

Technical Overview

L5ACMDM4 is a dual-mode portable cellular phone which supports both analog Advanced Mobile Phone System (AMPS) FM mode and digital Code Division Multiple Access (CDMA) mode. The cellular phone is designed to meet the requirements of OST Bulletin 53, TIA/EIA IS-95-A Mobile Station-Base Station Compatibility Standard for Dual-Mode Wideband Spread Spectrum Cellular System, TIA/EIA IS-98-A Recommended Minimum Performance Standards for Dual-Mode Wideband Spread Spectrum Cellular Mobile Stations.

The cellular phone operates under Cellular Radiotelephone Service specified in FCC CFR 47, Part 22.

Transmitter Frequency Range:	824 – 849 MHz
Receiver Frequency Range:	869 – 894 MHz
Maximum Transmitter Output Power:	600 mW (AMPS mode) 420 mW (CDMA mode)
Battery Voltage:	7.2 V

The input audio signal is sampled and processed digitally for necessary filtering, amplitude limiting, and compression and expansion. The device fully supports the AMPS and CDMA standards. All necessary signaling tones are digitally generated.

The transmit power level is constantly monitored by a detector circuit and a microprocessor. A method of look-up table, frequency offset correction table, and temperature compensation is used to tightly control the transmit power levels. All spurious and harmonic signals from the transmitter and receiver circuits are suppressed by filters and mechanical shields, and the device fully complies with the standards.

For CDMA operation, chip rate of 1.228 Mcps is used. The occupied bandwidth is 1.25 MHz, and the channel spacing is normally set at 1.25 MHz. The baseband filter satisfies the requirements specified in TIA/EIA IS-95-A.

14. Frequency Stabilization and Suppression Circuits

14.1 Frequency Stabilization

A voltage-controlled temperature-compensated crystal oscillator (VCTCXO) is employed as a frequency reference for all the transmitter and receiver local oscillators. The frequency tolerance of the VCTCXO is specified to remain within ± 2.5 ppm over operating temperature range and operating voltage range. The VCTCXO frequency is locked to the base station transmit frequency during the operation in both AMPS and CDMA modes. The lock indicator signals of all frequency synthesizers are monitored and an out-of-lock condition will inhibit transmission.

14.2 Description of Suppression Circuits

Spurious and harmonic suppression is obtained by design through a proper use of filters and shielding materials. Factory assembly instructions, board level and unit level factory testing, and quality acceptance procedures ensure that such compliance is maintained for all manufactured units.