



FCC CFR47 PART 15 SUBPART B

TEST REPORT

FOR

GSM850/1900 & WCDMA850/1900MHz Phone

MODEL NUMBER: GT-S5360L

FCC ID: A3LGTS5360L

REPORT NUMBER: 11I13976-4

ISSUE DATE: SEPTEMBER 2, 2011

Prepared for

**SAMSUNG ELECTRONICS CO., LTD
416, MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA**

Prepared by

**COMPLIANCE CERTIFICATION SERVICES (UL CCS)
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
–	09/02/11	Initial	S. Leitner

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS.....	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION.....	5
4. CALIBRATION AND UNCERTAINTY	5
4.1. MEASURING INSTRUMENT CALIBRATION	5
4.2. SAMPLE CALCULATION.....	5
4.3. MEASUREMENT UNCERTAINTY	5
5. EQUIPMENT UNDER TEST	6
5.1. DESCRIPTION OF EUT.....	6
5.2. GENERAL INFORMATION	6
5.3. MODE(S) OF OPERATION	6
5.4. MODIFICATIONS	6
5.5. DESCRIPTION OF TEST SETUP.....	7
6. TEST AND MEASUREMENT EQUIPMENT	9
7. APPLICABLE LIMITS AND TEST RESULTS	10
7.1. RADIATED EMISSIONS	10
7.2. AC MAINS LINE CONDUCTED EMISSIONS	14
8. SETUP PHOTOS.....	18
8.1. RADIATED EMISSIONS	18
8.2. AC MAINS LINE CONDUCTED EMISSIONS	19

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD
416, MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA

EUT DESCRIPTION: GSM850/1900 & WCDMA850/1900MHZ PHONE

MODEL: GT-S5360L

SERIAL NUMBER: R26B610076R

DATE TESTED: AUGUST 17, 2011

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART B	Pass

Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

Tested By:



STEVE LEITNER
EMC SUPERVISOR
UL CCS

CHIN PANG
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2009.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamplifier Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM850/1900 and WCDMA850/1900MHz phone with BT3.0+EDR, 802.11 b/g/n 1x1 HT20, Hotspots and VOIP.

The radio module is manufactured by Samsung.

5.2. GENERAL INFORMATION

Power Requirements	100-240 VAC / 50-60 Hz
List of frequencies generated or used by the EUT	26 MHz

5.3. MODE(s) OF OPERATION

Mode	Description
EUT with support equipment	EUT playing MP3, with laptop PC, printer, USB mouse and earphone

Between Configurations 1, 2 and 3, Configuration 3 was determined to be worst-case.

5.4. MODIFICATIONS

No modifications were made during testing.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	T410	R80PZWF	DoC
AC Adpter	Lenovo	PA-1600631	11S42T4418Z1ZGW076ETZ	DoC
Printer	OKI	Microline 186	NA	NA
Mouse	Logitech	M-8E58	HCA40202931	DoC
Earphone	Samsung	NA	NA	NA

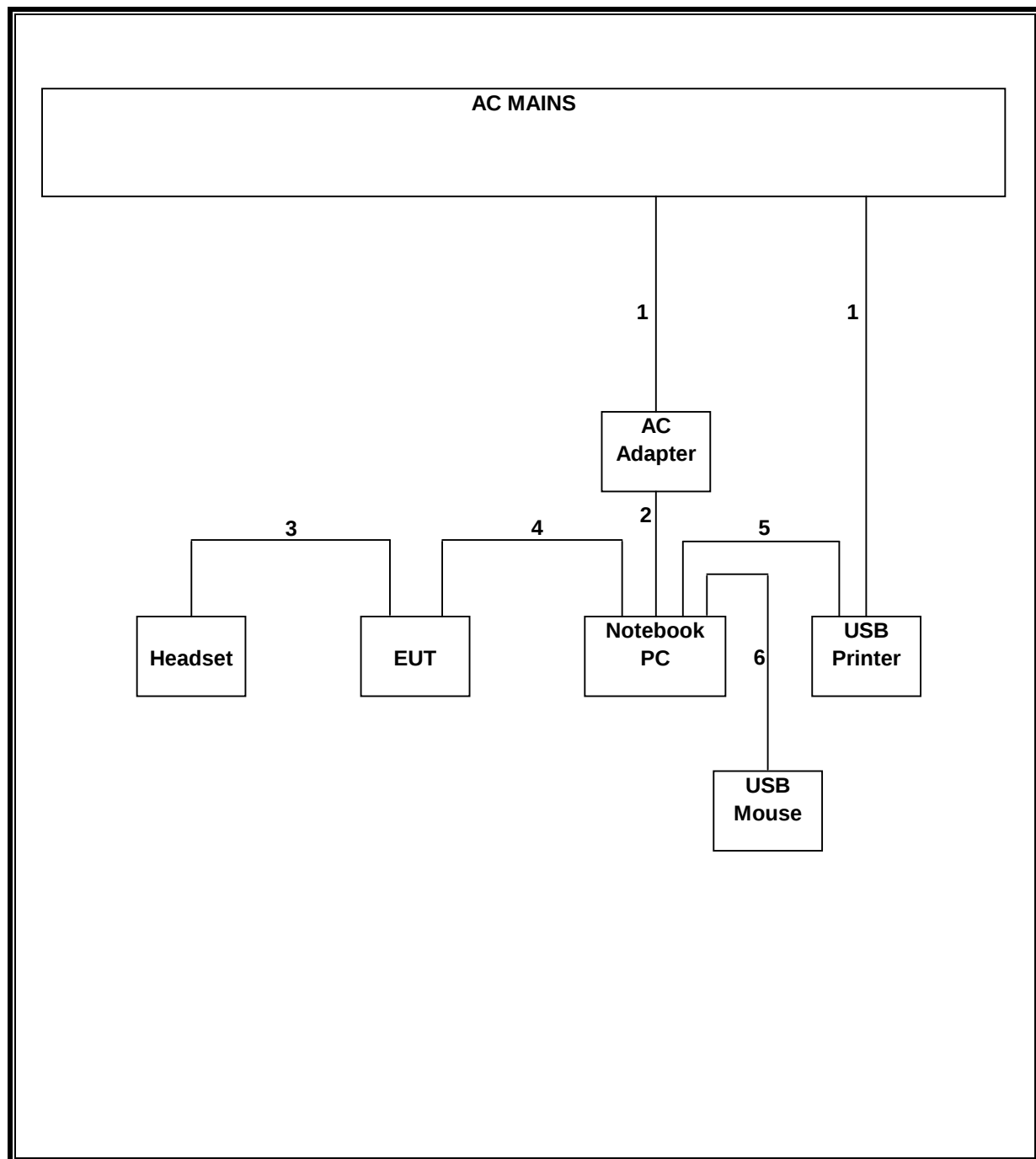
I/O CABLES (EUT with Support Equipment)

I/O CABLE LIST						
Cable No.	Port	# of Identica Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	2 m	NA
2	DC	1	DC	Un-shielded	2 m	NA
3	Earphone	1	Mini phone	Un-shielded	2 m	NA
4	USB	1	EUT	Shielded	1 m	NA
5	USB	1	Printer	Shielded	1.5 m	NA
6	USB	1	Mouse	Shielded	2 m	NA

TEST SETUP

The EUT was configured according to the following setup diagrams.

SETUP DIAGRAM



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	07/14/12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/16/12
Antenna, Horn, 18 GHz	EMCO	3115	C00945	06/29/12
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/27/12
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	01/19/12
EMI Test Receiver, 9 kHz-7	R & S	ESCI 7	T212	07/06/12
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	10/11/11

7. APPLICABLE LIMITS AND TEST RESULTS

7.1. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4

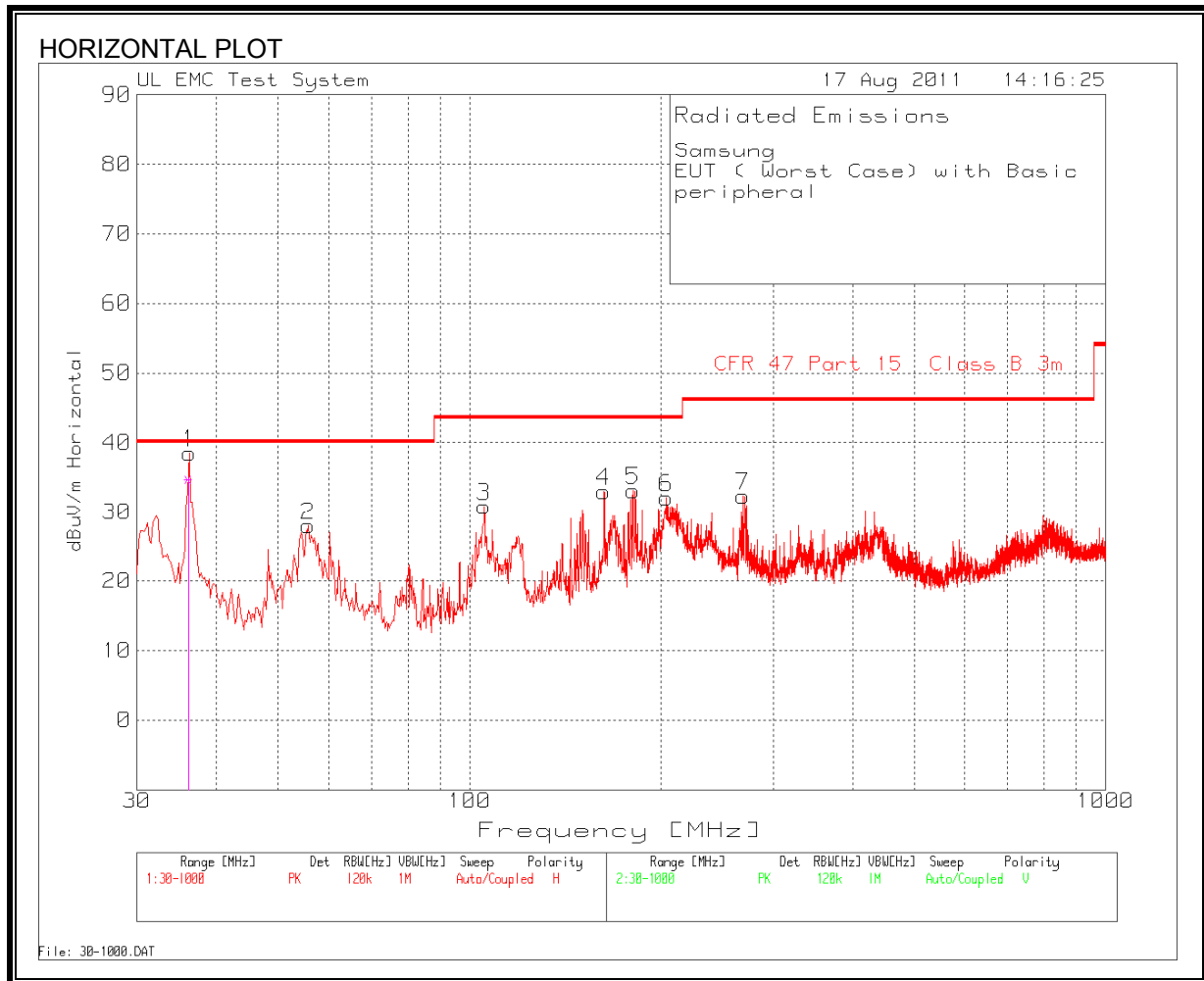
The highest clock frequency generated or used in the EUT is 26 MHz, therefore the frequency range was investigated from 30 MHz to 1 GHz.

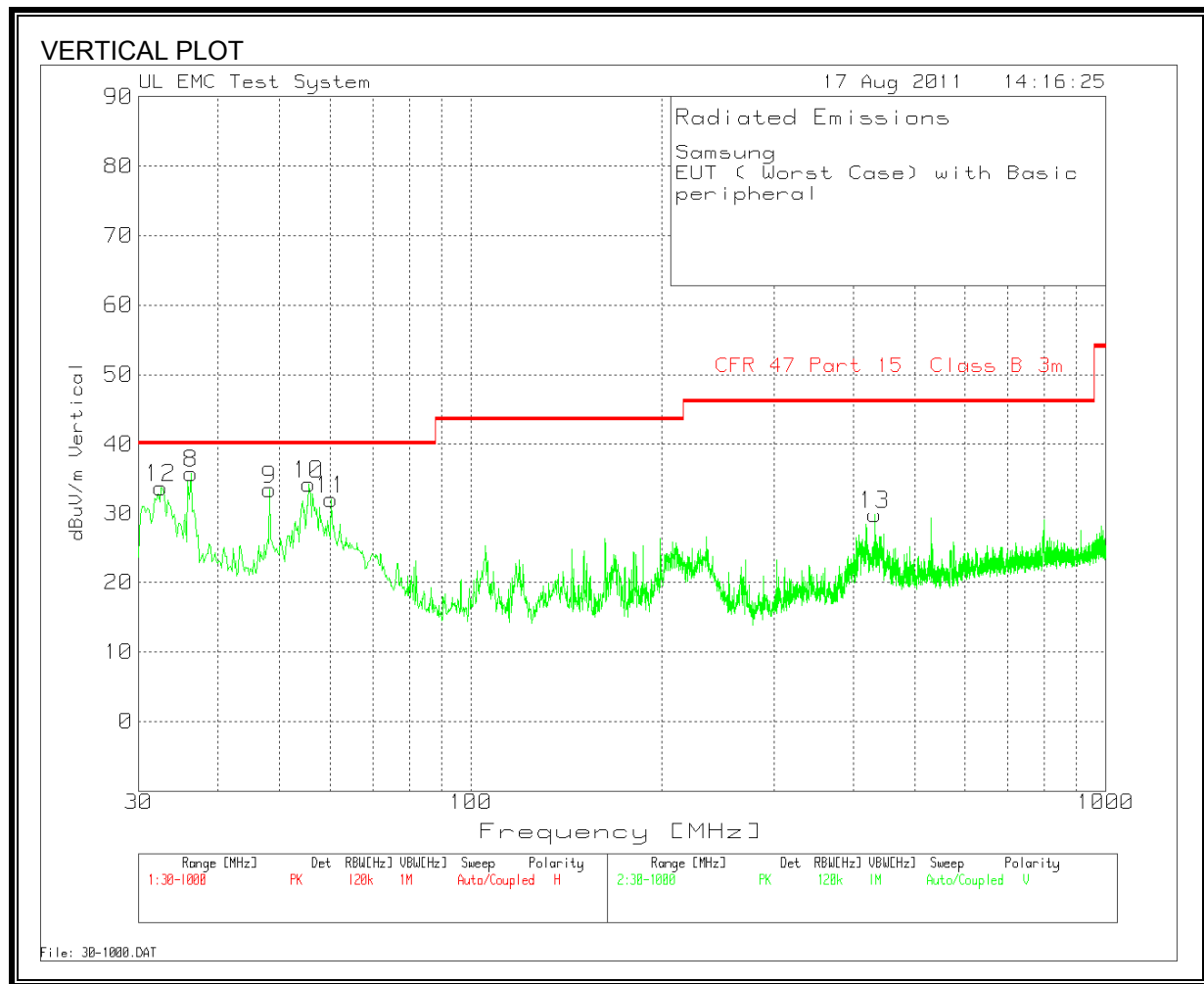
LIMIT

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dB μ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54
Note: The lower limit shall apply at the transition frequency.	

RESULTS





DATA

Samsung										
EUT with support equipment										
Test Frequency	Meter Reading	Detector	5m A Cable [dB]	5m A T64 PreAmp [dB]	5m A T122 Bilog [dB]	Corrected dBuV/m	FCC Class B 3m QP Limit	QP Margin	Height [cm]	Polarity
36.203	49.14	PK	0.7	-28.3	17	38.54	40	-1.46	300	Horz
36.1821	45.3	QP	0.7	-28.3	17	34.7	40	-5.3	335	Horz
55.7814	47.35	PK	0.8	-28.3	8.1	27.95	40	-12.05	300	Horz
105.4057	46.98	PK	1.1	-28.2	10.9	30.78	43.5	-12.72	300	Horz
162.5899	48.31	PK	1.4	-28.1	11.4	33.01	43.5	-10.49	200	Horz
180.6175	48.66	PK	1.4	-28.1	11.1	33.06	43.5	-10.44	100	Horz
204.0727	46.7	PK	1.5	-28.1	12	32.1	43.5	-11.4	200	Horz
269.2046	46.12	PK	1.8	-28	12.4	32.32	46	-13.68	100	Horz
36.203	46.37	PK	0.7	-28.3	17	35.77	40	-4.23	200	Vert
48.2214	51.74	PK	0.8	-28.3	9.2	33.44	40	-6.56	100	Vert
55.5875	53.66	PK	0.8	-28.3	8.1	34.26	40	-5.74	100	Vert
60.2398	51.63	PK	0.8	-28.3	7.9	32.03	40	-7.97	100	Vert
32.52	42.46	PK	0.6	-28.3	19	33.76	40	-6.24	100	Vert
433.0036	39.83	PK	2.3	-27.8	15.5	29.83	46	-16.17	100	Vert
PK - Peak detector										
QP - Quasi-Peak detector										
Av - Average detector										

7.2. AC MAINS LINE CONDUCTED EMISSIONS

TEST PROCEDURE

ANSI C63.4

LIMIT

§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

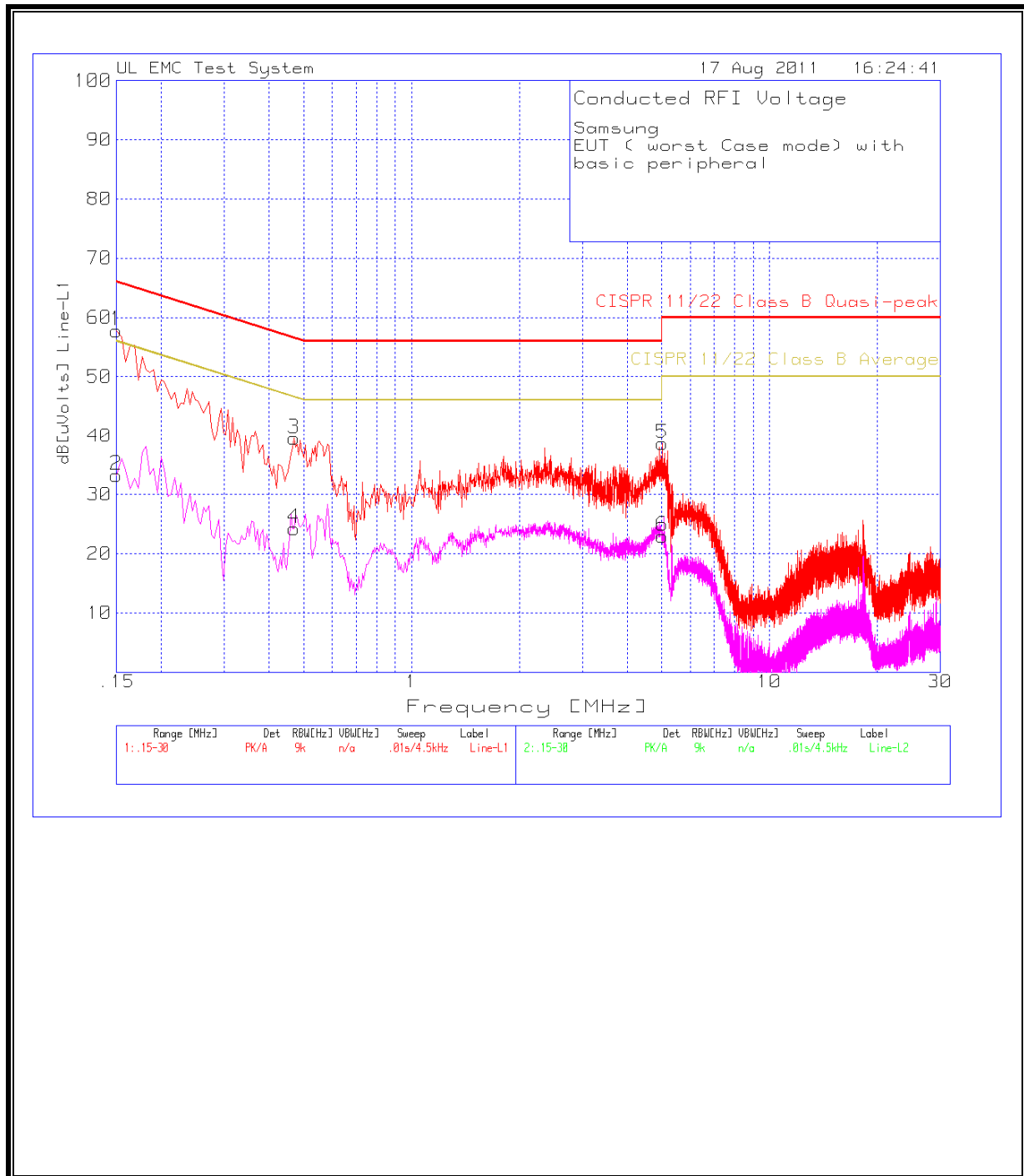
Frequency range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Notes: 1. The lower limit shall apply at the transition frequencies 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

RESULTS

6 WORST EMISSIONS

Samsung						
EUT with support equipment						
Test Frequency	Detector	dB[uV]	Class B QP Limit	QP Margin	Class B Av Limit	Av Margin
Line-L1 .15 - 30MHz						
0.15	PK	57.76	66	-8.24	56	1.76
0.15	Av	33.26	-	-	56	-22.74
0.4695	PK	39.56	56.5	-16.94	46.5	-6.94
0.4695	Av	24.26	-	-	46.5	-22.24
5.01	PK	38.61	60	-21.39	50	-11.39
5.01	Av	22.94	-	-	50	-27.06
Line-L2 .15 - 30MHz						
0.15	PK	53.03	66	-12.97	56	-2.97
0.15	Av	36.43	-	-	56	-19.57
0.375	PK	40.22	58.4	-18.18	48.4	-8.18
0.375	Av	25.11	-	-	48.4	-23.29
3.7815	PK	36.58	56	-19.42	46	-9.42
3.7815	Av	23.74	-	-	46	-22.26
PK - Peak detector						
QP - Quasi-Peak detector						
Av - Average detector						

LINE 1 RESULTS



LINE 2 RESULTS

