

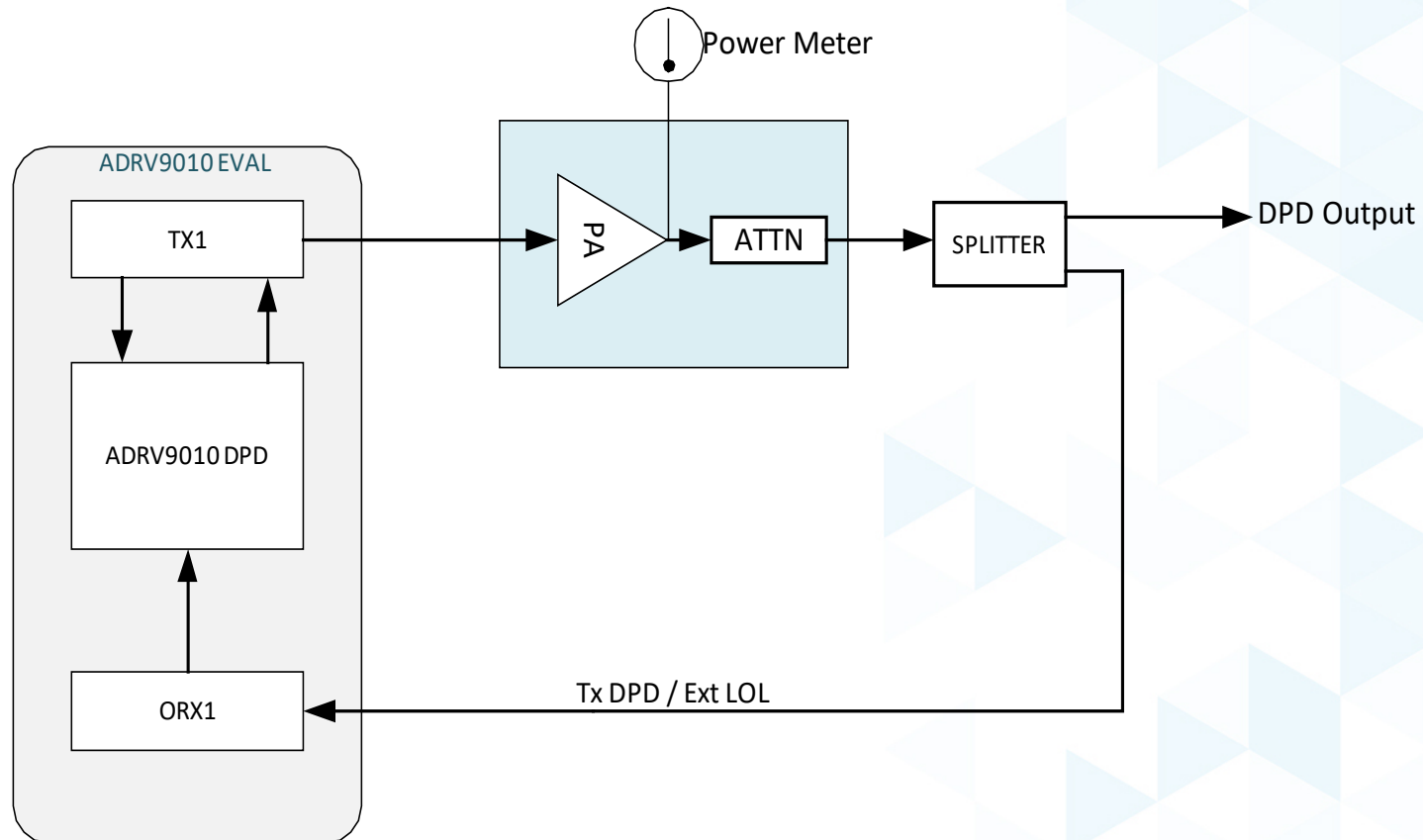
ADRV9029 DPD GUI setup

SW ver > 5.0.0.68



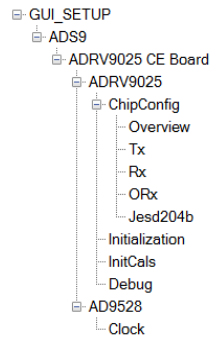
DPD setup

- ▶ Typical DPD set up is as shown below.
- ▶ The ORX power should be around -20 to -25 dBm , You can add attenuators after Splitter to get the required level as needed.



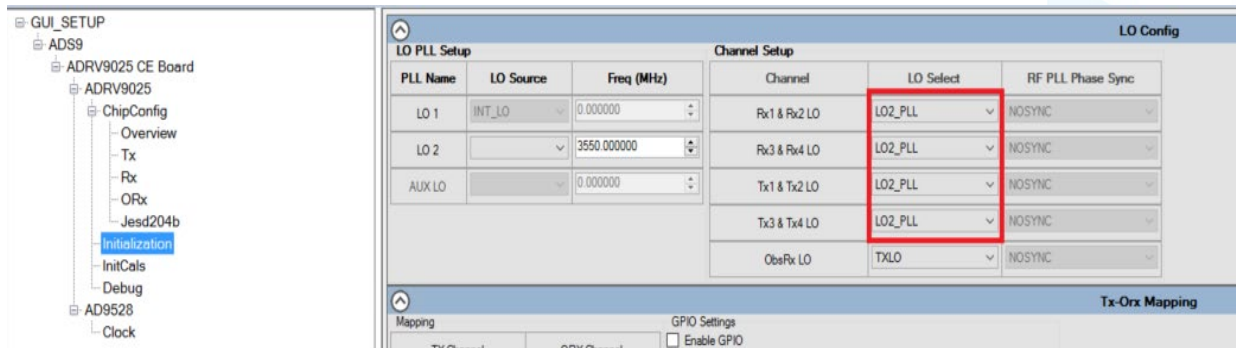
GUI setup

- ▶ Use use cases with a DPD Actuator rate of 491.52MSPS. for lower sampling rate like 122.88MHz , make sure profile uses DPD HB1 and DPD HB2 filters.



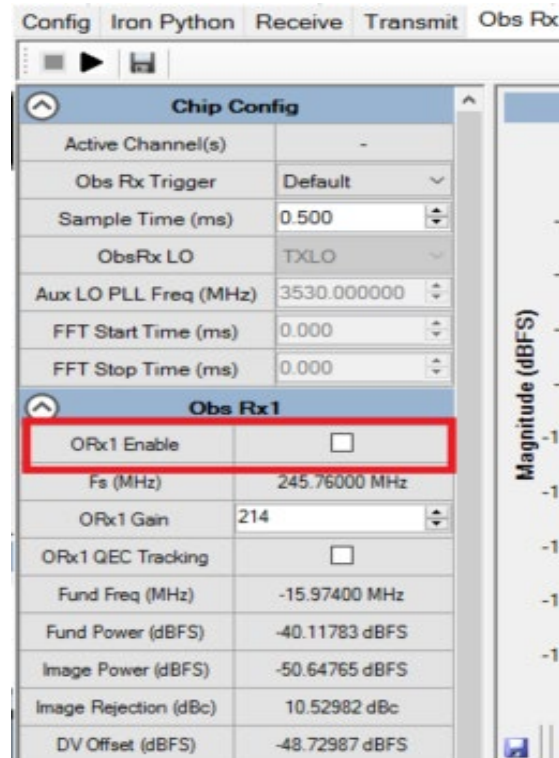
USE CASE	TX BW	TX INPUT RATE	TX DAC RATE	ORX BW	ORX OUTPUT RATE	ORX ADC RATE	RX BW	RX OUTPUT RATE	RX ADC RATE	JESD NP TX / RX / ORX	LANE RATE TX / RX / ORX
13_nonLinkSharing	225.000 MHz	245.760 MHz	1.966 GHz	225.000 MHz	245.760 MHz	4.915 GHz	100.000 MHz	122.880 MHz	1.966 GHz	16 / 16 / 16	9830.4 / 9830.4 / 9830.4
14_LinkSharing	450.000 MHz	491.520 MHz	1.966 GHz	450.000 MHz	491.520 MHz	4.915 GHz	200.000 MHz	245.760 MHz	4.915 GHz	12 / 12 / 12	14745.6 / 14745.6 / 14745.6
50_LinkSharing	450.000 MHz	122.880 MHz	1.966 GHz	450.000 MHz	245.760 MHz	2.458 GHz	100.000 MHz	122.880 MHz	1.966 GHz	16 / 16 / 16	9830.4 / 9830.4 / 9830.4
50_nonLinkSharing	450.000 MHz	122.880 MHz	1.966 GHz	450.000 MHz	245.760 MHz	2.458 GHz	100.000 MHz	122.880 MHz	1.966 GHz	16 / 16 / 16	9830.4 / 9830.4 / 9830.4

- ▶ While programming the device, ensure that all Tx, Rx channels are running off same LO. It is recommended to turn off the PA during the course of programming to avoid any damage from high amplitude data transmitted during initial calibration(For TxQEC etc.).



GUI setup

- ▶ Program the chip with DPD use case. (For ex. UC50 NLS)
 - ▶ Make sure Tx-ORx mapping is correct and ORx LO is configured as TX LO in GUI.
- ▶ From Transmit tab send signal and check in ORX tab whether signal is reaching ORX with sufficient levels (-20 to -25 dBm).
- ▶ Uncheck ORx Enable in the GUI so that it is not in user mode anymore, and it is available for DPD tracking calibration.



Madura DPD sequence

1. Step 1: Load model file from PC
2. Step 2 : Configure DPD tracking parameters. (start with default).

ADrv9025 Transceiver Evaluation Software

Disconnect Program Device File Tools Help

Config Iron Python Receive Transmit Obs Rx TDD

DPD CFR CLGC

ACLR Config

DPD Model Setup

Number of Features: 95

i	j	k	LUT	Real Coeff	Imaginary Coeff
0	0	0	0	0	0
0	0	1	0	0	0
0	0	2	0	0	0
0	0	3	0	0	0
0	0	4	0	0	0
0	0	5	0	0	0
0	0	6	0	0	0
1	0	3	1	0	0

Load Model from file...

DPD Tracking Config

DPD Update Mode: 2

Peak Search Window Size (samples): 65535

Samples: 16384

M-Table Threshold (dBFS): -40

Min. Avg. Signal Level (dBFS): -46

Regularization (Indirect Learning): 20

Regularization Low Power (Indirect Learning): 20

Min. Avg. Signal Level for ORX (dBFS): -36

Filter Selection:

Enable Direct Learning:

Regularization (Direct Learning): 20

Damping Factor (Direct Learning): 0

DPD Functions

For multiple selected channels:

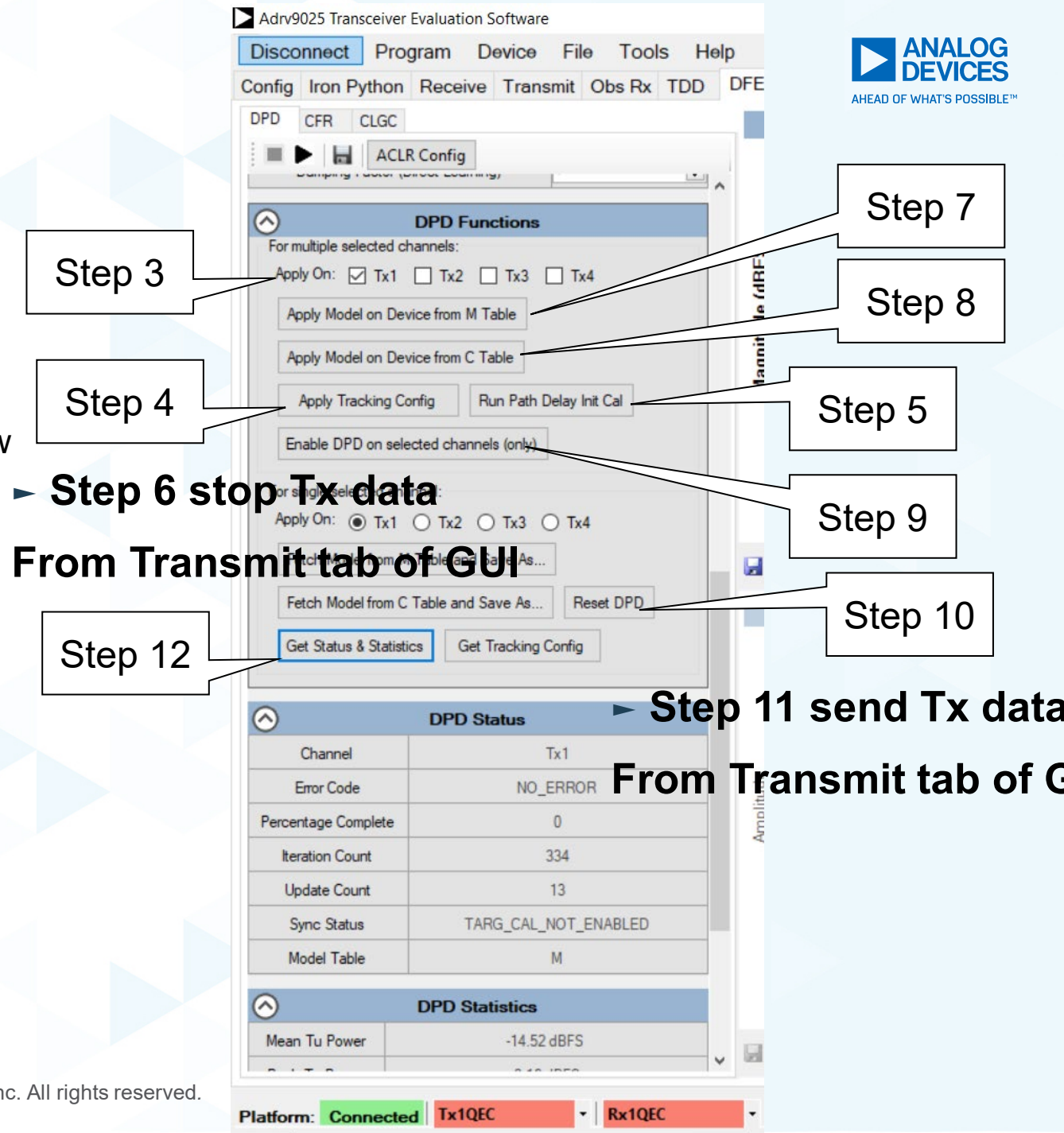
Platform: **Connected** Tx1QEC Rx1QEC

Step 1

Step 2

Madura DPD configuration

1. Step 3: Select connected Tx channels.
2. Step 4: Apply tracking config
3. Step 5 : Run path delay cal.
4. If signal level too low is reported check ORx connection. Try programming the chip again and follow same steps.
5. Step 6: Switch off Tx transmit and go to DFE tab → DPD
6. Step 7: Apply model M table
7. Step 8: Apply model C table
8. Step 9: Enable DPD on select channels.
9. Step 10 . Reset DPD
10. Step 11 Go to Tranmsit tab and send data.
11. Step 12. Get status.



Step 3

Step 4

Step 5

Step 6 stop Tx data
From Transmit tab of GUI

Step 7

Step 8

Step 9

Step 10

Step 11 send Tx data
From Transmit tab of GUI

Step 12

DPD Status	
Channel	Tx1
Error Code	NO_ERROR
Percentage Complete	0
Iteration Count	334
Update Count	13
Sync Status	TARG_CAL_NOT_ENABLED
Model Table	M

DPD Statistics	
Mean Tu Power	-14.52 dBFS

Platform: Connected Tx1QEC Rx1QEC