



EMC TEST REPORT FCC 47 CFR Part 15B Industry Canada RSS-Gen Electromagnetic compatibility - Unintentional radiators		
Report Reference No.	G0M-1407-3973-EF0115B-V01	
Testing Laboratory	Eurofins Product Service GmbH	
Address	Storkower Str. 38c 15526 Reichenwalde Germany	
Accreditation	  A2LA Accredited Testing Laboratory, Certificate No.: 1983.01 FCC Filed Test Laboratory, Reg.-No.: 96970 IC OATS Filing assigned code: 3470A	
Applicant's name	BARTEC PIXAVI AS	
Address	Domkirkeklassen 2 4006 Stavanger NORWAY	
Test specification:		
Standard.....	47 CFR Part 15 Subpart B RSS-Gen, Issue 3, 2010-12 ANSI C63.4:2009	
Equipment under test (EUT):		
Product description	Smartphone	
Model No.	ImpactX	
Additional Models	None	
Hardware version	rev B0	
Firmware / Software version	Android 4.2.2	
Contains	FCC-ID: YML-X7SERIES	IC: 9249A-X7SERIES
Test result	Passed	

Possible test case verdicts:


- not applicable to test object: N/A
- test object does meet the requirement.....: P (Pass)
- test object does not meet the requirement.....: F (Fail)

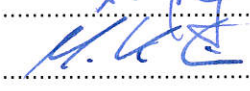
Testing:

Date of receipt of test item: 2014-07-23

Date (s) of performance of tests: 2014-08-29 - 2014-09-17

Compiled by: Steffen Zunke

Tested by (+ signature).....: Andreas Pflug 

Approved by (+ signature): Marcus Klein 

Date of issue: 2014-10-28

Total number of pages: 31

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Additional comments:

Version History

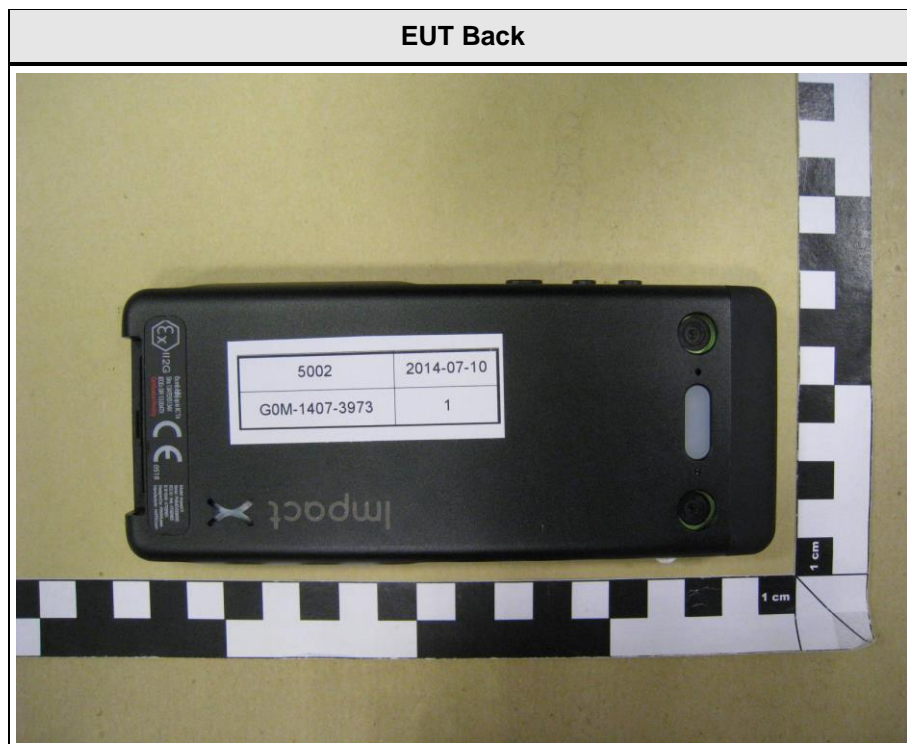
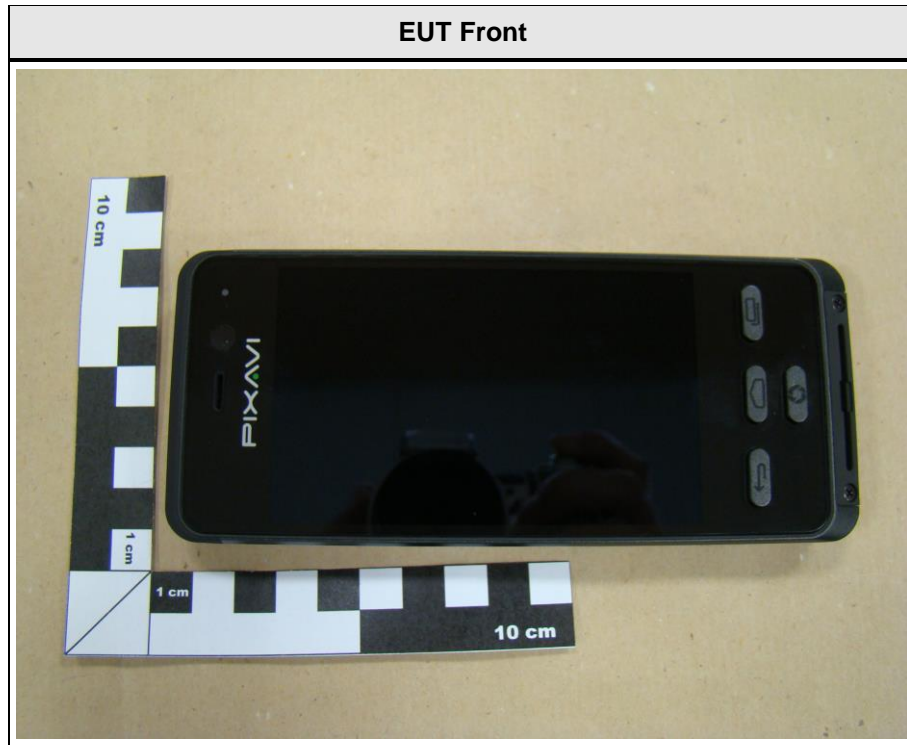
Version	Issue Date	Remarks	Revised by
V01	2014-10-28	Initial Release	

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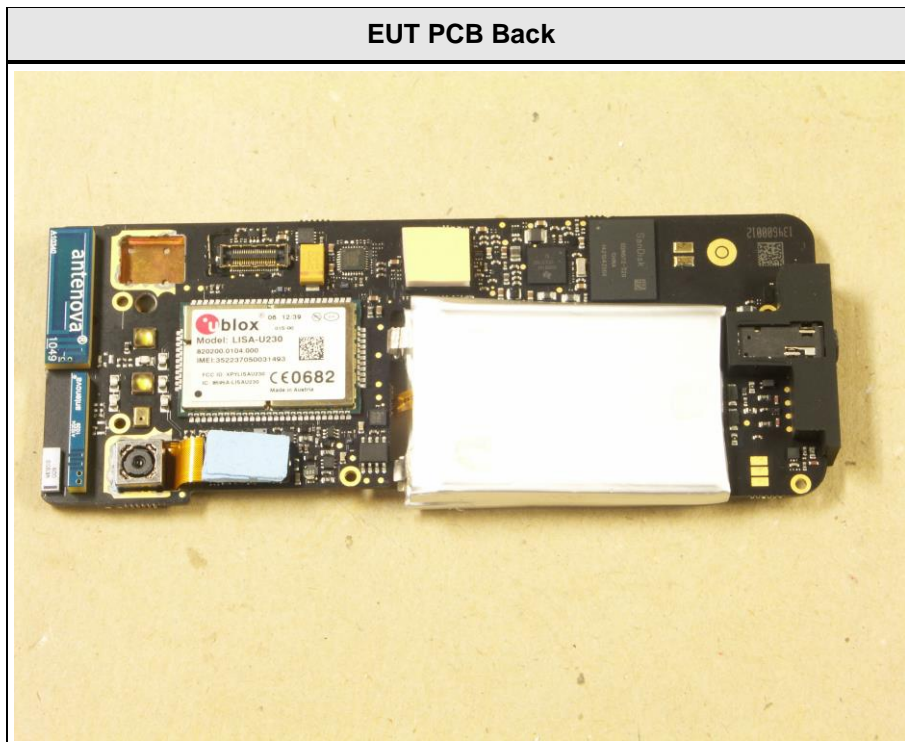
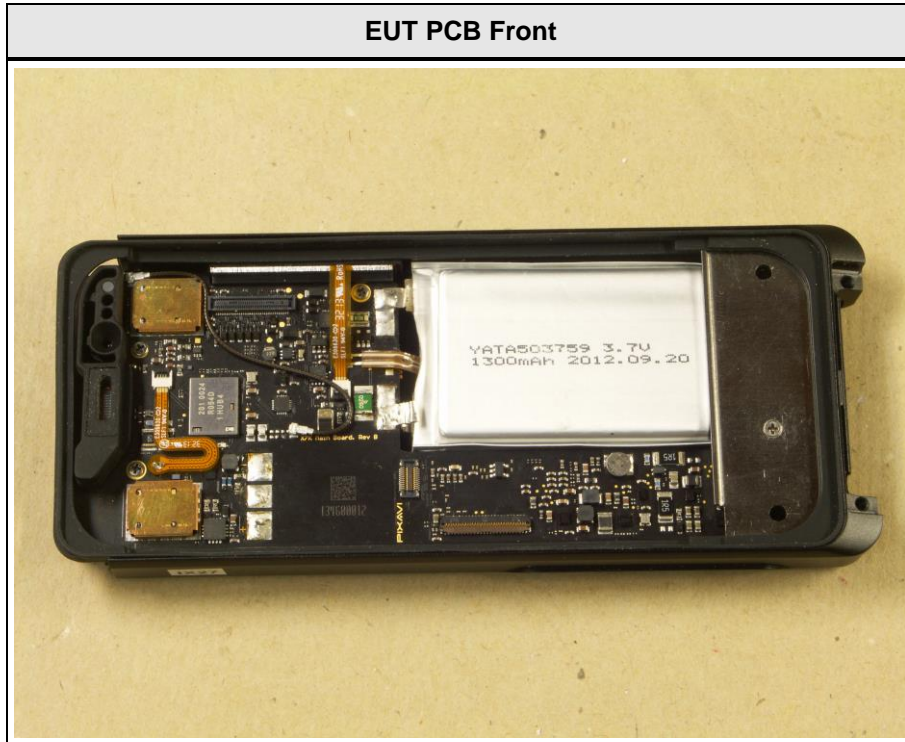
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1 Equipment (Test item) Description

Description	Smartphone	
Model	ImpactX	
Additional Models	None	
Serial number	None	
Hardware version	rev B0	
Software / Firmware version	Android 4.2.2	
Contains FCC-ID	N/A	
Contains IC	N/A	
Power supply	3.7 VDC via rechargeable Battery	
AC/DC-Adaptor	Model : AN4111 Manufacturer : ANSMANN Input : 100-240VAC / 50-60Hz Output : 5VDC / 1.0A	
Radio module	Type	GSM / UMTS Modul
	Model	LISA-U230
	Manufacturer	u-blox AG
	HW Version	146AA0
	SW Version	22.40
	FCC-ID	XPYLISAU230
	IC	8595A-LISAU230N
Manufacturer	BARTEC PIXAVI AS Domkirkeklassen 2 4006 Stavanger NORWAY	
Highest emission frequency	Fmax [MHz] = 5000	
Device classification	Class B	
Equipment type	Tabletop	
Number of tested samples	1	

1.1 Photos – Equipment external


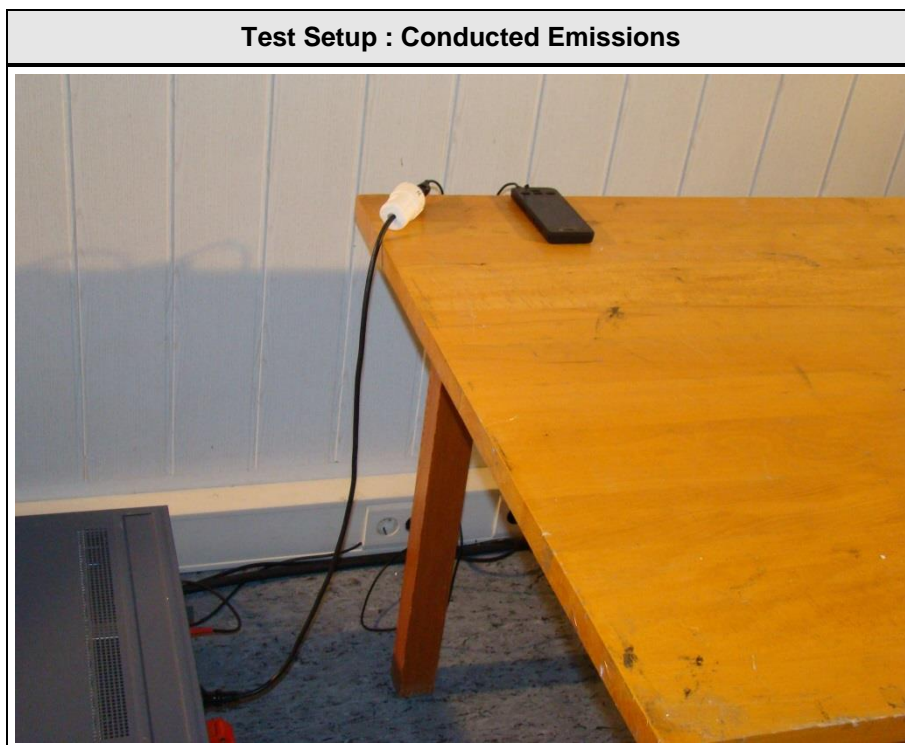
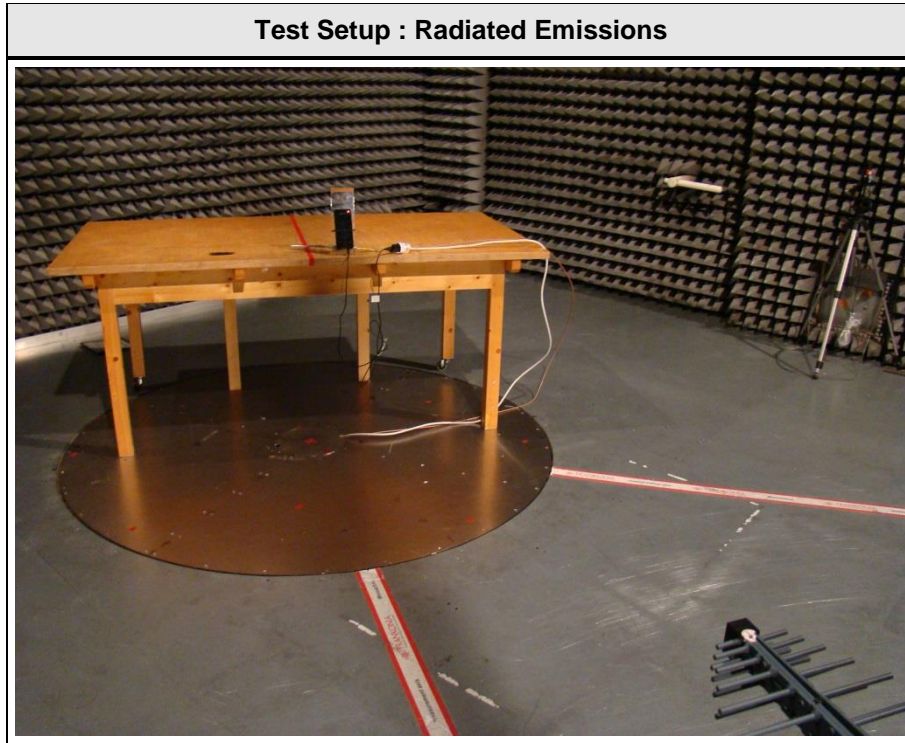
1.2 Photos – Equipment internal



Radio Modul



1.3 Photos – Test setup



1.4 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
AE	Laptop	Dell	Latitude D430	-
SIM	Communication tester	Rohde & Schwarz	CMU 200	-
AE	AC/DC Adapter	ANSMANN	AN4111	-

***Note:** Use the following abbreviations:

AE : Auxiliary/Associated Equipment, or

SIM : Simulator (Not Subjected to Test)

CABL : Connecting cables

1.5 Operating Modes

Mode #	Description
1	Charging, GSM900 link to CMU and WLAN link to an Laptop
2	Charging, UMTS Band 1 link to CMU and Bluetooth link to an Laptop

1.6 Test Equipment Used During Testing

Measurement Software			
Description	Manufacturer	Name	Version
EMC Test Software	Dare Instruments	Radimation	2014.1.15

Radiated emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02
LPD-Antenne	R&S	HL 223	EF00187	2014-03	2017-03
LPD-Antenna	R&S	HL 025	EF00327	2013-02	2016-02
EMI Test Receiver	R&S	ESU8	EF00379	2014-03	2015-03
EMI Test Receiver	R&S	ESCS30	EF00295	2013-10	2014-10

Conducted emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
AMN	R&S	ESH2-Z5	EF00182	2012-10	2014-10
AMN	R&S	ESH3-Z5	EF00036	2012-11	2014-11
EMI Test Receiver	R&S	ESCS 30	EF00295	2013-10	2014-10

1.7 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyzer in dB μ V. Any external preamplifiers used are taken into account through internal analyzer settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyzer. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

$$\text{Reading on Analyzer (dB}\mu\text{V)} + \text{A.F. (dB)} = \text{Net field strength (dB}\mu\text{V/m)}$$

Net:

This is the net field strength measurement (as shown above).

Limit:

This is the FCC Class B radiated emission limit (in units of dB μ V/m). The FCC limits are given in units of μ V/m. The following formula is used to convert the units of μ V/m to dB μ V/m:

$$\text{Limit (dB}\mu\text{V/m)} = 20 * \log (\mu\text{V/m})$$

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:

$$\begin{array}{rclcl} \text{Reading} & + & \text{AF} & = & \text{Net Reading} & : & \text{Net reading - FCC limit} & = & \text{Margin} \\ 21.5 \text{ dB}\mu\text{V} & + & 26 \text{ dB} & = & 47.5 \text{ dB}\mu\text{V/m} & : & 47.5 \text{ dB}\mu\text{V/m} - 57.0 \text{ dB}\mu\text{V/m} & = & -9.5 \text{ dB} \end{array}$$

2 Result Summary

FCC 47 CFR Part 15B, Industry Canada RSS-Gen				
Product Specific Standard	Requirement – Test	Reference Method	Result	Remarks
47 CFR 15.109 RSS-Gen 4.9 & 4.10	Radiated emissions	ANSI C 63.4	PASS	-
47 CFR 15.107 RSS-Gen 7.2.4	AC power line conducted emissions	ANSI C63.4	PASS	-
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Radiated emissions

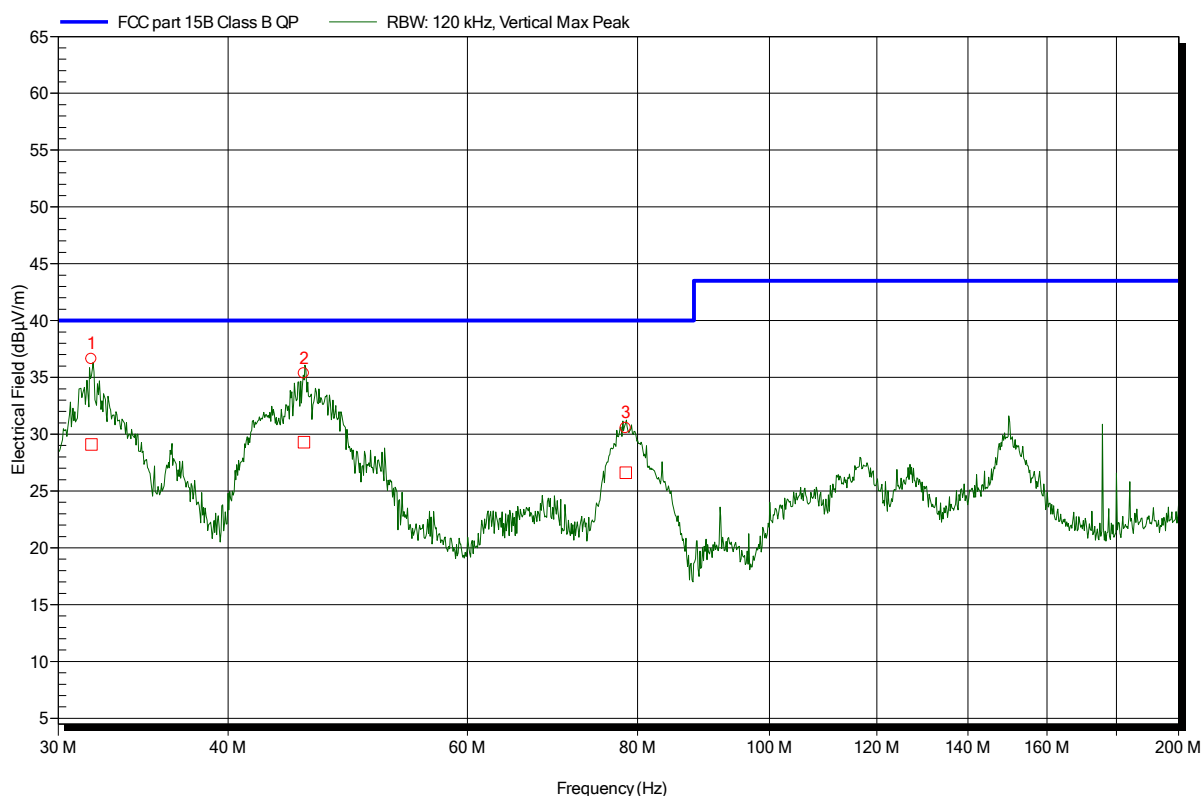
Radiated emissions acc. FCC 47 CFR 15.109 / IC RSS-Gen		Verdict: PASS				
Laboratory Parameters:	Required prior to the test	During the test				
Ambient Temperature	15 to 35 °C	23 °C				
Relative Humidity	30 to 60 %	43 %				
Test according referenced standards	Reference Method					
	ANSI C63.4					
Sample is tested with respect to the requirements of the equipment class	Equipment class					
	Class B					
Test frequency range determined from highest emission frequency	Highest emission frequency					
	Fmax [MHz] = 5000					
Fully configured sample scanned over the following frequency range	Frequency range					
	30 MHz to 8 GHz					
Operating mode	1 / 2					
Limits and results Class B						
Frequency [MHz]	Quasi-Peak [dBµV/m]	Result	Average [dBµV/m]	Result	Peak [dBµV/m]	Result
30 – 88	40	PASS	-		-	-
88 – 216	43.5	PASS	-		-	-
216 – 960	46	PASS	-		-	-
960 – 1000	54	PASS	-		-	-
> 1000	-	-	54	PASS	74	PASS
Comments: Measurements performed up to 8 GHz. Above 8 GHz no relevant disturbances determined.						

Spurious emissions under normal conditions according to FCC PART 15B

Project number: G0M-1407-3973

Manufacturer: BARTEC PIXAVI AS
 EUT Name: Smartphone
 Model: Impact X
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3m
 Mode: GSM-GPRS+WLAN+charging
 Test Date: 2014-09-09
 Note:

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Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
31.74 MHz	29.1 dBµV/m	40 dBµV/m	-10.9 dB	Pass
45.48 MHz	29.29 dBµV/m	40 dBµV/m	-10.71 dB	Pass
78.42 MHz	26.61 dBµV/m	40 dBµV/m	-13.39 dB	Pass

Test Report No.: G0M-1407-3973-EF0115B-V01

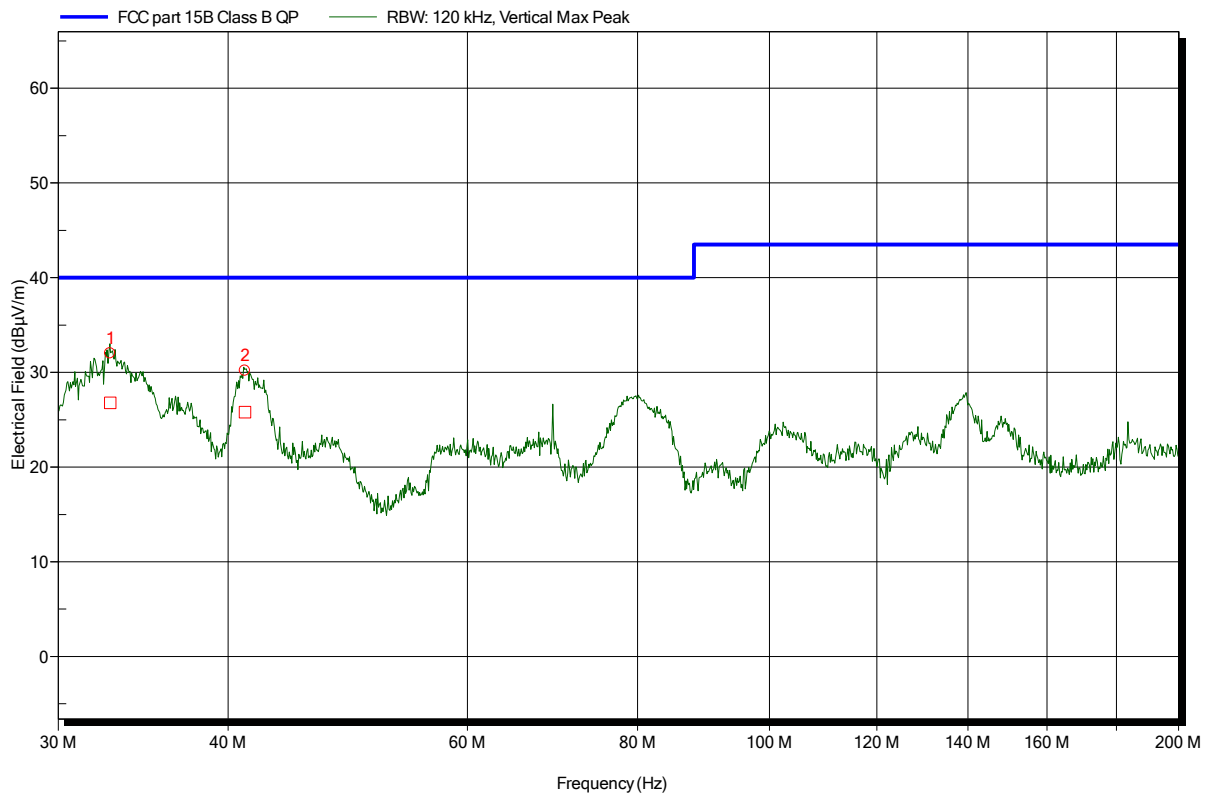
 Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions under normal conditions according to FCC PART 15B

Project number: G0M-1407-3973

Manufacturer: BARTEC PIXAVI AS
 EUT Name: Smartphone
 Model: Impact X
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
 Antenna: Rohde & Schwarz HK 116, Vertical (2)
 Measurement distance: 3m
 Mode: GSM-GPRS+WLAN+charging
 Test Date: 2014-09-09
 Note:

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Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
32.76 MHz	26.78 dBµV/m	40 dBµV/m	-13.22 dB	Pass
41.16 MHz	25.81 dBµV/m	40 dBµV/m	-14.19 dB	Pass

Test Report No.: G0M-1407-3973-EF0115B-V01

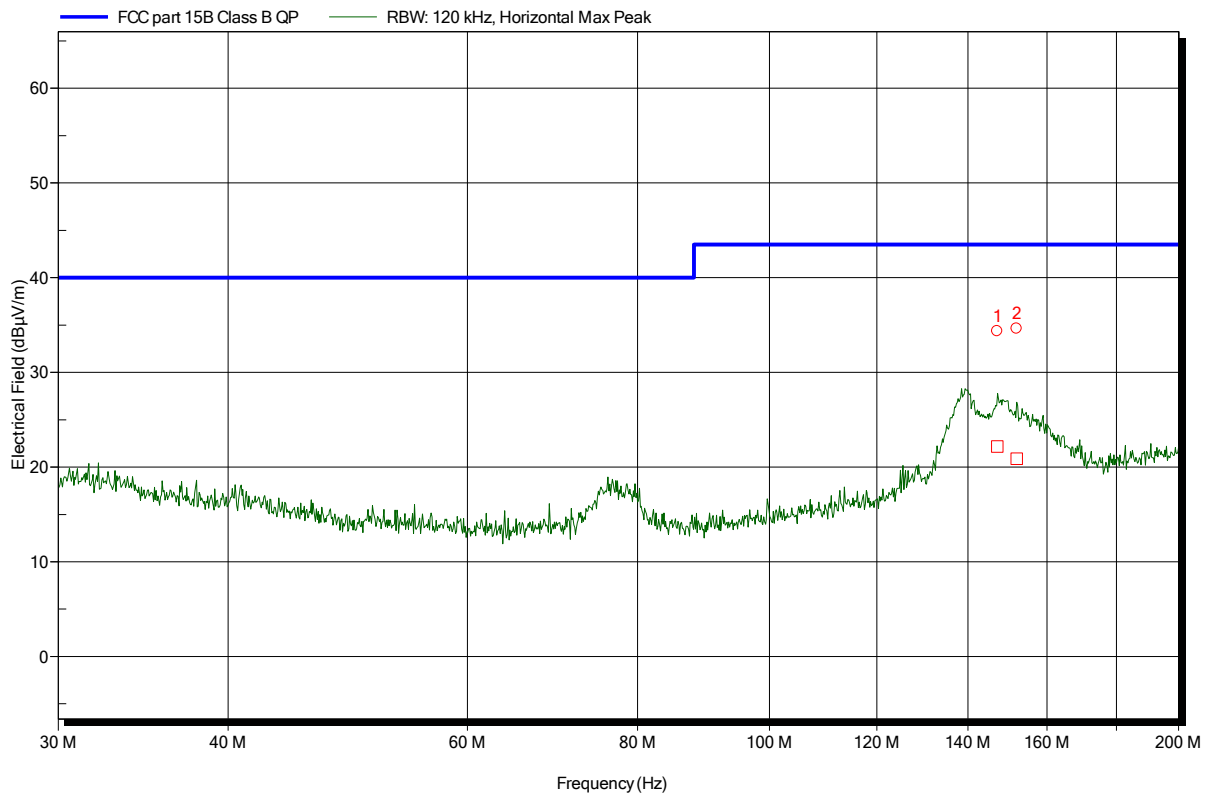
 Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions under normal conditions according to FCC PART 15B

Project number: G0M-1407-3973

Manufacturer: BARTEC PIXAVI AS
 EUT Name: Smartphone
 Model: Impact X
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
 Antenna: Rohde & Schwarz HK 116, Horizontal
 Measurement distance: 3m
 Mode: GSM-GPRS+WLAN+charging
 Test Date: 2014-09-09
 Note:

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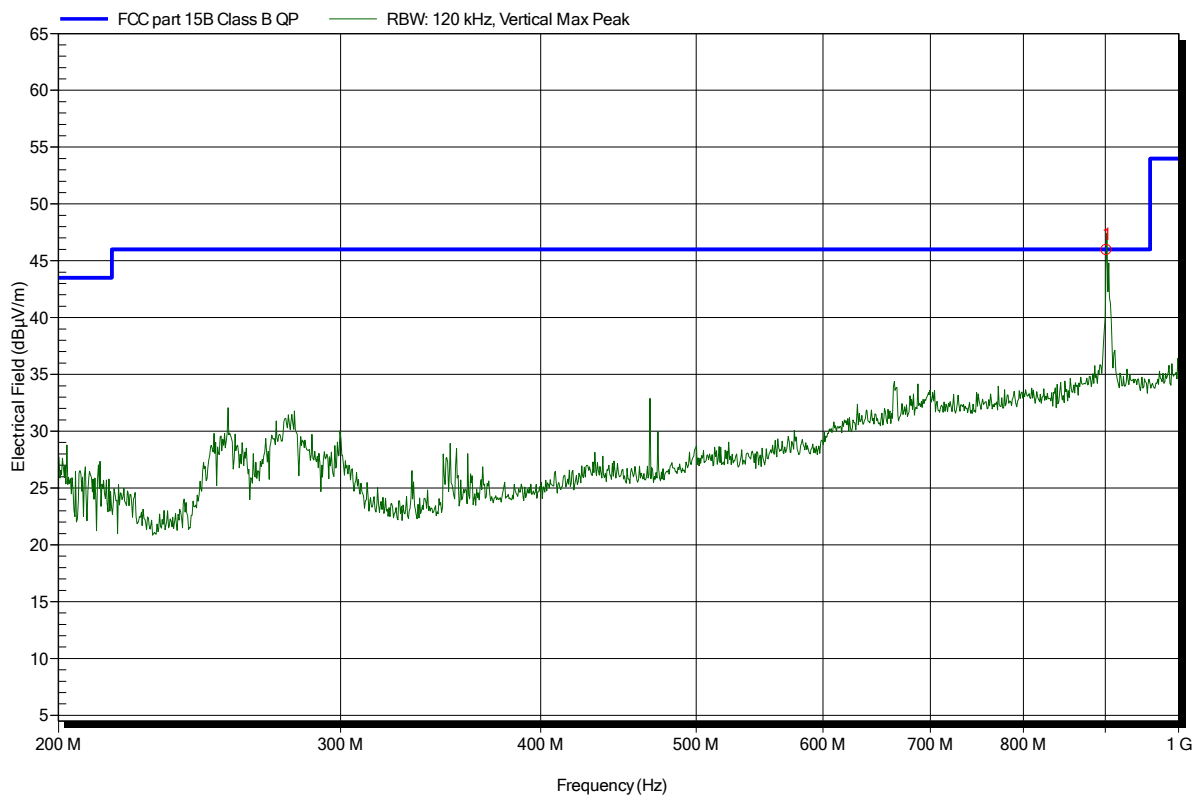
Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
147.12 MHz	22.18 dBµV/m	43.5 dBµV/m	-21.32 dB	Pass
152.04 MHz	20.9 dBµV/m	43.5 dBµV/m	-22.6 dB	Pass

Spurious emissions under normal conditions according to FCC PART 15B

Project number: G0M-1407-3973

Manufacturer: BARTEC PIXAVI AS
 EUT Name: Smartphone
 Model: Impact X
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
 Antenna: Rohde & Schwarz HL 223, Vertical
 Measurement distance: 3m
 Mode: GSM-GPRS+WLAN+charging
 Test Date: 2014-09-12
 Note:

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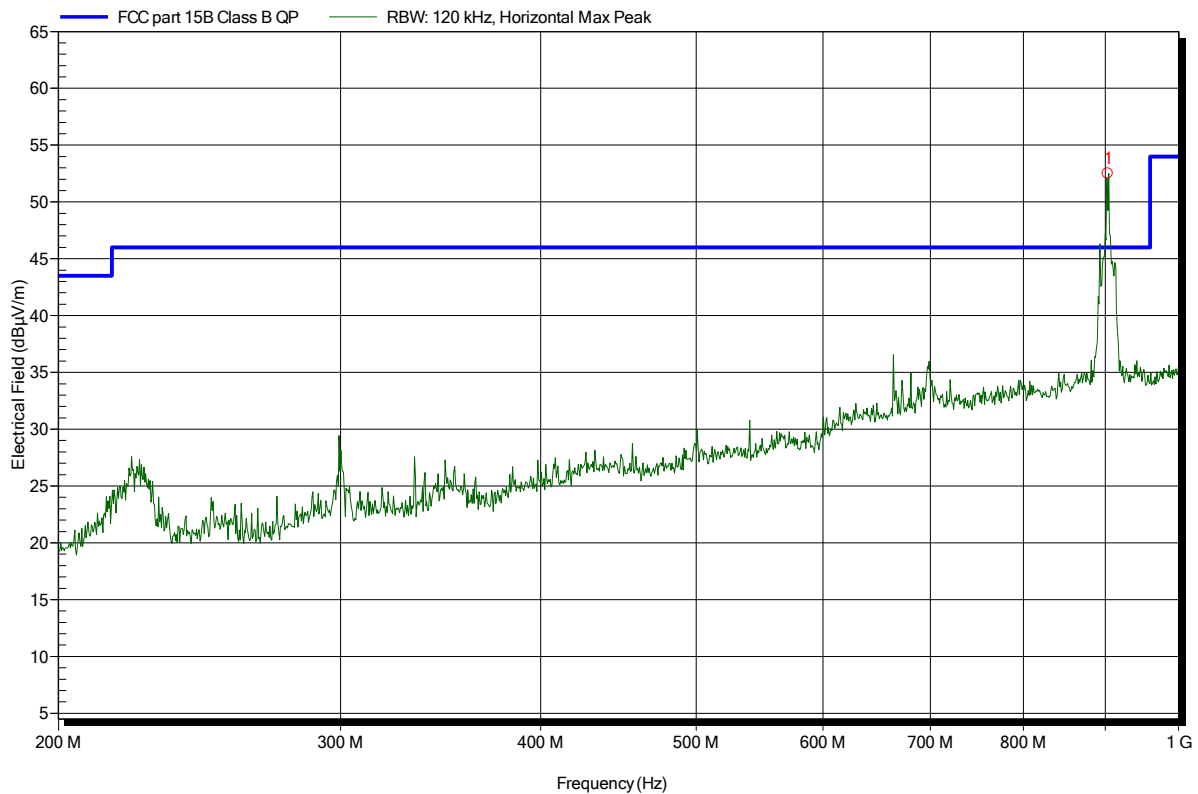
Frequency
 TX-901.52 MHz

Spurious emissions under normal conditions according to FCC PART 15B

Project number: G0M-1407-3973

Manufacturer:	BARTEC PIXAVI AS
EUT Name:	Smartphone
Model:	Impact X
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pflug
Test Conditions:	Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3m
Mode:	GSM-GPRS+WLAN+charging
Test Date:	2014-09-12
Note:	

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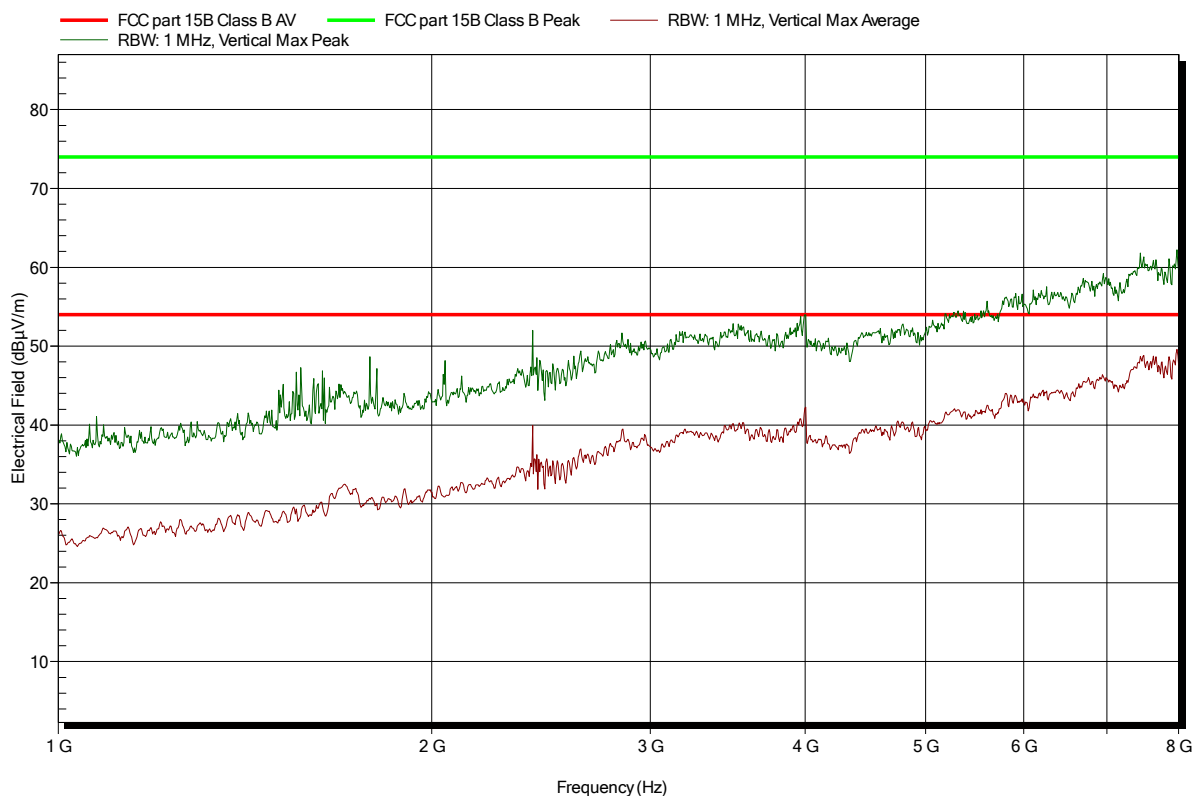
Frequency
TX-903.25 MHz

Spurious emissions under normal conditions according to FCC PART 15B

Project number: G0M-1407-3973

Manufacturer: BARTEC PIXAVI AS
 EUT Name: Smartphone
 Model: Impact X
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
 Antenna: Rohde & Schwarz HL 025, Vertical
 Measurement distance: 3m
 Mode: GSM-GPRS+WLAN+charging
 Test Date: 2014-09-12
 Note:

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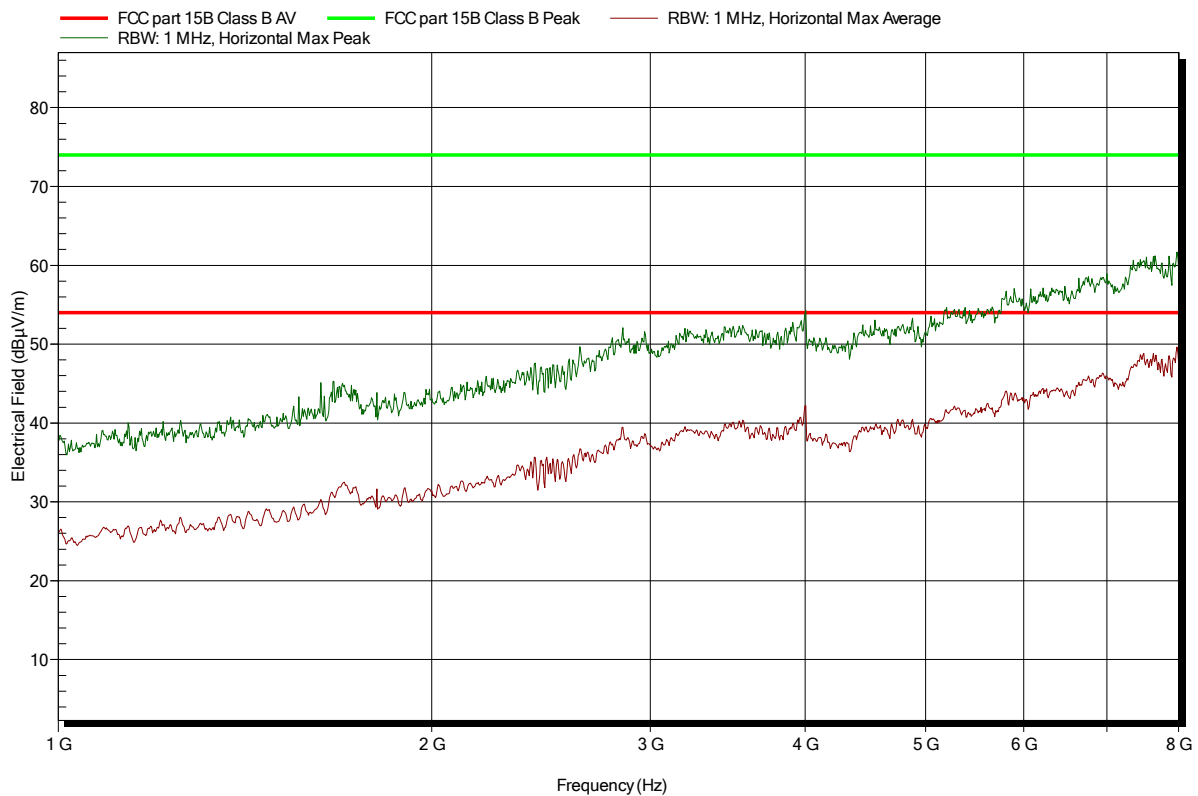


Spurious emissions under normal conditions according to FCC PART 15B

Project number: G0M-1407-3973

Manufacturer:	BARTEC PIXAVI AS
EUT Name:	Smartphone
Model:	Impact X
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pflug
Test Conditions:	Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
Antenna:	Rohde & Schwarz HL 025, Horizontal
Measurement distance:	3m
Mode:	GSM-GPRS+WLAN+charging
Test Date:	2014-09-12
Note:	

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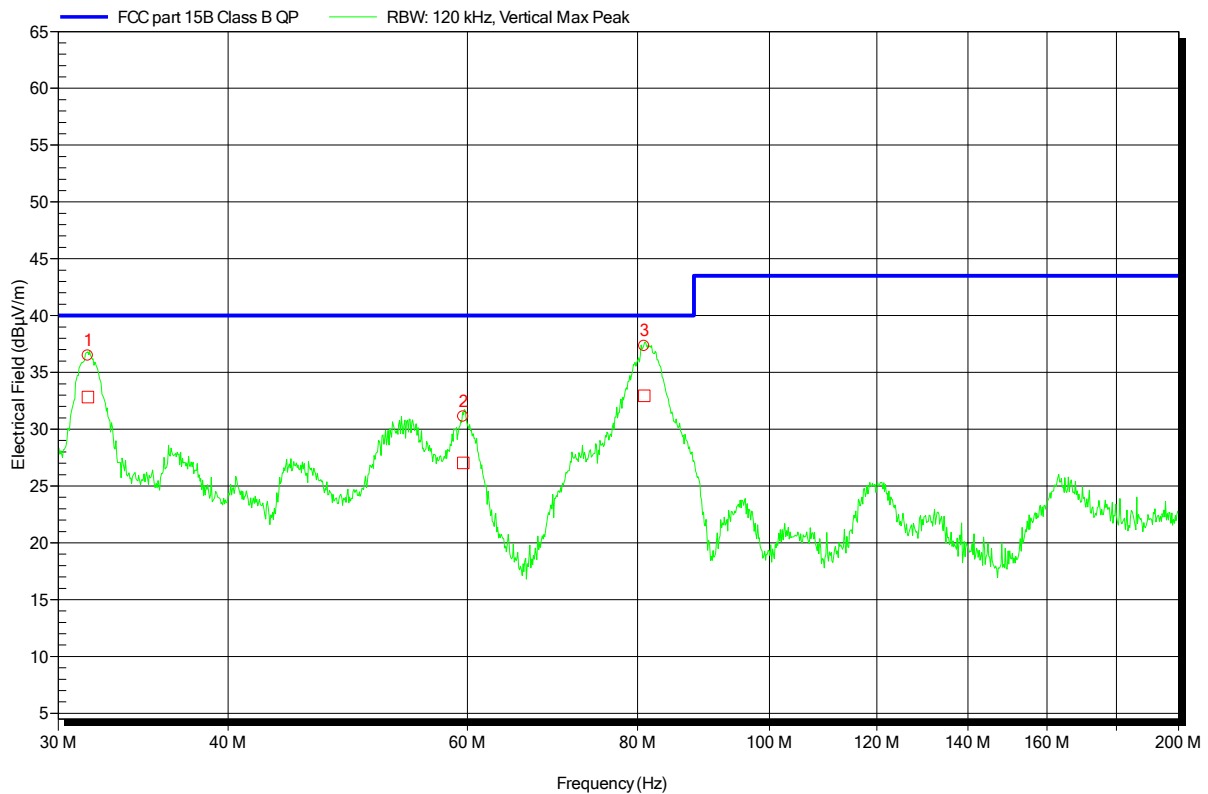


Spurious emissions under normal conditions according to FCC part 15b

Project number: G0M-1407-3973

Manufacturer: BARTEC PIXAVI AS
 EUT Name: Smartphone
 Model: Impact X
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
 Antenna: Rohde & Schwarz HK 116, Vertical
 Measurement distance: 3m
 Mode: UMTS band 1+ Bluetooth + charging
 Test Date: 2014-09-17
 Note:

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Frequency	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
31.56 MHz	32.82 dBµV/m	40 dBµV/m	-7.18 dB	Pass
59.58 MHz	27.04 dBµV/m	40 dBµV/m	-12.96 dB	Pass
80.94 MHz	32.93 dBµV/m	40 dBµV/m	-7.07 dB	Pass

Test Report No.: G0M-1407-3973-EF0115B-V01

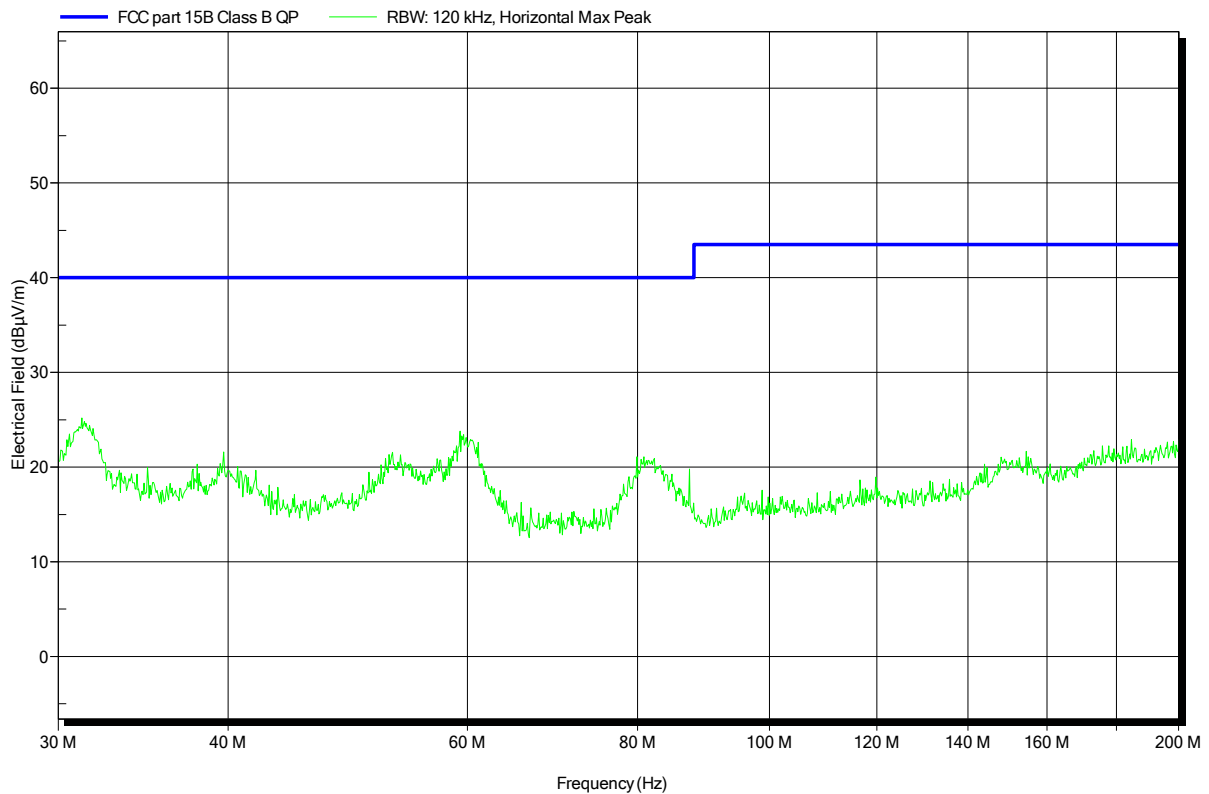
 Eurofins Product Service GmbH
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

Spurious emissions under normal conditions according to FCC part 15b

Project number: G0M-1407-3973

Manufacturer:	BARTEC PIXAVI AS
EUT Name:	Smartphone
Model:	Impact X
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pflug
Test Conditions:	Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
Antenna:	Rohde & Schwarz HK 116, Horizontal
Measurement distance:	3m
Mode:	UMTS band 1+ Bluetooth + charging
Test Date:	2014-09-17
Note:	

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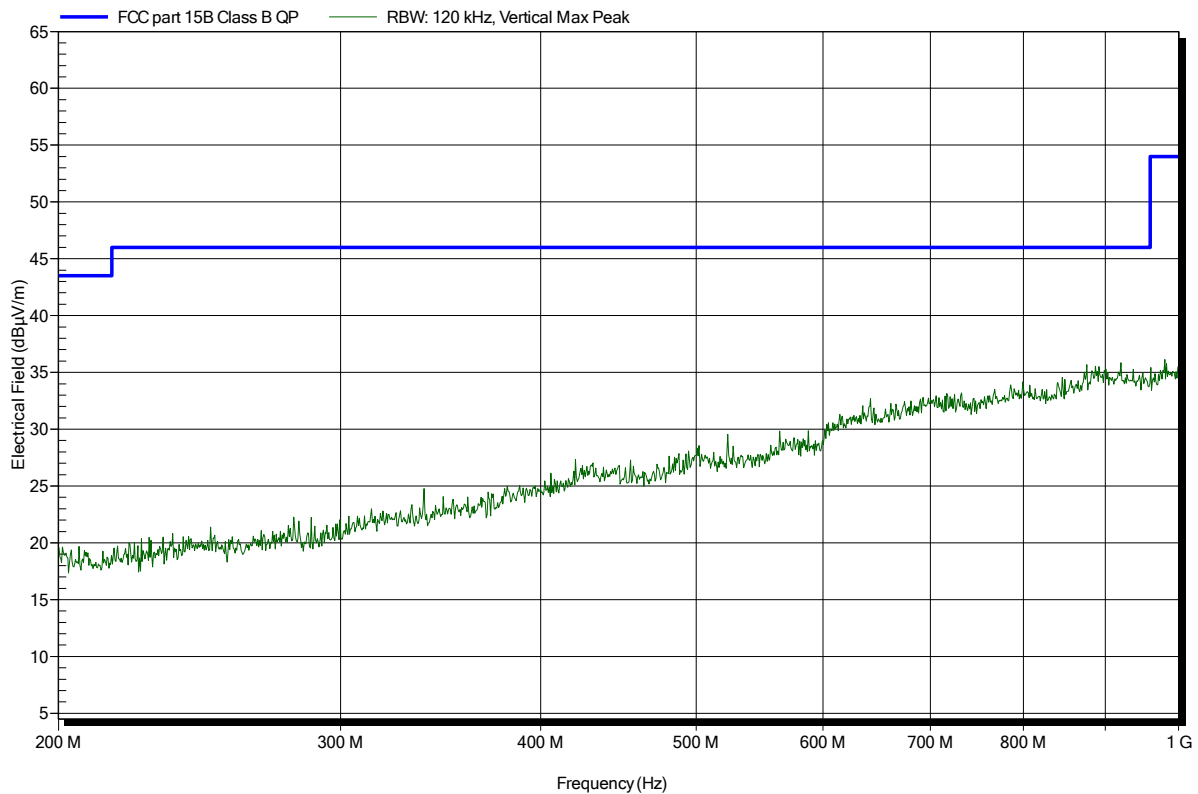


Spurious emissions under normal conditions according to FCC part 15b

Project number: G0M-1407-3973

Manufacturer:	BARTEC PIXAVI AS
EUT Name:	Smartphone
Model:	Impact X
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pflug
Test Conditions:	Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
Antenna:	Rohde & Schwarz HL 223, Vertical
Measurement distance:	3m
Mode:	UMTS band 1+ Bluetooth + charging
Test Date:	2014-09-12
Note:	

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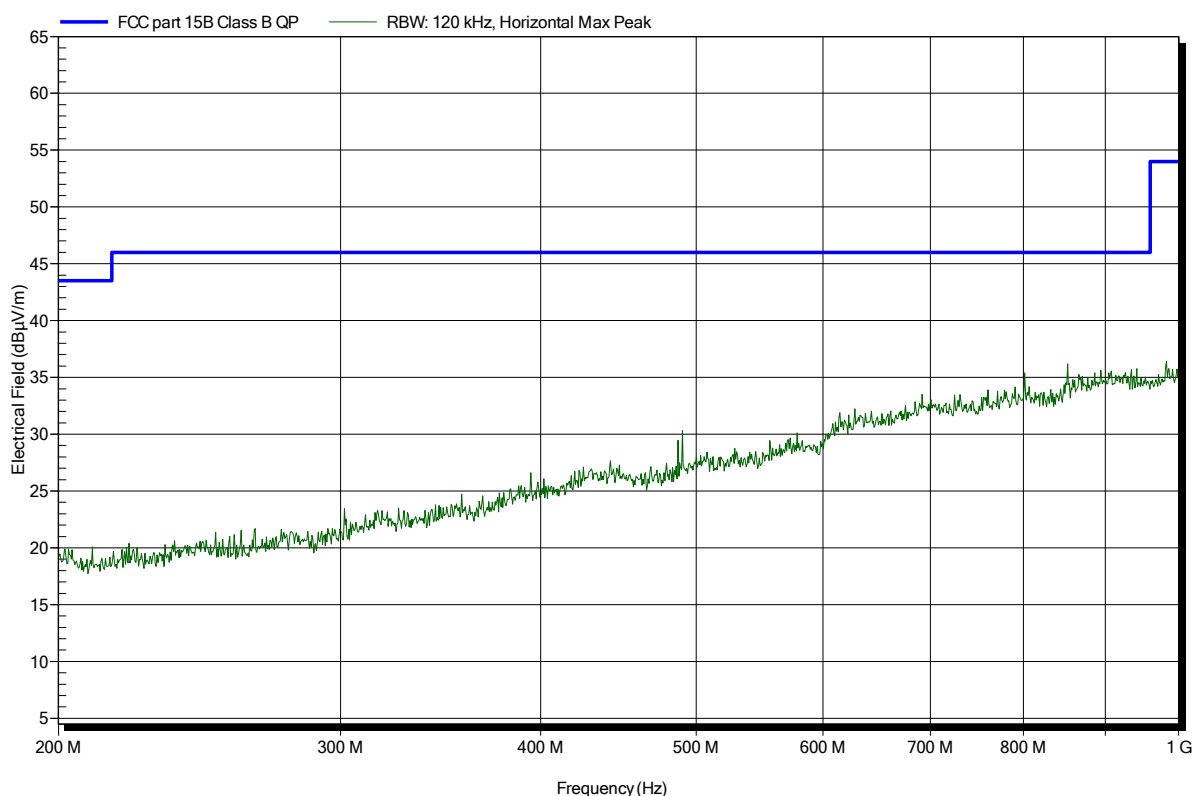


Spurious emissions under normal conditions according to FCC part 15b

Project number: G0M-1407-3973

Manufacturer:	BARTEC PIXAVI AS
EUT Name:	Smartphone
Model:	Impact X
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pflug
Test Conditions:	Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
Antenna:	Rohde & Schwarz HL 223, Horizontal
Measurement distance:	3m
Mode:	UMTS band 1+ Bluetooth + charging
Test Date:	2014-09-12
Note:	

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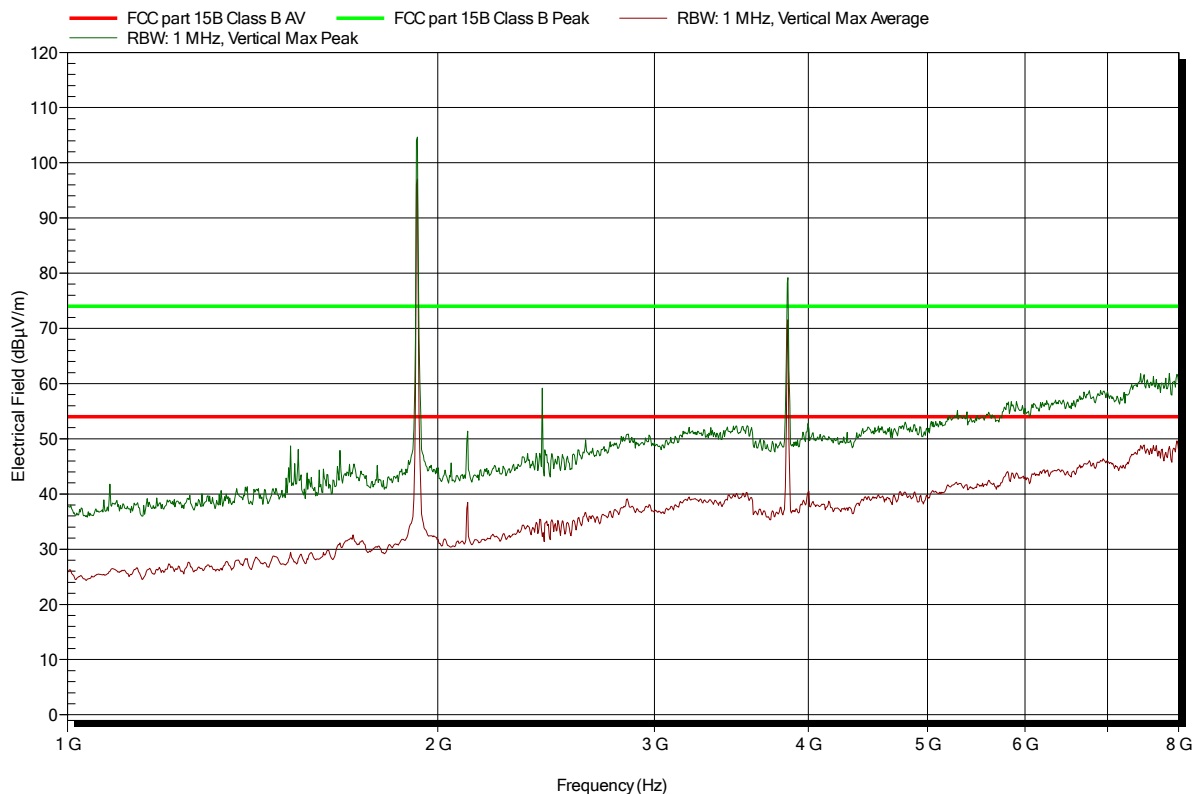


Spurious emissions under normal conditions according to FCC part 15b

Project number: G0M-1407-3973

Manufacturer:	BARTEC PIXAVI AS
EUT Name:	Smartphone
Model:	Impact X
Test Site:	Eurofins Product Service GmbH
Operator:	Mr. Pflug
Test Conditions:	Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
Antenna:	Rohde & Schwarz HL 025, Vertical
Measurement distance:	3m
Mode:	UMTS band 1+ Bluetooth + charging
Test Date:	2014-09-12
Note:	

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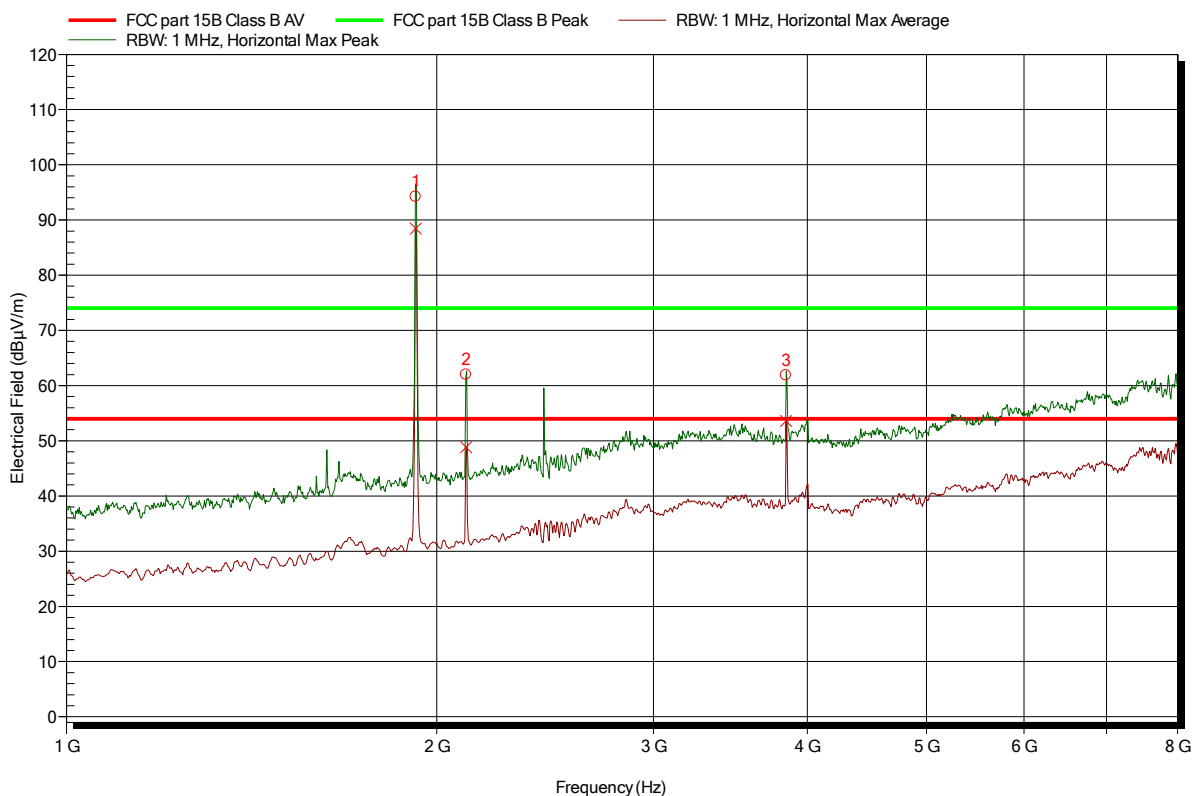
Frequency
 1.923 GHz TX UMTS band 1
 3.843 GHz Harmonics TX

Spurious emissions under normal conditions according to FCC part 15b

Project number: G0M-1407-3973

Manufacturer: BARTEC PIXAVI AS
 EUT Name: Smartphone
 Model: Impact X
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 25°C, Unom: 120VAC(AC/DC-adapter)
 Antenna: Rohde & Schwarz HL 025, Horizontal
 Measurement distance: 3m
 Mode: UMTS band 1+ Bluetooth + charging
 Test Date: 2014-09-12
 Note:

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Frequency	FCC part 15B Class B AV	FCC part 15B Class B Peak	RBW: 1 MHz, Horizontal Max Average	Result
1.923 GHz TX UMTS band 1				
2.113 GHz	48.82 dBµV/m	54 dBµV/m		Pass
3.843 GHz Harmonics TX				

3.2 Test Conditions and Results – AC power line conducted emissions

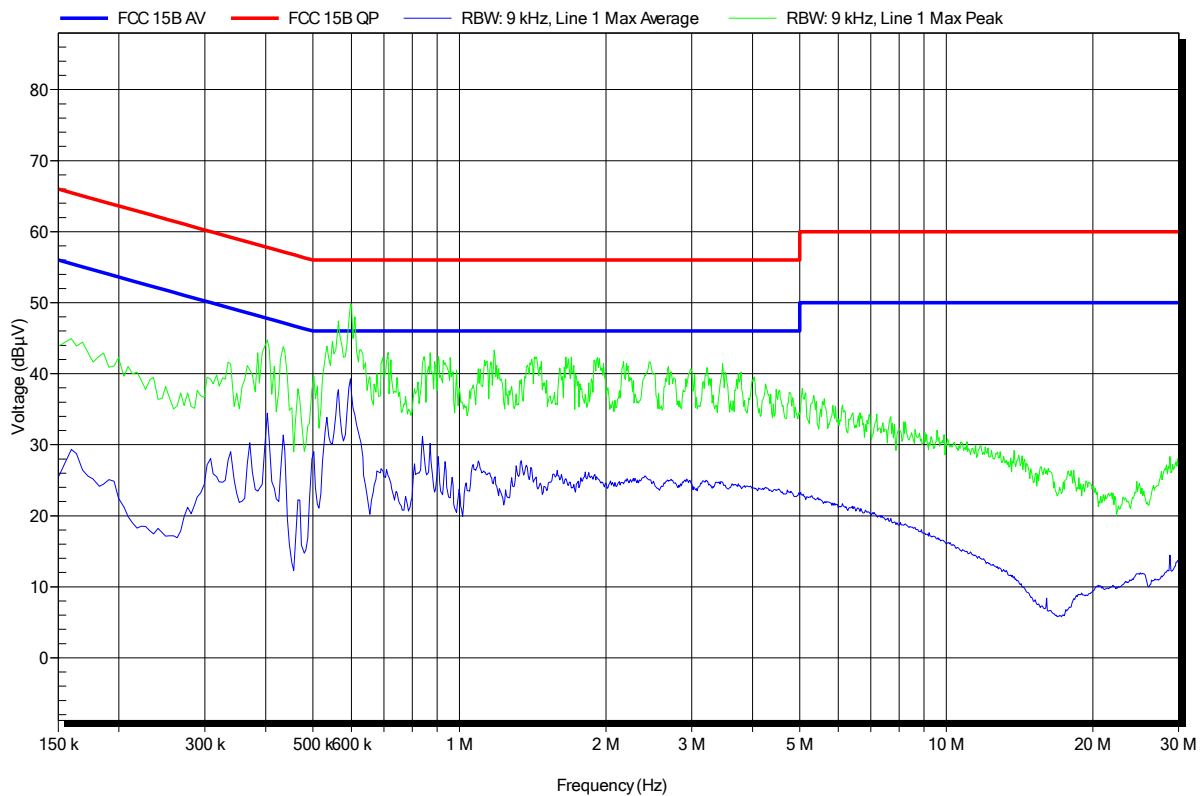
Conducted emissions acc. FCC 47 CFR 15.107 / IC RSS-Gen			Verdict: PASS	
Laboratory Parameters:	Required prior to the test	During the test		
Ambient Temperature	15 to 35 °C	23 °C		
Relative Humidity	30 to 60 %	43 %		
Test according referenced standards	Reference Method			
	ANSI C63.4			
Fully configured sample scanned over the following frequency range	Frequency range			
	0.15 MHz to 30 MHz			
Sample is tested with respect to the requirements of the equipment class	Equipment class			
	Class B			
Points of Application	Application Interface			
AC Mains	LISN			
Operating mode				
Limits and results Class B				
Frequency [MHz]	Quasi-Peak [dB μ V]	Result	Average [dB μ V]	Result
0.15 to 5	66 to 56*	PASS	56 to 46*	PASS
0.5 to 5	56	PASS	46	PASS
5 to 30	60	PASS	50	PASS
Comments:				
* Limit decreases linearly with the logarithm of the frequency.				

EMI voltage test in the ac-mains according to FCC part 15 b

Project number: G0M-1407-3973

Manufacturer: BARTEC PIXA VI AS
 EUT Name: Smartphone
 Model: Impact X
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 23°C, Unom: 120VAC (AC/DC-adapter,AN4111)
 LISN: ESH2-Z5 L
 Mode: charging+GSM900MHz,p15+WLAN
 Test Date: 2014-08-26
 Note:

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EMI voltage test in the ac-mains according to FCC part 15 b

Project number: G0M-1407-3973

Manufacturer: BARTEC PIXA VI AS
 EUT Name: Smartphone
 Model: Impact X
 Test Site: Eurofins Product Service GmbH
 Operator: Mr. Pflug
 Test Conditions: Tnom: 25°C, Unom: 120VAC (AC/DC-adapter,AN4111)
 LISN: ESH2-Z5 N
 Mode: charging+GSM900MHz,pl5+WLAN
 Test Date: 2014-08-26
 Note:

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