

FCC 47 CFR PART 15 SUBPART E

for

802.11ac LTE/VDSL2 GATEWAY Model: SR700ac Brand: SmartRG <u>Test Report Number:</u> C170227Z01-RP1-3 Issued Date: June 12, 2017

Issued for

SmartRG Inc. 501 SE Columbia Shores Boulevard, Suite 500 Vancouver, Washington 98661

Issued by:

Compliance Certification Services (Shenzhen) Inc.

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	June 12, 2017	Initial Issue	ALL	Sinphy Xie



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1. TEST CERTIFICATION

Product	802.11ac LTE/VDSL2 GATEWAY
Model	SR700ac
Brand	SmartRG
Tested	February 27~ June 11, 2017
Applicant	SmartRG Inc. 501 SE Columbia Shores Boulevard, Suite 500 Vancouver, Washington 98661
Manufacturer	SmartRG Inc. 501 SE Columbia Shores Boulevard, Suite 500 Vancouver, Washington 98661

APPLICABLE STANDARDS	
STANDARD TEST RESULT	
FCC 47 CFR Part 15 Subpart E No non-compliance noted	

We hereby certify that:

Compliance Certification Services (Shenzhen) Inc. tested the above equipment. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in **ANSI C63.10: 2013** and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407 and IC RSS-247.

The TEST RESULTS of this report relate only to the tested sample identified in this report.

Approved by:

hand

Sunday Hu Supervisor of EMC Dept. Compliance Certification Services (Shenzhen) Inc.

Reviewed by:

Ruby Zhang Supervisor of Report Dept. Compliance Certification Services (Shenzhen) Inc.



2. EUT DESCRIPTION

Product	802.11ac LTE/VDSL2 GATEWAY				
Model Number	SR700ac				
Brand	SmartRG				
Model Discrepancy	N/A				
Serial Number	C170227Z01-RP1-	3			
Received Date	February 27, 2017				
Power Supply	DC12V supply by the	ne adapter			
Adapter Specification	DSA-24PFM-12 FUS 120200 INPUT: 100-240V ~ 50/60Hz 0.8A OUTPUT: +12.0V 12A DC Output Cable: Unshielded 1.20m				
		Mode	Frequency Range(MHz)	Number of channel	
		IEEE 802.11a	5180-5240	4	
	UNII Band I:	IEEE 802.11n HT20	5180-5240	4	
	ONIT Daria I.	IEEE 802.11n HT40	5190-5230	2	
		IEEE 802.11ac 80	5210	1	
	UNII Band II:	IEEE 802.11a	5260-5320	4	
		IEEE 802.11n HT20	5260-5320	4	
		IEEE 802.11n HT40	5270-5310	2	
Operating Frequency Range & Number of	UNII Band III:	IEEE 802.11ac 80	5290 5500-5580;	1	
Channels		IEEE 802.11a	5660-5700	8	
		IEEE 802.11n HT20	5500-5580; 5660- 5700	8	
		IEEE 802.11n HT40	5510-5550; 5670	3	
		IEEE 802.11ac 80	5530	1	
		IEEE 802.11a	5745-5825	5	
	UNII Band IV:	IEEE 802.11n HT20	5745-5825	5	
		IEEE 802.11n HT40	5755-5795	2	
		IEEE 802.11ac 80	5775	1	
Modulation Technique	OFDM (QPSK, BPSK, 16-QAM, 64-QAM)				
Antenna Specification	Omni-directional antenna with 3dBi gain (Max)				
Channels Spacing	IEEE 802.11a, 802.11n HT20 : 20MHz IEEE 802.11n HT40: 40MHz IEEE 802.11ac 80: 80MHz				
Temperature Range	0°C ~ +35°C				
Hardware Version	REV:1.1				
Software Version	2.6.1				

Note: 1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.



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Operation Frequency: UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII)		
CHANNEL	MHz	
36	5180	
38	5190	
40	5200	
42	5210	
44	5220	
46	5230	
48	5240	
52	5260	
54	5270	
56	5280	
58	5290	
60	5300	
62	5310	
64	5320	
100	5500	
102	5510	
104	5520	
106	5530	
108	5540	
110	5550	
112	5560	
116	5580	
132	5660	
134	5670	
136	5680	
140	5700	
149	5745	
151	5755	
153	5765	
155	5775	
157	5785	
159	5795	
161	5805	
165	5825	

Remark:

- 1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.
- This submittal(s) (test report) is intended for <u>FCC ID: VW7SR700A</u> filing to comply with Section 15.407 of the FCC Part 15, Subpart E Rules and FCC 14-30.



3. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4 Radiated testing was performed at an antenna to EUT distance 3 meters. The tests documented in this report were performed in accordance with ANSI C63.4: 2009 and FCC CFR 47 Part 15.207, 15.209, 15.407 and FCC 14-30, IC RSS-247, Radio testing was performed according to KDB DA 02-2138、KDB 789033 D02、KDB 905462 D02, KDB 905462 D03, KDB 905462 D06;

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed for RF field strength measurement to meet the Commissions requirement, and is operated in a manner intended to generate the maximum emission in a continuous normal application.

3.2 EUT EXERCISE

The EUT is operated in the engineering mode to fix the TX frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E and IC RSS-247.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is positioned at 0.8 m above the ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4, the conducted emission from the EUT is measured in the frequency range between 0.15 MHz and 30MHz, using the CISPR Quasi-Peak detector mode.

Radiated Emissions

The EUT is placed on the turntable, which is 0.8m above the ground plane. The turntable is then rotated for 360 degrees to determine the proper orientation for the maximum emission level. The EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission level. And, each emission is to be maximized by changing the horizontal and vertical polarization of the receiving antenna. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

Compliance Certification Services (Shenzhen) Inc.

3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	(²)
13.36 - 13.41	322 - 335.4		

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



3.5 DESCRIPTION OF TEST MODES

The EUT is a 1TX configuration without beam forming function.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

IEEE 802.11n HT20: 5300 MHz Channel (5300MHz) with 6.5Mbps data rate was chosen for the final testing.

IEEE 802.11n HT20: 5500 MHz Channel (5500MHz) with 6.5Mbps data rate was chosen for the final testing.

IEEE 802.11n HT40: 5310 MHz Channel (5310MHz) with 13.5Mbps data rate was chosen for the final testing.

IEEE 802.11n HT40: 5510 MHz Channel (5510MHz) with 13.5Mbps data rate was chosen for the final testing.

IEEE802.11ac 80: 5290 MHz Channel (5290MHz) with 13.5Mbps data rate was chosen for the final testing.

IEEE 802.11ac 80: 5530 MHz Channel (5530MHz) with 13.5Mbps data rate was chosen for the final testing.



4. SETUP OF EQUIPMENT UNDER TEST

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Remark: Each piece of equipment is scheduled for calibration once a year.

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9010A	MY52221469	10/24/2016
Vector Signal Generator	KEYSIGHT	N5182B	MY53051596	04/11/2017

4.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model No.	Serial No.	FCC ID	Brand	Data Cable	Power Cord
1	GPON ONU	G-240W-B	N/A	2ADZRG240 WB	Alcatel.Lucent	N/A	N/A
2	Notebook 1#	B475	WB048616 12	DoC	THINKPAD	Unshielded, 1.50m	Unshielded, 1.60m (AC Cable) Unshielded, 1.80m (DC Cable)
3	Notebook 2#	Probook 5310m	N/A	N/A	HP	Unshielded 1.50m	Shielded 0.80m (AC Cable) Shielded 1.20m (DC Cable)

Note:

Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 MEASUREMENT UNCERTAINTY

Parameter	Uncertainty
RF frequency	+/-1 * 10-5
RF power conducted	+/- 1,5 dB
RF power radiated	+/- 6 dB
Spurious emissions, conducted	+/- 3 dB
Spurious emissions, radiated	+/- 6 dB
Humidity	+/- 5 %
Temperature	+/- 1°C
Time	+/-10 %

Remark: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at No.10-1 Mingkeda Logistics park, No.18, Huanguan South Rd., Guan Lan Town, Baoan District, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

USA	A2LA
China	CNAS

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

USA	FCC
Japan	VCCI(C-4815,R-4320,T-2317, G-10624)
Canada	INDUSTRY CANADA

Copies of granted accreditation certificates are available for downloading from our web site, <u>http://www.ccssz.com</u>

6. DYNAMIC FREQUENCY SELECTION

LIMIT

According to §15.407 (h) and FCC 06-96 appendix "compliance measurement procedures for unlicensed-national information infrastructure devices operating in the 5250-5350 MHz and 5470-5725 MHz bands incorporating dynamic frequency selection".

|--|

	Operational Mode				
Requirement	Master	Client (without radar detection)	Client(with radar detection)		
Non-Occupancy Period	Yes	Not required	Yes		
DFS Detection Threshold	Yes	Not required	Yes		
Channel Availability Check Time	Yes	Not required	Not required		
Uniform Spreading	Yes	Not required	Not required		

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master Device or Client with Radar Detection	Client Without Radar Detection	
DFS Detection Threshold	Yes	Not required	
Channel Closing Transmission Time	Yes	Yes	
Channel Move Time	Yes	Yes	
U-NII Detection Bandwidth	Yes	Not required	

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection			
U-NII Detection Bandwidth and	All BW modes must be	Not required			
Statistical Performance Check	tested	-			
Channel Move Time and Channel	Test using widest BW mode	Test using the widest			
Closing Transmission Time	available	BW mode available			
		for the link			
All other tests	Any single BW mode	Not required			
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include					
several frequencies within the radar detection bandwidth and frequencies near the edge of					
the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in					
each of the bonded 20 MHz channels and the channel center frequency.					



Table 3: DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection

Maximum Transmit Power	Value				
	(See Notes 1, 2, and 3)				
$EIRP \ge 200 milliwatt$	-64 dBm				
EIRP < 200 milliwatt and	-62 dBm				
power spectral density < 10 dBm/MHz					
EIRP < 200 milliwatt that do not meet the power spectral	-64 dBm				
density requirement					
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.					
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test					
transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.					
Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911					
D01.					

Table 4: DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds
	See Note 1.
Channel Closing Transmission Time	200 milliseconds + an
	aggregate of 60
	milliseconds over
	remaining 10 second
	period.
	See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-
	NII 99% transmission
	power bandwidth. See
	Note 3.

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.



	Table 5 - Short Fulse Radar Test waveforms							
Pulse	PRI	Number of Pulses		Minimum				
Width	(µsec)		Percentage of	Number				
(µsec)			Successful	of				
			Detection	Trials				
1	1428	18	See Note 1	See Note				
				1				
1	Test A: 15 unique	$\left(\left(1 \right) \right)$	60%	30				
	PRI values	$\frac{1}{360}$						
	randomly selected	Roundun						
		19.10°						
		PRI						
	Test B: 15 unique							
	PRI values							
	randomly selected							
	within the range							
	• •							
	with a minimum							
	increment of 1							
	µsec, excluding							
	selected in Test A							
1-5	150-230	23-29	60%	30				
6-10	200-500	16-18	60%	30				
11-20	200-500	12-16	60%	30				
Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move								
time, and channel closing time tests.								
)	Width (μsec) 1 1 1 1 1 1 1 1 1 1 1 20 Radar Types rt Pulse Rada	Width (μsec)(μsec)114281Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a1Test B: 15 unique PRI values in Table 5a1Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A1-5150-2306-10200-50011-20200-500Radar Types 1-4) rt Pulse Radar Type 0 should be u	Width (µsec)(µsec)114281Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5aRoundup1Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test ARoundup1-5150-23023-296-10200-50016-1811-20200-50012-16Radar Types 1-4)rt Pulse Radar Type 0 should be used for the detection ba	Width (µsec)(µsec)Percentage of Successful Detection1142818See Note 11Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5aRoundup $\left\{ \frac{13.60}{PRI_{\musec}} \right\}$ 60%60%Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A $1-5$ 150-23023-2960%1-5150-23023-2960%60%11-20200-50012-1660%1-120200-50012-1660%80%80%80%111010Redar Types 1-4)Nould be used for the detection bandwidth test, character80%80%111010				

Table 5 – Short Pulse Radar Test Waveforms

Table 6 – Long P	ulse Radar Test	Waveform
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Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per <i>Burst</i>	Number of <i>Bursts</i>	Minimum Percentage of Successful	Minimum Number of Trials
5	50-100	5-20	1000- 2000	1-3	8-20	Detection 80%	30

Table 7 – Frequency Hopping Radar Test Waveform

Tuble / Trequency Hopping Rubar Test Waveform							
Radar	Pulse	PRI	Pulses	Hopping	Hopping	Minimum	Minimum
Type	Width	(µsec)	per	Rate	Sequence	Percentage of	Number of
	(µsec)		Нор	(kHz)	Length	Successful	Trials
					(msec)	Detection	
6	1	333	9	0.333	300	70%	30



DESCRIPTION OF EUT

Overview Of EUT With Respect To §15.407 (H) Requirements

The firmware installed in the EUT during testing was: Firmware Rev: 2.6.1

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Master Device.

The highest power level within these bands is 16.44dBm EIRP in the 5250-5350 MHz band and 15.49 dBm EIRP in the 5470-5725 MHz band.

The antenna assembly utilized with the EUT has a gain of 3dBi.

The rated output power of the Master unit is < 23dBm (EIRP). Therefore the required interference threshold level is -64 or -62 dBm. After correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is -62+2 = -60 dBm.

The calibrated conducted DFS Detection Threshold level is set to –64 or -62 dBm. The tested level is lower than the required level hence it provides margin to the limit.

The EUT uses one transmitter connected to two 50-ohm coaxial antenna ports via a diversity switch. Both antenna ports are connected to the test system via a power divider to perform conducted tests.

The Slave device associated with the EUT during these tests does not have radar detection capability.

WLAN traffic is generated by streaming the video file TestFile.mp2 "6 ½ Magic Hours" from the Master to the Slave in full motion video mode using the media player with the V2.61 Codec package.

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11a architecture, with a nominal channel bandwidth of 20 MHz.

Test results show that the EUT requires 50.0 seconds to complete its initial power-up cycle

Manufacturer's Statement Regarding Uniform Channel Spreading

The end product implements an automatic channel selection feature at startup such that operation commences on channels distributed across the entire set of allowed 5GHz channels. This feature will ensure uniform spreading is achieved while avoiding non-allowed channels due to prior radar events.

TEST AND MEASUREMENT SYSTEM

System Overview

The measurement system is based on a conducted test method.

The short pulse and long pulse signal generating system utilizes the NTIA software and the same manufacturer / model Vector Signal Generator as the NTIA. The hopping signal generating system utilizes the simulated hopping method.

The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution. The short pulse types 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time. The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List, with the initial starting point randomized at run-time.

The signal monitoring equipment consists of a spectrum analyzer with the capacity to display 8192 bins on the horizontal axis. A time-domain resolution of 2 msec / bin is achievable with a 16 second sweep time, meeting the 10 second short pulse reporting criteria. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold. A time-domain resolution of 3 msec / bin is achievable with a 24 second sweep time, meeting the 22 second long pulse reporting criteria and allowing a minimum of 10 seconds after the end of the long pulse waveform.

Frequency Hopping Signal Generation

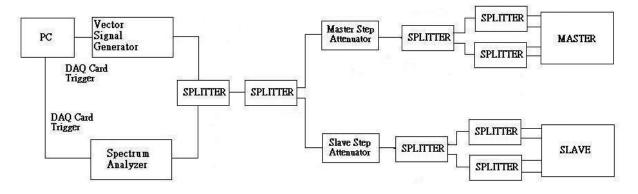
The hopping burst generator is a High Speed Digital I/O card plugged into the control computer. This card utilizes an independent hardware clock reference therefore the output pulse timing is unaffected by host computer operating system latency times.

The software selects the hopping sequence as a 100-length segment of the August 2005 NTIA hopping frequency list. This list contains 274 unique pseudorandom sequences. Each such sequence contains 475 frequencies ordered on a random without replacement basis. Each successive trial uses a contiguous 100- length segment from within each successive 475-length sequence in the list. The initial starting point within the list is randomized at run-time such that the first 100-length segment is entirely contained within the first 475-length sequence. The starting point of each successive trial is incremented by 475.

Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from FL to FH for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.



Conducted Method System Block Diagram



Measurement System Frequency Reference

Lock the signal generator and the spectrum analyzer to the same reference source as follows: Connect the 10 MHz OUT (SWITCHED) on the spectrum analyzer to the 10 MHz IN on the signal generator and set the spectrum analyzer 10 MHz Out to On.

System Calibration

Connect the spectrum analyzer to the test system in place of the master device. Set the signal generator to CW mode. Adjust the amplitude of the signal generator to yield a measured level of –62 dBm on the spectrum analyzer.

Without changing any of the instrument settings, reconnect the spectrum analyzer to the Common port of the Spectrum Analyzer Combiner/Divider and connect a 50 ohm load to the Master Device port of the test system.

Measure the amplitude and calculate the difference from -62 dBm. Adjust the Reference Level Offset of the spectrum analyzer to this difference. Confirm that the signal is displayed at -62 dBm. Readjust the RBW and VBW to 3 MHz, set the span to 10 MHz, and confirm that the signal is still displayed at -62 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of -62 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

Set the signal generator to produce a radar waveform, trigger a burst manually and measure the level on the spectrum analyzer. Readjust the amplitude of the signal generator as required so that the peak level of the waveform is at a displayed level equal to the required or desired interference detection threshold. Separate signal generator amplitude settings are determined as required for each radar type.



Interference Detection Threshold Adjustment

Download the applicable radar waveforms to the signal generator. Select the radar waveform, trigger a burst manually and measure the amplitude on the spectrum analyzer. Readjust the amplitude of the signal generator as required so that the peak level of the waveform is at a displayed level equal to the required or desired interference detection threshold. Separate signal generator amplitude settings are determined as required for each radar type.

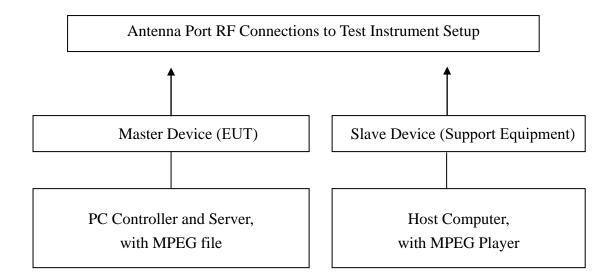
Adjustment Of Displayed Traffic Level

Establish a link between the Master and Slave, adjusting the Link Step Attenuator as needed to provide a suitable received level at the Master and Slave devices. Stream the video test file to generate WLAN traffic. Confirm that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold. Confirm that the displayed traffic is from the Master Device. For Master Device testing confirm that the displayed traffic does not include Slave Device traffic. For Slave Device testing confirm that the displayed traffic does not include Master Device traffic.

If a different setting of the Master Step Attenuator is required to meet the above conditions, perform a new System Calibration for the new Master Step Attenuator setting.



Test Setup

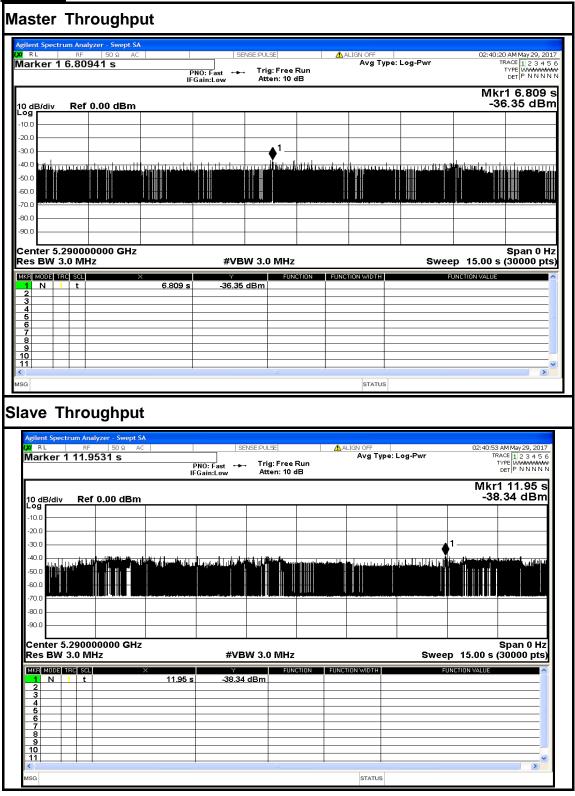




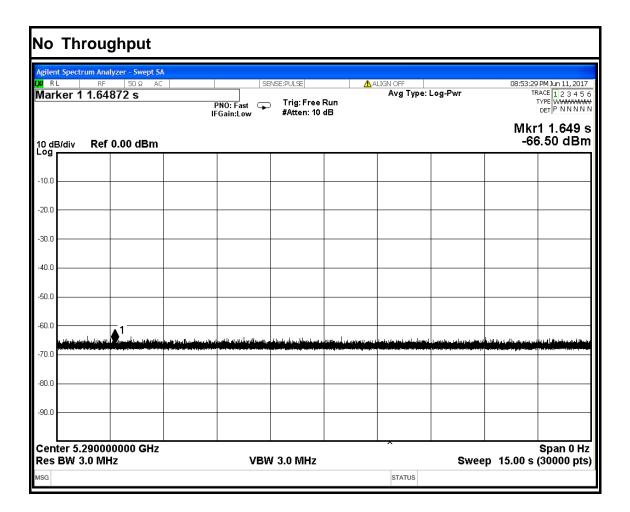
TEST RESULTS

No non-compliance noted

<u>Test plot</u>

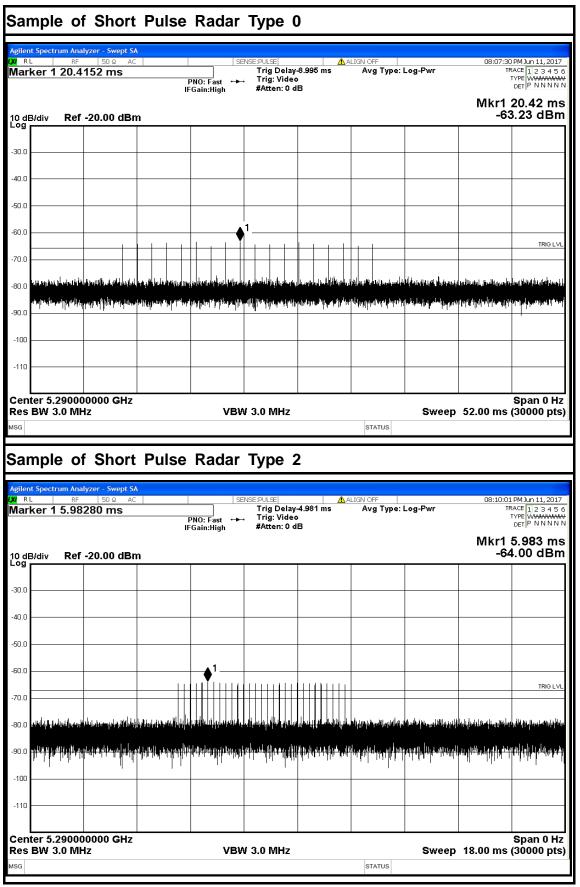








PLOTS OF RADAR WAVEFORMS

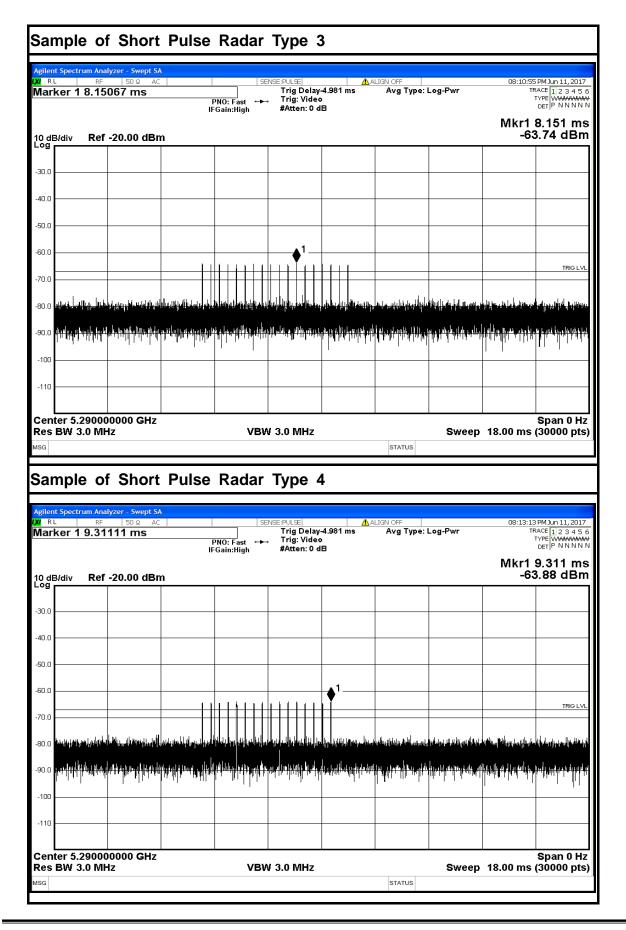


FCC ID: VW7SR700A

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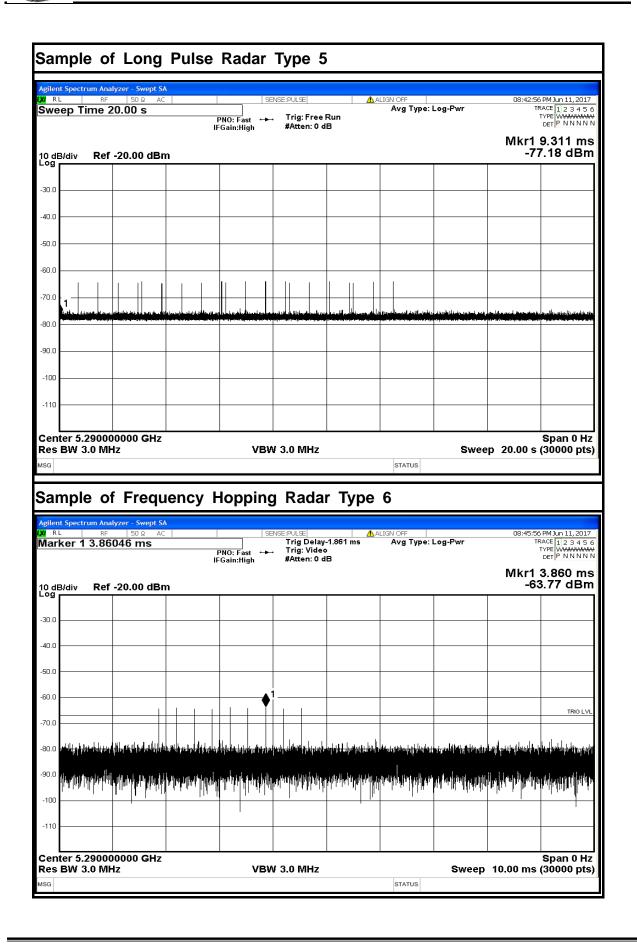


FCC ID: VW7SR700A

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TEST CHANNEL AND METHOD

All tests were performed at a channel center frequency of 5300 MHz utilizing a conducted test method.

CHANNEL AVAILABILITY CHECK TIME

Test Procedure To Determine Initial Power-Up Cycle Time

A link was established on channel then the EUT was rebooted. The time from the cessation of traffic to the re-initialization of traffic was measured as the time required for the EUT to complete the total powerup cycle. The time to complete the initial power-up period is 60 seconds less than this total power-up time.

Test Procedure For Timing Of Radar Burst

With a link established on channel, the EUT was rebooted. A radar signal was triggered within 0 to 6 seconds after the initial power-up period, corresponding to the beginning of the CAC time, and transmissions on the channel were monitored on the spectrum analyzer.

The Non-Occupancy list was cleared. With a link established on channel, the EUT was rebooted. A radar signal was triggered within 54 to 60 seconds after the initial power-up period, corresponding to the end of the CAC time, and transmissions on the channel were monitored on the spectrum analyzer.

Channel Availability Check Time Results

No non-compliance noted.

Time required for EUT to complete the initial power-up cycle (sec)			
50.0			

If a radar signal is detected during the channel availability check then the PC controlling the EUT displays a message stating that radar was detected.

Timing of Radar Burst	Display on EUT / PC Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT Initiates Transmissions	Transmissions begin on channel after completion of the initial power-up cycle and the 60 second CAC
Within 0 to 6 second window	EUT indicates radar detected EUT does not display any radar parameter values	No transmissions on channel
Within 54 to 60 second window	EUT indicates radar detected EUT does not display any radar parameter values	No transmissions on channel



CHANNEL MOVE TIME AND CHANNEL CLOSING TRANSMISSION TIME

General Reporting Notes

The reference marker is set at the end of last radar pulse.

Type 0 Radar Reporting Notes

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =

(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated

Begins no later than (Reference Marker + 200 msec)

and

Ends no earlier than (Reference Marker + 10 sec).

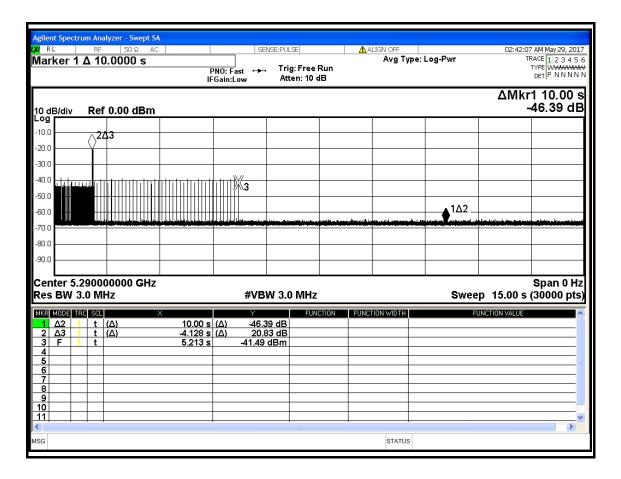
TEST RESULTS

LOW BAND RESULTS

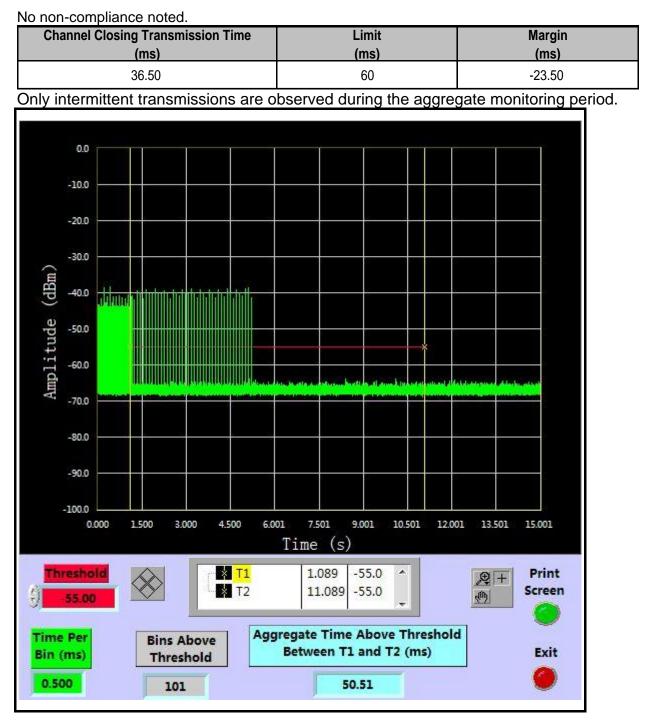
IEEE 802.11ac 80 MHz Mode

Type 0 Channel Move Time Results

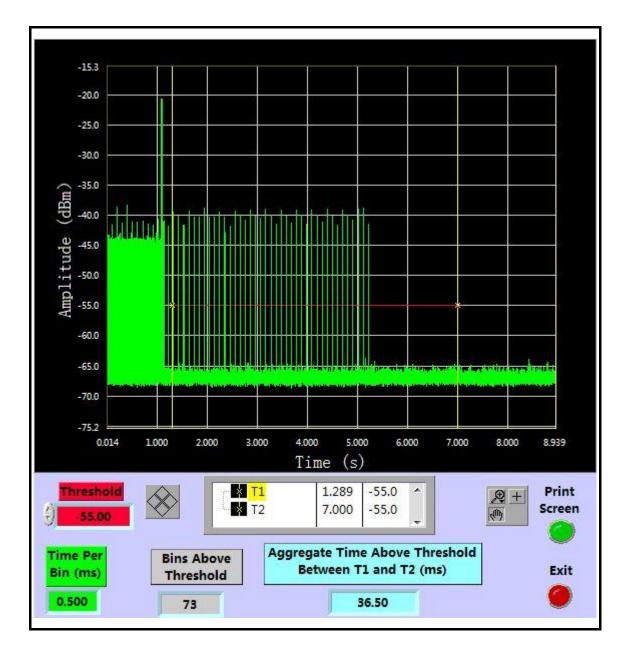
Channel Move Time	Limit		
(s)	(s)		
4.128	10		



Type 0 Channel Closing Transmission Time sResults









Non-Occupancy Period

Type 0 Non-Occupancy Period Test Results

No non-compliance noted: No EUT transmissions were observed on the test channel during the 30 minute observation time.

		ctru		alyzer - Swept S/											
uxu ⊧ Mai		1 /	RF 1.	50 Ω AC 80000 ks	P	'NO: F Gain:l] ast ⊶⊷		se g:Free en:10 d		<u>A</u> A	LIGN OFF Avg Type	e: Log-Pwr		23 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N
10 c	B/div	,	Ref	⁷ 0.00 dBm										ΔMkr	1 1.800 ks -50.75 dB
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-20.0 -30.0	'ET	\ <u>z</u>													
-40.0 -50.0															
-60.0		أستخدمه				والليوار ويراك		lutu in i - i		ب يەخلەردان م	معدماس	and the sector of the sector o			1∆2
-70.0 -80.0															
-90.0															
Cei Res	nter s BW	5.29 / 3.0	900 0 M	00000 GHz Hz			#VB	W 3.0) MHz				Swee	p 2.000 k	Span 0 Hz s (30000 pts)
1	Mode A2	TRC 1	t	(Δ)	× 1.800 ks	(Δ)	Y -50.7	′5 dB	FUN	CTION	FUNC	ION WIDTH		FUNCTION VALUE	
2 3 4	F	1	t		50.94 s		-15.70	dBm							
5 6 7															
8 9 10															
11															<u> </u>
MSG												STATUS			



Initial Channel Availability Check Time (Master)

The EUT does not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle (=107.9-60=57.9 sec).

			alyzer - Swept S/									
w, Mar	-	r⊧ I ∆ -6	50 Ω AC 0.0000 s	P	SE NO: Fast ↔ Gain:Low	NSE:PULSE Trig: Fr Atten: 1		AL	LIGN OFF Avg Type	: Log-Pwr	Т	9 AM May 29, 2017 RACE 1 2 3 4 5 6 TYPE WWWWWWW DET P N N N N N
	B/div	Ref	f 0.00 dBm								∆Mkr′	1 -60.00 s -23.39 dB
Log -10.0												
-20.0												
-30.0 -40.0										2 2	t 1991 te commission (traji))	11 Milea Introposationa mutamminatio
-50.0 -60.0	3				1∆2							
-70.0		نهريات بي	dinaria and in provide the pringeria			and a second second second		*****	inite and history of		-	
-80.0 -90.0												
		.2900 3.0 M	00000 GHz Hz		#VB	W 3.0 MI	łz			Swee	ep 150.0 s	Span 0 Hz (30000 pts)
	MODE 1 A2	RC SCL	(Δ)	× -60.00 s	(A) 23.1	39 dB	UNCTION	FUNCT	ION WIDTH	l	UNCTION VALUE	^
2	N N	1 t 1 t		107.9 s 0.000 s	-41.13 -65.52	dBm						
4 5 6												Ξ
7	_											
9 10												
11												×
MSG									STATUS			



Agilant S	n o otru		alyzer - Swept	7 A							
XI RL		RF	50 Ω /	бА (С	SE	ENSE:PULSE	<u> </u>	ALIGN OFF		02:	32:59 AM May 29, 2017
Marke	er 1	Δ-6	0.0000 s		PNO: Fast ++-	. Trig: Free Atten: 10 d	Run	Avg Typ	e: Log-Pwr		TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N
					Gam.Eow		-			ΔM	kr1 -60.00 s
10 dB/c Log	div	Ref	f 0.00 dBm)		1		1			0.01 dB
-10.0											
-20.0											
-30.0											
-40.0											
-60.0	}				1∆2				<u>2</u>		
-70.0	n and in som	in tolly				el a mili de estate atravisione	ويراجع والمحرور والمحرو	n an	an paling and some		
-80.0									_		
-90.0											
L Cente	r 5.2	900	00000 GH:	Z	I						Span 0 Hz
Res B					#VB	W 3.0 MHz			Swe	·) s (30000 pts)
	2 1	t	(Δ)	× -60.00 s	(Δ) <u>0.</u>	01 dB	CTION FUNC	CTION WIDTH		FUNCTION VAL	<u>UE ^</u>
2 N 3 N		t		107.9 s 0.000 s	-65.84 -65.58						
4											=
6											
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10 11	-										~
	_										
< MSG					-	1111		STATUS			>
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MSG								STATUS			
	pectru	Im Ana	alyzer - Swept	SA				STATUS			
Agilent Sj X/ R L		RF		C				ALIGN OFF	e: Log-Pwr	02:	35:48 AM May 29, 2017
Agilent Sj X/ R L		RF	50Ω /	IC F	SE PNO: Fast → Gain:Low		Run	ALIGN OFF	e: Log-Pwr		35:48 АМ Мау 29, 2017 TRACE 1 2 3 4 5 6 ТҮРЕ (WWWWWWW DET P N N N N
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Agilent S Marke	er 1 /	_{RF} Δ -6	50Ω /	ic I IF	PNO: Fast 🔸	Trig: Free	Run	ALIGN OFF	e: Log-Pwr		35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 Түре (www.www DET / P N N N N Kr1 -60.00 s
Agilent Sj X/ RL Marke 10 dB/c	er 1 /	_{RF} Δ -6	50 Ω / i0.0000 s	ic I IF	PNO: Fast 🔸	Trig: Free	Run	ALIGN OFF	e: Log-Pwr		35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 Түре (www.www DET / P N N N N Kr1 -60.00 s
Agilent Sj XJ RL Marke	er 1 /	_{RF} Δ -6	50 Ω / i0.0000 s	ic I IF	PNO: Fast 🔸	Trig: Free	Run	ALIGN OFF	e: Log-Pwr		35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 Түре (www.www DET / P N N N N Kr1 -60.00 s
Agilent Sy XI RL Marke -10.0 -20.0 -30.0 -40.0	er 1 /	_{RF} Δ -6	50 Ω / i0.0000 s	ic I IF	PNO: Fast 🔸	Trig: Free	Run	ALIGN OFF	e: Log-Pwr		35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 Түре (www.www DET / P N N N N Kr1 -60.00 s
Agilent Sy X/ RL Marke -10.0 -20.0 -30.0 -50.0	ər 1 . div	_{RF} Δ -6	50 Ω / i0.0000 s	ic I IF	Gain:Low	Trig: Free	Run	ALIGN OFF			35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 Түре (www.www DET / P N N N N Kr1 -60.00 s
Agilent Sj X RL Marke -10.0 -20.0 -30.0 -40.0 -50.0 -50.0 -60.0	ər 1 . div	_{RF} Δ -6	50 Ω / i0.0000 s	ic I IF	PNO: Fast 🔸	Trig: Free	Run	ALIGN OFF	e: Log-Pwr		35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 Түре (www.www DET / P N N N N Kr1 -60.00 s
Agilent Sy X/ RL Marke -10.0 -20.0 -30.0 -50.0	ər 1 . div	_{RF} Δ -6	50 Ω / i0.0000 s	ic I IF	Gain:Low	Trig: Free	Run	ALIGN OFF			35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 Түре (www.www DET / P N N N N Kr1 -60.00 s
Agilent Sj X RL Marke 10 dB/c 20.0 -20.0 -30.0 -40.0 -50.0 -50.0 -50.0 -70.0	ər 1 . div	_{RF} Δ -6	50 Ω / i0.0000 s	ic I IF	Gain:Low	Trig: Free	Run	ALIGN OFF			35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 Түре (www.www DET / P N N N N Kr1 -60.00 s
Agilent Sj X RL Marke -10.0 -20.0 -20.0 -30.0 -30.0 -50.0 -50.0 -70.0 -80.0 -90.0	div	Ref	50 0 / 50 60.000 s		Gain:Low	Trig: Free	Run	ALIGN OFF			35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P NNNN N kr1 -60.00 s -0.29 dB
Agilent Sj X RL Marke -10.0 -20.0 -20.0 -30.0 -30.0 -50.0 -50.0 -70.0 -80.0 -90.0	div 3	Ref	50.0000 GH:		Gain:Low →	Trig: Free	Run iB	ALIGN OFF Avg Typ	2 	ΔM	35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N kr1 -60.00 s -0.29 dB -0.29 dB
Agilent Sj Xi RL Marke -10.0 -20.0 -20.0 -20.0 -20.0 -20.0 -30.0 -20.0 -30.0 -	div div 3 4 5 7 5.2 W 3. 0 9 TR	Ref Ref 9000 0 M	50.0000 s	RC	PNO: Fast Gain:Low	Trig: Free Atten: 10 of	Run iB	ALIGN OFF	2 		35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N kr1 -60.00 s -0.29 dB -0.29 dB
Agilent Sy X RL Marke -10.0 -20.0 -20.0 -30.0 -20.0 -30.0 -40.0 -30.0 -40.0 -40.0 -50.0 -30.0 -50.0 -30.0 -50.0 -30.0 -40.0 -50.0 -30.0 -50.0	div div 3 	Ref Ref 9000 0 M	50 0 / 20 60.0000 s f 0.00 dBm 60.00 dBm	EC	PNO: Fast Gain:Low	Trig: Free Atten: 10 o	Run iB	ALIGN OFF Avg Typ	2 	ΔM	35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N kr1 -60.00 s -0.29 dB -0.29 dB
Agilent Sj X RL Marke -10.0 -20.0 -20.0 -3	div div 3 	Ref Ref 9000 0 M	50.0000 s	F IF	PNO: Fast Gain:Low 1Δ2 #VB (Δ) - 66.14	Trig: Free Atten: 10 o	Run iB	ALIGN OFF Avg Typ	2 	ΔM	35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N kr1 -60.00 s -0.29 dB -0.29 dB
Agilent Sj 20 RL Marke 10 dB/c -10.0 -20.0 -20.0 -20.0 -30.0 -40.0 -30.0 -40.0 -40.0 -30.0 -40.0 -50.0 -30.0 -50.0 -30.0 -60.0 -2	div div 3 	Ref Ref 9000 0 M	50.0000 s	F IF	PNO: Fast Gain:Low 1Δ2 #VB (Δ) - 66.14	Trig: Free Atten: 10 o	Run iB	ALIGN OFF Avg Typ	2 	ΔM	35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N kr1 -60.00 s -0.29 dB -0.29 dB
Agilent Sy X RL Marke 10 dB/c 20.0 -10.0 -20.0 -20.0 -20.0 -30.0 -40.0 -30.0 -40.0 -40.0 -40.0 -50.0 -60.0 -70.0 -60.0 -70.0 -60.0 -70.0 -60.0 -70.	div div 3 	Ref Ref 9000 0 M	50.0000 s	F IF	PNO: Fast Gain:Low 1Δ2 #VB (Δ) - 66.14	Trig: Free Atten: 10 o	Run iB	ALIGN OFF Avg Typ	2 	ΔM	35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N kr1 -60.00 s -0.29 dB -0.29 dB
Agilent Sj 20 RL Marke 10 dB/c -10.0 -20.0 -20.0 -20.0 -30.0 -40.0 -30.0 -40.0 -40.0 -30.0 -40.0 -50.0 -30.0 -50.0 -30.0 -60.0 -2	div div 3 	Ref Ref 9000 0 M	50.0000 s	F IF	PNO: Fast Gain:Low 1Δ2 #VB (Δ) - 66.14	Trig: Free Atten: 10 o	Run iB	ALIGN OFF Avg Typ	2 	ΔM	35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N kr1 -60.00 s -0.29 dB -0.29 dB
Agilent Sy X RL Marke Marke -10.0 -20.0 -20.0 -20.0 -20.0 -30.0 -30.0 -30.0 -40.0 -30.0 -40.0 -30.0	div div 3 	Ref Ref 9000 0 M	50.0000 s	F IF	PNO: Fast Gain:Low 1Δ2 #VB (Δ) - 66.14	Trig: Free Atten: 10 o	Run iB	ALIGN OFF Avg Typ	2 	ΔM	35:48 AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P N N N N N kr1 -60.00 s -0.29 dB -0.29 dB



DETECTION BANDWIDTH

IEEE 802.11n 20 MHz Mode

Test Results

FL (MHz)	FH (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (MHz)	Minimum Limit (%)
5291	5309	18	17.585	102.36	100

Number of Trials	Frequency (MHz)	Number Detected	Detection(%)
10	5291	9	90
10	5292	10	100
10	5293	10	100
10	5294	8	80
10	5295	8	80
10	5300	10	100
10	5305	9	90
10	5306	10	100
10	5307	10	100
10	5308	10	100
10	5309	9	90



IEEE 802.11n 40 MHz Mode

Test Results

FL (MHz)	FH (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (MHz)	Minimum Limit (%)
5292	5328	36	35.973	100.07	100

Number of Trials	Frequency (MHz)	Number Detected	Detection(%)
10	5292	9	90
10	5293	10	100
10	5294	10	100
10	5295	8	80
10	5300	10	100
10	5305	8	80
10	5310	10	100
10	5315	9	90
10	5320	10	100
10	5325	10	100
10	5326	10	100
10	5327	9	90
10	5328	9	90



IEEE 802.11ac 80 MHz Mode

Test Results

FL (MHz)	FH (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (MHz)	Minimum Limit (%)
5252	5328	76	74.884	101.49	100

	Frequency	Number	
Number of Trials	(MHz)	Detected	Detection(%)
10	5252	9	90
10	5253	10	100
10	5254	10	100
10	5255	9	90
10	5260	10	100
10	5265	9	90
10	5270	10	100
10	5275	10	100
10	5280	10	100
10	5285	8	80
10	5290	10	100
10	5295	8	80
10	5300	10	100
10	5305	9	90
10	5310	10	100
10	5315	10	100
10	5320	9	90
10	5325	10	100
10	5326	9	90
10	5327	10	100
10	5328	9	90



Statistical Performance Check

IEEE 802.11n 20 MHz Mode

Test Results

No non-compliance noted:

Summary of Detection Probability

Radar Type	Number of Trials	Detection (%)	Limit (%)	Pass / Fail
Туре 0	30	93.33	60	Pass
Type 2	30	96.67	60	Pass
Туре 3	30	96.67	60	Pass
Type 4	30	96.67	60	Pass
Aggregate of 1 to 4	30	95.84	80	Pass
Туре 5	30	96.67	70	Pass
Туре 6	30	96.67	80	Pass



Type 0 Detection Probability

Trial No.	Successful Detection
	(Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	NO
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	NO
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES
00	120



Type 2 Detection Probability

	Successful Detection
Trial No.	(Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	NO
30	YES



Type 3 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	NO
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 4 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	NO
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES

Type 5 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	NO
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES

Type 6 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	NO
25	YES
26	YES
27	YES
30	YES



IEEE 802.11n 40 MHz Mode

Test Results

No non-compliance noted:

Summary of Detection Probability

Radar Type	Number of Trials	Detection (%)	Limit (%)	Pass / Fail
Туре 0	30	90.00	60	Pass
Type 2	30	96.67	60	Pass
Туре 3	30	90.00	60	Pass
Type 4	30	96.67	60	Pass
Aggregate of 1 to 4	30	93.34	80	Pass
Туре 5	30	96.67	70	Pass
Туре 6	30	96.67	80	Pass



Type 0 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	NO
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	NO
19	YES
20	YES
21	YES
22	YES
23	NO
24	YES
25	YES
26	YES
27	YES
30	YES



Type 2 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	NO
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 3 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	NO
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	NO
22	YES
23	YES
24	YES
25	YES
26	YES
27	NO
30	YES



Type 4 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	NO
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES

Type 5 Detection Probability

Trial No.	Successful Detection					
	(Yes/No)					
1	YES					
2	YES					
3	YES					
4	YES					
5	YES					
6	YES					
7	YES					
8	YES					
9	YES					
10	YES					
11	YES					
12	YES					
13	YES					
14	YES					
15	YES					
16	YES					
17	YES					
18	YES					
19	YES					
20	YES					
21	NO					
22	YES					
23	YES					
24	YES					
25	YES					
26	YES					
27	YES					
30	YES					

Type 6 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	NO
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES

IEEE 802.11ac 80 MHz Mode

<u>Test Results</u>

No non-compliance noted:

Summary of Detection Probability

Radar Type	Number of Trials	Detection (%)	Limit (%)	Pass / Fail
Туре 0	30	96.67	60	Pass
Type 2	30	96.67	60	Pass
Туре 3	30	96.67	60	Pass
Туре 4	30	96.67	60	Pass
Aggregate of 1 to 4	30	96.67	80	Pass
Туре 5	30	96.67	70	Pass
Туре 6	30	96.67	80	Pass

Type 0 Detection Probability

Trial No.	Successful Detection (Yes/No)					
1	YES					
2	YES					
3	YES					
4	YES					
5	YES					
6	YES					
7	YES					
8	YES					
9	YES					
10	YES					
11	YES					
12	YES					
13	YES					
14	YES					
15	NO					
16	YES					
17	YES					
18	YES					
19	YES					
20	YES					
21	YES					
22	YES					
23	YES					
24	YES					
25	YES					
26	YES					
27	YES					
30	YES					



Type 2 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	NO
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	NO
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 3 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	NO
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 4 Detection Probability

Trial No.	Successful Detection (Yes/No)					
1	YES					
2	YES					
3	YES					
4	YES					
5	YES					
6	YES					
7	YES					
8	YES					
9	YES					
10	YES					
11	NO					
12	YES					
13	YES					
14	YES					
15	YES					
16	YES					
17	YES					
18	YES					
19	YES					
20	YES					
21	YES					
22	YES					
23	YES					
24	YES					
25	YES					
26	YES					
27	YES					
30	YES					

Type 5 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	NO
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 6 Detection Probability

Trial No.	Successful Detection (Yes/No)					
1	YES					
2	YES					
3	YES					
4	YES					
5	YES					
6	YES					
7	YES					
8	YES					
9	YES					
10	YES					
11	YES					
12	YES					
13	NO					
14	YES					
15	YES					
16	YES					
17	YES					
18	YES					
19	YES					
20	YES					
21	YES					
22	YES					
23	YES					
24	YES					
25	YES					
26	YES					
27	YES					
30	YES					



CHANNEL MOVE TIME AND CHANNEL CLOSING TRANSMISSION TIME

General Reporting Notes

The reference marker is set at the end of last radar pulse.

Type 0 Radar Reporting Notes

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =

(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated

Begins no later than (Reference Marker + 200 msec)

and

Ends no earlier than (Reference Marker + 10 sec).

HIGH BAND RESULTS

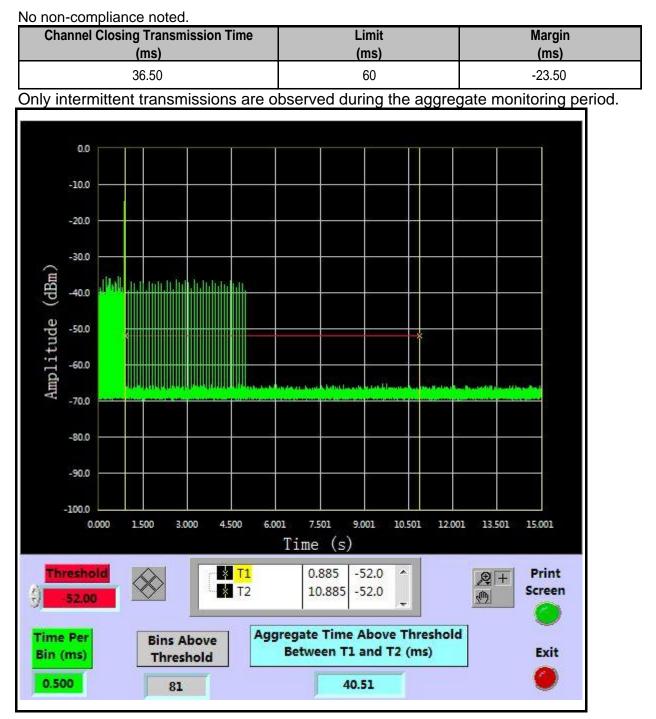
IEEE 802.11ac 80 MHz Mode

Type 0 Channel Move Time Results

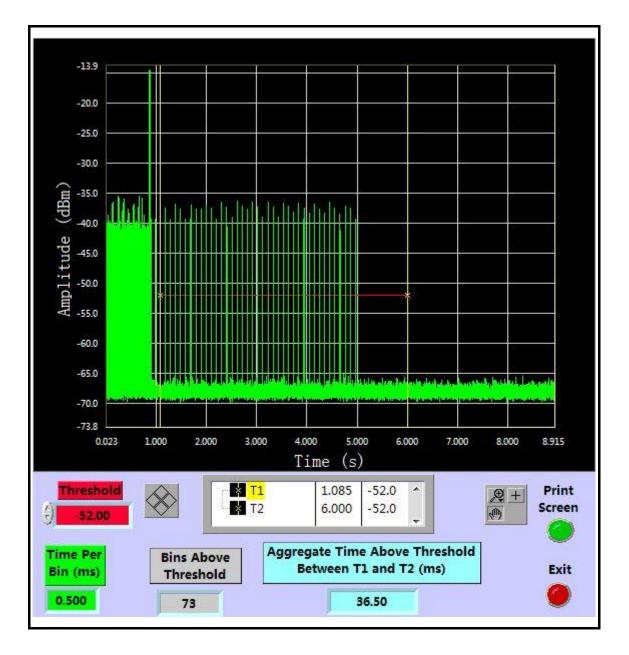
Channel Move Time	Limit					
(s)	(s)					
4.100	10					

	Agilent Spectrum Analyzer - Swept SA 30 R L RF 50 Ω AC SENSE:PULSE ALIGN OFF 02:49:56 AM May 29, 2017															
Marl	Marker 1 △ 10.0000 s Avg Type: Log-Pwr TRAC PNO: Fast →→ Trig: Free Run TYP IFGain:Low Atten: 10 dB DE											56 AM May 29, 2017 IRACE 1 2 3 4 5 6 TYPE WWWWWWWW DET P N N N N N				
10 dE	0 dB/div Ref 0.00 dBm -53.83 dB													r1 10.00 s -53.83 dB		
-10.0		\rightarrow^{2i}	73													
-20.0 -30.0		1														
-40.0 -50.0	ակա						3									
-60.0							والد المحملين مالك				فانصر حداد	to be dented to add a largestore	6	●1∆2 —	innin Marco of statistic	
-70.0 -80.0																
-90.0																
Cen Res			000000 VIHz) GHz			#VB	W 3.0	MHz					Swee	p 15.00 s	Span 0 Hz (30000 pts)
1 2 3 4	MODE ∆2 ∆3 F		(Δ) (Δ)	>	10.00 s -4.100 s 4.966 s		-53.8 24.7 -39.36	3 dB 75 dB dBm	FUN	CTION		TION WIDTH		FL	UNCTION VALUE	<u> </u>
5 6 7 8 9																
11																×
MSG												STATUS				

Type 0 Channel Closing Transmission Time Results









Non-Occupancy Period

Type 0 Non-Occupancy Period Test Results

No non-compliance noted: No EUT transmissions were observed on the test channel during the 30 minute observation time.

		ctru		ilyzer - Swept S											
<mark>w</mark> ⊪ Ma		1 /	RF 1.	50 Ω AC 80000 ks	P	'NO: F Gain:l] ast ⊶⊷		se g:Free en:10 d		<u>∧</u> A	LIGN OFF Avg Typ	e: Log-Pwr		HB AM May 29, 2017 TRACE 1 2 3 4 5 6 TYPE WWWWWWW DET P N N N N N
10 c	ΔMkr1 1.800 ks 0 dB/div Ref 0.00 dBm -53.81 dB														l 1.800 ks -53.81 dB
-10.0	8	,													
-20.0	ΊΗ	-													
-30.0	ш														
-50.0															▲ 1Δ2
-60.0 -70.0		ن مارکنی ا	.			al ye di di ta	n manaka k	lada da se d	i an	بوطاعطاتهم	uda sere	a alduna ta angla a	• • • • • • • • • • • • • • • • • • •		
-80.0															
-90.0															
	nter s BN			00000 GH z Hz			#VB	W 3.0) MHz				Swee	o 2.000 ks	Span 0 Hz (30000 pts)
MKR 1	MODE	TRC		(Δ)	× 1.800 ks	(A)	Y .53 9	1 dB	FUN	CTION	FUNCT	TION WIDTH		FUNCTION VALUE	<u>^</u>
23	F	1	ť		28.87 s		-11.77	dBm							
45															≡
6 7 8															
9 10															
11											1				<u>×</u>
MSG												STATUS			



Initial Channel Availability Check Time (Master)

The EUT does not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle (=107.4-60=47.4 sec).

		ctrur			Swept																
Mari		1 /	RF \ -6			AC			NO: Fa Gain:L	ast ∔		_{LSE} ig: Free ten: 10		<u> </u>	LIGN OFF Avg Ty	rpe: I	₋og-Pwr		02	TR	AM May 29, 2017 ACE 1 2 3 4 5 6 YPE WWWWWW DET P N N N N
10 dE Log	3/div	,	Ref	0.00	dBn	<u>1</u>													ΔM		-60.00 s 30.99 dB
-10.0						+															
-20.0 -30.0 -40.0																	∂ ²				
-50.0 -60.0	3	.	1				be and the set	ي اورون	1∠	\2						د بغدس					
-70.0 -80.0									,												
-90.0																					
Cen Res					0 GH	z				#VE	SW 3.	0 MHz	!				SI	vee	p 150.	0 s (Span 0 Hz 30000 pts)
MKR 1 2 3 4 5	MODE A2 N N	1 1 1	SCL t t	(Δ)		×	107	00 s 7.4 s 00 s	(Δ)	-36.32	<u>99 dB</u> 2 dBm 2 dBm		NCTION	FUNCT	TION WIDTH			FL	INCTION VA	LUE	^
6 7 8 9 10																					
11 MSG															STATUS	3					<u> </u>



		ectrum		lyzer - Swept SA									
L <mark>XI</mark> I		. 4 . 4	RF	50 Ω AC 0.0000 s			SENSE:PU	LSE	A	ALIGN OFF	e: Log-Pwr	02	TRACE 1 2 3 4 5 6
wia	rker		-0	0.0000 S		NO:Fast ← Gain:Low	⊫ Tri At	ig: Free Run ten: 10 dB		0 1 B 1 H	ve. Logi wi		
				0.00 dDm								ΔM	kr1 -60.00 s 0.55 dB
Log	dB/di	V I	Ret	0.00 dBm									0.00 0.0
-10.							_						
-20.													
-30.	- 1						+						
-40.	-												
-50.							_						
-60.	13					 1∆2					<u>^2</u>		
	- Kennes	a ditta anna a th	a later a		li gu a kha sa an ta an ta				dip data da um a itu i				and and a start of the start of
-70.1													
-80.	י ⊢ י												
-90.	□ 						_						
			_	<u> </u>									
				00000 GHz							_		Span 0 Hz
Re	s BV	V 3.0	IVI	HZ		#V	BW 3.	∪ IVIHZ			SW	eep 150.	0 s (30000 pts)
MKF		e TRC		>	<	Y		FUNCTION	FUNC	TION WIDTH		FUNCTION VA	LUE
1	Δ2	1		(Δ)	-60.00 s		0.55 dB						
2 3	N	1	t		107.4 s 0.000 s		<u>28 dBm</u> 33 dBm		-				
4			•		0.000 3	-01.0							
5 6		+	_										
7													
8									_				
9 10		+	_						-				
11													×
<													
MSG										STATUS			
		ectrum		llyzer - Swept SA			CENCER					07	10.44 MMar 20, 2017
LXI i	RL		RF	50 Ω AC			SENSE:PU	LSE	۹ ۸	ALIGN OFF	e:Log-Pwr	02	:19:44 AM May 29, 2017 TRACE 1 2 3 4 5 6
LXI i	RL		RF		P		🛏 Tri	ig: Free Run	L L L L L L L L L L L L L L L L L L L		be: Log-Pwr	02	TRACE 1 2 3 4 5 6 TYPE WWWWWWW
LXI i	RL		RF	50 Ω AC	P	'NO: Fast Gain:Low	🛏 Tri		L L L L L L L L L L L L L L L L L L L		De: Log-Pwr		TRACE 1 2 3 4 5 6 TYPE WWWWWWW DET P N N N N N
LXI i	RL		RF	50 Ω AC	P		🛏 Tri	ig: Free Run	A_A		De: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 c	rker	r 1 Δ	RF 6	50 Ω AC	P		🛏 Tri	ig: Free Run	A \Lambda		De: Log-Pwr		TRACE 1 2 3 4 5 6 TYPE WWWWWWW DET P N N N N N
10 of Log	rker	r 1 Δ	RF 6	50 Ω AC 0.0000 s	P		🛏 Tri	ig: Free Run	A		De: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 c	rker	r 1 Δ	RF 6	50 Ω AC 0.0000 s	P		🛏 Tri	ig: Free Run	∧ ≜		De: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 of Log	nker	r 1 Δ	RF 6	50 Ω AC 0.0000 s	P		🛏 Tri	ig: Free Run	A.A		be: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 d Log		r 1 Δ	RF 6	50 Ω AC 0.0000 s	P		🛏 Tri	ig: Free Run	A ▲		>e: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 a 10 a -10,1 -20,1		r 1 Δ	RF 6	50 Ω AC 0.0000 s	P		🛏 Tri	ig: Free Run	▲ A		be: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 (Log -10,1 -20,1 -30,1 -40,1		r 1 Δ	RF 6	50 Ω AC 0.0000 s	P		🛏 Tri	ig: Free Run	▲ A		be: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 a 10 a -10,1 -20,1		r 1 Δ	RF 6	50 Ω AC 0.0000 s	P	Gain:Low	🛏 Tri	ig: Free Run			se: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 (Log -10,1 -20,1 -30,1 -40,1		r 1 Δ	RF 6	50 Ω AC 0.0000 s	P		🛏 Tri	ig: Free Run			be: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 c Ma -10,1 -20,1 -30,1 -40,1 -50,1		r 1 Δ	RF 6	50 Ω AC 0.0000 s	P	Gain:Low	🛏 Tri	ig: Free Run			be: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 c Ma -10,1 -20,1 -30,1 -40,1 -50,1 -50,1 -70,1		r 1 Δ	RF 6	50 Ω AC 0.0000 s	P	Gain:Low	🛏 Tri	ig: Free Run			2		TRACE 123456 TYPE WWWWWW DET P NNNNN
(X) 1 Ma 10 (Log -10,1 -20,1 -30,1 -30,1 -50,1 -50,1 -70,1 -80,1	dB/di	r 1 Δ	RF 6	50 Ω AC 0.0000 s	P	Gain:Low	🛏 Tri	ig: Free Run			De: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
10 c Ma -10,1 -20,1 -30,1 -40,1 -50,1 -50,1 -70,1	dB/di	r 1 Δ	RF 6	50 Ω AC 0.0000 s	P	Gain:Low	🛏 Tri	ig: Free Run			be: Log-Pwr		TRACE 123456 TYPE WWWWWW DET P NNNNN
(X) 1 Ma -10.1 -20.1 -20.1 -30.1 -60.1 -60.1 -70.1 -90.1	B/di		RF Ref	0.00 dBm	P	Gain:Low	🛏 Tri	ig: Free Run			be: Log-Pwr		IKACE 1123456 TYPE WWWWWWW DET PNNNN Ikr1 -60.00 s 1.54 dB
(X) 1 Ma 10 (Cog -10.) -20.) -30.) -30.) -50.) -50.) -50.) -50.) -70.] -70.] -	dB/di	r 1 Δ	RF -6 Ref	0.00 dBm	P	Gain:Low		ig: Free Run ten: 10 dB					IRACE 12 3 4 5 6 TYPE WAMMAND DET P NNNNN IKT1 -60.00 s 1.54 dB
(X 1 Ma 10 c 20, -20, -20, -30, -30, -50, -30, -30, -30, -30, -20, -20, -20, -20, -20, -20, -20, -2	dB/di	ν 1 Δ	Ref	0.00 dBm	P IF	Gain:Low		ig: Free Run ten: 10 dB		Avg Ty		ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
(X) 1 Ma 10 (20, -10, -20, -20, -30, -20, -30, -20, -20, -20, -20, -20, -20, -20, -2	dB/di	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1Δ2 ₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	BW 3.	ig: Free Run ten: 10 dB					IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
<mark>и 10 су Ма 10 су 20,1 -2</mark>	dB/di	r 1 Δ v 1	Ref 0000 MI 801	0.00 dBm	Р F	Gain:Low 1Δ2 #V #V	Tri At	ig: Free Run ten: 10 dB		Avg Ty		ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
10 (10 (Log -10. -20. -30. -40. -30. -40. -50. -50. -50. -60. -70. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -90. -80. -90. -	dB/di	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1∆2 #V (△) 	BW 3.	ig: Free Run ten: 10 dB		Avg Ty	2 	ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
ия 10 « 10 « 20.1 -20.1	Alborna and a second se	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1∆2 #V (△) 	BW 3.	ig: Free Run ten: 10 dB		Avg Ty	2 	ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
ия 10 « 10 « 20.1 -20.1	Alborna and a second se	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1∆2 #V (△) 	BW 3.	ig: Free Run ten: 10 dB		Avg Ty	2 	ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
ия Ма 10 « 10. 20. -20.	Alborna and a second se	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1∆2 #V (△) 	BW 3.	ig: Free Run ten: 10 dB		Avg Ty	2 	ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
ия 10 « 10 « 20.1 -20.1	Alborna and a second se	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1∆2 #V (△) 	BW 3.	ig: Free Run ten: 10 dB		Avg Ty	2 	ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
Ma 10 (Log -10.1 -20.1 -	Alborna and a second se	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1∆2 #V (△) 	BW 3.	ig: Free Run ten: 10 dB		Avg Ty	2 	ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
10 (10 (Log -10. -20. -30. -40. -30. -40. -50. -50. -50. -60. -70. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -80. -90. -90. -80. -90. -	Alborna and a second se	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1∆2 #V (△) 	BW 3.	ig: Free Run ten: 10 dB		Avg Ty	2 	ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
I0 € -10.0 -20.0 -30.0 -40.0 -50.0 -80.0 -90.0 -80.0 -90.0 -80.0 -90.1 23 45 66 77 99 10 11	Alborna and a second se	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1∆2 #V (△) 	BW 3.	ig: Free Run ten: 10 dB			2 	ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB
Ma 10 (construction) -10.1 -20.1 -20.1 -30.1 -40.1 -50.1 -60.1 -70.1 -80.1 -80.1 -90.1 -80.2 -70.3 -80.1 -80.2 -80.1 -80.2 -80.2 -80.2 -80.2 -80.2 -80.2 -80.2 -80.2 -70.3 -80.2 -70.3 -80.2 -70.3 -70.3 -70.3 -70.4 -70.4 -70.5 -70.4 -70.4 -70.4 -70.4 -70.4 -70.4 -70.4 -70.4 -70.4 -70.4 -70.4 -70.4 <t< td=""><td>Alborna and a second se</td><td>r 1 Δ v 1</td><td>Ref 0000 MI</td><td>0.00 dBm</td><td>P IF</td><td>Gain:Low 1∆2 #V (△) </td><td>BW 3.</td><td>ig: Free Run ten: 10 dB</td><td></td><td>Avg Ty</td><td>2 </td><td>ΔM</td><td>IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB </td></t<>	Alborna and a second se	r 1 Δ v 1	Ref 0000 MI	0.00 dBm	P IF	Gain:Low 1∆2 #V (△) 	BW 3.	ig: Free Run ten: 10 dB		Avg Ty	2 	ΔM	IRACE 1123456 TYPE WWWWWW DET P NNNN Ikr1 -60.00 s 1.54 dB



DETECTION BANDWIDTH

IEEE 802.11n 20 MHz Mode

Test Results

FL (MHz)	FH (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (MHz)	Minimum Limit (%)
5491	5509	18	17.589	102.34	100

Number of Trials	Frequency (MHz)	Number Detected	Detection(%)
10	5491	9	90
10	5492	10	100
10	5493	10	100
10	5494	9	90
10	5495	10	100
10	5500	10	100
10	5505	10	100
10	5506	8	80
10	5507	10	100
10	5508	8	80
10	5509	10	100



IEEE 802.11n 40 MHz Mode

Test Results

FL (MHz)	FH (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (MHz)	Minimum Limit (%)
5492	5528	36	35.964	100.10	100

Number of Trials	Frequency (MHz)	Number Detected	Detection(%)
10	5292	9	90
10	5293	10	100
10	5294	10	100
10	5295	8	80
10	5300	10	100
10	5305	8	80
10	5510	10	100
10	5515	9	90
10	5520	10	100
10	5525	10	100
10	5526	10	100
10	5527	9	90
10	5528	9	90



IEEE 802.11ac 80 MHz Mode

Test Results

FL (MHz)	FH (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (MHz)	Minimum Limit (%)
5492	5568	76	74.862	101.52	100

Number of Trials	Frequency (MHz)	Number Detected	Detection(%)
10	5492	9	90
10	5493	10	100
10	5494	10	100
10	5495	10	100
10	5500	10	100
10	5505	9	90
10	5510	10	100
10	5515	10	100
10	5520	10	100
10	5525	8	80
10	5530	10	100
10	5535	9	90
10	5540	10	100
10	5545	9	90
10	5550	10	100
10	5555	10	100
10	5560	9	90
10	5565	10	100
10	5566	9	90
10	5567	10	100
10	5568	9	90



Statistical Performance Check

IEEE 802.11n 20 MHz Mode Test Results

No non-compliance noted:

Summary of Detection Probability

Radar Type	Number of Trials	Detection (%)	Limit (%)	Pass / Fail
Туре 0	30	96.67	60	Pass
Type 2	30	93.33	60	Pass
Туре 3	30	96.67	60	Pass
Туре 4	30	96.67	60	Pass
Aggregate of 1 to 4	30	95.84	80	Pass
Туре 5	30	96.67	70	Pass
Туре 6	30	96.67	80	Pass



Type 0 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	NO
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 2 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	NO
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	NO
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 3 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	NO
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 4 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	NO
27	YES
30	YES

Type 5 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	NO
26	YES
27	YES
30	YES

Type 6 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	NO
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



IEEE 802.11n 40 MHz Mode

Test Results

No non-compliance noted:

Summary of Detection Probability

Radar Type	Number of Trials	Detection (%)	Limit (%)	Pass / Fail
Туре 0	30	96.67	60	Pass
Type 2	30	96.67	60	Pass
Туре 3	30	93.33	60	Pass
Type 4	30	96.67	60	Pass
Aggregate of 1 to 4	30	95.84	80	Pass
Туре 5	30	96.67	70	Pass
Туре 6	30	96.67	80	Pass



Type 0 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	NO
24	YES
25	YES
26	YES
27	YES
30	YES



Type 2 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	NO
24	YES
25	YES
26	YES
27	YES
30	YES



Type 3 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	NO
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	NO
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 4 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	NO
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES

Type 5 Detection Probability

Trial No.	Successful Detection
	(Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	NO
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES

Type 6 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	NO
27	YES
30	YES



IEEE 802.11ac 80 MHz Mode

Test Results

No non-compliance noted:

Summary of Detection Probability

Radar Type	Number of Trials	Detection (%)	Limit (%)	Pass / Fail
Туре 0	30	96.67	60	Pass
Type 2	30	96.67	60	Pass
Туре 3	30	96.67	60	Pass
Туре 4	30	93.33	60	Pass
Aggregate of 1 to 4	30	95.84	80	Pass
Туре 5	30	96.67	70	Pass
Туре 6	30	96.67	80	Pass



Type 0 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	NO
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 2 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	NO
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 3 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	NO
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



Type 4 Detection Probability

Trial No.	Successful Detection (Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	NO
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	NO
25	YES
26	YES
27	YES
30	YES

Type 5 Detection Probability

Trial No.	Successful Detection
1	(Yes/No)
1	YES
2	YES
3	YES
4	YES
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	NO
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES

Type 6 Detection Probability

Trial No.	Successful Detection
	(Yes/No)
1	YES
2	YES
3	YES
4	NO
5	YES
6	YES
7	YES
8	YES
9	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES
18	YES
19	YES
20	YES
21	YES
22	YES
23	YES
24	YES
25	YES
26	YES
27	YES
30	YES



APPENDIX I PHOTOGRAPHS OF TEST SETUP

