TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Aerotel Medical Systems Ltd.
SKeeper S-56

To: FCC Part 15: 2007 Class B (Sections 15.107 and 15.109),
FCC Part 22: 2007, FCC Part 24: 2007
RSS-210 Issue 7 June 2007, RSS-132 Issue 2 September 2005,
RSS-133 Issue 2 June 2005 & RSS-Gen Issue 2 June 2007

Test Report Serial No:
RFI/EMCE1/RP72900JD01A

This Test Report Is Issued Under The Authority Of: Steve Flooks, Service Leader: 	
Checked By: Steven Wong 	**Report Copy No: PDF01**
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Registered in England and Wales. Company number:2117901

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1. Client Information

Company Name:	Aerotel Medical Systems (1998) Ltd.
Address:	5 Hazoref St Holon 58856 ISRAEL
Contact Name:	Itsik Ben David

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)

Brand Name:	SKeeper
Model Name or Number:	S-56
Serial Number:	C045 (temporary S/N)
Country of Manufacture:	Israel
Date of Receipt:	04 January 2008

2.2. Accessories

The following accessories were supplied with the EUT:

Description:	Wrist Strap
Brand Name:	Aerotel Medical Systems Ltd
Model Name or Number:	Not applicable
Serial Number:	Not applicable
Cable Length And Type:	Not applicable
Connected to Port:	Not applicable

Description:	Neck Strap
Brand Name:	Aerotel Medical Systems Ltd
Model Name or Number:	Not applicable
Serial Number:	Not applicable
Cable Length And Type:	Not applicable
Connected to Port:	Not applicable

2.3. Description of EUT

The equipment under test is a compact wearable mobile communication and safety device intended to make life safer and easier for elderly people, chronically ill patients, children and lone workers.

2.4. Modifications Incorporated in the EUT

During the course of testing the EUT was not modified.

2.5. Additional Information Related to Testing

Equipment Category:	Cellular Phone		
Type of Unit:	Portable (Standalone battery powered device)		
Power Supply Requirement:			
DC Supply (Volts)	DC Supply of 5V for charging the battery		
AC Supply (Volts)	Nominal 115 V 60 Hz, AC Mains Supply via Battery Charger		
Internal Battery Supply (Volts)	Internal Lithium-Ion battery supply of 3.4-4.2 Volt		
Intended Operating Environment:	Residential, Commercial, Within GSM Coverage		
Cycle Time:	About 20-30 seconds that takes the SKeeper to connect to GSM network		
Transmitter Frequency Range:	GSM850	(824 to 849) MHz	
	PCS1900	(1850 to 1910) MHz	
Transmitter Frequency Allocation of EUT When Under Test:	**Channel Number**	**Channel Description**	**Frequency (MHz)**
	128	Low	824.2
	189	Middle	836.4
	251	High	848.8
	512	Low	1850.2
	660	Middle	1879.8
	81	High	1909.8
Modulation(s):	GMSK		
Antenna Type:	MiniQuad 850/900/1800/1900 MHz internal antenna		

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FCC Part 22 and RSS-132

Transmit Frequency Range:	824.2 MHz to 848.8 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	128	824.2
	Middle	190	836.6
	Top	251	848.8
Receive Frequency Range:	869.2 MHz to 893.8 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	128	869.2
	Middle	190	881.4
	Top	251	893.8
Maximum Power Output (ERP):	31.7 dBm		

FCC Part 24 and RSS-133

Transmit Frequency Range:	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:	1930.2 MHz to 1989.8 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	512	1930.2
	Middle	660	1959.8
	Top	810	1989.8
Maximum Power Output (EIRP):	31.0 dBm		

2.6. Port Identification

Port	Description	Type	Applicable
1	Enclosure	-	Y
2	AC Mains	2 Core, 1.5 m	Y
3	Charger Port	DC Power Socket DC8 (1.3 mm pin)	Y

2.7. Support Equipment

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

Description:	Battery Charger (x2)
Brand Name:	Shenzhen ENG Electronics Co., Ltd
Model Name or Number:	3A-041WT05
Serial Number:	Not applicable
Cable Length And Type:	1.53 m
Connected to Port:	Charger Port

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.

Reference:	FCC Part 22: 2007 Subpart H (Cellular Radiotelephone Service)
Title:	Code of Federal Regulations, Part 22 (47CFR22) Personal Communication Services.

Reference:	FCC Part 24: 2007 Subpart E (Broadband PCS)
Title:	Code of Federal Regulations, Part 24 (47CFR24) Personal Communication Services.

Reference:	RSS-132 Issue 2 September 2005
Title:	Cellular Telephones Employing New Technologies Operating in the Bands 824-849 MHz and 869-894 MHz

Reference:	RSS-133 Issue 3 June 2005
Title:	2 GHz Personal Communications Services

Reference:	RSS-Gen Issue 2 June 2007
Title:	General Requirements and Information for the Certification of Radiocommunication Equipment.

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.

5. Operation of the EUT during Testing

5.1. Operating Modes

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

For the transmitter output power measurements, the EUT was set to transmit on bottom, middle and top channel in the highest output power.

Radiated Emissions: GSM 1900 - Idle / Charging

Conducted Emissions: GSM 850/1900 – Idle Charging

The reason for choosing this configuration was that it has been defined by the customer as being typical of normal use and likely to be a worst case with regard to EMC.

5.2. Configuration and Peripherals

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

Please refer to Appendix 2 for a schematic drawing of the test configuration, drawing number DRG\72900JD01\001.

6. Summary of Test Results

Range of Measurements	FCC Part Reference	IC RSS Reference	Port Type	Compliancy Status
Conducted Emissions	15.107	RSS-Gen 7.2.2	AC Mains Input	Complied
Radiated Emissions Electric Field Strength, 30 MHz to 1000 MHz	15.109	RSS-Gen 6.0	Enclosure	Complied
Radiated Emissions Electric Field Strength, 1 GHz to 10 GHz	15.109	RSS-Gen 6.0	Enclosure	Complied
Transmitter Effective Radiated Power (ERP)	22.913(a)	RSS-132 4.4	Antenna	Complied
Transmitter Effective Isotropic Radiated Power (EIRP)	24.232	RSS-133 4.3 & 6.4	Antenna	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.

FCC Site Registration Number: 90895

IC Site Registration Number: 3485

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. AC Mains Conducted Emissions - Quasi Peak Detector Measurements: GSM 1900 Idle / Charging Mode

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.

Test Summary:

Port:	AC Mains Input
Basic Standard:	FCC Part 15.107

Environmental Conditions:

Temperature Variation (°C):	17 to 17.
Relative Humidity Variation (%):	47 to 47
Atmospheric Pressure Variation (mb):	1001 to 1001

Results:

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Note(s)	Result
0.249000	Neutral	37.2	61.8	24.6	-	Complied
0.649500	Neutral	27.9	56.0	28.1	-	Complied
0.766500	Neutral	28.5	56.0	27.5	-	Complied
0.825000	Neutral	26.9	56.0	29.1	-	Complied
1.005000	Neutral	24.1	56.0	31.9	-	Complied
1.765500	Neutral	24.0	56.0	32.0	-	Complied

7.2.2. AC Mains Conducted Emissions - Average Detector Measurements: GSM 1900 Idle / Charging Mode

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:

Results:

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Note(s)	Result
0.249000	Neutral	29.8	51.8	22.0	-	Complied
0.649500	Neutral	18.9	46.0	27.1	-	Complied
0.766500	Neutral	20.3	46.0	25.7	-	Complied
0.825000	Neutral	18.8	46.0	27.2	-	Complied
1.005000	Neutral	7.3	46.0	38.7	-	Complied
1.176000	Neutral	15.2	46.0	30.8	-	Complied

7.2.3. AC Mains Conducted Emissions - Quasi Peak Detector Measurements: GSM 850 Idle / Charging Mode

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.

Test Summary:

Port:	AC Mains Input
Basic Standard:	FCC Part 15.107

Environmental Conditions:

Temperature Variation (°C):	17 to 17.
Relative Humidity Variation (%):	47 to 47
Atmospheric Pressure Variation (mb):	1001 to 1001

Results:

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Note(s)	Result
0.244500	Neutral	33.9	61.9	28.0	-	Complied
0.591000	Neutral	23.3	56.0	32.7	-	Complied
0.649500	Neutral	24.3	56.0	31.7	-	Complied
0.708000	Neutral	24.2	56.0	31.8	-	Complied
1.770000	Neutral	20.6	56.0	35.4	-	Complied
2.130000	Neutral	14.8	56.0	41.2	-	Complied

7.2.4. AC Mains Conducted Emissions - Average Detector Measurements:
GSM 850 Idle / Charging Mode

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:

Results:

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Note(s)	Result
0.249000	Neutral	23.1	51.8	28.7	-	Complied
0.591000	Neutral	12.6	46.0	33.4	-	Complied
0.649500	Neutral	14.4	46.0	31.6	-	Complied
0.708000	Neutral	16.1	46.0	29.9	-	Complied
1.765500	Neutral	9.9	46.0	36.1	-	Complied
2.116500	Neutral	7.4	46.0	38.6	-	Complied

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7.2.5. Radiated Emissions - Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz): GSM 1900 Idle/ Charging Mode

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

Environmental Conditions:

Temperature Variation (°C):	17 to 17
Relative Humidity Variation (%):	38 to 38
Atmospheric Pressure Variation (mb):	998 to 998

Results:

Frequency (MHz)	Antenna Polarity	Quasi Peak Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Note(s)	Result
51.627	Horizontal	11.2	40.0	28.8	-	Complied
51.627	Vertical	18.2	40.0	21.8	-	Complied
67.275	Horizontal	8.7	40.0	31.3	-	Complied
67.275	Vertical	10.3	40.0	29.7	-	Complied
147.535	Horizontal	12.5	43.5	31.0	-	Complied
147.535	Vertical	13.2	43.5	30.3	-	Complied
278.597	Horizontal	14.0	46.0	32.0	-	Complied
278.597	Vertical	14.0	46.0	32.0	-	Complied
414.990	Horizontal	19.6	46.0	26.4	-	Complied
414.990	Vertical	19.7	46.0	26.3	-	Complied
781.443	Horizontal	30.3	46.0	15.7	-	Complied
781.443	Vertical	30.3	46.0	15.7	-	Complied

7.2.6. Transmitter Effective Radiated Power (ERP) - FCC Part 22 and RSS-132 (GSM 850 band)

The EUT was configured as for effective radiated power as described in Section 9 of this report.

Tests were performed to identify the maximum effective radiated power (ERP).

Results:

Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	17.0	38.4	21.4	Complied
Middle	836.4	17.5	38.4	20.9	Complied
Top	848.8	17.5	38.4	20.9	Complied

7.2.7. Transmitter Effective Isotropic Radiated Power (EIRP) - FCC Part 24 and RSS-133 (GSM 1900 band)

The EUT was configured as for effective isotropic radiated power as described in Section 9 of this report.

Tests were performed to identify the maximum effective isotropic radiated power (EIRP).

Results:

Channel	Measured Frequency (MHz)	Maximum Transmitter EIRP (dBm)	Limit EIRP (dBm)	Margin (dB)	Result
Bottom	1850.2	21.0	33.0	12.0	Complied
Middle	1879.8	21.7	33.0	11.3	Complied
Top	1909.8	21.5	33.0	11.5	Complied

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
Effective Radiated Power (ERP)	Not applicable	95%	+/- 1.78 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. Effective Radiated Power (ERP) – FCC Part 22

ERP measurements were performed in accordance with the standard, against appropriate limits.

The ERP was measured with the EUT arranged on a non-conducting turntable on a standard test site compliant with ANSI C63.4 – 2003 Clause 5.4. The transmitter was fitted with an integral antenna; as such all radiated tests were performed with the unit operating into the integral antenna.

The level of the ERP was measured using a spectrum analyser.

The test antenna was positioned in the horizontal plane. The EUT was oriented in the X plane. The test antenna was then raised and lowered until a maximum peak was observed. The turntable was then rotated through 360 degrees and the maximum peak reading obtained. The height search was then repeated to take into consideration the new angular position of the turntable. The maximum reading observed was then recorded. This procedure was then repeated with the EUT oriented in the Y and Z planes. The highest reading taken in all 3 planes was recorded. The entire procedure was then repeated with the test antenna set in the vertical polarity.

Once the final amplitude (maximised) had been obtained, the EUT was substituted with a substitution antenna. For ERP measurements a dipole antenna was used. The centre of the substitution antenna was set to approximately the same centre location as the EUT. The substitution antenna was set to the horizontal polarity. The substitution antenna was matched into a signal generator using a 6 dB or greater attenuator. The signal generator was tuned to the EUT's frequency under test.

The test antenna was then raised and lowered to obtain a maximum reading on the spectrum analyser. The level of the signal generator output was then adjusted until the maximum recorded EUT level was observed. The signal generator level was noted. This procedure was repeated with both test antenna and substitution antenna vertically polarised. The ERP was calculated as:-

ERP = Signal Generator Level - Cable Loss + Antenna Gain

Effective Radiated Power (ERP) (Continued)

Circumstances where the signal generator could not produce the desired power, substitutions were performed with the signal generator set to 0 dBm. The radiated signal was maximised as previously described. The level indicated on the measuring receiver was noted. The delta between this level and the maximum level for the EUT was calculated and also noted. The ERP of the signal generator was calculated using the above formulae. The recorded delta was added to the calculated ERP to obtain the substituted EUT ERP.

Delta (dB) = EUT – SG

Where:

EUT = spectrum analyser indicated EUT raw level

SG = spectrum analyser indicated signal generator raw level

The signal generator actual ERP is calculated as:

ERP SG= Signal Generator Level - Cable Loss + Antenna Gain

The EUT ERP is calculated as:

ERP EUT = ERP SG + Delta.

The test equipment settings for ERP measurements were as follows:

Receiver Function	Setting
Detector Type:	Peak
Mode:	Not applicable
Bandwidth:	≥ Emission Bandwidth
Amplitude Range:	100 dB
Sweep Time:	Coupled

9.2. Effective Isotropic Radiated Power (EIRP) – FCC Part 24

EIRP measurements were performed in accordance with the standard, against appropriate limits.

The EIRP was measured with the EUT arranged on a non-conducting turn table on a standard test site compliant with ANSI C63.4 – 2003 Clause 5.4. The transmitter was fitted with an integral antenna; therefore all radiated tests were performed with the unit operating into the integral antenna.

The level of the EIRP was measured using a spectrum analyser.

The test antenna was positioned in the horizontal plane. The EUT was oriented in the X plane. The test antenna was then raised and lowered until a maximum peak was observed. The turntable was then rotated through 360 degrees and the maximum peak reading obtained. The height search was then repeated to take into consideration the new angular position of the turntable. The maximum reading observed was then recorded. This procedure was then repeated with the EUT oriented in the Y and Z planes. The highest reading taken in all 3 planes was recorded. The entire procedure was then repeated with the test antenna set in the vertical polarity.

Once the final amplitude (maximised) had been obtained, the EUT was substituted with a substitution antenna. For EIRP measurements a Horn antenna whose gain was based on an isotropic antenna was used, ERP measurements were done using a dipole. The centre of the substitution antenna was set to approximately the same centre location as the EUT. The substitution antenna was set to the horizontal polarity. The substitution antenna was matched into a signal generator using a 6 dB or greater attenuator. The signal generator was tuned to the EUT's frequency under test.

The test antenna was then raised and lowered to obtain a maximum reading on the spectrum analyser. The level of the signal generator output was then adjusted until the maximum recorded EUT level was observed. The signal generator level was noted. This procedure was repeated with both test antenna and substitution antenna vertically polarised. The EIRP was calculated as:-

EIRP = Signal Generator Level - Cable Loss + Antenna Gain

All measurements were performed using broadband Horn antennas.

Effective Isotropic Radiated Power (EIRP) (Continued)

Circumstances where the signal generator could not produce the desired power, substitutions were performed with the signal generator set to 0 dBm. The radiated signal was maximised as previously described. The level indicated on the measuring receiver was noted. The delta between this level and the maximum level for the EUT was calculated and also noted. The EIRP of the signal generator was calculated using the above formulae. The recorded delta was added to the calculated EIRP to obtain the substituted EUT EIRP.

Delta (dB) = EUT – SG

Where:

EUT = spectrum analyser indicated EUT raw level

SG = spectrum analyser indicated signal generator raw level

The signal generator actual EIRP is calculated as:

EIRP SG= Signal Generator Level - Cable Loss + Antenna Gain

The EUT EIRP is calculated as:

EIRP EUT = EIRP SG + Delta.

The test equipment settings for EIRP measurements were as follows:

Receiver Function	Setting
Detector Type:	Peak
Mode:	Not applicable
Bandwidth:	1 MHz
Amplitude Range:	100 dB
Sweep Time:	Coupled

9.3. AC Mains Conducted Emissions

AC Mains conducted emission 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 115V 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

9.4. Receiver 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, which 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 20dB of this limit were measured where possible, on occasion; the receiver noise floor came within the 20dB 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 – 2003 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 <1GHz	Final Measurements ≥1 GHz
Detector Type:	Peak	Quasi-Peak (CISPR)	Peak/Average
Mode:	Max Hold	Not applicable	Not applicable
Bandwidth:	(120 kHz <1GHz) (1MHz ≥1GHz)	120 kHz	1 MHz (If applicable)
Amplitude Range:	60 dB	20 dB	20 dB (typical)
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 (Months)
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
A1516	Universal Radio Communications Tester	Rohde & Schwarz	CMU200	1100.0008.02	29 Sep 2006	3
A1829	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100671	16 Jan 2008	12
A259	Antenna	Chase	CBL6111	1513	13 Mar 2007	12
A276	OATS Positioning Controller	Rohde & Schwarz	HCC	None	Calibration not required	-
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
A553	Antenna	Chase	CBL6111A	1593	14 Feb 2008	12
C1121	Cable	Rosenberger	FA210A103 0005050	1704 34844-02	Calibration Before Use	-
C1157	Cable	Rosenberger	FA210A101 0005G5G	3305 42447-2	Calibration Before Use	-
C1262	Cable	Rosenberger	FA210A007 5008080	49356-2	Calibration Before Use	-
C1265	Cable	Rosenberger	FA210A102 0007070	49317-01	Calibration Before Use	-
C151	Cable	Rosenberger	UFA210A-1-1181-70x70	None	Calibration Before Use	-
C160	Cable	Rosenberger	UFA210A-1-1181-70x70	None	Calibration Before Use	-
C348	Cable	Rosenberger	UFA210A-1-1181-70x70	2993	Calibration Before Use	-
C454	Cable	Rosenberger	RG142XX-001-RFIB	C454-10081998	Calibration Before Use	-
C461	Cable	Rosenberger	UFA210A-1-1182-704704	98H0305	Calibration Before Use	-

Test Equipment Used (Continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
M023	Test Receiver	Rohde & Schwarz	ESVP	872 991/027	24 Apr 2007	12
M024	Spectrum Monitor	Rohde & Schwarz	EZM	873 952/006	Calibration not required	-
M173	Turntable Controller	R.H.Electrical Services	RH351	3510020	Calibration not required	-
M1180	Thermometer/Hygrometer	RS	212-124	N/A	19 Apr 2007	12
M1273	Test Receiver	Rhode & Schwarz	ESIB 26	100275	20 Feb 2007	12
S201	Open Area Test Site	RFI	1	-	25 May 2007	12
S209	Anechoic Chamber	RFI	9	-	Calibration not required	-

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\72900JD01\EMICON	Test configuration for measurement of conducted emissions.
DRG\72900JD01\EMIRAD	Test configuration for measurement of radiated emissions.
DRG\72900JD01\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test.

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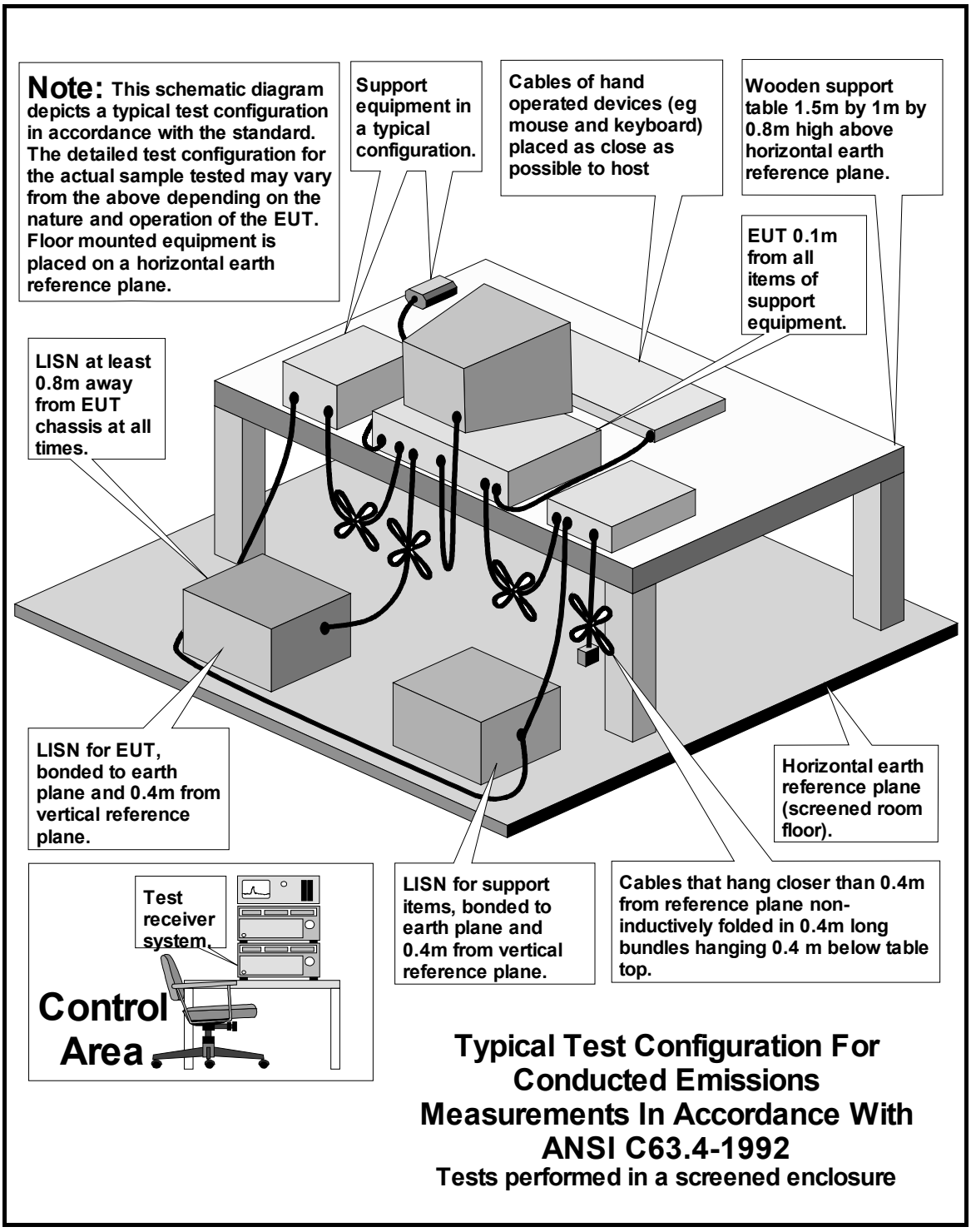
DRG\72900JD01\EMICON



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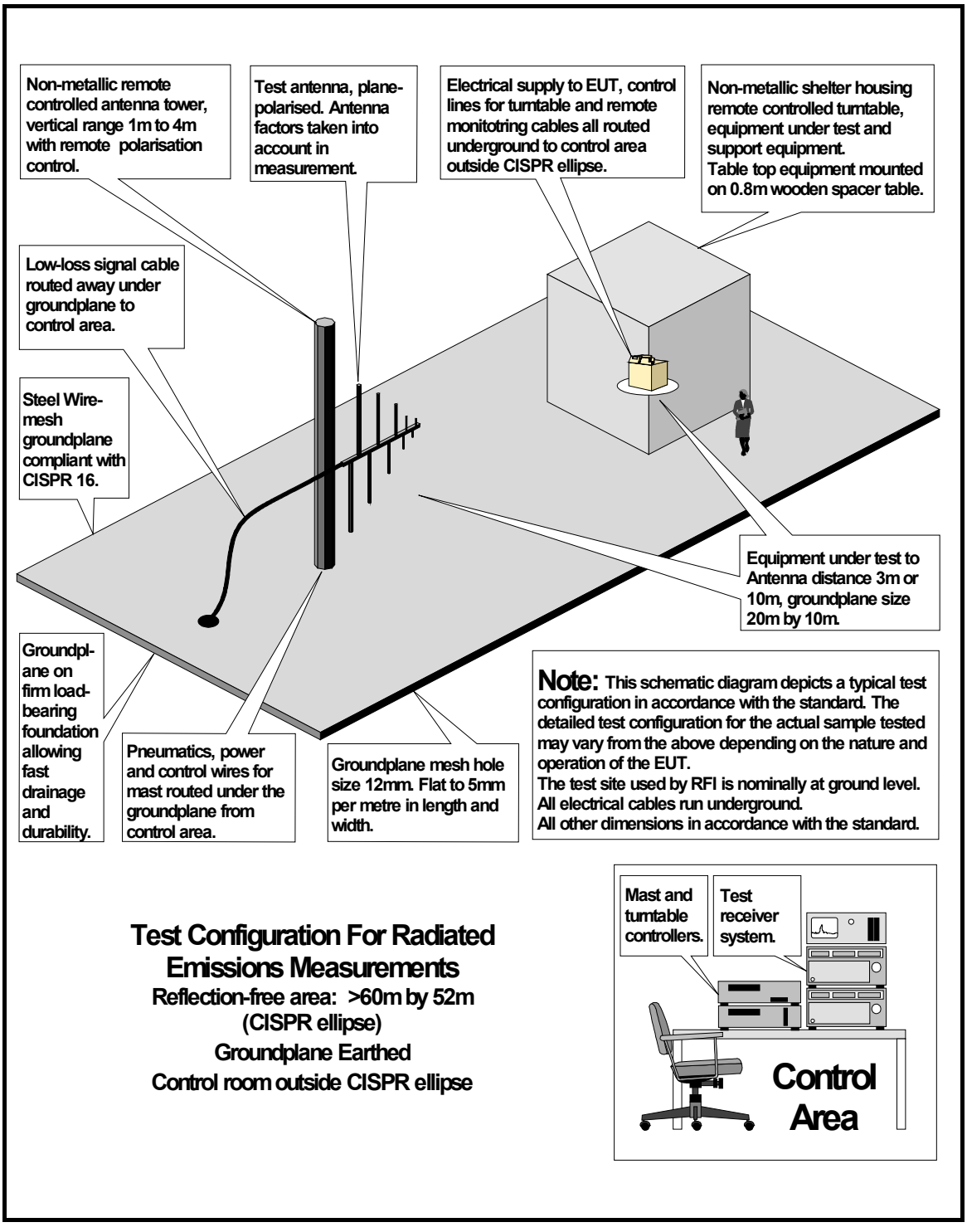
DRG\72900JD01\EMIRAD



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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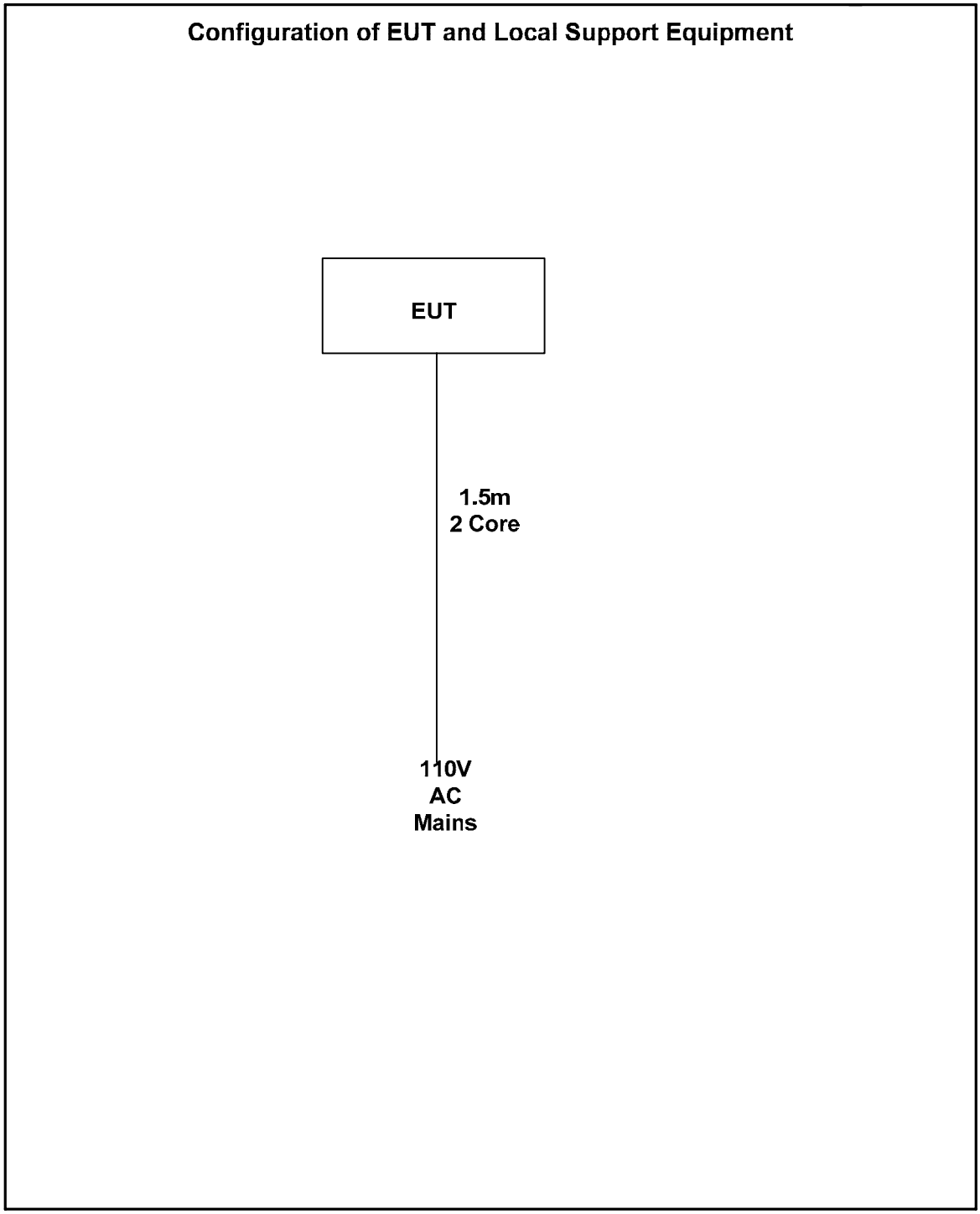
DRG\72900JD01\001



Appendix 3. Graphical Test Results

This Appendix contains the following graphs:

Graph Reference Number	Title
GPH\72900JD01\001	Conducted Emissions - GSM 1900 Idle / Charging Mode Pre-Scan (0.15 MHz to 30.0 MHz)
GPH\72900JD01\002	Conducted Emissions - GSM 850 Idle / Charging Mode Pre-Scan (0.15 MHz to 30.0 MHz)
GPH\72900JD01\003	Radiated Emissions – GSM 850 Idle / Charging Mode Pre-Scan (30.0 MHz to 1000.0 MHz)
GPH\72900JD01\004	Radiated Emissions – GSM 1900 Idle / Charging Mode Pre-Scan (30.0 MHz to 1000.0 MHz)
GPH\72900JD01\005	Radiated Emissions – GSM 850 Idle / Charging Mode (1 GHz to 2 GHz)
GPH\72900JD01\006	Radiated Emissions – GSM 1900 Idle / Charging Mode (1 GHz to 2 GHz)
GPH\72900JD01\007	Radiated Emissions – GSM 850 Idle / Charging Mode (2 GHz to 4 GHz)
GPH\72900JD01\008	Radiated Emissions – GSM 1900 Idle / Charging Mode (2 GHz to 4 GHz)
GPH\72900JD01\009	Radiated Emissions – GSM 850 Idle / Charging Mode (4 GHz to 6 GHz)
GPH\72900JD01\010	Radiated Emissions – GSM 1900 Idle / Charging Mode (4 GHz to 6 GHz)
GPH\72900JD01\011	Radiated Emissions – GSM 1900 Idle / Charging Mode (6 GHz to 8 GHz)
GPH\72900JD01\012	Radiated Emissions – GSM 1900 Idle / Charging Mode (8 GHz to 10 GHz)

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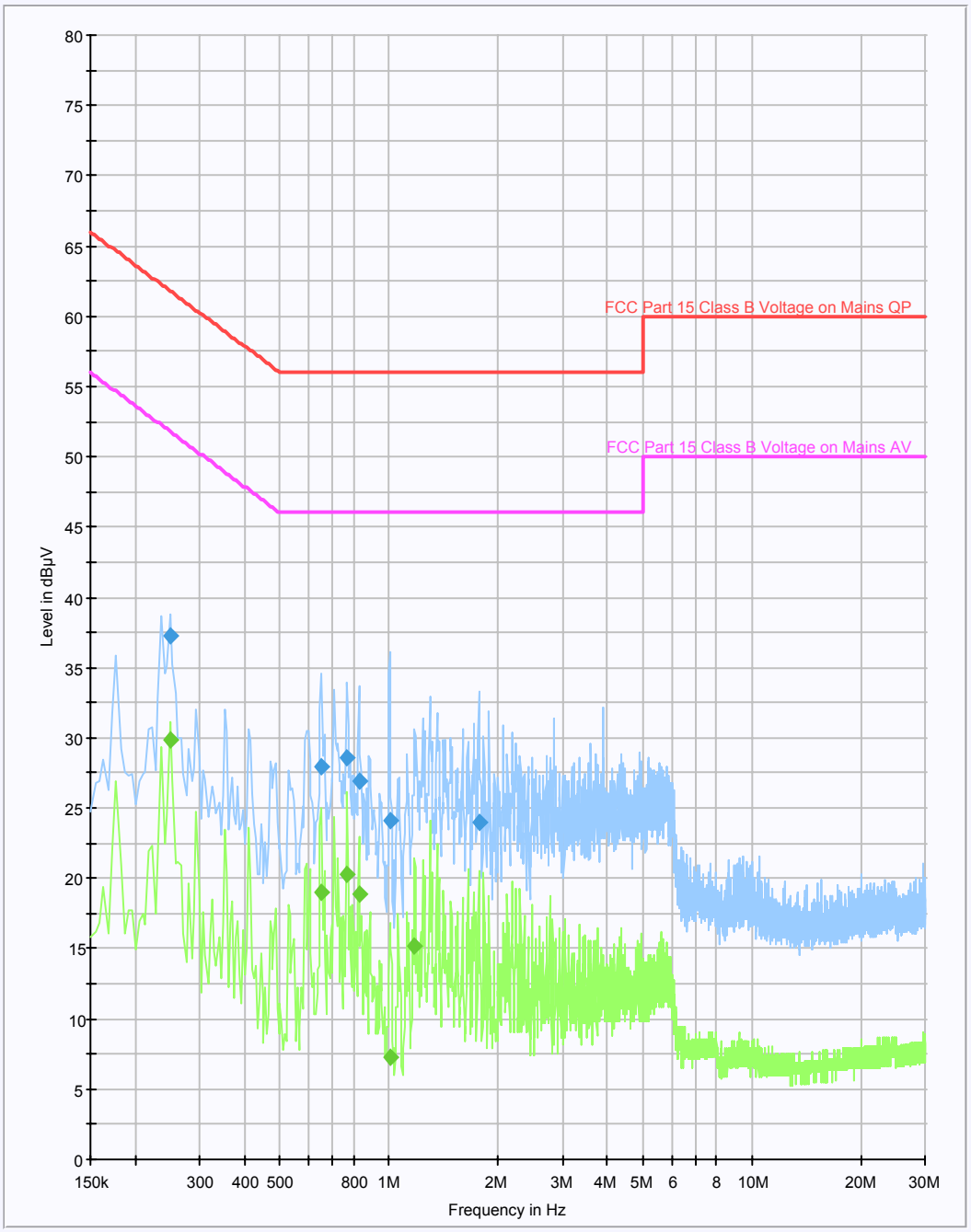
GPH\72900JD01\001
Conducted Emissions Pre-Scan - GSM 1900 Idle / Charging Mode
(0.15 MHz to 30.0 MHz)



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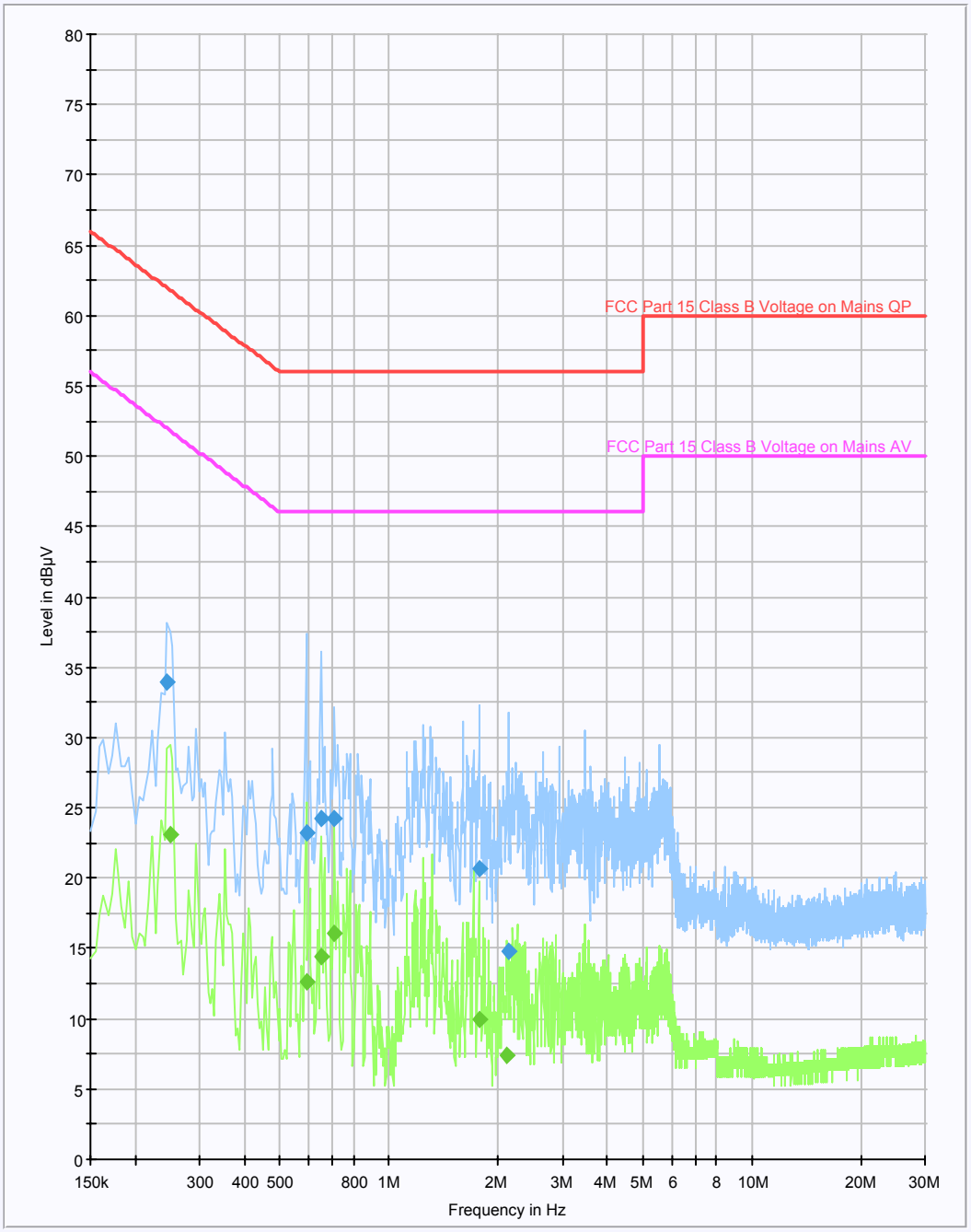
GPH\72900JD01\002
Conducted Emissions Pre-Scan - GSM 850 Idle / Charging Mode
(0.15 MHz to 30.0 MHz)



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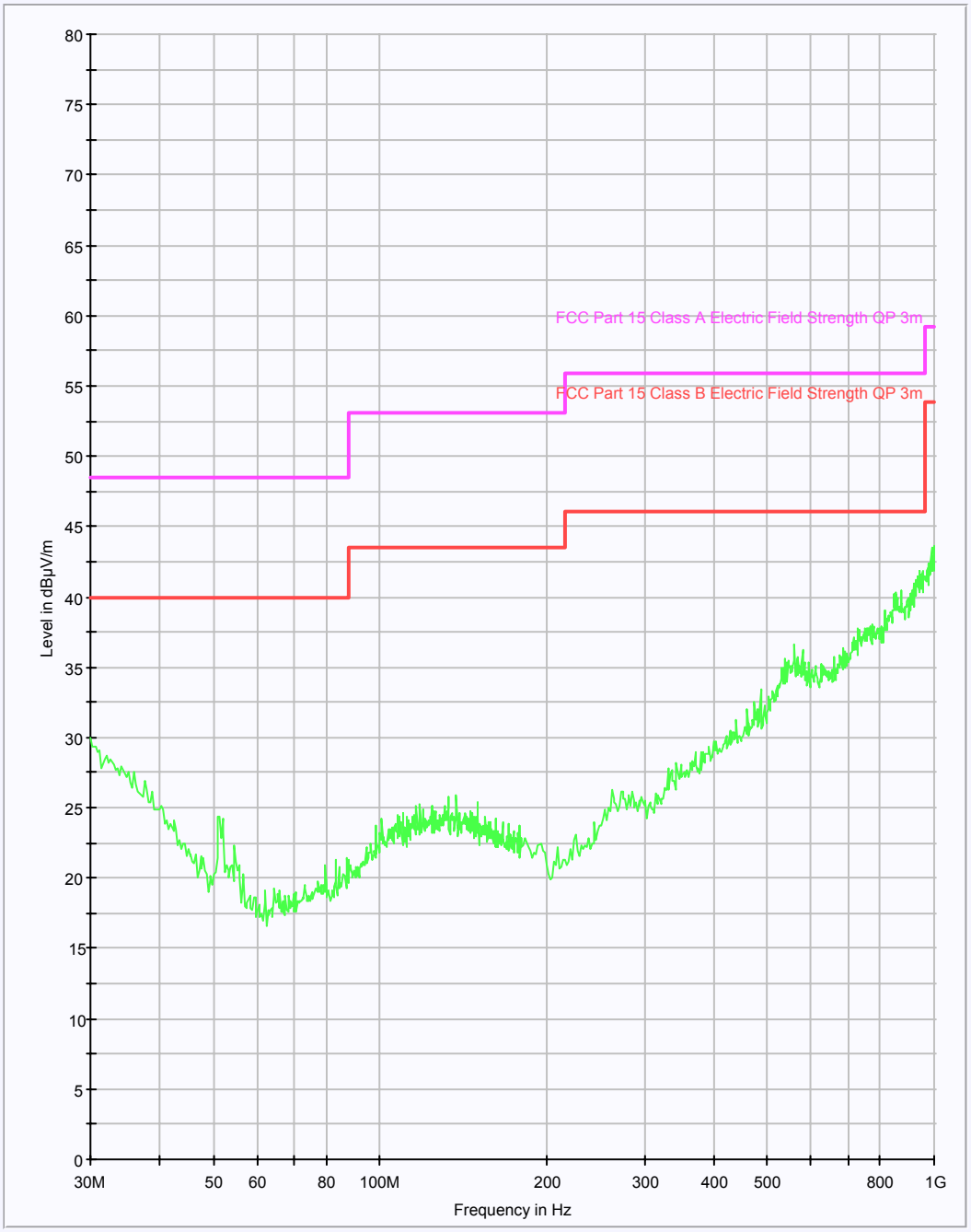
GPH\72900JD01\003
Radiated Emissions Pre-Scan - GSM 850 Idle / Charging Mode
(30.0 MHz to 1000.0 MHz)



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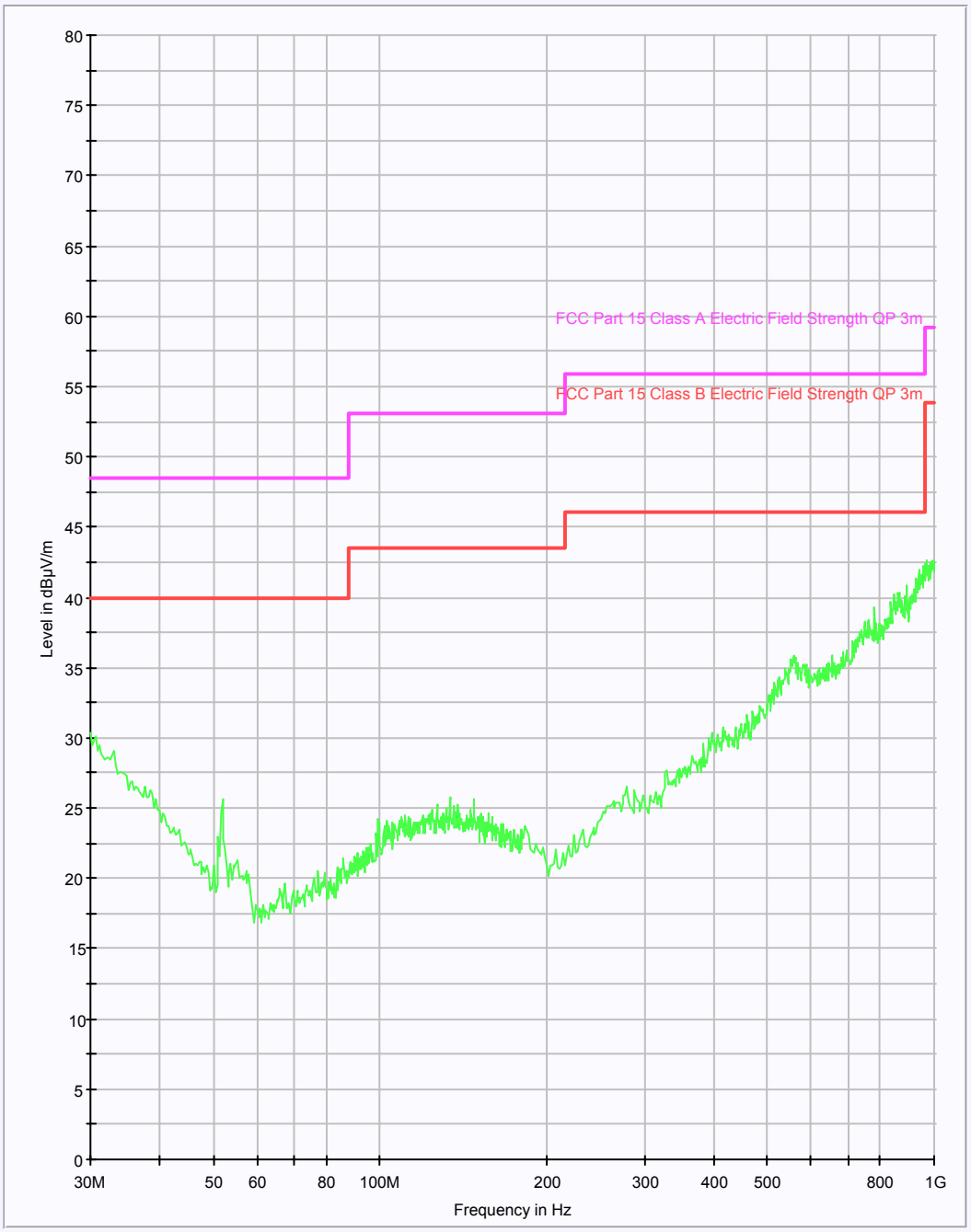
GPH\72900JD01\004
Radiated Emissions Pre-Scan - GSM 1900 Idle / Charging Mode
(30.0 MHz to 1000.0 MHz)



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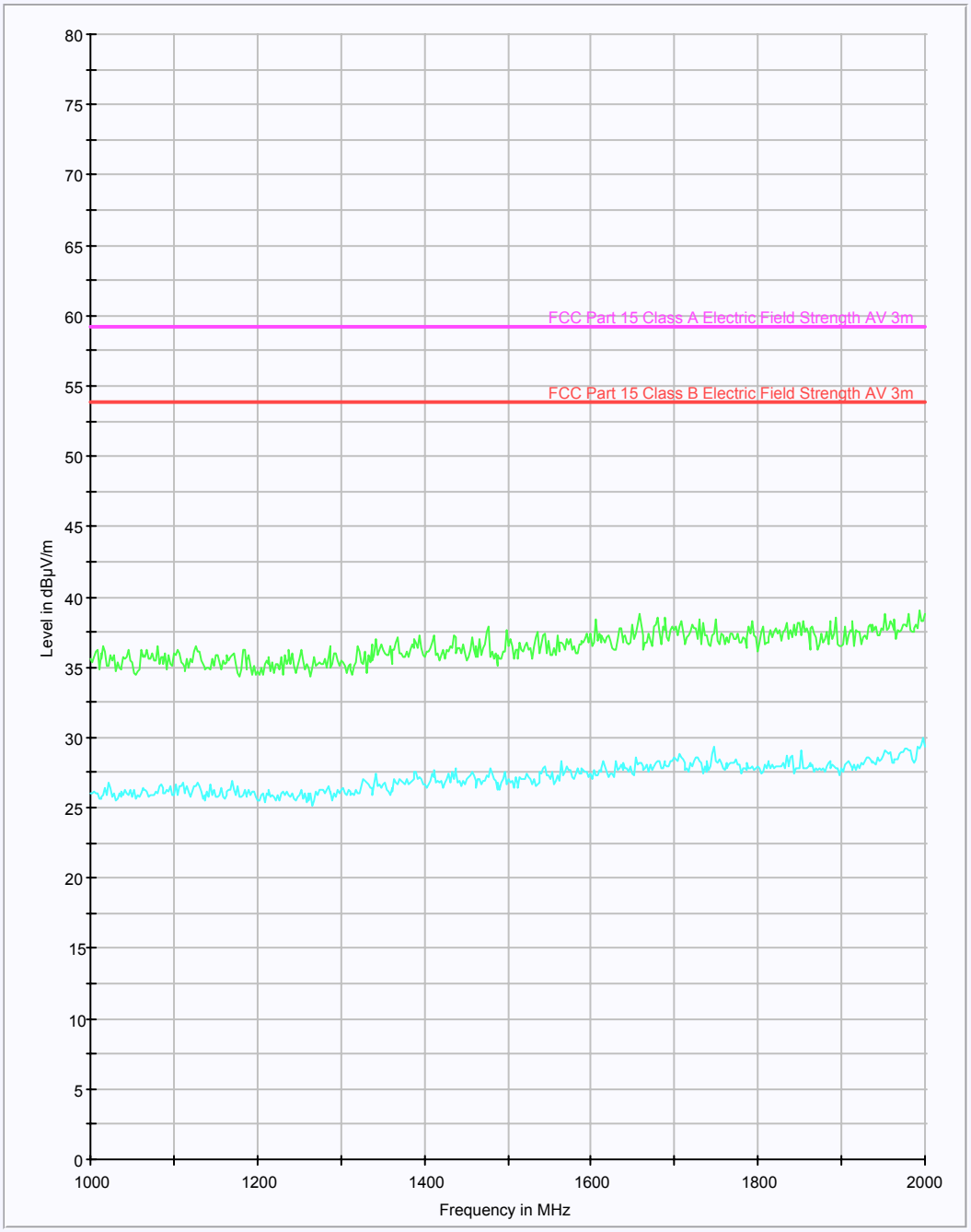
GPH\72900JD01\005
Radiated Emissions - GSM 850 Idle / Charging Mode
(1 GHz to 2 GHz)



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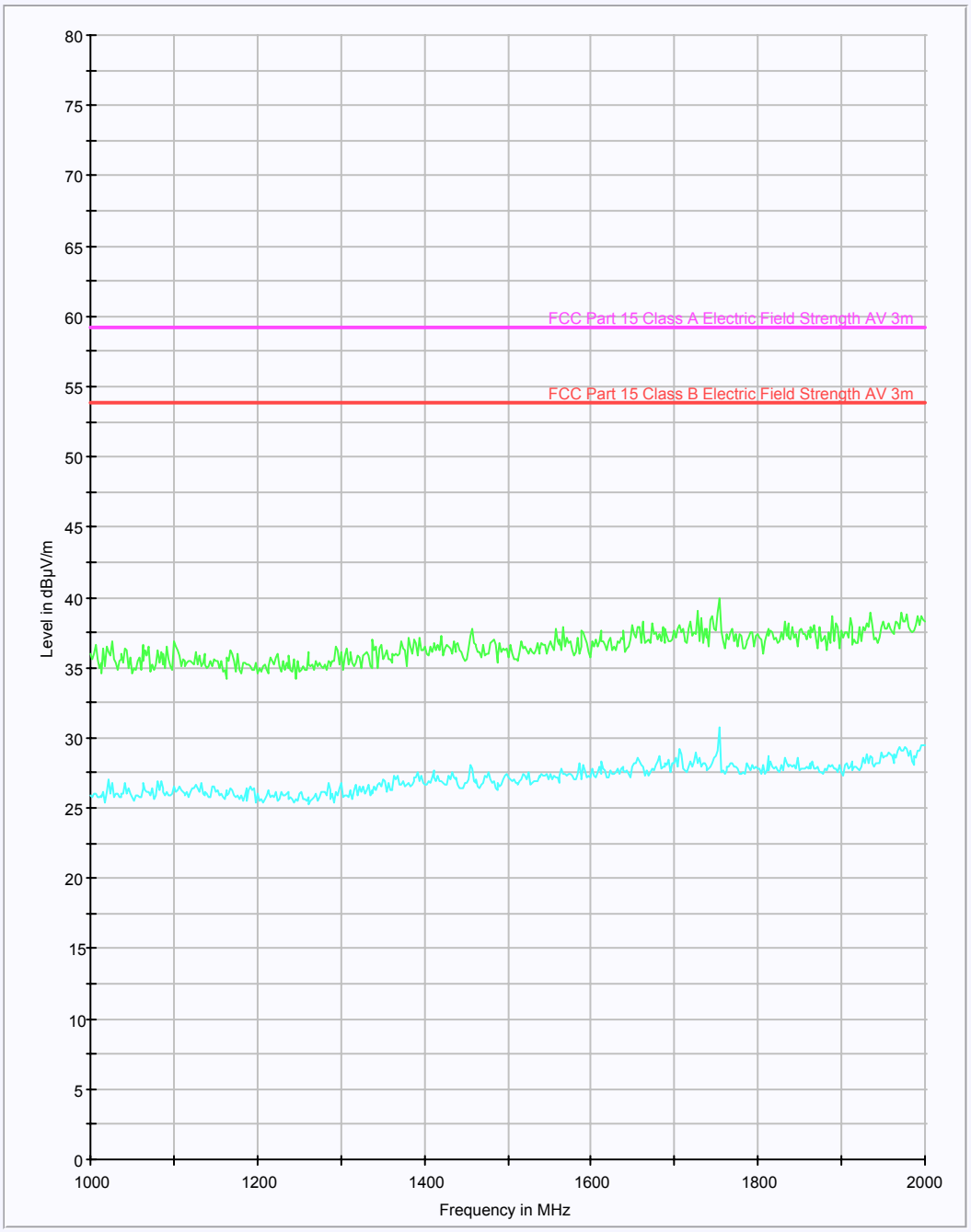
GPH\72900JD01\006
Radiated Emissions - GSM 1900 Idle / Charging Mode
(1 GHz to 2 GHz)



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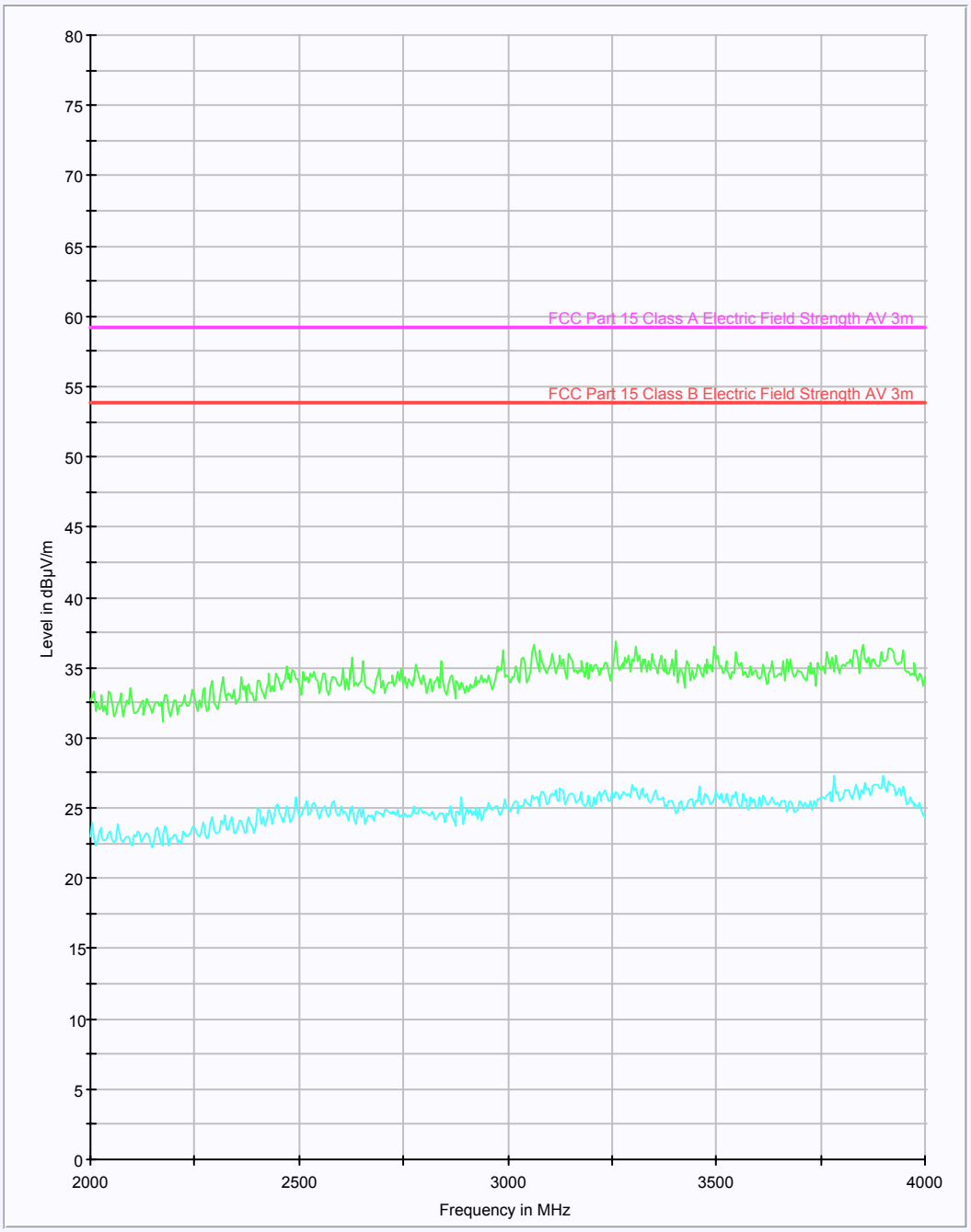
GPH\72900JD01\007
Radiated Emissions - GSM 850 Idle / Charging Mode
(2 GHz to 4 GHz)



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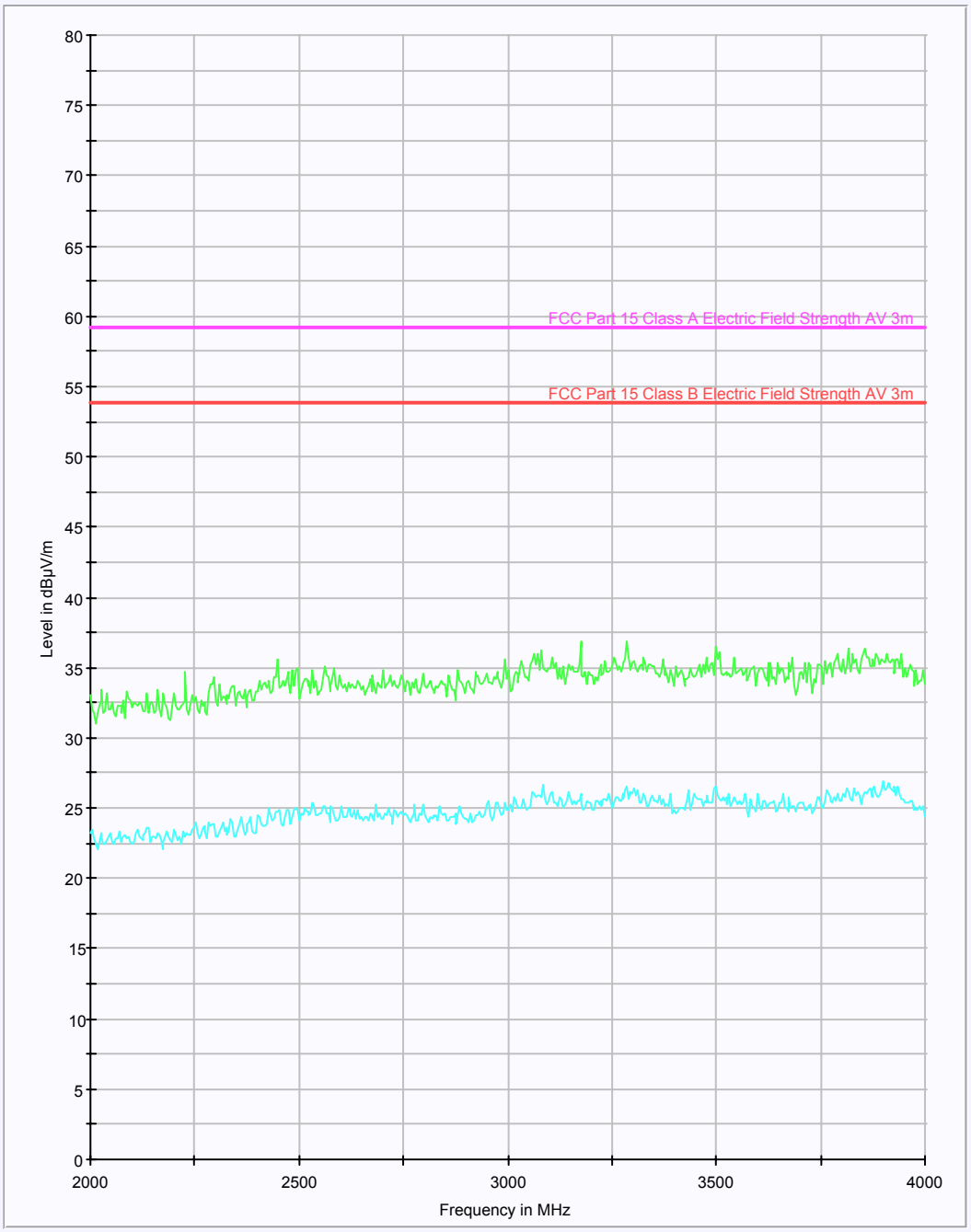
GPH\72900JD01\008
Radiated Emissions - GSM 1900 Idle / Charging Mode
(2 GHz to 4 GHz)



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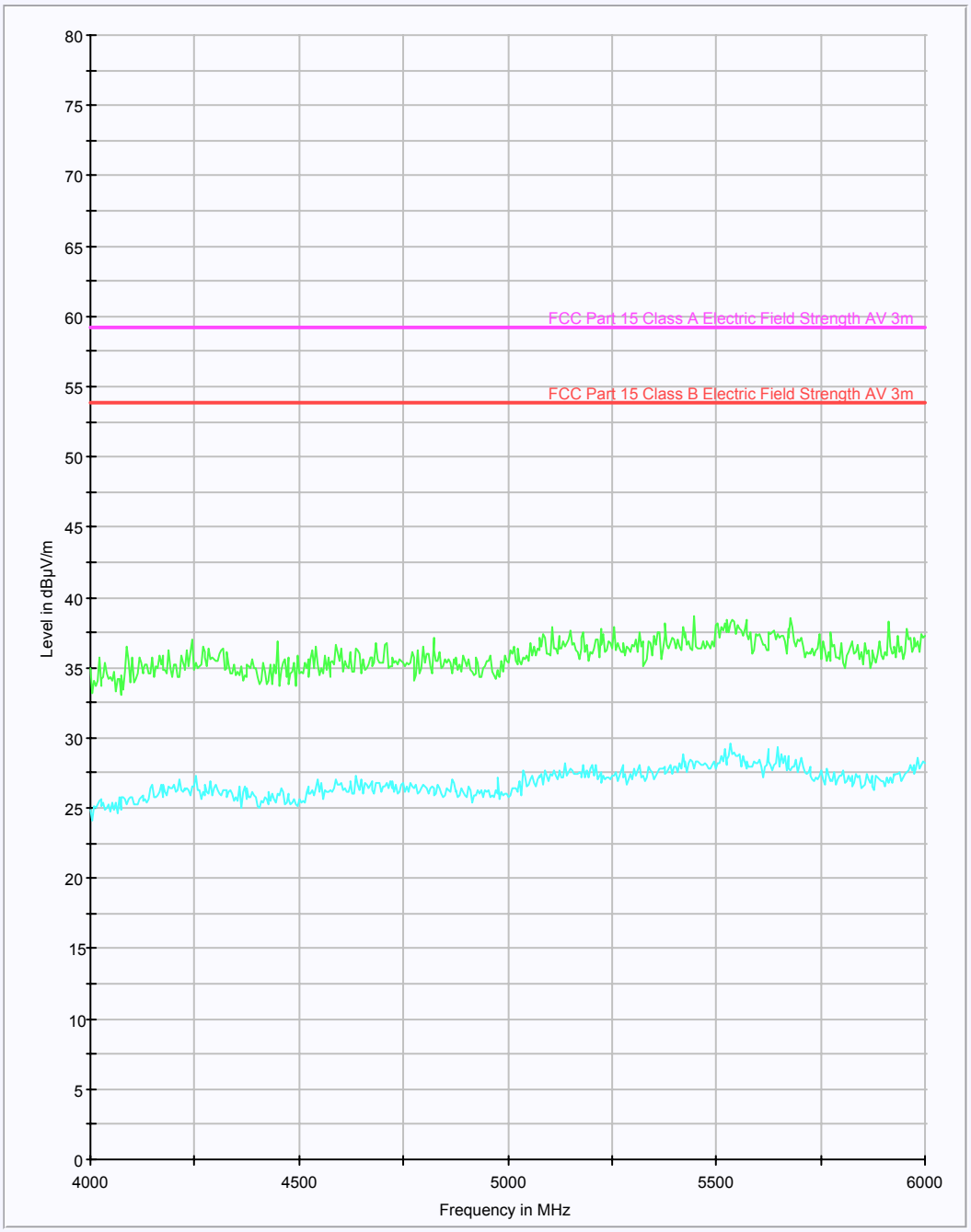
GPH\72900JD01\009
Radiated Emissions - GSM 850 Idle / Charging Mode
(4 GHz to 6 GHz)



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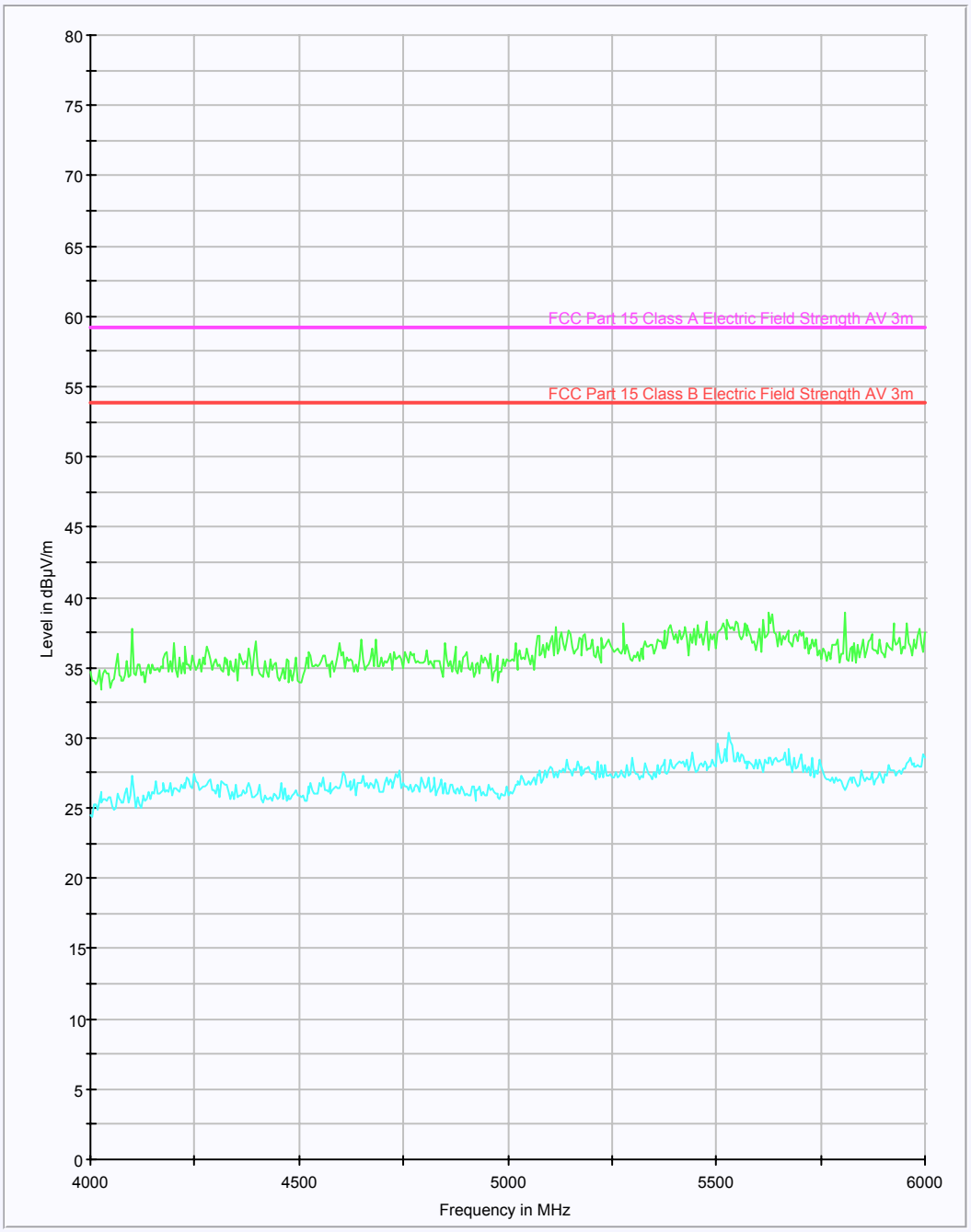
GPH\72900JD01\010
Radiated Emissions - GSM 1900 Idle / Charging Mode
(4 GHz to 6 GHz)



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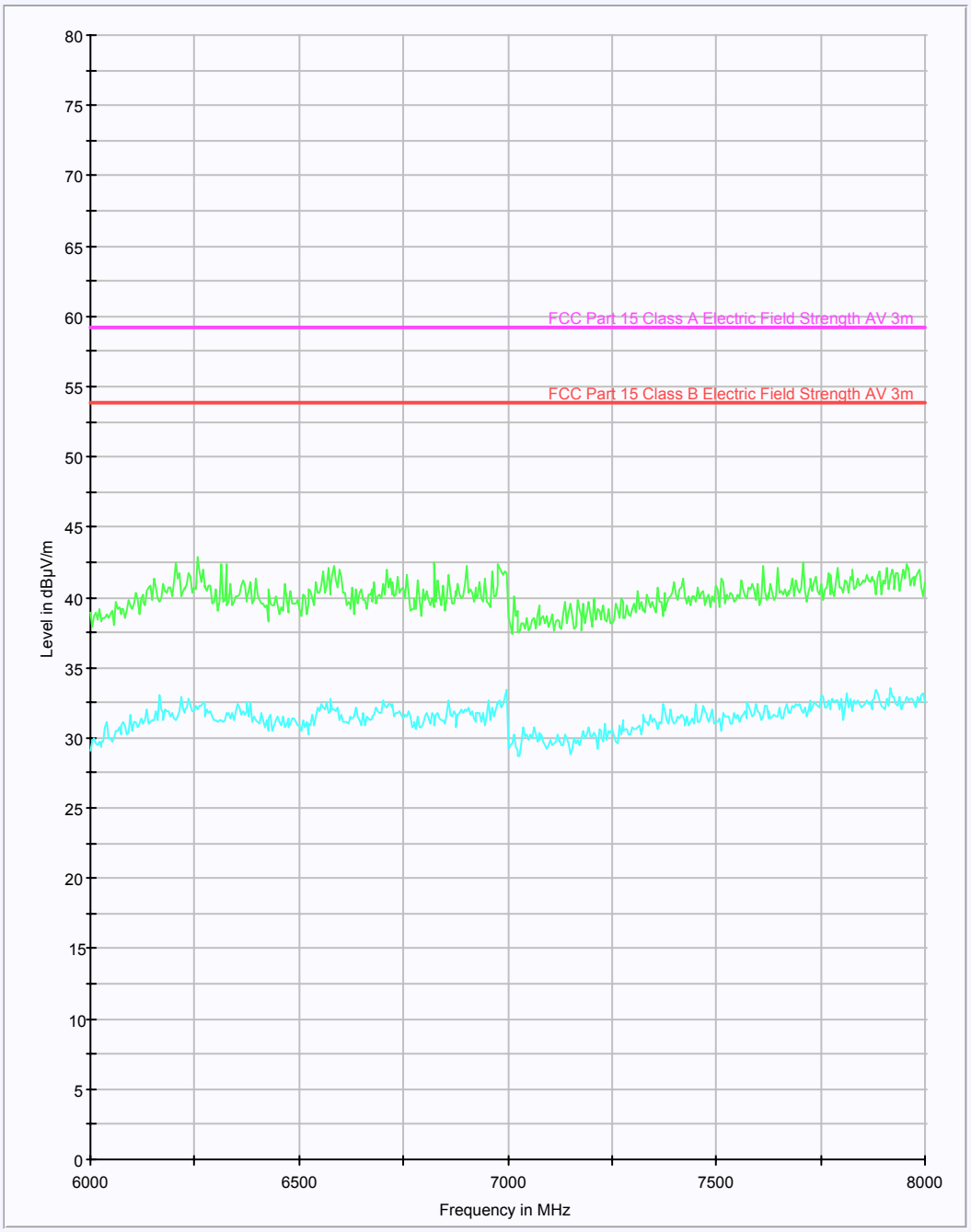
GPH\72900JD01\011
Radiated Emissions - GSM 1900 Idle / Charging Mode
(6 GHz to 8 GHz)



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GPH\72900JD01\012
Radiated Emissions - GSM 1900 Idle / Charging Mode
(8 GHz to 10 GHz)