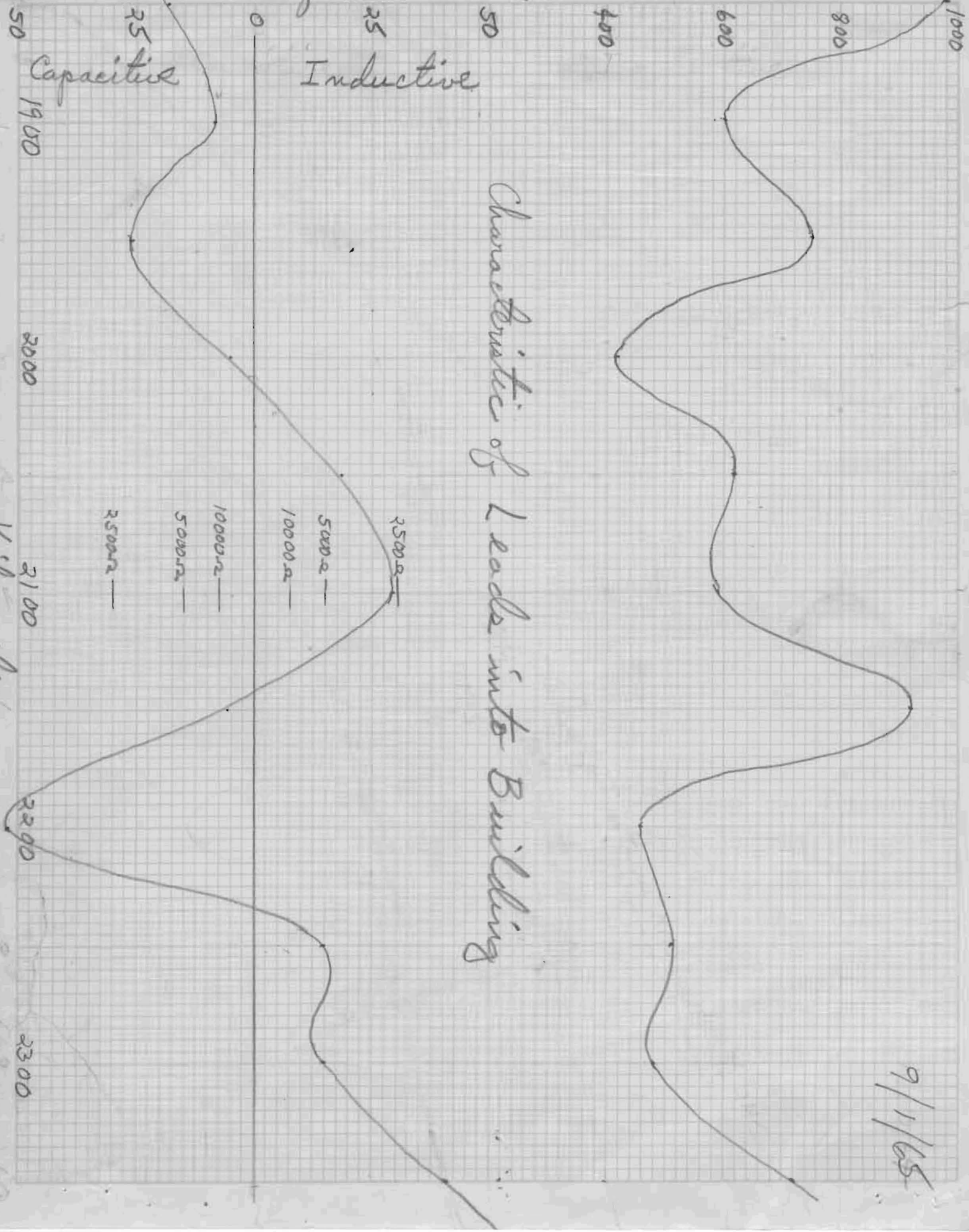


Shunt Reactance in Equivalent Picos.

Resistance in Ohms.



Characteristics of Leads into Building

Kilocycles

9/1/65

Performance of Leads into Building 9/1/65

Beam at Z_0^0	Conductance mU	Reactance Dial	Resistance of	Reactance LoC	Resistance ohms	Reactance pf	Resistance ohms	LoC
1850	1.02	68	0	C	980	18.0	4780	C
1900	1.67	52	0	C	600	8.5	9870	C
1950	1.33	79	0	C	750	26.0	3140	C
2000	2.36	44	0	C	420	5.0	15900	C
2050	1.61	68.0	0	L	620	18.0	4310	L
2100	1.70	82.5	0	L	590	29.0	2610	L
2150	1.08	47	0	C	920	6.0	12400	C
2200	2.17	102	0	C	460	51.5	1410	C
2250	1.96	63	0	L	510	15.0	4720	L
2300	2.08	63	0	L	480	15.0	4620	L
2350	1.39	94	0	L	720	41.0	1650	L

Bridge center grounded both cases.

Beam at $S16^6$ 3/4/65

1850	1.34	77	0	L	25
1900	1.59	85	0	C	32
1950	1.98	52	0	C	8
2000	2.01	74	0	L	22
2050	1.67	66	0	L	16
2100	1.61	57	0	L	11
2150	1.57	48	0	C	6
2200	1.68	82	0	C	29
2250	2.15	39	0	C	3
2300	2.00	52	0	L	8
2350	2.04	67	0	L	17

19/3/65

1mc 406 pf ~~173~~ ^Q C₀ = $\frac{6}{3} = 2 \text{ pf.}$

2mc 100 218

$L_0 = \frac{1}{(6.28 \cdot 10^6)^2 \cdot 406 \cdot 10^{-12}} = \frac{1}{1610} = 62.5 \mu\text{h.}$ 62 turns

MC pf Q
1.5 329 183
2.1 166 210
3.0 80 230

C₀ = $\frac{9}{3} = 3 \text{ pf.}$

38 turns.

$L_0 = \frac{1}{(6.28 \cdot 1.5)^2 \cdot 332} = \frac{1}{88.4 \cdot 332} = \frac{1}{29400} = 34.1 \mu\text{h.}$

1.5 340 181
2.1 173 207
3.0 83 230

C₀ = $\frac{340 - 332}{3} = \frac{8}{3} = 3 \text{ pf.}$

37 turns

$L_0 = \frac{1}{(6.28 \cdot 1.5)^2 \cdot 343} = \frac{1}{88.4 \cdot 343} = \frac{1}{30300} = 32.0 \mu\text{h.}$

13/3/65

$L/d = 31/1.65 = 1.88$ 18 tpe.

assume following: Then:

n	L	L/d	L/d	L wh
30	1.66	1.01	15.3	25.3
40	2.22	1.35	22.5	37.1
50	2.78	1.68	29	47.9
60	3.33	2.0	37	61.1
70	3.89	2.36	44	72.7
80	4.41	2.69	49	81.0

Make 2 coils 2" long
1" 3 1/2"

38 turns = 2.1 inches.

62 turns = 3.43"

25/3/65

Tabulation of Calibration Curve for Balanced Unknown 1 Mc/s

pf	dial	pf	dial	pf	dial	pf	dial
0	31	30	83	60	108	90	123
2	37	32	85	62	109	92	124
4	43	34	87	64	110	94	125
6	47	36	89	66	111	96	126
8	51	38	91	68	112	98	127
10	55	40	93	70	113	100	128
12	58	42	95	72	114	102	129
14	62	44	97	74	115	104	130
16	65	46	98	76	116	106	131
18	68	48	100	78	117	108	132
20	71	50	101	80	118	110	133
22	74	52	102	82	119	112	134
24	76	54	104	84	120	114	135
26	79	56	105	86	121	116	136
28	81	58	107	88	122	118	137
						120	138

Antenna at N32°

8/5/65

Transmission line characteristics at building.

KC	millimhos	Ohms.	uf	deal	pf	total pf	Xc	LoC
1850	1.53		0	98.5	46			C
1900	1.67		0	59	12			C
1950	1.61		0	54	10			C
2000	1.73		0	73	21			C
2050	1.81		0	47	4			C
2100	1.68		0	34	1			C
2150	1.62		0	72	21			C
2200	1.77		0	90	37			C
2250	2.19		0	52	8			C
2300	1.96		0	67	17			L
2350	2.23		0	61	13			L
2020	1.80		0	70	19			C
2070	1.72		0	40	3			C
2090	1.72		0	39	3			C
2100	1.68		0	34	1			C
2110	1.61		0	33	1			C
2120	1.53		0	44	5			C

Antenna at $N8^\circ$

29/5/65

Transmission line characteristics into building

Kc	millimhos	char. of	dist	pf	total pf	Xc	Loss
1850	2.28	.	111	66			L
1900	1.88		106	57			L
1950	1.57		97	44			L
2000	1.51		76	24			L
2050	1.53		33	1			L
2100	1.72		35	2			L
2150	1.66		38	2			L
2170	1.58		40	3			L
2180	1.53		37	2			C
2200	1.61		65	16			C
2220	1.73		67	17			C
2250	1.76		50	7			C
2300	1.71		78	25			C
2350	1.98		90	37			C

Antenna at 58°

29/5/65

Transmission line characteristics at building.

KC	millimhos	Ohms	pf.	dial	pf	total pf	Xc	Lo or C
1850	2.27			103	53			L
1900	1.79			104	54			L
1950	1.61			83	36			L
2000	1.58			73	21			L
2050	1.63			49	7			L
2100	1.61			56	10			L
2150	1.63			41	4			L
2170	1.51			41	3			L
2180	1.46			39	3			C
2200	1.57			72	21			C
2250	1.63			49	7			C
2300	1.63			86	33			C
2350	2.17			96	43			C

Beam 30° S

23/6/65

KC	milli			Dial		Total	X	Loc
Freq.	m/sec	slum.	uf.		pf.	pf.	slum.	
1850	.78		0	79	26			L
1870	.78		0	42	4			L
1880	.83		0	50	8			C
1900	.94		0	73	21			C
1950	1.35		0	87	34			C
2000	1.37		0	97	44			C
2050	2.56		0	90	37			C
2060	2.43		0	47	6			C
2090	2.08		0	36	2			L
2100	2.05		0	43	4			L
2150	1.40		0	82	29			L
2200	1.10		0	46	6			L
2210	1.06		0	40	3			C
2220	1.07		0	62	14			C
2250	1.26		0	81	28			C
2300	1.46		0	98	46			C
2350	1.65		0	109	62			C

Beam at $Z0^\circ$

7/7/65

KC	millimhos	olms.	sf	dial	pf	^{pf} total	Xolms	Loc
1850	1.03			36	2			L
1900	1.38			63	15			L
1920	1.11			60	13			L
1930	1.01			35	1			L
1940	.97			62	14			C
1950	1.01			85	32			C
2000	2.22			82	29			C
2050	1.61			40	3			C
2080	1.85			52	8			C
2090	1.90			33	0			L
2100	1.85			56	10			L
2130	1.44			51	8			L
2140	1.36			39	3			C
2150	1.34			67	17			C
2200	2.55			94	41			C
2210	2.78			34	1			C
2220	2.56			69	19			L
2250	1.95			91	38			L
2300	1.90			80	27			L
2350	1.23			97	44			L

Beam 40° N

14/7/65

KE	millimhos	olms	uf	dial	pf	total pb	X olms	L or C
1850	1.06		-	63	15			L
1900	1.53			43	4			L
1920	1.37			36	2			L
1930	1.36			42	4			C
1950	1.41			53	9			C
2000	1.50			81	28			C
2050	1.84			71	20			C
2100	1.72			50	8			C
2150	1.76			54	10			C
2170	1.77			46	6			C
2190	1.78			31	0			L
2200	1.74			44	5			L
2230	1.52			41	4			L
2240	1.49			41	4			C
2250	1.48			50	8			C
2300	1.67			74	22			C
2350	1.84			77	25			C

Beam N8°

24/7/65

Freq.	KC	millimiles	ohms.	rf.	dial	pf	total X pf.	ohms.	Loc.
	1850	2,32			97				L
	1900	1,88			102				L
	1950	1,69			88				L
	2000	1,66			77				L
	2050	1,61			53				L
	2100	1,67			59				L
	2150	1,58			45				L
	2170	1,50			41				L
	2180	1,44			33				C
	2200	1,46			61				C
	2250	1,70			75				C
	2300	1,70			90				C
	2350	2,10			106				C

Beam S24⁰

28/7/65

Freq Kc	Bridge. millimhos ohms.	Capacity uf. Dieh	Total pf.	X ohms	Loc C
1850	2.00	0	113		C
1900	2.20	0	81		C
1950	2.13	0	51		C
1960	2.16	0	39		C
1970	2.14	0	47		L
2000	1.82	0	60		L
2050	1.79	0	41		L
2100	1.67	0	58		L
2130	1.51	0	41		L
2140	1.50	0	34		C
2150	1.50	0	45		C
2200	1.63	0	71		C
2250	1.84	0	65		C
2300	2.03	0	41		C
2320	2.03	0	31		L
2330	2.08	0	38		L
2350	2.13	0	60		L

Beam 524°

4 Aug 65

KE	millimbs	R ohms.	uf.	dial	pf	Total pf.	X ohms	L/c
1850	2.03		-	115				C
1900	2.19		-	69				C
1950	2.11		-	61				C
1960	2.16		-	46				C
1970	2.13		-	42				L
2000	1.82		-	52				L
2050	1.87		-	55				L
2100	1.58		-	57				L
2120	1.57		-	41				L
2130	1.50		-	32				L
2150	1.53		-	52				C
2200	1.64		-	63				C
2250	1.84		-	78				C
2280	2.12		-	55				C
2290	2.08		-	39				C
2300	2.04		-	36				L
2350	2.07		-	62				L

Quite wet. Been raining in past half hour.

Beam N24°

11/8/65

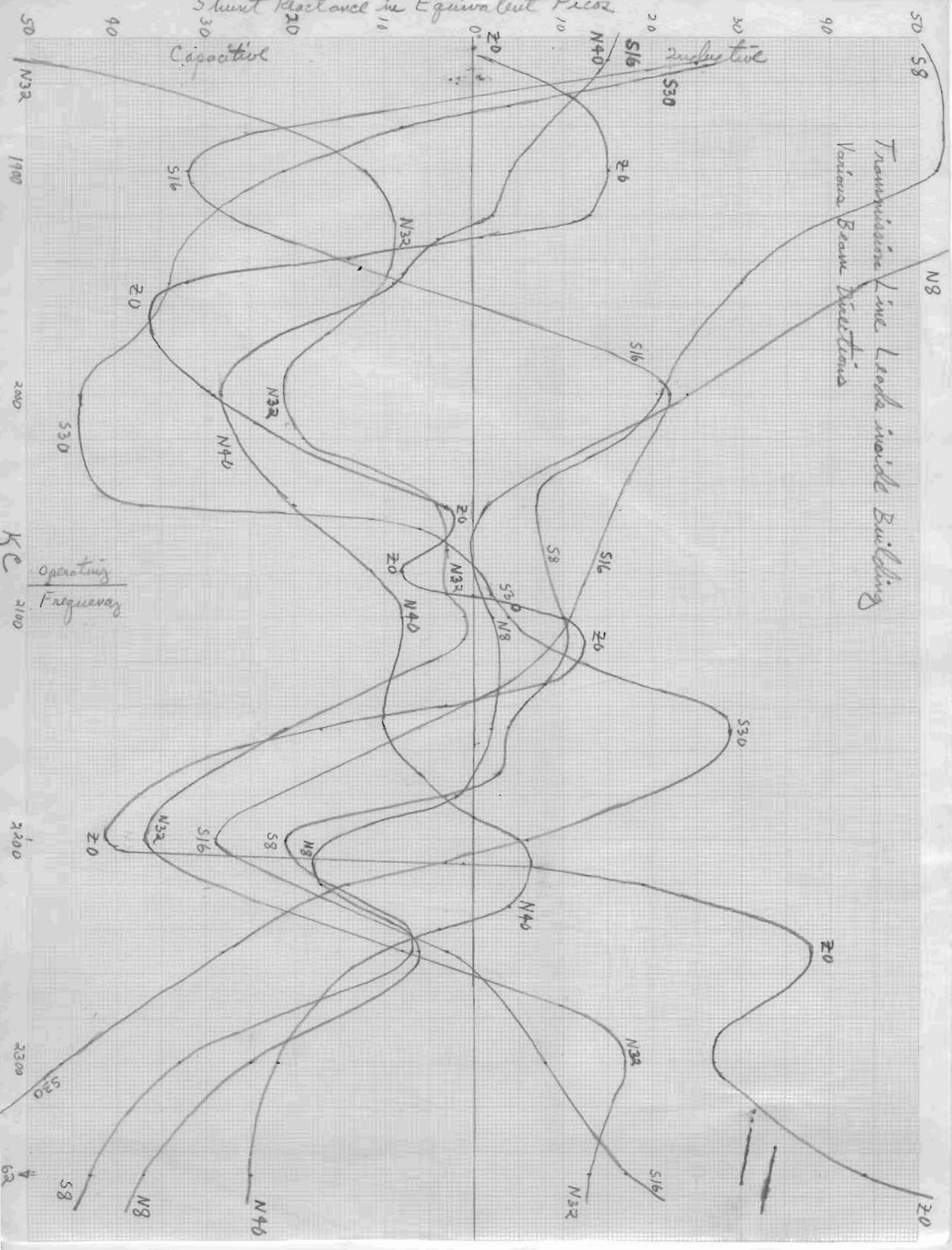
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1850	1.47	.	-	135	135		C
1900	2.46			135			C
1930	3.17			97			C
1940	3.11			44			C
1950	2.90		-	72			L
2000	1.98			88			L
2050	1.67			72			L
2100	1.60			53			L
2150	1.59			37			L
2200	1.50			33			L
2210	1.45			36			C
2220	1.42			44			C
2250	1.39			76			C
2300	1.95			107			C
2350	2.62			61			C

Shunt Reactance in Equivalent Picos

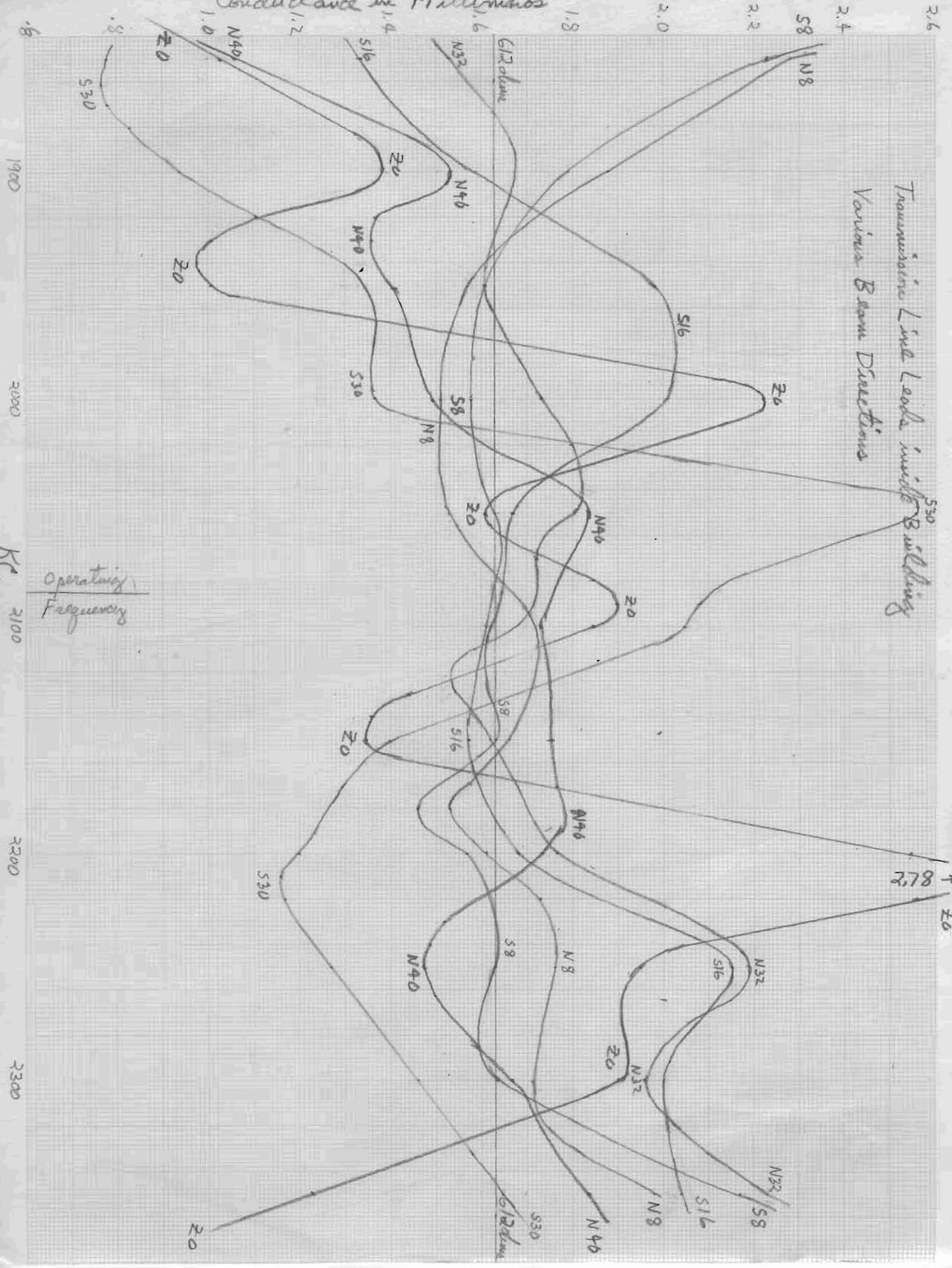
Capacitive

Inductive

Transmission Line Loads inside Building
Various Beam Directions



Conductance in Millimhos



Transmission Line Load inside Building
Various Beam Directions

530

2278
Z0

Operating Frequency
KC

