

# 3mm Progress Report

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# Summary

- We will not be able to install the five 3mm production systems on the CA until early 2004.
- We hope to install one final production 3mm system on the Array around Sept/Oct 2003. Note however, that this system's LO will not be compatible with the three existing units on the CA and cannot, therefore, be used as another component of the Array.
- Final system (as it currently stands), will only be able to cover 85-110GHz.

# The Problem

- Over optimistic estimates of the time required to obtain key 3mm LO components.

NB: The 3mm LO chain consists of

3 x doublers

4 x power amplifiers

1 x 3mm mixer

Most of these circuits (a mixture of GaAs and InP devices) have had to be designed from scratch

# The Problem cont...

- The process is a lengthy one and consists of the following steps:

Design

Fabrication

on-wafer tests

Dicing

Packaging

Bonding

Only then can we get to the stage of overall system design (with the proper parameters) and integration.

# The Problem cont...

- External Contracts (?)

Sorry we can't use this as an excuse on this project,  
however .....

# Why is it so hard?

- Other 3mm systems currently in use, either use SIS junctions (which require 4K refrigeration systems and quite low LO power), or are relatively narrowband and require mechanical tuning (LO and/or mixer).
- We are being actively pursued by RA astronomy facilities around the world for access to our 3mm technology, including LNAs, OMTs, etc.