

GW DCPD Transimpedance Amplifier (TIA) Measurement

J. Kissel, 2023-03-10

DUT Setup

Can set up SR785 in the *front* of ISC-R5 rack, if more convenient, since only thing that changes between measuring DCPDA and DCPDB is the BNC Monitor Hook-up

You might be tempted to use D1900068's DB9 output and a DB9 cable to connect "cleanly" to DAC drive. See LHO aLOG 61289 for discussion of compromise.

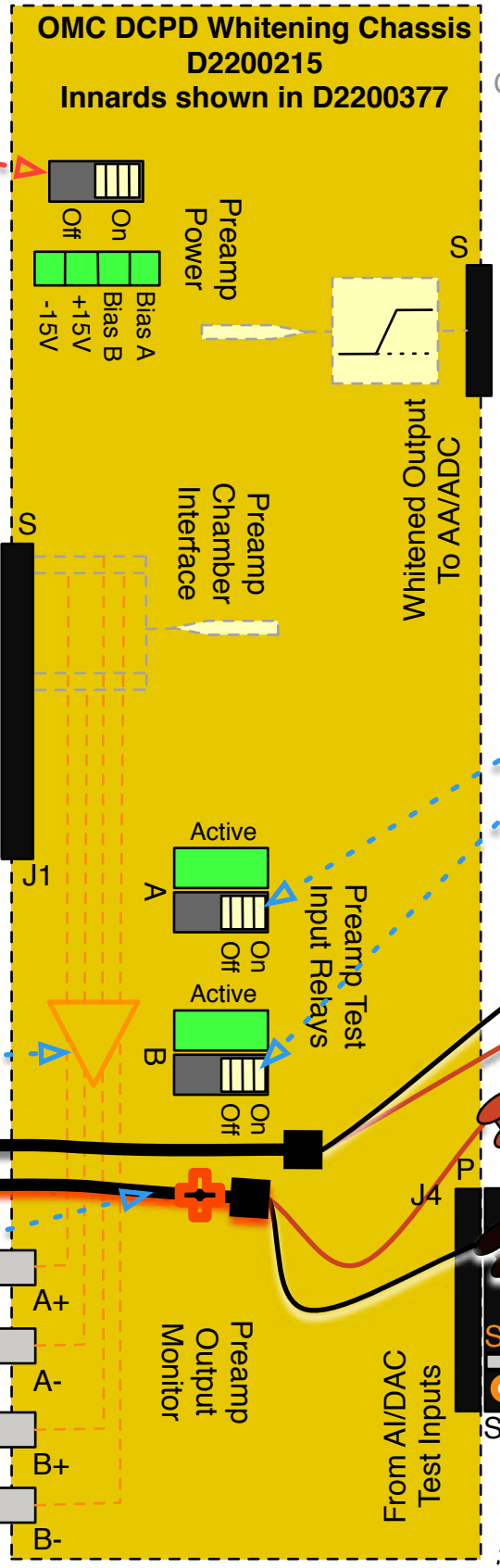
Cable connected to in-vac DCPD Chain as normal

OK to disconnect DAC cable and BNC monitor cables without powering down DCPDs

OMCA DCPD Pins Are:
DCPDA = 5+ & 18-
DCPDB = 1+ & 14-
Chassis GND = 13

ALL OTHER CHASSIS / CABLE CONNECTIONS NOT SHOWN REMAIN CONNECTED AS NORMAL

ISC-R5 Rack



Turn both Test Input Relays ON during measurement (State of Whitening Relays doesn't matter)

Excitation drives both DCPDA & DCPDB through pins 1+ & 6-

BNC Cables ~10 ft

Internal "Unity Gain" Buffers b/w primary signal and monitors

Weave drive BNCs from the *back* of the rack to the *front*. Make sure exposed BNC shields aren't touching each other or the chassis.

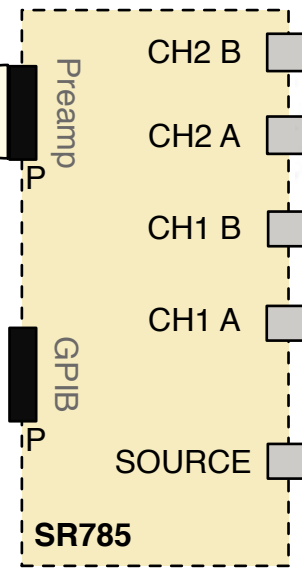
Change from A to B monitors to record response of DCPDA and DCPDB in-vac TIA, respectively

BNC Shields connected to Chassis 0V pin 5

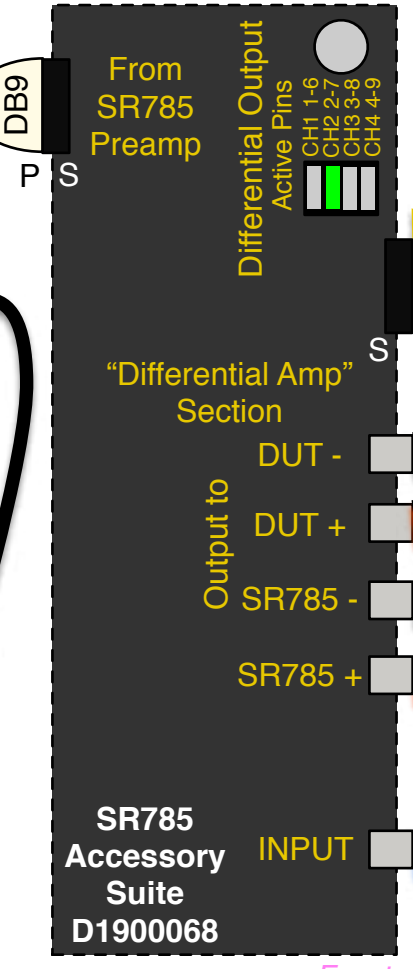
Disconnect Remote DAC excitation cable

DB9 Cable ~3 ft

BNC Cables ~3 ft



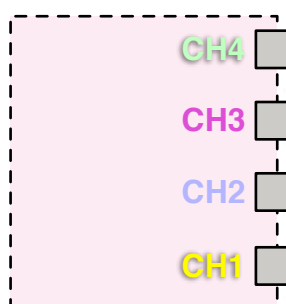
Back Front



Back Front

BNC Cables ~3 ft

BNC Cables ~3 ft

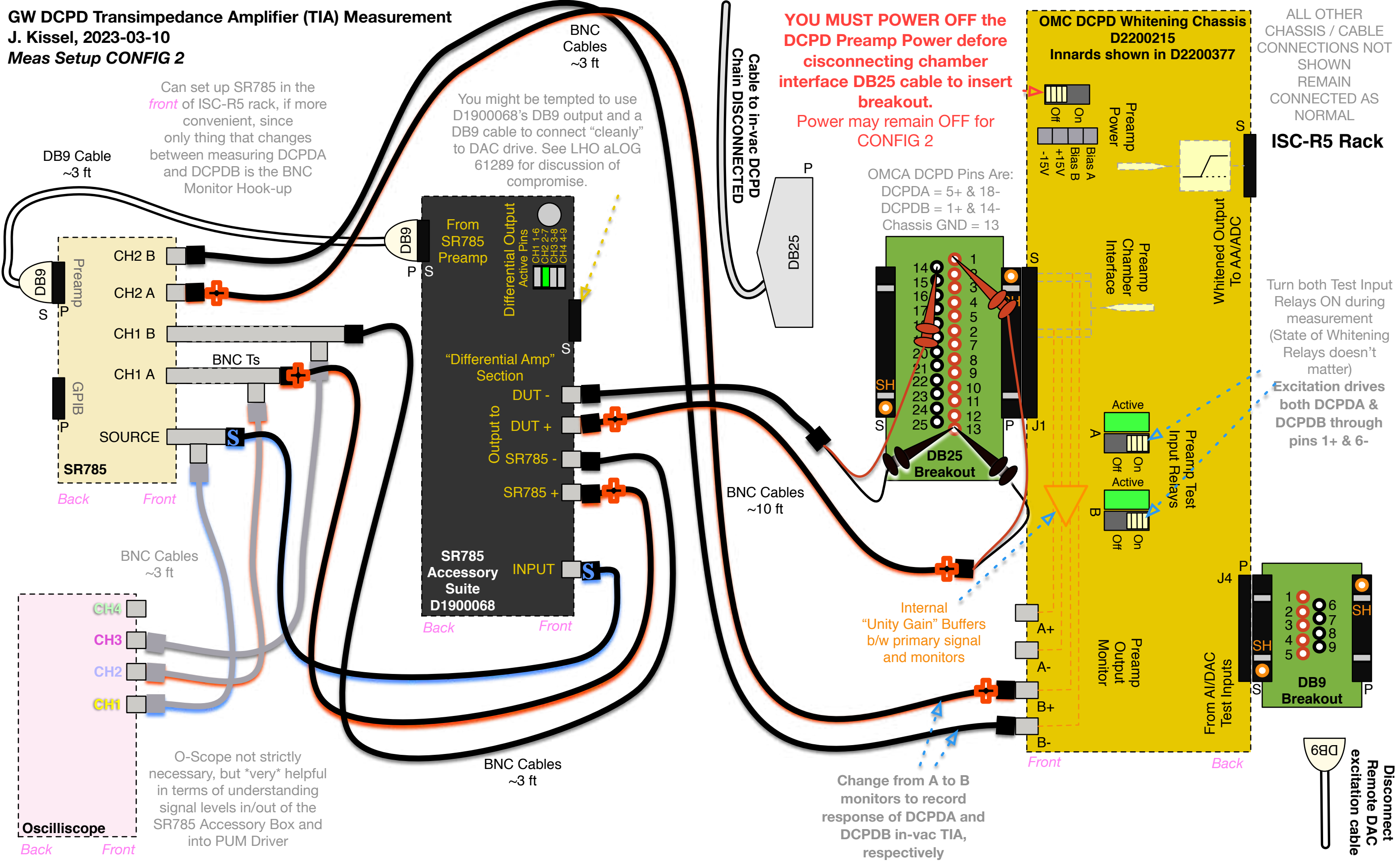


Back Front

O-Scope not strictly necessary, but *very* helpful in terms of understanding signal levels in/out of the SR785 Accessory Box and into PUM Driver

GW DCPD Transimpedance Amplifier (TIA) Measurement

J. Kissel, 2023-03-10
Meas Setup CONFIG 2



Can set up SR785 in the front of ISC-R5 rack, if more convenient, since only thing that changes between measuring DCPDA and DCPDB is the BNC Monitor Hook-up

You might be tempted to use D1900068's DB9 output and a DB9 cable to connect "cleanly" to DAC drive. See LHO aLOG 61289 for discussion of compromise.

YOU MUST POWER OFF the DCPD Preamp Power before disconnecting chamber interface DB25 cable to insert breakout.
Power may remain OFF for CONFIG 2

ALL OTHER CHASSIS / CABLE CONNECTIONS NOT SHOWN REMAIN CONNECTED AS NORMAL

ISC-R5 Rack

OMC DCPD Whitening Chassis D2200215

Innards shown in D2200377

Bias A On
Bias B +15V
-15V

Preamp Power

Whitened Output To AA/DAC

Preamp Chamber Interface

Preamp Test Input Relays

Preamp Output Monitor

From AI/DAC Test Inputs

DB9 Breakout

DB9 Breakout

DB9 excitation Remote DAC Disconnect cable

OMCA DCPD Pins Are:
DCPDA = 5+ & 18-
DCPDB = 1+ & 14-
Chassis GND = 13

Turn both Test Input Relays ON during measurement (State of Whitening Relays doesn't matter)
Excitation drives both DCPDA & DCPDB through pins 1+ & 6-

BNC Cables ~10 ft

Internal "Unity Gain" Buffers b/w primary signal and monitors

Change from A to B monitors to record response of DCPDA and DCPDB in-vac TIA, respectively

BNC Cables ~3 ft

O-Scope not strictly necessary, but *very* helpful in terms of understanding signal levels in/out of the SR785 Accessory Box and into PUM Driver

Oscilloscope

Back Front

DB9 Cable ~3 ft

BNC Cables ~3 ft

Cable to in-vac DCPD Chain DISCONNECTED

DB25

DB25 Breakout

From AI/DAC Test Inputs

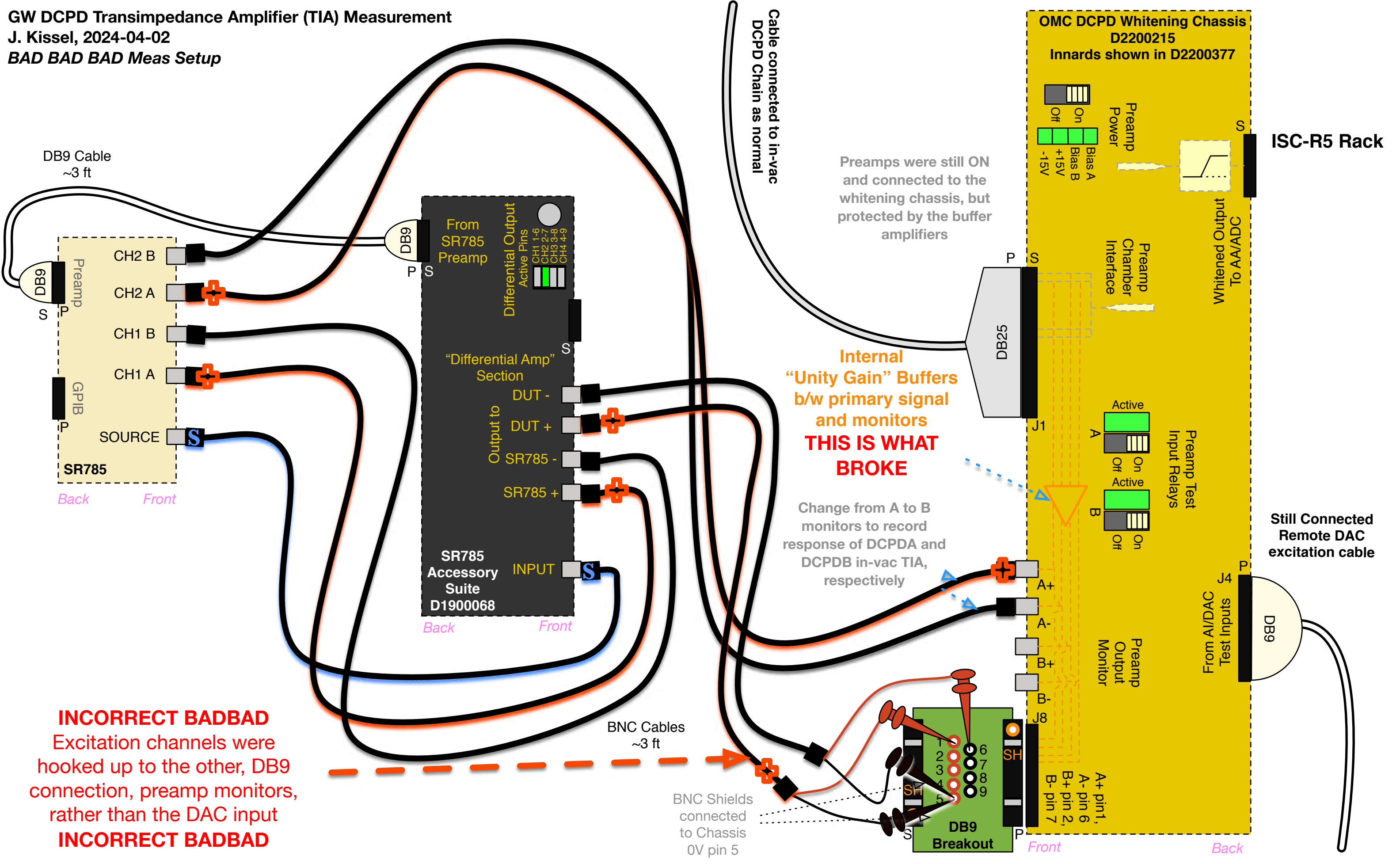
DB9

Disconnect Remote DAC excitation cable

GW DCPD Transimpedance Amplifier (TIA) Measurement

J. Kissel, 2024-04-02

BAD BAD BAD Meas Setup



INCORRECT BADBAD
Excitation channels were hooked up to the other, DB9 connection, preamp monitors, rather than the DAC input
INCORRECT BADBAD

Cable connected to in-vac DCPD Chain as normal

Preamps were still ON and connected to the whitening chassis, but protected by the buffer amplifiers

Internal "Unity Gain" Buffers b/w primary signal and monitors
THIS IS WHAT BROKE

Change from A to B monitors to record response of DCPDA and DCPDB in-vac TIA, respectively

BNC Cables ~3 ft

BNC Shields connected to Chassis 0V pin 5

OMC DCPD Whitening Chassis D2200215
Innards shown in D2200377

ISC-R5 Rack

Whitened Output To AA/ADC

Preamp Test Input Relays

From AI/DAC Test Inputs

Still Connected Remote DAC excitation cable

Front

Back