

EQUIPMENT: WLS 901 Controller

NAME OF TEST: Processing Gain PARA. NO.: 15.247(e)

TEST PERFORMED BY: Tom Tidwell DATE: Dec. 3, 1992

TEST CONDITIONS: Outdoor Range
Standard Test Voltage

TEST EQUIPMENT: As per block diagram and equipment list attached.

MINIMUM STANDARD The processing gain of a direct sequence system shall be at least 10 dB.

TEST RESULTS: Complies. The processing gain is 15.1 dB.

MEASUREMENT DATA: See following table.

The processing gain was determined by measuring the jamming margin of the E.U.T. and using the formula Jamming Margin = $G_p - (S/N)_{out} - L_{sys}$

The value $(S/N)_{out}$ was calculated by using the fomula:

$$P_e = (1/2) \text{EXP} (-E/2N_0)$$

where,

P_e is the minimum Bit Error Rate required for proper operation.

E/N_0 is $(S/N)_{out}$

System Losses are specified by the manufacturer to be 2 dB.

$$G_p = \text{Jamming Margin} + (S/N)_{out} + L_{sys}$$

$$G_p = 11.68 \text{ dB} + 1.42 \text{ dB} + 2 \text{ dB} = 15.1 \text{ dB}$$

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TEST DATA: Average Jamming Margin (dB) = 11.68 dB
 Desired Signal Level (dBm) = -20 dBm

Frequency (MHz)	Jamming Signal Level (dBm)	Jamming Margin (dB)	Frequency (MHz)	Jamming Signal Level (dBm)	Jamming Margin (dB)
923.25	-4.7	15.3	924.60	-6.4	13.6
923.30	-6.3	13.7	924.65	-6.0	14.0
923.35	-7.2	12.8	924.70	-7.3	12.7
923.40	-6.1	13.9	924.75	-5.0	15.0
923.45	-8.3	11.7			
923.50	-7.5	12.5			
923.55	-9.7	10.3			
923.60	-6.4	13.6			
923.65	-7.3	12.7			
923.70	-6.0	14.0			
923.75	-5.7	14.3			
923.80	-8.1	11.9			
923.85	-9.3	10.7			
923.90	-7.0	13.0			
923.95	-10.5	9.5			
924.00	-14.2	5.8			
924.05	-15.6	4.4			
924.10	-13.0	7.0			
924.15	-10.0	10.0			
924.20	-9.7	10.3			
924.25	-11.3	8.7			
924.30	-10.9	9.1			
924.35	-9.6	10.4			
924.40	-7.0	13.0			
924.45	-7.2	12.8			
924.50	-6.8	13.2			
924.55	-7.4	12.6			