TEST REPORT

Report Number		RAPA13-O-731
Type of Equipment		Keyless Entry System
Model Name		AR2WT10R-SS
FCC ID		VA5RCD300-2WSS
IC Number		7087A-2WRCD300WSS
Applicant	Name	SEGI LIMITED
	Logo	SEGI
	Address	UNIT F, 7/F, CENTURY INDUSTRIAL CENTER, 33-35 AU PUI WAN STREET, SHANTIN, NT, HONGKONG
Manufacturer	Name	SEGI ELECTRONICS CO., LTD
	Address	Chenjiapucun, Liaobu Town, Dongguan City, Guangdong Province, P.R.China
Test period		October 28, 2013 to November 13, 2013
Issuing date of report		November 21, 2013
Total page		39 pages (including this page)

SUMMARY

The equipment complies with FCC Part 15.247: Operation within the bands 902 MHz to 928 MHz, 2 400 MHz to 2 483.5 MHz, and 5 725 MHz to 5 850 MHz and IC RSS-210 Issue8 Annex 1-2010.

This test report contains only the results of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

Date : November 21, 2013

Prepared and tested by Tae Yang Yoon
Manager / TCL of RAPA

Date : November 21, 2013

Reviewed by Sukil Park
Executive Managing Director / TCL of RAPA

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1. GENERAL DESCRIPTION

1.1 Applicant

- Company name : SEGI LIMITED
- Address : UNIT F, 7/F, CENTURY INDUSTRIAL CENTER, 33-35 AU PUI WAN STREET, SHANTIN, NT, HONGKONG
- Contact person : Eui Seok Chung
- Phone/Fax : +82-32-623-5550 / +82-32-623-6667

1.2 Manufacturer

- Company name : SEGI ELECTRONICS CO., LTD
- Address : Chenjiapucun, Liaobu Town, Dongguan City, Guangdong Province, P.R.China
- Contact person : Eui Seok Chung
- Phone/Fax : +82-32-623-5550 / +82-32-623-6667

1.3 Basic description of EUT

- Product name : Keyless Entry System
- Model name : AR2WT10R-SS
- Serial number : N/A
- Frequency : 910.92 MHz ~ 919.08 MHz
- Number of channel(s) : 25 Channels
- Modulation method : FHSS
- FCC Rule Part(s) : FCC CFR47 Part 15 Subpart C Section 15.247
- IC Rule Part(s) : IC RSS-210 Issue8 Annex 8-2010
- FCC classification : DSS / Part 15 Spread Spectrum Transmitter (FHSS)
- IC classification : Annex 8 / Frequency Hopping and Digital Modulation Systems Operating in the bands 902 - 928 MHz, 2 400 - 2 483.5 MHz and 5 725 - 5 850 MHz
- Test period : October 28, 2013 to November 13, 2013
- Issuing date of report : November 21, 2013
- Place of test :

  Head office

  824 & B104, Anyang Megavalley, 799, Gwanyang-dong, Dongan-gu, Anyang-si, Gyeonggi-do 431-767, Korea

  Open area test site

  80, Jeil-ri, Yangji-myun, Cheoin-gu, Yongin-si, Gyeonggi-do 449-825, Korea

  (FCC Registration Number : 337229)

  (IC Submission Number : 143881)

  (KCC Designation Number : KR0027)

1.4 Electrical specification

Item	Specifications
Type of Equipment	Keyless Entry System
Model Name	AR2WT10R-SS
Transmit Frequency	910.92 MHz ~ 919.08 MHz (25 CH / 340 kHz Step)
Receive Frequency	910.92 MHz ~ 919.08 MHz (25 CH / 340 kHz Step)
Modulation Method	FHSS
Power Source	1.5 V(Alkaline Battery)
Size (mm)	34.0 x 67.3 x 15.9 mm (L x H x W)

2. General information of test

2.1 Standard for measurement methods

Applied Standard : FCC CFR47 Part 15 Subpart C, IC RSS-210 Issue8 Annex 8-2010				
FCC	**IC**	**Description of Test**	**Limit**	**Result**
15.209	RSS-210_2.2	Radiated Emission in Restricted Band	See 15.209	Pass
15.247(a)(1)	RSS-210_A8.1_B	Frequency Separation	≥ 20 dB Bandwidth	Pass
15.247(a)(1)(i)	RSS-210_A8.1_C	Number of Hopping Channels	≥ 25 CH	Pass
15.247(a)(1)(i)	RSS-210_A8.1_C	Occupied Bandwidth	≤ 500 kHz	Pass
15.247(a)(1)(i)	RSS-210_A8.1_C	Average Time of Occupancy	≤ 0.4 s within 10 s	Pass
15.247(b)(2)	RSS-210_A8.4_1	Maximum Peak Output Power	≤ 0.25 Watt	Pass
15.247(d)	RSS-210_A8.5	Conducted Emission & Band Edge	≥ 20 dBc	Pass

2.2 Description of EUT modification

During the test, there was no mechanical or circuitry modification to improve any RF specification including spurious characteristic, and any RF and spurious suppression device(s) were not added against the device tested.

2.3 Description of test system configuration

• Peripheral equipment used;

Description	Model name	Serial No.	Manufacturer	FCC ID	IC Number
EUT	AR2WT10R-SS	N/A	SEGI	VA5RCD300-2WSS	7087A-2WRCD300WSS

• Cables used

Device from	Device to	Type of cable	Type of connector	Length
-	-	-	-	-

3. Measurement data

3.1 Radiated emission in restricted band

3.1.1 Definitions

A radiated emission is a emission from the equipment when transmitting into antnna on frequencies that are restricted band sufficient to ensure transmission of information of required quality for the class of communications desired.

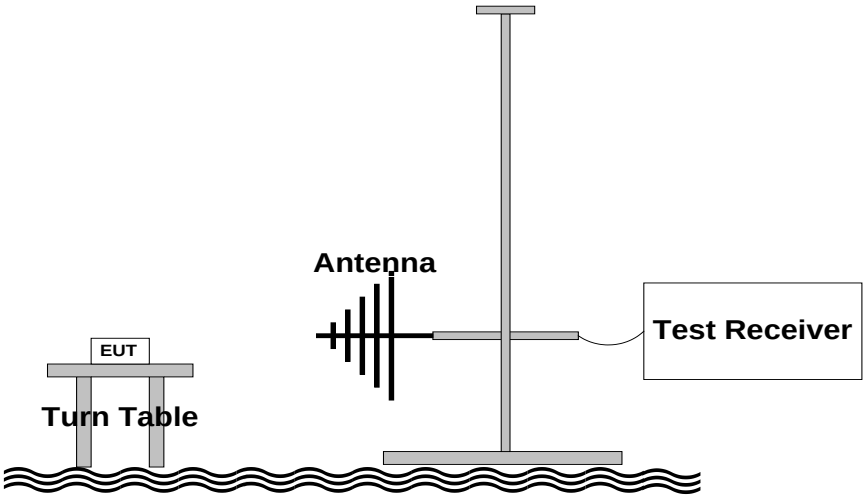
3.1.2 Specification

• FCC Rules Part 15 Subpart C Section 15.209
• IC Rules RSS-210 Section 2.2

3.1.3 Measurement method

• ANSI Standard C63.4-2003 8.3

3.1.4 Set-up



3.1.5 Test equipment list

Equipment	Model name	Manufacturer
EUT	AR2WT10R-SS	SEGI
Test Receiver	ESCI 7	Rohde & Schwarz
Loop antenna	EMCO 6502	EMCO
Bi-conical antenna	VHA9103	Schwarzbeck
Log periodic antenna	VULP9118A	Schwarzbeck
Horn Antenna	BBHA-9120D	Schwarzbeck

3.1.6 Test procedure

The EUT is placed on a turntable, which is 0.8 meter high above ground.
The turntable rotates 360 degrees to determine the position of the maximum emission level.

EUT is set 3.0 meters away from the receiving antenna, broadband antenna, which is mounted on an antenna mast. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level form the EUT. Both horizontal and vertical polarizations of the antenna are set on measurement.

In order to find out the maximum emission levels, all of the EUT location were manipulated according to ANSI 63.4 during the radiated emission measurement. The EUT was tested to 3 orthogonal planes.

The RBW of test receiver is 120 kHz between 30 to 1 000 MHz, and 1 MHz above 1 GHz.

3.1.7 Test condition

- Test place : Open area test site
- Test environment : 25.7.0 °C, 52 % R.H.
- Test mode : Operation at single channel

3.1.8 Limit

Frequency [MHz]	Field Strength [μV/m]	Field Strength [dBμV/m]	Measurement Distance [m]
0.009 – 0.490	2 400 / F(kHz)	48.52 to 13.80	300
0.490 – 1.705	2 4000 / F(kHz)	33.80 to 22.97	30
1.705 – 30.0	30	29.54	30
30 – 88	100	40.00	3
88 – 216	150	43.52	3
216 – 960	200	46.02	3
Above 960	500	53.98	3

§15.205 and RSS-210(2.7 Table 1) : Restrict Band of Operation : Only spurious emissions are permitted in any of the frequency bands listed below ;

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
1) 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
8.4142 5 - 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

1) Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.

3.1.9 Test result

3.1.9.1 Transmitter mode

• Operation frequency: 910.92 MHz

Frequency [MHz]	Pol. [H/V]	Plane [X/Y/Z]	Detect mode [Peak/AVG]	Reading [dBμV]	Antenna factor [dB/m]	Cable loss [dB]	Pre-amp gain [dB]	Emission level [dBμV]	Limit [dBμV]	Margin [dB]
910.92	H	Y	Peak	78.9	22.6	4.1	0	105.6	-	-
910.92	H	Y	AVG	75.0	22.6	4.1	0	101.7	-	-

• Operation frequency: 915.00 MHz

Frequency [MHz]	Pol. [H/V]	Plane [X/Y/Z]	Detect mode [Peak/AVG]	Reading [dBμV]	Antenna factor [dB/m]	Cable loss [dB]	Pre-amp gain [dB]	Emission level [dBμV]	Limit [dBμV]	Margin [dB]
915.00	H	Y	Peak	79.0	22.6	4.1	0	105.7	-	-
915.00	H	Y	AVG	72.6	22.6	4.1	0	99.3	-	-

• Operation frequency: 919.08 MHz

Frequency [MHz]	Pol. [H/V]	Plane [X/Y/Z]	Detect mode [Peak/AVG]	Reading [dBμV]	Antenna factor [dB/m]	Cable loss [dB]	Pre-amp gain [dB]	Emission level [dBμV]	Limit [dBμV]	Margin [dB]
919.08	H	Y	Peak	77.9	22.6	4.1	0	104.6	-	-
919.08	H	Y	AVG	69.7	22.6	4.1	0	96.4	-	-

Remark: The other emissions were not detected.

3.1.9.2 Receive mode

• Operation frequency: 910.92 MHz

Frequency [MHz]	Pol. [H/V]	Plane [X/Y/Z]	Detect mode [Peak/AVG]	Reading [dBμV]	Antenna factor [dB/m]	Cable loss [dB]	Pre-amp gain [dB]	Emission level [dBμV]	Limit [dBμV]	Margin [dB]
	Signal is not detected.									

• Operation frequency: 915.00 MHz

Frequency [MHz]	Pol. [H/V]	Plane [X/Y/Z]	Detect mode [Peak/AVG]	Reading [dBμV]	Antenna factor [dB/m]	Cable loss [dB]	Pre-amp gain [dB]	Emission level [dBμV]	Limit [dBμV]	Margin [dB]
	Signal is not detected.									

• Operation frequency: 919.08 MHz

Frequency [MHz]	Pol. [H/V]	Plane [X/Y/Z]	Detect mode [Peak/AVG]	Reading [dBμV]	Antenna factor [dB/m]	Cable loss [dB]	Pre-amp gain [dB]	Emission level [dBμV]	Limit [dBμV]	Margin [dB]
	Signal is not detected.									

Remark: The other emissions were not detected.

3.2 Frequency separation

3.2.1 Definitions

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

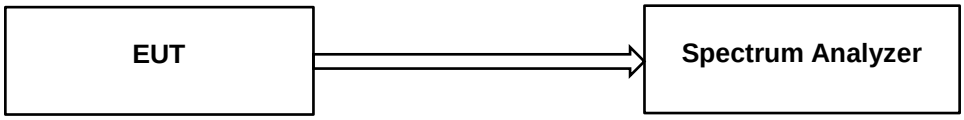
3.2.2 Specification

• FCC Rules Part 15 Subpart C Section 15.247(a)(1)
• IC Rules RSS-210 Issue8 Annex 8-2010 A8.1 B

3.2.3 Measurement method

• Public Notice “DA 00-705”

3.2.4 Set-up



3.2.5 Test equipment list

Equipment	Model name	Manufacturer
EUT	AR2WT10R-SS	SEGI LIMITED
Spectrum analyzer	FSV	Rohde & Schwarz

3.2.6 Test procedure

• The output of EUT was connected to the spectrum analyzer.
• The Hopping channel separation is defined as the channel is separated with next channel.

3.2.7 Test condition

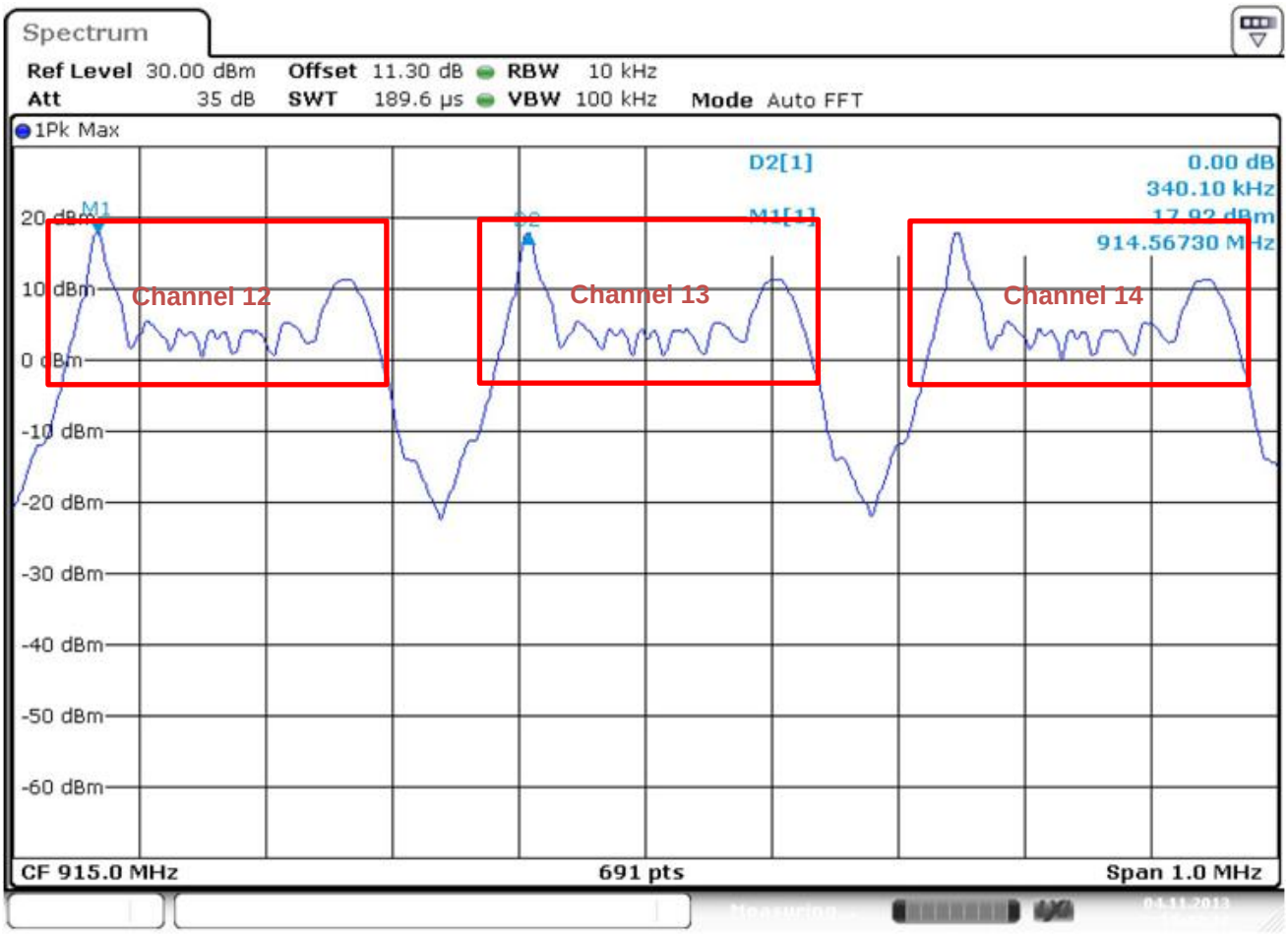
• Test place : Test room
• Test environment : 21.2 °C, 42 % R.H.
• Test mode : Operation at full hopping

3.2.8 Test result

Channel	Frequency separation [kHz]	Limit [kHz]
Full hopping	340.1	≥ 270.6

Remark: For the limit value, please refer to the maximum 20 dB Bandwidth value of section 3.4.8 in this report.

3.2.9 Plots of frequency separation



Operating frequency :	**Full hopping**
RBW :	**10 kHz**
VBW :	**100 kHz**
Detector mode :	**Peak**
Trace mode :	**Max hold**
Sweep time :	**Auto**
Frequency separation :	**340.1 kHz**

3.3 Number of hopping channels

3.3.1 Definitions

Frequency hopping systems operating in the 902 MHz - 928 MHz should employ at least 25 hopping channels.

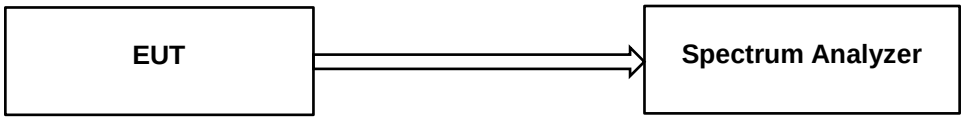
3.3.2 Specification

• FCC Rules Part 15 Subpart C Section 15.247(a)(1)(i)
• IC Rules RSS-210 Issue8 Annex 8-2010 A8.1 C

3.3.3 Measurement method

• Public Notice “DA 00-705”

3.3.4 Set-up



3.3.5 Test equipment list

Equipment	Model name	Manufacturer
EUT	AR2WT10R-SS	SEGI LIMITED
Spectrum analyzer	FSV	Rohde & Schwarz

3.3.6 Test procedure

• The output of EUT was connected to the spectrum analyzer.
• Measure the hopping channels of EUT using spectrum analyzer.
• With the analyzer set to max hold readings were taken for 1 ~ 2 minutes in each band.

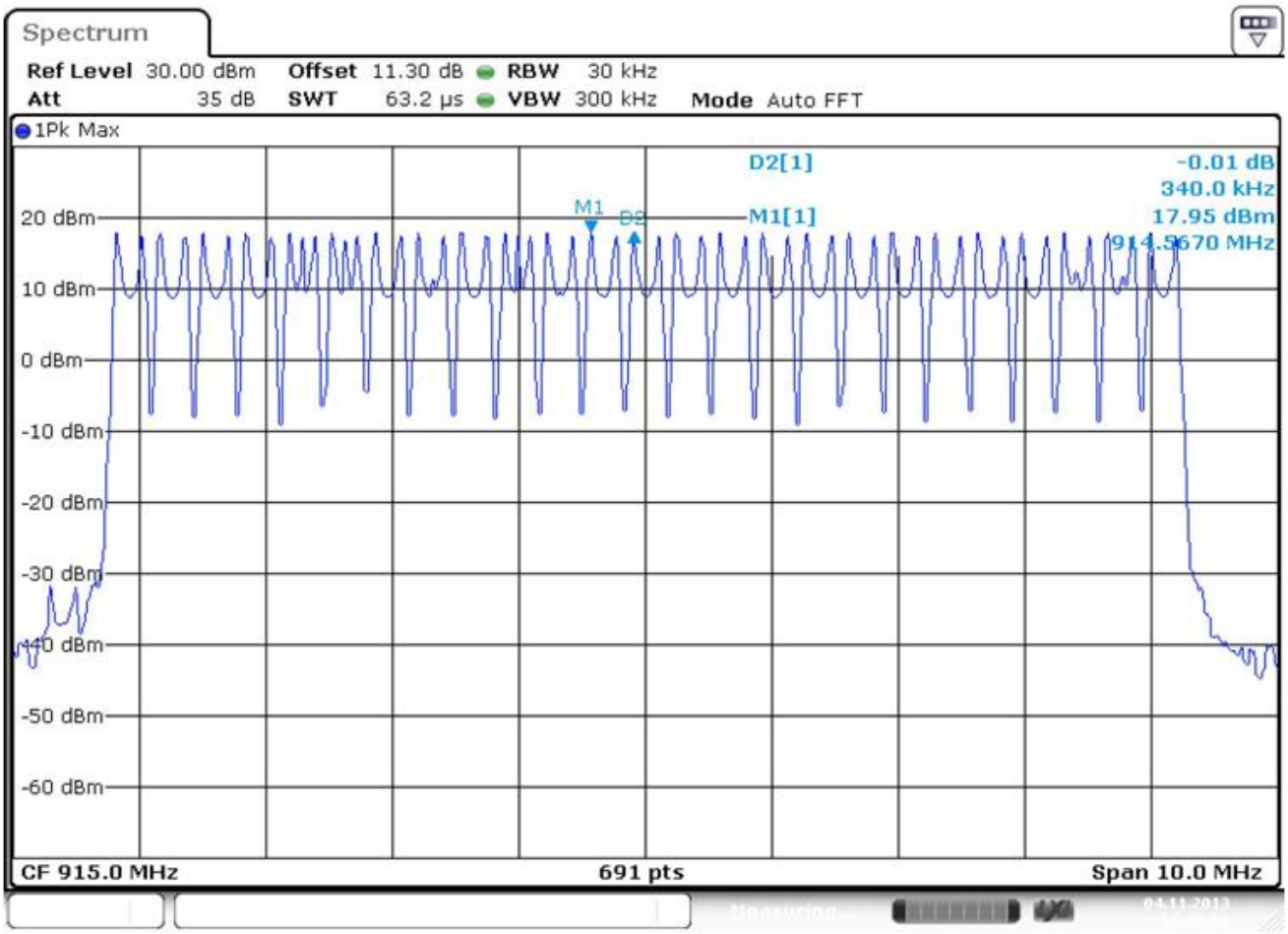
3.3.7 Test condition

• Test place : Test room
• Test environment : 21.5 °C, 42 % R.H.
• Test mode : Operation at full hopping

3.3.8 Test result

Channel	Number of hopping channels	Limit
Full hopping	25	≥ 25 Channels

3.3.9 Plots of number of hopping channels



Operating frequency :	**Full hopping**
RBW :	**30 kHz**
VBW :	**300 kHz**
Detector mode :	**Peak**
Trace mode :	**Max hold**
Sweep time :	**Auto**

Number of hopping channels : **25**

3.4 Occupied bandwidth

3.4.1 Definitions

A occupied bandwidth is width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each lower 20 dB of the total mean power of a given emission.

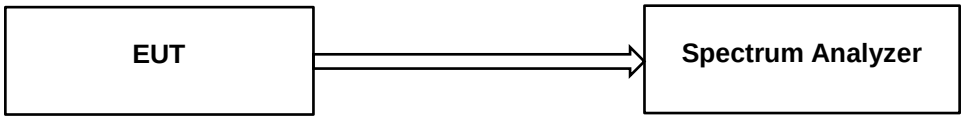
3.4.2 Specification

• FCC Rules Part 15 Subpart C Section 15.247(a)(1)(i)
• IC Rules RSS-210 Issue8 Annex 8-2010 A8.1 C

3.4.3 Measurement method

• Public Notice “DA 00-705”

3.4.4 Set-up



3.4.5 Test equipment list

Equipment	Model name	Manufacturer
EUT	AR2WT10R-SS	SEGI LIMITED
Spectrum analyzer	FSV	Rohde & Schwarz

3.4.6 Test procedure

• The output of EUT was connected to the spectrum analyzer.
• Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level.

3.4.7 Test condition

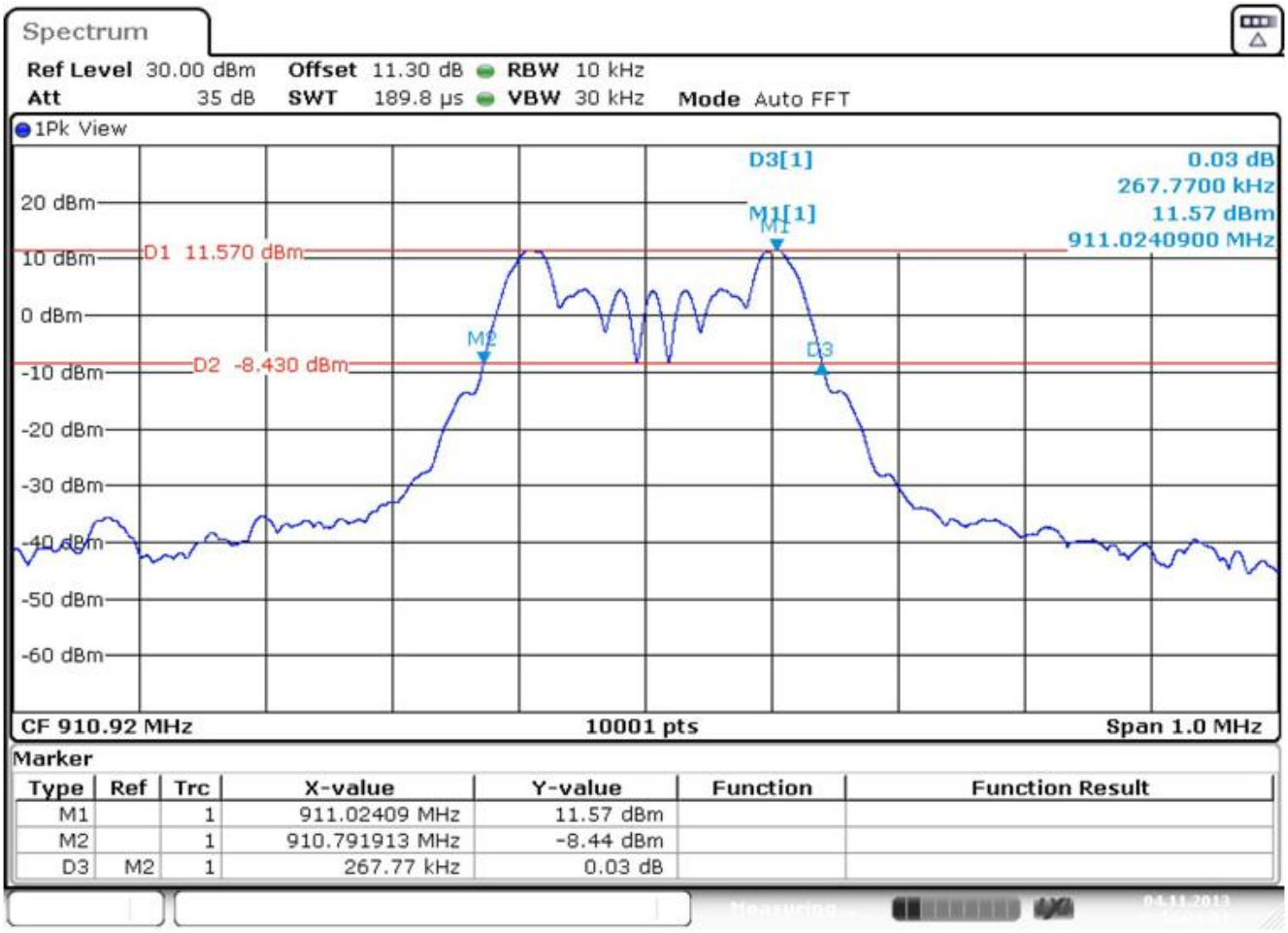
• Test place : Test room
• Test environment : 21.4 °C, 42 % R.H.
• Test mode : Operation at single channel

3.4.8 Test result

Frequency [MHz]	20 dB Bandwidth [kHz]	99 % Bandwidth [kHz]
910.92	267.7	249.6
915.00	265.0	249.6
919.08	267.7	249.3

3.4.9 Plots of 20 dB bandwidth

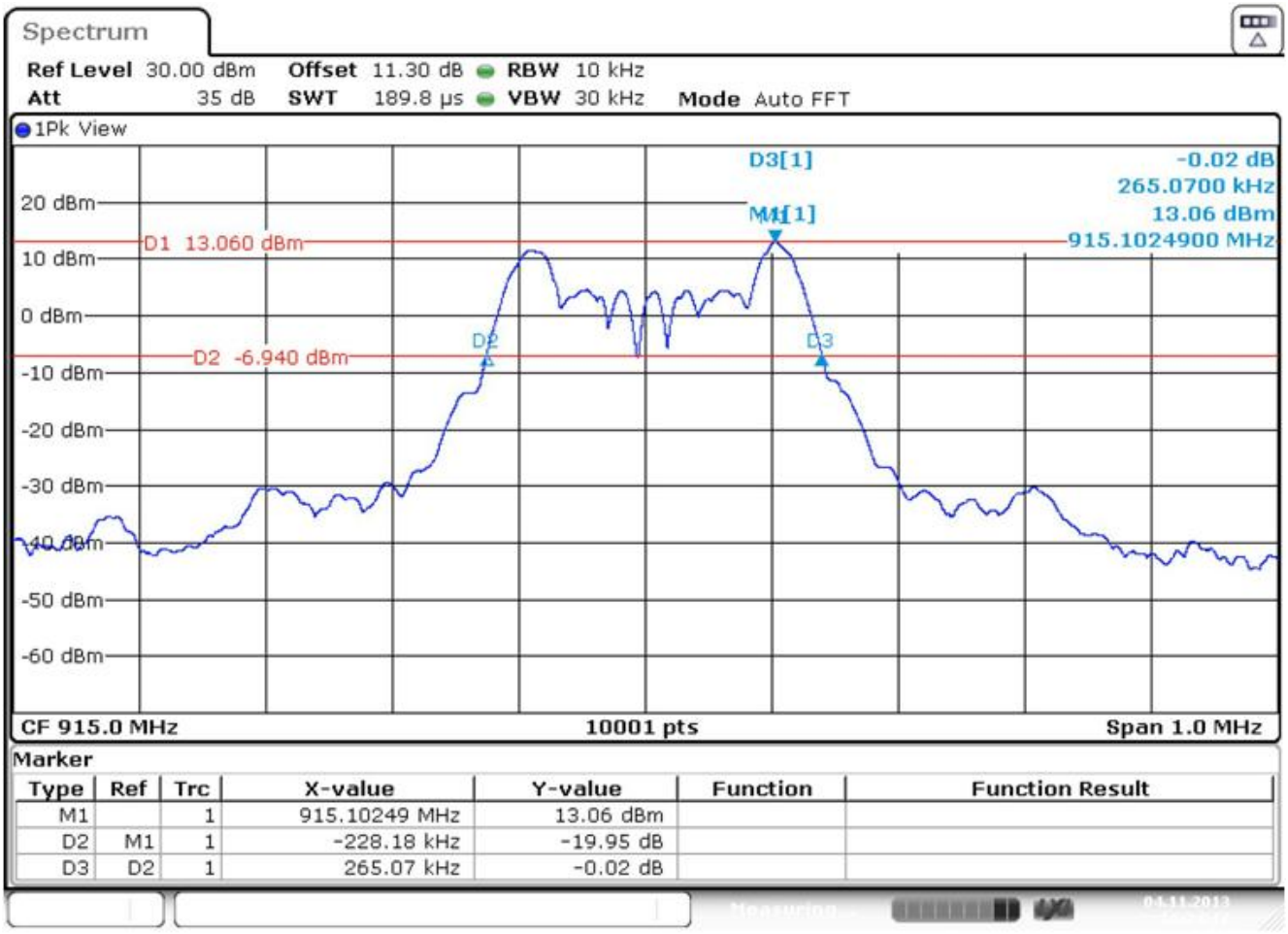
3.4.9.1 Channel 1



Operating frequency : **910.92 MHz**
RBW : **10 kHz**
VBW : **30 kHz**
Detector mode : **Peak**
Trace mode : **Max hold**
Sweep time : **Auto**

20 dB bandwidth : **267.7 kHz**

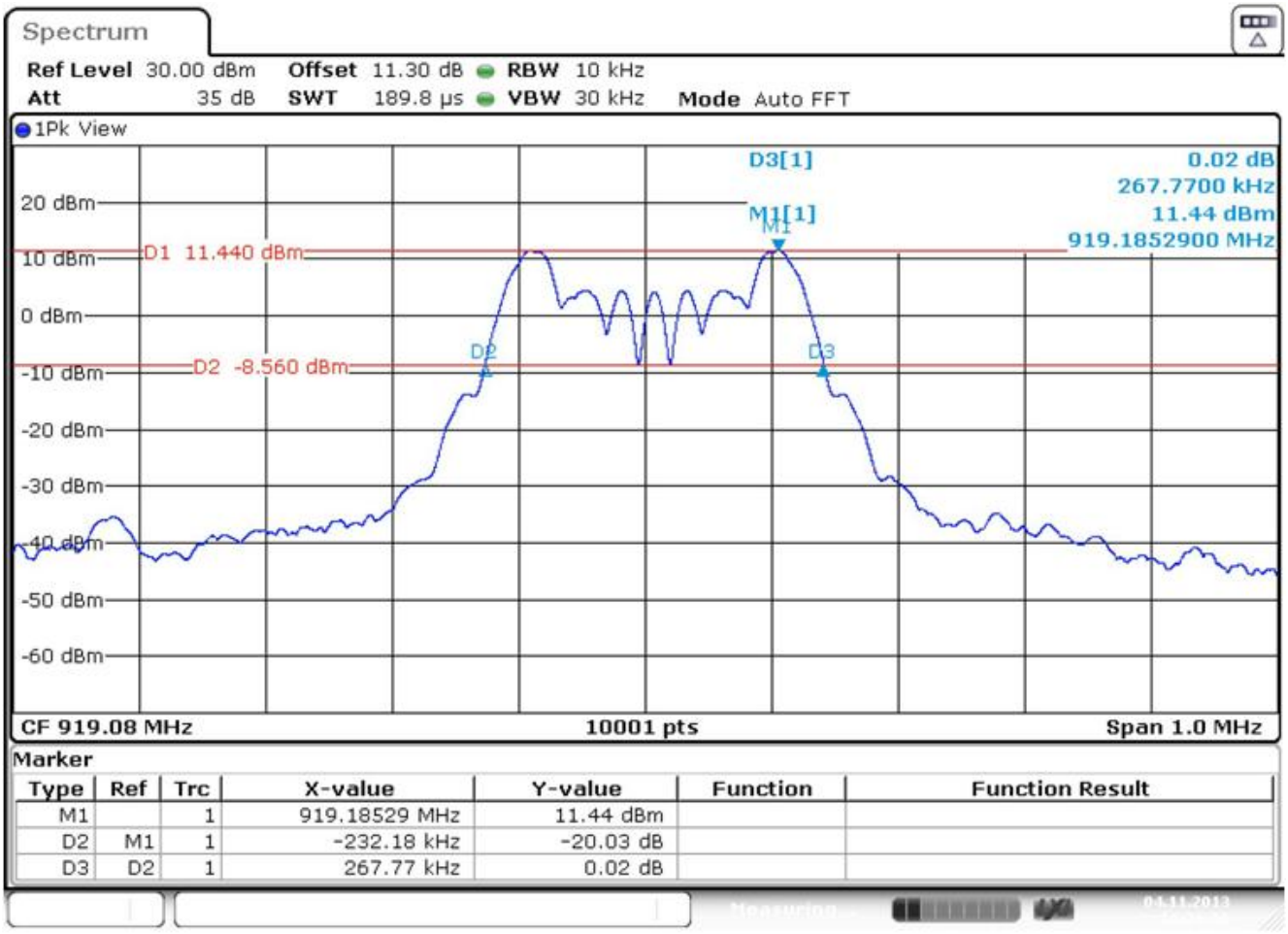
3.4.9.2 Channel 13



Operating frequency : **915.00 MHz**
RBW : **10 kHz**
VBW : **30 kHz**
Detector mode : **Peak**
Trace mode : **Max hold**
Sweep time : **Auto**

20 dB bandwidth : **265.0 kHz**

3.4.9.3 Channel 25

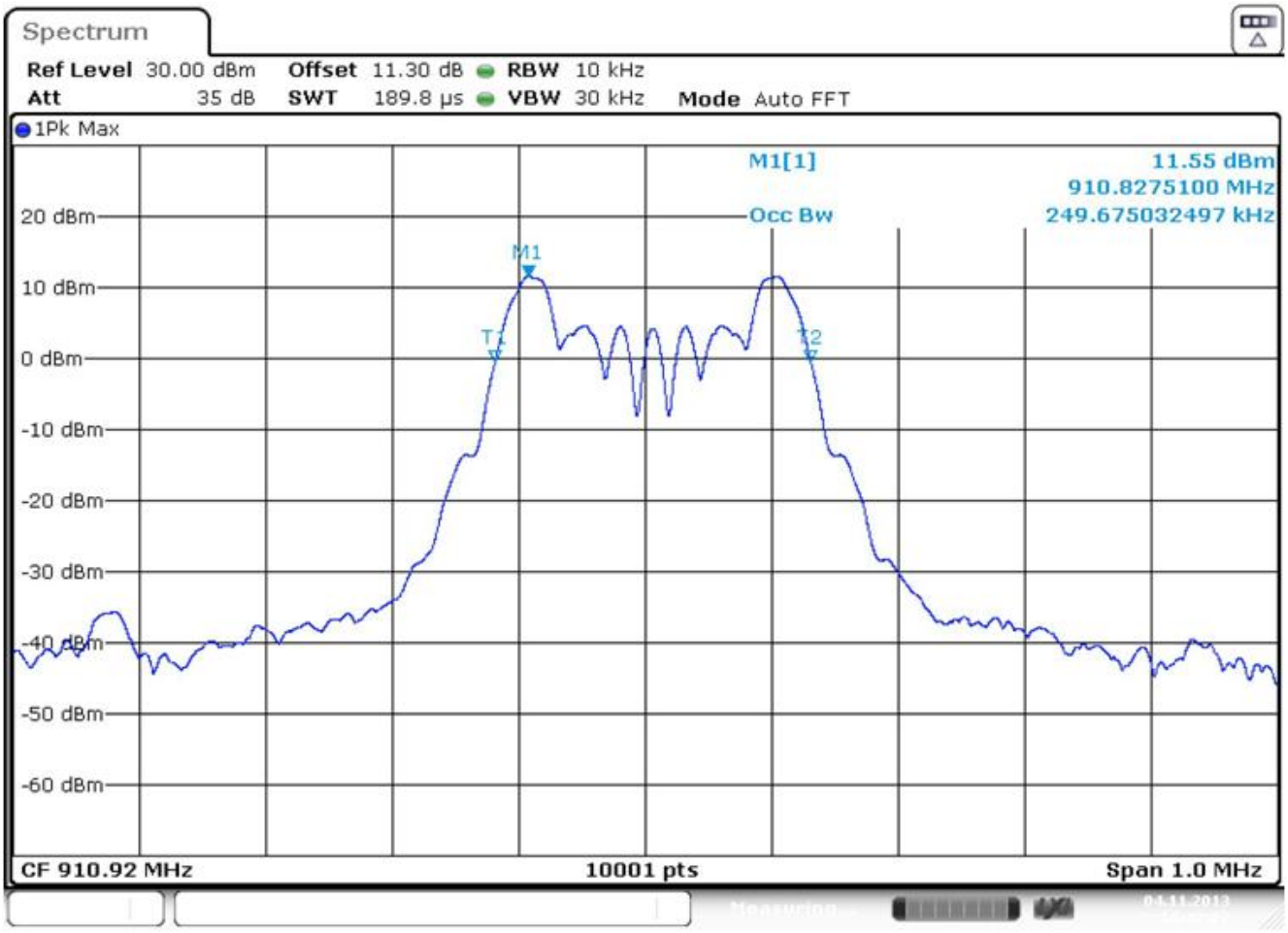


Operating frequency : 919.08 MHz
RBW : 10 kHz
VBW : 30 kHz
Detector mode : Peak
Trace mode : Max hold
Sweep time : Auto

20 dB bandwidth : 267.7 MHz

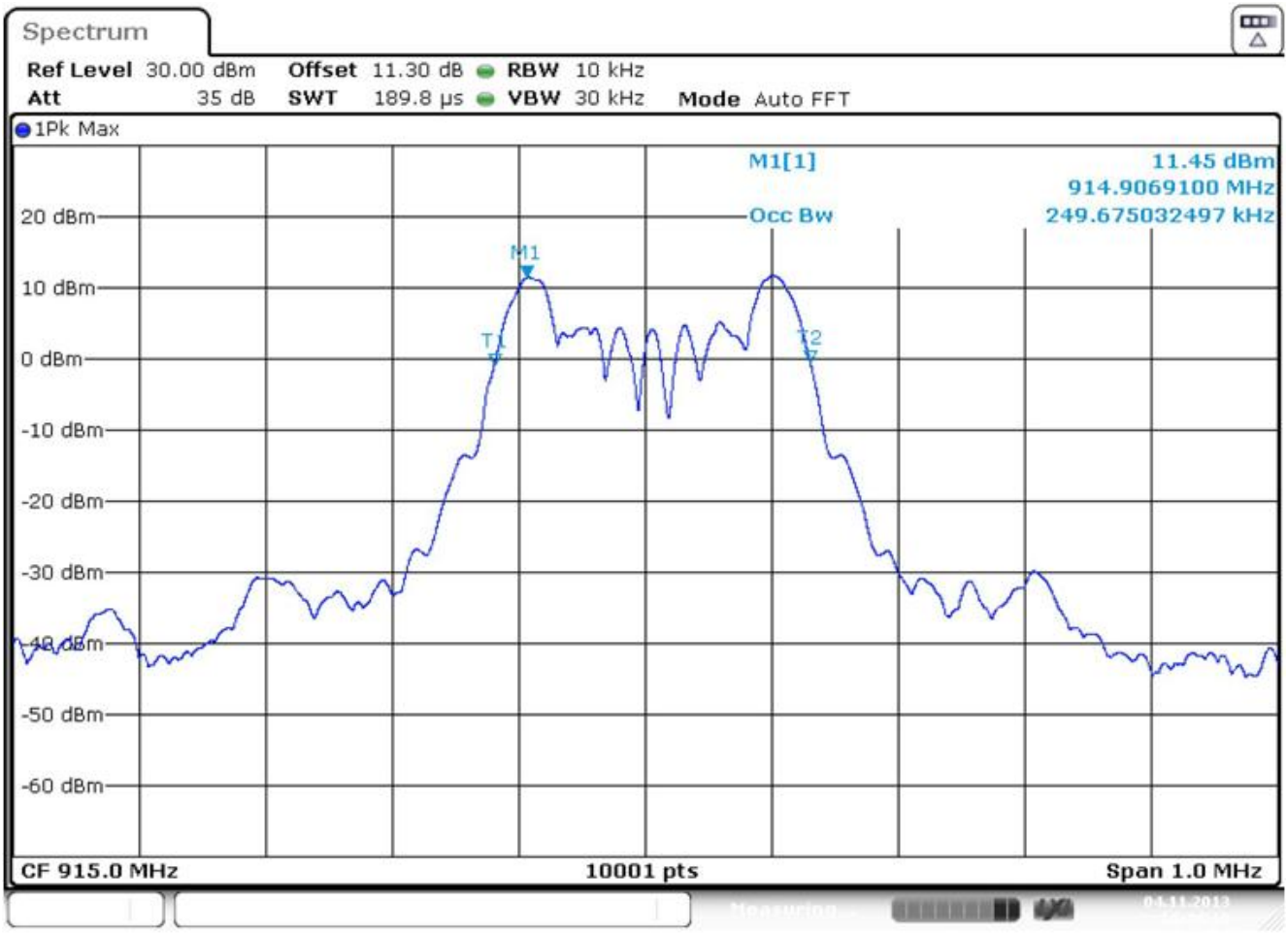
3.4.10 Plots of 99 % bandwidth

3.4.10.1 Channel 1



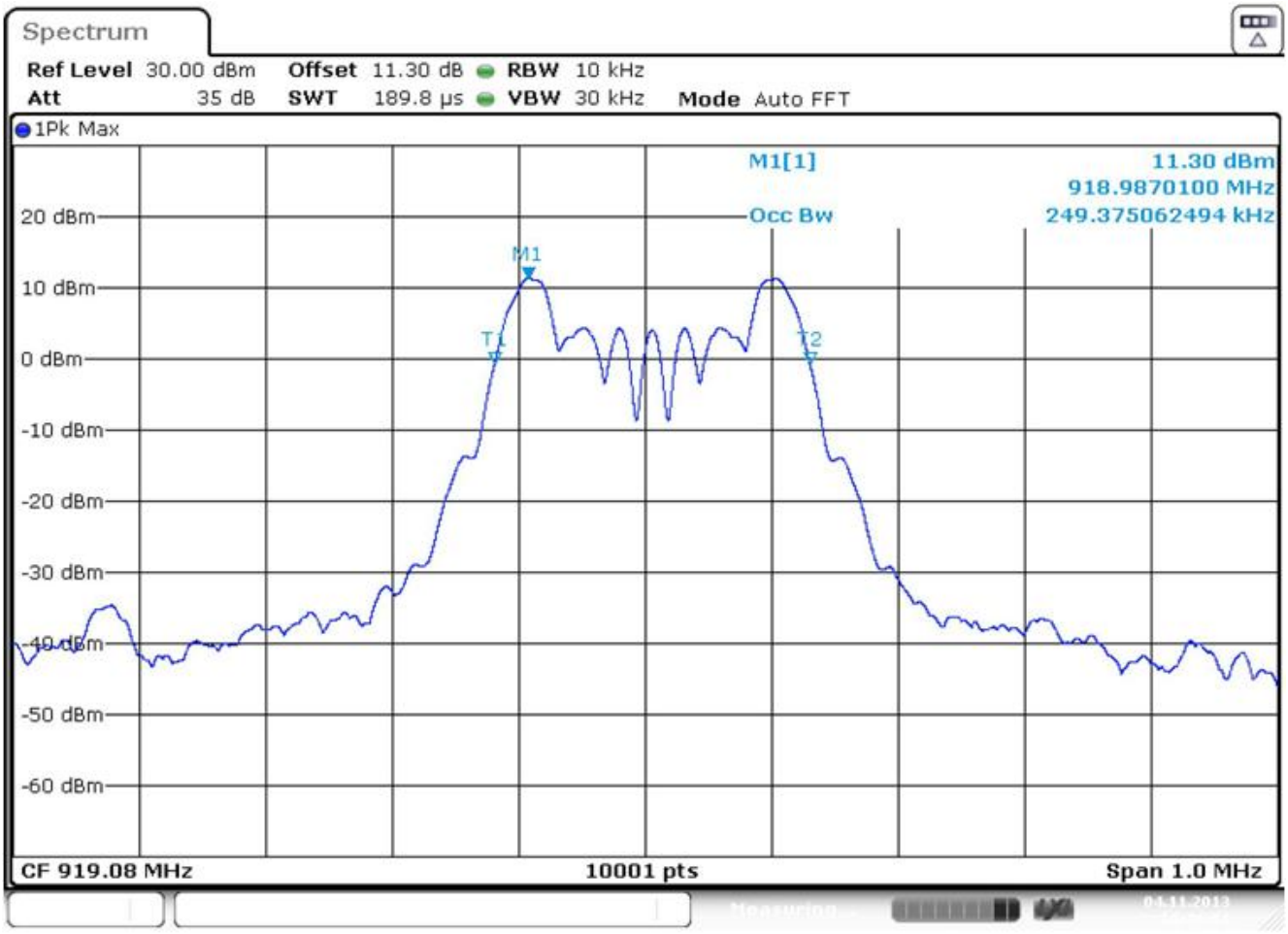
Operating frequency :	**910.92 MHz**
RBW :	**10 kHz**
VBW :	**30 kHz**
Detector mode :	**Peak**
Trace mode :	**Max hold**
Sweep time :	**Auto**
99 % bandwidth :	**249.6 kHz**

3.4.10.2 Channel 13



Operating frequency :	**915.00 MHz**
RBW :	**10 kHz**
VBW :	**30 kHz**
Detector mode :	**Peak**
Trace mode :	**Max hold**
Sweep time :	**Auto**
99 % bandwidth :	**249.6 kHz**

3.4.10.3 Channel 25



Operating frequency :	**919.08 MHz**
RBW :	**10 kHz**
VBW :	**30 kHz**
Detector mode :	**Peak**
Trace mode :	**Max hold**
Sweep time :	**Auto**
99 % bandwidth :	**249.3 kHz**

3.5 Average time of occupancy

3.5.1 Definitions

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a 10 second period.

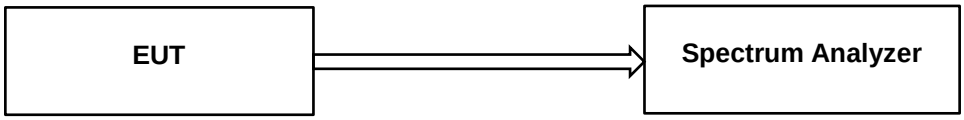
3.5.2 Specification

• FCC Rules Part 15 Subpart C Section 15.247(a)(1)(i)
• IC Rules RSS-210 Issue8 Annex 8-2010 A8.1 C

3.5.3 Measurement method

• Public Notice “DA 00-705”

3.5.4 Set-up



3.5.5 Test equipment list

Equipment	Model name	Manufacturer
EUT	AR2WT10R-SS	SEGI LIMITED
Spectrum analyzer	FSV	Rohde & Schwarz

3.5.6 Test procedure

• The output of EUT was connected to the spectrum analyzer.
• Sets RBW 1 MHz, VBW 1 MHz, Max hold

3.5.7 Test condition

• Test place : Test room
• Test environment : 21.5 °C, 43 % R.H.
• Test mode : Operation at full hopping

3.5.8 Test result

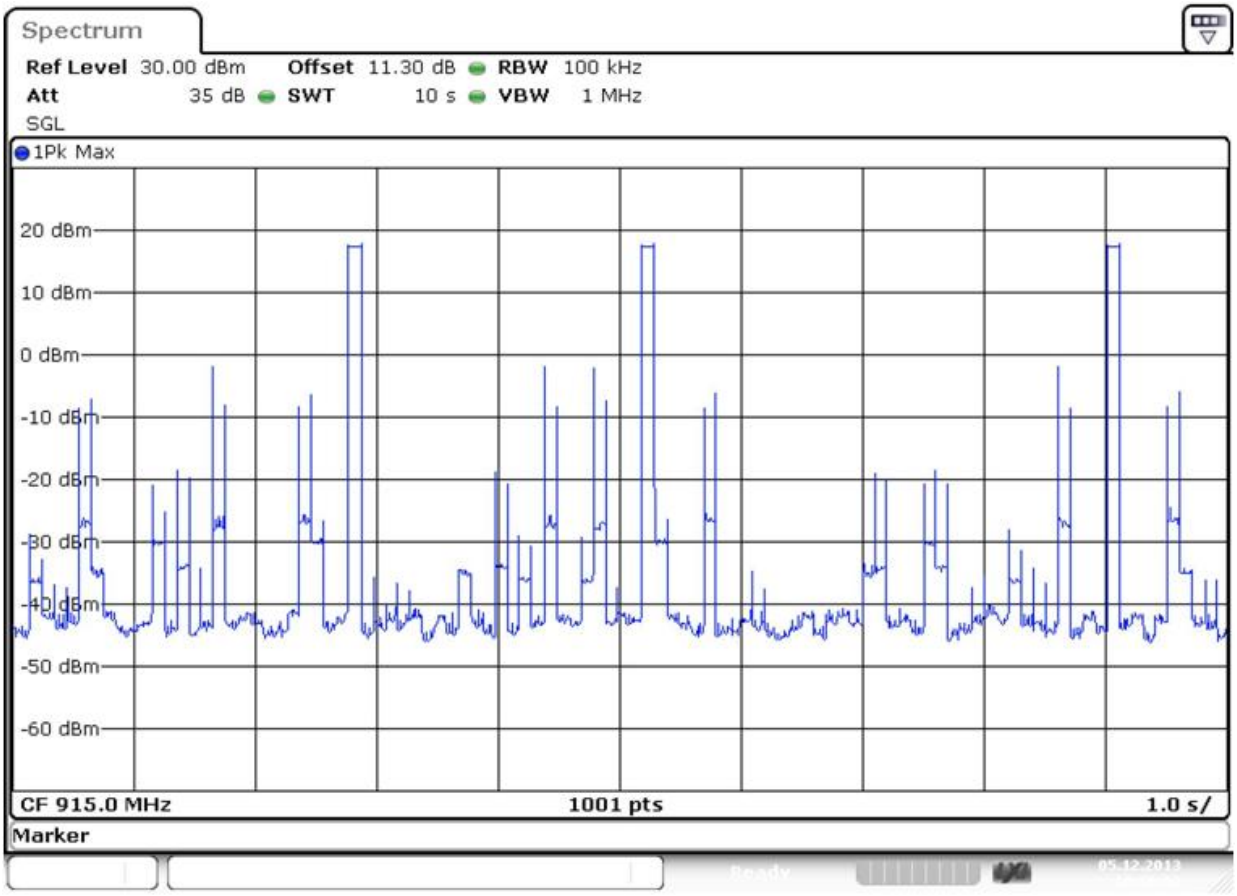
Frequency [MHz]	Dwell time [ms]	Transmission Occurred	Result [ms]	Limit [ms]
915	99.3	3	297.9	400

3.5.9 Limit

Less than 0.4 seconds within 10 seconds period.

3.5.10 Plots of channel occupation

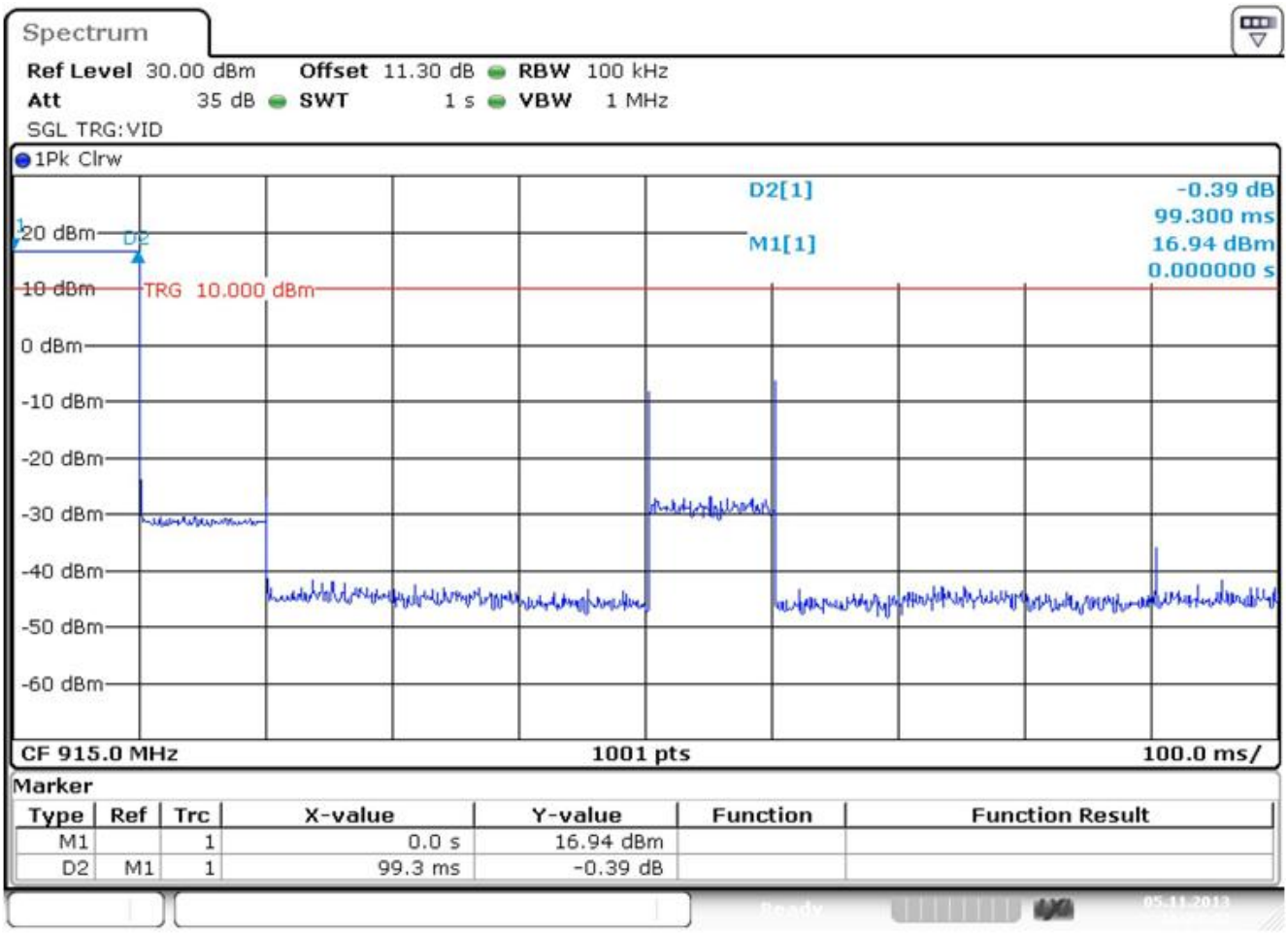
3.5.10.1 Within 10 seconds period



Operating frequency :	**Full hopping**
RBW :	**100 kHz**
VBW :	**1 MHz**
Detector mode :	**Peak**
Trace mode :	**View**
Sweep time :	**10 s**

Number of channel within 10 s : 3

3.5.10.2 Dwell time



Operating frequency : **Full hopping**
RBW : **100 kHz**
VBW : **1 MHz**
Detector mode : **Peak**
Trace mode : **View**
Sweep time : **1 s**

Dwell time : **99.30 ms**

3.6 Maximum peak output power

3.6.1 Definitions

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.

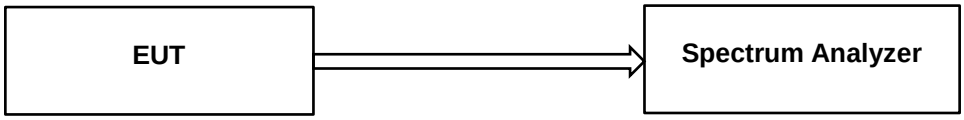
3.6.2 Specification

• FCC Rules Part 15 Subpart C Section 15.247(b)(2)
• IC Rules RSS-210 Issue8 Annex 8-2010 A8.4

3.6.3 Measurement method

• Public Notice “DA 00-705”

3.6.4 Set-up



3.6.5 Test equipment list

Equipment	Model name	Manufacturer
EUT	AR2WT10R-SS	SEGI LIMITED
Spectrum analyzer	FSV	Rohde & Schwarz

3.6.6 Test procedure

• The output of EUT was connected to the spectrum analyzer.
• Peak Power : Sets RBW 1 MHz, VBW 20 MHz, Max hold
• Average Power : Sets RBW 100 kHz, VBW 300 kHz, RMS

3.6.7 Test condition

• Test place : Test room
• Test environment : 21.3 °C, 42 % R.H.
• Test mode : Operation at full hopping

3.6.8 Test result

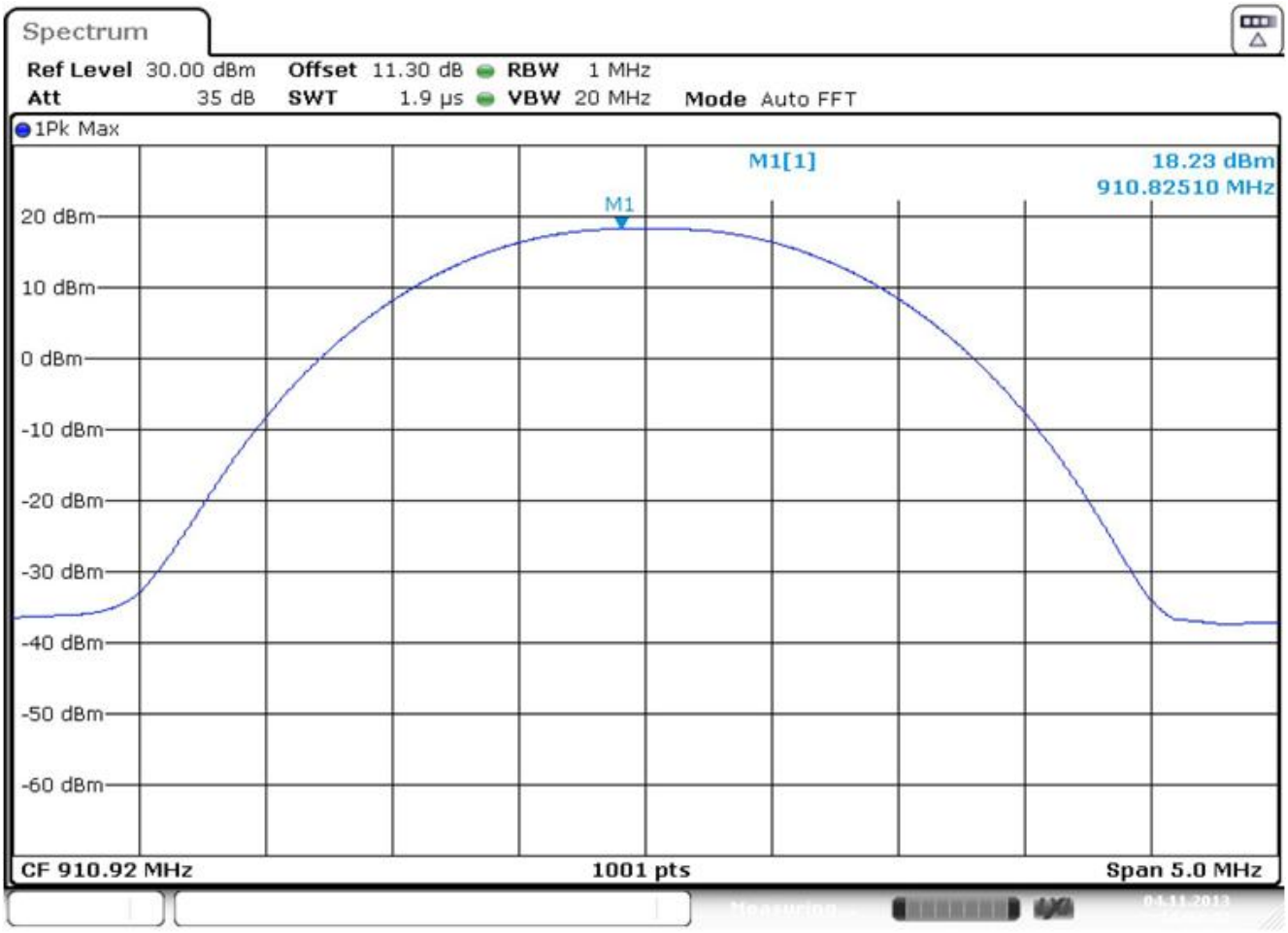
Frequency [MHz]	Peak Power		Average Power		Limit [W]
	Output Power [dBm]	Output Power [W]	Output Power [dBm]	Output Power [W]	
910.92	18.23	0.0665	14.48	0.02805	0.25
915.00	18.16	0.0654	14.50	0.02818	0.25
919.08	18.08	0.0642	14.47	0.02798	0.25

3.6.9 Limit

Less than 0.25 Watts.

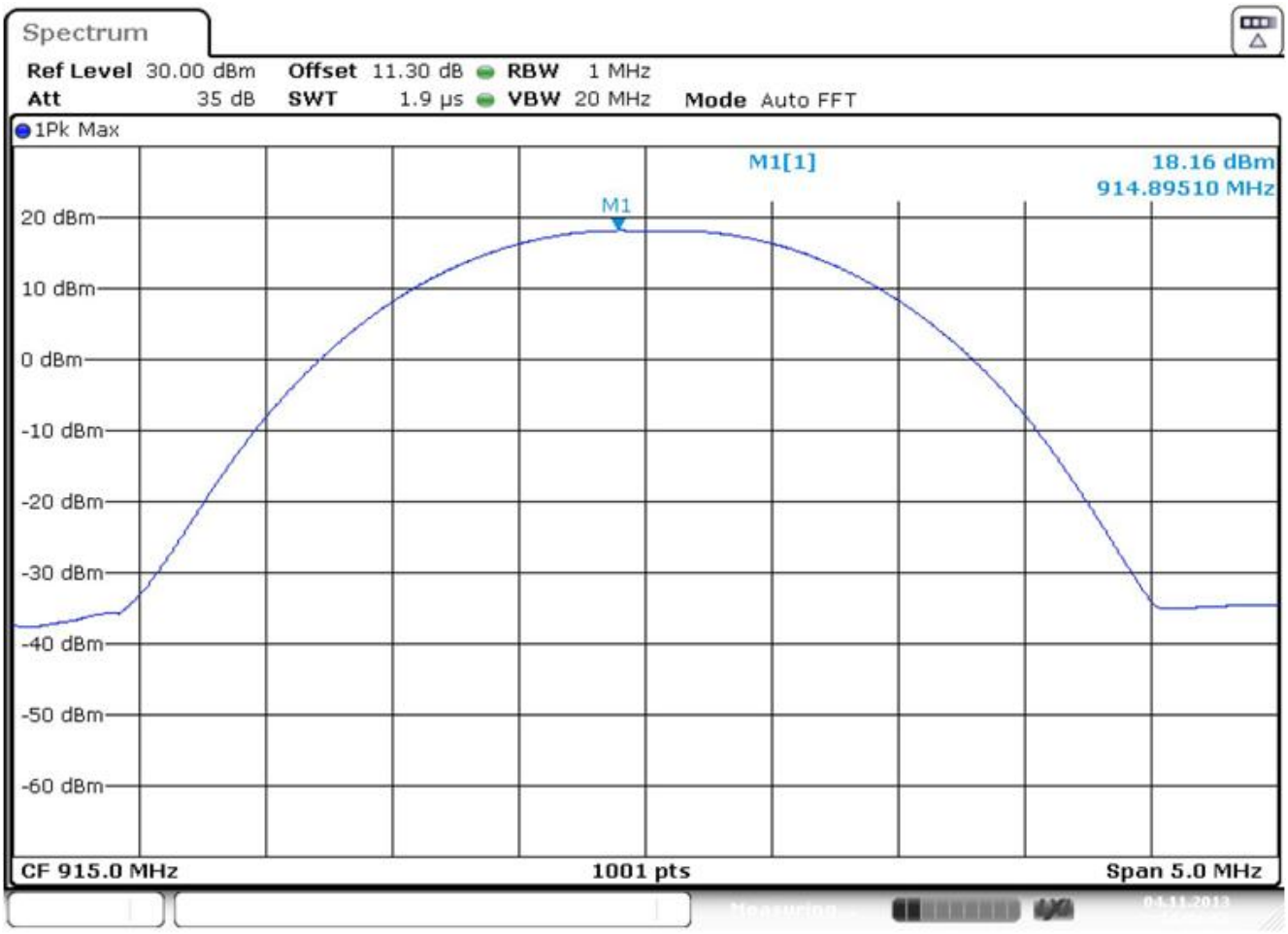
3.6.10 Plots of peak output power at Peak power

3.6.10.1 Channel 1



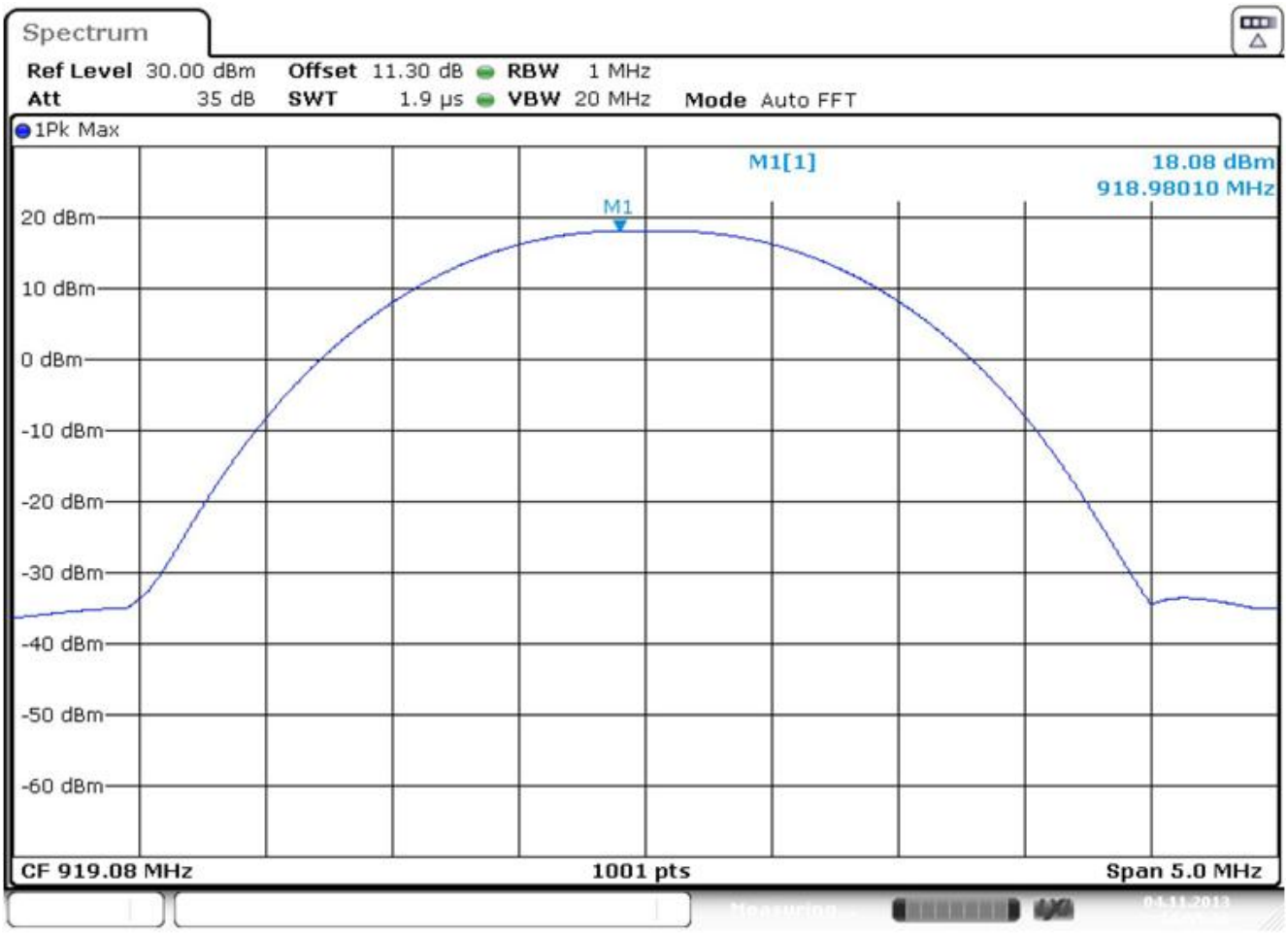
Operating frequency :	**910.92 MHz**
RBW :	**1 MHz**
VBW :	**20 MHz**
Detector mode :	**Peak**
Trace mode :	**Max hold**
Sweep time :	**Auto**
Output power :	**18.23 dBm (=0.0665 W)**

3.6.10.2 Channel 13



Operating frequency :	**915.00 MHz**
RBW :	**1 MHz**
VBW :	**20 MHz**
Detector mode :	**Peak**
Trace mode :	**Max hold**
Sweep time :	**Auto**
Output power :	**18.16 dBm (=0.0654 W)**

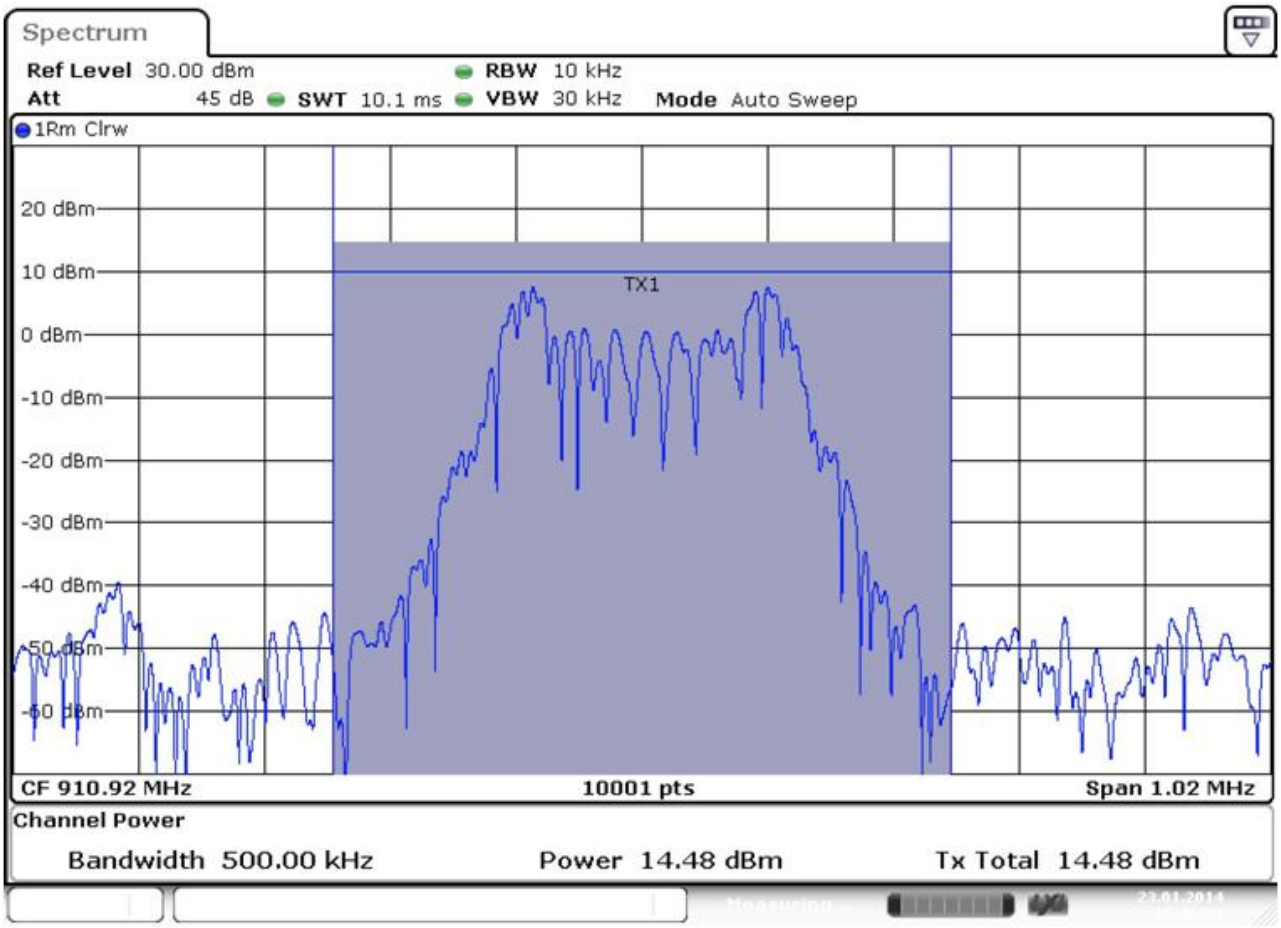
3.6.10.3 Channel 25



Operating frequency :	**919.08 MHz**
RBW :	**1 MHz**
VBW :	**20 MHz**
Detector mode :	**Peak**
Trace mode :	**Max hold**
Sweep time :	**Auto**
Output power :	**18.08 dBm (=0.0642 W)**

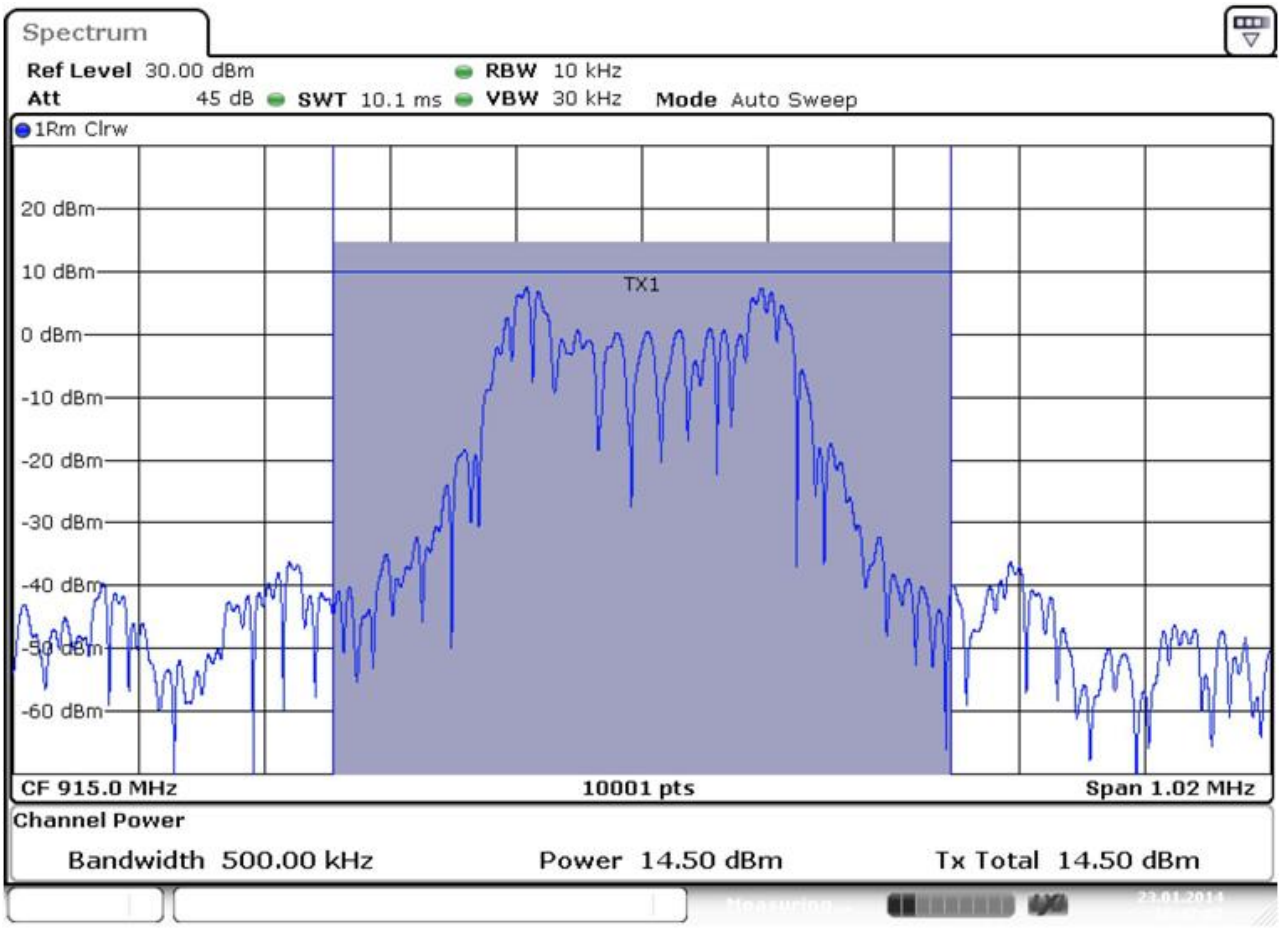
3.6.11 Plots of peak output power at Average power

3.6.11.1 Channel 1



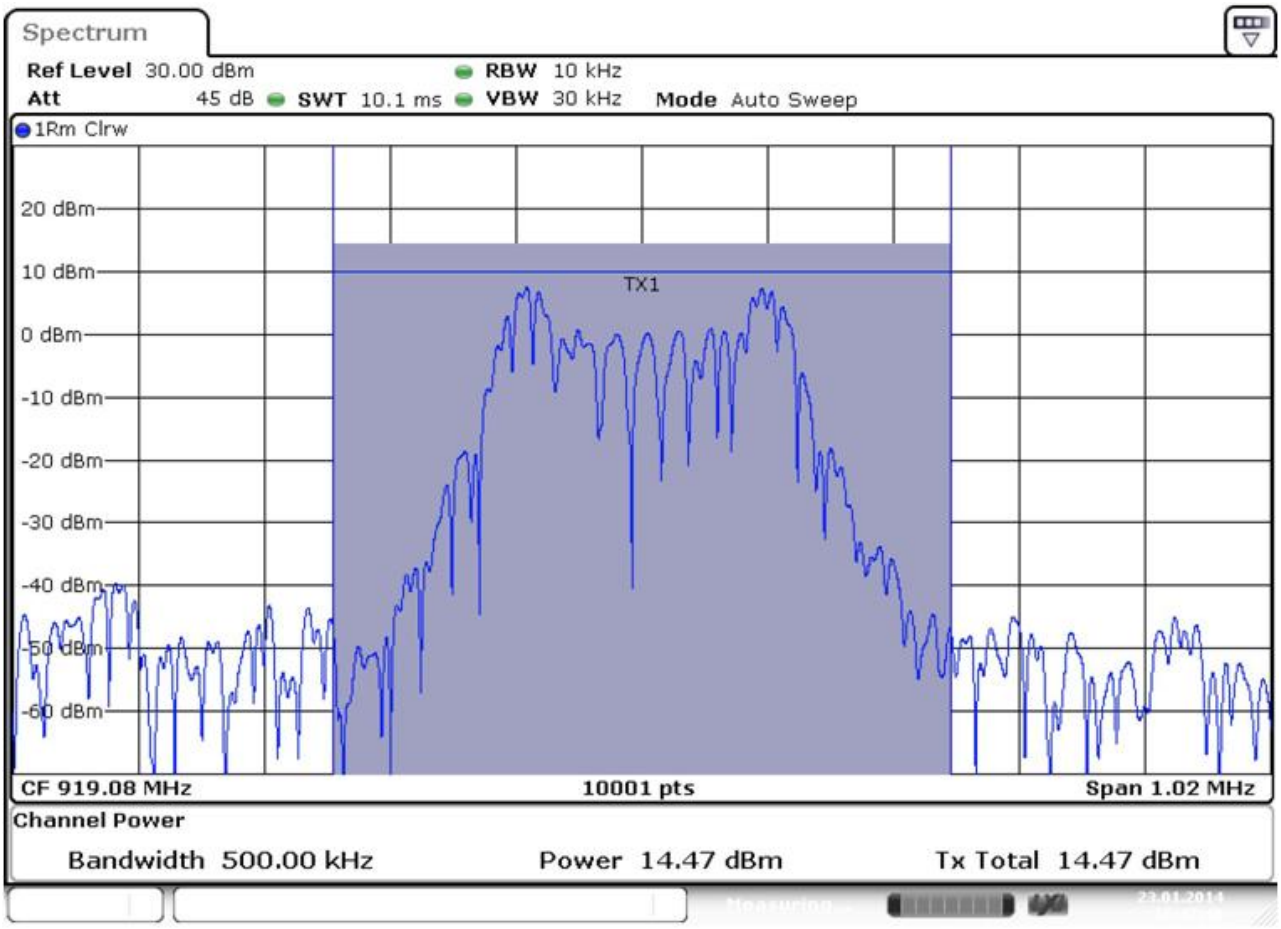
Operating frequency :	**910.92 MHz**
RBW :	**10 kHz**
VBW :	**30 kHz**
Detector mode :	**RMS**
Trace mode :	**Normal**
Sweep time :	**Auto**
Output power :	**14.48 dBm (=0.02805 W)**

3.6.11.2 Channel 13



Operating frequency :	**915.00 MHz**
RBW :	**10 kHz**
VBW :	**30 kHz**
Detector mode :	**RMS**
Trace mode :	**Normal**
Sweep time :	**Auto**
Output power :	**14.50 dBm (=0.02818 W)**

3.6.11.3 Channel 25



Operating frequency :	**919.08 MHz**
RBW :	**10 kHz**
VBW :	**30 kHz**
Detector mode :	**RMS**
Trace mode :	**Normal**
Sweep time :	**Auto**
Output power :	**14.47 dBm (=0.02798 W)**

3.7 Conducted emission and band edge

3.7.1 Definitions

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 RF conducted measurement.

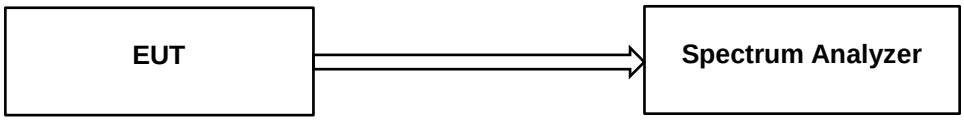
3.7.2 Specification

• FCC Rules Part 15 Subpart C Section 15.247(d)
• IC Rules RSS-210 Issue8 Annex 8-2010 A8.5

3.7.3 Measurement method

• Public Notice “DA 00-705”

3.7.4 Set-up



3.7.5 Test equipment list

Equipment	Model name	Manufacturer
EUT	AR2WT10R-SS	SEGI LIMITED
Spectrum analyzer	FSV	Rohde & Schwarz

3.7.6 Test procedure

• The output of EUT was connected to the spectrum analyzer.
• Sets RBW 100 kHz, VBW 1 MHz, Max hold

3.7.7 Test condition

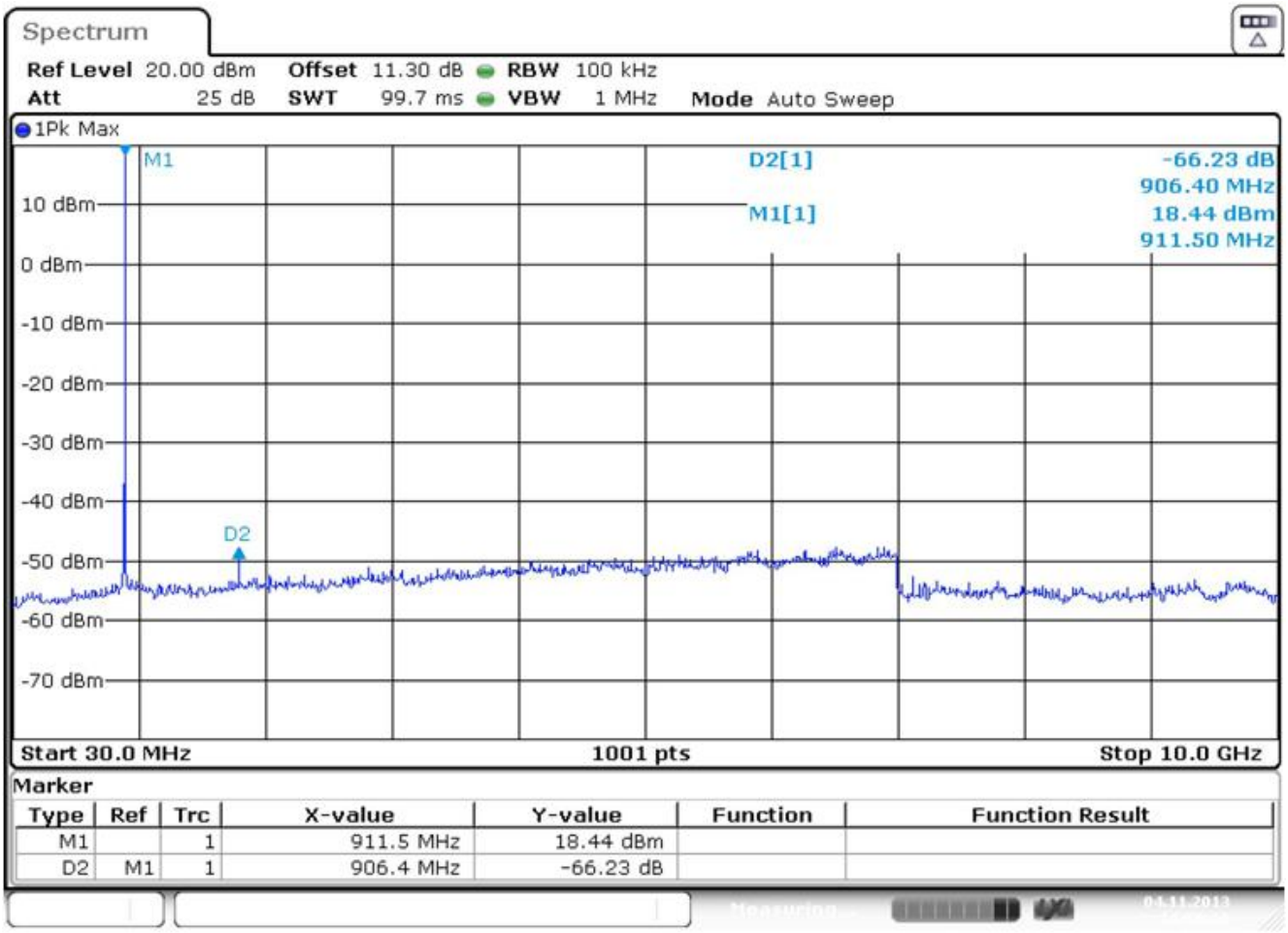
• Test place : Test room
• Test environment : 21.5 °C, 42 % R.H.
• Test mode : Operation at full hopping

3.7.8 Limit

Less than 20 dBc.

3.7.9 Plots of conducted emission & band edge

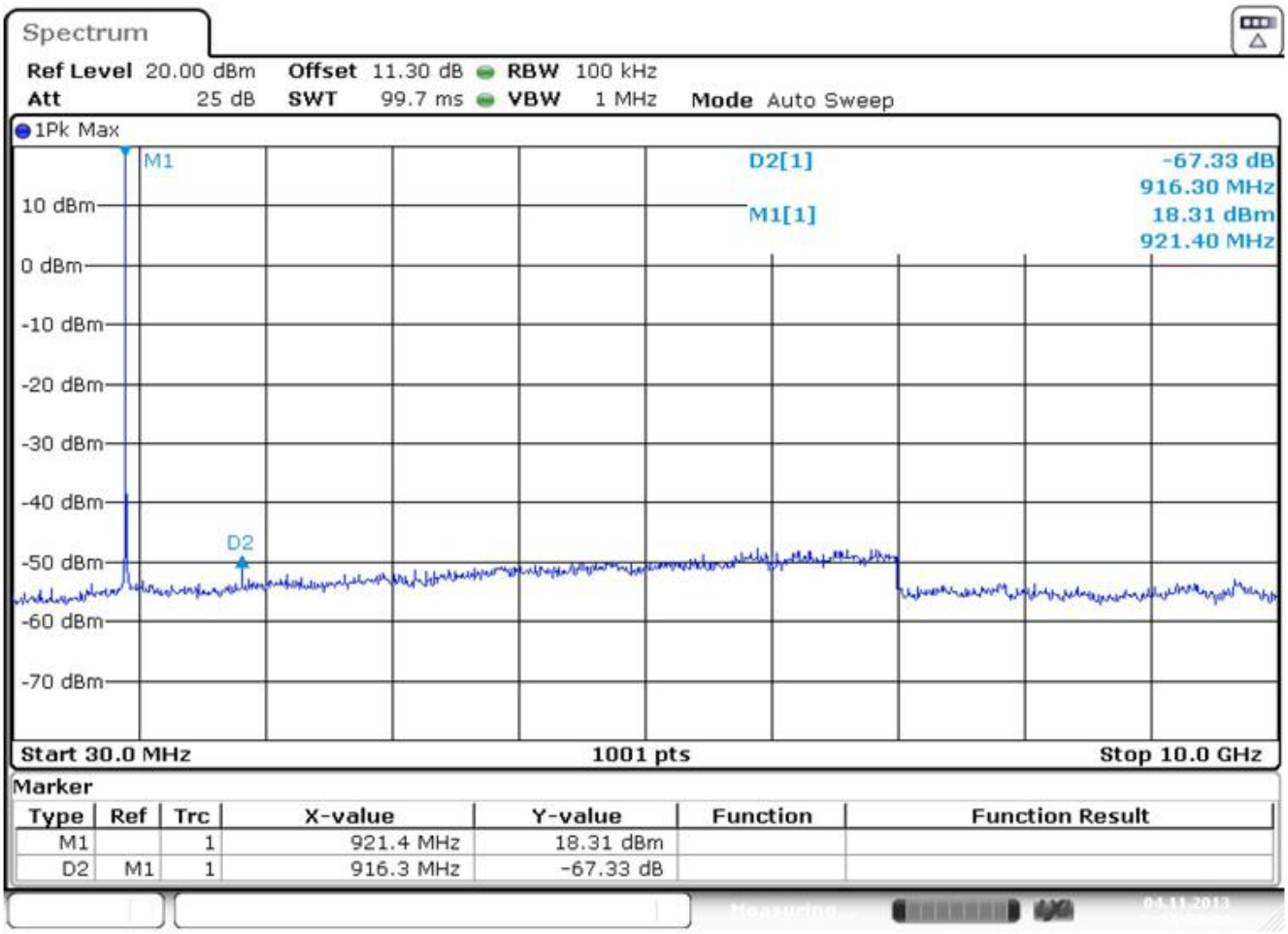
3.7.9.1 Channel 1



Operating frequency : **910.92 MHz**
RBW : **100 kHz**
VBW : **1 MHz**
Detector mode : **Peak**
Trace mode : **Max hold**
Sweep time : **Auto**

Spurious emission (2nd harmonic) : **66.2 dBc**

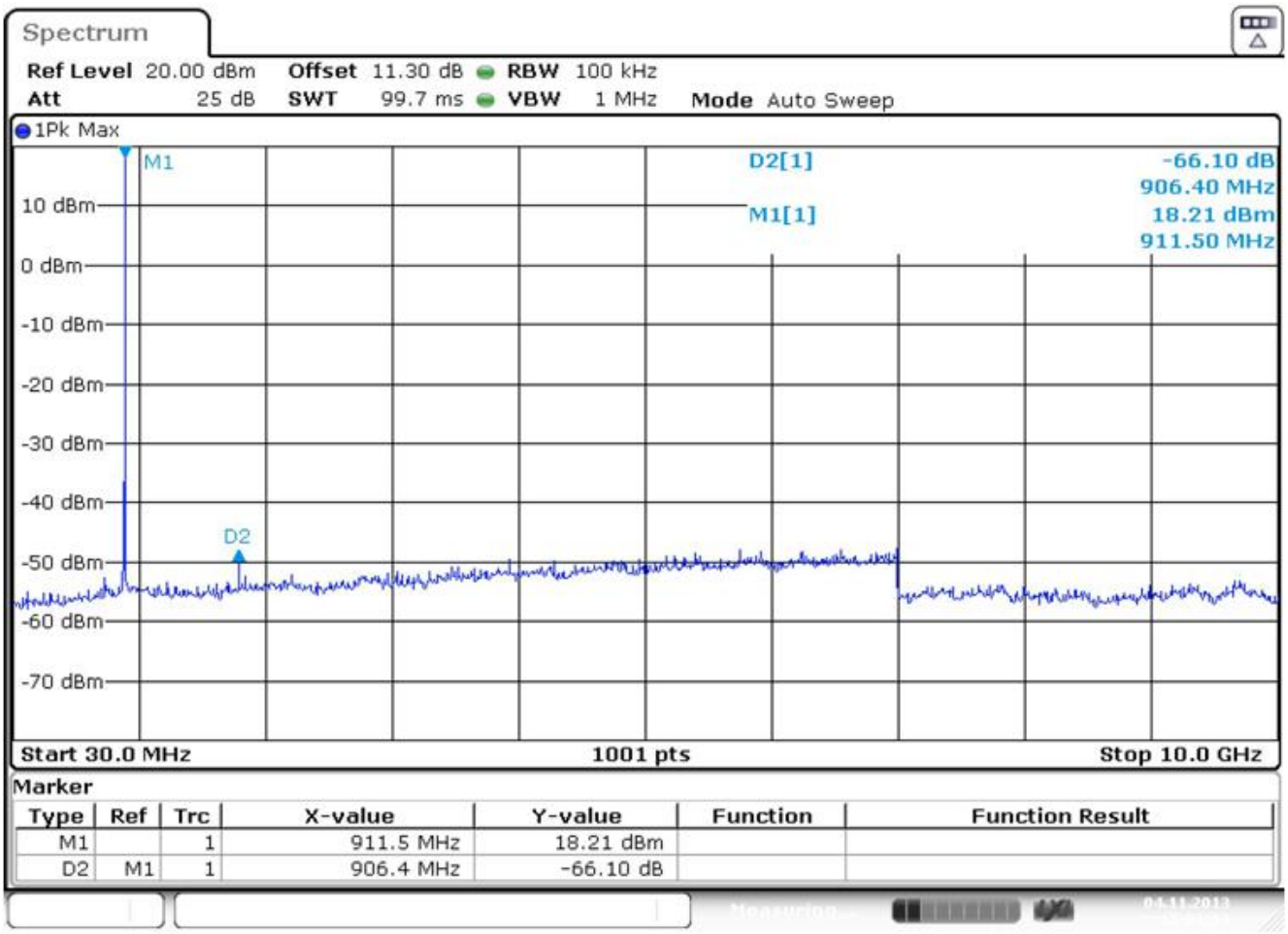
3.7.9.2 Channel 13



Operating frequency : **915.00 MHz**
RBW : **100 kHz**
VBW : **1 MHz**
Detector mode : **Peak**
Trace mode : **Max hold**
Sweep time : **Auto**

Spurious emission (2nd harmonic) : **67.3 dBc**

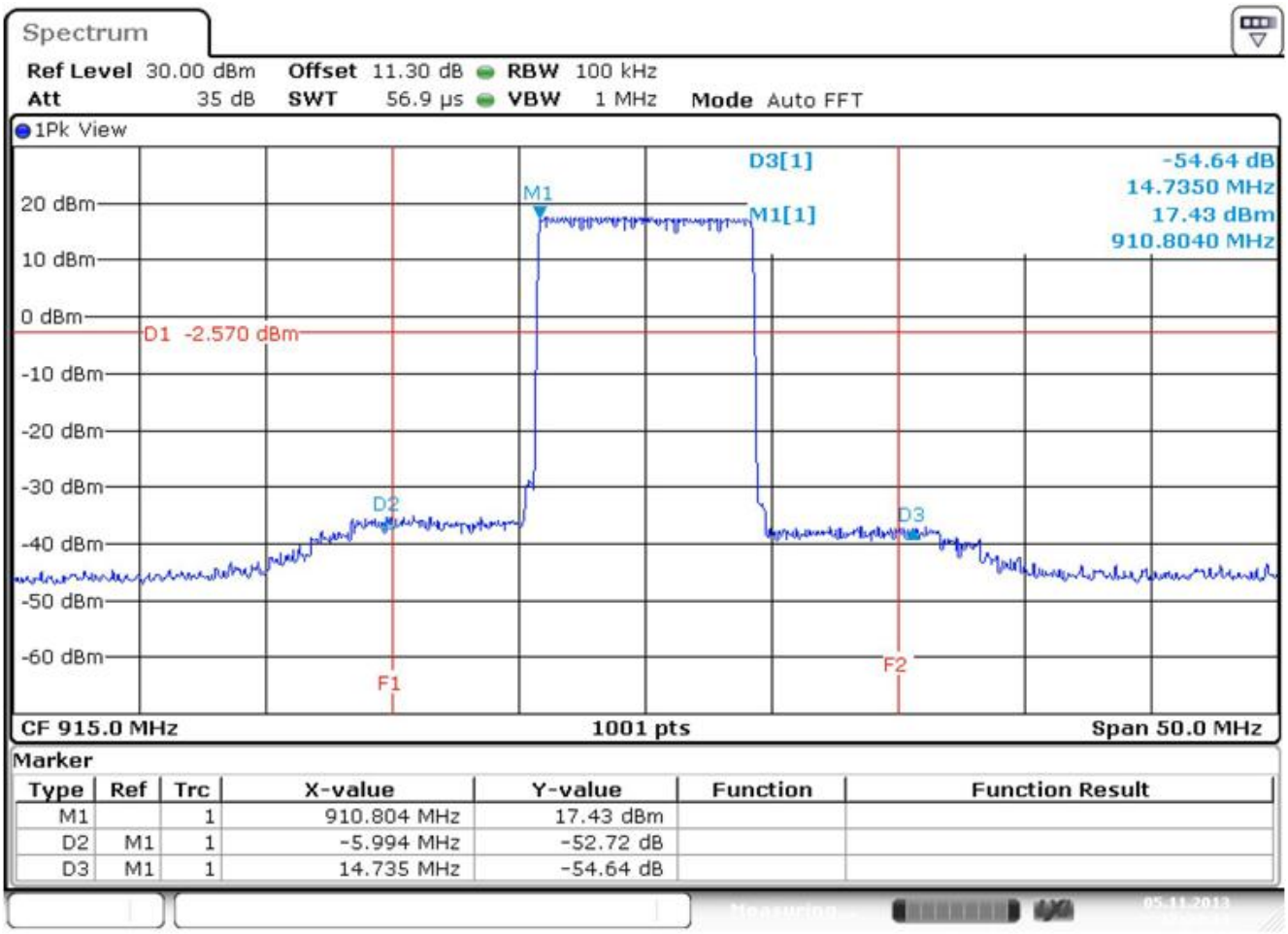
3.7.9.3 Channel 25



Operating frequency : **919.08 MHz**
RBW : **100 kHz**
VBW : **1 MHz**
Detector mode : **Peak**
Trace mode : **Max hold**
Sweep time : **Auto**

Spurious emission (2nd harmonic) : **66.1 dBc**

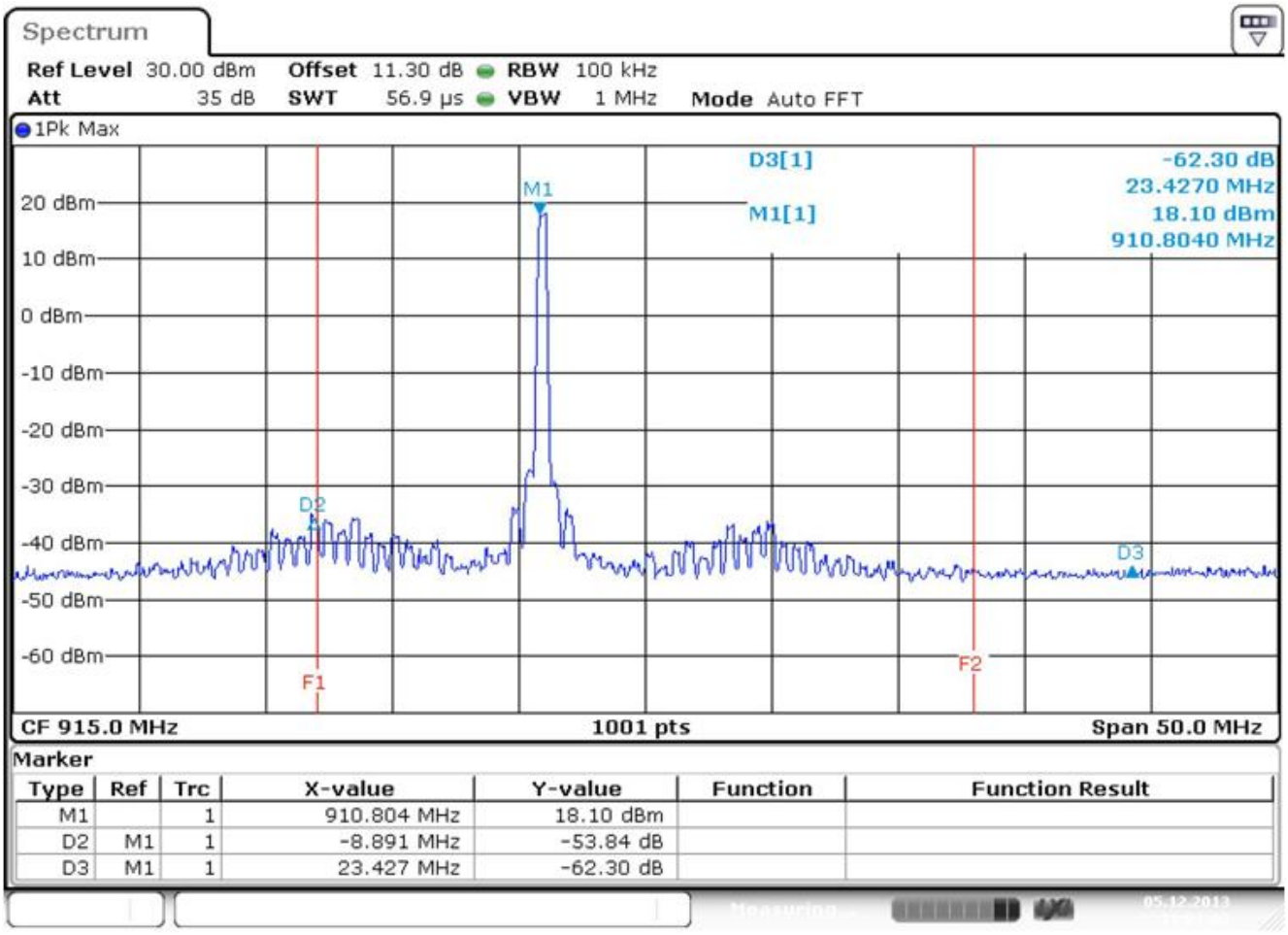
3.7.9.4 Band edge at full hopping mode



Operating frequency :	**Full hopping**
RBW :	**100 kHz**
VBW :	**1 MHz**
Detector mode :	**Peak**
Trace mode :	**Max hold**
Sweep time :	**Auto**
Lower band edge :	**52.72 dBc**
Upper band edge :	**54.64 dBc**

3.7.9.5 Band edge at Nomal mode

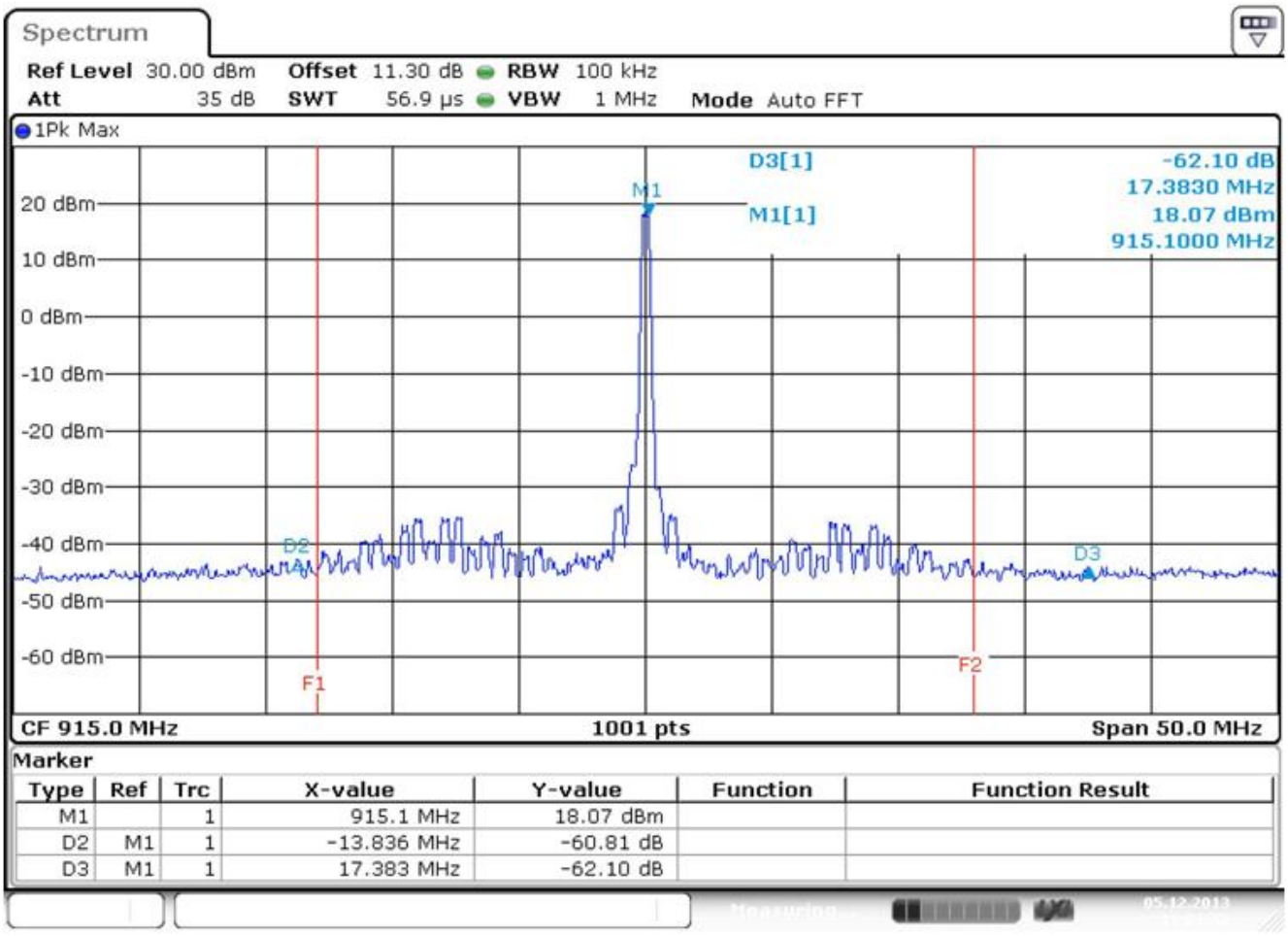
3.7.9.5.1 1 Channel



Operating frequency : Full hopping
RBW : 100 kHz
VBW : 1 MHz
Detector mode : Peak
Trace mode : Max hold
Sweep time : Auto

Lower band edge : 53.84 dBc
Upper band edge : 62.30 dBc

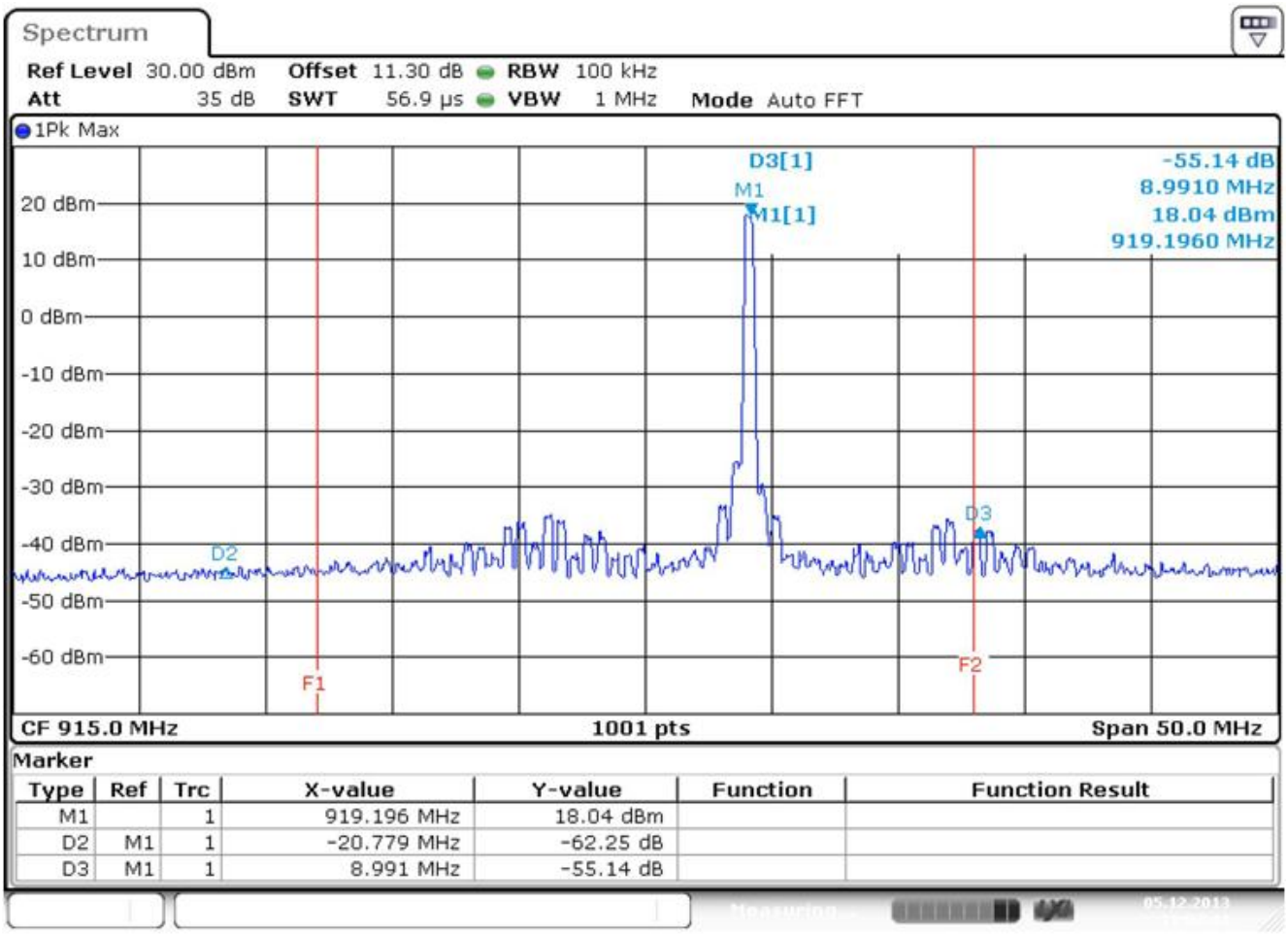
3.7.9.5.2 13 Channel



Operating frequency : Full hopping
RBW : 100 kHz
VBW : 1 MHz
Detector mode : Peak
Trace mode : Max hold
Sweep time : Auto

Lower band edge : 60.81 dBc
Upper band edge : 62.10 dBc

3.7.9.5.3 25 Channel



Operating frequency : Full hopping
RBW : 100 kHz
VBW : 1 MHz
Detector mode : Peak
Trace mode : Max hold
Sweep time : Auto

Lower band edge : 62.25 dBc
Upper band edge : 55.14 dBc

4. RF Exposure Compliance Requirement

According to KDB447498 D01 General RF Exposure Guidance v05r01

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] • [√ f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Channel Number	Frequency [MHz]	Max. Average Power [dBm]	Max. Average Power [mW]	Separation distance [mm]	10-g SAR value	Test exclusion thresholds
1	910.92	14.48	28.05	5	5.3	7.5
13	915.00	14.50	28.18	5	5.3	7.5
25	919.08	14.47	27.98	5	5.3	7.5

Result:

SAR is not required.

5. Test equipment list

The listing below denotes the test equipment for the test(s).

No.	Equipment	Model	Manufacturer	Serial Number	Calibration Due date
1	Spectrum analyzer	FSV	Rohde & Schwarz	101673	02/04/14
2	Test receiver	ESCI 7	Rohde & Schwarz	1166.5950.07	01/30/14
3	Power supply	E3633A	Agilent	SG40002272	01/28/14
4	Loop antenna	6502	EMCO	9609-9087	03/03/14
5	Biconical antenna	VHA9103	Schwarzbeck	2217	11/23/13
6	Log-Periodic antenna	VULP9118A	Schwarzbeck	382	11/23/13
7	Horn antenna	BBHA 9120 D	Schwarzbeck	395	08/07/14
8	Turn table	N/A	Daeil EMC	N/A	N/A
9	Antenna mast	EAM4.5	Daeil EMC	N/A	N/A
10	Controller	DE200	Daeil EMC	AAA69813111	N/A