

The **Entra** Interactive Video Controller (IVC) is a dense out-of-band (OOB) controller that supports both Distributed Access Architecture (DAA) R-PHY and traditional RF networks. For R-PHY deployments, the IVC is an R-OOB Auxiliary Core with downstream (DEPI) and upstream (UEPI) interfaces. For traditional RF deployments, the IVC provides one downstream and up to eight upstream RF service groups with support for up to 16,000 set-top boxes. The IVC is future-proof, ready to support deployments of Remote MACPHY Devices (RMD) as part of the Flexible MAC Architecture (FMA).

## Entra Interactive Video Controller - Chassis



## Interactive Video Controller Features

- SCTE 55-2 OOB Controller
- One downstream and eight upstream RF service groups in 1RU
- Supports up to 16,000 SCTE 55-2 set top boxes
- Supports up to 256 Remote PHY Devices
- Dual redundant AC or DC power supplies
- Direct replacement for Cisco D9485

# Interactive Video Controller Specifications

RF Downstream	
RF Output Frequency Range (Low Frequency Port)	70 MHz to 130 MHz
RF Output Frequency Range (High Frequency Port)	70 MHz to 130 MHz
RF Output Frequency Step Size	250 kHz
RF Output Power Level	+50 dBmV to +60 dBmV (minimum range)
RF Output Impedance	75 $\Omega$
Inband Spurious Outputs (50 MHz to 1002 MHz)	< -60 dBc
Noise Floor (out-of-band)	< -132 dBc/Hz (> 25 MHz from output frequency)
Output Power Level with Carrier Squelched	< 0 dBmV
Output Frequency Error (over temperature)	< 10 ppm over product lifetime
RF Test Point Level	-20 dB $\pm$ 2 dB over output frequency range

Modulation (Downstream)	
Modulation Type	Differentially Encoded QPSK
Error Correction	Reed-Solomon, K= (55,53), t=1
Symbol Rate	772 KSym/s
Symbol Pulse Shaping	Square Root Raised Cosine, alpha = 0.30
Spectral Mask	Response @ Offset from Center $0 \pm 0.25$ dB @ $\pm 270$ kHz $-3 \pm 0.25$ dB @ $\pm 386$ kHz $< -21$ dB @ $\pm 500$ kHz $\leq -40$ dB @ $\pm 772$ kHz $\leq -60$ dB @ $\pm 1$ MHz
Modulation Error Ratio	> 35 dB un-equalized

RF Upstream	
Tuner Frequency Range	5 MHz to 26.5 MHz
Tuning Step Size	250 kHz
Tuner Input Ranges	-13 dBmV to +3 dBmV (range 1) -5 dBmV to +11 dBmV (range 2) +3 dBmV to +19 dBmV (range 3) +11 dBmV to +27 dBmV (range 4)
Total RF Power	$\leq 35$ dBmV (5 MHz to 42 MHz)
RF Input Impedance	75 $\Omega$
Input Return Loss	> 12 dB (5 MHz to 42 MHz)
Maximum Co-channel Single-tone Interferer	< -16 dBc for BER $\leq 1 \times 10^{-8}$
Maximum Total Adjacent Similar QPSK Carrier Power for BER $\leq 1 \times 10^{-8}$	< +14 dBc for BER $\leq 1 \times 10^{-8}$ Nominal carrier input level, adjacent channel QPSK Carrier sourced from Cisco STB (upstream transmitter exceeds SCT55-2 adjacent channel energy specification)

Modulation (Upstream)	
Modulation Type	Differentially Encoded QPSK
Error Correction	Reed-Solomon, K= (59,53), t=3
Modulation Type	Differentially Encoded QPSK
Symbol Rate	772 KSym/s
RSSI Accuracy	$\pm 2$ dB
Receiver Timing Accuracy	$\pm 1.9$ $\mu$ s
Bit Error Rate (BER)	Better than $1 \times 10^{-8}$ @ 18 dB $E_b / N_0$
Burst Noise Immunity	No lost cells for noise bursts up to -60 dBc/Hz of duration 1 $\mu$ s in any 350 $\mu$ s period

RPHY Mode	
Max RPD's supported	256 per EN-IVC
Configuration and Monitoring	GCP
55-2 Specific Upstream/Downstream Data Transfer	Unicast, Multicast L2TPv3 Tunnels
Interfaces	
Primary Data Connection	10/100/1000 BASE-T Ethernet
Craft Port	RS-232
AC Input (EN-IVC-2 AC)	3-prong male socket (IEC 60320-1 C14)
DC Input (EN-IVC-2 DC)	Screw Terminal
RF Input & Output	Type F, Female
RF Test Point	BNC Female
Ethernet	RJ-45 Female
Craft Port	DB-9 Female

Chassis / Power / Environmental	
Form Factor	1RU, Standard 19" Rack-mount, EIA RS-310
Dimensions (H x W x D)	1.75 in. x 19 in. x 19.5 in. (4.44 cm x 48.26 cm x 49.5 cm)
Voltage Options	90 VAC to 264 VAC, 47 Hz to 63 Hz (EN-IVC-2 AC) 42 VDC to 56.7 VDC (EN-IVC-2 DC)
Power Consumption	87 W with Dual Power Supplies at 25°C 102 W with Dual Power Supplies at 50°C
Operating Temperature	0° to 50°C (32° to 122°F)
Operating Humidity	0 to 95% non-condensing
Regulatory Standards Compliance	CSA/UL IC, FCC RoHS Directive 2002/95/CE Compliant