

UNIGEN CORP. WIRELESS MODULE PRODUCTS**PART NUMBER FAMILY:
UGWR2US SERIES****JUNO-LPA WIRELESSUSB™ RADIO MODULE**

Issue Date: 7 October 2005

Revision: 1.1

Revision History

| Rev. No. | History | Issue Date | Remarks |
|----------|----------|----------------|--------------------------------|
| 1.0 | Released | 29 June 2004 | First Production Release |
| 1.1 | Update | 7 October 2005 | Updated rf power output page 9 |

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REFERENCE DOCUMENTATION:

The Unigen JUNO-LPA WirelessUSB™ UGWRL2US module adaptation of the Cypress Semiconductor CYWUSB6935 LR 2.4GHz DSSS Radio SOC with the addition of a power amplifier is represented in this document. The detail provided is information for using JUNO-LPA in a digital electronic device and is only a “companion” document to Cypress Semiconductors’ documentation for the above noted part.

The CYWUSB6935 LR 2.4GHz DSSS Radio SOC information and technical details (ex. register settings, timing, application interfaces, clocking and power management, etc.) may be obtained from the Cypress Semiconductor web site or contacting Cypress’s authorized sales representatives.

The following is a list of required documents and locations known at the time of publication that accompany this datasheet.

- The CYWUSB6935 LR 2.4GHz DSSS Radio SOC Datasheet – CUWUSB6935.pdf
<http://www.cypress.com/cfuploads/img/products/cywusb6935.pdf>
- The JUNO-LPA WirelessUSB™ Radio Module User Manual – USBWR2US User Manual_v10.pdf
http://www.unigen.com/download/USBWR2US%20User%20Manual_v0911.pdf

Additional documentation for the Cypress Semiconductor CYWUSB6935 LR 2.4GHz DSSS Radio SOC device and the Unigen JUNO-LPA WirelessUSB™ UGWRL2US module may be obtained by contacting agents or representatives of the respective companies.

INTRODUCTION:

Unigen JUNO-LPA WirelessUSB™ UGWRL2US modules represent the convergence of emerging wireless connectivity solutions and the USB “Plug-N-Play” ease of operation. WirelessUSB, as created by Cypress Semiconductor, is a low-cost, 2.4GHz communication protocol designed for use in commercial, industrial, consumer, and computer product applications needing highly reliable data connectivity.

JUNO-LPA modules combine Cypress Semiconductor’s wireless and USB expertise with Unigen’s module design, manufacturing, and testing proficiency to create production ready, pre-certified modules that are easily integrated into existing, and new product designs.

JUNO-LPA modules offer immediate, drop-in design solutions and use the native Operating System HID drivers to seamlessly enumerate and operate mouse, keyboard, and gaming devices, or other devices using the HID specification for communication with the host systems.

FEATURES:

- **CYWUSB6935 LR 2.4GHz DSSS Radio SOC**
- **Operates in the 2.4 to 2.483GHz, unlicensed frequency range (ISM – Industrial, Scientific and Medical)**
- **-95dBm receive sensitivity**
- **Up to +23dBm Output Power**
- **Range of up to 1000+ meters with appropriate antenna**
- **Data Rate of 62.5kbits/sec**
- **SPI interface**
(up to 2MHz data rate)
- **Operating Voltage Requirement**
2.7 – 3.6Vdc
- **Dual DSSS reconfigurable Baseband Correlators**
- **Small PCBA Design:**
UGWR1US
1.29" (32.76mm) by 1.30" (33.02mm)
- **Complete Radio Module**
Just add a tested antenna.
PN. – UGADL1B1M1 or UGADA0B1M1
- **Agency Pre-Certification**
FCC/EU/ETSI/Industry Canada
Module certified to FCC/EU compliance specifications limiting your agency compliance time and cost.
- **FCC Radio Certification**
Grandfathered to end-device manufactures

DESCRIPTION:

JUNO-LPA WirelessUSB™UGWR2US Module is a tightly integrated, low-cost, high-reliability 2.4GHz TX/RX radio module for use in commercial, industrial, consumer, and computer product applications.

JUNO-LPA uses the Cypress Semiconductor CYWUSB6935 LR 2.4GHz DSSS Radio SOC device coupled with precise RF power amplifier to achieve highly reliable data communication at 1000 meter distances.

JUNO-LPA is a complete solution requiring only integration into an existing, or new device. A WirelessUSB device may require no additional software drivers, as it can use the OS native USB device drivers to enable supported device classes.

JUNO-LPA is less than 1.5"sq and is available for horizontal or vertical mounting directly to the device PCB. JUNO-LPA is also available in bare-board configuration for alternate application.

Regulatory Compliance:

JUNO-LPA modules are 100% tested for functional operation and pre-certified for regulatory compliance. The JUNO-LPA is FCC certified for "Modular Approval". Details for product application and use of this certification are noted in the JUNO-LPA User Manual. Digital electronic device makers need only submit to the appropriate agencies for their customary certification.

JUNO-LPA is certified for operation with an antenna of up to 2db gain, and the certification is available from the Federal Communications Commission web site for documentation purposes. Approved antennae, noted in the Ordering Section are available from Unigen.

FUNCTIONAL BLOCK DIAGRAM:

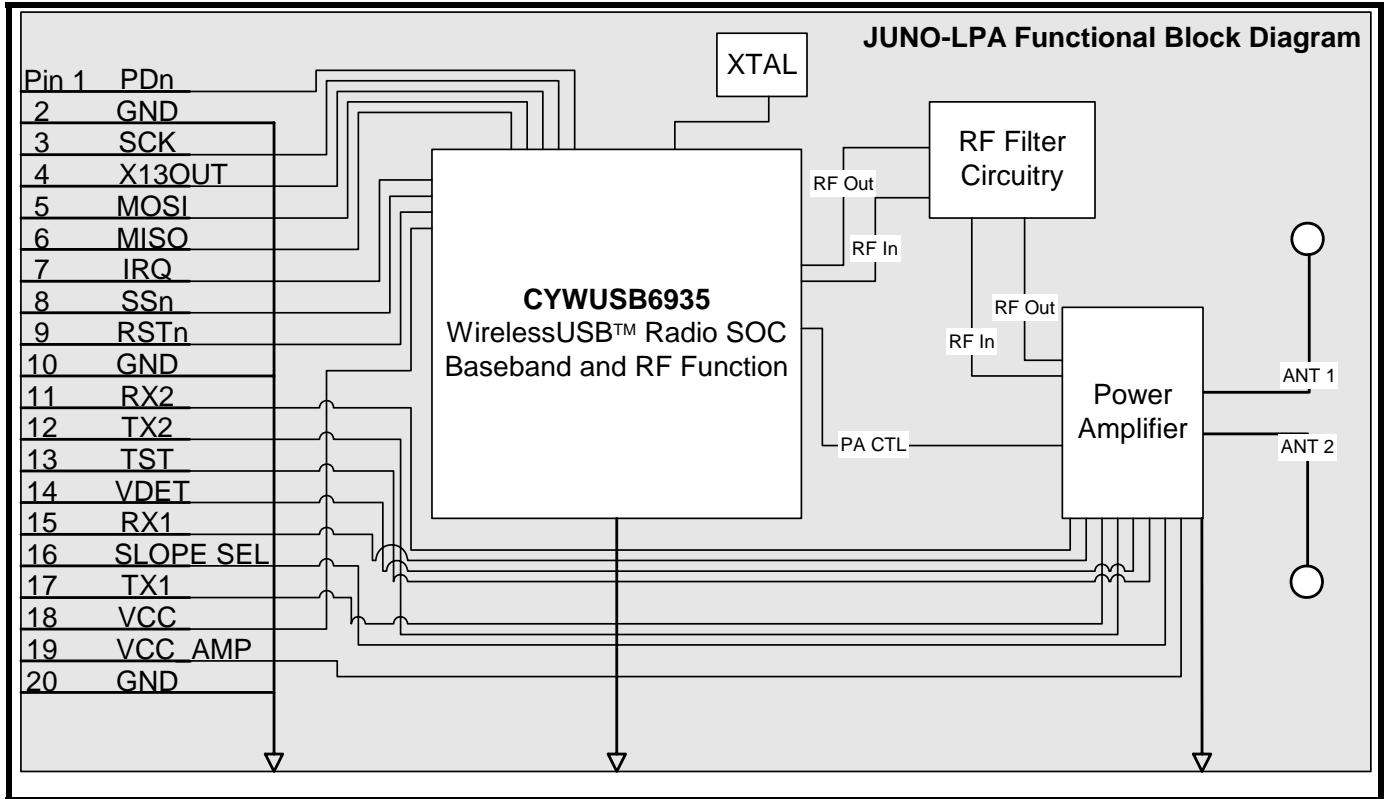


Figure 1 – Functional Block Diagram

ABSOLUTE MAXIMUM RATINGS:

| Symbol | Definition | Min. | Max. | Unit |
|-----------|--|------|-----------|------|
| VCC | Supply Voltage – Radio SOC | -0.3 | 3.9 | VDC |
| VCC_AMP | Supply Voltage – Power Amplifier | -0.3 | 3.9 | VDC |
| SLOPE_SEL | Slope Select Pin | -0.3 | 3.9 | VDC |
| TOC | Commercial Operating Temperature Range | -20 | 70 | °C |
| TOI | Industrial Operating Temperature Range | -40 | 85 | °C |
| Ts | Storage Temperature Range | -40 | 125 | °C |
| VLI | VDC to Logic Inputs | -0.3 | VCC + 0.3 | VDC |
| V O/Hi-Z | VDC to Outputs in Hi-Z state | -0.3 | VCC + 0.3 | VDC |
| SDVD | Static Discharge Voltage Digital | | >4000 | VDC |
| SDVR | Static Discharge Voltage RF | | >4000 | VDC |

Table 1 – Maximum Values

These are stress ratings only. Exposure to stresses beyond these maximum ratings may cause permanent damage to, or affect the reliability of this module. Avoid using the module outside the recommended operating conditions defined below. This module is ESD sensitive and should be handled and/or used in accordance with proper ESD mitigation.

RECOMMENDED OPERATING CONDITIONS:

| Symbol | Description | Value | | | |
|--------|--|-------|-------|------|------|
| | | Min. | Typ.* | Max. | Unit |
| Vcc | Supply Voltage | 2.7 | 3.0 | 3.6 | VDC |
| TOC | Commercial Operating Temperature Range | -20 | 25 | 70 | °C |
| TOI | Industrial Operating Temperature Range | -40 | 25 | 85 | °C |
| GND | Ground Voltage | | 0 | | VDC |

Table 2 – Operating Values

DC ELECTRICAL CHARACTERISTICS:

| Symbol | Description | Condition(s) | Value | | | |
|---------------|---|-------------------|---------|-------|---------|-------|
| | | | Min. | Typ.* | Max. | Unit |
| VCC | Supply Voltages | | 2.7 | 3.0 | 3.6 | VDC |
| VOH1 | Voltage Output High 1 | At IOH = -100.0µA | VCC-0.1 | VCC | | VDC |
| VOH2 | Voltage Output High 2 | At IOH = -2.0 mA | 2.4 | 3.0 | | VDC |
| VOL | Voltage Output Low | At IOL = 2.0 mA | | 0.0 | 0.4 | VDC |
| VIH | Voltage Input High | | 2.0 | | VCC | VDC |
| VIL | Voltage Input Low | | -0.3 | | 0.8 | VDC |
| IIL | Input Leakage Current | 0 < VIN < VCC | -1 | 0.30 | +1 | µA |
| ISLEEP | Power-down current consumption | PD = Low | | 3.26 | 10 | µA |
| TX AVG Icc1 | Mean transmitter current consumption ¹ | no handshake | | 6.0 | | mA |
| TX AVG Icc2 | Mean transmitter current consumption ² | w/handshake | | 10.0 | | mA |
| RX Icc (Peak) | Current consumption during receive | | | 60.0 | | mA |
| TX Icc (Peak) | Current consumption during transmit | | | 140 | 170 | mA |
| MTBF | | Calculated | | | >87,600 | Hours |

Table 3 – Electrical Characteristics

* = Measured with 3.0Vcc at 25°C

¹= Mean Icc when transmitting a 5-byte packet (3 data bytes + 2 bytes of protocol) every 10ms using the Wireless USB LS 1-way protocol.

²= Mean Icc when transmitting a 5-byte packet (3 data bytes + 2 bytes of protocol) every 10ms using the Wireless USB LS 2-way protocol.

ANTENNA:

JUNO-LPA requires the addition of an antenna for radio operation. JUNO-LPA achieved FCC "Modular Approval" for use in Digital Electronic Devices in combination with the noted antennae. Use of antennae other than these listed can required recertification of the module in the end-product. (See "Agency Certification" in this document for brief information). The *JUNO-LPA WirelessUSB™ Radio Module User Manual* contains complete regulatory compliance information.

Customers may obtain antennae (part numbers UGADL1B1M1 or UGADA0B1M1) with the following properties:

| Item | Property |
|--------------------|--|
| Coaxial Cable Type | 4.13mm high freq. |
| Cable Length | 11.81" (300mm) – other lengths available |
| Connector | Mini Coaxial |
| Frequency Range | 2.4000~2.4835GHz |
| Impedance | 50Ω (Typ.) |
| VSWR | 2.0 max. over full range of operation |
| Return Loss | -10dB max. |
| Gain | 2.0dBi - calculated |
| Maximum Power | 1W |
| Electrical Wave | ½ λ Dipole |

Table 4 – Antenna Characteristics

Antenna Switch Control Logic Table:

JUNO-LPA requires at least one (1) and a maximum of two (2) external antennae for radio transmission and reception.

The table below represents the switch control settings for TX/RX selection between the two antennae, when JUNO-LPA is so configured.

Conditions - Pin HIGH = VCC_AMP; Pin Low = GND

| JP1 Wiring Logic | | | | Operational Mode | | | |
|------------------|------|------|------|------------------|-------------|-------------|-------------|
| TX1 | TX2 | RX1 | RX2 | TXRF – ANT1 | TXRF – ANT2 | RXRF – ANT1 | RXRF – ANT2 |
| HIGH | LOW | LOW | LOW | ON | OFF | OFF | OFF |
| LOW | HIGH | LOW | LOW | OFF | ON | OFF | OFF |
| LOW | LOW | HIGH | LOW | OFF | OFF | ON | OFF |
| LOW | LOW | LOW | HIGH | OFF | OFF | OFF | ON |

Table 5 – Antenna Switch Control Logic

Note:

TX1 = JP1-Pin 17

TX2 = JP1-Pin 12

RX1 = JP1-Pin 15

RX2 = JP1-Pin 11

Switch Control Characteristics

Conditions - VCC_AMP = 3.3VDC

| Symbol | Parameter | Conditions | Min. | Max. | Unit |
|----------|--------------------------------------|---------------------------------|------|---------|------|
| VCTL_ON | Control Voltage | ON State | 2.5 | 3.6 | VDC |
| VCTL_OFF | Control Voltage | OFF State | 0.0 | 0.5 | VDC |
| SWON | Low Loss Switch Control Voltage | High State = VCTL_ON - VCTL_OFF | 2.5 | VCC_AMP | VDC |
| Swoff | High Loss Switch Control Voltage | Low State = VCTL_OFF - VCTL_ON | 0.0 | 0.3 | VDC |
| ICTL_ON | Switch Control Bias Current – RF Yes | RF Applied (Any TX/RX = HIGH) | | 100 | µA |
| ICTL_ON | Switch Control Bias Current – RF No | No RF (Any TX/RX = HIGH) | | 30 | µA |
| CCTL | Control Input Capacitance | | | 100 | pF |

Table 6 – Antenna Switch Control Characteristics

RADIO PARAMETERS:

| Parameter Description | Condition | Min. | Typ. | Max | Unit |
|---|-------------------------------------|-------|-------|-------|------|
| RF Frequency Range | | 2.400 | | 2.483 | GHz |
| Radio Receiver (T = 25°C, VCC = 3.3V, fosc = 13.000MHz, X13OUT off, 64 chips/bit, Threshold Low = 8, Threshold High = 56, BER ≤ 10 ⁻³) | | | | | |
| Sensitivity | | | -95 | | dBm |
| Maximum Received Signal | | -20 | -10 | | dBm |
| RSSI Value for PWR _{in} > -40dBm | | | 28-31 | | |
| RSSI Value for PWR _{in} < -95dBm | | | 0-10 | | |
| Interference Performance | | | | | |
| Co-channel Interference rejection Carrier-to-Interference (C/I) | C = -60 dBm | | 11 | | dB |
| Adjacent (1 MHz) channel selectivity C/I 1 MHz | C = -60 dBm | | 3 | | dB |
| Adjacent (2 MHz) channel selectivity C/I 2 MHz | C = -60 dBm | | -30 | | dB |
| Adjacent (> 3 MHz) channel selectivity C/I > 3 MHz | C = -67 dBm | | -40 | | dB |
| Image[22] Frequency Interference, C/I Image | C = -67 dBm | | -20 | | dB |
| Adjacent (1 MHz) interference to in-band image frequency, C/I image ±1 MHz | C = -67 dBm | | -25 | | dB |
| Out-of-band Blocking Interference Signal Frequency | | | | | |
| 30MHz – 2399MHz except (FO/N & FO/N± 1MHz) | C = -67 dBm | | -30 | | dBm |
| 2498MHz – 12.75GHz, except (FO*N & FO*N±1MHz) | C = -67 dBm | | -20 | | dBm |
| Intermodulation | C = -67 dBm, Δf = 5, 10MHz | | -39 | | dBm |
| Spurious Emission | | | | | |
| 30MHz – 1GHz | | | | -57 | dBm |
| 1GHz – 12.75GHz (except 4.8GHz – 5.0GHz) | | | | -47 | dBm |
| 4.8GHz – 5.0GHz | | | | -37 | dBm |
| Radio Transmitter (T = 25°C, VCC = 3.3V, fosc = 13.000MHz) | | | | | |
| Maximum RF Transmit Power | PA = 0 (min), 3 (typical), 7 (max) | 0 | 12 | 23.5 | dBm |
| RF Power Control Range | | | 30 | | dB |
| RF Power Range Control Step Size | Seven steps, monotonic | | 4.3 | | dB |
| Frequency Deviation | PN Code Pattern 10101010 | | 270 | | kHz |
| Frequency Deviation | PN Code Pattern 11110000 | | 320 | | kHz |
| Zero Crossing Error | | | ±125 | | ns |
| Occupied Bandwidth | 100-kHz resolution bandwidth, -6dBc | 500 | | | kHz |
| Initial Frequency Offset | | | ±75 | | kHz |
| In-Band Spurious | | | | | |
| Second Channel Power (±2MHz) | | | | -30 | dBm |
| ≥ Third Channel Power (≥3 MHz) | | | | -40 | dBm |
| Non-Harmonically Related Spurs | | | | | |
| 30MHz – 12.75GHz | | | | -57 | dBm |
| Harmonic Spurs | | | | | |
| Second Harmonic | | | | -20 | dBm |
| Third Harmonic | | | | -30 | dBm |
| Fourth and Greater Harmonics | | | | -47 | dBm |

Table 7 – Radio Characteristics

PIN ASSIGNMENTS:

| Pin# | Function | I/O | Description |
|------|-----------|--------|--|
| 1 | PDn | I | Power Down |
| 2 | GND | - | Module Ground |
| 3 | SCK | I | SPI Input Clock |
| 4 | X13OUT | O/Hi-Z | Output Clock |
| 5 | MOSI | I | SPI Data Input from MCU |
| 6 | MISO | O/Hi-Z | SPI Data Output to MCU |
| 7 | IRQ | O | Interrupt Request |
| 8 | SSn | I | SPI Slave Select Enable |
| 9 | RSTn | I | Module Reset |
| 10 | GND | - | Module Ground |
| 11 | RX2 | I | Antenna 2 RX Control |
| 12 | TX2 | I | Antenna 2 TX Control |
| 13 | TST | O | Internal Test Pin for VREG monitor of PA |
| 14 | VDET | O | Power Detect Output |
| 15 | RX1 | I | Antenna 1 RX Control |
| 16 | SLOPE SEL | I | Positive/Negative Slope Detection |
| 17 | TX1 | I | Antenna 1 TX Control |
| 18 | Vcc | - | Module Input Power |
| 19 | Vcc_AMP | - | Power supply to Power Amp Circuitry |
| 20 | GND | - | Module Ground |

Table 8 – JUNO-LPA Pin Assignments

PIN FUNCTIONS:

- MOSI:** SPI Input from MCU
Receives commands/data from the device microcontroller.
- MISO:** SPI Output to MCU
Transmits requests/data to the device microcontroller.
- SSn:** SPI Slave Select Enable Input
SPI enable
- IRQ:** Interrupt Request
The Interrupt Request Pin Select bits are used to determine the drive method of the IRQ pin
- GND:** Module Ground
Ground to equal 0Vdc

| | |
|-------------------|---|
| RSTn: | Module Reset Active LOW reset switch |
| SCK: | SPI Input Clock |
| X13OUT: | System Clock On-board XTL clock output of 13MHz |
| PACTL: | Power Amplifier Control Enables/disables external power amplification circuitry, where available |
| PDn: | Power Down Driving signal LOW will put the module in SUSPEND MODE (X13OUT = 0 when PDn is LOW) |
| Vcc: | Module Input Power Vcc range 2.7 to 3.6Vdc |
| Vcc_AMP: | Power supply input for power amplifier |
| TX1: | Transmit Antenna #1 Input for control of TX Antenna #1 |
| TX2: | Transmit Antenna #2 Input for control of TX Antenna #2 |
| RX1: | Receive Antenna #1 Input for control of RX Antenna #1 |
| RX2: | Receive Antenna #2 Input for control of RX Antenna #2 |
| SLOPE SEL: | Positive/Negative Slope Select Input for determining positive or negative slope of VDET |
| VDET: | Power Detect Output Power output voltage detector |
| TST: | Internal Test Pin for VREG monitor of PA Output from power amplifier for monitoring the internal voltage regulator |

AGENCY CERTIFICATIONS:

The Unigen JUNO-LPA UGWR2US WirelessUSB Module is tested and pre-certified for compliance with applicable Federal and International Regulatory Agency requirements. JUNO-LPA has received a “Modular Approval” certification for the radio function. This certification may be used by the Digital Electronic Device manufacturer by grant for the end-device containing JUNO-LPA. The grant is only applicable to the module’s radio function in the end-product and does not supplant the other regulatory agency requirements concerning digital emissions certifications, where required. Contact the appropriate regulatory agency for relevant product requirements as needed.

The *Unigen JUNO-LPA UGWR2US WirelessUSB Module User Manual* contains information concerning the digital and analog emissions testing and details application of the “Modular Approval” grant. The table below summarizes the regulatory agency tests performed for receipt of respective certifications.

Regulatory Agencies:

| Agency | Test Performed | Type | Limit | Result | Margin |
|---------------|-----------------------------|---|-----------------------------|--------|------------------|
| EU | Radiated Spurious Emissions | 30-12.75MHz Transmit Mode | EN 300 328 | PASS | -4.6dB @ 4804MHz |
| | | 30-12.75MHz Transmit Mode | EN 300 328 | PASS | -4.9 @ 177.01MHz |
| FCC 15.247 | Radiated Emissions | 30 25,000 Spurious Emissions | FCC Part 15.209/15.247 (c) | PASS | Results on File |
| | | 6dB Bandwidth | 15.247(a) | PASS | 960kHz |
| | | 99% Bandwidth | IC RSS-210 | PASS | 1.175MHz |
| | | Output Power | 15.247(b) | PASS | 7.2dBm |
| | | Power Spectral Density (PSD) | 15.247(d) | PASS | 3.06dBm |
| | | Bandedge | FCC Part 15.209 /15.247(c) | PASS | Results on File |
| | | Out of band | 15.247(c) | PASS | Results on File |
| EU | Radio Performance Test | Output Power, Power spectral density at normal conditions | EN 300 328-1 | PASS | Results on File |
| | | Frequency Range at normal conditions | EN 300 328-1 | PASS | Results on File |
| | | Output Power over extreme conditions | EN 300 328-1 | TBT | |
| | | Frequency Range over extreme conditions | EN 300 328-1 | TBT | |
| | | Conducted spurious emissions, 30MHz - 12750MHz, transmit mode | EN 300 328-1 | PASS | Results on File |
| | | Conducted spurious emissions, 30MHz - 12750MHz, receive/stand-by mode | EN 300 328-1 | PASS | Results on File |
| | Radiated Spurious Emissions | 30 - 12,750 MHz -Spurious Emissions Transmit Mode | EN 300 328 V1.2.1 | PASS | Results on File |
| | | 30 - 12,750 MHz -Spurious Emissions Receive Mode | EN 300 328 V1.2.1 | PASS | Results on File |

Table 9 – Regulatory Agency Certifications

Regulatory Compliance Statement:

The Unigen JUNO-LPA UGWR2US WirelessUSB module has been tested against the relevant requirements of standards: EN 300 328, EN 301 489-17, FCC part 15 and Industry Canada RSS-210. The module is certified by the regulatory authorities in the USA and Canada and complies with the applicable essential requirements of the Radio & Telecommunication Terminal Equipment (R&TTE) directive in the EU. The module can thus be incorporated into products sold worldwide with little or no additional testing of the module itself. ***The end product must meet the appropriate technical requirements that apply to that product type but re-certification of the radio module is not required in the USA and Canada.***

In the EU, the integrator is responsible for evaluating their product type per the essential performance requirements of the R&TTE directive (except those associated with the module), declaring compliance and then notifying the member states prior to marketing the product (because the module uses a frequency band that is not harmonized in the EU). It is the responsibility of the module integrator to obtain the necessary approvals to sell products incorporating this module in other countries outside of North America and the EU. The report of measurements performed on the module in compliance with the FCC rules and EN standards can be used in these submittals (as the requirements in many other markets around the world are based in part or in whole on the standards prevalent in North America and the EU).

MECHANICAL CHARACTERISTICS:

| Item | Description | Specification |
|------|-------------------------|--|
| 1 | PCB Material | FR-4 |
| 2 | PCB Layers | 4 |
| 3 | Connector Type | Straight thru-hole or header, mirrored through hole or header, bare. Please see Table 4 for pin assignments |
| 4 | PCB Number | 1 |
| 5 | Flammability Rating | UL94 V-0 |
| 6 | UGWR2US Dimensions | 1.29" x 1.30" x 0.54" (32.76 mm x 33.02mm x 13.72mm) |
| 7 | Antenna Cable Connector | GSC Ultra-Miniature |
| 8 | Mating Connectors | 2x10 Female Header |
| 9 | User Serviceable Parts | None |

Table 10 – Mechanical Description

MECHANICAL DRAWINGS:

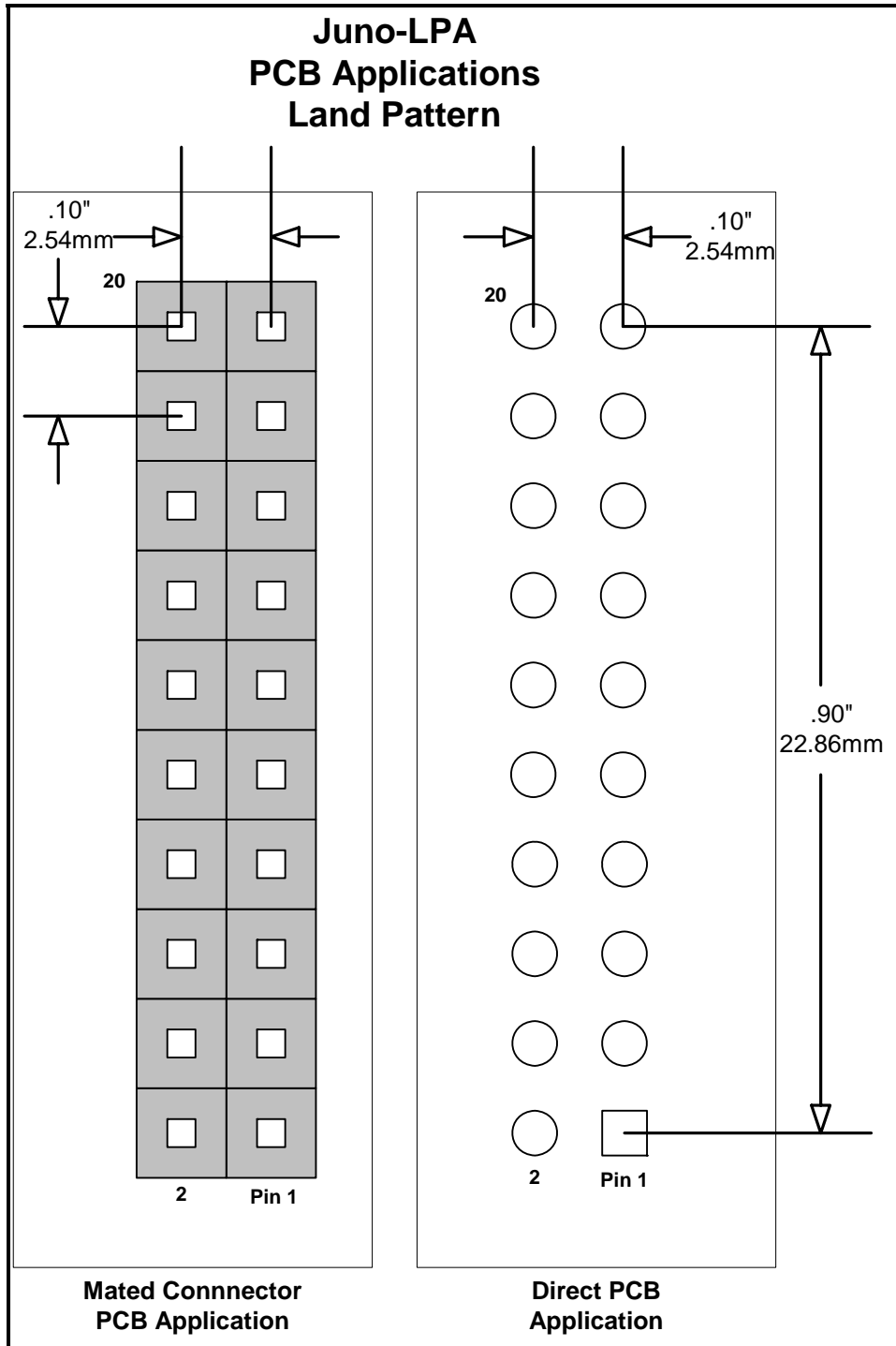


Figure 2 – Juno-LPA Land Pattern

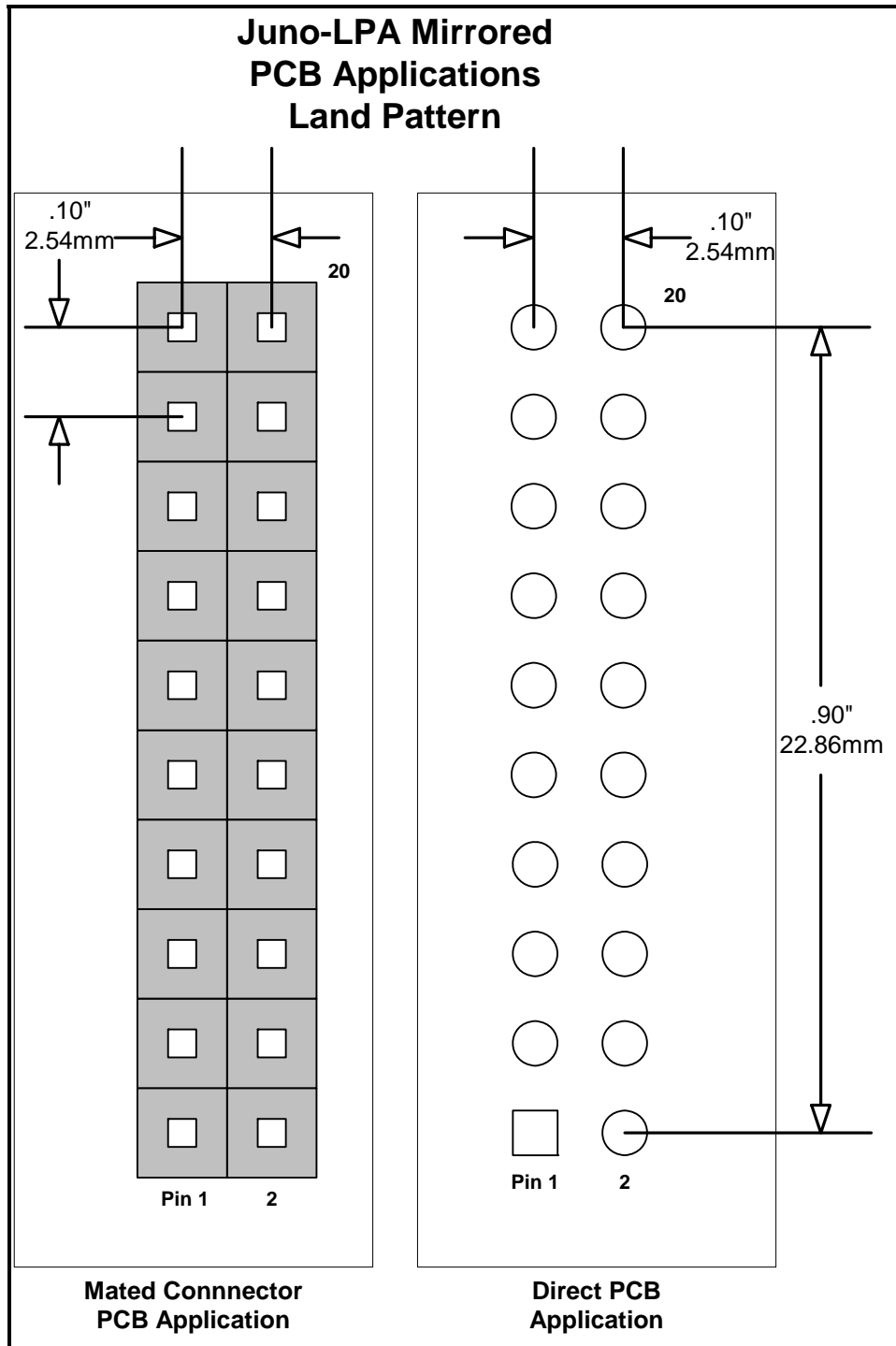


Figure 3 – Juno-LPA Mirrored Land Pattern



Solutions for a Real Time World

WirelessUSB™ - UGWR2US

Data Sheet

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PHYSICAL DIMENSIONS:

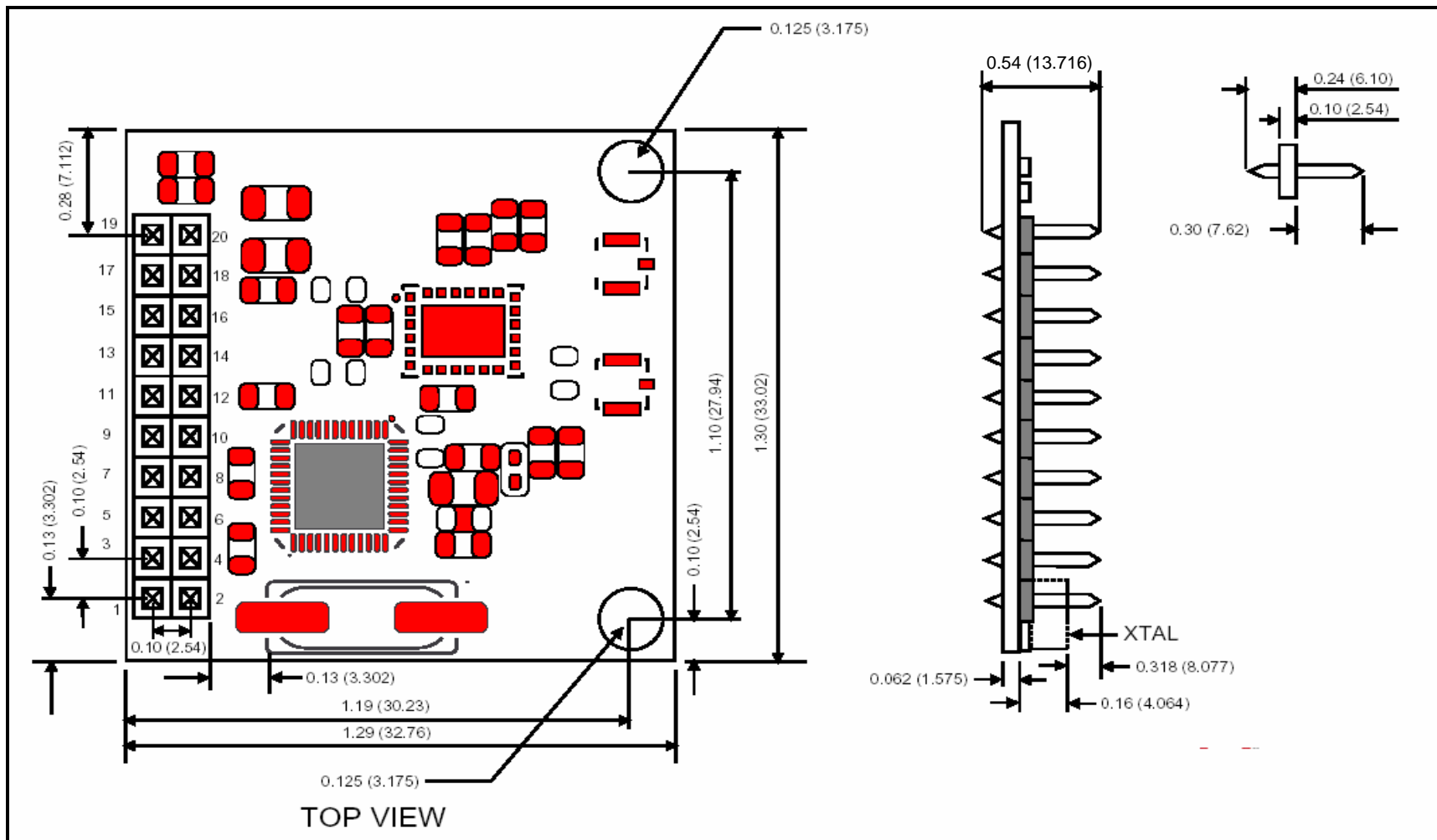


Figure 4 – Juno-LPA Dimensions

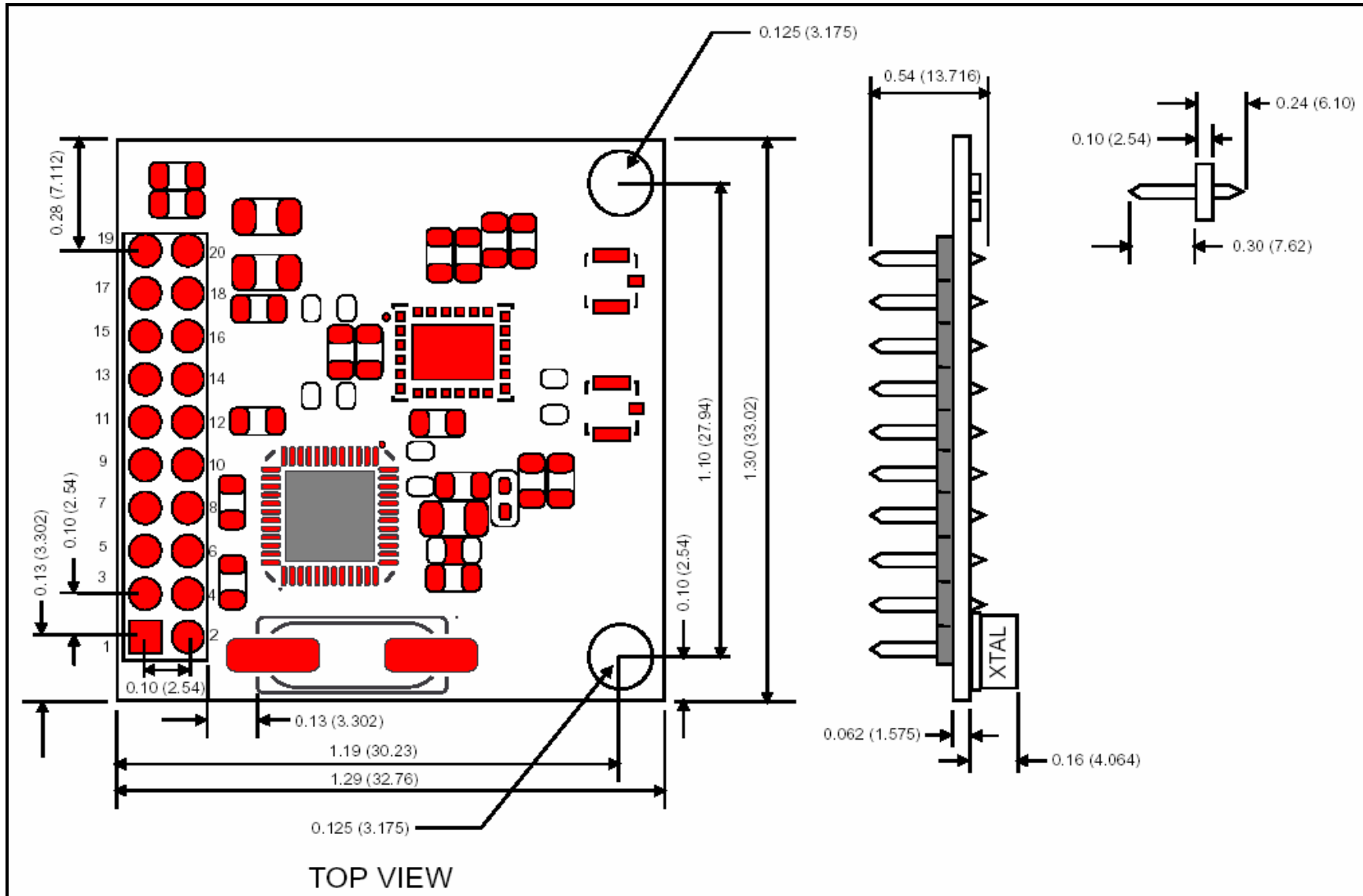


Figure 5 – Juno-LPA Mirrored Dimensions



WirelessUSB™ - UGWR2US

Solutions for a Real Time World

Data Sheet

ORDERING INFORMATION: *

JUNO-LPA WirelessUSB™ Module

| Unigen Product Group - Wireless - | Form Factor | WirelessUSB Tech* | Connection | Connector Type | Voltage |
|-----------------------------------|-------------|-------------------|----------------|--|-----------|
| UGW | R | 2US | HC HP BB | 2x10 Header Mirrored 2x10 Header Bare – No connector | 33=3.3Vdc |

*Module based on the Cypress Semiconductor CYWUSB6935-48 WirelessUSB™ LR 2.4GHz DSSS Radio SoC device.

Antennae

| Unigen Product Group - Antennae - | Technology | Form Factor (Appearance) | Frequency / Gain | Coaxial Cable Type | Cable Length | Connector Type | Special Requirements |
|-----------------------------------|-----------------------------------|--------------------------|-----------------------|--------------------|---|-----------------|---|
| UGA | D= Dipole Antenna Module | L1= 3.5" desktop | B1= 2.4GHz, 2.0dBi | M1= 1.13mm HF | O50= 50mm 100= 100mm 150= 150mm 200= 200mm 250= 250mm 300= 300mm | M= Mini Coax | None= Default F= EMI core and PVC |
| | | A0= 4" Swivel Whip | B2= 2.4GHz, 5.0dBi | | | | |

Table 11 – Part Number Listings

Contact your Unigen Sales Representative for additional information or visit the Nexus™ Wireless Products section of our web site (www.unigen.com).



Solutions for a Real Time World

WirelessUSB™ - UGWR2US

Data Sheet

CONTACT INFORMATION

CORPORATE HEADQUARTERS

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