



DFS MEASUREMENT REPORT

FCC ID: Q9DAPIN0655A

Applicant: Hewlett Packard Enterprise Company

Product: ACCESS POINT

Model No.: APIN0655A

Trademark: 

FCC Classification: Unlicensed National Information Infrastructure (NII)

FCC Rule Part(s): Part 15 Subpart E (Section 15.407)

Type of Device: Master

Result: Complies

Received Date: 2024-12-24

Test Date: 2025-02-11

Reviewed By:

Jame Yuan

Approved By:

Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 905462. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2412RSU040-U5	V01	Initial Report	2025-04-01	Valid

Note 1: The APIN0655A is a variation on the existing APIN0655. The APIN0655 is currently FCC certified under FCC ID: Q9DAPIN0655.

The APIN0655A differs from the APIN0655 in the following ways:

Part substitution for 5G and 6G passive filter

Note 2: “Statistical Performance Check” spot check was performed in this report.

CONTENTS

Description	Page
1. General Information	4
1.1. Applicant	4
1.2. Manufacturer	4
1.3. Testing Facility	4
1.4. Product Information.....	5
1.5. Radio Specification under Test	5
1.6. Working Frequencies	6
1.7. Antenna Details.....	7
2. Test Configuration	8
2.1. Test Mode.....	8
2.2. Test Channel	8
2.3. Applied Standards.....	8
2.4. Test Environment Condition	8
3. DFS Detection Thresholds and Radar Test Waveforms	9
3.1. Applicability	9
3.2. DFS Devices Requirements.....	10
3.3. DFS Detection Threshold Values.....	12
3.4. Parameters of DFS Test Signals.....	13
3.5. Conducted Test Setup.....	16
4. Measuring Instrument	17
5. Test Result.....	18
5.1. Summary	18
5.2. Statistical Performance Check Measurement.....	19
5.2.1. Test Limit	19
5.2.2. Test Procedure	19
5.2.3. Test Result	19
Appendix A – Test Result.....	20
A.1 Statistical Performance Check.....	20
Appendix B – Test Setup Photograph	34
Appendix C – EUT Photograph	35

1. General Information

1.1. Applicant

Hewlett Packard Enterprise Company
6280 America Center Drive, San Jose CA 95002, United States

1.2. Manufacturer

Hewlett Packard Enterprise Company
6280 America Center Drive, San Jose CA 95002, United States

1.3. Testing Facility

☒	Test Site – MRT Suzhou Laboratory Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China Laboratory Location (Suzhou - Wujiang) Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China Laboratory Accreditations <table border="0"> <tr> <td>A2LA: 3628.01</td> <td>CNAS: L10551</td> </tr> <tr> <td>FCC: CN1166</td> <td>ISED: CN0001</td> </tr> <tr> <td>VCCI:</td> <td> ☐R-20025 ☐G-20034 ☐C-20020 ☐T-20020 ☐R-20141 ☐G-20134 ☐C-20103 ☐T-20104 </td> </tr> </table>	A2LA: 3628.01	CNAS: L10551	FCC: CN1166	ISED: CN0001	VCCI:	☐ R-20025 ☐ G-20034 ☐ C-20020 ☐ T-20020 ☐ R-20141 ☐ G-20134 ☐ C-20103 ☐ T-20104
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☐	Test Site – MRT Shenzhen Laboratory Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China Laboratory Accreditations <table border="0"> <tr> <td>A2LA: 3628.02</td> <td>CNAS: L10551</td> </tr> <tr> <td>FCC: CN1284</td> <td>ISED: CN0105</td> </tr> </table>	A2LA: 3628.02	CNAS: L10551	FCC: CN1284	ISED: CN0105		
A2LA: 3628.02	CNAS: L10551						
FCC: CN1284	ISED: CN0105						
☐	Test Site – MRT Taiwan Laboratory Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) Laboratory Accreditations <table border="0"> <tr> <td>TAF: 3261</td> <td></td> </tr> <tr> <td>FCC: 291082, TW3261</td> <td>ISED: TW3261</td> </tr> </table>	TAF: 3261		FCC: 291082, TW3261	ISED: TW3261		
TAF: 3261							
FCC: 291082, TW3261	ISED: TW3261						

1.4. Product Information

Product Name	ACCESS POINT
Model No.	APIN0655A
Serial No.	CNT0ML102S
Software Version	ArubaOS_Norma_10.7.2.0_91852_0208
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Bluetooth Specification	v5.0 single mode, BLE only
Zigbee Specification	802.15.4
GNSS Specification	GPS, GLONASS, Galileo
Operating Temperature	0 ~ 50 °C
Power Type	AC Adapter or PoE input
Operating Environment	Indoor Use
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Radio Specification under Test

Frequency Range	For 802.11a/n-HT20/ac-VHT20/ax-HE20: 5260~5320MHz, 5500~5720MHz For 802.11n-HT40/ac-VHT40/ax-HE40: 5270~5310MHz, 5510~5710MHz For 802.11ac-VHT80/ax-HE80: 5290MHz, 5530MHz, 5610MHz, 5690MHz For 802.11ac-VHT80+80/ax-HE80+80: 5210 + 5290MHz, 5530 + 5610MHz
Type of Modulation	802.11a/n/ac: OFDM 802.11ax: OFDMA
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.3Mbps 802.11ax: up to 4804Mbps
Uniform Spreading (For DFS Frequency Band)	For the 5250-5350MHz, 5470-5725 MHz bands, the Master device provides, on aggregate, uniform loading of the spectrum across all devices by selecting an operating channel among the available channels using a random algorithm.

1.6. Working Frequencies

802.11a/n-HT20/ac-VHT20/ax-HE20

Channel	Frequency	Channel	Frequency	Channel	Frequency
52	5260 MHz	56	5280 MHz	60	5300 MHz
64	5320 MHz	100	5500 MHz	104	5520 MHz
108	5540 MHz	112	5560 MHz	116	5580 MHz
120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680 MHz	140	5700 MHz
144	5720 MHz	--	--	--	--

802.11n-HT40/ac-VHT40/ax-HE40

Channel	Frequency	Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz	102	5510 MHz
110	5550 MHz	118	5590 MHz	126	5630 MHz
134	5670 MHz	142	5710 MHz	--	--

802.11ac-VHT80/ax-HE80

Channel	Frequency	Channel	Frequency	Channel	Frequency
58	5290 MHz	106	5530 MHz	122	5610 MHz
138	5690 MHz	--	--	--	--

802.11ac-VHT80+80/ax-HE80+80

Channel	Frequency	Channel	Frequency	Channel	Frequency
42 + 58	5210+5290MHz	106 + 122	5530+5610 MHz	--	--

1.7. Antenna Details

Antenna Type	Frequency Band (GHz)	Max Peak Gain (dBi)	CDD Directional Gain (dBi)		BF Directional Gain (dBi)
			For Power	For PSD	
Wi-Fi Internal Antenna (4*4 MIMO)					
PIFA	2.4 ~ 2.5	3.26	3.26	6.23	6.23
	5.15 ~ 5.9	2.88	2.88	5.60	5.60
	5.9 ~ 7.2	3.97	3.97	6.97	6.97
Bluetooth / ZigBee Internal Antenna					
PIFA	2.4 ~ 2.5	3.60			

Note:

1. The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.
2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac/ax, not include 802.11a/b/g.
3. For beamforming operation, Aruba OS automatically backs power down based on a $10\log(N)$ factor based on CDD power.
4. All Wi-Fi antennas have cross polarized design, the detail information and calculation method refer to antenna specification.

2. Test Configuration

2.1. Test Mode

Mode 1: Operating under AP mode
Mode 2: Operating under Mesh Mode

2.2. Test Channel

Test Mode	Test Channel	Test Frequency
802.11ax-HE80+80	42+58	5210+5290 MHz

2.3. Applied Standards

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

- FCC Part 15.407 Section (h)(2)
- KDB 905462 D02v02
- KDB 905462 D04v01

2.4. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

3. DFS Detection Thresholds and Radar Test Waveforms

3.1. Applicability

The following table from FCC KDB 905462 D02 NII DFS Compliance Procedures New Rules v02 lists the applicable requirements for the DFS testing.

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 3-1: Applicability of DFS Requirements Prior to Use of a Channel

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

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and 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 should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.

Table 3-2: Applicability of DFS Requirements during normal operation

3.2. DFS Devices Requirements

Per FCC KDB 905462 D02 NII DFS Compliance Procedures New Rules v02 the following are the requirements for Master Devices:

- (a) The Master Device will use DFS in order to detect Radar Waveforms with received signal strength above the DFS Detection Threshold in the 5250 ~ 5350 MHz and 5470 ~ 5725 MHz bands. DFS is not required in the 5150 ~ 5250 MHz or 5725 ~ 5825 MHz bands.
- (b) Before initiating a network on a Channel, the Master Device will perform a Channel Availability Check for a specified time duration (Channel Availability Check Time) to ensure that there is no radar system operating on the Channel, using DFS described under subsection a) above.
- (c) The Master Device initiates a U-NII network by transmitting control signals that will enable other U-NII devices to Associate with the Master Device.
- (d) During normal operation, the Master Device will monitor the Channel (In-Service Monitoring) to ensure that there is no radar system operating on the Channel, using DFS described under a).
- (e) If the Master Device has detected a Radar Waveform during In-Service Monitoring as described under d), the Operating Channel of the U-NII network is no longer an Available Channel. The Master Device will instruct all associated Client Device(s) to stop transmitting on this Channel within the Channel Move Time. The transmissions during the Channel Move Time will be limited to the Channel Closing Transmission Time.
- (f) Once the Master Device has detected a Radar Waveform it will not utilize the Channel for the duration of the Non-Occupancy Period.
- (g) If the Master Device delegates the In-Service Monitoring to a Client Device, then the combination will be tested to the requirements described under d) through f) above.

Channel Move Time and Channel Closing Transmission Time requirements are listed in the following table.

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

Table 3-3: DFS Response Requirements

3.3. DFS Detection Threshold Values

The DFS detection thresholds are defined for Master devices and Client Devices with In-service monitoring.

These detection thresholds are listed in the following table.

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP $\geq$ 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
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 3-4: Detection Thresholds for Master Devices and Client Devices with Radar Detection

3.4. Parameters of DFS Test Signals

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. 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.

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 3-6	$\text{Roundup} \left\{ \left(\frac{1}{360} \right) \cdot \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\}$	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
Note: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.					

Table 3-5: Parameters for Short Pulse Radar Waveforms

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms.

Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulses Per Second)	Pulse Repetition Interval (Microseconds)
1	1930.5	518
2	1858.7	538
3	1792.1	558
4	1730.1	578
5	1672.2	598
6	1618.1	618
7	1567.4	638
8	1519.8	658
9	1474.9	678
10	1432.7	698
11	1392.8	718
12	1355	738
13	1319.3	758
14	1285.3	778
15	1253.1	798
16	1222.5	818
17	1193.3	838
18	1165.6	858
19	1139	878
20	1113.6	898
21	1089.3	918
22	1066.1	938
23	326.2	3066

Table 3-6: Pulse Repetition Intervals Values for Test A

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 3-7: Parameters for Long Pulse Radar Waveforms

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse Radar Type waveforms. If more than 30 waveforms are used for the Long Pulse Radar Type waveforms, then each additional waveform must also be unique and not repeated from the previous waveforms.

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

Table 3-8: Parameters for Frequency Hopping Radar Waveforms

For the Frequency Hopping Radar Type, the same Burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.

3.5. Conducted Test Setup

The FCC KDB 905462 D02 NII DFS Compliance Procedures New Rules v02 describes a radiated test setup and a conducted test setup. The conducted test setup was used for this testing. Figure 3-1 shows the typical test setup.

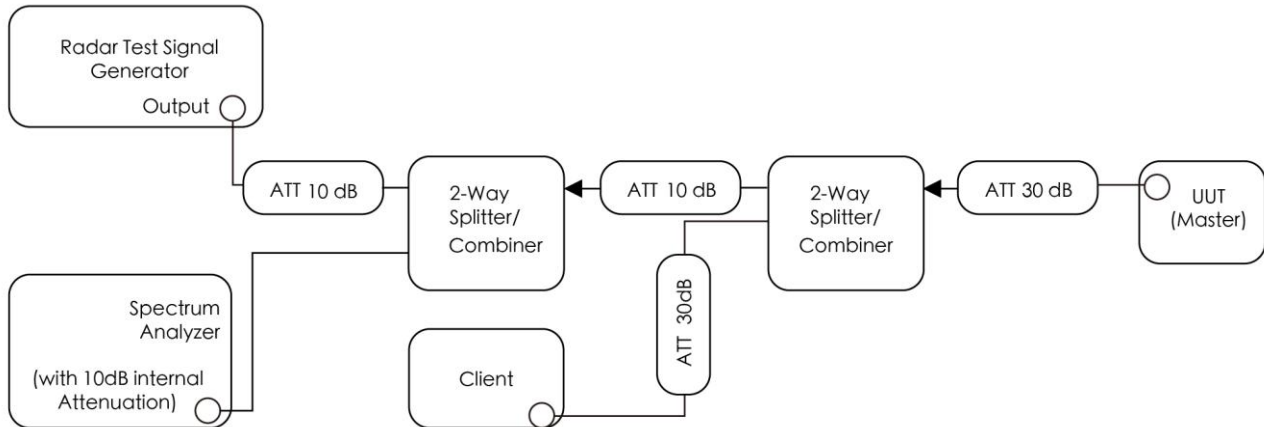


Figure 3-1: Conducted Test Setup where UUT is a Master and Radar Test Waveforms are injected into the Masters

4. Measuring Instrument

Instrument Name	Manufacturer	Model No.	Asset No.	Cali. Interval	Cal. Due Date	Test Site
Shielding Room	HUAMING	WZ-SR4	MRTSUE06441	N/A	N/A	WZ-SR4
Signal Generator	Keysight	N5182B	MRTSUE06451	1 year	2025-06-03	WZ-SR4
Signal Analyzer	Keysight	N9010B	MRTSUE07027	1 year	2025-10-13	WZ-SR4
Thermohygrometer	testo	608-H1	MRTSUE11256	1 year	2025-10-16	WZ-SR4
Attenuator	MVE	MVE2213	MRTSUE11092	1 year	2025-06-05	WZ-SR4

Client Information

Instrument	Manufacturer	Type No.	Certification Number
Wi-Fi Module	Intel	BE200NGW	FCC ID: PD9BE200NG

Software	Version	Manufacturer	Function
DFS Tool	V 6.9.2	Agilent	DFS Test Software
Pulse Sequencer	V 2.8	R&S	DFS Test Software
Signal Studio	V2.2.0.0	Keysight	DFS Test Software

5. Test Result

5.1. Summary

Parameter	Verdict	Reference
NII Detection Bandwidth Measurement	Pass	Refer to original report no. 2105TW0602-U5
Initial Channel Availability Check Time	Pass	
Radar Burst at the Beginning of the Channel Availability Check Time	Pass	
Radar Burst at the End of the Channel Availability Check Time	Pass	
In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time	Pass	
Non-Occupancy Period	Pass	Refer to original report no. 2105TW0602-U5 Spot Check Test Data refer to Appendix A.1 in this report.
Statistical Performance Check	Pass	

5.2. Statistical Performance Check Measurement

5.2.1. Test Limit

The minimum percentage of successful detection requirements found in below table when a radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device (In- Service Monitoring).

Radar Type	Minimum Number of Trails	Detection Probability
0	30	$P_d \geq 60\%$
1	30(15 of test A and 15 of test B)	$P_d \geq 60\%$
2	30	$P_d \geq 60\%$
3	30	$P_d \geq 60\%$
4	30	$P_d \geq 60\%$
Aggregate (Radar Types 1-4)	120	$P_d \geq 80\%$
5	30	$P_d \geq 80\%$
6	30	$P_d \geq 70\%$

Note: The percentage of successful detection is calculated by:
 $(\text{Total Waveform Detections} / \text{Total Waveform Trails}) * 100 = \text{Probability of Detection Radar Waveform}$
 In addition an aggregate minimum percentage of successful detection across all Short Pulse Radar Types 1-4 is required and is calculated as follows: $(P_{d1} + P_{d2} + P_{d3} + P_{d4}) / 4$.

5.2.2. Test Procedure

1. Stream the MPEG test file from the Master Device to the Client Device on the test Channel for the entire period of the test.
2. At time T0 the Radar Waveform generator sends the individual waveform for each of the Radar Types 1-6, at levels equal to the DFS Detection Threshold + 1dB, on the Operating Channel.
3. Observe the transmissions of the EUT at the end of the Burst on the Operating Channel for duration greater than 10 seconds for Short Pulse Radar Types 0 to ensure detection occurs.
4. Observe the transmissions of the EUT at the end of the Burst on the Operating Channel for duration greater than 22 seconds for Long Pulse Radar Type 5 to ensure detection occurs.
5. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs.
6. The Minimum number of trails, minimum percentage of successful detection and the average minimum percentage of successful detection are found in below table

5.2.3. Test Result

Refer to Appendix A.1.

Appendix A – Test Result

A.1 Statistical Performance Check

Test Site	WZ-SR4	Test Engineer	Jeff Yang
Test Date	2025-02-14		
Test Item	Radar Statistical Performance Check (802.11ax-HE80+80 – 5210+5290MHz)		

Radar Type 1-4 - Radar Statistical Performance								
Trial	Radar Type 1		Radar Type 2		Radar Type 3		Radar Type 4	
	Frequency (MHz)	1=detect 0=no detect	Frequency (MHz)	1=detect 0=no detect	Frequency (MHz)	1=detect 0=no detect	Frequency (MHz)	1=detect 0=no detect
0	5304	1	5265	1	5261	1	5308	1
1	5290	1	5250	1	5290	1	5262	1
2	5328	1	5306	1	5265	0	5250	0
3	5250	0	5290	1	5300	1	5326	1
4	5281	1	5293	1	5250	1	5330	0
5	5300	1	5298	1	5311	1	5271	1
6	5303	1	5252	1	5272	1	5284	1
7	5251	1	5305	1	5258	1	5290	1
8	5286	1	5330	1	5330	1	5325	1
9	5530	0	5282	1	5299	1	5317	1
Probability:	80.0%		100.0%		90.0%		80.0%	
Aggregate:	87.5% (≥80%)							

Radar Type 1 - Radar Waveform							Radar Type 2 - Radar Waveform						
	Trial Id	Radar Type	Pulse Width (us)	PRI (us)	Number of Pulses	Waveform Length (us)		Trial Id	Radar Type	Pulse Width (us)	PRI (us)	Number of Pulses	Waveform Length (us)
Download	0	Type 1	1.0	778.0	68	52904.0	Download	0	Type 2	2.7	208.0	25	5200.0
Download	1	Type 1	1.0	738.0	72	53136.0	Download	1	Type 2	4.7	171.0	29	4959.0
Download	2	Type 1	1.0	578.0	92	53176.0	Download	2	Type 2	3.2	206.0	26	5356.0
Download	3	Type 1	1.0	718.0	74	53132.0	Download	3	Type 2	1.4	150.0	23	3450.0
Download	4	Type 1	1.0	938.0	57	53466.0	Download	4	Type 2	2.5	193.0	25	4825.0
Download	25	Type 1	1.0	2407.0	22	52954.0	Download	5	Type 2	3.3	168.0	26	4368.0
Download	26	Type 1	1.0	1168.0	46	53728.0	Download	6	Type 2	4.1	220.0	28	6160.0
Download	27	Type 1	1.0	1781.0	30	53430.0	Download	7	Type 2	2.8	216.0	26	5616.0
Download	28	Type 1	1.0	2461.0	22	54142.0	Download	8	Type 2	3.5	172.0	27	4644.0
Download	29	Type 1	1.0	1420.0	38	53960.0	Download	9	Type 2	4.2	188.0	28	5264.0

Radar Type 3 - Radar Waveform							Radar Type 4 - Radar Waveform						
	Trial Id	Radar Type	Pulse Width (us)	PRI (us)	Number of Pulses	Waveform Length (us)		Trial Id	Radar Type	Pulse Width (us)	PRI (us)	Number of Pulses	Waveform Length (us)
Download	0	Type 3	7.7	434.0	17	7378.0	Download	0	Type 4	14.8	434.0	14	6076.0
Download	1	Type 3	9.7	276.0	18	4968.0	Download	1	Type 4	19.2	276.0	16	4416.0
Download	2	Type 3	8.2	288.0	17	4896.0	Download	2	Type 4	16.0	288.0	14	4032.0
Download	3	Type 3	6.4	379.0	16	6064.0	Download	3	Type 4	12.0	379.0	12	4548.0
Download	4	Type 3	7.5	311.0	17	5287.0	Download	4	Type 4	14.4	311.0	13	4043.0
Download	5	Type 3	8.3	279.0	17	4743.0	Download	5	Type 4	16.1	279.0	14	3906.0
Download	6	Type 3	9.1	202.0	18	3636.0	Download	6	Type 4	17.9	202.0	15	3030.0
Download	7	Type 3	7.8	249.0	17	4233.0	Download	7	Type 4	15.1	249.0	14	3486.0
Download	8	Type 3	8.5	220.0	17	3740.0	Download	8	Type 4	16.6	220.0	15	3300.0
Download	9	Type 3	9.2	251.0	18	4518.0	Download	9	Type 4	18.2	251.0	15	3765.0

Radar Type 5 - Radar Statistical Performance					
Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
0	5290.0	1	05	5252.4	0
1	5290.0	1	06	5255.2	0
2	5290.0	1	07	5323.6	1
3	5290.0	1	08	5323.2	1
4	5256.0	1	09	5322.0	1
Detection Percentage (%)			80%		

Type 5 Radar Waveform_0							
Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	615231.0	71.3	11	2	1382.0	1270.0	—
1	836561.0	95.2	11	3	1860.0	1795.0	1085.0
2	141218.0	77.6	11	2	1165.0	1826.0	—
3	364760.0	55.9	11	1	1999.0	—	—
4	587642.0	68.7	11	2	1538.0	1257.0	—
5	810463.0	78.2	11	2	1238.0	1984.0	—
6	113546.0	88.0	11	3	1696.0	1398.0	1388.0
7	336698.0	72.8	11	2	1499.0	1990.0	—
8	560206.0	81.1	11	2	1441.0	1261.0	—
9	782423.0	89.6	11	3	1298.0	1434.0	1148.0
10	86256.0	82.8	11	2	1146.0	1709.0	—
11	309809.0	55.3	11	1	1754.0	—	—
12	532778.0	76.2	11	2	1405.0	1180.0	—
Type 5 Radar Waveform_1							
Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	514882.0	92.2	19	3	1157.0	1872.0	1661.0
1	40127.0	72.4	19	2	1286.0	1935.0	—
2	192472.0	75.0	19	2	1576.0	1813.0	—
3	344132.0	96.6	19	3	1075.0	1698.0	1884.0
4	496238.0	97.7	19	3	1445.0	1543.0	1596.0
5	21380.0	73.9	19	2	1213.0	1277.0	—
6	173986.0	81.8	19	2	1346.0	1029.0	—
7	326895.0	50.7	19	1	1783.0	—	—
8	480219.0	58.0	19	1	1023.0	—	—
9	2589.0	55.8	19	1	1849.0	—	—
10	155513.0	61.0	19	1	1059.0	—	—
11	308304.0	50.5	19	1	1326.0	—	—
12	458502.0	89.6	19	3	1686.0	1322.0	1950.0
13	611487.0	84.8	19	3	1122.0	1714.0	1086.0
14	135932.0	89.1	19	3	1586.0	1013.0	1899.0
15	287966.0	88.4	19	3	1093.0	1921.0	1598.0
16	440717.0	99.2	19	3	1205.0	1302.0	1120.0
17	592151.0	86.8	19	3	1587.0	1566.0	1389.0
18	117185.0	87.2	19	3	1870.0	1545.0	1151.0

Type 5 Radar Waveform_2							
Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	342230.0	80.2	13	2	1096.0	1957.0	—
1	536424.0	63.7	13	1	1699.0	—	—
2	730505.0	51.7	13	1	1188.0	—	—
3	124859.0	98.3	13	3	1616.0	1574.0	1629.0
4	318981.0	65.8	13	1	1652.0	—	—
5	510650.0	97.7	13	3	1134.0	1602.0	1962.0
6	706363.0	58.0	13	1	1502.0	—	—
7	101383.0	78.2	13	2	1507.0	1116.0	—
8	295019.0	60.1	13	1	1955.0	—	—
9	487909.0	80.1	13	2	1237.0	1798.0	—
10	681541.0	69.6	13	2	1112.0	1521.0	—
11	77360.0	85.4	13	3	1756.0	1617.0	1325.0
12	271041.0	74.8	13	2	1044.0	1313.0	—
13	463218.0	94.0	13	3	1444.0	1217.0	1889.0
14	658876.0	55.5	13	1	1232.0	—	—
Type 5 Radar Waveform_3							
Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	89540.0	99.8	6	3	1769.0	1428.0	1590.0
1	411748.0	98.7	6	3	1367.0	1504.0	1936.0
2	735594.0	54.1	6	1	1845.0	—	—
3	1058617.0	59.5	6	1	1725.0	—	—
4	49982.0	57.5	6	1	1265.0	—	—
5	372668.0	76.6	6	2	1386.0	1247.0	—
6	694503.0	91.1	6	3	1961.0	1149.0	1249.0
7	1016968.0	94.4	6	3	1245.0	1053.0	1868.0
8	10186.0	63.3	6	1	1471.0	—	—

Type 5 Radar Waveform_4

Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	239051.0	93.4	15	3	1169.0	1765.0	1287.0
1	420055.0	83.6	15	3	1593.0	1267.0	1131.0
2	601998.0	76.3	15	2	1678.0	1057.0	—
3	36041.0	52.8	15	1	1220.0	—	—
4	216604.0	95.6	15	3	1662.0	1827.0	1307.0
5	397463.0	95.3	15	3	1406.0	1207.0	1952.0
6	580610.0	58.9	15	1	1528.0	—	—
7	13629.0	94.1	15	3	1026.0	1375.0	1168.0
8	194892.0	82.7	15	2	1308.0	1380.0	—
9	374829.0	99.9	15	3	1848.0	1584.0	1858.0
10	557974.0	57.2	15	1	1898.0	—	—
11	739389.0	59.3	15	1	1922.0	—	—
12	172088.0	84.9	15	3	1421.0	1991.0	1347.0
13	354410.0	53.9	15	1	1427.0	—	—
14	536146.0	57.1	15	1	1170.0	—	—
15	715464.0	70.0	15	2	1679.0	1888.0	—

Type 5 Radar Waveform_5

Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	267702.0	58.9	6	1	1757.0	—	—
1	589332.0	98.8	6	3	1930.0	1351.0	1451.0
2	912905.0	74.2	6	2	1007.0	1764.0	—
3	1235497.0	80.8	6	2	1276.0	1615.0	—
4	227747.0	73.3	6	2	1366.0	1413.0	—
5	550858.0	61.0	6	1	1788.0	—	—
6	874305.0	54.1	6	1	1018.0	—	—
7	1195896.0	82.7	6	2	1339.0	1390.0	—
8	187854.0	92.6	6	3	1372.0	1140.0	1285.0

Type 5 Radar Waveform_6							
Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	328569.0	60.8	13	1	1104.0	—	—
1	535760.0	63.6	13	1	1782.0	—	—
2	743846.0	62.4	13	1	1052.0	—	—
3	95287.0	55.4	13	1	1926.0	—	—
4	302796.0	66.3	13	1	1667.0	—	—
5	508627.0	97.6	13	3	1263.0	1273.0	1895.0
6	716024.0	88.6	13	3	1524.0	1024.0	1183.0
7	69695.0	74.9	13	2	1373.0	1084.0	—
8	276210.0	91.3	13	3	1561.0	1496.0	1785.0
9	484640.0	63.4	13	1	1806.0	—	—
10	690628.0	77.2	13	2	1635.0	1973.0	—
11	44047.0	84.6	13	3	1074.0	1959.0	1634.0
12	251688.0	57.6	13	1	1647.0	—	—
13	458538.0	79.5	13	2	1653.0	1176.0	—
Type 5 Radar Waveform_7							
Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	669178.0	61.3	16	1	1379.0	—	—
1	135445.0	63.7	16	1	1866.0	—	—
2	305178.0	95.1	16	3	1466.0	1062.0	1666.0
3	476264.0	69.3	16	2	1803.0	1056.0	—
4	647982.0	55.7	16	1	1541.0	—	—
5	114249.0	80.4	16	2	1850.0	1021.0	—
6	283753.0	99.9	16	3	1516.0	1928.0	1893.0
7	453612.0	99.7	16	3	1927.0	1987.0	1493.0
8	627391.0	59.5	16	1	1035.0	—	—
9	93367.0	61.9	16	1	1970.0	—	—
10	263706.0	78.7	16	2	1642.0	1345.0	—
11	434149.0	73.7	16	2	1443.0	1595.0	—
12	605697.0	58.6	16	1	1776.0	—	—
13	72083.0	87.4	16	3	1269.0	1301.0	1883.0
14	242357.0	91.5	16	3	1463.0	1341.0	1199.0
15	412983.0	75.7	16	2	1674.0	1651.0	—
16	584511.0	58.6	16	1	1958.0	—	—

Type 5 Radar Waveform_8							
Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	308653.0	55.7	17	1	1929.0	—	—
1	479565.0	66.4	17	1	1663.0	—	—
2	649290.0	76.7	17	2	1077.0	1745.0	—
3	116743.0	82.9	17	2	1580.0	1246.0	—
4	287687.0	66.4	17	1	1772.0	—	—
5	458341.0	62.6	17	1	1949.0	—	—
6	626987.0	84.4	17	3	1179.0	1150.0	1948.0
7	95725.0	82.5	17	2	1310.0	1624.0	—
8	266134.0	78.6	17	2	1687.0	1453.0	—
9	436332.0	82.2	17	2	1688.0	1838.0	—
10	605659.0	89.4	17	3	1978.0	1509.0	1216.0
11	74888.0	50.0	17	1	1401.0	—	—
12	245865.0	52.2	17	1	1063.0	—	—
13	416400.0	50.7	17	1	1750.0	—	—
14	584806.0	100.0	17	3	1549.0	1211.0	1830.0
15	53870.0	61.7	17	1	1033.0	—	—
16	224303.0	78.9	17	2	1223.0	1425.0	—
Type 5 Radar Waveform_9							
Burst ID	Burst Offset (us)	Pulse Width (us)	Chirp Width (MHz)	Number of Pulses per Burst	PRI-1 (us)	PRI-2 (us)	PRI-3 (us)
0	336173.0	60.7	20	1	1284.0	—	—
1	481108.0	55.5	20	1	1623.0	—	—
2	27781.0	71.5	20	2	1805.0	1437.0	—
3	171810.0	89.3	20	3	1994.0	1879.0	1802.0
4	317600.0	79.6	20	2	1337.0	1239.0	—
5	463221.0	51.8	20	1	1638.0	—	—
6	9924.0	92.9	20	3	1762.0	1718.0	1539.0
7	154652.0	77.8	20	2	1603.0	1771.0	—
8	298997.0	85.8	20	3	1045.0	1133.0	1905.0
9	443951.0	81.5	20	2	1874.0	1637.0	—
10	587821.0	92.5	20	3	1464.0	1693.0	1162.0
11	137196.0	50.6	20	1	1770.0	—	—
12	282408.0	61.0	20	1	1511.0	—	—
13	426285.0	83.2	20	2	1777.0	1519.0	—
14	572747.0	56.9	20	1	1475.0	—	—
15	118856.0	84.0	20	3	1128.0	1865.0	1126.0
16	263502.0	95.5	20	3	1268.0	1156.0	1409.0
17	407225.0	85.8	20	3	1943.0	1668.0	1488.0
18	554538.0	59.3	20	1	1829.0	—	—
19	101210.0	81.9	20	2	1572.0	1630.0	—

Radar Type 6 - Radar Statistical Performance			
Trail #	1=Detection 0=No Detection	Trail #	1=Detection 0=No Detection
0	1	05	1
1	1	06	1
2	1	07	1
3	1	08	1
4	1	09	1
Detection Percentage (%)		100.0%	

Type 6 Radar Waveform_0					
Frequency List (MHz)	0	1	2	3	4
0	5356	5271	5626	5453	5717
5	5423	5427	5396	5529	5275
10	5676	5429	5357	5570	5653
15	5600	5635	5633	5552	5556
20	5363	5458	5359	5420	5251
25	5296	5419	5594	5281	5342
30	5410	5670	5697	5667	5671
35	5678	5582	5610	5287	5675
40	5320	5637	5401	5406	5536
45	5507	5338	5491	5525	5291
50	5595	5711	5341	5440	5623
55	5456	5452	5293	5351	5655
60	5462	5534	5590	5353	5554
65	5415	5624	5322	5268	5372
70	5596	5699	5486	5548	5404
75	5300	5706	5566	5683	5481
80	5301	5540	5684	5703	5574
85	5395	5473	5408	5487	5522
90	5689	5541	5530	5270	5592
95	5604	5266	5346	5580	5617

Type 6 Radar Waveform_1					
Frequency List (MHz)	0	1	2	3	4
0	5611	5510	5562	5614	5559
5	5465	5352	5471	5692	5482
10	5315	5398	5668	5674	5688
15	5665	5639	5597	5273	5371
20	5624	5397	5509	5321	5271
25	5322	5385	5279	5452	5654
30	5407	5445	5401	5721	5701
35	5655	5353	5331	5476	5484
40	5344	5301	5504	5267	5374
45	5442	5583	5587	5517	5491
50	5712	5363	5400	5640	5722
55	5444	5377	5433	5663	5280
60	5298	5386	5338	5570	5523
65	5311	5494	5289	5717	5390
70	5555	5542	5642	5622	5605
75	5527	5282	5317	5319	5263
80	5458	5288	5658	5634	5679
85	5643	5314	5253	5368	5276
90	5626	5644	5616	5380	5343
95	5478	5596	5669	5310	5667

Type 6 Radar Waveform_2

Frequency List (MHz)	0	1	2	3	4
0	5391	5274	5498	5300	5304
5	5507	5374	5546	5283	5689
10	5441	5579	5439	5388	5695
15	5301	5317	5267	5545	5465
20	5379	5693	5338	5501	5294
25	5450	5428	5489	5313	5494
30	5448	5611	5622	5597	5696
35	5385	5451	5603	5720	5315
40	5664	5282	5444	5671	5354
45	5525	5641	5397	5272	5366
50	5542	5423	5661	5722	5353
55	5676	5634	5307	5445	5718
60	5639	5516	5346	5347	5638
65	5289	5567	5314	5376	5403
70	5518	5601	5591	5250	5670
75	5263	5569	5429	5265	5427
80	5521	5285	5694	5299	5355
85	5562	5548	5533	5563	5456
90	5424	5478	5297	5605	5665
95	5657	5325	5390	5459	5698

Type 6 Radar Waveform_3

Frequency List (MHz)	0	1	2	3	4
0	5549	5513	5434	5461	5621
5	5646	5299	5446	5518	5372
10	5368	5480	5583	5716	5292
15	5444	5370	5590	5657	5290
20	5384	5279	5267	5547	5631
25	5593	5347	5633	5568	5265
30	5371	5419	5427	5408	5722
35	5281	5634	5251	5272	5598
40	5684	5498	5503	5334	5608
45	5602	5450	5717	5394	5512
50	5484	5666	5541	5630	5349
55	5490	5278	5610	5663	5622
60	5465	5559	5286	5373	5656
65	5273	5386	5459	5406	5494
70	5560	5463	5719	5724	5442
75	5521	5681	5282	5689	5439
80	5491	5698	5648	5713	5271
85	5288	5597	5311	5359	5414
90	5511	5457	5400	5328	5285
95	5320	5611	5287	5452	5708

Type 6 Radar Waveform_4					
Frequency List (MHz)	0	1	2	3	4
0	5329	5277	5370	5622	5366
5	5688	5321	5696	5609	5250
10	5681	5632	5521	5303	5262
15	5380	5571	5473	5635	5374
20	5298	5550	5317	5582	5715
25	5604	5399	5359	5319	5381
30	5675	5323	5525	5480	5523
35	5714	5566	5499	5518	5434
40	5645	5565	5355	5536	5449
45	5495	5432	5314	5691	5660
50	5503	5424	5593	5570	5644
55	5601	5307	5513	5254	5584
60	5539	5687	5724	5478	5300
65	5705	5454	5388	5505	5322
70	5680	5451	5551	5555	5445
75	5506	5470	5519	5490	5384
80	5700	5501	5552	5302	5658
85	5269	5279	5592	5281	5717
90	5683	5699	5486	5391	5631
95	5371	5431	5392	5339	5526
Type 6 Radar Waveform_5					
Frequency List (MHz)	0	1	2	3	4
0	5584	5516	5306	5308	5683
5	5255	5721	5296	5297	5457
10	5612	5421	5659	5498	5283
15	5468	5698	5576	5680	5663
20	5619	5258	5671	5688	5492
25	5348	5562	5423	5415	5717
30	5309	5482	5695	5437	5705
35	5590	5411	5684	5559	5404
40	5438	5474	5689	5589	5264
45	5294	5299	5718	5459	5311
50	5469	5649	5690	5508	5442
55	5538	5254	5506	5607	5465
60	5650	5286	5451	5571	5585
65	5358	5343	5354	5627	5431
70	5509	5329	5446	5478	5401
75	5610	5527	5681	5278	5565
80	5558	5347	5332	5654	5595
85	5495	5303	5531	5653	5259
90	5289	5553	5397	5568	5453
95	5480	5448	5621	5473	5642

Type 6 Radar Waveform_6					
Frequency List (MHz)	0	1	2	3	4
0	5364	5280	5717	5469	5428
5	5394	5268	5371	5363	5286
10	5543	5307	5700	5596	5304
15	5556	5253	5582	5628	5380
20	5314	5310	5674	5663	5661
25	5283	5675	5290	5527	5449
30	5381	5673	5439	5435	5546
35	5257	5272	5303	5682	5362
40	5473	5718	5618	5412	5357
45	5586	5668	5274	5382	5679
50	5512	5576	5723	5350	5271
55	5401	5331	5533	5395	5444
60	5325	5569	5261	5630	5595
65	5593	5612	5397	5534	5297
70	5722	5613	5632	5321	5417
75	5609	5437	5273	5633	5573
80	5662	5530	5339	5511	5651
85	5315	5495	5537	5265	5399
90	5704	5507	5584	5403	5602
95	5335	5492	5562	5676	5457

Type 6 Radar Waveform_7					
Frequency List (MHz)	0	1	2	3	4
0	5619	5519	5653	5533	5270
5	5436	5668	5446	5526	5493
10	5377	5571	5266	5316	5325
15	5547	5380	5685	5673	5572
20	5700	5379	5712	5277	5634
25	5646	5624	5396	5631	5483
30	5423	5562	5553	5698	5552
35	5411	5394	5478	5515	5484
40	5557	5701	5350	5597	5583
45	5632	5465	5262	5565	5463
50	5599	5322	5490	5629	5723
55	5721	5349	5540	5390	5320
60	5425	5438	5440	5595	5333
65	5457	5408	5435	5393	5500
70	5612	5405	5301	5717	5278
75	5716	5643	5307	5310	5578
80	5555	5648	5510	5398	5476
85	5703	5687	5364	5658	5280
90	5409	5539	5601	5579	5256
95	5441	5654	5337	5267	5568

Type 6 Radar Waveform_8					
Frequency List (MHz)	0	1	2	3	4
0	5302	5283	5589	5694	5490
5	5478	5690	5521	5689	5700
10	5308	5360	5307	5511	5346
15	5635	5507	5313	5718	5289
20	5708	5545	5653	5269	5607
25	5437	5476	5599	5357	5517
30	5465	5548	5353	5293	5472
35	5275	5550	5485	5371	5290
40	5398	5493	5309	5288	5362
45	5580	5429	5612	5320	5618
50	5253	5475	5702	5373	5579
55	5452	5570	5434	5303	5349
60	5341	5422	5582	5354	5264
65	5386	5321	5432	5272	5300
70	5713	5562	5486	5712	5254
75	5277	5355	5287	5721	5462
80	5323	5376	5267	5645	5705
85	5301	5318	5707	5528	5602
90	5573	5415	5477	5710	5596
95	5311	5425	5336	5536	5440
Type 6 Radar Waveform_9					
Frequency List (MHz)	0	1	2	3	4
0	5557	5522	5525	5380	5710
5	5520	5615	5596	5377	5529
10	5714	5624	5348	5706	5367
15	5723	5634	5416	5288	5481
20	5716	5614	5594	5358	5580
25	5325	5328	5327	5461	5551
30	5604	5437	5310	5508	5570
35	5689	5576	5642	5443	5312
40	5332	5489	5701	5602	5577
45	5592	5631	5378	5671	5351
50	5403	5424	5668	5275	5514
55	5622	5257	5442	5635	5482
60	5650	5527	5661	5662	5619
65	5381	5308	5499	5419	5472
70	5715	5578	5253	5314	5558
75	5518	5430	5702	5433	5632
80	5431	5681	5425	5301	5251
85	5672	5663	5263	5510	5262
90	5722	5613	5366	5506	5331
95	5515	5543	5285	5290	5464

Appendix B – Test Setup Photograph

Refer to “2412RSU040-UT” file.

Appendix C – EUT Photograph

Refer to “2412RSU040-UE” file.

The End
