

# The New CanaTrans® White Space

Why did we design the CanaTrans White Space (CTWS)? Because our users want a signal that transmits further, penetrates walls, and can be effortlessly received. They want compatibility with industry standard HD signals and for the first time the new CanaTrans will be FCC approved!

In spite of the now vast proliferation of all kinds of HD transmitters, one would wonder why we at Lentequip decided to update our famously popular CanaTrans to make it now HD compatible yet chose to stick with the UHF frequencies and expand them even further to now cover the VHF bands? The answer to this question has many facets. The foremost use of the CanaTrans is for video assist and video assist's primary purpose is for live monitoring (zero delay!) of the on-set cameras which means that this crucial link has to perform under varying challenging conditions. The ability to penetrate through walls, car to car video links where the transmitter and receiver are both in extensive motion are but some of them. The aforementioned challenges are still best suited for the VHF and UHF frequencies – period<sup>1</sup>. The ability to penetrate objects is a key property of lower frequencies and one of the main reasons they were used to broadcast off-air channels to televisions around the world.

While we are talking about frequencies let's explain some greatly misunderstood concepts of standard definition transmission versus high definition ones. HD transmitters have to, by virtue of the huge amounts of data they emit, operate on Gigahertz bands. Large amounts of data require the extremely high frequencies to carry the information to the receiver. When using GHz bands you are subjecting yourself to some limitations that are simply part of the physical nature of those frequencies and in many cases quite objectionable to video assist operation. Some include the inability to penetrate solid objects, poor range, congested frequencies typical of unlicensed bands, poor performance when both the transmitter AND the receiver are in motion, cumbersome set-ups, lacking a simple and cost effective way for the broadcasted signal to be received by multiple receivers simultaneously, reception delay, cliff effect (this is where the picture disappears entirely at a given distance with no allowance for a gray zone or partial reception) and cost, just to mention a few. With our analog broadcasting standard we maintain a very robust link (one that synchronizes with the receiver every 64 microseconds or every 4.2mm between calibrating intervals when based on an object moving at 240 km/h!) especially when the user ventures into a *marginal signal to noise territory*. These are the hallmarks of the lower frequency transmission standards and one of the most coveted by our users. In fact, when we ask our customers at trade shows if they are still using their CanaTrans in light of the many other solutions available, we invariably get a positive response.

We also realize that most monitors used for video assist reception are small, 7 inches and under, a size that is practical to walk around with. With this in mind, a good standard definition transmission will do a great job while leaving most of the HD transmission hindrances behind. CanaTrans customers surveyed have consistently indicated that if we designed a new transmitter it must be as solid in its transmission

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<sup>1</sup> CanaTrans was used on the 2013 Academy Award winning film Argo.

qualities just like its predecessor, have no delay and be fully HD compliant on its inputs. With this in mind we created the new CanaTrans White Space. White Space is one of the recognized terms used for VHF/UHF channels extending from #2 to #50. We have extended the channel range to cover the full white space spectrum and even added a live view monitor, a first for any transmitter! The CTWS will accommodate any HD input with the exception of 3G<sup>2</sup>. Other features include an active HD loop-through, a removable input module allowing for future expandability such as HDMI capabilities, numerous parameter adjustments displayed in an easy to use graphical user interface, various mounting possibilities as well as a magnetically coupled sun shade. The input voltage is very agile and can accommodate a range from 7-30VDC. The CTWS also runs cooler than its predecessor thanks to a quiet miniature blower integrated into the heatsink assembly. Units are equipped with a set of three antennas to best maximize transmission characteristics across the band.

As of this writing the new CanaTrans is in the last stages of approval under FCC part 74 Wireless Assist Video Devices (WAVD). Once granted, the CanaTrans WS will be to our knowledge the first-ever WAVD to be allowed operation in the White Space Spectrum subject to user licensing requirements as set out in the application. With the advent of most public broadcasting now having left the VHF/UHF bands entirely, the CanaTrans WS can in most places enjoy a relatively open spectrum in which to operate free of congestion or interferences.

The design of a transmitter such as this required a delicate balance between performance, picture quality and cost to the end user. Since releasing the first few units only a short while ago, we feel that this objective has been well balanced as expressed by our early adopters.

Lentequip Inc.

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Scene from Argo, the 2013 Academy Award's Best Picture  
Shot taken from CTV W5

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<sup>2</sup> most HD camera will not output 3G for monitoring purposes