

FCC Part 15, Compliance Processing Gain Performance Test

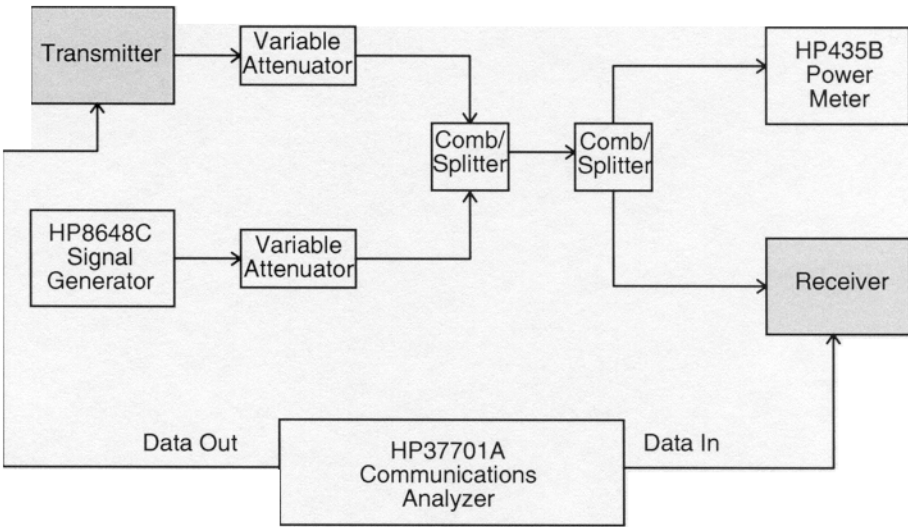
Test method recommended by FCC 97-114 is the CW Jamming Margin Method.

Characteristic	Value
Data rate	2T1 (3.208 Mb/s)
Chip rate	11 chips/bit
Designed processing gain	10.4 dB

Test Setup

Test setup is shown in Figure D-12.

Figure D-12 Processing gain test setup



Jamming Margin (J/S Ratio) (for BER 10^{-5})

The test was performed in Direction B. 50-kHz increments were used in this test; the worst 20% were discarded. See Table D-8.

After the worst 20% (64 points marked with (x)) were discarded, the lowest J/S ratio was -1.2 dB (marked with (**)).

Hence $M_j = -1.2$ dB.

The S/N ratio for ideal noncoherent receiver is calculated from

$$Pe = 1/2 e^{(-1/2)(S/N)_o}$$

where $Pe = 10^{-5}$.

Hence $(S/N)_o = 13.3$ dB.

The processing gain can be calculated as

$$G_p = (S/N)_o + M_j + L_{sys}$$

where L_{sys} = System Loss.

No more than 2-dB loss is allowed (we assumed 0 dB).

Hence $G_p = 13.3 - 1.2 + 0.0 = 12.1$ dB, better than the designed coding gain of 10.4 dB and better than the FCC's minimum requirement of 10 dB.

Table D-8 Jamming margin (J/S ratio) (for BER 10^{-5}) for 2T1

Freq. Offset (MHz)	J/S (dB)	Freq. Offset (MHz)	J/S (dB)	Freq. Offset (MHz)	J/S (dB)	Freq. Offset (MHz)	J/S (dB)
-10.00	0.4	-8.00	-1.2	-6.00	(x) -1.6	-4.00	(x) -1.5
.05	0.4	.05	-1.1	.05	(x) -1.6	.05	(x) -1.4
.10	0.4	.10	-1.2	.10	(x) -1.7	.10	(x) -1.3
.15	0.4	.15	(x) -1.3	.15	(x) -1.7	.15	(x) -1.3
.20	0.4	.20	(x) -1.7	.20	(x) -1.7	.20	(x) -1.3
.25	0.4	.25	(x) -1.5	.25	(x) -1.7	.25	(x) -1.3
.30	0.5	.30	(x) -1.6	.30	(x) -1.7	.30	(x) -1.3
.35	0.4	.35	(x) -1.7	.35	(x) -1.5	.35	(x) -1.3
.40	0.3	.40	(x) -1.8	.40	(x) -1.4	.40	(x) -1.3
.45	0.3	.45	(x) -1.7	.45	(x) -1.3	.45	(x) -1.4
.50	0.3	.50	(x) -1.7	.50	-1.2	.50	(x) -1.5
.55	0.3	.55	(x) -1.8	.55	-1.2	.55	(x) -1.2
.60	0.3	.60	(x) -1.8	.60	(x) -1.3	.60	-1.0
.65	0.3	.65	(x) -1.8	.65	(x) -1.3	.65	-1.0
.70	0.3	.70	(x) -1.8	.70	-1.2	.70	-0.9
.75	0.4	.75	(x) -1.6	.75	-1.2	.75	-0.8
.80	0.5	.80	(x) -1.5	.80	(x) -1.6	.80	-0.5
.85	0.4	.85	(x) -1.5	.85	(x) -1.5	.85	-0.6
.90	0.3	.90	(x) -1.4	.90	(x) -1.3	.90	-0.7
.95	0.2	.95	(x) -1.4	.95	(x) -1.5	.95	-0.8
-9.00	0.1	-7.00	(x) -1.3	-5.00	(x) -1.6	-3.00	-0.9
.05	-0.1	.05	(x) -1.3	.05	(x) -1.6	.05	-0.9
.10	-0.1	.10	-1.0	.10	(x) -1.6	.10	-0.9
.15	-0.2	.15	-1.1	.15	(x) -1.5	.15	-1.0
.20	-0.2	.20	-1.1	.20	(x) -1.6	.20	(x) -1.2
.25	-0.1	.25	-1.2	.25	(x) -1.7	.25	(x) -1.2
.30	-0.1	.30	(**) -1.2	.30	(x) -1.7	.30	(x) -1.2
.35	-0.1	.35	-1.1	.35	(x) -1.6	.35	-1.1
.40	0.0	.40	-1.1	.40	(x) -1.6	.40	-1.0
.45	-0.1	.45	(x) -1.3	.45	(x) -1.6	.45	-1.0
.50	-0.2	.50	(x) -1.4	.50	(x) -1.6	.50	-0.9
.55	-0.2	.55	(x) -1.3	.55	(x) -1.7	.55	-0.6
.60	-0.3	.60	(x) -1.4	.60	(x) -1.7	.60	-0.3
.65	-0.3	.65	(x) -1.6	.65	(x) -1.6	.65	-0.5
.70	-0.4	.70	(x) -1.7	.70	(x) -1.7	.70	-0.7
.75	-0.4	.75	(x) -1.7	.75	(x) -1.3	.75	-0.4
.80	-0.4	.80	(x) -1.7	.80	-0.7	.80	-0.3
.85	-0.4	.85	(x) -1.5	.85	(x) -1.6	.85	-0.2
.90	-0.6	.90	(x) -1.4	.90	(x) -1.9	.90	-0.1
.95	-0.6	.95	(x) -1.5	.95	(x) -1.7	.95	-0.1

Freq. Offset (MHz)	J/S (dB)	Freq. Offset (MHz)	J/S (dB)	Freq. Offset (MHz)	J/S (dB)	Freq. Offset (MHz)	J/S (dB)
-2.00	-0.1	0.00	1.0	+2.00	1.3	+4.00	1.5
.05	-0.2	.05	0.9	.05	1.3	.05	1.6
.10	-0.3	.10	0.9	.10	1.4	.10	1.5
.15	-0.2	.15	0.8	.15	1.3	.15	1.4
.20	-0.1	.20	0.7	.20	1.3	.20	1.5
.25	-0.1	.25	0.9	.25	1.3	.25	1.4
.30	-0.1	.30	1.1	.30	1.3	.30	1.3
.35	0.0	.35	0.9	.35	1.4	.35	1.3
.40	0.1	.40	0.8	.40	1.2	.40	1.2
.45	0.0	.45	1.0	.45	1.2	.45	1.2
.50	0.0	.50	1.2	.50	1.3	.50	1.1
.55	-0.2	.55	1.1	.55	1.1	.55	1.1
.60	-0.4	.60	1.0	.60	1.0	.60	1.2
.65	-0.4	.65	1.0	.65	1.1	.65	1.2
.70	-0.4	.70	1.0	.70	1.2	.70	1.2
.75	-0.5	.75	0.9	.75	1.3	.75	1.3
.80	-0.7	.80	0.8	.80	1.4	.80	1.4
.85	-0.7	.85	0.6	.85	1.2	.85	1.4
.90	-0.7	.90	0.4	.90	1.3	.90	1.5
.95	-0.4	.95	-0.1	.95	1.4	.95	1.4
-1.00	-0.2	+1.00	-0.2	+3.00	1.5	+5.00	1.3
.05	-0.2	.05	-0.1	.05	1.5	.05	1.7
.10	-0.1	.10	-0.6	.10	1.5	.10	1.8
.15	0.0	.15	0.1	.15	1.5	.15	1.7
.20	0.1	.20	0.2	.20	1.6	.20	1.7
.25	0.2	.25	0.3	.25	1.7	.25	1.7
.30	0.3	.30	0.4	.30	1.6	.30	1.6
.35	0.3	.35	0.5	.35	1.5	.35	1.8
.40	0.4	.40	0.7	.40	1.6	.40	2.0
.45	0.5	.45	0.8	.45	1.6	.45	1.7
.50	0.6	.50	1.0	.50	1.6	.50	1.6
.55	0.4	.55	1.0	.55	1.7	.55	1.7
.60	0.2	.60	1.1	.60	1.8	.60	1.6
.65	0.3	.65	0.6	.65	1.7	.65	1.6
.70	0.5	.70	0.3	.70	1.8	.70	1.7
.75	0.7	.75	0.5	.75	1.6	.75	1.8
.80	0.9	.80	1.1	.80	1.7	.80	1.8
.85	0.8	.85	1.1	.85	1.7	.85	1.7
.90	0.7	.90	1.1	.90	1.8	.90	1.8
.95	0.8	.95	1.2	.95	1.7	.95	1.8

Freq. Offset (MHz)	J/S (dB)	Freq. Offset (MHz)	J/S (dB)	Freq. Offset (MHz)	J/S (dB)	Freq. Offset (MHz)	J/S (dB)
+6.00	1.8	+7.00	3.2	+8.00	3.8	+9.00	6.7
.05	1.8	.05	3.1	.05	4.1	.05	6.8
.10	1.8	.10	3.0	.10	4.6	.10	7.1
.15	2.0	.15	3.0	.15	5.2	.15	7.2
.20	2.1	.20	3.0	.20	6.0	.20	7.4
.25	2.0	.25	3.1	.25	6.0	.25	7.4
.30	1.9	.30	3.1	.30	5.2	.30	7.3
.35	1.9	.35	2.8	.35	5.3	.35	7.7
.40	1.9	.40	2.5	.40	5.5	.40	7.9
.45	2.2	.45	2.6	.45	5.6	.45	8.0
.50	2.6	.50	2.8	.50	5.7	.50	6.9
.55	2.5	.55	2.5	.55	5.7	.55	8.2
.60	2.5	.60	2.2	.60	5.8	.60	8.0
.65	2.7	.65	2.4	.65	5.8	.65	8.1
.70	3.0	.70	2.5	.70	5.9	.70	8.2
.75	2.9	.75	3.0	.75	6.0	.75	8.8
.80	2.7	.80	3.3	.80	6.2	.80	9.2
.85	2.7	.85	3.3	.85	6.4	.85	9.2
.90	2.8	.90	3.2	.90	6.6	.90	9.2
.95	2.9	.95	3.5	.95	6.6	.95	9.8
						+10.00	10.2

Jitter Transfer Function

Figure D-13 Jitter transfer (DS1)

