COM 3.9 Update

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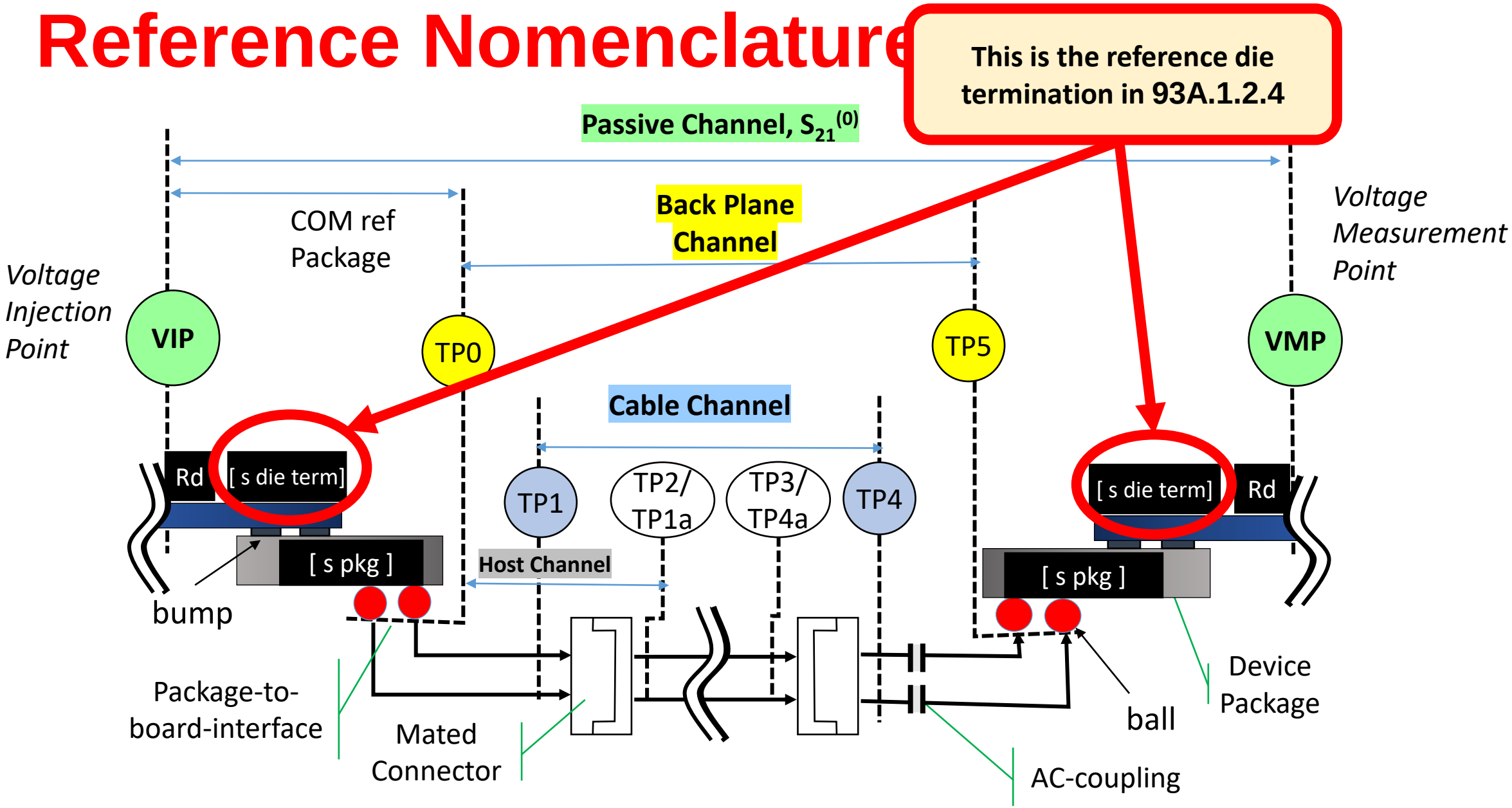
Reference Nomenclature



D3.9 package update

- Exploratory for 200 G
  - RCos (Tukey) filter support
    - Part of static receive filter, $H_r(f)$
    - *mellitz_3df_elec_01b_220621 & mellitz_3df_01a_220927*
  - Tx FFE preset
    - Part of static transmit filter, $H_t(f)$
    - *mellitz_3df_01a_220927*
- The voltage transfer function (VFT) not plotted on frequency domain plots
  - $VTF = H_t(f) * H_{21}^{(0)}(f) * H_r(f)$
    - Where
    - $H_t(f)$ is the static transmit filter
    - $H_r(f)$ is the static receive filter
    - $H_{21}^{(0)}(f)$ is derived as in eq 93A-18 from the passive channel s-parameters
  - VTF at Nyquist as reported is approximately "die to die loss"
  - Useful for standards development
- Fixed output report nomenclature
  - VIP_to_VIM_IL_dB_at_Fnq to
  - VIP_to_VMP_IL_dB_at_Fnq
- ERL example configuration files provided for using s2p measurements
- Updated for Clause 162 Rx compliance testing (162.9.5.3.3)
  - Reports σ_{hp} the noise source
  - It may be useful for 200G Rx compliance
  - Enabled specifying the keyword "f_hp"
- Repaired Rx interference tolerance test operation and ERL reporting. Not working after COM 3.4 update
- Configuration files:
  - Tp0V example and configuration file provided
  - 100 G (.3ck) configuration spread sheets
  - Exploratory 200 G configuration spread sheets

File list

mellitz_3df_02_2211.zip

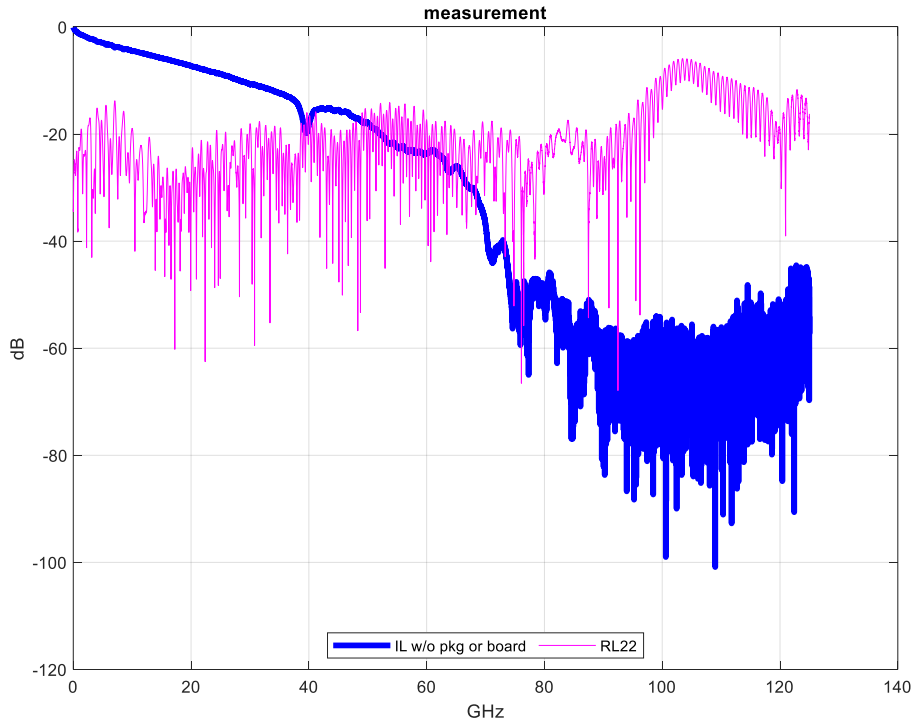
- com_ieee8023_93a_390.m
- config_sheets_100G
  - config_com_ieee8023_93a=3ck_SA _TP0V_08_17_2022.xlsx
  - config_com_ieee8023_93a=3ck_SA_120F_C2C_08_17_2022.xlsx
  - config_com_ieee8023_93a=3ck_SA_120g_C2M_tp1a_08_17_2022.xlsx
  - config_com_ieee8023_93a=3ck_SA_120G_ERL_HOST_10_26_2022.xlsx
  - config_com_ieee8023_93a=3ck_SA_120G_ERL_MODULE_10_26_2022.xlsx
  - config_com_ieee8023_93a=3ck_SA_162_ERL_HOST_10_26_2022 .xlsx
  - config_com_ieee8023_93a=3ck_SA_CR_CA_08_17_2022.xlsx
  - config_com_ieee8023_93a=3ck_SA_KR_08_17_2022.xlsx
  - TP0V_example.m
- Config_spreadsheets_200G_exploratory
  - config_com_ieee8023_93a=df_200G_PAM4_fr55_C2M_TP1a_11_2022.xlsx (Butterworth filter set to 0.55 fb)
  - config_com_ieee8023_93a=df_200G_PAM4_RCos_C2C_11_2022.xlsx
  - config_com_ieee8023_93a=df_200G_PAM4_RCos_C2M_TP1a_11_2022.xlsx
  - config_com_ieee8023_93a=df_200G_PAM4_RCos_CAKR_11_2022.xlsx
  - config_com_ieee8023_93a=df_200G_PAM4_RCos_Txpre_C2M_TP1a_11_2022.xlsx

Raised Cosine Filter Keywords

NEW FOR COM 3.90 AS EXPLORATORY

- Excerpt is from config_com_ieee8023_93a=df_200G_PAM4_RCos_Txpre_C2M_TP1a_11_2022.xlsx
- Used address issues for s-parameter measurements seen in the graph
- RCos filter applies to all thru and crosstalk files are part of $H_r(f)$.
- If keyword, “Raised_Cosine” in is not specified or set to 0 the raised cosine filter is not included in $H_r(f)$.
- In this example, “RC_start” is set to is 67 GHz and RC_end is set to 79.7 GHz

Butterworth	1	logical	include in fr
Raised_Cosine	1	logical	include in fr
RC_Start	6.70E+10	Hz	start freq for RCos
RC_end	7.97E+10	Hz	end freq for RCos



Rx testing for CL162

NEW FOR VERSION COM 3.9

Receiver testing		
RX_CALIBRATION	1	logical
Sigma BBN step	5.00E-03	V
f_hp	6.00E+09	Hz

- Only applies when RX_CALIBRATION is set to 1
- New keyword: “f_hp”
- In this example and in Clause 162 “f_hp” is 6 GHz
  - Note the units in the spreadsheet are Hertz.
- If “f_hp” is missing or zero
  - Noise source is at the transmitter
- If “f_hp” is specified and non-zero
  - Noise source is at the receiver

Thank You!