



TEST REPORT

No. 2011TAR223

for

TCT Mobile Limited

HSDPA/UMTS dual band / GSM four bands mobile phone

Model Name: BrandyS

Marketing Name: one touch 990S

FCC ID: RAD159

with

Hardware Version: PIO

Software Version: V520

Issued Date: 2011-05-17

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

DAR accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-114/01-02

FCC 2.948 Listed: No.733176

IC O.A.T.S listed: No.6629A-1

TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology

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1. Test Laboratory

1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52, Huayuan beilu, Haidian District, Beijing, P. R. China
Postal Code: 100191
Telephone: 00861062304633
Fax: 00861062304633

1.2. Testing Environment

Normal Temperature: 15-35°C
Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: Apr. 11, 2011
Testing End Date: Apr. 15, 2011

1.4. Signature



Qu Pengfei
(Prepared this test report)



Sun Xiangqian
(Reviewed this test report)



Lu Bingsong
Deputy Director of the laboratory
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: TCT Mobile Limited
Address /Post: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
Pudong Area Shanghai, P.R. China.
City: Shanghai
Postal Code: 201203
Country: China
Contact Person: Gong Zhizhou
Contact Email: zhizhou.gong@jrdcom.com
Telephone: 0086-21-61460890
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2.2. Manufacturer Information

Company Name: TCT Mobile Limited
Address /Post: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park,
Pudong Area Shanghai, P.R. China.
City: Shanghai
Postal Code: 201203
Country: China
Telephone: 0086-21-61460890
Fax: 0086 21 61460602

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	HSDPA/UMTS dual band / GSM four bands mobile phone
Model Name	BrandyS
Marketing Name	one touch 990S
FCC ID	RAD159
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.8VDC)

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	012579000000322	PIO	V520

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	Battery	B0131600FEA
AE2	Travel Adapter	/
AE3	Travel Adapter	/
AE4	Travel Adapter	/
AE5	USB Cable	/
AE6	USB Cable	/

AE1

Model	CAB31P0000C1
Manufacturer	BYD
Capacitance	1300 mAh
Nominal Voltage	3.7V

AE2

Model	CBA3001AG0C1
Manufacturer	BYD
Length of DC line	163cm(including the length of USB cable)

AE3

Model	CBA3001AG0C2
Manufacturer	Tenpao
Length of DC line	158.6cm (including the length of USB cable)

AE4

Model	CBA3000AG0C1
Manufacturer	Tenpao
Length of DC line	148.5cm

AE5

Model CDA3122001C1
 Manufacturer Juwei
 Length of cable 148.5cm

AE5

Model CDA3122001C2
 Manufacturer Shenhua
 Length of cable 148.5cm

*AE ID: is used to identify the test sample in the lab internally.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.1	EUT1+ AE1+AE2+AE5/AE6	--
Set.2	EUT1+ AE1+AE3+AE5/AE6	--
Set.3	EUT1+ AE1+AE4+AE5/AE6	--
Set.4	EUT1+ AE1+ AE5/AE6	USB mode

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices	July 10, 2008 Edition
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2003

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.2 dB, 10 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 2000 MHz

Control room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Conducted chamber did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80 to 2000 MHz

6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:	
P	Pass
NA	Not applicable
F	Fail

Clause	List	Clause in FCC rules	Verdict
1	Radiated Emission	15.109(a)	P
2	Conducted Emission	15.107(a)	P

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	Test Receiver	ESCI	100344	R&S	2012-03-12
2	Test Receiver	ESCI	100766	R&S	2011-12-06
3	Test Receiver	ESI40	831564/002	R&S	2012-02-11
4	BiLog Antenna	VUL9163	9163-302	Schwarzbeck	2012-02-10
5	Signal Generator	SMB100A	102063	R&S	2012-03-05
6	LISN	ESH3-Z5	825562/028	R&S	2011-07-04
7	Universal Radio Communication Tester	CMU200	100680	R&S	2011-09-05
8	Dual-Ridge Waveguide Horn Antenna	3115	6914	EMCO	2012-2-18
9	PC	OPTIPLEX 755	3908243625	DELL	N/A
10	Monitor	E178FPc	CN-OWR979-6 4180-7AJ-D2M S	DELL	N/A
11	Printer	DeskJet D2368	TH72E12G7Q	HP	N/A
12	Keyboard	L100	CN0RH659658 907ATOI40	DELL	N/A
13	Mouse	VR-301	692722550019 8	XINGYU	N/A

ANNEX A: MEASUREMENT RESULTS

A.1 Radiated Emission (§15.109(a))

A.1.1 Method of measurement

The field strength of radiated emissions from the unintentional radiator (USB mode of MS and charging mode of MS) at a distance of 3 meters is tested. Tested in accordance with the procedures of ANSI C63.4 - 2003, section 8.3.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

A.1.2 EUT Operating Mode:

The MS is operating in the USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL OPTIPLEX 755, and the serial number of the PC is 3908243625. For USB mode, the QPST V2.7 software is used to keep the synchronization between the MS and PC.

A.1.3 Measurement Limit

Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

A.1.4 Test Condition

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15

A.1.5 Measurement Results

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + G_A + G_{\text{PL}}$$

Where

G_A : Antenna factor of receive antenna

G_{PL} : Path Loss

P_{Mea} : Measurement result on receiver.

Set.1 charging mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dBuV)	Polarity
3553.106	51.25	-19.5	33.4	37.35	HORIZONTAL
3519.038	51.11	-19.6	33.4	37.31	VERTICAL
3711.423	51.06	-19.5	33.4	37.16	VERTICAL
3701.403	50.95	-19.4	33.4	36.95	VERTICAL
3929.860	50.95	-19.8	33.4	37.35	VERTICAL
3607.214	50.94	-19.6	33.4	37.14	VERTICAL

Set.2 charging mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea} (dBuV)	Polarity
3701.403	51.53	-19.4	33.4	37.53	VERTICAL
3468.938	51.50	-19.6	31.2	39.90	HORIZONTAL
3817.635	51.32	-19.5	33.4	37.42	HORIZONTAL
3723.447	51.20	-19.6	33.4	37.40	HORIZONTAL
3707.415	51.01	-19.4	33.4	37.01	VERTICAL
3633.267	50.99	-19.8	33.4	37.39	HORIZONTAL

Set.3 charging mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{Mea} (dBuV)	Polarity
3649.299	51.56	-19.7	33.4	37.86	HORIZONTAL
3733.467	51.37	-19.7	33.4	37.67	VERTICAL
3509.018	51.35	-19.7	33.4	37.65	HORIZONTAL
3460.922	51.34	-19.6	31.2	39.74	VERTICAL
3613.226	51.26	-19.7	33.4	37.56	HORIZONTAL
3781.563	51.14	-19.8	33.4	37.54	HORIZONTAL

USB mode

Frequency(MHz)	Result(dBuV/m)	G_{PL} (dB)	G_A (dB/m)	P_{mea} (dBuV)	Polarity
3963.928	51.35	-19.6	33.4	37.55	VERTICAL
3805.611	51.31	-19.5	33.4	37.41	HORIZONTAL
3553.106	51.29	-19.5	33.4	37.39	VERTICAL
3665.331	51.29	-19.7	33.4	37.59	HORIZONTAL
3531.062	51.15	-19.4	33.4	37.15	HORIZONTAL
3384.770	51.12	-19.5	31.2	39.42	HORIZONTAL

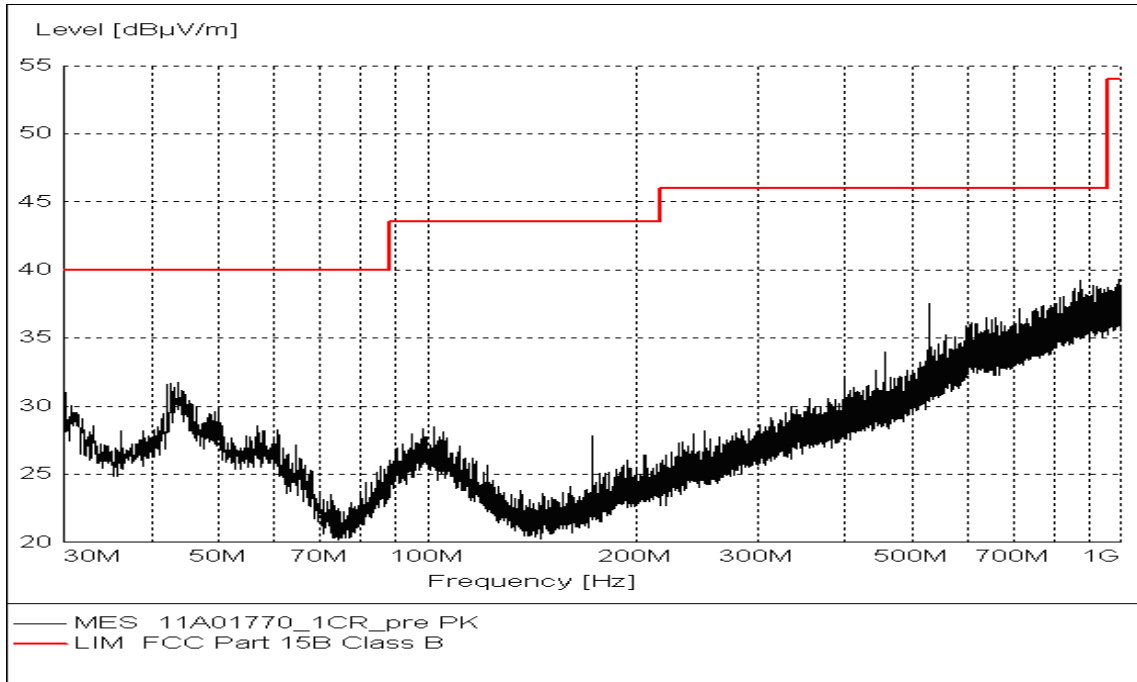


Figure A.1 Radiated Emission from 30MHz to 1GHz (Set.1, Charging mode)

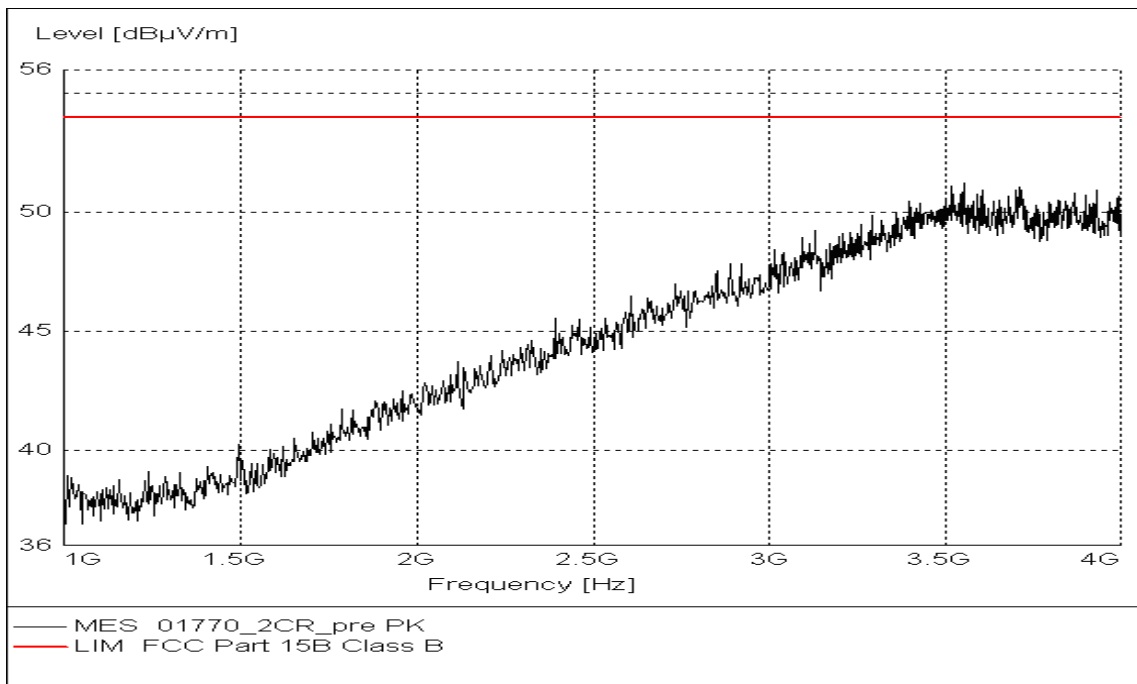


Figure A.2 Radiated Emission from 1GHz to 4GHz (Set.1, Charging mode)

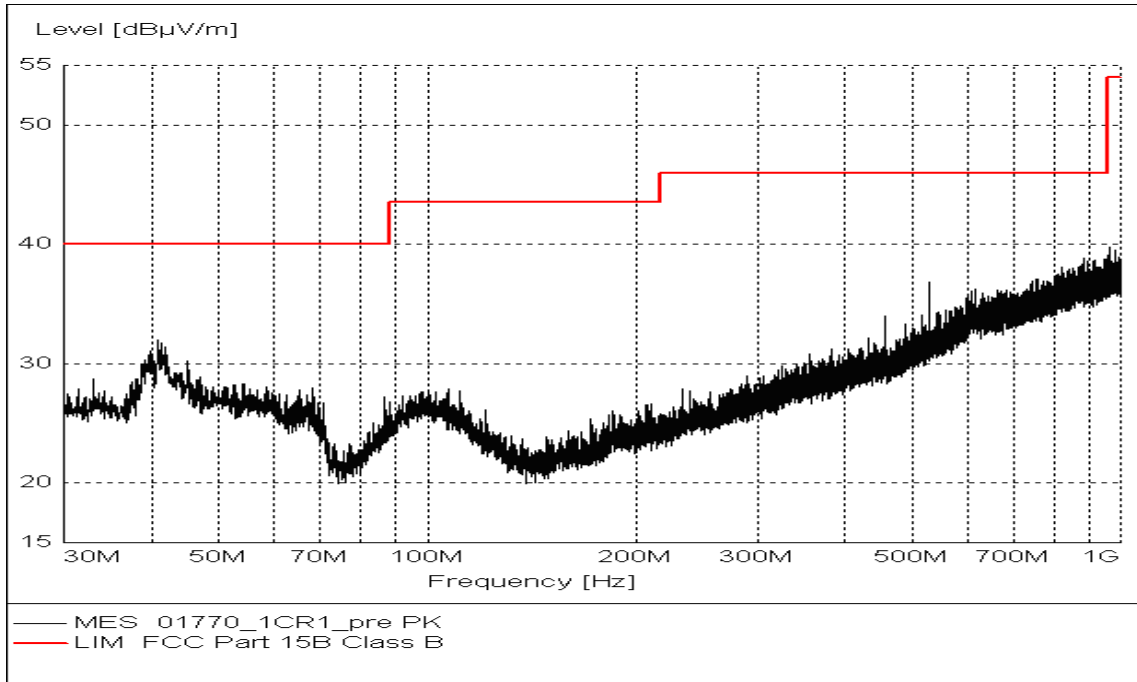


Figure A.3 Radiated Emission from 30MHz to 1GHz (Set.2, Charging mode)

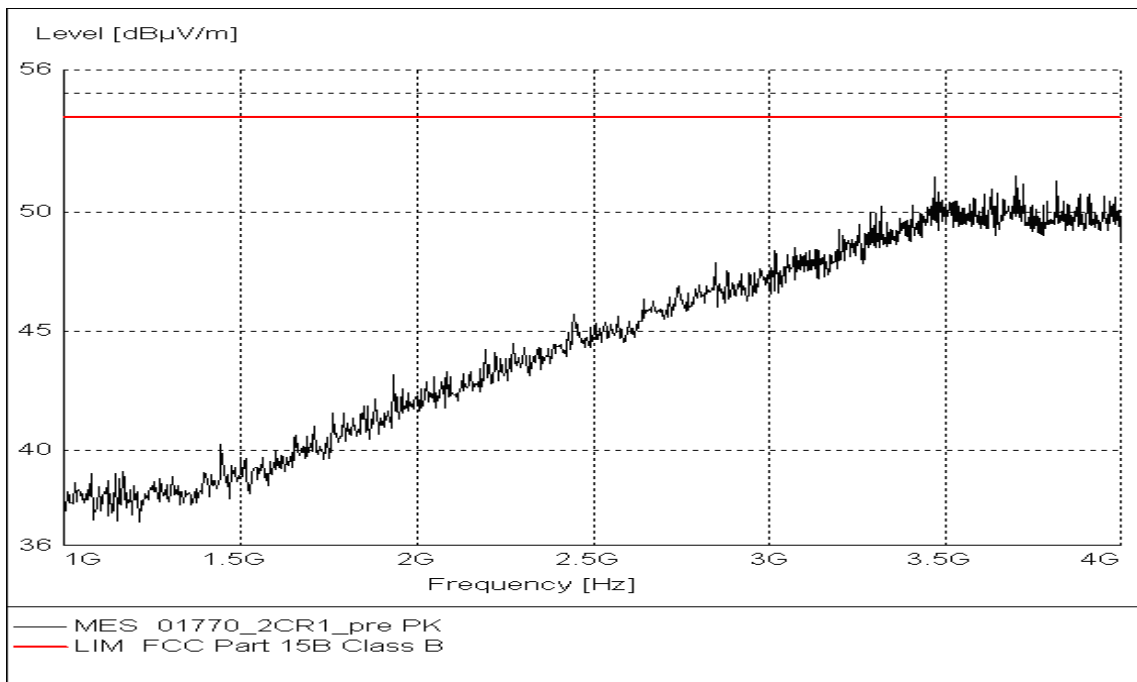


Figure A.4 Radiated Emission from 1GHz to 4GHz (Set.2, Charging mode)

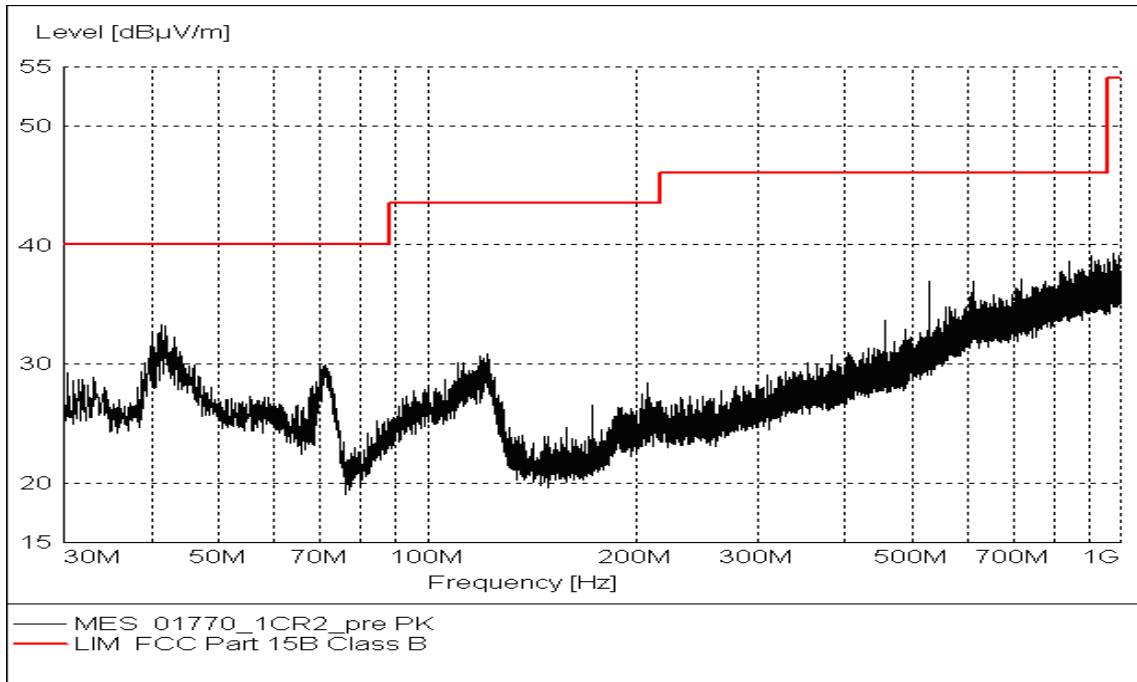


Figure A.5 Radiated Emission from 30MHz to 1GHz (Set.3, Charging mode)

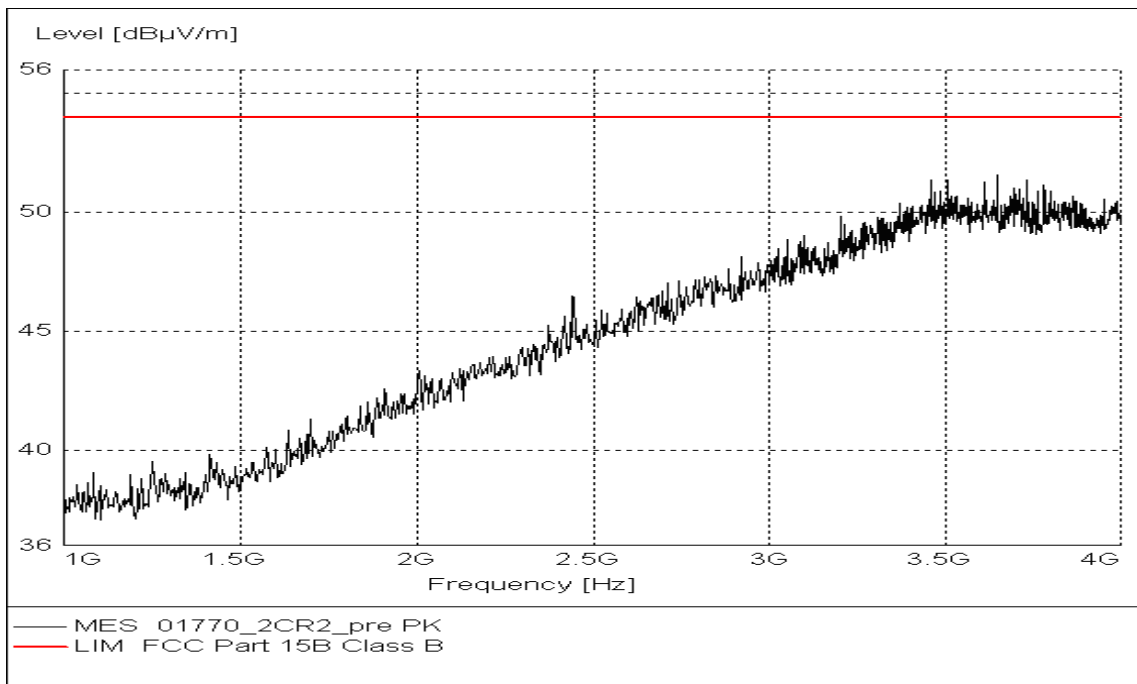


Figure A.6 Radiated Emission from 1GHz to 4GHz (Set.3, Charging mode)

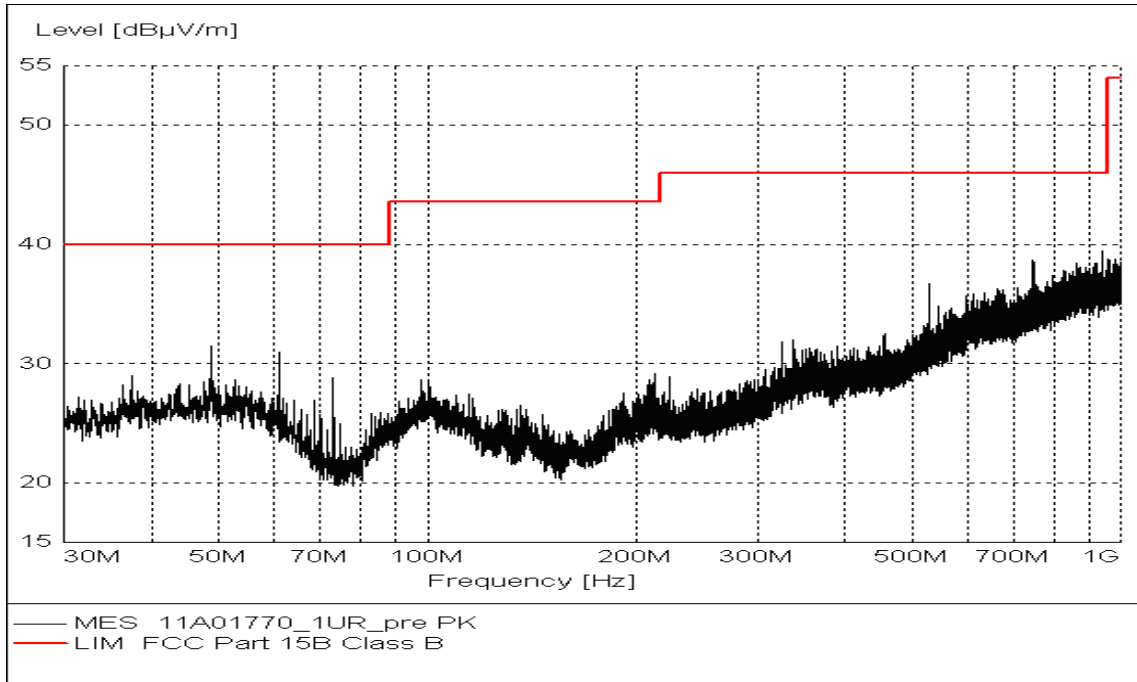


Figure A.7 Radiated Emission from 30MHz to 1GHz (Set.4, USB mode)

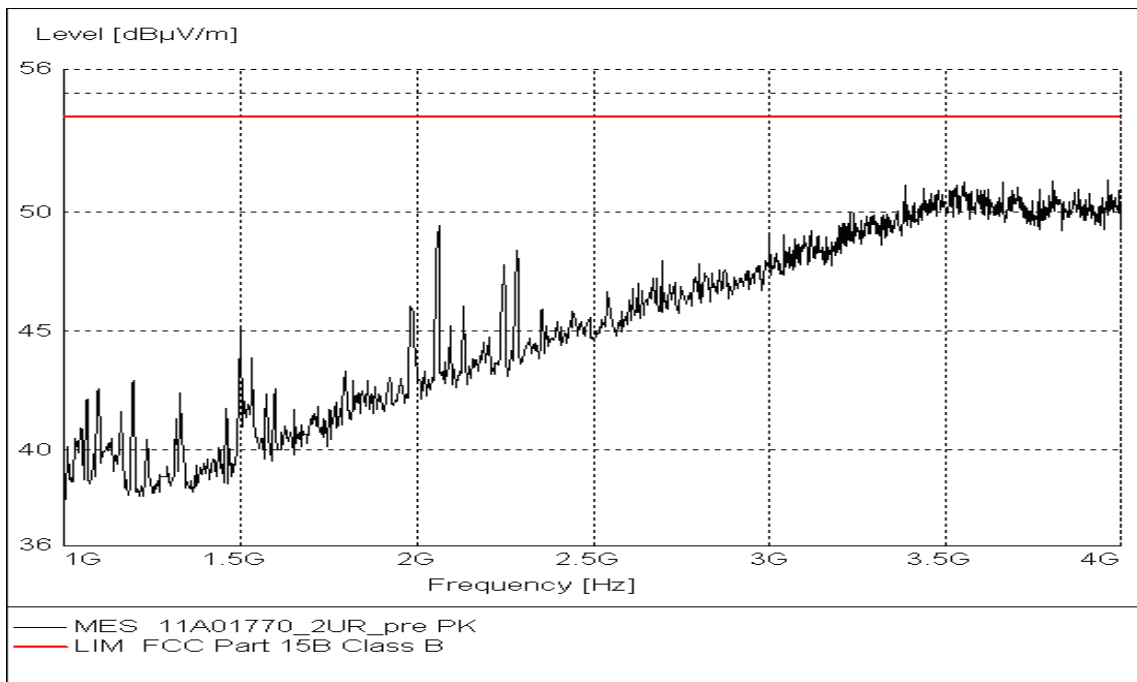


Figure A.8 Radiated Emission from 1GHz to 4GHz (Set.4, USB mode)

A.2 Conducted Emission (§15.107(a))

A.2.1 Method of measurement

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. Tested in accordance with the procedures of ANSI C63.4 - 2003, section 7.2.

A.2.2 EUT Operating Mode:

The MS is operating in the USB mode and charging mode. During the test MS is connected to a PC via a USB cable in the case of USB mode and is connected to a charger in the case of charging mode. The model of the PC is DELL OPTIPLEX 755, and the serial number of the PC is 3908243625. For USB mode, the QPST V2.7 software is used to keep the synchronization between the MS and PC.

A.2.3 Measurement Limit

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency

A.2.4 Test Condition in charging mode

Voltage (V)	Frequency (Hz)
120	60

RBW	Sweep Time(s)
9kHz	1

A.2.5 Measurement Results

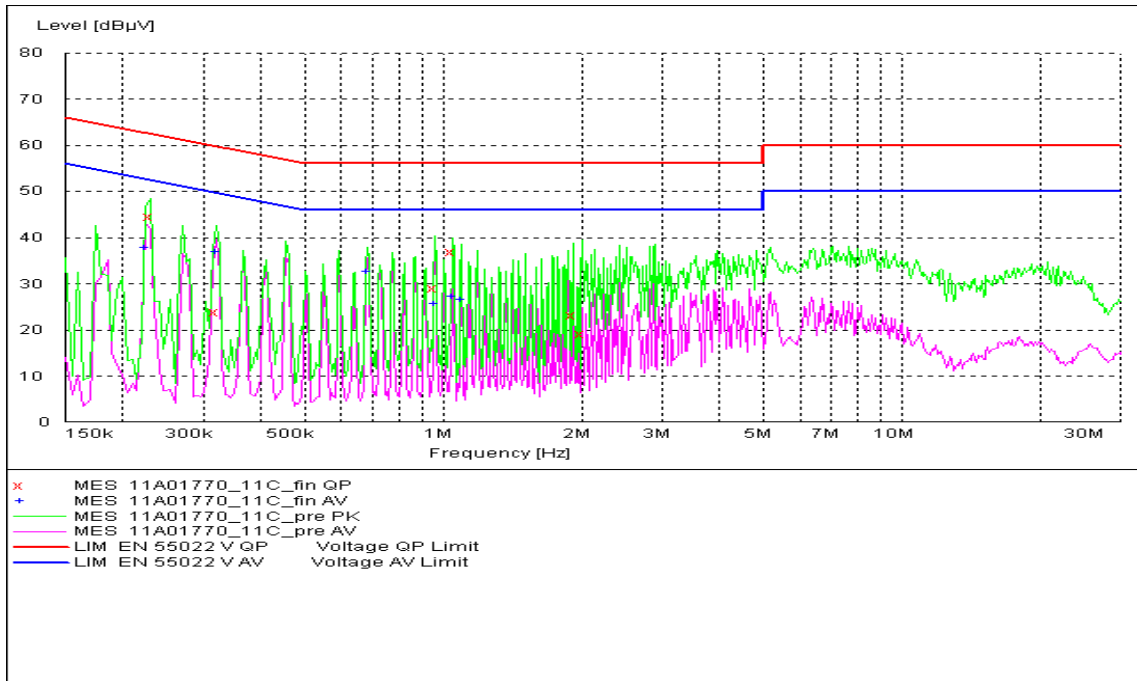


Figure A.9 Conducted Emission (Set.1, Charging mode)

MEASUREMENT RESULT: "11A01770_11C_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.230000	44.60	10.1	62	17.8	N	GND
0.320000	23.80	10.1	60	35.9	N	GND
0.960000	28.90	10.1	56	27.1	L1	GND
1.050000	36.90	10.1	56	19.1	N	GND
1.920000	23.20	10.1	56	32.9	N	GND
2.016000	19.20	10.1	56	36.8	N	GND

MEASUREMENT RESULT: "11A01770_11C_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.225000	37.70	10.1	53	14.9	L1	GND
0.320000	36.90	10.1	50	12.8	N	GND
0.685000	32.50	10.1	46	13.5	L1	GND
0.960000	25.70	10.1	46	20.3	N	GND
1.050000	27.10	10.1	46	18.9	N	GND
1.095000	26.40	10.1	46	19.6	L1	GND

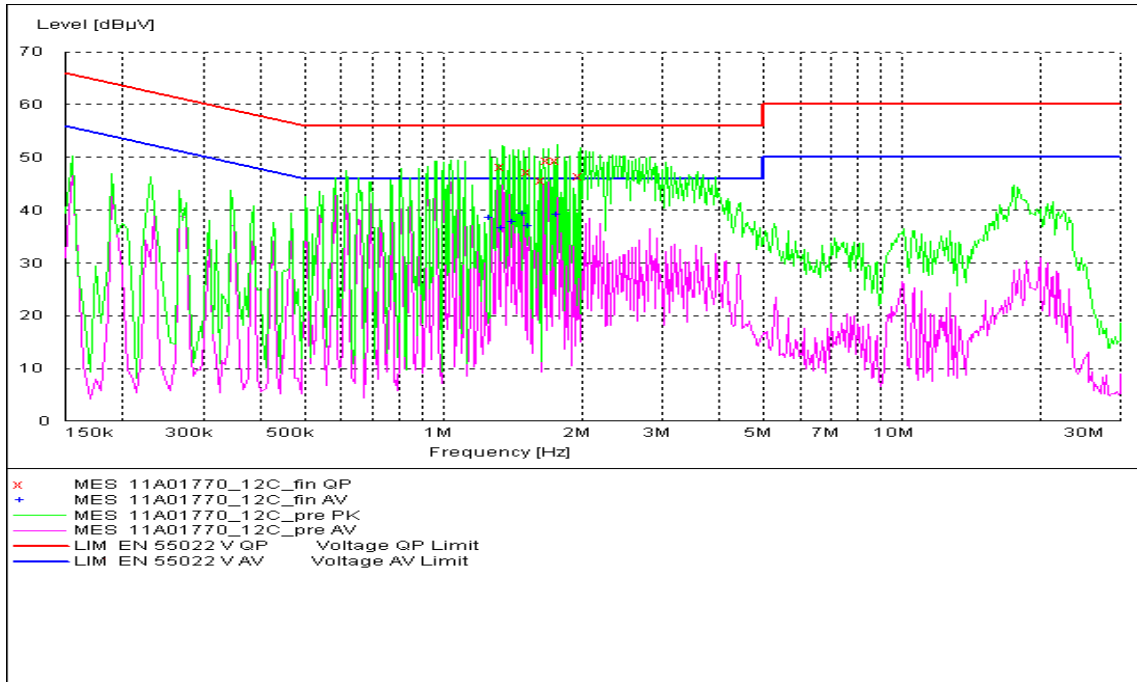


Figure A.10 Conducted Emission (Set.2, Charging mode)

MEASUREMENT RESULT: "11A01770_12C_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
1.350000	48.30	10.1	56	7.8	L1	GND
1.540000	47.20	10.1	56	8.8	L1	GND
1.660000	45.70	10.1	56	10.3	N	GND
1.690000	49.30	10.1	56	6.7	L1	GND
1.770000	49.40	10.1	56	6.6	L1	GND
2.000000	46.50	10.1	56	9.5	L1	GND

MEASUREMENT RESULT: "11A01770_12C_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
1.270000	38.60	10.1	46	7.4	L1	GND
1.350000	36.70	10.1	46	9.3	L1	GND
1.425000	37.80	10.1	46	8.3	N	GND
1.500000	39.30	10.1	46	6.7	L1	GND
1.540000	36.90	10.1	46	9.1	N	GND
1.770000	39.20	10.1	46	6.8	N	GND

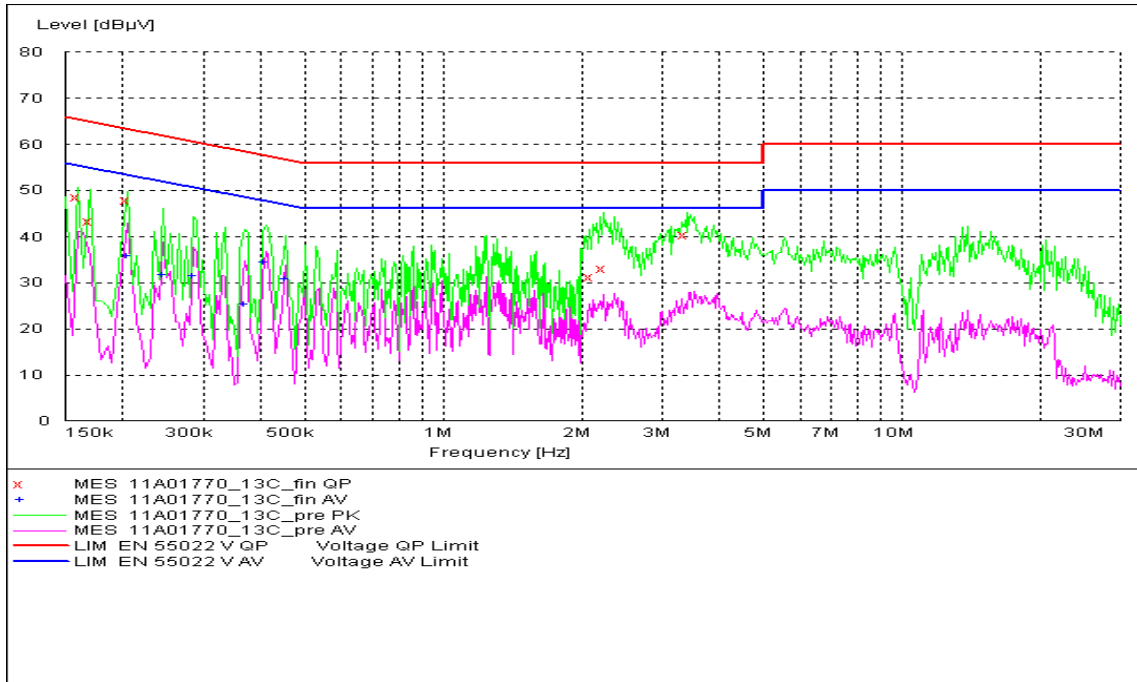


Figure A.11 Conducted Emission (Set.3, Charging mode)

MEASUREMENT RESULT: "11A01770_13C_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.160000	48.40	10.1	66	17.1	N	GND
0.170000	43.40	10.1	65	21.6	L1	GND
0.205000	47.90	10.1	63	15.5	N	GND
2.114724	31.10	10.1	56	25.0	L1	GND
2.236029	33.10	10.1	56	22.9	L1	GND
3.383959	40.30	10.1	56	15.7	N	GND

MEASUREMENT RESULT: "11A01770_13C_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.205000	35.80	10.1	53	17.6	L1	GND
0.245000	31.80	10.1	52	20.1	N	GND
0.285000	31.50	10.1	51	19.2	L1	GND
0.370000	25.20	10.1	49	23.3	N	GND
0.410000	34.50	10.1	48	13.1	N	GND
0.455000	30.80	10.1	47	16.0	L1	GND

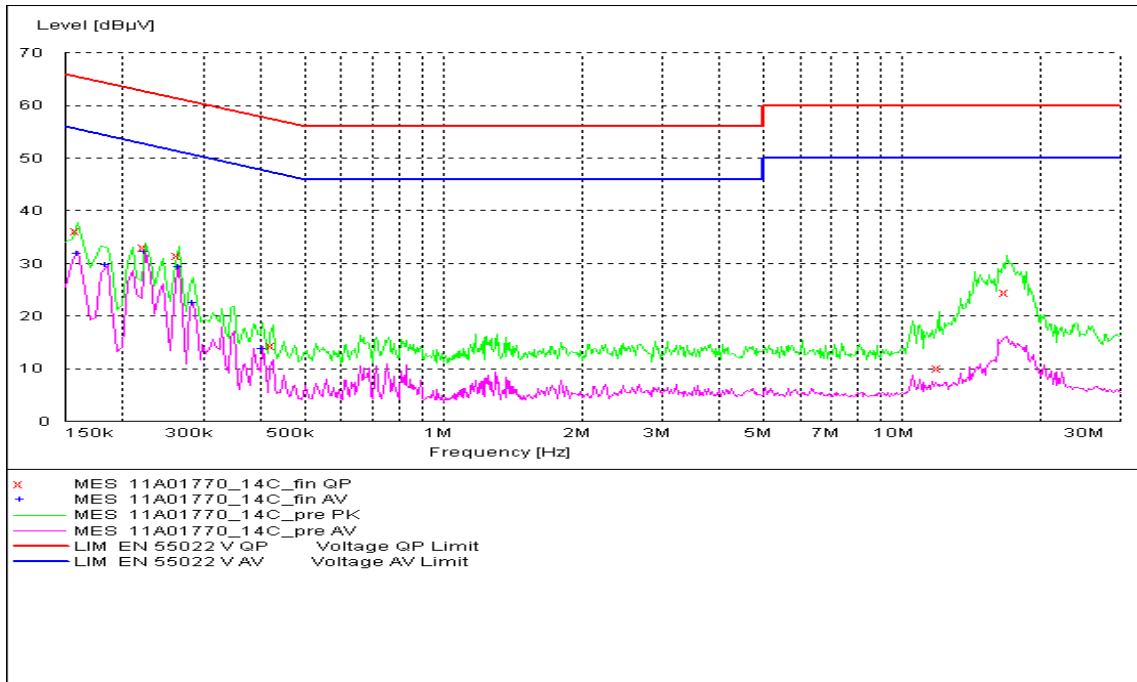


Figure A.12 Conducted Emission (Set.4, USB mode)

MEASUREMENT RESULT: "11A01770_14C_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.160000	36.20	10.2	66	29.3	N	GND
0.225000	32.90	10.2	63	29.7	N	GND
0.265000	31.50	10.2	61	29.7	N	GND
0.425000	14.30	10.2	57	43.0	N	GND
12.011947	10.00	10.4	60	50.0	L1	GND
16.920621	24.40	10.6	60	35.6	N	GND

MEASUREMENT RESULT: "11A01770_14C_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.160000	31.90	10.2	56	23.6	N	GND
0.185000	29.70	10.2	54	24.6	N	GND
0.225000	32.20	10.2	53	20.4	N	GND
0.265000	29.40	10.2	51	21.9	N	GND
0.285000	22.50	10.2	51	28.2	N	GND
0.405000	13.80	10.2	48	34.0	N	GND

END OF REPORT