

# BPM Reliability



# Outline



- # Cryo Cable Reliability
- # Attenuator Heating
- # IFE Move
- # DX BPM Bakeouts

# Cryo Cable Reliability



## # Pin retraction

- solved (no failures so far!) with crimps
- We will TDR ring ASAP (as move into 919B is completed)

## # Warm end solder joint

- Correlated with high temperatures on warmup
- TDR and repair as required - expect only a few, if any

## # Damage during Rotator Installation

- BPM cable is only electrical path from cold mass to cryostat shell
- Improper weld grounds will damage cables

## # The plan is the Ring stays cold henceforth - this will reduce risk to BPM cryo cables

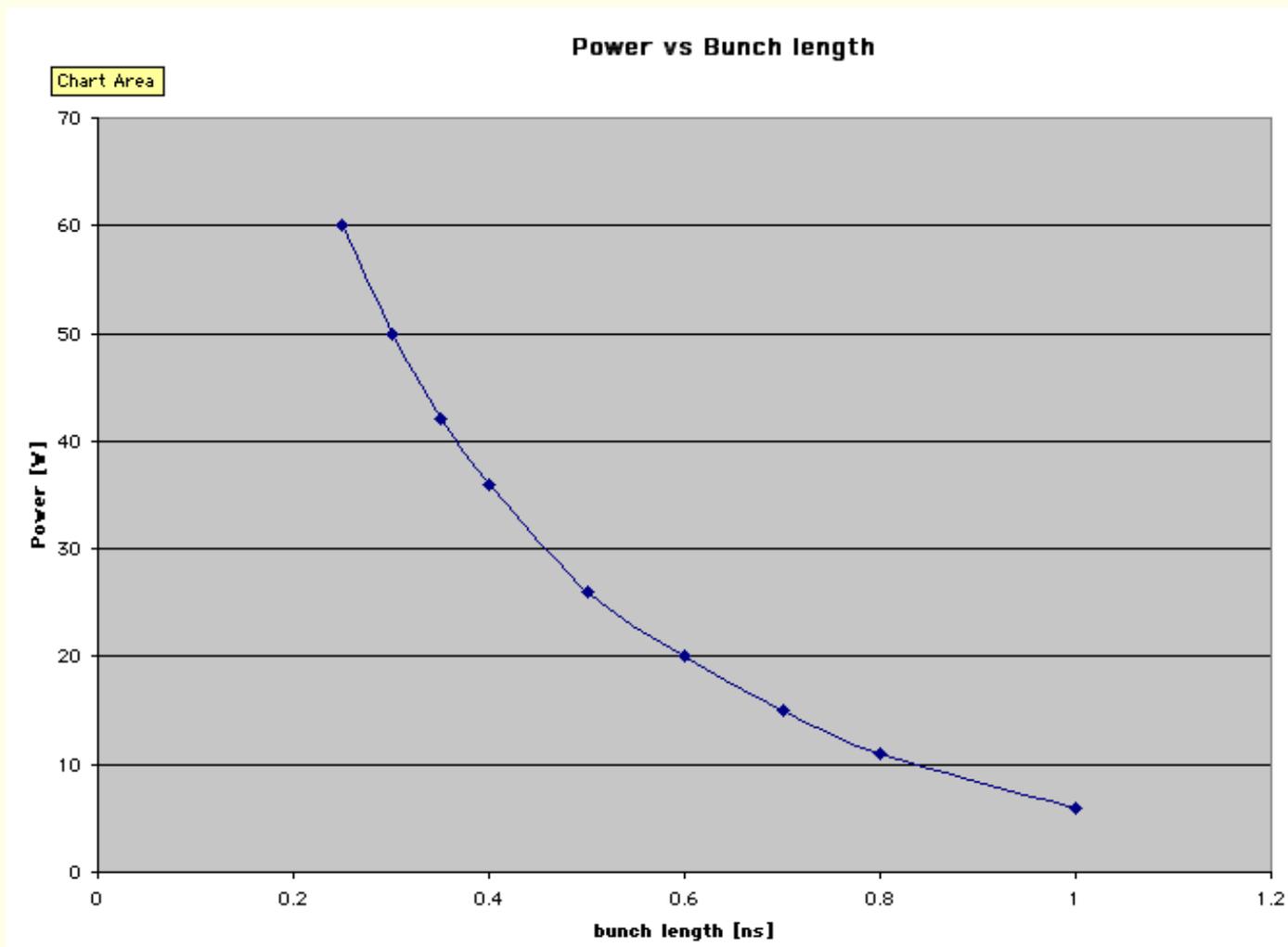
# Attenuator Heating



$$N = 3 \times 10^{11}$$

$$n_b = 120$$

50 ohms



# Partial IFE Move



- # Radiation damage threshold considerably lower than estimated
- # Failure is internal RAM in DSP - progressive and ultimately irreversible
- # Fix is to move IFEs to alcove - qty 111, cable qty 444
- # Estimated cost for 1/4 heliax ~ \$150K
- # Additional shielding at alcoves requires further investigation

ALCOVE	3A	3C		9A	9C		11A	11C
Blue CCW Pairs	3	8		12	7		10	8
Yellow CCW Pairs	3	8		12	7		10	8
Total CCW	6	16		24	14		20	16
Blue CW Pairs	8	14		9	12		8	12
Yellow CW Pairs	8	14		9	12		8	12
Total CW	16	28		18	24		16	24
Total Pairs/Alcove	22	44		42	38		36	40

# DX BPM Bakeouts



- # Copper braze joint between stripline and end flange of DX BPMs relaxes during 300C bakeout - 150C is acceptable
- # Fix is to pull feedthrus, yield striplines at machined root groove with special tooling
- # Exercise caution with DX BPM bakeouts