In flight outputs also include data from the MAID system. This system receives sensor parameters from the IRU and the RTSP to provide a paper log with entries every 2 minutes as well as a CCT containing more densely sampled data. A strip chart record of several key parameters is generated on the RMS recorder fully annotated with scale and time. In flight imagery outputs are summarized in Table IV.

The *ground outputs* include reproduction of the RTSP data on a high quality photographic media using the MDA, FIRE-240 or transcription to computer compatible tape (CCT). It also includes flexible processing of the signal data using the MDA, G-SAR processor on the C-SHARP system [3]. Many users will find the RTSP CCT's and their FIRE-240 images will be a quick-turn-around high quality product, ready for image analysis work. MAID CCT data can be recovered for further analysis and track recovery. Work is currently underway on development and enhancements to these outputs including precision geometric and radiometric corrected products.

The format of the signal HDDT is given in [10]; the format of the Signal CCT's generated from this HDDT is given in [2]; and the format of C-SHARP image CCT's is given in [6]. The format of the Image HDDT is given in [15]; and raw image CCT format generated from this HDDT is described in [7]. All CCT's are in Standard format [16].

Table II: **C-Band SAR Standard Configurations.**

LOOK DIRECTION*	Starboard | Port
TRANSMITTER POLARIZATION*	Horizontal | Vertical
PRF/V (1/m)†	2.57 | 2.32
RECEIVER COARSE ATTENUATION (dB)	0 | 6 | 12 | 18 | 24 | 30 | 36 | 42
RECEIVER FINE GAIN (dB)	0 to 63.5 in steps of 0.5
TRANSMITTER OUTPUT†	Test | Full
STC LAW*	Test | Land | Ice | Ocean rough | Ocean smooth
ANTENNA ELEVATION OFFSET (deg)	-20 to 20 in steps of 0.1
RANGE DELAY OFFSET* (μs)	-190 to 20 in steps of 0.1
NOMINAL TERRAIN ALTITUDE* (ft) ASL	-32000 to 35000
IMAGING MODE* (Resolution)	Nadir (high) | Narrow (high) | Wide (low)
REAL-TIME AZIMUTH PROCESSOR	
Processor Gain	6 Values 1/16 to 8
Channel*	H | L
Presentation	Ground | Slant
Active looks	1-7
HARDCOPY OUTPUT IN AIRCRAFT	
Imaged Swath*	All modes: Full; Wide Swath
Subswath*	1 | 2; 1 | 2 | 3 | 4
RECORDING RANGE COMPRESSED SIGNAL	
Swath	Full | Half
Polarization	H | L
Subswath	near | far

3 TEST RESULTS

3.1 Impulse Response

In this section, some preliminary results on the impulse response of the RTSP imagery are given. These measurements were made by stripping the image HDDT to CCT (Fig. 5) and then using the image analysis capability of the C-SHARP system, to evaluate the point target[2] response.

In the analysis, the point target is selected and inspected for suitability centred in a small subimage of approximately 8 × 8 raw data pixels. This subscene is then converted to a power representation by squaring the input data values and interpolated to give results as shown in Fig. 6. Peak values, distribution widths, point target to clutter ratio, and integrated side lobe can then be determined from the interpolated impulse response.

Table V is a set of results for the three imaging modes of the radar taken from scenes of the Ottawa area acquired on May 8, 1987. The results are very close to the design goals presented in Table VI of Section 3.3 and show that the radar is performing very well. In each case, the range refers to slant range and both azimuth and range resolu-

[2]The targets identified were probably metal lamp posts or other small strong scatterers in the imagery.

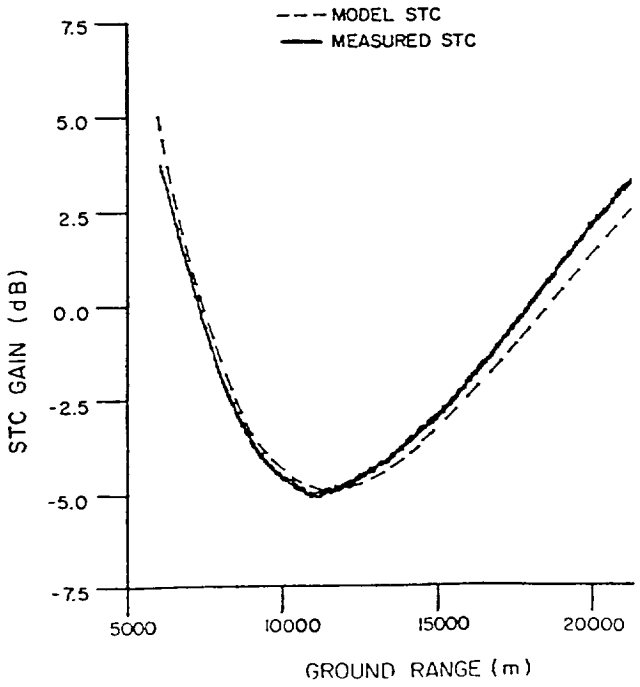

Figure 4: STC Gain for Narrow Swath Mode, Land Terrain Reflectance Model.
The STC gain is shown in dB as a function of radar ground range. The dashed curve is the theoretical STC model using equation (1) and the full line is the test results using ERU BITE noise processed by the RTSP. The agreement in the two results is better than 0.5 dB and shows that the model is well reproduced by the system hardware.