

## Understanding the different Video Formats

The two main video standards you hear about are NTSC and PAL. There actually are standards for both Color and Monochrome pictures.

EIA is the standard for monochrome and NTSC is the color standard we use. CCIR is the standard for monochrome and PAL is the color standard for various other countries.

The different standards are historical and were set by the AC mains supply frequency of the country. EIA/NTSC use 60 fields per second with 525 scan lines and CCIR/PAL uses 50 fields per second with 625 scan lines.

The first color TV broadcast system was implemented in the United States in 1953. This was based on the **NTSC - National Television System Committee** standard.

The **PAL - Phase Alternating Line** standard was introduced in the early 1960's and implemented in most European countries. The PAL standard utilizes a wider channel bandwidth than NTSC which allows for better picture quality.

<b>NTSC</b> National Television System Committee	
Lines/Field	525/60
Horizontal Frequency	15.734 kHz
Vertical Frequency	60 Hz
Color Subcarrier Frequency	3.579545 MHz
Video Bandwidth	4.2 MHz
Sound Carrier	4.5 MHz

<b>PAL</b> Phase Alternating Line			
<b>SYSTEM</b>	<b>PAL</b>	<b>PAL N</b>	<b>PAL M</b>
Line/Field	625/50	625/50	525/60
Horizontal Freq.	15.625 kHz	15.625 kHz	15.750 kHz
Vertical Freq.	50 Hz	50 Hz	60 Hz
Color Sub Carrier	4.433618 MHz	3.582056 MHz	3.575611 MHz
Video Bandwidth	5.0 MHz	4.2 MHz	4.2 MHz
Sound Carrier	5.5 MHz	4.5 MHz	4.5 MHz

The following countries use the NTSC format

Antigua	El Salvador	Philippines
Bahamas	Ecuador	Puerto Rico
Barbados	Guam	Saipan
Barbuda	Guatemala	Samoa
Belize	Haiti	South Korea
Bermuda	Honduras	Saint Kitts
Bolivia	Jamaica	Saint Lucia
Burma	Japan	Saint Vincent
Cambodia	Mexico	Surinam
Canada	Midway Islands	Taiwan
Cayman Islands	Netherland Antilles	Tobago
Chile	Nicaragua	Trinidad
Colombia	North Mariana Island	United States
Costa Rica	Panama	Venezuela
Cuba	Peru	Virgin Islands

The following countries use the P A L system

Afghanistan	Ghana	Oman	Zambia
Albania	Gibraltar	Pakistan	Zimbabwe
Algeria	Guinea	Paraguay **	* = PAL- M
Angola	Greenland	Poland	** = PAL- N
Argentina **	Indonesia	Somalia	
Australia	Ireland	South Africa	
Austria	Israel	S.W. Africa	
Azores	Italy	Spain	
Baharain	Jordan	Sri Lanka	
Bangladesh	Kenya	Sudan	
Belgium	Kuwait	Swaziland	
Botswana	Laos	Sweden	
Brazil *	Liberia	Switzerland	
Brunei	Madeire	Tanzania	
Cameroon	Malaysia	Thailand	
Canary Islands	Malta	Turkey	
Cyprus	Mozambique	Uganda	
Denmark	Nepal	United Arab Emirates	
Dubai	New Guinea	United Kingdom	
England	New Zealand	Uruguay **	
Ethiopia	Nigeria	West Germany	
Faeroe Islands	North Korea	Yemen	
Finland	Norway	Yugoslavia	