

4100-113/56 eb

May 3, 1956

Mr. William L. North
Convener
FCC/IRAC Committee 45
Federal Communications Commission
Washington 25, D. C.

Dear Mr. North:

The revised table enclosed in your letter of 6 April 1956 has been reviewed. A number of minor changes have been made in the table, for example, the frequency of the OH line from 1658 to 1667 Mc.

Also enclosed is a revised table of the hydrogen, deuterium and hydroxyl line frequencies and their subharmonics which are the most critical frequencies with which radio astronomers are concerned.

I wish to take this opportunity to thank you for your cooperation in this matter and I'm certain that all radio astronomers share my appreciation for your efforts in our negotiations.

Sincerely,

John P. Hagen

Enclosures:

- (1) Table of requested frequency allocations for radio astronomy
- (2) Table of bands receiving protection for radio astronomy observations

Wash.
D. C.

Center Frequency	Option	Desired Bandwidth (kc)	Minimum acceptable bandwidth (kc)	Honolulu, T.H.	Belmar, N. J.	Bishop, Cal.	Boulder, Colo.	College, Alaska	Columbus, O.	Harvard, Mass.	Ithaca, N.Y.	D.T.M.	NRL	Greenbank, W.Va.	Fort Davis, Tex.	Portage Lake, Mich.
12	10-12	40	10					X				X				
22.7	20-25	200	10					X				X				
38	35-40	1000	10			X		X			X	X				
53	50-60	1000	40				X				X	X				
81.7		2000	40		X	X	X	X			X	X				
109	100-110	2000	40				X	X			X					
1/ 163.5		2000	100		X		X						X			
202	200-207	2000	100	X			X	X			X	X	X			
250	240-250	4000	100						X			X				
2/ 327		4000	3000							X		X	X			
1/ 355		2000	500							X	X	X	X			
413.25		500	100		X											
1/ 472		4000	1500			X	X	X	X	X	X	X	X			
709		4000	1000			X			X	X	X	X	X			
1371.5		7000	1000								X	X	X			
2/ 1113.5		27000	20000			X			X	X	X	X	X			
1/ 1667 (67)		10000	8000			X			X	X	X	X	X			
2840		10000	2000								X		X			
5680		16000	2000							X	X	X	X			
8520		10000	2000							X	X	X	X			
17040		50000	2000							X	X	X	X			
23800		50000	2000			X							X			
34090		80000	2000							X			X			

Site of national Radio Astronomy Observatory. Planned to be in operation by Jan. 1958. Needs protection on all bands.

Sweep frequency receivers 100 to 600 Mc. and 2000 to 4000 Mc. Planned to be in operation in one or two years.

U. of Michigan. Planned to be in operation in one or two years. Interested in all bands.

<u>Location</u>	<u>7/</u>	<u>Agency</u>
Belmar, N.J.		Signal Corps Engineering Labs.
Bishop, Calif.		Mt. Wilson and Potomac Observatory
Boulder, Colo.		National Bureau of Standards
College, Alaska		Geophysical Institute, Univ. of Alaska
Columbus, Ohio		Ohio State University
Fort Davis, Tex.		(at or near) Harvard College Obs. (USAF contract)
Greenbank, W. Va.		Associated Universities Inc.
Harvard, Mass.		Harvard College Observatory
Honolulu, T. H.		
Ithica, N.Y.		Cornell University
Portage Lake, Mich.		University of Michigan
Washington, D. C.		Carnegie Inst. of Wash., Dept of Terr. Mag.
Washington, D. C.		Naval Research Laboratory

Footnotes:

1. Subharmonics of line frequencies.
 2. Deuterium line frequency.
 3. Hydrogen line frequency.
 4. OH line frequency.
 5. Maximum tolerable interfering signal level- 10^{-2} microvolts per meter.
 6. Maximum tolerable interfering signal level- 3×10^{-2} microvolts per meter.
 7. 24 hour protection required at each location on each frequency being observed.
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BANDS RECEIVING PROTECTION FOR RADIO ASTRONOMY OBSERVATIONS

FREQUENCY BANDS	PRESENT ALLOCATION
A. (1). 327 Mc = 325-329 Mc	325-328.6 G 328.6-329 G/NG=glide path
(2). 1/2 Frequency = 162.5-164.5 Mc	G
(3). 1/ Frequency = 108.6-109.6 Mc	G/NG=Localizers and Gai= directional ranges.
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B. (1) 1420 Mc ± 7 Mc	
- 20 Mc = 1400-1427 Mc	G/NG=Aeronautical Radionavigation
(2) 1/2 Frequency = 708-712	NG-TV B/C
(3) 1/3 Frequency = 472-476	NG 466.6-470 Citizen's Radio 470-475.6 TV B/C
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C. (1) 1667 Mc ± 5 Mc = 1662-1672 Mc	G/NG 1653-1660 Aeronautical radionavigation 1660-1663- Radiosonde

Encl (2) to NRL ltr 4100-113/56