

Annex 1: Measurement diagrams 21-1-0178701T029a-C01-A1

Number of pages:	19	Date of Report:	2023-Apr-28
Testing company:	cetecom advanced GmbH Im Teelbruch 116 45219 Essen Germany Tel. + 49 (0) 20 54 / 95 19-0 Fax: + 49 (0) 20 54 / 95 19-150	Applicant:	Actia Nordic AB
Product: Model:	Telematic Device 104760201		
FCC ID:	2AGKK104760201	IC:	20839-104760201
Testing has been carried out in accordance with:	FCC Regulations Title 47 CFR, Chapter I, Subchapter A, Part 15 Subpart C Intentional Radiators § 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz ISED-Regulations Radio Standards Specification RSS-Gen, Issue 5 General Requirements for Compliance of Radio Apparatus RSS-247, Issue 2 Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Device		

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1 Measurement diagrams

2.01a_b-mode_1Mbps_ch06_laying

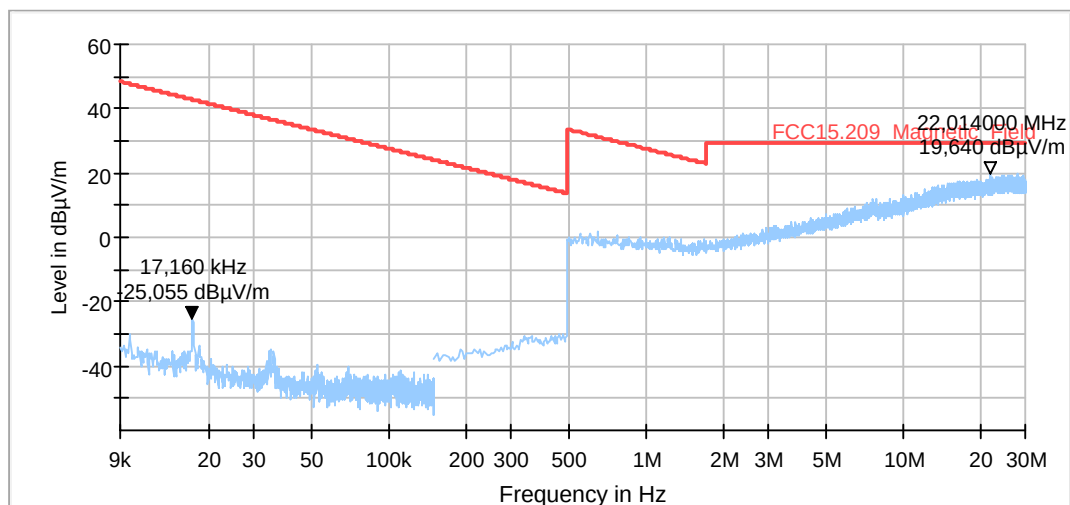
Common Information

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
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 Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	HLA
Operating Mode:	b-mode_1Mbps

EUT Information

PMT number	21-1-01787S54_C01
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Full Spectrum



2.01b_b-mode_1Mbps_ch06_standing

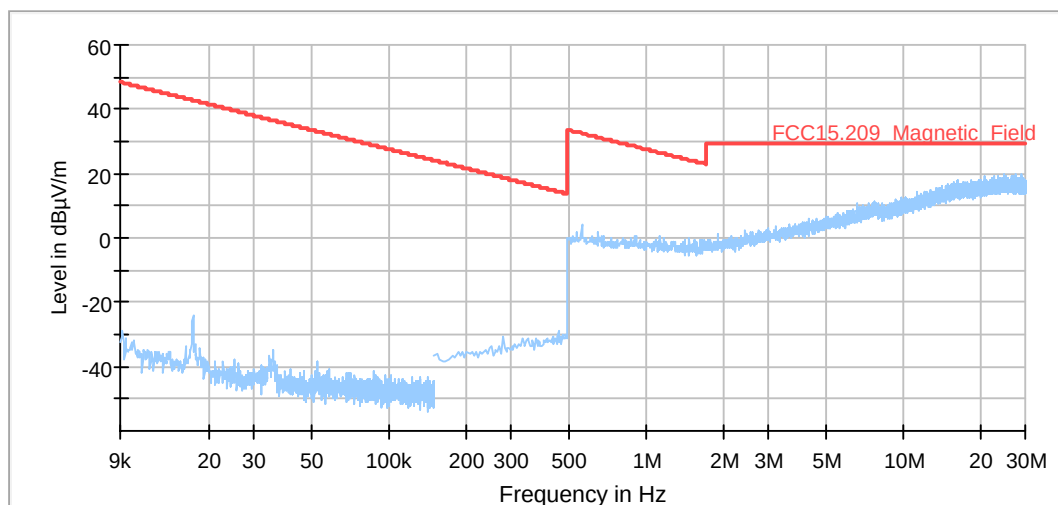
Common Information

Test description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
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 Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 5
Operator:	HLA
Operating Mode:	b-mode_1Mbps

EUT Information

PMT number	21-1-01787S54_C01
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Full Spectrum



3.01a_b-mode_1Mbps_ch06_laying

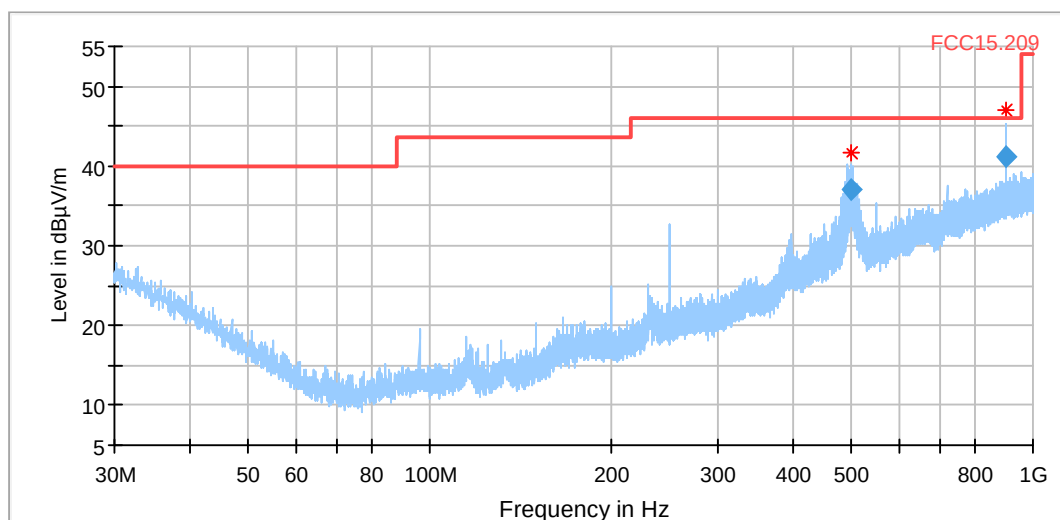
Common Information

Test Description: Radiated field strength emission in 3m distance
 Test Site: CETECOM GmbH Essen
 Test Standard: FCC 15.205&15.209 & RSS Gen. Issue 5
 Antenna polarisation: horizontal/vertical

 Environmental Conditions:: Humidity :40%rH; Temperature: 20°C
 Operator Name: HLa
 Operating Mode: WLAN 2.4GHz 1Mbps CH6
 Verdict: Passed

EUT Information

PMT number: 21-1-01787551_C01



Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Sig Path (dB)	Preamp (dB)
499.030000	37.08	46.00	8.92	120.000	149.0	H	184.0	19.6	0.0	2.3
902.350000	41.23	46.00	4.77	120.000	214.0	V	190.0	27.4	0.0	3.5

(continuation of the "Final_Result" table from column 18 ...)

Frequency (MHz)	Trd Corr. (dB/m)	Raw Rec (dBμV)	Comment
499.030000	17.3	17.4	11:41:01 - 01.12.2022
902.350000	23.9	13.9	11:45:54 - 01.12.2022

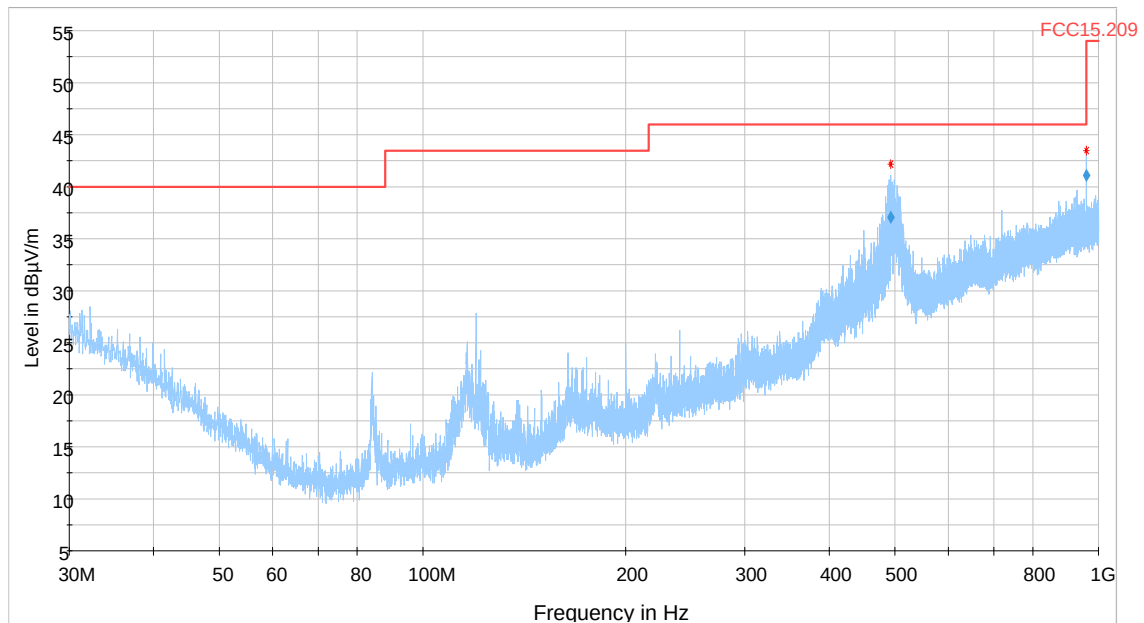
3.01b_b-mode_1Mbps_ch06_standing

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.205&15.209 & RSS Gen. Issue 5
Antenna polarisation:	horizontal/vertical
Environmental Conditions::	Humidity :40%rH; Temperature: 20°C
Operator Name:	HLa
Operating Mode:	WLAN 2.4GHz 1Mbps CH6
Verdict:	Passed

EUT Information

PMT number:	21-1-01787S51_C01
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Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Sig Path (dB)	Preamp (dB)
250.010000	33.34	46.00	12.66	120.000	197.0	V	33.0	13.0	0.0	1.6
492.950000	36.24	46.00	9.76	120.000	124.0	V	18.0	19.7	0.0	2.4

(continuation of the "Final_Result" table from column 18 ...)

Frequency (MHz)	Trd Corr. (dB/m)	Raw Rec (dBµV)	Comment
250.010000	11.4	20.4	12:27:35 - 01.12.2022
492.950000	17.3	16.5	12:21:43 - 01.12.2022

8.01a_b-mode_1Mbps_ch06_laying

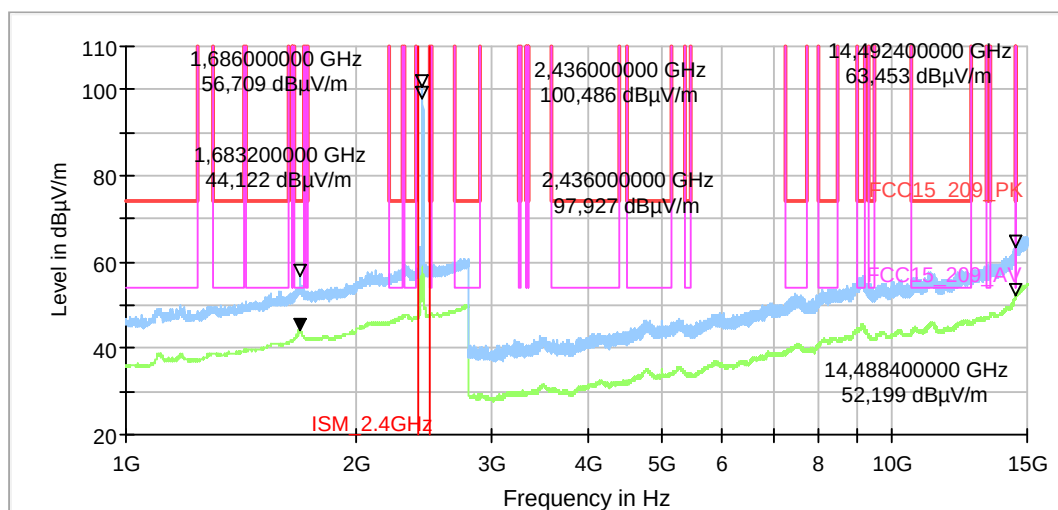
Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	b-mode 1Mbps; ch06; 2437MHz
Operator:	TFra
Comment:	-
Comment2:	-
EUT Setup:	2
Verdict:	Passed

EUT Information

PMT number:	21-1-01787S50_C01
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Full Spectrum



8.01b_b-mode_1Mbps_ch06_standing

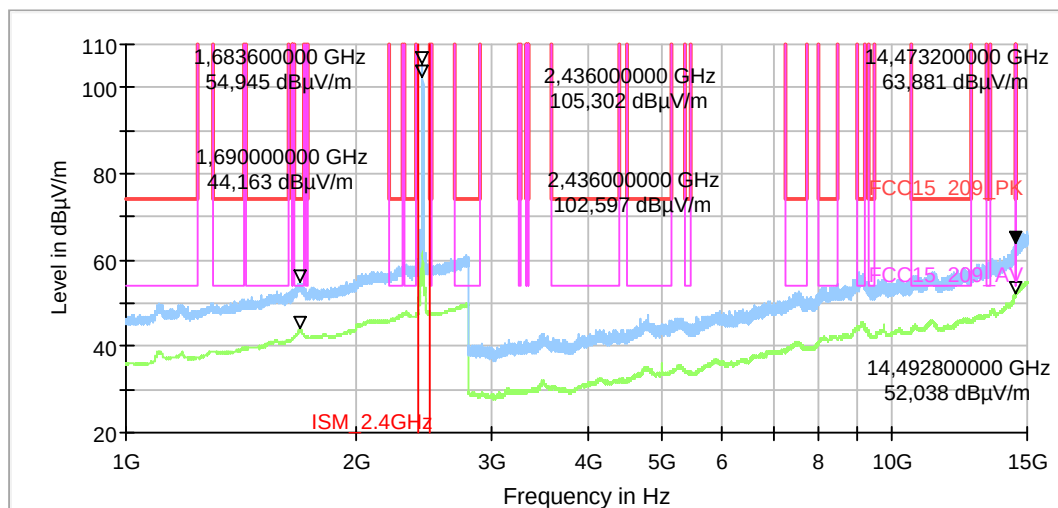
Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	b-mode 1Mbps; ch06; 2437MHz
Operator:	TFra
Comment:	-
Comment2:	-
EUT Setup:	2
Verdict:	Passed

EUT Information

PMT number:	21-1-01787S50_C01
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Full Spectrum



8.01c_b-mode_1Mbps_ch06_standing

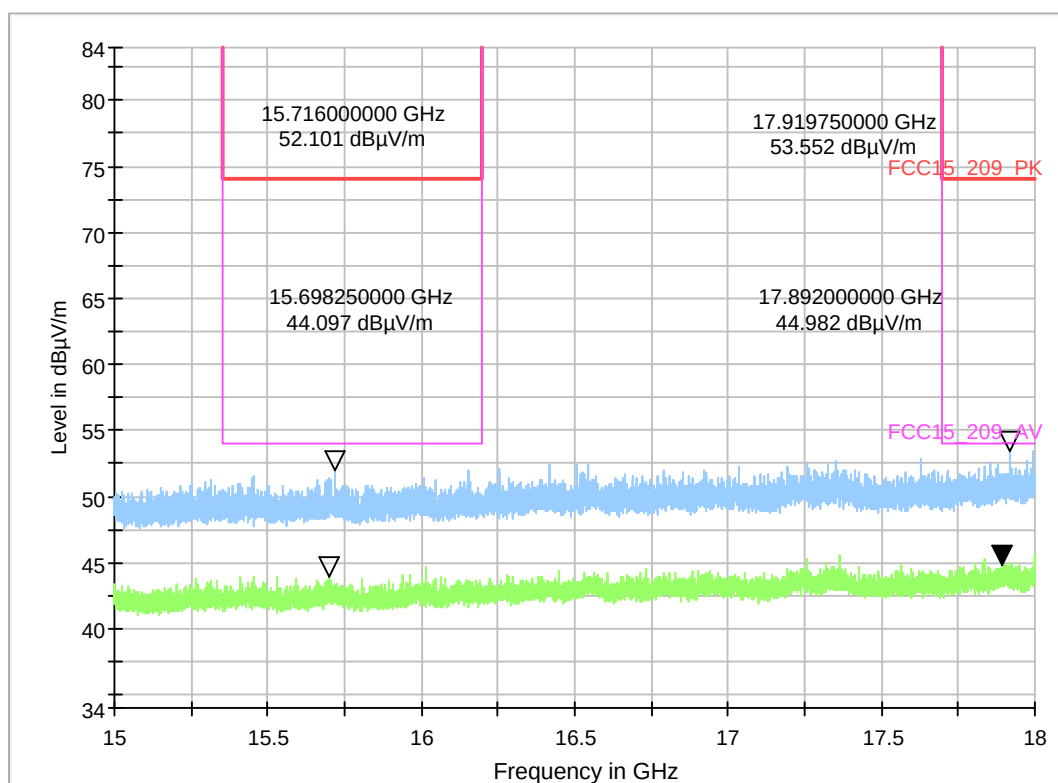
Common Information

Test Description:	Radiated Field Strength Emission@3m distance
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC 15.209 & RSS-Gen, Issue 5
Operating Mode:	Operator, please fill in the operating mode
Environmental Conditions:	Humidity: 37%rH; Temperature: 20.5°C
SW-Version:	EMC32 V10.60.20
Operator:	TFra
Verdict:	Passed

EUT Information

PMT Sample Nr. 21-1-01787S50_C01

Full Spectrum



8.01d_ WLAN2G4_b-mode_1Mbps_ch06_laying

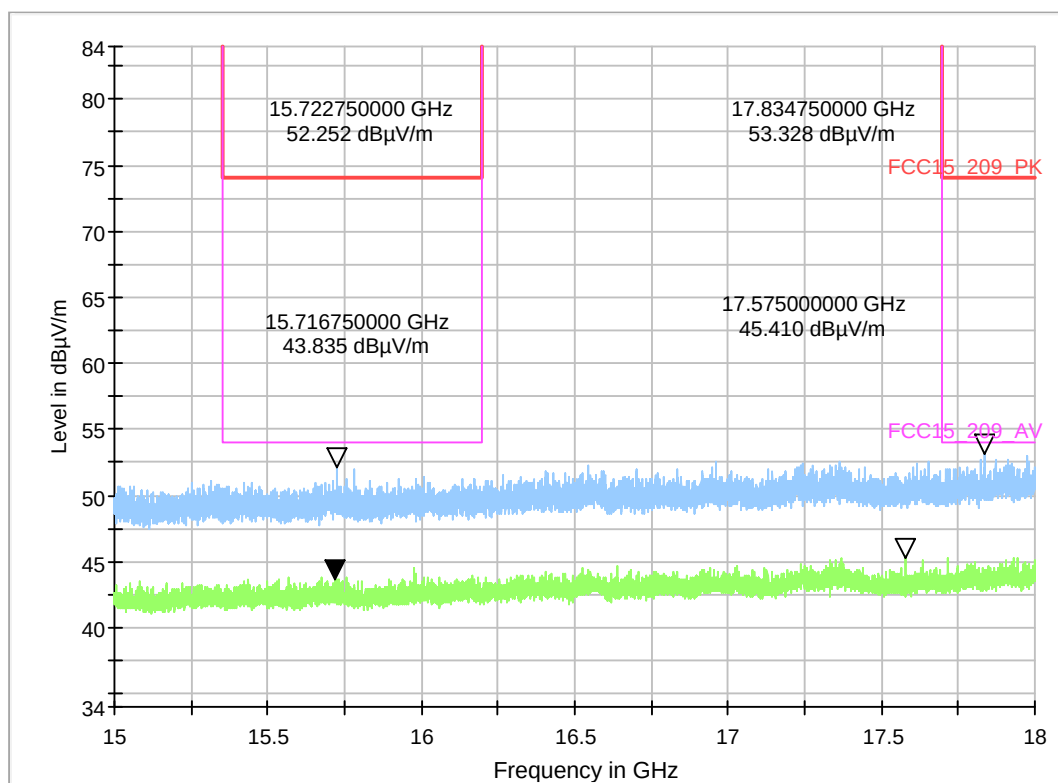
Common Information

Test Description:	Radiated Field Strength Emission@3m distance
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC 15.209 & RSS-Gen, Issue 5
Environmental Conditions:	Humidity: 37%rH; Temperature: 20.5°C
SW-Version:	EMC32 V10.60.20
Operator:	TFra
Verdict:	Passed

EUT Information

PMT Sample Nr.	21-1-01787S50_C01
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Full Spectrum



8.01e_b-mode_1Mbps_ch06_laying

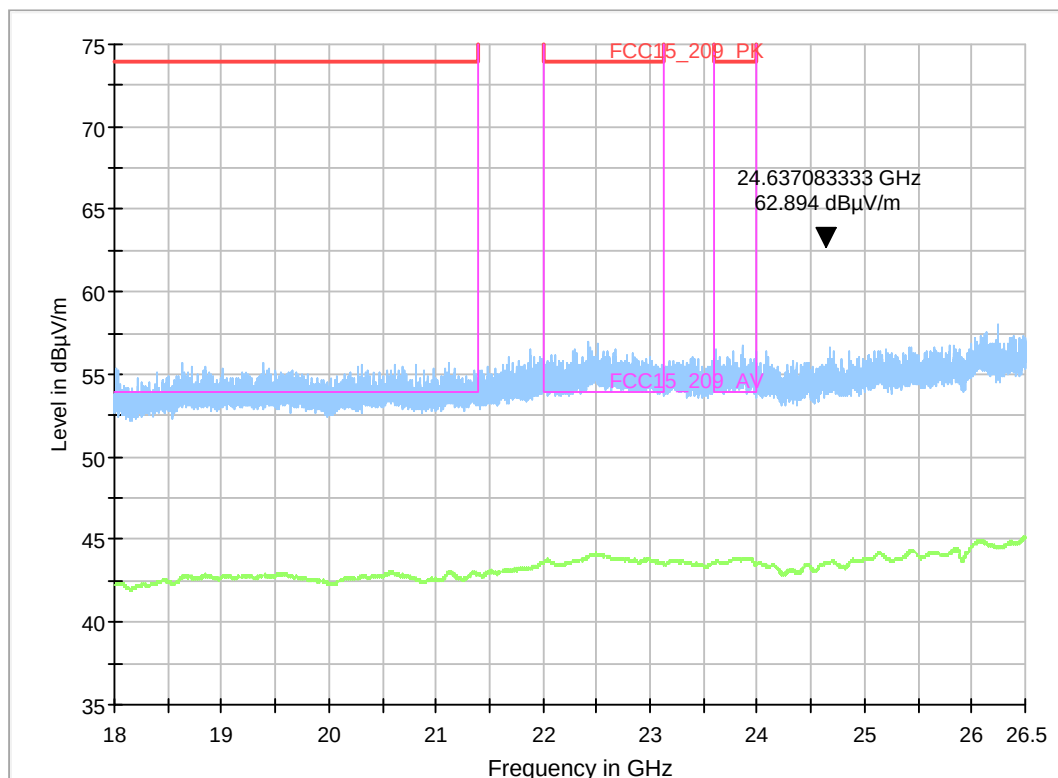
Common Information

Test Description:	Radiated Field Strength Emission@3m distance
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC 15.209 & RSS-Gen, Issue 5
Environmental Conditions:	Humidity: 37%rH; Temperature: 20.5°C
SW-Version:	EMC32 V10.60.20
Operator:	TFra
Verdict:	Passed

EUT Information

PMT Sample Nr. 21-1-01787S50_C01

Full Spectrum



8.01f_b-mode_1Mbps_ch06_standing

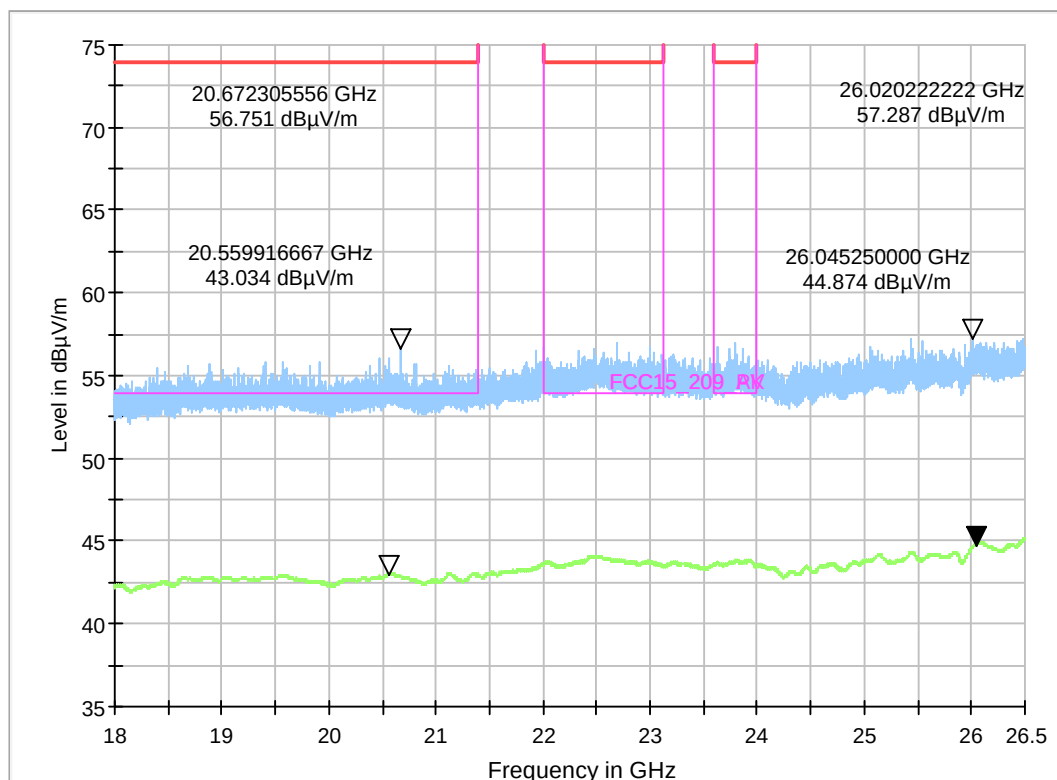
Common Information

Test Description:	Radiated Field Strength Emission@3m distance
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR2)
Test Standard:	FCC 15.209 & RSS-Gen, Issue 5
Environmental Conditions:	Humidity: 37%rH; Temperature: 20.5°C
SW-Version:	EMC32 V10.60.20
Operator:	TFra
Verdict:	Passed

EUT Information

PMT Sample Nr. 21-1-01787S50_C01

Full Spectrum



9.01a_b-mode_1Mbps_ch01_laying

Common Information

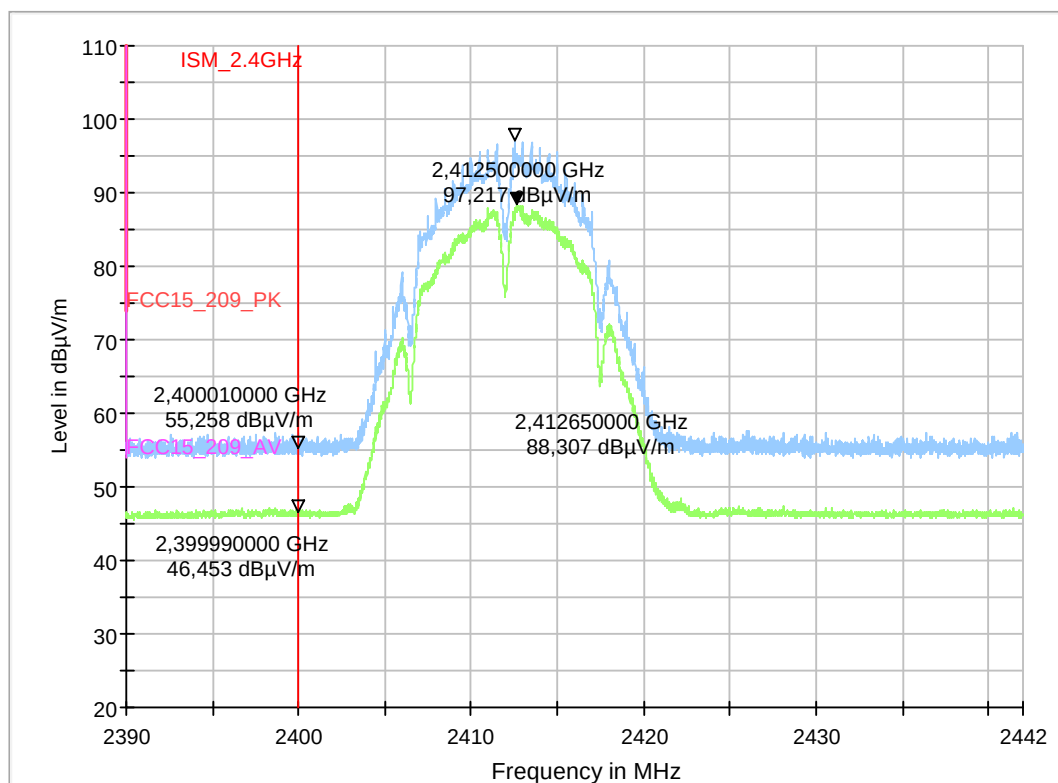
Test Description: Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation: horizontal/vertical

Operating Mode: b-mode 1Mbps; ch01; 2412MHz
Operator: SOz
Comment: Channel no. low
Verdict: Passed

EUT Information

PMT number: 21-1-01787S50_C01

Full Spectrum



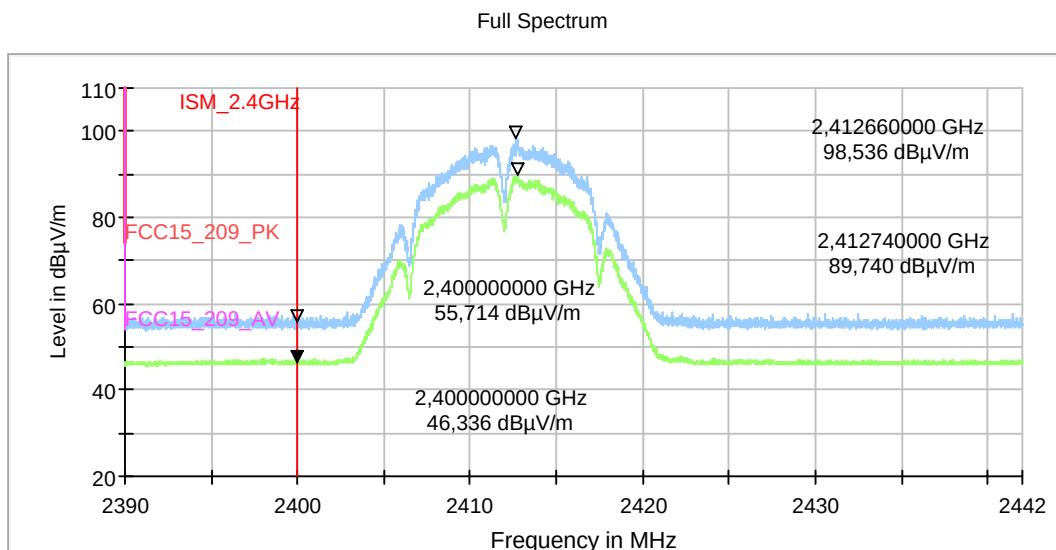
9.01b_b-mode_1Mbps_ch01_standing

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	TX, continuous
Operator:	Lor
Comment:	Channel no. low
Verdict:	Passed

EUT Information

PMT Sample Nr:	21-1-01787S50_C01
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9.02a_b-mode_1Mbps_ch11_laying

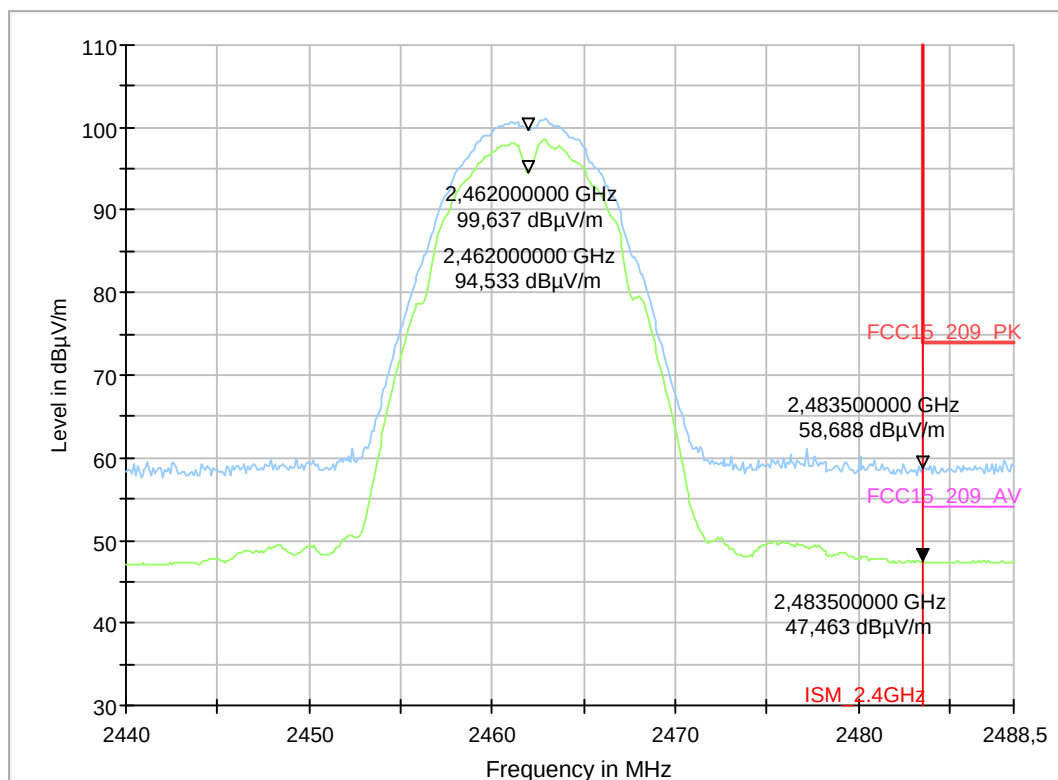
Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	b-mode 1Mbps; ch11; 2462MHz
Operator:	TFra
Comment:	Channel no. low
EUT Setup:	2
Verdict:	Passed

EUT Information

PMT number:	21-1-01787S50_C01
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Full Spectrum



9.02b_b-mode_1Mbps_ch11_standing

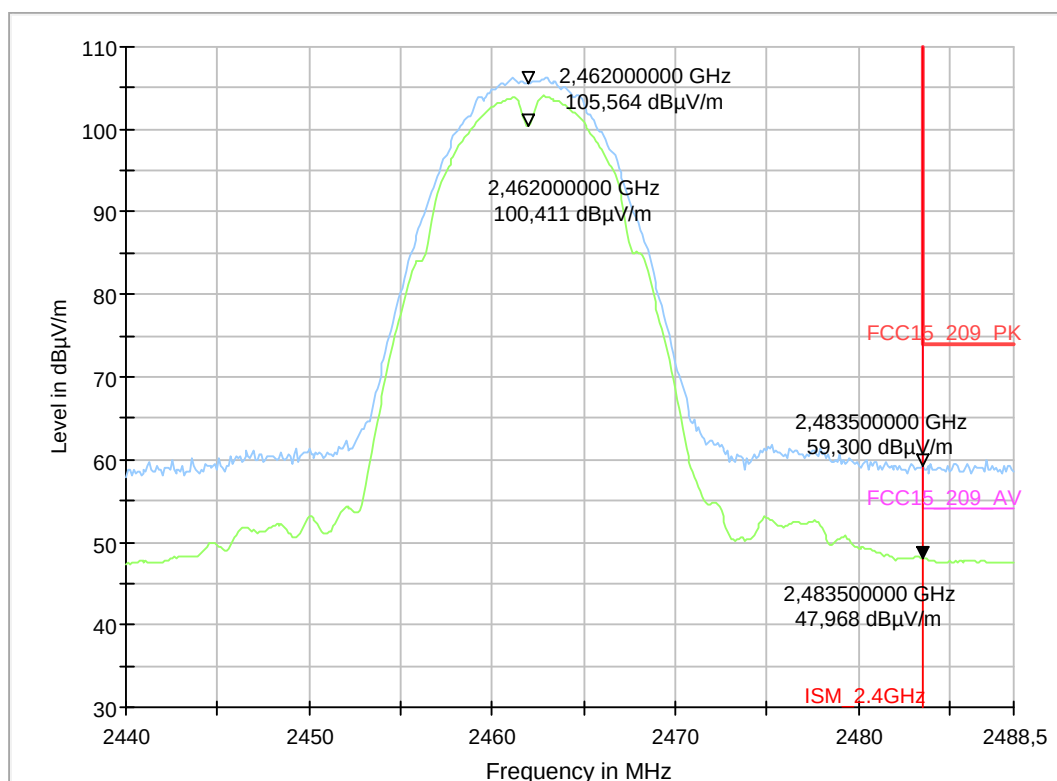
Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	b-mode 1Mbps; ch11; 2462MHz
Operator:	SOz
Comment:	Channel no. high
EUT Setup:	2
Verdict:	Passed

EUT Information

PMT number:	21-1-01787S50_C01
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Full Spectrum



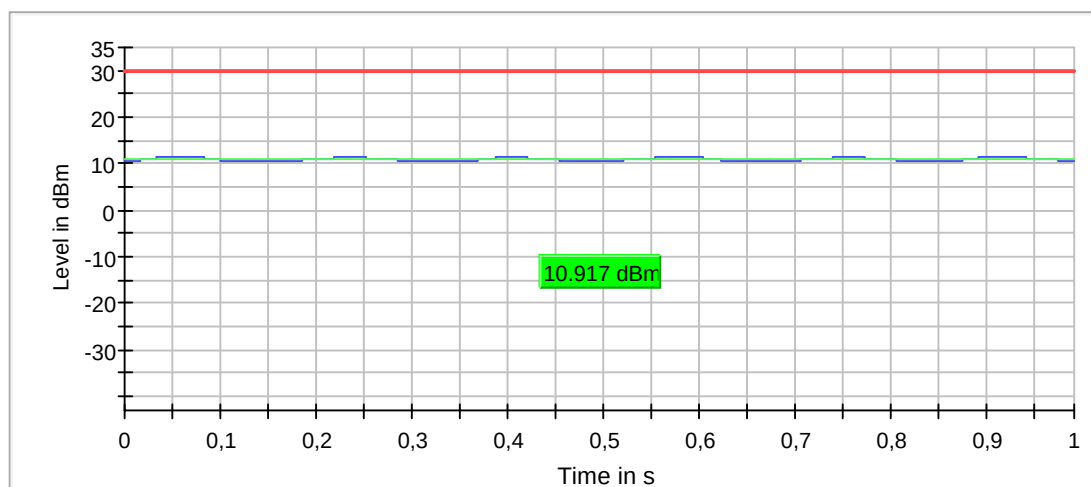
RF output power (2412 MHz; b-mode [1MBps] ; 20 MHz)

Test according to FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2412.000000	10.9	30.0	10.9	99.925	PASS

Gated Trace



— Gated Trace — Overall — Limit

OSP PowerMeter settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 μ s	1.000 μ s

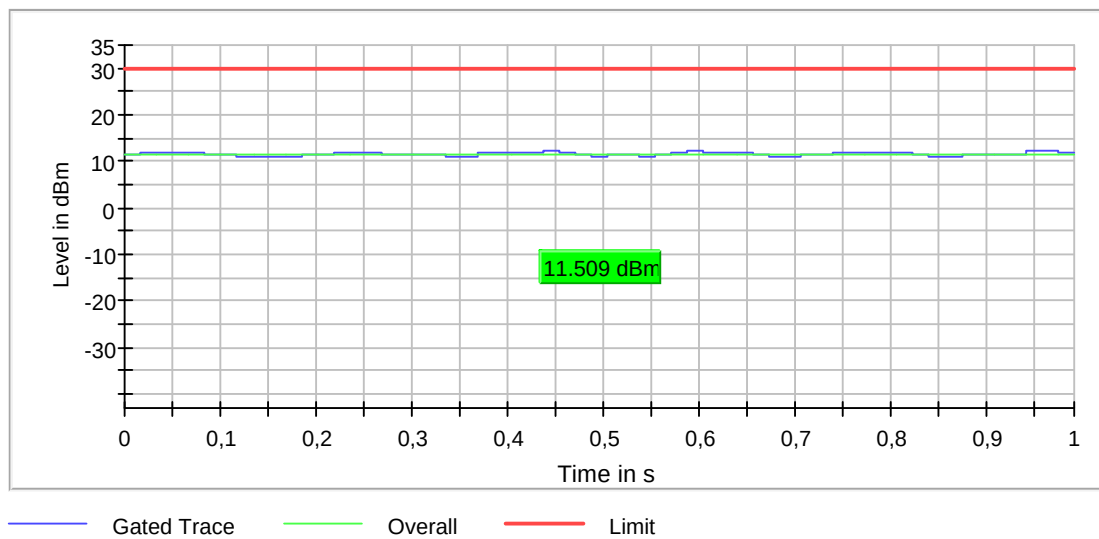
RF output power (2437 MHz; b-mode [1MBps] ; 20 MHz)

Test according to FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2437.000000	11.5	30.0	11.5	99.925	PASS

Gated Trace



OSP PowerMeter settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 μ s	1.000 μ s

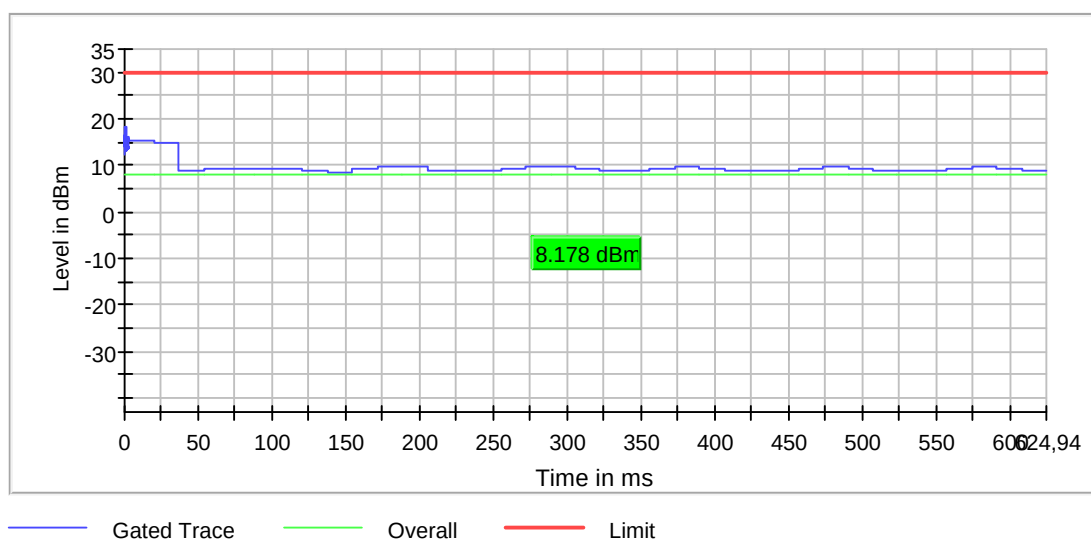
RF output power (2462 MHz; b-mode [1MBps] ; 20 MHz)

Test according to FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

Result

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	Gated EIRP (dBm)	DutyCycle (%)	Result
2462.000000	8.2	30.0	8.2	93.618	PASS

Gated Trace



OSP PowerMeter settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 μ s	1.000 μ s

End Of Annex 1