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Report No.: 1611RSU01002
Report Version: V01
Issue Date: 03-26-2017

MEASUREMENT REPORT
FCC PART 15.407 WLAN 802.11a/n/ac

FCC ID: 2AEY7-S8A002

APPLICANT: Bak USA Technologies Corp.

Application Type: Certification
Product: MID
Model No.: Seal 8 pro
FCC Classification: Unlicensed National Information Infrastructure (NII)
FCC Rule Part(s): Part 15.407
Test Procedure(s): ANSI C63.10-2013, KDB 789033 D02v01r03, KDB 662911 D01v02r01
Test Date: November 08, 2016 ~ March 25, 2017

Reviewed By Manager : Robin Wu
(Robin Wu)

Approved By CEO : Marlin Chen
(Marlin Chen)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 789033 D02v01r03. Test results reported herein relate only to the item(s) tested.
The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1611RSU01002	Rev. 01	Initial report	03-26-2017	Valid

CONTENTS

Description Page

§2.1033 General Information 5

1. INTRODUCTION 6

1.1. Scope 6
1.2. MRT Test Location 6

2. PRODUCT INFORMATION 7

2.1. Equipment Description 7
2.2. Product Specification Subjective to this Report 7
2.3. Operation Frequency / Channel list 9
2.4. Description of Available Antennas 11
2.5. Device Capabilities 12
2.6. Test Configuration 14
2.7. EMI Suppression Device(s)/Modifications 14
2.8. Labeling Requirements 14

3. DESCRIPTION OF TEST 15

3.1. Evaluation Procedure 15
3.2. AC Line Conducted Emissions 15
3.3. Radiated Emissions 16

4. ANTENNA REQUIREMENTS 17

5. TEST EQUIPMENT CALIBRATION DATE 18

6. MEASUREMENT UNCERTAINTY 19

7. TEST RESULT 20

7.1. Summary 20
7.2. 26dB Bandwidth Measurement 22
7.2.1. Test Limit 22
7.2.2. Test Procedure used 22
7.2.3. Test Setting 22
7.2.4. Test Setup 22
7.2.5. Test Result 23
7.3. 6dB Bandwidth Measurement 51
7.3.1. Test Limit 51
7.3.2. Test Procedure used 51
7.3.3. Test Setting 51

7.3.4. Test Setup 51
7.3.5. Test Result 52
7.4. Output Power Measurement 61
7.4.1. Test Limit 61
7.4.2. Test Procedure Used 61
7.4.3. Test Setting 61
7.4.4. Test Setup 61
7.4.5. Test Result 62
7.5. Power Spectral Density Measurement 67
7.5.1. Test Limit 67
7.5.2. Test Procedure Used 67
7.5.3. Test Setting 67
7.5.4. Test Setup 68
7.5.5. Test Result 69
7.6. Frequency Stability Measurement 96
7.6.1. Test Limit 96
7.6.2. Test Procedure Used 96
7.6.3. Test Setup 97
7.6.4. Test Result 98
7.7. Radiated Spurious Emission Measurement 99
7.7.1. Test Limit 99
7.7.2. Test Procedure Used 99
7.7.3. Test Setting 99
7.7.4. Test Setup 100
7.7.5. Test Result 102
7.8. Radiated Restricted Band Edge Measurement 166
7.8.1. Test Limit 166
7.8.2. Test Result of Radiated Restricted Band Edge 168
7.9. AC Conducted Emissions Measurement 282
7.9.1. Test Limit 282
7.9.2. Test Procedure 282
7.9.3. Test Setup 283
7.9.4. Test Result 284

8. CONCLUSION 286

§2.1033 General Information

Applicant:	Bak USA Technologies Corp.
Applicant Address:	425 Michigan Avenue, Buffalo, NY 14203, USA
Manufacturer:	Shenzhen Wisky Technology Co., LTD.
Manufacturer Address:	5th Floor, W2-A Building, Hi-tech Park South 1st Road, Nanshan District, Shenzhen, China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.:	809388
FCC Rule Part(s):	Part 15.407
Model No.:	Seal 8 pro
FCC ID:	2AEY7-S8A002
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering
FCC Classification:	Unlicensed National Information Infrastructure (NII)

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.

MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.

MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.

MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.

INTRODUCTION

Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.

PRODUCT INFORMATION

Equipment Description

Product Name	MID
FCC ID	2AEY7-S8A002
Model No.	Seal 8 pro
LTE Specification	LTE Band 2 / 4 / 5 / 13 / 17
Wi-Fi Specification	802.11a//b/g/n/ac
Bluetooth Version	v4.0 dual mode
NFC	13.56MHz
RF ID	920.25 ~ 924.75MHz
Components	
Adapter	M/N: BCT050500-C02U INPUT: 100-240V ~ 50/60Hz, 0.6A Max OUTPUT: 5Vdc, 5.0A

Product Specification Subjective to this Report

Frequency Range	For 802.11a/n-HT20: 5180~5320MHz, 5500~5700MHz, 5745~5825MHz For 802.11ac-VHT20: 5180~5320MHz, 5500~5720MHz, 5745~5825MHz For 802.11n-HT40: 5190~5310MHz, 5510~5670MHz, 5755~5795MHz For 802.11ac-VHT40: 5190~5310MHz, 5510~5710MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5690MHz, 5775MHz
Type of Modulation	802.11a/n/ac: OFDM
Maximum Average Output Power	802.11a: 18.64dBm 802.11n-HT20: 18.56dBm 802.11n-HT40: 18.17dBm 802.11ac-VHT20: 18.36dBm 802.11ac-VHT40: 18.08dBm 802.11ac-VHT80: 17.02dBm
Antenna Type	PIFA Antenna
Antenna Gain	4.8dBi

Note: For other features of this EUT, test report will be issued separately.

Operation Frequency / Channel list

802.11a/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz	100	5500 MHz
104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz
128	5640 MHz	132	5660 MHz	136	5680 MHz
140	5700 MHz	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz

802.11ac-VHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz	100	5500 MHz
104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz
128	5640 MHz	132	5660 MHz	136	5680 MHz
140	5700 MHz	144	5720 MHz	149	5745 MHz
153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz	--	--	--	--

802.11n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz
62	5310 MHz	102	5510 MHz	110	5550 MHz
118	5590 MHz	126	5630 MHz	134	5670 MHz
151	5755 MHz	159	5795 MHz	--	--

802.11ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz
62	5310 MHz	102	5510 MHz	110	5550 MHz
118	5590 MHz	126	5630 MHz	134	5670 MHz
142	5710 MHz	151	5755 MHz	159	5795 MHz

802.11ac-VHT80

Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz	106	5530 MHz
122	5610 MHz	138	5690 MHz	155	5775 MHz

Description of Available Antennas

Antenna Type	Frequency Band (GHz)	Tx Paths	Max Peak Gain (dBi)	CDD Directional Gain (dBi)	
				For Power	For PSD
PIFA Antenna	2.4	2	3.21	3.21	6.22
	5	2	4.8	4.8	7.81

Note: The EUT supports Cyclic Delay Diversity (CDD) technology, and CDD signals are correlated. For CDD transmissions, directional gain is calculated as follows, N_{ANT} = 2, N_{SS} = 1.

If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

  Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 3.01;
- For power measurements on IEEE 802.11 devices,

  Array Gain = 0 dB for $N_{ANT} \leq 4$;

Device Capabilities

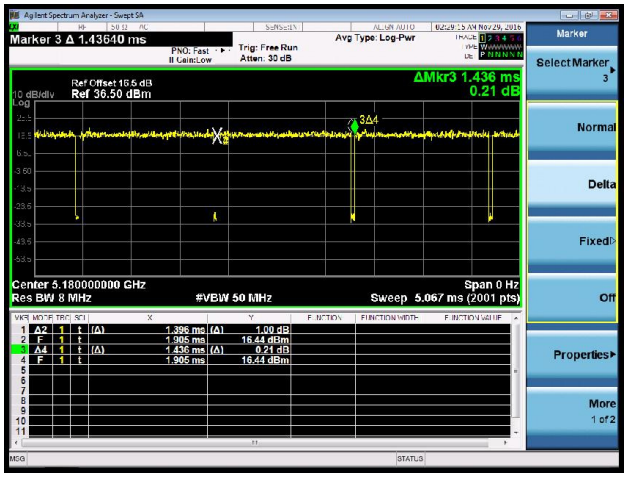
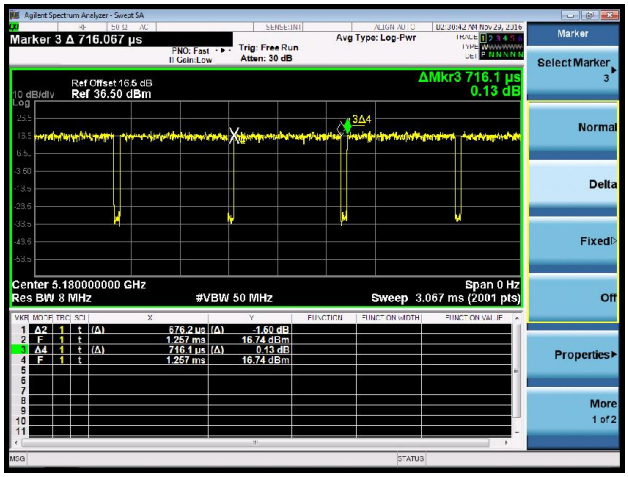
This device contains the following capabilities:

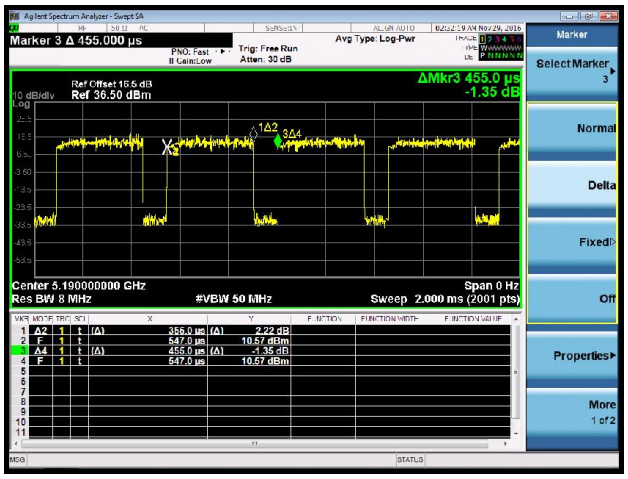
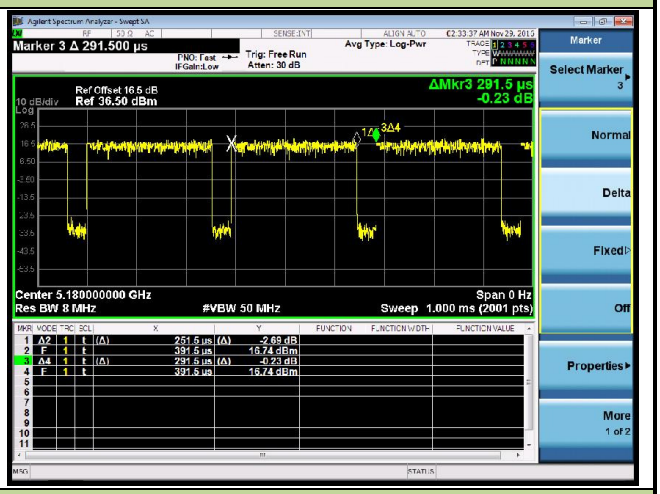
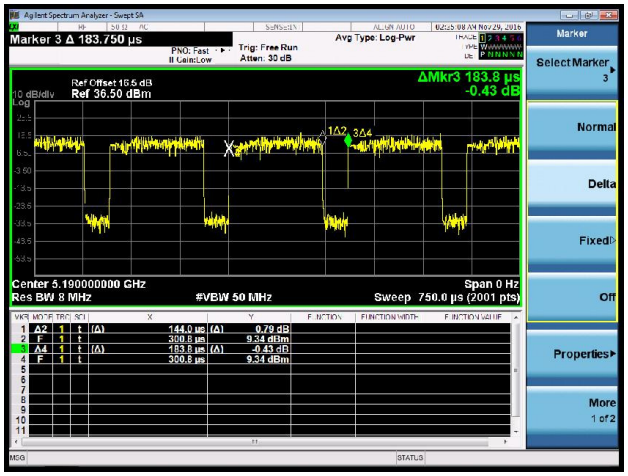
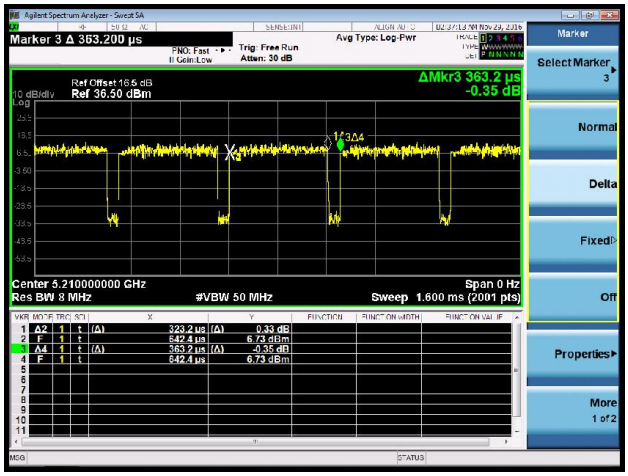
5GHz WLAN (UNII), 2.4GHz WLAN (DTS), Bluetooth (v4.0 Dual mode), Multi-Band LTE, RF ID, NFC

Note: 5GHz (NII) operation is possible in 20MHz and 40MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz.

The duty cycles are as follows:

Test Mode	Duty Cycle
802.11a	97.2%
802.11n-HT20	94.4%
802.11n-HT40	78.0%
802.11ac-VHT20	86.3%
802.11ac-VHT40	78.3%
802.11ac-VHT80	89.0%

802.11a – Duty Cycle	802.11n-HT20 – Duty Cycle
	

802.11n-HT40 – Duty Cycle	802.11ac-VHT20 – Duty Cycle
	
802.11ac-VHT40 – Duty Cycle	**802.11ac-VHT80 – Duty Cycle**
	

Test Configuration

The **MID** was tested per the guidance of KDB 789033 D02v01r03. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

DESCRIPTION OF TEST

Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in KDB 789033 D02v01r03 were used in the measurement of the **MID.**

Deviation from measurement procedure…….....None

AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

Line conducted emissions test results are shown in Section 7.9.

Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:
"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

The antenna of the **MID** is **permanently attached.**
There are no provisions for connection to an external antenna.

Conclusion:
The **MID** unit complies with the requirement of §15.203.

TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	102030	1 year	2017/05/08
Two-Line V-Network	R&S	ENV216	101683	1 year	2017/06/21
Two-Line V-Network	R&S	ENV216	101684	1 year	2017/06/21
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2017/12/22
Shielding Anechoic Chamber	Mikebang	Chamber-SR2	N/A	1 year	2017/05/10

Radiated Emission - AC1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	1 year	2017/05/07
Microwave System Amplifier	Agilent	83017A	MY53270040	1 year	2017/03/28
Preamplifier	Schwarzbeck	BBV 9721	9721-008	1 year	2017/04/16
Loop Antenna	Schwarzbeck	FMZB1519	100982	1 year	2017/12/21
Bilog Period Antenna	Schwarzbeck	VULB 9168	662	1 year	2017/11/19
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1167	1 year	2017/10/22
Broadband Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170549	1 year	2018/01/04
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2017/12/22
Anechoic Chamber	TDK	Chamber-AC1	N/A	1 year	2017/05/10

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	1 year	2017/05/08
USB wideband power sensor	Boonton	55006	8911	1 year	2017/05/08
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2017/12/22

Software	Version	Function
e3	V8.3.5	EMI Test Software

MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement – SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement – AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 40GHz: 4.76dB

TEST RESULT

Summary

Company Name: **Bak USA Technologies Corp.**

FCC ID: **2AEY7-S8A002**

FCC Classification: **Unlicensed National Information Infrastructure (NII)**

Data Rate(s) Tested: **6Mbps ~ 54Mbps (a);**
13/14.4Mbps ~ 130/144.4Mbps (n-HT20MHz BW);
27/30Mbps ~ 270/300Mbps (n-HT40MHz BW);
13/14.4Mbps ~ 156/173.4Mbps (ac-VHT20MHz BW);
27/30Mbps ~ 360/400Mbps (ac-VHT40MHz BW);
58.6/65Mbps ~ 780/866.6Mbps (ac-VHT80MHz BW)

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(a)	26dB Bandwidth	N/A	Conducted	Pass	Section 7.2
15.407(e)	6dB Bandwidth	≥ 500kHz		Pass	Section 7.3
15.407(a)(1)(ii)(iv), (2), (3)	Maximum Conducted Output Power	≤ 24 dBm U-NII-1, 2A, 2C ≤ 30 dBm U-NII-3		Pass	Section 7.4
15.407(a)(1)(iv), (3), (5)	Peak Power Spectral Density	≤ 11 dBm/MHz U-NII-1, 2A, 2C ≤ 30 dBm/500kHz U-NII-3		Pass	Section 7.5
15.407(g)	Frequency Stability	N/A		Pass	Section 7.6
15.407(b)(1), (4)(i)	Undesirable Emissions	≤ -27dBm/MHz EIRP See section 7.7	Radiated	Pass	Section 7.7 & 7.8
15.205, 15.209 15.407(b)(5), (6), (7)	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		Pass	
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.9

Notes:

1) All channels, modes, and modulations/data rates were investigated among all UNII bands. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.

26dB Bandwidth Measurement

1.1.1. Test Limit

N/A

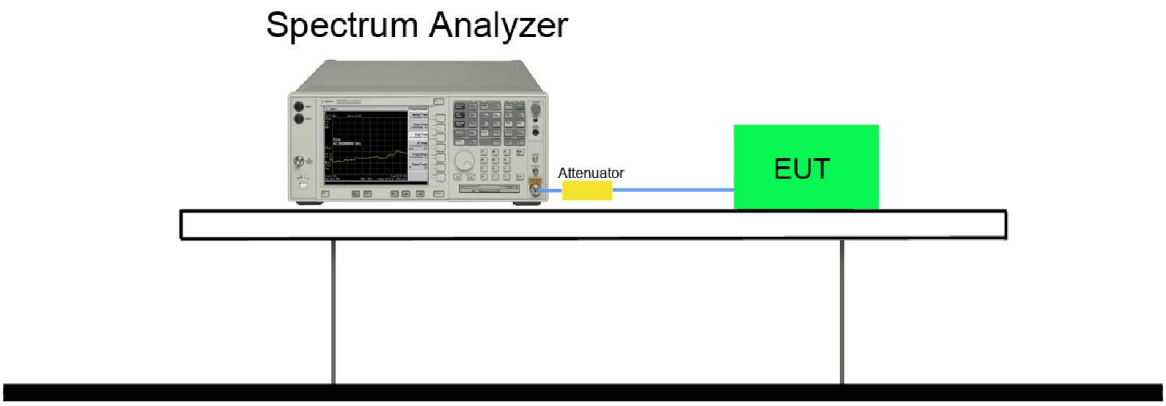
1.1.2. Test Procedure used

KDB 789033 D02v01r03 – Section C.1

1.1.3. Test Setting

1. The analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediated power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth.
3. VBW ≥ 3 × RBW.
4. Detector = Peak.
5. Trace mode = max hold.

1.1.4. Test Setup



1.1.5. Test Result

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Result
Ant 0 / Ant 0 + 1						
802.11a	6	36	5180	21.66	16.94	Pass
802.11a	6	44	5220	21.43	16.79	Pass
802.11a	6	48	5240	21.52	16.87	Pass
802.11a	6	52	5260	21.31	16.82	Pass
802.11a	6	60	5300	21.26	16.85	Pass
802.11a	6	64	5320	20.89	16.79	Pass
802.11a	6	100	5500	21.20	17.03	Pass
802.11a	6	120	5600	21.50	16.96	Pass
802.11a	6	140	5700	22.61	16.83	Pass
802.11a	6	149	5745	32.86	16.88	Pass
802.11a	6	157	5785	25.58	17.17	Pass
802.11a	6	165	5825	25.68	17.12	Pass
802.11n-HT20	13.0	36	5180	21.36	17.88	Pass
802.11n-HT20	13.0	44	5220	21.27	17.88	Pass
802.11n-HT20	13.0	48	5240	21.16	17.84	Pass
802.11n-HT20	13.0	52	5260	21.22	17.95	Pass
802.11n-HT20	13.0	60	5300	21.29	17.92	Pass
802.11n-HT20	13.0	64	5320	21.08	17.93	Pass
802.11n-HT20	13.0	100	5500	21.13	17.97	Pass
802.11n-HT20	13.0	120	5600	22.53	17.89	Pass
802.11n-HT20	13.0	140	5700	21.41	18.02	Pass
802.11n-HT20	13.0	149	5745	30.00	17.67	Pass
802.11n-HT20	13.0	157	5785	25.52	18.25	Pass
802.11n-HT20	13.0	165	5825	29.33	18.22	Pass
802.11n-HT40	27.0	38	5190	39.35	36.18	Pass
802.11n-HT40	27.0	46	5230	40.14	36.31	Pass
802.11n-HT40	27.0	54	5270	39.23	36.23	Pass
802.11n-HT40	27.0	62	5310	40.00	36.21	Pass
802.11n-HT40	27.0	102	5510	62.04	36.92	Pass
802.11n-HT40	27.0	118	5590	65.77	36.59	Pass
802.11n-HT40	27.0	134	5670	60.12	36.86	Pass

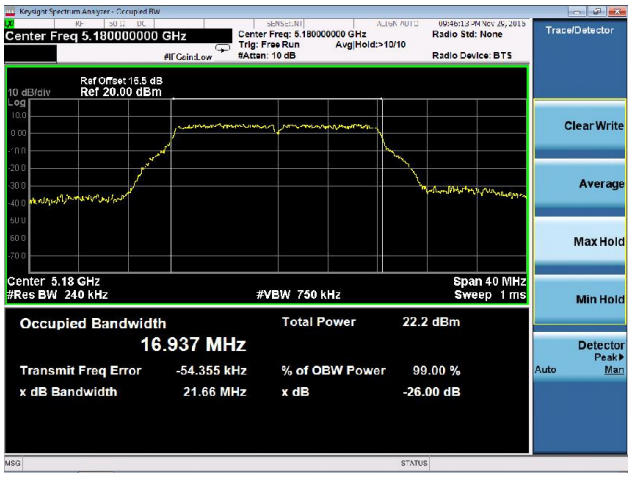
802.11n-HT40	27.0	151	5755	72.79	36.79	Pass
802.11n-HT40	27.0	159	5795	70.19	36.72	Pass
802.11ac-VHT20	13.0	36	5180	21.12	17.81	Pass
802.11ac-VHT20	13.0	44	5220	20.99	17.88	Pass
802.11ac-VHT20	13.0	48	5240	21.10	17.81	Pass
802.11ac-VHT20	13.0	52	5260	21.07	17.76	Pass
802.11ac-VHT20	13.0	60	5300	21.59	17.80	Pass
802.11ac-VHT20	13.0	64	5320	21.20	17.82	Pass
802.11ac-VHT20	13.0	100	5500	21.49	17.98	Pass
802.11ac-VHT20	13.0	120	5600	21.66	17.84	Pass
802.11ac-VHT20	13.0	140	5700	21.76	17.95	Pass
802.11ac-VHT20	13.0	144	5720	21.29	17.93	Pass
802.11ac-VHT20	13.0	149	5745	30.09	17.68	Pass
802.11ac-VHT20	13.0	157	5785	26.38	18.41	Pass
802.11ac-VHT20	13.0	165	5825	27.98	18.19	Pass
802.11ac-VHT40	27.0	38	5190	39.11	36.35	Pass
802.11ac-VHT40	27.0	46	5230	39.79	36.35	Pass
802.11ac-VHT40	27.0	54	5270	42.88	36.44	Pass
802.11ac-VHT40	27.0	62	5310	39.22	36.32	Pass
802.11ac-VHT40	27.0	102	5510	59.58	36.75	Pass
802.11ac-VHT40	27.0	118	5590	73.24	36.71	Pass
802.11ac-VHT40	27.0	134	5670	70.11	36.70	Pass
802.11ac-VHT40	27.0	142	5710	69.63	36.82	Pass
802.11ac-VHT40	27.0	151	5755	72.01	36.74	Pass
802.11ac-VHT40	27.0	159	5795	73.51	36.61	Pass
802.11ac-VHT80	58.6	42	5210	81.62	75.73	Pass
802.11ac-VHT80	58.6	58	5290	80.64	75.70	Pass
802.11ac-VHT80	58.6	106	5530	80.65	75.76	Pass
802.11ac-VHT80	58.6	122	5610	80.81	75.55	Pass
802.11ac-VHT80	58.6	138	5690	80.94	75.97	Pass
802.11ac-VHT80	58.6	155	5775	79.93	75.80	Pass

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Result
Ant 1 / Ant 0 + 1						
802.11a	6	36	5180	21.46	16.89	Pass
802.11a	6	44	5220	21.45	16.85	Pass
802.11a	6	48	5240	21.37	16.76	Pass
802.11a	6	52	5260	21.24	16.77	Pass
802.11a	6	60	5300	21.06	16.79	Pass
802.11a	6	64	5320	21.43	16.79	Pass
802.11a	6	100	5500	21.19	16.86	Pass
802.11a	6	120	5600	21.38	16.80	Pass
802.11a	6	140	5700	21.19	16.82	Pass
802.11a	6	149	5745	18.51	16.57	Pass
802.11a	6	157	5785	21.08	16.85	Pass
802.11a	6	165	5825	21.42	16.77	Pass
802.11n-HT20	13.0	36	5180	21.62	17.85	Pass
802.11n-HT20	13.0	44	5220	21.53	17.86	Pass
802.11n-HT20	13.0	48	5240	21.45	17.85	Pass
802.11n-HT20	13.0	52	5260	21.52	17.86	Pass
802.11n-HT20	13.0	60	5300	21.36	17.83	Pass
802.11n-HT20	13.0	64	5320	21.68	17.88	Pass
802.11n-HT20	13.0	100	5500	21.48	17.96	Pass
802.11n-HT20	13.0	120	5600	21.61	17.89	Pass
802.11n-HT20	13.0	140	5700	21.36	17.91	Pass
802.11n-HT20	13.0	149	5745	18.75	17.43	Pass
802.11n-HT20	13.0	157	5785	21.26	17.86	Pass
802.11n-HT20	13.0	165	5825	21.52	17.88	Pass
802.11n-HT40	27.0	38	5190	39.32	36.30	Pass
802.11n-HT40	27.0	46	5230	39.16	36.28	Pass
802.11n-HT40	27.0	54	5270	39.16	36.27	Pass
802.11n-HT40	27.0	62	5310	39.24	36.23	Pass
802.11n-HT40	27.0	102	5510	45.24	36.62	Pass
802.11n-HT40	27.0	118	5590	39.47	36.26	Pass
802.11n-HT40	27.0	134	5670	40.41	36.38	Pass
802.11n-HT40	27.0	151	5755	42.49	36.51	Pass
802.11n-HT40	27.0	159	5795	40.63	36.40	Pass

802.11ac-VHT20	13.0	36	5180	21.40	17.87	Pass
802.11ac-VHT20	13.0	44	5220	20.98	17.85	Pass
802.11ac-VHT20	13.0	48	5240	21.34	17.81	Pass
802.11ac-VHT20	13.0	52	5260	21.40	17.85	Pass
802.11ac-VHT20	13.0	60	5300	21.54	17.85	Pass
802.11ac-VHT20	13.0	64	5320	21.46	17.83	Pass
802.11ac-VHT20	13.0	100	5500	21.44	17.82	Pass
802.11ac-VHT20	13.0	120	5600	21.31	17.82	Pass
802.11ac-VHT20	13.0	140	5700	21.20	17.86	Pass
802.11ac-VHT20	13.0	144	5720	21.53	17.86	Pass
802.11ac-VHT20	13.0	149	5745	19.12	17.46	Pass
802.11ac-VHT20	13.0	157	5785	21.34	17.90	Pass
802.11ac-VHT20	13.0	165	5825	21.37	17.81	Pass
802.11ac-VHT40	27.0	38	5190	39.35	36.24	Pass
802.11ac-VHT40	27.0	46	5230	39.29	36.27	Pass
802.11ac-VHT40	27.0	54	5270	40.04	36.39	Pass
802.11ac-VHT40	27.0	62	5310	39.43	36.32	Pass
802.11ac-VHT40	27.0	102	5510	39.67	36.45	Pass
802.11ac-VHT40	27.0	118	5590	40.06	36.42	Pass
802.11ac-VHT40	27.0	134	5670	39.60	36.38	Pass
802.11ac-VHT40	27.0	142	5710	39.67	36.43	Pass
802.11ac-VHT40	27.0	151	5755	39.93	36.48	Pass
802.11ac-VHT40	27.0	159	5795	39.51	36.46	Pass
802.11ac-VHT80	58.6	42	5210	80.05	75.77	Pass
802.11ac-VHT80	58.6	58	5290	81.08	75.74	Pass
802.11ac-VHT80	58.6	106	5530	81.26	75.81	Pass
802.11ac-VHT80	58.6	122	5610	80.79	75.65	Pass
802.11ac-VHT80	58.6	138	5690	80.54	75.72	Pass
802.11ac-VHT80	58.6	155	5775	80.84	75.74	Pass

802.11a 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

Channel 36 (5180MHz)

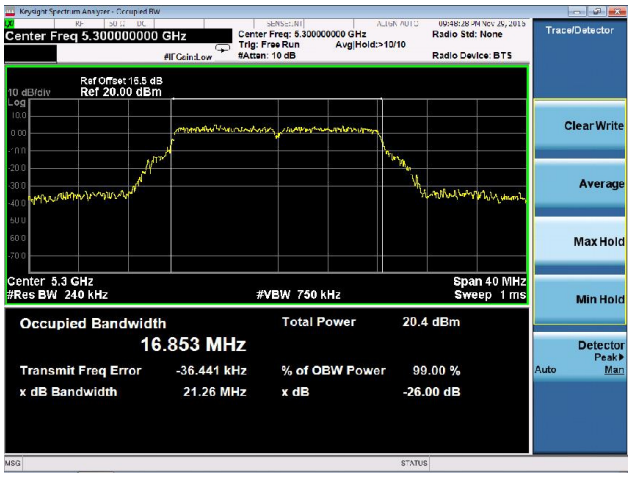


Channel 44 (5220MHz)

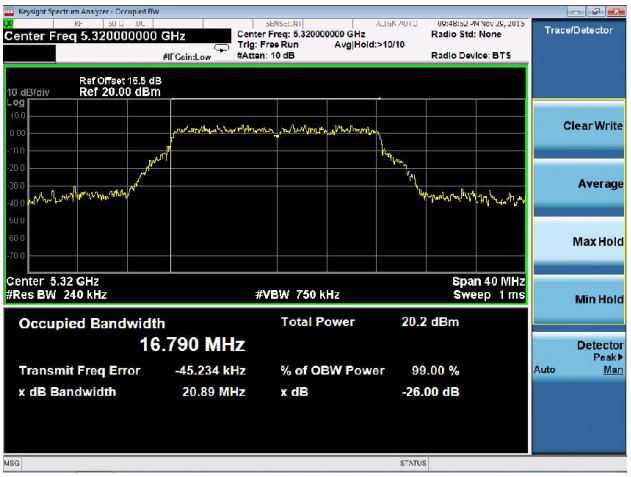
Channel 48 (5240MHz)

Channel 52 (5260MHz)

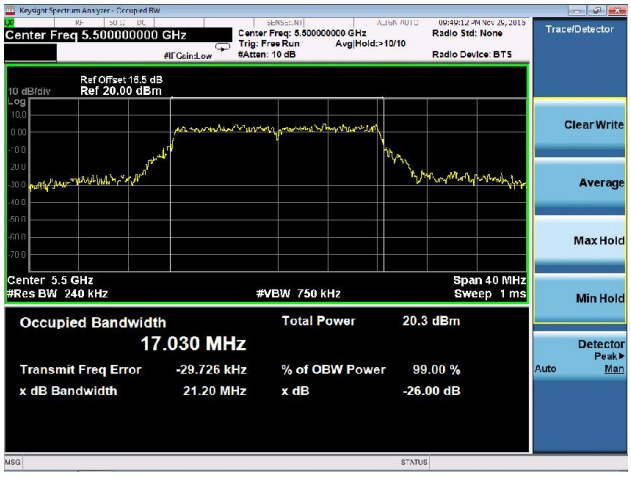
Channel 60 (5300MHz)



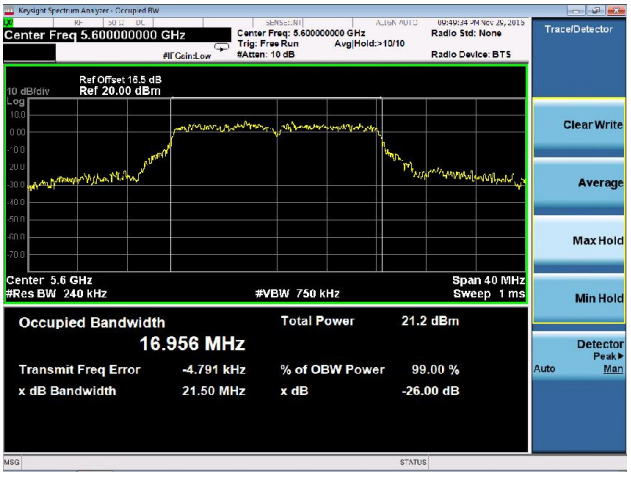
Channel 64 (5320MHz)



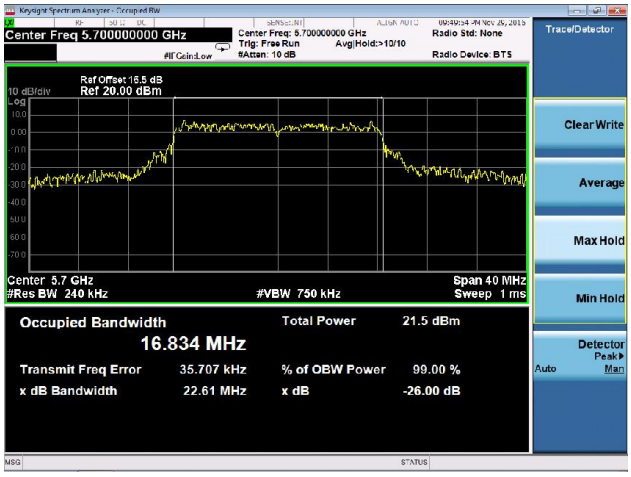
Channel 100 (5500MHz)



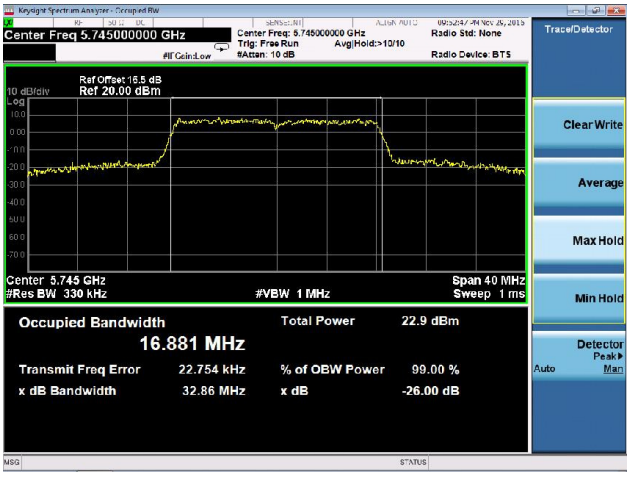
Channel 120 (5600MHz)



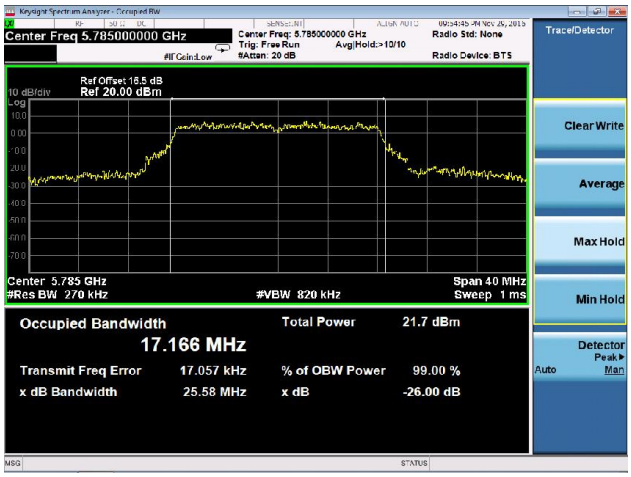
Channel 140 (5700MHz)



Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)

802.11n-HT20 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

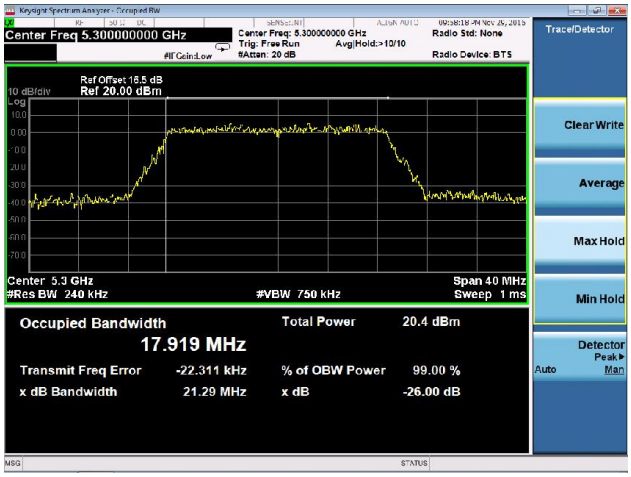
Channel 36 (5180MHz)

Channel 44 (5220MHz)

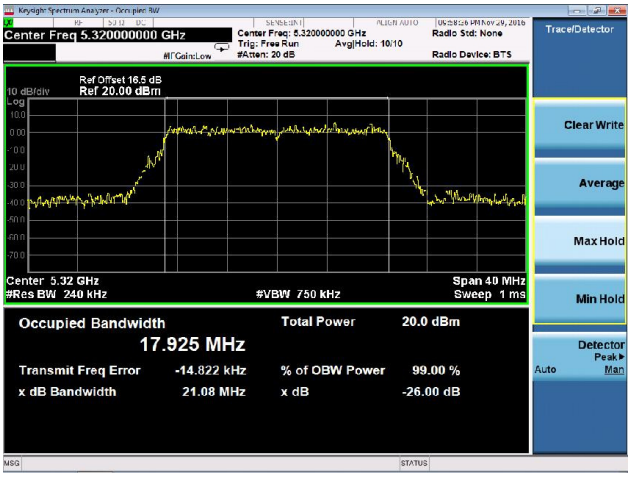
Channel 48 (5240MHz)

Channel 52 (5260MHz)

Channel 60 (5300MHz)

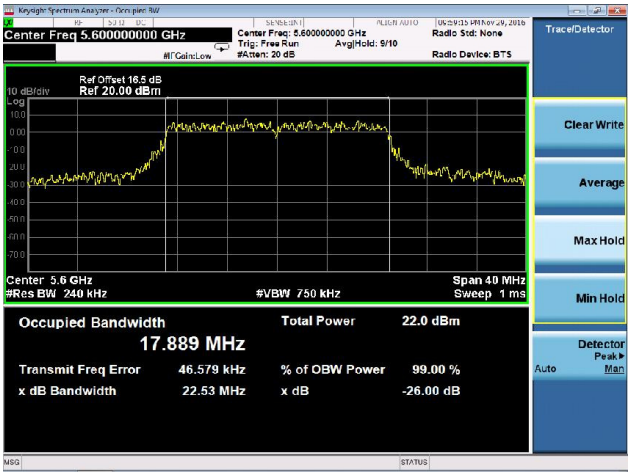


Channel 64 (5320MHz)



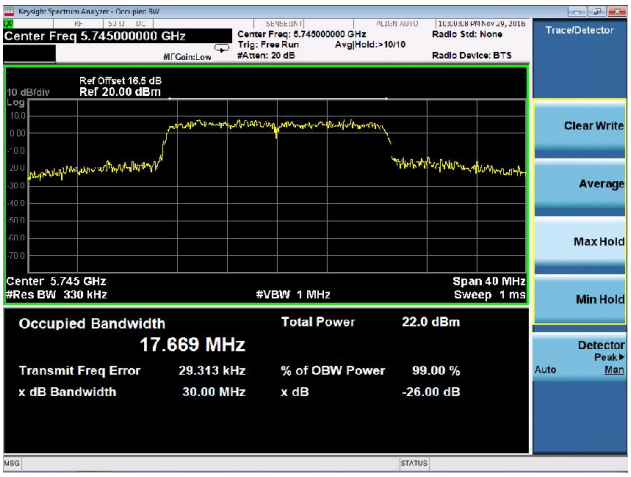
Channel 100 (5500MHz)

Channel 120 (5600MHz)



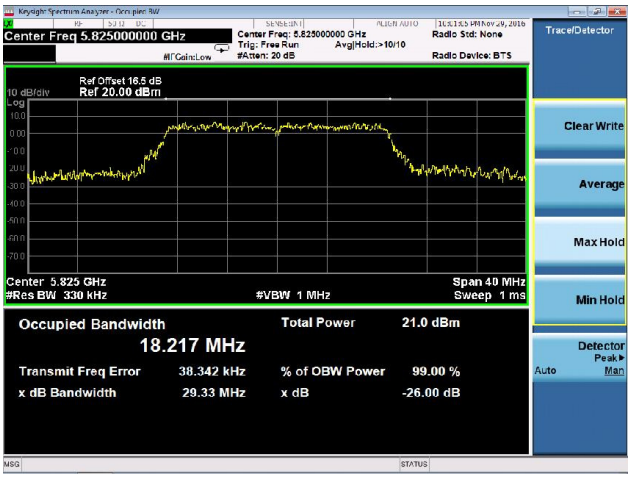
Channel 140 (5700MHz)

Channel 149 (5745MHz)



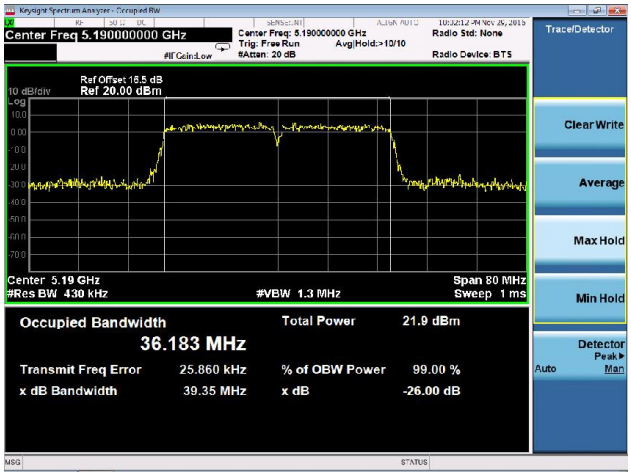
Channel 157 (5785MHz)

Channel 165 (5825MHz)

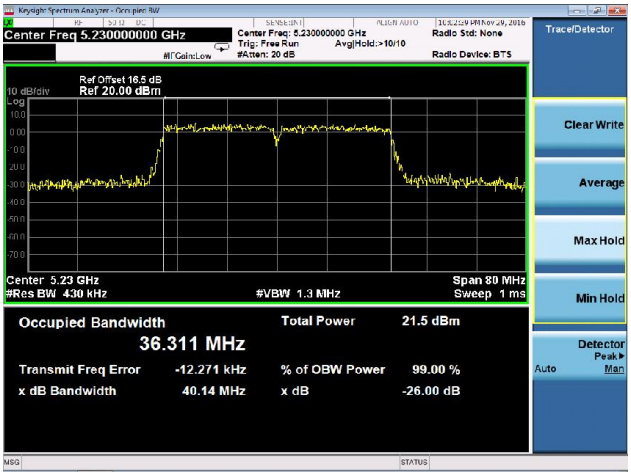


802.11n-HT40 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

Channel 38 (5190MHz)

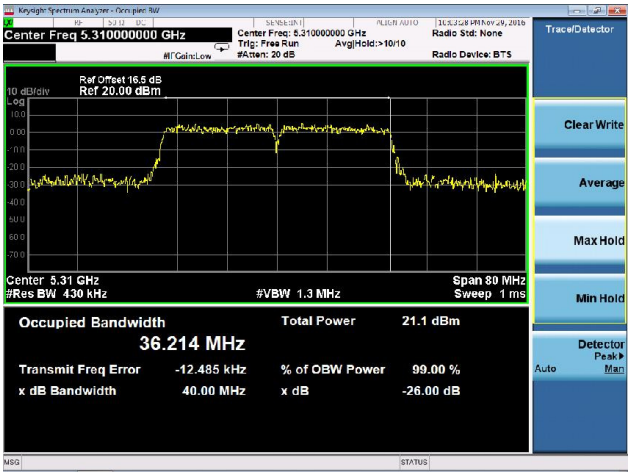


Channel 46 (5230MHz)

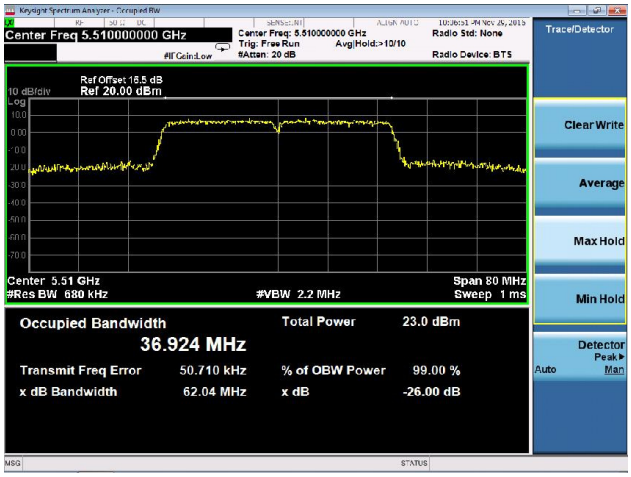


Channel 54 (5270MHz)

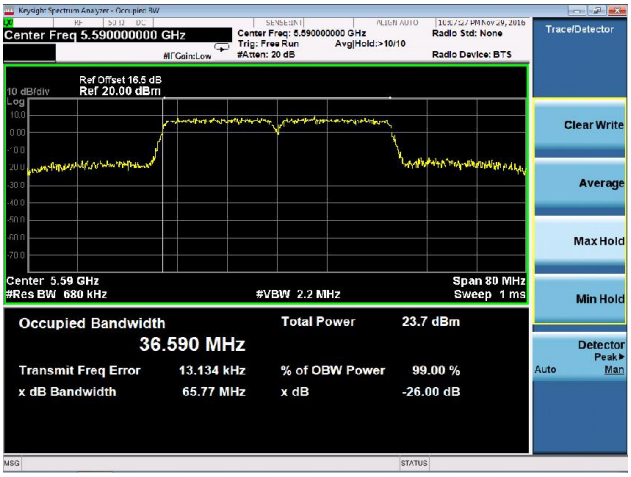
Channel 62 (5310MHz)

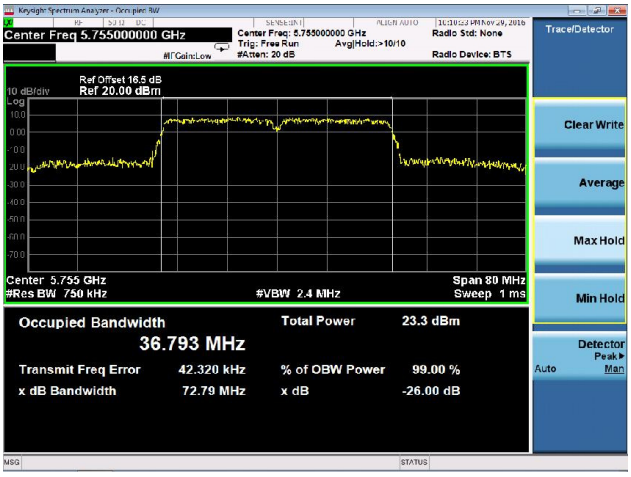


Channel 102 (5510MHz)



Channel 118 (5590MHz)



Channel 134 (5670MHz)	Channel 151 (5755MHz)
	
Channel 159 (5795MHz)	

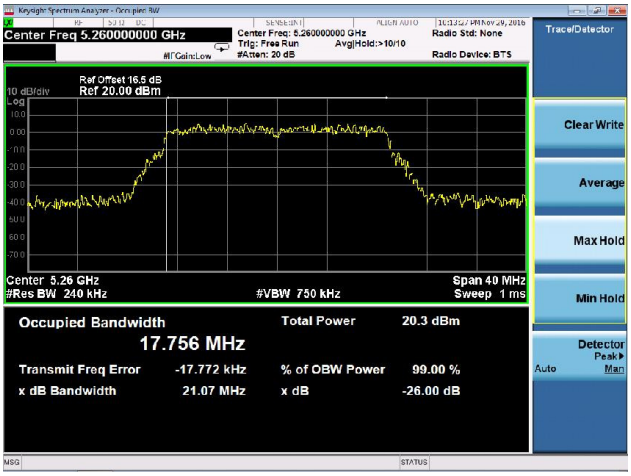
802.11ac-VHT20 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

Channel 36 (5180MHz)

Channel 44 (5220MHz)

Channel 48 (5240MHz)

Channel 52 (5260MHz)

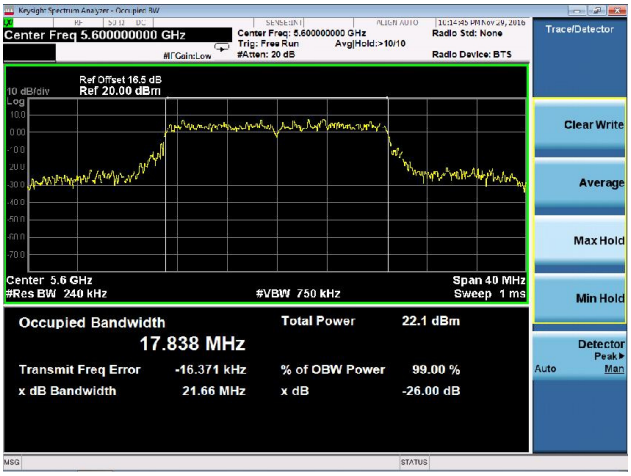


Channel 60 (5300MHz)

Channel 64 (5320MHz)

Channel 100 (5500MHz)

Channel 120 (5600MHz)



Channel 140 (5700MHz)

Channel 144 (5720MHz)

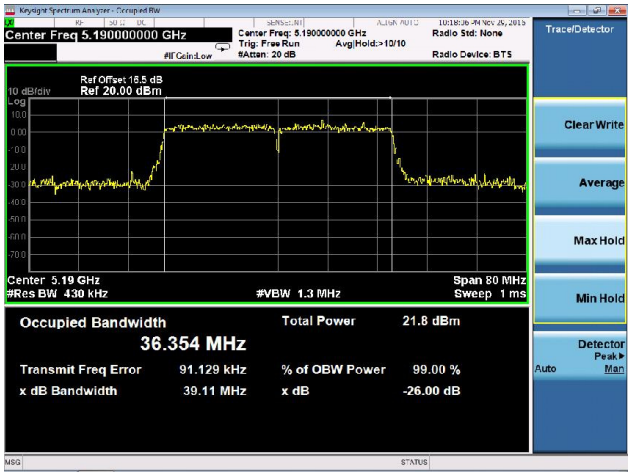
Channel 149 (5745MHz)

Channel 157 (5785MHz)

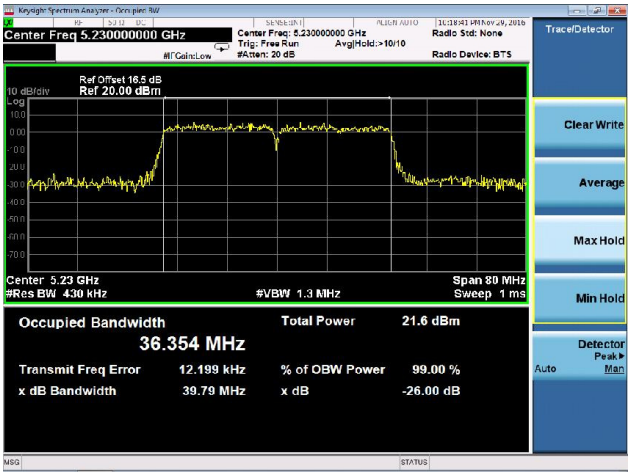
Channel 165 (5825MHz)	

802.11ac-VHT40 26dB Bandwidth & 99% Bandwidth - Ant 0 / Ant 0 + 1

Channel 38 (5190MHz)

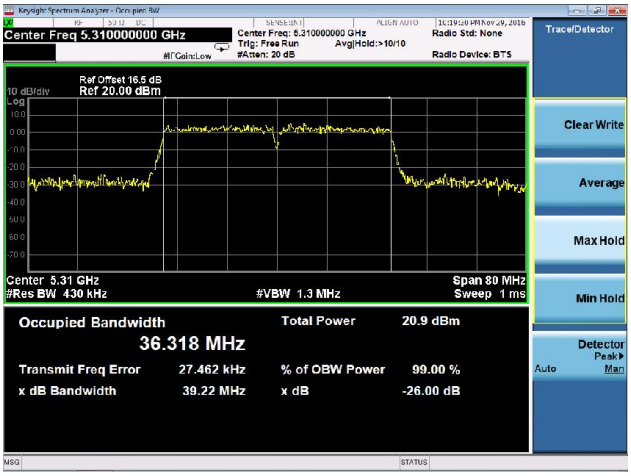


Channel 46 (5230MHz)



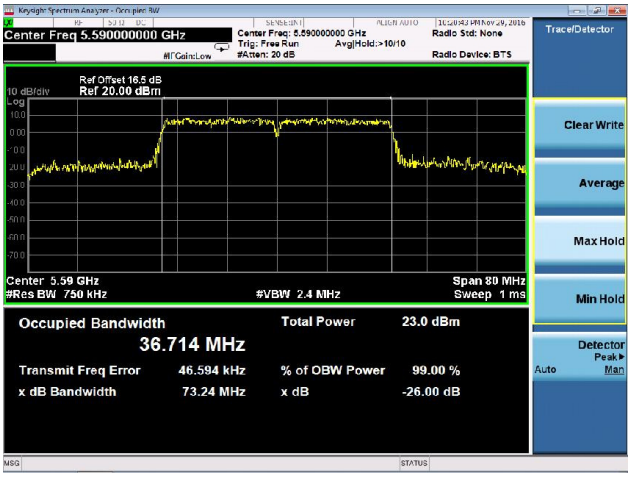
Channel 54 (5270MHz)

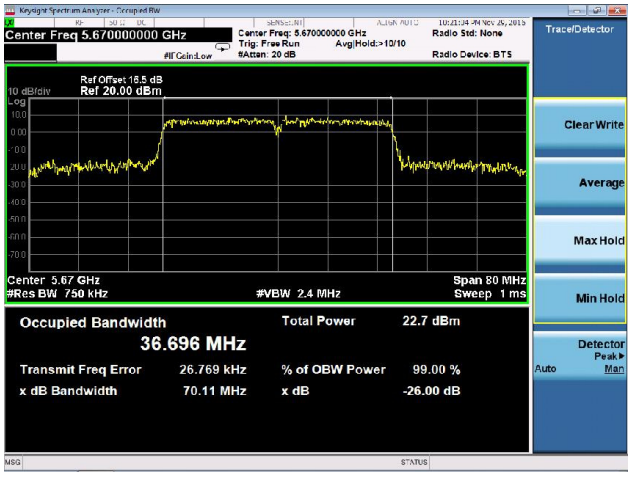
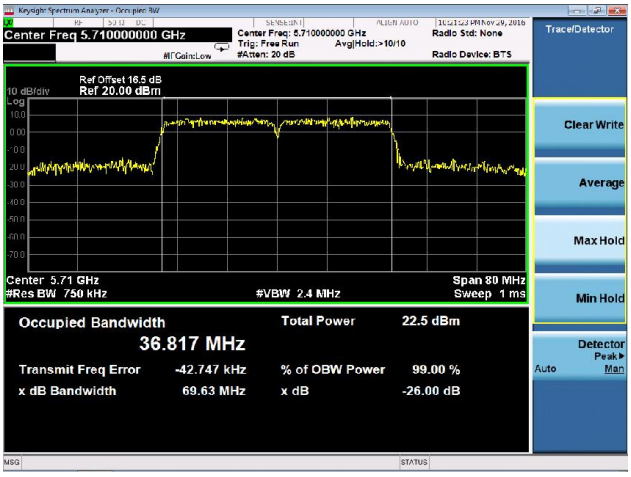
Channel 62 (5310MHz)



Channel 102 (5510MHz)

Channel 118 (5590MHz)



Channel 134 (5670MHz)	Channel 142 (5710MHz)
	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**