

RECEIVING MEASUREMENTS AND ATMOSPHERIC  
DISTURBANCES AT THE RADIO PHYSICAL  
LABORATORY, BUREAU OF STANDARDS,  
WASHINGTON, JULY AND AUGUST, 1923\*

By

L. W. AUSTIN

(CHIEF OF THE RADIO PHYSICAL LABORATORY, BUREAU OF STANDARDS,  
WASHINGTON, D. C.)

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Telegraphy*)

The observations for July and August afford some opportunities for a comparison of this summer's result with the corresponding values of last year.

Lafayette's change of frequency from 12.8 kilocycles per second (kc.) to 16.2 kc., mentioned in the May-June report, has been accompanied by an increase in signal strength in Washington of about 1.6 times. As far as is known, there have been no changes other than the change in frequency to explain the increase.

This, together with some observations on shorter wave stations, may indicate a distinct optimum frequency in the neighborhood of 16 kc. for northern trans-Atlantic communication, but of course it is still too early to draw definite conclusions on this point.

The signal strength of Nauen, both in the morning and during the afternoon fading, is practically the same as in the corresponding months last year. The atmospheric disturbances are considerably lighter than in 1922.

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FIELD INTENSITY OF NAUEN AND OF DISTURBANCES  
 $(f=23.4 \text{ kc. } \lambda=12,800 \text{ m})$  IN JULY, 1923, IN MICRO-VOLTS  
 PER METER

Date	9 A. M.		3 P. M.	
	Signal	Disturbance	Signal	Disturbance
2	34.7	30	6.5	150
3	47.0	30	2.0	210
5	30.0	40	*	135
6	23.4	30	*	125
7	16.3	42	....	—
9	30.0	25	*	160
10	19.0	35	*	180
11	23.4	30	*	300
12	34.2	20	2.0	200
13	22.0	22	*	180
14	17.0	30	**	....
16	13.7	100	*	380
17	55.7	48	16.1	240
18	42.0	60	18.0	60
19	36.4	48	18.4	150
20	47.0	65	12.2	100
21	**	60	....	....
23	55.7	48	2.0	150
24	42.7	48	*	240
25	42.0	65	*	380
26	72.5	30	27.0	100
27	....	....	....	....
28	....	....	....	....
30	**	28	*	360
31	**	15	6.3	130
Average	35.2	41.2	5.5	196.5

\*Not heard.

\*\*Not sending.

...Not taken.

FIELD INTENSITY OF LAFAYETTE AND OF DISTURBANCES  
 $(f=15.9 \text{ } kc. \text{ } \lambda=18,900 \text{ } m)$  IN JULY, 1923, IN MICRO-VOLTS  
 PER METER

Date	9 A. M.		3 P. M	
	Signal	Disturbance	Signal	Disturbance
2	**	40	66.3	200
3	126.0	35	40.4	260
5	120.0	50	24.5	135
6	66.3	35	2.0	180
7	84.0	60	....	....
9	108.0	35	15.0	170
10	120.0	55	*	210
11	102.0	48	42.3	350
12	137.0	30	57.3	280
13	140.0	25	36.2	200
14	120.0	40	....	....
16	77.2	160	2.0	410
17	330.0	60	102.0	260
18	108.0	50	84.0	70
19	160.0	65	114.0	150
20	160.0	80	84.0	130
21	90.0	75	....	....
23	168.2	80	45.2	175
24	156.2	65	18.0	280
25	150.0	55	2.0	350
26	175.0	80	60.0	150
27	....	....	....	....
28	....	....	....	....
30	150.0	35	2.0	550
31	66.3	20	40.2	150
Average	132.4	55.5	41.9	232

\*Not heard.  
 \*\*Not sending.  
 ....Not taken.

FIELD INTENSITY OF NAUEN AND OF DISTURBANCES  
( $f=23.4$  kc.,  $\lambda=12,800$  m.) IN AUGUST, 1923, IN MICRO-VOLTS  
PER METER

Date	9 A. M.		3 P. M.	
	Signal	Disturbance	Signal	Disturbance
1	26.0	10	10.5	150
2	25.7	65	10.0	200
3	**	20	....	....
4	26.2	60	....	....
6	25.6	35	*	300
7	25.0	55	....	....
11	25.6	50	....	....
13	25.6	25	15.0	200
14	38.2	40	*	110
15	25.6	60	2.0	200
16	34.2	50	*	250
17	26.6	45	*	200
18	25.7	30	....	....
20	47.0	30	9.3	100
21	21.5	20	*	280
22	27.0	30	*	250
23	30.0	20	2.0	80
24	25.7	48	30.0	120
25	25.7	40	....	....
27	30.2	25	2.0	240
28	27.0	60	9.0	250
29	**	50	*	280
30	18.0	65	*	200
31	31.0	50	*	500
Average	27.8	40.9	5.0	217.1

\*Not heard.  
\*\*Not sending.  
.. Not taken.

FIELD INTENSITY OF LAFAYETTE AND OF DISTURBANCES  
( $f=15.9$  kc.,  $\lambda=18,900$  m.) IN AUGUST, 1923, IN MICRO-VOLTS  
PER METER

Date	9 A. M.		3 P. M.	
	Signal	Disturbance	Signal	Disturbance
1	102.0	15	60.2	180
2	84.0	85	90.0	250
3	152.0	25	....	....
4	84.0	65	....	....
6	60.0	50	72.2	320
7	78.2	75	60.0	300
11	102.0	80	....	....
13	78.2	35	54.0	250
14	78.2	35	42.2	110
15	120.0	60	30.4	250
16	**	65	18.0	300
17	84.0	60	2.0	250
18	145.0	45	....	....
20	152.0	35	60.2	110
21	126.0	25	25.4	300
22	84.0	30	30.0	300
23	96.0	25	96.0	100
24	152.0	45	120.0	150
25	126.0	50	....	....
27	120.0	25	48.3	240
29	**	60	30.2	300
30	120.0	80	40.0	250
31	120.0	60	2.0	630
Average	107.7	49.1	48.9	255

\*Not heard.

\*\*Not sending.

..Not taken.

# RATIO OF AVERAGES

<i>f</i> kilocycles	Signal	Disturbance	A. M.	P. M.
	P. M.	P. M.	Signal	Signal
	A. M.	A. M.	Disturbance	Disturbance
JULY				
15.9	0.316	4.18	2.38	0.180
23.4	0.156	4.77	0.854	0.028
AUGUST				
15.9	0.454	5.20	2.19	0.192
23.4	0.180	5.31	0.680	0.023

Radio Physical Laboratory,  
Bureau of Standards,  
September 25, 1923.

SUMMARY: The signal strengths of the Nauen and Lafayette Stations, and the corresponding strength of the atmospheric disturbances in Washington are given for July and August, 1923.