Technical Specification & Description

1.1 Purpose

This manual provides hardware interface and programming information for the DTEV-Dual CDMA Wireless Data Module.

1.1.1 Features

1. Support for major air interfaces including CDMA2000® 1X, CDMA2000 1xEV-DO Rev. 0, cdmaOne™ IS-95A/B

2. Support the Release A of the CDMA2000 1X standard, for voice and multimedia data applications, with offering data transmission up to 307 kbps data in forward and reverse links simultaneously.

3. Support IS-856 1xEV-DO, high-speed peak data rates of 2.4 Mbps on forward link and 153 Kbps on reverse link.

4. Customized AT Command thru RS232

5. Universal serial bus (USB) for faster data transfers between wireless communicators and other data devices

6. Three universal asynchronous receiver transmitter (UART) serial ports

7. R-UIM/USIM controller (via second or third UART), SIM/R-UIM interface supports global roaming with multiple handsets, simplifying international business travel

8. Multimedia Card (MMC) support to enable the addition of high-capacity removable memory for storage of data, plus the transfer of data to and from PCs and wireless devices

9. Parallel LCD interface

10. General-purpose I/O pins

11. Mobile IP and Static IP

12. Secure Sockets Layer (SSL) software gives consumers the confidence of secure transactions and private data.

13. BREW® Binary Runtime Environment for Wireless platform, making it easier for users to find, select, purchase and download

1.1.2 Applications

1. 2-way Short Message Service (SMS) Reception and Transmission

2. Advanced wireless multimedia support for audio e-mail, still image email, video e-mail,...

3. gpsOne® technology support for the mobile location applications and services, including points of local weather and traffic information, personal navigation,.., and Emergency mandates such as the United States FCC E911 mandate.

2.2 Technical Specifications

2.2.1 General Specifications

Table2-1 General Specifications

Parameters	Descriptions
External Access	Code-Division-Multiple-Access (CDMA)
CDMA Protocol	IS-95 A/B, IS-98A, IS-126, IS-637A, IS-707A, IS-2000,IS-856

Data Rate
        CDMA2000 1X
        1xEV-DO
	307 Kbps on both the forward and reverse links
	Forward link: 2.4 Mbps
	Reverse link: 153 Kbps

System Memory	256Mbytes SDRAM and 256 Mbytes NAND Flash
Transmit/Receive Frequency Interval	45MHz for Cellular and 80MHz for PCS
Vocoder	EVRC, 13kQCELP
RF technology	Zero Intermediate Frequency
Number of Channel	832 for Cellular and 42 for PCS
Operating Voltage	DC +3.4V ~ +4.3V BATT_INT (Pin88 and 90) DC +4.0V to +5.0V VEXT_DC Pin89 or VBATT_DC Pin87

Current Consumption	1. VCC applied to VEXT_DC Pin89 or VBATT_DC Pin87
	   Stand by mode: Idle (110mA), Sleep (less than 9mA)
	   Busy mode: 900mA (Max)
	2. VCC applied to BATT_INT (Pin88 and Pin90)
	   Stand by mode: Idle (110mA), Sleep (less than 1mA)
	   Busy mode: 900mA (Max)

Operating Temperature	-30ºC ~ +60ºC
Frequency Stability	±300Hz for Cellular and ±150Hz for PCS
Antenna	GSC Connector, 50ohm
Size	42mm(W) X 67mm(L) X 3.0mm(H) with case
Weight	About 20g (0.7oz)
External Interface	RS-232 UART, R-UIM, Parallel LCD, Keypad, MP3, MIDI, MMC *Mobile™* , USB-On-The-Go, Stereo Wireband Codec, GPIO
User Interface Software	BREW support
Additional Function	gpsOne position location solution

2.2.2 Receiver Specifications

Table 2-2 Receiver Specifications

Parameters	Descriptions
Frequency Range	
Cellular	869.04 ~ 893.97 MHz
PCS	1931.25 ~ 1988.75MHz
Sensitivity	
1xRTT	Below –104.0 dBm/1.23MHz
EVDO	Below –105.5 dBm/1.23MHz
Input Dynamic Range	
1xRTT	-25 dBm/1.23MHz ~ -104.0dBm/1.23MHz
EVDO	-25 dBm/1.23MHz ~ -105.5dBm/1.23MHz
Single Tone Desensitization The FER in each test shall not exceed 1.0% with 95% confidence	**1xRTT** Band Classes 0 (-30dBm @900KHz and -30dBm @-900KHz): Below –101.0 dBm/1.23MHz Band Classes 1 (-30dBm @1250KHz and -30dBm @-1250KHz): Below –101.0 dBm/1.23MHz **EVDO** Band Classes 0 (-30dBm @900KHz and -30dBm @-900KHz): Below –102.4 dBm/1.23MHz Band Classes 1 (-30dBm @1250KHz and -30dBm @-1250KHz): Below –102.4 dBm/1.23MHz
Intermodulation Spurious **Response Attenuation** (Two interfering CW tones) The FER in each test shall not exceed 1.0% with 95% confidence	**1xRTT** Band Classes 0 Two tone (-43 dBm @900KHz and 1700KHz): Below –101.0dBm/1.23MHz Two tone (-32 dBm @900KHz and 1700KHz): Below –90.0dBm/1.23MHz Two tone (-21 dBm @900KHz and 1700KHz): Below –79.0dBm/1.23MHZ Band Classes 1 Two tone (-43 dBm @1250KHz and 2050KHz): Below –101.0dBm/1.23MHz Two tone (-32 dBm @1250KHz and 2050KHz): Below –90.0dBm/1.23MHz Two tone (-21 dBm @1250KHz and 2050KHz): Below –79.0dBm/1.23MHZ **EVDO** Band Classes 0 Two tone (-43 dBm @900KHz and 1700KHz): Below –102.4dBm/1.23MHz Two tone (-32 dBm @900KHz and 1700KHz): Below –91.4dBm/1.23MHz Two tone (-21 dBm @900KHz and 1700KHz): Below –80.4dBm/1.23MHZ Band Classes 1 Two tone (-43 dBm @1250KHz and 2050KHz): Below –102.4dBm/1.23MHz Two tone (-32 dBm @1250KHz and 2050KHz): Below –91.4dBm/1.23MHz Two tone (-21 dBm @1250KHz and 2050KHz): Below –80.4dBm/1.23MHZ
Spurious Wave Suppression	Below –80dBc

2.2.3 Transmitter Specifications

Table 2-3 Transmitter Specifications

Parameters	Descriptions
Frequency Range	
Cellular	824.04 ~ 848.97 MHz
PCS	1851.25 ~ 1908.75MHz
Nominal Max Power	0.32 W (24.7dBm)
Peak Power in Operation Mode	0.40W (26.0dBm)
Minimum Controlled Output Power	Below –50dBm
Max Power Spurious	
Cellular	900KHz: Below –42dBc/30KHz
	1.98MHz: Below –54dBc/30KHz
PCS	1.25MHz: Below –42dBc/30KHz
	1.98MHz: Below –50dBc/30KHz

2.2.4 gpsOne Receiver Specifications

Table 2-4 gpsOne Receiver Specifications

Parameters	Descriptions
Frequency Range	L1, 1575.42 MHz
C/A Code	1.023 MHz Chip Rate
Bandwidth	2.046 MHz
Modulation	BPSK
Receiver Sensitivity	
Without SA message	-149dBm
With SA message	-152dBm
Interference	
at Min At minimum C/N_0 (17 dB-Hz)	
CW interference	–36dB
1kHz Bandwidth Interference	–17dB
10^+kHz Bandwidth Interference	-7dB
VCO Phase Noise	
at 100 Hz offset	–50 dBc/Hz
at 1 KHz offset	–70 dBc/Hz
at 10 KHz offset	-90 dBc/Hz
at 100 KHz offset	-115 dBc/Hz
at 2 MHz offset	-140 dBc/Hz
CDMA to GPS Isolation	-149dBm

2.2.5 Standards

IS-95 A/B, IS-2000, IS-856: Protocol Between MS & BTS

IS-866: 3GPP2 C.S0033-0 Version 2.0: Recommended Minimum Performance Standards for CDMA2000 High

Rate Packet Data Access Terminal

IS-96A: Voice Signal Coding

IS-98A: Base MS Function

IS-98E: Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Mobile Stations

IS-126: Voice Loop-Back

IS-637: Short Message Service

IS-707: Data Service

IS-657: packet data

USB 2.0 Specification and OTG Supplement: Exchanging data between a host and peripheral

MMC System Specification 1.4: MultiMediaCard standard

ITU-T G.712: Transmission systems and media, Digital systems and networks

Built-in TCP/IP: AnyDATA proprietary software