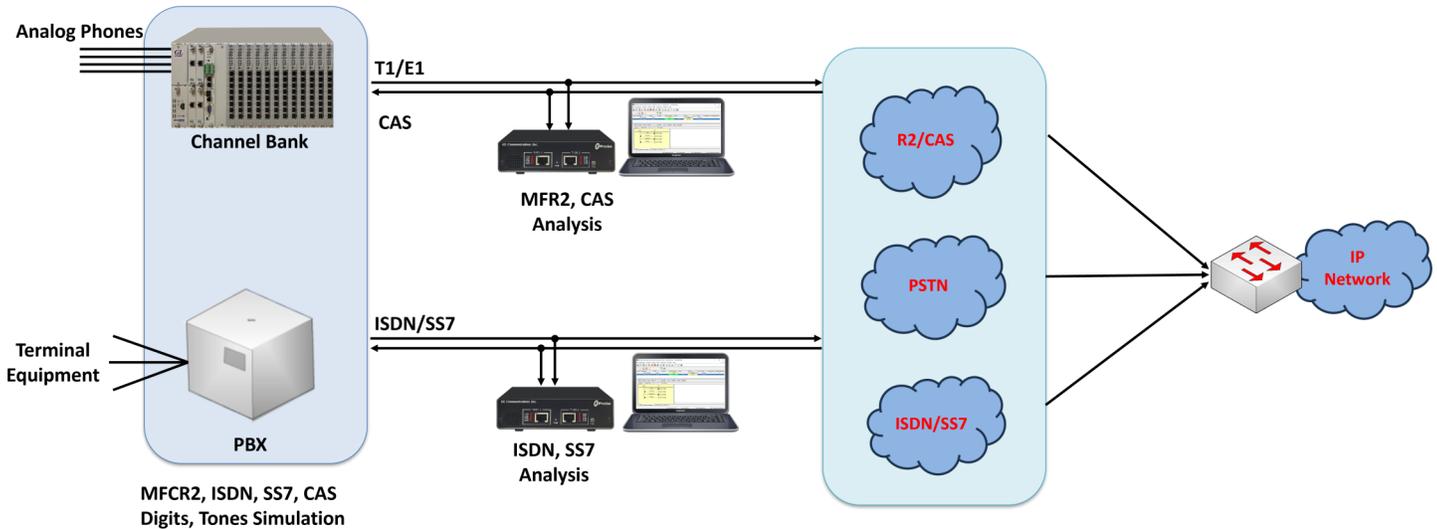


MFC-R2 Capture and Analysis



Overview

The MFC-R2 Call Capture and Analysis Software (XX070) provide the capability to non intrusively record calls directly from E1 lines. The system uses HD T1 or E1 PCI Cards, or GL's Portable USB based Dual T1 or E1 Laptop Analyzer to interface non-intrusively with E1 lines. Calls can be manually captured or automatically triggered for capture from both directions (east and west) of transmission. For auto scanning, ISDN, SS7 and CAS (R1, wink start, MFC-R2) signaling, and tone triggers are supported. Subsequently, captured calls can be played back and analyzed in time and spectral modes using a commercial sound card, built-in high fidelity speakers, and audio viewing software (Adobe Audition, Goldwave, and so on).

Typical Applications are:

- Call recording for post analysis
- Analysis of single / dual tones, DTMF and MF digit analysis (frequency, power, duration)
- Analysis of call quality (speech levels, noise levels, echo return loss, speech clipping, impulse noise, and other impairments)
- Call activity, call density, and call volume analysis
- Monitoring and recording ISDN, SS7, and CAS calls
- Sorting of Calls by "called" and "calling" number

Main Features

- Call Capture and Analysis application records the calls, either automatically or manually and stores the data in files
- "Call filtering" feature is used to capture calls with a user-defined called and calling numbers rather than all calls
- Various 'File Naming' conventions based on the type of capture. The file naming conventions suit various types of capture applications such as MFC-R2, signaling, ISDN capture, manual captures and so on
- All call data are captured including signaling bits, voice-band data, and signaling protocol data (e.g. DTMF or MF digits)
- Digit-parsing feature of CCA application helps to distinguish CAS R1 or MFC-R2 calls by prefixing called or calling numbers to the filename
- ISDN calls are recorded with CRV, ISDN message type, channel, and direction, called and calling numbers. ISDN calls can be captured with customized called and calling number filter
- Enhanced application includes call capture based on SS7 signaling messages, and the ability to set triggering to capture calls when any SS7 signaling messages are received

For more information, visit [MFC-R2 Capture and Analysis](#) webpage.



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Call Capture and Analysis (CCA)-(XX030)

The MFC-R2 Call Capture and Analysis application is used to initiate recording of calls, either automatically or manually. The signaling bits status / frequency / power of the East and West directions can be shown in real-time for all the channels in both directions. Scanning mode is possible wherein all 30 channels are scanned for call initiation and recording.

R2 Tabular Analysis

A special DOS application is provided for MFC-R2 digit analysis (r2ana.exe). With this software captured files can be analyzed for R2 tones and signaling. Forward and backward paired tones are detected and displayed with time stamped indications of digit durations and signaling changes.

MFC-R2 Protocol Parameter Configuration; (.CCITT)

File Help

Flow Control Parameters Compelled/Flow Control Timers **Compelled Tones** Signaling Flags/MASK

Compelled Tones

<p>Backward Group A Tones</p> <p>send next DID A-1</p> <p>send Group I category A-5</p> <p>send next ANI A-5</p> <p>send Group II tone (switch to Group B tone reception) A-3</p>	<p>Backward Tones indicating acceptance of call</p> <p>call accepted in Group B (charge) B-6</p> <p>call accepted in Group B (free) B-7</p> <p>call accepted in Group A A-6</p> <p>alternative tone for call accepted in Group B B-0</p>	<p>Backward Group C Tones (when collecting ANI's)</p> <p>request outbound to send DID's; send next DID C-1</p> <p>request outbound to send DID's; repeat last DID C-0</p> <p>inbound request the nature of the circuit A-13</p> <p>inbound request if half-echo suppressor is needed A-14</p>
<p>Backward Group B Tones</p> <p>indicate congestion B-4</p> <p>indicate unallocated number B-5</p> <p>indicate busy B-3</p> <p>indicate line out of order B-8</p>	<p>Request or Indication Tones</p> <p>outbound tone in Group II I-1</p> <p>default User Category (Group I) I-1</p> <p>after Category I, no ANI's avail I-12</p> <p>backward Group B tone to reject incoming call I-2</p>	<p>Forward Group A tones that outbound plays</p> <p>no satellite link in circuit I-13</p> <p>satellite link in the circuit I-14</p> <p>half-echo suppression needed I-14</p>
<p>Forward Tones indicating end or non-availability</p> <p>end of DID I-15</p> <p>caller's category not avail I-12</p> <p>end of ANI (caller id avail) I-15</p> <p>end of ANI (caller id restrict) I-0</p>	<p>Backward Group A Tones</p> <p>repeat DID N-1 A-2</p> <p>repeat DID N-2 A-7</p> <p>repeat DID N-3 A-8</p> <p>repeat all DID's (restart dialing) A-0</p>	

Signaling Bits Recorder Software (XX050)

This software provides time stamped indications of all signaling bit changes. User has the choice of recording the data from selected channels or from all the channels.

Strip Chart Application (XX024)

Real-time graphical application captures signaling as well as PCM data. Timing relationship of signaling bits and MFCR2 digits is easily viewed and analyzed.

The screenshot shows the 'Real-Time MFC-R2 Analysis' application. It features two main sections: 'East Trunk and Timeslot' and 'West Trunk and Timeslot'. Below these are two tables, one for 'East' and one for 'West', which record signaling data. The 'East' table has columns for Time, ABCD, PCM, and Comm. The 'West' table has columns for ABCD and Comm. A Notepad window titled 'MFCR2_PlaceCall_ClearbackFromDCOSS.txt' displays raw signaling data, including commands like 'Tx Sig Bits 1001', 'Pause 1000', and 'Rx Await Sig Bits 1001', along with MFCR2 digit data.

Time	ABCD	PCM	PCM	ABCD	Comm
0	1001				sign
0				1001	sign
21.717	1101				sign
35.667	0101				sign
47.188	1101				sign
57.124	1001				sign

The screenshot shows the 'E1 Analyzer' software interface. It includes a 'Multiple Call Capture' window with settings for capture directory, file names, and signaling files. Below this is a 'Timeslot Activity' window showing a grid of timeslots (0-31) with their current states. The main window displays two 'Signaling Bits' windows, one for 'Card #1' and one for 'Card #2'. Each window shows a grid of timeslots (TS 0-31) with their corresponding signaling bit values (e.g., 0111, 1110, 1001).

TS	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Card #1	---	0111	0111	0111	0111	0111	0111	0111	0111	0111	0111	0111	0111	0111	0111	0111	---	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110		
Card #2	---	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	1001	---	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111		

Basic Client Server Scripted Control Software (XX600)

WCS performs real time recording and transmission to / from files, DTMF / MF / MFC-R2 digit detection and generation, bit error rate testing, alarm monitoring, and Digital Signal Processing (DSP) operations, from multiple client locations.

w/ Transmit / Detect Digits (XX620)

Digit detector configuration file option detects and reports DTMF /MF / MFC-R2 digits on channels as they occur. HD cards have the ability to transmit and detect digits on all the timeslots.

w/ Channel Associated Signaling Simulator (XX625)

CAS simulator is a client-side application that works along with the T1 / E1 Analyzer. It can simulate and analyze any user-defined CAS protocols by providing signaling bit transitions and forward / backward frequency tones / digits

w/ VB Client

VB client's MFC-R2 Analysis application is used to analyze R2 signaling on E1 trunks and R1 signaling on T1 trunks in real-time.

Buyer's Guide

Item No	Product Description
XX070	E1 MFC-R2 Call Capture and Analysis Software and accessories
XX050	Signaling Bits Recorder
XX024	Real-Time Strip Chart
XX020	Record/Playback File Software
XX022	DTMF/MF/MFC-R2 Detector and Generator Software
XX600	Basic Client/ Server Scripted Control Software
XX620	w/ DTMF/MF/MFC-R2 + answer/place call capability
XX625	CAS Simulator
SA048	Goldwave Software

Note: PCs which include GL hardware/software require Intel or AMD processors for compliance.

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