

TEST REPORT

PINEAPPLE TECHNOLOGY INC. LTX100U TV TRANSMITTER TECHNICAL REPORT

INTRODUCTION

The following information is provided to support the technical performance of the Pineapple Technology LTX100U TV Transmitter. The information is supplied for broadcast TV service according to applicable portions of FCC rules contained in Part 2, Part 73, and 74. The test report is comprised of tests made upon channel 47. However, since there are no frequency dependent parts within the transmitter (the final transmitter filter is tunable per channel and ordered on a per channel basis) the test report constitutes an accurate and representative sample of the transmitter performance anywhere in the approved frequency range of 470-608 MHz and from 614-806 MHz.

1. Power Output Measurements as indicated by FCC Rule Part 2.1046.
2. Frequency Measurements as identified by FCC Rule Part 2.1055.
3. Visual Frequency response measurements of the transmitter to be within the window specified by FCC Rule Part 74.750.
4. Occupied BW of aural signal specified by FCC Rule Part 2.1079.
5. Aural frequency response as identified by FCC Rule Part 73.687
6. Measurement of conducted harmonics and spurs +/- 3 MHz outside of channel as specified by FCC Rule Part 74.750 and Part 2 Rule 2.1051.
7. Measurement of cabinet radiation of spurs and harmonics as specified in FCC Rule 2.1053 and 2.1057.
8. Measurements of voltage and current to final amp stage as outlined in FCC Rule 2.1033.

Measurements were conducted at the transmitter visual power output level of 100 watts peak of sync (W_{ps}) for which type certification is sought. The corresponding aural power level is 5 watts. Measurements were taken on a unit with visual carrier frequency of 669.24 MHz and an aural carrier frequency of 673.74 MHz. (This transmitter is operating on CH 47 with a negative 10 kHz offset).

The test equipment used for the measurements on the next few pages is listed at the end of the test report. All test equipment was calibrated prior to the use of the equipment by the supplier of the test equipment.

RF POWER OUTPUT

The equipment was configured as shown in Figure 1. The loss through the directional coupler was calibrated at the operating frequency (671.0 MHz). The TSG-90 video generator was configured to produce a signal with 0 IRE video and sync. The aural carrier was not energized. The visual portion of the transmitter was energized to the desired output power (0.1 kWps). The power was read on the HP-435B Power Meter. The video demodulator and 1750 were used to verify that sync compression was not causing distortion of the measurement. The aural carrier was energized and its output level was then raised to meet the precise 13 dB visual/aural power ratio as observed on the spectrum analyzer. Pictures were also taken of demodulated video with two (2) lines of a modulated stair step (or reference white level) , and two (2) fields of video to verify no signal distortions were present at the 0.1 kW power level where certification is being sought.

HIGH POWER OUTPUT

HP 435B Power Meter reading	-3.75 dBm
Loss in directional coupler	51.5 dB
Sum	47.75 dBm = 59.5 W Avg

Peak of sync power = 1.68 times average power under the following conditions:

0 IRE (Black) picture

No aural carrier

40 IRE of sync

Proper sync to video ratio (40/100) and depth of modulation, this is shown by the two line modulated stair step display.

$59.5 \text{ W Avg.} \times 1.68 = 99.96 \text{ W peak of sync (Within 0.1 dB of 100 W)}$

The aural carrier was set 13 dB lower.

$100 \text{ W}_{\text{ps}} = 50 \text{ dBm minus } 13 \text{ dB equals } 37 \text{ dBm} = 5 \text{ W Aural Power}$

DC voltage and current to final amplifier stage is: 7.6 Amps at 32 VDC measured with black level input.



Fig. 1
Meter indicating -3.75 dBm for visual RF Power Output

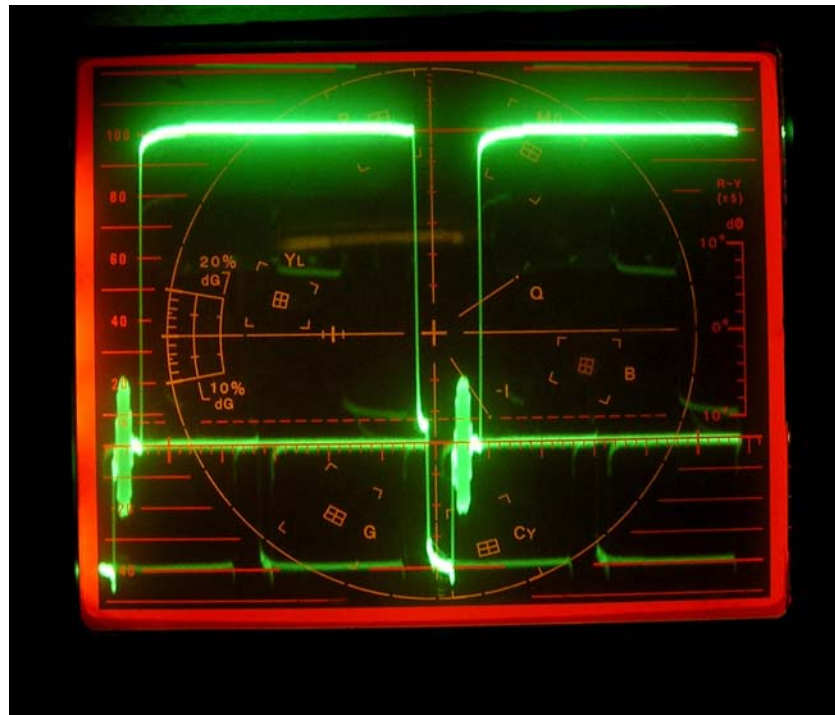


Fig. 2
Two Lines of video showing proper
Modulation depth

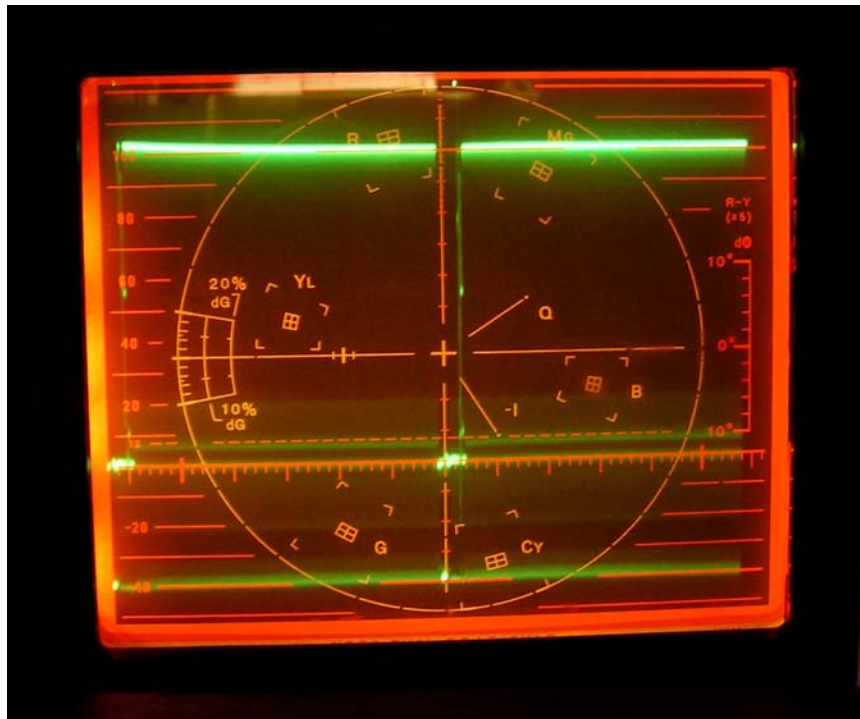
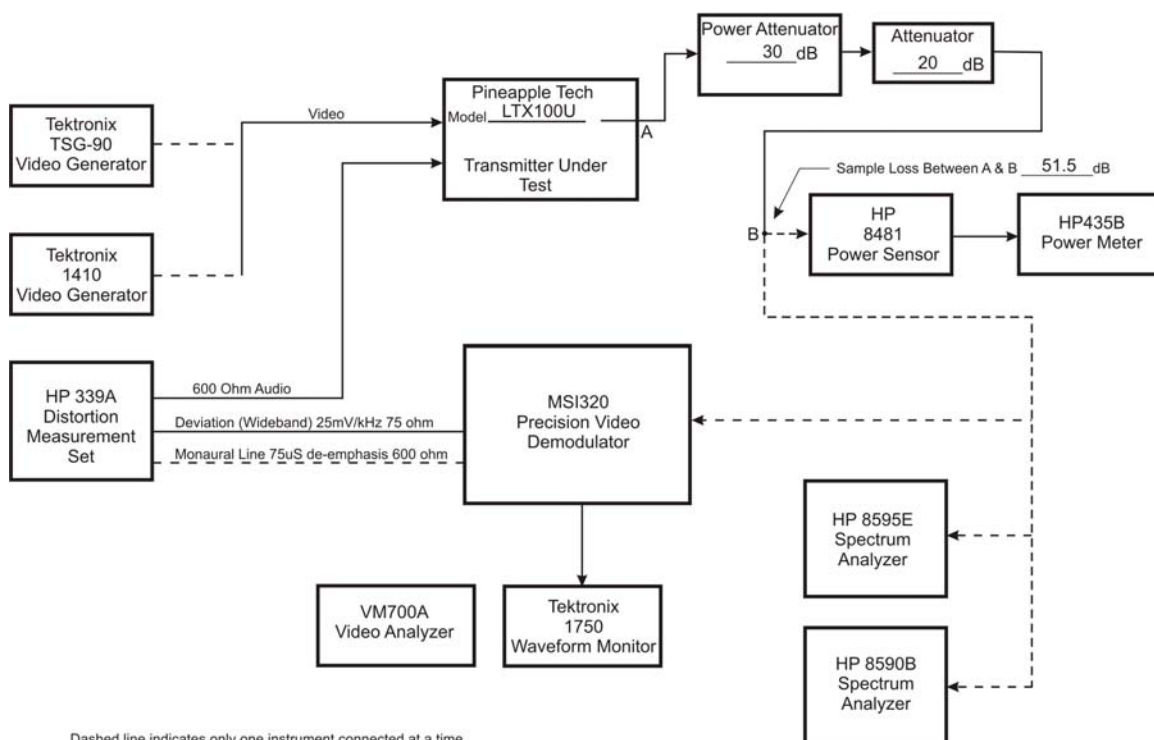


Fig.3
Two Fields of video showing proper
Modulation depth

TEST EQUIPMENT CONFIGURATION (Version 1)



List of test equipment model and serial number

The following test equipment was used in the various test equipment configurations or to create calibration of equipment at various frequencies. All equipment was known to be in good working order and the supplier of the equipment stipulated the equipment was within the calibration period.

EQUIPMENT MODEL	SERIAL NUMBER
A.R.D. Technology LPD-1001 Log Periodic Antenna	18731
Agilent 53131A Frequency Counter	KR01204459
Bird 8329-300 2000W 30 dB Attenuator	506
ETS 3147 Log Periodic Antenna	9112-1053
Fluke 77 Meter	54810424
HP 339A Distortion Analyzer	2520A08480
HP 8590B Spectrum Analyzer	3009A0840
HP 8595E Spectrum Analyzer	3523A01399
Modulation Sciences MSI320 Demodulator	390128364
Narda 768-20 20W 20dB Attenuator	N/A
Tektronix 1410 Video Generator	B020216
Tektronix 1750 Waveform Monitor	B033351
Tektronix TSG90 Video Signal Generator	B022622
Tektronix VM700A Video Analyzer	B041249