

VLBA ACQUISITION MEMO #284
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To: VLBA Data Acquisition Group
 From: Alan E.E. Rogers
 Subject: Tests of prototype phase calibration pulse generator

Power Requirement:	600 <i>ma</i> at 15 <i>v</i>
Reference Input:	500 MHz + 13 <i>dBm</i> nominal Divider continues to function to 0 <i>dBm</i> or 5 MHz + 13 <i>dBm</i> with jumper change.
TTL Control Inputs:	ON/OFF Low = ON = default with no connection 5/1 MHz rail spacing High = 1 MHz = default
Outputs:	Tunnel diode pulses Gating signal for microwave switch 5 or 1 MHz (depending on rail spacing) 1 volt into 50 Ω
Stability:	Warm-up drift 20 <i>ps</i> Voltage sensitivity 5 <i>ps/volt</i> at 15 <i>v</i> Input level sensitivity <5 <i>ps/dB</i> Temperature coefficient \sim 1 <i>ps/°C</i>
Output pulse shape - see Figure 1 - All tests were made with NARDA S213 2-18 GHz microwave switch	
Output Spectrum:	-80 \pm 1 <i>dBm</i> at 2 GHz -94 \pm 1 <i>dBm</i> at 8 GHz -98 \pm 2 <i>dBm</i> at 12 GHz -110 \pm 3 <i>dBm</i> at 22 GHz No measurement yet at 43 and 86 GHz Levels increase by 14 <i>dB</i> for 5 MHz rail spacing
Spectral Flatness:	0.1 <i>dB p-p</i> over 10 MHz freq. > 1 GHz 0.5 <i>dB p-p</i> over 500 MHz 1 < <i>f</i> < 12 GHz (slope removed)
VSWR	1.07:1 at 8 GHz

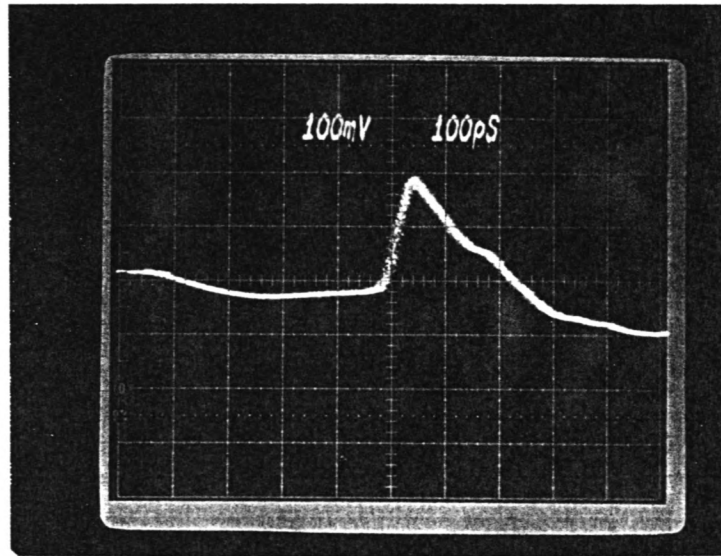


Figure 1. Output pulse - viewed through NARDA Switch - using Tektronix sampling scope with ≈ 30 ps rise time.