QinetiQ Bracer™

Bracer delivers guaranteed performance in some of the harshest environments in the world across land, sea and air. Rated IP66 and IP67, Bracer can withstand extreme conditions, keeping global teams connected when it matters most.

Compact Carrying

Bracer's optimised Size, Weight and Power (SWaP) ratio means it can be deployed easily and used discreetly.

Affordability without Compromise

Bracer's use of commercial satellite technology guarantees elite functionality at a fraction of the cost of military alternatives - so that keeping connected doesn't have to affect the bottom line.

High Availability

Powered by the Iridium Low Earth Orbiting satellite network, Bracer's 100% BLOS capability keeps global teams connected, when constant communication is critical.

Superior Security

Bracer applies end-to-end encryption powered by QinetiQ, ensuring team communications remain secure and information stays safe.

Instant C2

With Bracer, you can configure global coverage in seconds, so that when time is of the essence, securing communication lines is simple. Putting the power to configure coverage in the hands of the user, Bracer allows instant handset reconfiguration over the air.

Third Party Integration

Bracer is universally interoperable with a range of covert, discreet and overt audio ancillaries; letting you choose the best radio to meet mission-specific tasks.

System Overview

- Bracer satellite radio communications device and service provides end-to-end encrypted (AES 256 FIPS 140-2 level 3), beyond line of sight (BLOS) voice in one-to-many push-to-talk radio mode, Position Location Information, and SOS emergency alerting.

- Responsive, reliable, simple and secure, Bracer increases reactiveness, enhances situational awareness and passage of information within the operational domain, improving the ability to exercise effective command and control and increase the speed of the decision-making cycle.

Requirement Areas

- The system has a range of use areas that include supporting early entry expeditionary and dislocated forces, wide area communications, crisis response, liaison tasks, enduring operations across the spectrum of military commitments, and training exercises.

- Example market areas where Bracer would be applicable include: defence, government agencies, coast guard, border forces, aid organisations, and emergency services.

Truly Global Coverage

- The satellite constellation enables communications from anywhere to everywhere in the world.

- Coverage areas are controlled by the user, not the service provider. Users are able to migrate talk group coverage areas, as required, in real time, in response to changing situations

QinetiQ Bracer™

QINETIQ

Situational Awareness

- Bracer enables end-to-end encrypted Position Location Information to be transmitted from each device, which can be visualised through a tethered data device in the tactical, operational or strategic domains.

- At 500ms latency it is equivalent to the fastest terrestrial based tracking systems and includes an emergency alert function.

- As a system Bracer is powered by the Iridium satellite constellation's push-to-talk service. The Bracer system may be rapidly deployed to provide situational awareness and secure command and control.

- Bracer's use of satellite technology negates the requirement for expensive range extension equipment, reducing the manpower, training, planning, physical security and logistics associated with deploying such equipment.

Mobile Platform Communications

- The Iridium network tolerates platform movement up to Mach 2.0 and can operate through rotor blades and is ideal for BLOS communications on aircraft, maritime vessels, vehicles and personnel.

- Bracer can be simply carried onto a platform (land, maritime, air*), reducing cost and timelines associated with a full integration process. This allows for rapid use from platforms of opportunity.

Environmental

- Bracer is adapted to operate in extreme environments with a level of robustness that is designed for the most demanding scenarios.

- Tested to IP66 (high power jet washable) and IP67 (submersible to 1m for 30mins).

- Bracer is also ideally suited for challenging communication environments such as, maritime where corrosion and ingress of moisture and salt spray are challenging as well as desert operations where dust and heat present challenges.

Simplicity

- Bracers are simple to use, with minimal training everyone can use them. Compared with other tactical radio equipment, Bracer's simplicity dramatically reduces costs of both initial and refresher training

Low SWaP

- The handheld device is low size, weight (400g) and power (7 Watts).

- The battery is integrated into the device and can be recharged via, mains, 12V DC and USB.

- The internal rugged antenna is small (approx. 3cm in height), with remoting options for body-worn and vehicle connectivity.

Key Features

1. Ruggedised Casing

- Tough polycarbonate fully sealed casing for maximum impact protection with rubber over mould for handheld comfort

2. LED Indicator

- Multi-colour LED status indicator

3. Internal Antenna

- Ruggedised internal high gain Iridium antenna, safe for body worn use

4. SOS

- Emergency SOS button with protective cap to prevent accidental activation

- Sends SOS and PLI message to all active radios on PTT Talkgroup (secure TGs only)

5. Headset Volume

- Volume up/down buttons

6. Soft Keys

- Status sensitive quick selection keys

7. Navigation Keypad

- Enter button (centre)

- Menu navigation keys (up, down, left, right)

8. Multi-Function Button 2

- Sent tone 2

- Send instantaneous PLI

- Zeroise (multi-press)

9. SIM Card Slot

- Sealed removable SIM panel

- Requires Iridium SIM card to enable telephony services**

10. LCD Display

- Variable LED backlight
- Battery life/charging
- Iridium signal strength
- Talkgroup status
- Talker ID and PLI
- Talkgroup select
- Secure mode indication
- Settings menu

11. On/Off

- Multi-function power button
- Selectable power states:
    - Disabled
    - Off
    - Standby
    - On

12. Integral GPS/GNSS Antenna

- Integral GPS/GNSS antenna for PLI

13. Integral PTT Button

- Activate transmit audio into talkgroup

14. Intergral Battery

- 6000mA hour capacity
- Lithium ion
- 3 days, mission life (8:1:1 duty cycle)
- USB, DC or AC charge (with adapter)

15. Multi-Function Button 1

- Send tone 1
- Zeroise (multi-press)

16. Power/Config Connector

- Charging, USB configuration (PC), USB token, PLI tether

17. Audio PTT Connector

- Headset PTT audio connection
- Multi-headset compatibility via adapter cables

18. External Antenna Connector

- SMA connection for external Iridium antenna

19. Lanyard Tether Point

- Integrated slot for lanyard (included)

Specifications - General

Services

Voice: One-to-many, BLOS, Iridium push-to-talk (insecure** and secure modes)

Secure Position Location Information (PLI) and emergency alerting (SOS)

Simultaneous voice and PLI

Multiple PTT talkgroups

Frequency Range

Iridium 1616 - 1626.5 MHz L-band

Waveform

TDD, TDMA/FDMA

Transmit Power

7 Watt (peak)

Audio Latency

500ms

Net Entry Time

500ms from hot talkgroup (open)

2 seconds warm talkgroup (idle)

Network Coverage

Truly global, user managed

6 talkgroup sizes (100,000 Sq km to 2.5 million sp km)

Internal GSS

Multi-constellation open service L1/E1/B1 GPS, Galileo, GLONASS, BeiDou

Iridium PTT Talkgroups

Multiple talkgroups per customer

15 talkgroups allocations per radio

Over 1,000 handsets per talkgroup

Priority talkgroup assignment (pre-empt)

Customer to customer talkgroup sharing (single net)

Talkgroup Management

End user managed via web portal command centre

Flexible assignment of radios to talkgroups

Dynamic over the air update of radio talkgroup assignments (20 seconds network wide update time)

5 x tariffs from small (100,000 sq km) up to jumbo (2.5 million sq km) with flexible coverage in up to 10 polygon areas on web map per talkgroup

Customer to customer talkgroup sharing (single net)

QinetiQ Bracer™

QINETIQ

Iridium Satellite Airtime

Handset subscription

Talkgroup subscription

Encryption Key Management

PC compatible security toolkit software

Radio initialisation and key generation/distribution

User authentication

Compatibility

Fully compatible with Iridium Extreme 9575PTT handset (in insecure** mode)

Certification

CE, FCC, UL

Security

Insecure Mode

Iridium AES 256 SatCom bearer link encryption

Secure Mode

Additional layer of customer-keyed AES-256 end-to-end content encryption for push-to-talk and PLI

Certification

FIPS 140-2 level 3 (pending)

Handset Key Management

Selection of insecure (link encrypted) or secure (link and end-to-end encrypted) talkgroups

User authentication

Zeroize

Interfaces

Power Input

5 to 15 VDC (DC or AC charging adapters)

USB v2 compatiple via cable accessories

Key Management

USB device/host port via cable accessories

PLI/ C2 Input/ Output

USB interface to PC/tablet

PLI output (all received stations plus own position, COT or KML)

C2 I/O (SOS acknowledgement remote cancel)

Audio Input/Output

Bespoke PTT audio interface for:
- U-229 6 pin military audio connector
- 3.5 mm headset jack (mobile phone earpiece)
- Lightweight ear hanger headset
- Software configurable for other headsets
- Multi-headset compatibility via cable accessories

Internal Antennas

Rugged high gain internal Iridium antenna

Integral GNSS antenna

External Iridium Antenna

Optional use of external Iridium antenna

SMA connector, 50Ω

Adaptor cable for TNC

SIM Card

User-accessible SIM card slot

Power

Battery

Internal rechargeable Li-ion battery pack (non-user accessible)

6000 mAh nominal capacity

Mission Life

24hrs continuous talkgroup use on a 8:1:1 duty cycle

Charge Time from Flat

USB: 6 hours

12V vehicle or AC charger: 3 hours

Audio Input/Output

Dimensions: 170 x 76 x 33 mm (excluding antenna)

Weight: 400g

Material: UL rated PC-ABS with TPE rubber over-mould

Environmental

Temperature

Operating: -10 to +55°C

Battery Charging: 0 to +55°C

Storage: -40 to +60°C