

G.168 (2000) Echo Canceller

<http://www.vocal.com>

VOCAL Technologies G.168 software libraries include a complete range of ITU compliant modulations, optimized for execution on ANSI C and DSP architectures from leading silicon suppliers (ADI, ARM, DSP Group, LSI Logic ZSP, MIPS and TI). This software is modular and can be executed as a single task under a variety of operating systems or it can execute standalone with its own kernel.

G.168 echo cancellers are voice operated devices placed in the 4-wire portion of a circuit (which may be an individual circuit path or a path carrying a multiplexed signal) and are used for reducing the echo by subtracting an estimated echo from the circuit echo. They may be characterized by whether the transmission path or the subtraction of the echo is by analogue or digital means.

G.168 echo canceller can be combined with other audio codec (G.711, G.722.1, G.722.2, G.723.1, G.726, G.727, G.728, G.729, G.729A, G.729B, G.729AB, GSM AMR, GSM FR, GSM EFR, GSM HR and MELP). G.165 Echo canceller is applicable to the design of echo cancellers using digital or analogue techniques, and intended for use in an international circuit. Echo cancellers designed to this Recommendation will be compatible with each other and with echo suppressors designed in accordance with Recommendation G.164.

Features:

- Fully compliant with ITU G.168 (2000) Recommendation
- Rapid convergence
- Assured double talk detection
- Low divergence during double talk
- Proper operation during facsimile and low speed (<9.6 kbit/s) voice-band data transmissions
- Compliant with Test No. 2 Convergence and Steady state residual and returned echo level tests
- Compliant with Test 2A Convergence test with NLP enabled
- Compliant with Test 2B Convergence test with NLP disabled
- Compliant with Test 2C Convergence test in the presence of background noise
- Compliant with Test 2C Convergence test in the presence of background noise
- Compliant with Test No. 3 Performance under conditions of double talk
- Compliant with Test 3A Double talk test with low cancelled-end levels
- Compliant with Test 3B Double talk test with high cancelled-end levels
- Compliant with Test 3C Double talk test under simulated conversation
- Compliant with Test No. 4 Leak rate test
- Compliant with Test No. 5 - Infinite return loss convergence test
- Compliant with Test No. 6 - Non-divergence on narrow-band signals
- Compliant with Test No. 7 - Stability test
- Compliant with Test No. 9 - Comfort noise test
- Compliant with Test No. 10 - Facsimile test during call establishment phase
- Compliant with Test No. 10A - Canceller operation on the calling station side
- Compliant with Test No. 10B - Canceller operation on the called station side
- Compliant with Test No. 14 - Performance with V.Series Low-speed Data Modems

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G.168-0004A

G.168 Configurations:

- 16 msec tail.
- 32 msec tail
- 48 msec tail
- 64 msec tail

Example Resource Requirements (ADSP-2181):

- 3.7 MIPS for 16 msec.
- 5.8 MIPS for 32 msec.
- 7.9 MIPS for 48 msec
- 10.1 MIPS for 64 msec

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