Laboratory Test Report

For the

TMAK5F Mobile Transceiver

Tested In accordance with

FCC 47 CFR Parts 22 and 90

Report Revision: 1
Issue Date: 29-May-2007
FCC ID: CASTMAK5F

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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
29-May-2007	1	Initial test report

INTRODUCTION

This *Class 2 Permissive Change* report adds Tait Simulcast Modulation (TSM) to the original test report 2559, and confirms the radio's performance for Occupied Bandwidth.

Type Approval Testing of the TMAB34-K500 (Serial No 19259585) in accordance with:

FCC CFR 47 Parts 22 & 90

REPORT PREPARED FOR

Tait Electronics Ltd
PO Box 1645
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Christchurch
New Zealand

DESCRIPTION OF SAMPLE

Equipment:	Mobile Transceiver	
Type:	TMAK5F	
Product code:	TMAB34-K500	
Serial Numbers:	19259585	
Quantity:	1	
Frequency range:	Transmit -	762 – 870 MHz
	Receive -	762 – 776 MHz
		850 – 870 MHz

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_1.07.00.0001
Hardware ID	TMAB34-K500_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 TMAB34-K500 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. The TMAB34-K500 Mobile transceiver has been tested against the following emission designator:

Emission designator (Tait Simulcast): **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 H – 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 H 12.5 kHz Channel Spacing TSM

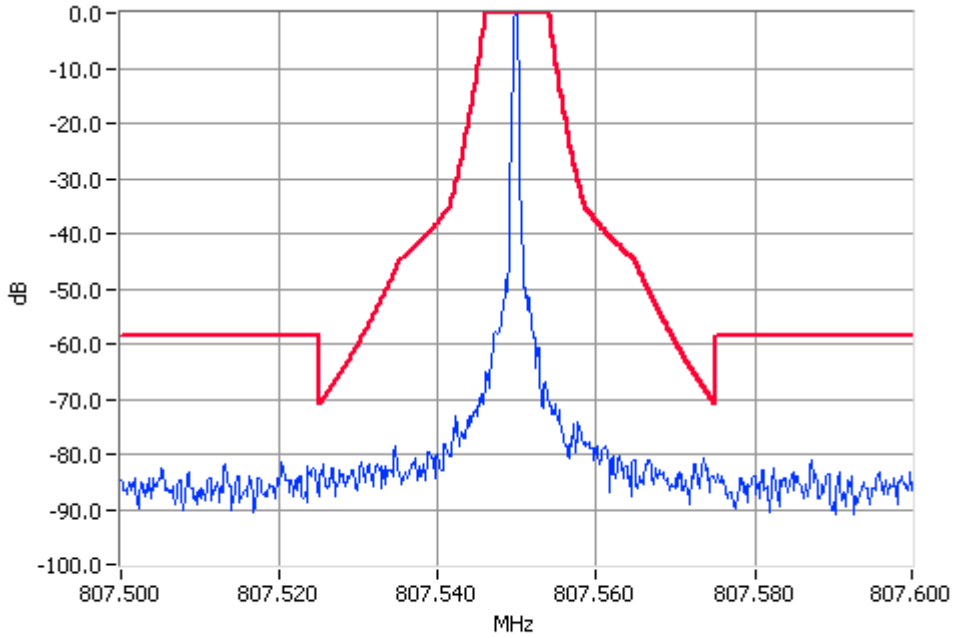
DATA SPEED
TSM 9600 bps 12.5 kHz Channel Spacings.

OCCUPIED BANDWIDTH

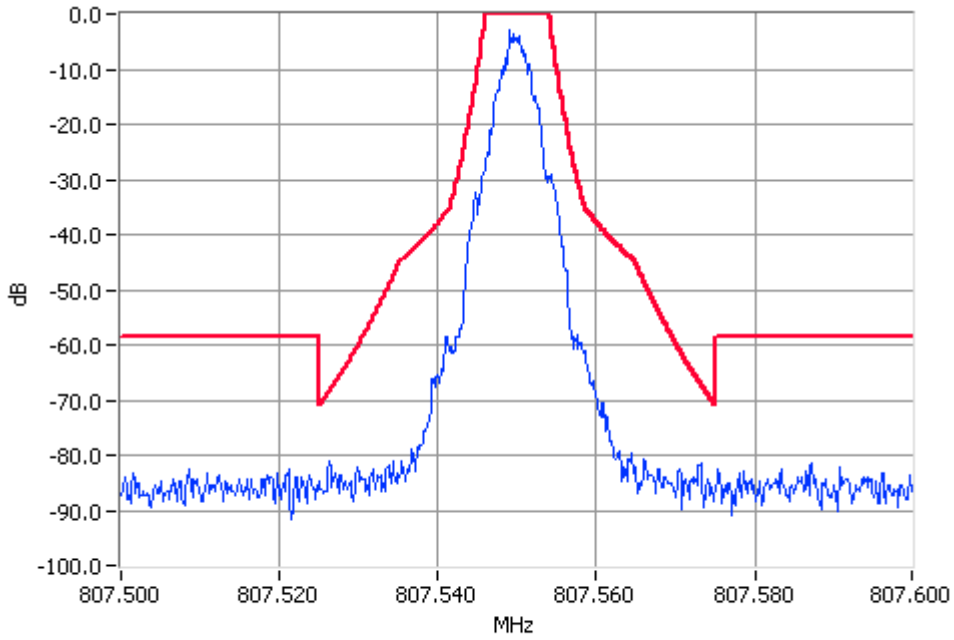
TSM

SPECIFICATION: FCC CFR 2.1049 (c)

Tx FREQUENCY: 807.55 MHz 35 W 12.5 kHz Channel Spacing



Unmodulated 807.5500MHz Mask H 35W Pass
RBW=300Hz VBW=3000Hz

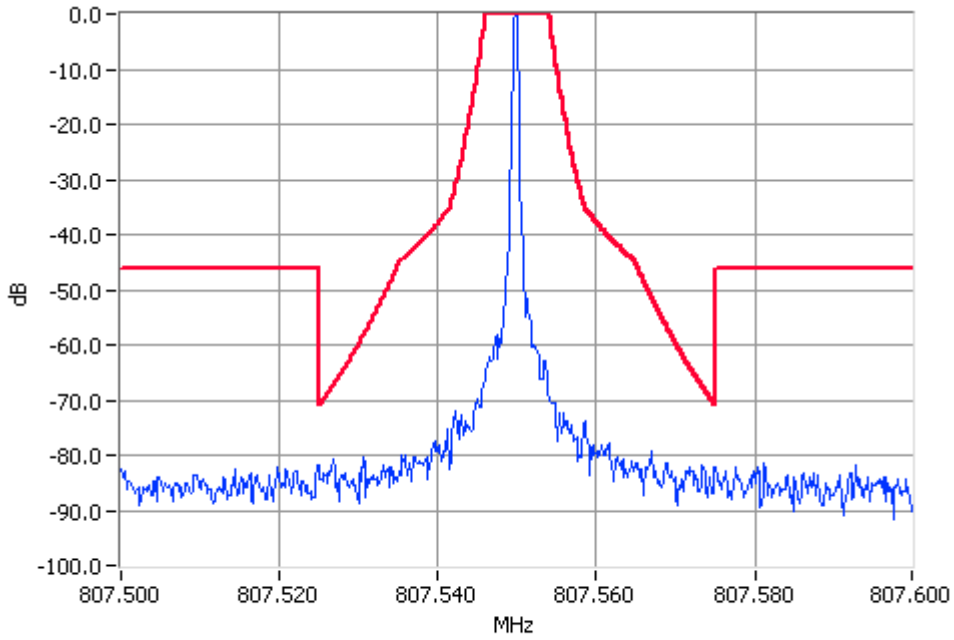


Digital Modulation 807.5500MHz Mask H 35W Pass
RBW=300Hz VBW=3000Hz

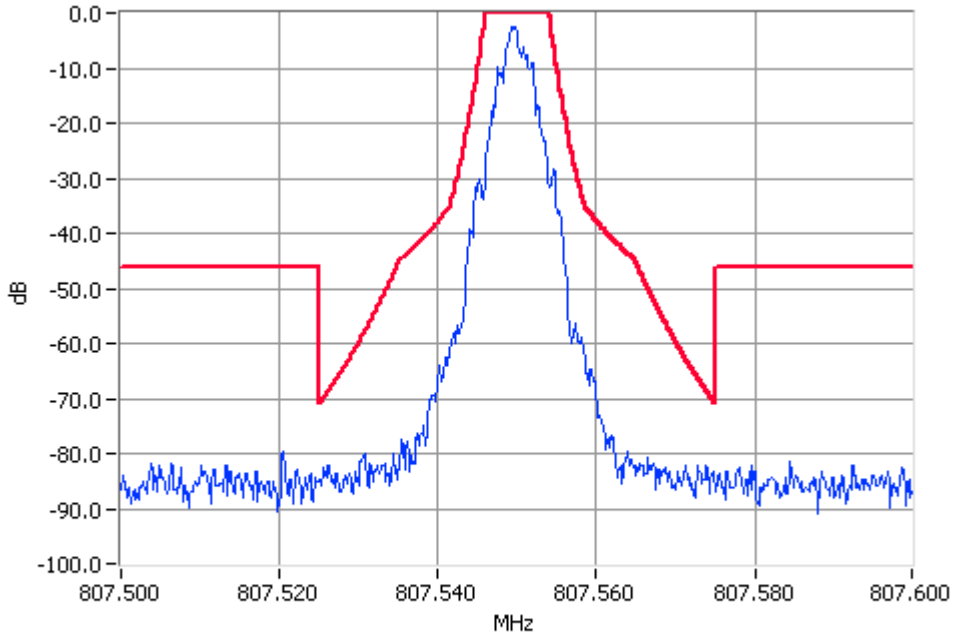
OCCUPIED BANDWIDTH

TSM

SPECIFICATION:	FCC CFR 2.1049 (c)		
Tx FREQUENCY:	807.55 MHz	2 W	12.5 kHz Channel Spacing



Unmodulated 807.5500MHz Mask H 2W Pass
RBW=300Hz VBW=3000Hz



Digital Modulation 807.5500MHz Mask H 2W Pass
RBW=300Hz VBW=3000Hz

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 30 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	-50.20	-52.65	-40
15.63 kHz	6.25 kHz	-72.01	-72.23	-60
21.88 kHz	6.25 kHz	-73.83	-74.18	-60
37.50kHz	25 kHz	-70.23	-70.44	-60
62.50 kHz	25 kHz	-73.83	-74.02	-65
87.50 kHz	25 kHz	-77.29	-77.47	-65
150 kHz	100 kHz	-73.57	-73.96	-65
250 kHz	100 kHz	-80.23	-80.01	-65
350 kHz	100 kHz	-84.29	-84.32	-65
>400 kHz to 12 MHz	30 kHz (swept)	-81.52	-85.01	-75
12 MHz to paired receive band	30 kHz (swept)	-88.22		-75
In the paired receive band	30 kHz (swept)	-101.20		-100

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	67-30-33	BR0531	E4280	10/01/2008
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
Spectrum Analyser	Hewlett Packard	HP8562E	3821A00779	E3715	31-Oct-07

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.