

UE910 V2 Product Description

80419ST10616A Rev.0 – 2014-05-19



- 3.11.3. VAUX/PWRMON Power Output 19
- 3.11.4. Converters 19
- 3.11.5. Audio Interface 19
- 3.11.6. Serial port 19
- 3.11.7. USB port..... 19
- 3.11.8. User Interface..... 19
- 3.12. Features 19**
 - 3.12.1. Speech Coding 19
 - 3.12.2. SMS 19
 - 3.12.3. RTC Bypass out..... 20
 - 3.12.4. Data Transmission capabilities..... 20
 - 3.12.5. Local security management..... 20
 - 3.12.6. Call control 20
 - 3.12.7. Phonebook 20
 - 3.12.8. Characters management 20
 - 3.12.9. SIM related functions 20
 - 3.12.10. Call status indication 21
 - 3.12.11. Automatic answer 21
 - 3.12.12. Supplementary services 21
- 3.13. Mounting the modules on your board 21**
- 3.14. Packing system 21**
- 4. Evaluation Kit 22**
- 5. AT Commands 23**
- 6. Conformity assessment issues 24**
 - 6.1. R&TTE Declaration of Conformity 24**
 - 6.2. FCC certificate 25**
 - 6.3. IC certificate 26**
- 7. Safety Recommendations..... 27**
- 8. List of acronyms 28**



2.1. Product variants

All UE910 V2 variants are dual-band GSM/GPRS/EDGE and dual band UMTS/HSDPA.

EU variant:

- 2 Bands GSM | GPRS | EDGE 900 /1800 MHz
- 2 Bands UMTS | HSDPA 900 / 2100 MHz

NA variant:

- 2 Bands GSM | GPRS | EDGE 850 / 1900 MHz
- 2 Bands UMTS | HSDPA 850 / 1900 MHz

2.2. Target Market

The UE910 V2 Series is designed and developed for applications such as:

- Telemetry
- Telematics
- Security alarms
- AMR (automated meter reading)
- Low-cost 3G applications
- Regional markets

2.3. Features

- 3GPP Release 5 compliant
- GSM dual-band (900/1800 MHz for EU, 850/1900 MHz for NA)
- WCDMA dual-band: B1&B8 for the EU model and B2&B5 for the NA model
- HSDPA up to 3.6Mbps
- Uplink up to 384kbps
- DTM (Dual Transfer Mode)
- DARF1
- Control via AT commands according to 3GPP TS27.005, 27.007 and Telit customized AT commands
- Serial port multiplexer 3GPP TS27.010
- SIM application Tool Kits 3GPP TS 51.014



- Output power
 - Class 4 (2W) @ 850 / 900 MHz, GSM
 - Class 1 (1W) @ 1800 / 1900 MHz, GSM
 - Class E2 (0.5W) @ 850/900 MHz, EDGE
 - Class E2 (0.4W) @ 1800/1900 MHz, EDGE
 - Class 3 (0.25W) @ 850/900/1900/2100 MHz, UMTS
- Sensitivity:
 - - 108 dBm (typ.) @ 850 / 900 MHz (GSM)
 - - 109 dBm (typ.) @ 1800 / 1900 MHz (GSM)
 - - 108 dBm (typ.) @ 850/900/1900 / 2100 MHz (UMTS)

Interfaces

- 10 general I/O ports maximum including multi-functional I/Os
- I2S for digital audio interface
- Analog audio (balanced)
- USB 2.0 HS
- 1 UART
- 1 Auxiliary serial port (RX/TX only)
- 1 I2C
- ADC and DAC converters
- 1.8V/3V SIM interface

Audio

- Telephony, emergency call
- HR, FR, EFR, AMR for GSM and AMR for WCDMA voice codec
- Spatial Noise Suppression
- Multiple audio profiles pre-programmed and fully configurable
- DTMF

SMS

- Point to point mobile originated and mobile terminated SMS
- Concatenated SMS supported
- SMS cell broadcast



- Text and PDU mode
- SMS over GPRS

Data transmission

- HSDPA:
 - DL up to 3.6Mbps (cat-6)
 - UL up to 384kbps
- WCDMA: up to 384kbps downlink/uplink
- CSD up to 9.6kbps
- GPRS: up to 85.6kbps downlink/uplink
- EDGE: up to 236.8kbps downlink/uplink

GSM Supplementary Services

- Call forwarding
- Call barring
- Call waiting & call hold
- Advice of charge
- Calling line identification presentation [CLIP]
- Calling line identification restriction [CLIR]
- Unstructured supplementary services mobile originated data [USSD]
- Closed user group

Additional features

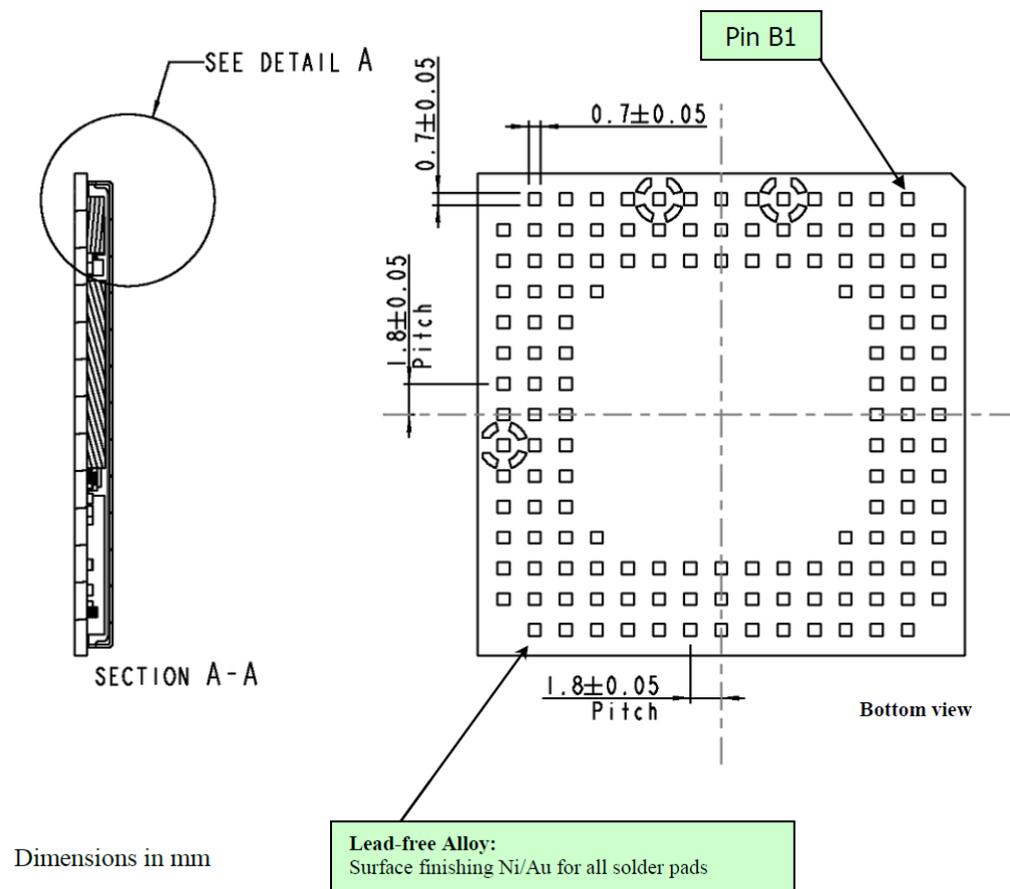
- SIM phonebook
- Fixed Dialling Number (FDN)
- Call control & status indication
- Character management (IRA, UCS2, GSM)
- USIM 3GPP Rel.5
- Real Time Clock
- Automatic answer
- Alarm management
- Embedded TCP/IP stack, including TCP, IP, UDP, and FTP protocols



3. General Product Description

3.1. Dimensions and 2D mechanical drawing

UE910 V2 has a Land-Grid-Array (LGA) package, with 144 pads.



The Overall dimensions of UE910 V2 Series are:

- Length: 28.2 mm
- Width: 28.2mm
- Thickness: 2.2 mm



3.5. Transmitter output power

The UE910 V2 Series transceiver output of GSM/GPRS mode in 850/900MHz bands are class 4 in accordance with the specifications which determine the nominal 2W peak RF power (+33dBm) on 50ohm. In the 1800/1900MHz bands are class 1 in accordance with the specification which determines the nominal 1W peak RF power (+30dBm) on 50ohm.

The UE910 V2 Series transceiver output of EDGE mode in 850/900MHz bands are class E2 in accordance with the specifications which determine the nominal 0.5W peak RF power (+27dBm) on 50ohm. In the 1800/1900MHz bands are class E2 in accordance with the specification which determine the nominal 0.4W peak RF power (+26dBm) on 50ohm.

The UE910 V2 Series transceiver output of WCDMA mode in 850/900/1900/2100MHz bands is class 3 in accordance with the specifications which determine the nominal 0.25W peak RF power (+24dBm) on 50ohm.

3.6. Sensitivity

Typical conducted sensitivity	<ul style="list-style-type: none"> • GSM 900 : -108.0dBm • DCS1800 : -107.0dBm • WCDMA900 : -108.0dBm • WCDMA2100 : -108.0dBm
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3.7. Antenna

3.7.1. Frequency band of GSM/WCDMA antenna

The antenna for a device using Telit UE910 V2 must fulfill the following requirements:

GSM / WCDMA Antenna Requirements		
Frequency range	Depending on the frequency band(s) provided by the network operator, the customer must use the most suitable antenna for that/those band(s)	
Bandwidth	UE910-EU V2	UE910-NA V2
	GSM900 : 80 MHz	GSM850 : 70 MHz
	GSM1800(DCS) : 170 MHz	GSM1900(PCS) : 140 MHz
	WCDMA band I(2100) : 250 MHz	WCDMA band II(1900) : 140 MHz
	WCDMA band VIII(900) : 80 MHz	WCDMA band V(850) : 70 MHz
Gain	Gain < 3.0dBi	
Impedance	50 Ohm	
Input power	> 33dBm(2 W) peak power in GSM > 24dBm Average power in WCDMA	
VSWR absolute max	<= 5:1(limit to avoid permanent damage)	
VSWR recommended	<= 2:1(limit to fulfill all regulatory requirements)	

For further information, please refer to the UE910 V2 Hardware User Guide.

3.8. Supply voltage

The external power supply must be connected to VBATT & VBATT_PA signals and must fulfill the following requirements:

Nominal Supply Voltage	3.8V
Operating Voltage Range	3.4 ~ 4.2V
Extended Operating Voltage Range	3.4 ~ 4.5V



CAUTION:

The Operating Voltage Range MUST never be exceeded. Special care must be taken when designing the application's power supply section to avoid having an excessive voltage drop.

If the voltage drop is exceeding the limits it could cause a Power Off of the module..

Behavior in the extended operating voltage range might deviate from 3GPP specification.



3.9. Power consumption

The UE910 power consumptions are described in the following table:

Current Consumption		
Mode	Average (mA)	Mode Description
Power off current (Typical)		< 10uA
Standby mode		No call in progress
AT+CFUN=1	22	Normal mode; full functionality of the module
AT+CFUN=4	20	Disabled TX and RX; modules is not registered on the network
AT+CFUN=0 or AT+CFUN=5	4.8/1.2*	Power saving; CFUN=0 module registered on the network and can receive voice call or an SMS; but it is not possible to send AT commands; module wakes up with an unsolicited code (call or SMS) or rising RTS line. CFUN=5 full functionality with power saving; Module registered on the network can receive incoming call sand SMS
Tx and Rx mode		A call in progress
Max Power Mode	700	WCDMA/HSDPA voice/data call
Max Power Mode	700	EU : GPRS Class12
	440	NA : GPRS Class10
Max Power Mode	420	EU : EGPRS Class12
	270	NA : EGPRS Class10

*Worst/best case depends on network configuration and is not under module control

3.10. Logic level

Where not specifically stated, the most of interface circuits work at 1.8V CMOS logic levels. To get more detailed information about the logic level specifications used for UE910 V2 Series, please refer to the UE910 V2 Hardware User Guide.

3.11. Input and Outputs

3.11.1. General Purpose I/Os

10 pins of general purpose I/Os can be configured by AT command in three different ways as input, output and alternative function.

3.11.2. STAT_LED

The STAT_LED pin status shows information on the network service availability and Call status.



Extension at the PIN2 for the PUK2 insertion capability for lock condition is supported too.

3.12.10. Call status indication

The call status indication is supported.

3.12.11. Automatic answer

The automatic answering feature is supported. The user/application can specify the number of rings after which the module will make an answer automatically.

3.12.12. Supplementary services

The following supplementary services are supported:

- Call Barring
- Call Forwarding
- Calling Line Identification Presentation (CLIP)
- Calling Line Identification Restriction (CLIR)
- Call Waiting, other party call Waiting Indication
- Call Hold, other party Hold/Retrieved Indication
- Closed User Group supplementary service (CUG)
- Advice of Charge
- Unstructured SS Mobile Originated (MO)

3.13. Mounting the modules on your board

The modules have been designed in order to be compliant with a standard lead-free SMT process. For detailed information about PCB pad design and conditions to use in SMT process, please refer to the respective Hardware User Guide.

3.14. Packing system

According to SMT process, for picking & placing movement requirements, UE910 V2 Series is packaged on trays. Each tray contains 20 pieces.

The level of moisture sensibility of UE910 V2 is "3", according with standard IPC/JEDEC J-STD-020, take care of all the relative requirements for using this kind of components. Special care for handling is highly required.



4. Evaluation Kit

In order to assist the customer in the development of the application, Telit offers the EVK2 Evaluation Kit that can be ordered separately. The EVK2 has a SIM card holder, the RS 232 serial port level translator, a direct UART connection, audio and antenna connector.

The EVK2 provides a fully functional solution for a complete data or phone application. The standard serial RS232 9 pin connector placed on the Evaluation Kit allows the connection of the EVK2 system with a PC or other DTE.

The development of the applications utilizing the Telit UE910 family must present a proper design of all the interfaces towards and from the module (e.g. power supply, audio paths, level translators), otherwise a decrease in the performances will be introduced or, in the worst case, a wrong design can even lead to an operating failure of the module.

In order to assist the hardware designer in his project phase, the EVK2 board presents a family of different solutions, which will cover the most common design requirements on the market, and which can be easily integrated in the OEM design as building blocks or can be taken as starting points to develop a specific one.

For a detailed description of the Telit Evaluation Kit, please refer to the documentation provided with the respective Hardware User Guide and EVK2 User Manual.



5. AT Commands

The UE910 V2 Series can be driven via the serial and USB interface using the standard AT commands.

The modules are compliant with:

1. Hayes standard AT command set, in order to maintain the compatibility with existing S/W programs.
2. 3GPP TS 27.007 specific AT command and WCDMA/GPRS specific commands.
3. 3GPP TS 27.005 specific AT commands for SMS (Short Message Service) and CBS (Cell Broadcast Service)

Moreover, the modules support also Telit proprietary AT commands for special purposes.

For more information about the AT commands supported by the modules, please refer to the AT Commands Reference Guide.



6.3. IC certificate

TECHNICAL ACCEPTANCE CERTIFICATE

SIEMIC Tracking Number : SC14042301-TCS-003

SIEMIC Pistage du Nombre

Issued To: TELIT COMMUNICATIONS S.p.A.
DÉLIVRÉ A Via Stazione Di Prosecco 5/B, Trieste 34010 Italy

Issued Date: April 29, 2014
Date Publiée

Certification No.: 5131A-UE910NAV2
No. DE CERTIFICATION

Type of Equipment : UE910-NA V2
GENRE DE MATÉRIEL

Radio Standards Specification (RSS) No., Issue & Date: RSS132 Issue 3, Jan 2013, RSS133 Issue 6, Jan 2013
RSS SPÉCIFICATION/ ÉDITION & DATE

CERTIFICAT D' ACCEPTABILITÉ TECHNIQUE

Test Lab IC Number : 2324G-1

Évaluez le nombre d'IC de laboratoire

Tested By : Compliance Certification Services-Wugu Lab
TESTÉ A No.11, Wugong 6th Rd., Wugu Township, New Taipei TAIWAN, 24891
(Email) kurt.chen@ccsrf.com
(Tel) 886-3-3240332x37
(Fax) 886-3-3245235

Emission Designator : 247KGXW, 245KGXW, 244KG7W, 4M17F9W, 4M18F9W, 246KGXW, 246KXW, 247KG7W, 4M16F9W, 4M17F9W

Trade Name & Model Number : UE910-NA V2
MARQUE ET MODELE

Frequency Range(MHz)	RF Power (W)	Antenna Information
BANDE DE FRÉQUENCES	PUISSANCE H.F.	INFO SUR L'ANTENNE
824.2-848.8, 1850.2-1909.8 1852.4-1907.6, 826.4-846.6	1.77828W, 1.69824W, 0.45709W, 0.21878W, 0.21478W, 0.89125W, 0.79433W, 0.31623W, 0.20797W, 0.18967W	GSM850:8.1dBi WCDMA FDD V: 11.09dBi PCS1900:3.51dBi WCDMA FDD II: 9.83dBi

Re-assessment to add SAW filter for GSM850 TX path.

Single Modular Approval for Mobile platform.
Listed Power is conducted at the antenna terminal.
This device contains functions that are not operational in U.S. Territories. This filing is only applicable for U.S. operations.
This device is to be used only for mobile application and with the specific antenna as shown within this application. The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. For mobile operating configurations, the antenna gain, including cable loss, must not exceed the requirements indicated in this filing.

Certification of equipment means only that the equipment has met the requirements of the above-noted specification. Licence applications, where applicable to use certified equipment, are acted on accordingly by the Industry Canada issuing office and will depend on the existing radio environment, service and location of operation. This certificate is issued on condition that the holder complies and will continue to comply with the requirements and procedures issued by Industry Canada. The equipment for which this certificate is issued shall not be manufactured, imported, distributed, leased, offered for sale or sold unless the equipment complies with the applicable technical specifications and procedures issued by Industry Canada.

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I hereby attest that the subject equipment was tested and found in compliance with the above-noted specification.
J'atteste, par la présente, que le matériel a fait l'objet d'essai et a été jugé conforme à la spécification ci-dessus.

Signature: 

Leslie Bai
Director of Certification
Canadian Certification



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