TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: DW M16

FCC ID: ZGN0929

To: FCC Part 15.209; Part 15.215(c): 2010 Subpart C

Test Report Serial No:
RFI-RPT-RP78710JD03A

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals: 	
Checked By:	Ian Watch
Signature: 	
Date of Issue:	31 May 2011

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1. Customer Information

Company Name:	Rade Tecnologias S.L.
Address:	Av. Diagonal Plaza 14 Nave 61 50197 Zaragoza Spain

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.207 and 47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Site Registration:	FCC: 209735;
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	6 May 2011 to 26 May 2011

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.209	Transmitter Fundamental Field Strength	✓
Part 15.209	Transmitter Radiated Emissions	✓
Part 15.215(c)	Transmitter 20 dB Bandwidth	✓

Key to Results

✓ = Complied ✗ = Did not comply

2.3. Methods and Procedures

Reference:	ANSI C63.10 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	RADETEC
Model Name or Number:	DW M16
Serial Number:	P0058
Hardware Version Number:	Version 1
Software Version Number:	Version 1
FCC ID:	ZGN0929

3.2. Description of EUT

The equipment under test was a bullet-counter. It comprised a transmitter designed to be mounted around the magazine, and a separate receiver which was fitted with an LED display to show the bullet count.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Tested Technology:	Low power transmitter	
Power Supply Requirement:	Nominal	3.6 V DC
Type of Unit:	Transmitter	
Transmit Frequency Range:	125 kHz	

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Trigger relay box.
Brand Name:	RADETEC
Model Name or Number:	Not marked or stated
Serial Number:	Not marked or stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Maximum duty cycle was produced by adjusting the rate of EUT triggering on the support relay box to its maximum level.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- The EUT was powered by supplying 3.6V DC to the red and black cables via an external power supply.
- The EUT was triggered by providing a signal from the support relay box via the green and white cables.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to Section 6 Measurement Uncertainty for details.

5.2. Test Results

5.2.1. Transmitter Fundamental Field Strength

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	26 May 2011
Test Sample Serial No:	P0058		

FCC Part:	15.209
Test Method Used:	As detailed in ANSI C63.10 Section 6.4

Environmental Conditions:

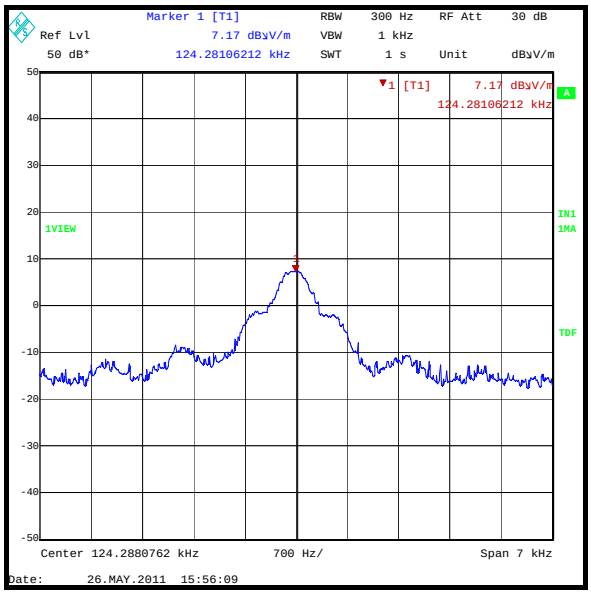
Temperature (°C):	29
Relative Humidity (%):	22

Results: Quasi Peak

Frequency (kHz)	Antenna Polarity	Level (dBµV/m)	Limit at 30 m (dBµV/m)	Margin (dB)	Result
124.281	90° to EUT	7.2	84.0	76.8	Complied

Note(s):

1. The limit is specified at a test distance of 30 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by using the square of an inverse linear distance extrapolation factor (40dB/decade).
2. A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres. A distance extrapolation factor of 40 dB was used.



5.2.2. Transmitter Radiated Spurious Emissions

Test Summary:

Test Engineer:	Tim Stanley & Crawford Lindsay	**Test Date:**	06 May 2011 & 09 May 2011
Test Sample Serial Number:	P0058		

FCC Part:	15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3, 6.4 and 6.5 referencing ANSI C63.4
Frequency Range:	9 KHz to 1 GHz

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	22

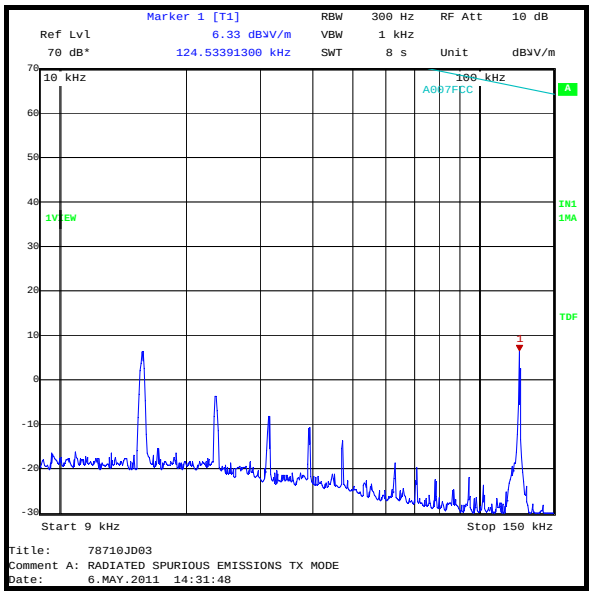
Results: Quasi Peak

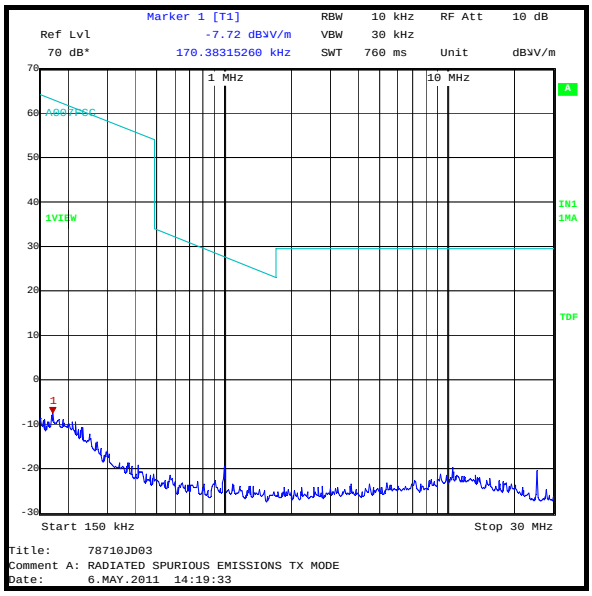
Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
47.739	Vertical	22.1	40.0	17.9	Complied
61.982	Vertical	29.4	40.0	10.6	Complied
87.503	Vertical	23.5	40.0	16.5	Complied

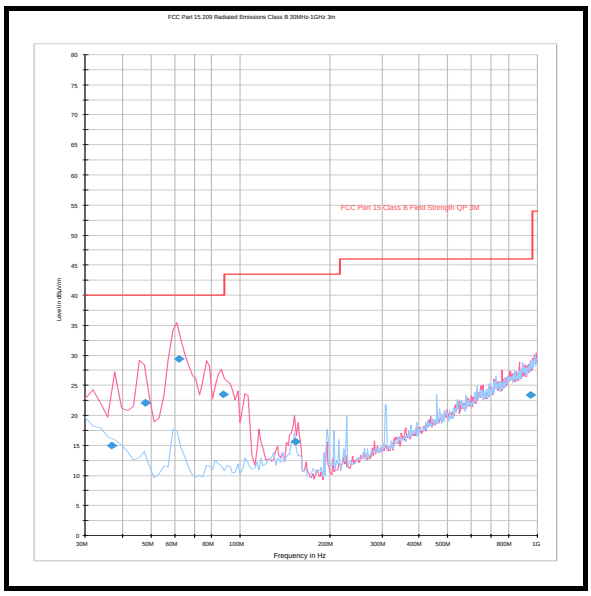
Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
3. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
4. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by using the square of an inverse linear distance extrapolation factor (40dB/decade).
5. A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required. A distance extrapolation factor of 40 dB was used.
6. Final measurement values include corrections for antenna factor and cable losses.
7. The emission shown at approximately 125 kHz is the fundamental.

Transmitter Radiated Spurious Emissions (continued)







Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

5.2.3. Transmitter 20 dB Bandwidth

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	26 May 2011
Test Sample Serial No:	P0058		

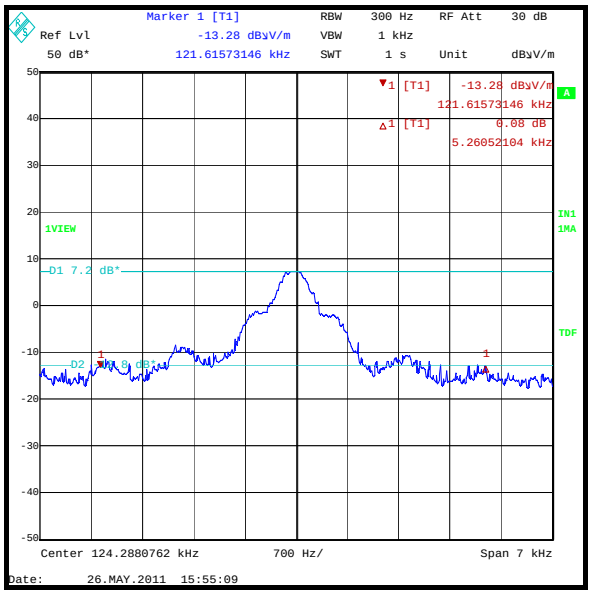
FCC Part:	2.1049
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.1

Environmental Conditions:

Temperature (°C):	29
Relative Humidity (%):	23

Results:

20 dB Bandwidth (kHz)
5.261



6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
20 dB Bandwidth	125 kHz	95%	±0.92 ppm
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	±3.53 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval Months
A553	Antenna	Chase	CBL6111A	1593	26 Mar 2012	12
G0543	Amplifier	Sonoma	310N	230801	30 Jun 2011	12
K0001	5m Semi-Anechoic Chamber	Rainford EMC	N/A	N/A	29 May 2012	12
M1269	Multimeter	Fluke	179	90250210	15 Jul 2011	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	04 Feb 2012	12
M1568	Magnetic loop antenna	Rohde & Schwarz	HFH-Z2	879284/2	27 Jan 2012	12
S0537	Power Supply	TTI	EL302D	249928	Calibrated before use	-

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.