



Test Report

Product Name : 5G+2.4G 2T2R AP FMC
Model No. : CWFB201, CWFB201-T01, CWFB201-T03,
CWFB201-R01, CWFB201-R03,
CWFB201-T02, CWFB201-R02
FCC ID. : O7N-CWFB201-XXX

Applicant : ChipSip Technology Co., Ltd.
Address : 3F.-3, No.32, Taiyuan St., Jhubei City, Hsinchu County
302, Taiwan

Date of Receipt : 2012/07/02
Issued Date : 2012/08/29
Report No. : 127124R-RFUSP45V01
Report Version : V1.0

The test results relate only to the samples tested.
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Test Report Certification

Issued Date : 2012/08/29


Report No. : 127124R-RFUSP45V01




Product Name : 5G+2.4G 2T2R AP FMC
 Applicant : ChipSip Technology Co., Ltd.
 Address : 3F.-3, No.32, Taiyuan St., Jhubei City, Hsinchu County 302,
 Taiwan
 Manufacturer : ChipSip Technology Co., Ltd.
 Model No. : CWFB201, CWFB201-T01, CWFB201-T03, CWFB201-R01,
 CWFB201-R03, CWFB201-T02, CWFB201-R02
 FCC ID. : O7N-CWFB201-XXX
 EUT Test Voltage : AC 120V/60Hz
 Trade Name : CHIP SIP
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart E Section 15.407: 2011
 ANSI C63.4: 2009
 Test Result : Complied

The test results relate only to the samples tested.


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Documented By : 

 (Carol Tsai / Engineering Adm. Specialist)

Reviewed By : 

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Approved By : 

 (Roy Wang / Manager)

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1. General Information

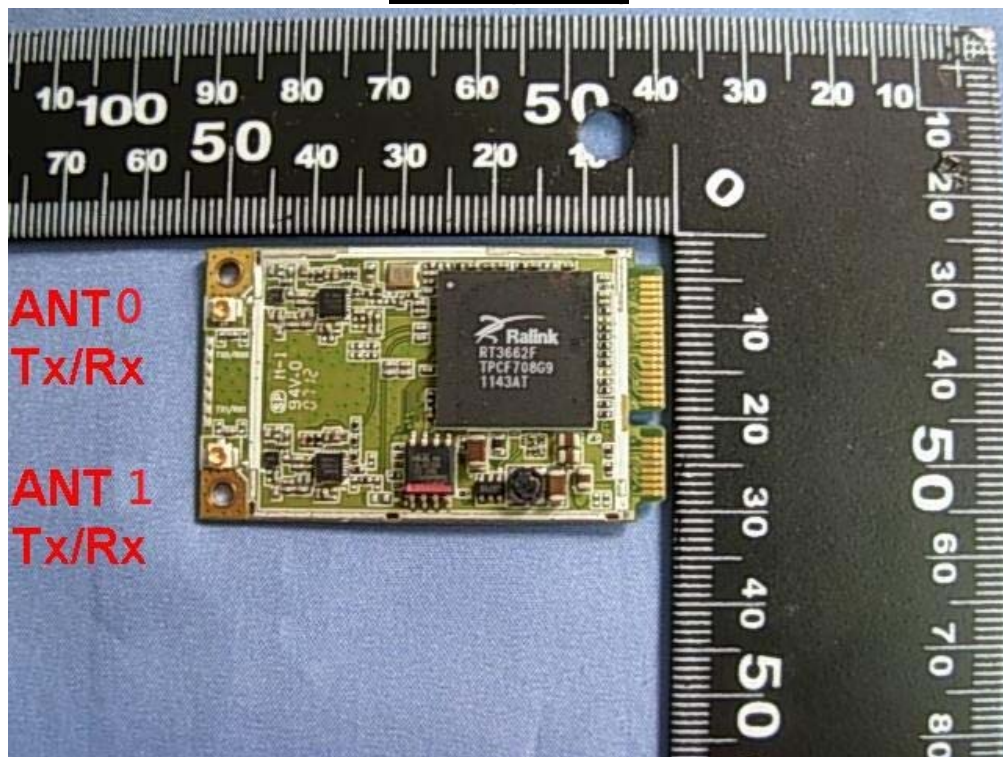
1.1. EUT Description

Product Name	5G+2.4G 2T2R AP FMC
Product Type	WLAN (2TX, 2RX)
Trade Name	CHIP SIP
Model No.	CWFB201, CWFB201-T01, CWFB201-T03, CWFB201-R01, CWFB201-R03, CWFB201-T02, CWFB201-R02
Frequency Range -IEEE 802.11a & IEEE 802.11n (20MHz)	5180~5240MHz
Frequency Range-IEEE 802.11n (40MHz)	5190~5230MHz
Channel Number - IEEE 802.11a & IEEE 802.11n (20MHz))	4
Channel Number-IEEE 802.11n (40MHz)	2
Type of Modulation (IEEE 802.11a/n)	Orthogonal Frequency Division Multiplexing (OFDM)
Data Speed (IEEE 802.11a)	6Mbps,9Mbps,12Mbps,18Mbps,24Mbps,36Mbps,48Mbps,54Mbps
Data Speed (IEEE 802.11n)	Support a subset of the combination of GI, MCS 0~MCS 15 and bandwidth defined in 802.11n
Channel Control	AUTO
Antenna Type	Dipole, Soldered on PCB

ANT-TX / Rx & Bandwidth

ANT-TX / RX	SINGLE-TX		TWO-TX		RX	
	20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
IEEE802.11a	✓				✓	
IEEE802.11n			✓	✓	✓	✓

ANT 0/1 (TX / RX)



IEEE 802.11n

MCS Index	Modulation	R	N _{BPSCS}	N _{CBPS}		N _{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI (Note1)	
								20MHz	40MHz	20MHz	40MHz
0	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.2	15.0
1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.4	30.0
2	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.7	45.0
3	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.9	60.0
4	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.3	90.0
5	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.8	120.0
6	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.0	135.0
7	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.2	150.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 1 – MCS parameters for TX Antenna number = 1

MCS Index	Modulation	R	N _{BPSCS}	N _{CBPS}		N _{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI (Note1)	
								20MHz	40MHz	20MHz	40MHz
8	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.4	30.0
9	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.9	60.0
10	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.3	90.0
11	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.8	120.0
12	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.7	180.0
13	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.6	240.0
14	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.0	270.0
15	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.4	300.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 2 – MCS parameters for TX Antenna number = 2

MCS Index	Modulation	R	N _{BPSCS}	N _{CBPS}		N _{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI (Note1)	
								20MHz	40MHz	20MHz	40MHz
16	BPSK	1/2	1	156	324	78	162	19.5	40.5	21.7	45.0
17	QPSK	1/2	2	312	648	156	324	39.0	81.0	43.3	90.0
18	QPSK	3/4	2	312	648	234	486	58.5	121.5	65.0	135.0
19	16-QAM	1/2	4	624	1296	312	648	78.0	162.0	86.7	180.0
20	16-QAM	3/4	4	624	1296	468	972	117.0	243.0	130.0	270.0
21	64-QAM	2/3	6	936	1944	624	1296	156.0	324.0	173.3	360.0
22	64-QAM	3/4	6	936	1944	702	1458	175.5	364.5	195.0	405.0
23	64-QAM	5/6	6	936	1944	780	1620	195.0	405.0	216.7	450.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 3 – MCS parameters for TX Antenna number = 3

Symbol	Explanation
R	Code rate
N _{BPSC}	Number of coded bits per single carrier
N _{CBPS}	Number of coded bits per symbol
N _{DBPS}	Number of data bits per symbol
GI	guard interval

IEEE 802.11a & IEEE 802.11n (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz

IEEE 802.11n (40MHz)

Working Frequency of Each Channel			
Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz

Note:

1. This device is a 5G+2.4G 2T2R AP FMC including 2.4GHz b/g/n and 5GHz a/n (2x2) transmitting and receiving function.
2. The variation of model number is for different strategy of marketing.
3. FCC ID: O7N-CWFB201-XXX, it identifies a single equipment. "X" is letter of the alphabet.
4. The different of the Antenna is shown as below:

Item	Trade (Ant.)	Type	Gain (5GHz)
Ant 1	MAG.LAYERS	Dipole Ant	2 dBi
Ant 2	ARISTOTLE	Dipole Ant	2 dBi
Ant 3	TRANWO	Dipole Ant	3.58 dBi
Ant 4	UDMGroup	PCB Ant (Green)	4 dBi
Ant 5	Unictron	PCB Ant (Blue)	

After the pre-test, only the worse cases were be shown on the report. In 2.4GHz band, ANT 1 and ANT 4 were measured on the radiated measurements, and in 5GHz band, ANT3 and ANT 4 were measured on the radiated measurements.

5. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart E Paragraph 15.407.
6. Regards to the frequency band operation; the lowest 、middle and highest frequency of channel were selected to perform the test, and then shown on this report.
7. The function of the 2.4GHz and 5.8GHz transmitting is measured and makes a test report of the report number: 127124R-RFUSP42V01.

1.3. Test Mode

Quietek has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

TX	Mode 1: Transmit (Ant.: Dipole) Mode 2: Transmit (Ant.: PCB)
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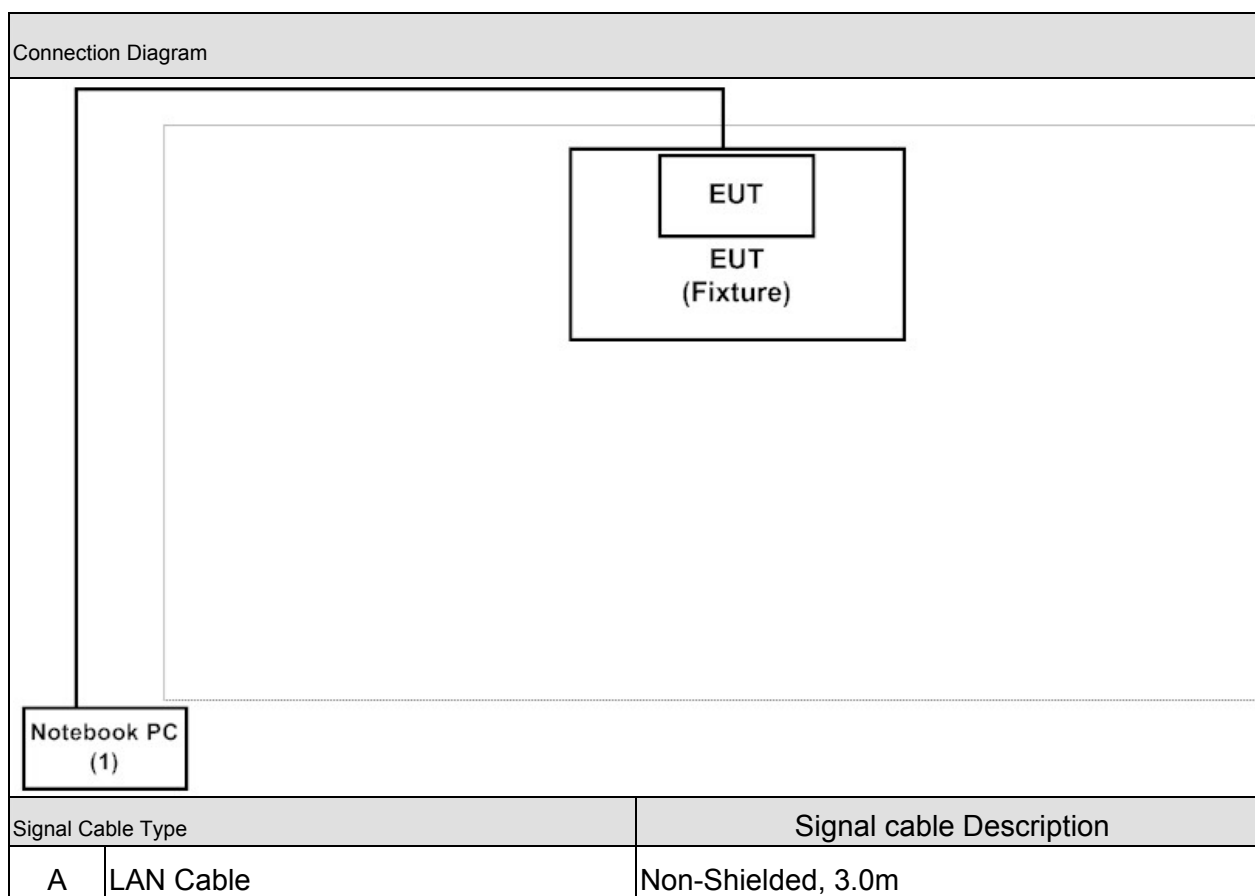
Test Items	Mode	Channel	Antenna	Result
Conducted Emission	11n(40MHz)	38	0+1	Complies
99 % & 26dB Bandwidth	a	36/44/48	1	Complies
	11n(20MHz)	36/44/48	0/1	Complies
	11n(40MHz)	38/46	0/1	Complies
Peak Transmit Output	a	36/44/48	1	Complies
	11n(20MHz)	36/44/48	0+1	Complies
	11n(40MHz)	38/46	0+1	Complies
Peak Power Spectrum Density	a	36/44/48	1	Complies
	11n(20MHz)	36/44/48	0+1	Complies
	11n(40MHz)	38/46	0+1	Complies
Power Excursion	a	36/44/48	1	Complies
	11n(20MHz)	36/44/48	0/1	Complies
	11n(40MHz)	38/46	0/1	Complies
Radiated Emission	a	36/44/48	1	Complies
	11n(20MHz)	36/44/48	0+1	Complies
	11n(40MHz)	38/46	0+1	Complies
Band Edge	a	36	1	Complies
	11n(20MHz)	36	0+1	Complies
	11n(40MHz)	38	0+1	Complies
Frequency Stability	a	36/48	1	Complies
	11n(20MHz)	36/48	0/1	Complies
	11n(40MHz)	38/46	0/1	Complies

1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1 Notebook PC	ACER	MS2296	LUSCV0213911 50332C2000	DoC	Non-Shielded, 2.5m one ferrite core bonded

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 1.5.
2	Execute the test program "QATest Application v1.0.4.8" on the EUT.
3	Configure the test mode, the test channel, and the data rate.
4	Press "Start TX" to start the continuous transmitting.
5	Verify that the EUT works properly.

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 E 15.407 Conducted Emission	15 - 35	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 99 % & 26dB Bandwidth	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Peal Transmit Power	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Peak Power Spectrum	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Power Excursion	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Radiated Emission	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Band Edge	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 E 15.407 Frequency Stability	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description: September 27, 2010 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520
Accredited by TAF
Accreditation Number: 1313
Effective through: December 27, 2013



Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2012



Site Name: Quietek Corporation

Site Address: No.75-2, 3rd Lin, Wang Ye keng, Yonghxing Tsuen,
Qionglin Shiang, Hsinchu County 307, Taiwan
TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment

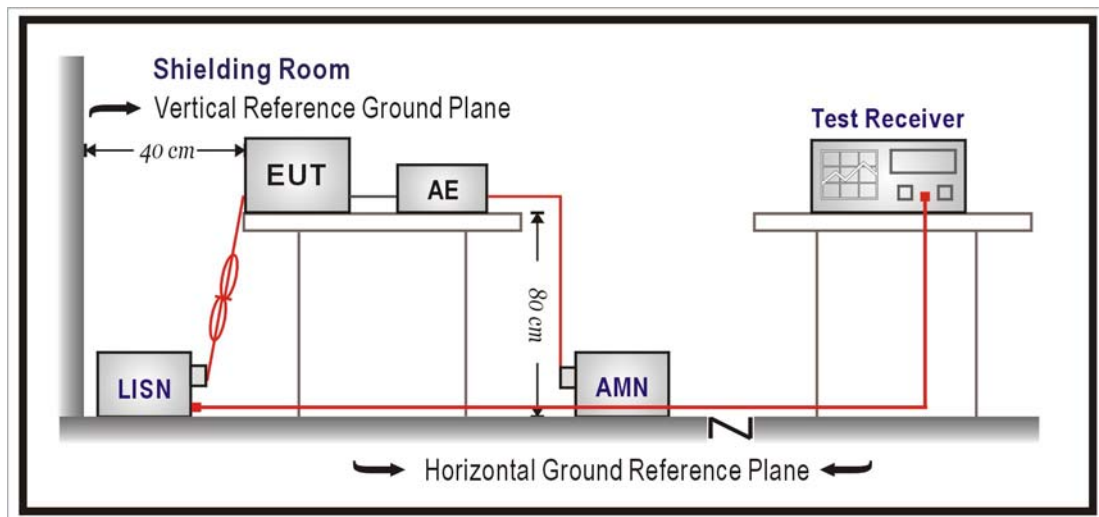
The following test equipments are used during the test:

Conducted Emission / SR2

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2013/02/13
LISN	R&S	ENV216	100092	2013/08/21
Test Receiver	R&S	ESCS 30	825442/014	2013/08/07

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

2.5. Test Specification

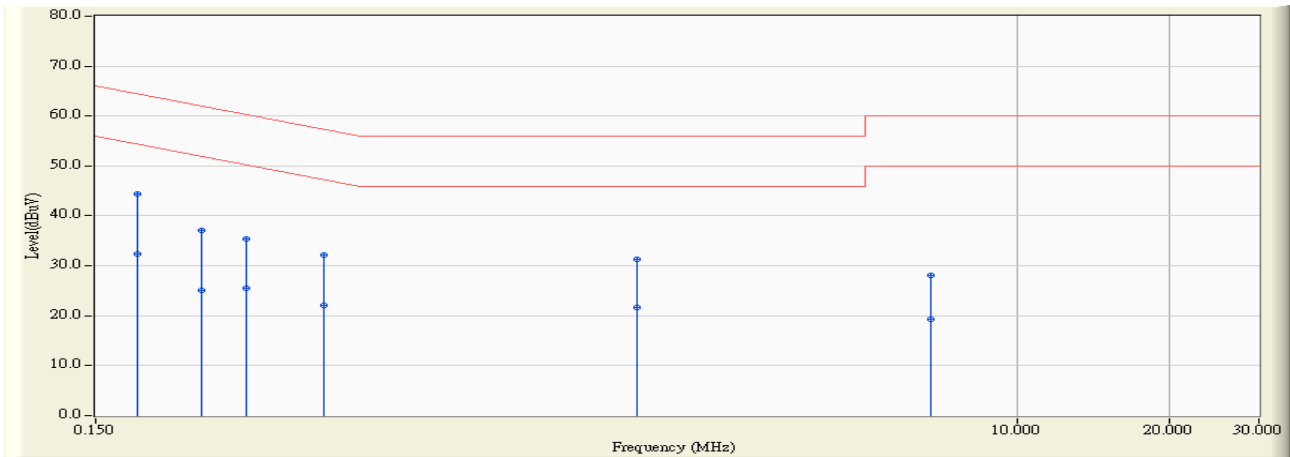
According to FCC Part 15 Subpart C Paragraph 15.207: 2011

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR2	Time : 2012/08/27 - 10:21
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2_LISN(16A)-1_0831 - Line2	Power : AC 120V/60Hz
EUT : 5G+2.4G 2T2R AP FMC	Note : Mode 1: Transmit (Ant.: Dipole) 802.11n(40MHz)_5230MHz

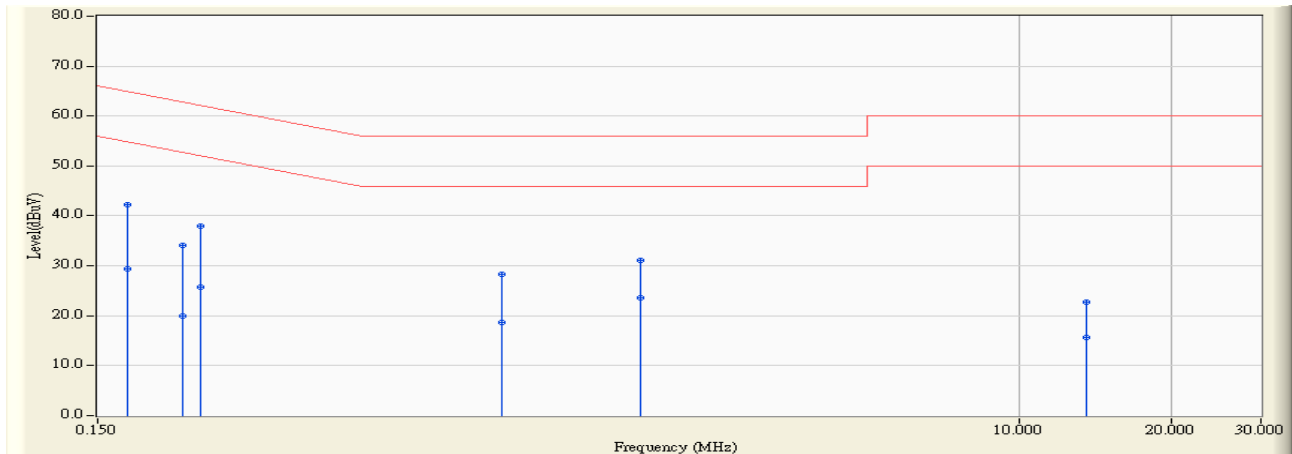


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.181	9.642	34.680	44.322	-20.106	64.428	QUASPEAK
2		0.181	9.642	22.650	32.292	-22.136	54.428	AVERAGE
3		0.244	9.645	27.480	37.125	-24.842	61.967	QUASPEAK
4		0.244	9.645	15.550	25.195	-26.772	51.967	AVERAGE
5		0.298	9.648	25.800	35.448	-24.838	60.286	QUASPEAK
6		0.298	9.648	15.910	25.558	-24.728	50.286	AVERAGE
7		0.423	9.656	22.560	32.216	-25.165	57.380	QUASPEAK
8		0.423	9.656	12.340	21.996	-25.385	47.380	AVERAGE
9		1.771	9.773	21.510	31.284	-24.716	56.000	QUASPEAK
10		1.771	9.773	11.810	21.584	-24.416	46.000	AVERAGE
11		6.716	9.881	18.190	28.071	-31.929	60.000	QUASPEAK
12		6.716	9.881	9.340	19.221	-30.779	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2	Time : 2012/08/27 - 10:17
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2_LISN(16A)-1_0831 - Line1	Power : AC 120V/60Hz
EUT : 5G+2.4G 2T2R AP FMC	Note : Mode 1: Transmit (Ant.: Dipole) 802.11n(40MHz)_5230MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.172	9.631	32.710	42.341	-22.518	64.859	QUASPEAK
2	0.172	9.631	19.660	29.291	-25.568	54.859	AVERAGE
3	0.220	9.634	24.460	34.094	-28.713	62.807	QUASPEAK
4	0.220	9.634	10.310	19.944	-32.863	52.807	AVERAGE
5	0.240	9.635	28.340	37.975	-24.127	62.102	QUASPEAK
6	0.240	9.635	16.180	25.815	-26.287	52.102	AVERAGE
7	0.947	9.712	18.550	28.263	-27.737	56.000	QUASPEAK
8	0.947	9.712	8.910	18.623	-27.377	46.000	AVERAGE
9	1.783	9.767	21.400	31.167	-24.833	56.000	QUASPEAK
10	*	9.767	13.930	23.697	-22.303	46.000	AVERAGE
11	13.513	10.030	12.790	22.821	-37.179	60.000	QUASPEAK
12	13.513	10.030	5.560	15.591	-34.409	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

3. 99% & 26dB Bandwidth

3.1. Test Equipment

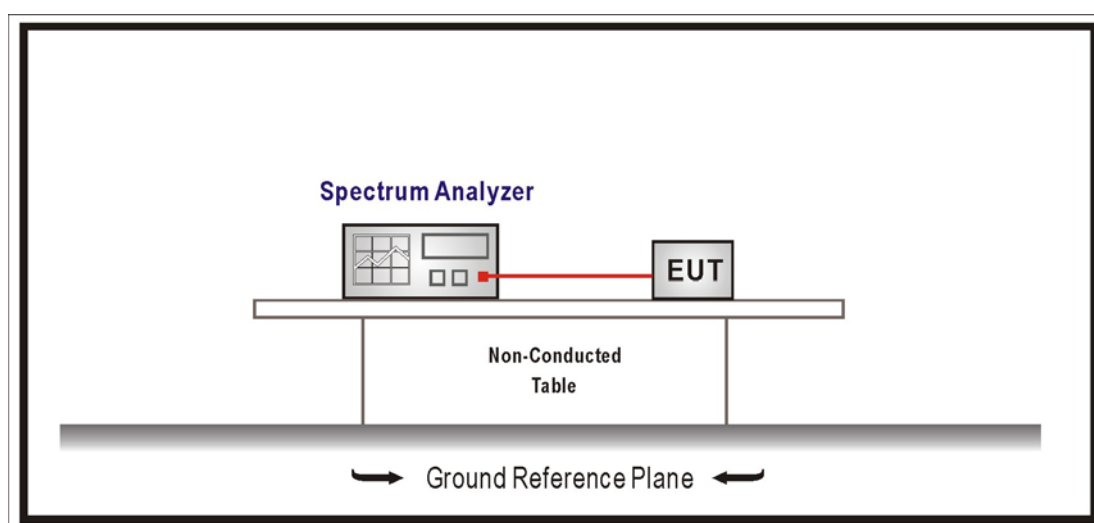
The following test equipments are used during the radiated emission tests:

99% & 26dB Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

3.2. Test Setup



3.3. Limits

No Required

3.4. Test Procedure

The EUT was tested according to U-NII test procedure of March 2012 KDB 789033. Set RBW 1% of the emission bandwidth, VBW equal to 3 times the RBW.

3.5. Uncertainty

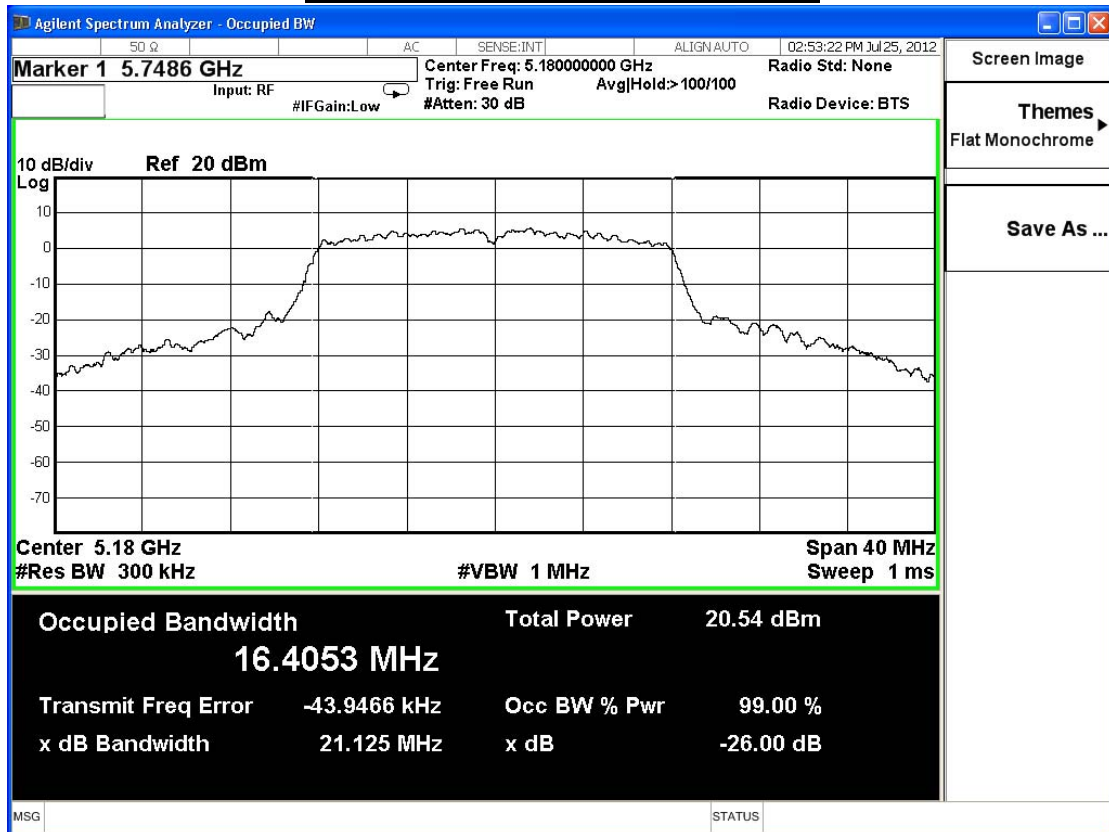
The measurement uncertainty is defined as $\pm 150\text{Hz}$

3.6. Test Result

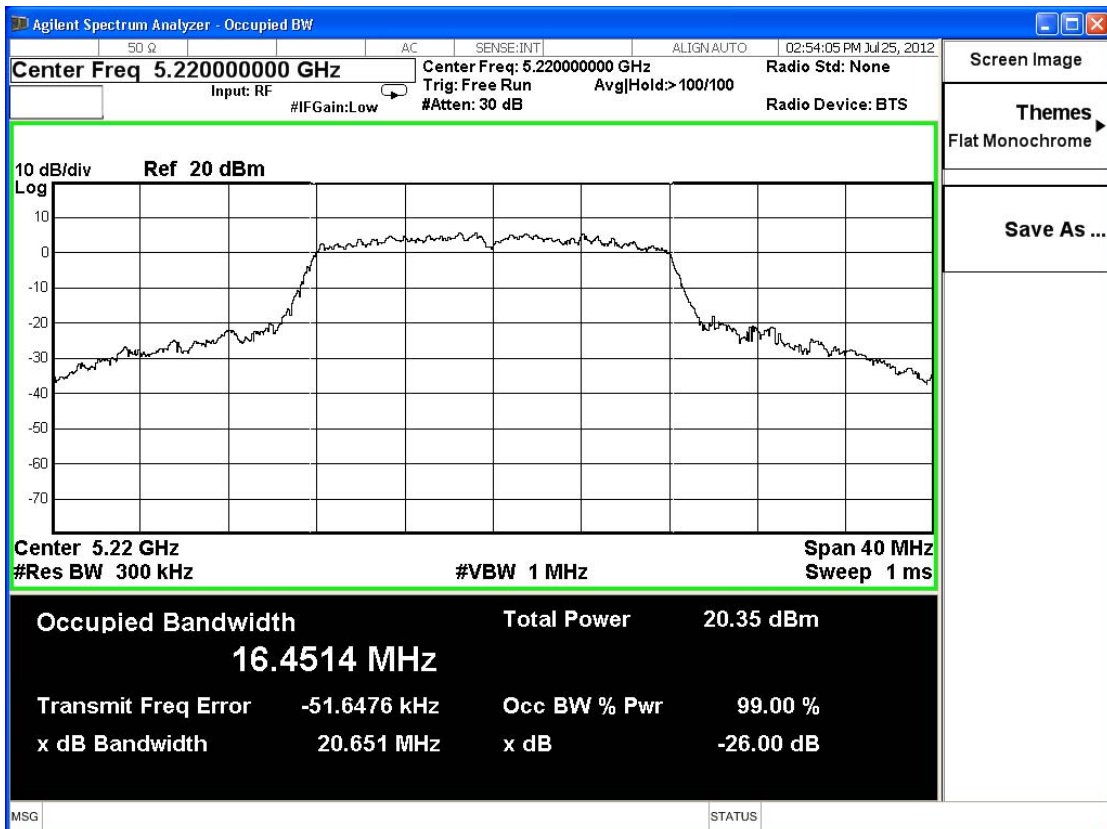
Product	5G+2.4G 2T2R AP FMC		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	21.125	16.405	--	NA
44	5220	20.651	16.451	--	NA
48	5240	21.021	16.465	--	NA

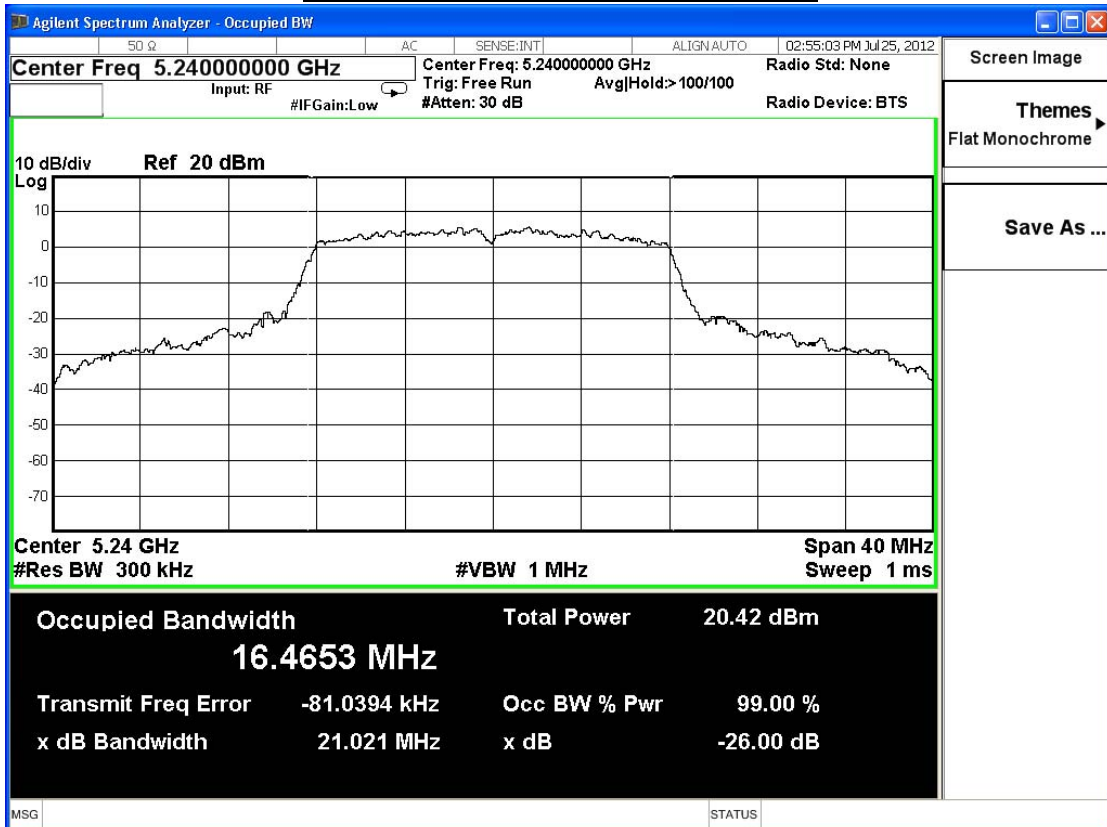
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



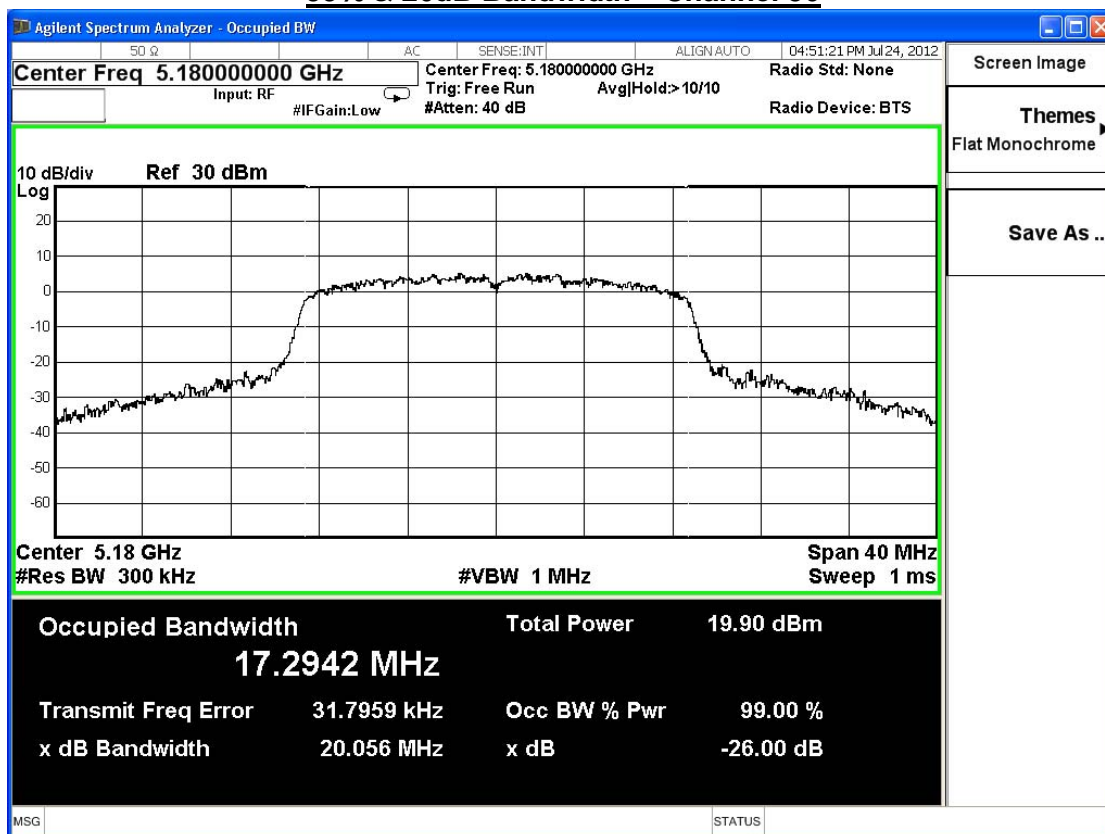
99% & 26dB Bandwidth – Channel 48



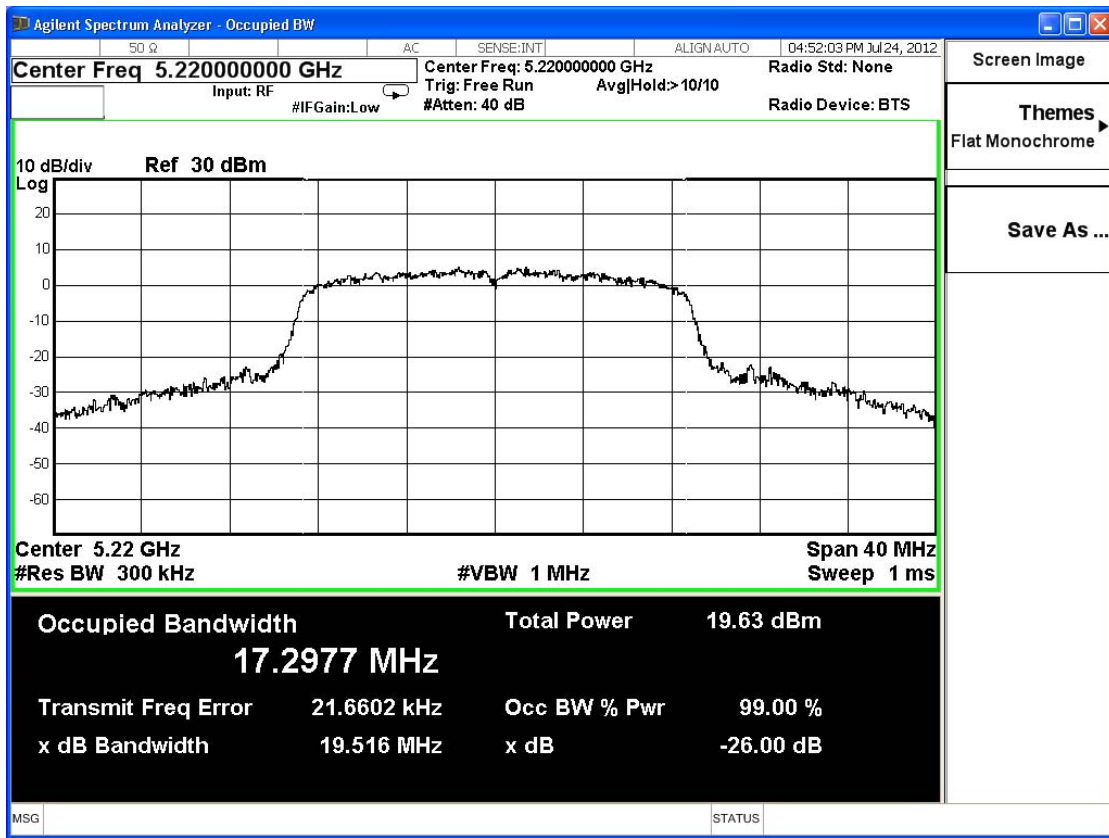
Product	5G+2.4G 2T2R AP FMC		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/24	Test Site	SR7

802.11n_20M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	20.056	17.294	--	NA
44	5220	19.516	17.298	--	NA
48	5240	19.392	17.264	--	NA

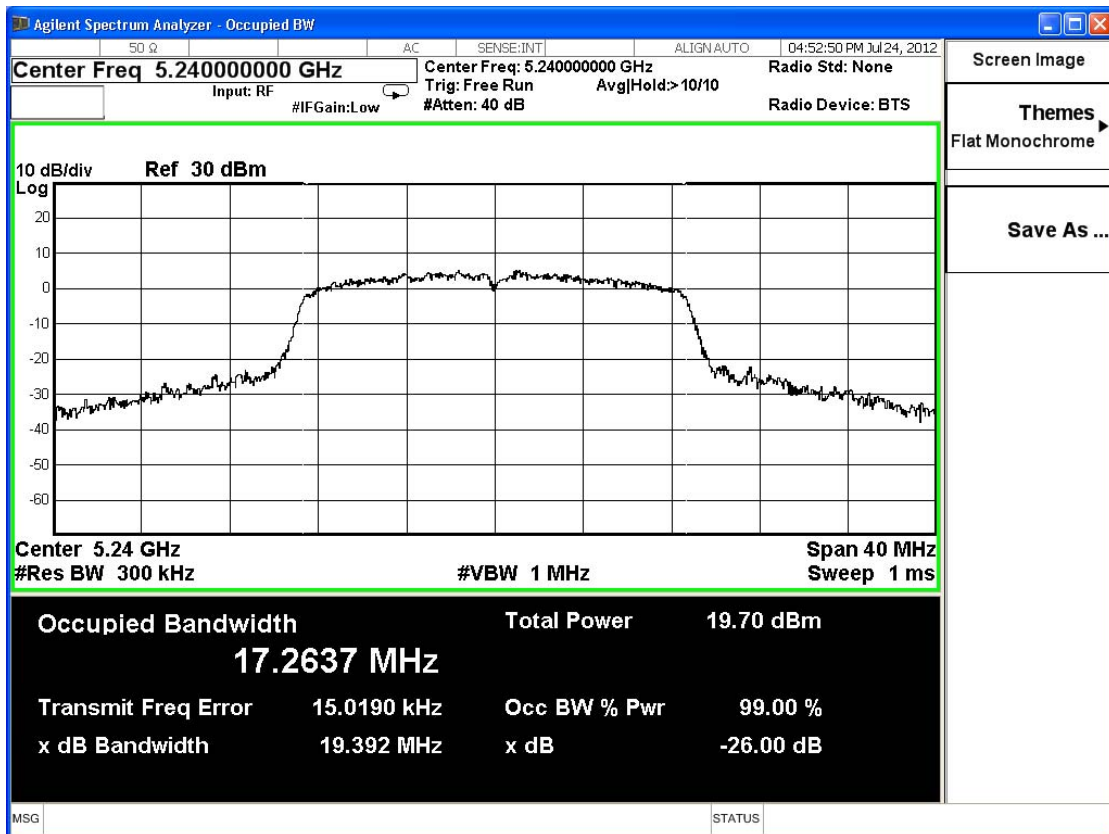
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



99% & 26dB Bandwidth – Channel 48

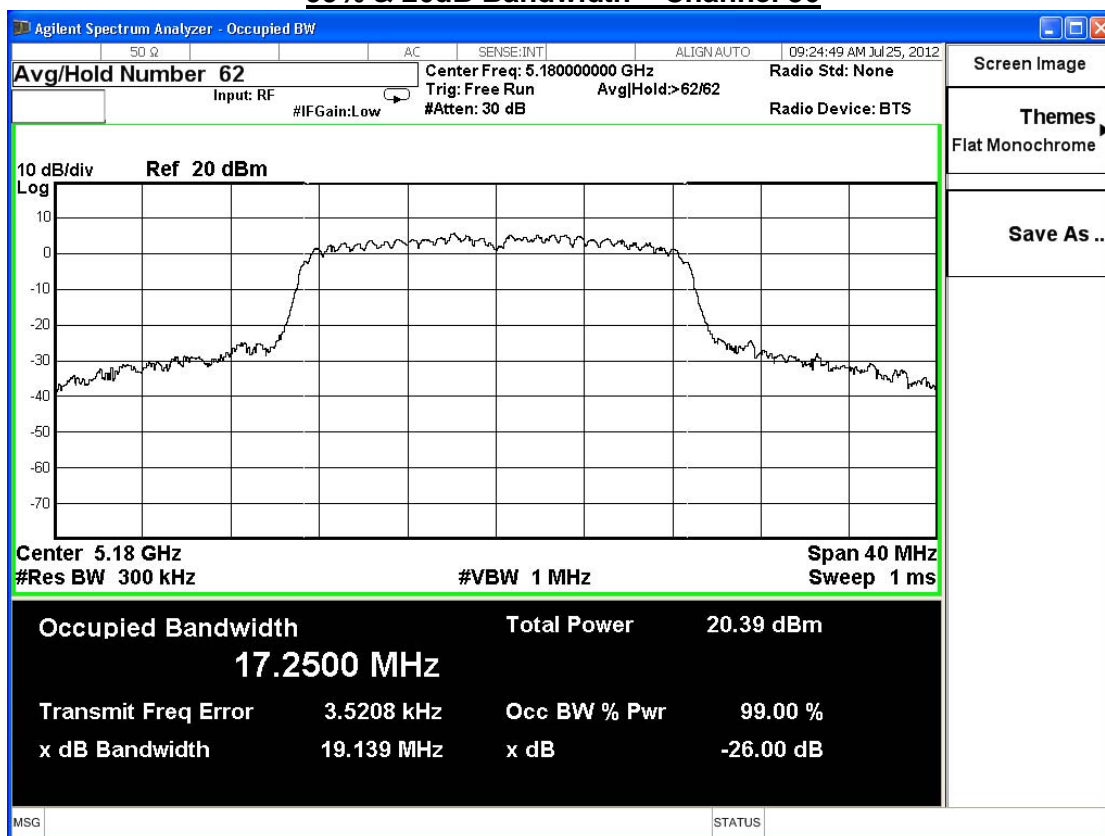


Product	5G+2.4G 2T2R AP FMC		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

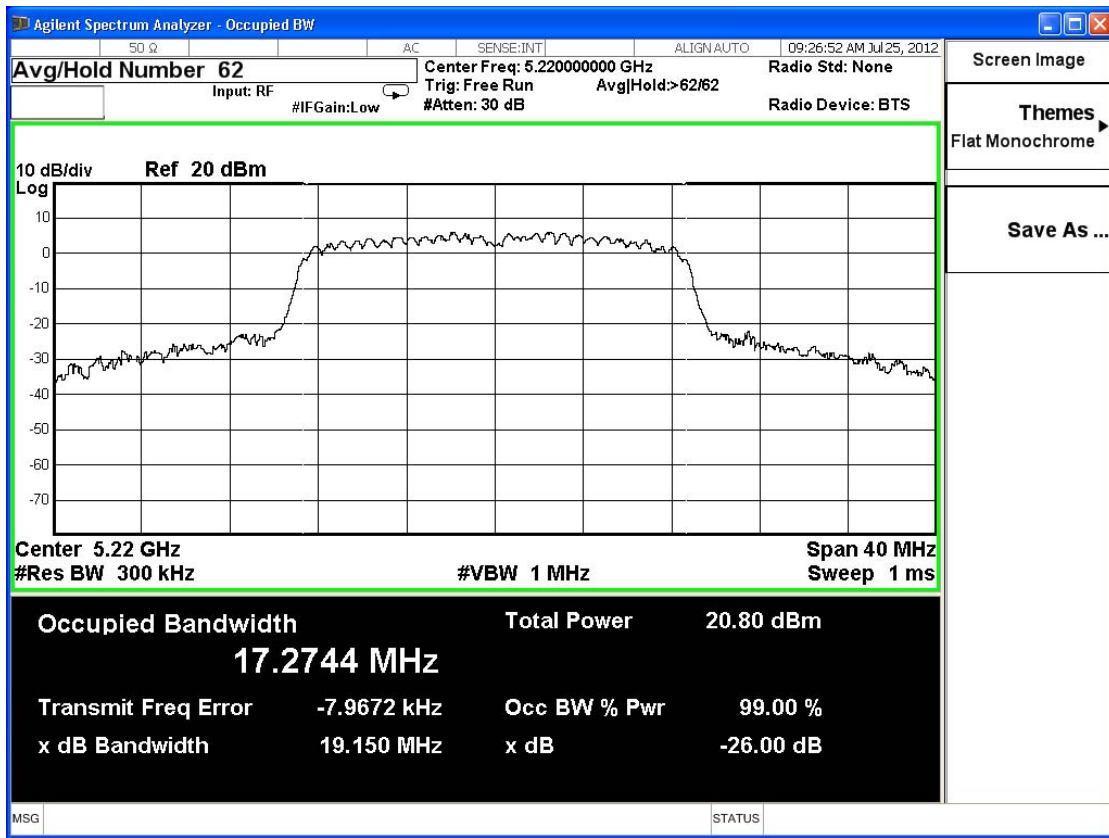
802.11n_20M(ANT 1)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	19.139	17.250	--	NA
44	5220	19.150	17.274	--	NA
48	5240	19.123	17.274	--	NA

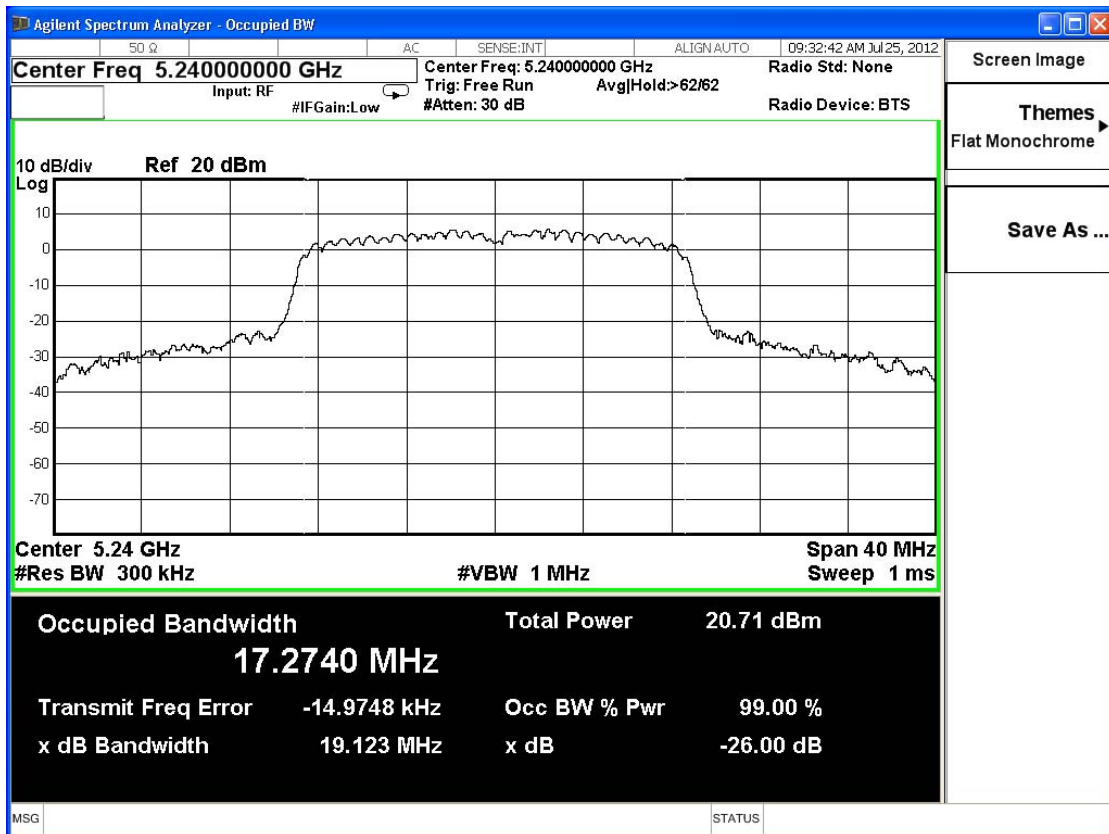
99% & 26dB Bandwidth – Channel 36



99% & 26dB Bandwidth – Channel 44



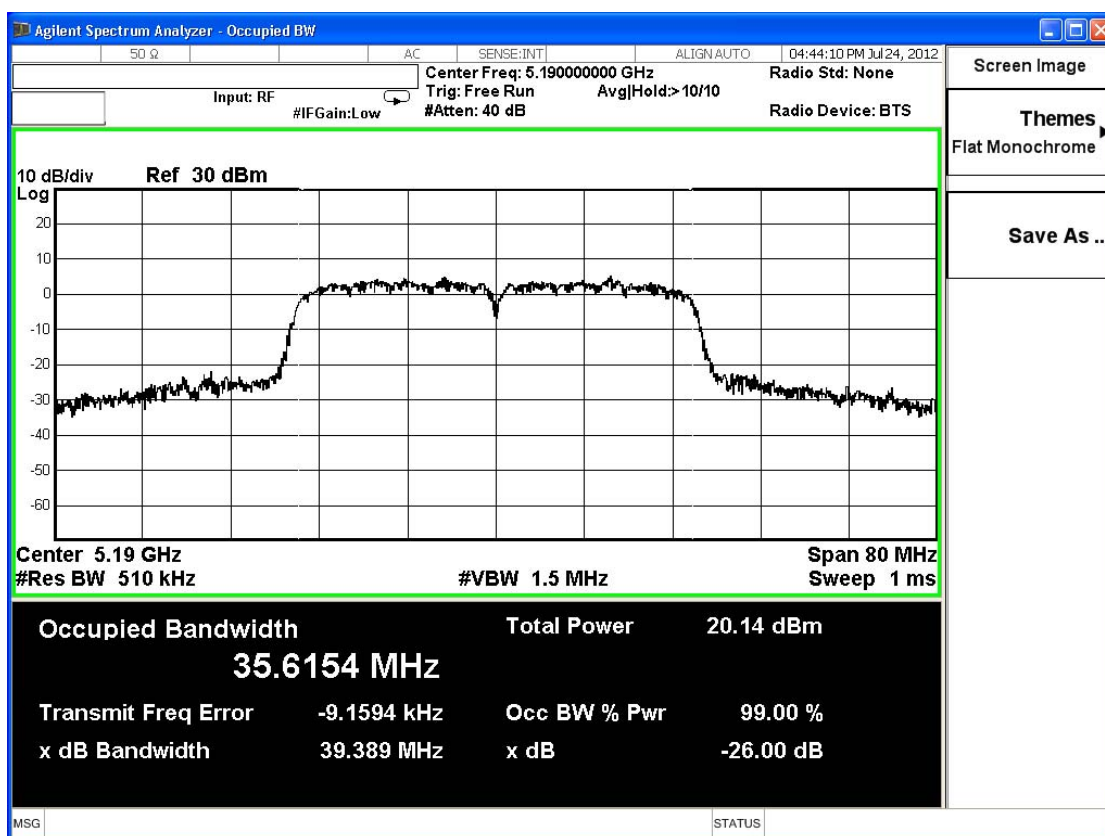
99% & 26dB Bandwidth – Channel 48



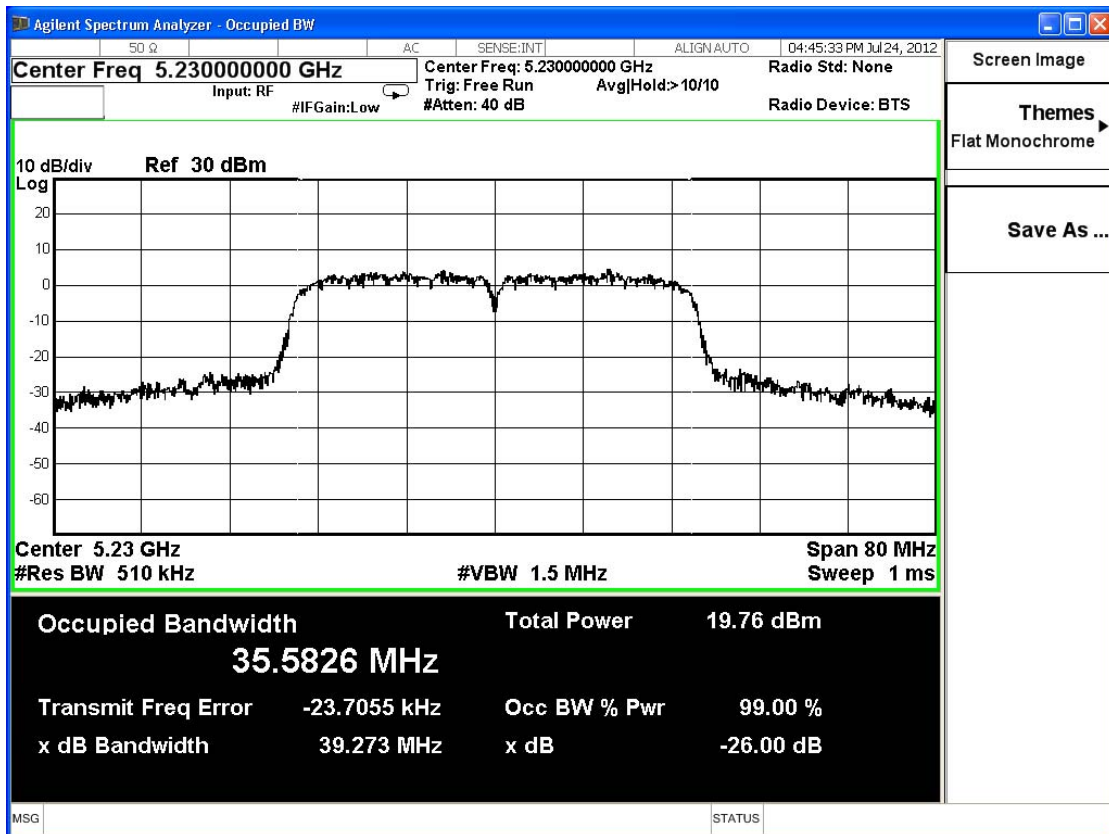
Product	5G+2.4G 2T2R AP FMC		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/24	Test Site	SR7

802.11n_40M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	39.389	35.615	--	NA
46	5230	39.273	35.583	--	NA

99% & 26dB Bandwidth – Channel 38



99% & 26dB Bandwidth – Channel 46

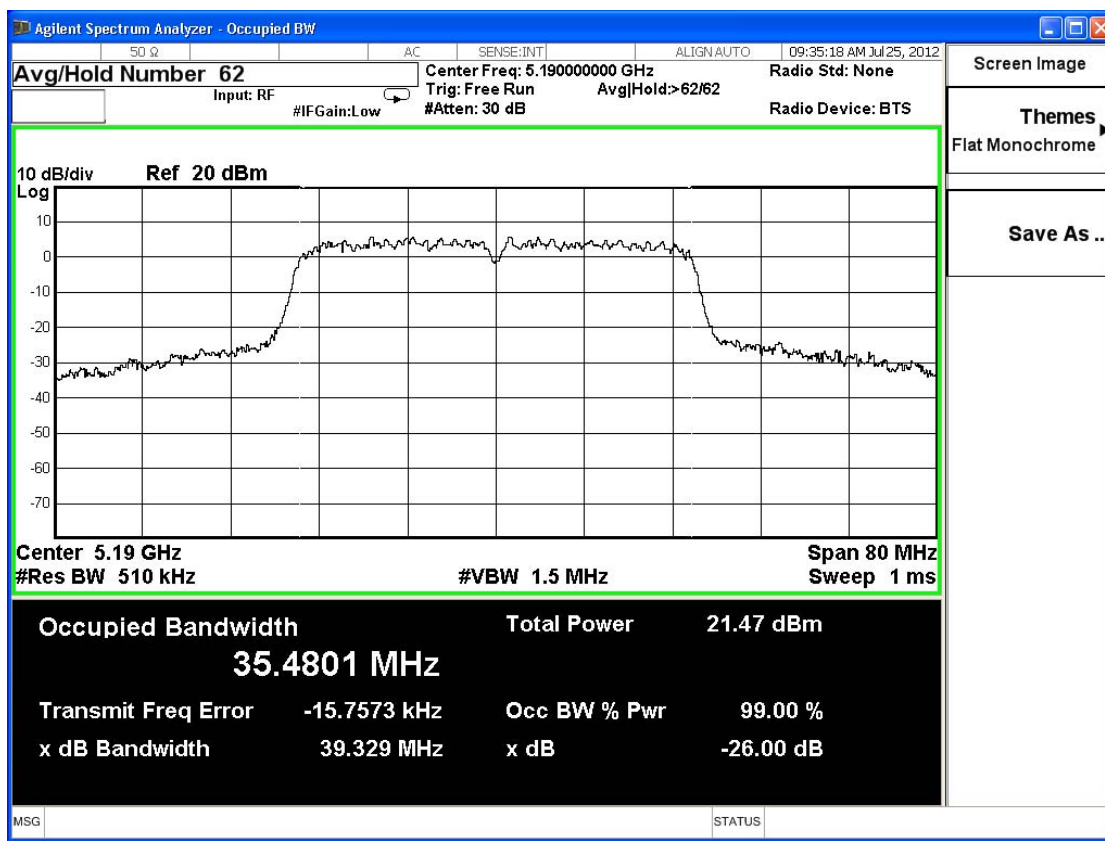


Product	5G+2.4G 2T2R AP FMC		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

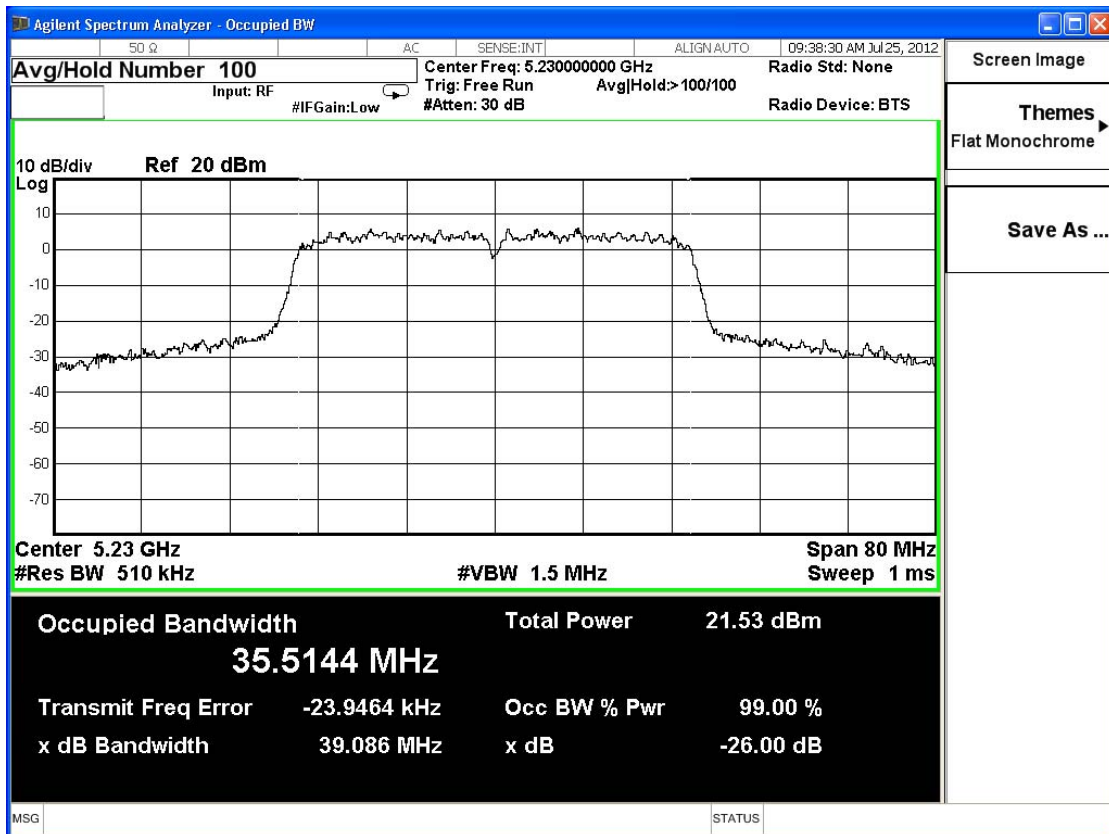
802.11n_40M(ANT 1)

Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	39.329	35.480	--	NA
46	5230	39.086	35.514	--	NA

99% & 26dB Bandwidth – Channel 38



99% & 26dB Bandwidth – Channel 46



4. Peak Transmit Output

4.1. Test Equipment

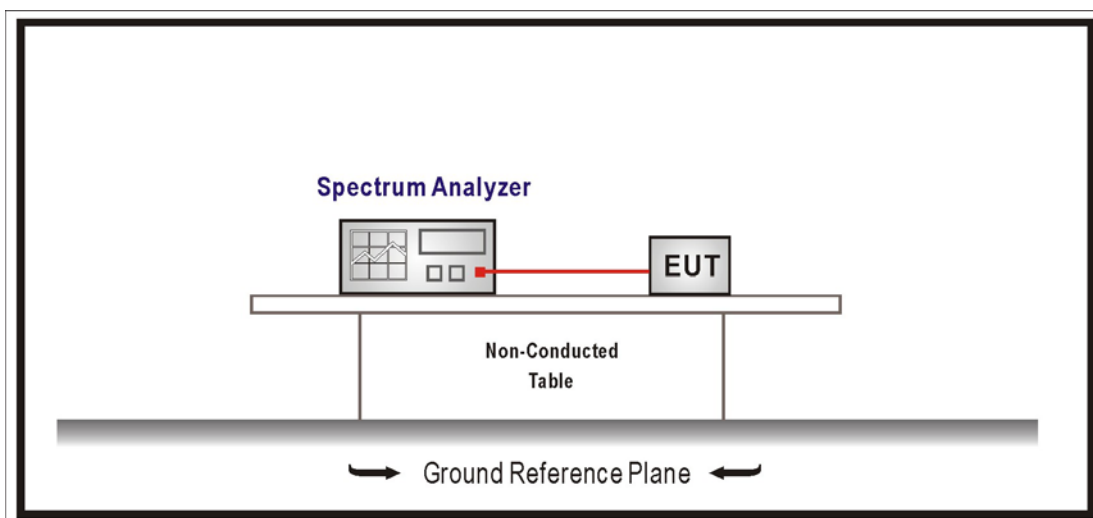
The following test equipments are used during the radiated emission tests:

Peak Transmit Output / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2013/02/19

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

4.2. Test Setup



4.3. Limits

1. For the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10\log B$, where B is the 26dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
2. For the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10\log B$, where B is the 26dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.825 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1W or $17 \text{ dBm} + 10\log B$, where B is the 26dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

4.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of March 2012 KDB 789033 for compliance to FCC 47CFR Subpart E requirements. The Method SA-1 of the Maximum conducted output power was used.

Set RBW=1MHz, VBW=3MHz with RMS detector and trace average 100 traces in power averaging mode. Set span to encompass the entire emission bandwidth (EBW) of the signal. Compute power by integrating the spectrum across the 26 dB EBW of the signal.

4.5. Uncertainty

The measurement uncertainty is defined as $\pm 1.27 \text{ dB}$

4.6. Test Result

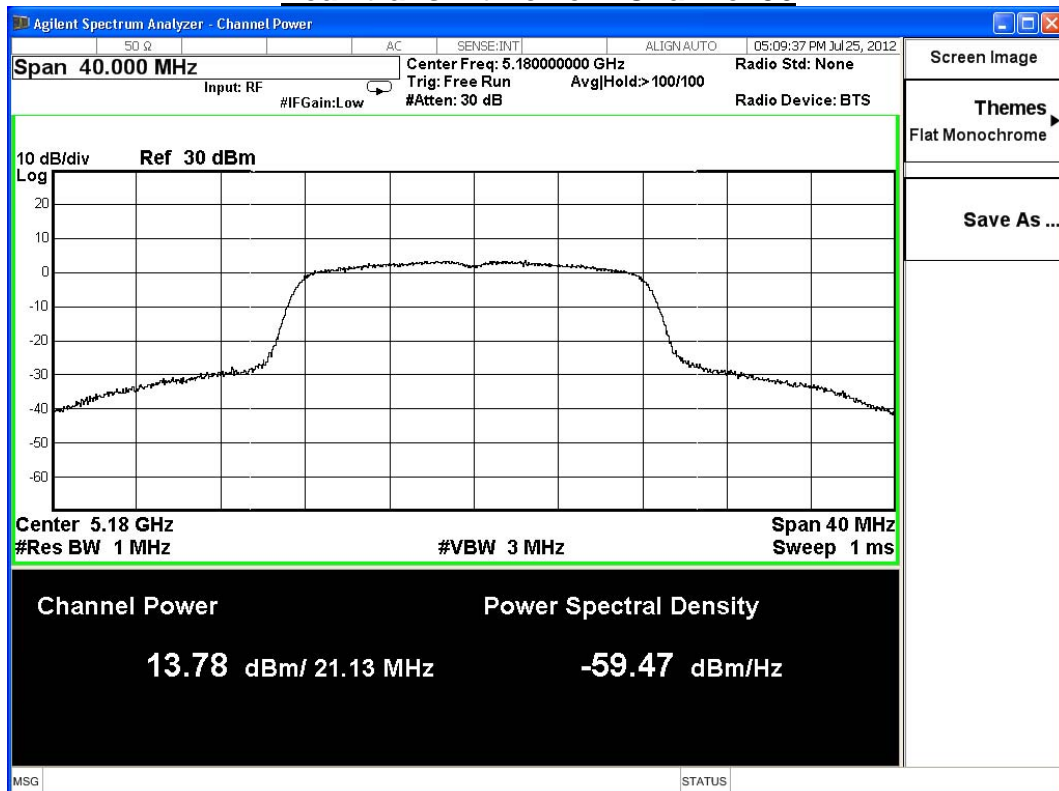
Product	5G+2.4G 2T2R AP FMC		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

802.11a						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	21.125	13.78	≤ 17	≤ 17.25	Pass
44	5220	20.651	13.71	≤ 17	≤ 17.15	Pass
48	5240	21.021	13.61	≤ 17	≤ 17.23	Pass

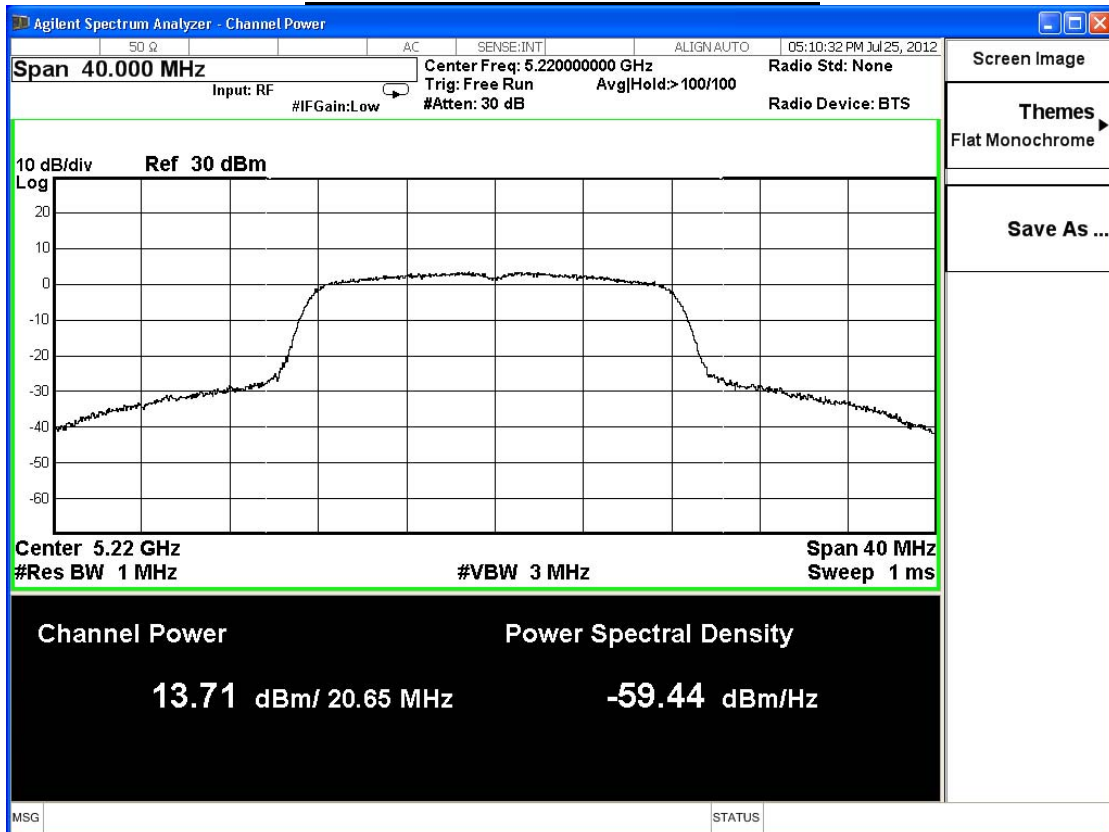
The worst emission of data rate is 6 Mbps.

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
36	5180	13.78	--	--	--	--	--	--	≤17dBm
44	5220	13.71	13.46	13.19	12.91	12.43	12.03	11.72	≤17dBm
48	5240	13.61	--	--	--	--	--	--	≤17dBm

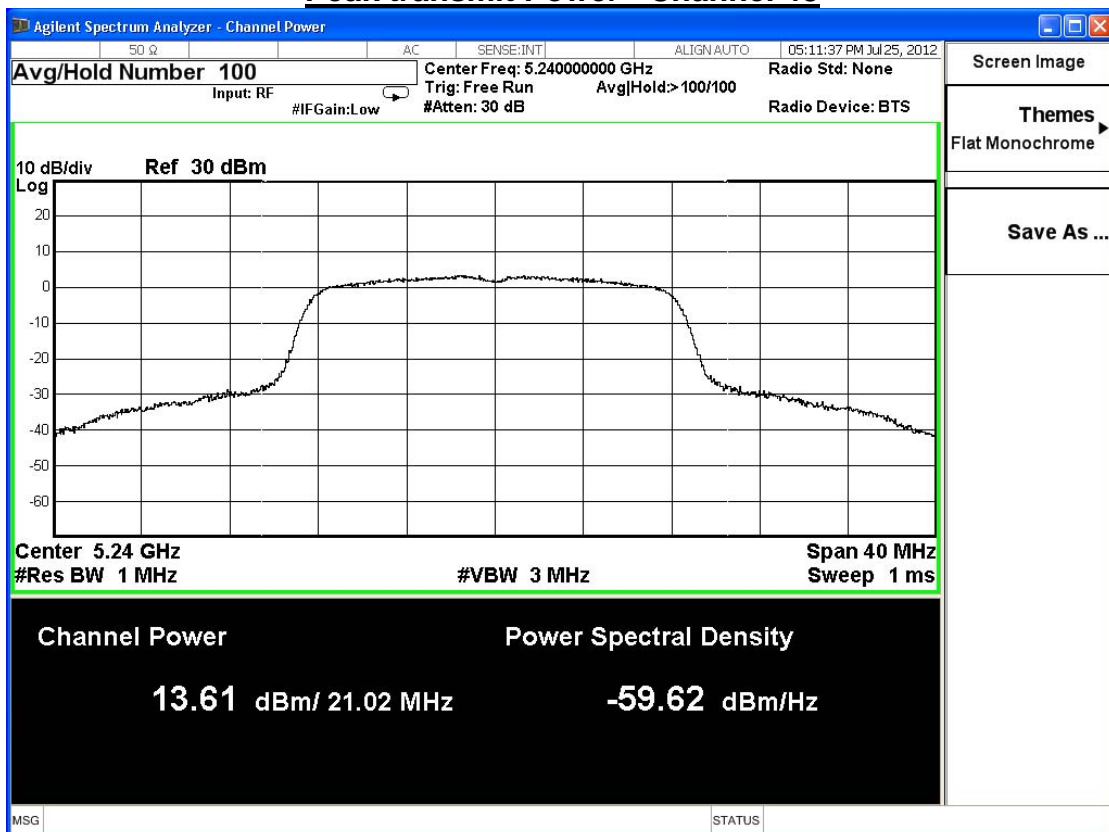
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



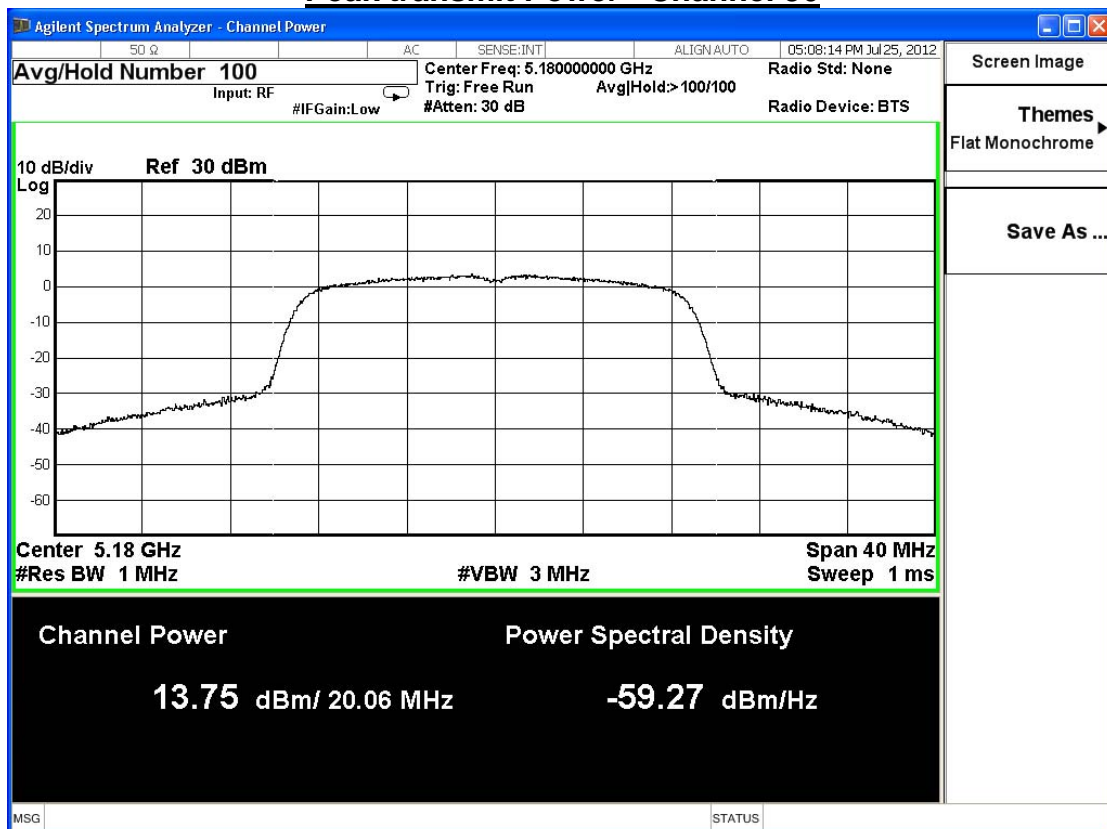
Product	5G+2.4G 2T2R AP FMC		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	20.056	13.75	≤ 17	≤ 17.02	Pass
44	5220	19.516	13.30	≤ 17	≤ 16.90	Pass
48	5240	19.392	13.69	≤ 17	≤ 16.88	Pass

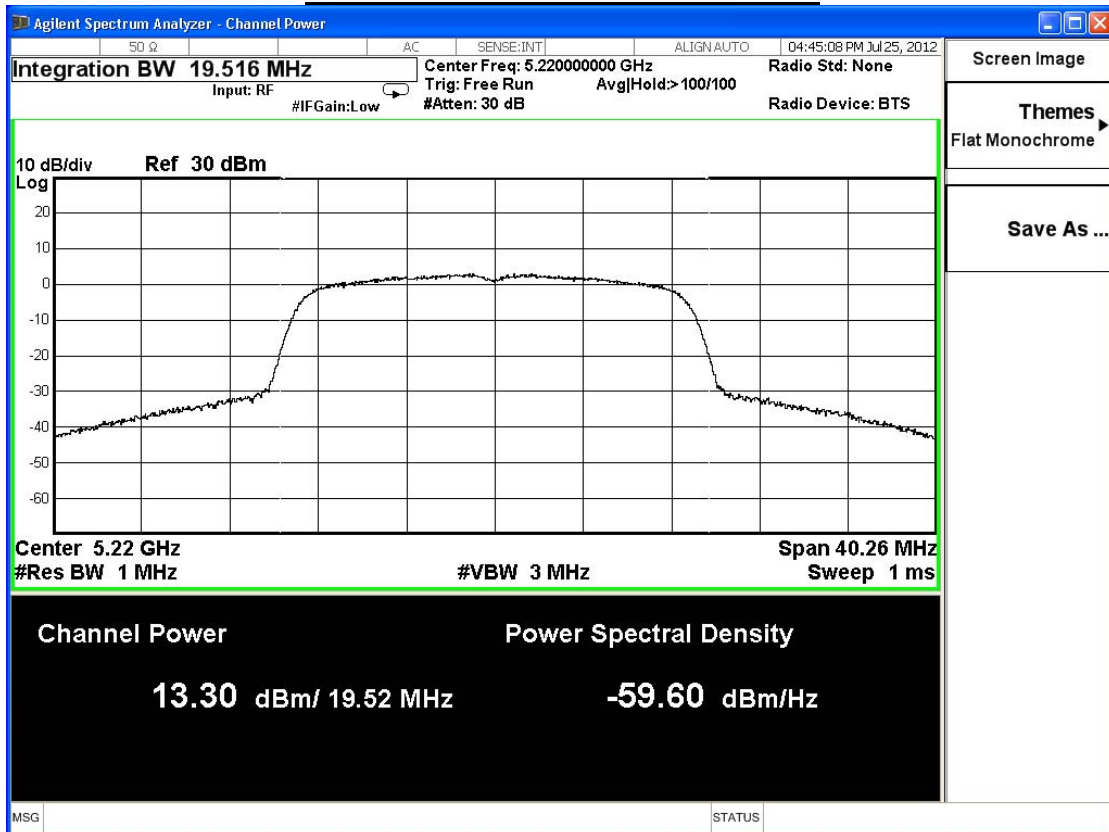
The worst emission of data rate is 13Mbps.

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
36	5180	13.75	13.48	13.13	12.80	12.59	12.24	12.03	11.75	≤17.00dBm
44	5220	13.30	--	--	--	--	--	--	--	≤16.90dBm
48	5240	13.69	--	--	--	--	--	--	--	≤16.88dBm

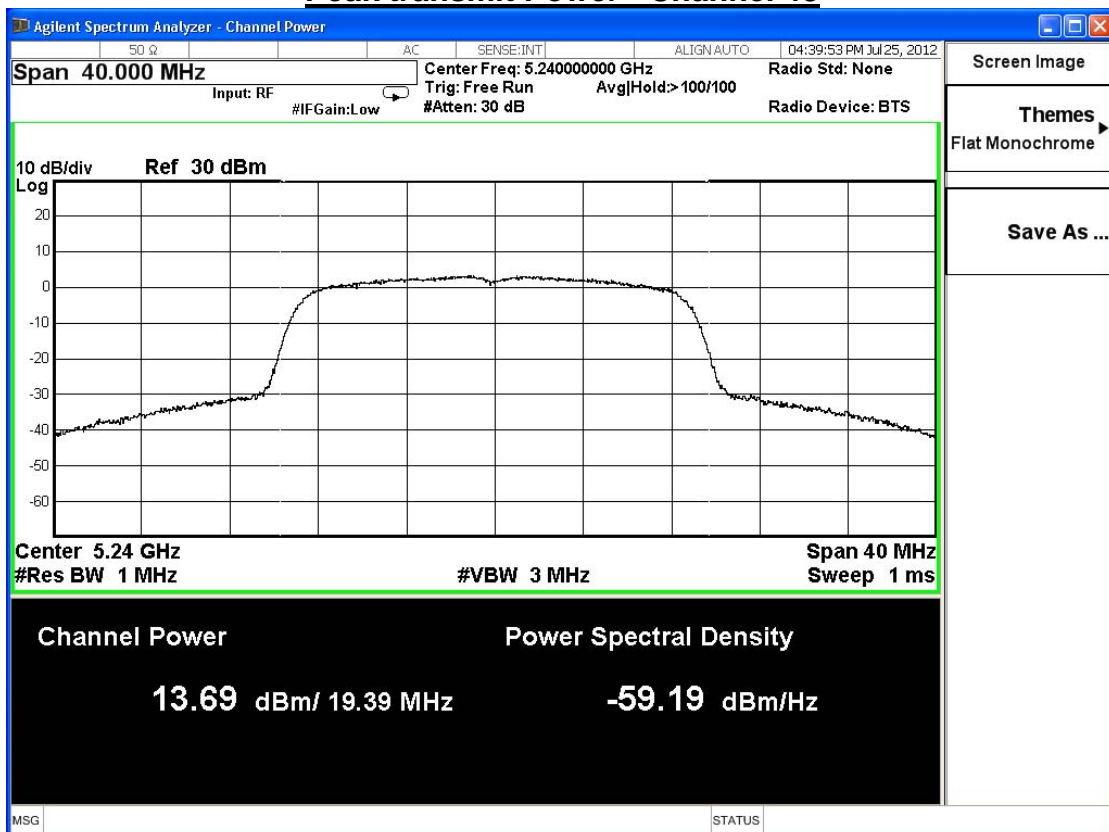
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



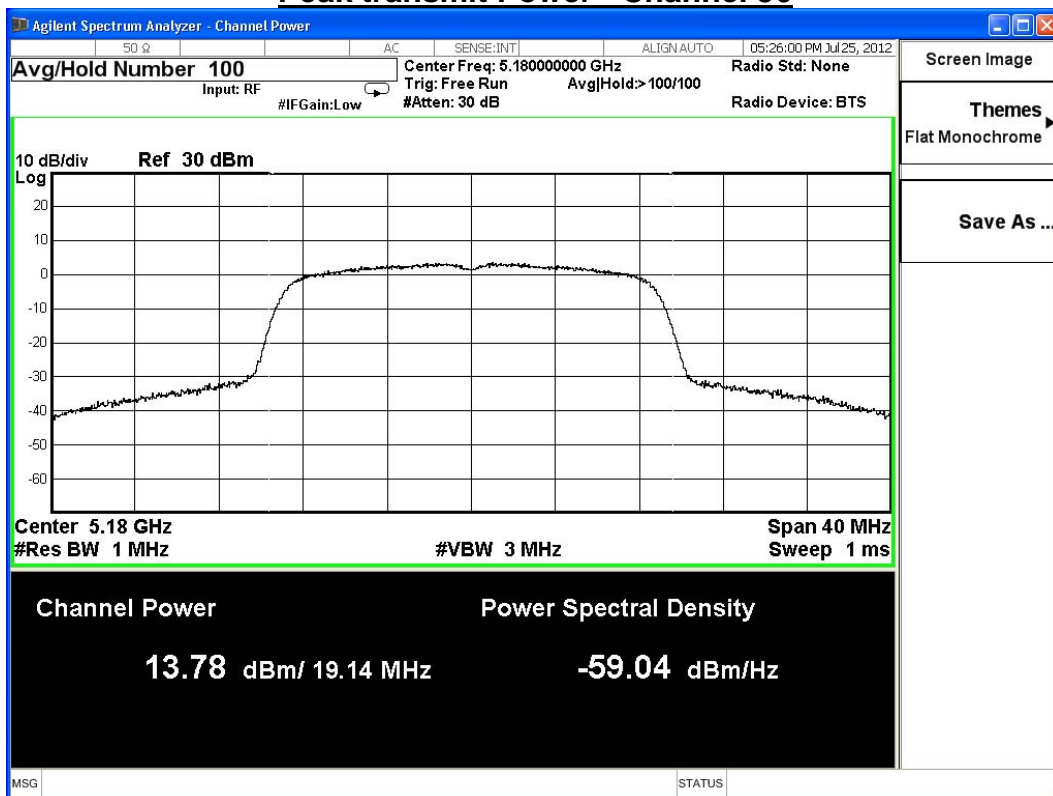
Product	5G+2.4G 2T2R AP FMC		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	19.139	13.78	≤ 17	≤ 16.82	Pass
44	5220	19.150	13.94	≤ 17	≤ 16.82	Pass
48	5240	19.123	13.91	≤ 17	≤ 16.82	Pass

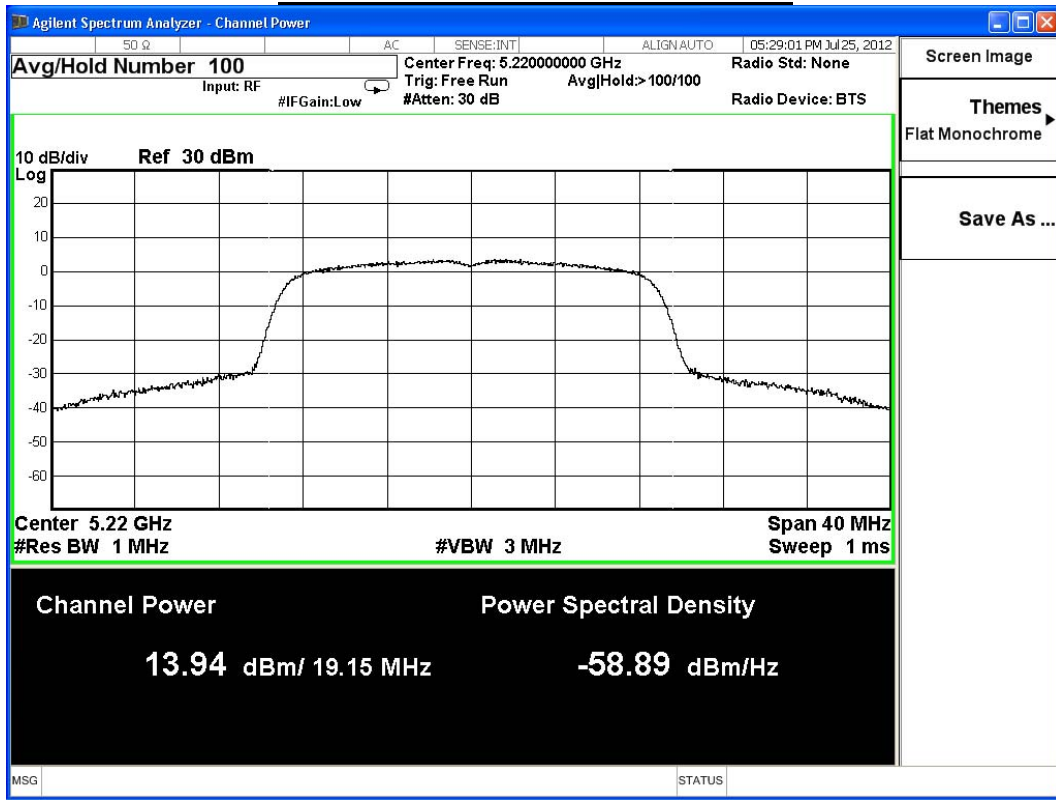
The worst emission of data rate is 13Mbps.

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
36	5180	13.78	13.54	13.14	12.68	12.64	12.25	12.23	11.75	≤16.82dBm
44	5220	13.94	--	--	--	--	--	--	--	≤16.82dBm
48	5240	13.91	--	--	--	--	--	--	--	≤16.82dBm

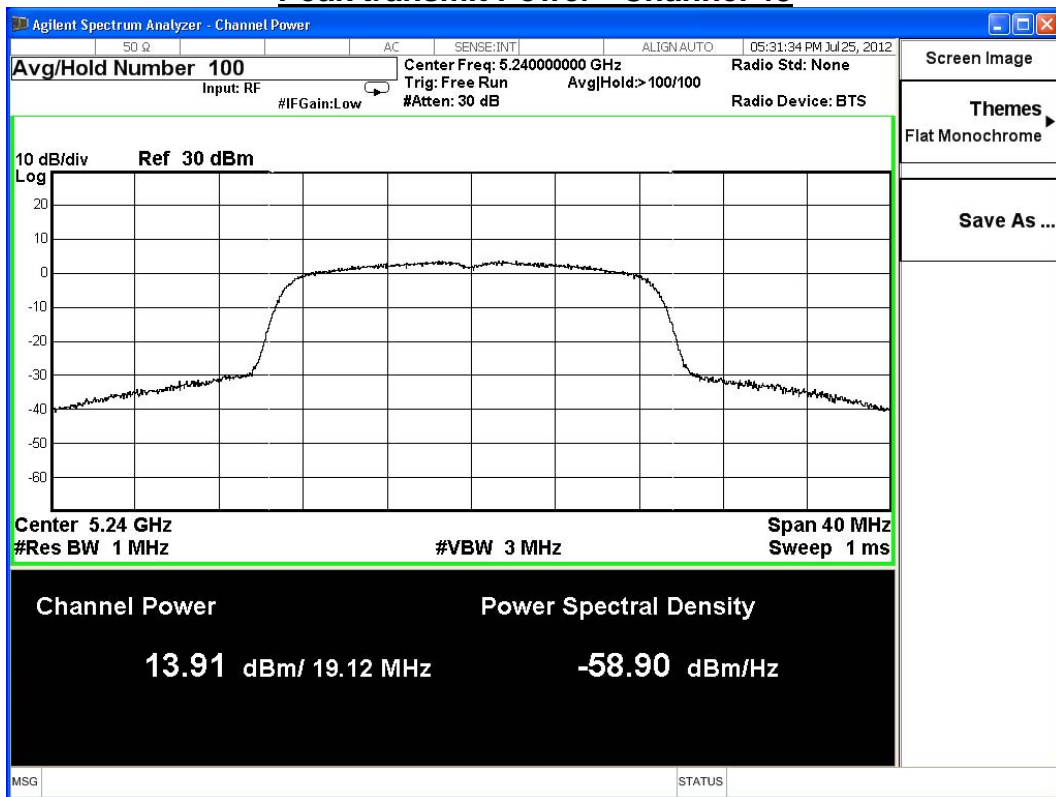
Peak transmit Power - Channel 36



Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



Product	5G+2.4G 2T2R AP FMC		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 0+1					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(dBm)	(mW)		
36	5180	16.78	47.59	≤16.82	Pass
44	5220	16.64	46.15	≤16.82	Pass
48	5240	16.81	47.99	≤16.82	Pass

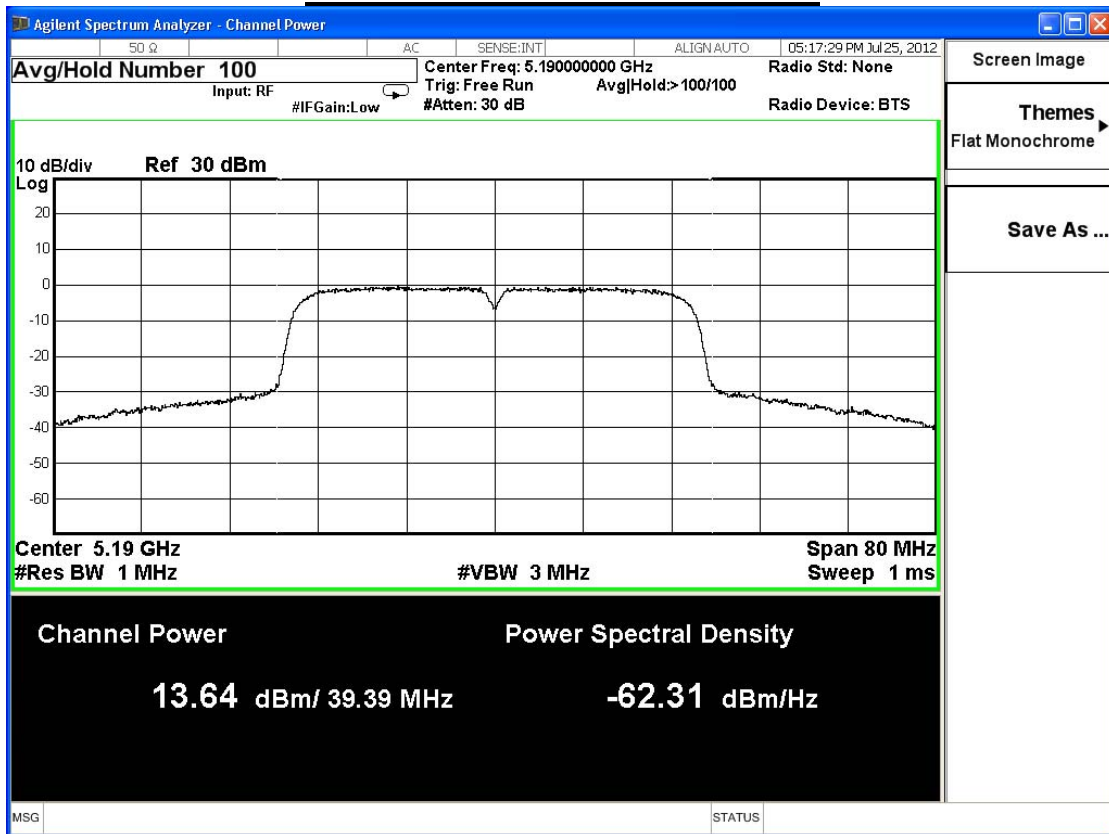
Product	5G+2.4G 2T2R AP FMC		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
38	5190	39.389	13.64	≤ 17	≤ 19.95	Pass
46	5230	39.273	13.25	≤ 17	≤ 19.94	Pass

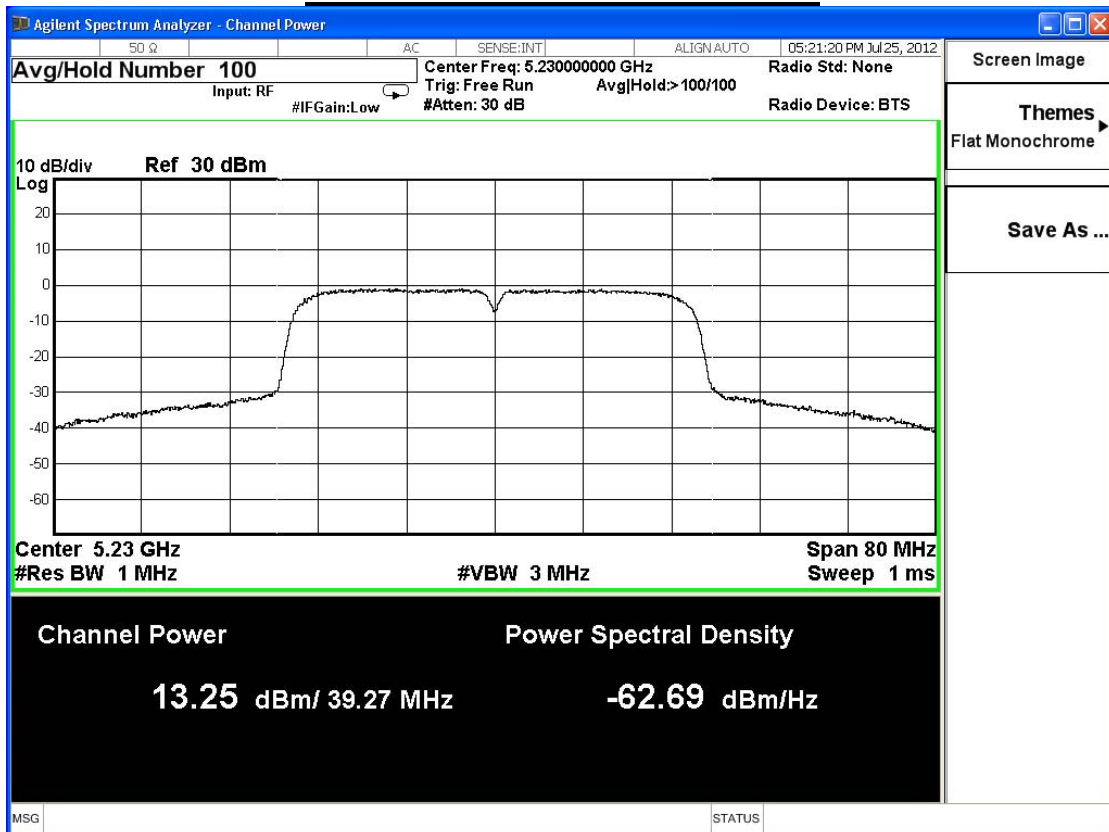
The worst emission of data rate is 27Mbps

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
38	5190	13.64	--	--	--	--	--	--	--	≤17dBm
46	5230	13.25	12.88	12.86	12.46	12.40	11.91	11.56	11.22	≤17dBm

Peak transmit Power - Channel 38



Peak transmit Power - Channel 46



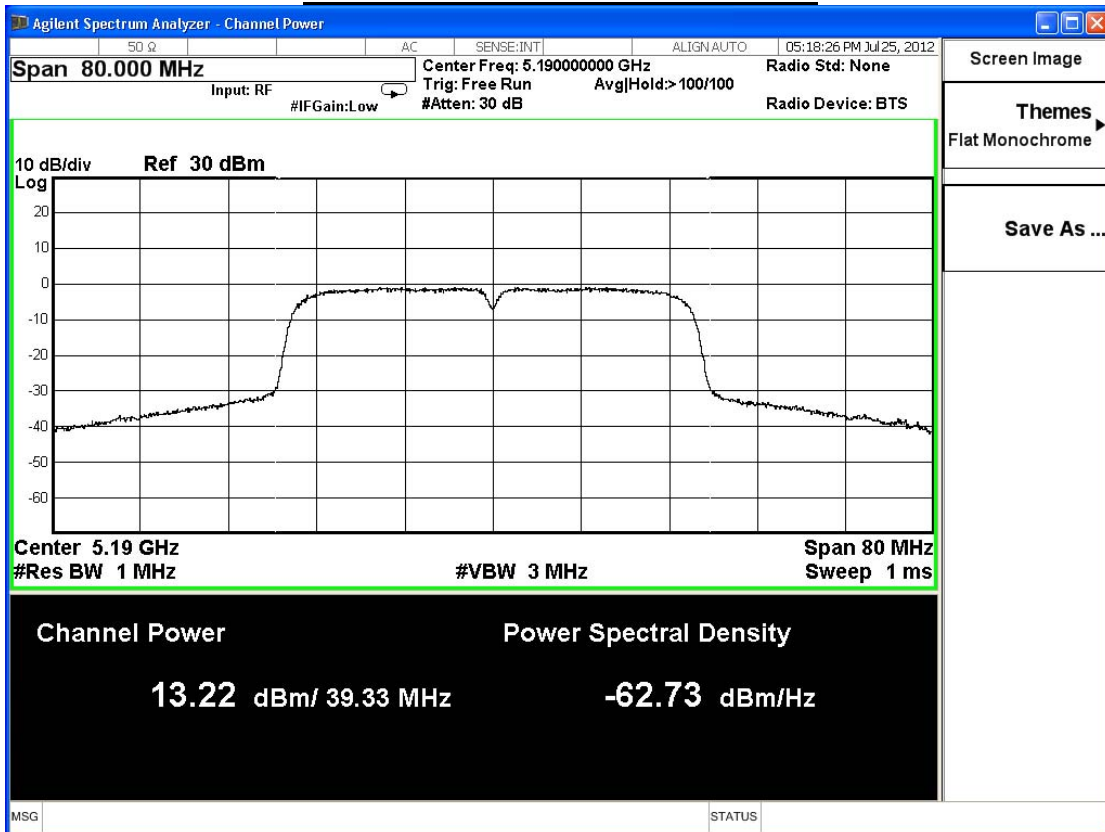
Product	5G+2.4G 2T2R AP FMC		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 1						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
38	5190	39.329	13.22	≤ 17	≤ 19.95	Pass
46	5230	39.086	13.58	≤ 17	≤ 19.92	Pass

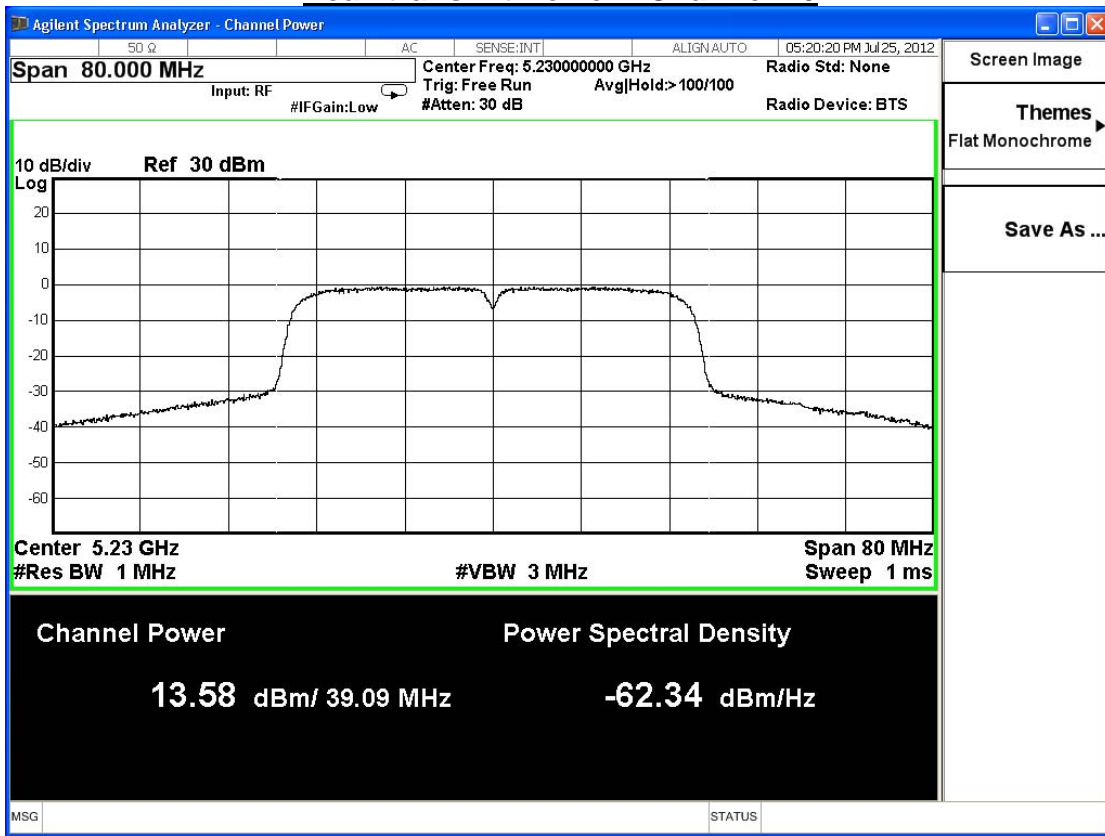
The worst emission of data rate is 27Mbps

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
38	5190	13.22	--	--	--	--	--	--	--	≤17dBm
46	5230	13.58	13.10	13.02	13.01	12.56	12.08	12.07	11.99	≤17dBm

Peak transmit Power - Channel 38



Peak transmit Power - Channel 46



Product	5G+2.4G 2T2R AP FMC		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2012/07/25	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 0+1					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(dBm)	(mW)		
38	5190	16.45	44.11	≤ 17	Pass
46	5230	16.43	43.94	≤ 17	Pass