

UE910 V2 Product Description

80419ST10616A Rev.0 - 2014-05-19



Making machines talk.



APPLICABILITY TABLE

PRODUCT	
UE910-EU V2	

UE910-NA V2



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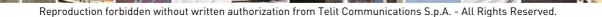


UE910 V2 Product Description

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1. Introduction

1.1. Scope

Scope of this document is to give an overview of the Telit UE910 V2 Series, which can support GSM/GPRS/EDGE and UMTS/HSDPA with data/voice capabilities.

1.2. Audience

This document is intended for customers who are evaluating the UE910 V2 Series.

1.3. Contact Information, Support

For general contact, technical support, to report documentation errors and to order manuals, contact Telit Technical Support Center (TTSC) at:

<u>TS-EMEA@telit.com</u> <u>TS-NORTHAMERICA@telit.com</u> <u>TS-LATINAMERICA@telit.com</u> <u>TS-APAC@telit.com</u>

Alternatively, use:

http://www.telit.com/en/products/technical-support-center/contact.php

For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:

http://www.telit.com

To register for product news and announcements or for product questions contact Telit Technical Support Center (TTSC).

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.





1.4. Text Conventions



<u>Danger – This information MUST be followed or catastrophic equipment failure</u> <u>or bodily injury may occur.</u>



Caution or Warning – Alerts the user to important points about integrating the module, if these points are not followed, the module and end user equipment may fail or malfunction.



Tip or Information – Provides advice and suggestions that may be useful when integrating the module.

All dates are in ISO 8601 format, i.e. YYYY-MM-DD.

1.5. Related Documents

- UE910 V2 Hardware User Guide, 1VV0301065
- UE910 V2 AT Commands Reference Guide, 80419ST10124A
- xE910 Global Form Factor Application Note, 80000NT10060A
- xE910 RTC BackUp Application Note, 80000NT10072A
- UE_HE910 V2 DE_CE910 HE920 DVI Application Note, 80000NT10101A
- Telit EVK2 User Guide, 1vv0300704

1.6. Document History

Revision	Date	Changes
0	2014-05-19	First issue





Overview 2.

The UE910 V2 is an HSPA 3.6 Mbps module series. It includes low-cost, dual-band 3.5G variants offered in the xE910 LGA unified form factor positioned for applications not requiring global coverage, particularly for those designated fixed-wireless such as utility meter reading, home and commercial security, and those with limited in-region mobility such as POS and logistics terminals.

As a part of Telit's corporate policy of environmental protection, all Telit products comply with the RoHS (Restriction of Hazardous Substances) directive of the European Union (EU Directive 2011/65/EU)



NOTE:

Some of the performances of the Telit modules depend on S/W version installed on the module itself. The Telit modules S/W group is continuously working in order to add new features and improve the overall performances. The Telit modules are easily upgraded by the developer using the Telit Flash Programmer.



NOTE:

In order to meet the competitive OEM and vertical market stringent requirements, Telit supports its customers with a dedicated Support Policy with:

- Telit Evaluation Kit EVK2 to help you to develop your application;
- A website with all updated information available;
- An high level specialist technical support to assist you in your development;



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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)
- DARP1
- 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



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- 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



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- 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



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2.4. **Approvals**

- Fully type approved confirming with R&TTE directive
- CE, GCF (EU) ٠
- FCC, IC, PTCRB (NA) ٠
- RoHS (all versions) ٠

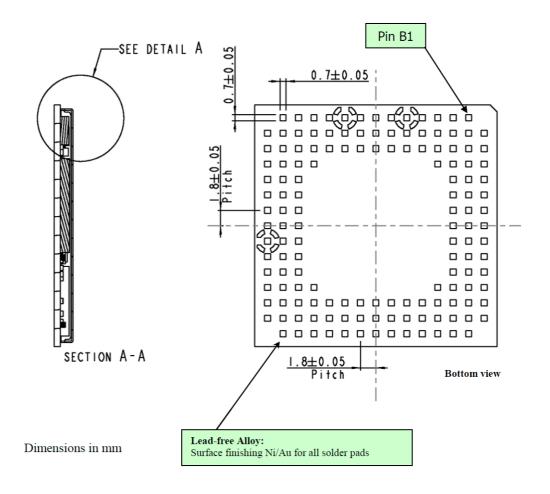




General Product Description 3.

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



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3.2. Weight

The module weight of UE910 V2 is about 4.7 grams.

3.3. **Environmental requirements**

3.3.1. **Temperature range**

Storage and Operating -40°C ~ +85°C Temperature Range

RoHS compliance 3.3.2.

As a part of Telit corporate policy of environmental protection, the UE910 family complies with the RoHS (Restriction of Hazardous Substances) directive of the European Union (EU directive 2011/65/EU).





3.4. Operating Frequency

The operating frequencies in GSM850, EGSM900, DCS1800, PCS1900, WCDMA modes are compliant to the 3GPP and WCDMA specifications.

Mode	Freq. TX (MHz)	Freq. RX (MHz)	Channels	TX - RX offset
GSM850	824.2 ~ 848.8	869.2 ~ 893.8	128 ~ 251	45 MHz
EGSM900	890.0 ~ 914.8	935.0 ~ 959.8	0 ~ 124	45 MHz
EGSMADO	880.2 ~ 889.8	925.2 ~ 934.8	975 ~ 1023	45 MHz
DCS1800	1710.2 ~ 1784.8	1805.2 ~ 1879.8	512 ~ 885	95MHz
PCS1900	1850.2 ~ 1909.8	1930.2 ~ 1989.8	512 ~ 810	80MHz
WCDMA850 (band V)	826.4 ~ 846.6	871.4 ~ 891.6	Tx: 4132 ~ 4233 Rx: 4357 ~ 4458	45MHz
WCDMA900 (band VIII)	882.4 ~ 912.6	927.4 ~ 957.6	Tx: 2712 ~ 2863 Rx: 2937 ~ 3088	45MHz
WCDMA1900 (band II)	1852.4 ~ 1907.6	1932.4 ~ 1987.6	Tx: 9262 ~ 9538 Rx: 9662 ~ 9938	80MHz
WCDMA2100 (Band I)	1922.4 ~ 1977.6	2112.4 ~ 2167.6	Tx: 9612 ~ 9888 Rx: 10562 ~ 10838	190MHz



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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	•	GSM 900 : -108.0dBm
conducted	•	DCS1800 : -107.0dBm
	•	WCDMA900 : -108.0dBm
sensitivity	•	WCDMA2100 : -108.0dBm





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 Re	quirements
Frequency	Depending on the frequency band(s) provided by the network operator, itable antenna for that/those band(s)
range	UE910-EU V2	UE910-NA V2
Bandwidth	GSM900 : 80 MHz GSM1800(DCS) : 170 MHz WCDMA band I(2100) : 250 MHz WCDMA band VIII(900) : 80 MHz	GSM850 : 70 MHz GSM1900(PCS) : 140 MHz WCDMA band II(1900) : 140 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	<= 5:1(limit to avoid permanent dam	nage)
absolute max		
VSWR	<= 2:1(limit to fulfill all regulatory re	equirements)
recommended		

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.



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3.9. **Power consumption**

	Cu	rrent Consumption
Mode	Average (mA)	Mode Description
Power off curren	t (Typical)	< 10uA
Standby m	ode	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 i	mode	A call in progress
Max Power Mode	700	WCDMA/HSDPA voice/data call
Max Power Mode	700 440	EU : GPRS Class12 NA : GPRS Class10
Max Power Mode	420 270	EU : EGPRS Class12 NA : EGPRS Class10

The UE910 power consumptions are described in the following table:

*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.





3.11.3. VAUX/PWRMON Power Output

A regulated 1.8V power output is provided for an external device.

3.11.4. Converters

The UE910 V2 has 1 on board ADC converter.

3.11.5. Audio Interface

The UE910 V2 module is provided by an Analog Audio section. A Digital Audio bus is available as well (not simultaneously with the analog one).

3.11.6. Serial port

One full RS232 serial port is available.

3.11.7. USB port

The USB2.0 High Speed has a clock rate of 480MHz.

3.11.8. User Interface

The user interface is managed by AT commands according to ITU-T V.250, 3GPP 27.007 and 27.005 specifications. Please refer to the UE910 V2 AT command User Guide for complete details.

3.12. Features

3.12.1. Speech Coding

The UE910 V2 Series support the following voice codecs:

- Adaptive Multi Rate for WCDMA
- Half Rate, Full Rate, Enhanced Full Rate, Adaptive Multi Rate for GSM

3.12.2. SMS

The UE910 V2 Series supports the following SMS types:

- Mobile Terminated (MT) class 0 \sim 3 with signaling of new incoming SMS, SIM full, SMS read
- Mobile Originated class (MO) 0 ~ 3 with writing, saving in SIM and sending
- Cell broadcast compatible with CB DRX signaling of new incoming SMS.

The UE910 V2 supports also SMS over GPRS



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3.12.3. RTC Bypass out

The VRTC pin brings out the Real Time Clock supply, which is separate from the rest of the digital part, allowing having only RTC going on when all the other parts of the device are off.

To this power output a backup capacitor can be added in order to increase the RTC autonomy during power off of the battery. NO Devices must be powered from this pin.

3.12.4. Data Transmission capabilities

The UE910 V2 Series supports:

- 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

3.12.5. Local security management

The local security management can be done with the lock of Universal Subscriber Identity Module (USIM), and the security code will be requested at power-up.

3.12.6. Call control

The calling cost control function is supported.

3.12.7. Phonebook

This function allows storing the telephone numbers into SIM memory. The capability depends on the SIM version and its embedded memory.

3.12.8. Characters management

The UE910 V2 Series supports the IRA, GSM, PCCP437, 8859-1 and UCS2 character sets,

in TEXT and PDU mode.

3.12.9. SIM related functions

Activation and deactivation of the numbers stored in phone book FDN (Fixed Dialing Numbers), ADN (Abbreviated Dialing Number) and PIN insertion are supported.





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.



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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.





Conformity assessment issues 6.

6.1. **R&TTE Declaration of Conformity**

emmunications Sp.A.	
1. UE 910 V2 (product name), UE910	
	tazione di Prosecco, 5/b 34010 Sgonico -TRIESTE- ITALY (manufacture
	sued under the sole responsibility of the manufacturer
4. Dual Band EGSM900/DCS1800 G	SM/GPRS/EDGE and Dual Band 3G FDD I / FDD VIII wireless module
	Felit ursus-tu vz 80 era mansteren 91 vinaut der der der vinaut der der der vinaut der
5. The object of the declaration	a described above is in conformity with the relevant Commun
harmonisation: European Directive 1	999/05/EC (R&TTE)
6. The conformity with the essenti	al requirements of the 1999/05/EC has been demonstrated against
following harmonized standards:	
EN 60950-1:2006 + A11:2009 +	
A1:2010 + A12:2011 + AC:2011	For article 3.1 (a): Health and Safety of the User
EN 62311:2008	
EN 301 489-1 V1.9.2	
EN 301 489-7 V1.3.1	For article 3.1 (b): Electromagnetic Compatibility
EN 301 489-24 V1.5.1	
EN 301 511 V9.0.2	
EN 301 908-1 V6.2.1	For article 3.2 : Effective use of spectrum allocated
EN 301 908-2 V5.4.1	
1999/05/EC has been followed with	ocedure referred to in Article 10 and detailed in Annex IV of Direct the involvement of the following Notified Body: ológico de Andalucía, C/ Severo Ochoa 2, 29590 Campanillas – Málaga
8. The Technical Construction File	e (TCF) relevant to the product described above and which support
Declaration of Conformity, is held at	: Telit Communications S.p.A Via Stazione di Prosecco, 5/b 34010 Sgor
(TRIESTE) ITALY	
Signed for and on behalf of Telit Cor	nmunications S.p.A
	Rundowsk
Trieste, 2014-04-11	Uuality Director Guido Walcher





TCB

6.2. FCC certificate

тсв

GRANT OF EQUIPMENT AUTHORIZATION Certification Issued Under the Authority of the Federal Communications Commission By:

> Siemic Inc. 775 Montague Expressway Milpitas, CA 95035

Date of Grant: 04/29/2014

Application Dated: 04/28/2014

Telit Communications S.p.A.

Viale Stazione di Prosecco 5/b Trieste, 34010 Italy

Attention: Brian Tucker , Global VP, Quality

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

	FCC IDENTIFIER:	RI7UE910NAV2			
	Name of Grantee:	Telit Communications	s S.p.A.		
	Equipment Class: Notes: Modular Type:	PCS Licensed Transmi UE910-NA V2 Single Modular			
		Frequency	Output	Frequency	Emission
Grant Notes	FCC Rule Parts	Range (MHZ)	Watts	Tolerance	Designator
	22H	824.2 - 848.8	1.77828	41.0 Hz	247KGXW
	22H	824.2 - 848.8	1.69824	42.0 Hz	245KGXW
	22H	824.2 - 848.8	0.45709	77.0 Hz	244KG7W
	24E	1850.2 - 1909.8	0.89125	55.0 Hz	246KGXW
	24E	1850.2 - 1909.8	0.79433	142.0 Hz	246KGXW
	24E	1850.2 - 1909.8	0.31623	27.0 Hz	247KG7W
	24E	1852.4 - 1907.6	0.20797	57.0 Hz	4M16F9W
	24E	1852.4 - 1907.6	0.18967	55.0 Hz	4M16F9W
	22H	826.4 - 846.6	0.21878	13.0 Hz	4M17F9W
	22H	826.4 - 846.6	0.21478	155.0 Hz	4M18F9W

CIIPC to add GSM TX SAW filter to enhance EMC characteristic.

Modular Approval for mobile platform ERP for part 22 and EIRP for part 24 using the specific antenna as shown within this application. Listed Power is conducted at the antenna terminal. The antenna(s) 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. The maximum antenna gain including cable loss for compliance with radiated power limits, RF exposure requirements and the categorical exclusion requirements of 2.1091 is 8.1dBi for GSM850, 3.51dBi for PCS1900, 9.83dBi for FDD-II and 11.09dBi for FDD-V.



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UE910 V2 Product Description

80419ST10616A - Rev.0 - 2014-05-19

6.3. IC certificate

		<u>Manana</u>
TECHNICAL ACCEPTANO		CAT D' ACCEPTABILITÉ
CERTIFICATE	CLKIIII	TECHNIQUE
	CS-003 Test Lab IC Num	
SIEMIC Tracking Number : SC14042301-1 SIEMIC Pistage du Nombre		re d'IC de laboratoire
Issued To: TELIT COMMUNICATIONS S.p.A.		ompliance Certification Services-Wugu Lab
DÉLIVRÉ A Via Stazione Di Prosecco 5/B , Trieste 34010 Italy	TESTÉ A N T (E	o.11, Wugong 6th Rd., Wugu Township, Ne aipei TAIWAN, 24891 Email) kurt.chen@ccsrf.com
Issued Date: April 29, 2014		Fel) 886-3-3240332x37
Date Publiée	()	Fax) 886-3-3245235
Certification No.: 5131A-UE910NAV No. DE CERTIFICATION	2 Emission Designa Émissions Design	
Type of Equipment : UE910-NA V2 Genre de Matériel	Trade Name & Moo MARQUE ET MOD	
Radio Standards Specification (RSS) No., RSS SPÉCIFICATION/ ÉDITION & DATE	Issue & Date: RSS132 Issue 3 RSS133 Issue 6	
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	1.77828W, 1.69824W, 0.45709W, 0.21878W, 0.21478W, 0.89125W,	GSM850:8.1dBi WCDMA FDD V: 11.09dBi PCS1900:3.51dBi
1852.4-1907.6 , 826.4-846.6	0.79433W, 0.31623W, 0.20797W, 0.18967W	WCDMA FDD II: 9.83dBi
Re-assessment to add SAW filter for GSW850 TX path. Single Modular Approval for Mobile platform. Linted Power is conducted at the antenna terminal. This device orations functions that ne not operational in U.S. Territor This device is to be used only for mobile application and with the spo- configurations, the antenna gain, including cable loss, must not exce configurations, the antenna gain, including cable loss, must not exce outgingenet, are acted on accordingly the industry Canada issuin etrification of equipment means only that the equipment has me pecifications and procedures issued by industry Canada ² a certification on umatient ejonite source to consequence part is a certification on umatient estimate source to consequence part en patient canada. Le matient estimate a triggent duquel le présent certificat entrinous procédures et aux spécifications techniques applica- norme aux procédures et aux spécifications techniques applica-	0.79433W, 0.31623W, 0.20797W, 0.18967W	ons. te antenna used for this transmitter must be installed to prov ny other antenna or transmitter. For mobile operating lication. Licence applications, where applicable to use cer benvironment, service and location or operation. This at procedures issued by industry Canada. The equipment d unless the equipment complies with the applicable lec usée ci-dessus. Les demandes de licences nécessaires dépendent des conditions radio ambiantes, du service de de satisfaite aux exigences et aux procédures té, distribué, loué, mis en vente ou vendu à moins d'être
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7. Safety Recommendations

READ CAREFULLY

Be sure the use of this product is allowed in the country and in the environment required. The use of this product may be dangerous and has to be avoided in the following areas:

- Where it can interfere with other electronic devices in environments such as hospitals, airports, aircrafts, etc.
- Where there is risk of explosion such as gasoline stations, oil refineries, etc. It is responsibility of the user to enforce the country regulation and the specific environment regulation.

Do not disassemble the product; any mark of tampering will compromise the warranty validity. We recommend following the instructions of the hardware user guides for a correct wiring of the product. The product has to be supplied with a stabilized voltage source and the wiring has to be conforming to the security and fire prevention regulations. The product has to be handled with care, avoiding any contact with the pins because electrostatic discharges may damage the product itself. Same cautions have to be taken for the SIM, checking carefully the instruction for its use. Do not insert or remove the SIM when the product is in power saving mode. The system integrator is responsible of the functioning of the final product; therefore, care has to be taken to the external components of the module, as well as of any project or installation issue, because the risk of disturbing the WCDMA/GSM network or external devices or having impact on the security. Should there be any doubt, please refer to the technical documentation and the regulations in force. Every module has to be equipped with a proper antenna with specific characteristics. The antenna has

to be installed with care in order to avoid any interference with other electronic devices and has to guarantee a minimum distance from the body (20 cm). In case of this requirement cannot be satisfied, the system integrator has to assess the final product against the SAR regulation.

The European Community provides some Directives for the electronic equipments introduced on the market. All the relevant information's are available on the European Community website:

http://ec.europa.eu/enterprise/sectors/rtte/documents/

The text of the Directive 99/05 regarding telecommunication equipments is available, while the applicable Directives (Low Voltage and EMC) are available at:

http://ec.europa.eu/enterprise/sectors/electrical/



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8. List of acronyms

3GPP	3rd Generation Partnership Project
ADC	Analog to Digital Converter
ADN	Abbreviated Dialing Number
A-GPS	Assisted GPS
AMR	Adaptive Multi Rate
AT	Attention Commands
AWS	Advanced Wireless Services
BER	Bit Error Rate
BGA	Ball Grid Array
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
CMOS	Complementary Metal-Oxide Semiconductor
CSD	Circuit Switched Data
DAC	Digital to Analog Converter
DARP	Downlink Advanced Receiver Performance
DTMF	Dual Tone Multi Frequency
FDN	Fixed Dialing Number
FTP	File Transfer Protocol
GSM	Global System for Mobile communication
GPRS	General Packet Radio Service
GPS	Global Positioning System
HSPA	High Speed Packet Access
HSUPA	High Speed Uplink Packet Access
H/W	Hardware
LED	Light Emitting Diode
MO	Mobile Originated



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MT	Mobile Terminated
OEM	Other Equipment Manufacturer
PCB	Printed Circuit Board
PCM	Pulse Code Modulation
PDA	Personal Digital Assistant
PDU	Protocol Data Unit
PIN	Personal Identification Number
POS	Point Of Sales
PWM	Pulse Width Modulation
RF	Radio Frequency
RoHS	Restriction of Hazardous Substances
RTC	Real Time Clock
SAIC	Single Antenna Interface Cancellation
SIM	Subscriber Identity Module
SMD	Surface Mounted Device
SMS	Short Message Service
S/W	Software
TBD	To Be Determined
TCP/IP	Transmission Control Protocol/Internet Protocol
TTSC	Telit Technical Support Center
UART	Universal Asynchronous Receiver and Transmitter
USB	Universal Serial Bus
USIM	Universal Subscriber Identity Module
WCDMA	Wideband Code Division Multiple Access



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