### **REPORT ON**

Limited Type Approval Testing of the McMurdo Limited 406 MHz Fastfind Plus PLB with internal GPS position encoded data and 121.5 MHz Radio locating device in accordance with RTCM paper 5-97/SC110-STD "RTCM Recommended Standards for 406 MHz Satellite Personal Locator Beacons (PLBs)" Version 2.0.

Report No. RM608213A

August 2001

Segensworth Road Fareham Hampshire PO15 5RH UK

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Report No. RM608213A

PREPARED FOR

McMurdo Ltd Silverpoint Airport Service Road Hilsea Portsmouth Hampshire PO3 5PB

DISTRIBUTION

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LIST OF MEASUREMENTS.

The list of measured parameters tested in accordance with RTCM paper 5-97/SC110-STD "RTCM Recommended Standards for 406 MHz Satellite Personal Locator Beacons (PLBs)" Version 2.0 is given below.

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Summary of 121.5MHz Radio-Locating Device Transmitter Tests	6
A12.0 121.5MHz Auxiliary Radio Locating-Device Transmitter Test	
A12.1 Carrier Frequency Test	
A12.2 Modulation Characteristics	
A12.3 Peak Equivalent Isotropic Radiated Power	
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Manufacturer:	McMurdo Ltd
Type Designation:	Fastfind Plus
Serial No.:	3
Number of Samples Tested:	One
Test Specification:	RTCM paper 5-97/SC110-STD "RTCM Recommended Standards for 406 MHz Satellite Personal Locator Beacons (PLBs)" Version 2.0.
Date of Receipt of Test Sample:	16 <sup>th</sup> May 2001
Start of Test:	30 <sup>th</sup> July 2001
Finish of Test:	6 <sup>th</sup> August 2001
Test Engineer(s):	N Forsyth

# **TEST HOUSE DECLARATION**

We, BABT of Segensworth Road, Titchfield, Fareham, Hampshire PO15 5RH, declare under our sole responsibility that the product :

Equipment :	406 MHz PLB with internal GPS position encoded data and 121.5 MHz radio locating data
Туре :	-
Model :	Fastfind Plus
Serial Number :	3
Quantity :	One

to which this declaration relates is in conformity with the following standard(s) or other normative document(s):

RTCM paper 5-97/SC110-STD "RTCM Recommended Standards for 406 MHz Satellite Personal Locator Beacons (PLBs)" Version 2.0.

Clauses A12.0, A12.1, A12.2 & A12.3

Detailed results are recorded in Test Report No. RM608213

Place and date of issue : Titchfield, August 2001

Signature :

**M JENKINS** Wireless Telecoms Group Manager

Date :

13<sup>th</sup> August 2001

## **BEACON INFORMATION**

Beacon Manufacturer :	McMurdc	b Ltd						
Beacon Model : Fastfind Plus								
Name and Location of Beacon Test Facility : BABT								
Beacon Type :	Aviation	n : [	]	Land	:[✓	] Maritime : [	✓]	
Specified Operating Tempera	ature Ran	ge :	-40°C	C to	+55°	Dc		
Specified Operating Lifetime Specify :	:	24 h	r. [ 🗸	]	48	8 hr. [ ]	Other [	]
Beacon Battery Type(s) :	Chemis	stry : l	_ithiun	n				
Manufacture & Model No. : S	aft LO29	or En	ergise	er L-91	1			
Size & number of cells :	4 x 'C' c	or 7 x	'AA'					
Extra Features in Beacon :		No		Yes		Details		
a) Auxiliary Radio-Locating D	evice :	[	]	[✓	]	Frequency : 12 Power : +25 m Tx. Duty Cycle	21.5 MHz NW Min e : 100%	
b) Transmits Encoded Positic	on Data :	[	]	[✓	]	Nav. Device Ir Type. GPS	nternal	
c) Transmits Long Message (	(144 bits)	:[	]	[✓	]			
d) Automatic Activation :		[✓	]	[	]			
e) Built-in Strobe Light :		[✓	]	[	]	Intensity : Flash rate :		
f) Self-test mode :		[	]	[✓	]	-		
g) Other :		[✓	]	[	]	Specify :		

## SUMMARY OF RADIO-LOCATING DEVICE TRANSMITTER TESTS

PARAMETERS TO BE	RANGE OF	UNITS	TEST RESULTS			COMMENTS
MEASURED DURING TESTS	SPECIFICATION		T <sub>min</sub>	T <sub>amb</sub>	T <sub>max</sub>	
12. AUXILLIARY RADIO-LOCATION DEVICE TRANSMITTER TEXT* (A12.0)			(-40 C)	(123 0)	(133.6)	
Carrier Frequency	$121.5 \pm 0.006$	MHz	-0.001468	-0.000730	-0.002088	
Transmitter Duty Cycle	Continuous	~	$\checkmark$	$\checkmark$	$\checkmark$	
<ul> <li>Modulation</li> </ul>						
- Frequency	≥700 Hz within 300 – 1600 Hz	Hz	927.6	927.6	927.6	
- Direction	Upward	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
- Duty Cycle	33 – 55	%	44.59	40.05	40.0	
- Factor	0.85 – 1.0	#	0.98	0.98	0.98	
- Sweep repetition rate	2 – 4	Hz	3.05	3.05	3.05	
- Frequency Coherence	~	~	$\checkmark$	$\checkmark$	$\checkmark$	
PEIRP (Radiated)	14 - 20	dBm		18.52		
<ul> <li>Antenna (Radiated)</li> </ul>						
- Pattern	Omnidirectional	$\checkmark$		$\checkmark$		
- Polarization	Vertical	✓		$\checkmark$		
- VSWR	≤ 1.5:1	#		N/A		Integral Antenna

TEST EQUIPMENT USED: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17

No	Instrument/Ancillary	Туре	Manufacturer	Serial No.
1	Hygromer	A1	Rotronic	N/S
2	Frequency Counter	83181A	Hewlett Packard	K291201300
3	Attenuator	47-10-34	Weinschel	AT 4937
4	Attenuator	HFP-50N	Weinschel	N/S
5	Attenuator	HFP-50N	Weinschel	N/S
6	Environmental Chamber	MINI-P-MEGH-P	Montford	3369-K5707
7	Digital Storage Oscilloscope	LC534L	Lecroy	LC5341147
8	Modulation Analyser	8901B	Hewlett Packard	3226A04514
9	Sensor	11722A	Hewlett Packard	2716A02675
10	Freq & Time Interval Analyser	5372A	Hewlett Packard	3141A1073
11	Spectrum Analyser	8566A	Hewlett Packard	2349A03049
12	Spectrum Analyser	8566B	Hewlett Packard	1745A00160-00148
13	Quasi Peak Adapter	85650A	Hewlett Packard	2521A00849
14	RF Preselector	85685A	Hewlett Packard	2648A00442
15	Turntable and Controller	1060	Emco	N/S
16	Antenna Mast & Controller	1050	Emco	N/S
17	Dipole	CDI	Roberts 4	1317D

#### TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS



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