Original copy of letter and carbon
Filed in Publication series

October 24, 1946
213 W. Seminary Ave.
Wheaton, Illinois

Dear Greenstein:

Thanks for your letter of the 22nd. I have read over our paper and it looks good to me. Recently I have run across some early work by the Japanese so I am including a short insert which gives some credit their way. Please order 100 reprints for me. I'll settle with you when we find out what they cost.

The paper by Townes also sounds alright, at least the parts of it which I understand. It's quite interesting that he gets nearly the same intensities for Friis and Feldman as I did in my note to you of August 12th. This lends weight to our statement at end of first paragraph page 7 that from 9.5mc to 480mc the intensity is constant within less than a factor of ten. To be able to make this statement with any assurance of its correctness is significant and shows how far the work has progressed in a very few years. Apparently Townes is not aware of the measurements of Franz at 30mc. Perhaps when you write to him you should mention Franz data and ask him if it is in agreement with his (Townes) theory.

I have no criticism of Townes' statements about my acceptance cone estimates. No actual measures have been made with balloons and the theoretical value is 11.5°. Errors of 50% or so can easily be included as we mention on page 5. My figures were obtained by indirect methods.

I am returning our paper herewith. Unfortunately I couldn't ascertain from your letter whether or not you wanted Townes' paper returned. If you do, just drop me a postcard and I'll send it along.

Next time you have occasion to write me please give me Kuiper as I may want to write to him. address of

Later in the fall when I get my 480mc data reduced I'll be up to see you at Yerkes,

Best regards,

Grote Reber

Insert

This phenomenon seems to have been first observed by the Japanese ("Short Wave Propagation and Noise", D. Arakawa, Reports of Radio Research in Japan, 1936, Vol 6, No 1; "High Frequency Noise During Dellenger Effect", Nagagami and Miya, Electrotechnical Jnl. Japan, 1939, Vol 3, p316) but not recognized for its true worth. More recently (Range of FM and Television Stations by Norton and Allen, Federal Communications Commission Report 1946, p7) observations at 44.9mc have disclosed it early in February 1946.