

TEST REPORT

of

FCC Part 15 Subpart C §15.247

FCC ID: A3LGTS5301

Equipment Under Test : Mobile Phone
Model Name : GT-S5301
Serial No. : N/A
Applicant : SAMSUNG ELECTRONICS CO., LTD.
Manufacturer : SAMSUNG ELECTRONICS CO., LTD.
Date of Test(s) : 2012.09.16 ~ 2012.10.04
Date of Issue : 2012.10.08

In the configuration tested, the EUT complied with the standards specified above.

Tested By:


Logan Lee

Date

2012.10.08

Approved By:


Feel Jeong

Date

2012.10.08

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- 413-15, Gomae-Dong Giheung-Gu, Yongin-Si, Gyeonggi-Do, South Korea.
- Wireless Div. 3FL, 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea 435-040

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1.2. Details of Applicant

Applicant : SAMSUNG ELECTRONICS CO., LTD.

Address : 416, Maetan-dong, Yeongtong-gu, Suwan-city, Gyeonggi-do, Korea

Contact Person : Kim, Seong Hun

Phone No. : +82 +10 4527 3183

1.3. Description of EUT

Kind of Product	Mobile Phone
Model Name	GT-S5301
Serial Number	N/A
Power Supply	DC 3.7 V
Frequency Range	2 412 MHz ~ 2 462 MHz (11b/g/n_HT20),
Modulation Technique	DSSS, OFDM
Number of Channels	11 channel (11b/g/n_HT20_SISO)
Antenna Type	Internal type
Antenna Gain	2 412 MHz ~ 2 462 MHz: -0.11 dB i

1.4. Declaration by the manufacturer

- WLAN & BT do not transmit simultaneously.

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1.5. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal Date	Cal Interval	Cal Due.
Signal Generator	R&S	SMJ100A	100882	Nov. 25, 2011	Annual	Nov. 25, 2012
Signal Generator	R&S	SMR40	100540	Jan. 05, 2012	Annual	Jan. 05, 2013
Spectrum Analyzer	R&S	FSV30	101004	Jul. 05, 2012	Annual	Jul. 05, 2013
High Pass Filter	Wainwright	WHK3.0/18G-6SS	4	Aug. 01, 2012	Annual	Aug. 01, 2013
Low Pass Filter	Mini circuits	NLP-1200+	V9500401023-1	Aug. 01, 2012	Annual	Aug. 01, 2013
Power Divider	KRYTAR	6005265	137137	Aug. 01, 2012	Annual	Aug. 01, 2013
Attenuator	AEROFLEX / INMET	26A-10dB	1	Apr. 02, 2012	Annual	Apr. 02, 2013
Power Sensor	R & S	NRP-Z81	101341	Jul. 31, 2012	Annual	Jul. 31, 2013
DC Power Supply	Agilent	U8002A	MY50020026	Mar. 29, 2012	Annual	Mar. 29, 2013
Preamplifier	R & S	8447D	2727A05143	Jul. 18, 2012	Annual	Jul. 18, 2013
Preamplifier	R & S	SCU 18	10117	Jan. 02, 2012	Annual	Jan. 02, 2013
Preamplifier	MITEQ Inc.	JS44-18004000-35-8P	1546891	Jul. 12, 2012	Annual	Jul. 12, 2013
Test Receiver	R & S	ESU40	100075	Feb. 13, 2012	Annual	Feb. 13, 2013
Trilog Antenna	SCHWARZBECK	VULB9163	9163-390	Apr. 19, 2012	Biennial	Apr. 19, 2014
Horn Antenna	R&S	HF907	100208	Aug. 13, 2012	Biennial	Aug. 13, 2014
Horn Antenna	SCHWARZBECK MESSELEKTRONIK	BBHA9170	BBHA9170431	May 15, 2012	Biennial	May 15, 2014
Antenna Master	INN-CO	MA4000-EP	N/A	N.C.R.	N.C.R.	N.C.R.
Turn Table	INN-CO	DT-3000S	N/A	N.C.R.	N.C.R.	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (21.5 m × 13.0 m × 9.0 m)	N/A	N.C.R.	N.C.R.	N.C.R.
EMI Test Receiver	R & S	ESC17	100778	Aug. 01, 2012	Annual	Aug. 01, 2013
Two-Line V-Network	R & S	ENV216	101180	May 14, 2012	Annual	May 14, 2013

► Support equipment

Description	Manufacturer	Model	Serial Number
N/A	-	-	-

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1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part15 Subpart C § 15.247		
FCC Part Section(s)	Test Item(s)	Result
15.205 15.209 15.247(d)	Transmitter Radiated Spurious Emissions Conducted Spurious Emission	Complied
15.247(a)(2)	6 dB Bandwidth	Complied
15.247(b)(3)	Maximum Peak Output Power	Complied
15.247(e)	Power Spectral Density	Complied
15.207	Transmitter AC Power Line Conducted Emission	Complied

1.7. Test Procedure(s)

The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4-2003) and the guidance provided in KDB 558074 were used in the measurement of the DUT.

1.8. Sample calculation

Where relevant, the following sample calculation is provided:

1.8.1. Conducted test

Offset value (dB) = Power Divider (dB) + Cable loss (dB)

1.8.2. Radiation test

Field strength level (dB μ V/m) = Measured level (dB μ V) + Antenna factor (dB) + Cable loss (dB) - amplifier gain(dB)

1.9. Test report revision

Revision	Report number	Description
0	F690501/RF-RTL005812	Initial
1	F690501/RF-RTL005812-1	Retested 802.11b PSD
2	F690501/RF-RTL005812-2	Revised Antenna gain

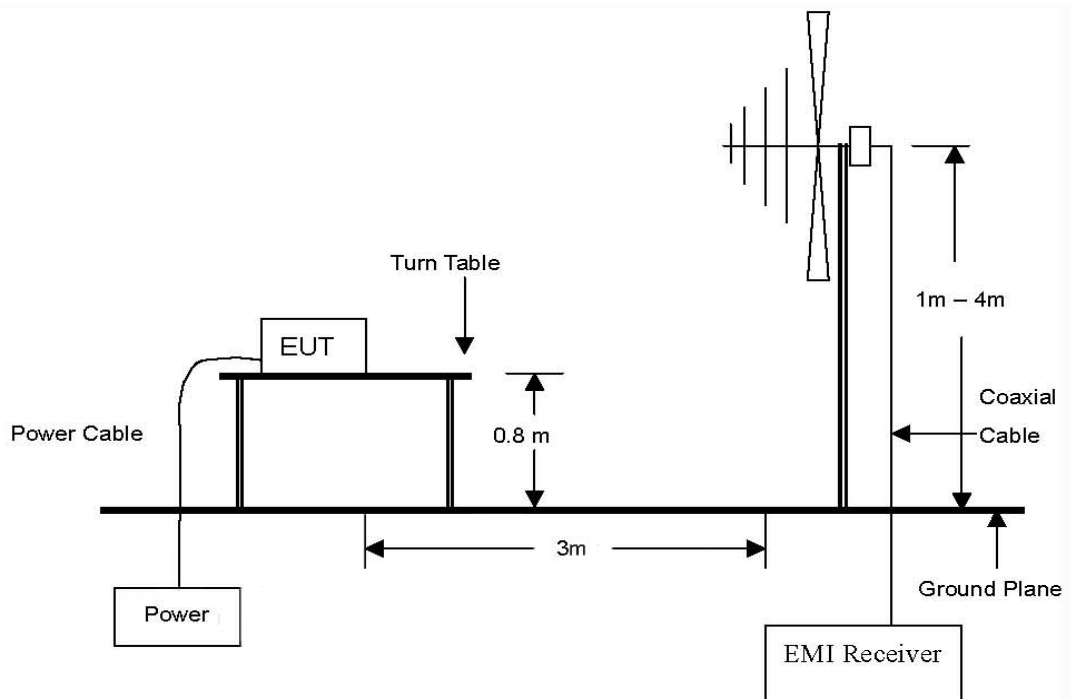
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2. Transmitter Radiated Spurious Emissions and Conducted Spurious Emission

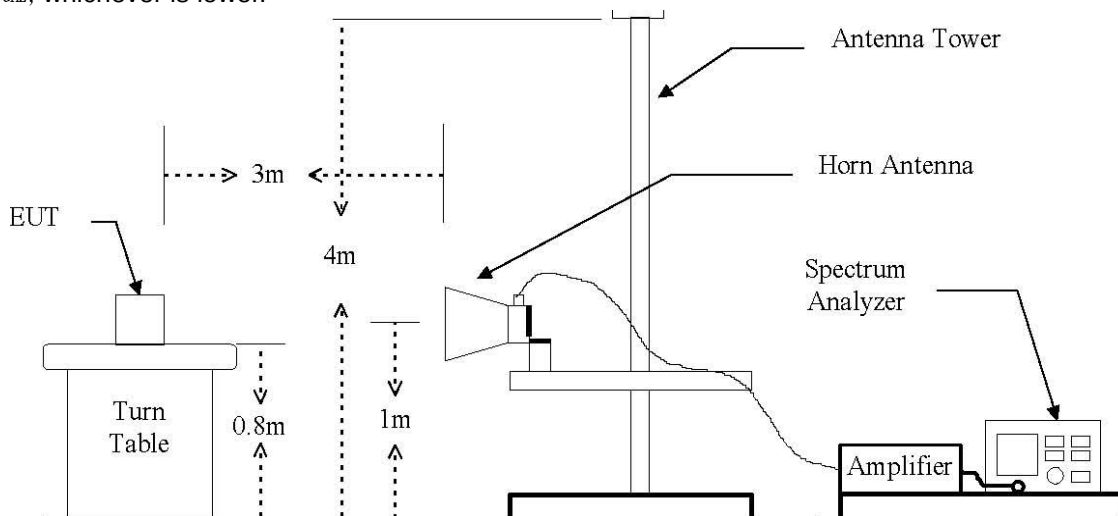
2.1. Test Setup

2.1.1. Transmitter Radiated Spurious Emissions

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.

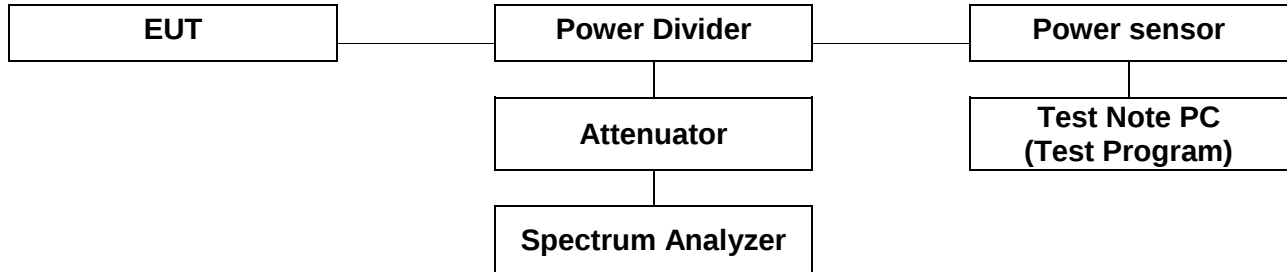


The diagram below shows the test setup that is utilized to make the measurements for emission. The spurious emissions were investigated from 1 GHz to the 10th harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.



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2.1.2. Conducted Spurious Emission



2.2. 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))

According to § 15.209(a), Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table :

Frequency (MHz)	Distance (Meters)	Field Strength (dBμV/m)	Field Strength (μV/m)
30 - 88	3	40.0	100
88 – 216	3	43.5	150
216 – 960	3	46.0	200
Above 960	3	54.0	500

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2.3. Test Procedures

Radiated emissions from the EUT were measured according to the dictates in section 5.4 of KDB 558074

2.3.1. Test Procedures for Radiated Spurious Emissions

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1 GHz, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 3 meter away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE ;

All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

1. The measurements for below 1 GHz

Set the RBW = 100 - 120 kHz and VBW $\geq$ 3 x RBW of test receiver/spectrum analyzer for Peak detection (PK) or Quasi-peak detection (QP)

2. The measurements for above 1 GHz

Average measurements are recorded using the RBAVG1 measurement procedure of KDB 558074.

Peak measurements are recorded using RBW = 1 MHz, VBW = 3 MHz

3. To get a maximum emission level from the EUT, the EUT is manipulated through three orthogonal planes.

2.3.2. Test Procedures for Conducted Spurious Emissions

All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

Per the guidance of KDB 558074, section 5.4.1.1, the reference level for out of band emissions is established from the plots of this section since the band edge emissions are measured with a RBW of 100 kHz. This reference level is then used as the limit in subsequent plots for out of band spurious emissions shown in section 2.4.3. The limit for out of band spurious emission at the band edge is 30 dB below the fundamental emission level measured in a 100 kHz bandwidth.

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2.4. Test Results

Ambient temperature : (24 ± 2) °C
Relative humidity : 47 % R.H.

2.4.1. Radiated Spurious Emission (Worst case configuration_11g mode, 6 Mbps)

The frequency spectrum from 30 MHz to 1 000 MHz was investigated. All reading values are peak values.

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dBμV)	Detect Mode	Pol.	AF (dB/m)	AMP + CL (dB)	Actual (dBμV/m)	Limit (dBμV/m)	Margin (dB)
90.14	14.24	Peak	V	11.92	-23.92	2.24	43.5	41.26
135.15	18.41	Peak	V	8.75	-23.41	3.75	43.5	39.75
151.06	12.01	Peak	H	8.46	-23.24	-2.77	43.5	46.27
534.79	22.63	Peak	H	17.23	-22.63	17.23	46.0	28.77
Above 600.00	Not detected	-	-	-	-	-	-	-

Remark:

1. All spurious emission at channels are almost the same below 1 GHz, so that the middle channel was chosen at representative in final test.
2. Actual = Reading + AF + AMP + CL

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2.4.2. Spurious Radiated Emission

The frequency spectrum above 1 000 MHz was investigated.

DSSS : 802.11b(1 Mbps)

Low Channel (2 412 MHz)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dBμV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2 412.00	67.72	Peak	H	29.39	8.94	106.05	-	-
*2 390.00	16.22	Peak	H	29.34	8.87	54.43	74.00	19.57
*2 390.00	6.80	Average	H	29.34	8.87	45.01	54.00	8.99

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dBμV)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dBμV/m)	Limit (dBμV/m)	Margin (dB)
*4 823.85	41.41	Peak	H	34.07	-30.02	45.46	74.00	28.54
*4 823.85	36.31	Average	H	34.07	-30.02	40.36	54.00	13.64
7 236.00	34.43	Peak	H	35.64	-26.53	43.54	86.05	42.51
7 236.00	22.35	Average	H	35.64	-26.53	31.46	66.05	34.59
Above 7 300.00	Not detected	-	-	-	-	-	-	-

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Middle Channel (2 437 MHz)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*4 873.95	40.61	Peak	H	34.14	-30.19	44.56	74.00	29.44
*4 873.95	32.57	Average	H	34.14	-30.19	36.52	54.00	17.48
*7 311.86	34.76	Peak	H	35.69	-26.41	44.04	74.00	29.96
*7 311.86	23.05	Average	H	35.69	-26.41	32.33	54.00	21.67
Above 7 400.00	Not detected	-	-	-	-	-	-	-

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High Channel (2 462 MHz)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*2 483.50	17.26	Peak	H	29.56	9.15	55.97	74.00	18.03
*2 483.50	6.35	Average	H	29.56	9.15	45.06	54.00	8.94

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*4 923.93	38.62	Peak	H	34.20	-30.35	42.47	74.00	31.53
*4 923.93	26.80	Average	H	34.20	-30.35	30.65	54.00	23.35
*7 385.20	34.97	Peak	H	35.73	-26.29	44.41	74.00	29.59
*7 385.20	23.34	Average	H	35.73	-26.29	32.78	54.00	21.22
Above 7 400.00	Not detected	-	-	-	-	-	-	-

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DSSS : 802.11g(6 Mbps)

Low Channel (2 412 MHz)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2 412.00	64.31	Peak	H	29.39	8.94	102.64	-	-
*2 390.00	26.80	Peak	H	29.34	8.87	65.01	74.00	8.99
*2 390.00	9.80	Average	H	29.34	8.87	48.01	54.00	5.99

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*4 825.00	39.71	Peak	H	34.07	-30.02	43.76	74.00	30.24
*4 825.00	28.34	Average	H	34.07	-30.02	32.39	54.00	21.61
7 238.50	32.76	Peak	H	35.64	-26.51	41.89	82.64	40.75
7 238.50	21.95	Average	H	35.64	-26.51	31.08	62.64	31.56
Above 7 300.00	Not detected	-	-	-	-	-	-	-

Middle Channel (2 437 MHz)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*4 872.50	38.45	Peak	H	34.13	-30.18	42.40	74.00	31.60
*4 872.50	26.08	Average	H	34.13	-30.18	30.03	54.00	23.97
*7 311.00	32.58	Peak	H	35.69	-26.41	41.86	74.00	32.14
*7 311.00	21.24	Average	H	35.69	-26.41	30.52	54.00	23.48
Above 7 400.00	Not detected	-	-	-	-	-	-	-

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High Channel (2 462 MHz)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*2 483.50	25.06	Peak	H	29.56	9.15	63.77	74.00	10.23
*2 483.50	8.72	Average	H	29.56	9.15	47.43	54.00	6.57

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*4 924.20	38.27	Peak	H	34.20	-30.35	42.12	74.00	31.88
*4 924.20	25.98	Average	H	34.20	-30.35	29.83	54.00	24.17
*7 386.80	31.74	Peak	H	35.73	-26.29	41.18	74.00	32.82
*7 386.80	21.17	Average	H	35.73	-26.29	30.61	54.00	23.39
Above 7 400.00	Not detected	-	-	-	-	-	-	-

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DSSS : 802.11n_HT20(MCS0)

Low Channel (2 412 MHz)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2 412.00	60.24	Peak	H	29.39	8.94	98.57	-	-
*2 390.00	25.27	Peak	H	29.34	8.87	63.48	74.00	10.52
*2 390.00	10.60	Average	H	29.34	8.87	48.81	54.00	5.19

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*4 825.40	38.31	Peak	H	34.07	-30.02	42.36	74.00	31.64
*4 825.40	27.44	Average	H	34.07	-30.02	31.49	54.00	22.51
7 241.39	33.82	Peak	H	35.64	-26.51	42.95	78.57	35.62
7 241.39	22.23	Average	H	35.64	-26.51	31.36	58.57	27.21
Above 7 300.00	Not detected	-	-	-	-	-	-	-

Middle Channel (2 437 MHz)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*4 874.60	39.65	Peak	H	34.14	-30.19	43.60	74.00	30.40
*4 874.60	27.11	Average	H	34.14	-30.19	31.06	54.00	22.94
*7 312.00	32.81	Peak	H	35.69	-26.41	42.09	74.00	31.91
*7 312.00	21.34	Average	H	35.69	-26.41	30.62	54.00	23.38
Above 7 400.00	Not detected	-	-	-	-	-	-	-

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High Channel (2 462 MHz)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*2 483.50	19.86	Peak	H	29.56	9.15	58.57	74.00	15.43
*2 483.50	8.44	Average	H	29.56	9.15	47.15	54.00	6.85

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (MHz)	Reading (dB μ V)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
*4 923.00	39.39	Peak	H	34.20	-30.35	43.24	74.00	30.76
*4 923.00	26.58	Average	H	34.20	-30.35	30.43	54.00	23.57
*7 385.50	32.05	Peak	H	35.73	-26.29	41.49	74.00	32.51
*7 385.50	21.09	Average	H	35.73	-26.29	30.53	54.00	23.47
Above 7 400.00	Not detected	-	-	-	-	-	-	-

Remarks :

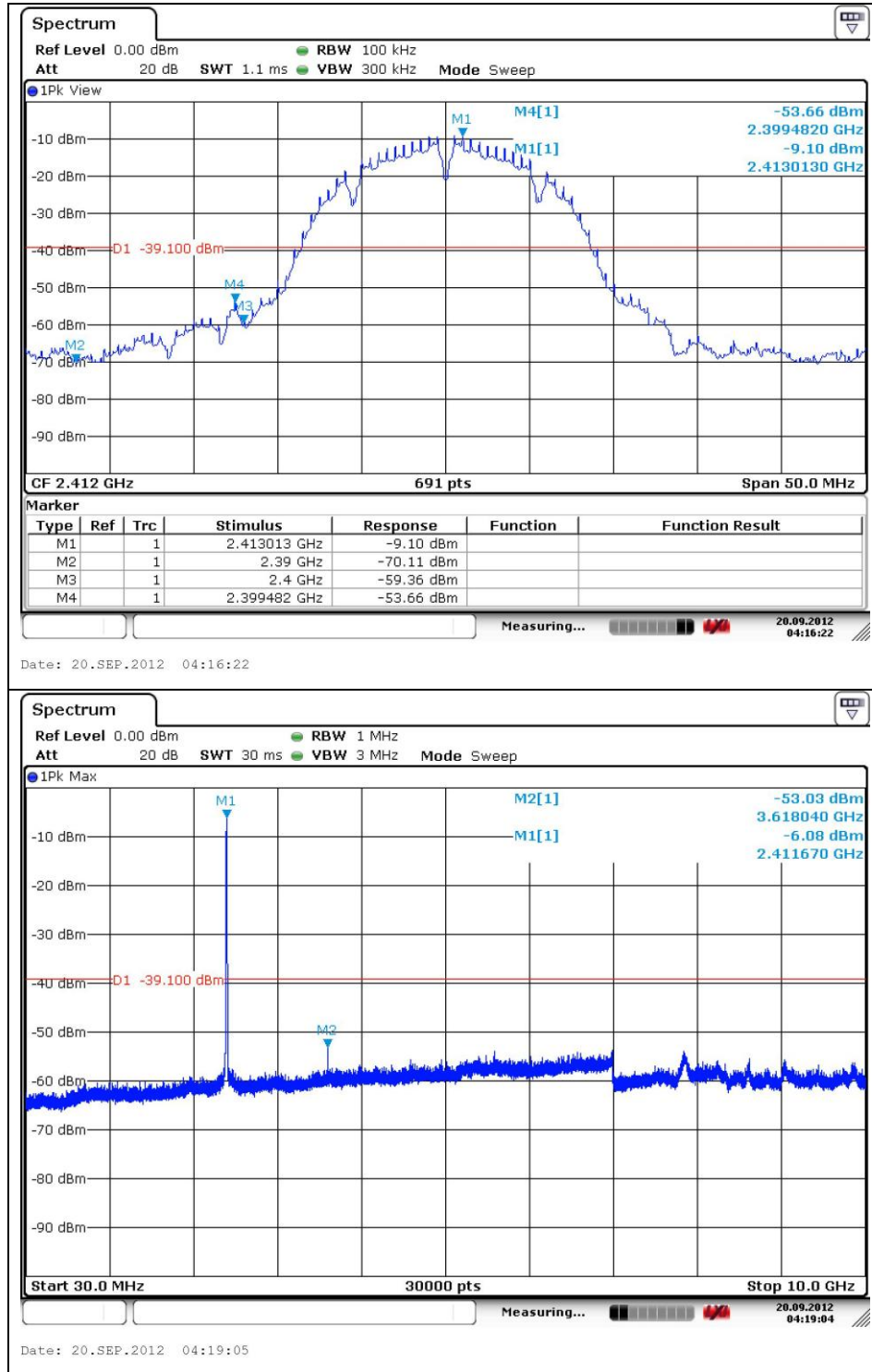
1. "*" means the restricted band.
2. Radiated emissions measured in frequency above 1 000 MHz were made with an instrument using peak/average detector mode.
3. Actual = Reading + AF + AMP + CL

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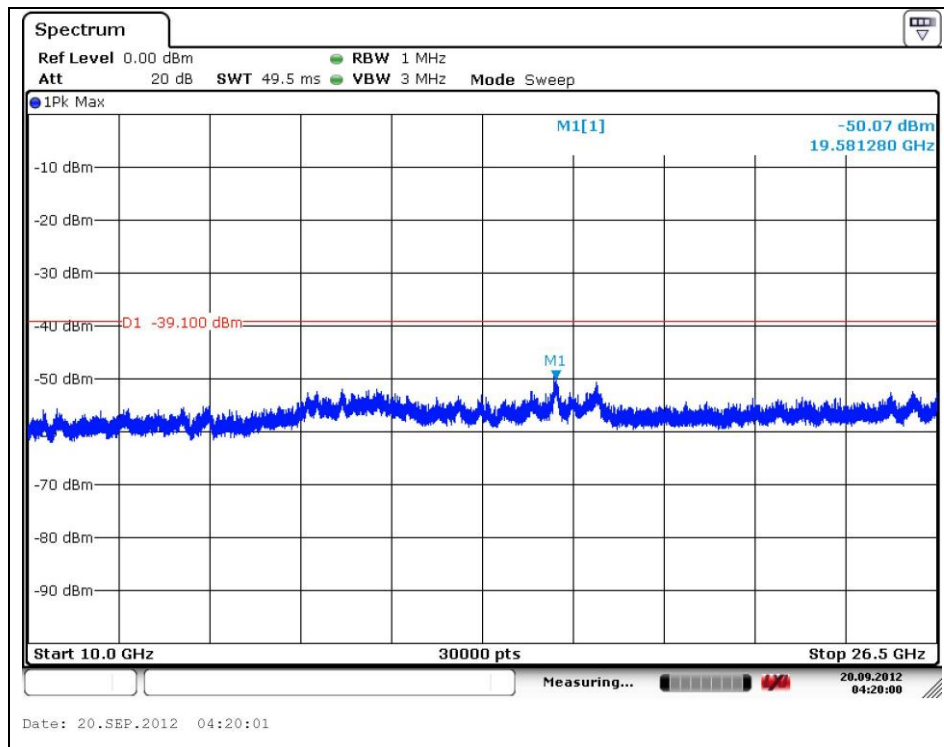
2.4.3. Spurious RF Conducted Emissions: Plot of Spurious RF Conducted Emission

DSSS : 802.11b(1 Mbps)

Low Channel



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Note:

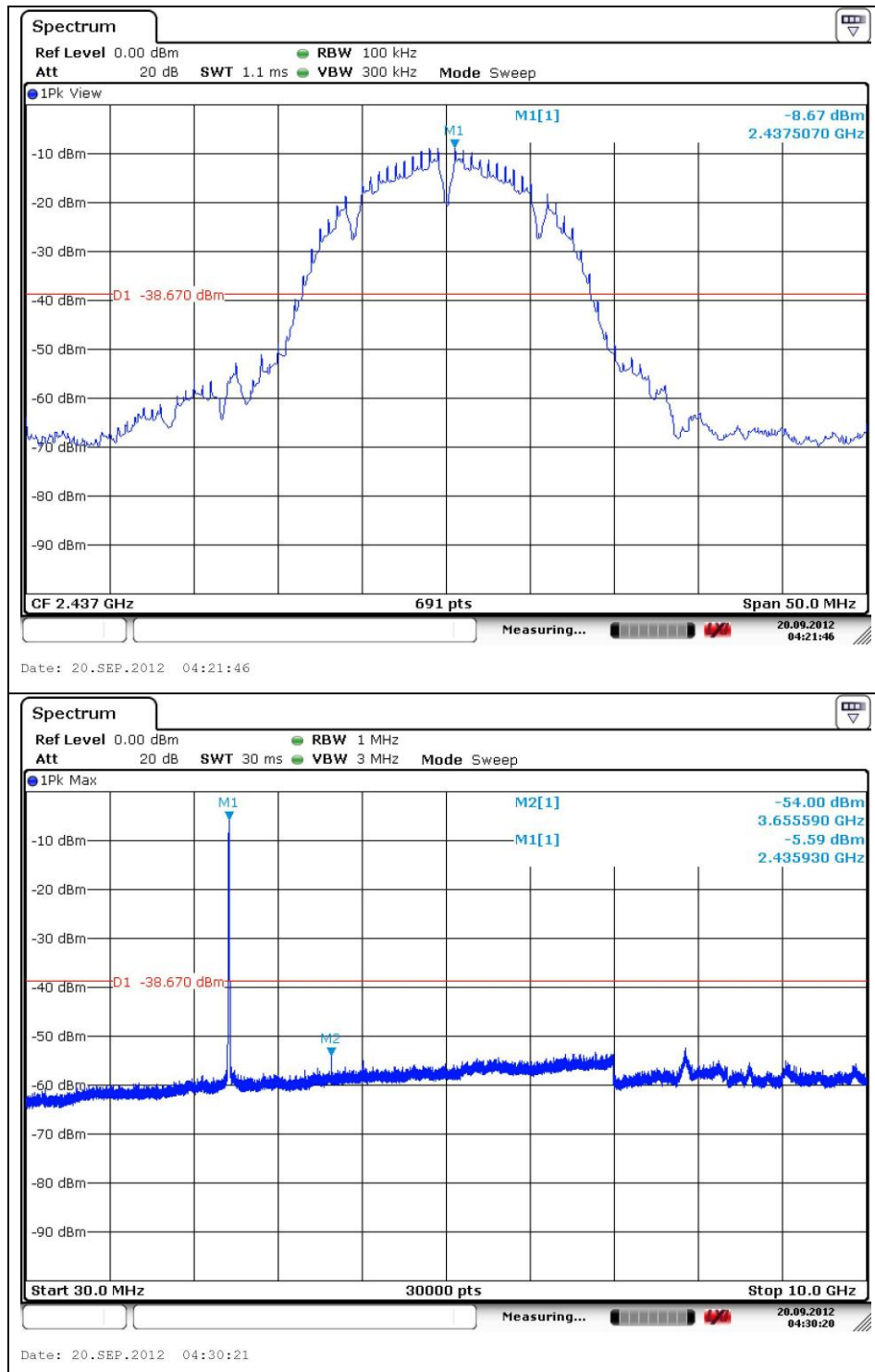
Offset (dB) = Power Divider (dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

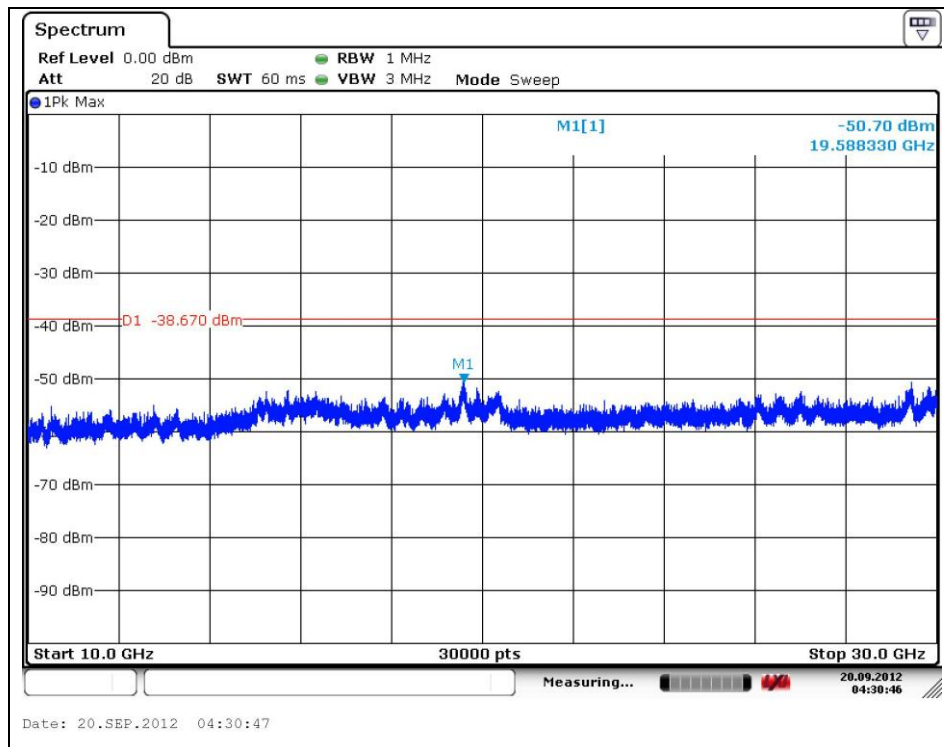
Frequency (MHz)	Spurious offset (dB)	Reading values (dB m)	Result (dB m)
2 390.00	16.84	-70.11	-53.27
2 399.48	16.85	-53.66	-36.81
2 400.00	16.88	-59.36	-42.48
3 618.40	17.49	-53.03	-35.54
19 581.28	-	Noise floor	-

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Middle Channel



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Note:

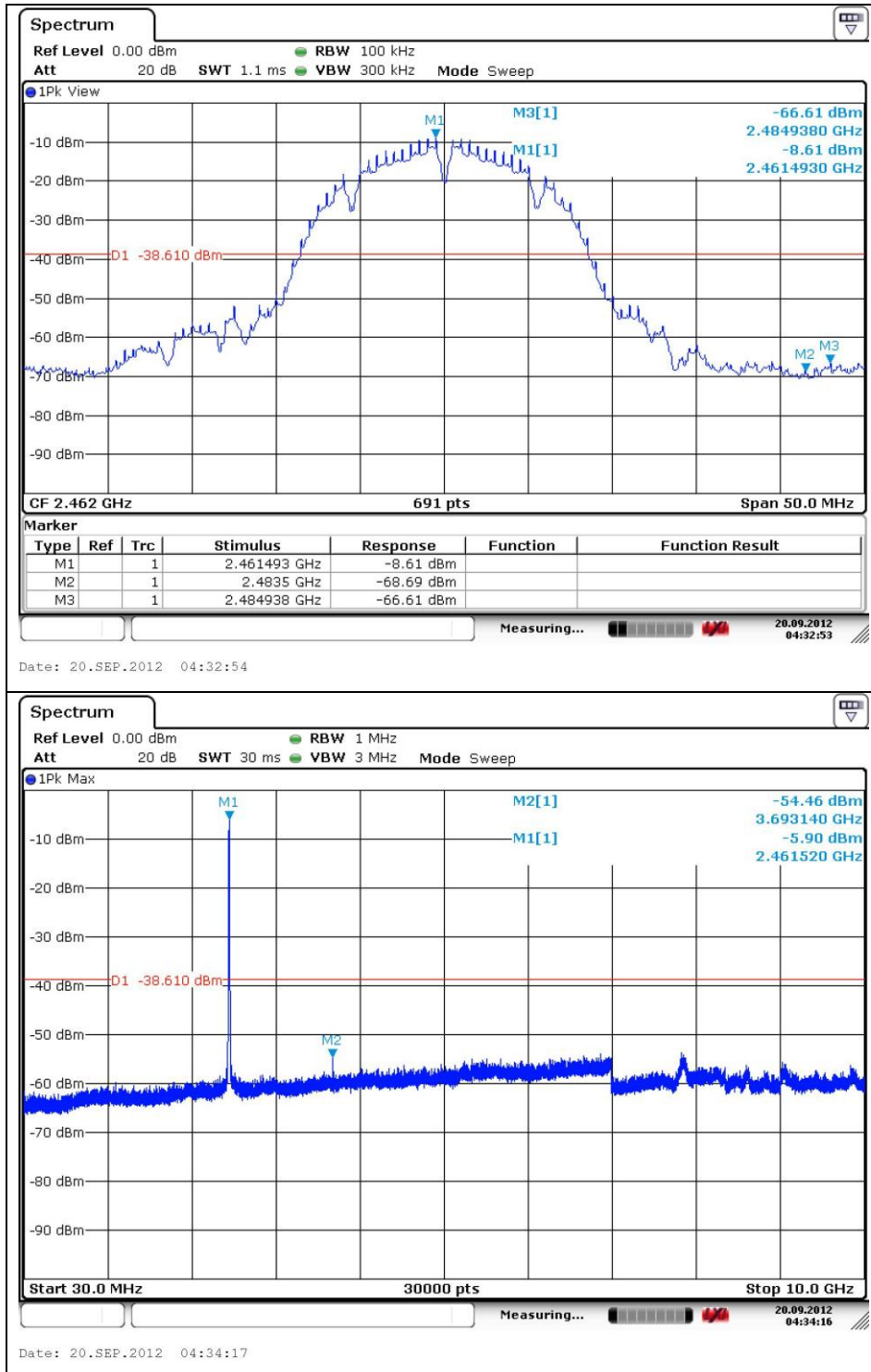
Offset (dB) = Power Divider (dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

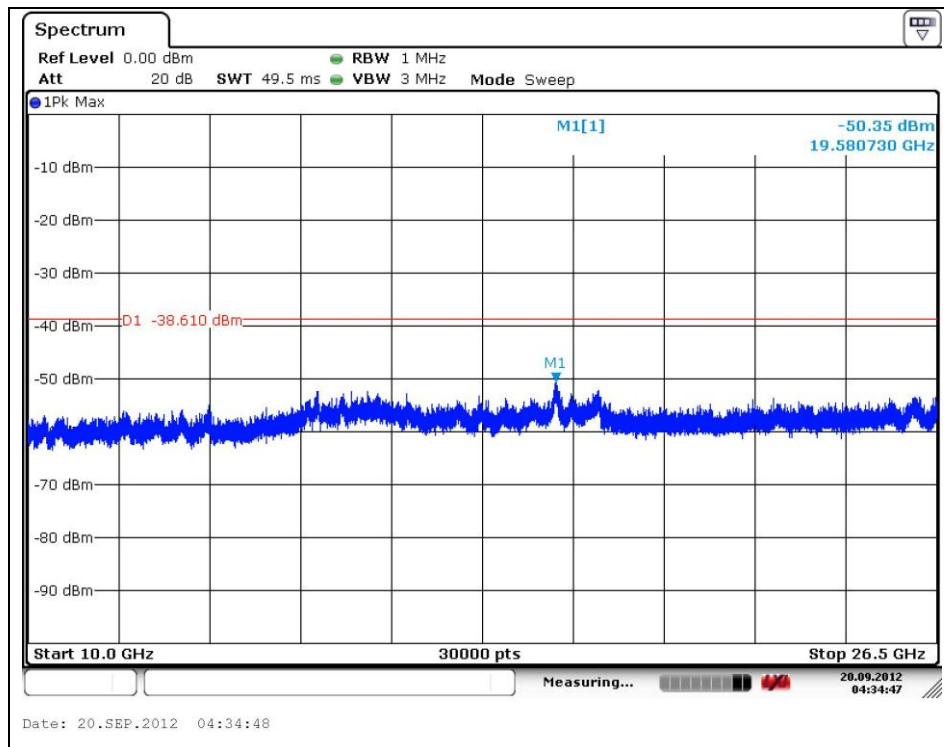
Frequency (MHz)	Spurious offset (dB)	Reading values (dB m)	Result (dB m)
3 655.59	17.50	-54.00	-36.5
19 588.33	-	Noise floor	-

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High Channel



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Note:

Offset (dB) = Power Divider (dB) + Cable loss (dB)

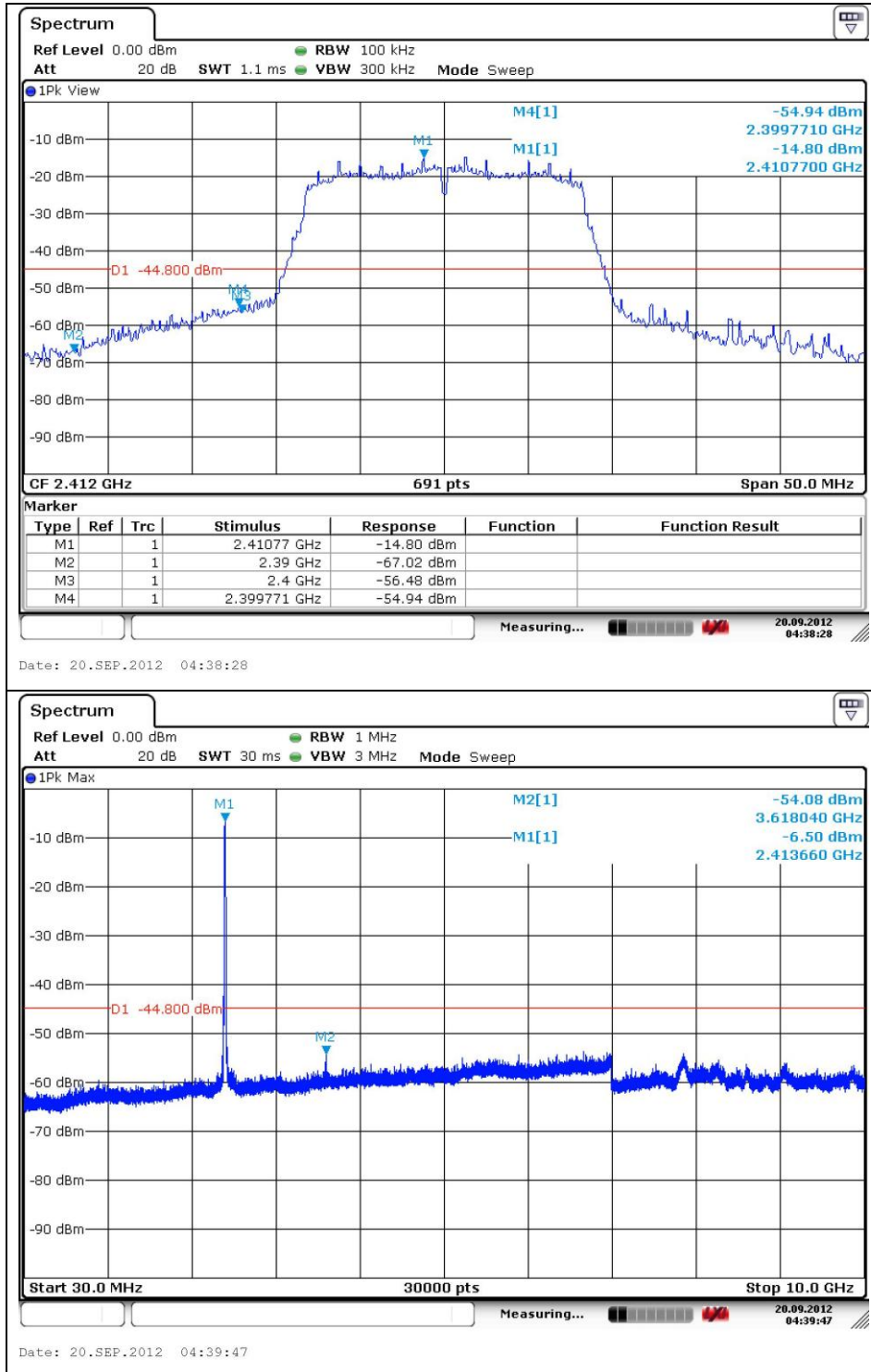
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Spurious offset (dB)	Reading values (dB m)	Result (dB m)
2 483.50	16.91	-68.69	-51.78
3 693.14	17.60	-54.46	-36.86
19 580.73	-	Noise floor	-

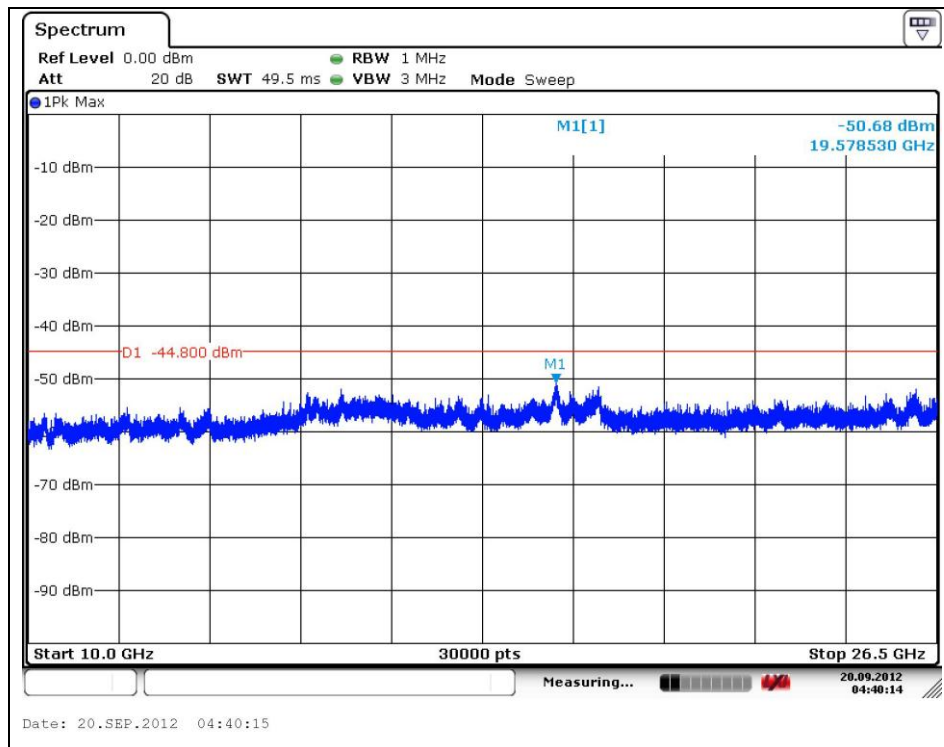
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OFDM : 802.11g(6 Mbps)

Low Channel



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Note:

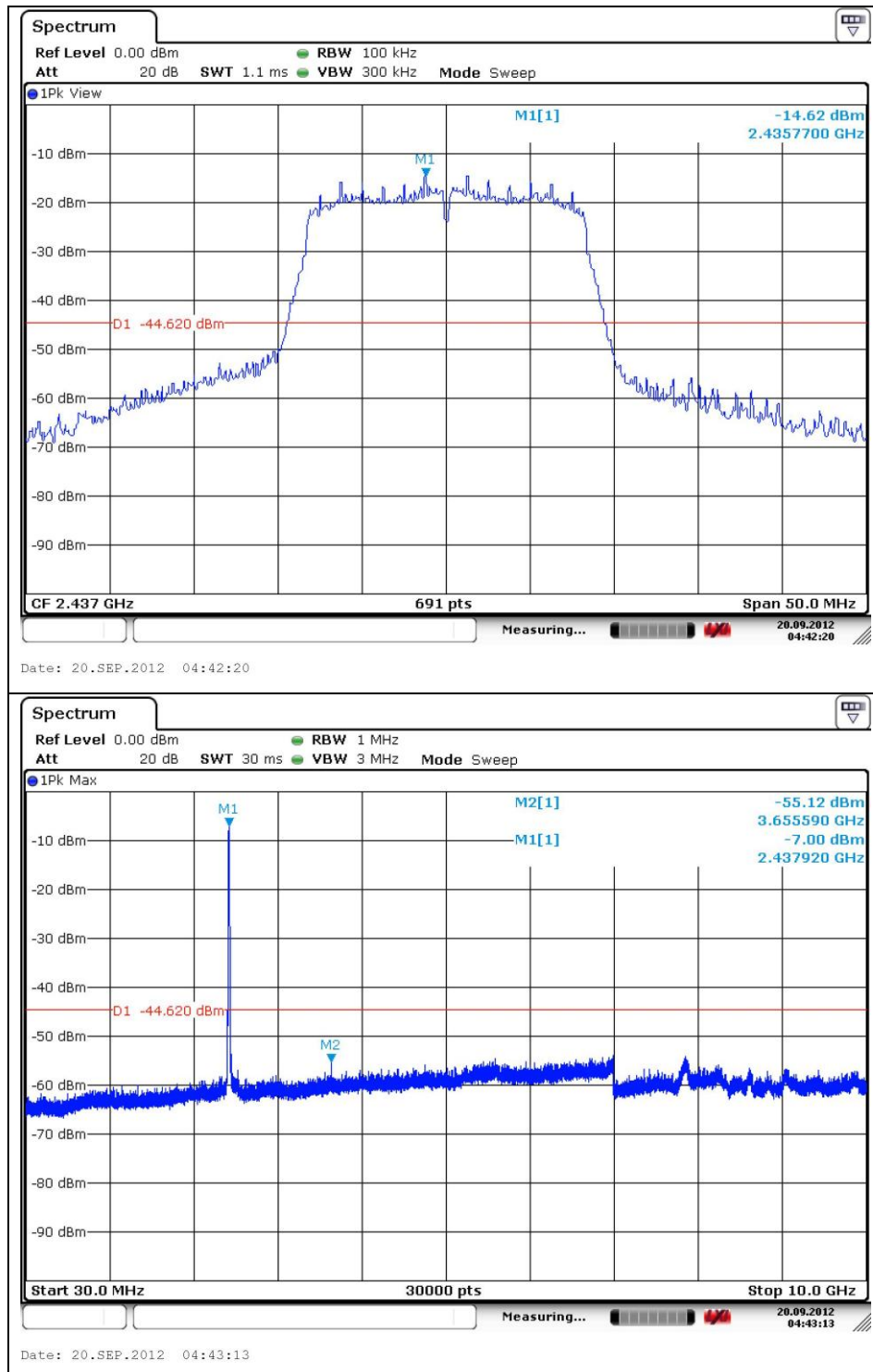
Offset (dB) = Power Divider (dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

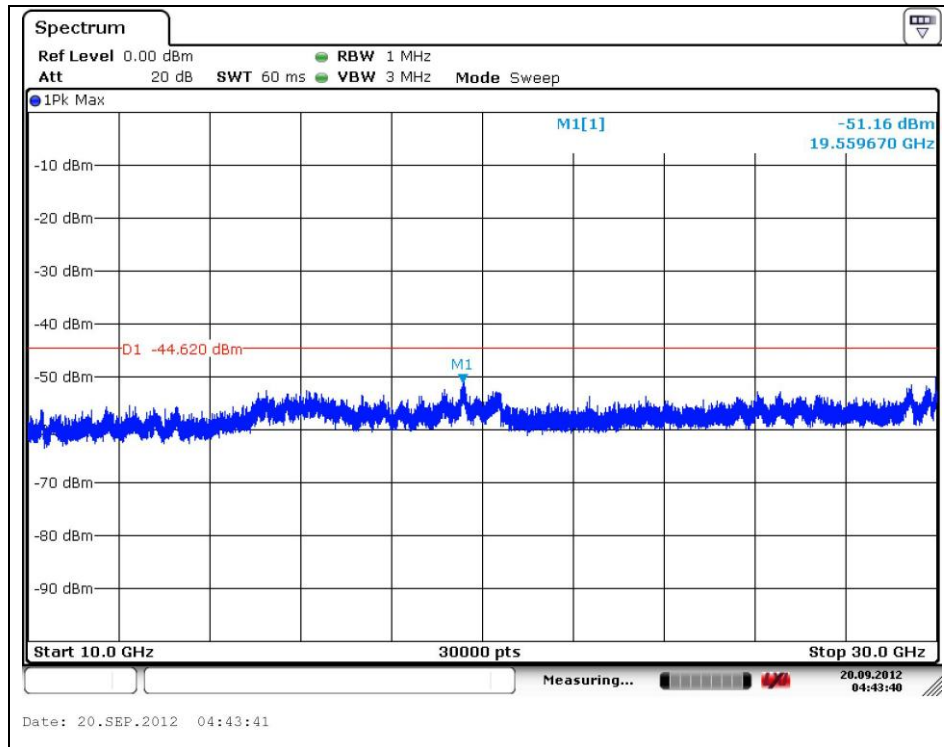
Frequency (MHz)	Spurious offset (dB)	Reading values (dB m)	Result (dB m)
2 390.00	16.84	-67.02	-50.18
2 399.77	16.85	-54.94	-38.09
2 400.00	16.88	-56.48	-39.60
3 618.04	17.49	-54.08	-36.59
19 580.73	-	Noise floor	-

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Middle Channel



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Note:

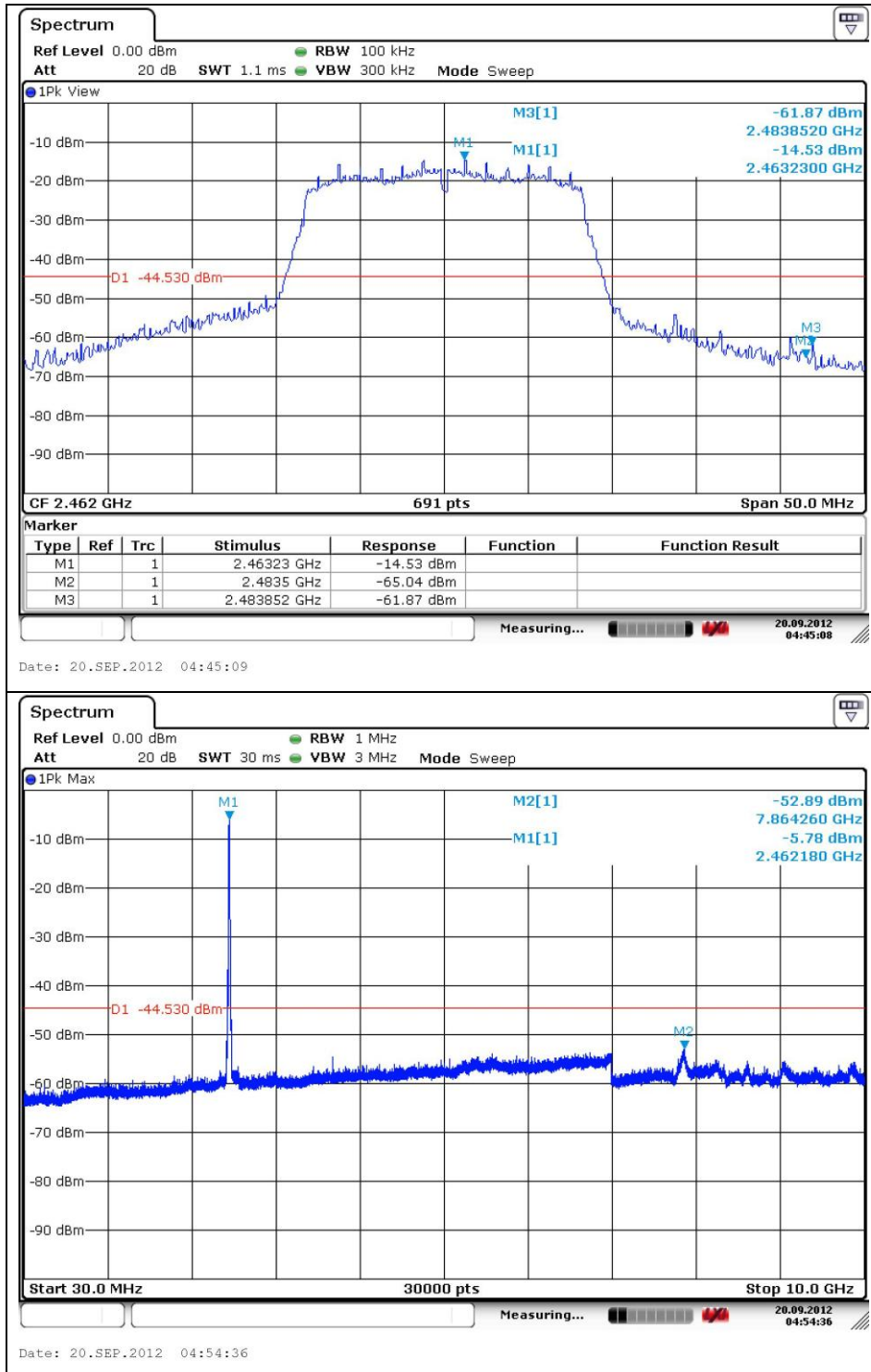
Offset (dB) = Power Divider (dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

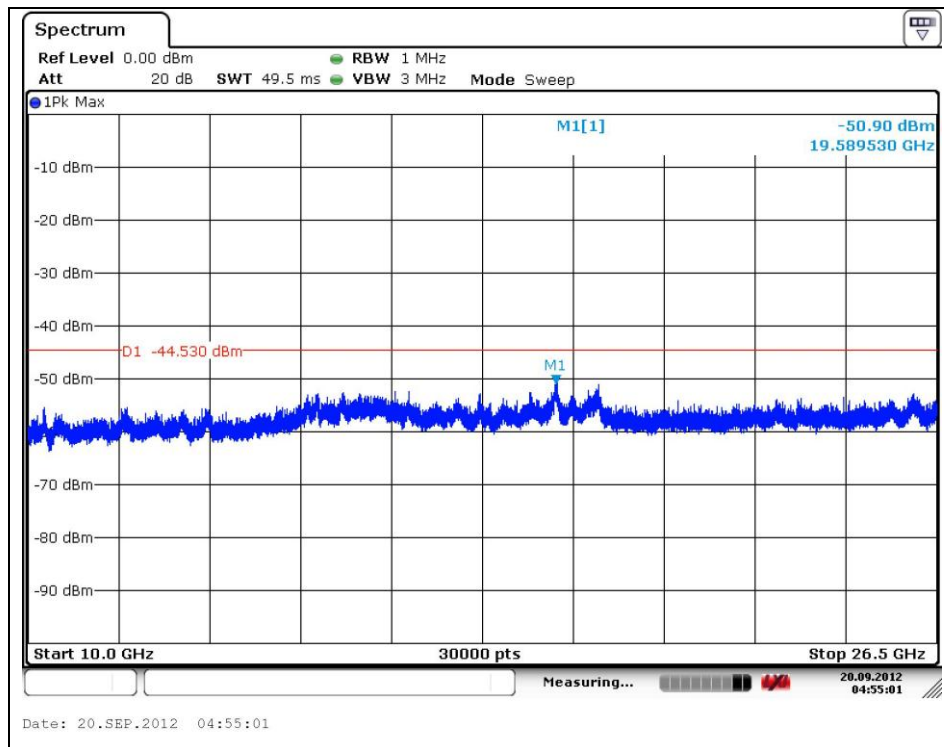
Frequency (MHz)	Spurious offset (dB)	Reading values (dB m)	Result (dB m)
3 655.59	17.50	-55.12	-37.62
19 559.67	-	Noise floor	-

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High Channel



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Note:

Offset (dB) = Power Divider (dB) + Cable loss (dB)

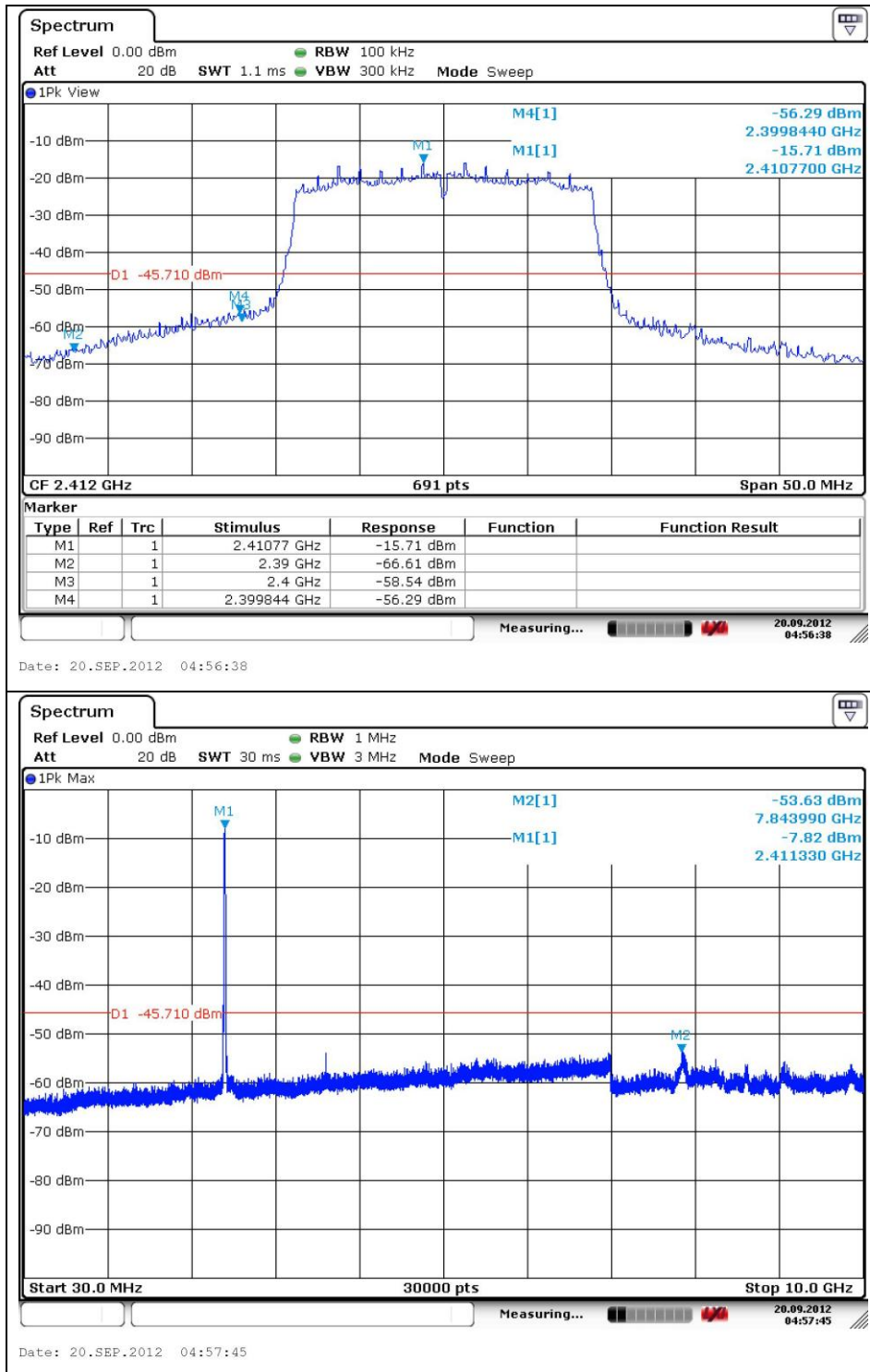
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Spurious offset (dB)	Reading values (dB m)	Result (dB m)
2 483.50	16.61	-65.04	-48.43
2 483.85	16.62	-61.87	-45.25
7 864.26	19.21	-52.89	-33.68
19 589.53	-	Noise floor	-

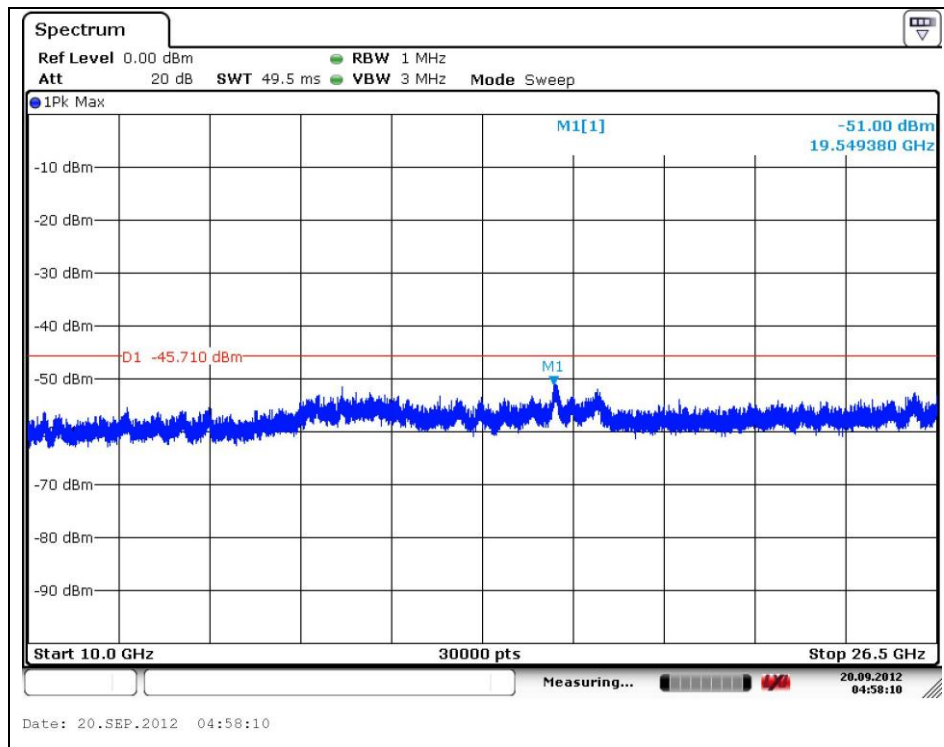
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

OFDM : 802.11n_HT20(MCS0)

Low Channel



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Note:

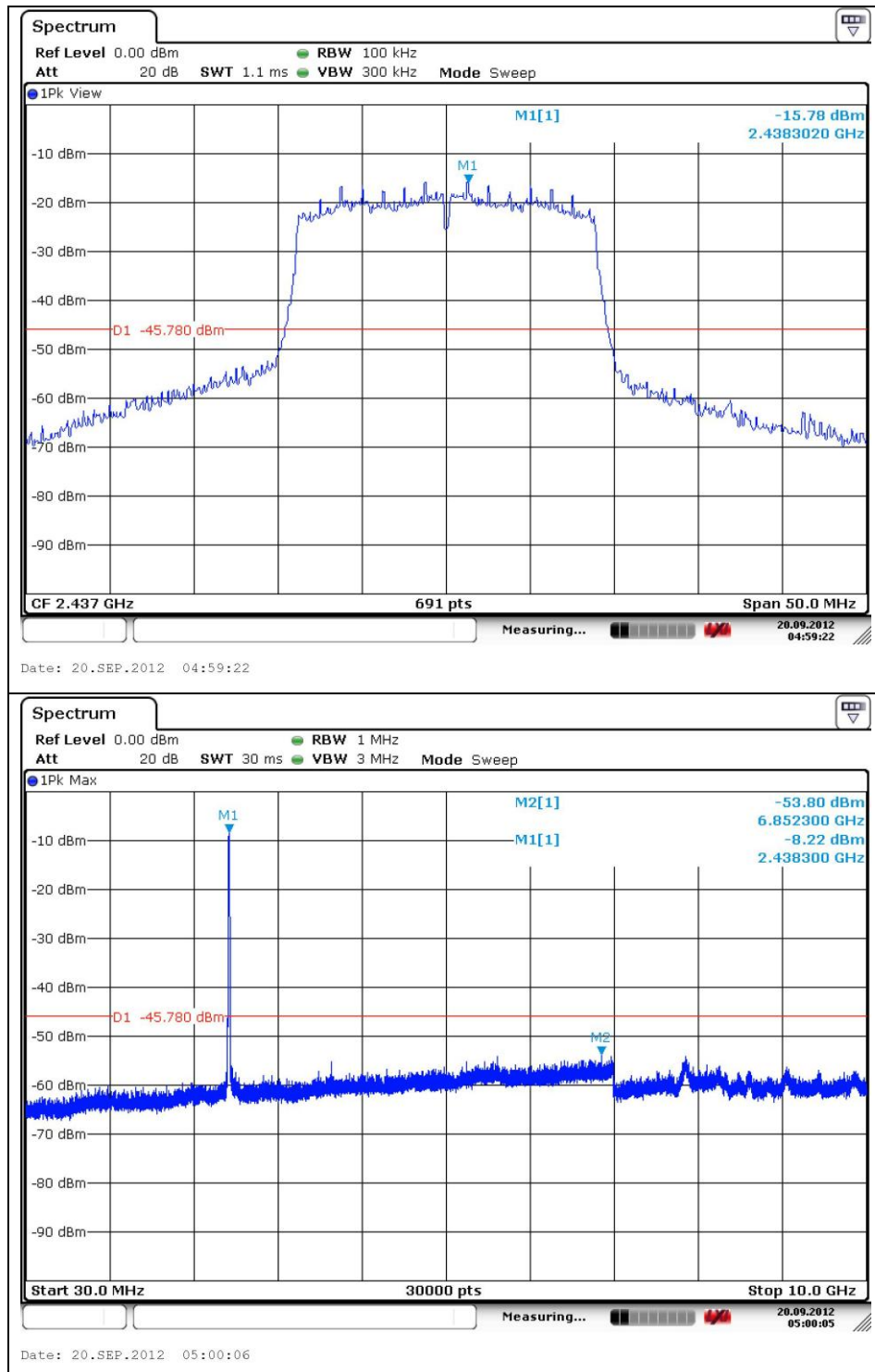
Offset (dB) = Power Divider (dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

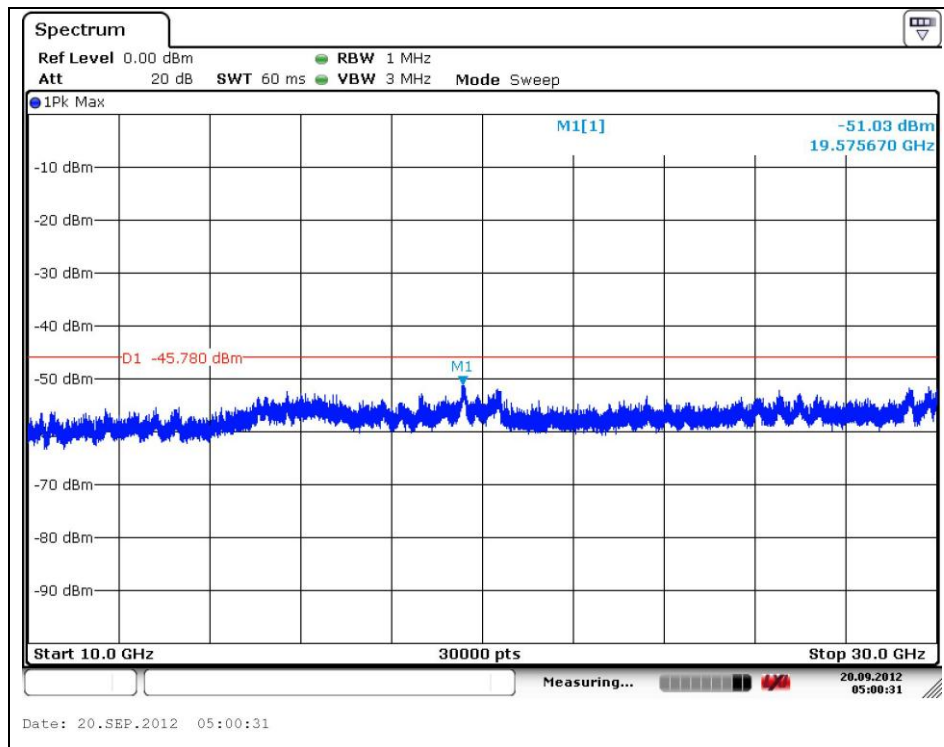
Frequency (MHz)	Spurious offset (dB)	Reading values (dB m)	Result (dB m)
2 390.00	16.84	-66.61	-49.77
2 399.84	16.86	-56.29	-39.43
2 400.00	16.88	-58.54	-41.66
7 843.99	19.22	-53.63	-34.41
19 549.38	-	Noise floor	-

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Middle Channel



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Note:

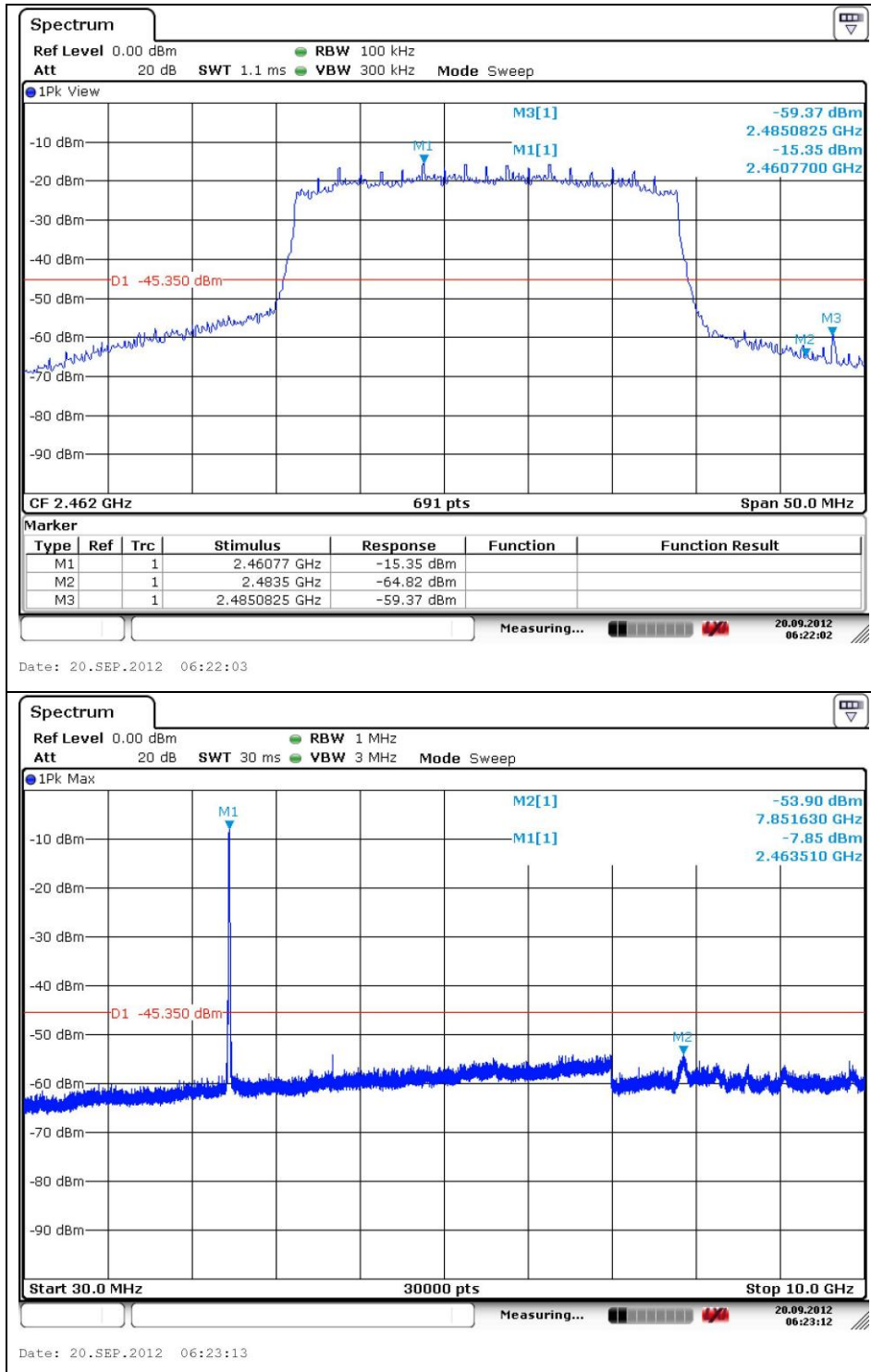
Offset (dB) = Power Divider (dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

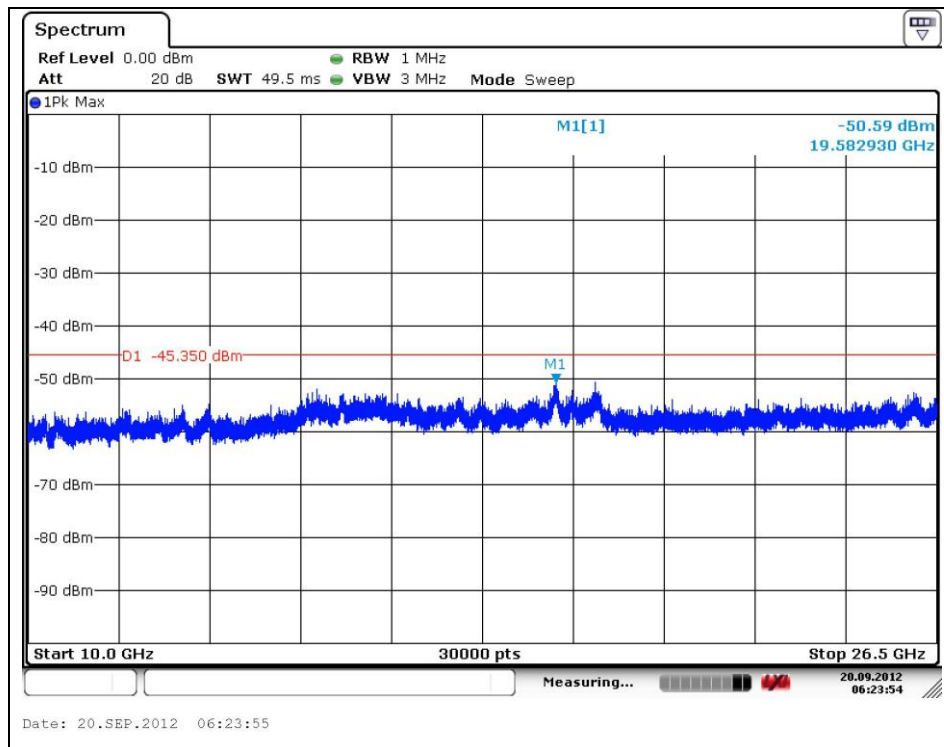
Frequency (MHz)	Spurious offset (dB)	Reading values (dB m)	Result (dB m)
6 852.30	18.43	-53.80	-35.37
19 575.67	-	Noise floor	-

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High Channel



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Note:

Offset (dB) = Power Divider (dB) + Cable loss (dB)

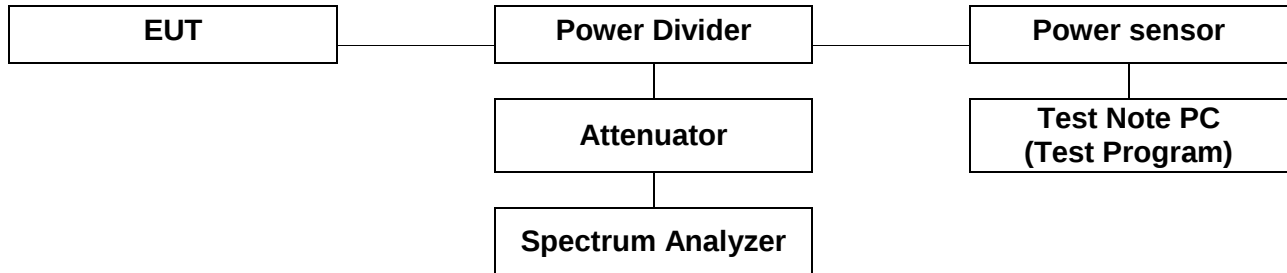
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Spurious offset (dB)	Reading values (dB m)	Result (dB m)
2 483.50	16.61	-64.82	-48.21
2 485.08	16.62	-59.37	-42.75
7 851.63	19.22	-53.90	-34.68
19 582.93	-	Noise floor	-

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3. 6 dB Bandwidth Measurement

3.1. Test Setup



3.2. Limit

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 ~928 MHz, 2 400 ~ 2 483.5 MHz, and 5 725 ~ 5 825 MHz bands. The minimum of 6 dB Bandwidth shall be at least 500 kHz

3.3. Test Procedure

All data rates and modes were investigated for this test. The full data for the worst case data rate are reported in this section.

The test follows section 5.1 of FCC KDB Publication 558074

1. Set resolution bandwidth (RBW) = 1 – 5 % of the emission bandwidth (EBW).
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude point (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Compare the resultant bandwidth with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is 1 – 5 %.

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3.4. Test Results

Ambient temperature : (24 ± 2) °C
Relative humidity : 47 % R.H.

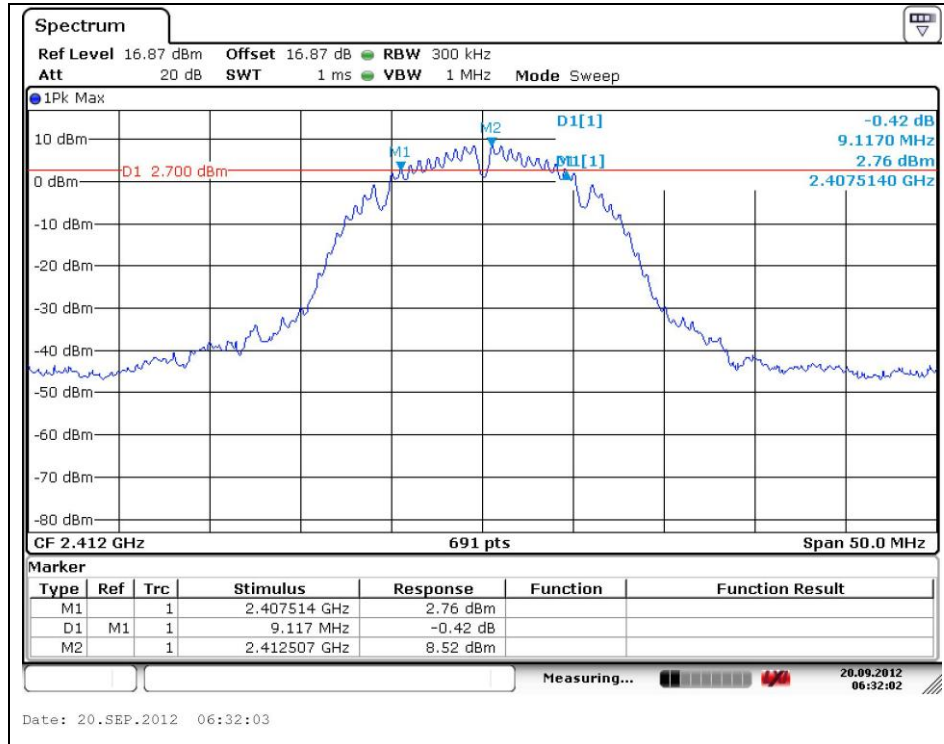
Operation Mode	Data Rate (Mbps)	Channel	Channel Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
DSSS (802.11b)	1	Low	2 412	9.12	0.5
		Middle	2 437	9.12	
		High	2 462	9.12	
OFDM (802.11g)	6	Low	2 412	15.99	
		Middle	2 437	15.77	
		High	2 462	15.77	
OFDM (802.11n_HT20)	MCS0	Low	2 412	17.44	
		Middle	2 437	17.44	
		High	2 462	17.37	

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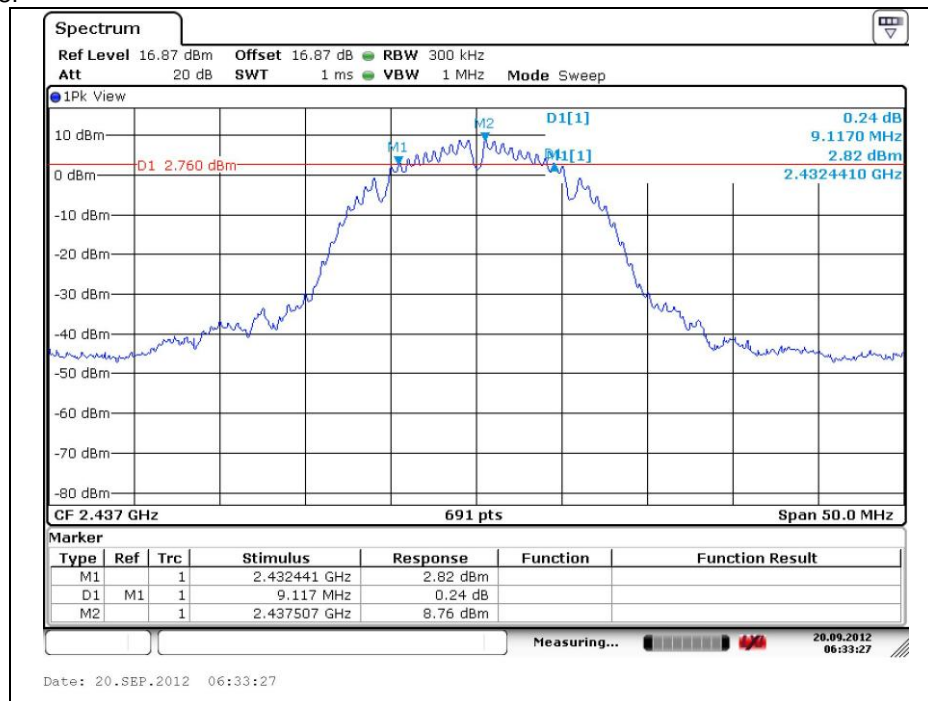
6 dB Bandwidth

DSSS : 802.11b

Low Channel

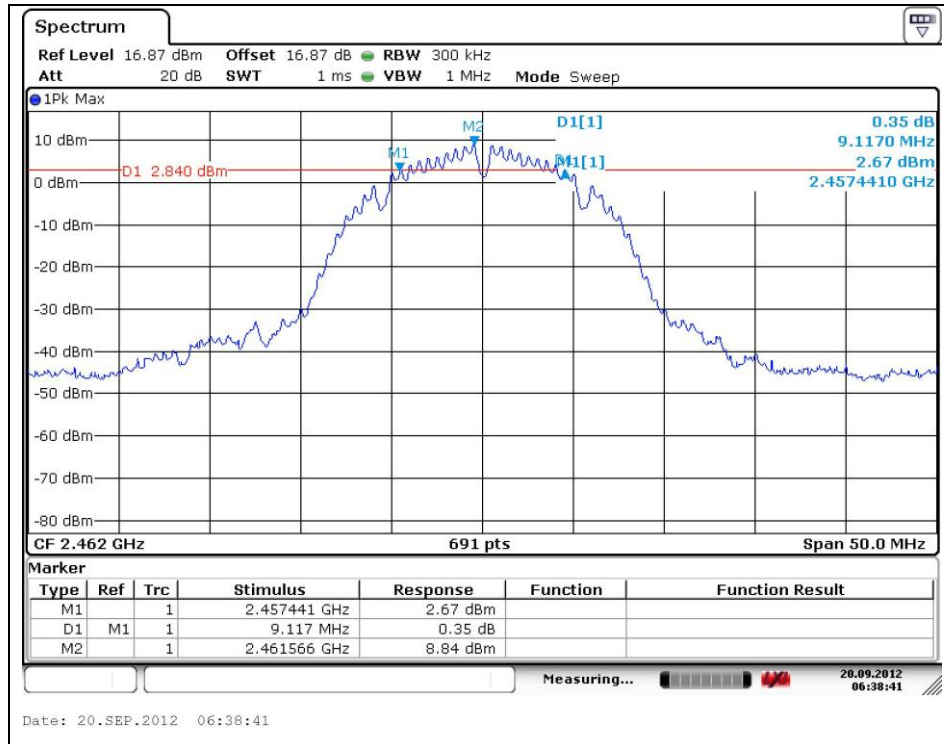


Middle Channel



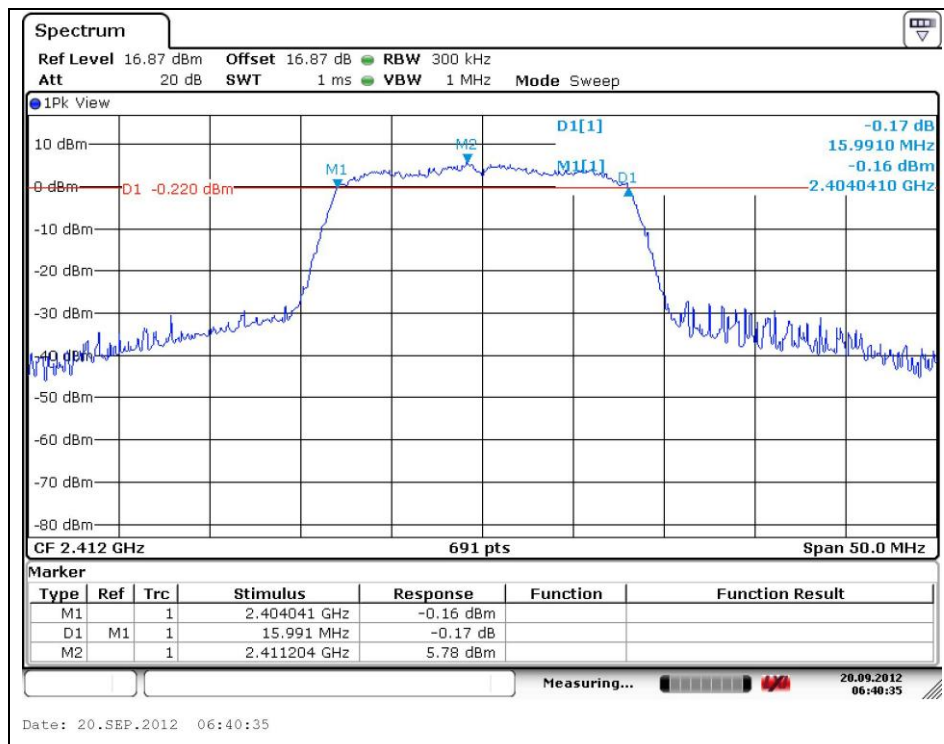
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High Channel



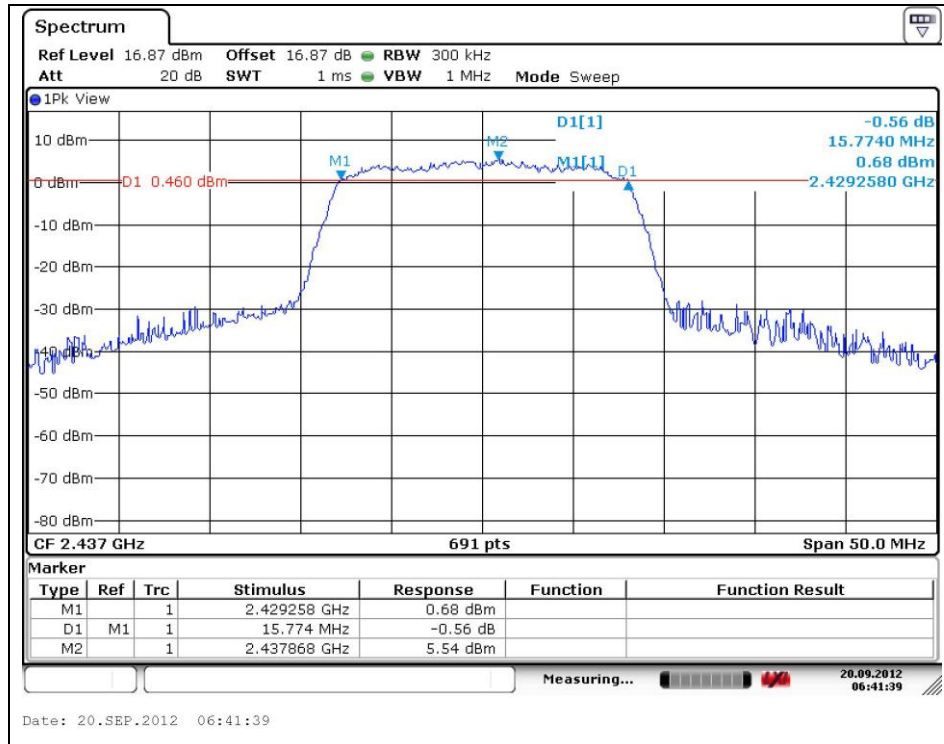
OFDM : 802.11g

Low Channel

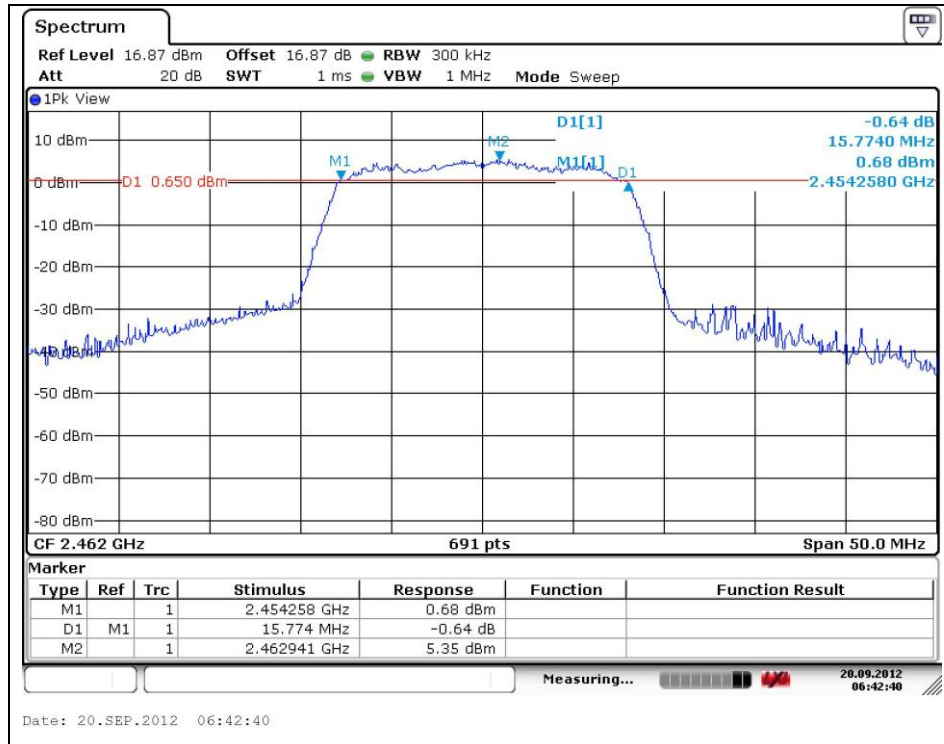


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Middle Channel



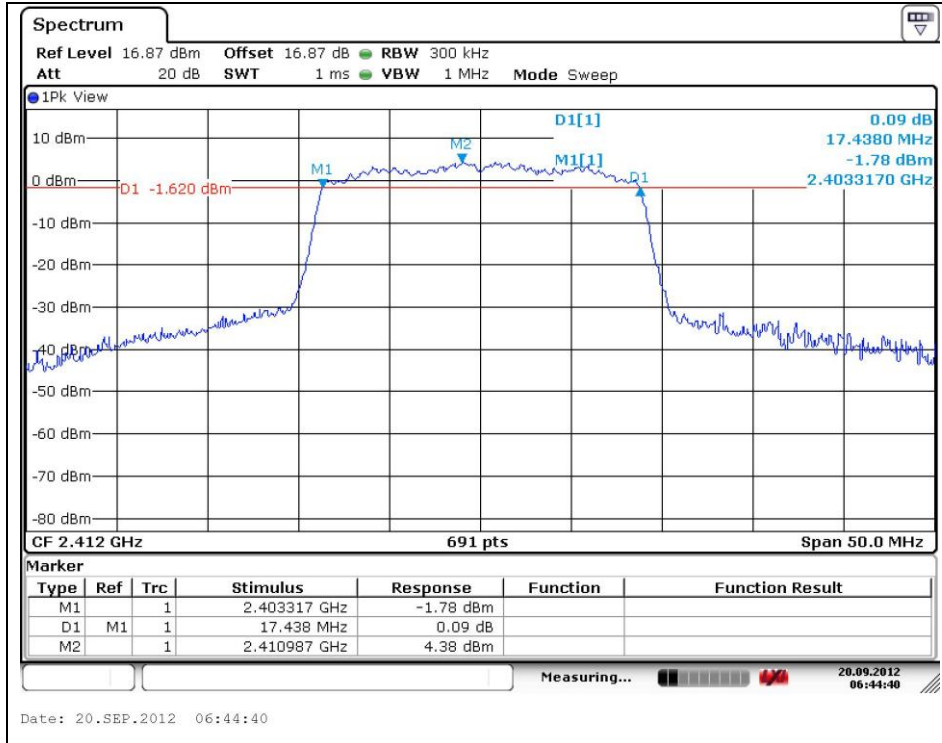
High Channel



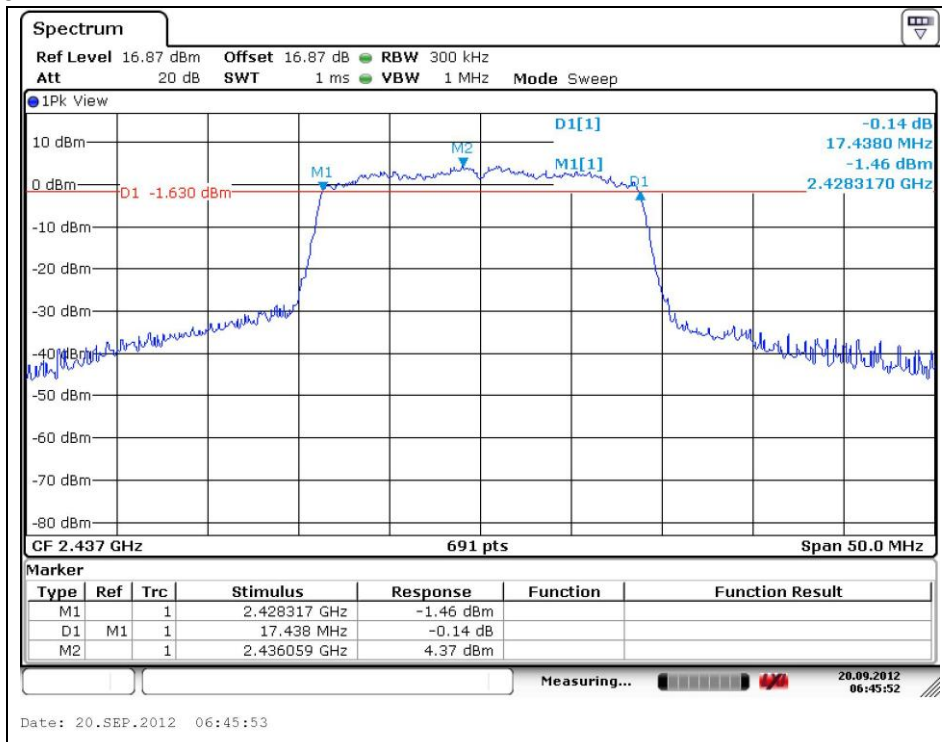
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OFDM : 802.11n_HT20

Low Channel



Middle Channel



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