

System Specification

Attribute	Specification	Remark
Style	Bar type	
Dimension	113 x 58 x 15.5 mm	
Modem & AP	Qualcomm MSM7201-90nm 400MHz	
Display	2.8" VGA 480x640 262K colors TFT LCD	
Memory	128MB DDR SDRAM	
Flash	256MB NAND flash	
Telecom characteristics	GSM/GPRS/EDGE 850, 900, 1800, 1900 MHz Class 10 GPRS/EDGE service UMTS/HSDPA/HSUPA 850, 1900, 2100 MHz UMTS 384k/384k UL/DL HSDPA/HSUPA 7.2Mbps/2Mbps Category 8	
Connectivity & Interface	Wi-Fi 802.11 b/g Bluetooth 2.0 USB 2.0 Full Speed, mini USB 2.5mm earphone jack Video connector through earphone jack	
Antennas	2G/3G all band, WiFi, GPS, Bluetooth	
Speaker	Single 0.5W speaker	
Storage	MicroSD with SDIO	
Power	Li-ion 1410 mAh battery	
Camera	2MP CMOS sensor / 0.3MP 2nd front face	
GPS	Integrate GPS receiver	

Software / Firmware Features

Operation System	Microsoft Windows Mobile 6.1 Professional	
Language	WWE, German, French, Italian, Spanish, Portuguese, Dutch, Russian, Arabic	
Messaging / Email	SMS (classes0,1,2) / MMS(*) / Email Microsoft Push Email client	
Bluetooth	A2DP / AVRCP / Windows Mobile default	
Windows Mobile applications	Word Mobile, Excel Mobile, PowerPoint Mobile	

	MSN Messenger Mobile, Internet Explorer Mobile	
Video Codec	WMV, AVI, 3GP, MPEG4, ASF	
Audio Codec	WAV, MP3, WMA, AMR-NB, MIDI, ASF	
Telephony Codec	EFR, FR, HR, AMR	
Image	JPEG, GIF, BMP, PNG, WBMP, Animated GIF	
Voice command	Cyberon voice command(*)TBD	
Other application	ClearVue PDF viewer JAVA VM (J2ME, CLDC1.1, MIDP2.0) MMS client Video conferencing Audio codec plug in	
Security certificates	Microsoft Mobile2Market(Verisign&GeoTrust) Inventec root certificate	

Accessories

Item	Description
AC Charger	Yes
USB Sync cable	Yes
Headset	Yes
Quick Start Guide	Yes
Get Start Guide CD	Yes
Warranty card	Yes
TV out cable	Yes
User's manual	Yes
Pouch	Yes
Stylus	Yes
MicroSD card with map	TBD
Sticker over device directing user to MSFT EULA	Yes
Promotional materials	Yes
Technical/repair manual	For retailer

Housing & Connector

Description	Requirement
Style	PDA Candy bar type
Dimension	113 x 58 x 15.5 mm
Weight	140 g
Antenna	Embedded (2G/3G, WiFi, GPS, Bluetooth)
USB	Mini USB (Active sync and charging)
Stylus	Yes
Card Slot	Micro SD
Headset Connector	2.5mm stereo connector
RF Test Connector	Yes
TV-Out	Through 2.5mm audio jack with AV cable

Key-Hotkey

Description	Requirement
Power Button	MSFT Required
5 way Navigation	N/A
Jogball	Yes
Send	MSFT Required
End	MSFT Required
Warm Reset	MSFT Required
Camera Key	Yes
Volume up & down (configure)	MSFT Required
Home Button	N/A
OK / Start (configure)	Yes

Main Display

Description	Requirement
Mode	Portrait
Type	TFT LCD
Size	2.8"
Resolution	480 x 640

Color	262k
Backlight Type	LED
Backlight Color	White
Touch Screen	Yes, Resistive type

Telecom-GSM Band

Description	Requirement
GSM 850	Yes
EGSM 900	Yes
DCS 1800	Yes
PCS 1900	Yes

Telecom-UMTS Band

Description	Specification
UMTS 850	Yes
UMTS 1900	Yes
UMTS 2100	Yes

Telecom-System

Description	Specification
GPRS	Multislot class 10 850/900MHz Transmission Power class 4 (2W) 1800/1900MHz Transmission Power class 1 (1W)
EDGE	Multislot class 10 Transmission power class E2
UMTS	PS data rate. 384 kbps DL / 384 kbps UL CS data rate. 64 kbps DL / 64 kbps UL Power class 3 (+24dBm)
HSDPA	Category 8, 7.2/3.6/1.8 Mbps in downlink Power class 3
HSUPA	Category 6, 2 Mbps in uplink
UMTS Frequency Band	Band 1 : DL : 2110~2170MHz

	UL : 1920~1980MHz Band 2 : DL : 1930~1990MHz UL : 1850~1910MHz Band 5 : DL : 869~894MHz UL : 824~849MHz
Frequency Bandwidth	5MHz
Receive Diversity	N/A
Receive Equalization	N/A
SAIC	N/A
Data Modulation Method	HSDPA: QPSK / 16QAM HSUPA: BPSK

USB

Description	Requirement
Connector	5-pin mini USB connector
USB Compliance	2.0 full speed client
USB OTG	N/A
USB Charge and data sync	Yes

GPS (interface only, without map and engine)

Description	Requirement
Chip	Qualcomm gpsOne (MSM7201 integrated)
Channel	20
Cold Start Time	55s (average, Target)
Warm Start Time	40s (average, Target)
Hot Start Time	1s (average, Target)
Reacquisition Time	<1s (average, Target)
Accuracy	Static: 3m (average, Target) Dynamic: 30m (average, Target)
External Antenna I/F	No

Main Battery

Description	Requirement
Type	Lithium-Ion Cell 1410mAh
Talk Time	4 Hours average
Standby Time	200 hours average
WMV Playback from Micro SD	8 hours average
WMA Playback from Micro SD	12 hours average

LBS

Description	Requirement
AGPS	Yes, compliant with MS-Assisted & MS-Based modes. Compliant with UMTS & GSM Control Plane and SUPL User Plane architectures.

Messaging

Description	Requirement
SMS	Yes, classes 0,1,2, concatenated SMS
Short Message Service (MO)	Yes
Short Message Service (MT)	Yes
Multimedia Message Service (MO)	Yes
Multimedia Message Service (MT)	Yes
Email Application	Pocket Outlook
Email Protocol Support	POP3, IMAP4, SMTP, HTML
MMS/Email with video attachment	Yes
SIM Lock	IMSI lock dependant on Operator's request

Push Email

Description	Requirement
Push Email	Microsoft Direct Push

Multimedia

Description	Requirement
Audio	MIDI, MP3, WMA, AMR-NB, WAV, ASF
Audio function	Files can be sent as MMS/Email attachment
Video	Format: WMV, 3GP, AVI, MP4, ASF Codec: Windows Media Video, MPEG4 ASP, H.263
Video function	Download files from explorer, MMS, USB Files properties display: format, size, date
Still Image	JPEG, GIF, BMP, PNG, WBMP
Still image function	Download files from Explorer, MMS, USB Image send as MMS/Email attachment or set as wallpaper Files properties display : format, size, date
Animation	Animated GIF
Speech (Telephony)	HR, FR, EFR, AMR

Camera

Description	Requirement
Focus Mode	Fixed
Shooting Mode	Still Image Video Self Timer
Digital Zoom	1x 2x 4x
Scene Selection	Auto Panorama Night Sports Portrait
White Balance	Auto Incandescent Bulb Fluorescent Outdoor/Daylight
JPEG Quality	High Normal

	Low
Effects	Off Sepia Monochrome Monochrome/Negative
Still Image Resolutions	Medium (320x240) support digital zoom 1x~4x Large (640x480) support digital zoom 1x~2x 2M (1600x1200) 1x
Video Resolution	QCIF (176x144) support digital zoom 1x~2x QVGA (320x240)
Anti Flicker	Auto 50Hz 60Hz
Auto exposure	Yes

Language

Description	Requirement
Language	MSFT Set: English, German, French, Italian, Spanish, Portuguese, Dutch, Russian, Arabic,

Bluetooth Profile

Description	Requirement
Generic Access Profile (GAP)	MSFT Supported
Headset Profile (HSP)	MSFT Supported
AcitveSync-over-Bluetooth	MSFT Supported
Dial-up Networking Profile (DUN)	MSFT Supported
Serial Port Profile (SPP)	MSFT Supported
Hands-free Profile (HFP)	MSFT Supported
Object Push Profile (OPP)	MSFT Supported
Advanced Audio Distribution Profile (A2DP)	MSFT Supported
Generic Object Exchange Profile (GOEP)	MSFT Supported
Audio/Video Remote Control Profile (AVRCP)	MSFT Supported
Human Interface Device (HID)	MSFT Supported
Personal Area Networking (PAN)	MSFT Supported

Phone Features

Description	Requirement
Phonebook	Size of phone book decided by space left in embedded flash In-coming phone number referenced against SIM and phone contacts
Call Management	Display numbers of missed call, answered call, outgoing call and duration of calls Supports multi-calling Phone call recorder Phone book size decided by space left in flash
Network Management	Transfer of incoming calls: A. all of them, B. unanswered calls C. when busy D. when power off or out of service Busy line on hold Network search: A. Auto search B. Manual search (Will only connect to selected network). Network technology selection (GSM / UMTS / Automatic). Default can be set in registry. Default to Automatic. Menu option can be hidden using registry. UMTS band selection 850 / 1900 / 2100 / Automatic. Default set in registry. Default to Auto. Menu option can be hidden based on registry. USSD support Support for fixed dialling Network lock SIM Toolkit supported
Dial-up internet	Support for phone set up as modem for PC to access to Internet
Hands-free profile	Hands-free speaker, Bluetooth headset and wired headset capability
Device security	SIM PIN Option Phoneset password protection PIM Lock 15 digit ROM lock Phone call restriction setting OMA DM client

Radio Frequency Specification

Wi-Fi

Item	Description
Compatibility	IEEE802.11bg Compliant
Data Rates	802.11g: 6/9/12/18/24/36/48/54Mbps 802.11b: 1/2/5.5/11Mbps
TX Power Consumption	TX @ 475mA(max)
	RX @ 275mA(max)
Standby Power Consumption	1mA(max)
Regulation Certifications	FCC Part 15/UL
	ETSI 300/328/CE
Frequency Band	North America(FCC) 11 Channels : 2.412~2.462 GHz Europe(ETSI) 13 Channels : 2.412~2.472 GHz Japan 14 Channels : 2.412~2.472 GHz
Media Access Protocol	Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)
Modulation Technology	DSSS
	(DQPSK ,DBPSK ,CCK)
Operating Channels	US: 11 (1 ~ 11)
	Europe: 13 (1 ~ 13)
	Japan: 14(1 ~ 14)
	France: 4 (10 ~ 13)
Receive Sensitivity	11 Mbps: -85dBm
	54 Mbps: -71dBm
Output Transmit Power	17dBm

Bluetooth

Item	Description
Compatibility	Bluetooth 1.1 Specification Compliant Bluetooth 1.2 Specification Conformance Bluetooth 2.0 Specification Conformance ■ AFH including master and slave classification ■ Faster connection ■ Extended SCO ■ Synchronization

	■ LMP Improvements ■ QoS improvements
Data Rates	Asynchronous: 723.3 kbps / 57.6 kbps Synchronous: 433.9 kbps / 433.9 kbps EDR: 2Mbps (DQPSK) 3Mbps (8DPSK)
Regulation Certifications	Bluetooth 2.0 specification conformance
Frequency Band	2400MHz to 2483.5MHz (USA, Europe)
Modulation Technology	GFSK (1Mbps), 0.5 BT Gaussian
Operating Channels	Maximum 7 active slaves
Receive Sensitivity	Typ -83.0 dBm
Output Transmit Power	Typ 1.0 dBm

GSM

GSM-Frequency Bands

Item	Description
Receiver Frequency Range	GSM850: 869 – 894 MHz GSM900: 925 – 960 MHz DCS1800: 1805 – 1880 MHz PCS1900: 1930 – 1900 MHz
Transmitter Frequency Range	GSM850: 824 – 849 MHz GSM900: 880 – 915 MHz DCS1800: 1710 – 1785 MHz PCS1900: 1850 – 1910 MHz
TX – RX Duplex Spacing	GSM850: 45 MHz GSM900: 45 MHz DCS1800: 95 MHz PCS1900: 80 MHz
Channel Spacing	GSM850: 200 kHz GSM900: 200 kHz DCS1800: 200 kHz PCS1900: 200 kHz

GSM-Transmit Power

Item	Description
GSM850	Class 4 (2W)
EGSM900	Class 4 (2W)
DCS1800	Class 1 (1W)
PCS1900	Class 1 (1W)

GSM-Number of Carrier

Item	Description
GSM 850	124
EGSM 900	174
DCS 1800	374
PCS 1900	299

GSM-Power Control Level

Item	Description
GSM850 and EGSM900	PCL 5: 33 dBm PCL 6: 31 dBm PCL 7: 29 dBm PCL 8: 27 dBm PCL 9: 25 dBm PCL 10: 23 dBm PCL 11: 21 dBm PCL 12: 19 dBm PCL 13: 17 dBm PCL 14: 15 dBm PCL 15: 13 dBm PCL 16: 11 dBm PCL 17: 9 dBm PCL 18: 7 dBm PCL 19: 5 dBm
DCS1800 and	PCL 0: 30 dBm PCL 1: 28 dBm

PCS1900	PCL 2: 26 dBm PCL 3: 24 dBm PCL 4: 22 dBm PCL 5: 20 dBm PCL 6: 18 dBm PCL 7: 16 dBm PCL 8: 14 dBm PCL 9: 12 dBm PCL 10: 10 dBm PCL 11: 8 dBm PCL 12: 6 dBm PCL 13: 4 dBm PCL 14: 2 dBm PCL 15: 0 dBm
---------	---

GSM-Receiver Sensitivity

Item	Description
GSM 850	-102 dBm(typ)
EGSM 900	-102 dBm(typ)
DCS 1800	-102 dBm(typ)
PCS 1900	-102 dBm(typ)

UMTS

UMTS-Frequency Bands

Item	Description
Receiver Frequency Range	Band I: 2110 ~ 2170 MHz (2100 Band) Band II: 1930 ~ 1990 MHz (1900 Band) Band V: 869 ~ 894 MHz (850 Band)
Transmitter Frequency Range	Band I: 1920 ~ 1980 MHz (2100 Band) Band II: 1850 ~ 1910 MHz (1900 Band) Band V: 824 ~ 849 MHz (850 Band)

TX – RX Duplex Spacing	Band I: 190 MHz (2100 Band) Band II: 80 MHz (1900 Band) Band V: 45 MHz (850 Band)
Channel Spacing	Band I: 5 MHz (2100 Band) Band II: 5 MHz (1900 Band) Band V: 5 MHz (850 Band)

UMTS-Transmit Power

Item	Description
UMTS 850	24 dBm
UMTS 1900	24 dBm
UMTS 2100	24 dBm

UMTS-Number of Carrier

Item	Description
UMTS 850	5
UMTS 1900	12
UMTS 2100	12

UMTS-Power Control Level

Item	Description
UMTS 850	+24 dBm ~ -50 dBm (1 dB step)
UMTS 1900	+24 dBm ~ -50 dBm (1 dB step)
UMTS 2100	+24 dBm ~ -50 dBm (1 dB step)

UMTS-Receiver Sensitivity

Item	Description
UMTS 850	-104.7 dBm

UMTS 1900	-104.7 dBm
UMTS 2100	-106.7 dBm

UMTS-Connectivity

Item	Description
Modulation Technology	HSDPA: QPSK / 16QAM. HSUPA: BPSK
UMTS data downlink transfer	7.2 / 3.6 / 1.8 Mbps
UMTS data uplink transfer	2 Mbps

GPRS

GPRS-Connectivity

Item	Description
Class	Multi-slot class 10 Mobile station class B
Modulation Technology	GMSK
GPRS data downlink transfer	Max 85.6kbps
GPRS data uplink transfer	Max 42.8kbps
Coding scheme	CS1: 8.00 kbps CS2: 12.0 kbps CS3: 14.4 kbps CS4: 20.0 kbps

GPRS-Receiver Sensitivity

Item	Description
GSM 850	-101 dBm (CS4)
EGSM 900	-101 dBm (CS4)
DCS 1800	-101 dBm (CS4)
PCS 1900	-101 dBm (CS4)

EGPRS

EGPRS-Connectivity

Item	Description
Class	Multi-slot class 10 Mobile station class B
Modulation Technology	GMSK (MCS1-4), 8PSK (MCS5-9)
EGPRS data downlink transfer	Max 236.8 kbps
EGPRS data uplink transfer	Max 118.4 kbps
Coding scheme	MCS1: 8.8 kbps MCS2: 11.2 kbps MCS3: 14.8 kbps MCS4: 17.6 kbps MCS5: 22.4 kbps MCS6: 29.6 kbps MCS7: 44.8 kbps MCS8: 54.4 kbps MCS9: 59.2 kbps
Other features	Link Adaptation and Incremental Redundancy

EGPRS-Receiver Sensitivity

Item	Description
GSM 850	-86 dBm (MCS9)
EGSM 900	-86 dBm (MCS9)
DCS 1800	-86 dBm (MCS9)
PCS 1900	-86 dBm (MCS9)

GMSK-Transmit Power Class (GPRS CS1-4 and EGPRS MCS1-4)

Item	Description
GSM850	Class 4 (2W)
EGSM900	Class 4 (2W)
DCS1800	Class 1 (1W)
PCS1900	Class 1 (1W)

GMSK-Power Control Level (GPRS CS1-4 and EGPRS MCS1-4)

Item	Description
GSM850 and EGSM900	PCL 5: 33 dBm PCL 6: 31 dBm PCL 7: 29 dBm PCL 8: 27 dBm PCL 9: 25 dBm PCL 10: 23 dBm PCL 11: 21 dBm PCL 12: 19 dBm PCL 13: 17 dBm PCL 14: 15 dBm PCL 15: 13 dBm PCL 16: 11 dBm PCL 17: 9 dBm PCL 18: 7 dBm PCL 19: 5 dBm
DCS1800 and PCS1900	PCL 0: 30 dBm PCL 1: 28 dBm PCL 2: 26 dBm PCL 3: 24 dBm PCL 4: 22 dBm PCL 5: 20 dBm PCL 6: 18 dBm PCL 7: 16 dBm PCL 8: 14 dBm PCL 9: 12 dBm PCL 10: 10 dBm PCL 11: 8 dBm PCL 12: 6 dBm PCL 13: 4 dBm PCL 14: 2 dBm PCL 15: 0 dBm

8PSK-Transmit Power Class (EGPRS MCS5-9)

Item	Description
GSM850	Class E2 (0.5W)
EGSM900	Class E2 (0.5W)
DCS1800	Class E2 (0.4W)
PCS1900	Class E2 (0.4W)

8PSK-Power Control Level (EGPRS MCS5-9)

Item	Description
GSM850 and EGSM900	PCL 8: 27 dBm PCL 9: 25 dBm PCL 10: 23 dBm PCL 11: 21 dBm PCL 12: 19 dBm PCL 13: 17 dBm PCL 14: 15 dBm PCL 15: 13 dBm PCL 16: 11 dBm PCL 17: 9 dBm PCL 18: 7 dBm PCL 19: 5 dBm
DCS1800 and PCS1900	PCL 2: 26 dBm PCL 3: 24 dBm PCL 4: 22 dBm PCL 5: 20 dBm PCL 6: 18 dBm PCL 7: 16 dBm PCL 8: 14 dBm PCL 9: 12 dBm PCL 10: 10 dBm PCL 11: 8 dBm PCL 12: 6 dBm PCL 13: 4 dBm PCL 14: 2 dBm PCL 15: 0 dBm