

Report No.: FZ4D1514-02

Project No: CB10511050

FCC DFS Test Report

Equipment

: Advanced power supply with WiFi and MoCA

Brand Name

: CISCO

Model No.

: APS1;APS1v1-C;CA010AAB;MWA1221;XW1;XW1-C

FCC ID

: VUI-APS1

Standard

: 47 CFR FCC Part 15.407

Frequency Range: 5250 MHz - 5350 MHz

5470 MHz - 5725 MHz

Applicant

: PEGATRON CORPORATION

5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY

112, Taiwan

Manufacturer

: Maintek Computer (Suzhou) Co., Ltd

233 Jin Feng Rd, Suzhou District Jiangsu China

Operate Mode

: Master

The product sample received on Dec. 16, 2014 and completely tested on Oct. 29, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Sam Chen

SPORTON INTERNATIONAL INC.

1190

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

Page No.

: 1 of 120

Report Version

: Rev. 01

Issued Date

: Nov. 14, 2016



Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information	5
1.2	Support Equipment	11
1.3	Testing Applied Standards	11
1.4	Testing Location Information	11
2	TEST CONFIGURATION OF EUT	12
2.1	Test Channel Frequencies Configuration	12
2.2	The Worst Case Measurement Configuration	12
3	DYNAMIC FREQUENCY SELECTION (DFS) TEST RESULT	13
3.1	General DFS Information	13
3.2	Radar Test Waveform Calibration	16
3.3	UNII Detection Bandwidth	33
3.4	Channel Availability Check (CAC)	37
3.5	In-service Monitoring	41
3.6	Statistical Performance Check	46
4	TEST EQUIPMENT AND CALIBRATION DATA	119
5	MEASUREMENT UNCERTAINTY	120
APP	ENDIX A. TEST PHOTOS	

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 2 of 120
Report Version : Rev. 01

Issued Date : Nov. 14, 2016

Summary of Test Result

	Conformance Test Specifications						
Report Clause	Ref. Std. Clause	Description	Limit	Result			
3.3	FCC KDB 905462 7.8.1	DFS: UNII Detection Bandwidth Measurement	100% of the 99% BW	Complied			
3.4	FCC KDB 905462 7.8.2.1	DFS: Initial Channel Availability Check Time	CAC ≥ 60 sec	Complied			
3.4	FCC KDB 905462 7.8.2.2	DFS: Radar Burst at the Beginning of the Channel Availability Check Time	Detection Threshold: -63 dBm	Complied			
3.4	FCC KDB 905462 7.8.2.3	DFS: Radar Burst at the End of the Channel Availability Check Time	Detection Threshold: -63 dBm	Complied			
3.5	FCC KDB 905462 7.8.3	DFS: In-Service Monitoring for Channel Move Time (CMT)	CMT ≤ 10sec	Complied			
3.5	FCC KDB 905462 7.8.3	DFS: In-Service Monitoring for Channel Closing Transmission Time (CCTT)	CCTT ≤ 60 ms starting at CMT 200ms	Complied			
3.5	FCC KDB 905462 7.8.3	DFS: In-Service Monitoring for Non-Occupancy Period (NOP)	NOP ≥ 30 min	Complied			
3.6	FCC KDB 905462 7.8.4	DFS: Statistical Performance Check	Table 5 - 7 (KDB 905462)	Complied			
3.1.4	FCC KDB 905462 8.1	User Access Restrictions	DFS controls	Complied			

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 3 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016

Revision History

Report No.	Version	Description	Issued Date
FZ4D1514-02	Rev. 01	Initial issue of report	Nov. 14, 2016

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 4 of 120
Report Version : Rev. 01

Issued Date

: Nov. 14, 2016



1 General Description

1.1 Information

1.1.1 RF General Information

Specification Items	Des	cription	
Product Type	WLAN (2TX, 2RX)		
Radio Type	Intentional Transceiver		
Power Type	From internal power supply		
Modulation	IEEE 802.11a: OFDM (BPSK / QP	SK / 16QAM / 64QAM)	
	IEEE 802.11n/ac: see the below ta	able	
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/2	24/36/48/54)	
	IEEE 802.11n/ac: see the below ta	able	
Channel Bandwidth	20/40/80 MHz operating channel b	pandwidth	
Operating Mode	Client with radar detection		
	☐ Client without radar detection		
Communication Mode		☐ Frame Based	
TPC Function	With TPC ■	☐ Without TPC	
Weather Band (5600~5650MHz)	With 5600~5650MHz ■ 1	☐ Without 5600~5650MHz	
Max. Con. Power (DFS band)	Band 2:		
	IEEE 802.11a: 22.36 dBm		
	IEEE 802.11ac MCS0/Nss1 (VHT	20): 22.24 dBm	
	IEEE 802.11ac MCS0/Nss1 (VHT	(40): 22.24 dBm	
	IEEE 802.11ac MCS0/Nss1 (VHT	80): 13.25 dBm	
	Band 3:		
	IEEE 802.11a: 22.17 dBm		
	IEEE 802.11ac MCS0/Nss1 (VHT	² 20): 22.05 dBm	
	IEEE 802.11ac MCS0/Nss1 (VHT	(40): 22.21 dBm	
	IEEE 802.11ac MCS0/Nss1 (VHT	80): 20.48 dBm	

Report No. : FZ4D1514-02

 SPORTON INTERNATIONAL INC.
 Page No.
 : 5 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016



Min. Con. Power (DFS band)	Band 2:
mini. John i Owel (Di 3 Dalla)	IEEE 802.11a: 16.36 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT20): 16.24 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT40): 16.24 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT80): 7.25 dBm
	Band 3:
	IEEE 802.11a: 16.17 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT20): 16.05 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT40): 16.21 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT80): 14.48 dBm
Max. EIRP Power (DFS band)	Band 2:
	IEEE 802.11a: 27.24 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT20): 27.12 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT40): 27.12 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT80): 18.13 dBm
	Band 3:
	IEEE 802.11a: 27.05 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT20): 26.93 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT40): 27.09 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT80): 25.36 dBm
Min. EIRP Power (DFS band)	Band 2:
	IEEE 802.11a: 21.24 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT20): 21.12 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT40): 21.12 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT80): 12.13 dBm
	Band 3:
	IEEE 802.11a: 21.05 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT20): 20.93 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT40): 21.09 dBm
	IEEE 802.11ac MCS0/Nss1 (VHT80): 19.36 dBm
Power-on cycle	80MHz: Requires 84 seconds to complete its power-on cycle.
Software / Firmware Version	4.1.2-20161019
Note: EUT employ a TPC mechanis output power.	sm and TPC have the capability to operate at least 6 dB below highest RF

Report No. : FZ4D1514-02

 SPORTON INTERNATIONAL INC.
 Page No.
 : 6 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016



Antenna & Band width

Antenna	Two (TX)			
Band width Mode	20 MHz	40 MHz	80 MHz	
IEEE 802.11a	V	X	X	
IEEE 802.11n	V	V	X	
IEEE 802.11ac	V	V	V	

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	2	MCS0-15
802.11n (HT40)	2	MCS0-15
802.11ac (VHT20)	2	MCS 0-9/Nss1-2
802.11ac (VHT40)	2	MCS 0-9/Nss1-2
802.11ac (VHT80)	2	MCS 0-9/Nss1-2

Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40.

Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40 and VHT80 (VHT: Very High Throughput). Then EUT support VHT20, VHT40 and VHT80.

Note 3: Modulation modes consist of below configuration:

11a: IEEE 802.11a, HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

Page No. : 7 of 120 Report Version : Rev. 01

Issued Date

: Nov. 14, 2016



1.1.2 Antenna Information

Set	Δnt	Ant. Brand	Model No. P/N	Type	Connector	Gain (dBi)		
	71111		moder ite:	. 7.14	1,000	00111100101	2.4GHz	5GHz
	1	Hong Lin	APS1	290-30233	PCB	I-PEX	1.60	-
	2	Hong Lin	APS1	290-30247	PCB	I-PEX	2.54	-
1	3	Hong Lin	APS1	290-30232	PCB	I-PEX	-	4.22
	4	Hong Lin	APS1	290-30248	PCB	I-PEX	-	4.88
2	1	Airgain	N2420S5	Airgain	PCB	I-PEX	1.50	-
	2	Airgain	N2420SLOP	Airgain	PCB	I-PEX	2.20	-
	3	Airgain	N5X20BLO	Airgain	PCB	I-PEX	-	4.10
	4	Airgain	N5X20SC	Airgain	PCB	I-PEX	-	4.60

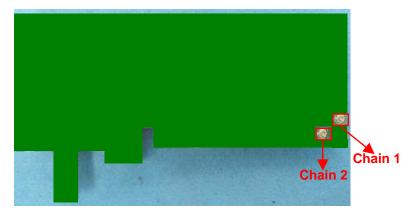
Note: 1. The EUT has two sets of antenna, and each set contains four antennas.

- 2. Because all antennas are the same type antennas, only the lowest gain antennas "set 2" was tested and recorded in the report.
- 3. Chain 1: Connect to Ant. 1, Chain 2: Connect to Ant. 2, Chain 3: Connect to Ant. 3, Chain 4: Connect to Ant. 4

For 2.4GHz WLAN function (2TX, 2RX):

Chain 1 and Chain 2 could transmit/receive simultaneously.

EUT rear view:



SPORTON INTERNATIONAL INC.

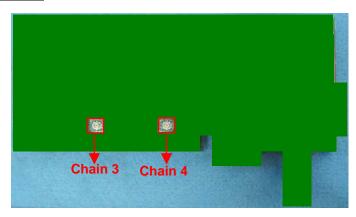
TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 8 of 120
Report Version : Rev. 01

Issued Date : Nov. 14, 2016



For 5GHz WLAN function (2TX, 2RX):

Chain 3 and Chain 4 could transmit/receive simultaneously. **EUT front view:**



1.1.3 DFS Band Carrier Frequencies

There are three bandwidth systems.

For 20MHz bandwidth systems, use Channel 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140.

For 40MHz bandwidth systems, use Channel 54, 62, 102, 110, 118, 126, 134.

For 80MHz bandwidth systems, use Channel 58, 106, 122.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
	52	5260 MHz	60	5300 MHz
5250~5350 MHz	54	5270 MHz	62	5310 MHz
Band 2	56	5280 MHz	64	5320 MHz
	58	5290 MHz	-	-
	100	5500 MHz	120	5600 MHz
	102	5510 MHz	122	5610 MHz
	104	5520 MHz	124	5620 MHz
5470~5725 MHz	106	5530 MHz	126	5630 MHz
5470~5725 MH2 Band 3	108	5540 MHz	128	5640 MHz
Dana 3	110	5550 MHz	132	5660 MHz
	112	5560 MHz	134	5670 MHz
	116	5580 MHz	136	5680 MHz
	118	5590 MHz	140	5700 MHz

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

: 9 of 120 Page No. Report Version : Rev. 01 Issued Date

: Nov. 14, 2016



1.1.4 Table for Class II Change

This product is an extension of original one reported under Sporton project number: 4D1514

Below is the table for the change of the product with respect to the original one.

	Description	Performance Checking
1.	Changing the Casing of the EUT.	
2.	Changing the Manufacturer's Address to "233 Jin Feng Rd,	
	Suzhou District Jiangsu China" from "Bldg. 6 NB, 233 Jin	No influence on the test results
	Feng Rd, Suzhou District Jiangsu China".	No influence on the test results.
3.	Adding Model Names.	
	(APS1v1-C, XW1, XW1-C)	
4.	Adding 5 GHz Band 2 and Band 3 (5250~5350 MHz,	All DES toot items
	5470~5725 MHz) for this device.	All DFS test items.

Report No.: FZ4D1514-02

1.1.5 Accessories

	Description
Power cable*1: Non-shielded, 1.5m	

 SPORTON INTERNATIONAL INC.
 Page No.
 : 10 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

1.2 Support Equipment

	Support Equipment							
No.	No. Equipment Brand Name Model Name FCC ID							
1	Notebook	DELL	E4300	DoC				
2	Notebook	DELL	E4300	DoC				
3	WLAN Dongle	LINKSYS	AE6000	Q87-AE6000				

1.3 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

1.4 Testing Location Information

	Testing Location									
	HWA YA	ADD) :	No. 52, Hwa Ya	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.					
		TEL: 886-3-327-3456 FAX: 886-3-327-0973								
\boxtimes	JHUBEI ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.						2, Taiwan, R.O.C.			
	TEL : 886-3-656-9065									
Test Condition Test Site No. Test Engineer Test Environme					Test Environment	Test Date				
DFS Site DF01-CB				DF01-CB	Wii Lin	23.3°C / 60%	14-Oct-16 ~ 29-Oct-16			

Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 11 of 120
Report Version : Rev. 01

Report No.: FZ4D1514-02

Issued Date : Nov. 14, 2016



2 Test Configuration of EUT

2.1 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration					
IEEE Std.	Test Channel Freq. (MHz)				
802.11ac (VHT20)	5500 MHz				
802.11ac (VHT40)	5510 MHz				
802.11ac (VHT80)	5530 MHz				

Report No.: FZ4D1514-02

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests					
Tests Item	Dynamic Frequency Selection (DFS)				
Test Condition	Radiated measurement The EUT shall be configured to operate at the highest transmitter output power setting. If more than one antenna assembly is intended for this power setting, the gain of the antenna assembly with the lowest gain shall be used. The DFS radar test signals have been aligned to the direction corresponding to the EUT's maximum antenna gain.				
Modulation Mode	802.11ac (VHT20), 802.11ac (VHT40), 802.11ac (VHT80)				

 SPORTON INTERNATIONAL INC.
 Page No.
 : 12 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016



3 Dynamic Frequency Selection (DFS) Test Result

3.1 General DFS Information

3.1.1 DFS Parameters

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

Report No.: FZ4D1514-02

- 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 Channel changes (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 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.

Table D.2: Inter	ference threshold values
Maximum Transmit Power	Value (see note)
EIRP ≥ 200 mW	-64 dBm
EIRP < 200 mW and PSD < 10dBm/MHz	-62 dBm
EIRP < 200 mW and PSD >= 10dBm/MHz	-64 dBm

- 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 662911D01.

 SPORTON INTERNATIONAL INC.
 Page No.
 : 13 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

3.1.2 Applicability of DFS Requirements Prior to Use of a Channel

	DFS 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			
U-NII Detection Bandwidth	Yes	Not required	Yes			

3.1.3 Applicability of DFS Requirements during Normal Operation

	DFS Operational mode					
Requirement	Master	Client without radar detection	Client with radar detection			
DFS Detection Threshold	Yes	Not required	Yes			
Channel Closing Transmission Time	Yes	Yes	Yes			
Channel Move Time	Yes	Yes	Yes			
U-NII Detection Bandwidth	Yes	Not required	Yes			

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection	
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required	
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link Not required	
All other tests	Any single BW mode		

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.

SPORTON INTERNATIONAL INC. Page No. TEL: 886-3-327-3456 Report Vers

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 14 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



fixed talk/listen ratio, set the ratio to 45%/55%

3.1.4 User Access Restrictions

		User Access Restrictions							
\boxtimes	DFS controls (hardware or software) related to radar detection are NOT accessible to the user Manufacturer statement confirming that information regarding the parameters of the detected Radar Waveforms is not available to the end user.								
3.1.	5	Channel Loading/Data Streaming							
\boxtimes	IP E	Based (Load Based) - stream the test file from the Master to the Client.							
		The data file (MPEG-4) has been transmitting in a streaming mode.							
	\boxtimes	Software to ping the client is permitted to simulate data transfer with random ping intervals.							
	\boxtimes	Minimum channel loading of approximately 17%.							
		Unicast protocol has been used.							
	Frai	me Based - stream the test file from the Master to the Client.							

Report No.: FZ4D1514-02

 SPORTON INTERNATIONAL INC.
 Page No.
 : 15 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016



3.2 Radar Test Waveform Calibration

3.2.1 Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1	See Note 1
1A	1	15 unique PRI in KDB 905462 D02 Table 5a	((1) (10×10 ⁶))	60%	15
1B	1	15 unique PRI within 518-3066, Excluding 1A PRI	$Roundup \left\{ \left(\frac{1}{360} \right) \times \left(\frac{19 \times 10^6}{PRI} \right) \right\}$	60%	15
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggrega	ate (Radar Type	80%	120		

Report No.: FZ4D1514-02

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

A minimum of 30 unique waveforms are required for each of the short pulse radar types 1 through 4. If more than 30 waveforms are used for short pulse radar types 1 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.

3.2.2 Long Pulse Radar Test Waveform

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

Each waveform is defined as follows:

- The transmission period for the Long Pulse Radar test signal is 12 seconds.
- There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst Count.
- Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each Burst within the 12 second sequence may have a different number of pulses.
- The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a Burst will have the same pulse width. Pulses in different Bursts may have different pulse widths.
- Each pulse has a linear FM chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a transmission period will have the same chirp width. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
- If more than one pulse is present in a Burst, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a Burst, the time

 SPORTON INTERNATIONAL INC.
 Page No.
 : 16 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016



between the first and second pulses is chosen independently of the time between the second and third pulses.

The 12 second transmission period is divided into even intervals. The number of intervals is equal to Burst Count. Each interval is of length (12,000,000 / Burst Count) microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and [(12,000,000 / Burst Count) – (Total Burst Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each Burst is chosen independently.

3.2.3 Frequency Hopping Radar Test Waveform

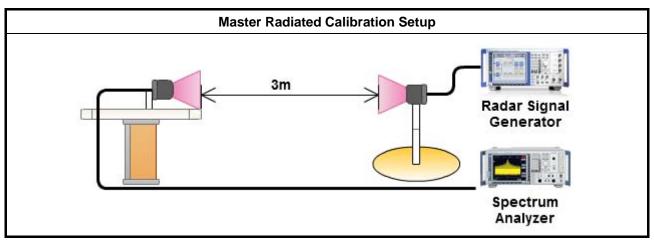
Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (ms)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

The FCC Type 6 waveform uses a static waveform with 100 bursts in the instruments ARB. In addition, the RF list mode is operated with a list containing 100 frequencies from a randomly generated list and it had be ensured that at least one of the random frequencies falls into the UNII Detection Bandwidth of the DUT. Each burst from the waveform file initiates a trigger pulse at the beginning that switches the RF list from one item to the next one.

3.2.4 DFS Threshold Level

			DFS Threshold Level						
DFS Threshold level:	-63	dBm	at the antenna connector						
			in front of the antenna						
The Interference Radar Detection Threshold Level is is $-64 dBm + 0 [dBi] + 1 dB = -63 dBm$. That had beer taken into account the output power range and antenna gain.									

3.2.5 Calibration Setup



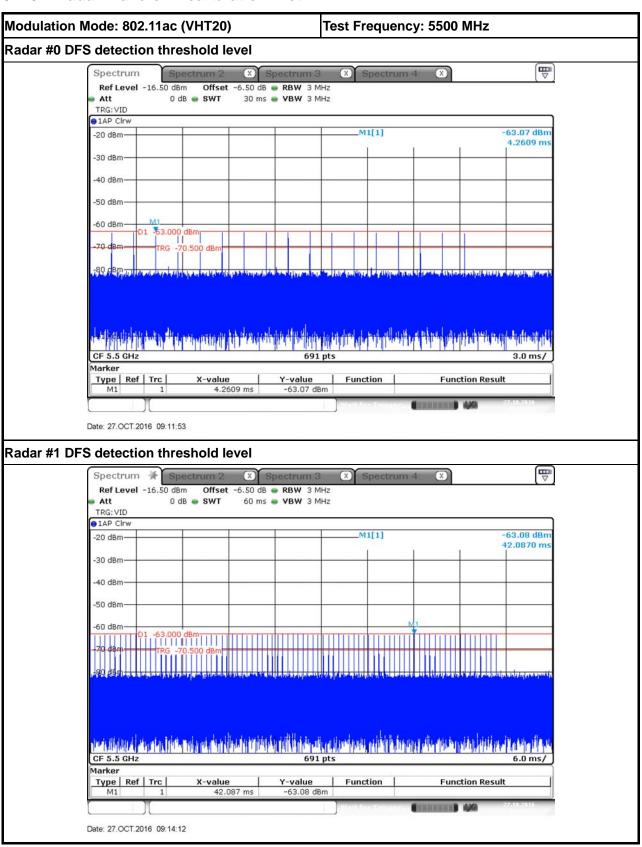
SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 17 of 120
Report Version : Rev. 01

Issued Date : Nov. 14, 2016

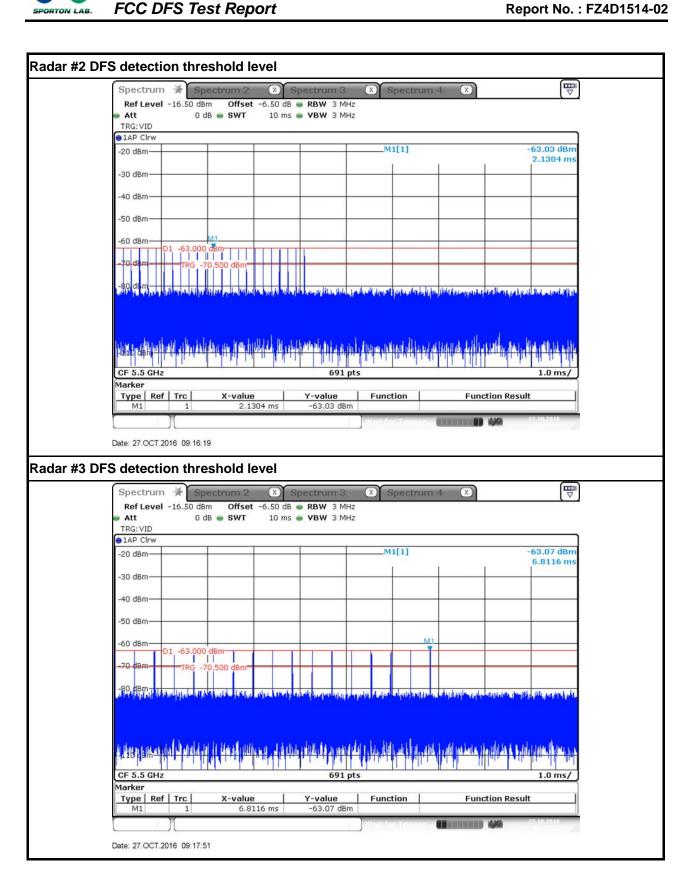


3.2.6 Radar Waveform calibration Plot



SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 18 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016

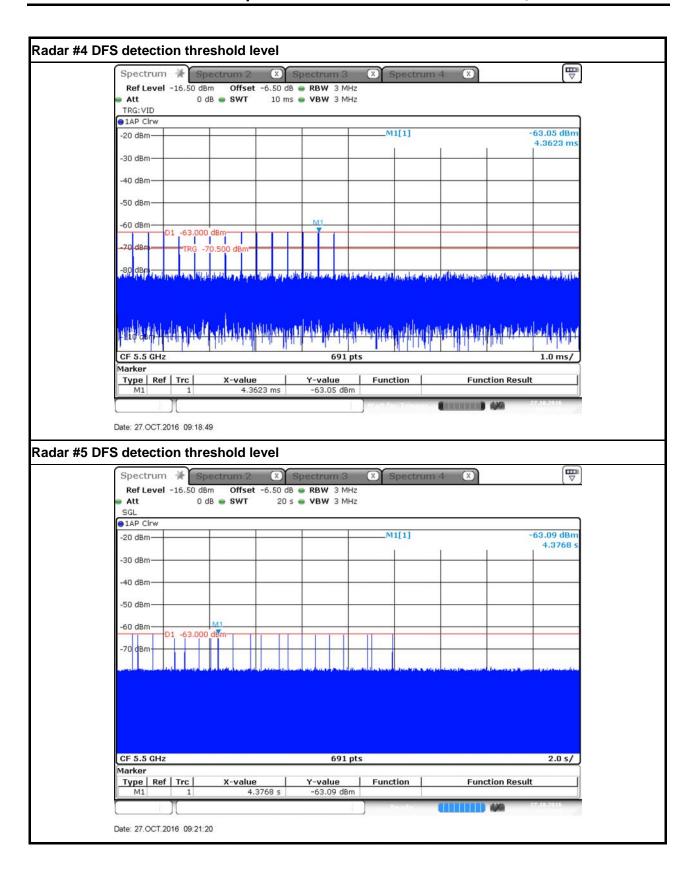


SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

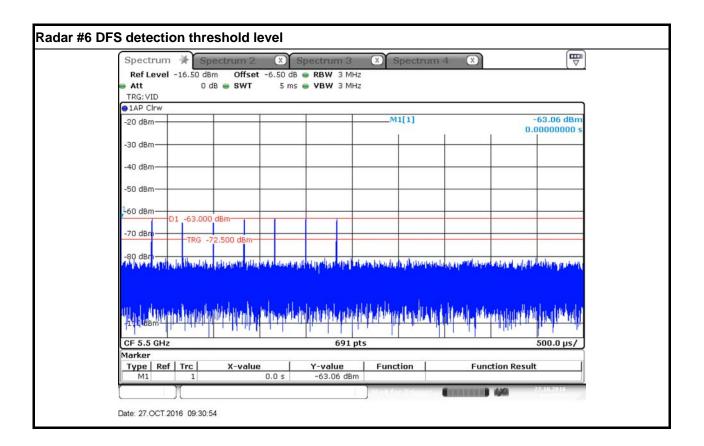
: 19 of 120 Page No. Report Version : Rev. 01 Issued Date : Nov. 14, 2016





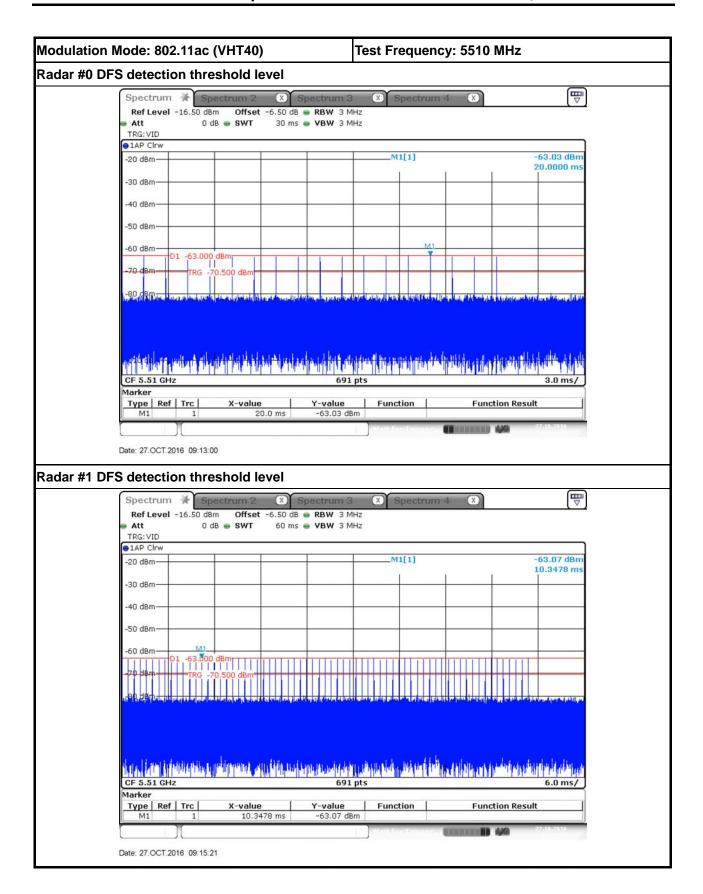
TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

: 20 of 120 Page No. Report Version : Rev. 01 Issued Date : Nov. 14, 2016



TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

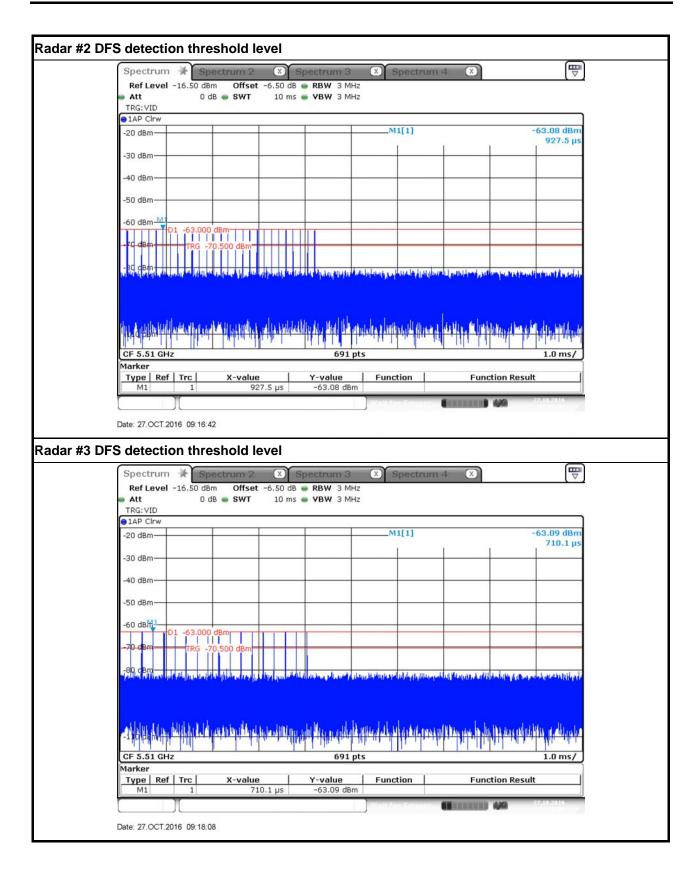
: 21 of 120 Page No. Report Version : Rev. 01 Issued Date : Nov. 14, 2016



SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 22 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016

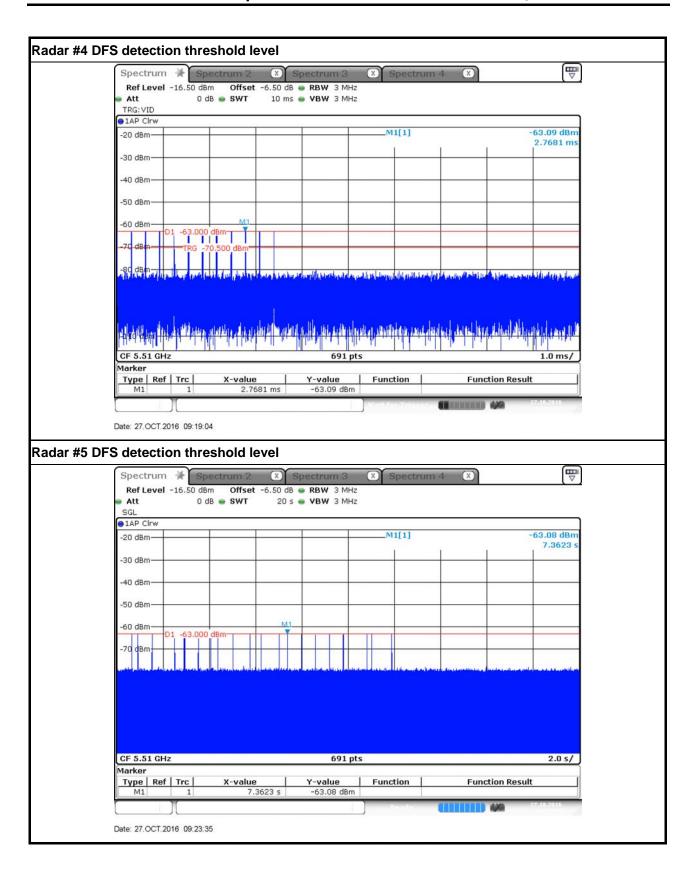




SPORTON INTERNATIONAL INC.

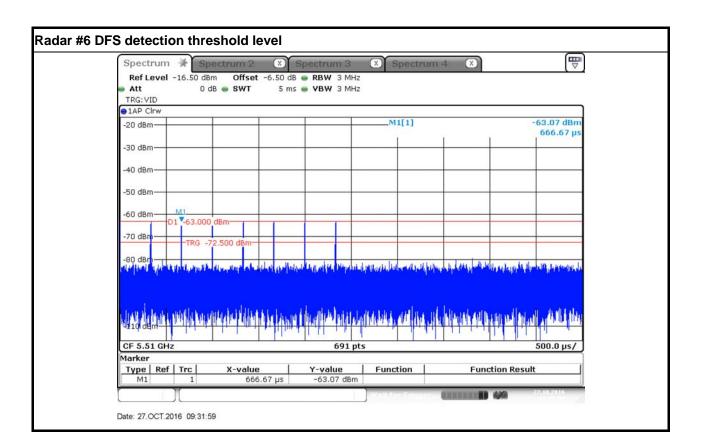
TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 23 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016





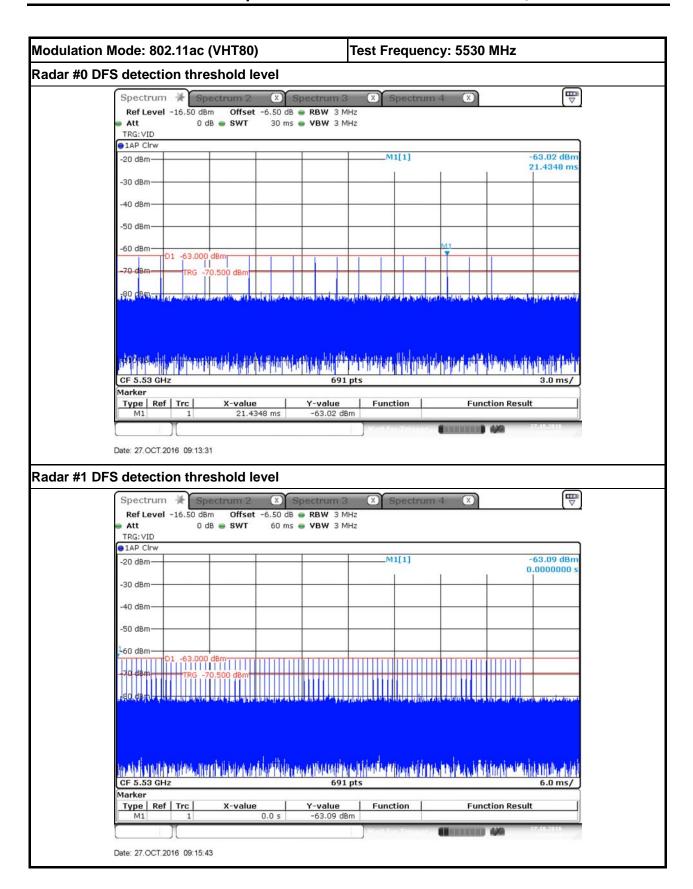
TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

: 24 of 120 Page No. Report Version : Rev. 01 Issued Date : Nov. 14, 2016



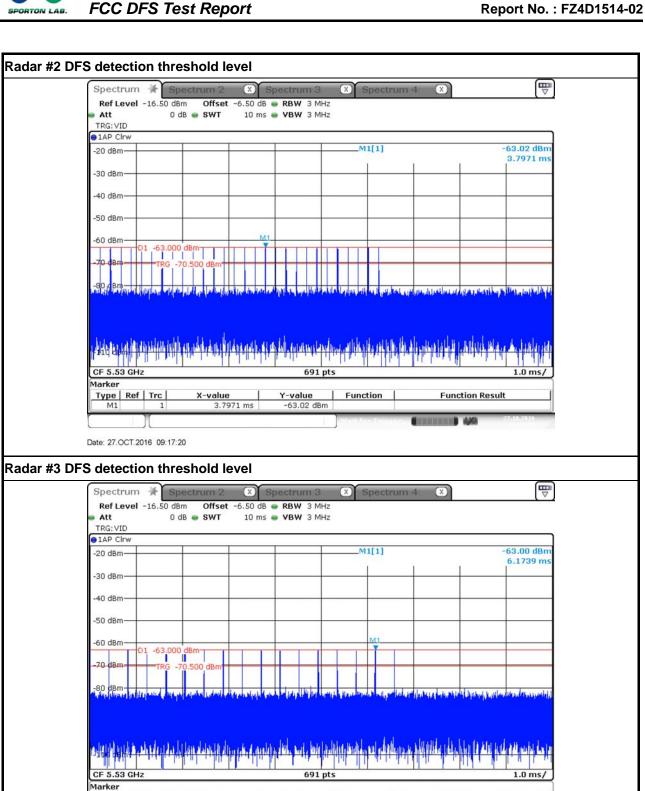
SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 25 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 26 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Function

Y-value

SPORTON INTERNATIONAL INC.

Type | Ref | Trc |

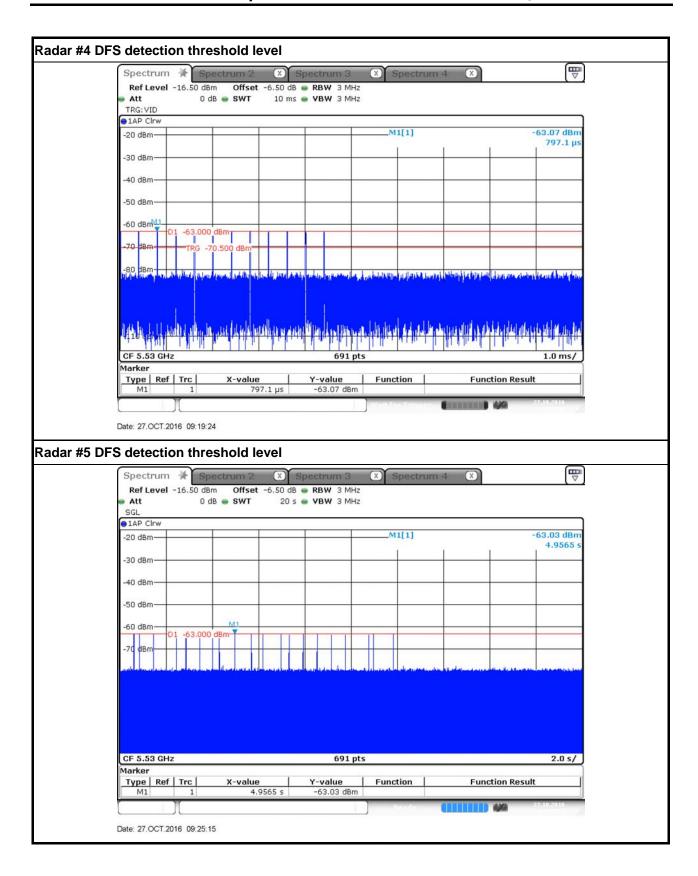
Date: 27.OCT.2016 09:18:27

X-value

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 27 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016

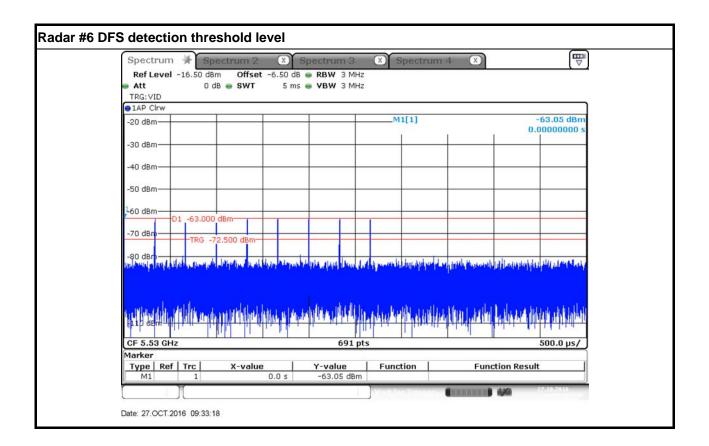
Function Result





SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 28 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



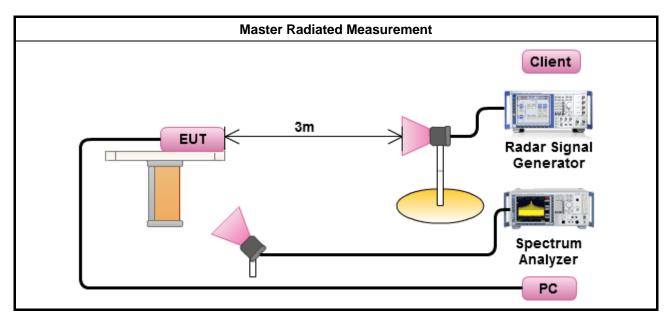
SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 29 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



3.2.7 Test Setup

A spectrum analyzer is used as a monitor to verify that the EUT has vacated the Channel within the (Channel Closing Transmission Time and Channel Move Time, and does not transmit on a Channel during the Non-Occupancy Period after the detection and Channel move.



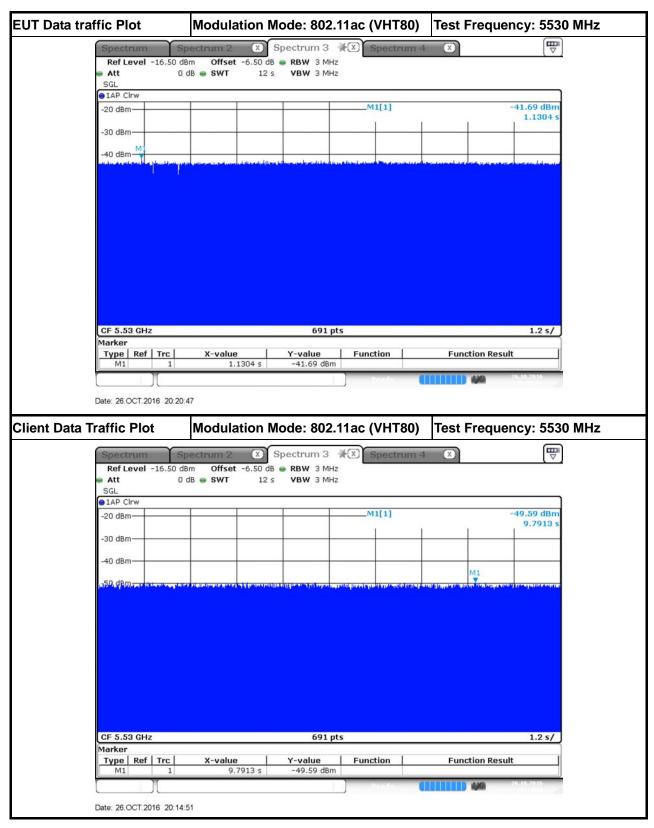
SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 30 of 120
Report Version : Rev. 01

Issued Date : Nov. 14, 2016

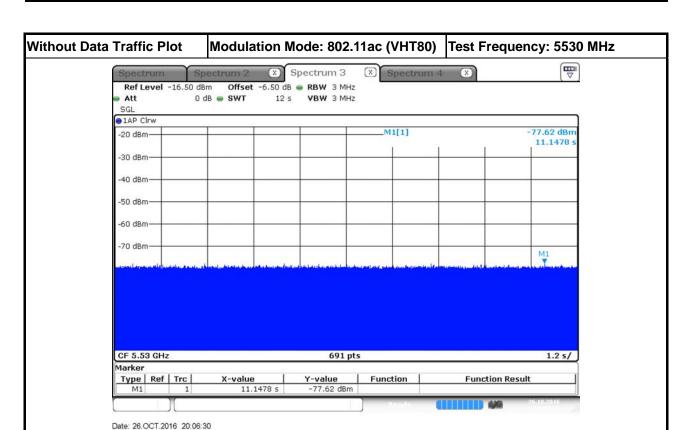


3.2.8 Data traffic Plot



SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 31 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 32 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016

3.3 UNII Detection Bandwidth

3.3.1 UNII Detection Bandwidth Limit

	Channel Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	UNII Detection Bandwidth Min. Limit (MHz)
I	20	17.713	18
Ī	40	37.481	38
Ī	80	75.542	76

Report No.: FZ4D1514-02

UNII Detection Bandwidth is minimum 100% of the 99% power bandwidth. A single radar Burst is generated for a minimum of 10 trials, and the response of the UUT is noted. The UUT must detect the Radar Waveform 90% or more of the time.

3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

During the U-NII Detection Bandwidth detection test, radar type 0 is used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic. The EUT is set up as a standalone device (no associated Client and no traffic). The radar frequency is increased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The highest frequency at which detection is greater than or equal to 90% is denoted as F_H. The radar frequency is decreased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The lowest frequency at which detection is greater than or equal to 90% is denoted as F_L. UNII Detection Bandwidth = F_H - F_L.

 SPORTON INTERNATIONAL INC.
 Page No.
 : 33 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

3.3.4 Test Result of UNII Detection Bandwidth

	EU	T Fre	quer	ncy=5	500	MHz								
Channel Bandwidth (MHz)	20													
-	DFS Detection Trials (1=Detection, 0= No Detection)													
Radar Frequency (MHz)	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)			
5490	0	0	0	0	0	0	0	0	0	0	0			
5491(FL)	1	0	1	1	1	1	1	1	1	1	90			
5492	1	1	1	1	1	1	1	1	1	1	100			
5493	1	1	1	1	1	1	1	1	1	1	100			
5494	1	1	1	1	1	1	1	1	1	1	100			
5495	1	1	1	1	1	1	1	1	1	1	100			
5496	1	1	1	1	1	1	1	1	1	1	100			
5497	1	1	1	1	1	1	1	1	1	1	100			
5498	1	1	1	1	1	1	1	1	1	1	100			
5499	1	1	1	1	1	1	1	1	1	1	100			
5500	1	1	1	1	1	1	1	1	1	1	100			
5501	1	1	1	1	1	1	1	1	1	1	100			
5502	1	1	1	1	1	1	1	1	1	1	100			
5503	1	1	1	1	1	1	1	1	1	1	100			
5504	1	1	1	1	1	1	1	1	1	1	100			
5505	1	1	1	1	1	1	1	1	1	1	100			
5506	1	1	1	1	1	1	1	1	1	1	100			
5507	1	1	1	1	1	1	1	1	1	1	100			
5508	1	1	1	1	1	1	1	1	1	1	100			
5509(FH)	1	1	1	0	1	1	1	1	1	1	90			
5510	0	0	0	0	0	0	0	0	0	0	0			
Radar Type 0-Detection Bandwidth (MHz) = (FH-FL) = (5509MHz-5491MHz)=										18				
UNII Detection Bandwidth Min. Lim				•				•			18			
Test Result	st Result									Complied				

Report No. : FZ4D1514-02

 SPORTON INTERNATIONAL INC.
 Page No.
 : 34 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016



	EU	T Fre	quer	ncy=5	510	MHz								
Channel Bandwidth (MHz)	40		•											
	DFS Detection Trials (1=Detection, 0= No Detection)													
Radar Frequency (MHz)	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)			
5490	0	0	0	0	0	0	0	0	0	0	0			
5491(FL)	1	1	0	1	1	1	1	1	1	1	90			
5492	1	1	1	1	1	1	1	1	1	1	100			
5493	1	1	1	1	1	1	1	1	1	1	100			
5494	1	1	1	1	1	1	1	1	1	1	100			
5495	1	1	1	1	1	1	1	1	1	1	100			
5496	1	1	1	1	1	1	1	1	1	1	100			
5497	1	1	1	1	1	1	1	1	1	1	100			
5498	1	1	1	1	1	1	1	1	1	1	100			
5499	1	1	1	1	1	1	1	1	1	1	100			
5500	1	1	1	1	1	1	1	1	1	1	100			
5505	1	1	1	1	1	1	1	1	1	1	100			
5510	1	1	1	1	1	1	1	1	1	1	100			
5515	1	1	1	1	1	1	1	1	1	1	100			
5520	1	1	1	1	1	1	1	1	1	1	100			
5525	1	1	1	1	1	1	1	1	1	1	100			
5526	1	1	1	1	1	1	1	1	1	1	100			
5527	1	1	1	1	1	1	1	1	1	1	100			
5528	1	1	1	1	1	1	1	1	1	1	100			
5529(FH)	1	1	1	1	1	1	1	1	1	0	90			
5530	0	0	0	0	0	0	0	0	0	0	0			
Radar Type 0-Detection Bandwidth (MHz) = (FH-FL) = (5529MHz-5491MHz)=											38			
UNII Detection Bandwidth Min. Limit	(MHz) =									38			
Test Result											Complied			

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 35 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



	EU	T Fre	quer	ncy=5	530	MHz								
Channel Bandwidth (MHz)	80		•											
,	DFS Detection Trials (1=Detection, 0= No Detection)													
Radar Frequency (MHz)	1	2	3	4	5	6	7	8	9	10	Detection Rate			
			3	4	5	О	′	0	9	10	(%)			
5491	0	0	0	0	0	0	0	0	0	0	0			
5492(FL)	1	1	1	1	1	1	0	1	1	1	90			
5495	1	1	1	1	1	1	1	1	1	1	100			
5496	1	1	1	1	1	1	1	1	1	1	100			
5497	1	1	1	1	1	1	1	1	1	1	100			
5498	1	1	1	1	1	1	1	1	1	1	100			
5499	1	1	1	1	1	1	1	1	1	1	100			
5500	1	1	1	1	1	1	1	1	1	1	100			
5505	1	1	1	1	1	1	1	1	1	1	100			
5510	1	1	1	1	1	1	1	1	1	1	100			
5515	1	1	1	1	1	1	1	1	1	1	100			
5520	1	1	1	1	1	1	1	1	1	1	100			
5525	1	1	1	1	1	1	1	1	1	1	100			
5530	1	1	1	1	1	1	1	1	1	1	100			
5535	1	1	1	1	1	1	1	1	1	1	100			
5540	1	1	1	1	1	1	1	1	1	1	100			
5545	1	1	1	1	1	1	1	1	1	1	100			
5550	1	1	1	1	1	1	1	1	1	1	100			
5555	1	1	1	1	1	1	1	1	1	1	100			
5560	1	1	1	1	1	1	1	1	1	1	100			
5561	1	1	1	1	1	1	1	1	1	1	100			
5562	1	1	1	1	1	1	1	1	1	1	100			
5563	1	1	1	1	1	1	1	1	1	1	100			
5564	1	1	1	1	1	1	1	1	1	1	100			
5565	1	1	1	1	1	1	1	1	1	1	100			
5568(FH)	1	1	1	1	1	0	1	1	1	1	90			
5569	0	0	0	0	0	0	0	0	0	0	0			
Radar Type 0-Detection Bandwidth	(MHz)	= (FF	i-FL)	= (55	68MI	Hz-54	92MI	Hz)=	•	•	76			
UNII Detection Bandwidth Min. Limi				•				•			76			
Test Result	st Result									Complied				

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 36 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016

3.4 Channel Availability Check (CAC)

3.4.1 Channel Availability Check Limit

Channel Availability Check Limit

Report No.: FZ4D1514-02

The EUT shall perform a Channel Availability Check to ensure that there is no radar operating on the channel. After power-up sequence, receive at least 1 minute (60 sec) on the intended operating frequency.

3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method

- For Initial Channel Availability Check Time. The EUT does not emit beacon, control, or data signals on the test Channel until the power-up sequence has been completed and the UNII device checks for Radar Waveforms for one minute on the test Channel. This test does not use any Radar Waveforms.
- For Radar Burst at the Beginning of the Channel Availability Check Time. To verify successful radar detection on the selected Channel during a period equal to the Beginning of the Channel Availability Check Time.
- For Radar Burst at the End of the Channel Availability Check Time. To verify successful radar detection on the selected Channel during a period equal to the End of the Channel Availability Check Time.

 SPORTON INTERNATIONAL INC.
 Page No.
 : 37 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

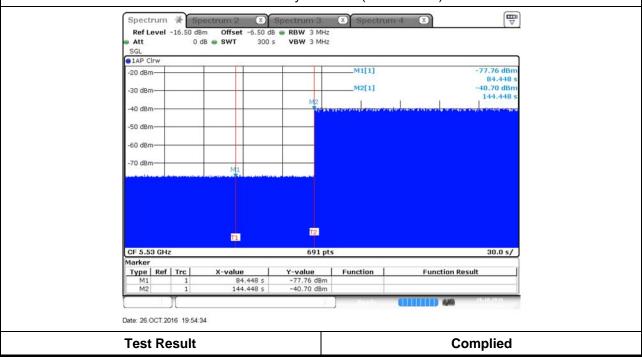
 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

FCC ID: VUI-APS1

3.4.4 Test Result of Initial Channel Availability Check Time

Modulation Mode	Freq.	Radar Test Signal
802.11ac (VHT80)	5530 MHz	N/A

The EUT does not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle (84 sec). The initial power up time of the EUT is indicated by marker 1 (84.448 sec). Initial beacons/data transmissions are indicated by marker 2 (144.448 sec).



SPORTON INTERNATIONAL INC.

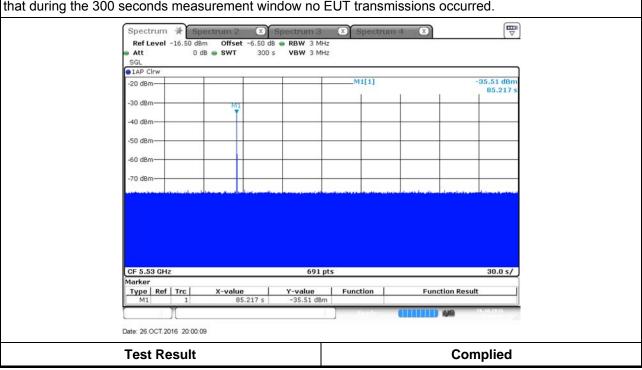
TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 38 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



3.4.5 Test Result of Radar Burst at the Beginning of the Channel Availability Check Time

Modulation Mode	Freq. (MHz)	Radar Type Signal
802.11ac (VHT80)	5530 MHz	0

Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for 214.783 seconds after the radar Burst has been generated. Verify that during the 300 seconds measurement window no EUT transmissions occurred.



SPORTON INTERNATIONAL INC.

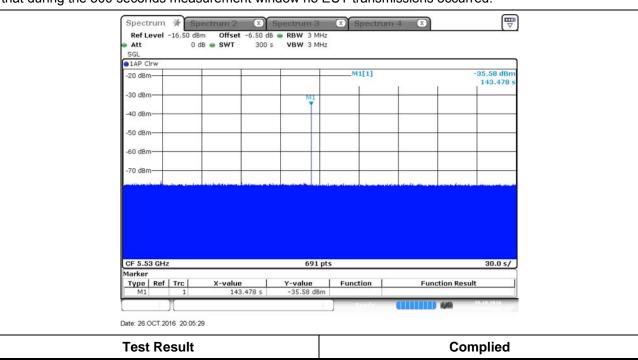
TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 39 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



3.4.6 Test Result of Radar Burst at the End of the Channel Availability Check Time

Modulation Mode	Freq. (MHz)	Radar Type Signal
802.11ac (VHT80)	5530 MHz	0

Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for 156.522 seconds after the radar Burst has been generated. Verify that during the 300 seconds measurement window no EUT transmissions occurred.



SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 40 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016

3.5 In-service Monitoring

3.5.1 In-service Monitoring Limit

In-service Monitoring Limit		
Channel Move Time	10 sec	
Channel Closing Transmission Time	200 ms + an aggregate of 60 ms over remaining 10 sec periods.	
Non-occupancy period	Minimum 30 minutes	

Report No.: FZ4D1514-02

3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method

- ✓ Verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time. Client Device will associate with the EUT. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Channel Move Time). Compare the Channel Move Time and Channel Closing Transmission Time limits.
- ✓ Verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time. One 12 sec plot needs to be reported for the Short Pulse Radar Types 0. And zoom-in a 60 ms plot verified channel closing time for the aggregate transmission time starting from 200ms after the end of the radar signal to the completion of the channel move.
- ☑ Verified during In-Service Monitoring; Non-Occupancy Period. Client Device will associate with the EUT. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Non-Occupancy Period). Compare the Non-Occupancy Period limits.

 SPORTON INTERNATIONAL INC.
 Page No.
 : 41 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

FCC ID: VUI-APS1



3.5.4 Test Result of In-service Monitoring

Modulation Mode: 802.11ac (VHT80)

Dorometer	Test Result	Limit
Parameter	Type 0	
Test Channel (MHz)	5530 MHz	-
Channel Move Time (sec.)	0.487	< 10s
Channel Closing Transmission Time (ms) (Note)	11.594	< 60ms
Non-Occupancy Period (min.)	≥30	≧ 30 min

Report No.: FZ4D1514-02

Note: 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 seconds period. The aggregate duration of control signals will not count quiet periods in between transmissions.

 SPORTON INTERNATIONAL INC.
 Page No.
 : 42 of 120

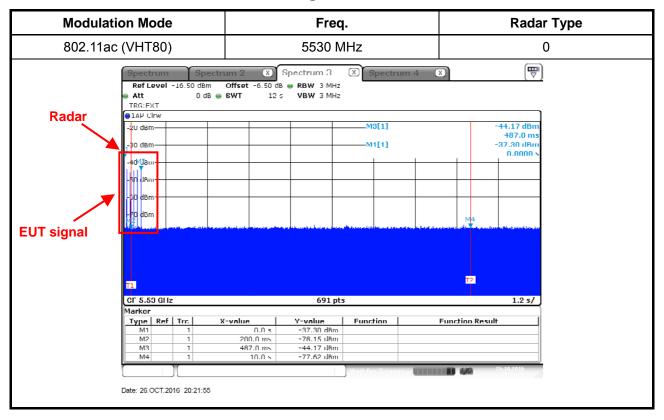
 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

FCC ID: VUI-APS1



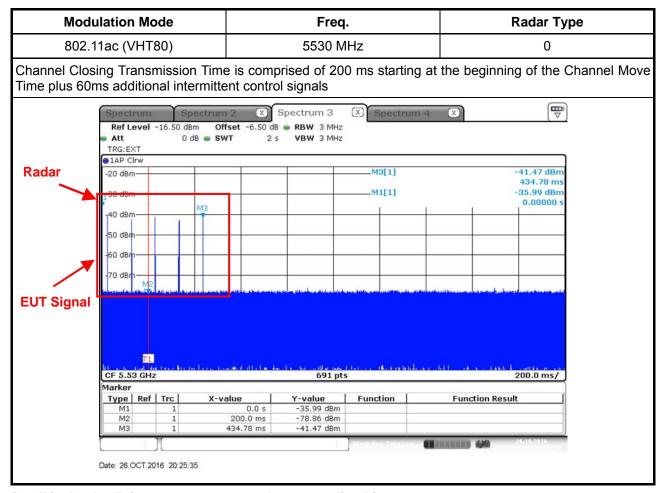
3.5.5 Test Plot of In-Service Monitoring for Channel Move Time



SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 43 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016

3.5.6 Test Plot of In-Service Monitoring for Channel Closing Transmission Time



Dwell is the dwell time per spectrum analyzer sampling bin.

S is the sweep time

B is the number of spectrum analyzer sampling bins

C is the intermittent control signals of Channel Closing Transmission Time

N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission

Dwell (2.899 ms)= S (2000 ms) / B (690)

C (11.594 ms) = N (4) X Dwell (2.899 ms)

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 44 of 120
Report Version : Rev. 01

Issued Date : Nov. 14, 2016

3.5.7 Test Plot of In-Service Monitoring for Non-Occupancy Period

Modulation Mode	Freq.		
802.11ac (VHT80)	5530 MHz		
Non-Occupancy Period			
	d not make any transmissions on a channel after a rada Channel Availability Check or the In-Service Monitoring.		
	(*)		
Ref Level -16.50 dBm Offset -6.50 dB ● RBW ● Att 0 dB ● SWT 2000 s ● VBW SGL	W 3 MHz		
Att 0 dB → SWT 2000 s → VBW			

691 pts

Y value -31.05 dBm



Type Ref Trc

X value 104.35 s

CF 5.53 GHz

Marker

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456
FAX: 886-3-327-0973

FCC ID: VUI-APS1

Page No. : 45 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016

200.0 s/

Function Result

3.6 **Statistical Performance Check**

3.6.1 **Statistical Performance Check Limit**

Radar Type	Minimum Percentage of Successful Detection (Pd)	Minimum Trials
1	60%	30
2	60%	30
3	60%	30
4	60%	30
Aggregate (Radar Types 1-4)	80%	120
5	80%	30
6	70%	30

Report No.: FZ4D1514-02

The percentage of successful detection is calculated by:

In addition an aggregate minimum percentage of successful detection across all Short Pulse Radar Types 1-4 is required and is calculated as follows:

Pd1 + Pd2 + Pd3 + Pd4

4

3.6.2 **Measuring Instruments**

Refer a test equipment and calibration data table in this test report.

3.6.3 **Test Procedures**

Test Method

For Statistical Performance Check test. Demonstrating a minimum channel loading of approximately 17% or greater of the test. Observe the transmissions of the UUT at the end of the Burst on the Operating Channel for duration greater than 10 seconds for Short Pulse Radar Types 1-4 and 6 to ensure detection occurs. Then Observe the transmissions of the UUT at the end of the Burst on the Operating Channel for duration greater than 22 seconds for Long Pulse Radar Type 5 to ensure detection occurs. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs.

SPORTON INTERNATIONAL INC. : 46 of 120 Page No. TEL: 886-3-327-3456 Report Version : Rev. 01 FAX: 886-3-327-0973 Issued Date : Nov. 14, 2016

FCC ID: VUI-APS1

 $[\]frac{TotalWaveformDetections}{-} \times 100 = Probability of Detection Radar Waveform$

3.6.4 Test Result of Statistical Performance Check

Modulation Mode: 802.11ac (VHT20)

Type 1 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulse Per Second)	PRI (us)	1=Detection 0=No Detection
1	5493	1	1930.5	518	1
2	5491	23	326.2	3066	1
3	5495	19	1139.0	878	1
4	5496	12	1355.0	738	1
5	5497	4	1730.1	578	1
6	5498	8	1519.8	658	1
7	5499	15	1253.1	798	1
8	5500	6	1618.1	618	1
9	5501	14	1285.3	778	1
10	5502	3	1792.1	558	1
11	5503	13	1319.3	758	1
12	5504	9	1474.9	678	1
13	5505	7	1567.4	638	1
14	5506	17	1193.3	838	1
15	5507	10	1432.7	698	1
16	5506	-	1692.0	591	1
17	5505	-	328.1	3048	1
18	5504	-	373.4	2678	0
19	5503	-	574.4	1741	1
20	5509	-	1216.5	822	1
21	5501	-	801.3	1248	1
22	5500	-	488.5	2047	1
23	5499	-	956.0	1046	1
24	5498	-	517.6	1932	11
25	5497	-	1422.5	703	1
26	5496	-	542.0	1845	1
27	5495	-	741.3	1349	1
28	5494	-	881.8	1134	1
29	5493	-	427.4	2340	1
30	5494	-	628.9	1590	1
		Detection Percentage	(%)		96.667
Limit		60%			
Test Res		Complied			

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 47 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 2 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5493	2.6	221	23	1
2	5491	4.6	198	27	1
3	5495	1.1	184	29	1
4	5496	4.8	203	24	0
5	5497	2.4	162	25	1
6	5498	3.4	204	28	0
7	5499	2.3	170	27	1
8	5500	3.5	184	23	1
9	5501	4.9	150	27	1
10	5502	4.6	211	29	1
11	5503	2.9	158	23	1
12	5504	2.6	226	27	1
13	5505	1.6	204	26	1
14	5506	3.9	181	25	1
15	5507	4.6	202	24	0
16	5506	4.1	194	27	1
17	5505	2.3	193	28	1
18	5504	3.9	173	29	1
19	5503	4.3	188	23	1
20	5509	1.5	215	26	1
21	5501	4.9	227	27	0
22	5500	1.1	199	23	1
23	5499	4.5	155	29	1
24	5498	4.0	190	27	1
25	5497	2.4	151	23	1
26	5496	2.5	180	28	1
27	5495	2.5	228	23	0
28	5494	2.5	203	25	1
29	5493	1.5	188	25	1
30	5494	1.9	217	24	1
	De	etection Percentage (%	6)		83.333
Limit					60%
Test Res	ult				Complied

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 48 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 3 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection ; 0=No Detection
1	5493	8.0	205	16	1
2	5491	6.7	382	18	1
3	5495	8.6	418	16	0
4	5496	9.4	351	17	1
5	5497	7.4	383	18	0
6	5498	9.8	232	16	1
7	5499	9.1	377	17	1
8	5500	9.6	457	16	1
9	5501	8.0	471	18	0
10	5502	9.0	304	18	1
11	5503	8.0	316	17	1
12	5504	9.8	325	16	1
13	5505	8.0	409	17	1
14	5506	9.9	200	17	1
15	5507	8.8	458	16	1
16	5506	8.0	232	18	0
17	5505	8.3	250	16	1
18	5504	8.7	270	16	1
19	5503	7.7	350	17	0
20	5509	7.1	230	16	1
21	5501	7.3	416	18	1
22	5500	7.6	498	18	1
23	5499	7.3	286	17	1
24	5498	7.3	287	16	1
25	5497	7.5	462	17	1
26	5496	6.2	300	17	1
27	5495	6.4	323	18	1
28	5494	7.1	420	16	0
29	5493	7.2	395	18	1
30	5494	8.4	377	16	1
'	De	etection Percentage (%	(6)		80.000
Limit					60%
Test Res	ult				Complied

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 49 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 4 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5493	18.0	242	15	1
2	5491	19.9	279	12	1
3	5495	12.9	487	14	0
4	5496	15.0	452	13	0
5	5497	16.3	230	12	1
6	5498	19.8	238	13	0
7	5499	18.2	420	16	1
8	5500	16.3	452	15	1
9	5501	14.2	495	12	1
10	5502	17.8	228	16	1
11	5503	19.1	211	16	0
12	5504	18.4	283	15	1
13	5505	11.8	411	12	1
14	5506	14.2	284	13	1
15	5507	13.9	202	12	1
16	5506	17.8	340	14	0
17	5505	15.6	290	16	1
18	5504	14.6	250	16	1
19	5503	14.4	484	15	1
20	5509	18.9	387	13	1
21	5501	11.1	348	15	1
22	5500	13.8	291	16	0
23	5499	14.3	295	12	1
24	5498	12.5	300	12	0
25	5497	12.5	322	14	1
26	5496	12.5	383	13	1
27	5495	15.7	322	16	1
28	5494	19.8	469	13	1
29	5493	18.6	406	15	0
30	5494	15.9	238	14	1
	De	etection Percentage (%	<u>(</u> 6)		73.333
₋imit					60%
Test Res	ult				Complied

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 50 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Total Type 1~4 Radar Statistical Performance

Radar Type #	Detection Percentage (%)
1	96.667
2	83.333
3	80.000
4	73.333
Aggregate (Radar Types 1-4)	88.333
Limit	80%
Test Result	Complied

Report No. : FZ4D1514-02

 SPORTON INTERNATIONAL INC.
 Page No.
 : 51 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

FCC ID: VUI-APS1



Type 5 Radar Statistical Performance

Center Freq. (MHz)	Low Edge (MHz)	High Edge (MHz)		
5500	5490	5510	VSG Freq. (MHz)	Detection
Trial	Chirp	Offset		
1	5	0	5500	1
2	20	0	5500	1
3	7	0	5500	1
4	8	0	5500	1
5	9	0	5500	1
6	10	0	5500	1
7	11	0	5500	1
8	12	0	5500	1
9	13	0	5500	1
10	14	0	5500	1
11	15	6	5497	1
12	16	6.4	5497	1
13	17	6.8	5498	1
14	20	8	5499	1
15	19	7.6	5499	1
16	18	7.2	5498	0
17	17	6.8	5498	1
18	16	6.4	5497	0
19	15	6	5497	1
20	14	5.6	5497	1
21	13	5.2	5504	1
22	12	4.8	5504	0
23	11	4.4	5505	1
24	10	4	5505	1
25	9	3.6	5505	1
26	8	3.2	5506	1
27	18	7.2	5502	1
28	19	7.6	5501	1
29	20	8	5501	1
30	5	2	5507	1
	To	otal		27
	Detection Per			90%
imit		<u> </u>		80%
est Result				Complied

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 52 of 120
Report Version : Rev. 01

Issued Date

: Nov. 14, 2016



Trial Number				,				
Number of Bursts in Trial				3	3			
Chirp Center F	Chirp Center Frequency			55	00			
Burst No. of Pulses Pulse Width (us)			Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	1	62.1	5	-	-	1091		
2	2	56	5	1729	-	133		
3	2	91.3	5	1230	-	1057		
4	3	50.7	5	1762	1616	1442		
5	2	92.6	5	1723	-	544		
6	2	87.3	5	1302	-	1089		
7	2	59.5	5	1291	-	1374		
8	2	52.2	5 1653 - 1237					
Detection Check	k (1=Detection; 0	=No Detection)				1		

Trial Number			2				
Number of Bu	Number of Bursts in Trial			9	9		
Chirp Center Frequency				55	00		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Location (MHz) Spacing (us) Spacing (us) Within Interval (Interval (
1	3	90	20	1007	1326	30	
2	2	73.7	20	1785	-	979	
3	1	78.1	20	-	-	683	
4	2	92.4	20	1281	-	950	
5	1	61.2	20	-	-	612	
6	3	67.2	20	1525	1870	17	
7	1	78.5	20	-	-	429	
8	2	60.3	20	1931	-	936	
9	3	92.9	20 1403 1476 548				
Detection Che	ck (1=Detection; C	=No Detection)				1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 53 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			3				
Number of Bu	rsts in Trial			10			
Chirp Center Frequency				55	00		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Spacing (us) Spacing (us) Spacing (us) Starti Locati Spacing (us) With Interval				
1	3	63.4	7	1574	1607	801	
2	1	98	7	-	-	966	
3	1	58.7	7	-	-	185	
4	1	88	7	-	-	1012	
5	3	79.5	7	1562	1370	943	
6	3	57.1	7	1900	1188	686	
7	2	64.4	7	1090	-	599	
8	1	78.7	7	_	-	1089	
9	1	69.3	7	_	-	188	
10	3	55.3	7	1375	1691	933	
Detection Ched	ck (1=Detection; 0	=No Detection)				1	

Trial Number			4			
Number of Bu	rsts in Trial		11			
Chirp Center I	Chirp Center Frequency			55	00	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)
1	2	74.3	8	1642	-	24
2	1	83.1	8	-	-	985
3	2	59.5	8	1680	-	988
4	2	59.8	8	1786	-	800
5	2	77.6	8	1617	-	339
6	2	79.9	8	1553	-	1040
7	1	56	8	_	-	544
8	3	71.4	8	1406	1927	452
9	1	97.4	8	-	-	204
10	2	98.3	8	1037	-	926
11	1	63.6	8	_	-	1052
Detection Ched	ck (1=Detection; 0	=No Detection)			•	1

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 54 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			5			
Number of Bur	sts in Trial		12			
Chirp Center Frequency				55	00	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Location Spacing (us) Spacing (us) Within			
1	1	50	9	_	_	Interval (ms) 557
2	2	62.5	9	1731	_	567
3	2	55.4	9	1070	-	460
4	1	65.7	9	-	-	4
5	2	58	9	1512	-	64
6	2	60.9	9	1230	-	650
7	3	89.6	9	1598	1738	235
8	3	84.4	9	1271	1617	873
9	3	72.3	9	1498	1321	901
10	1	58.9	9	-	-	663
11	2	74.8	9	1584	-	919
12	1	71.8	9	-	-	375
Detection Check	k (1=Detection; 0	=No Detection)				1

Trial Number	•		6 13			
Number of B	ursts in Trial					
Chirp Center Frequency				55	00	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Location (MHz) Spacing (us) Spacing (us) Within Interval (
1	2	88.1	10	1257	-	846
2	1	58.7	10	-	-	725
3	2	97.1	10	1037	-	30
4	3	83.1	10	1029	1106	490
5	1	62.1	10	-	-	262
6	2	71.4	10	1058	-	283
7	2	86.3	10	1867	-	49
8	3	77.3	10	1418	1876	634
9	1	78.9	10	-	-	304
10	3	79.2	10	1055	1572	564
11	3	52	10	1582	1836	852
12	3	56.5	10	1195	1542	525
13	3	100	10	1638	1729	750
Detection Che	eck (1=Detection; 0	=No Detection)	•	•		1

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 55 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			7				
Number of Bur	sts in Trial		14				
Chirp Center F	Chirp Center Frequency			55	00		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Loc Spacing (us) Spacing (us) Wi Interv				
1	2	92.7	11	1208	-	231	
2	2	81.3	11	1144	-	804	
3	2	60.4	11	1555	-	34	
4	2	62.1	11	1320	-	427	
5	1	50	11	-	-	577	
6	3	65.9	11	1020	1365	3	
7	2	73.8	11	1308	-	51	
8	2	74.3	11	1143	-	360	
9	1	62.9	11	-	-	394	
10	2	74.8	11	1404	-	317	
11	2	69.7	11	1309	-	532	
12	2	69.8	11	1688	-	339	
13	2	77.4	11	1857	-	381	
14	1	55.1	11	-	-	426	
Detection Check	k (1=Detection; 0	=No Detection)				1	

Trial Number			8				
Number of Bu	rsts in Trial		15				
Chirp Center F	Chirp Center Frequency			55	00		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	1	91.7	12	_	-	776	
2	2	90	12	1196	-	187	
3	3	92.3	12	1486	1853	448	
4	2	66.8	12	1545	-	702	
5	1	64	12	-	-	403	
6	3	95.4	12	1123	1473	230	
7	3	66.8	12	1867	1401	604	
8	3	67.7	12	1472	1397	38	
9	1	68.2	12	-	-	735	
10	2	82.2	12	1297	-	610	
11	1	92.1	12	-	-	618	
12	2	57	12	1764	-	705	
13	2	58.5	12	1310	-	22	
14	3	85.5	12	1630	1447	641	
15	2	82.2	12	1371	-	109	
Detection Chec	k (1=Detection; 0	=No Detection)	•	•	•	1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 56 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number	Trial Number			9			
Number of Bu	rsts in Trial		16				
Chirp Center F	requency			55	00		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	2	74.4	13	1707	-	442	
2	2	63.6	13	1725	1	280	
3	2	71.3	13	1704	1	459	
4	3	77.6	13	1063	1405	197	
5	3	65.2	13	1731	1294	101	
6	3	55.1	13	1109	1549	17	
7	2	96.8	13	1034	-	131	
8	3	80.8	13	1533	1051	365	
9	1	60.4	13	-	ı	222	
10	2	61.8	13	1312	ı	371	
11	2	71.3	13	1657	ı	33	
12	2	98.1	13	1024	ı	291	
13	1	57.9	13	-	-	188	
14	1	91.8	13	-	ı	163	
15	2	56.7	13	1259	-	426	
16	2	89.7	13	1690	1	606	
Detection Chec	k (1=Detection; 0	=No Detection)				1	

Trial Number			10				
Number of Bu	rsts in Trial			1	7		
Chirp Center F	Chirp Center Frequency			55	00		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	2	74.4	14	1107	-	462	
2	1	87.6	14	-	-	653	
3	2	61.7	14	1741	-	457	
4	2	57.5	14	1566	-	388	
5	2	66.1	14	1855	-	63	
6	3	70.1	14	1044	1012	136	
7	1	66.4	14	-	-	343	
8	1	59.2	14	-	-	349	
9	2	88.3	14	1240	-	362	
10	1	64.7	14	-	-	221	
11	2	73	14	1703	-	144	
12	2	81.7	14	1450	-	671	
13	3	70.1	14	1741	1278	320	
14	1	63.6	14	-	-	196	
15	1	58.7	14	-	-	413	
16	2	65.9	14	1478	-	170	
17	1	72.7	14	-	-	564	
Detection Chec	k (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 57 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			11				
Number of Bu	ursts in Trial		18				
Chirp Center	Frequency			54	97		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	2	72.1	15	1193	-	130	
2	3	76.3	15	1484	1390	114	
3	1	86.1	15	-	-	14	
4	1	73.2	15	-	-	604	
5	1	81.2	15	-	-	548	
6	2	99.5	15	1398	-	173	
7	1	93.9	15	-	-	262	
8	2	75.9	15	1921	-	38	
9	3	79.2	15	1100	1429	84	
10	3	77	15	1166	1799	610	
11	1	91.8	15	-	-	339	
12	3	56.8	15	1330	1556	580	
13	2	83.1	15	1556	-	295	
14	2	63	15	1552	-	156	
15	1	65.7	15	-	-	439	
16	1	64.5	15	-	-	188	
17	1	88.5	15	-	-	419	
18	1	60.6	15	-	-	205	
Detection Che	ck (1=Detection; C	=No Detection)				1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 58 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			12				
Number of B	ursts in Trial		19				
Chirp Center	Frequency			54	97		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	2	90.5	16	1299	-	381	
2	2	88.4	16	1418	-	327	
3	2	53.7	16	1055	-	536	
4	1	80.5	16	-	-	285	
5	1	50.4	16	-	-	398	
6	2	61.2	16	1749	-	439	
7	2	78.8	16	1065	-	129	
8	3	75	16	1748	1820	325	
9	2	96.7	16	1254	-	440	
10	3	76.3	16	1848	1106	397	
11	1	73.3	16	-	-	232	
12	2	92.4	16	1317	-	91	
13	2	92.4	16	1854	-	256	
14	3	64.4	16	1240	1634	582	
15	2	67.3	16	1473	-	117	
16	2	84.1	16	1795	-	202	
17	1	80.9	16	_	-	135	
18	1	74.6	16	-	-	396	
19	2	97.6	16	1805	-	615	
Detection Che	ck (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 59 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number	Trial Number			13				
Number of Bu	rsts in Trial		20					
Chirp Center I	Frequency			54	98			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)		Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	2	66.1	17	1417	-	388		
2	2	86.7	17	1693	-	348		
3	2	70.5	17	1263	-	215		
4	2	78	17	1446	-	28		
5	2	66	17	1185	-	585		
6	2	80.6	17	1855	-	65		
7	1	95.5	17	-	-	92		
8	1	98.8	17	-	-	68		
9	3	64.3	17	1641	1108	517		
10	1	75.1	17	-	-	121		
11	2	72.6	17	1499	-	448		
12	1	60.3	17	-	-	567		
13	2	54.9	17	1056	-	245		
14	2	98.8	17	1023	-	584		
15	2	60.9	17	1243	-	579		
16	2	62.7	17	1226	-	464		
17	1	80.1	17	-	-	89		
18	2	70.9	17	1711	-	153		
19	1	90.7	17	-	-	282		
20	1	98.9	17	-	-	71		
Detection Ched	ck (1=Detection; 0	=No Detection)				1		

Trial Number	Trial Number			14				
Number of Bursts in Trial				3	3			
Chirp Center Frequency				54	99			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Spacing (us) Starting Location Within					
1	2	67.5	20	1542	_	Interval (ms) 947		
2	3	83.6	20	1272	1696	124		
3	2	93.2	20	1877	-	701		
4	1	55.6	20	-	-	1123		
5	3	84.2	20	1733	1619	756		
6	3	69.1	20	1612	1071	1		
7	2	66.9	20	1905	-	7		
8	3	86.8	20 1697 1621 1082					
Detection Chec	k (1=Detection; 0	=No Detection)		•		1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 60 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			15					
Number of Bu	Number of Bursts in Trial			()			
Chirp Center	Chirp Center Frequency			54	99			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Location (MHz) Spacing (us) Spacing (us) Within Interval (m					
1	2	62.2	19	1571	-	949		
2	2	85	19	1669	-	189		
3	2	64.5	19	1505	-	176		
4	2	50.4	19	1325	-	538		
5	2	66.1	19	1483	-	908		
6	2	71.2	19	1110	-	1017		
7	3	53.7	19	1445	1677	492		
8	3	62.5	19	1596	1341	349		
9	3	62	19 1929 1221 1105					
Detection Che	ck (1=Detection; 0	=No Detection)				1		

Trial Number				16 10			
Number of Bu	rsts in Trial						
Chirp Center Frequency				54	98		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	2	80.5	18	1910	-	284	
2	2	64.2	18	1661	-	751	
3	2	90.1	18	1041	-	491	
4	2	69.8	18	1495	-	107	
5	1	73.1	18	-	-	490	
6	3	77.2	18	1418	1145	1155	
7	3	52.6	18	1732	1787	772	
8	2	71.4	18	1562	-	121	
9	2	89.8	18	1491	-	89	
10	2	76.4	18	1355	-	615	
Detection Chee	ck (1=Detection; 0	=No Detection)				0	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 61 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number				17				
Number of Bu	rsts in Trial			11				
Chirp Center Frequency				54	98			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Location Spacing (us) Spacing (us) Within Interval (m					
1	2	51.2	17	1236	-	740		
2	1	71.7	17	-	-	941		
3	2	74.7	17	1164	-	370		
4	2	50.9	17	1919	-	371		
5	2	65.2	17	1206	-	1033		
6	2	98	17	1182	-	346		
7	2	58.7	17	1612	-	639		
8	1	63.8	17	-	-	1056		
9	3	86.3	17	1545	1065	205		
10	1	94.4	17	-	-	753		
11	3	88.5	17	1699	1319	58		
Detection Ched	ck (1=Detection; C	=No Detection)				1		

Trial Number			18			
Number of Bur	sts in Trial		12			
Chirp Center Frequency				54	97	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Spacing (us) Starting Location Spacing (us) Within Interval (n			
1	2	88.7	16	1405	_	448
2	3	90.2	16	1544	1235	621
3	1	96.5	16	-	-	512
4	2	80.5	16	1090	-	321
5	2	63.7	16	1268	-	798
6	1	53.4	16	-	-	809
7	2	52.3	16	1043	-	301
8	3	54.7	16	1701	1104	796
9	3	75.6	16	1923	1729	669
10	2	59.2	16	1244	-	369
11	1	56.3	16	-	-	51
12	2	87.8	16	1608	-	733
Detection Chec	k (1=Detection; 0	=No Detection)				0

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 62 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number	rial Number			19			
Number of Bu	ırsts in Trial		13				
Chirp Center Frequency				54	97		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Loc (MHz) Spacing (us) Spacing (us) Interv				
1	2	68.2	15	1104	-	229	
2	2	58.4	15	1627	-	488	
3	3	74.7	15	1861	1015	137	
4	2	58.2	15	1593	-	520	
5	1	51.6	15	-	-	799	
6	2	94.7	15	1469	-	43	
7	2	70.7	15	1091	-	126	
8	2	82.9	15	1472	-	607	
9	3	62.7	15	1168	1453	527	
10	2	63.1	15	1529	-	143	
11	1	96.1	15	-	-	176	
12	2	57	15	1457	-	882	
13	3	95.6	15	1707	1501	214	
Detection Che	ck (1=Detection; C	=No Detection)				1	

Trial Number	Trial Number			20				
Number of Bur	sts in Trial		14					
Chirp Center Frequency				54	97			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Location Spacing (us) Spacing (us) Within Interval (
1	1	95.7	14	-	-	117		
2	1	93.1	14	-	-	720		
3	1	55.8	14	-	-	297		
4	1	76.7	14	-	-	284		
5	2	68	14	1686	-	472		
6	3	94.1	14	1796	1393	264		
7	2	53.9	14	1293	-	525		
8	1	99.3	14	-	-	155		
9	2	73.3	14	1458	-	65		
10	2	93.3	14	1196	-	451		
11	3	55.8	14	1895	1034	243		
12	1	66.4	14	-	-	228		
13	2	65.6	14	1732	-	746		
14	2	76.5	14	1187	-	522		
Detection Chec	k (1=Detection; 0	=No Detection)				1		

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 63 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number	Trial Number			21				
Number of Bu	rsts in Trial		15					
Chirp Center F	Chirp Center Frequency			55	04			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	1	85.1	13	-	-	565		
2	2	72.5	13	1648	-	211		
3	1	67.5	13	-	-	348		
4	2	56.1	13	1360	-	156		
5	1	71.1	13	-	-	718		
6	2	93.1	13	1391	-	400		
7	1	56.5	13	-	-	482		
8	1	63.8	13	-	-	703		
9	2	67.4	13	1727	-	780		
10	1	52.3	13	-	1	102		
11	3	62.4	13	1228	1715	304		
12	2	53.3	13	1630	-	57		
13	2	83.1	13	1205	-	768		
14	2	93.7	13	1085	-	461		
15	2	90.7	13	1297	-	746		
Detection Chec	k (1=Detection; 0	=No Detection)				1		

Trial Number			22				
Number of Bur	sts in Trial		16				
Chirp Center Frequency				55	04		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	2	98.8	12	1439	-	95	
2	1	54.5	12	-	-	676	
3	2	80.5	12	1360	-	8	
4	2	55.9	12	1906	-	373	
5	2	72.1	12	1623	-	254	
6	2	84.4	12	1604	-	480	
7	1	78.5	12	-	-	663	
8	1	88	12	-	-	314	
9	2	74.7	12	1157	-	596	
10	2	97.1	12	1673	-	264	
11	1	81.6	12	-	-	740	
12	1	83.6	12	-	-	163	
13	3	87.6	12	1757	1322	628	
14	2	58.5	12	1372	-	132	
15	3	91.8	12	1767	1183	106	
16	2	58.8	12	1432	-	659	
Detection Chec	k (1=Detection; 0	=No Detection)				0	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

Page No. : 64 of 120 Report Version : Rev. 01

Issued Date : Nov. 14, 2016



Trial Number			23				
Number of Bur	sts in Trial		17				
Chirp Center Frequency				55	05		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Locati (MHz) Spacing (us) Spacing (us) With Interval				
1	1	96	11	-	-	284	
2	2	92.5	11	1241	-	488	
3	2	89.5	11	1347	-	76	
4	2	74.8	11	1607	-	688	
5	2	60.6	11	1523	-	28	
6	2	71.5	11	1659	-	383	
7	2	71.1	11	1454	-	182	
8	1	98.7	11	-	-	20	
9	2	85.1	11	1770	-	576	
10	2	89.2	11	1086	-	410	
11	2	60.7	11	1101	-	458	
12	2	75.2	11	1719	-	348	
13	2	75.7	11	1799	-	481	
14	3	56.7	11	1132	1884	587	
15	2	65	11	1885	-	480	
16	2	64.6	11	1910	-	195	
17	3	69.9	11	1410	1190	396	
Detection Chec	k (1=Detection; 0	=No Detection)				1	

Trial Number			24				
Number of Bur	sts in Trial		18				
Chirp Center F	requency			55	05		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	3	83.8	10	1290	1021	536	
2	2	66.9	10	1112	-	44	
3	3	91	10	1220	1504	611	
4	2	86.1	10	1678	-	456	
5	3	65.5	10	1928	1222	330	
6	1	62.6	10	-	-	297	
7	3	68.7	10	1505	1200	351	
8	3	59.2	10	1452	1114	230	
9	1	73.9	10	-	-	222	
10	1	77.2	10	-	-	57	
11	2	96.4	10	1357	-	399	
12	2	99.9	10	1173	-	299	
13	2	99.9	10	1520	-	464	
14	1	86.7	10	-	-	294	
15	1	92.6	10	-	-	653	
16	1	77.1	10	-	-	550	
17	2	81.1	10	1664	-	566	
18	3	68.4	10	1536	1309	580	
Detection Chec	k (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 65 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			25				
Number of Bu	ursts in Trial		19				
Chirp Center	Frequency			55	05		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	3	68.2	9	1723	1868	471	
2	3	83.7	9	1711	1405	368	
3	2	69.7	9	1781	-	425	
4	1	59.7	9	-	-	440	
5	2	96.7	9	1484	-	123	
6	2	95.8	9	1319	-	261	
7	3	71.3	9	1095	1354	332	
8	3	53.2	9	1527	1427	427	
9	2	69.5	9	1771	-	397	
10	3	63.9	9	1075	1447	67	
11	2	93.4	9	1783	-	174	
12	2	77.3	9	1564	-	17	
13	2	73.1	9	1294	-	216	
14	1	77.4	9	-	-	292	
15	3	57.2	9	1722	1886	619	
16	2	68.7	9	1629	-	233	
17	1	60.8	9	-	-	226	
18	3	69.7	9	1128	1224	599	
19	1	62.2	9	-	-	433	
Detection Che	ck (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 66 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			26					
Number of Bu	Number of Bursts in Trial			20				
Chirp Center I	Frequency			55	06			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)		Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	1	80.5	8	-	-	90		
2	3	62.6	8	1406	1343	319		
3	3	85.6	8	1190	1529	384		
4	2	83.9	8	1208	-	567		
5	2	92.4	8	1488	-	234		
6	2	54	8	1529	-	535		
7	3	81.3	8	1501	1812	325		
8	1	98.5	8	-	-	532		
9	1	85.8	8	-	-	272		
10	2	84.7	8	1593	-	182		
11	2	83.3	8	1705	-	134		
12	2	79.8	8	1567	-	286		
13	1	77.9	8	-	-	368		
14	3	98.4	8	1510	1569	290		
15	2	79.9	8	1588	-	231		
16	3	78	8	1140	1353	353		
17	3	55.2	8	1700	1327	53		
18	3	71.9	8	1081	1224	44		
19	1	62	8	-	-	298		
20	3	70.5	8	1888	1442	529		
Detection Chec	ck (1=Detection; 0	=No Detection)				1		

Trial Number			27				
Number of Bur	sts in Trial			3	3		
Chirp Center F	requency			55	02		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Spacing (us)			Starting Location Within Interval (ms)	
1	2	69.1	18	1076	-	1436	
2	2	62.1	18	1688	-	22	
3	2	94.8	18	1891	-	897	
4	1	75.8	18	-	-	1186	
5	2	65.4	18	1713	-	589	
6	2	97.7	18	1292	-	614	
7	3	98.1	18	1670	1711	506	
8	2	85.4	18	776			
Detection Chec	k (1=Detection; 0	=No Detection)	_	·		1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 67 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			28					
Number of Bu	ırsts in Trial			()			
Chirp Center	Frequency			55	01			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	(MHz) Spacing (us) Spacing (us)				
1	3	82	19	1233	1713	Interval (ms) 679		
2	3	87.7	19	1554	1123	473		
3	2	98.9	19	1518	-	869		
4	1	55	19	-	-	719		
5	1	93.6	19	-	-	902		
6	2	58.7	19	1641	-	1243		
7	2	88.7	19	1387	-	410		
8	1	60.3	19	-	-	1154		
9	1	97.7	19 512					
Detection Che	ck (1=Detection; 0	=No Detection)		_		1		

Trial Number			29				
Number of Bu	Number of Bursts in Trial			10			
Chirp Center I	Frequency			55	01		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	1	69.6	20	-	-	1131	
2	1	74.5	20	-	-	290	
3	1	60.9	20	-	ı	895	
4	1	74.6	20	-	ı	202	
5	2	99.3	20	1501	-	139	
6	2	95.3	20	1065	-	854	
7	2	91.9	20	1722	-	219	
8	2	51	20	1285	-	57	
9	2	87.7	20	1747		141	
10	1	87.2	20	-	-	596	
Detection Ched	ck (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 68 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			30					
Number of B	ursts in Trial			11				
Chirp Center	Frequency			55	07			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Spacing (us)			Starting Location Within Interval (ms)		
1	3	59.9	5	1901	1196	935		
2	2	77.1	5	1590	-	1038		
3	2	62.7	5	1227	-	690		
4	1	77.1	5	-	-	547		
5	3	99.8	5	1798	1790	551		
6	2	61.5	5	1135	-	876		
7	2	77.5	5	1583	-	448		
8	2	57.3	5	1890	-	736		
9	2	53.5	5	1757	-	362		
10	1	66.6	5	-	-	836		
11	3	80.7	5	1811	1289	410		
Detection Che	eck (1=Detection; C	=No Detection)				1		

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 69 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 6 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulses / Hop	Pulse Width (us)	PRI (us)	1=Detection 0=No Detection
1	5500	9	1	333	1
2	5500	9	1	333	1
3	5500	9	1	333	1
4	5500	9	1	333	1
5	5500	9	1	333	1
6	5500	9	1	333	1
7	5500	9	1	333	1
8	5500	9	1	333	1
9	5500	9	1	333	1
10	5500	9	1	333	1
11	5500	9	1	333	1
12	5500	9	1	333	1
13	5500	9	1	333	1
14	5500	9	1	333	1
15	5500	9	1	333	1
16	5500	9	1	333	1
17	5500	9	1	333	0
18	5500	9	1	333	1
19	5500	9	1	333	1
20	5500	9	1	333	1
21	5500	9	1	333	1
22	5500	9	1	333	1
23	5500	9	1	333	1
24	5500	9	1	333	1
25	5500	9	1	333	1
26	5500	9	1	333	1
27	5500	9	1	333	1
28	5500	9	1	333	1
29	5500	9	1	333	1
30	5500	9	1	333	1
	96.667				
₋imit		etection Percenta	- , ,		70%
Test Res	Complied				

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 70 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Modulation Mode: 802.11ac (VHT40)

Type 1 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulse Per Second)	PRI (us)	1=Detection 0=No Detection
1	5496	1	1930.5	518	1
2	5497	23	326.2	3066	1
3	5498	19	1139.0	878	1
4	5499	12	1355.0	738	1
5	5500	4	1730.1	578	1
6	5501	8	1519.8	658	1
7	5502	15	1253.1	798	1
8	5503	6	1618.1	618	1
9	5504	14	1285.3	778	0
10	5505	3	1792.1	558	1
11	5506	13	1319.3	758	1
12	5507	9	1474.9	678	1
13	5508	7	1567.4	638	1
14	5509	17	1193.3	838	1
15	5510	10	1432.7	698	1
16	5511	-	1692.0	591	1
17	5512	-	328.1	3048	1
18	5513	-	373.4	2678	1
19	5514	-	574.4	1741	1
20	5515	-	1216.5	822	1
21	5516	-	801.3	1248	0
22	5517	-	488.5	2047	1
23	5518	-	956.0	1046	1
24	5519	-	517.6	1932	1
25	5520	-	1422.5	703	1
26	5521	-	542.0	1845	1
27	5522	-	741.3	1349	1
28	5523	-	881.8	1134	1
29	5524	-	427.4	2340	1
30	5525	-	628.9	1590	1
		Detection Percentage	(%)		93.333
Limit		60%			
Test Res	Complied				

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 71 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 2 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5496	2.6	221	23	1
2	5497	4.6	198	27	1
3	5498	1.1	184	29	1
4	5499	4.8	203	24	1
5	5500	2.4	162	25	1
6	5501	3.4	204	28	0
7	5502	2.3	170	27	1
8	5503	3.5	184	23	1
9	5504	4.9	150	27	1
10	5505	4.6	211	29	1
11	5506	2.9	158	23	1
12	5507	2.6	226	27	0
13	5508	1.6	204	26	1
14	5509	3.9	181	25	1
15	5510	4.6	202	24	1
16	5511	4.1	194	27	0
17	5512	2.3	193	28	1
18	5513	3.9	173	29	0
19	5514	4.3	188	23	1
20	5515	1.5	215	26	1
21	5516	4.9	227	27	1
22	5517	1.1	199	23	0
23	5518	4.5	155	29	1
24	5519	4.0	190	27	1
25	5520	2.4	151	23	1
26	5521	2.5	180	28	1
27	5522	2.5	228	23	1
28	5523	2.5	203	25	1
29	5524	1.5	188	25	1
30	5525	1.9	217	24	0
	80.000				
Limit	60%				
Test Resi	Complied				

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 72 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 3 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5496	8.0	205	16	0
2	5497	6.7	382	18	1
3	5498	8.6	418	16	1
4	5499	9.4	351	17	1
5	5500	7.4	383	18	0
6	5501	9.8	232	16	1
7	5502	9.1	377	17	1
8	5503	9.6	457	16	0
9	5504	8.0	471	18	1
10	5505	9.0	304	18	1
11	5506	8.0	316	17	1
12	5507	9.8	325	16	1
13	5508	8.0	409	17	0
14	5509	9.9	200	17	1
15	5510	8.8	458	16	1
16	5511	8.0	232	18	1
17	5512	8.3	250	16	0
18	5529	8.7	270	16	1
19	5514	7.7	350	17	0
20	5515	7.1	230	16	1
21	5516	7.3	416	18	1
22	5517	7.6	498	18	0
23	5492	7.3	286	17	1
24	5519	7.3	287	16	1
25	5520	7.5	462	17	1
26	5521	6.2	300	17	1
27	5522	6.4	323	18	0
28	5523	7.1	420	16	1
29	5524	7.2	395	18	1
30	5525	8.4	377	16	1
•	D	etection Percentage (%)		73.333
Limit	60%				
Test Resu	Complied				

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1

 Page No.
 : 73 of 120

 Report Version
 : Rev. 01

 Issued Date
 : Nov. 14, 2016



Type 4 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5496	18.0	242	15	1
2	5497	19.9	279	12	1
3	5498	12.9	487	14	1
4	5499	15.0	452	13	1
5	5500	16.3	230	12	0
6	5501	19.8	238	13	1
7	5502	18.2	420	16	1
8	5529	16.3	452	15	0
9	5504	14.2	495	12	1
10	5505	17.8	228	16	0
11	5506	19.1	211	16	1
12	5507	18.4	283	15	1
13	5508	11.8	411	12	0
14	5509	14.2	284	13	1
15	5510	13.9	202	12	1
16	5511	17.8	340	14	0
17	5512	15.6	290	16	1
18	5513	14.6	250	16	1
19	5514	14.4	484	15	1
20	5515	18.9	387	13	0
21	5516	11.1	348	15	1
22	5517	13.8	291	16	1
23	5518	14.3	295	12	0
24	5519	12.5	300	12	1
25	5520	12.5	322	14	1
26	5521	12.5	383	13	1
27	5522	15.7	322	16	1
28	5523	19.8	469	13	1
29	5524	18.6	406	15	0
30	5492	15.9	238	14	1
		etection Percentage (%		•	73.333
₋imit	60%				
Test Resu	Complied				

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456

Report Ver
FAX: 886-3-327-0973

Issued Dat

FCC ID: VUI-APS1

Page No. : 74 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Total Type 1~4 Radar Statistical Performance

Radar Type #	Detection Percentage (%)
1	93.333
2	80.000
3	73.333
4	73.333
Aggregate (Radar Types 1-4)	80.000
Limit	80%
Test Result	Complied

Report No. : FZ4D1514-02

 SPORTON INTERNATIONAL INC.
 Page No.
 : 75 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

FCC ID: VUI-APS1



Type 5 Radar Statistical Performance

Center Freq. (MHz)	Low Edge (MHz)	High Edge (MHz)		
5510	5491	5529	VSG Freq. (MHz)	Detection
Trial	Chirp	Offset		
1	5	0	5510	1
2	20	0	5510	1
3	7	0	5510	1
4	8	0	5510	1
5	9	0	5510	1
6	10	0	5510	1
7	11	0	5510	1
8	12	0	5510	1
9	13	0	5510	1
10	14	0	5510	1
11	15	6	5497	1
12	16	6.4	5497	1
13	17	6.8	5498	1
14	20	8	5499	1
15	19	7.6	5499	1
16	18	7.2	5498	1
17	17	6.8	5498	1
18	16	6.4	5497	1
19	15	6	5497	1
20	14	5.6	5497	1
21	13	5.2	5524	1
22	12	4.8	5524	1
23	11	4.4	5525	1
24	10	4	5525	1
25	9	3.6	5525	1
26	8	3.2	5526	1
27	18	7.2	5522	1
28	19	7.6	5521	1
29	20	8	5521	1
30	5	2	5527	1
	To	otal		30
	Detection Per	centage (%)		100%
Limit		· · · · · · · · · · · · · · · · · · ·		80%
Test Result				Complied

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1
 Page No.
 : 76 of 120

 Report Version
 : Rev. 01

Issued Date

: Nov. 14, 2016



Trial Number			1					
Number of Bur	sts in Trial			3	3			
Chirp Center F	requency			55	10			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)				
1	1	62.1	5	-	-	1091		
2	2	56	5	1729	-	133		
3	2	91.3	5	1230	-	1057		
4	3	50.7	5	1762	1616	1442		
5	2	92.6	5	1723	-	544		
6	2	87.3	5	1302	-	1089		
7	2	59.5	5 1291 - 1374					
8	2	52.2	5 1653 - 12					
Detection Check	k (1=Detection; 0	=No Detection)				1		

Trial Number			2					
Number of B	Number of Bursts in Trial			9	9			
Chirp Center	Frequency			55	10			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)				
1	3	90	20	1007	1326	30		
2	2	73.7	20	1785	-	979		
3	1	78.1	20	_	-	683		
4	2	92.4	20	1281	-	950		
5	1	61.2	20	_	-	612		
6	3	67.2	20	1525	1870	17		
7	1	78.5	20	429				
8	2	60.3	20 1931 - 93					
9	3	92.9	20	548				
Detection Che	eck (1=Detection; 0	=No Detection)				1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 77 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			3					
Number of Bursts in Trial			10					
Chirp Center F	Frequency			55	10			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width Pulse 1-to-2 Pulse 2-to-3				
1	3	63.4	7	1574	1607	801		
2	1	98	7	-	-	966		
3	1	58.7	7	-	-	185		
4	1	88	7	-	-	1012		
5	3	79.5	7	1562	1370	943		
6	3	57.1	7	1900	1188	686		
7	2	64.4	7	1090	-	599		
8	1	78.7	7	-	-	1089		
9	1	69.3	7 - 188					
10	3	55.3	7 1375 1691 9					
Detection Chec	ck (1=Detection; 0	=No Detection)				1		

Trial Number			4				
Number of Bu	Number of Bursts in Trial			11			
Chirp Center F	requency			55	10		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	74.3	8	1642	_	24	
2	1	83.1	8	-	-	985	
3	2	59.5	8	1680	-	988	
4	2	59.8	8	1786	-	800	
5	2	77.6	8	1617	-	339	
6	2	79.9	8	1553	-	1040	
7	1	56	8	-	-	544	
8	3	71.4	8	1406	1927	452	
9	1	97.4	8	-	-	204	
10	2	98.3	8	1037	-	926	
11	1	63.6	8	-	-	1052	
Detection Chec	ck (1=Detection; C	=No Detection)		•	•	1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 78 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			5					
Number of Bur	sts in Trial		12					
Chirp Center F	requency			55	10			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Spacing (us) Spacing (us)				
1	1	50	9	_	_	Interval (ms) 557		
2	2	62.5	9	1731	-	567		
3	2	55.4	9	1070	-	460		
4	1	65.7	9	-	-	4		
5	2	58	9	1512	-	64		
6	2	60.9	9	1230	-	650		
7	3	89.6	9	1598	1738	235		
8	3	84.4	9	1271	1617	873		
9	3	72.3	9	1498	1321	901		
10	1	58.9	9	-	-	663		
11	2	74.8	9	1584	-	919		
12	1	71.8	9	-	-	375		
Detection Check	k (1=Detection; 0	=No Detection)				1		

Trial Number			6					
Number of Bu	Number of Bursts in Trial			13				
Chirp Center I	Frequency			55	10			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width Pulse 1-to-2 Pulse 2-to-3				
1	2	88.1	10	1257	-	846		
2	1	58.7	10	_	-	725		
3	2	97.1	10	1037	-	30		
4	3	83.1	10	1029	1106	490		
5	1	62.1	10	_	-	262		
6	2	71.4	10	1058	-	283		
7	2	86.3	10	1867	-	49		
8	3	77.3	10	1418	1876	634		
9	1	78.9	10	_	-	304		
10	3	79.2	10	1055	1572	564		
11	3	52	10	1582	1836	852		
12	3	56.5	10	1195	1542	525		
13	3	100	10	1638	1729	750		
Detection Chec	ck (1=Detection; C	=No Detection)		·		1		

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 79 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			7					
Number of Bur	sts in Trial		14					
Chirp Center F	Chirp Center Frequency			55	10			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width Pulse 1-to-2 Pulse 2-to-3				
1	2	92.7	11	1208	-	231		
2	2	81.3	11	1144	-	804		
3	2	60.4	11	1555	-	34		
4	2	62.1	11	1320	-	427		
5	1	50	11	-	-	577		
6	3	65.9	11	1020	1365	3		
7	2	73.8	11	1308	-	51		
8	2	74.3	11	1143	-	360		
9	1	62.9	11	-	-	394		
10	2	74.8	11	1404	-	317		
11	2	69.7	11	1309	-	532		
12	2	69.8	11	1688	-	339		
13	2	77.4	11	1857	-	381		
14	1	55.1	11	-	-	426		
Detection Chec	k (1=Detection; 0	=No Detection)				1		

Trial Number			8						
Number of Bursts in Trial			15						
Chirp Center F	requency			55	10				
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width Pulse 1-to-2 Pulse 2-to-3					
1	1	91.7	12	_	-	776			
2	2	90	12	1196	-	187			
3	3	92.3	12	1486	1853	448			
4	2	66.8	12	1545	-	702			
5	1	64	12	-	-	403			
6	3	95.4	12	1123	1473	230			
7	3	66.8	12	1867	1401	604			
8	3	67.7	12	1472	1397	38			
9	1	68.2	12	_	-	735			
10	2	82.2	12	1297	-	610			
11	1	92.1	12	_	-	618			
12	2	57	12	1764	-	705			
13	2	58.5	12	1310	-	22			
14	3	85.5	12	1630	1447	641			
15	2	82.2	12	1371	-	109			
Detection Chec	k (1=Detection; 0	=No Detection)				1			

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 80 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			9				
Number of Bu	rsts in Trial		16				
Chirp Center Frequency				55	10		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	2	74.4	13	1707	-	442	
2	2	63.6	13	1725	-	280	
3	2	71.3	13	1704	-	459	
4	3	77.6	13	1063	1405	197	
5	3	65.2	13	1731	1294	101	
6	3	55.1	13	1109	1549	17	
7	2	96.8	13	1034	-	131	
8	3	80.8	13	1533	1051	365	
9	1	60.4	13	-	-	222	
10	2	61.8	13	1312	-	371	
11	2	71.3	13	1657	-	33	
12	2	98.1	13	1024	-	291	
13	1	57.9	13	-	-	188	
14	1	91.8	13	-	-	163	
15	2	56.7	13	1259	-	426	
16	2	89.7	13	1690	-	606	
Detection Chec	k (1=Detection; 0	=No Detection)				1	

Trial Number				10				
Number of Bu	rsts in Trial		17					
Chirp Center Frequency				55	10			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)		
1	2	74.4	14	1107	-	462		
2	1	87.6	14	-	-	653		
3	2	61.7	14	1741	-	457		
4	2	57.5	14	1566	-	388		
5	2	66.1	14	1855	-	63		
6	3	70.1	14	1044	1012	136		
7	1	66.4	14	-	-	343		
8	1	59.2	14	-	-	349		
9	2	88.3	14	1240	-	362		
10	1	64.7	14	-	-	221		
11	2	73	14	1703	-	144		
12	2	81.7	14	1450	-	671		
13	3	70.1	14	1741	1278	320		
14	1	63.6	14	-	-	196		
15	1	58.7	14	-	-	413		
16	2	65.9	14	1478	-	170		
17	1	72.7	14	-	-	564		
Detection Chec	k (1=Detection; 0	=No Detection)				1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 81 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			11				
Number of Bu	ırsts in Trial		18				
Chirp Center Frequency				54	97		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	2	72.1	15	1193	-	130	
2	3	76.3	15	1484	1390	114	
3	1	86.1	15	-	-	14	
4	1	73.2	15	-	-	604	
5	1	81.2	15	-	-	548	
6	2	99.5	15	1398	-	173	
7	1	93.9	15	-	-	262	
8	2	75.9	15	1921	-	38	
9	3	79.2	15	1100	1429	84	
10	3	77	15	1166	1799	610	
11	1	91.8	15	-	-	339	
12	3	56.8	15	1330	1556	580	
13	2	83.1	15	1556	-	295	
14	2	63	15	1552	-	156	
15	1	65.7	15	-	-	439	
16	1	64.5	15	-	-	188	
17	1	88.5	15	-	-	419	
18	1	60.6	15	-	-	205	
Detection Che	ck (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 82 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			12				
Number of Bu	rsts in Trial		19				
Chirp Center F	Chirp Center Frequency			54	97		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	2	90.5	16	1299	_	381	
2	2	88.4	16	1418	-	327	
3	2	53.7	16	1055	-	536	
4	1	80.5	16	-	-	285	
5	1	50.4	16	-	-	398	
6	2	61.2	16	1749	-	439	
7	2	78.8	16	1065	-	129	
8	3	75	16	1748	1820	325	
9	2	96.7	16	1254	ı	440	
10	3	76.3	16	1848	1106	397	
11	1	73.3	16	-	1	232	
12	2	92.4	16	1317	1	91	
13	2	92.4	16	1854	-	256	
14	3	64.4	16	1240	1634	582	
15	2	67.3	16	1473	-	117	
16	2	84.1	16	1795	-	202	
17	1	80.9	16	-	-	135	
18	1	74.6	16	-	-	396	
19	2	97.6	16	1805	-	615	
Detection Chec	ck (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 83 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number	Trial Number			13				
Number of Bu	rsts in Trial		20					
Chirp Center I	Frequency			54	98			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)		Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	2	66.1	17	1417	-	388		
2	2	86.7	17	1693	-	348		
3	2	70.5	17	1263	-	215		
4	2	78	17	1446	-	28		
5	2	66	17	1185	-	585		
6	2	80.6	17	1855	-	65		
7	1	95.5	17	-	-	92		
8	1	98.8	17	-	-	68		
9	3	64.3	17	1641	1108	517		
10	1	75.1	17	-	-	121		
11	2	72.6	17	1499	-	448		
12	1	60.3	17	-	-	567		
13	2	54.9	17	1056	-	245		
14	2	98.8	17	1023	-	584		
15	2	60.9	17	1243	-	579		
16	2	62.7	17	1226	-	464		
17	1	80.1	17	-	-	89		
18	2	70.9	17	1711	-	153		
19	1	90.7	17	-	-	282		
20	1	98.9	17	-	-	71		
Detection Ched	ck (1=Detection; 0	=No Detection)				1		

Trial Number	Trial Number			14			
Number of Bui	Number of Bursts in Trial			3	3		
Chirp Center F	requency			54	99		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	2	67.5	20	1542	_	947	
2	3	83.6	20	1272	1696	124	
3	2	93.2	20	1877	-	701	
4	1	55.6	20	-	-	1123	
5	3	84.2	20	1733	1619	756	
6	3	69.1	20	1612	1071	1	
7	2	66.9	20	1905	-	7	
8	3	86.8	20 1697 1621 1082				
Detection Chec	k (1=Detection; C	=No Detection)	·		·	1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 84 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			15				
Number of Bursts in Trial				()		
Chirp Center	Frequency			54	99		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Local Spacing (us) Spacing (us) With Interval				
1	2	62.2	19	1571	-	949	
2	2	85	19	1669	-	189	
3	2	64.5	19	1505	-	176	
4	2	50.4	19	1325	-	538	
5	2	66.1	19	1483	-	908	
6	2	71.2	19	1110	-	1017	
7	3	53.7	19	1445	1677	492	
8	3	62.5	19	1596	1341	349	
9	3	62	19 1929 1221 1105				
Detection Che	ck (1=Detection; 0	=No Detection)				1	

Trial Number			16			
Number of Bu	Number of Bursts in Trial			1	0	
Chirp Center Frequency				54	98	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)		Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)
1	2	80.5	18	1910	-	284
2	2	64.2	18	1661	-	751
3	2	90.1	18	1041	-	491
4	2	69.8	18	1495	-	107
5	1	73.1	18	-	-	490
6	3	77.2	18	1418	1145	1155
7	3	52.6	18	1732	1787	772
8	2	71.4	18	1562	-	121
9	2	89.8	18	1491	-	89
10	2	76.4	18	1355	-	615
Detection Che	ck (1=Detection; 0	=No Detection)				1

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 85 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			17			
Number of Bur	sts in Trial			1	1	
Chirp Center Frequency				54	98	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Locati (MHz) Spacing (us) Spacing (us) With Interval			
1	2	51.2	17	1236	-	740
2	1	71.7	17	-	-	941
3	2	74.7	17	1164	-	370
4	2	50.9	17	1919	-	371
5	2	65.2	17	1206	-	1033
6	2	98	17	1182	-	346
7	2	58.7	17	1612	-	639
8	1	63.8	17	-	-	1056
9	3	86.3	17	1545	1065	205
10	1	94.4	17	-	-	753
11	3	88.5	17	1699	1319	58
Detection Chec	k (1=Detection; 0	=No Detection)				1

Trial Number			18				
Number of Bui	rsts in Trial			12			
Chirp Center F	Chirp Center Frequency			54	97		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Loc (MHz) Spacing (us) Spacing (us) Wi				
						Interval (ms)	
1	2	88.7	16	1405	-	448	
2	3	90.2	16	1544	1235	621	
3	1	96.5	16	-	-	512	
4	2	80.5	16	1090	-	321	
5	2	63.7	16	1268	-	798	
6	1	53.4	16	-	-	809	
7	2	52.3	16	1043	-	301	
8	3	54.7	16	1701	1104	796	
9	3	75.6	16	1923	1729	669	
10	2	59.2	16	1244	-	369	
11	1	56.3	16	-	-	51	
12	2	87.8	16	1608	-	733	
Detection Chec	k (1=Detection; C	=No Detection)	•	•	•	1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 86 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number	Trial Number			19				
Number of Bui	rsts in Trial		13					
Chirp Center Frequency				54	97			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)		
1	2	68.2	15	1104	-	229		
2	2	58.4	15	1627	-	488		
3	3	74.7	15	1861	1015	137		
4	2	58.2	15	1593	-	520		
5	1	51.6	15	-	-	799		
6	2	94.7	15	1469	-	43		
7	2	70.7	15	1091	-	126		
8	2	82.9	15	1472	-	607		
9	3	62.7	15	1168	1453	527		
10	2	63.1	15	1529	-	143		
11	1	96.1	15	-	-	176		
12	2	57	15	1457	-	882		
13	3	95.6	15	1707	1501	214		
Detection Chec	k (1=Detection; 0	=No Detection)				1		

Trial Number			20 14				
Number of Bu	rsts in Trial						
Chirp Center Frequency				54	97		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	1	95.7	14	-	-	117	
2	1	93.1	14	-	-	720	
3	1	55.8	14	-	-	297	
4	1	76.7	14	-	-	284	
5	2	68	14	1686	-	472	
6	3	94.1	14	1796	1393	264	
7	2	53.9	14	1293	-	525	
8	1	99.3	14	_	-	155	
9	2	73.3	14	1458	-	65	
10	2	93.3	14	1196	-	451	
11	3	55.8	14	1895	1034	243	
12	1	66.4	14	-	-	228	
13	2	65.6	14	1732	-	746	
14	2	76.5	14	1187	-	522	
Detection Chec	ck (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1

 Page No.
 : 87 of 120

 Report Version
 : Rev. 01

 Issued Date
 : Nov. 14, 2016



Trial Number			21				
Number of Bu	rsts in Trial		15				
Chirp Center F	requency			55	24		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)				
1	1	85.1	13	-	-	565	
2	2	72.5	13	1648	-	211	
3	1	67.5	13	-	-	348	
4	2	56.1	13	1360	-	156	
5	1	71.1	13	-	-	718	
6	2	93.1	13	1391	-	400	
7	1	56.5	13	-	-	482	
8	1	63.8	13	-	-	703	
9	2	67.4	13	1727	-	780	
10	1	52.3	13	-	-	102	
11	3	62.4	13	1228	1715	304	
12	2	53.3	13	1630	-	57	
13	2	83.1	13	1205	-	768	
14	2	93.7	13	1085	-	461	
15	2	90.7	13	1297	-	746	
Detection Chec	ck (1=Detection; 0	=No Detection)				1	

Report No. : FZ4D1514-02

Trial Number			22				
Number of Bu	rsts in Trial		16				
Chirp Center I	Frequency			55	24		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)				
1	2	98.8	12	1439	-	95	
2	1	54.5	12	_	-	676	
3	2	80.5	12	1360	-	8	
4	2	55.9	12	1906	-	373	
5	2	72.1	12	1623	-	254	
6	2	84.4	12	1604	-	480	
7	1	78.5	12	-	-	663	
8	1	88	12	-	-	314	
9	2	74.7	12	1157	-	596	
10	2	97.1	12	1673	-	264	
11	1	81.6	12	-	-	740	
12	1	83.6	12	-	-	163	
13	3	87.6	12	1757	1322	628	
14	2	58.5	12	1372	-	132	
15	3	91.8	12	1767	1183	106	
16	2	58.8	12	1432	-	659	
Detection Ched	ck (1=Detection; 0	=No Detection)				1	

 SPORTON INTERNATIONAL INC.
 Page No.
 : 88 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

FCC ID: VUI-APS1



Trial Number			23					
Number of Bur	sts in Trial		17					
Chirp Center F	requency			55	25			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	1	96	11	-	ı	284		
2	2	92.5	11	1241	ı	488		
3	2	89.5	11	1347	-	76		
4	2	74.8	11	1607	-	688		
5	2	60.6	11	1523	-	28		
6	2	71.5	11	1659	-	383		
7	2	71.1	11	1454	-	182		
8	1	98.7	11	-	-	20		
9	2	85.1	11	1770	-	576		
10	2	89.2	11	1086	-	410		
11	2	60.7	11	1101	-	458		
12	2	75.2	11	1719	-	348		
13	2	75.7	11	1799	-	481		
14	3	56.7	11	1132	1884	587		
15	2	65	11	1885	-	480		
16	2	64.6	11	1910	-	195		
17	3	69.9	11	1410	1190	396		
Detection Chec	k (1=Detection; C	=No Detection)				1		

Trial Number			24					
Number of Bur	sts in Trial		18					
Chirp Center F	requency			55	25			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	3	83.8	10	1290	1021	Interval (ms) 536		
2	2	66.9	10	1112	-	44		
3	3	91	10	1220	1504	611		
4	2	86.1	10	1678	-	456		
5	3	65.5	10	1928	1222	330		
6	1	62.6	10	-	-	297		
7	3	68.7	10	1505	1200	351		
8	3	59.2	10	1452	1114	230		
9	1	73.9	10	-	-	222		
10	1	77.2	10	-	-	57		
11	2	96.4	10	1357	-	399		
12	2	99.9	10	1173	-	299		
13	2	99.9	10	1520	-	464		
14	1	86.7	10	-	-	294		
15	1	92.6	10	-	-	653		
16	1	77.1	10	-	-	550		
17	2	81.1	10	1664	-	566		
18	3	68.4	10	1536	1309	580		
Detection Chec	k (1=Detection; 0	=No Detection)				1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 89 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			25				
Number of B	ursts in Trial		19				
Chirp Center	Chirp Center Frequency			55	25		
Burst	No. of Pulses Pulse Width (us) Chirp Width Pulse 1-to-2 Pulse 2-to-3 Spacing (us) Spacing (us)				Starting Location Within Interval (ms)		
1	3	68.2	9	1723	1868	471	
2	3	83.7	9	1711	1405	368	
3	2	69.7	9	1781	-	425	
4	1	59.7	9	-	-	440	
5	2	96.7	9	1484	-	123	
6	2	95.8	9	1319	-	261	
7	3	71.3	9	1095	1354	332	
8	3	53.2	9	1527	1427	427	
9	2	69.5	9	1771	-	397	
10	3	63.9	9	1075	1447	67	
11	2	93.4	9	1783	-	174	
12	2	77.3	9	1564	-	17	
13	2	73.1	9	1294	-	216	
14	1	77.4	9	-	-	292	
15	3	57.2	9	1722	1886	619	
16	2	68.7	9	1629	-	233	
17	1	60.8	9	-	-	226	
18	3	69.7	9	1128	1224	599	
19	1	62.2	9	-	-	433	
Detection Che	eck (1=Detection; C	=No Detection)				1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 90 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			26				
Number of Bu	rsts in Trial		20				
Chirp Center I	Frequency			55	26		
Burst	Burst No. of Pulses Pulse Width (us) Chirp Width (MHz) Pulse 1-to-2 Spacing (us) Spacing (us)						
1	1	80.5	8	-	-	90	
2	3	62.6	8	1406	1343	319	
3	3	85.6	8	1190	1529	384	
4	2	83.9	8	1208	-	567	
5	2	92.4	8	1488	-	234	
6	2	54	8	1529	-	535	
7	3	81.3	8	1501	1812	325	
8	1	98.5	8	-	-	532	
9	1	85.8	8	-	-	272	
10	2	84.7	8	1593	-	182	
11	2	83.3	8	1705	-	134	
12	2	79.8	8	1567	-	286	
13	1	77.9	8	-	-	368	
14	3	98.4	8	1510	1569	290	
15	2	79.9	8	1588	-	231	
16	3	78	8	1140	1353	353	
17	3	55.2	8	1700	1327	53	
18	3	71.9	8	1081	1224	44	
19	1	62	8	-	-	298	
20	3	70.5	8	1888	1442	529	
Detection Chec	ck (1=Detection; 0	=No Detection)				1	

Trial Number	Trial Number			27				
Number of Bursts in Trial				3	3			
Chirp Center F	requency			55	22			
Burst No. of Pulses Pulse Width (us)			Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within		
1	2	69.1	18	1076	_	Interval (ms) 1436		
2	2	62.1	18	1688		22		
3	2	94.8	18	1891	-	897		
4	1	75.8	18	-	-	1186		
5	2	65.4	18	1713	-	589		
6	2	97.7	18	1292	-	614		
7	3	98.1	18	506				
8	2	85.4	18	776				
Detection Chec	k (1=Detection; 0	=No Detection)		•		1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 91 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			28				
Number of Bur	Number of Bursts in Trial			9	9		
Chirp Center F	Chirp Center Frequency			55	21		
Burst No. of Pulses Pulse Width (us)			Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	3	82	19	1233	1713	679	
2	3	87.7	19	1554	1123	473	
3	2	98.9	19	1518	-	869	
4	1	55	19	-	-	719	
5	1	93.6	19	-	-	902	
6	2	58.7	19	1641	-	1243	
7	2	88.7	19	1387	-	410	
8	1	60.3	19	1154			
9 1 97.7 19						512	
Detection Chec	k (1=Detection; 0	=No Detection)				1	

Trial Number			29				
Number of Bu	rsts in Trial		10				
Chirp Center	Chirp Center Frequency			55	21		
Burst No. of Pulses Pulse Width (us)			Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	1	69.6	20	-	-	1131	
2	1	74.5	20	-	-	290	
3	1	60.9	20	-	ı	895	
4	1	74.6	20	-	ı	202	
5	2	99.3	20	1501	ı	139	
6	2	95.3	20	1065	ı	854	
7	2	91.9	20	1722	ı	219	
8	2	51	20	1285	ı	57	
9	2	87.7	20	141			
10	1	87.2	20	-	-	596	
Detection Che	ck (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

Page No. : 92 of 120 Report Version : Rev. 01

Issued Date : Nov. 14, 2016



Trial Number	•		30				
Number of B	umber of Bursts in Trial			1	1		
Chirp Center Frequency				55	27		
Burst No. of Pulses Pulse Width (us)			Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	3	59.9	5	1901	1196	935	
2	2	77.1	5	1590	-	1038	
3	2	62.7	5	1227	-	690	
4	1	77.1	5	-	-	547	
5	3	99.8	5	1798	1790	551	
6	2	61.5	5	1135	-	876	
7	2	77.5	5	1583	-	448	
8	2	57.3	5	1890	-	736	
9	2	53.5	5	1757	-	362	
10	1	66.6	5	-	-	836	
11	3	80.7	5	1811	1289	410	
Detection Che	eck (1=Detection; 0	=No Detection)	•	•		1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 93 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 6 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulses / Hop	Pulse Width (us)	PRI (us)	1=Detection 0=No Detection
1	5510	9	1	333	1
2	5510	9	1	333	1
3	5510	9	1	333	1
4	5510	9	1	333	1
5	5510	9	1	333	1
6	5510	9	1	333	1
7	5510	9	1	333	1
8	5510	9	1	333	1
9	5510	9	1	333	0
10	5510	9	1	333	1
11	5510	9	1	333	1
12	5510	9	1	333	1
13	5510	9	1	333	1
14	5510	9	1	333	1
15	5510	9	1	333	1
16	5510	9	1	333	1
17	5510	9	1	333	1
18	5510	9	1	333	1
19	5510	9	1	333	1
20	5510	9	1	333	1
21	5510	9	1	333	1
22	5510	9	1	333	1
23	5510	9	1	333	1
24	5510	9	1	333	1
25	5510	9	1	333	1
26	5510	9	1	333	1
27	5510	9	1	333	1
28	5510	9	1	333	1
29	5510	9	1	333	1
30	5510	9	1	333	1
	96.667				
Limit	70%				
Test Resi	Complied				

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 94 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Modulation Mode: 802.11ac (VHT80)

Type 1 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulse Per Second)	PRI (us)	1=Detection 0=No Detection
1	5516	1	1930.5	518	1
2	5517	23	326.2	3066	1
3	5518	19	1139.0	878	1
4	5519	12	1355.0	738	1
5	5520	4	1730.1	578	1
6	5521	8	1519.8	658	1
7	5522	15	1253.1	798	1
8	5523	6	1618.1	618	1
9	5524	14	1285.3	778	1
10	5525	3	1792.1	558	1
11	5526	13	1319.3	758	0
12	5527	9	1474.9	678	1
13	5528	7	1567.4	638	1
14	5529	17	1193.3	838	1
15	5530	10	1432.7	698	1
16	5531	-	1692.0	591	1
17	5532	-	328.1	3048	1
18	5533	-	373.4	2678	1
19	5534	-	574.4	1741	1
20	5535	-	1216.5	822	1
21	5536	-	801.3	1248	1
22	5537	-	488.5	2047	1
23	5538	-	956.0	1046	1
24	5539	-	517.6	1932	1
25	5540	-	1422.5	703	1
26	5541	-	542.0	1845	1
27	5542	-	741.3	1349	1
28	5543	-	881.8	1134	1
29	5544	-	427.4	2340	1
30	5545	-	628.9	1590	1
'		Detection Percentage	(%)		96.667
Limit					60%
Test Res	ult				Complied

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456

Report Version
FAX: 886-3-327-0973

Issued Date

FCC ID: VUI-APS1

Page No. : 95 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 2 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5516	2.6	221	23	1
2	5517	4.6	198	27	1
3	5518	1.1	184	29	1
4	5519	4.8	203	24	1
5	5520	2.4	162	25	1
6	5521	3.4	204	28	1
7	5522	2.3	170	27	1
8	5523	3.5	184	23	1
9	5524	4.9	150	27	1
10	5525	4.6	211	29	0
11	5526	2.9	158	23	1
12	5527	2.6	226	27	1
13	5528	1.6	204	26	1
14	5529	3.9	181	25	0
15	5530	4.6	202	24	1
16	5531	4.1	194	27	1
17	5532	2.3	193	28	1
18	5533	3.9	173	29	1
19	5534	4.3	188	23	1
20	5535	1.5	215	26	1
21	5536	4.9	227	27	1
22	5537	1.1	199	23	1
23	5538	4.5	155	29	1
24	5539	4.0	190	27	0
25	5540	2.4	151	23	1
26	5541	2.5	180	28	1
27	5542	2.5	228	23	1
28	5543	2.5	203	25	1
29	5544	1.5	188	25	1
30	5545	1.9	217	24	1
		etection Percentage (%)	,	90.000
imit		<u> </u>	•		60%
est Res	ult				Complied

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 96 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 3 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5516	8.0	205	16	1
2	5517	6.7	382	18	1
3	5518	8.6	418	16	1
4	5519	9.4	351	17	1
5	5520	7.4	383	18	1
6	5521	9.8	232	16	1
7	5522	9.1	377	17	1
8	5523	9.6	457	16	0
9	5524	8.0	471	18	1
10	5525	9.0	304	18	1
11	5526	8.0	316	17	1
12	5527	9.8	325	16	1
13	5528	8.0	409	17	0
14	5529	9.9	200	17	0
15	5530	8.8	458	16	1
16	5531	8.0	232	18	1
17	5532	8.3	250	16	0
18	5533	8.7	270	16	1
19	5534	7.7	350	17	1
20	5535	7.1	230	16	1
21	5536	7.3	416	18	1
22	5537	7.6	498	18	1
23	5538	7.3	286	17	1
24	5539	7.3	287	16	0
25	5540	7.5	462	17	1
26	5541	6.2	300	17	1
27	5542	6.4	323	18	0
28	5543	7.1	420	16	1
29	5544	7.2	395	18	1
30	5545	8.4	377	16	1
		etection Percentage (1	80.000
imit		<u> </u>	,		60%
est Resi	ult				Complied

SPORTON INTERNATIONAL INC.
TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 97 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Type 4 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5516	18.0	242	15	1
2	5517	19.9	279	12	1
3	5518	12.9	487	14	1
4	5519	15.0	452	13	0
5	5520	16.3	230	12	1
6	5521	19.8	238	13	1
7	5522	18.2	420	16	0
8	5523	16.3	452	15	1
9	5524	14.2	495	12	1
10	5525	17.8	228	16	1
11	5526	19.1	211	16	1
12	5527	18.4	283	15	1
13	5528	11.8	411	12	1
14	5529	14.2	284	13	0
15	5530	13.9	202	12	1
16	5531	17.8	340	14	1
17	5532	15.6	290	16	1
18	5533	14.6	250	16	1
19	5534	14.4	484	15	1
20	5535	18.9	387	13	0
21	5536	11.1	348	15	1
22	5537	13.8	291	16	1
23	5538	14.3	295	12	1
24	5539	12.5	300	12	0
25	5540	12.5	322	14	1
26	5541	12.5	383	13	1
27	5542	15.7	322	16	1
28	5543	19.8	469	13	1
29	5544	18.6	406	15	1
30	5545	15.9	238	14	1
		etection Percentage (1	83.333
Limit		5 ()	,		60%
Test Resu	Complied				

SPORTON INTERNATIONAL INC. Page No.
TEL: 886-3-327-3456 Report Vers

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 98 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Total Type 1~4 Radar Statistical Performance

Radar Type #	Detection Percentage (%)
1	96.667
2	90.000
3	80.000
4	83.333
Aggregate (Radar Types 1-4)	87.500
Limit	80%
Test Result	Complied

Report No. : FZ4D1514-02

 SPORTON INTERNATIONAL INC.
 Page No.
 : 99 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

FCC ID: VUI-APS1



Type 5 Radar Statistical Performance

Center Freq. (MHz)	Low Edge (MHz)	High Edge (MHz)					
5530	5492	5568	VSG Freq. (MHz)	Detection			
Trial	Chirp	Offset					
1	5	0	5530	1			
2	20	0	5530	1			
3	7	0	5530	1			
4	8	0	5530	1			
5	9	0	5530	1			
6	10	0	5530	1			
7	11	0	5530	1			
8	12	0	5530	1			
9	13	0	5530	1			
10	14	0	5530	1			
11	15	6	5498	1			
12	16	6.4	5498	1			
13	17	6.8	5499	1			
14	20	8	5500	1			
15	19	7.6	5500	1			
16	18	7.2	5499	1			
17	17	6.8	5499	1			
18	16	6.4	5498	1			
19	15	6	5498	1			
20	14	5.6	5498	1			
21	13	5.2	5563	1			
22	12	4.8	5563	1			
23	11	4.4	5564	1			
24	10	4	5564	1			
25	9	3.6	5564	1			
26	8	3.2	5565	1			
27	18	7.2	5561	1			
28	19	7.6	5560	1			
29	20	8	5560	1			
30	5	2	5566	1			
		otal		30			
	Detection Per	centage (%)		100% 80%			
Limit	Limit						
Test Result				Complied			

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

Page No. : 100 of 120 Report Version : Rev. 01 Issued Date

: Nov. 14, 2016



Trial Number			1					
Number of Bur	sts in Trial			3	3			
Chirp Center F	requency			55	30			
Burst No. of Pulses Pulse Width (us)			Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	1	62.1	5	-	-	1091		
2	2	56	5	1729	-	133		
3	2	91.3	5	1230	-	1057		
4	3	50.7	5	1762	1616	1442		
5	2	92.6	5	1723	-	544		
6	2	87.3	5	1302	-	1089		
7	2	59.5	5 1291 - 13					
8	2	52.2	5	1237				
Detection Check	k (1=Detection; 0	=No Detection)				1		

Trial Number			2					
Number of B	Number of Bursts in Trial			9				
Chirp Center	Frequency			55	30			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)		
1	3	90	20	1007	1326	30		
2	2	73.7	20	1785	-	979		
3	1	78.1	20	_	-	683		
4	2	92.4	20	1281	-	950		
5	1	61.2	20	_	-	612		
6	3	67.2	20	1525	1870	17		
7	1	78.5	20	_	-	429		
8	2	60.3	20	1931	-	936		
9	3	92.9	20	548				
Detection Che	ck (1=Detection; 0	=No Detection)				1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 101 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			3					
Number of Bur	Number of Bursts in Trial			10				
Chirp Center F	Chirp Center Frequency			55	30			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)				
1	3	63.4	7	1574	1607	801		
2	1	98	7	-	-	966		
3	1	58.7	7	-	-	185		
4	1	88	7	-	-	1012		
5	3	79.5	7	1562	1370	943		
6	3	57.1	7	1900	1188	686		
7	2	64.4	7	1090	-	599		
8	1	78.7	7	-	-	1089		
9	1	69.3	7	-	-	188		
10	3	55.3	7	1375	1691	933		
Detection Chec	k (1=Detection; 0	=No Detection)				1		

Trial Number			4					
Number of Bu	Number of Bursts in Trial			11				
Chirp Center I	Frequency			55	30			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)				
1	2	74.3	8	1642	-	24		
2	1	83.1	8	-	-	985		
3	2	59.5	8	1680	-	988		
4	2	59.8	8	1786	-	800		
5	2	77.6	8	1617	-	339		
6	2	79.9	8	1553	-	1040		
7	1	56	8	_	-	544		
8	3	71.4	8	1406	1927	452		
9	1	97.4	8	-	-	204		
10	2	98.3	8	1037	-	926		
11	1	63.6	8	_	-	1052		
Detection Ched	ck (1=Detection; 0	=No Detection)				1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 102 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			5					
Number of Bursts in Trial			12					
Chirp Center F	requency			55	30			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Spacing (us) Spacing (us)				
1	1	50	9	_	_	Interval (ms) 557		
2	2	62.5	9	1731	_	567		
3	2	55.4	9	1070	-	460		
4	1	65.7	9	-	-	4		
5	2	58	9	1512	-	64		
6	2	60.9	9	1230	-	650		
7	3	89.6	9	1598	1738	235		
8	3	84.4	9	1271	1617	873		
9	3	72.3	9	1498	1321	901		
10	1	58.9	9	-	-	663		
11	2	74.8	9	1584	-	919		
12	1	71.8	9	-	-	375		
Detection Check	k (1=Detection; 0	=No Detection)				1		

Trial Number			6					
Number of B	lumber of Bursts in Trial			13				
Chirp Center	Frequency			55	30			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width Pulse 1-to-2 Pulse 2-to-3				
1	2	88.1	10	1257	-	846		
2	1	58.7	10	-	-	725		
3	2	97.1	10	1037	-	30		
4	3	83.1	10	1029	1106	490		
5	1	62.1	10	-	-	262		
6	2	71.4	10	1058	-	283		
7	2	86.3	10	1867	-	49		
8	3	77.3	10	1418	1876	634		
9	1	78.9	10	-	-	304		
10	3	79.2	10	1055	1572	564		
11	3	52	10	1582	1836	852		
12	3	56.5	10	1195	1542	525		
13	3	100	10	1638	1729	750		
Detection Che	eck (1=Detection; 0	=No Detection)	•	•	•	1		

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1

Page No. : 103 of 120 Report Version : Rev. 01

Issued Date : Nov. 14, 2016



Trial Number			7					
Number of Bur	rsts in Trial		14					
Chirp Center F	requency			55	30			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	2	92.7	11	1208	-	231		
2	2	81.3	11	1144	1	804		
3	2	60.4	11	1555	1	34		
4	2	62.1	11	1320	1	427		
5	1	50	11	-	ı	577		
6	3	65.9	11	1020	1365	3		
7	2	73.8	11	1308	ı	51		
8	2	74.3	11	1143	ı	360		
9	1	62.9	11	-	ı	394		
10	2	74.8	11	1404	ı	317		
11	2	69.7	11	1309	ı	532		
12	2	69.8	11	1688	1	339		
13	2	77.4	11	1857	1	381		
14	1	55.1	11	-	1	426		
Detection Chec	k (1=Detection; 0	=No Detection)				1		

Trial Number				}	3			
Number of Bu	rsts in Trial		15					
Chirp Center F	Chirp Center Frequency			55	30			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Spacing (us) Spacing (us)				
1	1	91.7	12	-	-	776		
2	2	90	12	1196	-	187		
3	3	92.3	12	1486	1853	448		
4	2	66.8	12	1545	-	702		
5	1	64	12	-	-	403		
6	3	95.4	12	1123	1473	230		
7	3	66.8	12	1867	1401	604		
8	3	67.7	12	1472	1397	38		
9	1	68.2	12	-	-	735		
10	2	82.2	12	1297	-	610		
11	1	92.1	12	-	-	618		
12	2	57	12	1764	-	705		
13	2	58.5	12	1310	-	22		
14	3	85.5	12	1630	1447	641		
15	2	82.2	12	1371	-	109		
Detection Chec	k (1=Detection; 0	=No Detection)				1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 104 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number				ę	9		
Number of Bur	rsts in Trial			16			
Chirp Center Frequency				5530			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	74.4	13	1707	-	442	
2	2	63.6	13	1725	-	280	
3	2	71.3	13	1704	-	459	
4	3	77.6	13	1063	1405	197	
5	3	65.2	13	1731	1294	101	
6	3	55.1	13	1109	1549	17	
7	2	96.8	13	1034	-	131	
8	3	80.8	13	1533	1051	365	
9	1	60.4	13	-	-	222	
10	2	61.8	13	1312	-	371	
11	2	71.3	13	1657	-	33	
12	2	98.1	13	1024	-	291	
13	1	57.9	13	-	-	188	
14	1	91.8	13	-	-	163	
15	2	56.7	13	1259	-	426	
16	2	89.7	13	1690	-	606	
Detection Chec	k (1=Detection; 0	=No Detection)	·	·	·	1	

Trial Number Number of Bursts in Trial				1	0				
			17						
Chirp Center	Chirp Center Frequency			5530					
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Spacing (us)					
1	2	74.4	14	1107	-	462			
2	1	87.6	14	_	-	653			
3	2	61.7	14	1741	-	457			
4	2	57.5	14	1566	-	388			
5	2	66.1	14	1855	-	63			
6	3	70.1	14	1044	1012	136			
7	1	66.4	14	_	-	343			
8	1	59.2	14	-	-	349			
9	2	88.3	14	1240	-	362			
10	1	64.7	14	-	-	221			
11	2	73	14	1703	-	144			
12	2	81.7	14	1450	-	671			
13	3	70.1	14	1741	1278	320			
14	1	63.6	14	-	-	196			
15	1	58.7	14	-	-	413			
16	2	65.9	14	1478	-	170			
17	1	72.7	14	-	-	564			
Detection Che	ck (1=Detection; 0	=No Detection)				1			

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 105 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number				1	1			
Number of Bu	ırsts in Trial		18					
Chirp Center	Frequency			54	98			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	2	72.1	15	1193	-	130		
2	3	76.3	15	1484	1390	114		
3	1	86.1	15	-	-	14		
4	1	73.2	15	-	-	604		
5	1	81.2	15	-	-	548		
6	2	99.5	15	1398	-	173		
7	1	93.9	15	-	-	262		
8	2	75.9	15	1921	-	38		
9	3	79.2	15	1100	1429	84		
10	3	77	15	1166	1799	610		
11	1	91.8	15	-	-	339		
12	3	56.8	15	1330	1556	580		
13	2	83.1	15	1556	-	295		
14	2	63	15	1552	-	156		
15	1	65.7	15	-	-	439		
16	1	64.5	15	-	-	188		
17	1	88.5	15	-	-	419		
18	1	60.6	15	-	-	205		
Detection Che	ck (1=Detection; 0	=No Detection)				1		

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 106 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			12				
Number of Bursts in Trial Chirp Center Frequency			19				
				5498			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)				
1	2	90.5	16	1299	-	381	
2	2	88.4	16	1418	-	327	
3	2	53.7	16	1055	-	536	
4	1	80.5	16	-	-	285	
5	1	50.4	16	-	-	398	
6	2	61.2	16	1749	-	439	
7	2	78.8	16	1065	-	129	
8	3	75	16	1748	1820	325	
9	2	96.7	16	1254	-	440	
10	3	76.3	16	1848	1106	397	
11	1	73.3	16	-	-	232	
12	2	92.4	16	1317	-	91	
13	2	92.4	16	1854	-	256	
14	3	64.4	16	1240	1634	582	
15	2	67.3	16	1473	-	117	
16	2	84.1	16	1795	-	202	
17	1	80.9	16	-	-	135	
18	1	74.6	16	-	-	396	
19	2	97.6	16	1805	-	615	
Detection Che	eck (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX : 886-3-327-0973 FCC ID : VUI-APS1 Page No. : 107 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number				1	3			
Number of Bu	Number of Bursts in Trial			20				
Chirp Center Frequency				5499				
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	2	66.1	17	1417	-	388		
2	2	86.7	17	1693	-	348		
3	2	70.5	17	1263	-	215		
4	2	78	17	1446	-	28		
5	2	66	17	1185	-	585		
6	2	80.6	17	1855	-	65		
7	1	95.5	17	-	-	92		
8	1	98.8	17	-	-	68		
9	3	64.3	17	1641	1108	517		
10	1	75.1	17	-	-	121		
11	2	72.6	17	1499	-	448		
12	1	60.3	17	-	-	567		
13	2	54.9	17	1056	-	245		
14	2	98.8	17	1023	-	584		
15	2	60.9	17	1243	-	579		
16	2	62.7	17	1226	-	464		
17	1	80.1	17	-	-	89		
18	2	70.9	17	1711	-	153		
19	1	90.7	17	-	-	282		
20	1	98.9	17	-	-	71		
Detection Ched	ck (1=Detection; C	=No Detection)				1		

Trial Number Number of Bursts in Trial				1	ļ			
			8					
Chirp Center F	Chirp Center Frequency			5500				
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Spacing (us)			Starting Location Within Interval (ms)		
1	2	67.5	20	1542	_	947		
2	3	83.6	20	1272	1696	124		
3	2	93.2	20	1877	-	701		
4	1	55.6	20	-	-	1123		
5	3	84.2	20	1733	1619	756		
6	3	69.1	20	1612	1071	1		
7	2	66.9	20	1905	-	7		
8	3	86.8	20	1697	1621	1082		
Detection Chec	k (1=Detection; C	=No Detection)	•		•	1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 108 of 120
Report Version : Rev. 01

Issued Date : Nov. 14, 2016



Trial Number			15				
Number of Bursts in Trial				9)		
Chirp Center	Frequency			55	00		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Location (MHz) Spacing (us) Spacing (us) Within Interval (m				
1	2	62.2	19	1571	-	949	
2	2	85	19	1669	-	189	
3	2	64.5	19	1505	-	176	
4	2	50.4	19	1325	-	538	
5	2	66.1	19	1483	-	908	
6	2	71.2	19	1110	-	1017	
7	3	53.7	19	1445	1677	492	
8	3	62.5	19	1596	1341	349	
9	3	62	19 1929 1221 1105				
Detection Che	ck (1=Detection; 0	=No Detection)				1	

Trial Number			16				
Number of Bui	rsts in Trial			10			
Chirp Center Frequency				54	99		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	2	80.5	18	1910	-	284	
2	2	64.2	18	1661	-	751	
3	2	90.1	18	1041	-	491	
4	2	69.8	18	1495	-	107	
5	1	73.1	18	-	-	490	
6	3	77.2	18	1418	1145	1155	
7	3	52.6	18	1732	1787	772	
8	2	71.4	18	1562	-	121	
9	2	89.8	18	1491	-	89	
10	2	76.4	18	1355	-	615	
Detection Chec	k (1=Detection; C	=No Detection)				1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 109 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			17			
Number of Bur	sts in Trial		11			
Chirp Center Frequency				54	99	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Location (MHz) Spacing (us) Spacing (us) Within Interval (m			
1	2	51.2	17	1236	-	740
2	1	71.7	17	-	-	941
3	2	74.7	17	1164	-	370
4	2	50.9	17	1919	-	371
5	2	65.2	17	1206	-	1033
6	2	98	17	1182	-	346
7	2	58.7	17	1612	-	639
8	1	63.8	17	-	-	1056
9	3	86.3	17	1545	1065	205
10	1	94.4	17	-	-	753
11	3	88.5	17	1699	1319	58
Detection Chec	k (1=Detection; 0	=No Detection)				1

Trial Number			18			
Number of Bu	rsts in Trial		12			
Chirp Center F	Chirp Center Frequency			54	98	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Location (MHz) Spacing (us) Spacing (us) Within			
						Interval (ms)
1	2	88.7	16	1405	-	448
2	3	90.2	16	1544	1235	621
3	1	96.5	16	-	-	512
4	2	80.5	16	1090	-	321
5	2	63.7	16	1268	-	798
6	1	53.4	16	_	-	809
7	2	52.3	16	1043	-	301
8	3	54.7	16	1701	1104	796
9	3	75.6	16	1923	1729	669
10	2	59.2	16	1244	-	369
11	1	56.3	16	-	-	51
12	2	87.8	16	1608	-	733
Detection Chec	k (1=Detection; C	=No Detection)	•	•	•	1

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 110 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			19				
Number of Bur	sts in Trial		13				
Chirp Center Frequency				54	98		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Location (MHz) Spacing (us) Spacing (us) Within Interval (us)				
1	2	68.2	15	1104	-	229	
2	2	58.4	15	1627	-	488	
3	3	74.7	15	1861	1015	137	
4	2	58.2	15	1593	-	520	
5	1	51.6	15	-	-	799	
6	2	94.7	15	1469	-	43	
7	2	70.7	15	1091	-	126	
8	2	82.9	15	1472	-	607	
9	3	62.7	15	1168	1453	527	
10	2	63.1	15	1529	-	143	
11	1	96.1	15	-	-	176	
12	2	57	15	1457	-	882	
13	3	95.6	15	1707	1501	214	
Detection Chec	k (1=Detection; 0	=No Detection)			-	1	

Trial Number	Trial Number			20			
Number of Bur	sts in Trial		14				
Chirp Center Frequency				54	98		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	1	95.7	14	-	-	117	
2	1	93.1	14	-	-	720	
3	1	55.8	14	-	-	297	
4	1	76.7	14	-	-	284	
5	2	68	14	1686	-	472	
6	3	94.1	14	1796	1393	264	
7	2	53.9	14	1293	-	525	
8	1	99.3	14	-	-	155	
9	2	73.3	14	1458	-	65	
10	2	93.3	14	1196	-	451	
11	3	55.8	14	1895	1034	243	
12	1	66.4	14	-	-	228	
13	2	65.6	14	1732	-	746	
14	2	76.5	14	1187	-	522	
Detection Chec	k (1=Detection; 0	=No Detection)				1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 111 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number	Trial Number			21			
Number of Bu	rsts in Trial		15				
Chirp Center Frequency				55	63		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	1	85.1	13	-	-	565	
2	2	72.5	13	1648	1	211	
3	1	67.5	13	-	-	348	
4	2	56.1	13	1360	-	156	
5	1	71.1	13	-	-	718	
6	2	93.1	13	1391	-	400	
7	1	56.5	13	-	ı	482	
8	1	63.8	13	-	ı	703	
9	2	67.4	13	1727	ı	780	
10	1	52.3	13	-	ı	102	
11	3	62.4	13	1228	1715	304	
12	2	53.3	13	1630	ı	57	
13	2	83.1	13	1205	1	768	
14	2	93.7	13	1085	1	461	
15	2	90.7	13	1297	1	746	
Detection Chec	k (1=Detection; 0	=No Detection)				1	

Trial Number			22 16				
Number of Bu	rsts in Trial						
Chirp Center Frequency				55	63		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	2	98.8	12	1439	-	95	
2	1	54.5	12	-	-	676	
3	2	80.5	12	1360	-	8	
4	2	55.9	12	1906	-	373	
5	2	72.1	12	1623	-	254	
6	2	84.4	12	1604	-	480	
7	1	78.5	12	-	-	663	
8	1	88	12	-	-	314	
9	2	74.7	12	1157	-	596	
10	2	97.1	12	1673	-	264	
11	1	81.6	12	-	-	740	
12	1	83.6	12	_	-	163	
13	3	87.6	12	1757	1322	628	
14	2	58.5	12	1372	-	132	
15	3	91.8	12	1767	1183	106	
16	2	58.8	12	1432	-	659	
Detection Chec	ck (1=Detection; C	=No Detection)				1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 112 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number	Trial Number			23				
Number of Bu	rsts in Trial		17					
Chirp Center Frequency				55	64			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Spacing (us) Spacing (us) Spacing (us) Star Local Spacing (us) With Interv					
1	1	96	11	-	-	284		
2	2	92.5	11	1241	-	488		
3	2	89.5	11	1347	-	76		
4	2	74.8	11	1607	-	688		
5	2	60.6	11	1523	-	28		
6	2	71.5	11	1659	-	383		
7	2	71.1	11	1454	-	182		
8	1	98.7	11	-	-	20		
9	2	85.1	11	1770	-	576		
10	2	89.2	11	1086	-	410		
11	2	60.7	11	1101	-	458		
12	2	75.2	11	1719	-	348		
13	2	75.7	11	1799	-	481		
14	3	56.7	11	1132	1884	587		
15	2	65	11	1885	-	480		
16	2	64.6	11	1910	-	195		
17	3	69.9	11	1410	1190	396		
Detection Chec	k (1=Detection; C	=No Detection)				1		

Trial Number			24				
Number of Bur	sts in Trial			1	8		
Chirp Center Frequency				55	64		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	3	83.8	10	1290	1021	536	
2	2	66.9	10	1112	-	44	
3	3	91	10	1220	1504	611	
4	2	86.1	10	1678	-	456	
5	3	65.5	10	1928	1222	330	
6	1	62.6	10	-	-	297	
7	3	68.7	10	1505	1200	351	
8	3	59.2	10	1452	1114	230	
9	1	73.9	10	-	-	222	
10	1	77.2	10	-	-	57	
11	2	96.4	10	1357	-	399	
12	2	99.9	10	1173	-	299	
13	2	99.9	10	1520	-	464	
14	1	86.7	10	-	-	294	
15	1	92.6	10	-	-	653	
16	1	77.1	10	-	-	550	
17	2	81.1	10	1664	-	566	
18	3	68.4	10	1536	1309	580	
Detection Chec	k (1=Detection; 0	=No Detection)	·	·		1	

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 113 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			25				
Number of Bu	rsts in Trial		19				
Chirp Center F	Frequency			55	64		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	3	68.2	9	1723	1868	471	
2	3	83.7	9	1711	1405	368	
3	2	69.7	9	1781	-	425	
4	1	59.7	9	-	-	440	
5	2	96.7	9	1484	-	123	
6	2	95.8	9	1319	-	261	
7	3	71.3	9	1095	1354	332	
8	3	53.2	9	1527	1427	427	
9	2	69.5	9	1771	-	397	
10	3	63.9	9	1075	1447	67	
11	2	93.4	9	1783	-	174	
12	2	77.3	9	1564	-	17	
13	2	73.1	9	1294	-	216	
14	1	77.4	9	-	-	292	
15	3	57.2	9	1722	1886	619	
16	2	68.7	9	1629	-	233	
17	1	60.8	9	_	-	226	
18	3	69.7	9	1128	1224	599	
19	1	62.2	9	_	-	433	
Detection Chec	ck (1=Detection; 0	=No Detection)	·	·	·	1	

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1

Page No. : 114 of 120 Report Version : Rev. 01

Issued Date : Nov. 14, 2016



Trial Number			26				
Number of Bur	sts in Trial		20				
Chirp Center F	Chirp Center Frequency			55	65		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)		Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	1	80.5	8	-	-	90	
2	3	62.6	8	1406	1343	319	
3	3	85.6	8	1190	1529	384	
4	2	83.9	8	1208	-	567	
5	2	92.4	8	1488	-	234	
6	2	54	8	1529	-	535	
7	3	81.3	8	1501	1812	325	
8	1	98.5	8	-	-	532	
9	1	85.8	8	-	-	272	
10	2	84.7	8	1593	-	182	
11	2	83.3	8	1705	-	134	
12	2	79.8	8	1567	-	286	
13	1	77.9	8	-	-	368	
14	3	98.4	8	1510	1569	290	
15	2	79.9	8	1588	-	231	
16	3	78	8	1140	1353	353	
17	3	55.2	8	1700	1327	53	
18	3	71.9	8	1081	1224	44	
19	1	62	8	-	-	298	
20	3	70.5	8	1888	1442	529	
Detection Chec	k (1=Detection; 0	=No Detection)				1	

Trial Number Number of Bursts in Trial			27 8					
								Chirp Center Frequency
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Spacing (us) Spacing (us)			Starting Location Within Interval (ms)		
1	2	69.1	18	1076	-	1436		
2	2	62.1	18	1688	-	22		
3	2	94.8	18	1891	-	897		
4	1	75.8	18	-	-	1186		
5	2	65.4	18	1713	-	589		
6	2	97.7	18	1292	-	614		
7	3	98.1	18	1670	1711	506		
8	2	85.4	18 1672 - 776					
Detection Check (1=Detection; 0=No Detection)						1		

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 115 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number			28					
Number of Bursts in Trial			9					
Chirp Center F	Chirp Center Frequency			5560				
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Spacing (us)			Starting Location Within Interval (ms)		
1	3	82	19	1233	1713	679		
2	3	87.7	19	1554	1123	473		
3	2	98.9	19	1518	-	869		
4	1	55	19	-	-	719		
5	1	93.6	19	-	-	902		
6	2	58.7	19	1641	-	1243		
7	2	88.7	19	1387	-	410		
8	1	60.3	19	-	-	1154		
9	1	97.7	19	-	-	512		
Detection Check (1=Detection; 0=No Detection)						1		

Trial Number			29				
Number of Bursts in Trial			10				
Chirp Center Frequency			5560				
Burst	No. of Pulses	No. of Pulses Pulse Width (us) Chirp Width Pulse 1-to-2 Spacing (us) Spacing (us)			Starting Location Within Interval (ms)		
1	1	69.6	20	-	-	1131	
2	1	74.5	20	-	-	290	
3	1	60.9	20	-	-	895	
4	1	74.6	20	-	-	202	
5	2	99.3	20	1501	-	139	
6	2	95.3	20	1065	-	854	
7	2	91.9	20	1722	-	219	
8	2	51	20	1285	-	57	
9	2	87.7	20	1747	-	141	
10	1	87.2	20	-	-	596	
Detection Check (1=Detection; 0=No Detection)							

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1 Page No. : 116 of 120
Report Version : Rev. 01
Issued Date : Nov. 14, 2016



Trial Number Number of Bursts in Trial Chirp Center Frequency			30 11 5566											
								Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Spacing (us) Pulse 2-to-3 Spacing (us)			Starting Location Within Interval (ms)
								1	3	59.9	5	1901	1196	935
2	2	77.1	5	1590	-	1038								
3	2	62.7	5	1227	-	690								
4	1	77.1	5	-	-	547								
5	3	99.8	5	1798	1790	551								
6	2	61.5	5	1135	-	876								
7	2	77.5	5	1583	-	448								
8	2	57.3	5	1890	-	736								
9	2	53.5	5	1757	-	362								
10	1	66.6	5	-	-	836								
11	3	80.7	5	1811	1289	410								
Detection Che	eck (1=Detection; 0	=No Detection)				1								

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1

 Page No.
 : 117 of 120

 Report Version
 : Rev. 01

 Issued Date
 : Nov. 14, 2016



Type 6 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulses / Hop	Pulse Width (us)	PRI (us)	1=Detection 0=No Detection
1	5530	9	1	333	1
2	5530	9	1	333	1
3	5530	9	1	333	1
4	5530	9	1	333	1
5	5530	9	1	333	1
6	5530	9	1	333	0
7	5530	9	1	333	1
8	5530	9	1	333	1
9	5530	9	1	333	1
10	5530	9	1	333	1
11	5530	9	1	333	1
12	5530	9	1	333	0
13	5530	9	1	333	1
14	5530	9	1	333	1
15	5530	9	1	333	1
16	5530	9	1	333	1
17	5530	9	1	333	1
18	5530	9	1	333	1
19	5530	9	1	333	1
20	5530	9	1	333	1
21	5530	9	1	333	1
22	5530	9	1	333	1
23	5530	9	1	333	1
24	5530	9	1	333	1
25	5530	9	1	333	1
26	5530	9	1	333	1
27	5530	9	1	333	1
28	5530	9	1	333	1
29	5530	9	1	333	1
30	5530	9	1	333	1
	93.333				
Limit	70%				
Test Resi	Complied				

SPORTON INTERNATIONAL INC. TEL: 886-3-327-3456

FAX: 886-3-327-0973 FCC ID: VUI-APS1

 Page No.
 : 118 of 120

 Report Version
 : Rev. 01

 Issued Date
 : Nov. 14, 2016



4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV40	101026	9kHz~40GHz	Sep. 14, 2016	Radiated (DF01-CB)
Vector Signal generator	R&S	SMU200A	102782	25MHz-6GHz	Nov. 06, 2015	Radiated (DF01-CB)
Horn Antenna	COM-POWER	AH-118	071187	1GHz – 18GHz	Jul. 28, 2016	Radiated (DF01-CB)
Horn Antenna	COM-POWER	AH-118	071042	1GHz – 18GHz	Dec. 10, 2015	Radiated (DF01-CB)
RF Power Divider	ANAREN	2 Way	DFS-01-DV-02	1GHz ~ 6GHz	Nov. 07, 2015	Radiated (DF01-CB)
RF Power Divider	MTJ	2 Way	DFS-01-DV-03	1GHz ~ 6GHz	Nov. 07, 2015	Radiated (DF01-CB)
RF Power Divider	ANAREN	4 Way	DFS-01-DV-01	1GHz ~ 6GHz	Nov. 07, 2015	Radiated (DF01-CB)
RF Cable-high	Woken	RG402	High Cable-57	1 GHz –18 GHz	Nov. 02, 2015	Radiated (DF01-CB)
RF Cable-high	Woken	RG402	High Cable-58	1 GHz –18 GHz	Nov. 02, 2015	Radiated (DF01-CB)

Note: Calibration Interval of instruments listed above is one year.

SPORTON INTERNATIONAL INC.

TEL: 886-3-327-3456 FAX: 886-3-327-0973 FCC ID: VUI-APS1

 Page No.
 : 119 of 120

 Report Version
 : Rev. 01

 Issued Date
 : Nov. 14, 2016



5 Measurement Uncertainty

Test Items	Uncertainty	Remark
Radiated Emission	2.9 dB	Confidence levels of 95%

Report No. : FZ4D1514-02

 SPORTON INTERNATIONAL INC.
 Page No.
 : 120 of 120

 TEL: 886-3-327-3456
 Report Version
 : Rev. 01

 FAX: 886-3-327-0973
 Issued Date
 : Nov. 14, 2016

FCC ID: VUI-APS1