

**InterLab<sup>®</sup>**  
Final Report on  
N-Com WRC  
FCC ID Y6MNCOM11  
IC: 9455A-NCOM11

**Report Reference:** MDE\_REDOX\_1402\_FCCa  
acc. Title 47 CFR chapter I part 15 subpart C

**Date:** February 11, 2015

**Test Laboratory:**

7 layers AG  
Borsigstrasse 11  
40880 Ratingen  
Germany



**Note:**

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

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*A Bureau Veritas Group Company*

## 1 Administrative Data

### 1.1 Project Data

*Project Responsible:* Imad Hjije  
*Date Of Test Report:* 2015/02/11  
*Date of first test:* 2014/09/17  
*Date of last test:* 2014/10/21

### 1.2 Applicant Data

*Company Name:* Nolangroup s.p.a.  
*Street:* via Terzi di S.Agata 2  
*City:* 24030 Brembate di sopra  
*Country:* Italy  
*Contact Person:* Mr. Claudio Corollo  
*Phone:* +39 035 602 285  
*Fax:* +39 035 602 261  
*E-Mail:* c.corollo@nolan.it

### 1.3 Test Laboratory Data

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

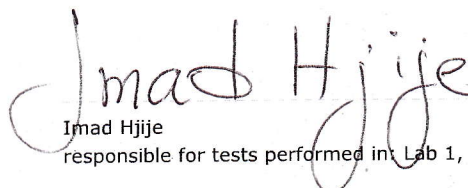
#### 7 layers DE

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

#### Laboratory Details

Lab ID	Identification	Responsible	Accreditation Info
Lab 1	Radiated Emissions	Mr. Marco Kullik Mr. Robert Machulec	DAkKS-Registration no. D-PL-12140-01-01
Lab 2	Regulatory Bluetooth RF Test Solution	Mr. Jimmy Chatheril Mr. Sören Berentzen	DAkKS-Registration no. D-PL-12140-01-01

### 1.4 Signature of the Testing Responsible

  
 Imad Hjije  
 responsible for tests performed in Lab 1, Lab 2

## 1.5 Signature of the Accreditation Responsible

B. Retka [B. RETKA]

Accreditation scope responsible person  
responsible for Lab 1, Lab 2

## 2 Test Object Data

### 2.1 General OUT Description

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

#### OUT: N-Com WRC

**Manufacturer:**

Company Name:

See applicant data:

Contact Person:

-

**Parameter List:**

Parameter name

Value

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## 2.2 Detailed Description of OUT Samples

### **Sample : ac01**

<i>OUT Identifier</i>	N-Com WRC		
	FCC ID Y6MNCOM11		
	IC: 9455A-NCOM11		
<i>Sample Description</i>	Conducted sample		
<i>HW Status</i>	1.0		
<i>SW Status</i>	1.0		
<i>Low Voltage</i>	2 V	<i>Low Temp.</i>	-20 °C
<i>High Voltage</i>	3 V	<i>High Temp.</i>	60 °C
<i>Nominal Voltage</i>	2.5 V	<i>Normal Temp.</i>	23 °C

### **Parameter List:**

<i>Parameter Description</i>	<i>Value</i>
<b>Parameter for Scope FCC_v2</b>	
Antenna Gain	1.2 (dBi)
Frequency_high	2480 (MHz)
Frequency_low	2402 (MHz)
Frequency_mid	2440 (MHz)

### **Sample : ad01**

<i>OUT Identifier</i>	N-Com WRC		
	FCC ID Y6MNCOM11		
	IC: 9455A-NCOM11		
<i>Sample Description</i>	Radiated Sample		
<i>HW Status</i>	1.0		
<i>SW Status</i>	1.0		
<i>Low Voltage</i>	2 V		
<i>High Voltage</i>	3 V		
<i>Nominal Voltage</i>	2.5 V	<i>Normal Temp.</i>	23 °C

### **Parameter List:**

<i>Parameter Description</i>	<i>Value</i>
<b>Parameter for Scope FCC_v2</b>	
Antenna Gain	1.2 (dBi)
Frequency_high	2480 (MHz)
Frequency_low	2402 (MHz)
Frequency_mid	2440 (MHz)

## 2.3 OUT Features

**Features for OUT: N-Com WRC  
FCC ID Y6MNCOM11  
IC: 9455A-NCOM11**

<i>Designation</i>	<i>Description</i>	<i>Allowed Values</i>	<i>Supported Value(s)</i>
<b>Features for scope: FCC_v2</b>			
BT	EUT supports Bluetooth data rate of 1 Mbps with GFSK modulation in the band 2400 MHz - 2483.5 MHz		
BTLE	Support of Bluetooth Low Energy		
DC	The OUT is powered by or connected to DC		
Iant	Integral Antenna: permanent fixed antenna, which may be built-in, designed as an indispensable part of the equipment		
SRD	EUT is a short range device		
TantC	temporary antenna connector, which may be only built-in for testing, designed as an example part of the equipment		

## 2.4 Setups used for Testing

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

<i>Setup No.</i>	<i>List of OUT samples</i>	<i>List of auxiliary equipment</i>		
	<i>Sample No.</i>	<i>Sample Description</i>	<i>AE No.</i>	<i>AE Description</i>
<b>AC01</b>				
	<i>Sample: ac01</i>	Conducted sample		
<b>AD01</b>				
	<i>Sample: ad01</i>	Radiated Sample		

## 3 Results

### 3.1 General

<b>Documentation of tested devices:</b>	Available at the test laboratory.
<b>Interpretation of the test results:</b>	<p>The results of the inspection are described on the following pages, where 'Conformity' or 'Passed' means that the certification criteria were verified and that the tested device is conform to the applied standard.</p> <p>In cases where 'Declaration' is printed, the required documents are available in the manufacturers product documentation.</p> <p>In cases where 'not applicable' is printed, the test case requirements are not relevant to the specific equipment implementation.</p>
<b>Note:</b>	<ol style="list-style-type: none"> <li>All tests are performed under environmental conditions within the requirements of the specifications. Environmental conditions are available at the laboratory.</li> <li>The device is a remot control containing a BTLE Transceiver operating in the 2.4 GHz ISM band.</li> </ol>

### 3.2 List of the Applicable Body

(Body for Scope: FCC\_v2)

<i>Designation</i>	<i>Description</i>
FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES	Subpart C - Intentional Radiators; 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

### 3.3 List of Test Specification

<i>Test Specification:</i>	<b>FCC part 2 and 15</b>
<i>Version</i>	10-1-13 Edition
<i>Title:</i>	PART 2 - GENERAL RULES AND REGULATIONS PART 15 - RADIO FREQUENCY DEVICES

### 3.4 Summary

<i>Test Case Identifier / Name Test (condition)</i>	<i>Result</i>	<i>Date of Test</i>	<i>Lab Ref.</i>	<i>Setup</i>
<b>15c.10 Power density §15.247 (e)</b> 15c.10; Frequency = Low/Mid/High	Passed	2014/09/17	Lab 2	AC01
<b>15c.11 6dB Bandwidth §15.247 (a) (2)</b> 15c.11; Frequency = Low/Mid/High	Passed	2014/09/17	Lab 2	AC01
<b>15c.2 Spurious radiated emissions §15.247 (d), §15.35 (b), §15.209</b> 15c.2; Frequency = 2402, Mode = BT transmit using 1 Mbps with GFSK modulation, Channel = low	Passed	2014/10/21	Lab 1	AD01
15c.2; Frequency = 2441, Mode = BT transmit using 1 Mbps with GFSK modulation, Channel = mid	Passed	2014/10/21	Lab 1	AD01
15c.2; Frequency = 2480, Mode = BT transmit using 1 Mbps with GFSK modulation, Channel = highest	Passed	2014/10/21	Lab 1	AD01
<b>15c.4 Peak power output §15.247 (b) (1)</b> 15c.4; Peak power output Summary	Passed	2014/09/17	Lab 2	AC01
<b>15c.5 Spurious RF conducted emissions §15.247 (d)</b> 15c.5; = BT transmit mode: Low/Mid/High Frequency	Passed	2014/09/17	Lab 2	AC01
<b>15c.6 Band edge compliance §15.247 (d)</b> 15c.6; Frequency = 2480, Mode = BT transmit using 1 Mbps with GFSK modulation, Method = radiated	Passed	2014/10/21	Lab 1	AD01

### 3.5 Detailed Results

#### 3.5.1 15c.10 Power density §15.247 (e)

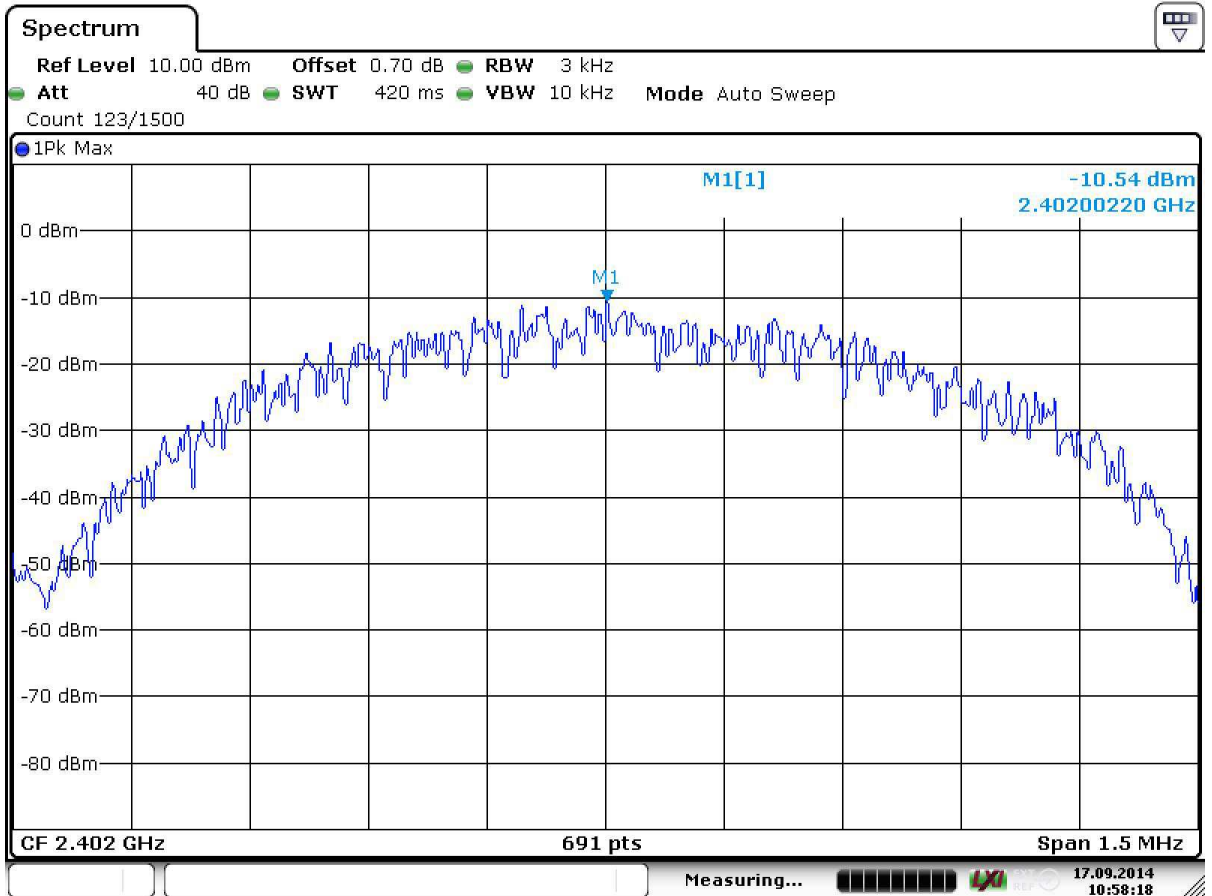
**Test: 15c.10; Frequency = Low/Mid/High**

<i>Result:</i>	Passed
<i>Setup No.:</i>	AC01
<i>Date of Test:</i>	2014/09/17 17:38
<i>Body:</i>	FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES
<i>Test Specification:</i>	FCC part 2 and 15

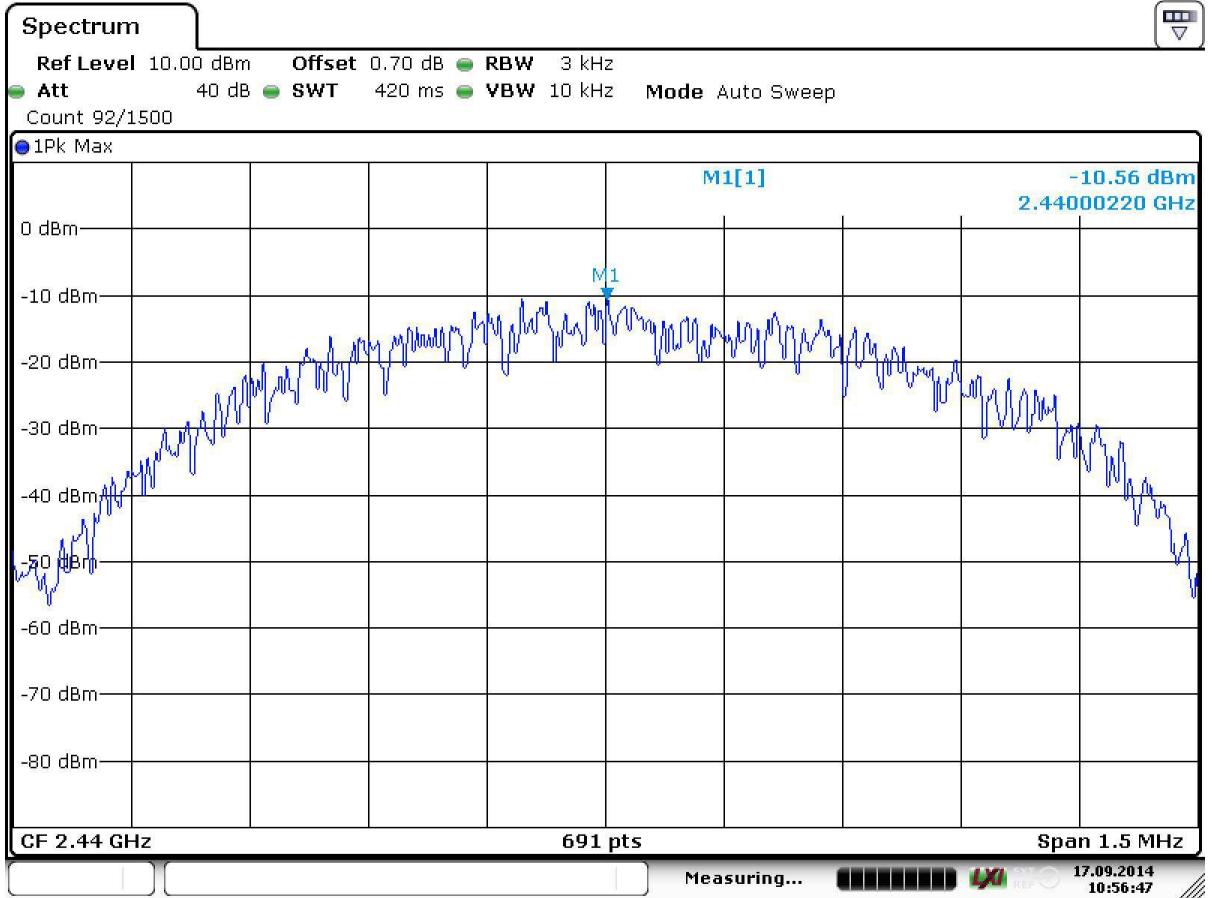


Detailed Results:

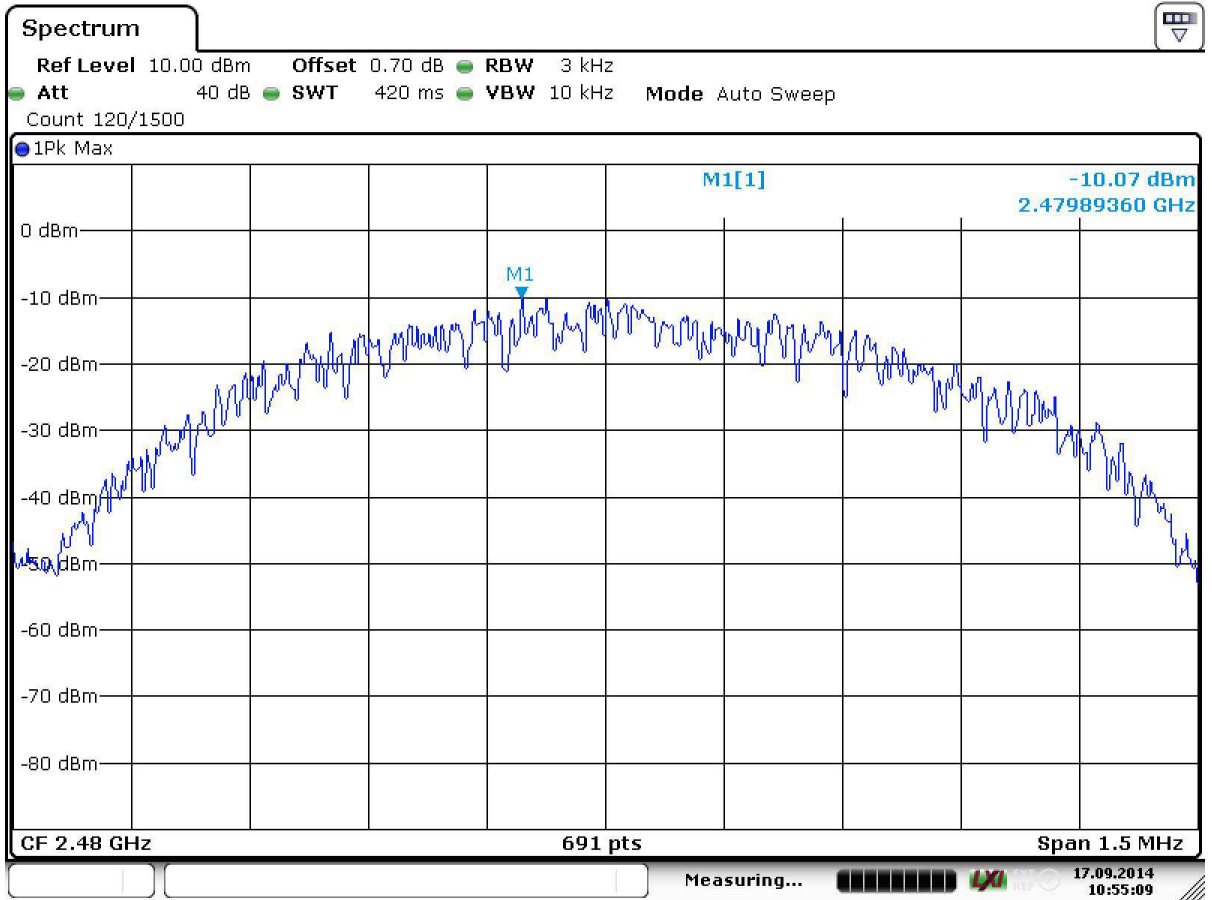
TEST CONDITIONS	Maximum Spectral Power Density (RMS) (including antenna gain and correction factor)		
	lowest frequency	mid frequency	highest frequency
Bluetooth Low Energy (GFSK)	2402 MHz	2441 MHz	2480 MHz
	-10.54 dBm	-10.56 dBm	-10.07 dBm
	per 1 MHz	per 1 MHz	per 1 MHz



Date: 17.SEP.2014 10:58:18



Date: 17.SEP.2014 10:56:47



Date: 17.SEP.2014 10:55:08

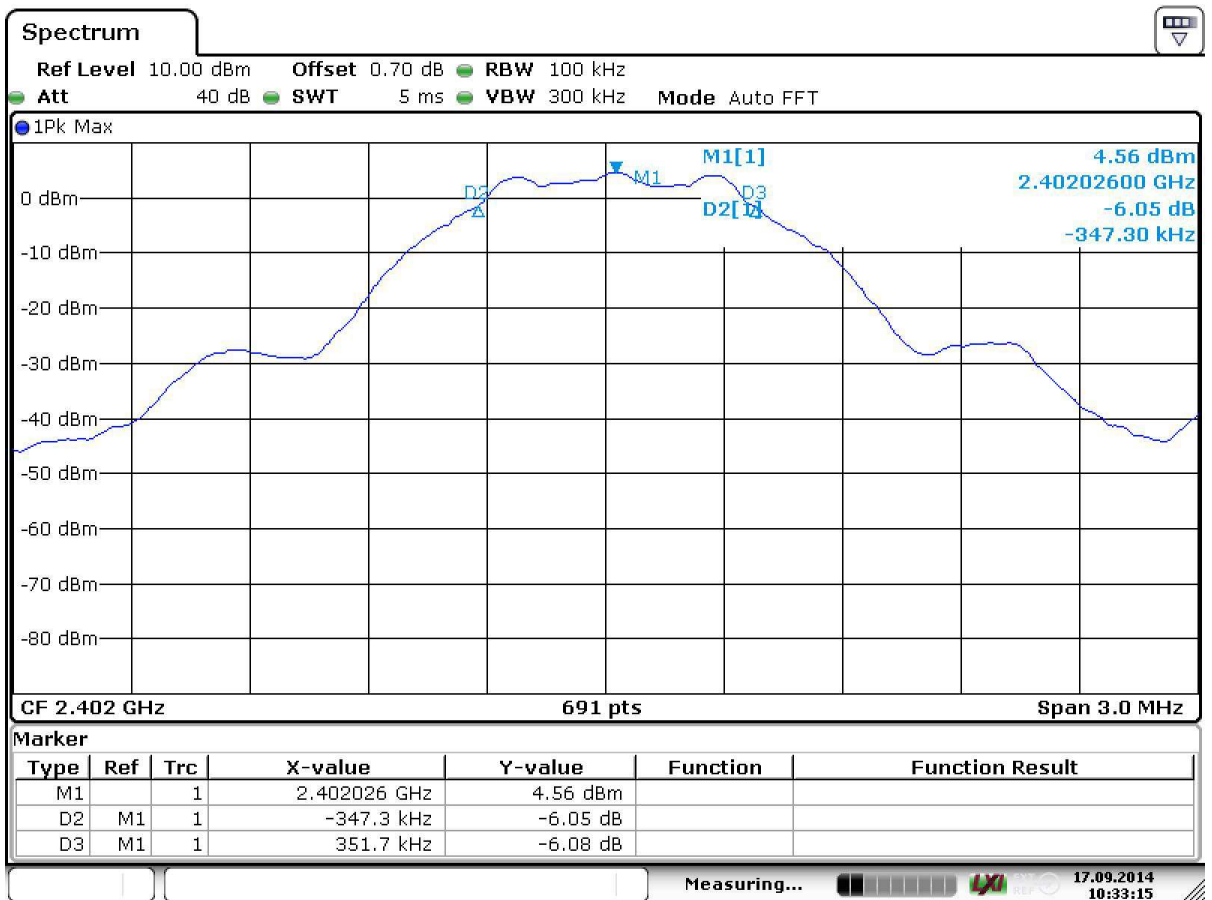
**3.5.2 15c.11 6dB Bandwidth §15.247 (a) (2)**

**Test: 15c.11; Frequency = Low/Mid/High**

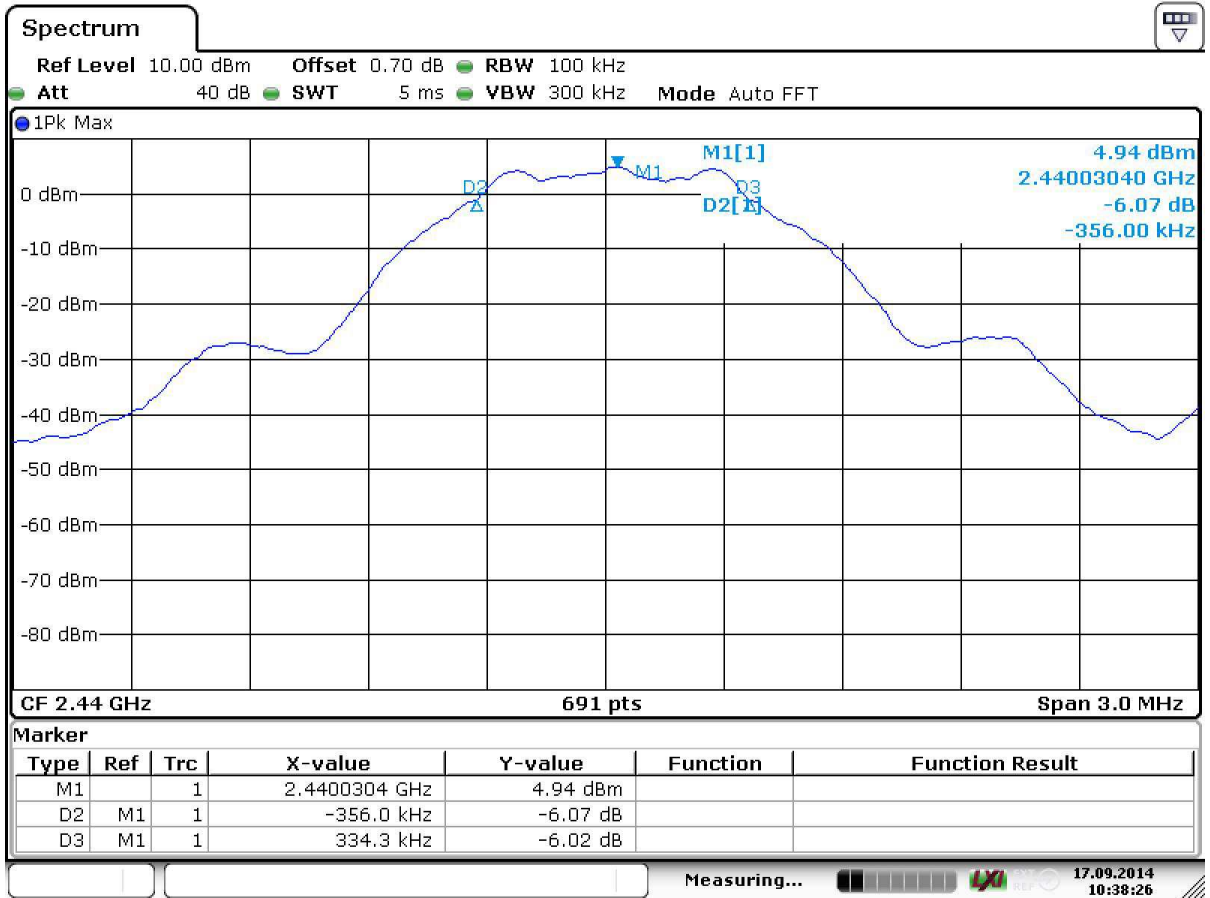
<i>Result:</i>	Passed
<i>Setup No.:</i>	AC01
<i>Date of Test:</i>	2014/09/17 17:37
<i>Body:</i>	FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES
<i>Test Specification:</i>	FCC part 2 and 15

Detailed Results:

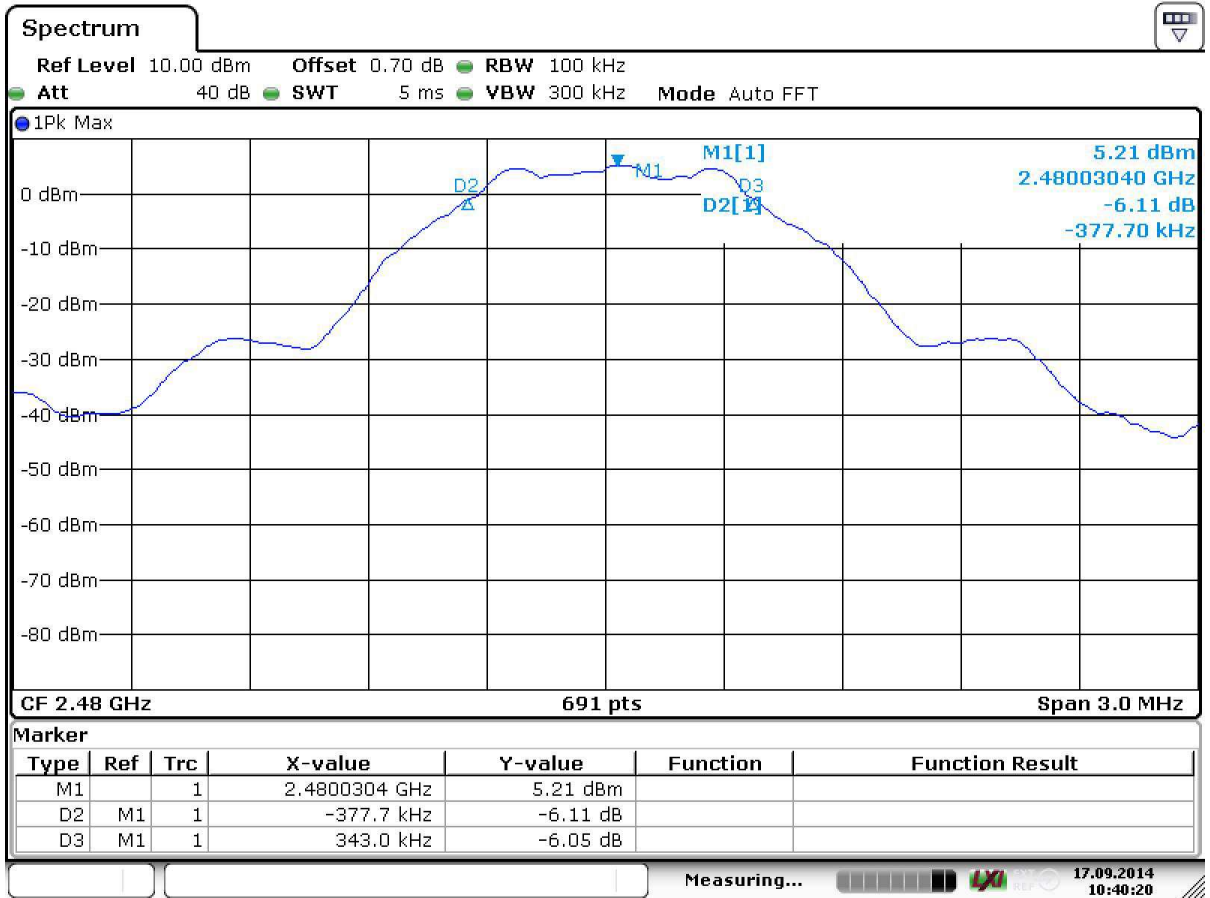
Modulation	Frequency	6dB Bandwidth KHz
GFSK	2402 MHz	699
	2426 MHz	
	2440 MHz	690.3
	2480 MHz	720.7



Date: 17.SEP.2014 10:33:15



Date: 17.SEP.2014 10:38:26



Date: 17.SEP.2014 10:40:20

### 3.5.3 15c.2 Spurious radiated emissions §15.247 (d), §15.35 (b), §15.209

**Test: 15c.2; Frequency = 2402, Mode = BT transmit using 1 Mbps with GFSK modulation, Channel = low**

Result: Passed  
Setup No.: AD01  
Date of Test: 2014/10/21 10:51  
Body: FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES  
Test Specification: FCC part 2 and 15

**Detailed Results:**

**Traffic Mode FCC 15.247 (15.35b,15.209) TX on 2402 MHz 1-DH1**  
Frequency range 30 MHz - 1 GHz

Ant. Polar.	Limit QPK [dBµV]	Frequency [MHz]	Corrected value QPK [dBµV]	Margin QPK [dB]	Result
Ver + Hor					Passed

Frequency range 1 GHz - 25 GHz

Ant. Polar.	Limit PK [dBµV]	Limit AV [dBµV]	Frequency [MHz]	Corrected value PK [dBµV]	Corrected value AV [dBµV]	Margin PK [dB]	Margin AV [dB]	Result
Ver + Hor	74	54	2480	50.74	40.84	23.26	13.16	Passed
Ver + Hor	74	54	4881	47.00	38.14	27.00	15.86	Passed
Ver + Hor	74	54	7321	53.39	42.54	20.61	11.46	Passed
Ver + Hor	74	54	19533	42.44	33.65	31.56	20.35	Passed

Remark: No (further) spurious emissions in the range 20 dB below the limit found.

**Test: 15c.2; Frequency = 2441, Mode = BT transmit using 1 Mbps with GFSK modulation, Channel = mid**

Result: Passed  
Setup No.: AD01  
Date of Test: 2014/10/21 10:53  
Body: FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES  
Test Specification: FCC part 2 and 15

**Detailed Results:**

**Traffic Mode FCC 15.247 (15.35b,15.209) TX on 2441 MHz 1-DH1**  
Frequency range 9 kHz - 1 GHz

Ant. Polar.	Limit QPK [dBµV]	Frequency [MHz]	Corrected value QPK [dBµV]	Margin QPK [dB]	Result
Ver + Hor					Passed

Frequency range 1 GHz - 25 GHz

Ant. Polar.	Limit PK [dBµV]	Limit AV [dBµV]	Frequency [MHz]	Corrected value PK [dBµV]	Corrected value AV [dBµV]	Margin PK [dB]	Margin AV [dB]	Result
Ver + Hor	74	54	4805	43.85	34.84	30.15	19.16	Passed
Ver + Hor	74	54	19229	43.26	34.07	30.74	19.93	Passed

Remark: No (further) spurious emissions in the range 20 dB below the limit found.



**Test: 15c.2; Frequency = 2480, Mode = BT transmit using 1 Mbps with GFSK modulation, Channel = highest**

Result: Passed  
 Setup No.: AD01  
 Date of Test: 2014/10/21 11:00  
 Body: FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES  
 Test Specification: FCC part 2 and 15

**Detailed Results:**

**Traffic Mode FCC 15.247 (15.35b,15.209) TX on 2480 MHz 1-DH1**  
**Frequency range 30 MHz - 1 GHz**

Ant. Polar.	Limit QPK [dBµV]	Frequency [MHz]	Corrected value QPK [dBµV]	Margin QPK [dB]	Result
Ver + Hor					Passed

**Frequency range 1 GHz - 25 GHz**

Ant. Polar.	Limit PK [dBµV]	Limit AV [dBµV]	Frequency [MHz]	Corrected value PK [dBµV]	Corrected value AV [dBµV]	Margin PK [dB]	Margin AV [dB]	Result
Ver + Hor	74	54	2484	58.61	51.28	15.39	2.72	Passed
Ver + Hor	74	54	4960	47.41	38.72	26.59	15.28	Passed
Ver + Hor	74	54	7440	57.44	47.90	16.56	6.10	Passed

**Remark: No (further) spurious emissions in the range 20 dB below the limit found.**

### **3.5.4 15c.4 Peak power output §15.247 (b) (1)**

#### **Test: 15c.4; Peak power output Summary**

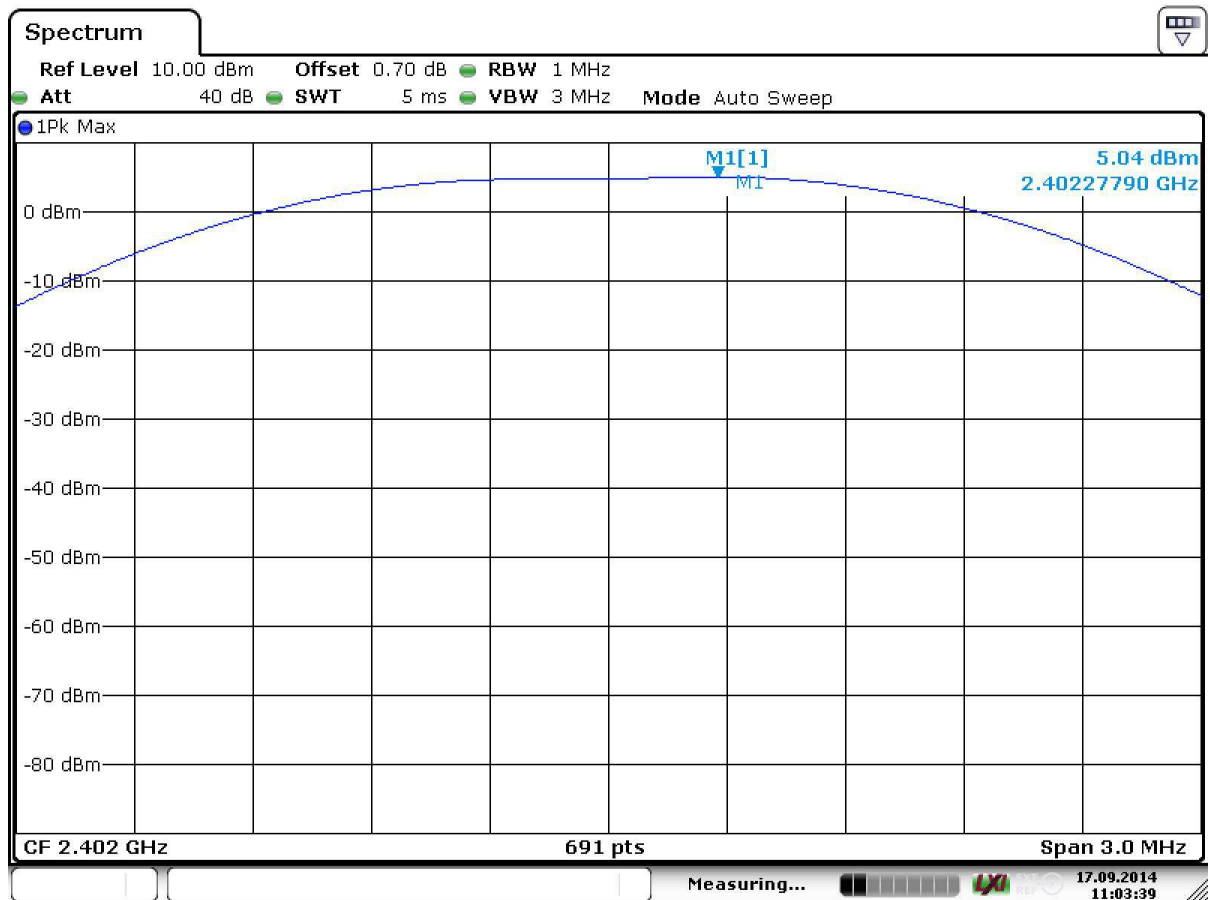
<i>Result:</i>	Passed
<i>Setup No.:</i>	AC01
<i>Date of Test:</i>	2014/09/17 17:35
<i>Body:</i>	FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES
<i>Test Specification:</i>	FCC part 2 and 15

**Detailed Results:**

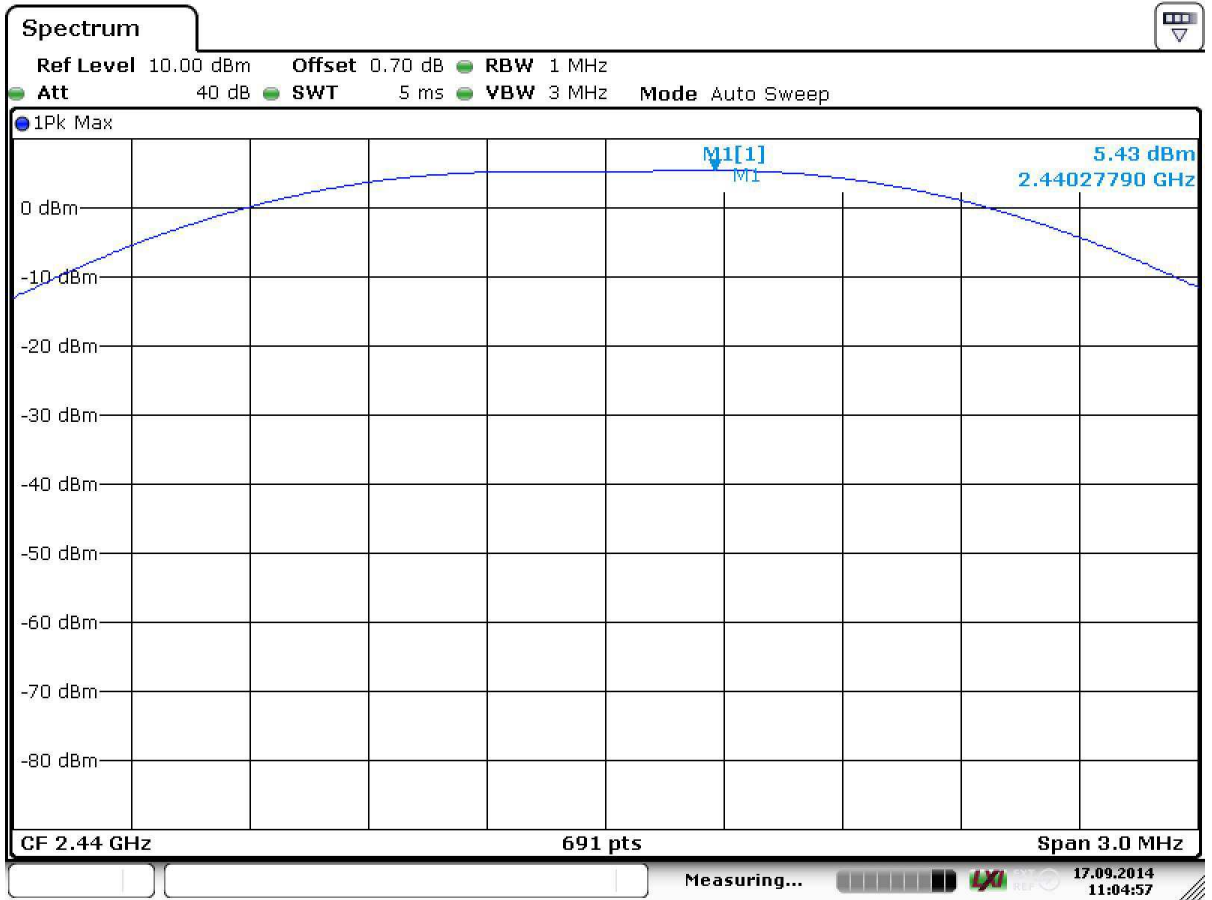
		Conducted Transmitter Power					
		2402 MHz		2440 MHz		2480 MHz	
Modulation	Conditions	Output Power (dBm)	Output Power (mW)	Output Power (dBm)	Output Power (mW)	Output Power (dBm)	Output Power (mW)
GFSK	TN, VN	5.04	3.19	5.43	3.49	5.66	3.68

<b>Max Conducted Output Power (FSK Modulation)</b>	<b>5.66</b>	<b>dBm</b>	<b>3.68</b>	<b>mW</b>
<b>EIRP Conducted</b>	<b>6.86</b>	<b>dBm</b>	<b>1.32</b>	<b>mW</b>

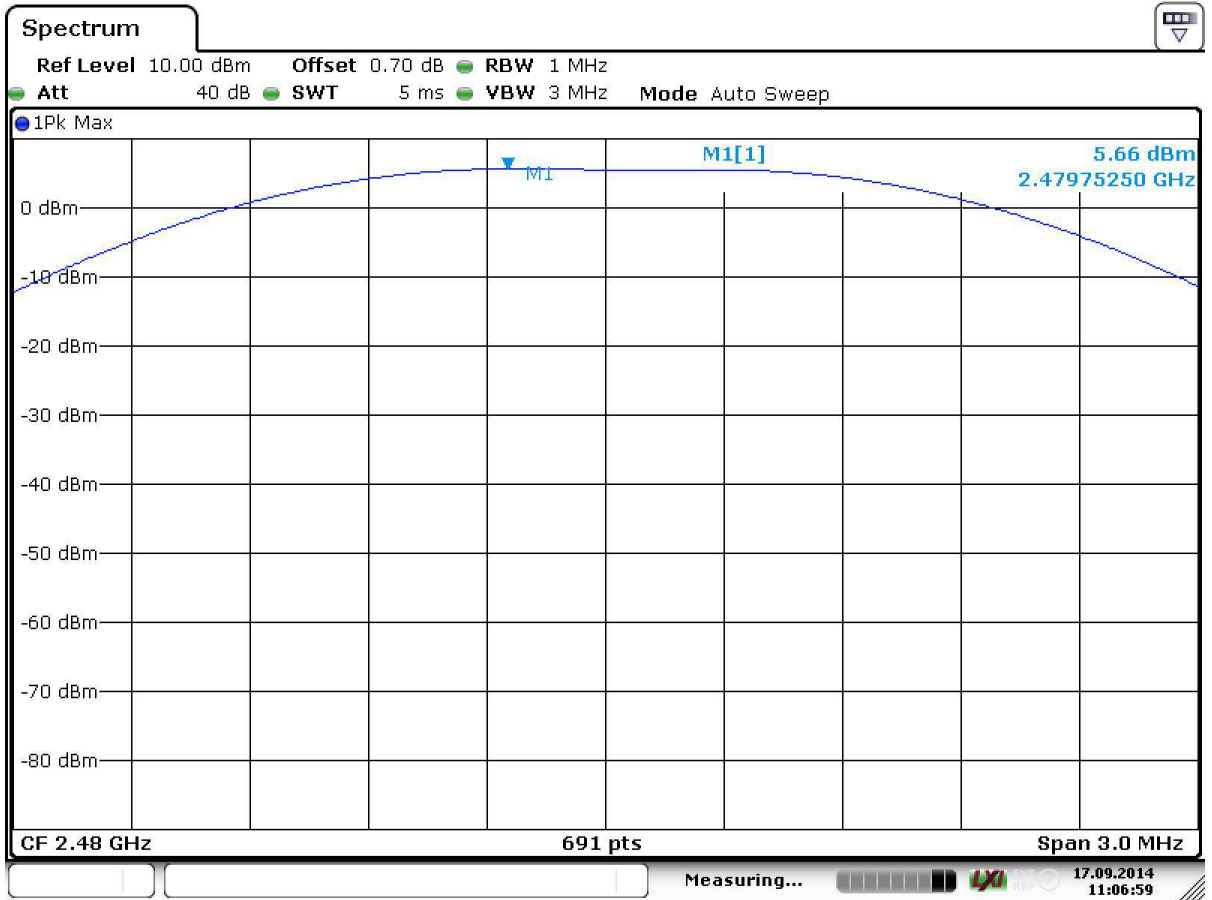
<b>Antena Gain (dBi)</b>	<b>1.2</b>
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Date: 17.SEP.2014 11:03:38



Date: 17.SEP.2014 11:04:56



Date: 17.SEP.2014 11:06:59

### **3.5.5 15c.5 Spurious RF conducted emissions §15.247 (d)**

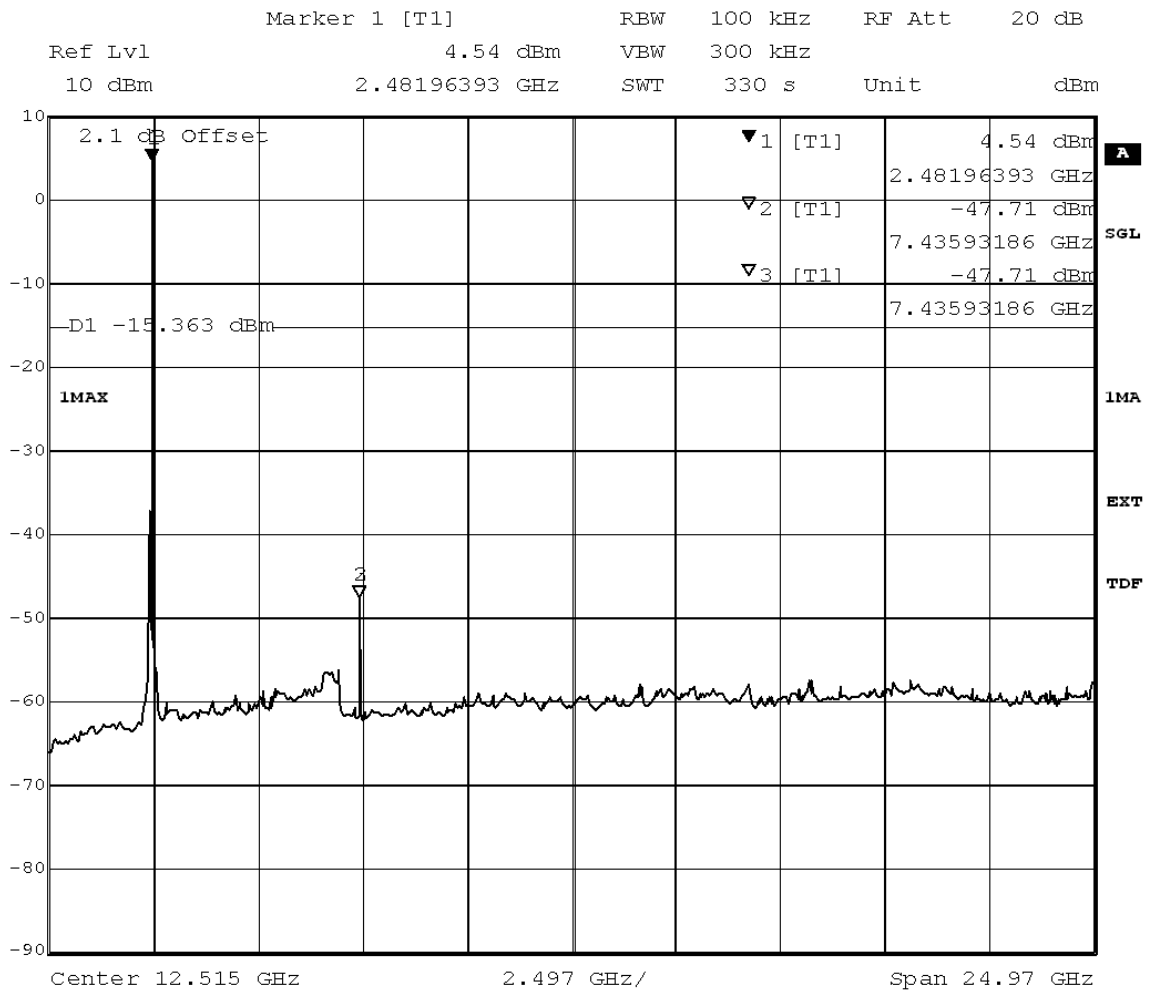
**Test: 15c.5; = BT transmit mode: Low/Mid/High Frequency**

<i>Result:</i>	Passed
<i>Setup No.:</i>	AC01
<i>Date of Test:</i>	2014/09/17 17:39
<i>Body:</i>	FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES
<i>Test Specification:</i>	FCC part 2 and 15

**Detailed Results:**

Frequency range 30 MHz - 26 GHz			BT transmit using 1 Mbps with GFSK modulation		
Channel (MHz)	Frequency of emission MHz	Measured value dBm	Reference value dBm	Limit dBm	Margin to limit dB
2402	**	-55.57	4.15	-15.85	39.72
2440	**	-51.63	4.67	-15.33	36.30
2480	**	-47.71	4.64	-15.36	32.35

**\*\* No Peaks found within 20 dB of limit line.**



Title: spurious emissions  
 Comment A: CH T:2480 MHz  
 Date: 16.SEP.2014 13:41:14

### 3.5.6 15c.6 Band edge compliance §15.247 (d)

**Test: 15c.6; Frequency = 2480, Mode = BT transmit using 1 Mbps with GFSK modulation, Method = radiated**

*Result:* Passed  
*Setup No.:* AD01  
*Date of Test:* 2014/10/21 11:01  
*Body:* FCC47CFRChIPART15c247RADIO FREQUENCY DEVICES  
*Test Specification:* FCC part 2 and 15

**Detailed Results:**

TX on	Ant. Polar.	Limit PK [dBµV]	Limit AV [dBµV]	Frequency [MHz]	Corrected value PK [dBµV]	Corrected value AV [dBµV]	Margin PK [dB]	Margin AV [dB]	Result
2480 MHz	Ver + Hor	74	54	2483.5	56.87	-9.57	17.13	63.57	Passed



## 4 Test Equipment Details

### 4.1 List of Used Test Equipment

The calibration, hardware and software states are shown for the testing period.

#### Test Equipment Anechoic Chamber

<b>Lab ID:</b>	<b>Lab 1</b>		
<i>Manufacturer:</i>	Frankonia		
<i>Description:</i>	Anechoic Chamber for radiated testing		
<i>Type:</i>	10.58x6.38x6.00 m <sup>3</sup>		
	<i>Calibration Details</i>	<i>Last Execution</i>	<i>Next Exec.</i>
	NSA (FCC)	2014/01/09	2017/01/09

#### Single Devices for Anechoic Chamber

<i>Single Device Name</i>	<i>Type</i>	<i>Serial Number</i>	<i>Manufacturer</i>
Air compressor	none	-	Atlas Copco
Anechoic Chamber	10.58 x 6.38 x 6.00 m <sup>3</sup>	none	Frankonia
	<i>Calibration Details</i>		<i>Last Execution</i> <i>Next Exec.</i>
	FCC listing 96716 3m Part15/18		2014/01/09 2017/01/08
Controller Maturo	MCU	961208	Maturo GmbH
EMC camera	CE-CAM/1	-	CE-SYS
EMC camera Nr.2	CCD-400E	0005033	Mitsubishi
Filter ISDN	B84312-C110-E1		Siemens&Matsushita
Filter Universal 1A	BB4312-C30-H3	-	Siemens&Matsushita

### Test Equipment Auxiliary Equipment for Radiated emissions

**Lab ID:** Lab 1  
**Description:** Equipment for emission measurements  
**Serial Number:** see single devices

### Single Devices for Auxiliary Equipment for Radiated emissions

Single Device Name	Type	Serial Number	Manufacturer
Antenna mast	AM 4.0	AM4.0/180/11920 513	Maturo GmbH
Biconical Broadband Antenna	SBA 9119	9119-005	Schwarzbeck
Biconical dipole	VUBA 9117 <i>Calibration Details</i> Standard Calibration	9117-108	Schwarzbeck <i>Last Execution</i> <i>Next Exec.</i> 2012/01/18 2015/01/17
Broadband Amplifier 18MHz-26GHz	JS4-18002600-32-5P	849785	Miteq
Broadband Amplifier 1GHz-4GHz	AFS4-01000400-1Q-10P-4	-	Miteq
Broadband Amplifier 30MHz-18GHz	JS4-00101800-35-5P	896037	Miteq
Cable "ESI to EMI Antenna"	EcoFlex10	W18.01- 2+W38.01-2	Kabel Kusch
Cable "ESI to Horn Antenna"	UFB311A+UFB293C	W18.02- 2+W38.02-2	Rosenberger Micro-Coax
Double-ridged horn	HF 906 <i>Calibration Details</i> Standard Calibration	357357/001	Rohde & Schwarz GmbH & Co. KG <i>Last Execution</i> <i>Next Exec.</i> 2012/05/18 2015/05/17
Double-ridged horn	HF 906 <i>Calibration Details</i> Standard Calibration	357357/002	Rohde & Schwarz GmbH & Co. KG <i>Last Execution</i> <i>Next Exec.</i> 2012/06/26 2015/06/25
High Pass Filter	4HC1600/12750-1.5-KK	9942011	Trilithic
High Pass Filter	5HC2700/12750-1.5-KK	9942012	Trilithic
High Pass Filter	5HC3500/12750-1.2-KK	200035008	Trilithic
High Pass Filter	WHKX 7.0/18G-8SS	09	Wainwright
Horn Antenna Schwarzbeck 15-26 GHz BBHA 9170	BBHA 9170		
Log.-per. Antenna	HL 562 Ultralog <i>Calibration Details</i> Standard Calibration	100609	Rohde & Schwarz GmbH & Co. KG <i>Last Execution</i> <i>Next Exec.</i> 2012/12/18 2015/12/17
Log.-per. Antenna	HL 562 Ultralog	830547/003	Rohde & Schwarz GmbH & Co. KG
Loop Antenna	HFH2-Z2 <i>Calibration Details</i> Standard calibration	829324/006	Rohde & Schwarz GmbH & Co. KG <i>Last Execution</i> <i>Next Exec.</i> 2011/10/27 2014/10/26
Standard Gain / Pyramidal Horn Antenna 26,5 GHz	3160-09	00083069	EMCO Elektronik GmbH

**Single Devices for Auxiliary Equipment for Radiated emissions (continued)**

<i>Single Device Name</i>	<i>Type</i>	<i>Serial Number</i>	<i>Manufacturer</i>
Standard Gain / Pyramidal Horn Antenna 40 GHz	3160-10	00086675	EMCO Elektronik GmbH
Tilt device Maturo (Rohacell)	Antrieb TD1.5-10kg	TD1.5- 10kg/024/379070 9	Maturo GmbH

**Test Equipment Auxiliary Test Equipment**

**Lab ID:** Lab 1  
**Manufacturer:** see single devices  
**Description:** Single Devices for various Test Equipment  
**Type:** various  
**Serial Number:** none

**Single Devices for Auxiliary Test Equipment**

<i>Single Device Name</i>	<i>Type</i>	<i>Serial Number</i>	<i>Manufacturer</i>
Broadband Power Divider N (Aux)	1506A / 93459	LM390	Weinschel Associates
Broadband Power Divider SMA	WA1515	A855	Weinschel Associates
Digital Multimeter 03 (Multimeter)	Fluke 177	86670383	Fluke Europe B.V.
	<i>Calibration Details</i>		<i>Last Execution</i> <i>Next Exec.</i>
	Customized calibration		2013/12/04 2015/12/03
Fibre optic link Satellite (Aux)	FO RS232 Link	181-018	Pontis
Fibre optic link Transceiver (Aux)	FO RS232 Link	182-018	Pontis
Isolating Transformer	LTS 604	1888	Thalheimer Transformatorenwerke GmbH
Notch Filter Ultra Stable (Aux)	WRCA800/960-6EEK	24	Wainwright
Signal Analyzer	FSV30	103005	Rohde & Schwarz GmbH & Co. KG
	<i>Calibration Details</i>		<i>Last Execution</i> <i>Next Exec.</i>
	Standard		2014/02/10 2016/02/09
Spectrum Analyser	FSP3	836722/011	Rohde & Schwarz GmbH & Co. KG
	<i>Calibration Details</i>		<i>Last Execution</i> <i>Next Exec.</i>
	Standard		2012/06/13 2015/06/12
Spectrum Analyser	FSU26	200418	Rohde & Schwarz GmbH & Co.KG
	<i>Calibration Details</i>		<i>Last Execution</i> <i>Next Exec.</i>
	Standard calibration		2014/07/29 2015/07/28
Vector Signal Generator	SMIQ 03B	832492/061	Rohde & Schwarz GmbH & Co.KG

### Test Equipment Digital Signalling Devices

**Lab ID:** Lab 1  
**Description:** Signalling equipment for various wireless technologies.

#### Single Devices for Digital Signalling Devices

Single Device Name	Type	Serial Number	Manufacturer
Bluetooth Signalling Unit CBT	CBT	100589	Rohde & Schwarz GmbH & Co. KG
	<i>Calibration Details</i>		<i>Last Execution</i> <i>Next Exec.</i>
	Standard calibration		2011/11/24 2014/11/23
CMW500	CMW500	107500	Rohde & Schwarz GmbH & Co.KG
	<i>Calibration Details</i>		<i>Last Execution</i> <i>Next Exec.</i>
	Standard calibration		2014/01/27 2016/01/26
Digital Radio Communication Tester	CMD 55	831050/020	Rohde & Schwarz GmbH & Co. KG
	<i>Calibration Details</i>		<i>Last Execution</i> <i>Next Exec.</i>
	Standard calibration		2011/11/28 2014/11/27
Universal Radio Communication Tester	CMU 200	102366	Rohde & Schwarz GmbH & Co. KG
	<i>HW/SW Status</i>		<i>Date of Start</i> <i>Date of End</i>
	Hardware: B11, B21V14, B21-2, B41, B52V14, B52-2, B53-2, B56V14, B68 3v04, PCMCIA, U65V04 Software: K21 4v21, K22 4v21, K23 4v21, K24 4v21, K42 4v21, K43 4v21, K53 4v21, K56 4v22, K57 4v22, K58 4v22, K59 4v22, K61 4v22, K62 4v22, K63 4v22, K64 4v22, K65 4v22, K66 4v22, K67 4v22, K68 4v22, K69 4v22 Firmware: µP1 8v50 02.05.06 ---		2007/07/16
Universal Radio Communication Tester	CMU 200	837983/052	Rohde & Schwarz GmbH & Co. KG
	<i>Calibration Details</i>		<i>Last Execution</i> <i>Next Exec.</i>
	Standard calibration		2011/12/07 2014/12/06
	<i>HW/SW Status</i>		<i>Date of Start</i> <i>Date of End</i>
	HW options: B11, B21V14, B21-2, B41, B52V14, B52-2, B53-2, B54V14, B56V14, B68 3v04, B95, PCMCIA, U65V02 SW options: K21 4v11, K22 4v11, K23 4v11, K24 4v11, K27 4v10, K28 4v10, K42 4v11, K43 4v11, K53 4v10, K65 4v10, K66 4v10, K68 4v10, Firmware: µP1 8v40 01.12.05 --- SW: K62, K69		2007/01/02          2008/11/03
Vector Signal Generator	SMU200A	100912	Rohde & Schwarz GmbH & Co. KG

### Test Equipment Emission measurement devices

**Lab ID:** Lab 1  
**Description:** Equipment for emission measurements  
**Serial Number:** see single devices

#### Single Devices for Emission measurement devices

Single Device Name	Type	Serial Number	Manufacturer
Personal Computer	Dell	30304832059	Dell
Power Meter	NRVD	828110/016	Rohde & Schwarz GmbH & Co.KG
	<i>Calibration Details</i>		<i>Last Execution Next Exec.</i>
	Standard calibration		2014/05/13 2015/05/12
Sensor Head A	NRV-Z1	827753/005	Rohde & Schwarz GmbH & Co.KG
	<i>Calibration Details</i>		<i>Last Execution Next Exec.</i>
	Standard calibration		2014/05/13 2015/05/12
Signal Generator	SMR 20	846834/008	Rohde & Schwarz GmbH & Co. KG
	<i>Calibration Details</i>		<i>Last Execution Next Exec.</i>
	Standard Calibration		2014/06/24 2017/06/23
Spectrum Analyzer	ESIB 26	830482/004	Rohde & Schwarz GmbH & Co. KG
	<i>Calibration Details</i>		<i>Last Execution Next Exec.</i>
	Standard Calibration		2014/01/07 2016/01/31
	<i>HW/SW Status</i>		<i>Date of Start Date of End</i>
	Firmware-Update 4.34.4 from 3.45 during calibration		2009/12/03

### Test Equipment Multimeter 12

**Lab ID:** Lab 2  
**Description:** Ex-Tech 520  
**Serial Number:** 05157876

#### Single Devices for Multimeter 12

Single Device Name	Type	Serial Number	Manufacturer
Digital Multimeter 12 (Multimeter)	EX520	05157876	Extech Instruments Corp.
	<i>Calibration Details</i>		<i>Last Execution Next Exec.</i>
	Customized calibration		2013/12/04 2015/12/03

### Test Equipment Regulatory Bluetooth RF Test Solution

**Lab ID:** Lab 2  
**Description:** Regulatory Bluetooth RF Tests  
**Type:** Bluetooth RF  
**Serial Number:** 001

#### Single Devices for Regulatory Bluetooth RF Test Solution

Single Device Name	Type	Serial Number	Manufacturer
ADU 200 Relay Box 7	Relay Box	A04380	Ontrak Control Systems Inc.
Bluetooth Signalling Unit CBT	CBT	100302	Rohde & Schwarz GmbH & Co.KG
<i>Calibration Details</i>			<i>Last Execution Next Exec.</i>
Standard calibration			2014/08/29 2015/08/28
Power Meter NRVD	NRVD	832025/059	
<i>Calibration Details</i>			<i>Last Execution Next Exec.</i>
Standard calibration			2014/08/29 2015/08/28
Power Sensor NRV Z1 A	PROBE	832279/013	
<i>Calibration Details</i>			<i>Last Execution Next Exec.</i>
Standard calibration			2014/08/28 2015/08/27
Power Supply	NGSM 32/10	2725	
<i>Calibration Details</i>			<i>Last Execution Next Exec.</i>
Standard calibration			2013/06/20 2015/06/19
Rubidium Frequency Normal MFS	Datum MFS	002	Datum GmbH
<i>Calibration Details</i>			<i>Last Execution Next Exec.</i>
Standard calibration			2014/08/29 2015/08/28
Signal Analyser FSIQ26	1119.6001.26	832695/007	Rohde & Schwarz GmbH & Co.KG
Vector Signal Generator SMIQ03B	SMIQ03B	832870/017	
<i>Calibration Details</i>			<i>Last Execution Next Exec.</i>
Standard calibration			2013/06/21 2016/06/20

### Test Equipment Shielded Room 07

**Lab ID:** Lab 2  
**Description:** Shielded Room 4m x 6m

### Test Equipment T/A Logger 13

**Lab ID:** Lab 1  
**Description:** Lufft Opus10 TPR  
**Type:** Opus10 TPR  
**Serial Number:** 13936

#### Single Devices for T/A Logger 13

Single Device Name	Type	Serial Number	Manufacturer
ThermoAirpressure Datalogger 13 (Environ)	Opus10 TPR (8253.00)	13936	Lufft Mess- und Regeltechnik GmbH
<i>Calibration Details</i>			<i>Last Execution Next Exec.</i>
Customized calibration			2013/02/07 2015/02/06

### Test Equipment T/H Logger 12

**Lab ID:** Lab 1  
**Description:** Lufft Opus10  
**Serial Number:** 12482

#### Single Devices for T/H Logger 12

Single Device Name	Type	Serial Number	Manufacturer
ThermoHygro Datalogger 12 (Environ)	Opus10 THI (8152.00)	12482	Lufft Mess- und Regeltechnik GmbH
<i>Calibration Details</i>			<i>Last Execution</i> <i>Next Exec.</i>
Customized calibration			2013/01/07 2015/02/24

### Test Equipment T/H Logger 15

**Lab ID:** Lab 2  
**Description:** Lufft Opus10  
**Serial Number:** 13985

#### Single Devices for T/H Logger 15

Single Device Name	Type	Serial Number	Manufacturer
ThermoHygro Datalogger 15 (Environ)	Opus10 THI (8152.00)	13985	Lufft Mess- und Regeltechnik GmbH
<i>Calibration Details</i>			<i>Last Execution</i> <i>Next Exec.</i>
Customized calibration			2013/01/07 2015/02/24

### Test Equipment Temperature Chamber 01

**Lab ID:** Lab 2  
**Manufacturer:** see single devices  
**Description:** Temperature Chamber KWP 120/70  
**Type:** Weiss  
**Serial Number:** see single devices

#### Single Devices for Temperature Chamber 01

Single Device Name	Type	Serial Number	Manufacturer
Temperature Chamber Weiss 01	KWP 120/70	59226012190010	Weiss Umwelttechnik GmbH
<i>Calibration Details</i>			<i>Last Execution</i> <i>Next Exec.</i>
Customized calibration			2014/03/12 2016/03/11

**5 Annex**

**5.1 Additional Information for Report**



#### Summary of Test Results

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The EUT complied with all performed tests as listed in the summary section of this report.

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#### Technical Report Summary

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#### Type of Authorization :

Certification for an Intentional Radiator (Frequency Hopping Spread Spectrum).

#### Applicable FCC Rules

Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 Parts 2 and 15. The following subparts are applicable to the results in this test report

Part 2, Subpart J - Equipment Authorization Procedures, Certification

Part 15, Subpart C – Intentional Radiators

- § 15.201 Equipment authorization requirement
- § 15.207 Conducted limits
- § 15.209 Radiated emission limits; general requirements
- § 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz

#### additional documents

The tests were selected and performed with reference to the FCC Public Notice DA 00-705, released March 30, 2000. Instead of applying ANSI C63.4-1992 which is referenced in the FCC Public Note, the newer ANSI C63.4-2009 is applied.

#### Description of Methods of Measurements

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Conducted emissions (AC power line)

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Standard FCC Part 15, Subpart C

The test was performed according to: ANSI C 63.4,

#### Test Description

The test set-up was made in accordance to the general provisions of ANSI C 63.4.

The Equipment Under Test (EUT) was setup in a shielded room to perform the conducted emissions measurements in a typical installation configuration. The EUT was powered from 50μH || 50 Ohm Line Impedance Stabilization Network (LISN). The LISN's unused connections were terminated with 50 Ohm loads. The measurement procedure consists of two steps. It is implemented into the EMI test software ES-K1 from R&S.

**Step 1: Preliminary scan**

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

EMI receiver settings:

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

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

**Step 2: Final measurement**

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

EMI receiver settings:

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

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

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

The highest value is reported.

**Test Requirements / Limits**

FCC Part 15, Subpart C, §15.207

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

Used conversion factor:  $\text{Limit (dB}\mu\text{V)} = 20 \log (\text{Limit } (\mu\text{V})/1\mu\text{V})$ .

**Peak power output**

Standard FCC Part 15, Subpart C

The test was performed according to: FCC §15.31

**Test Description**

The Equipment Under Test (EUT) was set up to perform the output power measurements. The resolution bandwidth for measuring the output power was set to 3 MHz. The reference level of the spectrum analyzer was set higher than the output power of the EUT. The EUT was connected to the spectrum analyzer via a short coax cable with a known loss.

**Test Requirements / Limits**

FCC Part 15, Subpart C, §15.247 (b) (1)

(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following:

- (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt.

Used conversion factor: Limit (dBm) = 10 log (Limit (W)/1mW)  
==> Maximum Output Power: 30 dBm

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#### Spurious RF conducted emissions

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Standard FCC Part 15, Subpart C

The test was performed according to: FCC §15.31

#### Test Description

The Equipment Under Test (EUT) was set up to perform the spurious emissions measurements. The EUT was connected to spectrum analyzer via a short coax cable with a known loss.

Analyzer settings:

- Detector: Peak-Maxhold
- Frequency range: 30 – 25000 MHz
- Resolution Bandwidth (RBW): 100 kHz
- Video Bandwidth (VBW): 300 kHz
- Sweep Time: 330 s

The reference value for the measurement of the spurious RF conducted emissions is determined during the test "band edge compliance" (cf. chapter 3.6). This value is used to calculate the 20 dBc limit.

#### Test Requirements / Limits

FCC Part 15, Subpart C, §15.247 (c)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

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#### Spurious radiated emissions

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Standard FCC Part 15, Subpart C

The test was performed according to: ANSI C 63.4,

#### Test Description

The test set-up was made in accordance to the general provisions of ANSI C63.4–2009.

The Equipment Under Test (EUT) was set up on a non-conductive table 1.0 x 2.0 m in the semi-anechoic chamber. The influence of the EUT support table that is used between 30–1000 MHz was evaluated.

The test was performed at the distance of 3 m between the EUT and the receiving antenna. The measurement procedure is implemented into the EMI test software ES-K1 from R&S. The radiated emissions measurements were made in a typical installation configuration. Exploratory tests are performed at 3 orthogonal axes to determine the worst-case orientation of a body-worn or handheld EUT. The final test on all kind of EUTs is performed at 2 axes. A pre-check is also performed while the EUT is powered from both AC and DC (battery) power in order to find the worst-case operating condition.

##### 1. Measurement up to 30 MHz

The test set-up was made in accordance to the general provisions of ANSI C63.4.

The Equipment Under Test (EUT) was set up on a non-conductive table in the anechoic chamber.

The radiated emissions measurements were made in a typical installation configuration.

The measurement procedure is implemented into the EMI test software ES-K1 from R&S.

The Loop antenna HFH2-Z2 is used.

Step 1: pre-measurement

- Anechoic chamber
- Antenna distance: 10 m
- Detector: Peak-Maxhold
- Frequency range: 0.009 – 0.15 and 0.15 – 30 MHz
- Frequency steps: 0.1 kHz and 5 kHz
- IF-Bandwidth: 0.2 kHz and 10 kHz
- Measuring time / Frequency step: 100 ms

Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: final measurement

For the relevant emissions determined in step 1, an additional measurement with the following settings will be performed. Intention of this step is to find the maximum emission level.

- Open area test side
- Antenna distance: according to the Standard
- Detector: Quasi-Peak
- Frequency range: 0.009 – 30 MHz
- Frequency steps: measurement at frequencies detected in step 1
- IF-Bandwidth: 200 Hz – 10 kHz
- Measuring time / Frequency step: 100 ms

2. Measurement above 30 MHz and up to 1 GHz

Step 1: Preliminary scan

Preliminary test to identify the highest amplitudes relative to the limit.

Settings for step 1:

- Detector: Peak-Maxhold
- Frequency range: 30 – 1000 MHz
- Frequency steps: 60 kHz
- IF-Bandwidth: 120 kHz
- Measuring time / Frequency step: 100  $\mu$ s (BT Timing 1.25 ms)
- Turntable angle range: -180 to +180°
- Turntable step size: 90°
- Height variation range: 1 – 3 m
- Height variation step size: 2 m
- Polarisation: Horizontal + Vertical

Intention of this step is, to determine the radiated EMI-profile of the EUT. Afterwards the relevant emissions for the final measurement are identified.

Step 2: second measurement

For the relevant emissions determined in step 1, an additional measurement with the following settings will be performed. Intention of this step is, to find out the approximate turntable angle and antenna height for each frequency.

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

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

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

The last two values have now the following accuracy:

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

Step 3: final measurement

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

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

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

Step 4: final measurement with QP detector

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

EMI receiver settings for step 4:

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

### 3. Measurement above 1 GHz

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

EMI receiver settings:  
- Detector: Peak, Average  
- IF Bandwidth = 1 MHz

After the measurement a plot will be generated which contains a diagram with the results of the preliminary scan and a chart with the frequencies and values of the results of the final measurement. For the enhanced data rate packets the test is performed as worst-case-check in order to verify that emissions have a comparable level as found at basic data rate. Typically, the measurement for these packets is performed in the frequency range 1 to 8 GHz but it depends on the emissions found during the test for the basic data rate. Please refer to the results for the used frequency range.

#### Test Requirements / Limits

##### FCC Part 15, Subpart C, §15.247 (d)

... In addition, 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)).

##### FCC Part 15, Subpart C, §15.209, Radiated Emission Limits

Frequency in MHz	Limit (µV/m)	Measurement distance (m)	Limit(dBµV/m @10m)
0.009 - 0.49	$2400/F(\text{kHz})$	300	Limit (dBµV/m)+30dB
0.49 - 1.705	$24000/F(\text{kHz})$	30	Limit (dBµV/m)+10dB
1.705 - 30	30	30	Limit (dBµV/m)+10dB

Frequency in MHz	Limit (µV/m)	Measurement distance (m)	Limit (dBµV/m)
30 - 88	100	3	40.0
88 - 216	150	3	43.5
216 - 960	200	3	46.0
above 960	500	3	54.0

##### §15.35(b)

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

Used conversion factor:  $\text{Limit (dBµV/m)} = 20 \log (\text{Limit (µV/m)}/1\mu\text{V/m})$

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#### Band edge compliance

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Standard    FCC Part 15, Subpart C

The test was performed according to: ANSI C 63.4, FCC §15.31

#### Test Description

The procedure to show compliance with the band edge requirement is divided into two measurements: 1. Show compliance of the lower band edge by a conducted measurement and 2. show compliance of the higher band edge by a radiated and conducted measurement.

For the first measurement the EUT is set to transmit on the lowest channel (2402 MHz). The lower band edge is 2400 MHz.

Analyzer settings:  
- Detector: Peak  
- RBW= 100 kHz  
- VBW= 300 kHz

For the second measurement the EUT is set to transmit on the highest channel (2480 MHz). The higher band edge is 2483.5 MHz.

Analyzer settings for conducted measurement:

- Detector: Peak
- RBW= 100 kHz
- VBW= 300 kHz

EMI receiver settings:

- Detector: Peak, Average
- IF Bandwidth = 1 MHz

Test Requirements / Limits

FCC Part 15.247 (d)

"In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

...

Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, 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))."

For the measurement of the lower band edge the RF power at the band edge shall be "at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power..."

For the measurement of the higher band edge the limit is "specified in Section 15.209(a)".

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Power density

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Standard FCC Part 15, 10-1-11 Subpart C

The test was performed according to: FCC §15.31

Test Description

The EUT was connected to spectrum analyzer via a short coax cable with a known loss.

Analyzer settings:

- Detector: Peak-Maxhold
- Resolution Bandwidth (RBW): 3 kHz
- Video Bandwidth (VBW): 30 kHz
- Sweep Time: Coupled

Test Requirements / Limits

FCC Part 15, Subpart C, §15.247 (e)

For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

...

The same method of determining the conducted output power shall be used to determine the power spectral density.

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6-dB bandwidth

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Standard FCC Part 15, 10-1-11 Subpart C

The test was performed according to: FCC §15.31

Test Description

The Equipment Under Test (EUT) was setup to perform the occupied bandwidth measurements.

The reference level is the level of the highest amplitude signal observed from the transmitter at either the fundamental frequency or first-order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical. The results recorded were measured with the modulation which produce the worst-case (widest) occupied bandwidth.

The EUT was connected to spectrum analyzer via a short coax cable with a known loss. Analyzer settings:

- Resolution Bandwidth (RBW): 100 kHz
- Video Bandwidth (VBW): 300 kHz
- Span: 30 MHz

#### Test Requirements / Limits

FCC Part 15, Subpart C, §15.247 (a) (2)

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Used conversion factor: Output power (dBm) = 10 log (Output power (W) / 1mW)

\*\*\*\*\*  
FCC and IC Correlation of measurement requirements  
\*\*\*\*\*

The following tables show the correlation of measurement requirements for Bluetooth equipment and Digital Apparatus from FCC and IC standards.

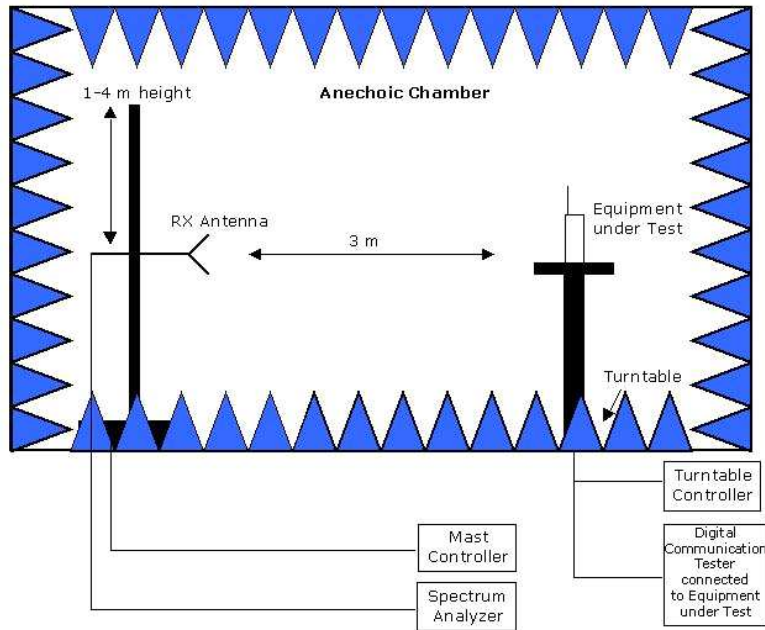
#### Bluetooth® equipment:

Measurement	FCC reference	IC reference
Conducted emissions on AC mains	§ 15.207	RSS-Gen: 7.2.4
6-dB bandwidth	§ 15.247 (a) (1)	RSS-210: A8.2
Peak power output	§ 15.247 (b) (1)	RSS-210: A8.4
Spurious RF conducted emissions	§ 15.247 (d)	RSS-Gen: 6;RSS-210: A8.5
Spurious radiated emissions	§ 15.247 (d)	RSS-Gen: 6;RSS-210: A8.5
Band edge compliance	§ 15.247 (d)	RSS-210: A8.5
Antenna requirement	§ 15.203 / 15.204	RSS-Gen: 7.1.2

#### Digital Apparatus:

Measurement	FCC reference	IC reference
Conducted Emissions(AC Power Line)	§15.107	ICES-003
Spurious Radiated Emissions	§15.109	ICES-003

Setup Drawings



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

Setup in the Anechoic chamber:  
Measurements below 1 GHz: Semi-anechoic, conducting ground plane.  
Measurements above 1 GHz: Fully-anechoic, absorbers on all surfaces



November, 2014

**To Whom This May Concern**

**Correlation of measurement requirements for  
DTS (e.g. WLAN 2.4 GHz, BT LE) equipment  
from  
FCC and IC**

**DTS equipment**

<b>Measurement</b>	<b>FCC reference</b>	<b>IC reference</b>
Conducted emissions on AC Mains	§ 15.207	RSS-Gen Issue 4: 8.8
Occupied bandwidth	§ 15.247 (a) (2)	RSS-210 Issue 8: A8.2 (a)
Peak conducted output power	§ 15.247 (b) (3), (4)	RSS-210 Issue 8: A8.4 (4)
Transmitter spurious RF conducted emissions	§ 15.247 (d)	RSS-Gen Issue 4: 6.13 / 8.9/8.10; RSS-210 Issue 8: A8.5
Transmitter spurious radiated emissions	§ 15.247 (d); § 15.209 (a)	RSS-Gen Issue 4: 6.13 / 8.9/8.10; RSS-210 Issue 8: A8.5
Band edge compliance	§ 15.247 (d)	RSS-210 Issue 8: A8.5
Power density	§ 15.247 (e)	RSS-210 Issue 8: A8.2 (b)
Antenna requirement	§ 15.203 / 15.204	RSS-Gen Issue 4: 8.3
Receiver spurious emissions	-	RSS-210 Issue 8: 2.3 RSS Gen Issue 4: 5 / 7 *)

\*) Receivers are exempted from certification besides if operating in stand-alone mode in the frequency range 30–960 MHz or if these are scanner receivers.

This correlation amends the test report referenced by:  
MDE\_ABCDE\_1234\_ZZZn

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