

TEST REPORT FROM RFI GLOBAL SERVICES LTD

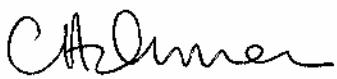
Test of: Datalogic Mobile SRL
Kayman Mobile Computer DL-KYMAN 721-902

To: FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

Test Report Serial No:
RFI/EMCE1/RP49622JD05A

This Test Report Is Issued Under The Authority
Of: Claire Ashman, EMC Service Leader.



Checked By: Claire Ashman	Report Copy No: PDF01
	
Issue Date: 24 January 2008	Test Date: 23 January 2008

The Bluetooth® word mark and logos are owned by the *Bluetooth* SIG, Inc. and any use of such marks by RFI Global Services Ltd. is under license. Other trademarks and trade names are those of their respective owners.

This report is issued in Adobe Acrobat portable document format (PDF). It is only a valid copy of the report if it is being viewed in PDF format with the following security options not allowed: Changing the document, Selecting text and graphics, Adding or changing notes and form fields.

This report may be copied in full. The results in this report apply only to the sample(s) tested.

Test Of: Datalogic Mobile SRL

Kayman Mobile Computer DL-KYMAN 721-902

To: FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

This page has been left intentionally blank.

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

Table of Contents

1. Client Information	4
2. Equipment Under Test (EUT).....	5
3. Test Specification, Methods and Procedures	8
4. Deviations from the Test Specification	8
5. Operation of the EUT during Testing.....	9
6. Summary of Test Results.....	10
7. Measurements, Examinations and Derived Results.....	11
8. Measurement Uncertainty.....	15
Appendix 1. Test Equipment Used.....	16
Appendix 2. Test Configuration Drawings	18
Appendix 3. Graphical Test Results	22

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902

To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

1. Client Information

Company Name:	Datalogic Mobile SRL
Address:	Via Candini, 2 Lippo di Calderara di Reno Bologna Italy 40012
Contact Name:	Mr M DeGirolami

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

2. Equipment Under Test (EUT)

The following information (with the exception of the date of receipt) has been supplied by the client:

2.1. Identification of Equipment Under Test (EUT)

Description:	KYMAN Mobile Computer
Brand Name:	Datalogic
Model Name or Number:	DL-KYMAN 721-902
Serial Number:	D07G00296
IMEI Number:	Not Applicable
Hardware Version Number:	Operating System Microsoft Windows CE Version 5.00
Software Version Number:	Operating System Microsoft Windows CE Version 5.00; Device Ver.: 5.45.Pro[1.50.51.20070608]
FCC ID Number:	U4G0016
Country of Manufacture:	Italy
Date of Receipt:	06 December 2007

2.2. Description of EUT

The equipment under test is a DL-KYMAN 721-902 Mobile Computer with WiFi, *Bluetooth*, (802.11b/g) Radio card and Tri-band GSM / GPRS class10 capabilities.

2.3. Modifications Incorporated in the EUT

During the course of testing the EUT was not modified.

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

2.4. Accessories

The following accessories were supplied with the EUT during testing:

Description:	Belt Clip
Brand Name:	Datalogic
Model Name or Number:	None Stated
Serial Number:	None Stated
Cable Length and Type:	Not Applicable
Country of Manufacture:	None Stated
Connected to Port	Connector Unique To Manufacturer

2.5. Support Equipment

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

Description:	Test Software
Brand Name:	SDCFCC
Model Name or Number:	v1.01.12
Serial Number:	Not Applicable
Cable Length and Type:	Not Applicable
Connected to Port:	Not Applicable

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

2.6. Additional Information Related to Testing

Equipment Category:	<i>Bluetooth , 802.11 (x), GSM/GPRS 850/1900</i>		
Type of Unit:	Portable (Standalone Battery Powered)		
Operating frequencies:			
Receiver:	Bluetooth: 802.11: GSM 850: GSM 1900:	2402 to 2480 MHz. 2412 to 2462MHz 824 to 849 MHz 1850 to 1910 MHz	
Transmitter:	Bluetooth: 802.11: GSM 850: GSM 1900:	2402 to 2480 MHz. 2412 to 2462MHz 869 to 894 MHz 1930 to 1990 MHz	
Weight:	<500g		
Dimensions:	20 x 11 x 5 cm		
Power Supply Requirement:			
DC Supply (Volts)	Not applicable		
AC Supply (Volts)	Nominal 110 V, 60 Hz AC Mains Supply		
Intended Operating Environment:	Within WiFi Coverage		
Cycle Time:	Less than 1 second		

2.7. Port Identification

Port	Description	Type	Applicable
1	Enclosure	Not applicable	Yes
2	USB	< 3m, multicore	No
3	DC Input	< 3m, 2 core	No
4	AC Input of power supply	-	Yes

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

3. Test Specification, Methods and Procedures

3.1. Test Specification

Reference:	FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)
Title:	Code of Federal Regulations, Part 15 (47CFR15) Radio Frequency Devices.

3.2. Methods And Procedures

The methods and procedures used were as detailed in:

ANSI/TIA-603-B-2002

Land Mobile Communications Equipment, Measurements and performance Standards

ANSI C63.2 (1987)

Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (2001)

Title: 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.

ANSI C63.5 (1988)

Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)

Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1: (1999)

Title: Specification For Radio Disturbance and Immunity Measuring Apparatus and Methods. Part 1: Radio Disturbance and Immunity Measuring Apparatus.

Public Notice DA00-705 (2000)

Title: Filing and Frequency Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

3.3. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

There were no deviations from the test specification.

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

5. Operation of the EUT during Testing

5.1. Operating Modes

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

With the *Bluetooth* and 802.11 WiFi functions enabled, but not transmitting data.

5.2. Configuration and Peripherals

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

Powered from the dedicated AC to DC power supply.

Please refer to Appendix 2 for a schematic drawing of the test configuration, drawing number DRG\49622JD05\001

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

6. Summary of Test Results

Range of Measurements	Specification Reference	Port Type	Compliance Status
Conducted Emissions	FCC Part 15.107	AC Mains Input	Complied
Radiated Emissions Electric Field Strength, 30 MHz to 12500 MHz	FCC Part 15.109	Enclosure	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ.

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

7. Measurements, Examinations and Derived Results

7.1. General Comments

This section contains test results only.

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 8 for details of measurement uncertainties.

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

7.2. Test Results

7.2.1. AC Mains Conducted Emissions - Quasi Peak Detector Measurements on Live and Neutral Lines

Tests were performed using the test methods detailed in ANSI C63.4 Section 7.

Plots of the initial scans can be found in Appendix 3.

The following table lists frequencies at which emissions were measured using a quasi peak detector:

Test Summary:

Port:	AC Mains Input
Basic Standard:	FCC Part 15.107 Class B

Environmental Conditions:

Temperature Variation (°C):	21 to 22
Relative Humidity Variation (%):	46 to 44
Atmospheric Pressure Variation (mb):	1013 to 1013

Results:

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Note(s)	Result
0.164	Live	45.1	65.3	20.2	-	Complied
0.204	Live	38.5	63.4	24.9	-	Complied
0.245	Live	26.5	61.9	35.4	-	Complied
0.987	Live	6.7	56.0	49.3	-	Complied
1.028	Live	6.7	56.0	49.3	-	Complied
16.503	Neutral	34.9	60.0	25.1	-	Complied

Test Of: **Datalogic Mobile SRL**
 Kayman Mobile Computer DL-KYMAN 721-902
 To: FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

7.2.2. AC Mains Conducted Emissions - Average Detector Measurements on Live and Neutral Lines

Tests were performed using the test methods detailed in ANSI C63.4 Section 7.

Following the initial scans and quasi peak measurements, further measurements were made at the relevant frequencies using an average detector. The measured levels were as follows:

Test Summary:

Port:	AC Mains Input
Basic Standard:	FCC Part 15.107 Class B

Environmental Conditions:

Temperature Variation (°C):	21 to 22
Relative Humidity Variation (%):	46 to 44
Atmospheric Pressure Variation (mb):	1013 to 1013

Results:

Frequency (MHz)	Line	Average Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Note(s)	Result
0.164	Live	33.3	55.3	22.0	-	Complied
0.204	Live	29.0	53.4	24.4	-	Complied
0.245	Live	17.8	51.9	34.1	-	Complied
0.983	Live	2.5	46.0	43.5	-	Complied
1.028	Live	2.5	46.0	43.5	-	Complied
16.503	Neutral	27.1	50.0	22.9	-	Complied

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

7.2.3. Radiated Emissions - Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz)

Tests were performed using the test methods detailed in ANSI C63.4 Section 8, and Public Notice DA 00-705 (March 30, 2000).

Plots of the initial scans can be found in Appendix 3.

The following table lists frequencies at which emissions were measured using a quasi peak detector, at a test measurement distance of 3 metres:

Test Summary:

Port:	Enclosure
Basic Standard:	FCC Part 15.109 Class B

Environmental Conditions:

Temperature Variation (°C):	14 to 14
Relative Humidity Variation (%):	36 to 36
Atmospheric Pressure Variation (mb):	1013 to 1013

Results:

Frequency (MHz)	Antenna Polarity	Quasi Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Note(s)	Result
32.427	Horizontal	16.6	40.0	23.4	-	Complied
32.427	Vertical	18.5	40.0	21.5	-	Complied
43.294	Horizontal	11.9	40.0	28.1	-	Complied
43.294	Vertical	14.0	40.0	26.0	-	Complied
147.459	Horizontal	33.2	43.5	10.3	-	Complied
147.459	Vertical	39.0	43.5	4.5	-	Complied
181.629	Horizontal	32.8	43.5	10.7	-	Complied
181.629	Vertical	29.9	43.5	13.6	-	Complied
270.299	Horizontal	38.0	46.0	8.0	-	Complied
270.299	Vertical	33.9	46.0	12.1	-	Complied
319.606	Horizontal	39.3	46.0	6.7	-	Complied
319.606	Vertical	30.2	46.0	15.8	-	Complied

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

8. 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
Conducted Emissions AC (and DC) Lines	150 kHz to 30 MHz	95%	± 3.66 dB
Radiated Emissions	30 to 1000 MHz	95%	± 4.54 dB
Radiated Emissions	1 to 2 GHz	95%	± 4.76 dB
Radiated Emissions	2 to 4 GHz	95%	± 4.76 dB
Radiated Emissions	4 to 6 GHz	95%	± 4.74 dB
Radiated Emissions	6 to 8 GHz	95%	± 4.76 dB
Radiated Emissions	8 to 12 GHz	95%	± 4.79 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. Where it has been necessary to perform measurements using the substitution method, it has not been possible to calculate an uncertainty for this measurement. Due to the complex effects on the emissions levels measured within a screened room with either a signal source or the equipment under test, the calculation of a general measurement uncertainty for this process would be unrepresentative for all possible measured results.

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A028	Antenna	Eaton	91888-2	304	08 Jun 2006	36
A067	Line Impedance Stabilization Network	Rohde & Schwarz	ESH3-Z5	890603/002	23 Apr 2007	12
A1227	Pre Amplifier	Agilent	8449B	3008A01566	03 Sep 2007	12
A1362	Antenna	Stoddart Aircraft Radio Co., Inc.	91889-1	N/A	08 Jun 2006	36
A1829	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100671	16 Jan 2008	12
A259	Antenna	Chase	CBL611 1	1513	13 Mar 2007	12
A276	OATS Positioning Controller	Rohde & Schwarz	HCC	-	N/A	N/A
A392	Attenuator	Suhner	6803.17. B	None	15 Jul 2007	12
A427	Antenna	Flann	14240-20	150	17 Nov 2006	36
A428	Antenna	Flann	12240-20	134	17 Nov 2006	36
A429	Antenna	Flann	16240-20	561	17 Nov 2006	36
C1158	Cable	Rosenberger	FA210A 1010005 G5G	3305 42447-1	22 Apr 2007	12
C1160	Cable	Rosenberger	FA210A 1050005 050	3305 42449-2	22 Apr 2007	12
C1161	Cable	Rosenberger	05 42448-1	33	22 Apr 2007	12
C1181	Cable	RS Components	284-3792	0	22 Apr 2007	12
C1262	Cable	Rosenberger	FA210A 0075008 080	49356-2	22 Apr 2007	12
C1265	Cable	Rosenberger	FA210A 1020007 070	49317-01	22 Apr 2007	12
C341	Cable	Andrews	None	None	15 Jul 2007	12

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

Test Equipment Used (Continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
C454	Cable	Rosenberger	RG142X X-001- RFIB	C454- 10081998	22 Apr 2007	12
C461	Cable	Rosenberger	UFA210 A-1- 1182- 704704	98H0305	22 Apr 2007	12
M023	Test Receiver	Rohde & Schwarz	ESVP	872 991/027	24 Apr 2007	12
M024	Spectrum Monitor	Rohde & Schwarz	EZM	873 952/006	N/A	N/A
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	20 Feb 2007	12
M173	Turntable Controller	R.H. Electrical Services	RH351	3510020	N/A	N/A
S201	Open Area Test Site	RFI	1	-	25 May 2007	12
S209	Anechoic Chamber	RFI	9	-	N/A	N/A

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

Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

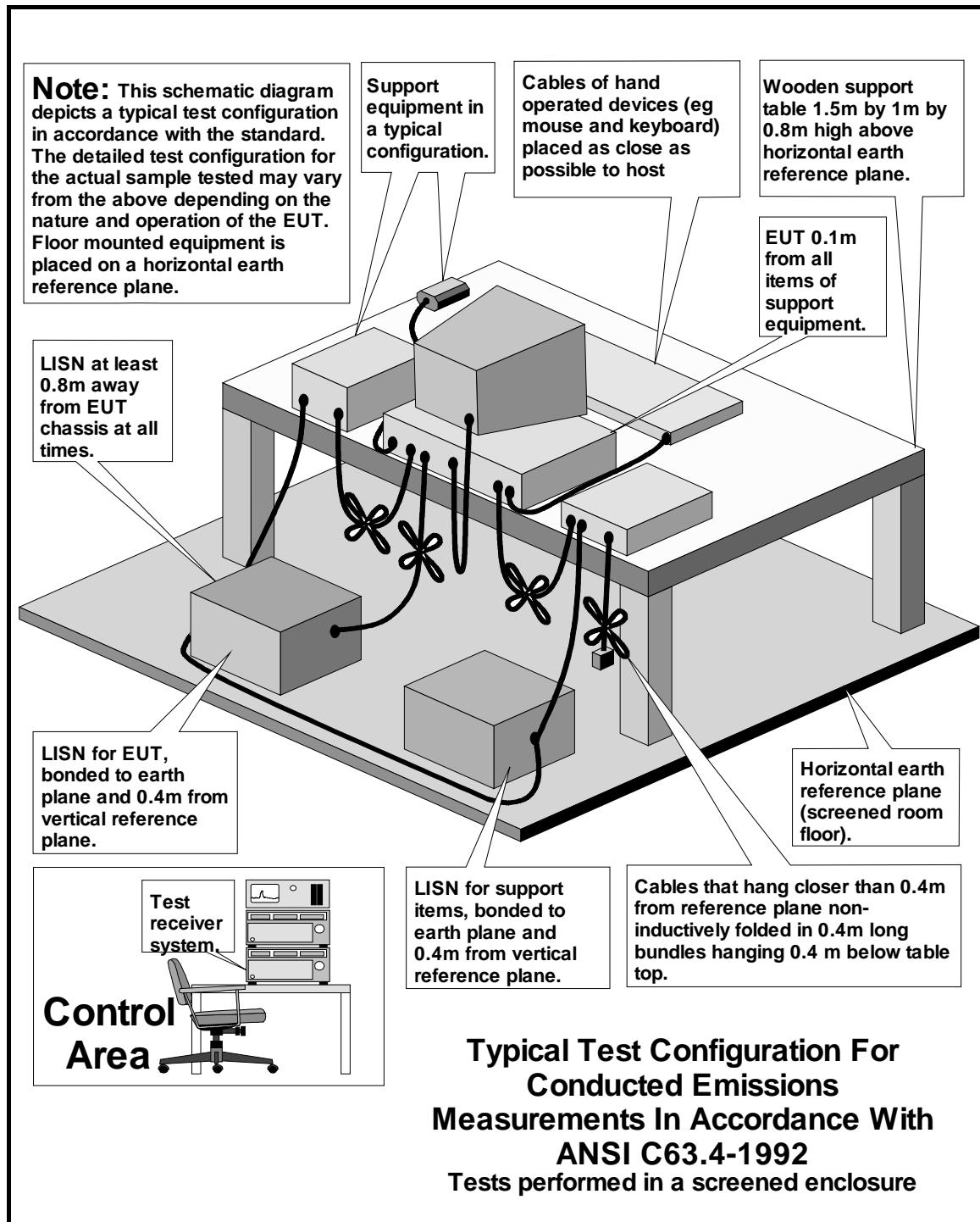
Appendix 2. Test Configuration Drawings

This Appendix contains the following drawings:

Drawing Reference Number	Title
DRG\49622JD05\EMICON	Test configuration for measurement of conducted emissions
DRG\49622JD05\EMIRAD	Test configuration for measurement of radiated emissions
DRG\49622JD05\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test

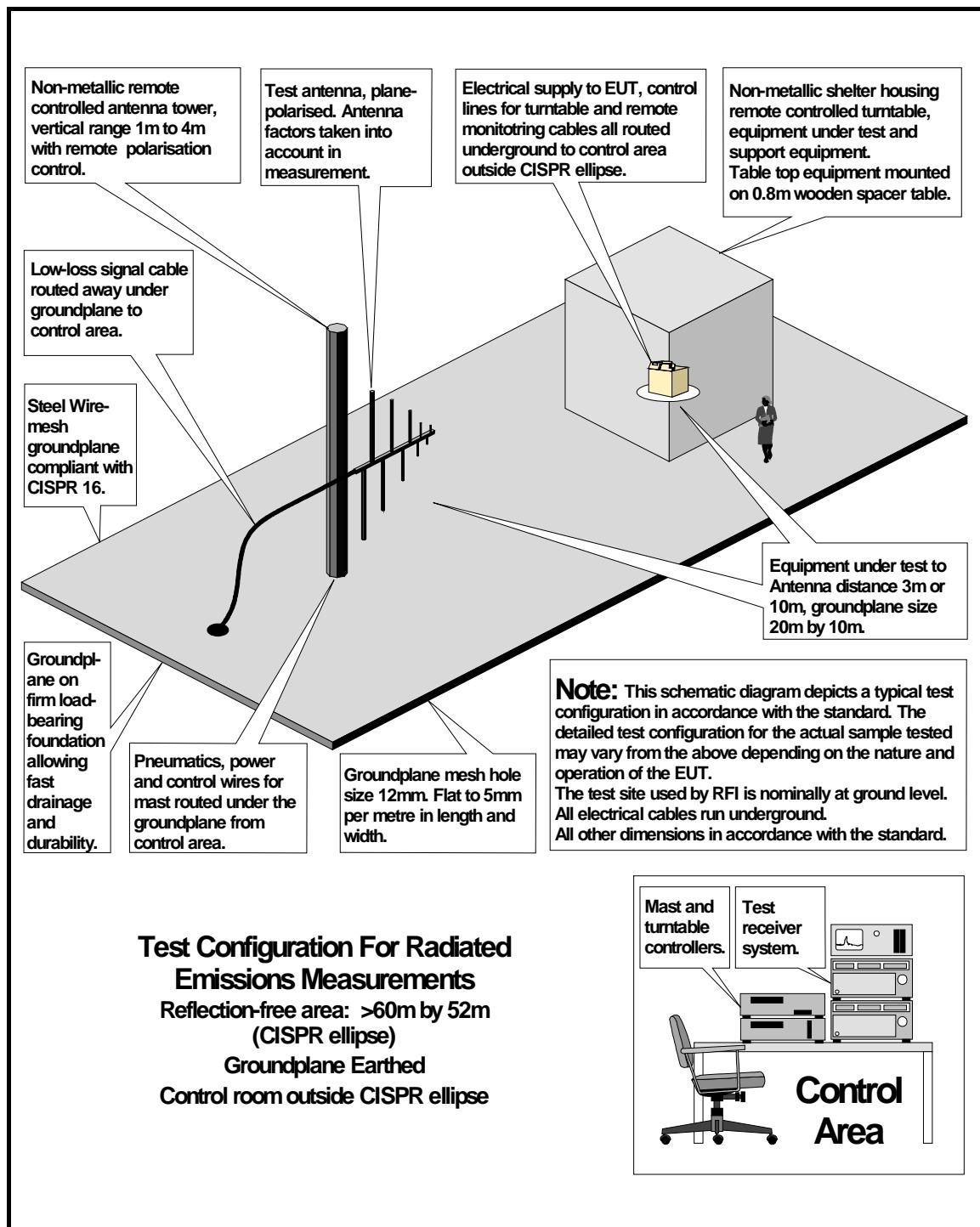
Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

DRG\49622JD05\EMICON



Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

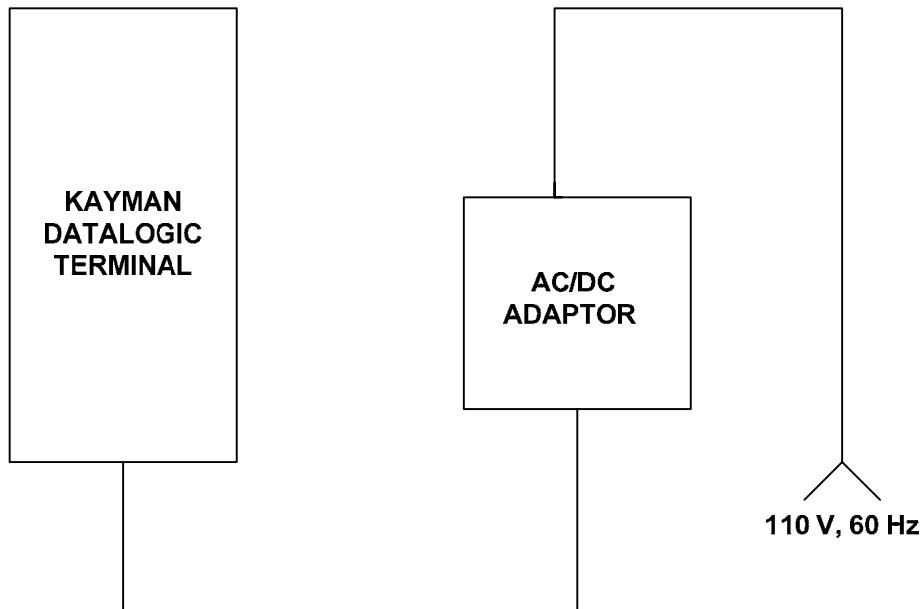
DRG\49622JD05\EMIRAD



Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

DRG\49622JD05\001

Configuration of EUT and Local Support Equipment



Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

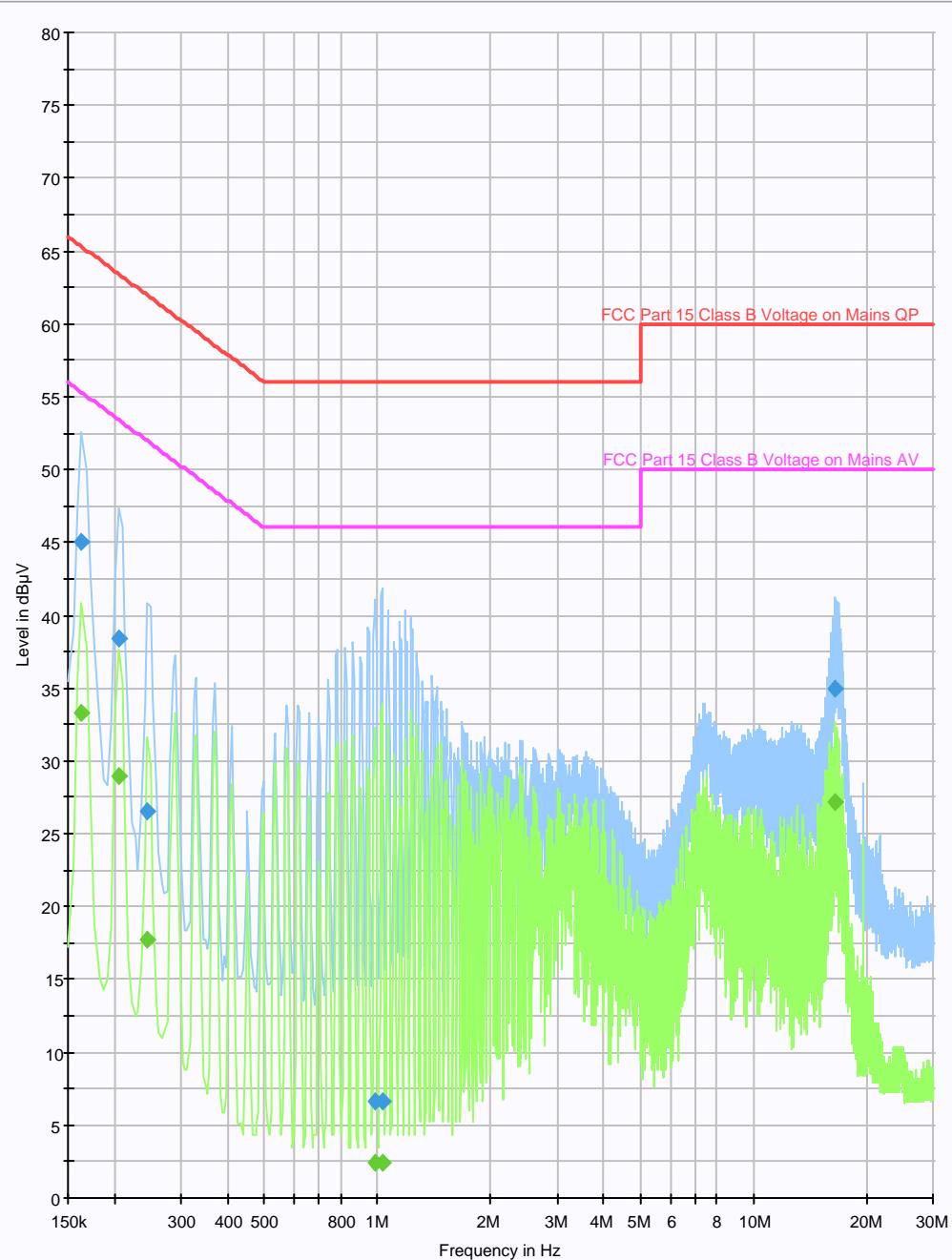
Appendix 3. Graphical Test Results

This Appendix contains the following graphs:

Graph Reference Number	Title
GPH\49622JD05\001	Conducted Emissions Pre-Scan (0.15 MHz to 30.0 MHz)
GPH\49622JD05\002	Radiated Emissions Pre-Scan (300 MHz to 1000.0 MHz)
GPH\49622JD05\003	Radiated Emissions Pre-Scan (1 GHz to 2 GHz)
GPH\49622JD05\004	Radiated Emissions Pre-Scan (2 GHz to 4 GHz)
GPH\49622JD05\005	Radiated Emissions Pre-Scan (4 GHz to 6 GHz)
GPH\49622JD05\006	Radiated Emissions Pre-Scan (6 GHz to 8 GHz)
GPH\49622JD05\007	Radiated Emissions Pre-Scan (8 GHz to 12 GHz)
GPH\49622JD05\008	Radiated Emissions Pre-Scan (12 GHz to 12.5 GHz)

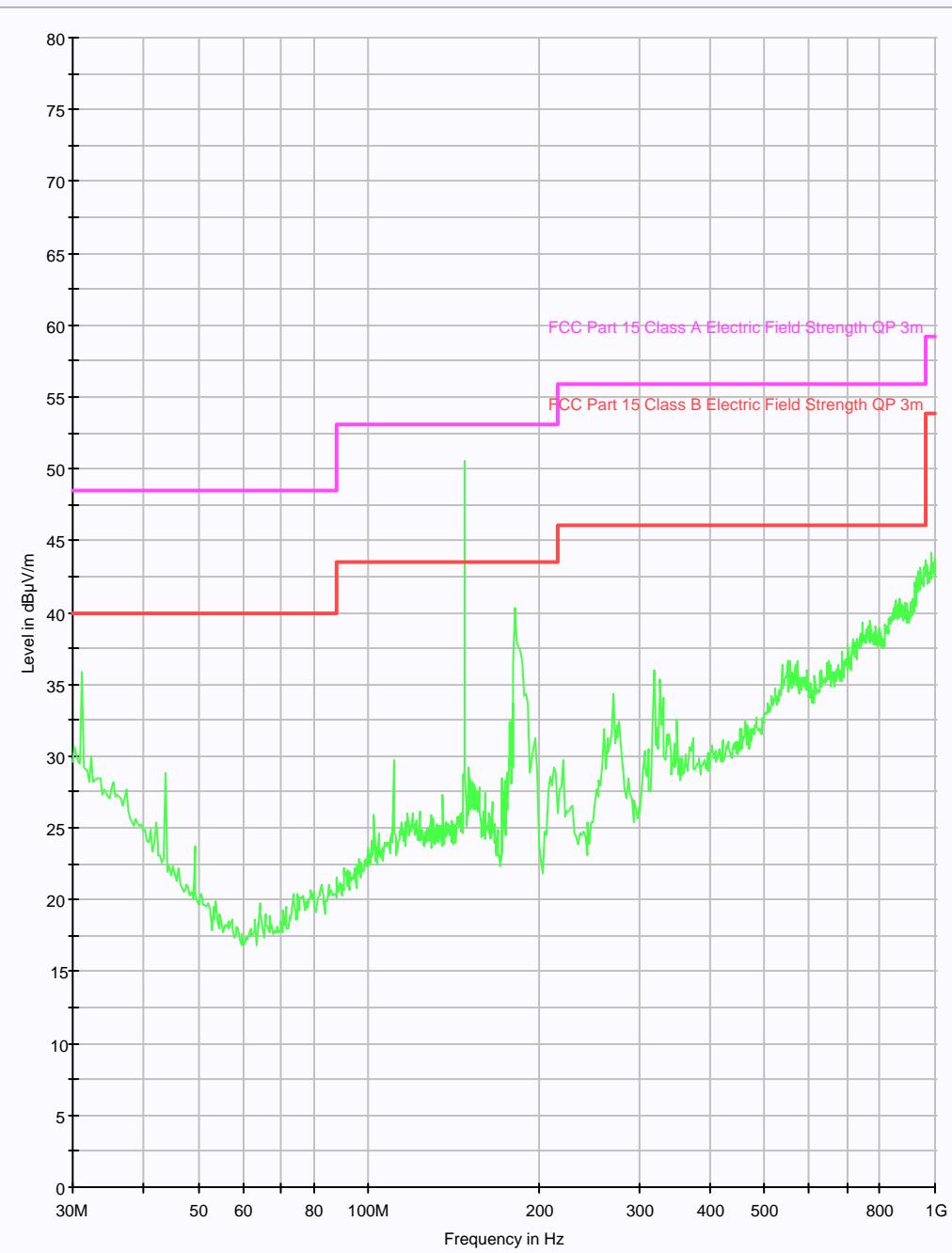
Test Of: **Datalogic Mobile SRL**
To: **Kayman Mobile Computer DL-KYMAN 721-902**
FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

GPH\49622JD05\001
Conducted Emissions
Pre-Scan (0.15 MHz to 30.0 MHz)



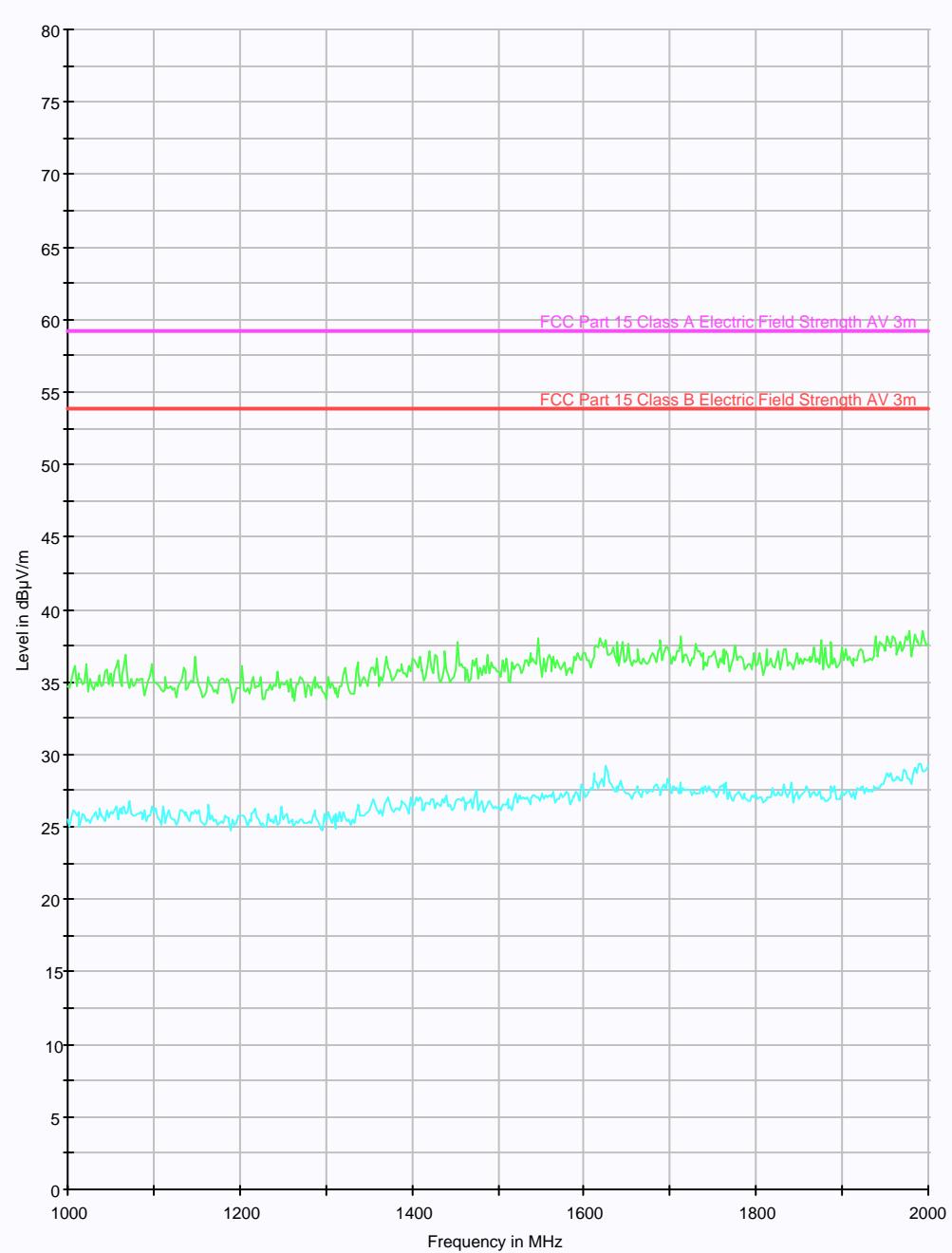
Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

GPH\49622JD05\002
Radiated Emissions
Pre-Scan (30.0 MHz to 10000.0 MHz)



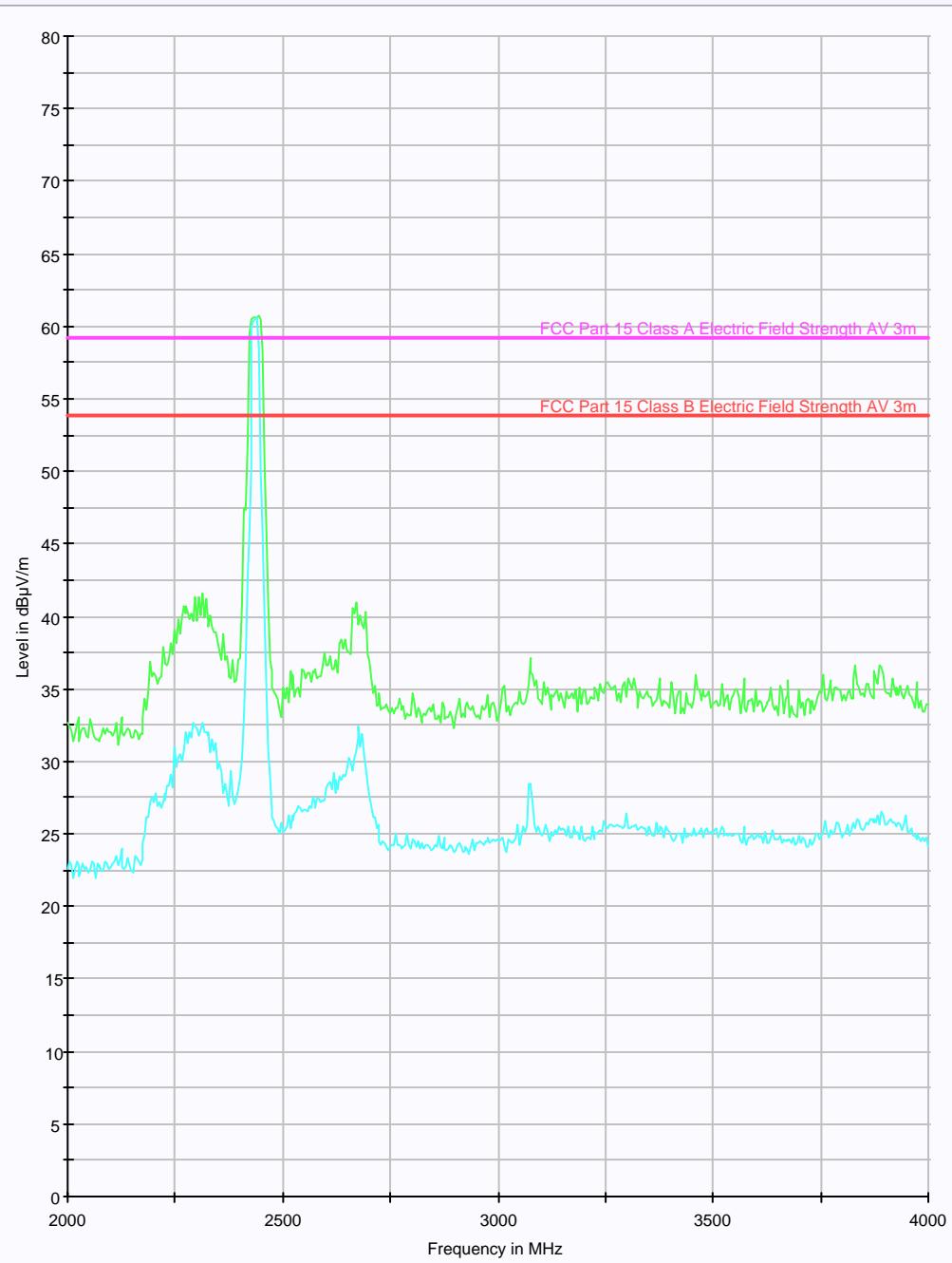
Test Of: **Datalogic Mobile SRL**
To: **Kayman Mobile Computer DL-KYMAN 721-902**
FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

GPH\49622JD05\003
Radiated Emissions
Pre-Scan (1 GHz to 2 GHz)



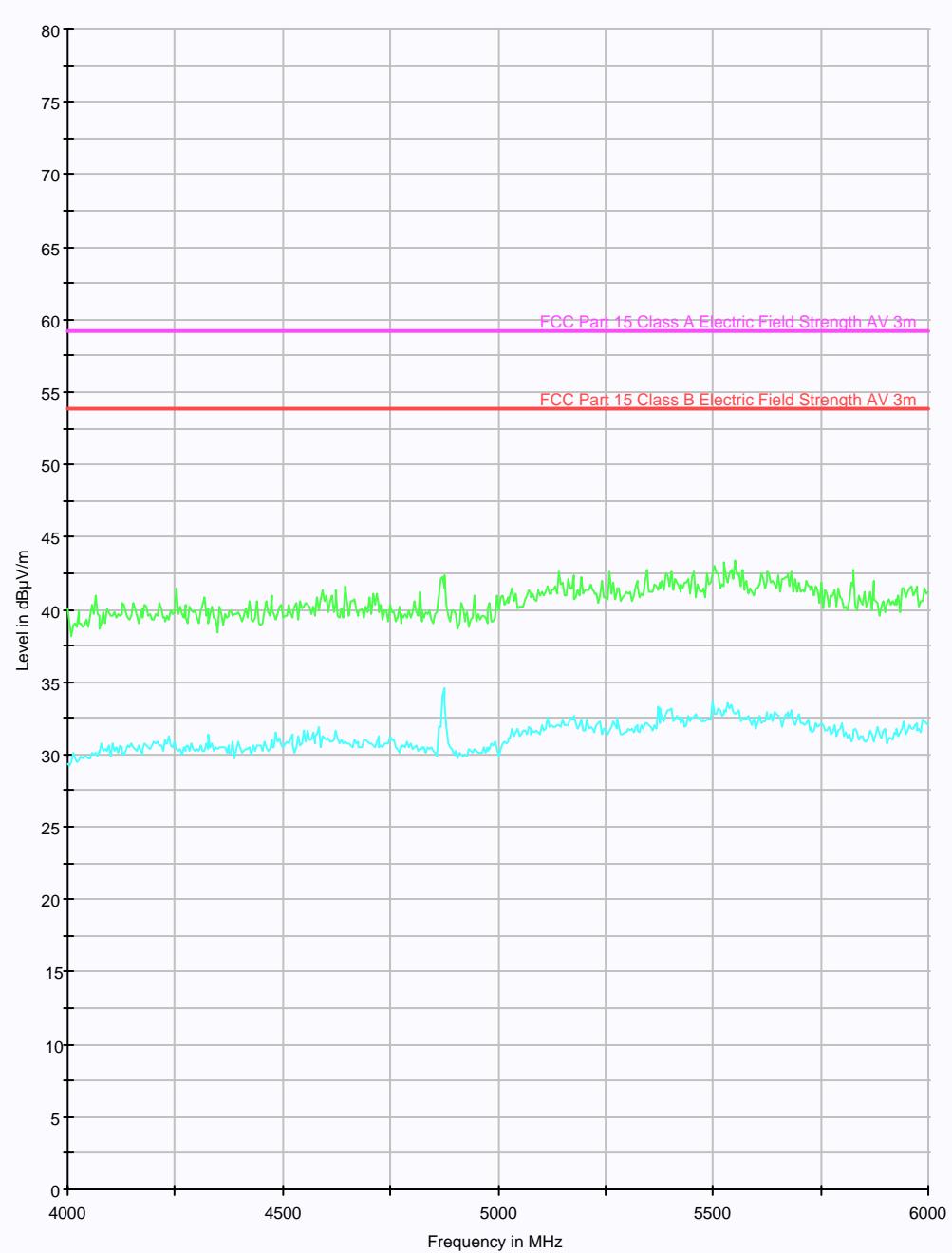
Test Of: **Datalogic Mobile SRL**
To: **Kayman Mobile Computer DL-KYMAN 721-902**
FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

GPH\49622JD05\004
Radiated Emissions
Pre-Scan (2 GHz to 4 GHz)



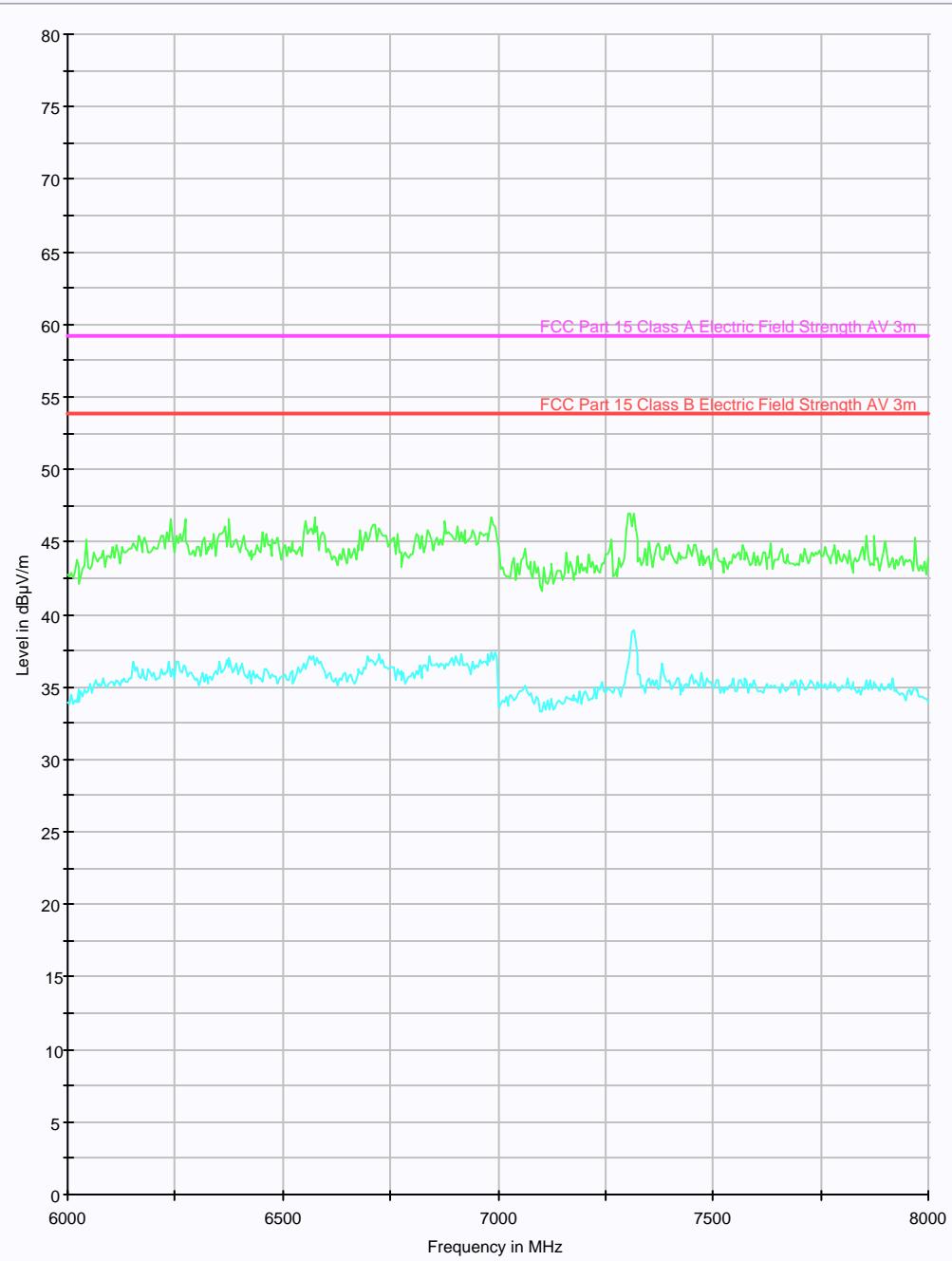
Test Of: **Datalogic Mobile SRL**
To: **Kayman Mobile Computer DL-KYMAN 721-902**
FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

GPH\49622JD05\005
Radiated Emissions
Pre-Scan (4 GHz to 6 GHz)

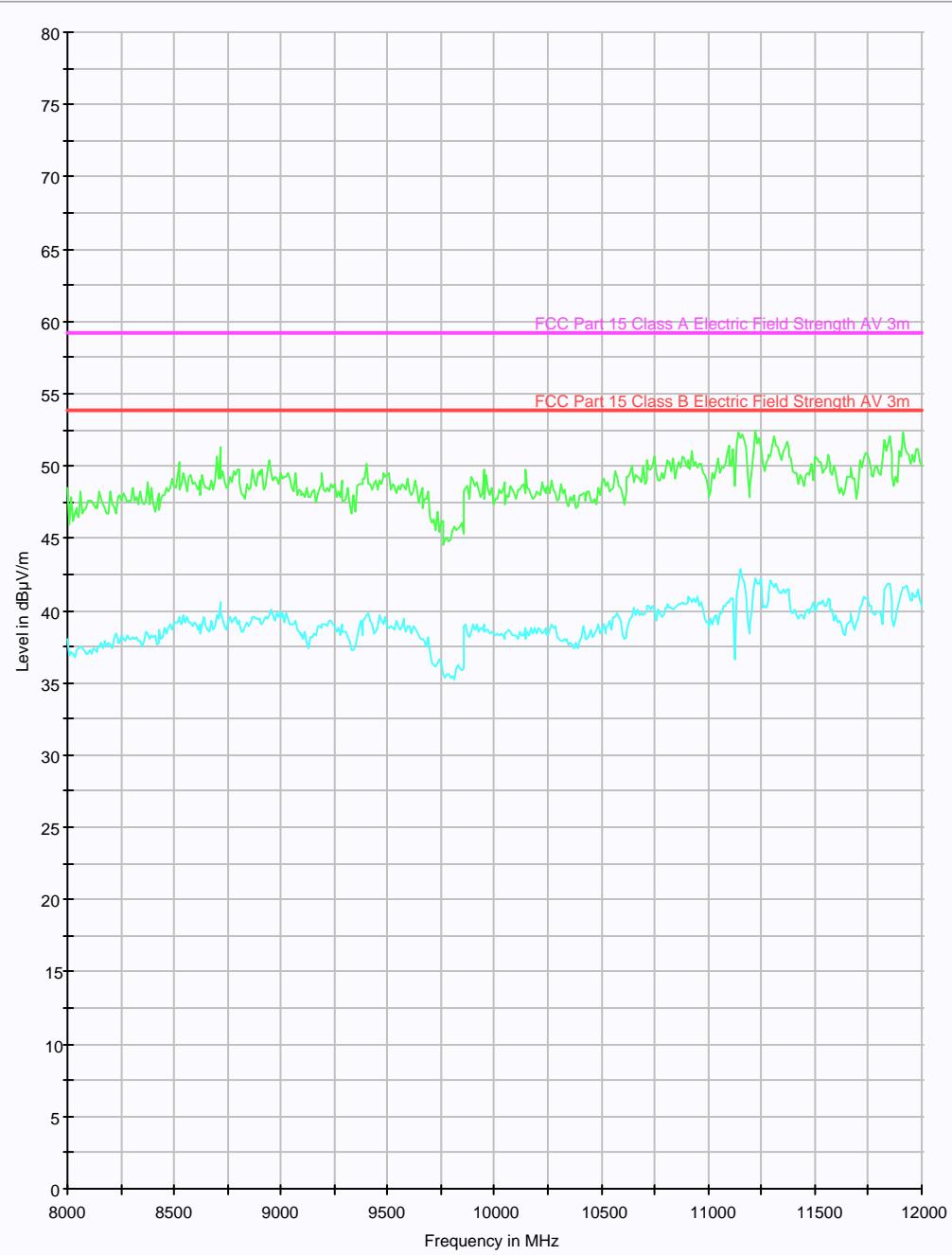


Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

GPH\49622JD05\006
Radiated Emissions
Pre-Scan (6 GHz to 8 GHz)



Test Of: **Datalogic Mobile SRL**
Kayman Mobile Computer DL-KYMAN 721-902
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

GPH\49622JD05\007**Radiated Emissions****Pre-Scan (8 GHz to 12 GHz)**

Test Of: **Datalogic Mobile SRL**
To: **Kayman Mobile Computer DL-KYMAN 721-902**
FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

GPH\49622JD05\008
Radiated Emissions
Pre-Scan (12 GHz to 12.5 GHz)

