

## **EXHIBIT 6**

### **INSTRUCTION MANUAL FOR SSBXL20-10MED**

#### **XX WARNING XX**

#### **ANYONE ATTEMPTING TO MAKE THIS MODIFICATION MUST READ ALL INSTRUCTIONS AND WARNINGS TO INSURE COMPLIANCE TO THE FCC REQUIREMENTS**

The SSBXL20-10MED Kit is comprised of a MEDEX P617, 8VSB Digital Processor, EMR Low Pass Filter, a Meter Calibrator Circuit, Labels, Manuals and Attenuators. Do not attempt this conversion without a digital 8VSB signal and the following test equipment:

Spectrum Analyzer

Resistive Dummy Load at least 20 Watts

Soldering Iron

Digital Milivolt Meter

A Camera to document your tests

Installation Steps: Refer to the SSBXL20-10MED Manual for parts locations.

1. Turn off the XL Translator, remove the top cover.
2. Remove the following modules: Input Amplifier (TP1) or Downconverter (UVCA), the AGC Amp (TVA2), Oscillator (ULO), and Mixer (Upconverter).
3. Install the BNC to N Adapter. On the input of the 1 Watt Amp, connect the BNC

input cable to the connector.

4. Turn to pages 19, 20, & 21, Meter Calibration.
5. Remove the cable from the isolator (blue box on output of last amp). Install the EMR filter to the isolator and connect the cable to the filter. The filter is now stalled between the isolator and the 3 Pole filter.
- 6. Warning: Be sure the level control on the P617 is turned counter clockwise to the stop, all the way down.** Install the 10 dB attenuator on the output of the P617, then connect the cable from the attenuator to the translator.
7. Connect the spectrum analyzer to the BNC test jack on the front panel.
8. Install the Dummy Load on the translator output connector.
9. Turn on the P617, set the input channel, the channel number should stop blinking and the lock light should be lit.
10. Set the output channel on the P617.

This completes the installation. Next is the test phase of the update kit. Turn to page 22.

#### Steps to Calibrate Power Meter for Digital on the Power Meter Board

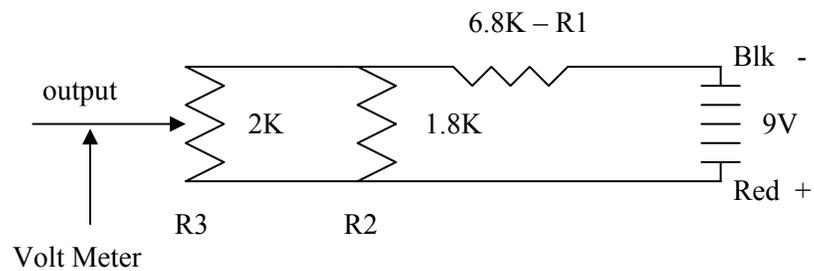
1. Remove the power metering board, with the BNC Connectors to the left
2. Move the right end of R922 (10K) to the right end of R924 (10K). R922 is located next to Pot R921. (See drawing XL4140-1 and XL 4140-2). Solder a 1/2" high wire to the junction of R918 and R919, located between the 2 IC;s for a test point.
3. Set S902 to average power and replace the board. Set S901 for forward power (on the front panel).
4. Bolt the calibrator to the box on the front right cover with the lid bolt. Connect the 9V battery. With a digital volt meter, with the + lead to ground, measure the output wire and set the calibration pot R3 for the following levels:
5. {XL20 for 5 watts of digital = 250 MV  
{XL10 for 2.5 watts of digital = 150 MV.

6. Connect the output wire of the calibrator to the wire test point on the power metering board. Turn on the translator, with out input signal.
7. Adjust R921 (forward) and R923 average for a reading of 10 watts on the visual Power Meter scale. This represents 100% digital power for the level set in step 5.

To set reflected power

8. Remove the BNC connector J904, move the BNC Connector J902 to the J904 jack.
9. With the switch S901 (on front panel) in the reflected position, adjust R936 reverse calibrate for a reading of 10 watts.
10. Turn off the Translator.
11. Replace BNC connectors to normal.
12. Remove the power calibrator, disconnect the battery. (Save the calibrator, you may want to check the calibration again.)
13. Return to page 18, Step 5.

Meter Calibrator



4.14: POWER METERING BOARD

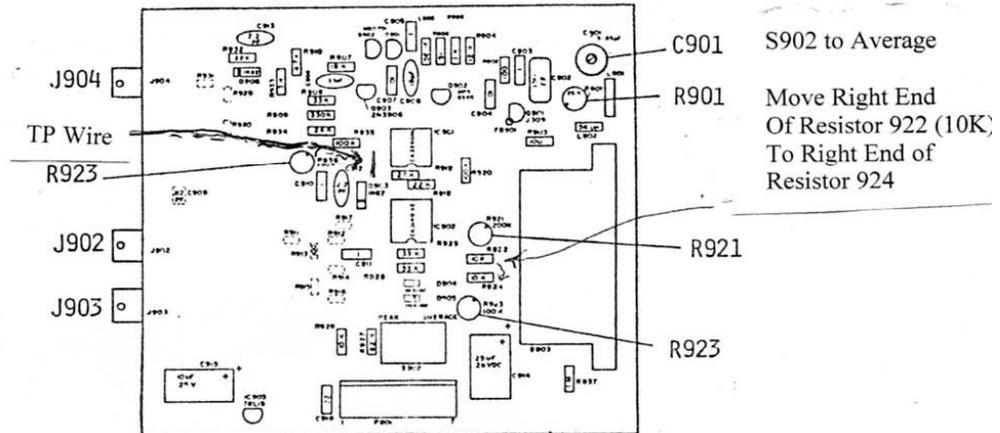
4.14.1: Specifications:

Frequency Range.....470 to 890 MHz  
Metering .....0-40 watts peak sync forward  
and reverse  
0-4 watts average aural  
Input Level.....+16 dBm input for a 40 watt  
indication on meter  
Input Impedance.....50  $\Omega$ , type BNC  
Monitor Output.....-14 dB referred to the input  
Power Requirements.....20-25 VDC @ 35 mA

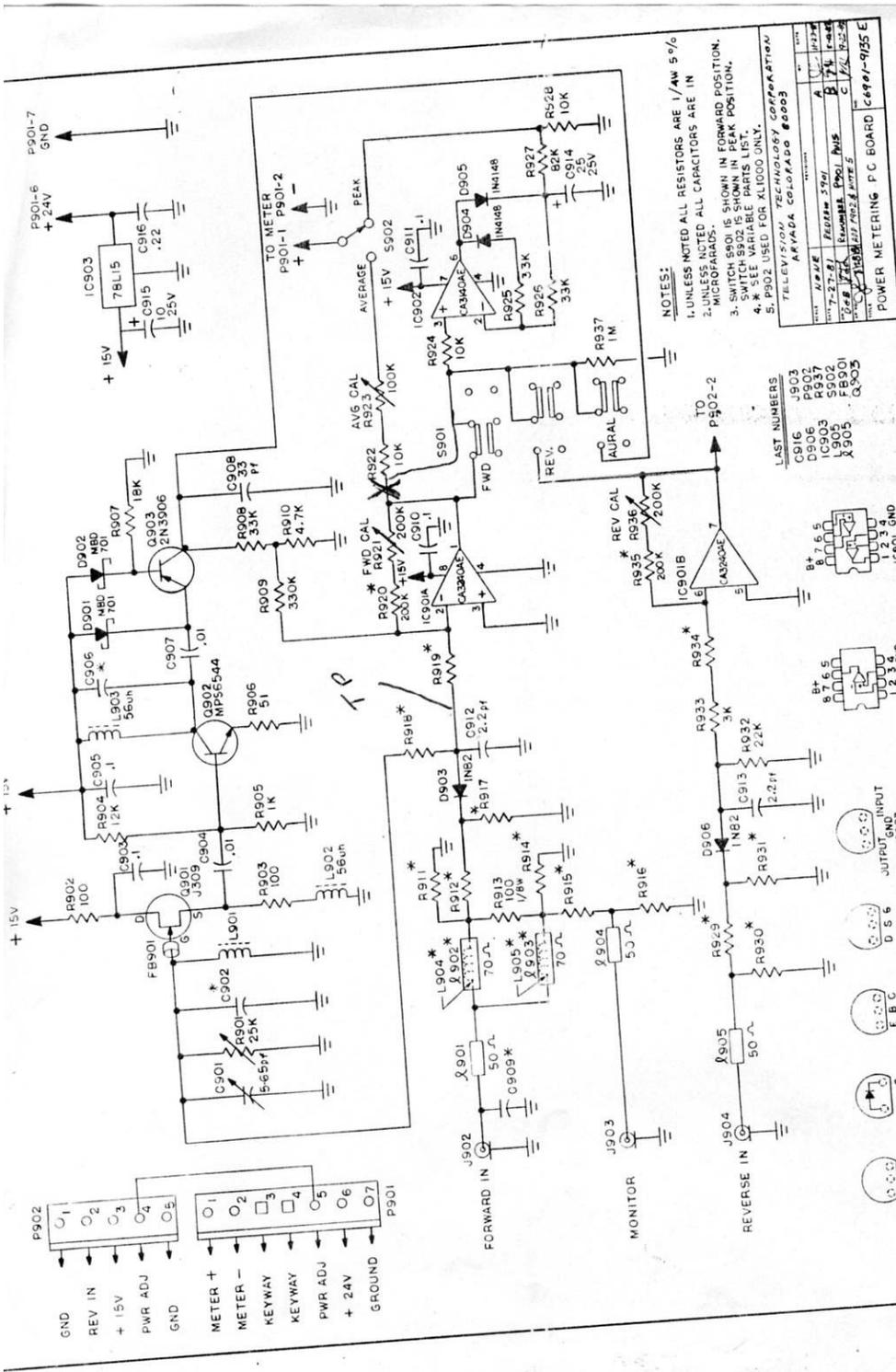
Alignment

4.14.2: Alignment of the power metering board consists of calibrating the Forward, reverse, and aural power metering. The board is calibrated with the directional coupler and replacement of the coupler will require recalibration of the board. An appropriate television signal calibrated by an external reference to be at a known peak sync and aural level must be used. The accuracy of the calibration is solely dependent on the accuracy of the reference. Refer to Figure 4.14.1 for location of the adjustment potentiometers. Commence the following procedure:

FIGURE 4.14.1  
POWER METERING BOARD



1. Feed the input of the coupler with the appropriate television signal. It is best to set the calibrating signal to the level desired for the best accuracy of the power metering.
2. Switch the power meter position to AURAL POWER. Tune C901 for a maximum reading on the meter and adjust R901 for the aural level of the output.
3. Switch the power meter position to FWD POWER. Adjust R921 for the proper peak sync output power.
4. Temporarily connect the cable from the forward output of the directional coupler to J904. (REVERSE IN). With the meter switch in the REVERSE position, adjust R936 for the same reading obtained in step 3.
5. Replace the cables. The meter should read less than 3% of the forward power.



**CONNECTIONS:**  
 P902: O1 GND, O2 REV IN, O3 +15V, O4 PWR ADJ, O5 GND  
 P901: O1 METER +, O2 METER -, O3 KEYWAY, O4 KEYWAY, O5 PWR ADJ, O6 +24V, O7 GROUND

**COMPONENTS:**  
 IC903: 78L15  
 IC902: MP5544  
 IC901: J309  
 IC904: D902  
 IC905: D901  
 IC906: D903  
 IC907: D904  
 IC908: D905  
 IC909: D906  
 IC910: D907  
 IC911: D908  
 IC912: D909  
 IC913: D910  
 IC914: D911  
 IC915: D912  
 IC916: D913  
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 IC992: D989  
 IC993: D990  
 IC994: D991  
 IC995: D992  
 IC996: D993  
 IC997: D994  
 IC998: D995  
 IC999: D996  
 IC1000: D997

**RESISTORS:**  
 R901: 100Ω, R902: 12K, R903: 100Ω, R904: 12K, R905: 1K, R906: 51Ω, R907: 18K, R908: 33K, R909: 330K, R910: 4.7K, R911: 100Ω, R912: 100Ω, R913: 100Ω, R914: 100Ω, R915: 100Ω, R916: 100Ω, R917: 100Ω, R918: 100Ω, R919: 100Ω, R920: 100Ω, R921: 100Ω, R922: 100Ω, R923: 100Ω, R924: 100Ω, R925: 100Ω, R926: 100Ω, R927: 100Ω, R928: 100Ω, R929: 100Ω, R930: 100Ω, R931: 100Ω, R932: 100Ω, R933: 100Ω, R934: 100Ω, R935: 100Ω, R936: 100Ω, R937: 100Ω, R938: 100Ω, R939: 100Ω, R940: 100Ω, R941: 100Ω, R942: 100Ω, R943: 100Ω, R944: 100Ω, R945: 100Ω, R946: 100Ω, R947: 100Ω, R948: 100Ω, R949: 100Ω, R950: 100Ω, R951: 100Ω, R952: 100Ω, R953: 100Ω, R954: 100Ω, R955: 100Ω, R956: 100Ω, R957: 100Ω, R958: 100Ω, R959: 100Ω, R960: 100Ω, R961: 100Ω, R962: 100Ω, R963: 100Ω, R964: 100Ω, R965: 100Ω, R966: 100Ω, R967: 100Ω, R968: 100Ω, R969: 100Ω, R970: 100Ω, R971: 100Ω, R972: 100Ω, R973: 100Ω, R974: 100Ω, R975: 100Ω, R976: 100Ω, R977: 100Ω, R978: 100Ω, R979: 100Ω, R980: 100Ω, R981: 100Ω, R982: 100Ω, R983: 100Ω, R984: 100Ω, R985: 100Ω, R986: 100Ω, R987: 100Ω, R988: 100Ω, R989: 100Ω, R990: 100Ω, R991: 100Ω, R992: 100Ω, R993: 100Ω, R994: 100Ω, R995: 100Ω, R996: 100Ω, R997: 100Ω, R998: 100Ω, R999: 100Ω, R1000: 100Ω

**CAPACITORS:**  
 C901: 5.65µF, C902: 25K, C903: 10µF, C904: 10µF, C905: 56µH, C906: 51, C907: .01, C908: 33pF, C909: 33, C910: 100, C911: .1, C912: 2.2µF, C913: 2.2µF, C914: 2.2µF, C915: 10, C916: .25, C917: .25, C918: .25, C919: .25, C920: .25, C921: .25, C922: .25, C923: .25, C924: .25, C925: .25, C926: .25, C927: .25, C928: .25, C929: .25, C930: .25, C931: .25, C932: .25, C933: .25, C934: .25, C935: .25, C936: .25, C937: .25, C938: .25, C939: .25, C940: .25, C941: .25, C942: .25, C943: .25, C944: .25, C945: .25, C946: .25, C947: .25, C948: .25, C949: .25, C950: .25, C951: .25, C952: .25, C953: .25, C954: .25, C955: .25, C956: .25, C957: .25, C958: .25, C959: .25, C960: .25, C961: .25, C962: .25, C963: .25, C964: .25, C965: .25, C966: .25, C967: .25, C968: .25, C969: .25, C970: .25, C971: .25, C972: .25, C973: .25, C974: .25, C975: .25, C976: .25, C977: .25, C978: .25, C979: .25, C980: .25, C981: .25, C982: .25, C983: .25, C984: .25, C985: .25, C986: .25, C987: .25, C988: .25, C989: .25, C990: .25, C991: .25, C992: .25, C993: .25, C994: .25, C995: .25, C996: .25, C997: .25, C998: .25, C999: .25, C1000: .25

**DIODES:**  
 D901: 1N4148, D902: 1N4148, D903: 1N4148, D904: 1N4148, D905: 1N4148, D906: 1N4148, D907: 1N4148, D908: 1N4148, D909: 1N4148, D910: 1N4148, D911: 1N4148, D912: 1N4148, D913: 1N4148, D914: 1N4148, D915: 1N4148, D916: 1N4148, D917: 1N4148, D918: 1N4148, D919: 1N4148, D920: 1N4148, D921: 1N4148, D922: 1N4148, D923: 1N4148, D924: 1N4148, D925: 1N4148, D926: 1N4148, D927: 1N4148, D928: 1N4148, D929: 1N4148, D930: 1N4148, D931: 1N4148, D932: 1N4148, D933: 1N4148, D934: 1N4148, D935: 1N4148, D936: 1N4148, D937: 1N4148, D938: 1N4148, D939: 1N4148, D940: 1N4148, D941: 1N4148, D942: 1N4148, D943: 1N4148, D944: 1N4148, D945: 1N4148, D946: 1N4148, D947: 1N4148, D948: 1N4148, D949: 1N4148, D950: 1N4148, D951: 1N4148, D952: 1N4148, D953: 1N4148, D954: 1N4148, D955: 1N4148, D956: 1N4148, D957: 1N4148, D958: 1N4148, D959: 1N4148, D960: 1N4148, D961: 1N4148, D962: 1N4148, D963: 1N4148, D964: 1N4148, D965: 1N4148, D966: 1N4148, D967: 1N4148, D968: 1N4148, D969: 1N4148, D970: 1N4148, D971: 1N4148, D972: 1N4148, D973: 1N4148, D974: 1N4148, D975: 1N4148, D976: 1N4148, D977: 1N4148, D978: 1N4148, D979: 1N4148, D980: 1N4148, D981: 1N4148, D982: 1N4148, D983: 1N4148, D984: 1N4148, D985: 1N4148, D986: 1N4148, D987: 1N4148, D988: 1N4148, D989: 1N4148, D990: 1N4148, D991: 1N4148, D992: 1N4148, D993: 1N4148, D994: 1N4148, D995: 1N4148, D996: 1N4148, D997: 1N4148, D998: 1N4148, D999: 1N4148, D1000: 1N4148

**INDUCTORS:**  
 L901: 56µH, L902: 156µH, L903: 56µH, L904: 56µH, L905: 56µH, L906: 56µH, L907: 56µH, L908: 56µH, L909: 56µH, L910: 56µH, L911: 56µH, L912: 56µH, L913: 56µH, L914: 56µH, L915: 56µH, L916: 56µH, L917: 56µH, L918: 56µH, L919: 56µH, L920: 56µH, L921: 56µH, L922: 56µH, L923: 56µH, L924: 56µH, L925: 56µH, L926: 56µH, L927: 56µH, L928: 56µH, L929: 56µH, L930: 56µH, L931: 56µH, L932: 56µH, L933: 56µH, L934: 56µH, L935: 56µH, L936: 56µH, L937: 56µH, L938: 56µH, L939: 56µH, L940: 56µH, L941: 56µH, L942: 56µH, L943: 56µH, L944: 56µH, L945: 56µH, L946: 56µH, L947: 56µH, L948: 56µH, L949: 56µH, L950: 56µH, L951: 56µH, L952: 56µH, L953: 56µH, L954: 56µH, L955: 56µH, L956: 56µH, L957: 56µH, L958: 56µH, L959: 56µH, L960: 56µH, L961: 56µH, L962: 56µH, L963: 56µH, L964: 56µH, L965: 56µH, L966: 56µH, L967: 56µH, L968: 56µH, L969: 56µH, L970: 56µH, L971: 56µH, L972: 56µH, L973: 56µH, L974: 56µH, L975: 56µH, L976: 56µH, L977: 56µH, L978: 56µH, L979: 56µH, L980: 56µH, L981: 56µH, L982: 56µH, L983: 56µH, L984: 56µH, L985: 56µH, L986: 56µH, L987: 56µH, L988: 56µH, L989: 56µH, L990: 56µH, L991: 56µH, L992: 56µH, L993: 56µH, L994: 56µH, L995: 56µH, L996: 56µH, L997: 56µH, L998: 56µH, L999: 56µH, L1000: 56µH

**NOTES:**  
 1. UNLESS NOTED ALL RESISTORS ARE 1/4W 5%  
 2. UNLESS NOTED ALL CAPACITORS ARE IN MICROFARADS.  
 3. SWITCH S901 IS SHOWN IN FORWARD POSITION.  
 4. \* SEE VARIABLE PARTS LIST.  
 5. P902 USED FOR AL1000 ONLY.

**TELEVISION TECHNOLOGY CORPORATION**  
 ARAPAHO COLORADO 80003

**POWER METERING P.C. BOARD C6901-9135 E**

ITEM	QTY	DESCRIPTION	REF. DESIG.
IC903	1	78L15	A
IC902	1	MP5544	B
IC901	1	J309	C
IC904	1	D902	D
IC905	1	D901	E
IC906	1	D903	F
IC907	1	D904	G
IC908	1	D905	H
IC909	1	D906	I
IC910	1	D907	J
IC911	1	D908	K
IC912	1	D909	L
IC913	1	D910	M
IC914	1	D911	N
IC915	1	D912	O
IC916	1	D913	P
IC917	1	D914	Q
IC918	1	D915	R
IC919	1	D916	S
IC920	1	D917	T
IC921	1	D918	U
IC922	1	D919	V
IC923	1	D920	W
IC924	1	D921	X
IC925	1	D922	Y
IC926	1	D923	Z
IC927	1	D924	AA
IC928	1	D925	AB
IC929	1	D926	AC
IC930	1	D927	AD
IC931	1	D928	AE
IC932	1	D929	AF
IC933	1	D930	AG
IC934	1	D931	AH
IC935	1	D932	AI
IC936	1	D933	AJ
IC937	1	D934	AK
IC938	1	D935	AL
IC939	1	D936	AM
IC940	1	D937	AN
IC941	1	D938	AO
IC942	1	D939	AP
IC943	1	D940	AQ
IC944	1	D941	AR
IC945	1	D942	AS
IC946	1	D943	AT
IC947	1	D944	AU
IC948	1	D945	AV
IC949	1	D946	AW
IC950	1	D947	AX
IC951	1	D948	AY
IC952	1	D949	AZ
IC953	1	D950	BA
IC954	1	D951	BB
IC955	1	D952	BC
IC956	1	D953	BD
IC957	1	D954	BE
IC958	1	D955	BF
IC959	1	D956	BG
IC960	1	D957	BH
IC961	1	D958	BI
IC962	1	D959	BJ
IC963	1	D960	BK
IC964	1	D961	BL
IC965	1	D962	BM
IC966	1	D963	BN
IC967	1	D964	BO
IC968	1	D965	BP
IC969	1	D966	BQ
IC970	1	D967	BR
IC971	1	D968	BS
IC972	1	D969	BT
IC973	1	D970	BU
IC974	1	D971	BV
IC975	1	D972	BW
IC976	1	D973	BX
IC977	1	D974	BY
IC978	1	D975	BZ
IC979	1	D976	CA
IC980	1	D977	CB
IC981	1	D978	CC
IC982	1	D979	CD
IC983	1	D980	CE
IC984	1	D981	CF
IC985	1	D982	CG
IC986	1	D983	CH
IC987	1	D984	CI
IC988	1	D985	CJ
IC989	1	D986	CK
IC990	1	D987	CL
IC991	1	D988	CM
IC992	1	D989	CN
IC993	1	D990	CO
IC994	1	D991	CP
IC995	1	D992	CQ
IC996	1	D993	CR
IC997	1	D994	CS
IC998	1	D995	CT
IC999	1	D996	CU
IC1000	1	D997	CV

## TEST AND MEASUREMENT STEPS

1. Set the power meter switch on forward. Set the Multimeter switch on final current.

### **Install the Dummy load on the Output.**

2. Turn on the translator. The current meter should read less than  $\frac{1}{4}$  Amp, Power meter should read 0. Slowly turn up the level control until the power meter reads 10W or 100%. The channel meter should be below .75 Amps.

WARNING: DO NOT TURN UP THE POWER TOO FAR OR YOU WILL BURN

OUT THE OUTPUT TRANSISTORS.

3. adjust the bias controls on the driver and output amps. (the pots on top of the amps, closest to the back). As you adjust them, watch the analyzer, the adjustments will affect the height of the pedestal and the shoulders, the top should always be flat  $\pm 1$  dB. (Refer to the anlz picture). Adjust the bias pots for the highest pedestal with the narrowest shoulders, while raising the power level. **WARNING: DO NOT EXCEED 100% ON THE POWER METER (10 WATTS = 100% POWER).**

4. If the level control is all the way clockwise, and the power is not at 100%, change the attenuator from 10 dB to 6 dB, start with the control counter clockwise. (The attenuator pads are needed as different channels require more drive signal than others).

5. With the power at 100%, set the pedestal to the 10 dB line on the analyzer. There should be at least 36 dB on the sides before it starts to spread. At 61 dB from the top the pedestal spread cannot exceed 6 MHz on each side. (See spectrum pictures). If the sides are uneven or the spread is too wide, the amplifiers are out of alignment (refer to XL Manual to align the amps) or they need repaired. The 3 pole filter may be out of

alignment. The spectrum analyzer display has to match the picture. (If you are not familiar with tuning the 3 pole filter, please call MEDEX, LLC.) Do not run the translator if you cannot meet the mask.

Reduce the power unit it matches the picture, see copy of FCC rules # 74.796(c) on reduced power.

Please fill out the following for your records:

1. \_\_\_\_\_ is the final voltage.
2. \_\_\_\_\_ is the final current.
3. \_\_\_\_\_ is the power out 10 Watts = 100%.
4. \_\_\_\_\_ is the AGC voltage.
5. Original Manufacture Model # is \_\_\_\_\_.
6. Original Manufacture Serial # is \_\_\_\_\_.
7. MEDEX Processor Model # is \_\_\_\_\_.
8. MEDEX Processor Serial # is \_\_\_\_\_.
9. Update Kit Serial # is \_\_\_\_\_.
10. Attach the Spectrum Analyzer Plots.