

## CX180F

### Forward Path Monitoring

#### CATV Forward Path Monitoring Simplified

The CX180F Probe in the VeSion monitoring system checks the performance of analog and digital channels being transmitted downstream or toward customers across a CATV HFC network.



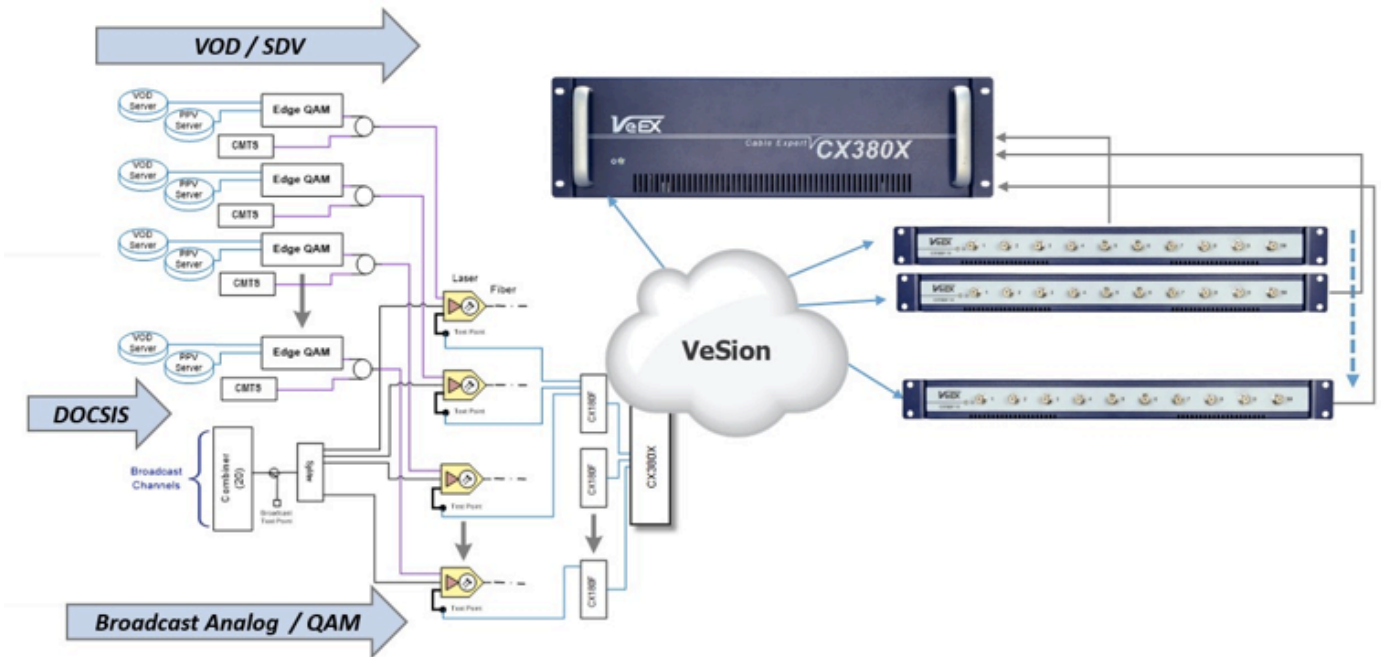
Equipped with multiple test engines, the CX180F's key signal parameters including signal level, BER, MER, and Constellation are scanned continuously and non-intrusively. Advanced spectrum analysis across the entire operating frequency band, detects ingress which can lead to signal impairment and/or failure.

#### Product Highlights

- Compatible with VeSion Cloud-Based One System Platform
- Space efficient 1U rackmount probe with built-in matrix switch
- Flexible probe configuration options with 10 input ports, including a single or three test engines selection
- Monitors analog, digital TV channels and FM carriers
- Fast continuous scan of all active channel
- Fast Level/MER mode to scan QAM Level and MER
- On-demand channel camp-on for long term analysis
- Detailed digital channel QAM 64/256 analysis with constellation
- On-demand ingress noise scan from 5 to 1000 MHz
- Ethernet system interface to CX180F Server/Controllers
- Secured access to prevent unwanted intrusion
- Cost-effective solution for small headend deployment, yet easy for future expansion
- Web and Mobile app based access with VeSion System
- Combined with CX380X, add MPEG measurement and monitoring as per 101 290 standards
- Three independent test resources for non-blocking monitor scan and two on-demand tests
- Secured IP connection for access from any location with Internet connection via remote terminals or VeEX portable test sets

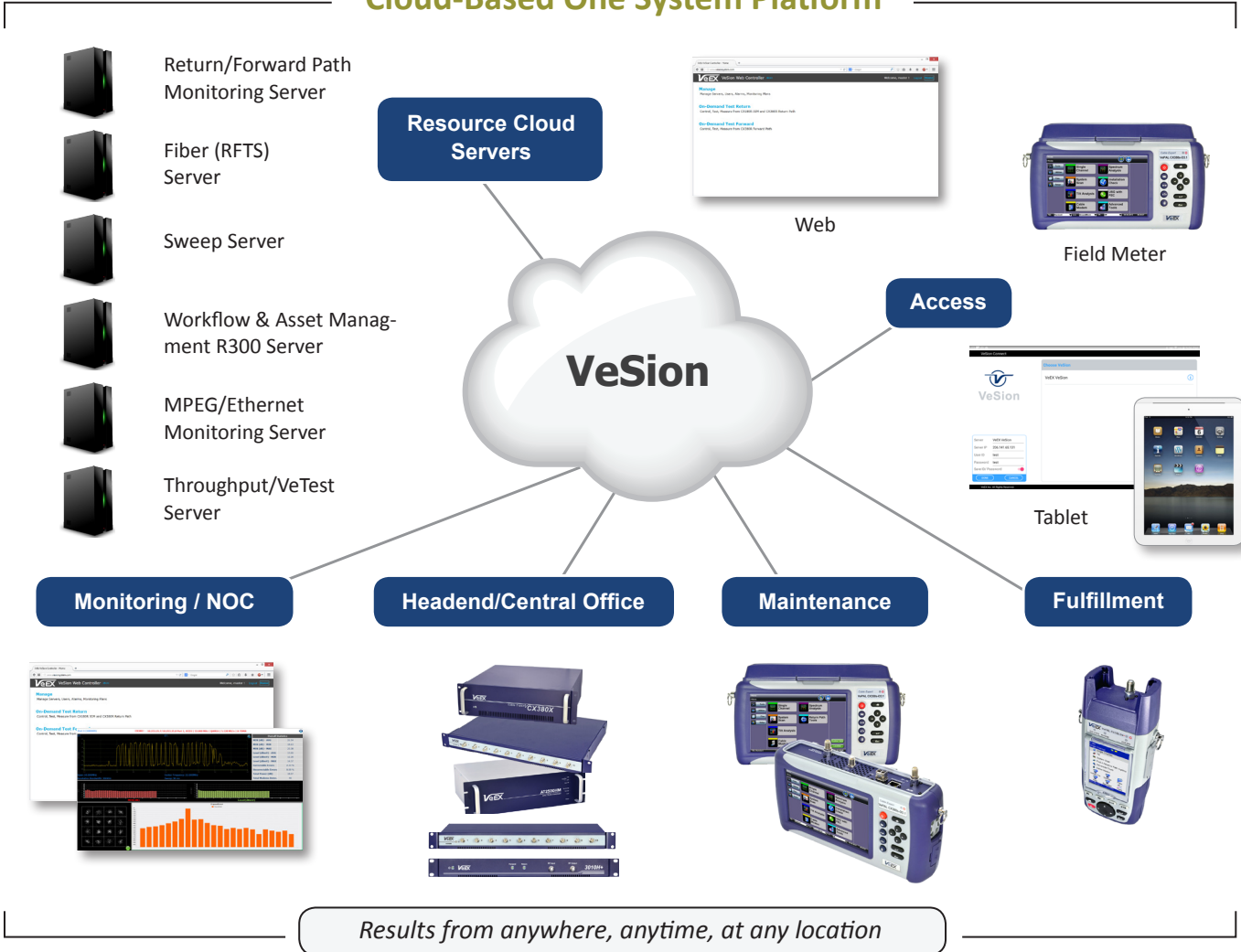
## Using CX380X Forward Path Monitoring Application with CX180F Probes

CX380X can be added to VeEX CX180F probes to extend its capabilities for advanced Forward Path monitoring including MPEG for Priority 1 and 2 as per 101 290 Standards, troubleshooting and auditing the performance of analog and digital channels being transmitted downstream across CATV HFC network. Therefore, ensure the quality of content with full confidence after modulation and combining at the cable edge, before the handoff to the HFC network. Together with VeSion and CX180, the CX380X offers modular, scalable and distributed architecture. Test point can be added any time for remote troubleshooting and segmentation, without reducing the monitoring speed. The system offers unparalleled test and measurement performance and flexibility to monitor Analog and Digital Broadcast, VoD / SDV, MPEG Analysis and FM Services. With built-in low noise 10 dB switch gain RF input ports, it is an ideal solution to deploy for common laser test points, DWDM network test challenges head-on.



*Note: Each CX380X can support multiple CX180F probes to support Forward Path monitoring applications.*

## Cloud-Based One System Platform



## Specifications

### Interface

#### RF Input

Connector: F type, female 75Ω  
 Frequency range: 5 to 1000 MHz

#### Control Ports

Serial port: RS232, DB-9, Female  
 Ethernet: 10/100-T, RJ45

### Measurement

Frequency range: 5 to 1000 MHz  
 Dynamic Range: 50 dB  
 Level range:

- 40 dBmV to +55 dBmV
- 20 dBuV to +115 dBuV

Resolution Bandwidth: 125 kHz, 330 kHz, 1 MHz  
 Attenuation range: 0 to 50 dB, 10 dB/step  
 Range with attenuation: -45 dBmV to +55 dBmV  
 QAM modulation: 64/256 QAM Annex A, B and C  
 Digital channel lock range

- 15 dBmV to +50 dBmV or
- 45 dBuV to +110 dBuV

MER range: 21 to > 43 dB, ± 2 dB typical  
 Pre and Post BER range:  $1.0 \times 10^{-9}$  to  $9.0 \times 10^{-3}$   
 Errored seconds, Severely Errored seconds  
 Data Capture upto 1 year  
 Input impedance: 75Ω

### Measured Parameters

System Scan – Analog

- Video and Audio channel power level, V/A ratio, peak-to-valley, min/max audio and video level, tilt

System Scan – Digital

- QAM level, min/max QAM level, tilt, Peak-to-valley Level and MER measurement per QAM in less than 1.5s

System – FM channel

- Channel power level

On demand single channel – Analog

- Video/Audio power level, V/A ratio, adjacent channel, C/N ratio

On demand single channel – Digital

- QAM power level, MER, Pre/Post BER, Constellation, Adjacent channel

On demand FM

- Power level

### Other Hardware Types

Under the legacy CX180F Forward Path Monitoring system, the following flexible system configurations are:

- CX180F: 3 independent monitoring ports
- CX180F-1: 1 monitoring port
- CX180F-10: Cost-effective 10 port switching monitoring system with built-in 10:1 matrix

## General Specifications

Size	432 x 299 x 38 mm (W x D x H) 17 x 11.75 x 1.49 in
Weight	Less than 3.2 kg (less than 7 lb)
AC Adaptor	Input: 100-240 VAC, 50-60 Hz Output: 15VDC, 3.5A
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	5% to 95% non-condensing



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