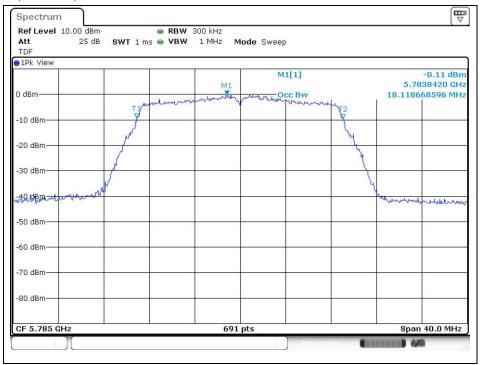


Report Number: F690501-RF-RTL000173 Page: 90 of 153

# Middle Channel (5 785 Mb)



# High Channel (5 825 账)



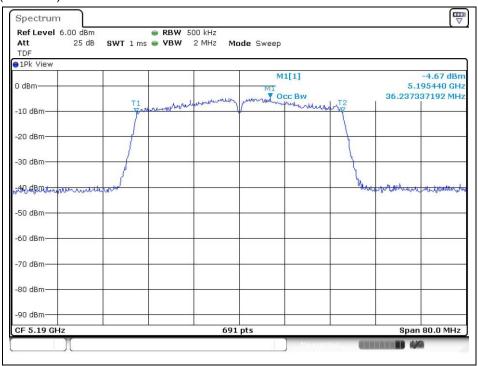
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



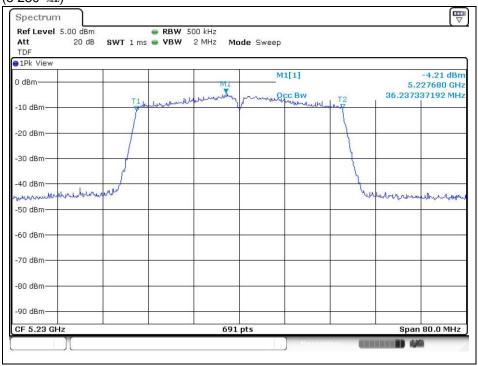
Report Number: F690501-RF-RTL000173 Page: 91 of 153

# 802.11ac\_VHT40 (Band 1)

Low Channel (5 190 Mb)



# High Channel (5 230 Mb)



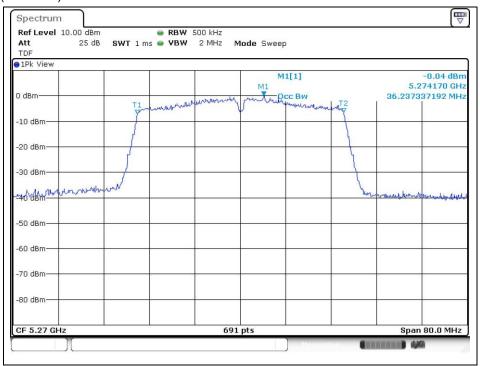
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



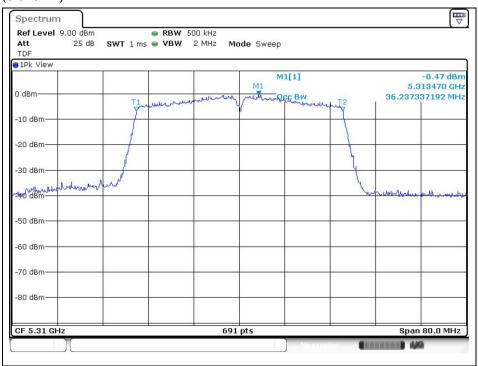
Report Number: F690501-RF-RTL000173 Page: 92 of 153

# 802.11ac\_VHT40 (Band 2A)

Low Channel (5 270 Mb)



### High Channel (5 310 Mb)



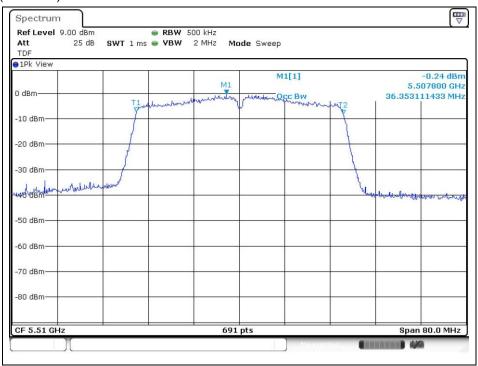
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



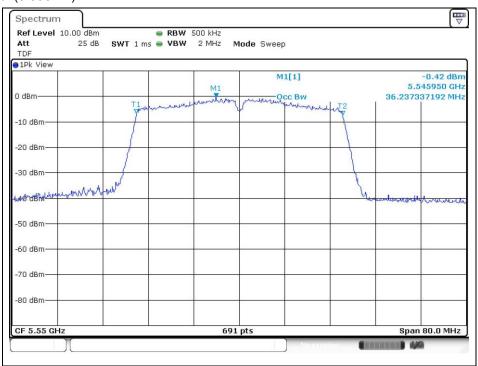
Report Number: F690501-RF-RTL000173 Page: 93 of 153

# 802.11ac\_VHT40 (Band 2C)

Low Channel (5 510 Mb)



### Middle Channel (5 550 Mb)

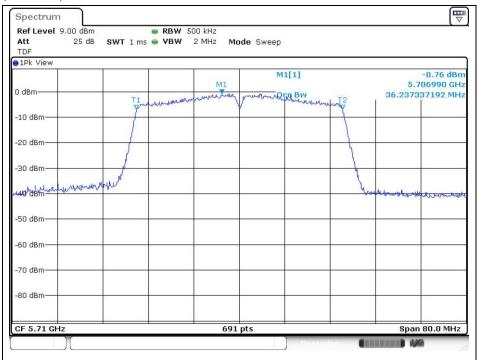


The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



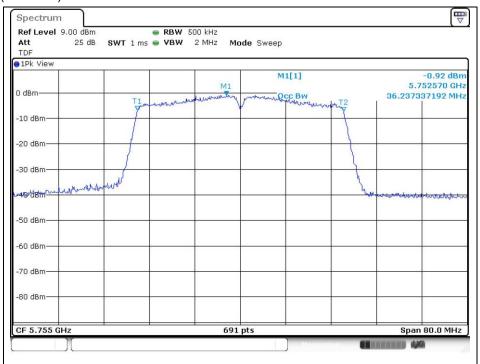
Report Number: F690501-RF-RTL000173 Page: 94 of 153

# High Channel (5 710 账)



# 802.11ac\_VHT40 (Band 3)

Low Channel (5 755 Mb)

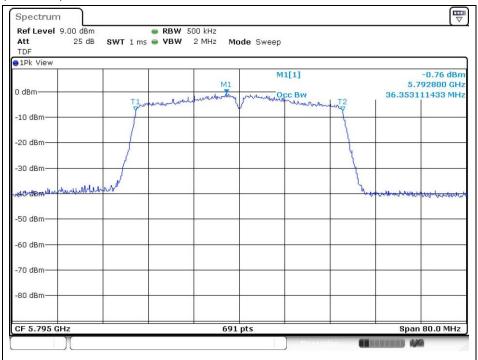


The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



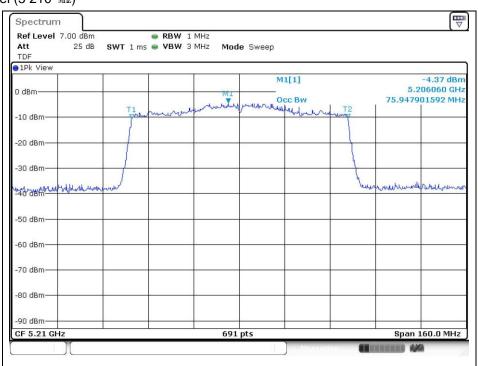
Report Number: F690501-RF-RTL000173 Page: 95 of 153

# High Channel (5 795 №)



# 802.11ac\_VHT80 (Band 1)

Middle Channel (5 210 Mb)



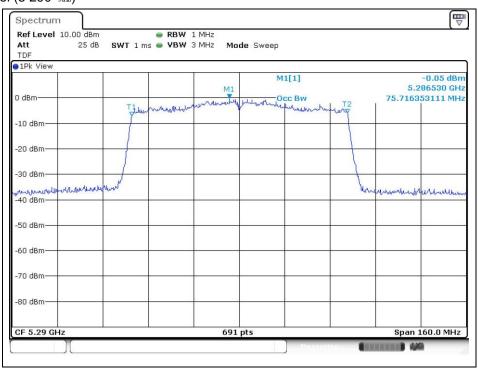
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



Report Number: F690501-RF-RTL000173 Page: 96 of 153

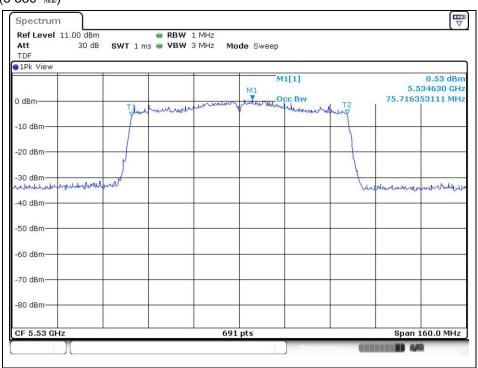
# 802.11ac\_VHT80 (Band 2A)

Middle Channel (5 290 Mb)



# 802.11ac\_VHT80 (Band 2C)

Low Channel (5 530 账)



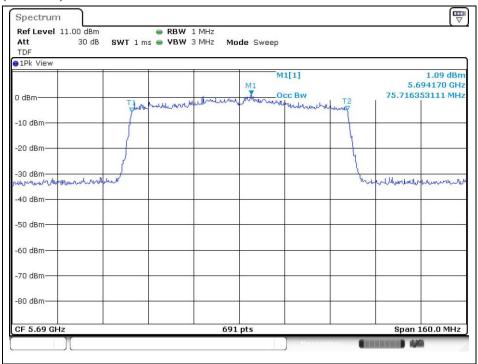
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



Report Number: F690501-RF-RTL000173 Page: 97 of 153

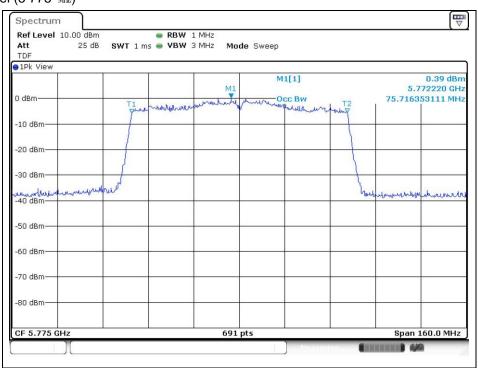
# 802.11ac\_VHT80 (Band 2C)

High Channel (5 690 Mb)



# 802. 11ac\_VHT80 (Band 3)

Middle Channel (5 775 Mb)



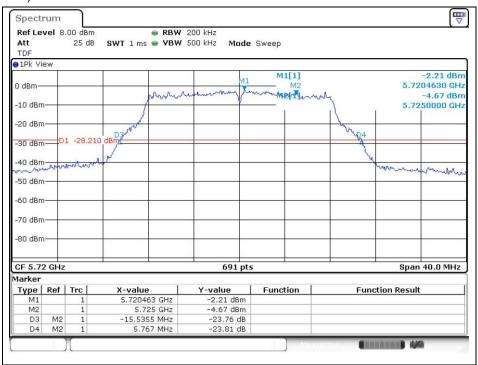
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



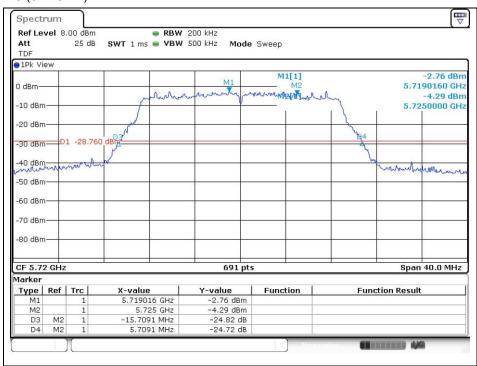
Report Number: F690501-RF-RTL000173 Page: 98 of 153

### **Band-crossing channels**

802.11a (5 720 账)



### 802.11ac\_VHT20 (5 720 贴)

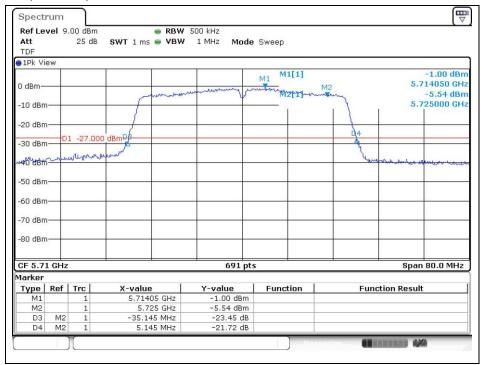


The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.

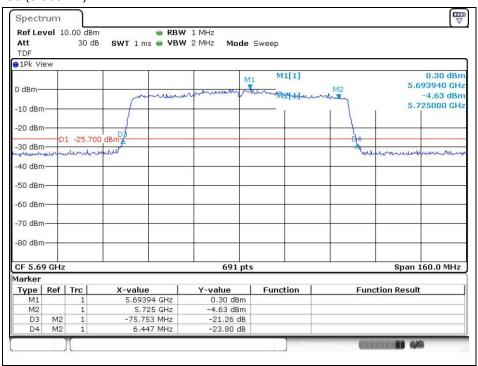


Report Number: F690501-RF-RTL000173 Page: 99 of 153

# 802.11ac\_VHT40 (5 710 Mb)



# 802.11ac\_VHT80 (5 690 Mb)



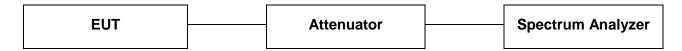
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



Report Number: F690501-RF-RTL000173 Page: 100 of 153

# 4. 6 dB Bandwidth

## 4.1. Test Setup



#### 4.2. Limit

#### 4.2.1. FCC

According to \$15.407(e), within the 5.725-5.85 @b band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 klz.

#### 4.2.2. IC

According to RSS-247 Issue 2, 6.2.4.1, the minimum -6 dB Bandwidth shall be at least 500 klb.

#### 4.3. 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.

- 1. This measurement settings are specified in section II.C.2 of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- 2. Set RBW = 100 kHz.
- 3. Set the video bandwidth (VBW)  $\geq$  3 x RBW.
- 4. Detector = Peak.
- 5. Trace mode = max hold.
- 6. Sweep = auto couple.
- 7. Allow the trace to stabilize.
- 8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### Remark;

In case of band crossing channels 138, 142 and 144, the measurement is complied with section III.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.



Report Number: F690501-RF-RTL000173 Page: 101 of 153

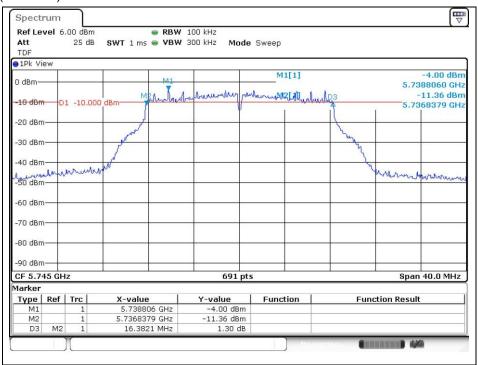
### 4.4. Test Result

Band	Mode	Frequency (Mb)	Ch.	Data Rate (Mbps)	6 dB Bandwidth (地)	Minimum Bandwidth (逝)
		5 745	149		16.382	
	11a	5 785	157	6	16.440	
		5 825	165		16.440	
		5 745	149		17.656	
U-NII 3	11ac_VHT20	5 785	157	MCS0	17.656	500
		5 825	165		17.656	
	11ac_VHT40	5 755	151	14000	36.237	
	TTAC_VITT40	5 795	159	MCS0	35.774	
	11ac_VHT80	5 775	155	MCS1	75.716	
U-NII 3	11a	5 720	144	6	3.278	
(Band-	44 1/1/200	5 720	144	MCS0	3.857	
crossing	11ac_VHT40	5 710	142	MCS0	2.713	
channels)	11ac_VHT80	5 690	138	MCS1	2.974	

# - Test plots

# 802.11a (Band 3)

Low Channel (5 745 Mb)

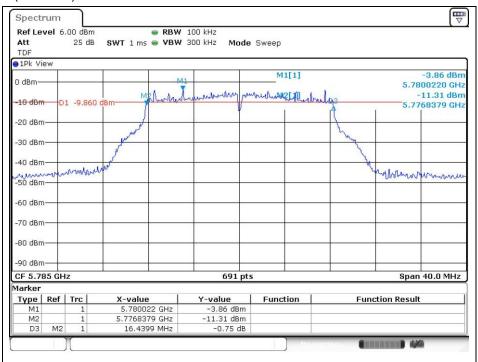


The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.

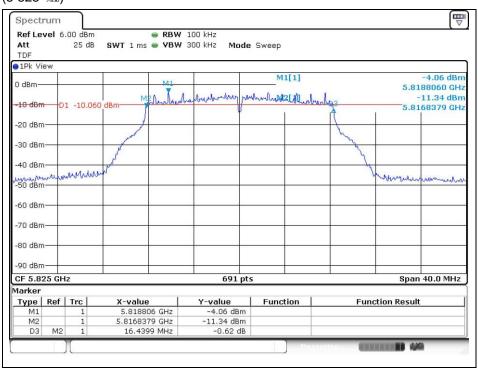


Report Number: F690501-RF-RTL000173 Page: 102 of 153

#### Middle Channel (5 785 Mb)



### High Channel (5 825 Mb)



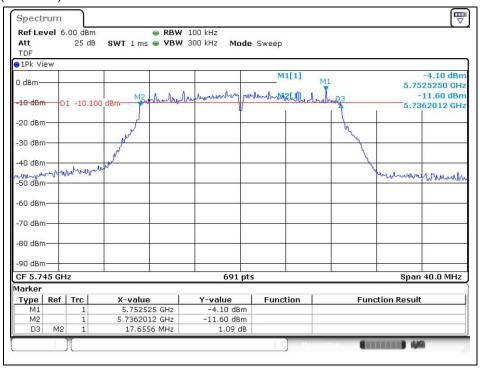
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



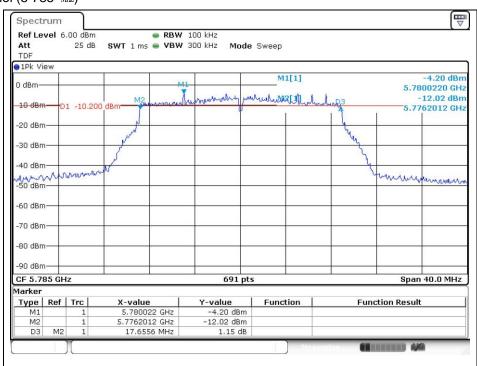
Report Number: F690501-RF-RTL000173 Page: 103 of 153

### 802.11ac\_VHT20 (Band 3)

Low Channel (5 745 Mb)



## Middle Channel (5 785 Mb)

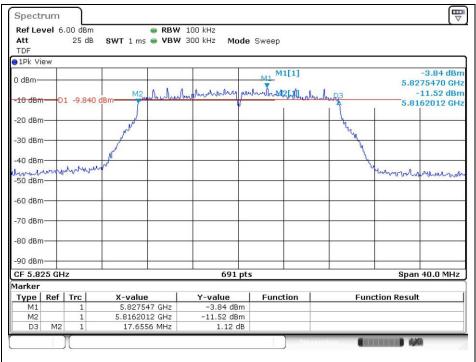


The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



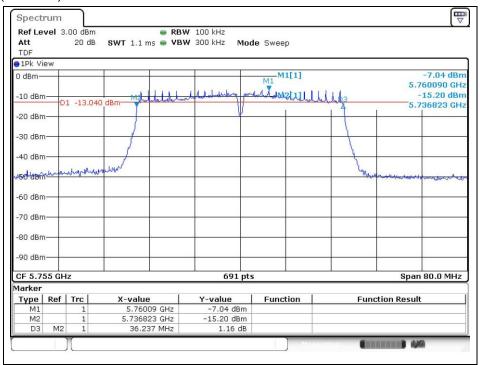
Report Number: F690501-RF-RTL000173 Page: 104 of 153

## High Channel (5 825 Mb)



# 802.11ac\_VHT40 (Band 3)

Low Channel (5 755 Mb)

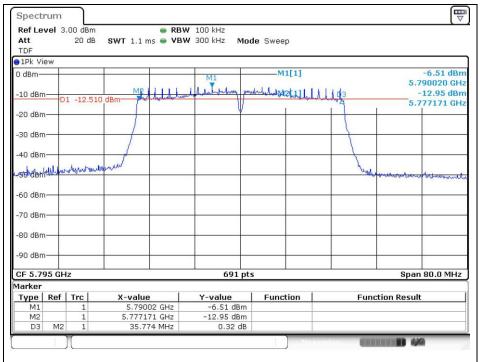


The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



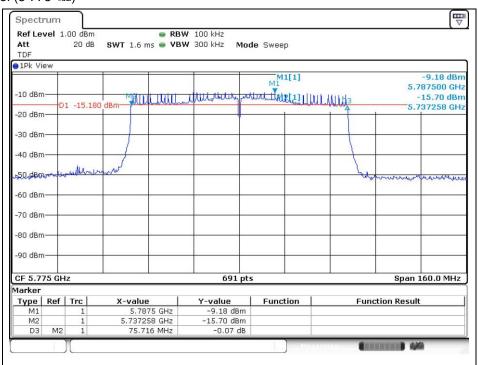
Report Number: F690501-RF-RTL000173 Page: 105 of 153

## High Channel (5 795 账)



# 802.11ac\_VHT80 (Band 3)

Middle Channel (5 775 Mb)



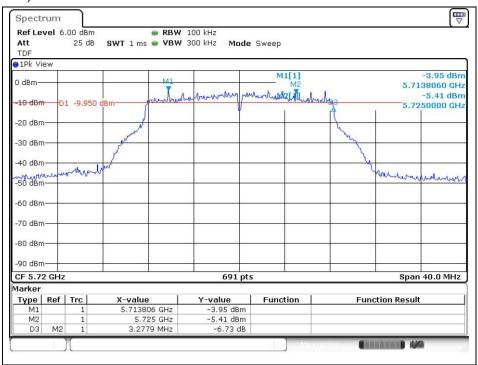
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.



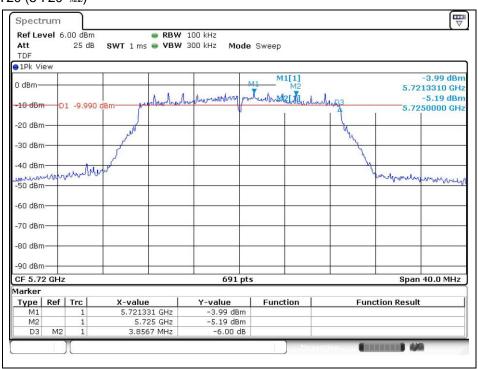
Report Number: F690501-RF-RTL000173 Page: 106 of 153

### **Band-crossing channels**

802.11a (5 720 账)



### 802.11ac\_VHT20 (5 720 贴)



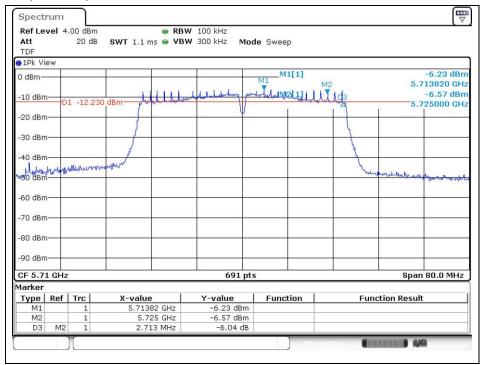
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.

SGS Korea Co., Ltd. (Gunpo Laboratory) 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807 http://www.sgsgroup.kr

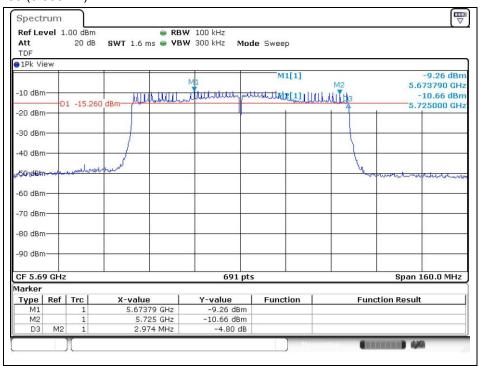


Report Number: F690501-RF-RTL000173 Page: 107 of 153

# 802.11ac\_VHT40 (5 710 Nb)



# 802.11ac\_VHT80 (5 690 Mb)



The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.

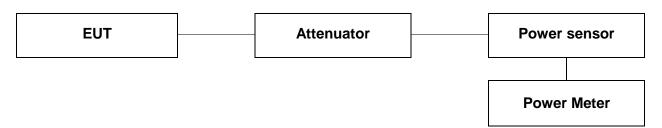
SGS Korea Co., Ltd. (Gunpo Laboratory) 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807 http://www.sgsgroup.kr



Report Number: F690501-RF-RTL000173 Page: 108 of 153

# 5. Maximum Conducted Output Power

# 5.1. Test Setup



### 5.2. Limit

#### 5.2.1. FCC

According to 15.407(a)(1)(iv)

For client devices in the 5.15-5.25  $\mbox{d} \mbox{d}$  band, the maximum conducted output power over the frequency band of operation shall not exceed 250  $\mbox{m} \mbox{W}$  provided the maximum antenna gain does not exceed 6  $\mbox{d} \mbox{B}$  i. In addition, the maximum power spectral density shall not exceed 11  $\mbox{d} \mbox{B}$  m in any 1 megahertz band. If transmitting antennas of directional gain greater than 6  $\mbox{d} \mbox{B}$  i are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in  $\mbox{d} \mbox{B}$  that the directional gain of the antenna exceeds 6  $\mbox{d} \mbox{B}$  i.

## According to 15.407(a)(2)

For the 5.25-5.35  $\mbox{ }\mbox{ }\m$ 

#### According to 15.407(a)(3)

For the band 5.725-5.85  $\mbox{GHz}$ , the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dB m in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dB i are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB i. However, fixed point-to point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dB i without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.



Report Number: F690501-RF-RTL000173 Page: 109 of 153

#### 5.2.2. IC

According to RSS-247 Issue 2,

#### 6.2.1.1 Frequency band 5 150-5 250 Mb

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30  $\,$ mW or 1.76 + 10  $\,$ log<sub>10</sub>B,  $\,$ dB m, whichever is less. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3  $\,$ dB below the maximum permitted e.i.r.p. of 30  $\,$ mW.

For other devices, the maximum e.i.r.p. shall not exceed 200  $\,$  mW or 10 + 10  $\,$  log<sub>10</sub>B,  $\,$  dB m, whichever power is less. B is the 99 % emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10  $\,$  dB m in any 1.0  $\,$  mb band.

#### 6.2.2.1 Frequency band 5 250-5 350 Mb

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30  $\,^{\text{mW}}$  or 1.76 + 10  $\,^{\text{log}}_{10}B$ ,  $\,^{\text{dB}}$  m, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3  $\,^{\text{dB}}$  below the maximum permitted e.i.r.p. of 30  $\,^{\text{mW}}$ .

Devices, other than devices installed in vehicles, shall comply with the following:

- a) The maximum conducted output power shall not exceed 250  $\,$ mW or 11 + 10  $\,$ log<sub>10</sub>B,  $\,$ dB m, whichever is less. The power spectral density shall not exceed 11  $\,$ dB m in any 1.0  $\,$ Mb band;
- b) The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10  $log_{10}B$ , dB m, whichever is less. B is the 99 % emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

#### 6.2.3.1 Frequency band 5 470-5 600 Mb and 5 650-5 725 Mb

The maximum conducted output power shall not exceed 250  $\,^{\circ}$ W or 11 + 10  $\log_{10}$ B,  $\,^{\circ}$ B m, whichever is less. The power spectral density shall not exceed 11  $\,^{\circ}$ B m in any 1.0  $\,^{\circ}$ B band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10  $log_{10}B$ , dB m, whichever is less. B is the 99 % emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.



Report Number: F690501-RF-RTL000173 Page: 110 of 153

#### 6.2.4.1 Frequency band 5 725-5 850 Mb

For equipment operating in the band 5 725-5 850 Mb, the minimum 6 dB bandwidth shall be at least 500 kHz. The maximum conducted output power shall not exceed 1 W. The output power spectral density shall not exceed 30 dB m in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dB i are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB i. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dB i without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint<sup>3</sup> systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

#### 5.3. 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.

- 1. This measurement settings are specified in section II.E.3.a of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- 2. Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied:
  - The EUT is configured to transmit continuously or to transmit with a consistent duty cycle.
  - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
  - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- 3. If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section II.B.
- 4. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- 5. Adjust the measurement in dB m by adding 10 log (1/x) where x is the duty cycle (e.g., 10 log(1/0.25) if the duty cycle is 25 %).
- 6. In case of band crossing channels 138, 142 and 144, the measurement is complied with section Ⅲ.A of KDB 789033 D02 General UNII Test Procedures New Rules v02r01.



Report Number: F690501-RF-RTL000173 Page: 111 of 153

# 5.4. Test Result

Ambient temperature : (23  $\pm$  1)  $^{\circ}$ C Relative humidity : 47  $^{\circ}$  R.H.

Test mode: 11a

Band	Frequency (账)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
	5 180		8.54		8.84
U-NII 1	5 220		8.58		8.88
	5 240		8.80		9.10
	5 260		8.75	0.30	9.05
U-NII 2A	5 300		8.85		9.15
	5 320	6	8.85		9.15
	5 500	0	8.41		8.71
U-NII 2C	5 580		8.36		8.66
	5 720		8.28		8.58
	5 745		8.31		8.61
U-NII 3	5 785		8.32		8.62
	5 825		8.40		8.70

Band	Frequency (Mb)	Data Rate (Mbps)	Average Power Result (dB m)	Antenna Gain (dB i)	E.I.R.P. (dB m)
	5 180		8.84		11.59
U-NII 1	5 220		8.88	2.75	11.63
	5 240	6	9.10		11.85
	5 260	6	9.05	2.75	11.80
U-NII 2A	5 300		9.15		11.90
	5 320		9.15		11.90



Report Number: F690501-RF-RTL000173 Page: 112 of 153

Band		FCC Limit						
Бапи	Frequency (Mb)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)		
	5 180							
U-NII 1	5 220	23.98			2.75	23.98		
	5 240							
	5 260		21.245	24.27				
U-NII 2A	5 300	23.98	21.071	24.24	2.75	23.98		
	5 320		21.071	24.24				
	5 500		21.187	24.26				
U-NII 2C	5 580	23.98	21.071	24.24	-0.80	23.98		
	5 720		21.245	24.27				
	5 745							
U-NII 3	5 785	30			-1.24	30		
	5 825							

Band		IC Limit						
Dallu	Frequency (畑)	Fixed Limit (dB m)	99 % BW (Mb)	1.76+10Log <sub>10</sub> B (dB m)	Antenna Gain (dB i)	Limit (dB m)		
	5 180		17.019	14.07		14.07		
U-NII 1	5 220	14.77	17.019	14.07	2.75	14.07		
	5 240		17.077	14.08		14.08		
	5 260		17.019	14.07		14.07		
U-NII 2A	5 300	14.77	17.077	14.08	2.75	14.08		
	5 320		17.077	14.08		14.08		

Band				IC Limit		
Ballu	Frequency (Mb)	Fixed Limit (dB m)	99 % BW (Mb)	11+10Log <sub>10</sub> B (dB m)	Antenna Gain (dB i)	Limit (dB m)
	5 500		17.077	23.32		23.32
U-NII 2C	5 580	23.98	17.019	23.31	-0.80	23.31
	5 720		17.077	23.32		23.32
	5 745					30
U-NII 3	5 785	30			-1.24	30
	5 825					30

# Remark;

- 1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)
- 2 E.I.R.P. (dB m) = Average Power Result (dB m) + Antenna Gain (dB i)



Report Number: F690501-RF-RTL000173 Page: 113 of 153

Test mode: 11ac\_VHT20

Band	Frequency (艦)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (個m)
	5 180		8.49		8.80
U-NII 1	5 220		8.57		8.88
	5 240		8.65	]	8.96
	5 260		8.71	0.31	9.02
U-NII 2A	5 300		8.66		8.97
	5 320	MCCO	8.68		8.99
	5 500	MCS0	8.19		8.50
U-NII 2C	5 580		8.21		8.52
	5 720		8.19		8.50
	5 745		8.27		8.58
	5 785		8.30		8.61
	5 825		8.38	1	8.69

Band	Frequency (脈)	Data Rate (Mbps)	Average Power Result (dB m)	Antenna Gain (dB i)	E.I.R.P. (dB m)
	5 180		8.80		11.55
U-NII 1	5 220		8.88	2.75	11.63
	5 240	MCS0	8.96		11.71
	5 260	IVICSU	9.02		11.77
U-NII 2A	5 300		8.97	2.75	11.72
	5 320		8.99		11.74

Band		FCC Limit						
Dallu	Frequency (Mb)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)		
	5 180							
U-NII 1	5 220	23.98			2.75	23.98		
	5 240							
	5 260		21.129	24.25				
U-NII 2A	5 300	23.98	21.534	24.33	2.75	23.98		
	5 320		21.476	24.32				
	5 500		21.303	24.28				
U-NII 2C	5 580	23.98	21.418	24.31	-0.80	23.98		
	5 720		21.476	24.32				
	5 745							
U-NII 3	5 785	30			-1.24	30		
	5 825							



Report Number: F690501-RF-RTL000173 Page: 114 of 153

Band	IC Limit							
Ballu	Frequency (Mb)	Fixed Limit (dB m)	99 % BW (Mb)	1.76+10Log <sub>10</sub> B (dB m)	Antenna Gain (dB i)	Limit (dB m)		
	5 180		18.061	14.33		14.33		
U-NII 1	5 220	14.77	18.061	14.33	2.75	14.33		
	5 240		18.119	14.34		14.34		
	5 260		18.119	14.34		14.34		
U-NII 2A	5 300	14.77	18.003	14.31	2.75	14.31		
	5 320		18.061	14.33		14.33		

Band				IC Limit		
Danu	Frequency (Mb)	Fixed Limit (dB m)	99 % BW (Mb)	11+10Log <sub>10</sub> B (dB m)	Antenna Gain (dB i)	Limit (dB m)
	5 500		18.119	23.58		23.58
U-NII 2C	5 580	23.98	18.061	23.57	-0.80	23.57
	5 720		18.061	23.57		23.57
	5 745					30
U-NII 3	5 785	30			-1.24	30
	5 825					30

#### Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

2 E.I.R.P. (dB m) = Average Power Result (dB m) + Antenna Gain (dB i)



Report Number: F690501-RF-RTL000173 Page: 115 of 153

Test mode: 11ac\_VHT40

Band	Frequency (雁)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
11 1111 4	5 190		4.05		4.66
U-NII 1	5 230		4.08		4.69
LL NIII OA	5 270		8.13	0.61	8.74
U-NII 2A	5 310		8.20		8.81
	5 510	MCS0	7.81		8.42
U-NII 2C	5 550		7.74		8.35
5.7	5 710	]	7.71		8.32
LLNIII 2	5 755		7.73		8.34
U-NII 3	5 795		7.79	1	8.40

Band	Frequency (Mb)	Data Rate (Mbps)	Average Power Result (dB m)	Antenna Gain (dB i)	E.I.R.P. (dB m)
U-NII 1	5 190		4.66	2.75	7.41
U-INII I	5 230	14000	4.69	2.75	7.44
U-NII 2A	5 270	MCS0	8.74	2.75	11.49
	5 310		8.81	2.75	11.56

Band		FCC Limit									
Ballu	Frequency (脏)	Fixed Limit (dB m)	26 dB BW (Mbz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)					
U-NII 1	5 190	23.98			2.75	23.98					
0 1411 1	5 230	25.90			2.15	23.96					
U-NII 2A	5 270	23.98	40.174	27.04	2.75	23.98					
U-INII ZA	5 310	25.90	40.289	27.05	2.75	20.00					
	5 510		40.174	27.04							
U-NII 2C	5 550	23.98	40.174	27.04	-0.80	23.98					
	5 710		39.942	27.01							
U-NII 3	5 755	30			-1.24	30					
0-1411-3	5 795	5 795				30					



Report Number: F690501-RF-RTL000173 Page: 116 of 153

Band		IC Limit								
Ballu	Frequency (畑)	Fixed Limit (dB m)	99 % BW (Mb)	1.76+10Log <sub>10</sub> B (dB m)	Antenna Gain (dB i)	Limit (dB m)				
U-NII 1	5 190	14.77	36.237	17.35	2.75	14.77				
0-1111	5 230	14.77	36.237	17.35	2.75					
U-NII 2A	5 270	14.77	36.237	17.35	2.75	14.77				
U-INII ZA	5 310	17.77	36.237	17.35	2.75	14.77				

Band		IC Limit									
Danu	Frequency (畑)	Fixed Limit (dB m)	99 % BW (Mb)	11+10Log <sub>10</sub> B (dB m)	Antenna Gain (dB i)	Limit (dB m)					
	5 510		36.353	26.61							
U-NII 2C	5 550	23.98	36.237	26.59	-0.80	23.98					
	5 710		36.237	26.59							
U-NII 3	5 755	30			-1.24	30					
U-INII 3	5 795	30			1.24	30					

## Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

2. E.I.R.P. (dB m) = Average Power Result (dB m) + Antenna Gain (dB i)



Report Number: F690501-RF-RTL000173 Page: 117 of 153

Test mode: 11ac\_VHT80

Band	Frequency (Mb)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
U-NII 1	5 210		2.94		4.82
U-NII 2A	5 290		6.31	1.88	8.19
U-NII 2C	5 530	MCS1	6.76		8.64
U-INII 2C	5 690		6.71		8.59
U-NII 3	5 755		6.58		8.46

Band	Frequency (Mb)	Data Rate (Mbps)	Average Power Result (dB m)	Antenna Gain (dB i)	E.I.R.P. (dB m)
U-NII 1	5 210	MCS1	4.82	2.75	7.57
U-NII 2A	5 290	IVICST	8.19	2.75	10.94

Band		FCC Limit									
Dallu	Frequency (Mb)	Fixed Limit (dB m)	26 dB BW (Mbz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)					
U-NII 1	5 210	23.98			2.75	23.98					
U-NII 2A	5 290	23.98	81.505	30.11	2.75	23.98					
U-NII 2C	5 530	23.98	81.968	30.14	-0.80	23.98					
U-INII 2C	5 690	23.98	81.968	30.14	-0.60	23.96					
U-NII 3	5 775	30			-1.24	30					

Band	IC Limit								
Danu	Frequency (Mb)	Limit (dB m)							
U-NII 1	5 210	14.77	75.948	20.57	2.75	14.77			
U-NII 2A	5 290	14.77	75.716	20.55	2.75	14.77			

Band		IC Limit									
Danu	Frequency (Mb)	Fixed Limit (dB m)	99 % BW (Mb)	11+10Log <sub>10</sub> B (dB m)	Antenna Gain (dB i)	Limit (dB m)					
U-NII 2C	5 530	23.98	75.716	29.79	-0.80	23.98					
U-NII 2C	5 690	23.98	75.716	29.79	-0.00	23.96					
U-NII 3	5 775	30			-1.24	30					

## Remark;

- 1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)
- 2. E.I.R.P. (dB m) = Average Power Result (dB m) + Antenna Gain (dB i)



Report Number: F690501-RF-RTL000173 Page: 118 of 153

# - Band-crossing channels

Mode	Band	Frequency (脈)	Data Rate (Mbps)	Average Power (dB m)	Duty Cycle Correction Factor (dB)	Average Power Result (dB m)
11a	U-NII 2C	5 720	6	6.71	0.30	7.01
Па	U-NII 3	3 720	0	-0.75	0.30	-0.45
11ac_VHT20	U-NII 2C	F 700	5 720 MCS0	6.40	0.31	6.71
TTAC_VHT20	U-NII 3	5 720	IVICSU	-0.45	0.31	-0.14
4400 V/UT40	U-NII 2C	5 710	MCS0	6.51	0.61	7.12
11ac_VHT40	U-NII 3	3710	IVICSU	-5.48	0.61	-4.87
11ac_VHT80	U-NII 2C	5 690	14004	5.45	1.88	7.33
	U-NII 3	5 690	MCS1	-9.29	1.00	-7.41

			Limit						
Mode	Band	Frequency (Mb)	Fixed Limit (dB m)	26 dB BW (Mbz)	11+10LogB (dB m)	Antenna Gain (dB i)	Limit (dB m)		
110	U-NII 2C	5 720	23.98	15.536	22.91	-0.80	22.91		
11a	U-NII 3	3720	30			-1.24	30		
11ac VHT20	U-NII 2C	5 720	23.98	15.709	22.96	-0.80	22.96		
TTAC_VTTT20	U-NII 3	0.120	30			-1.24	30		
11ac VHT40	U-NII 2C	5 710	23.98	35.145	26.46	-0.80	23.98		
11aC_VH140	U-NII 3	3710	30			-1.24	30		
11ac VHT80	U-NII 2C	5 690	23.98	75.753	29.79	-0.80	23.98		
TIAC_VHIOU	U-NII 3	3 390	30			-1.24	30		

# Remark;

1. Average Power Result (dB m) = Average Power (dB m) + Duty Cycle Correction Factor (dB)

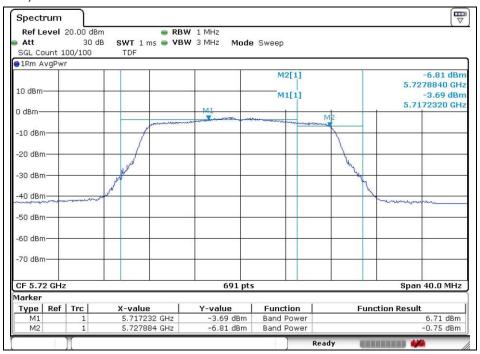


Report Number: F690501-RF-RTL000173 Page: 119 of 153

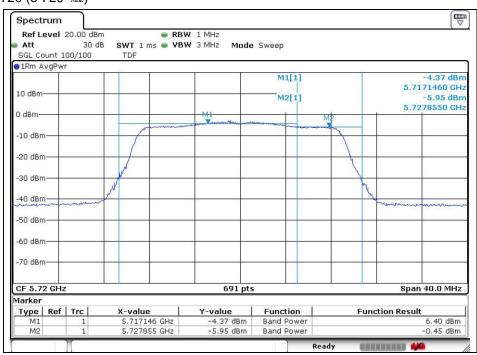
#### - Test plots

### **Band-crossing channels**

802.11a (5 720 Mb)



# 802.11ac\_VHT20 (5 720 Mb)



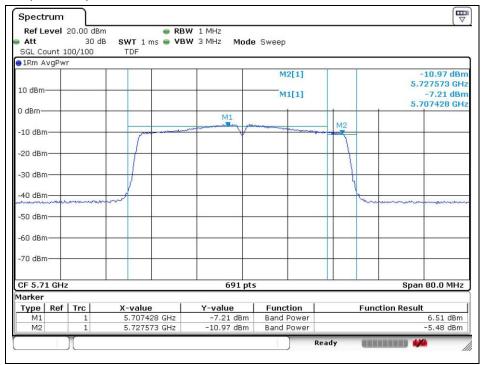
The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.

SGS Korea Co., Ltd. (Gunpo Laboratory) 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807 http://www.sgsgroup.kr

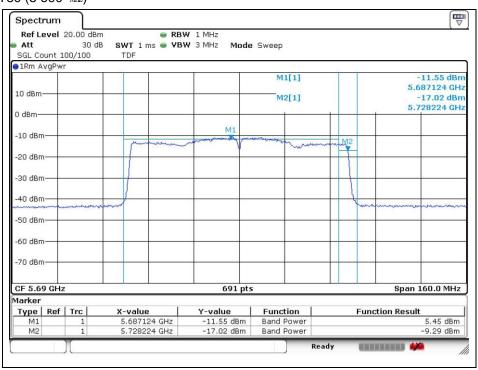


Report Number: F690501-RF-RTL000173 Page: 120 of 153

# 802.11ac\_VHT40 (5 710 贴)



# 802.11ac\_VHT80 (5 690 Mb)



The results of this test report are effective only to the items tested. The SGS Korea is not responsible for the sampling, the results of this test report apply to the sample as received. This test report cannot be reproduced, except in full, without prior written permission of the Company. This test report does not assure KOLAS accreditation.

SGS Korea Co., Ltd. (Gunpo Laboratory) 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807 http://www.sgsgroup.kr