Ultra Electronics

The complete sonobuoy supplier

The leading supplier of sonobuoys
to the world's ASW forces

Ultrasonobuoys | Ultra ELECTRONICS

Ultra Electronics – the complete sonobuoy supplier

Ultra has designed and manufactured air-launched sonobuoys for the world market for over 50 years. Today, the Ultra Electronics Group includes the combined expertise and capabilities of three internationally renowned sonobuoy companies: **Maritime Systems, Canada; UnderSea Sensor Systems Inc, USA;** and **Sonar and Communication Systems, UK**.

Together, these Ultra divisions offer a global capability, supplying a complete range of sonobuoys to satisfy the requirements of modern airborne ASW forces.

The Ultra portfolio includes a comprehensive range of passive, bathythermal and active sonobuoys for use during the search, localisation, tracking and attack phases of an ASW operation. A balanced sonobuoy inventory allows any ASW unit to undertake passive, mono-static active or multistatic active operations either independently or fully integrated within a Joint Operation conducted by Allied or Coalition Forces.

Passive Sonobuoys

Passive Sonobuoys support the covert detection, classification, localisation and attack of submarines through the detection of the narrowband, broadband and transient sounds that are emitted from even the quietest, modern submarine. Passive sonobuoys, with performance improving features can also be used as the receiver elements of a Multi-Static Active sonobuoy search and localisation system.

Ultra's range of Passive sonobuoys includes: free floating or anchored omnidirectional LOFAR buoys; directional DIFAR and HIDAR buoys; complex vertical line array VLAD buoys and the large horizontal planar array Barra. Electronic Function Selection allows key operating parameters to be selected including buoy life, depth, operating modes and any of 99 channels for RF telemetry. Command Function Selection allows remote control via an RF downlink to some buoy types. Integrated GPS within the buoy and high dynamic range digital telemetry, pioneered by Ultra, are also available on many buoy types.

Active Sonobuoys

Active sonobuoys enable an aircraft to rapidly localise and attack a hostile submarine and are traditionally used to prosecute a submarine detected on non-acoustic sensors or to follow-up an attack mounted using passive sonobuoys. Modern, more powerful active buoys now allow multi-static, active searches to be conducted by airborne ASW units over large areas.

Ultra's active sonobuoy offerings include a low-cost range-only 'Ranger' buoy together with the proven, high-performance DICASS and CAMBS monostatic active localisation buoys, that have seen many years of operational service in several, evolutionary variants. Ultra is also leading the way in developing projector sonobuoys for use in Multi-Static Active sonobuoy search and localisation systems. The AN/SSQ-110 series of buoys offers a low-cost, high power impulsive source, while the AN/SSQ-926 ALFEA buoy provides the most powerful and versatile electro-acoustic source available in the world today.

Ultrasonobuoys

Ultra's leading sonobuoys –

Passive

- **DIFAR AN/SSQ-53D/D(3)/F**
  Ultra is a worldwide provider of A-size directional passive sonobuoys. From its cost effective AN/SSQ-53D through its most advanced digital AN/SSQ-53F variant, Ultra provides a passive DIFAR solution for all users. Whilst the AN/SSQ-53D remains the mainstay sensor for several ASW forces, many of the more discerning nations are now procuring the AN/SSQ-53D(3). This sonobuoy utilises an enhanced hydrophone and suspension system to offer world-leading low frequency acoustic performance as well as the addition of a fourth operating depth and sea state six operation. The AN/SSQ-53F is the latest version of the DIFAR sonobuoy in service with the US Navy. It incorporates four operating depths, a constant shallow hydrophone, a calibrated wide band hydrophone co-located with the DIFAR sensor and the operational flexibility found in Command Function Select for use in littoral waters.
- **Wideband LOFAR AN/SSQ-906**
  Ultra's unique omni-directional wideband passive sonobuoy is based on the AN/SSQ-955 design but offers extended acoustic coverage.
- **Long Life anchored surveillance LOFAR AN/SSQ-908**
  The innovative shallow water anchored passive sonobuoy offers a long life surveillance capability in a 2/3 A-size buoy combined with the benefits of its HIDAR lineage.
- **HIDAR AN/SSQ-955**
  The AN/SSQ-955 HIDAR combines Ultra's highest performance DIFAR sensor with an all digital electronics design in a lightweight, G-size package; particularly suited to helicopter operations. The high dynamic range and linearity allows operations in high ambient noise and it is ideally suited for use as a low frequency active receiver. The VHF telemetry can be selected between digital GMSK and standard FM analogue formats to ensure interoperability with other forces.
- **BARRA AN/SSQ-981E**
  The A-size AN/SSQ-981 Barra sonobuoy utilises a large planar array with 5 telescopic arms each of which has 5 hydrophones. The buoy provides enhanced detection of both passive and active signals giving highly accurate bearing information to the aircraft. Latest variants offer integrated GPS and multi-mode operation for optimum performance in Multi-Static Active and Passive operations over a wide band.

Active

- **DICASS AN/SSQ-62D/E**
  DICASS is a monostatic active sonobuoy that operates on one of four sonar frequencies. Ultra's AN/SSQ-62E is an all digital implementation that permits selection of the sonar frequency on a single sonobuoy. In addition to standard analogue commands, the AN/SSQ-62E also incorporates Command Function Select to enable depth and RF/sonar frequency changes once deployed.
- **CAMBS AN/SSQ-963D**
  The A-size, all digital AN/SSQ-963D CAMBS is the 6th generation of Ultra's highly successful Command Activated Multi-Beam Sonobuoy. It provides higher source levels than previous generations and offers a choice of acoustic frequencies to allow simultaneous operation of more than one buoy. The buoy includes a unique stave structured array for superior performance in littoral water.
- **AN/SSQ-110B**
  The A-size, AN/SSQ-110B buoy provides an impulsive acoustic source for Extended Echo Ranging Multi-Static Active search operations. It incorporates two, multi-point initiation, explosive payloads that can be remotely activated to operate at one of the three depth settings. The AN/SSQ-110B is used in conjunction with appropriate passive receiver sonobuoys.
- **AN/SSQ-926 ALFEA**
  The A-size, AN/SSQ-926 ALFEA is a high-powered, active low frequency electro-acoustic sonobuoy specially designed for Multi-Static Active sonobuoy search operations. It incorporates the very latest transducer, battery and power amplifier technology to provide exceptional search performance in all waters. It provides multiple pings in programmable waveform types and is used in conjunction with appropriate passive receiver sonobuoys, such as HIDAR and Barra.

Bathythermal Buoys

Manufactured exclusively at Maritime Systems in Canada, the Ultra range of Bathythermal sonobuoys comprises A and G size variants to suit the needs of international customers. All variants have a 99 channel VHF/FM selection capability and are compatible with all acoustic processors and sonobuoy receivers. The Ultra Bathythermal buoys provide the antisubmarine operator with an accurate plot of sea temperature to depths of up to 800m. Bathythermal information is used to determine the likely operating depth of a submarine, and also enables acoustic performance predictions to be updated once an aircraft is established in a patrol area.

Type and performance information

		Type	Number	Size[1]	Weight[2]	Depths(m)	Channels	Life(hrs)	RF Link	RF Power	Supplier	Remarks
PASSIVE		Bathythermal	AN/SSQ 937D	G	3.9kg (8.6lb)	800	99	<12mins	A	0.25W	MS, Canada	
			AN/SSQ 36B	A	5.9kg (13lb)	800	99	<12mins	A	0.25W	MS, Canada	
			AN/SSQ 536	G	3.9kg (8.6lb)	800	99	<12mins	A	0.25W	MS, Canada	
		LOFAR	AN/SSQ 906G	G	5.6kg (12.3lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A	1W	S&CS, UK	Wideband
			AN/SSQ 906H	G	5.1kg (11.2lb)	15, 30, 60	99	1, 2, 3, 4, 5, 6	A	1W	S&CS, UK	Wideband shallow water
			AN/SSQ 908	2/3A	8.1kg (17.8lb)	15, 30, 60	99	1, 4, or 12	A	1W	S&CS, UK	Wideband anchored (25>120m)
	Directional	DIFAR	AN/SSQ 53B[3]	A	12.7kg (28lb)	30, 120, 300	99	1, 3 or 8	A	1W	USSI, USA	
			AN/SSQ 53D	A	10kg (22lb)	30, 120, 300	99	0.5, 1, 2, 4, 8	A	1W	MS, Canada	Limited production
			AN/SSQ 53D(2)	A	7.3kg (16.5lb)	30, 120, 300	99	0.5, 1, 2, 4, 8	A	1W	MS, Canada	Improved LF sensitivity
			AN/SSQ 53D(3)		7.3kg (16.5lb)	30, 67, 120, 300	99	0.5, 1, 2, 4, 8	A	1W	MS, Canada	Improved LF sensitivity. Seastate 6
			AN/SSQ 53E[3]	A	9.1kg (20lb)	30, 60, 120, 300	96[4]	0.5, 1, 2, 4, 8	A	1W	MS, Canada	Constant Shallow Omni, AGC, CFS
			AN/SSQ 53F	A	8.2kg (18lb)	30, 60, 120, 300	96[4]	0.5, 1, 2, 4, 8	A	1W	USSI, USA	Plus Constant Shallow Omni, calibrated Omni, AGC, CFS
			AN/SSQ 954B[3]	G	8kg (18lb)	30, 140, 300	99	1, 3 or 8	A	1W	S&CS, UK	
			AN/SSQ 954C/D/E[3]	G	6.1kg (13.4lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A	1W	S&CS, UK	
		HIDAR	AN/SSQ 955	G	5.6kg (12.3lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	S & H Modes
			AN/SSQ 955A	G	5.6kg (12.3lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	Calibrated Omni
			AN/SSQ 955B	G	5.6kg (12.3lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	GPS
			AN/SSQ 955C	G	5.6kg (12.3lb)	15, 30, 60	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	Shallow water
			AN/SSQ 955D	2/3A	8.1kg (17.8lb)	15, 30, 60	99	1, 4 or 12	A/D	1W	S&CS, UK	Anchored (25>120m)
		Barra	AN/SSQ 981B[3]	A	9.2kg (20lb)	22, 121	50	1, 2, 3, 4	A/D	1W	S&CS, UK	Broad/narrow-band array
			AN/SSQ 981E	A	9.0kg (19.8lb)	22, 60, 120	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	Plus multistatic receiver
		VLAD	AN/SSQ 77C	A	11.8kg (26lb)	60, 150, 300	99	0.5, 1, 2, 4, 8	A	1W	USSI, USA	Multistatic vertical line array receiver
ACTIVE	Directional	DICASS	AN/SSQ 62B[3]	A	17.7kg (39lb)	27, 120, 460	31 fixed	1hr/50 pingsec	A	0.25W	USSI, USA	Monostatic
			AN/SSQ 62D	A	16.4kg (36lb)	17, 50, 100 or 27, 120, 460	96[4]	1hr/50 pingsec	A	1W	USSI, USA	Monostatic
			AN/SSQ 62E	A	17kg (38lb)	17, 27, 50, 100, 120 and 460	96[4]	1hr/50 pingsec	A	1W	USSI, USA	Monostatic
		CAMBS	AN/SSQ 963C[3]	A	13.2kg (29lb)	4 depths	99	1	A	0.5W	S&CS, UK	Monostatic
			AN/SSQ 963D	A	13.2kg (29lb)	4 depths	99	1 or 4	A/D	1W	S&CS, UK	Mono/multistatic High Source Level
	Omni Directional	Ranger	AN/SSQ 47B	A	10.0kg (22lb)	20 or 260	12	30 mins	A	1W	USSI, USA	Monostatic Range Only
		EER	AN/SSQ 110A	A	16.4kg (36lb)	2 depths	96[4]	6 ± 1	A	0.5W	USSI, USA	Single explosive source
			AN/SSQ 110B	A	16.4kg (36lb)	3 depths	96[4]	6 ± 1	A	0.5W	USSI, USA	Dual explosive source
		ALFEA	AN/SSQ 926	A	15.2kg (33.4lb)	4 depths	99	7hrs/200 pingsec	A	1W	S&CS, UK	Coherent Electro-Acoustic Source

[1]

Size	Length	Diameter
A	914.4mm (36in)	123.825mm (4.875in)
2/3A	567.4mm (22.3in)	123.825mm (4.875in)
G	419.1mm (16.5in)	123.825mm (4.875in)
F	304.8mm (12in)	123.825mm (4.875in)

[2] All weights are 'bare buoy' (excluding SLC)

[3] Obsolescent (no longer manufactured, superseded by later design)

[4] Excludes locked out channels 57, 58 and 93

Information and supply of all buoy types can be arranged through the following Ultra companies:

Ultra ELECTRONICS | Ultrasonobuoys

www.sonobuoys.com
www.ultra-electronics.com

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SONAR & COMMUNICATION SYSTEMS
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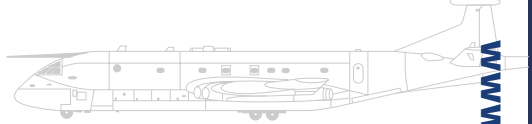
Printed in England
03 / 06 / TC / 200 / HaT

RF CHANNEL FREQUENCY ALLOCATION

RF Chan	Freq (MHz)	RF Chan	Freq (MHz)	RF Chan	Freq (MHz)
1	162.25	34	136.750	67	149.125
2	163.00	35	137.125	68	149.500
3	163.75	36	137.500	69	149.875
4	164.50	37	137.875	70	150.250
5	165.25	38	138.250	71	150.625
6	166.00	39	138.625	72	151.000
7	166.75	40	139.000	73	151.375
8	167.50	41	139.375	74	151.750
9	168.25	42	139.750	75	152.125
10	169.00	43	140.125	76	152.500
11	169.75	44	140.500	77	152.875
12	170.50	45	140.875	78	153.250
13	171.25	46	141.250	79	153.625
14	172.00	47	141.625	80	154.000
15	172.75	48	142.000	81	154.375
16	173.50	49	142.375	82	154.750
17	162.625	50	142.750	83	155.125
18	163.375	51	143.125	84	155.500
19	164.125	52	143.500	85	155.875
20	164.875	53	143.875	86	156.250
21	165.625	54	144.250	87	156.625
22	166.375	55	144.625	88	157.000
23	167.125	56	145.000	89	157.375
24	167.875	57	145.375	90	157.750
25	168.625	58	145.750	91	158.125
26	169.375	59	146.125	92	158.500
27	170.125	60	146.500	93	158.875
28	170.875	61	146.875	94	159.250
29	171.625	62	147.250	95	159.625
30	172.375	63	147.625	96	160.000
31	173.125	64	148.000	97	160.375
32	136.000	65	148.375	98	160.750
33	136.375	66	148.750	99	161.125



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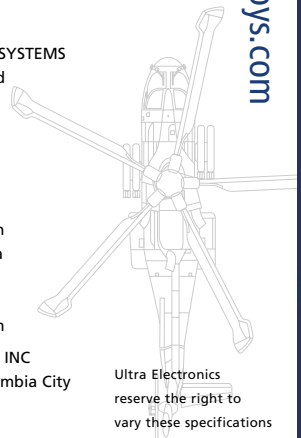

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Ultra Electronics reserve the right to vary these specifications without notice.

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TYPE AND PERFORMANCE INFORMATION

	Type	Number	Size[1]	Weight[2]	Depths(m)	Channels	Life(hrs)	RF Link	RF Power	Supplier	Remarks
PASSIVE	Bathythermal	AN/SSQ 937D	G	3.9kg (8.6lb)	800	99	<12mins	A	0.25W	MS, Canada	
		AN/SSQ 36B	A	5.9kg (13lb)	800	99	<12mins	A	0.25W	MS, Canada	
		AN/SSQ 536	G	3.9kg (8.6lb)	800	99	<12mins	A	0.25W	MS, Canada	
	LOFAR	AN/SSQ 906G	G	5.6kg (12.3lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A	1W	S&CS, UK	Wideband
		AN/SSQ 906H	G	5.1kg (11.2lb)	15, 30, 60	99	1, 2, 3, 4, 5, 6	A	1W	S&CS, UK	Wideband shallow water
		AN/SSQ 908	2/3A	8.1kg (17.8lb)	15, 30, 60	99	1, 4, or 12	A	1W	S&CS, UK	Wideband anchored (25>120m)
Directional	DIFAR	AN/SSQ 53B[3]	A	12.7kg (28lb)	30, 120, 300	99	1, 3 or 8	A	1W	USSI, USA	
		AN/SSQ 53D	A	10kg (22lb)	30, 120, 300	99	0.5, 1, 2, 4, 8	A	1W	MS, Canada	Limited production
		AN/SSQ 53D(2)	A	7.3kg (16.5lb)	30, 120, 300	99	0.5, 1, 2, 4, 8	A	1W	MS, Canada	Improved LF sensitivity
		AN/SSQ 53D(3)		7.3kg (16.5lb)	30, 67, 120, 300	99	0.5, 1, 2, 4, 8	A	1W	MS, Canada	Improved LF sensitivity. Seastate 6
		AN/SSQ 53E[3]	A	9.1kg (20lb)	30, 60, 120, 300	96[4]	0.5, 1, 2, 4, 8	A	1W	MS, Canada	Constant Shallow Omni, AGC, CFS
		AN/SSQ 53F	A	8.2kg (18lb)	30, 60, 120, 300	96[4]	0.5, 1, 2, 4, 8	A	1W	USSI, USA	Plus Constant Shallow Omni, calibrated Omni, AGC, CFS
		AN/SSQ 954B[3]	G	8kg (18lb)	30, 140, 300	99	1, 3 or 8	A	1W	S&CS, UK	
		AN/SSQ 954C/D/E[3]	G	6.1kg (13.4lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A	1W	S&CS, UK	
	HIDAR	AN/SSQ 955	G	5.6kg (12.3lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	S & H Modes
		AN/SSQ 955A	G	5.6kg (12.3lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	Calibrated Omni
		AN/SSQ 955B	G	5.6kg (12.3lb)	30, 140, 300	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	GPS
		AN/SSQ 955C	G	5.6kg (12.3lb)	15, 30, 60	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	Shallow water
		AN/SSQ 955D	2/3A	8.1kg (17.8lb)	15, 30, 60	99	1, 4 or 12	A/D	1W	S&CS, UK	Anchored (25>120m)
	Barra	AN/SSQ 981B[3]	A	9.2kg (20lb)	22, 121	50	1, 2, 3, 4	A/D	1W	S&CS, UK	Broad/narrow-band array
		AN/SSQ 981E	A	9.0kg (19.8lb)	22, 60, 120	99	1, 2, 3, 4, 5, 6	A/D	1W	S&CS, UK	Plus multistatic receiver
	VLAD	AN/SSQ 77C	A	11.8kg (26lb)	60, 150, 300	99	0.5, 1, 2, 4, 8	A	1W	USSI, USA	Multistatic vertical line array receiver
ACTIVE Directional	DICASS	AN/SSQ 62B[3]	A	17.7kg (39lb)	27, 120, 460	31 fixed	1hr/50 pingsec	A	0.25W	USSI, USA	Monostatic
		AN/SSQ 62D	A	16.4kg (36lb)	17, 50, 100 or 27, 120, 460	96[4]	1hr/50 pingsec	A	1W	USSI, USA	Monostatic
		AN/SSQ 62E	A	17kg (38lb)	17, 27, 50, 100, 120 and 460	96[4]	1hr/50 pingsec	A	1W	USSI, USA	Monostatic
	CAMBS	AN/SSQ 963C[3]	A	13.2kg (29lb)	4 depths	99	1	A	0.5W	S&CS, UK	Monostatic
		AN/SSQ 963D	A	13.2kg (29lb)	4 depths	99	1 or 4	A/D	1W	S&CS, UK	Mono/multistatic High Source Level
Omni Directional	Ranger	AN/SSQ 47B	A	10.0kg (22lb)	20 or 260	12	30 mins	A	1W	USSI, USA	Monostatic Range Only
	EER	AN/SSQ 110A	A	16.4kg (36lb)	2 depths	96[4]	6 ± 1	A	0.5W	USSI, USA	Single explosive source
		AN/SSQ 110B	A	16.4kg (36lb)	3 depths	96[4]	6 ± 1	A	0.5W	USSI, USA	Dual explosive source
	ALFEA	AN/SSQ 926	A	15.2kg (33.4lb)	4 depths	99	7hrs/200 pingsec	A	1W	S&CS, UK	Coherent Electro-Acoustic Source

[1] Size	Length	Diameter
A	914.4mm (36in)	123.825mm (4.875in)
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