

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: Datalogic Scanning group S.R.L, PowerScan M8300

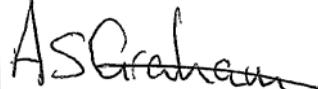
To: 47CFR15.107 and 47CFR15.109

Test Report Serial No: RFI-EMC-RP77263JD03A V2.0

Version 2.0 supersedes all previous versions

This test report is issued under the authority
of Scott D'Adamo, Operations Manager
Global Approvals:



Checked By:	Andy Graham
Signature:	
Date of Issue:	18 May 2010

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1. CUSTOMER DETAILS

Company Name:	Datalogic Scanning group S.r.l.
Address:	13 Via San Vitalino Calderara di Reno Bologna 40012 Italy

2. SUMMARY OF TESTING

2.1. Test Specification

Reference:	47CFR15.107 and 47CFR15.109
Title:	Code of Federal Regulations Title 47 (Telecommunications) 2008: Part 15 Subpart B (Radio Frequency Devices) – Sections 15.107 and 15.109.

2.2. Summary of Test Results

Clause	Measurement Type	Applicability	Result
EMISSIONS			
15.109	Radiated Emissions (Enclosure)	Y	
15.107	Conducted Emissions (AC Mains Input/Output Ports)	Y	

KEY: = Complied = Did not comply

2.3. Location of Testing

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire RG24 8AH.

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, nor from the requirements defined in the basic standards called up within it.

3. EQUIPMENT UNDER TEST (EUT)

3.1. Description of EUT

The EUT was a wireless barcode reader and base station.

3.2. Identification of Equipment under Test (EUT)

ID#	Description	Brand Name	Model No	Serial No
1	Barcode Reader	Datalogic Scanning group S.r.l.	PowerScan M8300	None Specified
2	Base Station	Datalogic Scanning group S.r.l.	PowerScan BC-8060	E08N33273
3	AC/DC Adapter	Phihong	PSAA18U-120	093100025A1

3.3. Port Identification

Port	Description	Type
1	Enclosure	-
2	AC Mains Input	3-pin IEC
3	Serial I/O	RS-232

3.4. Operating Modes

Mode Reference	Definition
Standby	The Reader and Base Station were both set to receive mode.

3.5. Modifications

NOTE: There were no modifications made to the EUT during the course of testing.

3.6. Additional Information Related to Testing

Equipment Category:	Information Technology
Intended Operating Environment:	Commercial
Cycle Time:	< 1 s
Power Supply Requirement(s):	110 VAC (mains supply to AC/DC adaptor) ; 3.7 VDC (internal battery)
Weight:	395 g Reader; 380 g Base station
Dimensions:	210 x 114 x 69 mm Reader; 240 x 108 x 95 mm Base station
FCC ID:	U4F0020

4. SUPPORT EQUIPMENT

4.1. Identification of Support Equipment

NOTE: There was no support equipment used during the course of testing.

4.2. Interconnecting Cables

NOTE: There were no interconnecting cables required during the course of testing.

5. MONITORING PERFORMANCE

5.1. Overview

No immunity testing was performed; therefore performance criteria were not applicable.

5.2. Monitoring EUT Performance During Testing

For the purposes of testing, the term “<i>operate as intended</i>” was defined as:	Both the reader and base station remained on standby.
For the purposes of testing, an “<i>unintentional response</i>” was defined as:	Not applicable
Method used to determine whether user control functions and stored data were lost after the EMC exposure:	Not applicable
Method used to verify that a communications link was established and maintained (if appropriate):	Not applicable
Method of assessment of level of performance or degradation of performance during and/or after EMC exposure:	Not applicable

6. MEASUREMENT UNCERTAINTY

6.1. Overview

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 measurement (the specific quantity subject to measurement) and is only complete when accompanied by a statement regarding the uncertainty of approximation.

The measurement uncertainty may need to be taken into account when interpreting the test results included within this test report.

6.2. Method of calculation

The methods used to calculate the uncertainties included within this test report 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 United Kingdom Accreditation Service (UKAS) is followed.

7. MEASUREMENTS, EXAMINATIONS AND DERIVED RESULTS

7.1. General Comments

7.1.1. This section contains the test result sheets for the measurements listed in Section 2.2. *Summary of Test Results* (above).

7.1.2. The measurement uncertainties stated in the test result sheets were calculated in accordance with documented best practice and represent a confidence level of 95%. Where only confidence level is given, it has been demonstrated that the relevant items of test equipment used meet the specified requirements in the standard with at least this level of confidence.

7.1.3. Please refer to Section 6. *Measurement Uncertainty* on page 10 for details of our treatment of measurement uncertainty.

RADIATED EMISSIONS - TEST RESULTS

This test is not covered by the scope of RFI's UKAS Accreditation under ISO/IEC 17025: 2005.

GENERAL INFORMATION

RFI JOB NUMBER:	77263JD03	TEST SITE ID:	Site 1
EUT:	PowerScan M8300	TEMPERATURE:	25 °C to 25 °C
TEST ENGINEER:	Matthew Owen	RELATIVE HUMIDITY:	40 % to 40 %
DATE OF TEST:	16 Apr 2010	ATMOSPHERIC PRESSURE:	1008mb to 1008 mb
FIELD TYPE:	Electric Field	MEASUREMENT DISTANCE:	3 Meters
UNCERTAINTY (±):	±4.68 dB	EQUIPMENT CLASS:	Class B
MEASUREMENT UNITS:	dB μ V/m	TEST ENVIRONMENT:	Test Site

TEST SPECIFICATION DETAILS

The EUT has been configured and tested in accordance with the methods and procedures detailed within the following basic standard:

REFERENCE:	47CFR15.109
TITLE:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart B (Radio Frequency Devices) - Section 15.109

COMMENTS

None

DEVIATIONS FROM TEST SPECIFICATION

There were no deviations from the test configuration and measurement arrangements defined in the test specification (identified above).

EUT RELATED

OPERATING MODE:	Standby (In cradle)
FUNCTION(S) MONITORED:	Not Applicable

MEASUREMENT RESULTS

No.	Frequency (MHz)	Polarity	Detector	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Graph No.	Result
1	31.461	Vertical	Quasi Peak	16.8	40.0	23.2	GPH\77263JD03\001	Complied
2	41.851	Vertical	Quasi Peak	16.6	40.0	23.4	GPH\77263JD03\001	Complied
3	107.205	Vertical	Quasi Peak	21.0	43.5	22.5	GPH\77263JD03\001	Complied
4	168.689	Horizontal	Quasi Peak	19.1	43.5	24.3	GPH\77263JD03\001	Complied
5	187.366	Horizontal	Quasi Peak	19.4	43.5	24.1	GPH\77263JD03\001	Complied
6	209.629	Vertical	Quasi Peak	9.1	43.5	34.4	GPH\77263JD03\001	Complied
7	1000 to 4000			See note 1			GPH\77263JD03\002	Complied
8	4000 to 7000			See note 1			GPH\77263JD03\003	Complied

NOTES

1 No emissions were noted above the noise floor of the measurement system. Therefore no further measurements were made.

TEST EQUIPMENT USED

RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
K0001	5m Semi-Anechoic Chamber	N/A	04 May 2010	12
L1001	26.5 GHz Test Receiver	ESU26	28 Jan 2011	12
C1303	8m Rosenberger Cable	FA210A1080005050	23 Feb 2011	12
C1306	15m Rosenberger Cable	FA210A0015005050	23 Feb 2011	12
G0543	Amplifier 9KHz - 1GHZ	310N	04 Jun 2010	12
C1116	Uwave cable	ufa 210A-1-0360-50x50	17 Feb 2011	12
A1817	1-18GHz Horn Antenna	3115	27 Nov 2010	12
A490	30 to 1000 MHz, 50 W	CBL6111A	08 Mar 2011	12
M172	Electronic Environmental Monitor	BA-116	21 Jul 2010	12
A1834	3dB N-Type Attenuator	8491B	24 Oct 2010	12

RADIATED EMISSIONS - TEST RESULTS

This test is not covered by the scope of RFI's UKAS Accreditation under ISO/IEC 17025: 2005.

GENERAL INFORMATION

RFI JOB NUMBER:	77263JD03	TEST SITE ID:	Site 1
EUT:	PowerScan M8300	TEMPERATURE:	25 °C to 25 °C
TEST ENGINEER:	Matthew Owen	RELATIVE HUMIDITY:	40 % to 40 %
DATE OF TEST:	22 Apr 2010	ATMOSPHERIC PRESSURE:	1008mb to 1008 mb
FIELD TYPE:	Electric Field	MEASUREMENT DISTANCE:	3 Meters
UNCERTAINTY (±):	±4.68 dB	EQUIPMENT CLASS:	Class B
MEASUREMENT UNITS:	dB μ V/m	TEST ENVIRONMENT:	Test Site

TEST SPECIFICATION DETAILS

The EUT has been configured and tested in accordance with the methods and procedures detailed within the following basic standard:

REFERENCE:	47CFR15.109
TITLE:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart B (Radio Frequency Devices) - Section 15.109

COMMENTS

None

DEVIATIONS FROM TEST SPECIFICATION

There were no deviations from the test configuration and measurement arrangements defined in the test specification (identified above).

EUT RELATED

OPERATING MODE:	Standby (Out of cradle)
FUNCTION(S) MONITORED:	Not Applicable

MEASUREMENT RESULTS

No.	Frequency (MHz)	Polarity	Detector	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Graph No.	Result
1	30.503	Horizontal	Quasi Peak	13.4	40.0	26.6	GPH77263JD03\004	Complied
2	38.452	Horizontal	Quasi Peak	8.9	40.0	31.1	GPH77263JD03\004	Complied
3	148.393	Horizontal	Quasi Peak	12.6	43.5	30.9	GPH77263JD03\004	Complied
4	231.672	Horizontal	Quasi Peak	13.9	46.0	32.1	GPH77263JD03\004	Complied
5	280.364	Vertical	Quasi Peak	11.1	46.0	34.9	GPH77263JD03\004	Complied
6	456.432	Vertical	Quasi Peak	16.8	46.0	29.2	GPH77263JD03\004	Complied
7	1000 to 4000			See note 1			GPH77263JD03\005	Complied
8	4000 to 7000			See note 1			GPH77263JD03\006	Complied

NOTES

1 No emissions were noted above the noise floor of the measurement system. Therefore no further measurements were made.

TEST EQUIPMENT USED				
RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
K0001	5m Semi-Anechoic Chamber	N/A	04 May 2010	12
L1001	26.5 GHz Test Receiver	ESU26	28 Jan 2011	12
C1303	8m Rosenberger Cable	FA210A1080005050	23 Feb 2011	12
C1306	15m Rosenberger Cable	FA210A0015005050	23 Feb 2011	12
G0543	Amplifier 9KHz - 1GHZ	310N	04 Jun 2010	12
C1116	Uwave cable	ufa 210A-1-0360-50x50	17 Feb 2011	12
A1817	1-18GHz Horn Antenna	3115	27 Nov 2010	12
A490	30 to 1000 MHz, 50 W	CBL6111A	08 Mar 2011	12
M172	Electronic Environmental Monitor	BA-116	21 Jul 2010	12
A1834	3dB N-Type Attenuator	8491B	24 Oct 2010	12

CONDUCTED EMISSIONS - TEST RESULTS

This test is not covered by the scope of RFI's UKAS Accreditation under ISO/IEC 17025: 2005.

GENERAL INFORMATION

RFI JOB NUMBER:	77263JD03	TEST SITE ID:	Site 1
EUT:	PowerScan M8300	TEMPERATURE:	25 °C to 25 °C
TEST ENGINEER:	Matthew Owen	RELATIVE HUMIDITY:	40 % to 40 %
DATE OF TEST:	16 Apr 2010	ATMOSPHERIC PRESSURE:	1008 mb to 1008 mb
UNCERTAINTY (±):	±3.99 dB	EQUIPMENT CLASS:	Class B
CATEGORY:	Not applicable	MEASUREMENT METHOD:	LISN (AC)

TEST SPECIFICATION DETAILS

The EUT has been configured and tested in accordance with the methods and procedures detailed within the following basic standard:

REFERENCE:	47CFR15.107
TITLE:	Code of Federal Regulations Volume 47 (Telecommunications) 2008 : , Part 15 Subpart B (Radio Frequency Devices) – Section 15.107

COMMENTS

None

DEVIATIONS FROM TEST SPECIFICATION

There were no deviations from the test configuration and measurement arrangements defined in the test specification (identified above).

EUT RELATED

OPERATING MODE:	Standby (In cradle)
FUNCTION(S) MONITORED:	Not applicable

MEASUREMENT RESULTS

No.	Frequency (MHz)	Line	Detector	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Graph No.	Result
1	0.182	Live 1	Quasi-Peak	36.1	64.4	28.3	GPH\77263JD03\007	Complied
2	0.231	Live 1	Quasi-Peak	28.5	62.4	33.9	GPH\77263JD03\007	Complied
3	0.429	Live 1	Quasi-Peak	20.8	57.3	36.5	GPH\77263JD03\007	Complied
4	2.013	Neutral	Quasi-Peak	19.7	56.0	36.3	GPH\77263JD03\007	Complied
5	6.059	Live 1	Quasi-Peak	20.4	60.0	39.6	GPH\77263JD03\007	Complied
6	17.088	Live 1	Quasi-Peak	15.9	60.0	44.1	GPH\77263JD03\007	Complied
7	0.182	Live 1	Average (CISPR)	19.4	54.4	35.0	GPH\77263JD03\007	Complied
8	0.231	Live 1	Average (CISPR)	13.8	52.4	38.6	GPH\77263JD03\007	Complied
9	0.425	Live 1	Average (CISPR)	9.1	47.4	38.3	GPH\77263JD03\007	Complied
10	2.013	Neutral	Average (CISPR)	12.1	46.0	33.9	GPH\77263JD03\007	Complied
11	6.059	Live 1	Average (CISPR)	18.1	50.0	31.9	GPH\77263JD03\007	Complied
12	17.093	Live 1	Average (CISPR)	9.5	50.0	40.5	GPH\77263JD03\007	Complied

NOTES

N/A During measurement the engineer did not record any specific notes relevant to report.

TEST EQUIPMENT USED

RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
L1001	26.5 GHz Test Receiver	ESU26	28 Jan 2011	12
A1069	Single Phase LISN	ESH3-Z5	13 Apr 2011	12
K0001	5m Semi-Anechoic Chamber	N/A	04 May 2010	12
M172	Electronic Environmental Monitor	BA-116	21 Jul 2010	12
A1829	N-Type Limiter	ESH72	25 Oct 2010	12
C1339	N-male to N-male cable	-	23 Feb 2011	12

CONDUCTED EMISSIONS - TEST RESULTS

This test is not covered by the scope of RFI's UKAS Accreditation under ISO/IEC 17025: 2005.

GENERAL INFORMATION

RFI JOB NUMBER:	77263JD03	TEST SITE ID:	Site 1	
EUT:	PowerScan M8300	TEMPERATURE:	25 °C to 25 °C	
TEST ENGINEER:	Matthew Owen	RELATIVE HUMIDITY:	40 % to 40 %	
DATE OF TEST:	16 Apr 2010	ATMOSPHERIC PRESSURE:	1008 mb to 1008 mb	
UNCERTAINTY (±):	±3.99 dB	EQUIPMENT CLASS:	Class B	
CATEGORY:	Not applicable	MEASUREMENT METHOD:	LISN (AC)	

TEST SPECIFICATION DETAILS

The EUT has been configured and tested in accordance with the methods and procedures detailed within the following basic standard:

REFERENCE:	47CFR15.107
TITLE:	Code of Federal Regulations Volume 47 (Telecommunications) 2008 : Part 15 Subpart B (Radio Frequency Devices) Section 15.107

COMMENTS

None

DEVIATIONS FROM TEST SPECIFICATION

There were no deviations from the test configuration and measurement arrangements defined in the test specification (identified above).

EUT RELATED

OPERATING MODE:	Standby (Out of cradle)
FUNCTION(S) MONITORED:	Not applicable

MEASUREMENT RESULTS

No.	Frequency (MHz)	Line	Detector	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Graph No.	Result
1	0.182	Live 1	Quasi-Peak	35.9	64.4	28.5	GPH\77263JD03\008	Complied
2	0.317	Neutral	Quasi-Peak	25.3	59.8	34.5	GPH\77263JD03\008	Complied
3	0.483	Neutral	Quasi-Peak	30.7	56.3	25.6	GPH\77263JD03\008	Complied
4	1.563	Neutral	Quasi-Peak	20.1	56.0	35.9	GPH\77263JD03\008	Complied
5	3.161	Live 1	Quasi-Peak	18.7	56.0	37.3	GPH\77263JD03\008	Complied
6	17.385	Live 1	Quasi-Peak	20.3	60.0	39.7	GPH\77263JD03\008	Complied
7	0.182	Live 1	Average (CISPR)	19.0	54.4	35.4	GPH\77263JD03\008	Complied
8	0.317	Neutral	Average (CISPR)	13.8	49.8	36.0	GPH\77263JD03\008	Complied
9	0.483	Neutral	Average (CISPR)	19.3	46.3	27.0	GPH\77263JD03\008	Complied
10	1.563	Neutral	Average (CISPR)	11.4	46.0	34.6	GPH\77263JD03\008	Complied
11	3.161	Live 1	Average (CISPR)	12.1	46.0	33.9	GPH\77263JD03\008	Complied
12	17.390	Live 1	Average (CISPR)	16.2	50.0	33.8	GPH\77263JD03\008	Complied

NOTES

N/A During measurement the engineer did not record any specific notes relevant to report.

TEST EQUIPMENT USED

RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
L1001	26.5 GHz Test Receiver	ESU26	28 Jan 2011	12
A1069	Single Phase LISN	ESH3-Z5	13 Apr 2011	12
K0001	5m Semi-Anechoic Chamber	N/A	04 May 2010	12
M172	Electronic Environmental Monitor	BA-116	21 Jul 2010	12
A1829	N-Type Limiter	ESH72	25 Oct 2010	12
C1339	N-male to N-male cable	-	23 Feb 2011	12

8. PHOTOGRAPHS OF EUT

This section contains the following photographs:

Photo Reference Number	Title
PHT\77263JD03\001	Test Configuration Photograph - Conducted Emissions (In cradle)
PHT\77263JD03\002	Test Configuration Photograph - Conducted Emissions (Out of cradle)
PHT\77263JD03\003	Test Configuration Photograph - Radiated Emissions (In cradle)
PHT\77263JD03\004	Test Configuration Photograph - Radiated Emissions (Out of Cradle)

PHT\77263JD03\001 - Test Configuration Photograph - Conducted Emissions (In cradle)



PHT\77263JD03\002 - Test Configuration Photograph - Conducted Emissions (Out of cradle)



PHT\77263JD03\003 - Test Configuration Photograph - Radiated Emissions (In cradle)



PHT\77263JD03\004 - Test Configuration Photograph - Radiated Emissions (Out of Cradle)



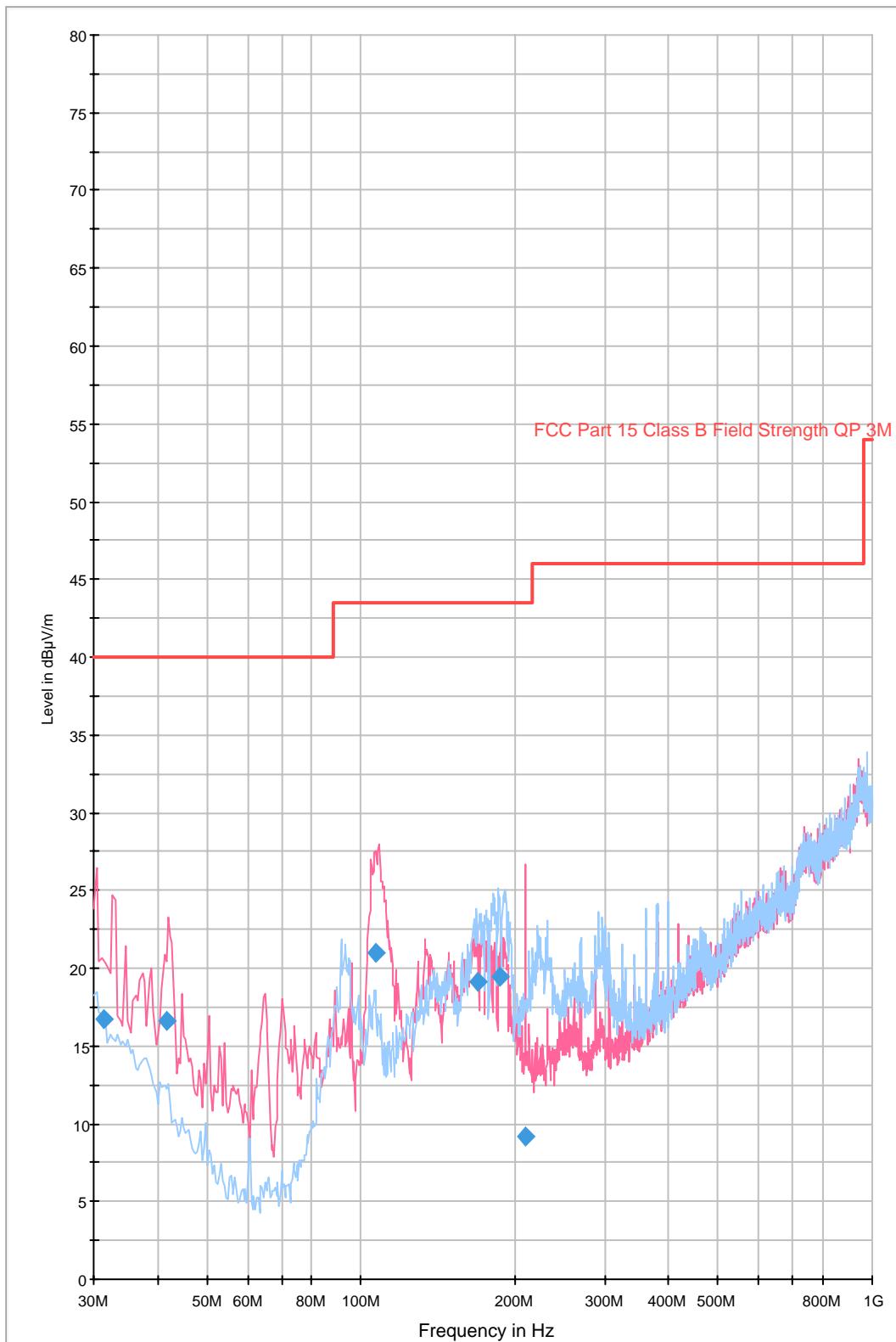
9. GRAPHICAL TEST RESULTS

9.1. This section contains the graphical results for the measurements listed in Section 2.2. *Summary of Test Results* (above).

Graph Reference Number	Title
GPH\77263JD03\001	PowerScan M8300 Radiated Emissions (In Cradle) Pre-Scan (30MHz to 1GHz)
GPH\77263JD03\002	PowerScan M8300 Radiated Emissions (In Cradle) Pre-Scan (1GHz to 4GHz)
GPH\77263JD03\003	Powerscan M8300 Radiated Emissions (In Cradle) Pre-Scan (4GHz to 7GHz)
GPH\77263JD03\004	PowerScan M8300 Radiated Emissions (Out of Cradle) Pre-Scan (30MHz to 1GHz)
GPH\77263JD03\005	PowerScan M8300 Radiated Emissions (Out of Cradle) Pre-Scan (1GHz to 4GHz)
GPH\77263JD03\006	Powerscan M8300 Radiated Emissions (Out of Cradle) Pre-Scan (4GHz to 7GHz)
GPH\77263JD03\007	PowerScan M8300 Conducted Emissiosn (In Cradle) Pre-Scan (150KHz to 30MHz)
GPH\77263JD03\008	PowerScan M8300 Conducted Emissiosn (Out of Cradle) Pre-Scan (150KHz to 30MHz)

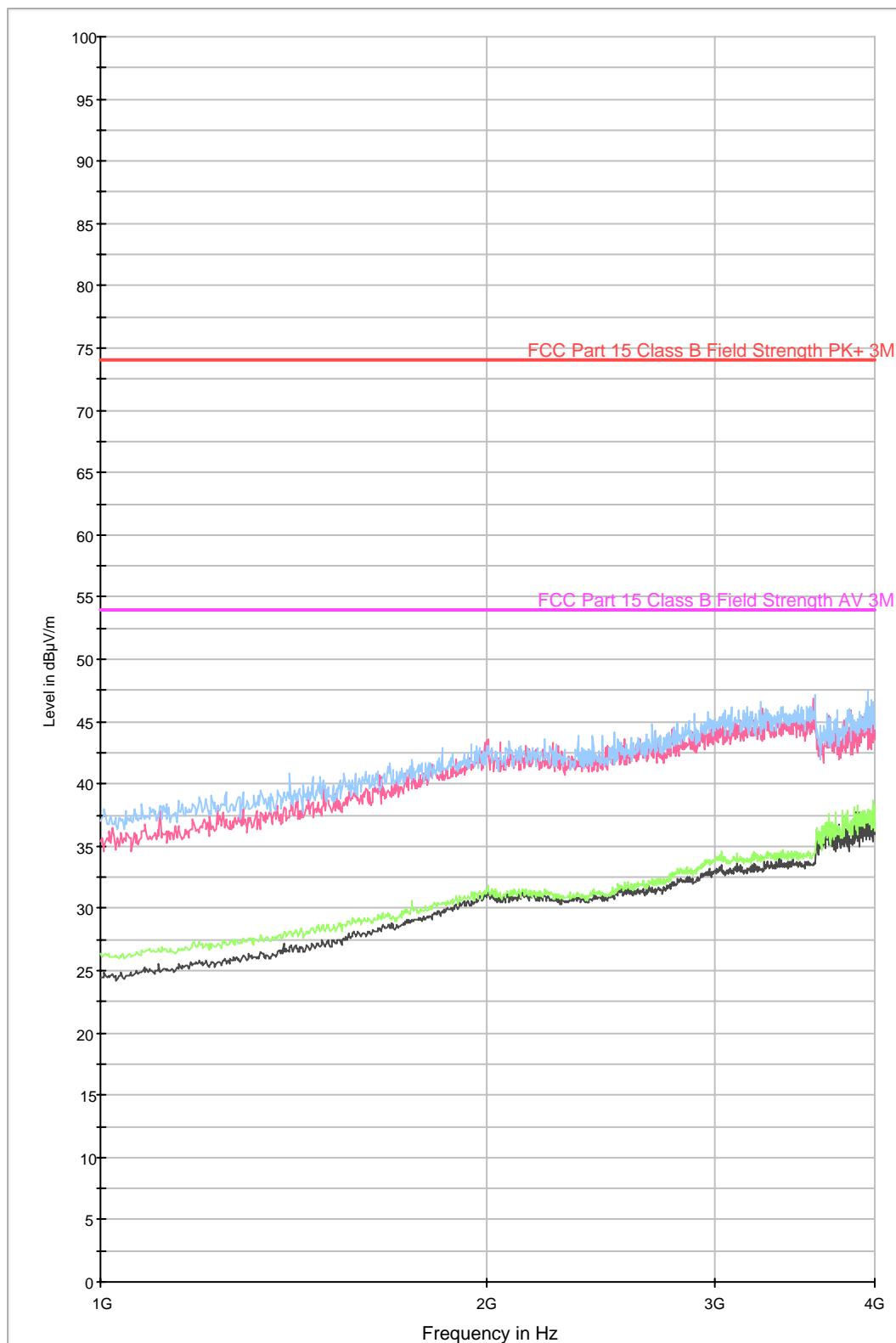
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FCC Part 15.109 Radiated Emissions Class B 30MHz-1GHz



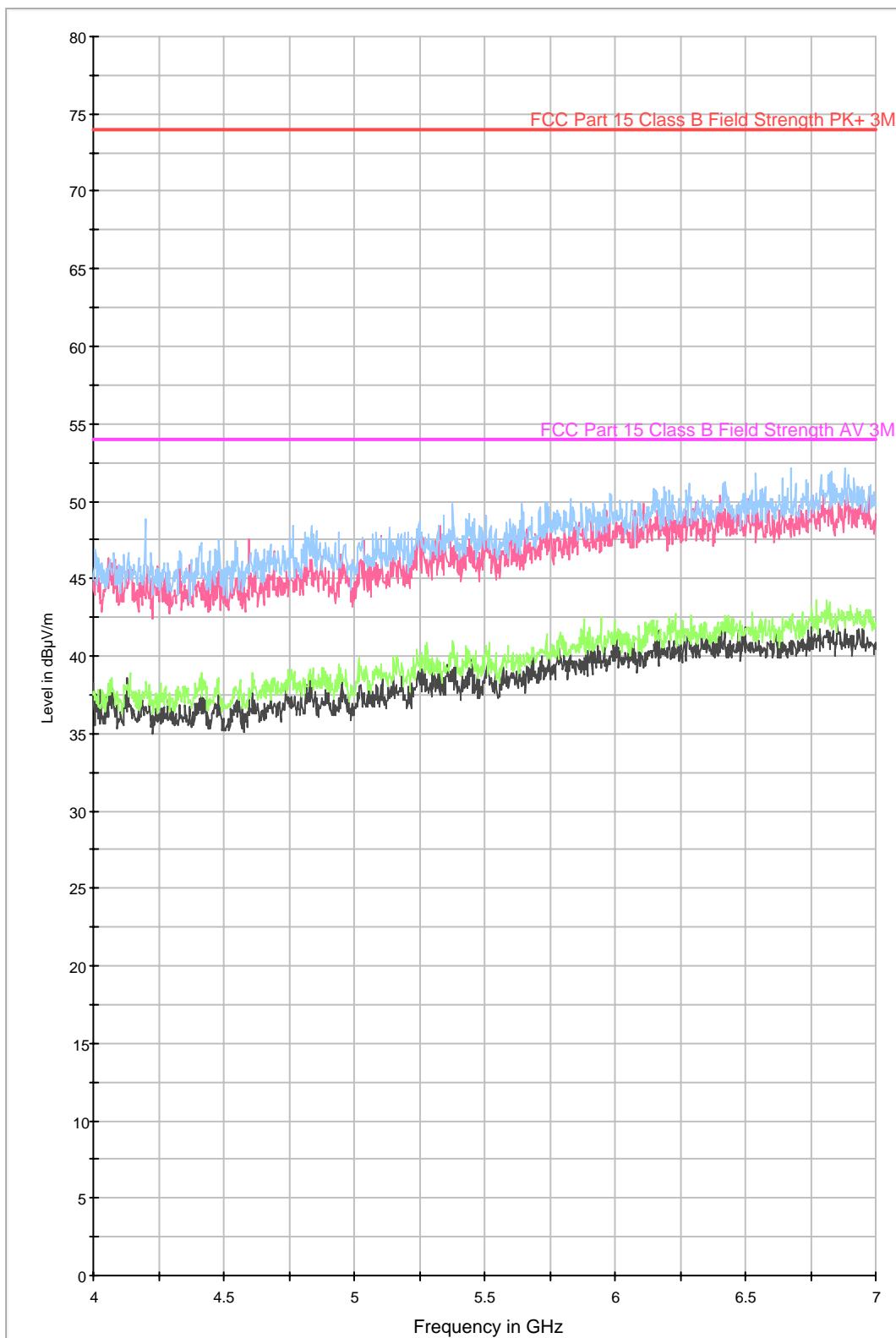
GPH\77263JD03\002

FCC Part 15.109 Radiated Emissions Class B 1-4GHz



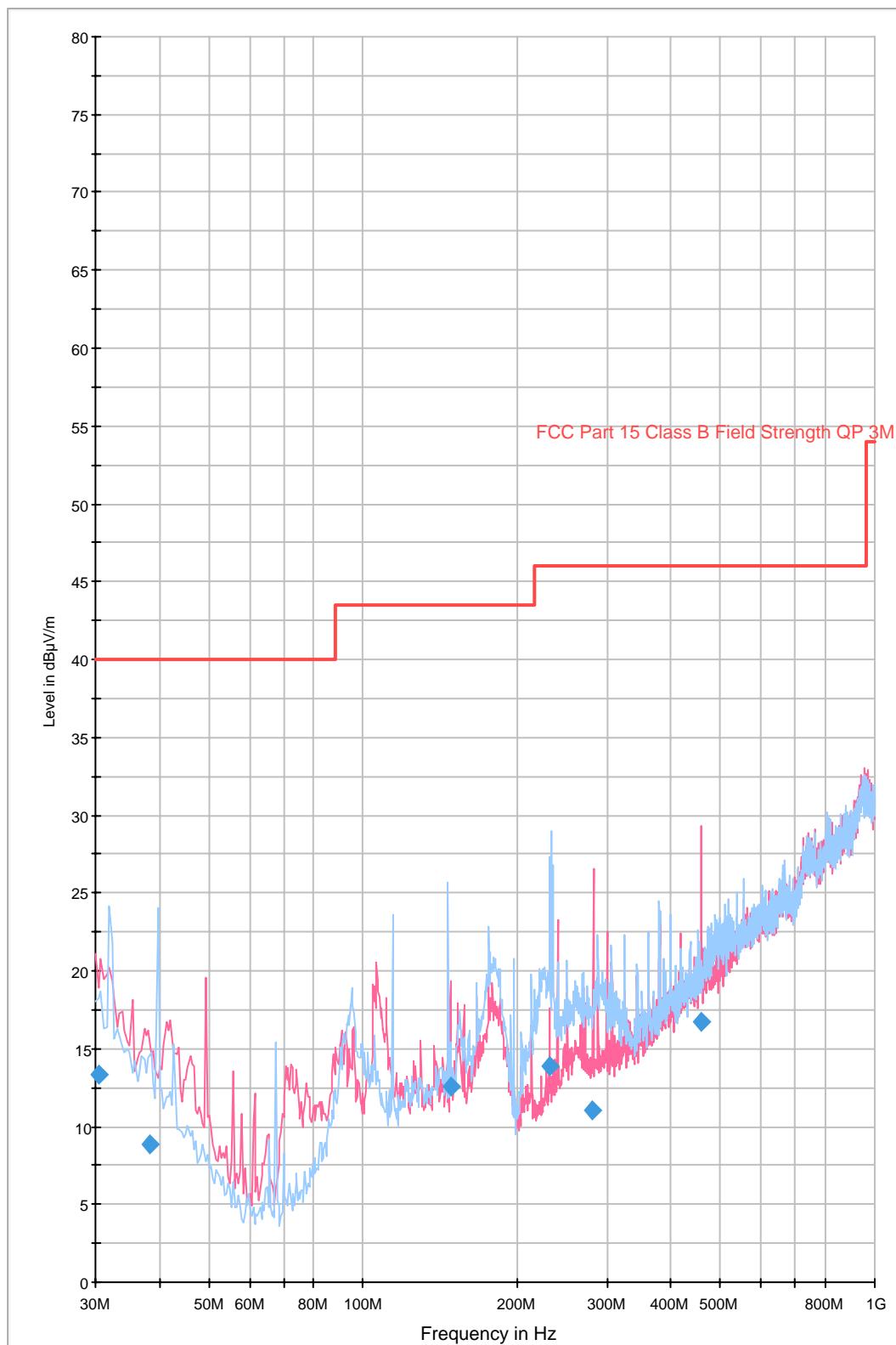
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FCC Part 15.109 Radiated Emissions Class B 4-7GHz



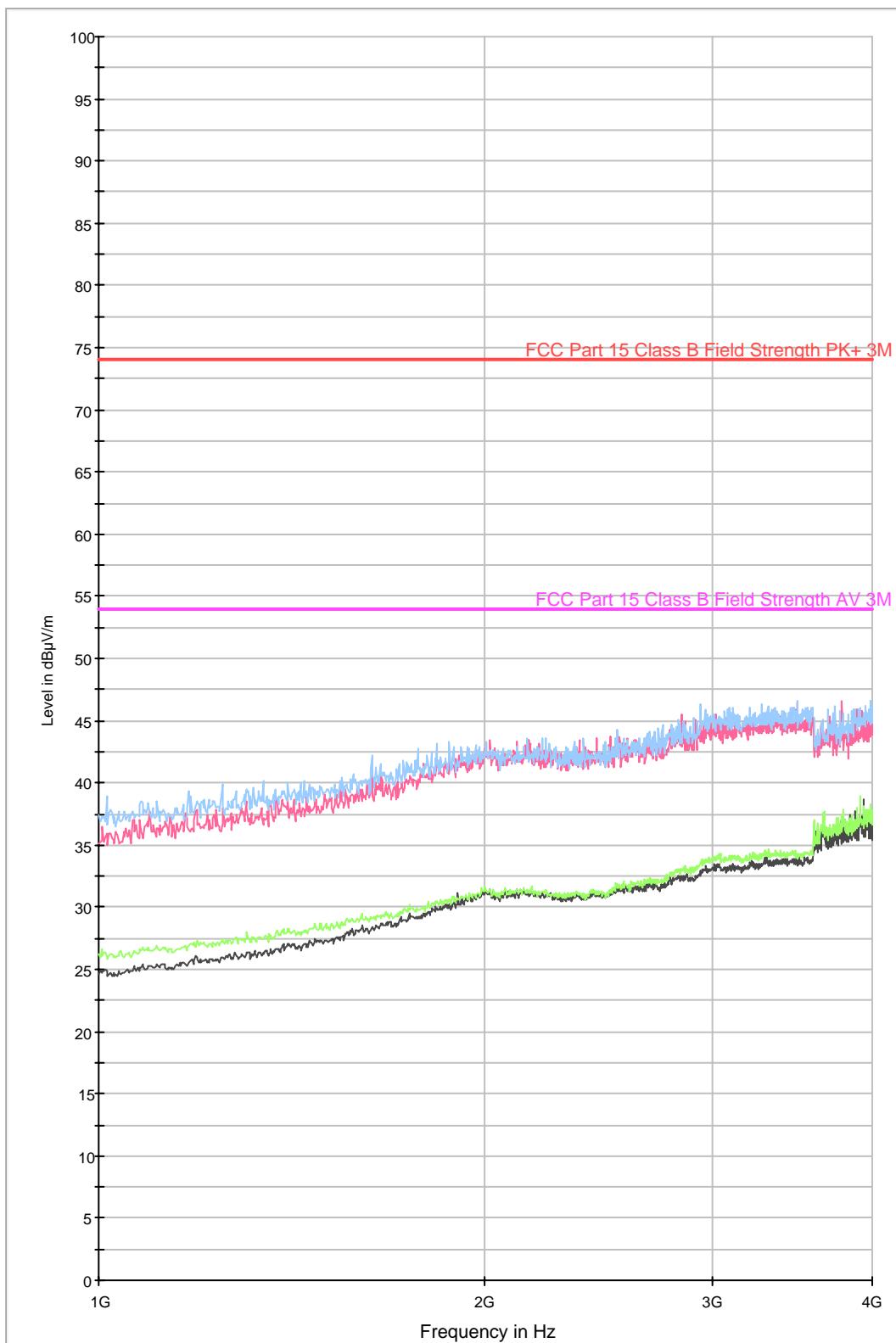
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FCC Part 15.109 Radiated Emissions Class B 30MHz-1GHz



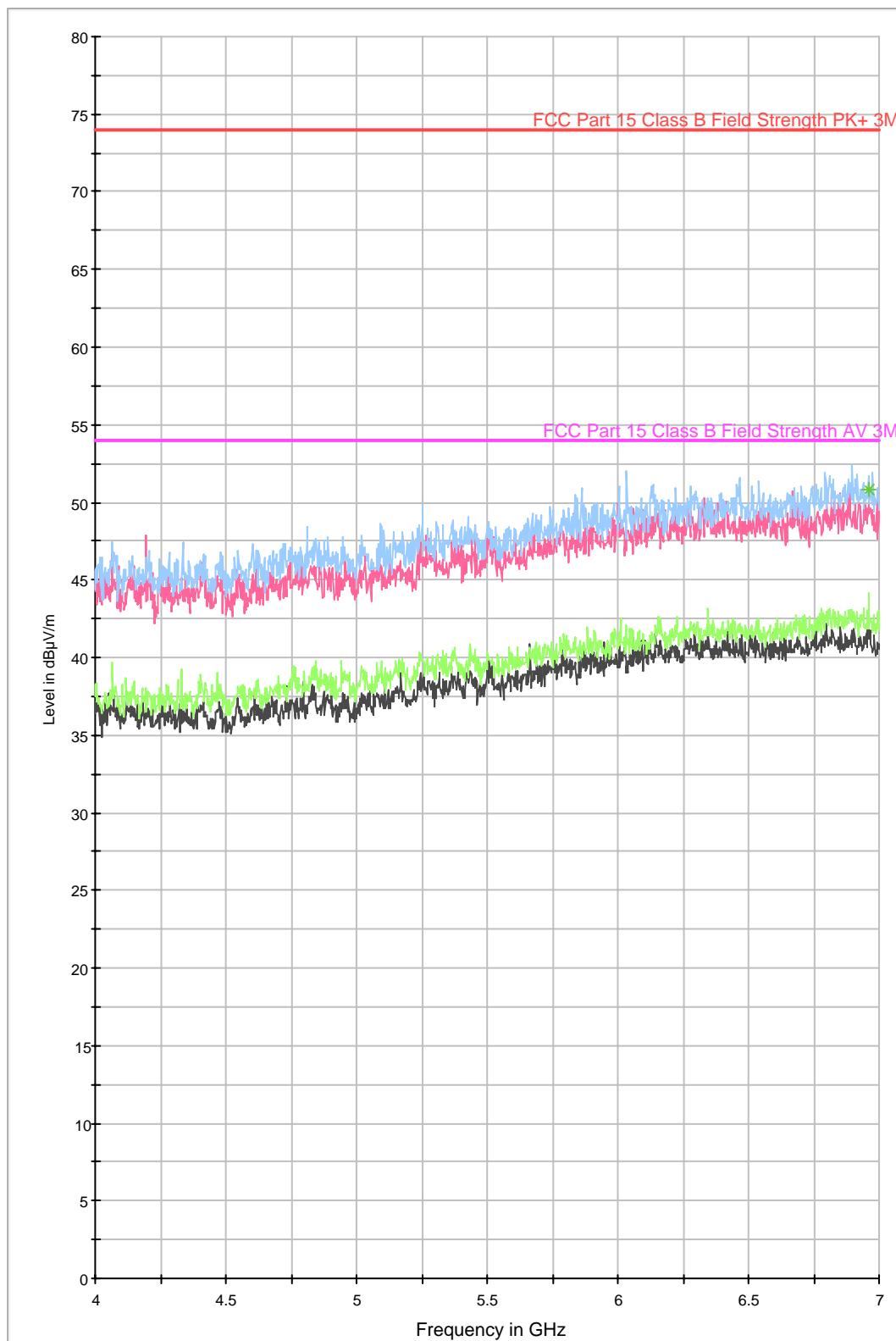
GPH\77263JD03\005

FCC Part 15.109 Radiated Emissions Class B 1-4GHz



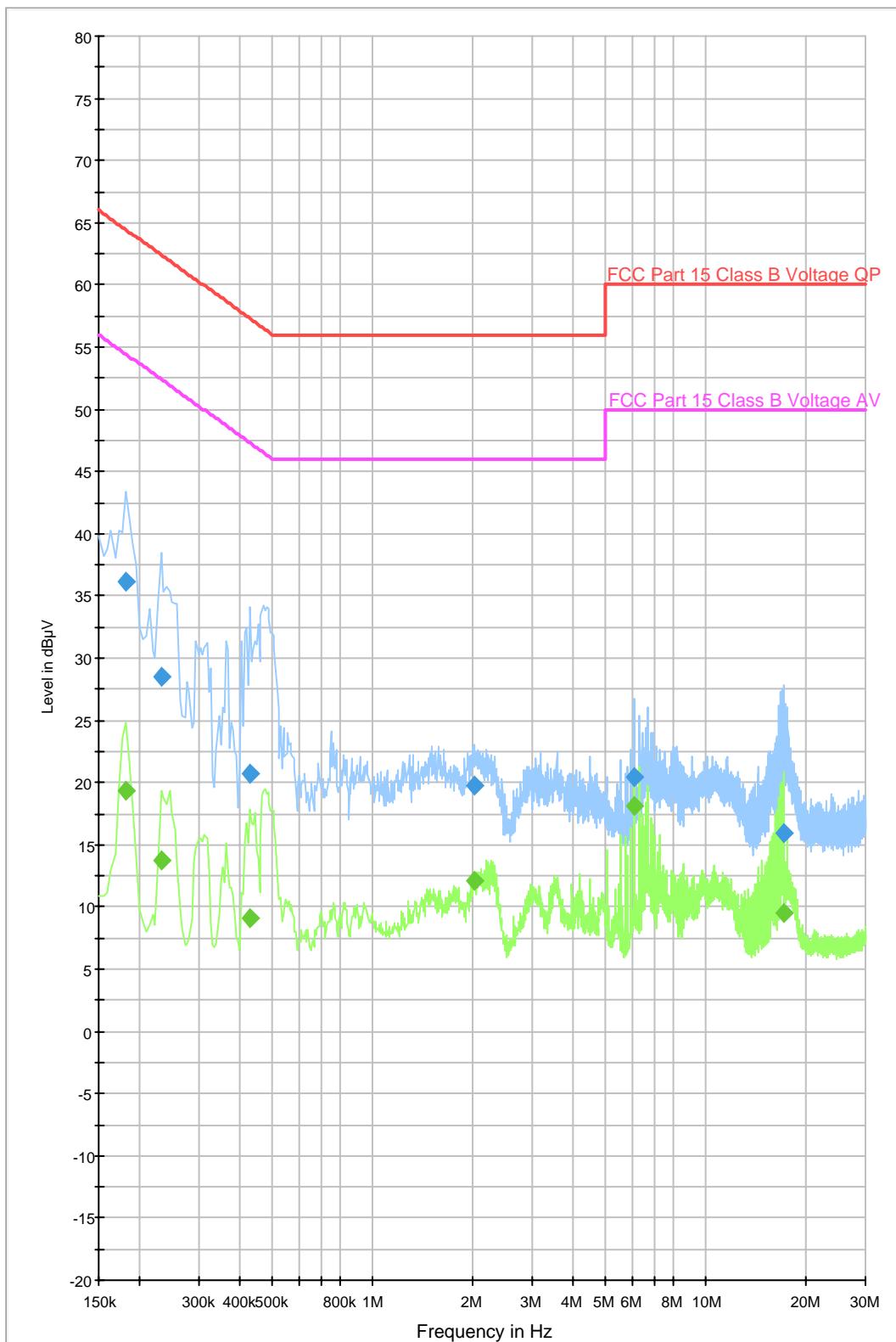
GPH77263JD03\006

FCC Part 15.109 Radiated Emissions Class B 4-7GHz



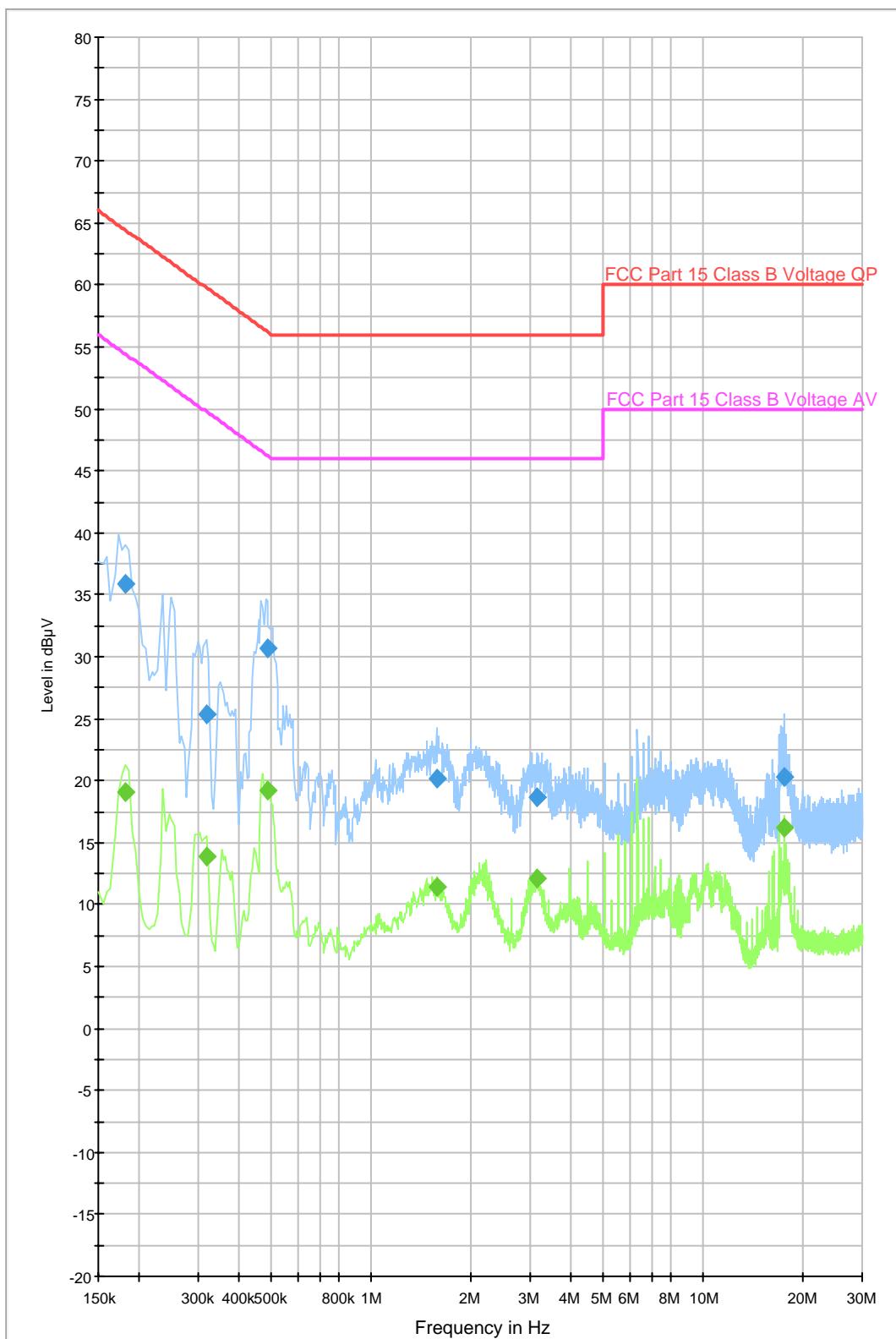
GPH\77263JD03\007

FCC Part 15.107 Conducted Emissions Class B



GPH\77263JD03\008

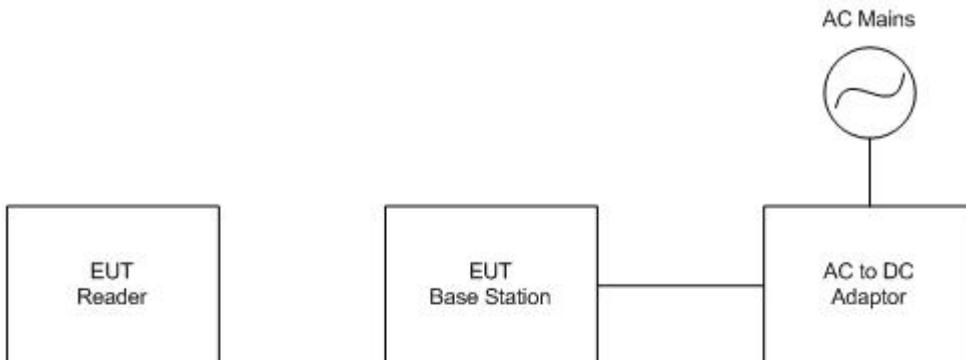
FCC Part 15.107 Conducted Emissions Class B



10. TEST CONFIGURATION DRAWING

10.1. This section contains the Test Configuration Drawings for the measurements listed in Section 7: Measurements, Examinations and Derived Results.

Test Configuration Reference Number	Title
DRG\77263JD03\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test.

DRG\77263JD03\001 - Schematic diagram of the EUT, support equipment and interconnecting cables used for the test.**Configuration of EUT and Local Support Equipment**

Notebook PC

Configuration of Remote Support Equipment