TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Datalogic S.p.A
DLBJET

To: FCC Part 15.107, 15.109 and 15.207

Test Report Serial No:
RFI/RPTE1/RP48886JD03A

This Test Report Is Issued Under The Authority Of Michael Derby, Wireless Radio Performance Group Leader: 	
Tested By: Ian Watch 	**Checked By: Michael Derby** 
Report Copy No:	
Issue Date: 20 April 2007	**Test Dates: 28 March 2007 to 30 March 2007**

The results in this report apply only to the sample(s) tested.

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Test of: Datalogic S.p.A
DLBJET
To: FCC Part 15.107, 15.109 and 15.207

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1. Client Information

Company Name:	Datalogic S.p.A
Address:	Via Candini, 2 Lippo di Calderara di Reno Bologna Italy 40012
Contact Name:	Mr P Guerzoni

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:	PDA
Brand Name:	DATALOGIC
Model Name or Number:	DLBJET 711-104-455
Serial Number:	D07B03029
FCC ID Number:	U4G0019
Country of Manufacture:	Italy
Date of Receipt:	28 March 2007

Description:	Cradle
Brand Name:	DATALOGIC
Model Name or Number:	Jet Single Cradle Desk
Serial Number:	D05H02619
Country of Manufacture:	Italy
Date of Receipt:	28 March 2007

2.2. Accessories

The following accessories were supplied with the EUT:

Description:	Serial Cable
Brand Name:	Datalogic
Model Name or Number:	Win-Net USB cable (HRS 3500-16P-CV)
Serial Number:	None stated
Cable Length:	2 m
Connected to Port:	Communication/charger connector of the DLBJET

Description:	USB Cable
Brand Name:	Datalogic
Model Name or Number:	Win-Net USB cable (HRS 3500-16P-CV)
Serial Number:	None stated
Cable Length:	2 m
Connected to Port:	Communication/charger connector of the DLBJET

Accessories (Continued)

Description:	Power Supply
Brand Name:	ONTOP
Model Name or Number:	SA115BG-12U
Serial Number:	A115B064073-1
Cable Length and Type:	3.3m, 2 wire
Connected to Port:	External power supply connector of the DLBJET

Description:	Power Supply
Brand Name:	Datalogic
Model Name or Number:	FPS18 p/n 94ACC4595
Serial Number:	PW72522020
Cable Length and Type:	1.5m, 2 wire
Connected to Port:	Power supply for craddle

Description:	Null Modem Cable
Brand Name:	Datalogic
Model Name or Number:	None stated
Serial Number:	None stated
Cable Length:	1m
Connected to Port:	Serial port of the cradle

Description:	Standard Battery Pack
Brand Name:	Datalogic
Model Name or Number:	Standard Battery Jet
Serial Number:	D06D00428
Cable Length and Type:	Not applicable
Connected to Port:	Battery Slot

Description:	Standard Battery Pack
Brand Name:	Datalogic
Model Name or Number:	Standard Battery Jet
Serial Number:	D06E00585
Cable Length and Type:	Not applicable
Connected to Port:	Battery Slot

2.3. Description of EUT

The equipment under test (EUT) is a battery powered portable computer with *Bluetooth* (2.4 GHz), Wi-Fi (2.4 GHz) and GSM/GPRS radio capabilities. It also has a laser scanner in order to capture a bar code.

2.4. Modifications Incorporated in the EUT

During the course of testing the EUT was not modified.

2.5. Additional Information Related to Testing

Power Supply Requirement:	Nominal 110 V, 60 Hz AC mains Supply via AC Charger Internal battery supply of 7.4 V		
Intended Operating Environment:	Within *Bluetooth,* Wi-Fi and GSM Coverage		
Equipment Category:	*Bluetooth*, 802.11b, 802.11g and GSM 900/1800/1900		
Type of Unit:	Portable (standalone battery powered device)		
Interface Ports:	Audio Port, Handsfree Kit		
Transmitter Output Power:	Wi-Fi = 20 dBm (max) *Bluetooth* = 0 dBm PCS 1900 = 30 dBm		
Transmit Frequency Range for Wi-Fi:	2412 MHz to 2462 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	1	2412
	Middle	6	2437
	Top	11	2462
Receive Frequency Range for Wi-Fi:	2412 MHz to 2462 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	1	2412
	Middle	6	2437
	Top	11	2462

Additional Information Related to Testing (Continued)

Transmit Frequency Range for Bluetooth:	2402 MHz to 2480 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	0	2402
	Middle	39	2441
	Top	78	2480
Receive Frequency Range for Bluetooth:	2402 MHz to 2480 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	0	2402
	Middle	39	2441
	Top	78	2480
Transmit Frequency Range for GSM:	1850.2 MHz to 1909.8 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	810	1909.8
Receive Frequency Range for GSM:	1850.2 MHz to 1909.8 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	810	1909.8
Data Rate:	Wi-Fi = up to 54 Mbps *Bluetooth* = up to 1 Mbps GSM/GPRS = 384 kbps		

2.6. Support Equipment

No support equipment was used to exercise the EUT during testing.

3. Test Specification, Methods and Procedures

3.1. Test Specifications

Reference:	FCC Part 15 Subpart B: 2006 (Sections 15.209).
Title:	Code of Federal Regulations, Part 15 (47CFR215) Radio Frequency Devices.

3.2. Methods and Procedures

The methods and procedures used were as detailed in:

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.

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.

5. Operation of the EUT During Testing

5.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated:

For all transmit mode measurements, the Wi-Fi test mode was active at top channel. Transmit mode was tested for Wi-Fi 802.11b and 802.11g modes, with the main antenna of the EUT. For the purpose of co-location testing, the Wi-Fi and GSM devices were both transmitting simultaneously.

Receiver mode measurements were performed with the main and auxiliary antenna of the EUT set to receive mode only.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration:

The EUT was configured with the communication/charger port connected to an external 110V AC supply via an AC Charger.

6. Summary of Test Results

Range of Measurements	Section Reference	Port Type	Compliancy Status
Receiver AC Conducted Emissions (150 kHz to 30 MHz)	Section 15.107	AC Mains	Complied
Receiver Radiated Spurious Emissions	Section 15.109	Enclosure	Complied
Transmitter AC Mains Conducted Emissions (150 kHz to 30 MHz)	Section 15.207	AC Mains	Complied
Transmitter Radiated Spurious Emissions	Section 15.209	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, England.

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.

7.2. Test Results

7.2.1. Receiver AC Conducted Spurious Emissions: Section 15.107 – Wi-Fi 802.11b Mode

The EUT was configured for AC conducted emissions measurements, as described in Section 9 of this report.

Tests were performed to identify the maximum emission levels on the AC mains line of the EUT.

Results:

Quasi-Peak Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.150000	Neutral	35.6	66.0	30.4	Complied
0.190000	Live	43.3	64.0	20.7	Complied
0.202000	Neutral	43.6	63.5	19.9	Complied
0.254000	Neutral	40.1	61.6	21.5	Complied
0.258000	Neutral	42.8	61.5	18.7	Complied
0.318000	Neutral	34.8	59.8	25.0	Complied
0.410000	Neutral	29.4	57.6	28.2	Complied
0.474000	Live	39.6	56.4	16.8	Complied
0.510000	Live	34.9	56.0	21.1	Complied
4.258000	Live	24.9	56.0	31.1	Complied

Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.198000	Live	35.4	53.7	18.3	Complied
0.270000	Live	33.8	51.1	17.3	Complied
0.402000	Neutral	25.7	47.8	22.1	Complied
0.474000	Live	38.1	46.4	8.3	Complied
0.510000	Live	32.8	46.0	13.2	Complied
0.766000	Neutral	19.1	46.0	26.9	Complied
0.798000	Live	26.1	46.0	19.9	Complied
0.814000	Live	22.7	46.0	23.3	Complied
3.938000	Live	24.0	46.0	22.0	Complied
4.450000	Live	23.5	46.0	22.5	Complied

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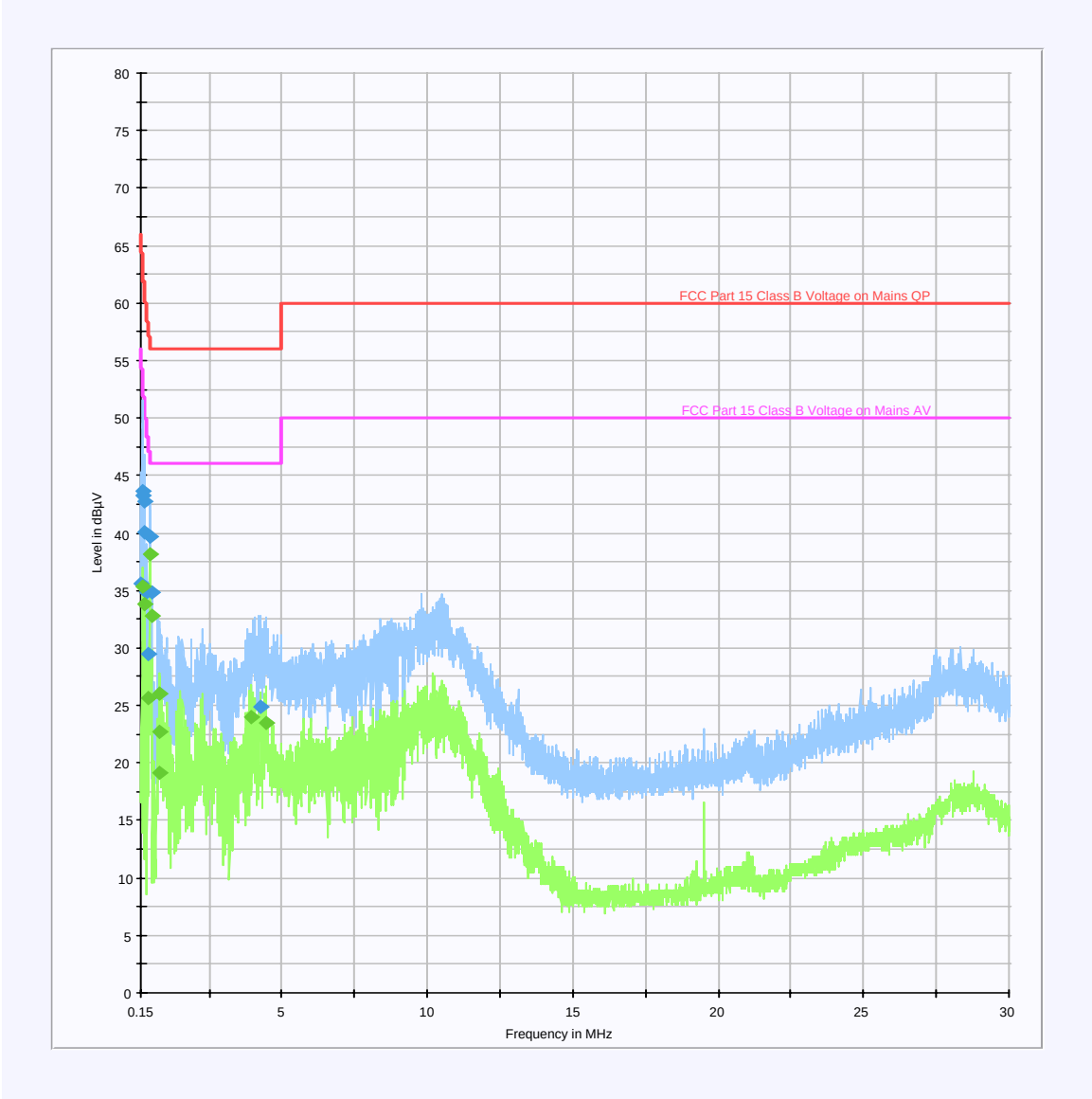
Receiver AC Conducted Spurious Emissions: Section 15.107 Wi-Fi b Mode (Continued)



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

7.2.2. Receiver AC Conducted Spurious Emissions: Section 15.107 – Wi-Fi 802.11g Mode

The EUT was configured for AC conducted emissions measurements, as described in Section 9 of this report.

Tests were performed to identify the maximum emission levels on the AC mains line of the EUT.

Results:

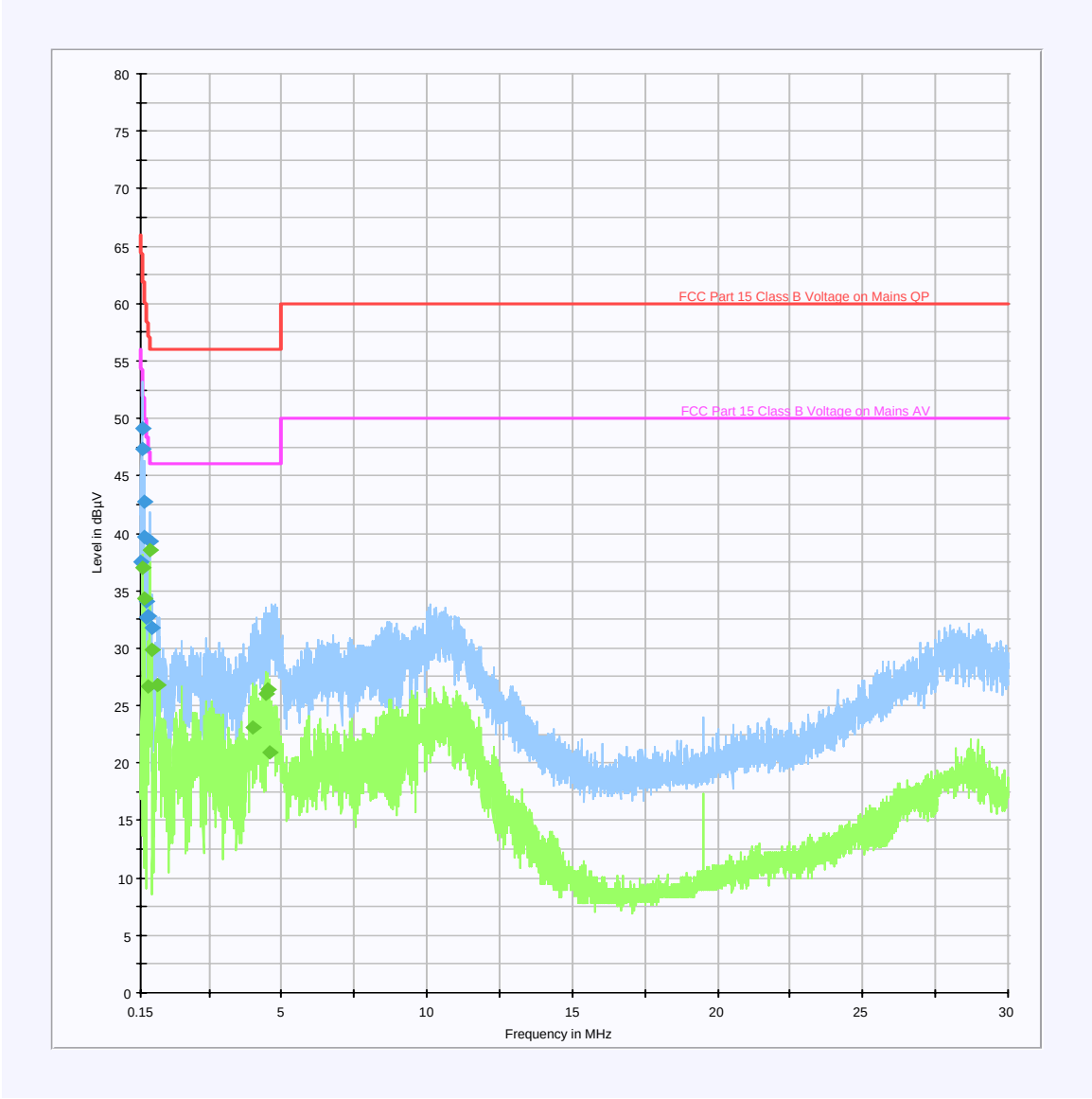
Quasi-Peak Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.150000	Live	37.5	66.0	28.5	Complied
0.194000	Neutral	47.3	63.9	16.6	Complied
0.198000	Neutral	49.1	63.7	14.6	Complied
0.254000	Neutral	39.7	61.6	21.9	Complied
0.258000	Neutral	42.7	61.5	18.8	Complied
0.322000	Neutral	34.0	59.7	25.7	Complied
0.334000	Live	32.6	59.4	26.8	Complied
0.406000	Neutral	32.7	57.7	25.0	Complied
0.474000	Live	39.4	56.4	17.0	Complied
0.510000	Live	31.8	56.0	24.2	Complied

Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.198000	Live	37.1	53.7	16.6	Complied
0.270000	Live	34.3	51.1	16.8	Complied
0.406000	Live	26.7	47.7	21.0	Complied
0.474000	Live	38.5	46.4	7.9	Complied
0.514000	Live	29.9	46.0	16.1	Complied
0.706000	Live	26.8	46.0	19.2	Complied
3.986000	Live	23.1	46.0	22.9	Complied
4.434000	Live	26.1	46.0	19.9	Complied
4.502000	Live	26.4	46.0	19.6	Complied
4.566000	Live	20.9	46.0	25.1	Complied

Receiver AC Conducted Spurious Emissions: Section 15.107 Wi-Fi g Mode (Continued)



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

7.2.3. Receiver Radiated Spurious Emissions: Section 15.109 – Wi-Fi 802.11b Mode

7.2.3.1. Electric Field Strength Measurements (Frequency Range: 30 MHz to 1000 MHz)

The EUT was configured for radiated emissions testing, as described in Section 9 of this report.

Tests were performed to identify the maximum receiver or standby radiated emission levels.

Results:

Top Channel – Main Antenna

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
47.712	Vertical	24.0	40.0	16.0	Complied
143.041	Vertical	23.8	43.5	19.7	Complied
198.319	Vertical	18.0	43.5	25.5	Complied

Top Channel – Auxiliary Antenna

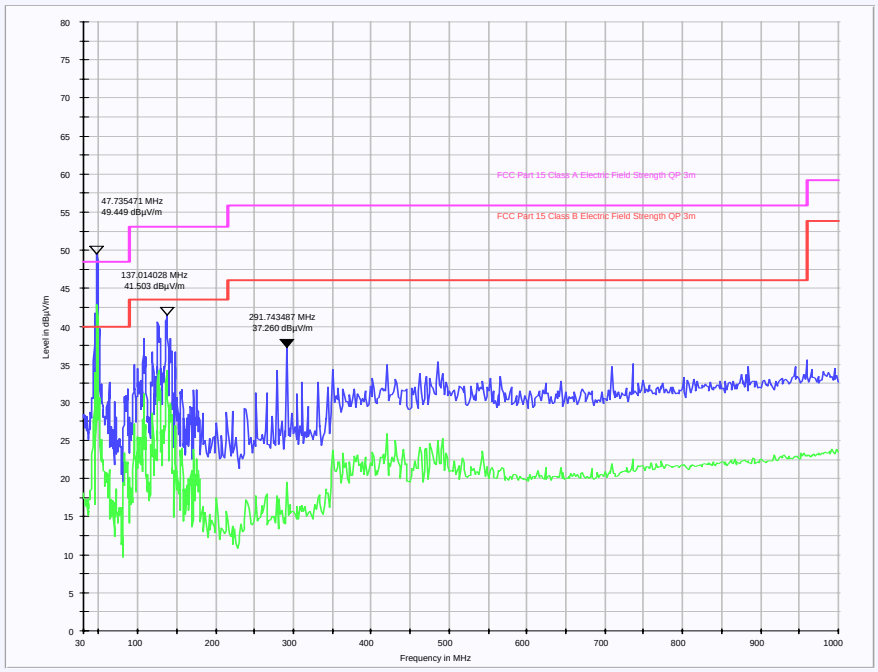
Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
47.712	Vertical	24.0	40.0	16.0	Complied
136.352	Vertical	22.0	43.5	21.5	Complied

Note(s):

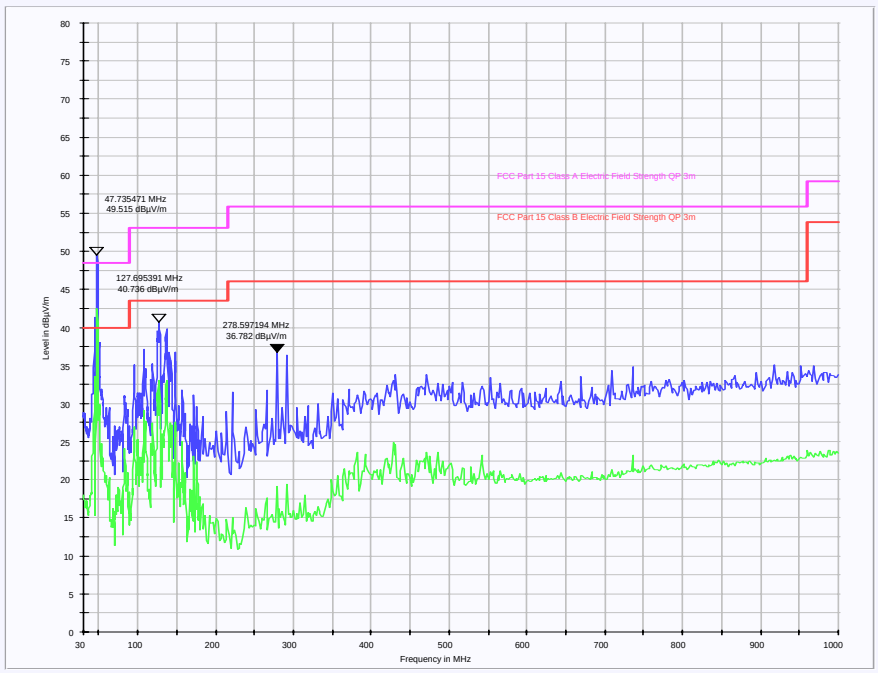
1. *EUT tested in 802.11b Wi-Fi mode with main and auxiliary antennas.*

Receiver Radiated Spurious Emissions: Section 15.109 – Wi-Fi 802.11b Mode (Continued)

Main Antenna



Auxiliary Antenna



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

Receiver Radiated Spurious Emissions: Section 15.109 – Wi-Fi 802.11b Mode (Continued)

7.2.3.2. Electric Field Strength Measurements (Frequency Range: 1 GHz to 12.5 GHz)

Results:

Top Channel - Highest Peak Level: – Main Antenna

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
11.688	Horizontal	42.1	4.7	46.8	54.0	7.2	Complied

Top Channel - Highest Peak Level: – Auxiliary Antenna

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
1.713	Horizontal	54.3	-6.5	47.8	54.0	6.2	Complied

Note(s):

1. *EUT tested in 802.11b Wi-Fi mode with main and auxiliary antennas.*
2. *No spurious emissions were detected above the noise floor of the measuring receiver; therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the tables above.*

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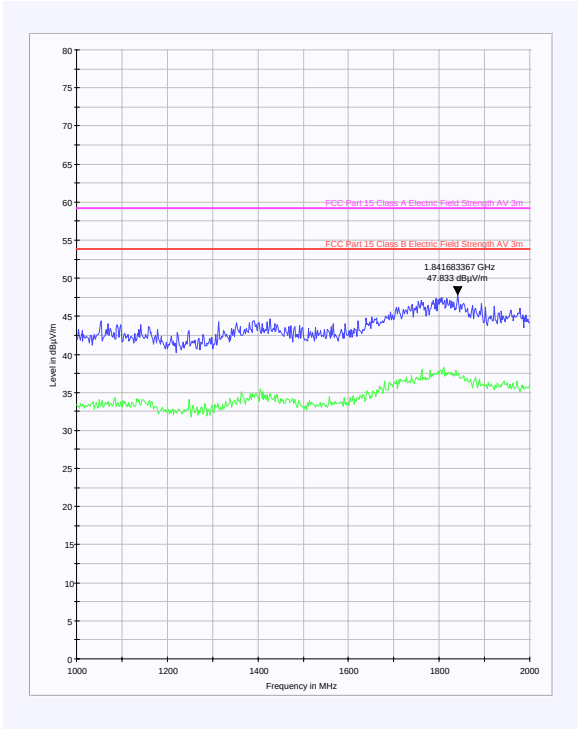
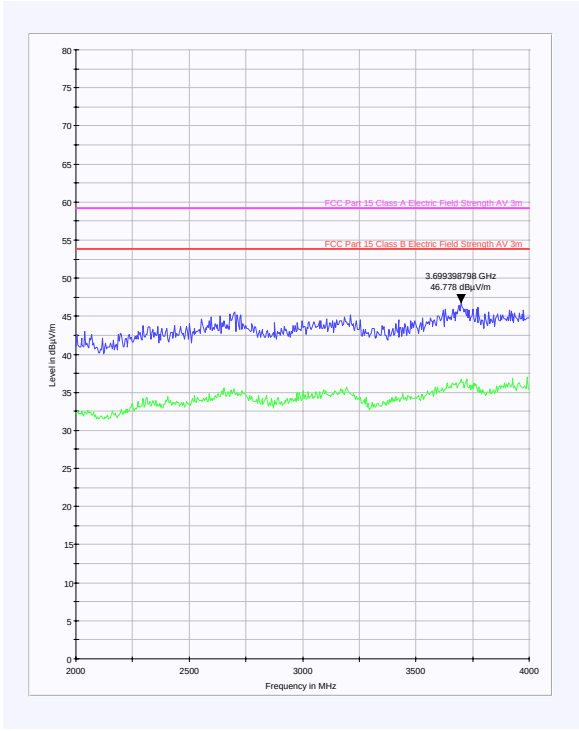
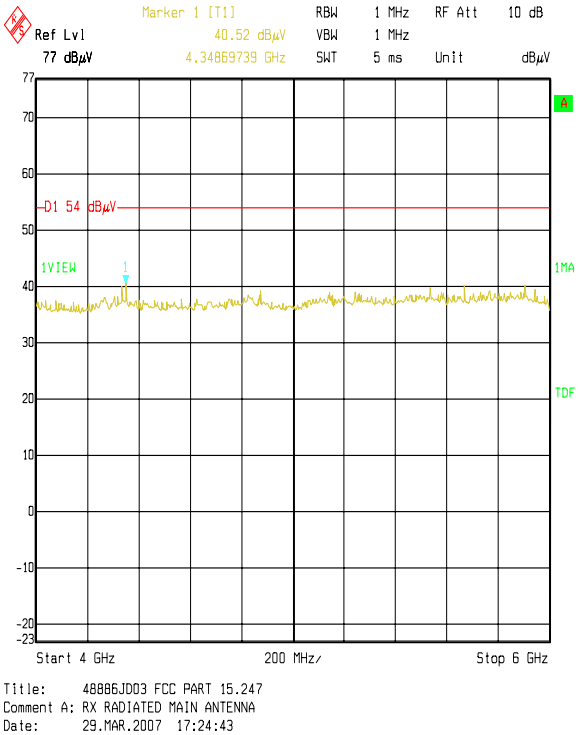
Receiver Radiated Spurious Emissions: Section 15.109 – Wi-Fi 802.11b Mode (Continued)

Main Antenna







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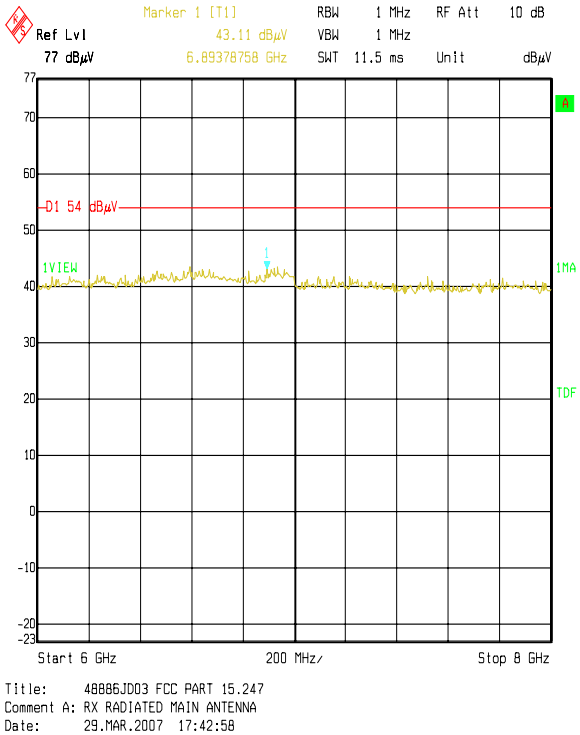

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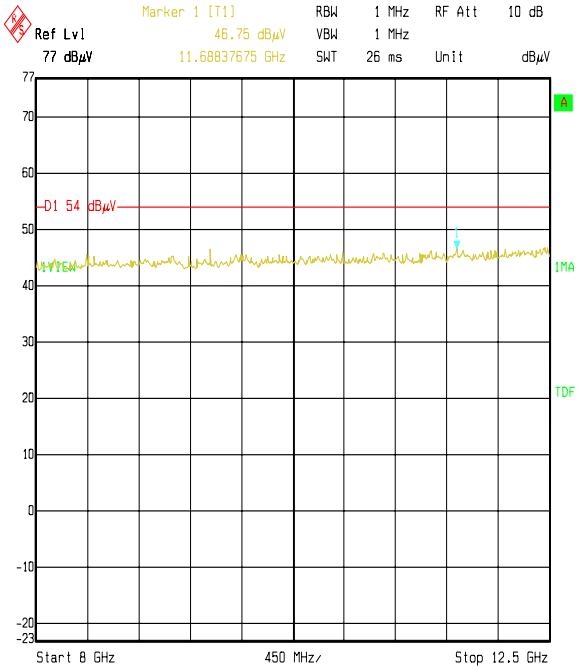
Date: 29.MAR.2007 17:42:58

Test of: **Datalogic S.p.A**
DLBJET
To: **FCC Part 15.107, 15.109 and 15.207**

Receiver Radiated Spurious Emissions: Section 15.109 – Wi-Fi 802.11b Mode (Continued)

Main Antenna



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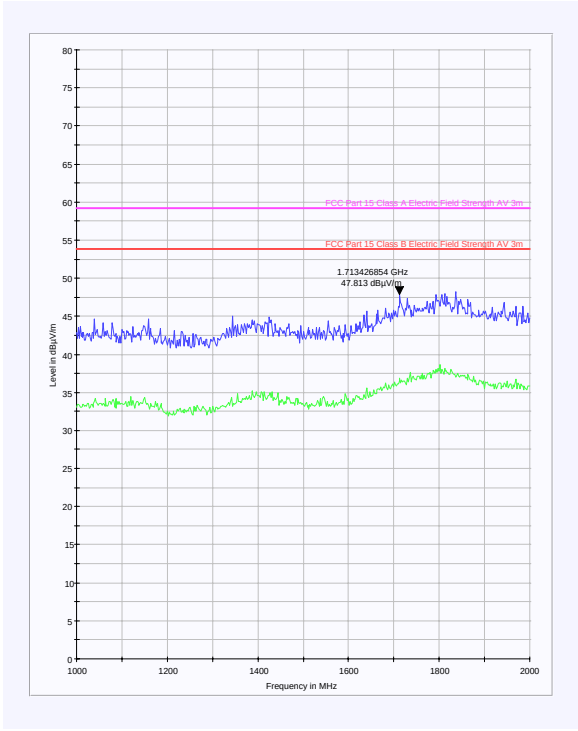
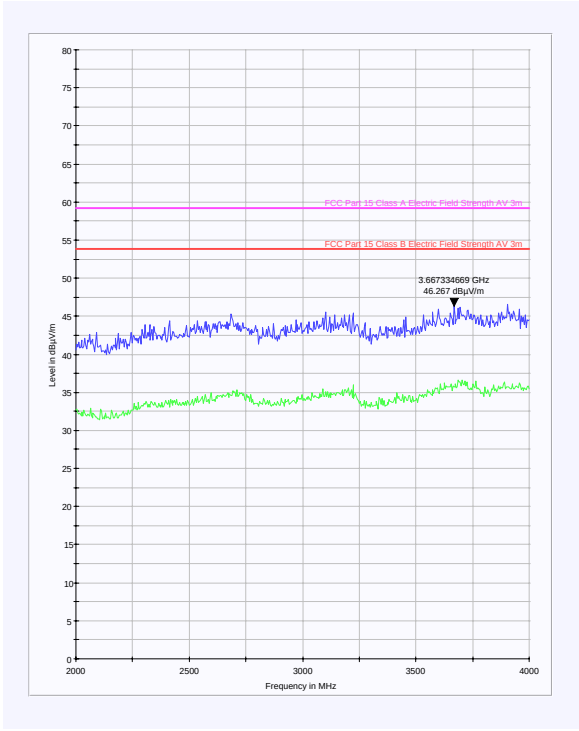
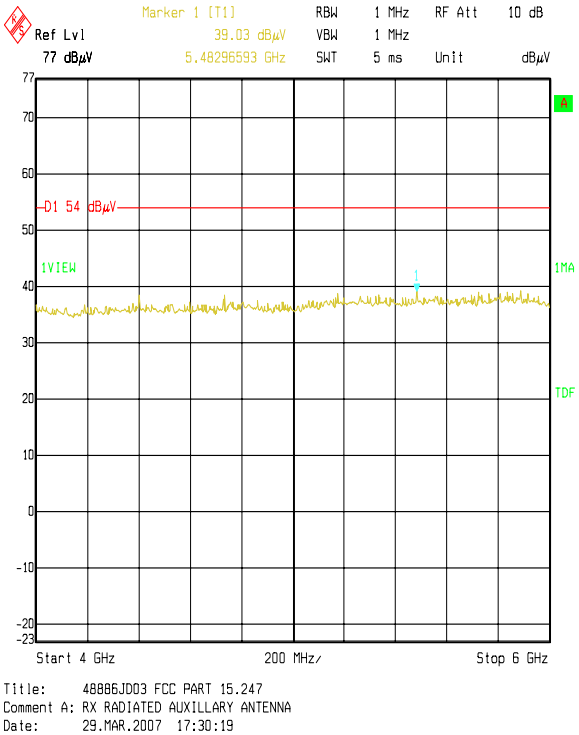
Test of: Datalogic S.p.A
DLBJET
To: FCC Part 15.107, 15.109 and 15.207

Receiver Radiated Spurious Emissions: Section 15.109 – Wi-Fi 802.11b Mode (Continued)

Auxiliary Antenna







Title: 48886JD03 FCC PART 15.247
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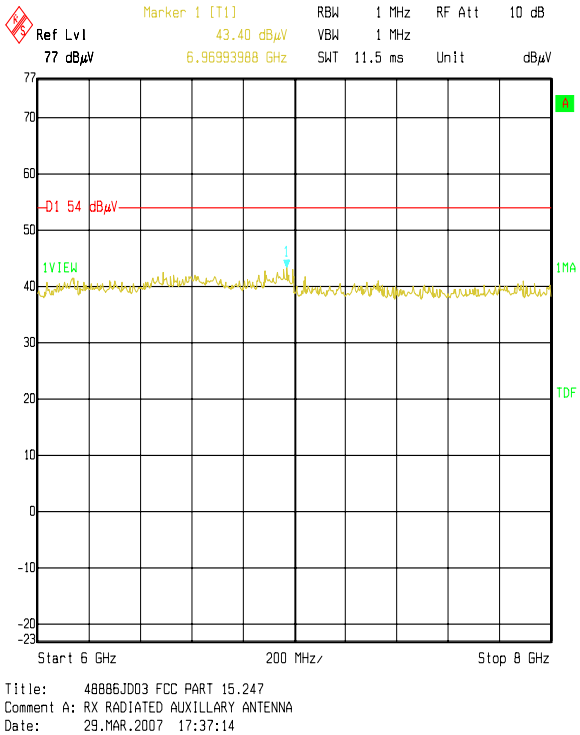

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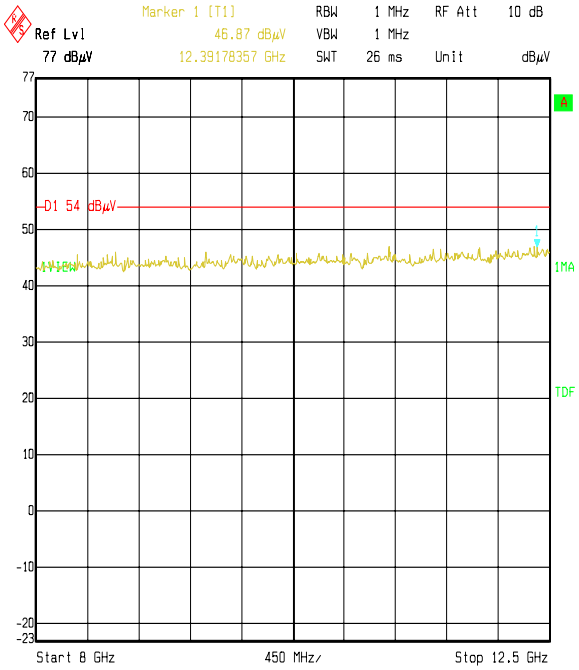
Test of: **Datalogic S.p.A**
DLBJET
To: **FCC Part 15.107, 15.109 and 15.207**

Receiver Radiated Spurious Emissions: Section 15.109 – Wi-Fi 802.11b Mode (Continued)

Auxiliary Antenna



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Date: 29.MAR.2007 17:56:28

7.2.4. Transmitter AC Mains Conducted Emissions: Section 15.207 – Wi-Fi 802.11b Mode

The EUT was configured for AC conducted emissions measurements, as described in Section 9 of this report.

Tests were performed to identify the maximum emission levels on the AC mains line of the EUT.

Results:

Quasi-Peak Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.150000	Live	40.0	66.0	26.0	Complied
0.194000	Neutral	49.6	63.9	14.3	Complied
0.198000	Neutral	50.6	63.7	13.1	Complied
0.254000	Neutral	40.8	61.6	20.8	Complied
0.258000	Neutral	42.9	61.5	18.6	Complied
0.322000	Live	35.9	59.7	23.8	Complied
0.338000	Live	34.0	59.3	25.3	Complied
0.406000	Live	34.0	57.7	23.7	Complied
0.466000	Live	36.5	56.6	20.1	Complied
4.822000	Live	30.7	56.0	25.3	Complied

Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.190000	Live	36.4	54.0	17.6	Complied
0.198000	Live	38.6	53.7	15.1	Complied
0.258000	Live	33.2	51.5	18.3	Complied
0.406000	Live	31.3	47.7	16.4	Complied
0.450000	Live	35.5	46.9	11.4	Complied
0.526000	Live	27.9	46.0	18.1	Complied
0.610000	Live	27.0	46.0	19.0	Complied
0.638000	Live	26.2	46.0	19.8	Complied
4.606000	Live	25.5	46.0	20.5	Complied
4.866000	Live	25.5	46.0	20.5	Complied

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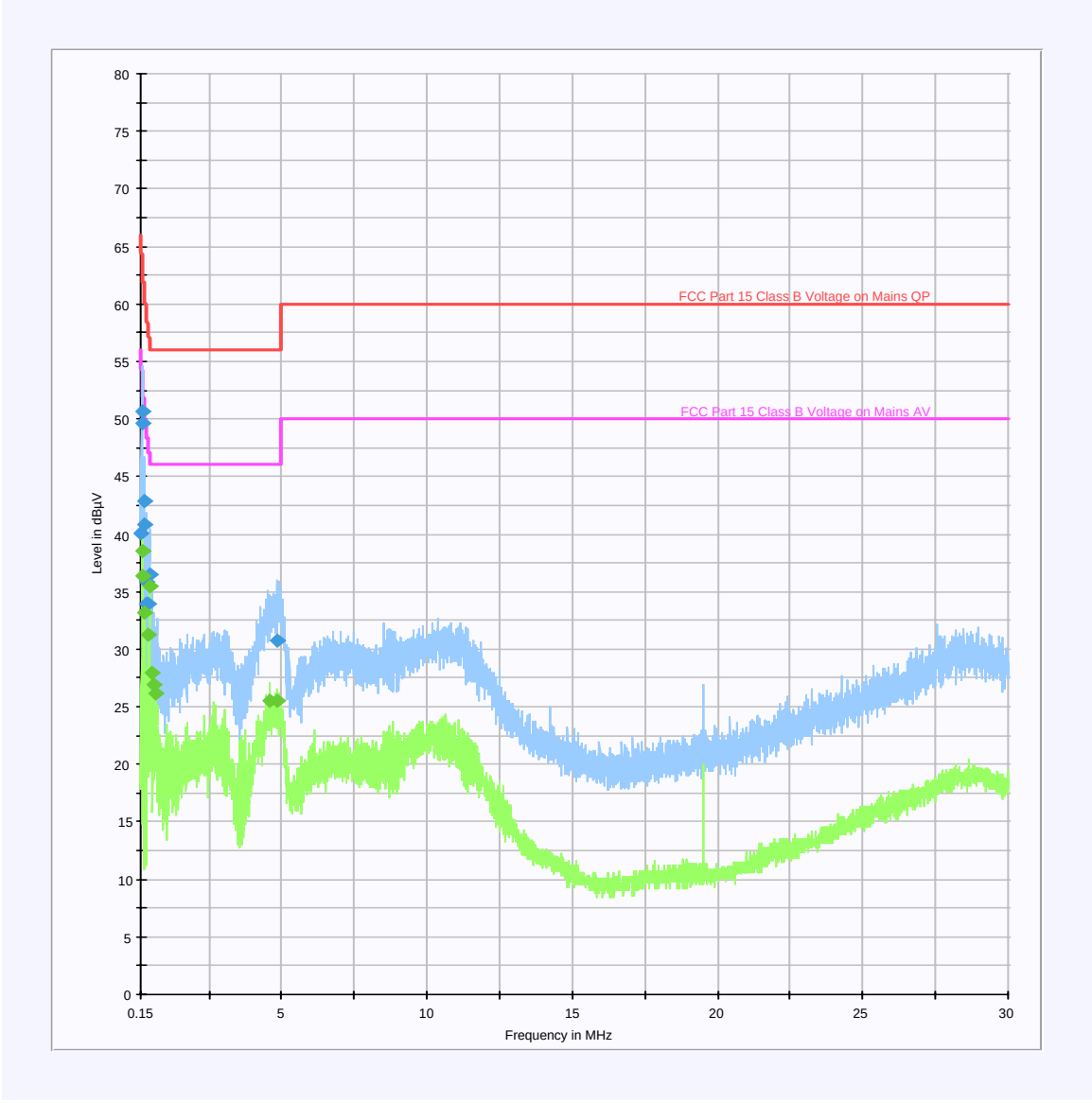
Transmitter AC Mains Conducted Emissions: Section 15.207- Wi-Fi b Mode (Continued)



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

7.2.5. Transmitter AC Mains Conducted Emissions: Section 15.207 – Wi-Fi 802.11g Mode

The EUT was configured for AC conducted emissions measurements, as described in Section 9 of this report.

Tests were performed to identify the maximum emission levels on the AC mains line of the EUT.

Results:

Quasi-Peak Detector Measurements on Live and Neutral Lines

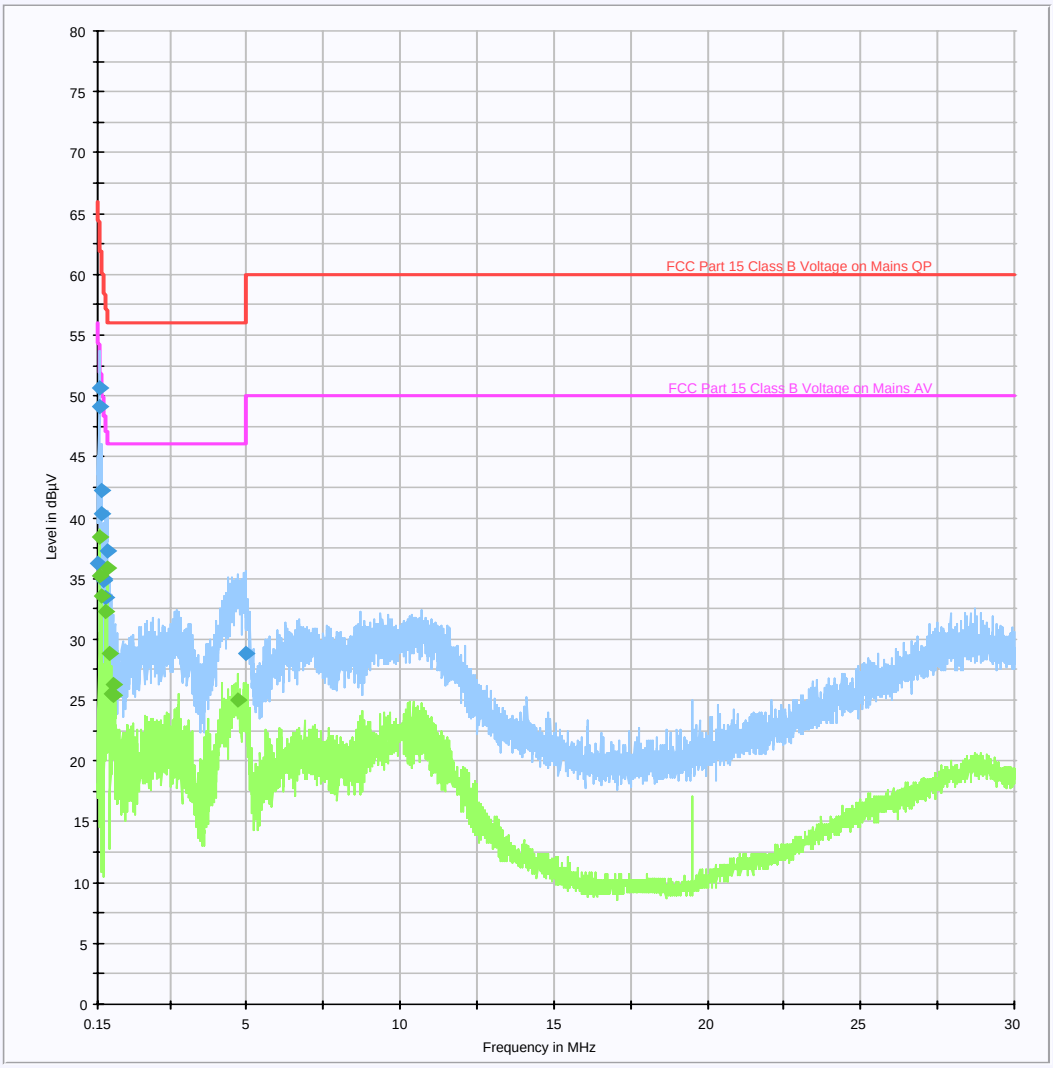
Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.154000	Live	36.3	65.8	29.5	Complied
0.194000	Neutral	49.1	63.9	14.8	Complied
0.198000	Neutral	50.7	63.7	13.0	Complied
0.254000	Neutral	40.4	61.6	21.2	Complied
0.258000	Neutral	42.3	61.5	19.2	Complied
0.322000	Live	34.9	59.7	24.8	Complied
0.334000	Live	35.0	59.4	24.4	Complied
0.406000	Neutral	33.4	57.7	24.3	Complied
0.470000	Live	37.3	56.5	19.2	Complied
4.962000	Live	28.9	56.0	27.1	Complied

Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.190000	Live	35.3	54.0	18.7	Complied
0.198000	Live	38.4	53.7	15.3	Complied
0.270000	Live	33.5	51.1	17.6	Complied
0.402000	Live	32.3	47.8	15.5	Complied
0.450000	Live	35.8	46.9	11.1	Complied
0.514000	Live	28.9	46.0	17.1	Complied
0.610000	Live	25.5	46.0	20.5	Complied
0.642000	Live	25.4	46.0	20.6	Complied
0.658000	Live	26.3	46.0	19.7	Complied
4.690000	Live	25.0	46.0	21.0	Complied

Test of: Datalogic S.p.A
DLBJET
To: FCC Part 15.107, 15.109 and 15.207

Transmitter AC Mains Conducted Emissions: Section 15.207 – Wi-Fi g Mode (Continued)



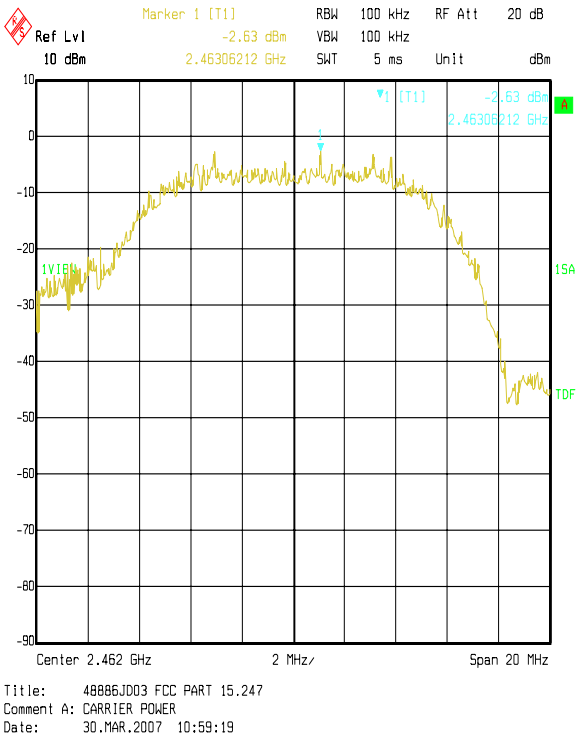
Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

7.2.6. Transmitter Carrier Power: Section 15.209

The EUT was configured for radiated emissions, as described in Section 9 of this report.

The test was performed to identify the maximum carrier power level, in order to set the -20 dBc limit for the spurious emissions outside of the restricted bands.

Results:



Note(s):

1. *In order to determine the -20 dBc limit for spurious emissions testing, the carrier power was measured at top channel using a 100 kHz RBW*

Transmitter Radiated Spurious Emissions: Section 15.209 (Continued)

7.2.6.1. Electric Field Strength Measurements: (For Inter-modulation Product outside the Restricted Bands)

This testing was performed as part of co-location testing.

Results:

Highest Peak Level:

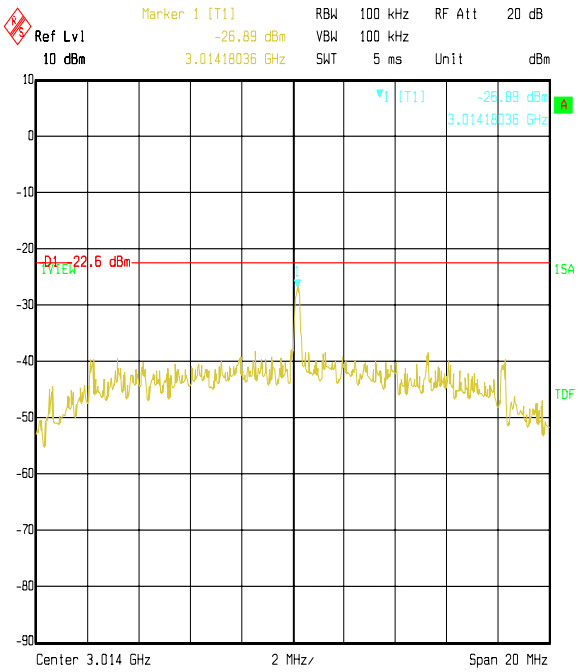
Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Antenna Factor (dB)	Actual Level (dBµV/m)	-20 dBc Limit (dBµV/m)	Margin (dB)	Result
3.014	Horizontal	75.7	-7.4	68.3	72.6	4.3	Complied

Note(s):

1. *For co-location testing both GSM and Wi-Fi were transmitting simultaneously at top channel.*

Test of: **Datalogic S.p.A**
DLBJET
To: **FCC Part 15.107, 15.109 and 15.207**

Transmitter Radiated Spurious Emissions: Section 15.209 (Continued)



Transmitter Radiated Spurious Emissions: Section 15.209 (Continued)

7.2.6.2. Electric Field Strength Measurements: (For Inter-modulation Product inside the Restricted Bands)

This testing was performed as part of co-location testing.

Results:

Highest Peak Level:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Antenna Factor (dB)	Actual Level (dBµV/m)	Peak Limit (dBµV/m)	Margin (dB)	Result
1.3547	Horizontal	80.3	-8.6	71.7	74.0	2.3	Complied

Highest Average Level:

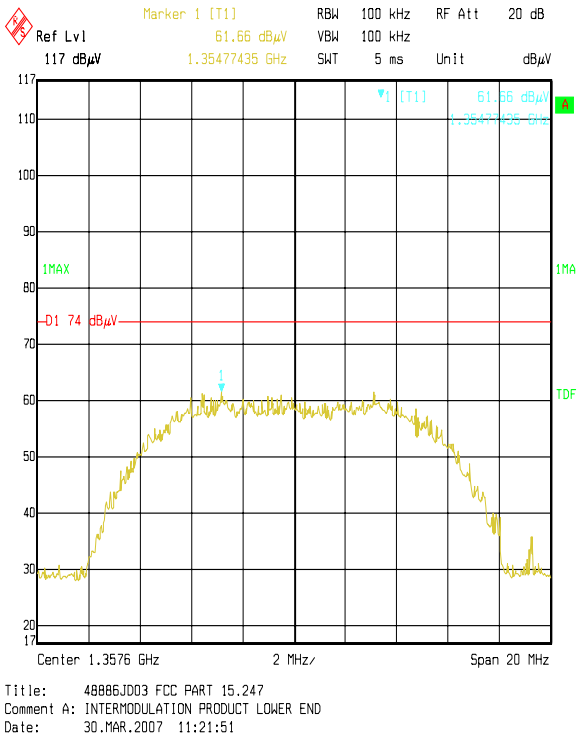
Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Antenna Factor (dB)	Actual Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
1.3574	Horizontal	54.6	-8.6	46.0	54.0	8.0	Complied

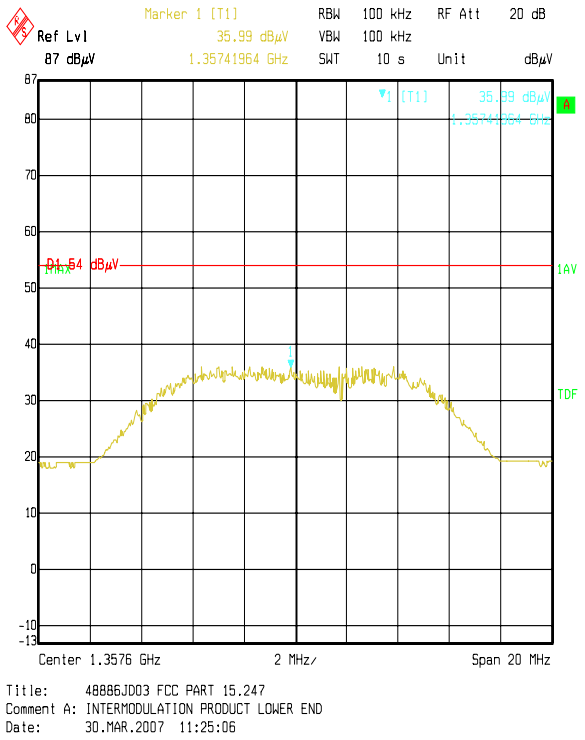
Note(s):

1. *For co-location testing both GSM and Wi-Fi were transmitting simultaneously at top channel.*

Test of: **Datalogic S.p.A**
DLBJET
To: **FCC Part 15.107, 15.109 and 15.207**

Transmitter Radiated Spurious Emissions: Section 15.209 (Continued)





Note: The plots show the signals in a 100 kHz resolution bandwidth but the tables on the previous page show the signal levels in 1 MHz resolution bandwidth.

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
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	+/- 3.25 dB
Radiated Emissions	30 MHz to 1000 MHz	95%	+/- 5.26 dB
Radiated Spurious Emissions	1 GHz to 18 GHz	95%	+/- 4.18 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.

9. Measurement Methods

9.1. AC Mains Conducted Emissions

AC mains conducted emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

The test was performed in a shielded enclosure with the equipment arranged as detailed in the standard on a wooden bench using the floor of the screened enclosure as the ground reference plane. The EUT was powered with 110V 60 Hz AC mains supplied via a Line Impedance Stabilisation Network (LISN).

Initial measurements in the form of swept scans covering the entire measurement band were performed in order to identify frequencies on which the EUT was generating interference. In order to minimise the time taken for these swept measurements, a Peak detector was used in conjunction with the appropriate detector IF measuring bandwidths (see table below). Repetitive scans were performed to allow for emissions with low repetition rates, and the duty cycle of the EUT. The test configuration was the same for the initial scans as for the final measurements.

Following the initial scans, a graph was produced giving an overview of the emissions from the EUT plotted against the appropriate specification limit. A tolerance line was set 6 dB below the specification limit and levels above the tolerance line were re-tested (at individual frequencies) using the appropriate detector function.

The test equipment settings for conducted emissions measurements were as follows:

Receiver Function	**Initial Scan**	**Final Measurements**
Detector Type:	Peak	Quasi-Peak (CISPR)/Average
Mode:	Max Hold	Not applicable
Bandwidth:	10 kHz*	9 kHz*
Amplitude Range:	60 dB	20 dB
Measurement Time:	Not applicable	> 1 s
Observation Time:	Not applicable	> 15 s
Step Size:	Continuous sweep	Not applicable
Sweep Time:	Coupled	Not applicable

9.2. Radiated Emissions

Radiated emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

Initial pre-scans covering the entire measurement band from the lowest generated frequency declared up to the upper frequency detailed in Section 15.33(b) were performed within a screened chamber in order to identify frequencies on which the EUT was generating interference. This determined the frequencies from the EUT that required further examination. In order to minimise the time taken for the swept measurements, a peak detector was used in conjunction with the appropriate detector measuring bandwidth (see table below). Repetitive scans were performed to allow for emissions with low repetition rates, and for the duty cycle of the EUT.

The initial scans were performed using an antenna height of 1.5 m and a measurement distance of 3 m. A limit line was set to the specification limit. Levels within 20 dB of this limit were measured where possible, on occasion; the receiver noise floor came within the 20 dB boundary. On these occasions, the system noise floor may have been recorded.

An open area test site using the appropriate test distance and measuring receiver with a Quasi-Peak detector was used for measurements below 1000 MHz, for measurements above 1000 MHz average and peak detectors were used.

For the final measurements the EUT was arranged on a non-conducting turn table on a standard test site compliant with ANSI C63.4 - 2001 Clause 5.4.

On the open area test site, at each frequency where a signal was found, the levels were maximised by initially rotating the turntable through 360° and then varying the antenna height between 1 m and 4 m in the horizontal polarisation. At this point, any signals found to be between the limit and a level 6 dB below it were further maximised by changing the configuration of the EUT, e.g. re-routing cables to peripherals and moving peripherals with respect to the EUT. The procedure was repeated for the vertical polarisation.

The final field strength was determined as the indicated level in dBμV plus cable loss and antenna factor.

The test equipment settings for radiated emissions measurements were as follows:

Receiver Function	**Initial Scan**	**Final Measurements Below 1 GHz**	**Final Measurements Above 1 GHz**
Detector Type:	Peak	Quasi-Peak (CISPR)	Peak/Average
Mode:	Max Hold	Not applicable	Not applicable
Bandwidth:	(120 kHz < 1 GHz) (1 MHz > 1 GHz)	120 kHz	1 MHz
Amplitude Range:	100 dB	100 dB	100 dB
Step Size:	Continuous sweep	Not applicable	Not applicable
Sweep Time:	Coupled	Not applicable	Not applicable

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval
A028	9188-2 Horn Antenna 1-2 GHz	Eaton	91888-2	304	08 Jun 2006	36
A031	2 to 4 GHz Eaton Horn Antenna	Eaton	91889-2	557	08 Jun 2006	36
A1037	Green Bilog Antenna	Chase EMC Ltd	CBL6112B	2413	20 Sep 2006	12
A1069	Single Phase LISN	Rohde & Schwarz	ESH3-Z5	837469/012	09 Feb 2007	12
A1534	Preamplifier 1-26.5 GHz	Hewlett Packard	8449B OPT H02	3008A00405	Calibrate Before Use	-
A1830	N-Type Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	8 Jan 2007	12
A253	WG 12 Microwave Horn	Flann Microwave	12240-20	128	17 Nov 2006	36
A254	WG 14 Microwave Horn	Flann Microwave	14240-20	139	17 Nov 2006	36
A255	WG 16 Microwave Horn	Flann Microwave	16240-20	519	17 Nov 2006	36
C1081	UFA210A Rosenberger Cable	Rosenberger	FA210A10 20M5050	28463-2	Calibrate Before Use	-
C1167	3m N-Type Cable	Rosenberger Micro-Coax	FA210A10 30007070	43190-01	Calibrate Before Use	-
C1268	7.5m BNC Coaxial Cable	Rosenberger	FA210A00 75008080	49356-1	Calibrate Before Use	-
C151	Cable	Rosenberger	UFA210A-1-1181-70x70	None	Calibrate Before Use	-
C160	Cables	Rosenberger	UFA210A-1-1181-70x70	None	Calibrate Before Use	-
C348	Cable	Rosenberger	UFA210A-1-1181-70x70	2993	Calibrate Before Use	-
C363	Cable	Rosenberger	RG142	None	Calibrate Before Use	-
C461	DC to 18GHz Rosenberger	Rosenberger	UFA210A-1-1182-704704	98H0305	Calibrate Before Use	-
C468	10m Cable	Rosenberger	UFA210A-1-3937-504504	98L0440	Calibrate Before Use	-

Test Equipment Used (Continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval
M023	ESVP Receiver	Rohde & Schwarz	ESVP	872 991/027	10 Apr 2006	12
M1242	Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986_022	08 Sep 2006	12
M1263	EMI Test Receiver	Rohde & Schwarz	ESIB7	100265	25 Jan 2007	12
S201	3m & 10m OATS	RFI	1		18 Jul 2006	12
S202	3m OATS	RFI	2	S202-15011990	17 Nov 2006	12
S212	Emissions Screened Room	RFI	12		Not applicable	-

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

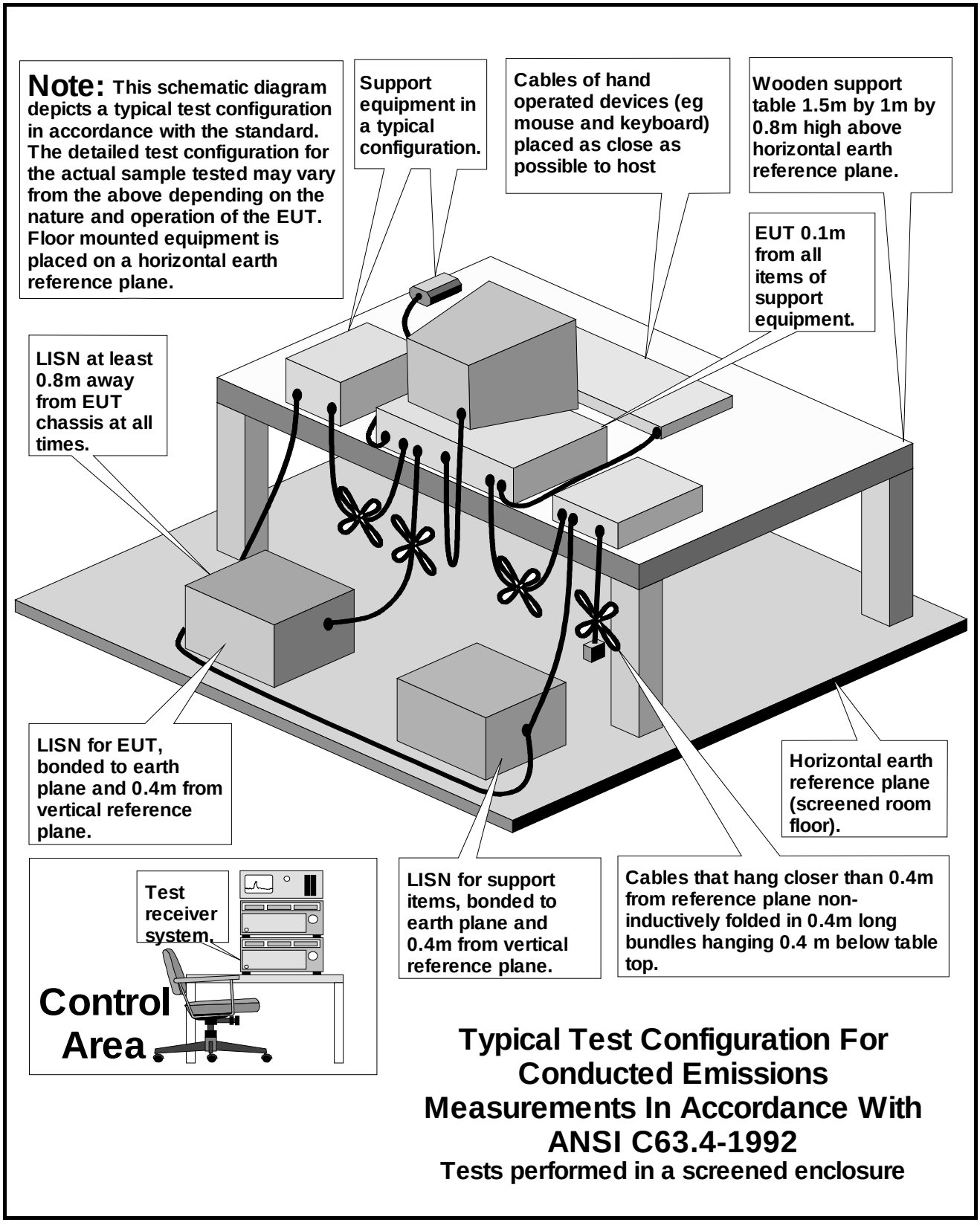
Appendix 2. Test Configuration Drawings

This appendix contains the following drawings:

Drawing Reference Number	Title
DRG\48886JD03\EMICON	Test configuration for measurement of conducted emissions.
DRG\48886JD03\EMIRAD	Test configuration for measurement of radiated emissions.

Test of: Datalogic S.p.A
DLBJET
To: FCC Part 15.107, 15.109 and 15.207

DRG\48886JD03\EMICON

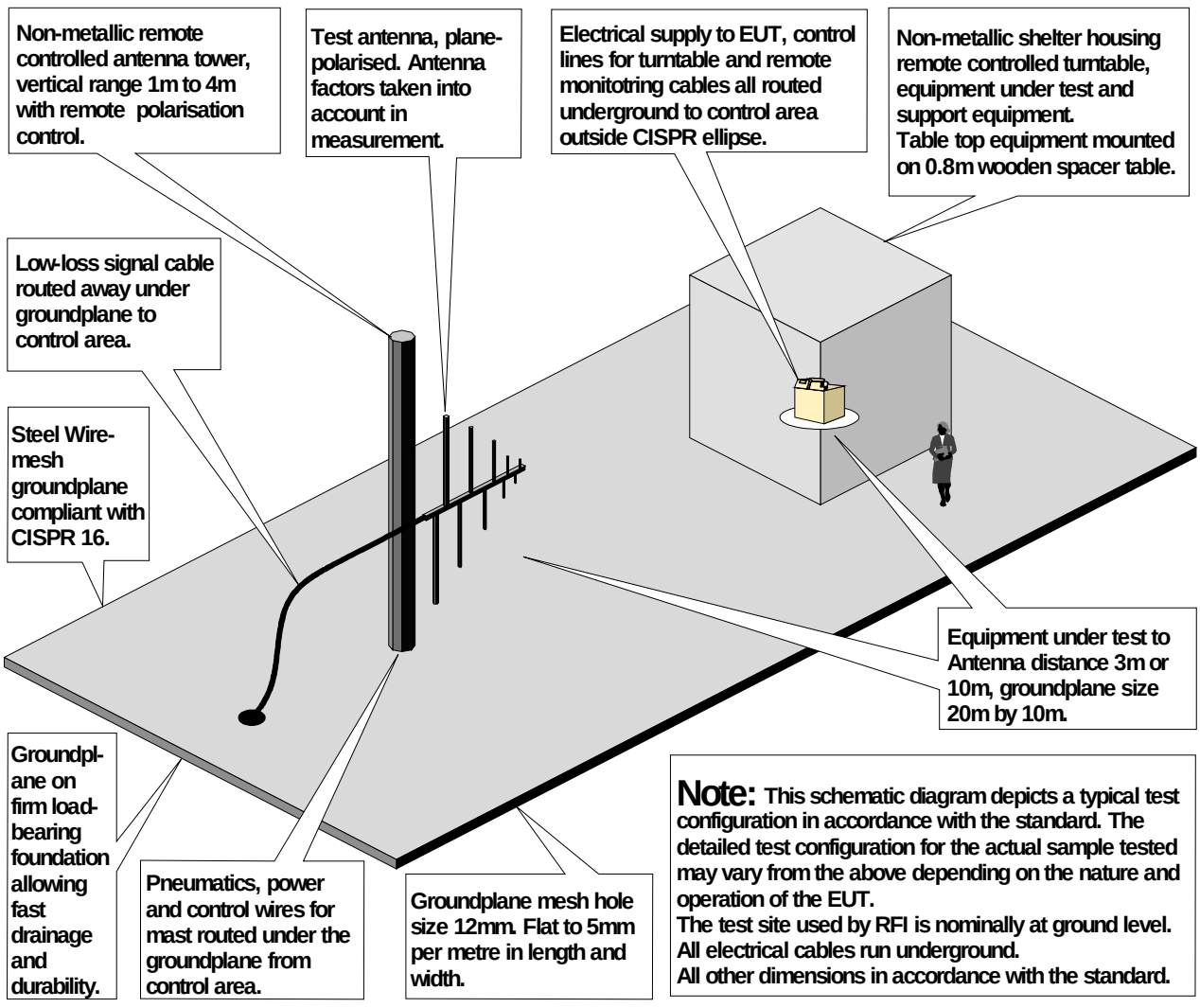


Typical Test Configuration For Conducted Emissions Measurements In Accordance With ANSI C63.4-1992

Tests performed in a screened enclosure

Test of: Datalogic S.p.A
DLBJET
To: FCC Part 15.107, 15.109 and 15.207

DRG\48886JD03\EMIRAD



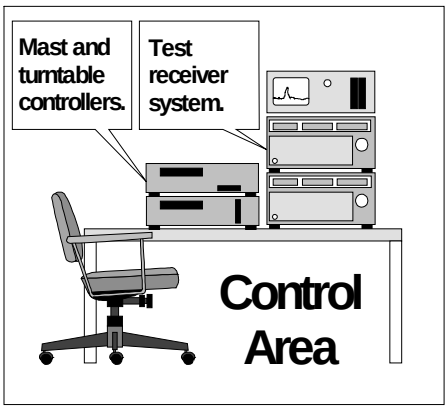
Note: This schematic diagram depicts a typical test configuration in accordance with the standard. The detailed test configuration for the actual sample tested may vary from the above depending on the nature and operation of the EUT.
The test site used by RFI is nominally at ground level.
All electrical cables run underground.
All other dimensions in accordance with the standard.

Test Configuration For Radiated Emissions Measurements

Reflection-free area: >60m by 52m (CISPR ellipse)

Groundplane Earthed

Control room outside CISPR ellipse



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