TEST REPORT

Part 15 Subpart C 15.247 & IC RSS-210(Issue 8)

Equipment under test	Keyless Entry System
Model name	RED301-2WAY
FCC ID	VA5RED301-2WSS
IC Certification	7087A-2WRED301SS
Applicant	SEGI LIMITED
Manufacturer	SEGI ELECTRONICS CO.,LTD.
Date of test(s)	2014.08.04 ~ 2014.08.20
Date of issue	2014.08.25

Issued to

SEGI LIMITED
UNIT F, 7/F, CENTURY INDUSTRIAL CENTER, 33-35 AU PUI WAN STREET
SHATIN, NT, HONGKONG, CHINA

Issued by

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Test and report completed by :	**Report approval by :**
	
Hyeon-Su Jang Test engineer	Jeff Do Technical manager

Revision history

Revision	Date of issue	Test report No.	Description
-	2014.08.25	KES-RF-14T0042	Initial

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1. General information

1.1. EUT description

Equipment under test	Keyless Entry System
Model name	RED301-2WAY
Serial number	N/A
Frequency range	910.92 ㎒ ~ 919.08 ㎒
Modulation technique	FHSS
Number of channels	25
Antenna type & gain	Helical antenna / -9.153 ㏈i
Power source	DC 3.0 V

1.2. Test frequency

	Low channel	**Middle channel**	**High channel**
Frequency (㎒)	910.92	915.00	919.08

1.3. Information about derivative model

N/A

1.4. Device modifications

N/A

1.5 Information about the FHSS characteristics

1.5.1 Pseudorandom frequency hopping sequence

The channel is represented by a pseudo-random hopping sequence hopping through the 25 RF channels.

1.5.2 Equal hopping frequency use

All channels are used equally on average.

1.5.3 Equipment Description

15.247(a)(1) The receiver input bandwidth equals the transmit bandwidth and shift frequencies in synchronization with the transmitted signals.

15.247(g): The system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) system.

15.247(h): the system does not coordinate it channels selection/ hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.

1.6. Test facility

C-3701, Simin-daero 365-40, Dongan-gu, Anyang-si, Gyeonggi-do,431-716, Korea
473-29, Gayeo-ro, Yeoju-si, Gyeonggi-do, Korea

The open area test site is constructed in conformance with the requirements ANSI C63.4-2009.

1.7. Laboratory accreditations and listings

Country	Agency	Scope of accreditation	Certificate No.
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	343818
KOREA	KC	EMI (10 meter Open Area Test Site and two conducted sites) Radio (3 & 10 meter Open Area Test Sites and one conducted site)	KR0100
CANADA	IC	3 & 10 meter Open Area Test Sites and one conducted site	4769B-1

2. Summary of tests

Section in FCC Part 15 & RSS-210	Parameter	Status
15.247(d) RSS-210 A8.5	Radiated spurious emissions	Pass
15.247(b)(2) RSS-210 8.4(1)	Maximum peak output power	Pass
15.247(d) RSS-210 A8.5	Conducted spurious emissions & band edge	Pass
15.247(a)(1)(i) RSS-210 A8.1(c)	20 dB bandwidth	Pass
15.247(a)(1) RSS-210 A8.1(b)	Frequency separation	Pass
15.247(b)(2) RSS-210 A8.1(c)	Number of hopping frequency	Pass
15.247(a)(1)(i) RSS-210 A8.1(c)	Time of occupancy(Dwell time)	Pass
RSS-Gen 4.6.1	99 % Occupied bandwidth	Pass

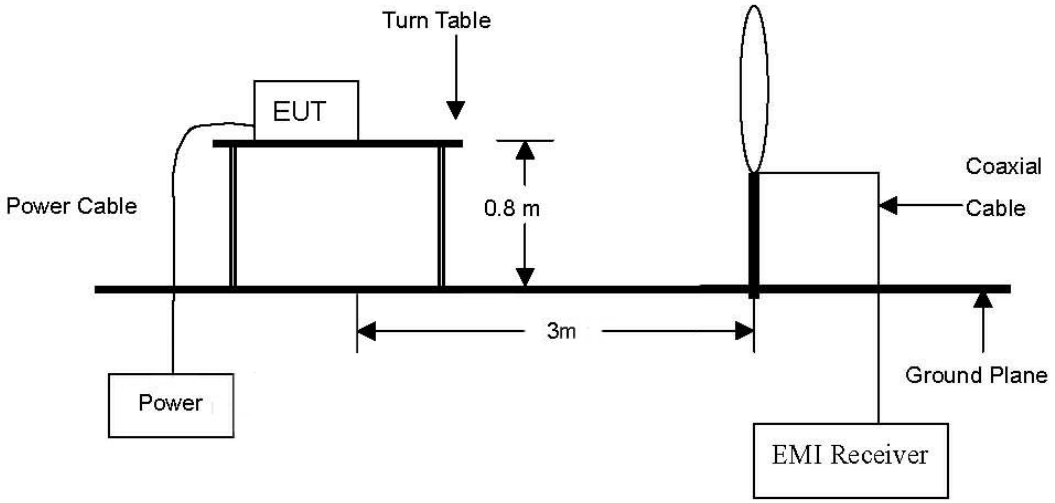
Test procedure
The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 ㎑ to 40 ㎓ (ANSI C63.4-2009), the guidance provided in FCC Public Notice DA 00-705, RSS-Gen (Issue 3) and RSS-210 (Issue 8) were used in the measurement of the EUT.

3. Test results

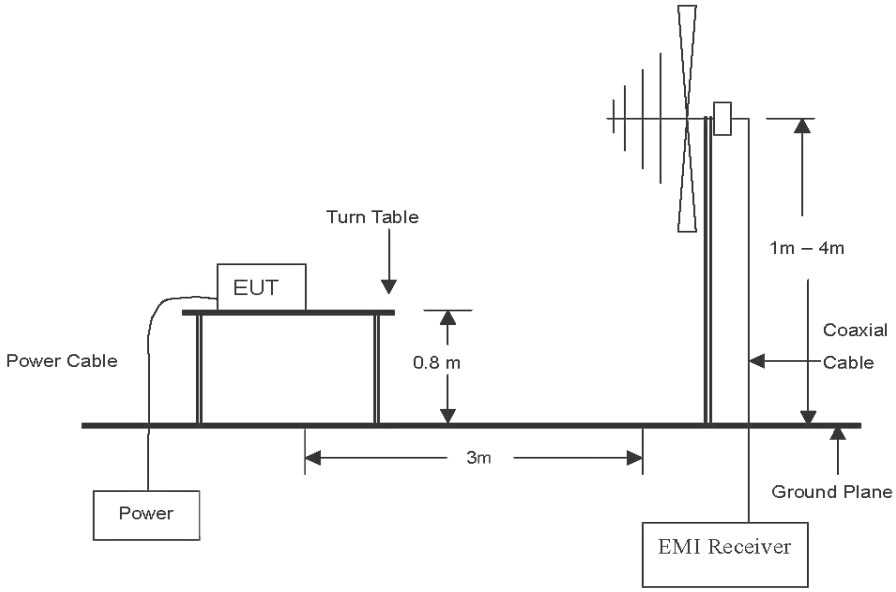
3.1 Radiated spurious emissions

Test setup

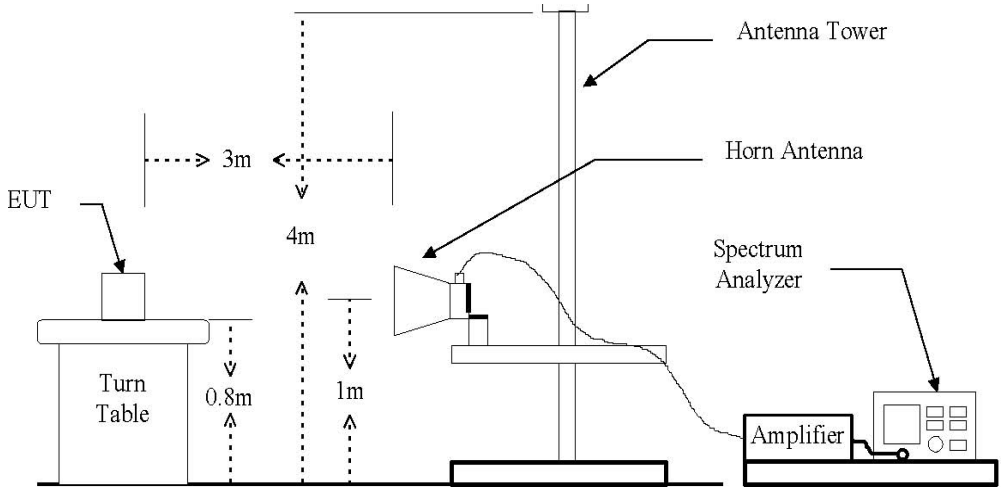
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 ㎑ to 30 ㎒ Emissions.



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



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 ㎓ to 24 ㎓ emissions.



Test procedure

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 or open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1㎓, 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 ㎓, 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 1 meter to 4 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 ㏈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 have10 ㏈ margin would be retested 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.

The spectrum analyzer is set to:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer 200 ㎐ for Quasi-peak detection (QP) at frequency below 9 ㎑~ 150 ㎑.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer 9 ㎑ for Quasi-peak detection (QP) at frequency below 150 ㎑~ 30 ㎒.
3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer 120 ㎑ for Peak detection (PK) or Quasi-peak detection (QP) at frequency below 1 ㎓.
4. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 ㎒ and video bandwidth is 3 ㎒ for Peak detection at frequency above 1 ㎓.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1 ㎒ and the video bandwidth is 3 ㎑ for Average detection (AV) at frequency above 1 ㎓.

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

Limit
According to 15.209(a), for an intentional radiator devices, the general required of field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (㎒)	Distance (Meters)	Radiated (㎶/m)
0.009 ~ 0.490	300	2 400 / F(㎑)
0.490 ~ 1.705	30	24 000 / F(㎑)
1.705 ~ 30.0	30	30
30 ~ 88	3	100**
88 ~ 216	3	150**
216 ~ 960	3	200**
Above 960	3	500

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 ~ 72 ㎒, 76 ~ 88 ㎒, 174 ~ 216 ㎒ or 470 ~ 806 ㎒. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

Test results (Below 30 ㎒)

Radiated emissions		Ant.	Correction factors			Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Pol.	Ant. Factor (dB/m)	Cable loss (dB)	F_d (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Not applicable								

※ Remark

1. All spurious emission at channels are almost the same below 30 ㎒, so that N/A was chosen at representative in final test.
2. Actual = Reading + Ant. factor + Cable loss + F_d
3. $F_d = 40\log(D_m / D_s)$
   Where:
   F_d = Distance factor in dB
   D_m = Measurement distance in meters
   D_s = Specification distance in meters

Test results (Below 1 000 ㎒)

The frequency spectrum from 30 ㎒ to 1 000 ㎒ was investigated.

Radiated emissions		Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
Emission levels are not reported much lower than the limits by over 20 dB							

※ Remark

1. All spurious emission at channels are almost the same below 1 ㎓, so that high channel was chosen at representative in final test.
2. Actual = Reading + Ant. factor + Amp + CL (Cable loss)
3. Detector mode: Quasi peak
4. To get a maximum emission level from the EUT, the EUT was moved throughout the XY, XZ and YZ planes.

Test results (Above 1 000 ㎒)

Low channel

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 821.84	65.70	PK	H	27.53	-29.96	63.27	74.00	10.73
1 821.84	49.89	AV	H	27.53	-29.96	47.46	54.00	6.54
1 821.84	64.98	PK	V	27.53	-29.96	62.55	74.00	11.42
1 821.84	50.13	AV	V	27.53	-29.96	47.70	54.00	6.30
2 732.76	58.06	PK	H	29.64	-28.72	58.98	74.00	15.02
2 732.76	47.56	AV	H	29.64	-28.72	48.48	54.00	5.52
2 732.76	56.26	PK	V	29.64	-28.72	57.18	74.00	16.82
2 732.76	45.52	AV	V	29.64	-28.72	46.44	54.00	7.56
3 643.68	51.41	PK	H	30.93	-27.69	54.65	74.00	19.35
3 643.68	40.15	AV	H	30.93	-27.69	43.39	54.00	10.61
3 643.68	50.98	PK	V	30.93	-27.69	54.22	74.00	19.78
3 643.68	40.35	AV	V	30.93	-27.69	43.59	54.00	10.41
4 554.60	49.02	PK	H	32.80	-24.24	57.58	74.00	16.42
4 554.60	37.95	AV	H	32.80	-24.24	46.51	54.00	7.49
4 554.60	45.56	PK	V	32.80	-24.24	54.12	74.00	19.88
4 554.60	35.25	AV	V	32.80	-24.24	43.81	54.00	10.19
5 465.52	51.95	PK	H	34.37	-21.55	64.77	74.00	9.23
5 465.52	39.10	AV	H	34.37	-21.55	51.92	54.00	2.08
5 465.52	46.36	PK	V	34.37	-21.55	59.18	74.00	14.82
5 465.52	35.65	AV	V	34.37	-21.55	48.47	54.00	5.53

Middle channel

Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 830.00	67.69	PK	H	27.57	-29.95	65.31	74.00	8.69
1 830.00	53.51	AV	H	27.57	-29.95	51.13	54.00	2.87
1 830.00	65.92	PK	V	27.57	-29.95	63.54	74.00	10.46
1 830.00	52.96	AV	V	27.57	-29.95	50.58	54.00	3.42
2 745.00	55.88	PK	H	29.66	-28.72	56.83	74.00	17.17
2 745.00	42.80	AV	H	29.66	-28.72	43.75	54.00	10.25
2 745.00	54.39	PK	V	29.66	-28.72	55.34	74.00	18.66
2 745.00	41.37	AV	V	29.66	-28.72	42.32	54.00	11.68
3 660.00	49.30	PK	H	30.95	-27.63	52.62	74.00	21.38
3 660.00	50.22	PK	V	30.95	-27.63	53.54	74.00	20.46
4 575.00	48.14	PK	H	32.85	-24.18	56.81	74.00	17.19
4 575.00	36.23	AV	H	32.85	-24.18	44.90	54.00	9.10
4 575.00	43.52	PK	V	32.85	-24.18	52.19	74.00	21.81
5 490.00	51.37	PK	H	34.39	-21.48	64.28	74.00	9.72
5 490.00	39.94	AV	H	34.39	-21.48	52.85	54.00	1.15
5 490.00	47.84	PK	V	34.39	-21.48	60.75	74.00	13.25
5 490.00	35.77	AV	V	34.39	-21.48	48.68	54.00	5.32

High channel

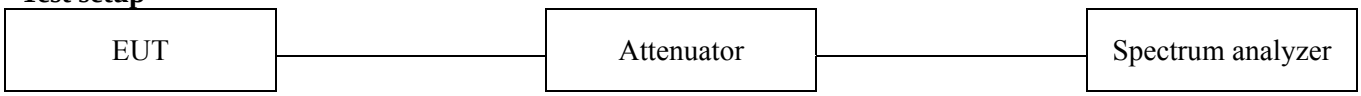
Radiated emissions			Ant.	Correction factors		Total	Limit	
Frequency (㎒)	Reading (dB㎶)	Detector mode	Pol.	Ant. factor (dB/m)	Amp + CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1838.16	68.00	PK	H	27.61	-29.94	65.67	74.00	8.33
1838.16	54.02	AV	H	27.61	-29.94	51.69	54.00	2.31
1838.16	66.72	PK	V	27.61	-29.94	64.39	74.00	9.61
1838.16	53.26	AV	V	27.61	-29.94	50.93	54.00	3.07
2757.24	56.02	PK	H	29.68	-28.71	56.99	74.00	17.01
2757.24	43.04	AV	H	29.68	-28.71	44.01	54.00	9.99
2757.24	54.81	PK	V	29.68	-28.71	55.78	74.00	18.22
2757.24	41.98	AV	V	29.68	-28.71	42.95	54.00	11.05
3676.32	48.78	PK	H	30.98	-27.57	52.18	74.00	21.82
3676.32	49.88	PK	V	30.98	-27.57	53.28	74.00	20.72
4595.40	47.02	PK	H	32.90	-24.13	55.80	74.00	18.20
4595.40	35.86	AV	H	32.90	-24.13	44.64	54.00	9.36
4595.40	45.31	PK	V	32.90	-24.13	54.09	74.00	19.91
4595.40	34.25	AV	V	32.90	-24.13	43.03	54.00	10.97
5514.48	52.42	PK	H	34.41	-21.42	65.41	74.00	8.59
5514.48	39.38	AV	H	34.41	-21.42	52.37	54.00	1.63
5514.48	47.46	PK	V	34.41	-21.42	60.45	74.00	13.55
5514.48	36.74	AV	V	34.41	-21.42	49.73	54.00	4.27

Note.

1. Measuring frequencies from 1 ㎓ to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1 000 ㎒ were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Actual = Reading + Ant. factor + Amp + CL (Cable loss)
5. To get a maximum emission level from the EUT, the EUT was moved throughout the XY, XZ and YZ planes.

3.2 Maximum peak power

Test setup



Test procedure

1. Use the following spectrum analyzer setting
   Center frequency: Lowest, middle and highest channels
   Span = 5 ㎒ (Approximately 5 times the 20 ㏈ bandwidth, centered on a hopping channel)
   RBW = 1 ㎒ (the 20 ㏈ bandwidth of the emission being measured)
   VBW = 1 ㎒ (≥ RBW)
   Sweep = auto
   Detector function = peak
   Trace = max hold
2. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power.

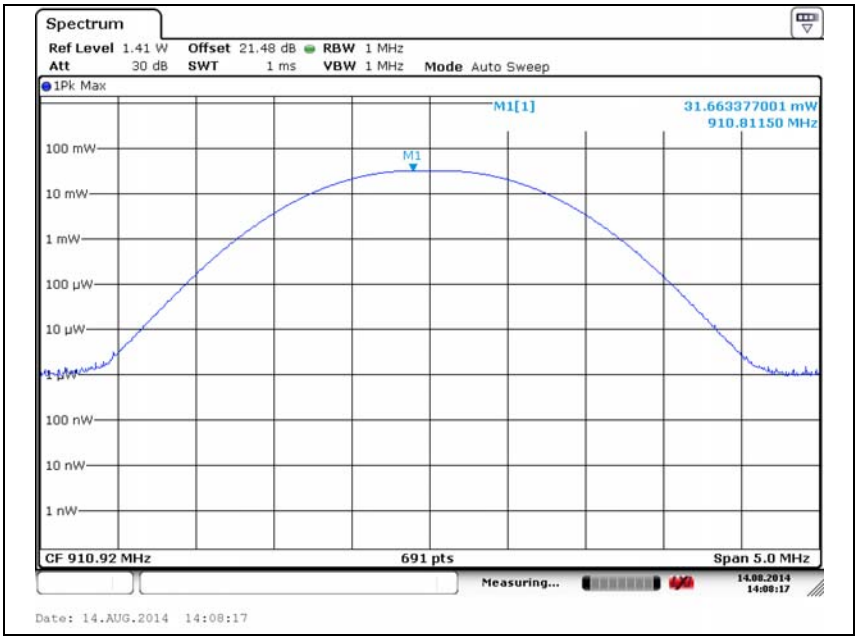
Limit

For frequency hopping systems operating in the 902 ~ 928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

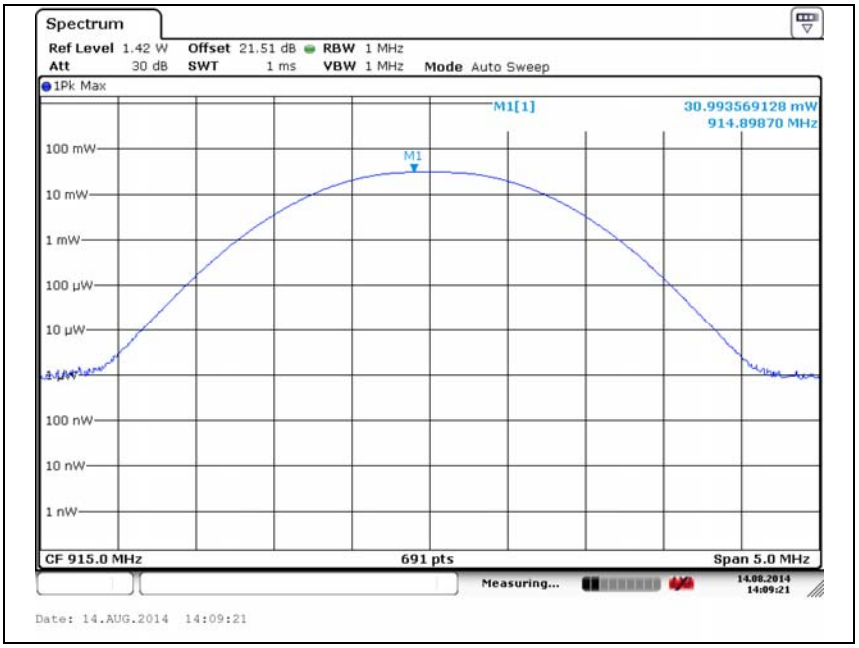
Test results

Frequency(㎒)	Output power (W)	Limit (W)
910.92	0.032	0.25
915.00	0.031	0.25
919.08	0.030	0.25

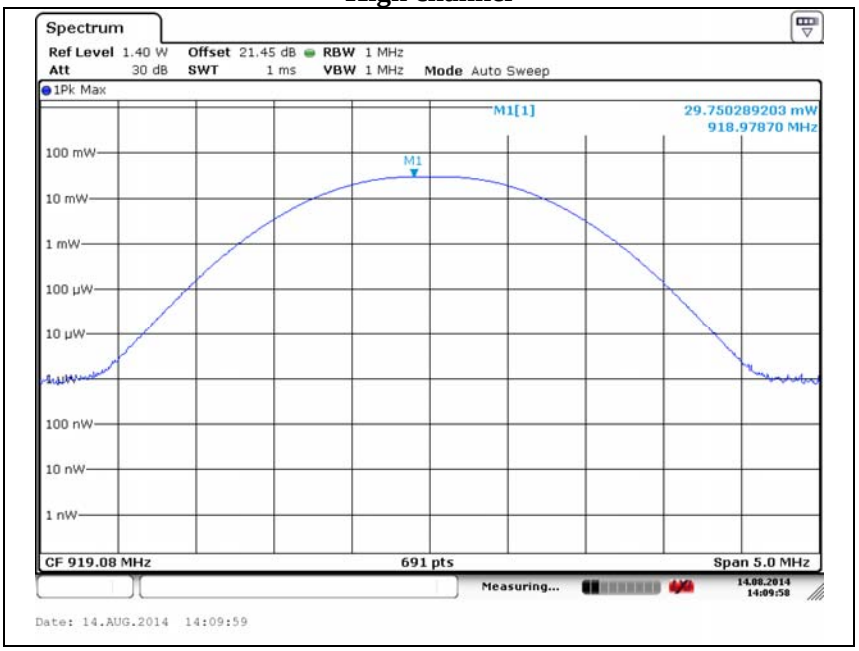
Low channel



Middle channel

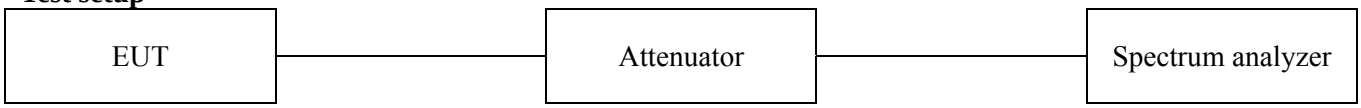


High channel



3.3 Conducted spurious emissions & band edge

Test setup



Test procedure for band edge

1. Use the following spectrum analyzer setting
   Center frequency: Low, middle and high channel.
   Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation.
   RBW = 100 ㎑ (1% of the span)
   VBW = 100 ㎑ (≥ RBW)
   Sweep = auto
   Detector function = peak
   Trace = max hold
2. Allow the trace to stabilize. Set the marker on the emission at the band edge, or on the highest modulation on product outside of the band, if this level is greater than that at the band edge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission.

Test procedure for spurious emission

1. Use the following spectrum analyzer setting
   Center frequency: Low, middle and high channel.
   Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation.
   RBW = 100 ㎑
   VBW = 100 ㎑ (≥ RBW)
   Sweep = auto
   Detector function = peak
   Trace = max hold
2. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.

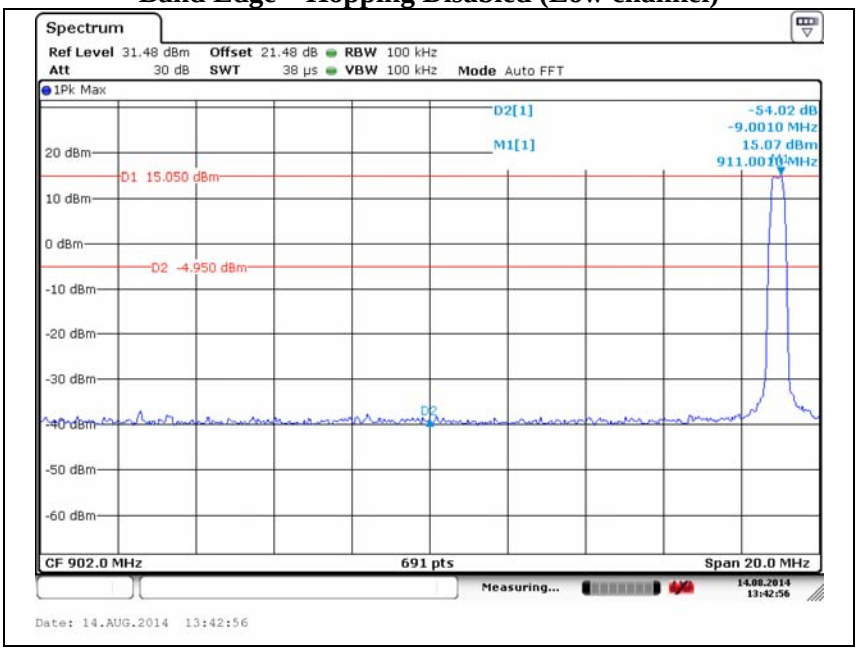
Limit

According to 15.247(d), in any 100 ㎑ 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 ㏈ below that in the 100 ㎑ 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 ㏈ instead of 20 ㏈. 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))

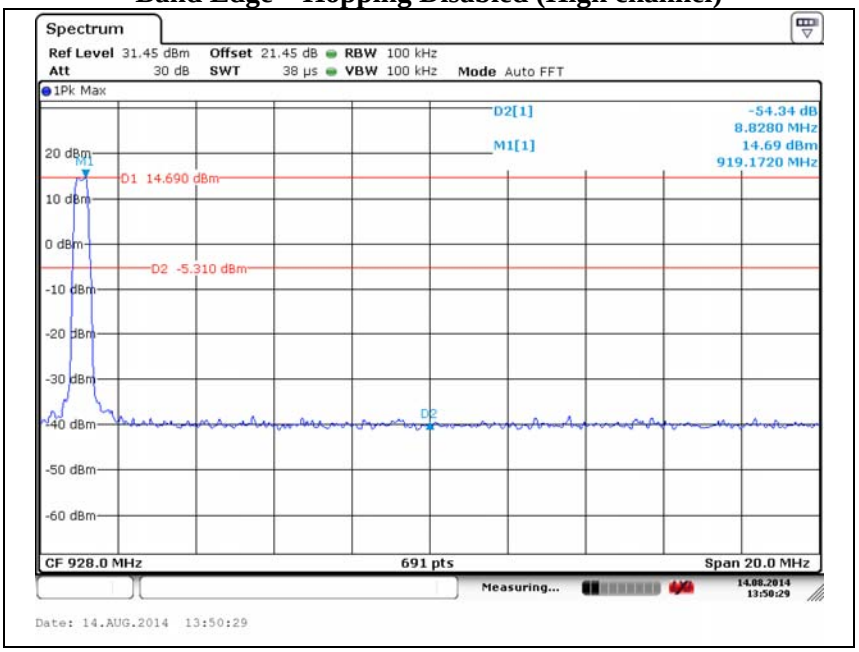
According to RSS-210 A8.5, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section A8.4 (4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Test results

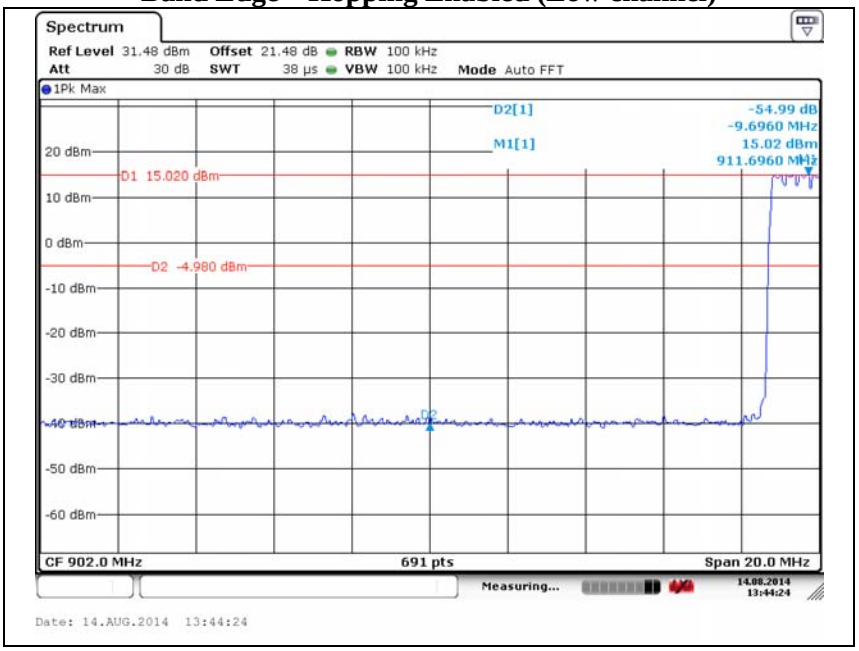
Band Edge – Hopping Disabled (Low channel)



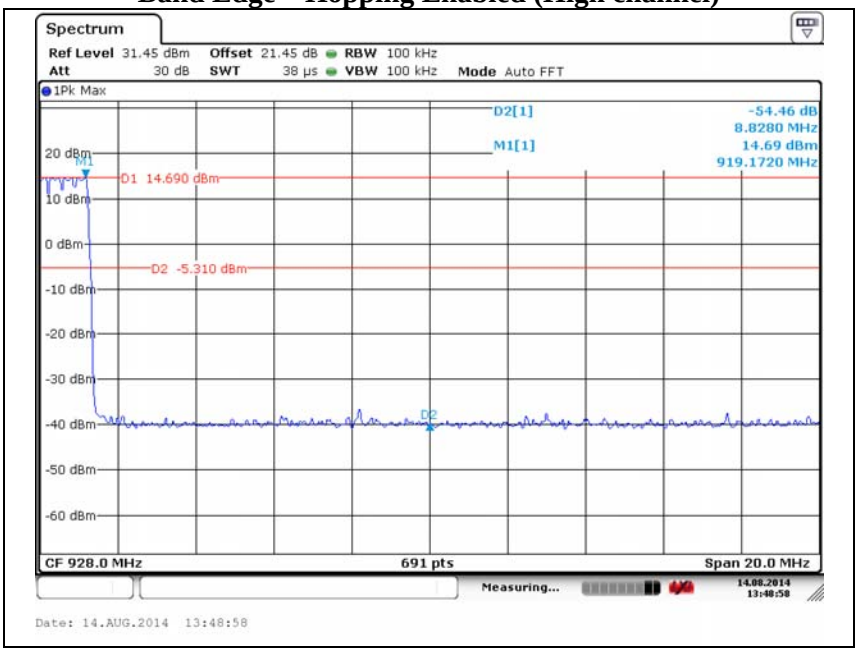
Band Edge – Hopping Disabled (High channel)



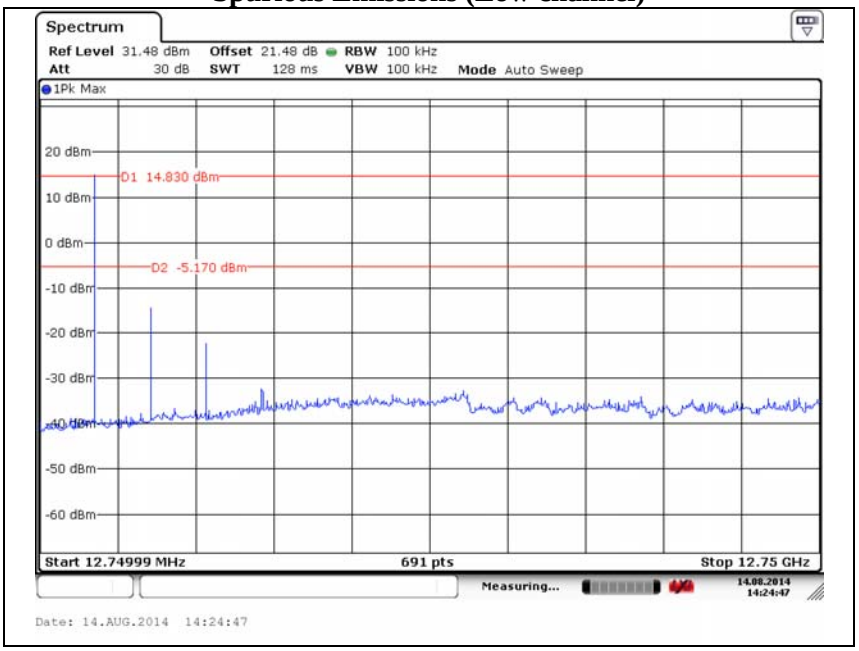
Band Edge – Hopping Enabled (Low channel)



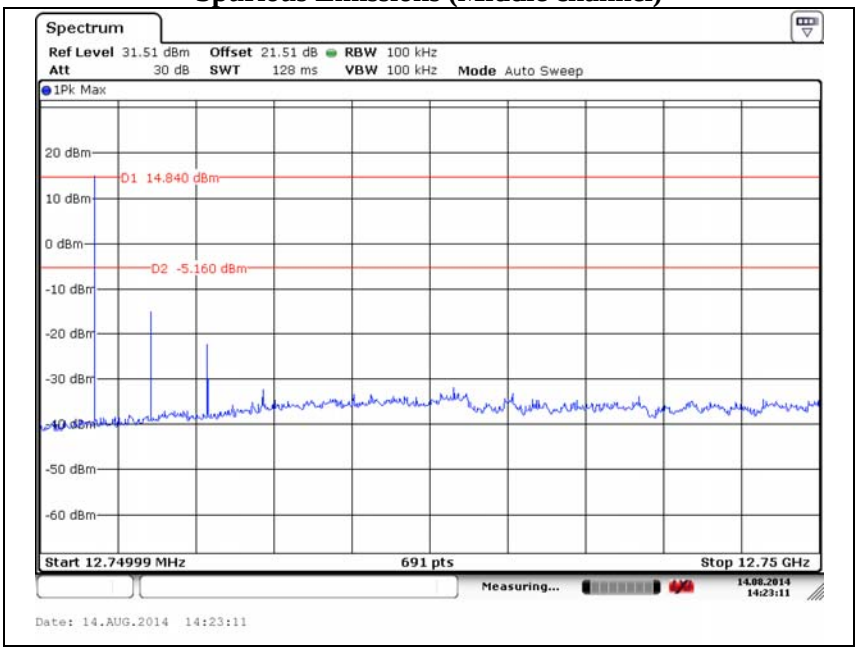
Band Edge – Hopping Enabled (High channel)



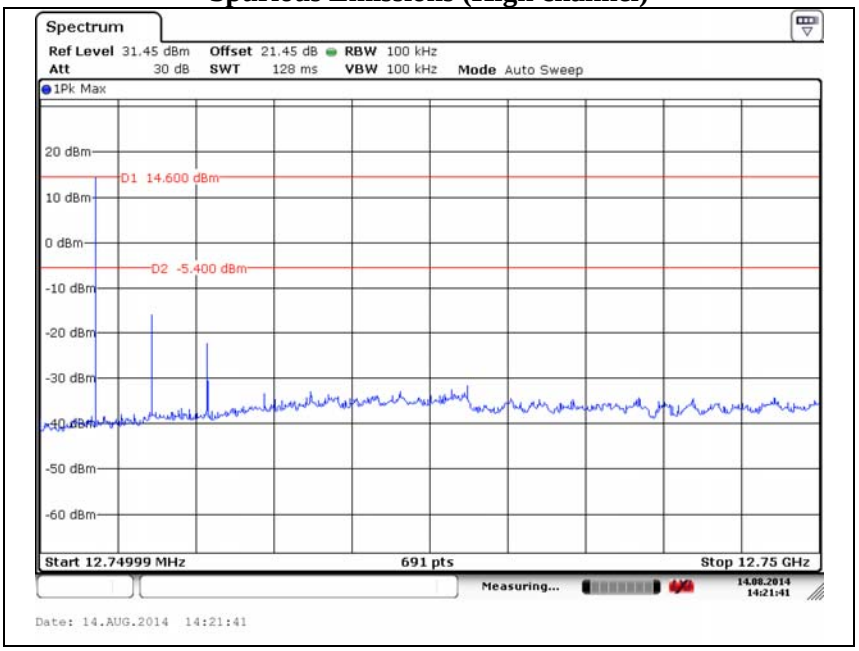
Spurious Emissions (Low channel)



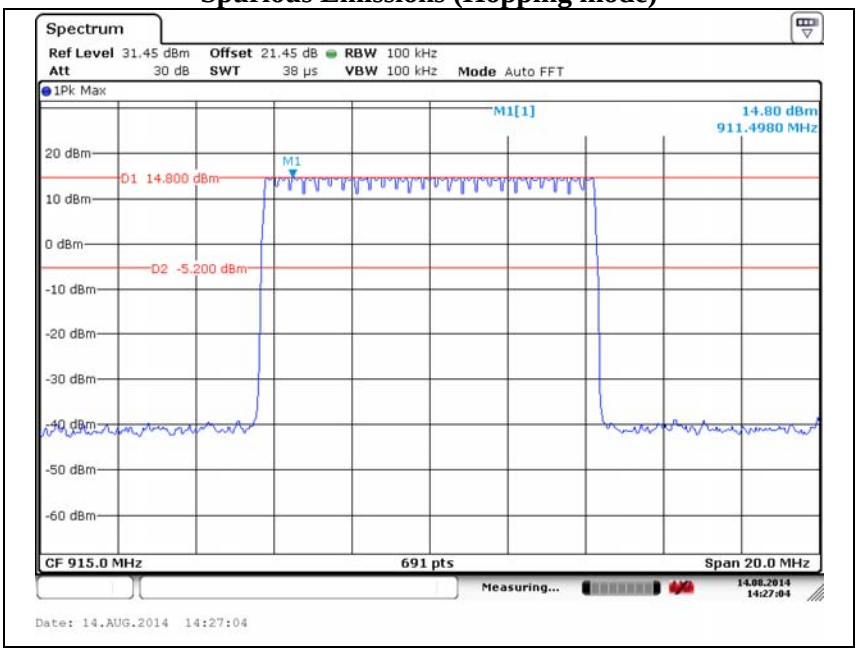
Spurious Emissions (Middle channel)

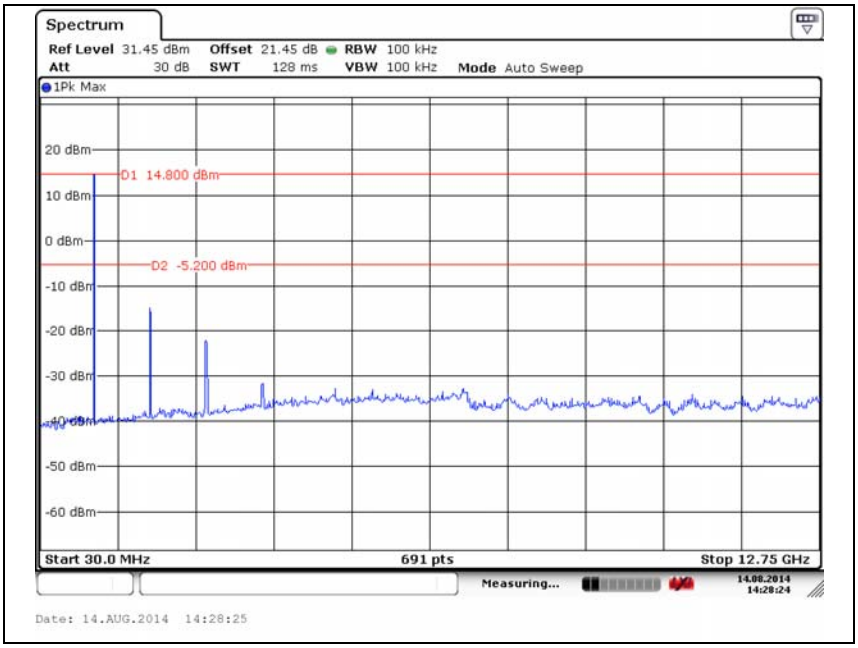


Spurious Emissions (High channel)



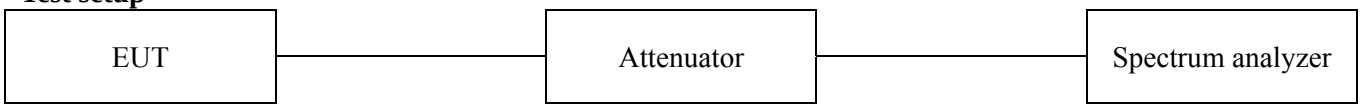
Spurious Emissions (Hopping mode)





3.4 20 dB bandwidth & 99 % occupied bandwidth

Test setup



Test procedure

1. Use the following spectrum analyzer setting
   Center frequency: Lowest, middle and highest channels
   Span = 1 ㎒ (Approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel)
   RBW = 10 ㎑ (≥ 1% of the span)
   VBW = 10 ㎑ (≥ RBW)
   Sweep = auto
   Detector function = peak
   Trace = max hold
2. The EUT should be transmitting at its maximum data rate. Allow the trance to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down on side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level.

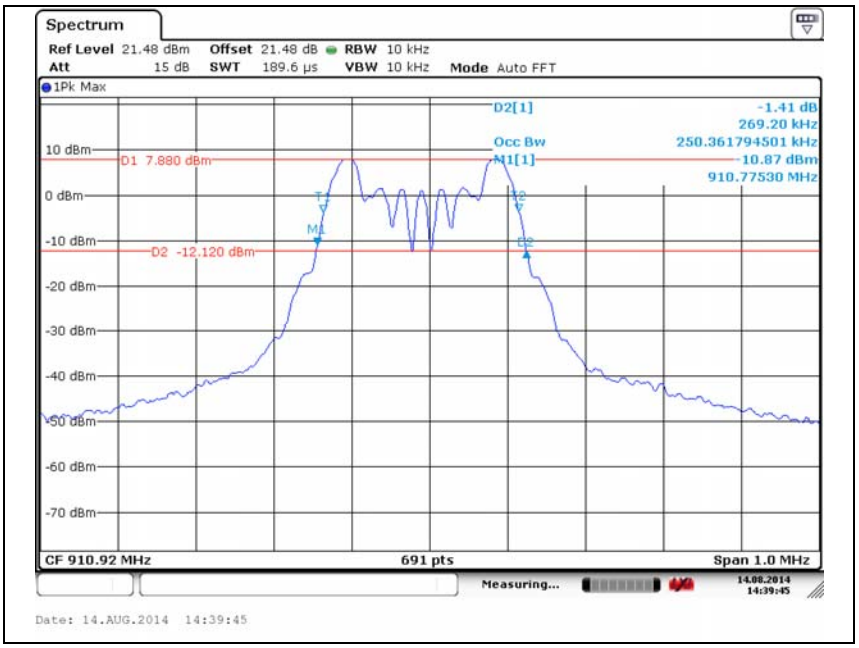
Limit

Not applicable

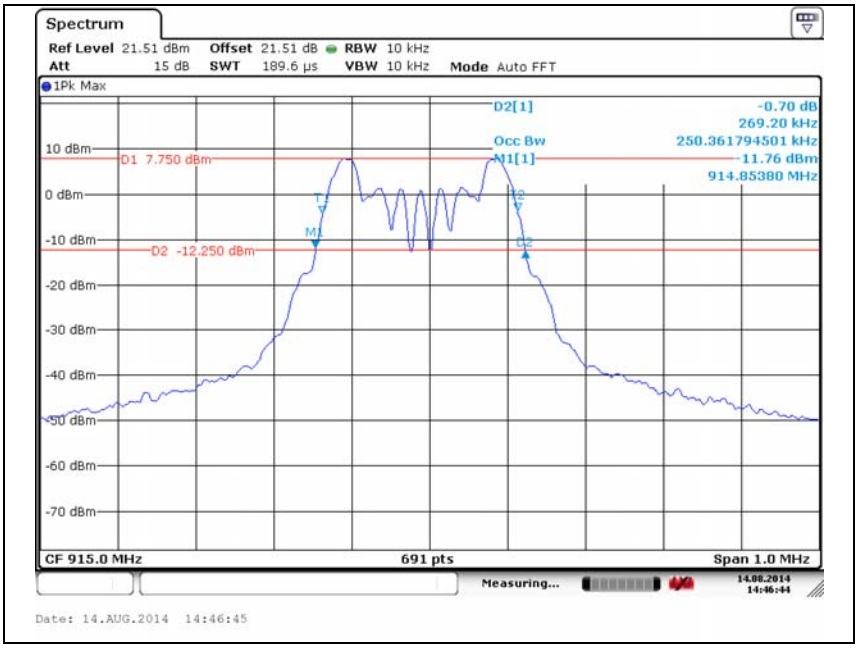
Test results

Frequency(㎒)	20 ㏈ bandwidth(㎑)	99 % occupied bandwidth(㎑)
910.92	269.20	250.36
915.00	269.20	250.36
919.08	269.20	251.80

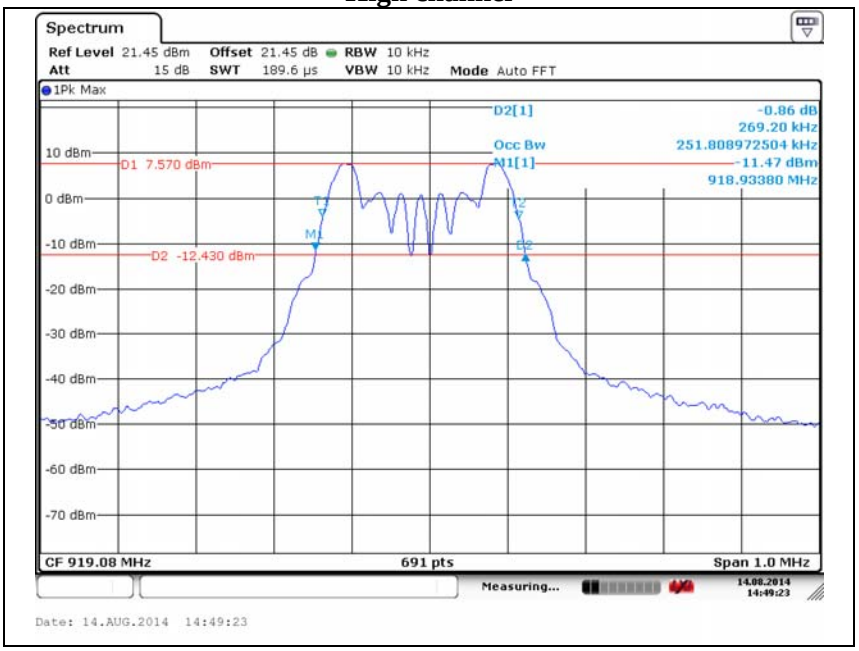
Low channel



Middle channel

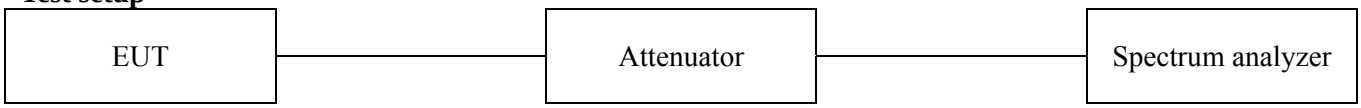


High channel



3.5 Frequency separation

Test setup



Test procedure

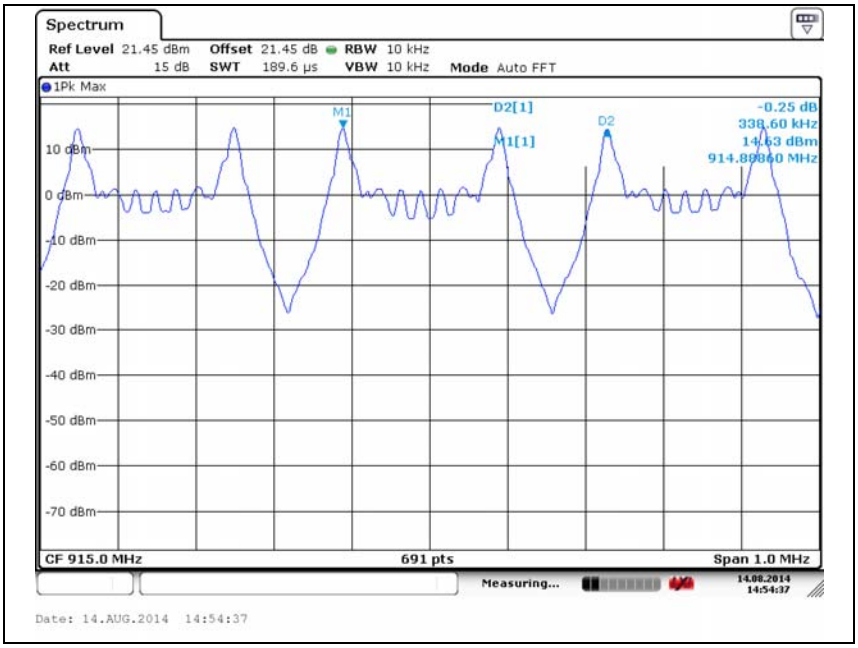
1. The EUT must have its hopping function enabled.
2. Use the following spectrum analyzer setting
   Span = 1 ㎒ (wide enough to capture the peaks of two adjacent channels)
   RBW = 10 ㎑ (≥ 1% of the span)
   VBW = 10 ㎑ (≥ RBW)
   Sweep = auto
   Detector function = peak
   Trace = max hold
3. All the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

Limit

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

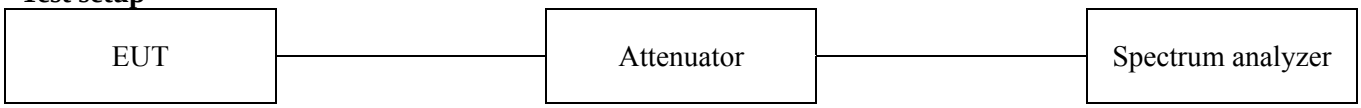
Test results

Operation mode	Channel separation(㎑)	Minimum bandwidth (㎑)
Hopping mode	338.60	25



3.6 Number of hopping frequency

Test setup



Test procedure

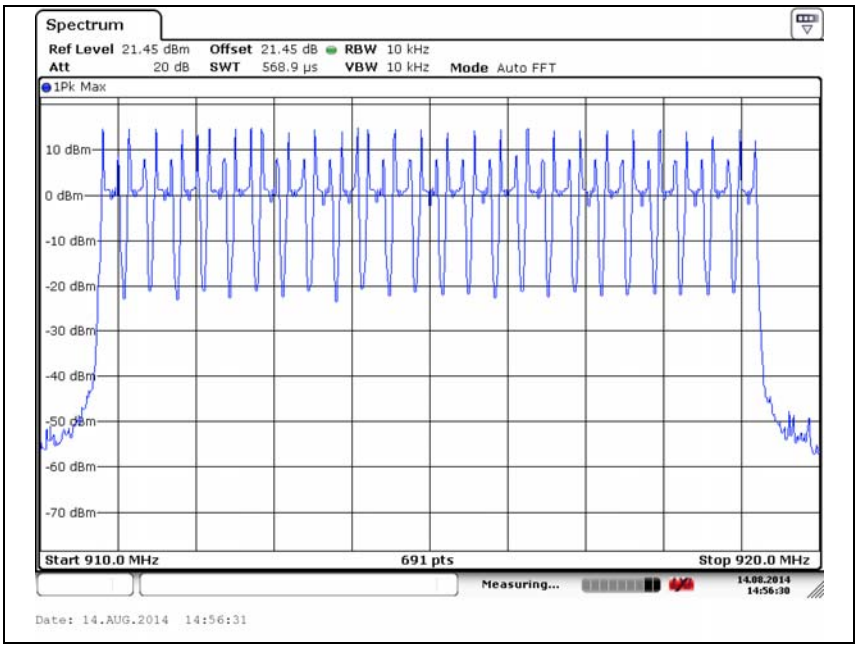
1. The EUT must have its hopping function enabled.
2. Use the following spectrum analyzer setting
   Frequency range: 910 ㎒ ~ 920 ㎒
   Span = the frequency band of operation
   RBW = 10 ㎑ (≥ 1% of the span)
   VBW = 10 ㎑ (≥ RBW)
   Sweep = auto
   Detector function = peak
   Trace = max hold
3. All the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

Limit

For frequency hopping systems operating in the 902 ~ 928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

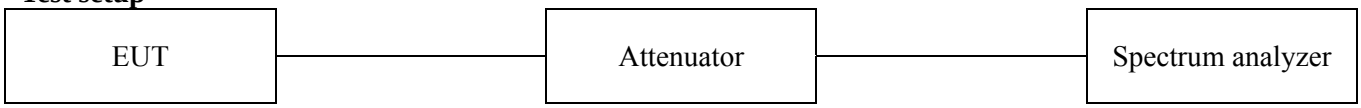
Test results

Operation mode	Number of hopping frequency	Limit
GFSK	25	≥ 25



3.7 Time of occupancy (Dwell time)

Test setup



Test procedure

1. Use the following spectrum analyzer setting
   Operation frequency: center frequency
   Span = Zero span, centered on a hopping channel
   RBW = 300 ㎑
   VBW = 300 ㎑ (≥ RBW)
   Sweep = as necessary to capture the entire dwell time per hopping channel
   Detector function = peak
   Trace = max hold

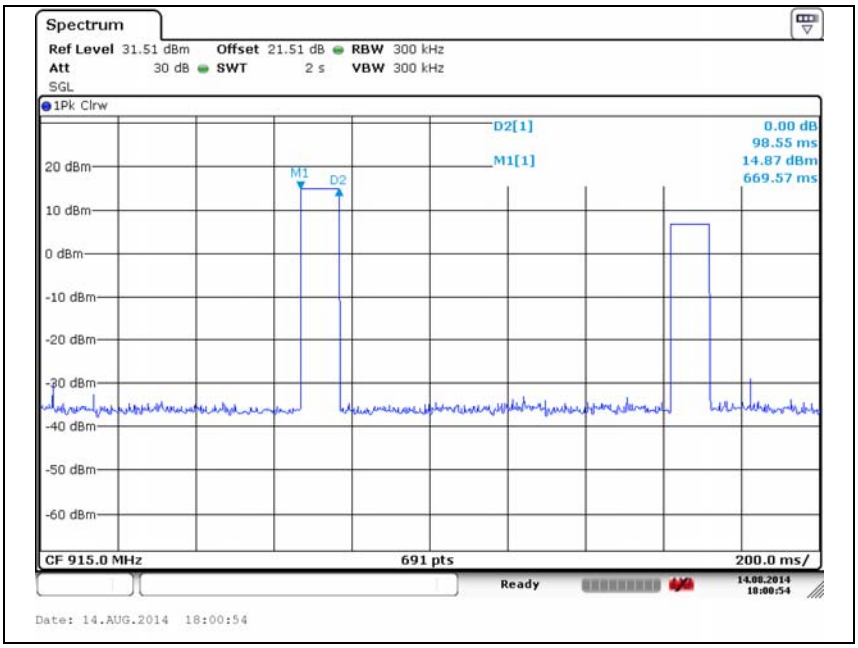
Limit

For frequency hopping systems operating in the 902 ~ 928 ㎒ band: if the 20 ㏈ bandwidth of the hopping channel is less than 250 ㎑, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 ㏈ bandwidth of the hopping channel is 250 ㎑ or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 ㏈ bandwidth of the hopping channel is 500 ㎑.

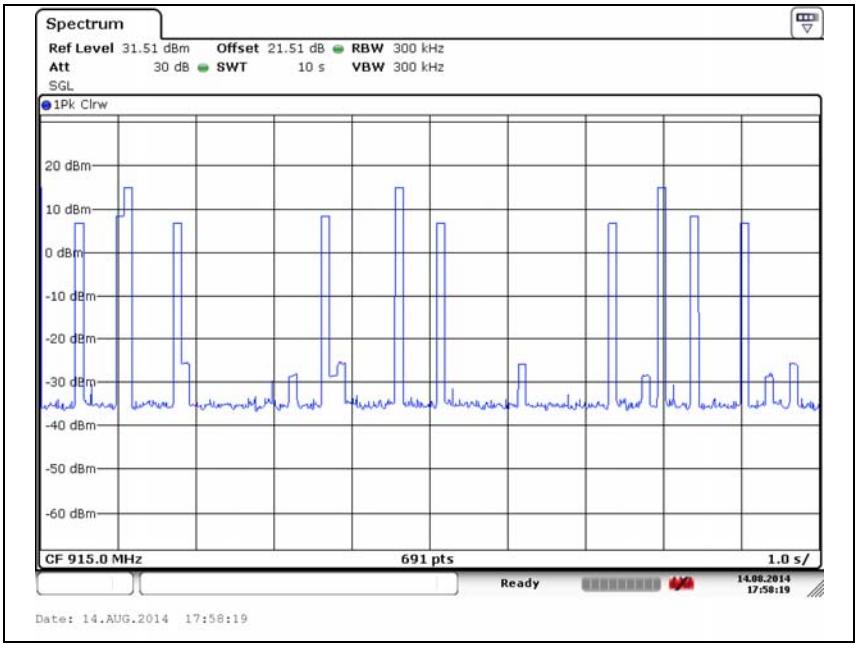
Test results

Frequency (㎒)	Dwell time (ms)	Transmission occurred	Result (㎳)	Limit (㎳)
915	98.55	3	295.65	400

Dwell time



Transmission occurred



Appendix A. Test equipment used for test

Equipment	Manufacturer	Model	Serial No.	Calibration interval	Calibration due.
Spectrum analyzer	R&S	FSV30	101389	1 year	2015.05.06
Vector signal generator	R&S	SMBV2100A	1407.6004K02	1 year	2015.01.06
Brodband coaxial preamplifier	Schwarzbeck Mess-Elektronik	BBV 9718	9718-245	2 years	2014.09.23
Trilog-broadband antenna	Schwarzbeck	VULB 9168	9168-385	2 years	2015.05.09
Horn antenna	A.H.	SAS-571	414	2 years	2015.02.28
High pass filter	Weinschel	WHKX1.2/15G-6TT	1	1 year	2015.07.23
DC power supply	HP	6632B	US36351824	1 year	2015.04.30

Peripheral devices

Device	Manufacturer	Model No.	Serial No.
N/A			

Appendix B. Test setup photos

Radiated field emissions