

**Parts List and Tune-up Procedure/Active Devices:**

The following is the procedure for changing the channel of the MXi501U translator. Since the amplifier is broadband, channel change involves retuning of the output filter and recalibration of the output meter.

The amplifier meter was calibrated to read 100% (top scale) at full power and at the channel specified when the transmitter was tested at the factory. If the amplifier is to operate at a channel other than that of the factory test channel, the metering will require re-calibration. The power meter setting is a channel dependent calibration.

1. Connect the transmitter output to a 50 ohm dummy load or the antenna. The transmitter uses a 50 $\Omega$  type N connector for its output. Calibrated directional coupler and suitable digital wattmeter should be used for measurements.
2. Connect the 208VAC mains input. This AC circuit should be rated for 15 amperes, and should be supplied through a slow-tripping breaker or time delay fuse. Generally, a breaker that is rated for across-the-line motor starting will be found to be satisfactory. Connect the power supply to the amplifier.
3. At this point the LCD screen should be illuminated, and the transmitter should be OFF. Depress the ON' switch. The green LEDs should illuminate and the amplifier should be operating. The cooling fans on both the power supply and the amplifier should be running.
4. Attach the RF output power measuring device.
5. Turn down the drive level from the Transcoder (front end) before applying any RF input signal.
6. Slowly turn up the drive level until the output power reaches the desired level (on the power measuring device – not the transmitter power meter indication).
7. When the output power is at the desired level check that the voltage at TP3 (control PC board) is between 4.5V and 9.0VDC.
8. Adjust R48 until the voltage at TP3 is 4.0VDC. At this point the transmitter forward power meter should read 100%.
9. To calibrate the reflected power, install the jumper E17 (prevents VSWR trips).
10. Remove the cable from J12 at the control board and reconnect through a 10dB attenuator to J13.
11. The voltage measured at TP4 should be between 4.5V and 9.0VDC.
12. Adjust potentiometer R80 until the voltage at TP5 is 4.0VDC. At this point the reflected power should read 10%.
13. Reconnect the cables as they were, and remove jumper at E17.

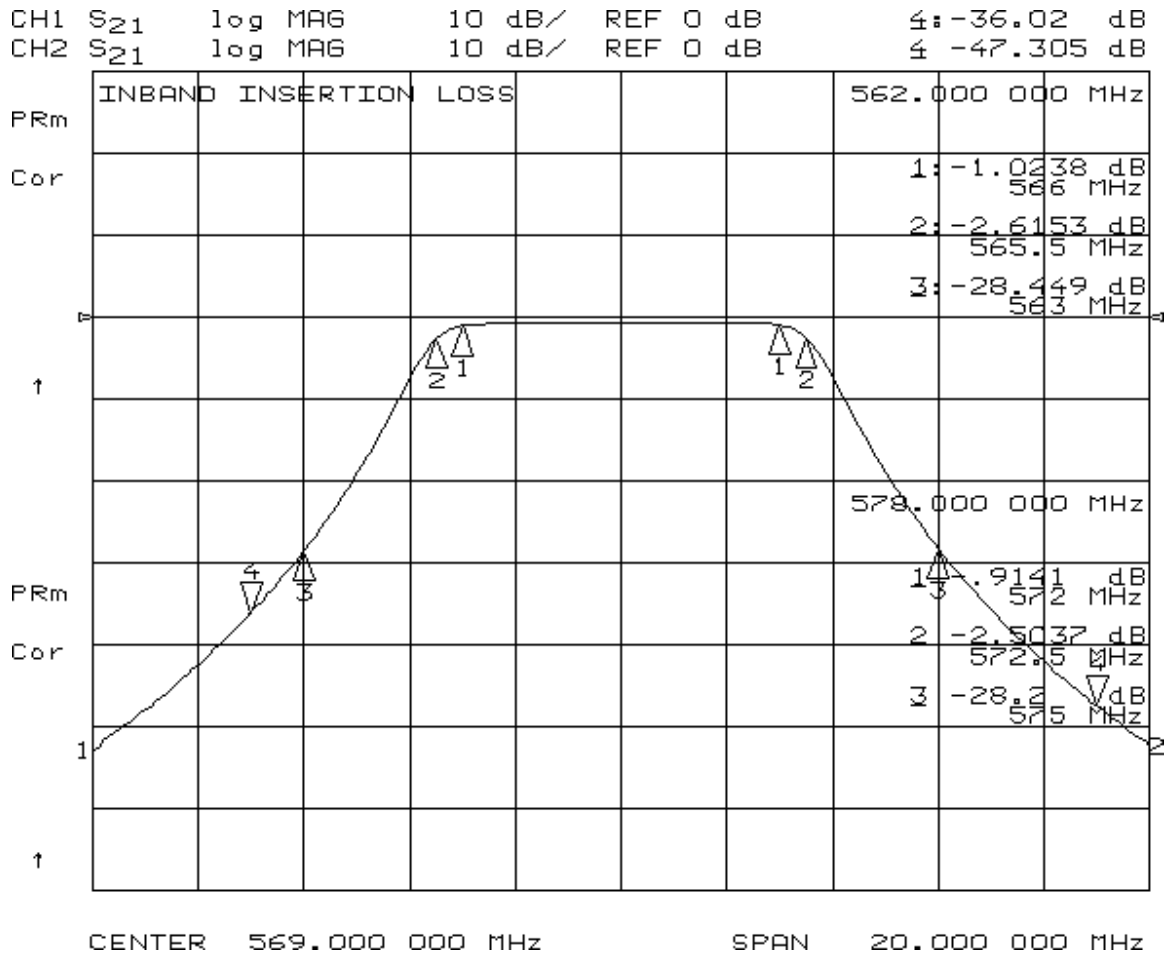
The output filter must be retuned as per the frequency response sweeps attached (note: two different tunings depending on the type of filter used).

BZ5MXI501UD  
 Application for FCC Certification  
 500 Watt Digital Television Translator

**Parts List and Tune-up Procedure:**

Mask Filter:

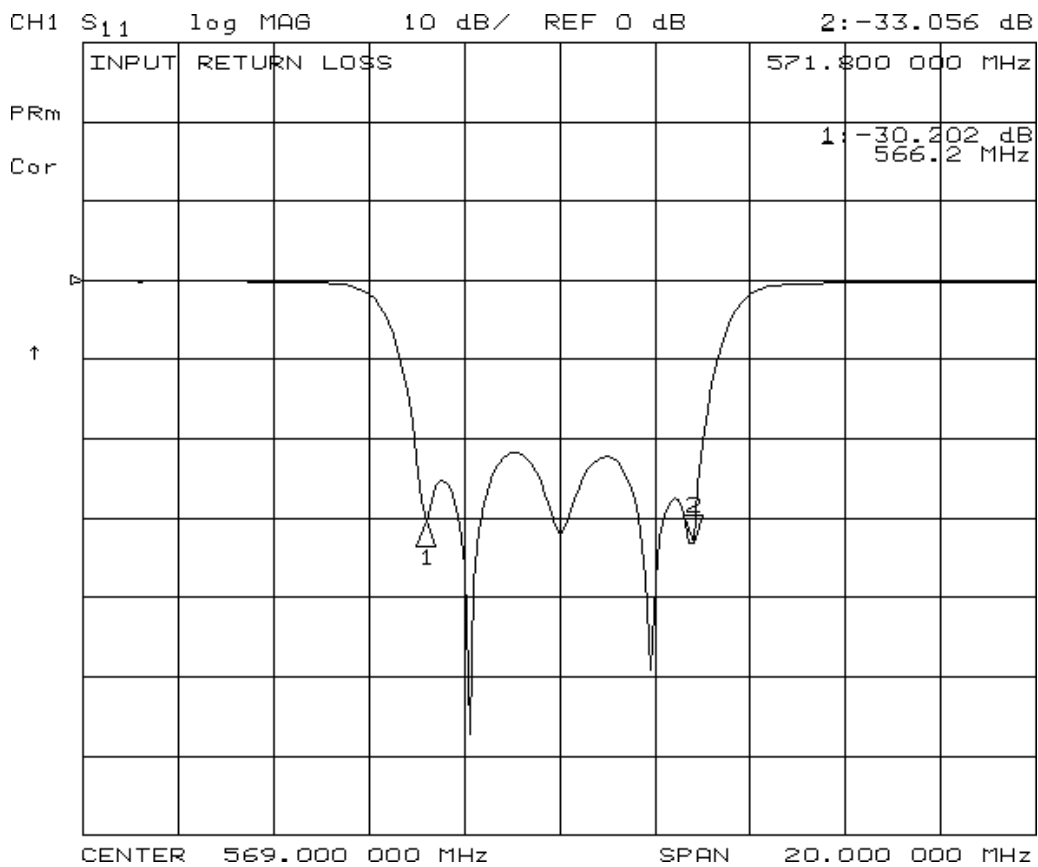
In Band Insertion Loss



# Application for FCC Certification

## 500 Watt Digital Television Translator

Mask Filter:  
Input Return Loss



BZ5MXI501UD

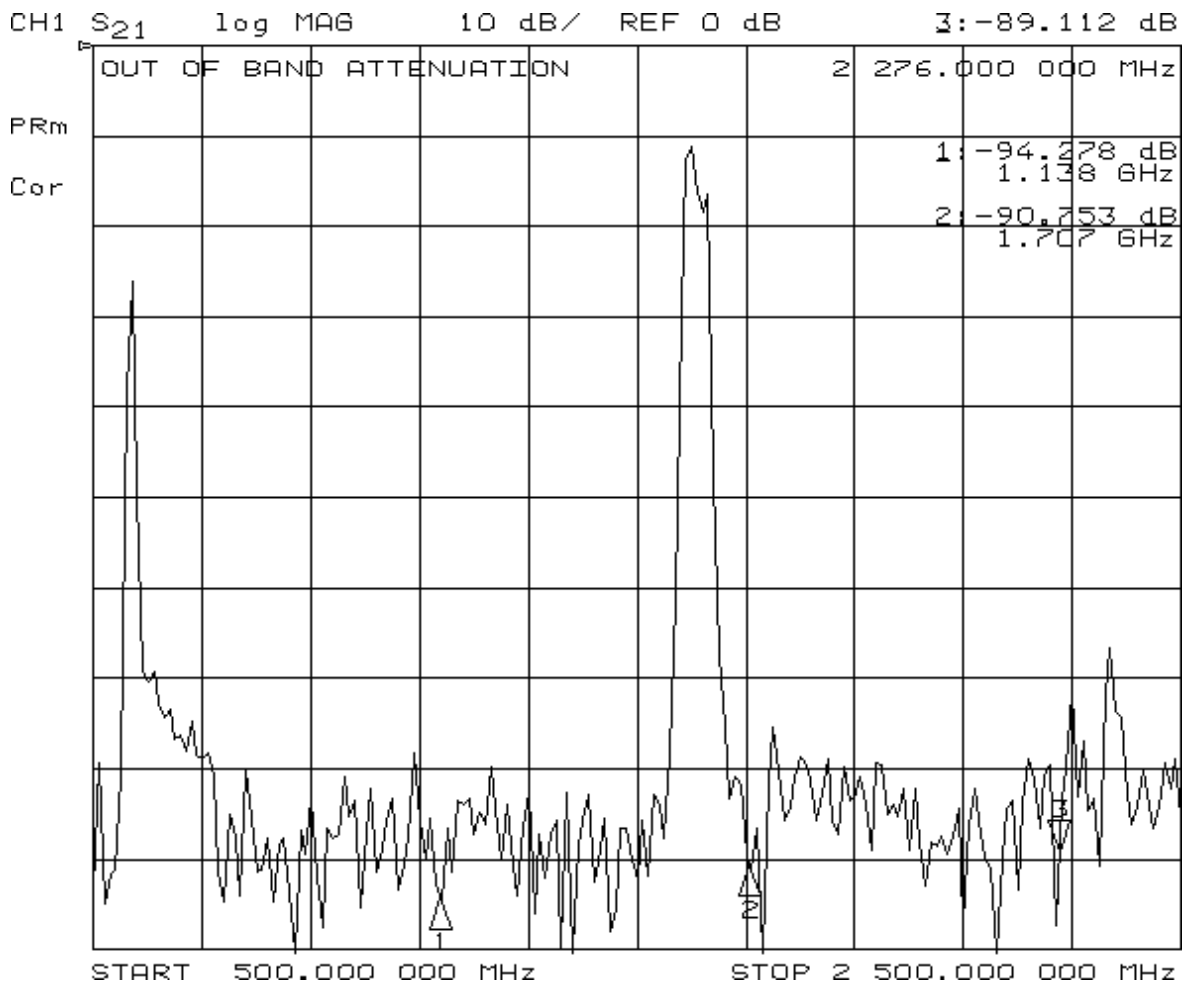
Application for FCC Certification

500 Watt Digital Television Translator

**Parts List and Tune-up Procedure:**

Mask Filter:

Out of Band Attenuation:



## BZ5MXI501UD

Application for FCC Certification

500 Watt Digital Television Translator

**Active Devices List:**

| ID               | Component        | Description                       | Qty      | UM        |
|------------------|------------------|-----------------------------------|----------|-----------|
| <b>31C1897G1</b> |                  | <b>MXI CONTROLLER</b>             | <b>1</b> | <b>EA</b> |
| CR1              | 1SMB9.0AT3       | Zener Diode 9V sm                 | 1        | EA        |
| CR2              | 1SMB5.0AT3       | DIODE                             | 1        | EA        |
| CR3              | MURS120-T3       | DIODE 1A 200V MARK U1D ONSEMI     | 1        | EA        |
| CR4              | HSMS-2800        | DIODE SCHOTTKY HSMS-2800L30       | 1        | EA        |
| CR5              | HSMS-2820        | DIODE SCHOTTKY HP MARM CO         | 1        | EA        |
| CR6              | 1SMB5.0AT3       | DIODE                             | 1        | EA        |
| CR7              | MMSZ4678T1       | DIODE ZENER 1.8V SM MKG-CC        | 0        | EA        |
| CR8              | HSMS-2800        | DIODE SCHOTTKY HSMS-2800L30       | 1        | EA        |
| CR9              | HSMS-2820        | DIODE SCHOTTKY HP MARM CO         | 1        | EA        |
| CR10             | 1SMB5.0AT3       | DIODE                             | 1        | EA        |
| CR11             | MMSZ4678T1       | DIODE ZENER 1.8V SM MKG-CC        | 0        | EA        |
| CR12             | MURS120-T3       | DIODE 1A 200V MARK U1D ONSEMI     | 1        | EA        |
| CR13             | MURS120-T3       | DIODE 1A 200V MARK U1D ONSEMI     | 1        | EA        |
| CR14             | MURS120-T3       | DIODE 1A 200V MARK U1D ONSEMI     | 1        | EA        |
| CR15             | MURS120-T3       | DIODE 1A 200V MARK U1D ONSEMI     | 1        | EA        |
| CR16             | MURS120-T3       | DIODE 1A 200V MARK U1D ONSEMI     | 1        | EA        |
| CR17             | MURS120-T3       | DIODE 1A 200V MARK U1D ONSEMI     | 1        | EA        |
| ID               | Component        | Description                       | Qty      | UM        |
| CR18             | HSMS-2800        | DIODE SCHOTTKY HSMS-2800L30       | 1        | EA        |
| Q1               | BC847BT/R        | TRANSISTOR, NPN                   | 1        | EA        |
| Q2               | BC859CT/R        | TRANSISTOR, PNP                   | 1        | EA        |
| Q3               | BC847BT/R        | TRANSISTOR, NPN                   | 1        | EA        |
| Q4               | BC859CT/R        | TRANSISTOR, PNP                   | 1        | EA        |
| Q5               | BC847BT/R        | TRANSISTOR, NPN                   | 1        | EA        |
| Q6               | BC859CT/R        | TRANSISTOR, PNP                   | 1        | EA        |
| Q7               | BC847BT/R        | TRANSISTOR, NPN                   | 1        | EA        |
| Q8               | 2N4351           | TRANSISTOR FET N-CH SW            | 1        | EA        |
| Q9               | BC847BT/R        | TRANSISTOR, NPN                   | 1        | EA        |
| U1               | MC68HC908GT8CFB  | IC Microcontroller                | 0        | EA        |
| U1               | MC68HC908GT16CFB | IC Microcontroller                | 1        | EA        |
| U2               | MAX3110EEWI      | UART, -40°C to +85°C 28 Wide      | 1        | EA        |
| U3               | MOCD207          | IC DUAL OPTO NAND S.M.            | 1        | EA        |
| U4               | MOCD207          | IC DUAL OPTO NAND S.M.            | 1        | EA        |
| U5               | LM358D           | IC DUAL OP AMP SOIC 8 MOT         | 1        | EA        |
| U6               | MMPQ2222A        | TRANSISTOR NPN S.M.               | 1        | EA        |
| U7               | LM324D           | IC QUAD OP AMP SOIC 14            | 1        | EA        |
| U8               | MOCD207          | IC DUAL OPTO NAND S.M.            | 1        | EA        |
| U9               | HXS 20-NP        | Current Transducer                | 1        | EA        |
| U10              | MMPQ2222A        | TRANSISTOR NPN S.M.               | 1        | EA        |
| U11              | LM339D           | IC COMPARITOR                     | 1        | EA        |
| U12              | MOCD207          | IC DUAL OPTO NAND S.M.            | 1        | EA        |
| U13              | LM324D           | IC QUAD OP AMP SOIC 14            | 1        | EA        |
| U14              | LM324D           | IC QUAD OP AMP SOIC 14            | 1        | EA        |
| U15              | LM324D           | IC QUAD OP AMP SOIC 14            | 1        | EA        |
| U16              | DS1867S-10       | IC POT W/EEPROM DUAL 10K 16-SO    | 1        | EA        |
| U17              | LM324D           | IC QUAD OP AMP SOIC 14            | 1        | EA        |
| U18              | 74HC00AD         | IC QUAD 2 INPUT NAND S.M.         | 1        | EA        |
| U19              | LM324D           | IC QUAD OP AMP SOIC 14            | 1        | EA        |
| U20              | LM358D           | IC DUAL OP AMP SOIC 8 MOT         | 1        | EA        |
| VR1              | 78L05ACD         | Voltage Regulator Motorola        | 1        | EA        |
| VR2              | MC34064P5        | MONITOR I.C.                      | 1        | EA        |
| VR3              | MC7805BDT        | Voltage Regulator 5V 1A ONSemi    | 1        | EA        |
| <b>21B1473G5</b> |                  | <b>FRONT END (FOR DTV DRIVER)</b> | <b>1</b> | <b>EA</b> |
| Q1               | MMBT2222ALT1     | TRANSISTOR, MOTOROLA "1P"         | 1        | EA        |
| U1               | MHW9182          | IC HYBRID AMP MOTOROLA            | 1        | EA        |
| U2               | LM358D           | IC DUAL OP AMP SOIC 8 MOT         | 1        | EA        |
| U3               | MC78M12CDT       | IC SEE 78M12CDT                   | 1        | EA        |
| U4               | MC78L05ACD       | IC REGULATOR 100mA SOIC-8         | 1        | EA        |
| CR1              | BB811            | DIODE VARACTOR                    | 1        | EA        |
| CR2              | BB811            | DIODE VARACTOR                    | 1        | EA        |
| CR3              | HSMS-2850        | DIODE HEWLETT PACKARD             | 1        | EA        |
| <b>21B1951G1</b> |                  | <b>IPA ASSY</b>                   | <b>1</b> | <b>EA</b> |
| U1               | MC1723CD         | VOLTAGE LM723CD                   | 1        | EA        |
| Q3               | MMBT2907ALT1     | TRANSISTOR PNP MOTOROLA 2FE       | 1        | EA        |
| CR100            | MMBD7000LT1      | DIODE DUAL GENERAL PURPOSE        | 1        | EA        |
| CR110            | MMBD7000LT1      | DIODE DUAL GENERAL PURPOSE        | 1        | EA        |

## BZ5MXI501UD

## Application for FCC Certification

## 500 Watt Digital Television Translator

|     |                  |                                         |          |           |
|-----|------------------|-----------------------------------------|----------|-----------|
| CR1 | MURS120-T3       | DIODE 1A 200V MARK U1D ONSEMI           | 1        | EA        |
| Q1  | MRF282SR1        | RF POWER LDMOS FET                      | 1        | EA        |
| Q2  | MRF282SR1        | RF POWER LDMOS FET                      | 1        | EA        |
|     | <b>21B1639G1</b> | <b>PALLET AMP. ASSY R-16</b>            | <b>1</b> | <b>EA</b> |
| Q1  | MRF374A          | TRANSISTOR                              | 1        | EA        |
| Q2  | MRF374A          | TRANSISTOR                              | 1        | EA        |
| U1  | MC78M09CDT       | IC VOLTAGE REG.                         | 1        | EA        |
|     | <b>11A2142G1</b> | <b>PALLET AMPLIFIER ASSY</b>            | <b>4</b> | <b>EA</b> |
| Q1  | MRF6VP3450HR5    | TRANSISTOR LDMOS FREESCALE              | 1        | EA        |
| Q2  | MMBT2369ALT1     | TRANSISTOR NPN SWITCHING                | 1        | EA        |
| Q3  | MMBT2907ALT1     | TRANSISTOR PNP MOTOROLA 2FE             | 1        | EA        |
| Q4  | MMBT2369ALT1     | TRANSISTOR NPN SWITCHING                | 1        | EA        |
| Q5  | BCP56            | TRANSISTOR NPN 1AMP MKG"BH-10" Infineon | 1        | EA        |
| U1  | MC78L05ACD       | IC REGULATOR 100mA SOIC-8               | 1        | EA        |
|     | <b>11A2226G1</b> | <b>MXi802 CURRENT SENSOR BOARD</b>      | <b>1</b> | <b>EA</b> |
| CR1 | MBRS130LT3       | Schottky Power Rectifier                | 1        | EA        |
| CR2 | 1SMB5.0AT3       | DIODE                                   | 1        | EA        |
| U1  | MAX764CSA        | LOW IQ DC-DC INVERTER                   | 1        | EA        |
| U2  | LA-100-P         | CURRENT TRANSDUCER                      | 1        | EA        |
| U3  | LM324D           | IC QUAD OP AMP SOIC 14                  | 1        | EA        |