

KTL Test Report: 1R03567

Applicant: Mark IV Industries
6020 Ambler Drive
Mississauga, Ontario
L4W 2P1

**Equipment Under Test:
(E.U.T.)** FPT 2000 Transponder

FCC ID: JQU801090

In Accordance With: **FCC Part 90**

Tested By: KTL Ottawa Inc.
3325 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By:

G. Westwell, Technologist

Date:

Total Number of Pages: 15

EQUIPMENT: FPT 2000 Transponder
FCC ID: JQU801090

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EQUIPMENT: FPT 2000 Transponder
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Section 1. Summary of Test Results

General

All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 90.

New Submission

Production Unit

Class II Permissive Change

Pre-Production Unit

L	M	S
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Equipment Code

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.

See " Summary of Test Data".



NVLAP LAB CODE: 100351-0

TESTED BY: _____ DATE: _____
Russell Grant, Wireless Group Manager

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This report applies only to the items tested.

EQUIPMENT: FPT 2000 Transponder
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Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complies
Audio Frequency Response	2.1047	N/A (1)
Audio Low-Pass Filter Response	2.1047	N/A (1)
Modulation Limiting	2.1047	N/A (1)
Occupied Bandwidth	2.1049	Complies
Spurious Emissions at Antenna Terminals	2.1051	N/A (2)
Field Strength of Spurious Emissions	2.1053	Complies
Frequency Stability	2.1055	N/A (3)
Transient Frequency Behavior	—	N/A (4)

Footnotes For N/A's:

- (1) No voice processing.
- (2) This equipment uses an integral antenna.
See Radiated Emissions measurement data.
- (3) Non-Multilateration Transponder.
- (4) Fixed 915MHz.

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Section 2. General Equipment Specification

Frequency Range: 915 MHz Fixed

Primary Power: 3.6V Lithium Battery

Modulation: Pulse Width

Emission Designator: 6M0P1D
 6M0P0D

Rated RF Output Power: -9dBm

Antenna: Integral Antenna

This equipment uses RFM SAW or EPCOS SAW and MURATA Rx Filter or EPCOS Rx Filter. Measurements were made using both types of SAW and Rx Filter.

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Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Russell Grant	Date of Test: February 21, 2001
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Minimum Standard: N/A

Test Results: Complies.

Measurement Data: -9.5 dBm

EQUIPMENT: FPT 2000 Transponder
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Section 4. Occupied Bandwidth

Para. No.: 2.1049

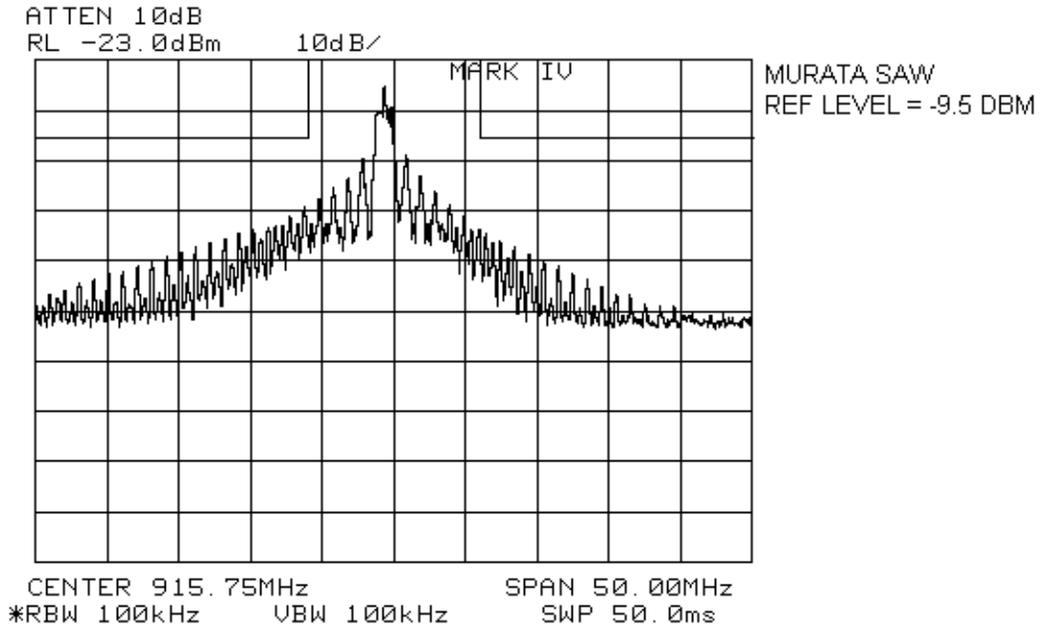
Test Performed By: Russell Grant	Date of Test: February 21, 2001
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Minimum Standard: Emission Mask (k)(3)

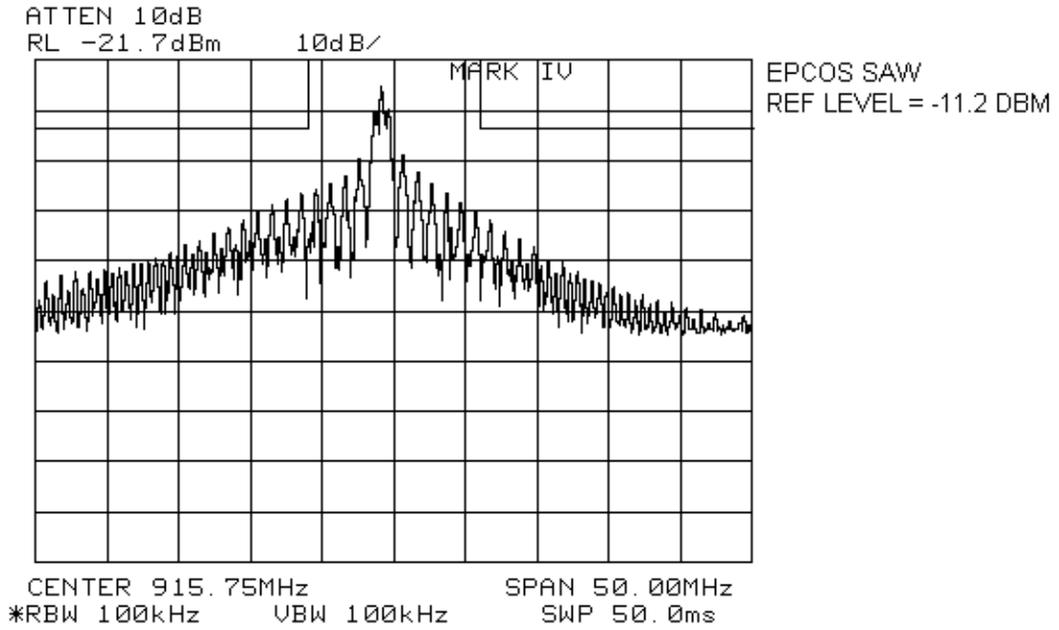
Test Results: Complies.

Measurement Data: See attached graphs.

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Section 5. Field Strength of Spurious Emissions

Para. No.: 2.1053

Test Performed By: Russell Grant	Date of Test: February 21, 2001
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Minimum Standard: Emission Mask (k)(3)

Test Results: Complies.

Measurement Data: The strongest emission is -30.1dBm at 2745MHz. This is 5.1dB below the specification limit.

EQUIPMENT: FPT 2000 Transponder
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RFM SAW MURATA RX Filter

Frequency of Emission (MHz)	Polarization	Received Signal (dBuV)	Conversion Factor (dBuV to dBm)	Emission Level (dBm)	Limit (dBm)	Margin (dB)
915	V	52.3	-64.9	-12.6		
915	H	57.7	-67.2	-9.5		
1830	V	86.0	-117.5	-31.5	-25.0	6.5
1830	H	84.0	-117.0	-33.0	-25.0	8.0
2745	V	88.0	-124.4	-36.4	-25.0	11.4
2745	H	92.0	-122.1	-30.1	-25.0	5.1
3660	V	75.0	-117.7	-42.7	-25.0	17.7
3660	H	70.0	-120.0	-50.0	-25.0	25.0
4575	V	69.0	-114.1	-45.1	-25.0	20.1
4575	H	62.0	-112.6	-50.6	-25.0	25.6
5490	V	53.0	-110.6	-57.6	-25.0	32.6
5490	H	55.0	-107.8	-52.8	-25.0	27.8

All emissions measured in 100 kHz RBW except for 915 MHz emission measured in 2 MHz RBW

The spectrum was searched up to the 10 th harmonic of the fundamental frequency of operation and all emissions within 20 dB of the specification limit where measured and reported.

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EPCOS SAW EPCOS RX Filter

Frequency of Emission (MHz)	Polarization	Received Signal (dBuV)	Conversion Factor (dBuV to dBm)	Emission Level (dBm)	Limit (dBm)	Margin (dB)
915	V	50.3	-64.9	-14.6		
915	H	56.0	-67.2	-11.2		
1830	V	80.0	-117.5	-37.5	-25.0	12.5
1830	H	81.0	-117.0	-36.0	-25.0	11.0
2745	V	83.0	-124.4	-41.4	-25.0	16.4
2745	H	82.0	-122.1	-40.1	-25.0	15.1
3660	V	67.0	-117.7	-50.7	-25.0	25.7
3660	H	62.0	-120.0	-58.0	-25.0	33.0

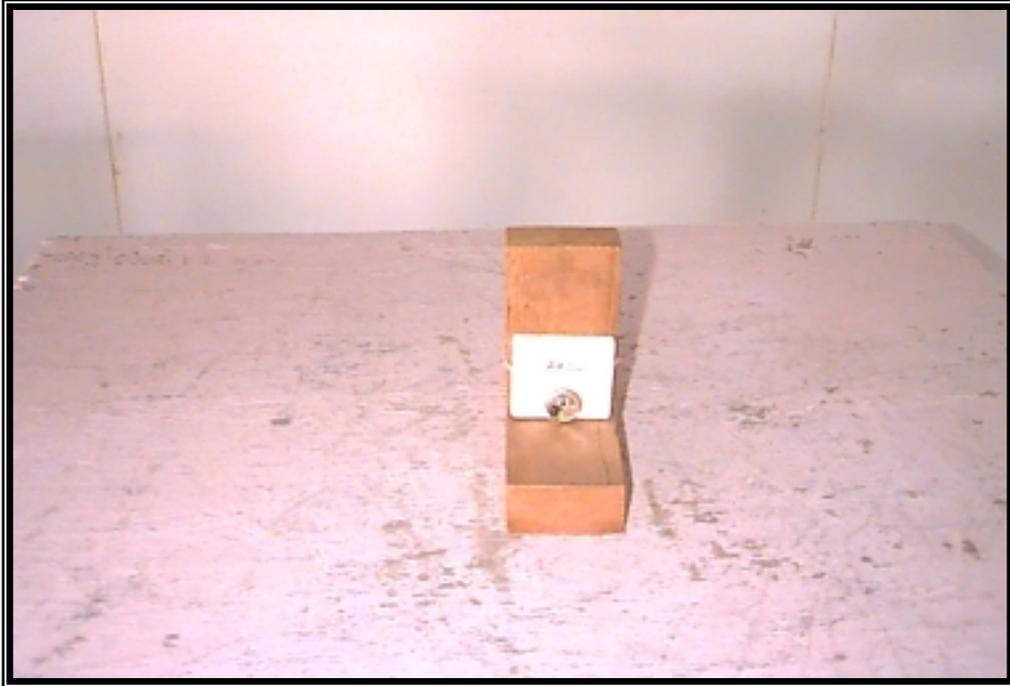
All emissions measured in 100 kHz RBW except for 915 MHz emission measured in 2 MHz RBW

The spectrum was searched up to the 10 th harmonic of the fundamental frequency of operation and all emissions within 20 dB of the specification limit where measured

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Radiated Photographs (Worst Case Configuration)

Front View



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Section 6. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	June 16/00	June 16/01
1 Year	Horn Antenna	EMCO #2	3115	4336	Dec. 1/00	Dec. 1/01
1 Year	Biconical (1) Antenna	EMCO	3109	9204-2708	Aug. 10/00	Aug. 10/01
1 Year	RF AMP	JCA	2-4 GHz	FA001496	May 31/00	May 31/01
1 Year	RF AMP	JCA	1-2 GHz	FA001498	May 31/00	May 31/01
1 Year	RF AMP	JCA	4-8 GHz	FA001497	May 31/00	May 31/01

NA: Not Applicable
NCR: No Cal Required
COU: CAL On Use

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Section 7. Test Diagrams

Para. No. 2.1053 - Field Strength of Spurious Radiation

