



Test Report

Product Name : CPE 3.65GHz Outdoor

Model No. : CPEMax-OD365

FCC ID. : W93-CPEMAXOD365

Applicant : FRC INTERNET PRODUCTS, LLC

Address : 4421 SW 85th Way, Gainesville, Florida 32608, USA

Date of Receipt : 2011/12/14

Issued Date : 2012/03/22

Report No. : 11C275R-RFUSP36V01

Report Version : V1.0

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuiTek Corporation.

Test Report Certification

Issued Date : 2012/03/22

Report No. : 11C275R-RFUSP36V01

QuiTek

Product Name : CPE 3.65GHz Outdoor
Applicant : FRC INTERNET PRODUCTS, LLC
Address : 4421 SW 85th Way, Gainesville, Florida 32608, USA
Model No. : CPEMax-OD365
FCC ID. : W93-CPEMAXOD365
Rated Voltage : AC 120~230V/50~60Hz
Trade Name : FRC
Applicable Standard : FCC CFR Title 47 Part 2 and Part 90 Subpart Z
TIA/EIA 603-C: 2004
Test Result : Complied

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuiTek Corporation.

Documented By : Demi Chang

(Demi Chang / Engineering Adm. Specialist)

Reviewed By : JuBo Shen

(JuBo Shen / Assistant Engineer)

Approved By : Roy Wang

(Roy Wang / Manager)

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Reference : Laboratory of License

1. General Information**1.1. EUT Description**

Product Name	CPE 3.65GHz Outdoor
Trade Name	FRC
Model No.	CPEMax-OD365
Bandwidth(MHz)	5, 7, 10
Frequency Range(MHz)	3650-3675
Type of Modulation	UL: QPSK 1/2, 3/4; 16QAM 1/2, 3/4; 64QAM 1/2, 2/3, 3/4, 5/6 DL: QPSK 1/2, 3/4; 16QAM 1/2, 3/4; 64QAM 1/2, 2/3, 3/4, 5/6
Antenna Gain	14dBi
Antenna Type	Patch Antenna

Component	
Power Adapter	PLUS TECH LTD., TL-480050 I/P: 100-240V 50/60Hz O/P: 48V 0.5A.

5MHz

Working Frequency of Each Channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
Low	3652.5MHz	Middle	3662.5 MHz	High	3672.5 MHz

7MHz

Working Frequency of Each Channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
Low	3653.5 MHz	Middle	3662.5 MHz	High	3671.5 MHz

10MHz

Working Frequency of Each Channel					
Channel	Frequency	Channel	Frequency	Channel	Frequency
Low	3655.0 MHz	Middle	3662.5 MHz	High	3670.0 MHz

Note:

1. This device is a CPE 3.65GHz Outdoor, which is operating in the 3650-3675 MHz band supporting restricted contention based protocol.
2. For the restricted contention based protocol, only FRC CBS 3.65GHz (FCC ID: W93-CPEMAXOD365) could communicate with this device.
3. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 90 Subpart M for OFMDA digital devices.
4. Regards to the frequency band operations; three channels were selected to perform the test, and then show on this report.
5. This device is a composite device in accordance with Part 15 regulations. The function receiving was measured and made a test report that the report number is 11C275R-RFUSP37V02 under Declaration of Conformity.

1.2. Test Mode

The EUT has different channel bandwidths, modulation types and coding rates. Maximum output power was pre-tested and showed as below table:

5MHz Bandwidth:

Frequency (MHz)	Maximum Output Power (dBm)			
	Modulation type and coding rate			
	QPSK1/2	QPSK3/4	16QAM1/2	16QAM3/4
3652.5	21.54	21.51	21.73	21.61
3662.5	21.26	21.23	21.32	21.13
3672.5	21.30	21.32	21.40	21.26

Frequency (MHz)	Maximum Output Power (dBm)			
	Modulation type and coding rate			
	64QAM1/2	64QAM2/3	64QAM3/4	64QAM5/6
3652.5	20.79	21.85	21.46	21.70
3662.5	21.02	21.43	21.03	21.40
3672.5	20.60	21.48	21.07	21.47

7MHz Bandwidth:

Frequency (MHz)	Maximum Output Power (dBm)			
	Modulation type and coding rate			
	QPSK1/2	QPSK3/4	16QAM1/2	16QAM3/4
3653.5	21.16	21.26	21.18	21.02
3662.5	20.85	21.17	20.72	20.55
3671.5	21.92	20.74	20.93	20.97

Frequency (MHz)	Maximum Output Power (dBm)			
	Modulation type and coding rate			
	64QAM1/2	64QAM2/3	64QAM3/4	64QAM5/6
3653.5	20.22	21.22	20.38	21.07
3662.5	19.75	20.72	20.28	20.61
3671.5	19.84	20.98	20.65	20.93

10MHz Bandwidth:

Frequency (MHz)	Maximum Output Power (dBm)			
	Modulation type and coding rate			
	QPSK1/2	QPSK3/4	16QAM1/2	16QAM3/4
3655	21.28	21.26	21.33	21.10
3662.5	21.06	21.02	20.68	20.76
3670	20.88	21.20	20.72	20.92

Frequency (MHz)	Maximum Output Power (dBm)			
	Modulation type and coding rate			
	64QAM1/2	64QAM2/3	64QAM3/4	64QAM5/6
3655	20.43	21.30	21.02	21.23
3662.5	20.29	20.93	20.73	20.95
3670	19.81	21.12	20.50	20.93

According to the above table, find the worst cases of the transmitter. And the worst cases of the receiver are defined corresponding to the most robust modulation and coding rate. These worst cases were selected for final test configuration in this test report.

Final Test Model	
TX	Mode 1: Transmit (5MHz BW_QPSK1/2) Mode 2: Transmit (5MHz BW_16QAM1/2) Mode 3: Transmit (5MHz BW_64QAM2/3) Mode 4: Transmit (7MHz BW_QPSK1/2) Mode 5: Transmit (7MHz BW_16QAM1/2) Mode 6: Transmit (7MHz BW_64QAM2/3) Mode 7: Transmit (10MHz BW_QPSK1/2) Mode 8: Transmit (10MHz BW_16QAM1/2) Mode 9: Transmit (10MHz BW_64QAM2/3)

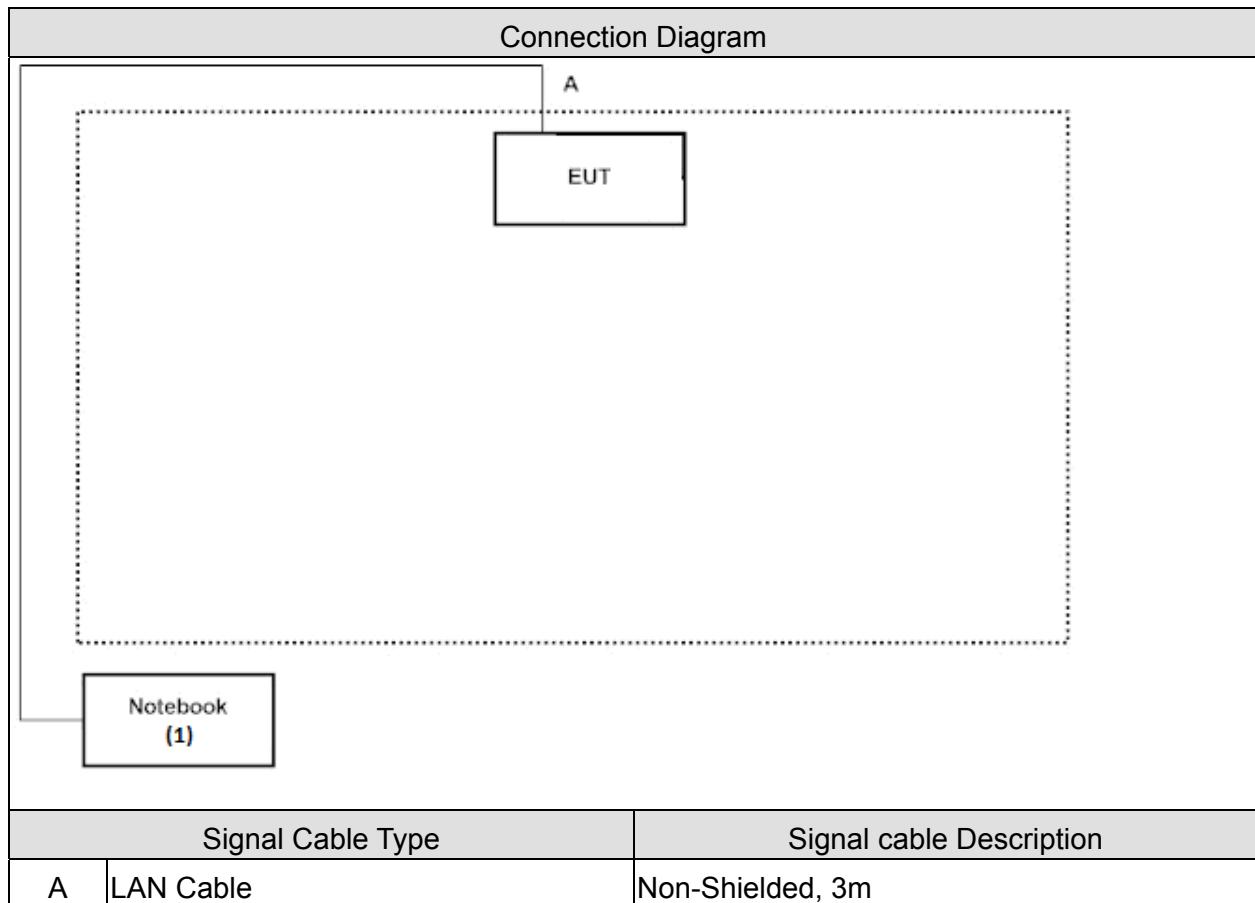
Emission	Mode 1~ Mode 9
Maximum conducted output power	Yes
Peak EIRP power density	Yes
Occupied bandwidth	Yes
Emission Mask	Yes
Conducted Spurious Emission	Yes
Radiated Spurious Emission	Yes
Frequency Stability Over Temperatures Variation	Yes
Frequency Stability Over Voltage Variation	Yes

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	HP	HSTNN-I05C	CNU7020BXT	DoC	Non-Shielded, 1.8m

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 5.
2	Use “telnet” command to control the EUT.
3	Configure the test bandwidth, the test modulation, and the channel.
4	The EUT will transmit the traffic data.
5	Verify that the EUT works properly.
6	Repeat the above procedure (3) to (5).

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	PART 90.1321 Equivalent isotropically radiated power (EIRP)	15 - 35	22
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	PART 90.209 Occupied Bandwidth	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	PART 90.210(b) Spectrum Emission Mask	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	PART 90.1323 Conducted Spurious Emission	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	PART 90.1323 Radiated Spurious Emission	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	PART 90.213 Frequency Stability Over Temperature Variation	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	PART 90.213 Frequency Stability Over Voltage Variation	15 - 35	22
Humidity (%RH)		25 - 75	50
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, Wangye Keng, Yonghxing
Tsuen, Qiongliong Shiang, Hsinchu County 307, Taiwan
TEL : 886-3-5928858 / FAX : 886-3-5928859
E-Mail : service@quietek.com

2. Equivalent isotropically radiated power (EIRP)

2.1. Test Equipment:

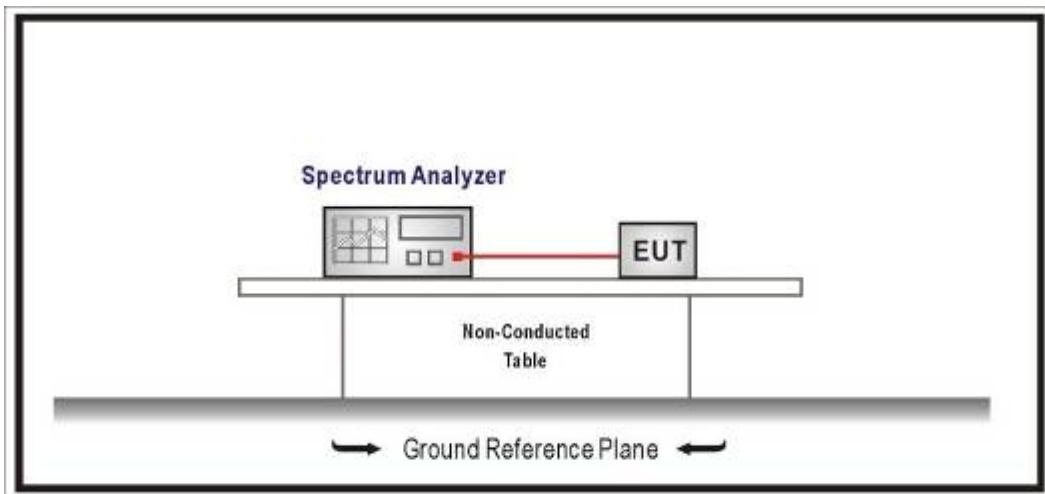
The following test equipments are used during the test:

Peak EIRP Power Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2012/07/13

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

2.2. Test Setup:



2.3. Test Limit:

Base and fixed stations are limited to 25 watts/25 MHz equivalent isotropically radiated power (EIRP). In any event, the peak EIRP power density shall not exceed 1 Watt in any onemegahertz slice of spectrum.

Bandwidth (MHz)	EIRP limit		EIRP power density	
	(W)	(dBm)	(W/MHz)	(dBm/MHz)
3.5	3.5	35.44	1	30
5.0	5.0	36.99		
7.0	7.0	38.45		
10.0	10.0	40.00		

2.4. Test Procedure:

1. Connect the DUT transmitter output to the spectrum analyzer via coaxial cable.
2. Tune the analyzer to the nominal center frequency of the emission bandwidth (EBW).
3. Set the span to twice the nominal EBW (span = 2 x EBW).
4. Set the resolution bandwidth (RBW) to approximately 1% of EBW.
5. Set the video bandwidth (VBW) to $\geq 3 \times$ RBW.
6. Select the average power (RMS) display detector.
7. Set the number of measurement points to ≥ 1001 .
8. Use auto-coupled sweep time.
9. Perform measurement over an interval of time when the transmission is continuous and at its maximum power level.
10. Utilize trace averaging over 100 traces in the power averaging mode.
11. Use the Band/Channel Power function to determine the integrated power over the full EBW.
12. Record the band power level.
13. Adjust the recorded level by applying appropriate correction factors for the measurement set-up.
14. Determine the EIRP by adding the effective antenna gain to the adjusted power level.

2.5. Test Specification:

FCC CFR Title 47 Part 90 Subpart Z, KDB 965270

2.6. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

2.7. Test Result:

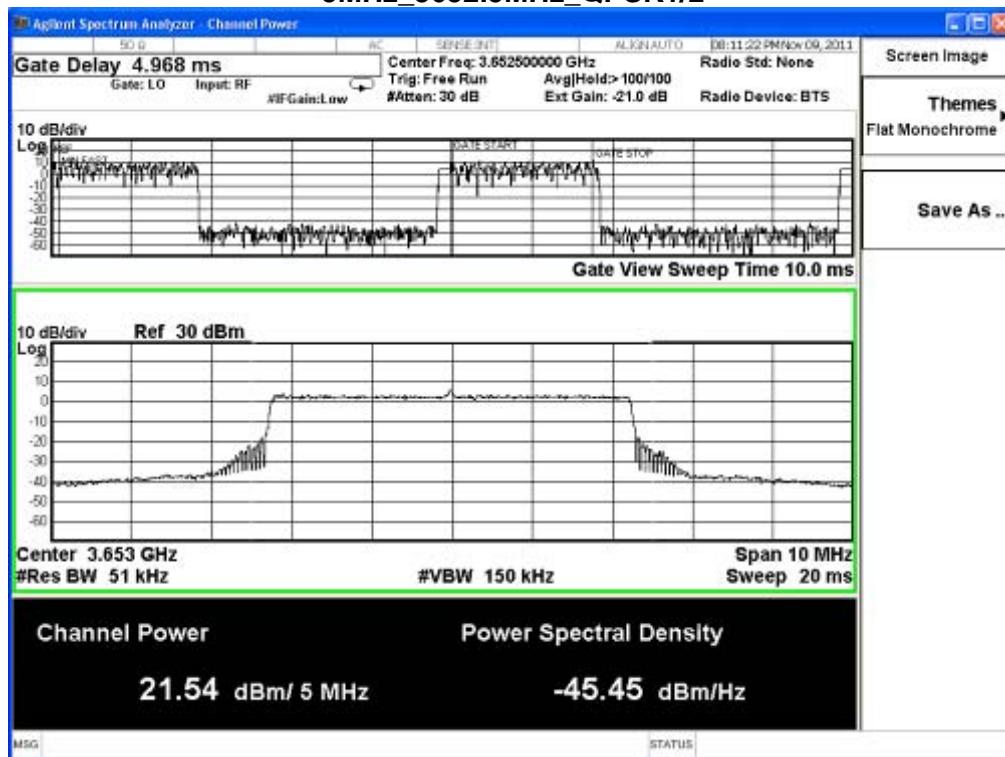
Product	CPE 3.65GHz Outdoor		
Test Item	Equivalent isotropically radiated power (EIRP)		
Test Mode	Mode 1: Transmit (5MHz BW_QPSK1/2)		
Date of Test	2011/11/17	Test Site	SR7

5MHz Bandwidth, Antenna Gain: 14dBi

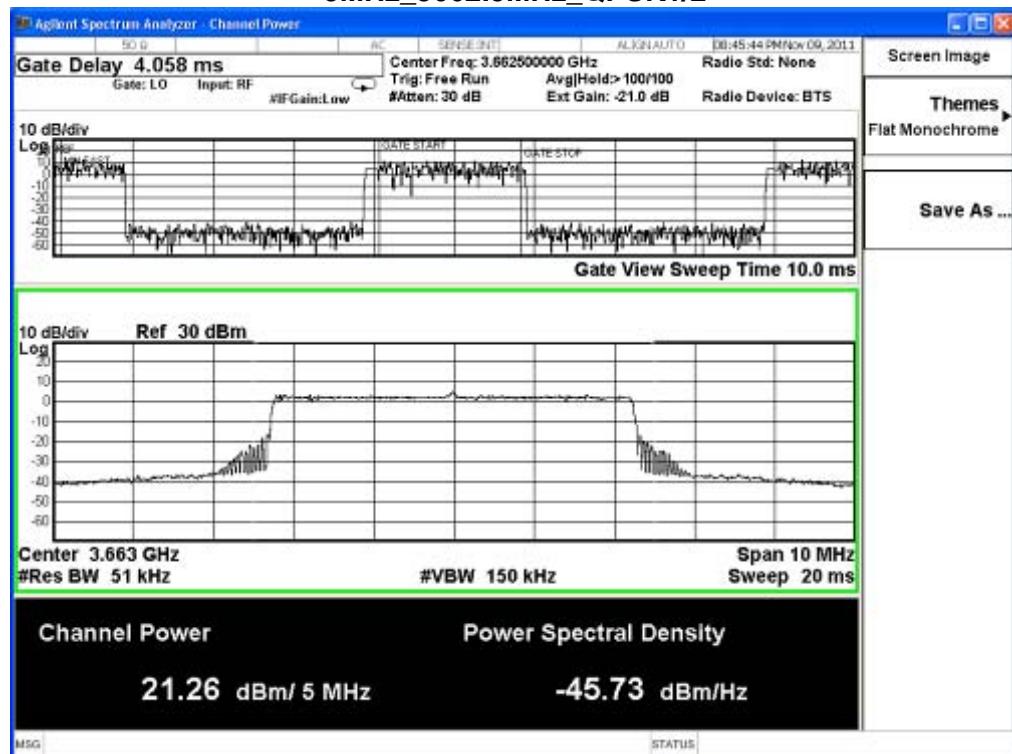
Frequency (MHz)	Modulation	Output Power (dBm/5MHz)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)
3652.5	QPSK1/2	21.54	35.54	36.99
3662.5	QPSK1/2	21.26	35.26	36.99
3672.5	QPSK1/2	21.30	35.30	36.99

E.I.R.P = Output Power + Antenna Gain

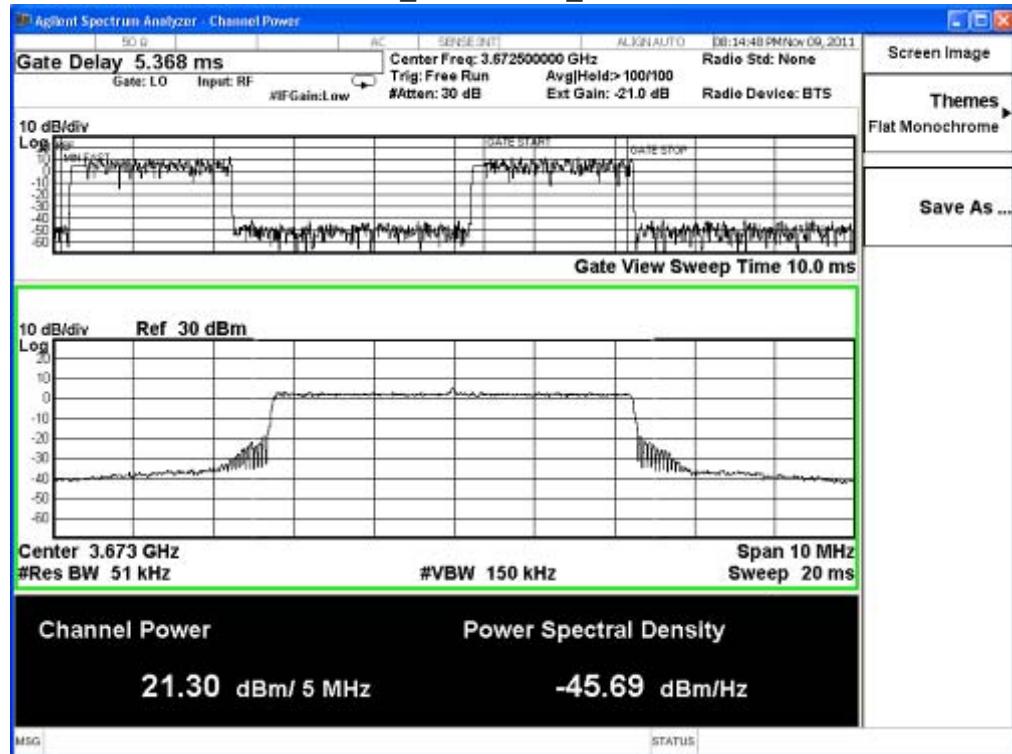
5MHz_3652.5MHz_QPSK1/2



5MHz_3662.5MHz_QPSK1/2



5MHz_3672.5MHz_QPSK1/2

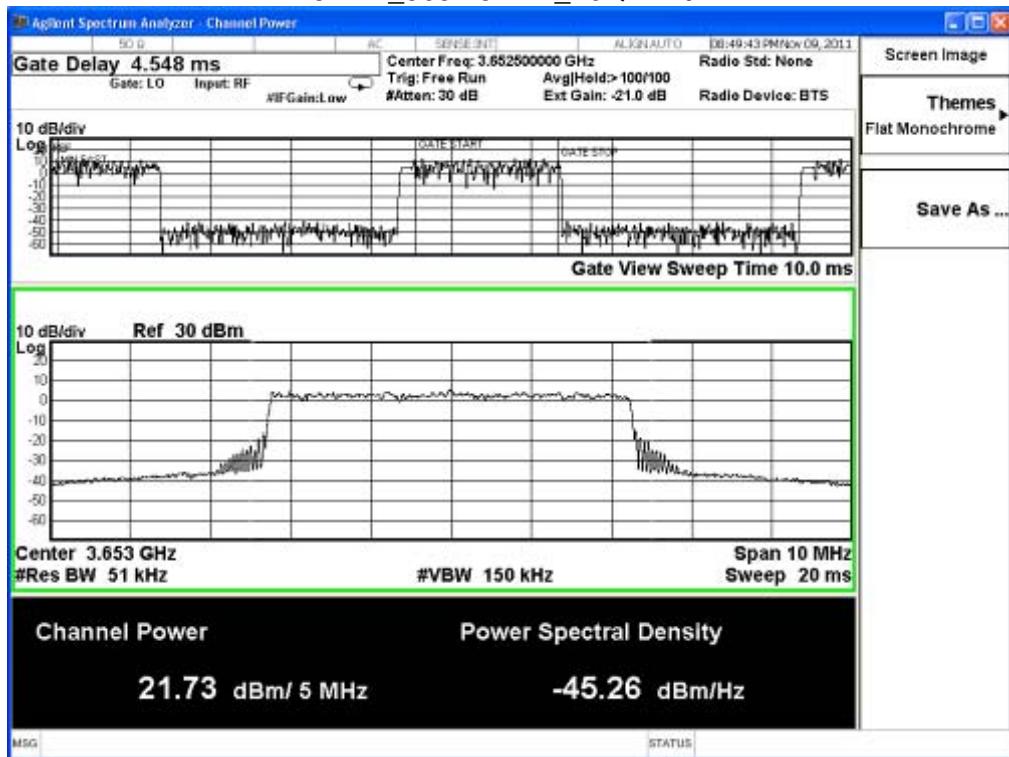


Product	CPE 3.65GHz Outdoor		
Test Item	Equivalent isotropically radiated power (EIRP)		
Test Mode	Mode 2: Transmit (5MHz BW_16QAM1/2)		
Date of Test	2011/11/17	Test Site	SR7

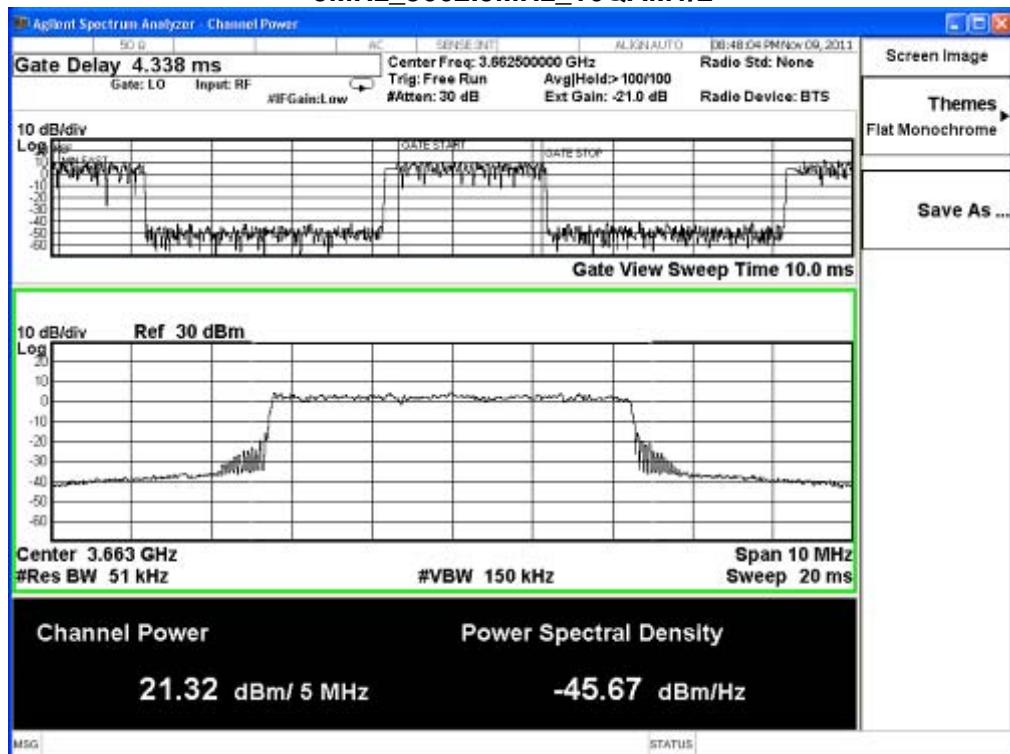
5MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Output Power (dBm/5MHz)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)
3652.5	16QAM1/2	21.73	35.73	36.99
3662.5	16QAM1/2	21.32	35.32	36.99
3672.5	16QAM1/2	21.40	35.40	36.99

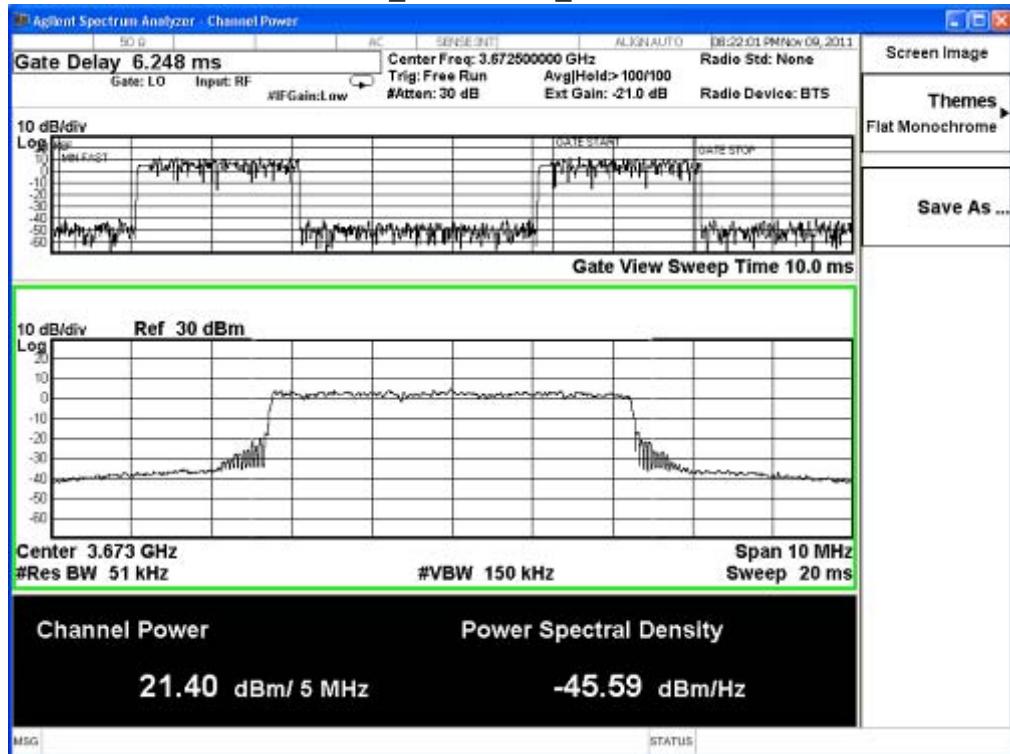
E.I.R.P = Output Power + Antenna Gain

5MHz_3652.5MHz_16QAM1/2

5MHz_3662.5MHz_16QAM1/2



5MHz_3672.5MHz_16QAM1/2



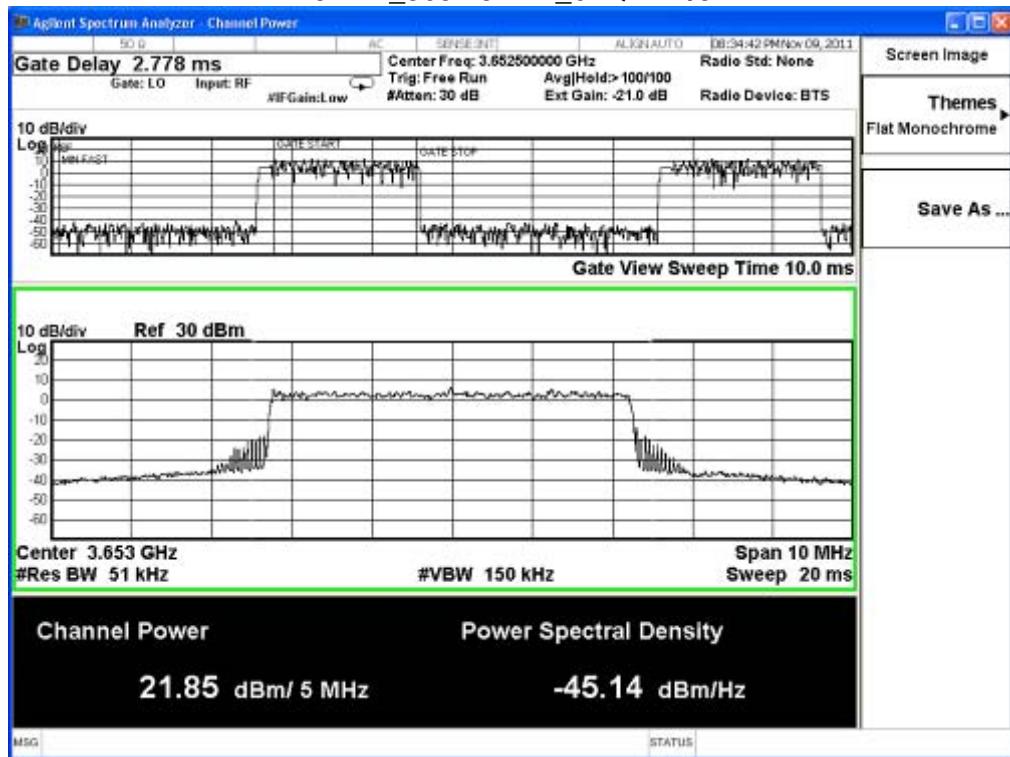
Product	CPE 3.65GHz Outdoor		
Test Item	Equivalent isotropically radiated power (EIRP)		
Test Mode	Mode 3: Transmit (5MHz BW_64QAM2/3)		
Date of Test	2011/11/17	Test Site	SR7

5MHz Bandwidth, Antenna Gain: 14dBi

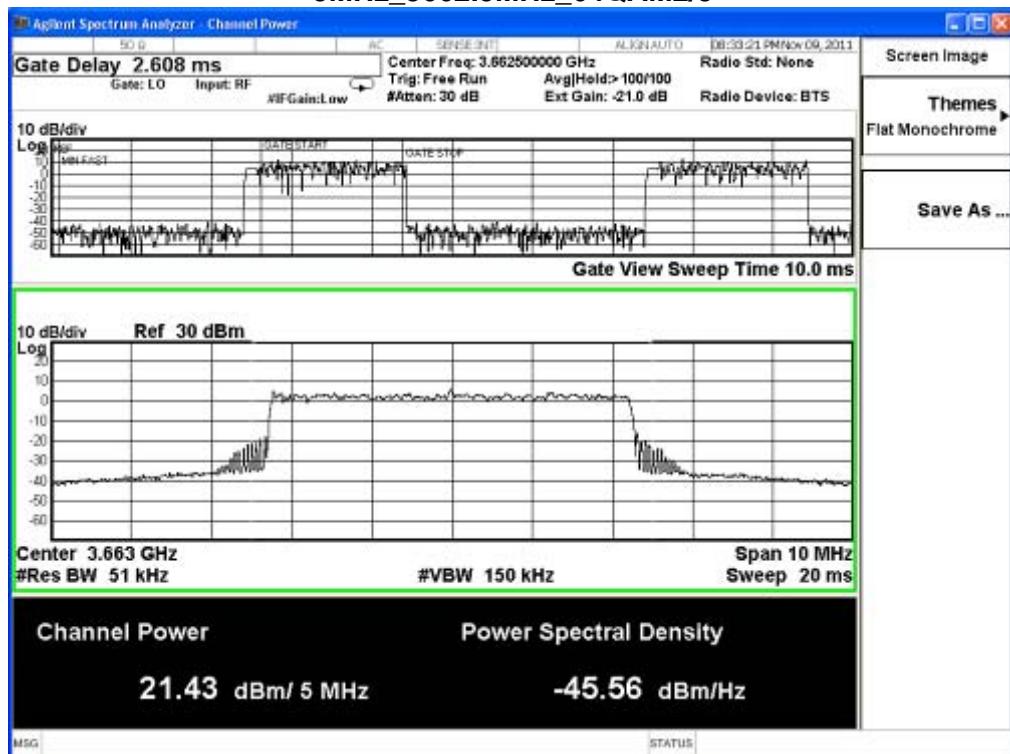
Frequency (MHz)	Modulation	Output Power (dBm/5MHz)	EIRP (dBm/5MHz)	Limit (dBm/5MHz)
3652.5	64QAM2/3	21.85	35.85	36.99
3662.5	64QAM2/3	21.43	35.43	36.99
3672.5	64QAM2/3	21.48	35.48	36.99

E.I.R.P = Output Power + Antenna Gain

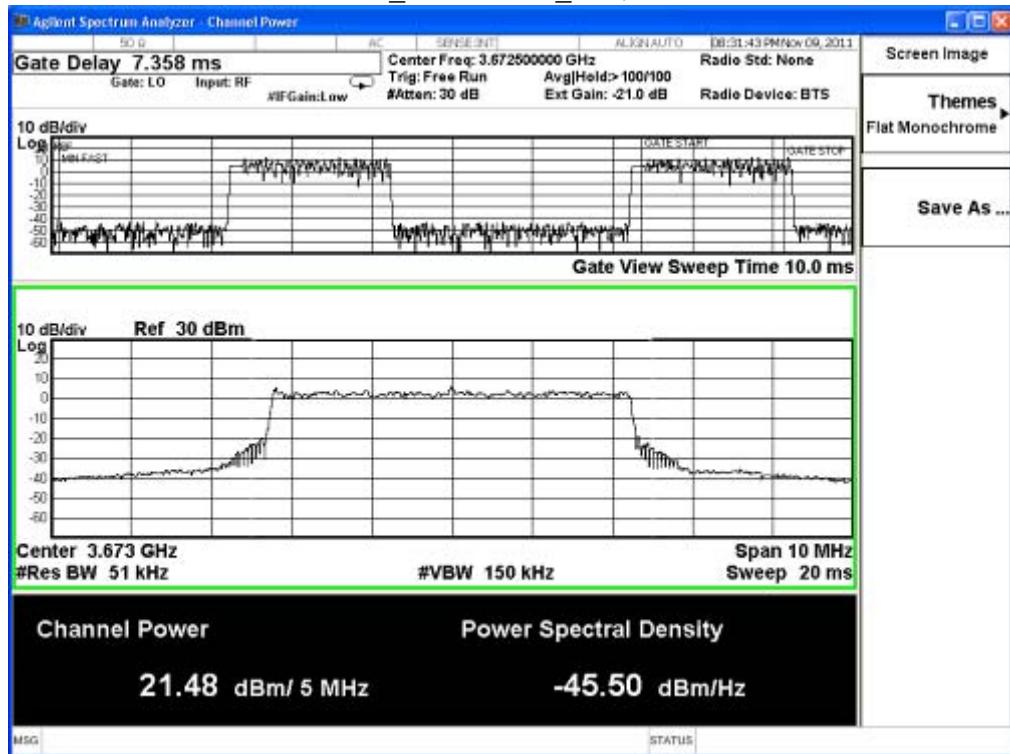
5MHz_3652.5MHz_64QAM2/3



5MHz_3662.5MHz_64QAM2/3



5MHz_3672.5MHz_64QAM2/3

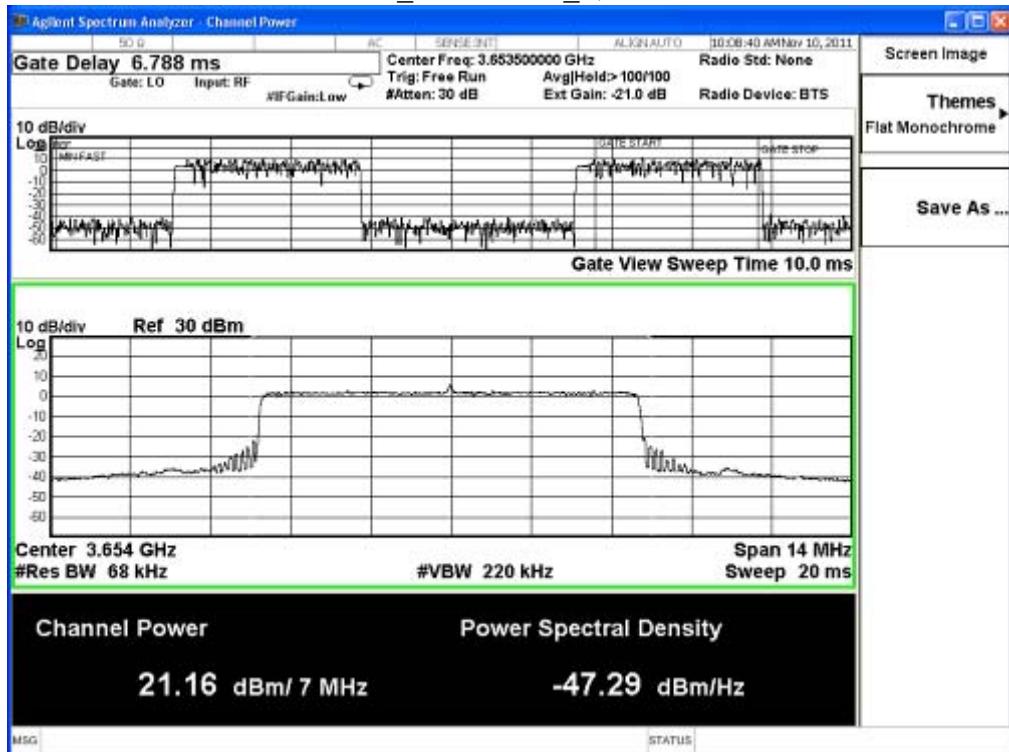


Product	CPE 3.65GHz Outdoor		
Test Item	Equivalent isotropically radiated power (EIRP)		
Test Mode	Mode 4: Transmit (7MHz BW_QPSK1/2)		
Date of Test	2011/11/17	Test Site	SR7

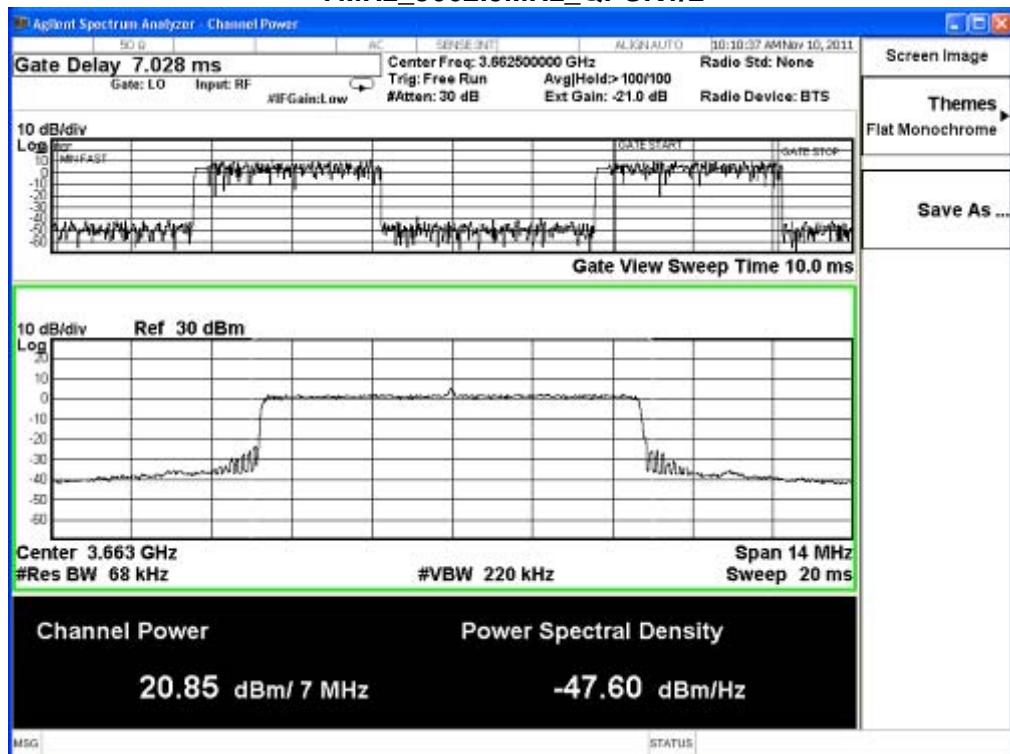
7MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Output Power (dBm/7MHz)	EIRP (dBm/7MHz)	Limit (dBm/7MHz)
3653.5	QPSK1/2	21.16	35.16	38.45
3662.5	QPSK1/2	20.85	34.85	38.45
3671.5	QPSK1/2	21.92	35.92	38.45

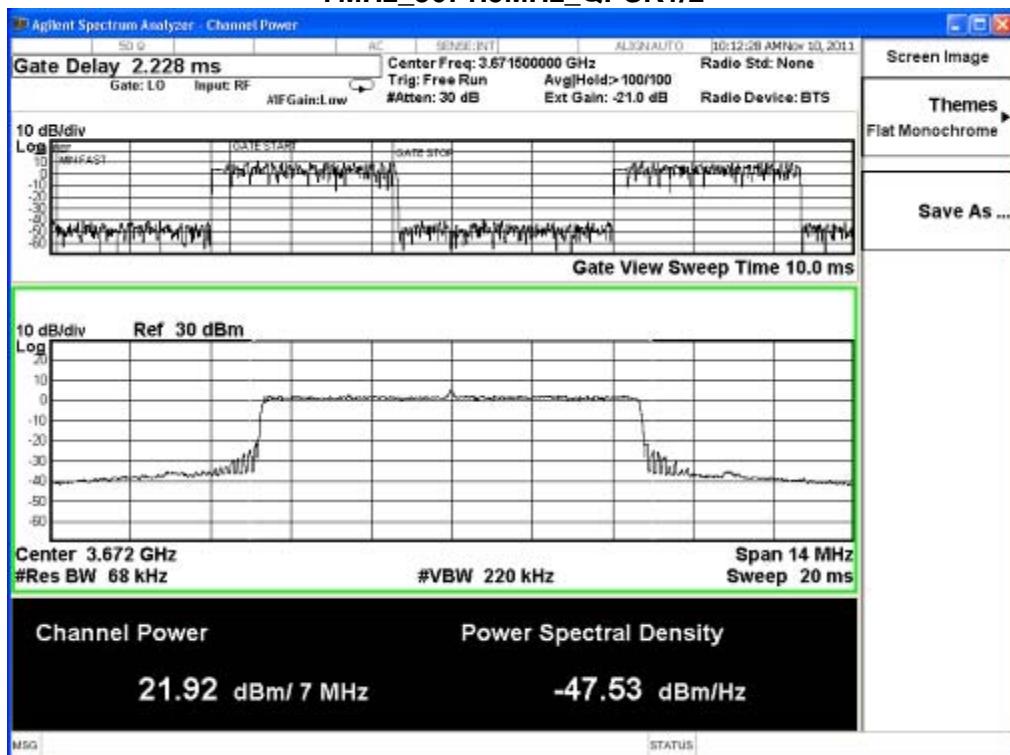
E.I.R.P = Output Power + Antenna Gain

7MHz_3653.5MHz_QPSK1/2

7MHz_3662.5MHz_QPSK1/2



7MHz_3671.5MHz_QPSK1/2

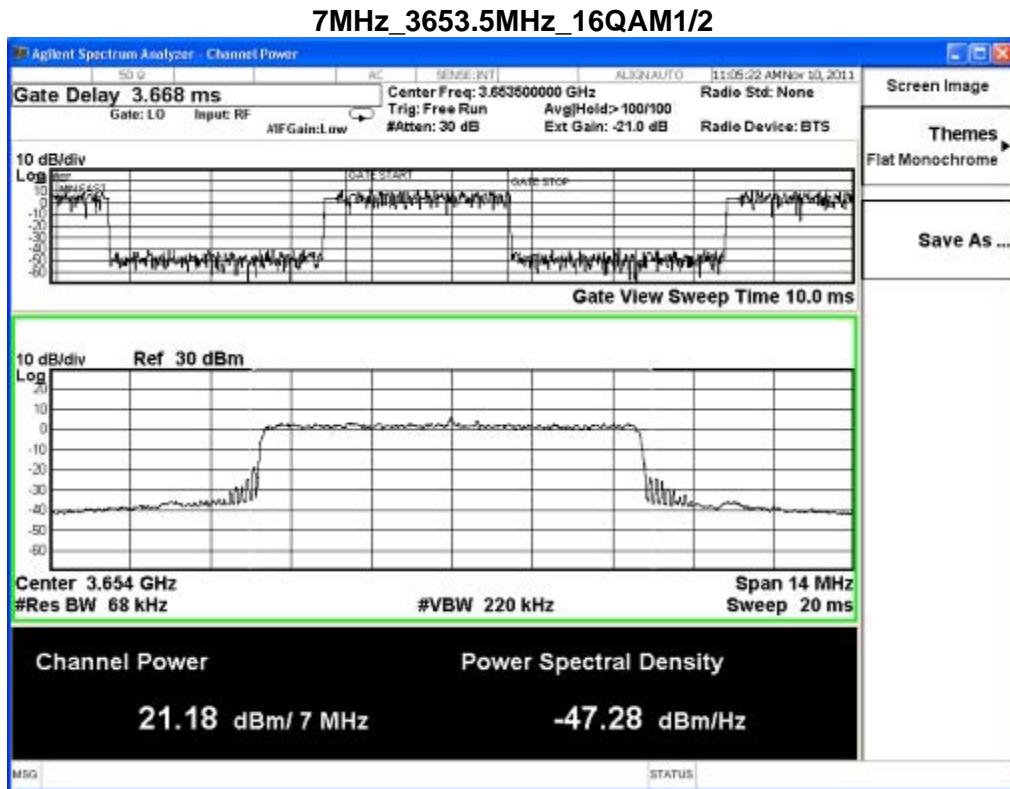


Product	CPE 3.65GHz Outdoor		
Test Item	Equivalent isotropically radiated power (EIRP)		
Test Mode	Mode 5: Transmit (7MHz BW_16QAM1/2)		
Date of Test	2011/11/17	Test Site	SR7

7MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Output Power (dBm/7MHz)	EIRP (dBm/7MHz)	Limit (dBm/7MHz)
3653.5	16QAM1/2	21.18	35.18	38.45
3662.5	16QAM1/2	20.72	34.72	38.45
3671.5	16QAM1/2	20.93	34.93	38.45

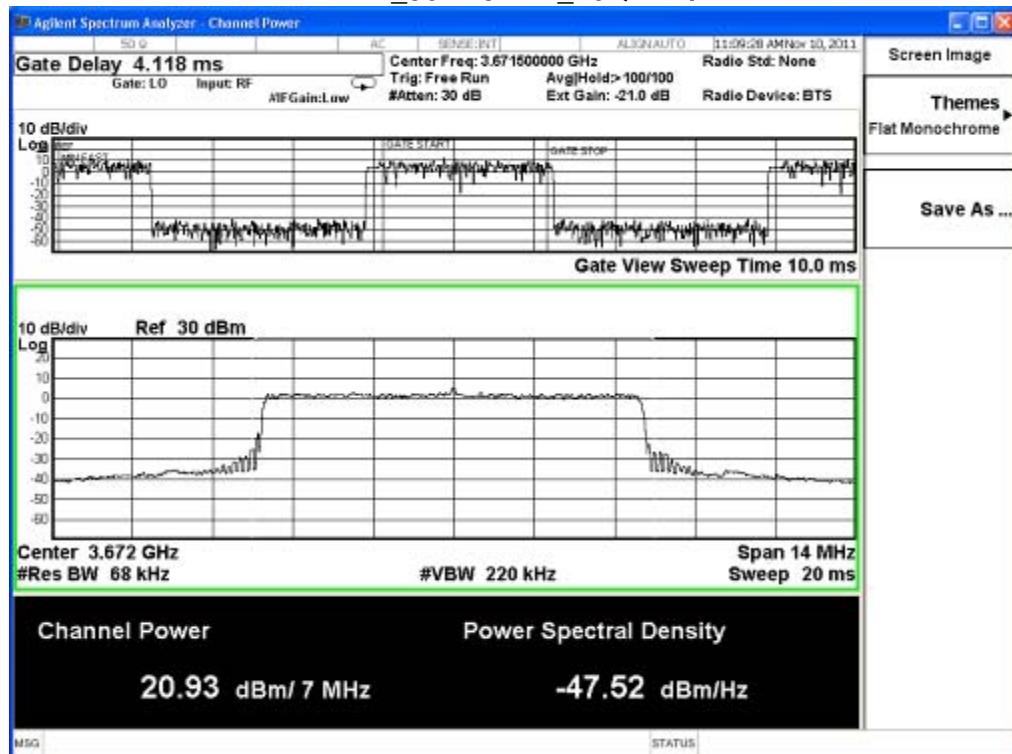
E.I.R.P = Output Power + Antenna Gain



7MHz_3662.5MHz_16QAM1/2



7MHz_3671.5MHz_16QAM1/2

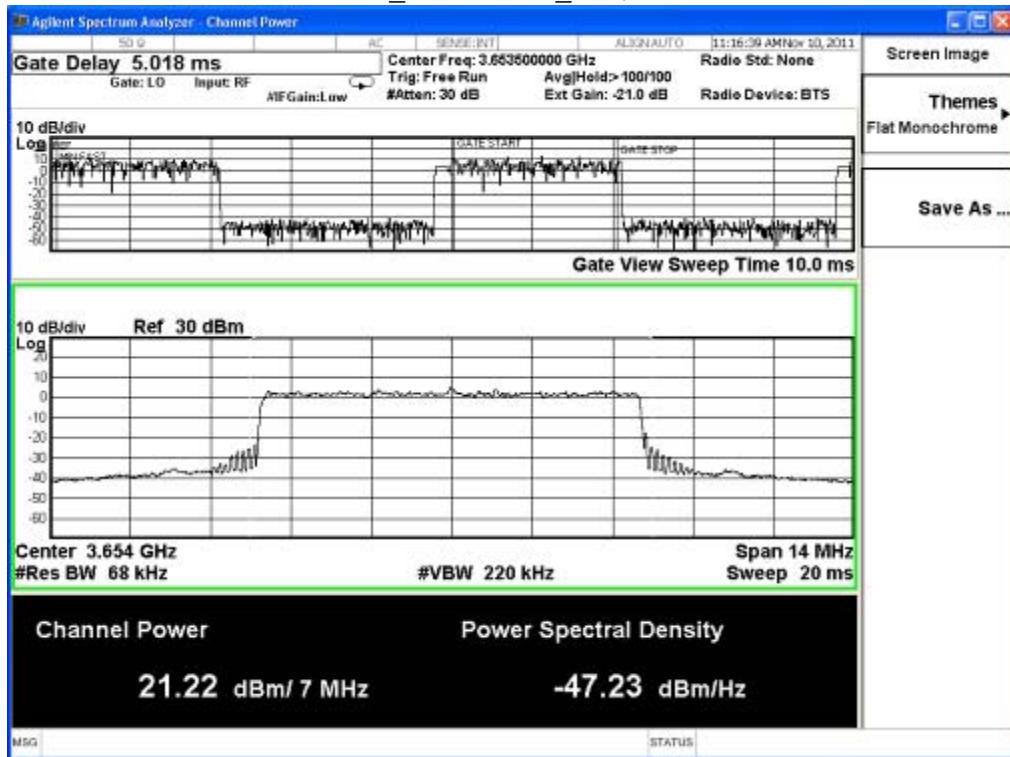


Product	CPE 3.65GHz Outdoor		
Test Item	Equivalent isotropically radiated power (EIRP)		
Test Mode	Mode 6: Transmit (7MHz BW_64QAM2/3)		
Date of Test	2011/11/17	Test Site	SR7

7MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Output Power (dBm/7MHz)	EIRP (dBm/7MHz)	Limit (dBm/7MHz)
3653.5	64QAM2/3	21.22	35.22	38.45
3662.5	64QAM2/3	20.72	34.72	38.45
3671.5	64QAM2/3	20.98	34.98	38.45

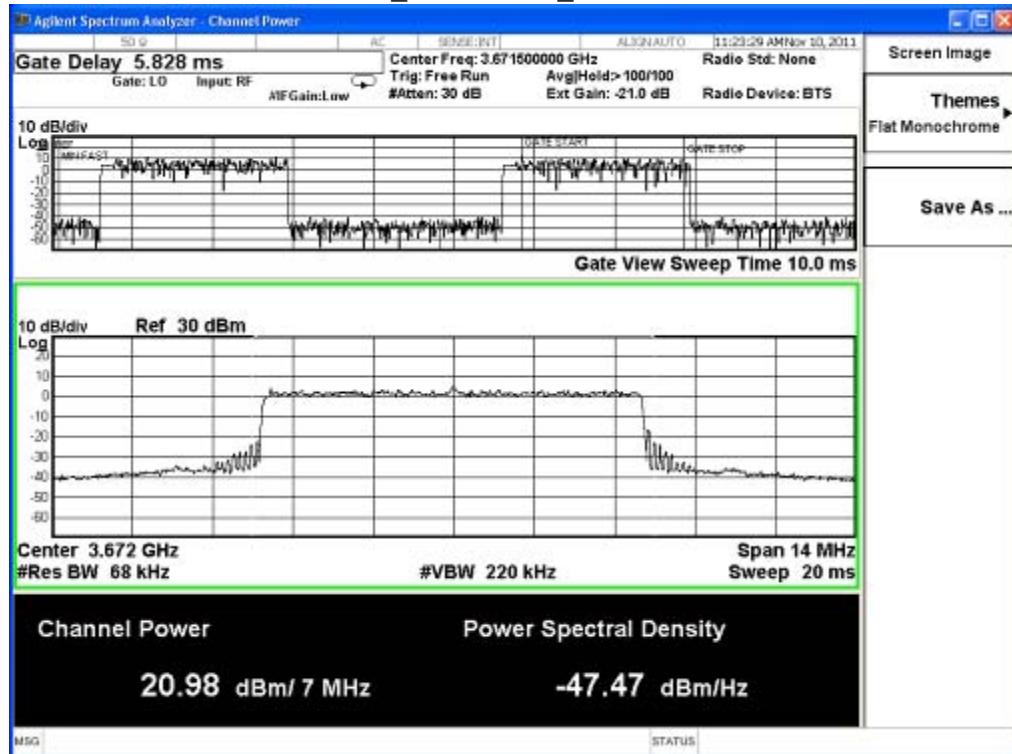
E.I.R.P = Output Power + Antenna Gain

7MHz_3653.5MHz_64QAM2/3

7MHz_3662.5MHz_64QAM2/3



7MHz_3671.5MHz_64QAM2/3



Product	CPE 3.65GHz Outdoor		
Test Item	Equivalent isotropically radiated power (EIRP)		
Test Mode	Mode 7: Transmit (10MHz BW_QPSK1/2)		
Date of Test	2011/11/17	Test Site	SR7

10MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Output Power (dBm/10MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)
3655.0	QPSK1/2	21.28	35.28	40
3662.5	QPSK1/2	21.06	35.06	40
3670.0	QPSK1/2	20.88	34.88	40

E.I.R.P = Output Power + Antenna Gain

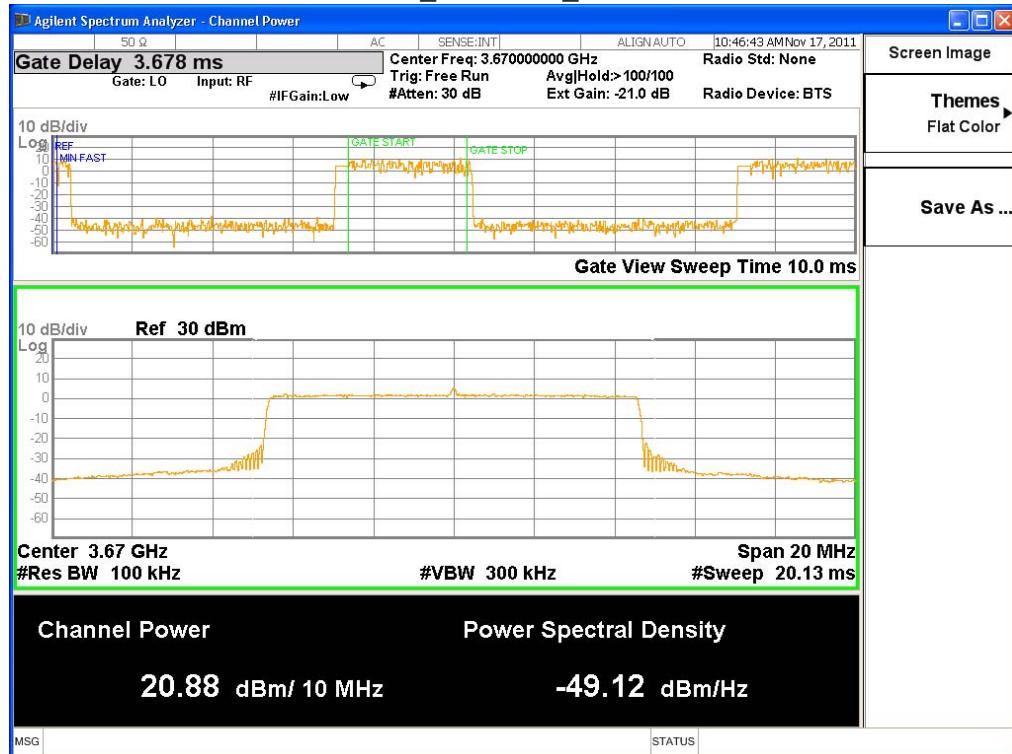
10MHz_3655MHz_QPSK1/2



10MHz_3662.5MHz_QPSK1/2



10MHz_3670MHz_QPSK1/2



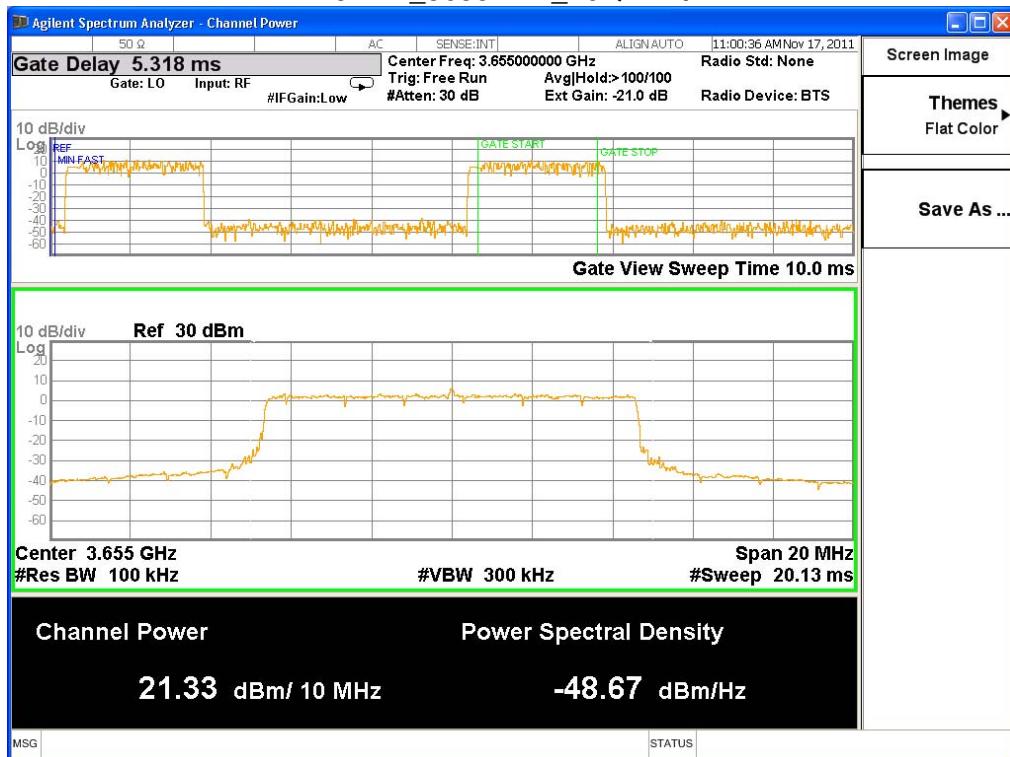
Product	CPE 3.65GHz Outdoor		
Test Item	Equivalent isotropically radiated power (EIRP)		
Test Mode	Mode 8: Transmit (10MHz BW_16QAM1/2)		
Date of Test	2011/11/17	Test Site	SR7

10MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Output Power (dBm/10MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)
3655.0	16QAM1/2	21.33	35.33	40
3662.5	16QAM1/2	20.68	34.68	40
3670.0	16QAM1/2	20.72	34.72	40

E.I.R.P = Output Power + Antenna Gain

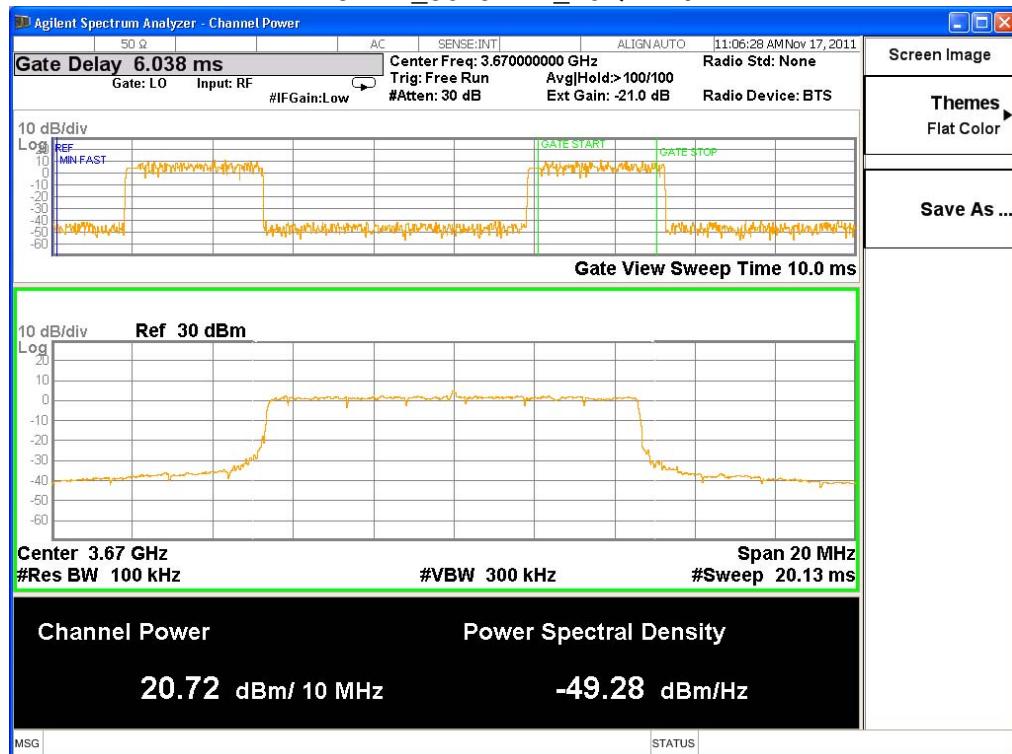
10MHz_3655MHz_16QAM1/2



10MHz_3662.5MHz_16QAM1/2



10MHz_3670MHz_16QAM1/2



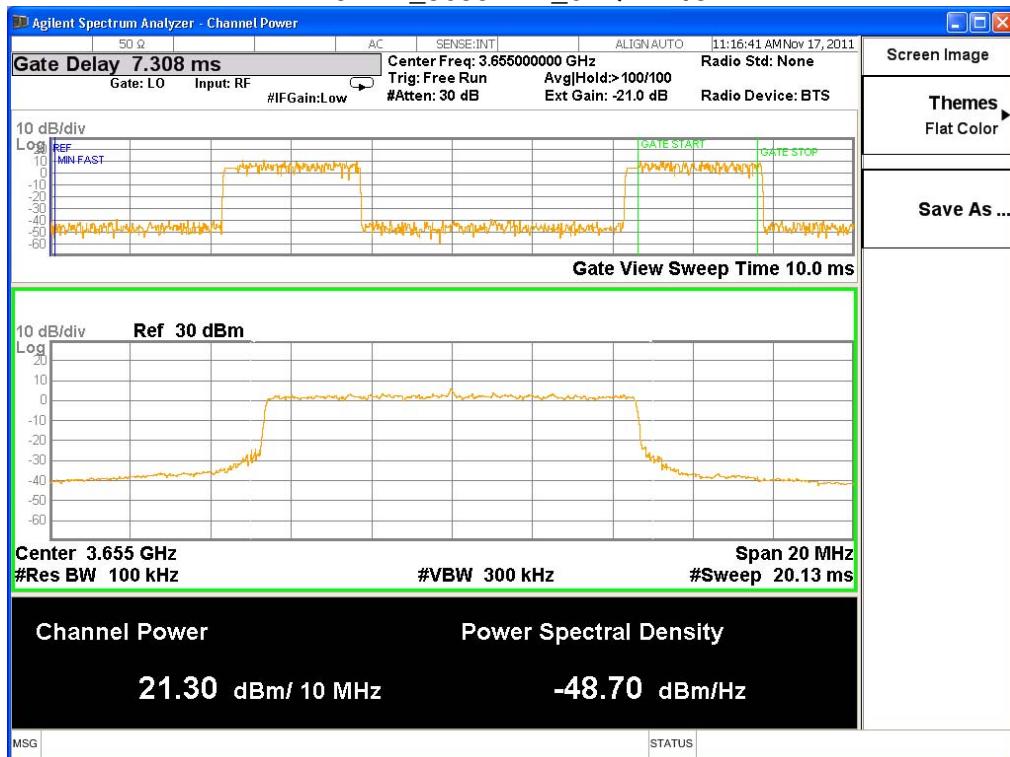
Product	CPE 3.65GHz Outdoor		
Test Item	Equivalent isotropically radiated power (EIRP)		
Test Mode	Mode 9: Transmit (10MHz BW_64QAM2/3)		
Date of Test	2011/11/17	Test Site	SR7

10MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Output Power (dBm/10MHz)	EIRP (dBm/10MHz)	Limit (dBm/10MHz)
3655.0	64QAM2/3	21.30	35.30	40
3662.5	64QAM2/3	20.93	34.93	40
3670.0	64QAM2/3	21.12	35.12	40

E.I.R.P = Output Power + Antenna Gain

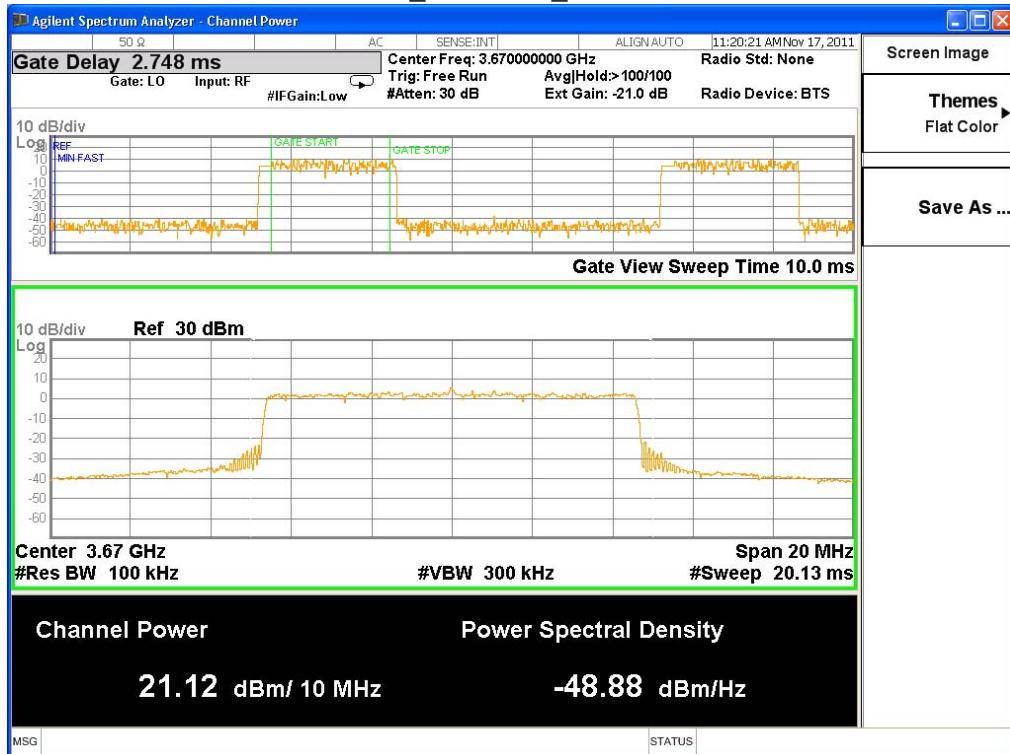
10MHz_3655MHz_64QAM2/3



10MHz_3662.5MHz_64QAM2/3



10MHz_3670MHz_64QAM2/3



3. Peak EIRP Power density

3.1. Test Equipment:

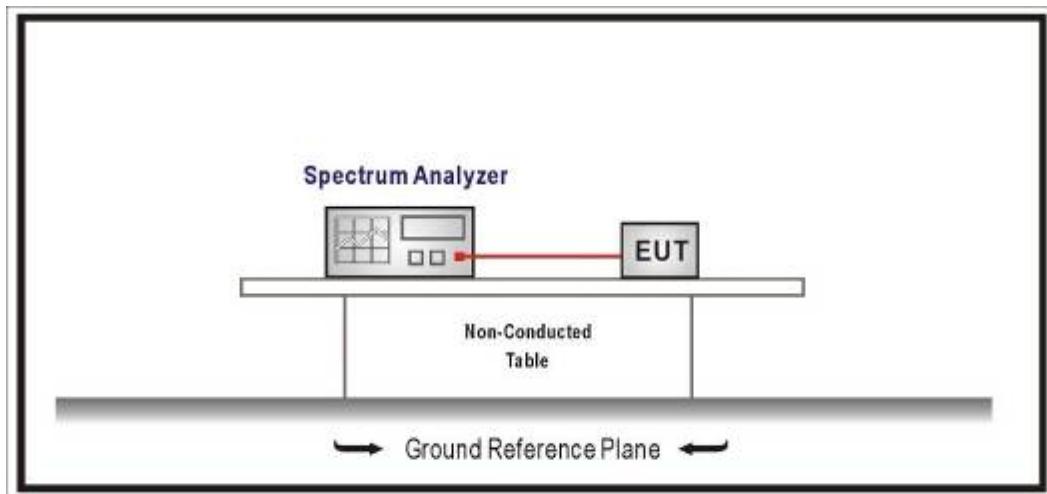
The following test equipments are used during the test:

Peak EIRP Power Density / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2012/07/13

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

3.2. Test Setup:



3.3. Test Limit:

Base and fixed stations are limited to 25 watts/25 MHz equivalent isotropically radiated power (EIRP). In any event, the peak EIRP power density shall not exceed 1 Watt in any one megahertz slice of spectrum.

Bandwidth (MHz)	EIRP limit		EIRP power density	
	(W)	(dBm)	(W/MHz)	(dBm/MHz)
3.5	3.5	35.44	1	30
5.0	5.0	36.99		
7.0	7.0	38.45		
10.0	10.0	40.00		

3.4. Test Procedure:

1. Connect the transmitter to the spectrum analyzer via coaxial cable.
2. Tune the analyzer to the nominal center frequency of the emission bandwidth (EBW).
3. Set the span to twice the nominal EBW (span = 2 x EBW).
4. Set the resolution bandwidth (RBW) to 1 MHz.
5. Set the video bandwidth (VBW) to $\geq 3 \times$ RBW.
6. Select the average power (RMS) display detector.
7. Set the number of measurement points to ≥ 1001 .
8. Use auto-coupled sweep time.
9. Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.
10. Utilize trace averaging over 100 traces in the power averaging mode.
11. Find the maximum trace amplitude (peak search) and record.
12. Adjust the recorded level by applying appropriate correction factors for the measurement set-up.
13. Determine the EIRP by adding the effective antenna gain to the adjusted power level.

3.5. Test Specification:

FCC CFR Title 47 Part 90 Subpart Z, KDB 965270

3.6. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

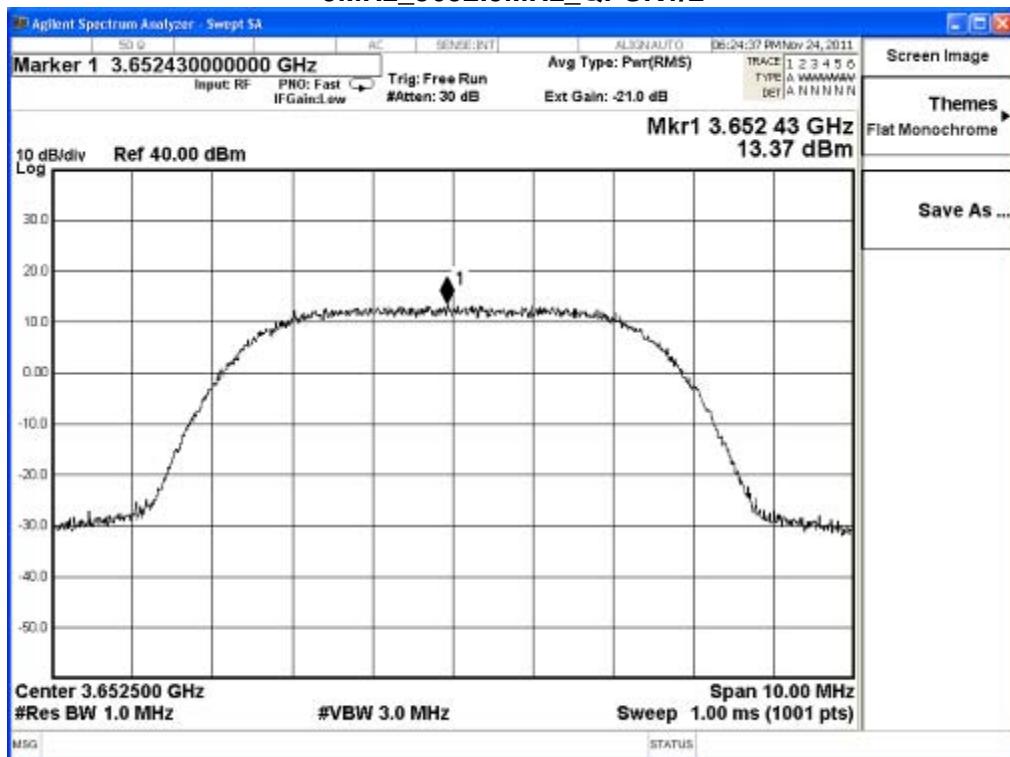
3.7. Test Result:

Product	CPE 3.65GHz Outdoor		
Test Item	Peak EIRP Power Density		
Test Mode	Mode 1: Transmit (5MHz BW_QPSK1/2)		
Date of Test	2011/11/24	Test Site	SR7

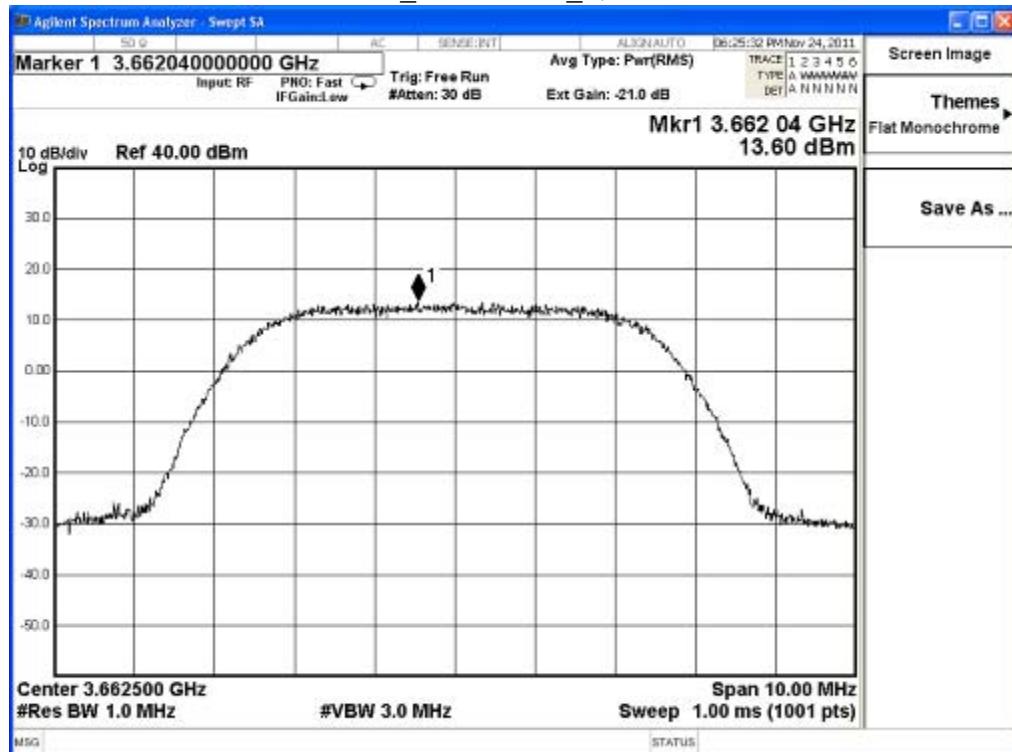
5MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Power Density (dBm/MHz)	Radiated Power Density (dBm/MHz)	Limit (dBm/MHz)
3652.5	QPSK1/2	13.37	27.37	30
3662.5	QPSK1/2	13.60	27.60	30
3672.5	QPSK1/2	13.04	27.04	30

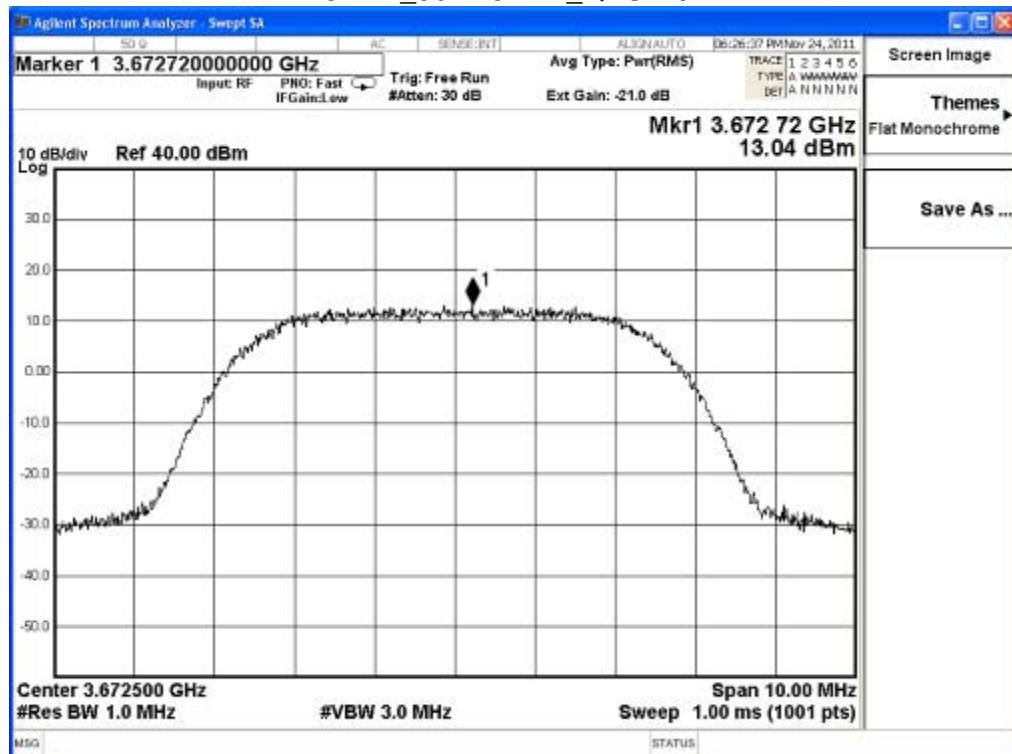
Radiated Power Density = Power Density + Antenna Gain

5MHz_3652.5MHz_QPSK1/2

5MHz_3662.5MHz_QPSK1/2



5MHz_3672.5MHz_QPSK1/2

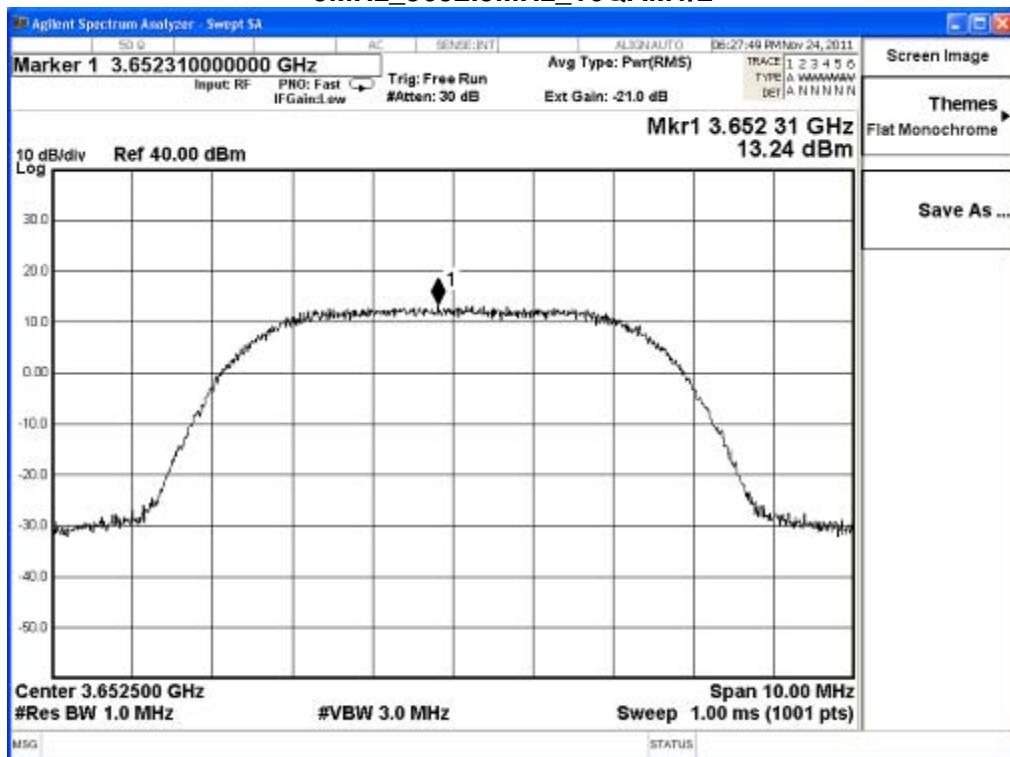


Product	CPE 3.65GHz Outdoor		
Test Item	Peak EIRP Power Density		
Test Mode	Mode 2: Transmit (5MHz BW_16QAM1/2)		
Date of Test	2011/11/24	Test Site	SR7

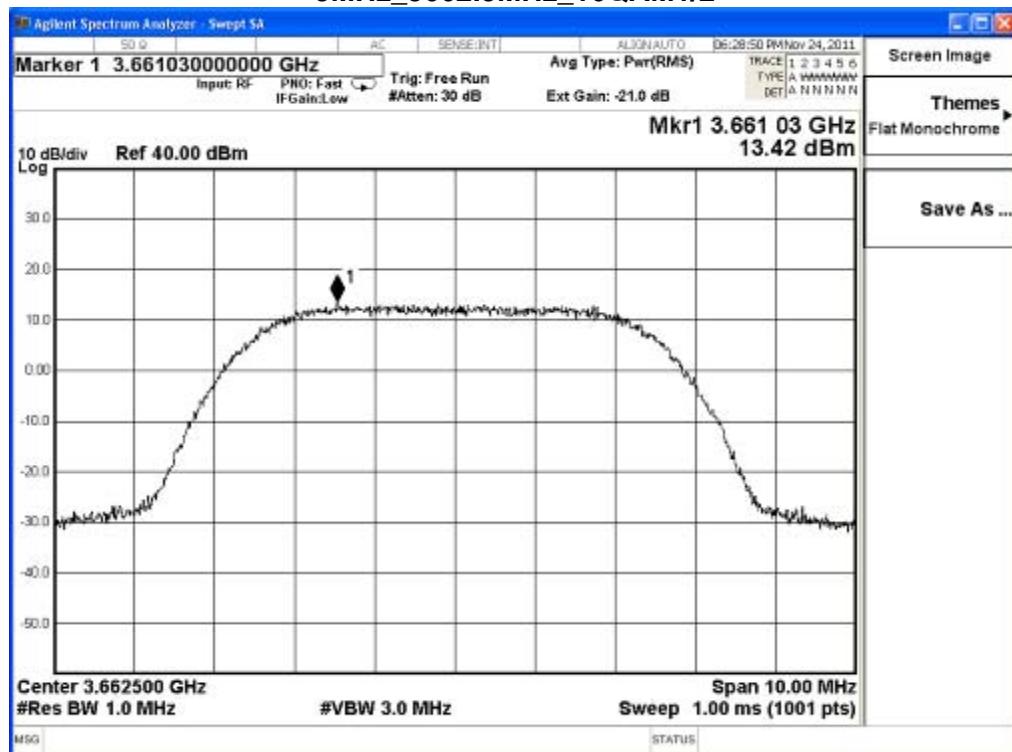
5MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Power Density (dBm/MHz)	Radiated Power Density (dBm/MHz)	Limit (dBm/MHz)
3652.5	16QAM1/2	13.24	27.24	30
3662.5	16QAM1/2	13.42	27.42	30
3672.5	16QAM1/2	13.20	27.20	30

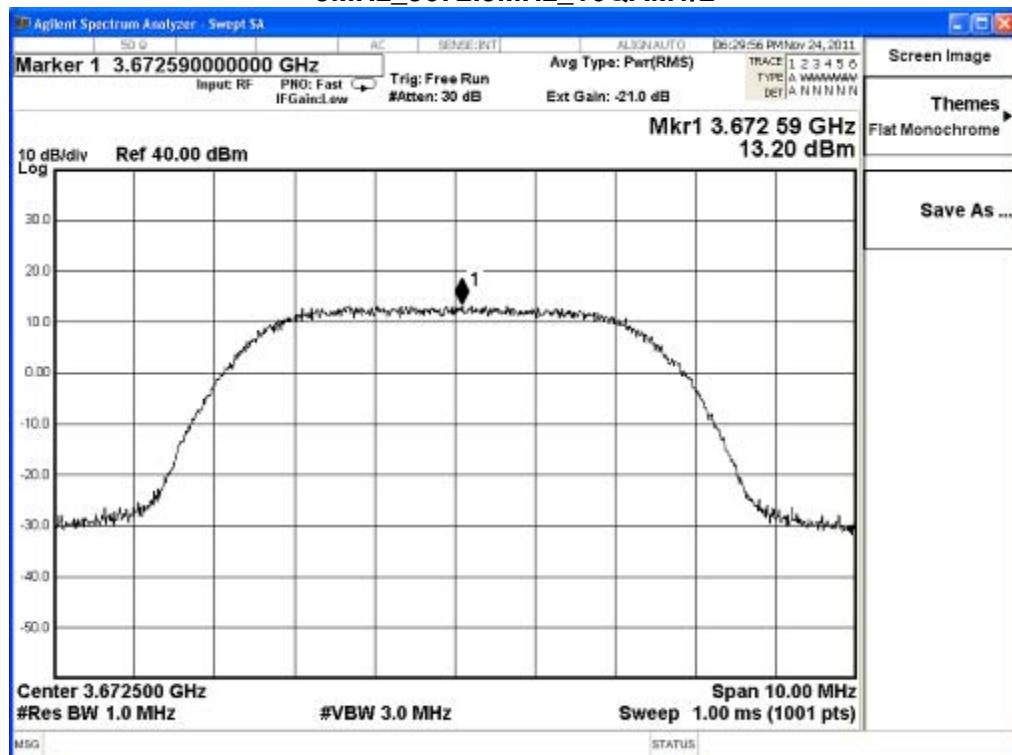
Radiated Power Density = Power Density + Antenna Gain

5MHz_3652.5MHz_16QAM1/2

5MHz_3662.5MHz_16QAM1/2



5MHz_3672.5MHz_16QAM1/2

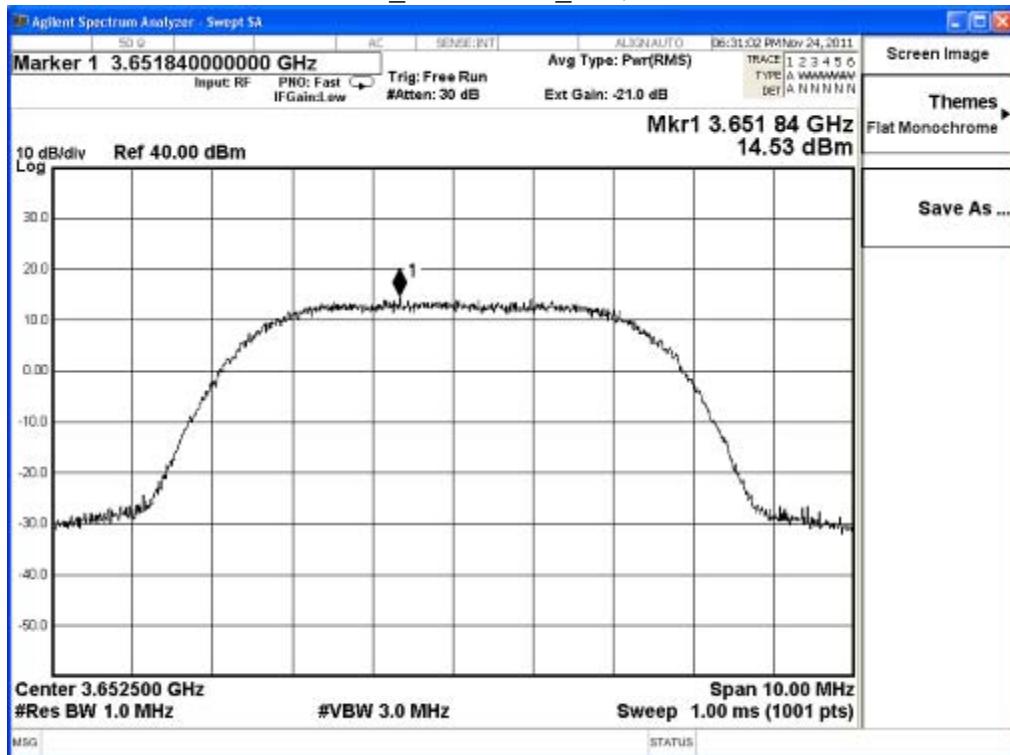


Product	CPE 3.65GHz Outdoor		
Test Item	Peak EIRP Power Density		
Test Mode	Mode 3: Transmit (5MHz BW_64QAM2/3)		
Date of Test	2011/11/24	Test Site	SR7

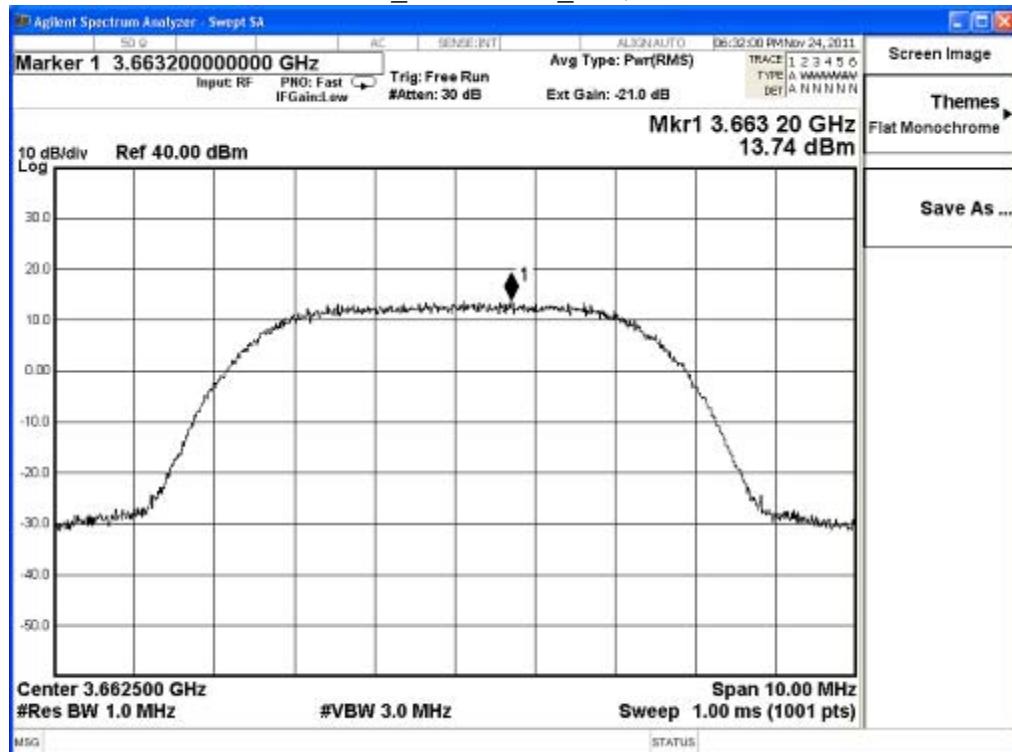
5MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Power Density (dBm/MHz)	Radiated Power Density (dBm/MHz)	Limit (dBm/MHz)
3652.5	64QAM2/3	14.53	28.53	30
3662.5	64QAM2/3	13.74	27.74	30
3672.5	64QAM2/3	13.28	27.28	30

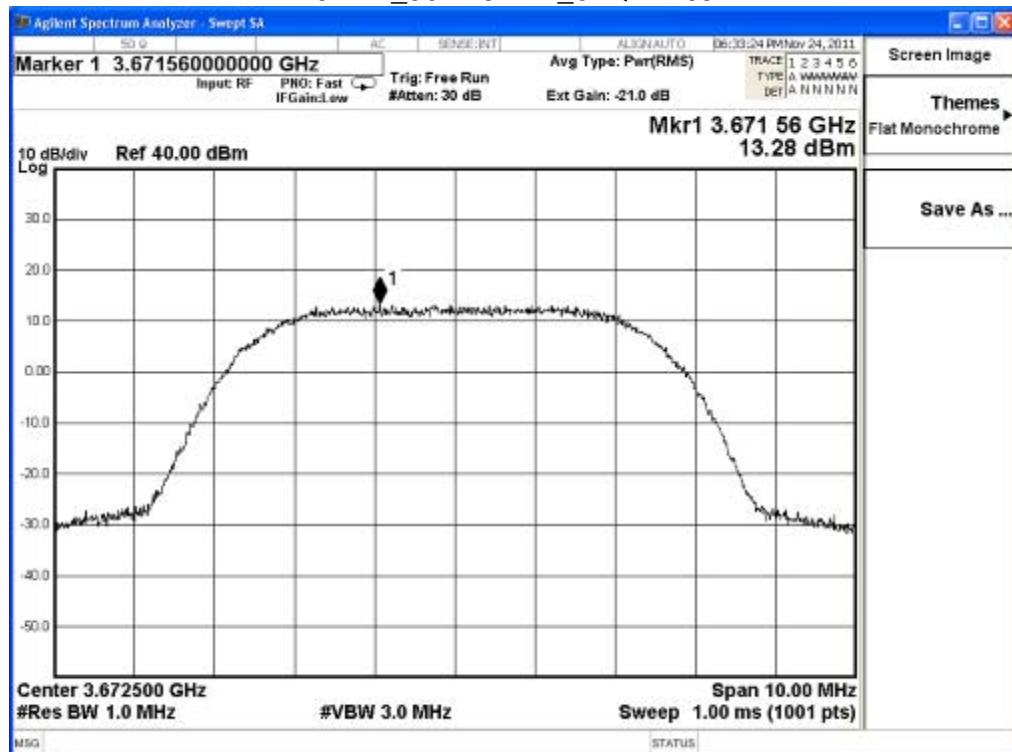
Radiated Power Density = Power Density + Antenna Gain

5MHz_3652.5MHz_64QAM2/3

5MHz_3662.5MHz_64QAM2/3



5MHz_3672.5MHz_64QAM2/3

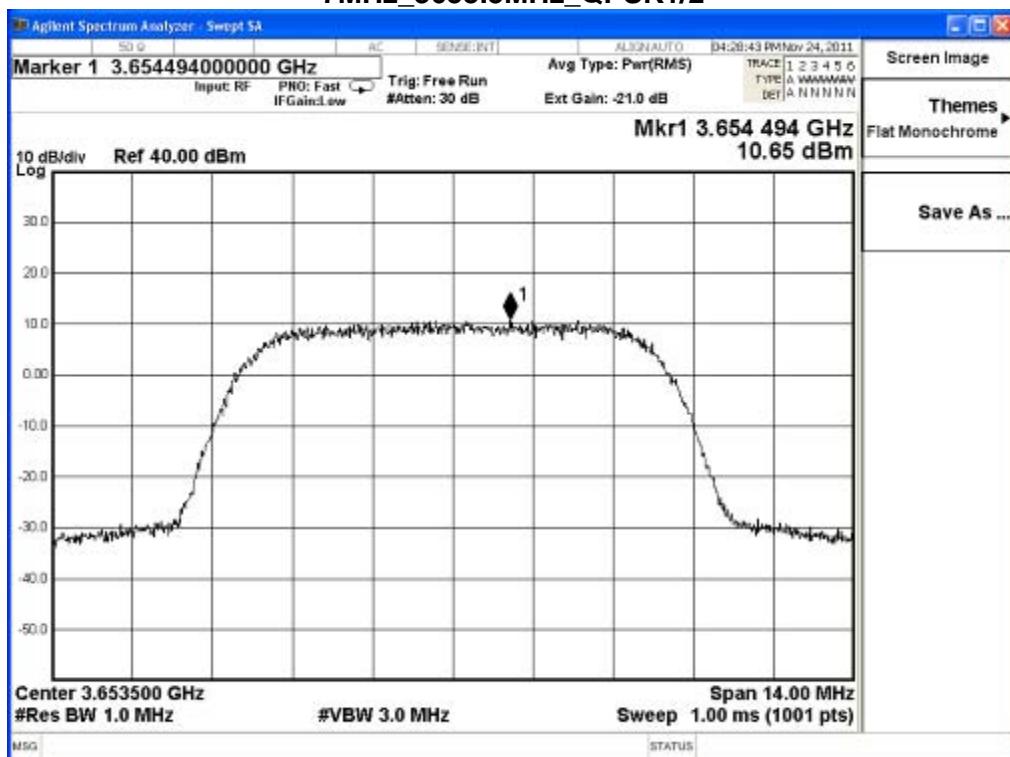


Product	CPE 3.65GHz Outdoor		
Test Item	Peak EIRP Power Density		
Test Mode	Mode 4: Transmit (7MHz BW_QPSK1/2)		
Date of Test	2011/11/24	Test Site	SR7

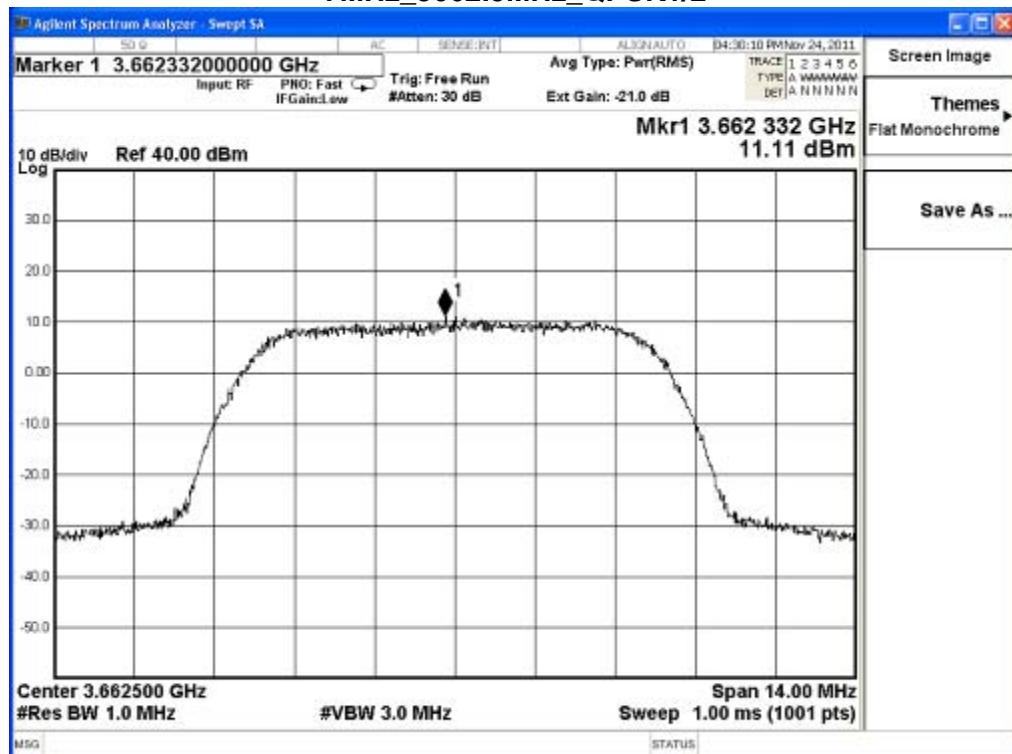
7MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Power Density (dBm/MHz)	Radiated Power Density (dBm/MHz)	Limit (dBm/MHz)
3653.5	QPSK1/2	10.65	24.65	30
3662.5	QPSK1/2	11.11	25.11	30
3671.5	QPSK1/2	10.33	24.33	30

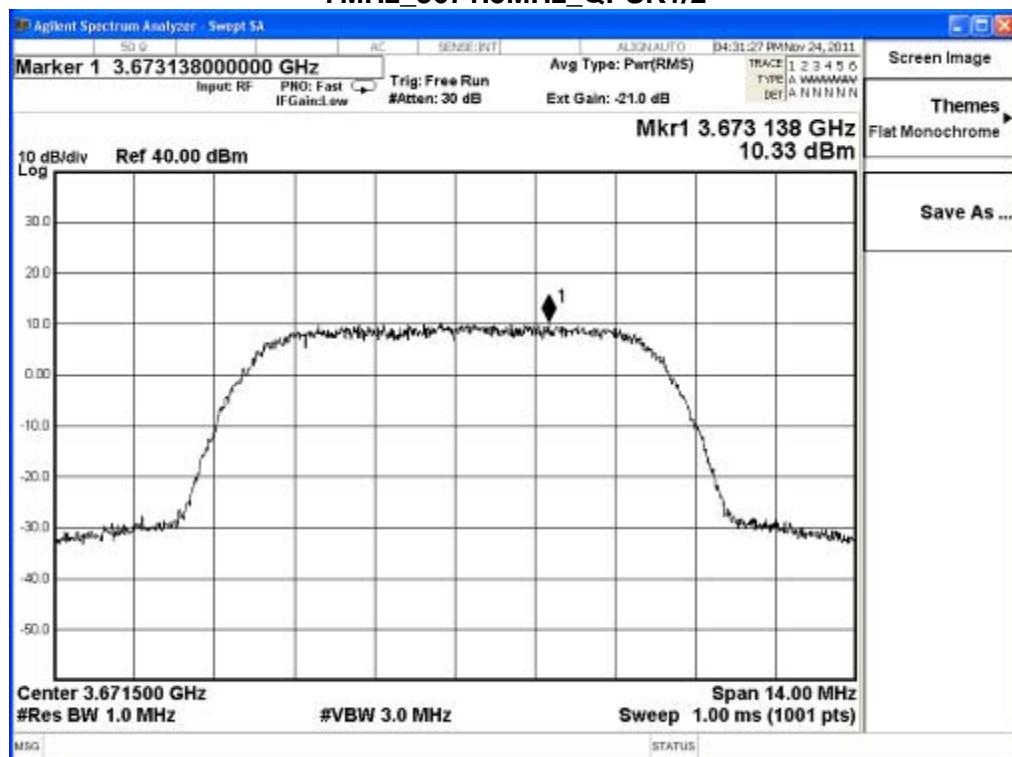
Radiated Power Density = Power Density + Antenna Gain

7MHz_3653.5MHz_QPSK1/2

7MHz_3662.5MHz_QPSK1/2



7MHz_3671.5MHz_QPSK1/2

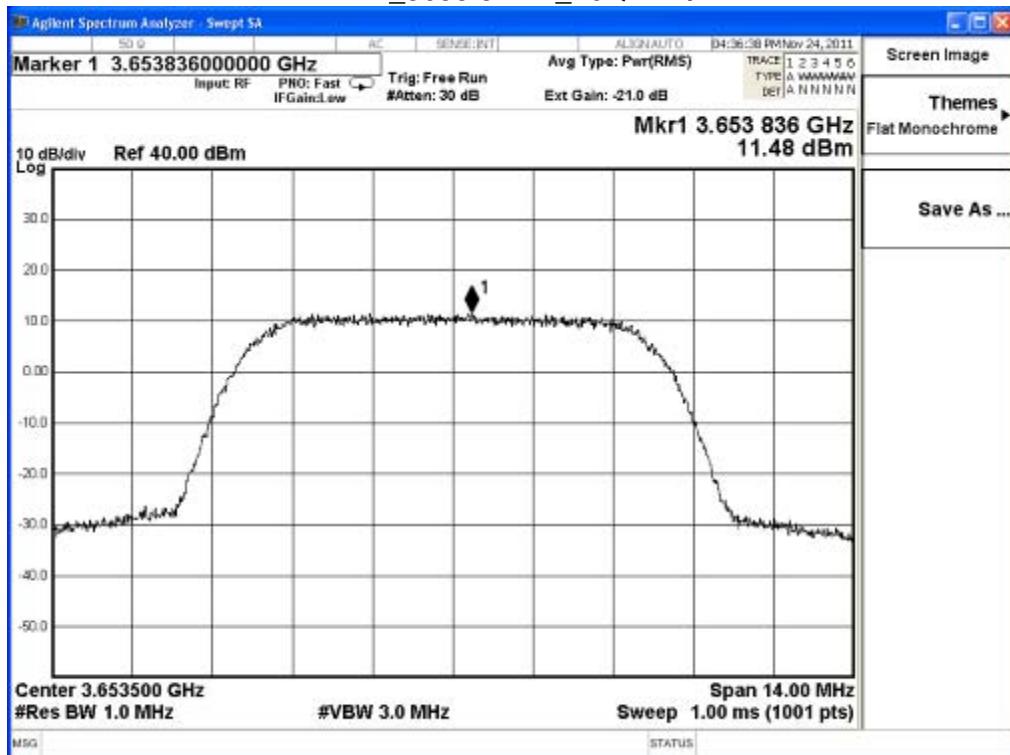


Product	CPE 3.65GHz Outdoor		
Test Item	Peak EIRP Power Density		
Test Mode	Mode 5: Transmit (7MHz BW_16QAM1/2)		
Date of Test	2011/11/24	Test Site	SR7

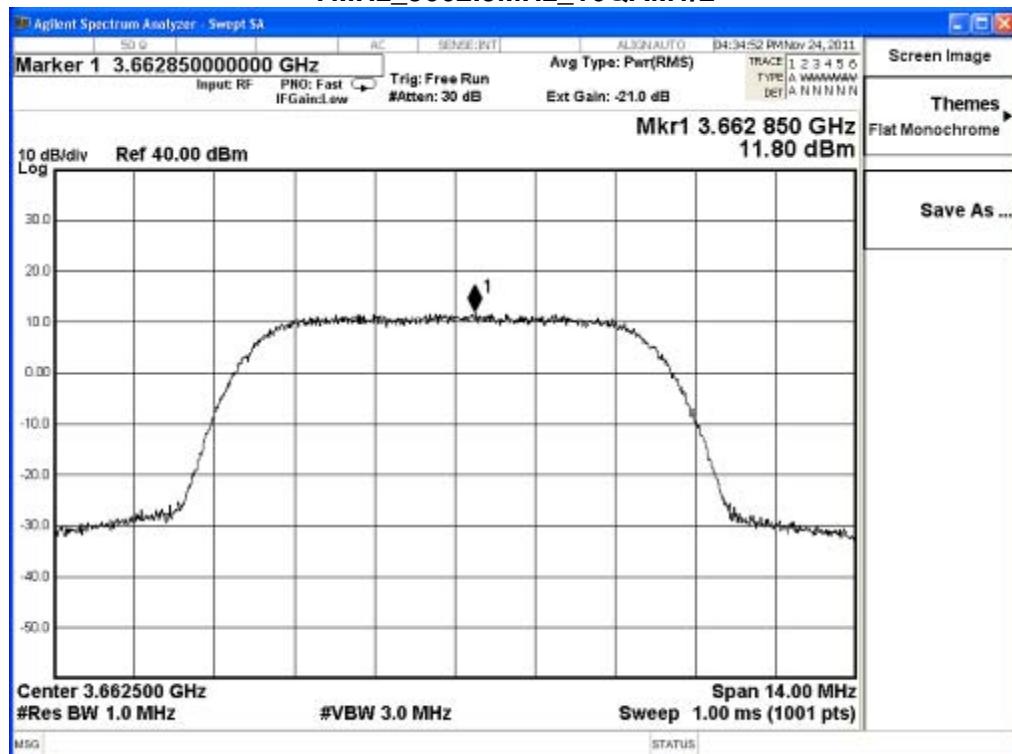
7MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Power Density (dBm/MHz)	Radiated Power Density (dBm/MHz)	Limit (dBm/MHz)
3653.5	16QAM1/2	11.48	25.48	30
3662.5	16QAM1/2	11.80	25.80	30
3671.5	16QAM1/2	10.98	24.98	30

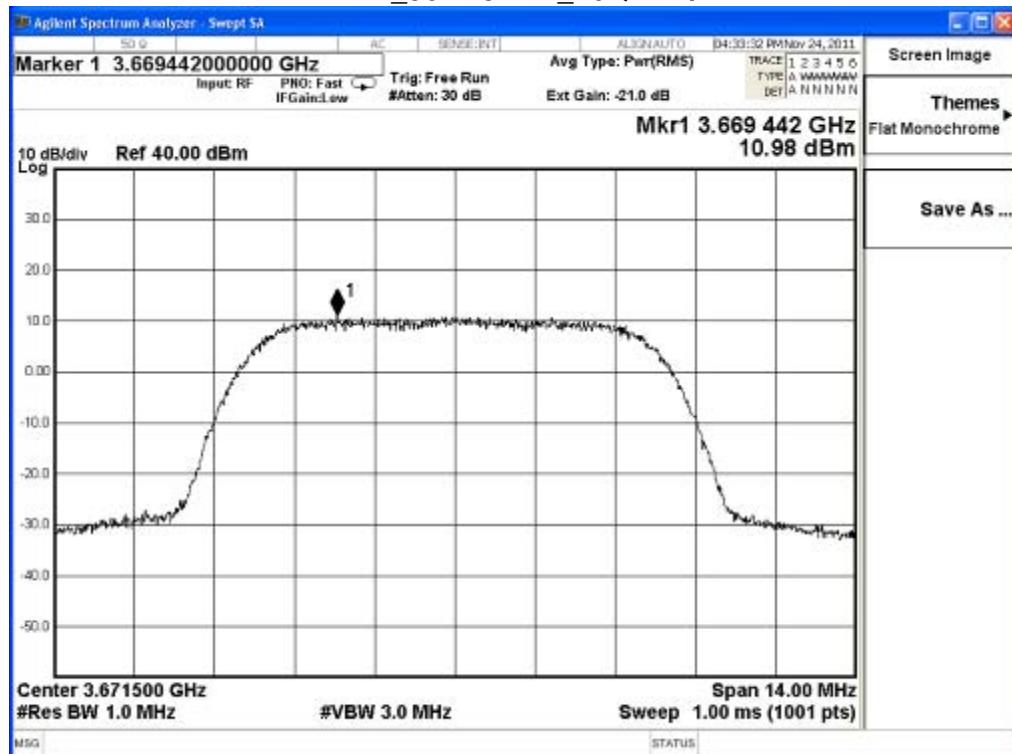
Radiated Power Density = Power Density + Antenna Gain

7MHz_3653.5MHz_16QAM1/2

7MHz_3662.5MHz_16QAM1/2



7MHz_3671.5MHz_16QAM1/2

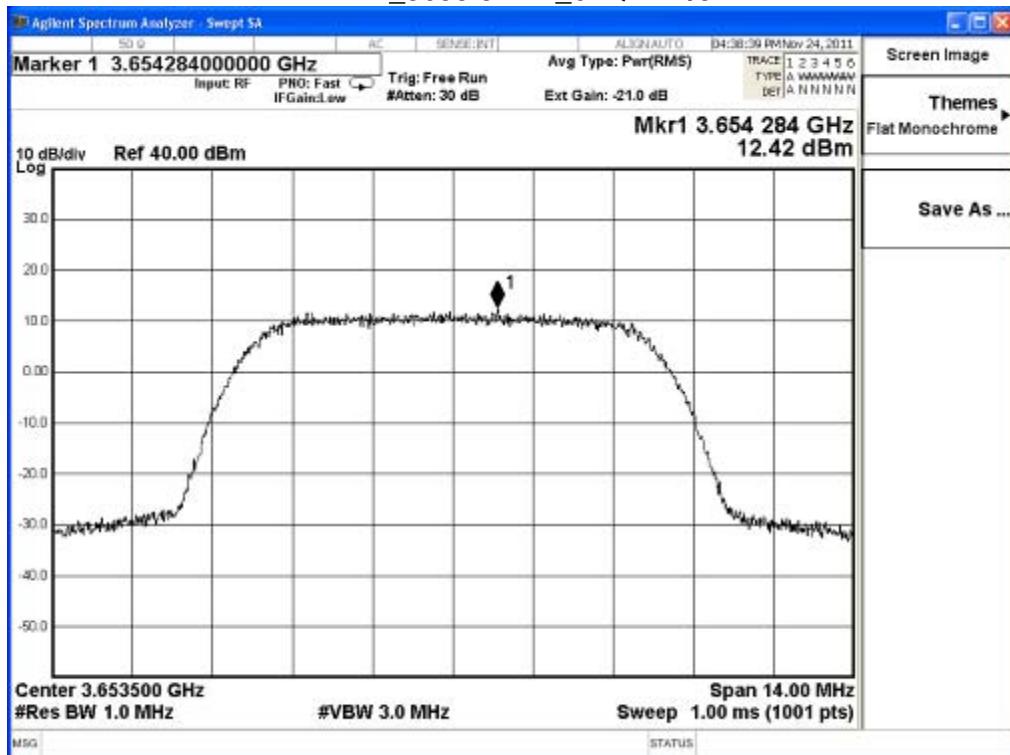


Product	CPE 3.65GHz Outdoor		
Test Item	Peak EIRP Power Density		
Test Mode	Mode 6: Transmit (7MHz BW_64QAM2/3)		
Date of Test	2011/11/24	Test Site	SR7

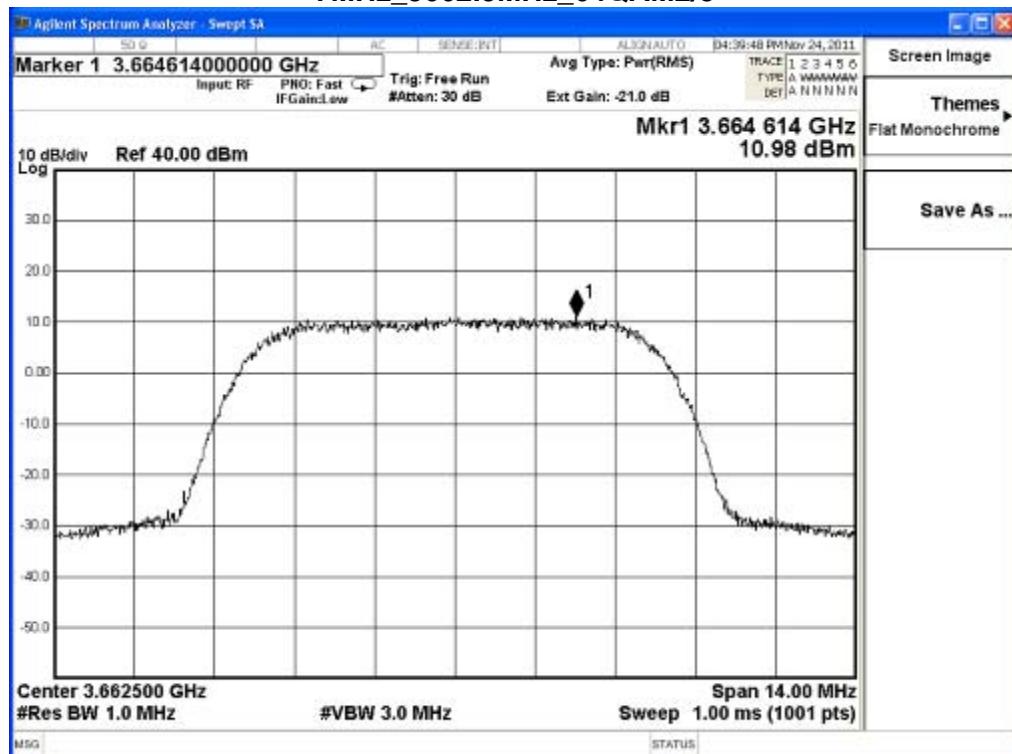
7MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Power Density (dBm/MHz)	Radiated Power Density (dBm/MHz)	Limit (dBm/MHz)
3653.5	64QAM2/3	12.42	26.42	30
3662.5	64QAM2/3	10.98	24.98	30
3671.5	64QAM2/3	11.83	25.83	30

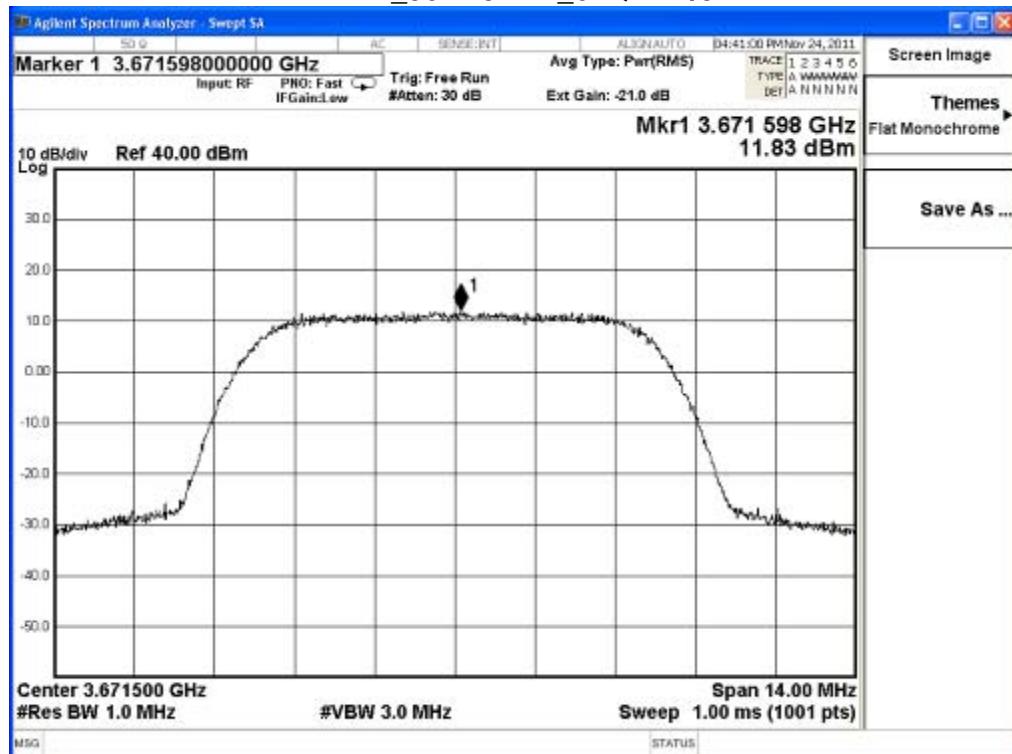
Radiated Power Density = Power Density + Antenna Gain

7MHz_3653.5MHz_64QAM2/3

7MHz_3662.5MHz_64QAM2/3



7MHz_3671.5MHz_64QAM2/3

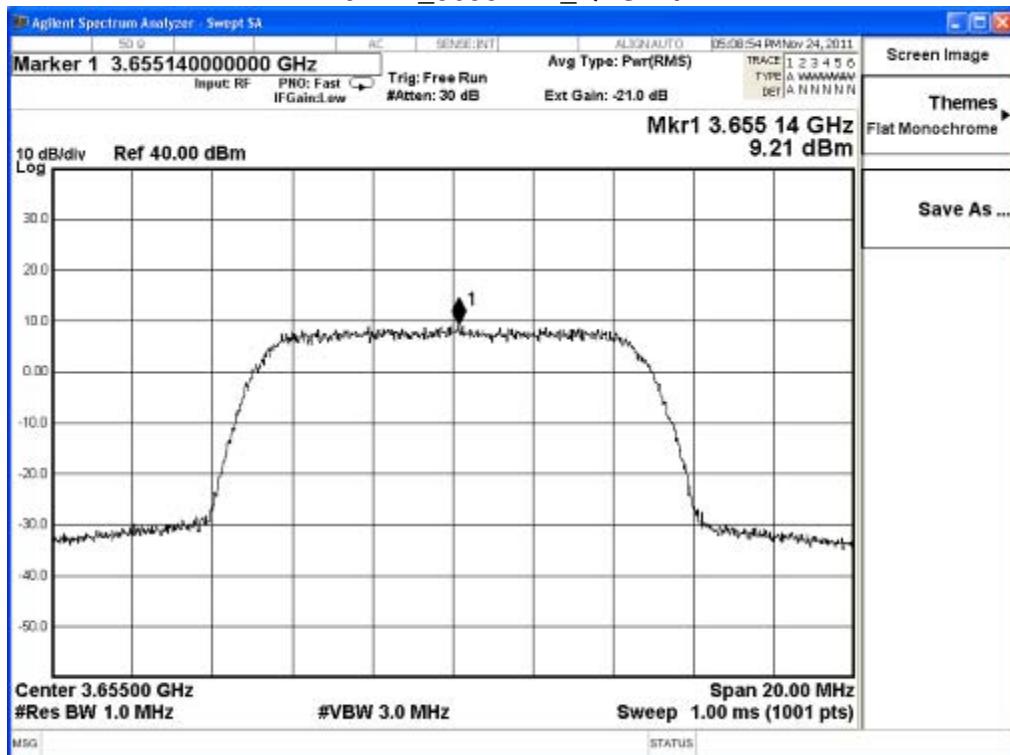


Product	CPE 3.65GHz Outdoor		
Test Item	Peak EIRP Power Density		
Test Mode	Mode 7: Transmit (10MHz BW_QPSK1/2)		
Date of Test	2011/11/24	Test Site	SR7

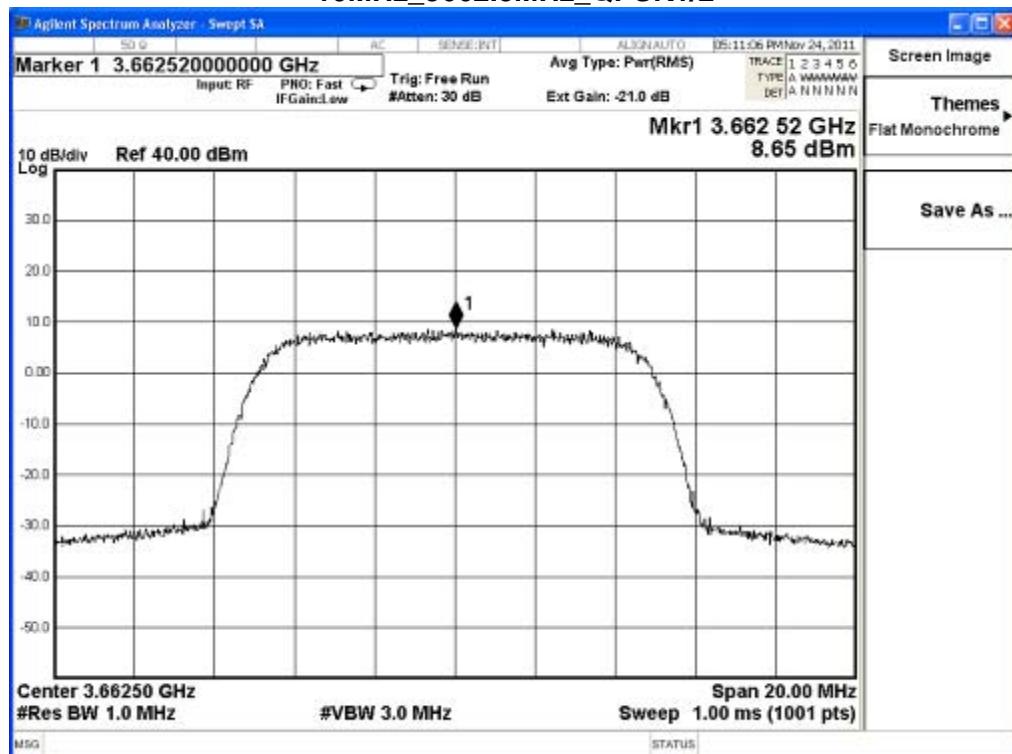
10MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Power Density (dBm/MHz)	Radiated Power Density (dBm/MHz)	Limit (dBm/MHz)
3655.0	QPSK1/2	9.21	23.21	30
3662.5	QPSK1/2	8.65	22.65	30
3670.0	QPSK1/2	9.81	23.81	30

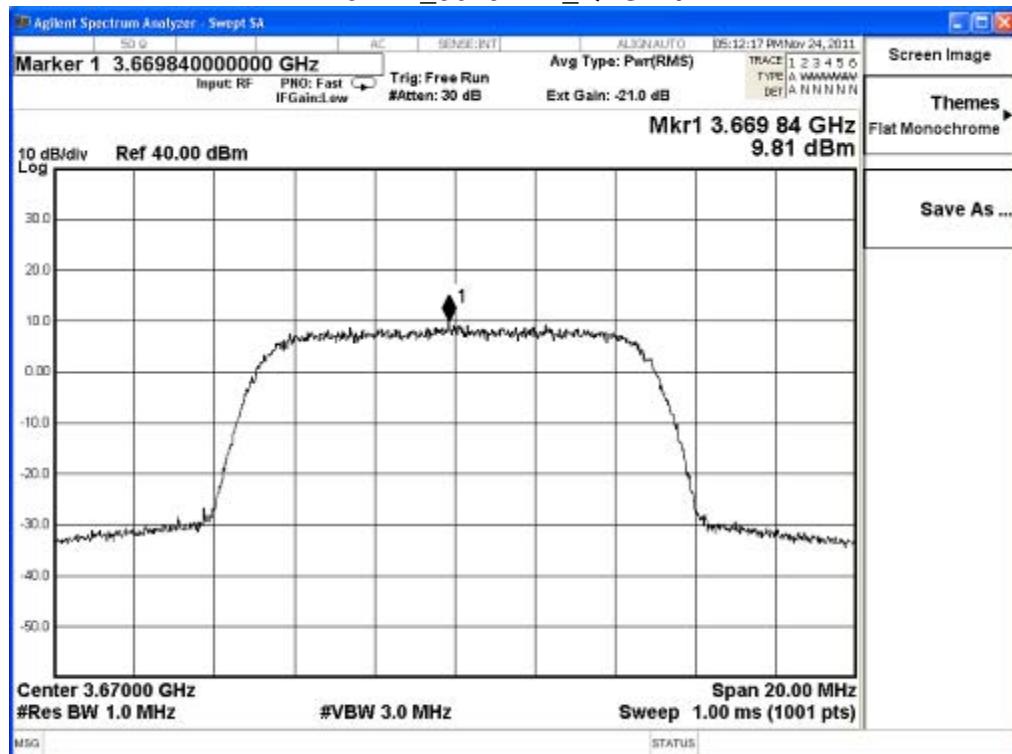
Radiated Power Density = Power Density + Antenna Gain

10MHz_3655MHz_QPSK1/2

10MHz_3662.5MHz_QPSK1/2



10MHz_3670MHz_QPSK1/2

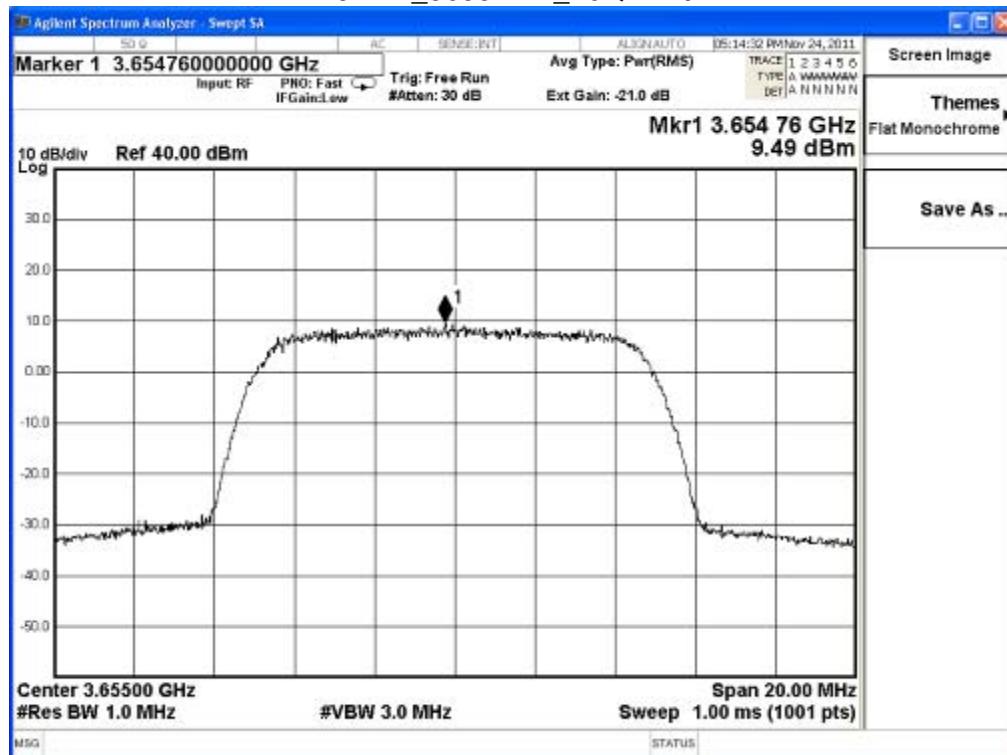


Product	CPE 3.65GHz Outdoor		
Test Item	Peak EIRP Power Density		
Test Mode	Mode 8: Transmit (10MHz BW_16QAM1/2)		
Date of Test	2011/11/24	Test Site	SR7

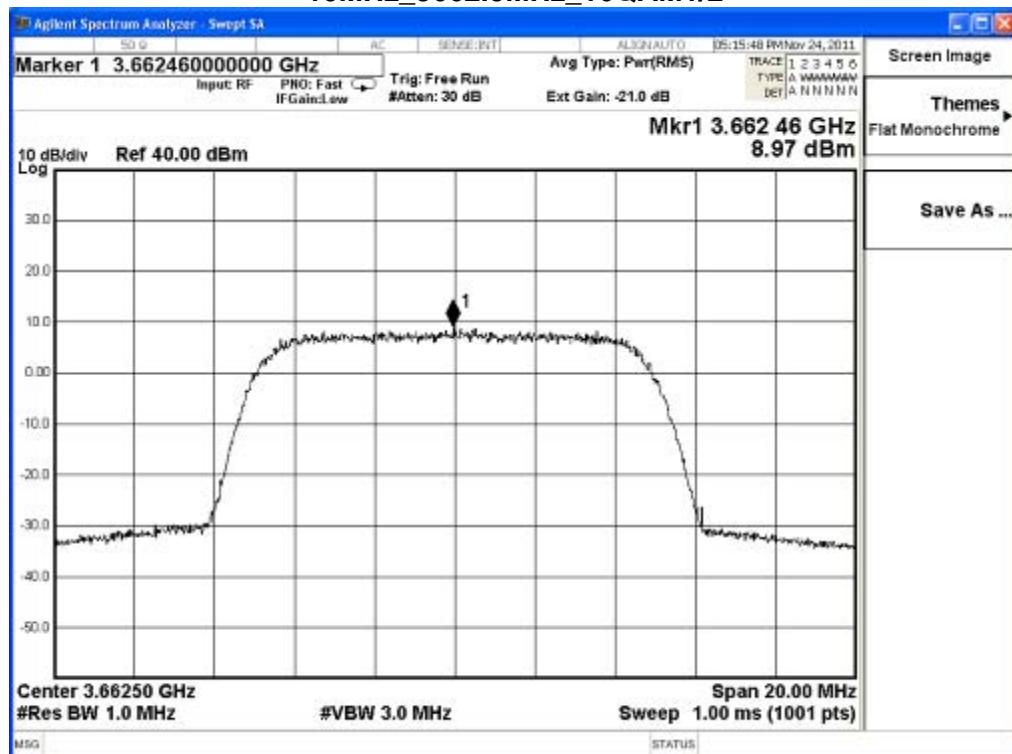
10MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Power Density (dBm/MHz)	Radiated Power Density (dBm/MHz)	Limit (dBm/MHz)
3655.0	16QAM1/2	9.49	23.49	30
3662.5	16QAM1/2	8.97	22.97	30
3670.0	16QAM1/2	9.54	23.54	30

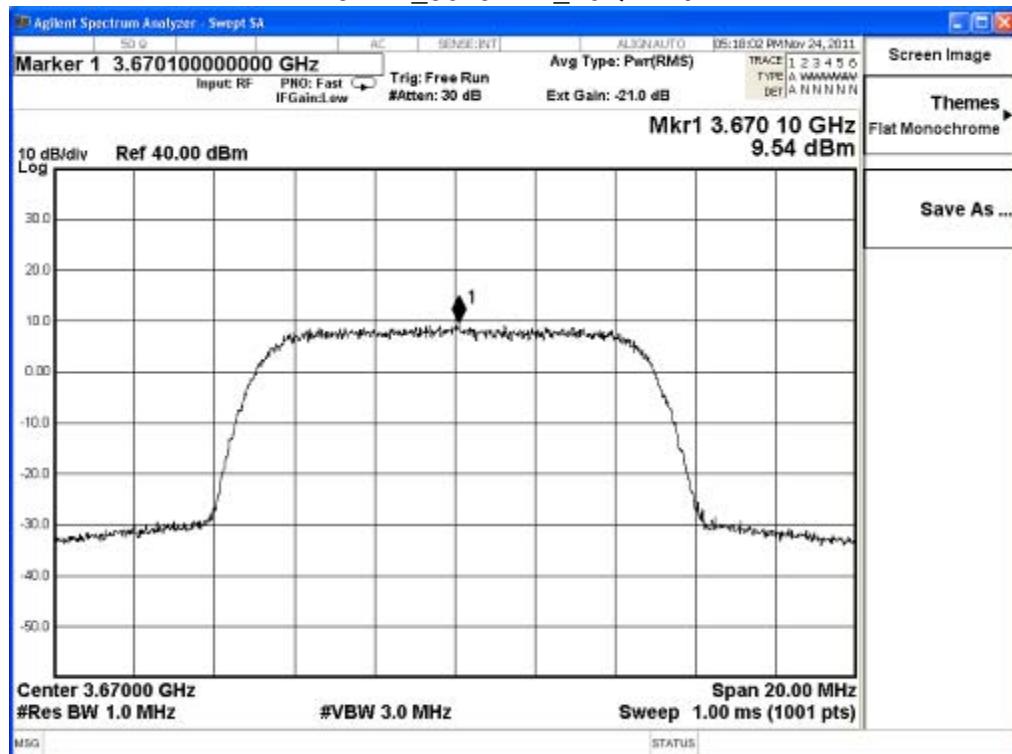
Radiated Power Density = Power Density + Antenna Gain

10MHz_3655MHz_16QAM1/2

10MHz_3662.5MHz_16QAM1/2



10MHz_3670MHz_16QAM1/2

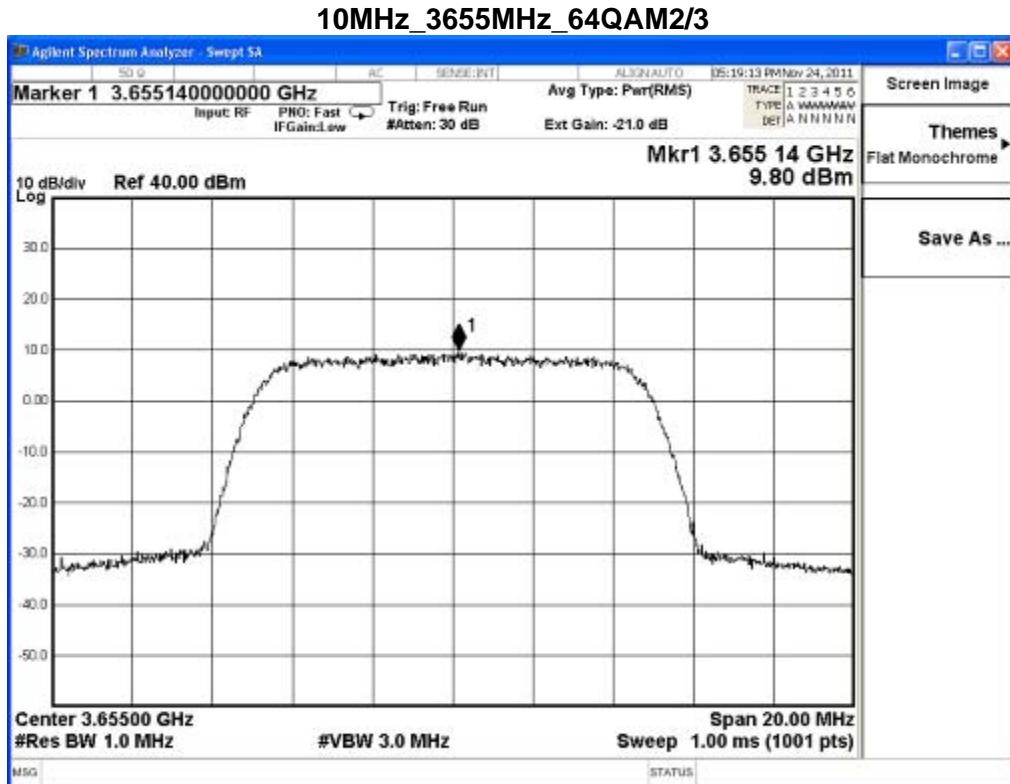


Product	CPE 3.65GHz Outdoor		
Test Item	Peak EIRP Power Density		
Test Mode	Mode 9: Transmit (10MHz BW_64QAM2/3)		
Date of Test	2011/11/24	Test Site	SR7

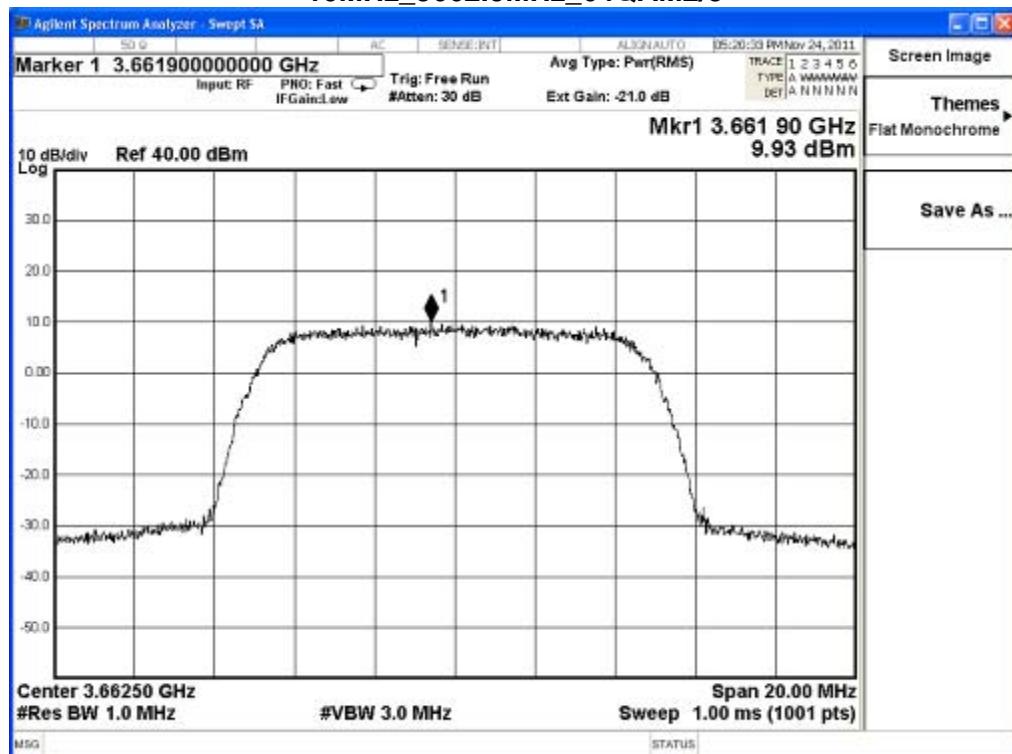
10MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Power Density (dBm/MHz)	Radiated Power Density (dBm/MHz)	Limit (dBm/MHz)
3655.0	64QAM2/3	9.80	23.80	30
3662.5	64QAM2/3	9.93	23.93	30
3670.0	64QAM2/3	9.06	23.06	30

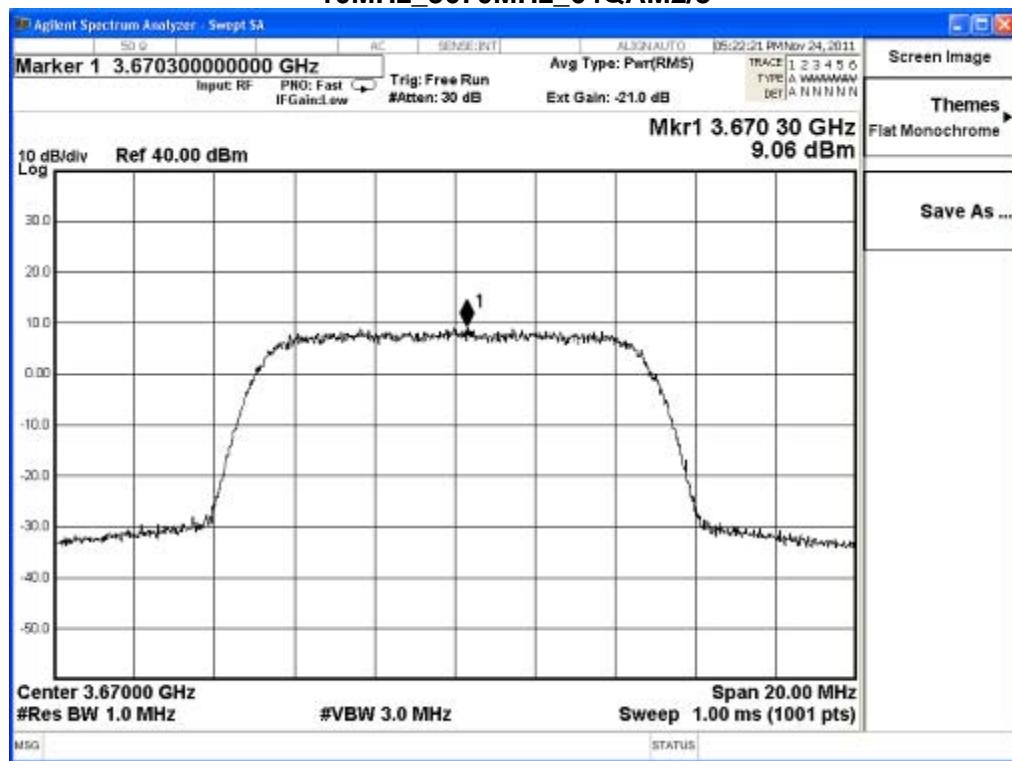
Radiated Power Density = Power Density + Antenna Gain



10MHz_3662.5MHz_64QAM2/3



10MHz_3670MHz_64QAM2/3



4. Occupied Bandwidth

4.1. Test Equipment

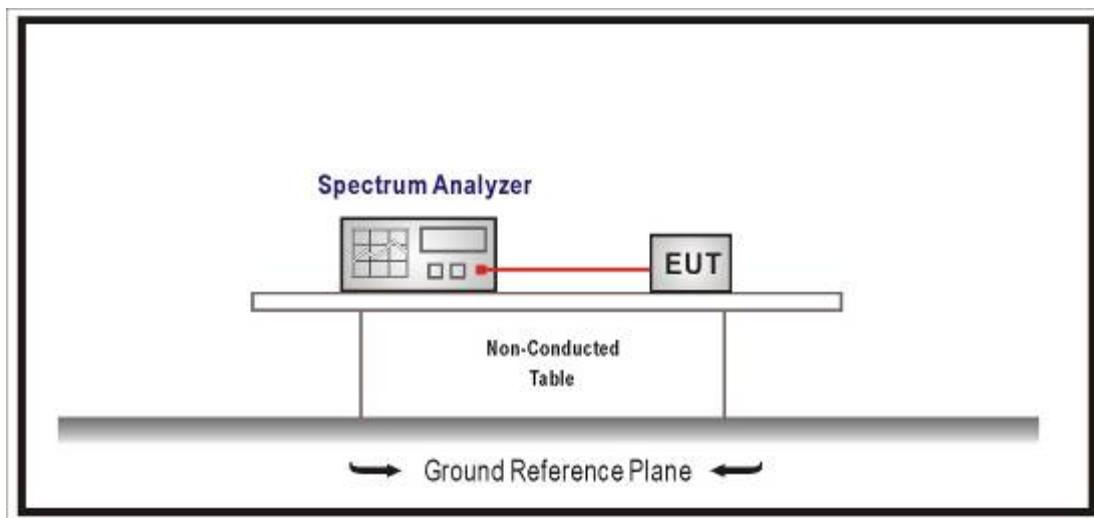
The following test equipments are used during the test:

Occupied Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2012/07/13

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

4.2. Test Setup



4.3. Limits

NA

4.4. Test Procedure

The occupied bandwidth is measured using Spectrum Analyzer with a resolution bandwidth of 1% EBW, video bandwidth 3% EBW and span of twice the EBW. The EUT was set up for the rated peak power under transmission mode and specific channel frequency. The standards required a measurement bandwidth is the fundamental emission below 26dB bandwidth.

4.5. Test Specification:

FCC CFR Title 47 Part 90 Subpart Z

4.6. Uncertainty

The measurement uncertainty is defined as ± 50 kHz

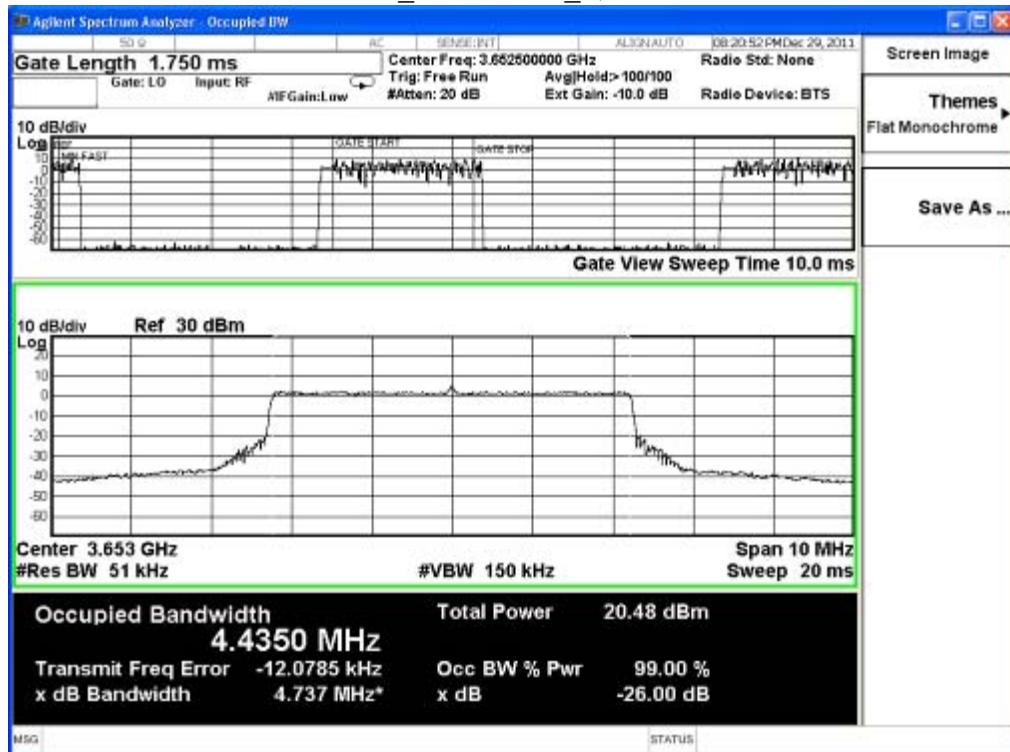
4.7. Test Result

Product	CPE 3.65GHz Outdoor		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit (5MHz BW_QPSK1/2)		
Date of Test	2011/12/29	Test Site	SR7

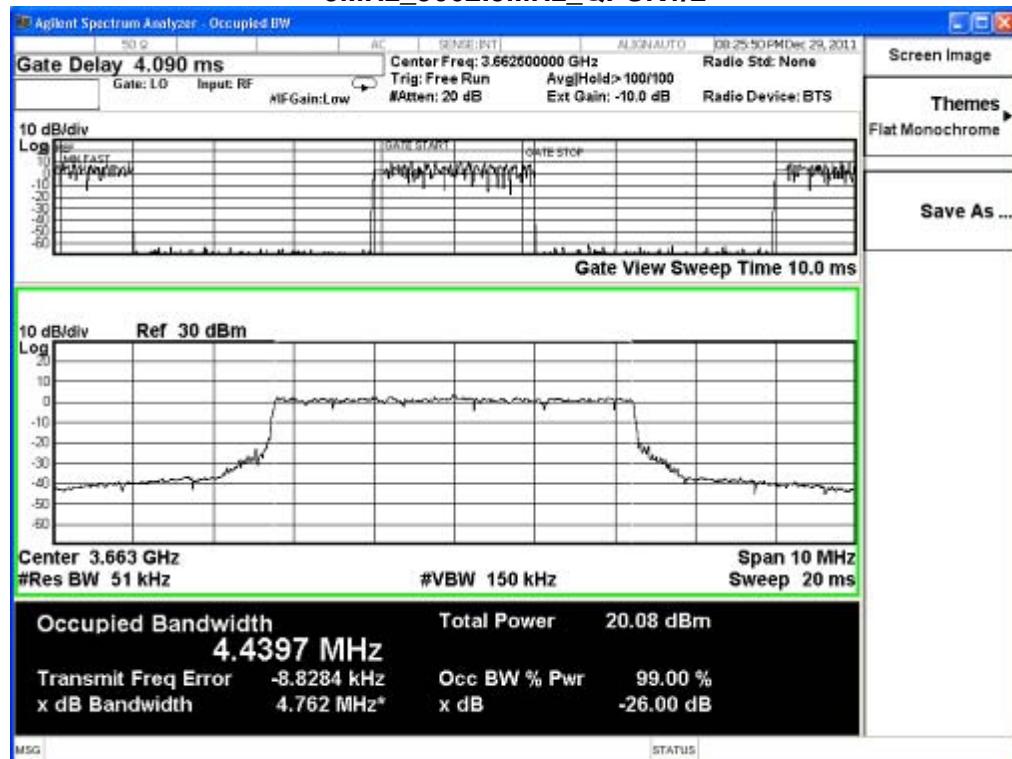
5MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Measure Value (MHz)	Limit (MHz)
3652.5	QPSK1/2	4.737	NA
3662.5	QPSK1/2	4.762	NA
3672.5	QPSK1/2	4.802	NA

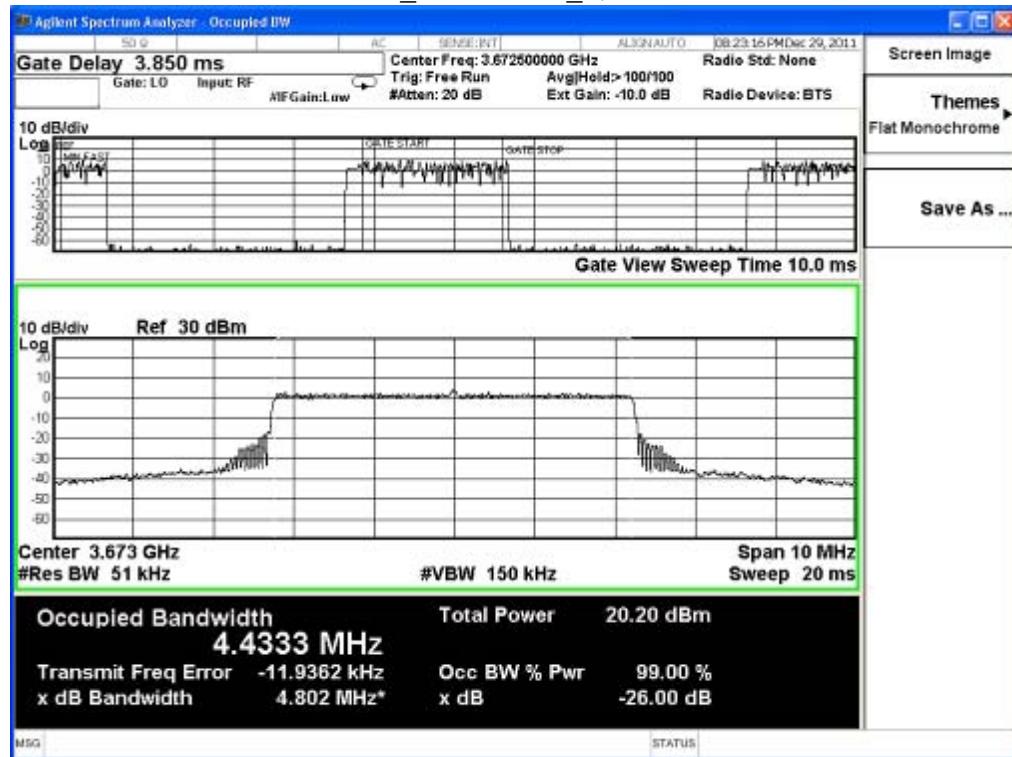
5MHz_3652.5MHz_QPSK1/2



5MHz_3662.5MHz_QPSK1/2



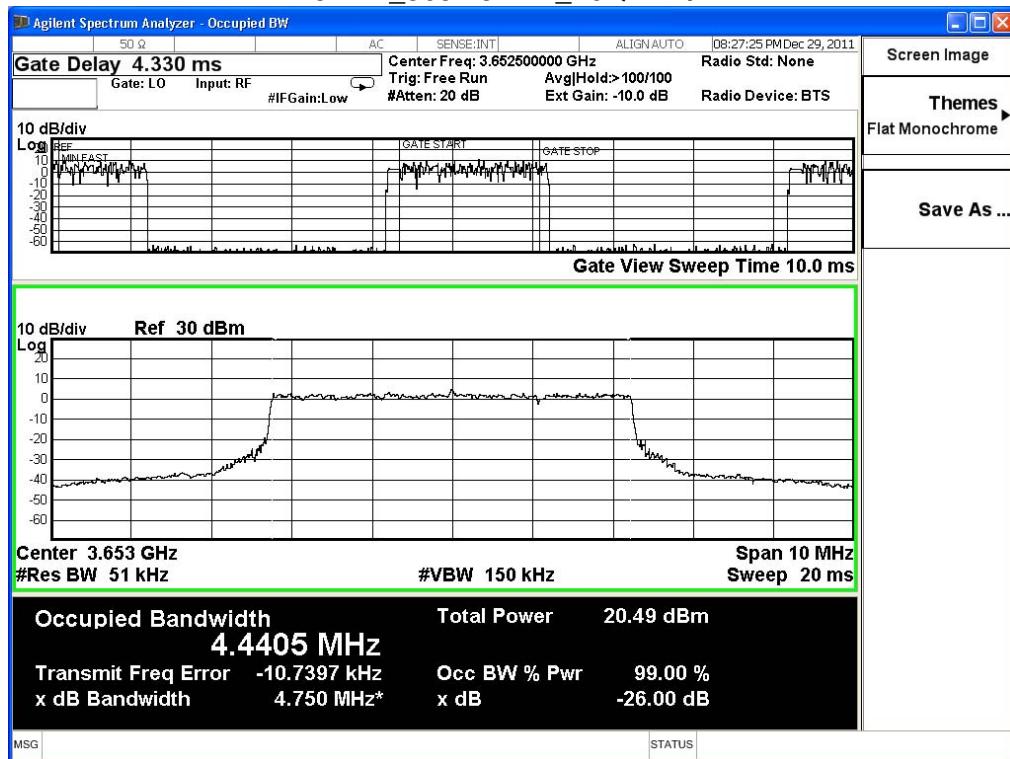
5MHz_3672.5MHz_QPSK1/2



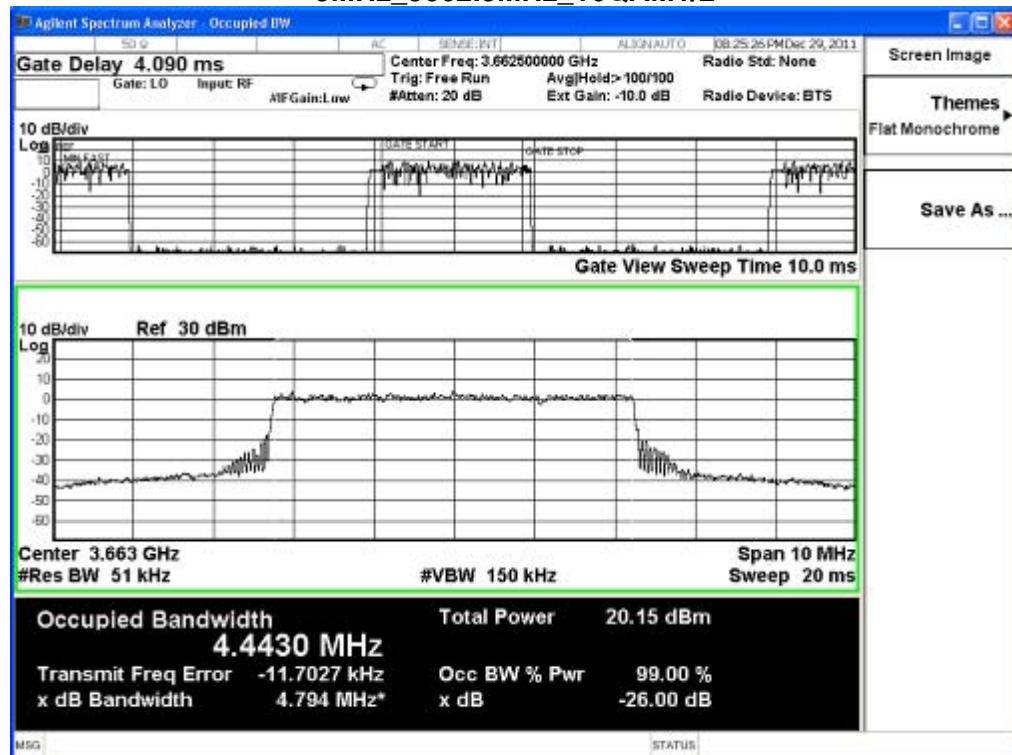
Product	CPE 3.65GHz Outdoor		
Test Item	Occupied Bandwidth		
Test Mode	Mode 2: Transmit (5MHz BW_16QAM1/2)		
Date of Test	2011/12/29	Test Site	SR7

5MHz Bandwidth, Antenna Gain: 14dBi

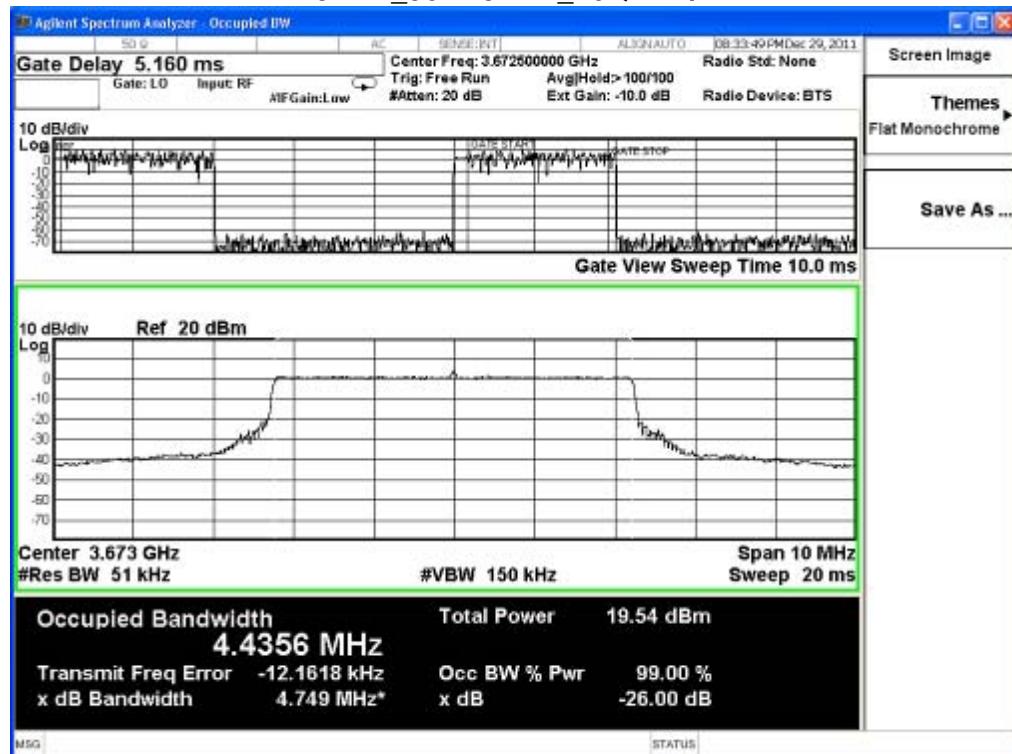
Frequency (MHz)	Modulation	Measure Value (MHz)	Limit (MHz)
3652.5	16QAM1/2	4.750	NA
3662.5	16QAM1/2	4.794	NA
3672.5	16QAM1/2	4.749	NA

5MHz_3652.5MHz_16QAM1/2

5MHz_3662.5MHz_16QAM1/2



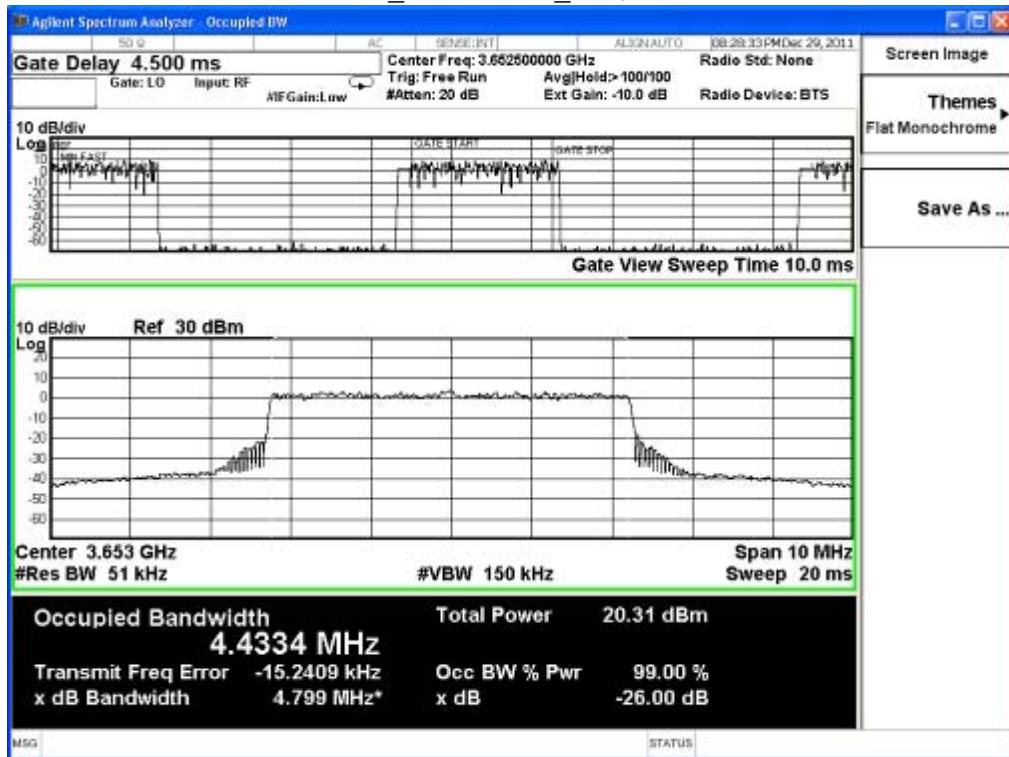
5MHz_3672.5MHz_16QAM1/2



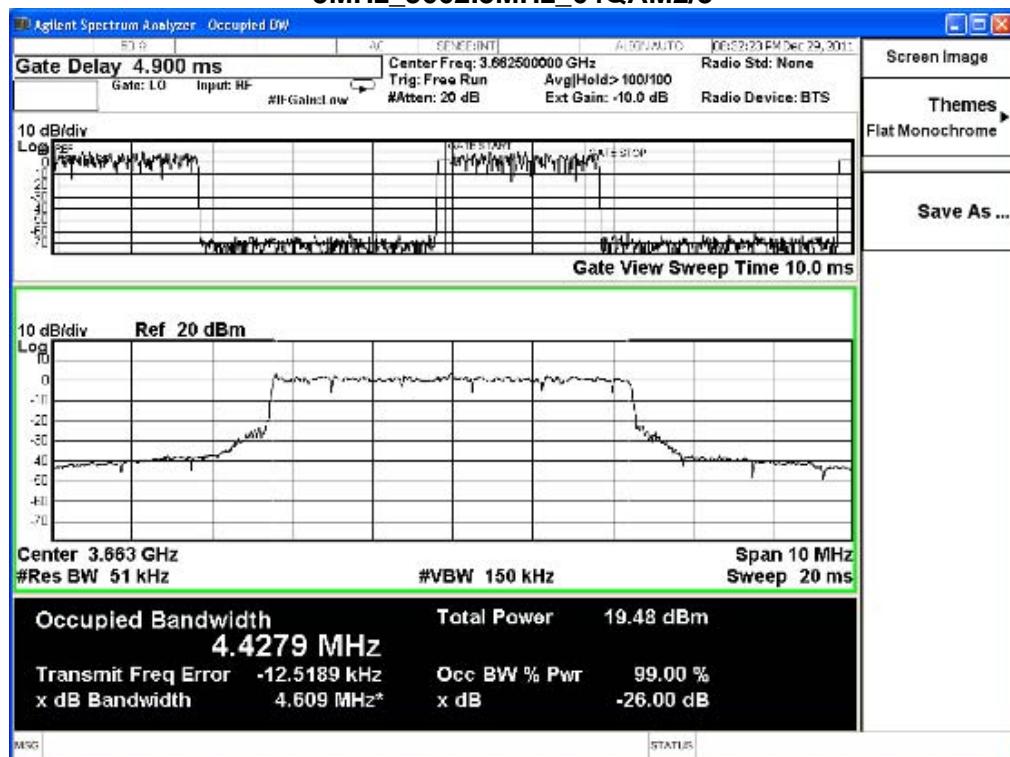
Product	CPE 3.65GHz Outdoor		
Test Item	Occupied Bandwidth		
Test Mode	Mode 3: Transmit (5MHz BW_64QAM2/3)		
Date of Test	2011/12/29	Test Site	SR7

5MHz Bandwidth, Antenna Gain: 14dBi

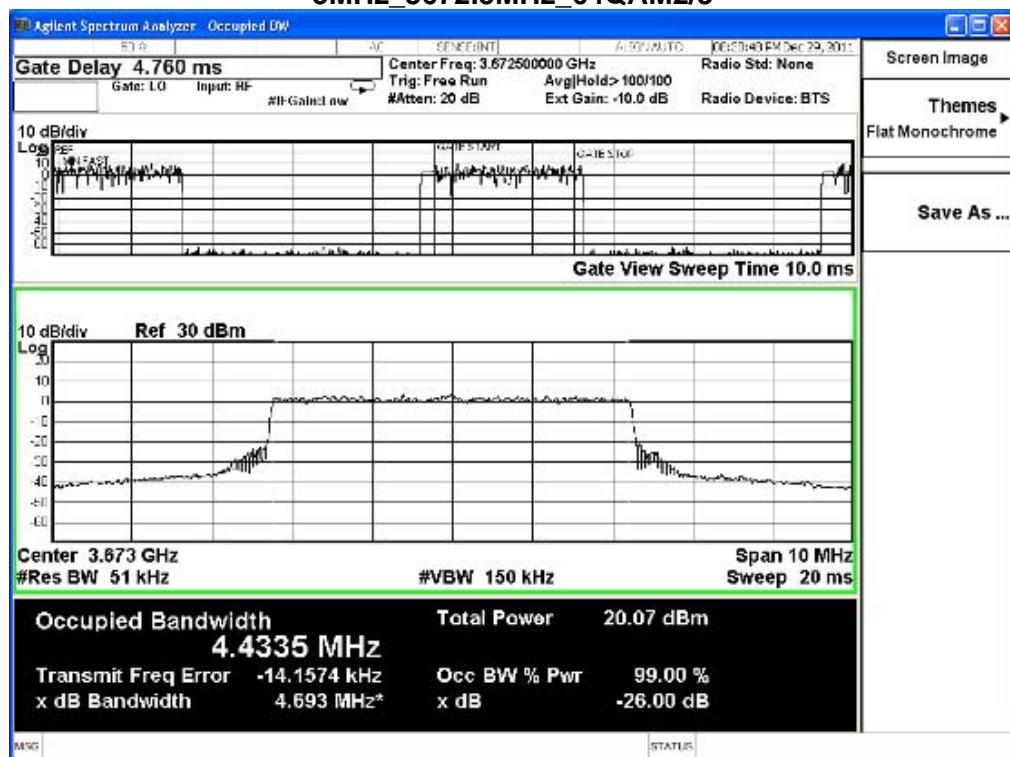
Frequency (MHz)	Modulation	Measure Value (MHz)	Limit (MHz)
3652.5	64QAM2/3	4.799	NA
3662.5	64QAM2/3	4.609	NA
3672.5	64QAM2/3	4.693	NA

5MHz_3652.5MHz_64QAM2/3

5MHz_3662.5MHz_64QAM2/3



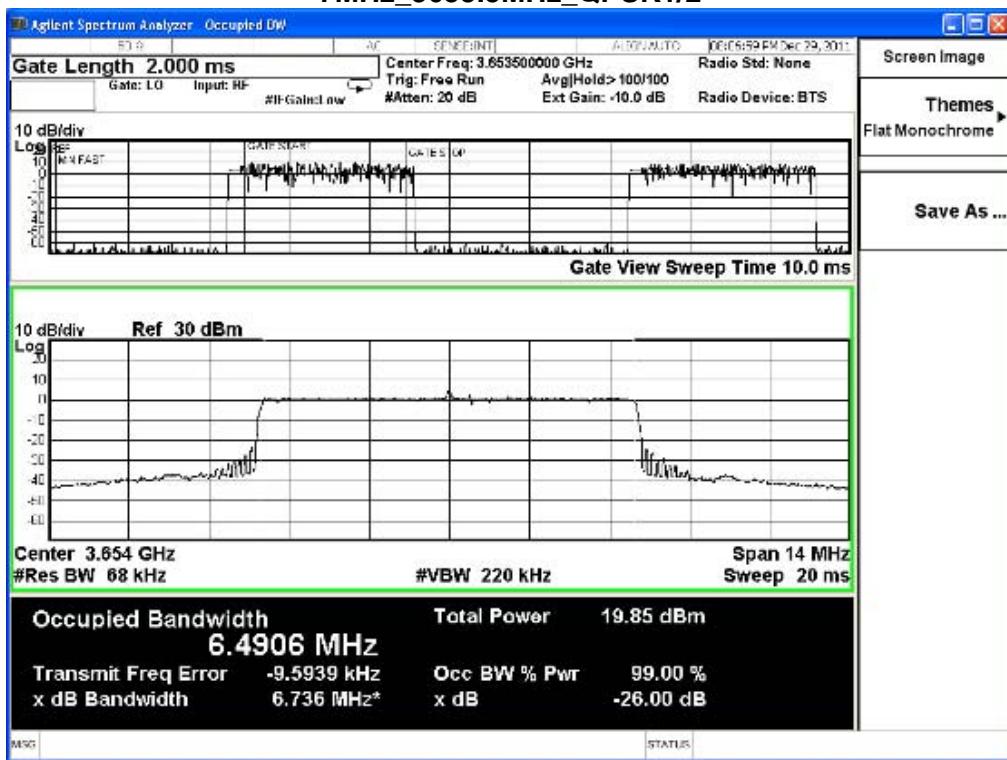
5MHz_3672.5MHz_64QAM2/3



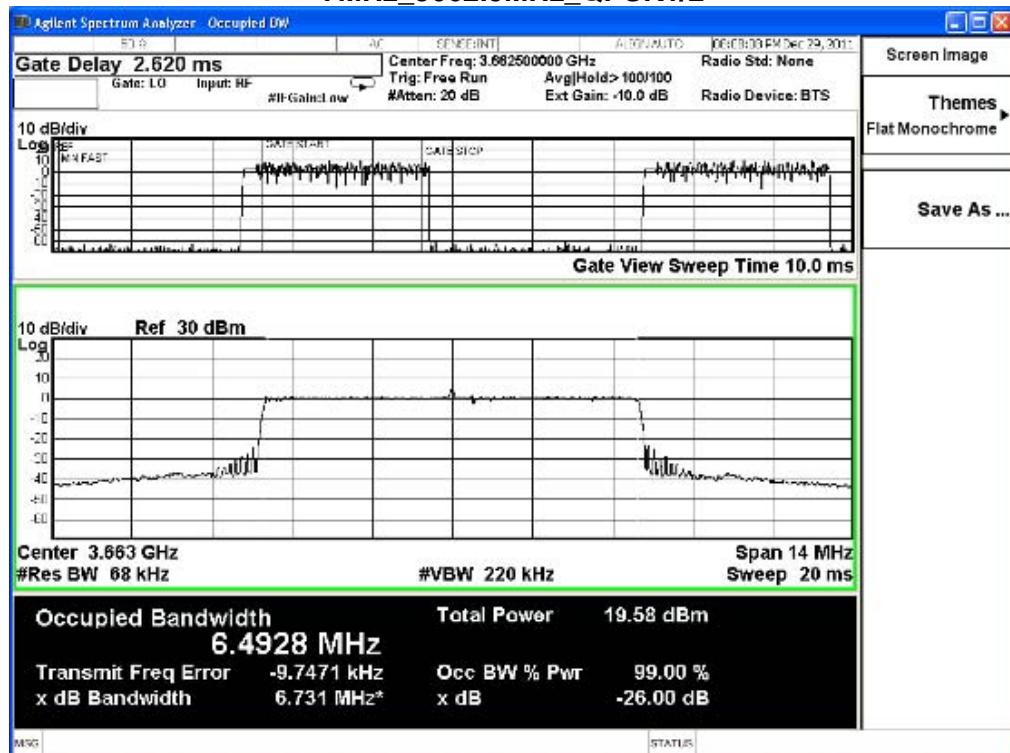
Product	CPE 3.65GHz Outdoor		
Test Item	Occupied Bandwidth		
Test Mode	Mode 4: Transmit (7MHz BW_QPSK1/2)		
Date of Test	2011/12/29	Test Site	SR7

7MHz Bandwidth, Antenna Gain: 14dBi

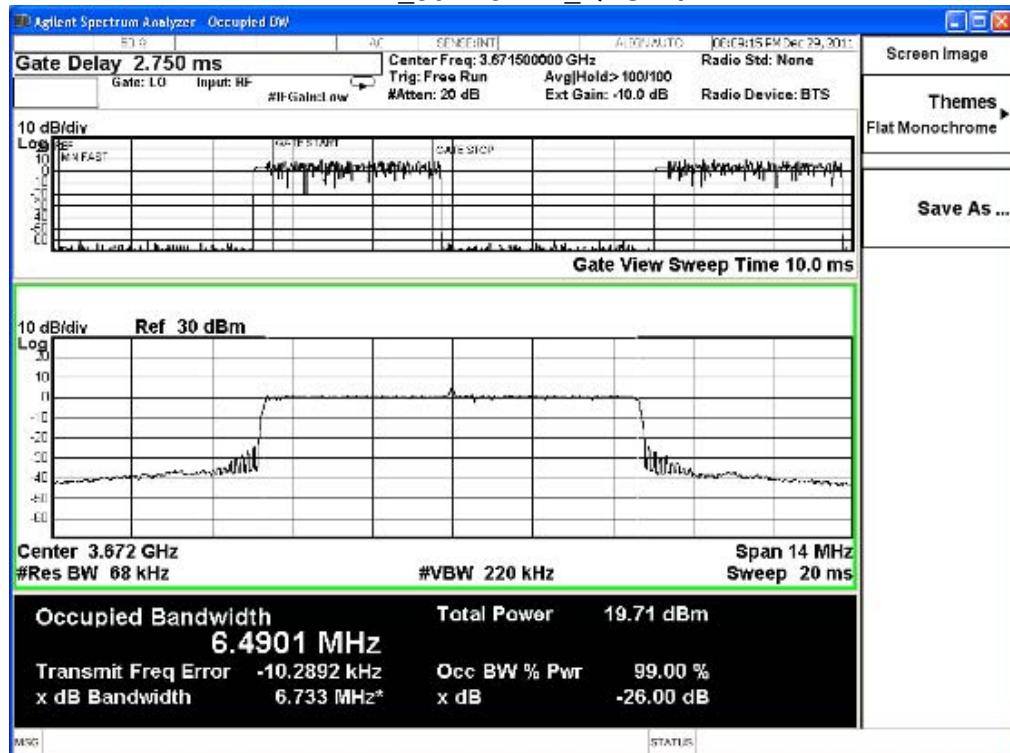
Frequency (MHz)	Modulation	Measure Value (MHz)	Limit (MHz)
3653.5	QPSK1/2	6.736	NA
3662.5	QPSK1/2	6.731	NA
3671.5	QPSK1/2	6.733	NA

7MHz_3653.5MHz_QPSK1/2

7MHz_3662.5MHz_QPSK1/2



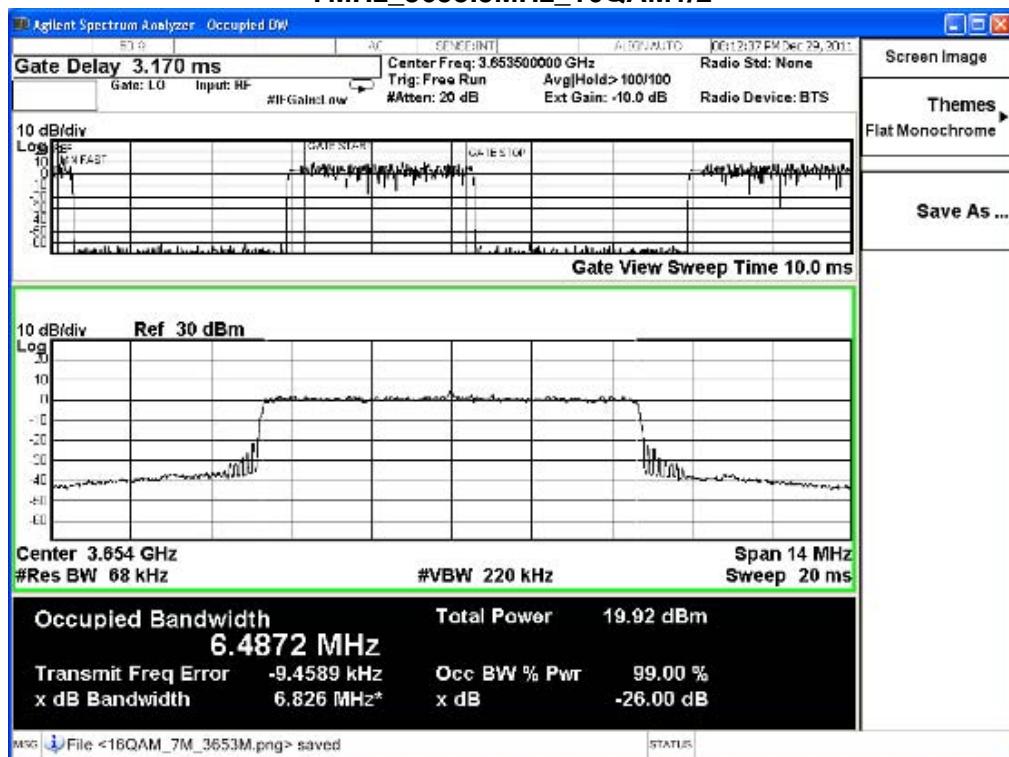
7MHz_3671.5MHz_QPSK1/2



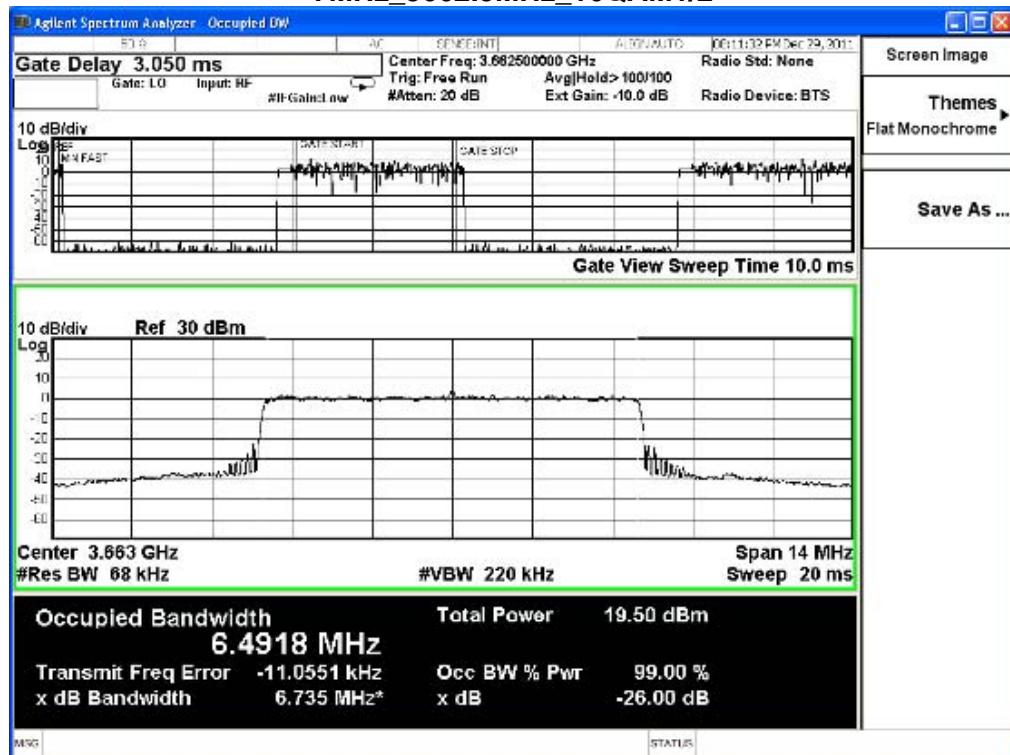
Product	CPE 3.65GHz Outdoor		
Test Item	Occupied Bandwidth		
Test Mode	Mode 5: Transmit (7MHz BW_16QAM1/2)		
Date of Test	2011/12/29	Test Site	SR7

7MHz Bandwidth, Antenna Gain: 14dBi

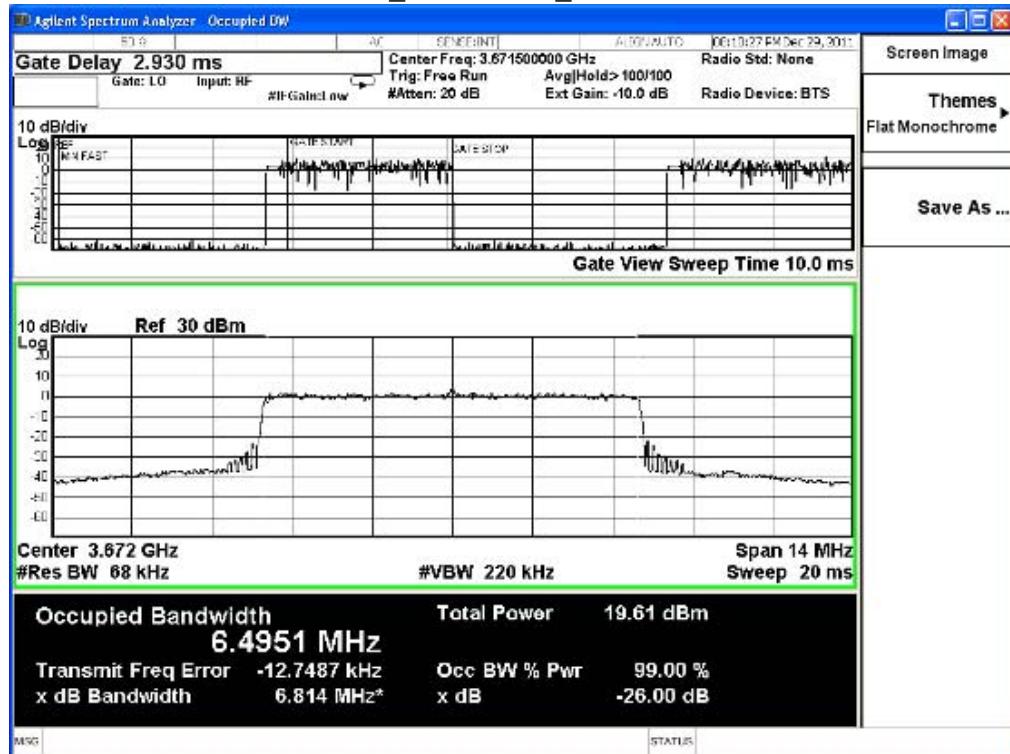
Frequency (MHz)	Modulation	Measure Value (MHz)	Limit (MHz)
3653.5	16QAM1/2	6.826	NA
3662.5	16QAM1/2	6.735	NA
3671.5	16QAM1/2	6.814	NA

7MHz_3653.5MHz_16QAM1/2

7MHz_3662.5MHz_16QAM1/2



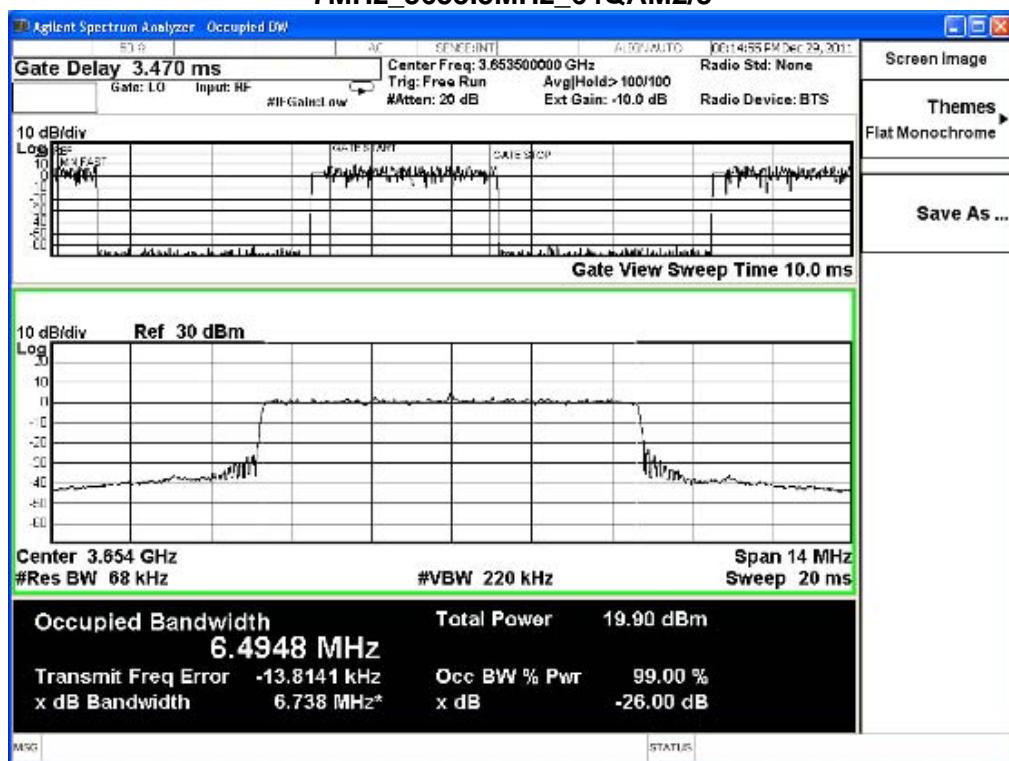
7MHz_3671.5MHz_16QAM1/2



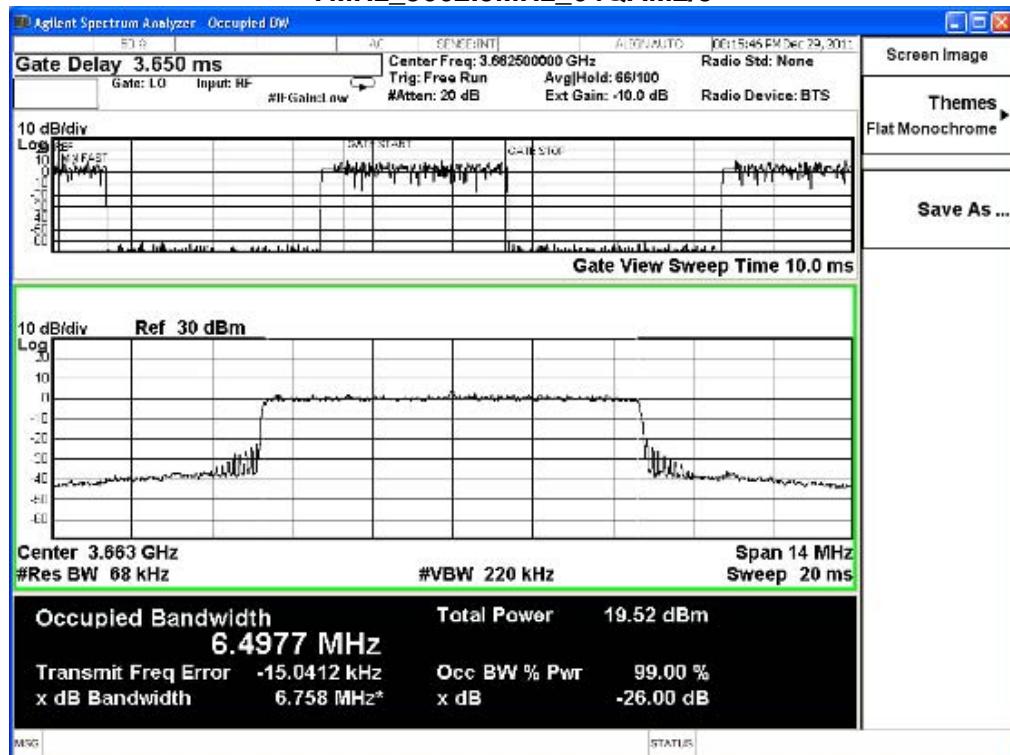
Product	CPE 3.65GHz Outdoor		
Test Item	Occupied Bandwidth		
Test Mode	Mode 6: Transmit (7MHz BW_64QAM2/3)		
Date of Test	2011/12/29	Test Site	SR7

7MHz Bandwidth, Antenna Gain: 14dBi

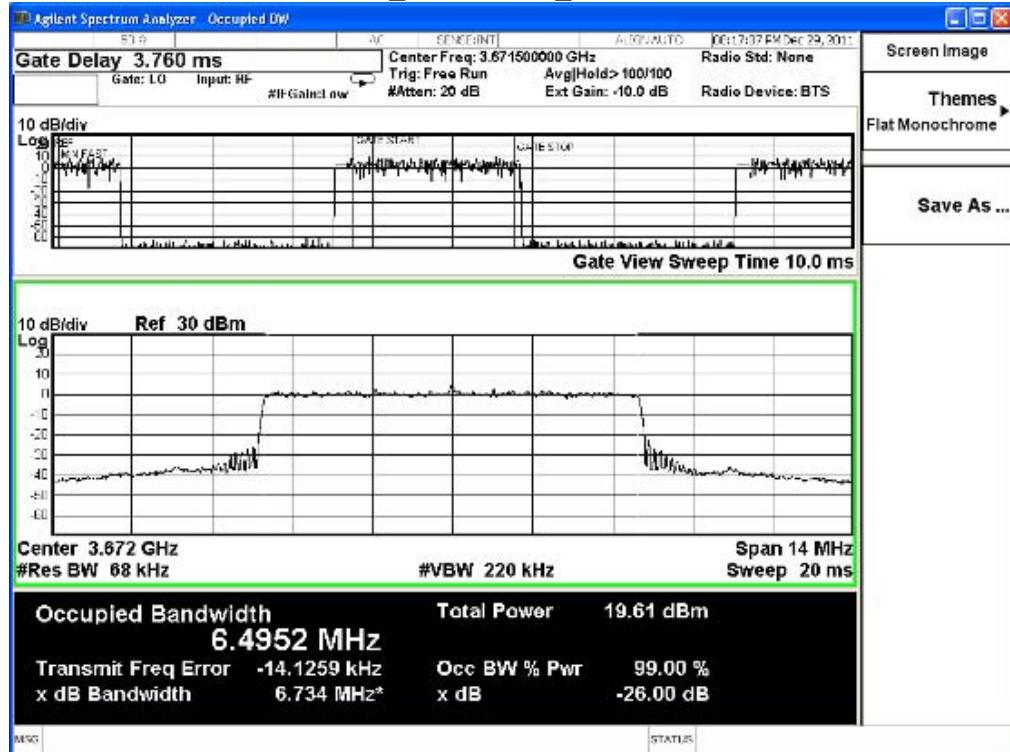
Frequency (MHz)	Modulation	Measure Value (MHz)	Limit (MHz)
3653.5	64QAM2/3	6.738	NA
3662.5	64QAM2/3	6.758	NA
3671.5	64QAM2/3	6.734	NA

7MHz_3653.5MHz_64QAM2/3


7MHz_3662.5MHz_64QAM2/3



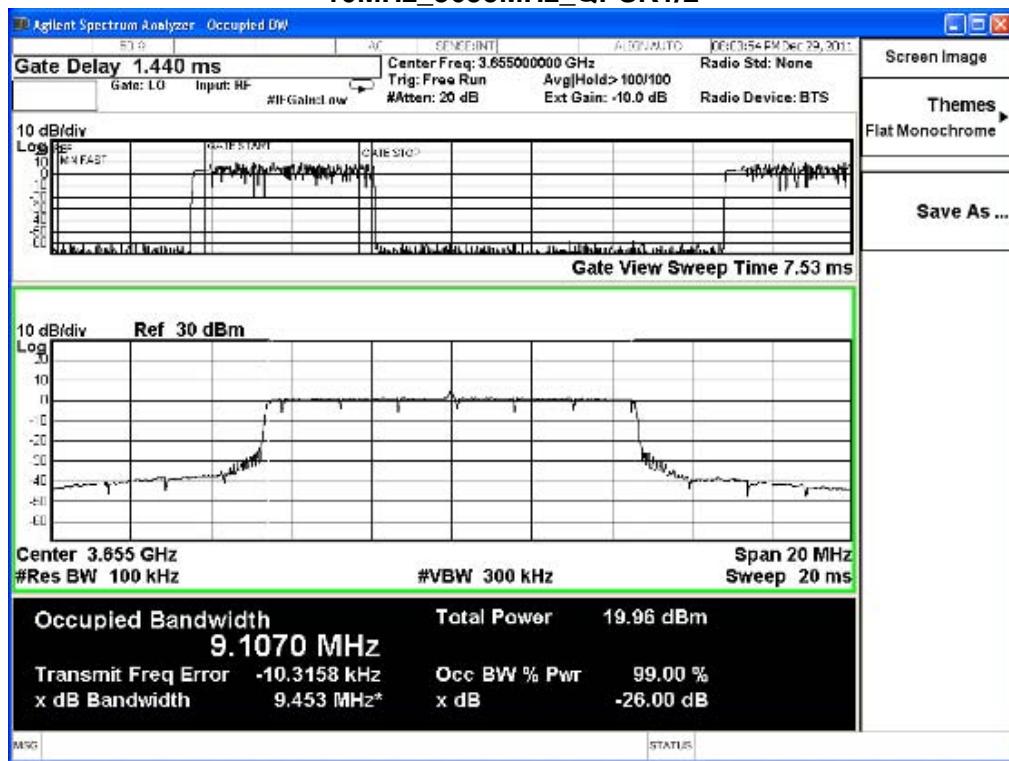
7MHz_3671.5MHz_64QAM2/3



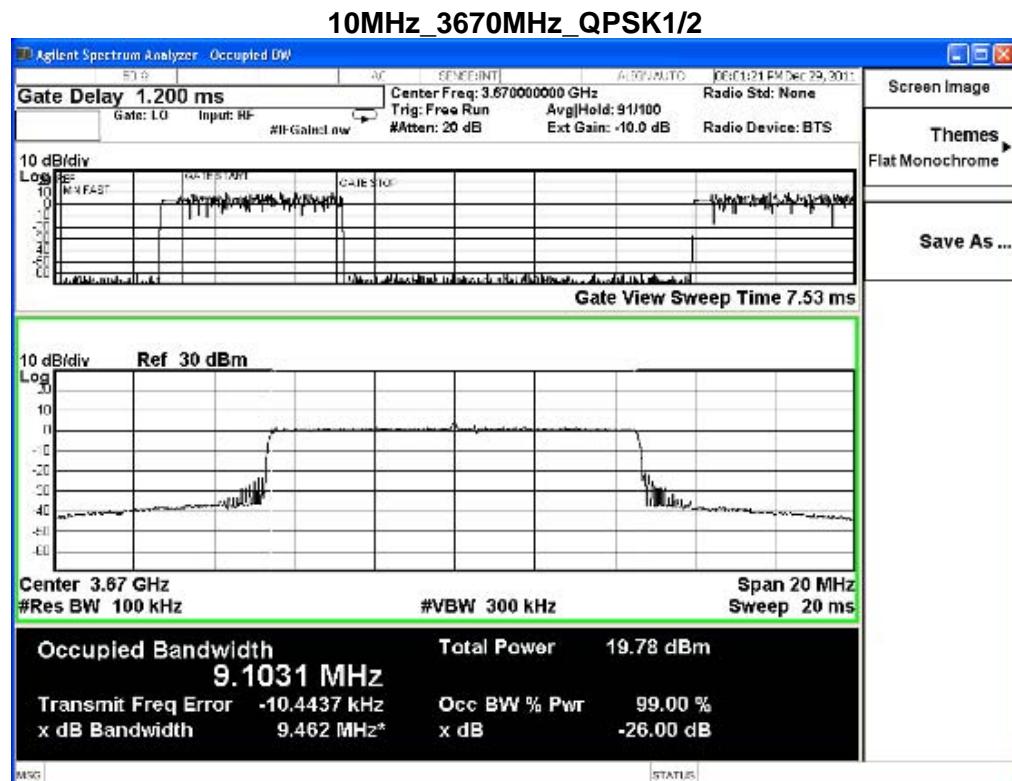
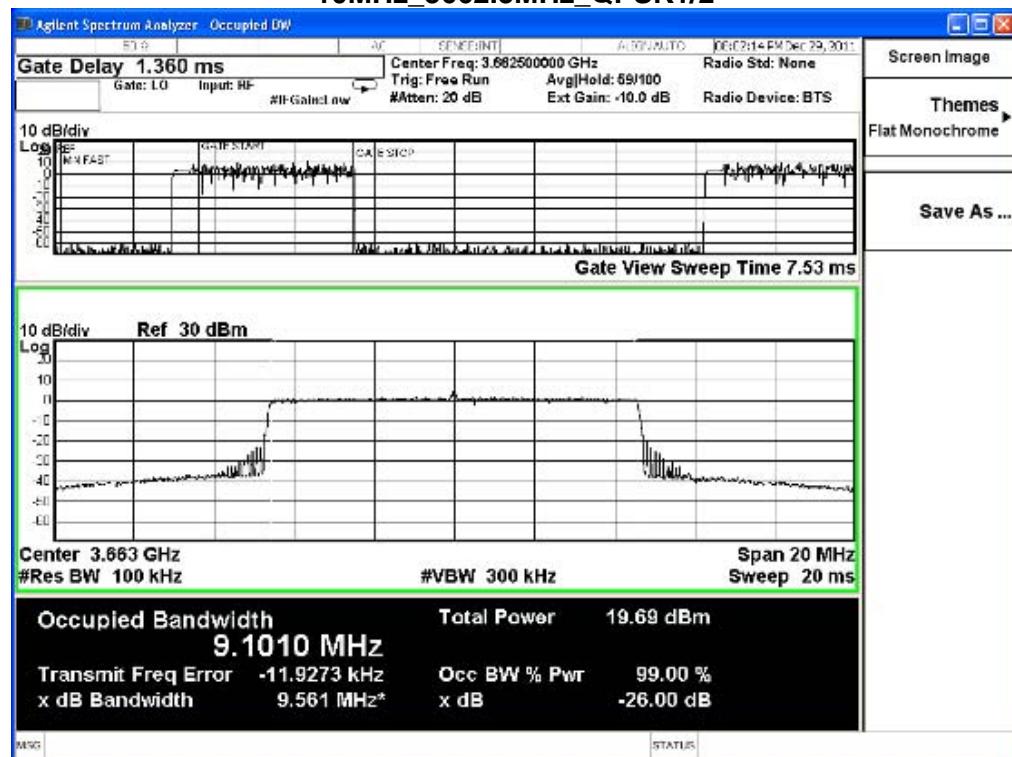
Product	CPE 3.65GHz Outdoor		
Test Item	Occupied Bandwidth		
Test Mode	Mode 7: Transmit (10MHz BW_QPSK1/2)		
Date of Test	2011/12/29	Test Site	SR7

10MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Measure Value (MHz)	Limit (MHz)
3655.0	QPSK1/2	9.453	NA
3662.5	QPSK1/2	9.561	NA
3670.0	QPSK1/2	9.462	NA

10MHz_3655MHz_QPSK1/2

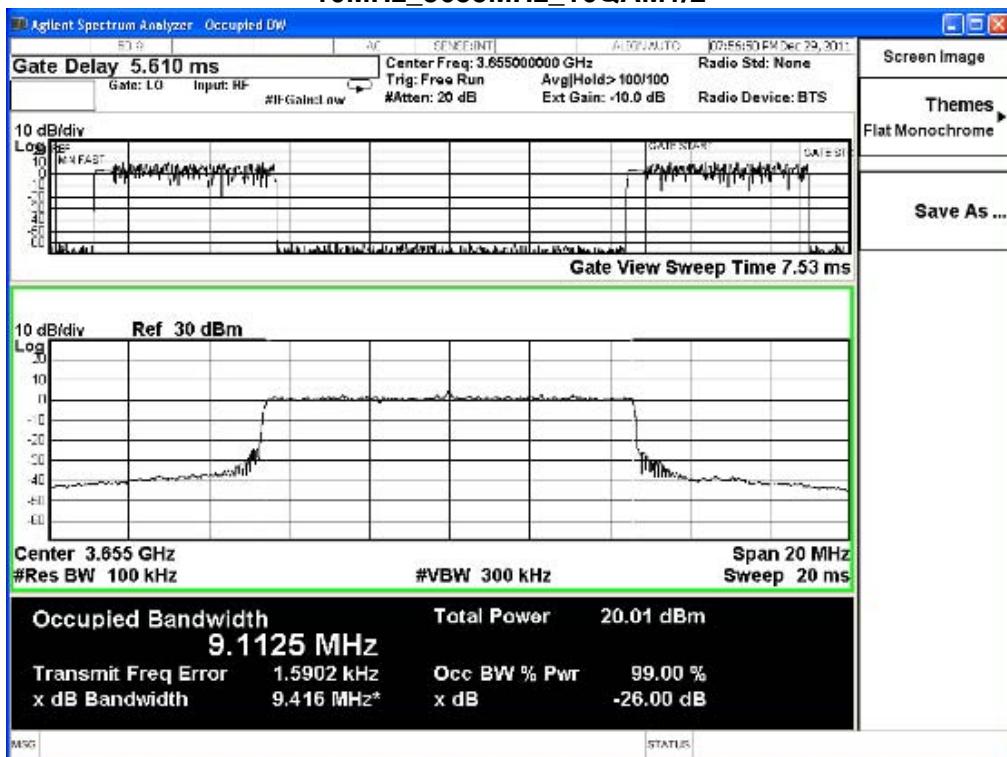
10MHz_3662.5MHz_QPSK1/2



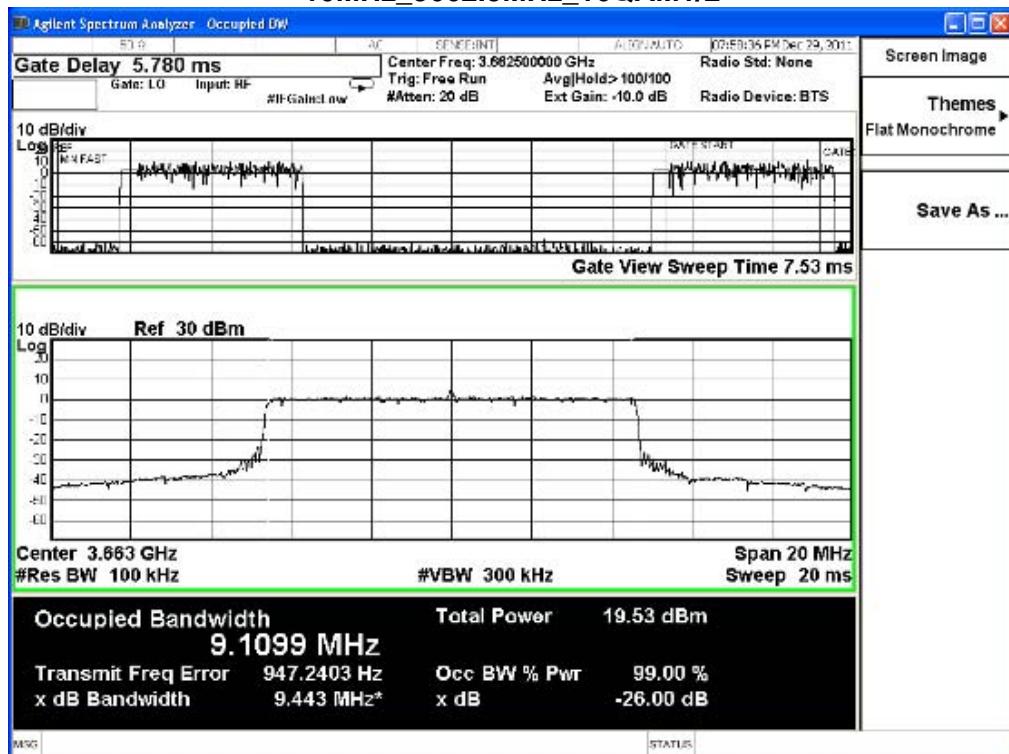
Product	CPE 3.65GHz Outdoor		
Test Item	Occupied Bandwidth		
Test Mode	Mode 8: Transmit (10MHz BW_16QAM1/2)		
Date of Test	2011/12/29	Test Site	SR7

10MHz Bandwidth, Antenna Gain: 14dBi

Frequency (MHz)	Modulation	Measure Value (MHz)	Limit (MHz)
3655.0	16QAM1/2	9.416	NA
3662.5	16QAM1/2	9.443	NA
3670.0	16QAM1/2	9.433	NA

10MHz_3655MHz_16QAM1/2

10MHz_3662.5MHz_16QAM1/2



10MHz_3670MHz_16QAM1/2

