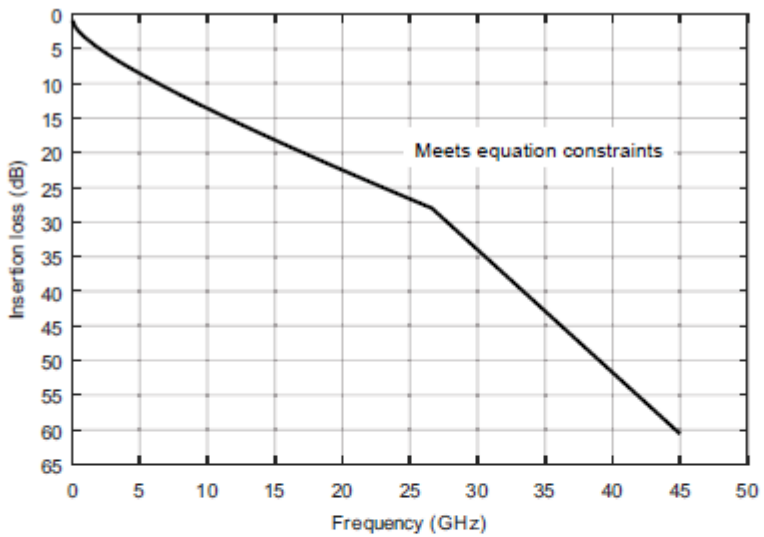


Figure 163–7—Channel insertion loss limit

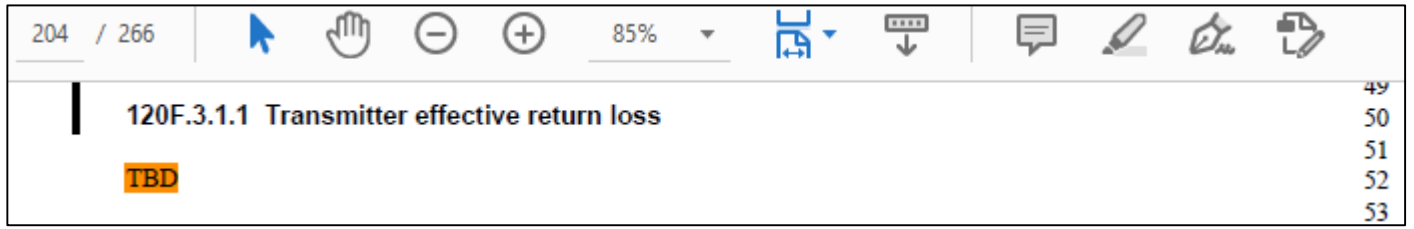
Table 163–11—Channel ERL parameter values

Parameter	Symbol	Value	Units
Transition time associated with a pulse	T_r	0.01	ns
Incremental available signal loss factor	β_x	~~1.7~~ 0	GHz
Permitted reflection from a transmission line external to the device under test	ρ_x	~~0.25~~ 0.618	—
Length of the reflection signal	N	~~2000~~ 3500	UI

~~Add row for Nbx similar to Table 162-10~~ TBD

Values in these slides are from mellitz_3ck_01b_0320 proposal

Clause 120F



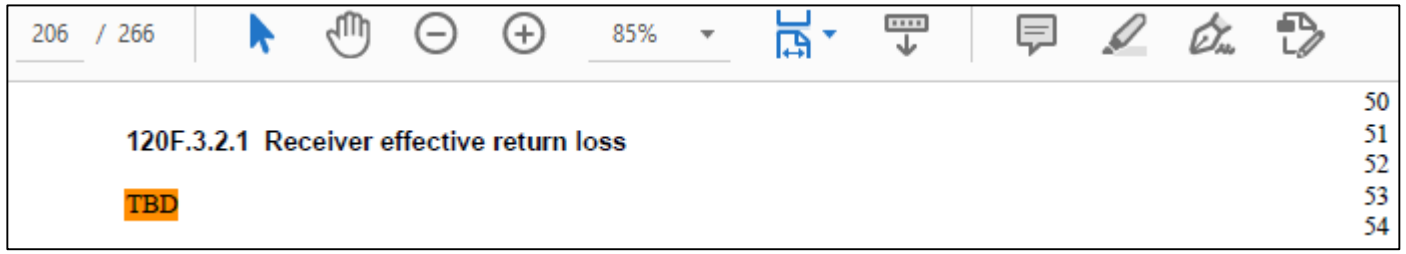
Insert text:
ERL of the transmitter at TP0a is computed using the procedure in 93A.5 with the values in Table 120F-X. For parameters that do not appear in Table 120F-X, take values from Table 120F-5. The value of T_{fx} is twice the delay from TP0-TP0a.

Insert table 120F-X similar to 162-10 with Tr = TBD (see comment #157), $\beta_x = 0$, $\rho_x = 0.618$, N = 200, N_{bx} = TBD

Insert text:
Transmitter ERL at TP0a shall be greater than or equal to TBD dB

Recommendation is to use Nbx=12 for ERL exploration →

Values in these slides are from mellitz_3ck_01b_0320 proposal



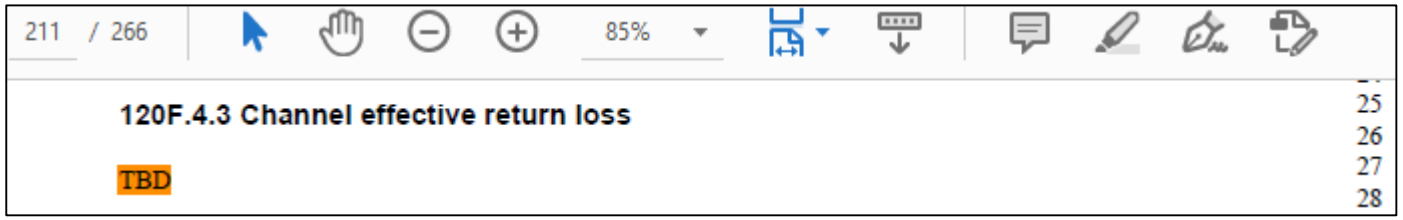
Insert text:
ERL of the receiver at TP5a is computed using the procedure in 93A.5 with the values in Table 120F-X. For parameters that do not appear in Table 120F-X, take values from Table 120F-5. The value of T_{fx} is twice the delay from TP5-TP5a.

Insert table 120F-X similar to 162-10 with
Tr = TBD (see comment #157), $\beta_x = 0$, $\rho_x = 0.618$, N = 200, N_{bx} = TBD

Insert text:
Receiver ERL at TP5a shall be greater than or equal to TBD dB.

Recommendation is to use Nbx=12 for ERL exploration →

Values in these slides are from mellitz_3ck_01b_0320 proposal



Recommendation is to use Nbx=12 for ERL exploration →

Insert text:
ERL of the channel at TP0 and at TP5 are computed using the procedure in 93A.5 with the values in Table 120F-X. For parameters that do not appear in Table 120F-X, take values from Table 120F-5. The value of Tfx is 0.

Insert table 120F-X similar to 162-10 with
Tr = TBD (see comment #157), βx = 0, ρx = 0.618, N = 2000, Nbx = TBD

Insert text:
Channel ERL at TP0 and at TP5 shall be greater than or equal to TBD dB

Values in these slides are from mellitz_3ck_01b_0320 proposal

Clause 120G

120G.3.1.3 Host output effective return loss (ERL)

ERL of the host output at TP1a is computed using the procedure in 93A.5 with the values in Table 120G–2. Parameters that do not appear in Table 120G–2 take values from Table TBD. The value of T_{fx} is twice the delay associated with the TP1a test fixture being used. ~~N_{bx} is set to the value of N_b in Table TBD.~~

Table 120G–2—Transmitter and receiver ERL parameter values

Parameter	Symbol	Value	Units
Transition time associated with a pulse	T_r	0.01	ns
Incremental available signal loss factor	β_x	~~1.7~~ 0	GHz
Permitted reflection from a transmission line external to the device under test	ρ_x	~~0.3~~ 0.618	—
Length of the reflection signal	N	~~600~~ 8000	UI

Add row for Nbx similar to Table 162-10

Editor's note (to be removed prior to publishing D2.0): The adopted baseline (sun_3ck_04b_0319) indicated that the values specified for the following parameters require confirmation:
- Transition time associated with a pulse
~~- Length of the reflection signal~~

Host output ERL at TP1a shall meet Equation (120G–3).

$$ERL \geq TBD \quad \text{(dB)} \qquad \text{(120G–3)}$$

Values in these slides are from mellitz_3ck_01b_0320 proposal

120G.3.3.1 Host input effective return loss (ERL)

Effective return loss is defined in 120G.3.1.3.

Consensus Discussion…

Clause/Annex	Type	β_x	ρ_x	N	N_{bx}	ERL Preso/comments
162.9.3.4	Tx Host	0	0.618	800	0	TBD/ 11(#128)/ 11(#10003&#10009)
162.9.4.5	Rx Host	0	0.618	800	0	TBD/ 11(#129&#131)/ 11(#10010&#10011)
162.11.3	CA	0	0.618	7000	0	TBD/ 13.5(#10012&#10013)
163.9.1.1	Tx Chip	0	0.618	200	TBD	TBD
163.9.2.1	Rx Chip	0	0.618	200	TBD	TBD
163.10.2	Channel	0	0.618	3500	TBD	TBD
120F.3.1.1	Tx Chip	0	0.618	200	TBD	TBD
120F.3.2.1	Rx Chip	0	0.618	200	TBD	TBD
120F.4.3	Channel	0	0.618	2000	TBD	TBD/ 14.5(#90)
120G.3.1.3	Host/Module	0	0.618	800	0	TBD/ 11.5 (TP1/TP4 #121&#123)/ 10.5 (TP1a/TP4a #118&#120&#122)