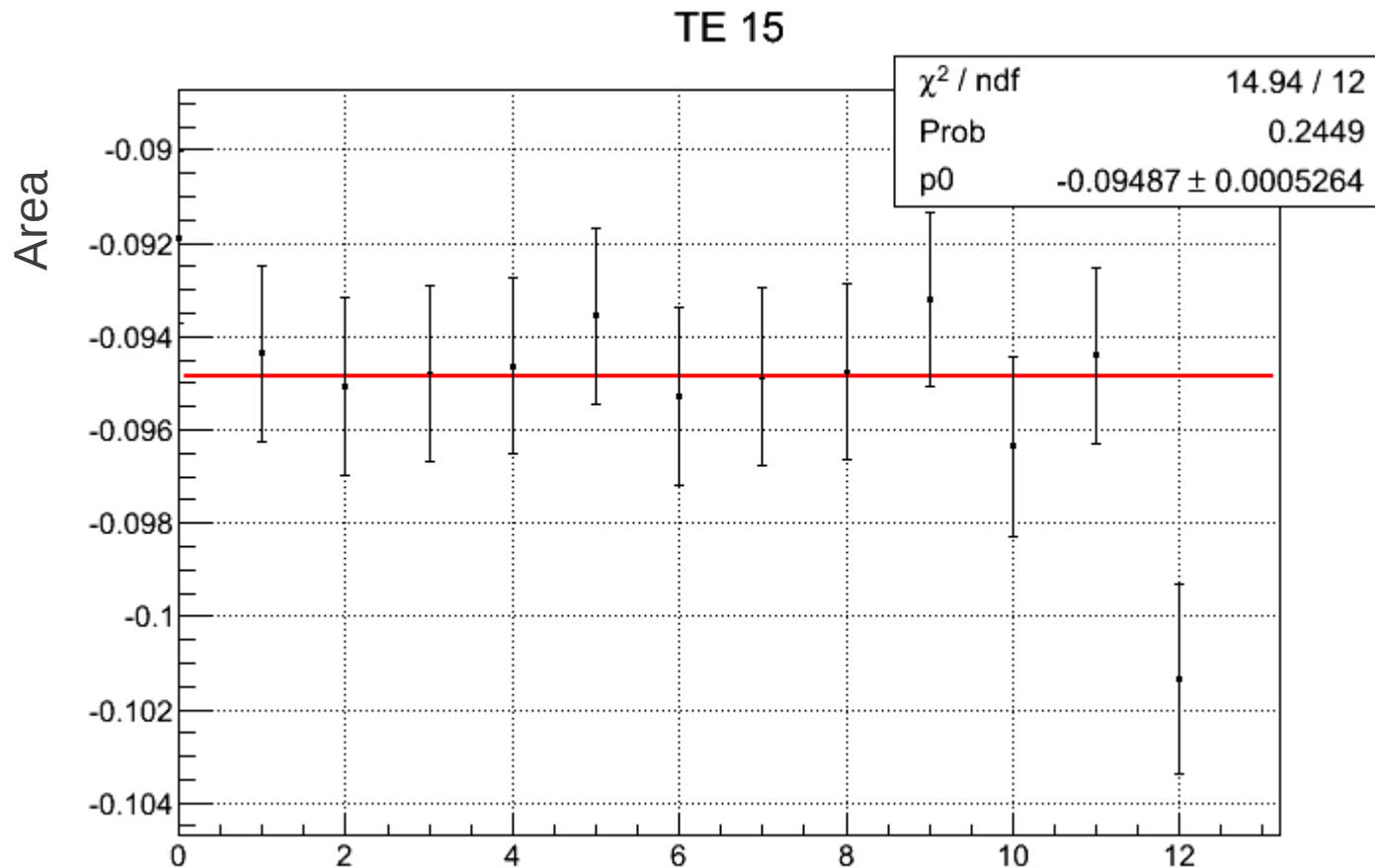


Step 1: Integrated Area Uncertainty Method

- Subtract baseline from sweep signal
- Fit wings with 3rd order polynomial and integrate
- Generate Gaussian of similar signal amplitude and known area
- Variance = area uncertainty
- $\sigma_A \approx 2\%$

Step 2: Minimizing Reduced Chi-Squared to find TE points.



Similar procedure done for TE polarization (accounts for temperature fluxuations)

Step 3: Organize TE area/pol by Material then Average

- Material 7:

TE Measurement	Area	Polarization
11	-0.098185077202	0.180844987254
13	-0.0896996067545	0.170470562002
15	-0.0949593730567	0.171729163061
19	-0.0924146129014	0.165471977096
21	-0.138812462605	0.251336872046
23	-0.114932914517	0.207644217394
25	-0.097843894952	0.17166913563
Average	-0.109090829278	0.197813781124

Uncertainty calculated as the standard deviation of TE averages

Step 4: Calculate Material Calibration Constants

$$CC = \frac{P_{TE}}{A_{TE}}$$

$$\Delta_{CC} = \frac{P_{TE}}{A_{TE}} \left(\left(\frac{\Delta P_{TE}}{P_{TE}} \right)^2 + \left(\frac{\Delta A_{TE}}{A_{TE}} \right)^2 \right)$$

Where:

A_{TE} = TE integrated area

P_{TE} = TE polarization

Final Calibration Constants

Material Number	Calibration Constant	Uncertainty	Online CC
7	-1.81329432027	0.359221908288	-3.5483381465
8	-1.46982556904	0.376962658462	-2.9604192423
11	-1.87795117312	0.0882601660881	-3.5574869547
12	-1.63936093614	0.0268506563766	-3.2223636784
13	-0.794778223429	0.111748274569	-3.058066884
14	-1.96770968357	0.0730105884165	-3.7240933334
17	-1.47550932338	0.0267763866381	-1.4605450024
18	-1.81087514429	0.0317982593031	-1.7670527477

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12	-1.63936093614	0.0268506563766	-3.2223636784
13	-1.584778223429	0.111748274569	-3.058066884
14	-1.96770968357	0.0730105884165	-3.7240933334
17	-1.47550932338	0.0267763866381	-1.4605450024
18	-1.81087514429	0.0317982593031	-1.7670527477

2.5T Calibration Constants are ~50% smaller than online reported CC's!