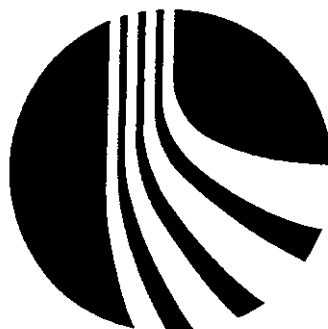




INSTRUCTION MANUAL

651186400B

SAIP-750 Series

Agile Input, Channelized Agile Output
Heterodyne Processor

SAIP-MF	Stock No. 5885
SAIP-40-750	Stock No. 5886
SAIP-40-750 UHF Out	Stock No. U5886
SAIP-60-750	Stock No. 5876
SAIP-60-750 UHF Out	Stock No. U5876
OFM-750-40	Stock No. 7984
OFM-750-U40	Stock No. U7984
OFM-750-60	Stock No. 7985
OFM-750-U60	Stock No. U7985

**BLONDER TONGUE**

LABORATORIES, INC.

One Jake Brown Road, P.O. Box 1000
Tel: (732) 679-4000

Old Bridge, NJ 08857-1000 USA
Fax: (732) 679-4353

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.



CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER FROM THIS UNIT. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. SEE ADDITIONAL SAFETY INSTRUCTIONS BELOW.

NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV System Installers attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

IMPORTANT SAFEGUARDS

1. **Read Instructions** - All the safety and operating instructions should be read before this product is operated.
2. **Retain Instructions** - The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** - All warnings on the product and in the operating instructions should be adhered to.
4. **Follow Instructions** - All operating and use instructions should be followed.
5. **Cleaning** - Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **Attachments** - Do not use attachments not recommended by Blonder Tongue as they may cause hazards.
7. **Water and Moisture** - Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like. Refer to individual instruction manuals included with products designed for indoor use only. Do not expose these products to rain or moisture.
8. **Accessories** - Do not place this product on an unstable cart, stand, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, bracket, or table recommended by Blonder Tongue. Any mounting of the product should follow the instructions, and should use a mounting accessory recommended by Blonder Tongue.
9.  A product and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the product and cart combination to overturn.
10. **Ventilation** - Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the instructions are adhered to.
11. **Power Sources** - This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home or business, consult your dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.
12. **Grounding or Polarization** - If this product is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, the plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

651130300 G



BLONDER TONGUE LABORATORIES, INC.

One Jake Brown Road, P.O. Box 1000
Tel: (732) 679-4000

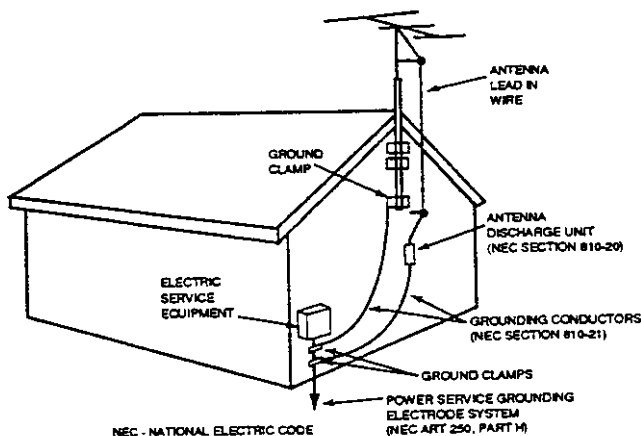
Old Bridge, NJ 08857-1000 USA
Fax: (732) 679-4353

If this video product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other), the plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

13. **Power Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.
14. **Lightning** - For added protection for this product during a lightning storm or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line-surges.
15. **Power Lines** - An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
16. **Overloading** - Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
17. **Object and Liquid Entry** - Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
18. **Servicing** - Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
19. **Damage Requiring Service** - Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power-supply cord or plug is damaged.
 - b. If liquid has been spilled, or objects have fallen into the product.
 - c. If the product has been exposed to rain or water.
 - d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 - e. If the product has been dropped or the cabinet has been damaged.
 - f. When the product exhibits a distinct change in performance-this indicates a need for service.
20. **Replacement Parts** - When replacement parts are required, be sure the service technician has used replacement parts specified by Blonder Tongue or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
21. **Safety Check** - Upon completion of any service or repairs to this product ask the service technician to perform safety checks to determine that the product is in proper operating condition.
22. **Outdoor Antenna Grounding** - If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

See notes and diagram below.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS



1. Drill a hole in wall (Careful! there are wires in that wall!) near set just large enough to permit entry of cable.
2. Punch cable through hole and form a rain drip loop close to where it enters house.
3. Put a small amount of caulking around cable where it enters house to keep out drafts.
4. Install static electricity discharge unit.
5. Connect antenna cable to set.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert you to the presence of un-insulated "dangerous voltage" within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER FROM THIS UNIT. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE

NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV System Installers attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EQUIPMENT DESCRIPTION

GENERAL

The SAIP 750 is a single channel processor in the 750 Series of professional quality channelized output headend products. The SAIP Series are input frequency agile TV channel processors that provide visual and aural RF carrier outputs on individual Broadcast or CATV channels in the full 750 MHz output frequency range. The processor mainframe (Stock No. 5885) contains the linear power supply, the fully agile RF to IF input converter and the fully agile IF to RF output converter. A low cost removable single channel output filter module provides exceptionally low out of band noise that permits the construction of multiple channel headends without auxiliary filtering. The output modules are available in +40 dBmV and +60 dBmV versions. The 7984 (+40 dBmV) and the 7995 (+60 dBmV) modules are ordered by the CATV output channel. The U7984 and the U7985 models are ordered by the UHF output channel.

Efficient AGC assures a wide dynamic range and dual SAW filters provide superior selectivity. DIP switches for setting the input frequency are accessible from the front panel, as are the A/V ratio and output level control. Two tuner IF flatness controls are located adjacent to the input dip switches. The output frequency dip switches are set internally corresponding to the channel of the output filter module installed.

An external IF loop-thru enables the replacement of the standard IF signal with an alternate source of composite IF (such as an all-call system) or the insertion of IF scrambling equipment. An on-board carrier substitution generator is automatically activated upon loss of input signal.

ELECTRICAL

A block diagram of the SAIP is shown on page 2.. All primary processor functions are carried out on three printed circuit boards. The Input Converter PCB selects and converts the incoming RF signal to the IF frequency, then filters and provides a gain control signal back to the input amplifiers. The Output Converter PCB converts the IF signal to the final RF frequency. The Output filter module amplifies the chosen channel and bandpass filters the signal.

On the Input Converter PCB, the RF signal is applied to a PLL controlled (set by DIP switches) UHF/ VHF/ CATV tuner. The 41 to 47 MHz IF output from the tuner is amplified and filtered by two SAW filters. The resulting signal is sensed by a detector that develops an AGC voltage to control the gain of the tuner and IF amplifier. The resulting IF output level is steady regardless of changing input levels. The absence of an incoming signal activates an oscillator that substitutes an un-modulated signal at the IF visual carrier frequency.

The IF carriers are externally looped to the synthesized upconverter board. The crystal controlled synthesized oscillator frequency is selected via dip switches. Positive or negative offsets of 12.5 kHz or 25 kHz may be applied via the internal dip switches. The double balanced mixer output is amplified and coupled with 12 Vdc for connection to the Output Filter Module (stock #7984 or 7985).

The channelized Output Filter Module receives the RF signal from the upconverter where it is amplified and bandpass filtered. A multi-turn bridge-T attenuator assures flat level adjustment and excellent return loss to the final drive amplifier. A low loss two stage bandpass filter follows the final amplifier for maximum out of band carrier to noise performance.

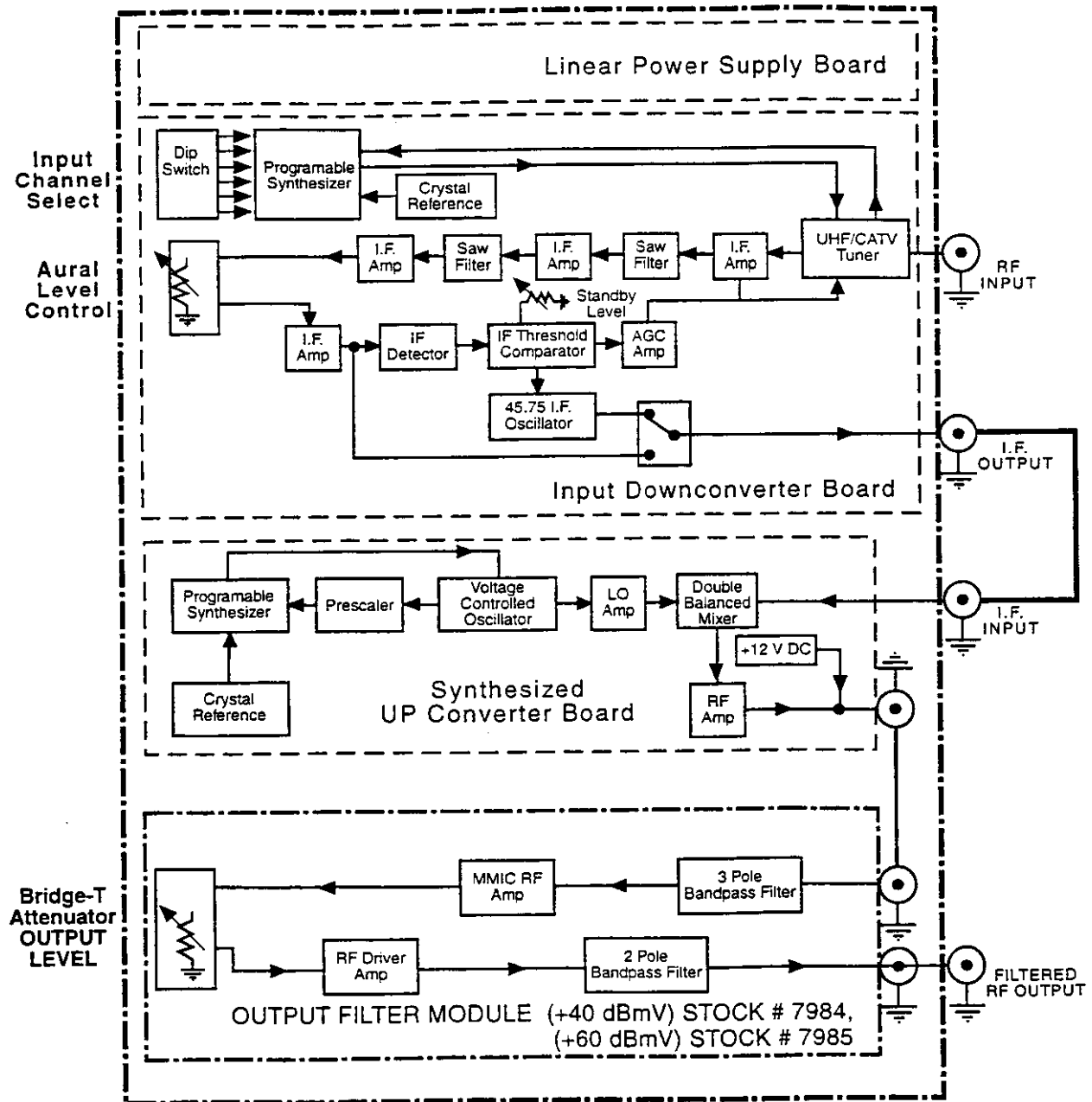
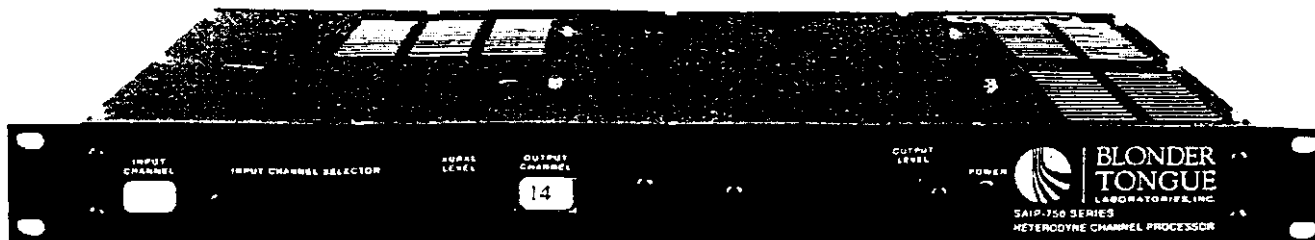


Figure 1 Complete Processor Block Diagram



SPECIFICATIONS (Typical)

RF

Frequency Range Input: 50-806 MHz
including VHF, UHF, and CATV channels

Frequency Range Output: 50-750 MHz
including VHF, UHF, and CATV channels

Noise Figure: 8 to 11 dB

Output Level SAIP-40 Ch 2-78: +42 dBmV
Ch 79-117 +40 dBmV

Output Level SAIP-60 Ch 2-78: +60 dBmV
Ch 79-117 +58 dBmV

Output Level Range: 15 dB
continuously adjustable

Aural/Visual Carrier Ratio: 0 to -10 dB
from input signal, continuously adjustable

Visual Carrier Frequency Tolerance: ± 5 kHz

Bandpass Flatness: ± 1.5 dB

Adjacent Channel Rejection: -65 dBc, (A/V = -15 dB)

Spurious Outputs: -60 dBc minimum

Out-of-Band C/N: >100 dB

Intermod Distortion: (3 tone 920 kHz beat)
@ sound = -15 dB, color = -25 dB: -64 dB

Intercarrier Beat:
(fv - 4.5 MHz, @ sound = -15 dB) -66 dB

AGC Stiffness: < 1 dB output Δ for 40 dB input Δ

Output Return Loss: 15 dB

Carrier Substitution:
Active @ input below -15 dBmV

Substitution Threshold: adjustable -10 to -20 dBmV

Long Term Accuracy: ± 2 dB

IF

Frequency: 45.750 MHz

Output Level: +30 dBmV

Input Level Range: +25 to +32 dBmV

In/Out Return Loss: 12 dB

GENERAL

Power Requirements: 117 VAC, ± 10 %, 60 Hz

Fuse: 3/8 A, Slo-Blo.

Temperature Range: 0° to +50° C

MECHANICAL

Dimensions (WxHxD) : 19.00" x 1.75" x 9.50"

Weight: 8.00 lbs (2.73 kg)

CONNECTORS / IMPEDANCE

RF Input: 75 ohm "F" type, female

IF IN/ OUT: 75 ohm "F" type, female

RF Output: 75 ohm "F" type, female

CONTROLS

Input Channel Selection: ... 18 position DIP Switches

Output Channel Selection: 18 position DIP Switches

Aural Carrier Level: Pot

RF Output Level: Bridge T Attenuator

INDICATORS

Power ON: LED, red

INSTALLATION AND OPERATION

NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV System Installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

UNPACKING AND HANDLING

UNPACKING. Each unit is shipped with all equipment assembled, wired, factory tested, and then packaged in an appropriate shipping container.

Ensure that all accessories are removed from the container and packing material before they are discarded.

MECHANICAL INSPECTION

Inspect the front and rear of the equipment for shipping damage. Make sure the equipment is clean, and no wires, cables, or connectors are broken, damaged or loose.

DAMAGE IN SHIPMENT

Should damage be discovered after unpacking the system, immediately file a claim with the carrier. A full report of the damage shall be made and a copy forwarded to **BLONDER TONGUE LABORATORIES, INC.** The company will then advise what disposition is to be made of the equipment.

PRECAUTIONS

Adherence to the initial installation precautions outlined in the Table below will help prevent problems arising during the installation and future maintenance of the unit.

Installation Precautions Table

PRECAUTION	REQUIREMENT
Ensure easy access to rack wiring	Allow a minimum of 18 inches behind the equipment rack(s).
Facilitate servicing and maintenance.	Allow a minimum of 36" of clearance in front of the equipment rack(s).
Avoid direct heating or Air conditioning	If unavoidable, use deflector plates
AC power source outlets.	Locate equipment near sufficient outlets to provide power of test equipment and power tools.
Rack Support	Make certain rack supports are sufficiently rigid to support rack(s).
Building leakage.	Beware of dripping water onto equipment from leaky roofs, waveguide roof entries, and cold water pipe condensations.

OPERATING CONTROLS

All operating controls are located on, or are accessible from the front panel.

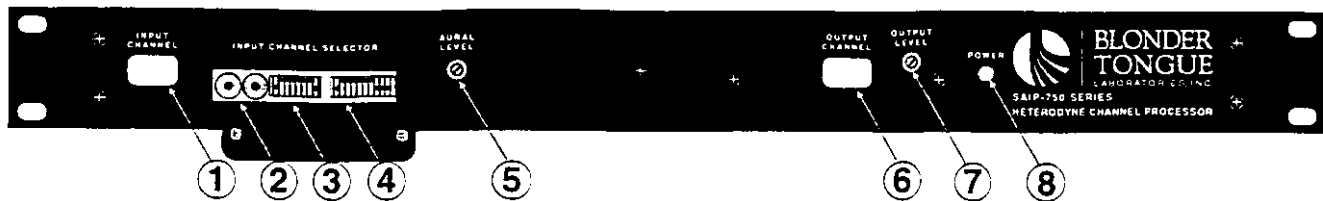


Figure 2 Front Panel Controls & Indicators

1. **INPUT CHANNEL LABEL** - Attached by user for reference.
2. **INPUT IF Flatness** - Allows adjustment of tuner output for optimum video flatness.
3. & 4. **FREQUENCY SELECTOR SWITCHES** - Sets the frequency of the visual carrier of the INPUT CHANNEL. Switch bank 1 is on the left.
5. **AURAL LEVEL** - Attenuates amplitude of aural RF carrier relative to visual RF carrier.
6. **OUTPUT CHANNEL LABEL** - The channel number label from the Output Filter Module is placed here.
7. **OUTPUT LEVEL** - The Bridge-T pot simultaneously adjusts the amplitude of aural and visual carriers to the final drive amplifier.
8. **POWER** - Power On Indicator Light

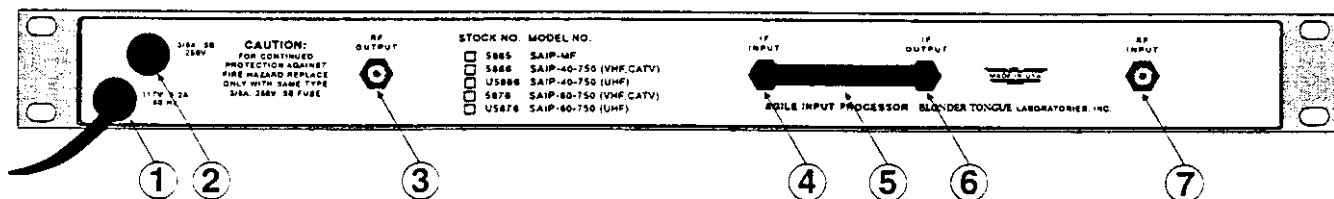


Figure 3 Rear Panel Processor Connections

PROCESSOR CONNECTIONS

All the connectors on the Processor are located on the rear panel.

1. **Line Cord** - Standard three conductor grounded power cord
2. **Fuse** - 3/8 Amp slow blow fuse
3. **RF OUTPUT** - The filtered RF signal is available for connection to a headend combiner.
4. **I.F. IN** - The composite IF signal is looped to the upconverter.
5. **I.F. Jumper** - An F to F jumper cable is provided to loop the IF Out to the IF IN.
6. **I.F. Out** - The combined SAW filtered modulated I.F. signal (visual 45.75 MHz and aural 41.25 MHz) appears at this port.
7. **RF INPUT** - Input signal from antenna, preamplifier or CATV feed.

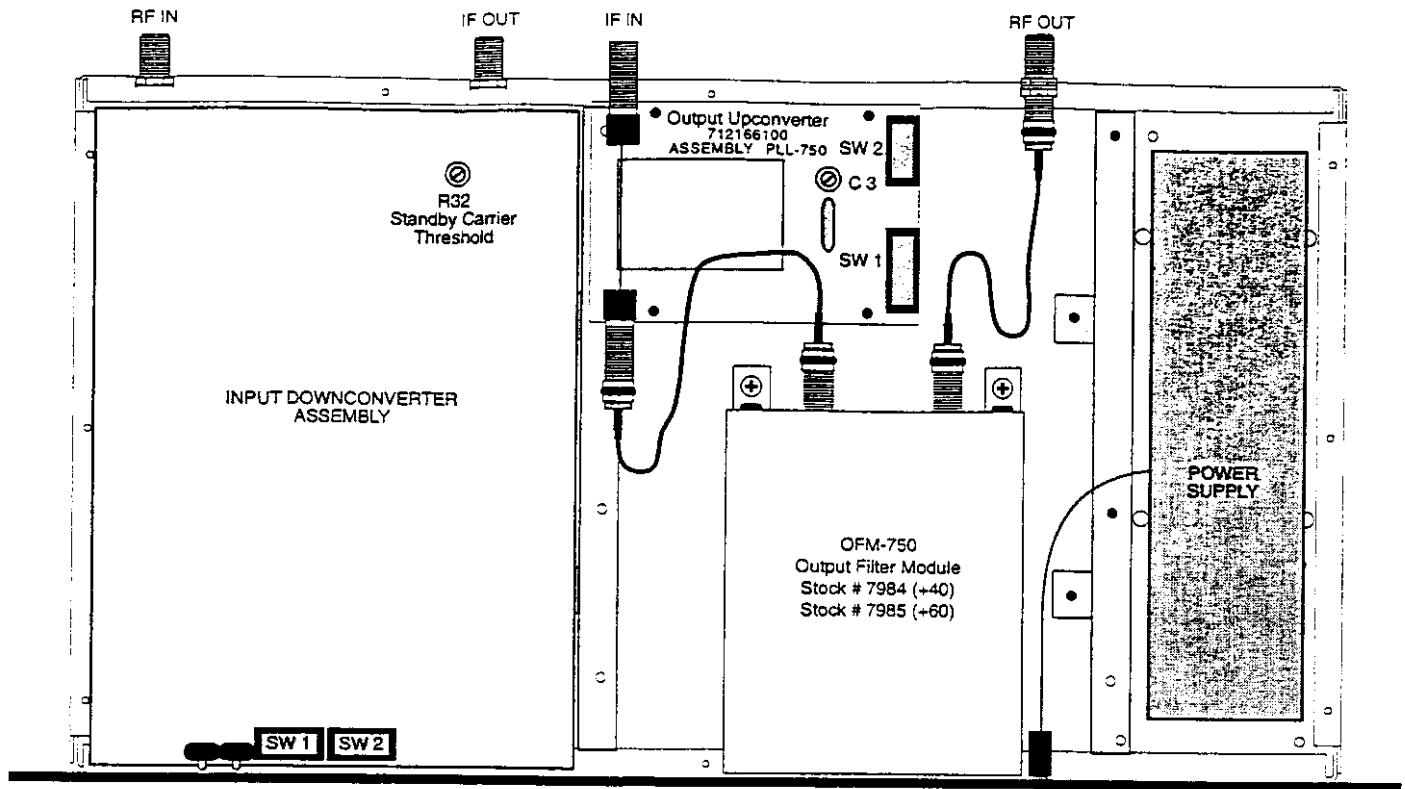


Figure 4 Internal Processor Connections

PROCESSOR INTERNAL CONNECTIONS AND CONTROLS

Figure 4 shows the processor with the cover removed. One unique feature of the processor is the channelized output filter module (OFM). The excellent out of band carrier to noise can be attributed to the OFM. Output channel selection is made by replacement of the OFM and selection of the Upconverter dip switches. With the cover removed, the OFM can be replaced by loosening the two "F" cables and removing the two screws securing the OFM to the front of the chassis and two screws securing the OFM to the inner chassis.

OUTPUT FREQUENCY OFFSETS

Off air television signals may have offsets when two transmitters of the same channel are within the range of interference. For example San Diego channel 3 and Tucson Channel 3 have 10 kHz offsets; Tucson +10 kHz, San Diego -10 kHz.

When converting to an output channel in the aeronautical band, offsets of either 12.5 kHz or 25 kHz are required. The table on pages 14 to 16 lists the output converter switch settings for the standard cable TV and broadcast TV channel assignments. **0= UP = OFF (as labeled on the switch)**. The LO frequency is the sum weighting of the switches in the UP position. ± 2.5 kHz offsets can be made by adjustment of C4 on the Upconverter Assembly. The weighting of the specific switches are provided below:

Switch Bank 1				Switch Bank 2			
Switch#	Weight	Switch#	Weight	Switch#	Weight	Switch#	Weight
1	0.8 MHz	6	25.6 MHz	1	VCO BandSwitch	5	50 kHz
2	1.6 MHz	7	51.2 MHz	2	VCO BandSwitch	6	100 kHz
3	3.2 MHz	8	102.4 MHz	3	12.5 kHz	7	200 kHz
4	6.4 MHz	9	204.8 MHz	4	25.0 kHz	8	400 kHz
5	12.8 MHz	10	409.6 MHz				

To obtain a +12.5 kHz offset, move Switch Bank 2, switch #3 **UP**. If the switch is already in the UP position, move Switch Bank 2, switch #4 **UP** & move Switch Bank 2, switch #3 **DOWN**. (This adds 25 kHz and subtracts 12.5 kHz.)

PREPARATION FOR USE

Plug in the 3-prong connector of the AC power cord into a suitable 117 V 60 Hz AC outlet of adequate current carrying capacity. Use appropriate cables (75 Ohm coaxial) to connect the RF Signal source to the RF Input of the unit and the RF output of the unit to the system input. Make sure that the IF coaxial jumper cable is in place, connecting the IF input and the IF output.

OPERATION

INPUT CHANNEL SELECTION

Gently pull both retaining clips of the left side access door simultaneously to expose the channel selector switches. Using an appropriate tool (or a ballpoint pen) set each individual switch of both DIP switches (a total of 16) either UP or DOWN according to one of the applicable INPUT channel charts (Standard, HRC or UHF) in this manual. After setting, re-secure the access door to prevent inadvertent tampering and/or possible ingress of dust and dirt.

OUTPUT CHANNEL SELECTION

The output channel is factory preset to the output channel ordered. Changing the output channel requires replacement of the Output Filter Module (stock #7984, U7984, 7985 or U7985). The filter is ordered to the desired output channel. Inside the cover the upconverter dip switch settings must be changed to correspond to the settings identified on the Output Filter Module. The dip switch settings may also be found on pages 14 through 16 of this manual.

ADJUSTMENTS

- OUTPUT LEVEL -** Connect a suitable RF indicator such as a Field Strength Meter (tuned to the visual carrier frequency) or a Spectrum Analyzer to the RF output of the modulator or a system monitor point and adjust the Output Level control for the required reading of video carrier amplitude.
- AV CARRIER RATIO -** To adjust the aural-to-visual carrier ratio, tune the RF indicator device to the aural carrier frequency and adjust the Aural Level control to obtain the desired aural carrier level. Note that you cannot obtain a ratio smaller (that is, the aural level relatively higher) than that of the incoming RF signal. Recommended ratio is -15 dB.
- FREQUENCY OFFSETS -** If the chosen output channel of the processor is subject to FCC mandated aeronautical offsets (see the output frequency settings charts on pages 14 through 16) adjustment of the output upconverter frequency may be required. The reason that adjustment may be required is due to possible offsets on the input channel. Some TV stations across the USA are offset by either + 10 kHz or -10kHz. BLONDER TONGUE sets the output upconverter frequency based upon no input offset.

The following procedures require that the unit be powered for 30 minutes prior to making adjustments.

FREQUENCY RESPONSE - The frequency response adjust controls are factory set for optimum response over all input channels. However, channel flatness can be improved for a particular input/output channel combination by adjusting front panel controls R66 and R70.

1. Tune the SAIP Processor to the desired input channel.
2. Using proper flatness measurement equipment, observe the channel flatness.
3. Slightly adjust the front panel control R66 on the left and observe the flatness. R66 controls the flatness amplitude at the frequency set by R70, the pot next to the dip switch. If the flatness does not improve, adjust R70 then vary R66 while observing the RF flatness.

STANDBY CARRIER

THRESHOLD -

The Standby Carrier Threshold is factory-set for -15 dBmV. If it is necessary to set the threshold to some other level, proceed as follows before installing the SAIP Processor in its rack or cabinet.

1. Tune the SAIP Processor to the desired input channel.
2. Connect a television receiver (tuned to the output channel) to the rear-panel RF OUT terminal; use the RF OUT control and attenuators as required to avoid overloading the receiver.
3. Using a variable attenuator and a signal level meter, adjust the input signal to the desired threshold level. Connect the input signal to the RF INPUT terminal.
4. Refer to the Figure below and locate the Threshold Control, R32.
5. Adjust R32 so that the picture just switches between the input signal and the standby carrier. Use the television receiver as an indicator.
6. After making the adjustment, disconnect the power cord and input and output cabling.
7. Install the unit in its mounting location.

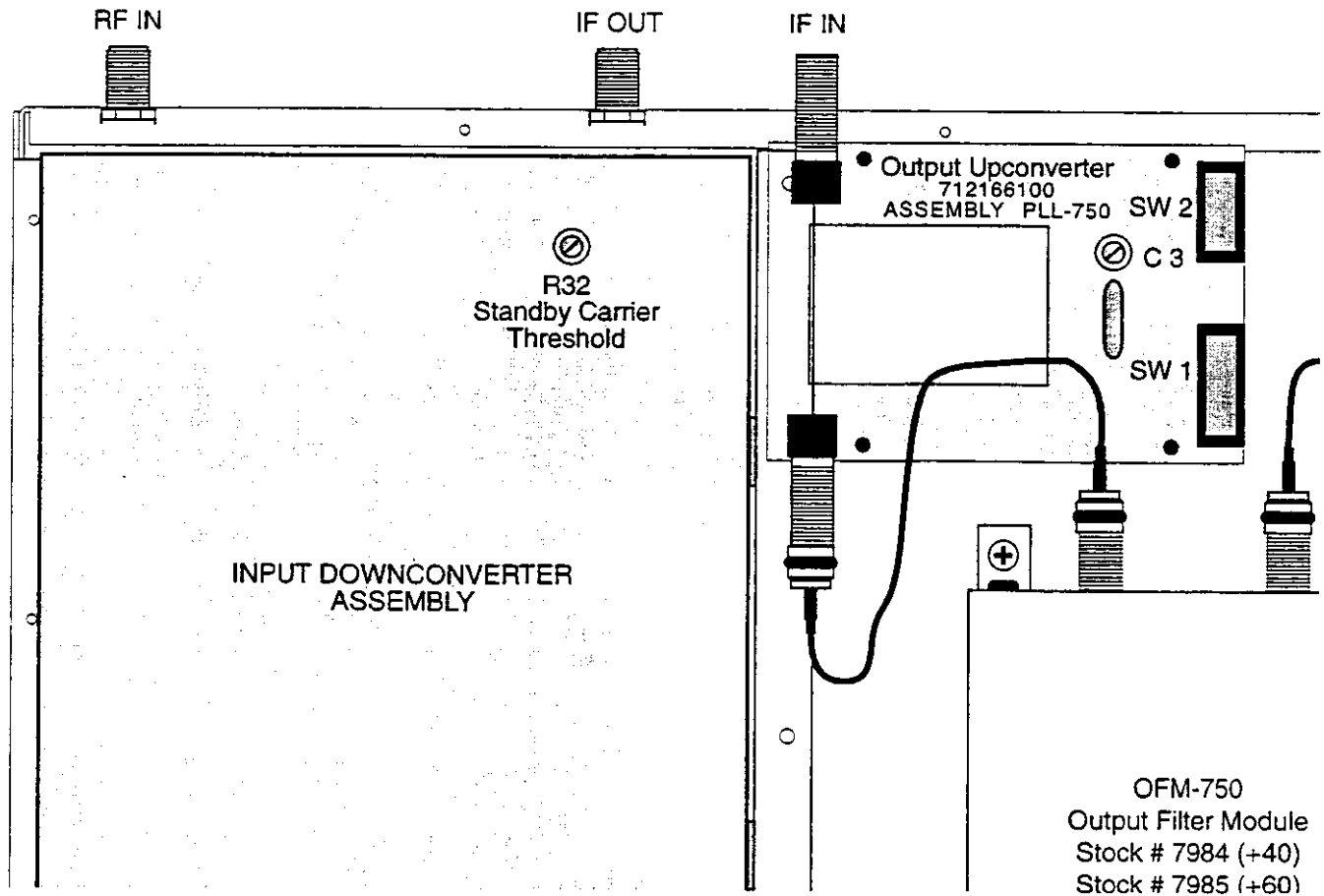


Figure 5 Top Cover Processor Adjustments

SAIP SERIES - SWITCH SETTINGS FOR STANDARD INPUT CHANNELS

				SWITCH ONE 0 = DOWN, 1 = UP								SWITCH TWO 0 = DOWN, 1 = UP							
CH.	CH	PIX	L.O.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
2	2	55.25	101.00	0	1	1	1	0	0	1	0	1	0	0	1	1	0	0	0
3	3	61.25	107.00	0	1	1	1	0	0	1	1	0	1	0	1	1	0	0	0
4	4	67.25	113.00	0	1	1	1	0	0	1	0	0	1	1	1	1	0	0	0
A-8	1	73.25	119.00	0	1	1	1	0	0	1	1	1	0	1	1	1	0	0	0
5	5	77.25	123.00	0	1	1	1	0	0	1	1	0	1	1	1	1	0	0	0
5(IRC)	5(IRC)	79.25	125.00	0	1	1	1	0	0	1	0	1	1	1	1	1	0	0	0
6	6	83.25	129.00	0	1	1	1	0	0	1	0	0	0	0	0	0	1	0	0
6(IRC)	6(IRC)	85.25	131.00	0	1	1	1	0	0	1	1	0	0	0	0	0	1	0	0
A-2	98	109.25	155.00	0	0	1	1	0	0	1	1	0	1	1	0	0	1	0	0
A-1	99	115.25	161.00	0	0	1	1	0	0	1	0	0	0	1	0	1	0	0	0
A	14	121.25	167.00	0	0	1	1	0	0	1	1	1	0	0	1	0	1	0	0
B	15	127.25	173.00	0	0	1	1	0	0	1	0	1	1	0	1	0	1	0	0
C	16	133.25	179.00	0	0	1	1	0	0	1	1	0	0	1	1	0	1	0	0
D	17	139.25	185.00	0	0	1	1	0	0	1	0	0	1	1	0	1	0	0	0
E	18	145.25	191.00	0	0	1	1	0	0	1	1	1	1	1	1	0	1	0	0
F	19	151.25	197.00	0	0	1	1	0	0	1	0	1	0	0	0	1	1	0	0
G	20	157.25	203.00	0	0	1	1	0	0	1	1	0	1	0	0	1	1	0	0
H	21	163.25	209.00	0	0	1	1	0	0	1	0	0	1	0	1	1	1	0	0
I	22	169.25	215.00	0	0	1	1	0	0	1	1	1	0	1	0	1	1	0	0
7	7	175.25	221.00	0	0	1	1	0	0	1	0	1	1	1	0	1	1	0	0
8	8	181.25	227.00	0	0	1	1	0	0	1	1	0	0	0	1	1	1	0	0
9	9	187.25	233.00	0	0	1	1	0	0	1	0	0	1	0	1	1	1	0	0
10	10	193.25	239.00	0	0	1	1	0	0	1	1	1	1	0	1	1	1	0	0
11	11	199.25	245.00	0	0	1	1	0	0	1	0	1	0	1	1	1	1	0	0
12	12	205.25	251.00	0	0	1	1	0	0	1	1	0	1	1	1	1	1	0	0
13	13	211.25	257.00	0	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0
J	23	217.25	263.00	0	0	0	1	0	0	1	1	1	0	0	0	0	0	1	0
K	24	223.25	269.00	0	0	0	1	0	0	1	0	1	1	0	0	0	0	1	0
L	25	229.25	275.00	0	0	0	1	0	0	1	1	0	0	1	0	0	0	1	0
M	26	235.25	281.00	0	0	0	1	0	0	1	0	0	1	1	0	0	0	1	0
N	27	241.25	287.00	0	0	0	1	0	0	1	1	1	1	1	0	0	0	1	0
O	28	247.25	293.00	0	0	0	1	0	0	1	0	1	0	0	1	0	0	1	0
P	29	253.25	299.00	0	0	0	1	0	0	1	1	0	1	0	1	0	0	1	0
Q	30	259.25	305.00	0	0	0	1	0	0	1	0	0	0	1	1	0	0	1	0
R	31	265.25	311.00	0	0	0	1	0	0	1	1	1	0	1	1	0	0	1	0
S	32	271.25	317.00	0	0	0	1	0	0	1	0	1	1	1	1	0	0	1	0
T	33	277.25	323.00	0	0	0	1	0	0	1	1	0	0	0	0	1	0	1	0
U	34	283.25	329.00	0	0	0	1	0	0	1	0	0	1	0	0	1	0	1	0
V	35	289.25	335.00	0	0	0	1	0	0	1	1	1	1	0	0	1	0	1	0
W	36	295.25	341.00	0	0	0	1	0	0	1	0	1	0	1	0	1	0	1	0
AA	37	301.25	347.00	0	0	0	1	0	0	1	1	0	1	1	0	1	0	1	0
BB	38	307.25	353.00	0	0	0	1	0	0	1	0	0	0	1	1	0	1	1	0
CC	39	313.25	359.00	0	0	0	1	0	0	1	1	1	0	0	1	1	0	1	0
DD	40	319.25	365.00	0	0	0	1	0	0	1	0	1	1	0	1	1	0	1	0
EE	41	325.25	371.00	0	0	0	1	0	0	1	1	0	0	1	1	1	0	1	0
FF	42	331.25	377.00	0	0	0	1	0	0	1	0	0	1	1	1	1	0	1	0
GG	43	337.25	383.00	0	0	0	1	0	0	1	1	1	1	1	1	1	0	1	0
HH	44	343.25	389.00	0	0	0	1	0	0	1	0	1	0	0	0	0	1	1	0
II	45	349.25	395.00	0	0	0	1	0	0	1	1	0	1	0	0	0	1	1	0
JJ	46	355.25	401.00	0	0	0	1	0	0	1	0	0	0	1	0	0	1	1	0
KK	47	361.25	407.00	0	0	0	1	0	0	1	1	1	0	1	0	0	1	1	0
LL	48	367.25	413.00	0	0	0	1	0	0	1	0	1	1	1	0	0	1	1	0
MM	49	373.25	419.00	1	1	1	0	0	0	1	1	0	0	0	1	0	1	1	0
NN	50	379.25	425.00	1	1	1	0	0	0	1	0	0	1	0	1	0	1	1	0
OO	51	385.25	431.00	1	1	1	0	0	0	1	1	1	1	0	1	0	1	1	0
PP	52	391.25	437.00	1	1	1	0	0	0	1	0	1	0	1	1	0	1	1	0
QQ	53	397.25	443.00	1	1	1	0	0	0	1	1	0	1	1	1	0	1	1	0
RR	54	403.25	449.00	1	1	1	0	0	0	1	0	0	0	0	1	1	1	1	0

				SWITCH ONE 0 = DOWN, 1 = UP								SWITCH TWO 0 = DOWN, 1 = UP							
CH.	CH	PIX	L.O.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
SS	55	409.25	455.00	1	1	1	0	0	0	1	1	1	0	0	1	1	1	1	0
TT	56	415.25	461.00	1	1	1	0	0	0	1	0	1	1	0	0	1	1	1	0
UU	57	421.25	467.00	1	1	1	0	0	0	1	1	0	0	1	0	1	1	1	0
VV	58	427.25	473.00	1	1	1	0	0	0	1	1	0	0	1	0	1	1	1	0
WW	59	433.25	479.00	1	1	1	0	0	0	1	1	0	1	1	0	1	1	1	0
XX	60	439.25	485.00	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	0
YY	61	445.25	491.00	1	1	1	0	0	0	1	1	1	0	0	1	1	1	1	0
ZZ	62	451.25	497.00	1	1	1	0	0	0	1	1	0	1	1	1	1	1	1	0
AAA	63	457.25	503.00	1	1	1	0	0	0	1	0	0	0	1	1	1	1	1	0
BBB	64	463.25	509.00	1	1	1	0	0	0	1	1	1	0	1	1	1	1	1	0
CCC	65	469.25	515.00	1	1	1	0	0	0	1	0	1	1	1	1	1	1	1	0
DDD	66	475.25	521.00	1	1	1	0	0	0	1	1	0	0	0	0	0	0	0	1
EEE	67	481.25	527.00	1	1	1	0	0	0	1	0	0	1	0	0	0	0	0	1
FFF	68	487.25	533.00	1	1	1	0	0	0	1	1	1	1	0	0	0	0	0	1
GGG	69	493.25	539.00	1	1	1	0	0	0	1	0	1	0	1	0	0	0	0	1
HHH	70	499.25	545.00	1	1	1	0	0	0	1	1	0	1	1	0	0	0	0	1
III	71	505.25	551.00	1	1	1	0	0	0	1	0	0	0	0	1	0	0	0	1
JJJ	72	511.25	557.00	1	1	1	0	0	0	1	1	1	0	0	1	0	0	0	1
KKK	73	517.25	563.00	1	1	1	0	0	0	1	0	1	1	0	1	0	0	0	1
LLL	74	523.25	569.00	1	1	1	0	0	0	1	1	0	0	1	1	0	0	0	1
MMM	75	529.25	575.00	1	1	1	0	0	0	1	0	0	1	1	1	0	0	0	1
NNN	76	535.25	581.00	1	1	1	0	0	0	1	1	1	1	1	1	0	0	0	1
OOO	77	541.25	587.00	1	1	1	0	0	0	1	0	1	0	0	0	1	0	0	1
PPP	78	547.25	593.00	1	1	1	0	0	0	1	1	0	1	0	0	1	0	0	1
QQQ	79	553.25	599.00	1	1	1	0	0	0	1	0	0	0	1	0	1	0	0	1
RRR	80	559.25	605.00	1	1	1	0	0	0	1	1	1	0	1	0	1	0	0	1
SSS	81	565.25	611.00	1	1	1	0	0	0	1	0	1	1	1	0	1	0	0	1
TTT	82	571.25	617.00	1	1	1	0	0	0	1	1	0	0	0	1	1	0	0	1
UUU	83	577.25	623.00	1	1	1	0	0	0	1	0	0	1	0	1	1	0	0	1
VVV	84	583.25	629.00	1	1	1	0	0	0	1	1	1	1	0	1	1	0	0	1
WWW	85	589.25	635.00	1	1	1	0	0	0	1	0	1	0	1	1	1	0	0	1
XXX	86	595.25	641.00	1	1	1	0	0	0	1	0	0	1	1	1	1	0	0	1
YYY	87	601.25	647.00	1	1	1	0	0	0	1	1	0	0	0	0	0	1	0	1
ZZZ	88	607.25	653.00	1	1	1	0	0	0	1	1	1	0	0	0	0	1	0	1
	89	613.25	659.00	1	1	1	0	0	0	1	0	1	1	0	0	0	1	0	1
	90	619.25	665.00	1	1	1	0	0	0	1	1	0	0	1	0	0	1	0	1
	91	625.25	671.00	1	1	1	0	0	0	1	0	0	1	1	0	0	1	0	1
	92	631.25	677.00	1	1	1	0	0	0	1	1	1	1	0	0	1	0	0	1
	93	637.25	683.00	1	1	1	0	0	0	1	0	1	0	0	1	0	1	0	1
	94	643.25	689.00	1	1	1	0	0	0	1	1	0	1	0	1	0	1	0	1
	100	649.25	695.00	1	1	1	0	0	0	1	0	0	0	1	1	0	1	0	1
	101	655.25	701.00	1	1	1	0	0	0	1	1	1	0	1	1	0	1	0	1
	102	661.25	707.00	1	1	1	0	0	0	1	0	1	1	1	1	0	1	0	1
	103	667.25	713.00	1	1	1	0	0	0	1	1	0	0	0	0	1	1	0	1
	104	673.25	719.00	1	1	1	0	0	0	1	1	0	1	0	0	1	1	0	1
	105	679.25	725.00	1	1	1	0	0	0	1	1	1	1	0	0	1	1	0	1
	106	685.25	731.00	1	1	1	0	0	0	1	1	1	0	1	1	1	0	1	1
	107	691.25	737.00	1	1	1	0	0	0	1	0	0	1	0	1	1	1	0	1
	108	697.25	743.00	1	1	1	0	0	0	1	1	0	0	0	1	1	1	0	1
	109	703.25	749.00	1	1	1	0	0	0	1	1	1	0	0	1	1	1	0	1
	110	709.25	755.00	1	1	1	0	0	0	1	1	0	1	0	1	1	1	0	1
	111	715.25	761.00	1	1	1	0	0	0	1	1	0	0	1	1	1	1	0	1
	112	721.25	767.00	1	1	1	0	0	0	1	0	0	1	1	1	1	1	0	1
	113	727.25	773.00	1	1	1	0	0	0	1	1	1	1	1	1	1	1	0	1
	114	733.25	779.00	1	1	1	0	0	0	1	0	1	0	0	0	0	1	1	1
	115	739.25	785.00	1	1	1	0	0	0	1	0	0	1	0	0	0	1	1	1
	116	745.25	791.00	1	1	1	0	0	0	1	1	0	0	1	0	0	1	1	1
	117	751.25	797.00	1	1	1	0	0	0	1	0	1	1	0	0	0	1	1	1

SAIP SERIES - SWITCH SETTINGS FOR HRC INPUT CHANNELS

				SWITCH ONE 0 = DOWN, 1 = UP								SWITCH TWO 0 = DOWN, 1 = UP							
CH.	CH	PIX	L.O.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
2	2	54.00	99.75	0	1	1	1	1	1	1	1	0	0	0	1	1	0	0	0
3	3	60.00	105.75	0	1	1	1	1	1	1	0	0	1	0	1	1	0	0	0
4	4	66.00	111.75	0	1	1	1	1	1	1	1	1	1	0	1	1	0	0	0
A-8	1	72.00	117.75	0	1	1	1	1	1	1	0	1	0	1	1	1	0	0	0
5	5	78.00	123.75	0	1	1	1	1	1	1	1	0	1	1	1	1	0	0	0
6	6	84.00	129.75	0	1	1	1	1	1	1	0	0	0	0	0	0	1	0	0
A-2	98	108.00	153.75	0	0	1	1	1	1	1	0	0	1	1	0	0	1	0	0
A-1	99	114.00	159.75	0	0	1	1	1	1	1	1	1	1	1	0	0	1	0	0
A	14	120.00	165.75	0	0	1	1	1	1	1	0	1	0	0	1	0	1	0	0
B	15	126.00	171.75	0	0	1	1	1	1	1	1	0	1	0	1	0	1	0	0
C	16	132.00	177.75	0	0	1	1	1	1	1	0	0	0	1	1	0	1	0	0
D	17	138.00	183.75	0	0	1	1	1	1	1	1	1	0	1	1	0	1	0	0
E	18	144.00	189.75	0	0	1	1	1	1	1	0	1	1	1	1	0	1	0	0
F	19	150.00	195.75	0	0	1	1	1	1	1	1	0	0	0	0	1	1	0	0
G	20	156.00	201.75	0	0	1	1	1	1	1	0	0	1	0	0	1	1	0	0
H	21	162.00	207.75	0	0	1	1	1	1	1	1	1	1	0	0	1	1	0	0
I	22	168.00	213.75	0	0	1	1	1	1	1	0	1	0	1	0	1	1	0	0
7	7	174.00	219.75	0	0	1	1	1	1	1	1	0	1	1	0	1	1	0	0
8	8	180.00	225.75	0	0	1	1	1	1	1	0	0	0	0	1	1	1	0	0
9	9	186.00	231.75	0	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0
10	10	192.00	237.75	0	0	1	1	1	1	1	0	1	1	0	1	1	1	0	0
11	11	198.00	243.75	0	0	1	1	1	1	1	1	0	0	1	1	1	1	0	0
12	12	204.00	249.75	0	0	1	1	1	1	1	0	0	1	1	1	1	1	0	0
13	13	210.00	255.75	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0
J	23	216.00	261.75	0	0	0	1	1	1	1	0	1	0	0	0	0	0	1	0
K	24	222.00	267.75	0	0	0	1	1	1	1	1	0	1	0	0	0	0	1	0
L	25	228.00	273.75	0	0	0	1	1	1	1	0	0	0	1	0	0	0	1	0
M	26	234.00	279.75	0	0	0	1	1	1	1	1	1	0	1	0	0	0	1	0
N	27	240.00	285.75	0	0	0	1	1	1	1	0	1	1	1	0	0	0	1	0
O	28	246.00	291.75	0	0	0	1	1	1	1	1	0	0	0	1	0	0	1	0
P	29	252.00	297.75	0	0	0	1	1	1	1	0	0	1	0	1	0	0	1	0
Q	30	258.00	303.75	0	0	0	1	1	1	1	1	1	1	0	1	0	0	1	0
R	31	264.00	309.75	0	0	0	1	1	1	1	0	1	0	1	1	0	0	1	0
S	32	270.00	315.75	0	0	0	1	1	1	1	1	0	1	1	1	0	0	1	0
T	33	276.00	321.75	0	0	0	1	1	1	1	0	0	0	0	0	1	0	1	0
U	34	282.00	327.75	0	0	0	1	1	1	1	1	1	0	0	0	1	0	1	0
V	35	288.00	333.75	0	0	0	1	1	1	1	0	1	1	0	0	1	0	1	0
W	36	294.00	339.75	0	0	0	1	1	1	1	1	0	0	0	1	0	1	0	0
AA	37	300.00	345.75	0	0	0	1	1	1	1	0	0	1	1	0	1	0	1	0
BB	38	306.00	351.75	0	0	0	1	1	1	1	1	1	1	1	0	1	0	1	0
CC	39	312.00	357.75	0	0	0	1	1	1	1	0	1	0	0	1	1	0	1	0
DD	40	318.00	363.75	0	0	0	1	1	1	1	1	0	1	0	1	1	0	1	0
EE	41	324.00	369.75	0	0	0	1	1	1	1	0	0	0	1	1	1	0	1	0
FF	42	330.00	375.75	0	0	0	1	1	1	1	1	1	0	1	1	1	0	1	0
GG	43	336.00	381.75	0	0	0	1	1	1	1	0	1	1	1	1	1	0	1	0
HH	44	342.00	387.75	0	0	0	1	1	1	1	1	0	0	0	0	0	1	1	0
II	45	348.00	393.75	0	0	0	1	1	1	1	0	0	1	0	0	0	1	1	0
JJ	46	354.00	399.75	0	0	0	1	1	1	1	1	1	1	0	0	0	1	1	0
KK	47	360.00	405.75	0	0	0	1	1	1	1	0	1	0	1	0	0	1	1	0
LL	48	366.00	411.75	0	0	0	1	1	1	1	1	0	1	1	0	0	1	1	0
MM	49	372.00	417.75	1	1	1	0	1	1	1	0	0	0	0	1	0	1	1	0
NN	50	378.00	423.75	1	1	1	0	1	1	1	1	1	0	0	1	0	1	1	0
OO	51	384.00	429.75	1	1	1	0	1	1	1	0	1	1	0	1	0	1	1	0
PP	52	390.00	435.75	1	1	1	0	1	1	1	1	0	0	1	1	0	1	1	0
QQ	53	396.00	441.75	1	1	1	0	1	1	1	0	0	1	1	1	0	1	1	0
RR	54	402.00	447.75	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	0
SS	55	408.00	453.75	1	1	1	0	1	1	1	0	1	0	0	0	1	1	1	0

				SWITCH ONE 0 = DOWN, 1 = UP								SWITCH TWO 0 = DOWN, 1 = UP							
CH.	CH	PIX	L.O.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
TT	56	414.00	459.75	1	1	1	0	1	1	1	1	0	1	0	0	1	1	1	0
UU	57	420.00	465.75	1	1	1	0	1	1	1	0	0	0	1	0	1	1	1	0
VV	58	426.00	471.75	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	0
WW	59	432.00	477.75	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0
XX	60	438.00	483.75	1	1	1	0	1	1	1	1	0	0	0	1	1	1	1	0
YY	61	444.00	489.75	1	1	1	0	1	1	1	0	0	1	0	1	1	1	1	0
ZZ	62	450.00	495.75	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	0
AAA	63	456.00	501.75	1	1	1	0	1	1	1	0	1	0	1	1	1	1	1	0
BBB	64	462.00	507.75	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	0
CCC	65	468.00	513.75	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	1
DDD	66	474.00	519.75	1	1	1	0	1	1	1	1	1	0	0	0	0	0	0	1
EEE	67	480.00	525.75	1	1	1	0	1	1	1	0	1	1	0	0	0	0	0	1
FFF	68	486.00	531.75	1	1	1	0	1	1	1	1	0	0	1	0	0	0	0	1
GGG	69	492.00	537.75	1	1	1	0	1	1	1	0	0	1	1	0	0	0	0	1
HHH	70	498.00	543.75	1	1	1	0	1	1	1	1	1	1	1	0	0	0	0	1
III	71	504.00	549.75	1	1	1	0	1	1	1	0	1	0	1	1	0	0	0	1
JJJ	72	510.00	555.75	1	1	1	0	1	1	1	1	0	1	0	1	0	0	0	1
KKK	73	516.00	561.75	1	1	1	0	1	1	1	0	0	0	1	1	0	0	0	1
LLL	74	522.00	567.75	1	1	1	0	1	1	1	1	1	0	1	1	0	0	0	1
MMM	75	528.00	573.75	1	1	1	0	1	1	1	0	1	1	1	1	0	0	0	1
NNN	76	534.00	579.75	1	1	1	0	1	1	1	1	0	0	0	0	1	0	0	1
OOO	77	540.00	585.75	1	1	1	0	1	1	1	0	0	1	0	0	1	0	0	1
PPP	78	546.00	591.75	1	1	1	0	1	1	1	1	1	1	0	0	1	0	0	1
QQQ	79	552.00	597.75	1	1	1	0	1	1	1	0	1	0	1	0	1	0	0	1
RRR	80	558.00	603.75	1	1	1	0	1	1	1	1	0	1	1	0	1	0	0	1
SSS	81	564.00	609.75	1	1	1	0	1	1	1	0	0	0	0	1	1	0	0	1
TTT	82	570.00	615.75	1	1	1	0	1	1	1	1	1	0	0	1	1	0	0	1
UUU	83	576.00	621.75	1	1	1	0	1	1	1	0	1	1	0	1	1	0	0	1
VVV	84	582.00	627.75	1	1	1	0	1	1	1	1	0	0	1	1	1	0	0	1
WWW	85	588.00	633.75	1	1	1	0	1	1	1	0	0	1	1	1	1	0	0	1
XXX	86	594.00	639.75	1	1	1	0	1	1	1	1	1	1	1	1	1	0	0	1
YYY	87	600.00	645.75	1	1	1	0	1	1	1	0	1	0	0	0	0	1	0	1
ZZZ	88	606.00	651.75	1	1	1	0	1	1	1	1	0	1	0	0	0	1	0	1
	89	612.00	657.75	1	1	1	0	1	1	1	0	0	0	1	0	0	1	0	1
	90	618.00	663.75	1	1	1	0	1	1	1	1	1	0	1	0	0	1	0	1
	91	624.00	669.75	1	1	1	0	1	1	1	0	1	1	1	0	0	1	0	1
	92	630.00	675.75	1	1	1	0	1	1	1	1	0	0	0	1	0	1	0	1
	93	636.00	681.75	1	1	1	0	1	1	1	0	0	1	0	1	0	1	0	1
	94	642.00	687.75	1	1	1	0	1	1	1	1	1	1	0	1	0	1	0	1
	100	648.00	693.75	1	1	1	0	1	1	1	0	1	0	1	1	0	1	0	1
	101	654.00	699.75	1	1	1	0	1	1	1	1	0	1	1	1	0	1	0	1
	102	660.00	705.75	1	1	1	0	1	1	1	0	0	0	0	0	1	1	0	1
	103	666.00	711.75	1	1	1	0	1	1	1	1	1	0	0	0	1	1	0	1
	104	672.00	717.75	1	1	1	0	1	1	1	0	1	1	0	0	1	1	0	1
	105	678.00	723.75	1	1	1	0	1	1	1	1	0	0	1	0	1	1	0	1
	106	684.00	729.75	1	1	1	0	1	1	1	0	0	1	1	0	1	1	0	1
	107	690.00	735.75	1	1	1	0	1	1	1	1	1	1	1	0	1	1	0	1
	108	696.00	741.75	1	1	1	0	1	1	1	0	1	0	0	1	1	1	0	1
	109	702.00	747.75	1	1	1	0	1	1	1	1	0	1	0	1	1	1	0	1
	110	708.00	753.75	1	1	1	0	1	1	1	0	0	0	1	1	1	1	0	1
	111	714.00	759.75	1	1	1	0	1	1	1	1	1	0	1	1	1	1	0	1
	112	720.00	765.75	1	1	1	0	1	1	1	0	1	1	1	1	1	1	0	1
	113	726.00	771.75	1	1	1	0	1	1	1	1	0	0	0	0	0	0	1	1
	114	732.00	777.75	1	1	1	0	1	1	1	0	0	1	0	0	0	0	1	1
	115	738.00	783.75	1	1	1	0	1	1	1	1	1	1	0	0	0	0	1	1
	116	744.00	789.75	1	1	1	0	1	1	1	0	1	0	1	0	0	0	1	1
	117	750.00	795.75	1	1	1	0	1	1	1	1	0	1	1	0	0	0	1	1

SAIP SERIES - SWITCH SETTINGS FOR UHF INPUT CHANNELS

CH	PIX	L.O.	SWITCH ONE 0 = DOWN, 1 = UP								SWITCH TWO 0 = DOWN, 1 = UP							
			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
14	471.25	517.00	1	1	1	0	0	0	1	0	1	0	0	0	0	0	0	1
15	477.25	523.00	1	1	1	0	0	0	1	1	0	1	0	0	0	0	0	1
16	483.25	529.00	1	1	1	0	0	0	1	0	0	0	1	0	0	0	0	1
17	489.25	535.00	1	1	1	0	0	0	1	1	1	0	1	0	0	0	0	1
18	495.25	541.00	1	1	1	0	0	0	1	0	1	1	1	0	0	0	0	1
19	501.25	547.00	1	1	1	0	0	0	1	1	0	0	0	1	0	0	0	1
20	507.25	553.00	1	1	1	0	0	0	1	0	0	1	0	1	0	0	0	1
21	513.25	559.00	1	1	1	0	0	0	1	1	1	1	0	1	0	0	0	1
22	519.25	565.00	1	1	1	0	0	0	1	0	1	0	1	1	0	0	0	1
23	525.25	571.00	1	1	1	0	0	0	1	1	0	1	1	1	0	0	0	1
24	531.25	577.00	1	1	1	0	0	0	1	0	0	0	0	0	1	0	0	1
25	537.25	583.00	1	1	1	0	0	0	1	1	1	0	0	0	1	0	0	1
26	543.25	589.00	1	1	1	0	0	0	1	0	1	1	0	0	1	0	0	1
27	549.25	595.00	1	1	1	0	0	0	1	1	0	0	1	0	1	0	0	1
28	555.25	601.00	1	1	1	0	0	0	1	0	0	1	1	0	1	0	0	1
29	561.25	607.00	1	1	1	0	0	0	1	1	1	1	1	0	1	0	0	1
30	567.25	613.00	1	1	1	0	0	0	1	0	1	0	0	1	1	0	0	1
31	573.25	619.00	1	1	1	0	0	0	1	1	0	1	0	1	1	0	0	1
32	579.25	625.00	1	1	1	0	0	0	1	0	0	0	1	1	1	0	0	1
33	585.25	631.00	1	1	1	0	0	0	1	1	1	0	1	1	1	0	0	1
34	591.25	637.00	1	1	1	0	0	0	1	0	1	1	1	1	1	0	0	1
35	597.25	643.00	1	1	1	0	0	0	1	1	0	0	0	0	0	1	0	1
36	603.25	649.00	1	1	1	0	0	0	1	0	0	1	0	0	0	1	0	1
37	609.25	655.00	1	1	1	0	0	0	1	1	1	1	0	0	0	1	0	1
38	615.25	661.00	1	1	1	0	0	0	1	0	1	0	1	0	0	1	0	1
39	621.25	667.00	1	1	1	0	0	0	1	1	0	1	1	0	0	1	0	1
40	627.25	673.00	1	1	1	0	0	0	1	0	0	0	0	1	0	1	0	1
41	633.25	679.00	1	1	1	0	0	0	1	1	1	0	0	1	0	1	0	1
42	639.25	685.00	1	1	1	0	0	0	1	0	1	1	0	1	0	1	0	1
43	645.25	691.00	1	1	1	0	0	0	1	1	0	0	1	1	0	1	0	1
44	651.25	697.00	1	1	1	0	0	0	1	0	0	1	1	1	0	1	0	1
45	657.25	703.00	1	1	1	0	0	0	1	1	1	1	1	1	0	1	0	1
46	663.25	709.00	1	1	1	0	0	0	1	0	1	0	0	0	1	1	0	1
47	669.25	715.00	1	1	1	0	0	0	1	1	0	1	0	0	1	1	0	1
48	675.25	721.00	1	1	1	0	0	0	1	0	0	0	1	0	1	1	0	1
49	681.25	727.00	1	1	1	0	0	0	1	1	1	0	1	0	1	1	0	1
50	687.25	733.00	1	1	1	0	0	0	1	0	1	1	1	0	1	1	0	1
51	693.25	739.00	1	1	1	0	0	0	1	1	0	0	0	1	1	1	0	1
52	699.25	745.00	1	1	1	0	0	0	1	0	0	1	0	1	1	1	0	1
53	705.25	751.00	1	1	1	0	0	0	1	1	1	1	0	1	1	1	0	1
54	711.25	757.00	1	1	1	0	0	0	1	0	1	0	1	1	1	1	0	1
55	717.25	763.00	1	1	1	0	0	0	1	1	0	1	1	1	1	1	0	1
56	723.25	769.00	1	1	1	0	0	0	1	0	0	0	0	0	0	0	1	1
57	729.25	775.00	1	1	1	0	0	0	1	1	1	0	0	0	0	0	1	1
58	735.25	781.00	1	1	1	0	0	0	1	0	1	1	0	0	0	0	1	1
59	741.25	787.00	1	1	1	0	0	0	1	1	0	0	1	0	0	0	1	1
60	747.25	793.00	1	1	1	0	0	0	1	0	0	1	1	0	0	0	1	1
61	753.25	799.00	1	1	1	0	0	0	1	1	1	1	1	0	0	0	1	1
62	759.25	805.00	1	1	1	0	0	0	1	0	1	0	0	1	0	0	1	1
63	765.25	811.00	1	1	1	0	0	0	1	1	0	1	0	1	0	0	1	1
64	771.25	817.00	1	1	1	0	0	0	1	0	0	0	1	1	0	0	1	1
65	777.25	823.00	1	1	1	0	0	0	1	1	1	0	1	1	0	0	1	1
66	783.25	829.00	1	1	1	0	0	0	1	0	1	1	1	1	0	0	1	1
67	789.25	835.00	1	1	1	0	0	0	1	1	0	0	0	0	1	0	1	1
68	795.25	841.00	1	1	1	0	0	0	1	0	0	1	0	0	1	0	1	1
69	801.25	847.00	1	1	1	0	0	0	1	1	1	1	0	0	1	0	1	1

OUTPUT CHANNEL SELECTION

CHNL NO	VIDEO	LO	SWITCH ONE 1 = ON = DOWN										SWITCH TWO 1 = ON = DOWN							
			1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8
2	55.2500	101.00	1	0	0	0	0	0	0	1	1	1	0	0	1	1	1	1	0	1
3	61.2500	107.00	0	1	0	1	1	1	1	0	1	1	0	0	1	1	1	1	0	0
4	67.2500	113.00	0	1	0	0	1	1	1	0	1	1	0	0	1	1	1	1	0	1
5	77.2500	123.00	0	1	1	0	0	1	1	0	1	1	0	0	1	1	1	1	0	0
6	83.2500	129.00	0	1	1	1	1	0	1	0	1	1	0	0	1	1	1	1	0	1
98	109.2750	155.03	0	1	1	1	1	1	0	0	1	1	0	0	1	0	1	1	0	0
99	115.2750	161.03	0	1	1	0	1	1	0	0	1	1	0	0	1	0	1	1	0	1
14	121.2625	167.01	1	1	1	1	0	1	0	0	1	1	0	0	0	1	1	1	0	0
15	127.2625	173.01	1	1	1	0	0	1	0	0	1	1	0	0	0	1	1	1	0	1
16	133.2625	179.01	0	0	0	0	0	1	0	0	1	1	0	0	0	1	1	1	0	0
17	139.2500	185.00	0	0	0	1	1	0	0	0	1	1	0	0	1	1	1	1	0	1
18	145.2500	191.00	1	0	0	0	1	0	0	0	1	1	0	0	1	1	1	1	0	0
19	151.2500	197.00	1	0	0	1	0	0	0	0	1	1	0	0	1	1	1	1	0	1
20	157.2500	203.00	0	1	0	0	0	0	0	0	1	1	0	0	1	1	1	1	0	0
21	163.2500	209.00	0	1	0	1	1	1	1	1	0	1	0	0	1	1	1	1	0	1
22	169.2500	215.00	1	1	0	0	1	1	1	1	0	1	0	0	1	1	1	1	0	0
7	175.2500	221.00	1	1	0	1	0	1	1	1	0	1	0	0	1	1	1	1	0	1
8	181.2500	227.00	0	0	1	0	0	1	1	1	0	1	0	0	1	1	1	1	0	0
9	187.2500	233.00	0	0	1	1	1	0	1	1	0	1	0	0	1	1	1	1	0	1
10	193.2500	239.00	1	0	1	0	1	0	1	1	0	1	0	1	1	1	1	1	0	0
11	199.2500	245.00	1	0	1	1	0	0	1	1	0	1	0	1	1	1	1	1	0	1
12	205.2500	251.00	0	1	1	0	0	0	1	1	0	1	0	1	1	1	1	1	0	0
13	211.2500	257.00	0	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1	0	1
23	217.2500	263.00	1	1	1	0	1	1	0	1	0	1	0	1	1	1	1	1	0	0
24	223.2625	269.01	1	1	1	1	0	1	0	1	0	1	0	1	0	1	1	1	0	1
25	229.2625	275.01	0	0	0	1	0	1	0	1	0	1	0	1	0	1	1	1	0	0
26	235.2625	281.01	0	0	0	0	0	1	0	1	0	1	0	1	0	1	1	1	0	1
27	241.2625	287.01	1	0	0	1	1	0	0	1	0	1	0	1	0	1	1	1	0	0
28	247.2625	293.01	1	0	0	0	1	0	0	1	0	1	0	1	0	1	1	1	0	1
29	253.2625	299.01	0	1	0	1	0	0	0	1	0	1	0	1	0	1	1	1	0	0
30	259.2625	305.01	0	1	0	0	0	0	0	1	0	1	0	1	0	1	1	1	0	1
31	265.2625	311.01	1	1	0	1	1	1	1	0	0	1	0	1	0	1	1	1	0	0
32	271.2625	317.01	1	1	0	0	1	1	1	0	0	1	0	1	0	1	1	1	0	1
33	277.2625	323.01	0	0	1	1	0	1	1	0	0	1	0	1	0	1	1	1	0	0
34	283.2625	329.01	0	0	1	0	0	1	1	0	0	1	0	1	0	1	1	1	0	1
35	289.2625	335.01	1	0	1	1	1	0	1	0	0	1	0	1	0	1	1	1	0	0
36	295.2625	341.01	1	0	1	0	1	0	1	0	0	1	0	1	0	1	1	1	0	1
37	301.2625	347.01	0	1	1	1	0	0	1	0	0	1	0	1	0	1	1	1	0	0
38	307.2625	353.01	0	1	1	0	0	0	1	0	0	1	0	1	0	1	1	1	0	1
39	313.2625	359.01	1	1	1	1	1	1	0	0	0	1	0	1	0	1	1	1	0	0
40	319.2625	365.01	1	1	1	0	1	1	0	0	0	1	0	1	0	1	1	1	0	1
41	325.2625	371.01	0	0	0	0	1	1	0	0	0	1	0	1	0	1	1	1	0	0
42	331.2750	377.03	0	0	0	1	0	1	0	0	0	1	0	1	1	0	1	1	0	1
43	337.2625	383.01	1	0	0	0	0	1	0	0	0	1	0	1	0	1	1	1	0	0
44	343.2625	389.01	1	0	0	1	1	0	0	0	0	1	0	1	0	1	1	1	0	1
45	349.2625	395.01	0	1	0	0	1	0	0	0	0	1	0	1	0	1	1	1	0	0
46	355.2625	401.01	0	1	0	1	0	0	0	0	0	1	0	1	0	1	1	1	0	1
47	361.2625	407.01	1	1	0	0	0	0	0	0	0	1	0	1	0	1	1	1	0	0
48	367.2625	413.01	1	1	0	1	1	1	1	1	1	0	0	1	0	1	1	1	0	1
49	373.2625	419.01	0	0	1	0	1	1	1	1	1	0	0	1	0	1	1	1	0	0
50	379.2625	425.01	0	0	1	1	0	1	1	1	1	0	0	1	0	1	1	1	0	1
51	385.2625	431.01	1	0	1	0	0	1	1	1	1	0	0	1	0	1	1	1	0	0
52	391.2625	437.01	1	0	1	1	1	0	1	1	1	0	0	1	0	1	1	1	0	1
53	397.2625	443.01	0	1	1	0	1	0	1	1	1	0	0	1	0	1	1	1	0	0
54	403.2500	449.00	0	1	1	1	0	0	1	1	1	0	0	1	1	1	1	1	0	1

OUTPUT CHANNEL SELECTION

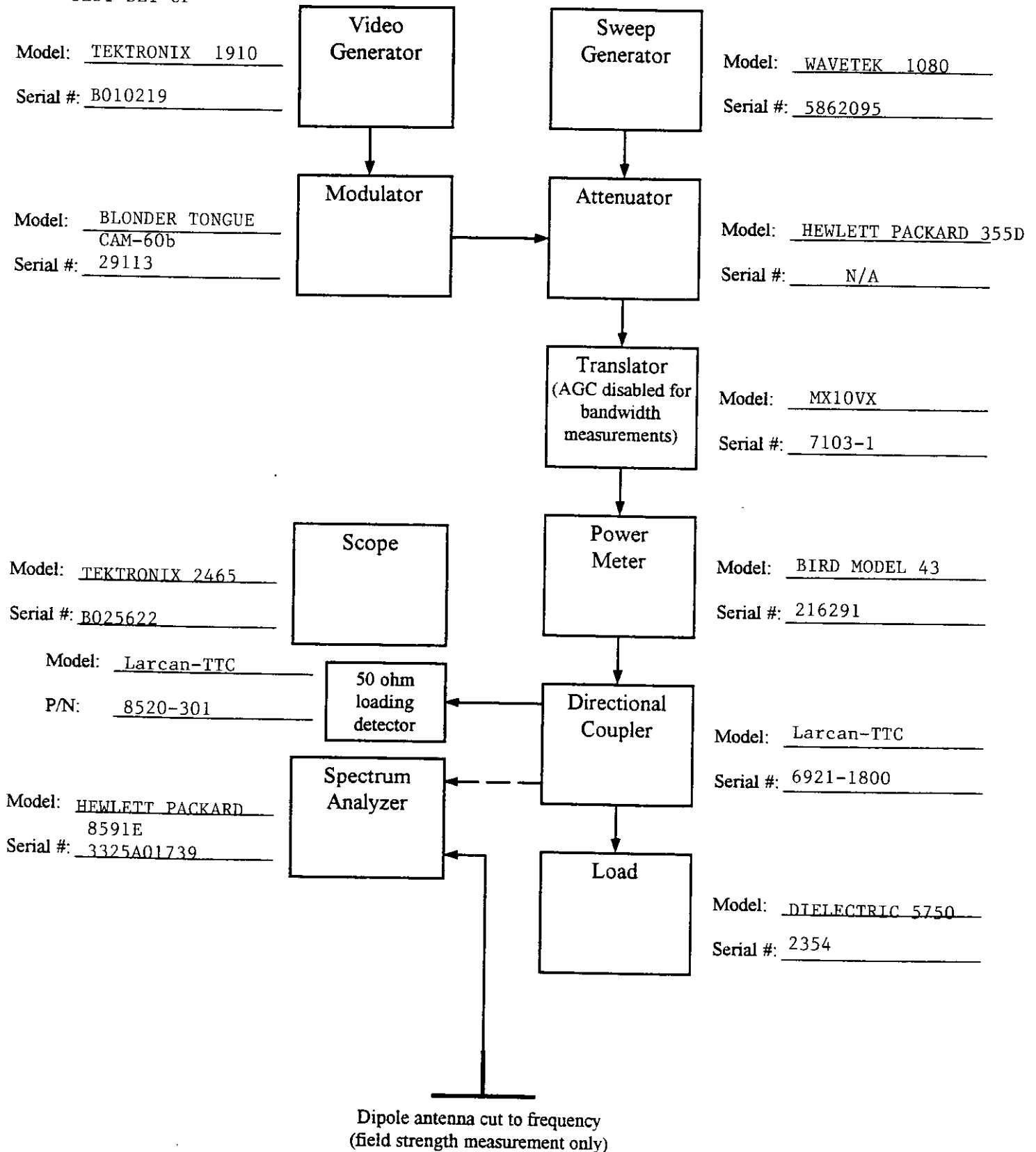
CHNL NO	VIDEO	LO	SWITCH ONE 1 = ON = DOWN										SWITCH TWO 1 = ON = DOWN							
			1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8
55	409.2500	455.00	1	1	1	0	0	0	1	1	1	0	0	1	1	1	1	1	0	0
56	415.2500	461.00	1	1	1	1	1	1	0	1	1	0	0	1	1	1	1	1	0	1
57	421.2500	467.00	0	0	0	1	1	1	0	1	1	0	0	1	1	1	1	1	0	0
58	427.2500	473.00	0	0	0	0	1	1	0	1	1	0	0	1	1	1	1	1	0	1
59	433.2500	479.00	1	0	0	1	0	1	0	1	1	0	0	1	1	1	1	1	0	0
60	439.2500	485.00	1	0	0	0	0	1	0	1	1	0	0	1	1	1	1	1	0	1
61	445.2500	491.00	0	1	0	1	1	0	0	1	1	0	0	1	1	1	1	1	0	0
62	451.2500	497.00	0	1	0	0	1	0	0	1	1	0	0	1	1	1	1	1	0	1
63	457.2500	503.00	1	1	0	1	0	0	0	1	1	0	0	1	1	1	1	1	0	0
64	463.2500	509.00	1	1	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0	1
65	469.2500	515.00	0	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	0	0
66	475.2500	521.00	0	0	1	0	1	1	1	0	1	0	1	1	1	1	1	1	0	1
67	481.2500	527.00	1	0	1	1	0	1	1	0	1	0	1	1	1	1	1	1	0	0
68	487.2500	533.00	1	0	1	0	0	1	1	0	1	0	1	1	1	1	1	1	0	1
69	493.2500	539.00	0	1	1	1	1	0	1	0	1	0	1	1	1	1	1	1	0	0
70	499.2500	545.00	0	1	1	0	1	0	1	0	1	0	1	1	1	1	1	1	0	1
71	505.2500	551.00	1	1	1	1	0	0	1	0	1	0	1	1	1	1	1	1	0	0
72	511.2500	557.00	1	1	1	0	0	0	1	0	1	0	1	1	1	1	1	1	0	1
73	517.2500	563.00	0	0	0	0	0	0	1	0	1	0	1	1	1	1	1	1	0	0
74	523.2500	569.00	0	0	0	1	1	1	0	0	1	0	1	1	1	1	1	1	0	1
75	529.2500	575.00	1	0	0	0	1	1	0	0	1	0	1	1	1	1	1	1	0	0
76	535.2500	581.00	1	0	0	1	0	1	0	0	1	0	1	1	1	1	1	1	0	1
77	541.2500	587.00	0	1	0	0	0	1	0	0	1	0	1	1	1	1	1	1	0	0
78	547.2500	593.00	0	1	0	1	1	0	0	0	1	0	1	1	1	1	1	1	0	1
79	553.2500	599.00	1	1	0	0	1	0	0	0	1	0	1	1	1	1	1	1	0	0
80	559.2500	605.00	1	1	0	1	0	0	0	0	1	0	1	1	1	1	1	1	0	1
81	565.2500	611.00	0	0	1	0	0	0	0	0	1	0	1	1	1	1	1	1	0	0
82	571.2500	617.00	0	0	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	1
83	577.2500	623.00	1	0	1	0	1	1	1	1	0	0	1	1	1	1	1	1	0	0
84	583.2500	629.00	1	0	1	1	0	1	1	1	0	0	1	1	1	1	1	1	0	1
85	589.2500	635.00	0	1	1	0	0	1	1	1	0	0	1	1	1	1	1	1	0	0
86	595.2500	641.00	0	1	1	1	1	0	1	1	0	0	1	1	1	1	1	1	0	1
87	601.2500	647.00	1	1	1	0	1	0	1	1	0	0	1	1	1	1	1	1	0	0
88	607.2500	653.00	1	1	1	1	0	0	1	1	0	0	1	1	1	1	1	1	0	1
89	613.2500	659.00	0	0	0	1	0	0	1	1	0	0	1	1	1	1	1	1	0	0
90	619.2500	665.00	0	0	0	0	0	0	1	1	0	0	1	1	1	1	1	1	0	1
91	625.2500	671.00	1	0	0	1	1	1	0	1	0	0	1	1	1	1	1	1	0	0
92	631.2500	677.00	1	0	0	0	1	1	0	1	0	0	1	1	1	1	1	1	0	1
93	637.2500	683.00	0	1	0	1	0	1	0	1	0	0	1	1	1	1	1	1	0	0
94	643.2500	689.00	0	1	0	0	0	1	0	1	0	0	1	1	1	1	1	1	0	1
100	649.2500	695.00	1	1	0	1	1	0	0	1	0	0	1	1	1	1	1	1	0	0
101	655.2500	701.00	1	1	0	0	1	0	0	1	0	0	1	1	1	1	1	1	0	1
102	661.2500	707.00	0	0	1	1	0	0	0	1	0	0	1	1	1	1	1	1	0	0
103	667.2500	713.00	0	0	1	0	0	0	0	1	0	0	1	1	1	1	1	1	0	1
104	673.2500	719.00	1	0	1	1	1	1	1	0	0	0	1	1	1	1	1	1	0	0
105	679.2500	725.00	1	0	1	0	1	1	1	0	0	0	1	1	1	1	1	1	0	1
106	685.2500	731.00	0	1	1	1	0	1	1	0	0	0	1	1	1	1	1	1	0	0
107	691.2500	737.00	0	1	1	0	0	1	1	0	0	0	1	1	1	1	1	1	0	1
108	697.2500	743.00	1	1	1	1	1	0	1	0	0	0	1	1	1	1	1	1	0	0
109	703.2500	749.00	1	1	1	0	1	0	1	0	0	0	1	1	1	1	1	1	0	1
110	709.2500	755.00	0	0	0	0	1	0	1	0	0	0	1	1	1	1	1	1	0	0
111	715.2500	761.00	0	0	0	1	0	0	1	0	0	0	1	1	1	1	1	1	0	1
112	721.2500	767.00	1	0	0	0	0	0	1	0	0	0	1	1	1	1	1	1	0	0
113	727.2500	773.00	1	0	0	1	1	1	0	0	0	0	1	1	1	1	1	1	0	1
114	733.2500	779.00	0	1	0	0	1	1	0	0	0	0	1	1	1	1	1	1	0	0

OUTPUT CHANNEL SELECTION

CHNL NO	VIDEO	LO	SWITCH ONE 1 = ON = DOWN										SWITCH TWO 1 = ON = DOWN							
			1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8
115	739.2500	785.00	0	1	0	1	0	1	0	0	0	0	1	1	1	1	1	1	0	1
116	745.2500	791.00	1	1	0	0	0	1	0	0	0	0	1	1	1	1	1	1	0	0
117	751.2500	797.00	1	1	0	1	1	0	0	0	0	0	1	1	1	1	1	1	0	1
UHF																				
14	471.2500	517.00	1	0	0	1	1	1	1	0	1	0	1	1	1	1	1	1	0	1
15	477.2500	523.00	0	1	0	0	1	1	1	0	1	0	1	1	1	1	1	1	0	0
16	483.2500	529.00	0	1	0	1	0	1	1	0	1	0	1	1	1	1	1	1	0	1
17	489.2500	535.00	1	1	0	0	0	1	1	0	1	0	1	1	1	1	1	1	0	0
18	495.2500	541.00	1	1	0	1	1	0	1	0	1	0	1	1	1	1	1	1	0	1
19	501.2500	547.00	0	0	1	0	1	0	1	0	1	0	1	1	1	1	1	1	0	0
20	507.2500	553.00	0	0	1	1	0	0	1	0	1	0	1	1	1	1	1	1	0	1
21	513.2500	559.00	1	0	1	0	0	0	1	0	1	0	1	1	1	1	1	1	0	0
22	519.2500	565.00	1	0	1	1	1	1	0	0	1	0	1	1	1	1	1	1	0	1
23	525.2500	571.00	0	1	1	0	1	1	0	0	1	0	1	1	1	1	1	1	0	0
24	531.2500	577.00	0	1	1	1	0	1	0	0	1	0	1	1	1	1	1	1	0	1
25	537.2500	583.00	1	1	1	0	0	1	0	0	1	0	1	1	1	1	1	1	0	0
26	543.2500	589.00	1	1	1	1	1	0	0	0	0	1	0	1	1	1	1	1	0	1
27	549.2500	595.00	0	0	0	1	1	0	0	0	0	1	0	1	1	1	1	1	0	0
28	555.2500	601.00	0	0	0	0	1	0	0	0	0	1	0	1	1	1	1	1	0	1
29	561.2500	607.00	1	0	0	1	0	0	0	0	0	1	0	1	1	1	1	1	0	0
30	567.2500	613.00	1	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	0	1
31	573.2500	619.00	0	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0
32	579.2500	625.00	0	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1	0	1
33	585.2500	631.00	1	1	0	1	0	1	1	1	0	0	1	1	1	1	1	1	0	0
34	591.2500	637.00	1	1	0	0	0	1	1	1	0	0	1	1	1	1	1	1	0	1
35	597.2500	643.00	0	0	1	1	1	0	1	1	0	0	1	1	1	1	1	1	0	0
36	603.2500	649.00	0	0	1	0	1	0	1	1	0	0	1	1	1	1	1	1	0	1
37	609.2500	655.00	1	0	1	1	0	0	1	1	0	0	1	1	1	1	1	1	0	0
38	615.2500	661.00	1	0	1	0	0	0	1	1	0	0	1	1	1	1	1	1	0	1
39	621.2500	667.00	0	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	0	0
40	627.2500	673.00	0	1	1	0	1	1	0	1	0	0	1	1	1	1	1	1	0	1
41	633.2500	679.00	1	1	1	1	0	1	0	1	0	0	1	1	1	1	1	1	0	0
42	639.2500	685.00	1	1	1	0	0	1	0	1	0	0	1	1	1	1	1	1	0	1
43	645.2500	691.00	0	0	0	0	0	1	0	1	0	0	1	1	1	1	1	1	0	0
44	651.2500	697.00	0	0	0	1	1	0	0	1	0	0	1	1	1	1	1	1	0	1
45	657.2500	703.00	1	0	0	0	1	0	0	1	0	0	1	1	1	1	1	1	0	0
46	663.2500	709.00	1	0	0	1	0	0	0	1	0	0	1	1	1	1	1	1	0	1
47	669.2500	715.00	0	1	0	0	0	0	0	1	0	0	1	1	1	1	1	1	0	0
48	675.2500	721.00	0	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	0	1
49	681.2500	727.00	1	1	0	0	1	1	1	0	0	0	1	1	1	1	1	1	0	0
50	687.2500	733.00	1	1	0	1	0	1	1	0	0	0	1	1	1	1	1	1	0	1
51	693.2500	739.00	0	0	1	0	0	1	1	0	0	0	1	1	1	1	1	1	0	0
52	699.2500	745.00	0	0	1	1	1	0	1	0	0	0	1	1	1	1	1	1	0	1
53	705.2500	751.00	1	0	1	0	1	0	1	0	0	0	1	1	1	1	1	1	0	0
54	711.2500	757.00	1	0	1	1	0	0	1	0	0	0	1	1	1	1	1	1	0	1
55	717.2500	763.00	0	1	1	0	0	0	1	0	0	0	1	1	1	1	1	1	0	0
56	723.2500	769.00	0	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	1
57	729.2500	775.00	1	1	1	0	1	1	0	0	0	0	1	1	1	1	1	1	0	0
58	735.2500	781.00	1	1	1	1	0	1	0	0	0	0	1	1	1	1	1	1	0	1
59	741.2500	787.00	0	0	0	1	0	1	0	0	0	0	1	1	1	1	1	1	0	0
60	747.2500	793.00	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	1	0	1
61	753.2500	799.00	1	0	0	1	1	0	0	0	0	0	1	1	1	1	1	1	0	0

APPLICATION FOR FCC CERTIFICATION
BZ5MX10VX
HETERODYNE PROCESSOR INPUT
10 WATT VHF TRANSLATOR

EXHIBIT 3
TEST SET-UP



APPLICATION FOR FCC CERTIFICATION
 BZ5MX10VX
 HETERODYNE PROCESSOR INPUT
 10 WATT VHF TRANSLATOR

EXHIBIT 4a

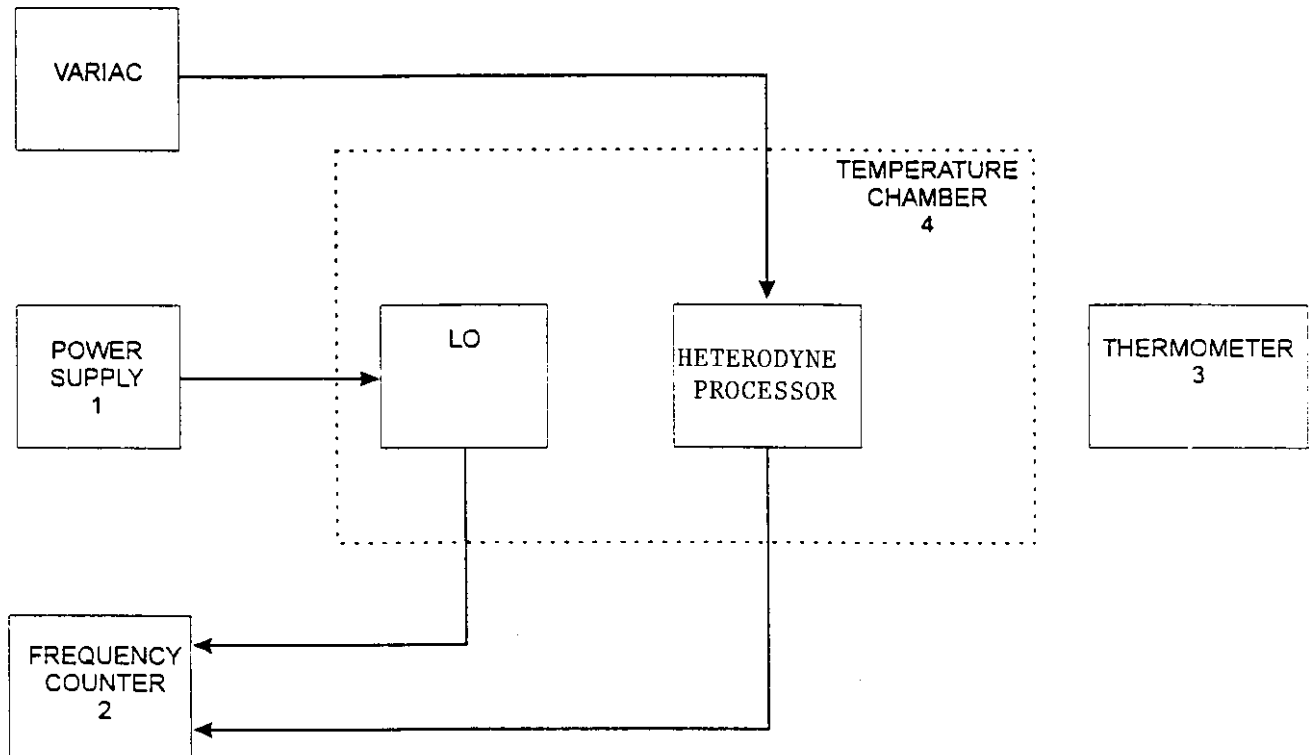
PAGE 1

FREQUENCY DRIFT VS. TEMPERATURE
 SAIP-60-750 HETERODYNE PROCESSOR

DEGREES C	MEASURED LO FREQUENCY(Hz)	DEVIATION(Hz)	DEVIATION(%)
+50	193,246,934	-856	-0.000443
+40	193,247,366	-424	-0.000219
+30	193,247,690	-100	-0.000052
+25	193,247,790	0	0.0000
+20	193,248,025	235	0.000122
+10	193,248,506	716	0.000371
0	193,249,345	1555	0.000805
-10	193,249,950	2160	0.001118
-20	193,250,650	2860	0.001480
-30	193,251,430	3640	0.001884

APPLICATION FOR FCC CERTIFICATION
BZ5MX10VX
HETERODYNE PROCESSOR INPUT
10 WATT VHF TRANSLATOR

EXHIBIT 4b
TEMPERATURE



NOTES AND EQUIPMENT LIST

1. POWER SUPPLY - HP6012A - SERIAL NUMBER 2329A-02181
2. FREQUENCY COUNTER - HP5334B - SERIAL NUMBER 2937A05503
3. THERMOMETER - FLUKE 77/80T-150U
4. THERMOSTATICALLY CONTROLLED TEMPERATURE CHAMBER, ASSOCIATED

APPLICATION FOR FCC CERTIFICATION
 BZ5MX10VX
 HETERODYNE PROCESSOR INPUT
 10 WATT VHF TRANSLATOR

EXHIBIT 5

PAGE 1

TABULATED AGC DATA

INPUT LEVEL(dB)	RELATIVE OUTPUT dB=100% OUTPUT POWER
-20	-0.1
-15	-0.1
-10	-0.1
-5	0
500uV=0dB	0.0
+5	0
+10	0
+15	0
+20	-0.1
-20	-0.1
-15	0
-10	0
-5	0
1000uV=0dB	0.0
+5	0
+10	0
+15	0
+20	-0.1
+25	-0.1
-20	0
-15	0
-10	0
-5	0
5000uV=0dB	0.0
+5	0
+10	0
+15	-0.1
+20	-0.1

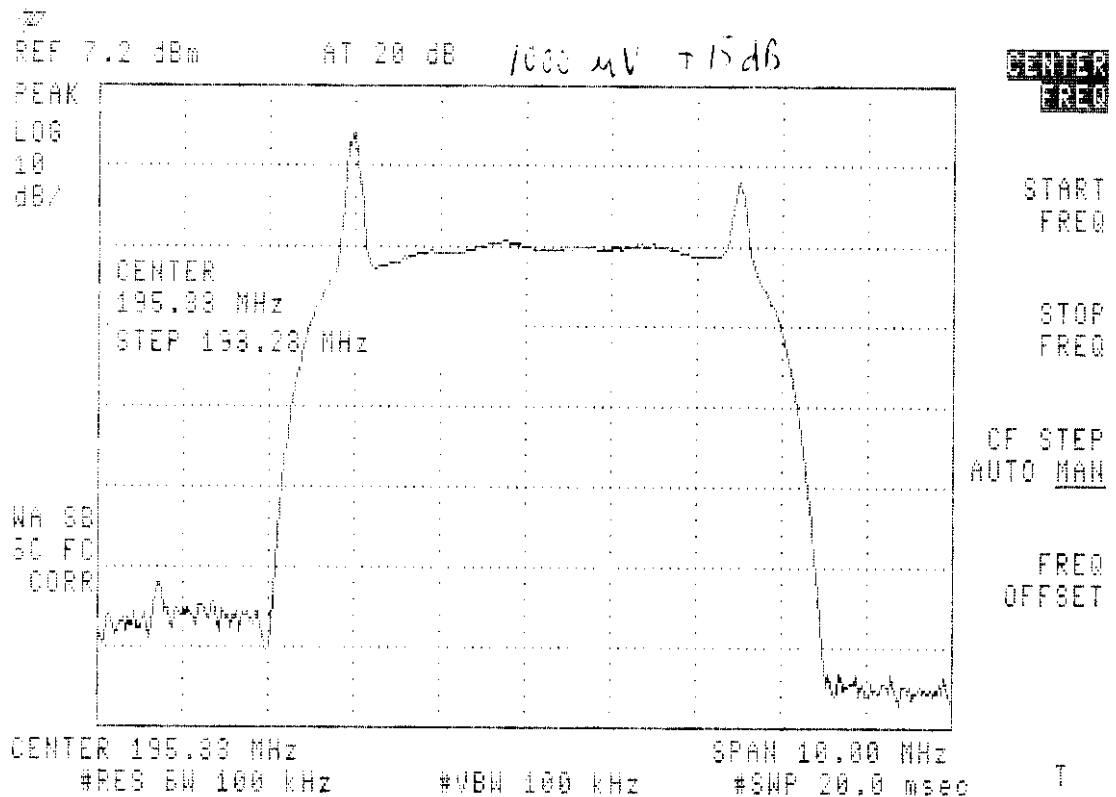
APPLICATION FOR FCC CERTIFICATION

BZ5MX10VX

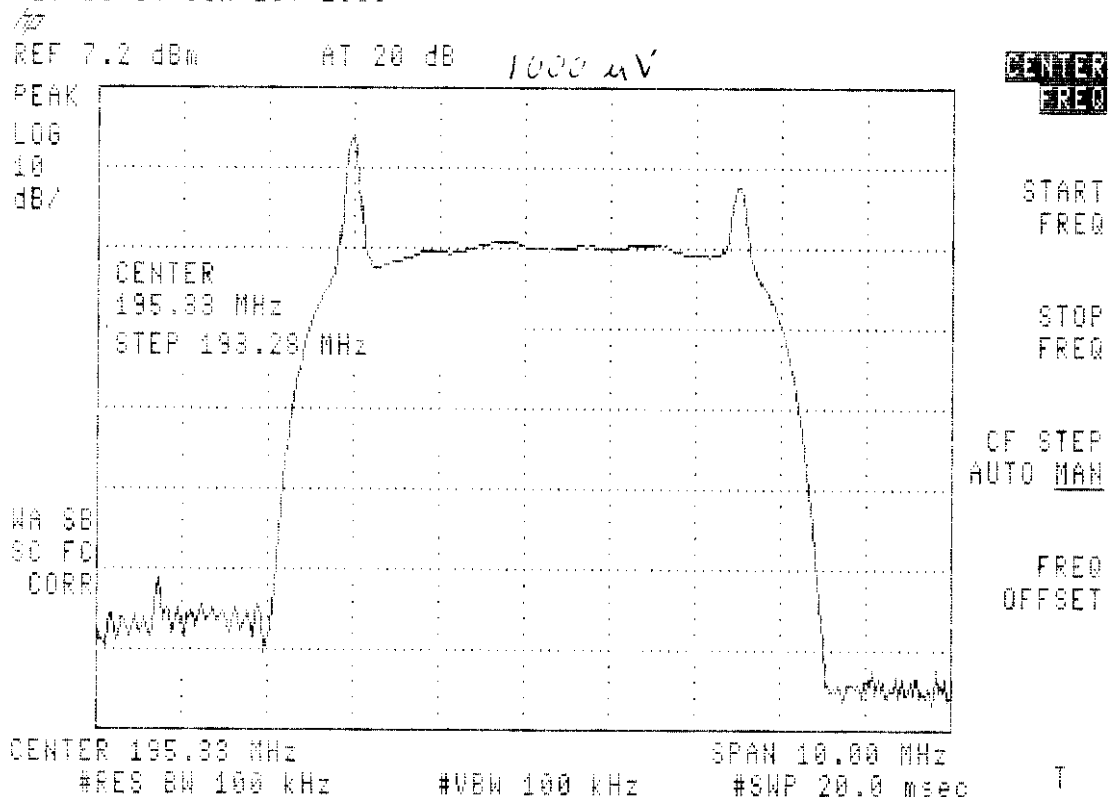
HETERODYNE PROCESSOR INPUT

EXHIBIT 6a

15:25:01 JUN 15, 1999

**EXHIBIT 6b**

15:25:54 JUN 15, 1999



APPLICATION FOR FCC CERTIFICATION
BZ5MX10VX
HETERODYNE PROCESSOR INPUT
EXHIBIT 6c

15:27:01 JUN 15, 1999

✓

REF 7.2 dBm

AT 20 dB

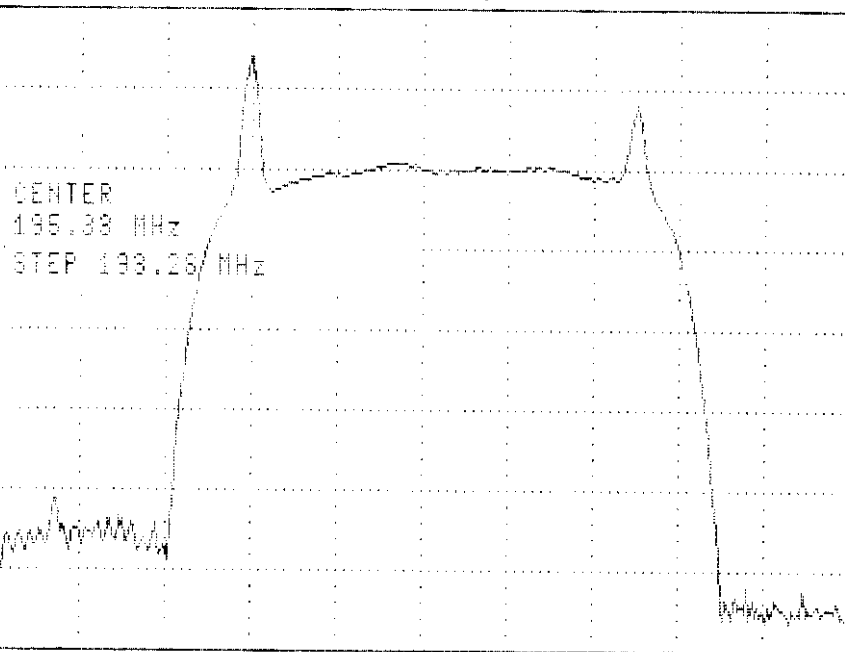
1000V - 1>AB

PEAK

LOG

10

dB



CENTER

195.38 MHz

STEP 193.26 MHz

NA SB

SC FC

CORR

CENTER
FREQ

START
FREQ

STOP
FREQ

CF STEP
AUTO MAN

FREQ
OFFSET

CENTER 195.38 MHz

#RES BW 100 kHz

#VBW 100 kHz

SPAN 10.00 MHz

#SWP 20.0 msec

T

APPLICATION FOR FCC CERTIFICATION
 BZ5MX10VX
 HETERODYNE PROCESSOR INPUT
 10 WATT VHF TRANSLATOR

EXHIBIT 7

PAGE 1

ACTIVE DEVICES AND FUNCTION LIST

MODULE:	PHASE SHIFTER #10A1354G5	(LOW BAND)
DEVICE	TYPE	FUNCTION
U2	MHW6185	Hybrid Amplifier
U3	MC7824CT	Voltage Regulator
MODULE:	PHASE SHIFTER #10A1354G4	(HIGH BAND)
DEVICE	TYPE	FUNCTION
U2	MHW6185	Hybrid Amplifier
U3	MC7824CT	Voltage Regulator
U4	MWA330	RF Amplifier
MODULE:	PA MODULE #30C1054G3	(LOW BAND)
DEVICE	TYPE	FUNCTION
Q1	SRF3943-2	Class A Transistor
MODULE:	PA MODULE # 20B1226G1	(HIGH BAND)
DEVICE	TYPE	FUNCTION
Q1	SRF3943-2	Class A Amplifier
MODULE:	POWER METERING BOARD #20B1235G7	
DEVICE	TYPE	FUNCTION
Q1,Q2	MPS8598	Amplifier
U2,U3,U4	LM358N	Operational Amplifier
MODULE:	CONTROL BOARD #30C1829G2	
DEVICE	TYPE	FUNCTION
K1	DS1E0SL20DC12V	Latching Relay
U3	ILQ1	Optical Isolator

APPLICATION FOR FCC CERTIFICATION
BZ5MX10VX
HETERODYNE PROCESSOR INPUT
10 WATT VHF TRANSLATOR

EXHIBIT 8

PAGE 1

FCC IDENTIFICATION LABEL

LARCAN INC.			
TV TRANSMITTER			
MODEL NO.		S/N	
RATED PWR		TPO	
VOLTS	120	KVA	
HERTZ	60	P.F.	
D.O.C. TYPE APPROVAL			
FCC ID: BZ5MX10VX			
MADE IN CANADA			

APPLICATION FOR FCC CERTIFICATION
BZ5MX10VX
HETERODYNE PROCESSOR INPUT
10 WATT VHF TRANSLATOR

EXHIBIT 9

PAGE 1

Power requirements for the 10 Watt VHF Translator were determined as follows:

1. The translator's visual power meter measures the peak visual power by reading the average levels of a detected sample of the output. The meter is calibrated by multiplying the above visual power reading by 168%. The visual metering circuitry has a negligible response to the aural power due to the large (>10MHz) detector bandwidth. When the detector bandwidth is this large, the detector does not peak detect the intercarrier beat product.
2. The aural power is measured by reading the peak level of the detected 4.5MHz intercarrier product. The level of this product has a direct correspondence to the aural power level and is independent of the visual power as long as the peak visual power exceeds the aural power. This is always true for normal operation.

BZ5MX10VX
POWER MEASUREMENTS

MEASURED VISUAL POWER	MEASURED AURAL POWER	SUPPLY CURRENT TO OUTPUT DEVICES VISUAL ONLY	SUPPLY CURRENT TO OUTPUT DEVICES VISUAL & AURAL
NOTE 1	NOTE 2	NOTE 3	NOTE 3
5.95 WATTS	1.0 WATTS	2.3 AMPS	2.4 AMPS

NOTE 1: Measured on the Model 43 Bird Wattmeter with the visual carrier modulated by the standard synchronizing signal at 75% of peak amplitude and the aural carrier disabled.

NOTE 2: Measured on the Model 43 Bird Wattmeter with the visual carrier disabled.

NOTE 3: The voltage across the output devices on all models is +48 volts. The output devices are operated Class AB.

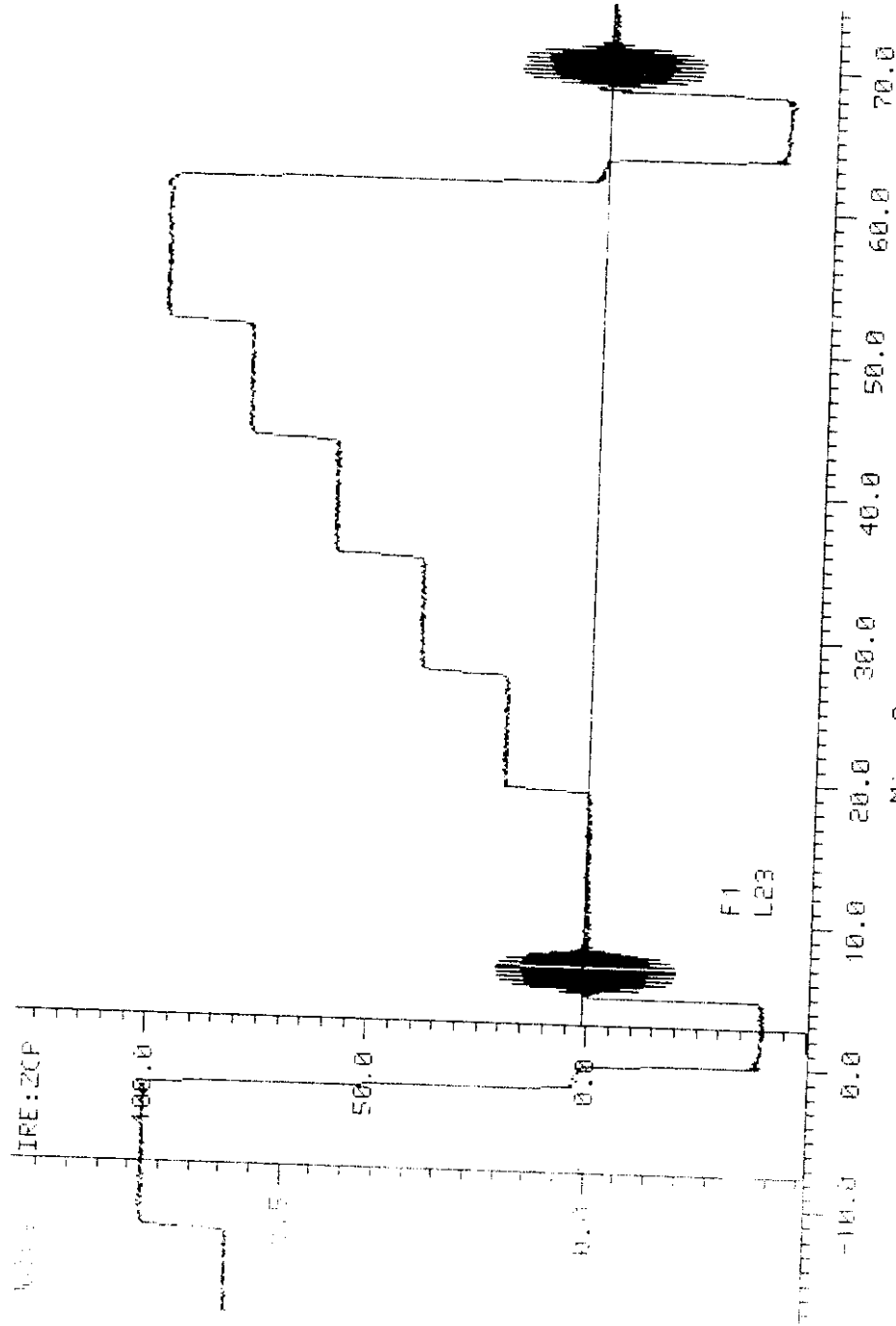
APPLICATION FOR FCC CERTIFICATION
BZ5MX10VX
HETERODYNE PROCESSOR INPUT
10 WATT VHF TRANSLATOR

EXHIBIT 10a

UM700H Video Measurement Set

17-Apr-82 23:18:51

Channel A System Default



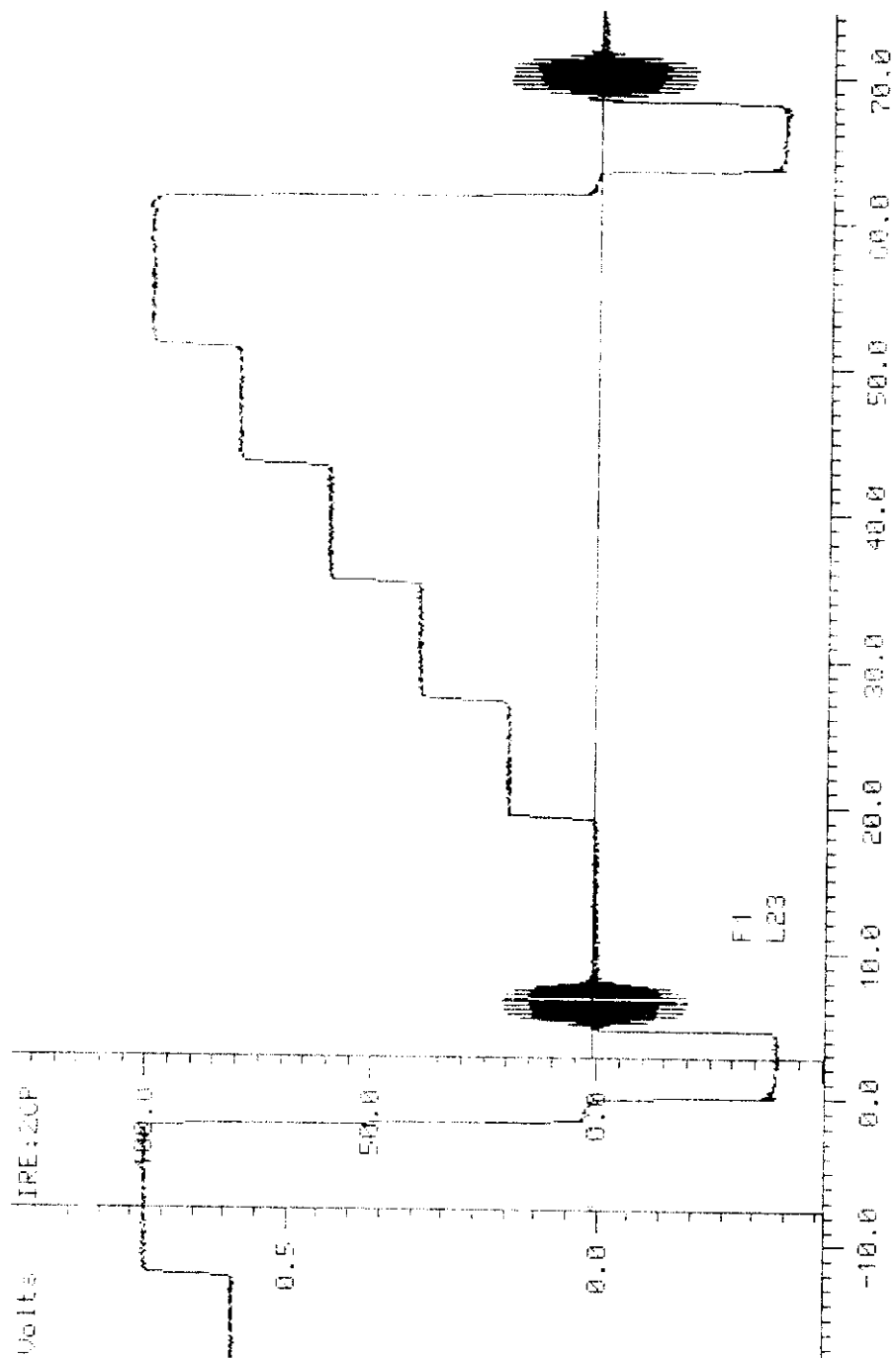
RFI = 51.6%
525 Line NTSC No Filtering
Slow clamp to 0.00 V at 6.63 uS
Precision Mode Off
Synchronous Sync = Source
Frames selected: 1 2

EXHIBIT 10b

UMP000A Video Measurement Set

Channel H System Default

17 Apr -32 23:18:50



APL = 51.6%
525 line NTSC No Filtering
Slow clamp to 0.00 V at 6.63 us

Precision Mode Off
Synchronous Sync = Source
Frames selected: 1 2

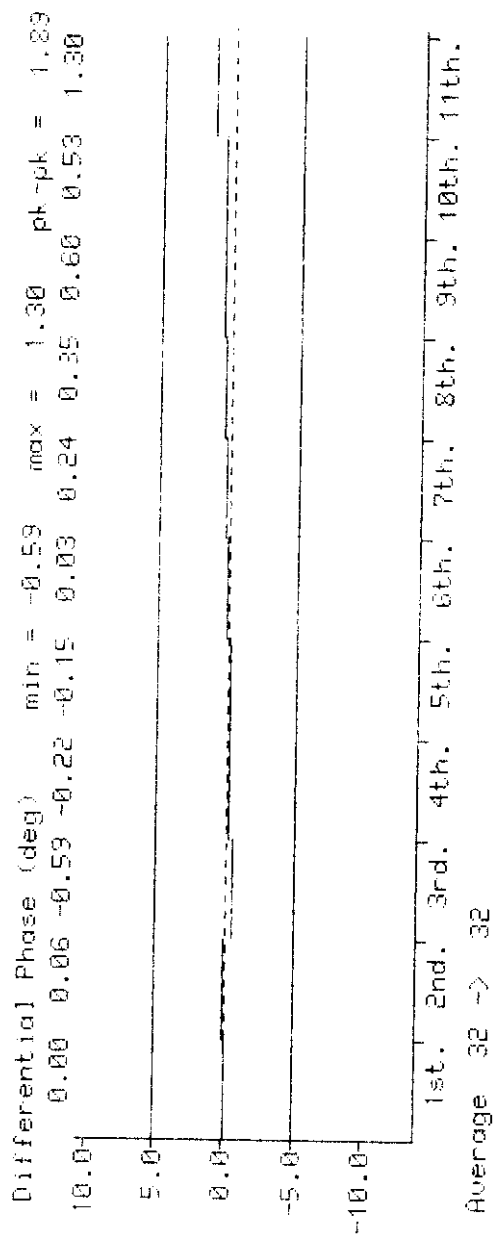
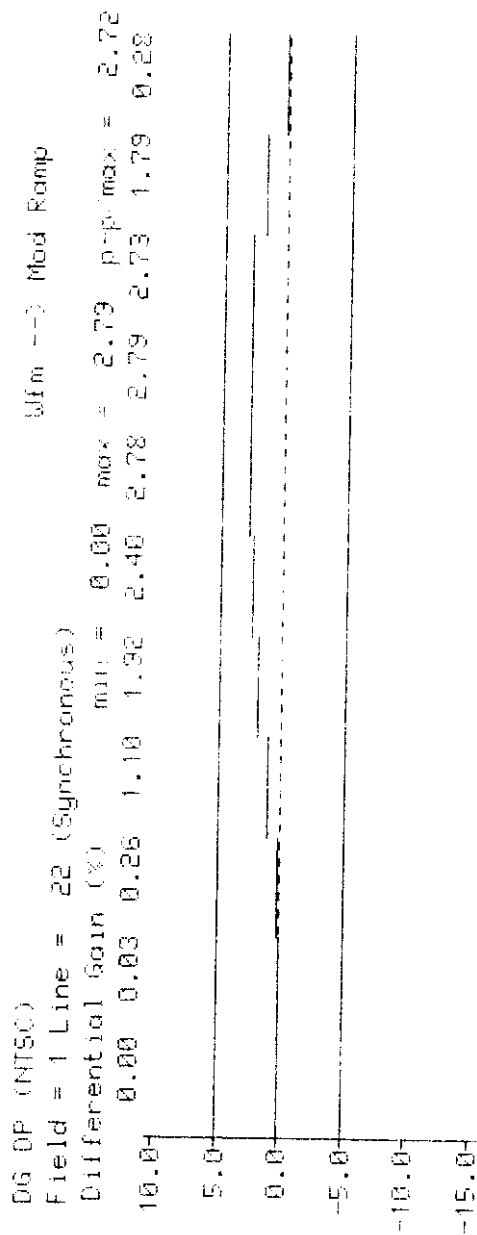
EXHIBIT 10c

EXHIBIT 10d

UM700H Video Measurement Set

Channel H System Default

17-Apr-32 23:14:20



APPLICATION FOR FCC CERTIFICATION
BZ5MX10VX
HETERODYNE PROCESSOR INPUT
10 WATT VHF TRANSLATOR

EXHIBIT 11a

PAGE 1

OVERALL GROUP DELAY

FREQUENCY(MHz)	OVERALL DELAY(nS)
0.20	0 (Reference)
0.40	0
0.60	-10
0.80	+10
1.00	+30
1.20	0
1.40	+20
1.60	0
1.80	+20
2.00	+30
2.20	+30
2.40	+10
2.60	+30
2.80	+30
3.00	0
3.20	-30
3.40	-100
3.58	-180
3.80	-250
4.00	-320
4.18	-330

APPLICATION FOR FCC CERTIFICATION
BZ5MX10VX
HETERODYNE PROCESSOR INPUT
10 WATT VHF TRANSLATOR

EXHIBIT 11b

UM700A Video Measurement Set

Channel A System Default

17-Apr-82 22:24:11

Wfm --> Sin X/X

Group Delay & Gain (NFSC)

Field = 1 Line = 23 (Synchronous)

Amplitude (dB) (Ref. at 0.20 MHz)

