

EMC Barrel APD Characterization & Analog Signal Cables



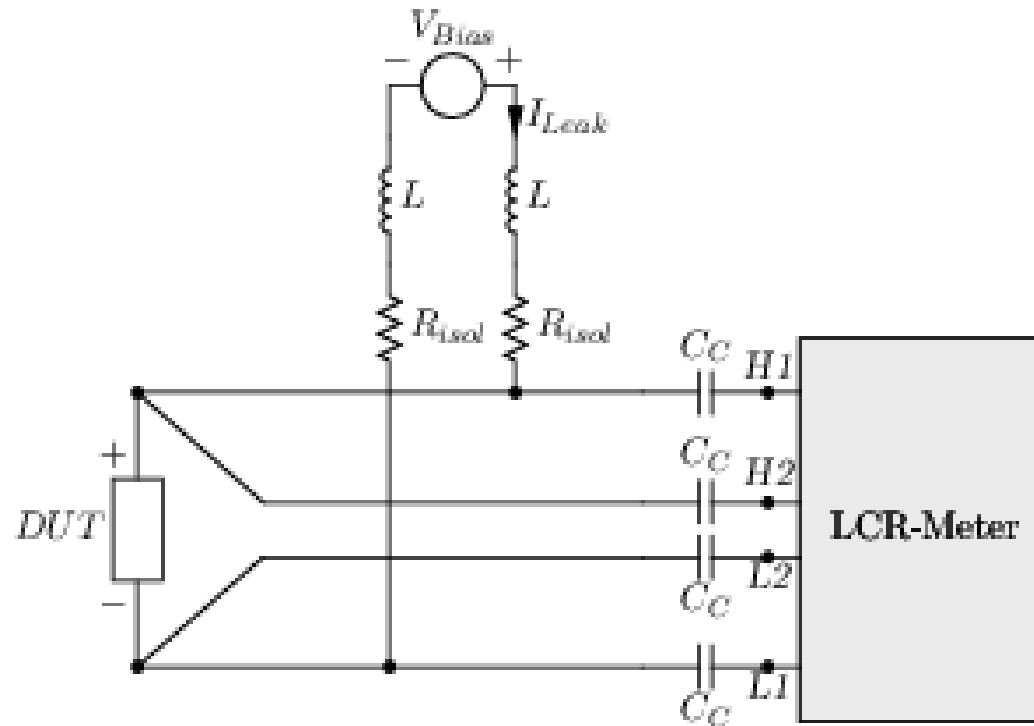
Hans-Georg Zaunick



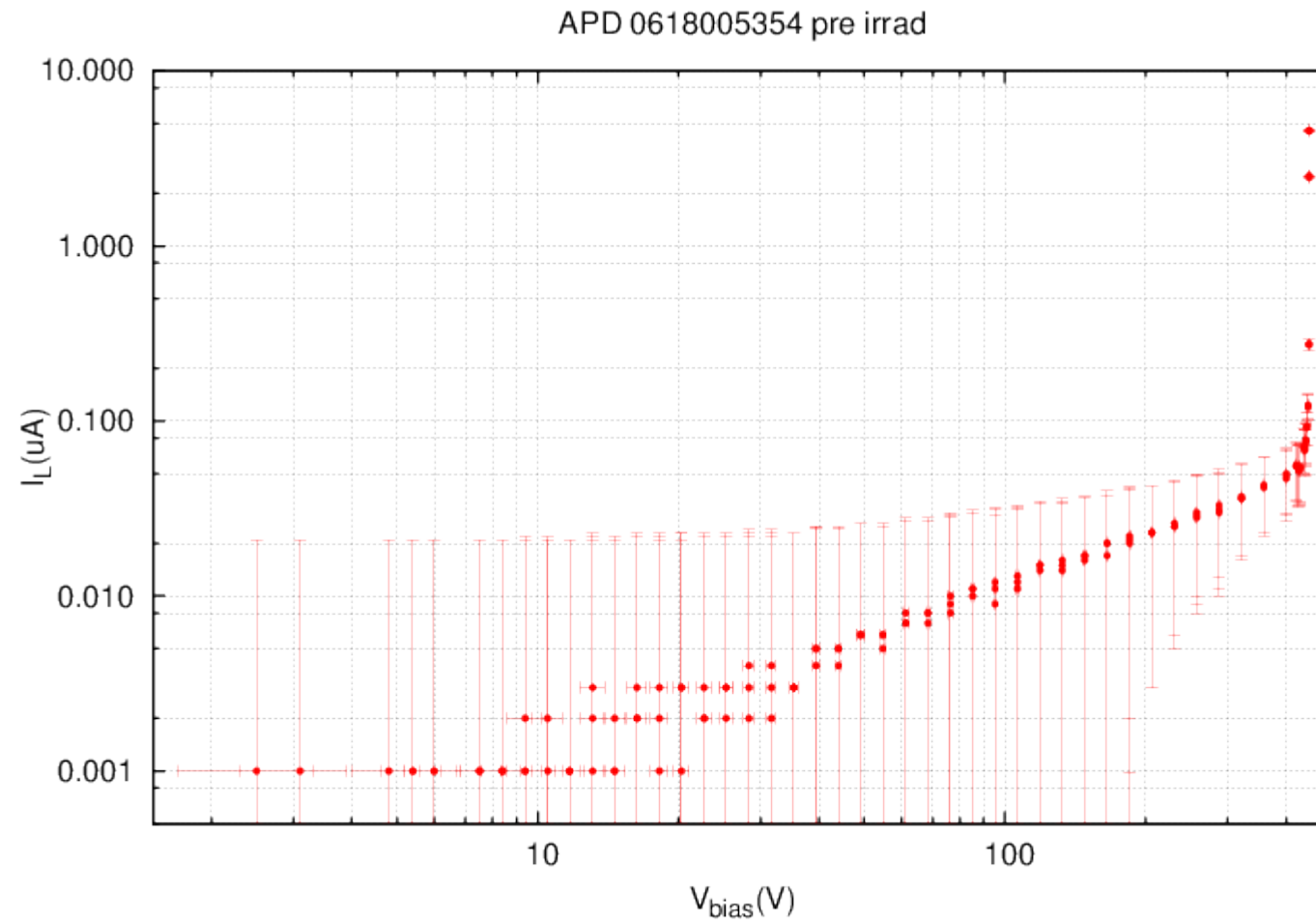
PANDA Coll. Meeting
June 10th, 2014



APD Characteristics

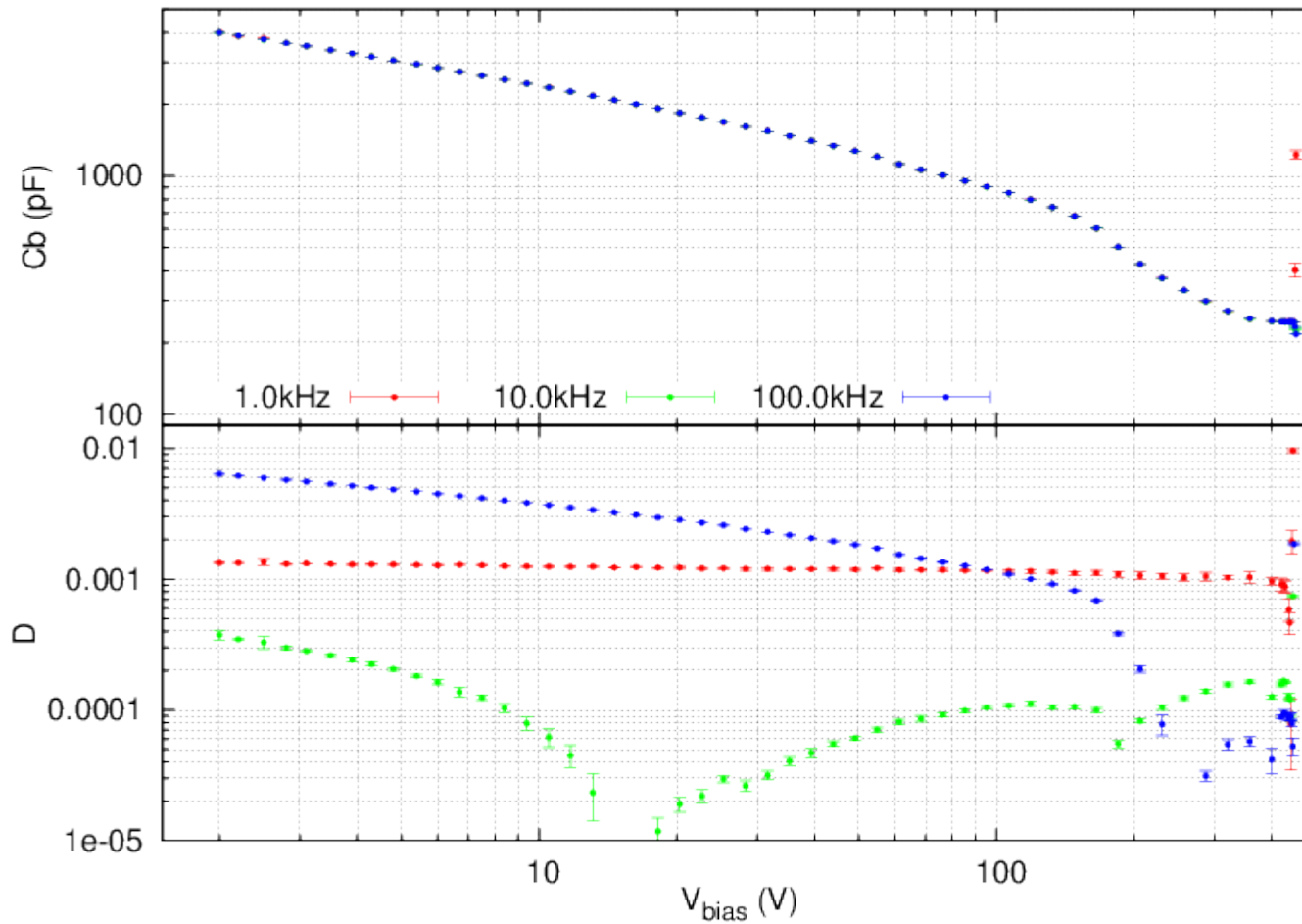


APD Characteristics

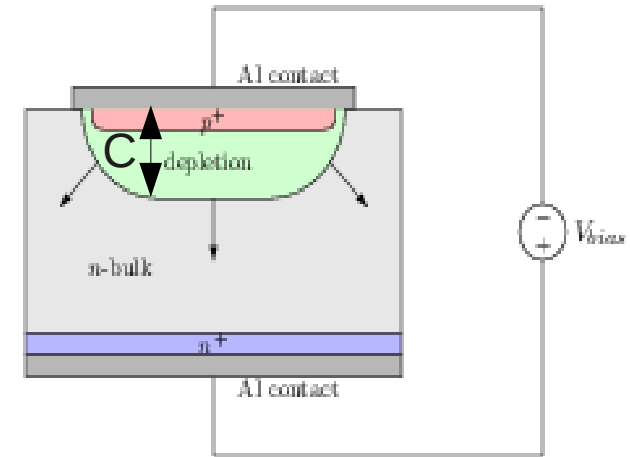


APD Characteristics

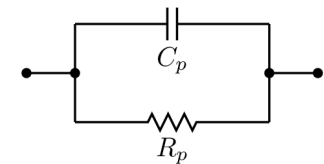
APD 0618005354 pre irradi



Handle on depletion behavior

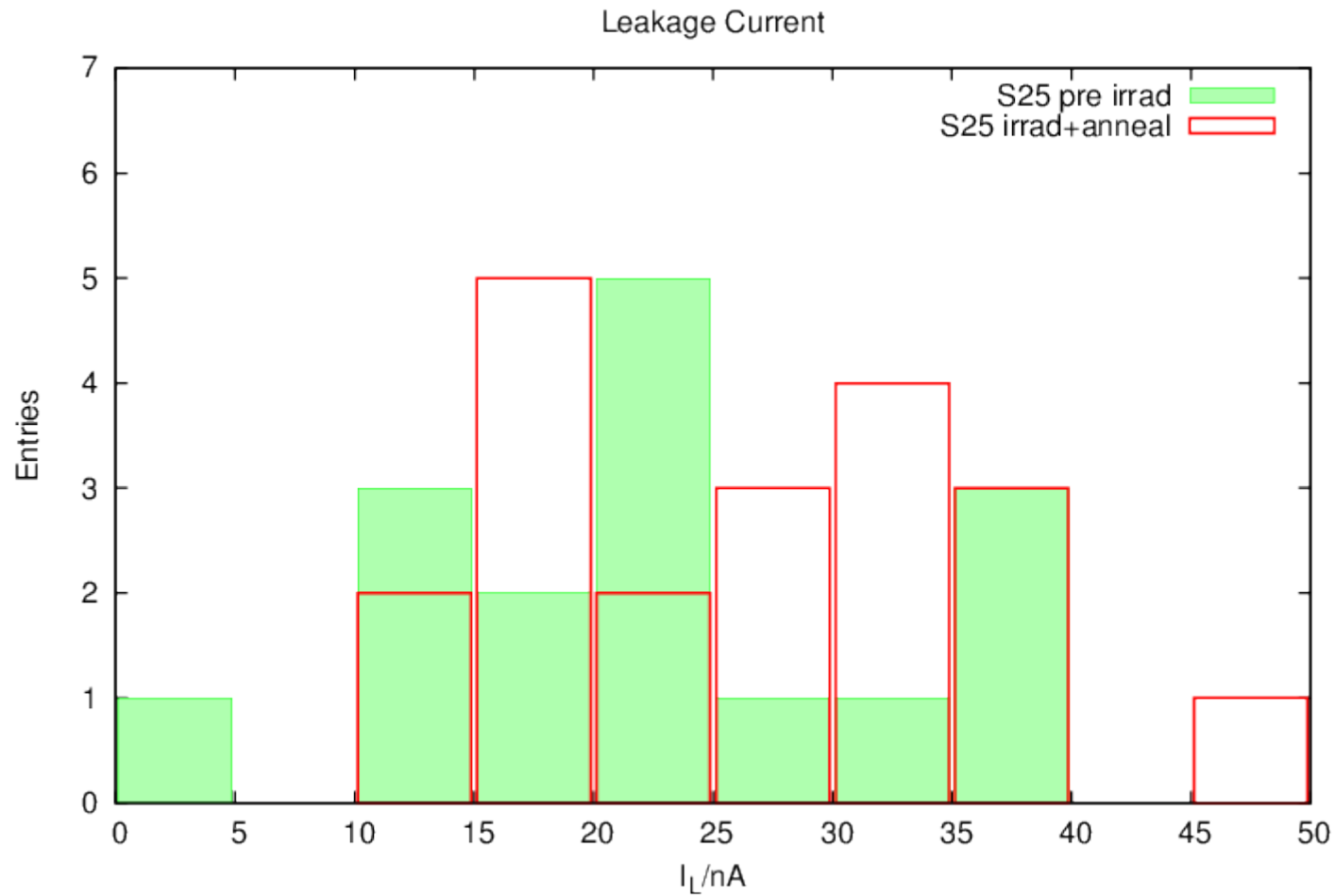


Measurement of complex impedance Z

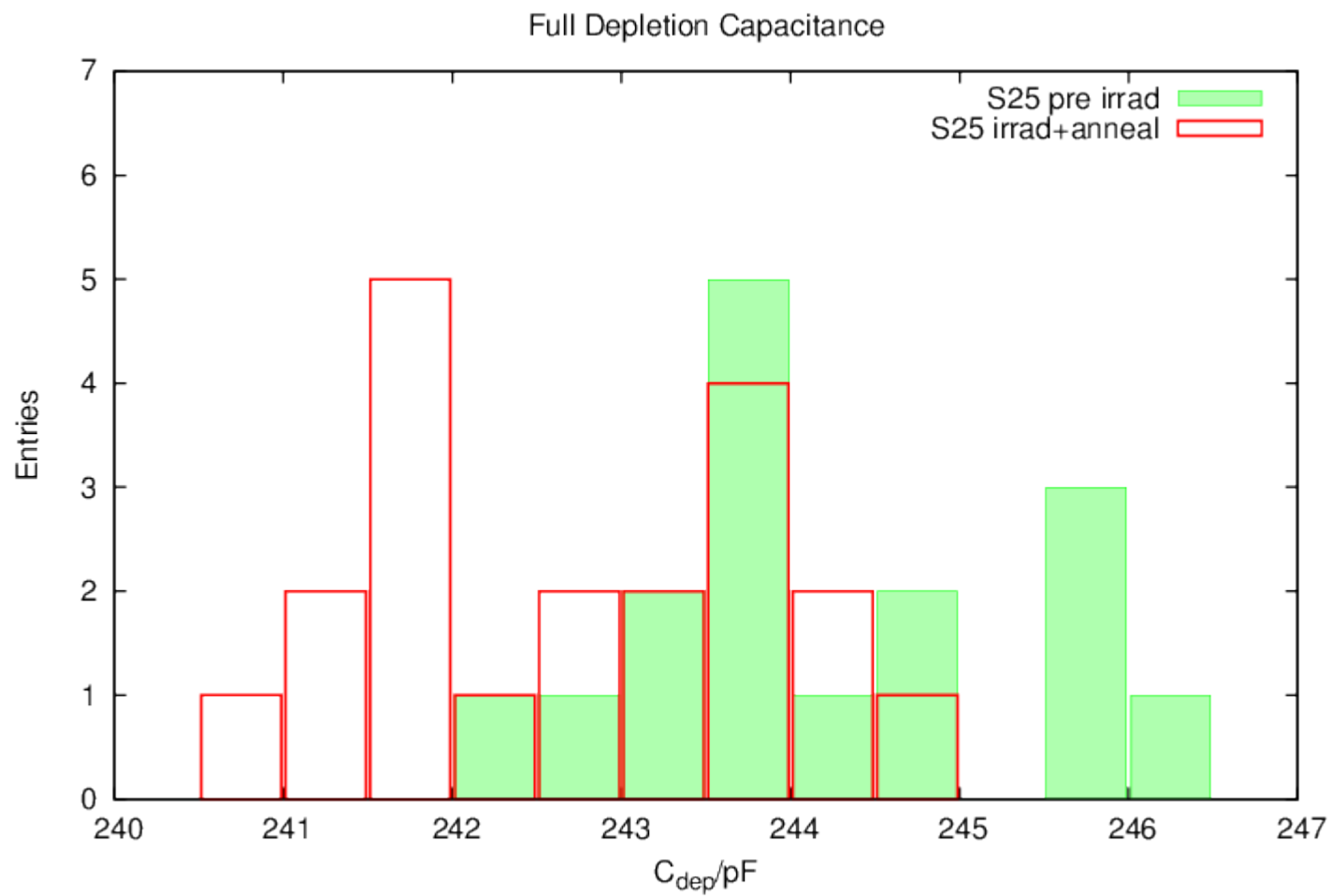


$$D = \tan \delta = \frac{\text{Re } Z}{\text{Im } Z} = \frac{1}{\omega C_p R_p}$$

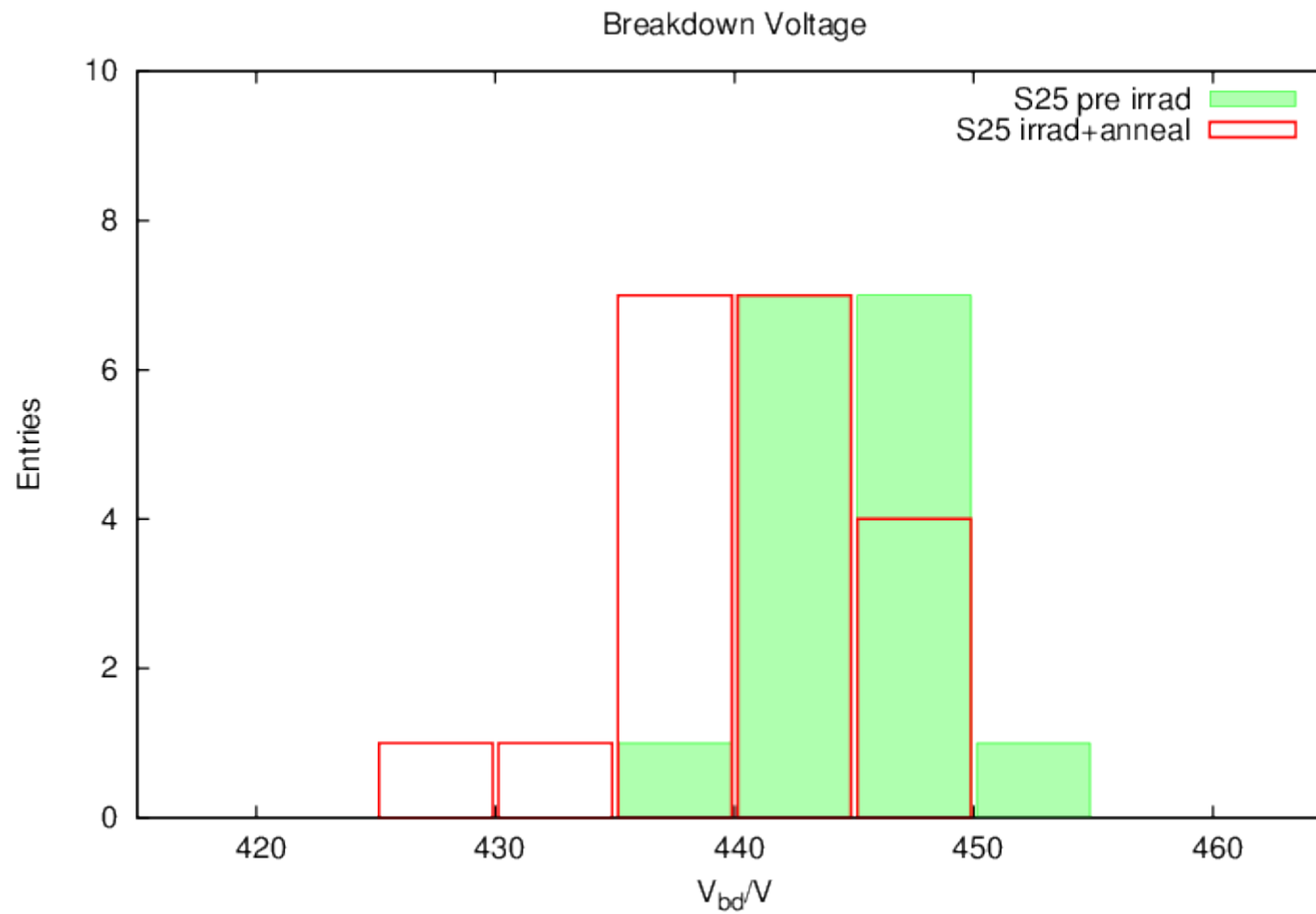
APD Irradiations



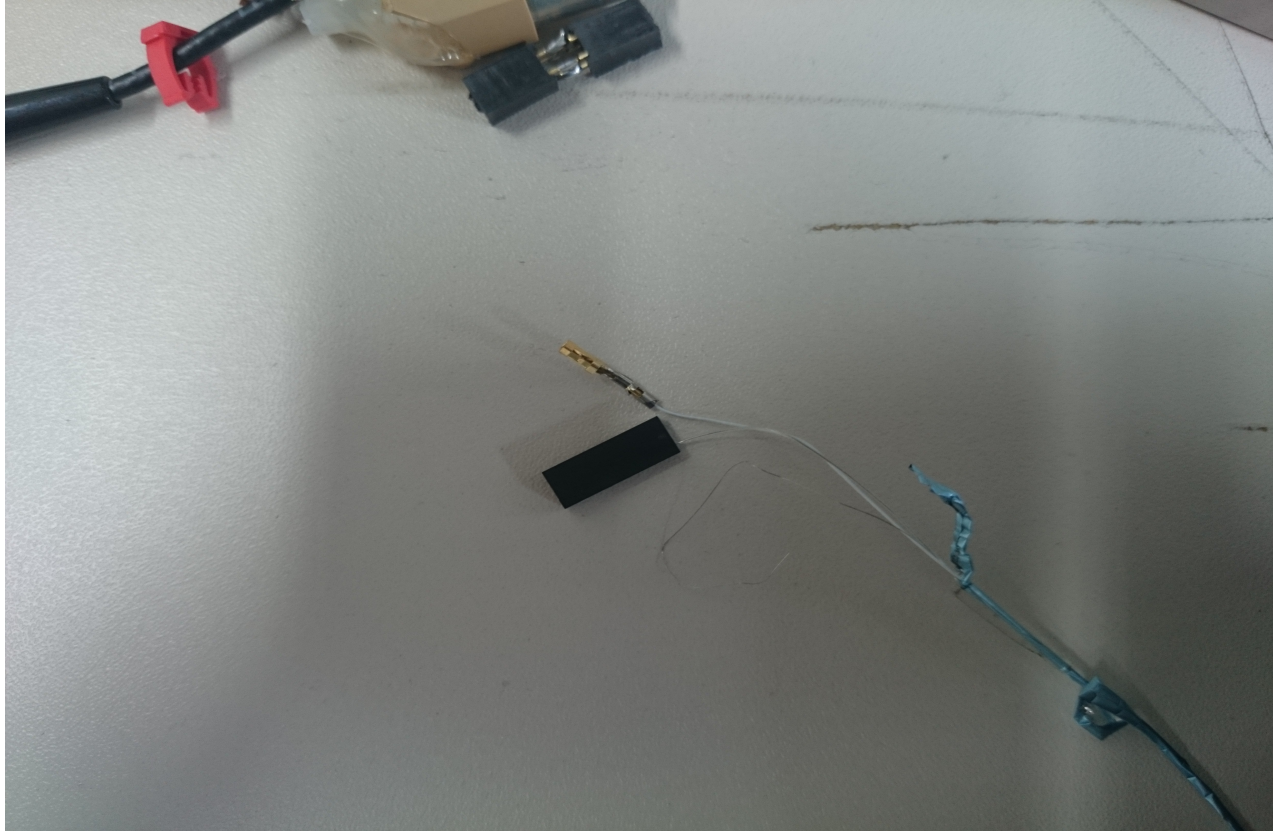
APD Irradiations



APD Irradiations



Analog Signal Cables



Analog Signal Cables

Company

Test of: Balanced pair cables for digital communications (IEC61156-1/-5)

Information for test

Test Job:	14060301	Operator:	Ralf Damm	Measurement:	03.06.2014 12:25:14
Test set-up:	Symmetrisch				
Remark:	Dünne Stahladern				

Device under test

Item Number:	37070900	Type:	symmetrical
Cable type:	I(St)2X(PIMF) 4x2x0,1/0,3 - FRNC	Impedance:	100.0 Ohm

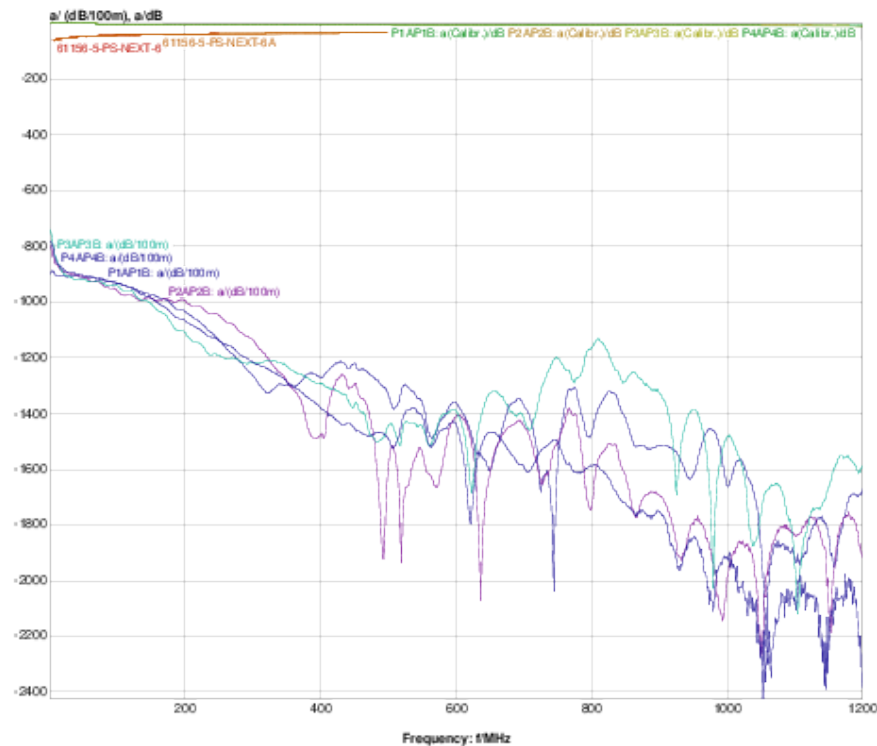
Test parameter

Start frequency:	1.0 MHz	Test length:	4.90 m
Stop frequency:	1.2 GHz	Attenuation:	0.0 dB
Number of points:	801		
Distance of points:	lin		
IF-BW:	30.0 Hz	Eps r:	0.0
Gen. Power:	0.0 dBm		

Test diagram

Balanced pair cables (IEC61156-1/-5): Attenuation I(St)2X(PIMF) 4x2x0,1/0,3 - FRNC

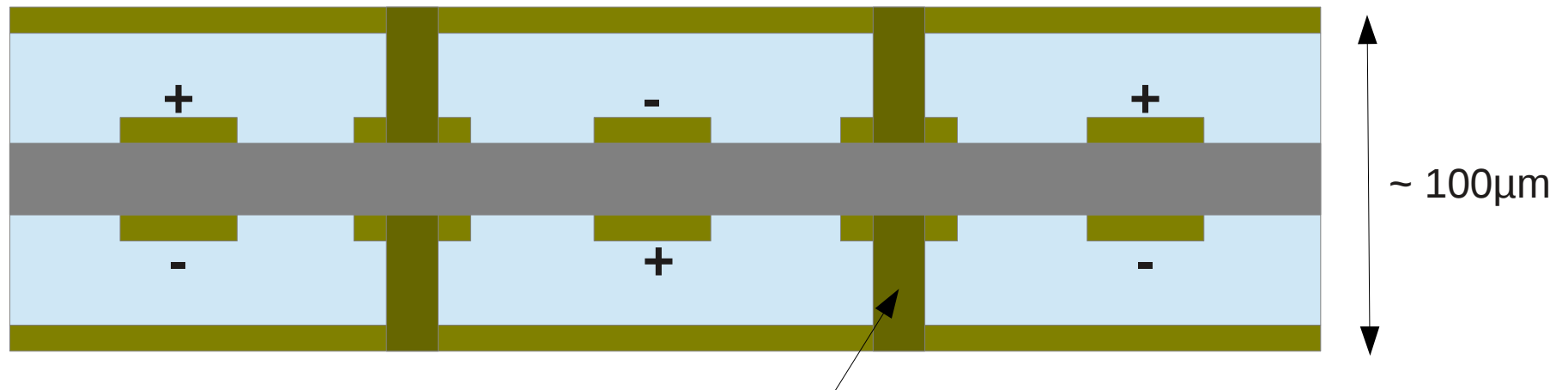
1.0 MHz - 1.2 GHz Test length: 4.90m



Test Document: 14060301-TP.mdo

Analog Signal Cables

Broadside coupled stripline technique:
track density ~15...20 pairs/in, $100 \pm 10 \Omega$ diff impedance



Remedy to cross talk:

- Pair distance
- Intermediate ground strips
- Alternating polarity

Micro vias

Aluminum microstrip
cables (PANDA MVD)

