



InterLab[®]

Final Report on VC6096

Report Reference: MDE_MOT_0805_FCCab_FCC15B
Date: September 29, 2008

Test Laboratory:

7 layers AG
Borsigstr. 11
40880 Ratingen
Germany



DAT-P-192/99-01

Note:

The following test results relate only to the devices specified in this document. This report shall not be reproduced in parts without the written approval of the test laboratory.

7 layers AG
Borsigstrasse 11
40880 Ratingen, Germany
Phone: +49 (0) 2102 749 0
Fax: +49 (0) 2102 749 350
www.7Layers.com

Aufsichtsratsvorsitzender •
Chairman of the Supervisory Board:
Markus Becker
Vorstand • Board:
Dr. Hans-Jürgen Meckelburg
René Schildknecht

Registergericht • registered in:
Düsseldorf, HRB 44096
USt-IdNr • VAT No:
DE 203159652
TAX No. 147/5869/0385

1 Administrative Data

1.1 Project Data

Project Responsible: Oliver Wagener
Date Of Test Report: 2008/09/29
Date of first test: 2008/07/16
Date of last test: 2008/08/20

1.2 Applicant Data

Company Name: Motorola, Inc.
Street: One Motorola Plaza
Holtsville
City: 11742 New York
Country: USA

Contact Person: Mr. Mark Luksich
Phone: +1 631 738 5134
Fax: +1 631 738 3776
Mobile: +1 631 827 9385
E-Mail: Mark.Luksich@motorola.com

1.3 Test Laboratory Data

The following list shows all places and laboratories involved for test result generation:

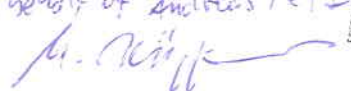
7 layers DE


Company Name : 7 layers AG
Street : Borsigstrasse 11
City : 40880 Ratingen
Country : Germany
Contact Person : Mr. Michael Albert
Phone : +49 2102 749 201
Fax : +49 2102 749 444
E Mail : michael.albert@7Layers.de

Laboratory Details

<i>Lab ID</i>	<i>Identification</i>	<i>Responsible</i>	<i>Accreditation Info</i>
Lab 1	Conducted Emissions	Mr. Robert Machulec Mr. Andreas Petz	DAR-Registration no. DAT-P-192/99-01
Lab 2	Radiated Emissions	Mr. Robert Machulec Mr. Andreas Petz	DAR-Registration no. DAT-P-192/99-01

1.4 Signature of the Testing Responsible

On behalf of Andreas Petz

Andreas Petz
responsible for tests performed in: Lab 1, Lab 2


7 layers AG, Borsigstr. 11
40880 Ratingen, Germany
Phone +49 (0)2102 749 0

1.5 Signature of the Accreditation Responsible



Accreditation scope responsible person
responsible for Lab 1, Lab 2



7 layers AG, Borsigstr. 11
40880 Ratingen, Germany
Phone +49 (0)2102 749 0

2 Test Object Data

2.1 General OUT Description

The following section lists all OUTs (Object's Under Test) involved during testing.

OUT: VC6096

<i>Product Category:</i>	Mobile Computer
Manufacturer:	
<i>Company Name:</i>	please see applicant data
<i>Contact Person:</i>	please see applicant data

Ancillary Equipment: ACCCAB01

<i>Type / Model / Family:</i>	50 pin Accessory Cable
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: ACLIN01

<i>Type / Model / Family:</i>	US AC line cord (for Desktop Power Supply)
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: CANBUS01

<i>Type / Model / Family:</i>	Can Bus Board
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: CLAPS01

<i>Type / Model / Family:</i>	Cigarette Lighter Adapter (CLA) Vehicle power supply
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: COCAB01

<i>Type / Model / Family:</i>	Combination Cable
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: COMANT01

<i>Type / Model / Family:</i>	Combination Antenna
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: DESPS01

<i>Type / Model / Family:</i>	Desktop Power Supply
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: GPSANT01

<i>Type / Model / Family:</i>	GPS Antenna
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: TMCAB01

<i>Type / Model / Family:</i>	Vehicle Bus Telemetry Cable
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: WLCAB01

<i>Type / Model / Family:</i>	RF cable for WLAN antenna
<i>Product Category:</i>	Computer Accessory

Ancillary Equipment: WWCAB01

<i>Type / Model / Family:</i>	RF cable for WWAN antenna
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Product Category:

Computer Accessory

2.2 Detailed Description of OUT Samples

Sample : d01

<i>OUT Identifier</i>	VC6096		
<i>Sample Description</i>	Rad		
<i>Serial No.</i>	8149500000012		
<i>HW Status</i>	0.0		
<i>SW Status</i>	v2.05		
<i>Date of Receipt</i>	2008/07/11		
<i>Low Voltage</i>	10 V	<i>Low Temp.</i>	-20 °C
<i>High Voltage</i>	33 V	<i>High Temp.</i>	+60 °C
<i>Nominal Voltage</i>	14.5 V	<i>Normal Temp.</i>	+25 °C

Sample : ACCCAB01

<i>OUT Identifier</i>	ACCCAB01
<i>Sample Description</i>	50 pin Accessory Cable
<i>Serial No.</i>	3089906V60

Sample : ACLIN01

<i>OUT Identifier</i>	ACLIN01
<i>Sample Description</i>	US AC line cord (for Desktop Pw)
<i>Serial No.</i>	50-16000-221R
<i>Date of Receipt</i>	2008/07/11

Sample : CANBUS01

<i>OUT Identifier</i>	CANBUS01
<i>Sample Description</i>	Can Bus Board
<i>Date of Receipt</i>	2008/07/11

Sample : CLAPS01

<i>OUT Identifier</i>	CLAPS01
<i>Sample Description</i>	Cigarette Lighter Adapter (CLA)
<i>Serial No.</i>	3071815Y17
<i>Date of Receipt</i>	2008/07/11

Sample : COCAB01

<i>OUT Identifier</i>	COCAB01
<i>Sample Description</i>	Combination Cable
<i>Serial No.</i>	3071815Y15
<i>Date of Receipt</i>	2008/07/11

Sample : COMANT01

<i>OUT Identifier</i>	COMANT01
<i>Sample Description</i>	Combination Antenna
<i>Serial No.</i>	FLN4048A
<i>Date of Receipt</i>	2008/07/11

Sample : DESPS01

<i>OUT Identifier</i>	DESPS01
<i>Sample Description</i>	Desktop Power Supply
<i>Serial No.</i>	0102246H51
<i>Date of Receipt</i>	2008/07/11

Sample : GPSANT01

<i>OUT Identifier</i>	GPSANT01
<i>Sample Description</i>	GPS Antenna
<i>Serial No.</i>	8508851K59
<i>Date of Receipt</i>	2008/07/11

Sample : TMCAB01

<i>OUT Identifier</i>	TMCAB01
<i>Sample Description</i>	Vehicle Bus Telemetry Cable
<i>Serial No.</i>	3089906V63
<i>Date of Receipt</i>	2008/07/11

Sample : WLCAB01

<i>OUT Identifier</i>	WLCAB01
<i>Sample Description</i>	RF cable for WLAN antenna
<i>Serial No.</i>	3087568V83
<i>Date of Receipt</i>	2008/07/11

Sample : WWCAB01

<i>OUT Identifier</i>	WWCAB01
<i>Sample Description</i>	RF cable for WWAN antenna
<i>Serial No.</i>	3087568V84
<i>Date of Receipt</i>	2008/07/11

2.3 OUT Features

Features for OUT: VC6096

<i>Designation</i>	<i>Description</i>	<i>Allowed Values</i>	<i>Supported Value(s)</i>
Features for scope: FCC_v2			
AC	EUT is powered by AC		
BT	EUT supports Bluetooth data rate of 1 Mbps with GFSK modulation in the band 2400 MHz - 2483.5 MHz		
DC	EUT is powered by DC		
Eant	removable antenna supplied and type tested with the radio equipment, designed as an indispensable part of the equipment		
EDGE850	EUT supports EDGE in the band 824 MHz - 849 MHz		
EDGE1900	EUT supports EDGE in the band 1850 MHz - 1910 MHz		
EDR2	EUT supports Bluetooth using data rate of 2 Mbps with PI/4 DQPSK modulation in the band 2400 MHz - 2483.5 MHz		
EDR3	EUT supports Bluetooth using data rate of 3 Mbps with 8DPSK modulation in the band 2400 MHz - 2483.5 MHz		
FDD2	EUT supports UMTS FDD2 in the band 1850 MHz - 1910 MHz		
FDD5	EUT supports UMTS FDD5 in the band 824 MHz - 849 MHz		
GSM850	EUT supports GSM850 band 824MHz - 849MHz		
HSDPA-FDD2	EUT supports UMTS FDD2 HSDPA in the band 1850 MHz - 1910 MHz		
HSDPA-FDD5	EUT supports UMTS FDD5 HSDPA in the band 824 MHz - 849 MHz		
PantC	permanent fixed antenna connector, which may be built-in, designed as an indispensable part of the equipment		
PCS1900	EUT supports PCS1900 band 1850MHz - 1910MHz		
Wa1	EUT supports WLAN in mode a in the band 5150 MHz - 5250 MHz		
Wa2	EUT supports WLAN in mode a in the band 5250 MHz - 5350 MHz		
Wa3	EUT supports WLAN in mode a in the band 5470 MHz - 5725 MHz		
Wa4	EUT supports WLAN in mode a in the band 5725 MHz - 5825 MHz		
Wb	EUT supports WLAN in mode b in the band 2400 MHz - 2483.5 MHz		
Wg	EUT supports WLAN in mode g in the band 2400 MHz - 2483.5 MHz		

2.4 Auxiliary Equipment

<i>AE No.</i>	<i>Type Designation</i>	<i>Serial No.</i>	<i>HW Status</i>	<i>SW Status</i>	<i>Description</i>
AE 4ISNLan	Rhode & Schwarz ENY41	100002	-	-	4-Wire ISN for LAN
AE KEYB_01	RS 6000 USB ON	G 0000273 2P28	-	-	Keyboard Cherry
AE USB_ST1	SanDisk cruzer micro 1 GB				USB Memory Stick
AE USB_ST2	SanDisk cruzer micro 4 GB				USB Memory Stick
AE USB_Ca1	standard cable				USB Cable

2.5 Operating Mode(s)

<i>Ref.-No.</i>	<i>Description</i>
19iBTi	GSM 1900 idle + BT idle + GPS receiver active
85B8052	GSM850 + BT BDR TX on 2480MHz + WLAN on 5200MHz

2.6 Setups used for Testing

For each setup a relation is given to determine if and which samples and auxiliary equipment is used. The left side list all OUT samples and the right side lists all auxiliary equipment for the given setup.

<i>Setup No.</i>	<i>List of OUT samples</i>	<i>List of auxiliary equipment</i>	
<i>Sample No.</i>	<i>Sample Description</i>	<i>AE No.</i>	<i>AE Description</i>
fcc15b_cond_ac (computer peripheral setup for FCC 15B cond. with AC supply)			
<i>Sample:</i> ACLIN01	US AC line cord (for Desktop Pw)	AE USB_ST1	USB Memory Stick
<i>Sample:</i> COMANT01	Combination Antenna	AE USB_ST2	USB Memory Stick
<i>Sample:</i> DESPS01	Desktop Power Supply		
<i>Sample:</i> WLCAB01	RF cable for WLAN antenna		
<i>Sample:</i> WWCAB01	RF cable for WWAN antenna		
<i>Sample:</i> d01	Rad		
fcc15b_rad_ac (computer peripheral setup for FCC 15B rad. with AC supply)			
<i>Sample:</i> ACLIN01	US AC line cord (for Desktop Pw)	AE 4ISNLan	4-Wire ISN for LAN
<i>Sample:</i> COMANT01	Combination Antenna	AE KEYB_01	Keyboard Cherry
<i>Sample:</i> DESPS01	Desktop Power Supply	AE USB_ST1	USB Memory Stick
<i>Sample:</i> WLCAB01	RF cable for WLAN antenna	AE USB_Ca1	USB Cable
<i>Sample:</i> WWCAB01	RF cable for WWAN antenna		
<i>Sample:</i> d01	Rad		
fcc15b_rad_dc (computer peripheral setup for FCC 15B rad. with DC supply)			
<i>Sample:</i> ACCCAB01	50 pin Accessory Cable	AE USB_ST1	USB Memory Stick
<i>Sample:</i> CANBUS01	Can Bus Board	AE USB_ST2	USB Memory Stick
<i>Sample:</i> CLAPS01	Cigarette Lighter Adapter (CLA)		
<i>Sample:</i> COCAB01	Combination Cable		
<i>Sample:</i> COMANT01	Combination Antenna		
<i>Sample:</i> GPSANT01	GPS Antenna		
<i>Sample:</i> TMCAB01	Vehicle Bus Telemetry Cable		
<i>Sample:</i> WLCAB01	RF cable for WLAN antenna		
<i>Sample:</i> WWCAB01	RF cable for WWAN antenna		
<i>Sample:</i> d01	Rad		

3 Results

3.1 General

Documentation of tested devices:

Available at the test laboratory.

Interpretation of the test results:

The results of the inspection are described on the following pages, where 'Conformity' or 'Passed' means that the certification criteria were verified and that the tested device is conform to the applied standard.

In cases where 'Declaration' is printed, the required documents are available in the manufacturers product documentation.

In cases where 'not applicable' is printed, the test case requirements are not relevant to the specific equipment implementation.

3.2 List of the Applicable Body

(Body for Scope: FCC_v2)

<i>Designation</i>	<i>Description</i>
FCC47CFRChIPART15bRADIO FREQUENCY DEVICES	Subpart B - Unintentional Radiators

3.3 List of Test Specification

<i>Test Specification:</i>	FCC part 2 and 15
<i>Date / Version</i>	2007/10/01 Version: 10-1-07 Edition
<i>Title:</i>	PART 2 - GENERAL RULES AND REGULATIONS PART 15 - RADIO FREQUENCY DEVICES

3.4 Summary

<i>Test Case Identifier / Name</i> <i>Test (condition)</i>	<i>Result</i>	<i>Date of Test</i>	<i>Lab</i> <i>Ref.</i>	<i>Setup</i>
15b.1 Conducted Emissions (AC Power Line) §15.107				
15b.1; Mode = transmit	Passed	2008/08/16	Lab 1	fcc15b_cond_ac
	operating mode: 85B8052			
15b.2 Spurious Radiated Emissions §15.109				
15b.2; Mode = receive	Passed	2008/07/16	Lab 2	fcc15b_rad_ac
	operating mode: 19iBTi			
15b.2; Mode = receive	Passed	2008/08/20	Lab 2	fcc15b_rad_dc
	operating mode: 19iBTi			

3.5 Detailed Results

3.5.1 15b.1 Conducted Emissions (AC Power Line) §15.107

Test: 15b.1; Operating mode = transmit

Result: Passed
 Setup No.: fcc15b_cond_ac
 Date of Test: 2008/08/16 10:12
 Body: FCC47CFRChIPART15bRADIO FREQUENCY DEVICES
 Test Specification: FCC part 2 and 15
 Test Equipment Environmental Conditions
 Temperature: 27°C
 Air Pressure: 1014hPa
 Rel. Humidity: 34%

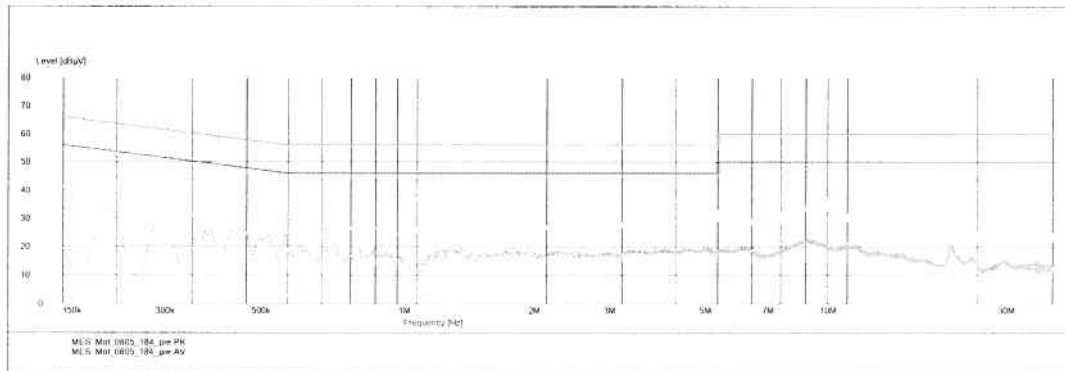
Detailed Results:

AC MAINS CONDUCTED

EUT: VC6096 (AR740d01)
 Manufacturer: Motorola
 Operating Condition: Setup office_01; GSM850, HT BDR TX on 2480MHz; WLAN at 5200MHz
 Test Site: 7 layers Ratingen
 Operator: Doe
 Test Specification: ANSI C63.4; FCC 15.107 / 15.207
 Comment:
 Start of Test: 16.08.2008 / 10:33:24

SCAN TABLE: *FCC Voltage*

Short Description:		FCC Voltage	Meas.	IP	Transducer
Start	Stop	Detector	Time	Bandw.	
Frequency	Frequency	Width			
150.0 kHz	30.0 MHz	5.0 kHz	MaxPeak	20.0 ms	9 kHz
			Average		ESH3-Z5



3.5.2 15b.2 Spurious Radiated Emissions §15.109

Test: 15b.2; Operating mode = transmit

Result: Passed
 Setup No.: fcc15b_rad_ac
 Date of Test: 2008/07/16 12:18
 Body: FCC47CFRChIPART15bRADIO FREQUENCY DEVICES
 Test Specification: FCC part 2 and 15
 Test Equipment Environmental Conditions
 Temperature: 27°C
 Air Pressure: 1014hPa
 Rel. Humidity: 34%

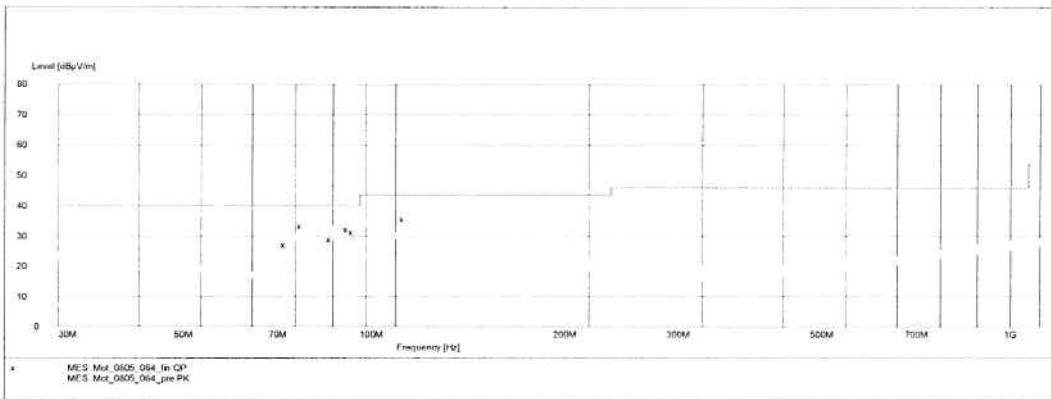
Detailed Results:

EMI RADIATED TEST

EUT: VC6096 (AR740801) / 2008-07-16
 Manufacturer: Motorola
 Operating Condition: GSM 1900 idle + BT idle ,120V 60Hz, with keyboard
 Test Site: 7 layers, Ratingen
 Operator: Doe
 Test Specification: FCC part 15 b
 Comment: Horizontal EUT position
 Start of Test: 16.07.2008 / 15:39:14

SCAN TABLE: *FCC part 15 b*

Short Description:		FCC part 15 b				
Start	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
30.0 MHz	1.0 GHz	60.0 kHz	MaxPeak	1.0 ms	120 kHz	HL562



Test: 15b.2; Mode = transmit

Result: Passed
 Setup No.: fcc15b_rad_dc
 Date of Test: 2008/08/20 18:40
 Body: FCC47CFRChIPART15bRADIO FREQUENCY DEVICES
 Test Specification: FCC part 2 and 15

Test Equipment Environmental Conditions

Temperature: 27°C
 Air Pressure: 1014hPa
 Rel. Humidity: 34%

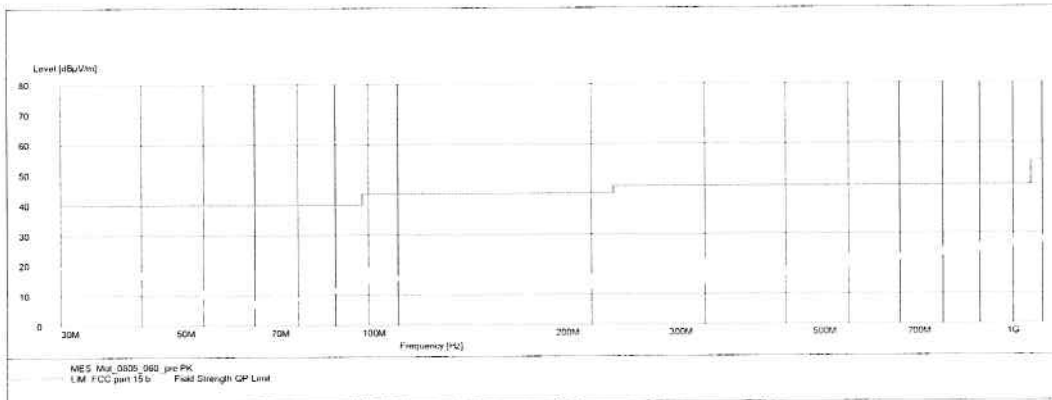
Detailed Results:

EMI RADIATED TEST

EUT: VC6096 (AB740d01) / 2008-07-16
 Manufacturer: Motorola
 Operating Condition: GSM 1900 idle + BT idle + GPS active
 Test Site: 7 layers, Ratingen
 Operator: Sli
 Test Specification: FCC part 15 b
 Comment: Horizontal EUT position
 Start of Test: 16.07.2008 / 11:43:49

SCAN TABLE: "FCC part 15 b"

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	MaxPeak	1.0 ms	120 kHz	HL562



4 Annex

Test Description

Conducted emissions (AC power line)

Standard FCC Part 15, 10-1-07
Subpart B

The test was performed according to: ANSI C 63.4, 2003

Test Description

The test set-up was made in accordance to the general provisions of ANSI C 63.4-2003. The Equipment Under Test (EUT) was setup in a shielded room to perform the conducted emissions measurements in a typical installation configuration. The EUT was powered from 50µH || 50 Ohm Line Impedance Stabilization Network (LISN). The LISN's unused connections were terminated with 50 Ohm loads.

The measurement procedure consists of two steps. It is implemented into the EMI test software ES-K1 from R&S.

Step 1: Preliminary scan

Intention of this step is, to determine the conducted EMI-profile of the EUT.

EMI receiver settings:

- Detector: Peak - Maxhold
- Frequency range: 150 kHz - 30 MHz
- Frequency steps: 5 kHz
- IF-Bandwidth: 9 kHz
- Measuring time / Frequency step: 20 ms
- Measurement on phase + neutral lines of the power cords

On basis of this preliminary scan the highest amplitudes and the corresponding frequencies relative to the limit are identified. Emissions above the limit and emissions which are in the 10 dB range below the limit are considered.

Step 2: Final measurement

Intention of this step is, to determine the highest emissions with the settings defined in the test specification for the frequencies identified in step 1.

EMI receiver settings:

- Detector: Quasi-Peak
- IF - Bandwidth: 9 kHz
- Measuring time: 1 s / frequency

At each frequency determined in step 1, four measurements are performed in the following combinations:

- 1) Neutral lead - reference ground (PE grounded)
- 2) Phase lead - reference ground (PE grounded)
- 3) Neutral lead - reference ground (PE floating)
- 4) Phase lead - reference ground (PE floating)

The highest value is reported.

Test Requirements / Limits

FCC Part 15, Subpart B, §15.107

Frequency Range (MHz)	QP Limit (dBµV)	AV Limit (dBµV)
0.15 - 0.5	66 to 56	56 to 46
0.5 - 5	56	46
5 - 30	60	50

Used conversion factor: Limit (dBµV) = 20 log (Limit (µV)/1µV).

NOTE: a missing result table in the corresponding test report section means, that no final measurement was performed because no relevant frequencies (peaks) were found in the preliminary scan.

Spurious radiated emissions

Standard FCC Part 15, 10-1-07
Subpart B

The test was performed according to: ANSI C 63.4, 2003

Test Description

Measurement below 1 GHz:

The test set-up was made in accordance to the general provisions of ANSI C 63.4-2003. The Equipment Under Test (EUT) was set up on a non-conductive table 1.0 x 2.0 m in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration. The measurement procedure is implemented into the EMI test software ES-K1 from R&S.

Step 1: Preliminary scan (test to identify the highest amplitudes relative to the limit)

Intention of this step is, to determine the radiated EMI-profile of the EUT.

Settings for step 1:

- Detector: Peak-Maxhold
- Frequency range: 30 – 1000 MHz
- Frequency steps: 60 kHz
- IF-Bandwidth: 120 kHz
- Measuring time / Frequency step: 100 μ s
- Turntable angle range: -180° to 180°
- Turntable step size: 90°
- Height variation range: 1 – 3 m
- Height variation step size: 2 m
- Polarisation: Horizontal + Vertical

On basis of this preliminary scan the highest amplitudes and the corresponding frequencies relative to the limit are identified. Emissions above the limit and emissions which are in the 10 dB range below the limit are considered.

Step 2:

A further measurement will be performed on the frequencies determined in step 1. Intention of this step is, to find out the approximate turntable angle and antenna height for each frequency.

Settings for step 2:

- Detector: Peak – Maxhold
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 100 ms
- Turntable angle range: -180° to 180°
- Turntable step size: 45°
- Height variation range: 1 – 4 m
- Height variation step size: 0.5 m
- Polarisation: horizontal + vertical

After this step the EMI test system has determined the following values for each frequency (of step 1):

- Frequency
- Azimuth value (of turntable)
- Antenna height

The last two values have now the following accuracy:

- Azimuth value (of turntable): 45°
- Antenna height: 0.5 m

Step 3: final measurement

In this step the accuracy of the turntable azimuth and antenna height will be improved. This is necessary to find out the maximum value of every frequency.

For each frequency, which was determined the turntable azimuth and antenna height will be adjusted. The turntable azimuth will be slowly varied by $\pm 22.5^{\circ}$ around this value. During this action the value of emission is continuously measured. The turntable azimuth at the highest emission will be recorded and adjusted. In this position the antenna height is also slowly varied by ± 25 cm around the antenna height determined. During this action the value of emission is also continuously measured. The antenna height of the highest emission will also be recorded and adjusted.

- Detector: Peak – Maxhold
- Measured frequencies: in step 1 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 100ms
- Turntable angle range: -22.5° to $+ 22.5^{\circ}$ around the determined value
- Height variation range: -0.25 m to $+ 0.25$ m around the determined value

Step 4: Final measurement (with QP detector)

With the settings determined in step 3, the final measurement will be performed:

EMI receiver settings for step 4:

- Detector: Quasi-Peak(< 1GHz)
- Measured frequencies: in step 3 determined frequencies
- IF – Bandwidth: 120 kHz
- Measuring time: 1 s

Measurement above 1 GHz:

The following modifications apply to the measurement procedure for the frequency range above 1 GHz:

The measurement distance was reduced to 1 m. The results were extrapolated by the extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements, inverse-linear-distance-squared for the power density measurements). Due to the fact that in this frequency range a double ridged wave guided horn antenna (up to 18 GHz) and a horn antenna (18–25 GHz) are used, the steps 2-4 as described before, are omitted. Step 1 was performed at one height of the receiving antenna only.

Detector: Peak, Average (simultaneously)

RBW = VBW = 1 MHz; above 7 GHz 100 kHz

Test Requirements / Limits

FCC Part 15, Subpart B, §15.109, Radiated Emission Limits

Frequency Range (MHz): Class B Limit (dB μ V/m)

Frequency Range (MHz)	Class B Limit (dB μ V/m)
30 – 88	40.0
88 – 216	43.5
216 – 960	46.0
above 960	54.0

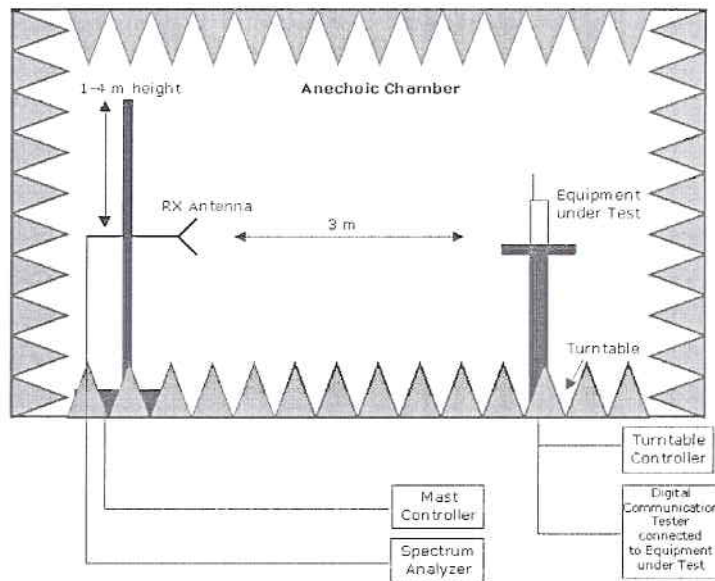
§15.35(b)

..., there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit....

Used conversion factor: Limit (dB μ V/m) = 20 log (Limit (μ V/m)/1 μ V/m)

NOTE: a missing result table in the corresponding test report section means, that no final measurement was performed because no relevant frequencies (peaks) were found in the preliminary scan.

Setup Drawings



Remark: Depending on the frequency range suitable antenna types, attenuators or preamplifiers are used.

Setup in the Anechoic chamber. For measurements below 1 GHz the ground was replaced by a conducting ground plane.

Test Equipment

EUT Digital Signalling System

Equipment	Type	Serial No.	Manufacturer	Last Cal	Next cal
Digital Radio Communication Tester	CMD 55	831050/020	Rohde & Schwarz	01.12.05	01.12.08
Signalling Unit for Bluetooth	PTW60	100004	Rohde & Schwarz	-	-
Universal Radio Communication Tester	CMU200	102366	Rohde & Schwarz	22.09.07	22.09.09

EMI Test System

Equipment	Type	Serial No.	Manufacturer	Last Cal	Next cal
Comparison Noise Emitter	CNE III	99/016	York	-	-
EMI Analyzer	ESI 26	830482/004	Rohde & Schwarz	06.12.07	06.12.09
Signal Generator	SMR 20	846834/008	Rohde & Schwarz	05.12.07	05.12.09
AC Power Source	6404	64040000B04	Croma ATE INC.	01.06.08	N/A the parameters will be checked before testing
Spectrum Analyzer 9 kHz to 3 GHz	FSP3	838164/004	Rohde & Schwarz	25.11.05	25.11.08

EMI Radiated Auxiliary Equipment

Equipment	Type	Serial No.	Manufacturer	Last Cal	Next cal
Antenna mast 4m Biconical dipole	MA 240	240/492	HD GmbH H. Deisel	-	-
Broadband Amplifier 18MHz-26GHz	VUBA 9117	9117108	Schwarzbeck	02.07.03	02.10.08
Broadband Amplifier 30MHz-18GHz	JS4-18002600-32	849785	Miteq	06.02.08	06.10.08
Broadband Amplifier 45MHz-27GHz	JS4-00101800-35	896037	Miteq	06.02.08	06.10.08
Cable "ESI to EMI Antenna"	JS4-00102600-42	619368	Miteq	06.02.08	06.10.08
Cable "ESI to Horn Antenna"	EcoFlex10	W18.01-2 W38.01-2	Kabel Kusch	06.02.08	06.10.08
Double-ridged horn	UFB311A UFB293C	W18.02-2 W38.02-2	Rosenberger-Microcoax	06.02.08	06.10.08
High Pass Filter	HF 906	357357/002	Rohde & Schwarz	12.05.06	12.10.08
High Pass Filter	HF 906	357357/001	Rohde & Schwarz	20.01.04	N/A - spare antenna
High Pass Filter	5HC3500/12750-1.2-KK	200035008	Trilithic	06.02.08	06.10.08
High Pass Filter	5HC2700/12750-1.5-KK	9942012	Trilithic	06.02.08	06.10.08
High Pass Filter	4HC1600/12750-1.5-KK	9942011	Trilithic	06.02.08	06.10.08
Log.-per. Antenna	HL 562 Ultralog	830547/003	Rohde & Schwarz	17.05.06	17.05.09
Loop Antenna	HFH2-Z2	829324/006	Rohde & Schwarz	19.08.02	N/A - only used for pre-testing
Pyramidal Horn Antenna 26.5 GHz	Model 3160-09	9910-1184	EMCO	06.02.08	06.10.08

EMI Conducted Auxiliary Equipment

Equipment	Type	Serial No.	Manufacturer	Last Cal	Next cal
Cable "LISN to ESI"	RG214	W18.03+W48.03	Huber+Suhner	06.02.08	06.10.08
Two-Line V-Network	ESH 3-Z5	828304/029	Rohde & Schwarz	01.11.05	01.11.08
Two-Line V-Network	ESH 3-Z5	829996/002	Rohde & Schwarz	-	-

Auxiliary Test Equipment – calibration not applicable; spare equipment

Equipment	Type	Serial No.	Manufacturer	Last Cal	Next cal
Broadband Resist. Power Divider N	1506A / 93459	LM390	Weinschel	-	-
Broadband Resist. Power Divider SMA	1515 / 93459	LN673	Weinschel	-	-
Digital Multimeter 01	Voltcraft M-3860M	IJ096055	Conrad	-	-
Digital Multimeter 02	Voltcraft M-3860M	IJ095955	Conrad	-	-
Digital Oscilloscope	TDS 784C	B021311	Tektronix	-	-
Fibre optic link Satellite	FO RS232 Link	181-018	Pontis	-	-
Fibre optic link Transceiver	FO RS232 Link	182-018	Pontis	-	-
I/Q Modulation Generator	AMIQ-B1	832085/018	Rohde & Schwarz	-	-
Notch Filter ultra stable	WRCA800 /960-6E	24	Wainwright	-	-
Spectrum Analyzer 9 kHz to 3 GHz	FSP3	838164/004	Rohde & Schwarz	-	-
Temperature Chamber	VT 4002	58566002150010	Vötsch	-	-
Temperature Chamber	KWP 120/70	59226012190010	Weiss	-	-
ThermoHygro Datalogger 03	Opus10 THI (8152.00)	7482	Luft Mess- und Regeltechnik GmbH	-	-

Anechoic Chamber – calibration not applicable

Equipment	Type	Serial No.	Manufacturer	Last Cal	Next cal
Air Compressor (pneumatic)			Atlas Copco	-	-
Controller	CO 2000	CO2000/328/12470406/L	Innco innovative constructions GmbH	-	-
EMC Camera	CE-CAM/1		CE-SYS	-	-
EMC Camera for observation of EUT	CCD-400E	0005033	Mitsubishi	-	-
Filter ISDN	B84312-C110-E1		Siemens & Matsushita	-	-
Filter telephone systems / modem	B84312-C40-B1		Siemens & Matsushita	-	-
Filter Universal 1A	B84312-C30-H3		Siemens & Matsushita	-	-
Fully/Semi AE Chamber	10.58x6.3 8x6		Frankonia	-	-
Turntable	DS 420S	420/573/99	HD GmbH, H.Deisel	-	-
Valve Control Unit (pneum.)	VE 615P	615/348/99	HD GmbH, H.Deisel	-	-

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Manufacturer's Product Description

VC6096 is a Vehicle and Office Data Terminal w/ Bluetooth, GPS, WLAN and WWAN.

It contains:

HC25 radio module supporting GSM/GPRS/EDGE and HSDPA/UMTS.

WLAN 802.11 a/b/g.

Bluetooth with internal antenna.

GPS with external active antenna.

VC6096CN is a variant of VC6096 for China with same features but with no voice support (data only).



VC6096 Accessories List:

#	Model #	Description	Notes
1	FLN4048A	Combination WLAN and WAN Antenna, VC6096	Combination antenna
2	8508851K59	GPS Antenna, External, VC6096	GPS antenna
3	0102246H51	Power Supply, VC6000	Desktop power supply
4	50-16000-221R	CBL: AC cord (USA)	AC cord (Symbol)
5	3087568V83	CBL: VC6096 WLAN RF	WLAN RF cable (90deg connector)
6	3087568V84	CBL: VC6096 WAN RF	WAN RF cable (90deg connector)
7	3071815Y17	CBL: VC6096 CLA Power Supply Cable	Cigarette Light Adapter (CLA) power cable
8	3071815Y13	CBL: VC6096 Vehicle Power Supply Cable	Vehicle power cable
9	3071815Y15	CBL: Combo Accy Cable, 9-Pin Deutsch	Combination cable - 9 pin deutsch
10	3071815Y23	CBL: Combo Accy Cable, 9-Pin Deutsch - J1939 protocol	Combination cable - 9 pin deutsch: J1939 protocol only
11	3071815Y24	CBL: Combo Accy Cable, 9-Pin Deutsch - J1708 protocol	Combination cable - 9 pin deutsch: J1708 protocol only
12	3071815Y14	CBL: Combo Accy Cable, 6-Pin Deutsch	Combination cable - 6 pin deutsch
13	3089906V60	CBL: 50 Pin Accy Cable	50 pin accessory cable
14	3089906V63	CBL: Telemetry, 9-Pin Deutsch	Telemetry cable - 9 pin deutch
15	3089906V61	CBL: Telemetry, 6-Pin Deutsch	Telemetry cable - 6 pin deutch
16	3071815Y25	CBL: Telemetry, 9-Pin Deutsch - J1708 protocol	Telemetry cable: J1708 protocol only
17	3071815Y26	CBL: Telemetry, 9-Pin Deutsch - J1939 protocol	Telemetry cable: J1939 protocol only

Manufacturer's Declaration (Telemetry Cables):

Motorola declares that based on its engineering evaluations, the combinations to be used as worst case scenarios for each group of cables are:

1. Item #14 plus item #13 for group 1 (group 1 cables are made up of items 13-17).
2. Item #9 for group 2 (group 2 cables are made up of items 9-12).