

## Laboratory Test Report

For the

TMAH5F (400 MHz to 470 MHz) Mobile Transceiver

Tested In accordance with

FCC 47 CFR Parts 22 and 90

Report Revision: 1  
Issue Date: 19-June-2007  
FCC ID: CASTMAH5F

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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
19-June-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 SIDEBAND SPECTRUM.

Type Approval Testing of the TMAB34-H500B (Serial No 19255399)  
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: TMAH5F  
Product code: TMAB34-H500B  
Serial Numbers: 19255399  
Quantity: 1  
EUT SW Details:

Type	Code and Version	Status	Target Hardware	NTID
Boot Code	QCA2B_std_1.01.00.0001	OK	Head	2
Hardware ID	TMAC40-0000_0004	OK	Head	2
Radio				
Application	QCA2F_A00_4.00.01.0005	OK	Head	2
FPGA Image	QCA2G_std_1.06.00.0001	OK	Head	2
Hardware ID	TMAB34-H500_0103	OK	Torso	1
Boot Code	QMA3B_std_1.06.00.0004	OK	Torso	1
DSP	QMA3A_A00_4.00.00.0005	OK	Torso	1
Radio				
Application	QMA3F_A00_4.00.01.0005	OK	Torso	1
FPGA Image	QMA3G_std_1.07.00.0001	OK	Torso	1

## STATEMENT OF COMPLIANCE

The TMAB34-H500B 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 <sub>DC</sub>

## 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**

425.1 MHz		
Channel Spacing	Power	99% BW TSM
12.5 kHz	40 W	6.08 kHz
12.5 kHz	10 W	6.06 kHz

**Emission Designator:** 6K10F1D

## TEST RESULTS

### SIDEBAND SPECTRUM

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 Data measurements: The EUT was modulated with an internally generated pseudo random bit sequence at the appropriate Baud rates.
3. The sideband spectrum 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
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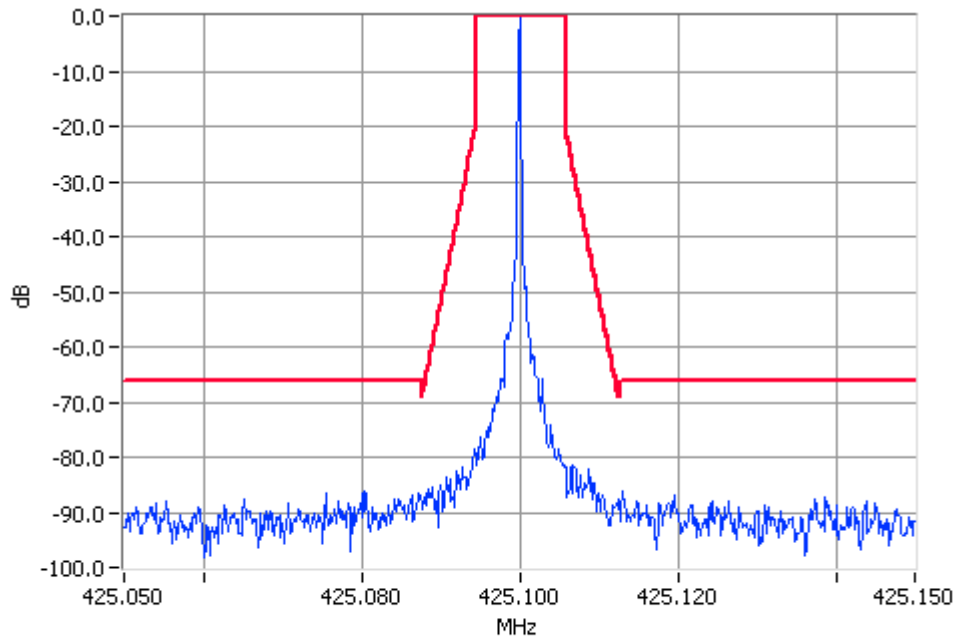
#### DATA SPEED

9600 bps	12.5 kHz Channel Spacing	TSM
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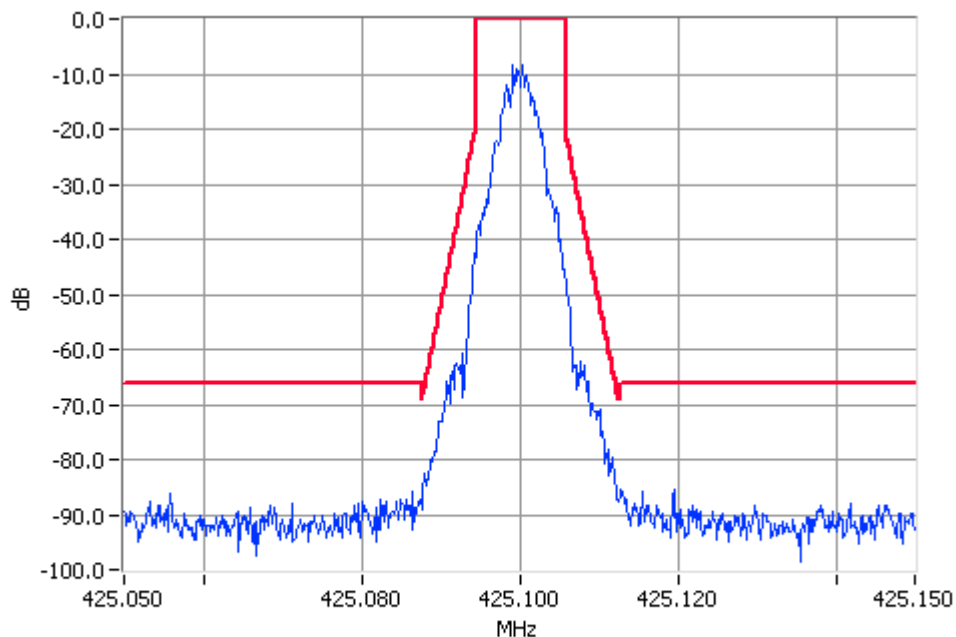
SIDEBAND SPECTRUM

TSM

SPECIFICATION: FCC CFR 2.1049 (c)  
Tx FREQUENCY: 425.1 MHz 40 W 12.5 kHz Channel Spacing



Unmodulated 425.1000MHz Mask D 40W Pass  
RBW=100Hz VBW=1000Hz

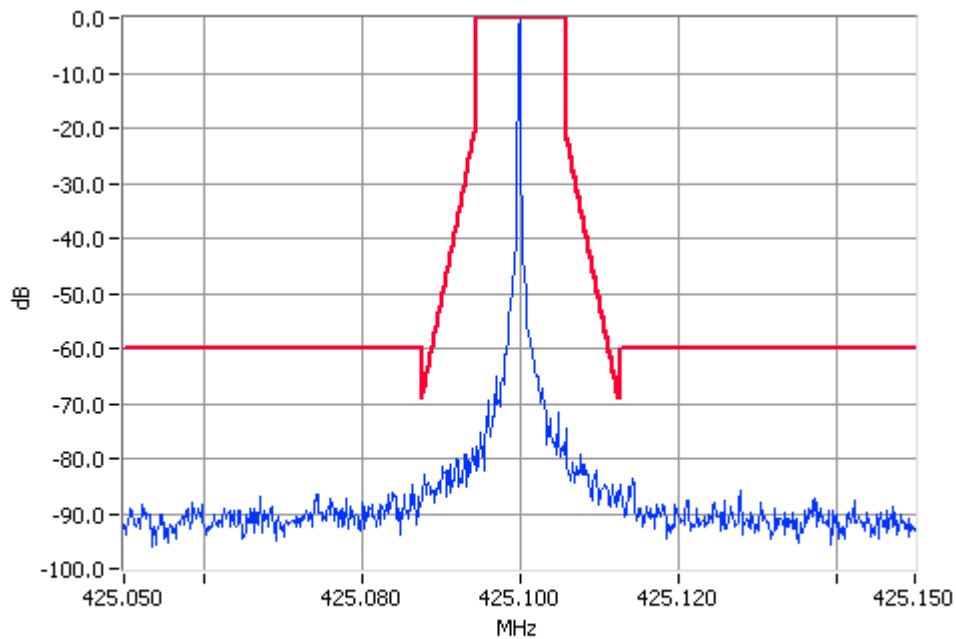


Digital Modulation 425.1000MHz Mask D 40W Pass  
RBW=100Hz VBW=1000Hz

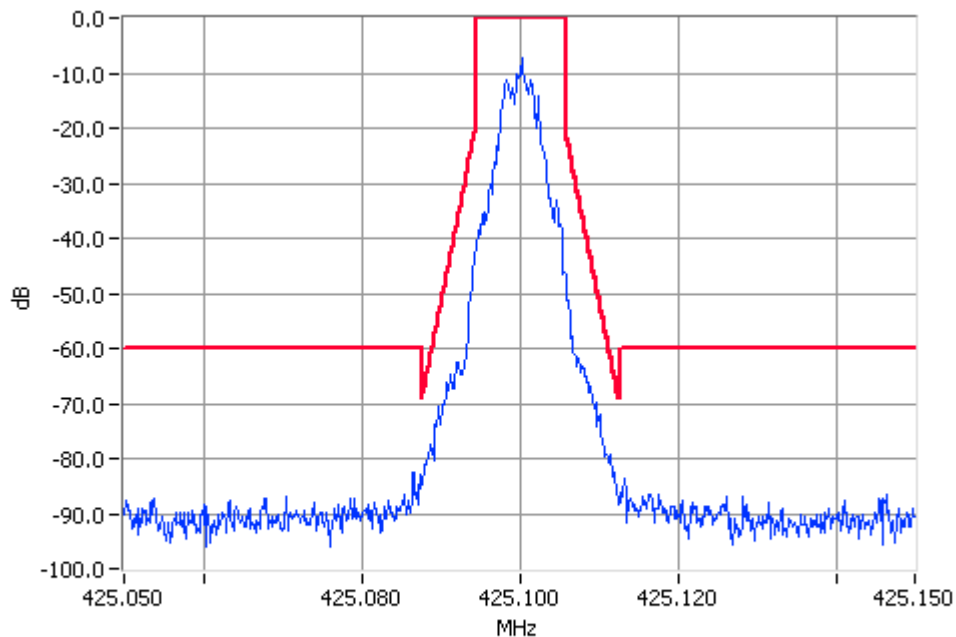
SIDEBAND SPECTRUM

TSM

SPECIFICATION: FCC CFR 2.1049 (c)  
Tx FREQUENCY: 425.1 MHz 10 W 12.5 kHz Channel Spacing



Unmodulated 425.1000MHz Mask D 10W Pass  
RBW=100Hz VBW=1000Hz



Digital Modulation 425.1000MHz Mask D 10W Pass  
RBW=100Hz VBW=1000Hz



**TEST EQUIPMENT USED**

<b>No#</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Serial No#</b>	<b>Tait ID</b>	<b>Cal Due</b>
20	Power Supply	Hewlett Packard	HP6032A	2441A00412	E3075	21-Nov-07
123	Spectrum Analyser	Agilent	E4445A	MY42510072	E4139	4-Jul-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 of TREVA instead of signal generator 3 for the sideband spectrum measurement.

