PORTABLE MICROWAVE LINK
XLT-2500

GENERAL DESCRIPTION

The XLT-2500 is a portable 2 GHz microwave link that can carry simultaneously 1 video and up to 2 high-quality 15 KHz analog audio programs.

The audio channels are fully compatible with DB digital audio codes TD/16 and RD/16 (2-channels).

With the XLT-2500, the following performances are guaranteed:

-A/V intermodulation is almost canceled;

-System accepts simultaneously 1 video, up to 4 digital audio programs, and up to 4 x 4800 bps data channels.

-RF frequency channels are easy to change with a 125 KHz steps digital PLL. No tuning is required within 100 MHz range.

-All circuits are fitted into boxes suitable to be mounted at the rear of parabolic antennas with direct connection to the microwave feeder.

DB parabolic antennas enable the direct connection to the microwave feeder without wave-guide losses.

A front panel digital multimeter and alarms permit to check audio and video levels, RF signal level, PLL lock and squelch status. The equipment meets or exceeds the international standards for safety and electrical specifications.

XLT-2500 FUNCTIONAL DESCRIPTION

The 2 GHz XLT-2500 transmitter is composed of two fundamental parts:

I) MMT (Microwave TV Modulator)

This is an audio/video microwave TV circuit, synthesized, 1.3 to 2.7 GHz band –2 dBm output with the following functions:

-Video signal processing

-7.500 MHz, 8.065 MHz subcarrier modulation

-RF video + audio 1.3 to 2.7 GHz (-2dBm output power lever)

As seen in Fig. 2.4 the circuit is composed of:

1) Video processor stage with:

75 Ω BNC input	signal attenuation
pre-emphasis circuit	low pass filtering
delay group pre-coorector	adjustable modulation

Video and subcarriers signal addition

1) Up to 2 subcarriers stages with:

600 Ω XLR CANON input

balun trasformer

adjustable modulation

pre-emphasis circuit

low pass filtering

7.500 MHz or 8.065 MHz modulation

band-pass filtering

2) 1.3-2.7 GHz PLL carrier modulation of video and audio signals.
3) System check)PLL locking, depth modulation measurement and power supply presence)

Π) HMT (Microwave 1.3 to 2.7 GHz Amplifier)

It consists of a wide band microwave amplifier in the 1.3 to 2.7 GHz band with –2dBm input and 1W or 5 W output.

XLT-2500 –User's MANUAL

Installing XLT-2500

For Installing XLT-2500 receiver, perform the following steps

1) Power the device with the cable supplied.
2) Remove the first panel.
3) On the second panel connect the filter to the feeder.

Warning: RF input level of XLT-2500 must not exceed-30dBm

4) Power on the equipment

   The ON led on front panels should light up.

   The PLL LOCK led on front panel should light down.

5) Connect a video signal receiver with BNC connector in Video output.

If it is necessary, adjust panel trimmer (R11 trimmer Fig.10.7) for signal level setting.

The Led Bar on the front panel furnishes the signal level (Volts). To select the signal level (Video, Audio1, Audio2) or the carrier level (SIGNAL) that must be measured, press the button; when the desired signal is selected its led lights on.

6) Connect an audio signal receiver to Subcarrier 1 or 2 output with XLR connector.

If it is necessary the signal level settings, then adjust panel trimmers (Trimmer R64 Fig. 11.4).

The led Bar on front panel furnishes the signal level (Volts). To select the signal (Video, Audio1, Audio2 signal) that must be measured push the button; when the desired signal is selected its led is light on.

For de-emphases de-insertion connect JP6 jumper for 50µs (see Fig,11.4).

For de-emphases de-insertion connect JPR6 and JP12 jumper for 75 µs (see Fig. 11.4).

XLT-2500 FUNCTIONAL DESCRIPTION

The 2 GHz receiver is composed of two fundamental parts:

I) XLT-2500 (Microwave TV demodulator)

XLT-2500 performs the following functions:

- Global signal (Video and subcarriers) demodulation at 70 MHz.
- Video signal processing.
- Subcarriers signals (7500,8065kHz) demodulation.

As seen in block diagram, the circuit is composed of:

1) Video and subcarrier IF (70MHz) demodulation stage with:
   Amplification
   Mixer
   Band-pass filter
   Demodulator
2) Video processing stage with:
   Low-pass filter
   Delay group pre corrector
   Adjustable amplification
   De-emphasis circuit
   75Ω BNC output
3) Four subcarriers demodulation stage with:
   Band-pass filter
   Demodulation (Signal at 7500,8065 KHz)
   Adjustable amplification
   Deemphasis circuit
   Low-pass filter
   Balun transformer
   600 Ω XLR CANON output

II) XLT-2500 (Head Microwave Receiver)

It consists of a wideband receiver in the 1.3 to 2.7 GHz band with input level range from-90dBm to –15dBm

TX AND RX TECHNICAL SPECIFICATIONS

Overall IF/IF specifications

IF standard frequency …….70 MHz

IF standard delay (IF±8 MHz)…….≤3ns

Overall BB/BB specifications (-43 dBm at receiver input)

BB amplitude/frequency response (5Hz to 9.1 MHz)……..…edsgd within 0.9 dB

Video amplitude/frequency response (5Hz to 5 MHz)……..…..……within 0.5 dB

Group delay in video band (5 Hz to 5 MHz)…….……within 20ns

Differential gain…….……≤2%

Differential phase…….≤2◦

Audio channels frequency response (30 Hz to 15 kHz)……..within 0.5 dB

Audio channels THD (1kHz, 0dBm)……...≤0.3%

Transmitter characteristics

Modulation……..……..…..……CCIR 405/1

Frequency deviation……..……..20 MHz pp

Output power……2W for HMT 2/2G or 5W for HMT5/2G

IF+ 15 VDC output connector…….…….…….……N female

BB/Video input level……..……..……1 Vpp(75 Ω unbal.)

Video input connector…….……..BNC

Video preemphasis (bypassable)……..……C.C.I.R.625 lines

Audio input level (Δf=75kHz peak.)……..……...-3 to +12 dBm (600Ω bal. /unbal.)

Audio input connector……..XLR female

Audio pre-emphasis(by passable)…….50 µS,75 µS

Audio subcarrier frequencies……..7500, 8065MHz

Power supply…….……..AC 110/220 ±15%, 50/60Hz

Receiver Characteristics

RF range……-90 to –15 dBm(50Ω)

Video de-emphasis (by-passable)……..…….C.C.I.R.625 lines

BB/Video output level…….…….……1 Vpp (75 Ω)

Video output connector…….BNC

Audio output level (Δf=75 kHz peak).……..…-3 to +12 dBm (600 Ω bal./unbal.)

Audio de-emphasis (by-passable)…….50 µS, 75µS

Power supply……..….AC 110/220 ± 15%, 50/60 Hz

Transmitter/receiver general data

Outdoor operating temperature range……..…….-20 to +50ºC

Outdoor operating humidity range……..……≤95%

TX-RX Dimension (W x L x H)……..……300 x 400 x 140 mm

INSTALLATION

INSTALLING XLT-2500

For installing the XLT-2500 transmitter, perform the following steps.

1) Power the device with the cable supplied.
2) Remove the first panel.
3) On the second panel connect the filter to the feeder.
4) Power on the equipment.
   The PWR led on front panels should light up.
   The LOCK led on front panel should light down.
5) Connect a video signal, with BNC video input..

If it may be necessary to set the modulation depth in correspondence of video input signal level, then adjust panel trimmer (Trimmer R41). The value we suggest is 20 MHz peak to peak.

The Led Bar on the front panel furnishes the modulation level (KHz to MHz). To select the signal that must be measured (Video, Audio1, audio2) press the button; when the Video signal is selected the led Video lights on.

6) Connect an audio signal with XLR connector to Subcarrier 1 or 2 input.

It may be necessary to set the modulation depth in correspondence of video input signal level, and then adjust panel trimmers (R12Trimmer Fig. 4.5). The value we suggest is 70 kHz peak.

The led Bar on front panel furnishes the modulation level (kHz or MHz). To select the signal that must be measured (Video, Audio1, Audio2) press the button; when the desired signal is selected the led Audio 1 or Audio 2 on.

For pre-emphases de-insertion connect JP5 jumper for 75μs(Fig, 4.5).

It can be necessary to adjust the relative level between the subcarriers and the Video signal, then adjust R37, R38 trimmers for subcarriers levels and R30 trimmer for Video level (see Fig.3.7); in case the regulation of trimmer R41 it is not enough adjust trimmer R30(see Fig.3.7)

INSTALLING DMT-HMR/P

For installing DMT-HMR/P receiver, perform the following steps.

1) Power the device with the cable supplied.
2) Remover the first panel.
3) On the second panel connect the filter to the feeder.

***Warning*:** RF input level of HMR must not exceed – 30 dBm

4) Power on the equipment

The ON led on front panel should light up.
The PLL LOCK led on front panel should light down.

5) Connect a video signal receiver with BNC connector in Video output.

If it is necessary, adjust panel trimmer (R11 trimmer Fig.10.7) for signal level setting.

The Led Bar on the front panel furnishes the signal level (Volts). T o select the signal level (Video, Audio1, Audio2) or the carrier level (SIGNAL) that must be measured, press the button, when the desired signal is selected its led lights on.

6) Connect an audio signal receiver to sub carrier 1 or 2 output with XLR connector.

It can be necessary the signal level setting, the adjust panel trimmers (Trimmer R64 Fig.11.4).

The Led Bar on front panel furnishes the signal level (Volts). To select the signal (Video, Audio1, Audio2 signal) that must be measured push the button; when the desired signal is selected its led is light on.

For de-emphases de-insertion connect JP6 jumper for 50 μs (see Fig. 11.4).

For de-emphases de-insertion connect JP6 and JP12 jumper for 75 μs (see Fig. 11.4).