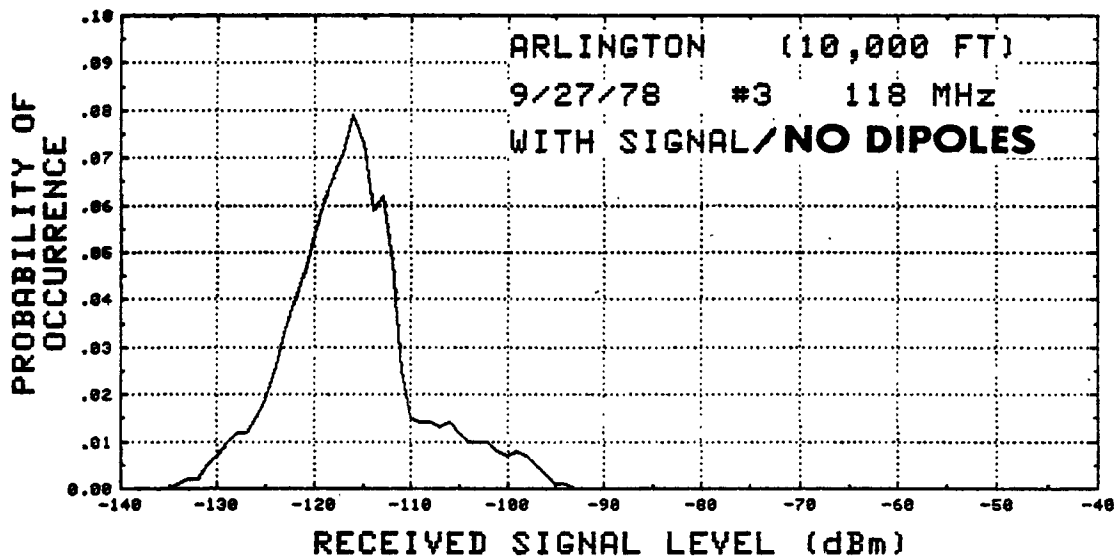

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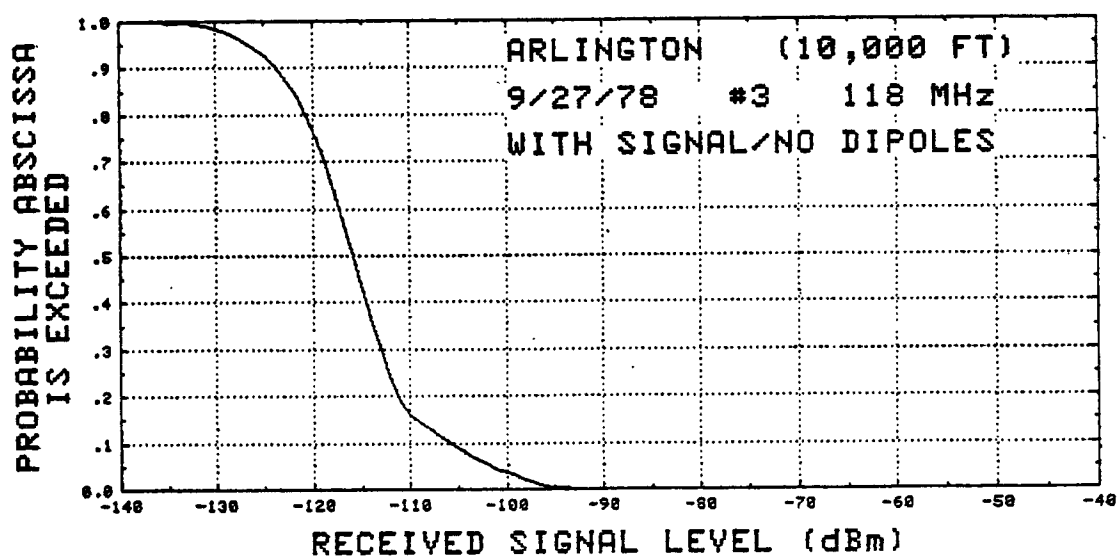

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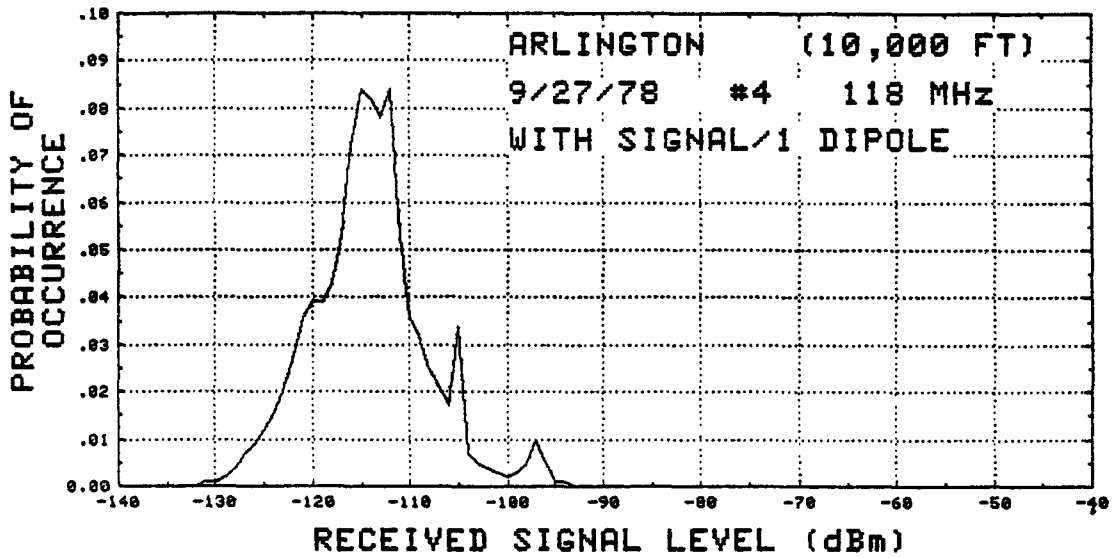

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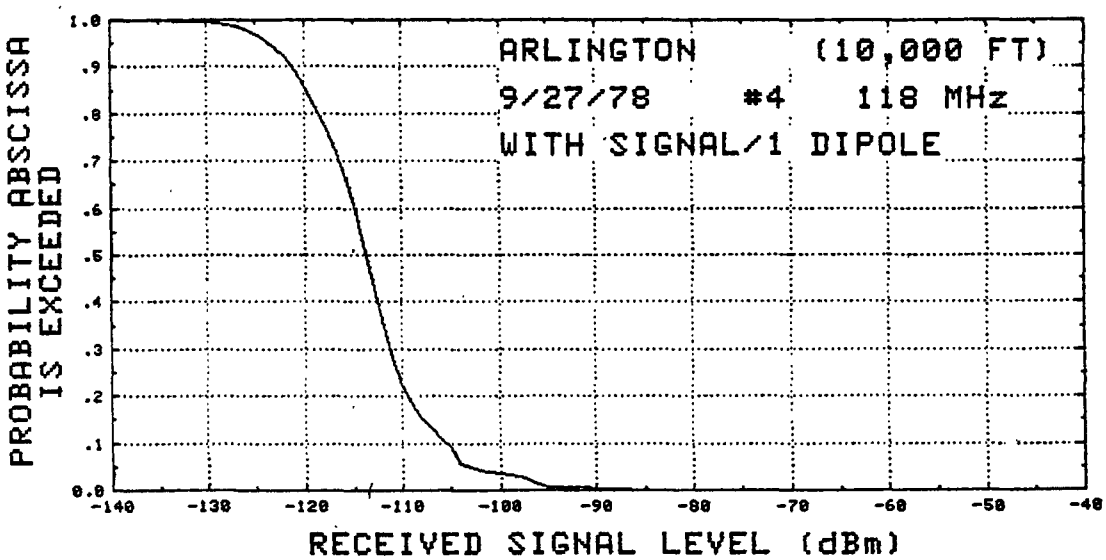

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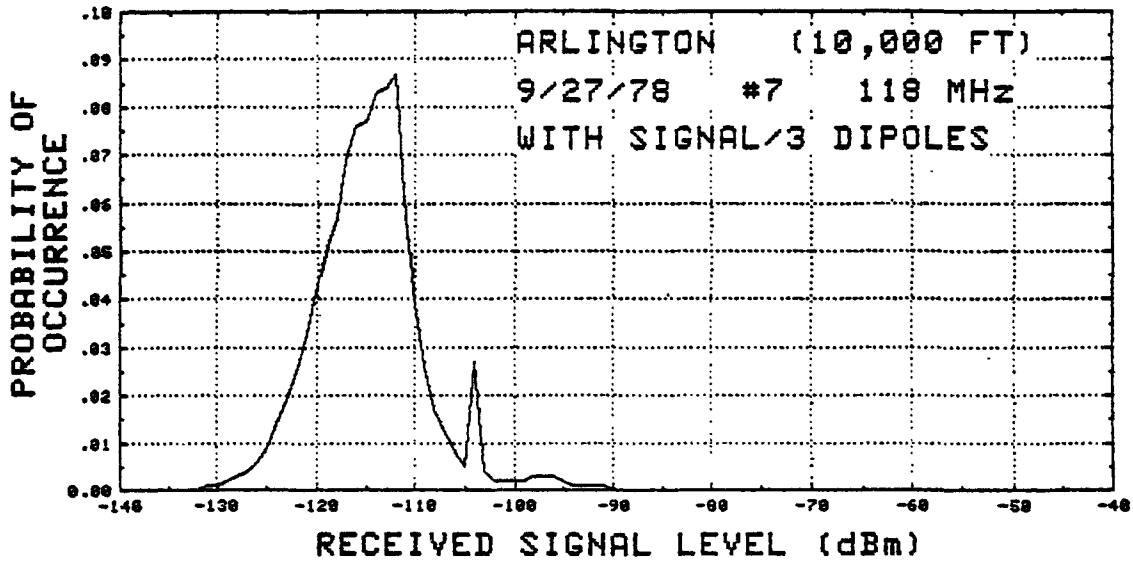

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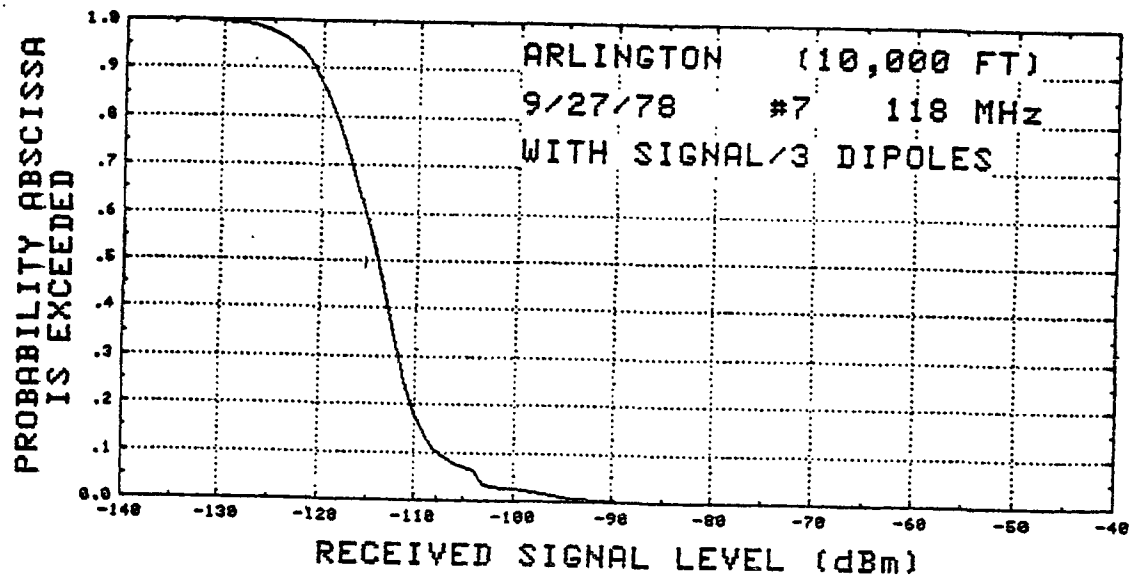

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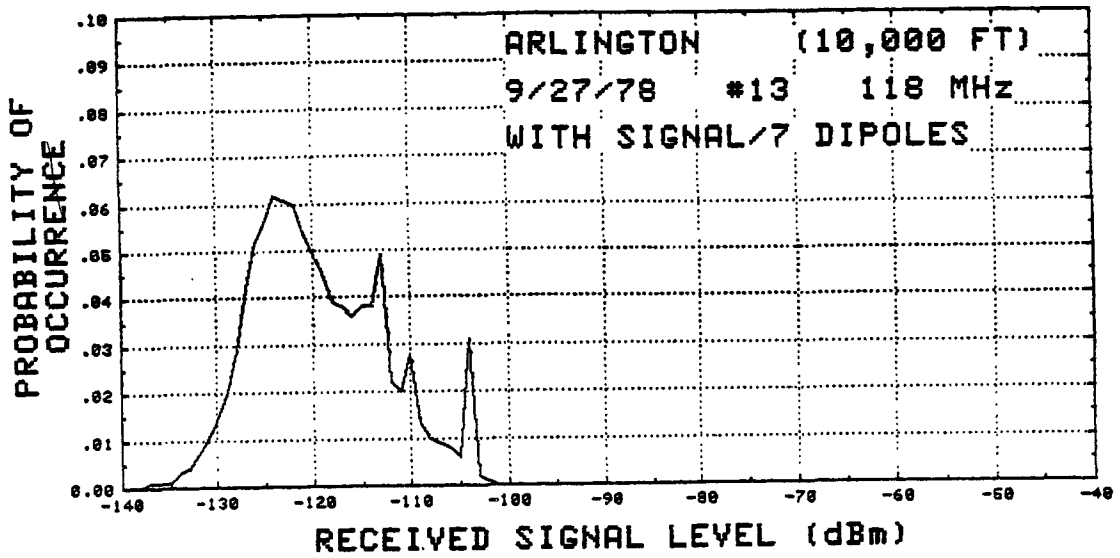

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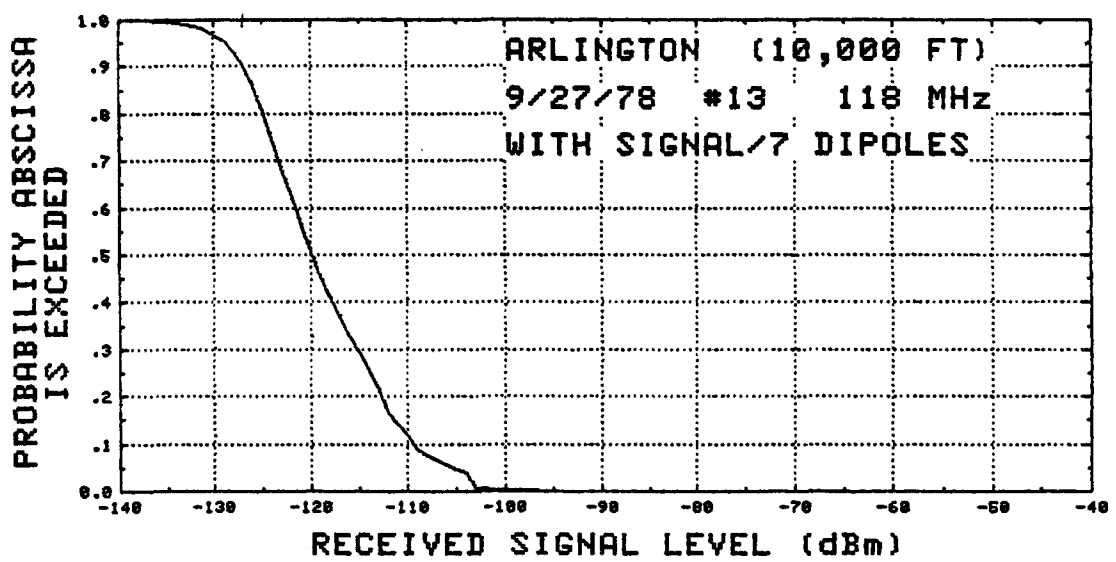

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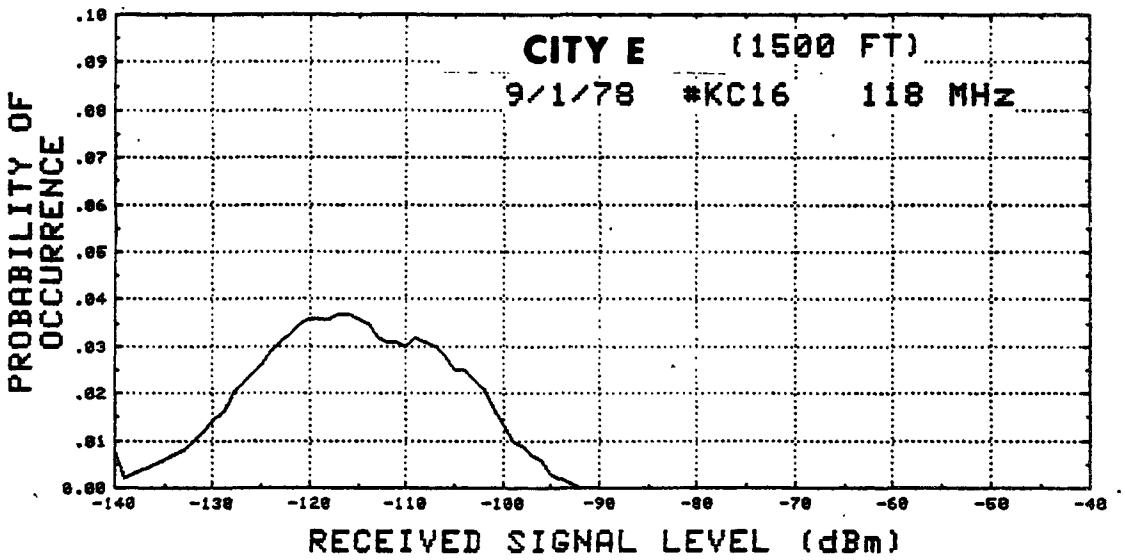

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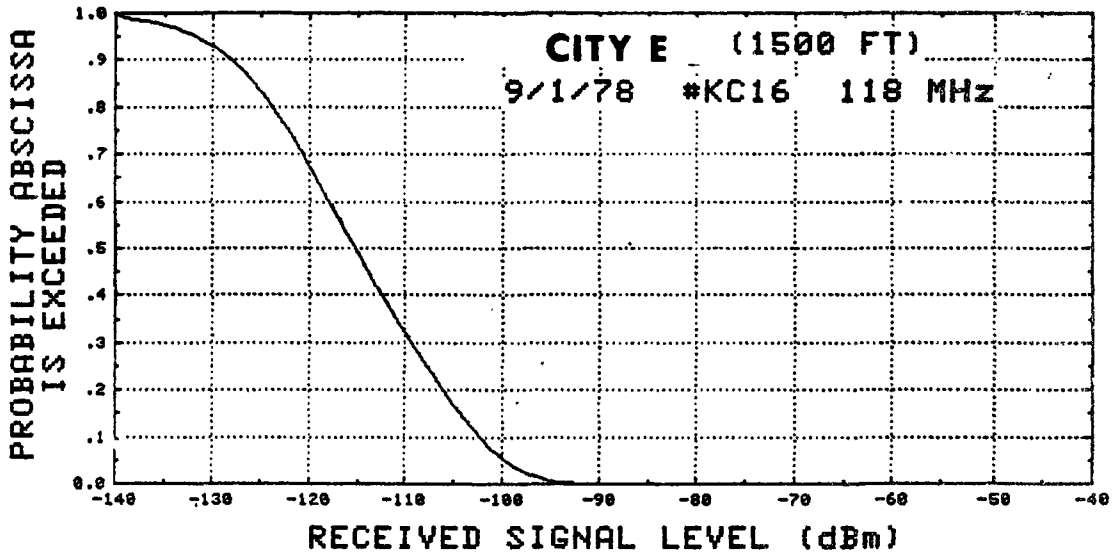

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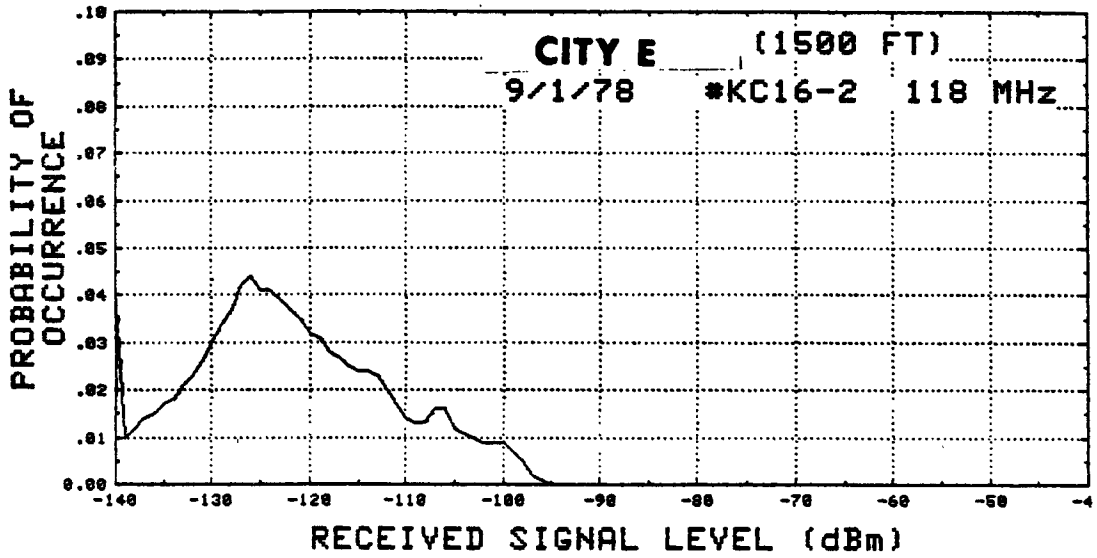

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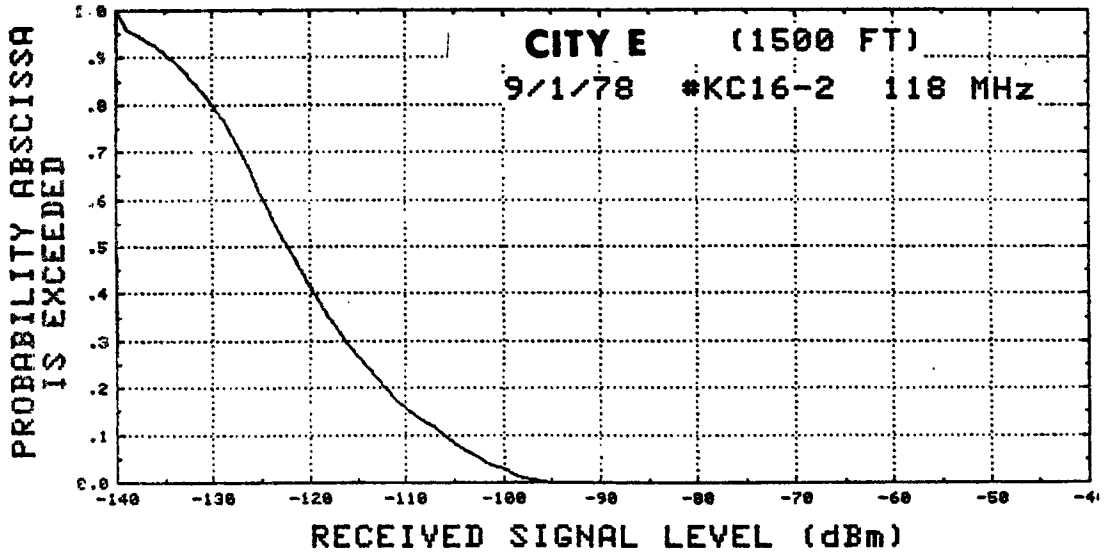

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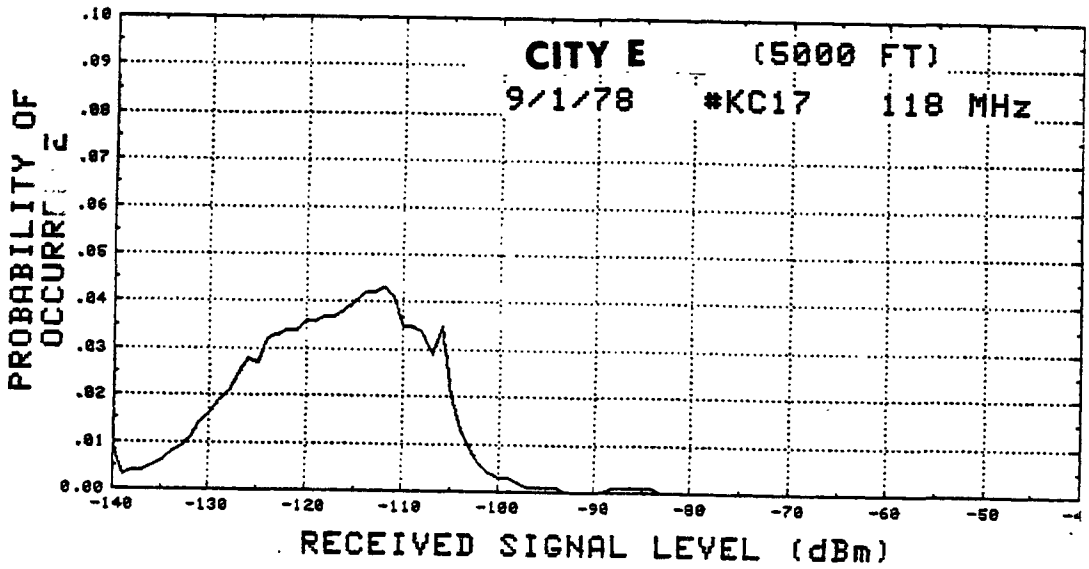

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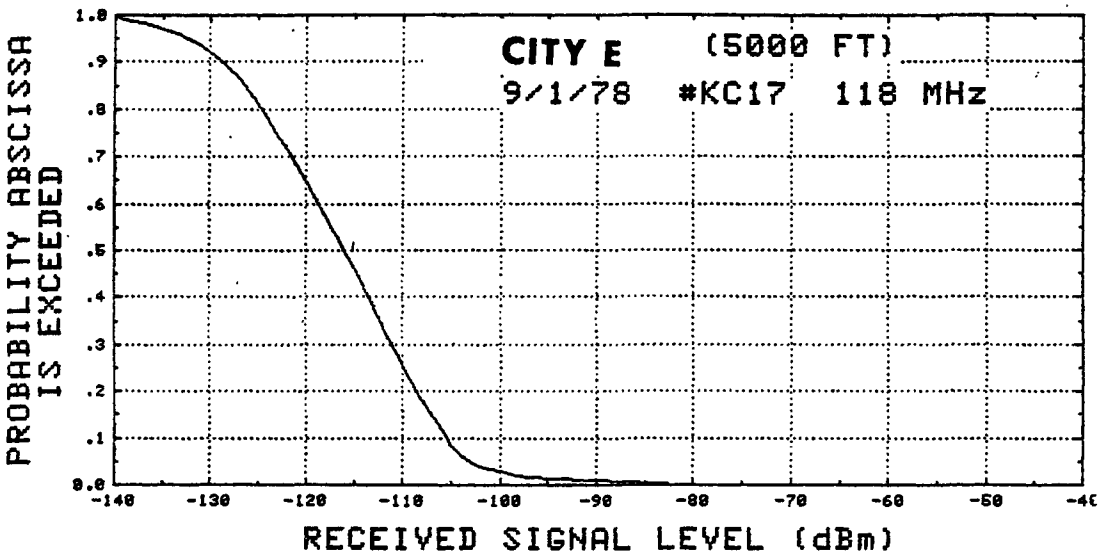

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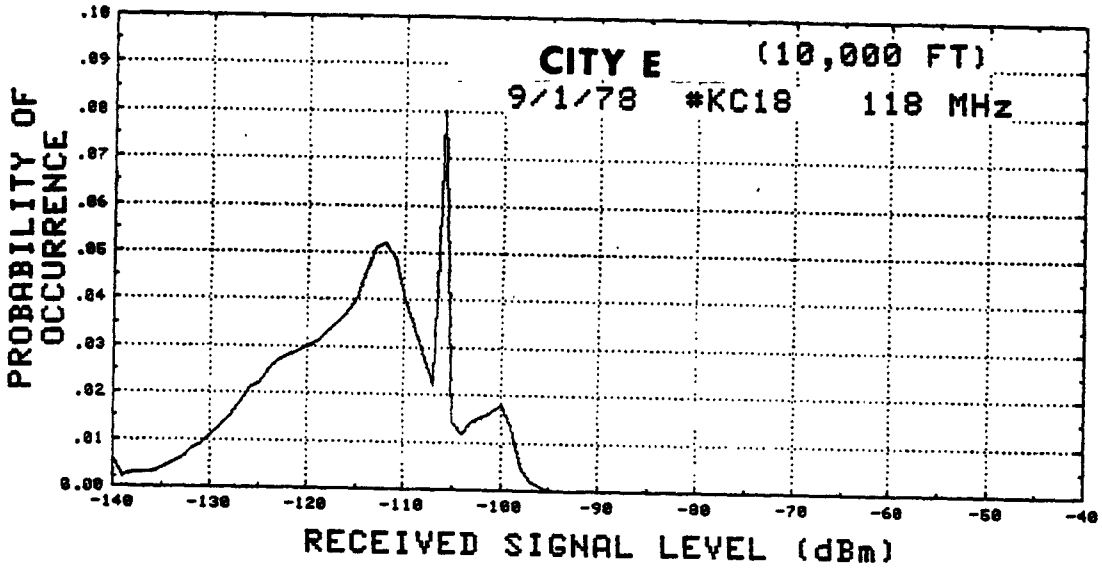

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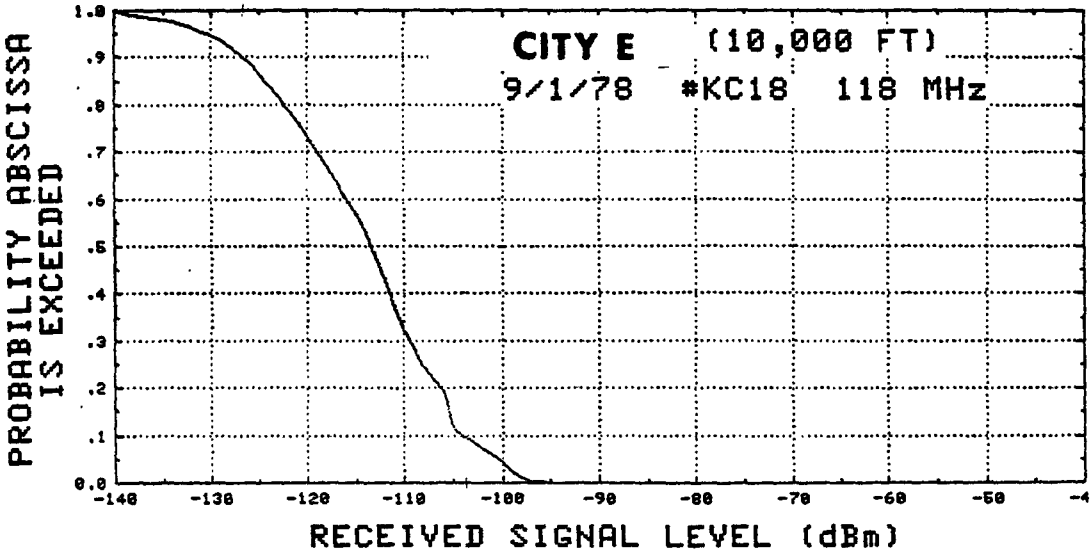

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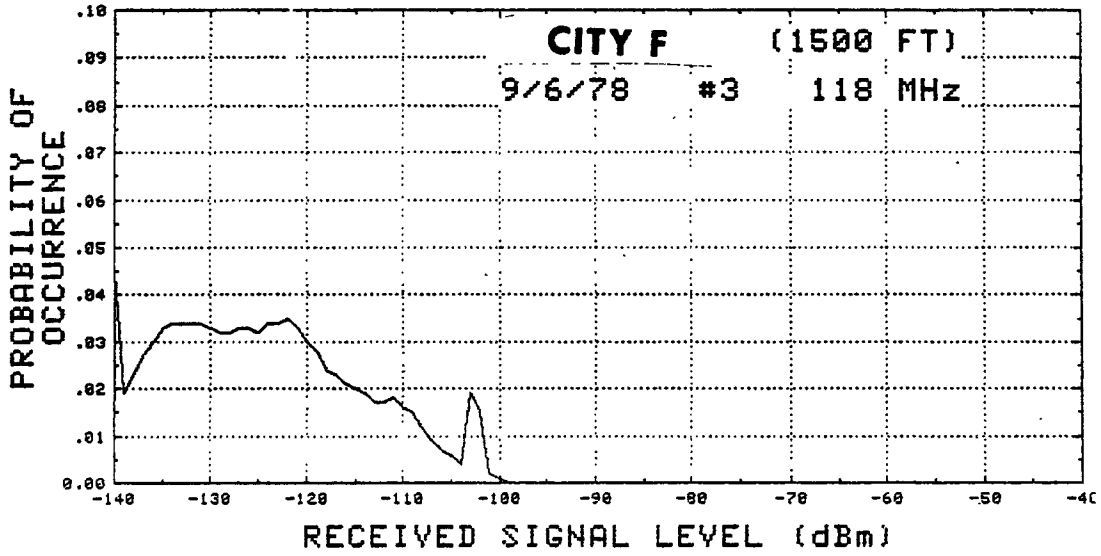

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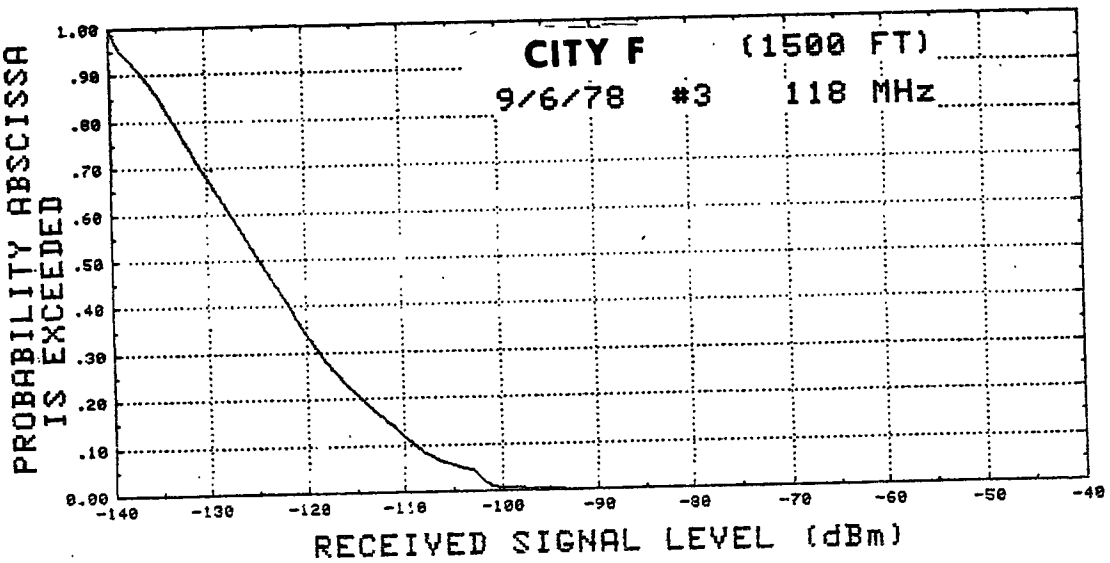

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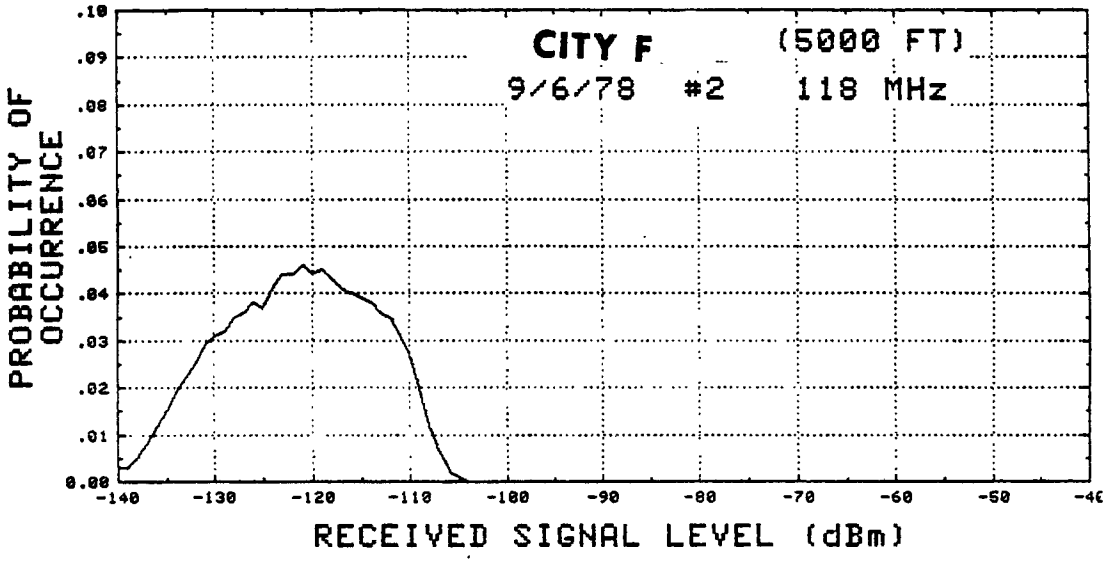

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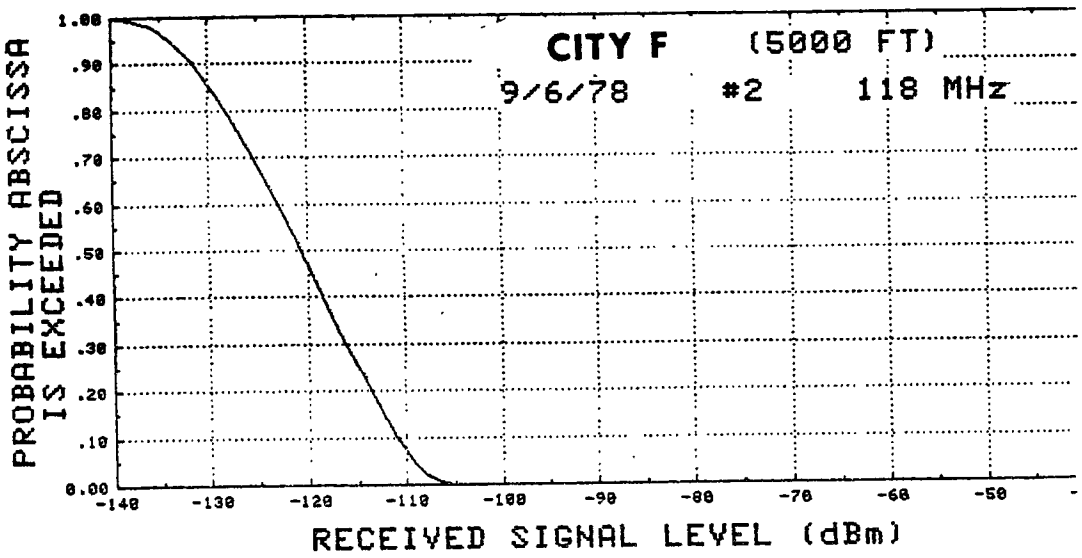

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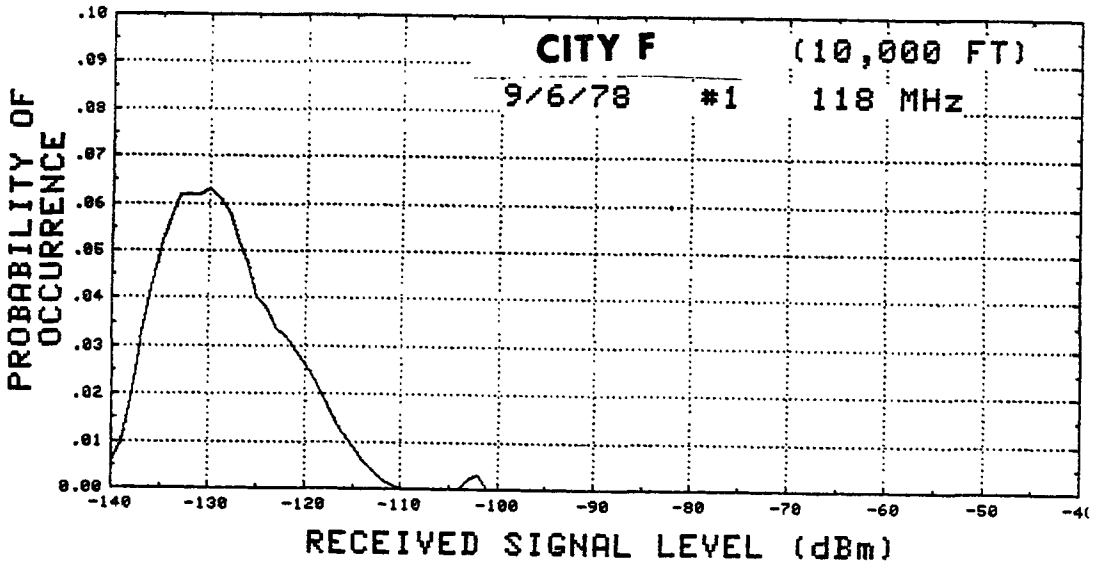

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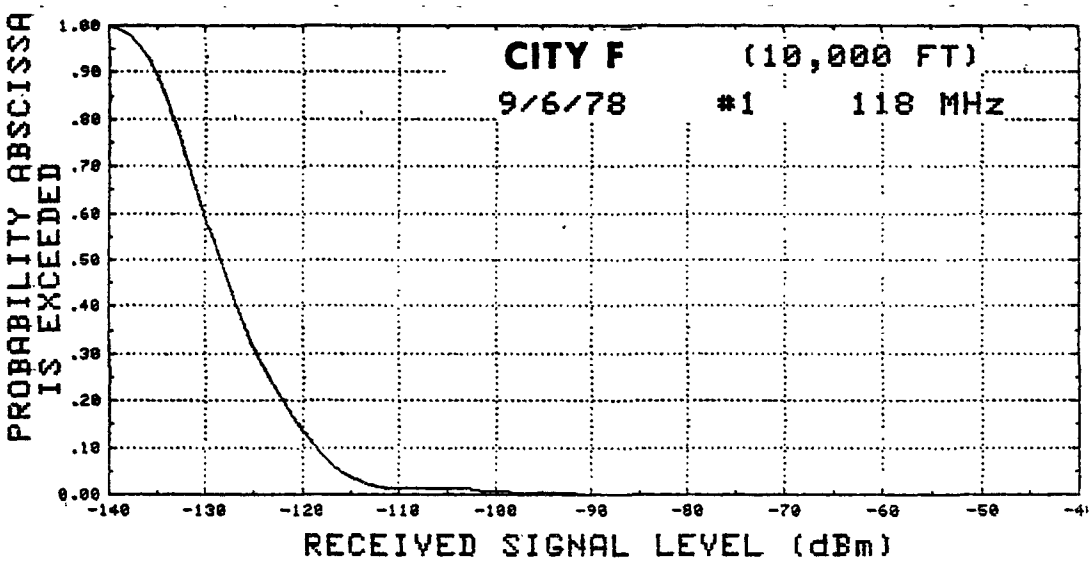

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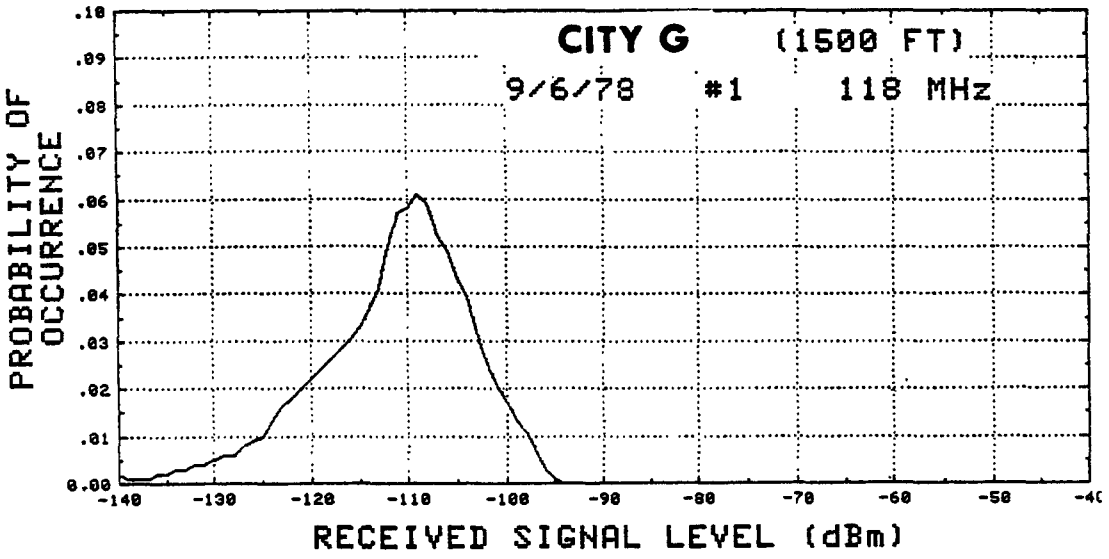

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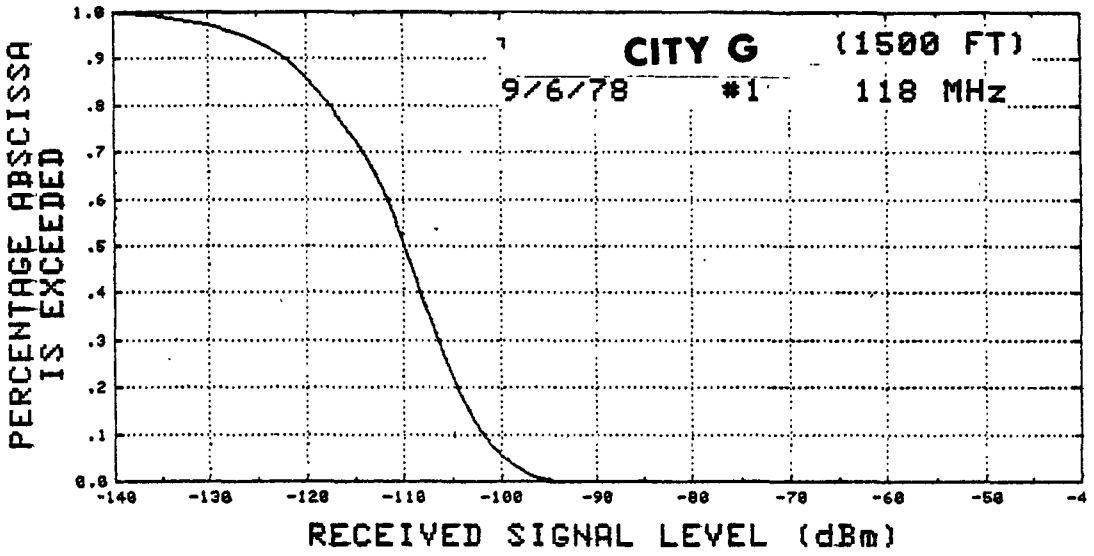

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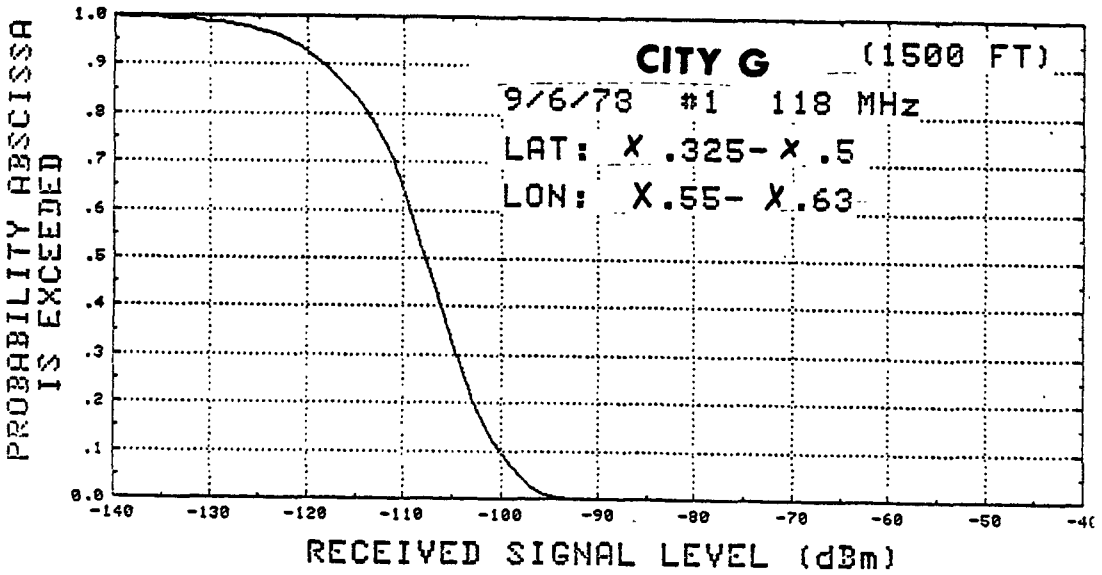

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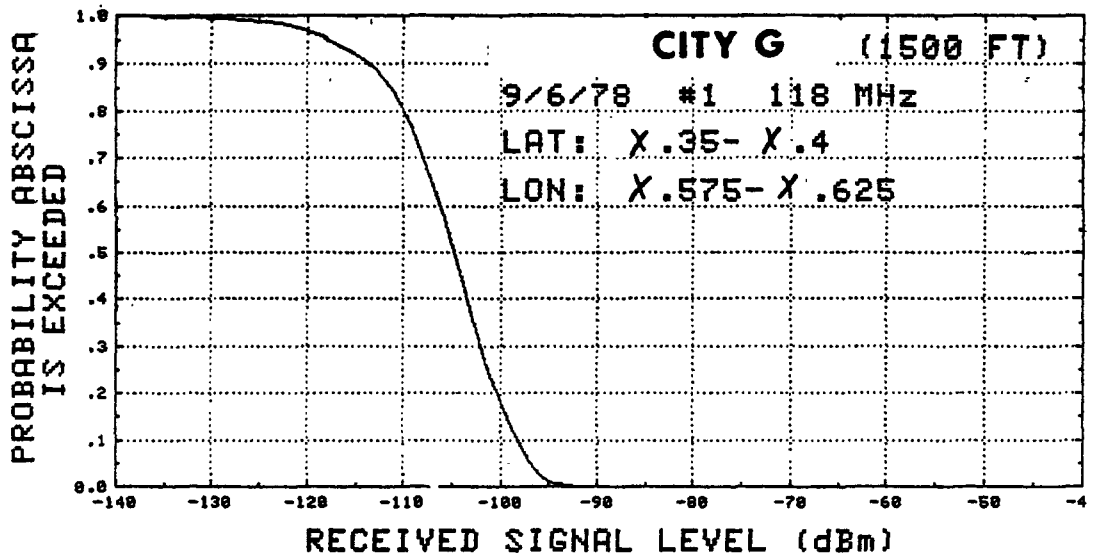

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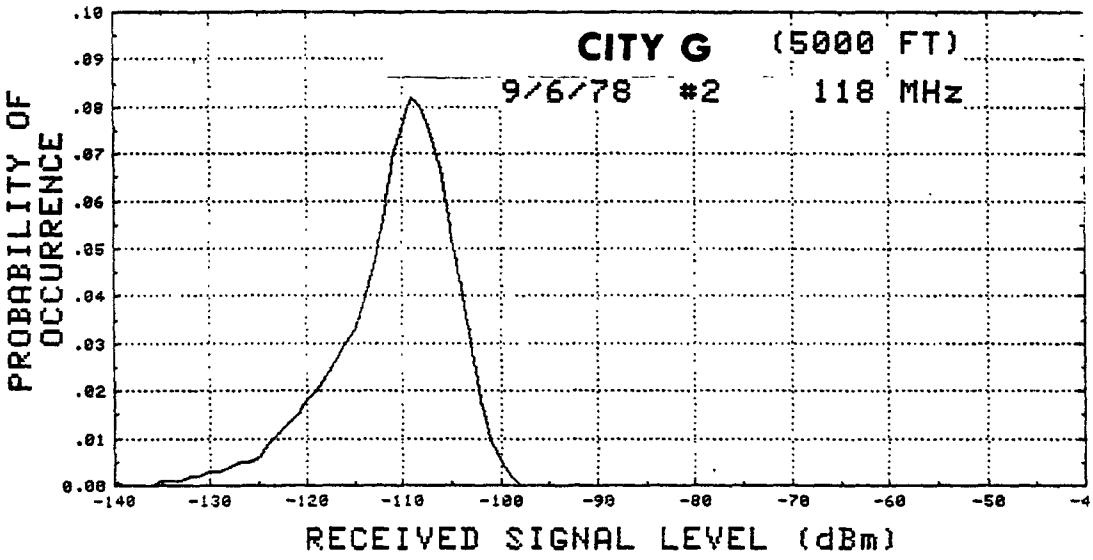

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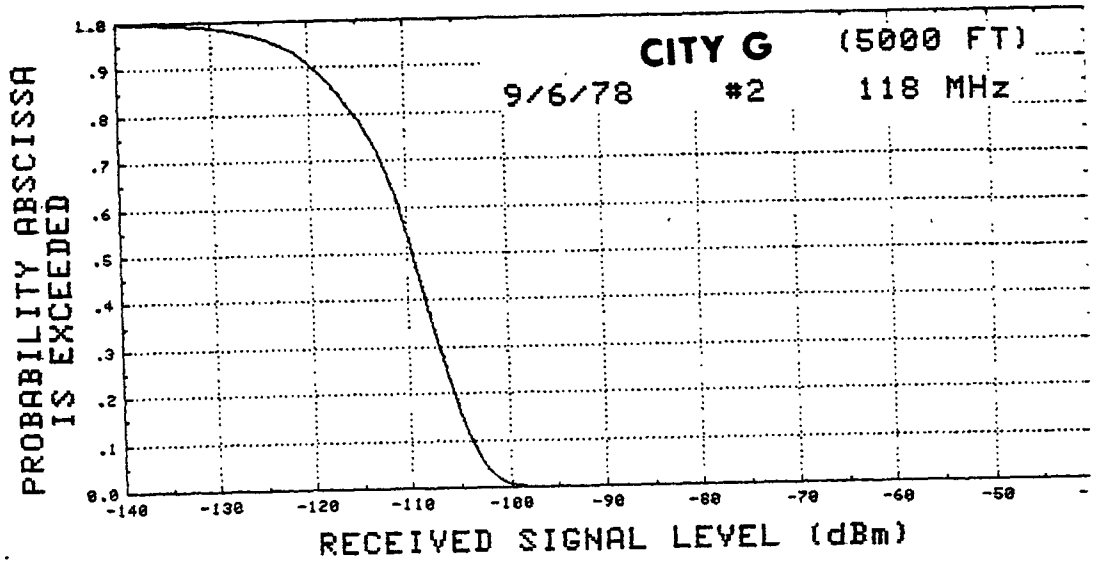

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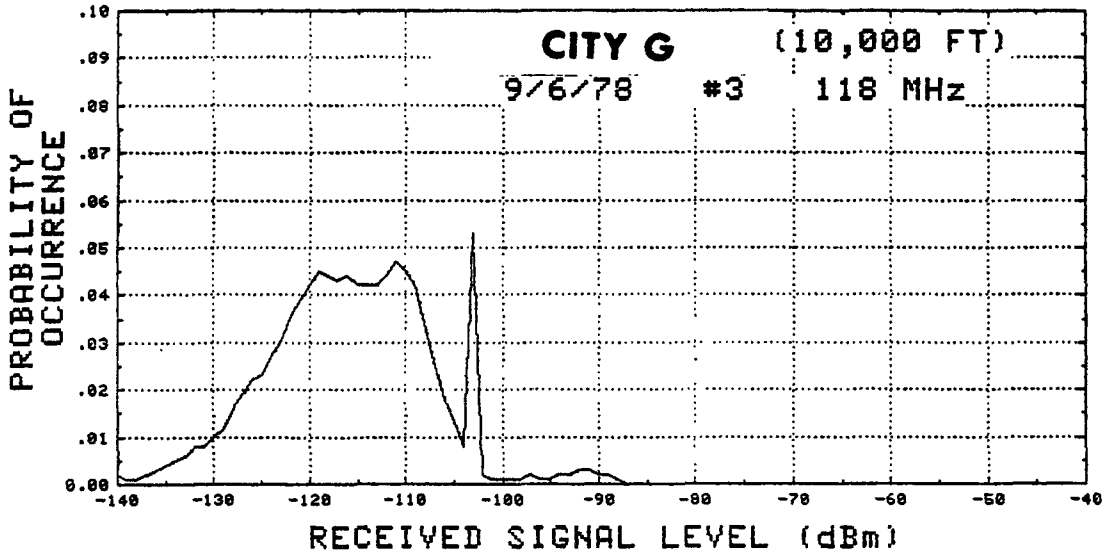

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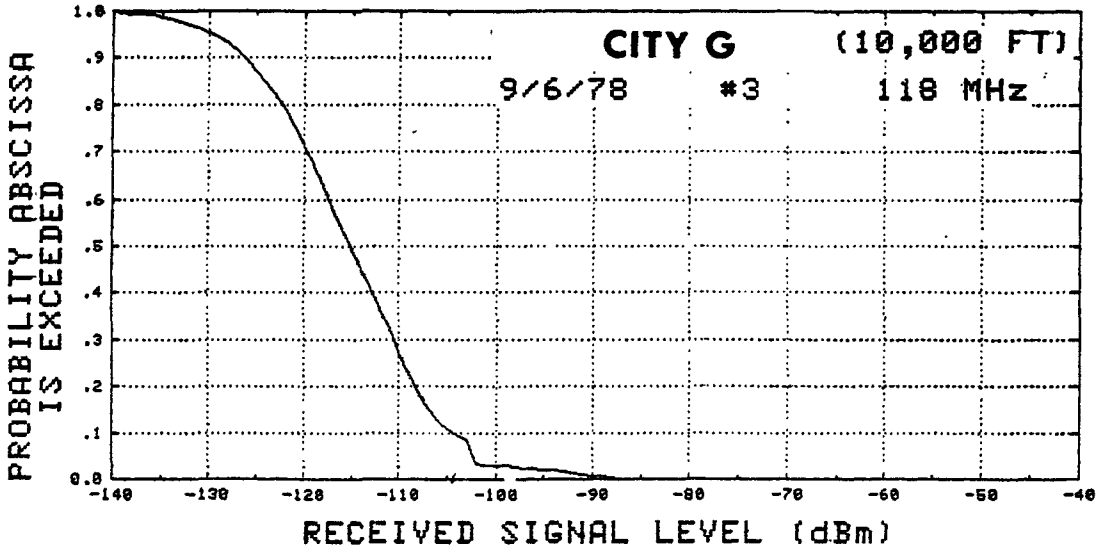

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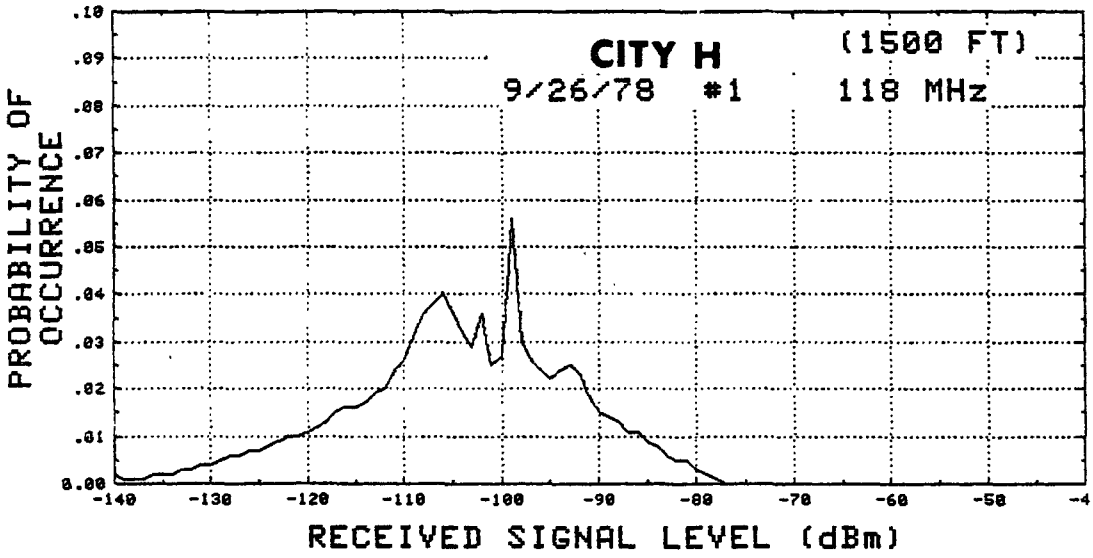

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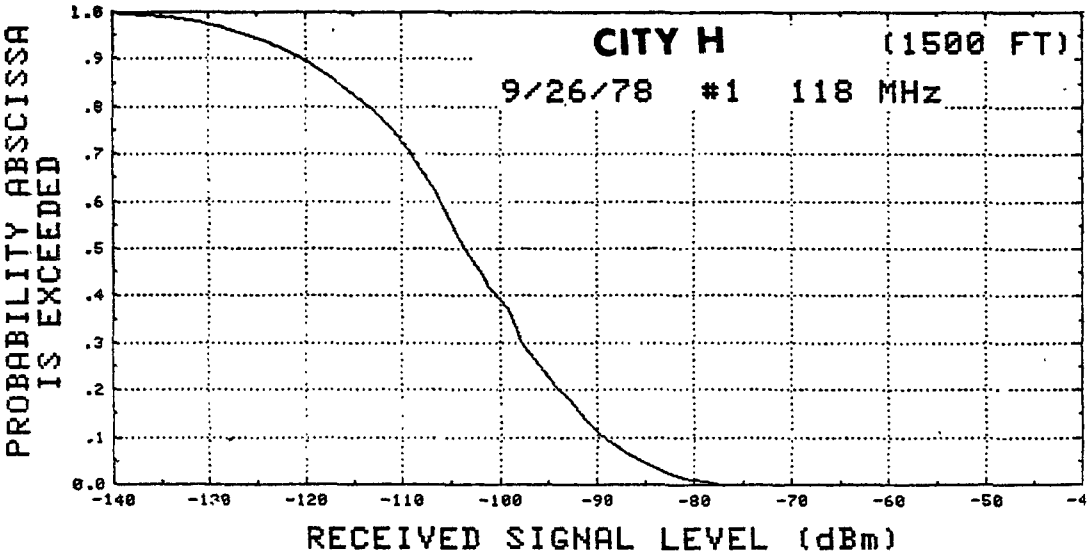

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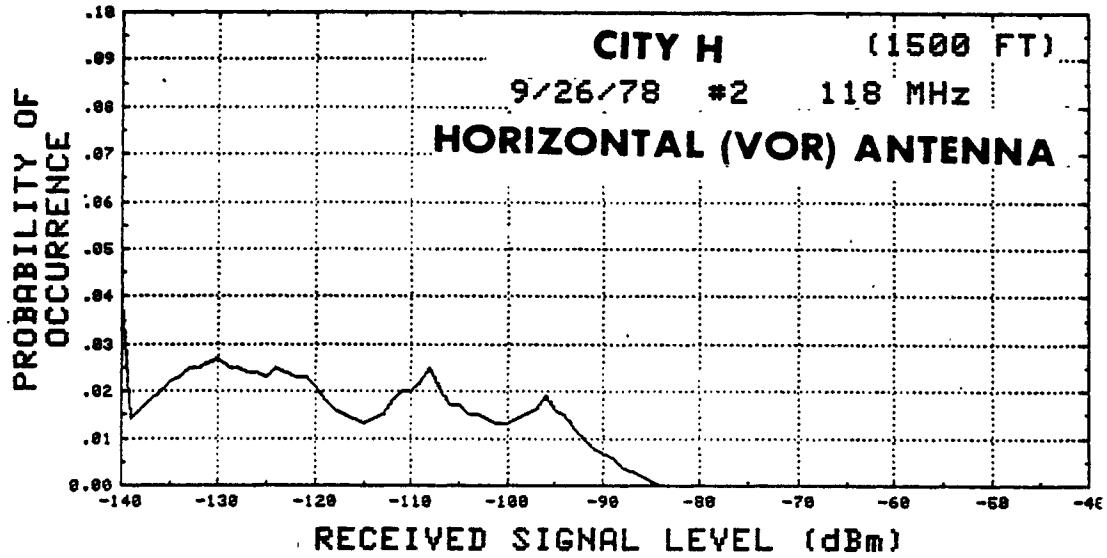

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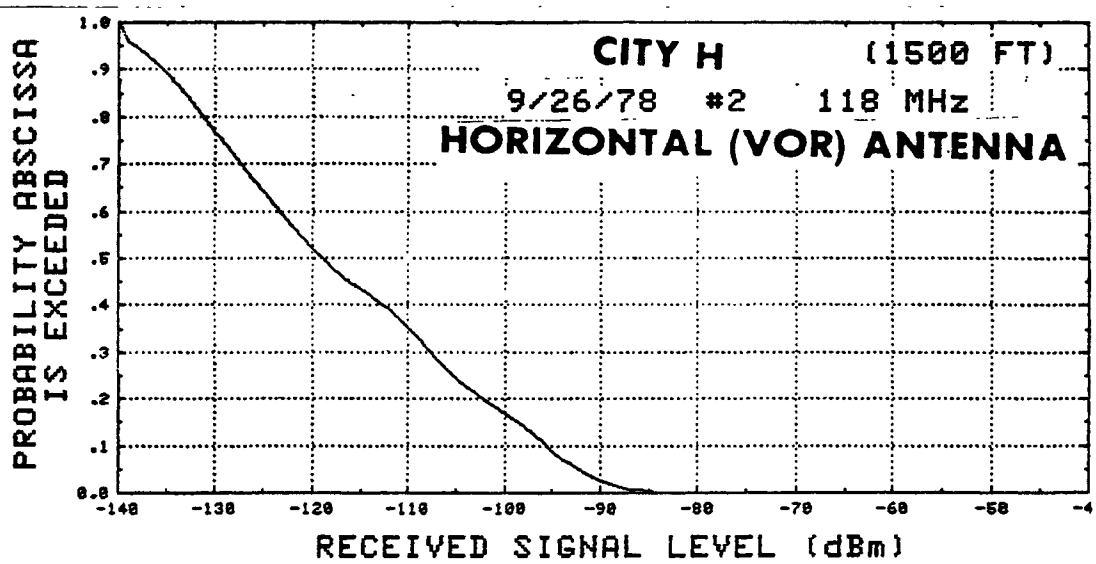

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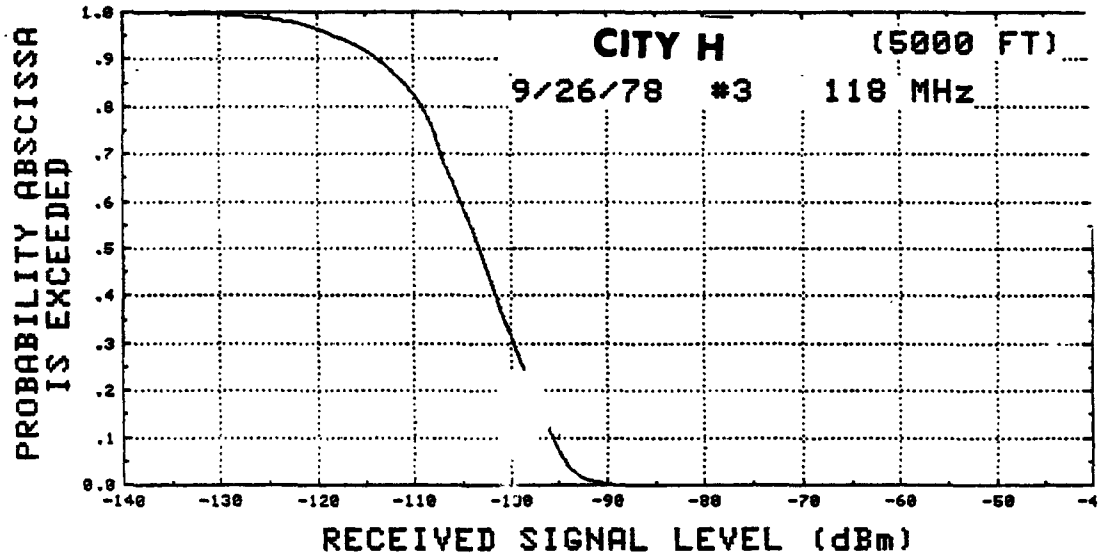

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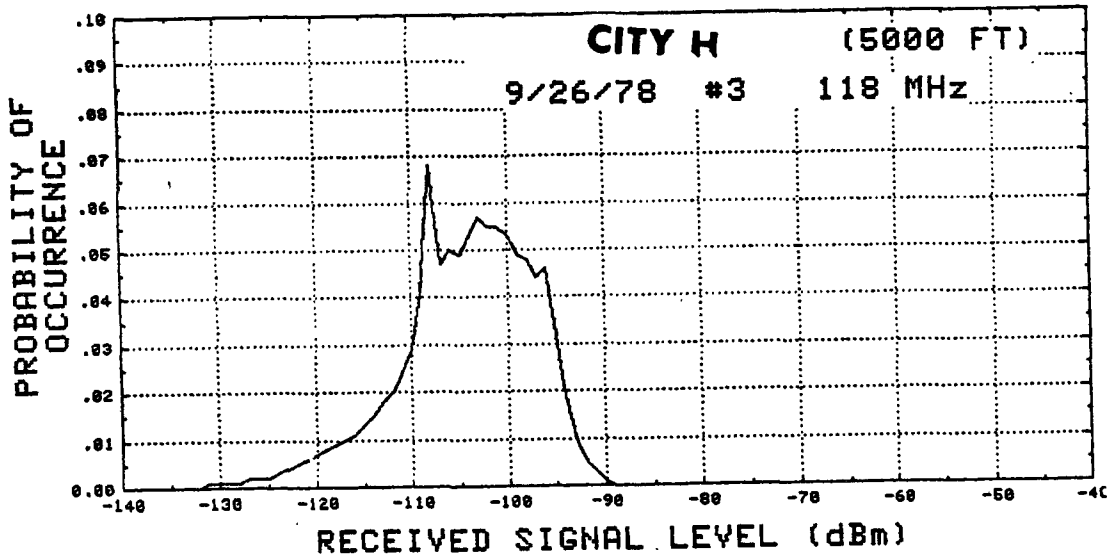

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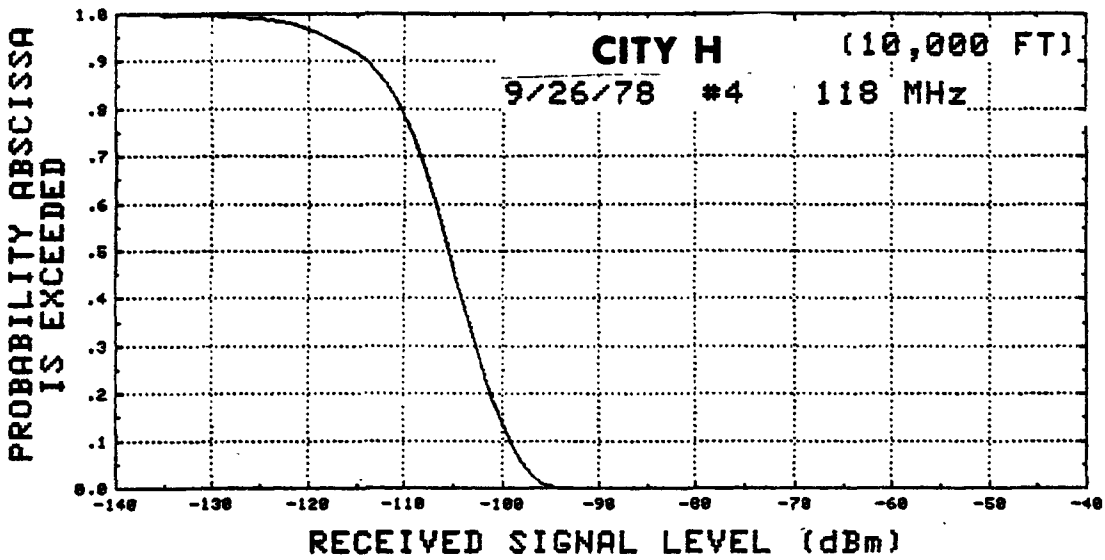

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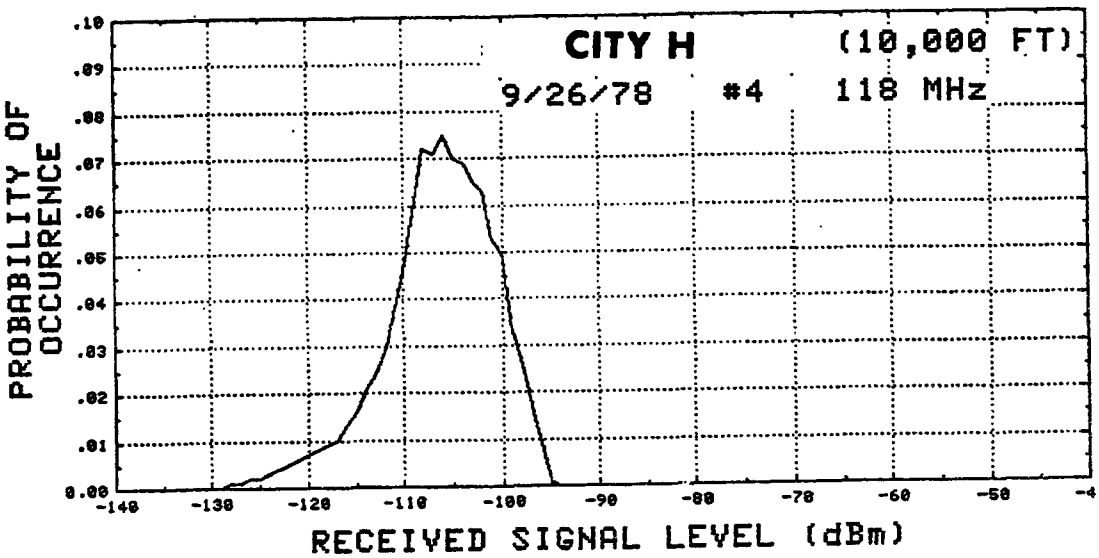

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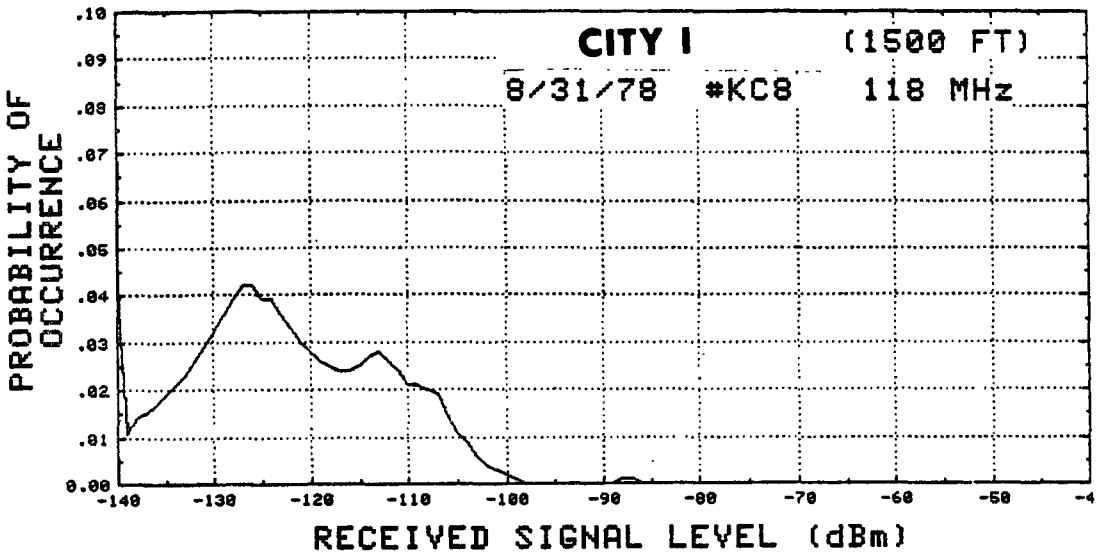

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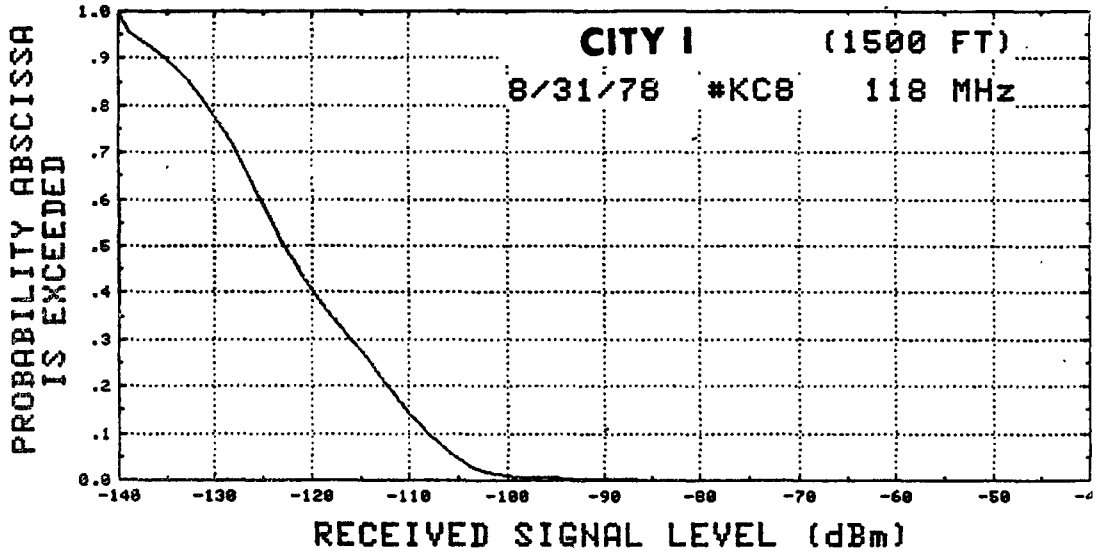

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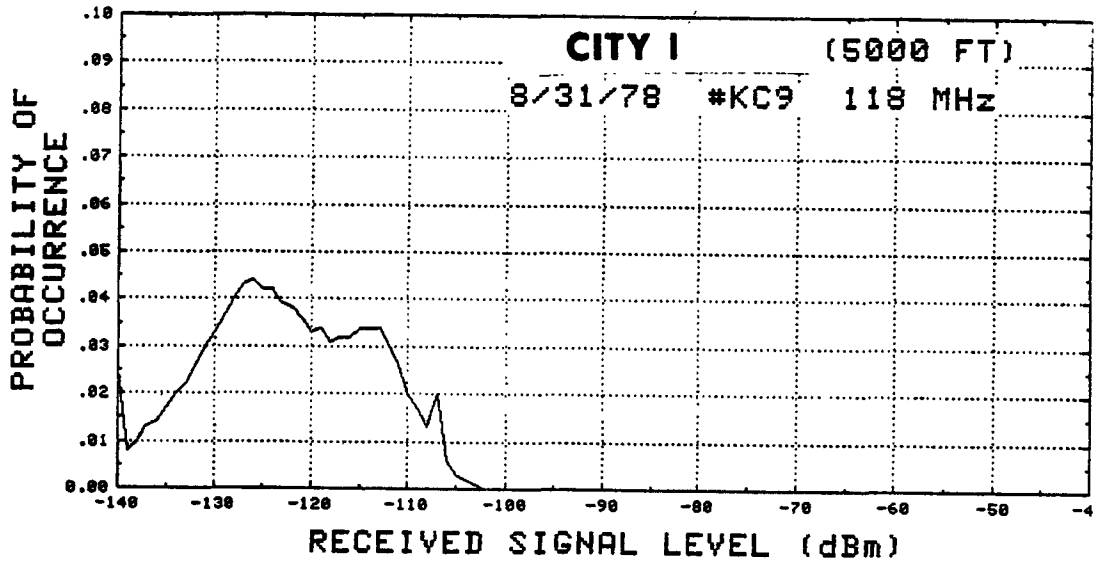

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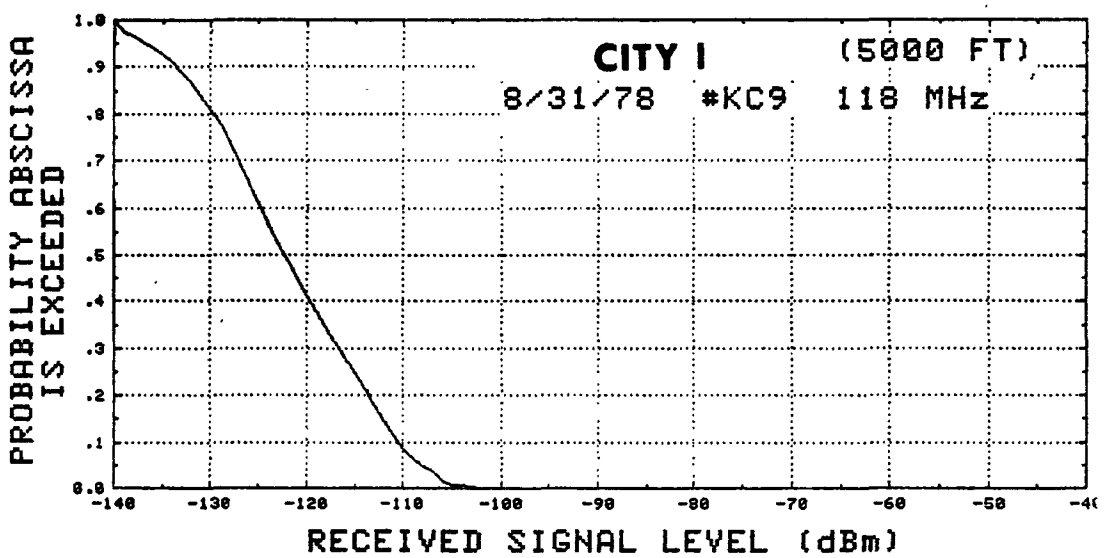

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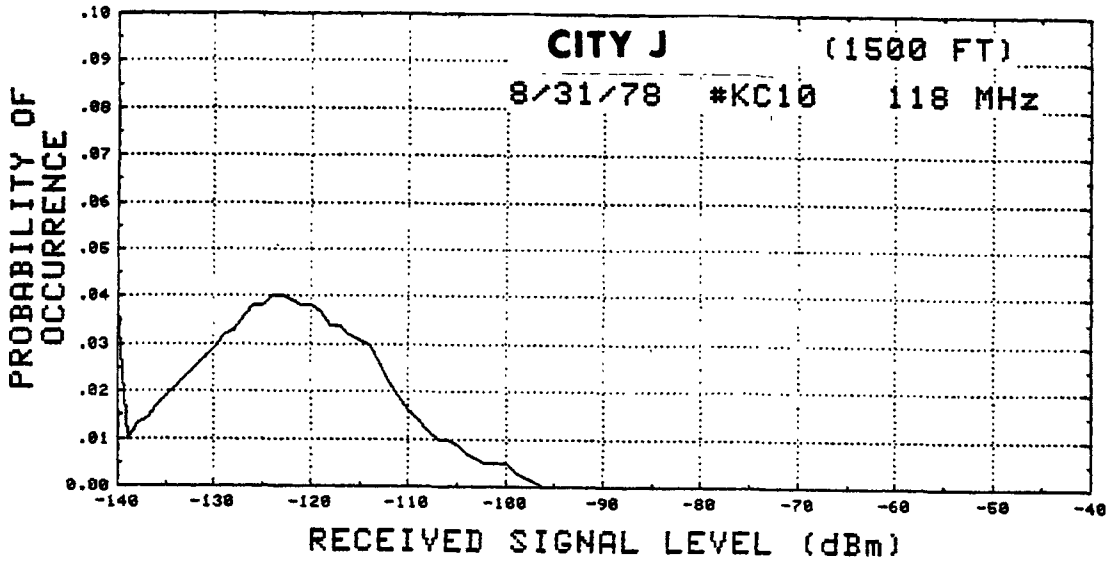

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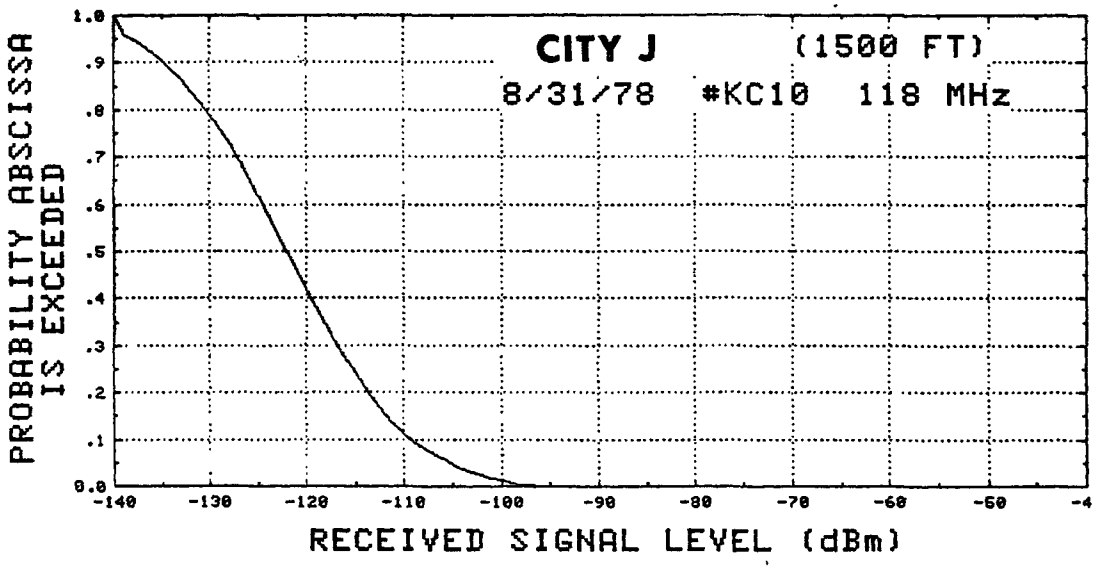

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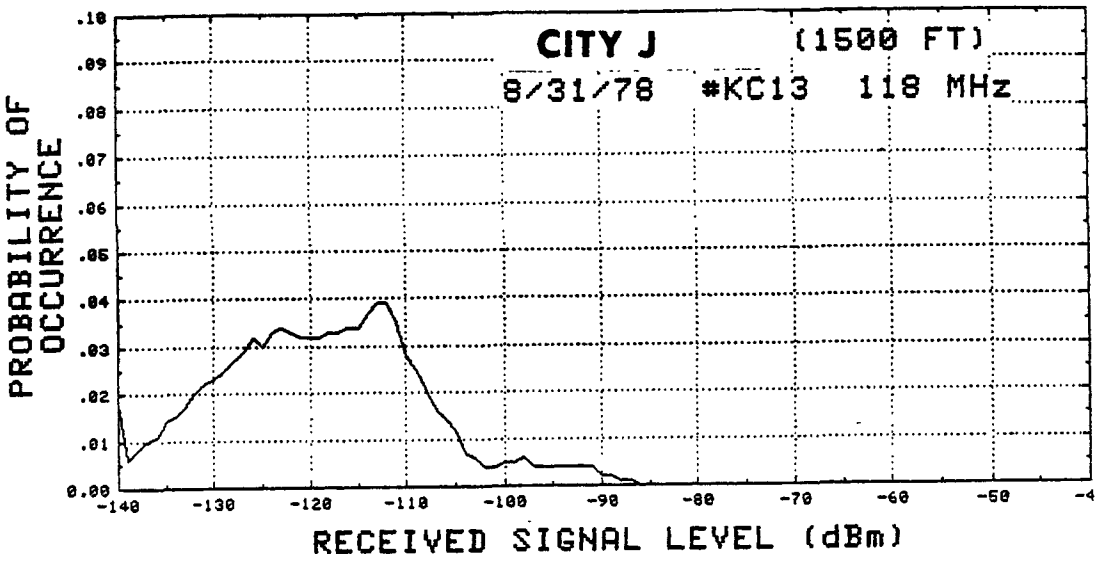

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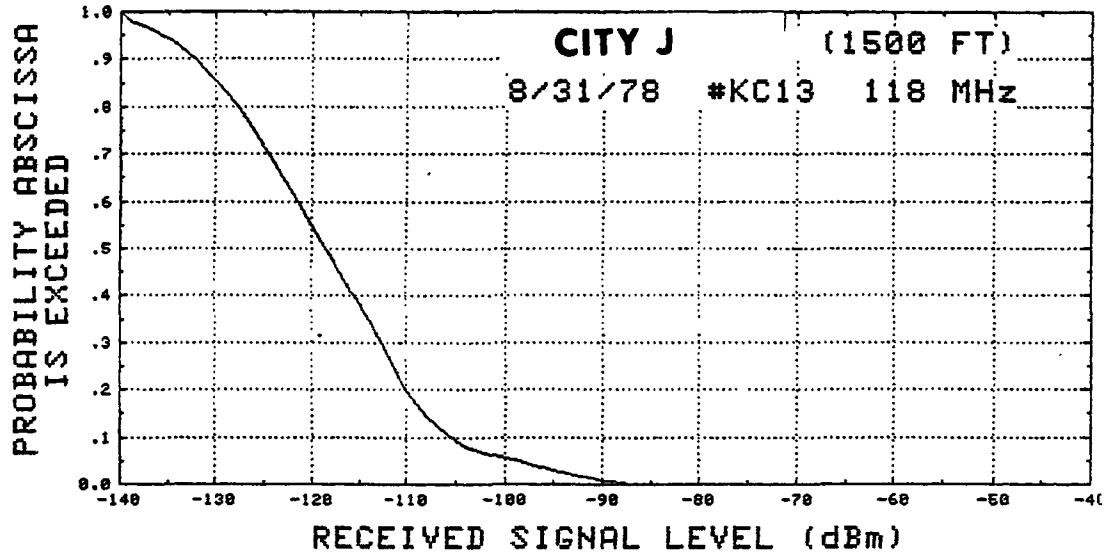

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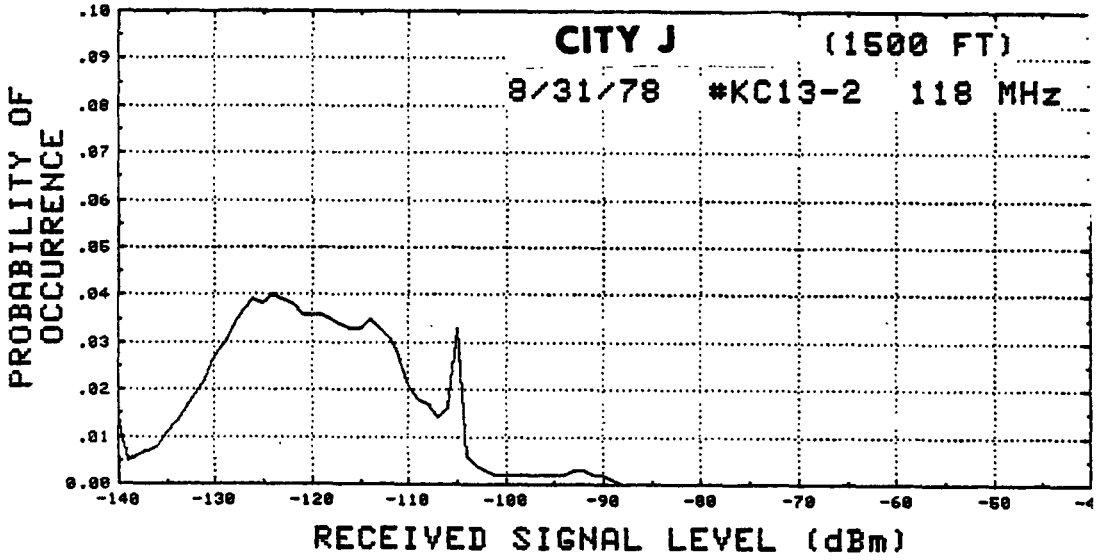

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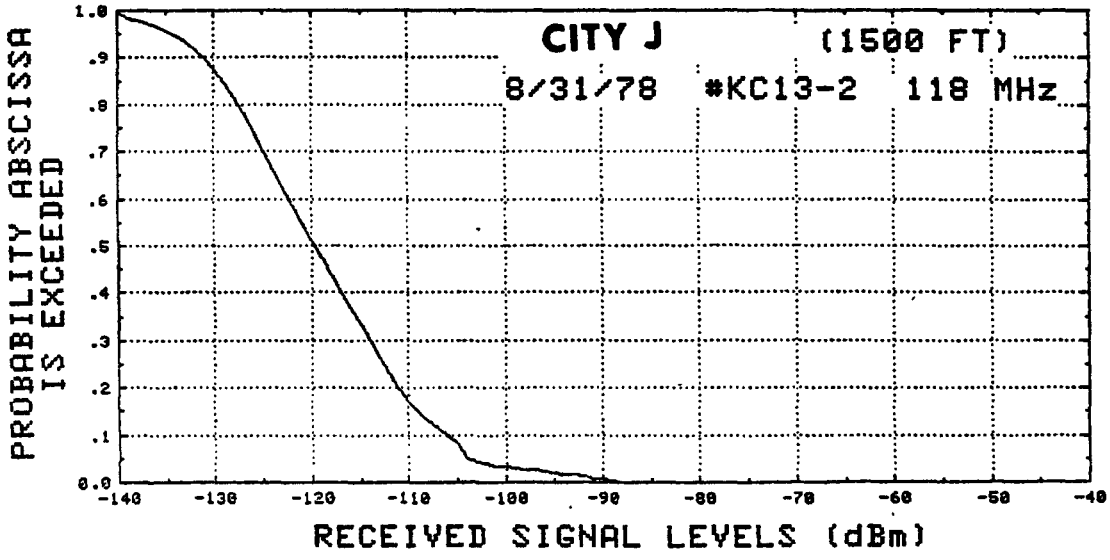

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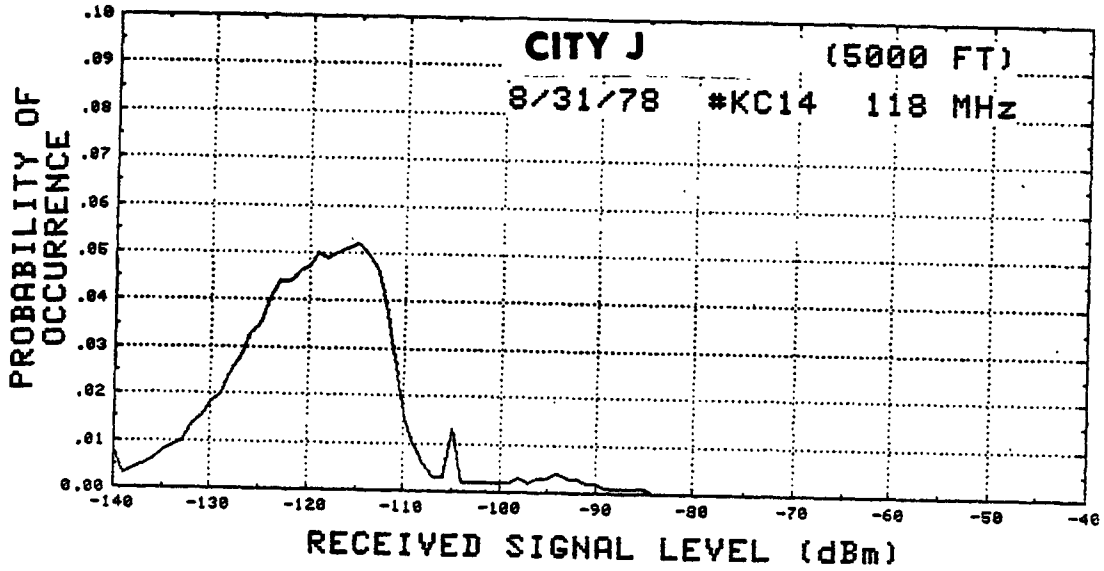

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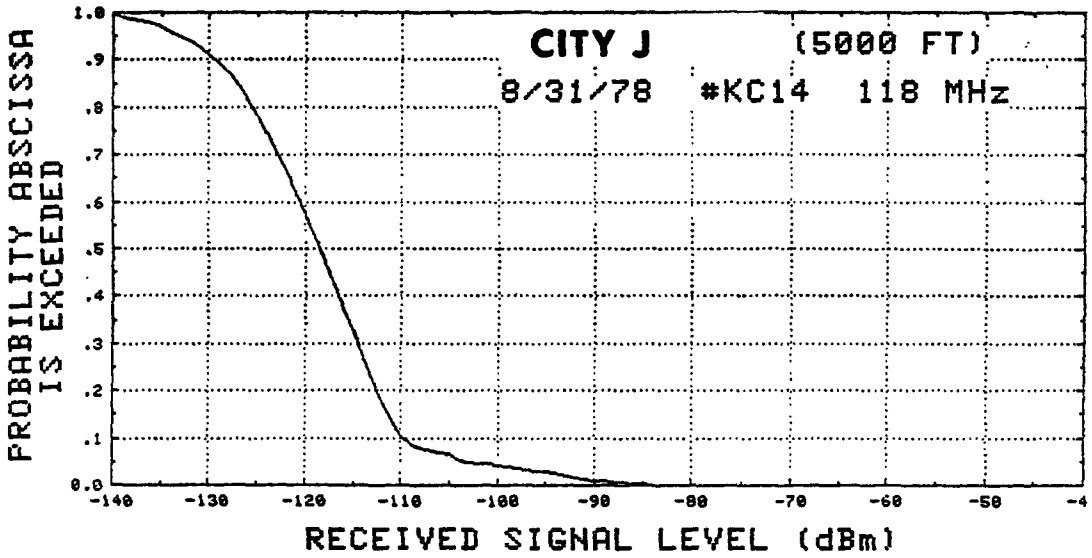

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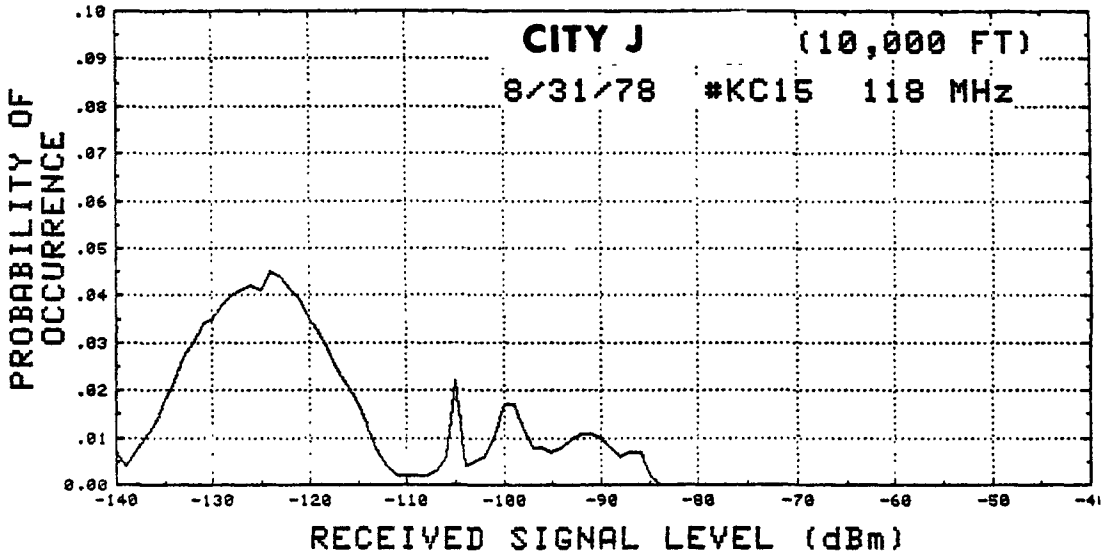

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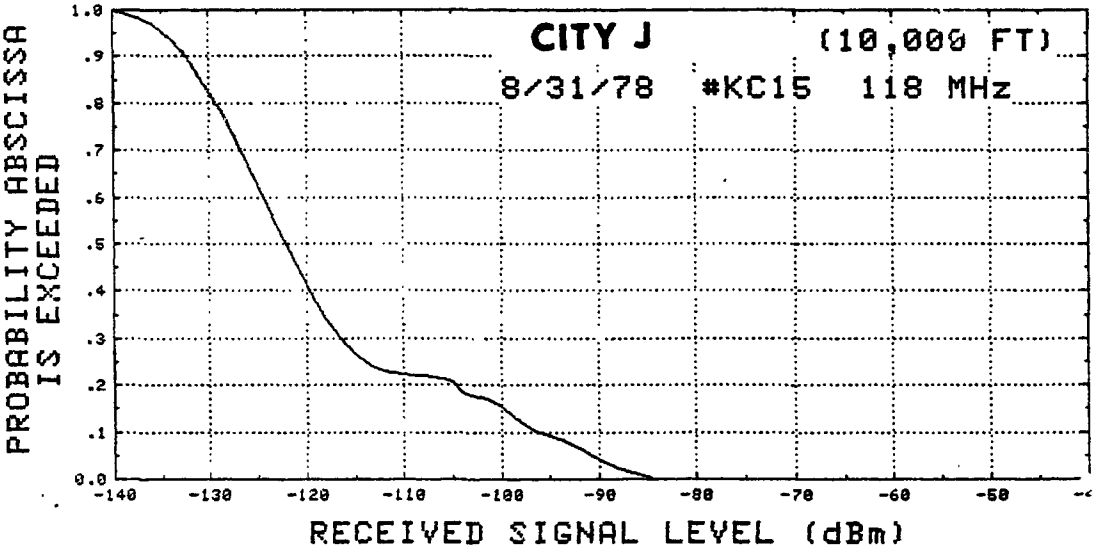

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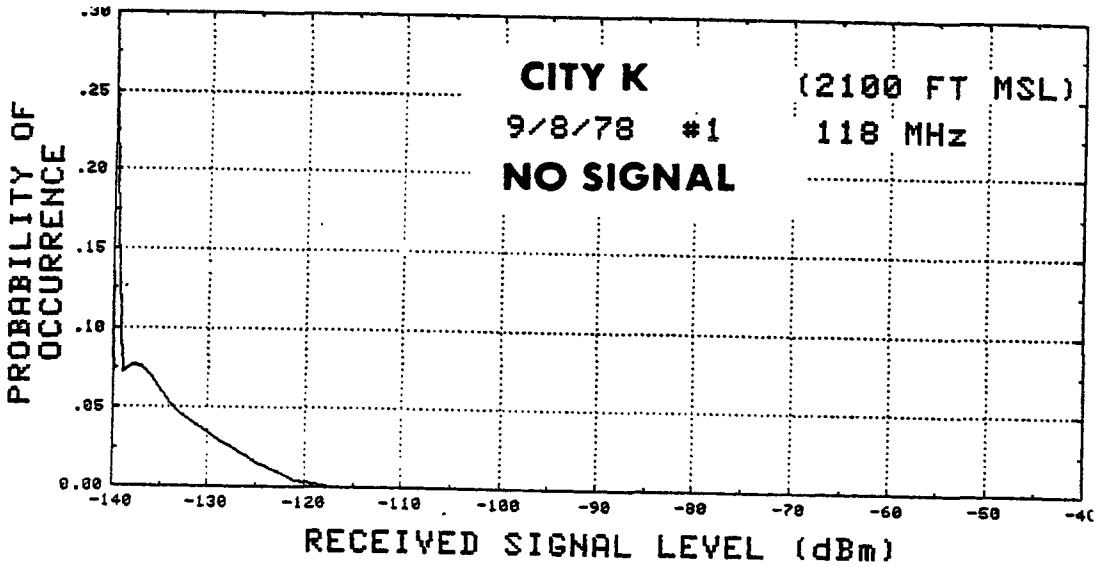

Figure F.103

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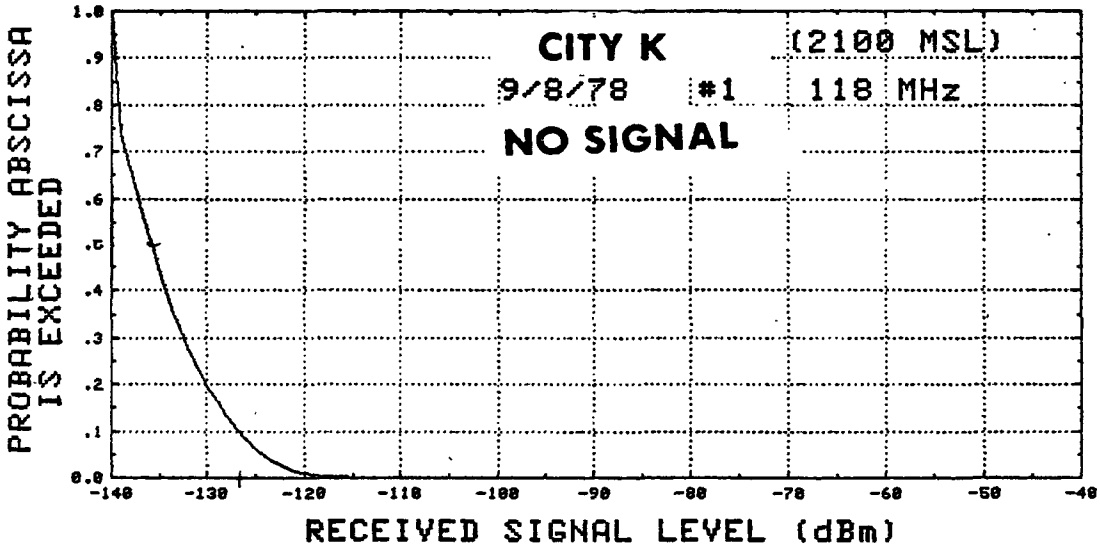

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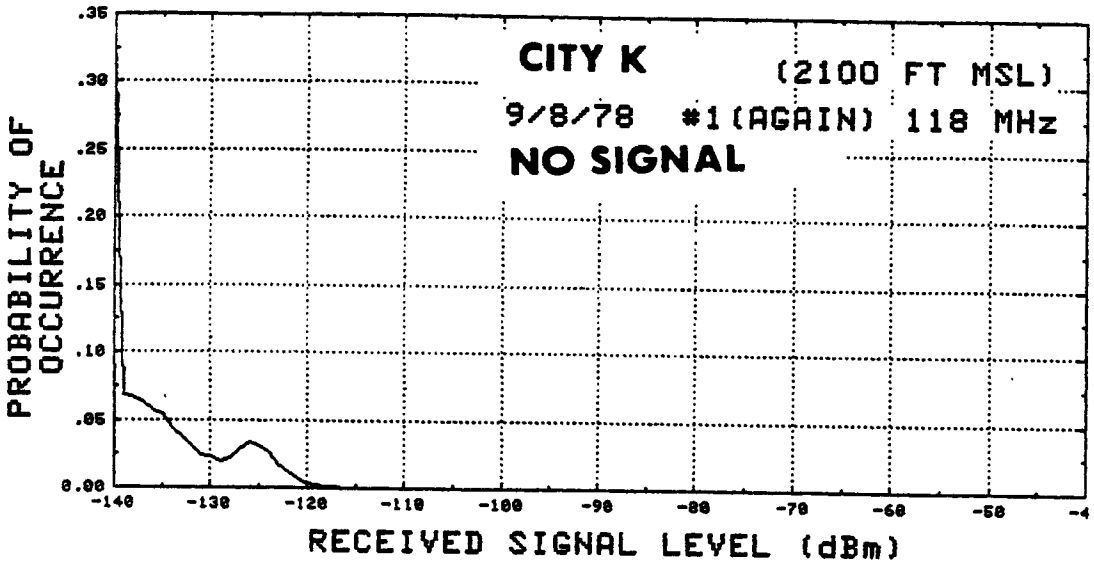

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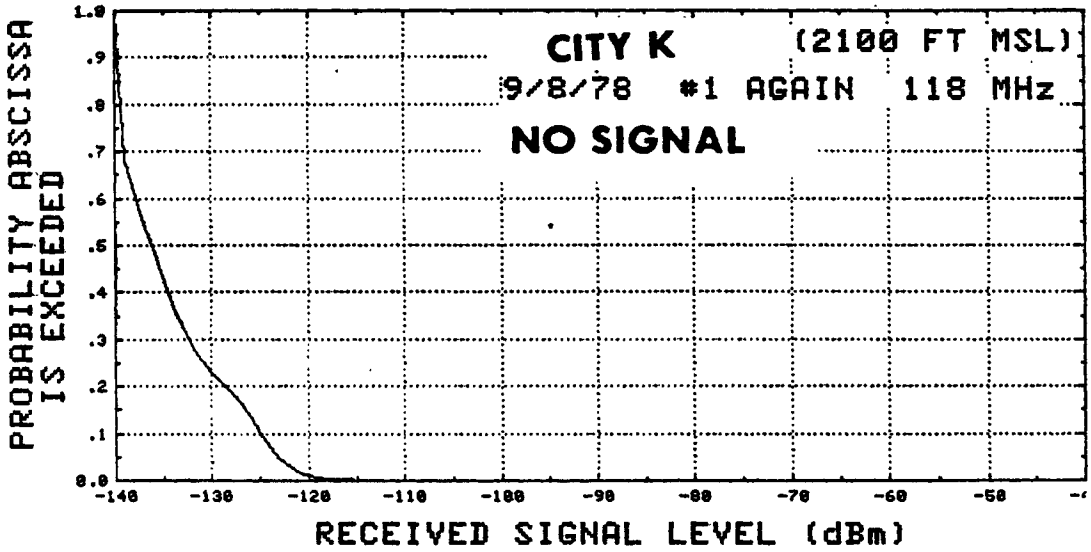

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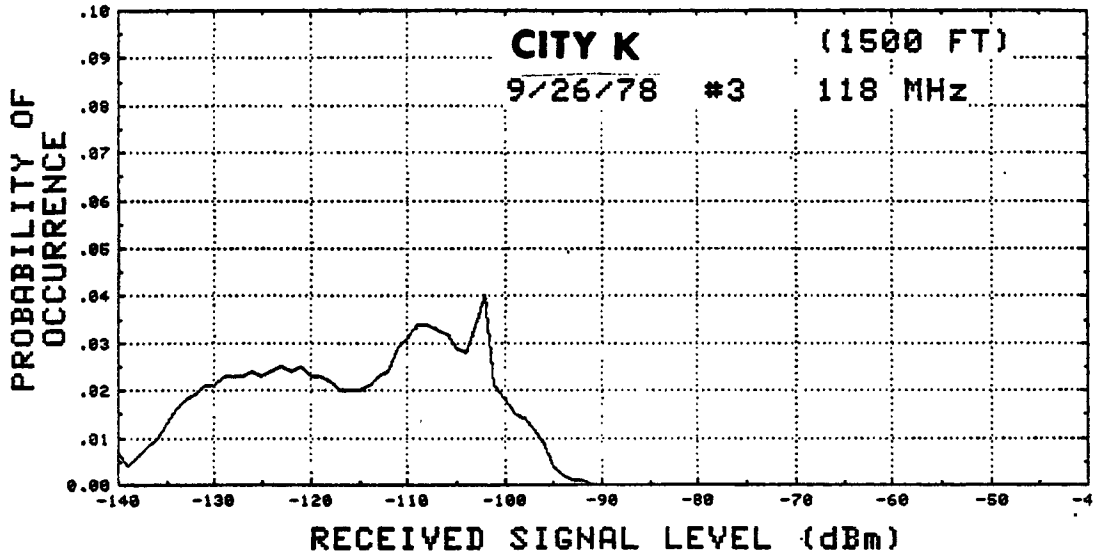

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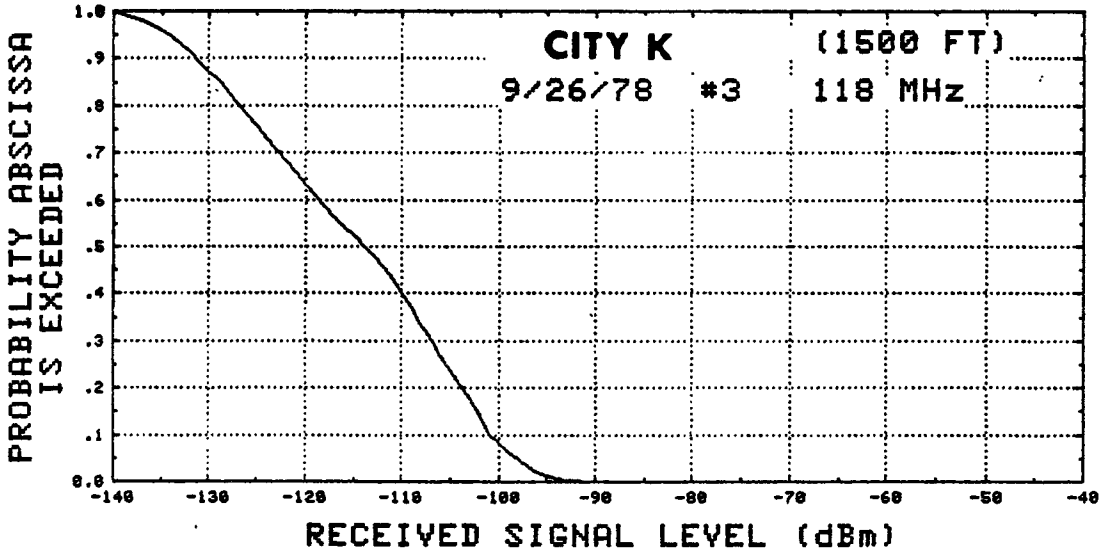

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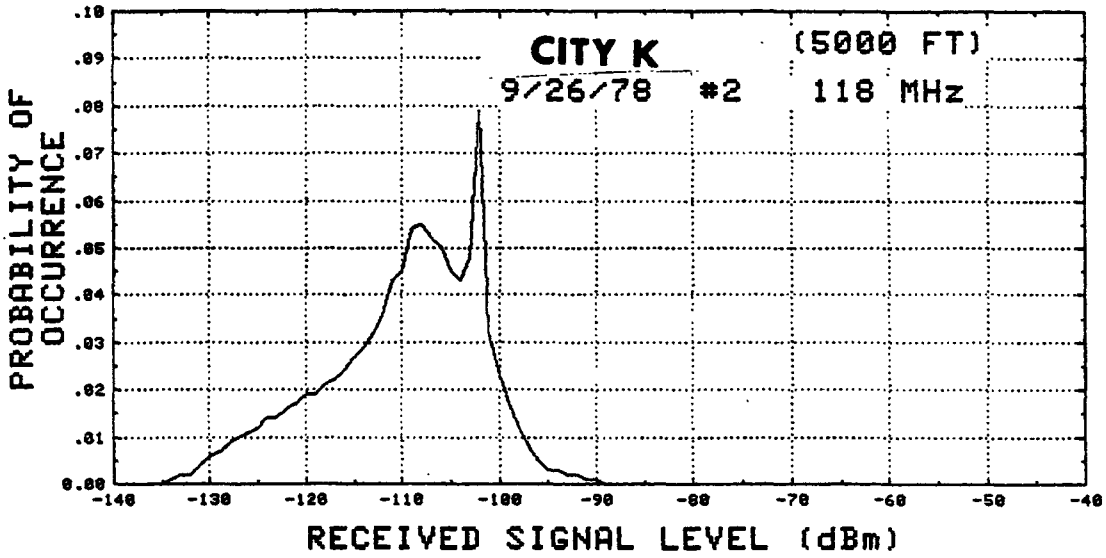

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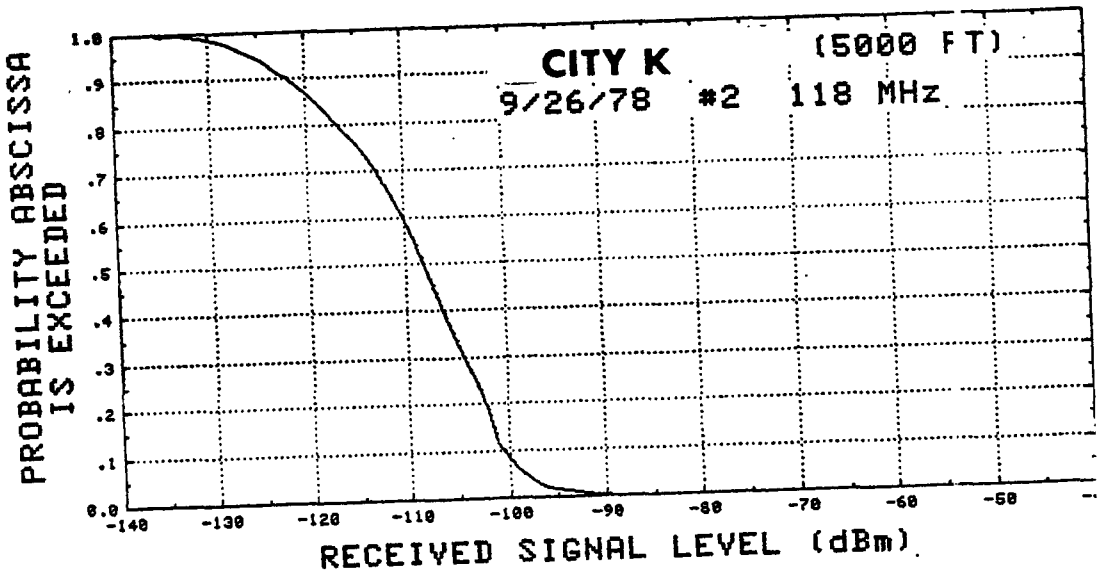


Figure F.110

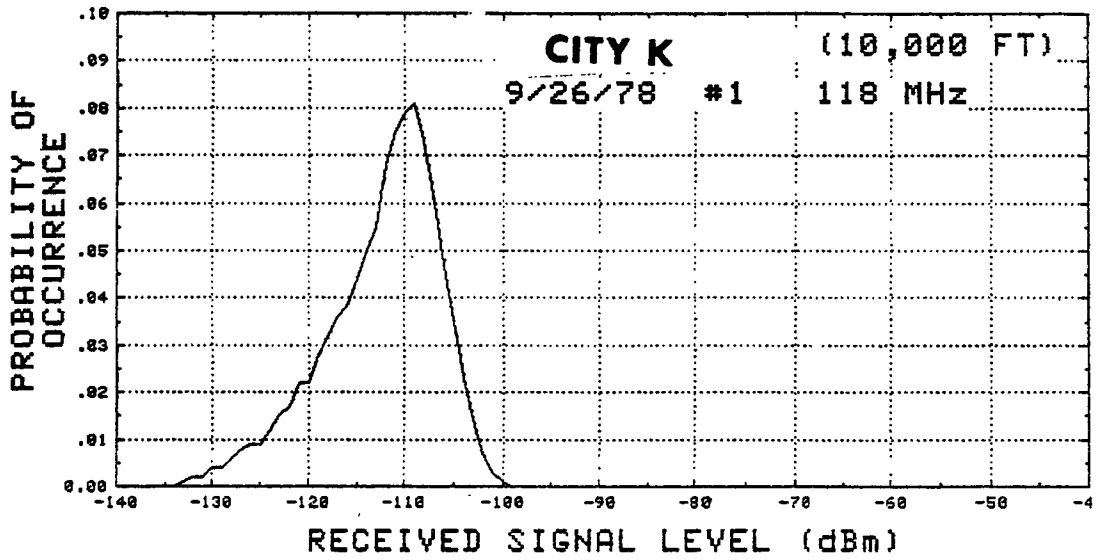


Figure F.111

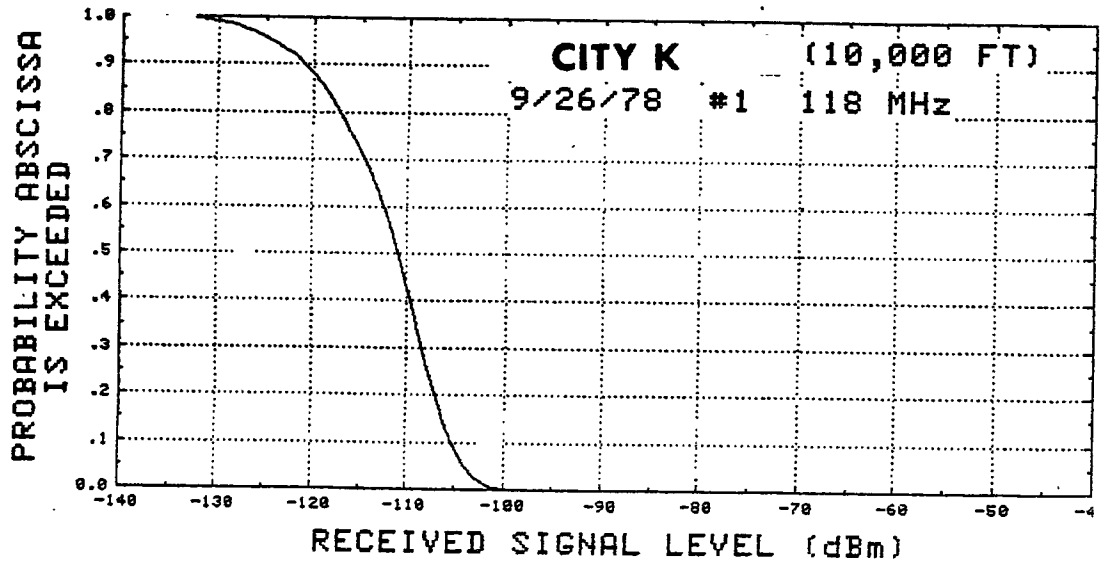


Figure F.112

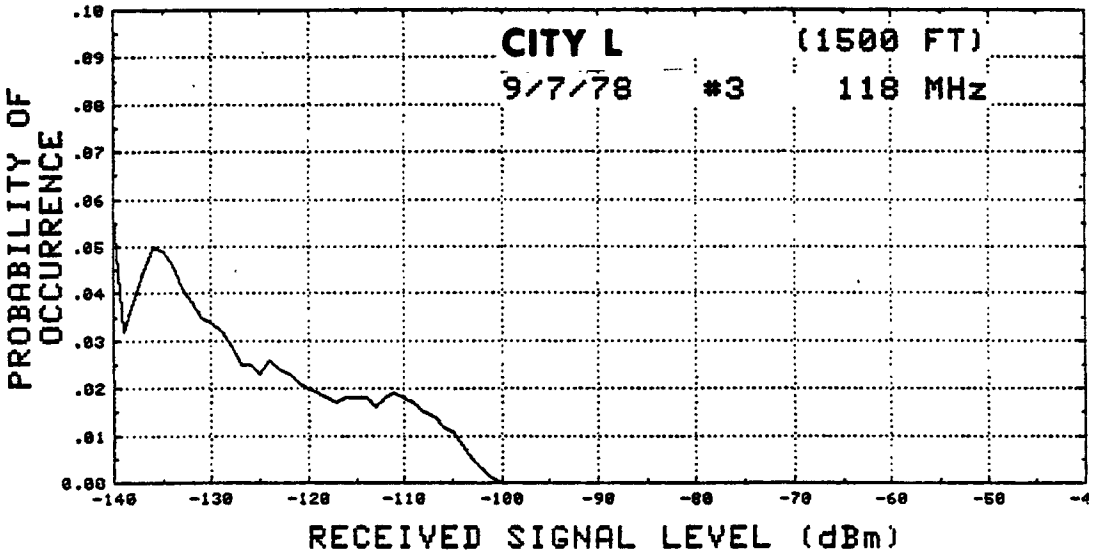


Figure F.113

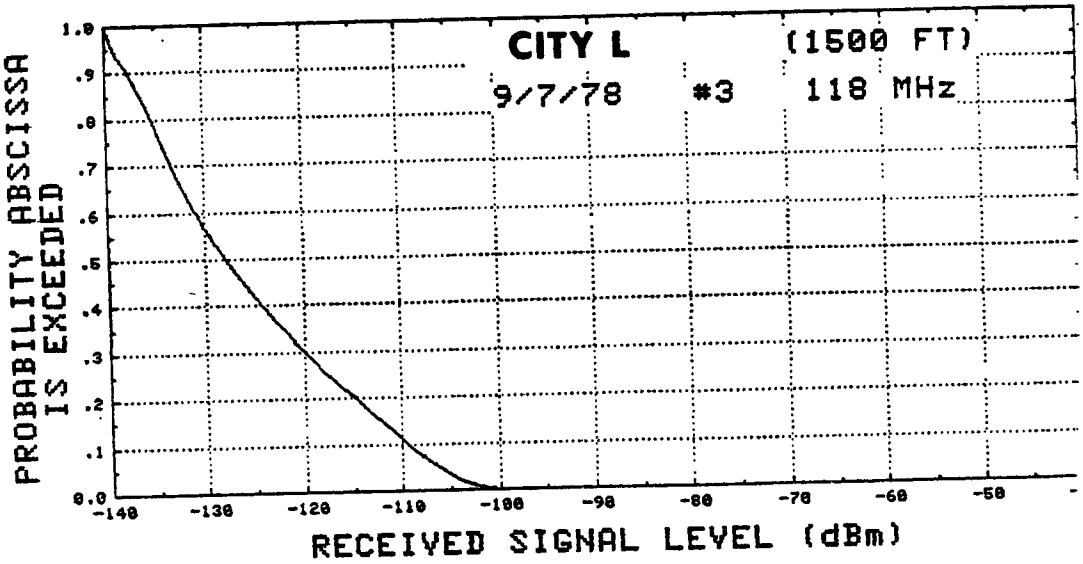


Figure F.114

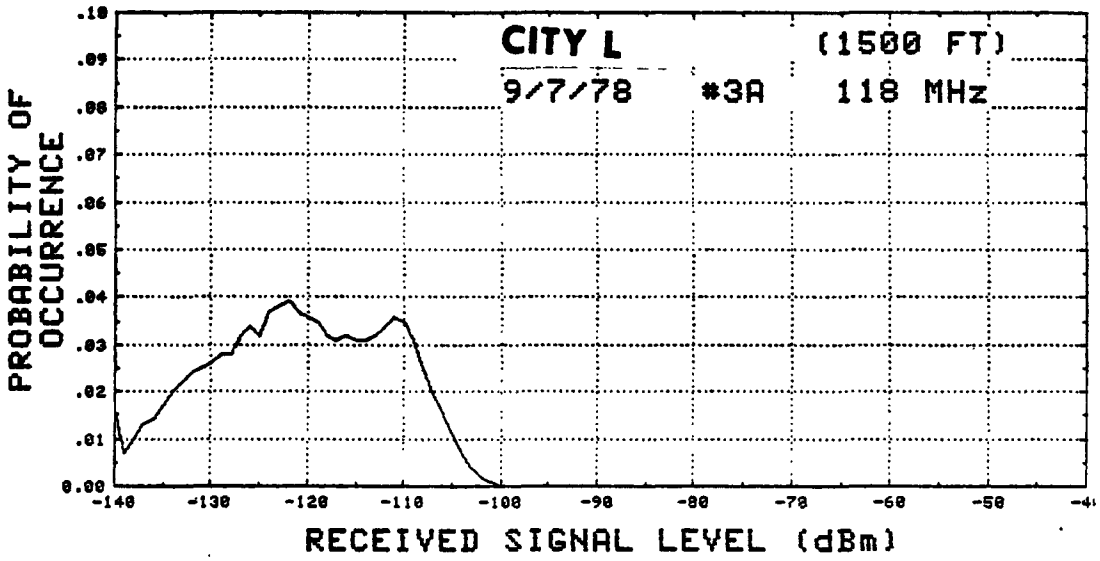


Figure F.115

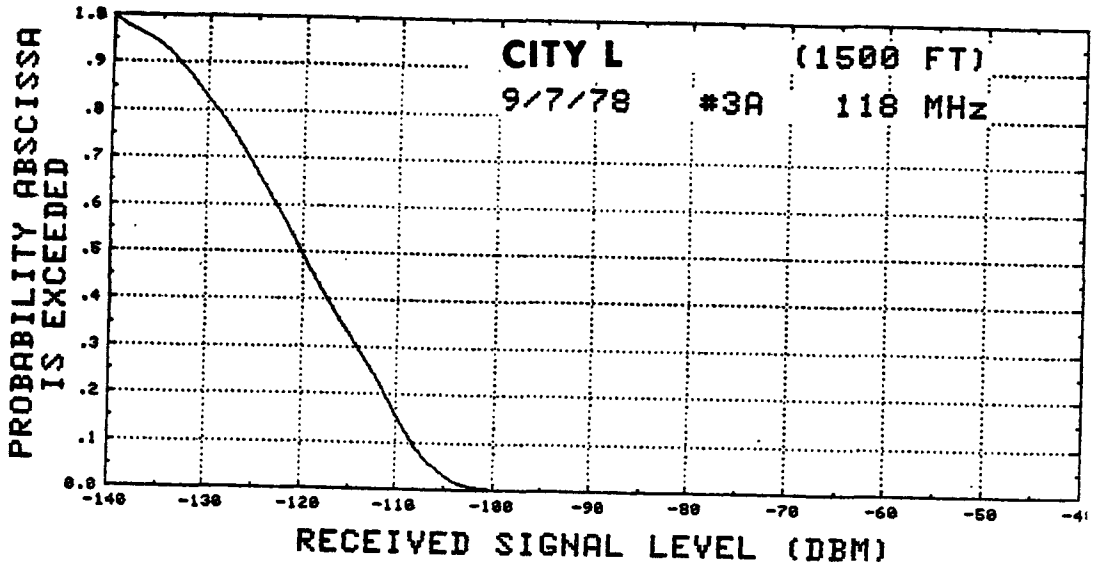


Figure F.116

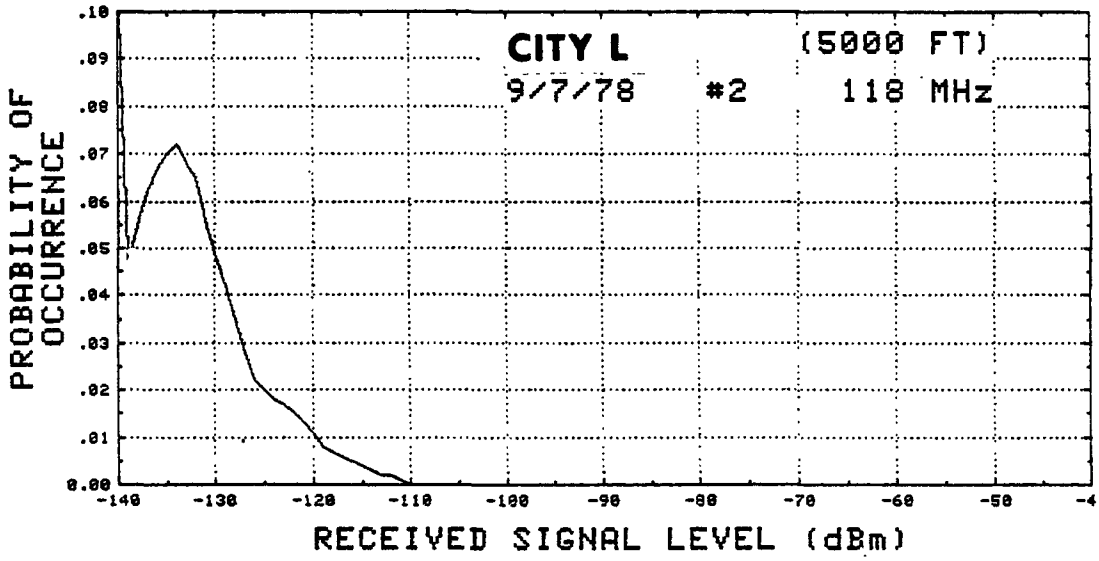


Figure F.117

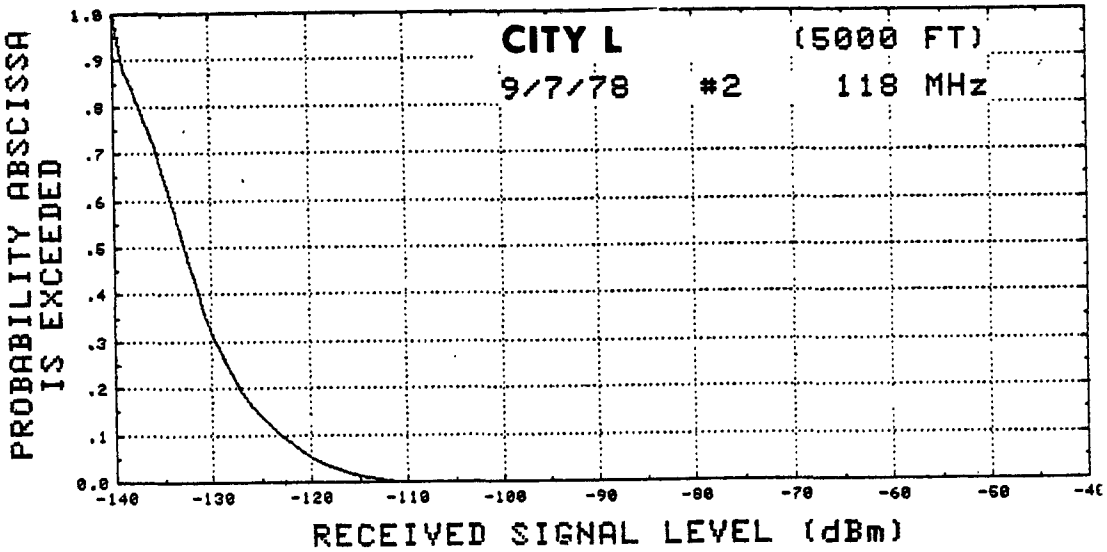


Figure F.118

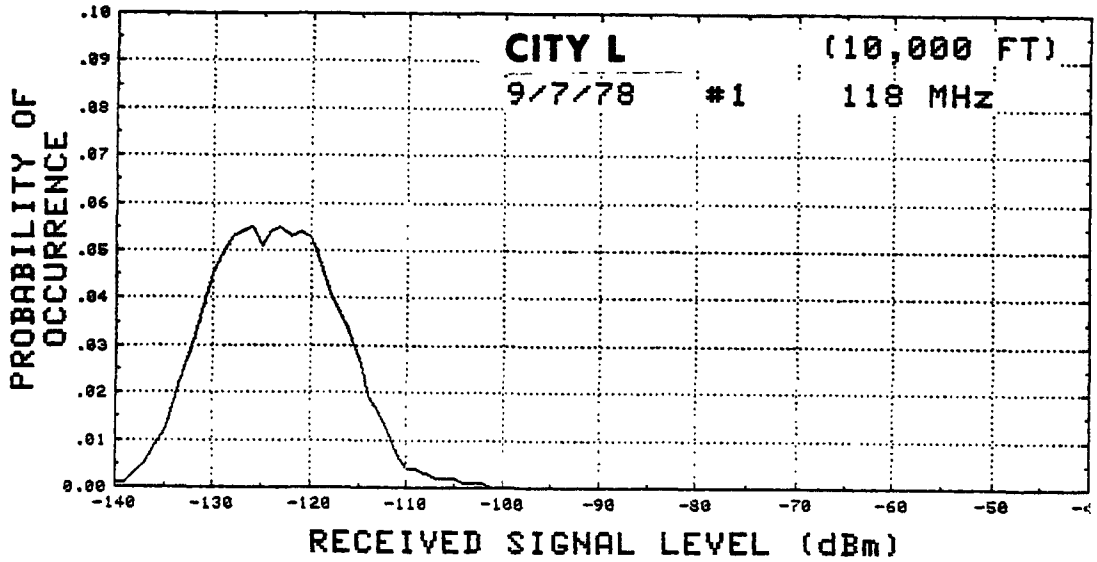


Figure F.119

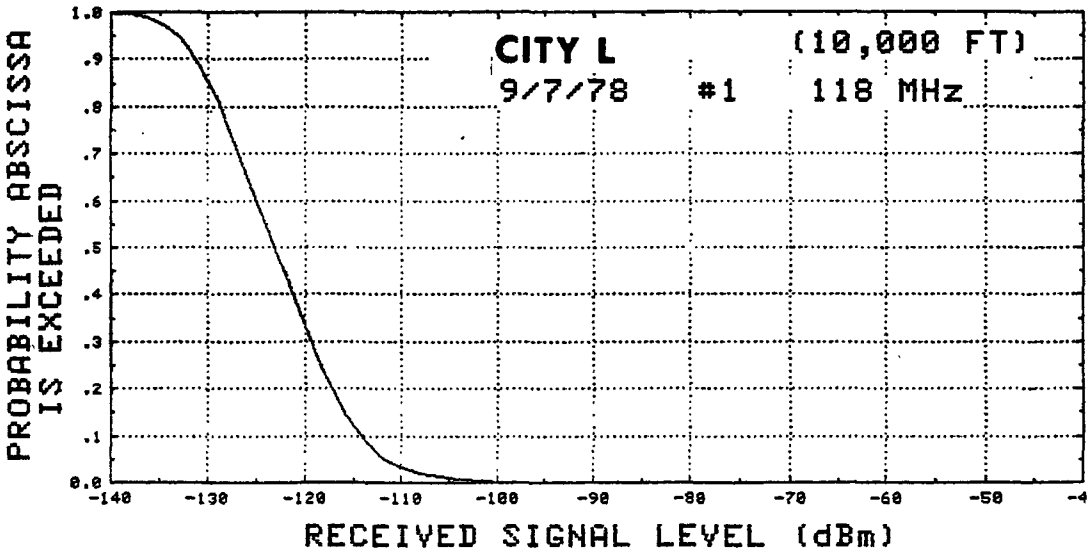


Figure F.120

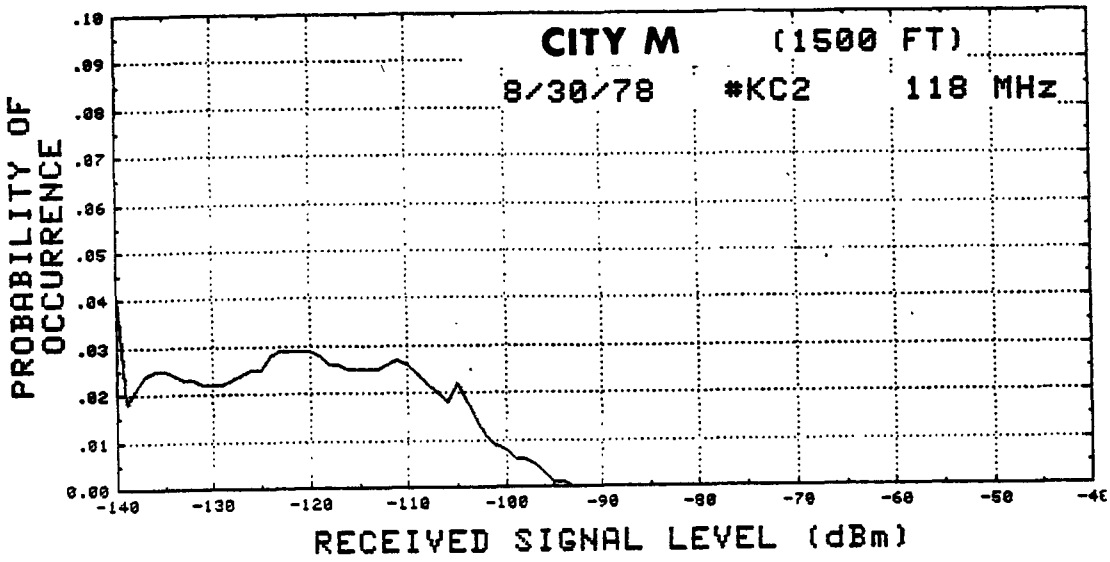


Figure F.121

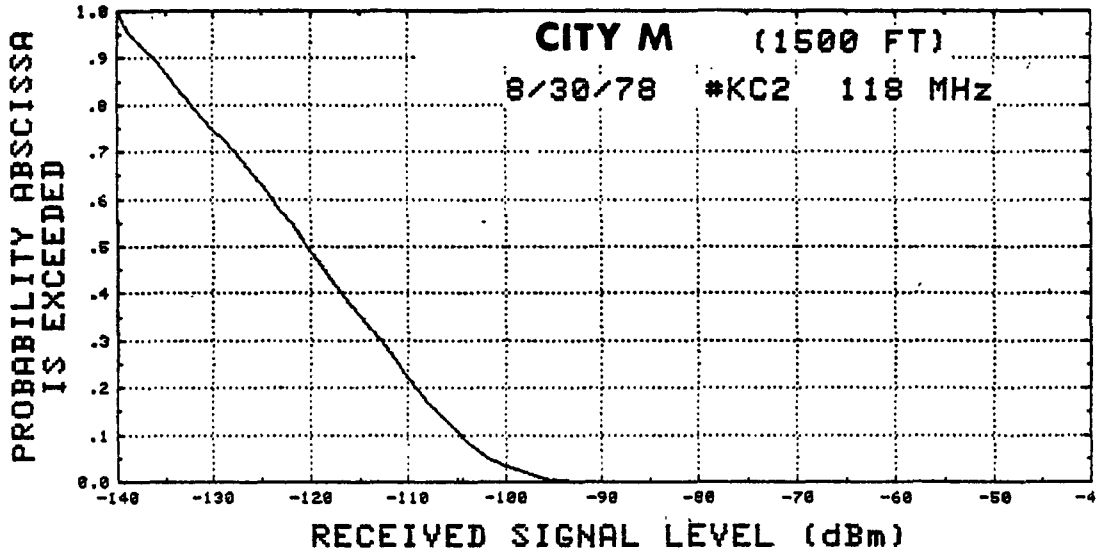


Figure F.122

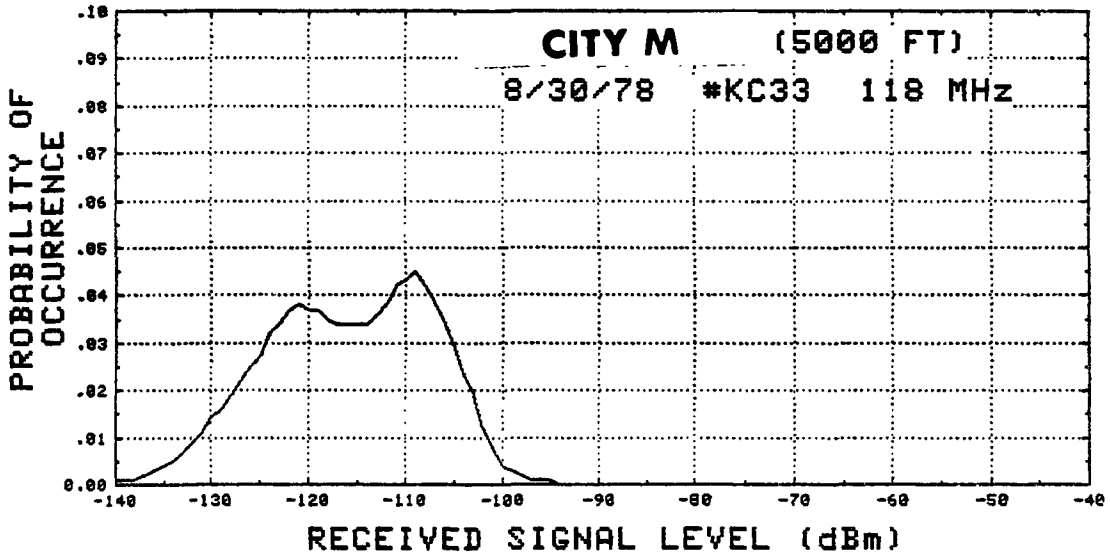


Figure F.123

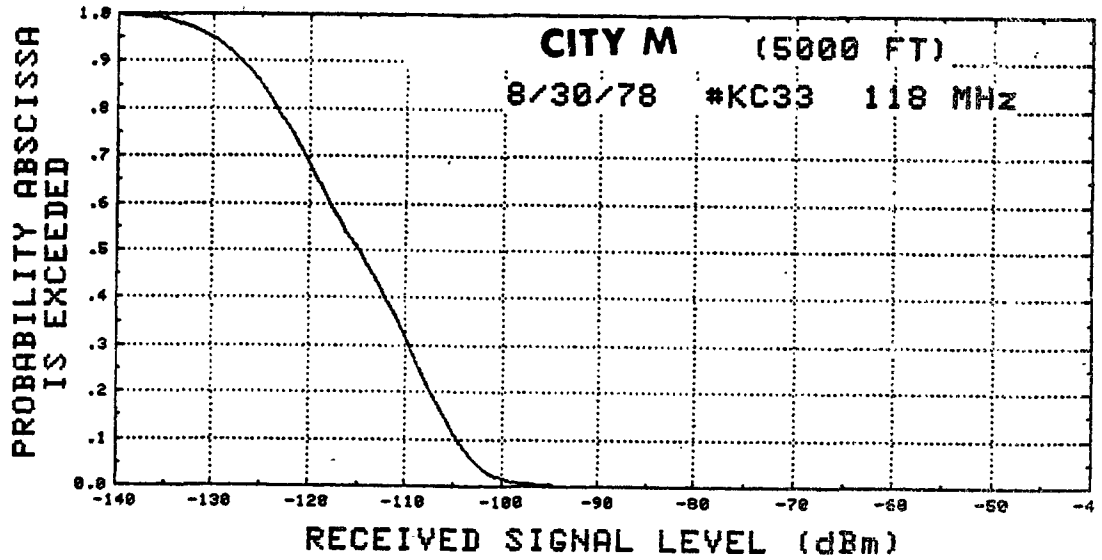


Figure F.124

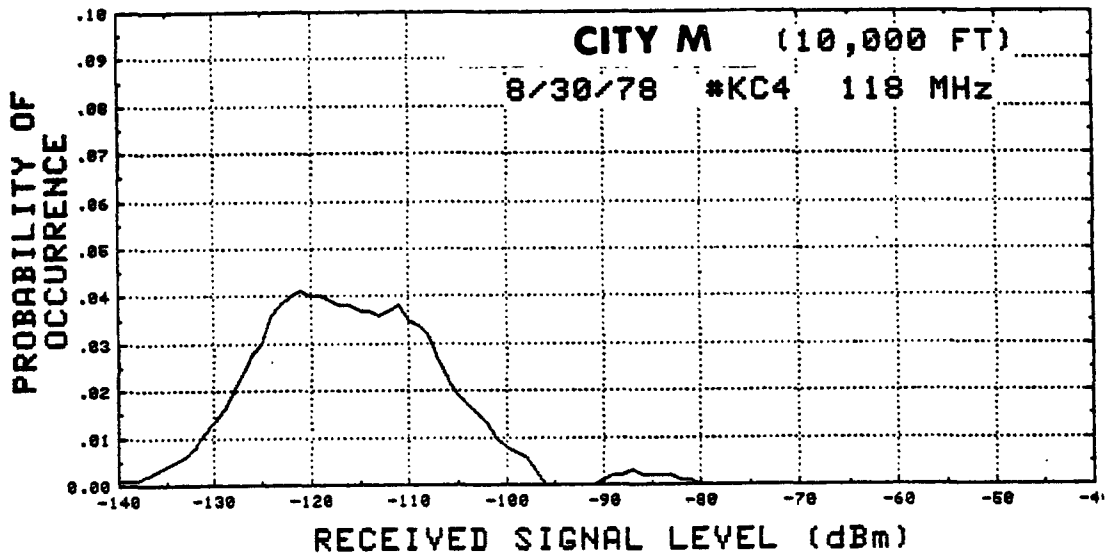


Figure F.125

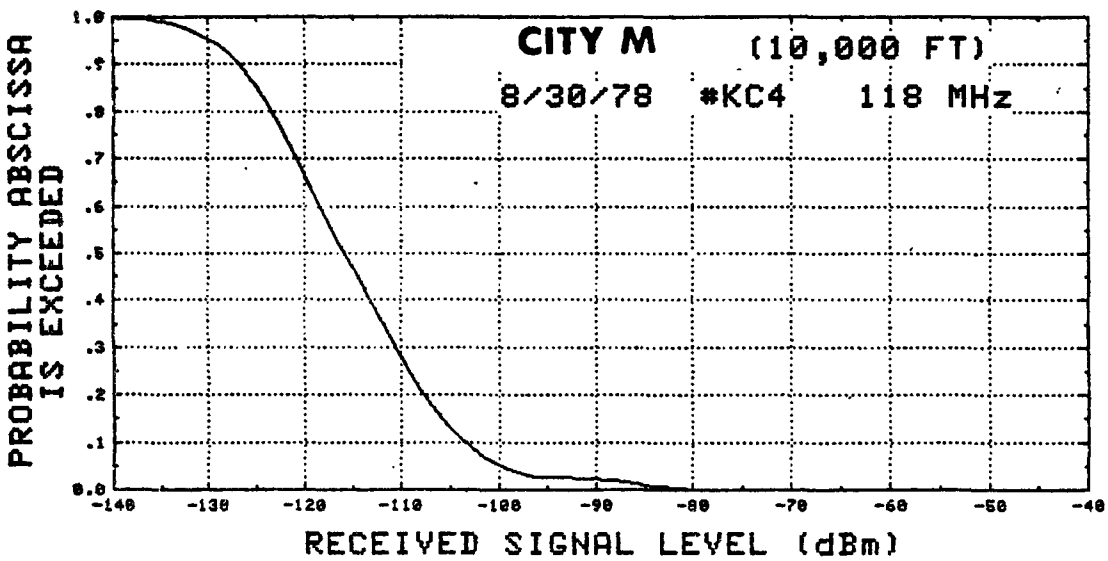


Figure F.126

AUTOMATED STRIP CHARTS

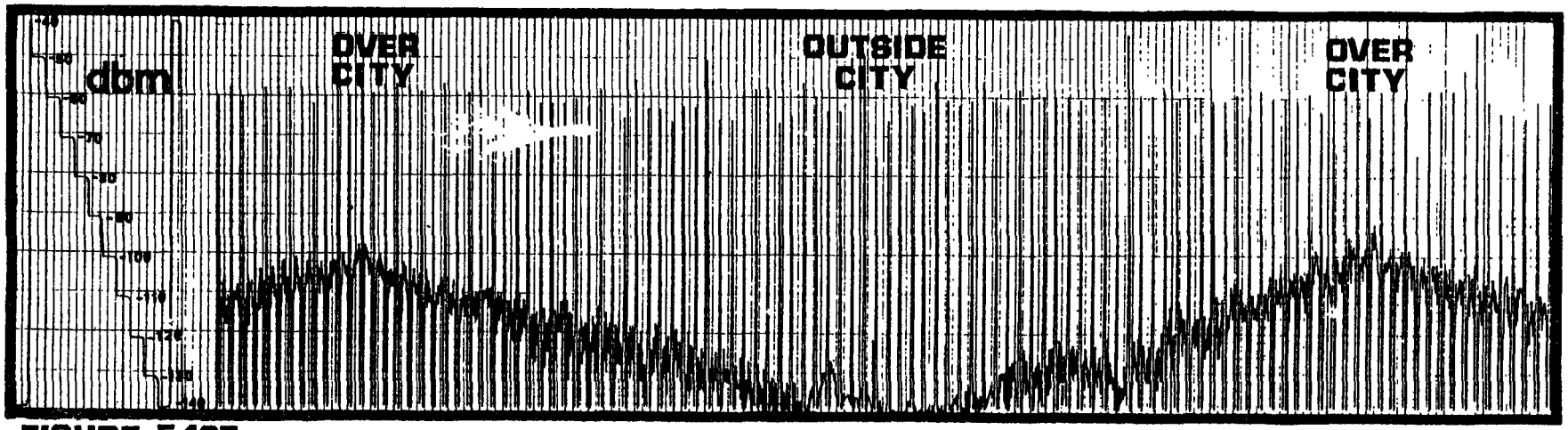


FIGURE F.127

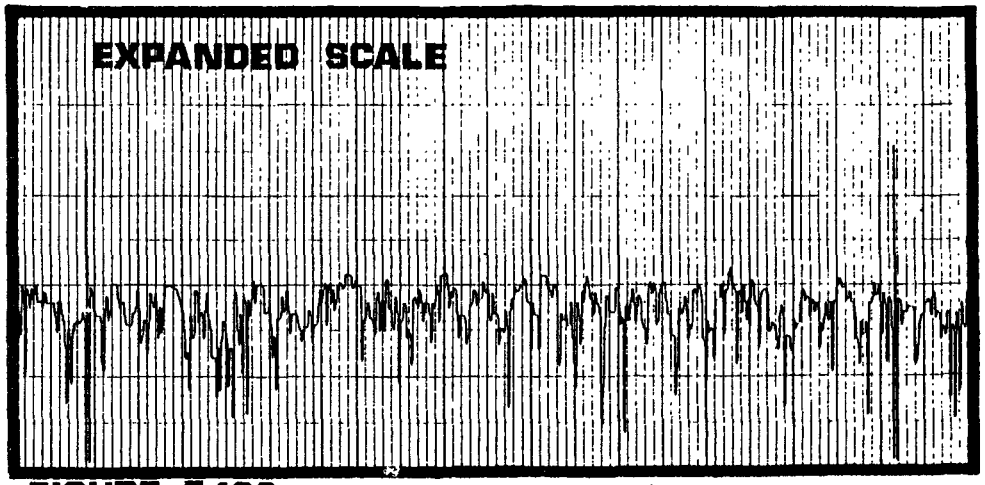
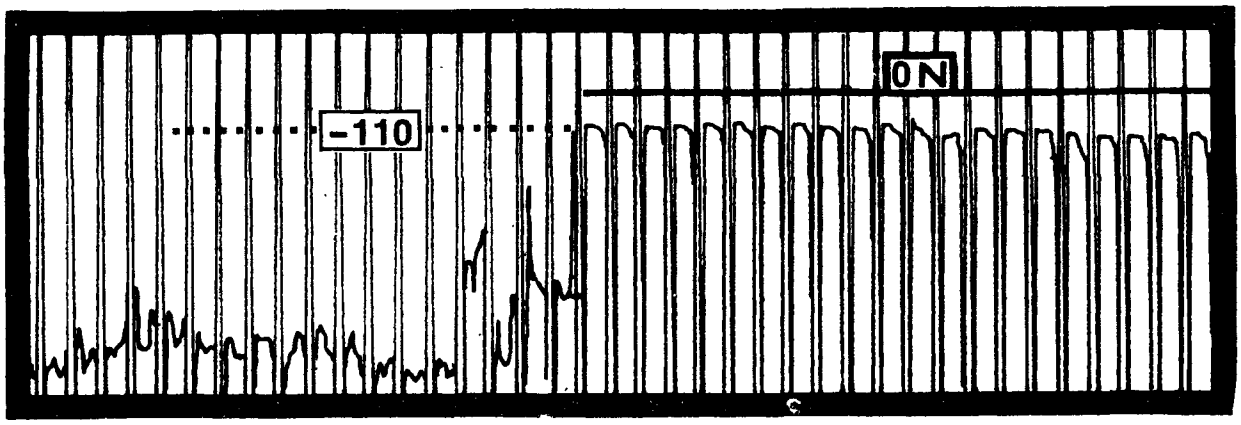


FIGURE F.128

TEXT:
SECTION 2.2.3.3

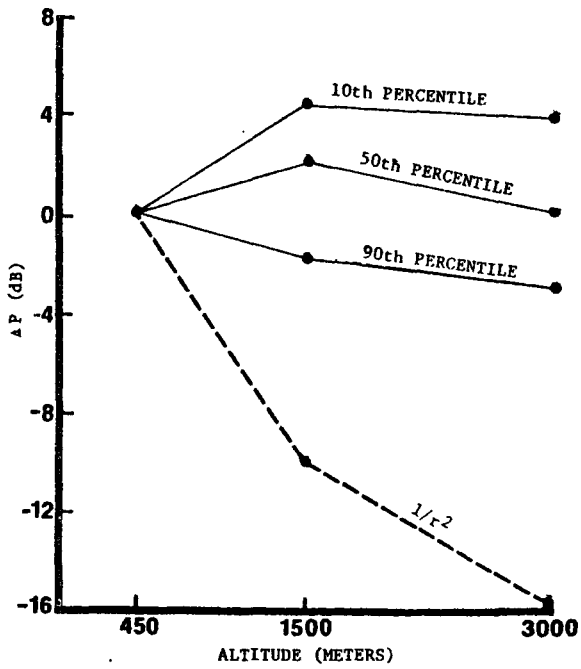
TRANSMITTER TEST



TEXT:
Sections 2.1.4 &
2.2.3.3

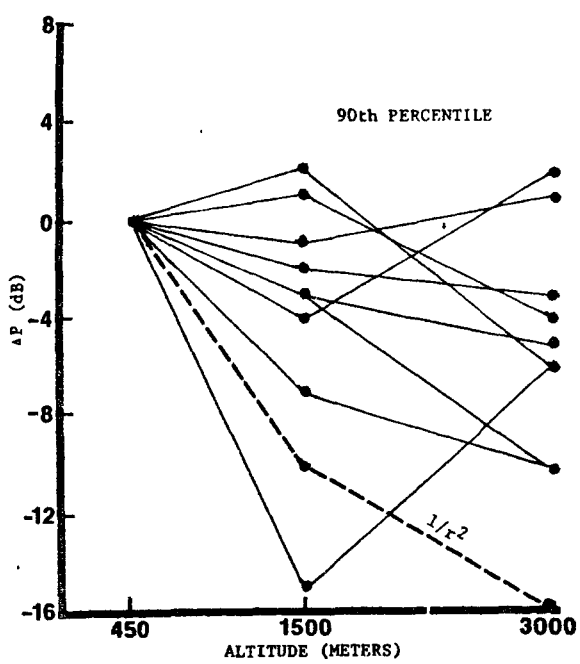
APP. F

FIG. 129



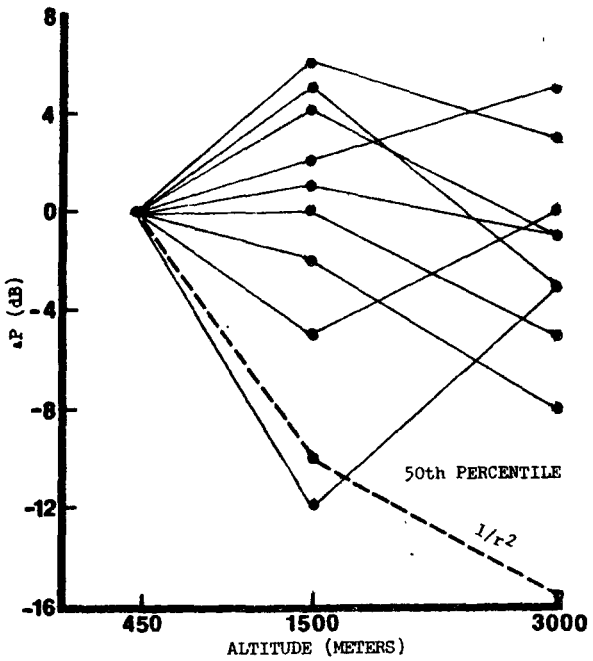
The 90th, 50th, and 10th percentile signal levels, normalized to the average levels at 450 meters altitude, are shown as functions of altitude. The curve $1/r^2$ is included for comparison with the power flux dependence of a point source.
TEXT: Section 2.2.3.4

Figure F.130



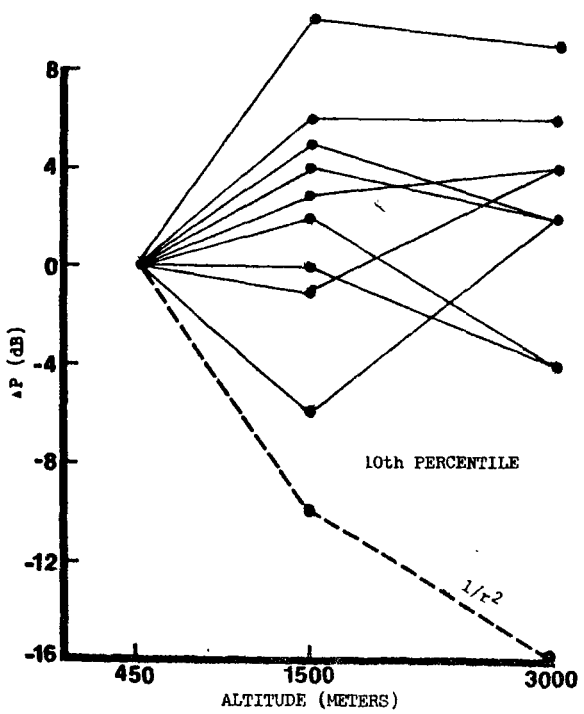
The 90th percentile power levels for nine cable systems, normalized to their average levels at 450 meters altitude, is shown as a function of altitude. As in figure F.130, the $1/r^2$ curve is shown for comparison.

Figure F.131



The normalized 50th percentile power levels are shown as a function of altitude.

Figure F.132



The normalized 10th percentile power levels are shown as a function of altitude.

Figure F.133

GENERAL AVIATION RECEIVER

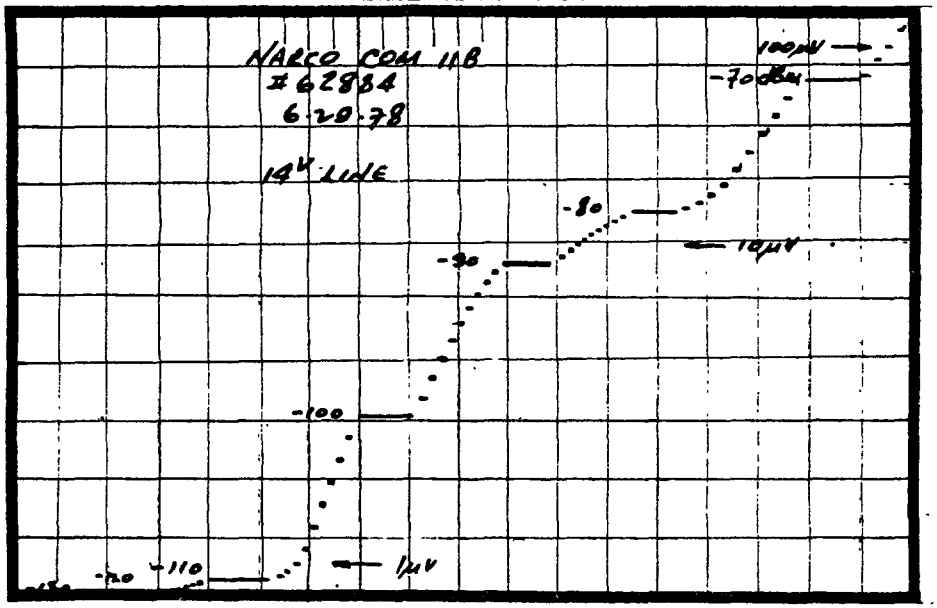


Figure F. 134

Receiver AGC calibration. This is a strip chart recording. Receiver input power, in dBm, or voltage in microvolts is noted as a function of recorder pen position. (Text, Section 2.4)

GENERAL AVIATION RECEIVER

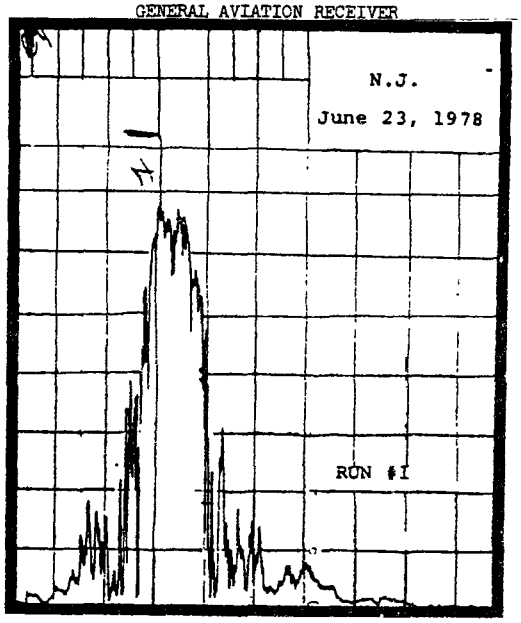


Figure F. 135

Calibration run over dipole antenna (Text, Section 2.4)

GENERAL AVIATION RECEIVER

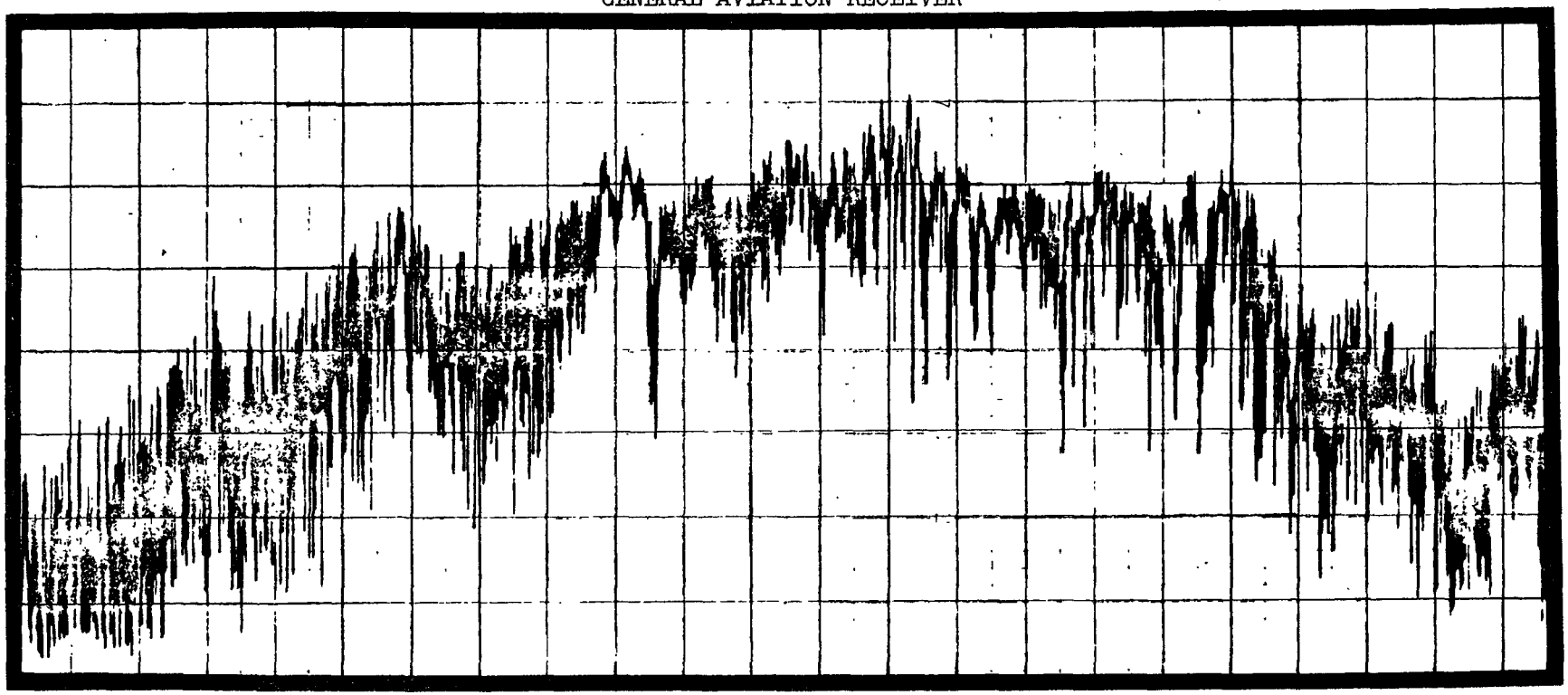


Figure F.136

Cable signal leakage run over City B. This cable system exhibited the highest leakage levels of any system observed. (Text, Section 2.4)

TABLE G.1
SIGNAL LEVELS IN AIRSPACE, AND GROUND LEAKAGE INDICES

CITY CODE	90th Percentile (dBm) 450m	1500M	3000m	50th Percentile (dBm) 450m	1500m	3000m	10th Percentile (dBm) 450m	1500m	3000m	I_∞ (V/m)x10^9	I_{3000} (FIM data)	I_{3000} (Leak detector)	Iavg (Ground) (dBm)
B	-90	-88	-94	-102	-98	-103	-114	-110	-112	-	-	-	-
H (vertical antenna)	-89	-96	-99	-104	-103	-105	-120	-114	-114	28,400	192	1.05	-98
H (horizontal antenna)	-95	-	-	-119	-	-	-135	-	-	-	-	-	-
G	-102	-104	-105	-110	-110	-115	-122	-120	-126	8,620	.80	.65	-106
C	-105	-108	-110	-112	-114	-120	-125	-125	-129	3,860	.29	.51	-111
F	-108	-111	-118	-125	-120	-128	-137	-132	-135	2,020	.17	.51	-107
K (signal off)	-126	-	-	-135	-	-	-140	-	-	-	-	-	-
K (signal on)	-101	-100	-105	-114	-108	-111	-132	-122	-121	1,640	-	.22	-
J	-105	-110	-104	-118	-119	-122	-132	-130	-132	1,630	.10	-	-
A	-108	-	-	-124	-	-	-136	-	-	1,090	.052	-	-
E	-104	-105	-103	-119	-116	-113	-132	-128	-127	683	.073	-	-
I	-108	-110	-	-122	-122	-	-135	-133	-	-	-	-	-
M	-105	-105	-103	-120	-115	-116	-136	-127	-126	483	.046	-	-
L	-108	-123	-114	-123	-132	-123	-134	-139	-131	33	-	.004	-
Arlington													
no signal	-109	-110	-107	-116	-114	-117	-126	-123	-125	-	-	-	-
with signal	-108	-112	-106	-116	-121	-116	-128	-129	-124	-	-	-	-
1 dipole	-106	-111	-105	-117	-115	-113	-128	-122	121	-	-	-	-
3 dipoles	-98	-103	-108	-111	-110	-113	-121	-118	-121	-	-	-	-
7 dipoles	-97	-99	-109	-108	-106	-120	-118	-113	-127	-	-	-	-

Text: Sections 2.2.3.2, 3.5 and 3.7

TABLE G.2
FIELD STRENGTH MEASUREMENTS NEAR A SLEEVE DIPOLE RADIATOR

Location Number	Receiver dipole orientation	Max or Min?	Distance, measurement location to sleeve dipole (m)	Direction* from dipole, to measurement location	Field Strength calculated	Field Strength measured	Ratio, measured to calculated field strength (dB)
1	Horizontal	Max.	0**	-	-	6300	0
2	H	Max.	10	N	1890	2400	2.1
4	H	Max.	10	E	1890	4700	7.9
6	H	Max.	10	S	1890	2800	3.4
8	H	Max.	10	W	1890	1100	-4.7
5	H	Max.	25	E	756	3200	12.5
3	H	Max.	50	N	378	1600	12.5
7	H	Max.	50	S	378	2200	15.3
9	H	Max.	50	E	378	2500	16.4
							Ratio, Max/Min (dB)
4	H	Min.	10	E		790	15.5
6	H	Min.	10	S		560	14.0
8	H	Min.	10	W		350	9.9
5	H	Min.	25	E		1300	7.8
3	H	Min.	50	N		1600	0
7	H	Min.	50	S		630	10.9
9	H	Min.	50	E		2200	1.1
							Ratio, H/V (dB)
3A	H	Max.	50	N		1900	1.0
3A	Vertical	Max.	50	N		1700	
3B	H	Max.	50	N		1700	-1.8
3B	V	Max.	50	N		2100	
9A	H	Max.	55	E		4200	5.6
9A	V	Max.	55	E		2200	

*Cable runs north, south, and west from sleeve dipole location
**3 meters directly below sleeve dipole

Text: Section 2.5

TABLE G.3
GROUND LEAKAGE LEVELS

City	I_{3000}	I_∞	Largest Leak (μV/m at 3 m)	Number of Leaks Located	ϕ[a]	90% Leakage Level[b] (μV/m)	99% Leakage Level (μV/m)	$T_{.05}$[c]
H	1.92	28,400	1000	88	0.95	400	350	3368
G	0.80	8,620	800	57	0.95	300	250	1023
C	0.29	3,860	1000	45	0.8	180	100	388
F	0.17	2,095	520	50	0.8	140	70	209
K	0.064[d]	1,640	400	26	0.95	400	133	195
J	0.010	1,630	600	18	0.6	170	130	122
A	0.052	1,090	600	16	0.6	130	80	82
E	0.073	683	400	13	0.6	200	70	51
M	0.046	483	400	11	0.6	170	70	36
L	0.004[d]	33	108	7	0.95	55	50	4

[a]Fraction of cable system examined

[b]90% (99%) of I_∞ is accounted for by leaks equal to or greater than this magnitude, measured at 3 meters distance.

[c]Number of leaks at 20 μV/m which would be required to increase I_∞ by 5%.

[d]Calculated from FIM/leak detector calibration curve, Figure H.1.

Text: Sections 3.5 and 3.6

TABLE G.4

r^2 AS A FUNCTION OF AIRSPACE AND GROUND BASED MEASUREMENT METHOD

GROUND MEASUREMENT	AIRSPACE MEASUREMENT					
	450 meters			3000 meters		
	90%	50%	10%	90%	50%	10%
I_∞	.48	.57	.52	.19	.23	.27
I_{3000} (FIM data)	.62	.75	.81	.03	.24	.39
I_{3000} (Leak detector data)	.26	.21	.42	.08	.04	.06

Text: Section 4.1