

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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Table of contents

1. CONDUCTED EMI MEASUREMENTS ON AC-MAINS PORT ACCORDING 15.207, CLASS B	3
2. RADIATED FIELD STRENGTH MEASUREMENTS ACCORD. §15.209&15.205.....	7
2.1. Magnetic field measurements $f < 30\text{MHz}$	7
2.2. Field strength measurements $30\text{MHz} < f < 1\text{GHz}$	9
2.3. Field strength measurements $f > 1\text{GHz}$	13
3. RADIATED BAND-EDGE MEASUREMENTS ACCORD. §15.209 & §15.205 (§15.247)	19
3.1. Channel 1 (left band edge).....	19
3.2. Channel 11 (right band edge).....	20
3.3. Channel 149 (left band edge).....	21
3.4. Channel 165 (right band edge).....	22
3.5. Channel 3 (left band edge).....	23
3.6. Channel 9 (right band edge).....	24
3.7. Channel 151 (left band edge).....	25
3.8. Channel 159 (right band edge).....	26
4. CONDUCTED RF-MEASUREMENTS ON ANTENNA PORT.....	27
4.1. 6-dB Bandwidth.....	27
4.2. 99% Occupied Bandwidth	27
4.3. Power Spectral Density.....	27
4.4. 20dBc Emissions	27
4.5. Output Power (Conducted)	28
4.5.1. 2.4GHz Band (HT20)	28
4.5.2. 2.4GHz Band (HT40)	29
4.5.3. 5GHz Band (HT20)	30
4.5.4. 5GHz Band (HT40)	31
4.6. MPE calculation	32

1. Conducted EMI measurements on AC-mains port according 15.207, class B

Diagram 1.001_EMI_AC_WAP_Ch6

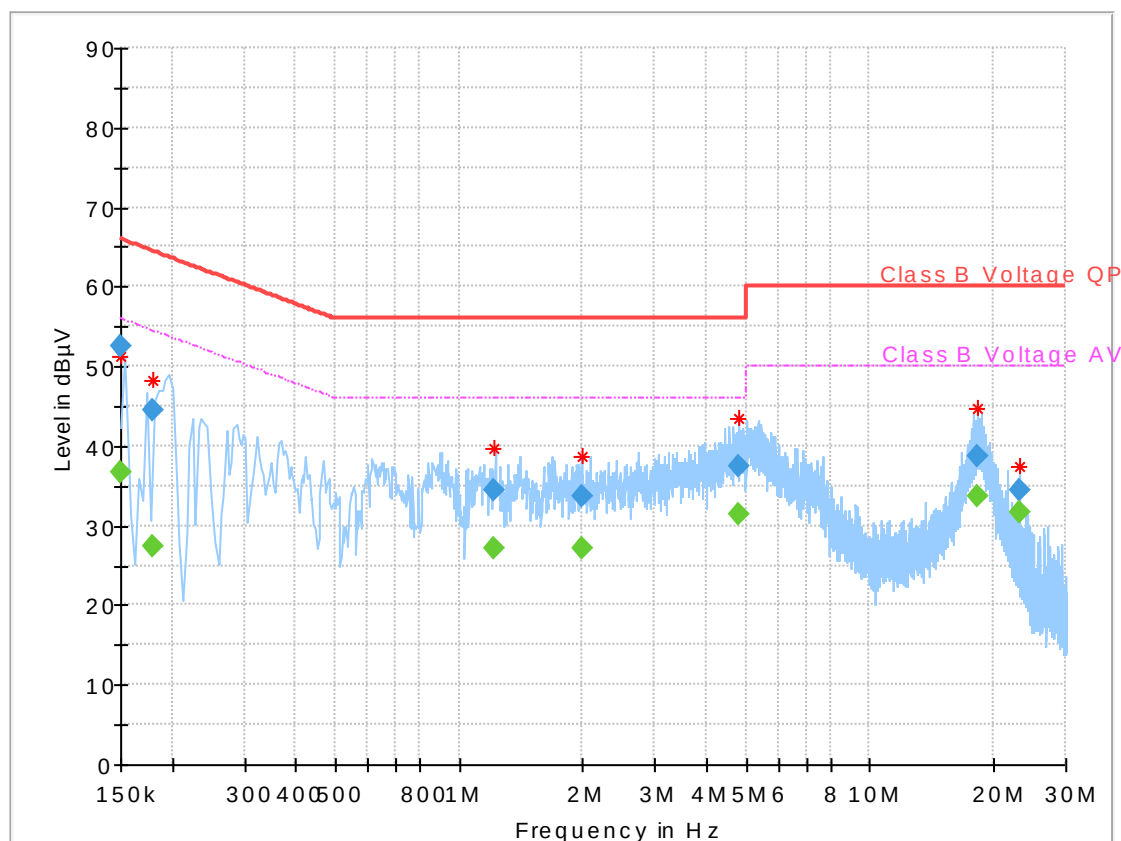
Common Information

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

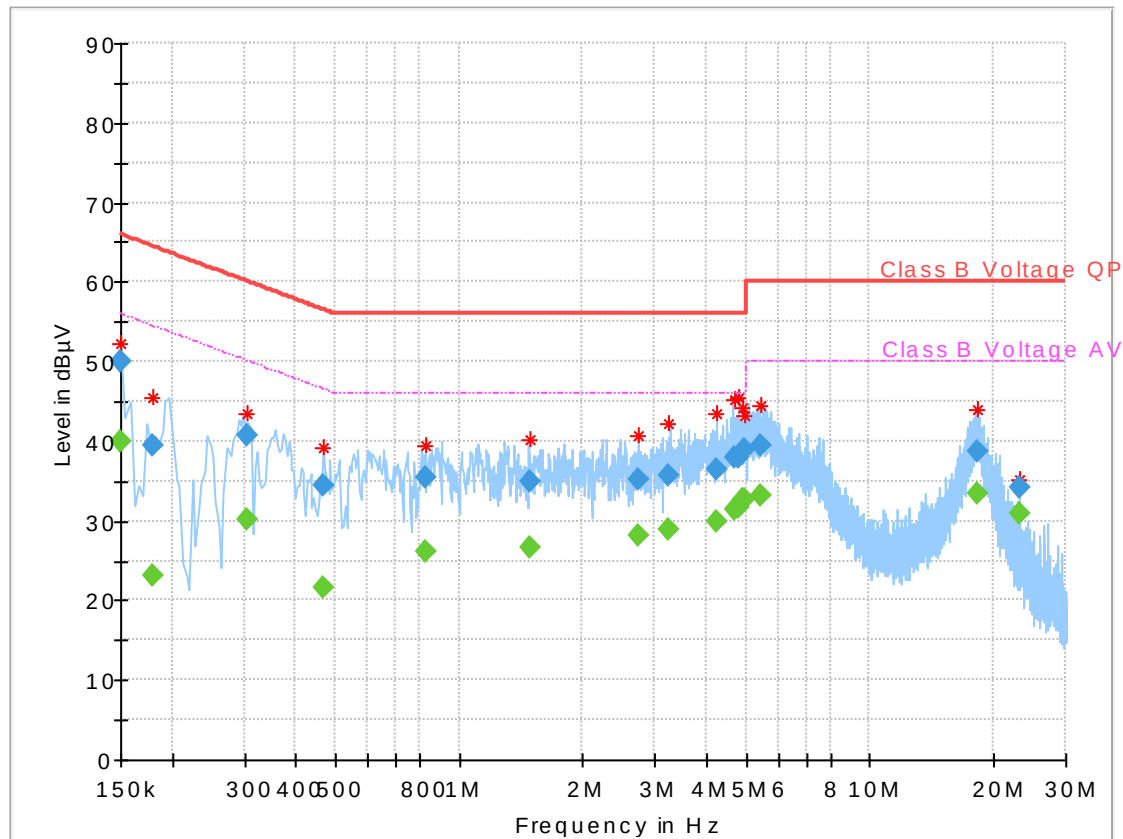
Common Information

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

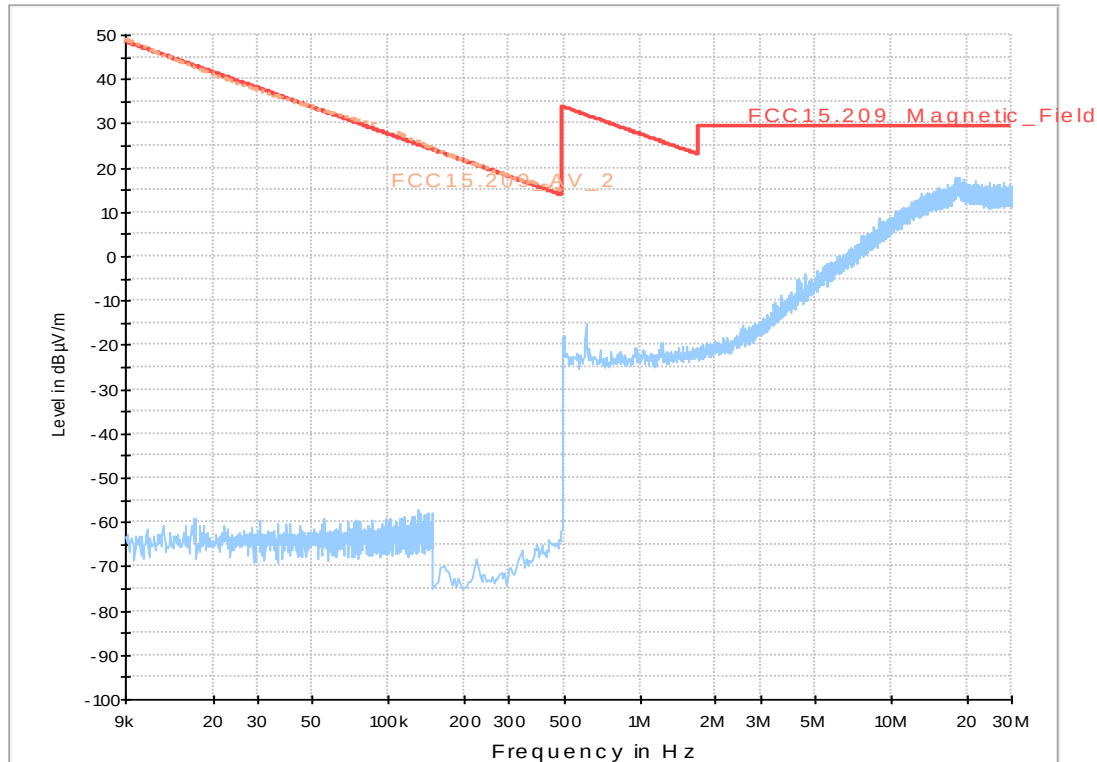


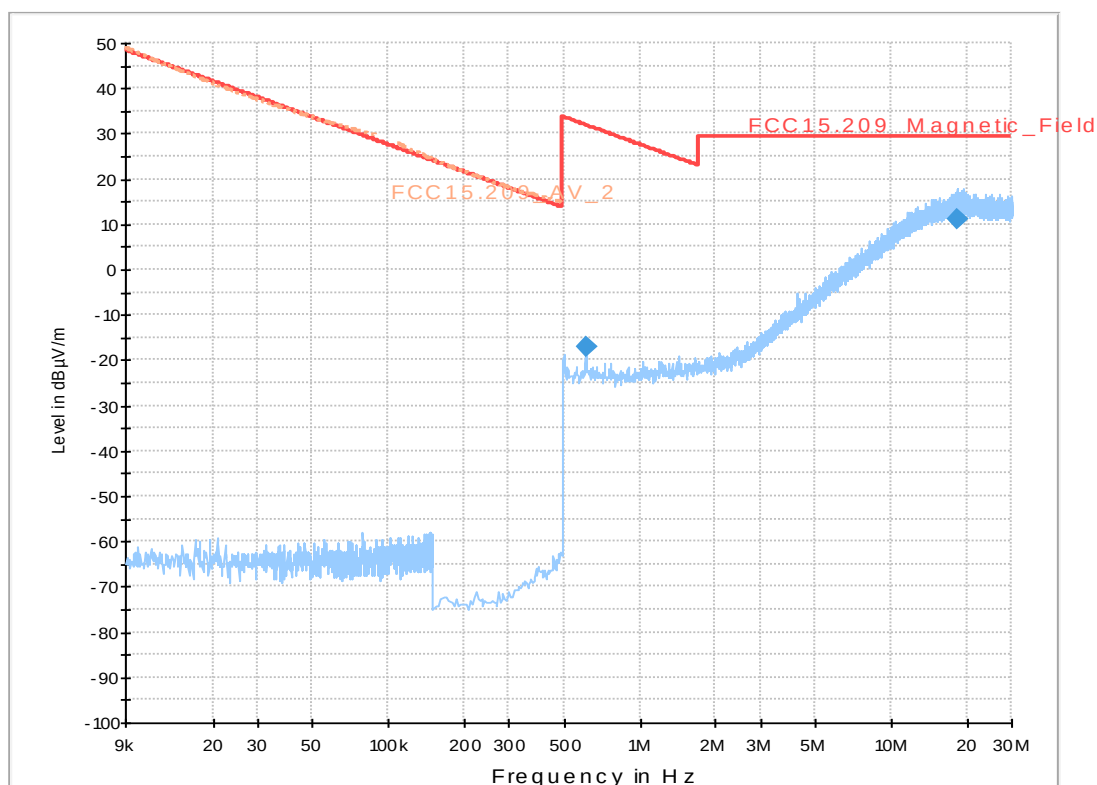
Diagram No. 2.07a_Tx_Ch157_HT20_MCS8

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

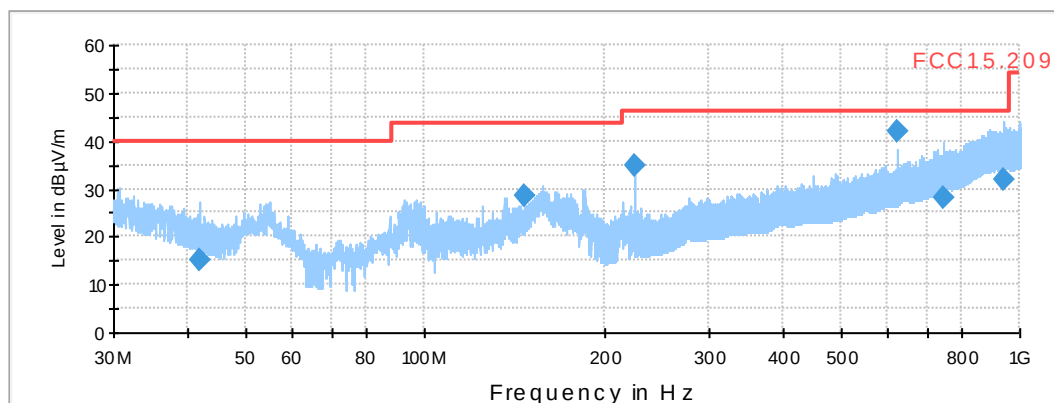
Common Information

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

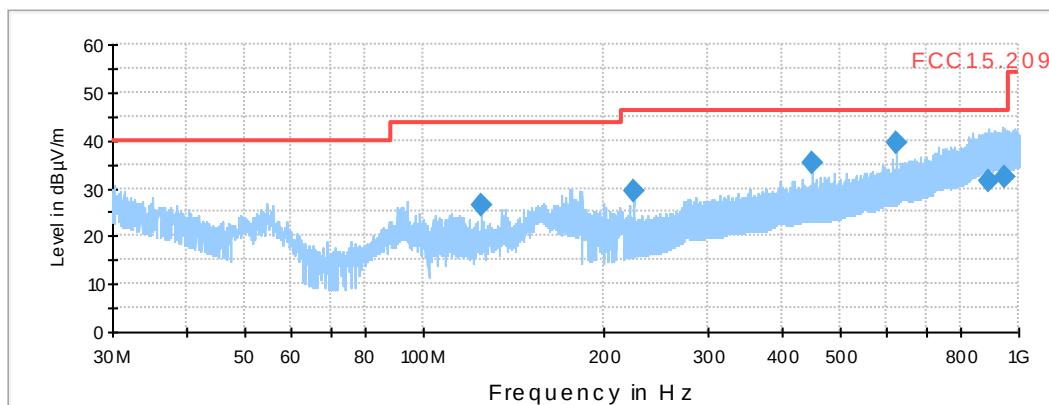
Common Information

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

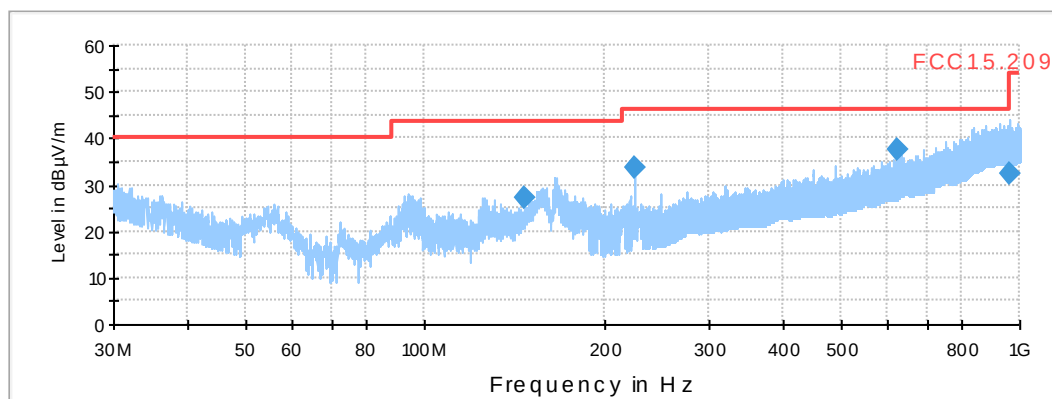
09.12.2014 Page 1 of 1
 Test description: Electric Field Strength Measurement
 Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
 Version of Testsoftware: EMC32 V8.51.0
 Distance correction: not used
 Used filter: not used
 Technical Data: please see page 2 for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

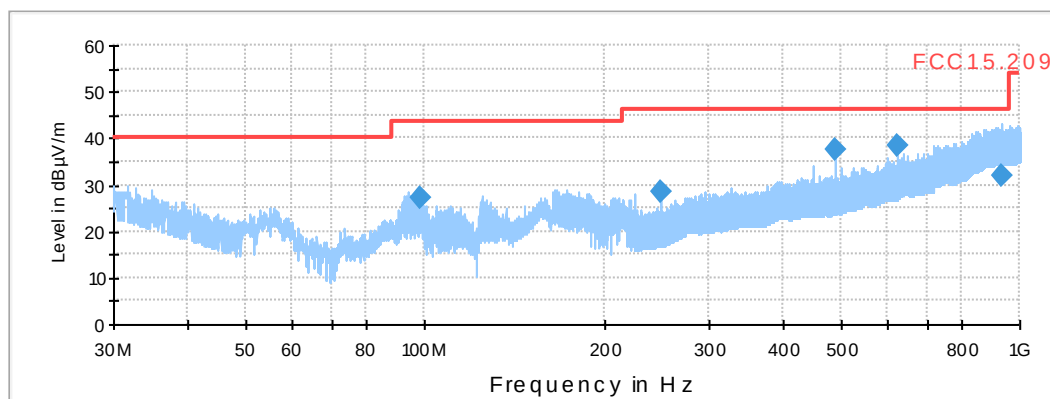
09.12.2014 Page 1 of 1
 Test description: Electric Field Strength Measurement
 Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
 Version of Testsoftware: EMC32 V8.51.0
 Distance correction: not used
 Used filter: not used
 Technical Data: please see page 2 for 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 $f > 1\text{GHz}$

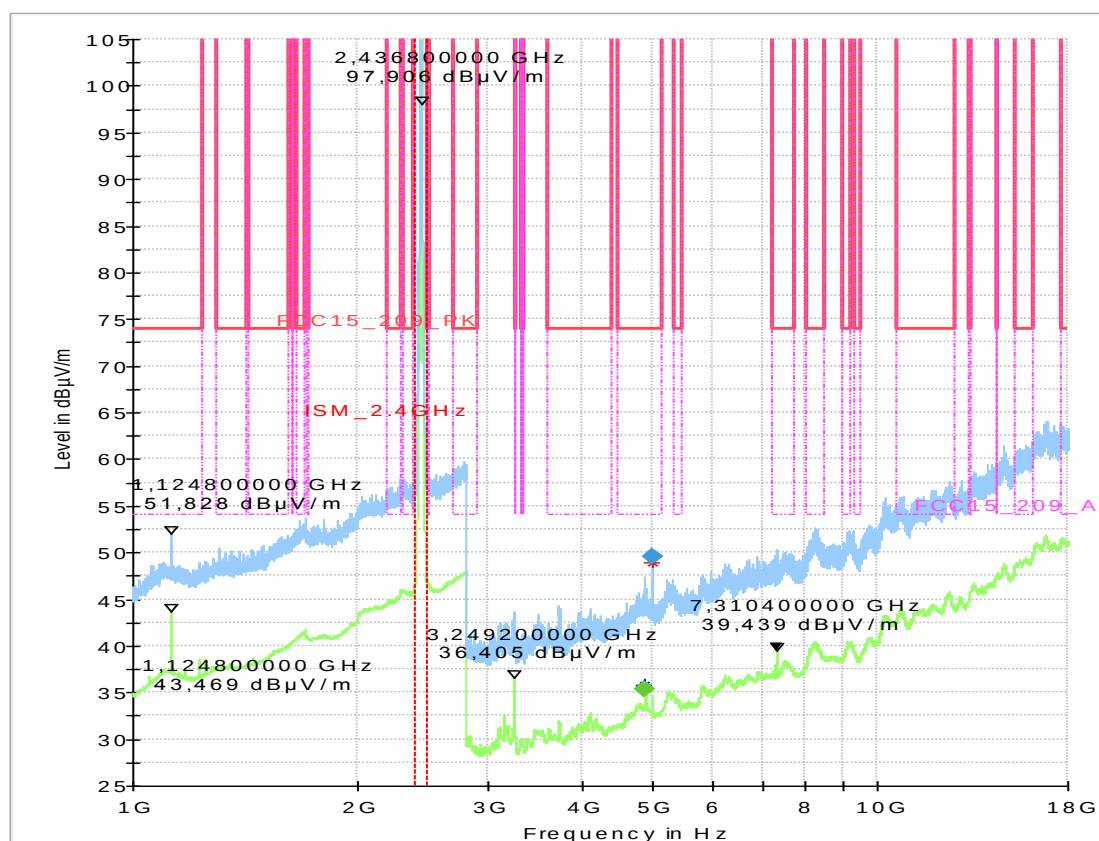
Diagram No.: 4.01_RSE_WLan_2.4G_CH6_MCS8

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

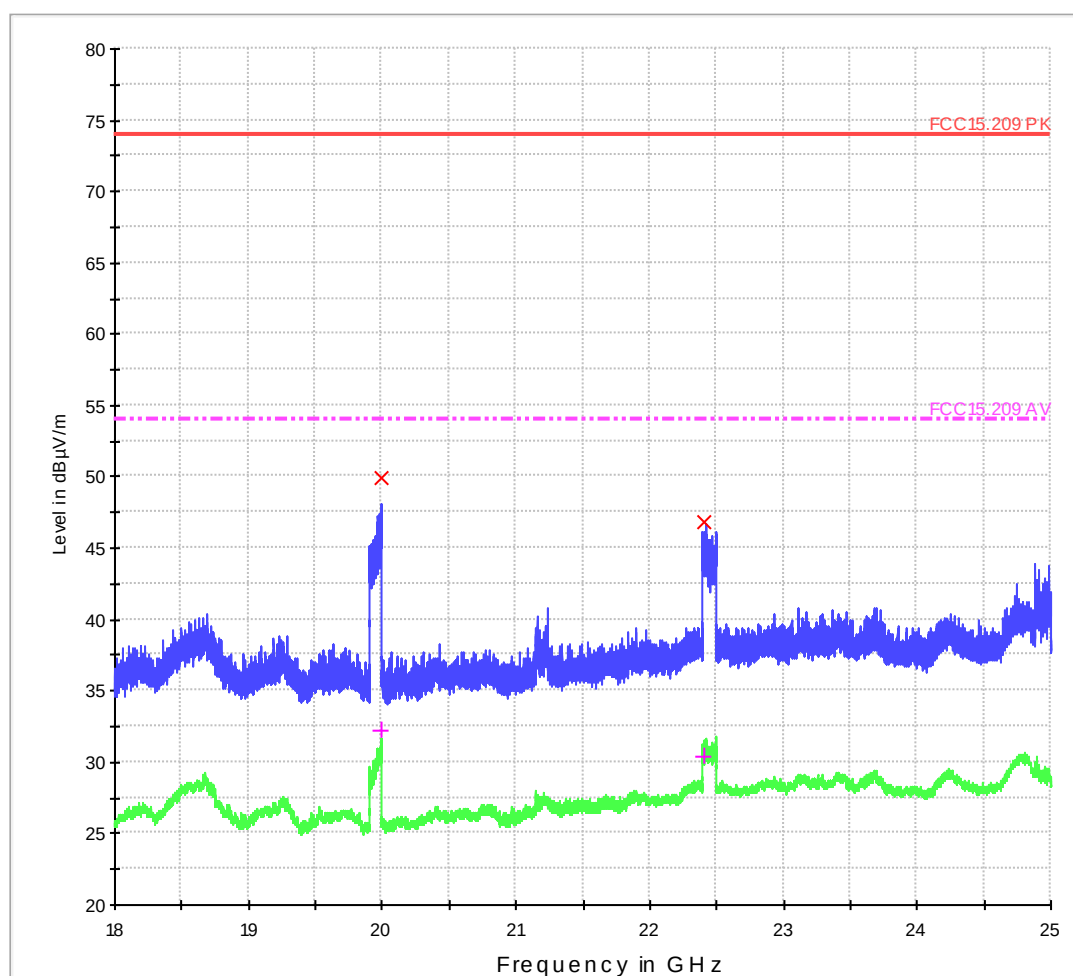


Diagram No.:4.04a_RSE_5G_CH157_MCS8_PWR

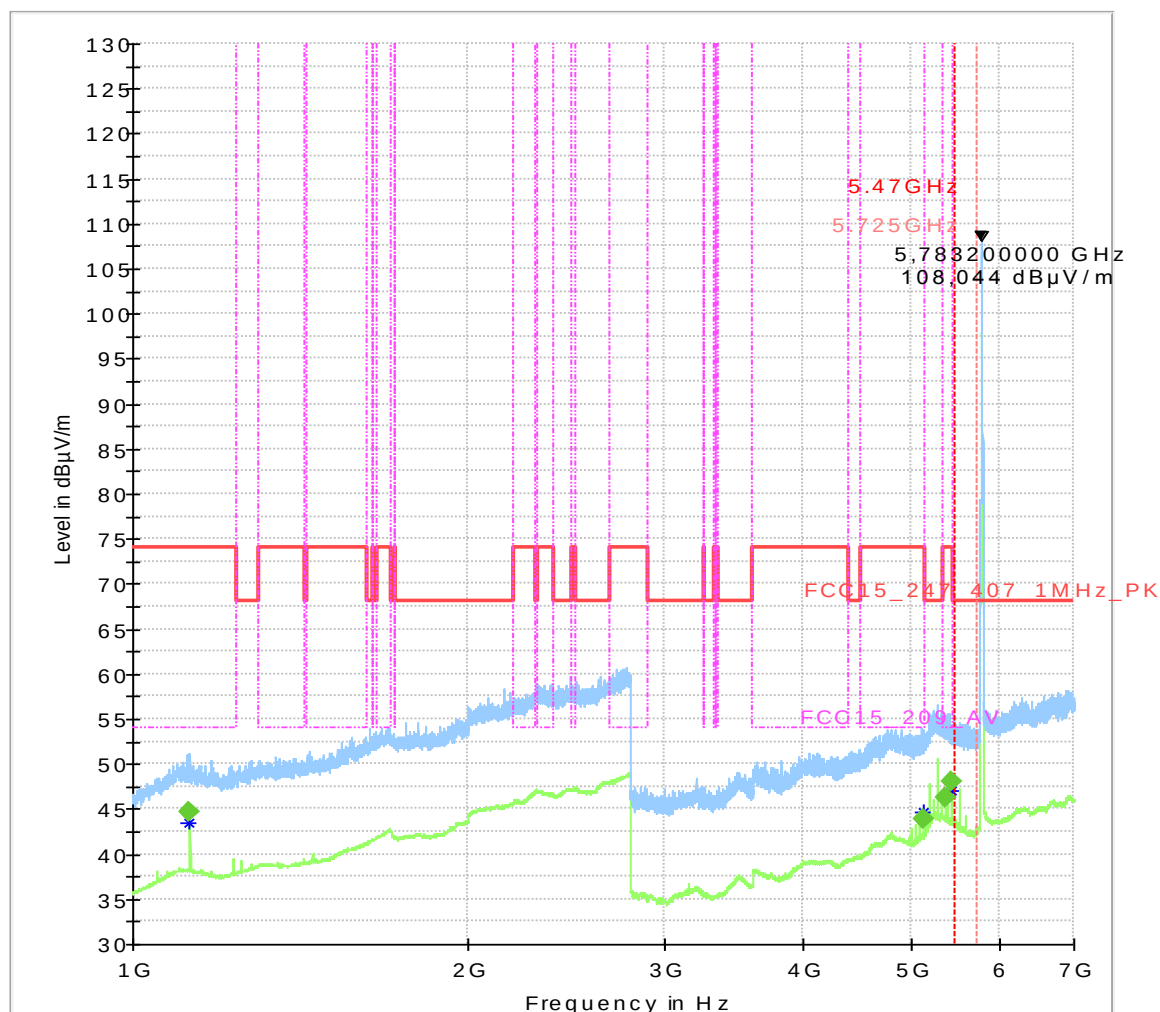
Common Information

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 (dBμV/m)	RMS (dBμV/m)	Limit (dBμV/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 (dBμV/m)	RMS (dBμV/m)	Limit (dBμV/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

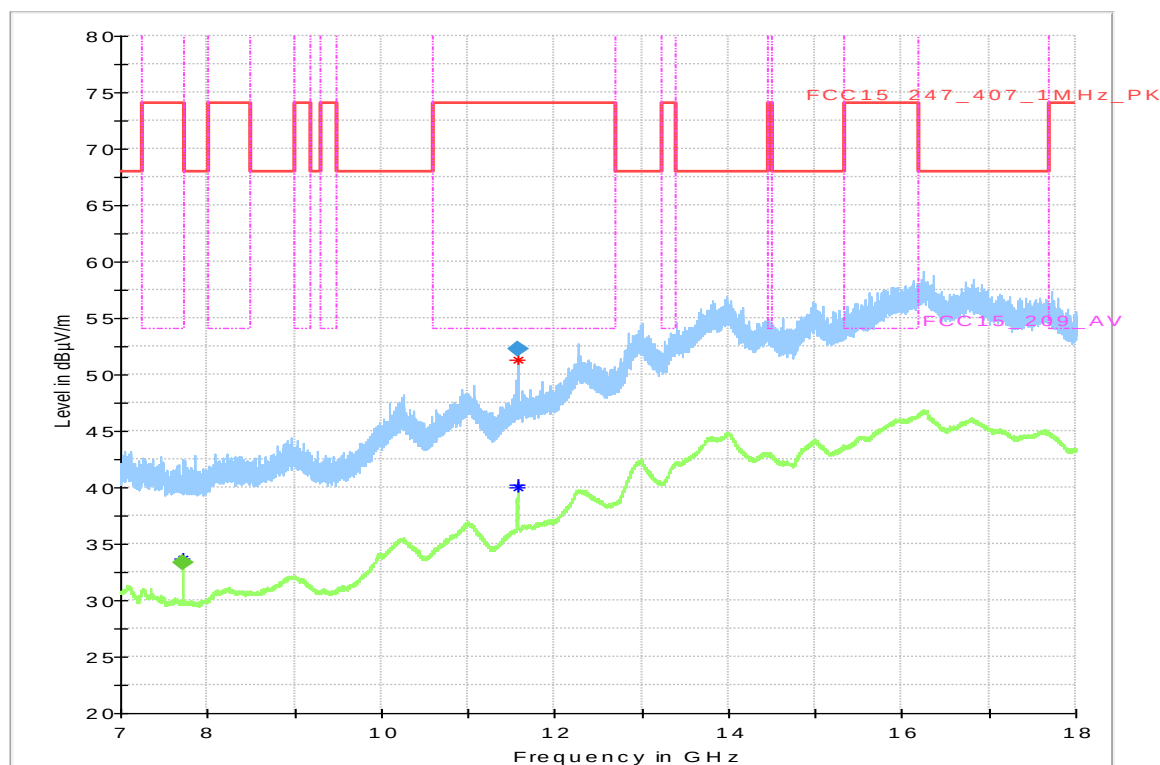
Common Information

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

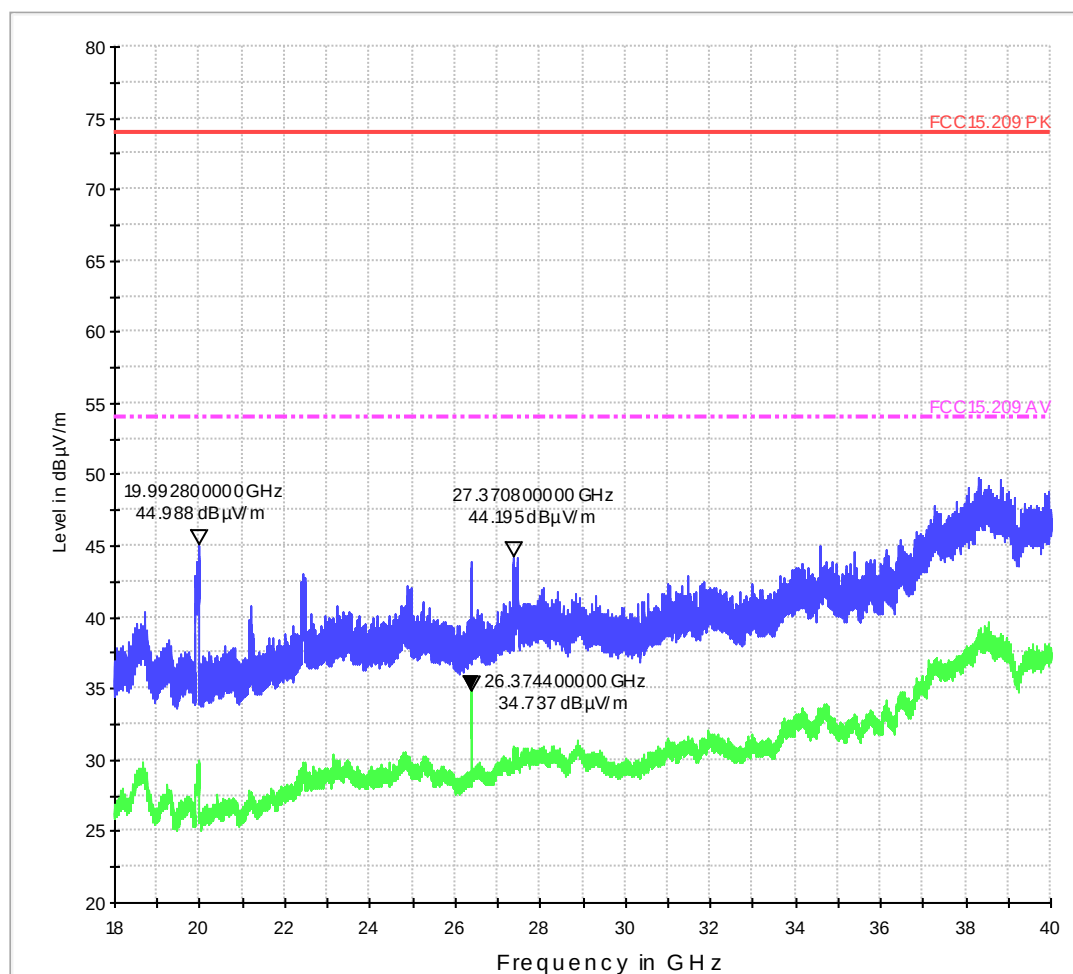
Common Information

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)

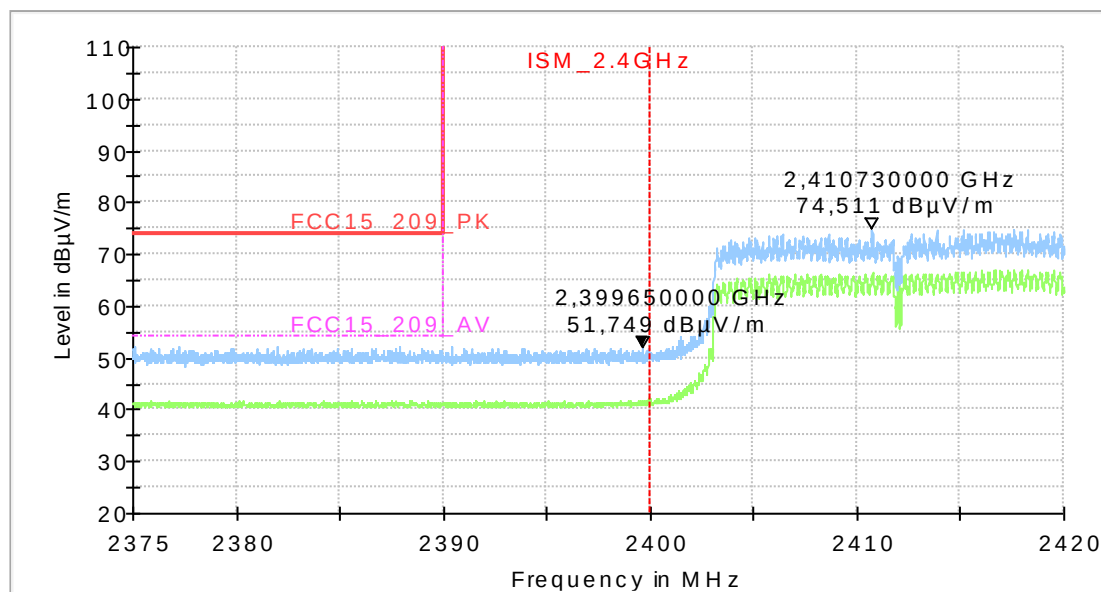
Diagram No.: 9.01_Bandedge_WLan_2.4G_CH1_MCS8

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)

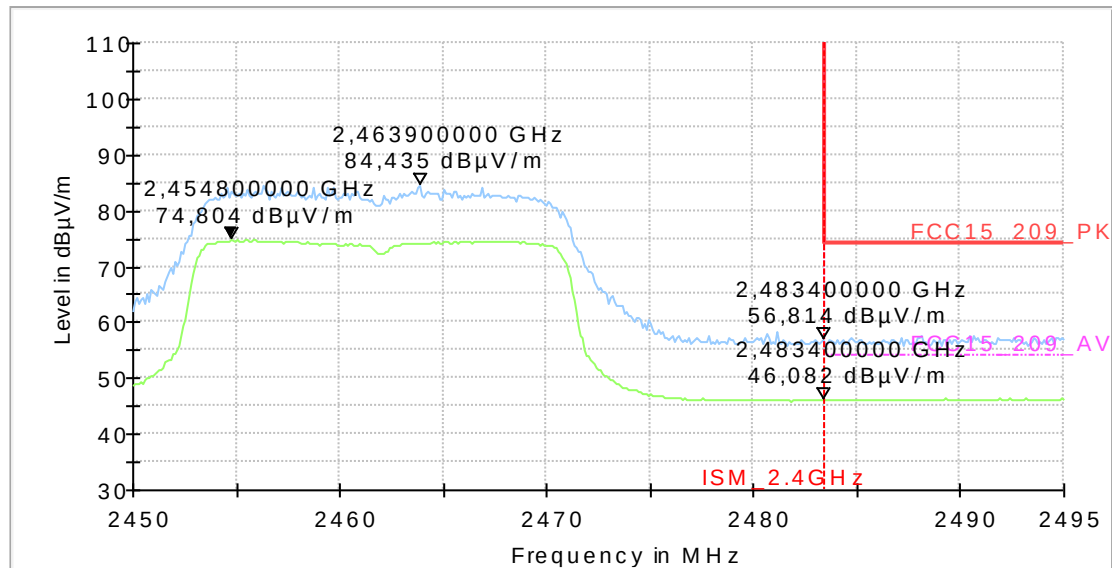
Diagram No.: 9.02_Bandedge _Wlan_2.4G_CH11_MCS8

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

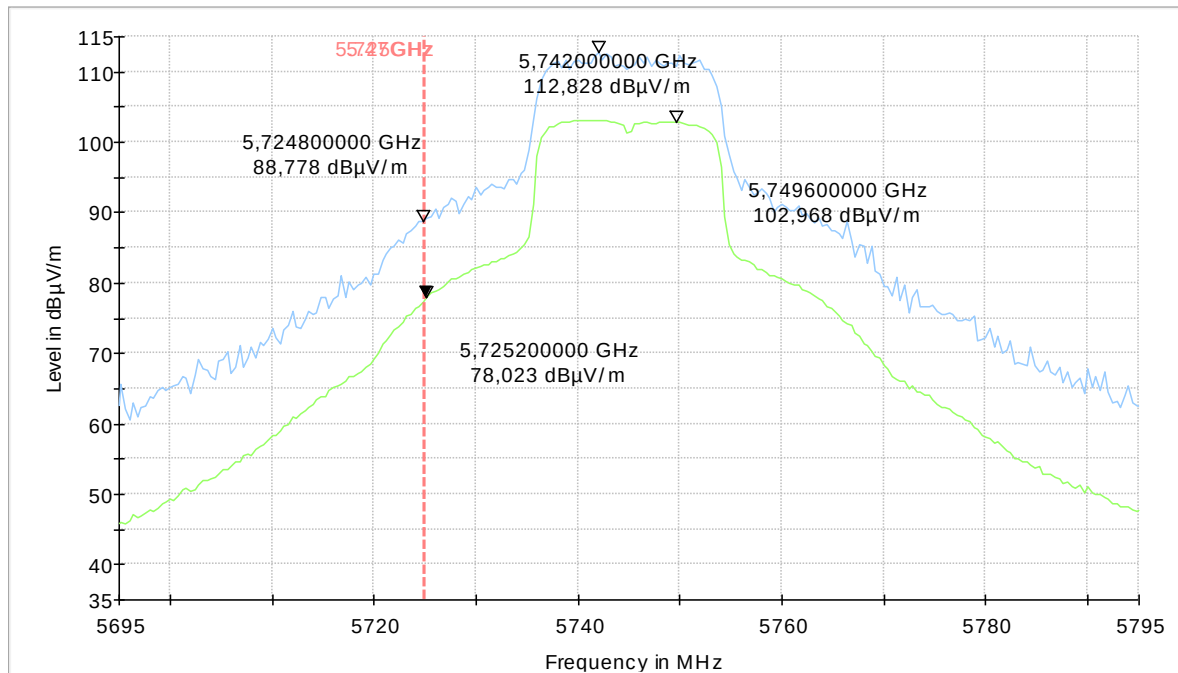
Manufacturer:	Bosch Security
EuT:	DCNM-WAP
Serial Number:	045888246018031010
Connected Interfaces:	AC adapter, 2 audio lines with load, CAT5e cable
Power Supply:	120V AC 60 Hz



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

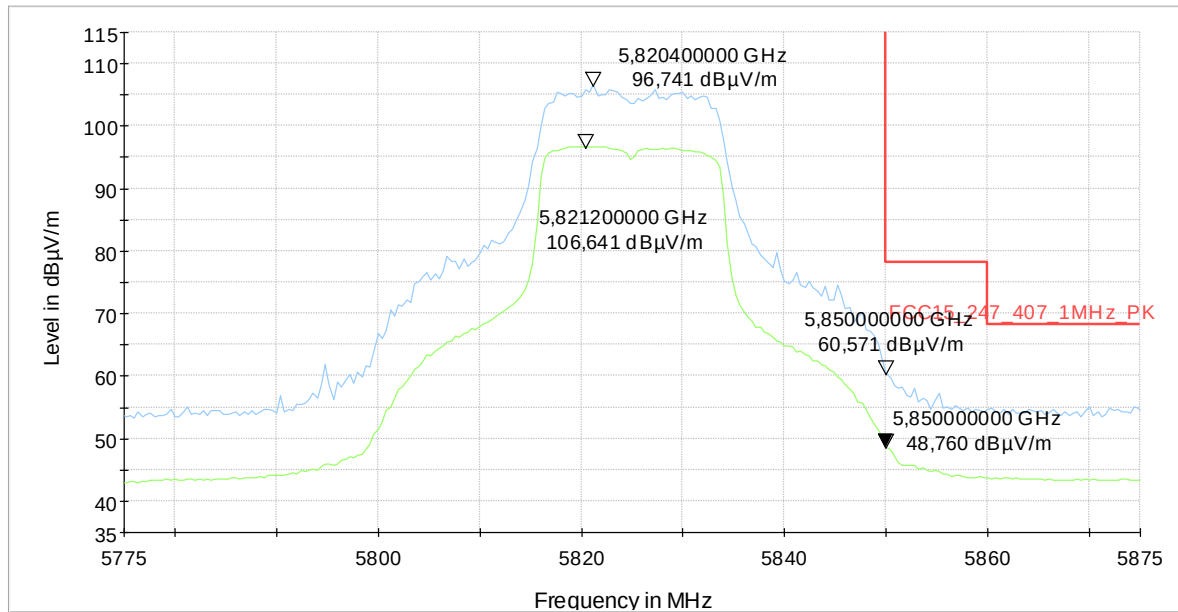


Remark: Passed according regulations of §15.247

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

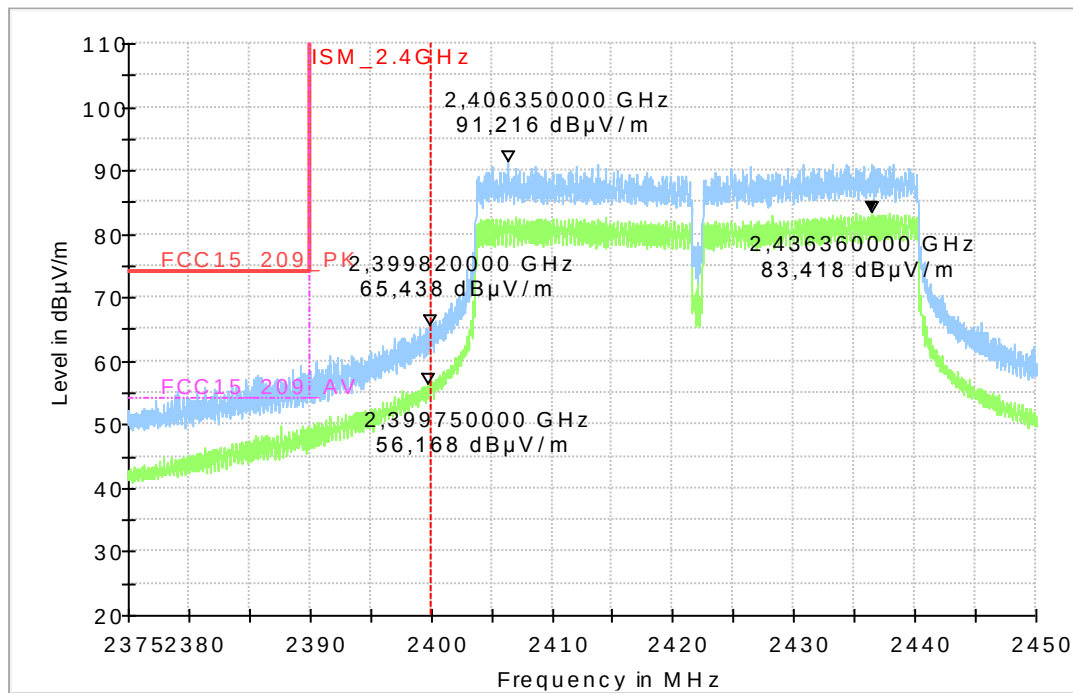


3.5. Channel 3 (left band edge)

Diagram No.: 9.06_Band_Edge_Low_Ch3_MCS8

Common Information

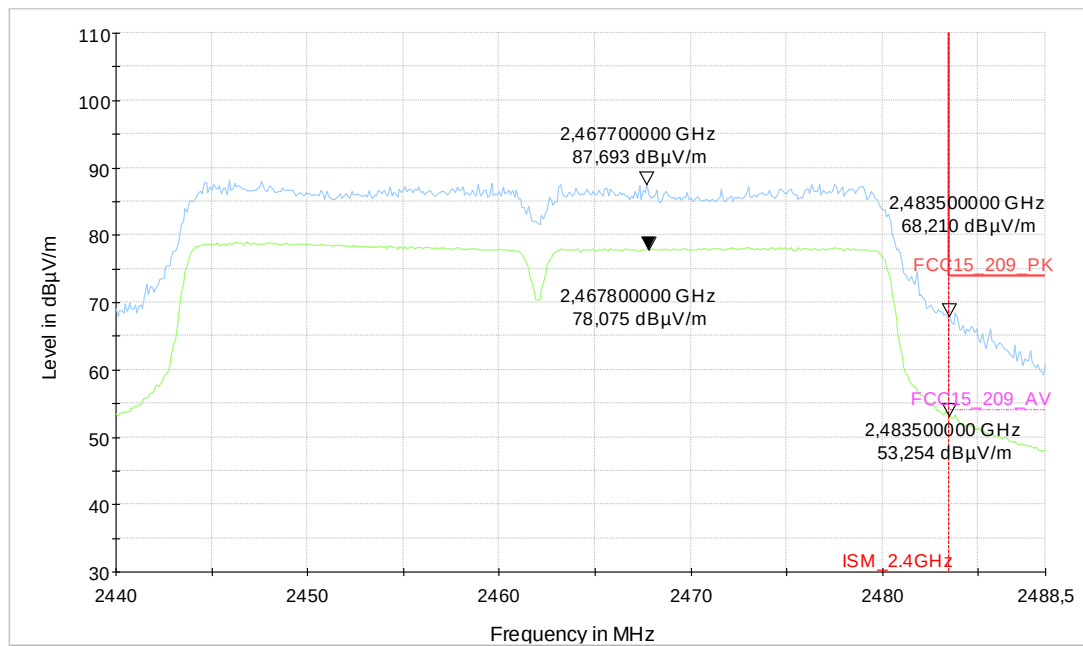
Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. low=3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



3.6. Channel 9 (right band edge)

Common Information

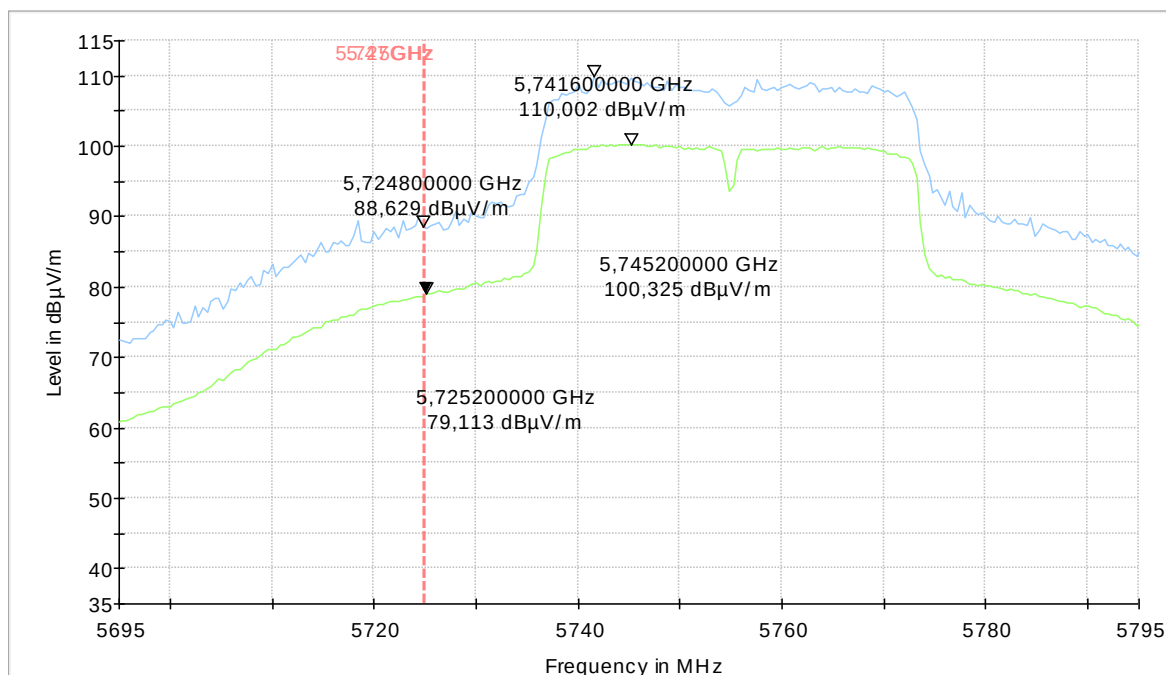
Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. high=9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



3.7. Channel 151 (left band edge)

Common Information

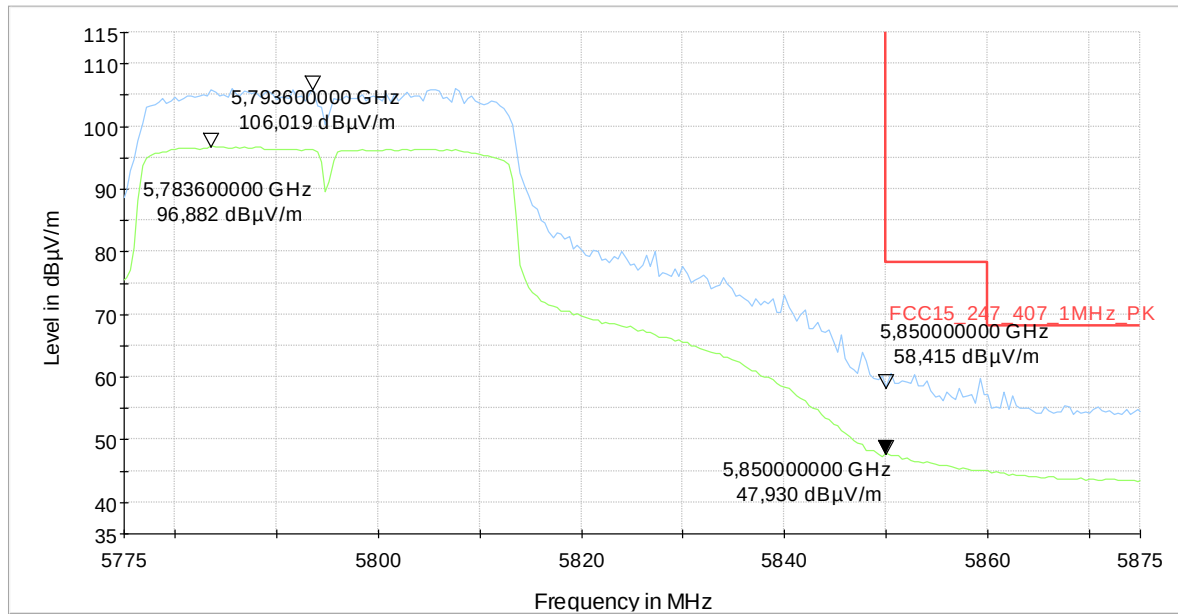
Test Description:	Radiated Band-Edge Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Version of Testsoftware:	EMC32 V9.15
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. low=151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