

ANNEX 1: Measurement diagrams
to
PARTIAL TEST REPORT
No.: 6-0524-14-3-2a

According to:

FCC Part 15.247

for

Bosch Security Systems BV

DICENTIS Wireless Access Point DCNM-WAP
+
FCC-ID: UX8-DCNMWAP

Laboratory Accreditation and Listings			
 DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01	 FCC MRA US-EU 0003	 Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2666 C-2914, T-1967, G-301
 WiFi ALLIANCE AUTHORIZED RF LABORATORY	 CTIA Authorized Test Lab LAB CODE 20011130-00		
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1. Conducted EMI measurements on AC-mains port according 15.207, class B

Diagram 1.001_EMI_AC_WAP_Ch6

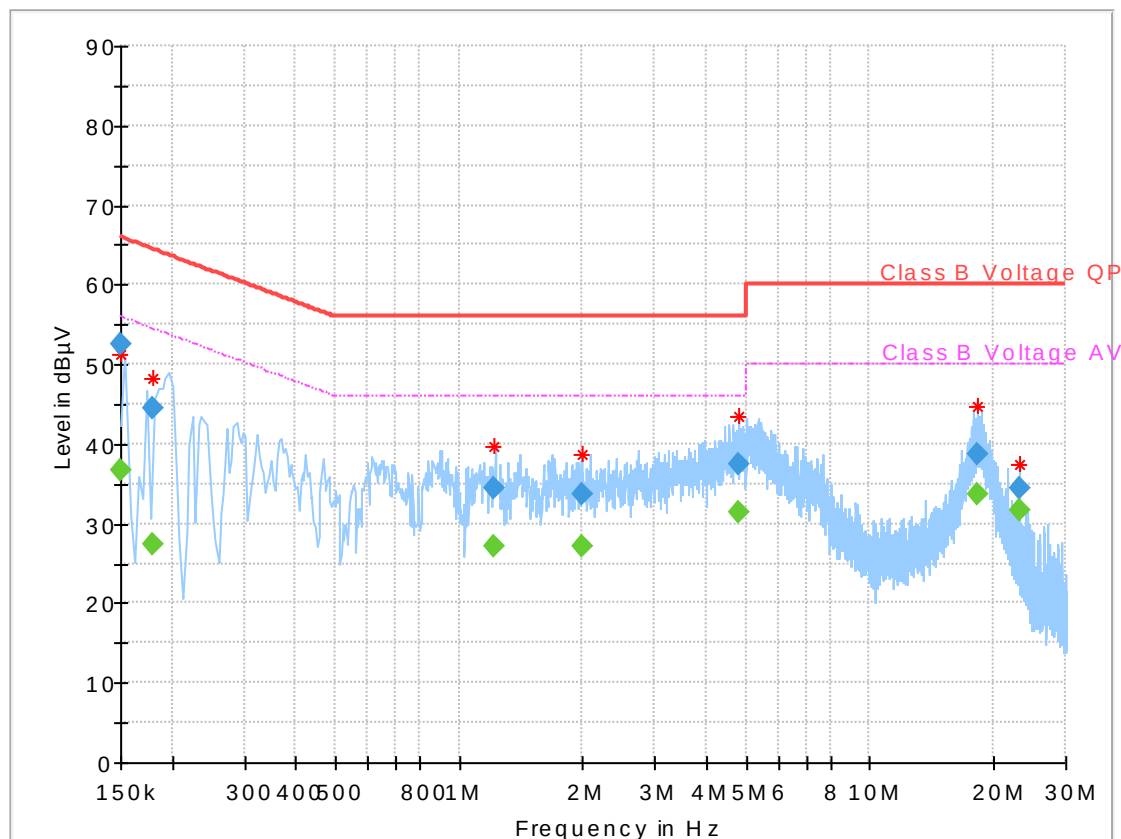
Common Information

Test Description:	Conducted Voltage Measurement Class B
Test Site & Location:	Conducted Emission, CETECOM GmbH Essen
Test Software:	R&S EMC32 v9.15
Test Specification:	FCC 15.207
Operating Mode:	TX, Channel 6 (2437 MHz) + Ping from Notebook to Router + to WAP
Measured on line:	N/L1
Diagram details:	Shows the peak values as a sum of measured ports in maxhold mode
Environmental Conditions:	Humidity: 28%rH; Temperature: 21,4°C
Operator:	Lor
Comments:	MCS8, Ant0+1

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888245831022001
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable
Power Supply:	120V AC 60 Hz

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)
0.150000	---	36.60	56.00
0.150000	52.59	---	66.00
0.180469	---	27.31	54.46
0.180469	44.56	---	64.46
1.216719	---	27.04	46.00
1.216719	34.51	---	56.00
1.988438	33.76	---	56.00
1.988438	---	27.21	46.00
4.777500	37.43	---	56.00
4.777500	---	31.32	46.00
18.195000	---	33.61	50.00
18.195000	38.84	---	60.00
23.127969	---	31.60	50.00
23.127969	34.54	---	60.00

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)
0.150000	---	36.60	56.00
0.150000	52.59	---	66.00
0.180469	---	27.31	54.46
0.180469	44.56	---	64.46
1.216719	---	27.04	46.00
1.216719	34.51	---	56.00
1.988438	33.76	---	56.00
1.988438	---	27.21	46.00
4.777500	37.43	---	56.00
4.777500	---	31.32	46.00
18.195000	---	33.61	50.00
18.195000	38.84	---	60.00
23.127969	---	31.60	50.00
23.127969	34.54	---	60.00

Diagram 1.004_EMI_AC_WAP_Ch157

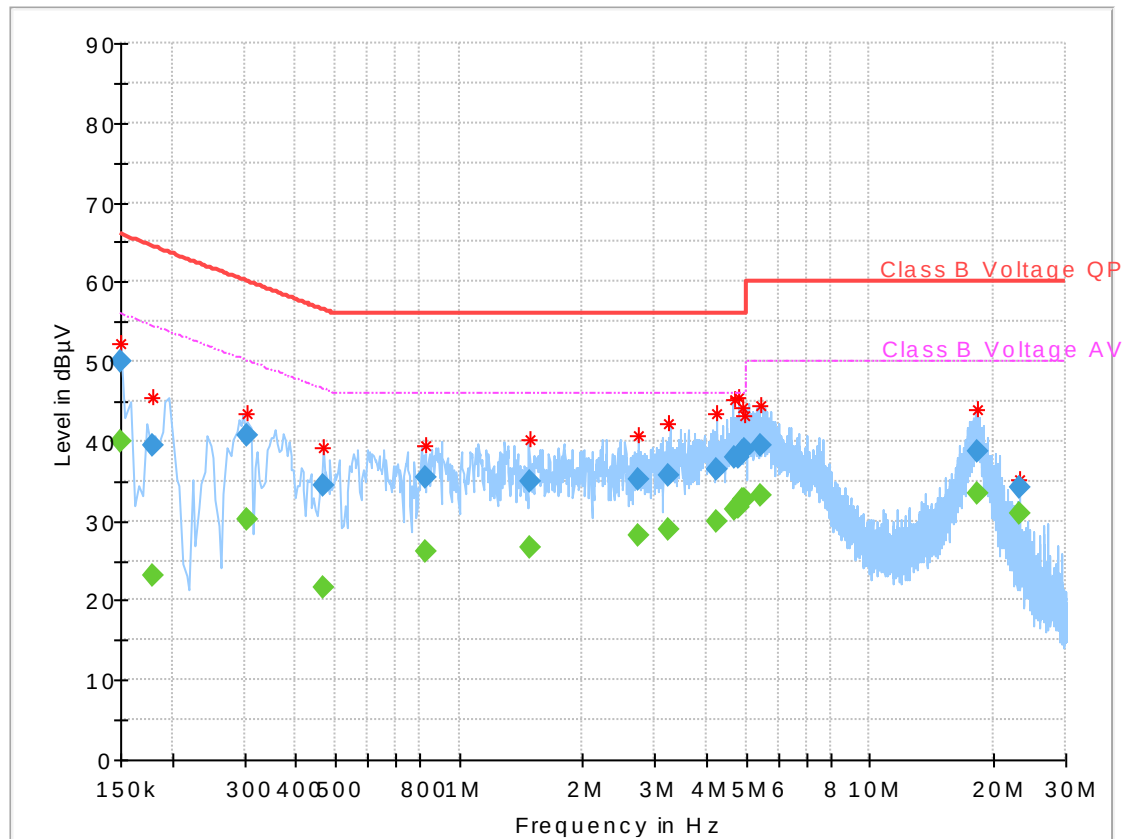
Common Information

Test Description:	Conducted Voltage Measurement Class B
Test Site & Location:	Conducted Emission, CETECOM GmbH Essen
Test Software:	R&S EMC32 v9.15
Test Specification:	FCC 15.207
Operating Mode:	TX, Channel 157 (5785 MHz) + Ping from Notebook to Router + to WAP
Measured on line:	N/L1
Diagram details:	Shows the peak values as a sum of measured ports in maxhold mode
Environmental Conditions:	Humidity: 28%rH; Temperature: 21,4°C
Operator:	Lor
Comments:	MCS8, Ant0+1

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888245831022001
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable
Power Supply:	120V AC 60 Hz

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)
0.150000	---	39.86	56.00
0.150000	49.99	---	66.00
0.179375	39.47	---	64.51
0.179375	---	23.12	54.51
0.305938	---	30.20	50.08
0.305938	40.69	---	60.08
0.468906	---	21.72	46.53
0.468906	34.43	---	56.53
0.828750	---	26.04	46.00
0.828750	35.50	---	56.00
1.495625	---	26.65	46.00
1.495625	34.88	---	56.00
2.734531	35.09	---	56.00
2.734531	---	28.11	46.00
3.242969	---	29.02	46.00
3.242969	35.75	---	56.00
4.237969	36.43	---	56.00
4.237969	---	29.88	46.00
4.666406	38.05	---	56.00
4.666406	---	31.50	46.00
4.783125	38.01	---	56.00
4.783125	---	31.62	46.00
4.907500	---	32.59	46.00
4.907500	38.83	---	56.00
4.961719	38.90	---	56.00
4.961719	---	32.56	46.00
5.400781	---	33.24	50.00
5.400781	39.44	---	60.00
18.213438	---	33.49	50.00
18.213438	38.67	---	60.00
23.127969	---	30.90	50.00
23.127969	34.12	---	60.00

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)
0.150000	---	39.86	56.00
0.150000	49.99	---	66.00
0.179375	39.47	---	64.51
0.179375	---	23.12	54.51
0.305938	---	30.20	50.08
0.305938	40.69	---	60.08
0.468906	---	21.72	46.53
0.468906	34.43	---	56.53
0.828750	---	26.04	46.00
0.828750	35.50	---	56.00
1.495625	---	26.65	46.00
1.495625	34.88	---	56.00
2.734531	35.09	---	56.00
2.734531	---	28.11	46.00
3.242969	---	29.02	46.00
3.242969	35.75	---	56.00
4.237969	36.43	---	56.00
4.237969	---	29.88	46.00
4.666406	38.05	---	56.00
4.666406	---	31.50	46.00
4.783125	38.01	---	56.00
4.783125	---	31.62	46.00
4.907500	---	32.59	46.00
4.907500	38.83	---	56.00
4.961719	38.90	---	56.00
4.961719	---	32.56	46.00
5.400781	---	33.24	50.00
5.400781	39.44	---	60.00
18.213438	---	33.49	50.00
18.213438	38.67	---	60.00
23.127969	---	30.90	50.00
23.127969	34.12	---	60.00

2. Radiated field strength measurements accord. §15.209&15.205

2.1. Magnetic field measurements $f < 30\text{MHz}$

Diagram No. 2.05a_Tx_Ch6_HT20_MCS8

Test description:	Date: 21.01.2015 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 V8.51.0
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
	FCC 15.205 § 15.209

Operator:	Lor
Operating conditions:	TX-on , continuous, modulation on, Channel 6
Power during tests:	120V AC/ 60Hz powered
Comment 1:	Channel middle=2437MHz

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable

FCC15.209_magn hor+vert

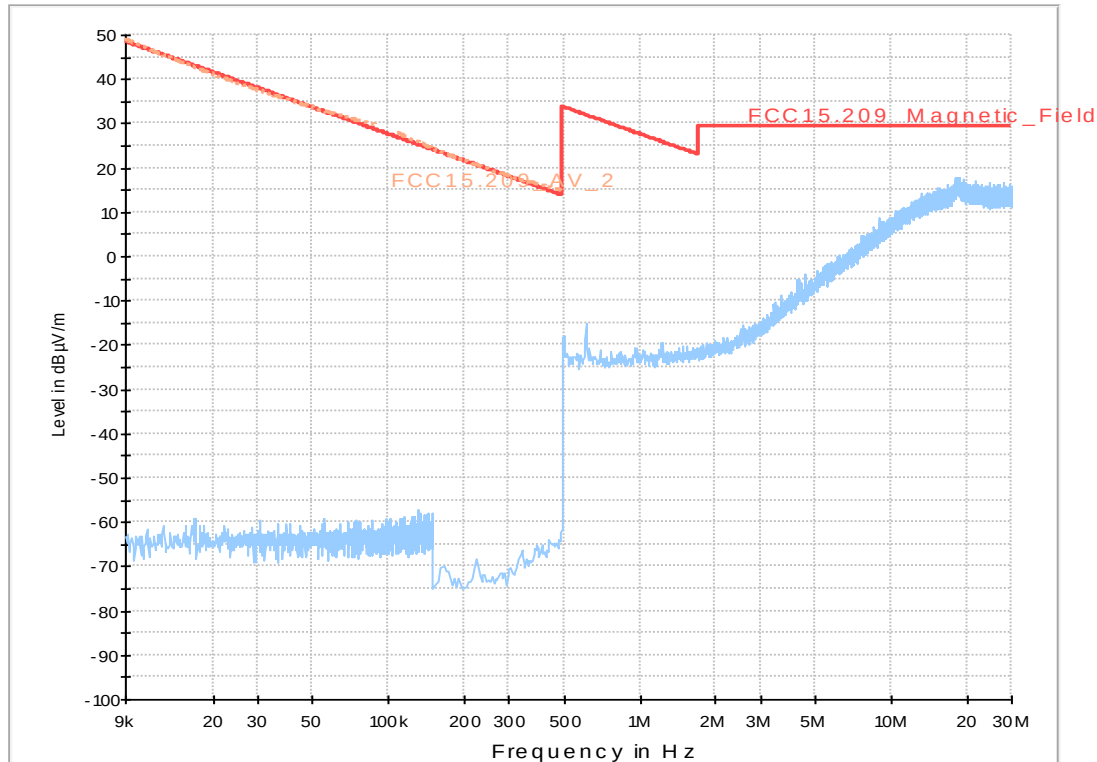


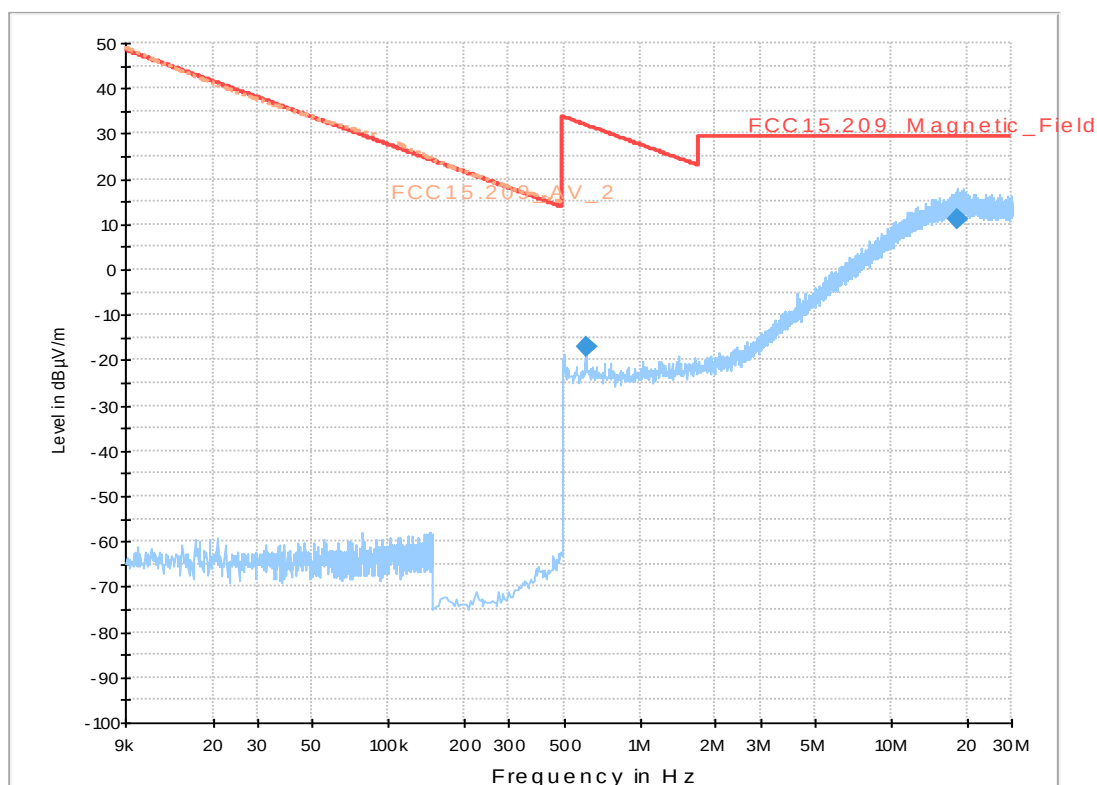
Diagram No. 2.07a_Tx_Ch157_HT20_MCS8

Date: 21.01.2015 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 V8.51.0
 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
 Operator: Lor
 Operating conditions: TX-on , continuous, modulation on, Channel 157
 Power during tests: 120V AC/ 60Hz powered
 Comment 1: Channel middle=5785MHz

EUT Information

Manufacturer: Bosch Security
 EuT: DCNM-WAP
 Serial Number: 045888246018031010
 Connected Interfaces: AC adapter, 2 audio lines with load, CAT5e cable

FCC15.209_magn hor+vert



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
0.608000	-17.0	1000.0	10.000	V	0.0	-35.5	49.00	31.90
18.288000	11.1	1000.0	10.000	H	5.0	3.1	18.40	29.50

2.2. Field strength measurements 30MHz < f < 1GHz

Diagram No. 3.01a_Tx_Ch6

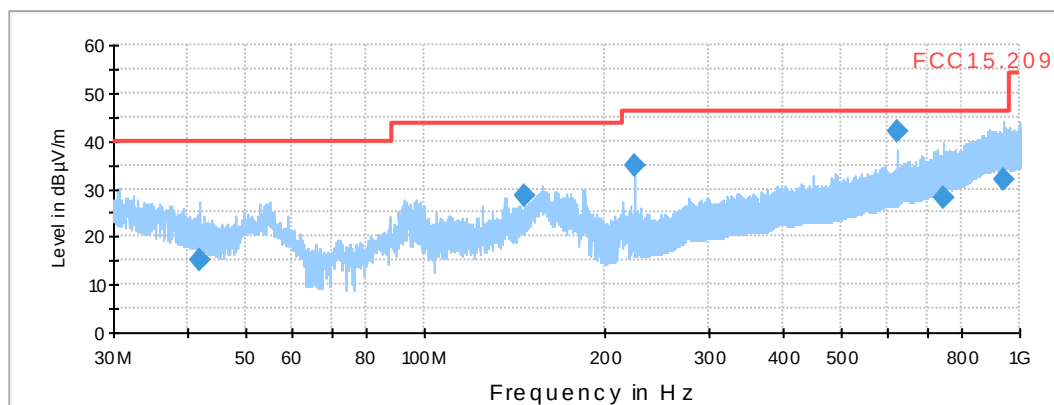
Common Information

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 V8.51.0
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
Operator:	Kta/Lor
Operating conditions:	WLAN, channel 6, MCS8
Power during tests:	120V/ 60Hz
Comment 1:	POWER LEVEL=15dBm

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e LAN cable

01_FCC15.209_hor+vert_KP0



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
41.840000	15.0	1000.0	120.000	166.0	H	199.0	16.8	25.00	40.00
147.450000	28.7	1000.0	120.000	105.0	V	277.0	8.9	14.80	43.50
225.000000	34.7	1000.0	120.000	105.0	H	115.0	12.7	11.30	46.00
624.990000	41.8	1000.0	120.000	105.0	H	305.0	22.8	4.20	46.00
745.220000	28.0	1000.0	120.000	315.0	V	344.0	24.9	18.00	46.00
937.090000	32.0	1000.0	120.000	224.0	V	64.0	27.1	14.00	46.00

Diagram No. 3.01b_Tx_Ch6

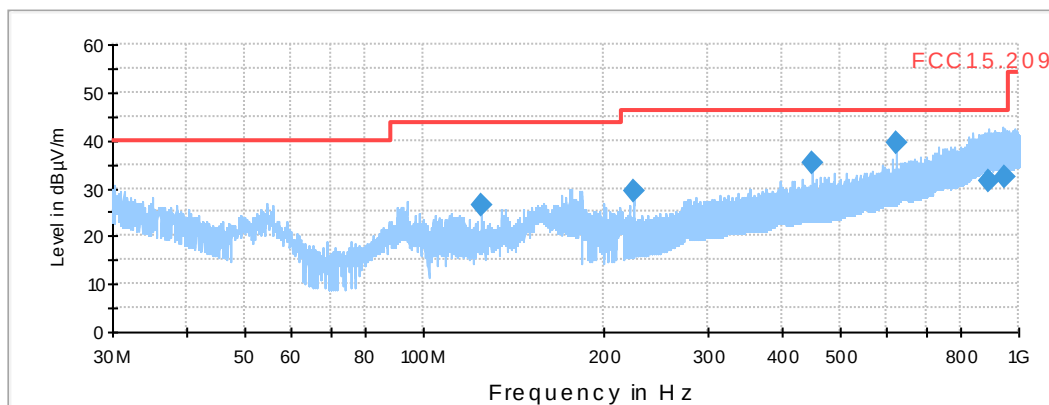
Common Information

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 V8.51.0
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
Operator:	Kta/Lor
Operating conditions:	WLAN, channel 6, MCS8
Power during tests:	120V/ 60Hz
Comment 1:	POWER LEVEL=15dBm

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e LAN cable

01_FCC15.209_hor+vert_KP0



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
124.990000	26.4	1000.0	120.000	105.0	V	281.0	8.3	17.10	43.50
225.000000	29.4	1000.0	120.000	124.0	V	56.0	12.7	16.60	46.00
449.990000	35.2	1000.0	120.000	166.0	H	190.0	19.4	10.80	46.00
624.990000	39.6	1000.0	120.000	105.0	H	302.0	22.8	6.40	46.00
890.370000	31.6	1000.0	120.000	144.0	V	76.0	26.7	14.40	46.00
944.530000	32.2	1000.0	120.000	249.0	H	28.0	27.3	13.80	46.00

Diagram No. 3.04a_Tx_Ch157

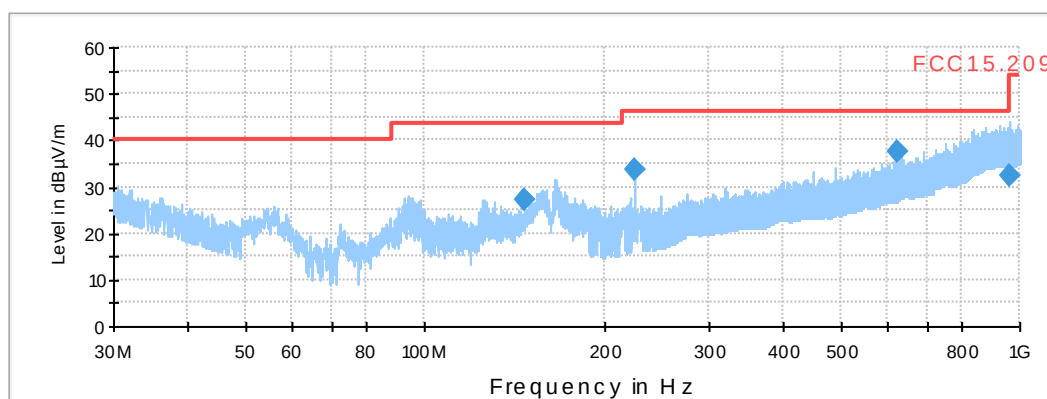
09.12.2014 Page 1 of 1
 Test description: Electric Field Strength Measurement
 Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
 Version of Testsoftware: EMC32 V8.51.0
 Distance correction: not used
 Used filter: not used
 Technical Data: please see page 2 for detailed data of measurement setup
 Test specification.: FCC 15.209

Operator: GAR
 Operating conditions: WLAN 5GHz, Channel 157, HT20 Mode, MCS8
 Power during tests: 120V/ 60Hz
 Comment 1: POWER LEVEL=15dBm

EUT Information

Manufacturer: Bosch Security
 EuT: DCNM-WAP
 Serial Number: 045888246018031010
 Connected Interfaces: AC adapter, 2 audio lines with load, CAT5e LAN cable

01_FCC15.209_hor+vert_KP0



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
147.440000	27.2	1000.0	120.000	105.0	V	267.0	8.9	16.30	43.50
224.970000	33.5	1000.0	120.000	105.0	H	114.0	12.7	12.50	46.00
624.990000	37.5	1000.0	120.000	105.0	V	260.0	22.8	8.50	46.00
958.850000	32.2	1000.0	120.000	268.0	H	137.0	27.5	13.80	46.00

Diagram No. 3.04b_Tx_Ch157

09.12.2014 Page 1 of 1

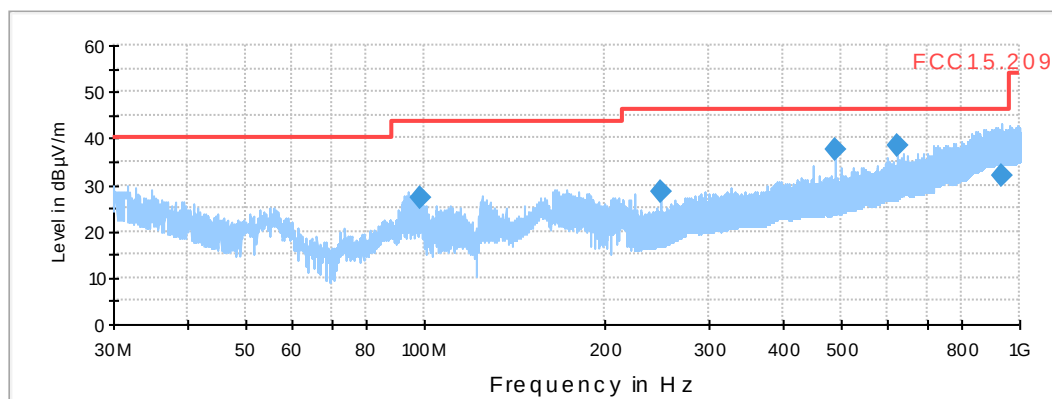
Test description: Electric Field Strength Measurement
 Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
 Version of Testsoftware: EMC32 V8.51.0
 Distance correction: not used
 Used filter: not used
 Technical Data: please see page 2 for detailed data of measurement setup
 Test specification.: FCC 15.209; RSS-Gen: Issue 4

Operator: GAR
 Operating conditions: WLAN 5GHz, Channel 157, HT20 Mode, MCS8
 Power during tests: 120V/ 60Hz
 Comment 1: POWER LEVEL=15dBm

EUT Information

Manufacturer: Bosch Security
 EuT: DCNM-WAP
 Serial Number: 045888246018031010
 Connected Interfaces: AC adapter, 2 audio lines with load, CAT5e LAN cable

01_FCC15.209_hor+vert_KP0



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
98.310000	27.4	1000.0	120.000	105.0	V	304.0	8.7	16.10	43.50
250.000000	28.5	1000.0	120.000	105.0	H	258.0	13.3	17.50	46.00
491.510000	37.4	1000.0	120.000	134.0	H	213.0	19.7	8.60	46.00
625.000000	38.5	1000.0	120.000	105.0	H	315.0	22.8	7.50	46.00
932.190000	32.0	1000.0	120.000	199.0	V	248.0	27.0	14.00	46.00

2.3. Field strength measurements $f > 1\text{GHz}$

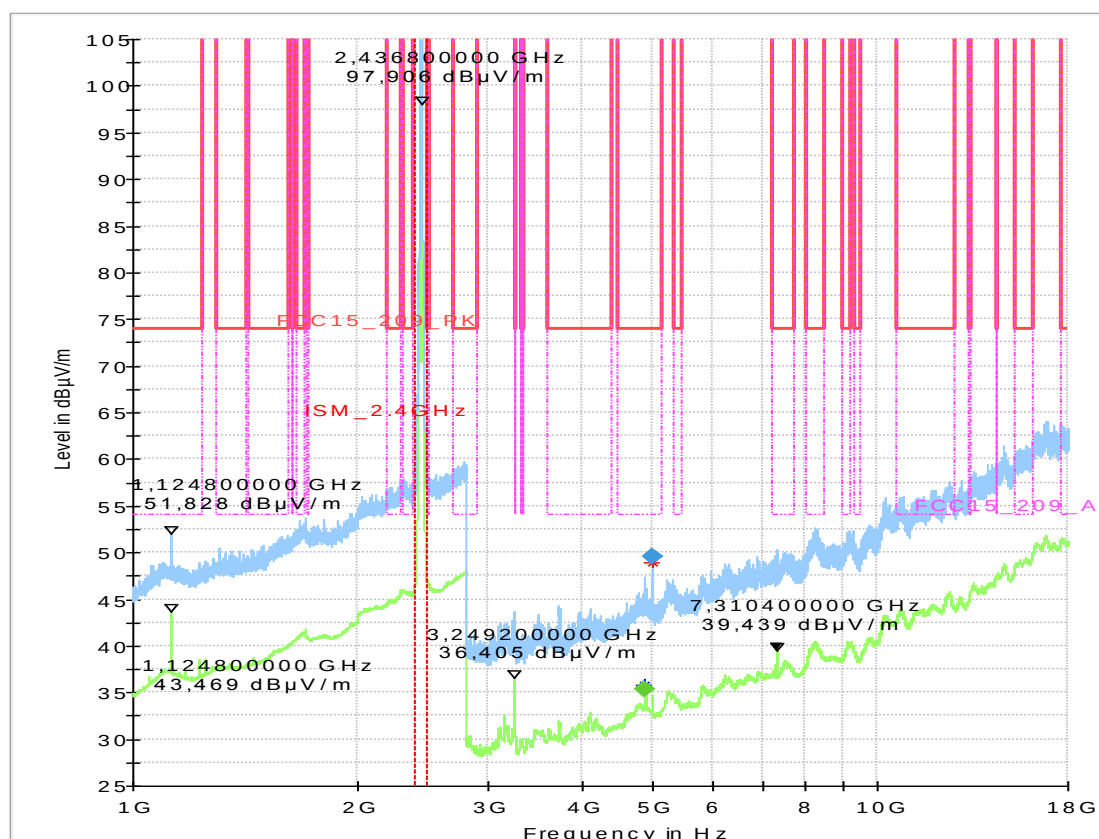
Diagram No.: 4.01_RSE_WLan_2.4G_CH6_MCS8

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
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous 100% on channel 6, MCS8, 15dBm power level
Operator Name:	Lor
Comment:	Channel no. middle=6

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable
Power Supply:	120V AC 60 Hz



Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	RMS (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
4873.610000	---	35.40	54.00	18.60	100.0	1000.000	155.0	H	53.0	90.0
4977.170000	49.54	---	74.00	24.46	100.0	1000.000	155.0	V	330.0	90.0

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Corr.
4873.610000	4.7
4977.170000	4.2

Diagram No.: 4.01b_2.4G_Ch6_MCS8

Common Information

Test Description:	Radiated field strength emission in 1m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247, 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Distance correction factor	3 to 1m: -10.5 dB applying to measurement results
SW-Version:	EMC32 V8.53.0
Operation mode:	TX mode continuous
Operator Name:	Lor
Comment:	Channel no. middle=6

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable

EMI Scan_18_25GHz_Pre

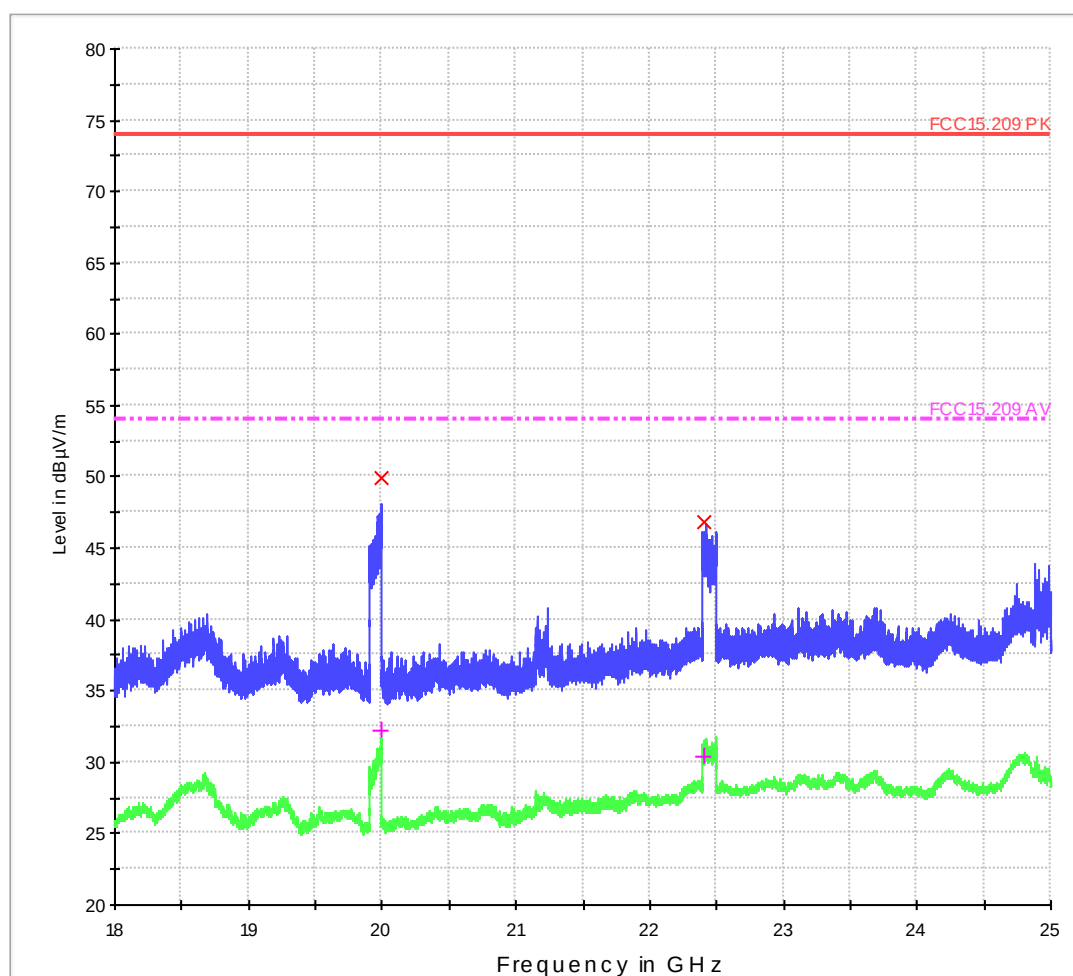


Diagram No.:4.04a_RSE_5G_CH157_MCS8_PWR

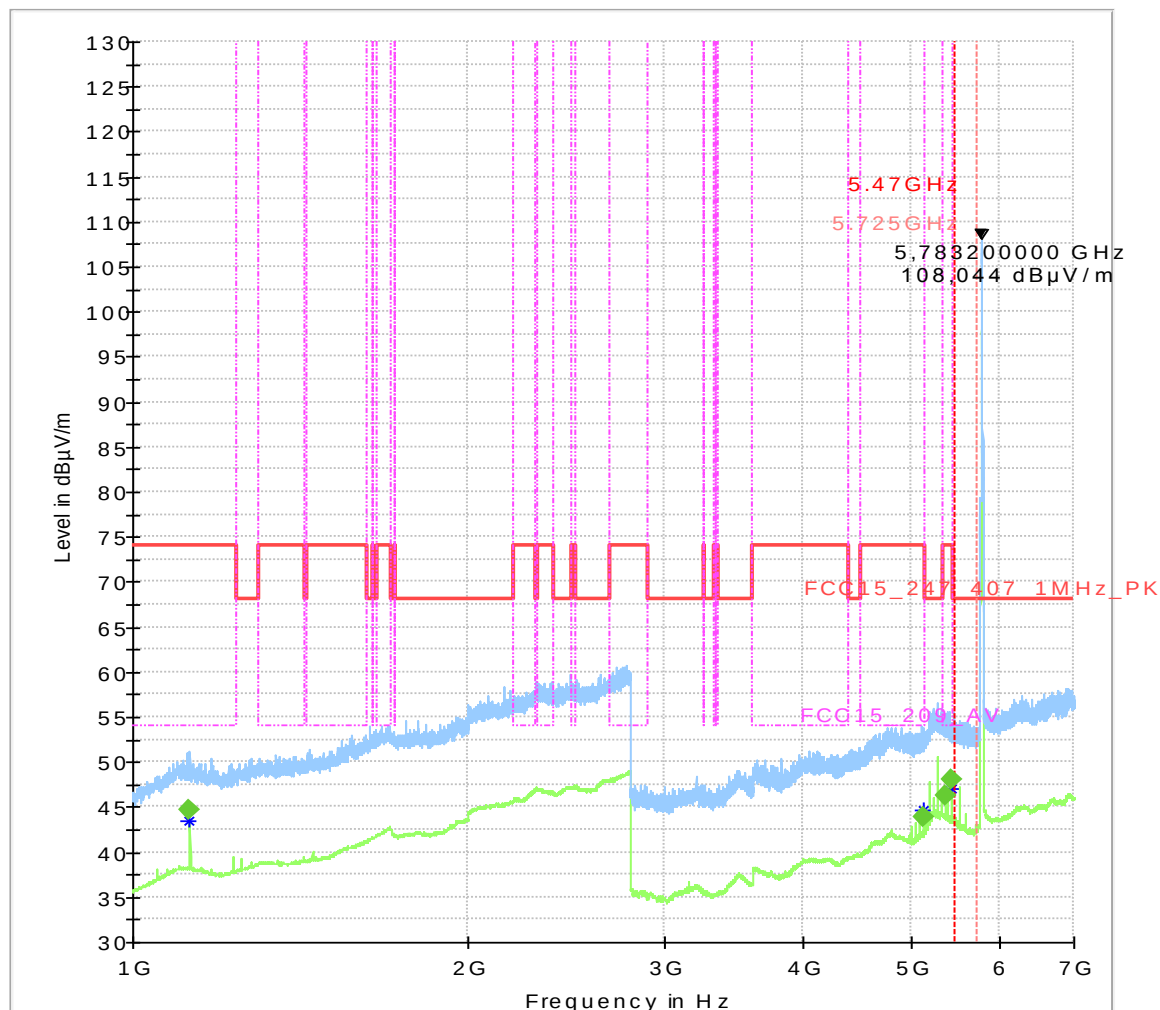
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.407&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous, 100%
Operator Name:	Lor
Comment:	Channel no. middle=157, HT20, MCS8

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable
Power Supply:	120V AC 60 Hz

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dB μ V/m)	RMS (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Measurement Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)
1125.050000	---	44.72	54.00	9.28	100.0	1000.000	155.0	H	14.0	90.0
5120.000000	---	43.84	54.00	10.16	100.0	1000.000	155.0	H	64.0	90.0
5360.000000	---	46.32	54.00	7.68	100.0	1000.000	155.0	H	48.0	90.0
5440.000000	---	48.09	54.00	5.91	100.0	1000.000	155.0	H	54.0	90.0

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Correction	Comment
1125.050000	34.0	10:49:48 - 10.12.2014
5120.000000	10.5	11:12:31 - 10.12.2014
5360.000000	12.0	11:09:20 - 10.12.2014
5440.000000	11.4	11:10:53 - 10.12.2014

Final_Result

Frequency (MHz)	MaxPeak (dB μ V/m)	RMS (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Measurement Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)
1125.050000	---	44.72	54.00	9.28	100.0	1000.000	155.0	H	14.0	90.0
5120.000000	---	43.84	54.00	10.16	100.0	1000.000	155.0	H	64.0	90.0
5360.000000	---	46.32	54.00	7.68	100.0	1000.000	155.0	H	48.0	90.0
5440.000000	---	48.09	54.00	5.91	100.0	1000.000	155.0	H	54.0	90.0

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Correction	Comment
1125.050000	34.0	10:49:48 - 10.12.2014
5120.000000	10.5	11:12:31 - 10.12.2014
5360.000000	12.0	11:09:20 - 10.12.2014
5440.000000	11.4	11:10:53 - 10.12.2014

Diagram No.:4.04b_5G_CH157_MCS8

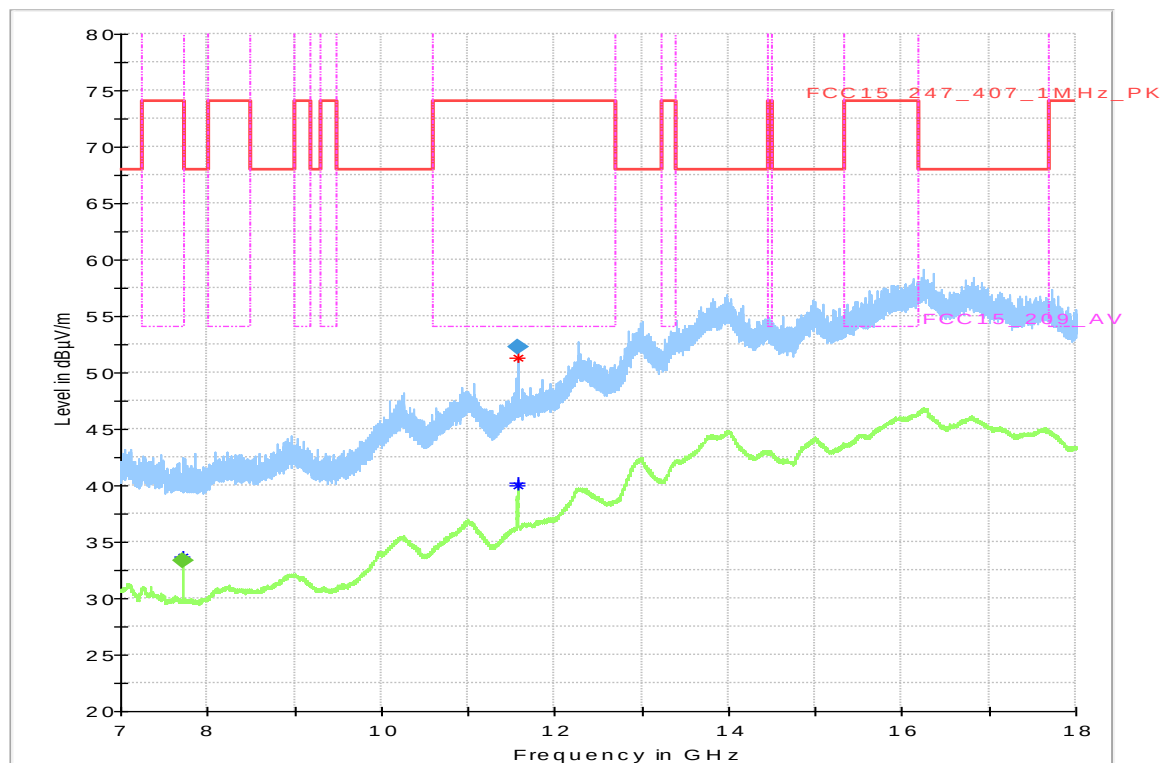
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.407&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	MFr
Comment:	Channel no. 157

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable
Power Supply:	120V AC 60 Hz

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	RMS (dBµV/m)	Limit (dBµV/m)	Margi n (dB)	Meas . Time	Bandwidt h (kHz)	Heigh t (cm)	Po l	Azimu t h (deg)	Elevatio n (deg)
11569.800000	52.27	---	74.00	21.73	100.0	1000.000	155.0	V	13.0	0.0
7713.450000	---	33.35	54.00	20.65	100.0	1000.000	155.0	H	-2.0	90.0

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Corr .
11569.800000	11.2
7713.450000	4.5

Diagram No.: 4.04c_5G_Ch157_MCS8

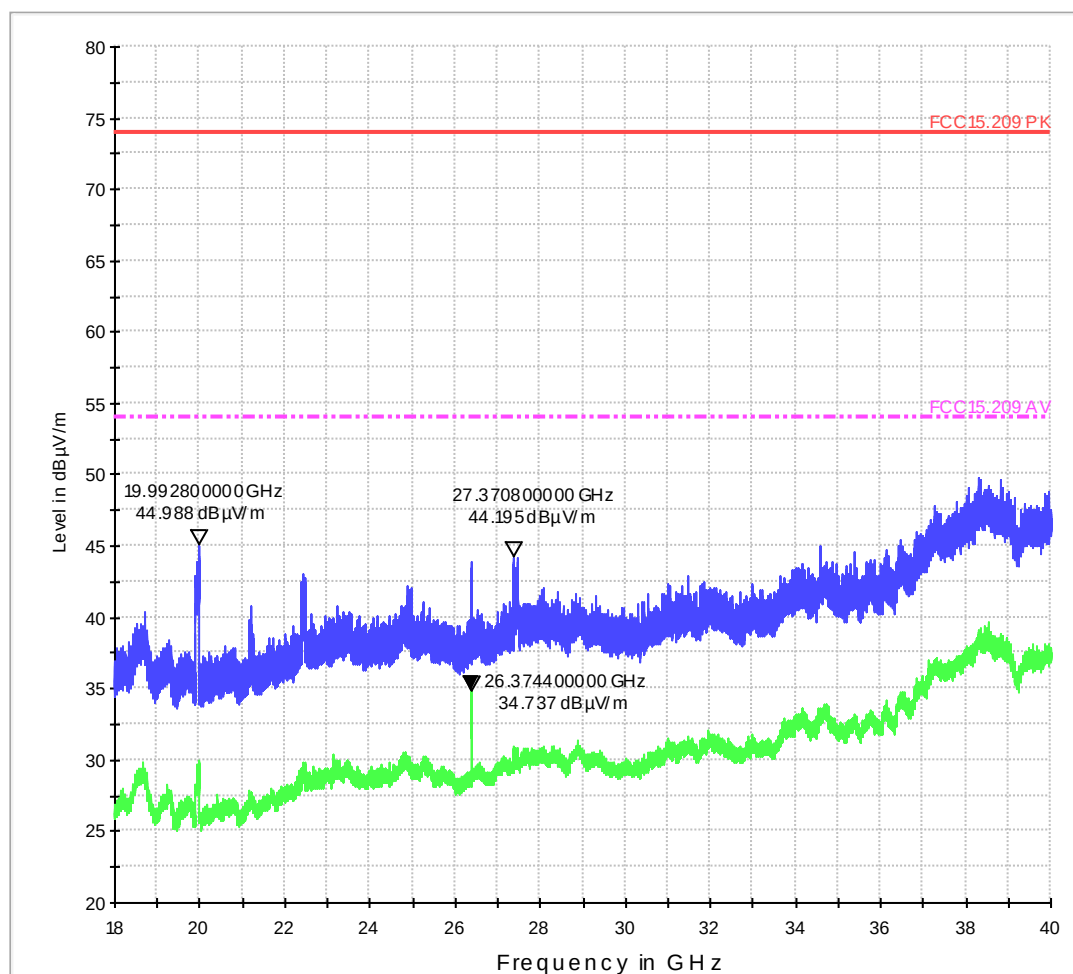
Common Information

Test Description:	Radiated field strength emission in 1m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247, 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Distance correction factor	3 to 1m: -10.5 dB applying to measurement results
SW-Version:	EMC32 V8.53.0
Operation mode:	TX mode continuous
Operator Name:	Lor
Comment:	Channel no. middle=157

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable

EMI Scan_18_40GHz_Pre



3. Radiated band-edge measurements accord. §15.209 & §15.205 (§15.247)

3.1. Channel 1 (left band edge)

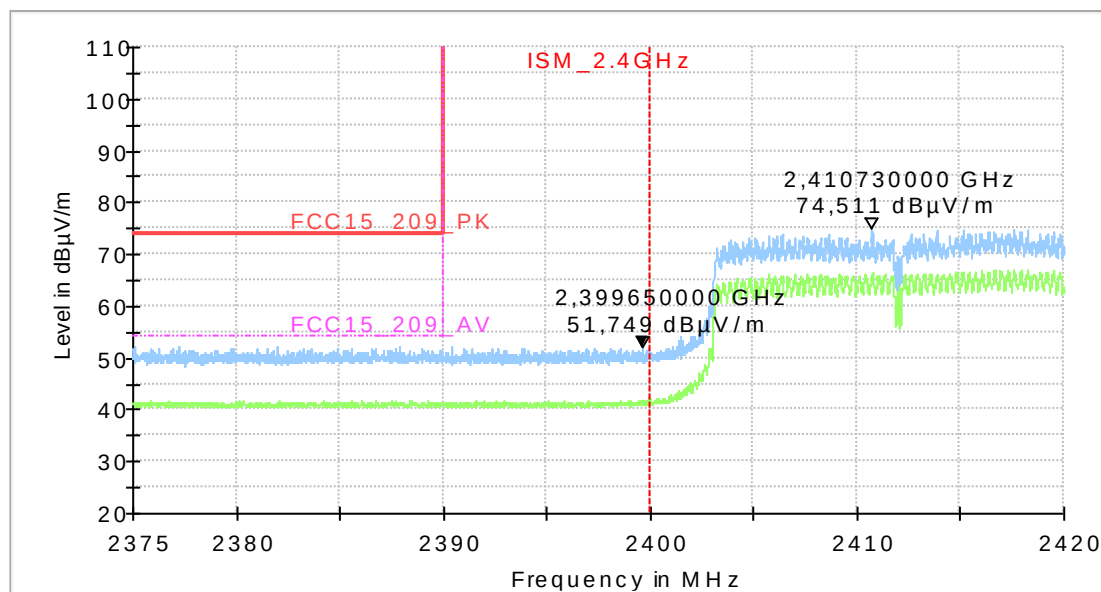
Diagram No.: 9.01_Bandedge_WLan_2.4G_CH1_MCS8

Common Information

Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Kmo
Comment:	Channel no. low=1

EUT Information

Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable
Power Supply:	120V AC 60 Hz



3.2. Channel 11 (right band edge)

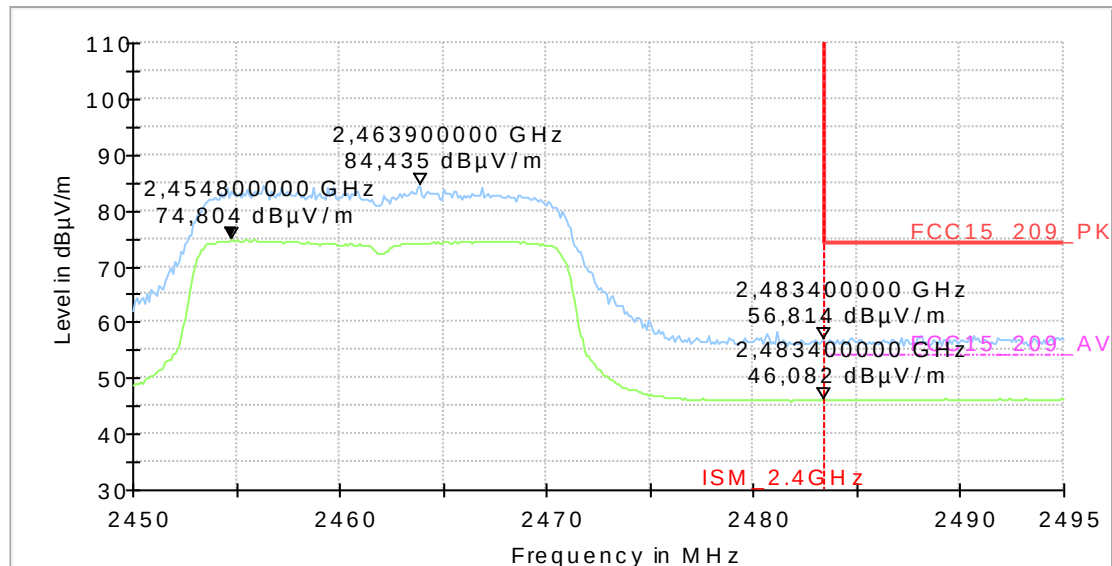
Diagram No.: 9.02_Bandedge _Wlan_2.4G_CH11_MCS8

Common Information

Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. high=11

EUT Information

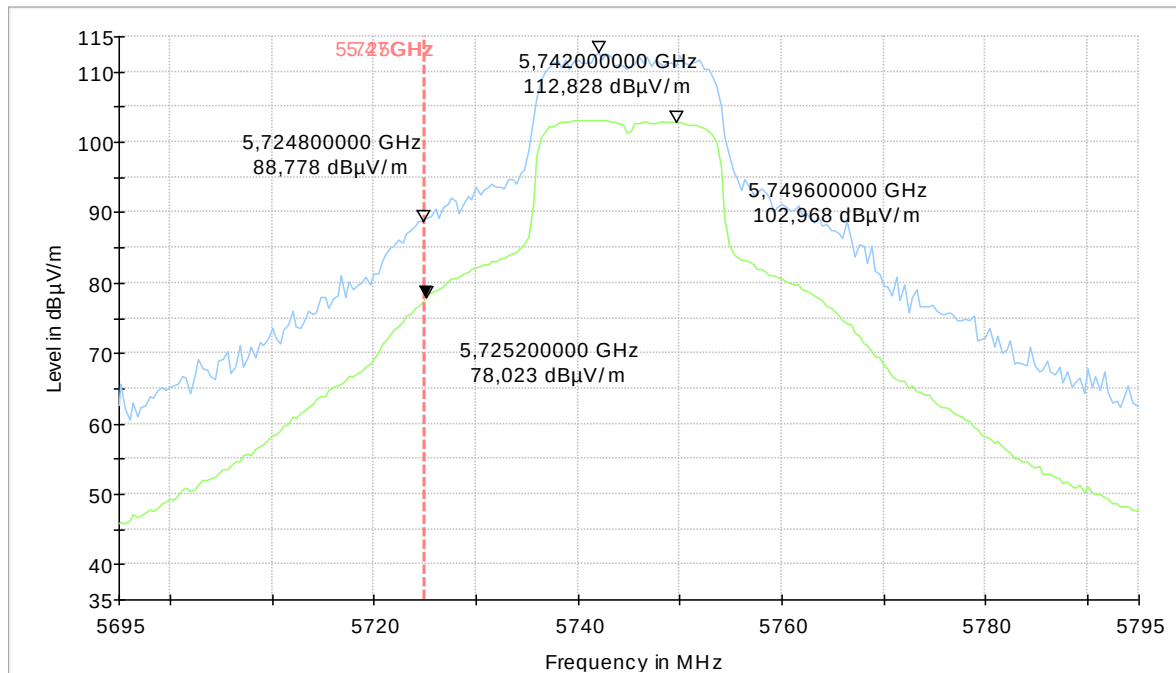
Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable
Power Supply:	120V AC 60 Hz



3.3. Channel 149 (left band edge)

Common Information

Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. low=149 MCS8, 30.5dBm

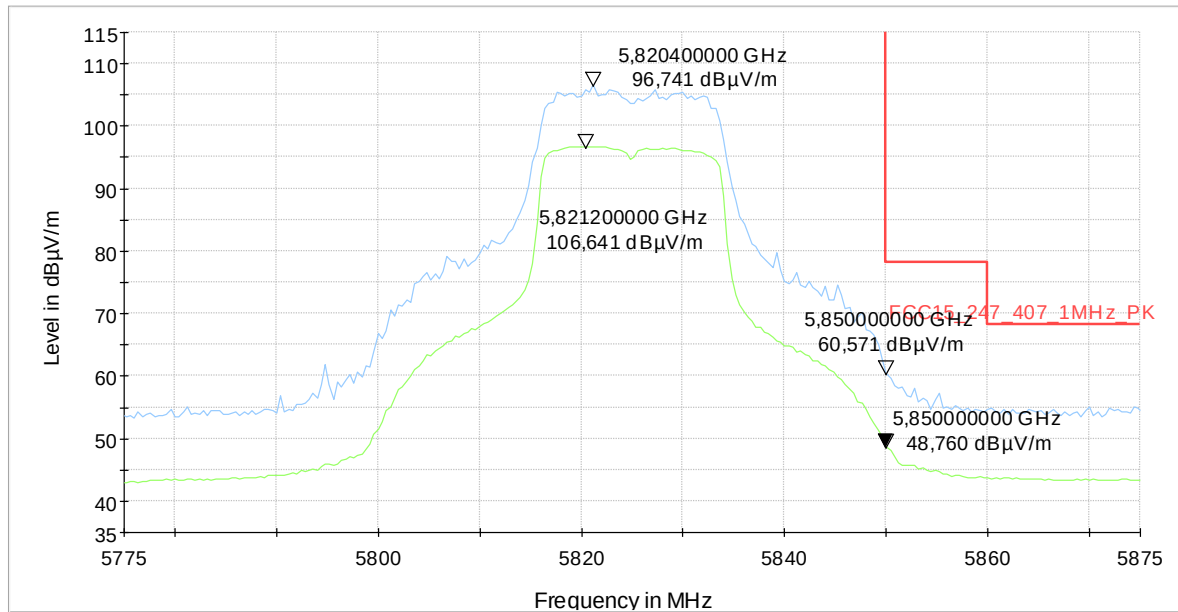


Remark: Passed according regulations of §15.247

3.4. Channel 165 (right band edge)

Common Information

Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. high=165 MCS8, 17dBm

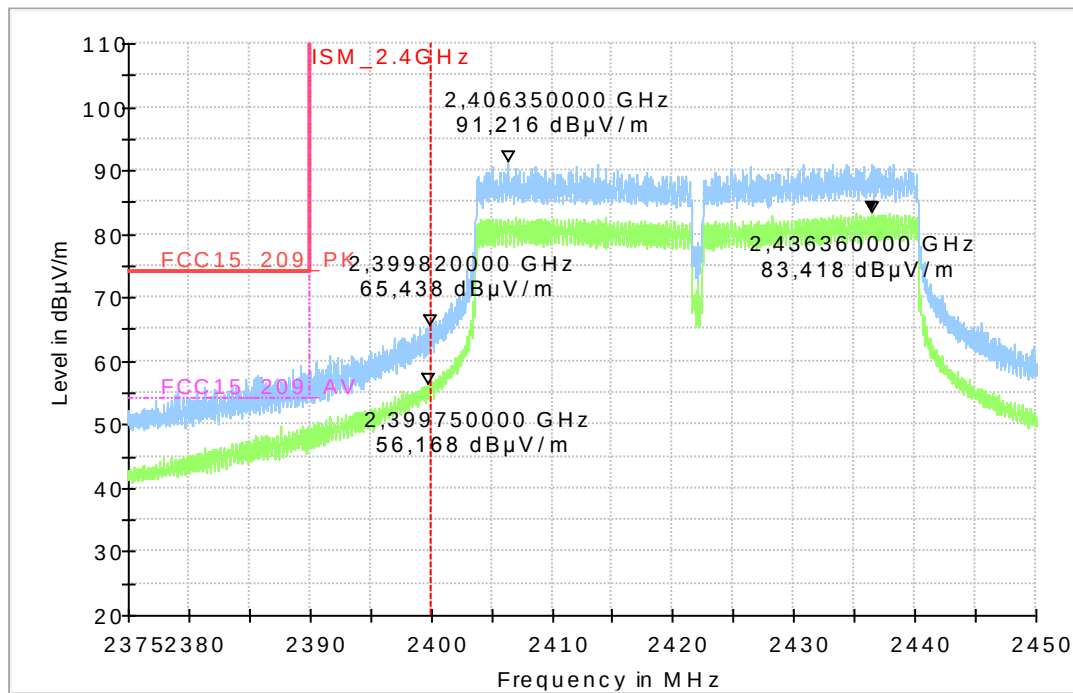


3.5. Channel 3 (left band edge)

Diagram No.: 9.06_Band_Edge_Low_Ch3_MCS8

Common Information

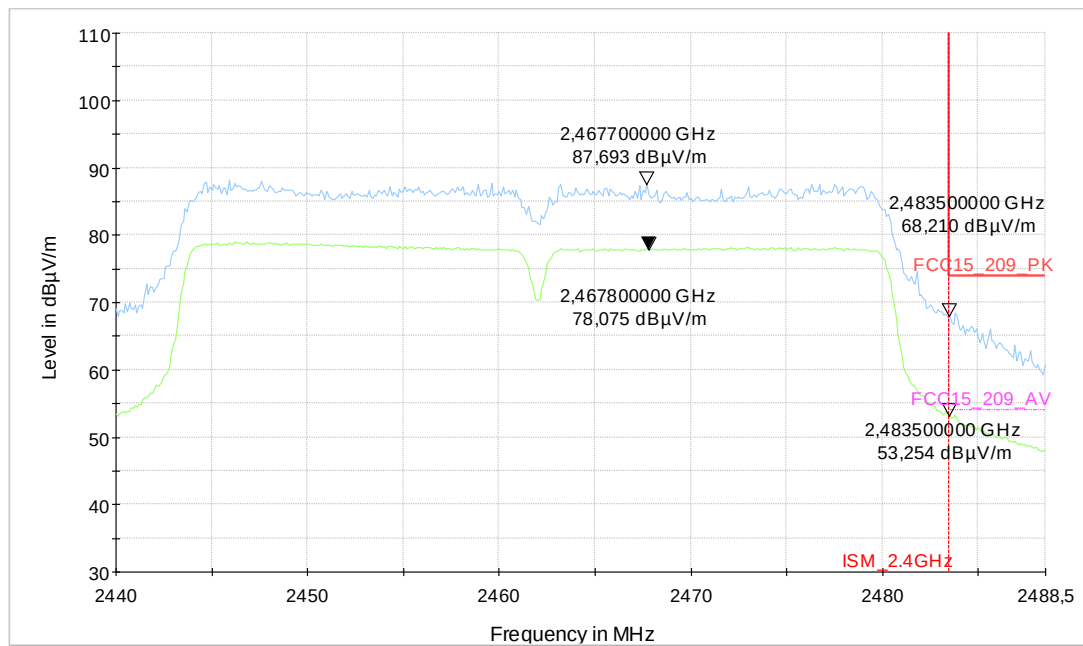
Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. low=3 MCS8, 9dBm



3.6. Channel 9 (right band edge)

Common Information

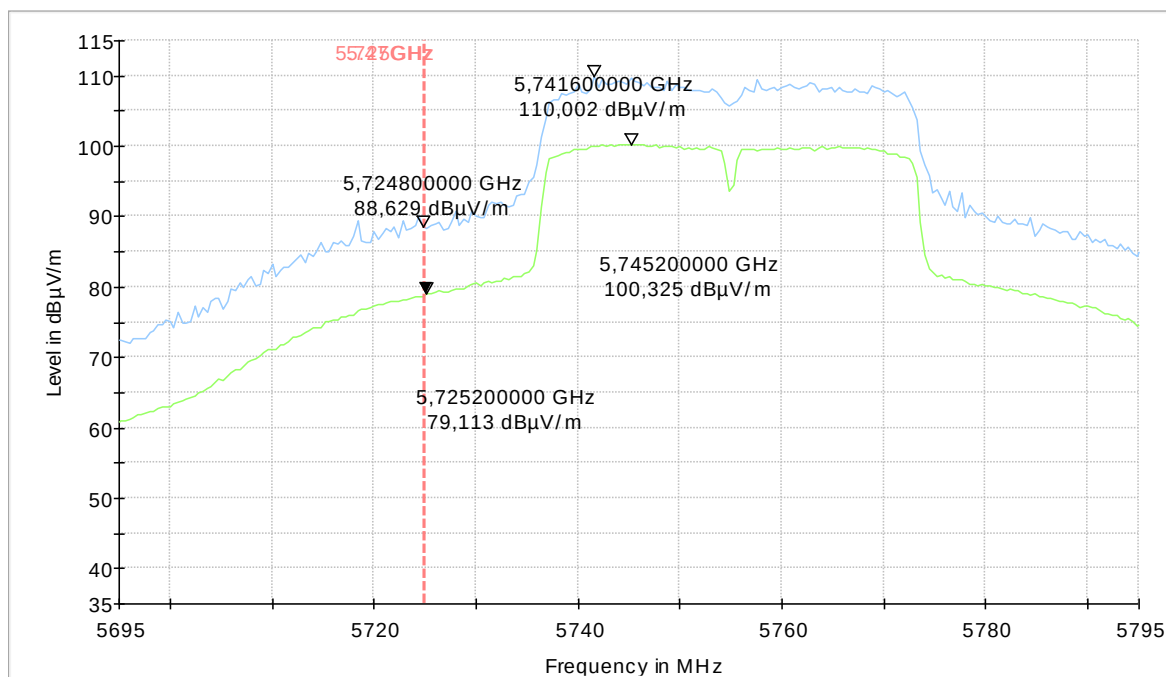
Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. high=9
	MCS8, 0dBm



3.7. Channel 151 (left band edge)

Common Information

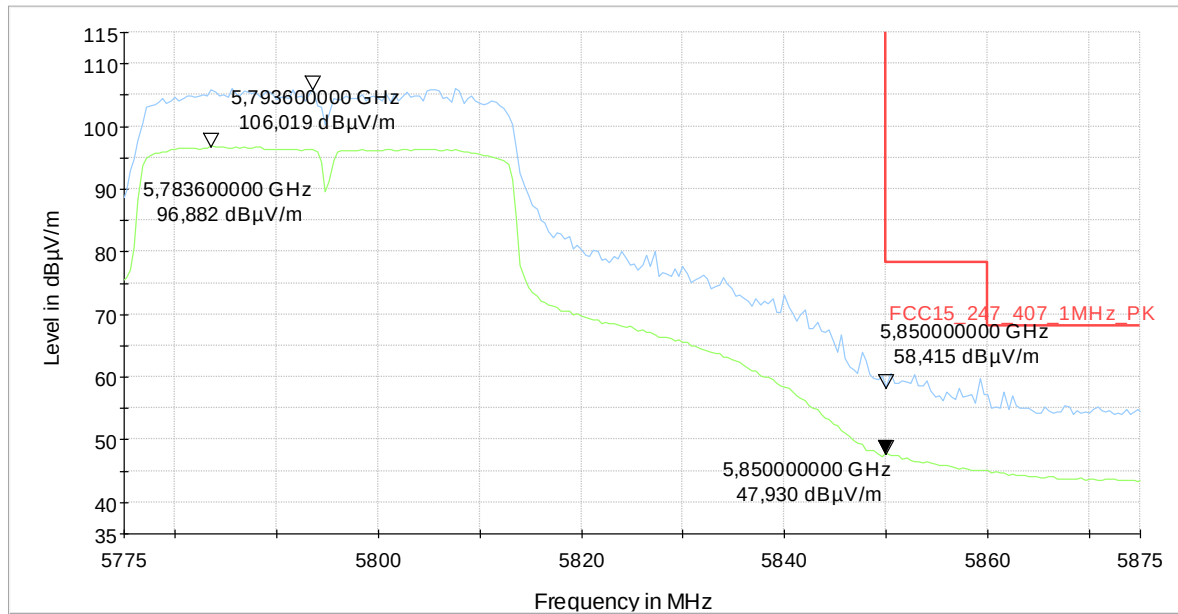
Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. low=151
	MCS8, 31.5dBm



3.8. Channel 159 (right band edge)

Common Information

Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. high=159 MCS8, 20.5dBm



4. Conducted RF-measurements on antenna port

4.1. 6-dB Bandwidth

The conducted measurements from the original report for the RF-Module should be re-used.

4.2. 99% Occupied Bandwidth

The conducted measurements from the original report for the RF-Module should be re-used.

4.3. Power Spectral Density

The conducted measurements from the original report for the RF-Module should be re-used.

4.4. 20dBc Emissions

The conducted measurements from the original report for the RF-Module should be re-used.

4.5. Output Power (Conducted)

4.5.1. 2.4GHz Band (HT20)

Operational bands:		PWR-Values in Atheros SW	2.4GHz ISM Band		
Channel No.:	Channel 1 (2412MHz)		Channel 6 (2437MHz)	Channel 11 (2462MHz)	
Chain 0 only			Chain 0 only		
Max. Cond. Power [dBm] 13MBit/MCS8	10,5		13,74	13,79	12,85
Chain 1 only		10,5	Chain 1 only		
Max. Cond. Power [dBm] 13 MBit/MCS8			13,07	13,64	12,64

Chain 0+1				
Max. Cond. Power 13 MBit/MCS8 [dBm]	Chain 0	12,71	12,10	11,93
	Chain 1	12,21	12,07	12,09
	Sum 0+1:	15,48	15,10	15,02
		10,5	10	

Operational bands:		2.4GHz ISM Band	
Limits [dBm]		30,00	
Limit Check:		Limit Check:	
Highest conducted power value over channels and modulations:		15,48	
Margin to Limit:		14,52	
Declared antenna Gain:		3,00	
Verdict:		pass	

4.5.2. 2.4GHz Band (HT40)

Operational bands:	2.4 GHz ISM Band		
Channel No.:	Channel 3 (2422MHz)	Channel 6 (2437MHz)	Channel 9 (2452MHz)

Chain 0 only	Chain 0 only				
Max. Cond. Power 13MBit/MCS8 [dBm]	12,9	12,75	11,82	9,6	-1,75
PWR value used	9	9	8	5,5	0

Chain 1 only	Chain 1 only				
Max. Cond. Power 13 MBit/MCS8 [dBm]	13,91	13,72	12,01	9,2	-1,95
PWR value used	9	9	8	5,5	0

Chain 0+1						
Max. Cond. Power 13 MBit/MCS8 [dBm]	Chain 0	12,05	12,7	11,221	8,6	-2,5
	Chain 1	13,41	12,95	11,9	8,7	-2,13
	Sum 0+1:	15,79	15,84	14,58	11,66	0,70
PWR value used		9	9	8	5,5	0

Operational bands:	2.4GHz ISM Band
Limits [dBm]	30,00
Limit Check:	
Highest conducted power value over channels and modulations:	13,91
Margin to Limit:	16,09
Declared antenna Gain:	3,00
Verdict:	pass

4.5.3. 5GHz Band (HT20)

Operational bands:		U-NII-3		
Channel no.:		Channel 149 (5745MHz)	Channel 157 (5785MHz)	Channel 165 (5825MHz)
Chain 0 only				
Max. Cond. Power 13MBit/MCS8 [dBm]		17,71	16,75	16,72
Chain 1 only				
Max. Cond. Power 13MBit/MCS8 [dBm]		17,53	17,06	16,88
Chain 0+1				
Max. Cond. Power 13MBit/MCS8 [dBm]	Chain 0	16,24	15,95	15,72
	Chain 1	16,15	15,81	14,89
	Sum 0+1:	19,21	18,89	18,34

Operational bands:	U-NII 3
Limits [dBm]	30,00
Limit Check:	
Highest conducted power value over channels and modulations:	19,21
Margin to Limit:	10,79
Declared antenna Gain:	5,00
Verdict:	pass

4.5.4. 5GHz Band (HT40)

Operational bands:		U-NII-3	
Channel no.:		Channel 151 (5755MHz)	Channel 159 (5795MHz)
Chain 0 only			
Max. Cond. Power 13MBit/MCS8 [dBm]		17,71	17,55
Chain 1 only			
Max. Cond. Power 13MBit/MCS8 [dBm]		18,31	17,47
Chain 0+1			
Max. Cond. Power 13MBit/MCS8 [dBm]	Chain 0	16,81	16,85
	Chain 1	16,69	16,43
	Sum 0+1:	19,76	19,66

Operational bands:	U-NII 3
FCC-Limits [dBm]	30,00
Limit Check:	Limit Check:
Highest conducted power value over channels and modulations:	19,76
Margin to Limit:	10,24
Declared antenna Gain:	5,00
Verdict:	pass

4.6. MPE calculation

A minimum distance to the user of 20cm is assumed.

Following calculations show assumption with the limits. The maximum tolerance according the manufacturer was assumed to +2dB according the data sheet of the RF-module.

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Antenna Gain Max. (dBi)	Max. positive tolerance according manufacturer (dB)	Declared maximum output power (Measured+ Tune-up) (dBm)	Duty cycle	Declared Maximum conducted output power (W)	Equivalent conducted output power (maximum conducted output power x duty cycle) (mW)
W-LAN 2.4GHz (HT20)	2412,0	15,48	3,00	2,00	20,48	100%	0,112	112
	2437,0	15,10	3,00		20,10		0,102	102
	2462,0	15,02	3,00		20,02		0,100	100
W-LAN 2.4GHz (HT40)	2422,0	15,79	3,00	2,00	20,79	100%	0,120	120
	2437,0	15,84	3,00		20,84		0,121	121
	2452,0	14,58	3,00		19,58		0,091	91

Maximum calculated MPE value:		
MPE-Limit:	1	[mW/cm ²]
Highest MPE value:	0,0241	[mW/cm ²]
Margin to limit	0,9759	[mW/cm ²]

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. antenna gain: (dBi)	Max. positive tolerance according manufacturer (dB)	Declared maximum output power (Measured+ Tune-up) (dBm)	Duty cycle	Declared Maximum conducted output power (W)	Equivalent conducted output power (maximum conducted output power x duty cycle) (mW)
W-LAN 5725-5750 MHz (20MHz BW)	5745,0	19,21	5,0	2,00	26,21	100%	0,418	418
	5785,0	18,89			25,89		0,388	388
	5825,0	18,34			25,34		0,342	342
W-LAN 5725-5750 MHz (40MHz BW)	5755,0	19,76	5,0	2,00	26,76	100%	0,474	474
	5815,0	19,66			26,66		0,463	463

Maximum calculated MPE value:		
MPE-Limit:	1	[mW/cm ²]
Highest MPE value:	0,0944	[mW/cm ²]
Margin to limit	0,9056	[mW/cm ²]