FCC Test Report

(Class II Permissive Change)

Product Name	IP COMMUNICATION TERMINAL
Model No	IP100H
FCC ID	AFJ357600

Applicant	ICOM Incorporated
Address	1-1-32 Kamiminami, Hirano-ku, Osaka, 547-0003

Date of Receipt	Apr. 03, 2014
Issued Date	Apr. 18, 2014
Report No.	1440173R-RFUSP05V00
Report Version	V1.0

Testing Laboratory
0914

Test Report

Issued Date: Apr. 18, 2014
Report No.: 1440173R-RFUSP05V00

Product Name	IP COMMUNICATION TERMINAL
Applicant	ICOM Incorporated
Address	1-1-32 Kamiminami, Hirano-ku, Osaka, 547-0003
Manufacturer	ICOM Incorporated
Model No.	IP100H
FCC ID.	AFJ357600
EUT Rated Voltage	DC 7.4V by battery
EUT Test Voltage	AC 120V/60Hz
Trade Name	ICOM
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2012 ANSI C63.10: 2009, FCC KDB-789033
Test Result	Complied

Documented By : Jinn Chen

(Senior Adm. Specialist / Jinn Chen)

Tested By : Andy Lin

(Engineer / Andy Lin)

Approved By :

(Director / Vincent Lin)

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	IP COMMUNICATION TERMINAL
Trade Name	ICOM
FCC ID.	AFJ357600
Model No.	IP100H
Frequency Range	802.11a/n-20MHz: 5260-5320MHz, 5500-5700MHz 802.11n-40MHz: 5270-5310MHz, 5510-5670MHz
Number of Channels	802.11a/n-20MHz: 12, n-40MHz: 5
Data Rate	802.11a/g: 6-54Mbps, 802.11n: up to 150Mbps
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna Type	Monopole / Dipole Antenna
Antenna Gain	Refer to the table “Antenna List”
Contain Module	TAIYO / WYSBMVGX4

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain	Remark
1	Exceltek	N/A	Dipole	2.0 dBi for 5.25~5.35GHz 2.0 dBi for 5.47~5.725GHz	External Antenna
2	TAIYO YUDEN	AH 104N2450D1	Monopole	2.4 dBi for 5.25~5.35GHz 2.4 dBi for 5.47~5.725GHz	Internal Antenna

Note: The antenna of EUT is conform to FCC 15.203

802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 52:	5260 MHz	Channel 56:	5280 MHz	Channel 60:	5300 MHz	Channel 64:	5320 MHz
Channel 100:	5500 MHz	Channel 104:	5520 MHz	Channel 108:	5540 MHz	Channel 112:	5560 MHz
Channel 116:	5580 MHz	Channel 132:	5660 MHz	Channel 136:	5680 MHz	Channel 140:	5700 MHz

802.11n-40MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 54:	5270 MHz	Channel 62:	5310 MHz	Channel 102:	5510 MHz	Channel 110:	5550 MHz
Channel 134:	5670 MHz						

Note:

1. This device is a IP COMMUNICATION TERMINAL, with a built-in WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. This is requesting a Class II permissive change for FCC ID: AFJ357600. Originally granted on 3/28/2014.
   The differences are listed as below:
   - Add the frequency band from 5250-5350MHz and 5470 – 5725MHz by software.
   - All other hardware is identical with original granted.
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11a is 6Mbps、802.11n(20M-BW) is 7.2Mbps and 、802.11n(40M-BW) is 15Mbps).
5. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

Test Mode	Mode 1: Transmit (802.11a-6Mbps) Mode 2: Transmit (802.11n-20BW 7.2Mbps) Mode 3: Transmit (802.11n-40BW 15Mbps)

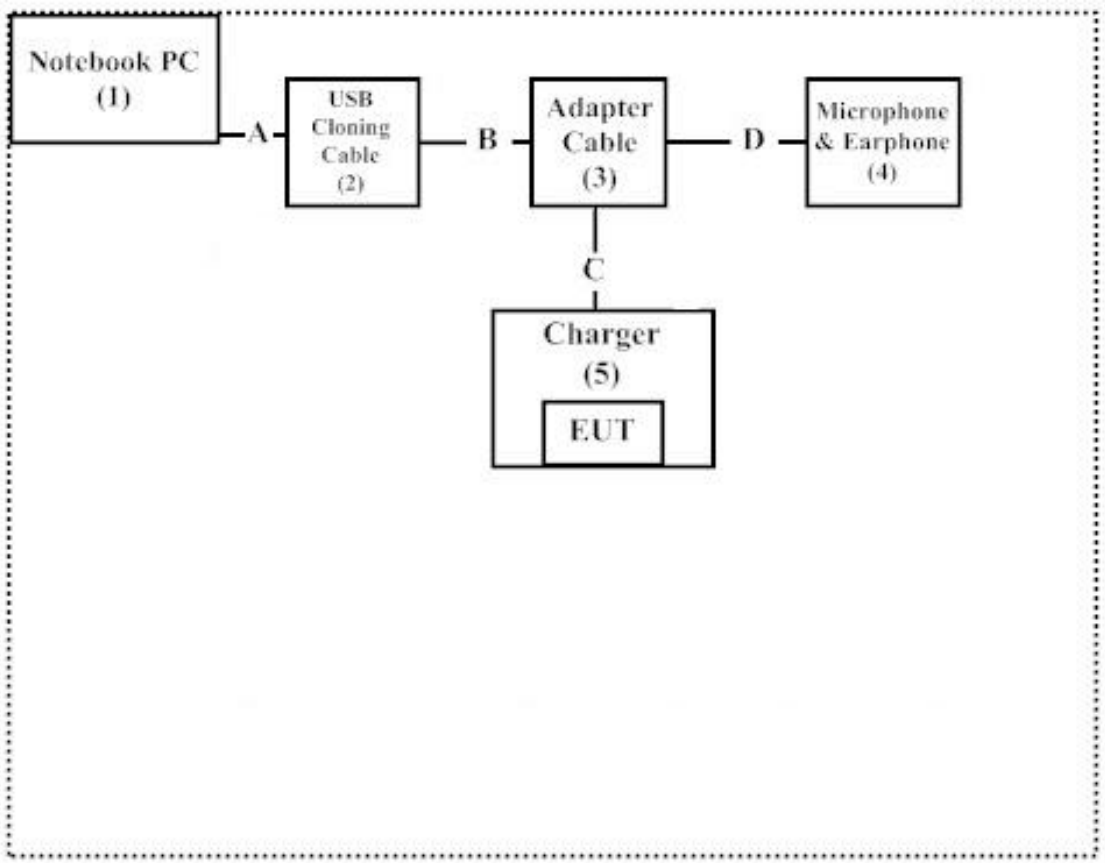
1.3. Tested System Datails

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	PPT	N/A	Non-Shielded, 1.8m
2	USB Cloning Cable	iCOM	OPC-478UC	N/A	N/A
3	Adapter Cable	iCOM	OPC-2144	N/A	N/A
4	Microphone & Earphone	iCOM	HS-99	N/A	N/A
5	Charger	iCOM	BC-202	N/A	N/A

Signal Cable Type		Signal cable Description
A	Mini USB to USB Cable	Non-Shielded, 1.5m, with one ferrite core bonded.
B	USB Cloning Cable	Non-Shielded, 0.6m
C	Adapter Cable	Non-Shielded, 0.225m
D	Microphone & Earphone Cable	Non-Shielded, 1.2m

1.4. Configuration of tested System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.4
(2) Execute program “MFG_Tool V1.0.0.0” on the Notebook PC.
(3) Configure the test mode, the test channel, and the data rate.
(4) Start transmits continually.
(5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/tw/ctg/cts/accreditations.htm

The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Site Name: Quietek Corporation
Site Address: No.5-22, Ruishukeng Linkou Dist., New Taipei City
24451, Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

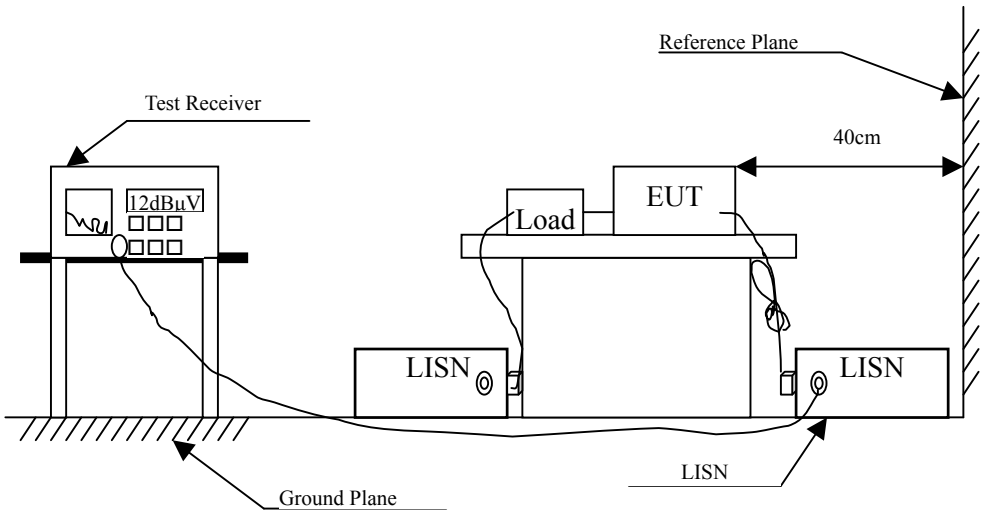
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2013	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2014	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2014	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2014	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2014	
	No.1 Shielded Room				

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked by "X" are used to measure the final test results.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBμV) Limit		
Frequency MHz	Limits	
	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 and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10, 2009 on conducted measurement.

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

The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : IP COMMUNICATION TERMINAL
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5260MHz) (Monopole Antenna)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.185	9.739	43.890	53.629	-11.371	65.000
0.236	9.740	34.540	44.280	-19.263	63.543
0.298	9.743	28.000	37.743	-24.028	61.771
0.396	9.748	26.080	35.828	-23.143	58.971
0.670	9.760	19.650	29.410	-26.590	56.000
5.341	9.880	24.460	34.340	-25.660	60.000
Average					
0.185	9.739	27.500	37.239	-17.761	55.000
0.236	9.740	17.800	27.540	-26.003	53.543
0.298	9.743	11.260	21.003	-30.768	51.771
0.396	9.748	8.710	18.458	-30.513	48.971
0.670	9.760	6.750	16.510	-29.490	46.000
5.341	9.880	15.270	25.150	-24.850	50.000

Note:

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

Product : IP COMMUNICATION TERMINAL
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5260MHz) (Monopole Antenna)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV	dB	dBμV
LINE 2					
Quasi-Peak					
0.177	9.748	45.200	54.948	-10.281	65.229
0.228	9.750	35.990	45.740	-18.031	63.771
0.291	9.749	30.710	40.459	-21.512	61.971
0.423	9.749	25.300	35.049	-23.151	58.200
0.580	9.756	22.820	32.576	-23.424	56.000
1.806	9.832	18.570	28.402	-27.598	56.000
Average					
0.177	9.748	29.420	39.168	-16.061	55.229
0.228	9.750	19.120	28.870	-24.901	53.771
0.291	9.749	15.640	25.389	-26.582	51.971
0.423	9.749	10.690	20.439	-27.761	48.200
0.580	9.756	11.210	20.966	-25.034	46.000
1.806	9.832	6.250	16.082	-29.918	46.000

Note:

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

Product : IP COMMUNICATION TERMINAL
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5500MHz) (Monopole Antenna)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.166	9.745	44.220	53.965	-11.578	65.543
0.197	9.739	31.050	40.789	-23.868	64.657
0.287	9.743	28.430	38.173	-23.913	62.086
0.404	9.748	27.330	37.078	-21.665	58.743
0.759	9.764	22.960	32.724	-23.276	56.000
5.681	9.880	22.120	32.000	-28.000	60.000
Average					
0.166	9.745	27.450	37.195	-18.348	55.543
0.197	9.739	9.090	18.829	-35.828	54.657
0.287	9.743	11.660	21.403	-30.683	52.086
0.404	9.748	13.200	22.948	-25.795	48.743
0.759	9.764	13.690	23.454	-22.546	46.000
5.681	9.880	13.130	23.010	-26.990	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : IP COMMUNICATION TERMINAL
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5500MHz) (Monopole Antenna)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.177	9.748	41.080	50.828	-14.401	65.229
0.236	9.750	30.450	40.200	-23.343	63.543
0.314	9.744	28.660	38.404	-22.910	61.314
0.439	9.750	27.930	37.680	-20.063	57.743
0.681	9.761	24.260	34.021	-21.979	56.000
1.900	9.836	17.240	27.076	-28.924	56.000
Average					
0.177	9.748	22.650	32.398	-22.831	55.229
0.236	9.750	9.450	19.200	-34.343	53.543
0.314	9.744	15.560	25.304	-26.010	51.314
0.439	9.750	16.000	25.750	-21.993	47.743
0.681	9.761	15.520	25.281	-20.719	46.000
1.900	9.836	5.990	15.826	-30.174	46.000

Note:

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

Product : IP COMMUNICATION TERMINAL
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5260MHz) (Dipole Antenna)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.173	9.742	43.980	53.723	-11.620	65.343
0.224	9.740	35.150	44.890	-18.996	63.886
0.291	9.743	28.110	37.853	-24.118	61.971
0.416	9.748	24.080	33.828	-24.572	58.400
0.963	9.773	20.520	30.293	-25.707	56.000
5.279	9.877	23.380	33.257	-26.743	60.000
Average					
0.173	9.742	28.140	37.883	-17.460	55.343
0.224	9.740	15.960	25.700	-28.186	53.886
0.291	9.743	11.270	21.013	-30.958	51.971
0.416	9.748	7.050	16.798	-31.602	48.400
0.963	9.773	9.870	19.643	-26.357	46.000
5.279	9.877	14.260	24.137	-25.863	50.000

Note:

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

Product : IP COMMUNICATION TERMINAL
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5260MHz) (Dipole Antenna)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.162	9.747	45.250	54.997	-10.660	65.657
0.209	9.749	38.690	48.439	-15.875	64.314
0.314	9.744	29.070	38.814	-22.500	61.314
0.420	9.749	28.740	38.489	-19.797	58.286
0.634	9.758	22.410	32.168	-23.832	56.000
2.134	9.847	17.470	27.317	-28.683	56.000
Average					
0.162	9.747	31.610	41.357	-14.300	55.657
0.209	9.749	20.350	30.099	-24.215	54.314
0.314	9.744	15.560	25.304	-26.010	51.314
0.420	9.749	18.220	27.969	-20.317	48.286
0.634	9.758	7.820	17.578	-28.422	46.000
2.134	9.847	5.650	15.497	-30.503	46.000

Note:

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

Product : IP COMMUNICATION TERMINAL
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5500MHz) (Dipole Antenna)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.154	9.749	44.640	54.388	-11.498	65.886
0.209	9.739	34.690	44.429	-19.885	64.314
0.334	9.745	26.730	36.475	-24.268	60.743
0.783	9.765	19.820	29.585	-26.415	56.000
1.423	9.804	17.570	27.374	-28.626	56.000
5.611	9.880	22.130	32.010	-27.990	60.000
Average					
0.154	9.749	28.780	38.528	-17.358	55.886
0.209	9.739	16.220	25.959	-28.355	54.314
0.334	9.745	12.840	22.585	-28.158	50.743
0.783	9.765	7.620	17.385	-28.615	46.000
1.423	9.804	6.070	15.874	-30.126	46.000
5.611	9.880	13.920	23.800	-26.200	50.000

Note:

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

Product : IP COMMUNICATION TERMINAL
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5500MHz) (Dipole Antenna)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.158	9.747	40.520	50.267	-15.504	65.771
0.224	9.750	33.360	43.110	-20.776	63.886
0.420	9.749	27.180	36.929	-21.357	58.286
0.705	9.764	19.970	29.734	-26.266	56.000
1.736	9.828	17.530	27.358	-28.642	56.000
14.541	10.000	23.200	33.200	-26.800	60.000
Average					
0.158	9.747	20.230	29.977	-25.794	55.771
0.224	9.750	16.100	25.850	-28.036	53.886
0.420	9.749	13.350	23.099	-25.187	48.286
0.705	9.764	7.610	17.374	-28.626	46.000
1.736	9.828	7.070	16.898	-29.102	46.000
14.541	10.000	18.290	28.290	-21.710	50.000

Note:

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

3. Maximun conducted output power

3.1. Test Equipment

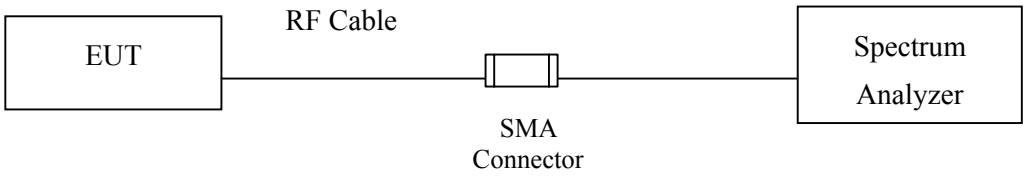
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2013
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2013
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

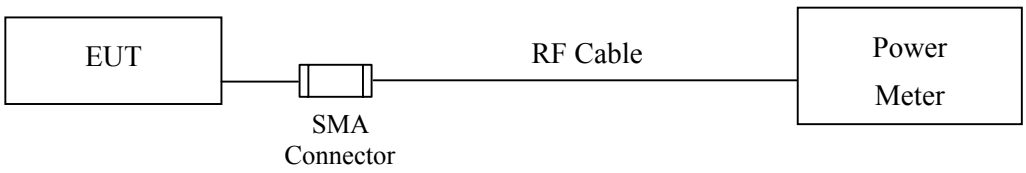
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

26dBc Occupied Bandwidth



Conduction Power Measurement



3.3. Limits

(1) For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum conducted output 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 maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum conducted output 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 maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1W or 17 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the Maximum conducted output power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

3.4. Test Procedure

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater than 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.
The Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter).

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Maximum conducted output power

Product : IP COMMUNICATION TERMINAL
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
52	5260	9.62	--	--	--	--	--	--	--	<24dBm
60	5300	10.03	9.88	9.71	9.65	9.51	9.4	9.35	9.29	<24dBm
64	5320	9.88	--	--	--	--	--	--	--	<24dBm
100	5500	9.45	--	--	--	--	--	--	--	<24dBm
116	5580	8.65	8.57	8.45	8.32	8.21	8.19	8.11	8.09	<24dBm
140	5700	8.81	--	--	--	--	--	--	--	<24dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

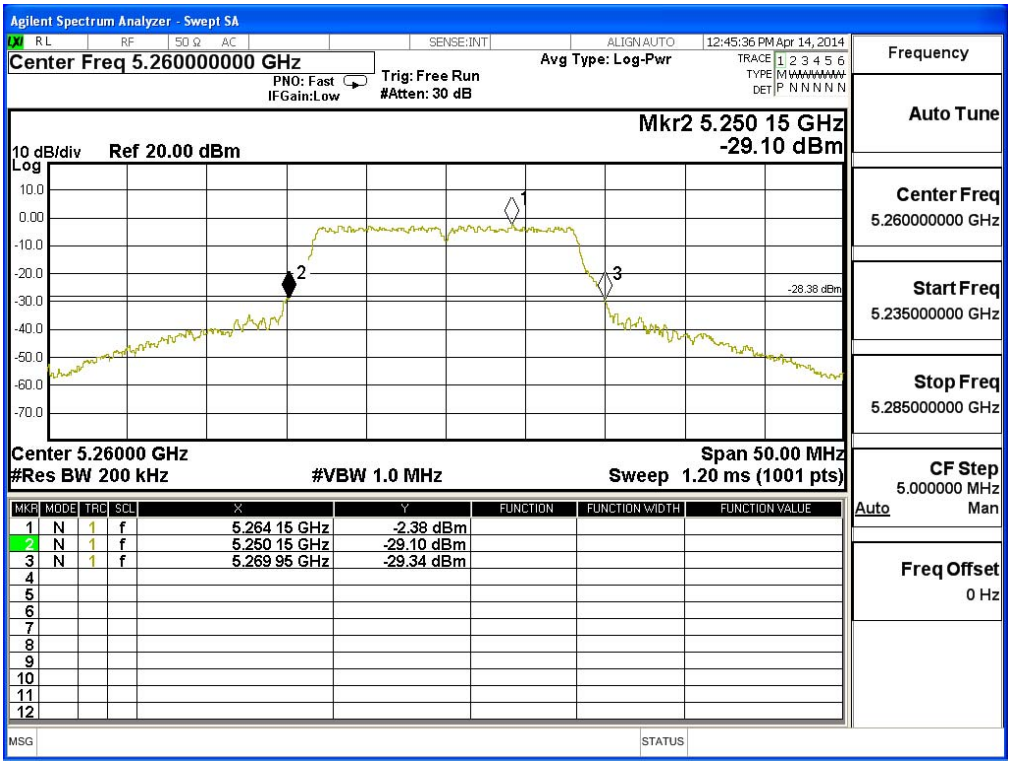
Maximum conducted output power Measurement:

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
52	5260	19.80	9.62	24	23.97
60	5300	19.75	10.03	24	23.96
64	5320	19.90	9.88	24	23.99
100	5500	20.00	9.45	24	24.01
116	5580	19.85	8.65	24	23.98
140	5700	19.65	8.81	24	23.93

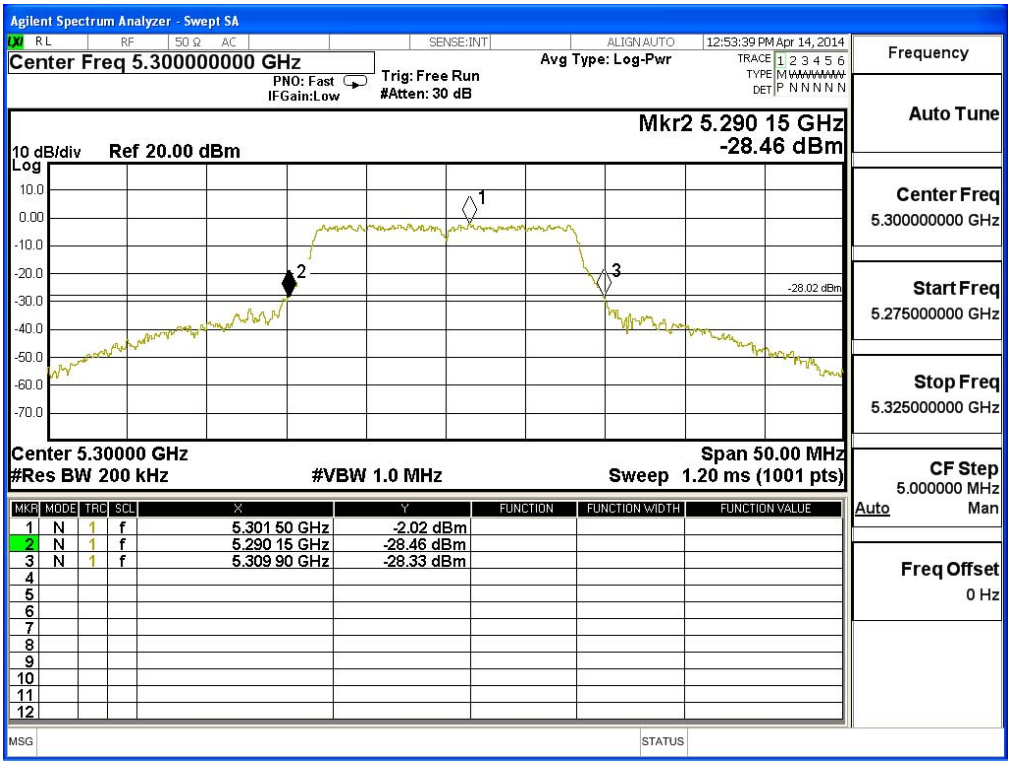
Note: Power Output Value =Reading value on average power meter + cable loss

26dBc Occupied Bandwidth:

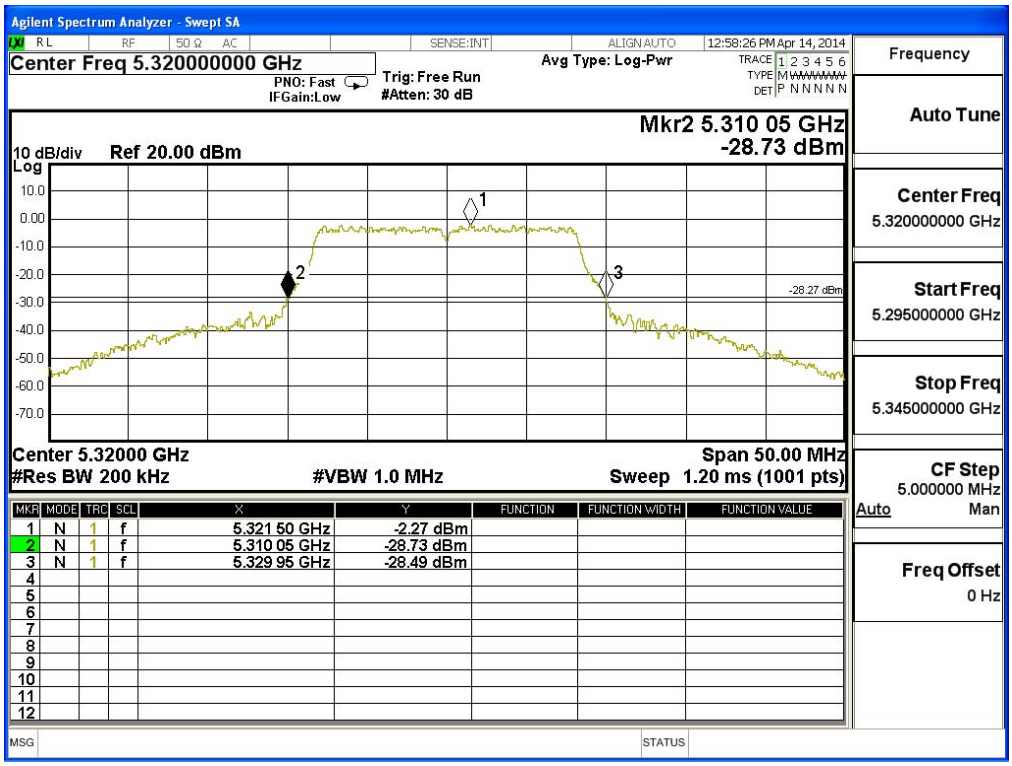
Channel 52



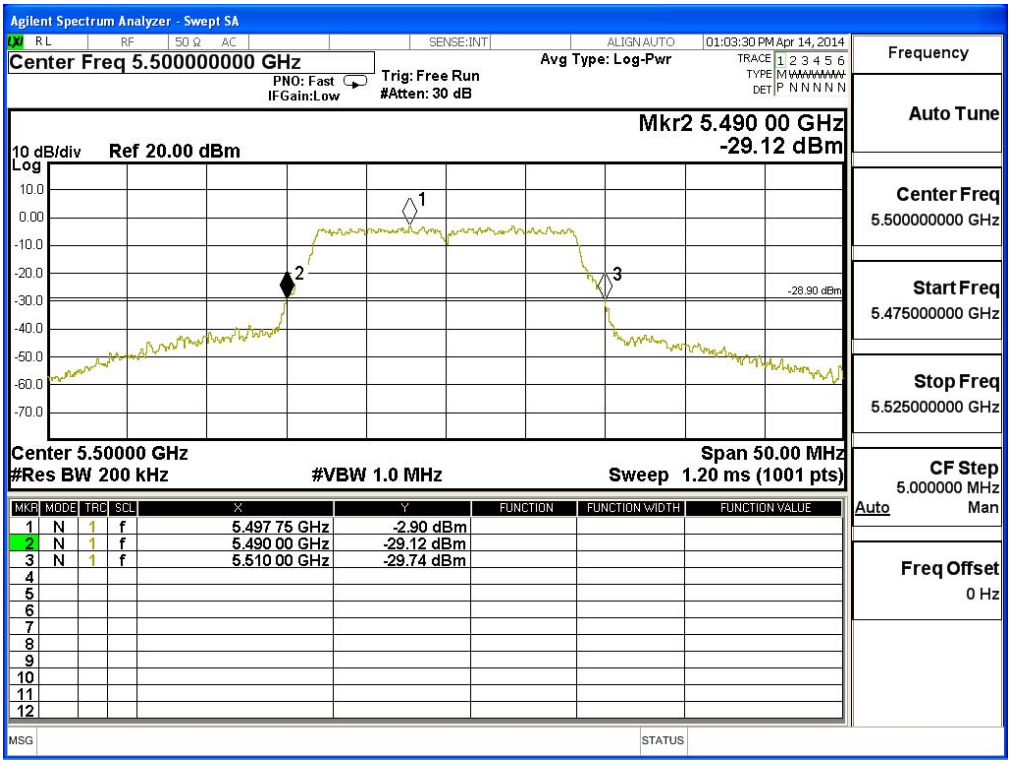
Channel 60



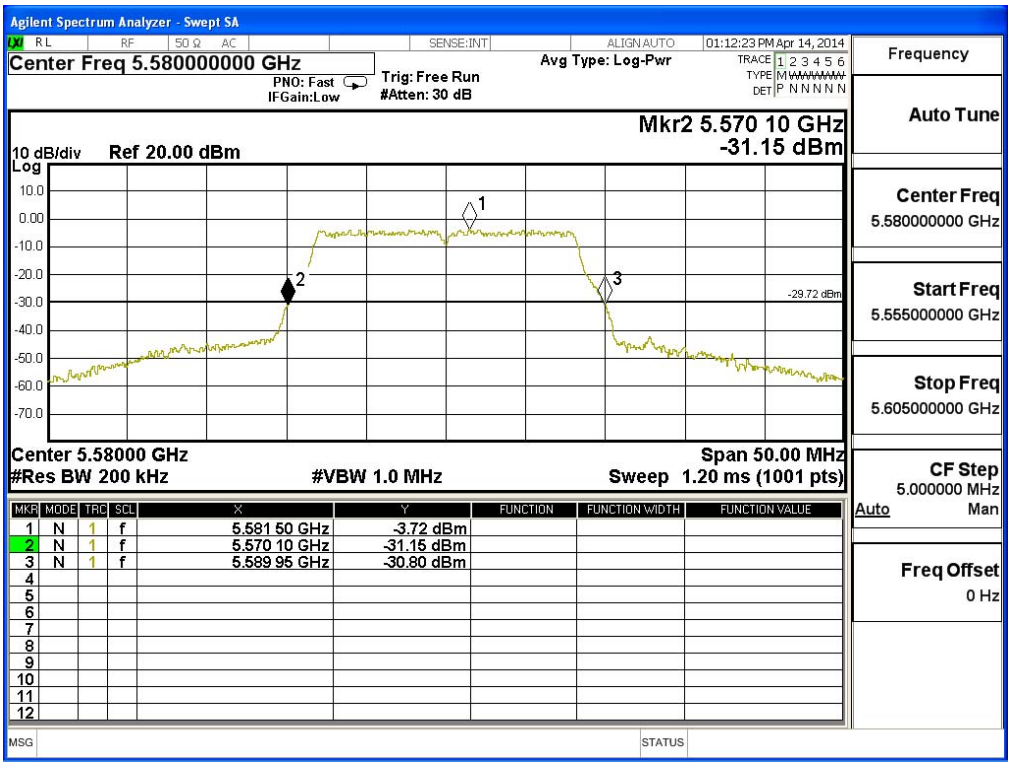
Channel 64



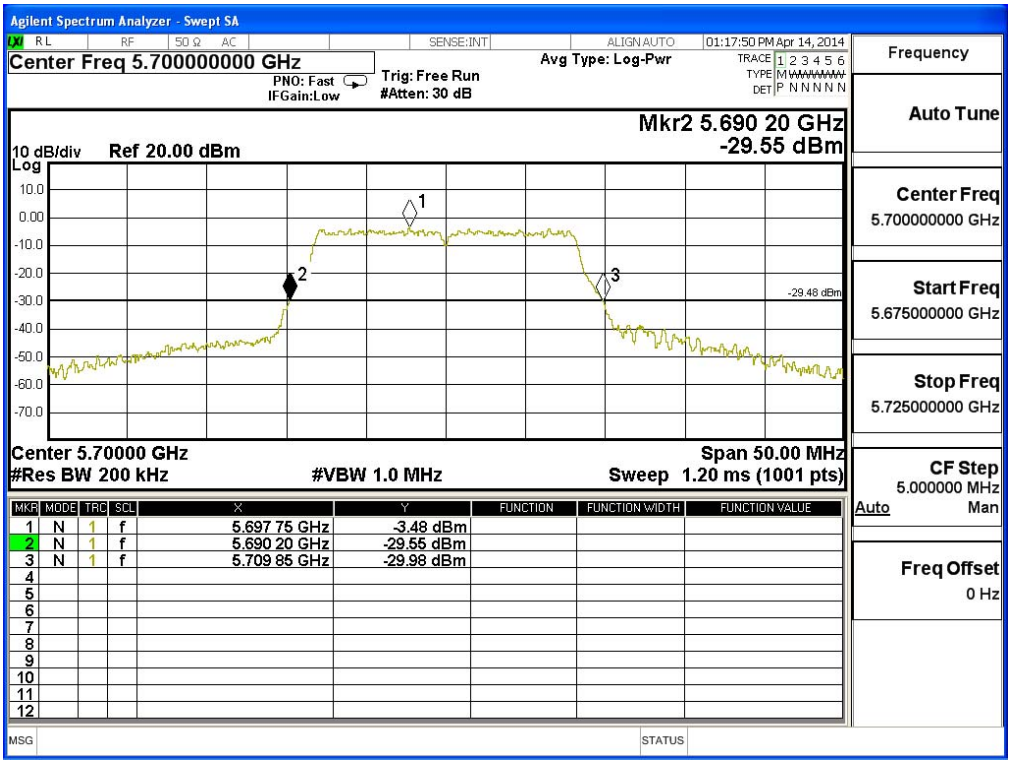
Channel 100



Channel 116



Channel 140



Product : IP COMMUNICATION TERMINAL
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2	
		Measurement Level (dBm)								
52	5260	8.91	--	--	--	--	--	--	--	<24dBm
60	5300	9.32	9.28	9.21	9.17	9.11	9.08	9.05	8.99	<24dBm
64	5320	9.25	--	--	--	--	--	--	--	<24dBm
100	5500	8.29	--	--	--	--	--	--	--	<24dBm
116	5580	8.01	7.95	7.84	7.65	7.54	7.41	7.39	7.22	<24dBm
140	5700	8.79	--	--	--	--	--	--	--	<24dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

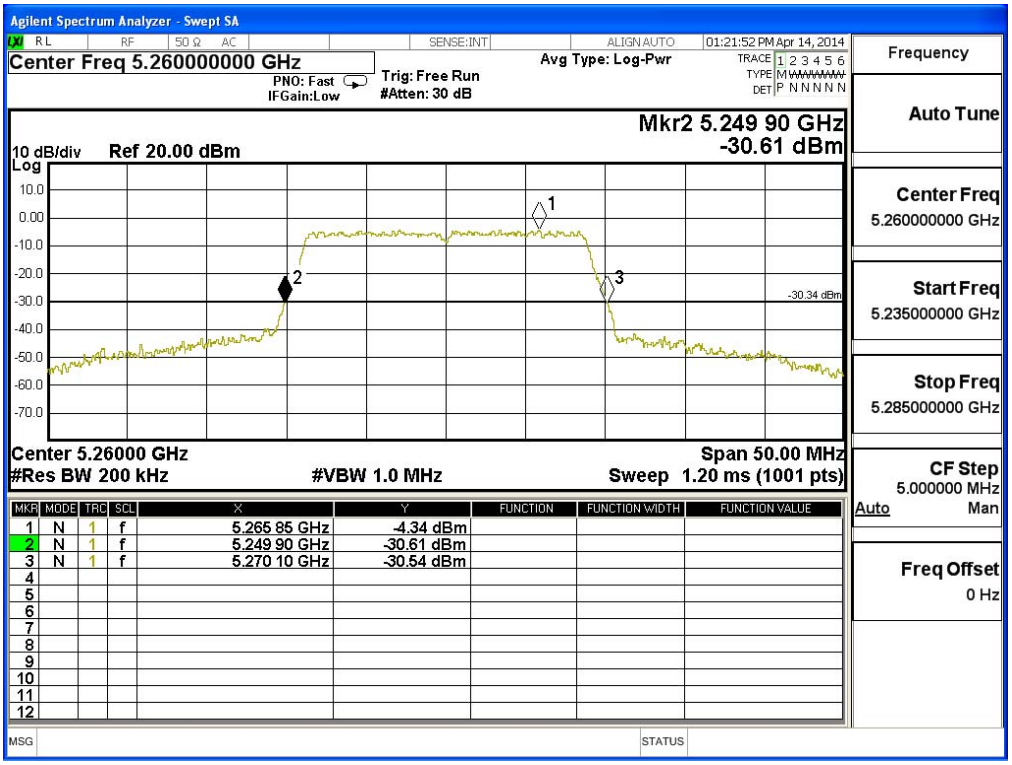
Maximum conducted output power Measurement:

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
52	5260	20.20	8.91	24	24.05
60	5300	20.20	9.32	24	24.05
64	5320	20.20	9.25	24	24.05
100	5500	20.15	8.29	24	24.04
116	5580	20.30	8.01	24	24.07
140	5700	20.15	8.79	24	24.04

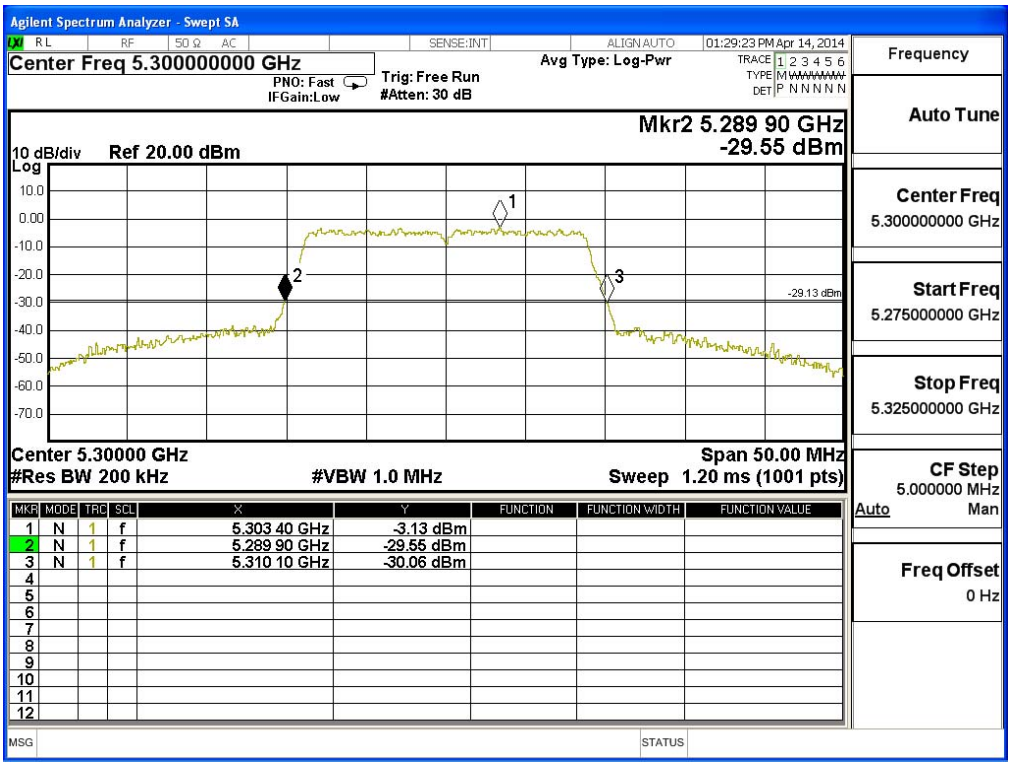
Note: Power Output Value =Reading value on average power meter + cable loss

26dBc Occupied Bandwidth:

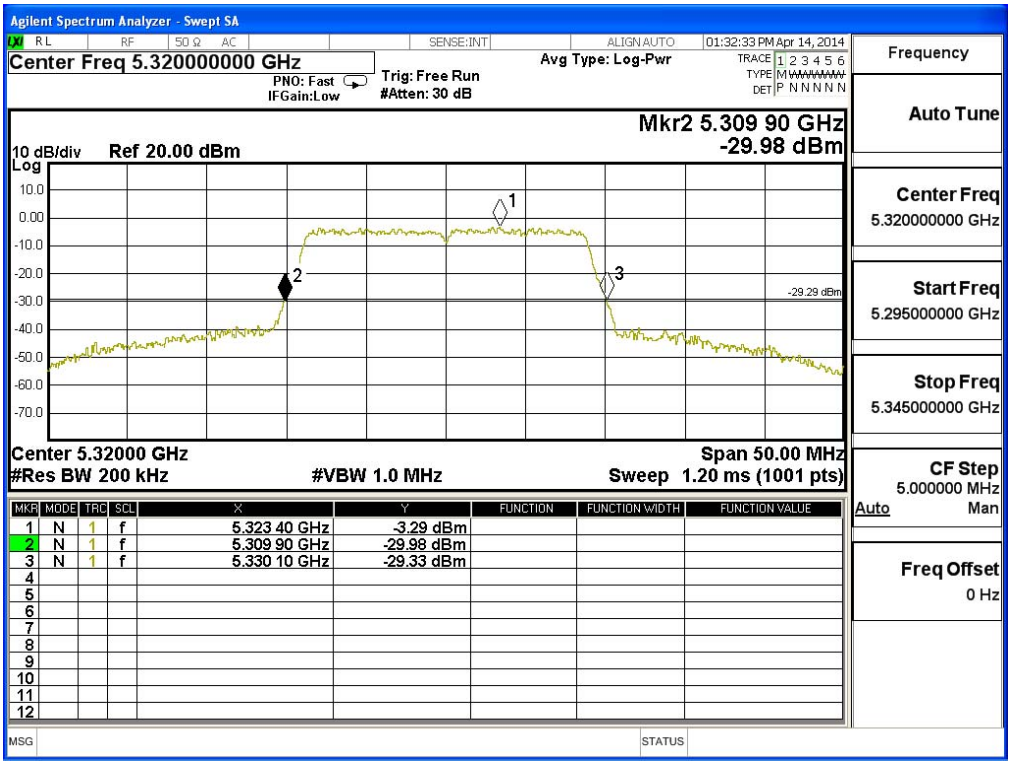
Channel 52



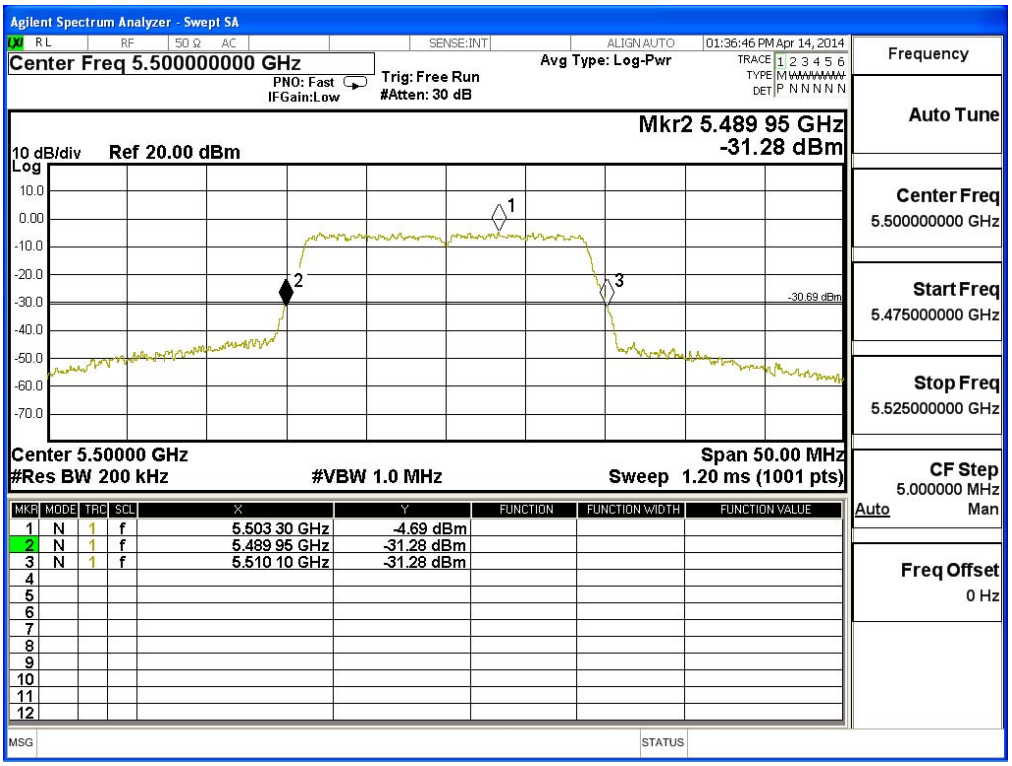
Channel 60



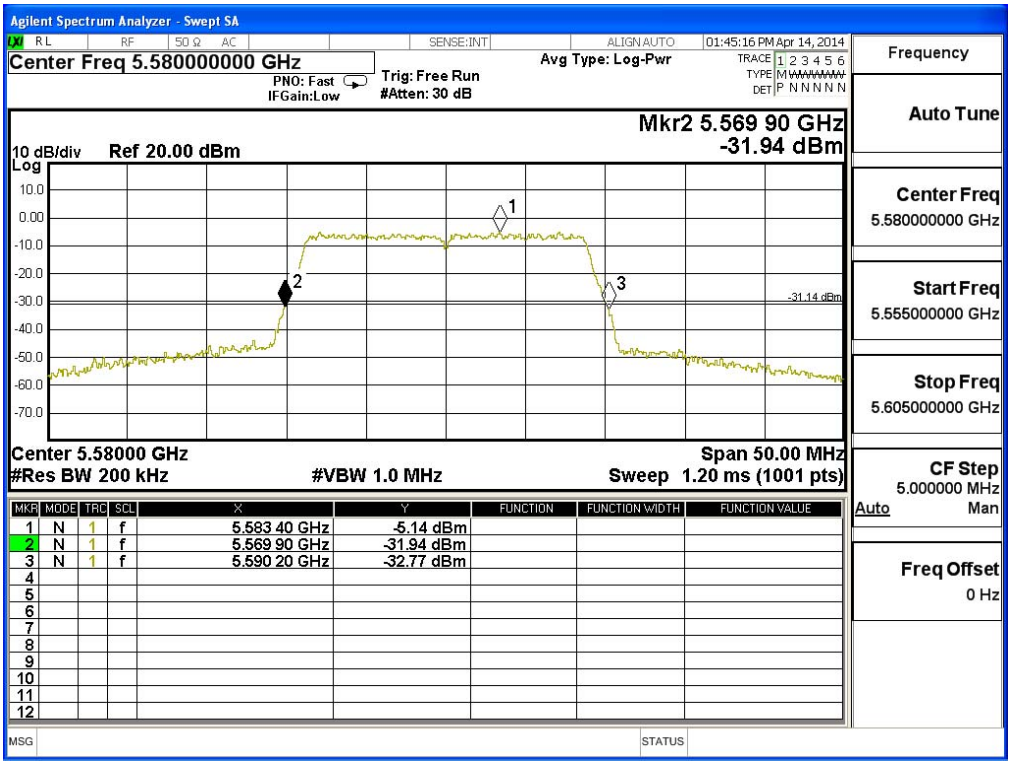
Channel 64



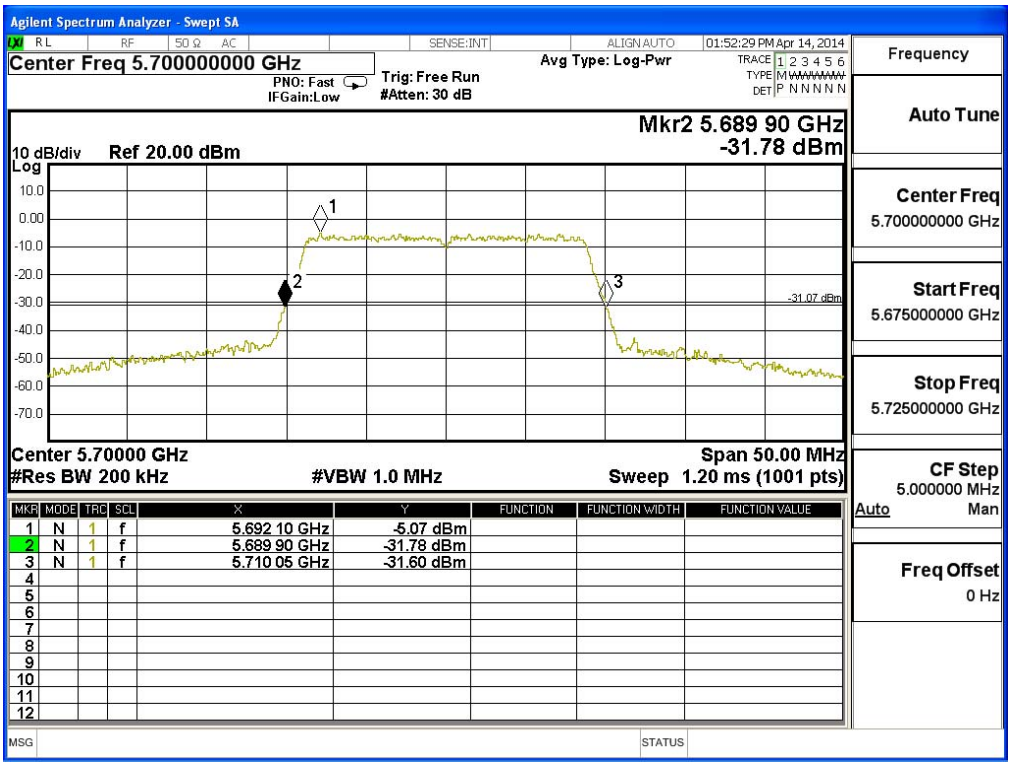
Channel 100



Channel 116



Channel 140



Product : IP COMMUNICATION TERMINAL
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		15	30	45	60	90	120	135	150	
		Measurement Level (dBm)								
54	5270	8.91	8.88	8.81	8.75	8.70	8.64	8.59	8.55	<17dBm
62	5310	9.25	--	--	--	--	--	--	--	<24dBm
102	5510	8.35	--	--	--	--	--	--	--	<24dBm
110	5550	8.16	8.05	7.94	7.88	7.81	7.77	7.75	7.7	<24dBm
134	5670	7.32	--	--	--	--	--	--	--	<24dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

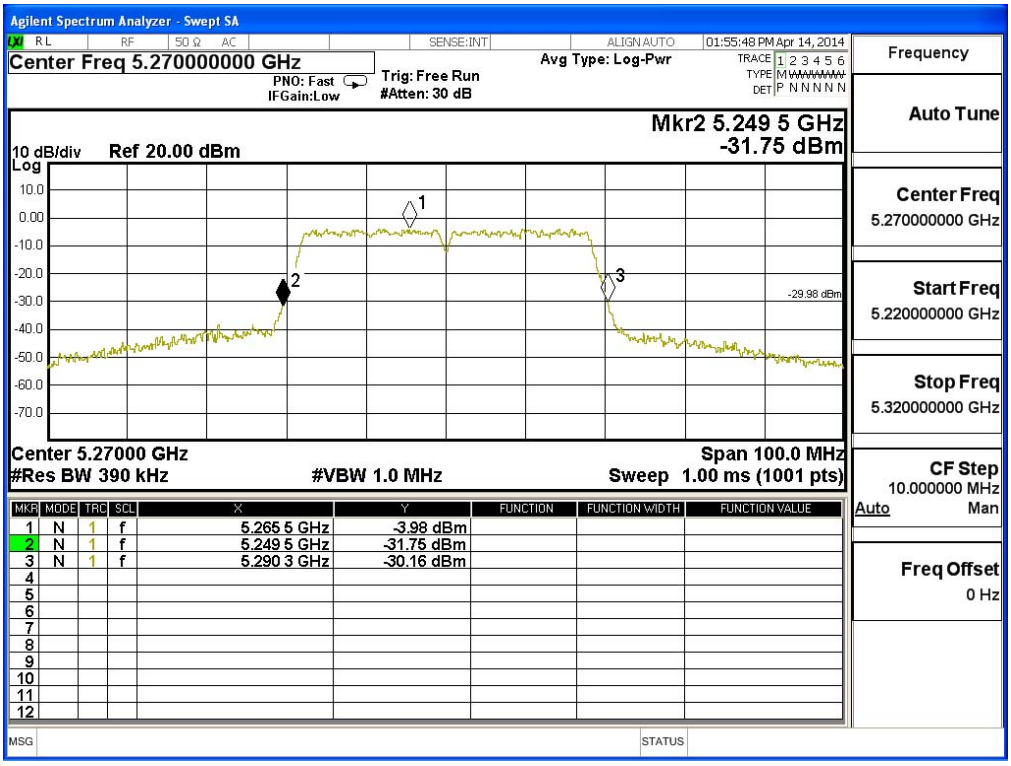
Maximum conducted output power Measurement:

Channel Number	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit	
				(dBm)	dBm+10log(BW)
54	5270	40.8	8.91	24	27.11
62	5310	40.6	9.25	24	27.09
102	5510	40.7	8.35	24	27.10
110	5550	41.1	8.16	24	27.14
134	5670	40.8	7.32	24	27.11

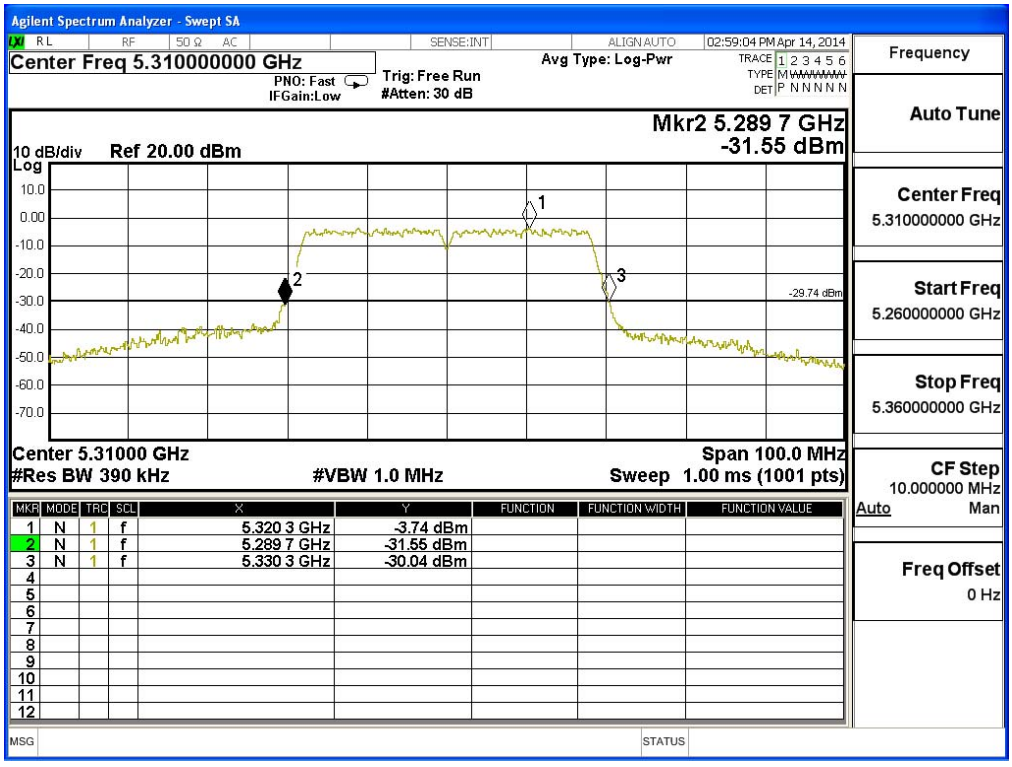
Note: Power Output Value =Reading value on average power meter + cable loss

26dBc Occupied Bandwidth:

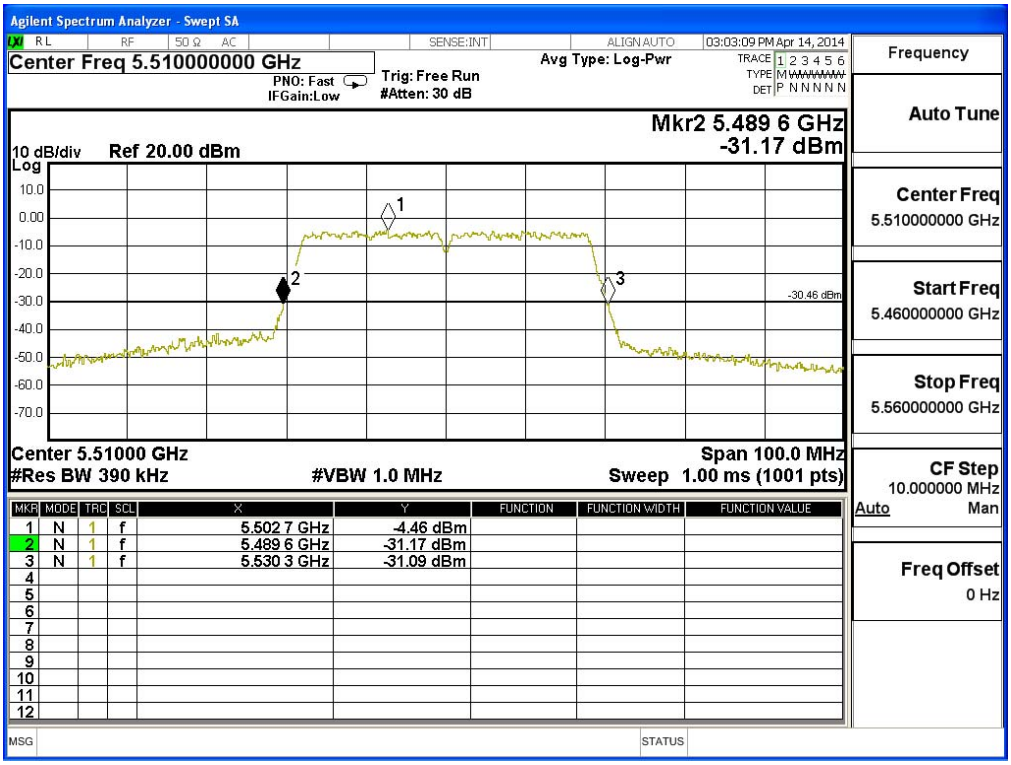
Channel 54



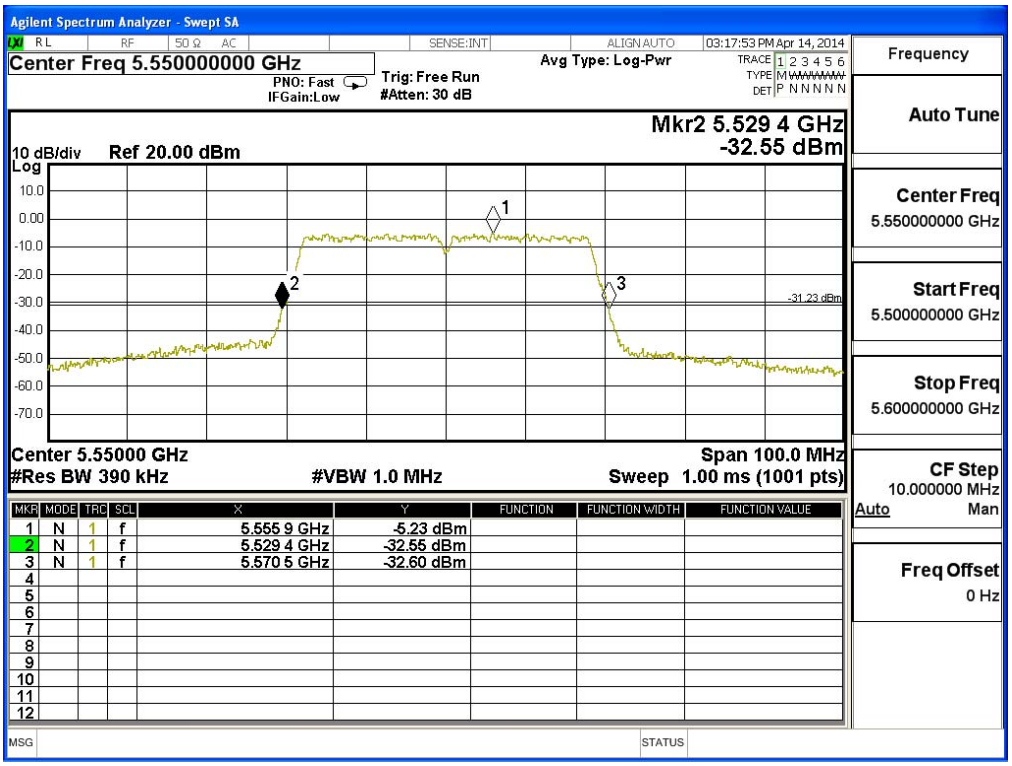
Channel 62



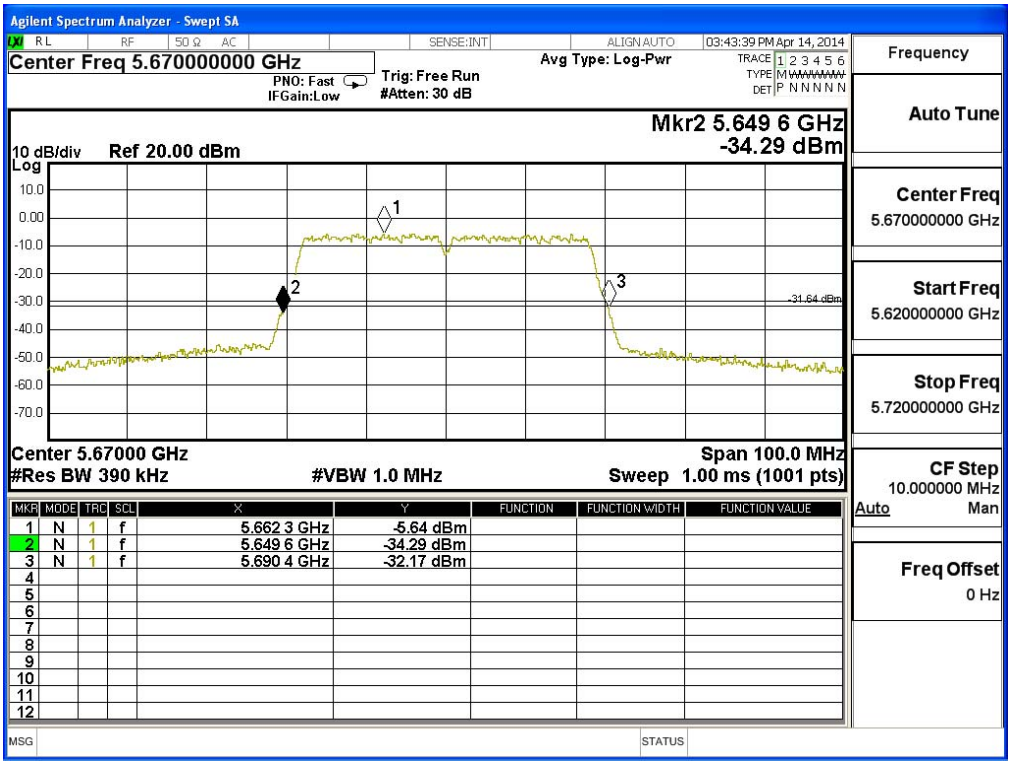
Channel 102



Channel 110



Channel 134


Agilent Spectrum Analyzer - Swept SA
Center Freq 5.670000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
03:43:39 PM Apr 14, 2014
Mkr2 5.649 6 GHz
-34.29 dBm
10 dB/div
Log
Ref 20.00 dBm
-31.64 dBm
Center 5.67000 GHz
#Res BW 390 kHz
#VBW 1.0 MHz
Span 100.0 MHz
Sweep 1.00 ms (1001 pts)
1 N 1 f 5.662 3 GHz -5.64 dBm
2 N 1 f 5.649 6 GHz -34.29 dBm
3 N 1 f 5.690 4 GHz -32.17 dBm
Frequency
Auto Tune
Center Freq
5.670000000 GHz
Start Freq
5.620000000 GHz
Stop Freq
5.720000000 GHz
CF Step
10.000000 MHz
Auto
Man
Freq Offset
0 Hz

4. Peak Power Spectral Density

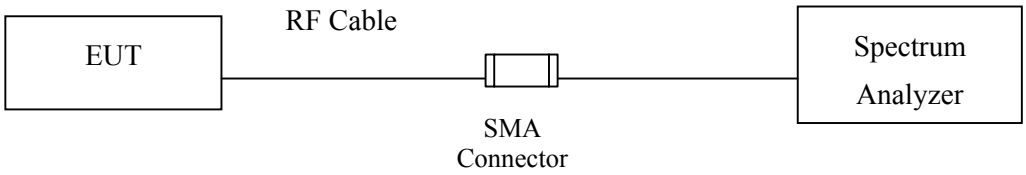
4.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2013
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2013
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr, 2014

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

4.2. Test Setup



4.3. Limits

(1) For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density 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 power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density 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 power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density 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 C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.
The Peak Power Spectral Density using KDB 789033 section F) procedure, Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer.
SA-1 method is selected to run the test.

4.5. Uncertainty

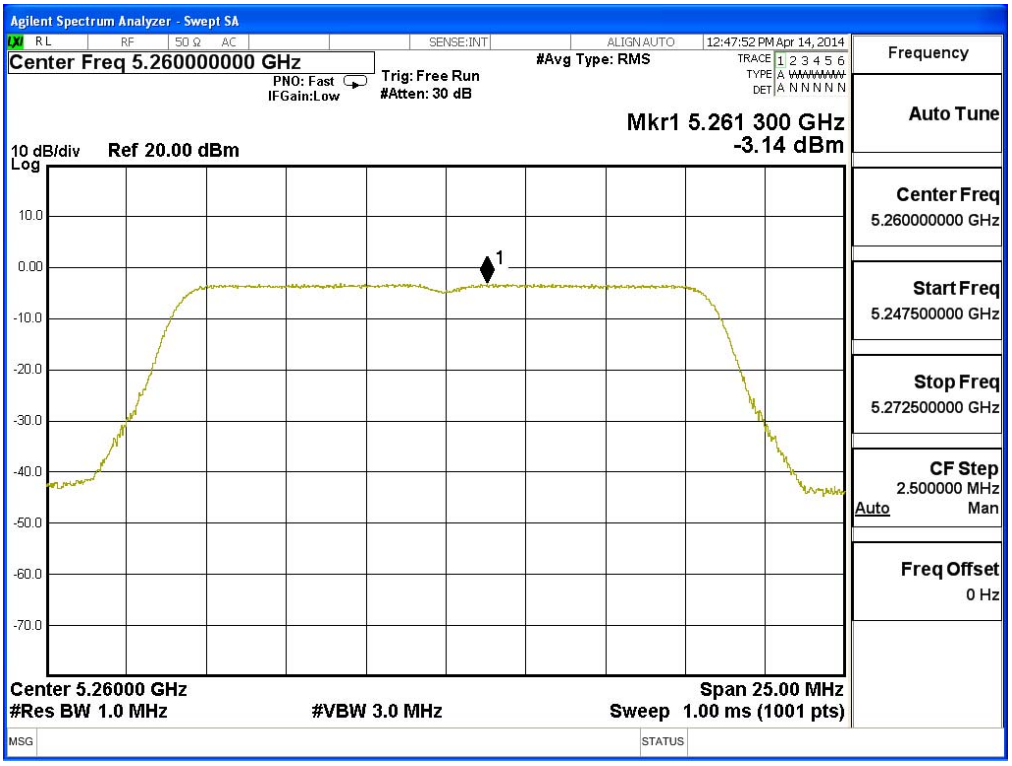
± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

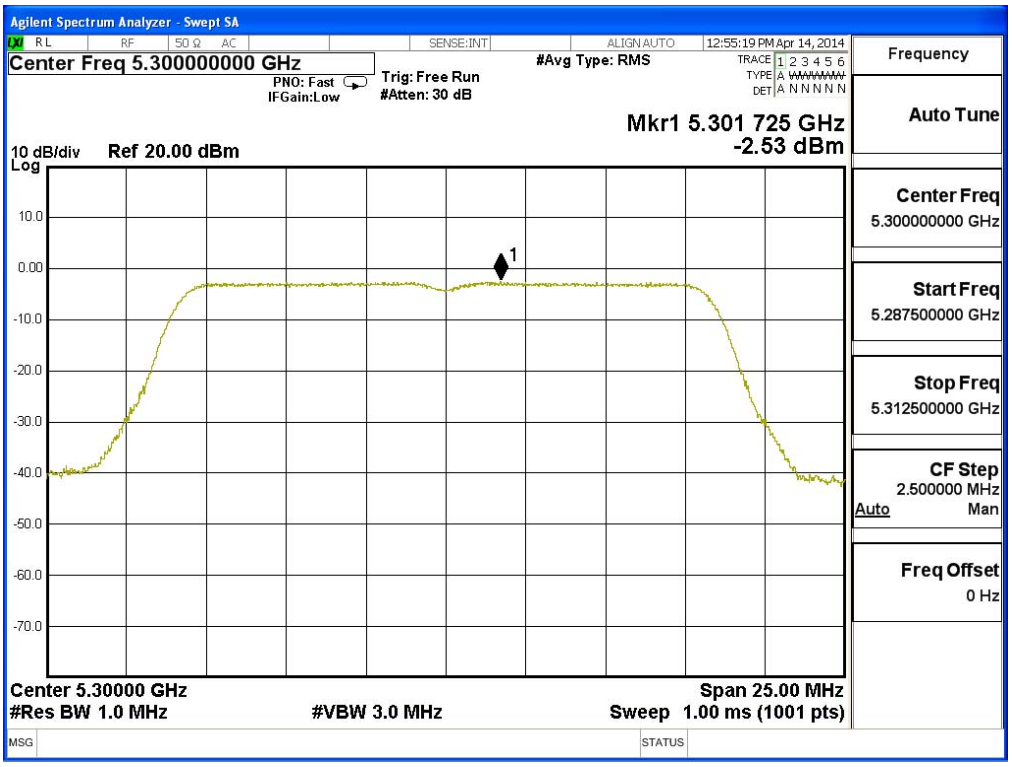
Product : IP COMMUNICATION TERMINAL
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
52	5260	-3.140	<11	Pass
60	5300	-2.530	<11	Pass
64	5320	-2.840	<11	Pass
100	5500	-3.810	<11	Pass
116	5580	-4.120	<11	Pass
140	5700	-4.420	<11	Pass

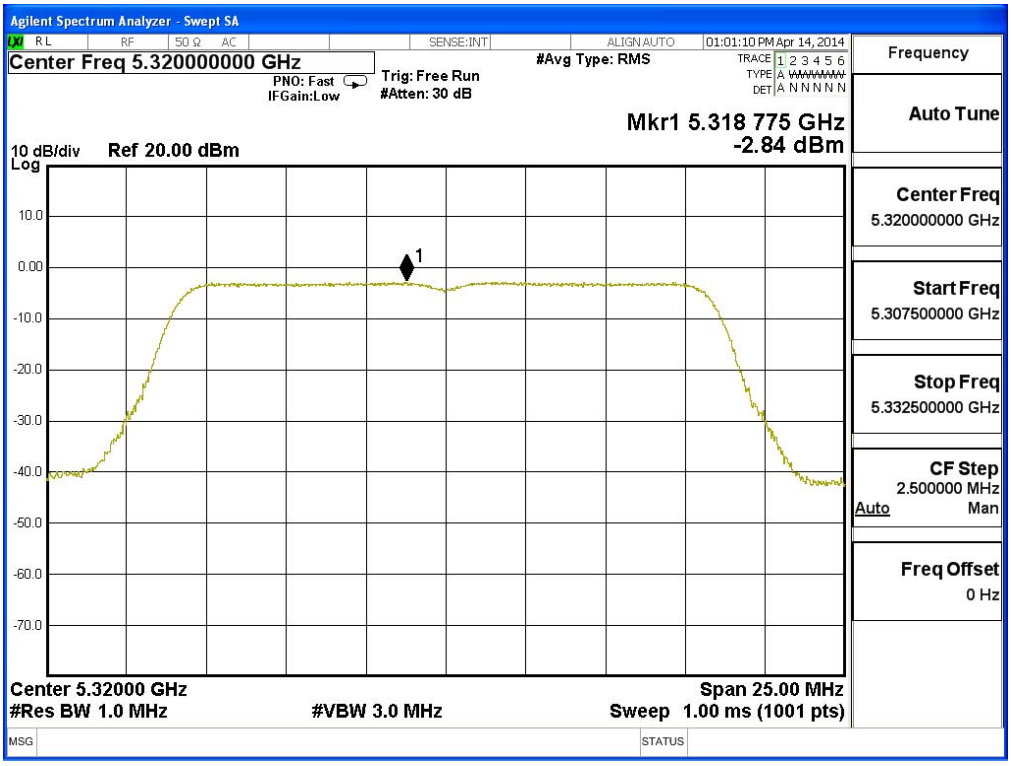
Channel 52:



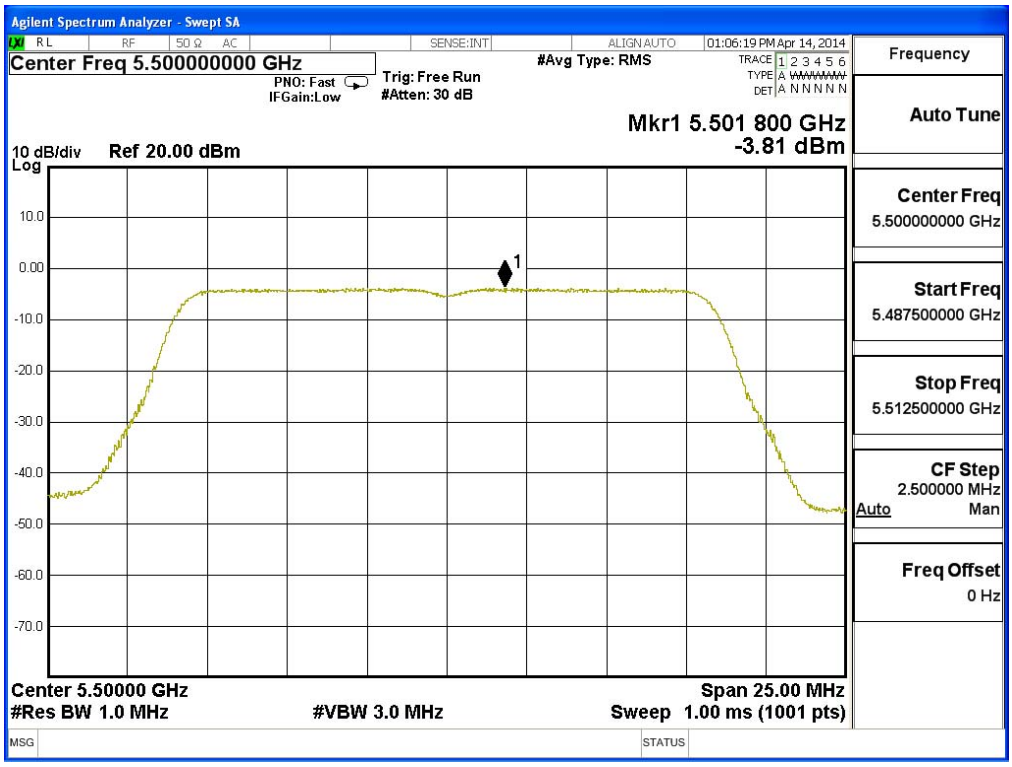
Channel 60:



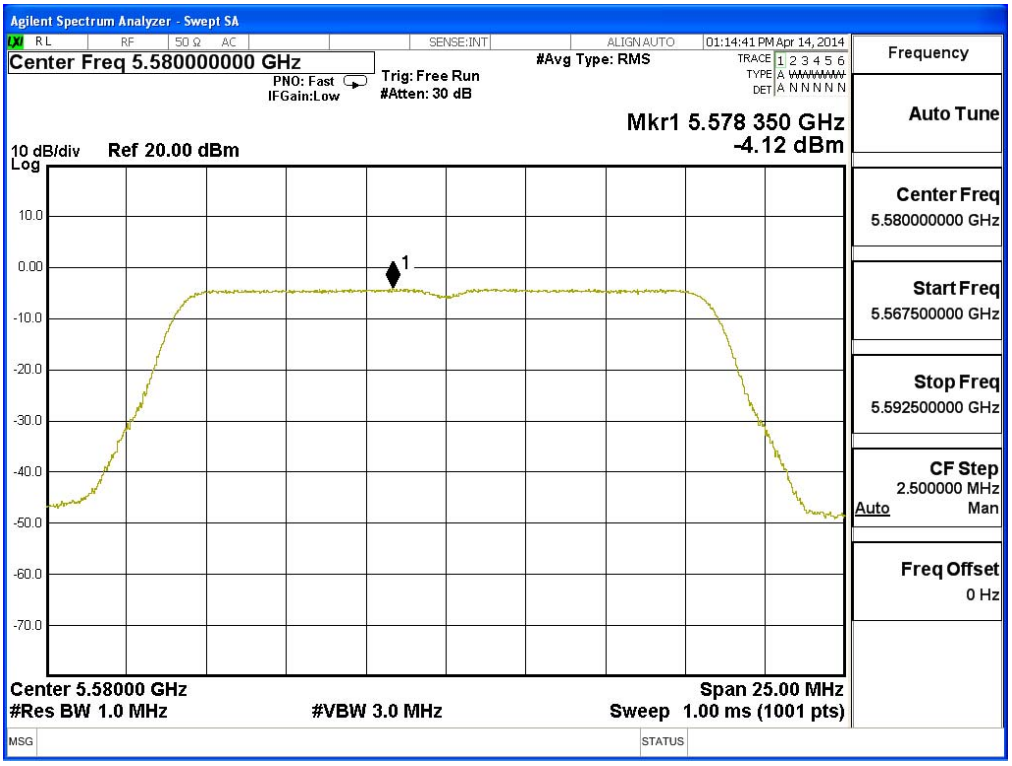
Channel 64:



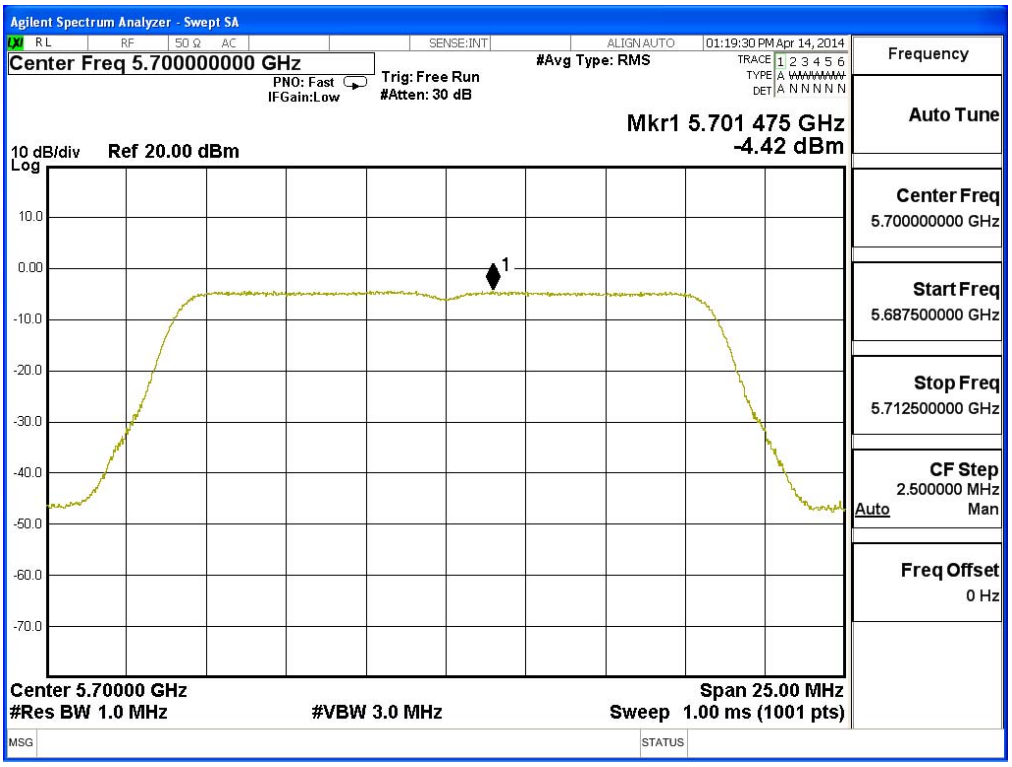
Channel 100:



Channel 116:



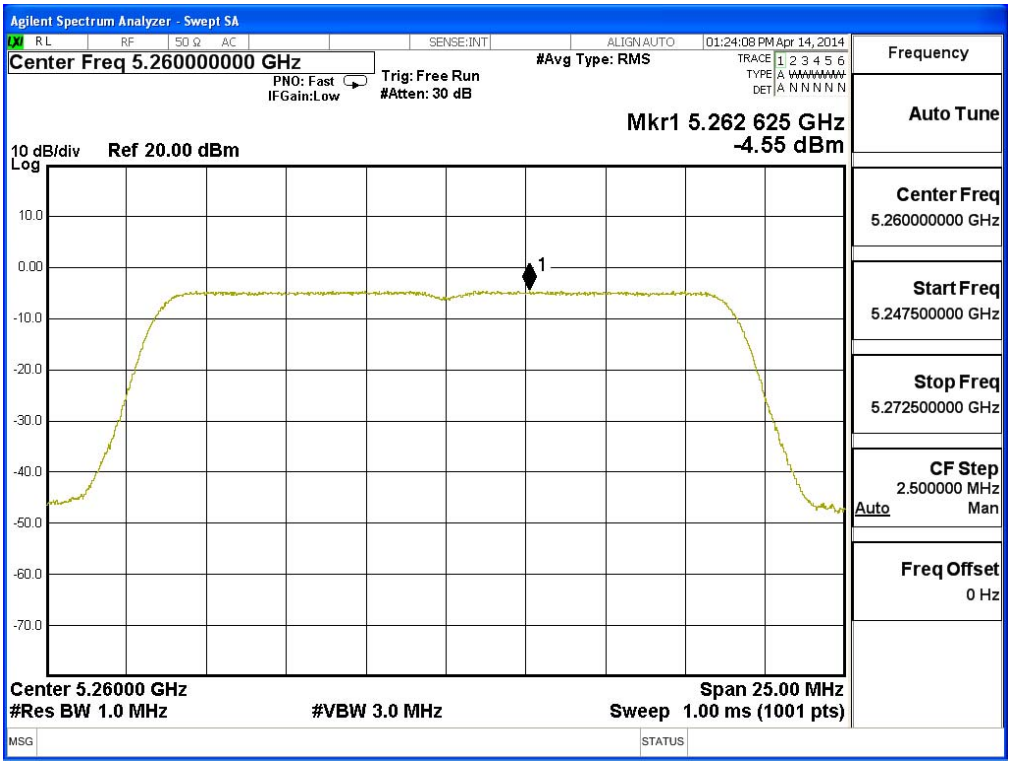
Channel 140:



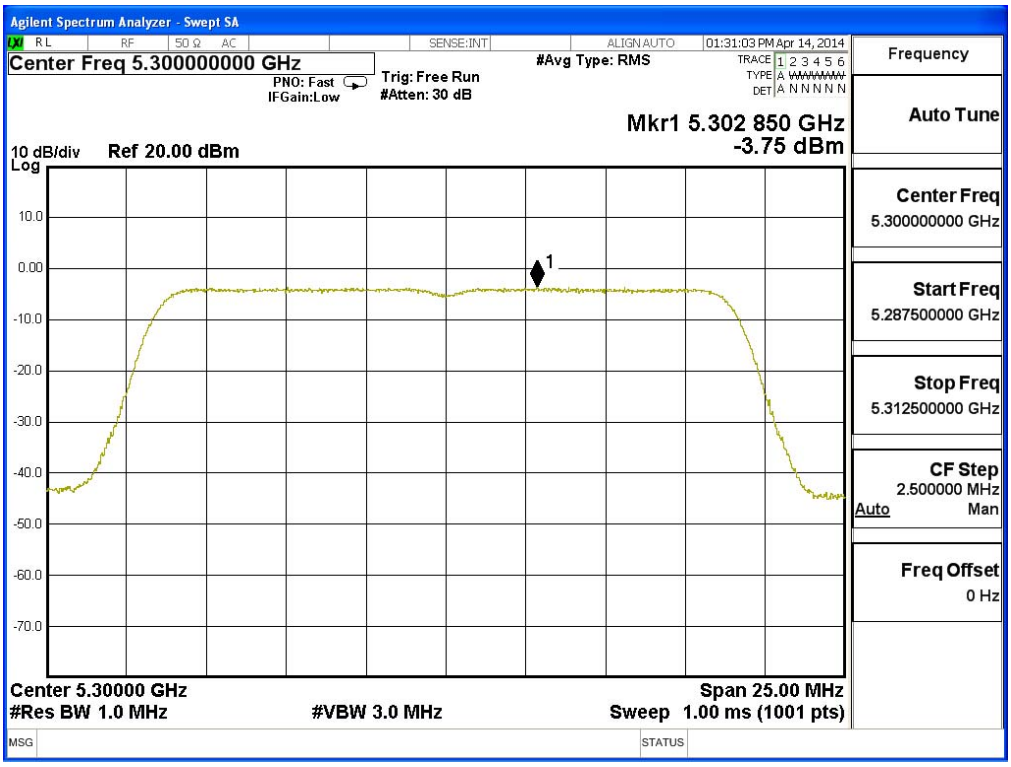
Product : IP COMMUNICATION TERMINAL
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)

Channel Number	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
52	5260	-4.550	<11	Pass
60	5300	-3.750	<11	Pass
64	5320	-3.790	<11	Pass
100	5500	-5.310	<11	Pass
116	5580	-5.440	<11	Pass
140	5700	-5.690	<11	Pass

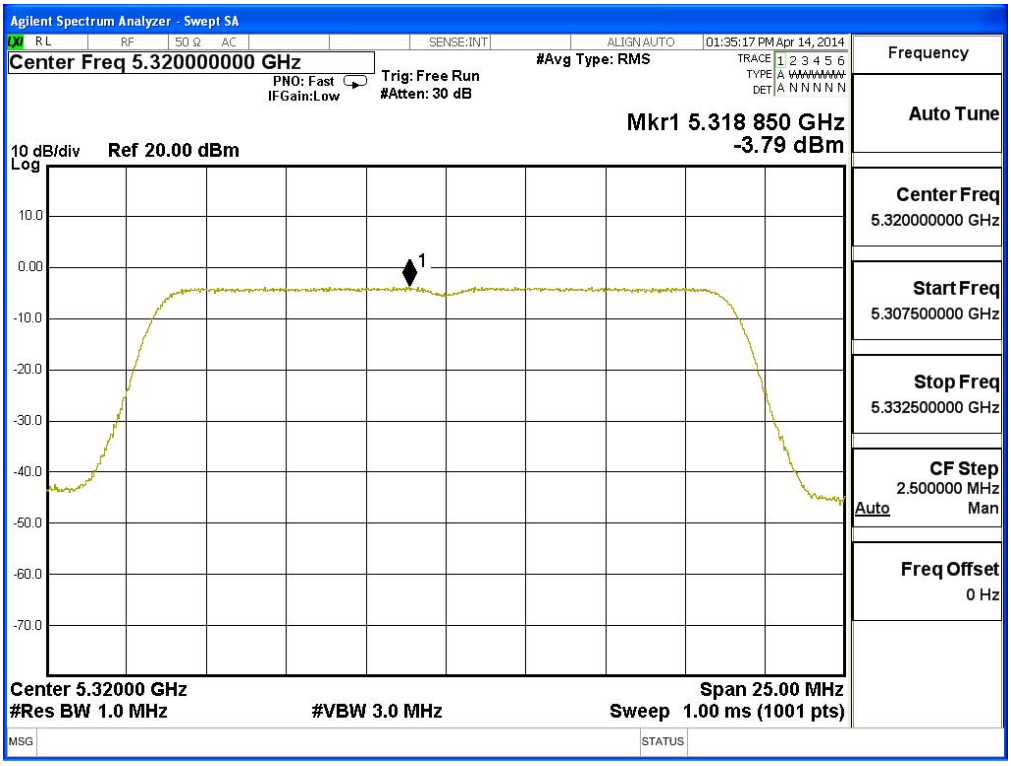
Channel 52



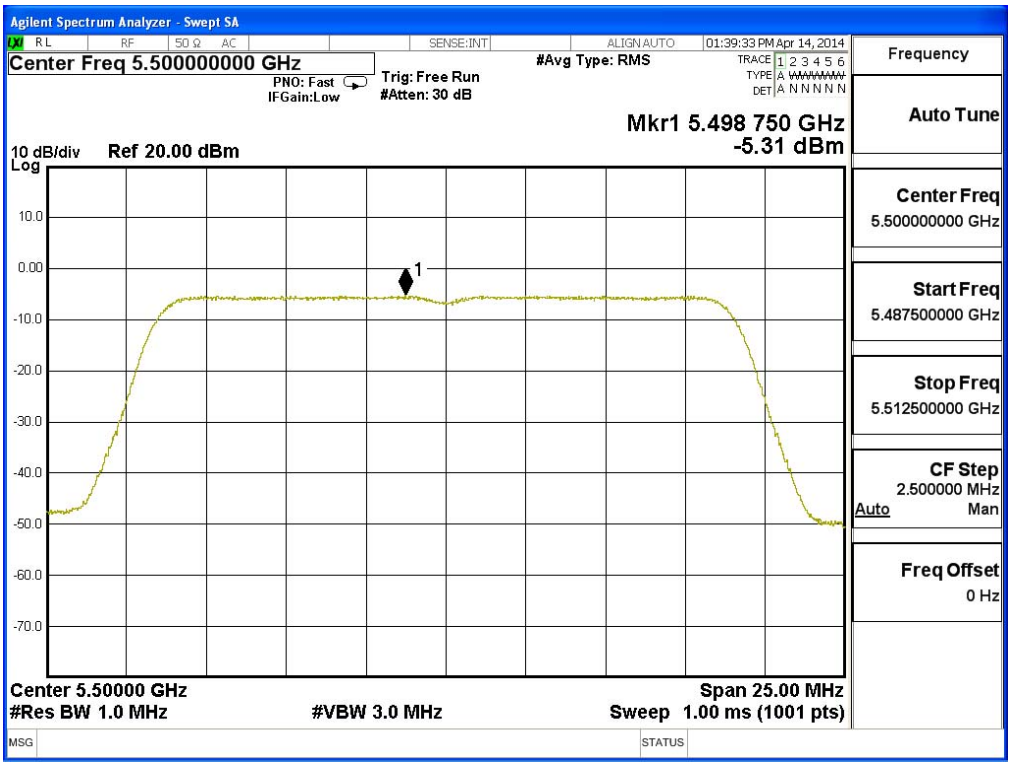
Channel 60



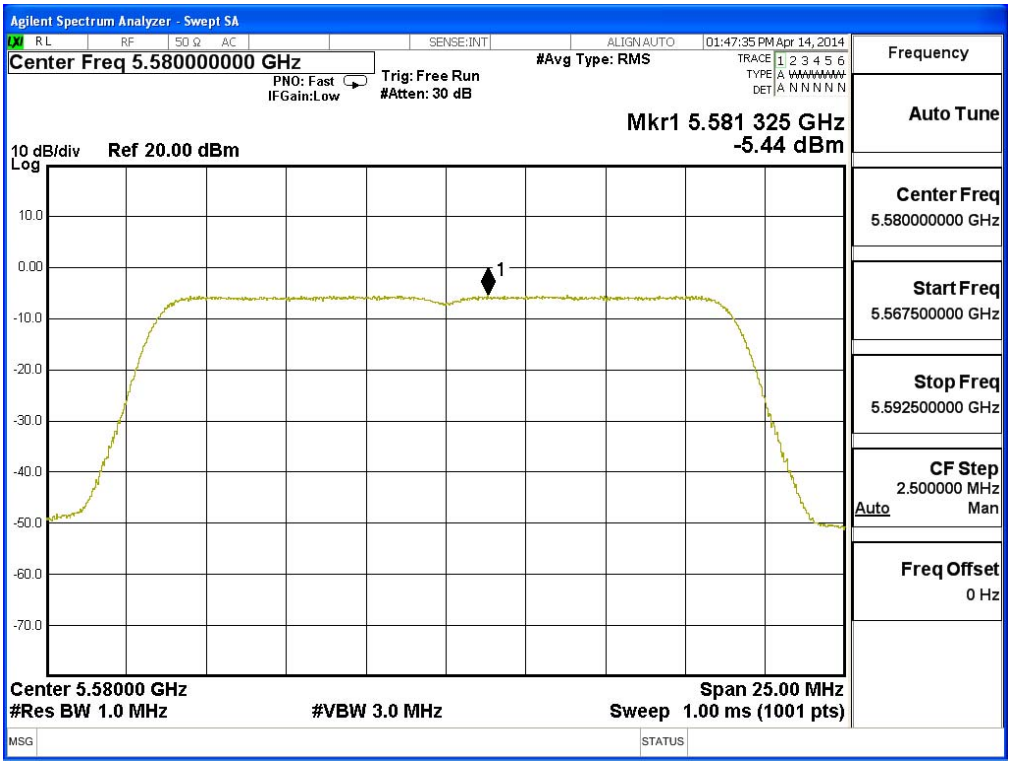
Channel 64



Channel 100



Channel 116



Channel 140