



**TEST REPORT  
FROM  
RFI GLOBAL SERVICES LTD**

Test of: PowerScan M8500 Family Bar Code Reader and Base Station

To: FCC Part 15.107 and 15.109: 2008 Subpart C,  
RSS-210 Issue 7 June 2007 and RSS-GEN Issue 2 June 2007

**Test Report Serial No:**  
RFI/RPT2/RP74639JD01A

**Supersedes Test Report Serial No:**  
RFI-RPT1-RP74639JD01A

<b>This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director:</b>	
	 pp
<b>Checked By:</b>	Nigel Davison
<b>Signature:</b>	
<b>Date of Issue:</b>	12 June 2009

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**1. Customer Information**





<b>Company Name:</b>	Datalogic Scanning Group S.r.l
<b>Address:</b>	13 Via San Vitalino Calderara di Reno Bologna 40012 Italy

## 2. Summary of Testing

### 2.1. General Information

<b>Specification Reference:</b>	47CFR15.107 and 47CFR15.109
<b>Specification Title:</b>	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart B (Radio Frequency Devices) - Sections 15.107 and 15.109
<b>Specification Reference:</b>	RSS-210 Issue 7 June 2007
<b>Specification Title:</b>	Low-power Licence-exempt Radio communication Devices (All Frequency Bands): Category I Equipment.
<b>Specification Reference:</b>	RSS-GEN Issue 2 June 2007
<b>Specification Title:</b>	General Requirements and Information for the Certification of Radio communication Equipment
<b>Site Registration:</b>	FCC: 209735 Industry Canada: 3245B-2
<b>Location of Testing:</b>	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
<b>Test Dates:</b>	05-06-2009

### 2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference RSS-Gen	Measurement	Port Type	Result
15.107(a)	7.2.2	Idle Mode AC Conducted Emissions	AC Mains	
15.109	4.10, 6.0	Receiver/Idle Mode Radiated Spurious Emissions	Antenna	
<b>Key to Results</b>				
 = Complied  = Did not comply				

### 2.3. Methods and Procedures

<b>Reference:</b>	ANSI C63.4 (2003)
<b>Title:</b>	American National Standard Methods of Measurement of Electromagnetic 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)**

<b>Description:</b>	Bar Code Reader
<b>Brand Name:</b>	Datalogic Scanning Inc.
<b>Product Name:</b>	PowerScan M8500
<b>Model Name or Number:</b>	PowerScan M8500 910 RB
<b>Serial Number:</b>	E09P00005
<b>FCC ID Number:</b>	U4F0015
<b>Industry Canada:</b>	3862D-003

<b>Description:</b>	Base Station
<b>Brand Name:</b>	Datalogic Scanning Inc.
<b>Model Name or Number:</b>	BC-8030-910
<b>Serial Number:</b>	E09A55006
<b>FCC ID Number:</b>	U4F0015
<b>Industry Canada:</b>	3862D-003

<b>Description:</b>	AC Adaptor
<b>Brand Name:</b>	DVE
<b>Model Name or Number:</b>	DV-1212A
<b>Serial Number:</b>	None Stated

#### **3.2. Description of EUT**

The equipment under test was a handheld bar code scanner and base station operating at 910 MHz.

#### **3.3. Modifications Incorporated in the EUT**

No modifications were applied to the EUT during testing.

#### **3.4. Additional Information Related to Testing**

<b>Tested Technology:</b>	Short Range Device	
<b>Power Supply Requirement:</b>	Nominal	120 VAC 60 Hz
<b>Type of Unit:</b>	Base station and Portable Unit	
<b>Mode:</b>	Idle Mode Only	

## **4. Operation and Monitoring of the EUT during Testing**

### **4.1. Operating Modes**

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

- Idle Mode

### **4.2. Configuration and Peripherals**

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

- The handheld scanner was connected to the base station and was charging the internal battery. The base station was connected to the 120 VAC 60 Hz mains supply.

## **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****5.3. Idle Mode AC Conducted Spurious Emissions****Test Summary:**

<b>FCC Part:</b>	15.107(a)
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 7 and relevant annexes

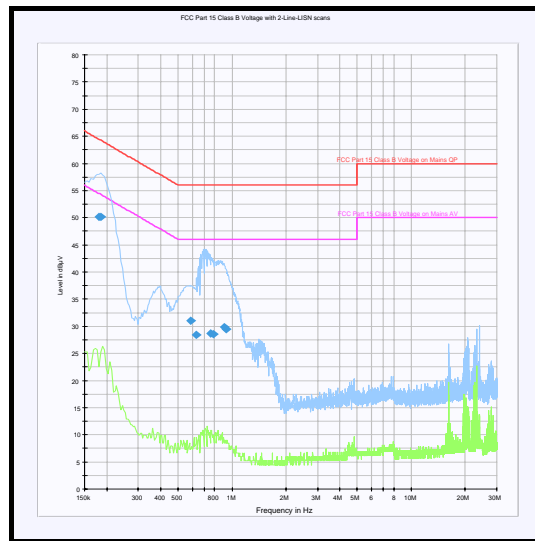
**Environmental Conditions:**

<b>Temperature Range (°C):</b>	22
<b>Relative Humidity Range (%):</b>	34

**Results: Quasi Peak Detector Measurements**

<b>Frequency (MHz)</b>	<b>Line</b>	<b>Quasi Peak Level (dB<math>\mu</math>V)</b>	<b>Limit (dB<math>\mu</math>V)</b>	<b>Margin (dB)</b>	<b>Result</b>
0.181500	Live1	50.1	64.4	14.3	Complied
0.186000	Neutral	50.2	64.2	14.0	Complied
0.591000	Live1	31.0	56.0	25.0	Complied
0.631500	Live1	28.4	56.0	27.6	Complied
0.762000	Live1	28.7	56.0	27.3	Complied
0.784500	Live1	28.6	56.0	27.4	Complied
0.906000	Neutral	29.9	56.0	26.1	Complied
0.924000	Neutral	29.5	56.0	26.5	Complied

**Idle Mode AC Conducted Spurious Emissions (continued)**



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

#### **5.4. Receiver/Idle Mode Radiated Spurious Emissions**

##### **Test Summary:**

<b>FCC Part:</b>	15.109
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and relevant annexes
<b>Frequency Range:</b>	30 MHz to 1000 MHz

##### **Environmental Conditions:**

<b>Temperature Range (°C):</b>	25
<b>Relative Humidity Range (%):</b>	30

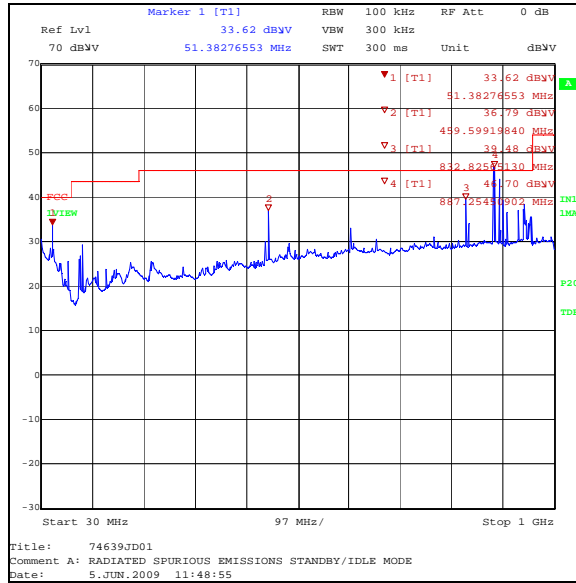
##### **Results:**

<b>Frequency (MHz)</b>	<b>Antenna Polarity</b>	<b>Level (dB<math>\mu</math>V/m)</b>	<b>Limit (dB<math>\mu</math>V/m)</b>	<b>Margin (dB)</b>	<b>Result</b>
968.092	Vertical	29.8	54.0	24.2	Complied

##### **Note(s):**

1. All emissions on the pre-scan plots were investigated and found to be ambient. A background scan of the site was performed to verify this. The highest level of the noise floor was recorded.
2. Measurements were made with the test system antenna in the horizontal and vertical polarisations and the highest level recorded in the above table.

**Receiver/Idle Mode Radiated Spurious Emissions (continued)**



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

**Receiver/Idle Mode Radiated Spurious Emissions (continued)****Test Summary:**

<b>FCC Part:</b>	15.109
<b>Test Method Used:</b>	As detailed in ANSI C63.4 Section 8 and relevant annexes

**Environmental Conditions:**

<b>Temperature Range (°C):</b>	26
<b>Relative Humidity Range (%):</b>	26

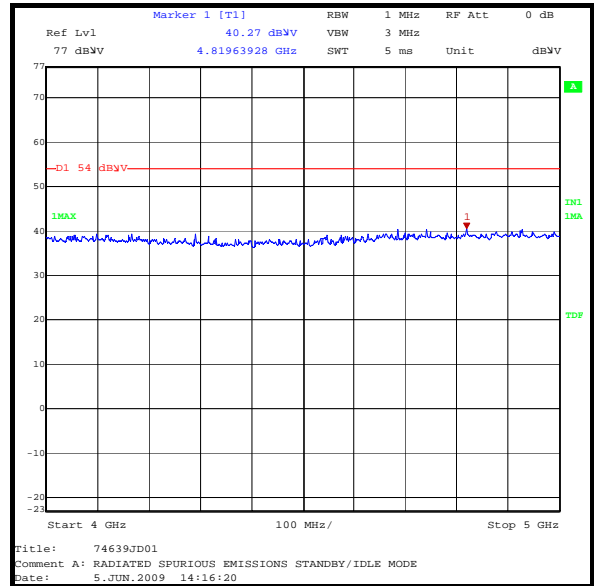
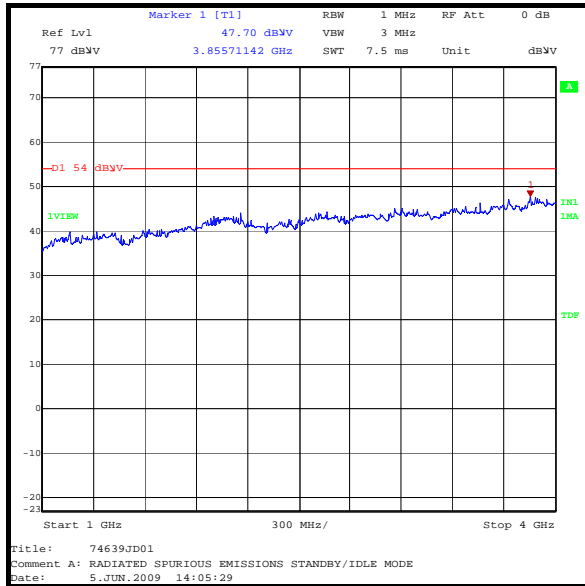
**Results:**

<b>Frequency (MHz)</b>	<b>Antenna Polarity</b>	<b>Level (dB<math>\mu</math>V/m)</b>	<b>Limit (dB<math>\mu</math>V/m)</b>	<b>Margin (dB)</b>	<b>Result</b>
3855.711	Vertical	47.7	54.0	6.3	Complied

**Note(s):**

1. No emissions were observed during the pre-scans, therefore the highest level of the noise floor was recorded.
2. Measurements were made with the test system antenna in the horizontal and vertical polarisations and the highest level recorded in the above table.

**Receiver/Idle Mode Radiated Spurious Emissions (continued)**



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying table.

## **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”.

<b>Measurement Type</b>	<b>Range</b>	<b>Confidence Level (%)</b>	<b>Calculated Uncertainty</b>
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.72 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±4.64 dB
Radiated Spurious Emissions	1 GHz to 5 GHz	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 Last Calibrated	Cal. Interval (Months)
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	12
A1818	Antenna	EMCO	3115	00075692	25 Oct 2008	12
K0002	Site Reference 4421	Rainford EMC	N/A	N/A	26 Aug 2009	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	09 Mar 2009	12
M166	Thermometer/ Barometer/ Hygrometer	EuroCom	None	None	30 Apr 2009	12

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