



COPY

Before the
Federal Communications Commission
Washington DC 20554

In the Matter of)
)
Breitling USA, Inc., Request for Waiver)
of Part 95 of the Commission's Rules)
to Certify a Wrist-Worn Personal Locator)
Beacon)

File No. _____

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Federal Communications Commission
Office of the Secretary

REQUEST FOR WAIVER

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October 2, 2014

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REQUEST FOR WAIVER

Pursuant to Sections 1.3 and 1.925 of the Commission's rules, Breitling SA, through its U.S. subsidiary Breitling USA, Inc., requests a waiver of Section 95.1402 of the Commission's rules to allow certification of a wristwatch that includes a 406 MHz Personal Locator Beacon (PLB).

This waiver will not replace a previously granted Part 87 waiver that allows certification of an Emergency Locator Transmitter (ELT) wristwatch at 121.5 MHz. Breitling intends to collocate the two functions in the same device.

A. ABOUT BREITLING

Founded in 1884 and still a family business, Breitling has always specialized in technical watches, with close ties to aviation since the 1930s. The company is one of the last remaining independent Swiss watch brands. It employs 400 people in Switzerland, where its manufacturing facilities are located, and 165 people at its three U.S. locations, including the U.S. headquarters in Wilton, Connecticut. Breitling distributes its products through more than 2,000 points of sale worldwide and forty of its own boutiques.

B. BACKGROUND

The Wireless Telecommunications Bureau granted Breitling a waiver in 2001 for a wrist-worn safety device, called the "Emergency," that supplements conventional 121.5 MHz ELTs.¹ The unit resembles a wristwatch with an extra knob; turning and pulling out that knob deploys a wire antenna and activates the transmitter.

The waiver has been a life-saving success. Ten emergency activations have resulted in the timely rescue of approximately twenty persons. There have been no improper activations or false alarms.²

Search and rescue technology continues to evolve. In 1993, after the COSPAS/SARSAT satellite system had become fully operational on 406.025 MHz, the Commission authorized the marketing of ELTs that use this frequency in conjunction with 121.5 MHz.³ In 2010, after COSPAS/SARSAT had ceased monitoring 121.5 MHz, the Commission prohibited further

¹ *Breitling U.S.A., Inc., Request for Waiver to Permit Type Certification of Breitling Emergency Watch Emergency Locator Transmitter*, Order, 16 FCC Rcd 18560 (Wireless Telecomm. Bur. 2001) (*2001 Waiver Order*). Preceding this order was a one-year trial waiver with eligibility limited to licensed pilots. Letter from D'wana R. Terry, Chief, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, to Breitling U.S.A., Inc. (July 19, 2000). The grounds for that trial waiver were similar to those later set out in the *2001 Waiver Order*.

² Emergency responders have not reported any false alarms; and restoration of the device after activation requires factory service, which gives the company its own means of tracking use.

³ *Amendment of the Aviation Rules (Part 87) to Authorize the Use of the Frequency 406.025 MHz for Emergency Locator Transmitters*, Report and Order, 8 FCC Rcd 3185 (1993).

certification, manufacture, importation, sale, and use of ELTs that use only 121.5 MHz,⁴ but made an exception for the Breitling waiver, which remains in force.⁵

C. REQUEST FOR PART 95 WAIVER

Breitling proposes to market a more advanced version of the wrist-worn “Emergency” device that, in addition to functioning as a 121.5 MHz ELT, also provides a PLB signal at 406.025 MHz for communication with the COSPAS/SARSAT satellite deployment. The illustration shows a 121.5/406 MHz dual-band device that Breitling manufactures in Switzerland, currently for sale outside the United States.

Section 95.1402(a) of the Commission’s rules requires that PLBs comply with certain standards maintained by the Radio Technical Commission for Maritime Services (RTCM).⁶ These standards contemplate a conventional PLB: a handheld, box-shaped device about the size of two packs of playing cards. Compared to those, the Breitling



Figure 1
Dual-Band “Emergency” Watch
(Knob at lower right extends antenna and activates transmitter)

⁴ *Review of Part 87 of the Commission’s Rules Concerning the Aviation Radio Service*, Third Report and Order, 25 FCC Rcd 7610 at ¶ 18 (2010). As discussed below, 121.5 MHz capability is required in 406 MHz PLBs. *See* 47 C.F.R. § 95.1402(b).

⁵ *Review of Part 87, supra*, 25 FCC Rcd 7610 at ¶ 19.

⁶ The standards currently identified in Section 95.1402(a) are set out in “RTCM Recommended Standards for 406 MHz Satellite Personal Locator Beacons (PLBs),” Version 1.1, RTCM Paper 76-2002/SC110-STD, dated June 19, 2002. RTCM no longer offers that 2002 version on its website. The 2012 version has become the *de facto* industry standard and is the basis for section numbering in both the table below and the attached, more detailed “Waiver Request RTCM STANDARD 11010.2.” The standard has evolved so that compliance with the 2012 version also assures compliance with the 2002 version. The test report referenced below shows the device complies with both versions as to requirements outside the waiver request.

device has an important, potentially life-saving advantage: it is always immediately at hand and ready to operate. That benefit comes from a physical size small enough to fit into a wristwatch case. The small size, however, also makes compliance with certain of the RTCM requirements either irrelevant or infeasible.

The details of Breitling's waiver request are attached, and summarized as follows:

RTCM Section	Requirement	Breitling Device
4.41, 4.4.2 ✓	controls for ON/OFF/TEST	ON: extend the antenna OFF: wrap antenna around body of watch TEST: automatically activated on completion of battery charge
4.4.3 ✓	non-rechargeable battery	not practical in a small device—uses a rechargeable Li-ion battery that passes COSPAS/SARSAT type approval tests
4.4.3	battery useful life and expiration date after manufacture	useful life not applicable to rechargeable battery; battery replacement date is prominently visible on watch
4.5.1. ✓	case in a highly visible yellow/orange color	not applicable to wrist-worn device
4.5.2.2, 4.5.2.2.1 ✓	prominent, unobscured labeling for operating instructions, "if found" notice, instructions to register	operating instructions are engraved on the watch; no room for other labeling (purchasers receive in-person oral, written, and video operating instructions, and in-person oral and written registration instructions)
4.5.2.2.1 ✓	space for registration sticker	no room on device
4.5.2.2.2 ✓	labeling with circumstances that could affect operation	no room on device; battery life and antenna orientation are addressed in manual and instructional video
4.5.2.2.2 ✓	labeling with phone numbers to report inadvertent activation	no room on device; information provided on a separate sheet (and previous waiver had no inadvertent activations)
A.13.1 ✓	24 hour battery capacity	battery compatible with small size of device has 18 hour capacity (accepted by COSPAS/SARSAT in attached Letter of Compatibility)
A.16 ✓	121.5 MHz emission tested at minimum and maximum operating temperatures	to maximize usage of battery compatible with small size of device, power for 121.5 MHz emission cuts off if internal temperature drops below 0°C.
A.16.2 ✓	121.5 MHz emission at 100% duty cycle (except for 406 MHz burst transmission)	to maximize usage of battery compatible with small size of device, 121.5 MHz signal transmits for 750 ms every 2.25 seconds

(Again, this is only a summary. For details, please see the attached “Waiver Request RTCM STANDARD 11010.2.”)

None of these issues affects reliable PLB operation. The test house TÜV SÜD has verified full compliance with all elements of the RTCM standards not listed here. We will submit the test report on request.

RTCM has told us it supports this waiver request.

In actual use, except for its 18 hour battery life, performance of the Breitling device is indistinguishable from that of a conventional COSPAS/SARSAT approved PLB.

COSPAS/SARSAT has issued a Letter of Compatibility for the Breitling device, attached.⁷

The Breitling device will not be available for sale on the Internet. To ensure that buyers are properly instructed as to operation and conditions of use, it will be sold only in person at authorized Breitling retailers, by sales associates who are trained and certified as to this particular product. The sales associate will explain the details of operation and the user’s responsibilities, and answer all questions to the buyer’s satisfaction, after which both the sales associate and the customer must sign a “Conditions of Use” form (attached). Buyers will also receive a detailed manual and a USB flash drive with an instructional video on proper operation. The sales associate will assist the buyer with the beacon registration process. (Breitling uses these same procedures in countries where the device is now available for sale.)

⁷ Letter from Steven W. Lett, Head, Cospas-Sarsat Secretariat to Mr. Jean-Paul Girardin, Vice President, Breitling SA at (dated Aug. 18, 2014) (COSPAS/SARSAT Letter of Compatibility) (attached).

D. NEED FOR CONTINUED PART 87 WAIVER

The Commission requires every 406 MHz PLB to also provide a 121.5 MHz homing signal.⁸ The great majority of search and rescue organizations worldwide, including most U.S. agencies, still use 121.5 MHz to locate persons in distress. The previously granted waiver for a wrist-worn 121.5 MHz device addressed the following provisions (applicable only to 121.5 MHz transmissions):

- Section 87.141(i): modulation profile;⁹
- Section 87.143(d)(4): means to turn off the transmitter;¹⁰
- Section 87.147(a): operating temperature range; Section 87.147(b): labeling;¹¹ and
- Section 87.193: operated as part of an aircraft station or survival craft station.¹²

⁸ 47 C.F.R. § 95.1402(b).

⁹ “Given that the purpose of the Emergency is not intended primarily to activate rescue operations, but instead as an accurate and rapid means to locate personnel once a SAR [search and rescue] operation is underway, we conclude that is not necessary to require the power characteristics that Section 87.141(i) require in order to enhance detection of the device’s signal by satellite receivers.” *2001 Waiver Order* at ¶ 8 (citation footnote omitted).

¹⁰ [B]ecause it is a one-time use device with a 48-hour operating life and can be disabled by cutting the antenna or wrapping it around the body of the watch, we believe that it is not necessary for the Emergency to satisfy the transmitter control requirements of 47 C.F.R. § 87.143(d)(4).” *Id.* (citation footnote omitted).

¹¹ “We also believe that it would be appropriate to permit the higher operating temperature of -10° to +55° Celsius instead of -20° to +50° Celsius (as set forth in Section 87.147(a)), and to waive the battery labeling requirements of Section 87.147(b).²⁴ In this connection, we note that compliance with the operating temperature required by Section 87.147(a) would require a larger, heavier battery which would appear to be unnecessary given the limited ELT purpose of the device. Further, the labeling requirement required by Section 87.147(b) provides information concerning satellite detection and is based on output power characteristics which we have concluded are not necessary in this context.” *Id.* (citation footnote omitted).

¹² “[B]ecause the Emergency is designed to be worn on a person’s wrist and intended to be used to rescue personnel in close proximity of an aircraft quickly, we believe that it is not

Breitling requests that this waiver continue in force so that it can combine both the 406 MHz and 121.5 MHz functions in the same device, in compliance with Section 95.1402(b).

E. PUBLIC INTEREST

When Congress constituted the Commission in 1934, it did so in part “for the purpose of promoting safety of life and property through the use of wire and radio communications.”¹³ The Breitling watch directly serves this purpose. A device proven capable of saving lives is presumptively in the public interest.

There is no risk of interference to any other spectrum user. The frequency range 406-406.1 MHz is one of the few bands to have a single allocation: both the Federal and non-Federal entries in the Table of Allocations specify only “MOBILE-SATELLITE (Earth-to-space).”¹⁴ There is no secondary allocation. International footnote 5.266 says, “The use of the band 406-406.1 MHz by the mobile-satellite service is limited to low power satellite emergency position-indicating radiobeacons.”¹⁵ The only receivers properly in the band are those orbiting on COSPAS/SARSAT. As a result, no receivers will receive unwanted interference from the Breitling device.

A PLB is useful only if the person in distress can find it when needed. A remarkable feat of miniaturization has produced, in the Breitling device, a PLB that always stays with the user and remains accessible through the most demanding emergencies. A device small enough for the

necessary to be operated as part of an aircraft station or survival craft station as required by Section 87.193.” *Id.* (citation footnote omitted).

¹³ 47 U.S.C. § 151.

¹⁴ 47 C.F.R. § 2.106.

¹⁵ *Id.*, n.5.266.

wrist necessarily has limited surface area, insufficient to accommodate all the RTCM-specified labeling. Similarly, a restricted interior space calls for a physically small battery, which in turn necessitates compromises on the RTCM battery specifications.

The only operational downside to the waiver is a battery life of 18 hours, as measured under RTCM's demanding conditions, rather than 24 hours. Considering that COSPAS/SARSAT issued its Letter of Compatibility having acknowledged the reduced battery life,¹⁶ and in view of RTCM's support, we submit that the Breitling device is very much in the public interest.

F. LEGAL BASIS

The Commission assesses waiver requests according to the standards set out in *WAIT Radio v. FCC*.¹⁷ In that case, as here, the applicant sought authority in contravention of the rules while explaining how it would nonetheless accomplish the purpose of the rules.¹⁸ The court required the Commission to consider the request:

[A] general rule, deemed valid because its overall objectives are in the public interest, may not be in the "public interest" if extended to an applicant who proposes a new service that will not undermine the policy, served by the rule, that has been adjudged in the public interest.¹⁹

The meaning is clear: Waiver is appropriate where the applicant furthers the public interest inherent in the underlying rules.

¹⁶ COSPAS/SARSAT Letter of Compatibility at 2.

¹⁷ 418 F.2d 1153 (D.C. Cir. 1969). See also, *2002 Biennial Regulatory Review*, 18 FCC Rcd 13620 at para. 85 n.130 (2003) (citing *WAIT Radio* as "setting out criteria for waivers of Commission rules.")

¹⁸ *WAIT Radio* operated an AM broadcast station. It was limited to daylight hours so as to afford protection to "white areas" that had no local service, and that relied on nighttime skywave propagation from another station. *WAIT Radio* proposed to transmit at night using a directional antenna that would limit its signal in the white areas. *WAIT Radio v. FCC*, 418 F.2d at 1154-55.

¹⁹ *WAIT Radio v. FCC*, 418 F.2d at 1157.

The waiver requested here meets the *WAIT Radio* standard: it proposes a device that will advance the policy served by the rules. The Breitling “Emergency” will provide an added measure of protection to those who venture onto oceans and into wilderness, with no added risk of harmful interference to other users. The requested waiver fits easily into the boundaries drawn by *WAIT Radio*.

The Court of Appeals emphasized the importance of waiver procedures as part of the regulatory scheme:

The agency’s discretion to proceed in difficult areas through general rules is intimately linked to the existence of a safety valve procedure for consideration of an application for exemption based on special circumstances.²⁰

Thus, it said, “allegations such as those made by petitioners, stated with clarity and accompanied by supporting data ... must be given a ‘hard look.’”²¹

Here, too, the request fully qualifies. The “safety valve” of the waiver procedure is needed to make available an important means of rescue. The requested waiver is in the public interest, not only in terms of benefits to the public, but also in the absence of any downside. The request is entitled not only to the “hard look” mandated in *WAIT Radio*, but to a grant of the waiver.

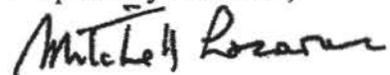
²⁰ *Id.*

²¹ *Id.* (citation footnote omitted).

CONCLUSION

The requested waiver will help to save lives without entailing any significant disadvantages. The Commission should grant it promptly.

Respectfully submitted,



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October 2, 2014



BREITLING EMERGENCY

Waiver Request RTCM STANDARD 11010.2

Product : Breitling Emergency PLB

The Breitling Emergency is a PLB class-2 worn on the wrist. So it is permanently accessible to the user and thus guarantees that it can be activated in any circumstances.

The Breitling Emergency PLB got a letter of compatibility from Cospas-Sarsat and received the TAC Number 717.

Due to the miniaturization of the components of the beacon (i.e. battery, electronic circuit, antenna), it has not been possible to satisfy to all the requirements of the RTCM Standard 11010.2.

The present document lists the different points of the RTCM Standard 11010.2 where a waiver is requested by Breitling.

Sub clause	Statement	Comment
4.4.1	<p>PLBs shall have, as a minimum, integral manual controls to operate the device in the following modes:</p> <p>OFF In the OFF mode, the PLB is deactivated.</p> <p>ON In the ON mode, the PLB is activated.</p> <p>TEST See paragraph 4.4.2.</p>	<p>Waiver request due to product design constraints regarding one time operation and switch off.</p> <p>OFF mode: After activation, in order to reduce the 406MHz and 121.5MHz transmission power the antennas must be cut or wrapped around the body of the EUT.</p> <p>On mode: Activated when extracting the antenna.</p> <p>The TEST function is only possible when the device is installed in the battery charger. An internal check is made (but no transmission) and the status of the check is indicated on LEDs on the charger.</p>
4.4.2	<p>A separate test switch or switch position is required for this test function. The test switch (or similar control) shall automatically return (e.g., spring-loaded switch) from the test position and shall not pass through the ON position.</p>	<p>Waiver request due to product design constraints regarding self-test function. The use of a separate charger which launches the self-test can be considered as a "separate test switch"</p>
4.4.3	<p>The PLB shall have its own primary (non-rechargeable) battery and shall not depend upon any external source of power for its operation when activated. The battery shall be an integral part of the equipment. Replacement of the battery, if user-replaceable, should be possible with relative ease, and any interface connections required shall be such as to prevent reversed polarity or incorrect installation. Provision shall be made to ensure watertight integrity upon replacement of the battery.</p>	<p>Waiver request due to product design regarding the use of the lithium rechargeable battery.</p> <p>Cospas-Sarsat has introduced an "INTERIM PROCEDURE FOR TYPE APPROVAL OF 406 MHz BEACONS EQUIPPED WITH LI-ION RECHARGEABLE BATTERIES C/S IP (LIRB)".</p> <p>Breitling has successfully passed the requirements of that procedure. Furthermore, each recharge of the battery with the dedicated charger concludes by a self-test which ensures the beacon is operational.</p>

Sub clause	Statement	Comment
4.4.3	The PLB manufacturer shall establish a useful life and an expiration date for batteries. The useful life is defined as the period of time after the date of battery manufacture that the battery will continue to meet the input power requirements of the PLB.	Waiver request due to product design regarding the use of the lithium rechargeable battery. Refer to the document "OLT measurement based on RTCM Standard 11010.2 (4.4.3)" which is enclosed in the Annex A of the TUV Report (provided on request). The battery replacement date is prominently visible on the back of the watch.
4.5.1	The PLB case shall be predominantly a highly-visible yellow/orange color.	Waiver request due to product design constraints regarding the outward appearance and the material of the device. As the beacon is permanently worn on the wrist, a highly-visible color is unnecessary as the user has not to search for the beacon in case of emergency.
4.5.2.2	All labelling essential to the safe and effective operation of the PLB shall be in high contrast to the background of the text or pictograph. Labelling and Pictograph instructions essential to the safe and effective operation of the PLB shall be sized such that they are readable by persons having 20/20 normal vision at a minimum viewing distance of 150 mm with illumination no greater than 0.3 lux. Items a) through h) in 4.5.2.2.1 below and any other information required for the safe and effective operation of the PLB shall be visible on the PLB, or their location identified and accessible by a single simple action on the part of the operator (e.g. lifting or removing a protective cover over the control panel). Such information shall not be hidden by any permanent or semi-permanent accessory or ancillary devices normally attached to or installed on or around the body of the PLB. (A separate storage case from which the PLB can be easily removed with one hand for activation is not included in this requirement.)	<p>Waiver request due to product design constraints regarding the applicability and suitability of all labelling requirements.</p> <p>The Emergency PLB is a personal beacon. All buyers will be instructed about the activation of the PLB.</p> <p>However, the activation process is very simple: Unscrew and pull the two antennas! (See also next entry.)</p>

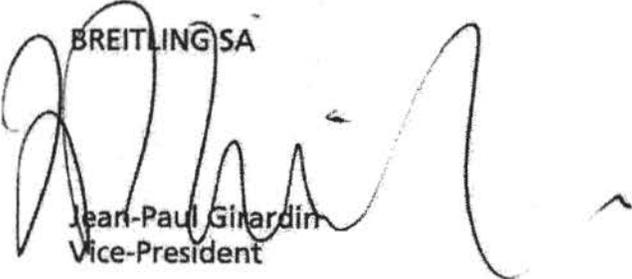
Sub clause	Statement	Comment
4.5.2.2.1	<p>The outside of the PLB shall be marked indelibly and legibly with the following:</p> <p>a) Concise, unambiguous instructions for operating and testing of the PLB that shall be understandable by untrained personnel.</p>	<p>The three steps necessary to activate the beacon are engraved on the watch. All the buyers of the Breitling Emergency PLB will be instructed about the activation of the PLB. A manual and a USB key with an explanation movie are also delivered with the beacon.</p>
4.5.2.2.1	<p>c) The warning, or equivalent: NOTICE TO THE PUBLIC DO NOT MOVE IF FOUND REPORT POSITION TO AUTHORITIES</p>	<p>Waiver request due to product design constraints regarding the applicability. There is not enough space to engrave such text.</p>
4.5.2.2.1	<p>f) Instructions to register the PLB with the appropriate authority and the contact details of the authority.</p>	<p>Waiver request due to product design constraints regarding the applicability and suitability. Customers will be instructed by a trained vendor and make aware of necessity to register. A separate sheet dedicated to the registration process is enclosed with the beacon. See at the end of this document.</p>
4.5.2.2.1	<p>g) Space for any required registration sticker</p>	<p>Waiver request due to product design constraints regarding the applicability and suitability of all labelling requirements. There is not enough space for a decal.</p>
4.5.2.2.2	<p>e) If there exists a condition or operating circumstance which has been identified by the manufacturer or regulating authorities that could substantially affect the alerting or self-locating performance of the PLB, then information appropriate to prevent this occurring shall appear in a conspicuous location appropriate to the prevention or remediation by the operator of said condition or operating circumstance (e.g. the necessity to orient the antenna vertically upward if orientation of the antenna is adjustable).</p>	<p>There is no possibility to permanently attach special instructions to the PLB. There is a mention of two important points in the manual.</p> <p>1) Once activated, the beacon will broadcast at least during 18 hours. For special situations when the beacon is at temperatures below 0°C/32°F, the 121.5 MHz signal is automatically switched off in order to guarantee the broadcast duration for the 406 MHz signal.</p> <p>2) The two antenna sections must be kept vertical, with the short section in all circumstances pointing upwards and the long section pointing downwards at a sufficient height to avoid the antenna touching ground (the far end of the long section must be 5-10 cm/2-4 in off the ground). The Emergency is not designed to be worn on the wrist when the beacon is activated.</p>

Sub clause	Statement	Comment
4.5.2.2.2	f) The phone number(s) to be used to report inadvertent activation negating the need for the distress alert.	Waiver request due to product design constraints regarding the applicability and suitability of all labelling requirements. A separate sheet enclosed with the beacon mentions the phone number for USA. See at the end of this document.
A.13.1	Operational Life Test. The operational life test is intended to establish, with reasonable confidence that the PLB will function for a minimum of 24 hours under worst case conditions using a battery pack that has reached its expiration date, after being stored throughout its useful life at ambient temperatures	Waiver request due to product design regarding the operational life time. As the beacon is designed to be permanently worn, it cannot be too big or too heavy. So the capacity of the battery, which is directly related to its dimension, is sufficient to guarantee 18 hours emission in the worst case conditions. Cospas-Sarsat granted a letter of compatibility regarding this point.
A.16	121.5 MHz auxiliary radio-locating device transmitter test ... Unless otherwise specified, all auxiliary radio-locating device transmitter signal characteristics (specified in Table 2) shall be measured at the minimum and maximum operating temperatures.	Waiver request due to product design regarding the minimum temperature of the 121.5 MHz emission. So as to guarantee the minimum operating lifetime of 18 hours if the battery is at its end of life and the temperature at -20°C it has been necessary to make a choice to save energy. The 121.5MHz emission cuts off if the internal temperature of the beacon is under 0°C. (The LEOSAR system allows a localization of the beacon by Doppler Effect, and SAR teams are now often equipped with 406MHz homing devices.)

Sub clause	Statement	Comment
A.16.2	121.5 MHz auxiliary radio-locating device transmitter test - Transmitter Duty Cycle. Continuous (100%) except that it shall be interrupted for up to a maximum of 2 seconds encompassing the 406 MHz burst transmission.	<p data-bbox="922 327 1365 394">Waiver request due to product design regarding the Duty cycle.</p> <p data-bbox="922 436 1406 758">So as to ensure the 18 hours emission, and due to successful use of Eurocae recommendation (*) during live trials and actual rescue events (more than 20 people found with the first Breitling Emergency 121.5 MHz only) the waiver is requested to transmit 121.5 MHz homing signal 775ms every 2.275s (Transmitter Duty Cycle 34%).</p> <p data-bbox="922 800 1414 970">(*) ELT spec from EUROCAE, ED-62A:2009 Clause 3.1.3.1 has a note that states: "It has been shown that an ON period of 0.75 seconds followed by an OFF period of 1.5 seconds gives satisfactory results".</p>

Grenchen, September 22, 2014

BREITLING SA



Jean-Paul Girardin
Vice-President



Annex 1: Registering instruction enclosed in the beacon package for US beacons

IMPORTANT: the Emergency must be registered at the time of purchase in accordance with the national procedures in force. The beacon must be registered in the owner's country of residence.

PLB registration in the U.S.A.

Cospas-Sarsat TAC Number for the Emergency: 717

- 1) Online registration directly on: www.beaconregistration.noaa.gov
- 2) Registration by filling in the enclosed paper form, and then sending it to the competent authority as follows:
 - By post:
NOAA/SARSAT
NSOP, ESP3
4231 Suitland Road
Suitland, MD 20746
 - By fax: 301-817-4565

Further information can be found on www.sarsat.noaa.gov
Or call: 1-888-212-SAVE (7283) or 301-817-4515

N.B.: In the event of a false alert, call the US Air Force RCC at 1-800-851-3051

BREITLING EMERGENCY

CONDITIONS OF USE

The Breitling Emergency watch is equipped with a Personal Locator Beacon (PLB) emergency transmitter. Its use is governed by prevailing national regulations and its sale is subject to the undertaking on the part of the purchaser to comply with the following provisions:

- 1** The Breitling Emergency watch may only be sold and used by persons who have been informed of and have agreed to the terms and conditions of use stipulated in this document, as well as in the Emergency user manual.
- 2** The transmitter must only be activated in case of genuine distress and when other means of communication such as cellphones, radios, satellite phones, etc. cannot be used.
- 3** Any abusive activation of the transmitter may lead to penalties and the user may incur substantial costs, notably including reimbursing the expenses involved in the search operations triggered by the distress signal. The consequences of any such act (that may entail legal proceedings) shall be entirely borne by the owner of the watch – including in the event of misuse by a third party. Neither Breitling SA nor the distributor of the transmitter may thus be held responsible for such consequences.
- 4** In the event of abusive, negligent, non-justified or accidental activation of the transmitter, the cost of the repair of the Breitling Emergency watch, provided such a repair is reasonably feasible, shall be payable by the owner, including during the warranty period. The purchaser is informed of the fact that the cost of repair is equivalent to at least half the recommended retail price of the Breitling Emergency watch.
- 5** In the event of legitimate use of the transmitter justified by the circumstances of an accident certified by a recognized rescue organization, the Breitling Emergency watch shall be repaired at no cost to the owner.
- 6** The purchaser is informed of the fact that activating the transmitter of the Breitling Emergency watch sets off an alarm signal and facilitates homing in on the location of the person wearing the transmitter when circumstances so permit. This information expressly specifies that:
 - the transmitter cannot serve to establish vocal communication;
 - the transmitter must have a direct-visibility link with a satellite and this is only possible on open ground;
 - the transmitter is not equipped with a GPS (Global Positioning System); and several hours may elapse before the distress signal is received and the transmitter is located;
 - the 121.5 MHz signal is switched off at temperatures below 0°C.
- 7** Breitling SA does not in any way guarantee the success of the search and rescue operations and may not be held directly or indirectly liable in this respect, except in the event of a serious error committed by Breitling SA.
- 8** In order to guarantee that search and rescue operations have the required information in case the beacon is activated, **the Breitling Emergency watch must imperatively be registered as a PLB with the competent national authorities** of the owner's place of residence and corresponding to the country indicated on the back of the watch or, for countries that allow it, directly on the online International 406 MHz Beacon Registration Database (IRBD) at www.406registration.com. Any expenses relating to such a registration or its modification shall be payable by the purchaser.
- 9** The purchaser also communicates to Breitling SA the personal information requested below and undertakes to inform Breitling SA of any modification, change of ownership, theft, loss or destruction of the watch of which the serial number appears on this document. Such information shall be used by Breitling SA in compliance with Swiss data protection law and shall only be communicated to third parties in order to protect the interests of Breitling SA resulting from the terms and conditions of this agreement.

MODEL REFERENCE WATCH SERIAL NUMBER

UIN COUNTRY CODE

LAST NAME FIRST NAME

NATIONALITY TEL. (HOME)

TEL (MOBILE) E-MAIL

ADDRESS ZIP

CITY COUNTRY

READ AND APPROVED ON RETAILER'S NAME
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International Satellite System for Search and Rescue
Système international de satellites pour les recherches et le sauvetage
Международная Спутниковая Система Поиска и Спасания

CS14/80/F510 (Breitling)

18 August 2014

Mr Jean-Paul Girardin
VICE PRESIDENT

BREITLING SA
P.O. Box 1132
Schlachthausstrasse 2
2540 GRENCHEN
Switzerland

Subject: Letter of Compatibility for the 406 MHz Beacon Model 'EMERGENCY', TAC-717

Dear Mr Girardin,

I am pleased to confirm that, with effect from 18 April 2014, the Class-2 406 MHz personal locator beacon (PLB) model 'EMERGENCY' manufactured by Breitling S.A., Switzerland has been declared compatible with, and may be used for operation with, the Cospas-Sarsat 406 MHz system, with the restrictions detailed below. This confirmation is based on the results of testing of the beacon conducted at the TUV SUD test facility, Fareham, UK between August 2012 and March 2014.

The beacon was successfully tested and complied with Cospas-Sarsat requirements, as defined in the following Cospas-Sarsat standards:

- C/S T.001 Specification for Cospas-Sarsat 406 MHz Distress Beacon
 Issue 3 – Rev. 13, October 2012,
- C/S T.007 Cospas-Sarsat 406 MHz Distress Beacon Type Approval Standard
 Issue 4 – Rev. 7, October 2012,
- C/S IP (TCXO) Interim Procedure for the Determination of Compliance of 406 MHz Beacons
 Equipped with a TCXO with Cospas-Sarsat Type Approval Requirements
 Revision 5, October 2013, and

C/S IP (LIRB) Interim procedure for Type Approval of 406 MHz Beacons Equipped with Li-Ion Rechargeable Batteries, Revision 3, October 2013.

The EMERGENCY is a wrist-worn 406/121.5 MHz emergency PLB which shares casing with an analog-digital Breitling chronograph. The chronograph and the emergency beacon are fully independent.

The beacon includes the following features:

- Cospas-Sarsat beacon operating frequency: 406,040 MHz;
- Auxiliary 121.5 MHz radio-locating transmitter (output power: 15 dBm, transmitter duty cycle: 33%), operating at temperatures above 0°C and automatically disabled at temperatures below 0°C;
- Integrated deployable 406/121.5MHz transmitting antenna;
- A rechargeable battery which shall be periodically recharged using a specially-designed charger provided with the beacon;
- A self-test capability, which is automatically activated at the end of the full battery recharge;
- Automatic beacon activation upon deployment of integrated antenna.

The beacon is approved for message encoding with the User protocol variant for PLBs with Serial Number.

Limitations of Use

The EMERGENCY with the integral antenna was tested in configuration corresponding to the PLB operating while placed above ground, which corresponds to the EMERGENCY manufacturer-declared intended operational scenarios. The watch shall be set for operation in such a manner that neither of the antenna sections make contact with ground or any conductive surface, since this might affect the antenna radiation pattern.

The EMERGENCY was not designed to operate while in water or when the watch is still worn on the wrist. The user manual clearly states that for the antenna deployment and beacon operation the watch must be taken off the wrist.

The EMERGENCY beacon was tested for the operating temperature range of -20° to +55°C, and complied with all Cospas-Sarsat requirements, except for the minimum duration of continuous operation was 18 hours, which is less than the minimum operating lifetime of 24 hours required by Cospas-Sarsat.

The EMERGENCY beacon provides for the operation of an integrated 121.5-MHz radio-locating transmitter only at temperatures above 0°C, whereas at temperatures below 0°C the 121.5 MHz homer is automatically disabled.

The EMERGENCY uses a battery pack comprising one lithium-ion rechargeable battery (Li-Ion NMC/Si, Prollion INP63438) produced by Prollion, France. As indicated in the EMERGENCY user manual, it is recommended that the battery charge be properly maintained by the user by

recharging battery at regular intervals, not exceeding recommended time between charges of 2 months.

In view of the above limitations, the EMERGENCY should only be operated by qualified and properly instructed customers. As indicated in the letter from the Federal Office of Civil Aviation of the Swiss Confederation (Ref. 64-13 of 5 April 2013), requesting a waiver of the non-compliances and the issuance of a Letter of Compatibility in-lieu of a type approval certificate, Breitling will ensure that training on the product is provided to its distribution network and to future owners with the objective of ensuring that users of the product are fully aware of the design features and operational limitations.

Disclosure of Limitations of Use

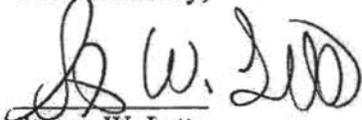
Cospas-Sarsat requests that the beacon manufacturer, Breitling S.A., fully disclose the limitations of the beacon's operation to Administrations when seeking authorisation to market the EMERGENCY within the Administrations' jurisdiction and to users. Please note that this Letter of Compatibility does not authorise the operation or sale of this beacon model which remains the responsibility of competent Administrations.

The EMERGENCY has been assigned the Cospas-Sarsat type reference number 717. Numbers in the 700 series are reserved for special-use beacons which, due to some of their special features, might not satisfy some of the Cospas-Sarsat beacon requirements in all situations.

This confirmation of compatibility is issued on the basis of the manufacturer's commitment that all EMERGENCY devices will be identical to the units provided for testing. Any change to the design or components of the beacon may affect the validity of this Letter of Compatibility and should be reported to the Cospas-Sarsat Secretariat for evaluation.

A copy of the EMERGENCY characteristics summary being published on the Cospas-Sarsat website is attached.

Yours sincerely,



Steven W. Lett,
Head, Cospas-Sarsat Secretariat

Encl.: Web-report for the EMERGENCY, on 1 page.

CC: The Cospas-Sarsat Parties (Canada, France, Russia and USA);
TUV SUD test facility (Fareham, UK).

TAC Number	717	TAC Date	18-APR-2014	TAC Rev. date	
Beacon Model Name	EMERGENCY				
Additional Names	---				
Manufacturer	Breitling SA				
Tx Frequencies	406.040 MHz				
In Production	in production	Class	2		
Type	PLB	Tested Life (hours)	18 hours		
Battery	Lithium-Ion LIRB, Li-Ion NMC/Si, PROLLION INP63438 rechargeable battery, manufacturer: Prollion, France				
	Battery Legend: Battery cell manufacturer, Cell chemistry, Cell model, No. of cells, Cell size.				
Protocols tested	U - User.				
Self Test	yes	Self Test RF	yes	Self Test RF (Short/Long)	short
Self Test Format Flag	short	Self Test Consistent with 15 Hex ID	yes		
Homer Freq	121.5 MHz			Homer Duty Cycle	33%
Homer Power	15 dBm				
Strobe Light	no	Strobe Brightness	---	Strobe Duty Cycle	---
Nav Device	No	Nav Device Model	---		
Separable Antenna	no	Antenna Model	---		
Additional functions	battery charger				
General comments	EMERGENCY is a wrist-worn 406/121.5 MHz emergency PLB which shares casing with a Breitling analog-digital chronograph. The chronograph and the emergency beacon are fully independent. 121.5 MHz homer operates only at temperatures above 0°C, homer is automatically disabled at temperatures below 0°C. Designed for operation only above ground. Not designed to operate while in water or when the watch is still worn on the wrist. The Li-Ion rechargeable battery shall be fully charged, the battery recharging shall be performed at regular, not exceeding 2 months intervals. Minimum duration of operation is 18 hrs. Approved for message encoding with the User protocol variant for PLBs with Serial Number. Designated for use of qualified and properly instructed customers.				
TAC rev history	---				

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