PROCESSING GAIN TEST

CHANNEL10(913.920MHz)-Base station output to handset input

Jammer Freq. (MHz)	Transmitter Outputs (dBm)	Signal Level (dBm)	CW Level (dBm)	Mj J/S ratio (dB)	Processing Gain (dB)
912.920	12.0	-38.0	-34.2	3.8	16.8
912.970	12.0	-38.0	-34.5	3.5	16.5
913.020	12.0	-38.0	-34.8	3.2	16.2
913.070	12.0	-38.0	-35.6	2.4	15.4
913.120	12.0	-38.0	-36.8	1.2	14.2
913.170	12.0	-38.0	-37.6	0.4	13.4
913.220	12.0	-38.0	-37.5	0.5	13.5
913.270	12.0	-38.0	-37.6	0.4	13.4
913.320	12.0	-38.0	-37.2	0.8	13.8
913.370	12.0	-38.0	-36.6	1.4	14.4
913.420	12.0	-38.0	-37.4	0.6	13.6
913.470	12.0	-38.0	-37.6	0.4	13.4
913.520	12.0	-38.0	-37.3	0.7	13.7
913.570	12.0	-38.0	-37.9	0.1	13.1
913.620	12.0	-38.0	-37.9	0.1	13.1
913.670	12.0	-38.0	-38.6	-0.6	12.4
913.720	12.0	-38.0	-38.7	-0.7	12.3
913.770	12.0	-38.0	-38.5	-0.5	12.5
913.820	12.0	-38.0	-38.5	-0.5	12.5
913.870	12.0	-38.0	-38.7	-0.7	12.3
913.920	12.0	-38.0	-38.7	-0.7	12.3
913.970	12.0	-38.0	-38.8	-0.8	12.2
914.020	12.0	-38.0	-38.8	-0.8	12.2
914.070	12.0	-38.0	-38.8	-0.8	12.2
914.120	12.0	-38.0	-38.8	-0.8	12.2
914.170	12.0	-38.0	-38.4	-0.4	12.6
914.220	12.0	-38.0	-38.3	-0.3	12.7
914.270	12.0	-38.0	-38.2	-0.2	12.8
914.320	12.0	-38.0	-37.8	0.2	13.2
914.370	12.0	-38.0	-37.8	0.2	13.2
914.420	12.0	-38.0	-37.1	0.9	13.9
914.470	12.0	-38.0	-37.4	0.6	13.6
914.520	12.0	-38.0	-37.2	0.8	13.8
914.570	12.0	-38.0	-36.7	1.3	14.3
914.620	12.0	-38.0	-36.5	1.5	14.5
914.670	12.0	-38.0	-35.9	2.1	15.1
914.720	12.0	-38.0	-35.6	2.4	15.4
914.770	12.0	-38.0	-34.6	3.4	16.4
914.820	12.0	-38.0	-34.5	3.5	16.5
914.870	12.0	-38.0	-34.1	3.9	16.9
914.920	12.0	-38.0	-33.4	4.6	17.6

LOSSES(dB)

Attenuation	50
System Loss	2
S/N ratio	11

Mj J/S ratio =
CW Noize-Sig.Level

ProcessingGain =
Mj J/S ratio + Sytem Loss
+ S/N ratio

UNIDEN AMERICA CORPORATION
FCC ID: AMWUC728
JOB #: 526BU0
EXHIBIT #: 25

PROCESSING GAIN TEST

CHANNEL12(915.968MHz)-handset output to Base station input

Jammer Freq. (MHz)	Transmitter Outputs (dBm)	Signal Level (dBm)	CW Level (dBm)	Mj J/S ratio (dB)	Processing Gain (dB)
915.018	12.0	-38.0	-34.0	4.0	17.0
915.068	12.0	-38.0	-34.3	3.7	16.7
915.118	12.0	-38.0	-35.0	3.0	16.0
915.168	12.0	-38.0	-36.1	1.9	14.9
915.218	12.0	-38.0	-37.1	0.9	13.9
915.268	12.0	-38.0	-37.1	0.9	13.9
915.318	12.0	-38.0	-37.4	0.6	13.6
915.368	12.0	-38.0	-37.0	1.0	14.0
915.418	12.0	-38.0	-36.8	1.2	14.2
915.468	12.0	-38.0	-36.8	1.2	14.2
915.518	12.0	-38.0	-37.1	0.9	13.9
915.568	12.0	-38.0	-37.3	0.7	13.7
915.618	12.0	-38.0	-37.7	0.3	13.3
915.668	12.0	-38.0	-37.7	0.3	13.3
915.718	12.0	-38.0	-38.3	-0.3	12.7
915.768	12.0	-38.0	-38.4	-0.4	12.6
915.818	12.0	-38.0	-38.4	-0.4	12.6
915.868	12.0	-38.0	-38.4	-0.4	12.6
915.918	12.0	-38.0	-38.6	-0.6	12.4
915.968	12.0	-38.0	-38.6	-0.6	12.4
916.018	12.0	-38.0	-38.9	-0.9	12.1
916.068	12.0	-38.0	-38.8	-0.8	12.2
916.118	12.0	-38.0	-38.8	-0.8	12.2
916.168	12.0	-38.0	-38.8	-0.8	12.2
916.218	12.0	-38.0	-38.4	-0.4	12.6
916.268	12.0	-38.0	-38.0	0.0	13.0
916.318	12.0	-38.0	-37.7	0.3	13.3
916.368	12.0	-38.0	-37.6	0.4	13.4
916.418	12.0	-38.0	-37.6	0.4	13.4
916.468	12.0	-38.0	-37.6	0.4	13.4
916.518	12.0	-38.0	-38.0	0.0	13.0
916.568	12.0	-38.0	-37.6	0.4	13.4
916.618	12.0	-38.0	-36.6	1.4	14.4
916.668	12.0	-38.0	-36.8	1.2	14.2
916.718	12.0	-38.0	-36.3	1.7	14.7
916.768	12.0	-38.0	-35.4	2.6	15.6
916.818	12.0	-38.0	-35.2	2.8	15.8
916.868	12.0	-38.0	-34.7	3.3	16.3
916.918	12.0	-38.0	-34.1	3.9	16.9
916.968	12.0	-38.0	-33.0	5.0	18.0
917.018	12.0	-38.0	-31.8	6.2	19.2

LOSSES(dB)

Attenuation	50
System Loss	2
S/N ratio	11

Mj J/S ratio =
CW Noize-Sig.Level

ProcessingGain =
Mj J/S ratio + Sytem Loss
+ S/N ratio

SD Test Specification for Processing Gain

The Processing Gain is measured with using the CW jamming margin method. Figure 1 shows the test configuration. The test consists of stepping a signal generator in 50 kHz increments across the passband of the system (up to 1MHz away from the center frequency). At each point, the generator level required to be produced the recommended Bit Error Rate (BER) (Set at BER=1.0E-3) is recorded. This level is the jamming level. The output power of the transmitter unit is measured at the same point. The Jammer to Signal (J/S) ratio is then calculated. Discard the worst 20% of the J/S data point. The lowest remaining J/S ratio is used to calculate the processing gain. The maximum implementation loss a system can claim in calculating processing gain is 2dB. The equation to calculate the processing gain (Gp) is as follows:

$$Gp = (S/N)o + Mj + Lsys$$

Where (S/N)o = signal to noise ratio required for a FSK system with BER of 1.0E-3 = 11dB,

Mj = jamming margin (J/S) in dB,

Lsys = system implementation loss = 2dB.

[TEST PROCEDURE]

1. B/S output to H/S input

(1)The B/S is connected by its RF test connector to the fixed attenuator which is 50dB. The output of the fixed attenuator is combined with the output of the signal generator through a combiner. The output of the combiner is connected by the H/S RF test connector. The H/S is connected by the BB-ASIC(UC2575)'s test pins to the BER counter (RX data is pin32 and RX clock is pin41).

(2)The B/S is powered by the adapter while pushing the PAGE-KEY. The PAGE-KEY shall be held at least for 3 seconds. Then the PAGE-KEY is released and pushed 10 times. The H/S is powered by the battery while pushing the *-KEY and #-Key. Those keys are held at least for 2 seconds. Then those keys are released and the 'FLASH'-KEY is pushed once.

(3)BER counter is JRC NJZ-940 (Continuous mode, PN15, and the receive clock uses an external clock with its leading edge.).

(4)The signal generator is stepped in 50kHz increments. The required BER is 1.0e-3. When this error rate is achieved (displayed on the BER counter), the reading of signal generator is taken. This reading is then subtracted from the signal level of the B/S (while adding in the combiner loss and signal generator calibration factor) to obtain the J/S ratio. The J/S ratio is then combined with the system loss (2dB) and signal to noise ratio (11dB) of the unit to obtain the processing gain.

2. H/S output to B/S input

(1)The H/S is connected by its RF test connector to the fixed attenuator which is 50dB. The output of the fixed attenuator is combined with the output of the signal generator through a combiner. The output of the combiner is connected by the B/S RF test connector. The B/S is connected by the BB-ASIC(UC2575)'s test pins to the BER counter (RX data is pin32 and RX clock is pin41).

(2)The B/S is powered by the adapter while pushing the PAGE-KEY. The PAGE-KEY shall be held at least for 3 seconds. Then the PAGE-KEY is released and pushed 10 times. The H/S is powered by the battery while pushing the *-KEY and #-Key. Those keys are held at least for 2 seconds. Then those keys are released and the 'FLASH'-KEY is pushed once.

(3)BER counter is JRC NJZ-940 (Continuous mode, PN15, and the receive clock uses an external clock with its leading edge.).

(4)The signal generator is stepped in 50kHz increments. The required BER is 1.0e-3. When this error rate is achieved (displayed on the BER counter), the reading of signal generator is taken. This reading is then subtracted from the signal level of the H/S (while adding in the combiner loss and signal generator calibration factor) to obtain the J/S ratio. The J/S ratio is then combined with the system loss (2dB) and signal to noise ratio (11dB) of the unit to obtain the processing gain.

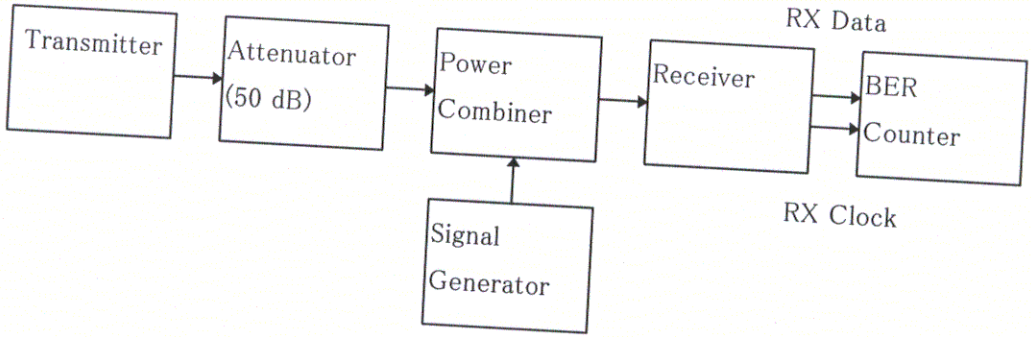

Fig. 5 The test configuration.

Processing Gain Test Equipment

	MANU-FACTURER	EQUIPMENT TYPE	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Variable Attenuator	Hewlett Packard	HP8496B	3308A71267	Aug. 11, 2000	Aug. 31, 2001
Variable Attenuator	Hewlett Packard	HP8494B	3308A37106	Aug. 11, 2000	Aug. 31, 2001
BER Counter	JRC	NJZ-940	ED24250	Nov. 08, 1999	Nov. 30, 2000
Signal Generator	Hewlett Packard	E4432B	US38441753	Aug. 24, 2000	Aug. 31, 2001
Combiner	Mini-Circuit	15542	942705	N/A	N/A