Nemko USA, Inc.
11696 Sorrento Valley Rd., Suite F
San Diego, CA 92121-1024
Phone (858) 755-5525 Fax (858) 452-1810

Test Report:	2007 118345 Real Amp FCC
Project number:	8345-2
Applicant:	**Dymond Modelsport Ltd.** **904 Convoy St. #110-111** **San Deigo, CA 92111**
Equipment Under Test (EUT):	Measuring POD
Model:	RA916TX
In Accordance With:	FCC Part 15 Subpart C, 15.249
FCC ID#	VTURA916TX
Tested By:	Nemko USA Inc. 11696 Sorrento Valley Road, Suite F San Diego, CA 92121
Authorized By:	Alan Laudani, RF/EMC Test Specialist
Date:	NOVEMBER 29, 2007
Total Number of Pages:	15

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 Part 15; Subpart C. Radiated tests were conducted is accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

The assessment summary is as follows:

Apparatus Assessed: Measuring POD
Model RA916TX

Specification: FCC Part 15 Subpart C, 15.249

Compliance Status: Complies

Exclusions: None

Non-compliances: None

Report Release History:

REVISION	DATE	COMMENTS
-	November 29, 2007	Prepared By: Ferdinand S. Custodio
-	November 29, 2007	Initial Release: Alan Laudani

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

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TESTED BY: _____ Date: November 29, 2007
Ferdinand S. Custodio, EMC Test Engineer

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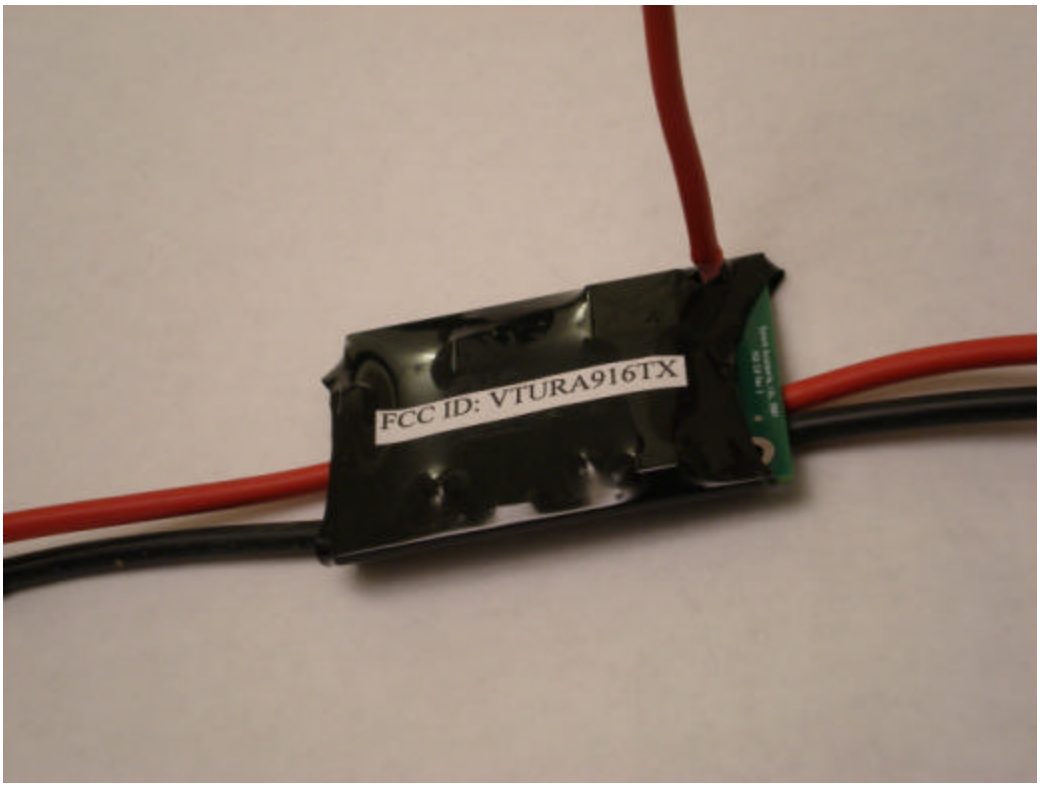
Section 2: Equipment Under Test

2.1 Product Identification

The Equipment Under Test for compliance with FCC Part 15.249 was identified as follows:



EUT: Measuring POD
Model: RA916TX

Engineering sample

2.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

2.3 Theory of Operation

The RA916TX is a Measuring POD to be used in various remote control models such as cars, airplanes and boats when the battery life parameters are monitored. It is a single channel radio transmitter at 916.48 MHz and was exercised by fully powering on the unit with a fresh charged battery and the output and spurious emissions verified by a Spectrum Analyser. All connectors were populated, the load with a light bulb and a typical remote control radio receiver. Data from the transmitter is received and displayed on a non-transmitting Display Unit. Data consists of the battery voltage and current use.

Highest frequency generated or used: 916.48 GHz.

2.4 Technical Specifications of the EUT

Manufacturer:	**Dymond Modelsport Ltd.**
Operating Frequency:	916.48 MHz in the 902--928 MHz Band
Measured Power:	35 uW or 68.9 dBuV/m @ 3m
Modulation:	FSK
Type of Receiver:	NA
Antenna Data:	¼ wave wire
Antenna Connector:	NONE
Power Source:	Various Batteries from 5 to 50 VDC, internal 3.3 V regulation

Section 3: Test Conditions

3.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.249
Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0-24.25 GHz bands.

3.2 Deviations From Laboratory Test Procedures

No deviations from Laboratory Test Procedure

3.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	16 – 20 ^{o}C
Humidity range	:	60-66 %
Pressure range	:	86 - 106 kPa
Power supply range	:	+/- 5% of rated voltages

3.4 Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
110	Antenna, LPA	Electrometrics	LPA-25	1217	12/18/2006	12/18/07
114	Antenna, Bicon	EMCO	3104	2997	12/20/2006	12/20/07
317	Preamplifier	HP	8449A	2749A00167	2/9/2007	02/09/08
529	Antenna, DRWG	EMCO	3115	2505	8/27/2007	08/27/08
898	EMI Receiver	HP	8546A	3625A00348	1/18/07	1/18/08
899	RF Filter Section	HP	85460A	3448A00288	1/18/07	1/18/08

Section 4: Observations

4.1 Modifications Performed During Assessment

No modifications were performed during assessment.

4.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

4.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

4.4 Tests Deleted

No Tests were deleted from this assessment.

4.5 Additional Observations

There were no additional observations made during this assessment.

Section 5: Results Summary

This section contains the following:

FCC Part 15 Subpart C: Test Results.

The column headed "Required" indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N No: not applicable / not relevant
Y Yes: Mandatory i.e. the apparatus shall conform to these test.
N/T Not Tested, mandatory but not assessed. (See section 4.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

5.1 FCC Part 15 Subpart C Test Results

Part 15	Test Description	Required	Result
15.207 (a)	Power line Conducted Emissions	N[1]	
15.209 (a)	Radiated Emissions within Restricted Bands	Y	Pass
15.215 (c)	Occupied Bandwidth	Y	Pass
15.249 (a)	Radiated Emissions not in Restricted Bands	Y	Pass
15.249 (b)	Operation in the 902--928 MHZ Band	N	
15.249 (d)	Spurious Emissions (except Harmonics)	Y	Pass
15.107 (a)	Receiver Spurious Emissions	N[2]	

Notes:

1 EUT does not operate directly or indirectly from the public utility AC power supply
2Receiver Spurious Emissions for the data transmitter do not apply as there is no "Receive" or "Standby" mode.

Appendix A: Test Results

Clause 15.209(a) Radiated Emissions within Restricted Bands

(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (uV/meter)	Measurement Distance (meter)
0.009-0.490	2400/F (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	3
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Clause 15.249(a) Radiated Emissions

Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency (MHz)	Field strength of fundamental (mV/meter)	Field strength of harmonics (uV/meter)
902-928	**50**	**500**
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

Clause 15.249(d) Spurious Emissions (except Harmonics)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Sec. 15.209, whichever is the lesser attenuation.

Test Conditions:

Sample Number:		**Temperature:**	18°C
Date:	November 3, 2007	**Humidity:**	65
Modification State:		**Tester:**	Chip Fleury
		Laboratory:	SOATS

Test Results:

See Table. EUT complies for fundamental power, bandedges and spurious emissions.

Additional Observations:

The Spectrum was searched from 30MHz to the 10th Harmonic (9200 MHz).

These results apply to emissions that may be found in the restricted bands defined in FCC Part 15 Subpart C, 15.205. The EUT was measured on three orthogonal axes with the highest emissions presented. The EUT was tested with a freshly charged 50 VDC battery. Internal regulation is 3.3 VDC.

All Measurements below 1GHz were performed at 3m employing a CISPR quasi-peak detector, except for the radio's fundamental. Peak measurements above 1GHz were done utilizing RBW of 1MHz and VBW of 3MHz. Average measurements above 1GHz were done utilizing RBW of 1MHz and VBW of 3MHz, reading Peak and added duty cycle factor. Duty cycle factor was determined by measuring "on" time over 100 ms.

Note: *Corrected Reading Computations*
Average = Maximum Meter Reading + Duty Cycle Factor + Antenna Factor + Path Loss – RF Gain (Preamp)
= 63.0 +(-16.5) + 26.3 + 4.9 – 30.0
= 47.7

Rated Power Calculations:

Limit = 50 mV/m
Corrected Peak Reading = 85.4 dBuV/m
Average = 85.4 + (-16.5) = 68.9 dBuV/m
$10^{((68.9-120)/20)}$ *= 0.00278V/m, or 2.78 mV/m*

Radiated Emissions Data

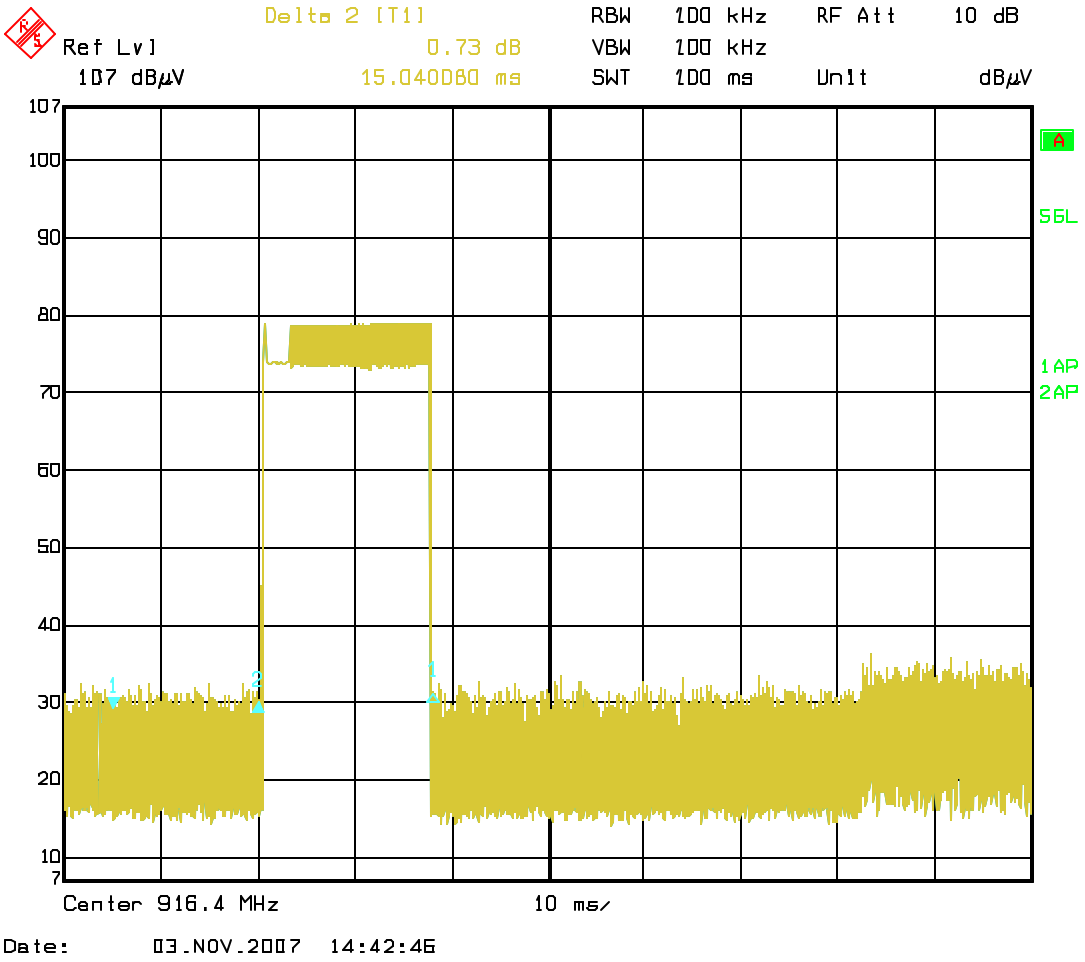
Job # :	8345-2-WL	Date :	11-3-07	Page 1 of 1	
NEX #:	95801	Time :			
		Staff :	CF		
Client Name :	Dymond Modelsport, LTD			EUT Voltage :	50
EUT Name :	Measuring POD			EUT Frequency :	DC
EUT Model # :	RA916TX			Phase:	1
EUT Serial # :	NA			NOATS	
EUT Config. :	Transmit 916.48 MHz			SOATS	X
				Distance < 1000 MHz:	3 m
				Distance > 1000 MHz:	3 m
Specification :	CISPR 22: Class B				
Bicon Ant.#:	114				
Log Ant.#:	110	Temp. (°C) :	18		
DRG Ant. #	529	Humidity (%) :	65		
Dipole Ant.#:	NA	Spec An.#:	898		
Cable LF#:	NOATS	Spec An. Display #:	898		
Cable HF#:	40ft	QP #:	898		
Preamp LF#:	NA	PreSelect#:	899		
Preamp HF#	317	Duty Cycle Factor:	-16.5		

Quasi-Peak	RBW: 120 kHz
	Video Bandwidth 300 kHz
Peak	RBW: 1 MHz
	Video Bandwidth 3 MHz

Measurements below 1 GHz are Quasi-Peak values, unless otherwise stated.
Measurements above 1 GHz are Average values, unless otherwise stated.

Meas. Freq. (MHz)	Meter Reading **Vertical**	Meter Reading **Horizontal**	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBuV)	Corrected Reading (dBuV/m)	Spec. limit (dBuV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
916.480	70.3	72.7	P		1.0	72.71	85.4	94.0	-8.6	Pass	
902.0	40.0	40.0	Q		1.0	40	35.5	47.0	-11.5	Pass	
928.0	41.0	41.0	Q		1.0	41	39.8	47.0	-7.2	Pass	
930.8	50.0	50.0	Q		1.0	50	48.1	54.0	-5.9	Pass	
1832.4	61.0	63.0	P		1.0	63.0	64.2	74.0	-9.8	Pass	
1843.4	**44.5**	**46.5**	**A**		**1.0**	**46.5**	**47.7**	**54.0**	**-5.2**	Pass	
2747.0	52.0	54.0	P		1.0	54.0	59.2	74.0	-14.8	Pass	
2747.0	35.5	37.5	A		1.0	37.5	42.7	54.0	-10.2	Pass	
3665.7	52.0	51.0	P		1.0	52.0	61.1	74.0	-12.9	Pass	
3665.7	35.5	34.5	A		1.0	35.5	44.6	54.0	-8.3	Pass	

Duty Cycle Plot



Duty Cycle Computations *= 15.04 ms/100ms*
= 0.15

Duty Cycle Factor = 20 x Log(0.15) = -16.5

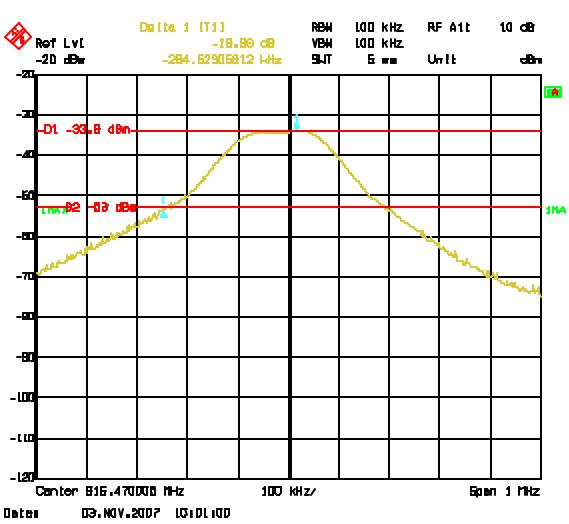
Clause 15.215(c) Occupied Bandwidth

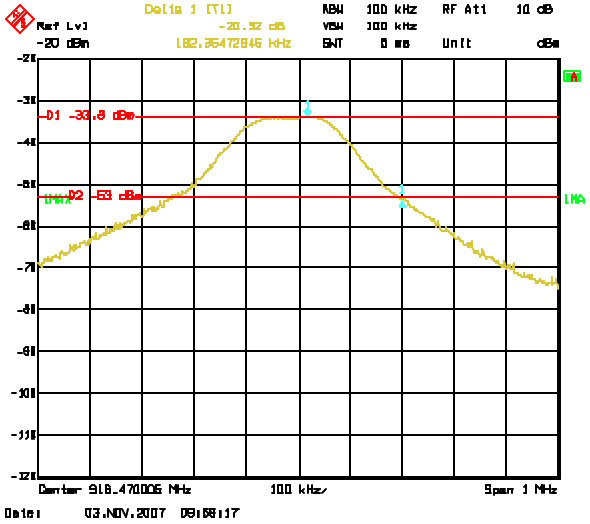
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in Sec. Sec. 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Test Conditions:

Sample Number:		**Temperature:**	18°C
Date:	November 3, 2007	**Humidity:**	65
Modification State:		**Tester:**	Chip Fleury
		Laboratory:	Nemko

Test Results:





Measured Occupied Bandwidth: left (264.5)+ right(182.3) = 446.8 kHz