



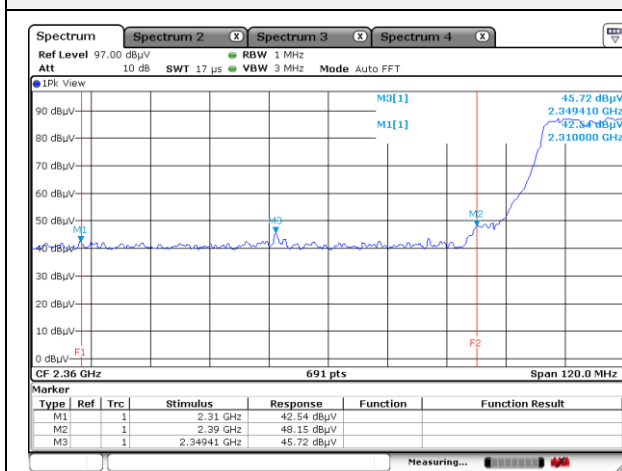
Mode: 802.11n(HT20) SISO

Distance of measurement: 3 meter

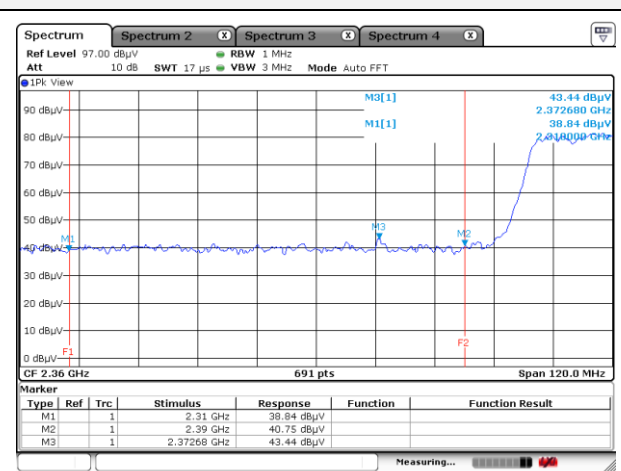
Channel: 01

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2390.00	48.15	Peak	H	-9.77	-	38.38	74.00	35.62
2372.68	43.44	Peak	V	-9.82	-	33.62	74.00	40.38

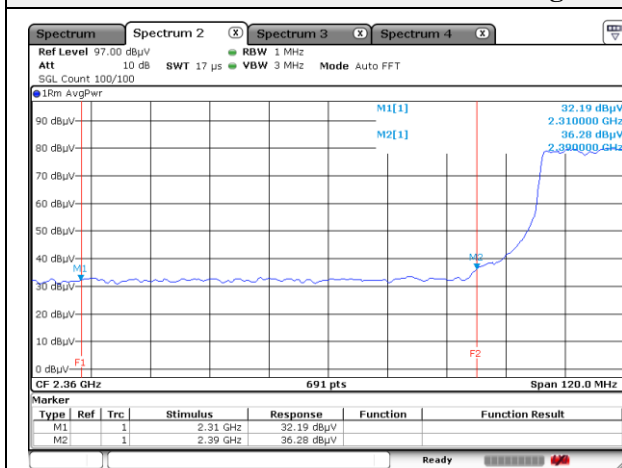
Restricted band // Horizontal // Peak



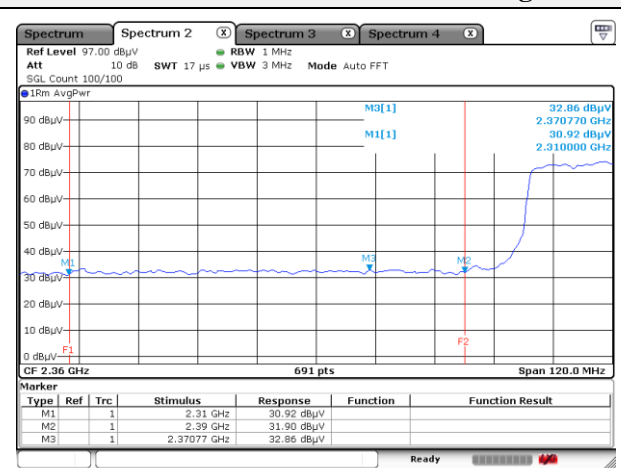
Restricted band // Vertical // Peak

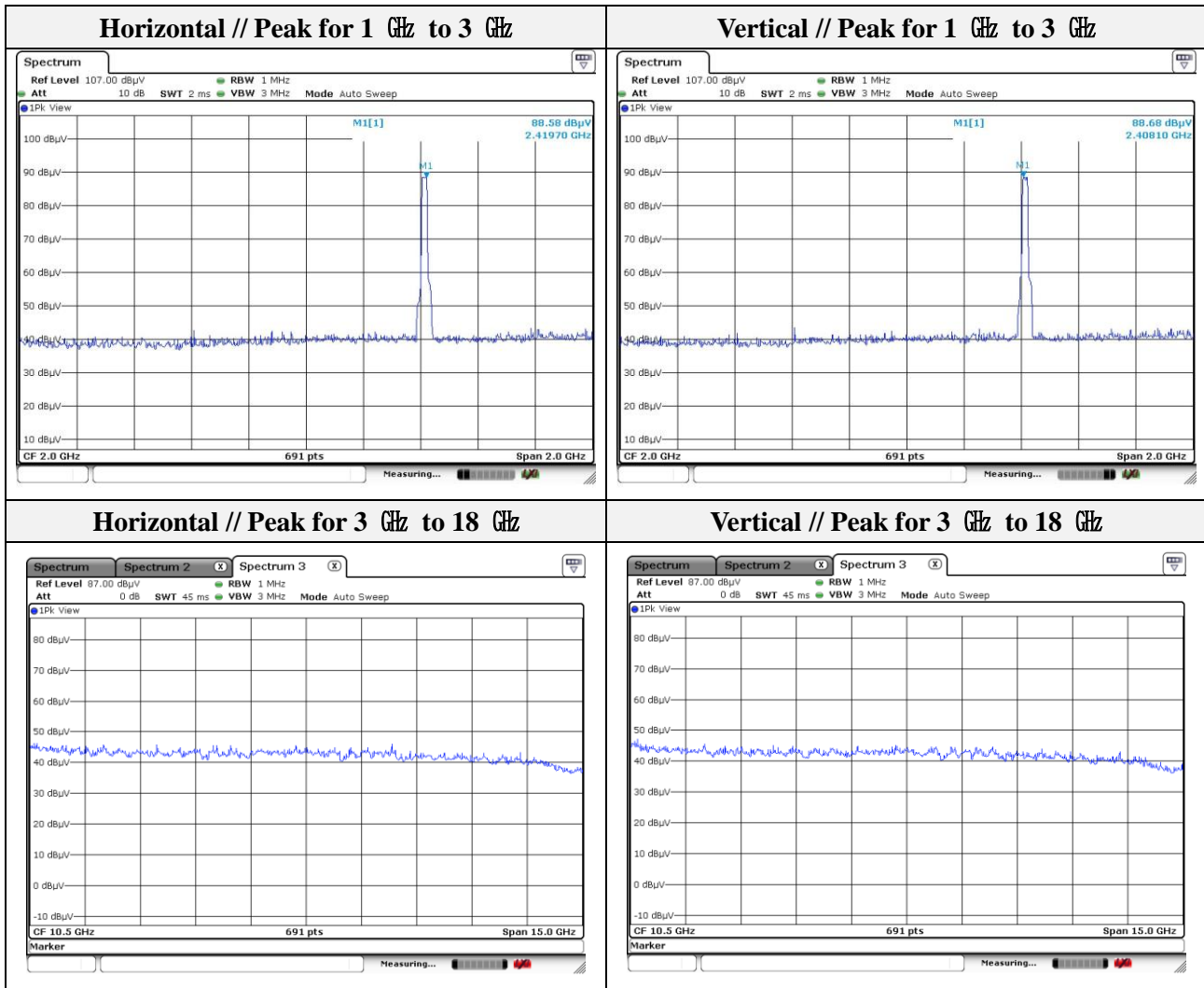


Restricted band // Horizontal // Average



Restricted band // Vertical // Average





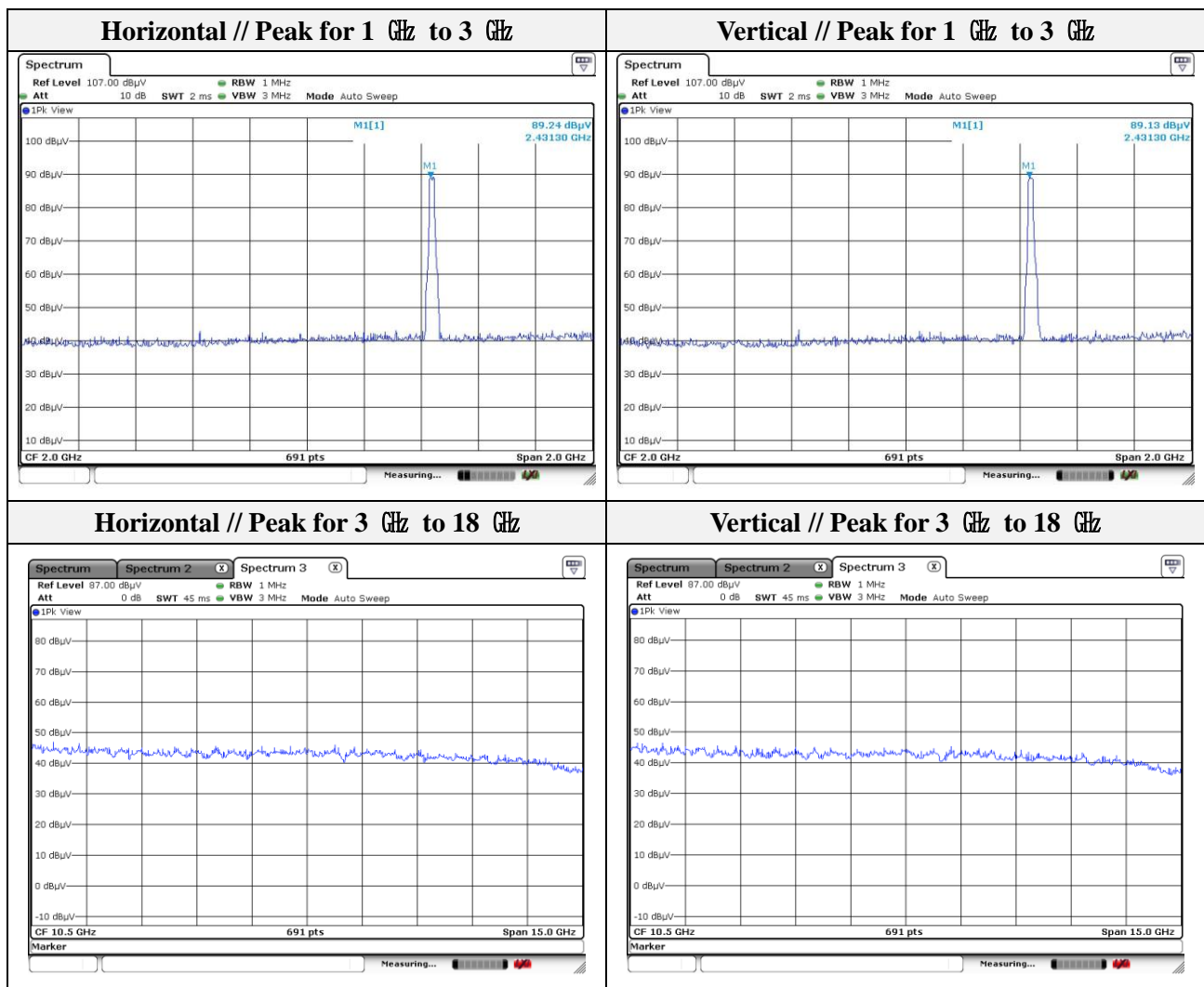
Note.

1. No spurious emission were detected above 3 GHz.



Mode: 802.11n(HT20) SISO
Distance of measurement: 3 meter
Channel: 06

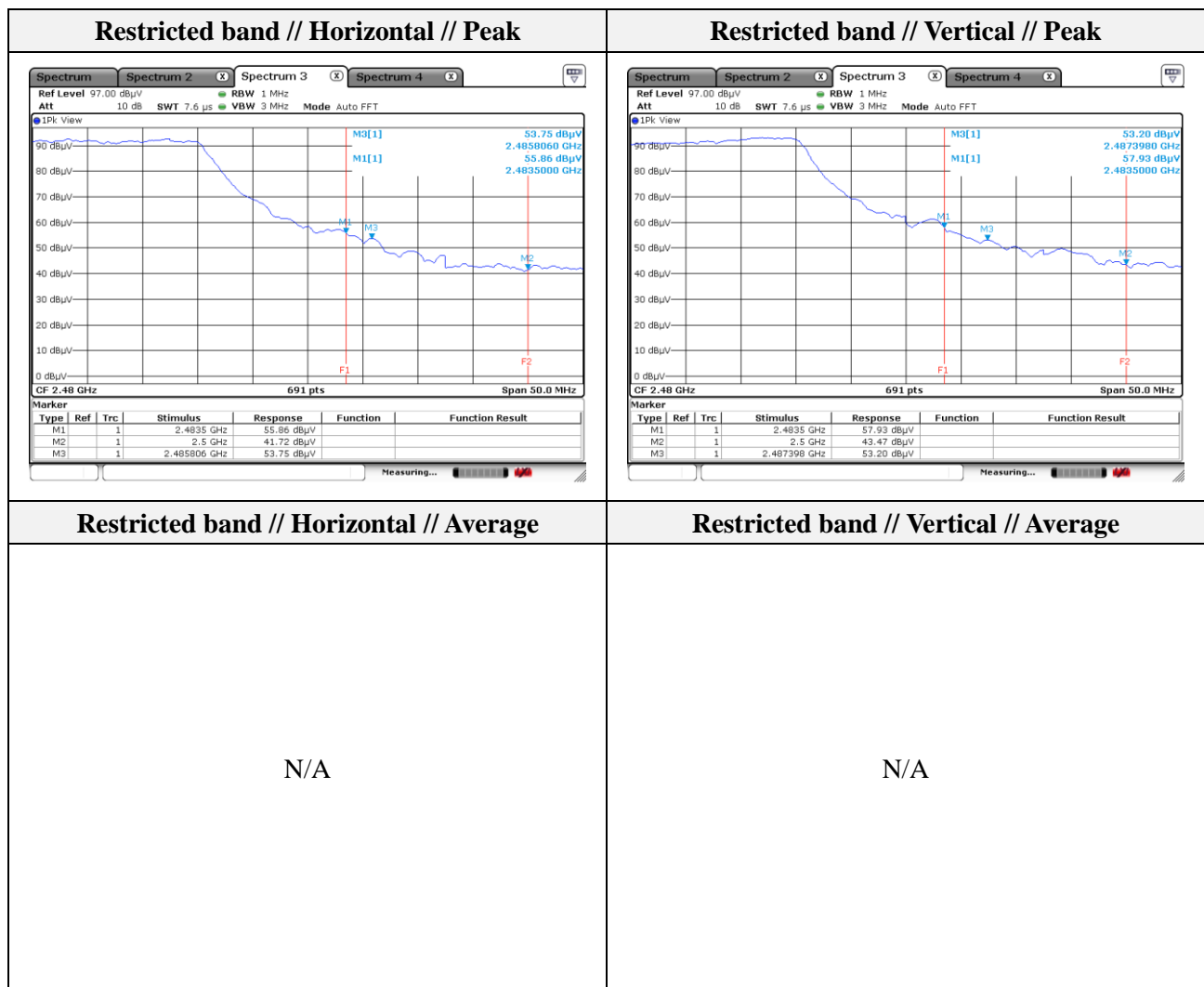
Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
No spurious emission were detected above 3 GHz.								

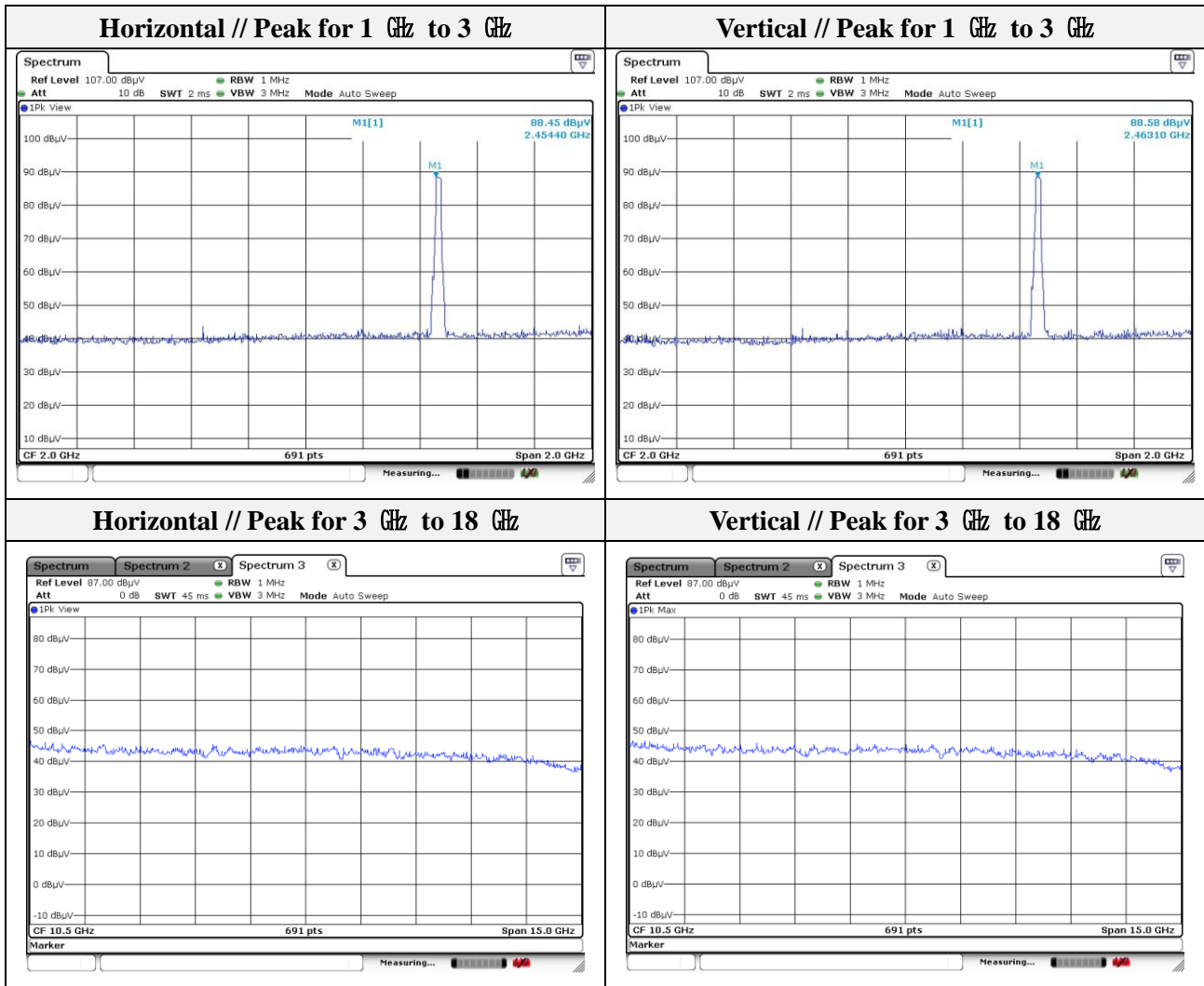




Mode: 802.11n(HT20) SISO
Distance of measurement: 3 meter
Channel: 11

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2483.50	55.86	Peak	H	-9.41	-	46.45	74.00	27.55
2483.50	55.86	Peak	V	-9.41	-	48.52	74.00	25.48





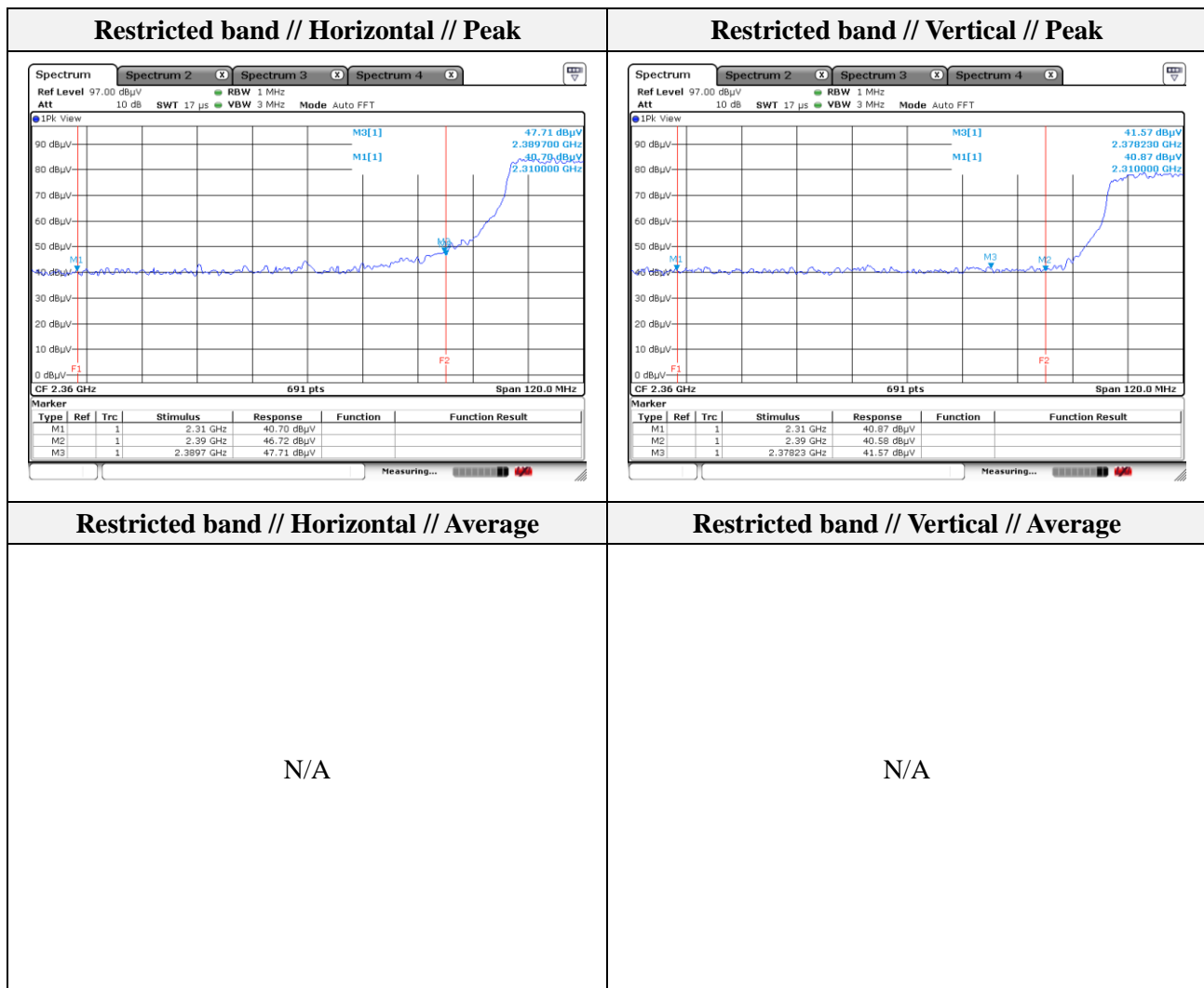
Note.

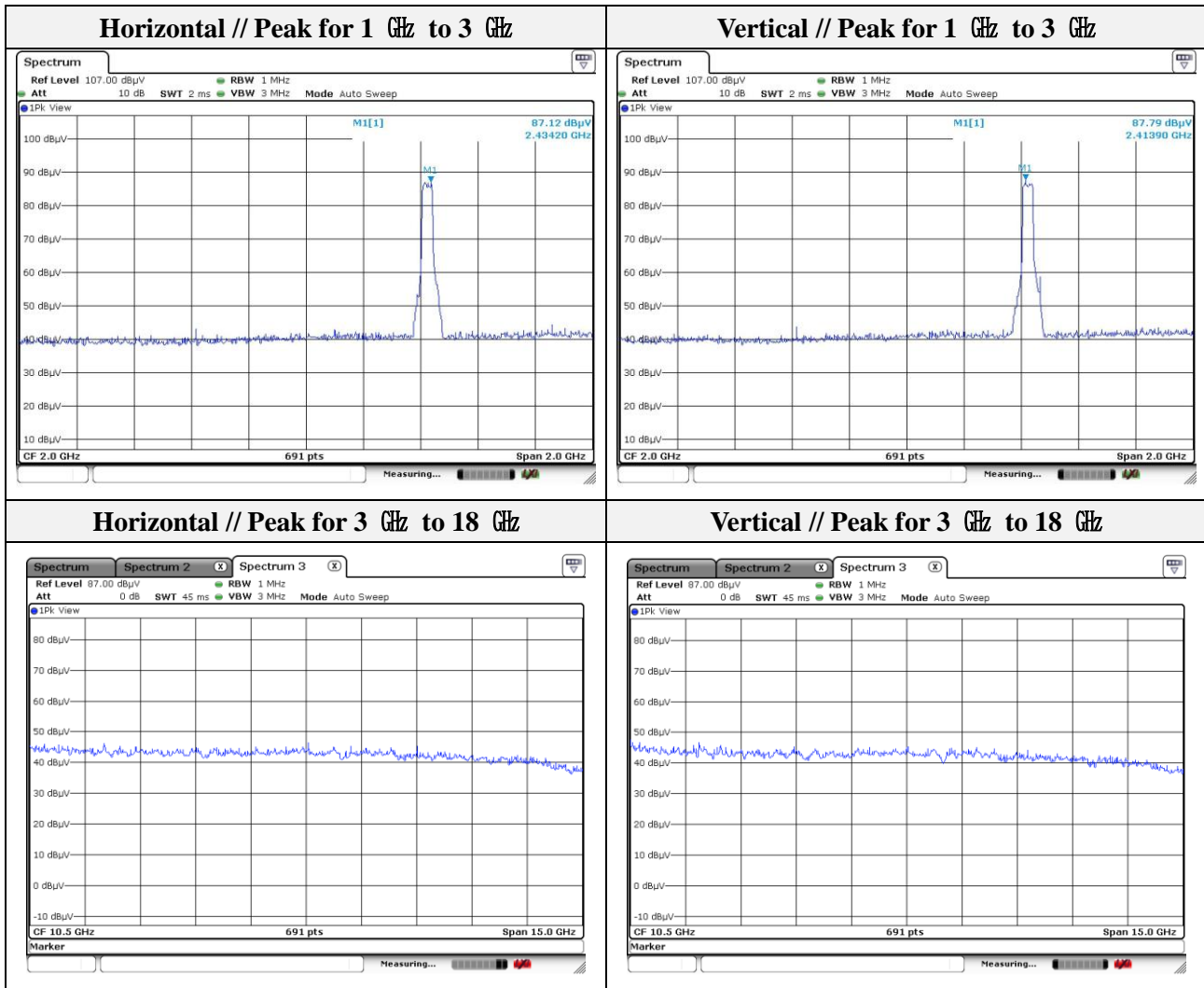
1. No spurious emission were detected above 3 GHz.



Mode: 802.11n(HT40) SISO
Distance of measurement: 3 meter
Channel: 03

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2390.00	46.72	Peak	H	-9.77	-	36.95	74.00	37.05
2378.23	41.57	Peak	V	-9.80	-	31.77	74.00	42.23





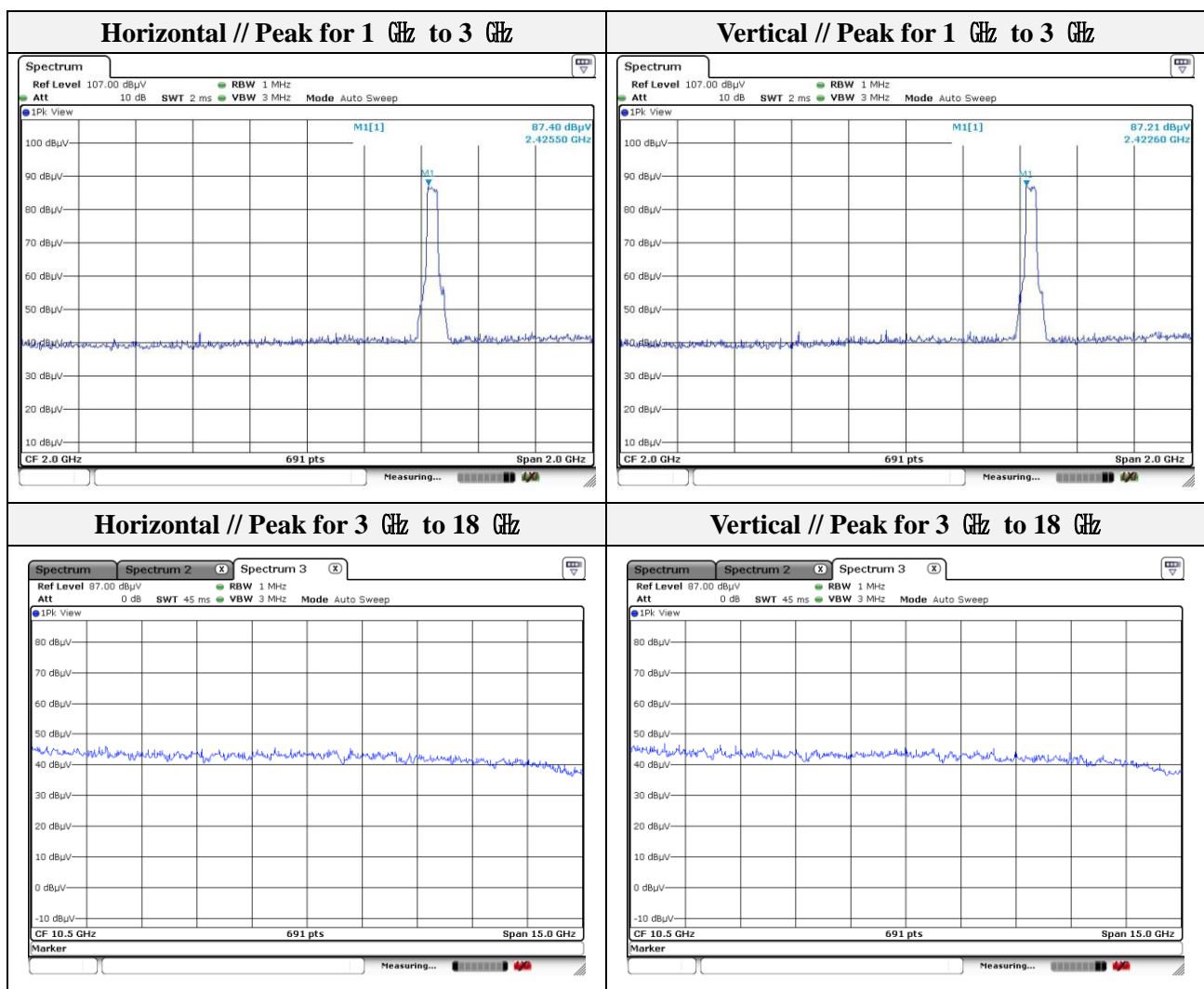
Note.

1. No spurious emission were detected above 3 GHz.



Mode: 802.11n(HT40) SISO
Distance of measurement: 3 meter
Channel: 06

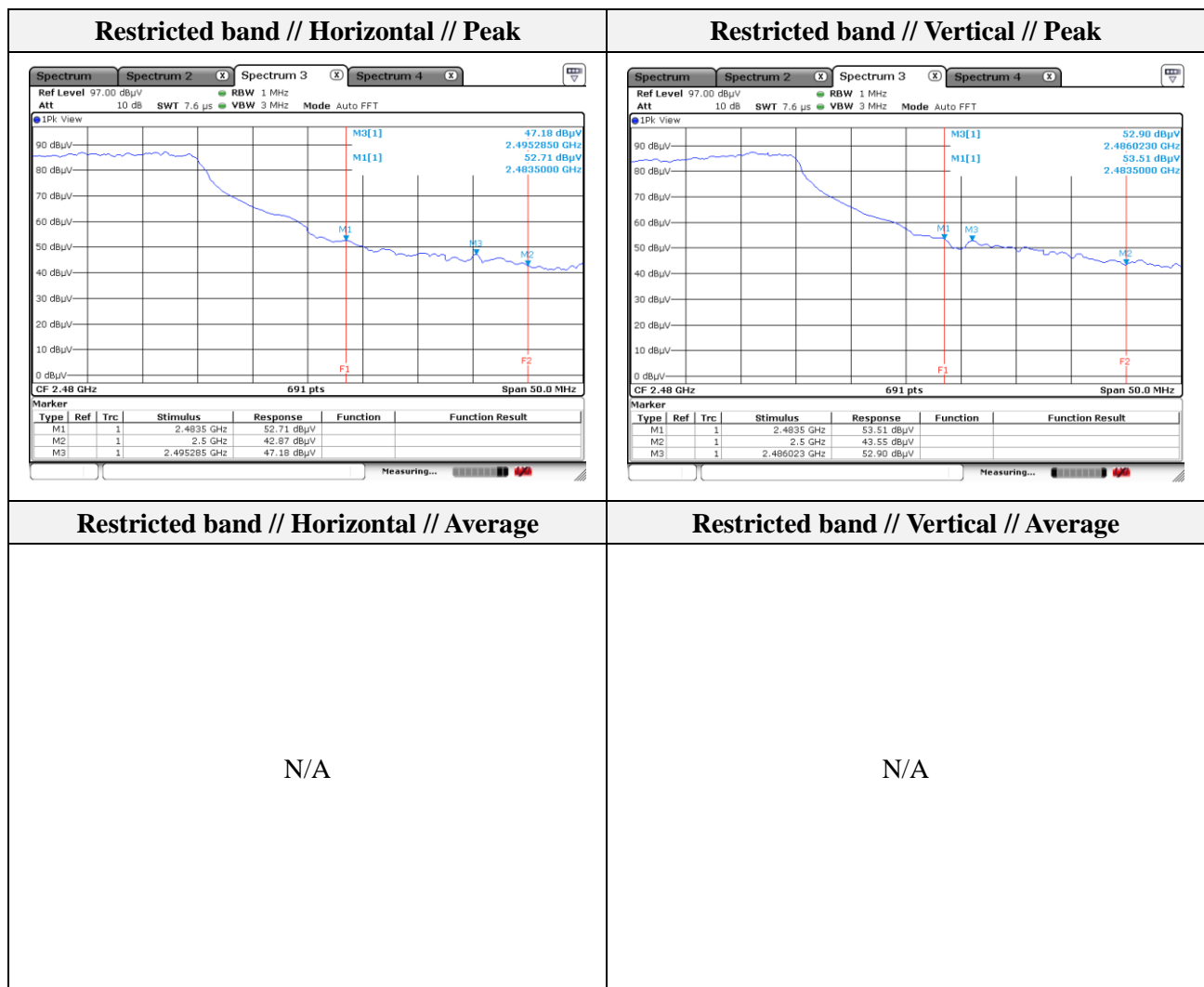
Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
No spurious emission were detected above 3 GHz.								

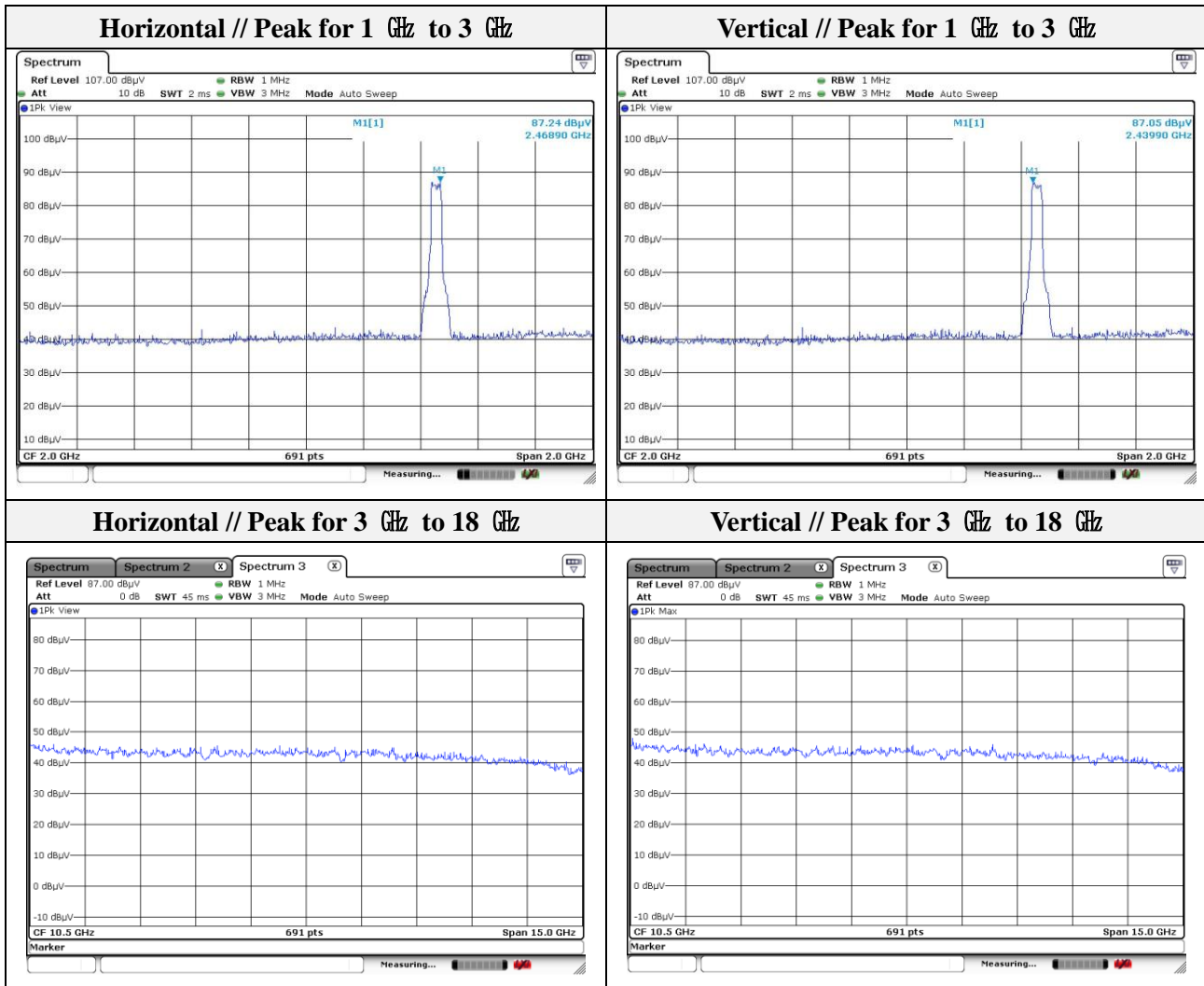




Mode: 802.11n(HT40) SISO
Distance of measurement: 3 meter
Channel: 09

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2483.50	52.71	Peak	H	-9.41	-	43.30	74.00	30.70
2483.50	53.51	Peak	V	-9.41	-	44.10	74.00	29.90





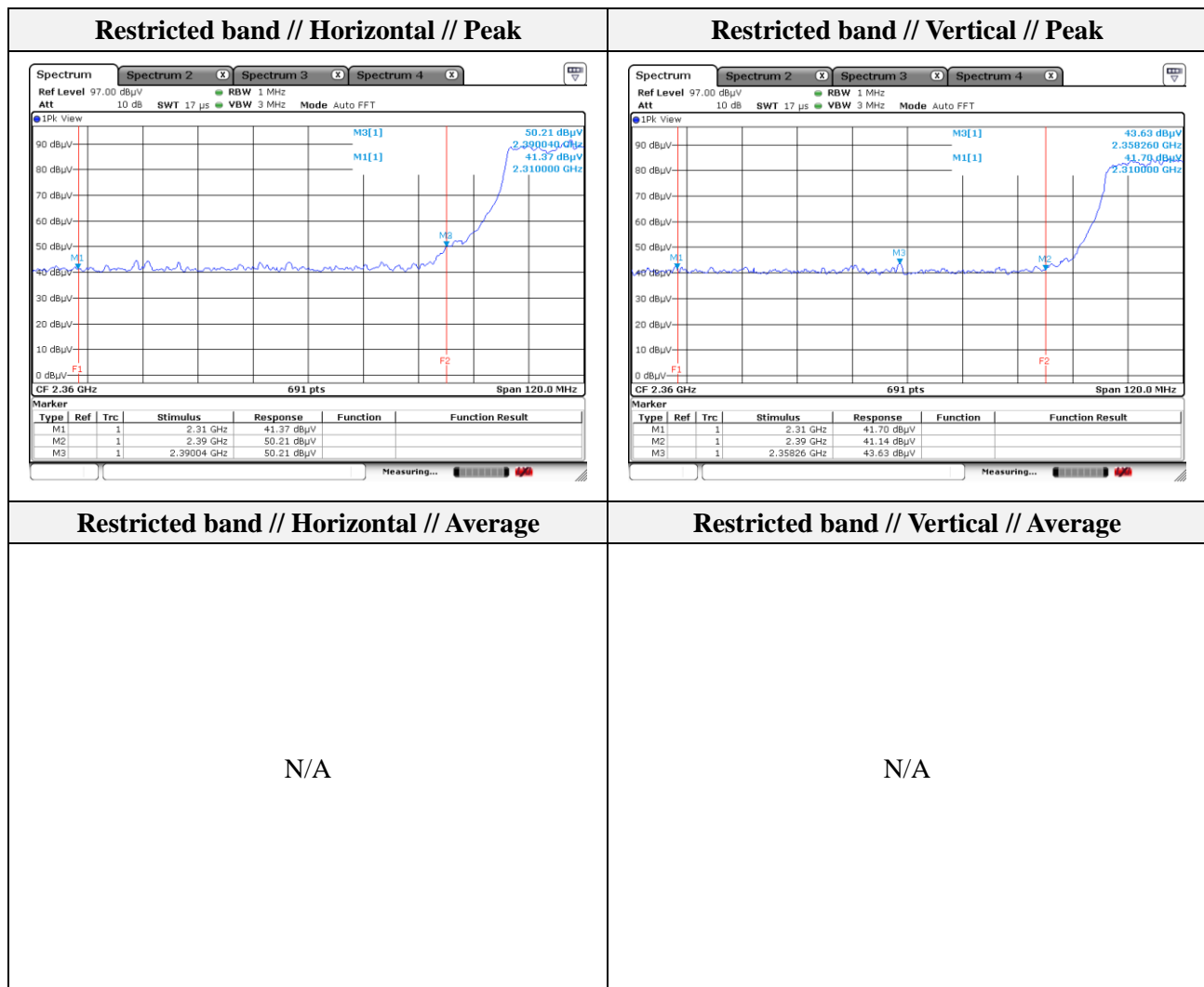
Note.

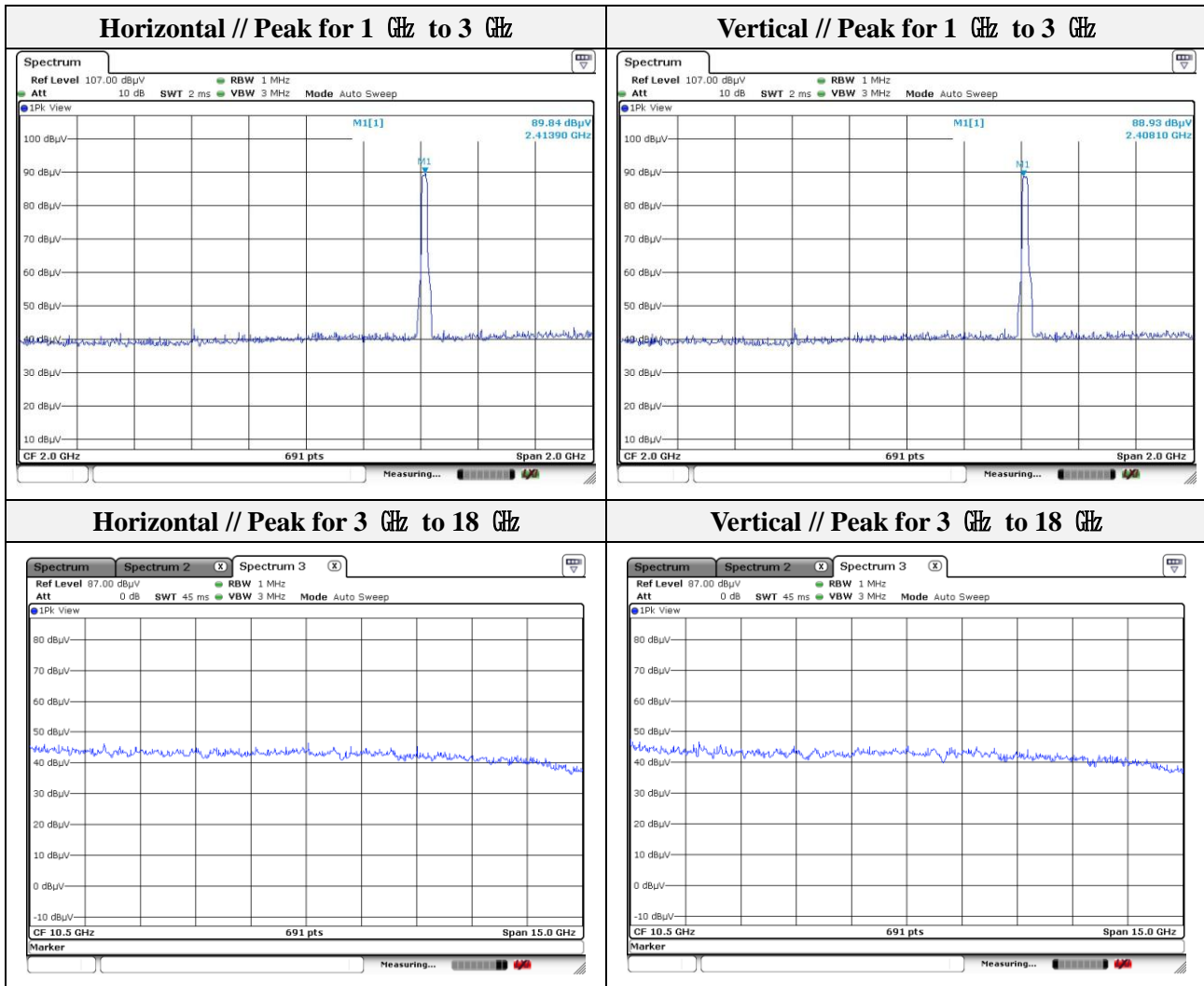
1. No spurious emission were detected above 3 GHz.



Mode: 802.11n(HT20) MIMO
Distance of measurement: 3 meter
Channel: 01

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2390.00	50.21	Peak	H	-9.77	-	40.44	74.00	33.56
2358.26	43.63	Peak	V	-9.86	-	33.77	74.00	40.23





Note.

1. No spurious emission were detected above 3 GHz.

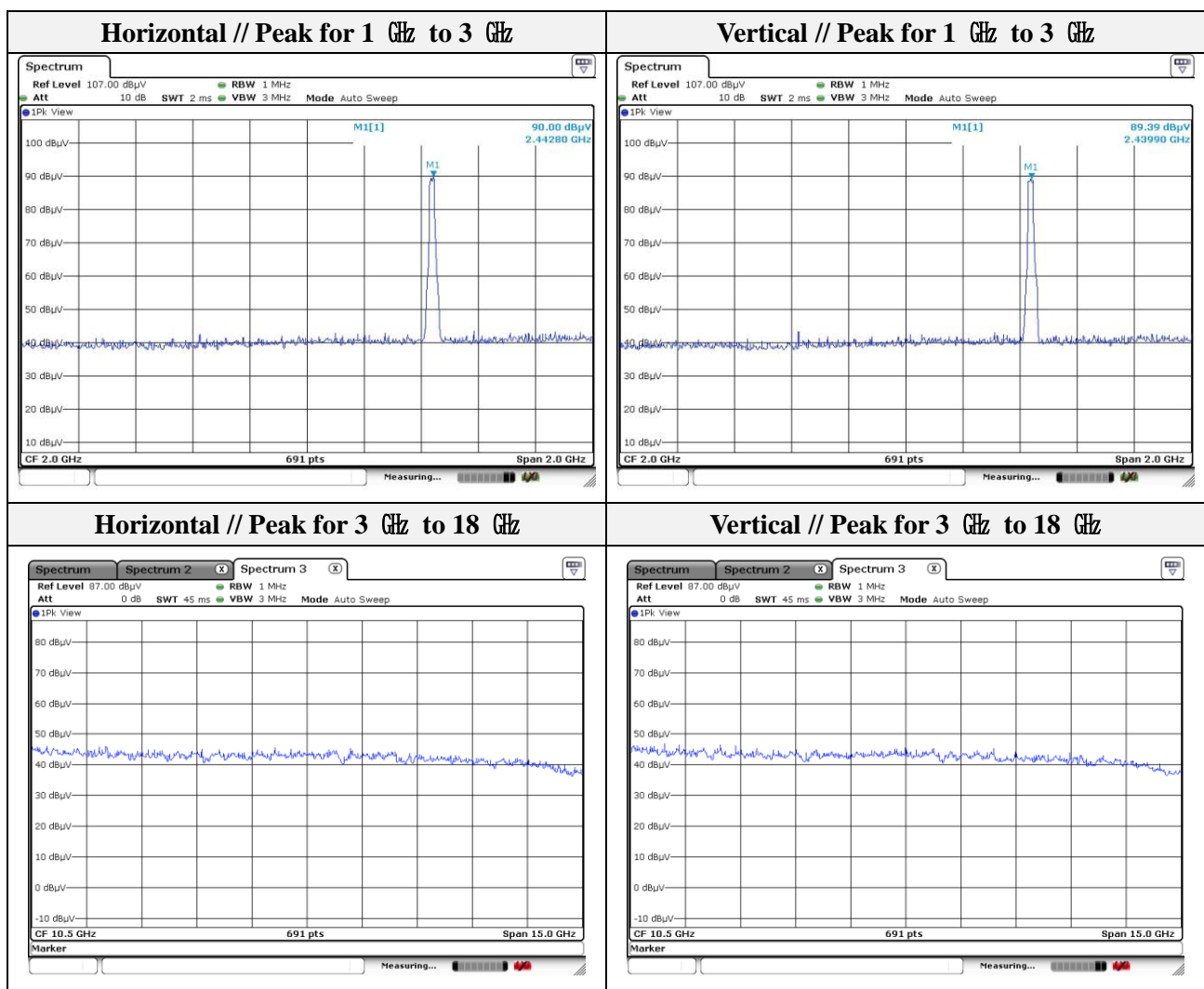


802.11n(HT20) MIMO 802.11n(HT20) MIMO

Distance of measurement: 3 meter

Channel: 06

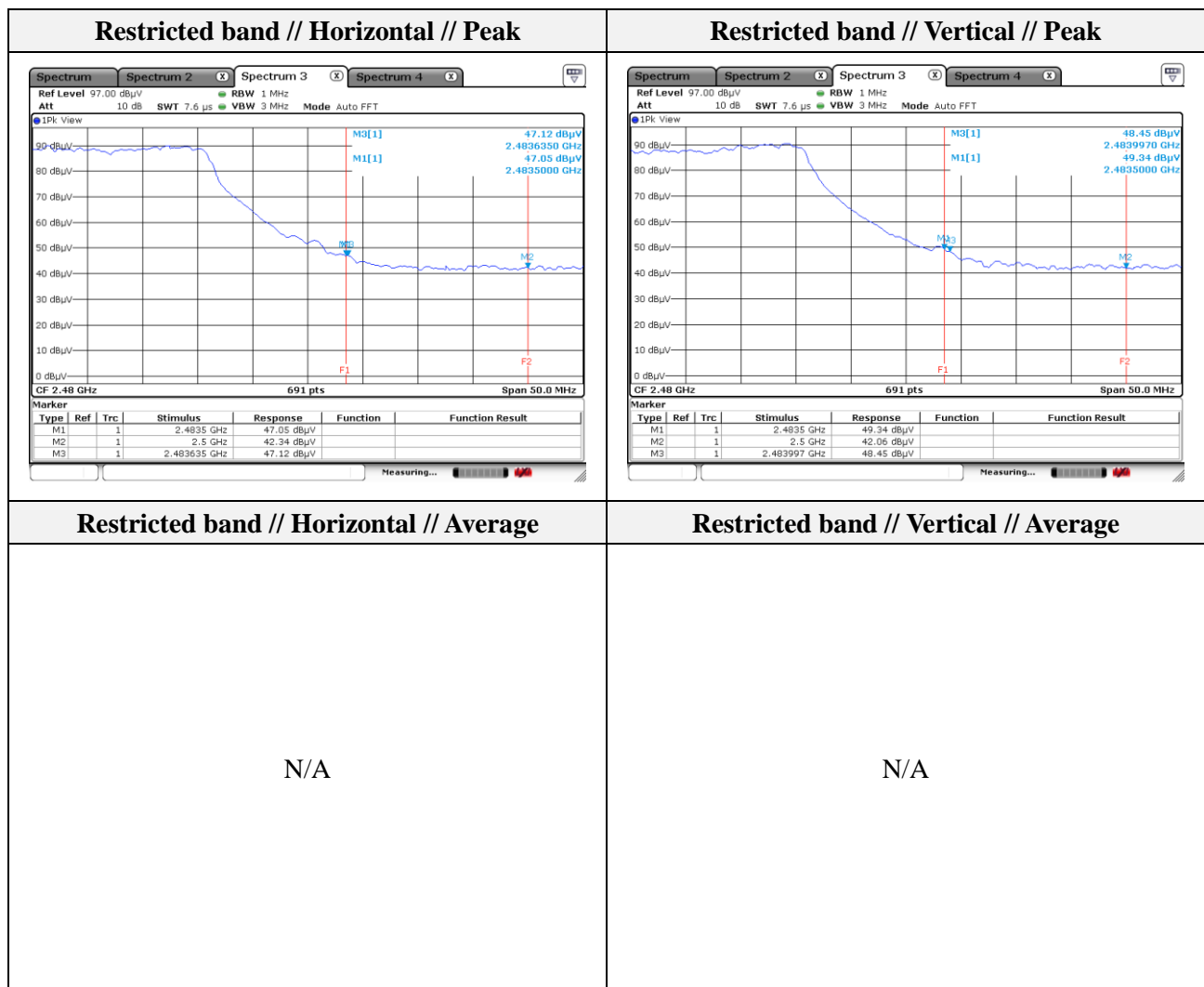
Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
No spurious emission were detected above 3 GHz.								

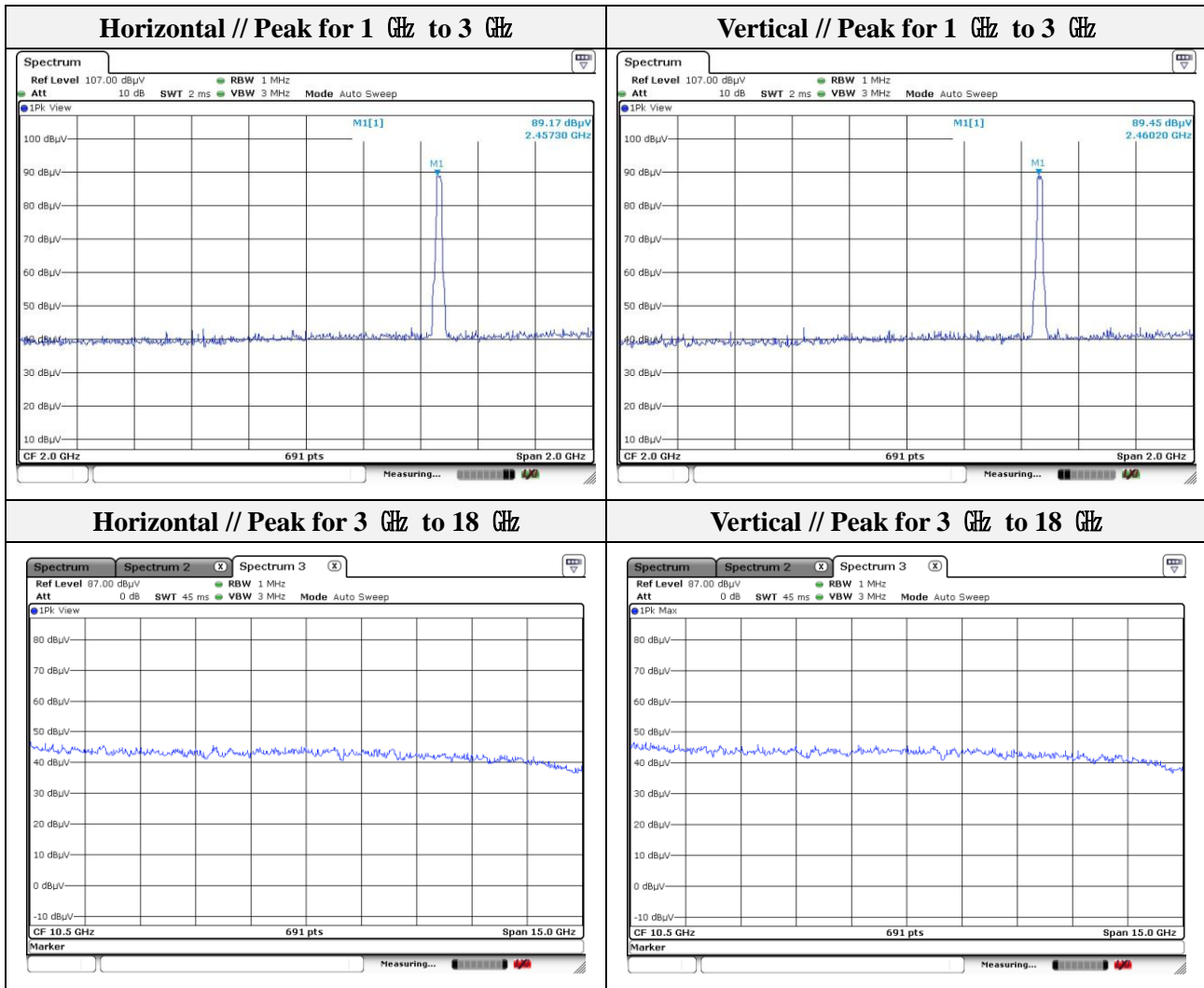




Mode: 802.11n(HT20) MIMO
Distance of measurement: 3 meter
Channel: 11

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2483.50	47.05	Peak	H	-9.41	-	37.64	74.00	36.36
2483.50	49.34	Peak	V	-9.41	-	39.93	74.00	34.07





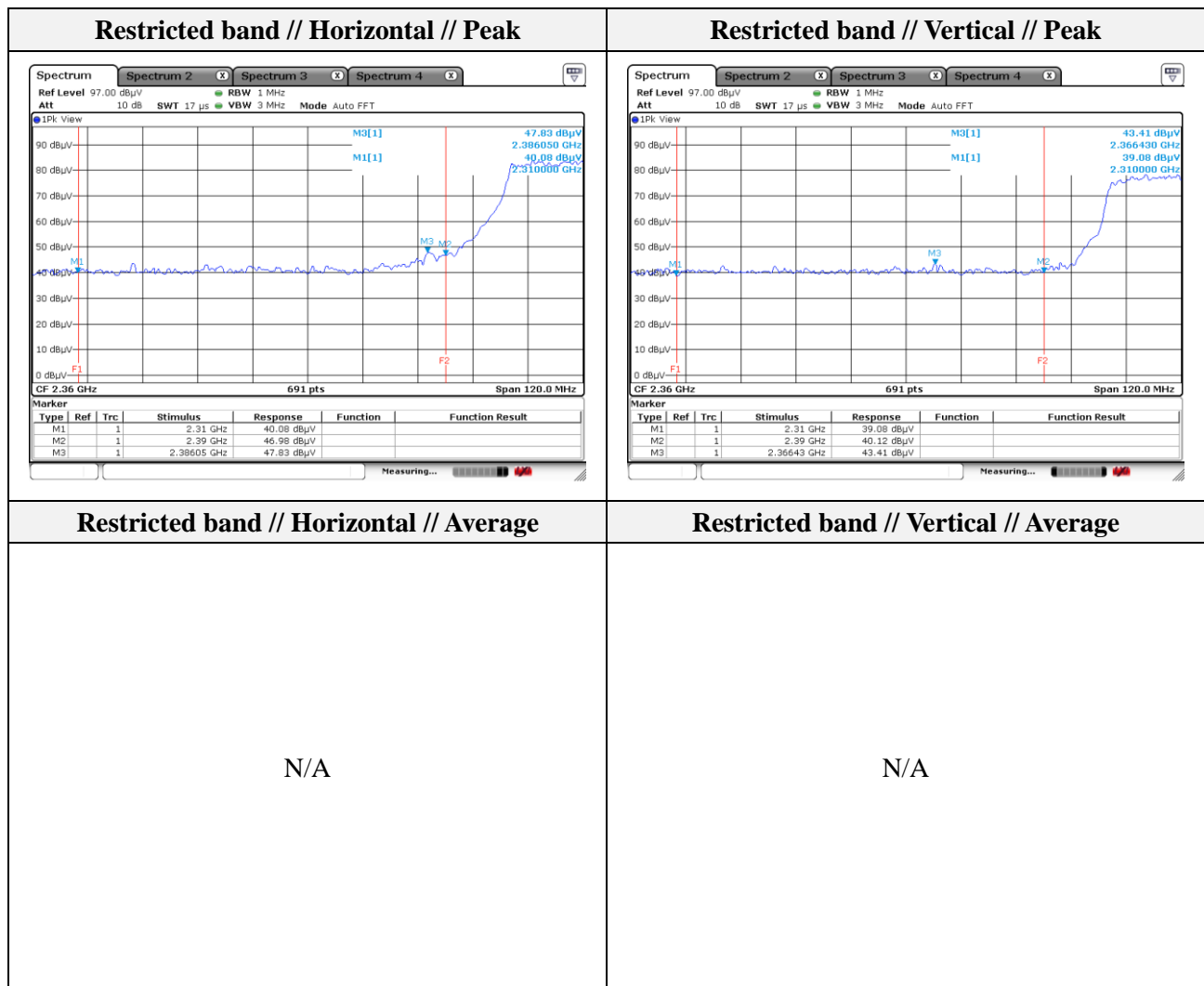
Note.

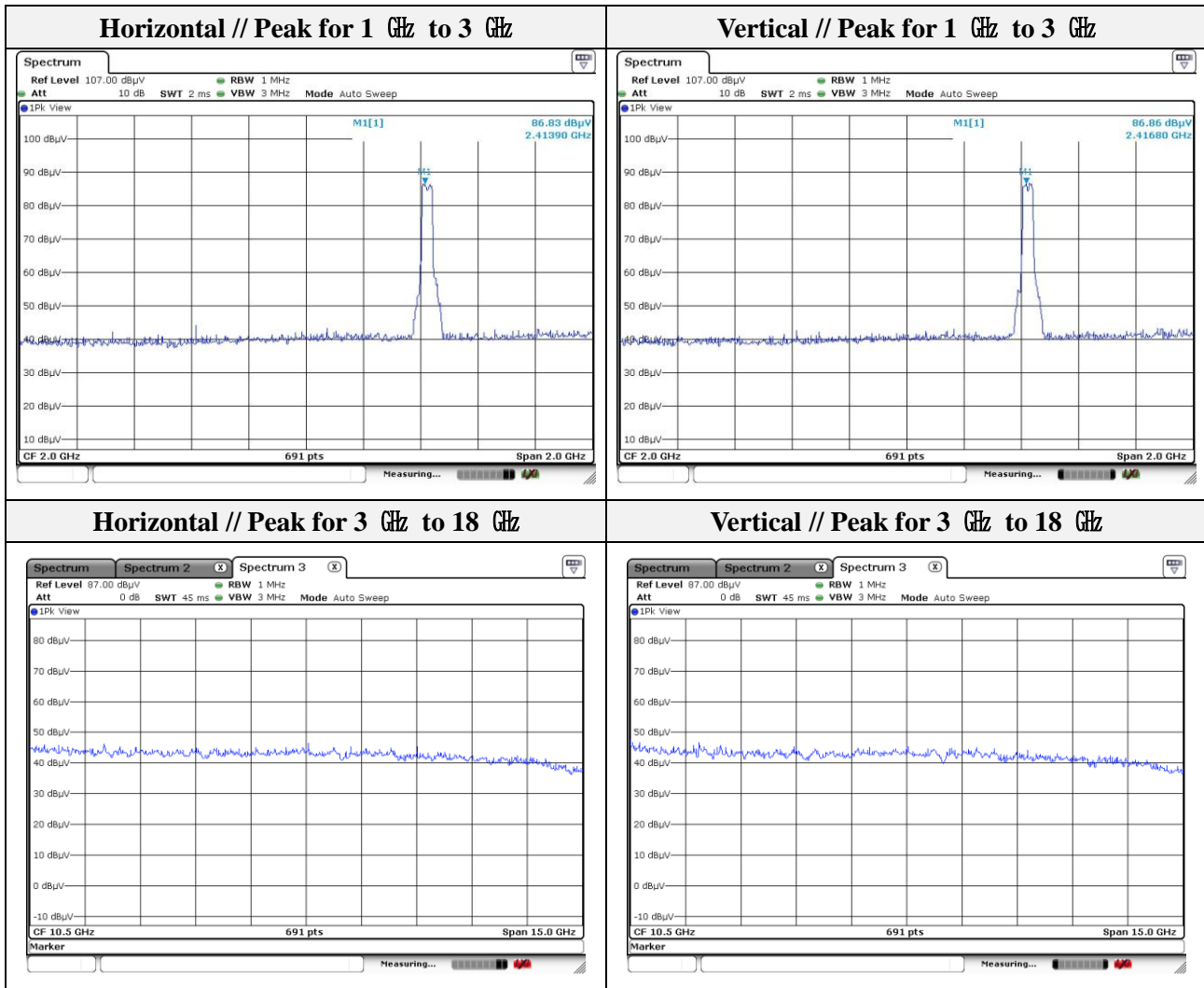
1. No spurious emission were detected above 3 GHz.



Mode: 802.11n(HT40) MIMO
Distance of measurement: 3 meter
Channel: 03

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2386.05	47.83	Peak	H	-9.78	-	38.05	74.00	35.95
2366.43	43.41	Peak	V	-9.84	-	33.57	74.00	40.43





Note.

1. No spurious emission were detected above 3 GHz.

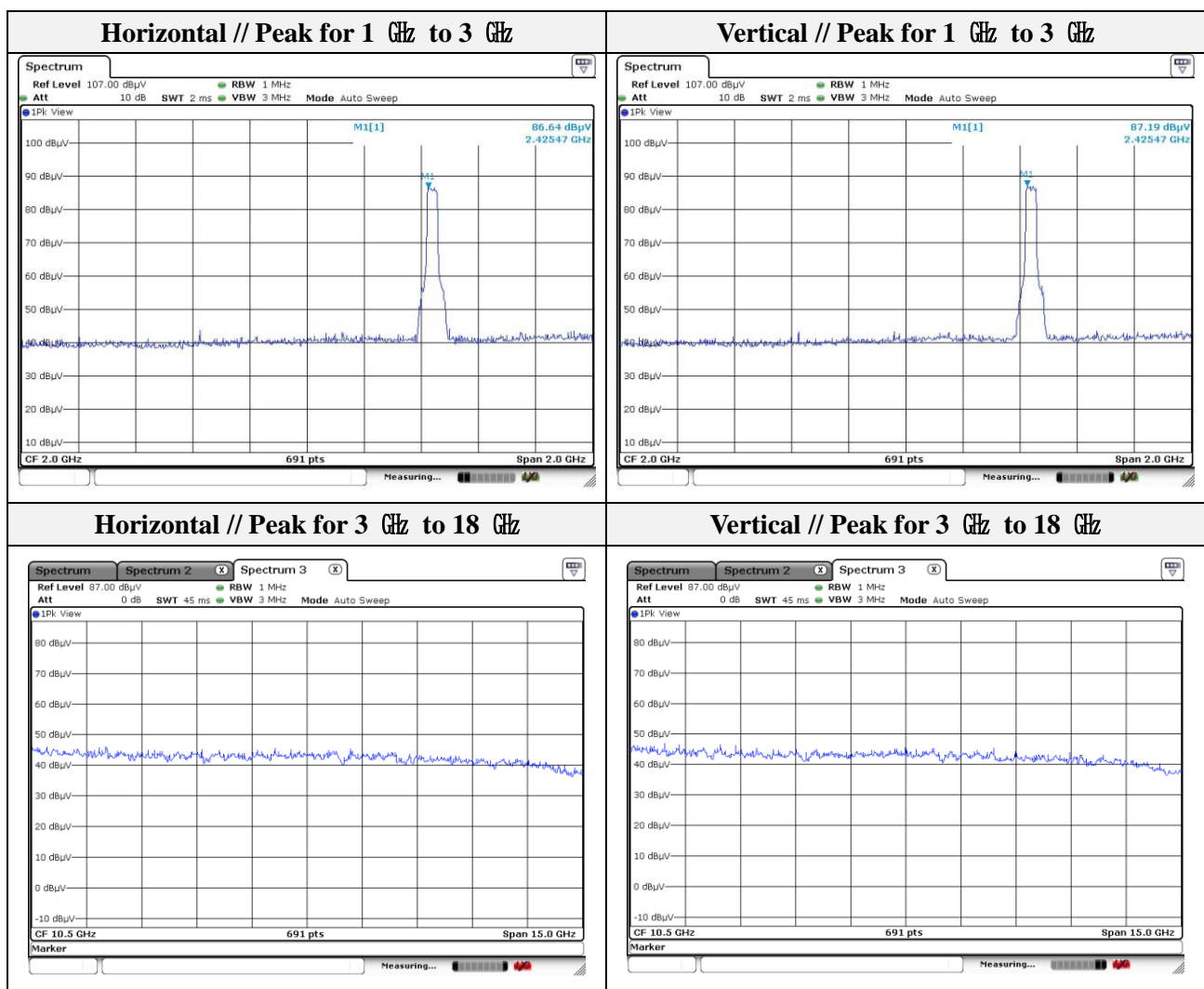


802.11n(HT20) MIMO 802.11n(HT40) MIMO

Distance of measurement: 3 meter

Channel: 06

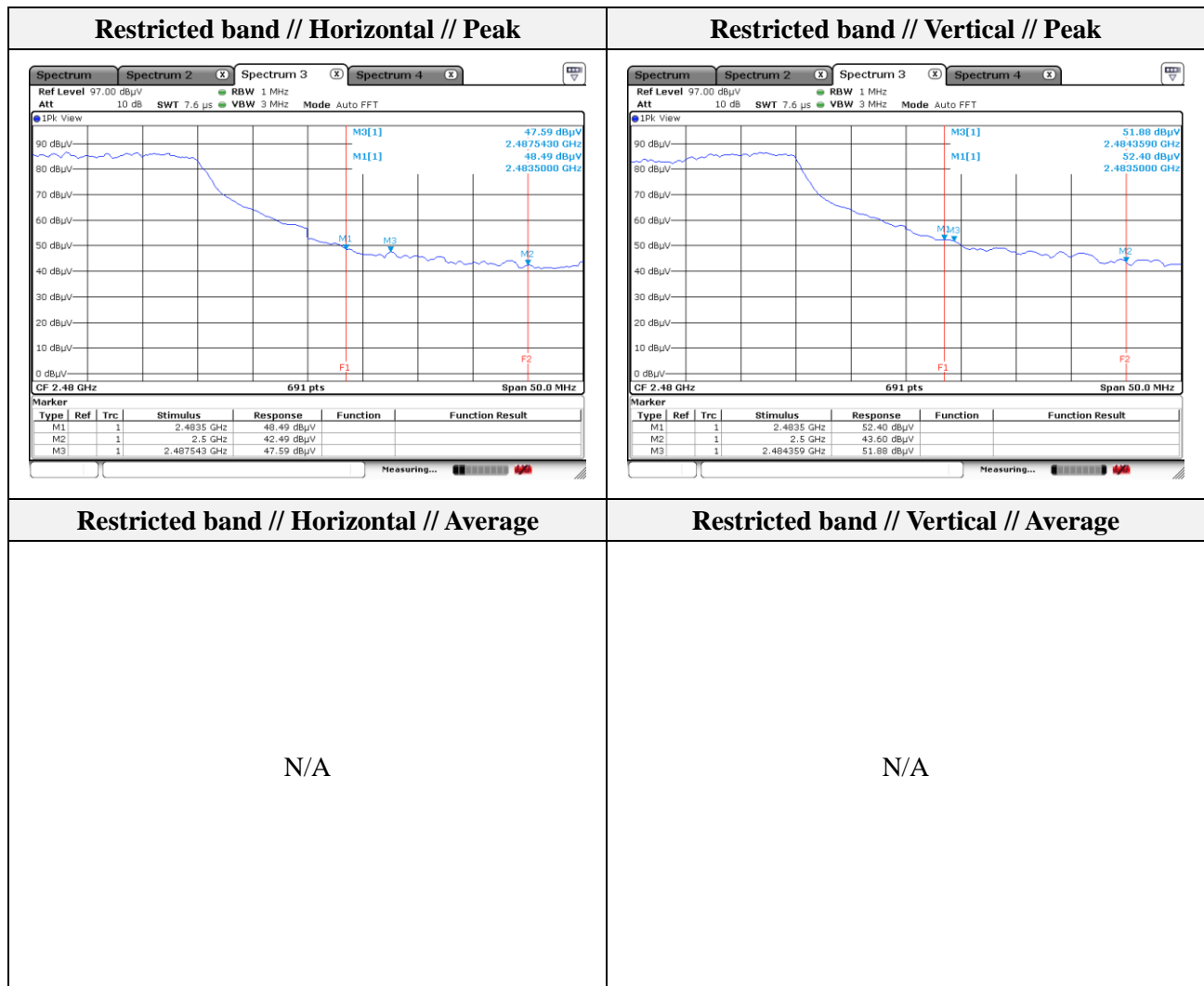
Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
No spurious emission were detected above 3 GHz.								

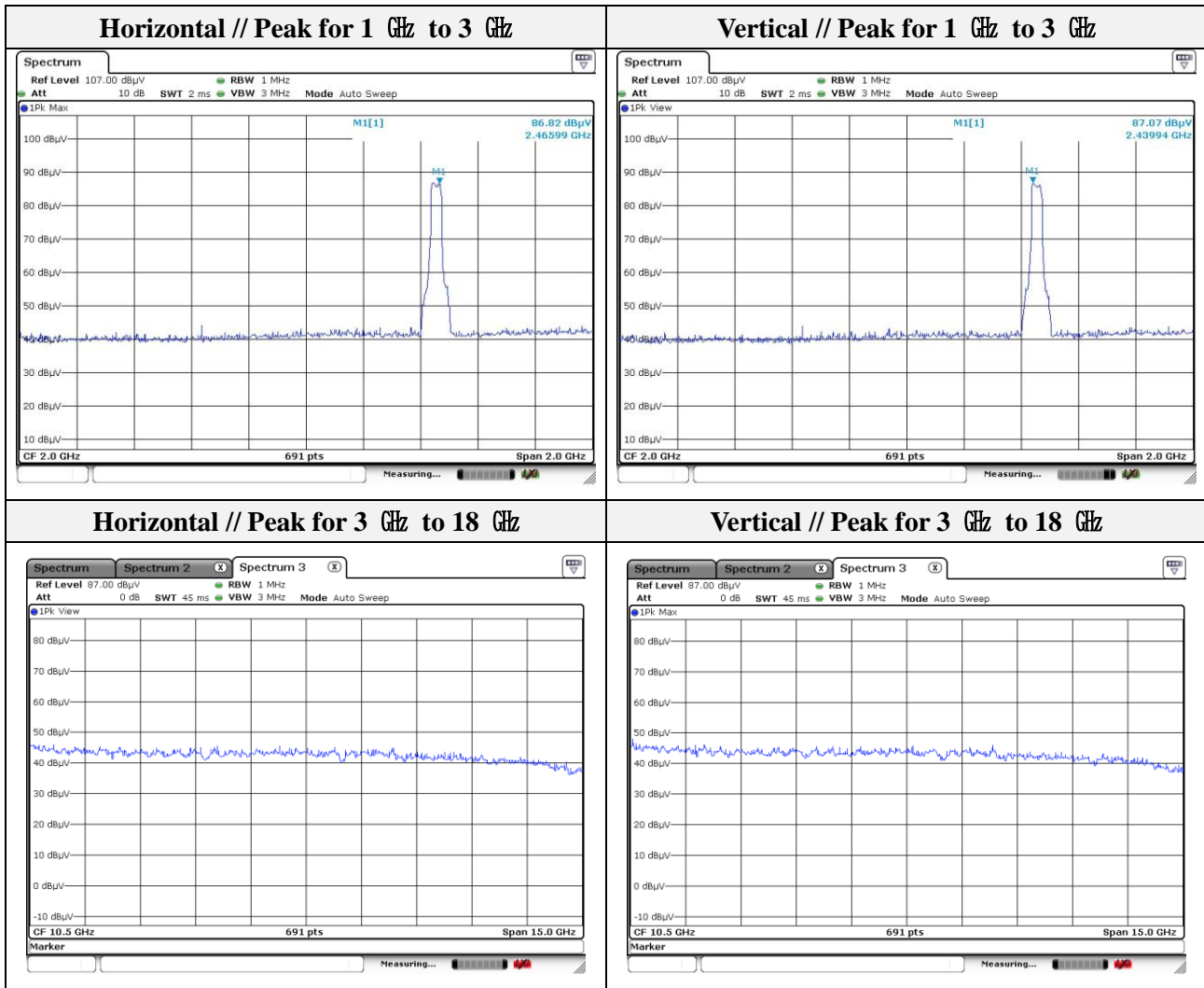




Mode: 802.11n(HT40) MIMO
Distance of measurement: 3 meter
Channel: 09

Frequency (MHz)	Level (dBμV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2483.50	48.49	Peak	H	-9.41	-	39.08	74.00	34.92
2483.50	52.40	Peak	V	-9.41	-	42.99	74.00	31.01





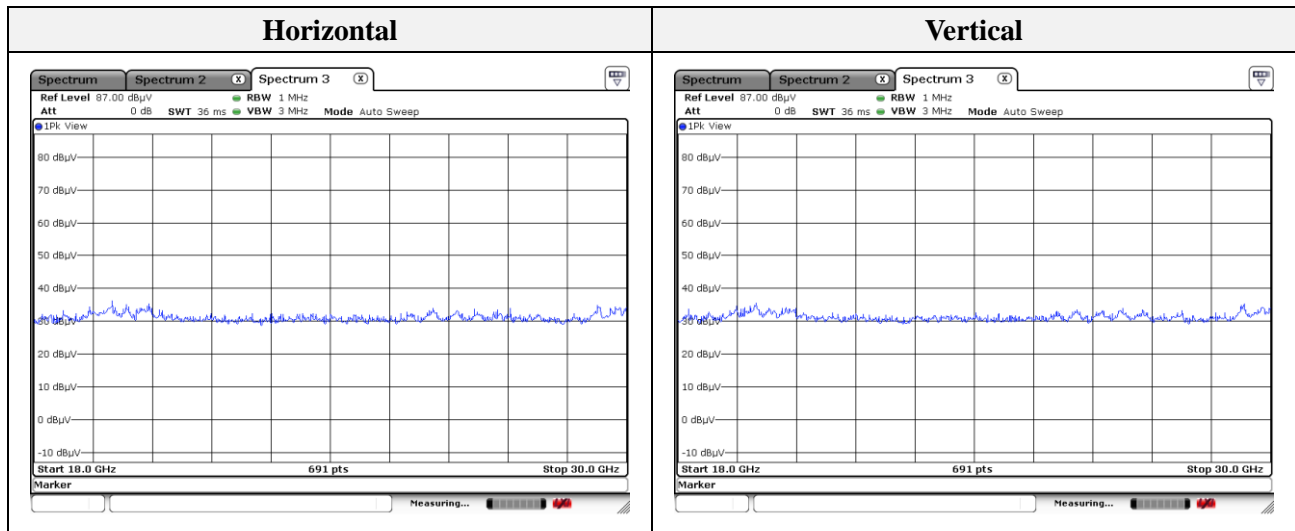
Note.

1. No spurious emission were detected above 3 GHz.



Test results (18 GHz to 30 GHz) – Worst case

Mode: 802.11b
Distance of measurement: 3 meter
Channel: 6(Worst case)



Note.

1. No spurious emission were detected above 18 GHz.

3.5 Conducted spurious emissions & band edge

Test procedure

Band edge

KDB 558074 D01 v03r05 – Section 11.3

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW = 100 kHz
4. VBW = 300 kHz
5. Detector = Peak
6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
7. Trace mode = max hold
8. Sweep time = auto
9. The trace was allowed to stabilize

Out of band emissions

KDB 558074 D01 v03r05 – Section 11.3

1. Start frequency was set to 30 MHz and stop frequency was set to 25 GHz for 2.4 GHz frequencies and 40 GHz for 5 GHz frequencies (separated into two plots per channel)
2. RBW = 100 kHz
3. VBW = 300 kHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

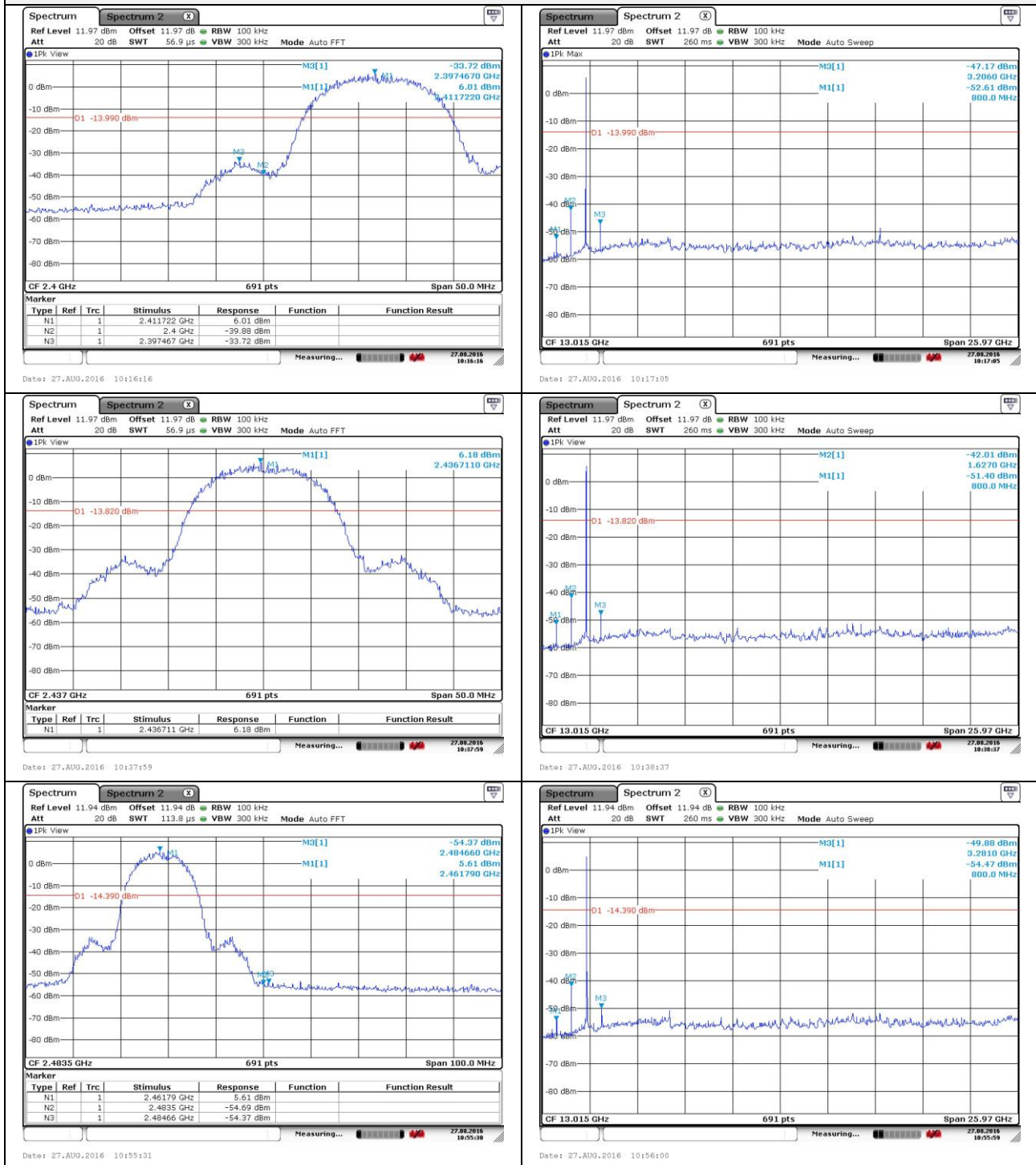
Limit

According to 15.247(d), 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 section 15.209(a) is not required. In addition, radiated emission which in the restricted band, as define in section 15.205(a), must also comply the radiated emission limits specified in section 15.209(a) (see section 15.205(c))

Test results

SISO (Antenna 0)

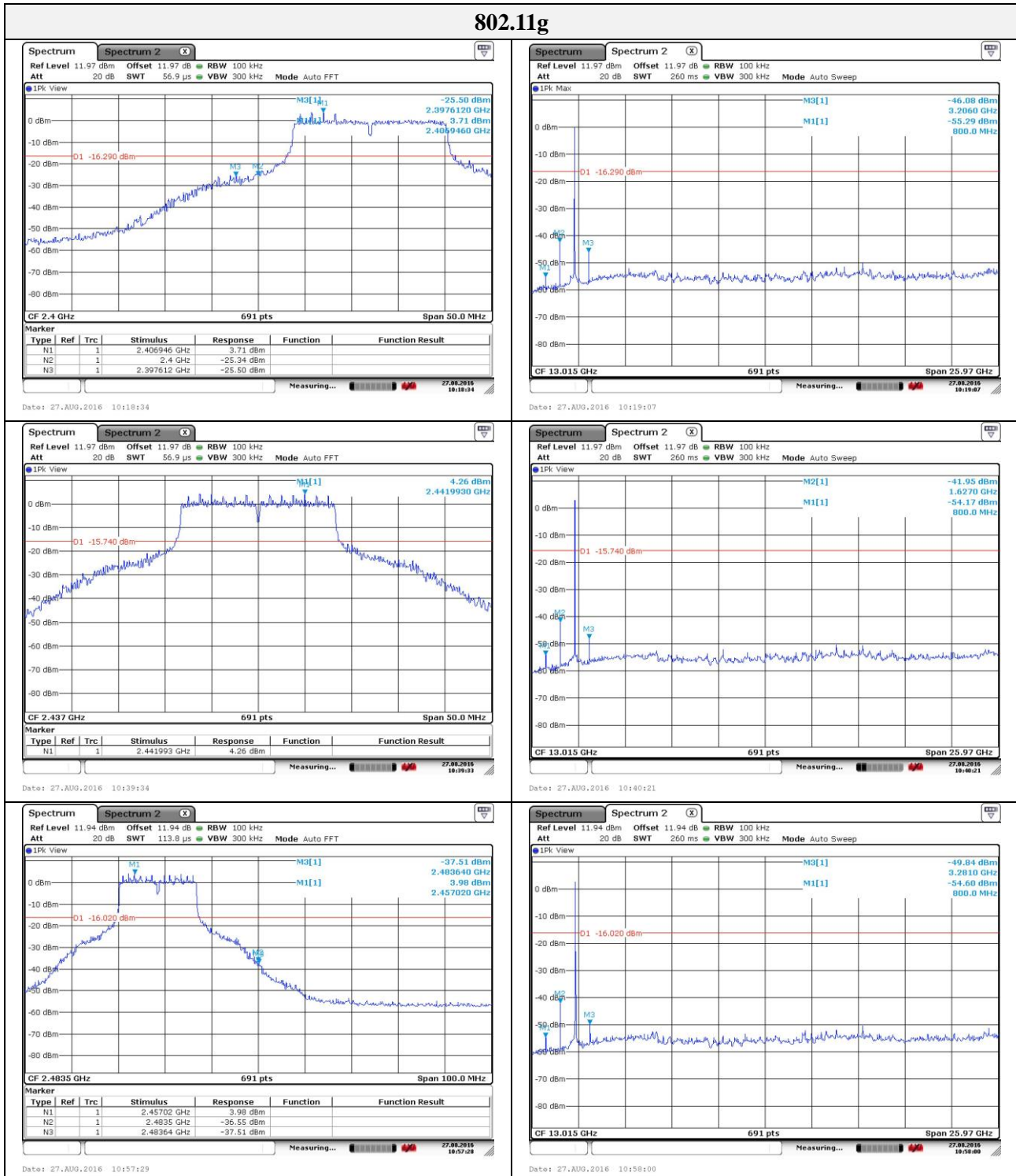
802.11b



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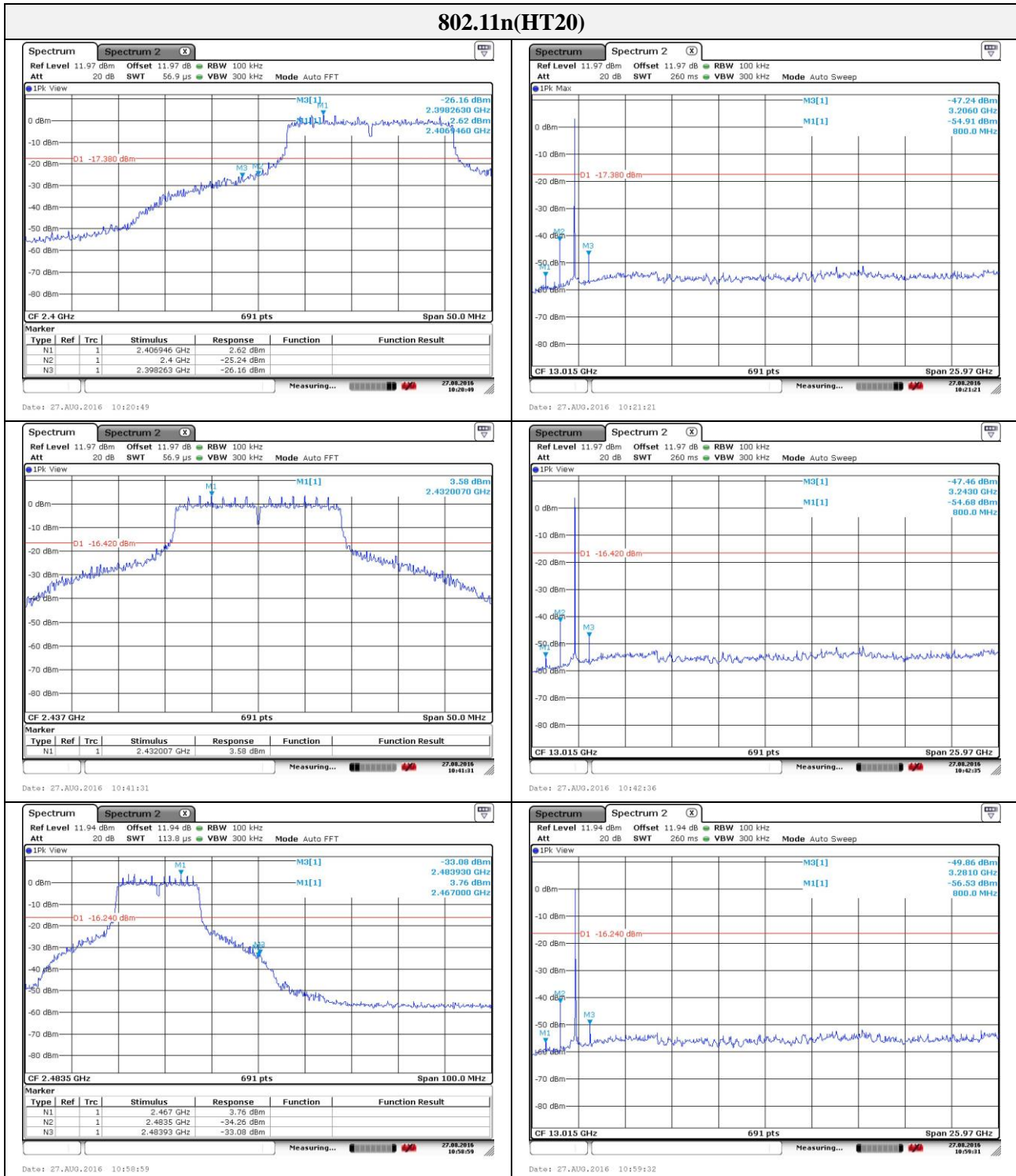
802.11g



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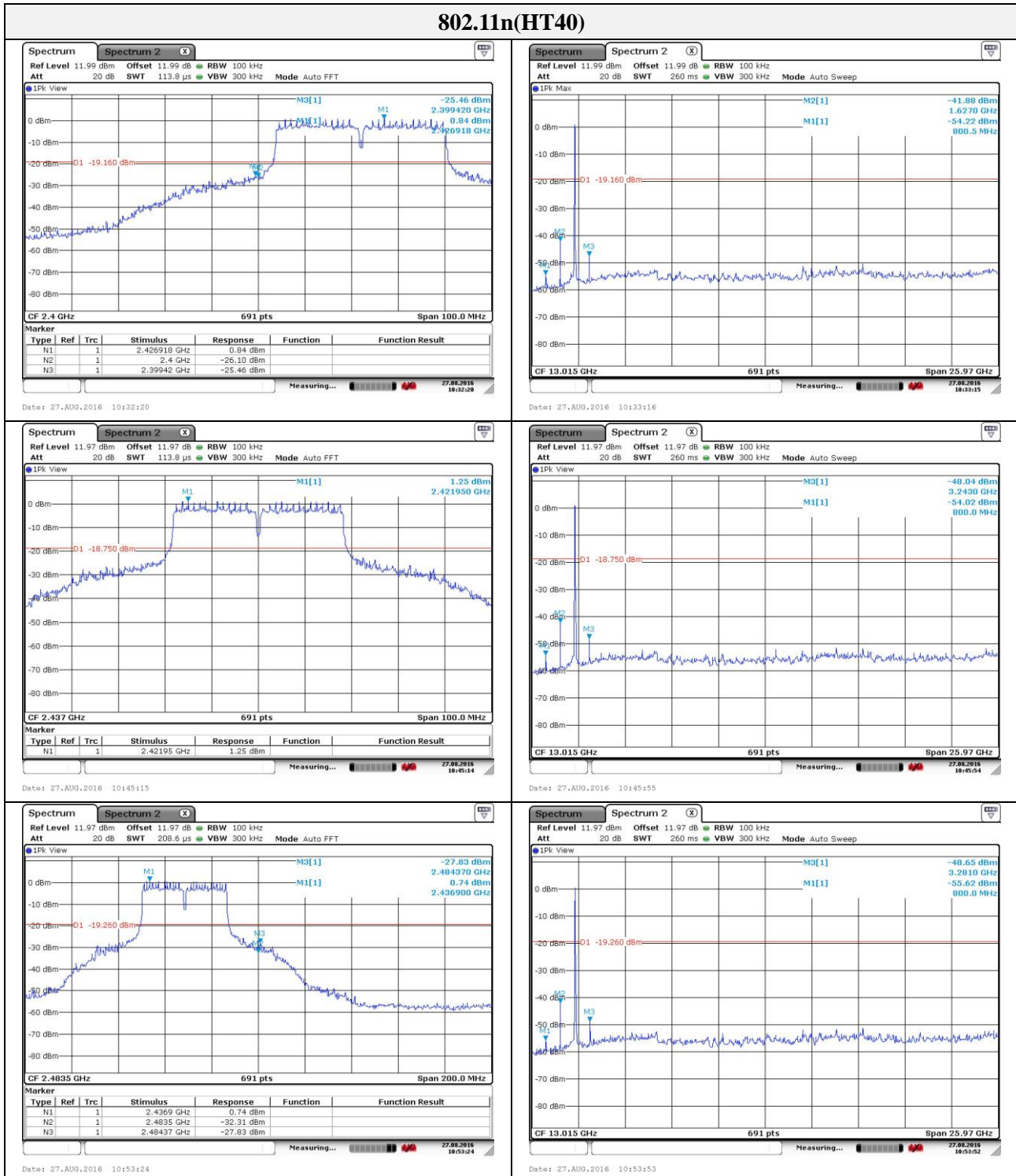
802.11n(HT20)



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802.11n(HT40)

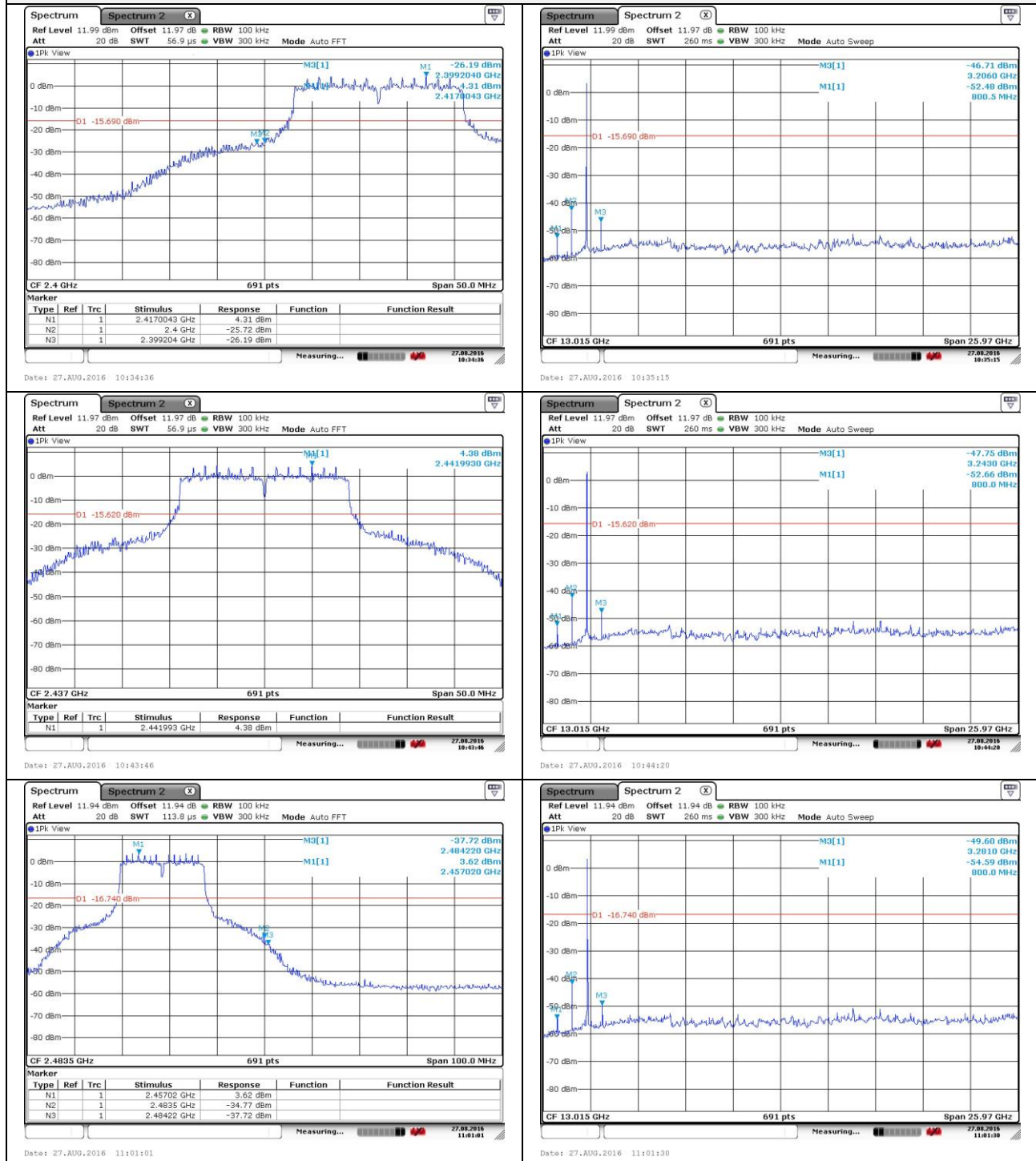


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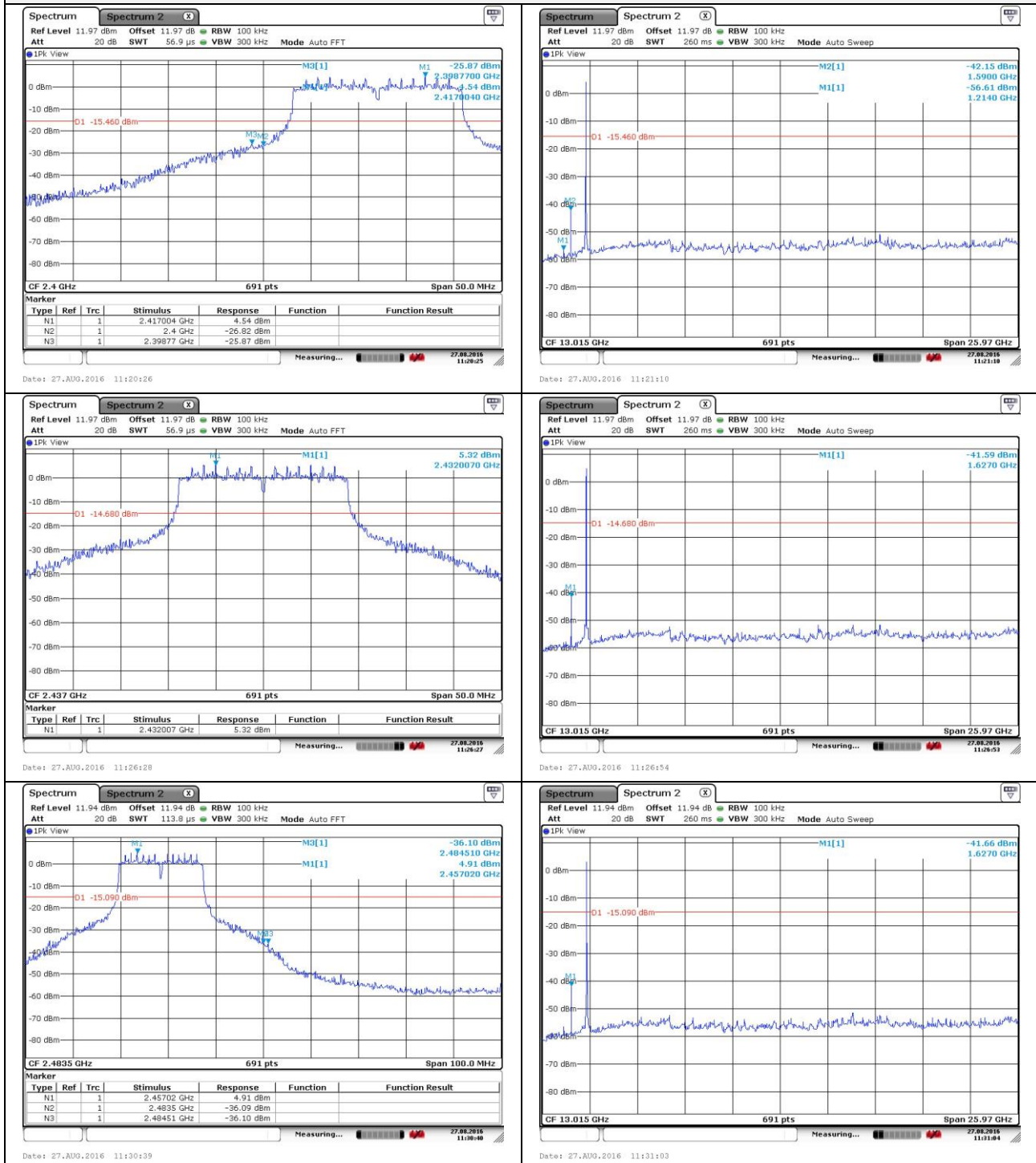
MIMO (Antenna 0+1)

802.11n(HT20) Antenna 0





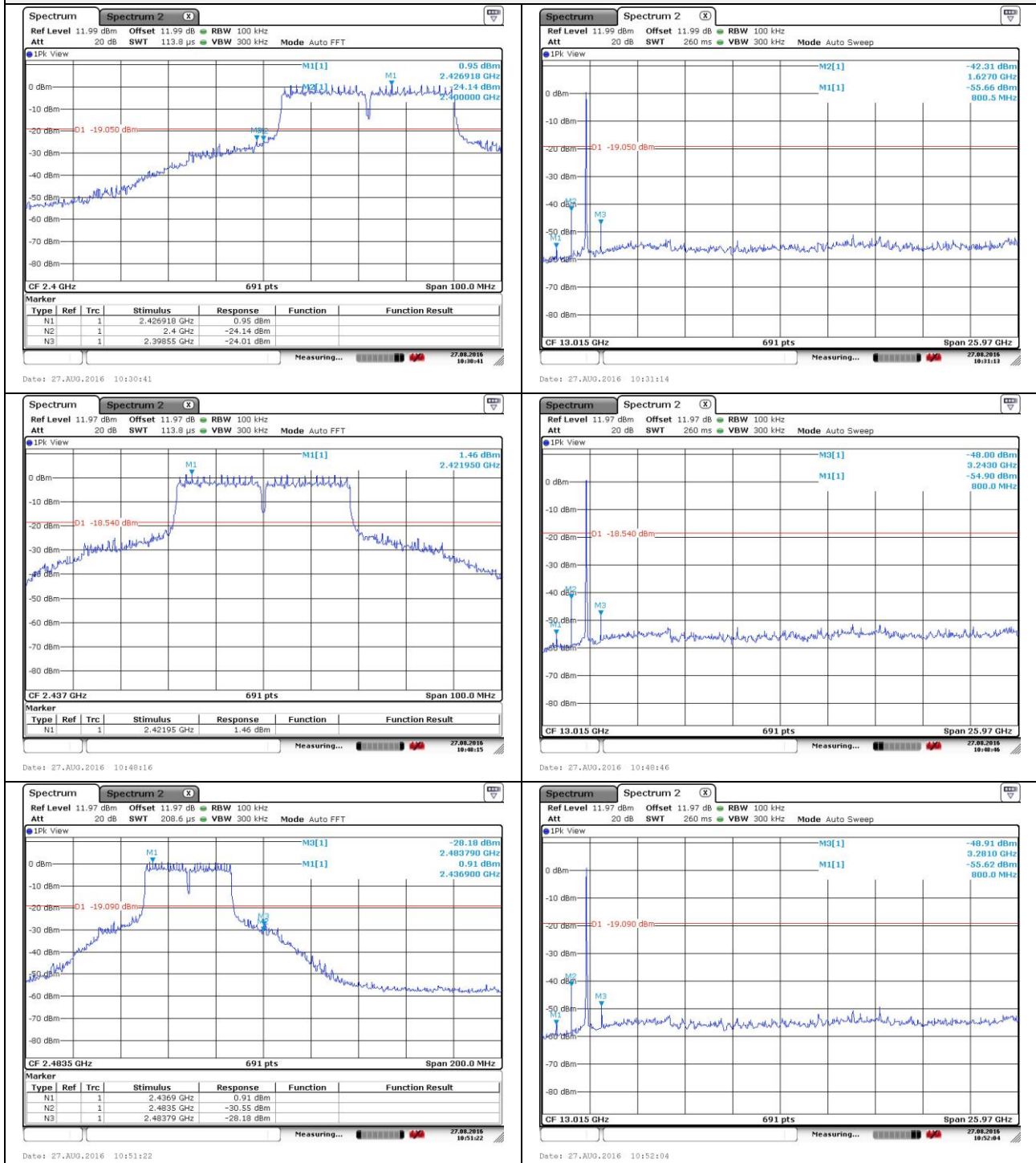
802.11n(HT20) Antenna 1



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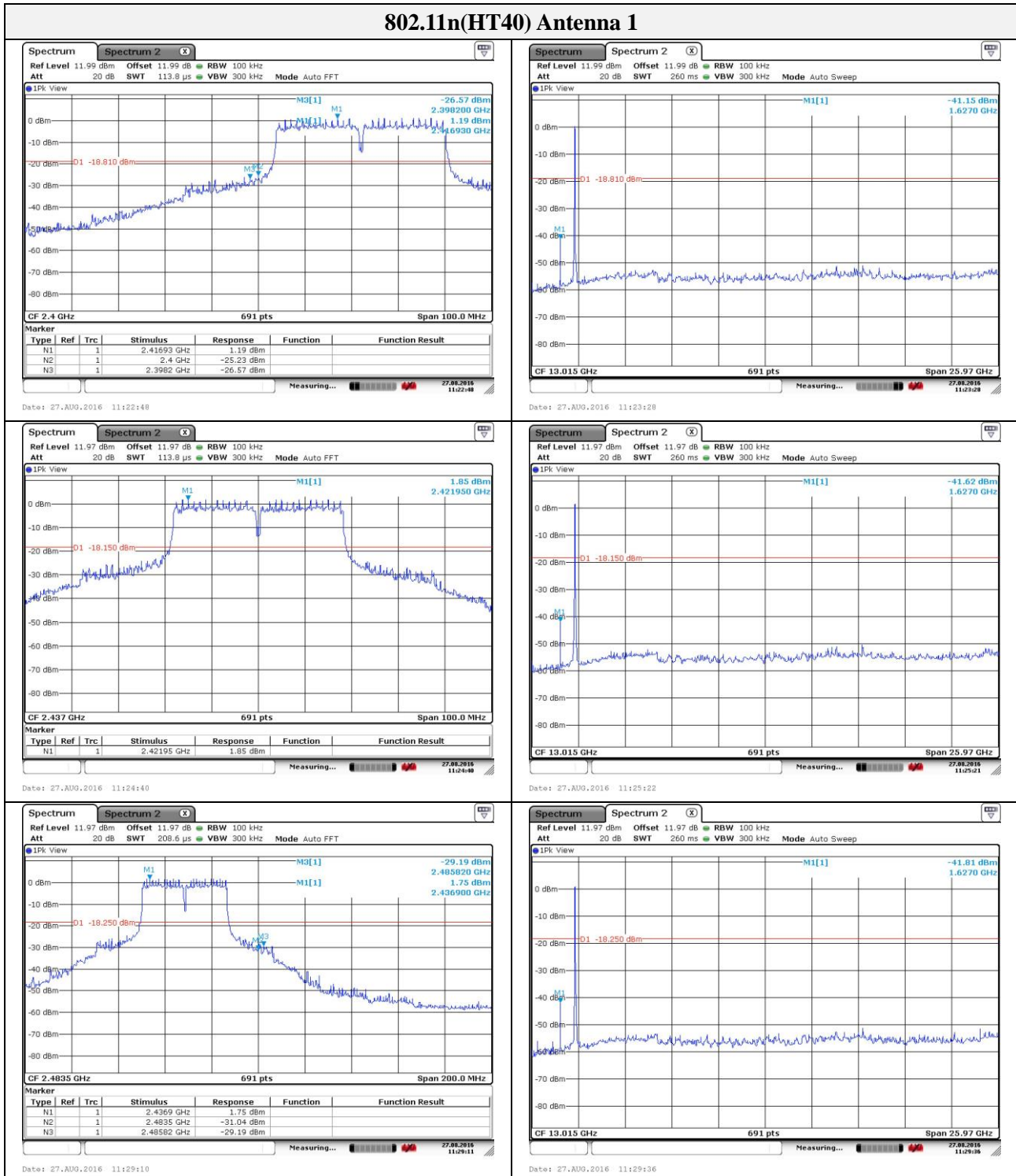
802.11n(HT40) Antenna 0



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802.11n(HT40) Antenna 1



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3.6. AC conducted emissions

Limit

According to 15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50uH/50 ohm line impedance stabilization network (LISN). Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted limit (dBμV/m)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

Note.

1. All AC line conducted spurious emission are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and the appropriate frequencies. All data rates and modes were investigated for conducted spurious emission. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.
3. Both Cable loss and LISN factor are included in measurement level(QP Level or AV Level).



Test results

Hot Line

Level in dBµV

Frequency in Hz

FCC Part 15 Class B Voltage on Mains OP

FCC Part 15 Class B Voltage on Mains AV

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.305000	---	25.32	50.11	24.79	1000.0	9.000	L1	9.7
0.305000	40.01	---	60.11	20.10	1000.0	9.000	L1	9.7
0.335000	---	26.36	49.33	22.97	1000.0	9.000	L1	9.7
0.335000	39.08	---	59.33	20.25	1000.0	9.000	L1	9.7
0.990000	---	7.40	46.00	38.60	1000.0	9.000	L1	9.9
0.990000	24.23	---	56.00	31.77	1000.0	9.000	L1	9.9
1.005000	---	8.95	46.00	37.05	1000.0	9.000	L1	9.9
1.005000	24.97	---	56.00	31.03	1000.0	9.000	L1	9.9
5.705000	---	13.60	50.00	36.40	1000.0	9.000	L1	10.0
5.705000	27.43	---	60.00	32.57	1000.0	9.000	L1	10.0
24.005000	---	22.16	50.00	27.84	1000.0	9.000	L1	10.3
24.005000	24.47	---	60.00	35.53	1000.0	9.000	L1	10.3

Neutral Line

Level in dBµV

Frequency in Hz

FCC Part 15 Class B Voltage on Mains OP

FCC Part 15 Class B Voltage on Mains AV

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.270000	---	19.64	51.12	31.48	1000.0	9.000	N	9.7
0.270000	37.96	---	61.12	23.16	1000.0	9.000	N	9.7
0.300000	---	20.07	50.24	30.17	1000.0	9.000	N	9.7
0.300000	36.40	---	60.24	23.84	1000.0	9.000	N	9.7
1.505000	---	1.46	46.00	44.54	1000.0	9.000	N	10.0
1.505000	15.46	---	56.00	40.54	1000.0	9.000	N	10.0
4.975000	---	6.14	46.00	39.86	1000.0	9.000	N	10.0
4.975000	14.84	---	56.00	41.16	1000.0	9.000	N	10.0
24.005000	---	22.24	50.00	27.76	1000.0	9.000	N	10.3
24.005000	25.09	---	60.00	34.91	1000.0	9.000	N	10.3

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Appendix A. Measurement equipment

Equipment	Manufacturer	Model	Serial No.	Calibration interval	Calibration due.
Spectrum Analyzer	R&S	FSV40	101002	1 year	2017.07.06
Spectrum Analyzer	R&S	FSV30	10076	1 year	2017.07.06
8360B Series Swept Signal Generator	HP	83630B	3844A00786	1 year	2017.01.25
PSG Analog Signal Generator	AGILENT	E8257C	US42340237	1 year	2017.07.05
Attenuator	HP	8494B	2630A12857	1 year	2017.01.21
Wideband Power Sensor	R&S	NRP-Z81	101886	1 year	2017.01.22
Power Meter	Anritsu	ML2495A	1438001	1 year	2017.01.25
Pulse Power Sensor	Anritsu	MA2411B	1339205	1 year	2017.01.25
Loop Antenna	R&S	HFH2-Z2.335.4711.52	826532	2 years	2017.03.03
Trilog-broadband antenna	SCHWARZBECK	VULB 9163	9168-713	2 years	2017.05.15
Horn Antenna	A.H.	SAS-571	781	2 years	2017.05.07
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170550	2 years	2017.04.30
High Pass Filter	WAINWRIGHT INSTRUMENT	WHJS3000-10TT	1	1 year	2017.07.04
Low Pass Filter	WEINSCHL	WLK1.0/18G-10TT	1	1 year	2017.07.04
Preamplifier	SCHWARZBECK	BBV-9718	9718-246	1 year	2016.10.23
Broadband Amplifier	SCHWARZBECK	BBV-9721	PS9721-003	1 year	2017.01.25
EMI Test Receiver	R&S	ESR3	101781	1 year	2017.05.03
EMI Test Receiver	R&S	ESU26	100552	1 year	2017.04.24
EMI Test Receiver	R&S	ESR3	101783	1 year	2017.05.03
LISN	R&S	ENV216	101137	1 year	2017.02.04

Peripheral devices

Device	Manufacturer	Model No.	Serial No.
Notebook Computer	Samsung Electronics Co., Ltd.	NT-R530	ZWC493BZC00014H
Test Board	N/A	N/A	N/A