

Annex 1: Measurement diagrams to TEST REPORT

No.: 18-1-0050701T03

According to:

**FCC Regulations** 

Part 15.205 Part 15.209 Part 15.247

**ISED-Regulations** 

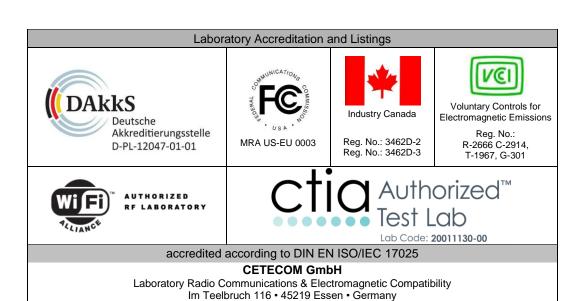
RSS-Gen, Issue 4, RSS-247, Issue 2

for

Datalogic S.r.l.

JOYA TOUCH A6 Type: A00AN04HLXGT0AN

> FCC ID: U4GJTADG ISED ID: 3862E-JTADG HVIN JTAD GUN HVIN JTAD HH



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# 1. Conducted Measurements

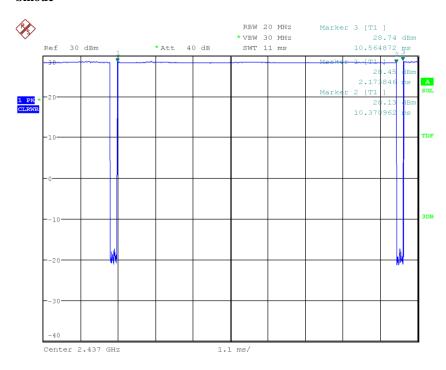
#### 1.1. Conducted Power Measurements

WLAN 2.4G	Hz b-Mode	Chann	el No. (Frequency	MHz)	b-Mode	D II
Data rate	Modulation	1 (2412)	6 (2437)	11 (2462)	Maximum Value	Power Units
1MBit		17,80	17,37	17,67		
2Mbit		17,81	17,56	17,57	18.07	dBm
5.5Mbit		18,02	17,54	17,73	18,07	ubiii
11MBit		17,94	17,77	18,07		
	17,77WLAN 2	2.4 GHz Conducted P	eak Power Limits		30.0	dBm
WLAN 2.4G	Hz g-Mode	Chann	el No. (Frequency	MHz)	g-Mode	Power Units
Data rate	Modulation	1 (2412)	6 (2437)	11 (2462)	Maximum Value	1 Ower Omis
6Mbit		20,69	20,75	18,95		
9Mbit		20,90	20,76	18,90		
12Mbit		20,85	20,69	18,84		
18Mbit		20,91	20,92	18,98	20,96	dBm
24Mbit		20,78	20,94	19,28	20,90	ubiii
36Mbit		20,39	20,93	19,05		
48Mbit		20,75	20,66	19,25		
54MBit		20,08	20,96	18,87		
	WLAN 2.4	GHz Conducted Pea	k Power Limits	30.0	dBm	
WLAN 2.4GHz	n-Mode HT20	Chann	el No. (Frequency	MHz)	n-Mode HT20	Power Units
Data rate	Modulation	1 (2412)	6 (2437)	11 (2462)	Maximum Value	1 Ower Omis
MCS0 -6.5Mbps	BPSK	20,35	20,66	19,44		
MCS1 - 13Mbps	QPSK	20,51	20,72	18,95		
MCS2 - 19.5Mbps	QPSK	20,64	20,67	19,06		
MCS3 - 26Mbps	QAM16	20,49	20,73	18,90	20,73	dBm
MCS4 -39Mbps	QAM16	20,56	20,71	18,92	20,73	uDili
MCS5 - 52MBps	QAM64	20,34	20,56	19,09		
MCS6 - 58.5MBps	QAM64	20,14	20,19	19,15		
MCS7 - 65MBps	QAM64	19,36	19,39	19,35		
	WLAN 2.4	30.0	dBm			



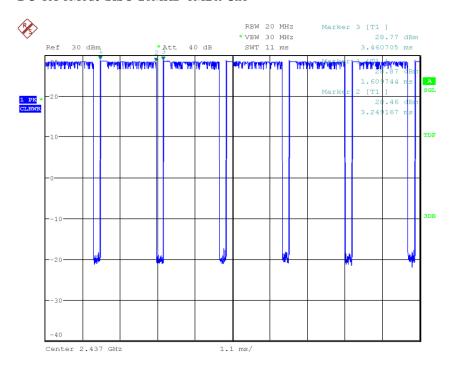
## 1.2. Dutycycle

#### bmode



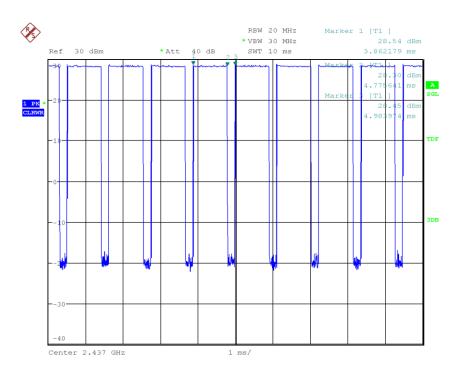
Date: 16.MAY.2018 17:00:12

#### DC-TX-bMode-SISO-20MHz-1MBit-Ch6



Date: 17.MAY.2018 07:49:31

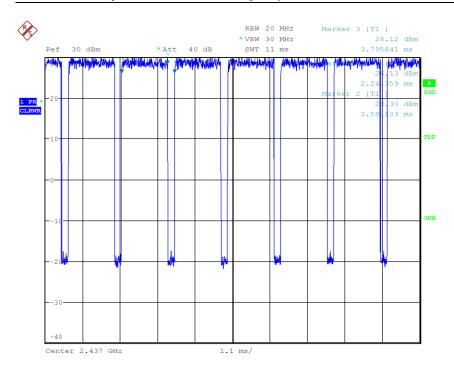




Date: 16.MAY.2018 16:58:35

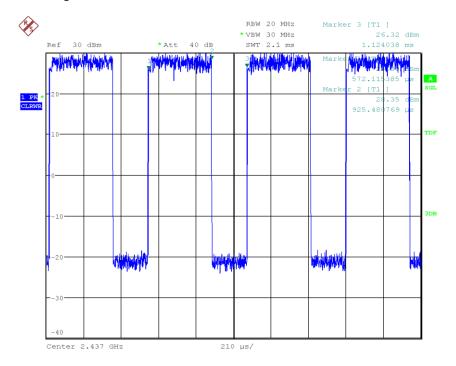
DC-TX-bMode-SISO-20MHz-11MBit-Ch6





Date: 17.MAY.2018 07:51:10

#### DC-TX-gMode-SISO-20MHz-6Mbit-Ch6

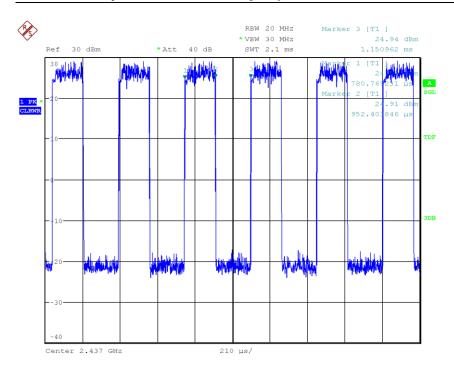


Date: 17.MAY.2018 07:52:47

20MHz-24MBit-Ch6

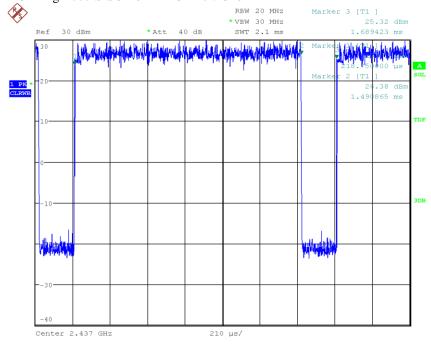
DC-TX-gMode-SISO-





Date: 17.MAY.2018 07:54:08

#### DC-TX-gMode-SISO-20MHz- 54Mbit-Ch6

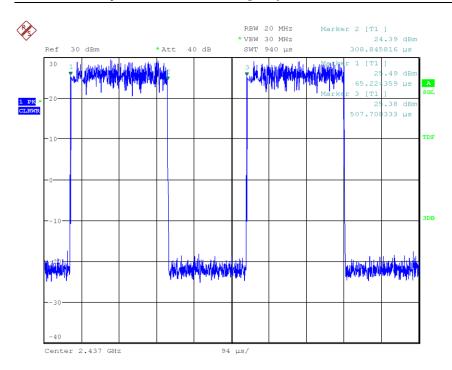


Date: 17.MAY.2018 07:55:43

20MHz-MCS0-Ch6

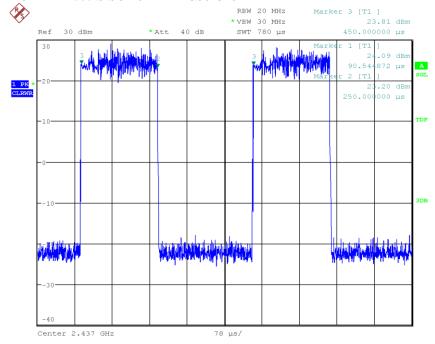
DC-TX-nMode-SISO-





Date: 17.MAY.2018 11:35:22

#### DC-TX-nMode-SISO-20MHz-MCS6-Ch6



Date: 17.MAY.2018 12:34:52

DC-TX-nMode-SISO-20MHz-MCS7-Ch6



# 2. Radiated Field Strength Measurements

#### 2.1. Gun Variant

#### 2.1.1. Radiated Field Strength Emissions - 9 kHz to 30 MHz

# 2.01a\_n20-mode\_MCS6\_ch01

#### **Common Information**

Test Description: Magnetic Field Strength Measurement related to 30/300 m distance Test site and distance Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware EMC32 V9.25.0

Distance Correction used accord. table, pls. see test report

Please see page 2 for detailed data of measurement setup **Technical Data** Rec Antenna height 1.00 m, parallel and 90° to EUT polarisation

**Used Filter** bypass

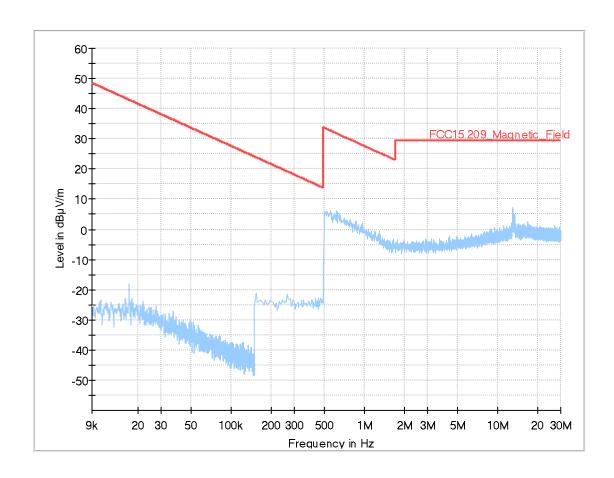
FCC 15.205 § 15.209; RSS-Gen: Issue 4 **Test Specification** 

Operating Mode n20-mode | MCS6| ch01

Operating Conditions:
Operator Name: Humidity: 48%rH; Temperature: 20°C

DLe

**EUT Laying** Comment:





# 2.01b\_n20-mode\_MCS6\_ch01

#### **Common Information**

Test Description: Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Version of Testsoftware EMC32 V9.25.0

Distance Correction used accord. table, pls. see test report

Technical Data Please see page 2 for detailed data of measurement setup Rec Antenna Please see page 2 for detailed data of measurement setup height 1.00 m, parallel and 90° to EUT polarisation

Used Filter bypa

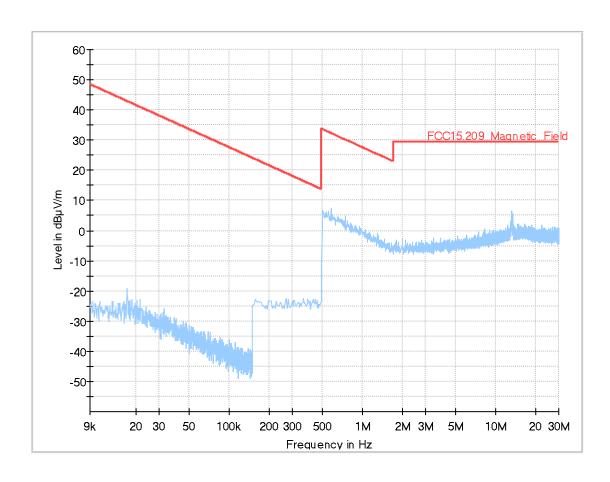
Test Specification FCC 15.205 § 15.209; RSS-Gen: Issue 4

Operating Mode n20-mode | MCS6| ch01

Operating Conditions: Humidity: 48%rH; Temperature: 20°C

Operator Name: DLe

Comment: EUT standing





# 2.02a\_g-mode\_24Mbit\_ch06

#### **Common Information**

Test Description: Magnetic Field Strength Measurement related to 30/300 m distance Test site and distance Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware EMC32 V9.25.0 Distance Correction used accord. table, pls. see test report

**Technical Data** Please see page 2 for detailed data of measurement setup Rec Antenna height 1.00 m, parallel and 90° to EUT polarisation

**Used Filter** 

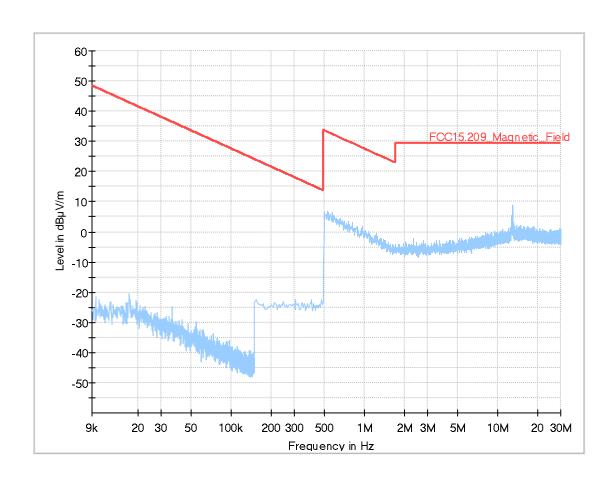
FCC 15.205 § 15.209; RSS-Gen: Issue 4 **Test Specification** 

Operating Mode g-mode | 24Mbit | ch06

Operating Conditions: Humidity: 48%rH; Temperature: 20°C DLe

Operator Name:

Comment: **EUT Laying** 





# 2.02b\_g-mode\_24Mbit\_ch06

#### **Common Information**

Test Description: Magnetic Field Strength Measurement related to 30/300 m distance Test site and distance Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware EMC32 V9.25.0 Distance Correction used accord. table, pls. see test report

**Technical Data** Please see page 2 for detailed data of measurement setup Rec Antenna height 1.00 m, parallel and 90° to EUT polarisation

**Used Filter** 

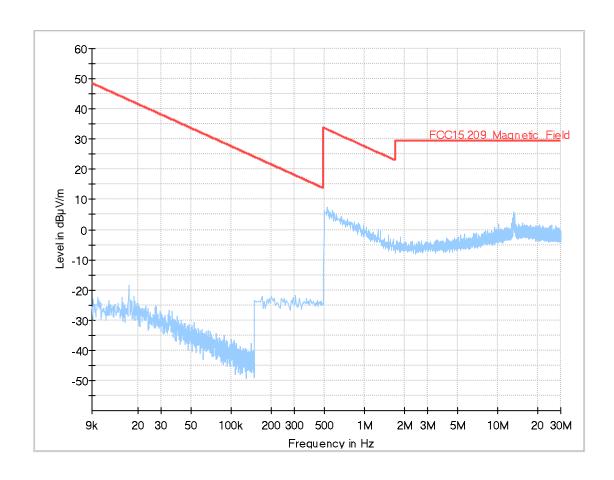
FCC 15.205 § 15.209; RSS-Gen: Issue 4 **Test Specification** 

Operating Mode g-mode | 24Mbit | ch06

Operating Conditions: Humidity: 48%rH; Temperature: 20°C DLe

Operator Name:

Comment: **EUT** standing





# 2.03a\_b-mode\_5.5Mbit\_ch11

#### **Common Information**

Test Description: Magnetic Field Strength Measurement related to 30/300 m distance Test site and distance Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance EMC32 V9.25.0

Version of Testsoftware Distance Correction used accord. table, pls. see test report

**Technical Data** Please see page 2 for detailed data of measurement setup Rec Antenna height 1.00 m, parallel and 90° to EUT polarisation

**Used Filter** 

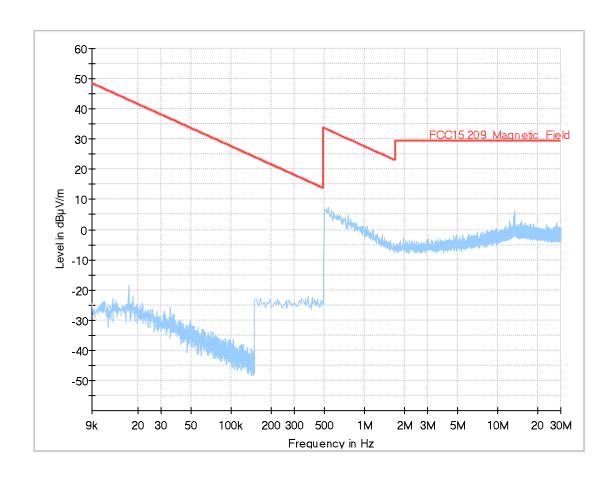
FCC 15.205 § 15.209; RSS-Gen: Issue 4 **Test Specification** 

Operating Mode b-mode | 5.5MBit | ch11

Operating Conditions: Humidity: 48%rH; Temperature: 20°C

Operator Name:

DLe Comment: **EUT Laying** 





# 2.03b\_b-mode\_5.5Mbit\_ch11

#### **Common Information**

Test Description: Magnetic Field Strength Measurement related to 30/300 m distance Test site and distance Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware EMC32 V9.25.0 Distance Correction

used accord. table, pls. see test report **Technical Data** Please see page 2 for detailed data of measurement setup Rec Antenna height 1.00 m, parallel and 90° to EUT polarisation

**Used Filter** 

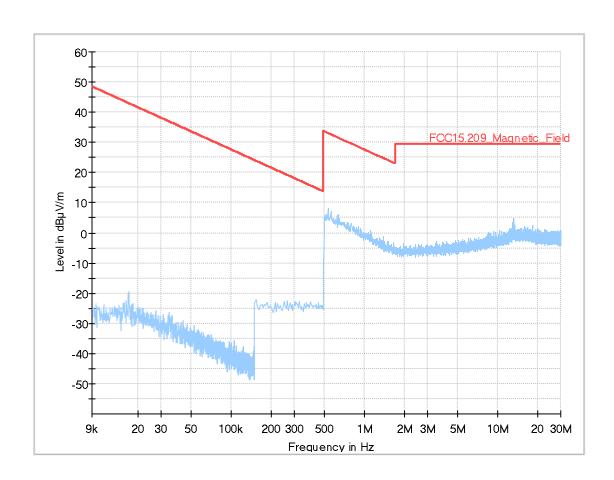
FCC 15.205 § 15.209; RSS-Gen: Issue 4 **Test Specification** 

Operating Mode b-mode | 5.5MBit | ch11

Operating Conditions: Humidity: 48%rH; Temperature: 20°C DLe

Operator Name:

Comment: **EUT Standing** 





#### 2.1.2. Radiated Field Strength Emissions - 30 MHz to 1 GHz

## Diagram No. 3.01a\_n30-mode\_MCS6\_ch01

24.04.2018 Page 1 of 1

Test description: Electric Field Strength Measurement

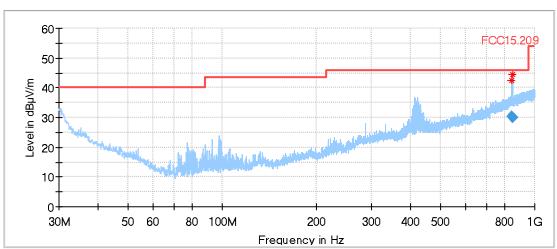
Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance FCC - Testing Part 15.247 & RSS - 247 (WLAN2.4) Test site and distance:

Test specification.:

LKu

Operator: Operating conditions: continuous TX Comment 1: **EUT** laying

#### Full Spectrum



Frequen cy (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/ m)	Meas. Time (ms)	Bandwidt h (kHz)	Heigh t (cm)	Pol	Azimut h (deg)	Corr (dB)
843.1500 00	30.24	46.00	1000.0	120.000	252.0	Н	81.0	26.0
850.6500 00	29.95	46.00	1000.0	120.000	360.0	٧	320.0	25.7



# Diagram No. 3.01b\_n30-mode\_MCS6\_ch01

24.04.2018 Page 1 of 1

Test description: Electric Field Strength Measurement

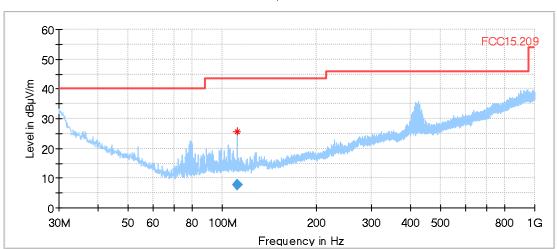
Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Test specification.: FCC - Testing Part 15.247 & RSS - 247 (WLAN2.4)

Operator: LKu

Operating conditions: continuous TX Comment 1: EUT standing

#### Full Spectrum



Frequen cy (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/ m)	Meas. Time (ms)	Bandwidt h (kHz)	Heigh t (cm)	Pol	Azimut h (deg)	Corr (dB)
111.4100 00	7.89	43.50	1000.0	120.000	109.0	Н	4.0	8.2



# Diagram No. 3.02a\_g-mode\_24Mbit\_ch06

24.04.2018 Page 1 of 1

Test description: Electric Field Strength Measurement

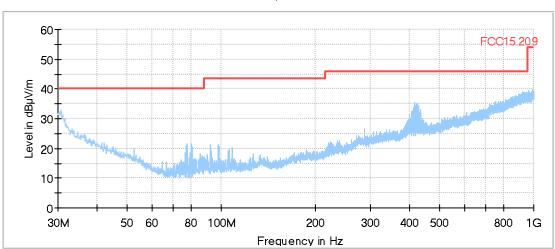
Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Test specification.: FCC - Testing Part 15.247 & RSS - 247 (WLAN2.4)

Operator: LK

Operating conditions: continuous TX
Comment 1: EUT laying

#### Full Spectrum



Frequen cy (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/ m)	Meas. Time (ms)	Bandwidt h (kHz)	Heigh t (cm)	Pol	Azimut h (deg)	Corr (dB)



# Diagram No. 3.02b\_g-mode\_24Mbit\_ch06

24.04.2018 Page 1 of 1

Test description: Electric Field Strength Measurement

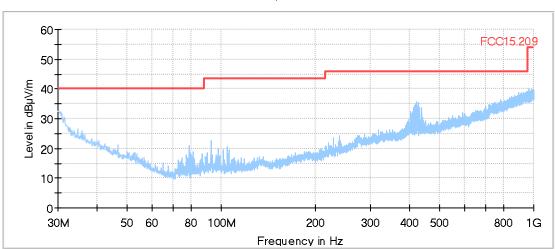
Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Test specification.: FCC - Testing Part 15.247 & RSS - 247 (WLAN2.4)

Operator: LKu

Operating conditions: continuous TX Comment 1: EUT standing

#### Full Spectrum



Frequen cy (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/ m)	Meas. Time (ms)	Bandwidt h (kHz)	Heigh t (cm)	Pol	Azimut h (deg)	Corr (dB)



# Diagram No. 3.03a\_b-mode\_5.5Mbit\_ch11

24.04.2018 Page 1 of 1

Test description: Electric Field Strength Measurement

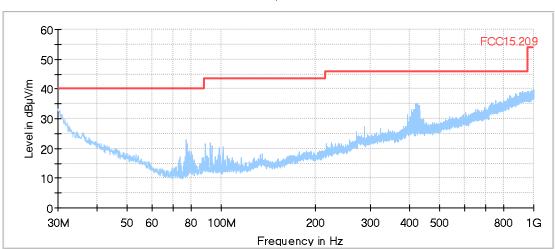
Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Test specification.: FCC - Testing Part 15.247 & RSS - 247 (WLAN2.4)

Operator: LK

Operating conditions: continuous TX
Comment 1: EUT laying

#### Full Spectrum



	Frequen cy (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/ m)	Meas. Time (ms)	Bandwidt h (kHz)	Heigh t (cm)	Pol	Azimut h (deg)	Corr (dB)
ĺ									



# Diagram No. 3.03b\_b-mode\_5.5Mbit\_ch11\_

24.04.2018 Page 1 of 1

Test description: Electric Field Strength Measurement

Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance Test site and distance:

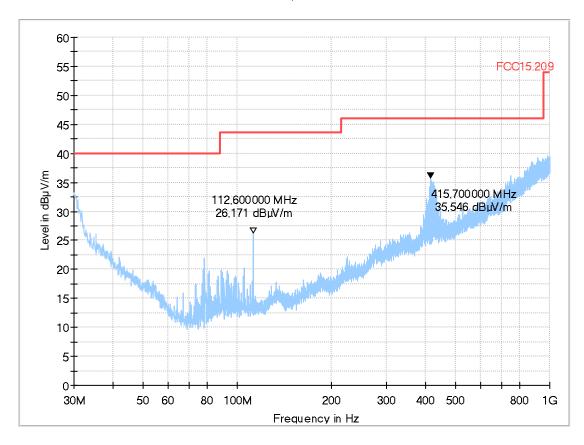
Test specification.: FCC - Testing Part 15.247 & RSS - 247 (WLAN2.4)

Operating mode b-mode | 5.5MBit | ch11

Operating mode
Operator:
Operating conditions:

Humidity: 45%rH; Temperature: 20°C

Comment 1: **EUT** standting





#### 2.1.3. Radiated Field Strength Emissions - 1 GHz to 18 GHz

# 4.01\_n20-mode\_MCS6\_ch01

#### **Common Information**

Test Description: Radiated field strength emission in 3m distance

Test Site: CETECOM GmbH Essen

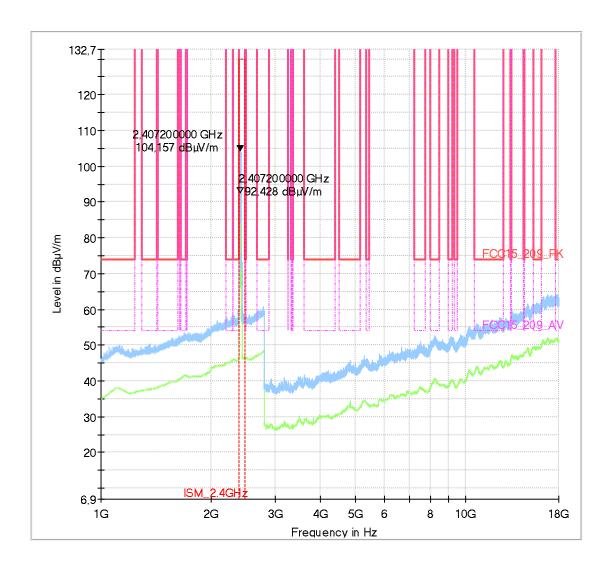
Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4

Antenna polarisation: horizontal/vertical

Operation mode: TX, continuous

Operator Name: SLo

Comment: n20-mode | MCS6| ch01





# 4.02\_g-mode\_24Mbit\_ch06

#### **Common Information**

Test Description: Radiated field strength emission in 3m distance

Test Site: CETECOM GmbH Essen

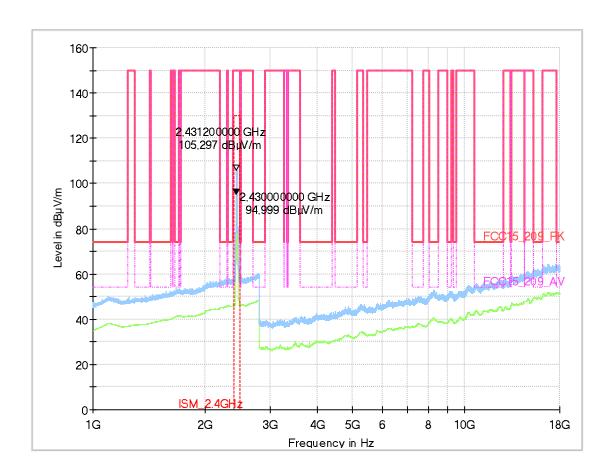
Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4

Antenna polarisation: horizontal/vertical

Operation mode: TX, continuous

Operator Name: SLo

Comment: g-mode | 24Mbit | ch06





# 4.03\_b-mode\_5.5Mbit\_ch11

#### **Common Information**

Radiated field strength emission in 3m distance CETECOM GmbH Essen Test Description:

Test Site:

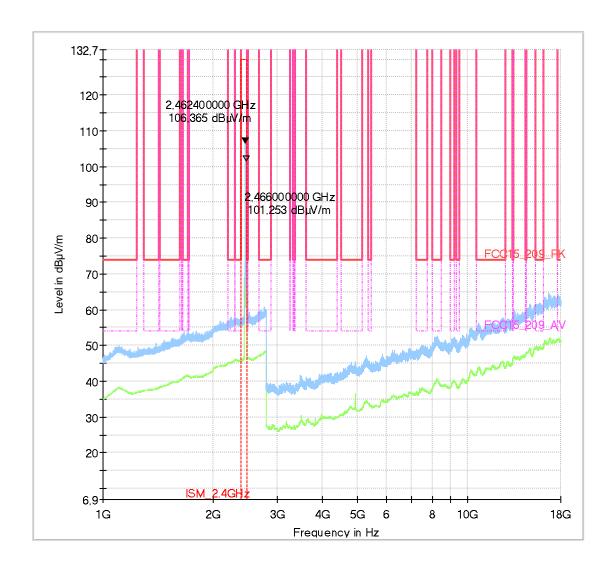
FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4 Test Standard:

Antenna polarisation: horizontal/vertical

Operation mode: TX, continuous

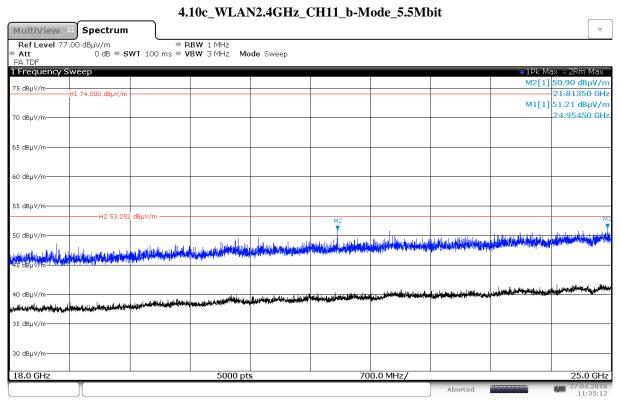
Operator Name: SLo

b-mode | 5.5MBit | ch11 Comment:

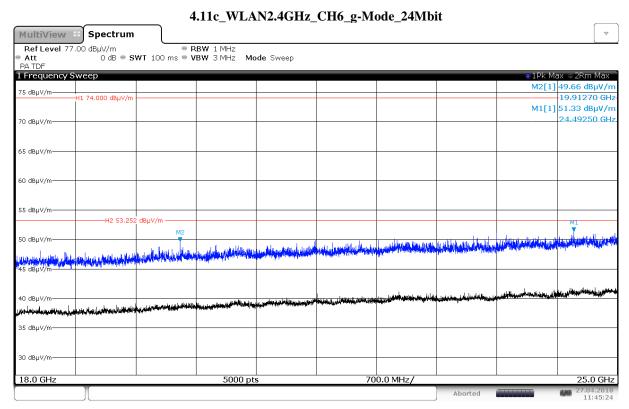




#### 2.1.4. Radiated Field Strength Emissions - 18 GHz to 25 GHz

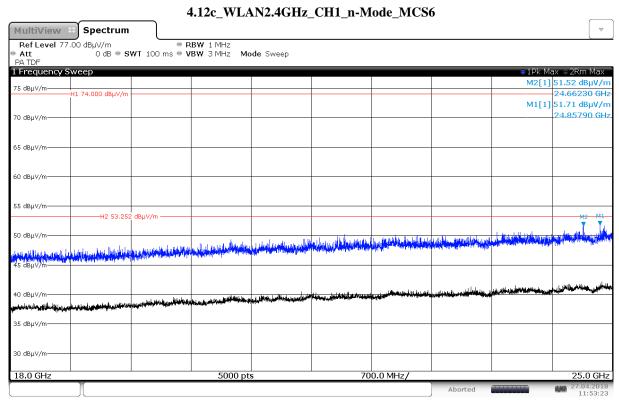


11:35:12 27.04.2018



11:45:25 27.04.2018





11:53:24 27.04.2018



#### 2.1.5. Radiated Band-Edge Measurements

#### 2.1.5.1. WLAN 2.4 GHz b-mode 5.5 Mbit 2412 low channel 01

# Diagram No.: 9.03a\_b-mode\_5.5Mbit\_ch01

#### **Common Information**

Test Description: Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance

Test Site: CETECOM GmbH Essen

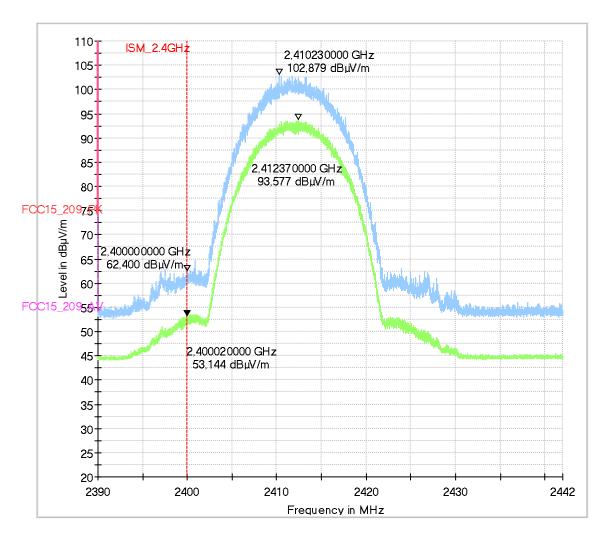
Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4

Antenna polarisation: horizontal/vertical

Operation mode: TX, continuous Operator Name: FKa

Comment: Channel no. low

#### **Full Spectrum**





#### 2.1.5.2. WLAN 2.4 GHz b-mode 5.5 Mbit 2462 high channel 11

## Diagram No.: 9.03b\_b-mode\_5.5Mbit\_ch11

#### **Common Information**

Test Description: Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4

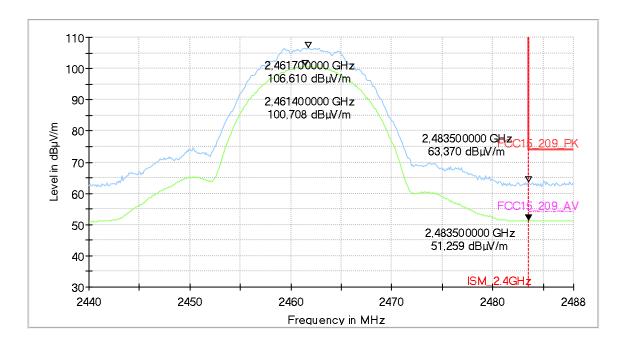
Antenna polarisation: horizontal/vertical

Operation mode: TX, continuous

Operator Name: Lor

Comment: Channel no. low/high

Comment2: Modulation Type: xxx Data Rate: yyy





#### 2.1.5.3. WLAN 2.4 GHz g-mode 24 Mbit 2412 low channel 01

## Diagram No.: 9.02a\_g-mode\_24Mbit\_ch01

#### **Common Information**

Test Description: Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance

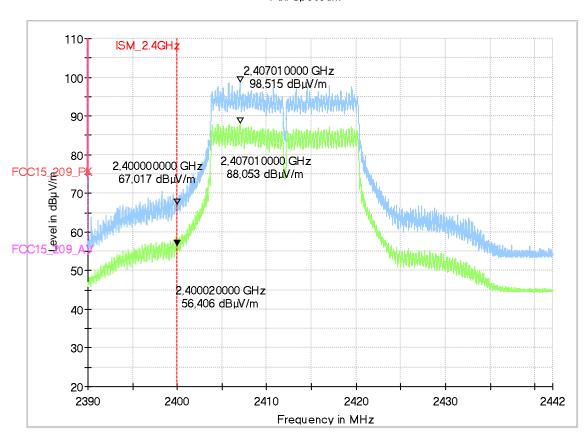
Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4

Antenna polarisation: horizontal/vertical Operation mode: g-mode\_24Mbit\_ch01 RIs

Operator Name:

Comment: Channel no. low





#### 2.1.5.4. WLAN 2.4 GHz g-mode 24 Mbit 2462 high channel 11

# 9.14a\_g-mode\_24Mbit\_ch11\_step1

#### **Common Information**

Test Description: Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance

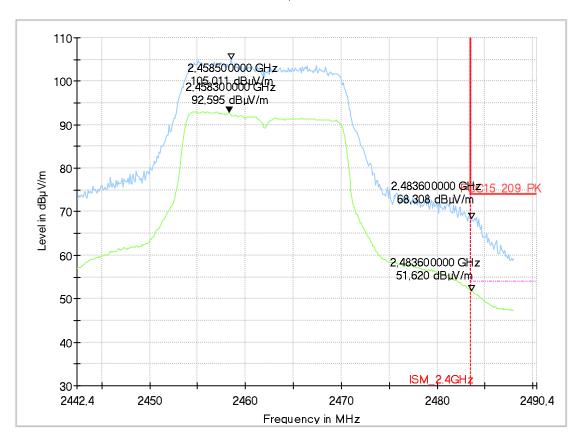
Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4

Antenna polarisation: horizontal/vertical

Operation mode: g-mode\_36Mbit\_ch11\_PWR10,5

Operator Name: Mbe





#### 2.1.5.5. WLAN 2.4 GHz n20-mode MCS6 2412 low channel 01

## Diagram No.: 9.01a\_n20-mode\_MCS6\_ch01

#### **Common Information**

Test Description: Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance

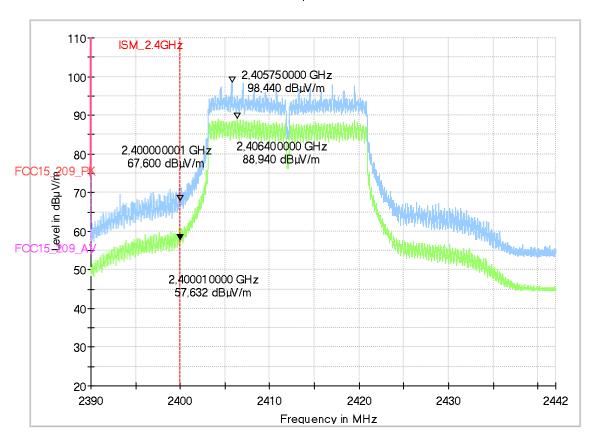
Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4

Antenna polarisation: horizontal/vertical
Operation mode: n20-mode\_MCS6\_ch01

Operator Name: RIs

Comment: Channel no. low





#### 2.1.5.6. WLAN 2.4 GHz n20-mode MCS6 2462 high channel 11

## 9.05a\_n20-mode\_MCS6\_ch11\_step1

#### **Common Information**

Test Description: Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance

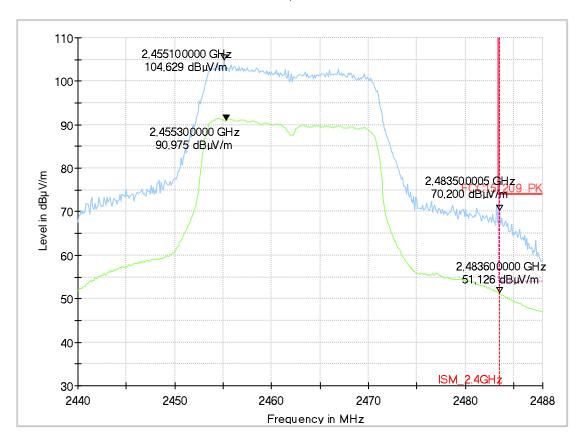
Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4

Antenna polarisation: horizontal/vertical

Operation mode: n20-mode\_MCS6\_ch11\_PWR9,5

Operator Name: Mbe





#### 2.2. Hand Held Variant

#### 2.2.1. Radiated Field Strength Emissions – 9 kHz to 30 MHz

# 2.04\_b-Mode\_ch11\_11MBit\_Laying

Date: 01.05.2018 Page 1 of 2

Test description: Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.0

Distance correction: used accord. table, pls. see test report

Technical Data: Please see page 2 for detailed data of measurement setup

Rec. antenna (pre-scan): height 1.00 m, parallel and 90° to EUT polarisation

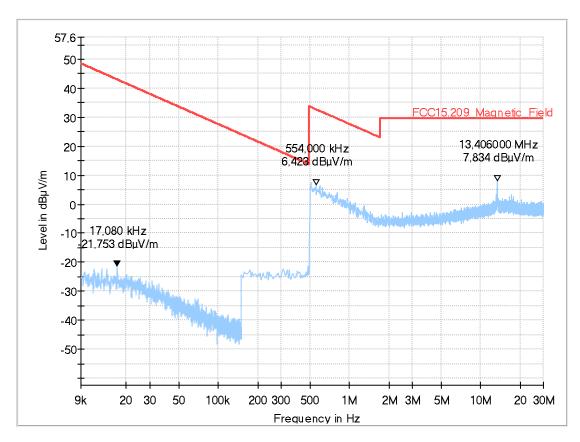
Used filter: bypass

Test specification: FCC 15.205 § 15.209; RSS-Gen: Issue 4

Operator: TF

Operating conditions: WLAN2.4\_b-Mode\_11MBit\_CH11

Power during tests: fully loaded batterie





# 2.2.2. Radiated Field Strength Emissions – 30 MHz to 1 GHz 3.03\_b-mode\_11Mbit\_ch11\_Laying

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Test description: Electric Field Strength Measurement

Test site and distance: Ref.-Nr. 441 Semi Ånechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.0 Distance correction: not used Used filter: not used

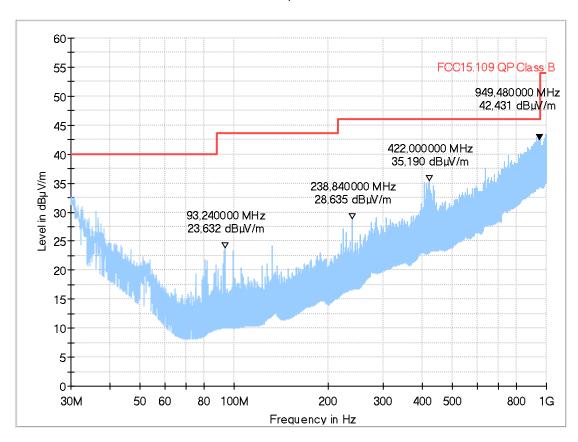
Technical Data: please see page 2 for detailed data of measurement setup

Test specification.: FCC 15.109 Class B; RSS-Gen. Issue 4

Operator: TF

Operating conditions: WLAN2.4GHz\_b-mode\_11Mbit\_ch11

Power during tests: full battery





# 2.2.3. Radiated Field Strength Emissions – 1 GHz to 18 GHz 4.01\_b-mode\_11Mbit\_ch11

#### **Common Information**

Test Description: Radiated field strength emission in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4

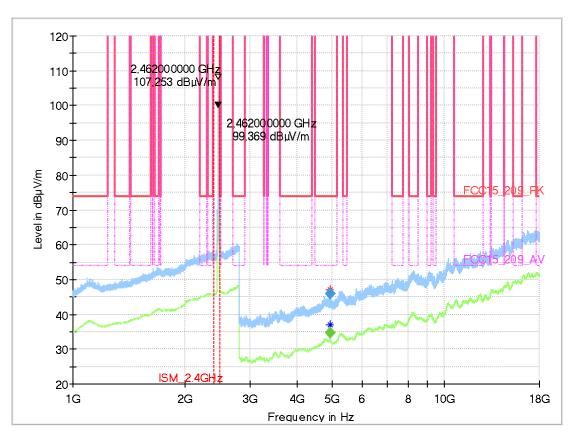
Antenna polarisation: horizontal/vertical

Operation mode: b-mode | 11Mbit | ch11 = 2462MHz

Operator Name: R

Comment:

#### Full Spectrum



#### Final Result

Frequency (MHz)	MaxPeak (dBµV/m )	Average (dBµV/m )	Limit (dBµV/m )	Margi n (dB)	Meas Time	Bandwidt h (kHz)	Heigh t (cm)	Pol	Azimut h (deg)	Elevatio n (deg)
4924.000000		34.69	54.00	19.31	100.0	1000.000	155.0	V	88.0	0.0
4924.000000	45.92		74.00	28.08	100.0	1000.000	155.0	V	79.0	0.0

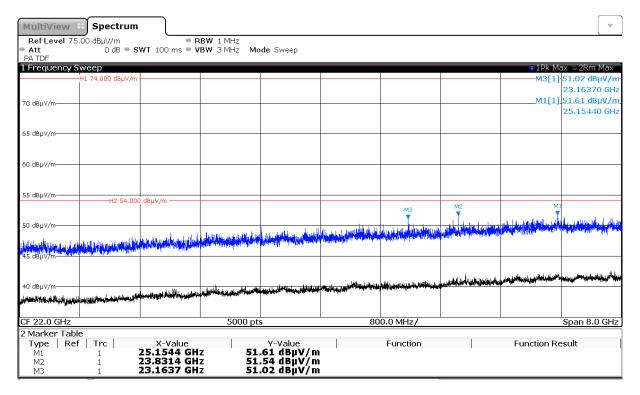
(continuation of the "Final\_Result" table from column 16 ...)

Frequency (MHz)	Corr	Comment
4924.000000	4.5	19:54:14 - 01.05.2018
4924.000000	4.5	19:52:38 - 01.05.2018



#### 2.2.4. Radiated Field Strength Emissions - 18 GHz to 25 GHz

#### $4.03\_WLAN2.4GHz\_CH11\_11MBit$

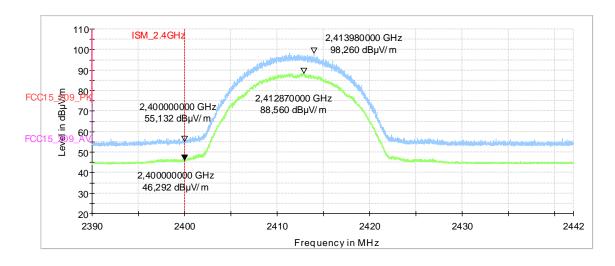




#### 2.2.5. Radiated Band-Edge Measurements

#### 2.2.5.1. b-mode\_11Mbit\_2412 MHz ( 2.4 GHz ISM: left band edge)

# 9.05\_b-mode\_11Mbit\_ch01





#### 2.2.5.2. b-mode\_11Mbit\_2462 MHz ( 2.4 GHz ISM: right band edge)

# 9.06\_b-mode\_11Mbit\_ch11

