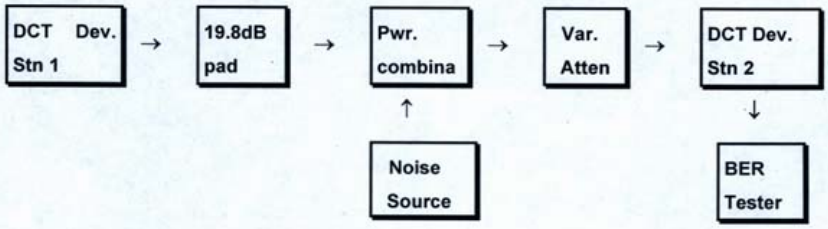
Processing Gain Measurement



TEST METHOD

THE PROCESSING GAIN MAY BE MEASURED USING THE **CW** JAMMING MARGIN METHOD. FIGURE 1 SHOWS THE TEST CONFIGURATION. THE TEST CONSIST OF STEPPING A SIGNAL GENERATOR IN 50 **KHz** INCREMENTS ACROSS THE PASSBAND OF THE SYSTEM (UP TO 960 **KHz** AWAY IN **RI**,S **DCT**).

AT EACH POINT, THE GENERATOR LEVEL REQUIRED TO PRODUCE THE RECOMMENDED BIT ERROR RATE (**BER**) (SET AT **BER** = **10e-3**) IS RECORDED.

THE LEVEL IS JAMMING LEVEL. THE OUTPUT POWER OF THE TRANSMITTING UNIT IS MEASURED AT THE SAME POINT. THE JAMMER TO SIGNAL (**J/S**) RATIO IS THEN CALCURATED.

DISCARD THE WORST 20 **%** OF THE J/S DATA POINTS. THE LOWEST REMAINNING **J/S** RATIO IS USED TO CALCURATE THE PROCESSING GAIN.

THE MAXIMUM IMPLEMENTATION LOSS A SYSTEM CAN CLAIM IN CALCURATING PROCASSING GAIN IS 2 **dB** . THE EQUATION TO CALCURATE THE PROCESSING GAIN (**Gp**) IS THE FOLLOWING.

Gp	= $(S/N)_0$ + Mj + Lsys
$(S/N)_0$	= Signal to Noise Ratio reqd @ BER of 8dB for DBPSK
Mj	= Jamming Marjin (J/S) in dB
Lsys	= system implementation Losses = 2dB
S	= Signal power - Attn - comb loss - cable loss
	= 4.0 - 19.8 - 3.6 - 0.5 -27.9 = -28.2dB
J	= Sig Gen O/PLvl(N) - Cal factor - Comb loss
	= N - 0.3 - 3.6 dB

900MHz DSSS DIGITAL CORDLESS TELEPHONE

MODEL : IS-903 USA VERSION

TEST DATA

Jammer Freq.(MHz)	Signal Lvl dB	CW Noise N dB	Mj J / S dB	Proc. Gain dB
915.6	- 27.9	- 15.1	8.8	19
915.65	- 27.9	- 15	8.9	19.1
915.7	- 27.9	- 22.9	1	11.2
915.75	- 27.9	- 19.9	4	14.2
915.8	- 27.9	- 19.6	4.3	14.5
915.85	- 27.9	- 20.3	3.6	13.8
915.9	- 27.9	- 21.3	2.6	12.8
915.95	- 27.9	- 19.3	4.6	14.8
916.0	- 27.9	- 21	2.9	13.1
916.05	- 27.9	- 11.8	12.1	22.3
916.1	- 27.9	- 19.5	4.4	14.6
916.15	- 27.9	- 11.8	12.1	22.3
916.2	- 27.9	- 17	6.9	17.1
916.25	- 27.9	- 14.2	9.7	19.9
916.3	- 27.9	- 12.5	11.4	21.6
916.35	- 27.9	- 10	13.9	24.1
916.4	- 27.9	- 6	17.9	28.1
916.45	- 27.9	- 4	19.9	30.1
916.5	- 27.9	- 1.2	22.7	32.9
916.55	- 27.9	- 1.8	22.1	32.3