Laboratory Test Report

For the

TMAH5E (400 MHz to 470 MHz) Mobile Transceiver

Tested In accordance with

FCC 47 CFR Parts 22 and 90

Report Revision: 1
Issue Date: 25-Jun-2007
FCC ID: CASTMAH5E

PREPARED BY: Robin Kidson _____
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

TABLE OF CONTENTS

REVISION HISTORY

Date	Revision	Comments
25-Jun-2007	1	Initial test report

INTRODUCTION

This *Class 2 Permissive Change* report adds Tait Simulcast Modulation (TSM) to the original test report 2092, and confirms the radio's performance for Occupied Bandwidth.

Type Approval Testing of the TMAB32-H500A (Serial No 19268266) 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: Mobile Transceiver
Type: TMAH5E
Product code: TMAB32-H500A
Serial Numbers: 19268266
Quantity: 1
Configuration Data:

Boot Code	QCA2B_std_1.01.00.0001
Hardware ID	TMAC40-0000_0004
Radio Application	QCA2F_A00_4.00.01.0005
FPGA Image	QCA2G_std_1.06.00.0001
Hardware ID	TMAB32-H500_0105
Boot Code	QMA3B_std_1.06.00.0004
DSP	QMA3A_A00_4.00.00.0005
Radio Application	QMA3F_A00_4.00.01.0005
FPGA Image	QMA3G_std_1.07.00.0001

STATEMENT OF COMPLIANCE

The TMAB32-H500A mobile 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	13.8 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

460.1 MHz

Channel Spacing	Power	99% BW TSM
12.5 kHz	25W	6.05 kHz
12.5 kHz	1W	6.03 kHz

Emission Designator: 6K10F1D

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 D – Resolution Bandwidth = 100Hz, Video Bandwidth = 1 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 D	12.5 kHz Channel Spacing	TSM

DATA SPEED

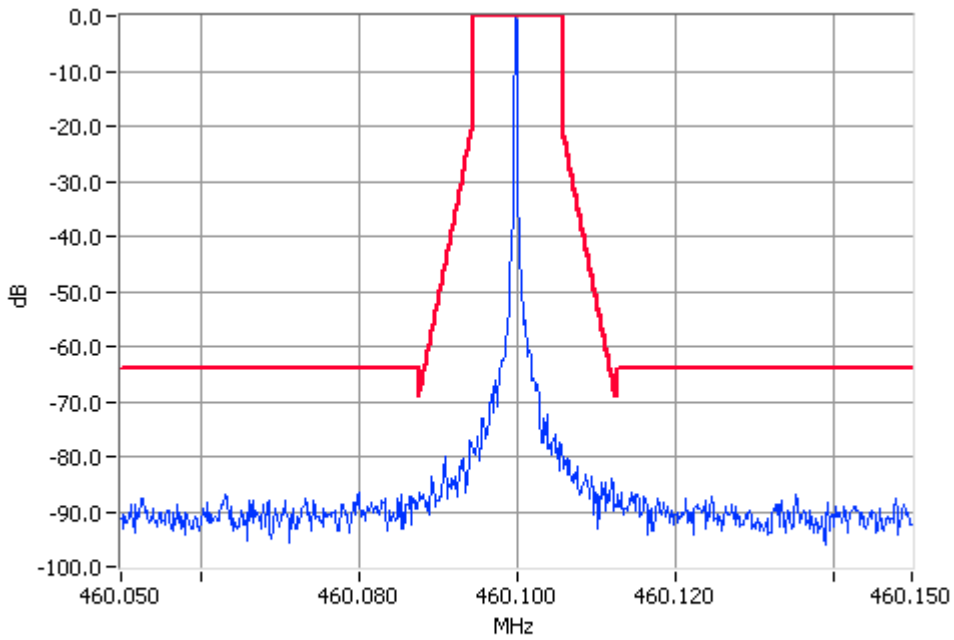
9600 bps	12.5 kHz Channel Spacing	TSM

OCCUPIED BANDWIDTH

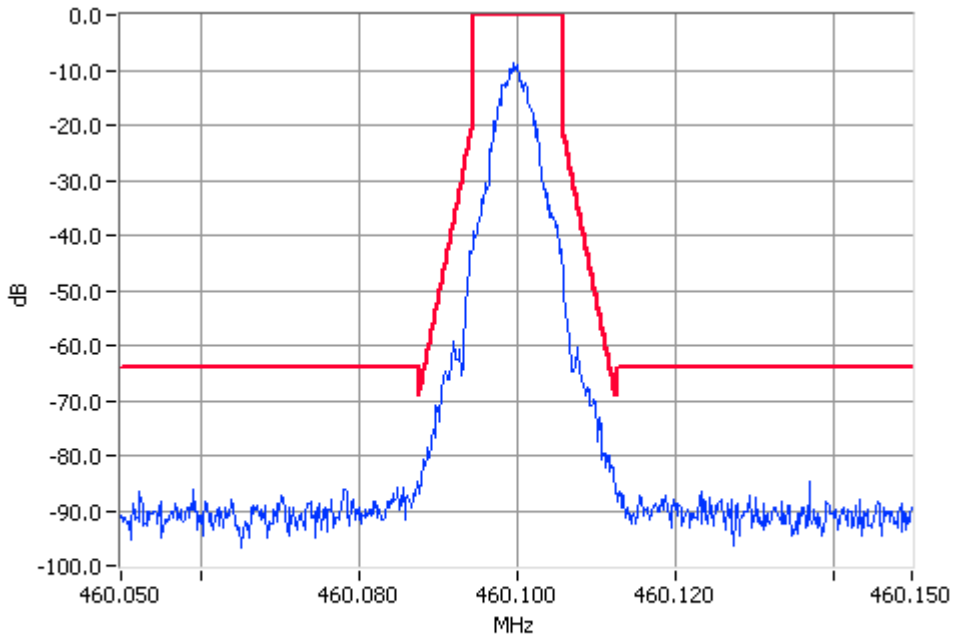
TSM

SPECIFICATION: FCC CFR 2.1049 (c)

Tx FREQUENCY: 460.1MHz 25 W 12.5 kHz Channel Spacing



Unmodulated 460.1000MHz Mask D 25W Pass
RBW=100Hz VBW=1000Hz



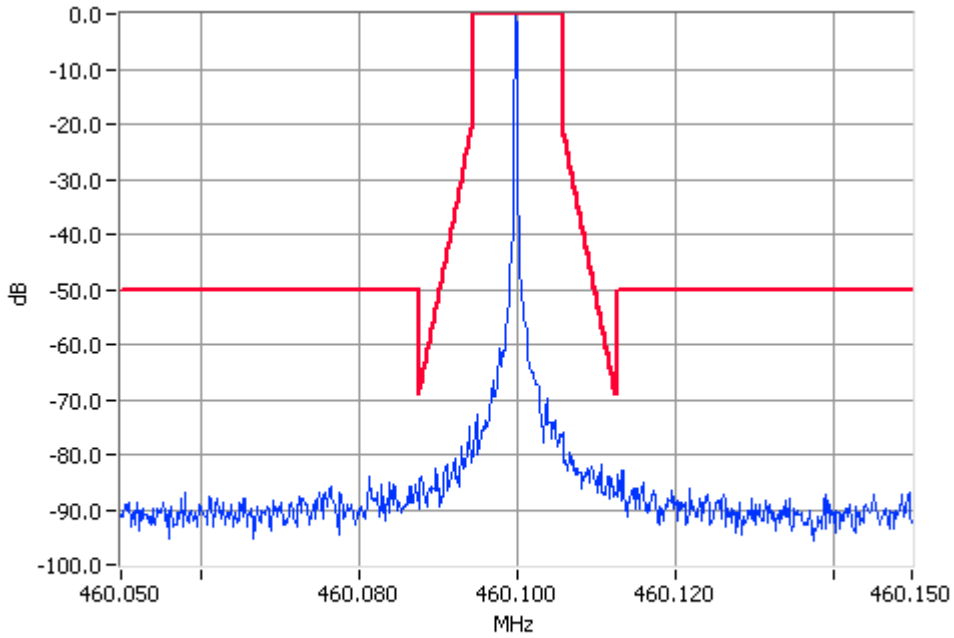
Digital Modulation 460.1000MHz Mask D 25W Pass
RBW=100Hz VBW=1000Hz

OCCUPIED BANDWIDTH

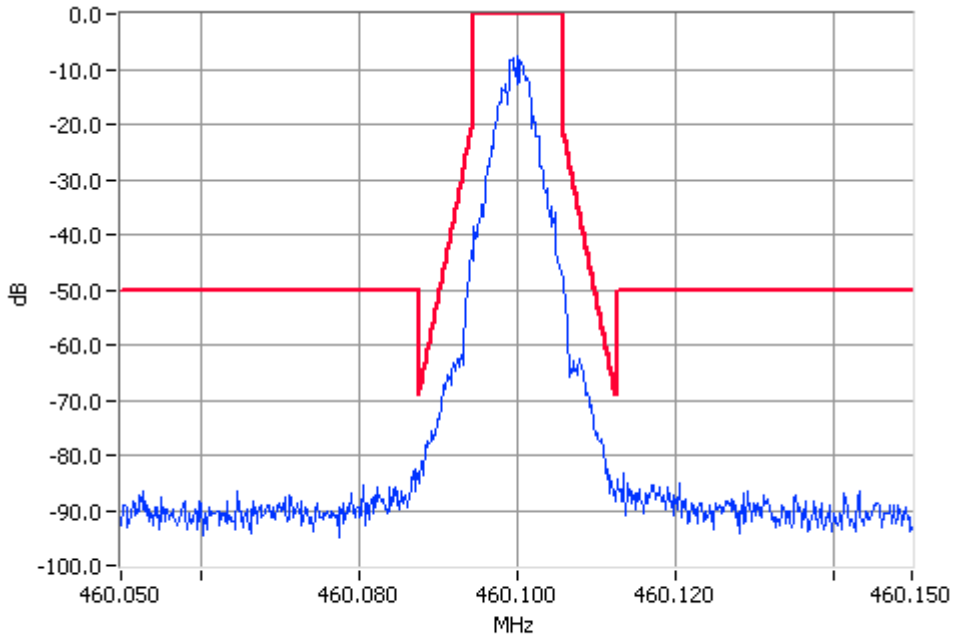
TSM

SPECIFICATION: FCC CFR 2.1049 (c)

Tx FREQUENCY: 460.1MHz 1 W 12.5 kHz Channel Spacing



Unmodulated 460.1000MHz Mask D 1W Pass
RBW=100Hz VBW=1000Hz



Digital Modulation 460.1000MHz Mask D 1W Pass
RBW=100Hz VBW=1000Hz

TEST EQUIPMENT USED

Equipment	Manufacturer	Model No	Serial No#	Tait ID	Cal Due
Power Supply	Rohde & Schwarz	NGS M32/10 192.0810.31	Fnr 434	E3556	16/10/2007
RF Attenuator	Weinschel	Model 1	BL9950	E4080	28/11/2007
RF Attenuator 150W Treva	Weinschel	40-20-23	MF817	E4082	30/10/2007
RF Splitter Combiner	Minicircuits	ZFSC-4-1	-	E4084	-
Spectrum Analyser	Agilent	E4445A	MY42510072	E4139	4/07/2007
1m Multiflex Cable	Suhner	MF141	TT007	E4443	30/10/2007
1m Multiflex Cable	Suhner	MF141	TT086	E4444	30/10/2007
Attenuator	Weinschel	67-30-33	BR0531	E4280	10/01/2008

ANNEX A

All other testing is performed using the **T**eltest **R**adio **EVA**luation 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.