

ISED CABid: ES1909

Test report No:  
 NIE: 66837RRF.003A3

## Dynamic Frequency Selection (DFS)

### Test report

USA FCC Part 15.407, 15.209

CANADA RSS-247, RSS-Gen

Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements.

Radiated emission limits; general requirements.

Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices.

General Requirements and Information for the Certification of Radio Apparatus.

(*) Identification of item tested	Flexi Zone MulteFire Outdoor Pico BTS
(*) Trademark	Nokia
(*) Model and /or type reference	FW2RH-m
Other identification of the product	HW version: 474710A.X21 SW version: FLF18A_MF19_0001_200408_000035 FCC ID: 2AVO2FW2RH01 ID: 661AF-FW2RH01
(*) Features	MulteFire 1.0, GPS, GLONASS
Applicant	Nokia Innovations US LLC 600-700 Mountain Ave Murray Hill, NJ, 07974 USA
Test method requested, standard	USA FCC Part 15.407 (10-1-19) Edition: Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements. CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 Amendment 1 (March 2019). ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices. KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
Summary	IN COMPLIANCE

Approved by (name / position & signature)	Rafael López Martín EMC Consumer & RF Lab. Manager
Date of issue	2021-11-16
Report template No	FDT08_23 (* ) "Data provided by the client"

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## Competences and guarantees

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DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with the appropriate scope of accreditation that covers the performed test in this report.

DEKRA Testing and Certification S.A.U. is an ISED-recognized accredited testing laboratory, CABid: ES1909, with the appropriate scope of accreditation that covers the performed tests in this report.

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1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
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## Uncertainty

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Uncertainty (factor  $k=2$ ) was calculated according to the DEKRA Testing and Certification internal document PODT000.

## Data provided by the client

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The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested")
2. The Nokia Flexi Zone Pico BTS acts as an access point and provides wireless data service to connected client devices using MulteFire 1.0 protocol over UNII RF bands.

## Usage of samples

Samples undergoing test have been selected by: the client.

Sample S/01 is composed of the following elements:

Control Nº	Description	Model	Serial Nº	Date of reception
64023/009	Flexi Zone MulteFire Outdoor Pico BTS	FW2RH-m	EB184990223	2020-06-10
64023/018	Ethernet Cable UTP Cat6 0,5m	---	---	2020-06-10
64023/003	Power Cable	---	---	2020-06-10

Auxiliary elements used with the sample S/01:

Control Nº	Description	Model	Serial Nº	Date of reception
66837/012	Nokia Industrial MulteFire Router 700H	HWNDUSEB1006	120200031720CPB0013	2020-12-01
66837/007	AC/DC Adapter	G0957B-120-200	---	2020-12-01
66837/010	Power Cable	---	---	2020-12-01

Sample S/01 has undergone the following test(s): All Conduced tests indicated in Appendixes A, B.

## Test sample description

Ports..... :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient <sup>(3)</sup>		
	Ant 1	0.55	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	Ant 2	0.55	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	RJ45-1	100	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	RJ45-2	100	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	GPS/GNSS	varies	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Supplementary information to the ports..... :	N/A						
Rated power supply .....	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	<input checked="" type="checkbox"/>	AC: 100/240 VAC. 50/60 Hz	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	DC:						
Rated Power .....	27 dBm/Ant						

Clock frequencies.....:	Not provided data		
Other parameters.....:	N/A		
Software version.....:	FLF18A_MF19_0001_200408_000035		
Hardware version.....:	474710A.X21		
Dimensions in cm (W x H x D) :	Not provided data		
Mounting position.....:	<input checked="" type="checkbox"/>	Wall/Ceiling mounted equipment	
	<input type="checkbox"/>	Floor standing equipment	
	<input type="checkbox"/>	Hand-held equipment	
	<input checked="" type="checkbox"/>	Other: Pole	
Modules/parts.....:	Module/parts of test item		Type
	Flexi Zone MulteFire Outdoor Pico BTS		---
Accessories (not part of the test item).....:	Description		Type
	FA2RE		Directional Ant
	FA2WH		GPS Ant
	FMWY		RF Cables
	FPWZ		AC cable
	FPW1		AC Cable
Documents as provided by the applicant.....:	Description		File version
			Issue date

<sup>(9)</sup> Only for Medical Equipment

## Identification of the client

NOKIA INNOVATIONS US LLC  
600-700 Mountain Ave  
Murray Hill, NJ, 07974 USA

## Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2021-05-18
Date (finish)	2021-05-26

## Document history

Report number	Date	Description
66837RRF.003	2021-07-28	First release
66837RRF.003A1	2021-08-13	Second release. First modification due to typos. This modification test report cancels and replaces the test report 66837RRF.003
66837RRF.003A2	2021-11-12	Third release. Second modification due to include the chirp width for Radar type 5. This modification test report cancels and replaces the test report 66837RRF.003A1
66837RRF.003A3	2021-11-16	Fourth release. Third modification due to include the table with details results for Radar Type 4. This modification test report cancels and replaces the test report 66837RRF.003A2

## Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

## Remarks and comments

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The tests have been performed by the technical personnel: Ignacio Cabra, Jose Gabriel Pendón, Miguel Ángel Torres and Cristina Calle.

Used instrumentation:

### Conducted Measurements

	Last Calibration	Due Calibration
1. Shielded Room ETS LINDGREN S101	N.A.	N.A.
2. Signal and Spectrum Analyzer 10 Hz - 40 GHz ROHDE AND SCHWARZ FSV40	2019/09	2021/09
3. DC Power Supply 40V/40A Rohde & Schwarz NGPE40	N.A.	N.A.
4. Digital Multimeter FLUKE 179	2020/10	2021/10
5. Vector Signal Generator 8 kHz-6GHz ROHDE AND SCHWARZ SMBV100B	2019/10	2021/10
6. Signal Generator 8 KHz-6 GHz, ROHDE AND SCHWARZ SMB100B	2019/10	2021/10
7. OPEN SWITCH UNIT OSP120 ROHDE AND SCHWARZ	2019/10	2021/10
8. OPEN SWITCH UNIT UP TO 18 GHz OSP150 ROHDE AND SCHWARZ	2019/09	2021/09



## Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

## Summary

### A. DFS for Master Device Mode

FCC PART 15 PARAGRAPH / RSS-247 / KDB 905462			
Requirement – Test case		Verdict	Remark
RSS-247. 6.3.1/ KDB Sect. 7.8.1	Detection Threshold	P	
RSS-247. 6.3.1/ KDB Sect. 7.8.1	Detection Bandwidth	P	(1)
RSS-247. 6.3.2/ KDB Sect. 7.8.2	Performance Requirements Check	P	
RSS-247. 6.3.2 / KDB Sect. 7.8.3	In Service Monitoring	P	(1)
RSS-247. 6.3.2 / KDB Sect. 7.8.4	Radar Statistic Performance Check	P	(1)
<u>Supplementary information and remarks:</u>			
1) MulteFire only works with bandwidth of 20MHz.			

## Appendix A: DFS for Master Device Mode

## INDEX

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## TEST CONDITIONS

Power supply (V):

Vnominal = 120 Vac

Type of power supply = AC voltage main supply.

Type of antenna = External antenna.

Declared Gain for antenna (maximum):

$$G_{\text{ANTENNA1+2}} = 6 \text{ dBi}$$

Technology Tested:	MulleFire 1.0	
Modes:	QPSK, 16QAM, 64QAM and 256QAM	
Beamforming:	No	
Frequency Range:	5250 MHz to 5350 MHz	
	5470 MHz to 5725 MHz	
Channel Spacing:	20 MHz	
Transmit Channels	Channel	Channel Frequency (MHz)
	UNII-2A: 60	5300
	UNII-2C: 100	5500

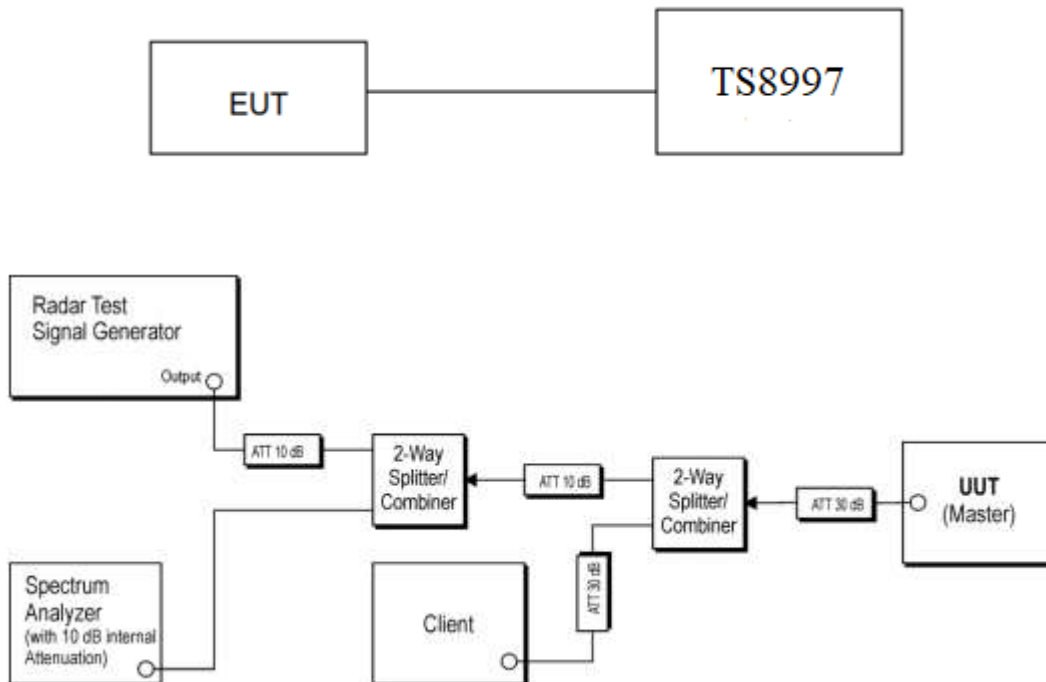
The test set-up was made in accordance to the general provisions of FCC Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017 and KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

The EUT was tested in the following operating mode:

- Normal mode working as access point with radar detection.

CONDUCTED MEASUREMENTS:

The equipment under test was set up in a shielded room and it is connected to the TS8997 using a low loss RF cable. The reading of the spectrum analyser is corrected taking into account the cable loss.



The AC supply voltage is applied using an external power supply.

## Radar Waveform Calibration Plot

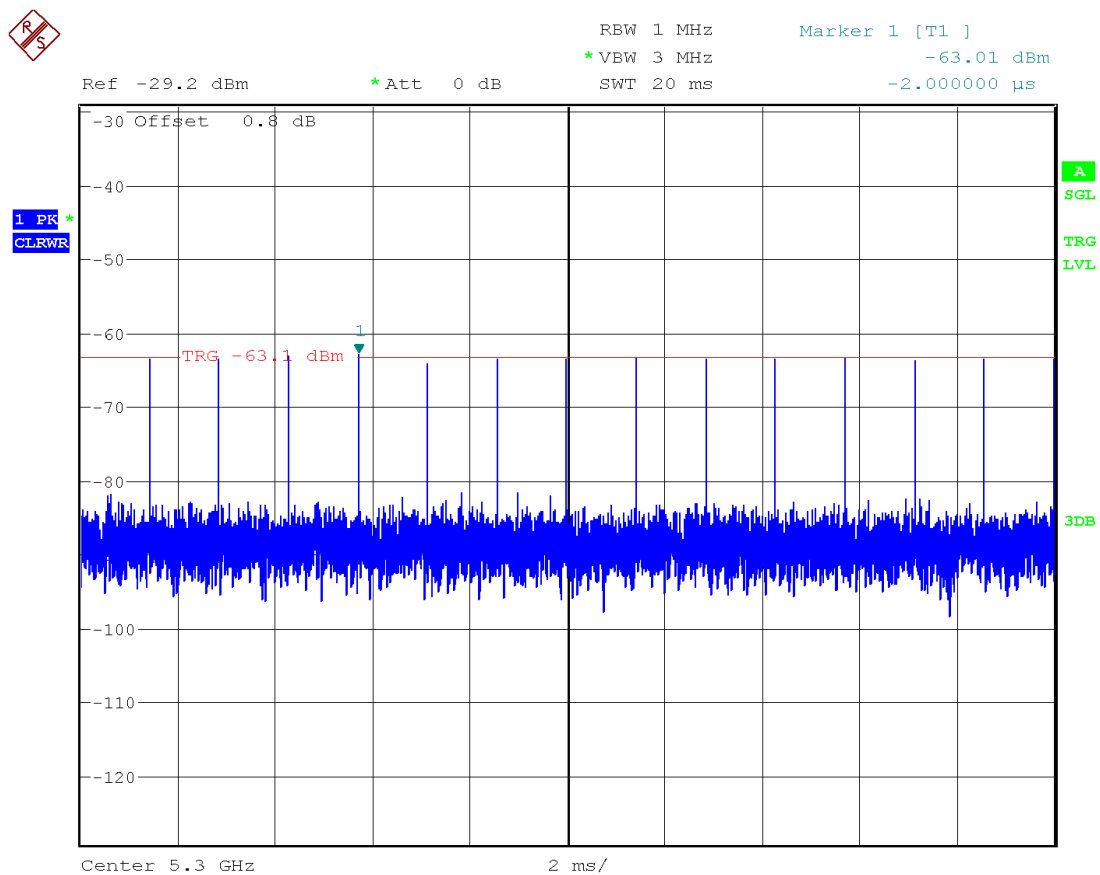
### SPECIFICATION

All radar waveforms were verified at the 5300MHz center frequency using conducted method. Waveforms type 0, type 1, type 2, type 3, type 4, type 5 and type 6 were compensated for the cable loss as offset on spectrum analyser.

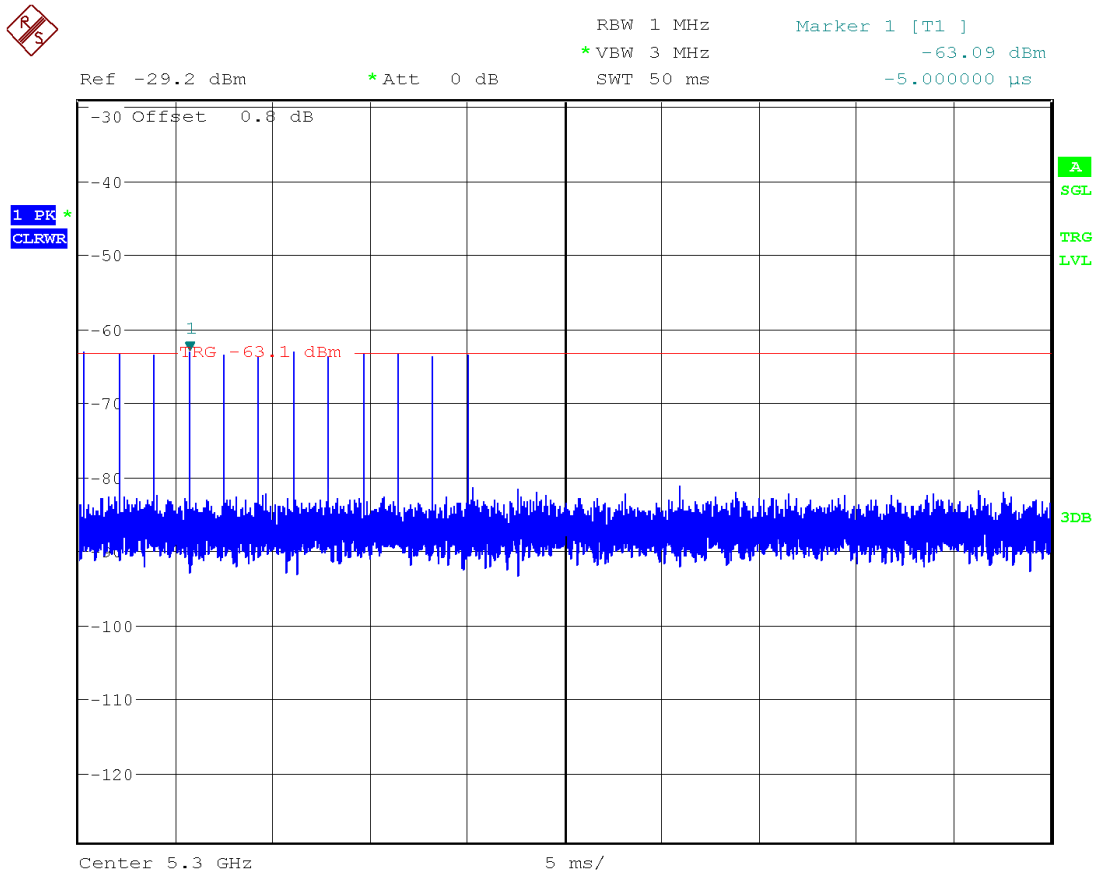
Radar signals level were calibrated to be less than -63dBm for EUT Detection Threshold.

### RESULTS:

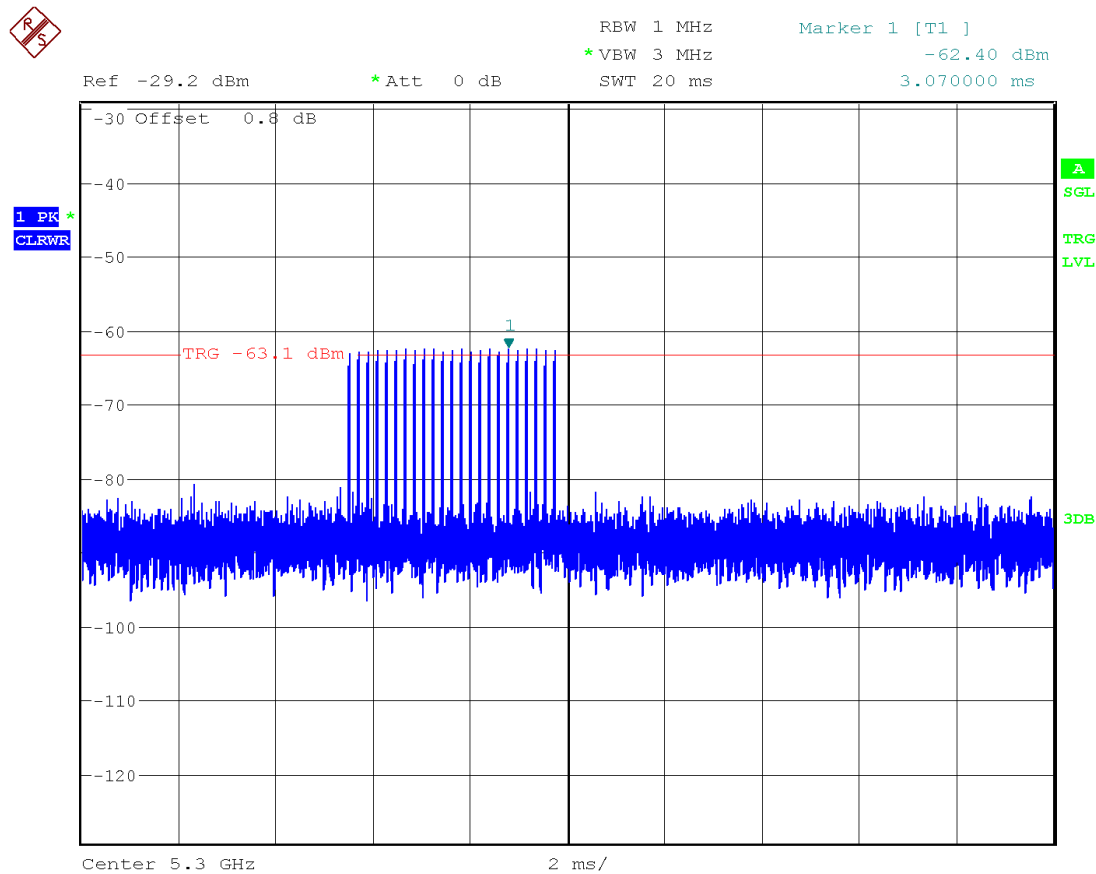
#### Radar Type 0 DFS Detection Threshold



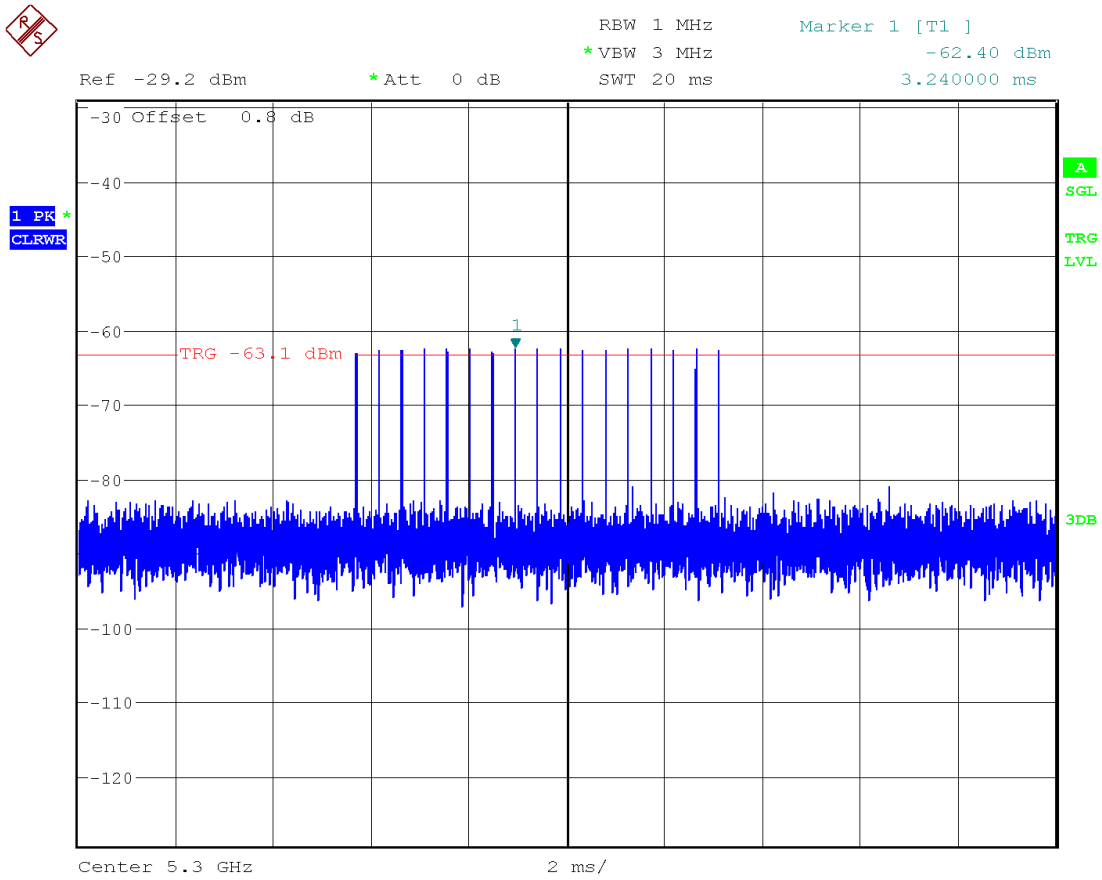
### Radar Type 1 DFS Detection Threshold



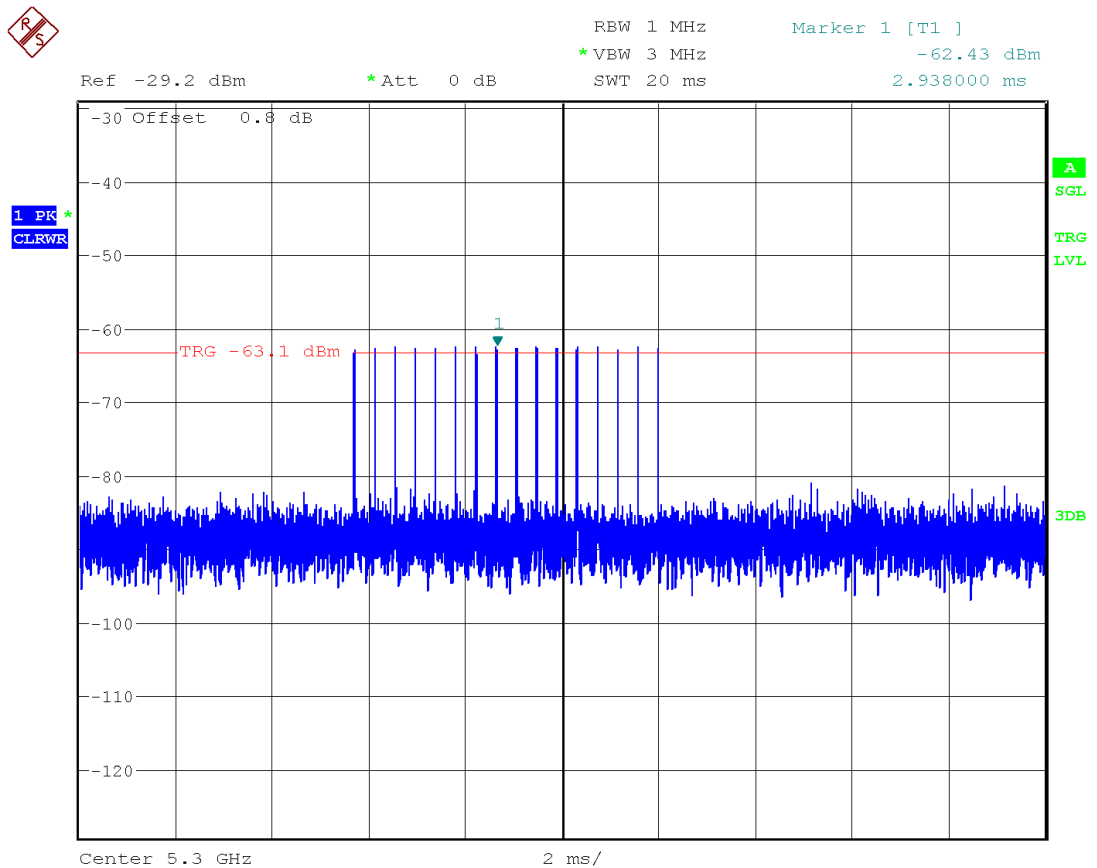
### Radar Type 2 DFS Detection Threshold



### Radar Type 3 DFS Detection Threshold

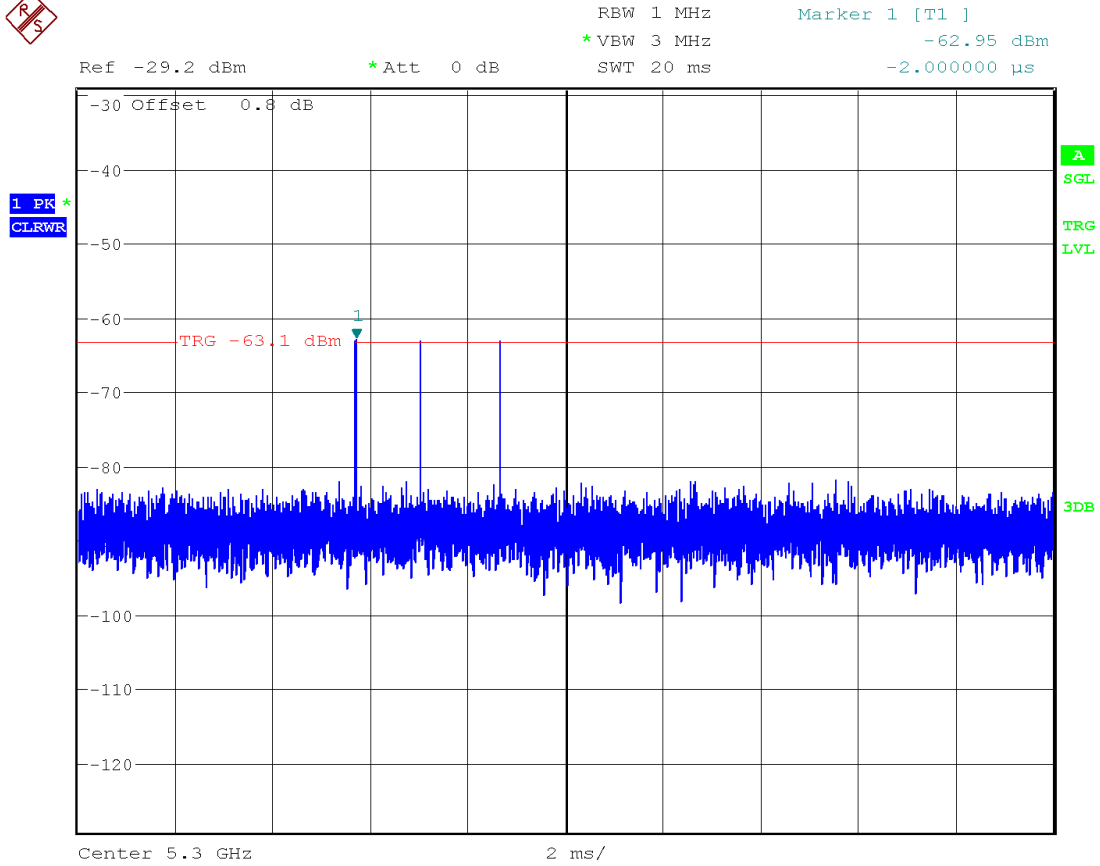


### Radar Type 4 DFS Detection Threshold

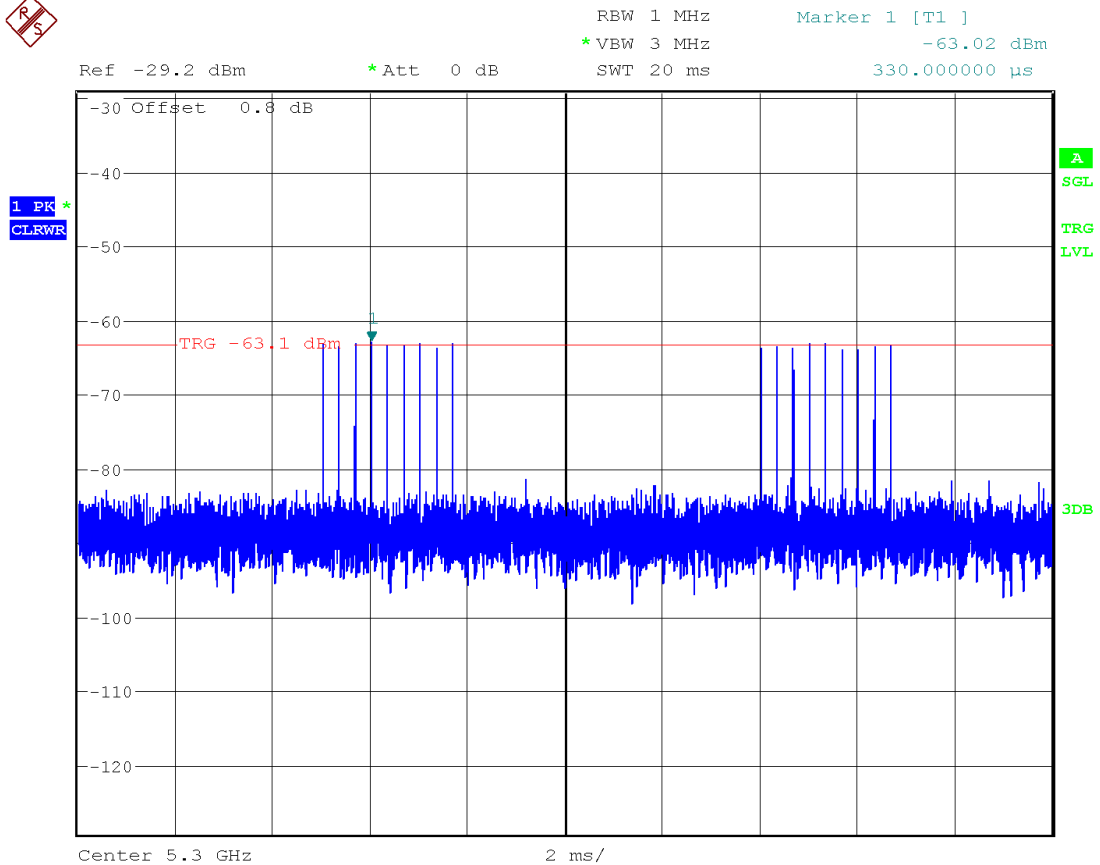




### Radar Type 5 DFS Detection Threshold



### Radar Type 6 DFS Detection Threshold



Verdict: PASS

## Channel Loading

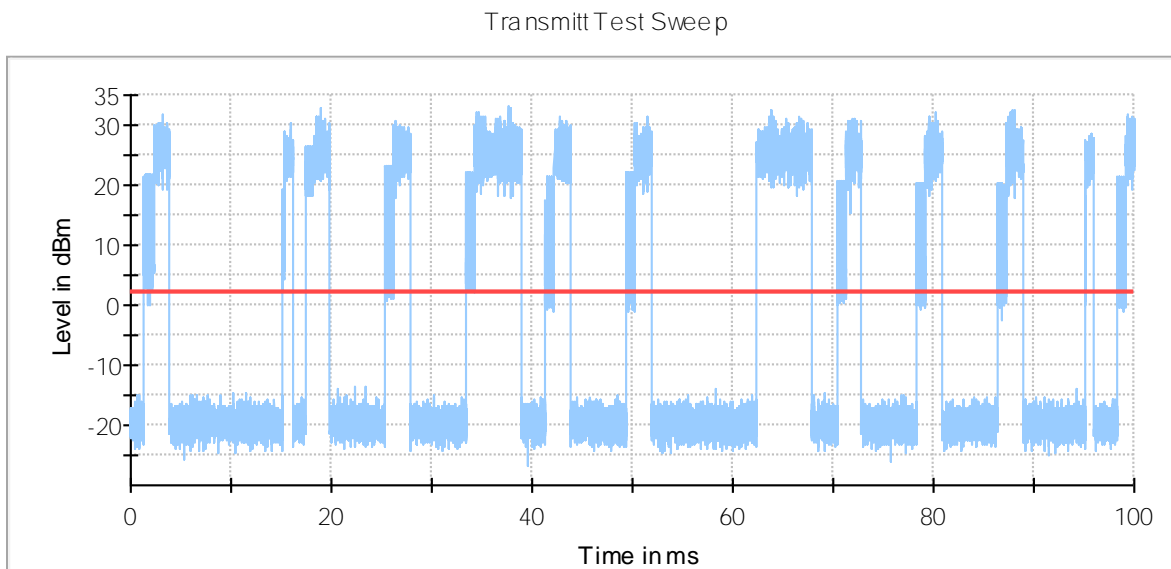
### SPECIFICATION

The minimum channel loading requirement is approximately 17% or greater. The operating channel on 5300 MHz was selected for 20 MHz bandwidth.

Channel loading calculation: Time On / (Time On + Off Time)

### RESULTS:

#### Transmitting Test



— Transmitt Test Sweep    — Threshold

Tx-Test Tx OnTime (µs)	Tx-Test Tx OnTime Limit	Tx-Test No. of Pulses found
33286.667	>0.000 s	274

Channel loading calculation =  $(33286.667 \text{ us} / 100000\text{us}) * 100 \% = 0.3328 \text{ us} * 100\% = 33.28\%$

Verdict: PASS

## DFS Detection Threshold. RSS-247. 6.3.1/ KDB Sect. 7.8.1

### **SPECIFICATION**

#### **KDB 905462 D02:**

Table 3 below provides the DFS Detection Thresholds for Master Devices as well as Client Devices incorporating In-Service Monitoring.

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

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
<p><b>Note 1:</b> This is the level at the input of the receiver assuming a 0 dBi receive antenna.</p> <p><b>Note 2:</b> 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.</p> <p><b>Note 3:</b> EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.</p>	

RSS-247: Devices shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems. The device must detect radar signals within its entire emission bandwidth. The minimum DFS radar signal detection threshold is described below in Table 1.

**Table 1: DFS Detection threshold for master devices and slave devices with radar detection**

Devices	DFS Threshold
Devices with an e.i.r.p. < 200 mW AND a Power Spectral Density < 10 dBm/MHz	-62 dBm
Devices with 200 mW ≤ e.i.r.p. ≤ 1 W	-64 dBm
<p><b>Note:</b> The detection threshold power is the received power, averaged over a 1-microsecond reference to a 0 dBi antenna.</p>	

### **RESULTS:**

The required threshold level is -64 dBm due to EIRP power is greater than 200 mW. It is calculated by adding correction factor. This correction factor includes cable loss and connection loss.

$$\text{Radar Injection Level} = -64.0 \text{ dBm} + 1 \text{ dB} = -63.0 \text{ dBm}$$

Note: The above threshold level was used to verify all Waveforms Type 0 to 6.

Measurement uncertainty: 0.01 %

Verdict: PASS

## DFS Detection Bandwidth RSS-247. 6.3.1/ KDB Sect. 7.8.1

**KDB:** Minimum 100% of the UNII 99% transmission power bandwidth. 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.

The U-NII Detection Bandwidth is calculated as follows:

$$\text{U-NII Detection Bandwidth} = \text{FH} - \text{FL}$$

In the case that the U-NII Detection Bandwidth is greater than or equal to the 99 percent power bandwidth for the measured FH and FL, the test can be truncated and the U-NII Detection Bandwidth can be reported as the measured FH and FL.

One frequency will be chosen from the Operating Channels of the UUT within the 5250-5350 MHz or 5470-5725 MHz bands.

### RESULTS

Test was performed in channel 100 (5500MHz) for 20MHz Bandwidth.

Radar Burst with a level equal to the DFS Detection Threshold + 1dB is generated.

Detection Threshold: -63dBm

Operation Mode: without data transfer.

Being 99 percent power bandwidth of 17.90MHz.

Check Frequency (MHz)	Detection count	Percentage of Detection	Minimum Limit	Single Measurement Result	Single Measurement Comment
5489.9000	0 of 10	0 %	90%	FAIL	
5489.9000	2 of 10	20 %	90%	FAIL	
5490.9000	10 of 10	100 %	90%	PASS	Lower Limit = FL
5491.9000	10 of 10	100 %	90%	PASS	
5492.9000	10 of 10	100 %	90%	PASS	
5493.9000	10 of 10	100 %	90%	PASS	
5494.9000	10 of 10	100 %	90%	PASS	
5499.9000	10 of 10	100 %	90%	PASS	
5504.9000	10 of 10	100 %	90%	PASS	
5505.9000	10 of 10	100 %	90%	PASS	
5506.9000	10 of 10	100 %	90%	PASS	
5507.9000	10 of 10	100 %	90%	PASS	
5508.9000	10 of 10	100 %	90%	PASS	Upper Limit = FH
5509.9000	4 of 10	40 %	90%	FAIL	
5509.9000	2 of 10	20 %	90%	FAIL	

U-NII Detection Bandwidth: FH –FL= 18.0 MHz

Measurement uncertainty: 0.01 %

Verdict: PASS

## DFS Performance Requirements Check RSS-247. 6.3.2/ KDB Sect. 7.8.2

### SPECIFICATION

Measurement procedure 7.8.2 of KDB 905462 D02.

One frequency will be chosen from the Operating Channels of the UUT within the 5250-5350 MHz or 5470-5725 MHz bands.

**Table 4: DFS Response Requirement Values**

Parameter	Value
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds See Note 1.
<i>Channel Closing Transmission Time</i>	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
<p><b>Note 1:</b> <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.</p> <p><b>Note 2:</b> The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> 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.</p>	

### RESULTS:

Center frequency: 5300 MHz

Radar type 0.

Radar Burst with a level equal to the DFS Detection Threshold + 1dB is generated.

Detection Threshold: -63dBm

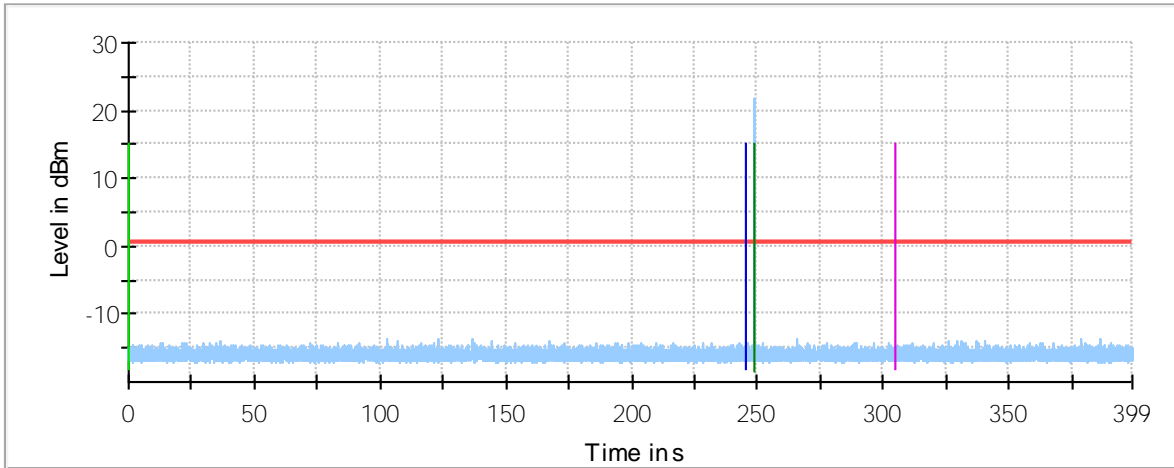
Operation Mode: without data transfer.

DUT Frequency (MHz)	Radar Type No.	CAC Type	Configured Startup time (s)	Kind of Measurement	Time of Tx Start (s)	Limit (s)
5300.0000	0	Begin of CAC	305.000	Before Radar	0.000	0.00
5300.0000	0	Begin of CAC	305.000	After Radar	>150.0	>150.0
5300.0000	0	End of CAC Phase	305.000	Before Radar	0.000	0.00
5300.0000	0	End of CAC Phase	305.000	After Radar	>150.0	>150.0

Measurement uncertainty: 0.01 %

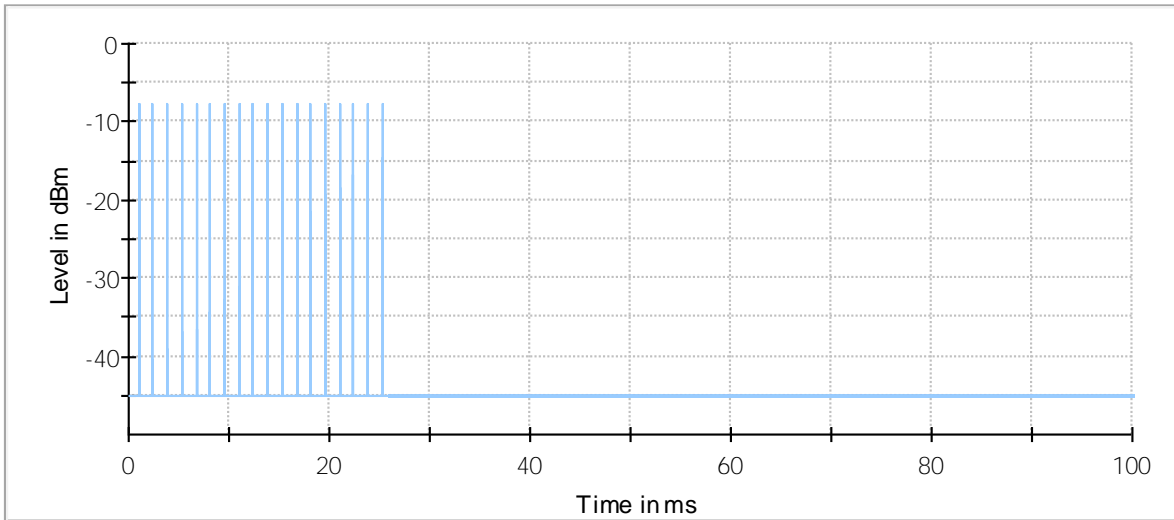
Verdict: PASS

Begin of CAC measurement:



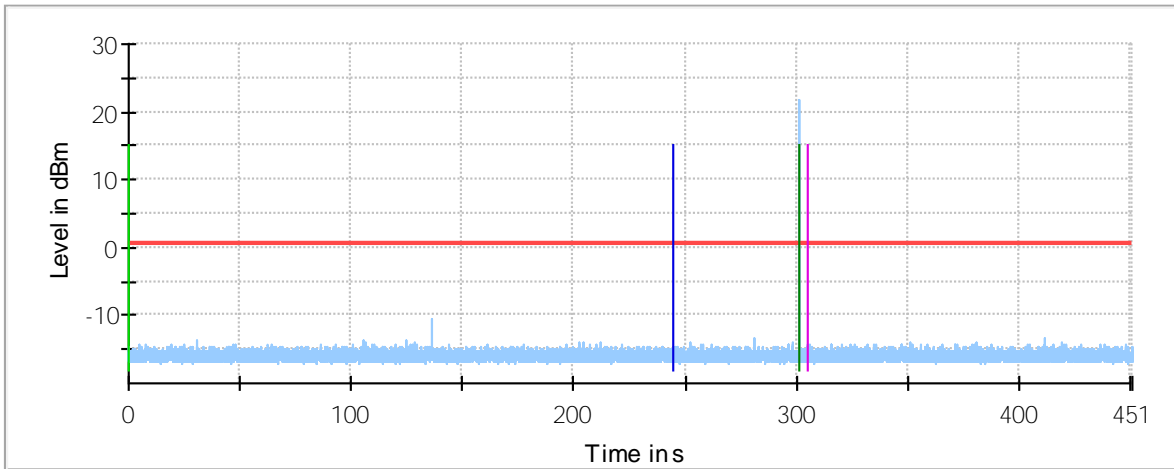
- Measurement Beginning of CAC
- DUT powerup
- Trigger (window at the beginning)
- Threshold
- Begin of CAC phase
- End of CAC phase

Beginning of CAC; Radar Pulses



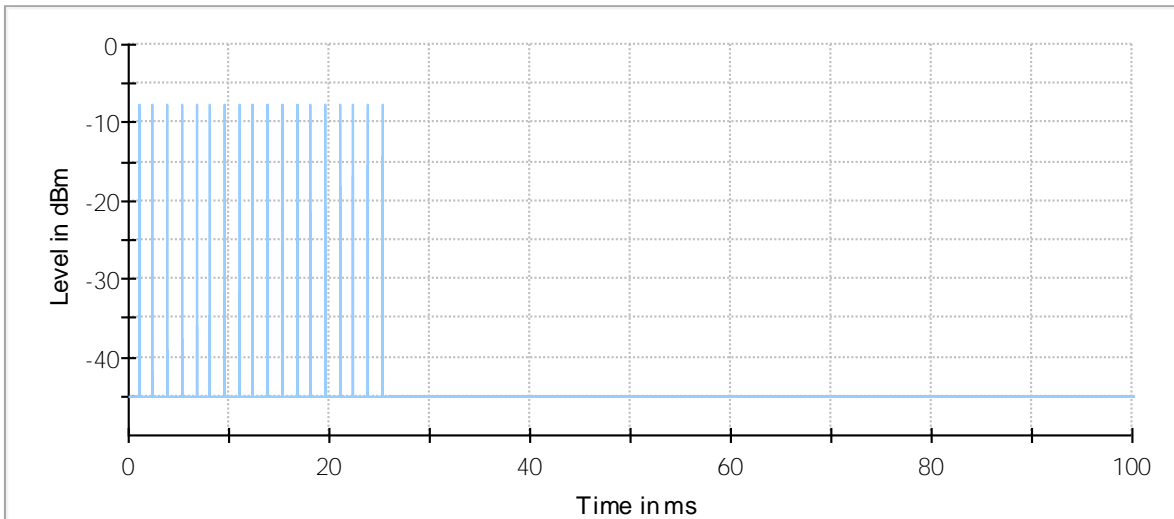
- Beginning of CAC; Radar Pulses
- Beginning of CAC; Radar Pulses

End of CAC measurement:



- Measurement End of CAC
- Threshold
- DUT powerup
- Begin of CAC phase
- Trigger (window at the end)
- End of CAC phase

End of CAC; Radar Pulses



- End of CAC; Radar Pulses
- End of CAC; Radar Pulses



## DFS In Service Monitoring RSS-247. 6.3.2 / KDB Sect. 7.8.3

### SPECIFICATION

Channel Closing Transmission Time, Channel Move Time and Non-occupancy period.

One frequency will be chosen from the Operating Channels of the UUT within the 5250-5350 MHz or 5470-5725 MHz bands.

**Table 4: DFS Response Requirement Values**

Parameter	Value
<i>Non-occupancy period</i>	Minimum 30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds See Note 1.
<i>Channel Closing Transmission Time</i>	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
<p><b>Note 1:</b> <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.</p> <p><b>Note 2:</b> The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> 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.</p>	

### RESULTS:

The EUT was used as master device and configured to operate at 5300 MHz for 20 MHz bandwidth.

Radar type 0.

Radar Burst with a level equal to the DFS Detection Threshold + 1dB is generated.

Detection Threshold: -63dBm

Operation Mode: data transfer continuously with Iperf UDP protocol.

### Channel Move Time

DUT Frequency (MHz)	Radar Type No.	CMT Tx Time (s)	CMT Limit (s)
5300.0000	0	0.000	10.000

### Channel Closing Transmission Time

Radar Type No.	CCTT Type of Value	CCTT No. of Pulses found	CCTT Tx Time (ms)	CCTT Tx Time Limit (ms)
0	first 200 ms	0	0.000	200.000
0	remaining 10.0 second(s) period	0	0.000	60.000



**Non-occupancy period**

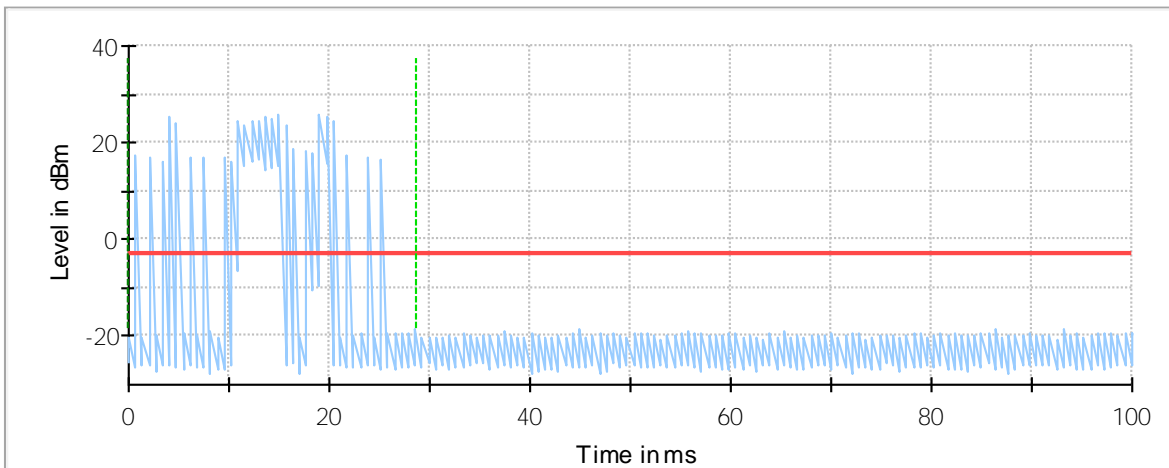
Radar Type No.	NOP No. of Pulses found	NOP No. of Pulses Limit	NOP Tx Time (s)	NOP Tx Time Limit (s)
0	0	0	0.000	0.000

**Transmitting Test**

Tx-Test Tx OnTime (µs)	Tx-Test Tx OnTime Limit	Tx-Test No. of Pulses found
33286.667	>0.000 s	274

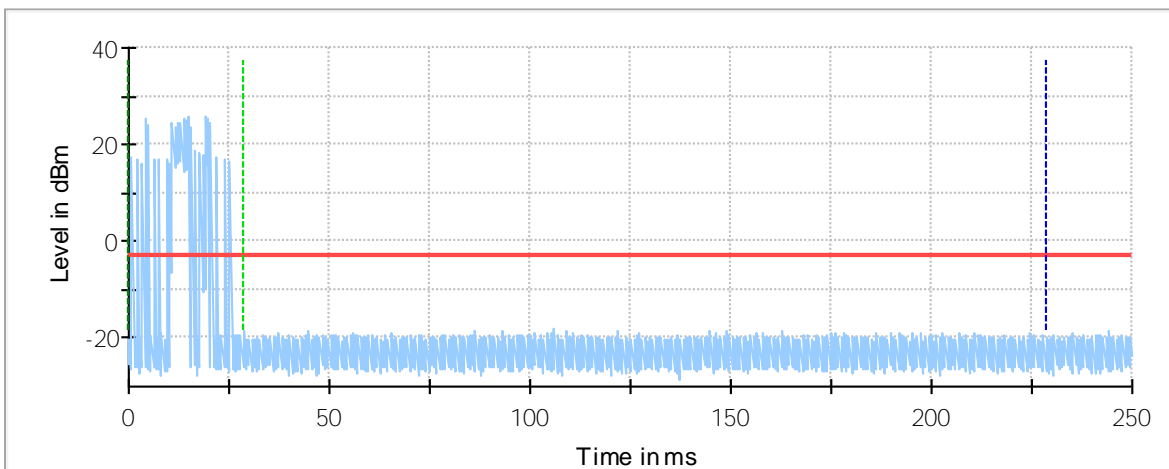
Verdict: PASS

**Channel MoveTime:**



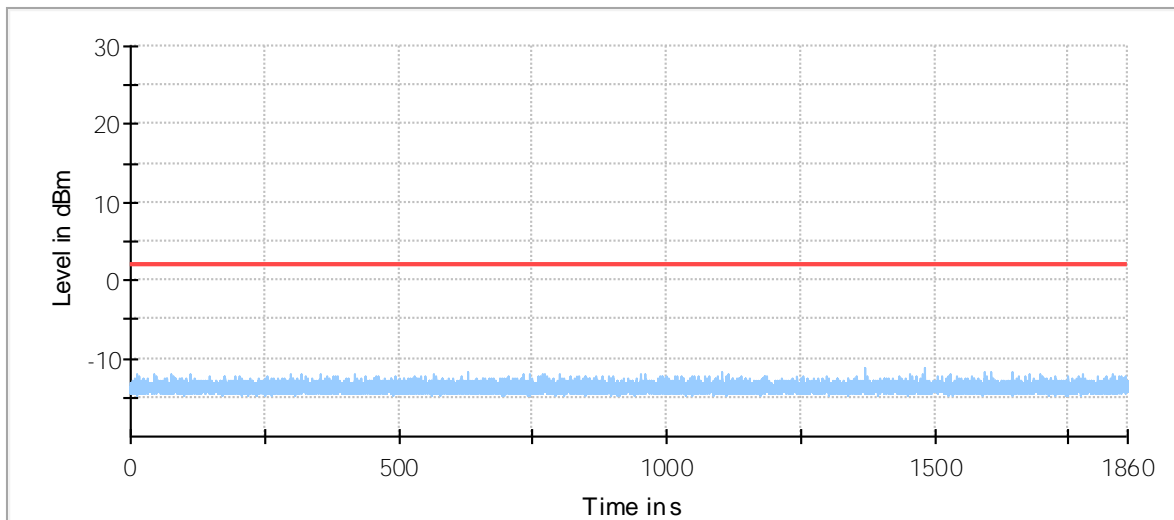
- Channel Move Time
- Threshold
- - - Start of Radar
- - - Trigger at end of Radar
- - - First 200ms of Channel Closing Tx Time
- - - 10sec Channel Move Time Limit

Channel Move Time first 200ms



- Channel Move Time first 200ms
- Threshold
- - - Start of Radar
- - - Trigger at end of Radar
- - - First 200ms of Channel Closing Tx Time

Non occupancy period:



— Non-occupancy period — Threshold

## DFS Radar Statistic Performance Check RSS-247. 6.3.2 / KDB Sect. 7.8.4

### SPECIFICATION

The minimum percentage of detection and total aggregated percentage are showed in the Table 5, 6, and 7 of KDB 905462 D02 requirements.

One frequency will be chosen from the Operating Channels of the UUT within the 5250-5350 MHz or 5470-5725 MHz bands.

**Table 5 – Short Pulse Radar Test Waveforms**

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

**Table 6 – 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

**Table 7 – Frequency Hopping Radar Test Waveform**

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

## RESULTS:

The EUT was used as master device and configured to operate at 5300 MHz for 20 MHz bandwidth.

Radar type 1 to 6.

Radar Burst with a level equal to the DFS Detection Threshold + 1dB is generated.

Detection Threshold: -63dBm

Operation Mode: data transfer continuously with Iperf UDP protocol.

## Measurement Summary

Radar Type No.	Detection count	Percentage of Detection Px	Detection Limit
1	30 of 30	100.00%	60.0 %
2	29 of 30	96.67%	60.0 %
3	26 of 30	86.67%	60.0 %
4	23 of 30	76.67%	60.0 %
<b>Aggregate (Radar Type 1 to 4)</b>		90.00%	80.0%
5	29 of 30	96.67%	80.0%
6	30 of 30	100.00%	70.0%

Note: Aggregate Radar is calculated with the following formula:

$$\frac{P_d1 + P_d2 + P_d3 + P_d4}{4}$$

Measurement uncertainty: 0.01 %

Verdict: PASS

**Detailed Results for Radar Type 1:**

Trial Number	Random Trial used	Pulse Width (µs)	PRI (µs)	No. of Pulses	Pulses Detected
1	27	1.000	815.00	65	YES
2	20	1.000	898.00	59	YES
3	11	1.000	718.00	74	YES
4	26	1.000	717.00	74	YES
5	44	1.000	2474.0	22	YES
6	39	1.000	1986.0	27	YES
7	21	1.000	918.00	58	YES
8	2	1.000	538.00	99	YES
9	16	1.000	818.00	65	YES
10	41	1.000	2181.0	25	YES
11	17	1.000	838.00	63	YES
12	29	1.000	1010.0	53	YES
13	24	1.000	522.00	102	YES
14	43	1.000	2376.0	23	YES
15	18	1.000	858.00	62	YES
16	38	1.000	1888.0	28	YES
17	9	1.000	678.00	78	YES
18	46	1.000	2669.0	20	YES
19	47	1.000	2767.0	20	YES
20	31	1.000	1205.0	44	YES
21	45	1.000	2572.0	21	YES
22	6	1.000	618.00	86	YES
23	37	1.000	1791.0	30	YES
24	5	1.000	598.00	89	YES
25	15	1.000	798.00	67	YES
26	10	1.000	698.00	76	YES
27	23	1.000	3066.0	18	YES
28	33	1.000	1400.0	38	YES
29	28	1.000	912.00	58	YES
30	4	1.000	578.00	92	YES

**Detailed Results for Radar Type 2:**

Trial Number	Random Trial used	Pulse Width (µs)	PRI (µs)	No. of Pulses	Pulses Detected
1	48	4.200	227.0	24	YES
2	21	3.600	193.0	28	YES
3	26	3.700	217.0	28	YES
4	17	4.500	213.0	23	YES
5	34	2.200	197.0	28	YES
6	10	1.200	175.0	26	No
7	40	3.600	230.0	27	YES
8	43	4.100	153.0	24	YES
9	33	2.100	228.0	28	YES
10	25	4.400	202.0	24	YES
11	37	3.400	191.0	24	YES
12	39	4.900	163.0	23	YES
13	8	2.600	175.0	26	YES
14	47	3.400	213.0	27	YES
15	16	3.600	194.0	26	YES
16	45	3.200	227.0	29	YES
17	42	2.500	215.0	28	YES
18	6	3.700	161.0	26	YES
19	35	1.200	206.0	24	YES
20	49	1.800	159.0	25	YES
21	19	2.000	200.0	25	YES
22	23	3.800	187.0	28	YES
23	4	4.700	200.0	23	YES
24	11	1.700	224.0	23	YES
25	30	4.200	173.0	25	YES
26	5	3.500	226.0	26	YES
27	2	4.500	191.0	23	YES
28	38	2.000	180.0	25	YES
29	3	5.000	192.0	23	YES
30	27	2.700	199.0	29	YES

### Detailed Results for Radar Type 3

Trial Number	Random Trial used	Pulse Width (µs)	PRI (µs)	No. of Pulses	Pulses Detected
1	2	7.500	211.0	17	No
2	7	6.500	466.0	17	YES
3	30	8.400	309.0	17	YES
4	32	8.700	356.0	18	YES
5	18	6.200	263.0	18	YES
6	21	8.100	204.0	17	YES
7	43	6.700	398.0	17	YES
8	40	7.400	271.0	17	YES
9	38	6.300	476.0	17	YES
10	45	6.700	426.0	17	YES
11	47	9.800	250.0	17	No
12	9	6.300	454.0	17	YES
13	33	9.000	430.0	18	YES
14	12	8.000	463.0	17	YES
15	16	8.900	340.0	16	YES
16	49	6.500	288.0	18	YES
17	44	7.100	457.0	16	YES
18	25	9.600	458.0	17	YES
19	5	8.200	464.0	18	YES
20	19	9.600	336.0	18	YES
21	24	6.000	378.0	17	YES
22	41	7.700	467.0	16	YES
23	39	7.200	358.0	18	YES
24	8	7.000	358.0	17	YES
25	27	6.600	301.0	17	YES
26	22	6.500	433.0	17	YES
27	14	6.600	455.0	16	YES
28	17	8.700	413.0	17	No
29	42	8.600	493.0	17	YES
30	50	7.700	206.0	17	No

### Detailed Results for Radar Type 4:

Trial Number	Random Trial used	Pulse Width (µs)	PRI (µs)	No. of Pulses	Pulses Detected
1	6	18.500	499.0	13	No
2	44	17.900	458.0	14	YES
3	14	16.600	212.0	16	No
4	39	12.400	217.0	14	YES
5	28	13.000	309.0	14	YES
6	34	17.300	366.0	14	YES
7	2	19.900	428.0	12	YES
8	27	15.600	303.0	13	No
9	38	15.500	451.0	15	YES
10	21	11.700	483.0	16	YES
11	13	16.000	485.0	14	No
12	37	18.100	200.0	15	YES
13	49	11.100	396.0	13	YES
14	25	16.600	282.0	16	YES
15	30	11.800	384.0	14	YES
16	26	18.900	299.0	16	YES
17	42	18.500	208.0	14	YES
18	9	13.300	254.0	14	YES
19	11	14.900	223.0	12	No
20	20	12.300	438.0	13	No
21	43	15.800	410.0	15	No
22	47	17.700	416.0	12	YES
23	31	14.400	266.0	14	YES
24	23	18.300	265.0	14	YES
25	41	13.300	439.0	14	YES
26	22	17.800	420.0	13	YES
27	40	13.600	237.0	15	YES
28	18	15.600	420.0	15	YES
29	50	14.400	286.0	12	YES
30	19	15.700	403.0	16	YES

**Detailed Results for Radar Type 5:**

Trial Number	Random Trial used	Pulses Detected	Comment
1	1	YES	For detailed burst data see separate table Type5 Trial1
2	21	YES	For detailed burst data see separate table Type5 Trial2
3	19	YES	For detailed burst data see separate table Type5 Trial3
4	8	YES	For detailed burst data see separate table Type5 Trial4
5	5	YES	For detailed burst data see separate table Type5 Trial5
6	23	YES	For detailed burst data see separate table Type5 Trial6
7	6	YES	For detailed burst data see separate table Type5 Trial7
8	30	YES	For detailed burst data see separate table Type5 Trial8
9	50	YES	For detailed burst data see separate table Type5 Trial9
10	7	YES	For detailed burst data see separate table Type5 Trial10
11	14	YES	For detailed burst data see separate table Type5 Trial11
12	31	YES	For detailed burst data see separate table Type5 Trial12
13	16	YES	For detailed burst data see separate table Type5 Trial13
14	33	YES	For detailed burst data see separate table Type5 Trial14
15	47	YES	For detailed burst data see separate table Type5 Trial15
16	3	YES	For detailed burst data see separate table Type5 Trial16
17	34	YES	For detailed burst data see separate table Type5 Trial17
18	41	No	For detailed burst data see separate table Type5 Trial18
19	37	YES	For detailed burst data see separate table Type5 Trial19
20	15	YES	For detailed burst data see separate table Type5 Trial20
21	35	YES	For detailed burst data see separate table Type5 Trial21
22	48	YES	For detailed burst data see separate table Type5 Trial22
23	39	YES	For detailed burst data see separate table Type5 Trial23
24	17	YES	For detailed burst data see separate table Type5 Trial24
25	9	YES	For detailed burst data see separate table Type5 Trial25
26	11	YES	For detailed burst data see separate table Type5 Trial26
27	43	YES	For detailed burst data see separate table Type5 Trial27
28	46	YES	For detailed burst data see separate table Type5 Trial28
29	20	YES	For detailed burst data see separate table Type5 Trial29
30	22	YES	For detailed burst data see separate table Type5 Trial30

**Detailed Results for Radar Type 5 Trial 1**

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	97.300	12.000000	1764.000	1049.000	85.000
2	1	83.400	12.000000	---	---	882.000
3	1	94.700	12.000000	---	---	903.000
4	2	60.100	12.000000	1023.000	---	878.000
5	2	54.600	12.000000	1385.000	---	1271.000
6	3	88.100	12.000000	1088.000	1048.000	932.000
7	3	90.200	12.000000	1799.000	1142.000	226.000
8	3	63.400	12.000000	1149.000	971.000	1426.000

### Detailed Results for Radar Type 5 Trial 2

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	66.400	15.000000	1599.000	1875.000	190.000
2	1	73.600	15.000000	---	---	165.000
3	2	55.200	15.000000	1726.000	---	332.000
4	2	62.700	15.000000	1752.000	---	117.000
5	3	50.600	15.000000	1523.000	1052.000	572.000
6	2	57.800	15.000000	944.000	---	746.000
7	3	98.000	15.000000	1343.000	1215.000	147.000
8	2	82.800	15.000000	1182.000	---	30.000
9	2	62.900	15.000000	1549.000	---	395.000
10	2	50.700	15.000000	1196.000	---	333.000
11	3	69.200	15.000000	1106.000	1036.000	388.000
12	3	60.900	15.000000	1175.000	1183.000	612.000
13	2	78.500	15.000000	1908.000	---	125.000
14	2	67.800	15.000000	1667.000	---	502.000
15	2	58.000	15.000000	1869.000	---	224.000

### Detailed Results for Radar Type 5 Trial 3

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	1	80.100	9.000000	---	---	183.000
2	2	59.600	9.000000	946.000	---	473.000
3	2	89.000	9.000000	1573.000	---	426.000
4	2	68.300	9.000000	1801.000	---	366.000
5	1	89.400	9.000000	---	---	250.000
6	2	64.000	9.000000	958.000	---	447.000
7	2	82.200	9.000000	1272.000	---	585.000
8	2	67.300	9.000000	1688.000	---	134.000
9	2	52.500	9.000000	1696.000	---	264.000
10	2	84.100	9.000000	1133.000	---	335.000
11	2	53.000	9.000000	1374.000	---	890.000
12	2	62.000	9.000000	1636.000	---	526.000
13	3	96.100	9.000000	1660.000	1103.000	493.000



### Detailed Results for Radar Type 5 Trial 4

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	93.000	5.000000	1554.000	1785.000	287.000
2	1	83.900	5.000000	---	---	719.000
3	1	58.600	5.000000	---	---	22.000
4	2	51.600	5.000000	1301.000	---	508.000
5	2	86.000	5.000000	971.000	---	394.000
6	2	52.400	5.000000	1014.000	---	126.000
7	2	81.600	5.000000	1650.000	---	756.000
8	2	73.500	5.000000	1428.000	---	653.000
9	1	58.900	5.000000	---	---	761.000
10	1	93.500	5.000000	---	---	118.000
11	2	90.600	5.000000	1774.000	---	108.000
12	2	58.400	5.000000	1448.000	---	740.000
13	2	89.100	5.000000	1406.000	---	689.000
14	2	73.900	5.000000	1071.000	---	160.000
15	1	61.700	5.000000	---	---	172.000

### Detailed Results for Radar Type 5 Trial 5

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	58.200	10.000000	1320.000	---	122.000
2	2	66.300	10.000000	1849.000	---	244.000
3	3	62.100	10.000000	1589.000	1390.000	229.000
4	2	74.300	10.000000	1184.000	---	976.000
5	1	58.600	10.000000	---	---	730.000
6	3	82.600	10.000000	1633.000	1513.000	669.000
7	1	73.100	10.000000	---	---	735.000
8	1	90.900	10.000000	---	---	645.000
9	3	66.300	10.000000	1563.000	1348.000	380.000
10	2	54.800	10.000000	1384.000	---	556.000
11	3	65.600	10.000000	1218.000	937.000	801.000
12	3	74.500	10.000000	958.000	1010.000	493.000

### Detailed Results for Radar Type 5 Trial 6

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	51.000	9.000000	1731.000	---	259.000
2	2	69.300	9.000000	1762.000	---	617.000
3	1	94.600	9.000000	---	---	379.000
4	2	65.100	9.000000	1536.000	---	103.000
5	3	51.100	9.000000	1546.000	1400.000	650.000
6	2	86.100	9.000000	1619.000	---	221.000
7	1	80.000	9.000000	---	---	44.000
8	1	60.800	9.000000	---	---	384.000
9	3	56.200	9.000000	1627.000	1397.000	126.000
10	1	99.700	9.000000	---	---	20.000
11	1	84.000	9.000000	---	---	411.000
12	3	83.100	9.000000	1223.000	1586.000	232.000
13	1	50.900	9.000000	---	---	179.000
14	1	53.200	9.000000	---	---	48.000
15	2	71.800	9.000000	1079.000	---	692.000
16	2	66.300	9.000000	1893.000	---	503.000
17	2	51.200	9.000000	1362.000	---	455.000

### Detailed Results for Radar Type 5 Trial 7

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	1	85.200	14.000000	---	---	99.000
2	3	59.000	14.000000	1887.000	1086.000	687.000
3	1	51.000	14.000000	---	---	381.000
4	2	84.800	14.000000	1906.000	---	520.000
5	3	83.200	14.000000	1466.000	1170.000	910.000
6	3	92.300	14.000000	977.000	1255.000	1.000
7	2	59.400	14.000000	1674.000	---	732.000
8	2	90.700	14.000000	1058.000	---	642.000
9	3	93.100	14.000000	961.000	934.000	359.000
10	3	74.900	14.000000	1673.000	1639.000	602.000
11	2	90.800	14.000000	1227.000	---	430.000
12	3	58.500	14.000000	1625.000	1374.000	10.000
13	1	57.700	14.000000	---	---	804.000

### Detailed Results for Radar Type 5 Trial 8

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	77.900	16.000000	1250.000	---	478.000
2	2	69.500	16.000000	1007.000	---	962.000
3	2	74.500	16.000000	1631.000	---	657.000
4	1	93.900	16.000000	---	---	564.000
5	2	55.400	16.000000	949.000	---	59.000
6	3	50.400	16.000000	1162.000	1396.000	565.000
7	1	68.600	16.000000	---	---	732.000
8	3	88.700	16.000000	1750.000	1835.000	872.000
9	2	54.900	16.000000	1869.000	---	32.000
10	3	51.000	16.000000	970.000	1344.000	750.000
11	3	86.500	16.000000	1599.000	1682.000	364.000

### Detailed Results for Radar Type 5 Trial 9

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	63.100	5.000000	1767.000	---	49.000
2	2	54.000	5.000000	1907.000	---	76.000
3	1	74.000	5.000000	---	---	573.000
4	3	69.500	5.000000	1490.000	1185.000	440.000
5	2	62.300	5.000000	1013.000	---	645.000
6	2	52.800	5.000000	1682.000	---	178.000
7	2	90.100	5.000000	1367.000	---	171.000
8	1	86.200	5.000000	---	---	251.000
9	2	94.800	5.000000	908.000	---	307.000
10	2	66.500	5.000000	972.000	---	415.000
11	3	60.800	5.000000	1555.000	1769.000	440.000
12	2	69.200	5.000000	1364.000	---	408.000
13	2	82.600	5.000000	1077.000	---	86.000
14	3	89.600	5.000000	934.000	1096.000	215.000
15	2	87.700	5.000000	958.000	---	272.000
16	2	74.300	5.000000	1246.000	---	576.000
17	1	98.600	5.000000	---	---	262.000
18	3	82.600	5.000000	1172.000	1322.000	628.000

### Detailed Results for Radar Type 5 Trial 10

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	76.300	6.000000	1673.000	1870.000	757.000
2	1	85.600	6.000000	---	---	712.000
3	2	87.400	6.000000	1495.000	---	427.000
4	2	67.800	6.000000	1430.000	---	153.000
5	1	80.900	6.000000	---	---	197.000
6	1	80.300	6.000000	---	---	160.000
7	3	86.500	6.000000	1329.000	1212.000	509.000
8	1	96.300	6.000000	---	---	828.000
9	1	80.800	6.000000	---	---	306.000
10	2	74.900	6.000000	1636.000	---	609.000
11	3	60.400	6.000000	1278.000	1394.000	269.000
12	3	57.300	6.000000	1719.000	999.000	826.000
13	2	64.800	6.000000	1378.000	---	41.000
14	2	66.600	6.000000	933.000	---	631.000

### Detailed Results for Radar Type 5 Trial 11

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	86.900	18.000000	1072.000	1743.000	270.000
2	3	81.200	18.000000	1473.000	1232.000	993.000
3	3	100.000	18.000000	1838.000	1883.000	1083.000
4	1	65.400	18.000000	---	---	815.000
5	3	80.200	18.000000	1355.000	1538.000	799.000
6	3	96.500	18.000000	1759.000	1784.000	72.000
7	3	80.300	18.000000	1386.000	1646.000	426.000
8	2	81.600	18.000000	1787.000	---	878.000

### Detailed Results for Radar Type 5 Trial 12

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	78.100	10.000000	1102.000	---	160.000
2	2	51.400	10.000000	957.000	---	633.000
3	3	85.200	10.000000	1076.000	1386.000	363.000
4	1	96.300	10.000000	---	---	992.000
5	1	67.200	10.000000	---	---	751.000
6	3	68.900	10.000000	1284.000	1725.000	149.000
7	2	75.900	10.000000	958.000	---	690.000
8	2	87.000	10.000000	1715.000	---	512.000
9	1	88.500	10.000000	---	---	611.000
10	3	61.000	10.000000	1333.000	1179.000	361.000
11	1	57.000	10.000000	---	---	214.000
12	2	55.900	10.000000	1656.000	---	643.000

### Detailed Results for Radar Type 5 Trial 13

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	53.400	13.000000	1343.000	1742.000	651.000
2	1	57.300	13.000000	---	---	857.000
3	1	61.900	13.000000	---	---	567.000
4	3	60.500	13.000000	1355.000	1499.000	847.000
5	1	62.000	13.000000	---	---	1014.000
6	2	94.800	13.000000	1584.000	---	512.000
7	1	64.300	13.000000	---	---	992.000
8	3	93.200	13.000000	1157.000	1861.000	285.000
9	3	56.000	13.000000	1813.000	1900.000	1189.000
10	2	79.100	13.000000	1234.000	---	1006.000

### Detailed Results for Radar Type 5 Trial 14

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	59.500	11.000000	1738.000	---	660.000
2	1	57.000	11.000000	---	---	796.000
3	2	54.400	11.000000	1891.000	---	779.000
4	2	97.500	11.000000	1566.000	---	298.000
5	3	52.000	11.000000	1941.000	1472.000	201.000
6	1	62.500	11.000000	---	---	211.000
7	2	79.100	11.000000	1016.000	---	30.000
8	2	98.600	11.000000	927.000	---	485.000
9	2	52.900	11.000000	1814.000	---	328.000
10	2	64.600	11.000000	1644.000	---	339.000
11	3	75.300	11.000000	1710.000	1296.000	500.000
12	1	74.200	11.000000	---	---	451.000
13	1	58.400	11.000000	---	---	160.000
14	1	97.500	11.000000	---	---	573.000

### Detailed Results for Radar Type 5 Trial 15

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	53.000	16.000000	1731.000	1776.000	102.000
2	2	61.000	16.000000	988.000	---	570.000
3	1	59.900	16.000000	---	---	566.000
4	1	85.500	16.000000	---	---	213.000
5	3	94.800	16.000000	1100.000	1674.000	103.000
6	3	81.600	16.000000	979.000	1275.000	44.000
7	1	57.300	16.000000	---	---	498.000
8	2	93.800	16.000000	999.000	---	772.000
9	2	75.100	16.000000	1593.000	---	686.000
10	3	96.400	16.000000	1515.000	1372.000	320.000
11	2	59.600	16.000000	1224.000	---	9.000
12	2	69.600	16.000000	1553.000	---	192.000
13	1	84.300	16.000000	---	---	102.000
14	3	70.600	16.000000	1234.000	961.000	644.000
15	1	97.700	16.000000	---	---	436.000

### Detailed Results for Radar Type 5 Trial 16

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	54.600	13.000000	1482.000	---	997.000
2	3	58.000	13.000000	1111.000	999.000	712.000
3	3	63.400	13.000000	1268.000	1709.000	269.000
4	3	67.400	13.000000	1035.000	1498.000	377.000
5	3	70.200	13.000000	1122.000	999.000	381.000
6	1	92.500	13.000000	---	---	942.000
7	3	63.900	13.000000	1233.000	1239.000	49.000
8	1	67.700	13.000000	---	---	121.000
9	2	74.700	13.000000	1791.000	---	596.000
10	2	98.000	13.000000	1740.000	---	602.000

### Detailed Results for Radar Type 5 Trial 17

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	68.600	13.000000	1614.000	---	278.000
2	3	78.700	13.000000	1230.000	1429.000	455.000
3	2	72.000	13.000000	1581.000	---	173.000
4	2	75.600	13.000000	977.000	---	212.000
5	2	65.500	13.000000	1725.000	---	589.000
6	2	55.000	13.000000	1600.000	---	3.000
7	1	57.000	13.000000	---	---	642.000
8	2	70.100	13.000000	1454.000	---	556.000
9	2	52.700	13.000000	1212.000	---	448.000
10	3	61.200	13.000000	1845.000	1035.000	543.000
11	2	98.000	13.000000	1740.000	---	298.000
12	2	56.300	13.000000	1488.000	---	3.000
13	3	74.200	13.000000	1454.000	1697.000	589.000
14	1	91.600	13.000000	---	---	282.000
15	3	70.600	13.000000	1578.000	1218.000	414.000

### Detailed Results for Radar Type 5 Trial 18

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	69.200	20.000000	1589.000	---	608.000
2	2	96.300	20.000000	1096.000	---	1107.000
3	2	65.100	20.000000	973.000	---	1251.000
4	3	82.700	20.000000	1229.000	1116.000	442.000
5	1	86.700	20.000000	---	---	528.000
6	1	50.500	20.000000	---	---	261.000
7	2	74.700	20.000000	1296.000	---	317.000
8	1	58.000	20.000000	---	---	131.000
9	3	82.600	20.000000	1463.000	985.000	1132.000

### Detailed Results for Radar Type 5 Trial 19

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	1	84.500	5.000000	---	---	77.000
2	2	85.100	5.000000	1049.000	---	561.000
3	2	77.500	5.000000	1012.000	---	322.000
4	2	95.300	5.000000	1524.000	---	591.000
5	2	69.000	5.000000	1447.000	---	479.000
6	2	65.200	5.000000	1574.000	---	177.000
7	3	77.400	5.000000	1446.000	1628.000	4.000
8	2	58.000	5.000000	1737.000	---	631.000
9	3	58.500	5.000000	1714.000	1626.000	330.000
10	1	98.600	5.000000	---	---	508.000
11	1	73.900	5.000000	---	---	27.000
12	1	67.700	5.000000	---	---	157.000
13	1	99.000	5.000000	---	---	313.000
14	2	76.800	5.000000	1232.000	---	429.000
15	2	89.900	5.000000	1618.000	---	574.000
16	3	88.000	5.000000	1587.000	1221.000	326.000
17	1	55.100	5.000000	---	---	550.000
18	3	93.900	5.000000	930.000	1084.000	275.000

### Detailed Results for Radar Type 5 Trial 20

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	50.800	18.000000	1595.000	---	21.000
2	2	52.000	18.000000	1563.000	---	729.000
3	2	58.800	18.000000	1384.000	---	15.000
4	2	79.700	18.000000	979.000	---	261.000
5	1	69.500	18.000000	---	---	533.000
6	2	98.900	18.000000	1015.000	---	493.000
7	2	82.800	18.000000	1634.000	---	218.000
8	1	70.100	18.000000	---	---	1102.000
9	2	89.200	18.000000	1357.000	---	524.000

### Detailed Results for Radar Type 5 Trial 21

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	52.100	18.000000	1215.000	---	17.000
2	3	99.800	18.000000	1736.000	1673.000	148.000
3	2	53.200	18.000000	1233.000	---	12.000
4	1	87.200	18.000000	---	---	540.000
5	2	75.200	18.000000	975.000	---	618.000
6	3	63.600	18.000000	1614.000	1448.000	732.000
7	2	61.200	18.000000	1118.000	---	137.000
8	2	86.400	18.000000	1014.000	---	331.000
9	2	79.400	18.000000	1910.000	---	737.000
10	2	84.300	18.000000	1126.000	---	48.000
11	2	81.500	18.000000	1345.000	---	288.000
12	3	81.300	18.000000	1810.000	952.000	529.000
13	2	94.900	18.000000	1306.000	---	612.000
14	3	69.600	18.000000	1632.000	1730.000	692.000
15	3	73.300	18.000000	1015.000	1552.000	317.000
16	3	93.100	18.000000	1179.000	1533.000	7.000

### Detailed Results for Radar Type 5 Trial 22

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	97.900	7.000000	1124.000	---	368.000
2	2	94.200	7.000000	1097.000	---	363.000
3	2	95.600	7.000000	1706.000	---	338.000
4	3	60.700	7.000000	1726.000	1788.000	628.000
5	2	79.600	7.000000	921.000	---	352.000
6	2	55.700	7.000000	1463.000	---	71.000
7	2	92.300	7.000000	1486.000	---	208.000
8	3	59.600	7.000000	1550.000	1830.000	605.000
9	2	95.900	7.000000	1529.000	---	727.000
10	2	87.500	7.000000	1521.000	---	637.000
11	3	81.100	7.000000	961.000	1815.000	593.000
12	3	93.000	7.000000	1246.000	1717.000	400.000
13	3	62.500	7.000000	1219.000	1563.000	742.000
14	1	70.400	7.000000	---	---	627.000
15	2	63.400	7.000000	1345.000	---	439.000
16	1	78.000	7.000000	---	---	663.000

### Detailed Results for Radar Type 5 Trial 23

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	1	70.600	15.000000	---	---	302.000
2	1	74.700	15.000000	---	---	299.000
3	1	63.600	15.000000	---	---	82.000
4	2	52.100	15.000000	1812.000	---	536.000
5	1	97.500	15.000000	---	---	395.000
6	2	96.300	15.000000	1335.000	---	250.000
7	3	70.800	15.000000	1052.000	1243.000	462.000
8	3	59.600	15.000000	1059.000	1550.000	477.000
9	3	99.200	15.000000	1633.000	1572.000	254.000
10	1	53.300	15.000000	---	---	33.000
11	3	98.600	15.000000	1526.000	1428.000	564.000
12	3	89.300	15.000000	1017.000	1662.000	221.000
13	1	62.700	15.000000	---	---	248.000
14	2	70.400	15.000000	1855.000	---	232.000
15	3	61.400	15.000000	1444.000	1073.000	470.000
16	1	76.000	15.000000	---	---	441.000
17	2	90.800	15.000000	1164.000	---	195.000
18	3	65.200	15.000000	1246.000	1582.000	246.000
19	3	74.700	15.000000	928.000	1671.000	194.000
20	2	75.100	15.000000	989.000	---	83.000

### Detailed Results for Radar Type 5 Trial 24

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	1	93.100	11.000000	---	---	422.000
2	3	61.300	11.000000	1194.000	1086.000	738.000
3	3	57.000	11.000000	1918.000	1102.000	523.000
4	3	91.800	11.000000	1588.000	1798.000	874.000
5	3	88.600	11.000000	1491.000	1061.000	748.000
6	3	62.400	11.000000	1019.000	1144.000	525.000
7	3	88.000	11.000000	1259.000	1713.000	641.000
8	2	77.700	11.000000	1025.000	---	383.000
9	1	51.800	11.000000	---	---	554.000
10	1	55.900	11.000000	---	---	939.000
11	3	63.700	11.000000	1503.000	1789.000	182.000

### Detailed Results for Radar Type 5 Trial 25

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	70.500	17.000000	956.000	---	247.000
2	3	85.800	17.000000	1726.000	1051.000	659.000
3	2	67.600	17.000000	1910.000	---	383.000
4	2	97.900	17.000000	1794.000	---	123.000
5	3	55.000	17.000000	1798.000	1000.000	48.000
6	2	55.900	17.000000	1322.000	---	464.000
7	3	53.400	17.000000	1270.000	1431.000	347.000
8	2	88.300	17.000000	1417.000	---	544.000
9	2	95.600	17.000000	1228.000	---	453.000
10	2	70.400	17.000000	1039.000	---	291.000
11	2	53.000	17.000000	1860.000	---	689.000
12	1	80.600	17.000000	---	---	628.000
13	3	67.000	17.000000	1382.000	1724.000	487.000
14	2	67.300	17.000000	1895.000	---	682.000
15	2	63.100	17.000000	1171.000	---	343.000
16	2	79.400	17.000000	1369.000	---	186.000

### Detailed Results for Radar Type 5 Trial 26

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	61.700	11.000000	1264.000	1572.000	640.000
2	3	82.600	11.000000	923.000	1387.000	439.000
3	2	74.800	11.000000	1230.000	---	16.000
4	2	77.700	11.000000	1544.000	---	613.000
5	1	80.400	11.000000	---	---	213.000
6	3	88.700	11.000000	1316.000	1461.000	568.000
7	3	78.100	11.000000	1065.000	1167.000	387.000
8	2	56.600	11.000000	1454.000	---	647.000
9	1	63.600	11.000000	---	---	285.000
10	2	73.100	11.000000	1369.000	---	189.000
11	2	67.900	11.000000	994.000	---	165.000
12	2	76.500	11.000000	1164.000	---	480.000
13	1	63.700	11.000000	---	---	28.000
14	2	70.100	11.000000	1823.000	---	516.000
15	2	90.400	11.000000	1694.000	---	561.000
16	2	87.700	11.000000	1528.000	---	420.000
17	3	77.700	11.000000	1339.000	1407.000	61.000
18	1	81.300	11.000000	---	---	67.000

### Detailed Results for Radar Type 5 Trial 27

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	92.800	10.000000	1307.000	1195.000	177.000
2	2	69.200	10.000000	1264.000	---	1014.000
3	2	63.000	10.000000	1830.000	---	875.000
4	1	58.400	10.000000	---	---	470.000
5	2	74.900	10.000000	1531.000	---	184.000
6	2	76.000	10.000000	1488.000	---	679.000
7	2	50.500	10.000000	1360.000	---	296.000
8	1	82.500	10.000000	---	---	645.000
9	3	58.800	10.000000	1168.000	1620.000	345.000
10	2	70.900	10.000000	1468.000	---	205.000
11	1	72.700	10.000000	---	---	702.000



### Detailed Results for Radar Type 5 Trial 28

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	3	52.300	11.000000	1799.000	1297.000	737.000
2	3	53.600	11.000000	1397.000	1860.000	189.000
3	1	59.200	11.000000	---	---	495.000
4	3	54.300	11.000000	1885.000	1319.000	152.000
5	1	75.600	11.000000	---	---	76.000
6	1	52.900	11.000000	---	---	190.000
7	1	97.700	11.000000	---	---	195.000
8	2	50.200	11.000000	1276.000	---	604.000
9	3	95.000	11.000000	1526.000	1582.000	267.000
10	3	77.500	11.000000	1494.000	1729.000	842.000
11	1	66.900	11.000000	---	---	144.000
12	2	96.100	11.000000	1441.000	---	435.000
13	3	62.500	11.000000	1037.000	1474.000	262.000
14	2	53.100	11.000000	1278.000	---	525.000

### Detailed Results for Radar Type 5 Trial 29

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	2	69.000	7.000000	1220.000	---	20.000
2	3	88.500	7.000000	1376.000	1096.000	45.000
3	2	56.300	7.000000	1207.000	---	779.000
4	2	88.800	7.000000	1793.000	---	532.000
5	1	78.600	7.000000	---	---	577.000
6	2	82.300	7.000000	1534.000	---	549.000
7	1	71.700	7.000000	---	---	612.000
8	2	52.800	7.000000	1891.000	---	631.000
9	1	66.100	7.000000	---	---	166.000
10	2	72.800	7.000000	1460.000	---	381.000
11	2	82.900	7.000000	1293.000	---	451.000
12	3	72.300	7.000000	1224.000	1577.000	61.000
13	2	91.900	7.000000	1281.000	---	619.000
14	3	82.400	7.000000	1570.000	1469.000	99.000

### Detailed Results for Radar Type 5 Trial 30

Burst	No. of Pulses	Pulse Width (µs)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µs)	Pulse 2-to-3 Spacing (µs)	Starting Location Within Interval (µs)
1	1	66.600	20.000000	---	---	330.000
2	1	74.500	20.000000	---	---	248.000
3	2	68.200	20.000000	1149.000	---	80.000
4	2	70.100	20.000000	1849.000	---	536.000
5	3	65.800	20.000000	1316.000	1180.000	623.000
6	3	82.100	20.000000	1690.000	1661.000	503.000
7	2	95.900	20.000000	1840.000	---	687.000
8	1	51.100	20.000000	---	---	107.000
9	2	99.600	20.000000	1035.000	---	389.000
10	1	59.600	20.000000	---	---	424.000
11	3	96.000	20.000000	1733.000	1820.000	427.000
12	3	64.400	20.000000	1553.000	1679.000	204.000
13	2	82.800	20.000000	1451.000	---	69.000
14	2	86.800	20.000000	1508.000	---	573.000
15	2	76.300	20.000000	1738.000	---	361.000
16	2	83.800	20.000000	1152.000	---	683.000

**Detailed Results for Radar Type 6:**

<b>Trial Number</b>	<b>Pulse Width (µs)</b>	<b>PRI (µs)</b>	<b>No. of Pulses</b>	<b>Pulses Detected</b>
1	1.000	300	9	YES
2	1.000	300	9	YES
3	1.000	300	9	YES
4	1.000	300	9	YES
5	1.000	300	9	YES
6	1.000	300	9	YES
7	1.000	300	9	YES
8	1.000	300	9	YES
9	1.000	300	9	YES
10	1.000	300	9	YES
11	1.000	300	9	YES
12	1.000	300	9	YES
13	1.000	300	9	YES
14	1.000	300	9	YES
15	1.000	300	9	YES
16	1.000	300	9	YES
17	1.000	300	9	YES
18	1.000	300	9	YES
19	1.000	300	9	YES
20	1.000	300	9	YES
21	1.000	300	9	YES
22	1.000	300	9	YES
23	1.000	300	9	YES
24	1.000	300	9	YES
25	1.000	300	9	YES
26	1.000	300	9	YES
27	1.000	300	9	YES
28	1.000	300	9	YES
29	1.000	300	9	YES
30	1.000	300	9	YES