

INTRODUCTION

The BriarTek, Inc. "ORCA" is a low-power Personal Locator Beacon intended to be attached to a Personal Flotation Device and used as an automatic alert of a man-overboard-occurrence and to locate personnel swept overboard in the event that he/she can no longer be tracked visually.

The device is to be used to rescue personnel in close proximity of a vessel quickly; it is water-activated and signals a receiver installation on the vessel's bridge to allow local search and rescue.

The FCC granted a waiver for the ORCA (**See Appendix A**) that waives the requirements of 47 C.F.R. Para. 80.1053(a)(4) through (7), (a)(4), (e) and 80.1055(a)(3), 80.1055(a)(4) and 80.1055(a)(3)(4).

The ORCA transmits on 121.5 MHz with a rated ERP (dipole) of a nominal 5 milliwatts using FM modulation to transmit a time and unit identifier.

Data on ERP(d), spurious emissions (Table 1) and occupied bandwidth (Figure 1) follow.

PROCEDURES

The field strength of the radiated emissions from the test sample was measured following ANSI 63.4 (1992) at a distance of 3 meters to the third harmonic at which time the horn antennas were moved to 1 meter. The spectrum was scanned from 30 MHz to the tenth harmonic using a Tektronix 494P spectrum analyzer.

Measurement procedure included recording the worst-case field strength for receiving test antenna polarization, test antenna height variation from 1 meter to 3 meters and test sample rotation, and test sample antenna in both vertical and horizontal plane.

The test sample was placed on a rotatable 80 cm high wooden stand. The receiving antenna, placed 3 meters from the test sample, were Compliance Design dipoles or EMC0 3115 Horns. RBW used on the TEK 494P was 100 kHz to 1 GHz; 1 MHz > 1 GHz. Peak responding detector, VBW = > than RBW.

The device was operated from a battery supply enclosed in the EUT.

The spectrum was checked from 30 to the tenth harmonic.

All emissions not reported were less than 50 uV/m @ 3m or in system noise. Tabulation of the measurements are shown in Table 1.

TABLE 1
RADIATED EMISSIONS
Measured at 3 meters

Frequency of Emission (MHz)	Meter Reading (dBm)	Antenna Factor (dB)	Field ¹ Intensity uV/m @ 3m	<u>dBc</u>
121.510	-14.5	11.5	158124.8	0V
243.000	-89.2	17.6	58.8	69V
364.500	-77.2	21.4	364.8	53H
486.000	-84.4	25.8	261.5	56H
607.512	-86.8	26.9	225.4	57V
729.012	-91.2	28.4	161.6	60V
850.516	-98.8	30.3	84.1	65H
972.016	-100.0	31.4	83.5	66V
1093.518	-99.2	24.6	41.7	72V
1215.022	-99.6	25.0	41.7	72V

Note 1: $\text{uV/m} = \text{Log}^{-\frac{\text{dB/m}}{20}}$
 $\text{dBu} = \text{dBm} + \text{antenna factor} + 107$

*Measured at 1 meter, extrapolated to 3 meters.

RBW 100 kHz to 1 GHz; 1 MHz > 1 GHz. Reduced if CW signal.

H,V: Worst-case test antenna polarization.

Power (equivalent dipole):

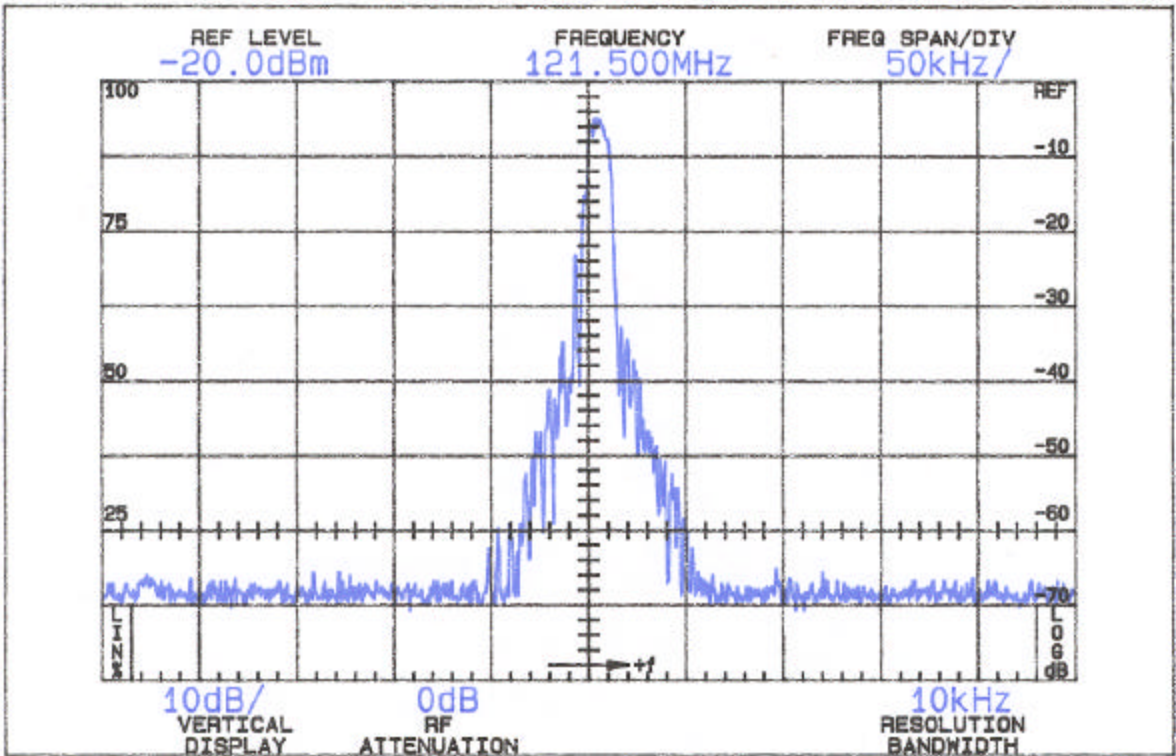
0.0045 W

RADIATED SPURIOUS
EMISSIONS
FCC ID: QJYORCA

TABLE 1

2

FIGURE 1



OCCUPIED BANDWIDTH
FCC ID: QJYORCA

FIGURE 1

3
APPENDIX A

In the Matter of)
)
BRIAR TEK INCORPORATED)
)
Request for Waiver to Permit Type Certification)
of an OCRA Personal Emergency Position)
Indicating Radio Beacon at 121.5 MHz)

⁶ See Waiver request at 1.

Briar Tek system and sends a unique identification number thereby reducing the probability of false alarms.⁷

3. Under Section 80.1055 of the Commission Rules, EPIRB stations must meet certain technical requirements.⁸ Absent a waiver of these standards, Briar Tek's ORCA could not be certified for operation under Part 80 of the Commission's Rules. Specifically, Briar Tek's seeks waiver of emission and power standards, and battery requirements⁹ to allow for certification of a personal EPIRB for personnel that have fallen overboard from a vessel. On November 15, 2001, we sought comment on Briar Tek's waiver request.¹⁰ One party filed comments supporting Briar Tek's request for waiver.¹¹

4. *Discussion.* Section 1.925(b)(3) of the Commission's Rules provides that we may grant a waiver if it is shown that (a) the underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and grant of the requested waiver would be in the public interest; or (b) in light of unique or unusual circumstances, application of the rule(s) would be inequitable, unduly burdensome, or contrary to the public interest, or the applicant has no reasonable alternative.¹² We find that the waiver requested by Briar Tek is warranted under the circumstances presented. Specifically, we conclude that the underlying purpose of the subject rules would not be served by application to the instant case and grant of the requested waiver would be in the public interest.

5. In light of the record in this proceeding and our analysis thereof, we believe that a waiver of Sections 80.1055(a)(3) - (4) of the Commission's Rules would further the underlying purpose of the Commission's EPIRB rules. EPIRBs are stations in the maritime mobile service the emissions of which are intended to facilitate search and rescue operations.¹³ The Commission's Rules for Class B EPIRBs envision distress signals—used to alert others of a distress situation and to assist search and rescue (SAR) personnel in locating those in distress—that are intended to be received by overflying aircraft, nearby ships, and satellites. Thus, to ensure that such signals are received, the Commission's Rules require that EPIRBs have a certain transmitter output power and emissions. Further, in light of the fact that it may be hours before help arrives, the Commission's Rules also require that EPIRBs have a long-lasting power supply. Because safety of life is involved and ships travel worldwide, the Commission's Rules specify minimum operational performance standards.

6. We note that the ORCA is not intended primarily to activate rescue operations from aircraft or other ships, but instead to alert the home ship of a MOB occurrence then provide an accurate and rapid means to locate personnel once an SAR operation is underway. Thus, we conclude that is not necessary to require the device to have sufficient transmitter power to alert satellites, aircraft, and other ships. Also, because the ORCA is not intended as a normal EPIRB but rather will send a signal that is time encoded and contain a unique identification code, we conclude that it is not necessary to require A3X emission. Further, because assistance and/or rescue is intended to be provided within minutes rather than hours, we find it appropriate to permit a shorter battery life, and thus to waive the battery requirements.

⁷ *Id.* at 2.

⁸ See 47 C.F.R. § 80.1055.

⁹ See 47 C.F.R. §§ 80.1053(a)(4) - (7). See also 80.1053(a)(14)(e).

¹⁰ Wireless Telecommunications Bureau Seeks Comment on Request for Waiver by Briar Tek Incorporated for Type Certification of Personal 121.5 MHz Emergency Position Indicating Radio Beacon (EPIRB), *Public Notice*, DA 01-2662 (WTB PSPWD 2001).

¹¹ Comments were filed by Belle Haven Marina, Inc. No reply comments or *ex parte* submissions were filed in this matter.

¹² 47 C.F.R. § 1.925(b)(3). See also *WAIT Radio v FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

¹³ See 47 C.F.R. § 80.5

Specifically, we note that the ORCA will use a commercial nine-volt battery clip in a sealed compartment with an alkaline battery that has a useful life guaranteed to exceed twenty-four hours.¹⁴ In this connection, we find that requiring a larger, heavier battery to be unnecessary given the intended purpose of the device. We also waive the battery labeling requirements, which are intended to provide information regarding useful life of the battery stored in marine environment conditions based on the power and duration requirements, which we have concluded are not necessary in this case. Additionally, we note Briar Tek's statement that the nine-volt battery can be replaced by the user and that a periodic replacement schedule will be recommended in the instruction manual.¹⁵

7. Also, because the device is to be used for homing on persons lost overboard, we conclude that the requirement to operate on both 121.5 MHz and 243 MHz is not necessary. The 121.5 MHz frequency, in addition to being used to alert rescue forces by communicating with the satellites, aircraft and other ships, is also used in search and rescue operations as a homing frequency to find a ship in distress. The 243 MHz frequency is generally used by military organizations for distress alerting purposes; thus, we are concerned that requiring the use of 243 MHz in this specific context could cause unnecessary harmful interference to other operations on this frequency.

8. We have coordinated your request with the U.S. Coast Guard. The Coast Guard has indicated that they have no objection to granting Briar Tek's request for waiver, provided it is installed in a Personal Flotation Device (PFD)¹⁶ or otherwise kept with a person, and is not sold as a shipboard EPIRB or used as a personal locating beacon on land. We note that Briar Tek's description of the ORCA appears to meet these concerns and we clarify that satisfying these concerns is an ongoing condition of the instant waiver grant. We further note, however, that the Coast Guard raises concerns that the device may cause interference to the COSPAS/SARSAT Satellite system used for search and rescue. In view of these concerns we only will allow use of the ORCA on a noninterference basis to the COSPAS/SARSAT Satellite system.

9. Finally, we note that the Commission has a pending proposal to phase out Class A, B and S EPIRBs. Specifically, the Commission has proposed that (1) certification of new Class A, B, and S EPIRBs cease immediately upon the effective date of the proposed rules; (2) sales and manufacture of these devices cease as of February 1, 2003; and (3) operation of these devices cease as of December 31, 2006.¹⁷ Our grant of the instant waiver request should not be construed as bearing in any way on our resolution of the proposal to phase out Class A, B and S EPIRBs. Should that proposal be adopted, moreover, we retain the discretion to revisit the waiver to determine if it needs to be modified or terminated in light of the fact that it authorizes a Class B EPIRB.

10. Accordingly, IT IS ORDERED that, pursuant to Section 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. § 154(i), and Section 1.925 of the Commission's Rules, 47 C.F.R. § 1.925, Briar Tek's request for waiver of Sections 80.1055(a)(3)¹⁸ and 80.1055(a)(4) of the Commission's Rules,

¹⁴ See Waiver request at Attachment A, 1. The ERP is 25 mW. *Id.*

¹⁵ Waiver request at Attachment A, 2.

¹⁶ Personal Flotation Device is marine terminology for a lifesaving device that is used to provide buoyant support for one person in the water. See generally 33 C.F.R. § 175.13.

¹⁷ See Amendment of Parts 13 and 80 of the Commission's Rules concerning Maritime Communications, *Notice of Proposed Rule Making and Memorandum Opinion and Order*, WT Docket No. 00-48, 15 FCC Red 5942, 5957 ¶ 30 (2000).

¹⁸ Section 80.1055(a)(3) provides that Class B EPIRB stations must meet the requirements of 47 C.F.R. §§ 80.1053(a)(4) through (8), (a)(14), and (c) through (i). In this connection, we are granting Briar Tek's request for waiver of the requirements of 47 C.F.R. §§ 80.1053(a)(4) through (7), (a)(14), (e).

47 C.F.R. §§ 80.1055(a)(3)(4), filed October 31, 2001, IS GRANTED, as described above, FOR AN INDEFINITE TERM and SUBJECT TO the outcome of WT Docket No. 00-48.

11. This action is taken under delegated authority pursuant to Sections 0.131 and 0.331 of the Commission's Rules, 47 C.F.R. §§ 0.131 and 0.331.

FEDERAL COMMUNICATIONS COMMISSION

Barry J. Ohlson
Acting Chief, Public Safety and Private Wireless Division