

User Guide Information to 2.4GHz ALPS Bluetooth™ Module**UGPZ series****1. Introduction:**

The ALPS, UGPZ series with Bluetooth™ wireless technology is a radio device that transmits and receives radio signals in accordance with the spectrum regulations for the 2.4 GHz unlicensed frequency range.

The following table shows a major function.

Model number	Major Function	Remarks
UGPZ1	1. Output Power Bluetooth™ class1(+15dBm / 0.032W max.) compliant 2. On-board Internal dielectric resin antenna (1/4 wavelength, 1.62dBi max.) 3. Voltage regulator built in. Rating of Input voltage: +4.4Vdc +/-0.8V 4. Flash memory (256k bytes) built in 5. Reference oscillator built in 6. Board to board connection through UART (BCSP or H4), USB, PCM interfaces 7. Operating temperature: Nominal; +15 °C to +35 °C 8. Regulatory frequency range USA, Canada, Europe, Japan: 2400 – 2483.5MHz Note: Out door use is prohibited in France.	On-board Internal antenna
UGPZ2	1. Output Power Bluetooth™ class2(+4dBm / 0.0025W max.) 2. On-board Internal dielectric resin antenna (1/4 wavelength, 1.62dBi max.) , or External ceramic antenna (1/4 wavelength, 1.63dBi max.) connected via antenna connector. 3. Voltage regulator built in. Rating of Input voltage: +3.3Vdc, +/-0.2V 4. Flash memory (256k bytes) built in 5. Reference oscillator built in 6. Board to board connection through UART (BCSP or H4), USB, PCM interfaces 7. Operating temperature: Nominal; +15 °C to +35 °C 8. Regulatory frequency range USA, Canada, Europe, Japan: 2400 – 2483.5MHz Note: Out door use is prohibited in France.	On-board Internal antenna or External antenna
UGPZ3	1. Output Power; Bluetooth™ class 2(+3dBm / 0.002W max.). 2. External 2 or 3 different ceramic antenna connected via antenna connector. (4dBi max) 3. Voltage regulator built in. Rating of Input voltage: +3.3Vdc, +/-0.2V 4. Flash memory (256k bytes) built in 5. Reference oscillator built in 6. Board to board connection through USB interfaces 7. Operating temperature: Nominal; +15 °C to +35 °C 8. Regulatory frequency range USA, Canada, Europe, Japan: 2400 – 2483.5MHz Note: Out door use is prohibited in France.	Three kind of External antenna

Electrical features	Contents
Program memory	4M bits (256k bytes x 16 bits) Flash momory
RAM	32k bytes x 16 bits
Reference oscillator	Built in
Sub clock oscillator	Built in
Audio interface	PCM A-Law, μ -Law (CVSD)
Serial data interface	UART(BCSP or H:4)
USB interface	USB (v1.1 : OHCI and UHCI)

2. Radio part

Bluetooth™ Module, model UGPZ1 has fully integrated 2.4GHz radio transceiver with Class1 power amplifier, receiver and frequency-hopping synthesizer. The model, UGPZ2 is the almost same as UGPZ1, except for output power and no power amplifier in the RF front-end circuit.

The model, UGPZ3 is the almost same as UGPZ2, except for output power, no power amplifier in the RF front-end circuit and overall dimensions.

In order to facilitate power management, each section of the radio may be powered up and down separately. Various software controllable switches have been implemented to control power to the transmitter, the frequency synthesizer/VCO, the receiver and the LNA, if provided.

3. Base band part

Bluetooth™ Module contains link controller, which performs all the real-time functions of the Bluetooth™ baseband protocol layer, including data transfer and connection management. The device also controls states of operation enables sniff, park and hold modes of operation. Real-time functions such as frequency-hopping burst timing and clock synchronization are also implemented in this hardware. Further processing is required to format the data into the Bluetooth™ packet format before it may be applied to the GFSK modulator. On the receive side the controller performs error correction and de-scrambling before de-packetizing the incoming payload and storing it in RX buffers.

The link controller hardware also implements the basic, repetitive actions of paging, inquiry, page or inquiry scans and the general Bluetooth™ modes of park and sniff. This ensures that the processor used to implement the Link Manager and other lower layer protocol can be kept inactive.

4. Eligibility requirements for regulatory approval:

As a part of regulatory certification, ALPS will provide an approval for certain countries in the form of modular approval (MA) .

The regulatory approval is required for each country throughout world where the end-user wishes to use ALPS UGPZ series into entire end product, if no certification program for the modular approval exists in the country.

The countries that can accept MA include the USA, Canada, and certain European countries.

The conditions for approval of ALPS UGPZ series and related information for each country are described below.

ALPS wishes that our customer for end product would contact with us about what module of UGPZ series has been certified for each country.

4.1 USA

4.1.1 Compliance statement to FCC

This module complies with part 15 of the FCC rules. Operation is subject to the following conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

4.1.2 RF exposure compliance

This module may be installed into any end product both mobile and portable applications.

Because the module only radiates very low power levels, it complies with RF exposure requirements.

According to Supplement C, Edition 01-01 to OET Bulletin 65, Edition 97-01 spread spectrum transmitters are categorically excluded from routine environmental evaluation because of the low power level, where there is a high likelihood of compliance with RF exposure standards.

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4.1.3 Requirements to end product

The following provisions for end product will be required on the FCC regulation, part 15.

(1) Antenna

ALPS wishes that our customer shall use the UGPZ module without any modifications including antenna. If customer use a unique antenna, the FCC certification is required for the end product.

(2) Markings

To satisfy FCC exterior labeling requirements, the following text must be placed on the exterior of the end product.

1) UGPZ1

Contains Transmitter Module FCC ID: CWTUGPZ1

2) UGPZ2

Contains Transmitter Module FCC ID: CWTUGPZ2

3)UGPZ3

Contains Transmitter Module FCC ID: CWTUGPZ3

Any similar wording that expresses the same meaning may be used.

(3) Caution to user for modification

The following caution is expressed on the user's instruction manual.

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

(4) Compliance statement to FCC

The following statement is expressed on the user's instruction manual.

This module complies with part 15 of the FCC rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

4.2 Canada

In general, I.C (Industry Canada) follows the FCC in terms of emission levels and other regulatory requirements.

4.2.1 Compliance statement for IC

This device complies with Industry Canada RSS-210. Operation is subject to the following conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

4.2.2 RF exposure compliance

- (1) This module may be installed into any end product both portable and mobile applications, because the module only radiates very low power level.
- (2) The installer of this device must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca/rpb.

4.2.3 Meaning of certification number

The meaning of the marking of "IC:1788F-UGPZ#" on the UGPZ module means: "1788F-UGPZ#" is the certification number, and the term "IC" before the equipment certification number only signifies that Industry Canada technical specifications were met.

4.2.4 Requirements to end product

The following provisions for end product will be required on the Canada regulation.

(1) Antenna

ALPS wishes that our customer use the UGPZ module without any modifications including antenna. If customer use a unique antenna, the I.C certification is required for the end product.

(2) Markings

To satisfy Industry Canada exterior labeling requirements, the following text must be placed on the exterior of the end product.

1) UGPZ1

Contains Transmitter Module IC: 1788F-UGPZ1
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2) UGPZ2

Contains Transmitter Module IC: 1788F-UGPZ2
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3) UGPZ3

Contains Transmitter Module IC: 1788F-UGPZ3
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Any similar wording that expresses the same meaning may be used.

4.3 Europe

The UGPZ module with CE marking will assist our customer into advance.

The end product containing UGPZ module with CE marking does not require further involvement of R&TTE directive Notified Body, where the end product installs UGPZ module with no modification of the antenna in conformance with ALPS's installation instructions.

In all other cases, or if our customer of the end product is in doubt then the end product integrating the UGPZ module must be assessed against Article 3.2 of the R&TTE Directive.

Since ALPS UGPZ modules are only intended to use for the end product, our customer shall take an action to submit a "**Notification**" to each country of EU.

In the case where a Notified Body/Bodies has/have assessed the end product, this will be the Notified Body number(s) given on the notification to the Spectrum Management Agencies.

In the case where a Notified Body has not assessed the end product, the Notification can be made to Spectrum Management Agencies using the Notified Body number(s) on the UGPZ module.

Please note that the notification shall be given no less than four weeks in advance of the start of placing on the market

Note: The our customer for the end product containing UGPZ module without CE marking shall be required further application to R&TTE directive.

4.4 Japan

4.4.1 Radio law (TELEC)

The our customer for the end product will not require TELEC certification for the end product, where UGPZ module with TELEC certification shall be incorporated in the following applications.

(1) Antenna

ALPS wishes that our customer shall use the UGPZ module without any modifications including antenna. If customer use a unique antenna, the re-certification to TELEC will be required for the UGPZ module.

Thus, our customer would be required to contact with ALPS before the modification of the antenna.

(2) The outer cabinet of the end product shall be fixed by easily access method, such fixing with plus / minus screws to open the outer cabinet by general public.

The permanently fixing method, such using security screws are not allowed for mounting method. The labeling to exterior of the end product has a meaning of "Contains transmitter device certified under Japanese radio law ", or similar wording. (see below)

「電波法適合無線設備を内蔵」
("Contains transmitter device certified under Japanese radio law ")

(3) Where outer cabinet of the end product containing UGPZ module is secured by the permanently securing method, such using security screws, the our customer for the end product shall obtain TELEC certification by themselves for the end product, even if UGPZ module has been certified by TELEC.

4.4.2 Telecommunications law (JATE)

(1) The end product containing UGPZ module shall be certified by JATE, where the end product is **directly connected** to telecommunication line, such public telephone, even if UGPZ module has been certified by JATE, or not.

(2) Since the UGPZ module **is not certified** by JATE, our customer for the end product containing UGPZ module would be required as that;

- a) In case of that outer cabinet is fixed by easily access method, such fixing with plus / minus screws to open the outer cabinet by general public, the user manual for the end product has a caution to the end user about the meaning of "**Easily removable wireless transmitter is integrated**", or similar wording. (see below)

「容易に取り外せる無線設備が内蔵されています。」
("Easily removable wireless transmitter is integrated")

Any similar wording that expresses the same meaning may be used.

- b) Where outer cabinet is secured by the permanently securing method, such using security screws, the our customer for the end product shall obtain JATE certification by themselves for the end product, even if UGPZ module has been certified by JATE, or not.

4.4.3 Wireless LAN voluntary standard (ARIB)

ARIB STD-T66 is a voluntary standard in Japan.

However, ALPS strongly recommend providing the following application for the end product.

(1) User manual.

The user manual specifies the following cautions and explanation of markings indicated on the end product.

<Cautions>

この機器の使用周波数帯では、電子レンジ等の産業・科学・医療用機器のほか、工場の製造ライン等で使用される免許を要する移動体識別用の構内無線局(免許を要する無線局)及び特定小電力無線局(免許を要しない無線局)が運用されています。

1. この機器を使用する前に、近くで移動体識別用の構内無線局及び特定小電力無線局が運用されていないことを確認して下さい。
2. 万一、この機器から移動体識別用の構内無線局に対して電波干渉の事例が発生した場合には、速やかに使用周波数を変更するか又は電波の発射を停止した上、下記連絡先にご連絡頂、混信回避のための処置等（例えば、パーティションの設置など）についてご相談して下さい。
3. その他、この機器から移動体識別用の特定小電力無線局に対して、電波干渉の事例が発生した場合などの何かお困りのことが起きたときは、次の連絡先へお問い合わせください。

連絡先： _____

(2) Sticker

The end product provides a sticker describing the same cautions of user manual.

There are no specifications for material, size and shape.

(3) Catalogue, pamphlet and web site

The catalogue, pamphlet and web site for the end product specify the meaning of same cautions of user manual and meaning of markings shown in the end product.

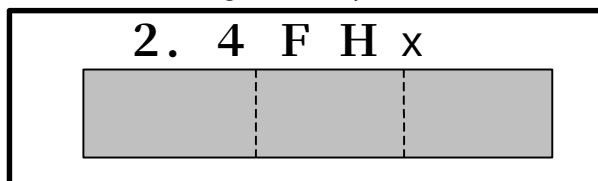
(4) Markings on end product

The following markings are marked on the end product and its package.

The user manual describes the meaning of the markings.

If there is no spacing on the end product, the sticker is used as an alternate.

<Markings on end product>



- 1) “ 2.4 “ means radio operated in 2.4 GHz bands.
- 2) “ FH “ means modulating type, FH-SS.
- 3) “ x “ means that distance for interference is less than “y” m on the assumption.

Product No.	UGPZ1	UGPZ2	UGPZ3
Output power	+15dBm / 0.032W max.	+4dBm / 0.0025W max.	+3.0dBm / 0.002W max.
“x”	8	2	2
“y”	80m	20m	20m

- 4) “  “ means the product is used in all frequency band from 2400MHz to 2483.5MHz and there are no possibilities of an avoidance to the other bands.

CONFIDENTIALITY NOTES:

This guide contains confidential information, which shall not be provided to any third parties without agreement notice.

CAUTION

- 1.The BLUETOOTH trademarks are owned by Bluetooth SIG, Inc., U.S.A.

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