C2M Jitter Measurements
Ref: D2.0 comments 28, 29, 30, and 31

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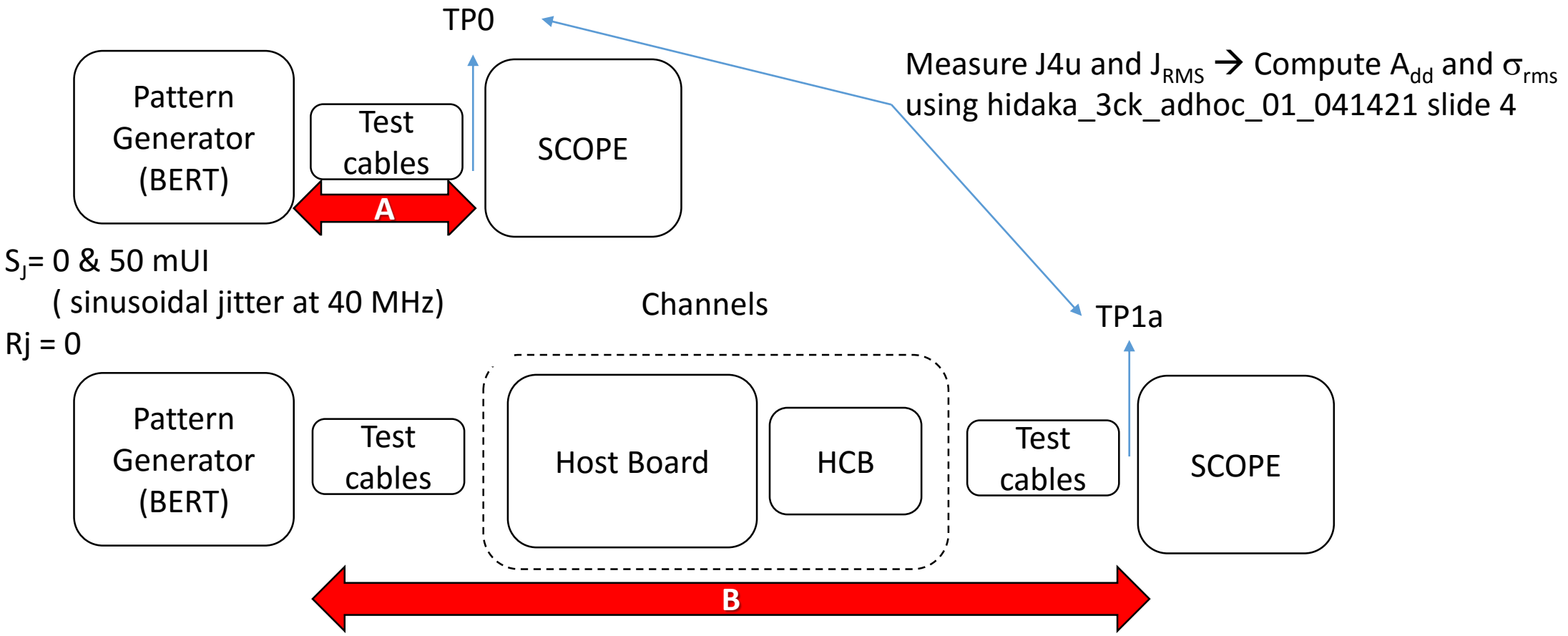
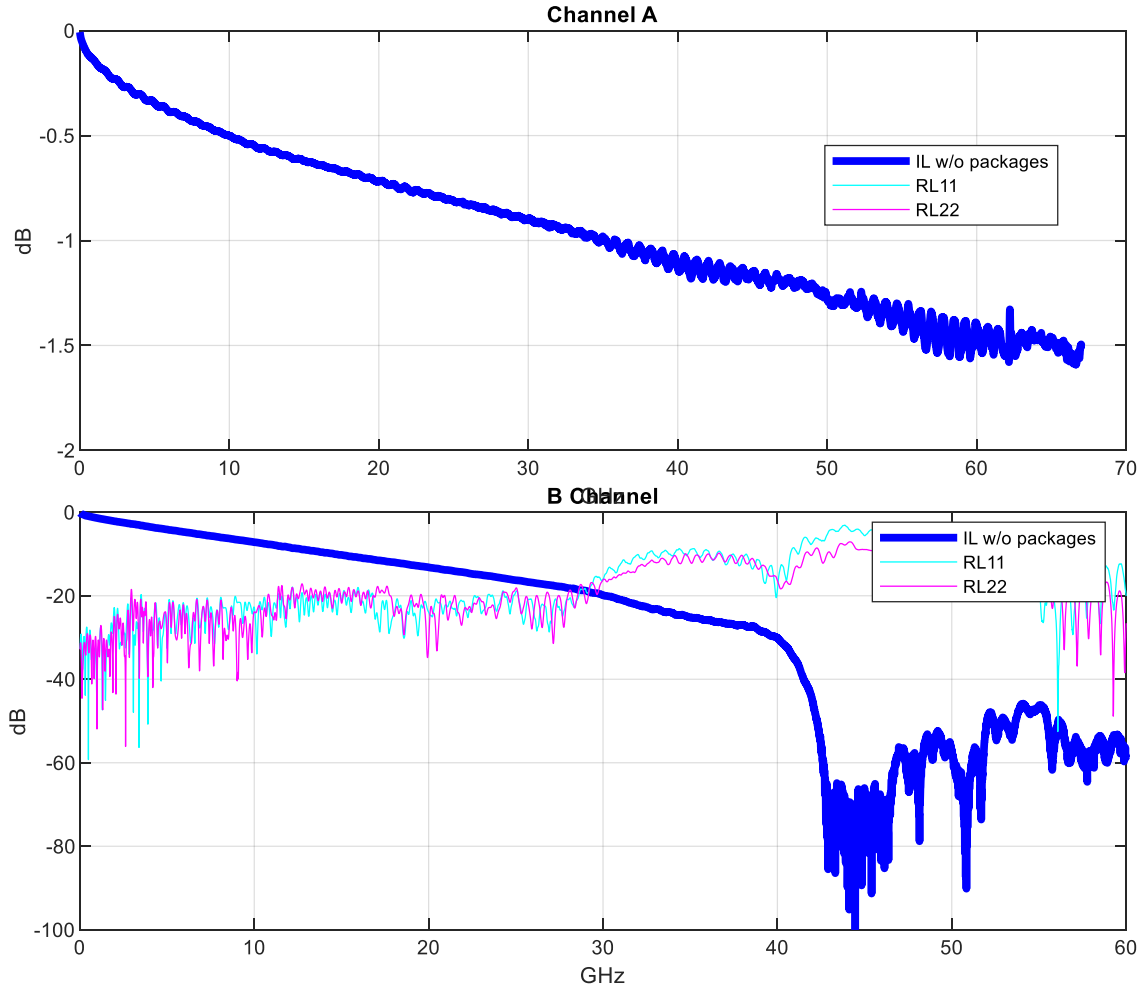
Agenda

- ❑ Measurement setup
- ❑ Channels
- ❑ Results
- ❑ Observation and Discussion
- ❑ Backup – Matlab computation

Measurements setup



2 Channels (A & B) Measured



- Channel A
  - 4” test cable
  - 0.8 dB loss (@26.56 GHz)
- Channel B
  - 4” test cables on each side
  - 16 dB calibration channel
  - 17.2 dB loss (@26.56 GHz)

Results

	J4u (UI)	J_{RMS}(UI)	EOJ(UI)	A_dd(UI)*	σ_{rj}(UI*)
Tx (TP0) (4" blue cable) S_J = 0mUI	0.070	0.0085	0.009	0.002	0.008
Tx (TP0) (4" blue cable) S_J = 50mUI	0.122	0.022	0.009	0.019	0.011
Tx (TP1a) 4" blue cable -->16 dB channel-->(" blue cable S_J = 0 mUI	0.190	0.020	0.014	0.004	0.020
Tx (TP1a) 4" blue cable -->16 dB channel-->(" blue cable S_J= 50mUI	0.220	0.028	0.014	0.007	0.027

* Computed using equation from hidaka_3ck_adhoc_01_041421 slide 4

Observation

- Sj of 50 mUI (+/- 25 mUI) does not seem to be reflected in A_{dd} as one might expect
- Sj of 50 mUI (+/- 25 mUI) seems to affect σ_{rj} more than one might expect
- Discussion
  - For C2M receiver stress test:
    Should jitter calibration be performed at TP1a?
  - Should jitter tolerance be done with a short channel and Rx stress be just calibrated to VEC/EH spec at TP1a?

Thank You!

Backup

Matlab for hidaka_3ck_adhoc_01_041421 slide 4

```
function [A_DD,sigma_rj,Qn] = Calc_COM_Jitter(Jnu,J_RMS,j_range)
% When Jnu is j3u j_range is 4e-3
% When Jnu is j4u j_range is 4e-4
Qn=sqrt(2)*erfcinv(j_range);
if  (Qn^2+1)*J_RMS^2-(Jnu/2)^2  >=0
    A_DD =  ( Jnu/2 + Qn*sqrt(  (Qn^2+1)*J_RMS^2-(Jnu/2)^2 ) ) / ( Qn^2+1 ) ; % eq 136-9
    sigma_rj= ( Jnu/2 -A_DD ) / Qn ; % eq 136-8
else
    Qx=sqrt( ((Jnu)/(2*J_RMS))^2-1); % hidaka_3ck_adhoc_01_041421 slide 4
    display(Qx)
    A_DD =  (Jnu/2)/ ( Qx^2+1) ;% hidaka_3ck_adhoc_01_041421 slide 4
    sigma_rj= sqrt(J_RMS^2-A_DD^2);% hidaka_3ck_adhoc_01_041421 slide 4
end
end
```