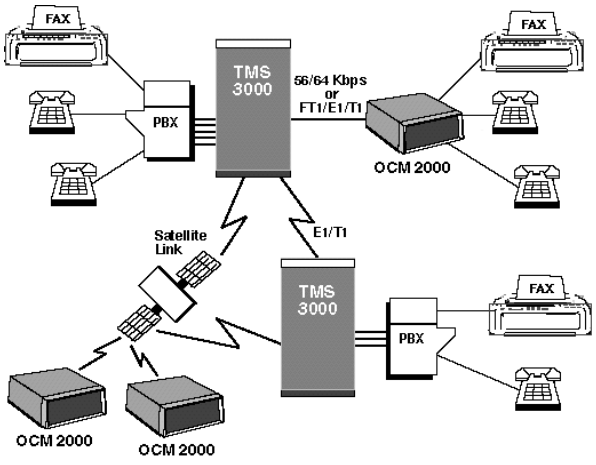
General DataComm

CELP

VOICE CHANNEL MODULES

OVERVIEW The CELP (Codebook Excited Linear Predictive coding) voice channel modules bring superior quality voice plus an up to 13:1 compression ratio to General DataComm's TMS™ (Transport Management System) and OCM (Office Communications Manager) products. Modules can be configured to support compressed voice at channel operating rates of 9.6, 6.4, or 4.8 Kbps. Users gain the best in voice quality using high speed digital services while saving on monthly line costs. In addition, rates can be dynamically downspeeded to accommodate link restoral rerouting with only a slight adjustment in voice quality.



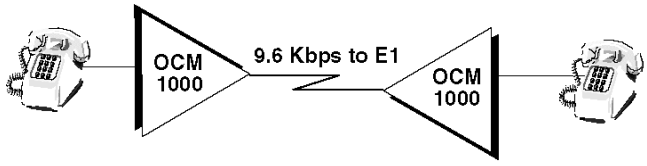
ADVANCED VOICE COMPRESSION FOR TMS AND OCM

As an option, the CELP modules can recognize and transmit facsimile signals uncompressed to remote CELP modules. This automatic bypass feature is transparent to the user, yielding support for full rate Group III fax at 9.6 Kbps.

Module versions are available with or without fax bypass for the TMS 3000 and the OCM 2000/1000 Office Communications Managers. Flexible signaling choices include 2-wire/4-wire E&M (Type 1, Type 2, Type 5, and SSDC5A), 2-wire FXS, and 2-wire FXO. DTMF (Dual Tone Multi-Frequency) signaling is supported by each CELP module. Since all signaling systems are carried in-band and do not require extra bandwidth, "hidden" bandwidth costs are eliminated.

BANDWIDTH CONSERVATION The use of digital services to bring voice and facsimile traffic from remote offices onto the corporate backbone network has become increasingly important, especially for today's growing multinational network applications. However, despite the dramatic decline in tariffs for digital services in recent years, international links continue to be relatively expensive, providing greater incentive for bandwidth efficiency. Line cost savings and overall better bandwidth management, the mission of GDC's TMS family, is furthered by using the CELP family's bandwidth-conserving capabilities.

Installed on a TMS or OCM, CELP modules provide compression ratios of up to 13 to 1. With a CELP module operating at 9.6 Kbps, for example, users gain three times as many voice/fax channels as with a 32 Kbps ADPCM module over a single 56 or 64 Kbps or FT1/T1/E1 circuit. Compared to uncompressed voice, 9.6 Kbps CELP delivers six times as many channels. The end results are more efficient use of bandwidth and significant line cost savings.



POINT-TO-POINT ANALOG-TO-ANALOG VOICE CONNECTIONS

FREE VOICE Users typically purchase a full 56/64 Kbps, FT1, or T1/E1 line when using the OCM for their LAN and data requirements. With the CELP module, high quality voice support can be added at the same time for a negligible amount of bandwidth expenditure and at no extra line cost. Configured in the OCM, the CELP module requires as little as 4.8 Kbps of bandwidth to provide voice connectivity.

PRODUCT HIGHLIGHTS

- ***Maximum conservation of bandwidth resources***
- ***High quality voice as validated by DAM test scores***
- ***Selectable rates of 9.6, 6.4, 4.8 Kbps***
- ***"Free" voice when used on the OCM***
- ***Adaptive downspeeding avoids service disruption***
- ***Optional full Group III fax bypass***
- ***In-band signaling eliminates hidden bandwidth costs***

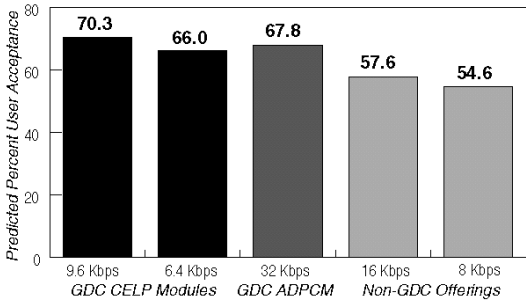
CELP

VOICE CHANNEL MODULE

SUPERIOR VOICE QUALITY Measured using the DAM (Diagnostic Acceptability Measure) test, a repeatable and reliable independent testing method, the 9.6 and 6.4 CELP modules consistently scored higher in signal and background quality, intelligibility, pleasantness and overall acceptability ratings than other compression methods. In fact, CELP at 9.6 Kbps offers about the same quality as ADPCM at 32 Kbps.

ADAPTIVE DOWNSPEEDING After rerouting around a failed link, or in the event of network congestion, there may be insufficient bandwidth to carry a channel at full speed. Like other TMS channel modules, the CELP can be configured to automatically downspeed when bandwidth availability is reduced. With adaptive downspeeding, users will experience only a temporary adjustment in voice circuit quality instead of a disruptive loss of service.

FAX BYPASS An optional fax bypass feature capability, completely transparent to the user, allows CELP modules to detect and automatically route fax signals around the compression algorithms. A fax machine connected to a CELP module configured for 9.6 Kbps will transport images at the full 9.6 Kbps Group III fax rate, or at a Group III rate of 4.8 Kbps if the module is configured for 6.4 Kbps.



DAM TEST SCORES

VERSATILE APPLICATIONS The CELP modules can be used wherever an interface is needed to analog voice or fax equipment in OCM and TMS locations. They are ideal for point-to-point voice connections between analog PBX and PBX tie lines or PBX and Key Systems, and for Dealer Board applications. Or, they can be used by carriers to deploy Off Premises Extensions and Private Line Automatic Ringdown (PLAR) applications.

SPECIFICATIONS

Packaging Formats:	TMS channel format OCM channel format
Voice Compression Method:	Codebook Excited Linear Predictive
Software/Firmware Requirements	
TMS-3000:	GTS V2.1
OCM-2000:	GTS V2.1
OCM-1000:	V1.3 or higher
Channel Operating Rates:	Selectable 9.6, 6.4, and 4.8 Kbps
Fax Data Rates:	Group III fax at 9.6 and 4.8 Kbps

Versions Available

	Voice Only	Voice and Fax	
	Channel Rates (Kbps)	**Channel Rates (Kbps)**	**Fax Rates (Kbps)**
TMS CELP, 4-wire, E&M	4.8	4.8, 6.4	6.4
TMS CELP 9.6, 4-wire, E&M	4.8, 9.6	4.8, 6.4, 9.6	6.4, 9.6
OCM CELP, 2-wire, FXS	4.8	4.8, 6.4	6.4
OCM CELP, 2-wire, FXO	4.8	4.8, 6.4	6.4
OCM CELP, 2/4-wire, E&M	4.8	4.8, 6.4	6.4
OCM CELP, 9.6, 2-wire, FXS	4.8, 9.6	4.8, 6.4, 9.6	6.4, 9.6
OCM CELP 9.6, 2-wire, FXO	4.8, 9.6	4.8, 6.4, 9.6	6.4, 9.6
OCM CELP 9.6, 2/4-wire, E&M	4.8, 9.6	4.8, 6.4, 9.6	6.4, 9.6

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