

#### FCC TEST REPORT

# FCC 47 CFR Part 15C Industry Canada RSS-210

### Frequency hopping systems operating within the 2400 - 2483.5 MHz band

**Report Reference No......** G0M-1407-3973-TFC247BT-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...... Domkirkeplassen 2

4006 Stavanger

**NORWAY** 

Test specification:

Standard ...... 47 CFR Part 15C

RSS-210, Issue 8, 2010-12 RSS-Gen, Issue 3, 2010-12

ANSI C63.4:2009

**Equipment under test (EUT):** 

Product description Smartphone

Model No. ImpactX

Additional Model(s) GravityX

Brand Name(s) None

Hardware version rev B0

Firmware / Software version Android 4.2.2

FCC-ID: YML-X7SERIES IC: 9249A-X7SERIES

Test result Passed



Possible test case verdicts:

- neither assessed nor tested ...... N/N

- required by standard but not appl. to test object......: N/A

- required by standard but not tested...... N/T

- not required by standard for the test object .....: N/R

- test object does meet the requirement...... P (Pass)

- test object does not meet the requirement...... F (Fail)

Testina:

Test Lab Temperature...... 20 – 23 °C

Compiled by .....: Toralf Jahn

Approved by (+ signature) .....: Christian Weber

Date of issue ...... 2014-11-17

Total number of pages .....: 132

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:

The additional model GravityX is identical to the model ImpactX. Both models use the same pcb and the same software. Only the mobile communication module is deactivated. Therefore the results for the Bluetooth tests are applicable to both models.

C. Weder



# **Version History**

Version	Issue Date	Remarks	Revised by
01	2014-11-17	Initial Release	



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# 1 Equipment (Test item) Description

Description	Smartphone		
Model	ImpactX		
Additional Model(s)	GravityX		
Brand Name(s)	None		
Serial number	None		
Hardware version	rev B0		
Software / Firmware version	Android 4.2.2		
FCC-ID	YML-X7SERIES		
IC	9249A-X7SERIE	ES .	
Equipment type	Radio module		
Radio type	Transceiver		
Radio technology	Bluetooth		
Operating frequency range	2402 - 2480 MH	Z	
Assigned frequency band	2400 - 2483.5 MHz		
	F <sub>LOW</sub>	2402 MHz	
Main test frequencies	F <sub>MID</sub>	2441 MHz	
	F <sub>HIGH</sub>	2480 MHz	
Spreading	FHSS		
Modulations	GFSK, PI/4-DQPSK, 8-PSK		
Number of channels	79 hopping channels at all		
Channel spacing	1 MHz		
Number of antennas	1		
	Туре	integrated	
Antenna	Model	M830510	
Antenna	Manufacturer	Ethertronics	
	Gain	1.1	
	BARTEC PIXAVI AS		
Manufacturer	Domkirkeplassen 2		
Manufacturer	4006 Stavanger		
	NORWAY		
	V <sub>NOM</sub>	3.7 VDC	
Power supply	V <sub>MIN</sub>	3.1 VDC	
	V <sub>MIN</sub> 4.2 VDC		
	Туре	AC/DC USB Charger	
AC/DC-Adaptor	Model	AN4111	
	Manufacturer	ANSMANN	



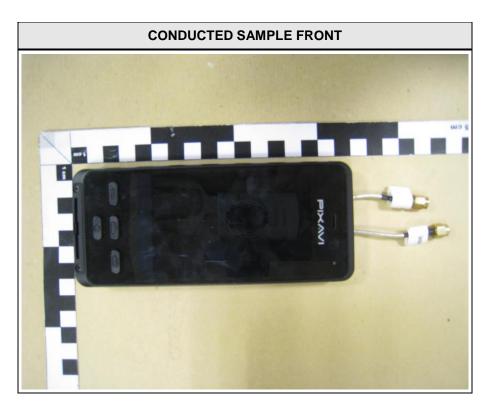
# 1.1 Photos – Equipment External

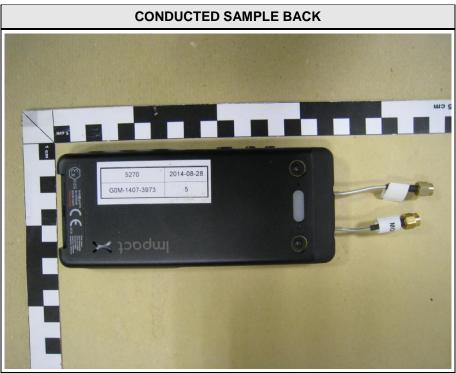


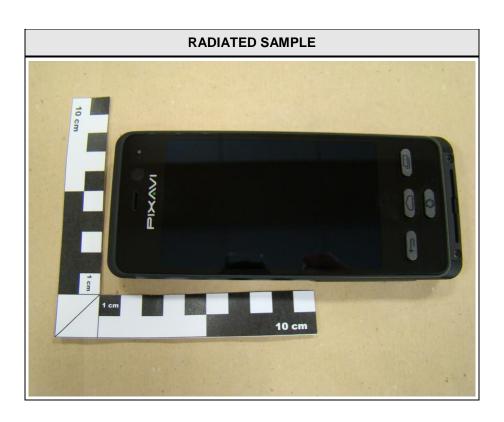




# 1.2 Photos – Equipment External

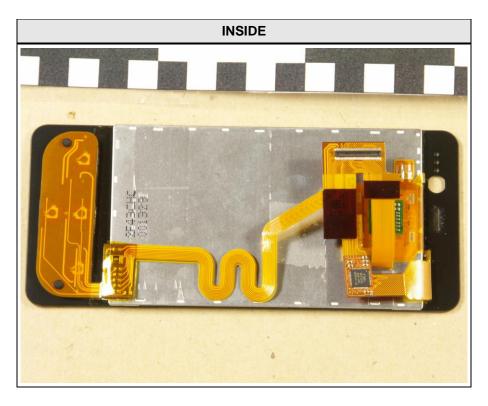






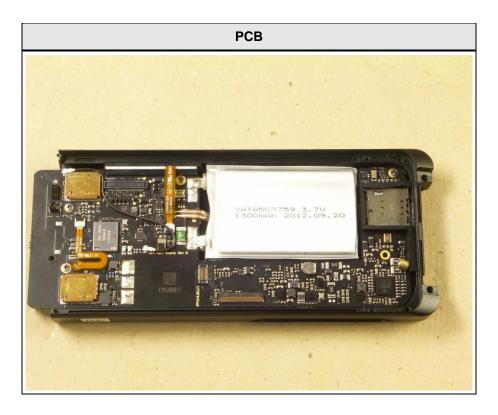


# 1.3 Photos – Equipment internal





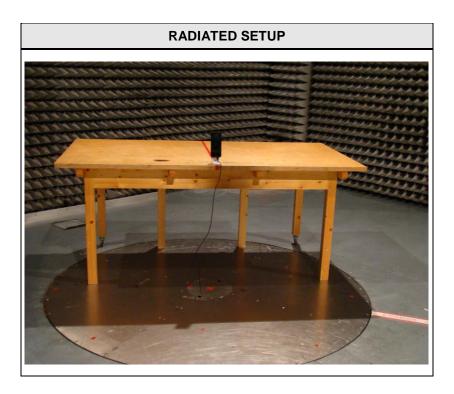
# **Product Service**

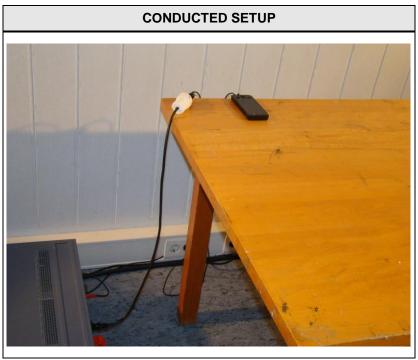






# 1.4 Photos - Test setup







# 1.5 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
SIM	Bluetooth Tester	Rohde & Schwarz	CBT	for signaling

\*Note: Use the following abbreviations:

AE: Auxiliary/Associated Equipment, or SIM: Simulator (Not Subjected to Test)

CABL: Connecting cables



#### 1.6 Test Modes

Mode #		Description
	General conditions:	EUT powered by laboratory power supply.
DH5-Sngl	Radio conditions:	Mode = standalone transmit  Spreading = Hopping stopped (single hopping channel)  Modulation = GFSK  Packet type = DH5  Data rate = 1 Mbps  Duty cycle = 77 %  Power level = Maximum
	General conditions:	EUT powered by laboratory power supply.
2DH5-Sngl	Radio conditions:	Mode = standalone transmit  Spreading = Hopping stopped (single hopping channel)  Modulation = π/4-DQPSK  Packet type = 2DH5  Data rate = 2 Mbps  Duty cycle = 77 %  Power level = Maximum
	General conditions:	EUT powered by laboratory power supply.
3DH5-Sngl	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = 8-DPSK Packet type = 3DH5 Data rate = 3 Mbps Duty cycle = 77 % Power level = Maximum
	General conditions:	EUT powered by laboratory power supply.
DH5-Hop	Radio conditions:	Mode = standalone transmit Spreading = Hopping Modulation = GFSK Packet type = DH5 Data rate = 1 Mbps Duty cycle = 77 % Power level = Maximum

	General conditions:	EUT powered by laboratory power supply.
2DH5-Hop	Radio conditions:	Mode = standalone transmit Spreading = Hopping Modulation = π/4-DQPSK Packet type = 2DH5 Data rate = 2 Mbps Duty cycle = 77 % Power level = Maximum
	General conditions:	EUT powered by laboratory power supply.
3DН5-Нор	Radio conditions:	Mode = standalone transmit Spreading = Hopping Modulation = 8-DPSK Packet type = 3DH5 Data rate = 3 Mbps Duty cycle = 77 % Power level = Maximum
	General conditions:	EUT powered by laboratory power supply.
Receive	Radio conditions:	Mode = standalone receive Spreading = Hopping
	General conditions:	EUT powered by commercial AC/DC-Adapter
AC-Powerline	Radio conditions:	Mode = standalone transmit Spreading = Hopping Power level = Maximum



# 1.7 Test Equipment Used During Testing

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

20dB Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2014-02	2015-02

	N	lumber of hoppin	g frequencies		
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2014-02	2015-02

		Time of occ	upancy		
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2014-02	2015-02

Maximum peak conducted power					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2014-02	2015-02

Band edge compliance					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSW43	EF00896	2014-02	2015-02

Conducted spurious emissions							
Description Manufacturer Model Identifier Cal. Date Cal. Due							
Spectrum Analyzer	R&S	FSW43	EF00896	2014-02	2015-02		

Radiated spurious emissions										
Description	Manufacturer Model Identifier Cal. Date Cal. Du									
Semi-anechoic chamber	Frankonia	AC 1	EF00062	2013-01	2015-01					
Spectrum Analyzer	R&S	FSIQ26	EF00242	2014-03	2015-03					
Biconical Antenna	R&S	HK 116	EF00012	2013-02	2016-02					
LPD Antenna	R&S	HL 223	EF00187	2014-03	2017-03					
LPD Antenna	R&S	HL 025	EF00327	2013-02	2016-02					



AC powerline 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	



#### 1.8 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 dBµV. 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:

Reading on Analyzer (dB $\mu$ V) + A.F. (dB) = Net field strength (dB $\mu$ 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  $dB\mu V/m$ ). The FCC limits are given in units of  $\mu V/m$ . The following formula is used to convert the units of  $\mu V/m$  to  $dB\mu V/m$ :

Limit (dB $\mu$ V/m) = 20\*log ( $\mu$ 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:

Reading + AF = Net Reading : Net reading - FCC limit = Margin 21.5 dB $\mu$ V + 26 dB = 47.5 dB $\mu$ V/m : 47.5 dB $\mu$ V/m - 57.0 dB $\mu$ V/m = -9.5 dB



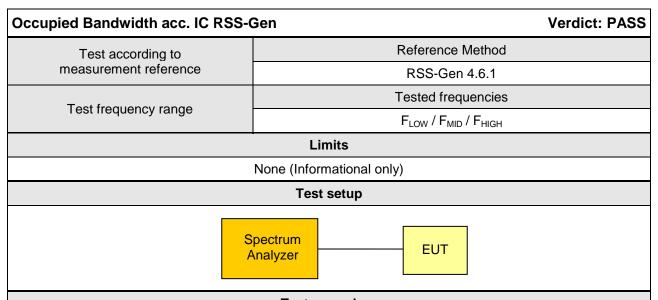
# 2 Result Summary

FCC 47 CFR Part 15C, IC RSS-210						
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks		
RSS-Gen 4.6.1	Occupied Bandwidth	RSS-Gen 4.6.1	N/R	Informational only		
FCC § 15.247(a)(1) IC RSS-210 § A8.1	20 dB Bandwidth	Public notice DA 00-705	PASS			
FCC § 15.247(a)(1)(iii) IC RSS-210 § A8.1	Number of hopping frequencies	Public notice DA 00-705	PASS			
FCC § 15.247(a)(1) IC RSS-210 § A8.1	Frequency hopping channel separation	Public notice DA 00-705	PASS			
FCC § 15.247(a)(1)(iii) IC RSS-210 § A8.1	Time of occupancy (Dwell time)	Public notice DA 00-705	PASS			
FCC § 15.247(b)(1) IC RSS-210 § A8.4	Maximum peak conducted power	Public notice DA 00-705	PASS			
47 CFR 15.207 RSS-Gen 7.2.4	AC power line conducted emissions	ANSI C63.4	PASS			
FCC § 15.247(d) IC RSS-210 § A8.5	Band edge compliance	Public notice DA 00-705	PASS			
FCC § 15.247(d) IC RSS-210 § A8.5	Conducted spurious emissions	Public notice DA 00-705	PASS			
FCC § 15.247(d) FCC § 15.209 IC RSS-210 A8.5 IC RSS-Gen 4.9 IC RSS-Gen 7.2.5	Transmitter radiated spurious emissions	Public notice DA 00-705 / ANSI C 63.4	PASS			
IC RSS-Gen 4.10 IC RSS-Gen 6.1	Receiver radiated spurious emissions	ANSI C 63.4	PASS			
Remarks:						



### 3 Test Conditions and Results

#### 3.1 Test Conditions and Results - Occupied Bandwidth



# Test procedure

- 1. EUT set to test mode (Communication tester is used if needed)
- 2. Span set to at least twice the emission spectrum
- 3. Resolution bandwidth set to 1 % of span
- 4. Occupied Bandwidth (99 %) measurement with spectrum analyzer built in measurement function

Test results						
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [kHz]			
F <sub>LOW</sub>	2402	DH5-Sngl	889.8			
F <sub>MID</sub>	2441	DH5-Sngl	899.8			
F <sub>HIGH</sub>	2480	DH5-Sngl	894.8			
F <sub>LOW</sub>	2402	2DH5-Sngl	1214.7			
F <sub>MID</sub>	2441	2DH5-Sngl	1224.7			
F <sub>HIGH</sub>	2480	2DH5-Sngl	1232.2			
F <sub>LOW</sub>	2402	3DH5-Sngl	1219.7			
F <sub>MID</sub>	2441	3DH5-Sngl	1222.2			
F <sub>HIGH</sub>	2480	3DH5-Sngl	1232.2			
Comments:						



## Occupied Bandwidth - DH5-Sngl F<sub>Low</sub>

# Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

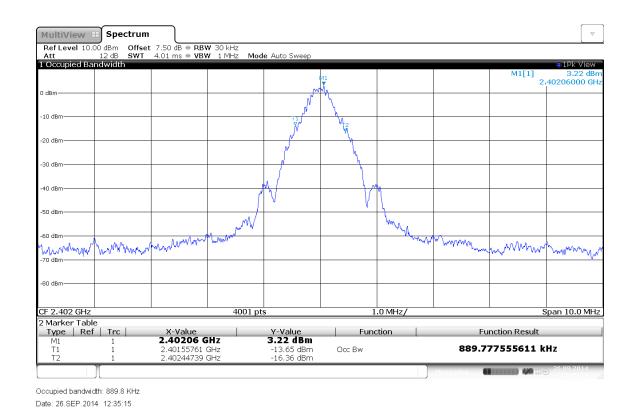
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2402 MHz, DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used





# Occupied Bandwidth - DH5-Sngl F<sub>MID</sub>

# Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

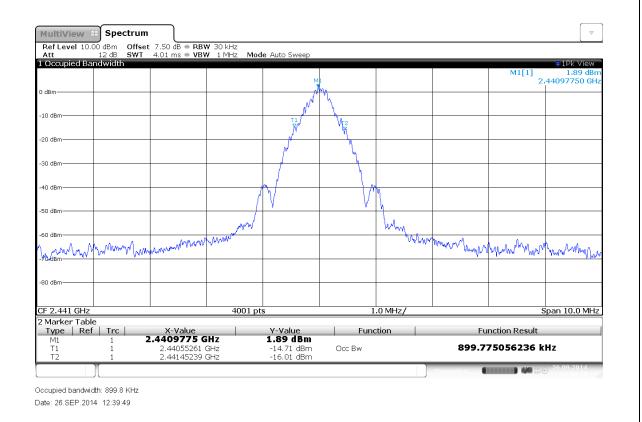
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2441 MHz, DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used





### Occupied Bandwidth - DH5-Sngl F<sub>HIGH</sub>

# Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

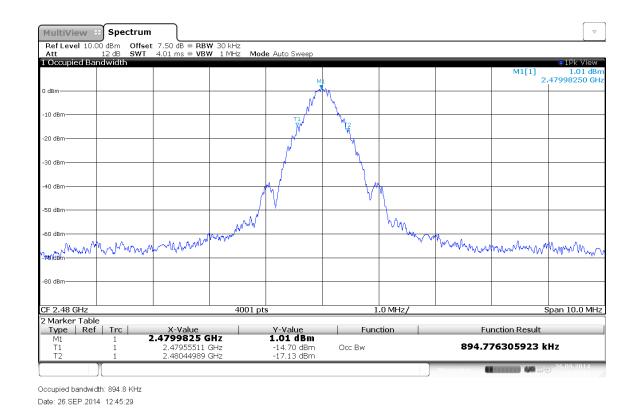
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2480 MHz, DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used





## Occupied Bandwidth - 2-DH5-Sngl F<sub>Low</sub>

# Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

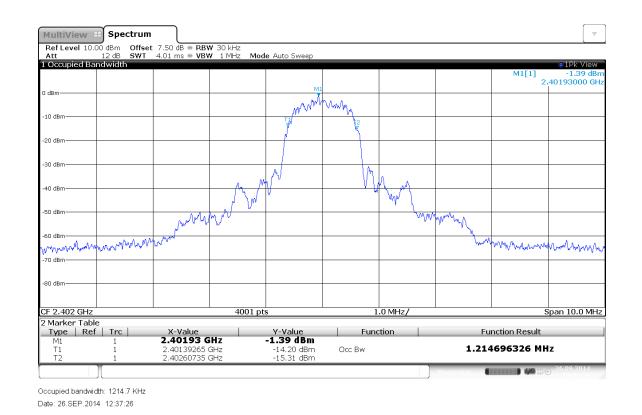
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2402 MHz, 2-DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used





## Occupied Bandwidth – 2-DH5-Sngl F<sub>MID</sub>

# Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

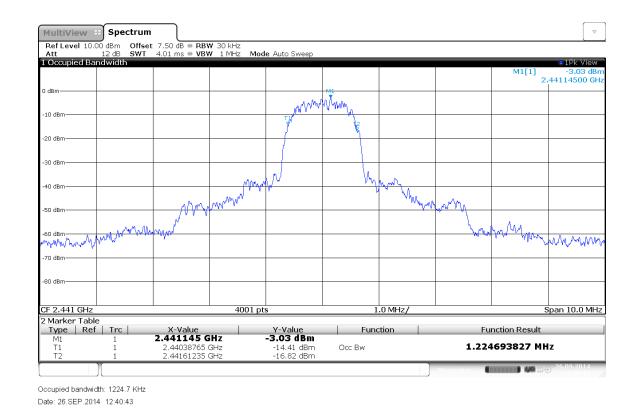
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2441 MHz, 2-DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used





# Occupied Bandwidth - 2-DH5-Sngl F<sub>HIGH</sub>

# Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2480 MHz, 2-DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used





## Occupied Bandwidth - 3-DH5-Sngl F<sub>Low</sub>

# Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

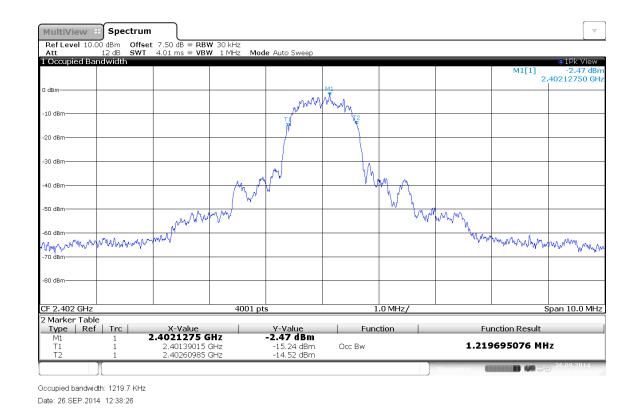
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2402 MHz, 3-DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used





## Occupied Bandwidth - 3-DH5-Sngl F<sub>MID</sub>

# Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

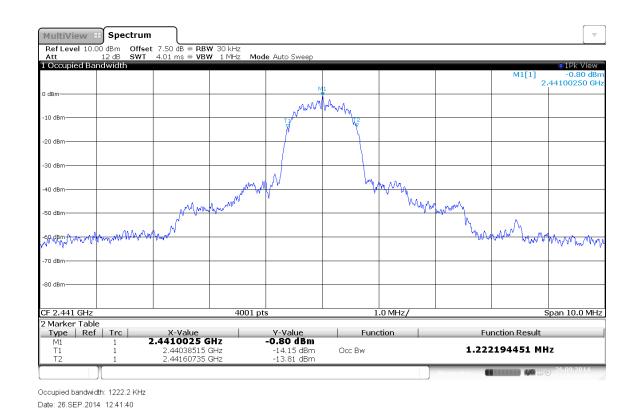
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2441 MHz, 3-DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used





# Occupied Bandwidth - 3-DH5-Sngl FHIGH

# Occupied Bandwidth acc. to RSS-Gen

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

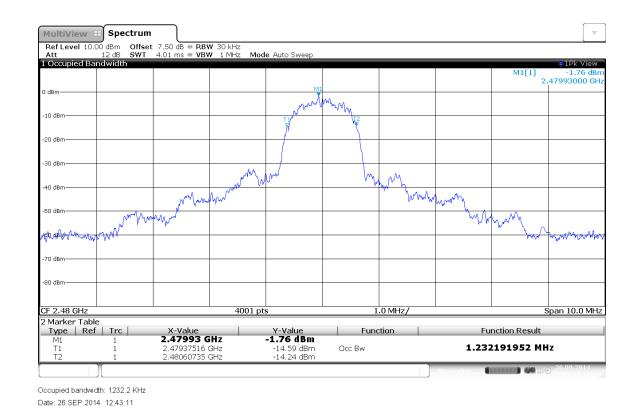
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2480 MHz, 3-DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: A spectrum analyzer with an integrated 99% power bandwidth function is used





#### 3.2 Test Conditions and Results - 20 dB Bandwidth

20 dB Bandwidth acc. FCC 15.247 / IC RSS-210 Verdict: PASS					
EUT requirement		Reference			
rule parts and clause	FCC 15.247(a)(1) / IC RSS-210 A8.1				
Test according to	Reference Method				
measurement reference	FCC Public Notice DA 00-705				
Toot fraguency range		Tested frequencies			
Test frequency range	F <sub>LOW</sub> / F <sub>MID</sub> / F <sub>HIGH</sub>				
Limits					
Limit	Limit Condition				
1.5 · Carrier spacing		Output power ≤ 125 mW / 21 dBm			
1.0 · Carrier spacing		125 mW / 21 dBm < Output power ≤ 1 W / 30 dBm			
Test setup					
	Spectr Analy				

# Test procedure

- 1. EUT set to test mode (Communication tester is used if needed)
- 2. Span set to at least twice the emission spectrum
- 3. Detector set to peak and max hold
- 4. Envelope peak value of emission spectrum is selected
- 5. Marker on envelope of spectrum is set to level of -20 dB to the left of the peak
- 6. Marker on envelope of spectrum is set to level of -20 dB to the right of the peak
- 7. 20dB Bandwidth is determined by marker frequency separation

Test results							
Channel	Frequency [MHz]	Mode	20 dB Bandwidth [MHz]	Limit [MHz]	Result		
F <sub>LOW</sub>	2402	DH5-Sngl	0.918	1.5	PASS		
F <sub>MID</sub>	2441	DH5-Sngl	0.919	1.5	PASS		
F <sub>HIGH</sub>	2480	DH5-Sngl	0.923	1.5	PASS		
F <sub>LOW</sub>	2402	2DH5-Sngl	1.312	1.5	PASS		
F <sub>MID</sub>	2441	2DH5-Sngl	1.321	1.5	PASS		
F <sub>HIGH</sub>	2480	2DH5-Sngl	1.323	1.5	PASS		
F <sub>LOW</sub>	2402	3DH5-Sngl	1.345	1.5	PASS		
F <sub>MID</sub>	2441	3DH5-Sngl	1.345	1.5	PASS		
F <sub>HIGH</sub>	2480	3DH5-Sngl	1.334	1.5	PASS		
Comments:							



#### 20 dB Bandwidth - DH5-Sngl F<sub>LOW</sub>

### 20 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

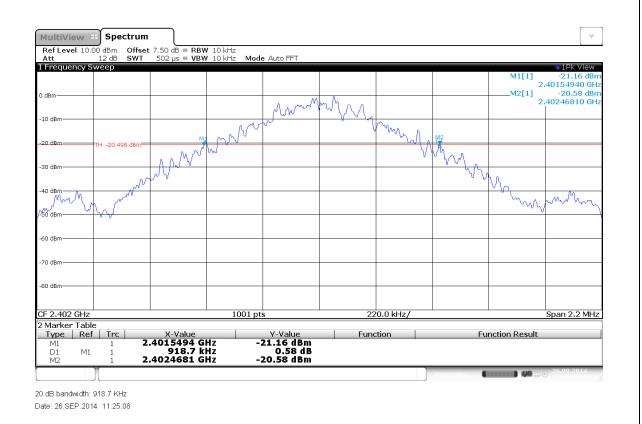
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2402 MHz, DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: FCC part 15 section 247 (a)





# 20 dB Bandwidth - DH5-Sngl F<sub>MID</sub>

### 20 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

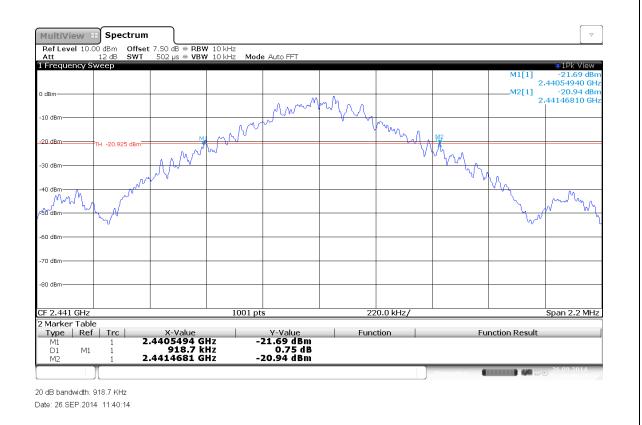
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2441 MHz, DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: FCC part 15 section 247 (a)





# 20 dB Bandwidth - DH5-Sngl F<sub>HIGH</sub>

### 20 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

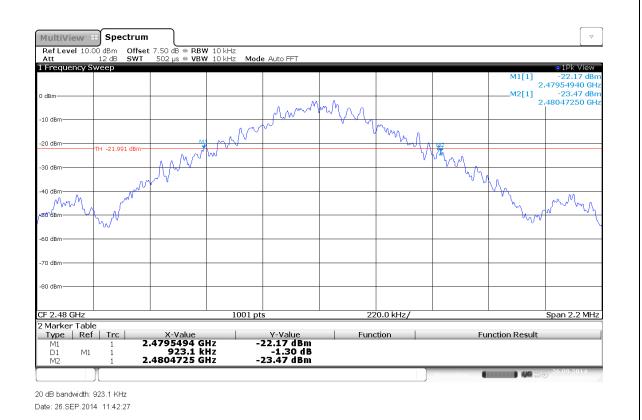
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2480 MHz, DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: FCC part 15 section 247 (a)





# 20 dB Bandwidth - 2-DH5-Sngl FLOW

### 20 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

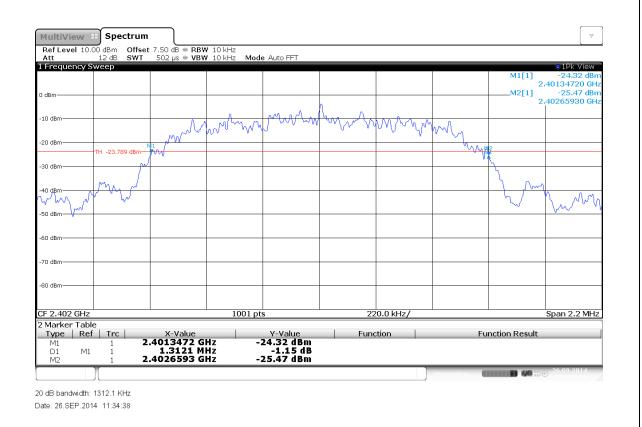
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2402 MHz, 2DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: FCC part 15 section 247 (a)





# 20 dB Bandwidth - 2-DH5-Sngl F<sub>MID</sub>

### 20 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

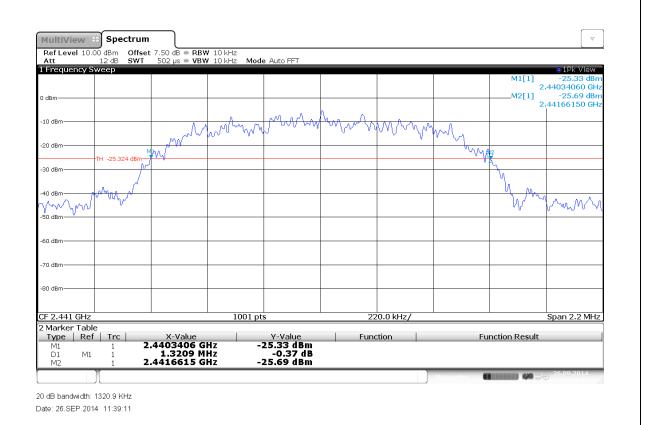
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2441 MHz, 2DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: FCC part 15 section 247 (a)





# 20 dB Bandwidth - 2-DH5-Sngl FHIGH

### 20 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

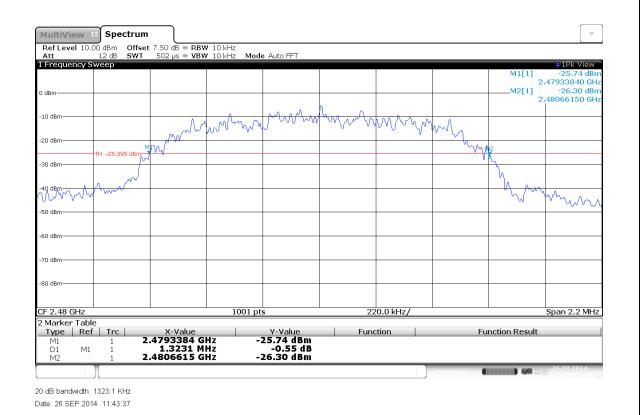
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2480 MHz, 2DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: FCC part 15 section 247 (a)





## 20 dB Bandwidth - 3-DH5-Sngl F<sub>LOW</sub>

### 20 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

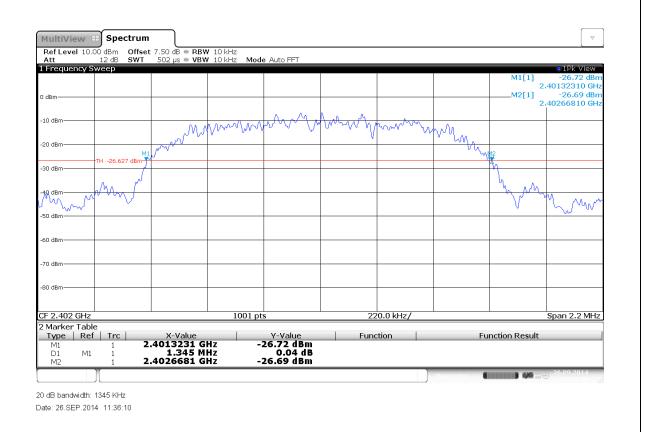
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2402 MHz, 3DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: FCC part 15 section 247 (a)





#### 20 dB Bandwidth - 3-DH5-Sngl F<sub>MID</sub>

#### 20 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

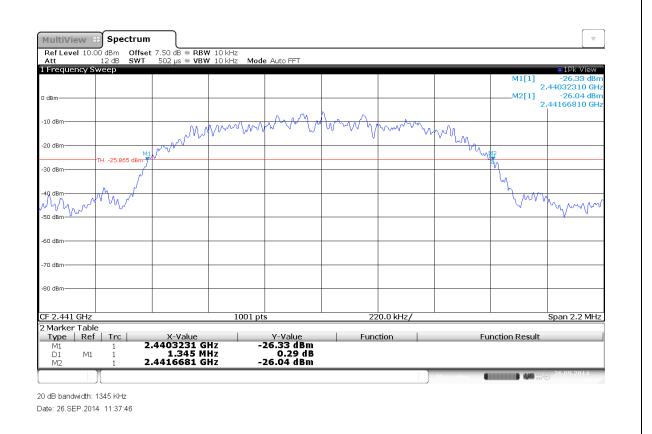
Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2441 MHz, 3DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: FCC part 15 section 247 (a)

Note 2:





#### 20 dB Bandwidth - 3-DH5-Sngl F<sub>HIGH</sub>

#### 20 dB Bandwidth acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

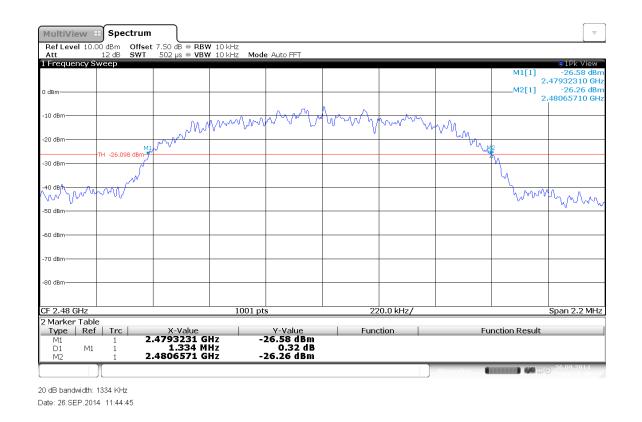
Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2480 MHz, 3DH-5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: FCC part 15 section 247 (a)

Note 2:





#### 3.3 Test Conditions and Results - Number of hopping frequencies

Number of hopping frequencies acc. FCC 15.247 / IC RSS-210 Verdict: PASS						
EUT requirement		Reference				
rule parts and clause	ı	FCC 15.247(a)(1)(iii) / IC RSS-210 A	8.1			
Test according to		Reference Method				
measurement reference		FCC Public Notice DA 00-705				
		Tested frequencies				
Test frequency range		F <sub>LOW</sub> - F <sub>HIGH</sub>				
EUT test mode		DH5-Hop				
	Limi	ts				
Limit		Condition				
Number of hopping channels ≥	15	Output power ≤ 125 mW / 2	21 dBm			
Number of hopping channels ≥	≥ 75 125 mW / 21 dBm < Output power ≤ 1 W / 30 dBm					
	Test se	etup				
	pectrum Analyzer	EUT				
	Test prod	cedure				
1. EUT set to test mode (Communication tester is used if needed) 2. Span set to measurement frequency range 3. Detector set to peak and max hold 4. Resolution bandwidth is set small enough to resolve hopping channel emission spectra 5. The number of peaks is counted to determine number of hopping frequencies						
Test results						
Number of hopping frequence	cies	Limit	Result			
79		≥ 15	PASS			
Comments:		·				



#### Number of hopping frequencies - Range A

# Number of Hopping Frequencies acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

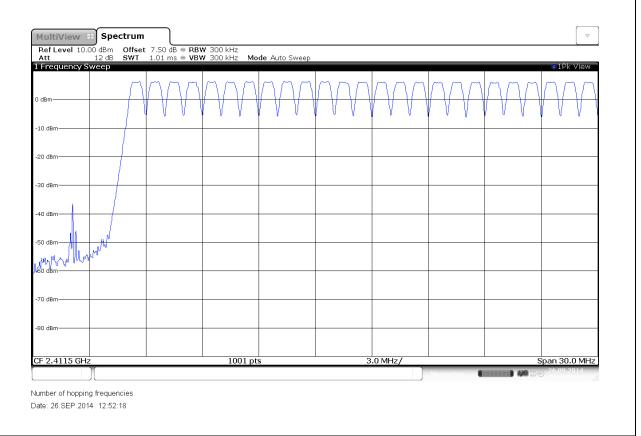
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, DH5, hopping mode

Test Date: 2014-09-26 Verdict: PASS

Note 1: Number of Hopping Frequencies (DA 00-705 Meas Guidance)





#### Number of hopping frequencies - Range B

# Number of Hopping Frequencies acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

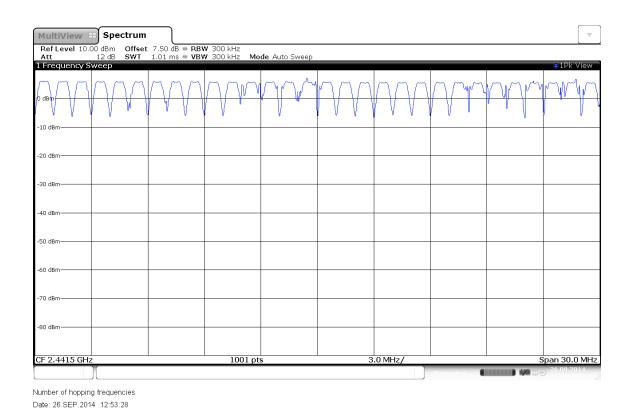
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, DH5, hopping mode

Test Date: 2014-09-26 Verdict: PASS

Note 1: Number of Hopping Frequencies (DA 00-705 Meas Guidance)





#### Number of hopping frequencies - Range C

# Number of Hopping Frequencies acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

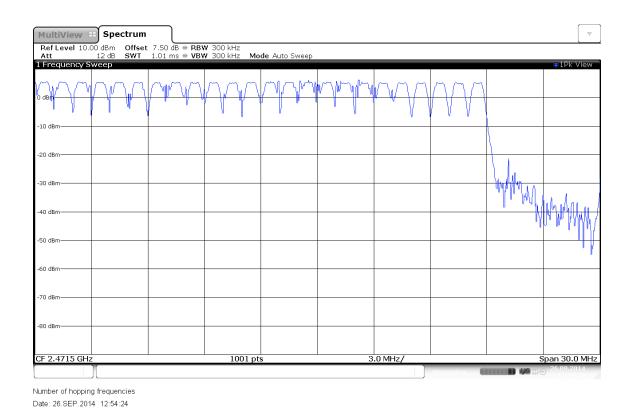
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, DH5, hopping mode

Test Date: 2014-09-26 Verdict: PASS

Note 1: Number of Hopping Frequencies (DA 00-705 Meas Guidance)





#### 3.4 Test Conditions and Results – Frequency hopping channel separation

Frequency hopping channel separation acc. FCC 15.247 / IC RSS-210 Verdict: PASS						
EUT requirement		Reference				
rule parts and clause		FCC 15.247(a)(1) / IC RSS-210 A8.1				
Test according to		Reference Method				
measurement reference		FCC Public Notice DA 00-705				
Teet frequency range		Tested frequencies				
Test frequency range		2441 & 2442 MHz				
EUT test mode	DH5-Hop					
Limits						
Limit		Condition				
≥ 25 kHz or ¾ of 20 dB bandwid	dth	Output power ≤ 125 mW / 21 dBm				
≥ 25 kHz or 20 dB bandwidth	l	125 mW / 21 dBm < Output power ≤ 1 W / 30 dBm				
	Test	setup				
Spectrum Analyzer EUT						
	Test pr	ocedure				

- 1. EUT set to test mode (Communication tester is used if needed)
- 2. Span set to measurement frequency range
- 3. Detector set to peak and max hold
- 4. Resolution bandwidth is set small enough to resolve hopping channel emission spectra
- 5. The two adjacent channel peaks are marked
- 6. Channel separation is determined from frequency separation of markers

Test results						
Channel separation [kHz] Limit [kHz] Result						
1000	≥ 3/3 · 918 = 612	PASS				
Comments:						



# Frequency hopping channel separation

# Carrier Frequency Separation acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

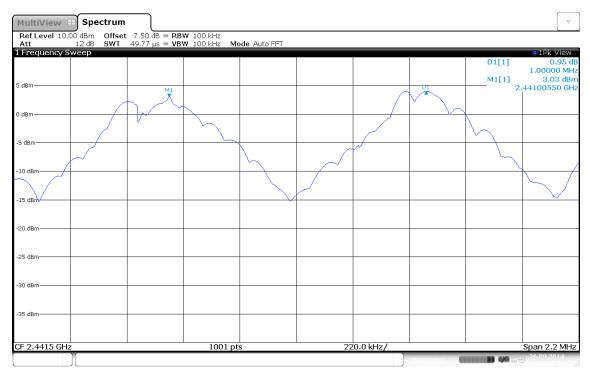
Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, DH5, hopping mode

Test Date: 2014-09-26 Verdict: PASS

Note 1: Carrier Frequency Separation (DA 00-705 Meas Guidance)

Note 2: conducted measurement



Limit: > two-thirds of the 20 dB bandwidth; Result: Pass

Date: 26.SEP.2014 12:57:51



# 3.5 Test Conditions and Results – Time of occupancy (Dwell Time)

Time of occupancy (Dwell time) acc. FCC 15.247 / IC RSS-210 Verdict: PASS							
EUT requirement		Reference					
rule parts and clause	FCC 15.	247(a)(1)(iii) / IC RSS-21	10 A8.1				
Test according to		Reference Method					
measurement reference	FC	C Public Notice DA 00-70	05				
,		Tested frequencies					
Test frequency range		2441 MHz					
EUT test mode		DH5-Hop					
	Limits						
	Limit						
 Time of occupancy ≤	0.4 s within 0.4 s · Nun	nber of hopping channels	 S				
	Test setup	11 3 11	-				
	Spectrum Analyzer	EUT					
	Test procedure						
EUT set to test mode (Communication)	cation tester is used if r	needed)					
2. Center frequency set to test cha		,					
3. Span set to zero span and detec	ctor to peak and max ho	old					
4. Resolution bandwidth is set to 1	00kHz and sweep time	to observation period					
5. Time of occupancy determined from number of peaks multiplied by single hop dwell time							
Test results							
Observation period [s] No. of hops	Dwell time/hop [ms]	Time of occupancy [s]	Limit [s]	Result			
31.6 96	2.89	0.277	≤ 0.4	PASS			
Comments:		,					



#### Time of occupancy

# Time of Occupancy acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

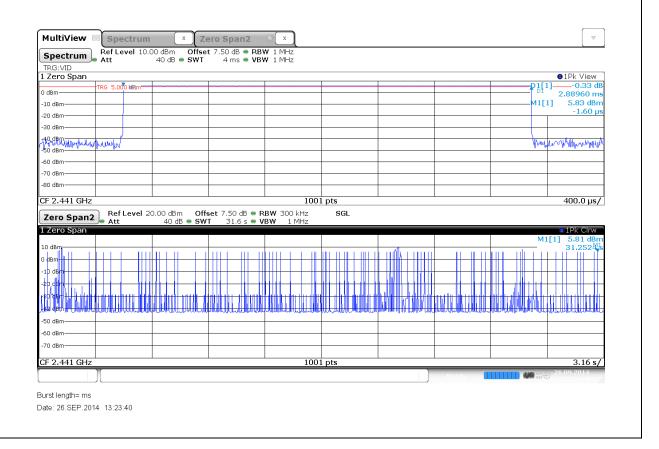
Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, DH5, channel 2441MHz, hopping mode

Test Date: 2014-09-26 Verdict: PASS

Note 1: 96 events \* 2.89 ms; Result: 277.44ms Limit<0.4s

Note 2: conducted measurement, (DA 00-705 Meas Guidance)

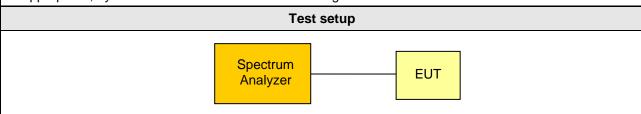




#### 3.6 Test Conditions and Results - Maximum peak conducted power

Maximum peak conducted power acc. FCC 15.247 / IC RSS-210 Verdict: PASS					
EUT requirement		Reference			
rule parts and clause		FCC 15.247(b)(1) / IC RSS-210	A8.4		
Test according to		Reference Method			
measurement reference		FCC Public Notice DA 00-705			
Took fragues and rooms	Tested frequencies				
Test frequency range	F <sub>LOW</sub> / F <sub>MID</sub> / F <sub>HIGH</sub>				
Measurement mode		Peak			
Maximum antenna gain		5 dBi ⇒ Limit correction = 0 d	dB		
	Lin	nits			
Limit		Condition			
1 W (30 dBm)		Number of hopping channels ≥ 75			
0.125 W (21 dBm)		75 > Number of hopping channels ≥ 15			

The conducted output power limit specified above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in the table, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



#### Test procedure

- 1. EUT set to test mode (Communication tester is used if needed)
- 2. Center frequency set to test channel center frequency
- 3. Span set to twice the 20 dB bandwidth and detector to peak and max hold
- 4. Resolution bandwidth is set to 3 MHz
- 5. Peak conducted power is determined from peak of spectrum envelope



# **Product Service**

Test results									
Channel	nnel Frequency [MHz] Voltage Mode Peak power [dbm] Limit [dBm] Margin [dB] Res								
F <sub>LOW</sub>	2402	3.7 VDC	DH5-Sngl	6.2	30	-23.80	PASS		
F <sub>MID</sub>	2441	3.7 VDC	DH5-Sngl	5.8	30	-24.20	PASS		
F <sub>HIGH</sub>	2480	3.7 VDC	DH5-Sngl	5.2	30	-24.80	PASS		
F <sub>LOW</sub>	2402	3.7 VDC	2DH5-Sngl	6.5	30	-23.50	PASS		
F <sub>MID</sub>	2441	3.7 VDC	2DH5-Sngl	5.8	30	-24.20	PASS		
F <sub>HIGH</sub>	2480	3.7 VDC	2DH5-Sngl	5.2	30	-24.80	PASS		
F <sub>LOW</sub>	2402	3.7 VDC	3DH5-Sngl	6.9	30	-23.10	PASS		
F <sub>MID</sub>	2441	3.7 VDC	3DH5-Sngl	6.3	30	-23.70	PASS		
F <sub>HIGH</sub>	2480	3.7 VDC	3DH5-Sngl	5.7	30	-24.30	PASS		
Comments	s:								



#### 3.7 Test Conditions and Results – AC power line conducted emissions

Power line conducte	Verdict: PASS						
Test according referenced			Reference Method				
standards	S			ANSI C63.4			
Fully configured sample	e scanned over		F	requency range			
the following freque	ency range		0.1	5 MHz to 30 MHz			
Points of Appli	Points of Application Application Interface						
AC Mains	S		LISN				
EUT test me	ode		AC-Powerline				
		Limit	s and results				
Frequency [MHz]	Quasi-Peak [	dBµV]	Result	Average [dBµV]	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 w	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

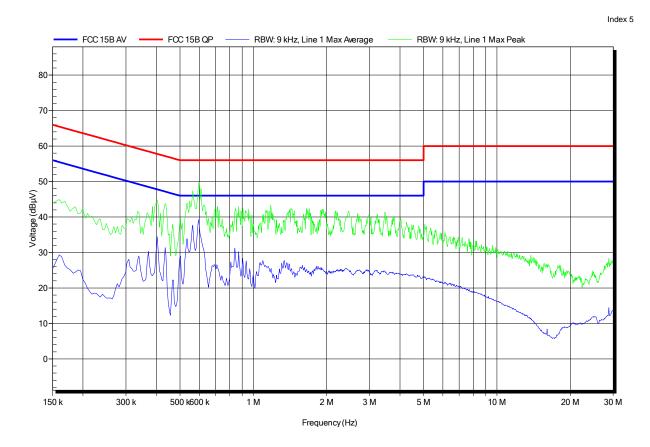
Test Conditions: Tnom: 23°C, Unom: 120VAC(AC/DC-adapter,AN4111)

LISN: ESH2-Z5 L

Mode: charging+GSM900MHz,pl5+WLAN

Test Date: 2014-08-26

Note:





#### 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)

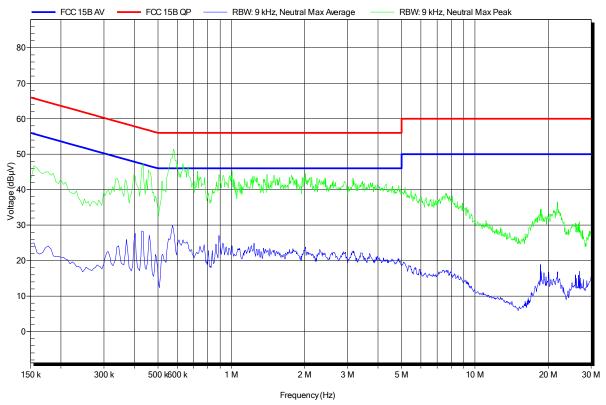
LISN: ESH2-Z5 N

Mode: charging+GSM900MHz,pl5+WLAN

Test Date: 2014-08-26

Note:

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#### 3.8 Test Conditions and Results – Band edge compliance

Band-edge compliance acc. FCC 1	Band-edge compliance acc. FCC 15.247 / IC RSS-210 Verdict: PASS				
EUT requirement		Reference			
rule parts and clause		FCC 15.247(d) / IC RSS-210 A8.5			
Test according to		Reference Method			
measurement reference		FCC Public Notice DA 00-705			
Toot fraguency range		Tested frequencies			
Test frequency range	F <sub>LOW</sub> / F <sub>HIGH</sub>				
Measurement mode	Peak				
	Lin	nits			
Limit		Condition			
≤ -20 dB/100 kHz		Peak power measurement detector = Peak			
≤ -30 dB/100 kHz		Peak power measurement detector = RMS			
	Test	setup			
	pectrum nalyzer	EUT			

#### **Test procedure**

- 1. EUT set to test mode (Communication tester is used if needed)
- 2. Span set around lower band edge and detector is set to peak and max hold
- 3. Resolution bandwidth is set to 100 kHz
- 4. Markers are set to peak emission levels within frequency band and outside frequency band
- 5. Band edge attenuation is determined from level difference

Test results									
Channel	Frequency [MHz]	Mode	Level [dBc]	Limit [dBc]	Margin [dB]	Result			
F <sub>LOW</sub>	2402	DH5-Sngl	-51.9	-20	-31.90	PASS			
F <sub>HIGH</sub>	2480	DH5-Sngl	-43.6	-20	-23.60	PASS			
F <sub>LOW</sub>	2402	DH5-Hop	-59.7	-20	-39.70	PASS			
F <sub>HIGH</sub>	2480	DH5-Hop	-57.7	-20	-37.70	PASS			
F <sub>LOW</sub>	2402	2DH5-Sngl	-38.9	-20	-18.90	PASS			
F <sub>HIGH</sub>	2480	2DH5-Sngl	-48.0	-20	-28.00	PASS			
F <sub>LOW</sub>	2402	2DH5-Hop	-47.5	-20	-27.50	PASS			
F <sub>HIGH</sub>	2480	2DH5-Hop	-50.3	-20	-30.30	PASS			

Test Report No.: G0M-1407-3973-TFC247BT-V01



# **Product Service**

$F_{LOW}$	2402	3DH5-Sngl	-45.9	-20	-25.90	PASS
F <sub>HIGH</sub>	2480	3DH5-Sngl	-47.9	-20	-27.90	PASS
F <sub>LOW</sub>	2402	3DH5-Hop	-47.5	-20	-27.50	PASS
F <sub>HIGH</sub>	2480	3DH5-Hop	-48.4	-20	-28.40	PASS
Comments:						



#### Band-edge compliance - DH5-Sngl F<sub>LOW</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

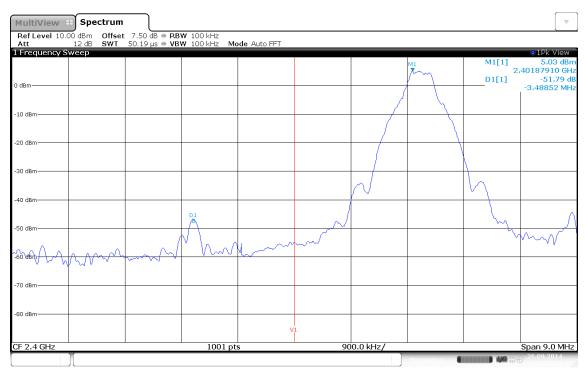
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, DH5, 2402 MHz

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:32:31



#### Band-edge compliance - DH5-Sngl F<sub>HIGH</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

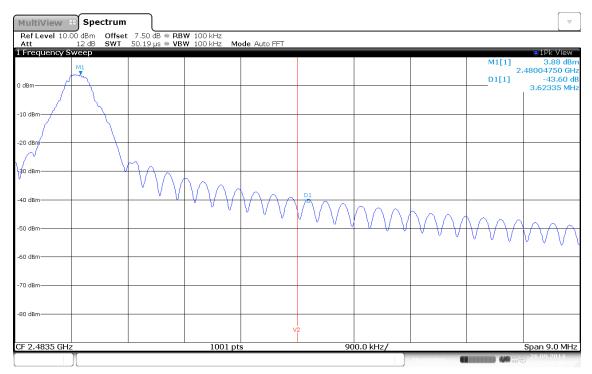
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, DH5, 2480 MHz

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:41:09



#### Band-edge compliance - DH5-Hop F<sub>LOW</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

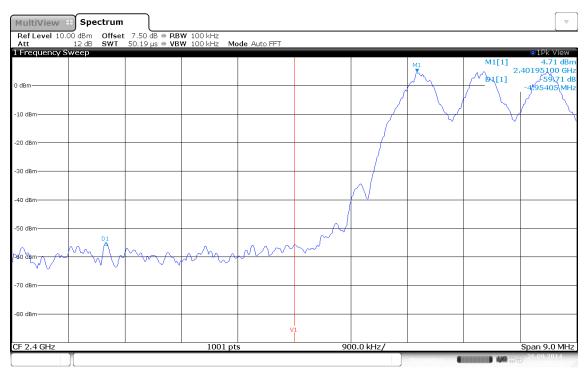
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, DH5, 2402 MHz, hopping

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:58:13



#### Band-edge compliance - DH5-Hop F<sub>HIGH</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

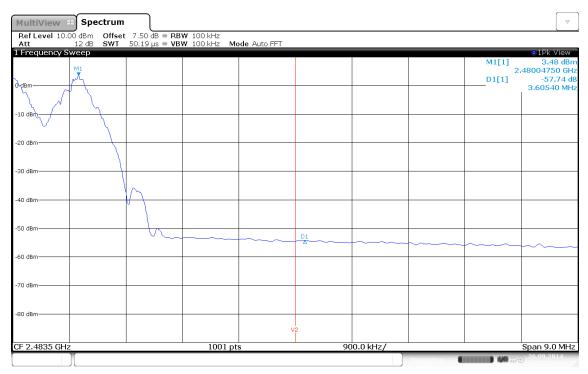
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, DH5, 2480 MHz, hopping

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:53:43



# Band-edge compliance - 2-DH5-Sngl F<sub>LOW</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

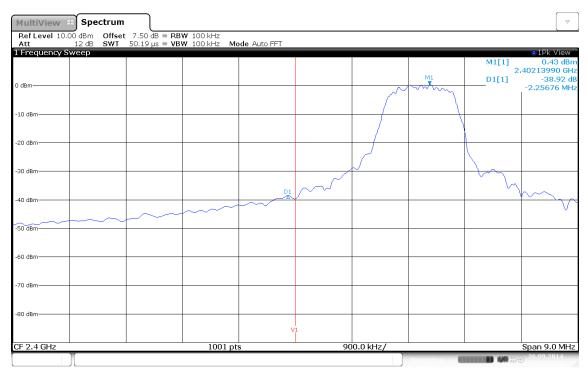
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, 2-DH5, 2402 MHz

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:37:53



#### Band-edge compliance - 2-DH5-Sngl F<sub>HIGH</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

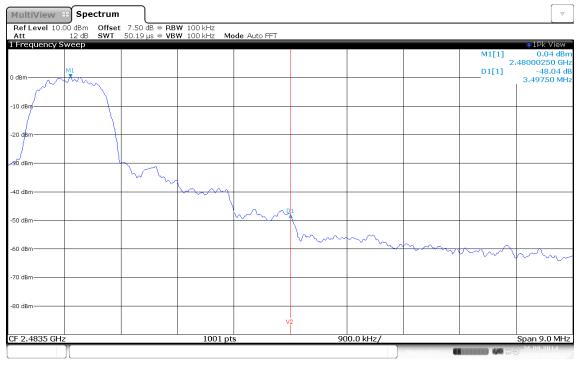
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, 2-DH5, 2480 MHz

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:39:27



#### Band-edge compliance - 2-DH5-Hop F<sub>LOW</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

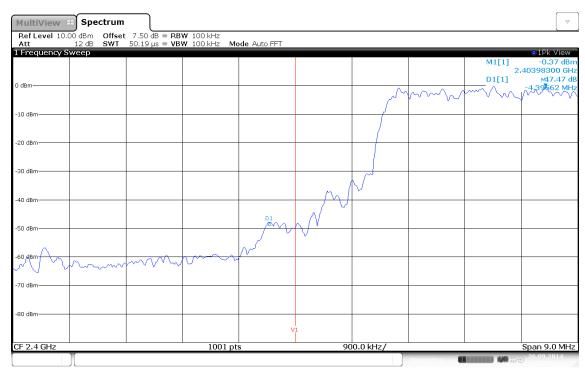
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, 2-DH5, 2402 MHz, hopping

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:56:11



#### Band-edge compliance - 2-DH5-Hop F<sub>HIGH</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

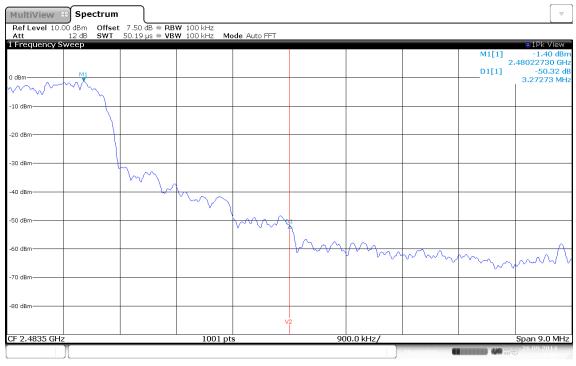
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, 2-DH5, 2480 MHz, hopping

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:55:00



# Band-edge compliance - 3-DH5-Sngl F<sub>LOW</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

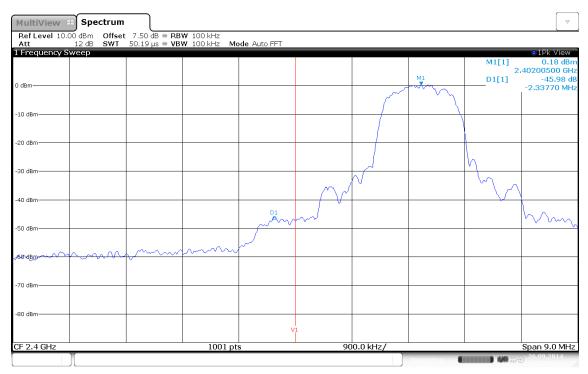
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, 3-DH5, 2402 MHz

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:34:12



#### Band-edge compliance - 3-DH5-Sngl F<sub>HIGH</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

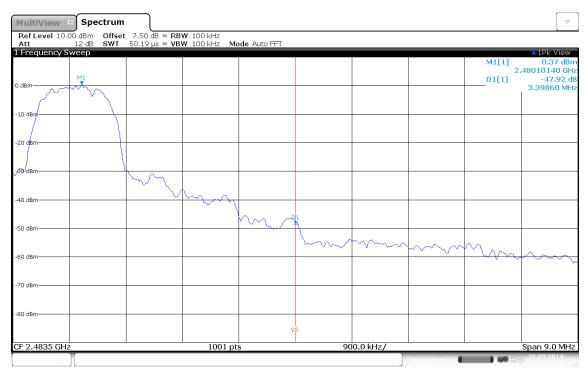
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, 3-DH5, 2480 MHz

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:42:25



#### Band-edge compliance - 3-DH5-Hop F<sub>LOW</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

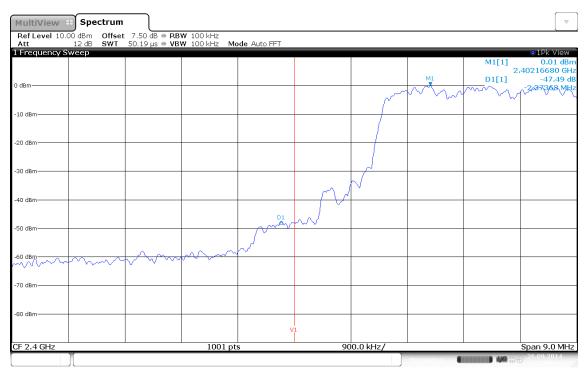
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, 3-DH5, 2402 MHz, hopping

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:49:46



#### Band-edge compliance - 3-DH5-Hop F<sub>HIGH</sub>

# Band-edge compliance acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

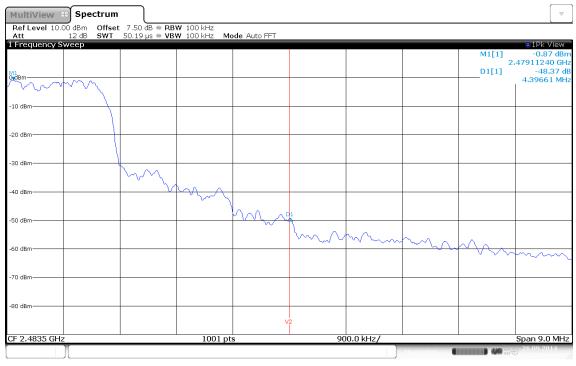
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, 3-DH5, 2480 MHz, hopping

Test Date: 2014-09-26 Verdict: PASS

Note 1: Marker-delta method (DA 00-705 Meas Guidance)
Note 2: upper Band-edge, conducted measurement



Limit: Marker Delta value >20 dB; Result: PASS

Date: 26.SEP.2014 13:51:43



#### 3.9 Test Conditions and Results - Conducted spurious emissions

Conducted spurious emissions acc. FCC 15.247 / IC RSS-210 Verdict: PASS						
EUT requirement		Reference				
rule parts and clause		FCC 15.247(d) / IC RSS-210 A8.5				
Test according to		Reference Method				
measurement reference		FCC Public Notice DA 00-705				
Toot fraguency range		Tested frequencies				
Test frequency range	10 MHz – 10 <sup>th</sup> Harmonic					
Measurement mode	Peak					
	Lin	nits				
Limit		Condition				
≤ -20 dB/100 kHz		Peak power measurement detector = Peak				
≤ -30 dB/100 kHz		Peak power measurement detector = RMS				
	Test	setup				
	pectrum analyzer	EUT				

#### **Test procedure**

- 1. EUT set to test mode (Communication tester is used if needed)
- 2. Span it set according to measurement range
- 3. Resolution bandwidth is set to 100 kHz and detector to peak and max hold
- 4. Markers are set to peak emission levels within frequency band
- 5. Emission level is determined by second marker on emission peak
- 6. Attenuation is determined from level difference

Test results							
Channel	Frequency [MHz]	Mode	Emission [MHz]	Emission Level [dbm]	Limit [dBm]	Margin [dB]	Result
$F_{LOW}$	2402	DH5-Sngl	4804	-47.4	-14.6	-32.8	PASS
F <sub>MID</sub>	2441	DH5-Sngl	4882	-41.8	-14.8	-27.0	PASS
F <sub>HIGH</sub>	2480	DH5-Sngl	4960	-42.8	-15.4	-27.4	PASS
F <sub>LOW</sub>	2402	3DH5-Sngl	4804	-52.1	-18.7	-33.4	PASS
F <sub>MID</sub>	2441	3DH5-Sngl	4882	-46.9	-18.6	-28.3	PASS
F <sub>HIGH</sub>	2480	3DH5-Sngl	4960	-50.5	-19.1	-31.4	PASS
Comments:							

Test Report No.: G0M-1407-3973-TFC247BT-V01



# Conducted spurious emissions - DH5-Sngl F<sub>LOW</sub>

#### **Spurious Emissions acc. to FCC 15.247**

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

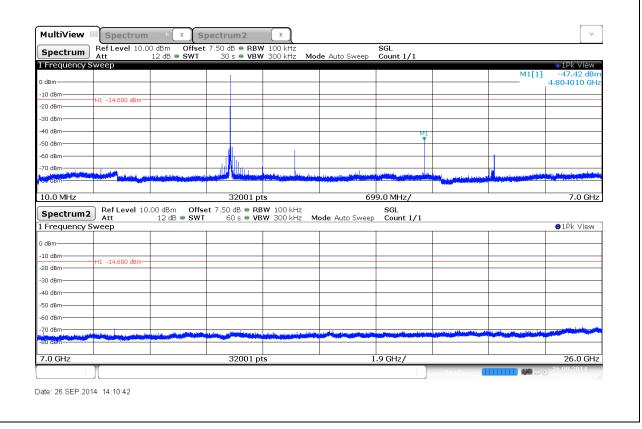
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2402 MHz, DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: Spurious in non-restricted frequency bands (DA 00-705 Meas Guidance)





#### Conducted spurious emissions - DH5-Sngl F<sub>MID</sub>

# Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

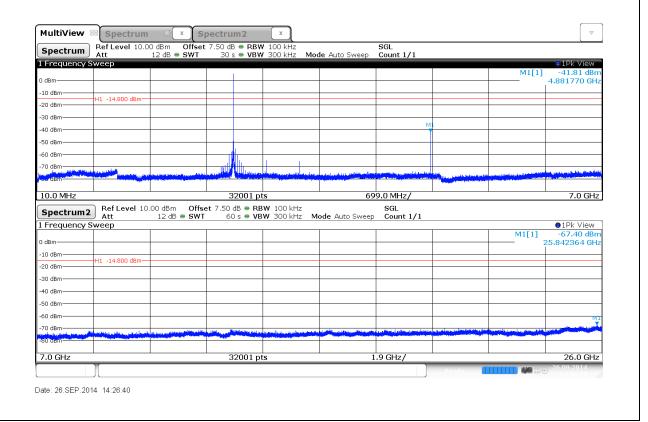
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2441 MHz, DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: Spurious in non-restricted frequency bands (DA 00-705 Meas Guidance)





# Conducted spurious emissions - DH5-Sngl F<sub>HIGH</sub>

# Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

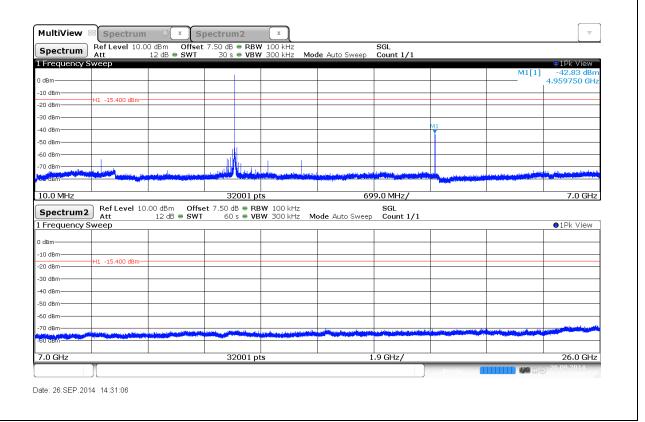
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2480 MHz, DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: Spurious in non-restricted frequency bands (DA 00-705 Meas Guidance)





# Conducted spurious emissions - 3-DH5-Sngl F<sub>LOW</sub>

# Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

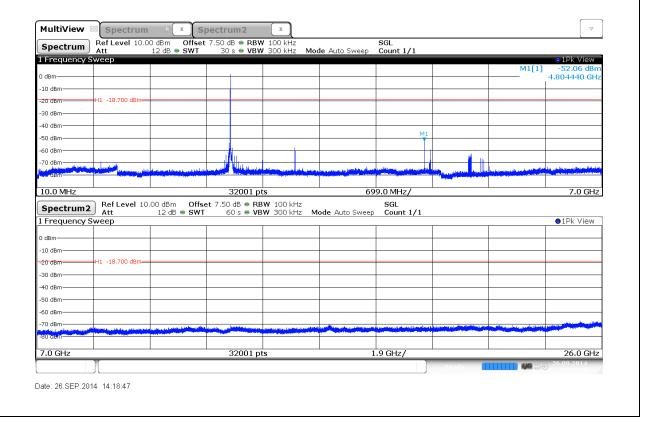
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2402 MHz, 3-DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: Spurious in non-restricted frequency bands (DA 00-705 Meas Guidance)





#### Conducted spurious emissions – 3-DH5-Sngl F<sub>MID</sub>

# Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

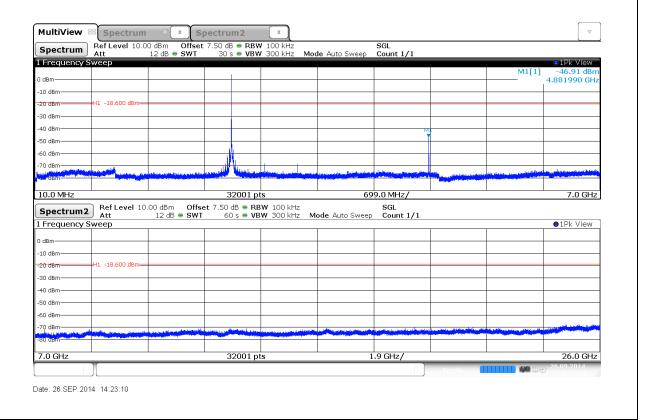
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2441 MHz, 3-DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: Spurious in non-restricted frequency bands (DA 00-705 Meas Guidance)





# Conducted spurious emissions – 3-DH5-Sngl F<sub>HIGH</sub>

# Spurious Emissions acc. to FCC 15.247

Project Number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

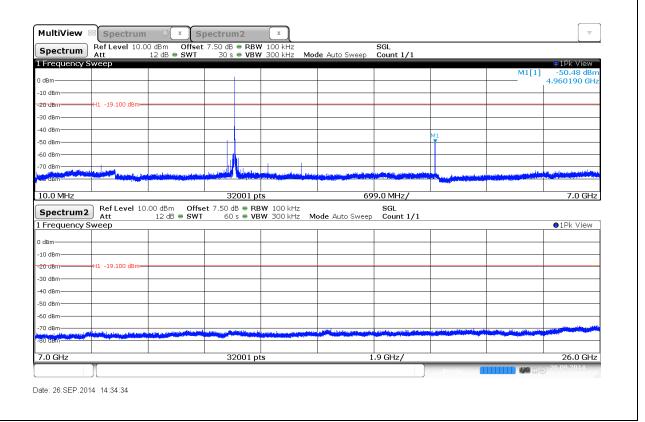
Test Site: Eurofins Product Service GmbH

Operator: Toralf Jahn
Test Conditions: Tnom / Vnom

Mode: Tx, BT, 2480 MHz, 3-DH5 modulated

Test Date: 2014-09-26 Verdict: PASS

Note 1: Spurious in non-restricted frequency bands (DA 00-705 Meas Guidance)



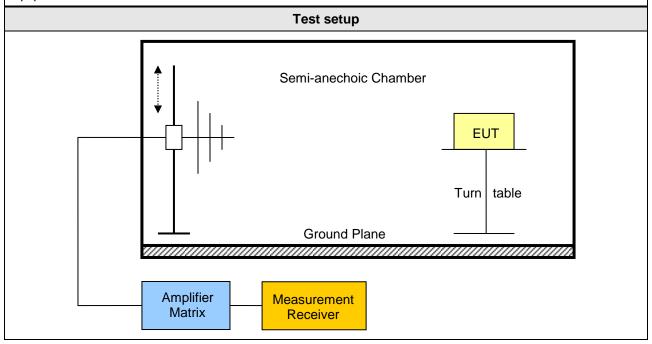


#### 3.10 Test Conditions and Results - Transmitter radiated emissions

Transmitter radiated emissions acc. FCC 47 CFR 15.247 / IC RSS-210 Verdict: PASS							
Test according referenced standards		Reference Method					
		FCC 15.247(d) / IC RSS-210 A8.5					
Test according to measurement reference		Reference Method					
		FCC Public Notice DA 00-705 / ANSI C63.4					
T(		Tested frequencies					
rest frequency ra	Test frequency range		30 MHz – 10 <sup>th</sup> Harmonic				
		Limits					
Frequency range [MHz]	Detector	Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]			
30 – 88	Quasi-Peak	100	40	3			
88 – 216	Quasi-Peak	150	43.5	3			
216 – 960	Quasi-Peak	200	46	3			
960 – 1000	Quasi-Peak	500	54	3			
> 1000	500	54	3				

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

When average radiated emission measurements are specified, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.



Test Report No.: G0M-1407-3973-TFC247BT-V01



#### **Test procedure**

- 1. EUT set to test mode (Communication tester is used if needed)
- 2. Span it set according to measurement range
- 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz
- 4. Markers are set to peak emission levels within restricted bands

Test results – Internal Antenna									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [dbµV/m]	Det.	Pol.	Limit [dbµV/m]	Limit dist. [m]*	Margin [dB]
F <sub>HIGH</sub>	2480	3-DH5-Sngl	2483.5	64.09	pk	hor	74.00	3	-09.91
F <sub>HIGH</sub>	2480	3-DH5-Sngl	2483.5	51.20	RMS	hor	54.00	3	-02.80
F <sub>HIGH</sub>	2480	3-DH5-Sngl	2500	46.95	pk	hor	74.00	3	-27.05
F <sub>HIGH</sub>	2480	3-DH5-Sngl	2503	49.90	pk	hor	95.00	3	-45.10
F <sub>HIGH</sub>	2480	3-DH5-Sngl	4960	57.06	pk	hor	74.00	3	-16.94
F <sub>HIGH</sub>	2480	3-DH5-Sngl	4960	47.82	avg	hor	54.00	3	-06.18
F <sub>MID</sub>	2441	3-DH5-Sngl	4882	54.75	pk	ver	74.00	3	-19.25
F <sub>MID</sub>	2441	3-DH5-Sngl	4882	46.55	avg	ver	54.00	3	-07.45
F <sub>HIGH</sub>	2480	DH5-Sngl	2483.5	55.41	pk	hor	74.00	3	-18.59
F <sub>HIGH</sub>	2480	DH5-Sngl	2483.5	48.76	RMS	hor	54.00	3	-05.24
F <sub>HIGH</sub>	2480	DH5-Sngl	2500	36.94	pk	hor	74.00	3	-37.06
F <sub>HIGH</sub>	2480	DH5-Sngl	2503	51.08	pk	hor	95.00	3	-43.92
F <sub>HIGH</sub>	2480	DH5-Sngl	4960	57.48	pk	hor	74.00	3	-16.52
F <sub>HIGH</sub>	2480	DH5-Sngl	4960	52.43	avg	hor	54.00	3	-01.57
F <sub>LOW</sub>	2402	DH5-Sngl	17988	49.01	pk	hor	74.00	3	-24.99
F <sub>LOW</sub>	2402	DH5-Sngl	22981	43.79	pk	hor	74.00	3	-30.21
F <sub>MID</sub>	2441	DH5-Sngl	4882	55.07	pk	hor	74.00	3	-18.93
F <sub>MID</sub>	2441	DH5-Sngl	4882	49.87	avg	hor	54.00	3	-04.13
Comments:	Comments: * Physical distance between EUT and measurement antenna.								

Test Report No.: G0M-1407-3973-TFC247BT-V01



Matrix

### 3.11 Test Conditions and Results - Receiver radiated emissions

Receiver radiated emissions acc. to IC RSS-210 Verdict: PASS								
Test according referenced			Reference Method					
standards		IC RSS-210 A8.5						
Test according to				Reference Method				
measurement refere	ence			ANSI C63.4				
Tost frequency ran	.00			Tested frequencies				
Test frequency ran	ige	30 MHz – 3 <sup>th</sup> Harmonic						
EUT test mode				Receive				
			Limits					
Frequency range [MHz]	Detector		Limit [µV/m]	Limit [dBµV/m]	Limit Distance [m]			
30 – 88	Quasi-Peal		100	40	3			
88 – 216	Quasi-Pea	ık	150	43.5	3			
216 – 960	Quasi-Pea	ık	200	46	3			
960 – 1000	Quasi-Pea	ık	500	54	3			
> 1000	> 1000 Average		500	54	3			
			Test setup					
<b>♣</b>			Semi-anechoic Ch	amber  EUT  Turn tabl	le			
Ar	mplifier	N	Measurement					

Receiver



#### **Test procedure**

- 1. EUT set to receive mode (Communication tester is used if needed)
- 2. Span it set according to measurement range
- 3. Resolution bandwidth below 1 GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1 MHz with peak/average detector is used above 1 GHz
- 4. Markers are set to peak emission levels

Test results								
Channel	Emission [MHz]	Emission Level [dbµV/m]	Polarization	Det.	Limit [µV/m]	Margin [db]	Result	
RX; Scan Mode	224	19.51	hor	pk	46	-26.49	Pass	

#### Comments:

<sup>\*</sup> Physical distance between EUT and measurement antenna.

<sup>\*\*</sup> Emission level corresponds to ambient noise floor



# ANNEX A Transmitter radiated spurious emissions

#### Spurious emissions according to FCC 15.247

Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

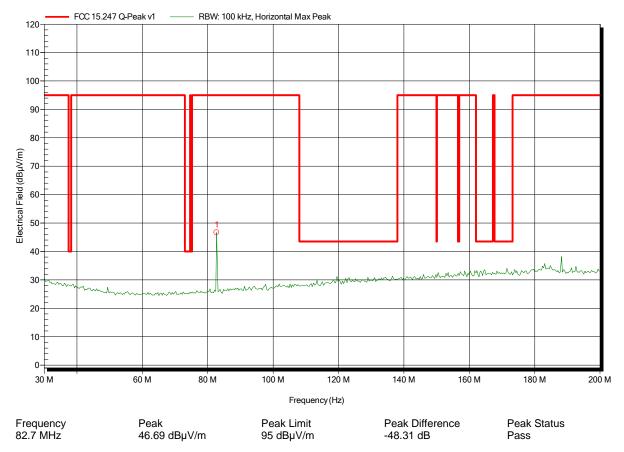
Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HK 116, Horizontal

Measurement distance: 3 m

Mode: Basic Rate; Worst Case

Test Date: 2014-09-24 Note: worst case

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Test Report No.: G0M-1407-3973-TFC247BT-V01



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

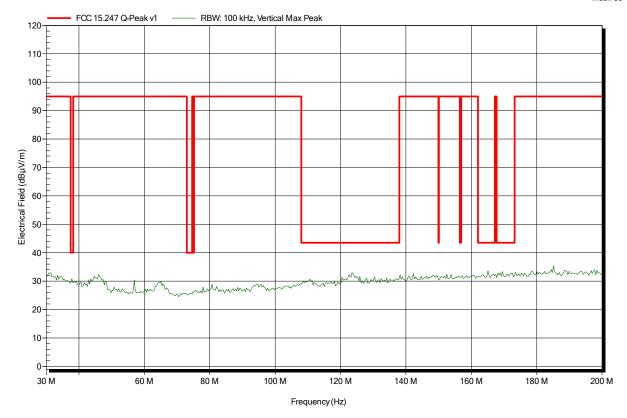
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HK 116, Vertical

Measurement distance: 3 m

Mode: Basic Rate; Worst Case

Test Date: 2014-09-24 Note: worst case





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

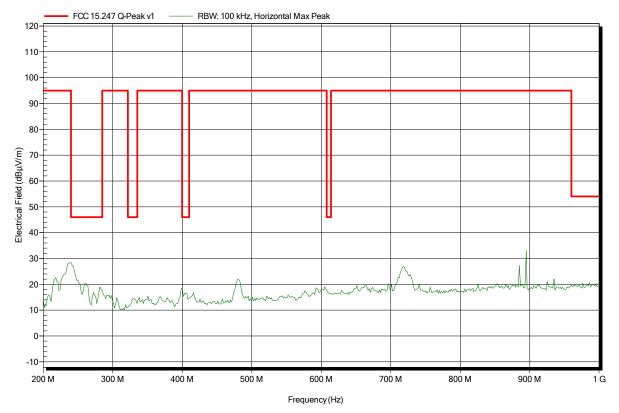
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HL 223, Horizontal

Measurement distance: 3 m

Mode: Basic Rate; Worst Case

Test Date: 2014-09-24 Note: worst case





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

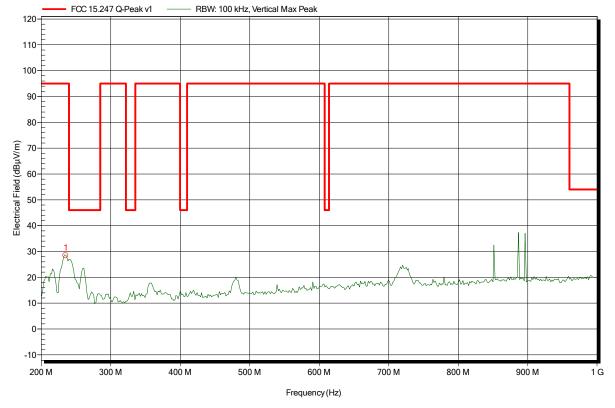
Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HL 223, Vertical

Measurement distance: 3 m

Mode: Basic Rate; Worst Case

Test Date: 2014-09-24 Note: worst case

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Frequency 235.2 MHz Peak 28.48 dBµV/m Peak Limit 95 dBµV/m Peak Difference -66.52 dB Peak Status Pass



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

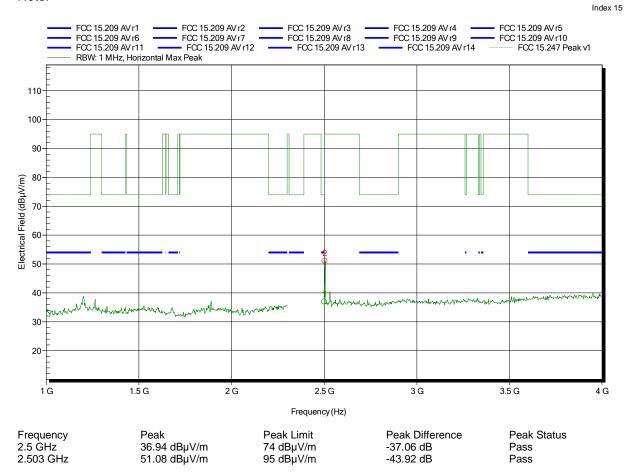
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: BASIC RATE; Fhigh

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

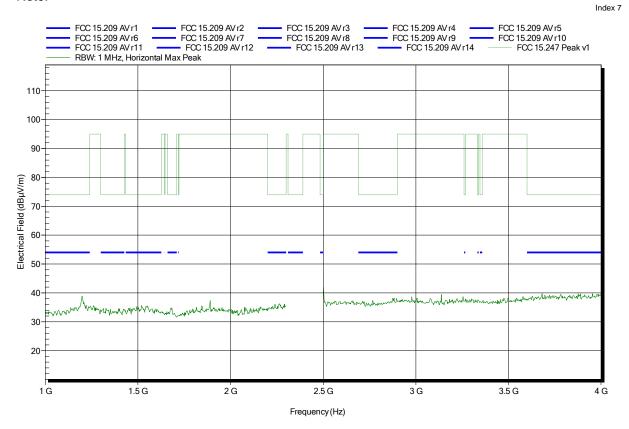
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 n

Mode: BASIC RATE; Flow

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

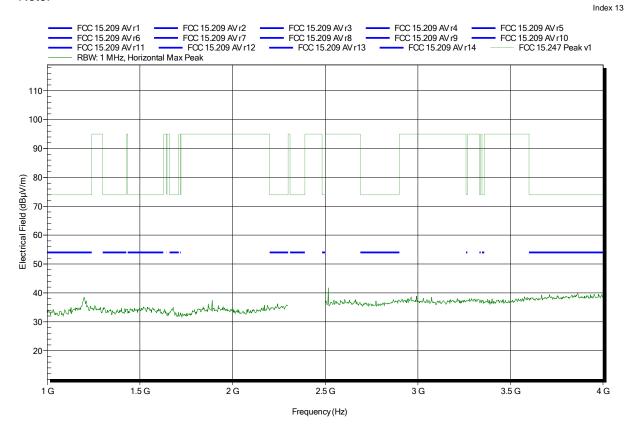
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: BASIC RATE; Fmid

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

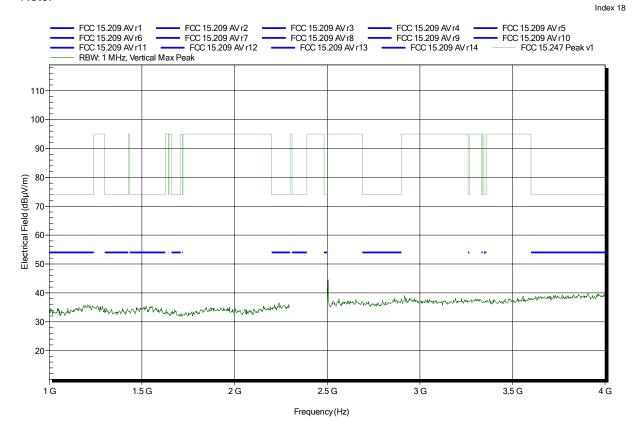
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: BASIC RATE; Fhigh

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

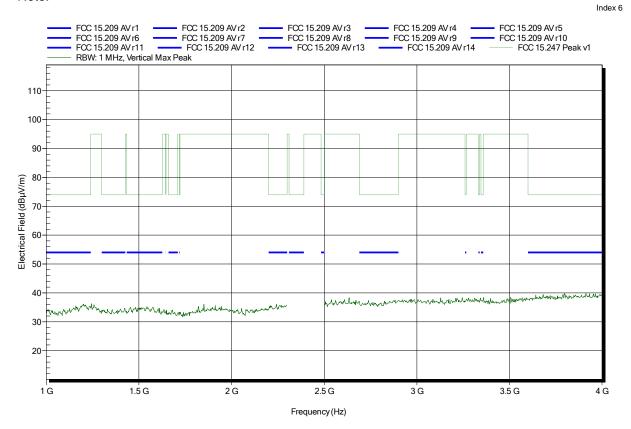
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: BASIC RATE; Flow

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

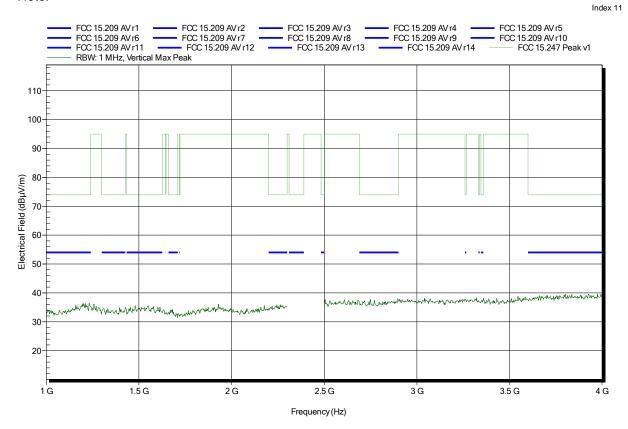
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: BASIC RATE; Fmid

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

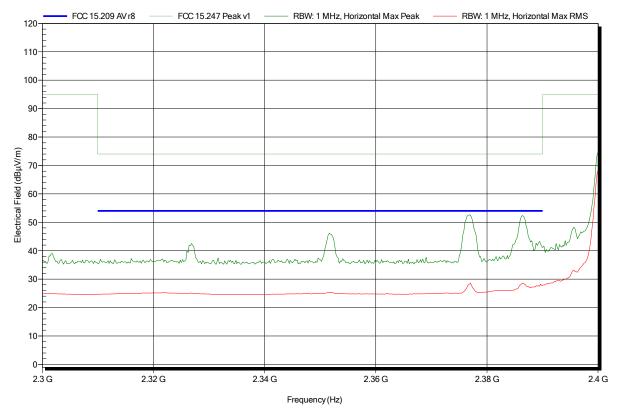
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 n

Mode: BASIC RATE; Flow

Test Date: 2014-09-22 Note: lower bandedge





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: BASIC RATE; Flow

Test Date: 2014-09-22 Note: lower bandedge

FCC 15.247 Peak v1 - RBW: 1 MHz, Vertical Max Peak ------ RBW: 1 MHz, Vertical Max RMS FCC 15.209 AV r8 120 110 100 90-80 Electrical Field (dBμV/m) 70 60 50 40 30 20 10 2.32 G 2.34 G 2.36 G 2.38 G 2.3 G 2.4 G Frequency (Hz)



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

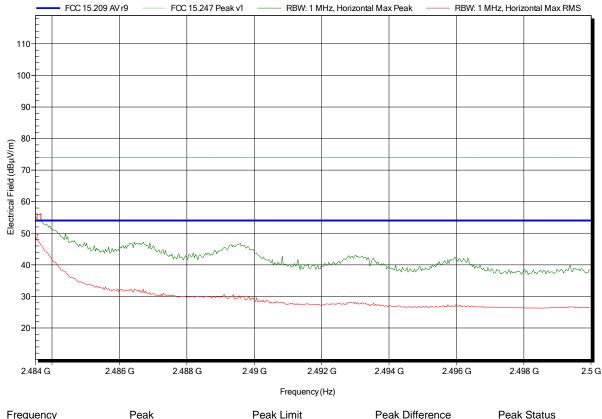
Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: BASIC RATE; Fhigh

Test Date: 2014-09-22 Note: upper bandedge

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Frequency RMS RMS Limit RMS Difference RMS Status 2.4835 GHz 48.76 dB $\mu$ V/m 54 dB $\mu$ V/m -5.24 dB Pass



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

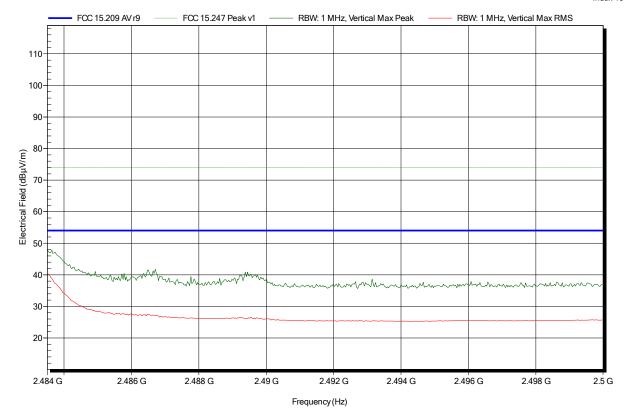
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: BASIC RATE; Fhigh

Test Date: 2014-09-22 Note: upper bandedge





Project number: G0M-1407-3973

Applicant: **BARTEC PIXAVI AS** 

**EUT Name:** Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

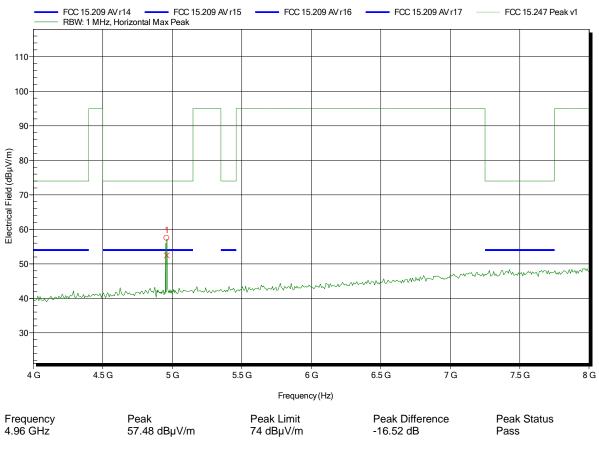
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Schwarzbeck BBHA 9120D, Horizontal Antenna:

Measurement distance:

Mode: BASIC RATE; Fhigh

Test Date: 2014-09-22



4.96 GHz	57.48 dBμV/m	74 dBμV/m	-16.52 dB	Pass
Frequency	Average	Average Limit	Average Difference	Average Status
4.96 GHz	52.43 dBμV/m	54 dBµV/m	-1.57 dB	Pass



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

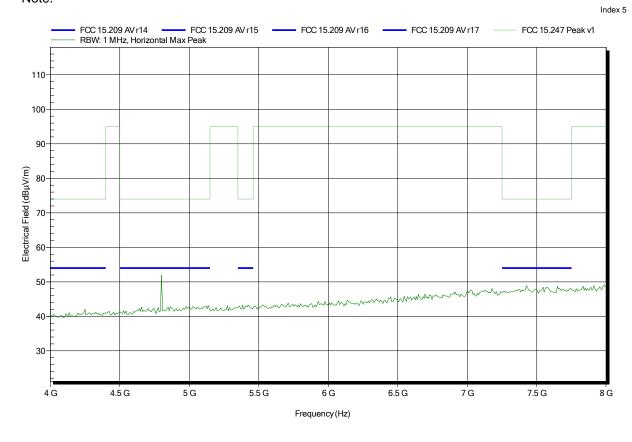
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 n

Mode: BASIC RATE; Flow

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

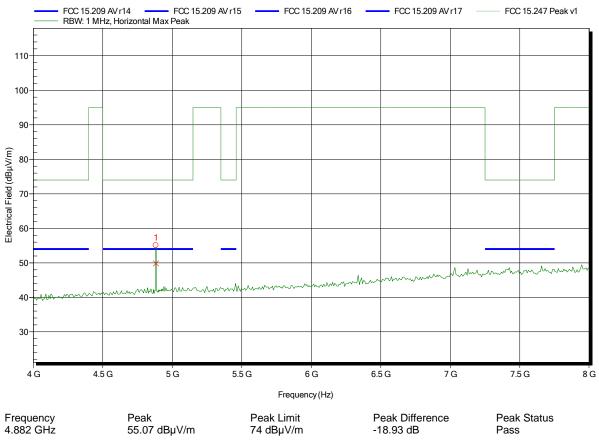
Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: BASIC RATE; Fmid

Test Date: 2014-09-22

Note:



4.882 GHz 55.07 dB $\mu$ V/m 74 dB $\mu$ V/m -18.93 dB Pass Frequency Average Average Limit Average Difference Average Status 49.87 dB $\mu$ V/m 54 dB $\mu$ V/m -4.13 dB Pass



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

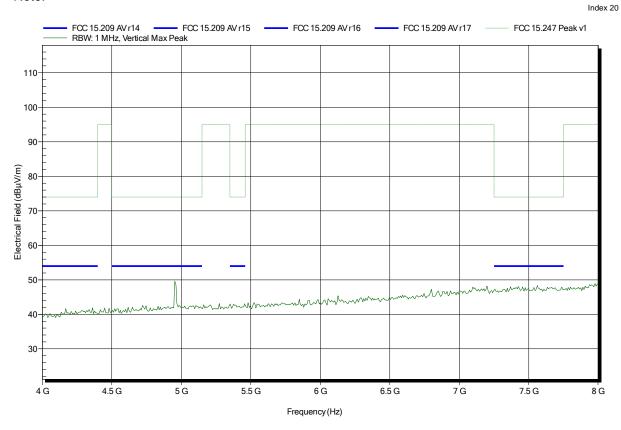
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 n

Mode: BASIC RATE; Fhigh

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

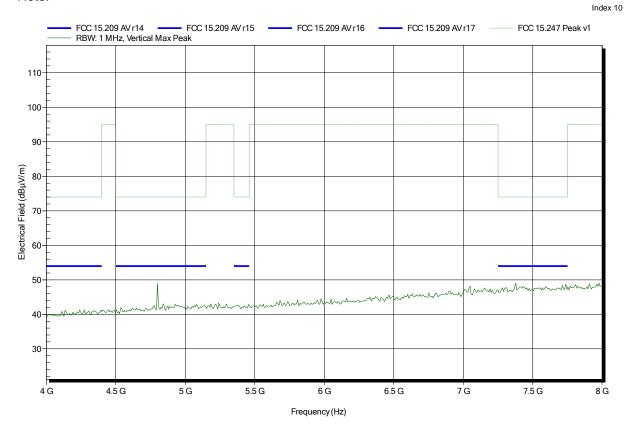
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: BASIC RATE; Flow

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

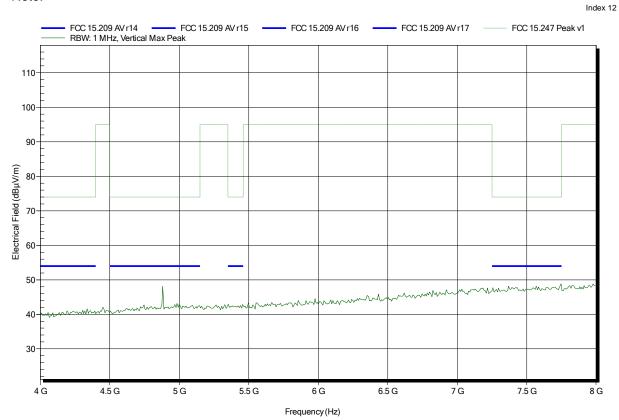
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: BASIC RATE; Fmid

Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

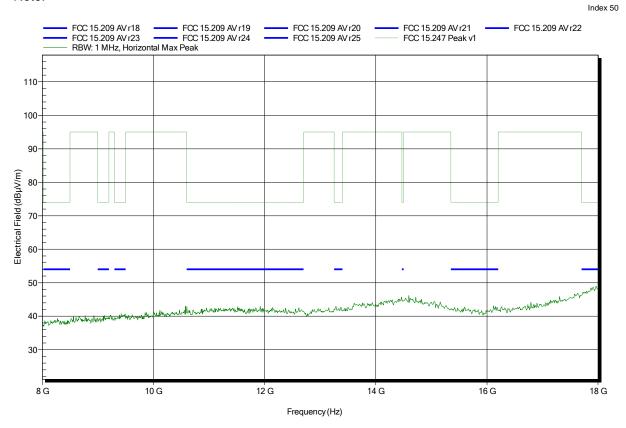
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 1 m converted to 3m Mode: BASIC RATE; Fhigh

Test Date: 2014-09-24





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

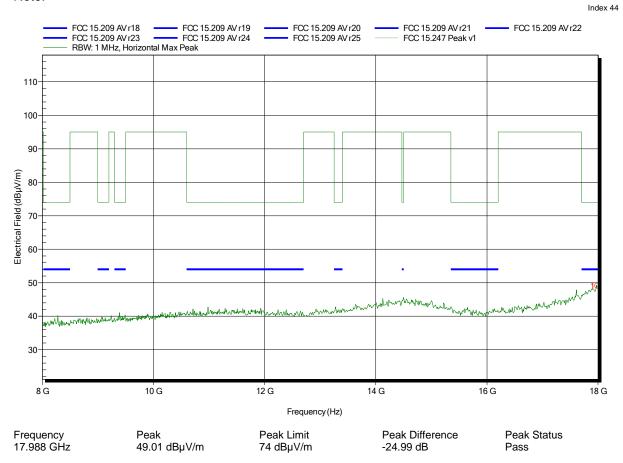
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 1 m converted to 3m Mode: BASIC RATE; Flow

Test Date: 2014-09-24





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

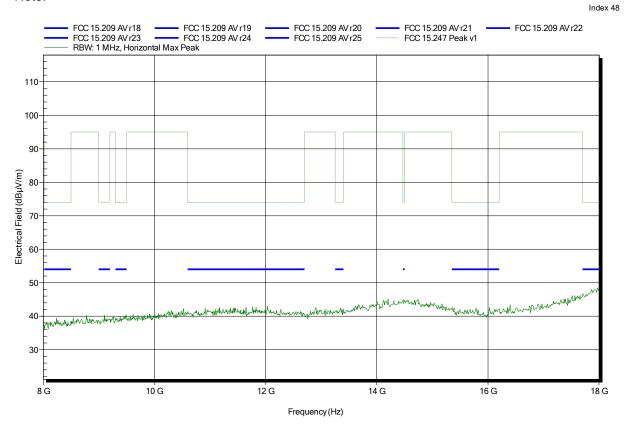
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 1 m converted to 3m Mode: BASIC RATE; Fmid

Test Date: 2014-09-24





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

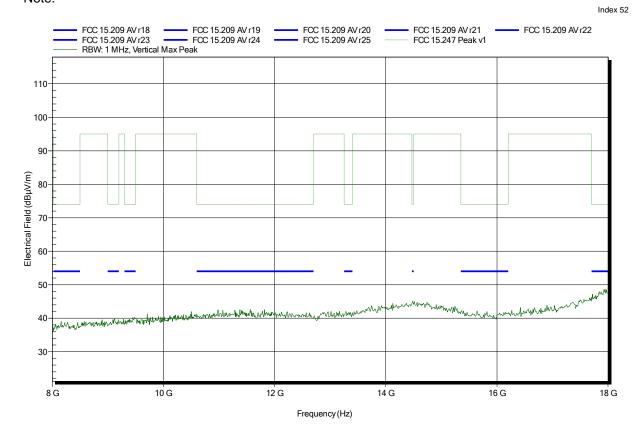
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m Mode: BASIC RATE; Fhigh

Test Date: 2014-09-24





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

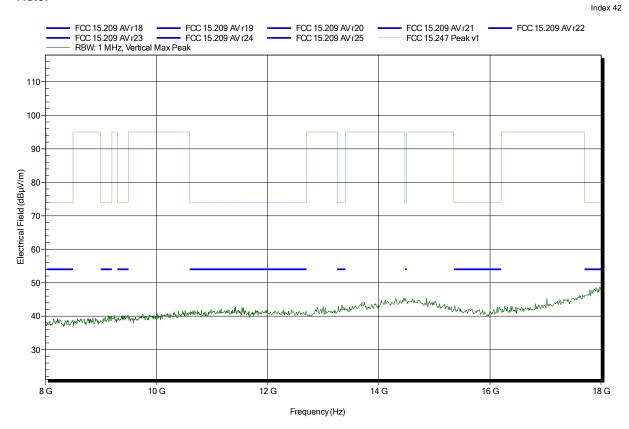
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m Mode: BASIC RATE; Flow

Test Date: 2014-09-24





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

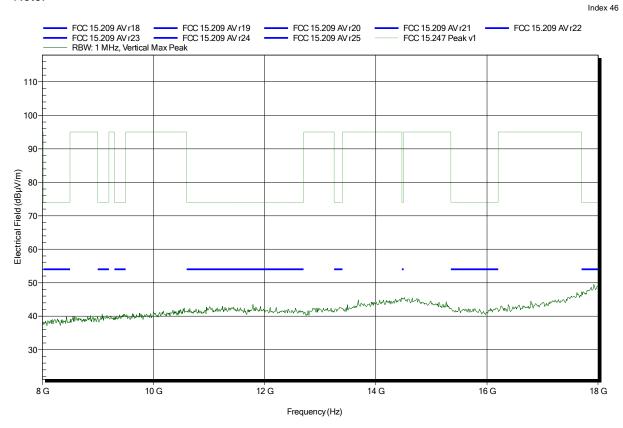
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 1 m converted to 3m Mode: BASIC RATE; Fmid

Test Date: 2014-09-24





Project number: G0M-1407-3973

Applicant: **BARTEC PIXAVI AS** 

**EUT Name:** Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

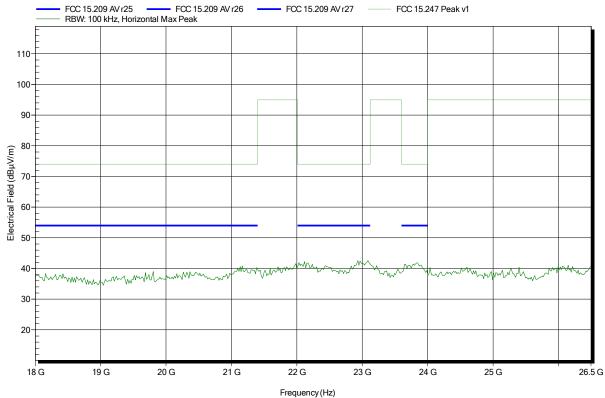
Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HL 025, Horizontal

Measurement distance:

Mode: BASIC RATE; Fhigh

Test Date: 2014-09-24

Note:





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HL 025, Horizontal

Measurement distance: 1 m

Mode: BASIC RATE; Flow

Test Date: 2014-09-24

Note:

Index 45 FCC 15.209 AV r26 FCC 15.209 AV r27 FCC 15 247 Peak v1 FCC 15 209 AV r25 RBW: 100 kHz, Horizontal Max Peak 110 100 90 Electrical Field (dBμV/m) 70 50 30-19 G 20 G 21 G 22 G 23 G 24 G 25 G 26.5 G 18 G Frequency (Hz) Frequency Peak Peak Limit Peak Difference Peak Status 43.79 dBµV/m 22.981 GHz  $74 \; dB\mu V/m$ -30.21 dB Pass



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HL 025, Horizontal

Measurement distance: 1 m

Mode: BASIC RATE; Fmid

Test Date: 2014-09-24

Note:

Index 49 FCC 15.209 AV r26 FCC 15.209 AV r27 FCC 15.247 Peak v1 FCC 15 209 AV r25 RBW: 100 kHz, Horizontal Max Peak 110 100 90 Electrical Field (dBμV/m) 70 50 30 19 G 20 G 21 G 22 G 23 G 24 G 25 G 26.5 G 18 G Frequency (Hz)



Project number: G0M-1407-3973

Applicant: **BARTEC PIXAVI AS** 

**EUT Name:** Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

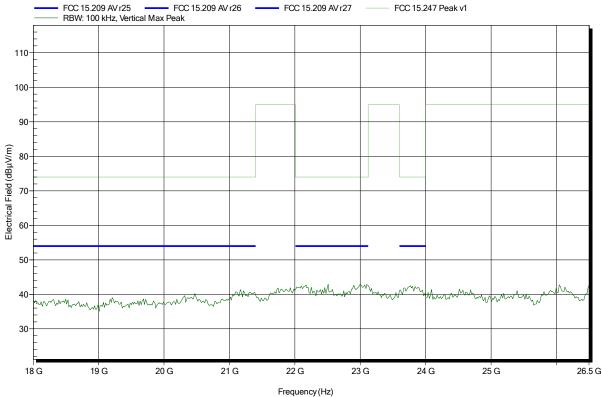
Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Rohde & Schwarz HL 025, Vertical Antenna:

Measurement distance:

Mode: BASIC RATE; Fhigh

Test Date: 2014-09-24

Note:





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

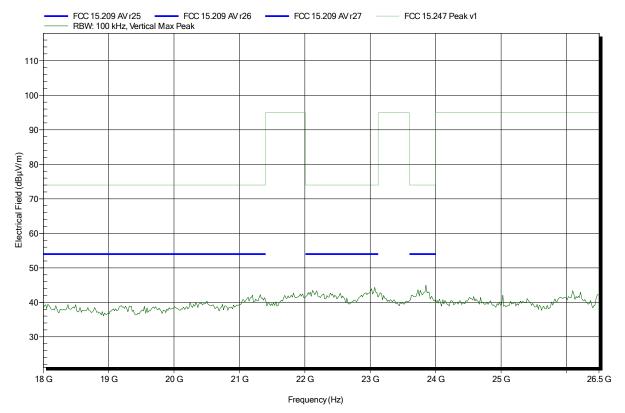
Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HL 025, Vertical

Measurement distance: 1 m

Mode: BASIC RATE; Flow

Test Date: 2014-09-24

Note:





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HL 025, Vertical

Measurement distance: 1 m

19 G

18 G

20 G

21 G

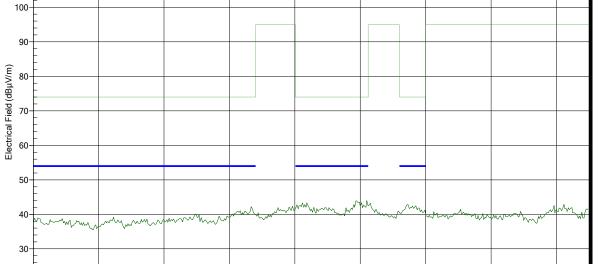
Mode: BASIC RATE; Fmid

Test Date: 2014-09-24

Note:

— FCC 15.209 AV r25 — FCC 15.209 AV r26 — FCC 15.209 AV r27 — FCC 15.247 Peak v1

RBW: 100 kHz, Vertical Max Peak



23 G

24 G

25 G

22 G

Index 47

26.5 G



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

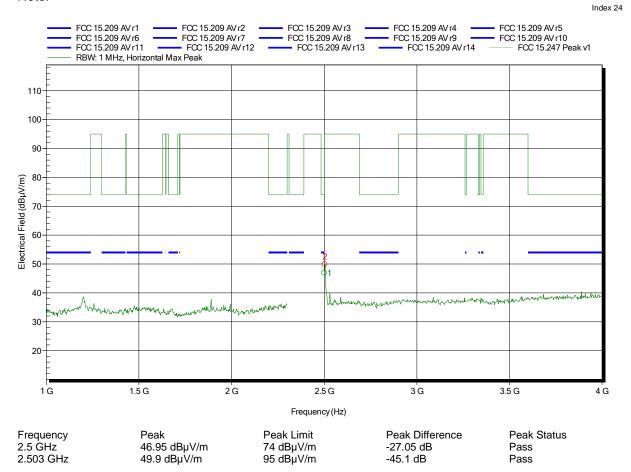
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: TX; EDR Fhigh Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

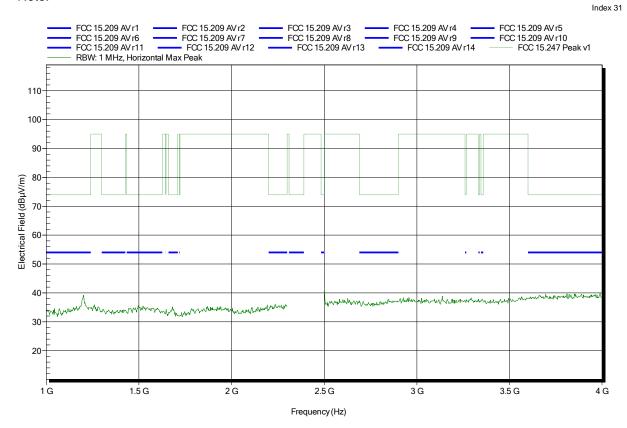
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: TX; EDR Flow Test Date: 2014-09-23





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

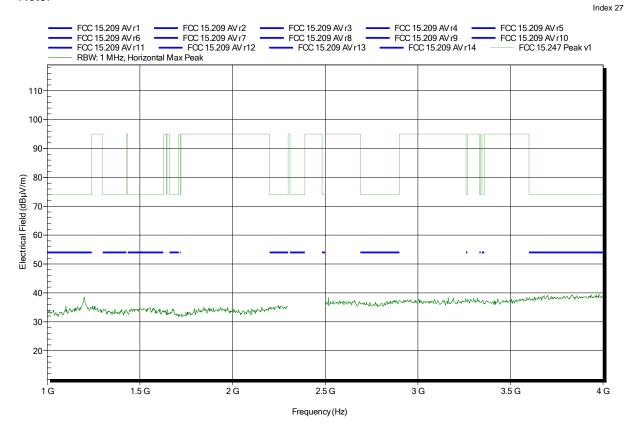
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: TX; EDR Fmid Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

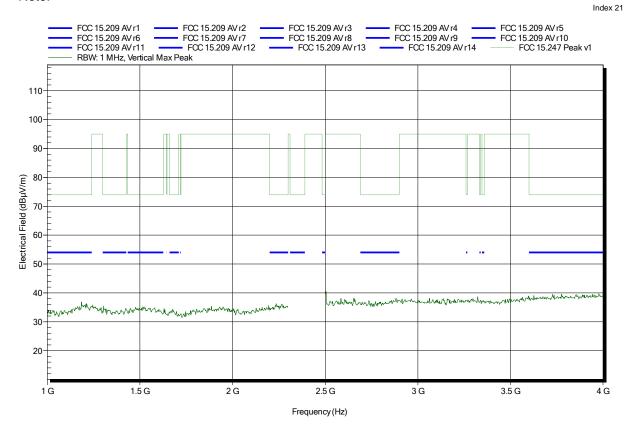
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; EDR Fhigh Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

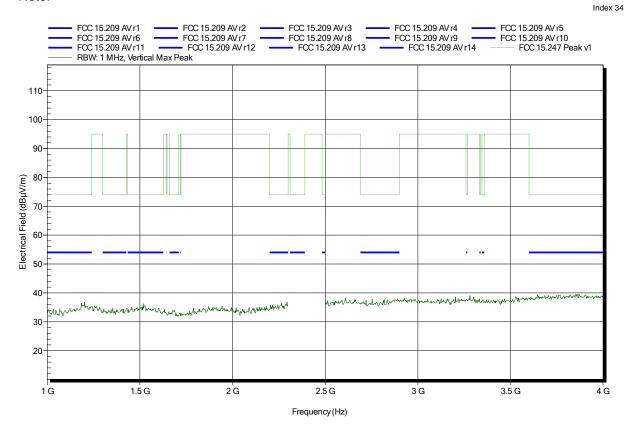
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; EDR Flow Test Date: 2014-09-23





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

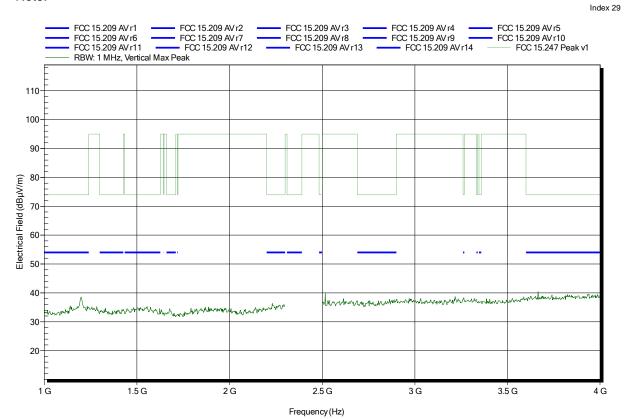
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; EDR Fmid Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

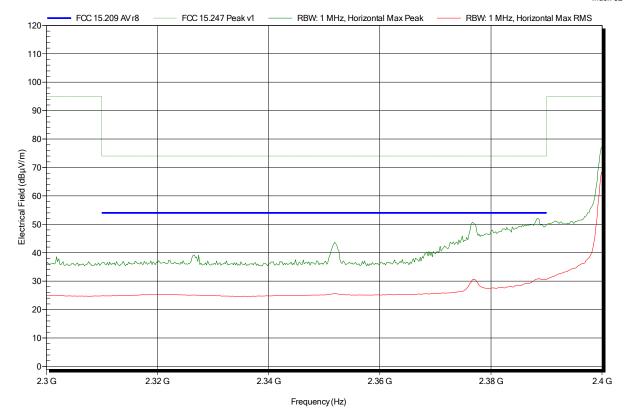
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: TX; EDR Flow
Test Date: 2014-09-23
Note: lower bandedge





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

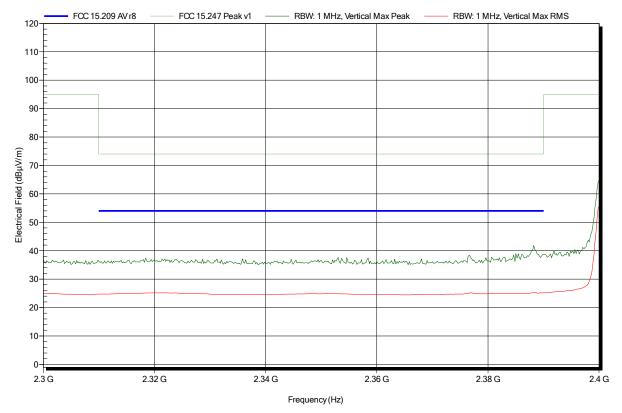
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; EDR Flow
Test Date: 2014-09-23
Note: lower bandedge





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

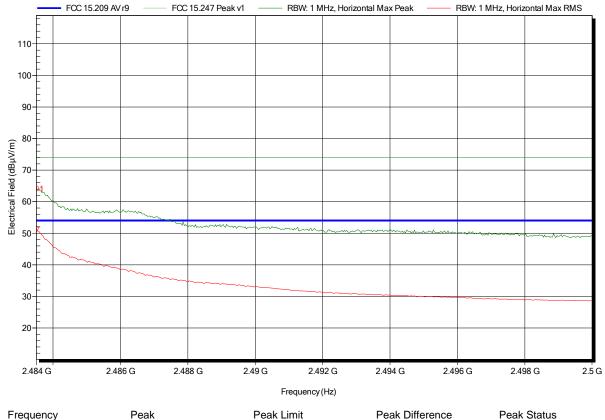
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: TX; EDR Fhigh
Test Date: 2014-09-22
Note: upper bandedge

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Frequency Peak Peak Limit Peak Difference Peak Status 2.4835 GHz  $64.09 \text{ dB}\mu\text{V/m}$   $74 \text{ dB}\mu\text{V/m}$  -9.91 dB Pass Frequency RMS RMS Limit RMS Difference RMS Status 2.4835 GHz  $51.2 \text{ dB}\mu\text{V/m}$   $54 \text{ dB}\mu\text{V/m}$  -2.8 dB Pass



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

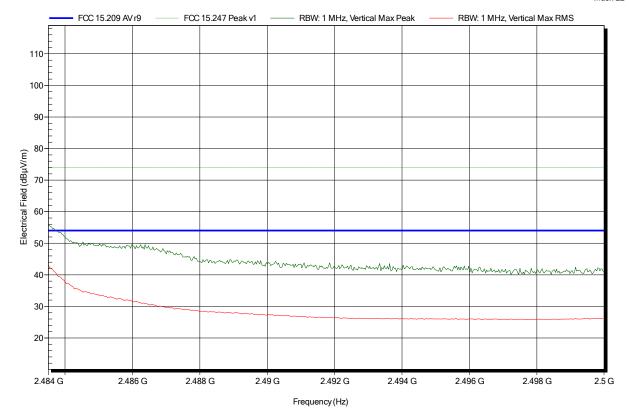
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; EDR Fhigh
Test Date: 2014-09-22
Note: upper bandedge





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

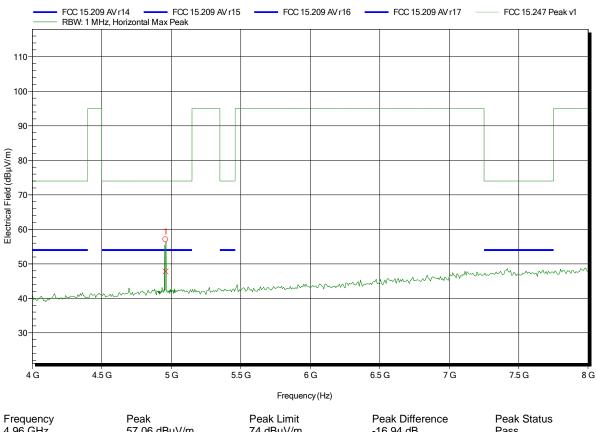
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: TX; EDR Fhigh Test Date: 2014-09-22

Note:



4.96 GHz 57.06 dB $\mu$ V/m 74 dB $\mu$ V/m -16.94 dB Pass Frequency Average Average Limit Average Difference Average Status 4.96 GHz 47.82 dB $\mu$ V/m 54 dB $\mu$ V/m -6.18 dB Pass



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: TX; EDR Flow Test Date: 2014-09-23

Note:

4 G

4.5 G

5 G

5.5 G

FCC 15.209 AVr14 — FCC 15.209 AVr15 — FCC 15.209 AVr16 — FCC 15.209 AVr17 — FCC 15.247 Peak v1

110

100

90

90

40

40

40

6 G

Frequency (Hz)

6.5 G

7 G

7.5 G

8 G



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

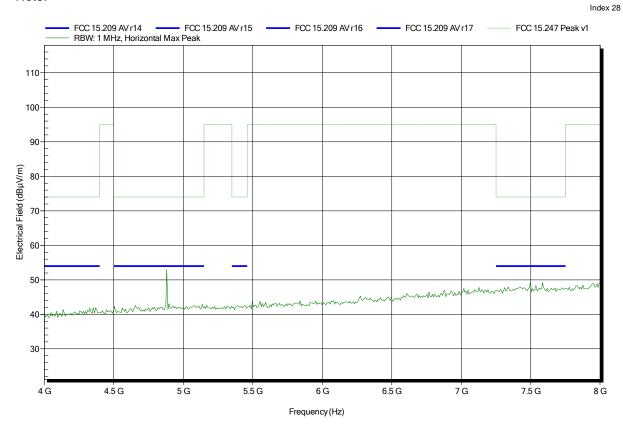
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: TX; EDR Fmid Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

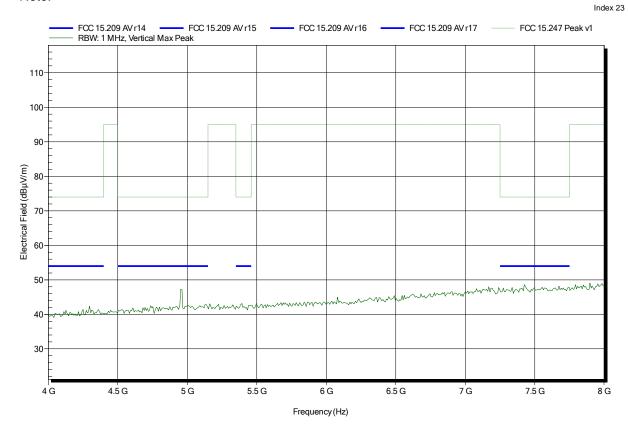
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; EDR Fhigh Test Date: 2014-09-22





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

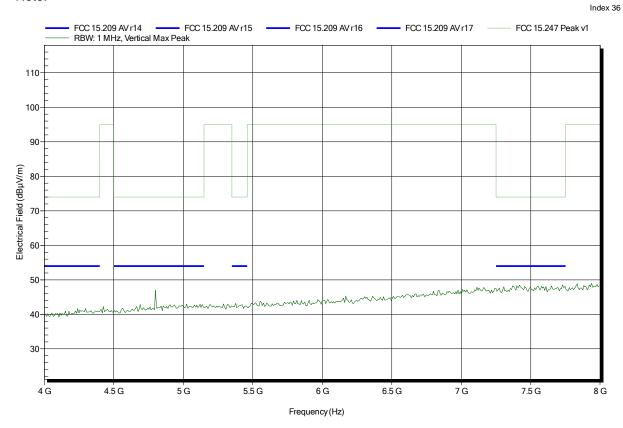
Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; EDR Flow Test Date: 2014-09-23





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

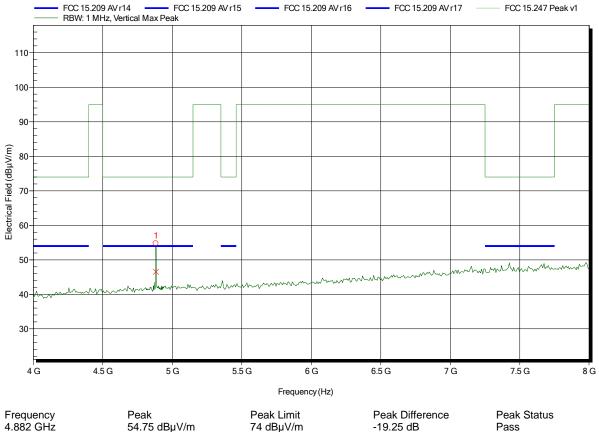
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: TX; EDR Fmid Test Date: 2014-09-22

Note:



4.882 GHz	Реак 54.75 dBµV/m	74 dBµV/m	-19.25 dB	Peak Status Pass
Frequency	Average	Average Limit	Average Difference	Average Status
4.882 GHz	46.55 dBµV/m	54 dBµV/m	-7.45 dB	Pass



# ANNEX B Receiver radiated spurious emissions Spurious emissions according to RSS-GEN

Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

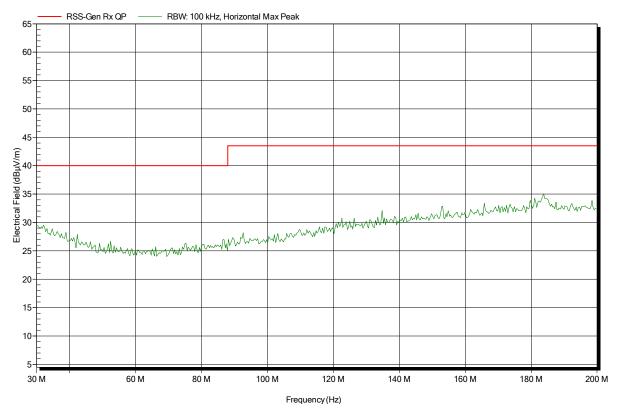
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HK 116, Horizontal

Measurement distance: 3 m

Mode: RX; Scan Mode Test Date: 2014-09-24

Note:





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HK 116, Vertical

Measurement distance: 3 m

Mode: RX; Scan Mode Test Date: 2014-09-24

Note:

- RBW: 100 kHz, Vertical Max Peak RSS-Gen Rx QP 65 60 55 50 45-Electrical Field (dBµV/m) 25 20 15 10 60 M 80 M 100 M 140 M 160 M 180 M 30 M 120 M 200 M

Frequency (Hz)



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HL 223, Horizontal

Measurement distance: 3 m

Mode: RX; Scan Mode Test Date: 2014-09-24

Note:

Index 43 - RBW: 100 kHz, Horizontal Max Peak RSS-Gen Rx QP -60 50 Electrical Field (dBµV/m) 10 300 M 400 M 500 M 600 M 700 M 800 M 900 M 200 M 1 G Frequency (Hz) Peak Difference Frequency Peak Peak Limit Status 224 MHz 19.51 dBµV/m 46 dBµV/m -26.49 dB Pass



Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

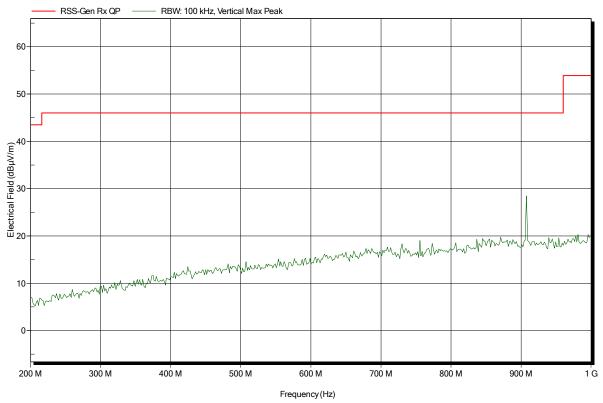
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Rohde & Schwarz HL 223, Vertical

Measurement distance: 3 m

Mode: RX; Scan Mode Test Date: 2014-09-24

Note:





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

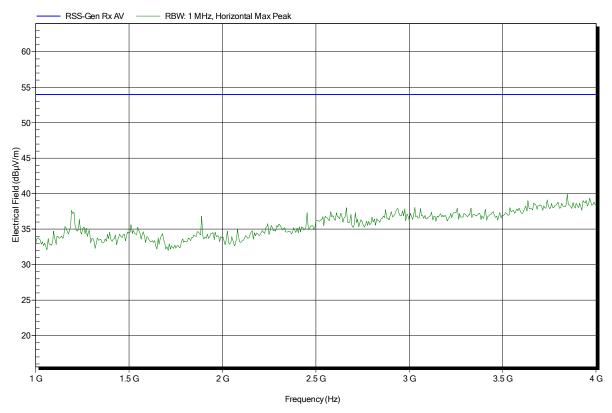
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: RX; Scan Mode Test Date: 2014-09-24

Note:





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

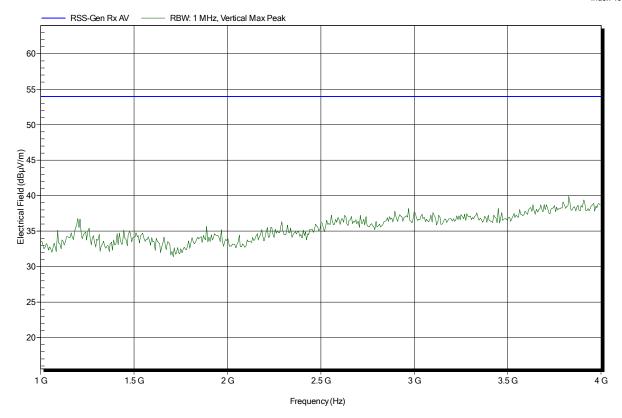
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: RX; Scan Mode Test Date: 2014-09-24

Note:





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

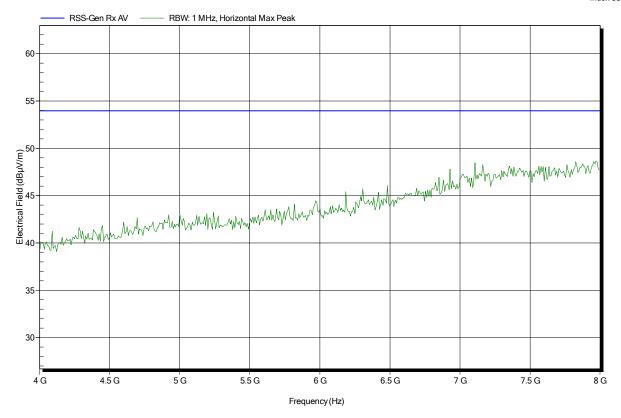
Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Horizontal

Measurement distance: 3 m

Mode: RX; Scan Mode Test Date: 2014-09-24

Note:





Project number: G0M-1407-3973

Applicant: BARTEC PIXAVI AS

EUT Name: Smartphone Model: ImpactX

Test Site: Eurofins Product Service GmbH

Operator: Mr. Jahn

Test Conditions: Tnom: 24°C, Vnom: 5.0VDC via USB Antenna: Schwarzbeck BBHA 9120D, Vertical

Measurement distance: 3 m

Mode: RX; Scan Mode Test Date: 2014-09-24

Note:

