

EXHIBIT E
REPORT OF MEASUREMENTS

A. TEST REPORT

The Model SelectAmp 1900-1H PCS Channelized Bi-Directional Amplifier was tested and found to comply with the limits imposed by the FCC "Code of Federal Regulations", Title 47, Part 24 for Personal Communication Services (PCS).

The attached test report describes the results of the test in detail.

FCC ID: KUWSA1900-1H
ELITE ELECTRONIC ENGINEERING COMPANY
1516 CENTRE CIRCLE
DOWNERS GROVE, ILLINOIS 60515-1082

ELITE PROJECT: 27191

DATES TESTED: November 17 through
December 11, 1998

TEST PERSONNEL: Daniel E. Crowder

TEST SPECIFICATION: Federal Communication Commission (FCC) Part 24;
Industry Canada (IC) RSS-131 Issue 1

ENGINEERING TEST REPORT NO. 21254
MEASUREMENT OF RF INTERFERENCE FROM A
PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
MODEL SELECTAMP1900-1H


FOR: Andrew Corporation
Richardson, TX

PURCHASE ORDER NO: 86304

Report By:


Daniel E. Crowder

Approved By:


Raymond J. Klouda
Registered Professional
Engineer of Illinois - 44894

E(2)

ADMINISTRATIVE DATA AND SUMMARY OF TESTS

DESCRIPTION OF TEST ITEM: PCS Channelized Bidirectional Amplifier

MODEL NO: SELECTAMP1900-1H

SERIAL NO: None Assigned

FCC ID NO: KUWSA1900-1H

MANUFACTURER: Andrew Corporation

APPLICABLE SPECIFICATIONS: FCC Parts 2 and 24;
IC RSS-131, Issue 1

QUANTITY OF ITEMS TESTED: One (1)

TEST PERFORMED BY: ELITE ELECTRONIC ENGINEERING COMPANY
Downers Grove, Illinois 60515

DATES TESTED: November 17 through December 11, 1998

PERSONNEL (OPERATORS, OBSERVERS, AND CO-ORDINATORS):
CUSTOMER: No Andrew Corporation personnel were present.
ELITE ELECTRONIC: Daniel E. Crowder

ELITE JOB NO.: 27191

ABSTRACT: The PCS Channelized Bidirectional Amplifier complies with the RF Power Output and Gain, the Occupied Bandwidth, the Spurious Emissions and Intermodulation Products at Antenna Terminal, the Field Strength of Spurious Emissions requirements and the Frequency Stability requirements of the FCC "Code of Federal Regulations" Title 47, Part 24, Subpart E for Broadband PCS and the IC RSS-131, Issue 1. See test results and data pages for more details.

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MEASUREMENT OF RF INTERFERENCE FROM A
PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
MODEL SELECTAMP1900-1H

1.0 INTRODUCTION:

1.1 DESCRIPTION OF TEST ITEM: This report present the results of the radio interference measurements performed on the PCS Channelized Bidirectional Amplifier, Model No. SELECTAMP1900-1H, (hereinafter referred to as the test item). No serial number was assigned to the test item. The tests were performed for Andrew Corporation of Richardson, TX.

The test item is a channelized bidirectional amplifier that provides signal level enhancement to the PCS spectrum. The channelized feature of the amplifier provides rejection to alternate service providers and reduces the possibility of system interference from unwanted signals. The test item provides selective frequency amplification of user specified frequencies in the 1850 - 1910MHz uplink and 1930 - 1990MHz downlink PCS bands. The test item will selectively filter for one channel in the uplink and downlink band as determined by the operator.

The test item is designed to operate in the following frequency ranges:

<u>Block</u>	<u>Downlink Frequency MHz</u>	<u>Uplink Frequency MHz</u>
A	1930-1945	1850-1865
B	1950-1965	1870-1885
D	1945-1950	1865-1870
E	1965-1970	1885-1890
F	1970-1975	1890-1895
C	1975-1990	1895-1910

The amplification has an RF gain from 65 to 95dB, adjustable in 2 dB steps. The maximum output power is rated at 10 Watts.

1.2 PURPOSE: The test series was performed to determine if the test item meets the technical requirements of the FCC Part 24, Subpart E for Broadband PCS, and IC RSS-131, Issue 1.

1.3 APPLICABLE DOCUMENTS: The following documents of the exact issue designated form part of this document to the extent specified herein:

- "Code of Federal Regulations - Telecommunications", Title 47, Part 2 and 24
- IC RSS-131, Issue 1, "Radio Signal Enhancers for the Mobile Telephone Service"

1.4 SUBCONTRACTOR IDENTIFICATION: This series of tests was performed by the Elite Electronic Engineering Company, Downers Grove, Illinois.

2.0 TEST ITEM SETUP AND OPERATION:

2.1 SETUP: The test item was powered with 115VAC, 60Hz power. The test item was grounded only through the third wire of its input power cord.

One of three different sets of diplexers provided to cover the frequency ranges (Blocks A, B, D, E, F, and C) was installed. These diplexers isolate the downlink from the uplink path and contain bandpass filters that provide out-of-band rejection.

The gain was adjusted for its maximum. An input signal was fed into the test item. The level of the input signal was set so that the power output reached its maximum rated level.

2.2 MODULATION: The test signal was modulated with three different representative types of digital I/Q modulations: NADC

(30kHz); PCS1900 (200kHz); CDMA (1.23 MHz). The input signals were supplied from a Rohde & Schwarz M/N SMHU Signal Generator equipped with IQ modulation in combination with a LeCroy M/N LW420A Arbitrary Waveform Generator. The various digital broadband modulations were generated with the aid of Rohde & Schwarz IQSIM ver 4.04 software package installed on a PC. The software generates the digital modulation protocols per the industry standards. The NADC modulation file used was "NADC_UF1" - Uplink signal, Full rate with sync word S1. The PCS1900 modulation file used was "PCS_0" - Signal simulating one time slot with synchronization word TSC0. The CDMA modulation file used was "CDMA9CH" - Example signal simulating 9 channels.

The RF Power Output and Amplifier Gain Measurements was performed with CDMA modulation and/or CW. The Occupied Bandwidth tests were performed with NADC, PCS1900 and CDMA modulated input signal. The Spurious Emissions and Intermodulation Products at Antenna Terminal and the Field Strength of Spurious Emissions tests were performed with a CDMA modulated and CW input signal. Frequency Stability tests was performed with a CW input signal.

2.3 FREQUENCY SELECTION: Two test frequencies, one at the low edge and one at the high edge, were selected for each frequency block (four per diplexer) for both the uplink and downlink. The frequencies were one channel spacing from the low or high edge of the frequency range edge. The specified channel spacings used for each modulation type are shown below:

<u>Modulation</u>	<u>Channel Spacing</u>
NADC	30kHz
PCS1900	200kHz
CDMA	1.23MHz

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The specific test frequencies are designated as follows:

Uplink:

Block	Modulation Type	Low Edge Frequency (MHz)	High Edge Frequency (MHz)
A	NADC	A1=1850.03	A2=1864.97
B	NADC	B1=1870.03	B2=1884.97
C	NADC	C1=1895.03	C2=1909.97
D	NADC	D1=1865.03	D2=1869.97
E	NADC	E1=1885.03	E2=1889.97
F	NADC	F1=1890.03	F2=1894.97
A	PCS1900	A3=1850.20	A4=1864.80
B	PCS1900	B3=1870.20	B4=1884.80
C	PCS1900	C3=1895.20	C4=1909.80
D	PCS1900	D3=1865.20	D4=1869.80
E	PCS1900	E3=1885.20	E4=1889.80
F	PCS1900	F3=1890.20	F4=1894.80
A	CDMA	A5=1851.23	A6=1863.77
B	CDMA	B5=1871.23	B6=1883.77
C	CDMA	C5=1896.23	C6=1908.77
D	CDMA	D5=1866.23	D6=1868.77
E	CDMA	E5=1886.23	E6=1888.77
F	CDMA	F5=1891.23	F6=1893.77

Downlink:

Block	Modulation Type	Low Edge Frequency (MHz)	High Edge Frequency (MHz)
A	NADC	A7=1930.03	A8=1944.97
B	NADC	B7=1950.03	B8=1964.97
C	NADC	C7=1975.03	C8=1989.97
D	NADC	D7=1945.03	D8=1949.97
E	NADC	E7=1965.03	E8=1969.97
F	NADC	F7=1970.03	F8=1974.97
A	PCS1900	A9=1930.20	A10=1944.80
B	PCS1900	B9=1950.20	B10=1964.80
C	PCS1900	C9=1975.20	C10=1989.80
D	PCS1900	D9=1945.20	D10=1949.80
E	PCS1900	E9=1965.20	E10=1969.80
F	PCS1900	F9=1970.20	F10=1974.80
A	CDMA	A11=1931.23	A12=1943.77
B	CDMA	B11=1951.23	B12=1963.77
C	CDMA	C11=1976.23	C12=1988.77
D	CDMA	D11=1946.23	D12=1948.77
E	CDMA	E11=1966.23	E12=1968.77
F	CDMA	F11=1971.23	F12=1973.77

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3.0 TEST EQUIPMENT:

A list of the test equipment used can be found on Table I. All equipment was calibrated per the instruction manuals supplied by the manufacturer.

4.0 REQUIREMENTS, PROCEDURES AND RESULTS:**4.1 RF POWER OUTPUT AND GAIN MEASUREMENTS:****4.1.1 REQUIREMENTS:**

FCC Part 24: In accordance with paragraph 24.232, the output power of the test item shall not exceed an equivalent isotropically radiated power (EIRP) level of 1640 watts peak. In no case may the peak output power of the test item exceed 100 watts.

IC RSS-131: In accordance with paragraph 6.1, the passband gain shall not exceed the nominal gain by more than 1 dB. The 20 dB bandwidth shall not exceed the nominal bandwidth that is stated by the manufacturer. Outside of the 20 dB bandwidth, the gain shall not exceed that at the 20 dB point.

4.1.2 PROCEDURES:

- (a) The diplexer for Block A - D was installed in the test item.
- (b) The input signal was set to the center frequency of Block A.
- (c) The input signal was CDMA modulated.
- (d) A spectrum analyzer was connected to the output of the test item. The output of the test item was monitored using a 3MHz bandwidth.
- (e) The amplitude of the input signal was adjusted until the output power reached the rated level. The output power level was measured and recorded.

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(f) The input signal from the signal generator was measured with the spectrum analyzer and recorded.

(g) The gain was calculated by subtracting the input level from the output level and recorded.

(h) Steps (c) through (g) were repeated with the input signal set to the center frequency of Block D

(i) The input signal was switched to the tracking generator. The frequency versus gain was plotted with 1dB/div resolution for the passband response curve. The spectrum analyzer bandwidth was reduced to increase resolution. Since the amplifier is channelized, a family of gain curves was created for each diplexer. The channel frequency was incremented in 2.5 MHz steps starting with first frequency in the band.

(j) The frequency versus gain curve was plotted with 10dB/div resolution to measure the 20 dB bandwidth of the amplifier.

(k) The frequency versus gain curve was expanded to show the out-of-band gain response. The gain was plotted for the midband frequency to at least +/- 250% of the 20 dB bandwidth of the amplifier.

(l) Diplexer for Block B - E was installed in the test item.

(m) Steps (b) through (k) were repeated using frequencies for the B and E blocks.

(n) Steps (l) and (m) were repeated with diplexer for Blocks C and F.

4.1.3 RESULTS: The input power, output power and calculated gain are presented on data page 101. The response curve plots are included as data pages 102 through 118. The test data shows that the

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amplifier is capable of operating at its rated output power of 10 Watts. All other tests were performed at this power level.

Power output complies with the FCC requirements. The maximum power output per channel is rated at 10 watts (40dBm) which is below the 100 watt maximum limit. The EIRP limit does not apply to the power output alone, but the combination of the power output and the antenna. Compliance to the power output will be based on the system configuration. Therefore, the EIRP requirement cannot be applied to an amplifier.

Since the amplifier is channelized, a family of gain curves were plotted for each diplexer. The center frequency of the channel was adjusted in 2.5 MHz increments starting at the first channel for each diplexer. The maximum gain varies from 91.0dB to 94.8dB. The gain complies with the IC RSS-131 requirements.

4.2 OCCUPIED BANDWIDTH MEASUREMENTS:

4.2.1 REQUIREMENTS: In accordance with Paragraph 24.238, on any frequency outside the authorized frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. For a rated power level of 10W, the emissions outside of the emission bandwidth shall be attenuated at least 53dB below the transmitter power.

In the 1MHz bands immediately outside and adjacent to the frequency range a resolution of at least one percent of the emission bandwidth shall be used. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency where the emissions are 26dB down.

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4.2.2 PROCEDURES: The test was performed using each of the modulation types listed in paragraph 2.2 (NADC, PCS1900, CDMA).

(a) The diplexer for Blocks A and D was installed in the test item.

(b) The input signal was set to frequency A1. The input signal level was adjusted to provide the rated level at the test item output. The reference level was recorded.

(c) The input signal was modulated with NADC.

(d) A spectrum analyzer was connected to the output of the test item. With a bandwidth of the spectrum analyzer set to 1% of the emission bandwidth or greater, the output of the test item was measured and recorded.

(e) The input signal from the signal generator was measured with the spectrum analyzer and recorded over the same frequency range.

(f) Steps (c) through (e) were repeated with the input signal set to frequency A2, A7, A8, D1, D2, D7, and D8.

(g) The modulation was changed to PCS1900 and steps (d) and (e) were repeated for frequencies A3, A4, A9, A10, D3, D4, D9 and D10.

(h) The modulation was changed to CDMA and steps (d) and (e) were repeated for frequencies A5, A6, A11, A12, D5, D6, D11 and D12.

(i) The diplexer for Blocks B and E was installed in the test item.

(j) Steps (c), (d) and (e) were repeated for frequencies B1, B2, B7, B8, E1, E2, E7, and E8.

(k) The modulation was changed to PCS1900 and steps (d) and (e) were repeated for frequencies B3, B4, B9, B10, E3, E4, E9, and E10.

(l) The modulation was changed to CDMA and steps (d) and (e)

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were repeated for frequencies B5, B6, B11, B12, E5, E6, E11, and E12.

(m) The diplexer for Blocks C and F was installed in the test item.

(n) Steps (d) and (e) were repeated for frequencies C1, C2, C7, C8, F1, F2, F7, and F8.

(o) The modulation was changed to PCS1900 and steps (d) and (e) were repeated for frequencies C3, C4, C9, C10, F3, F4, F9, and F10.

(p) The modulation was changed to CDMA and steps (d) and (e) were repeated for frequencies C5, C6, C11, C12, F5, F6, F11, and F12.

4.2.3 RESULTS: The plots of the occupied bandwidth measured with the Block A and D diplexer with NADC modulation of the carrier are presented on data pages 119 through 136. The plots of the occupied bandwidth measured with the Block A and D diplexer with PCS1900 modulation of the carrier are presented on data pages 137 through 154. The plots of the occupied bandwidth measured with the Block A and D diplexer with CDMA modulation of the carrier are presented on data pages 155 through 172.

The plots of the occupied bandwidth measured with the Block B and E diplexer with NADC modulation of the carrier are presented on data pages 173 through 189. The plots of the occupied bandwidth measured with the Block B and E diplexer with PCS1900 modulation of the carrier are presented on data pages 190 through 206. The plots of the occupied bandwidth measured with the Block B and E diplexer with CDMA modulation of the carrier are presented on data pages 207 through 223.

The plots of the occupied bandwidth measured with the Block C and F diplexer with NADC modulation of the carrier are presented on data pages 224 through 240. The plots of the occupied bandwidth

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measured with the Block C and F diplexer with PCS1900 modulation of the carrier are presented on data pages 241 through 257. The plots of the occupied bandwidth measured with the Block C and F diplexer with CDMA modulation of the carrier are presented on data pages 258 through 273.

The limits, shown on the plots, are referenced to the power measured from the unmodulated carrier. The plots show that the amplifier maintains the occupied bandwidth requirements at the band edges when the center frequency is at least one channel (BW) from the band edge with the NADC, PCS1900 and CDMA modulations of the carrier.

4.3 SPURIOUS EMISSIONS AND INTERMODULATION PRODUCTS AT ANTENNA TERMINAL:

4.3.1 REQUIREMENTS: This test determines whether the test item produces excessive spurious emissions or intermodulation products.

In accordance with Paragraph FCC 24.238 and IC 6.3, 6.4 and 6.5, the spurious emissions and intermodulation products shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. FCC requirements apply only to frequencies outside the authorized frequency block. For 10W, the spurious emissions shall be attenuated by a minimum of 53 dB. This requirement translates to a limit of -13dBm. The peak power of the emissions shall be measured at the antenna terminal from 30MHz up to the 10th harmonic of the fundamental frequency.

4.3.2 PROCEDURES: In general, this test will measure in band and out of band spurious and intermodulation products when other

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signals are introduced at the input which already has the signal (f_0) which is either CW or modulated with CDMA modulated. The interfering signal (f_1) was unmodulated. The two-tone configuration was setup with (f_1) applied at the adjacent channel frequency.

(a) The diplexer for Blocks A and D was installed in the test item.

(b) The input signal (f_0) was set to 1936MHz. The input signal level was adjusted to provide the rated level at the test item output. The reference level was recorded.

(c) A second signal (f_1) was introduced to the input at a power level equal to the (f_0). The CW signal (f_1) was applied at the adjacent CDMA channel (1.23 MHz) to (f_0).

(d) A spectrum analyzer with its BW set at 10 kHz was connected to the output of the test item. The inband signal levels were measured and plotted. Any spurious emissions or intermodulation products detected were compared to the limit.

(e) With the analyzer BW switched to 100 kHz, the out of band signal levels were measured and plotted over the frequency range from 30MHz to 1 GHz. With the BW set to 1 MHz, the emission levels for 1 GHz to 20GHz (10th Harmonic) were measured. These emission levels were compared to limit.

(f) Steps (c) through (e) were repeated with CDMA modulation applied to (f_0).

(g) Step (c) through (f) were repeated with the input signal (f_0) was set to 1947 MHz. output. The reference level was recorded.

(h) Steps (c) through (g) were repeated for the uplink with (f_0)

set to 1856MHz and 1867MHz.

(i) The diplexer for Blocks B and E was installed in the test item.

(j) Steps (c) through (f) were repeated with (f0) set to 1956MHz and 1967MHz for the downlink and 1876MHz and 1887MHz for the uplink.

(k) The diplexer for Blocks C and F was installed in the test item.

(q) Steps (c) through (f) were repeated with (f0) set to 1982MHz and 1972MHz for the downlink, and 1902MHz and 1892MHz for the uplink.

4.3.3 RESULTS: The plots of the antenna conducted/intermodulation products measurements are presented on data pages 274 through 465. The limit lines have been adjusted to include the cable loss factors. As can be seen from the data, the test item did not produce spurious emissions or intermodulation products in excess of the -13 dBm (attenuated 53dB below unmodulated carrier level) limit.

4.4 FIELD STRENGTH OF SPURIOUS EMISSIONS:

4.4.1 REQUIREMENTS: In accordance with Paragraph 24.238, on any frequency outside the frequency range, the emissions shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. This requirement translates to a field strength limit of -13dBm (ERP). The emissions shall be measured from 30MHz up to the 10th harmonic of the fundamental frequency.

4.4.2 PROCEDURES: The radiated tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. With the exception of the floor, the reflective surfaces of the shielded chamber are lined with ferrite tiles on the

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walls and ceiling. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI 63.4 and CISPR 16 requirements for site attenuation.

Preliminary radiated measurements are performed to determine the frequencies where the significant emissions might be found. With the test item at one set position and the measurement antenna at a set height (i.e. without maximizing), the radiated emissions were measured using peak detection. This data was then automatically plotted. The frequencies where significant emission levels found were remeasured taking the extra pains to maximize the emission levels.

Measurements were performed with the input signal CW and modulated with CDMA. This modulation scheme was selected to represent worst case scenarios.

(a) The test item was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna.

(b) The diplexer for Block A and D was installed in the test item. The output was terminated in 50 Ohm load.

(c) The input frequency was set to 1937.5 MHz with (CW) no modulation. The level was adjusted for 10 Watts output.

(d) Preliminary emission levels were measured over the frequency range from 30MHz to 18GHz. These preliminary levels were then plotted. The readings were taken with a peak detector function. The measurement BW was 100 kHz up to 1GHz and 1 MHz up to 18 GHz.

(e) Significant emissions were maximized at each frequency by rotating the test item and adjusting the receive antenna height and polarization. The maximum meter reading was recorded. Measurement BW

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was 1 MHz for frequencies above 1 GHz and 100 kHz for frequencies 1GHz or less. Peak reading were recorded. No averaging methods or corrections were applied. As a minimum measurements were made at each harmonic of the transmit frequency up through the tenth harmonic. If no signal was detected above the noise floor, the noise level was recorded and noted as ambient.

(f) Steps (d) and (e) was repeated with CMDA modulation.

(g) Step (c) through (f) were repeated with the input signal at frequencies 1857.5MHz, 1947.5MHz; 1867.5MHz

(h) The test was repeated with the diplexer for Block B and E at 1957.5MHz, 1877.5MHz, 1967.5MHz, and 1887.5MHz.

(i) The test was repeated with the diplexer for Block C and F at 1972.5MHz, 1892.5MHz, 1982.5MHz, and 1902.5MHz.

4.4.3 RESULTS: The preliminary plots are presented on data pages 466 through 513. This data is only presented for a reference, and is not used as to determine compliance. All significant radiated emissions were subsequently remeasured manually maximizing the level.

The final radiated levels are presented on data pages 514 through 537. The radiated emissions were measured through the 10th harmonic. Field strength levels are presented as equivalent radiated power from a standard tuned dipole.

The radiated emission levels for the harmonics were below the specification limit.

4.5 FREQUENCY STABILITY:

4.5.1 REQUIREMENTS:

FCC Part 24: In accordance with Paragraph 24.235, the frequency

stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency range.

IC RSS-131: In accordance with Paragraph 6.8, the frequency stability shall be within +/- 1.5 parts per million (0.00015%).

4.5.2 PROCEDURES: Two separate procedures were performed for each of the two tests which are as follows:

(a) Frequency Stability vs. Temperature

- (1) The test item was placed in a Thermotron temperature chamber. The test item was powered up.
- (2) The measurement equipment was connected to the test item's antenna port.
- (3) The ambient room temperature was recorded and a reference frequency was recorded.
- (4) The temperature was varied from -30 to +50 degrees centigrade in 10 degree increments. The test item was allowed to soak from 30 to 45 minutes at each temperature. After this time period the unit was set to transmit and the frequency recorded.

(b) Frequency Stability vs. Voltage:

- (1) The measurement equipment was connected to the test item's antenna port.
- (2) The nominal voltage to the test item is 115 Volts 60Hz. The test item was set to transmit and a reference frequency was recorded.
- (3) The input voltage was adjusted to 85 percent of the nominal voltage or 97.75 Volts 60Hz and the test item set to transmit. This frequency was recorded.

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(4) The input voltage was adjusted to 115 percent of the nominal voltage or 132.25 Volts 60Hz and the test item set to transmit. This frequency was recorded.

4.5.3 RESULTS OF TESTS: The results of the frequency stability vs. temperature tests can be found on data pages 538 through 543. As can be seen from the data, the frequency stability of the test item is within +/- 1.5 ppm which is sufficient to ensure that the fundamental emission stays within the authorized range.

The results of the frequency stability vs. voltage variation tests can be seen on data pages 544 through 546. As can be seen from the data, the frequency stability of the test item is within +/- 1.5 ppm which is sufficient to ensure that the fundamental emission stays within the authorized block.

5.0 CONCLUSION:

The PCS Channelized Bidirectional Amplifier, Model No. SELECTAMP1900-1H, complies with the RF Power Output, the Occupied Bandwidth, the Spurious Emissions at Antenna Terminal, the Field Strength of Spurious Emissions and the Intermodulation Products at Antenna Terminal, and Frequency Stability requirements of the FCC Part 24, Subpart E for Broadband PCS and IC RSS-131, Issue 1.

6.0 CERTIFICATION:

Elite Electronic Engineering Company certifies that the information contained in this report was obtained under conditions which meet or exceed those specified in the test specification.

The data presented in this test report pertains to the test item at the test date.

TABLE I: TEST EQUIPMENT LIST

ELITE ELECTRONIC ENG. INC.

Page: 1

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Cal Inv	Due Date
Equipment Type: ACCESSORIES, MISCELLANEOUS								
XYF2	POWER SPLITTER	HEWLETT PACKARD	11667A	11047	DC-18GHZ		N/A	
XYF3	POWER SPLITTER	HEWLETT PACKARD	11667A	11052	DC-18GHZ		N/A	
Equipment Type: ATTENUATORS								
T1E4	10DB, 25W ATTENUATOR	WEINSCHEL	46-10-43	AV5805	DC-18GHZ	02/20/98	12	02/20/99
T2D2	20DB, 25W ATTENUATOR	WEINSCHEL	46-20-43	AV5815	DC-18GHZ	02/20/98	12	02/20/99
T2D6	20DB, 25W ATTENUATOR	WEINSCHEL	46-20-43	AY9245	DC-18GHZ	06/02/98	12	06/02/99
Equipment Type: CONTROLLERS								
CDFO	COMPUTER	BRIO	HPD5555A	US75140557				
CTGO	TEMP. RECORDER/CONTR.	HONEYWELL	DR4502	882572787600	-87 TO 190C	12/04/98	6	06/04/99
Equipment Type: METERS								
MFC0	MICROWAVE FREQ. COUNTER	HEWLETT PACKARD	5343A	2133A00591	10HZ-26GHZ	06/01/98	12	06/01/99
MPA0	POWER METER	HEWLETT PACKARD	432A	1141A08696	0.01-40GHZ	12/31/98	6	06/30/99
MPA A	THERMISTOR MOUNT	HEWLETT PACKARD	8478B	1144A08340	0.01-18GHZ	07/21/98	6	01/21/99
Equipment Type: PRINTERS AND PLOTTERS								
HRE8	LASER JET 6P	HEWLETT PACKARD	C3980A	USCD109528				
Equipment Type: SIGNAL GENERATORS								
GBB1	SYNTHESIZED GENERATOR	HEWLETT PACKARD	8660C	2406A04972	10KHZ-2.6GHZ	12/07/98	6	06/07/99
GBC2	MODULATION HEAD	HEWLETT PACKARD	86632B	2505A02682	AM & FM	11/25/98	6	05/25/99
GBG0	TUNING HEAD	HEWLETT PACKARD	86603A	2325A03357	1-2600MHZ	12/07/98	6	06/07/99
GBQ0	SIGNAL GENERATOR WITH I/Q	ROHDE & SCHWARZ	SMHU-58	843558/039	1KHZ-4320MHZ	06/08/98	12	06/08/99
GWG0	ARBITRARY WAVEFORM GENERAT	LECROY	LW420A	U3093	---			NOTE 1

Cal. Interval: Listed in Months I/O: Initial Only N/A: Not Applicable

Note 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.

ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL_NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.232; IC RSS-131 PARA. 6.2
 TEST DESC : RF POWER OUTPUT AND GAIN MEASUREMENTS
 TEST EQUIPMENT : See Table I
 DATE TESTED : NOVEMBER 19, 1998
 NOTES : CDMA MODULATION

DIPLEXER	FREQUENCY (MHz)	INPUT POWER (dBm)	OUTPUT POWER (dBm)	CALCULATED GAIN (dB)
UPLINK				
A	1857.5	-54.0	40.0	94.0
B	1877.5	-54.3	40.0	94.3
C	1902.5	-53.6	40.0	93.6
D	1867.5	-54.1	40.0	94.1
E	1887.5	-54.6	40.0	94.6
F	1892.5	-54.1	40.0	94.1
DOWNLINK				
A	1937.5	-54.3	40.0	94.4
B	1957.5	-54.6	40.0	94.6
C	1982.5	-54.0	40.0	94.0
D	1947.5	-54.1	40.0	94.1
E	1967.5	-54.3	40.0	94.3
F	1972.5	-54.0	40.0	94.0

CHECKED BY: RJK

ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES : TRANSMIT CW AT 1937.5MHz, FULL POWER
 : A BAND DOWNLINK


FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3875.0	H	42.3	34.8	6.5	35.5	-97.2	-49.1	-13
	V	44.1	34.8	6.5	35.5	-97.2	-47.3	-13
5812.5	H	39.9 AMB	36.4	9.0	35.2	-97.2	-47.1	-13
	V	39.8 AMB	36.4	9.0	35.2	-97.2	-47.2	-13
7750.0	H	40.7 AMB	38.6	9.9	35.6	-97.2	-43.6	-13
	V	41.1 AMB	38.6	9.9	35.6	-97.2	-43.2	-13
9687.5	H	40.9 AMB	39.8	11.5	36.0	-97.2	-41.0	-13
	V	40.6 AMB	39.8	11.5	36.0	-97.2	-41.3	-13
11625.0	H	42.1 AMB	40.8	12.2	34.7	-97.2	-36.8	-13
	V	42.4 AMB	40.8	12.2	34.7	-97.2	-36.5	-13
13562.5	H	42.4 AMB	41.5	13.0	32.9	-97.2	-33.2	-13
	V	42.1 AMB	41.5	13.0	32.9	-97.2	-33.5	-13
15500.0	H	41.9 AMB	42.2	13.7	34.2	-97.2	-33.6	-13
	V	42.6 AMB	42.2	13.7	34.2	-97.2	-32.9	-13
17437.5	H	43.1 AMB	44.5	14.4	33.2	-97.2	-28.4	-13
	V	42.7 AMB	44.5	14.4	33.2	-97.2	-28.8	-13
19375.0	H	43.9 AMB	46.3	15.1	32.9	-97.2	-24.8	-13
	V	42.9 AMB	46.3	15.1	32.9	-97.2	-25.8	-13

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1937.5MHz, FULL POWER
 : A BAND DOWNLINK


FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3945.0	H	41.7	34.8	6.5	35.5	-97.2	-49.7	-13
	V	43.8	34.8	6.5	35.5	-97.2	-47.6	-13
5917.5	H	41.9 AMB	36.4	9.0	35.2	-97.2	-45.1	-13
	V	42.0 AMB	36.4	9.0	35.2	-97.2	-45.0	-13
7890.0	H	42.6 AMB	38.6	9.9	35.6	-97.2	-41.7	-13
	V	42.4 AMB	38.6	9.9	35.6	-97.2	-41.9	-13
9862.5	H	42.0 AMB	39.8	11.5	36.0	-97.2	-39.9	-13
	V	41.4 AMB	39.8	11.5	36.0	-97.2	-40.5	-13
11835.0	H	40.0 AMB	40.8	12.2	34.7	-97.2	-38.9	-13
	V	39.6 AMB	40.8	12.2	34.7	-97.2	-39.3	-13
13807.5	H	43.2 AMB	41.5	13.0	32.9	-97.2	-32.4	-13
	V	42.3 AMB	41.5	13.0	32.9	-97.2	-33.3	-13
15780.0	H	43.3 AMB	42.2	13.7	34.2	-97.2	-32.2	-13
	V	43.6 AMB	42.2	13.7	34.2	-97.2	-31.9	-13
17752.5	H	42.9 AMB	44.5	14.4	33.2	-97.2	-28.6	-13
	V	42.5 AMB	44.5	14.4	33.2	-97.2	-29.0	-13
19725.0	H	44.4 AMB	46.3	15.1	32.9	-97.2	-24.3	-13
	V	44.1 AMB	46.3	15.1	32.9	-97.2	-24.6	-13

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1857.5MHz, FULL POWER
 : A BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3715.0	H	42.5	34.8	6.5	35.8	-97.2	-49.2	-13
	V	46.1	34.8	6.5	35.8	-97.2	-45.6	-13
5572.5	H	39.7 AMB	36.4	9.0	35.1	-97.2	-47.2	-13
	V	41.1 AMB	36.4	9.0	35.1	-97.2	-45.8	-13
7430.0	H	42.3 AMB	38.6	9.9	35.6	-97.2	-42.0	-13
	V	42.8 AMB	38.6	9.9	35.6	-97.2	-41.5	-13
9287.5	H	42.9 AMB	39.8	11.5	35.9	-97.2	-38.9	-13
	V	42.1 AMB	39.8	11.5	35.9	-97.2	-39.7	-13
11145.0	H	41.9 AMB	40.8	12.2	34.8	-97.2	-37.1	-13
	V	42.6 AMB	40.8	12.2	34.8	-97.2	-36.4	-13
13002.5	H	42.4 AMB	41.5	13.0	33.4	-97.2	-33.7	-13
	V	42.6 AMB	41.5	13.0	33.4	-97.2	-33.5	-13
14860.0	H	42.1 AMB	42.2	13.7	33.5	-97.2	-32.7	-13
	V	42.1 AMB	42.2	13.7	33.5	-97.2	-32.7	-13
16717.5	H	42.1 AMB	44.5	14.4	34.0	-97.2	-30.2	-13
	V	43.1 AMB	44.5	14.4	34.0	-97.2	-29.2	-13
18575.0	H	44.4 AMB	46.3	15.1	32.8	-97.2	-24.2	-13
	V	44.9 AMB	46.3	15.1	32.8	-97.2	-23.7	-13

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1857.5MHz, FULL POWER
 : A BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3715.0	H	42.4	34.8	6.5	35.8	-97.2	-49.3	-13
	V	43.0	34.8	6.5	35.8	-97.2	-48.7	-13
5572.5	H	39.9 AMB	36.4	9.0	35.1	-97.2	-47.0	-13
	V	39.9 AMB	36.4	9.0	35.1	-97.2	-47.0	-13
7430.0	H	42.1 AMB	38.6	9.9	35.6	-97.2	-42.2	-13
	V	42.7 AMB	38.6	9.9	35.6	-97.2	-41.6	-13
9287.5	H	43.1 AMB	39.8	11.5	35.9	-97.2	-38.7	-13
	V	42.1 AMB	39.8	11.5	35.9	-97.2	-39.7	-13
11145.0	H	42.4 AMB	40.8	12.2	34.8	-97.2	-36.6	-13
	V	41.8 AMB	40.8	12.2	34.8	-97.2	-37.2	-13
13002.5	H	40.9 AMB	41.5	13.0	33.4	-97.2	-35.2	-13
	V	41.7 AMB	41.5	13.0	33.4	-97.2	-34.4	-13
14860.0	H	42.5 AMB	42.2	13.7	33.5	-97.2	-32.3	-13
	V	42.4 AMB	42.2	13.7	33.5	-97.2	-32.4	-13
16717.5	H	42.6 AMB	44.5	14.4	34.0	-97.2	-29.7	-13
	V	42.8 AMB	44.5	14.4	34.0	-97.2	-29.5	-13
18575.0	H	44.8 AMB	46.3	15.1	32.8	-97.2	-23.8	-13
	V	44.3 AMB	46.3	15.1	32.8	-97.2	-24.3	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1947.5MHZ, FULL POWER
 : D BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3895.0	H	43.7	34.8	6.5	35.5	-97.2	-47.7	-13
	V	46.2	34.8	6.5	35.5	-97.2	-45.2	-13
5842.5	H	40.1	36.4	9.0	35.2	-97.2	-46.9	-13
	V	42.1	36.4	9.0	35.2	-97.2	-44.9	-13
7790.0	H	42.1 AMB	38.6	9.9	35.6	-97.2	-42.2	-13
	V	42.1 AMB	38.6	9.9	35.6	-97.2	-42.2	-13
9737.5	H	42.3 AMB	39.8	11.5	36.0	-97.2	-39.6	-13
	V	42.7 AMB	39.8	11.5	36.0	-97.2	-39.2	-13
11685.0	H	41.9 AMB	40.8	12.2	34.7	-97.2	-37.0	-13
	V	42.1 AMB	40.8	12.2	34.7	-97.2	-36.8	-13
13632.5	H	42.4 AMB	41.5	13.0	32.9	-97.2	-33.2	-13
	V	42.3 AMB	41.5	13.0	32.9	-97.2	-33.3	-13
15580.0	H	42.4 AMB	42.2	13.7	34.2	-97.2	-33.1	-13
	V	42.5 AMB	42.2	13.7	34.2	-97.2	-33.0	-13
17527.5	H	42.1 AMB	44.5	14.4	33.2	-97.2	-29.4	-13
	V	42.3 AMB	44.5	14.4	33.2	-97.2	-29.2	-13
19475.0	H	43.7 AMB	46.3	15.1	32.9	-97.2	-25.0	-13
	V	43.4 AMB	46.3	15.1	32.9	-97.2	-25.3	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1947.5MHz, FULL POWER
 : D BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3895.0	H	42.4	34.8	6.5	35.5	-97.2	-49.0	-13
	V	46.0	34.8	6.5	35.5	-97.2	-45.4	-13
5842.5	H	39.8	36.4	9.0	35.2	-97.2	-47.2	-13
	V	39.9	36.4	9.0	35.2	-97.2	-47.1	-13
7790.0	H	40.7 AMB	38.6	9.9	35.6	-97.2	-43.6	-13
	V	41.1 AMB	38.6	9.9	35.6	-97.2	-43.2	-13
9737.5	H	42.3 AMB	39.8	11.5	36.0	-97.2	-39.6	-13
	V	42.1 AMB	39.8	11.5	36.0	-97.2	-39.8	-13
11685.0	H	42.1 AMB	40.8	12.2	34.7	-97.2	-36.8	-13
	V	43.0 AMB	40.8	12.2	34.7	-97.2	-35.9	-13
13632.5	H	42.4 AMB	41.5	13.0	32.9	-97.2	-33.2	-13
	V	42.5 AMB	41.5	13.0	32.9	-97.2	-33.1	-13
15580.0	H	42.7 AMB	42.2	13.7	34.2	-97.2	-32.8	-13
	V	42.6 AMB	42.2	13.7	34.2	-97.2	-32.9	-13
17527.5	H	41.9 AMB	44.5	14.4	33.2	-97.2	-29.6	-13
	V	42.4 AMB	44.5	14.4	33.2	-97.2	-29.1	-13
19475.0	H	44.7 AMB	46.3	15.1	32.9	-97.2	-24.0	-13
	V	45.1 AMB	46.3	15.1	32.9	-97.2	-23.6	-13

CHECKED BY:

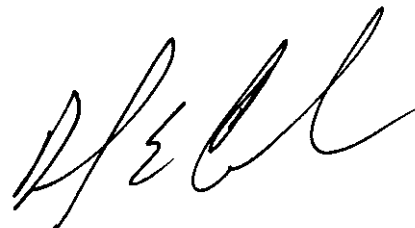


ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1867.5MHz, FULL POWER
 : D BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3735.0	H	43.4	34.8	6.5	35.8	-97.2	-48.3	-13
	V	47.8	34.8	6.5	35.8	-97.2	-43.9	-13
5602.5	H	39.9 AMB	36.4	9.0	35.1	-97.2	-47.0	-13
	V	42.1	36.4	9.0	35.1	-97.2	-44.8	-13
7470.0	H	42.1 AMB	38.6	9.9	35.6	-97.2	-42.2	-13
	V	42.7 AMB	38.6	9.9	35.6	-97.2	-41.6	-13
9337.5	H	41.7 AMB	39.8	11.5	35.9	-97.2	-40.1	-13
	V	42.0 AMB	39.8	11.5	35.9	-97.2	-39.8	-13
11205.0	H	42.4 AMB	40.8	12.2	34.8	-97.2	-36.6	-13
	V	42.5 AMB	40.8	12.2	34.8	-97.2	-36.5	-13
13072.5	H	42.7 AMB	41.5	13.0	33.4	-97.2	-33.4	-13
	V	42.9 AMB	41.5	13.0	33.4	-97.2	-33.2	-13
14940.0	H	41.9 AMB	42.2	13.7	33.5	-97.2	-32.9	-13
	V	42.3 AMB	42.2	13.7	33.5	-97.2	-32.5	-13
16807.5	H	42.4 AMB	44.5	14.4	34.0	-97.2	-29.9	-13
	V	42.4 AMB	44.5	14.4	34.0	-97.2	-29.9	-13
18675.0	H	44.9 AMB	46.3	15.1	32.8	-97.2	-23.7	-13
	V	45.1 AMB	46.3	15.1	32.8	-97.2	-23.5	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1867.5MHz, FULL POWER
 : D BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3735.0	H	42.7	34.8	6.5	35.8	-97.2	-49.0	-13
	V	46.9	34.8	6.5	35.8	-97.2	-44.8	-13
5602.5	H	38.9 AMB	36.4	9.0	35.1	-97.2	-48.0	-13
	V	41.1	36.4	9.0	35.1	-97.2	-45.8	-13
7470.0	H	41.1 AMB	38.6	9.9	35.6	-97.2	-43.2	-13
	V	42.0 AMB	38.6	9.9	35.6	-97.2	-42.3	-13
9337.5	H	40.7 AMB	39.8	11.5	35.9	-97.2	-41.1	-13
	V	41.9 AMB	39.8	11.5	35.9	-97.2	-39.9	-13
11205.0	H	42.2 AMB	40.8	12.2	34.8	-97.2	-36.8	-13
	V	42.6 AMB	40.8	12.2	34.8	-97.2	-36.4	-13
13072.5	H	42.4 AMB	41.5	13.0	33.4	-97.2	-33.7	-13
	V	42.5 AMB	41.5	13.0	33.4	-97.2	-33.6	-13
14940.0	H	43.6 AMB	42.2	13.7	33.5	-97.2	-31.2	-13
	V	41.9 AMB	42.2	13.7	33.5	-97.2	-32.9	-13
16807.5	H	42.7 AMB	44.5	14.4	34.0	-97.2	-29.6	-13
	V	42.4 AMB	44.5	14.4	34.0	-97.2	-29.9	-13
18675.0	H	45.2 AMB	46.3	15.1	32.8	-97.2	-23.4	-13
	V	43.9 AMB	46.3	15.1	32.8	-97.2	-24.7	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1957.5MHz, FULL POWER
 : B BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3915.0	H	43.0	34.8	6.5	35.5	-97.2	-48.4	-13
	V	49.5	34.8	6.5	35.5	-97.2	-41.9	-13
5872.5	H	42.8 AMB	36.4	9.0	35.2	-97.2	-44.2	-13
	V	42.4 AMB	36.4	9.0	35.2	-97.2	-44.6	-13
7830.0	H	42.1 AMB	38.6	9.9	35.6	-97.2	-42.2	-13
	V	41.8 AMB	38.6	9.9	35.6	-97.2	-42.5	-13
9787.5	H	41.6 AMB	39.8	11.5	36.0	-97.2	-40.3	-13
	V	43.0 AMB	39.8	11.5	36.0	-97.2	-38.9	-13
11745.0	H	40.2 AMB	40.8	12.2	34.7	-97.2	-38.7	-13
	V	41.2 AMB	40.8	12.2	34.7	-97.2	-37.7	-13
13702.5	H	41.6 AMB	41.5	13.0	32.9	-97.2	-34.0	-13
	V	42.4 AMB	41.5	13.0	32.9	-97.2	-33.2	-13
15660.0	H	42.8 AMB	42.2	13.7	34.2	-97.2	-32.7	-13
	V	42.6 AMB	42.2	13.7	34.2	-97.2	-32.9	-13
17617.5	H	42.4 AMB	44.5	14.4	33.2	-97.2	-29.1	-13
	V	42.0 AMB	44.5	14.4	33.2	-97.2	-29.5	-13
19575.0	H	45.2 AMB	46.3	15.1	32.9	-97.2	-23.5	-13
	V	44.4 AMB	46.3	15.1	32.9	-97.2	-24.3	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1957.5MHZ, FULL POWER
 : B BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3915.0	H	42.3 AMB	34.8	6.5	35.5	-97.2	-49.1	-13
	V	48.4	34.8	6.5	35.5	-97.2	-43.0	-13
5872.5	H	42.3 AMB	36.4	9.0	35.2	-97.2	-44.7	-13
	V	42.0 AMB	36.4	9.0	35.2	-97.2	-45.0	-13
7830.0	H	42.6 AMB	38.6	9.9	35.6	-97.2	-41.7	-13
	V	41.7 AMB	38.6	9.9	35.6	-97.2	-42.6	-13
9787.5	H	41.7 AMB	39.8	11.5	36.0	-97.2	-40.2	-13
	V	41.8 AMB	39.8	11.5	36.0	-97.2	-40.1	-13
11745.0	H	40.7 AMB	40.8	12.2	34.7	-97.2	-38.2	-13
	V	39.7 AMB	40.8	12.2	34.7	-97.2	-39.2	-13
13702.5	H	42.6 AMB	41.5	13.0	32.9	-97.2	-33.0	-13
	V	43.0 AMB	41.5	13.0	32.9	-97.2	-32.6	-13
15660.0	H	43.2 AMB	42.2	13.7	34.2	-97.2	-32.3	-13
	V	42.6 AMB	42.2	13.7	34.2	-97.2	-32.9	-13
17617.5	H	42.4 AMB	44.5	14.4	33.2	-97.2	-29.1	-13
	V	42.0 AMB	44.5	14.4	33.2	-97.2	-29.5	-13
19575.0	H	44.2 AMB	46.3	15.1	32.9	-97.2	-24.5	-13
	V	44.5 AMB	46.3	15.1	32.9	-97.2	-24.2	-13


CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1877.5MHz, FULL POWER
 : B BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3755.0	H	42.6 AMB	34.8	6.5	35.8	-97.2	-49.1	-13
	V	55.8	34.8	6.5	35.8	-97.2	-35.9	-13
5632.5	H	39.8 AMB	36.4	9.0	35.1	-97.2	-47.1	-13
	V	42.7	36.4	9.0	35.1	-97.2	-44.2	-13
7510.0	H	42.0 AMB	38.6	9.9	35.6	-97.2	-42.3	-13
	V	42.5 AMB	38.6	9.9	35.6	-97.2	-41.8	-13
9387.5	H	42.3 AMB	39.8	11.5	35.9	-97.2	-39.5	-13
	V	41.7 AMB	39.8	11.5	35.9	-97.2	-40.1	-13
11265.0	H	40.5 AMB	40.8	12.2	34.8	-97.2	-38.5	-13
	V	40.5 AMB	40.8	12.2	34.8	-97.2	-38.5	-13
13142.5	H	42.3 AMB	41.5	13.0	33.4	-97.2	-33.8	-13
	V	42.3 AMB	41.5	13.0	33.4	-97.2	-33.8	-13
15020.0	H	42.4 AMB	42.2	13.7	33.5	-97.2	-32.4	-13
	V	42.5 AMB	42.2	13.7	33.5	-97.2	-32.3	-13
16897.5	H	42.6 AMB	44.5	14.4	34.0	-97.2	-29.7	-13
	V	43.0 AMB	44.5	14.4	34.0	-97.2	-29.3	-13
18775.0	H	45.3 AMB	46.3	15.1	32.8	-97.2	-23.3	-13
	V	45.2 AMB	46.3	15.1	32.8	-97.2	-23.4	-13

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1877.5MHz, FULL POWER
 : B BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3755.0	H	46.4	34.8	6.5	35.8	-97.2	-45.3	-13
	V	54.5	34.8	6.5	35.8	-97.2	-37.2	-13
5632.5	H	39.2 AMB	36.4	9.0	35.1	-97.2	-47.7	-13
	V	43.9	36.4	9.0	35.1	-97.2	-43.0	-13
7510.0	H	41.8 AMB	38.6	9.9	35.6	-97.2	-42.5	-13
	V	40.6 AMB	38.6	9.9	35.6	-97.2	-43.7	-13
9387.5	H	42.7 AMB	39.8	11.5	35.9	-97.2	-39.1	-13
	V	42.0 AMB	39.8	11.5	35.9	-97.2	-39.8	-13
11265.0	H	40.8 AMB	40.8	12.2	34.8	-97.2	-38.2	-13
	V	42.2 AMB	40.8	12.2	34.8	-97.2	-36.8	-13
13142.5	H	39.4 AMB	41.5	13.0	33.4	-97.2	-36.7	-13
	V	40.8 AMB	41.5	13.0	33.4	-97.2	-35.3	-13
15020.0	H	41.7 AMB	42.2	13.7	33.5	-97.2	-33.1	-13
	V	42.5 AMB	42.2	13.7	33.5	-97.2	-32.3	-13
16897.5	H	42.5 AMB	44.5	14.4	34.0	-97.2	-29.8	-13
	V	42.7 AMB	44.5	14.4	34.0	-97.2	-29.6	-13
18775.0	H	42.4 AMB	46.3	15.1	32.8	-97.2	-26.2	-13
	V	42.3 AMB	46.3	15.1	32.8	-97.2	-26.3	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1967.5MHz, FULL POWER
 : E BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3935.0	H	42.9	34.8	6.5	35.5	-97.2	-48.5	-13
	V	44.3	34.8	6.5	35.5	-97.2	-47.1	-13
5902.5	H	42.3 AMB	36.4	9.0	35.2	-97.2	-44.7	-13
	V	42.5 AMB	36.4	9.0	35.2	-97.2	-44.5	-13
7870.0	H	42.0 AMB	38.6	9.9	35.6	-97.2	-42.3	-13
	V	42.8 AMB	38.6	9.9	35.6	-97.2	-41.5	-13
9837.5	H	41.6 AMB	39.8	11.5	36.0	-97.2	-40.3	-13
	V	41.3 AMB	39.8	11.5	36.0	-97.2	-40.6	-13
11805.0	H	41.5 AMB	40.8	12.2	34.7	-97.2	-37.4	-13
	V	39.8 AMB	40.8	12.2	34.7	-97.2	-39.1	-13
13772.5	H	42.8 AMB	41.5	13.0	32.9	-97.2	-32.8	-13
	V	42.1 AMB	41.5	13.0	32.9	-97.2	-33.5	-13
15704.0	H	43.7 AMB	42.2	13.7	34.2	-97.2	-31.8	-13
	V	42.9 AMB	42.2	13.7	34.2	-97.2	-32.6	-13
17707.5	H	42.9 AMB	44.5	14.4	33.2	-97.2	-28.6	-13
	V	42.8 AMB	44.5	14.4	33.2	-97.2	-28.7	-13
19675.0	H	44.3 AMB	46.3	15.1	32.9	-97.2	-24.4	-13
	V	44.0 AMB	46.3	15.1	32.9	-97.2	-24.7	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1967.5MHz, FULL POWER
 : E BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3935.0	H	43.3 AMB	34.8	6.5	35.5	-97.2	-48.1	-13
	V	43.5 AMB	34.8	6.5	35.5	-97.2	-47.9	-13
5902.5	H	43.2 AMB	36.4	9.0	35.2	-97.2	-43.8	-13
	V	42.0 AMB	36.4	9.0	35.2	-97.2	-45.0	-13
7870.0	H	42.6 AMB	38.6	9.9	35.6	-97.2	-41.7	-13
	V	43.1 AMB	38.6	9.9	35.6	-97.2	-41.2	-13
9837.5	H	41.2 AMB	39.8	11.5	36.0	-97.2	-40.7	-13
	V	42.1 AMB	39.8	11.5	36.0	-97.2	-39.8	-13
11805.0	H	41.4 AMB	40.8	12.2	34.7	-97.2	-37.5	-13
	V	40.4 AMB	40.8	12.2	34.7	-97.2	-38.5	-13
13772.5	H	42.4 AMB	41.5	13.0	32.9	-97.2	-33.2	-13
	V	42.8 AMB	41.5	13.0	32.9	-97.2	-32.8	-13
15704.0	H	43.4 AMB	42.2	13.7	34.2	-97.2	-32.1	-13
	V	43.5 AMB	42.2	13.7	34.2	-97.2	-32.0	-13
17707.5	H	42.4 AMB	44.5	14.4	33.2	-97.2	-29.1	-13
	V	42.8 AMB	44.5	14.4	33.2	-97.2	-28.7	-13
19675.0	H	44.6 AMB	46.3	15.1	32.9	-97.2	-24.1	-13
	V	45.1 AMB	46.3	15.1	32.9	-97.2	-23.6	-13

CHECKED BY:

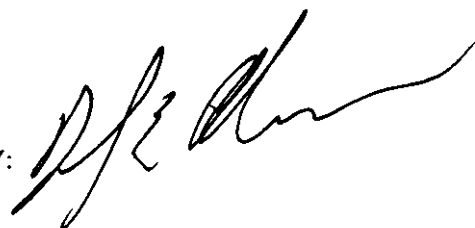


ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1887.5MHz, FULL POWER
 : E BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3775.0	H	43.1 AMB	34.8	6.5	35.8	-97.2	-48.6	-13
	V	47.8	34.8	6.5	35.8	-97.2	-43.9	-13
5662.5	H	38.7 AMB	36.4	9.0	35.1	-97.2	-48.2	-13
	V	40.5 AMB	36.4	9.0	35.1	-97.2	-46.4	-13
7550.0	H	42.5 AMB	38.6	9.9	35.6	-97.2	-41.8	-13
	V	42.4 AMB	38.6	9.9	35.6	-97.2	-41.9	-13
9437.5	H	42.9 AMB	39.8	11.5	35.9	-97.2	-38.9	-13
	V	43.6 AMB	39.8	11.5	35.9	-97.2	-38.2	-13
11325.0	H	40.8 AMB	40.8	12.2	34.8	-97.2	-38.2	-13
	V	40.9 AMB	40.8	12.2	34.8	-97.2	-38.1	-13
13212.5	H	43.2 AMB	41.5	13.0	33.4	-97.2	-32.9	-13
	V	43.2 AMB	41.5	13.0	33.4	-97.2	-32.9	-13
15100.0	H	43.8 AMB	42.2	13.7	33.5	-97.2	-31.0	-13
	V	43.7 AMB	42.2	13.7	33.5	-97.2	-31.1	-13
16987.5	H	42.6 AMB	44.5	14.4	34.0	-97.2	-29.7	-13
	V	42.7 AMB	44.5	14.4	34.0	-97.2	-29.6	-13
18875.0	H	45.5 AMB	46.3	15.1	32.8	-97.2	-23.1	-13
	V	45.7 AMB	46.3	15.1	32.8	-97.2	-22.9	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1887.5MHz, FULL POWER
 : E BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3775.0	H	42.1 AMB	34.8	6.5	35.8	-97.2	-49.6	-13
	V	46.6	34.8	6.5	35.8	-97.2	-45.1	-13
5662.5	H	38.8 AMB	36.4	9.0	35.1	-97.2	-48.1	-13
	V	39.2 AMB	36.4	9.0	35.1	-97.2	-47.7	-13
7550.0	H	42.2 AMB	38.6	9.9	35.6	-97.2	-42.1	-13
	V	42.2 AMB	38.6	9.9	35.6	-97.2	-42.1	-13
9437.5	H	42.0 AMB	39.8	11.5	35.9	-97.2	-39.8	-13
	V	42.6 AMB	39.8	11.5	35.9	-97.2	-39.2	-13
11325.0	H	39.9 AMB	40.8	12.2	34.8	-97.2	-39.1	-13
	V	40.8 AMB	40.8	12.2	34.8	-97.2	-38.2	-13
13212.5	H	42.9 AMB	41.5	13.0	33.4	-97.2	-33.2	-13
	V	43.1 AMB	41.5	13.0	33.4	-97.2	-33.0	-13
15100.0	H	44.4 AMB	42.2	13.7	33.5	-97.2	-30.4	-13
	V	43.4 AMB	42.2	13.7	33.5	-97.2	-31.4	-13
16987.5	H	43.6 AMB	44.5	14.4	34.0	-97.2	-28.7	-13
	V	42.1 AMB	44.5	14.4	34.0	-97.2	-30.2	-13
18875.0	H	45.5 AMB	46.3	15.1	32.8	-97.2	-23.1	-13
	V	45.1 AMB	46.3	15.1	32.8	-97.2	-23.5	-13

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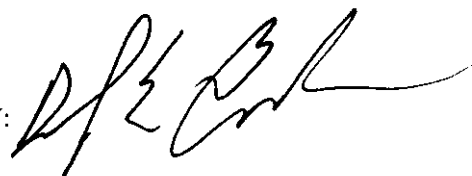


ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1972.5MHZ, FULL POWER
 : F BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3945.0	H	44.2	34.8	6.5	35.5	-97.2	-47.2	-13
	V	44.7	34.8	6.5	35.5	-97.2	-46.7	-13
5917.5	H	41.7 AMB	36.4	9.0	35.2	-97.2	-45.3	-13
	V	42.3 AMB	36.4	9.0	35.2	-97.2	-44.7	-13
7890.0	H	41.8 AMB	38.6	9.9	35.6	-97.2	-42.5	-13
	V	41.7 AMB	38.6	9.9	35.6	-97.2	-42.6	-13
9862.5	H	41.0 AMB	39.8	11.5	36.0	-97.2	-40.9	-13
	V	41.9 AMB	39.8	11.5	36.0	-97.2	-40.0	-13
11835.0	H	38.6 AMB	40.8	12.2	34.7	-97.2	-40.3	-13
	V	39.8 AMB	40.8	12.2	34.7	-97.2	-39.1	-13
13807.5	H	42.4 AMB	41.5	13.0	32.9	-97.2	-33.2	-13
	V	42.5 AMB	41.5	13.0	32.9	-97.2	-33.1	-13
15780.0	H	42.8 AMB	42.2	13.7	34.2	-97.2	-32.7	-13
	V	42.9 AMB	42.2	13.7	34.2	-97.2	-32.6	-13
17752.5	H	44.2 AMB	44.5	14.4	33.2	-97.2	-27.3	-13
	V	42.3 AMB	44.5	14.4	33.2	-97.2	-29.2	-13
19725.0	H	43.7 AMB	46.3	15.1	32.9	-97.2	-25.0	-13
	V	44.5 AMB	46.3	15.1	32.9	-97.2	-24.2	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1972.5MHZ, FULL POWER
 : F BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3945.0	H	41.7	34.8	6.5	35.5	-97.2	-49.7	-13
	V	43.8	34.8	6.5	35.5	-97.2	-47.6	-13
5917.5	H	41.9 AMB	36.4	9.0	35.2	-97.2	-45.1	-13
	V	42.0 AMB	36.4	9.0	35.2	-97.2	-45.0	-13
7890.0	H	42.6 AMB	38.6	9.9	35.6	-97.2	-41.7	-13
	V	42.4 AMB	38.6	9.9	35.6	-97.2	-41.9	-13
9862.5	H	42.0 AMB	39.8	11.5	36.0	-97.2	-39.9	-13
	V	41.4 AMB	39.8	11.5	36.0	-97.2	-40.5	-13
11835.0	H	40.0 AMB	40.8	12.2	34.7	-97.2	-38.9	-13
	V	39.6 AMB	40.8	12.2	34.7	-97.2	-39.3	-13
13807.5	H	43.2 AMB	41.5	13.0	32.9	-97.2	-32.4	-13
	V	42.3 AMB	41.5	13.0	32.9	-97.2	-33.3	-13
15780.0	H	43.3 AMB	42.2	13.7	34.2	-97.2	-32.2	-13
	V	43.6 AMB	42.2	13.7	34.2	-97.2	-31.9	-13
17752.5	H	42.9 AMB	44.5	14.4	33.2	-97.2	-28.6	-13
	V	42.5 AMB	44.5	14.4	33.2	-97.2	-29.0	-13
19725.0	H	44.4 AMB	46.3	15.1	32.9	-97.2	-24.3	-13
	V	44.1 AMB	46.3	15.1	32.9	-97.2	-24.6	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1892.5MHz, FULL POWER
 : F BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3785.0	H	41.7 AMB	34.8	6.5	35.8	-97.2	-50.0	-13
	V	44.4	34.8	6.5	35.8	-97.2	-47.3	-13
5677.5	H	37.2 AMB	36.4	9.0	35.1	-97.2	-49.7	-13
	V	38.3 AMB	36.4	9.0	35.1	-97.2	-48.6	-13
7570.0	H	41.7 AMB	38.6	9.9	35.6	-97.2	-42.6	-13
	V	41.7 AMB	38.6	9.9	35.6	-97.2	-42.6	-13
9462.5	H	42.2 AMB	39.8	11.5	35.9	-97.2	-39.6	-13
	V	43.4 AMB	39.8	11.5	35.9	-97.2	-38.4	-13
11355.0	H	39.6 AMB	40.8	12.2	34.8	-97.2	-39.4	-13
	V	40.3 AMB	40.8	12.2	34.8	-97.2	-38.7	-13
13247.5	H	42.4 AMB	41.5	13.0	33.4	-97.2	-33.7	-13
	V	42.7 AMB	41.5	13.0	33.4	-97.2	-33.4	-13
15140.0	H	42.5 AMB	42.2	13.7	33.5	-97.2	-32.3	-13
	V	43.1 AMB	42.2	13.7	33.5	-97.2	-31.7	-13
17032.5	H	42.4 AMB	44.5	14.4	34.0	-97.2	-29.9	-13
	V	43.0 AMB	44.5	14.4	34.0	-97.2	-29.3	-13
18925.0	H	44.4 AMB	46.3	15.1	32.8	-97.2	-24.2	-13
	V	44.5 AMB	46.3	15.1	32.8	-97.2	-24.1	-13

CHECKED BY:

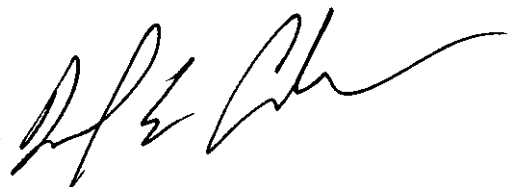


ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1892.5MHz, FULL POWER
 : F BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3785.0	H	42.1 AMB	34.8	6.5	35.8	-97.2	-49.6	-13
	V	44.2	34.8	6.5	35.8	-97.2	-47.5	-13
5677.5	H	38.0 AMB	36.4	9.0	35.1	-97.2	-48.9	-13
	V	38.3 AMB	36.4	9.0	35.1	-97.2	-48.6	-13
7570.0	H	41.1 AMB	38.6	9.9	35.6	-97.2	-43.2	-13
	V	41.8 AMB	38.6	9.9	35.6	-97.2	-42.5	-13
9462.5	H	43.1 AMB	39.8	11.5	35.9	-97.2	-38.7	-13
	V	42.0 AMB	39.8	11.5	35.9	-97.2	-39.8	-13
11355.0	H	39.9 AMB	40.8	12.2	34.8	-97.2	-39.1	-13
	V	39.2 AMB	40.8	12.2	34.8	-97.2	-39.8	-13
13247.5	H	42.3 AMB	41.5	13.0	33.4	-97.2	-33.8	-13
	V	42.9 AMB	41.5	13.0	33.4	-97.2	-33.2	-13
15140.0	H	43.2 AMB	42.2	13.7	33.5	-97.2	-31.6	-13
	V	44.3 AMB	42.2	13.7	33.5	-97.2	-30.5	-13
17032.5	H	43.0 AMB	44.5	14.4	34.0	-97.2	-29.3	-13
	V	42.5 AMB	44.5	14.4	34.0	-97.2	-29.8	-13
18925.0	H	45.0 AMB	46.3	15.1	32.8	-97.2	-23.6	-13
	V	46.1 AMB	46.3	15.1	32.8	-97.2	-22.5	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSIGNED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES : TRANSMIT CW AT 1982.5MHz, FULL POWER
 : C BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3965.0	H	41.1 AMB	34.8	6.5	35.5	-97.2	-50.3	-13
	V	42.5	34.8	6.5	35.5	-97.2	-48.9	-13
5947.5	H	41.6 AMB	36.4	9.0	35.2	-97.2	-45.4	-13
	V	41.9 AMB	36.4	9.0	35.2	-97.2	-45.1	-13
7930.0	H	42.2 AMB	38.6	9.9	35.6	-97.2	-42.1	-13
	V	41.7 AMB	38.6	9.9	35.6	-97.2	-42.6	-13
9912.5	H	41.1 AMB	39.8	11.5	36.0	-97.2	-40.8	-13
	V	40.4 AMB	39.8	11.5	36.0	-97.2	-41.5	-13
11895.0	H	39.8 AMB	40.8	12.2	34.7	-97.2	-39.1	-13
	V	39.9 AMB	40.8	12.2	34.7	-97.2	-39.0	-13
13877.5	H	42.5 AMB	41.5	13.0	32.9	-97.2	-33.1	-13
	V	42.7 AMB	41.5	13.0	32.9	-97.2	-32.9	-13
15860.0	H	42.7 AMB	42.2	13.7	34.2	-97.2	-32.8	-13
	V	42.4 AMB	42.2	13.7	34.2	-97.2	-33.1	-13
17842.5	H	42.0 AMB	44.5	14.4	33.2	-97.2	-29.5	-13
	V	42.6 AMB	44.5	14.4	33.2	-97.2	-28.9	-13
19825.0	H	43.4 AMB	46.3	15.1	32.9	-97.2	-25.3	-13
	V	43.7 AMB	46.3	15.1	32.9	-97.2	-25.0	-13


CHECKED BY:



ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1982.5MHz, FULL POWER
 : C BAND DOWNLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3965.0	H	41.4 AMB	34.8	6.5	35.5	-97.2	-50.0	-13
	V	41.3 AMB	34.8	6.5	35.5	-97.2	-50.1	-13
5947.5	H	41.1 AMB	36.4	9.0	35.2	-97.2	-45.9	-13
	V	41.7 AMB	36.4	9.0	35.2	-97.2	-45.3	-13
7930.0	H	42.3 AMB	38.6	9.9	35.6	-97.2	-42.0	-13
	V	41.4 AMB	38.6	9.9	35.6	-97.2	-42.9	-13
9912.5	H	40.6 AMB	39.8	11.5	36.0	-97.2	-41.3	-13
	V	41.9 AMB	39.8	11.5	36.0	-97.2	-40.0	-13
11895.0	H	39.7 AMB	40.8	12.2	34.7	-97.2	-39.2	-13
	V	39.9 AMB	40.8	12.2	34.7	-97.2	-39.0	-13
13877.5	H	42.6 AMB	41.5	13.0	32.9	-97.2	-33.0	-13
	V	43.5 AMB	41.5	13.0	32.9	-97.2	-32.1	-13
15860.0	H	42.4 AMB	42.2	13.7	34.2	-97.2	-33.1	-13
	V	42.0 AMB	42.2	13.7	34.2	-97.2	-33.5	-13
17842.5	H	42.1 AMB	44.5	14.4	33.2	-97.2	-29.4	-13
	V	42.3 AMB	44.5	14.4	33.2	-97.2	-29.2	-13
19825.0	H	44.5 AMB	46.3	15.1	32.9	-97.2	-24.2	-13
	V	43.7 AMB	46.3	15.1	32.9	-97.2	-25.0	-13

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CW AT 1902.5MHz, FULL POWER
 : C BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3805.0	H	42.5 AMB	34.8	6.5	35.8	-97.2	-49.2	-13
	V	45.5	34.8	6.5	35.8	-97.2	-46.2	-13
5707.5	H	37.4 AMB	36.4	9.0	35.1	-97.2	-49.5	-13
	V	39.4 AMB	36.4	9.0	35.1	-97.2	-47.5	-13
7610.0	H	41.1 AMB	38.6	9.9	35.6	-97.2	-43.2	-13
	V	41.5 AMB	38.6	9.9	35.6	-97.2	-42.8	-13
9512.5	H	41.9 AMB	39.8	11.5	35.9	-97.2	-39.9	-13
	V	42.6 AMB	39.8	11.5	35.9	-97.2	-39.2	-13
11415.0	H	40.1 AMB	40.8	12.2	34.8	-97.2	-38.9	-13
	V	40.3 AMB	40.8	12.2	34.8	-97.2	-38.7	-13
13317.5	H	42.6 AMB	41.5	13.0	33.4	-97.2	-33.5	-13
	V	43.2 AMB	41.5	13.0	33.4	-97.2	-32.9	-13
15220.0	H	43.0 AMB	42.2	13.7	33.5	-97.2	-31.8	-13
	V	42.9 AMB	42.2	13.7	33.5	-97.2	-31.9	-13
17122.5	H	43.0 AMB	44.5	14.4	34.0	-97.2	-29.3	-13
	V	42.8 AMB	44.5	14.4	34.0	-97.2	-29.5	-13
19025.0	H	44.9 AMB	46.3	15.1	32.8	-97.2	-23.7	-13
	V	44.4 AMB	46.3	15.1	32.8	-97.2	-24.2	-13

CHECKED BY:

ENGINEERING TEST REPORT NO. 21254
 ELITE ELECTRONIC ENGINEERING COMPANY

MANUFACTURER : ANDREW CORP.
 MODEL : SELECTAMP 1900
 S/N : NONE ASSINGED
 SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
 DATE : NOVEMBER 19, 1998
 NOTES- : TRANSMIT CDMA AT 1902.5MHZ, FULL POWER
 : C BAND UPLINK

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	ANT FAC dB	CABLE FAC dB	PRE-AMP GAIN dB	F.I. CORR dB	TOTAL dBm	LIMIT dBm
3805.0	H	41.5 AMB	34.8	6.5	35.8	-97.2	-50.2	-13
	V	44.3	34.8	6.5	35.8	-97.2	-47.4	-13
5707.5	H	37.4 AMB	36.4	9.0	35.1	-97.2	-49.5	-13
	V	36.2 AMB	36.4	9.0	35.1	-97.2	-50.7	-13
7610.0	H	41.2 AMB	38.6	9.9	35.6	-97.2	-43.1	-13
	V	41.0 AMB	38.6	9.9	35.6	-97.2	-43.3	-13
9512.5	H	42.5 AMB	39.8	11.5	35.9	-97.2	-39.3	-13
	V	42.1 AMB	39.8	11.5	35.9	-97.2	-39.7	-13
11415.0	H	40.6 AMB	40.8	12.2	34.8	-97.2	-38.4	-13
	V	40.7 AMB	40.8	12.2	34.8	-97.2	-38.3	-13
13317.5	H	42.7 AMB	41.5	13.0	33.4	-97.2	-33.4	-13
	V	42.5 AMB	41.5	13.0	33.4	-97.2	-33.6	-13
15220.0	H	43.2 AMB	42.2	13.7	33.5	-97.2	-31.6	-13
	V	43.2 AMB	42.2	13.7	33.5	-97.2	-31.6	-13
17122.5	H	42.2 AMB	44.5	14.4	34.0	-97.2	-30.1	-13
	V	42.3 AMB	44.5	14.4	34.0	-97.2	-30.0	-13
19025.0	H	43.8 AMB	46.3	15.1	32.8	-97.2	-24.8	-13
	V	44.4 AMB	46.3	15.1	32.8	-97.2	-24.2	-13

CHECKED BY:



ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.235; IC RSS-131 PARA. 6.8
 TEST DESC : FREQUENCY STABILITY VS. TEMPERATURE
 TEST EQUIPMENT : See Table I
 DATE TESTED : December 10, 1998
 NOTES : A Block

Temperature Degrees Centigrade	Frequency MHZ	Duration Minute	Frequency Stability ppm
UPLINK			
-30	1857.500146	45	>0.1
-20	1857.500146	30	>0.1
-10	1857.500147	30	>0.1
0	1857.500147	30	>0.1
10	1857.500148	30	>0.1
20	1857.500149	30	>0.1
24	1857.500118	REF	---
30	1857.500148	30	>0.1
40	1857.500149	30	>0.1
50	1857.500149	30	>0.1
DOWNLINK			
-30	1937.500152	45	>0.1
-20	1937.500153	30	>0.1
-10	1937.500153	30	>0.1
0	1937.500153	30	>0.1
10	1937.500155	30	>0.1
20	1937.500154	30	>0.1
24	1937.500127	REF	---
30	1937.500155	30	>0.1
40	1937.500155	30	>0.1
50	1937.500155	30	>0.1

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL_NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.235; IC RSS-131 PARA. 6.8
 TEST DESC : FREQUENCY STABILITY VS. TEMPERATURE
 TEST EQUIPMENT : See Table I
 DATE TESTED : December 9, 1998
 NOTES : B Block

Temperature Degrees Centigrade	Frequency MHz	Duration Minute	Frequency Stability ppm
UPLINK			
-30	1877.500121	45	>0.1
-20	1877.500123	30	>0.1
-10	1877.500125	30	>0.1
0	1877.500127	30	>0.1
10	1877.500129	30	>0.1
20	1877.500129	30	>0.1
24	1877.500048	REF	---
30	1877.500130	30	>0.1
40	1877.500130	30	>0.1
50	1877.500131	30	>0.1
DOWNLINK			
-30	1957.500126	45	>0.1
-20	1957.500128	30	>0.1
-10	1957.500130	30	>0.1
0	1957.500132	30	>0.1
10	1957.500134	30	>0.1
20	1957.500135	30	>0.1
24	1957.500106	REF	---
30	1957.500135	30	>0.1
40	1957.500136	30	>0.1
50	1957.500137	30	>0.1


CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL-NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.235; IC RSS-131 PARA. 6.8
 TEST DESC : FREQUENCY STABILITY VS. TEMPERATURE
 TEST EQUIPMENT : See Table I
 DATE TESTED : December 4, 1998
 NOTES : C Block

Temperature Degrees Centigrade	Frequency MHz	Duration Minute	Frequency Stability ppm
UPLINK			
-30	1902.500488	45	>0.1
-20	1902.500484	30	>0.1
-10	1902.500487	30	>0.1
0	1902.500488	30	>0.1
10	1902.500488	30	>0.1
20	1902.500484	30	>0.1
24	1902.500458	REF	---
30	1902.500486	30	>0.1
40	1902.500485	30	>0.1
50	1902.500485	30	>0.1
DOWNLINK			
-30	1982.500508	45	>0.1
-20	1982.500504	30	>0.1
-10	1982.500508	30	>0.1
0	1982.500507	30	>0.1
10	1982.500508	30	>0.1
20	1982.500510	30	>0.1
24	1982.500465	REF	---
30	1982.500501	30	>0.1
40	1982.500505	30	>0.1
50	1982.500504	30	>0.1

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL_NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.235; IC RSS-131 PARA. 6.8
 TEST DESC : FREQUENCY STABILITY VS. TEMPERATURE
 TEST EQUIPMENT : See Table I
 DATE TESTED : December 10, 1998
 NOTES : D Block

Temperature Degrees Centigrade	Frequency MHZ	Duration Minute	Frequency Stability ppm
UPLINK			
-30	1867.500146	45	>0.1
-20	1867.500147	30	>0.1
-10	1867.500147	30	>0.1
0	1867.500148	30	>0.1
10	1867.500149	30	>0.1
20	1867.500149	30	>0.1
24	1867.500130	REF	---
30	1867.500149	30	>0.1
40	1867.500149	30	>0.1
50	1867.500150	30	>0.1
DOWNLINK			
-30	1947.500153	45	>0.1
-20	1647.500154	30	>0.1
-10	1947.500154	30	>0.1
0	1947.500154	30	>0.1
10	1947.500154	30	>0.1
20	1947.500155	30	>0.1
24	1947.500132	REF	---
30	1947.500155	30	>0.1
40	1947.500156	30	>0.1
50	1947.500156	30	>0.1

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL_NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.235; IC RSS-131 PARA. 6.8
 TEST DESC : FREQUENCY STABILITY VS. TEMPERATURE
 TEST EQUIPMENT : See Table I
 DATE TESTED : December 9, 1998
 NOTES : E Block

Temperature Degrees Centigrade	Frequency MHZ	Duration Minute	Frequency Stability ppm
UPLINK			
-30	1887.500122	45	>0.1
-20	1887.500123	30	>0.1
-10	1887.500125	30	>0.1
0	1887.500127	30	>0.1
10	1887.500130	30	>0.1
20	1887.500130	30	>0.1
24	1887.500106	REF	---
30	1887.500130	30	>0.1
40	1887.500131	30	>0.1
50	1887.500132	30	>0.1
DOWNLINK			
-30	1967.500127	45	>0.1
-20	1667.500129	30	>0.1
-10	1967.500131	30	>0.1
0	1967.500133	30	>0.1
10	1967.500136	30	>0.1
20	1967.500135	30	>0.1
24	1967.500109	REF	---
30	1967.500136	30	>0.1
40	1967.500137	30	>0.1
50	1967.500137	30	>0.1

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL_NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.235; IC RSS-131 PARA. 6.8
 TEST DESC : FREQUENCY STABILITY VS. TEMPERATURE
 TEST EQUIPMENT : See Table I
 DATE TESTED : December 4, 1998
 NOTES : F Block

Temperature Degrees Centigrade	Frequency MHz	Duration Minute	Frequency Stability ppm
UPLINK			
-30	1892.500484	45	>0.1
-20	1892.500486	30	>0.1
-10	1892.500485	30	>0.1
0	1892.500484	30	>0.1
10	1892.500486	30	>0.1
20	1892.500487	30	>0.1
24	1892.500462	REF	---
30	1892.500484	30	>0.1
40	1892.500483	30	>0.1
50	1892.500481	30	>0.1
DOWNLINK			
-30	1972.500505	45	>0.1
-20	1672.500506	30	>0.1
-10	1972.500505	30	>0.1
0	1972.500505	30	>0.1
10	1972.500505	30	>0.1
20	1972.500508	30	>0.1
24	1972.500483	REF	---
30	1972.500509	30	>0.1
40	1972.500503	30	>0.1
50	1972.500501	30	>0.1

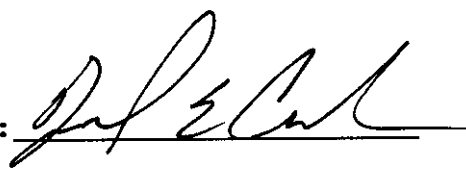
CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.235; IC RSS-131 PARA. 6.8
 TEST DESC : FREQUENCY STABILITY VS. VOLTAGE
 TEST EQUIPMENT : See Table I
 DATE TESTED : December 3, 1997
 NOTES : A diplexer (A-D Block)

Voltage VDC	% of Nominal Voltage	Frequency MHz	Frequency Stability ppm
UPLINK			
97.75	85	1857.500146	>0.1
115.0	Nominal	1857.500146	---
132.25	115	1857.500147	>0.1
DOWNLINK			
97.75	85	1937.500150	>0.1
115.0	Nominal	1937.500154	---
132.25	115	1937.500152	>0.1

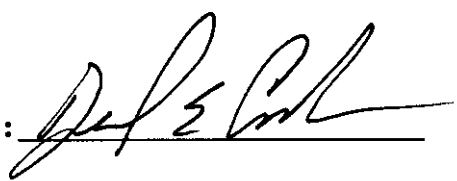
CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL_NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.235; IC RSS-131 PARA. 6.8
 TEST DESC : FREQUENCY STABILITY VS. VOLTAGE
 TEST EQUIPMENT : See Table I
 DATE TESTED : December 3, 1997
 NOTES : B diplexer (B-E Block)

Voltage VDC	% of Nominal Voltage	Frequency MHz	Frequency Stability ppm
UPLINK			
97.75	85	1877.500127	>0.1
115.0	Nominal	1877.500100	---
132.25	115	1877.500107	>0.1
DOWNLINK			
97.75	85	1957.500130	>0.1
115.0	Nominal	1957.500131	---
132.25	115	1957.500135	>0.1

CHECKED BY: 

ENGINEERING TEST REPORT NO. 21254

DATA SHEET

MANUFACTURER : ANDREW CORP.
 TEST ITEM : PCS CHANNELIZED BIDIRECTIONAL AMPLIFIER
 MODEL_NO. : SELECTAMP 1900-1H
 SERIAL NUMBER : NONE ASSIGNED
 SPECIFICATION : FCC-24 PARA. 24.235; IC RSS-131 PARA. 6.8
 TEST DESC : FREQUENCY STABILITY VS. VOLTAGE
 TEST EQUIPMENT : See Table I
 DATE TESTED : December 3, 1997
 NOTES : C diplexer (C-F Block)

Voltage VDC	% of Nominal Voltage	Frequency MHZ	Frequency Stability ppm
UPLINK			
97.75	85	1902.500482	>0.1
115.0	Nominal	1902.500481	---
132.25	115	1902.500481	>0.1
DOWNLINK			
97.75	85	1987.500507	>0.1
115.0	Nominal	1987.500506	---
132.25	115	1987.500509	>0.1

CHECKED BY: 