

DFS Test Report

Report No.: RF180611E01C-8

FCC ID: 2ABLK-GS2026

Test Model: GS2026E

Received Date: Oct. 30, 2018

Test Date: Feb. 18 to 27, 2019

Issued Date: Mar. 14, 2019

Applicant: Calix Inc.

Address: 1035 N. McDowell Blvd. Petaluma, CA 94954 U.S.A.

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Hsin Chu Laboratory

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,

Taiwan R.O.C.

Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,

Taiwan R.O.C.

FCC Registration / Designation Number:

723255 / TW2022





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Release Control Record

Issue No.	Description	Date Issued
RF180611E01C-8	Original release.	Mar. 14, 2019

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 Reference No.: 181030E05



1 Certificate of Conform

Product: GigaSpire

Brand: Calix

Test Model: GS2026E

Sample Status: MASS-PRODUCTION

Applicant: Calix Inc.

Test Date: Feb. 18 to 27, 2019

Standards: FCC Part 15, Subpart E (Section 15.407)

KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : ______, Date: ______, Mar. 14, 2019

Mary Ko / Specialist

May Chen / Manager



2 EUT Information

2.1 Operating Frequency Bands and Mode of EUT

Table 1: Operating Frequency Bands and Mode of EUT

Operational Mode	Operating Frequency Range		
Operational Mode	5250~5350MHz	5470~5725MHz	
Master	✓	✓	

2.2 EUT Software and Firmware Version

Table 2: The EUT Software/Firmware Version

No.	Product	Model No.	Software/Firmware Version
1	GigaSpire	GS2026E	19.1.0



2.3 Description of Available Antennas to the EUT

Table 3: Antenna List

WLAN Directional gain table						
Frequency range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector			
2.4 ~ 2.4835	7.41					
5.18 ~ 5.24	9.7					
5.26 ~ 5.32	9.9	Dipole	i-pex(MHF)			
5.50 ~ 5.70	9.83					
5.745 ~ 5.825	10.27					
	Bluetooth antenna spec.					
Antenna Net Gain (dBi)	Frequency range (GHz)	Antenna Type	Antenna Connector			
3.04	2.4~2.5	PIFA	None			
	Zigbee ant	enna spec.				
Antenna Net Gain (dBi)	Frequency range (GHz)	Antenna Type	Antenna Connector			
3.29	2.4~2.5	MONOPOLE	None			
Z-wave antenna spec.						
Antenna Net Gain (dBi)	Antenna Net Gain (dBi) Frequency range (MHz)		Antenna Connector			
2.76	2.76 850~920 PIFA None					
Note: More detailed information, please refer to operating description.						



2.4 EUT Maximum and Minimum Conducted Power

Table 4: The Measured Conducted Output Power

Frequency Band	MAX. Power		MIN.	Power
(MHz)	Output Power Output Power		Output Power	Output Power
	(mW)	(dBm)	(mW)	(dBm)
5250~5350	99.27	19.97	24.946	13.97
5470~5725	103.136	20.13	25.882	14.13

2.5 EUT Maximum and Minimum EIRP Power

Table 5: The EIRP Output Power List

Frequency Band	MAX. EIRP Power		MIN. EIRP Power	
(MHz)	Output Power Output Power		Output Power	Output Power
	(mW)	(dBm)	(mW)	(dBm)
5250~5350	970.103	29.87	243.781	23.87
5470~5725	991.768	29.96	248.886	23.96



2.6 Transmit Power Control (TPC)

U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

	Applicable	EIRP	FCC 15.407 (h)(1)
	√	>500mW	The TPC mechanism is required for system with an EIRP of above 500mW
<500mW		<500mW	The TPC mechanism is not required for system with an EIRP of less 500mW

The UUT can adjust a transmitter's output power based on the signal level present at the receiver.TPC is auto controlled by software.

2.7 Statement of Manufacturer

Manufacturer statement confirming that information regarding the parameters of the detected Radar Waveforms is not available to the end user.

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3. U-NII DFS Rule Requirements

3.1 Working Modes and Required Test Items

The manufacturer shall state whether the UUT is capable of operating as a Master and/or a Client. If the UUT is capable of operating in more than one operating mode then each operating mode shall be tested separately. See tables 6 and 7 for the applicability of DFS requirements for each of the operational modes.

Table 6: Applicability of DFS Requirements Prior to Use a Channel

	Operational Mode			
Requirement	Master	Client without radar detection	Client with radar detection	
Non-Occupancy Period	✓	✓ note	✓	
DFS Detection Threshold	✓	Not required	✓	
Channel Availability Check Time	✓	Not required	Not required	
U-NII Detection Bandwidth	✓	Not required	✓	

Note: Per KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02 section (b)(5/6), If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear. An analyzer plot that contains a single 30-minute sweep on the original channel.

Table 7: Applicability of DFS Requirements during Normal Operation.

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

Additional requirements for devices with multiple bandwidth modes	Master 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
All other tests	Any single BW mode	Not required

Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.



3.2 **Test Limits and Radar Signal Parameters**

Detection Threshold Values

Table 8: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and	22.15
power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the	24.15
power spectral density requirement	-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

662911 D01.

Table 9: DFS Response Requirement Values

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

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

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

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Parameters of DFS Test Signals

Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

Table 10: Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a Test B: 15 unique PRI values randomly selected within the range of 518-3066µ sec, with a minimum increment of 1µ sec, excluding PRI values selected in Test A	Roundup $ \begin{bmatrix} \frac{1}{360} \\ \frac{19 \cdot 10^6}{PRI_{\mu \text{ sec}}} \end{bmatrix} $	60%	30
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
	Agg	regate (Radar Types 1-	-4)	80%	120

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



Table 11: Long Pulse Radar Test Waveform

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

Three subsets of trials will be performed with a minimum of ten trials per subset. The subset of trials differ in where the Long Pulse Type 5 Signal is tuned in frequency.

- a) the Channel center frequency
- b) tuned frequencies such that 90% of the Long Pulse Type 5 frequency modulation is within the low edge of the UUT Occupied Bandwidth
- c) tuned frequencies such that 90% of the Long Pulse Type 5 frequency modulation is within the high edge of the UUT Occupied Bandwidth

It include 10 trails for every subset, the formula as below,

For subset case 1: the center frequency of the signal generator will remain fixed at the center of the UUT Channel.

For subset case 2: to retain 90% frequency overlap between the radar signal and the UUT Occupied Bandwidth, the center frequency of the signal generator will vary for each of the ten trials in subset case 2. The center frequency of the signal generator for each trial is calculated by:

 $FL+(0.4*Chirp\ Width\ [in\ MHz])$

For subset case 3: to retain 90% frequency overlap between the radar signal and the UUT Occupied Bandwidth, the center frequency of the signal generator will vary for each of the ten trials in subset case 3. The center frequency of the signal generator for each trial is calculated by:

FH-(0.4*Chirp Width [in MHz])

Table 12: Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	I Rate		Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

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4. Test & Support Equipment List

4.1 Test Instruments

Table 13: Test Instruments List

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	Jun. 20, 2018	Jun. 19, 2019
Vector Signal Generator Agilent	N5182B	MY53051263	Sep. 7, 2018	Sep. 6, 2019
Horn_Antenna EMCO	1018G	0001	Nov. 25, 2018	Nov. 24, 2019
DFS Control Box	BV-DFS-CB	001	Nov. 30, 2018	Nov. 29, 2019

4.2 Description of Support Units

Table 14: Support Unit Information

No.	Product	Brand	Model No.
1	GigaSpire	Calix	GS2026E

NOTE: This device was functioned as a \square Master \boxtimes Slave device during the DFS test.

Table 15: Software/Firmware Information

No.	Product	Model No.	Software/Firmware Version			
1	GigaSpire	GS2026E	4.4.60			

NOTE: This firmware as a special mode for associated with EUT only.

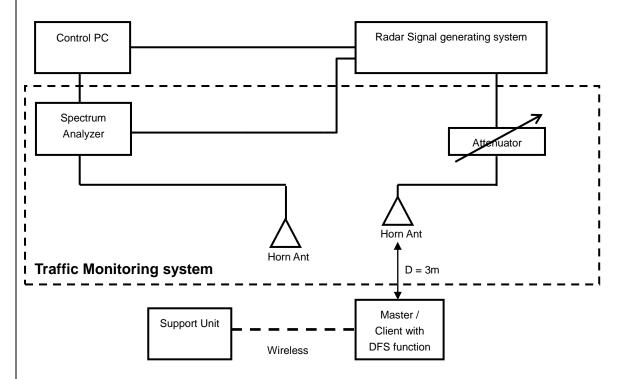


5. Test Procedure

5.1 DFS Measurement System

A complete DFS Measurement System consists of two subsystems: (1) the Radar Signal Generating system and (2) the Traffic Monitoring system. The control PC is necessary for generating the Radar waveforms in Table 10, 11 and 12. The traffic monitoring subsystem is specified to the type of unit under test (UUT).

Radiated Setup Configuration of DFS Measurement System



Channel Loading

System testing will be performed with channel-loading using means appropriate to the data types that are used by the unlicensed device. The following requirements apply:

a)	The data file must be of a type that is typical for the device (i.e., MPEG-2, MPEG-4, WAV, MP3, MP4, AVI, etc.) and must generally be transmitting in a streaming mode.	
b)	Software to ping the client is permitted to simulate data transfer but must have random ping intervals.	
c)	Timing plots are required with calculations demonstrating a minimum channel loading of approximately 17% or greater.	✓
d)	Unicast or Multicast protocols are preferable but other protocols may be used. The appropriate protocol used must be described in the test procedures.	



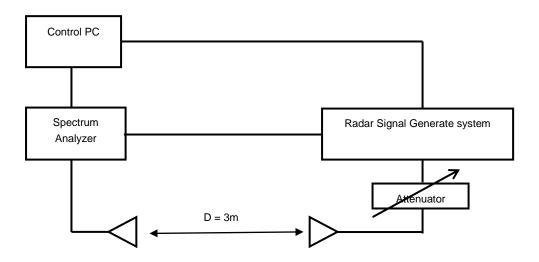
5.2 Calibration of DFS Detection Threshold Level

The measured channel is $5500 \text{MHz} \cdot 5510 \text{MHz} \cdot 5530 \text{MHz}$ and 5570 MHz. The radar signal was the same as transmitted channels, and injected into the antenna of AP (master) or Client Device with Radar Detection, measured the channel closing transmission time and channel move time.

Radiated setup configuration of Calibration of DFS Detection Threshold Level

The radar signal generate system is gererating waveform pattern of radar types. The amplitude of the radar signal generator system is adjusted to yield a level of–64 dBm as measured on the spectrum analyzer.

The interference detection threshold level is lower than - 64dBm hence it provides margin to the limit.



5.3 Deviation from Test Standard

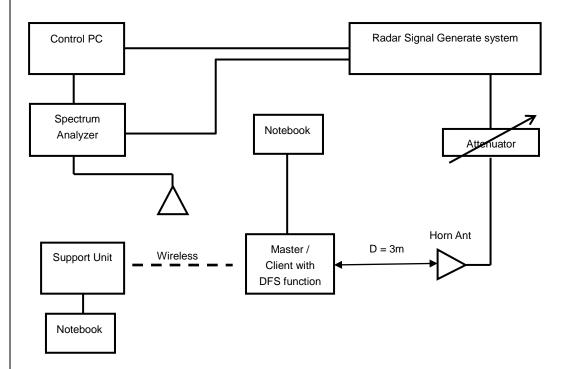
No deviation.



5.4 Radiated Test Setup Configuration

Master mode

The EUT is a U-NII Device operating in Master mode. The radar test signals are injected into the Master Device.



Note: The UUT main beam of the antenna is directly toward the radar emitter during testing.



6. Test Results

6.1 Summary of Test Results

Clause	Test Parameter	Remarks	Pass/Fail
15.407	DFS Detection Threshold	Applicable	Pass
15.407	Channel Availability Check Time	Applicable	Pass
15.407	Channel Move Time	Applicable	Pass
15.407	Channel Closing Transmission Time	Applicable	Pass
15.407	Non- Occupancy Period	Applicable	Pass
15.407	U-NII Detection Bandwidth	Applicable	Pass



6.2 Test Results

6.2.1 Test Mode: Device Operating In Master Mode

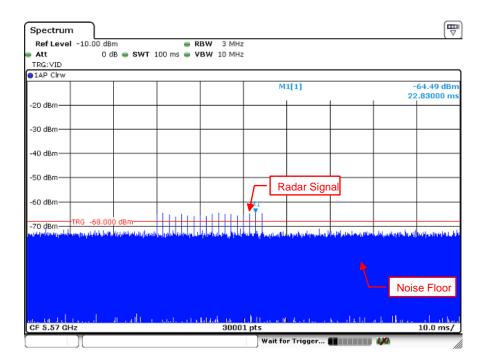
The radar test waveforms are injected into the Master.

This test was investigated for different bandwidth (20MHz \ 40MHz \ 80MHz and 80+80MHz).

The following plots was done on 80+80MHz as a representative

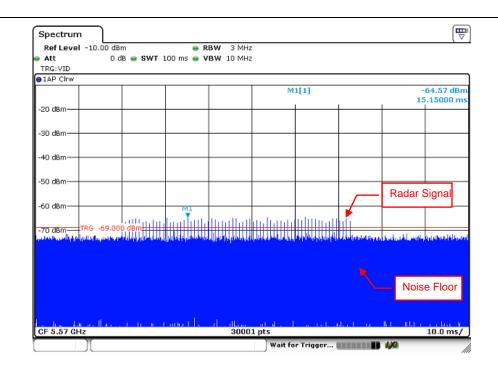
DFS Detection Threshold

For detection threshold level of -64dBm, the tested level is lower than required level for 1dB, hence it provides margin to the limit.

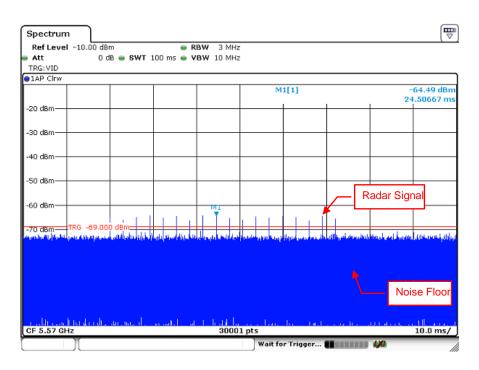


Radar Signal 0



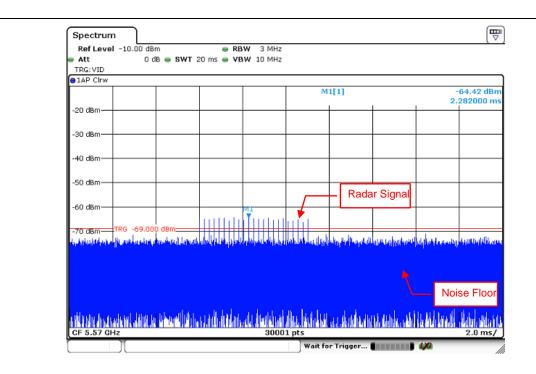


Radar Signal 1 (Test A)

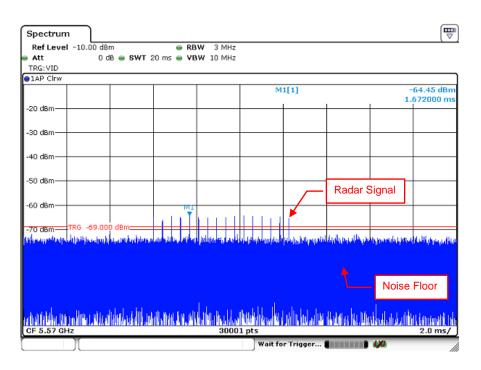


Radar Signal 1 (Test B)



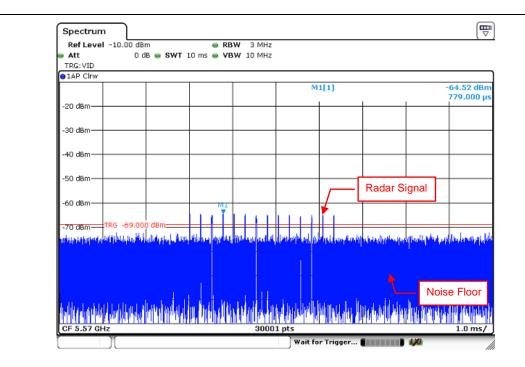


Radar Signal 2

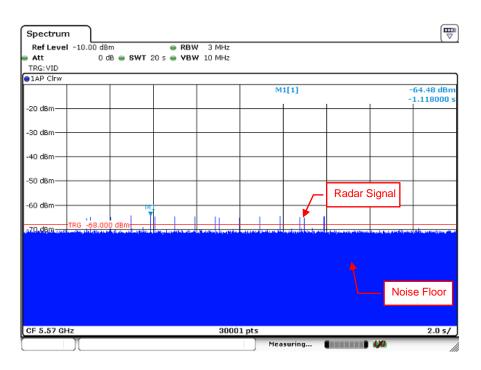


Radar Signal 3



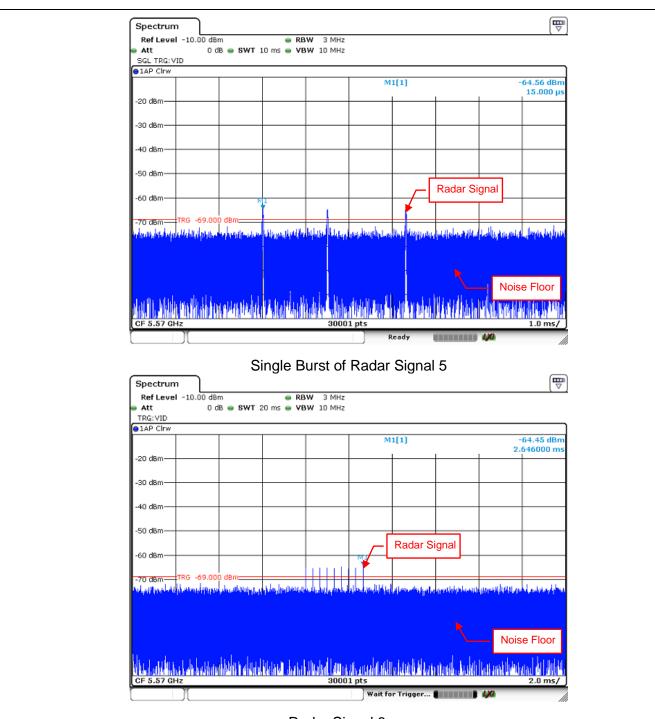


Single Burst of Radar Signal 4



Radar Signal 5

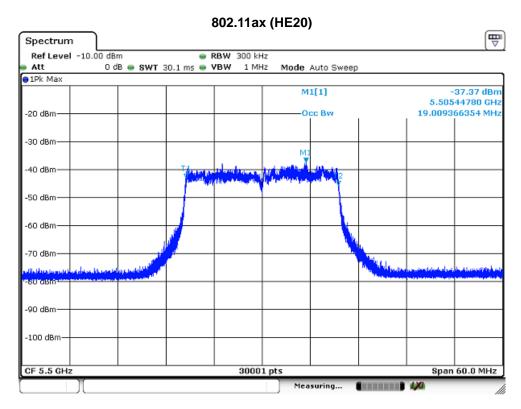




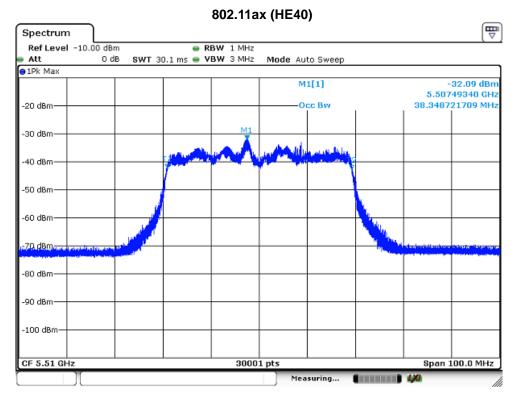
Radar Signal 6



6.2.2 U-NII Detection Bandwidth

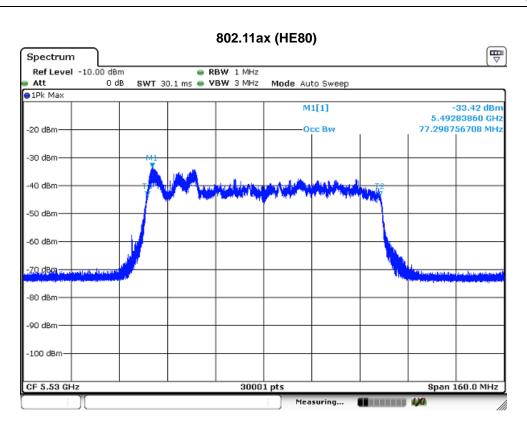


U-NII 99% Channel bandwidth

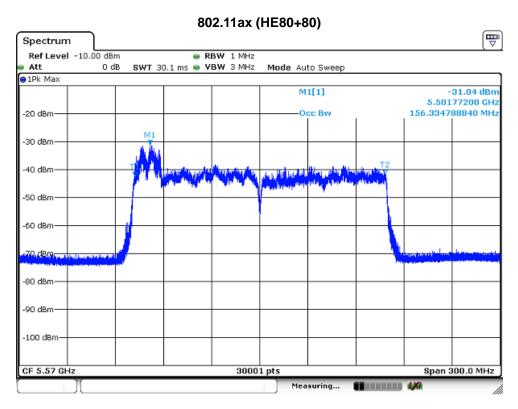


U-NII 99% Channel bandwidth





U-NII 99% Channel bandwidth



U-NII 99% Channel bandwidth



Detection Bandwidth Test - 802.11ax (HE20)

Radar Type 0

EUT Frequency: 5500MHz

EUT 99% Power bandwidth: 19.009MHz

Detection bandwidth limit (100% of EUT 99% Power bandwidth): 19.009MHz

Detection bandwidth (5510(FH) - 5490(FL)): 20MHz

Test Result : PASS

Test Nesult . I A	Test Nesult . FAGS										
Radar		Trial Number / Detection							Detection		
Frequency (MHz)	1	2	3	4	5	6	7	8	9	10	Rate (%)
5490(FL)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5491	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5492	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5493	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5494	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5495	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5496	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	90
5497	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5498	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5499	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5500	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5501	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5502	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5503	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5504	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	90
5505	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5506	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5507	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5508	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	90
5509	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5510(FH)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100

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Detection Bandwidth Test - 802.11ax (HE40)

Radar Type 0

EUT Frequency: 5510MHz

EUT 99% Power bandwidth: 38.348MHz

Detection bandwidth limit (100% of EUT 99% Power bandwidth): 38.348MHz

Detection bandwidth (5530(FH) – 5490(FL)): 40MHz

Test Result : PASS

Radar Trial Number / Detection										5	
Frequency	1	2	2					0	0	10	Detection
(MHz)	1	2	3	4	5	6	7	8	9	10	Rate (%)
5490(FL)	Yes	100									
5491	Yes	100									
5492	Yes	100									
5493	Yes	100									
5494	Yes	100									
5495	Yes	100									
5496	Yes	100									
5497	Yes	No	Yes	Yes	90						
5498	Yes	100									
5499	Yes	100									
5500	Yes	100									
5501	Yes	100									
5502	Yes	100									
5503	Yes	100									
5504	Yes	100									
5505	Yes	100									
5506	Yes	100									
5507	Yes	100									
5508	Yes	100									
5509	Yes	100									
5510	Yes	100									
5511	Yes	100									
5512	Yes	No	90								
5513	Yes	100									
5514	Yes	100									
5515	Yes	100									
5516	Yes	100									
5517	Yes	100									
5518	Yes	100									
5519	Yes	100									
5520	Yes	100									
5521	Yes	100									
5522	Yes	100									
5523	Yes	100									
5524	Yes	100									
5525	Yes	100									
5526	Yes	100									
5527	Yes	100									
5528	Yes	No	Yes	90							
5529	Yes	100									
5530(FH)	Yes	100									

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Detection Bandwidth Test - 802.11ax (HE80)

Radar Type 0

EUT Frequency: 5530MHz

EUT 99% Power bandwidth: 77.298MHz

Detection bandwidth limit (100% of EUT 99% Power bandwidth): 77.298MHz

Detection bandwidth (5569(FH) - 5491(FL)): 78MHz

Test Result : PASS

Radar	Trial Number / Detection									Detection	
Frequency (MHz)	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5491(FL)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5492	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5493	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5494	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5495	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5496	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5497	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5498	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5499	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5500	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5501	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	90
5502	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5503	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5504	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5505	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5506	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5507	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5508	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5509	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	90
5510	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5511	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5512	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5513	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5514	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5515	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5516	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5517	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5518	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5519	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5520	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5521	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5522	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5523	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5524	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5525	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5526	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5527	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5528	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5529	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5530	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5531	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5532	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5533	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5534	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5535	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5536	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100



5537 Yes Yes
5539 Yes Yes
5540 Yes Yes
5541 Yes Yes
5542 Yes 100 5543 Yes
5543 Yes Yes Yes Yes Yes Yes Yes Yes 100 5544 Yes
5544 Yes Yes
5545 Yes
5546 Yes
5547 Yes
5548 Yes
5549 Yes
5550 Yes
5551 Yes
5552 Yes
5553 Yes
5554 Yes
5555 Yes
5556 Yes No Yes Yes Yes Yes Yes Yes Yes 90
5557 Yes
5558 Yes
5559 Yes
5560 Yes
5561 Yes
5562 Yes
5563 Yes
5564 Yes
5565 Yes
5566 Yes
5567 Yes
5568 Yes Yes Yes Yes Yes Yes Yes No Yes 90
5569(FH) Yes



Detection Bandwidth Test - 802.11ax (HE80+80)

Radar Type 0

EUT Frequency: 5570MHz

EUT 99% Power bandwidth: 156.334MHz

Detection bandwidth limit (100% of EUT 99% Power bandwidth): 156.334MHz

Detection bandwidth (5491(FH) - 5649(FL)): 158MHz

Test Result : PASS

Radar	Trial Number / Detection										
Frequency				IIIaii							Detection
(MHz)	1	2	3	4	5	6	7	8	9	10	Rate (%)
5491(FL)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5492	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5493	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5494	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5495	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5496	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5497	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5498	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5499	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5500	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5501	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5502	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5503	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5504	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5505	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5506	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5507	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5508	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5509	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5510	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5511	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5512	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	90
5513	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5514	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5515	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5516	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5517	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5518	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5519	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5520	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5521	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5522	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5523	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5524	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5525	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5526	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5527	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5528	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5529	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5530	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5531	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5532	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5533	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5534	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5535	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100
5536	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100

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5537	Yes	100									
5538	Yes	100									
5539	Yes	100									
5540	Yes	100									
5541	Yes	100									
5542	Yes	100									
5543	Yes	100									
5544	Yes	100									
5545	Yes	100									
5546	Yes	100									
5547	Yes	100									
5548	Yes	100									
5549	Yes	100									
5550	Yes	100									
5551	Yes	100									
5552	Yes	100									
5553	Yes	100									
5554	Yes	100									
5555	Yes	100									
5556	Yes	100									
5557	Yes	100									
5558	Yes	100									
5559	Yes	100									
5560	Yes	100									
5561	Yes	100									
5562	Yes	100									
5563	Yes	100									
5564	Yes	100									
5565	Yes	100									
5566	Yes	100									
5567	Yes	100									
5568	Yes	100									
5569	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	90
5570	Yes	100									
5571	Yes	100									
5572	Yes	100									
5573	Yes	100									
5574	Yes	100									
5575	Yes	100									
5576	Yes	No	Yes	90							
5577	Yes	100									
5578	Yes	100									
5579	Yes	100									
5580	Yes	100									
5581	Yes	100									
5582	Yes	100									
5583	Yes	100									
5584	Yes	100									
5585	Yes	100									
5586	Yes	100									
5587	Yes	100									
5588	Yes	100									
5589	Yes	100									
5590	Yes	100									
5591	Yes	100									



5592	Yes	100									
5593	Yes	100									
5594	Yes	100									
5595	Yes	100									
5596	Yes	100									
5597	Yes	100									
5598	Yes	100									
5599	Yes	100									
5600	Yes	100									
5601	Yes	100									
5602	Yes	100									
5603	Yes	100									
5604	Yes	100									
5605	Yes	100									
5606	Yes	100									
5607	Yes	100									
5608	Yes	100									
5609	Yes	100									
5610	Yes	100									
5611	Yes	100									
5612	Yes	100									
5613	Yes	100									
5614	Yes	100									
5615	Yes	100									
5616	Yes	100									
5617	Yes	100									
5618	Yes	100									
5619	Yes	100									
5620	Yes	100									
5621	Yes	100									
5622	Yes	100									
5623	Yes	100									
5624	Yes	100									
5625	Yes	100									
5626	Yes	100									
5627	Yes	100									
5628	Yes	100									
5629	Yes	100									
5630	Yes	100									
5631	Yes	100									
5632	Yes	100									
5633	Yes	100									
5634	Yes	100									
5635	Yes	100									
5636	Yes	100									
5637	Yes	100									
5638	Yes	100									
5639	Yes	No	90								
5640	Yes	100									
5641	Yes	100									
5642	Yes	100									
5643	Yes	100									
5644	Yes	100									
5645	Yes	100									
5646	Yes	100									
3070	169	103	163	163	163	163	163	103	163	163	100



| 5647 | Yes | 100 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 5648 | Yes | 100 |
| 5649(FH) | Yes | 100 |

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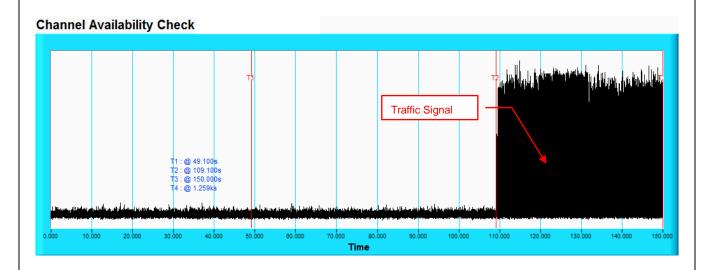


6.2.3 Channel Availability Check Time

If the EUT successfully detected the radar burst, it should be observed as the EUT has no transmissions occurred until the EUT starts transmitting on another channel.

	Observation						
Timing of Radar Signal	EUT	Spectrum Analyzer					
Within 1 to 6 second	Detected	No transmissions					
Within 54 to 60 second	Detected	No transmissions					

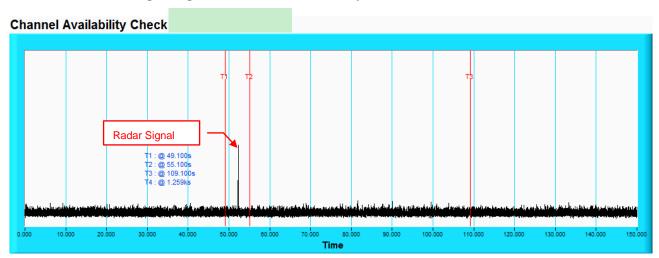
Initial Channel Availability Check Time



NOTE: T1 denotes the end of power-up time period is 49.1th second. T2 denotes the end of Channel Availability Check time is 109.1th second. Channel Availability Check time is equal to (T2 – T1) 60 seconds.

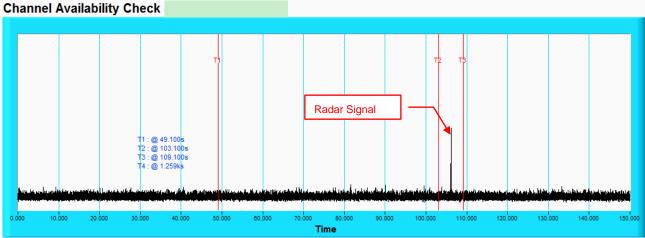


Radar Burst at the Beginning of the Channel Availability Check Time



NOTE: T1 denotes the end of power up time period is 49.1th second. T2 denotes 55.1th second and the radar burst was commenced within a 6 second window starting from the end of power-up sequence. T3 denotes the 109.1th second.





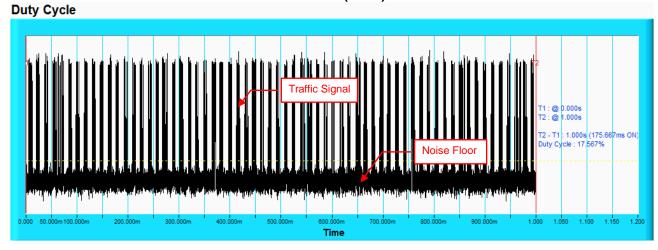
NOTE: T1 denotes the end of power up time period is 49.1th second.T2 denotes 103.1th second and the radar burst was commenced within 54th second to 60th second window starting from the end of power-up sequence. T3 denotes the 109.1th second.



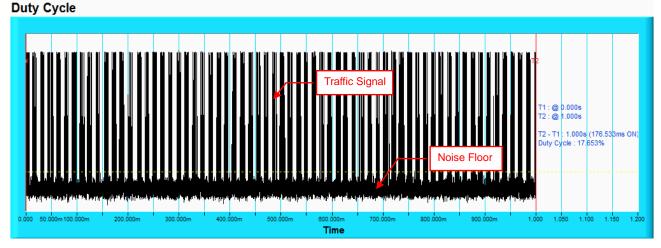
6.2.4 Channel Closing Transmission and Channel Move Time

Wireless Traffic Loading

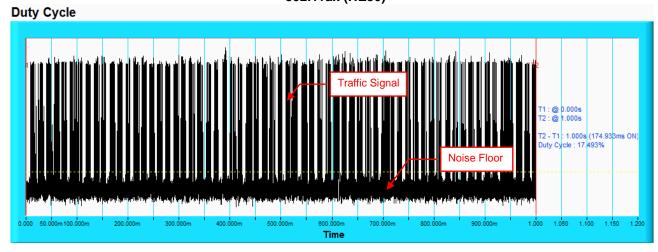
802.11ax (HE20)



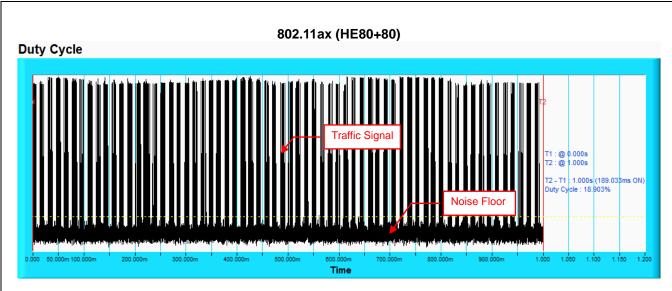
802.11ax (HE40)



802.11ax (HE80)









802.11ax (HE20)

Table 1: Short Pulse Radar Test Waveforms.

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Number of Trials(Times)	Percentage of Successful Detection (%)	
1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a Test B: 15 unique PRI values randomly selected within the range of 518~3066µ sec with a minimum of 1µ sec,	Roundup $ \left\{ \begin{bmatrix} \frac{1}{360} \end{bmatrix} \cdot \\ \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu \text{ sec}}} \right) \right\} $	18	30	93.3	
2	excluding PRI values selected in Test A	150-230	23-29	30	86.7	
3	6-10	200-500	16-18	30	90	
4	11-20	200-500	12-16	30	86.7	
	Aggregate (Radar	120	89.2			

Table 2: Long Pulse Radar Test Waveform

Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per Burst	Number of Bursts	Number of Trials(Times)	Percentage of Successful Detection (%)
5	50-100	5-20	1000-2000	1-3	8-20	30	86.7

Table 3: Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Number of Trials(Times)	Percentage of Successful Detection (%)
6	1	333	9	0.333	300	30	83.3

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Table 1: Short Pulse Radar Test Waveforms.

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Number of Trials(Times)	Percentage of Successful Detection (%)	
	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	$\left[\begin{array}{c} 1\\ \overline{360} \end{array}\right]$.		30		
1	Test B: 15 unique PRI values randomly selected within the range of 518~3066µ sec with a minimum of 1µ sec, excluding PRI values selected in Test A	Roundup $ \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu \text{ sec}}} \right) $	18		90	
2	1-5	150-230	23-29	30	86.7	
3	6-10	200-500	16-18	30	83.3	
4	11-20	200-500	12-16	30	86.7	
	Aggregate (Radar	120	86.7			

Table 2: Long Pulse Radar Test Waveform

Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per Burst	Number of Bursts	Number of Trials(Times)	Percentage of Successful Detection (%)
5	50-100	5-20	1000-2000	1-3	8-20	30	83.3

Table 3: Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Number of Trials(Times)	Percentage of Successful Detection (%)
6	1	333	9	0.333	300	30	83.3



Table 1: Short Pulse Radar Test Waveforms.

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Number of Trials(Times)	Percentage of Successful Detection (%)	
	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	$\left[\begin{array}{c} 1\\ 360 \end{array}\right]$.				
1	Test B: 15 unique PRI values randomly selected within the range of 518~3066µ sec with a minimum of 1µ sec, excluding PRI values selected in Test A	Roundup $ \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu \text{ sec}}} \right) $	18	30	90	
2	1-5	150-230	23-29	30	83.3	
3	6-10	200-500	16-18	30	86.7	
4	11-20	200-500	12-16	30	86.7	
	Aggregate (Radar		120	86.7		

Table 2: Long Pulse Radar Test Waveform

Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per Burst	Number of Bursts	Number of Trials(Times)	Percentage of Successful Detection (%)
5	50-100	5-20	1000-2000	1-3	8-20	30	83.3

Table 3: Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Number of Trials(Times)	Percentage of Successful Detection (%)
6	1	333	9	0.333	300	30	83.3

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Table 1: Short Pulse Radar Test Waveforms.

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Number of Trials(Times)	Percentage of Successful Detection (%)	
	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	$\left[\begin{array}{c} 1\\ 360 \end{array}\right]$.	18	30		
1	Test B: 15 unique PRI values randomly selected within the range of 518~3066µ sec with a minimum of 1µ sec, excluding PRI values selected in Test A	Roundup $ \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu \text{ sec}}} \right) $			86.7	
2	1-5	150-230	23-29	30	90	
3	6-10	200-500	16-18	30	86.7	
4	11-20	200-500	12-16	30	83.3	
	Aggregate (Radar	Types 1-4)		120	86.67	

Table 2: Long Pulse Radar Test Waveform

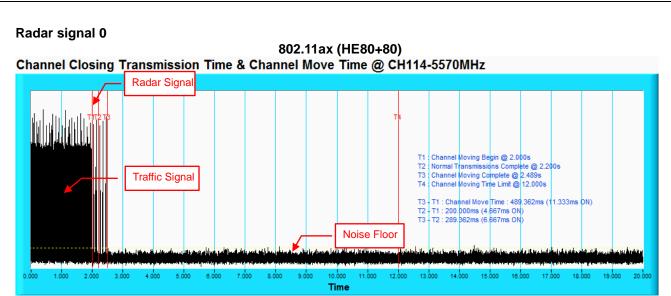
Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per Burst	Number of Bursts	Number of Trials(Times)	Percentage of Successful Detection (%)
5	50-100	5-20	1000-2000	1-3	8-20	30	86.7

Table 3: Frequency Hopping Radar Test Waveform

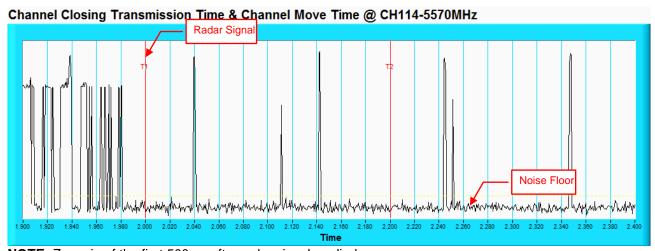
Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Number of Trials(Times)	Percentage of Successful Detection (%)
6	1	333	9	0.333	300	30	90

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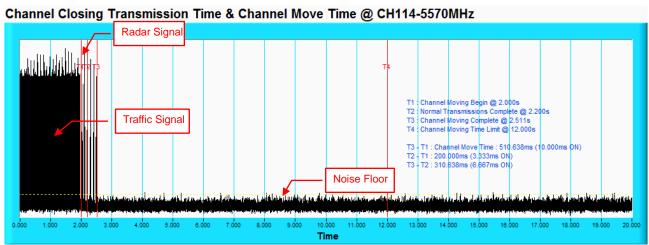


NOTE: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

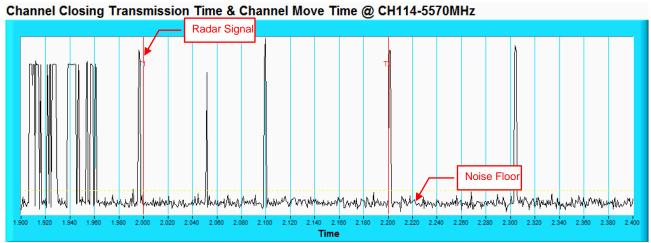




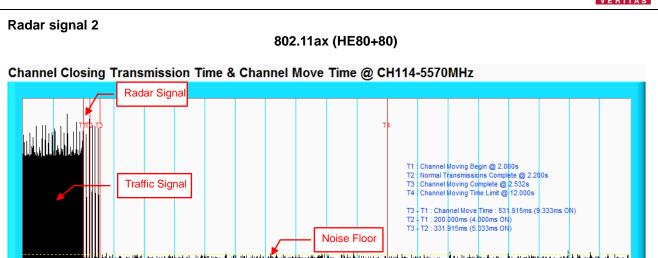
Radar signal 1 802.11ax (HE80+80)



NOTE: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

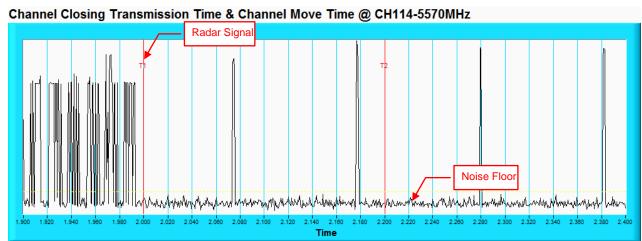




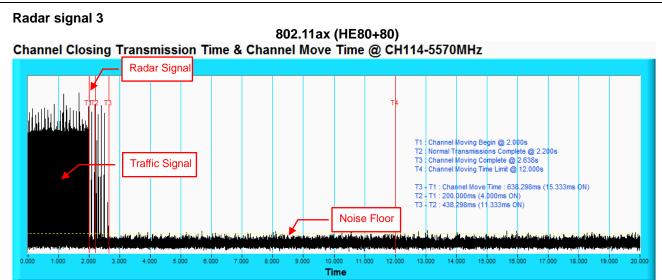


NOTE: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.

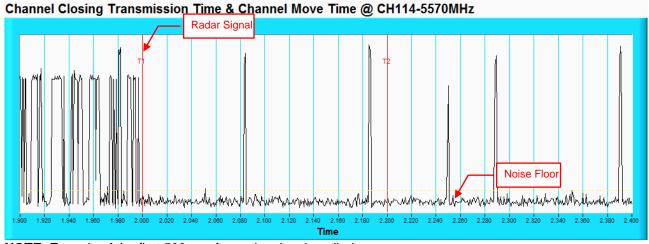
Time



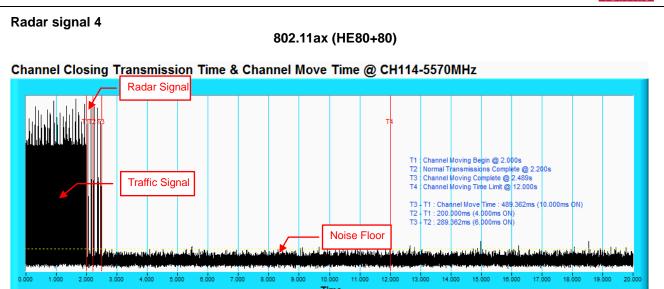




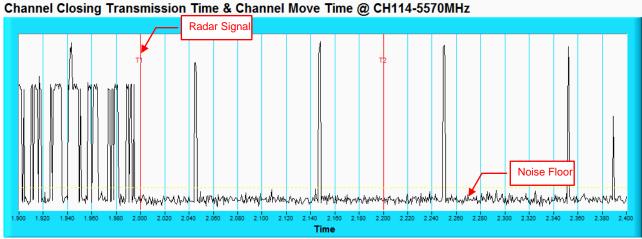
NOTE: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.







NOTE: T1 denotes the start of Channel Move Time upon the end of the last Radar burst. T2 denotes the data transmission time of 200ms from T1. T3 denotes the end of Channel Move Time. T4 denotes the 10 second from T1 to observe the aggregate duration of transmissions.





Туре	1 Radar Statis	stical Performances	3			
Trial	Test	Pulse Repetition	Pulse Repetition Frequency	Pulses per	Pulse Repetition	Detection
#	Frequency	Frequency	(Pulse per seconds)	Burst	Interval	
	(MHz)	Number (1 to 23)			(microseconds)	
1	5500	5	1672	89	598	Yes
2	5507	21	1089	58	918	Yes
3	5503	14	1285	68	778	Yes
4	5497	23	326.2	18	3066	Yes
5	5495	10	1433	76	698	Yes
6	5504	13	1319	70	758	Yes
7	5494	16	1223	65	818	Yes
8	5508	15	1253	67	798	Yes
9	5500	11	1393	74	718	Yes
10	5496	3	1792	95	558	Yes
11	5504	22	1066	57	938	Yes
12	5503	7	1567	83	638	Yes
13	5493	17	1193	63	838	Yes
14	5500	18	1166	62	858	Yes
15	5494	9	1475	78	678	Yes
16	5497	-	1524	81	656	Yes
17	5506	-	749.6	40	1334	Yes
18	5492	-	1812	96	552	Yes
19	5495	-	660.5	35	1514	Yes
20	5504	-	364.2	20	2746	Yes
21	5505	-	960.6	51	1041	Yes
22	5494	-	344.1	19	2906	Yes
23	5492	-	421.2	23	2374	Yes
24	5504	-	751.3	40	1331	Yes
25	5504	-	513.3	28	1948	No
26	5502	-	1027	55	974	Yes
27	5493	-	409.3	22	2443	Yes
28	5503	-	557.4	30	1794	Yes
29	5509	-	874.1	47	1144	No
30	5503	-	473.5	25	2112	Yes
					Detection Ra	te: 93.3 %

Note. " - " : 15 unique PRI values randomly selected within the range of 518-3066 μ sec, with a minimum increment of 1 μ sec, excluding PRI values selected in Test A



Trial #	dar Statistical Perfor Test Frequency	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
	(MHz)	'	,	,	
1	5500	28	4.2	228	Yes
2	5493	24	1.6	202	Yes
3	5495	24	1.9	193	Yes
4	5500	29	4.6	189	Yes
5	5496	26	3	167	Yes
6	5504	25	2.6	180	Yes
7	5496	23	1.4	165	Yes
8	5505	29	5	190	Yes
9	5499	23	1.2	168	Yes
10	5506	26	3	224	Yes
11	5500	27	3.9	187	Yes
12	5508	29	5	171	Yes
13	5505	28	4.3	223	Yes
14	5491	26	2.9	216	Yes
15	5502	26	2.9	219	Yes
16	5495	27	3.6	169	No
17	5494	25	2.5	199	No
18	5493	26	3	151	Yes
19	5502	25	2.4	198	Yes
20	5506	29	5	207	Yes
21	5509	23	1.5	162	Yes
22	5491	29	5	161	No
23	5503	24	1.8	194	Yes
24	5500	28	4.1	178	No
25	5503	24	1.6	170	Yes
26	5505	27	3.4	195	Yes
27	5500	25	2.7	212	Yes
28	5494	24	1.7	196	Yes
29	5492	26	2.8	217	Yes
30	5500	24	1.8	183	Yes

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	dar Statistical Perfor		D 1 14/14/		T 5
Trial #	Test Frequency	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
	(MHz)	4.0			
1	5500	18	9.2	258	Yes
2	5504	16	6.6	493	Yes
3	5503	16	6.9	359	Yes
4	5494	18	9.6	397	Yes
5	5501	17	8	355	Yes
6	5501	17	7.6	428	Yes
7	5501	16	6.4	271	Yes
8	5492	18	10	371	Yes
9	5495	16	6.2	430	Yes
10	5498	17	8	272	Yes
11	5493	18	8.9	202	Yes
12	5500	18	10	264	Yes
13	5497	18	9.3	207	Yes
14	5503	17	7.9	456	Yes
15	5492	17	7.9	291	Yes
16	5497	17	8.6	411	Yes
17	5494	17	7.5	368	No
18	5508	17	8	241	Yes
19	5493	17	7.4	467	Yes
20	5500	18	10	339	Yes
21	5501	16	6.5	500	Yes
22	5509	18	10	358	Yes
23	5504	16	6.8	251	Yes
24	5508	18	9.1	230	No
25	5503	16	6.6	285	Yes
26	5506	17	8.4	426	Yes
27	5494	17	7.7	350	Yes
28	5501	16	6.7	434	Yes
29	5507	17	7.8	491	No
30	5492	16	6.8	438	Yes

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Type 4 Ra	dar Statistical Perfor	mances			
Trial #	Test Frequency (MHz)	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	5500	15	18.1	258	Yes
2	5502	12	12.3	493	Yes
3	5501	13	13.2	359	Yes
4	5505	16	19.1	397	Yes
5	5493	14	15.4	355	Yes
6	5503	14	14.6	428	Yes
7	5503	12	11.9	271	Yes
8	5496	16	19.9	371	No
9	5495	12	11.6	430	Yes
10	5506	14	15.4	272	Yes
11	5509	15	17.4	202	No
12	5495	16	19.9	264	Yes
13	5503	16	18.4	207	Yes
14	5502	14	15.3	456	Yes
15	5508	14	15.3	291	Yes
16	5503	15	16.8	411	Yes
17	5503	13	14.3	368	Yes
18	5501	14	15.5	241	No
19	5495	13	14.2	467	Yes
20	5502	16	20	339	Yes
21	5497	12	12.2	500	Yes
22	5496	16	19.9	358	Yes
23	5493	13	12.9	251	Yes
24	5494	15	17.9	230	Yes
25	5504	12	12.3	285	Yes
26	5501	15	16.5	426	Yes
27	5504	14	14.8	350	No
28	5491	12	12.6	434	Yes
29	5505	14	15.1	491	Yes
30	5502	13	12.9	438	Yes

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Type 5 Rac	dar Statistical Performance	es		
Trial #	Minimum	Chirp Center	Test Signal Name	Detection
	Chirp Width(MHz)	Frequency(MHz)		
1	17	5500	LP_Signal_01	Yes
2	7	5500	LP_Signal_02	No
3	8	5500	LP_Signal_03	Yes
4	19	5500	LP_Signal_04	Yes
5	12	5500	LP_Signal_05	Yes
6	11	5500	LP_Signal_06	Yes
7	6	5500	LP_Signal_07	No
8	20	5500	LP_Signal_08	Yes
9	6	5500	LP_Signal_09	Yes
10	12	5500	LP_Signal_10	No
11	16	5492	LP_Signal_11	Yes
12	20	5492	LP_Signal_12	Yes
13	18	5494	LP_Signal_13	Yes
14	12	5497	LP_Signal_14	Yes
15	12	5498	LP_Signal_15	Yes
16	15	5495	LP_Signal_16	Yes
17	10	5494	LP_Signal_17	Yes
18	12	5494	LP_Signal_18	Yes
19	10	5493	LP_Signal_19	Yes
20	20	5492	LP_Signal_20	Yes
21	7	5505	LP_Signal_21	Yes
22	20	5503	LP_Signal_22	Yes
23	8	5506	LP_Signal_23	Yes
24	17	5508	LP_Signal_24	Yes
25	7	5504	LP_Signal_25	Yes
26	14	5506	LP_Signal_26	Yes
27	11	5507	LP_Signal_27	Yes
28	7	5508	LP_Signal_28	No
29	12	5508	LP_Signal_29	Yes
30	8	5507	LP_Signal_30	Yes
			Detec	tion Rate: 86.7 %

The Long Pulse Radar pattern shown in Appendix A.1



Trial #	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	9	1	333.3	Yes
2	9	1	333.3	Yes
3	9	1	333.3	Yes
4	9	1	333.3	Yes
5	9	1	333.3	Yes
6	9	1	333.3	Yes
7	9	1	333.3	Yes
8	9	1	333.3	Yes
9	9	1	333.3	Yes
10	9	1	333.3	Yes
11	9	1	333.3	No
12	9	1	333.3	No
13	9	1	333.3	Yes
14	9	1	333.3	No
15	9	1	333.3	Yes
16	9	1	333.3	Yes
17	9	1	333.3	Yes
18	9	1	333.3	Yes
19	9	1	333.3	Yes
20	9	1	333.3	No
21	9	1	333.3	Yes
22	9	1	333.3	Yes
23	9	1	333.3	Yes
24	9	1	333.3	Yes
25	9	1	333.3	No
26	9	1	333.3	Yes
27	9	1	333.3	Yes
28	9	1	333.3	Yes
29	9	1	333.3	Yes
30	9	1	333.3	Yes

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Trial #	Hopping Frequency Sequence Name	Detection
1	HOP_FREQ_SEQ_01	Yes
2	HOP_FREQ_SEQ_02	Yes
3	HOP_FREQ_SEQ_03	Yes
4	HOP_FREQ_SEQ_04	Yes
5	HOP_FREQ_SEQ_05	Yes
6	HOP_FREQ_SEQ_06	Yes
7	HOP_FREQ_SEQ_07	Yes
8	HOP_FREQ_SEQ_08	Yes
9	HOP_FREQ_SEQ_09	Yes
10	HOP_FREQ_SEQ_10	Yes
11	HOP_FREQ_SEQ_11	No
12	HOP_FREQ_SEQ_12	No
13	HOP_FREQ_SEQ_13	Yes
14	HOP_FREQ_SEQ_14	No
15	HOP_FREQ_SEQ_15	Yes
16	HOP_FREQ_SEQ_16	Yes
17	HOP_FREQ_SEQ_17	Yes
18	HOP_FREQ_SEQ_18	Yes
19	HOP_FREQ_SEQ_19	Yes
20	HOP_FREQ_SEQ_20	No
21	HOP_FREQ_SEQ_21	Yes
22	HOP_FREQ_SEQ_22	Yes
23	HOP_FREQ_SEQ_23	Yes
24	HOP_FREQ_SEQ_24	Yes
25	HOP_FREQ_SEQ_25	No
26	HOP_FREQ_SEQ_26	Yes
27	HOP_FREQ_SEQ_27	Yes
28	HOP_FREQ_SEQ_28	Yes
29	HOP_FREQ_SEQ_29	Yes
30	HOP_FREQ_SEQ_30	Yes

The Frequency Hopping Radar pattern shown in Appendix A.2



Trial	Test	stical Performances Pulse Repetition	Pulse Repetition Frequency	Pulses per	Pulse Repetition	Detection
#	Frequency	Frequency	(Pulse per seconds)	Burst	Interval	Detection
#	(MHz)	Number (1 to 23)	(Fulse per secorius)	Duist	(microseconds)	
1	5510	5	1672	89	598	Yes
2	5520	21	1089	58	918	Yes
3	5500	14	1285	68	778	Yes
4	5500	23	326.2	18	3066	Yes
5	5525	10	1433	76	698	Yes
6	5506	13	1319	70	758	No
7	5501	16	1223	65	818	Yes
8	5528	15	1253	67	798	Yes
9	5513	11	1393	74	718	Yes
10	5519	3	1792	95	558	Yes
11	5495	22	1066	57	938	Yes
12	5525	7	1567	83	638	Yes
13	5525	17	1193	63	838	Yes
14	5503	18	1166	62	858	Yes
15	5502	9	1475	78	678	Yes
16	5498	-	1524	81	656	Yes
17	5516	-	749.6	40	1334	Yes
18	5493	-	1812	96	552	Yes
19	5517	-	660.5	35	1514	No
20	5498	-	364.2	20	2746	Yes
21	5495	-	960.6	51	1041	Yes
22	5495	=	344.1	19	2906	Yes
23	5523	-	421.2	23	2374	No
24	5499	-	751.3	40	1331	Yes
25	5525	-	513.3	28	1948	Yes
26	5518	-	1027	55	974	Yes
27	5507	-	409.3	22	2443	Yes
28	5510	-	557.4	30	1794	Yes
29	5527	-	874.1	47	1144	Yes
30	5502	-	473.5	25	2112	Yes

Note. " - " : 15 unique PRI values randomly selected within the range of 518-3066 µsec,with a minimum increment of 1µsec, excluding PRI values selected in Test A



Type 2 Ra	dar Statistical Perfor				
Trial #	Test Frequency (MHz)	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	5510	28	4.2	228	Yes
2	5520	24	1.6	202	Yes
3	5500	24	1.9	193	No
4	5512	29	4.6	189	Yes
5	5528	26	3	167	Yes
6	5526	25	2.6	180	Yes
7	5492	23	1.4	165	Yes
8	5498	29	5	190	Yes
9	5505	23	1.2	168	Yes
10	5499	26	3	224	Yes
11	5515	27	3.9	187	No
12	5523	29	5	171	Yes
13	5505	28	4.3	223	Yes
14	5496	26	2.9	216	Yes
15	5493	26	2.9	219	Yes
16	5511	27	3.6	169	Yes
17	5525	25	2.5	199	Yes
18	5514	26	3	151	Yes
19	5526	25	2.4	198	Yes
20	5501	29	5	207	Yes
21	5512	23	1.5	162	No
22	5513	29	5	161	Yes
23	5498	24	1.8	194	Yes
24	5513	28	4.1	178	Yes
25	5513	24	1.6	170	No
26	5521	27	3.4	195	Yes
27	5505	25	2.7	212	Yes
28	5525	24	1.7	196	Yes
29	5501	26	2.8	217	Yes
30	5498	24	1.8	183	Yes

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Trial #	Test Frequency	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
	(MHz)	·	, ,	, ,	
1	5510	18	9.2	258	Yes
2	5520	16	6.6	493	No
3	5500	16	6.9	359	Yes
4	5517	18	9.6	397	Yes
5	5523	17	8	355	Yes
6	5508	17	7.6	428	No
7	5505	16	6.4	271	Yes
8	5508	18	10	371	Yes
9	5507	16	6.2	430	Yes
10	5506	17	8	272	No
11	5512	18	8.9	202	Yes
12	5513	18	10	264	Yes
13	5523	18	9.3	207	Yes
14	5513	17	7.9	456	Yes
15	5512	17	7.9	291	Yes
16	5508	17	8.6	411	Yes
17	5503	17	7.5	368	Yes
18	5526	17	8	241	Yes
19	5510	17	7.4	467	Yes
20	5522	18	10	339	No
21	5525	16	6.5	500	Yes
22	5498	18	10	358	Yes
23	5515	16	6.8	251	Yes
24	5508	18	9.1	230	No
25	5517	16	6.6	285	Yes
26	5494	17	8.4	426	Yes
27	5508	17	7.7	350	Yes
28	5498	16	6.7	434	Yes
29	5495	17	7.8	491	Yes
30	5526	16	6.8	438	Yes

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Гуре 4 Ка	dar Statistical Perfor	mances			
Trial #	Test Frequency (MHz)	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	5510 [′]	15	18.1	258	Yes
2	5520	12	12.3	493	No
3	5500	13	13.2	359	Yes
4	5520	16	19.1	397	Yes
5	5505	14	15.4	355	Yes
6	5503	14	14.6	428	Yes
7	5522	12	11.9	271	Yes
8	5525	16	19.9	371	Yes
9	5508	12	11.6	430	Yes
10	5501	14	15.4	272	No
11	5508	15	17.4	202	Yes
12	5492	16	19.9	264	No
13	5498	16	18.4	207	Yes
14	5518	14	15.3	456	Yes
15	5527	14	15.3	291	Yes
16	5514	15	16.8	411	Yes
17	5527	13	14.3	368	Yes
18	5519	14	15.5	241	Yes
19	5517	13	14.2	467	Yes
20	5524	16	20	339	Yes
21	5512	12	12.2	500	Yes
22	5503	16	19.9	358	Yes
23	5504	13	12.9	251	Yes
24	5507	15	17.9	230	Yes
25	5498	12	12.3	285	No
26	5498	15	16.5	426	Yes
27	5525	14	14.8	350	Yes
28	5495	12	12.6	434	Yes
29	5513	14	15.1	491	Yes
30	5494	13	12.9	438	Yes

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Trial #	Minimum	Chirp Center	Test Signal Name	Detection
	Chirp Width(MHz)	Frequency(MHz)		
1	17	5510	LP_Signal_01	No
2	7	5510	LP_Signal_02	Yes
3	8	5510	LP_Signal_03	Yes
4	19	5510	LP_Signal_04	Yes
5	12	5510	LP_Signal_05	Yes
6	11	5510	LP_Signal_06	No
7	6	5510	LP_Signal_07	Yes
8	20	5510	LP_Signal_08	Yes
9	6	5510	LP_Signal_09	Yes
10	12	5510	LP_Signal_10	No
11	16	5492	LP_Signal_11	Yes
12	20	5492	LP_Signal_12	Yes
13	18	5494	LP_Signal_13	Yes
14	12	5497	LP_Signal_14	Yes
15	12	5498	LP_Signal_15	No
16	15	5495	LP_Signal_16	Yes
17	10	5494	LP_Signal_17	Yes
18	12	5494	LP_Signal_18	Yes
19	10	5493	LP_Signal_19	Yes
20	20	5492	LP_Signal_20	Yes
21	7	5524	LP_Signal_21	Yes
22	20	5522	LP_Signal_22	Yes
23	8	5525	LP_Signal_23	Yes
24	17	5527	LP_Signal_24	Yes
25	7	5523	LP_Signal_25	Yes
26	14	5525	LP_Signal_26	Yes
27	11	5526	LP_Signal_27	Yes
28	7	5527	LP_Signal_28	Yes
29	12	5527	LP_Signal_29	Yes
30	8	5526	LP_Signal_30	No

The Long Pulse Radar pattern shown in Appendix A.1



Trial #	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	9	1	333.3	Yes
2	9	1	333.3	Yes
3	9	1	333.3	Yes
4	9	1	333.3	No
5	9	1	333.3	Yes
6	9	1	333.3	Yes
7	9	1	333.3	Yes
8	9	1	333.3	No
9	9	1	333.3	Yes
10	9	1	333.3	Yes
11	9	1	333.3	Yes
12	9	1	333.3	Yes
13	9	1	333.3	Yes
14	9	1	333.3	Yes
15	9	1	333.3	Yes
16	9	1	333.3	Yes
17	9	1	333.3	No
18	9	1	333.3	Yes
19	9	1	333.3	Yes
20	9	1	333.3	No
21	9	1	333.3	Yes
22	9	1	333.3	Yes
23	9	1	333.3	Yes
24	9	1	333.3	No
25	9	1	333.3	Yes
26	9	1	333.3	Yes
27	9	1	333.3	Yes
28	9	1	333.3	Yes
29	9	1	333.3	Yes
30	9	1	333.3	Yes

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Trial #	Hopping Frequency Sequence Name	Detection
1	HOP_FREQ_SEQ_01	Yes
2	HOP_FREQ_SEQ_02	Yes
3	HOP_FREQ_SEQ_03	Yes
4	HOP_FREQ_SEQ_04	No
5	HOP_FREQ_SEQ_05	Yes
6	HOP_FREQ_SEQ_06	Yes
7	HOP_FREQ_SEQ_07	Yes
8	HOP_FREQ_SEQ_08	No
9	HOP_FREQ_SEQ_09	Yes
10	HOP_FREQ_SEQ_10	Yes
11	HOP_FREQ_SEQ_11	Yes
12	HOP_FREQ_SEQ_12	Yes
13	HOP_FREQ_SEQ_13	Yes
14	HOP_FREQ_SEQ_14	Yes
15	HOP_FREQ_SEQ_15	Yes
16	HOP_FREQ_SEQ_16	Yes
17	HOP_FREQ_SEQ_17	No
18	HOP_FREQ_SEQ_18	Yes
19	HOP_FREQ_SEQ_19	Yes
20	HOP_FREQ_SEQ_20	No
21	HOP_FREQ_SEQ_21	Yes
22	HOP_FREQ_SEQ_22	Yes
23	HOP_FREQ_SEQ_23	Yes
24	HOP_FREQ_SEQ_24	No
25	HOP_FREQ_SEQ_25	Yes
26	HOP_FREQ_SEQ_26	Yes
27	HOP_FREQ_SEQ_27	Yes
28	HOP_FREQ_SEQ_28	Yes
29	HOP_FREQ_SEQ_29	Yes
30	HOP_FREQ_SEQ_30	Yes

The Frequency Hopping Radar pattern shown in Appendix A.2



Туре	1 Radar Statis	stical Performances	3			
Trial	Test		Pulse Repetition Frequency	Pulses per	Pulse Repetition	Detection
#	Frequency	Frequency	(Pulse per seconds)	Burst	Interval	
	(MHz)	Number (1 to 23)			(microseconds)	
1	5530	5	1672	89	598	Yes
2	5540	21	1089	58	918	Yes
3	5560	14	1285	68	778	Yes
4	5520	23	326.2	18	3066	Yes
5	5500	10	1433	76	698	Yes
6	5539	13	1319	70	758	Yes
7	5533	16	1223	65	818	Yes
8	5499	15	1253	67	798	Yes
9	5563	11	1393	74	718	Yes
10	5564	3	1792	95	558	Yes
11	5551	22	1066	57	938	Yes
12	5508	7	1567	83	638	Yes
13	5542	17	1193	63	838	Yes
14	5510	18	1166	62	858	Yes
15	5554	9	1475	78	678	Yes
16	5535	•	1524	81	656	Yes
17	5508	-	749.6	40	1334	Yes
18	5494	-	1812	96	552	Yes
19	5567	-	660.5	35	1514	Yes
20	5521	-	364.2	20	2746	No
21	5529	-	960.6	51	1041	Yes
22	5542	-	344.1	19	2906	Yes
23	5513	-	421.2	23	2374	Yes
24	5494	-	751.3	40	1331	Yes
25	5499	-	513.3	28	1948	No
26	5497	-	1027	55	974	Yes
27	5525	-	409.3	22	2443	No
28	5504	-	557.4	30	1794	Yes
29	5560	-	874.1	47	1144	Yes
30	5511	-	473.5	25	2112	Yes
			_		Detection F	Rate: 90 %

Note. " - " : 15 unique PRI values randomly selected within the range of 518-3066 µsec,with a minimum increment of 1µsec, excluding PRI values selected in Test A

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Trial #	Test Frequency	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
	(MHz)				
1	5530	28	4.2	228	No
2	5540	24	1.6	202	Yes
3	5560	24	1.9	193	Yes
4	5520	29	4.6	189	Yes
5	5500	26	3	167	Yes
6	5516	25	2.6	180	No
7	5517	23	1.4	165	No
8	5546	29	5	190	Yes
9	5507	23	1.2	168	Yes
10	5537	26	3	224	Yes
11	5545	27	3.9	187	Yes
12	5531	29	5	171	Yes
13	5534	28	4.3	223	Yes
14	5521	26	2.9	216	Yes
15	5567	26	2.9	219	Yes
16	5499	27	3.6	169	Yes
17	5541	25	2.5	199	Yes
18	5548	26	3	151	Yes
19	5567	25	2.4	198	Yes
20	5517	29	5	207	Yes
21	5506	23	1.5	162	Yes
22	5540	29	5	161	No
23	5499	24	1.8	194	Yes
24	5529	28	4.1	178	Yes
25	5527	24	1.6	170	Yes
26	5548	27	3.4	195	No
27	5511	25	2.7	212	Yes
28	5529	24	1.7	196	Yes
29	5552	26	2.8	217	Yes
30	5543	24	1.8	183	Yes



-	dar Statistical Perfor				1
Trial #	Test Frequency (MHz)	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	5530	18	9.2	258	Yes
2	5540	16	6.6	493	Yes
3	5560	16	6.9	359	Yes
4	5520	18	9.6	397	Yes
5	5500	17	8	355	Yes
6	5530	17	7.6	428	Yes
7	5535	16	6.4	271	Yes
8	5507	18	10	371	Yes
9	5512	16	6.2	430	Yes
10	5524	17	8	272	Yes
11	5557	18	8.9	202	Yes
12	5535	18	10	264	Yes
13	5496	18	9.3	207	No
14	5546	17	7.9	456	Yes
15	5543	17	7.9	291	Yes
16	5496	17	8.6	411	Yes
17	5500	17	7.5	368	Yes
18	5524	17	8	241	No
19	5534	17	7.4	467	Yes
20	5536	18	10	339	Yes
21	5535	16	6.5	500	Yes
22	5558	18	10	358	Yes
23	5559	16	6.8	251	Yes
24	5550	18	9.1	230	Yes
25	5502	16	6.6	285	Yes
26	5501	17	8.4	426	No
27	5558	17	7.7	350	Yes
28	5518	16	6.7	434	Yes
29	5515	17	7.8	491	Yes
30	5495	16	6.8	438	No

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	dar Statistical Perfor				
Trial #	Test Frequency (MHz)	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	5530	15	18.1	258	Yes
2	5540	12	12.3	493	Yes
3	5560	13	13.2	359	No
4	5520	16	19.1	397	Yes
5	5500	14	15.4	355	Yes
6	5545	14	14.6	428	Yes
7	5546	12	11.9	271	Yes
8	5554	16	19.9	371	Yes
9	5505	12	11.6	430	Yes
10	5530	14	15.4	272	Yes
11	5531	15	17.4	202	Yes
12	5565	16	19.9	264	Yes
13	5515	16	18.4	207	Yes
14	5523	14	15.3	456	Yes
15	5537	14	15.3	291	Yes
16	5557	15	16.8	411	No
17	5518	13	14.3	368	Yes
18	5556	14	15.5	241	Yes
19	5552	13	14.2	467	Yes
20	5499	16	20	339	No
21	5556	12	12.2	500	Yes
22	5546	16	19.9	358	Yes
23	5532	13	12.9	251	Yes
24	5563	15	17.9	230	Yes
25	5549	12	12.3	285	Yes
26	5534	15	16.5	426	Yes
27	5508	14	14.8	350	No
28	5521	12	12.6	434	Yes
29	5508	14	15.1	491	Yes
30	5502	13	12.9	438	Yes

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Trial #	lar Statistical Performances Minimum	Chirp Center	Test Signal Name	Detection
	Chirp Width(MHz)	Frequency(MHz)		
1	17	5530	LP_Signal_01	Yes
2	7	5530	LP_Signal_02	Yes
3	8	5530	LP_Signal_03	Yes
4	19	5530	LP_Signal_04	Yes
5	12	5530	LP_Signal_05	Yes
6	11	5530	LP_Signal_06	Yes
7	6	5530	LP_Signal_07	Yes
8	20	5530	LP_Signal_08	No
9	6	5530	LP_Signal_09	Yes
10	12	5530	LP_Signal_10	Yes
11	16	5493	LP_Signal_11	Yes
12	20	5493	LP_Signal_12	Yes
13	18	5495	LP_Signal_13	Yes
14	12	5498	LP_Signal_14	No
15	12	5499	LP_Signal_15	Yes
16	15	5496	LP_Signal_16	No
17	10	5495	LP_Signal_17	Yes
18	12	5495	LP_Signal_18	Yes
19	10	5494	LP_Signal_19	Yes
20	20	5493	LP_Signal_20	Yes
21	7	5564	LP_Signal_21	Yes
22	20	5562	LP_Signal_22	Yes
23	8	5565	LP_Signal_23	Yes
24	17	5567	LP_Signal_24	Yes
25	7	5563	LP_Signal_25	Yes
26	14	5565	LP_Signal_26	Yes
27	11	5566	LP_Signal_27	Yes
28	7	5567	LP_Signal_28	No
29	12	5567	LP_Signal_29	No
30	8	5566	LP_Signal_30	Yes

The Long Pulse Radar pattern shown in Appendix A.1



Trial #	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	9	1	333.3	No
2	9	1	333.3	Yes
3	9	1	333.3	No
4	9	1	333.3	Yes
5	9	1	333.3	Yes
6	9	1	333.3	Yes
7	9	1	333.3	Yes
8	9	1	333.3	Yes
9	9	1	333.3	Yes
10	9	1	333.3	No
11	9	1	333.3	Yes
12	9	1	333.3	Yes
13	9	1	333.3	Yes
14	9	1	333.3	Yes
15	9	1	333.3	Yes
16	9	1	333.3	Yes
17	9	1	333.3	Yes
18	9	1	333.3	Yes
19	9	1	333.3	Yes
20	9	1	333.3	Yes
21	9	1	333.3	Yes
22	9	1	333.3	Yes
23	9	1	333.3	Yes
24	9	1	333.3	Yes
25	9	1	333.3	No
26	9	1	333.3	Yes
27	9	1	333.3	Yes
28	9	1	333.3	Yes
29	9	1	333.3	No
30	9	1	333.3	Yes



Trial #	Hopping Frequency Sequence Name	Detection
1	HOP_FREQ_SEQ_01	No
2	HOP_FREQ_SEQ_02	Yes
3	HOP_FREQ_SEQ_03	No
4	HOP_FREQ_SEQ_04	Yes
5	HOP_FREQ_SEQ_05	Yes
6	HOP_FREQ_SEQ_06	Yes
7	HOP_FREQ_SEQ_07	Yes
8	HOP_FREQ_SEQ_08	Yes
9	HOP_FREQ_SEQ_09	Yes
10	HOP_FREQ_SEQ_10	No
11	HOP_FREQ_SEQ_11	Yes
12	HOP_FREQ_SEQ_12	Yes
13	HOP_FREQ_SEQ_13	Yes
14	HOP_FREQ_SEQ_14	Yes
15	HOP_FREQ_SEQ_15	Yes
16	HOP_FREQ_SEQ_16	Yes
17	HOP_FREQ_SEQ_17	Yes
18	HOP_FREQ_SEQ_18	Yes
19	HOP_FREQ_SEQ_19	Yes
20	HOP_FREQ_SEQ_20	Yes
21	HOP_FREQ_SEQ_21	Yes
22	HOP_FREQ_SEQ_22	Yes
23	HOP_FREQ_SEQ_23	Yes
24	HOP_FREQ_SEQ_24	Yes
25	HOP_FREQ_SEQ_25	No
26	HOP_FREQ_SEQ_26	Yes
27	HOP_FREQ_SEQ_27	Yes
28	HOP_FREQ_SEQ_28	Yes
29	HOP_FREQ_SEQ_29	No
30	HOP_FREQ_SEQ_30	Yes

The Frequency Hopping Radar pattern shown in Appendix A.2



		stical Performances		<u>Б</u>	D. L. D	ID . ((
Trial	Test		Pulse Repetition Frequency		Pulse Repetition	Detection
#	Frequency	Frequency	(Pulse per seconds)	Burst	Interval	
	(MHz)	Number (1 to 23)			(microseconds)	.,
1	5570	5	1672	89	598	Yes
2	5580	21	1089	58	918	Yes
3	5600	14	1285	68	778	No
4	5560	23	326.2	18	3066	Yes
5	5540	10	1433	76	698	No
6	5581	13	1319	70	758	Yes
7	5629	16	1223	65	818	Yes
8	5510	15	1253	67	798	Yes
9	5611	11	1393	74	718	Yes
10	5540	3	1792	95	558	Yes
11	5554	22	1066	57	938	Yes
12	5528	7	1567	83	638	Yes
13	5615	17	1193	63	838	Yes
14	5526	18	1166	62	858	Yes
15	5583	9	1475	78	678	No
16	5598	-	1524	81	656	Yes
17	5567	-	749.6	40	1334	Yes
18	5539	-	1812	96	552	Yes
19	5523	-	660.5	35	1514	Yes
20	5512	-	364.2	20	2746	Yes
21	5525	-	960.6	51	1041	Yes
22	5553	-	344.1	19	2906	Yes
23	5578	-	421.2	23	2374	Yes
24	5633	-	751.3	40	1331	Yes
25	5573	-	513.3	28	1948	Yes
26	5537	=	1027	55	974	Yes
27	5530	-	409.3	22	2443	No
28	5627	-	557.4	30	1794	Yes
29	5586	-	874.1	47	1144	Yes
30	5537	-	473.5	25	2112	Yes
					Detection Ra	

Note. " - " : 15 unique PRI values randomly selected within the range of 518-3066 µsec,with a minimum increment of 1µsec, excluding PRI values selected in Test A



Trial #	Test Frequency (MHz)	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	5570	28	4.2	228	Yes
2	5580	24	1.6	202	Yes
3	5600	24	1.9	193	Yes
4	5560	29	4.6	189	Yes
5	5540	26	3	167	No
6	5606	25	2.6	180	Yes
7	5584	23	1.4	165	Yes
8	5534	29	5	190	Yes
9	5611	23	1.2	168	No
10	5602	26	3	224	Yes
11	5543	27	3.9	187	Yes
12	5622	29	5	171	Yes
13	5582	28	4.3	223	Yes
14	5613	26	2.9	216	Yes
15	5585	26	2.9	219	Yes
16	5607	27	3.6	169	Yes
17	5520	25	2.5	199	Yes
18	5553	26	3	151	Yes
19	5558	25	2.4	198	Yes
20	5623	29	5	207	Yes
21	5600	23	1.5	162	Yes
22	5600	29	5	161	Yes
23	5550	24	1.8	194	No
24	5548	28	4.1	178	Yes
25	5563	24	1.6	170	Yes
26	5609	27	3.4	195	Yes
27	5603	25	2.7	212	Yes
28	5630	24	1.7	196	Yes
29	5604	26	2.8	217	Yes
30	5528	24	1.8	183	Yes

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Trial #	dar Statistical Perfor Test Frequency	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
π π	(MHz)	r dises per burst	r disc vvidiri(ds)	i iti(us)	
1	5570	18	9.2	258	Yes
2	5580	16	6.6	493	Yes
3	5600	16	6.9	359	No
4	5560	18	9.6	397	Yes
5	5540	17	8	355	Yes
6	5564	17	7.6	428	Yes
7	5627	16	6.4	271	Yes
8	5515	18	10	371	Yes
9	5584	16	6.2	430	Yes
10	5510	17	8	272	Yes
11	5513	18	8.9	202	Yes
12	5543	18	10	264	Yes
13	5584	18	9.3	207	Yes
14	5600	17	7.9	456	Yes
15	5592	17	7.9	291	Yes
16	5630	17	8.6	411	Yes
17	5620	17	7.5	368	Yes
18	5591	17	8	241	Yes
19	5615	17	7.4	467	Yes
20	5511	18	10	339	Yes
21	5629	16	6.5	500	Yes
22	5626	18	10	358	Yes
23	5534	16	6.8	251	No
24	5557	18	9.1	230	Yes
25	5569	16	6.6	285	No
26	5565	17	8.4	426	Yes
27	5536	17	7.7	350	Yes
28	5614	16	6.7	434	Yes
29	5606	17	7.8	491	Yes
30	5576	16	6.8	438	No

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Trial #	dar Statistical Perfor Test Frequency	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
	(MHz)	'	,	()	
1	5570	15	18.1	258	Yes
2	5580	12	12.3	493	Yes
3	5600	13	13.2	359	Yes
4	5560	16	19.1	397	Yes
5	5540	14	15.4	355	Yes
6	5510	14	14.6	428	Yes
7	5532	12	11.9	271	Yes
8	5589	16	19.9	371	Yes
9	5524	12	11.6	430	No
10	5594	14	15.4	272	Yes
11	5568	15	17.4	202	Yes
12	5586	16	19.9	264	No
13	5566	16	18.4	207	Yes
14	5549	14	15.3	456	Yes
15	5622	14	15.3	291	Yes
16	5607	15	16.8	411	Yes
17	5621	13	14.3	368	Yes
18	5556	14	15.5	241	Yes
19	5612	13	14.2	467	No
20	5541	16	20	339	Yes
21	5521	12	12.2	500	Yes
22	5551	16	19.9	358	No
23	5549	13	12.9	251	Yes
24	5512	15	17.9	230	Yes
25	5529	12	12.3	285	Yes
26	5535	15	16.5	426	Yes
27	5611	14	14.8	350	Yes
28	5611	12	12.6	434	Yes
29	5561	14	15.1	491	Yes
30	5565	13	12.9	438	No

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Γrial #	Minimum	Chirp Center	Test Signal Name	Detection
	Chirp Width(MHz)	Frequency(MHz)	3	
1	17	5570	LP_Signal_01	No
2	7	5570	LP_Signal_02	No
3	8	5570	LP_Signal_03	Yes
4	19	5570	LP_Signal_04	Yes
5	12	5570	LP_Signal_05	Yes
6	11	5570	LP_Signal_06	Yes
7	6	5570	LP_Signal_07	Yes
8	20	5570	LP_Signal_08	Yes
9	6	5570	LP_Signal_09	Yes
10	12	5570	LP_Signal_10	Yes
11	16	5493	LP_Signal_11	Yes
12	20	5493	LP_Signal_12	Yes
13	18	5495	LP_Signal_13	Yes
14	12	5498	LP_Signal_14	Yes
15	12	5499	LP_Signal_15	Yes
16	15	5496	LP_Signal_16	Yes
17	10	5495	LP_Signal_17	Yes
18	12	5495	LP_Signal_18	Yes
19	10	5494	LP_Signal_19	Yes
20	20	5493	LP_Signal_20	Yes
21	7	5644	LP_Signal_21	Yes
22	20	5642	LP_Signal_22	Yes
23	8	5645	LP_Signal_23	No
24	17	5647	LP_Signal_24	Yes
25	7	5643	LP_Signal_25	No
26	14	5645	LP_Signal_26	Yes
27	11	5646	LP_Signal_27	Yes
28	7	5647	LP_Signal_28	Yes
29	12	5647	LP_Signal_29	Yes
30	8	5646	LP_Signal_30	Yes

The Long Pulse Radar pattern shown in Appendix A.1



Trial #	Pulses per Burst	Pulse Width(us)	PRI(us)	Detection
1	9	1	333.3	Yes
2	9	1	333.3	Yes
3	9	1	333.3	Yes
4	9	1	333.3	Yes
5	9	1	333.3	Yes
6	9	1	333.3	Yes
7	9	1	333.3	Yes
8	9	1	333.3	Yes
9	9	1	333.3	Yes
10	9	1	333.3	Yes
11	9	1	333.3	Yes
12	9	1	333.3	Yes
13	9	1	333.3	Yes
14	9	1	333.3	No
15	9	1	333.3	Yes
16	9	1	333.3	No
17	9	1	333.3	Yes
18	9	1	333.3	Yes
19	9	1	333.3	Yes
20	9	1	333.3	Yes
21	9	1	333.3	No
22	9	1	333.3	Yes
23	9	1	333.3	Yes
24	9	1	333.3	Yes
25	9	1	333.3	Yes
26	9	1	333.3	Yes
27	9	1	333.3	Yes
28	9	1	333.3	Yes
29	9	1	333.3	Yes
30	9	1	333.3	Yes



802.11ax (HE80+80)

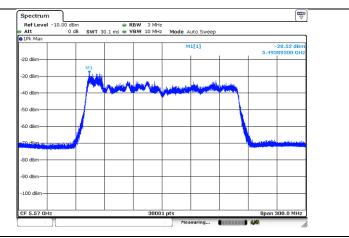
Trial #	Hopping Frequency Sequence Name	Detection
1	HOP_FREQ_SEQ_01	Yes
2	HOP_FREQ_SEQ_02	Yes
3	HOP_FREQ_SEQ_03	Yes
4	HOP_FREQ_SEQ_04	Yes
5	HOP_FREQ_SEQ_05	Yes
6	HOP_FREQ_SEQ_06	Yes
7	HOP_FREQ_SEQ_07	Yes
8	HOP_FREQ_SEQ_08	Yes
9	HOP_FREQ_SEQ_09	Yes
10	HOP_FREQ_SEQ_10	Yes
11	HOP_FREQ_SEQ_11	Yes
12	HOP_FREQ_SEQ_12	Yes
13	HOP_FREQ_SEQ_13	Yes
14	HOP_FREQ_SEQ_14	No
15	HOP_FREQ_SEQ_15	Yes
16	HOP_FREQ_SEQ_16	No
17	HOP_FREQ_SEQ_17	Yes
18	HOP_FREQ_SEQ_18	Yes
19	HOP_FREQ_SEQ_19	Yes
20	HOP_FREQ_SEQ_20	Yes
21	HOP_FREQ_SEQ_21	No
22	HOP_FREQ_SEQ_22	Yes
23	HOP_FREQ_SEQ_23	Yes
24	HOP_FREQ_SEQ_24	Yes
25	HOP_FREQ_SEQ_25	Yes
26	HOP_FREQ_SEQ_26	Yes
27	HOP_FREQ_SEQ_27	Yes
28	HOP_FREQ_SEQ_28	Yes
29	HOP_FREQ_SEQ_29	Yes
30	HOP_FREQ_SEQ_30	Yes

The Frequency Hopping Radar pattern shown in Appendix A.2



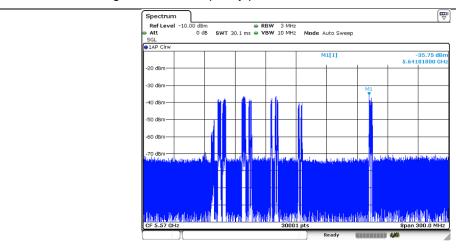
6.2.5 Non- Occupancy Period

1) Test results demonstrating an associated client link is established with the master on a test frequency.



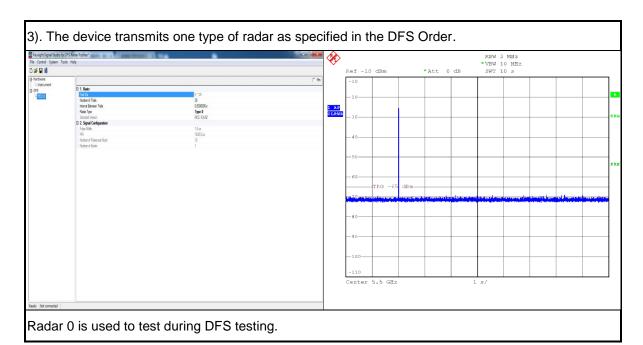
EUT (master) links with Client on 5570MHz

2) The master and DFS-certified client device are associated, and system testing will be performed with channel-loading for a non-occupancy period test.



Client performed with channel-loading via master.

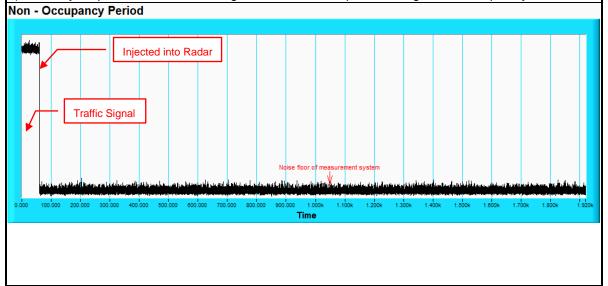




4) The test frequency has been monitored to ensure no transmission of any type has occurred for 30 minutes;

Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear;

5) An analyzer plot that contains a single 30-minute sweep on the original test frequency.





7. Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab: Hsin Chu EMC/RF/Telecom Lab:

Tel: 886-2-26052180 Tel: 886-3-6668565 Fax: 886-2-26051924 Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab:

Tel: 886-3-3183232 Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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8. APPENDIX-A

RADAR TEST SIGNAL

A.1 The Long Pulse Radar Pattern

Long Pulse Radar Test Signal Test Signal Name: LP_Signal_01 Number of Bursts in Trial: 18

. 101111	oci oi baiot	o III i i ilai.				
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	3	17	89.4	1750	1823	1091
2	1	17	57.6	1831	-	-
3	1	17	62.1	1839	-	-
4	3	17	94.8	1258	1771	1217
5	2	17	74.7	1246	1854	-
6	2	17	70.3	1286	1132	-
7	1	17	55.3	1409	-	-
8	3	17	99.3	1879	1810	1391
9	1	17	53.5	1673	-	-
10	2	17	74.6	1448	1969	-
11	3	17	85.5	1999	1087	1140
12	3	17	99.3	1602	1435	1376
13	3	17	91	1211	1374	1783
14	2	17	73.8	1924	1124	-
15	2	17	74.1	1641	1247	-
16	2	17	82.2	1904	1345	-
17	2	17	68.6	1168	1844	-
18	2	17	74.8	1444	1778	-
19						
20						

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Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_02
Number of Bursts in Trial: 9

Numb	per of Bursts	s in Trial:	9			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	2	7	67.7	1691	1157	-
2	3	7	99.8	1097	1766	1178
3	1	7	56.9	1188	-	-
4	3	7	99.1	1208	1655	1974
5	1	7	60.8	1480	-	-
6	3	7	88.3	1272	1863	1474
7	1	7	57.5	1911	-	-
8	2	7	80.3	1455	1881	-
9	2	7	71.4	1137	1241	-
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_03
Number of Bursts in Trial: 11

Numb	per of Bursts	s in Trial:	11			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	1	8	58.9	1295	-	-
2	2	8	72.6	1375	1213	-
3	1	8	60.7	1039	-	-
4	2	8	70.8	1230	1064	-
5	1	8	51.9	1025	-	-
6	2	8	67.5	1895	1802	-
7	2	8	80.8	1550	1533	-
8	2	8	68.6	1525	1221	-
9	3	8	92.4	1651	1985	1505
10	3	8	87	1671	1451	1643
11	2	8	70.9	1439	1724	-
12						
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Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_04
Number of Bursts in Trial: 19

Num	ber of Burst	s in Trial:	19			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	2	19	81.2	1922	1020	-
2	1	19	57.6	1677	-	-
3	3	19	84.9	1073	1244	1949
4	2	19	83.1	1935	1174	-
5	2	19	71.1	1542	1560	-
6	1	19	55.1	1790	-	-
7	1	19	54.4	1396	-	-
8	3	19	90.6	1035	1886	1980
9	3	19	92.2	1950	1759	1163
10	3	19	92.5	1108	1661	1358
11	2	19	79.5	1441	1957	-
12	2	19	76.3	1259	1876	-
13	1	19	65.7	1880	-	-
14	3	19	99.4	1971	1493	1004
15	3	19	89.5	1238	1700	1581
16	2	19	79.1	1906	1546	-
17	1	19	60	1019	-	-
18	3	19	90.3	1808	1034	1199
19	3	19	96.8	1869	1993	1967
20						



Long Pulse Radar Test Signal Test Signal Name: LP_Signal_05

Number of Bursts in Trial: 14

Numb	Number of Bursts in Trial: 14							
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)		
1	2	12	73.8	1686	1255	-		
2	3	12	87.2	1201	1621	1693		
3	3	12	94.4	1503	1529	1431		
4	3	12	99	1308	1366	1481		
5	3	12	96.5	1318	1418	1452		
6	2	12	76.6	1695	1170	-		
7	3	12	92.8	1304	1113	1835		
8	1	12	53.8	1068	-	-		
9	3	12	83.6	1384	1593	1212		
10	2	12	81.8	1395	1768	-		
11	1	12	60.2	1129	-	-		
12	1	12	55.1	1045	-	-		
13	2	12	81.8	1984	1703	-		
14	3	12	95.3	1992	1828	1932		
15								
16								
17								
18								
19								
20								



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_06
Number of Bursts in Trial: 13

Numi	per of Burst	s in Thai:	13			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	3	11	97.7	1350	1354	1424
2	3	11	93.6	1779	1273	1540
3	1	11	60	1065	-	-
4	1	11	64.8	1956	-	-
5	2	11	73.9	1390	1794	-
6	2	11	77.9	1670	1206	-
7	1	11	55.7	1942	-	-
8	3	11	83.9	1105	1853	1440
9	2	11	66.9	1819	1281	-
10	3	11	88.2	1734	1361	1371
11	2	11	79	1400	1522	-
12	2	11	79.4	1516	1031	-
13	3	11	96.4	1328	1845	1833
14						
15						
16						
17						
18						
19						
20						



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_07
Number of Bursts in Trial: 9

Number of Bursts in Trial: 9							
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)	
1	3	6	95.1	1436	1883	1146	
2	2	6	71.5	1669	1952	-	
3	1	6	62.5	1309	-	-	
4	3	6	88.5	1797	1846	1528	
5	2	6	70.7	1976	1714	-	
6	2	6	78.3	1943	1873	-	
7	3	6	95.6	1763	1887	1977	
8	1	6	63.1	1434	-	-	
9	3	6	83.7	1069	1236	1277	
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_08
Number of Bursts in Trial: 20

Num	Number of Bursts in Trial: 20								
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)			
1	3	20	86.9	1257	1010	1287			
2	1	20	58.7	1628	-	-			
3	3	20	88.4	1800	1214	1234			
4	1	20	56.4	1340	-	-			
5	2	20	78.4	1792	1243	-			
6	1	20	51.3	1416	-	-			
7	2	20	70.8	1645	1975	-			
8	1	20	58.8	1755	-	-			
9	2	20	82	1476	1356	-			
10	3	20	87.3	1650	1941	1834			
11	3	20	97.8	1898	1608	1523			
12	2	20	81.1	1696	1870	-			
13	2	20	68.1	1652	1323	-			
14	1	20	55.7	1814	-	-			
15	2	20	79.4	1078	1527	-			
16	1	20	64.2	1667	-	-			
17	3	20	86.2	1052	1038	1690			
18	1	20	62.3	1494	-	-			
19	3	20	91.1	1885	1460	1013			
20	3	20	89.9	1603	1592	1239			



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_09
Number of Bursts in Trial: 8

Num	ber of Burst	s in Trial:	8			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	2	6	70.2	1773	1471	-
2	1	6	56.2	1180	-	-
3	2	6	69.9	1042	1393	-
4	2	6	67	1569	1594	-
5	2	6	80.3	1292	1588	-
6	3	6	97.8	1338	1678	1114
7	2	6	82.3	1803	1185	-
8	2	6	71.1	1564	1164	-
9						
10						
11					-	-
12					-	-
13					-	-
14						
15						
16						
17						
18						
19						
20						



Long Pulse Radar Test Signal

Test Signal Name: LP_Signal_10
Number of Bursts in Trial: 14

Number of Bursts in Trial: 14							
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)	
1	3	12	93.3	1781	1456	1265	
2	3	12	89.5	1276	1002	1998	
3	2	12	76.9	1607	1538	-	
4	3	12	86.2	1261	1890	1231	
5	2	12	82.1	1559	1369	-	
6	1	12	63.9	1752	-	-	
7	1	12	56.7	1225	-	-	
8	1	12	51.3	1183	-	-	
9	2	12	76.5	1498	1486	-	
10	2	12	67.4	1235	1381	-	
11	3	12	99.6	1582	1629	1177	
12	1	12	54.4	1983	-	-	
13	1	12	63.1	1953	-	-	
14	1	12	58.1	1075	-	-	
15							
16							
17							
18							
19							
20							



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_11
Number of Bursts in Trial: 17

inumi	Number of Bursts in Trial: 17							
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)		
1	1	16	56.2	1389	-	-		
2	3	16	91.7	1227	1497	1722		
3	2	16	81.7	1437	1561	-		
4	1	16	65.2	1001	-	-		
5	2	16	76.9	1649	1267	1		
6	1	16	65.7	1962	-	-		
7	2	16	83.1	1242	1536	-		
8	2	16	74.3	1972	1030	1		
9	3	16	84.6	1148	1675	1683		
10	1	16	66	1398	-	ı		
11	1	16	54.4	1368	-	-		
12	2	16	73.2	1692	1156	-		
13	1	16	63.5	1508	-	-		
14	2	16	80.7	1506	1426	-		
15	3	16	88.8	1939	1738	1841		
16	2	16	71.3	1430	1705	-		
17	2	16	76.2	1182	1708	-		
18								
19								
20								



Long Pulse Radar Test Signal Test Signal Name: LP_Signal_12

Number of Bursts in Trial: 20

Num	Number of Bursts in Trial: 20								
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)			
1	2	20	80.6	1716	1419	-			
2	2	20	69	1197	1349	-			
3	3	20	99.8	1300	1756	1712			
4	1	20	65.5	1028	-	-			
5	3	20	92.5	1857	1534	1544			
6	1	20	60.4	1640	-	-			
7	1	20	61.5	1761	-	-			
8	3	20	99	1457	1908	1599			
9	1	20	54.1	1487	-	-			
10	3	20	99.1	1720	1314	1945			
11	2	20	78	1155	1829	-			
12	3	20	87.8	1812	1617	1159			
13	2	20	68.8	1458	1438	-			
14	1	20	62.7	1672	-	-			
15	3	20	86.7	1618	1422	1224			
16	2	20	76.8	1056	1934	-			
17	1	20	62	1006	-	-			
18	1	20	50	1884	-	-			
19	2	20	78.2	1330	1630	-			
20	3	20	85.3	1464	1955	1960			



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Long Pulse Radar Test Signal

Test Signal Name: LP_Signal_13
Number of Bursts in Trial: 18

Num	Number of Bursts in Trial: 18							
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)		
1	1	18	65	1066	-	-		
2	2	18	70.8	1929	1636	-		
3	1	18	66.5	1094	-	-		
4	3	18	88	1855	1252	1111		
5	2	18	69	1290	1859	-		
6	1	18	54.9	1551	-	-		
7	1	18	60.8	2000	-	-		
8	2	18	81.8	1585	1864	-		
9	1	18	58.8	1130	-	-		
10	1	18	50.4	1169	-	-		
11	2	18	76	1325	1445	-		
12	1	18	62.6	1530	-	-		
13	1	18	55.1	1851	-	-		
14	3	18	91.2	1181	1302	1966		
15	2	18	68.9	1348	1355	-		
16	3	18	85.4	1537	1758	1109		
17	1	18	63.4	1011	-	-		
18	3	18	92.7	1122	1333	1584		
19								
20								



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_14
Number of Bursts in Trial: 14

TTOTTIC	or or burst	Jili Illai.	17			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	1	12	63.7	1830	-	-
2	2	12	81.3	1110	1746	-
3	2	12	70.2	1334	1187	-
4	1	12	66.3	1587	-	-
5	2	12	72.8	1578	1745	-
6	2	12	66.7	1694	1931	-
7	1	12	55.1	1284	-	-
8	3	12	86.5	1089	1490	1762
9	1	12	65.7	1084	-	-
10	1	12	53.2	1268	-	-
11	2	12	67.8	1625	1411	-
12	3	12	96.5	1576	1799	1233
13	1	12	51.4	1373	-	-
14	2	12	80.7	1098	1849	-
15						
16						
17						
18						
19						
20						



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_15

Number of Bursts in Trial: 14

Numi	per of Bursts	s in Trial:	14			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	1	12	60.5	1668	-	-
2	3	12	86	1786	1666	1266
3	1	12	61.2	1228	-	-
4	1	12	59.8	1204	-	-
5	1	12	52.5	1021	-	-
6	1	12	61.7	1634	-	-
7	3	12	96.5	1741	1875	1296
8	3	12	87.6	1093	1250	1172
9	3	12	99.6	1215	1813	1820
10	2	12	79.7	1327	1512	-
11	3	12	90.2	1589	1145	1082
12	1	12	53.7	1136	-	-
13	2	12	73	1706	1526	-
14	1	12	65.4	1420	-	-
15						
16						
17						
18						
19						
20						



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_16
Number of Bursts in Trial: 16

Nulli	Dei Oi Duisi	o III THAI.	10			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	2	15	82.6	1347	1485	-
2	2	15	77.6	1312	1500	-
3	3	15	93.8	1062	1005	1749
4	1	15	51.3	1809	-	-
5	1	15	63.4	1699	-	-
6	2	15	69.4	1606	1219	-
7	3	15	86.3	1102	1878	1728
8	3	15	97	1192	1858	1772
9	1	15	65.1	1363	-	-
10	3	15	98.8	1083	1567	1961
11	3	15	98.1	1473	1271	1263
12	3	15	99.9	1780	1871	1249
13	2	15	82.9	1785	1081	-
14	2	15	82.5	1501	1921	-
15	3	15	89.2	1767	1357	1479
16	1	15	57.5	1891	-	-
17						
18						
19						
20						



Long Pulse Radar Test Signal

Test Signal Name: LP_Signal_17

Number of Bursts in Trial: 12

Num	per of Burst	s in Trial:	12			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	1	10	63.9	1331	-	-
2	1	10	62.4	1897	-	-
3	3	10	99.1	1769	1832	1647
4	3	10	95.4	1991	1085	1937
5	1	10	52	1029	-	-
6	2	10	69.1	1637	1611	-
7	2	10	80	1447	1685	-
8	1	10	59.1	1635	-	-
9	2	10	82.8	1134	1080	-
10	1	10	51.6	1138	-	-
11	3	10	96.2	1165	1754	1269
12	2	10	76.1	1406	1818	-
13						
14						
15						
16						
17						
18						
19						
20						



Long Pulse Radar Test Signal Test Signal Name: LP_Signal_18

Number of Bursts in Trial: 14

Num	Number of Bursts in Trial: 14								
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)			
1	2	12	81.7	1946	1868	-			
2	3	12	90.5	1414	1453	1305			
3	2	12	76.2	2000	1852	-			
4	2	12	69.1	1351	1071	-			
5	3	12	93.7	1865	1196	1782			
6	3	12	89.7	1429	1948	1402			
7	1	12	53.9	1070	-	-			
8	3	12	88.2	1632	1940	1689			
9	1	12	59.4	1733	-	-			
10	1	12	66.4	1285	-	-			
11	2	12	83	1321	1591	-			
12	2	12	82	1912	1012	-			
13	3	12	94.4	1698	1784	1303			
14	1	12	63.6	1175	-	-			
15									
16									
17									
18									
19									
20									



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Long Pulse Radar Test Signal

Test Signal Name: LP_Signal_19
Number of Bursts in Trial: 12

Number of Bursts in Trial: 12								
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)		
1	2	10	70.9	1736	1367	-		
2	1	10	62.4	1193	-	-		
3	1	10	61.8	1596	-	-		
4	1	10	52.6	1646	-	-		
5	2	10	78.9	1049	1639	-		
6	1	10	63.9	1679	-	-		
7	3	10	98.5	1627	1731	1442		
8	3	10	92	1294	1547	1119		
9	1	10	65.8	1386	-	-		
10	2	10	77.7	1987	1964	-		
11	1	10	54.6	1553	-	-		
12	2	10	77.7	1171	1413	-		
13								
14								
15								
16								
17								
18								
19								
20								



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_20
Number of Bursts in Trial: 20

INUITI	Dei Oi Duist	o III Tilai.	20			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	1	20	63.4	1899	-	-
2	1	20	63.5	1633	-	-
3	3	20	97.6	1815	1198	1488
4	3	20	84.7	1626	1026	1326
5	2	20	68.5	1469	1684	-
6	1	20	61.8	1408	-	-
7	2	20	73.2	1735	1125	-
8	1	20	60.2	1468	-	-
9	1	20	65.2	1519	-	-
10	2	20	74.6	1954	1654	-
11	2	20	72.6	1394	1096	-
12	2	20	78.9	1343	1843	-
13	1	20	56.2	1003	-	-
14	3	20	93.2	1433	1299	1324
15	2	20	78.6	1404	1539	-
16	1	20	50.9	1570	-	-
17	3	20	98.2	1346	1179	1510
18	3	20	97.5	1616	1360	1710
19	2	20	79.5	1822	1721	-
20	2	20	67	1554	1237	-



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_21
Number of Bursts in Trial: 9

Number of Bursts in Trial: 9								
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)		
1	1	7	51	1893	-	-		
2	3	7	88.5	1270	1664	1623		
3	3	7	98.2	1979	1826	1128		
4	2	7	67.5	1417	1586	-		
5	3	7	97.4	1642	1121	1770		
6	2	7	80.2	1816	1060	-		
7	2	7	72.8	1619	1203	-		
8	2	7	82.2	1499	1848	-		
9	2	7	77.6	1562	1573	-		
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_22
Number of Bursts in Trial: 20

Numi	Number of Bursts in Trial: 20									
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)				
1	3	20	89.8	1742	1968	1036				
2	2	20	74.7	1850	1306	-				
3	3	20	98.5	1123	1336	1791				
4	1	20	64.4	1740	-	-				
5	1	20	66	1000	-	-				
6	2	20	76.3	1521	1928	-				
7	3	20	90.4	1764	1383	1726				
8	3	20	90.6	1896	1653	1697				
9	2	20	74.8	1995	1938	-				
10	3	20	98	1251	1520	1725				
11	2	20	71.2	1775	1240	-				
12	1	20	58.8	1195	-	-				
13	3	20	84.1	1475	1472	1590				
14	3	20	98.4	1274	1282	1918				
15	3	20	96.4	1131	1739	1009				
16	3	20	89.9	1484	1283	1412				
17	2	20	82.9	1729	1571	-				
18	3	20	96.5	1978	1478	1555				
19	3	20	85.7	1872	1737	1847				
20	3	20	85.4	1387	1151	1531				



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_23
Number of Bursts in Trial: 10

Numi	Number of Bursts in Trial: 10								
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)			
1	3	8	97.6	1568	1676	1023			
2	3	8	93.9	1407	1682	1209			
3	2	8	68.3	1807	1365	ı			
4	3	8	98.3	1107	1882	1524			
5	3	8	87.6	1557	1342	1910			
6	2	8	76.6	1033	1048	-			
7	2	8	74.9	1101	1443	1			
8	1	8	65.3	1341	-	1			
9	2	8	80	1220	1015	-			
10	3	8	87.4	1765	1316	1377			
11						-			
12						-			
13									
14									
15									
16									
17									
18									
19									
20									



Long Pulse Radar Test Signal

Test Signal Name: LP_Signal_24
Number of Bursts in Trial: 17

Num	ber of Burst	s in Trial:	17			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	3	17	88.4	1279	1317	1150
2	3	17	89.1	1288	1660	1789
3	3	17	91	1385	1988	1461
4	2	17	82.6	1915	1059	-
5	2	17	75.5	1662	1982	-
6	3	17	99.9	1222	1796	1717
7	2	17	74.1	1877	1917	-
8	1	17	64.5	1380	-	-
9	3	17	90.3	1032	1613	1191
10	2	17	66.9	1158	1930	-
11	3	17	88.2	1753	1399	1507
12	1	17	60.4	1307	-	-
13	2	17	73.3	1152	1543	-
14	3	17	99.6	1207	1491	1297
15	1	17	58.2	1024	-	-
16	1	17	58.2	1925	-	-
17	2	17	66.9	1994	1090	-
18						
19						
20						



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_25
Number of Bursts in Trial: 9

Numb	Number of Bursts in Trial: 9								
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)			
1	3	7	90.1	1465	1459	1862			
2	1	7	51.8	1730	-	-			
3	2	7	77.7	1874	1388	-			
4	1	7	64.4	1401	-	-			
5	3	7	83.7	1517	1861	1612			
6	3	7	87.1	1981	1161	1541			
7	3	7	96.9	1143	1757	1115			
8	2	7	80.1	1232	1574	-			
9	3	7	95.9	1051	1202	1344			
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_26
Number of Bursts in Trial: 15

Num	ber of Burst	s in Triai:	15			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	1	14	56.4	1379	-	-
2	1	14	50.2	1827	-	-
3	2	14	76.8	1189	1788	-
4	3	14	89.4	1713	1774	1743
5	1	14	51.3	1926	-	-
6	2	14	75	1958	1194	-
7	1	14	60.5	1631	-	-
8	3	14	87.5	1483	1825	1329
9	1	14	59.6	1495	-	-
10	2	14	82.2	1604	1421	-
11	2	14	67.8	1139	1482	-
12	1	14	51.5	1018	-	-
13	2	14	72.9	1135	1332	-
14	3	14	96.5	1116	1291	1665
15	1	14	65.7	1256	-	-
16						
17						
18						
19						
20						



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_27
Number of Bursts in Trial: 12

Num	per of Burst	s in Thai:	12			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	2	11	68.4	1210	1254	-
2	1	11	56.2	1106	-	-
3	2	11	68.7	1989	1167	-
4	3	11	97.2	1963	1037	1860
5	3	11	87.1	1120	1335	1563
6	2	11	70.6	1298	1502	-
7	2	11	68.7	1747	1446	-
8	3	11	90	1315	1072	1226
9	2	11	79.4	1577	1311	-
10	1	11	59.6	1176	-	-
11	3	11	84.9	1027	1727	1260
12	1	11	63.5	1605	-	-
13						
14						
15						
16						
17						
18						
19						
20						



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_28
Number of Bursts in Trial: 10

Num	Number of Bursts in Trial: 10								
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)			
1	2	7	72.9	1622	1104	-			
2	1	7	54.6	1609	-	-			
3	1	7	51.9	1707	-	-			
4	3	7	94.2	1173	1515	1688			
5	1	7	52.5	1077	-	-			
6	2	7	79.6	1054	1245	-			
7	3	7	93.5	1575	1141	1046			
8	2	7	73.9	1718	1638	-			
9	3	7	87.7	1126	1462	1310			
10	1	7	50.8	1154	-	-			
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									



Long Pulse Radar Test Signal
Test Signal Name: LP_Signal_29
Number of Bursts in Trial: 13

Number of Bursts in Trial: 13							
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)	
1	1	12	65.6	1074	-	-	
2	1	12	63.2	1477	-	-	
3	3	12	99.9	1053	1805	1657	
4	3	12	85.8	1293	1680	1184	
5	3	12	90	1200	1511	1127	
6	2	12	76.1	1017	1133	-	
7	3	12	90.4	1043	1088	1362	
8	1	12	65.4	1610	-	-	
9	2	12	67.1	1824	1410	-	
10	1	12	55.3	1278	-	-	
11	1	12	61.9	1403	-	-	
12	3	12	96.1	1923	1216	1744	
13	2	12	77.5	1558	1253	-	
14							
15							
16							
17							
18							
19							



Long Pulse Radar Test Signal Test Signal Name: LP_Signal_30

Number of Bursts in Trial: 1

INumbe	r of Bursts II	n i riai:	10			
Burst	Pulses per Burst	Chrip (MHz)	Pulse Width(us)	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
1	2	8	68.4	1190	1907	-
2	3	8	99.7	1996	1806	1079
3	3	8	93	1777	1092	1337
4	2	8	75.3	1548	1583	-
5	3	8	87.7	1715	1889	1470
6	1	8	60.2	1008	-	-
7	3	8	97.5	1658	1514	1748
8	2	8	79.7	1532	1793	-
9	1	8	66.4	1014	-	-
10	1	8	61.4	1322	-	-
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						



A.2 The Frequency Hopping Radar pattern

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_01								
Frequency (MHz)	0	1	2	3	4			
0	5385	5718	5545	5371	5537			
5	5323	5519	5588	5621	5549			
10	5327	5659	5489	5570	5584			
15	5336	5311	5303	5647	5458			
20	5612	5354	5716	5479	5348			
25	5438	5337	5335	5574	5601			
30	5265	5713	5577	5653	5715			
35	5307	5432	5674	5562	5506			
40	5306	5258	5345	5631	5632			
45	5514	5320	5568	5696	5628			
50	5602	5428	5708	5378	5349			
55	5413	5273	5446	5333	5531			
60	5264	5367	5534	5339	5332			
65	5561	5580	5624	5251	5459			
70	5563	5391	5402	5701	5259			
75	5618	5573	5538	5271	5364			
80	5328	5353	5252	5496	5670			
85	5684	5305	5269	5463	5520			
90	5597	5719	5325	5539	5639			
95	5550	5678	5465	5552	5664			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_02									
Frequency (MHz)	0	1	2	3	4				
0	5543	5482	5481	5435	5282				
5	5365	5541	5566	5309	5281				
10	5636	5448	5530	5290	5605				
15	5424	5438	5406	5692	5650				
20	5620	5423	5279	5471	5321				
25	5704	5664	5538	5678	5635				
30	5307	5699	5534	5393	5489				
35	5505	5474	5358	5695	5572				
40	5428	5286	5396	5629	5346				
45	5437	5626	5274	5418	5381				
50	5604	5284	5467	5550	5357				
55	5461	5400	5426	5253	5710				
60	5399	5639	5484	5623	5350				
65	5675	5398	5298	5283	5680				
70	5720	5718	5422	5514	5705				
75	5711	5708	5568	5277	5359				
80	5272	5464	5651	5305	5580				
85	5684	5312	5459	5715	5402				
90	5337	5601	5370	5445	5649				
95	5472	5654	5660	5672	5420				

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Hopping Frequency Sequence Name: HOP_FREQ_SEQ_03								
Frequency (MHz)	0	1	2	3	4			
0	5323	5721	5417	5596	5599			
5	5504	5466	5641	5472	5585			
10	5567	5712	5571	5485	5626			
15	5415	5565	5509	5262	5367			
20	5628	5589	5695	5560	5294			
25	5592	5613	5266	5404	5669			
30	5446	5588	5491	5511	5325			
35	5381	5629	5434	5609	5411			
40	5608	5699	5636	5275	5658			
45	5520	5587	5327	5683	5257			
50	5305	5335	5556	5373	5679			
55	5552	5616	5547	5584	5528			
60	5389	5704	5471	5310	5569			
65	5648	5624	5605	5553	5483			
70	5467	5706	5649	5490	5664			
75	5680	5542	5689	5488	5678			
80	5533	5523	5677	5281	5651			
85	5719	5543	5409	5330	5657			
90	5405	5690	5436	5694	5715			
95	5425	5526	5644	5575	5377			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_04								
Frequency (MHz)	0	1	2	3	4			
0	5578	5582	5353	5282	5344			
5	5546	5488	5716	5635	5317			
10	5498	5501	5612	5583	5647			
15	5503	5692	5515	5685	5559			
20	5539	5658	5636	5552	5267			
25	5480	5465	5469	5508	5703			
30	5574	5448	5251	5415	5523			
35	5277	5569	5522	5587	5620			
40	5347	5691	5637	5401	5623			
45	5638	5603	5645	5380	5570			
50	5608	5481	5386	5671	5265			
55	5686	5331	5366	5555	5657			
60	5554	5271	5400	5611	5374			
65	5573	5373	5340	5445	5286			
70	5314	5346	5466	5649	5591			
75	5588	5670	5590	5495	5674			
80	5476	5561	5601	5517	5284			
85	5333	5318	5479	5419	5257			
90	5510	5542	5572	5678	5672			
95	5375	5621	5410	5504	5500			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_05								
Frequency (MHz)	0	1	2	3	4			
0	5358	5346	5289	5443	5661			
5	5588	5413	5316	5701	5524			
10	5332	5290	5653	5303	5668			
15	5591	5722	5618	5255	5276			
20	5547	5349	5674	5641	5715			
25	5271	5414	5672	5612	5262			
30	5530	5463	5405	5466	5567			
35	5343	5416	5660	5318	5362			
40	5534	5299	5575	5544	5620			
45	5511	5686	5703	5433	5360			
50	5484	5657	5437	5356	5494			
55	5470	5453	5640	5521	5563			
60	5526	5311	5719	5691	5707			
65	5558	5522	5409	5647	5467			
70	5708	5300	5347	5345	5582			
75	5711	5256	5651	5420	5326			
80	5570	5279	5671	5457	5403			
85	5566	5696	5385	5335	5581			
90	5675	5260	5324	5407	5361			
95	5431	5274	5535	5440	5551			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_06								
Frequency (MHz)	0	1	2	3	4			
0	5613	5585	5700	5604	5406			
5	5630	5435	5391	5389	5353			
10	5263	5554	5694	5498	5689			
15	5679	5374	5721	5300	5468			
20	5555	5418	5615	5633	5688			
25	5634	5266	5303	5716	5296			
30	5669	5352	5362	5681	5341			
35	5541	5458	5276	5589	5515			
40	5448	5500	5382	5513	5309			
45	5714	5440	5598	5294	5664			
50	5722	5358	5488	5445	5695			
55	5414	5641	5594	5711	5497			
60	5409	5636	5539	5360	5504			
65	5398	5471	5510	5270	5305			
70	5286	5449	5671	5321	5490			
75	5356	5302	5632	5672	5339			
80	5351	5443	5621	5668	5457			
85	5342	5626	5413	5350	5289			
90	5354	5425	5330	5441	5540			
95	5291	5590	5575	5338	5530			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_07								
Frequency (MHz)	0	1	2	3	4			
0	5296	5349	5636	5290	5723			
5	5294	5457	5466	5552	5560			
10	5669	5440	5260	5693	5710			
15	5670	5501	5345	5660	5584			
20	5556	5722	5661	5425	5593			
25	5506	5330	5711	5338	5319			
30	5324	5493	5361	5597	5367			
35	5482	5668	5459	5339	5562			
40	5451	5549	5272	5578	5377			
45	5442	5512	5614	5534	5539			
50	5518	5261	5354	5548	5426			
55	5676	5371	5569	5574	5581			
60	5283	5450	5599	5420	5384			
65	5689	5402	5474	5369	5452			
70	5423	5297	5500	5362	5476			
75	5445	5613	5449	5607	5306			
80	5568	5683	5360	5659	5589			
85	5508	5340	5602	5590	5336			
90	5378	5503	5649	5308	5645			
95	5559	5412	5413	5563	5307			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_08								
Frequency (MHz)	0	1	2	3	4			
0	5551	5588	5572	5451	5468			
5	5336	5382	5541	5715	5292			
10	5503	5704	5398	5413	5256			
15	5283	5628	5452	5293	5377			
20	5474	5653	5497	5714	5634			
25	5313	5542	5709	5546	5364			
30	5278	5702	5276	5539	5267			
35	5656	5261	5458	5443	5373			
40	5645	5314	5708	5676	5558			
45	5460	5305	5495	5399	5490			
50	5710	5590	5623	5341	5680			
55	5502	5616	5342	5601	5264			
60	5678	5584	5396	5422	5369			
65	5420	5424	5672	5351	5355			
70	5455	5272	5273	5459	5331			
75	5499	5491	5594	5701	5559			
80	5388	5674	5565	5403	5263			
85	5501	5649	5700	5658	5294			
90	5375	5416	5280	5412	5385			
95	5661	5543	5609	5391	5615			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_09								
Frequency (MHz)	0	1	2	3	4			
0	5331	5352	5508	5612	5310			
5	5378	5404	5616	5403	5596			
10	5434	5493	5439	5511	5277			
15	5371	5658	5458	5338	5666			
20	5482	5344	5535	5328	5704			
25	5579	5394	5437	5650	5398			
30	5417	5591	5708	5279	5419			
35	5379	5303	5646	5549	5287			
40	5589	5253	5705	5457	5441			
45	5543	5266	5548	5664	5366			
50	5411	5641	5334	5639	5527			
55	5255	5456	5709	5692	5313			
60	5429	5568	5607	5410	5623			
65	5318	5359	5256	5564	5629			
70	5715	5341	5555	5724	5321			
75	5678	5619	5634	5575	5478			
80	5572	5644	5363	5432	5562			
85	5598	5263	5440	5526	5345			
90	5711	5445	5349	5645	5295			
95	5280	5624	5507	5273	5718			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_10								
Frequency (MHz)	0	1	2	3	4			
0	5586	5591	5444	5676	5530			
5	5420	5329	5691	5469	5328			
10	5268	5282	5480	5706	5298			
15	5459	5310	5561	5383	5393			
20	5413	5476	5320	5677	5467			
25	5343	5640	5279	5432	5577			
30	5665	5494	5668	5674	5442			
35	5262	5345	5274	5428	5433			
40	5643	5697	5702	5437	5421			
45	5626	5324	5601	5551	5620			
50	5587	5692	5423	5365	5471			
55	5346	5410	5424	5511	5284			
60	5384	5594	5513	5439	5333			
65	5385	5446	5267	5395	5466			
70	5359	5335	5312	5327	5558			
75	5445	5700	5280	5647	5264			
80	5302	5653	5633	5682	5425			
85	5527	5495	5559	5318	5641			
90	5575	5512	5491	5299	5434			
95	5610	5451	5404	5456	5608			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_11								
Frequency (MHz)	0	1	2	3	4			
0	5269	5355	5380	5362	5372			
5	5559	5351	5291	5632	5535			
10	5674	5546	5521	5426	5319			
15	5450	5437	5664	5331	5575			
20	5401	5579	5417	5409	5650			
25	5670	5271	5383	5466	5501			
30	5622	5612	5345	5397	5581			
35	5353	5713	5524	5687	5267			
40	5516	5462	5321	5366	5709			
45	5382	5654	5341	5496	5288			
50	5268	5512	5663	5318	5534			
55	5364	5614	5330	5633	5513			
60	5284	5458	5634	5647	5691			
65	5431	5298	5629	5613	5481			
70	5410	5658	5294	5714	5616			
75	5384	5348	5317	5681	5655			
80	5556	5544	5599	5635	5704			
85	5359	5350	5547	5254	5300			
90	5457	5320	5312	5416	5473			
95	5390	5592	5400	5609	5449			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_12							
Frequency (MHz)	0	1	2	3	4		
0	5524	5594	5316	5523	5592		
5	5601	5276	5366	5320	5267		
10	5605	5432	5562	5621	5340		
15	5538	5564	5292	5376	5409		
20	5270	5455	5401	5623	5522		
25	5474	5584	5500	5543	5355		
30	5579	5352	5692	5720	5444		
35	5509	5677	5581	5599	5519		
40	5318	5673	5381	5317	5343		
45	5610	5703	5372	5464	5319		
50	5486	5262	5722	5329	5527		
55	5604	5642	5449	5578	5460		
60	5374	5470	5640	5370	5508		
65	5521	5416	5553	5396	5661		
70	5555	5488	5504	5491	5615		
75	5662	5330	5462	5283	5718		
80	5544	5598	5324	5304	5452		
85	5465	5463	5354	5669	5525		
90	5587	5445	5576	5298	5588		
95	5552	5550	5466	5417	5566		



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_13								
Frequency (MHz)	0	1	2	3	4			
0	5304	5358	5252	5684	5434			
5	5643	5298	5441	5483	5571			
10	5439	5696	5603	5341	5361			
15	5626	5691	5395	5421	5484			
20	5320	5339	5396	5490	5596			
25	5509	5471	5677	5688	5534			
30	5682	5536	5567	5271	5415			
35	5287	5535	5305	5355	5612			
40	5420	5457	5370	5315	5602			
45	5400	5401	5663	5493	5723			
50	5543	5690	5309	5584	5435			
55	5272	5519	5346	5575	5674			
60	5614	5445	5410	5383	5671			
65	5589	5406	5340	5316	5694			
70	5625	5382	5286	5531	5632			
75	5527	5537	5440	5718	5447			
80	5306	5453	5525	5380	5658			
85	5516	5667	5258	5568	5630			
90	5566	5291	5551	5634				
95	5500	5657	5470	5655	5273			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_14								
Frequency (MHz)	0	1	2	3	4			
0	5559	5597	5663	5370	5654			
5	5685	5698	5516	5549	5303			
10	5485	5644	5439	5382	5714			
15	5721	5401	5466	5676	5328			
20	5505	5337	5482	5569	5300			
25	5323	5405	5317	5568	5724			
30	5705	5493	5307	5520	5710			
35	5426	5626	5673	5605	5526			
40	5356	5387	5395	5610	5312			
45	5434	5341	5483	5459	5716			
50	5380	5502	5719	5421	5510			
55	5528	5623	5701	5709	5640			
60	5546	5304	5390	5339	5684			
65	5266	5494	5538	5345	5550			
70	5683	5497	5319	5368	5289			
75	5694	5507	5591	5329	5647			
80	5680	5577	5691	5453	5499			
85	5611	5450	5720	5350	5621			
90	5708	5632	5309	5470	5320			
95	5572	5325	5336	5646	5555			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_15								
Frequency (MHz)	0	1	2	3	4			
0	5339	5361	5599	5531	5496			
5	5349	5720	5591	5712	5510			
10	5301	5274	5685	5634	5403			
15	5705	5373	5504	5414	5393			
20	5336	5574	5375	5571	5542			
25	5663	5272	5608	5421	5602			
30	5291	5691	5450	5425	5672			
35	5530	5565	5469	5283	5440			
40	5670	5470	5333	5309	5363			
45	5699	5566	5420	5294	5645			
50	5378	5472	5490	5558	5424			
55	5459	5457	5432	5646	5607			
60	5687	5695	5487	5381	5382			
65	5478	5678	5391	5451	5389			
70	5543	5483	5550	5298	5292			
75	5251	5371	5563	5280	5300			
80	5529	5447	5350	5636	5681			
85	5328	5500	5263	5589	5290			
90	5485	5578	5359	5693	5638			
95	5610	5625	5467	5331	5386			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_16								
Frequency (MHz)	0	1	2	3	4			
0	5497	5600	5535	5692	5716			
5	5391	5645	5666	5400	5339			
10	5610	5538	5348	5354	5424			
15	5318	5500	5607	5459	5585			
20	5722	5265	5316	5563	5515			
25	5454	5599	5714	5622	5539			
30	5430	5580	5407	5640	5446			
35	5253	5704	5436	5451	5509			
40	5553	5649	5518	5403	5292			
45	5679	5478	5347	5532	5254			
50	5596	5523	5579	5631	5319			
55	5427	5512	5517	5656	5586			
60	5634	5377	5433	5255	5421			
65	5417	5592	5273	5481	5560			
70	5437	5392	5412	5394	5623			
75	5673	5536	5367	5444	5635			
80	5644	5520	5465	5314	5488			
85	5650	5584	5296	5277	5665			
90	5706	5462	5310	5489	5274			
95	5315	5350	5694	5591	5344			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_17							
Frequency (MHz)	0	1	2	3	4		
0	5277	5364	5471	5281	5558		
5	5433	5667	5266	5563	5546		
10	5541	5424	5389	5549	5445		
15	5406	5627	5710	5504	5399		
20	5255	5334	5257	5652	5488		
25	5342	5548	5442	5251	5573		
30	5472	5469	5380	5598	5271		
35	5521	5536	5589	5365	5348		
40	5258	5587	5283	5400	5599		
45	5659	5322	5508	5297	5574		
50	5668	5454	5641	5615	5466		
55	5707	5475	5362	5715	5324		
60	5310	5259	5676	5719	5385		
65	5356	5640	5284	5632	5423		
70	5395	5619	5338	5468	5614		
75	5435	5537	5520	5686	5317		
80	5531	5655	5441	5452	5631		
85	5417	5704	5333	5268	5513		
90	5340	5590	5330	5360	5401		
95	5294	5720	5690	5289	5592		

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_18								
Frequency (MHz)	0	1	2	3	4			
0	5532	5603	5407	5442	5303			
5	5572	5592	5341	5629	5278			
10	5472	5688	5430	5269	5466			
15	5494	5279	5338	5549	5591			
20	5263	5500	5295	5644	5461			
25	5705	5400	5645	5355	5607			
30	5514	5455	5321	5595	5372			
35	5271	5410	5612	5429	5364			
40	5284	5525	5523	5397	5528			
45	5639	5340	5594	5356	5684			
50	5384	5473	5625	5379	5655			
55	5585	5328	5420	5422	5294			
60	5333	5369	5489	5267	5714			
65	5657	5622	5445	5334	5392			
70	5634	5435	5562	5326	5409			
75	5495	5468	5314	5427	5486			
80	5555	5583	5501	5652	5573			
85	5695	5647	5631	5259	5667			
90	5332	5676	5319	5286	5506			
95	5505	5693	5717	5510	5311			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_19							
Frequency (MHz)	0	1	2	3	4		
0	5312	5464	5343	5603	5620		
5	5614	5416	5317	5582	5306		
10	5477	5471	5367	5487	5485		
15	5309	5344	5497	5308	5649		
20	5569	5711	5258	5434	5496		
25	5252	5373	5459	5641	5653		
30	5278	5713	5524	5566	5549		
35	5703	5700	5517	5290	5598		
40	5424	5463	5288	5394	5360		
45	5619	5423	5555	5409	5474		
50	5260	5676	5468	5478	5432		
55	5516	5374	5612	5491	5682		
60	5401	5276	5546	5483	5665		
65	5268	5283	5428	5466	5327		
70	5365	5398	5492	5498	5386		
75	5455	5675	5251	5579	5429		
80	5431	5354	5384	5403	5338		
85	5534	5576	5273	5704	5670		
90	5699	5301	5502	5522	5328		
95	5355	5280	5631	5625	5323		

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_20								
Frequency (MHz)	0	1	2	3	4			
0	5470	5703	5279	5289	5365			
5	5656	5539	5491	5480	5314			
10	5712	5266	5512	5562	5508			
15	5573	5436	5447	5542	5500			
20	5657	5260	5652	5250	5407			
25	5384	5676	5576	5660	5675			
30	5695	5708	5710	5453	5298			
35	5591	5416	5496	5670	5679			
40	5437	5507	5401	5431	5391			
45	5599	5506	5613	5462	5361			
50	5611	5350	5252	5557	5301			
55	5376	5704	5328	5327	5310			
60	5653	5530	5441	5254	5378			
65	5309	5469	5707	5367	5597			
70	5546	5567	5478	5598	5641			
75	5345	5424	5320	5297	5560			
80	5681	5444	5610	5451	5466			
85	5335	5515	5690	5619	5509			
90	5324	5307	5524	5360	5705			
95	5713	5631	5410	5264	5529			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_21								
Frequency (MHz)	0	1	2	3	4			
0	5250	5467	5690	5450	5682			
5	5698	5561	5566	5643	5521			
10	5546	5530	5553	5282	5529			
15	5661	5563	5550	5587	5692			
20	5665	5329	5593	5339	5380			
25	5650	5528	5289	5709	5262			
30	5694	5667	5668	5584	5255			
35	5507	5389	5445	5276	5687			
40	5671	5485	5693	5579	5589			
45	5515	5626	5390	5526	5303			
50	5646	5599	5417	5517	5604			
55	5624	5659	5606	5674	5685			
60	5707	5557	5292	5656	5403			
65	5508	5392	5349	5639	5464			
70	5601	5393	5717	5304	5296			
75	5440	5541	5361	5554	5391			
80	5615	5332	5437	5357	5275			
85	5336	5474	5278	5555	5722			
90	5525	5711	5272	5644	5265			
95	5459	5465	5723	5427	5486			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_22								
Frequency (MHz)	0	1	2	3	4			
0	5505	5706	5626	5611	5427			
5	5362	5486	5641	5709	5350			
10	5477	5416	5594	5550	5274			
15	5690	5653	5535	5409	5576			
20	5495	5631	5331	5353	5538			
25	5410	5393	5268	5401	5583			
30	5624	5408	5699	5404	5394			
35	5598	5660	5604	5590	5295			
40	5277	5436	5482	5525	5462			
45	5672	5632	5568	5513	5266			
50	5702	5354	5357	5325	5642			
55	5605	5711	5707	5423	5595			
60	5313	5296	5619	5517	5533			
65	5503	5493	5342	5718	5284			
70	5627	5547	5701	5717	5693			
75	5263	5265	5463	5522	5613			
80	5664	5647	5304	5689	5329			
85	5574	5340	5713	5431	5328			
90	5542	5339	5684	5526	5476			
95	5520	5422	5368	5446	5650			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_23							
Frequency (MHz)	0	1	2	3	4		
0	5285	5470	5562	5297	5269		
5	5404	5508	5716	5397	5557		
10	5408	5680	5635	5672	5571		
15	5265	5342	5281	5580	5601		
20	5584	5661	5572	5420	5326		
25	5329	5613	5497	5302	5443		
30	5569	5581	5526	5376	5602		
35	5533	5689	5456	5276	5518		
40	5378	5690	5579	5479	5454		
45	5442	5280	5621	5303	5617		
50	5403	5405	5446	5623	5489		
55	5696	5665	5325	5620	5469		
60	5461	5546	5694	5554	5550		
65	5430	5704	5566	5697	5612		
70	5583	5629	5503	5390	5677		
75	5428	5468	5277	5294	5718		
80	5298	5307	5283	5380	5345		
85	5386	5493	5575	5313	5320		
90	5347	5638	5266	5270	5471		
95	5693	5535	5384	5662	5664		

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_24								
Frequency (MHz)	0	1	2	3	4			
0	5540	5709	5498	5458	5489			
5	5446	5433	5316	5560	5289			
10	5717	5469	5298	5295	5592			
15	5353	5372	5287	5625	5318			
20	5255	5513	5412	5299	5692			
25	5656	5341	5698	5336	5485			
30	5538	5266	5422	5575	5305			
35	5252	5526	5432	5365	5461			
40	5531	5344	5476	5286	5363			
45	5273	5577	5665	5493	5579			
50	5456	5535	5409	5619	5515			
55	5439	5440	5474	5626	5606			
60	5278	5282	5492	5517	5503			
65	5414	5285	5708	5477	5519			
70	5329	5415	5548	5581	5703			
75	5675	5484	5642	5312	5684			
80	5340	5701	5718	5455	5261			
85	5650	5334	5545	5351	5655			
90	5668	5495	5510	5630	5297			
95	5693	5704	5464	5268	5683			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_25							
Frequency (MHz)	0	1	2	3	4		
0	5698	5473	5531	5522	5331		
5	5488	5455	5391	5723	5593		
10	5648	5258	5339	5490	5613		
15	5441	5499	5390	5670	5607		
20	5503	5421	5551	5501	5272		
25	5580	5605	5544	5327	5370		
30	5527	5347	5495	5481	5302		
35	5620	5714	5493	5679	5443		
40	5641	5469	5584	5690	5402		
45	5446	5709	5630	5280	5507		
50	5624	5269	5597	5573	5705		
55	5411	5603	5316	5585	5583		
60	5438	5718	5549	5353	5592		
65	5716	5511	5646	5505	5332		
70	5264	5524	5615	5453	5348		
75	5343	5465	5419	5325	5699		
80	5500	5684	5621	5394	5435		
85	5288	5283	5710	5357	5689		
90	5550	5685	5378	5591	5683		
95	5369	5662	5363	5420	5502		

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_26								
Frequency (MHz)	0	1	2	3	4			
0	5478	5712	5467	5683	5551			
5	5627	5380	5466	5411	5325			
10	5579	5522	5685	5634	5529			
15	5626	5493	5618	5324	5511			
20	5490	5492	5720	5371	5457			
25	5650	5431	5404	5666	5333			
30	5452	5696	5440	5378	5584			
35	5416	5357	5518	5724	5407			
40	5349	5567	5619	5382	5292			
45	5342	5623	5456	5558	5713			
50	5470	5699	5310	5527	5420			
55	5455	5257	5481	5496	5417			
60	5506	5541	5498	5389	5327			
65	5692	5718	5588	5335	5491			
70	5500	5574	5422	5486	5446			
75	5435	5721	5388	5563	5695			
80	5501	5524	5711	5284	5483			
85	5717	5273	5578	5400	5363			
90	5723	5616	5641	5265	5362			
95	5489	5565	5472	5482	5458			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_27								
Frequency (MHz)	0	1	2	3	4			
0	5258	5476	5403	5369	5393			
5	5669	5402	5541	5477	5532			
10	5413	5408	5421	5405	5655			
15	5520	5278	5596	5663	5516			
20	5519	5656	5433	5582	5693			
25	5259	5406	5378	5535	5438			
30	5708	5697	5409	5339	5703			
35	5638	5420	5675	5687	5607			
40	5271	5454	5332	5345	5492			
45	5564	5451	5362	5709	5350			
50	5261	5499	5632	5609	5424			
55	5293	5546	5498	5384	5610			
60	5274	5256	5386	5646	5538			
65	5724	5427	5267	5447	5328			
70	5634	5495	5412	5574	5435			
75	5340	5533	5294	5491	5351			
80	5545	5502	5552	5626	5692			
85	5696	5524	5553	5722	5344			
90	5448	5521	5301	5565	5466			
95	5660	5250	5658	5320	5346			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_28								
Frequency (MHz)	0	1	2	3	4			
0	5513	5715	5339	5530	5613			
5	5711	5327	5616	5640	5264			
10	5344	5672	5462	5600	5676			
15	5608	5405	5699	5708	5430			
20	5250	5471	5574	5666	5525			
25	5258	5581	5639	5472	5275			
30	5586	5366	5554	5477	5458			
35	5559	5291	5580	5285	5282			
40	5293	5512	5283	5257	5561			
45	5380	5720	5317	5311	5314			
50	5494	5278	5333	5660	5591			
55	5490	5686	5338	5325	5568			
60	5702	5515	5336	5483	5653			
65	5633	5373	5565	5396	5364			
70	5369	5673	5298	5484	5560			
75	5438	5664	5355	5492	5263			
80	5611	5675	5505	5603	5558			
85	5619	5689	5592	5416	5427			
90	5307	5439	5316	5722	5294			
95	5596	5255	5694	5262	5375			



Hopping Frequency Sequence Name: HOP_FREQ_SEQ_29								
Frequency (MHz)	0	1	2	3	4			
0	5671	5479	5275	5691	5455			
5	5278	5349	5328	5568	5461			
10	5503	5698	5697	5696	5435			
15	5705	5425	5438	5416	5412			
20	5663	5639	5413	5585	5309			
25	5365	5506	5414	5572	5323			
30	5294	5629	5382	5376	5607			
35	5595	5497	5558	5687	5700			
40	5400	5369	5367	5284	5509			
45	5711	5602	5337	5302	5292			
50	5515	5387	5673	5644	5501			
55	5428	5485	5556	5319	5291			
60	5345	5676	5565	5576	5653			
65	5546	5538	5513	5331	5451			
70	5707	5256	5721	5486	5380			
75	5668	5539	5308	5374	5589			
80	5611	5330	5334	5270	5631			
85	5281	5298	5542	5420	5478			
90	5359	5371	5692	5430	5411			
95	5280	5405	5306	5601	5646			

Hopping Frequency Sequence Name: HOP_FREQ_SEQ_30								
Frequency (MHz)	0	1	2	3	4			
0	5451	5718	5686	5377	5675			
5	5417	5274	5291	5491	5300			
10	5584	5250	5544	5418	5309			
15	5562	5333	5701	5617	5446			
20	5485	5353	5655	5612	5679			
25	5534	5512	5469	5540	5456			
30	5461	5280	5509	5403	5476			
35	5362	5473	5647	5688	5585			
40	5678	5634	5262	5555	5616			
45	5680	5483	5427	5323	5646			
50	5505	5685	5287	5691	5615			
55	5281	5490	5721	5608	5644			
60	5676	5666	5470	5317	5382			
65	5492	5294	5339	5411	5360			
70	5379	5629	5541	5265	5307			
75	5410	5579	5376	5389	5467			
80	5632	5303	5320	5472	5437			
85	5586	5331	5330	5273	5251			
90	5624	5252	5315	5517	5484			
95	5665	5716	5383	5395	5653			

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