

Laboratory Test Report

For the

TPAK5A (762 MHz to 870 MHz) Handportable Transceiver

Tested In accordance with

FCC 47 CFR Parts 22 and 90

Report Revision: 1
Issue Date: 24-Apr-2007
FCC ID: CASTPAK5A

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Test Technician

CHECKED & APPROVED BY: Steve Crompton

Laboratory Manager



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

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REVISION HISTORY

Date	Revision	Comments
24-Apr-2007	1	Initial test report

INTRODUCTION

This *Class 2 Permissive Change* report adds Tait Simulcast Modulation (TSM) to the original test reports 2291 & 2468, and confirms the radio's performance for Occupied Bandwidth.

Type Approval Testing of the TPAB12-K500A (Serial No 21001856)
in accordance with:

FCC CFR 47 Parts 22 & 90

REPORT PREPARED FOR

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

DESCRIPTION OF SAMPLE

Equipment:	Handportable Transceiver
Type:	TPAK5A
Product code:	TPAB12-K500A
Serial Numbers:	21001856
Quantity:	1

STATEMENT OF COMPLIANCE

The TPAB12-K500A Handportable transceiver as tested in this report was found to conform to the following standards:

FCC CFR 47 Parts 22 & 90

TEST CONDITIONS

All testing was performed at the following conditions.

Ambient Temperature	15°C → 30°C
Relative Humidity	20% → 75%
Standard Test Voltage	7.5 V _{DC}

NECESSARY BANDWIDTH AND EMISSION DESIGNATORS

SPECIFICATION: FCC 47 CFR 2.202

The Necessary Bandwidth is the minimum value of the occupied bandwidth sufficient to ensure the transmission of information at the rate and with the quality required for the system employed.

99 % Bandwidth Measurement Results

795.9875 MHz		
Channel Spacing	Power	99% BW TSM
12.5 kHz	3W	6.10 kHz
12.5 kHz	1W	6.03 kHz

807.5500 MHz		
Channel Spacing	Power	99% BW TSM
12.5 kHz	3W	6.03 kHz
12.5 kHz	1W	6.06 kHz

TEST RESULTS

OCCUPIED BANDWIDTH

SPECIFICATION: FCC 47 CFR 2.1049 (c)

GUIDE: TIA/EIA-603C 2.2.11

MEASUREMENT PROCEDURE:

1. Refer Annex A for Equipment Set up.
2. For analogue measurements: The EUT was modulated by a 2500Hz tone at an input level 16dB above a level that produced 50% deviation. The input level was established at the frequency of maximum response of the audio modulating circuit.
For Data measurements: The EUT was modulated with an internally generated pseudo random bit sequence at the appropriate Baud rates.
3. The Occupied Bandwidth was measured on the Spectrum Analyser, with bandwidth settings as follows.

Emission Mask B – Resolution Bandwidth = 300 Hz, Video Bandwidth = 3 kHz

MEASUREMENT RESULTS:

See the plots on the following pages for 12.5 kHz channel spacing.

LIMIT CLAUSE: FCC 47 CFR 90.210

EMISSION MASKS

Emission Mask B 12.5 kHz Channel Spacing TSM

DATA SPEED

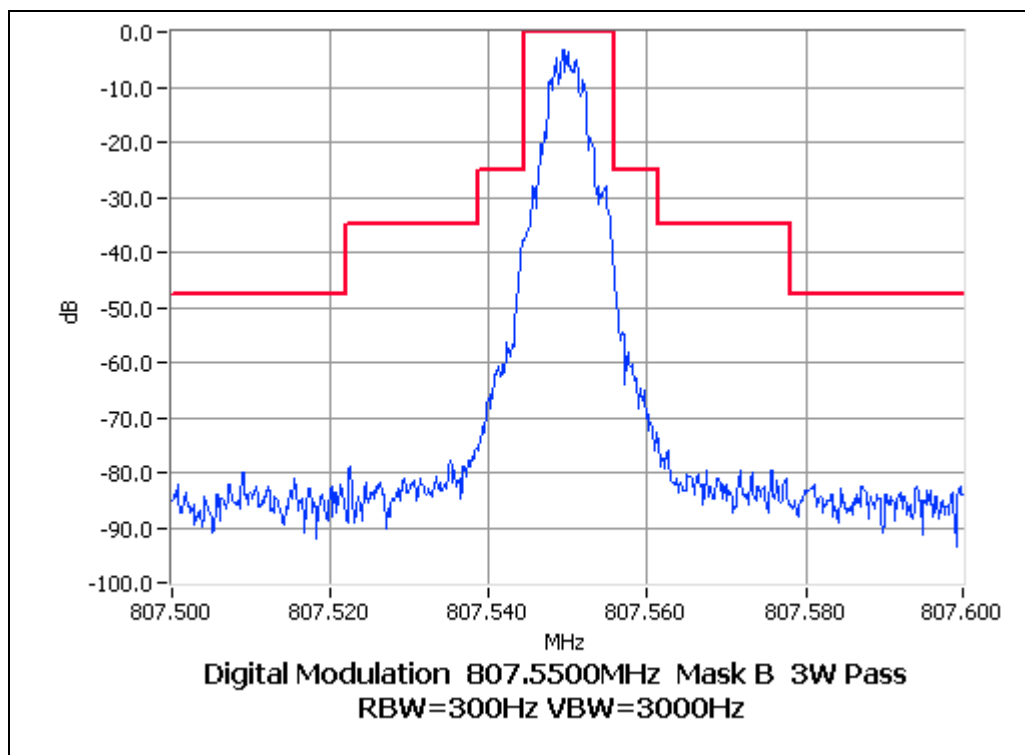
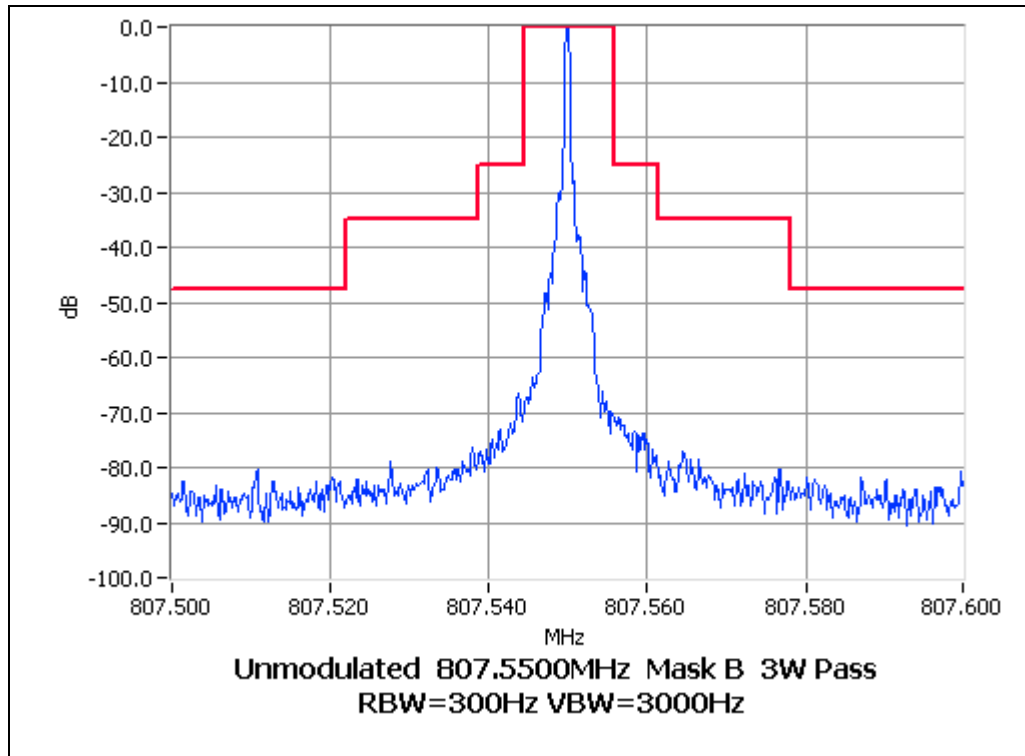
TSM 9600 bps 12.5 kHz & 25.0 kHz Channel Spacings.

OCCUPIED BANDWIDTH

TSM

SPECIFICATION: FCC CFR 2.1049 (c)

Tx FREQUENCY: 807.55 MHz 3 W 12.5 kHz Channel Spacing

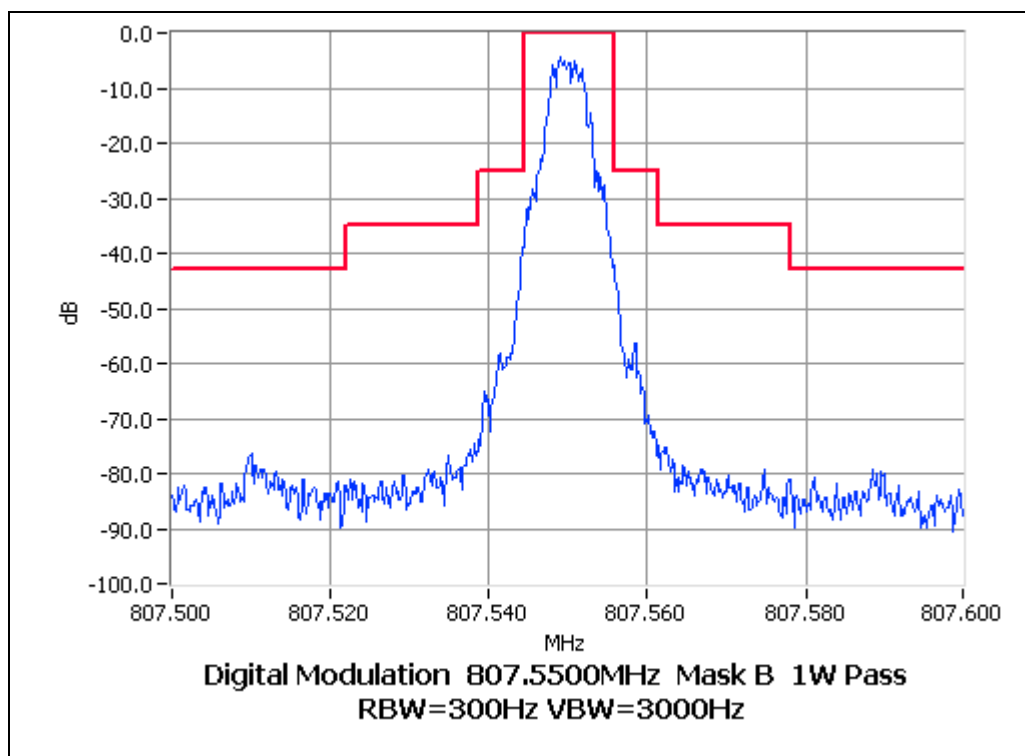
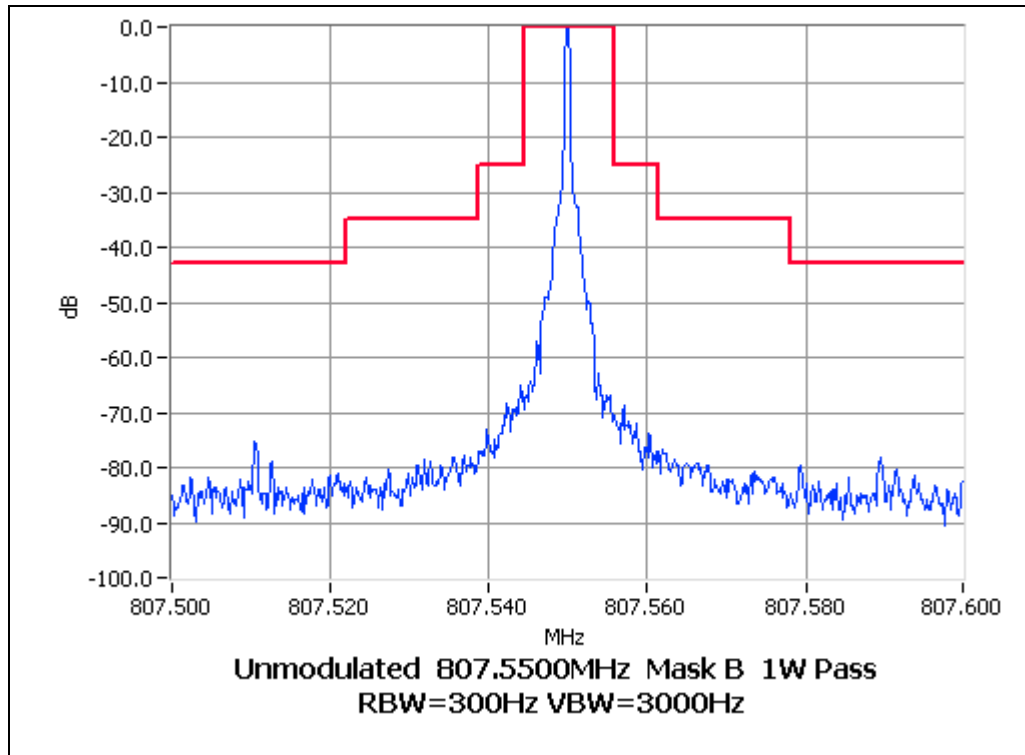


OCCUPIED BANDWIDTH

TSM

SPECIFICATION: FCC CFR 2.1049 (c)

Tx FREQUENCY: 807.55 MHz 1 W 12.5 kHz Channel Spacing



ADJACENT CHANNEL POWER

SPECIFICATION: FCC 47 CFR 90.543

MEASUREMENT PROCEDURE:

1. Refer Annex A for equipment set up.
2. The transmitter is modulated with the standard test pattern for TSM modulation.
3. The test is performed in accordance with 47 CFR 90.543

LIMIT CLAUSE: FCC 47 CFR 90.543

MEASUREMENT RESULTS:

TSM

Tx FREQUENCY: 795.9875 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP (dBc)
9.375 kHz	6.25 kHz	-47.33	-53.05	-40
15.625 kHz	6.25 kHz	-70.45	-71.17	-60
21.875 kHz	6.25 kHz	-73.33	-73.45	-60
37.5 kHz	25 kHz	-69.94	-70.01	-60
62.5 kHz	25 kHz	-73.37	-73.53	-65
87.5 kHz	25 kHz	-76.80	-77.08	-65
150 kHz	100 kHz	-73.91	-73.67	-65
250 kHz	100 kHz	-79.78	-79.72	-65
350 kHz	100 kHz	-83.53	-83.39	-65
>400 kHz to 12 MHz	30 kHz (swept)	-83.3	-82.5	-75
12 MHz to paired receive band	30 kHz (swept)	-87.5		-75
In the paired receive band	30 kHz (swept)	-102.0		-100

TEST EQUIPMENT USED

No#	Equipment	Manufacturer	Model No	Serial No#	Tait ID	Cal Due
			NGS M32/10			
21	Power Supply	Rohde & Schwarz	192.0810.31	Fnr 434	E3556	16-Oct-07
66	RF Attenuator 25W	Weinschel	33-20-33	BD5871	E3673	31-Oct-07
88	Spectrum Analyser	Hewlett Packard	HP8562E	3821A00779	E3715	31-Oct-07
123	Spectrum Analyser	Agilent	E4445A	MY42510072	E4139	04-Jul-07
137	1m Multiflex Cable	Suhner	MF141	TT007	E4443	30-Oct-07
138	1m Multiflex Cable	Suhner	MF141	TT086	E4444	30-Oct-07

ANNEX A

All other testing is performed using the Teltest Radio **EVAL**uation 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.

