

Annex 1: Measurement diagrams to TEST REPORT No.: 17-1-0048401T02a

According to:
FCC Regulations
Part 15.205 & Part 15.209
Part 15.247

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

for

Robert Bosch Car Multimedia
Navigation System with Bluetooth and WLAN
AIVIL12F0

FCC ID: YBN-AIVIL12F0
ISED: 9595A-AIVIL12F0

Laboratory Accreditation and Listings		
 Deutsche Akkreditierungsstelle D-PL-12047-01-01 Accredited EMC-Test Laboratory	 Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.:4452, C-20009, T-20006, G-20013
 	  Lab Code: 20011130-00	 MRA US-EU 0003
accredited according to DIN EN ISO/IEC 17025		
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1. Measurement diagrams

1.1. General Limit – Maximum power output conducted

Operational bands:	b-mode		
Channel no.:	1	6	11
b-mode			
1MBit	10,6	10,3	11,2
2Mbit	10,6	10,3	11,1
5.5Mbit	9,6	9,3	10,1
11MBit	10,1	9,8	10,7
Operational bands:	b-mode		
FCC-Limits output power [dBm]	30,00		
FCC-Limits EIRP [dBm]	36,00		
Limit Check:	Limit Check:		
Highest conducted power value over channels and modulations:	11,2		
Margin to Limit output power:	18,80		
Declared antenna Gain max:	-1,40		
Peak EIRP	9,80		
Margin to Limit EIRP:	26,20		
Verdict:	pass		

1.2. General Limit - Radiated field strength emissions below 30 MHz

Diagram No. 2.01a_b-mode_ch11_laying

Test description:	Date: 07.07.2018 Page 1 of 1
Test site and distance:	Magnetic Field Strength Measurement related to 30/300 m distance
Version of Testsoftware:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Distance correction:	EMC32 V9.25.0
Technical Data:	used accord. table, pls. see test report
Rec. antenna (pre-scan):	Please see page 2 for detailed data of measurement setup
Used filter:	height 1.00 m, parallel and 90° to EUT polarisation
Test specification:	bypass
Operator:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operating conditions:	HEI
Power during tests:	WLAN 2.4GHz_TX_Mode:b-mode_CH:11_Packet data:1MBit
Comment 1:	13,5 Volt
	DUT Laying

EUT Information

Manufacturer:	Robert Bosch Car Multimedia
Product:	AIVIL12F0
EUT Model:	AIVIL12F0
HW:	001
SW:	X317
Serial Nr.:	0007625
Conected Devices:	--

Full Spectrum

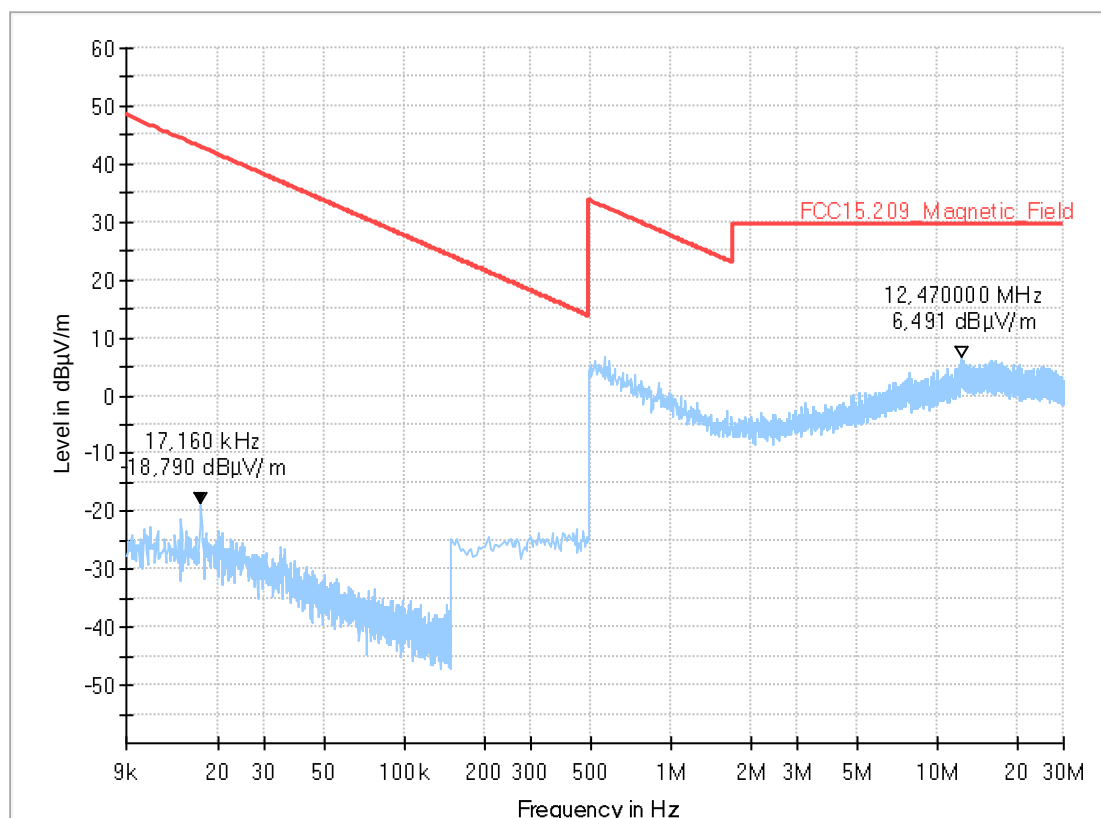


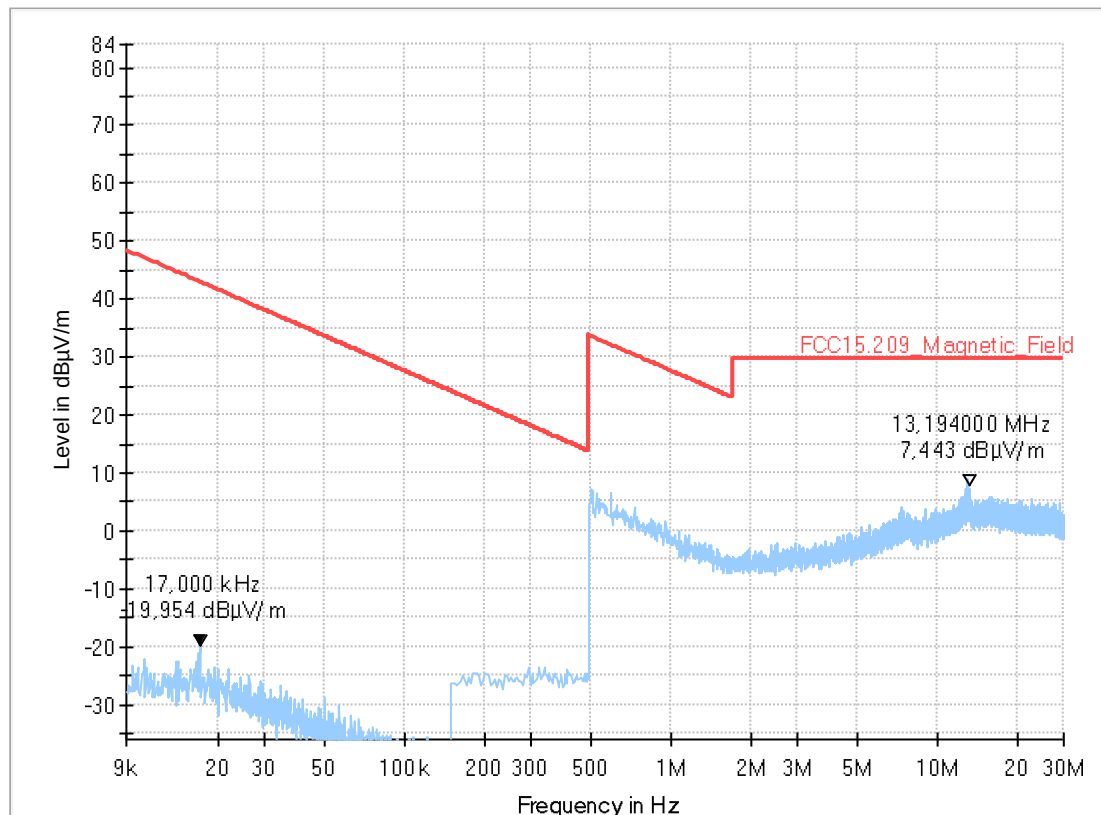
Diagram No. 2.01b_b-mode_ch11_standing

Date:	07.07.2018	Page 1 of 1
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:	HEI	
Operating conditions:	WLAN 2.4GHz_TX_Mode:b-mode_CH:11_Packet data:1MBit	
Power during tests:	13,5 Volt	
Comment 1:	DUT Standing	

EUT Information

Manufacturer:	Robert Bosch Car Multimedia
Product:	AIVIL12F0
EUT Model:	AIVIL12F0
HW:	001
SW:	X317
Serial Nr.:	0007625
Connected Devices:	--

Full Spectrum



1.3. General Limit - Radiated field strength emissions, 30 MHz - 1 GHz

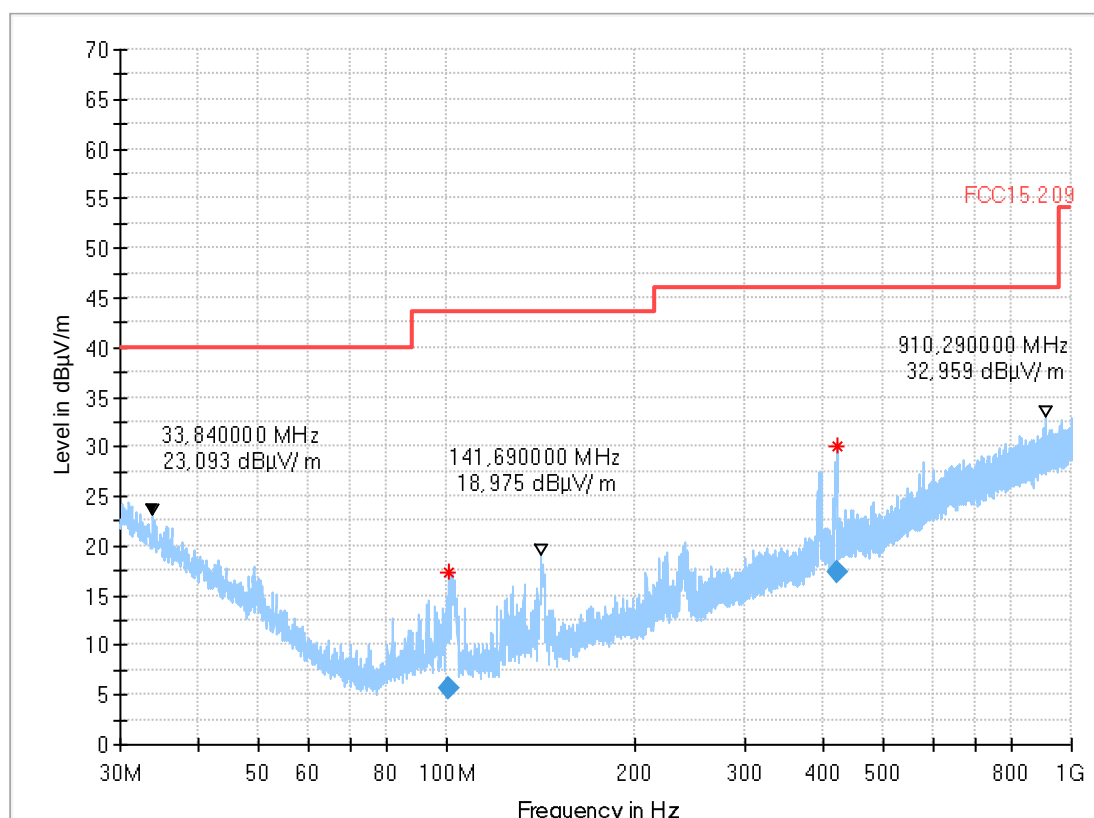
Diagram No. 3.01a_b-mode_ch11_laying

07.07.2018 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
 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 15.209; RSS-Gen: Issue 3
 Operator: HEI
 Operating conditions: WLAN_2.4GHz_TX_Mode:b-mode_CH:11_Data Rate:1Mbit
 Power during tests: 13.5Voult
 Comment 1: DUT Laying

EUT Information

Manufacturer: Robert Bosch Car Multimedia
 Product: AIVIL12F0
 EUT Model: AIVIL12F0
 HW: 001
 SW: X317
 Serial Nr.: 0007625
 Connected Devices: --

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
100.653000	5.66	43.50	37.84	1000.0	120.000	182.0	H	191.0	0.0
421.195000	17.27	46.00	28.73	1000.0	120.000	182.0	H	225.0	0.0

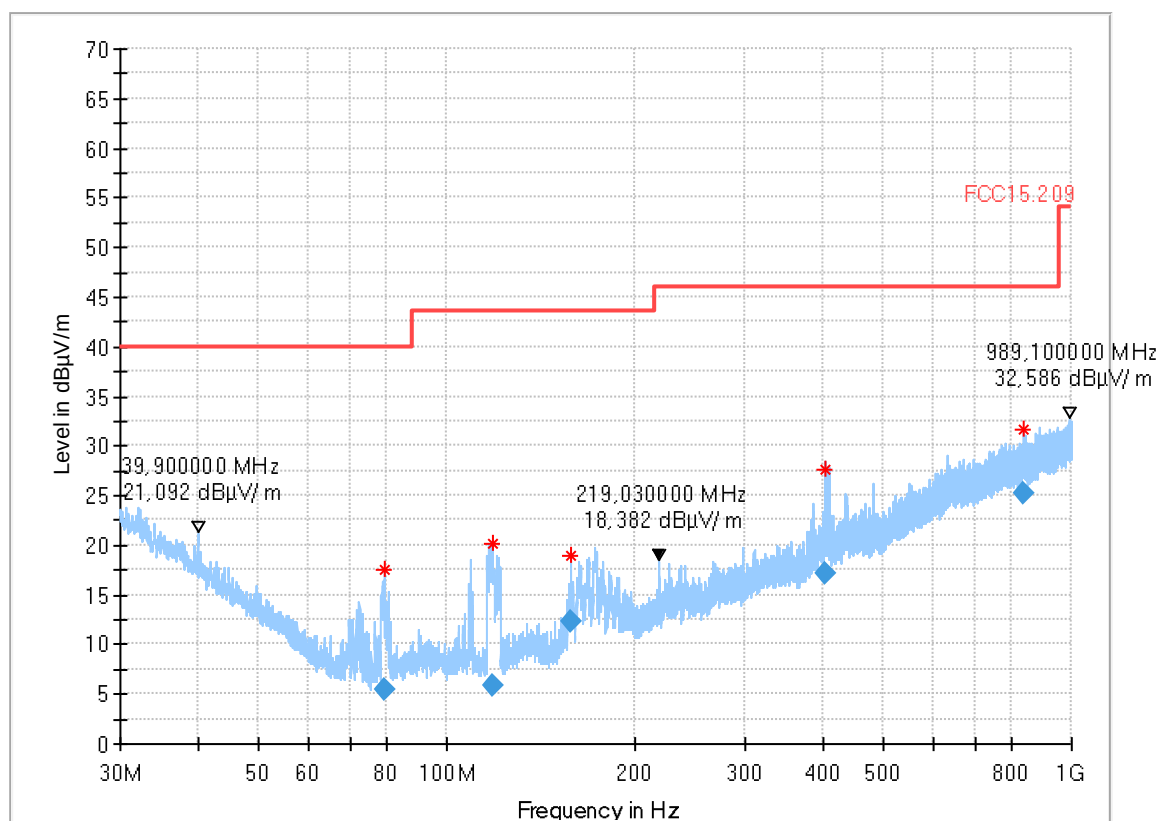
Diagram No. 3.01b_b-mode_ch11_standing

07.07.2018 Page 1 of 1
 Electric Field Strength Measurement
 Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
 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 15.209; RSS-Gen: Issue 3
 Operator: HEI
 Operating conditions: WLAN_2.4GHz_TX_Mode:b-mode_CH:11_Data Rate:1Mbit
 Power during tests: 13.5Voult
 Comment 1: DUT standing

EUT Information

Manufacturer: Robert Bosch Car Multimedia
 Product: AIVIL12F0
 EUT Model: AIVIL12F0
 HW: 001
 SW: X317
 Serial Nr.: 0007625
 Conected Devices: --

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
79.593000	5.43	40.00	34.57	1000.0	120.000	182.0	H	202.0	0.0
118.435000	5.92	43.50	37.58	1000.0	120.000	182.0	H	144.0	0.0
158.185000	12.35	43.50	31.15	1000.0	120.000	105.0	V	20.0	0.0
404.189000	17.14	46.00	28.86	1000.0	120.000	182.0	V	39.0	0.0
839.369000	25.19	46.00	20.81	1000.0	120.000	182.0	H	157.0	0.0

1.4. General Limit - Radiated emissions, above 1 GHz

Diagram No.: 8.01a_b-mode_ch11_standing

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:	TFra
Comment:	Channel no. 11

EUT Information

Manufacturer:	Robert Bosch Car Multimedia
Product:	AIVIL12F0
EUT Model:	AIVIL12F0
HW:	001
SW:	X317
Serial Nr.:	0007625
Connected Devices:	--

Full Spectrum

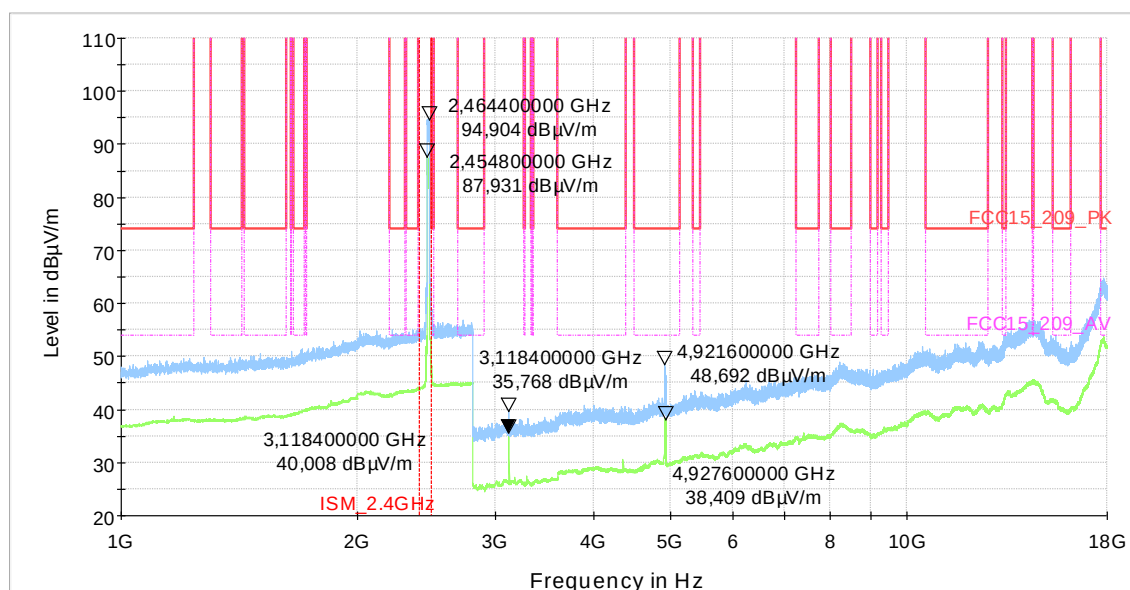


Diagram No.: 8.01b_b-mode_ch11_laying

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:	TFra
Comment:	Channel no. 11

EUT Information

Manufacturer:	Robert Bosch Car Multimedia
Product:	AIVIL12F0
EUT Model:	AIVIL12F0
HW:	001
SW:	X317
Serial Nr.:	0007625
Connected Devices:	--

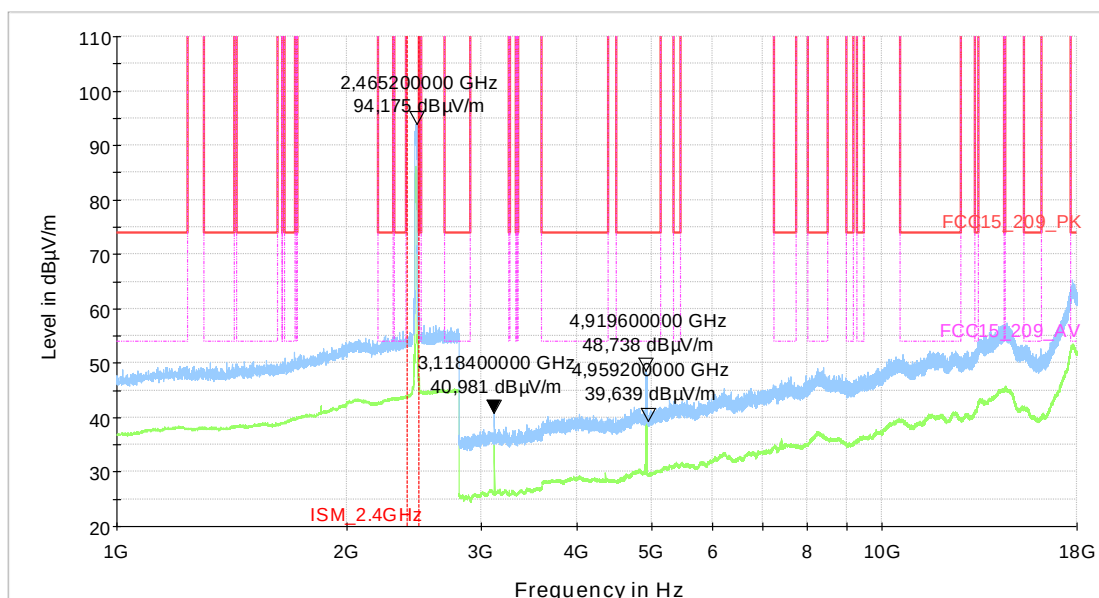
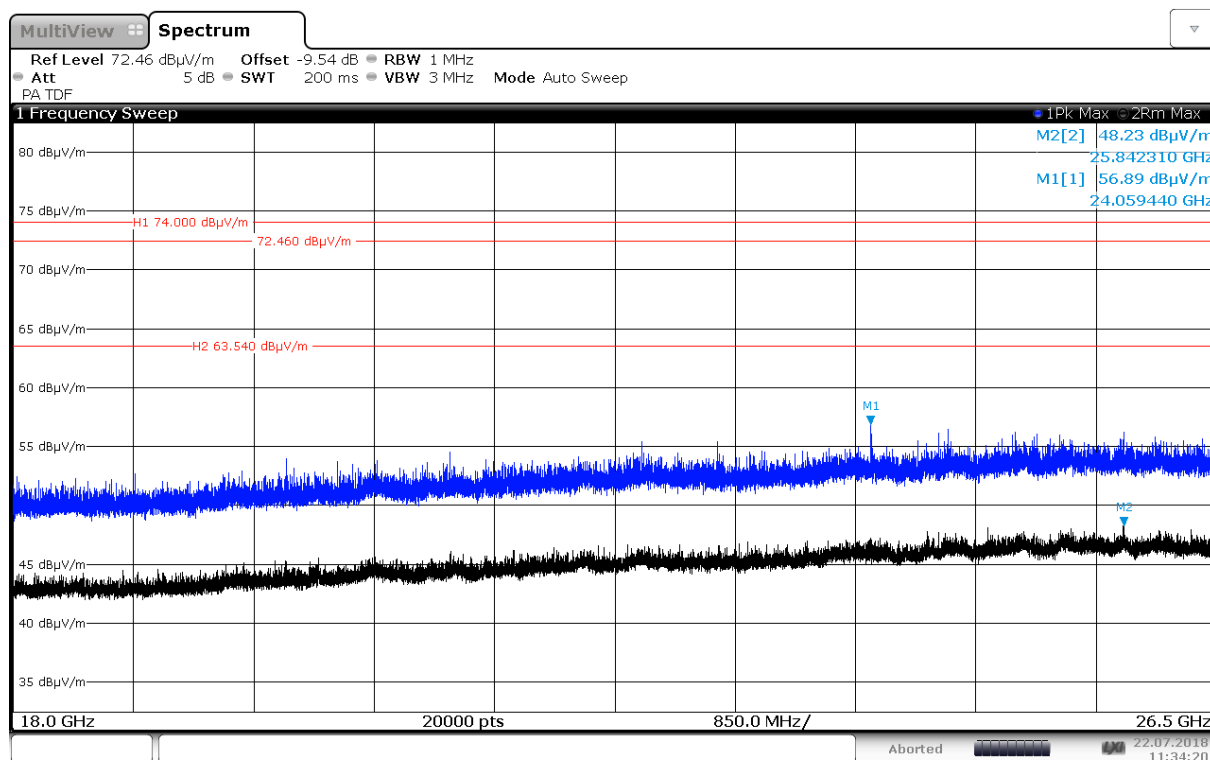


Diagram No.: 4.03_b-mode_ch11_1Mbit



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1.5. RF-Parameter - Band Edge compliance measurements

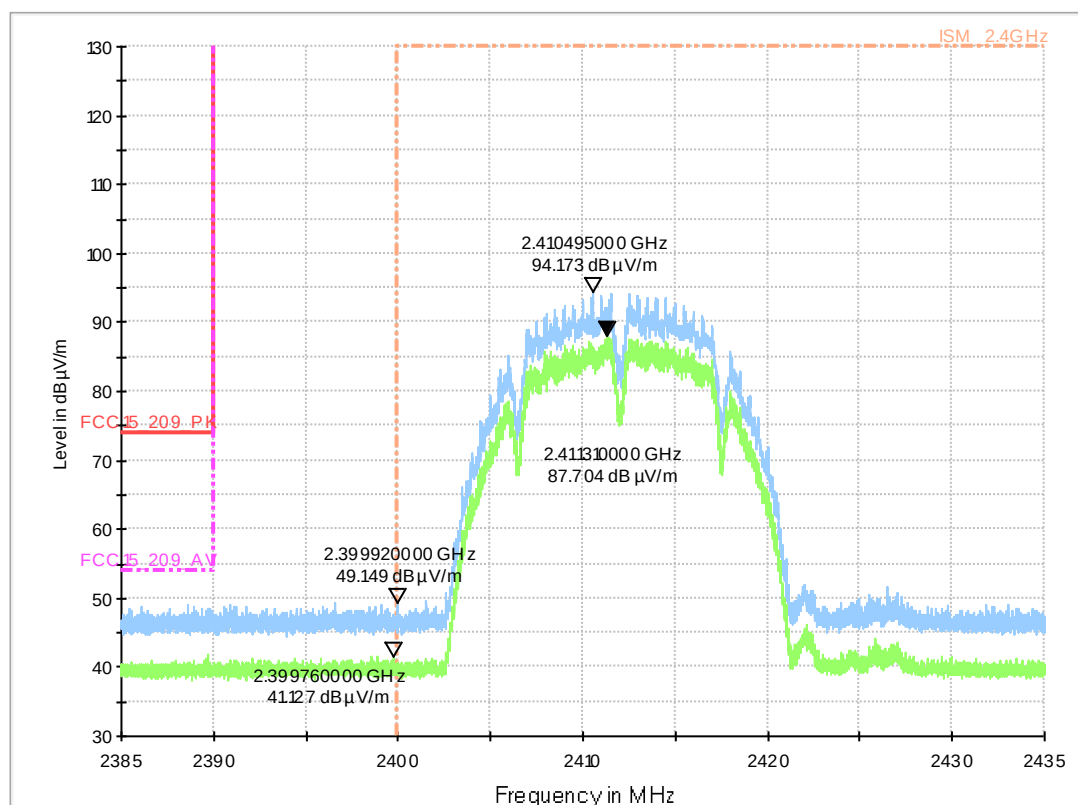
9.01a_b-mode_ch01_laying

Common Information

Test Description:	Band edge WLAN 2.4GHz
Test Site:	CETECOM GmbH Essen
Test Standard:	
Environment Conditions:	Humidity: 48%rH; Temperature: 18°C
Operator Name:	TFr
Comment:	EUT Laying

EUT Information

Manufacturer:	Robert Bosch Car Multimedia
Product:	AIVIL12F0
EUT Model:	AIVIL12F0
HW:	001
SW:	X317
Serial Nr.:	0007625
Connected Devices:	--



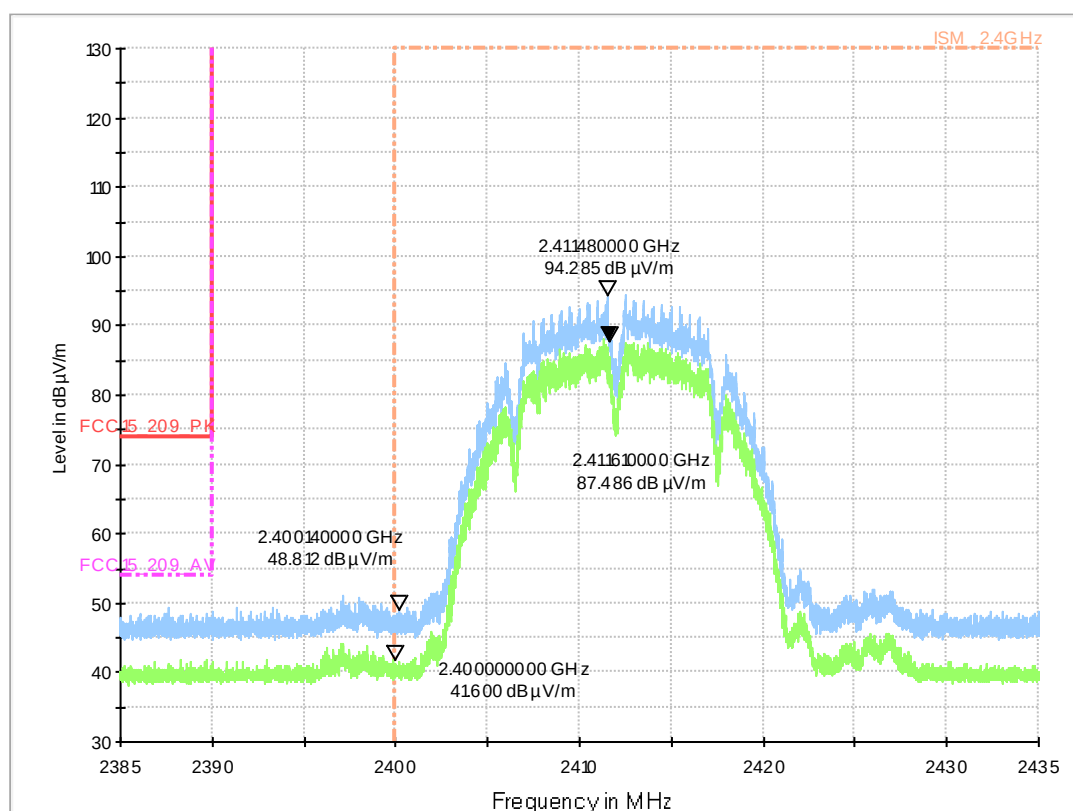
9.01a_b-mode_ch01_standing

Common Information

Test Description:	Band edge WLAN 2.4GHz
Test Site:	CETECOM GmbH Essen
Test Standard:	
Environment Conditions:	Humidity: 48%rH; Temperature: 18°C
Operator Name:	TFr
Comment:	EUT Laying

EUT Information

Manufacturer:	Robert Bosch Car Multimedia
Product:	AIVIL12F0
EUT Model:	AIVIL12F0
HW:	001
SW:	X317
Serial Nr.:	0007625
Connected Devices:	--



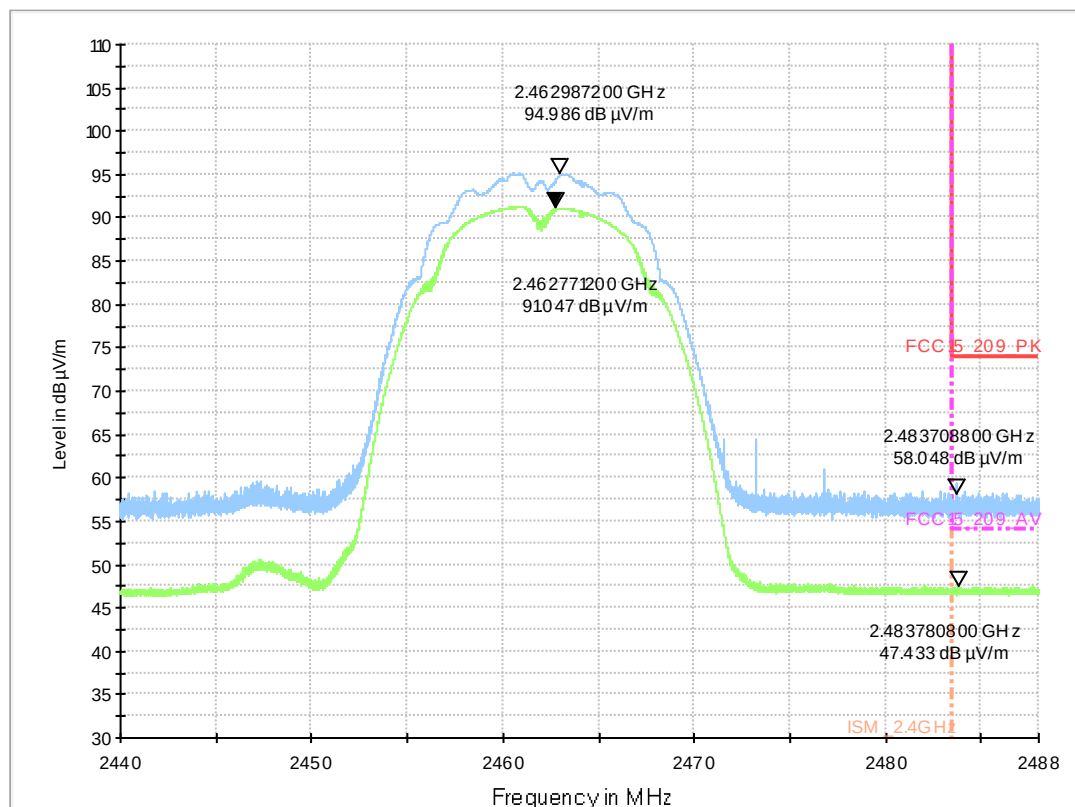
9.01b_b-mode_ch11_laying

Common Information

Test Description:	Band edge WLAN 2.4GHz
Test Site:	CETECOM GmbH Essen
Test Standard:	
Environment Conditions:	Humidity: 48%rH; Temperature: 18°C
Operator Name:	TFr
Comment:	EUT Laying

EUT Information

Manufacturer:	Robert Bosch Car Multimedia
Product:	AIVIL12F0
EUT Model:	AIVIL12F0
HW:	001
SW:	X317
Serial Nr.:	0007625
Conected Devices:	--



9.01b_b-mode_ch11_standing

Common Information

Test Description:	Band edge WLAN 2.4GHz
Test Site:	CETECOM GmbH Essen
Test Standard:	
Environment Conditions:	Humidity: 48%rH; Temperature: 18°C
Operator Name:	TFr

EUT Information

Manufacturer:	Robert Bosch Car Multimedia
Product:	AIVIL12F0
EUT Model:	AIVIL12F0
HW:	001
SW:	X317
Serial Nr.:	0007625
Connected Devices:	--

