

## HDTV & DIGITAL Television FAQ's

**Q: What are the primary “building blocks” required to deliver digital video in a hotel?**

**A:** There are six primary “building blocks” of a digital video solution for hotels:

1. **TV** – the TV in the guest room must be capable of displaying a digital video format, or HDTV (720p or 1080i).
2. **Digital Tune/Decrypt/Decode Technology** – required to receive and process a digital video signal for display on the TV.
3. **Network** – the infrastructure (including physical wiring) required to transport video signals from the hotel head-end to the guest rooms.
4. **Headend Equipment** – components are required to receive digital video signals from your satellite provider and retransmit them to the guest rooms on the in-hotel network.
5. **Content** – the hotel's content provider must have rights to digital source content (including higher resolution formats such as resolution formats such as EDTV and HDTV) along with rights to transport that content digitally within the hotel.
6. **Security** – satellite and VOD sources require robust content security (video encryption and conditional access) to the hotel and within the hotel before licensing rights for digital transmission and/or higher resolution formats.

**Q: How are off-air digital video signals received and retransmitted in a hotel environment?**

**A:** An antenna receives the signal, which must then have the off-air carrier frequency converted to a new carrier frequency to be placed on the hotel's MATV network. This process can be done via dedicated hardware down converters and up converters for the carrier frequency, or a “transcoder” which can actually manipulate portions of the digital video stream along with modifying the carrier frequency through down conversion and up conversion.

**Q: How are satellite-delivered digital video signals received and retransmitted in a hotel environment?**

**A:** The satellite-delivered digital video signal must be received at the hotel, the satellite provider's conditional access and encryption must be stripped off, then an encryption method and modulation scheme that can be decrypted and demodulated by the TV (or set-top box) in the guest room must be re-applied. The resulting encrypted, modulated digital video stream is then up converted to be placed on a specific 6 MHz carrier frequency on the hotel's MATV network. A satellite dish, IRT (Integrated Receiver Transcoder) and up converter are the primary pieces of equipment required.

**Q: How are cable-delivered digital video signals received and retransmitted in a hotel environment?**

**A:** Today almost all cable systems apply some type of conditional access and encryption to their digital video signals. That security technology must be maintained until the digital video signal reaches the TV. That generally requires either a set-top box or CableCard to accompany every TV receiving a digital video signal from a cable company. In a hotel environment, this means that either a set-top box or a CableCard (in a digital cable-ready TV) would have to be in every guest room, and the VOD (Video on Demand) platform would not be able to co-exist on the same MATV network as the cable signal (unless both the VOD system and the cable system used the same conditional access and encryption schema, which is highly unlikely as cable systems vary widely in the specific conditional access and encryption used). Until a “transcoder” product (similar to what's been made for satellite) is developed for cable, there is no good solution for receiving and retransmitting digital video signals from cable companies in a hotel environment.

**Q: How much digital and HD content is available now?**

**A:** It varies by content source:

- **Off-Air** – more than 99% of US households can receive digital off-air (“broadcast”) video signals. These digital signals include major networks such as ABC, CBS, NBC, FOX, PBS, WB and UPN. Generally, over 50% of the primetime off-air lineup is currently in HDTV format, making off-air a great source of HD content when most hotel guests are in their rooms. Solutions are available now for reception and retransmission of this content in a hotel environment.

- **Satellite** – a variety of “premium” networks are available via satellite providers, including HDNet, Discovery HD Theater, ESPN HD, ESPN 2 HD, TNT HD, HBO HD and SHOWTIME HD.

**Q: What should a hotelier buying a “digital” TVs understand about analog vs. digital delivery of video to their guest rooms, or analog resolution vs. HD-resolution video delivered to their guest rooms?**

**A:** “Digital” TVs are capable of much higher screen resolution than analog televisions. When an analog video signal is fed to a “digital” TV, the signal is “blown up” or expanded to fill the extra pixels. When this happens, any imperfections (such as noise or interference) in an analog signal are magnified, and the resulting picture quality can be quite poor (even though the perceived picture quality as viewed on an analog TV may have been fine). Even good quality analog signals often don’t look very sharp on a “digital” TV. Transporting video digitally to the guest room will protect against analog imperfections degrading picture quality. Delivering higher resolution video (HDTV) formats will truly optimize the guest viewing experience on digital TVs, as the additional resolution and progressive scanning produce picture quality that has 10 times the resolution and is 5 times as sharp as analog TV.

**Q: What four main questions should hoteliers buying flat panel or other “digital” TVs ask commercial hospitality TV vendors to ensure they can receive digital video (including HD formats) from all available sources?**

**A:** The four questions are:

1. Is the TV capable of HDTV video resolution?
2. What kind of tuner technology is built inside the TV? Is it NTSC (analog) only? Does it have an ATSC digital tuner? Does it have a QAM digital tuner?
3. Does the TV have content-provider approved content security technology built in?
4. If the TV does not have any of the components listed in questions 2 and 3 built-in, are these components available in a separate set-top box that interfaces with the TV? If so, when will the set-top box be available and how much does it cost? Also, will the set-top box be seamlessly integrated with the TV for infrared (IR) remote commands and control of TV functions (video input switching, sleep timer, etc.)?

**Q: What are the main types of commercial “digital” TVs available today?**

**A:** There are four main types of commercial “digital” TVs available:

**HD-Ready or HD-Capable** – a monitor capable of displaying HD resolution, but without a tuner to receive or process a digital video signal for display.

**HD-Ready (or HD-Capable) with Analog Tuner** – a monitor capable of displaying HD resolution with an analog tuner to receive and process analog (NTSC) video signals for display.

**HD Built-in** – a monitor capable of displaying HD resolution with a digital ATSC standard-compliant tuner for receiving and processing digital video signals from *off-air* video sources.

**HD Built-in with content secure technology** – a monitor capable of displaying HD resolution with a digital ATSC tuner, QAM tuner and the content security technology (for example Pro:Idiom™) chipset to enable reception of digital video signals from off-air, *satellite and VOD sources*.