



Test Report: 4W32889

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

**Equipment Under Test:
(EUT)** Mark IV, G3B-FPT Transponder
915.00MHz

FCC ID. JQU801350

In Accordance With: FCC Part 90, Subpart M
915 MHz, LMS Systems

Tested By: Nemko Canada Inc.
303 River Road, R.R. 5
Ottawa, Ontario K1V 1H2

Authorized By: 
Sim Jagpal, General Manager

Date: 25 November 2004

Total Number of Pages: 14

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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

Engineering Evaluation

Pre-Production Unit

T	N	B
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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".



TESTED BY: _____ DATE: 25 November 2004
Glen Westwell, Wireless Specialist

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This report applies only to the items tested.

Summary Of Test Data

Name Of Test	Para. No.	Result
RF Power Output	2.1046	Complies
Occupied Bandwidth	2.1049	Complies
Spurious Emissions at Antenna Terminals	2.1051	N/A(1)
Field Strength of Spurious Emissions	2.1053	Complies
Frequency Stability	2.1055	N/A(2)

Notes:

This Radio Module device is used in the 902-928MHz band for non-multilateration mobile transponder, LMS operations.

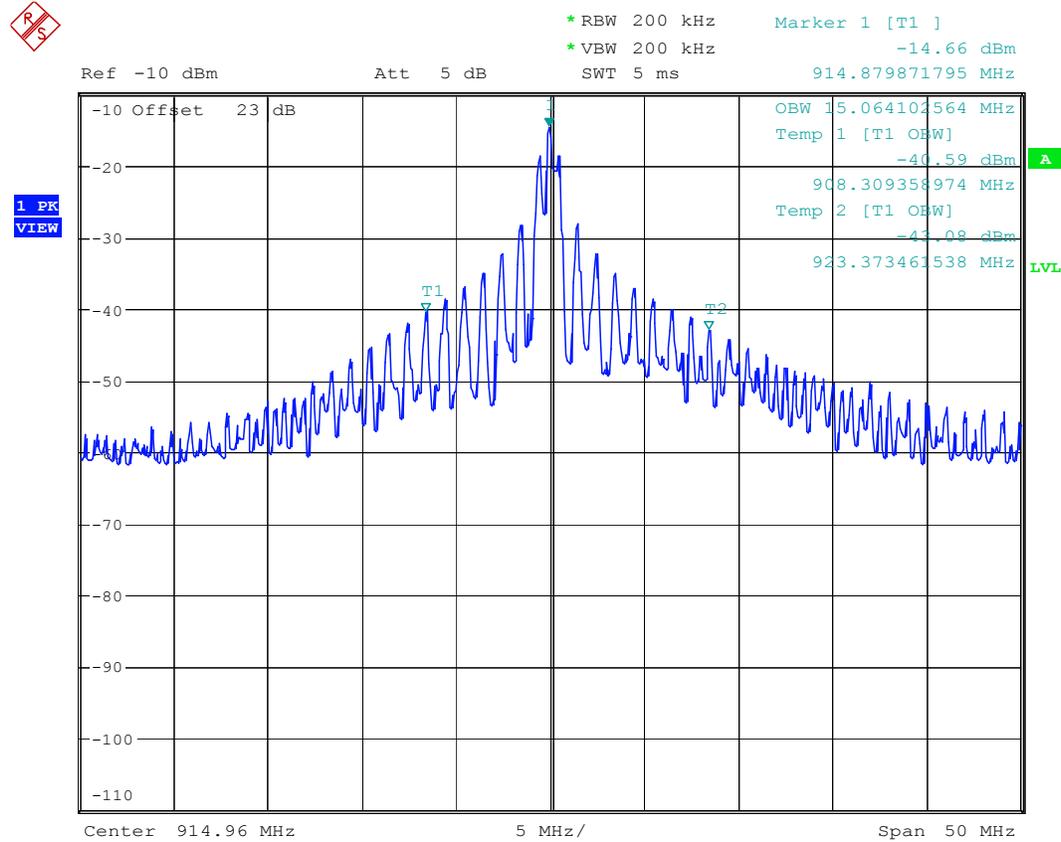
1. This device has an integral antenna.
2. This device is exempt from the frequency stability requirement for mobile transponders.

Indoor Temperature: 22°C
 Humidity: 42%

Outdoor Temperature: 1°C
 Humidity: 48%

Mark IV, G3B-FPT Transponder

99% OBW



OCC BW

Date: 17.NOV.2004 14:17:45

Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: Glen Westwell	Date of Test: 4 Nov. 2004
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Minimum Standard: 90.205

Test Results: See below

The RF power output is calculated based on the measured electric field strength measured at 3m. See section 5 for the signal substitution value.

Measurement Data: Maximum radiated output power at 915MHz at 3m:
60.7dBuV + 28.5dB(Ant. Fact.) =89.2dBuV/m

E.R.P. (W) = $V^2R^2/30 \times 1.64$
E.R.P. = -8.2dBm (0.00015W)
Signal Substitution = -10dBm (0.0001W)

Mark IV, G3B-FPT Transponder

Section 4. Occupied Bandwidth

Para. No.: 2.1049

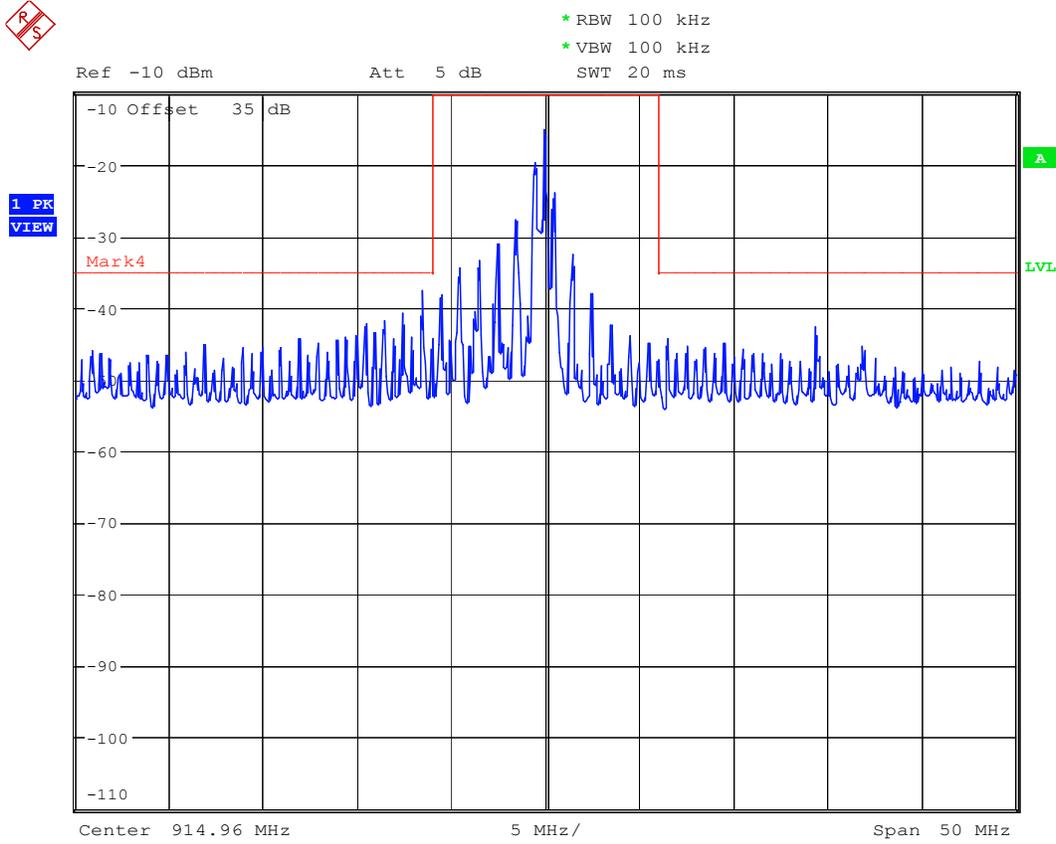
Test Performed By: Glen Westwell	Date of Test: 5 Nov. 2004
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Minimum Standard: 90.210

Test Results: Complies.

Measurement Data: See attached data.

Mark IV, G3B-FPT Transponder



OCC BW

Date: 17.NOV.2004 13:41:32

Section 5. Field Strength of Spurious Emissions

Para. No.: 2.1053

Test Performed By: Glen Westwell	Date of Test: 5 Nov. 2004
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Minimum Standard: 90.210, -25dBm

Test Results: Complies.

Measurement Data: See attached data.

This EUT was searched on 3 orthogonal axis for maximum emissions from 30MHz to 10GHz. Only those emissions detected with in 20dB of the limit were reported.

Mark IV, G3B-FPT Transponder

Radiated Emissions

Test Date: 4 Nov. 2004											
Engineer's Name: Glen Westwell											
Receiver: 8565E						Signal Substitution: Ottawa Facility, Range 1@3m.					
Freq. (MHz)	Ant.	Pol. V/H	RCVD Signal (dBµV)	EUT	Sig. Sub. Factor		Emission Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Amp.
915.0000	ED4	V	55.8		-70.5		-14.7			Peak	
915.0000	ED4	H	60.7		-70.7		-10.0			Peak	
1830.0000	Horn1	V	70.8		-116.4		-45.6	-25.0	20.6	Peak	1-2GHz
1830.0000	Horn1	H	69.5		-116.4		-46.9	-25.0	21.9	Peak	1-2GHz
2745.0000	Horn1	V	75.2		-123.1		-47.9	-25.0	22.9	Peak	2-4GHz
2745.0000	Horn1	H	75.5		-124.0		-48.5	-25.0	23.5	Peak	2-4GHz
3660.0000	Horn1	V	76.8		-117.3		-40.5	-25.0	15.5	Peak	2-4GHz
3660.0000	Horn1	H	76.8		-119.9		-43.1	-25.0	18.1	Peak	2-4GHz
4575.0000	Horn1	V	66.3		-112.1		-45.8	-25.0	20.8	Peak	4-8GHz
4575.0000	Horn1	H	65.1		-113.1		-48.0	-25.0	23.0	Peak	4-8GHz
5490.0000	Horn1	V	50.8		-108.8		-58.0	-25.0	33.0	Peak	4-8GHz
5490.0000	Horn1	H	52.4		-107.9		-55.5	-25.0	30.5	Peak	4-8GHz
Note 1: Antenna Legend: BC = Biconical, BL = Bilog, LP = Log-Periodic, Horn = Horn, ED = EMCO Dipole											
Note 2: Detector Legend: Q-Peak = 120 kHz RBW, Average = 1.0 MHz RBW											
Notes:		Spurious and harmonic emissions were searched to the 10 th harmonic.									
		2MHz RBW - Fundamental									
		100kHz RBW – Spurious & Harmonics.									

Mark IV, G3B-FPT Transponder

Radiated Test Set up



Mark IV, G3B-FPT Transponder

Section 6. Test Equipment List

CAL CYCLE	EQUIPMENT	MANUFACTURER	MODEL	SERIAL	LAST CAL.	NEXT CAL.
1 Year	Spectrum Analyzer	Hewlett Packard	8565E	FA000981	31 May 04	31 May 05
1 Year	Spectrum Analyzer	Rhode & Schwarz	FSU46	FA001877	26 May 04	26 May 05
1 Year	Horn Antenna	EMCO #1	3115	FA000649	18 Dec 03	18 Dec 04
1 Year	Dipole Antenna Set	EMCO #1	3121C	FA000814	April 21/04	April 21/05
1 Year	Notch Filter (High Pass)	K&L	3DH1-2000	FA001434	COU	COU
1 Year	RF AMP	JCA	4-8 GHz	FA001497	18 June 04	18 June 05
1 Year	RF AMP	JCA	2-4 GHz	FA001496	18 June 04	18 June 05
1 Year	RF AMP	JCA	1-2 GHz	FA001498	18 June 04	18 June 05
1 Year	Spectrum Analyzer	Hewlett-Packard	8566B	FA001309	May 28/04	May 28/05
1 Year	Spectrum Analyzer Display	Hewlett-Packard	85662A	FA001309	May 28/04	May 28/05
NCR	Bilog	Schaffner	CBL6112B	FA001504	NCR	NCR

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

Section 7. Test Diagrams

Para. No. 2.1053 - Field Strength of Spurious Radiation

TIA/EIA 603

Effective Radiated Power
Spurious Emissions

