



a GENERAL INSTRUMENT company

CATV SYSTEMS CALCULATOR

Model CSC

This typical basic information will enable you to perform the system calculations detailed in Instructions and Examples.

Typical Equipment and System Parameters

	Forward Direction	
	One-Way	Two-Way
Upper frequency	260 MHz	
Average main station spacing	18 dB	17 dB
Trunk noise figure	11 dB	11.5 dB
Trunk carrier/noise (typical)	43 dB	
Trunk amplifier gain (recommended)	21 dB	20 dB
Trunk output capability*	47 dBmV	46.5 dBmV
Feeder cross-mod divided equally between line extenders and bridging amplifier	each cross-mod spec. increases 6 dB	
Br. amp. output capability*	47 dBmV	46.5 dBmV
Br. amp. input (typical)	15 dBmV	
Br. amp. noise figure	16 dB	16 dB
Line extender output capability*	44 dBmV	43.5 dBmV
Line extender maximum cascade	4	
Line extender maximum gain	25 dB	24 dB
Line extender noise figure (w/equal.)	17 dB	17.5 dB

*For-57 dB cross-mod., 30 channels, 3 dB block tilt.

Cable Attenuations in dB/100' at 70°F at 260 MHz

Cable Type	Attenuation	Cable Type	Attenuation
JT-1412	1.82	JT-1750	1.08
JT-2412	1.49	JT-2750	0.82
JT-1500	1.44	JT-10000	0.65
JT-2500	1.21		

Instructions and Examples

Only **one** unknown can be determined from any of these examples. In each example, the **known** information is underlined **once**. The **unknown** (answer) is underlined **twice**.

Side 1, Scales	M	S	A	C ₁
	Longest Cascade Miles	Amplifier Spacing dB Cable	Cable Atten. dB/100'	Number Cascaded

EXAMPLE: Align 10 with 18 locate 0.82 read 24

Side 2, Scales	S/N	N.F.	C ₃	I.L.
	Trunk S/N dB	Trunk Noise Fig. dB	Number Cascaded	Input dBmV

EXAMPLE: Align 43 with 11 locate 24 read 9

Slide Rule Not Required	Input Level	Oper. Gain	Output Level
	dBmV	dB	dBmV

EXAMPLE: 9 + 21 = 30

Side 2, Scales	C ₂	O.L.	O.C.	C.M.
	Number Cascaded	Output Level dBmV	Output Capability dBmV	Trunk Cross-Mod dB

EXAMPLE: Align 24 with 30 locate 47 -63.5

Side 1, Scales	V ₂	V ₂	V ₁
	Trunk Cross-Mod dB	System Cross-Mod dB	Feeder Cross-Mod dB

EXAMPLE: Set arrow to -63.5 locate 50 read 52

System Flow Chart

Number of Tr. Amps Cascaded

Trunk Amplifier Input Level

Trunk Amplifier Output Level

Trunk Cross-Mod

Feeder Cross-Mod

Continued on next page

Side 1; Scales	V_2	V_2	V_1
	Bridger Cross-Mod dB	Feeder Cross-Mod dB	Line Ext. Cross-Mod dB

EXAMPLE: Set arrow to 58 locate 52 read 58

Side 2, Scales	C.M.	O.C.	C_2	O.L.
	Bridger Cross-Mod dB	Output Capability dBmV	(Note 1) Number Cascaded	Output Level dBmV

EXAMPLE: Align 58 with 47 locate 1 read 46.5

N 1. If C_2 will not align with O.L. multiply number cascaded by 10 and add 10 to O.L. output.

Side 2, Scales	C_3	I.L.	N.F.	S/N
	Number Cascaded	Input Level dBmV	(Note 2) Noise Figure dB	Bridger S/N dB

EXAMPLE: Align 1 with 15 locate 11 read 60

N 2. If N.F. will not align with S/N use 60 dB for S/N.

Side 2, Scales	C.M.	O.C.	C_2	O.L.
	Line Ext. Cross-Mod dB	Output Capability dBmV	Number Cascaded	Output Level dBmV

EXAMPLE: Align 58 with 44 locate 2 read 40.5

Slide Rule Not Required	Output Level	Max. Gain	Input Level
	dBmV	dB	dBmV

EXAMPLE: 40.5 — 25 = 15.5

Side 2, Scales	C_3	I.L.	N.F.	S/N
	Number Cascaded	Input Level dBmV	(Note 2) Noise Figure dB	Line Ext. S/N dB

EXAMPLE: Align 2 with 15.5 locate 17 read 54.5

N 2. If N.F. will not align with S/N use 60 dB for S/N.

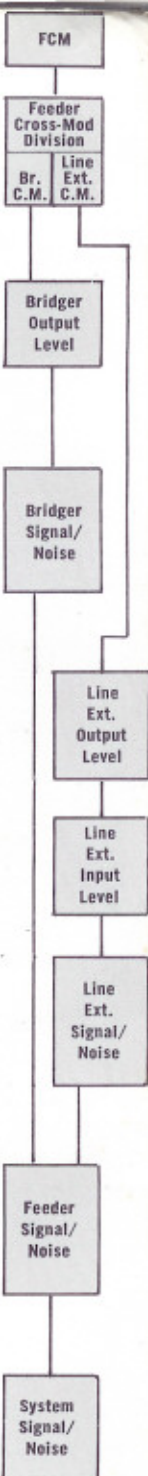
Side 1; Scales	P_1	P_2	P_1
	Line Ext. S/N dB	(Note 2) Bridger S/N dB	Feeder S/N dB

EXAMPLE: Set arrow to 54.5 locate 60 read 54

N 2. If N.F. will not align with S/N use 60 dB for S/N.

Side 1; Scales	P_1	P_2	P_1
	Trunk S/N dB	Feeder S/N dB	System S/N dB

EXAMPLE: Set arrow to 43 locate 54 read 42.7



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Cable Type	Attenuation	Cable Type	Attenuation
JT-1412	1.82	JT-1750	1.08
JT-2412	1.49	JT-2750	0.82
JT-1500	1.44	JT-10000	0.65
JT-2500	1.21		

To Find: Cable span attenuation at any frequency.

Given: Cable span attenuation at specific frequency.

Side 2; Scales	A_2	F_2	F_2	A_2
	Cable Atten. dB/Span	MHz	MHz	Cable Atten. dB/Span

EXAMPLE: Align 18 with 260 locate 30 read 6.1

To Find: Cable attenuation per 100' at any frequency.

Given: Cable attenuation per 100' at specific frequency.

Side 2; Scales	A_1	F_1	F_1	A_1
	Cable Atten. dB/100'	MHz	MHz	Cable Atten. dB/100'

EXAMPLE: Align 1.82 with 260 locate 30 read 0.62

To Find: Changes in CROSS-MOD due to increase or decrease in number of channels (flat levels).

Given: Initial number of channels and final number of channels.

Side 1; Scales	#C	#C	CMA
	Initial Number Channels	Final Number Channels	Cross-Mod dB

EXAMPLE: Set arrow to 30 locate 21 read -3.2



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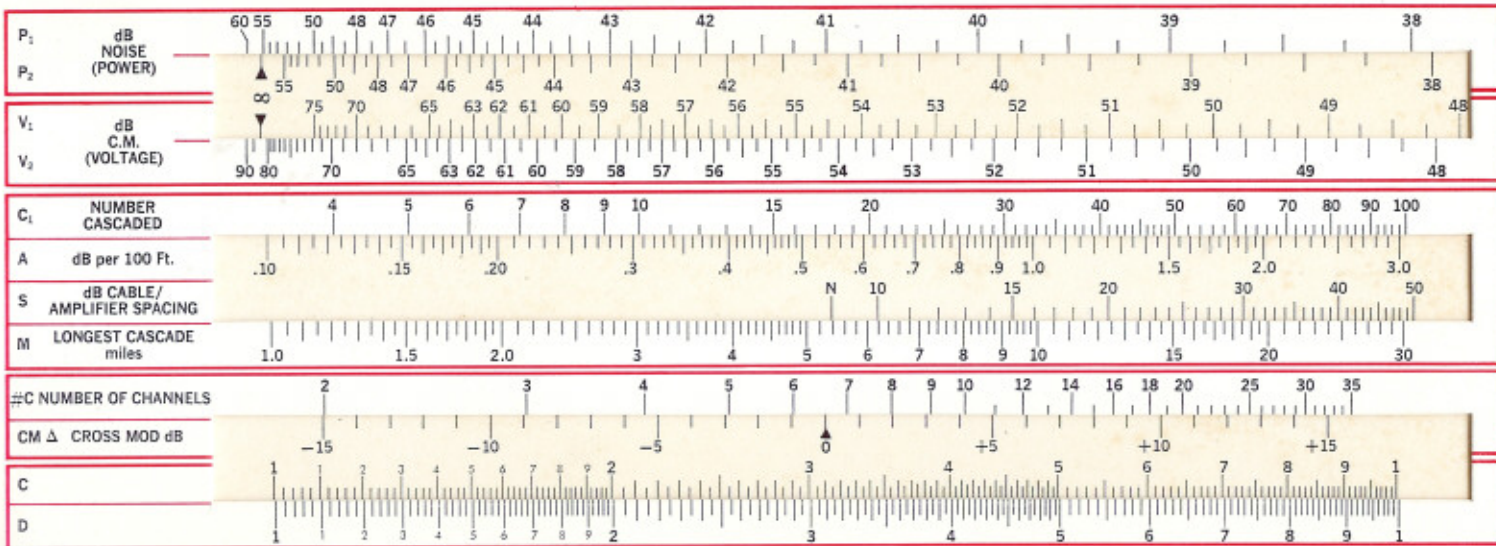
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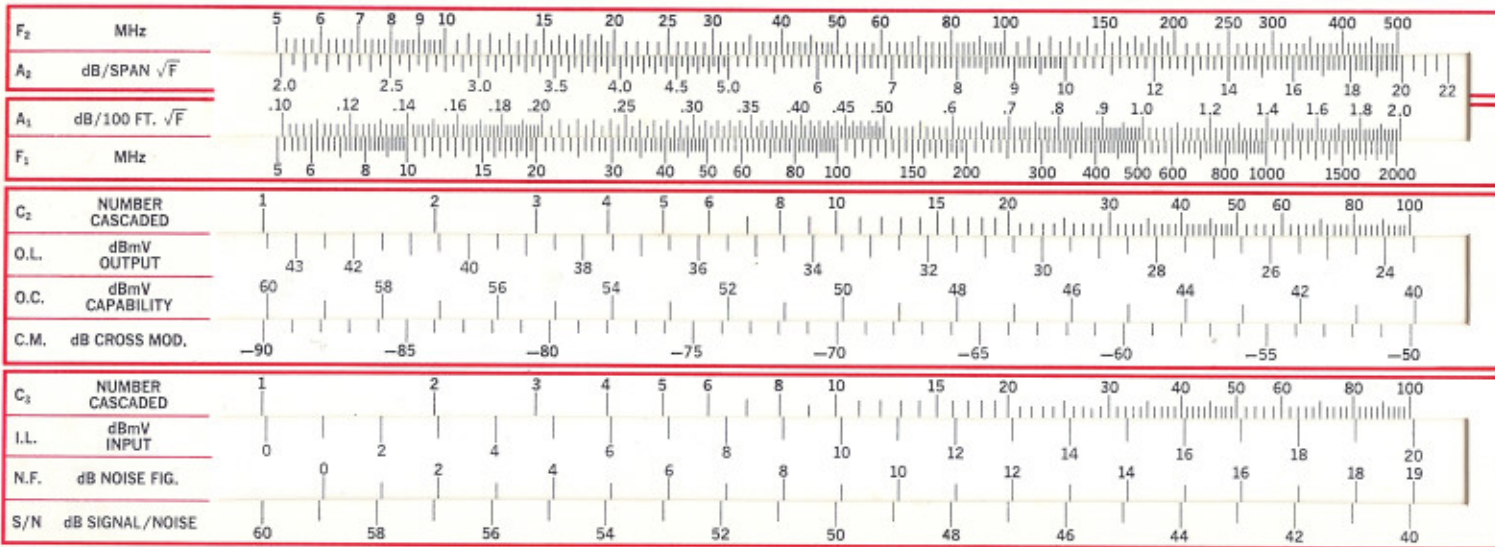
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JERROLD

CATV SYSTEMS CALCULATOR

SIDE ONE




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