

Beacon Broadcast Device

CMP-9304BC08



1 Description

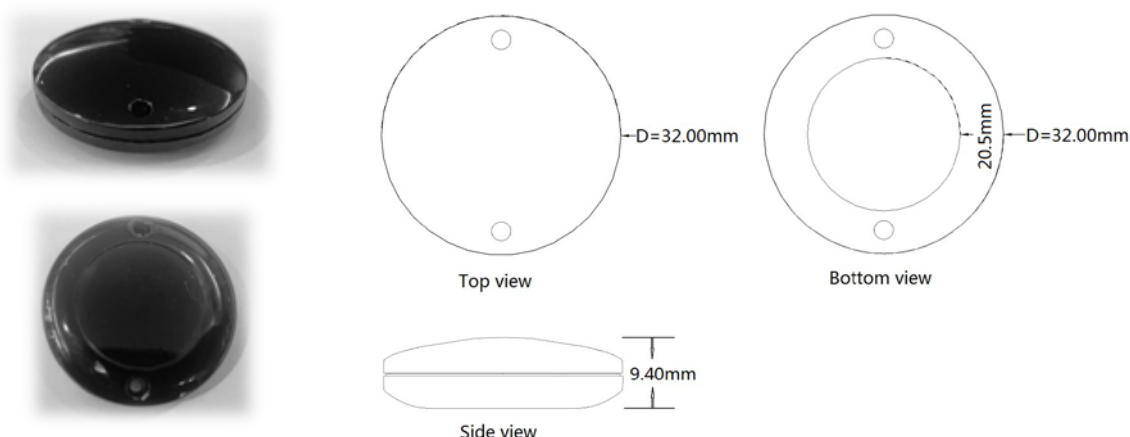
The CMP-9304BC08 is a Bluetooth Low-Energy proximity beacon suitable for mass deployment by system integrators. The device advertises ID data that is compatible with common beacon standards (UUID, Major ID, and Minor ID).

An supervisor mobile APP is also available for over-the-air beacon settings to configure parameters such as UUID, Major ID, Minor ID, advertising intervals and measured power at 1 meter.

1.1 Features

- ❖ ID packet format includes:
 - UUID, Major ID, and Minor ID
 - Output power information
- ❖ Beacon interval programmable via mobile APP for flexible power consumption management. Default interval is 1 second.
- ❖ UUID programmable via mobile APP.
- ❖ Major and Minor IDs programmable via mobile APP to suit user's self-customization.
- ❖ Measured power at 1 meter programmable via mobile APP to configure the reference RSSI at 1 meter distance

1.2 Dimensions – Beacon Main Unit (designations in mm)



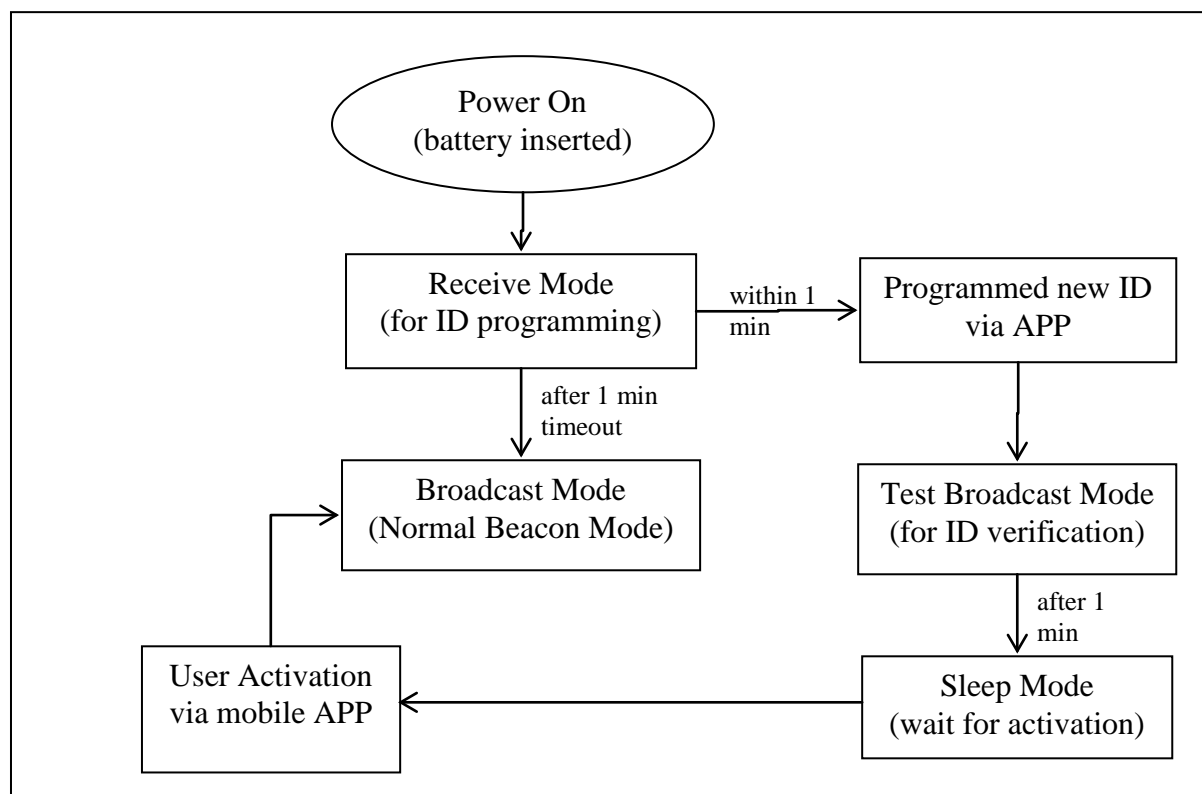
1.3 Bluetooth Address

Bluetooth Address: 0C:F3:EE:XX:XX:XX

2. Operation Manual

SPEC No.	Revision	State	Printed	Version	Page
C-MAX Beacon BC08 DataSheet	1.3	2019-12-17	2020-03-26	English	2 of 8

2.1 Operational Flow



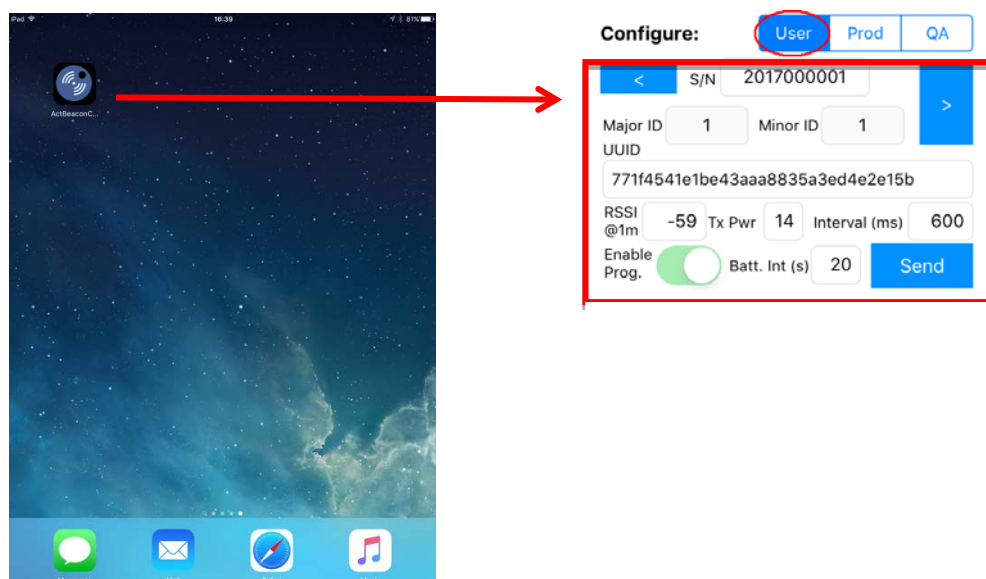
2.2 Initial Activation

Upon first use or after new ID is programmed into the beacon device, the beacon will be in standby activation mode. A Supervisor mobile APP has to be used to activate the beacon into normal active broadcast mode. Upon launching the APP, selecting USER mode, input the serial number of the beacon to be activated and then a simple click on “Activate” will activate the beacon which should be placed next to the Apple mobile device.

If after battery is replaced, the device will remain in receive mode for 1 minute waiting for new ID to be programmed, if no new ID is programmed, the device will go into normal beacon mode, without the need for activation.

APP configurable device settings

SPEC No.	Revision	State	Printed	Version	Page
C-MAX Beacon BC08 DataSheet	1.3	2019-12-17	2020-03-26	English	3 of 8



2.3 iBeacon Broadcast

The normal Beacon Advertisement packet will be broadcasted every 1 second or at an interval set by the user between 100 milliseconds and 10 seconds. The broadcasting packet is according to the following standard Apple iBeacon format:

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Type	Apple's fixed iBeacon advertising prefix									iBeacon UUID																Major ID		Minor ID		RSSI as at 1m

The packet consists of :

- ❖ UUID (16 bytes or 32 hexadecimal characters). By default it is set to C-MAX's UUID: E2C56DB5-DFFB-48D2-B060-D0F5A71096E0.
- ❖ Major ID (2 bytes or 4 hexadecimal characters). By default, it is set to a value of 10000, unless C-MAX has a list of specific major IDs to be pre-programmed for the customer upon product shipment.
- ❖ Minor ID (2 bytes or 4 hexadecimal characters). By default, it is set to a value of 10, unless C-MAX has a list of specific minor IDs to be pre-programmed for the customer upon product shipment.
- ❖ RSSI as at 1m. As adjusted by measured power level at 1 metre distance. This parameter can be used by a mobile APP for distance computation.

Receive: s/n: 2017000001		-35 dbm
Major ID: 1	Minor ID: 1	
UUID:		
E2C56DB5-DFFB-48D2-B060-D0F5A71096E0		

2.4 Battery Level Broadcast

An additional supplement advertisement packet will be broadcasted every 5 mins by default or at an interval specified by the user within the range of 1 seconds and 3600 seconds. This allows the mobile APP to check for the battery voltage and alert for battery low conditions.

Batt. Int.: 20 s Batt: 3.0 V

2.5 Beacon Settings Customization

If the Beacon is configured as “ENABLE PROGRAMMING”, the user can customise his own beacon parameters including the following:


- Programmable UUID
 - o 16 bytes, each byte ranging from 0x00 to 0xFF
 - o Default set = E2C56DB5-DFFB-48D2-B060-D0F5A71096E0
- Programmable Major ID
 - o Range from 0x0001 to 0xFFFF
 - o Default set = 10000
- Programmable Minor ID
 - o Range from 0x0001 to 0xFFFF
 - o Default set = 10
- Programmable Advertising Interval
 - o Input range from 600 milliseconds to 10000 milliseconds
- Battery Level Broadcast Interval
 - o Input range from 1 second to 3600 seconds
 - o Default set = 300 seconds (that is, 5 minutes)
- Programmable Measured Power at 1 meter
 - o 2's complement of the calibrated TxPower, from 0x00 to 0xFF
 - o Default set = 0xC5 = -59dBm

3. Electrical Characteristics

Specification	Min	Typ	Max	Units	Condition
Operating Voltage	2.6	3.0	3.3		Lithium Coin cell CR2032 battery, 25 °C , 50% humidity
Battery Lifetime (Before Activation)			50	months	CR2032 battery with 220 mAh @ 80% capacity
Battery Lifetime (After Activation)			18	months	CR2032 battery with 220 mAh @ 80% capacity, Beacon

(1 sec broadcast interval)					broadcast interval = 1 sec, Output power = +0.4 dBm, 25 °C , 50% humidity
Beacon Interval		1		sec	Default
Average Current (Before Activation)		5		uA	Scanning for activation
Average Current (After Activation)		14		uA	1 seconds iBeacon broadcast interval + 20 seconds Battery Level Advertisement Interval
Range		30		m	At default broadcast output power and interval, 25 °C , 50% humidity
Operating Temperature	-10		+60	°C	3V operating voltage

4. Ordering Information

Part Number	Description	Colours Available	Image
CMP-9304BC08-A	Beacon Main Unit	Black	

5. FCC Warning Statement

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

5.1 Caution

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two 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.

5.2 FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

5.3 Important Note

The device is limited to OEM installation ONLY

1. We hereby acknowledge our responsibility to provide guidance to the host manufacturer in the event that they require assistance for ensuring compliance with the Part 15 Subpart B requirements.
2. The host manufacturer is responsible for additional testing to verify compliance as a composite system. When testing the host device for compliance with the Part 15 Subpart B requirements, the host manufacturer is required to show compliance with the Part 15 Subpart B while the transmitter device(s) are installed and operating. The devices should be transmitting and the evaluation should confirm that the device's intentional emissions are compliant (i.e. fundamental and out of band emissions) with the Radio essential requirements. The host manufacturer must verify that there are no additional unintentional emissions other than what is permitted in the Part 15 Subpart B or emissions are complaint with the Radio aspects.

This device is intended for OEM integrator. The OEM integrator is still responsible for

1. ensuring that the end-user has no manual instructions to remove or install device
2. the FCC compliance requirement of the end product, which integrates this device.
3. Appropriate measurements(e.g. 15 B compliance) and if applicable additional equipment authorizations (e.g. Verification, Doc) of the host device to be addressed by the integrator/manufacturer.
4. The separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations
5. 20cm minimum distance has to be able to be maintained between the antenna and the users for the host this device is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.
6. Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.
7. That device is limited to installation in mobile or fixed applications, according to Part 2.1091(b)
8. The maximum antenna gain required for authorized antennas per Part15. 204 (including ant. spec.)

The user manual of the end product should include

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than the palm of the hand, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of FCC rules. Operation is subject to the following two 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.

6. RED Statement

SPEC No.	Revision	State	Printed	Version	Page
C-MAX Beacon BC08 DataSheet	1.3	2019-12-17	2020-03-26	English	7 of 8

This device is pending for compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU

Disclaimer of Warranty

Information furnished is believed to be accurate and reliable. However C-MAX assumes no responsibility, neither for the consequences of use of such information nor for any infringement of patents or other rights of third parties, which may result from its use. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. C-MAX products are not authorized for use as critical components in life support devices without express written approval of C-MAX.

Note

It is not given warranty that the declared circuits, devices, facilities, components, assembly groups or treatments included herein are free from legal claims of third parties. The declared data are serving only to description of product. They are not guaranteed properties as defined by law. The examples are given without obligation and cannot give rise to any liability.

Reprinting this data sheet - or parts of it - is only allowed with a license of the publisher.

C-MAX reserves the right to make changes on this specification without notice at any time.

C-MAX Asia Ltd

Unit 117, 1/F.,
Liven House,
61-63 King Yip Street,
Kwun Tong, Kowloon, HK SAR
Tel.: +852-2798-5182
Fax: +852-2798-5379
e-mail: enquiry@c-max.com.hk

C-MAX Technology Ltd (Shenzhen)

Unit 33H,33/F.,
International Trade Commercial Building,
3005 Nanhu Road,
Luohu District, Shenzhen, PR China,
Tel: +86-755-25181858
Fax: +86-755-25181859
email: mandy@c-max.com.cn