

REPORT NUMBER 1834-E

November 2004

Class II Permissive Change to Report Number 1834

On the TBAH0 Base Station Transceiver

FCC ID: CASTBA-H0

Power Amplifier Type TBA7H0
TBA70H0-0000 S/No: 18001198

In accordance with

FCC 47 CFR Parts 22, 74 and 90

PREPARED BY:	Bruce Jensen	_____
		Test Technician
CHECKED & APPROVED BY:	Hamish Newton	_____
		Senior Technician



TELTEST Laboratories

Tait Electronics Limited

PO Box 1645

558 Wairakei Road

Christchurch

New Zealand

Phone : +64-3-358 3399

Fax: +64-3-358 3903

REPORT ON :

Type approval testing of a 5W Power Amplifier Module type TBA7H0 in accordance with FCC CFR 47 Parts 22, 74 & 90. This test report is an addendum to test report 1834 June 2003, and 1834-D October 2004. Radiated emissions are covered in the original submission test report EMC Technologies test report 30427.4 12 May 2003 & 30541.2 5 June 2003
The Power Amplifier was tested in conjunction with:

Reciter	TBA4H2	TBA40H2-0C00	Serial 18001109
Power Amplifier	TBA7H0	TBA70H0-0000	Serial 18001198
Power Management Unit		TBA30A1-0000	Serial 18001012

FCC ID: CASTBA-H0

PREPARED FOR :

Tait Electronics Ltd
PO Box 1645
558 Wairakei Rd
Christchurch
New Zealand

DISTRIBUTION :

TELTest Laboratory	Mr S Crompton	Copy No 1
Tait Electronics Ltd	Mr. Des Fox	Copy No 2
Tait Electronics Ltd	Mr. Ian Mackay	Copy No 3

APPROVED :

H Newton
Senior Technician

Date :

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

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DECLARATION OF CONFORMITY

We, TELTEST LABORATORIES of 558 Wairakei Road, Christchurch New Zealand, declare under our sole responsibility that the product:

Equipment:	Base Station Transmitter		
Type:	TBAH0		
Fitted with:			
	Power Amplifier	TBA7H0	TBA70H0-0000
Quantity:		1	Serial 18001198

To which this declaration relates is in conformity with the following standards:

FCC CFR 47 Parts 22, 74 & 90

Signature:_____

S. A. Crompton
Compliance Laboratory Manager.

Date:_____

Test Conditions

All testing was performed at the following conditions.

Ambient Temperature	15°C to 30°C
Relative Humidity	20% to 75%
Standard Test Voltage	230 V ac

Test Results

TRANSMITTER OUTPUT POWER (CONDUCTED)

SPECIFICATION: FCC 47 CFR 2.1046

GUIDE: TIA/EIA-603B 2.2.1

MEASUREMENT PROCEDURE:

1. Refer Appendix A for Equipment set up.
2. The coaxial attenuator has an impedance of 50 Ohms.
3. The unmodulated output power was measured with an RF Power meter.

MEASUREMENT RESULTS:

Manufacturer's Rated Output Power: Adjustable between: 1 W and 5 W

440.0375 MHz	5 W nominal	1 W nominal
POWER (W)	4.8 W	1 W
Variation from Nominal (%)	-4%	0%
Measurement Uncertainty (dB)	+0.63 -0.68	

LIMIT CLAUSE: FCC 47 CFR 90.205

Radio Type: Base Station Transceiver

Frequency Band: 421 MHz ~ 512 MHz

- (o) The output power shall not exceed by more than 20% the manufacturer's rated output power for the particular transmitter.

SPURIOUS EMISSIONS (CONDUCTED)

SPECIFICATION: FCC CFR 2.1051

Tx FREQUENCY: 440.0375 MHz

12.5 kHz Channel Spacing	440.0375 MHz @ 5 W	Emission Mask D
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
No emissions were detected at a level greater than 20 dB below the limit.		

LIMITS:

Carrier Output Power Watts	Emission Mask D 12.5 kHz Channel Spacing $50 + 10 \log_{10}(P_{\text{Watts}})$	
5 W	-20 dBm	57 dBc
1 W	-20 dBm	50 dBc

SPURIOUS EMISSIONS (CONDUCTED)

SPECIFICATION: FCC CFR 2.1051

Tx FREQUENCY: 440.0375 MHz

12.5 kHz Channel Spacing	440.0375 MHz @ 1 W	Emission Mask D
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
No emissions were detected at a level greater than 20 dB below the limit.		

LIMITS:

Carrier Output Power Watts	Emission Mask D 12.5 kHz Channel Spacing $50 + 10 \log_{10}(P_{\text{Watts}})$	
5 W	-20 dBm	57 dBc
1 W	-20 dBm	50 dBc

TRANSIENT FREQUENCY BEHAVIOR

SPECIFICATION: FCC 47 CFR 90.214

GUIDE: TIA/EIA-603B 2.2.19

MEASUREMENT PROCEDURE:

1. Refer Appendix A for equipment set up.
2. Measurements and plots were made following the TIA/EIA procedure.

MEASUREMENT RESULTS:

See the tables and plots on the following pages for 12.5 kHz channel spacings.

LIMIT CLAUSE: FCC 47 CFR 90.214

TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: FCC 47 CFR 90.214

Tx FREQUENCY: 440.0375 MHz 5 W 12.5 kHz Channel Spacing

FREQUENCY	440.0375 MHz @ 5 W Tx	
TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t_1	0.7	N/A
t_2	0.5	N/A
t_3	N/A	0.6
$t_2 \rightarrow t_3$ ppm	0.5	
ERROR LIMIT ($t_2 \rightarrow t_3$) ppm	1.5	

Confirm that during periods t_1 and t_3 the frequency difference does not exceed the value of one channel separation.	YES	NO
	Y	
Confirm that during the period t_2 the frequency difference does not exceed half a channel separation.	YES	NO
	Y	
Confirm that during the period t_2 to t_3 the frequency difference does not exceed the frequency error limit.	YES	NO
	Y	

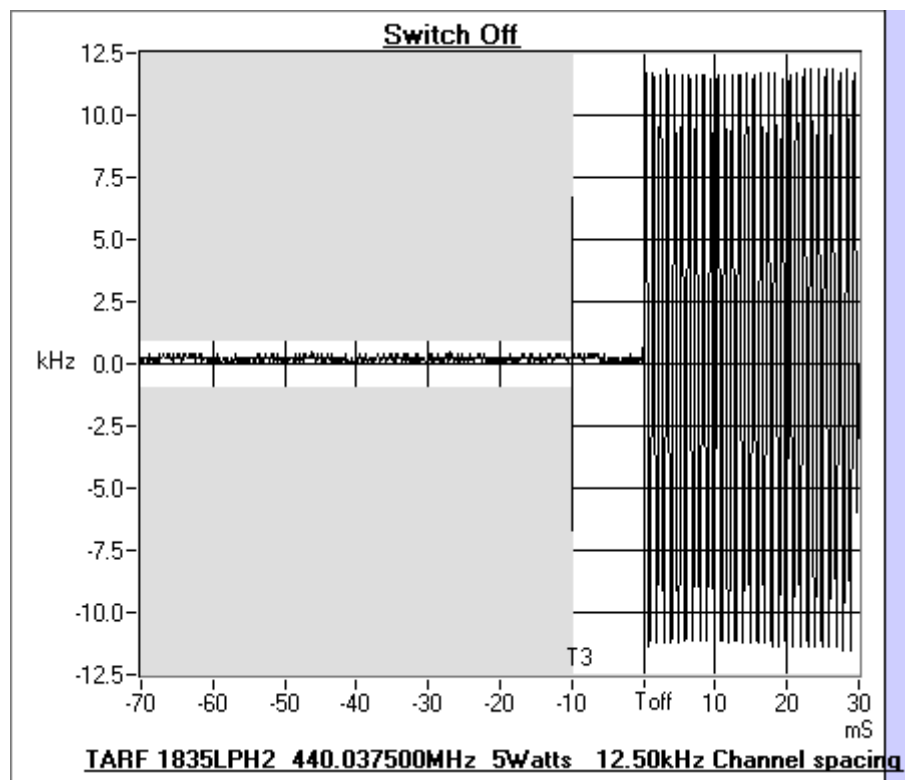
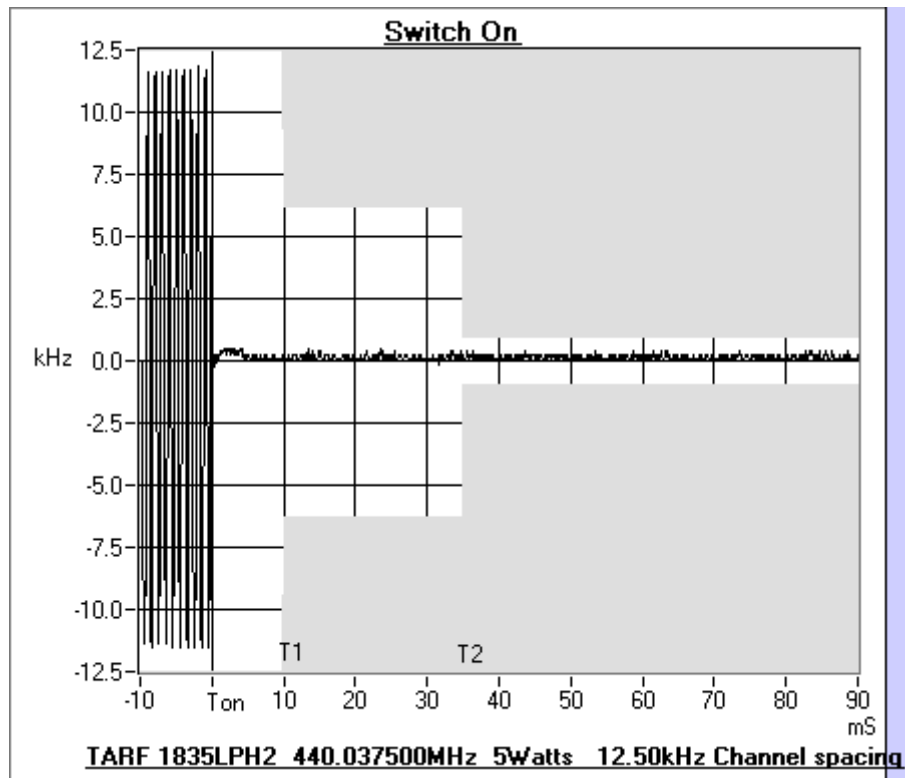
LIMIT:

TRANSIENT PERIODS	FREQUENCY RANGE 150MHz – 174 MHz	FREQUENCY RANGE 421MHz – 512 MHz
t_1 (ms)	5 ms	10 ms
t_2 (ms)	20 ms	25 ms
t_3 (ms)	5 ms	10 ms

TRANSIENT FREQUENCY BEHAVIOUR

SPECIFICATION: FCC 47 CFR 90.214

Tx FREQUENCY: 440.0375 MHz 5 W 12.5 kHz Channel Spacing



TEST EQUIPMENT USED

No#	Equipment	Manufacturer	Model No	Serial No#	Tait ID	Cal Due
5	Signal Generator	Rohde & Schwarz	SMY01 1062.5502.11	841736/019	E3553	06-Nov-05
22	Oscilloscope	Tektronics	TDS340	B013611	E3585	06-Nov-05
62	RF Attenuator 150W	Weinschel	57-10-34	LB590	E3674	08-Nov-05
63	RF Attenuator 150W	Weinschel	40-06-34	KV457	E3561	07-Nov-05
65	RF Attenuator 50W	Weinschel	24-20-44	AW1266	E3562	08-Nov-05
66	RF Attenuator 25W	Weinschel	33-20-33	BD5871	E3673	07-Nov-05
82	3m Coax Cable (BLUE)	Suhner	Sucoflex 104A	25033/4A	E3694	30-Nov-04
83	1m Coax Cable (BLUE)	Suhner	Sucoflex 104A	25006/4A	E3693	30-Nov-04
84	1m Coax Cable (BLUE)	Suhner	Sucoflex 104A	25005/4A	E3692	15-Jul-05
85	1m Coax Cable (BLUE)	Suhner	Sucoflex 104A	25004/4A	E3691	15-Jul-05
123	Spectrum Analyser	Agilent	E4445A	MY42510072	E4139	23-Apr-05

APPENDIX A

TEST SETUP DETAILS

All testing is performed using the Teltest **R**adio **E**VAuation system (TREVA), which is configured as shown below. The Spectrum Analyser is connected to the EUT via the attenuator network for Conducted Emissions testing, and Occupied Bandwidth.

