National Radio Astronomy Observatory
Tucson, Arizona

October 17, 1985

MEMORANDUM

TO: D. Hogg

FROM: J. Payne

SUBJECT: 345 GHz Receiver Used at 270-312 GHz

We have just tested the 345 GHz receiver with mixer #14 (nominally 270-290 GHz).

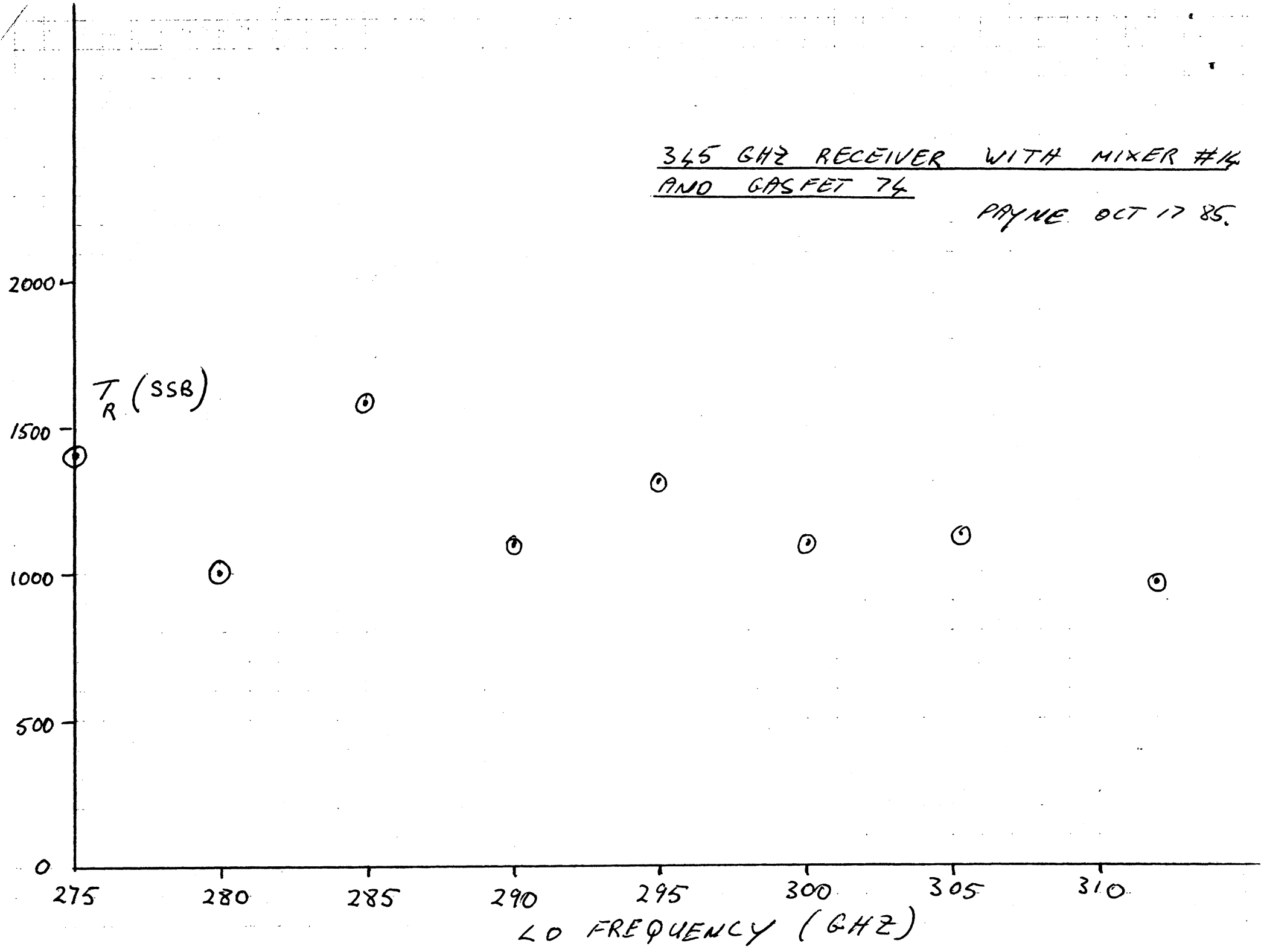
The results are shown in the attached graph. The measurements were made with a 600 MHz bandwidth using standard hot/cold loads. The numbers on the graph are simply the measured double side band numbers multiplied by two.

The L.O. system was the quasi optical tripler designed by John Archer.

It is my opinion that we should, in the long term, equip the 200-300 GHz receiver with this tripler (redesigned for remote tuning) and a low frequency version of the tripler to cover the 200-270 GHz band. We could at that time redesign the diplexer on the 200-300 GHz receiver to enable operation at 345 GHz. We would then be able to cover the 200-310 GHz band and the 345 GHz band with one receiver as was originally intended.

In the short term we can use the 345 GHz receiver at both 345 GHz and 270-310 GHz by changing the mixer. We should allow at least one day to do this.

c: J. Cochran
R. Kingsley
T. Kerr
P. Siegal
M. Balister
S. Weinreb
P. Jewell


345 GHz RECEIVER WITH MIXER #4
AND GASFET 74
PAYNE OCT 17 85.
2000
1500
1000
500
0
T_R (SSB)
275
280
285
290
295
300
305
310
LO FREQUENCY (GHZ)