LAB N° 1244

Radio Test report – 381209-1TRFWL

Applicant:

Tattile Srl

Product:

Automatic Number Plate Reader

Model:

F01872 VEGA 1 SHORT

FCC ID:

Contains:

FCC ID: 2AULGT17950

Specifications:

- FCC 47 CFR Part 15 Subpart C, §15.247
  Operation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz (Partial testing)

Tested by (name, function and signature)	S. Tessa	Sara Tessa	(project handler)
Reviewed by (name, function and signature)	P. Barbieri	Paul L	(verifier)
Date	2019-11-21		

LAB N° 1244

Test location

Company name	Nemko S.p.A
Address	Via del Carroccio, 4
City	Biassono
Province	MB
Postal code	20053
Country	Italy
Telephone	+1 514 694 2684
Facsimile	+1 514 694 3528
Toll free	+1 800 563 6336
Website	www.nemko.com
Site number	682159

Throughout this report point is used as decimal separator.

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.
This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko S.p.A.. ISO/IEC 17025 accreditation.

Copyright notification

Table of contents

Section 1. Report summary

Applicant and manufacturer

Company name	Tattile Srl
Address	Via Gaetano Donizetti 1 25030 Mairano (BS) Italia

Test specifications

FCC 47 CFR Part 15.247	Operation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz

Test method

ANSI C63.10-2015	American National Standard of procedure for Compliance Testing of Unlicensed Wireless Devices

Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was performed against all relevant requirements of the test standard except as noted in section 1.5 below. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See "Summary of test results" for full details.

Exclusions

As per customer's quotation, this report is for verification purpose of Class I permissive change; only output power and spurious emissions tests have been assessed, all other tests were excluded from the scope of this report.

Test report revision history

Revision #	Details of changes made to test report
TRF	Original report issued

Section 2. Summary of test results

FCC Part 15 Subpart C, §15.247, test results for DTS

Part	Test description	Verdict
§15.247(a)(2)	Minimum 6 dB bandwidth	**Pass**
§15.247(b)(3)	Maximum peak output power in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands	**Pass**
§15.247(c)(1)	Fixed point-to-point operation with directional antenna gains greater than 6 dBi	Not applicable
§15.247(c)(2)	Transmitters operating in the 2400–2483.5 MHz band that emit multiple directional beams	Not applicable
§15.247(d)	Spurious emissions	**Pass**
§15.247(e)	Power spectral density	**Pass**
§15.247(f)	Time of occupancy for hybrid systems	Not applicable

Section 3. Equipment under test (EUT) details

Sample information

Receipt date	October 1, 2019

EUT information

Product name	Automatic Number Plate Reader
Model	F01872 VEGA 1 SHORT
Part number	--
Revision	--
Serial number	1801002933
Operating band	WLAN 2.4 GHz – 2.4835 GHz
Operating frequency	WLAN 2.4 GHz – 2.4835 GHz
Modulation	CCK/OFDM
Channel bandwidth	20 MHz (b-mode) 22 MHz (g/n mode)
Power requirements	24 Vdc
Emission designator	F1D
Antenna information	The WIFI module uses an integrated antenna The GPS uses an antenna embedded in the radio module
EUT (front)	

Product description and theory of operation

Automatic Number Plate Recognition system (2 image sensor, OCR and Context)

Option mounted: GPS and WiFi.

Description	Productor, code	Antenna
WiFi	SiliconLab (ex Bluegiga), WF111-E-V1 (module without antenna, U.FL connector)	MOLEX 479500001 (U.FL connector) Internal antenna, U.FL connector not accessible outside enclosure.
GPS	U-blox CAM-M8Q-0	Antenna embedded in the radio module No antenna connector.

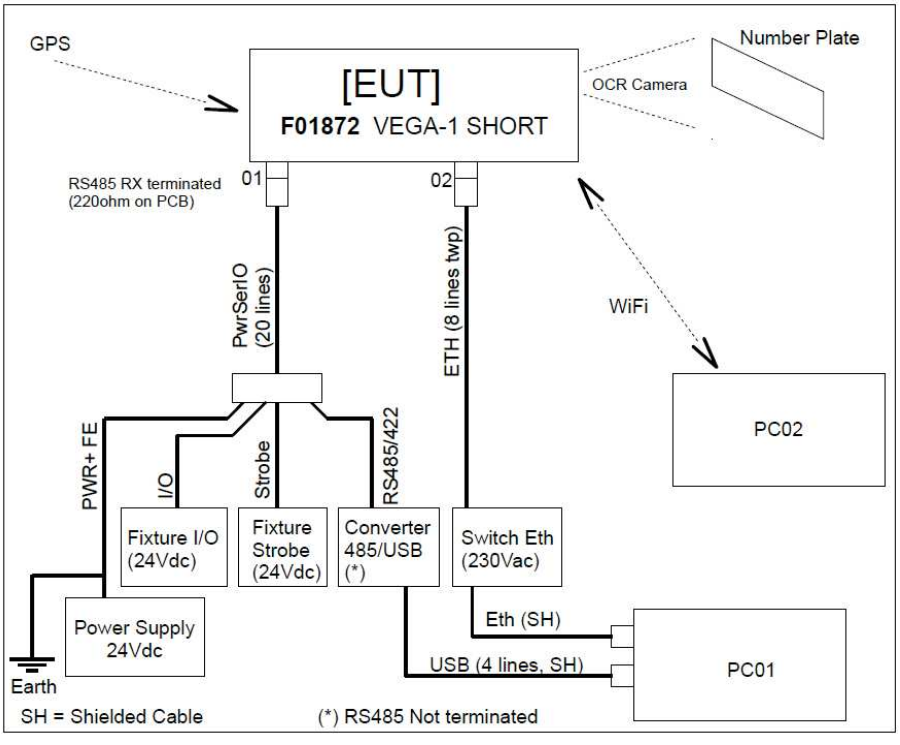
All radio modules are Certified (FCC & RED Directive)

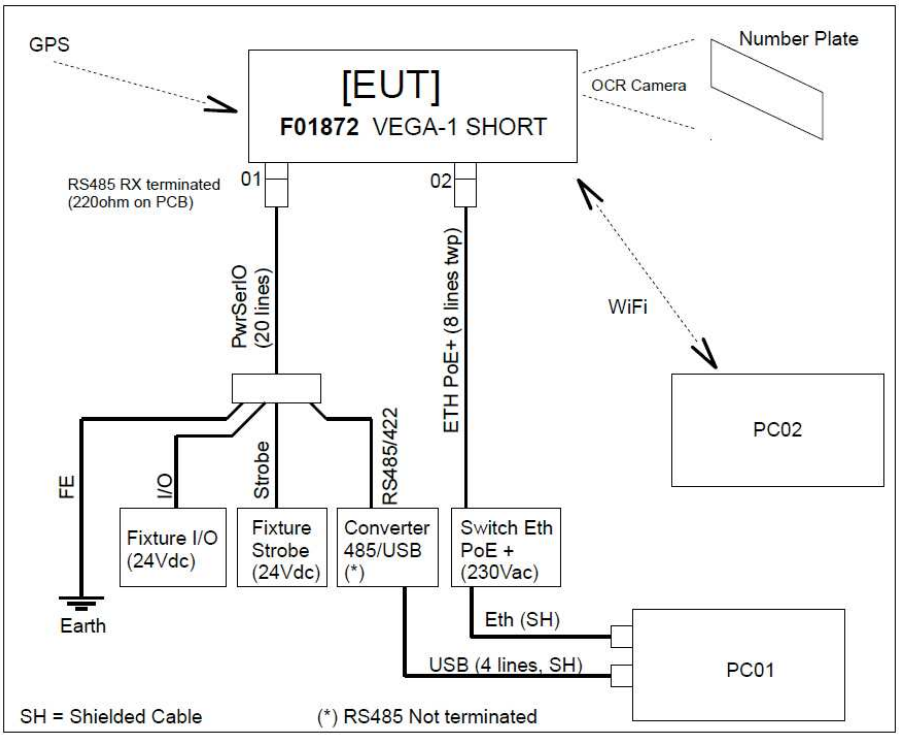
EUT exercise details

EUT was set up to transmit continuously, at full power on WLAN channel. The EUT was controlled and channels selected using a proprietary test software provided by client.

EUT setup diagram

1



2	

GPS
[EUT]
F01872 VEGA-1 SHORT
Number Plate
OCR Camera
RS485 RX terminated
(220ohm on PCB)
01
02
PwrSerIO
(20 lines)
ETH PoE+ (8 lines twp)
WiFi
PC02
FE
I/O
Strobe
RS485/422
Fixture I/O
(24Vdc)
Fixture
Strobe
(24Vdc)
Converter
485/USB
(*)
Switch Eth
PoE +
(230Vac)
Earth
Eth (SH)
USB (4 lines, SH)
PC01
SH = Shielded Cable
(*) RS485 Not terminated

Section 4. Engineering considerations

Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

Technical judgment

None

Deviations from laboratory tests procedures

No deviations were made from laboratory procedures.

Section 5. Test conditions

Atmospheric conditions

Temperature	18÷33 °C
Relative humidity	30÷60 %
Air pressure	980÷1060 hPa

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages ±5 %, for which the equipment was designed.

Section 6. Measurement uncertainty

Measurement uncertainty budgets for the tests are detailed below. Measurement uncertainty calculations assume a coverage factor of K = 2 with 95% certainty.

Table 0-1: Measurement uncertainty

EUT	Type	Test	Range and Setup features	Measurement Uncertainty	Notes
Transmitter	Conducted	Frequency error	0.001 MHz ÷ 40 GHz	0.08 ppm	(1)
		Carrier power RF Output Power	10 kHz ÷ 30 MHz	1.0 dB	(1)
			30 MHz ÷ 18 GHz	1.5 dB	(1)
			18 MHz ÷ 40 GHz	3.0 dB	(1)
		Adjacent channel power	1 MHz ÷ 18 GHz	1.6 dB	(1)
		Conducted spurious emissions	10 kHz ÷ 26 GHz	3.0 dB	(1)
			26 GHz ÷ 40 GHz	4.5 dB	(1)
		Intermodulation attenuation	1 MHz ÷ 18 GHz	2.2 dB	(1)
		Attack time – frequency behaviour	1 MHz ÷ 18 GHz	2.0 ms	(1)
		Attack time – power behaviour	1 MHz ÷ 18 GHz	2.5 ms	(1)
		Release time – frequency behaviour	1 MHz ÷ 18 GHz	2.0 ms	(1)
		Release time – power behaviour	1 MHz ÷ 18 GHz	2.5 ms	(1)
		Transient behaviour of the transmitter– Transient frequency behaviour	1 MHz ÷ 18 GHz	0.2 kHz	(1)
		Transient behaviour of the transmitter – Power level slope	1 MHz ÷ 18 GHz	9%	(1)
		Frequency deviation - Maximum permissible frequency deviation	0.001 MHz ÷ 18 GHz	1.3%	(1)
		Frequency deviation - Response of the transmitter to modulation frequencies above 3 kHz	0.001 MHz ÷ 18 GHz	0.5 dB	(1)
		Dwell time	-	3%	(1)
		Hopping Frequency Separation	0.01 MHz ÷ 18 GHz	1%	(1)
		Occupied Channel Bandwidth	0.01 MHz ÷ 18 GHz	2%	(1)
		Modulation Bandwidth	0.01 MHz ÷ 18 GHz	2%	(1)
	Radiated	Radiated spurious emissions	10 kHz ÷ 26.5 GHz	6.0 dB	(1)
			26.5 GHz ÷ 40 GHz	8.0 dB	(1)
		Effective radiated power transmitter	10 kHz ÷ 26.5 GHz	6.0 dB	(1)
			26,5 GHz ÷ 40 GHz	8.0 dB	(1)
Receiver	Radiated	Radiated spurious emissions	10 kHz ÷ 26.5 GHz	6.0 dB	(1)
			26.5 GHz ÷ 40 GHz	8.0 dB	(1)
		Sensitivity measurement	1 MHz ÷ 18 GHz	6.0 dB	(1)
	Conducted	Conducted spurious emissions	10 kHz ÷ 26 GHz	3.0 dB	(1)
			26 GHz ÷ 40 GHz	4.5 dB	(1)

NOTES:
(1) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2 which has been derived from the assumed normal probability distribution with infinite degrees of freedom and for a coverage probability of 95 %;

Section 7. Test equipment

Test equipment list

Table 0-1: Equipment list

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
EMI receiver 2 Hz ÷ 44 GHz	R&S	ESW44	101620	2019/08	2020/08
Broadband preamplifier	Schwarzbeck	BBV 9718	9718-137	2019/09	2020/09
Trilog Broadband Antenna	Schwarzbeck	VULB 9162	9162-025	2018/07	2021/07
Semi-anechoic chamber	Nemko	10m semi-anechoic chamber	530	2018/09	2021/09
Antenna mast	Maturo	FCU3.0	10041	NSC	NSC
Controller	Maturo	TAM4.0-E	10042	NSC	NSC
Hydraulic revolving platform	Maturo	TT4.0-5T	2.527	NSC	NSC
EMI receiver 20 Hz ÷ 8 GHz	R&S	ESU8	100202	2019/01	2020/01
Bilog antenna 1 ÷18 GHz	Schwarzbeck	STLP 9148-123	123	2018/09	2021/09
High pass filter	Wainwright Instruments	WHNX6-2555-3500-26500-60CC	01	2018/10	2020/10

NSC = Not Subject to Calibration

Section 8. Testing data

8.1 FCC 15.247(a)(2) Minimum 6 dB bandwidth for DTS systems

8.1.1 Definitions and limits

FCC:
Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

8.1.1 Test date

Start date	October 1, 2019

8.1.2 Observations, settings and special notes

Spectrum analyzer settings:

Resolution bandwidth	100 kHz
Video bandwidth	≥3 × RBW
Frequency span	30 MHz for 20 MHz channel; 80 MHz for 40 MHz channel
Detector mode	Peak
Trace mode	Max Hold

8.1.3 Test data

Table 8.1-1: 6 dB bandwidth results

Modulation	Frequency, MHz	6 dB bandwidth, MHz	Limit, MHz	Margin, MHz
802.11b	2412	9.91	0.5	9.41
	2437	9.90	0.5	9.40
	2462	9.52	0.5	9.02
802.11g	2412	9.71	0.5	9.21
	2437	9.71	0.5	9.21
	2462	9.90	0.5	9.40
802.11n	2412	9.52	0.5	9.02
	2437	9.90	0.5	9.40
	2462	10.00	0.5	9.50

Table 8.1-2: 99% occupied bandwidth results

Modulation	Frequency, MHz	99% occupied bandwidth, MHz
802.11b	2412	17.88
	2437	16.35
	2462	16.15
802.11g	2412	17.12
	2437	16.35
	2462	16.25
802.11n	2412	17.60
	2437	16.64
	2462	16.15

Note: there is no 99% occupied bandwidth limit in the standard's requirements, the measurement results provided for information purposes only.

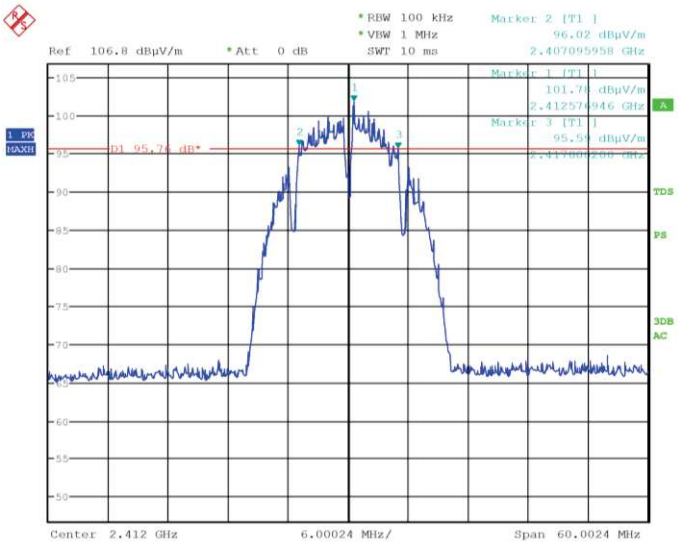


Figure 8.1-1: 6 dB bandwidth on CH1 802.11b, sample plot

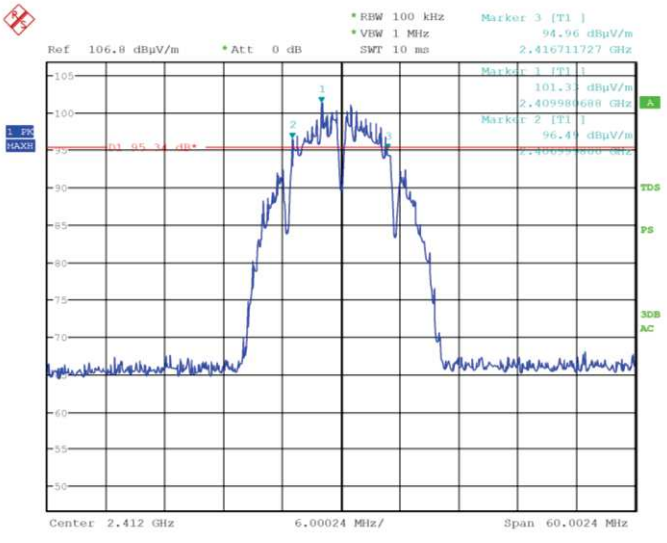


Figure 8.1-2: 6 dB bandwidth on CH1 802.11g, sample plot

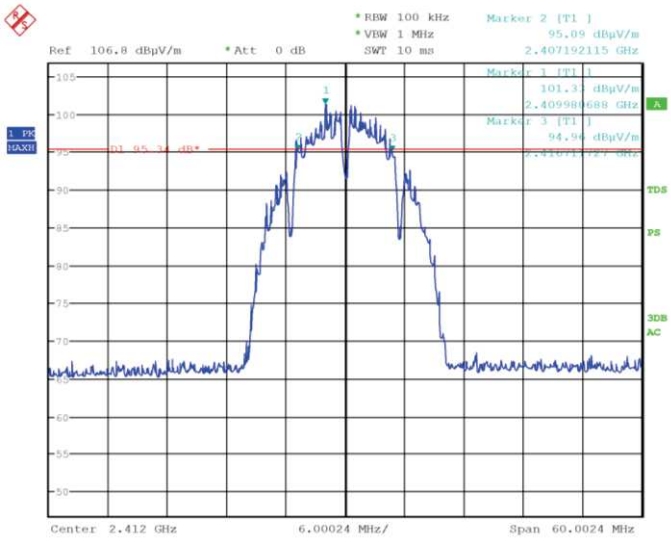


Figure 8.1-3: 6 dB bandwidth on CH1 802.11n, sample plot

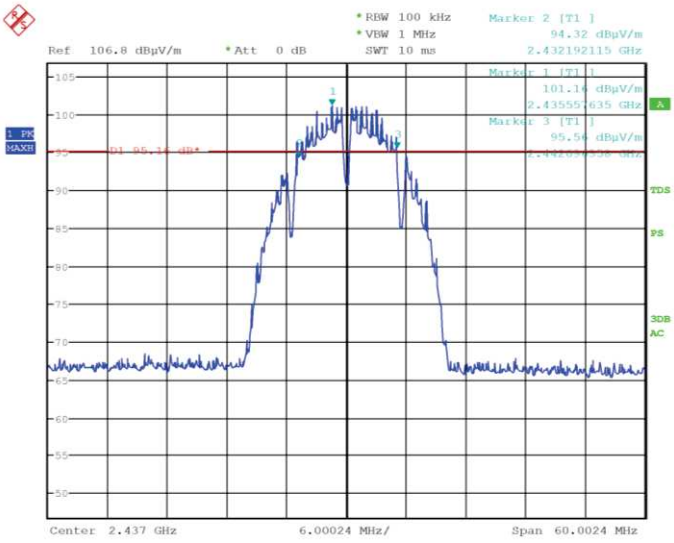


Figure 8.1-4: 6 dB bandwidth on CH6 802.11b, sample plot

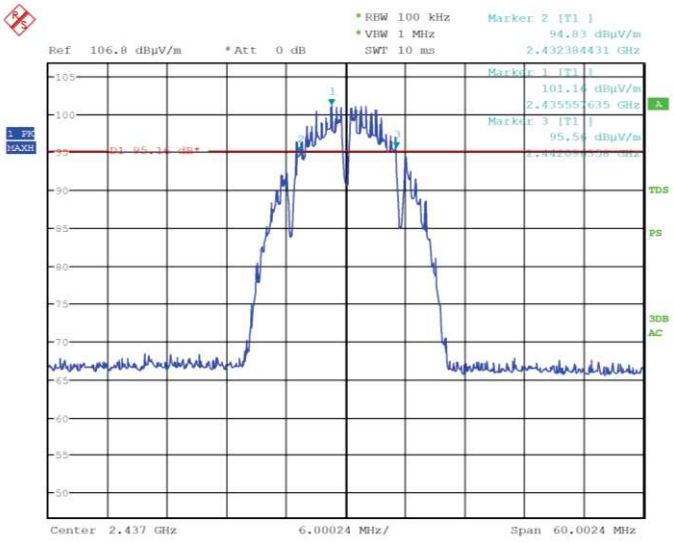


Figure 8.1-5: 6 dB bandwidth on CH6 802.11g, sample plot

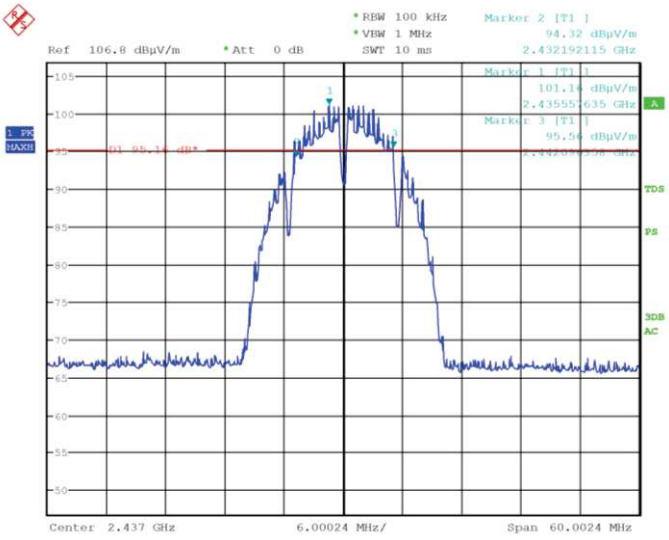


Figure 8.1-6: 6 dB bandwidth on CH6 802.11n, sample plot

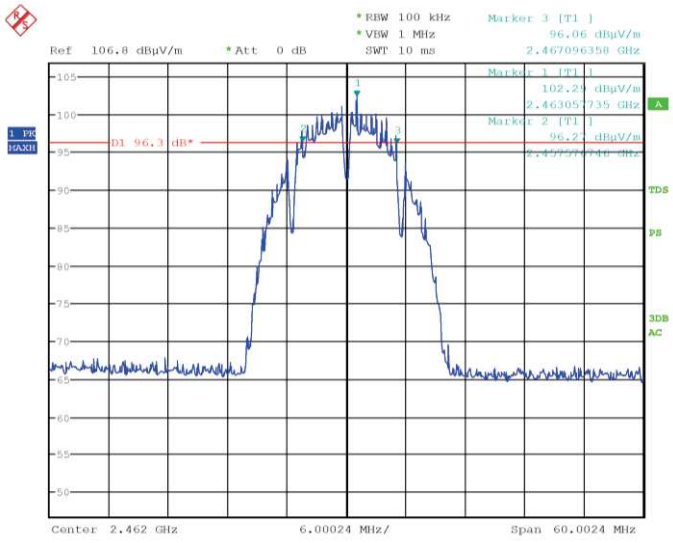


Figure 8.1-7: 6 dB bandwidth on CH11 802.11b, sample plot

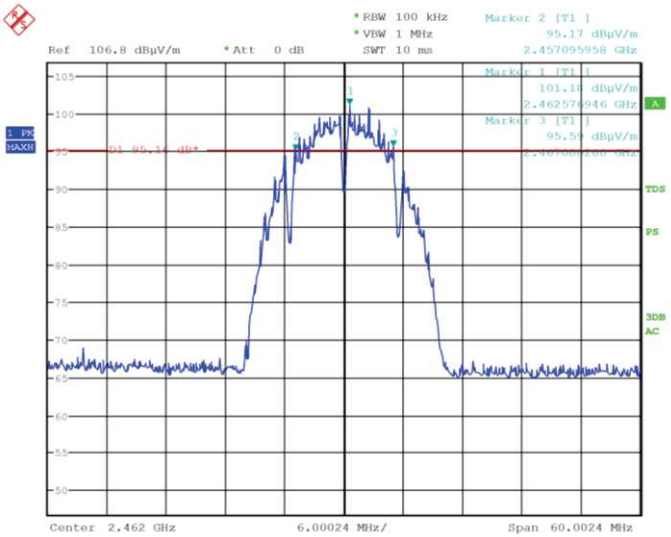


Figure 8.1-8: 6 dB bandwidth on CH11 802.11g, sample plot

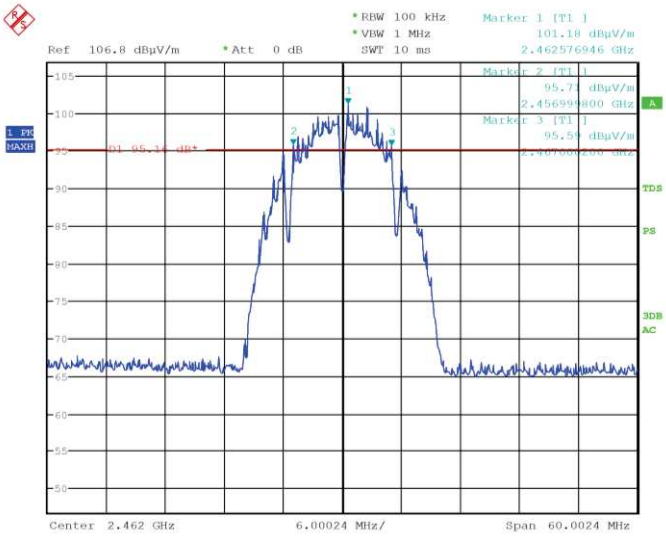


Figure 8.1-9: 6 dB bandwidth on CH11 802.11n HT20, sample plot

8.2 FCC 15.247(b) Transmitter output power and e.i.r.p. requirements for DTS in 2.4 GHz

8.2.1 Definitions and limits

FCC:

(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following:

(3) For systems using digital modulation in the 2400–2483.5 MHz band: 1 W (30 dBm). As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

(i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

(iii) Fixed, point-to-point operation, as used in paragraphs (c)(1)(i) and (c)(1)(ii) of this section, excludes the use of point-to-multipoint systems, omnidirectional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum or digitally modulated intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

(2) In addition to the provisions in paragraphs (b)(1), (b)(3), (b)(4) and (c)(1)(i) of this section, transmitters operating in the 2400–2483.5 MHz band that emit multiple directional beams, simultaneously or sequentially, for the purpose of directing signals to individual receivers or to groups of receivers provided the emissions comply with the following:

(i) Different information must be transmitted to each receiver.

(ii) If the transmitter employs an antenna system that emits multiple directional beams but does not do emit multiple directional beams simultaneously, the total output power conducted to the array or arrays that comprise the device, i.e., the sum of the power supplied to all antennas, antenna elements, staves, etc. and summed across all carriers or frequency channels, shall not exceed the limit specified in paragraph (b)(1) or (b)(3) of this section, as applicable. However, the total conducted output power shall be reduced by 1 dB below the specified limits for each 3 dB that the directional gain of the antenna/antenna array exceeds 6 dBi. The directional antenna gain shall be computed as follows:

(A) The directional gain shall be calculated as the sum of 10 log (number of array elements or staves) plus the directional gain of the element or stave having the highest gain.

(B) A lower value for the directional gain than that calculated in paragraph (c)(2)(ii)(A) of this section will be accepted if sufficient evidence is presented, e.g., due to shading of the array or coherence loss in the beamforming.

(iii) If a transmitter employs an antenna that operates simultaneously on multiple directional beams using the same or different frequency channels, the power supplied to each emission beam is subject to the power limit specified in paragraph (c)(2)(ii) of this section. If transmitted beams overlap, the power shall be reduced to ensure that their aggregate power does not exceed the limit specified in paragraph (c)(2)(ii) of this section. In addition, the aggregate power transmitted simultaneously on all beams shall not exceed the limit specified in paragraph (c)(2)(ii) of this section by more than 8 dB.

(iv) Transmitters that emit a single directional beam shall operate under the provisions of paragraph (c)(1) of this section.

8.2.2 Test date

Start date	October 1, 2019

8.2.3 Observations, settings and special notes

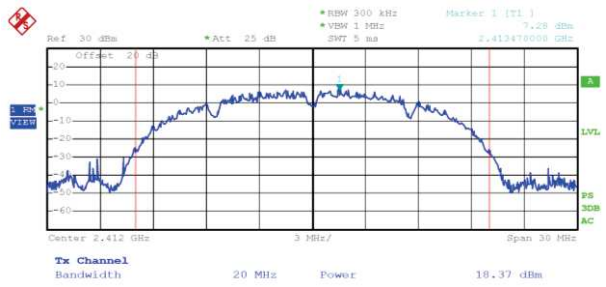
The test was performed using Integrated band power method. Tests were performed with highest and lowest data rates, only the worst cases were presented.

8.2.4 Test data

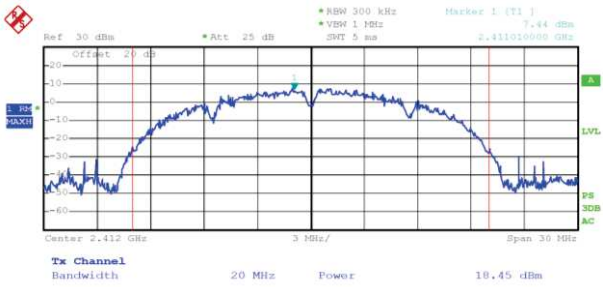
Table 8.2-1: Output power measurements results

Modulation	Frequency, MHz	Conducted output power, dBm		Margin, dB	Antenna gain, dBi	EIRP, dBm	EIRP limit, dBm	EIRP margin, dB
		Measured	Limit					
802.11b	2412	18.4	30	-11.6	3.0	21.4	36	-14.6
	2442	19.7	30	-10.3	3.0	22.7	36	-13.3
	2462	19.7	30	-10.3	3.0	22.7	36	-13.3
802.11g	2412	18.5	30	-11.5	3.0	21.5	36	-14.5
	2442	19.7	30	-10.3	3.0	22.7	36	-13.3
	2462	19.7	30	-10.3	3.0	22.7	36	-13.3
802.11n	2412	18.8	30	-11.2	3.0	21.8	36	-14.2
	2442	20.1	30	-9.9	3.0	23.1	36	-12.9
	2462	19.9	30	-10.1	3.0	22.9	36	-13.1

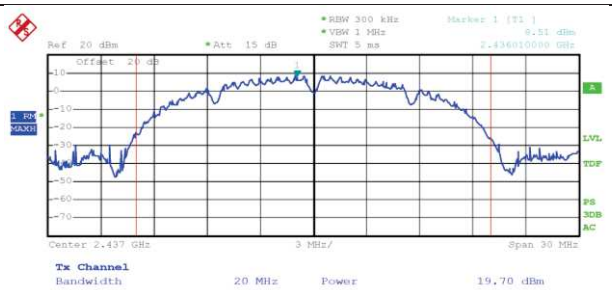
Section (8) Results



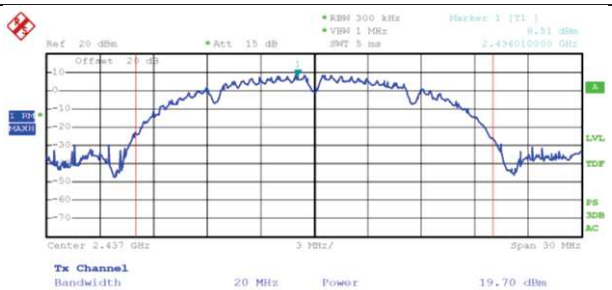
CH1 protocol 802.11b



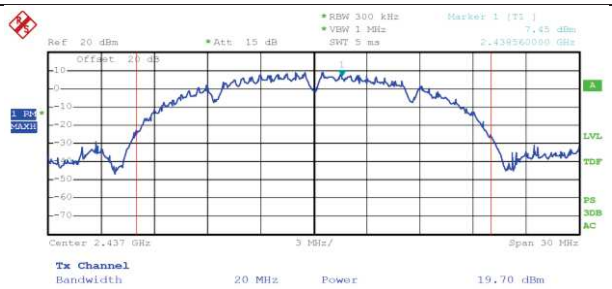
CH1 protocol 802.11g



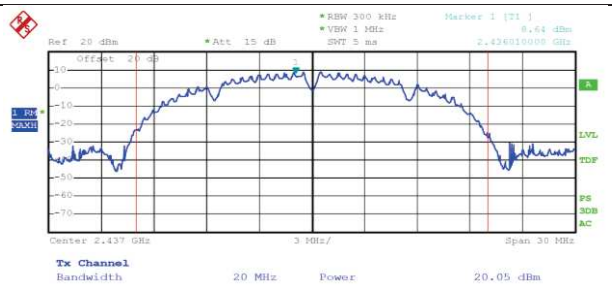
CH1 protocol 802.11n



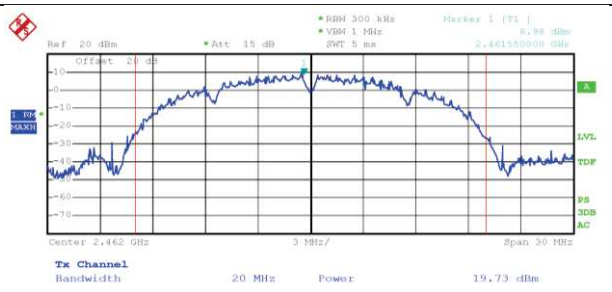
CH6 protocol 802.11b



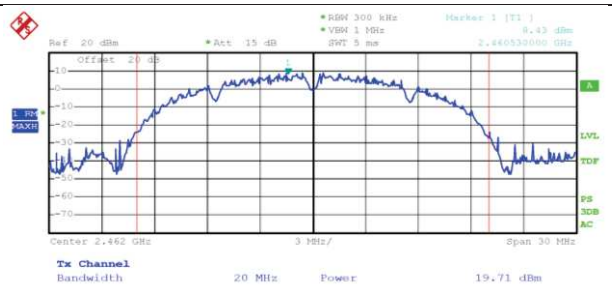
CH6 protocol 802.11g



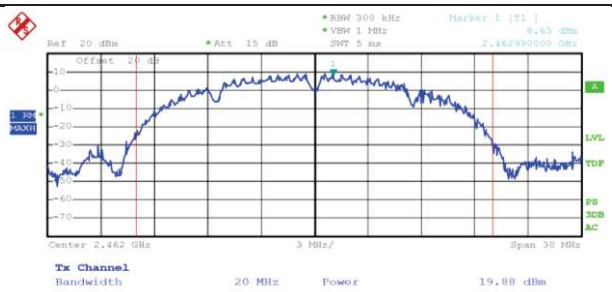
CH6 protocol 802.11n



CH11 protocol 802.11b



CH11 protocol 802.11g



CH11 protocol 802.11n

8.3 FCC 15.247(d), Spurious (out-of-band) unwanted emissions

8.3.1 Definitions and limits

FCC 15.247(d) Spurious

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Table 8.3-1: FCC §15.209 – Radiated emission limits

Frequency, MHz	Field strength of emissions		Measurement distance, m
	µV/m	dBµV/m	
0.009–0.490	2400/F	$67.6 - 20 \times \log_{10}(F)$	300
0.490–1.705	24000/F	$87.6 - 20 \times \log_{10}(F)$	30
1.705–30.0	30	29.5	30
30–88	100	40.0	3
88–216	150	43.5	3
216–960	200	46.0	3
above 960	500	54.0	3

Notes: In the emission table above, the tighter limit applies at the band edges.
For frequencies above 1 GHz the limit on peak RF emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test

Table 8.3-2: FCC restricted frequency bands

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2690–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	Above 38.6
13.36–13.41			

§15.249 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHZ, and 24.0-24.25 GHz.

(a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation

8.3.2 Observations, settings and special notes

The spectrum was searched from 30 MHz to the 10th harmonic.
All measurements were performed using a peak detector.
RBW within 30–1000 MHz was 100 kHz and 1 MHz above 1 GHz. VBW was wider than RBW.

Spectrum analyzer settings for radiated measurements within restricted bands below 1 GHz:

Resolution bandwidth:	100 kHz
Video bandwidth:	300 kHz
Detector mode:	Peak
Trace mode:	Max Hold

Spectrum analyzer settings for peak radiated measurements within restricted bands above 1 GHz:

Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Detector mode:	Peak
Trace mode:	Max Hold

Spectrum analyzer settings for average conducted measurements within restricted bands above 1 GHz:

Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Detector mode:	power averaging (RMS)
Trace mode:	averaging (RMS)

Spectrum analyzer settings for average radiated measurements within restricted bands above 1 GHz:

Resolution bandwidth:	1 MHz
Video bandwidth:	10 Hz
Detector mode:	Peak
Trace mode:	Max Hold

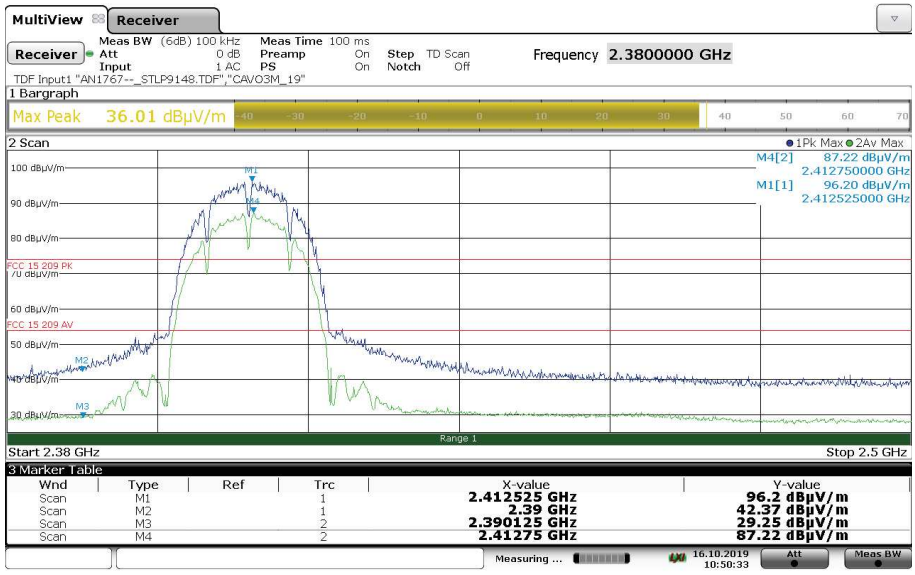
Test Modes

1. WLAN, TX 2412 MHz, 802.11b, CH01
2. WLAN, TX 2437 MHz, 802.11b, CH06
3. WLAN, TX 2462 MHz, 802.11b, CH11

8.3.4 Test data

6.10.5 Restricted-band band-edge measurements (relative method)

Protocol 802.11b, CH 1 horizontal



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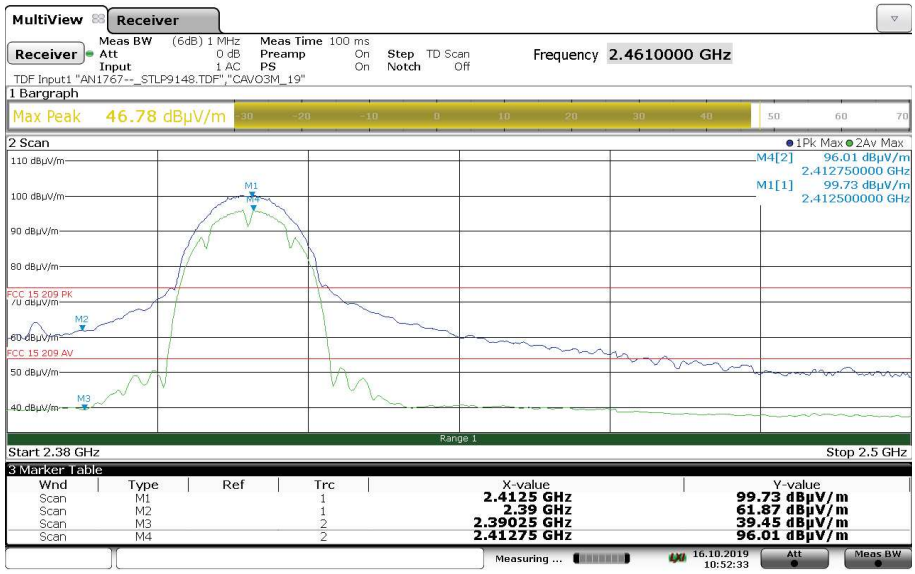

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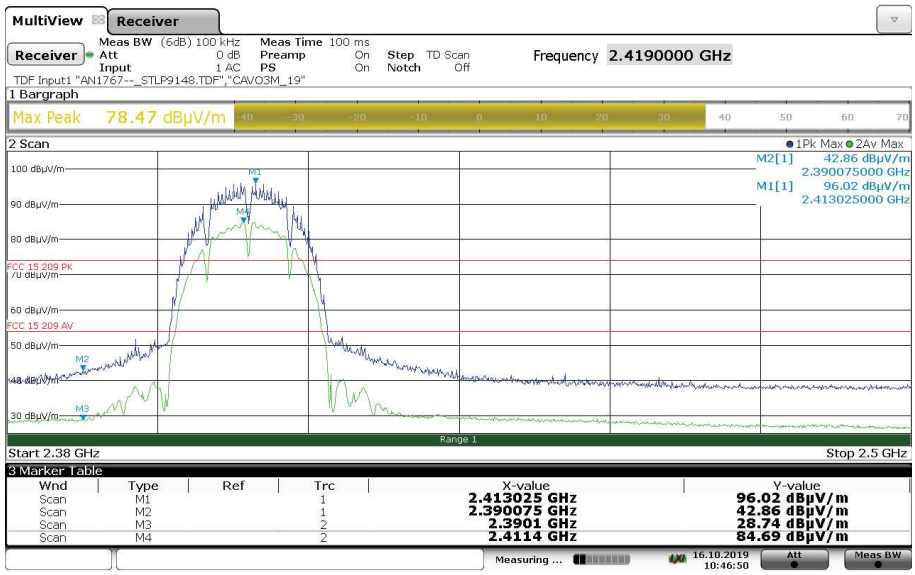
Protocol 802.11b, CH 1 Vertical



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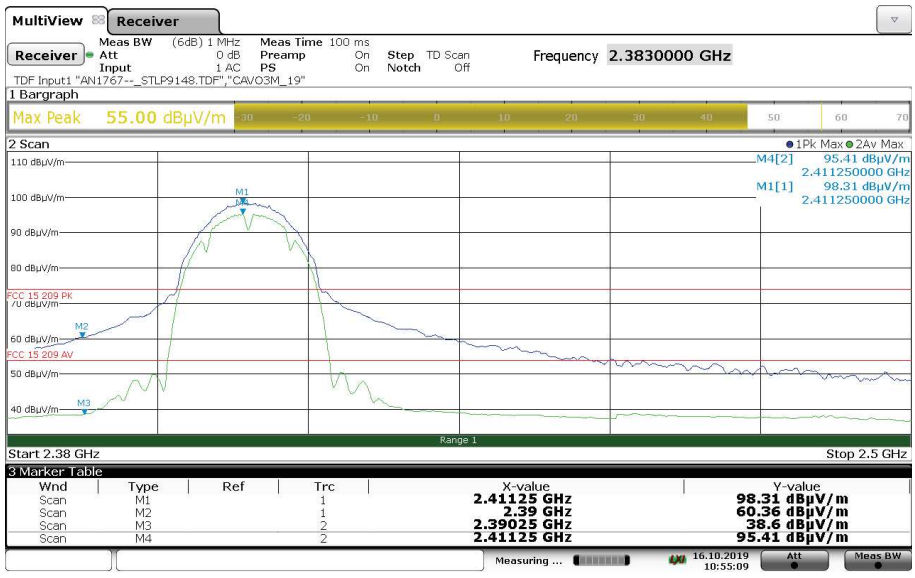

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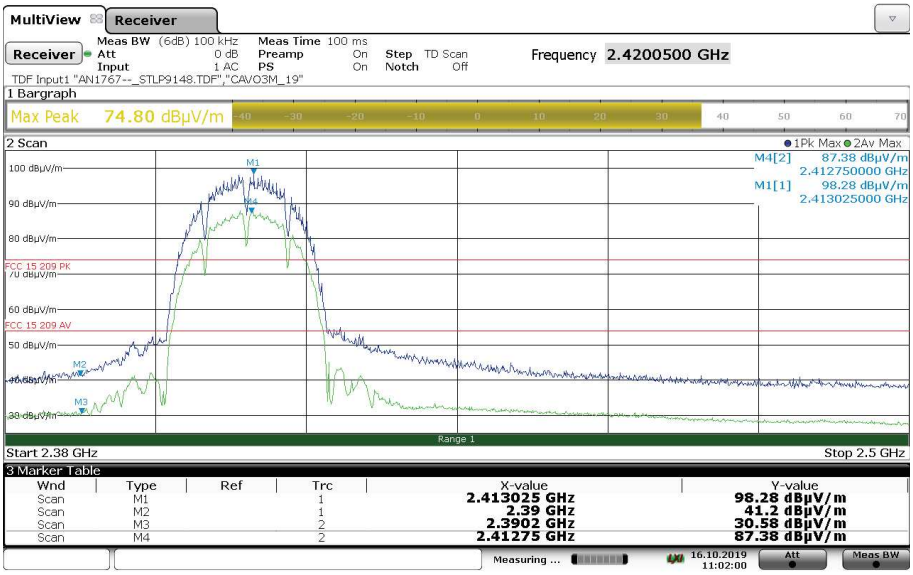
Protocol 802.11g, CH 1 Horizontal



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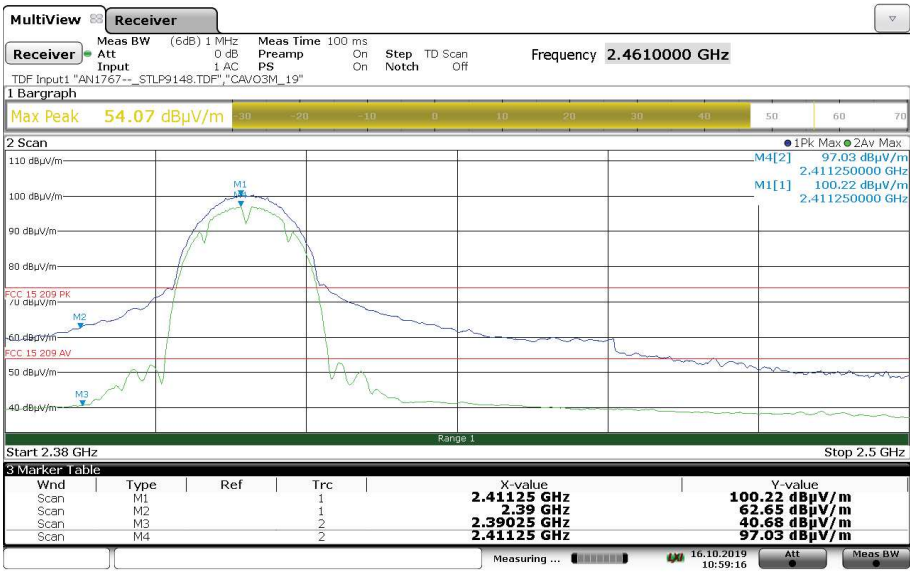

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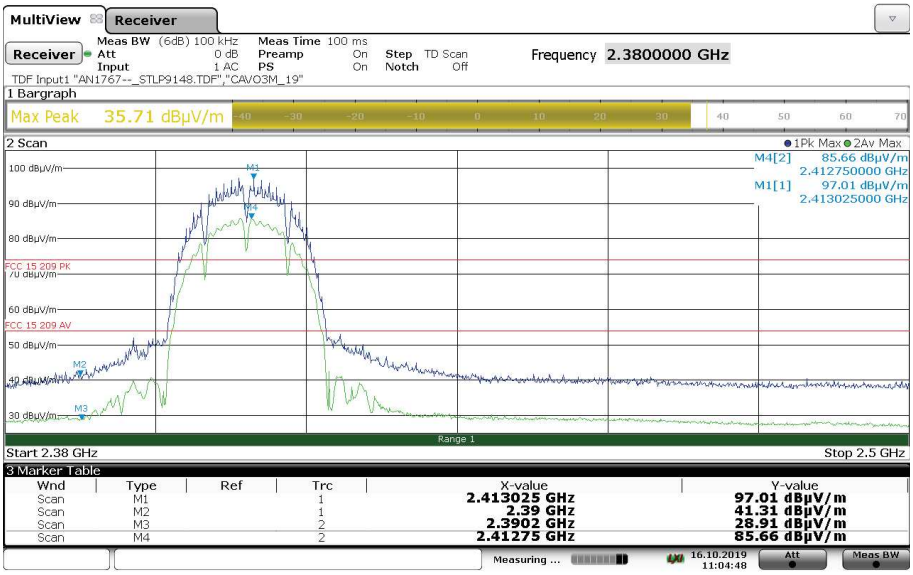

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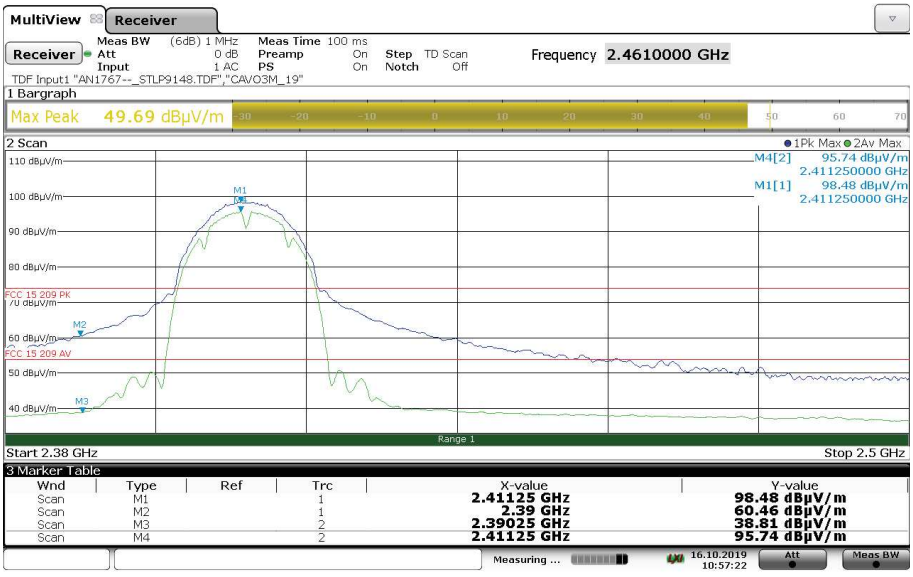

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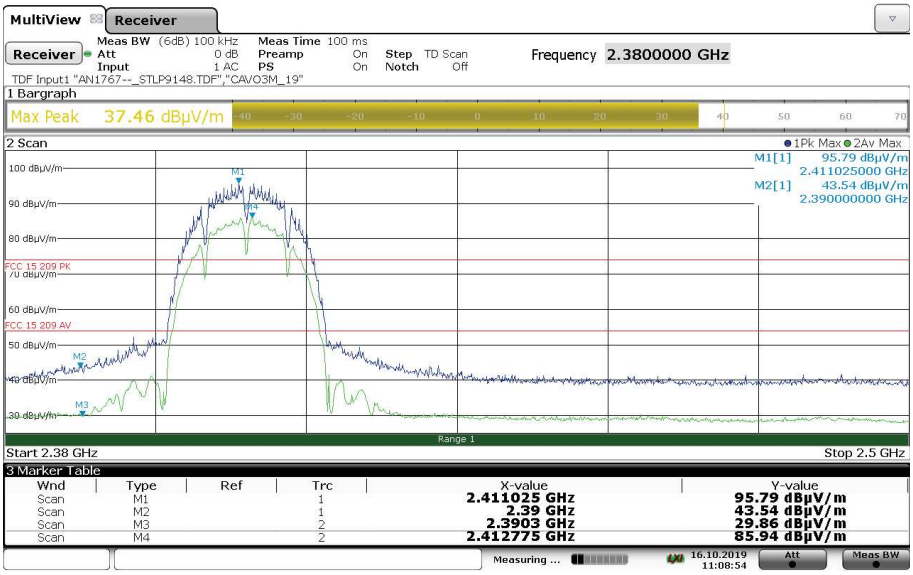

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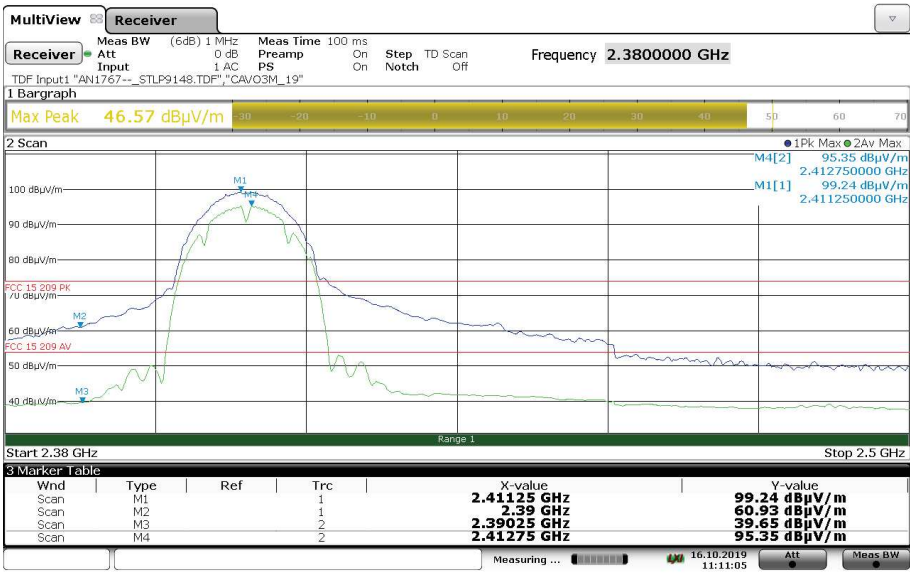

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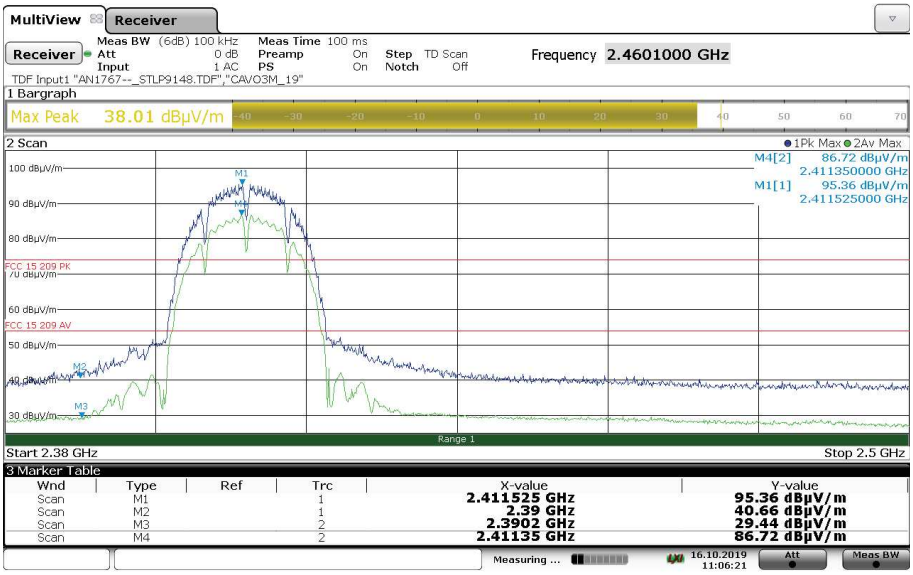
Protocol 802.11n, CH 1 Vertical



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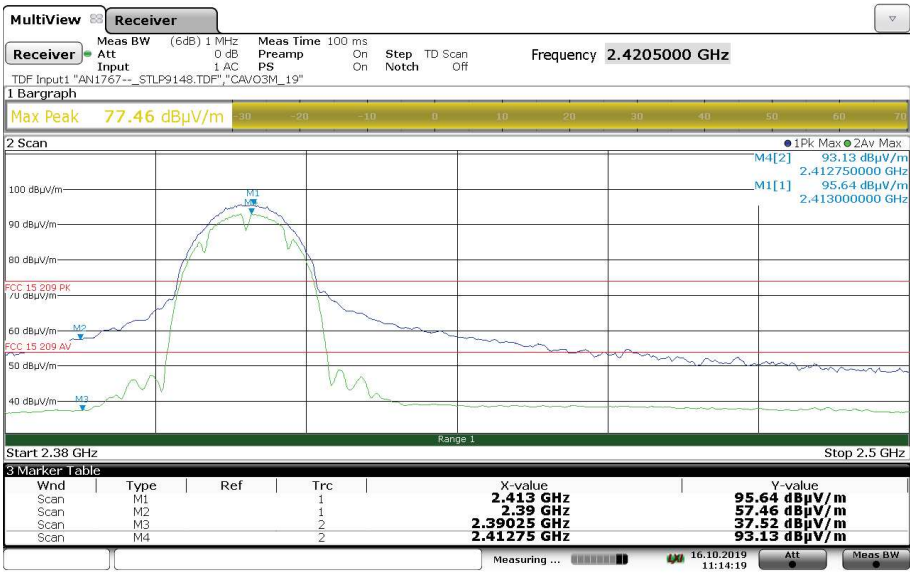

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Protocol 802.11b, CH 1

12:03:01 16.10.2019

HORIZONTAL

11:56:02 16.10.2019

VERTICAL

Protocol 802.11g, CH 1

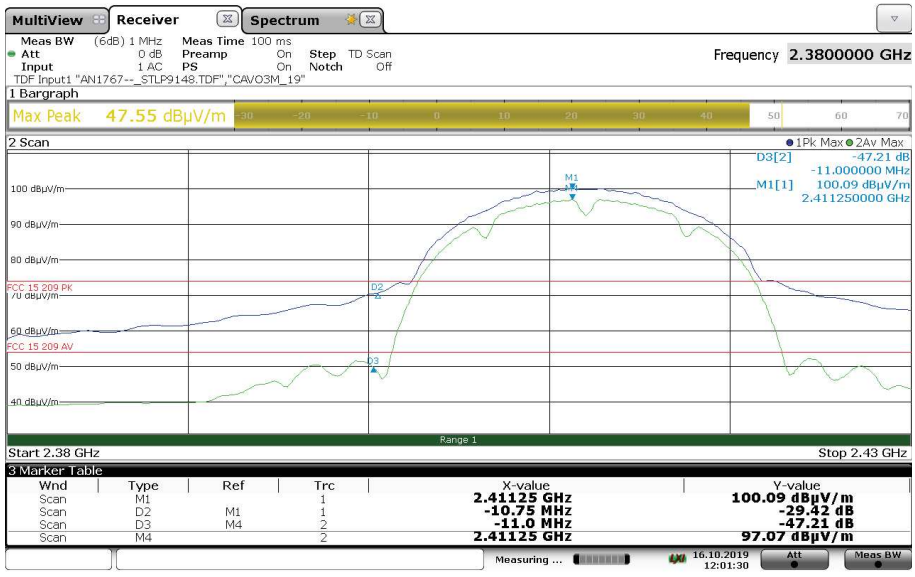
12:00:00 16.10.2019

HORIZONTAL

11:56:02 16.10.2019

VERTICAL

Protocol 802.11n, CH 1



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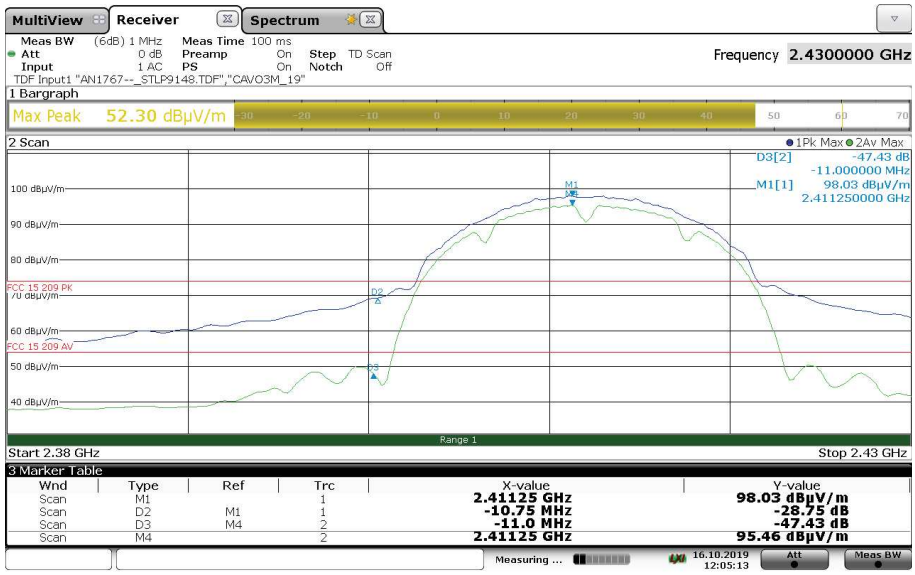
HORIZONTAL



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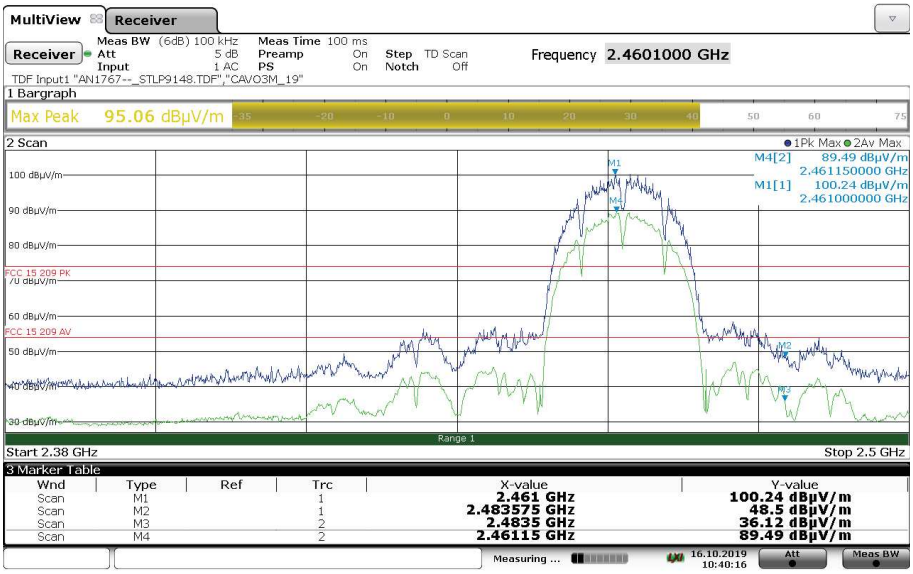
VERTICAL

Protocol 802.11b, CH 11 Horizontal



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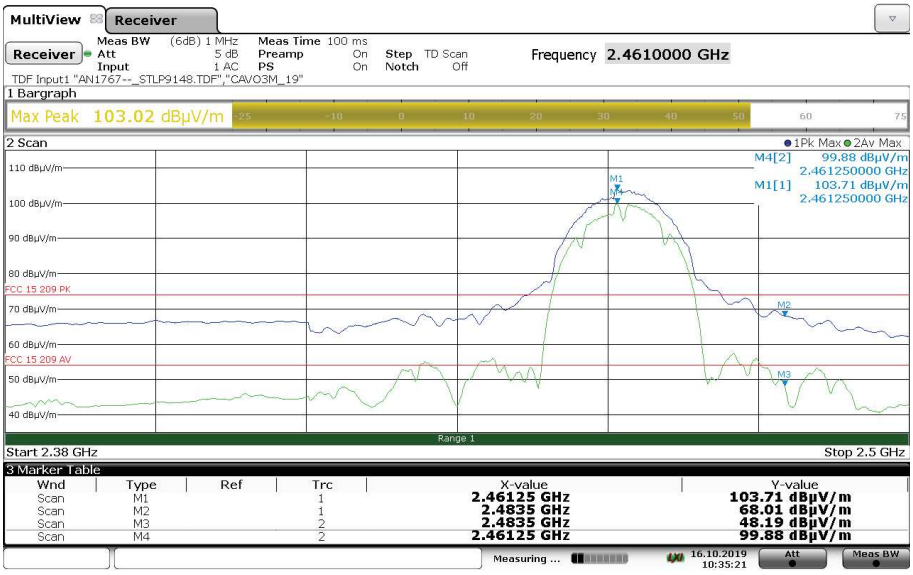

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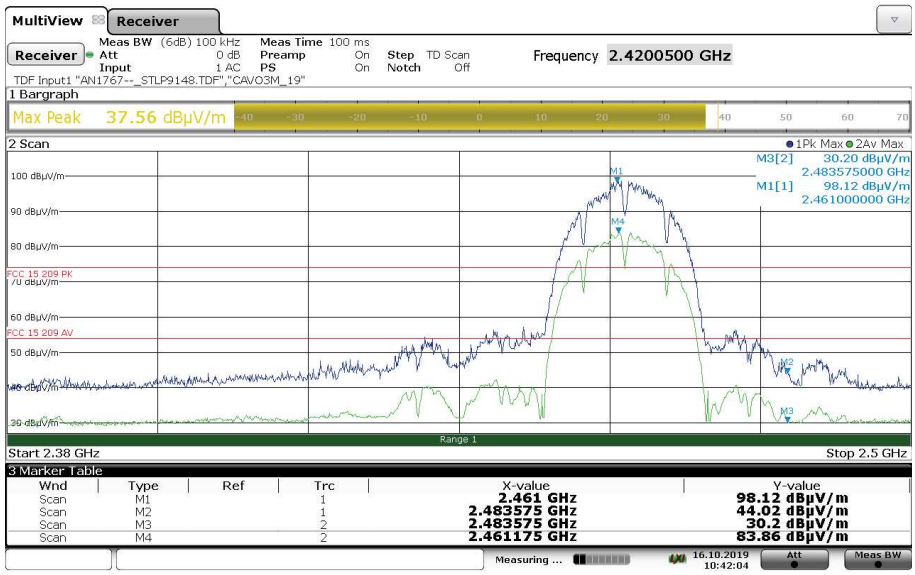
Protocol 802.11b, CH 11 Vertical



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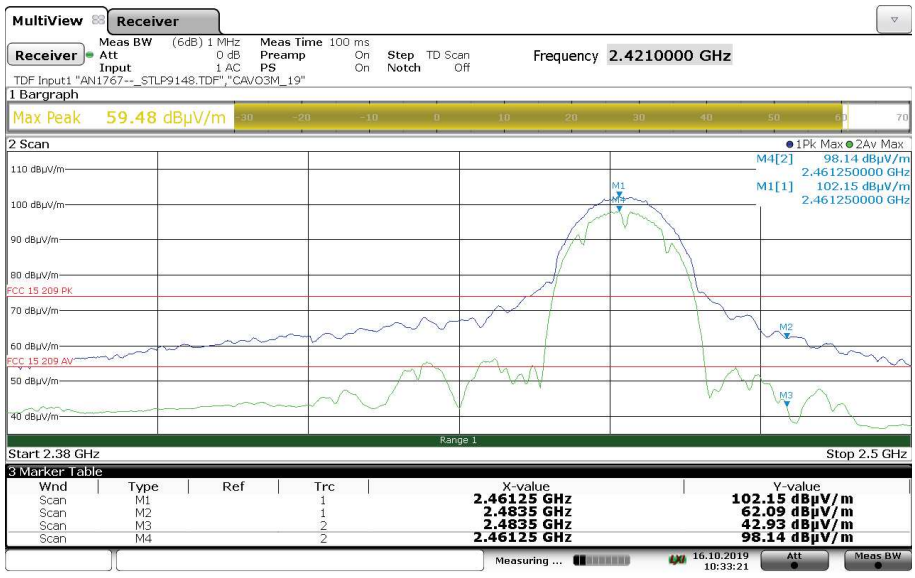

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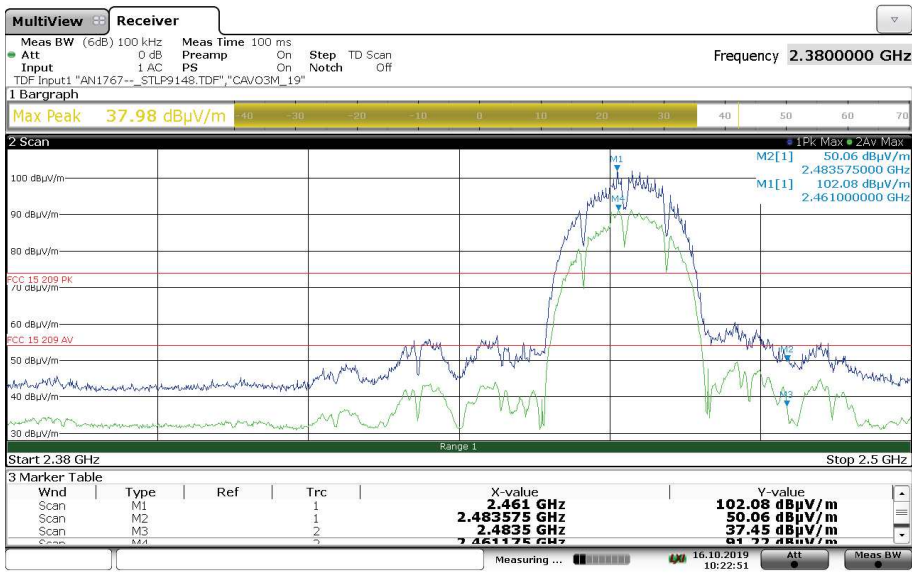
Protocol 802.11g, CH 11 Horizontal



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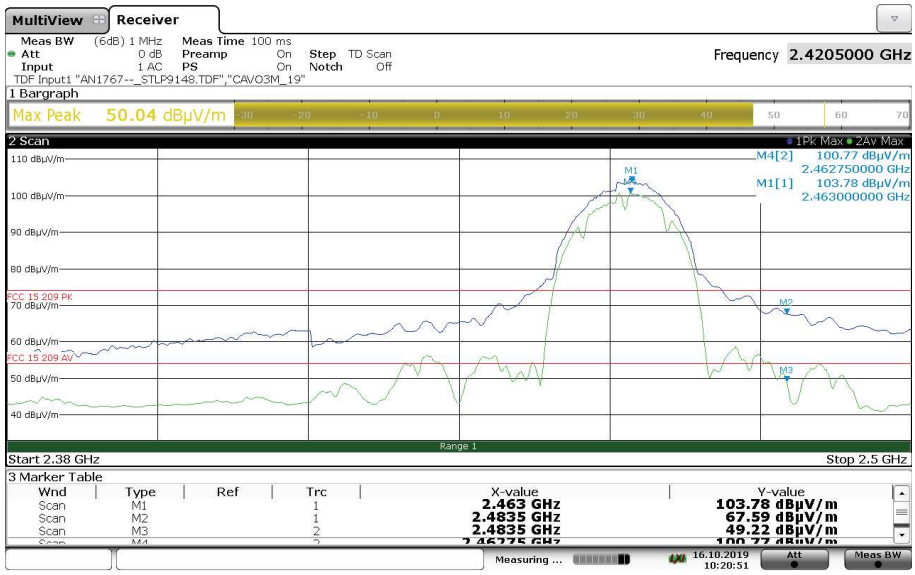

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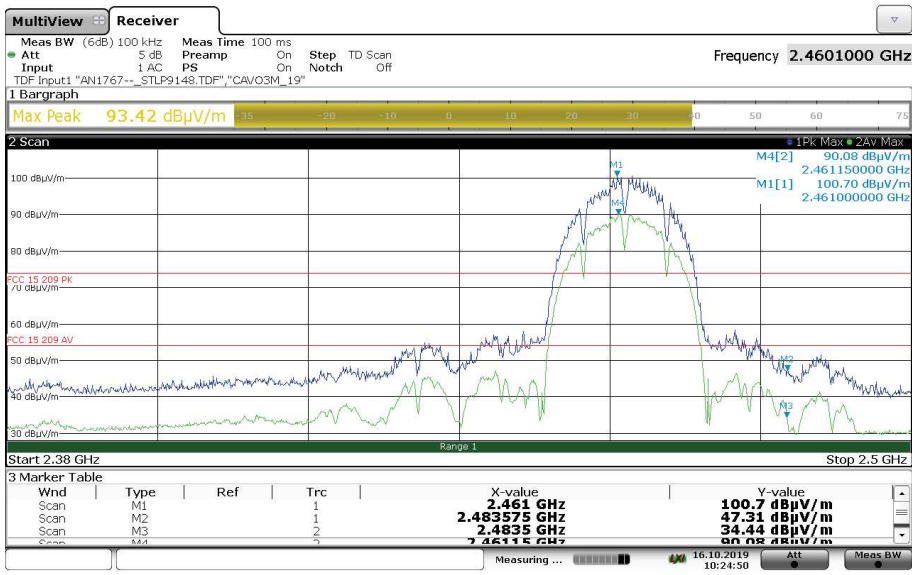

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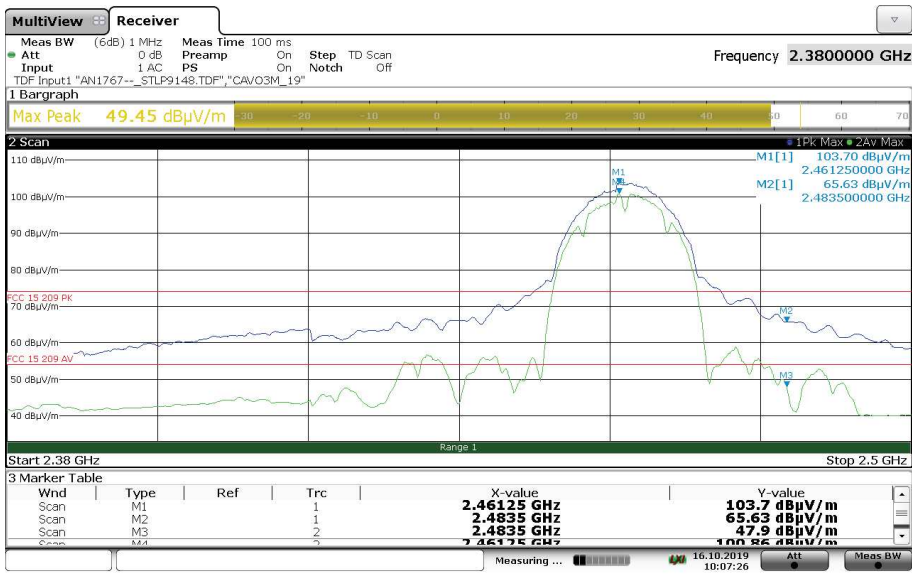

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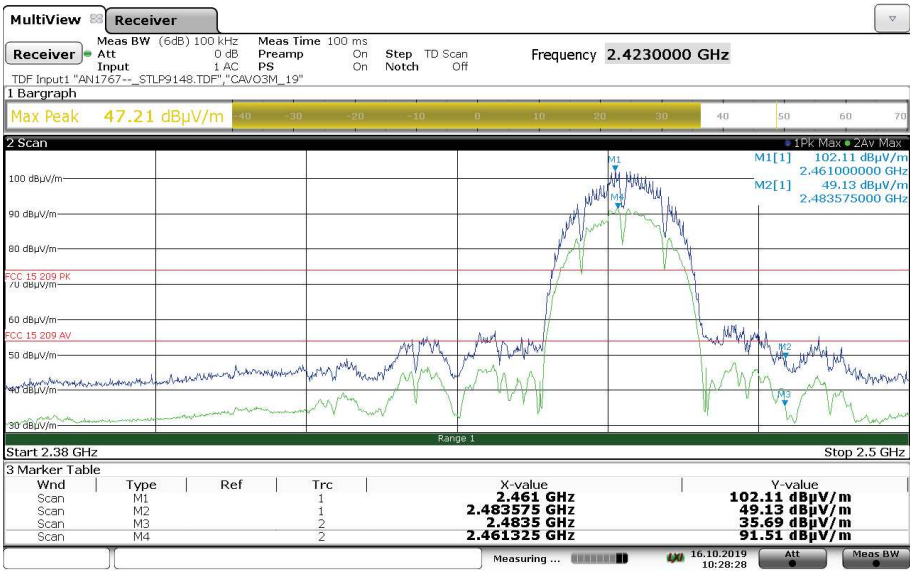
Protocol 802.11n, CH 11 Horizontal



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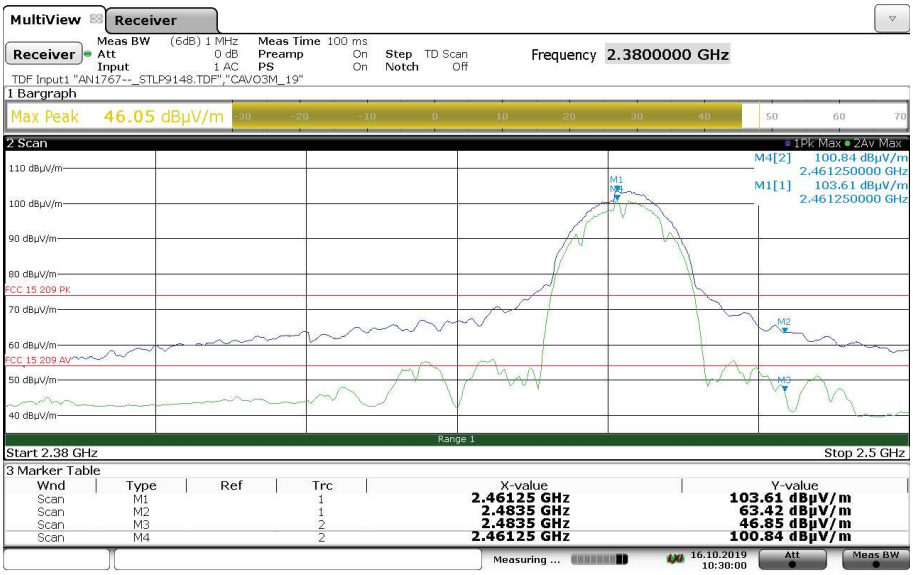

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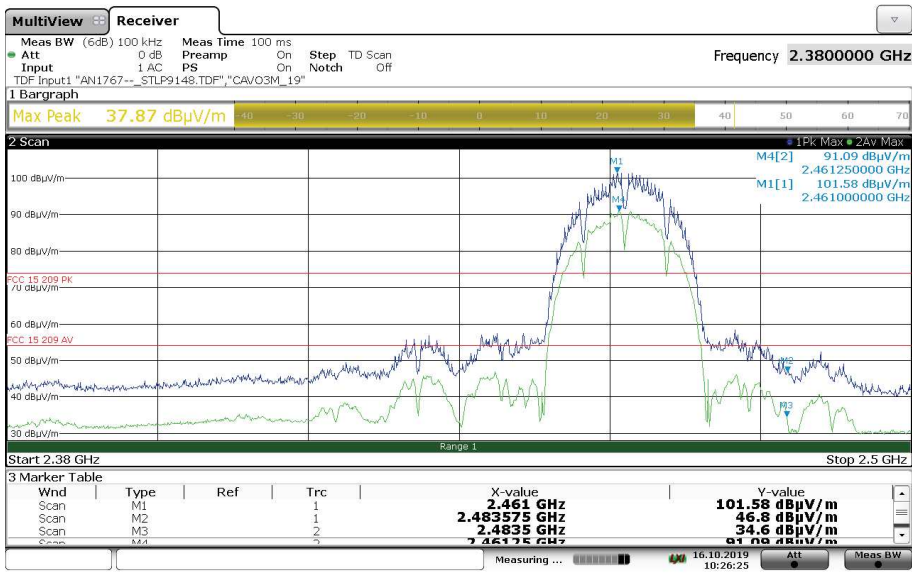
Protocol 802.11g, CH 11 Vertical



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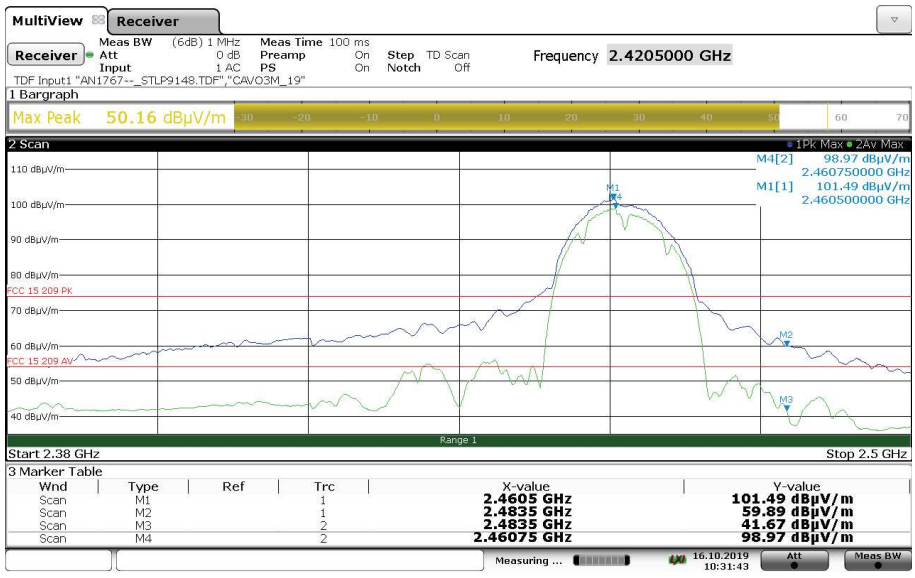

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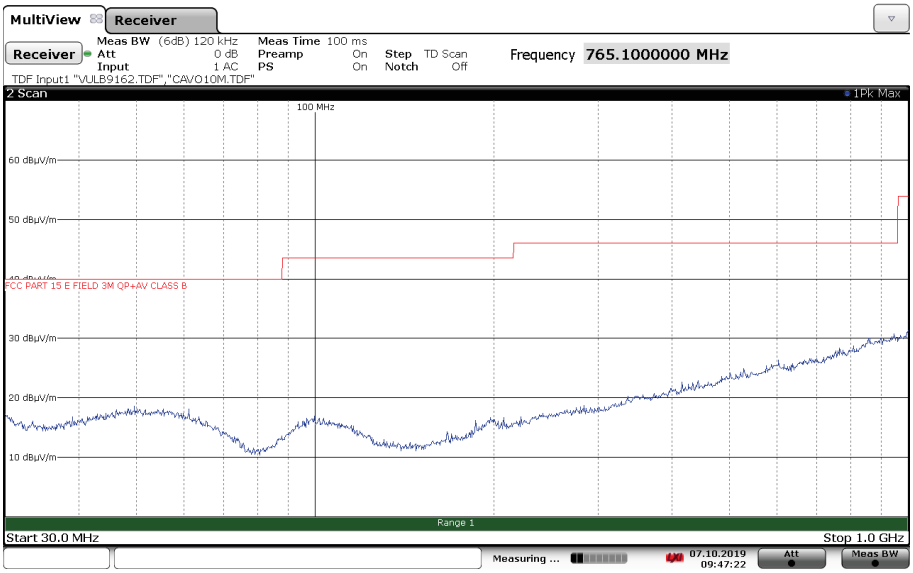
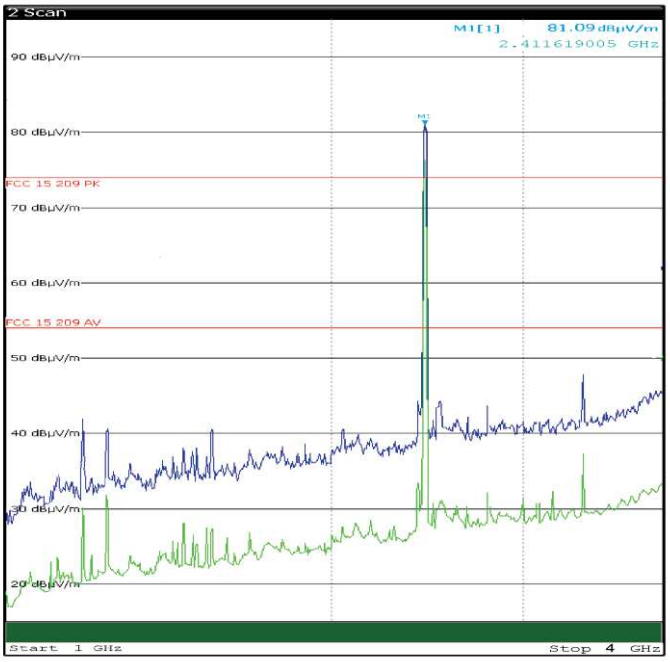
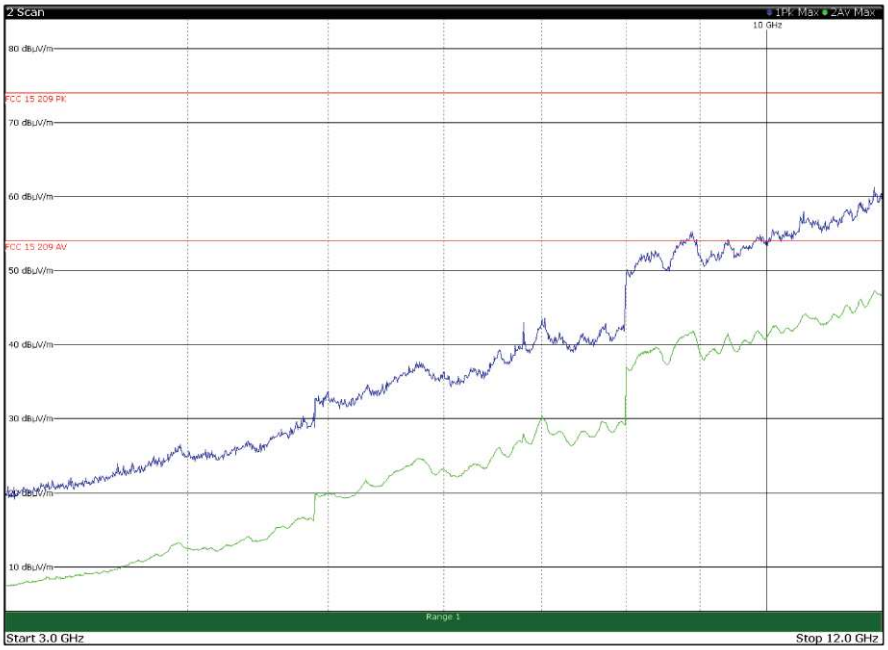
Section 8 Radiated measurement

CH 1 protocol 802.11b HORIZONTAL



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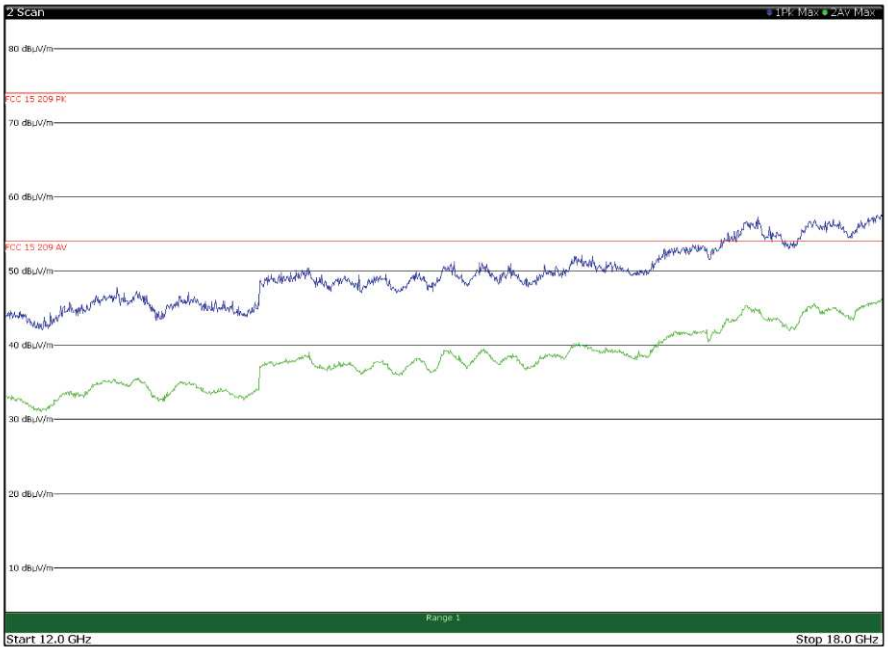
1Pk Max
2Av Max
10 GHz
80 dBµV/m
FCC 15 209 PK
70 dBµV/m
60 dBµV/m
FCC 15 209 AV
50 dBµV/m
40 dBµV/m
30 dBµV/m
20 dBµV/m
10 dBµV/m
Range 1
Start 3.0 GHz
Stop 12.0 GHz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80 dBµV/m
FCC 15 209 PK
70 dBµV/m
60 dBµV/m
FCC 15 209 AV
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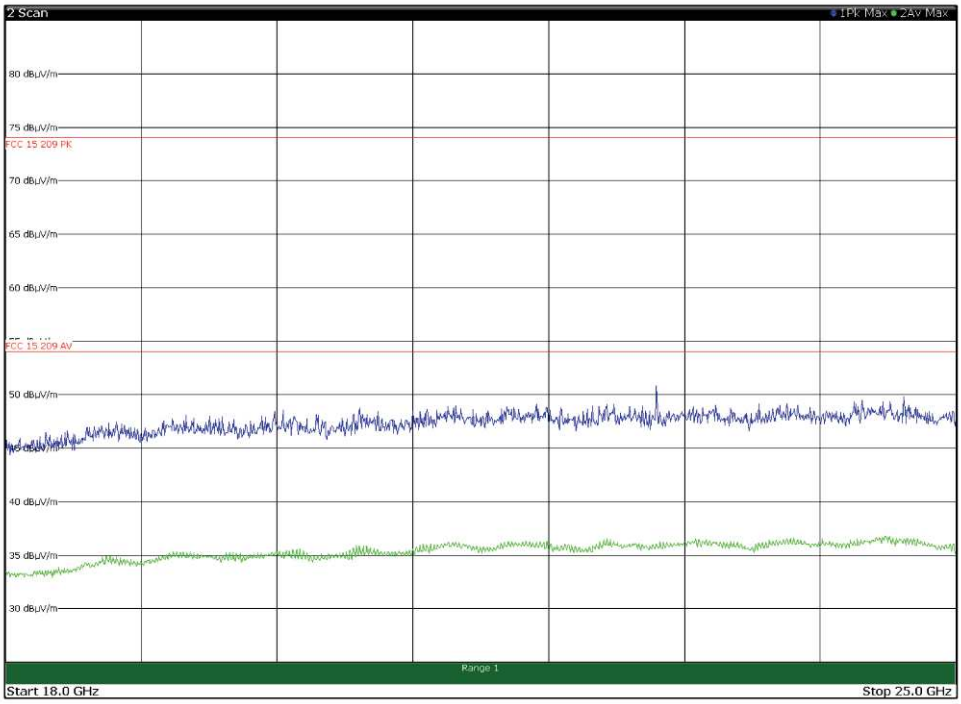
10 dBµV/m
Range 1
Start 12.0 GHz
Stop 18.0 GHz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FCC 15 209 AV
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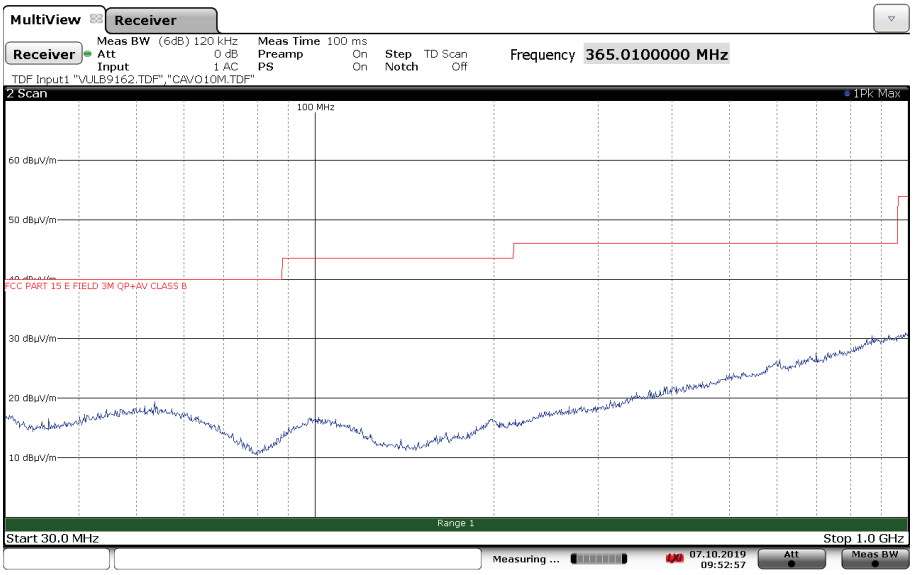
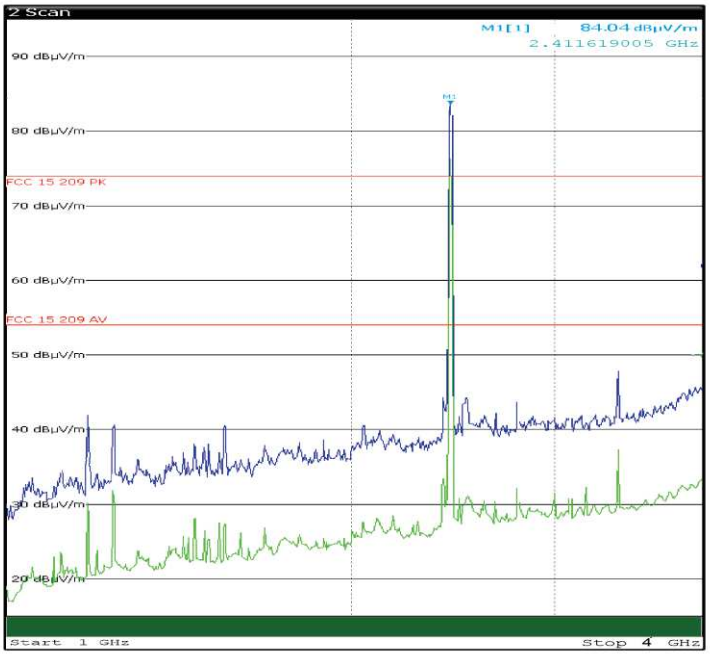
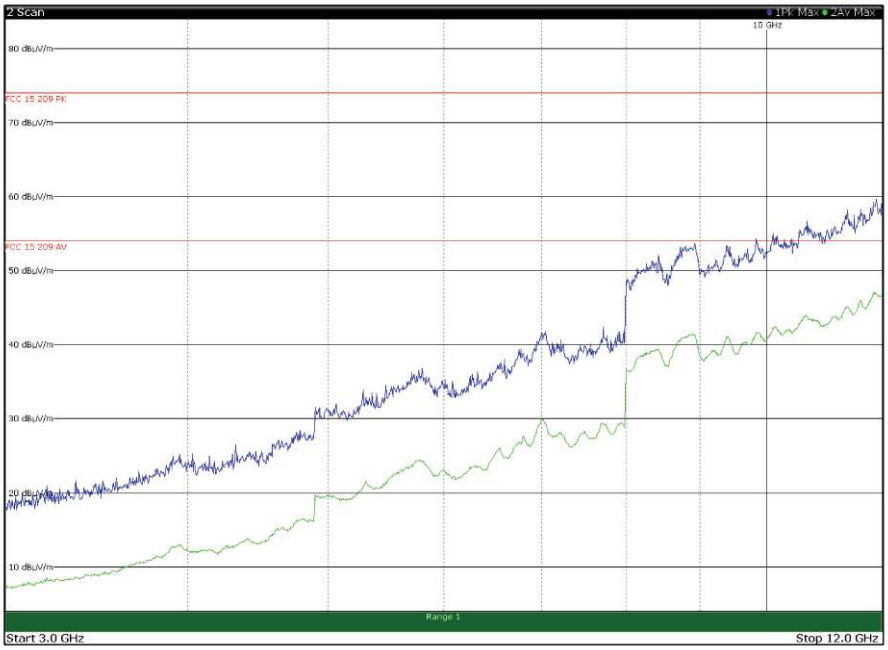
30 dBµV/m
Range 1
Start 18.0 GHz
Stop 25.0 GHz

CH 1 protocol 802.11b VERTICAL



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10 GHz
80 dBuV/m
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FCC 15 209 AV
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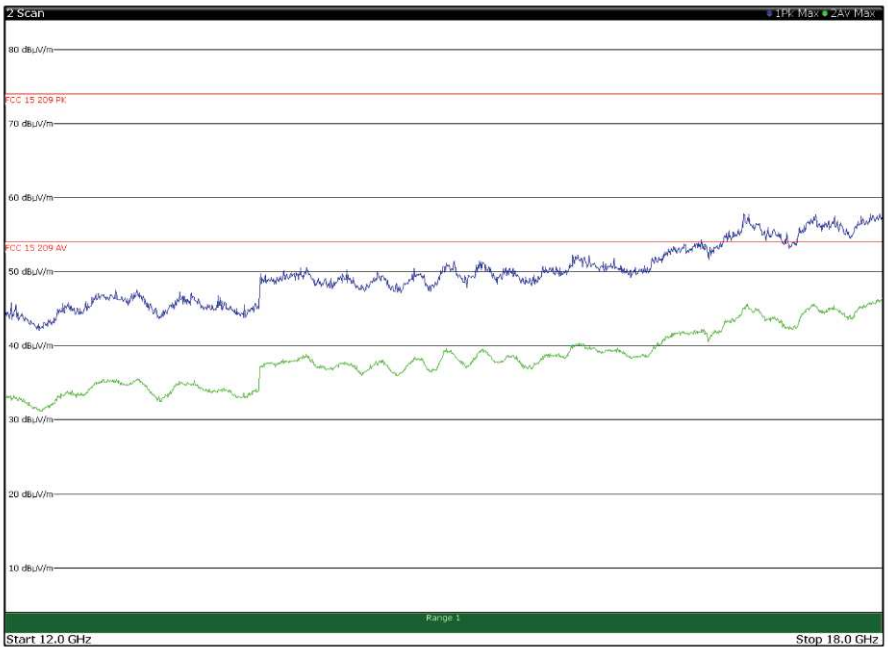
10 dBuV/m
Range 1
Start 3.0 GHz
Stop 12.0 GHz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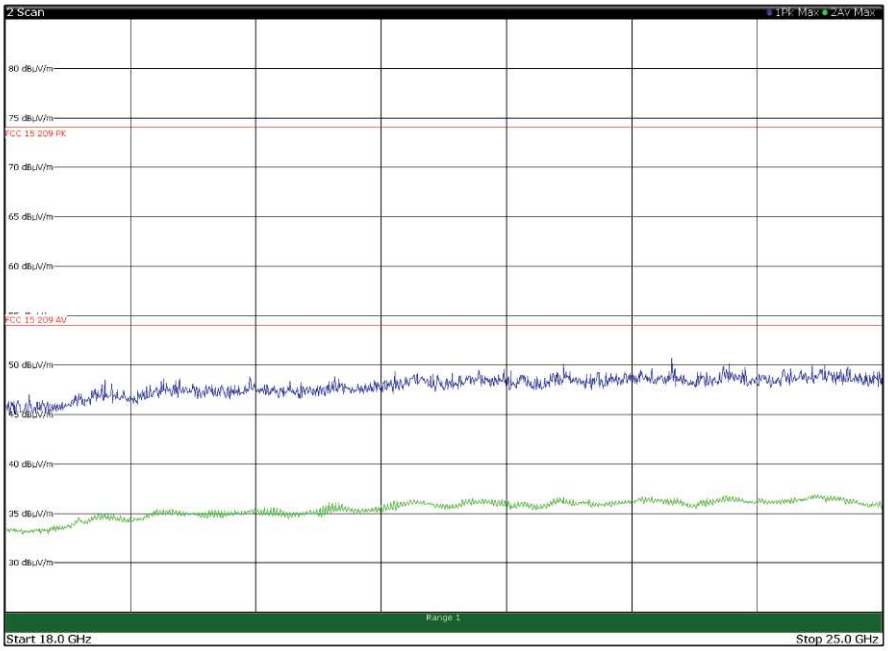
10 dBuV/m
Range 1
Start 12.0 GHz
Stop 18.0 GHz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2Av Max
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FCC 15 209 PK
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FCC 15 209 AV
50 dBuV/m
45 dBuV/m
40 dBuV/m
35 dBuV/m
30 dBuV/m
Range 1
Start 18.0 GHz
Stop 25.0 GHz