LOWRANCE®

NEW FOR 2011

Broadband 3G™ Radar

The evolution of the radar revolution.

3G BROADBAND

The evolution of the radar revolution.

3G BROADBAND

The original BR24 Broadband Radar™, the frequency modulated continuous wave (FMCW) radar, has captured a lot of attention since we first launched the technology in 2009! Realizing a critical need in radar detection, we developed Broadband Radar™ for exclusive shortest-range target detection, and unrivalled target separation. Equipped with this new technology, boaters enjoyed a previously unseen level of hazard awareness for unmatched navigational safety. Conventional pulse radar was no match for close-in detection, but Broadband Radar™ lacked the more extended range ... until now! The new Broadband 3G™ Radar is now a better radar choice for recreational craft, with a significant 30% increase in range over the original BR24 — while retaining its impressive short-range credentials, and mount-anywhere convenience.

... a significant 30% increase in range over the original BR24 – while retaining its impressive short-range credentials...

Every marker and channel easily seen with Broadband 3G™ Radar

LOWRANCE®

Broadband 3G™ Radar
Faster, better, longer…

NEW More Range. Unequalled target detection and discrimination near, and much farther – **with 30% more range!**

» InstantOn™
Solid-state technology produces an immediate, accurate on-screen image, without lengthy warm-up delay associated with magnetron pulse radars.

» Low-Power Consumption
Ideal for boats of any size – sail, cruise or fish.

» Automatic Clarity
Proven auto harbor and offshore modes.

» MARPA Target Tracking
Track up to 10 targets. Requires a heading sensor.

» Crystal-Clear Image
Fantastic for tight maneuvers in marinas or in conditions of limited visibility.

» Quick Installation
No reason to open the dome, no tune or zero-mile adjustment and no radar-licensed technician required.

» Extremely Low Emissions
Safer than any other radar currently on the market and emitting less radiation than a mobile phone – allowing it to be mounted anywhere.

» High-Speed Mode
Select 36 RPM for almost instant updating at less than 2nm.

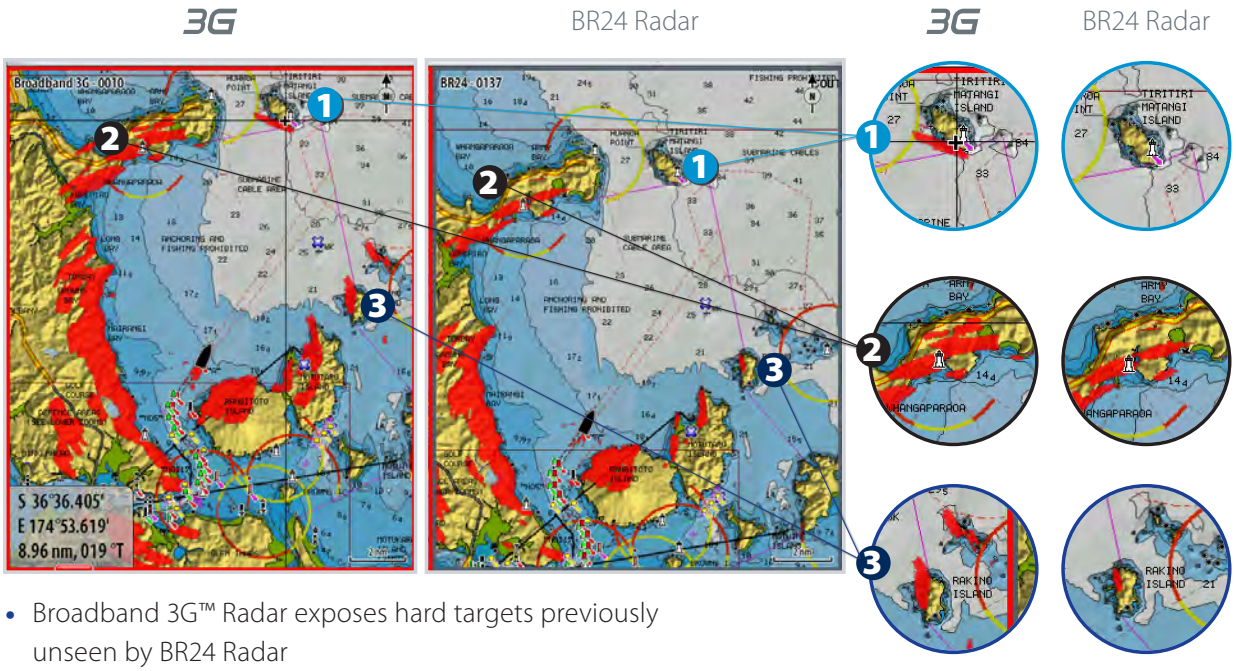
» Dual Guard Zones
Protect yourself from more angles.

Truly Different Technology …
Traditional "pulse" radars use high-powered magnetrons to generate microwave signals with very short pulses of applied voltage. Lowrance developed the first solid-state, X-band radar technology, which utilizes FMCW techniques. Lowrance Broadband Radar™ sends a continuous transmission wave with linear increasing frequency (hence the term Broadband). The wave retains its frequency as it travels out and reflects back from any objects.

Meanwhile, the transmitter continues to output an increasing frequency. The difference between the currently transmitted and received frequencies, coupled with the known rate of frequency increase, is the basis for precisely calculating a "time of flight" and target distance. Since FMCW constantly builds radar return energy (vs. a single pulse), this system provides target detection superior to pulse radars while transmitting at far lower energy levels.

… Safely Goes Where No Radar Has Gone Before

How far? Broadband 3G™ Radar



- Broadband 3G™ Radar exposes hard targets previously unseen by BR24 Radar

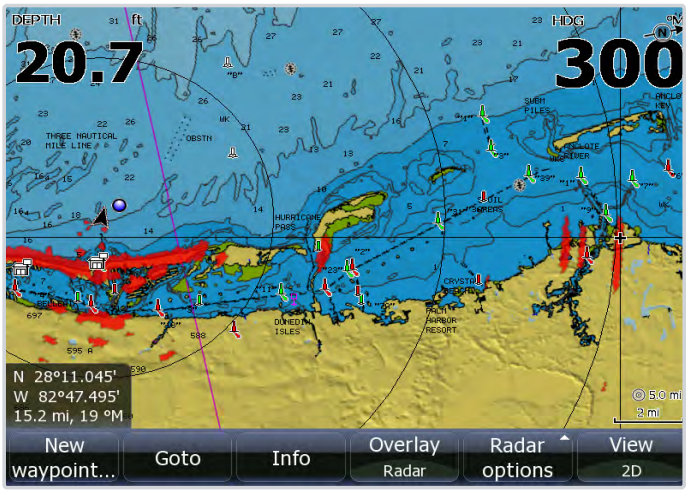
Target	BR24 Radar	**Broadband 3G™ Radar**
Large power station / wind farm	15-25 nm	**18-25 nm+**
Long coastline with 100m high cliffs	10-20 nm	**13-25 nm+**
High-density urban coastline	6-12 nm	**8-15 nm**
Forest-covered coastline gently sloping up to 820 ft	4-8 nm	**5-10 nm**
Low-lying suburban coastline	4-8 nm	**5-10 nm**
Large container ship (ship dependent)	7-14 nm	**10-17 nm+**
Low-lying coastline under 165 ft, dense vegetation	3-6 nm	**4-8 nm**
Small low-lying island	2-4 nm	**2.5-5 nm**
Medium-size power boat	1-2 nm	**1.3-2.6 nm**
Channel markers with radar reflectors	1-2 nm	**1.3-2.6 nm**
Small power or sail boat	0.5 to 1.5 nm	**0.7-2 nm**
Small marker buoy with no reflector.	0.25-0.5 nm	**0.25-0.7 nm**
Kayak 300-800ft	300-800 ft	300-800 ft
Birds 160-500ft	160-500 ft	160-500 ft
Wide weather front with heavy rain.	6-12 nm	**8-15 nm**
Dense rain cell (4 in/100 mm per hour)	5-10 nm	**7-13 nm**
Heavy shower (1 in/25 mm per hour)	2-4 nm	**2.5-5.5 nm**
Light rain	1-2 nm	**1.3-2.6 nm**

Ranges above from radome height of 13 ft/4 m

Proven performance: Broadband 3G™ Radar

» Long Range

3G

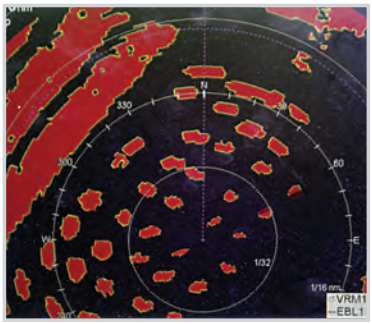


A medium-sized power station is easily seen at 15nm

» Harbor / Marina

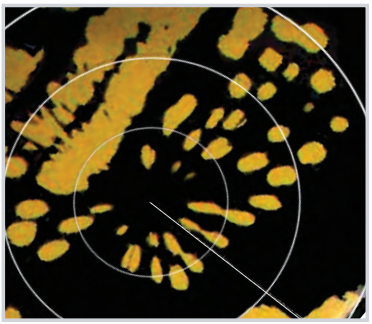
- Boats and docks separated with superior target definition

3G



Superior short-range target discrimination clearly shows docks, boats and moored vessels.

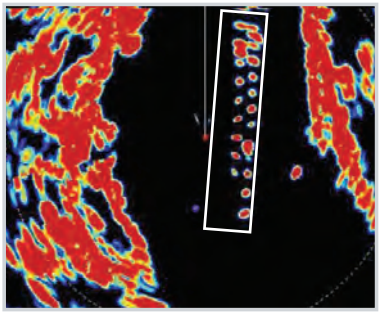
4kW Pulse Radar



Inferior separation of boats, docks and other features, further obscured by "main bang" (where it matters most) closest to the vessel.

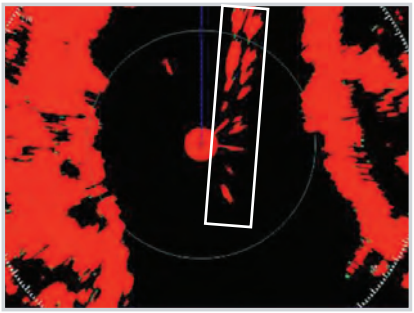
» Pile Moorings

3G



Broadband 3G™ Radar clearly shows staggered mooring poles, differentiating moored vessel.

4kW Pulse Radar



Poles and vessel are less defined on pulse radar display.

Compatible displays: Broadband 3G™ Radar

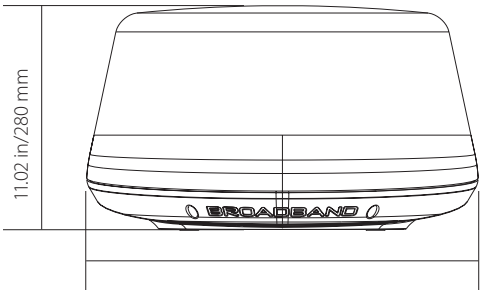
HDS®
High Definition System

Plug-in to HDS® Multifunction Displays

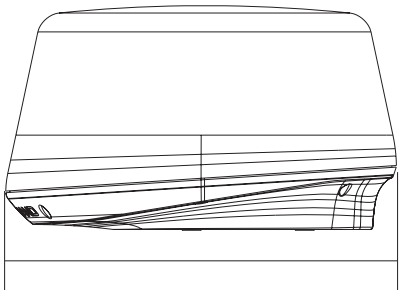
- Broadband 3G™ Radar Ready
- Built-in Broadband Sounder™
- Internal GPS Antenna
- Lowrance StructureScan™ Sonar Imaging ready
- Ethernet and NMEA 2000® Performance Networking Options

Technical Specifications: Broadband 3G™ Radar

PORT TO STBD



BOW TO STERN



Broadband 3G™ Radar Specifications

General	
Compatibility	All HDS models
Compliance	FCC/IC/R&TTE FCC ID: RAY3G4G IC ID: 4697A-3G4G Human Exposure General Public Safety Limit – touch dome anywhere.
Environmental	IEC60945: 2002 Operating Temperature: -13° to +131°F/ -25° to +55°C Relative humidity: +95°F/+35°C, 95% Waterproof: IPX6
Relative wind velocity	51 m/sec (Max: 100 Knots)
Power Consumption (typical)	Operating: 18W @ 13.8 vDC Standby: 2W @ 13.8 vDC ~ 150 mA
DC Input (at end of radar cable)	9 to 31.2 vDC (12/24 volt systems) Reverse polarity protection
Transmitter Source (pre-heating time)	No magnetron – InstantOn™
Outside Dimensions	Height: 11.02 in/280 mm Diameter: 19.27in/488 mm
Weight (no cable)	16.3 lb/7.4 kg
Radar and Antenna Parameters	
Radar Ranges	1/32 nm (200 ft) to 24 nm; 17 range settings (nm/km)
Rotation	24/36rpm +/- 10%; Mode dependent
Transmitter Frequency	X-band - 9.3 to 9.4 Ghz
Transmitter Source (warm-up time)	No Magnetron – all solid state InstantOn™

Radar and Antenna Parameters cont'd	
Plane of Polarization	Horizontal polarization
Transmitter Peak Power Output (at antenna port)	165 mW (nominal)
Main Bang Dead Zone & Tuning	None – not a pulse radar
Sea and Rain Clutter	5 times less than a pulse radar
Sweep Repetition Frequency	200 Hz
Sweep Time	1.3 ms +/-10%
Sweep Bandwidth	75 MHz max
Horizontal Beam Width (Tx and Rx antenna)	5.2°+/-10% (-3 dB width)
Vertical Beam Width (Tx and Rx antenna)	25°+/-20% (-3 dB width)
Side Lobe Level (Tx and Rx antenna)	Below -18 dB (within ±10°); Below -24 dB (outside ±10°)
Noise Figure	Less than 6dB
Coms/Cabling/Mounting	
Com Protocol	Ethernet 100 Base-T and Serial
Heading	NMEA 2000®/SimNet (with RI-10 interface box)
Interconnecting Cable Length	33 ft/10m standard with RJ45 thin custom connector
Interconnecting Cable Options	65.6 ft/20 m & 98.4 ft/30 m (max.)
Bolts (4)	4 x 30 x M8 - 304 stainless steel
Footprint W x L	9.17 in/233.0 mm (port to stbd.) 5.57 in/141.5 mm (bow to stern) Matches Garmin GMR18HD/ Raymarine RD218 footprint

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