



PCTEST Engineering Laboratory, LLC

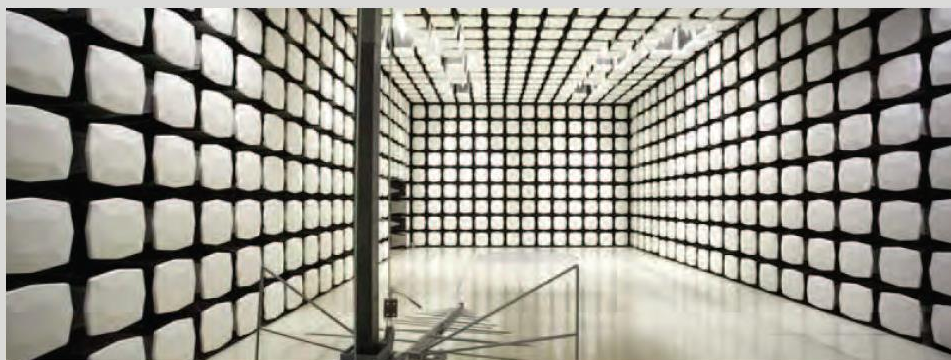
Samsung Model SM-H204V

FCC ID: A3LSMH204V

FCC 15.407:2020

802.11an, ac 4x4 MIMO Radio

Report: PCTE0004 Rev. 1, Issue Date: August 18, 2020



NVLAP LAB CODE: 201049-0



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CERTIFICATE OF TEST

Last Date of Test: July 28, 2020
PCTEST Engineering Laboratory, LLC
EUT: Samsung Model SM-H204V

Radio Equipment Testing

Standards

Specification	Method
FCC 15.407:2020	ANSI C63.10:2013, KDB 789033, KDB 905462

Results

Method Clause	Test Description	Applied	Results	Comments
KDB 905462 - 7.5	DFS Testing - Test Signal Level	Yes	Pass	
KDB 905462 - 7.7	DFS Testing - Channel Loading/Channel Utilization	Yes	Pass	
KDB 905462 - 7.8.1	DFS Testing - Detection Bandwidth	Yes	Pass	
KDB 905462 - 7.8.2	DFS Testing - Channel Availability Check	Yes	Pass	
KDB 905462 - 7.8.3	DFS Testing - Move Time	Yes	Pass	
KDB 905462 - 7.8.3	DFS Testing - Closing Time	Yes	Pass	
KDB 905462 - 7.8.3	DFS Testing - Non Occupancy Period	Yes	Pass	
KDB 905462 - 7.8.4	DFS Testing - Statistical Performance	Yes	Pass	
N/A	DFS Testing - DFS Product Information	No	N/A	This section is not contained within the test report. The reporting information required by FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02, April 8, 2016 Section 8.1 will be included in the application documents.

Deviations From Test Standards

None

Approved By:



Eric Brandon, Department Manager

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY



Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Updated EUT name from "4x4 MiMo" to "Samsung Model SM-H204V."	2020-08-17	1, 2, 8, 9, 12, 18, 23, 30, 34, 37, 40, 43
	Added FCC ID to cover page.	2020-08-17	1
	Updated test date on Statistical Performance	2020-08-18	2, 8, 10, 43

ACCREDITATIONS AND AUTHORIZATIONS



United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

SCOPE

For details on the Scopes of our Accreditations, please visit:

<https://www.nwemc.com/emc-testing-accreditations>

FACILITIES



California Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Oregon Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP				
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRR, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157



MEASUREMENT UNCERTAINTY



Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
Frequency Accuracy	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.1 dB	-5.1 dB
AC Powerline Conducted Emissions (dB)	2.6 dB	-2.6 dB

Test Setup Block Diagrams

Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION



Client and Equipment Under Test (EUT) Information

Company Name:	PCTEST Engineering Laboratory, LLC
Address:	7185 Oakland Mills Rd
City, State, Zip:	Columbia, MD 21046
Test Requested By:	Dan Pino
EUT:	Samsung Model SM-H204V
First Date of Test:	July 25, 2020
Last Date of Test:	July 28, 2020
Receipt Date of Samples:	July 25, 2020
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Samsung Model SM-H204V
Testing Objective:
To demonstrate compliance of the 802.11 radio under FCC 15.407 for operation in the 5.2 GHz, 5.3 GHz, 5.6 GHz and 5.8 GHz band(s).

CONFIGURATIONS



Configuration PCTE0004- 1

Software/Firmware Running during test	
Description	Version
Iperf	2.0.9

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wireless 4x4 MiMo	Samsung	SM-H204V	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Server Laptop	Lenovo	20308	QV07240618
Mouse (Server Laptop)	Lenovo	MOEUUO	4454328
AC/DC Adapter (Sever Laptop)	Insignia	NSPWLC563	None
Power Brick	Samsung	W18-065N1E	PD-65AWHUS
Anyway Com Jig	Samsung	MULTI	S 56621
Power Brick Anyway Jig	YOUNG	SM-H204V	None
Client Laptop	Lenovo	81VS	R90YGNE6

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Mouse USB	Yes	1.8m	No	mouse	Server Laptop
USB C Power Cable	Yes	2.0m	No	Power Brick MiMo	Samsung Model SM-H204V
DC cable (Sever Laptop)	No	1.3m	No	AC/DC Adapter	Server Laptop
AC cable (Sever Laptop)	No	1.8m	No	AC/DC Adapter	AC main
Ethernet Cable	No	1.5m	No	Server Laptop	Samsung Model SM-H204V
RG 232 to USB	Yes	1.8m	No	Anyway Com Jig	Server Laptop
I/O Cable	Unknown	0.3m	No	Anyway Com Jig	Samsung Model SM-H204V
DC Power Cable	No	1.5m	No	Power Brick Anyway Jig	Anyway Com Jig

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2020-07-25	Test Signal Levels	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2020-07-25	DFS Testing - Channel Loading Channel Utilization	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2020-07-25	DFS Testing - Detection Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2020-07-25	DFS Testing - Channel Availability Check	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	2020-07-25	DFS Testing - Move Time	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	2020-07-25	DFS Testing - Closing Time	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	2020-07-25	DFS Testing - Non Occupancy Period	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	2020-07-28	DFS Testing - Statistical Performance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

TEST SIGNAL LEVELS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	18-Sep-19	18-Sep-20
Block - DC	Fairview Microwave	SD3379	AMM	13-Mar-20	13-Mar-21
Attenuator	Fairview Microwave	SA4018-20	TYE	18-Sep-19	18-Sep-20
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDI	NCR	NCR
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDF	NCR	NCR
Attenuator	Fairview Microwave	SA1501SMA	RKV	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5182B-506	TEV	23-Apr-18	23-Apr-21
Generator - Signal	Benchforge Manufacturing	Colt	TIN	NCR	NCR

TEST DESCRIPTION

FCC KDB 905462 describes the compliance measurement procedures including acceptable instrument system configurations for performing Dynamic Frequency Selection (DFS) tests under FCC Part 15 Subpart E Rules required for Unlicensed - National Information Infrastructure (U-NII) equipment that operates in the frequency bands 5.25 GHz to 5.35 GHz and/or 5.47 GHz to 5.725 GHz. The master and client were connected using the conducted method described in the procedure via a series of splitters and attenuators which allows the radar signals to be injected and monitored. A spectrum analyzer was used to measure and record the test signal level for each radar type (0-6) as defined in the test procedure.

RBW: $\geq 3\text{MHz}$

VBW: $\geq 3\text{MHz}$

Detector: Peak

SPAN: Zero

The measurement was taken using the transmission path from the signal generator to the master. The test signal level was then set equal to the DFS Detection Threshold that is required for testing.

$-64\text{dBm} + 1\text{dB}(\text{spec allowance}) + -0.5\text{dBi}(\text{minimum antenna gain}) + 3.13\text{dBm}(\text{measured splitter loss}) + .18\text{dBm}(\text{u.fl measurement cable loss}) = -60.19\text{dBm}$ final threshold level.

TEST SIGNAL LEVELS



XMR 2020.03.25.0

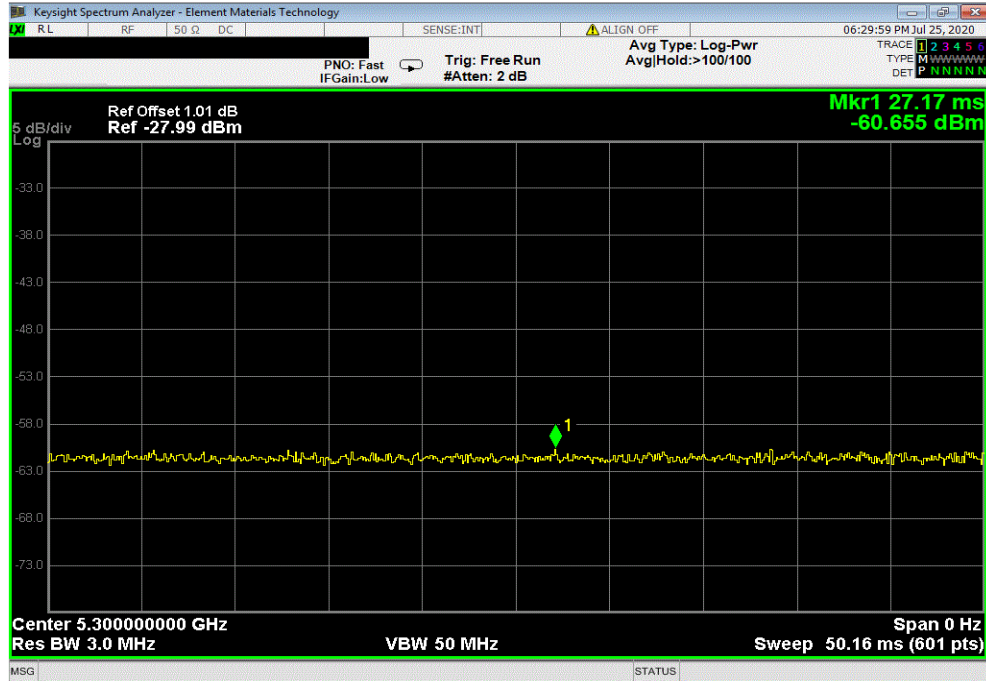
EUT: Samsung Model SM-H204V		Work Order: PCTE0004	
Serial Number: None		Date: 25-Jul-20	
Customer: PCTEST Engineering Laboratory, LLC		Temperature: 24.7 °C	
Attendees: None		Humidity: 53.6% RH	
Project: None		Barometric Pres.: 1017 mbar	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2020		ANSI C63.10:2013	
COMMENTS			
Radar was split across two of the four MIMO ports to more closely represent real world operation and was also client requested. Losses seen at the splitter in the measurement path were account for in the radar calibration leveling. Reference the DFS setup and master attenuation documentation for the attenuators used while under test. Ports 2 and 4 were tested. Per the DFS requirements any single bandwidth can be tested. Internal Attn was reduced for better dynamic range.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Measured Value (dBm)	Target Value (dBm) Result
802.11ac 5.3 GHz			
20 MHz Channel Bandwidth			
Ch.60, 5300 MHz			
	Radar Type 0	-60.7	-60.2 N/A
	Radar Type 1A	-60.6	-60.2 N/A
	Radar Type 1B	-60.7	-60.2 N/A
	Radar Type 2	-60.7	-60.2 N/A
	Radar Type 3	-60.6	-60.2 N/A
	Radar Type 4	-60.6	-60.2 N/A
	Radar Type 5	-60.8	-60.2 N/A
	Radar Type 6	-60.7	-60.2 N/A

TEST SIGNAL LEVELS

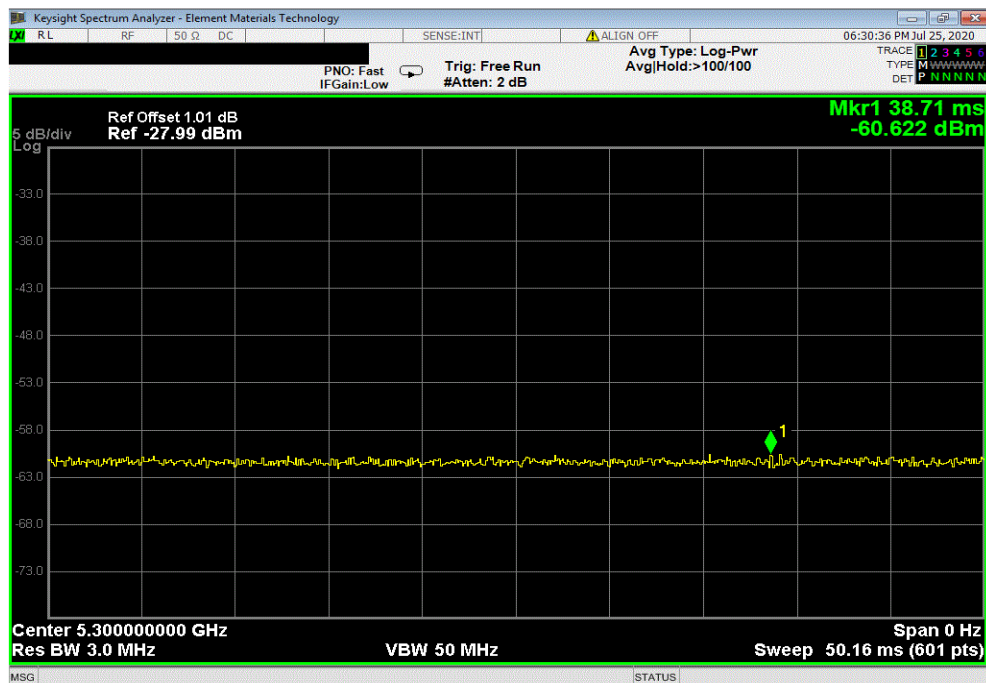


XMR 2020.03.25.0

802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 0						
	Measured Value (dBm)	Target Value (dBm)	Result			
	-60.7	-60.2	N/A			

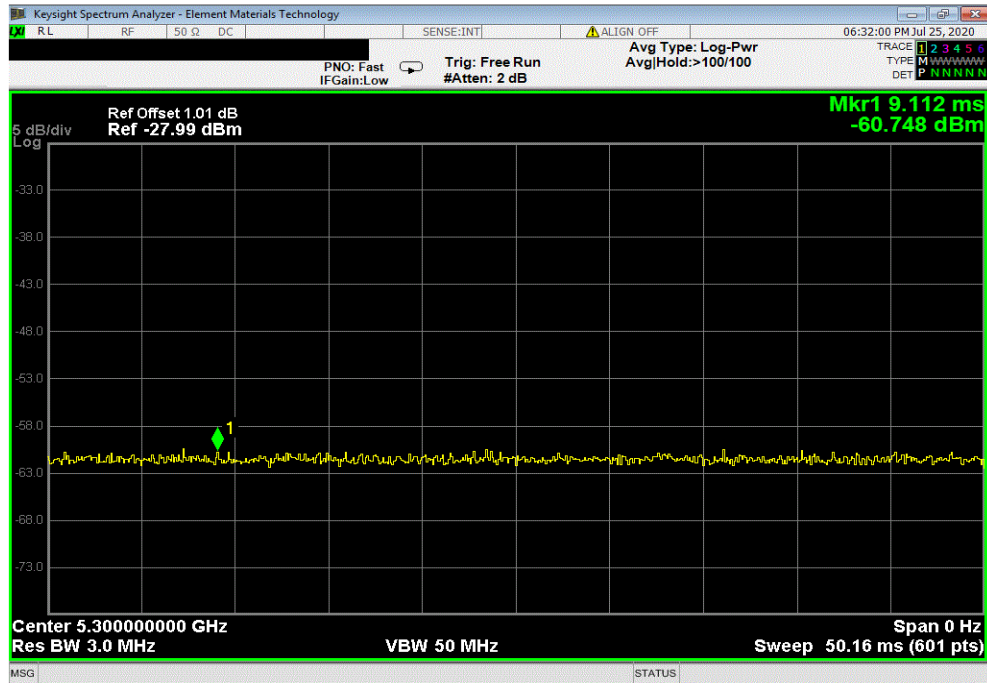


802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 1A						
	Measured Value (dBm)	Target Value (dBm)	Result			
	-60.6	-60.2	N/A			

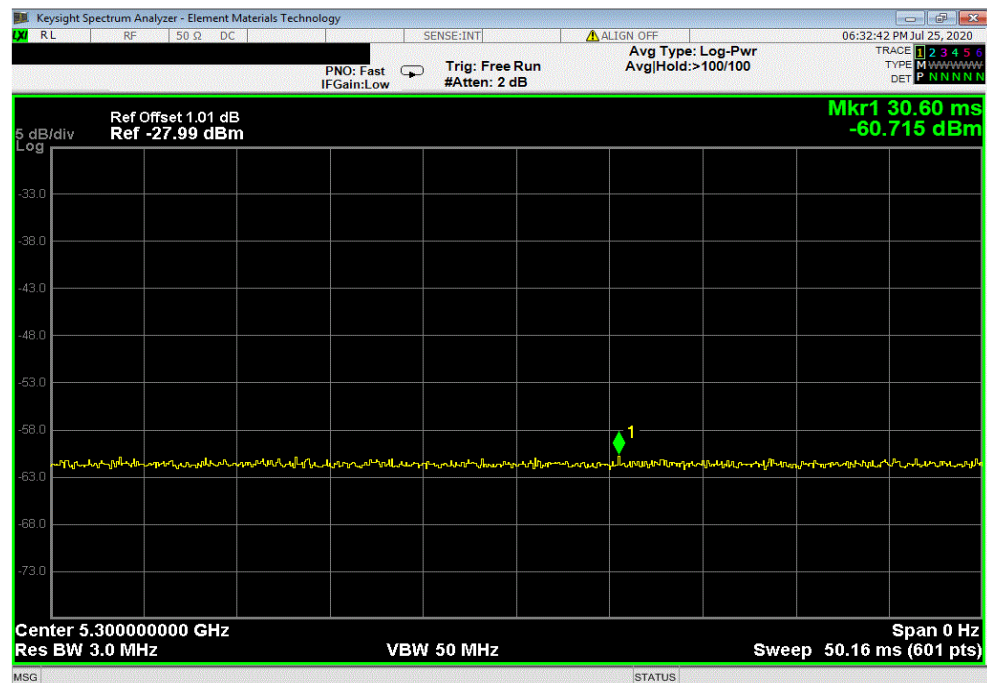


TEST SIGNAL LEVELS

802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 1B						
				Measured Value (dBm)	Target Value (dBm)	Result
				-60.74	-60.2	N/A



802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 2						
				Measured Value (dBm)	Target Value (dBm)	Result
				-60.7	-60.2	N/A

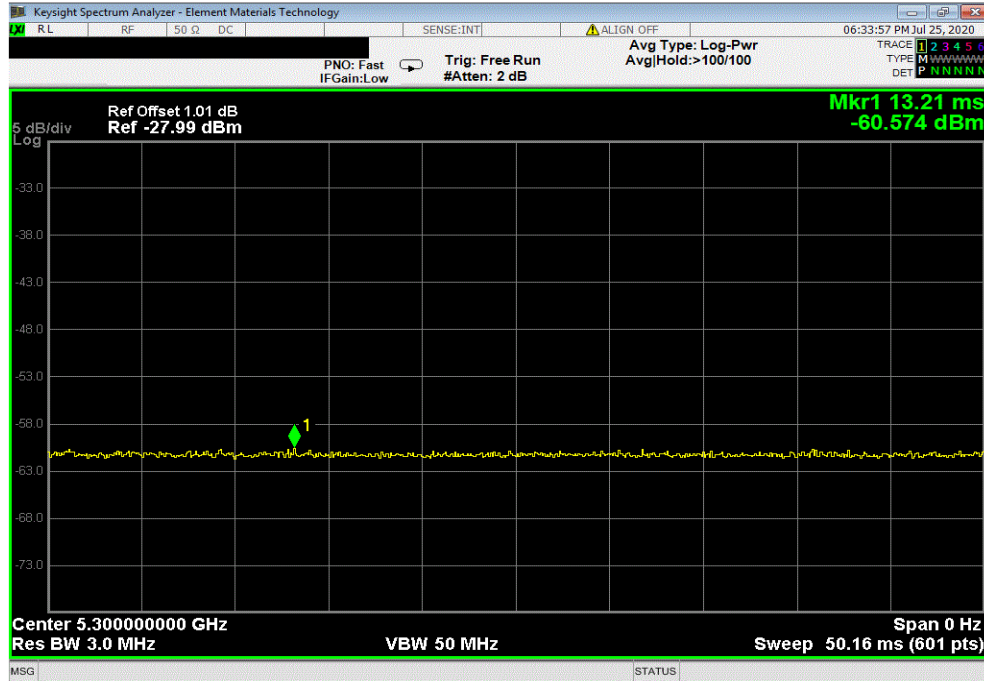


TEST SIGNAL LEVELS

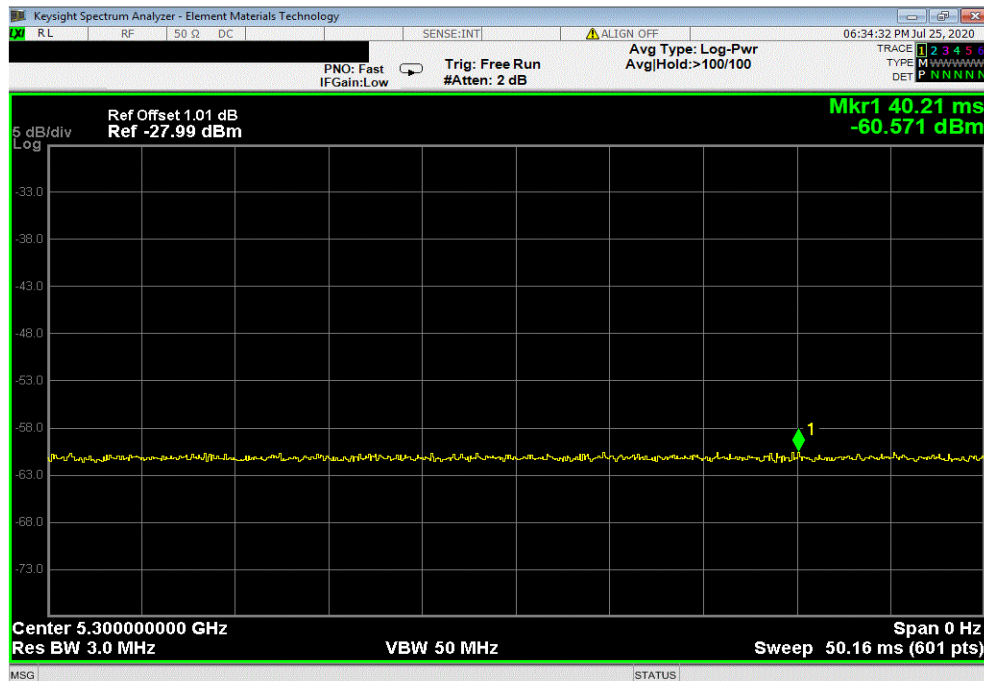


XMR 2020.03.25.0

802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 3						
				Measured Value (dBm)	Target Value (dBm)	Result
				-60.6	-60.2	N/A



802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 4						
				Measured Value (dBm)	Target Value (dBm)	Result
				-60.6	-60.2	N/A

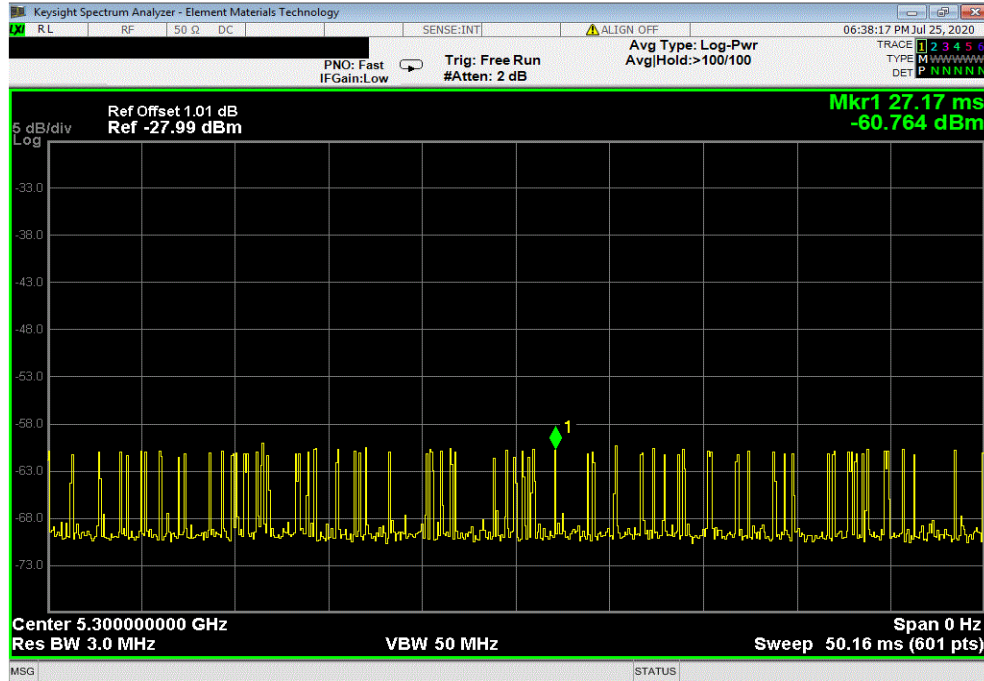


TEST SIGNAL LEVELS

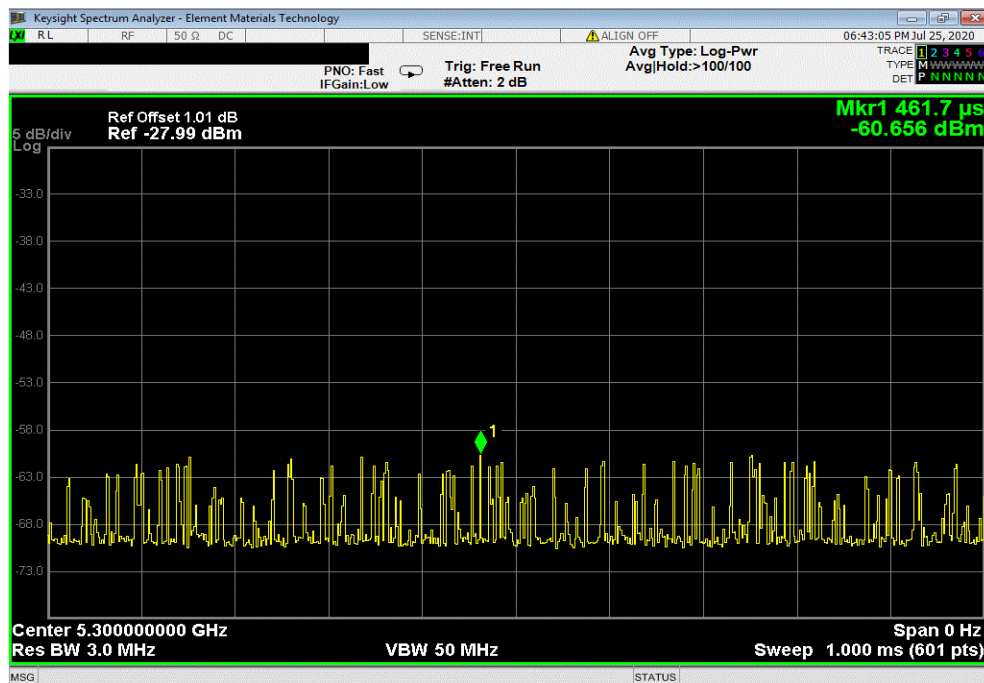


XMR 2020.03.25.0

802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 5						
				Measured Value (dBm)	Target Value (dBm)	Result
				-60.8	-60.2	N/A



802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 6						
				Measured Value (dBm)	Target Value (dBm)	Result
				-60.7	-60.2	N/A



CHANNEL LOADING/CHANNEL UTILIZATION



XMIT 2020.03.25.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	18-Sep-19	18-Sep-20
Block - DC	Fairview Microwave	SD3379	AMM	13-Mar-20	13-Mar-21
Attenuator	Fairview Microwave	SA4018-20	TYE	18-Sep-19	18-Sep-20
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDI	NCR	NCR
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDF	NCR	NCR
Attenuator	Fairview Microwave	SA1501SMA	RKV	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5182B-506	TEV	23-Apr-18	23-Apr-21

TEST DESCRIPTION

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain as further described by the sweep times listed in the test data. A direct connection was made between the RF output of the master and client system setup which used the conducted method described in the FCC KDB 905462 test procedure via a series of splitters and attenuators.

CHANNEL LOADING/CHANNEL UTILIZATION



XMR 2020.03.25.0

EUT: Samsung Model SM-H204V		Work Order: PCTE0004	
Serial Number: None		Date: 25-Jul-20	
Customer: PCTEST Engineering Laboratory, LLC		Temperature: 25.1 °C	
Attendees: None		Humidity: 52.2% RH	
Project: None		Barometric Pres.: 1017 mbar	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2020		ANSI C63.10:2013	
COMMENTS			
Radar was split across two of the four MIMO ports to more closely represent real world operation and was also client requested. Losses seen at the splitter in the measurement path were account for in the radar calibration leveling. Reference the DFS setup and master attenuation documentation for the attenuators used while under test. Ports 2 and 4 were tested. Per the DFS requirements any single bandwidth can be tested. Internal Attn was reduced for better dynamic range.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Max Pulse On Times	Value Limit Result
MIMO Ports 2 and 4			
802.11ac 5.3 GHz			
20 MHz Channel Bandwidth			
Ch.60, 5300 MHz			
	1mS Pulse On Time	634	≥ 17% ≥ 17% Pass
	2mS	1484	≥ 17% ≥ 17% Pass
	10mS	1484	≥ 17% ≥ 17% Pass
	25mS	1484	≥ 17% ≥ 17% Pass
	100mS	1484	≥ 17% ≥ 17% Pass
	10Sec	1484	≥ 17% ≥ 17% Pass

CHANNEL LOADING/CHANNEL UTILIZATION



XMR 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, 1mS Pulse On Time

Max Pulse

On Times

Value

Limit

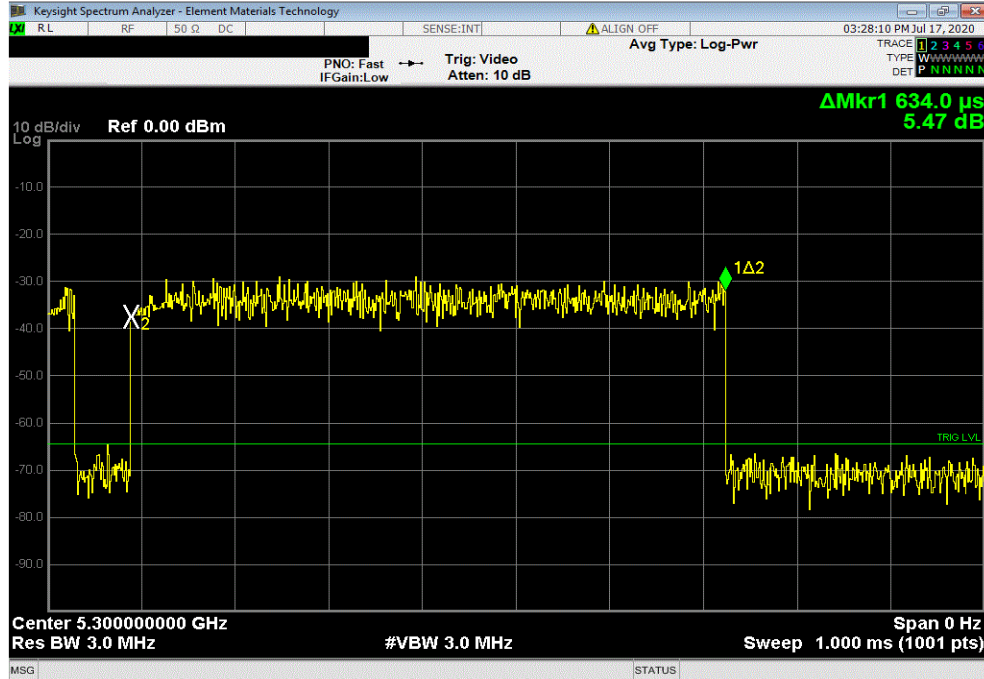
Result

634

≥ 17%

≥ 17%

Pass



MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, 2mS

Max Pulse

On Times

Value

Limit

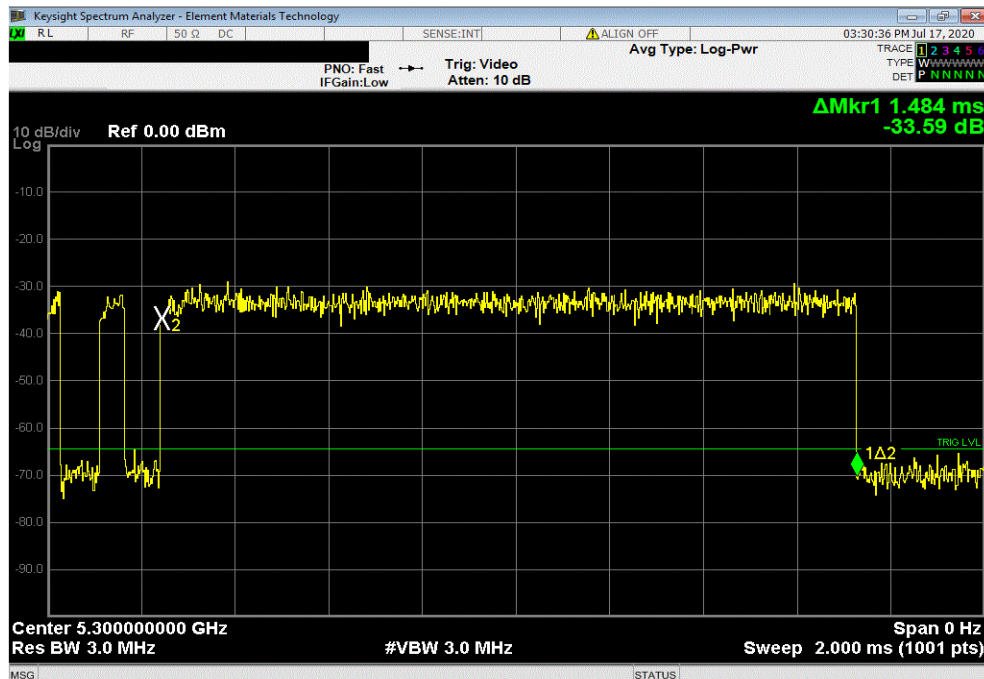
Result

1484

≥ 17%

≥ 17%

Pass



CHANNEL LOADING/CHANNEL UTILIZATION



XMR 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz, 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, 10mS

Max Pulse

On Times

Value

Limit

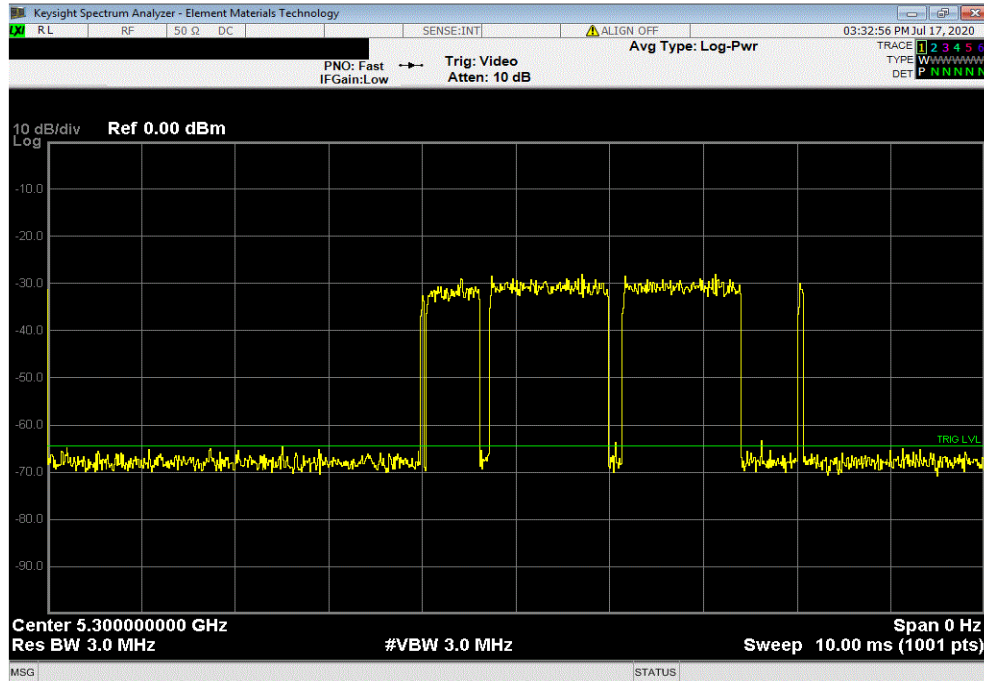
Result

1484

$\geq 17\%$

$\geq 17\%$

Pass



MIMO Ports 2 and 4, 802.11ac 5.3 GHz, 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, 25mS

Max Pulse

On Times

Value

Limit

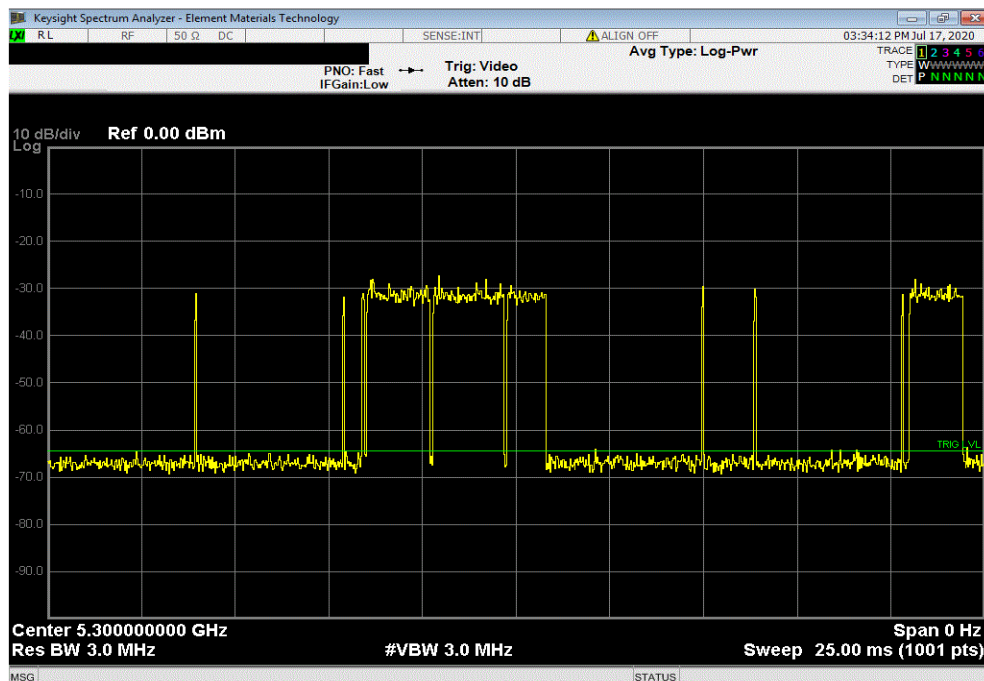
Result

1484

$\geq 17\%$

$\geq 17\%$

Pass



CHANNEL LOADING/CHANNEL UTILIZATION



XMR 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz, 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, 100mS

Max Pulse

On Times

Value

Limit

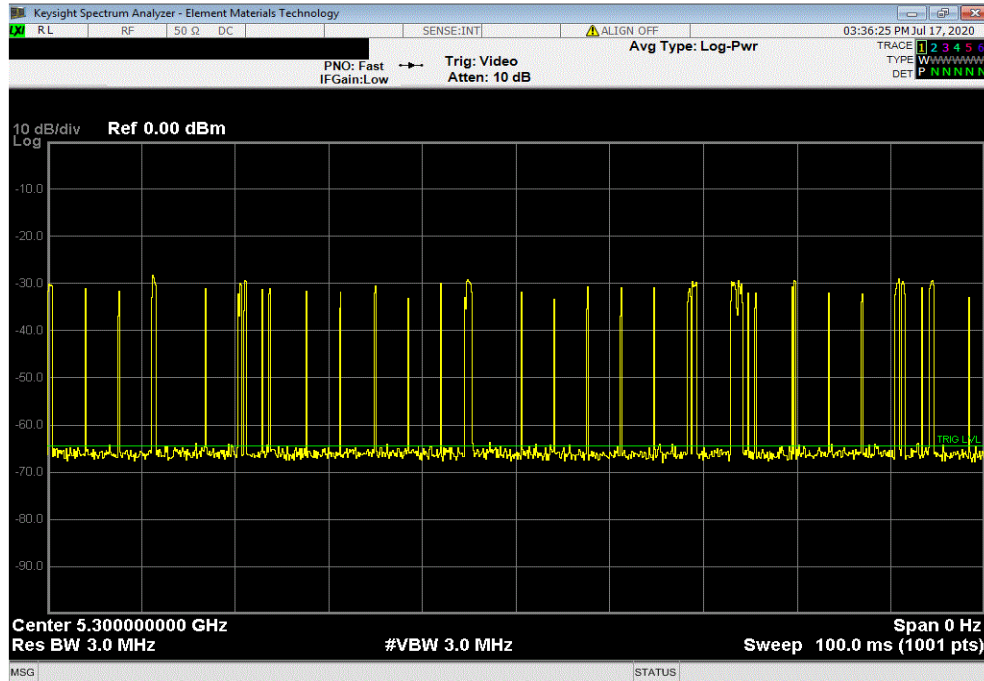
Result

1484

≥ 17%

≥ 17%

Pass



MIMO Ports 2 and 4, 802.11ac 5.3 GHz, 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, 10Sec

Max Pulse

On Times

Value

Limit

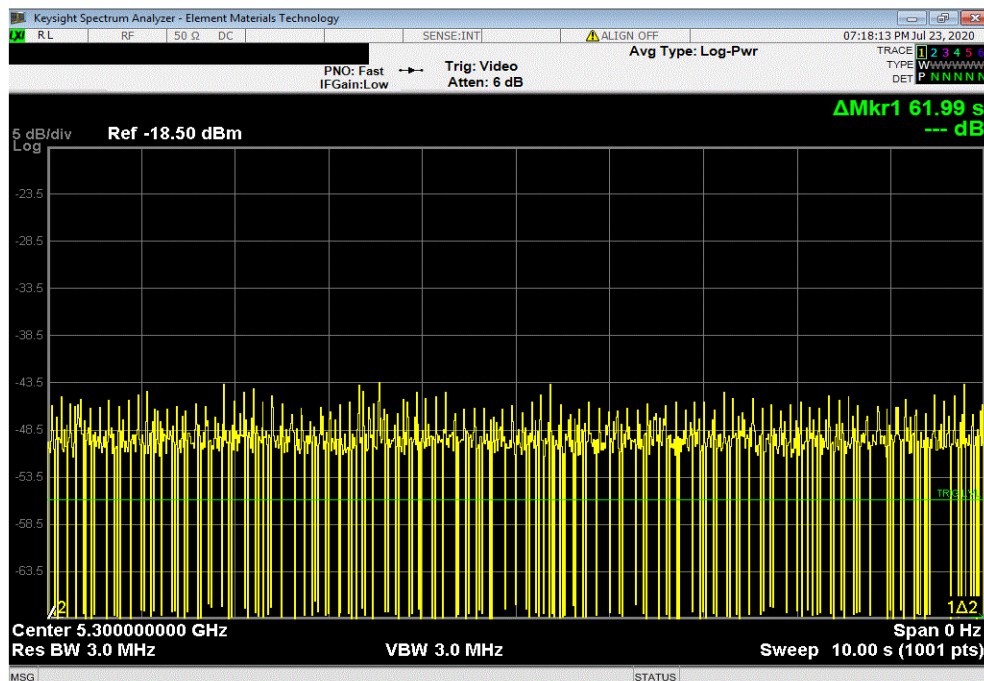
Result

1484

≥ 17%

≥ 17%

Pass



DETECTION BANDWIDTH



XMit 2020.03.25.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	18-Sep-19	18-Sep-20
Block - DC	Fairview Microwave	SD3379	AMM	13-Mar-20	13-Mar-21
Attenuator	Fairview Microwave	SA4018-20	TYE	18-Sep-19	18-Sep-20
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDI	NCR	NCR
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDF	NCR	NCR
Attenuator	Fairview Microwave	SA1501SMA	RKV	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5182B-506	TEV	23-Apr-18	23-Apr-21
Generator - Signal	Benchforge Manufacturing	Colt	TIN	NCR	NCR
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR

TEST DESCRIPTION

The master was connected using the conducted method described in the FCC KDB procedure via a series of splitters and attenuators which allows the radar signals to be injected and monitored. The detection level was set prior to testing by temporarily replacing the master device with the analyzer and setting the power level according to Table 3 and Section 7.5. Configuration and status of the master device was then monitored using the spectrum analyzer (no association with client). The required radar signal was injected at the upper and lower band edge frequencies for ten trials each. If the detection percentage was not met, the upper and lower frequencies were reduced or increased by 1MHz and then injected again. This process is repeated until the frequency is found where the master detects the required number of trials. The upper and lower frequencies are subtracted and the resulting number is the U-NII Detection Bandwidth which must be greater than or equal to the 99% transmission power bandwidth used for data transmission.

As Fully described earlier in this report, the measured and verified -64dBm threshold short pulse radar type 0 was used to illustrate the detection bandwidth as define in the FCC KDB procedure.

DETECTION BANDWIDTH



XMR 2020.03.25.0

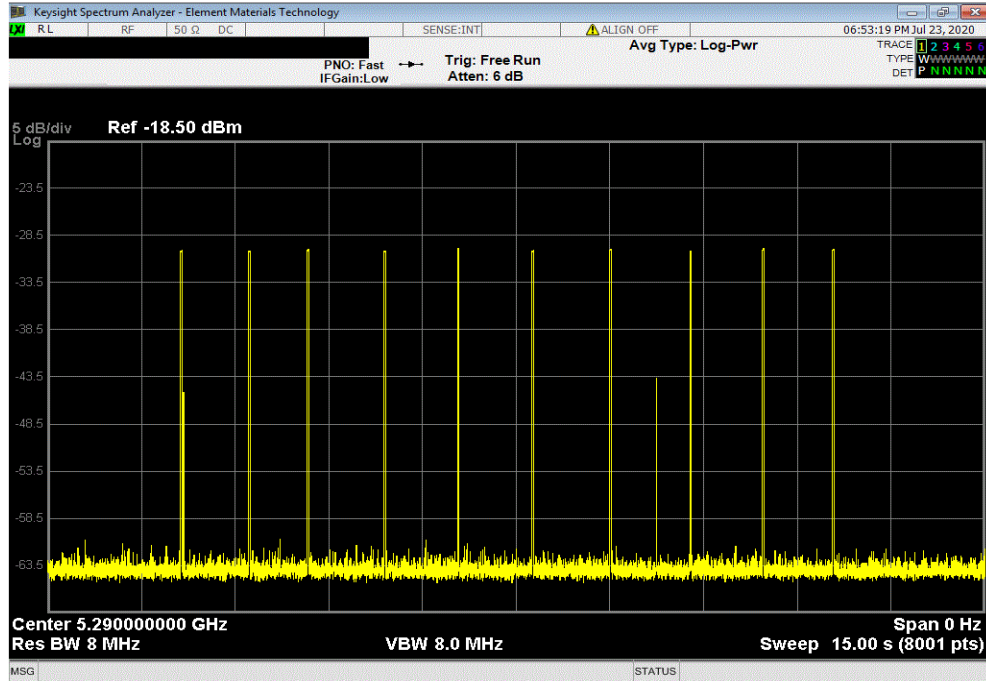
EUT: Samsung Model SM-H204V		Work Order: PCTE0004	
Serial Number: None		Date: 25-Jul-20	
Customer: PCTEST Engineering Laboratory, LLC		Temperature: 24.7 °C	
Attendees: None		Humidity: 53% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2020		ANSI C63.10:2013	
COMMENTS			
Radar was split across two of the four MIMO ports to more closely represent real world operation and was also client requested. Losses seen at the splitter in the measurement path were account for in the radar calibration leveling. Reference the DFS setup and master attenuation documentation for the attenuators used while under test. Ports 2 and 4 were tested. Per the DFS requirements all bandwidths were tested. The 99% power bandwidth of the channels measured can be found elsewhere in the part 15.407 report. Internal Attn was reduced for better dynamic range.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Detected	Not Detected
		% Decteted	Value
			≥ 99% PBW Limit
			Result
MIMO Ports 2 and 4			
802.11ac 5.3 GHz			
20 MHz Channel Bandwidth			
Ch.60, 5300 MHz			
Lowest Frequency 10 0 100 5290 MHz N/A N/A			
Highest Frequency 10 0 100 5310 MHz N/A N/A			
U-NII Dectection Bandwidt N/A N/A N/A 20 MHz 18 MHz Pass			
40 MHz Channel Bandwidth			
Ch.62, 5310 MHz			
Lowest Frequency 10 0 100 5291.5 MHz N/A N/A			
Highest Frequency 10 0 100 5328.5 MHz N/A N/A			
U-NII Dectection Bandwidt N/A N/A N/A 37 MHz 36.4 MHz Pass			
80 MHz Channel Bandwidth			
Ch.58, 5290 MHz			
Lowest Frequency 10 0 100 5252 MHz N/A N/A			
Highest Frequency 10 0 100 5328 MHz N/A N/A			
U-NII Dectection Bandwidt N/A N/A N/A 76 MHz 75.6 MHz Pass			

DETECTION BANDWIDTH

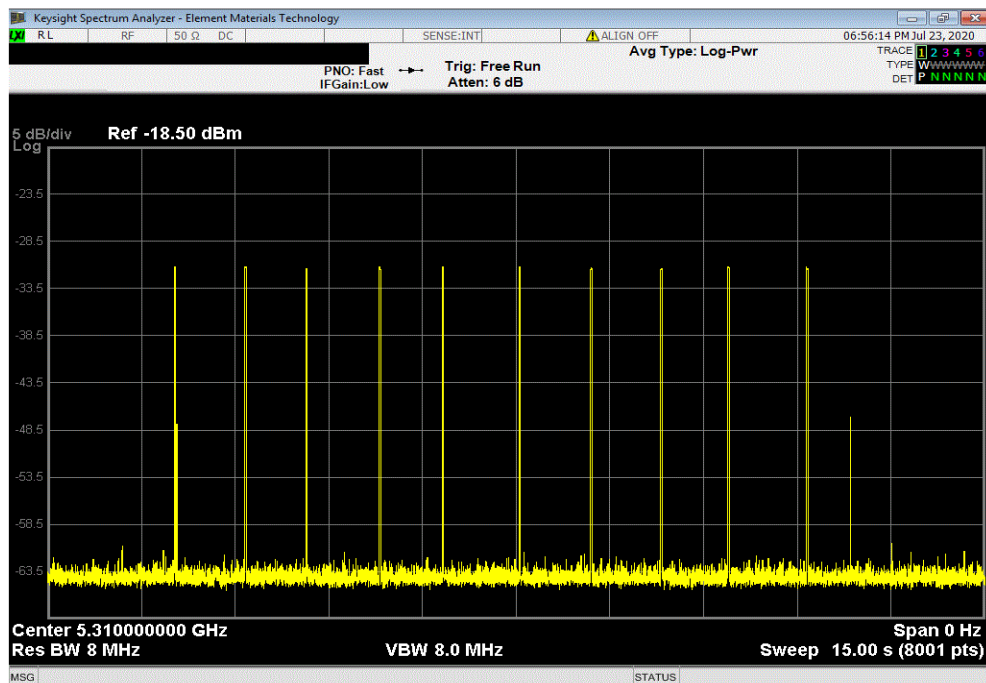


XMR 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Lowest Frequency						
≥ 99% PBW						
Detected	Not Detected	% Decteted	Value	Limit	Result	
10	0	100	5290 MHz	N/A	N/A	



MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Highest Frequency						
≥ 99% PBW						
Detected	Not Detected	% Decteted	Value	Limit	Result	
10	0	100	5310 MHz	N/A	N/A	



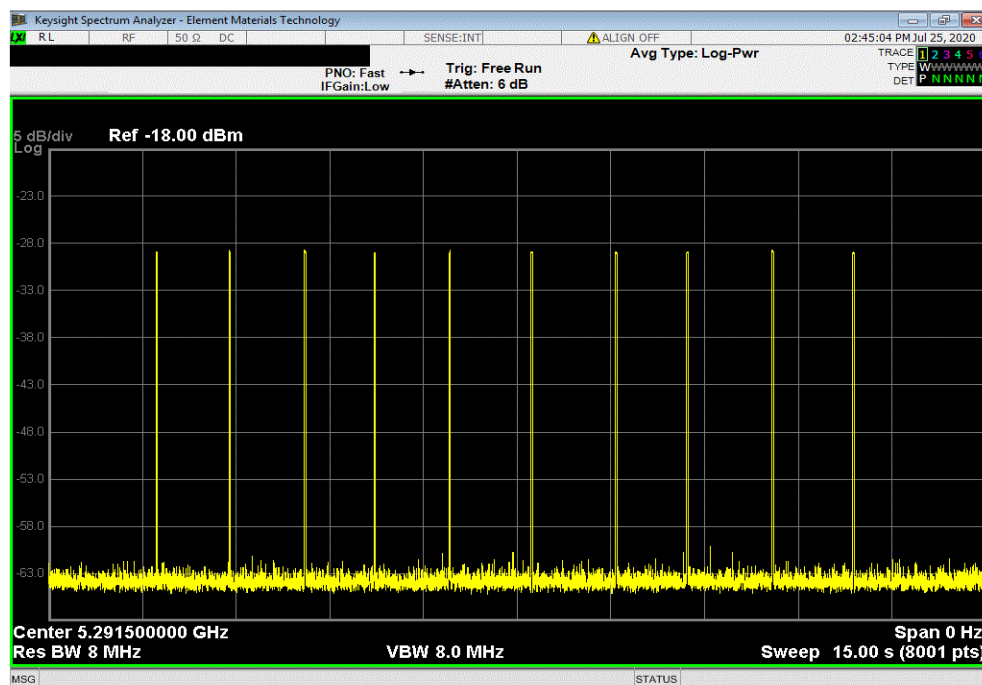
DETECTION BANDWIDTH



XMR 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, U-NII Detection Bandwidth							
≥ 99% PBW							
	Detected	Not Detected	% Decteted	Value	Limit	Result	
	N/A	N/A	N/A	20 MHz	18 MHz	Pass	

MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, Lowest Frequency							
≥ 99% PBW							
	Detected	Not Detected	% Decteted	Value	Limit	Result	
	10	0	100	5291.5 MHz	N/A	N/A	

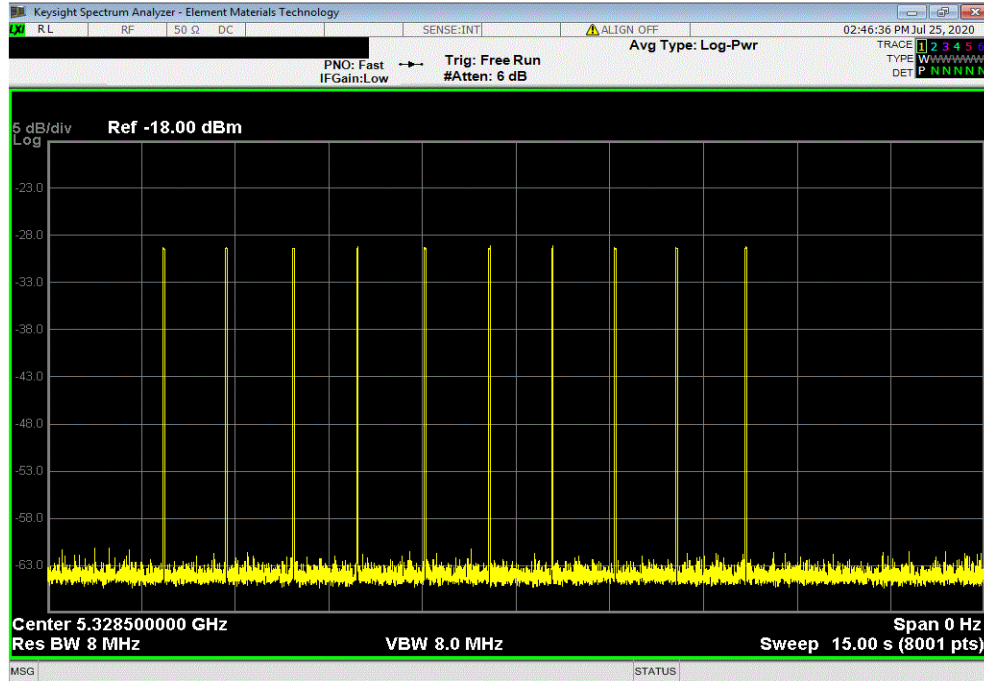


DETECTION BANDWIDTH



XMI 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, Highest Frequency						
≥ 99% PBW						
	Detected	Not Detected	% Decteted	Value	Limit	Result
	10	0	100	5328.5 MHz	N/A	N/A



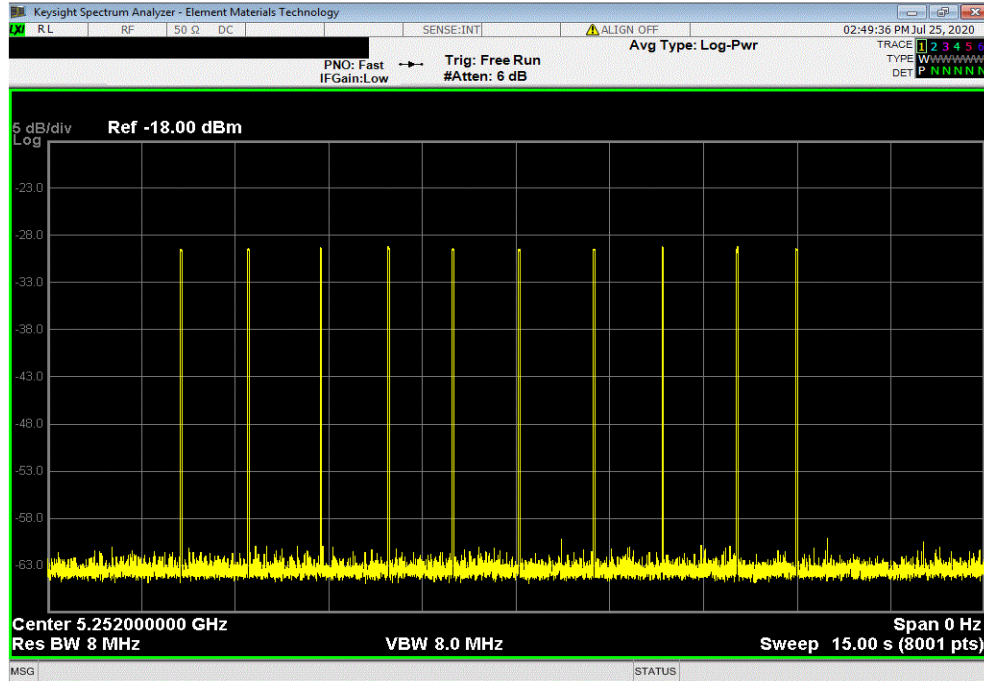
MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, U-NII Detection Bandwidth						
≥ 99% PBW						
	Detected	Not Detected	% Decteted	Value	Limit	Result
	N/A	N/A	N/A	37 MHz	36.4 MHz	Pass

DETECTION BANDWIDTH

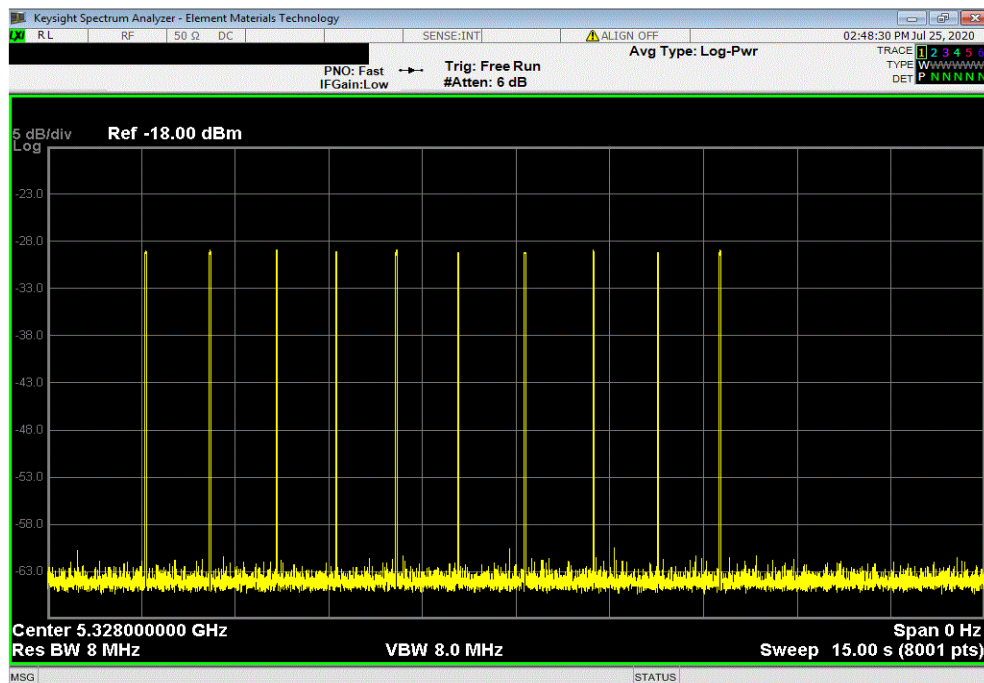


XMI 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Lowest Frequency						
≥ 99% PBW						
Detected	Not Detected	% Decteted	Value	Limit	Result	
10	0	100	5252 MHz	N/A	N/A	



MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Highest Frequency						
≥ 99% PBW						
Detected	Not Detected	% Decteted	Value	Limit	Result	
10	0	100	5328 MHz	N/A	N/A	



DETECTION BANDWIDTH



XMI 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, U-NII Detection Bandwidth						
≥ 99% PBW						
	Detected	Not Detected	% Decteted	Value	Limit	Result
	N/A	N/A	N/A	76 MHz	75.6 MHz	Pass

CHANNEL AVAILABILITY CHECK

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	18-Sep-19	18-Sep-20
Block - DC	Fairview Microwave	SD3379	AMM	13-Mar-20	13-Mar-21
Attenuator	Fairview Microwave	SA4018-20	TYE	18-Sep-19	18-Sep-20
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDI	NCR	NCR
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDF	NCR	NCR
Attenuator	Fairview Microwave	SA1501SMA	RKV	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5182B-506	TEV	23-Apr-18	23-Apr-21
Generator - Signal	Benchforge Manufacturing	Colt	TIN	NCR	NCR
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR

TEST DESCRIPTION

The master and client were connected using the conducted method described in the FCC KDB procedure via a series of splitters and attenuators which allows the radar signals to be injected and monitored. The master detection level was set prior to testing by temporarily replacing the master device with the analyzer and setting the power level according to Table 3 and Section 7.5. In addition, a specified time or indicator was used to determine when the master finishes its power up cycle and begins its channel availability check. Configuration and status of the master and client devices were then monitored using the spectrum analyzer. Three tests were performed on the necessary modes of the device: initial CAC, beginning CAC, and ending CAC. For initial CAC, using the analyzer settings specified in the procedure, the master is monitored to make sure it does not transmit or emit beacons for at least 60 seconds or more after the initial power up cycle. For beginning CAC, the required radar pulse is injected within the first 6 seconds of the channel availability check time, and the channel is monitored to make sure the master detects the radar and does not use the channel. For ending CAC, the required radar pulse is injected within the last 6 seconds of the channel availability check time, and the channel is monitored to make sure the master detects the radar and does not use the channel.

CHANNEL AVAILABILITY CHECK



XMIT 2020.03.25.0

EUT: Samsung Model SM-H204V		Work Order: PCTE0004	
Serial Number: None		Date: 25-Jul-20	
Customer: PCTEST Engineering Laboratory, LLC		Temperature: 24.9 °C	
Attendees: None		Humidity: 52.2% RH	
Project: None		Barometric Pres.: 1018 mbar	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2020		ANSI C63.10:2013	
COMMENTS			
Radar was split across two of the four MIMO ports to more closely represent real world operation and was also client requested. Losses seen at the splitter in the measurement path were account for in the radar calibration leveling. Reference the DFS setup and master attenuation documentation for the attenuators used while under test. Ports 2 and 4 were tested. Per the DFS requirements any single bandwidth can be tested. Internal Attn was reduced for better dynamic range.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Value (Sec)	Limit (Sec)
MIMO Ports 2 and 4			
802.11ac 5.3 GHz			
20 MHz Channel Bandwidth			
Ch.60, 5300 MHz			
	Initial CAC	62.15	≥ 60
	Beginning CAC	≥ 150	≥ 150
	Ending CAC	≥ 150	≥ 150
			Pass
			Pass
			Pass

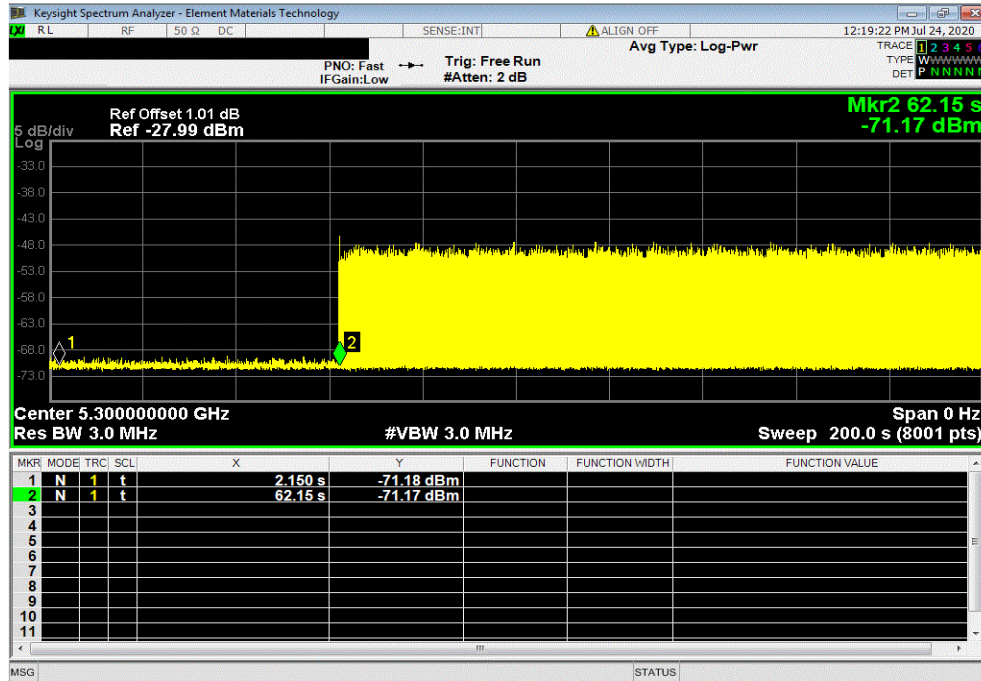
CHANNEL AVAILABILITY CHECK



XMI 2020.03.25.0

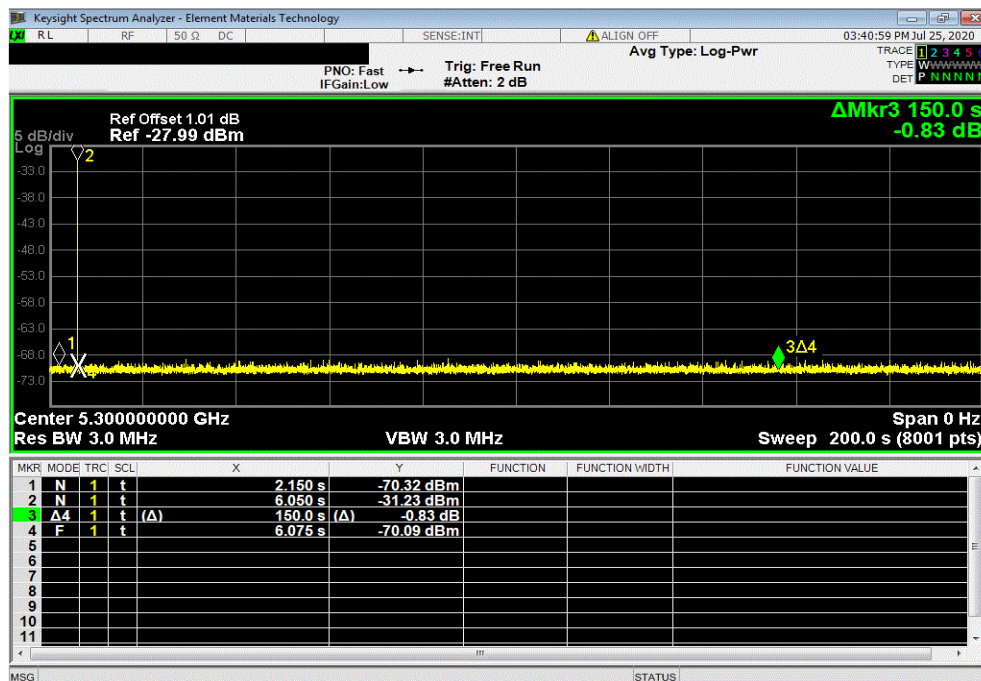
MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Initial CAC

				Value (Sec)	Limit (Sec)	Result
				62.15	≥ 60	Pass



MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Beginning CAC

				Value (Sec)	Limit (Sec)	Result
				≥ 150	≥ 150	Pass



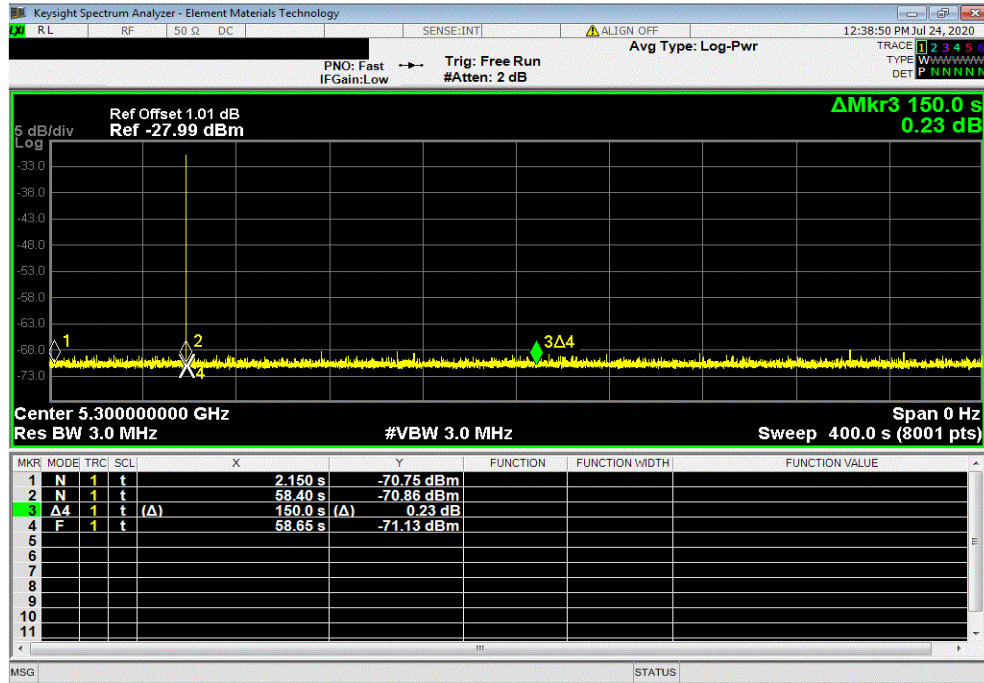
CHANNEL AVAILABILITY CHECK



XMI 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz, 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Ending CAC

Value (Sec)	Limit (Sec)	Result
≥ 150	≥ 150	Pass



MOVE TIME



XMI 2020.03.25.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	18-Sep-19	18-Sep-20
Block - DC	Fairview Microwave	SD3379	AMM	13-Mar-20	13-Mar-21
Attenuator	Fairview Microwave	SA4018-20	TYE	18-Sep-19	18-Sep-20
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDI	NCR	NCR
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDF	NCR	NCR
Attenuator	Fairview Microwave	SA1501SMA	RKV	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5182B-506	TEV	23-Apr-18	23-Apr-21
Generator - Signal	Benchforge Manufacturing	Colt	TIN	NCR	NCR
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR

TEST DESCRIPTION

The master and client were connected using the conducted method described in the FCC KDB procedure via a series of splitters and attenuators which allows the radar signals to be injected and monitored. For master devices, the detection level was set prior to testing by temporarily replacing the master device with the analyzer and setting the power level according to Table 3 and Section 7.5. Where required, an approved Media file was streamed between the master and client or an alternative method to load the channel may be used instead. Channel loading requirements were also verified prior to testing. Configuration and status of the master and client devices were then monitored using the spectrum analyzer. The Move Time test was performed by starting a transmission between the master and client device, and then injecting the appropriate radar signals and making sure both the master and client device vacate the DFS channel within the time specified by the standard.

MOVE TIME



XMI 2020.03.25.0

EUT:	Samsung Model SM-H204V		Work Order:	PCTE0004	
Serial Number:	None		Date:	25-Jul-20	
Customer:	PCTEST Engineering Laboratory, LLC		Temperature:	24.6 °C	
Attendees:	None		Humidity:	54.4% RH	
Project:	None		Barometric Pres.:	1017 mbar	
Tested by:	Brandon Hobbs	Power:	110VAC/60Hz	Job Site:	TX05
TEST SPECIFICATIONS			Test Method		
FCC 15.407:2020			ANSI C63.10:2013		
COMMENTS					
Radar was split across two of the four MIMO ports to more closely represent real world operation and was also client requested. Losses seen at the splitter in the measurement path were account for in the radar calibration leveling. Reference the DFS setup and master attenuation documentation for the attenuators used while under test. Ports 2 and 4 were tested. Per the DFS requirements only the widest bandwidth was tested. Internal Attn was reduced for better dynamic range.					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	1	Signature 			
			Value	Limit	Result
MIMO Ports 2 and 4					
802.11ac 5.3 GHz					
80 MHz Channel Bandwidth					
Ch.58, 5290 MHz					
Short Pulse Radar Type 0			≤ 10 Sec	≤ 10 Sec	Pass

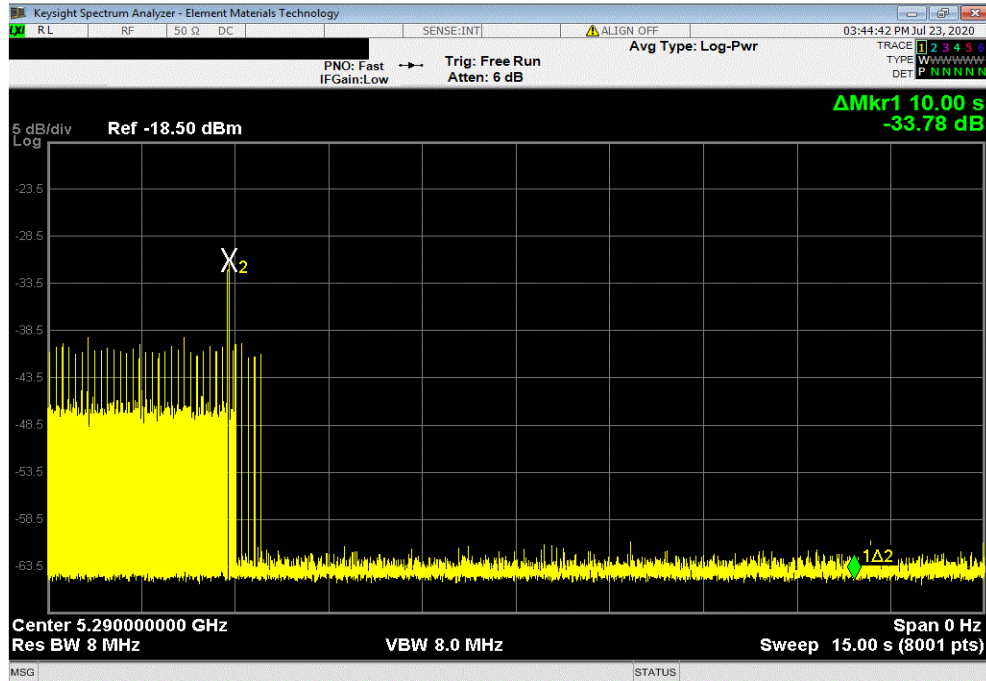
MOVE TIME



XMR 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz, 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Short Pulse Radar Type 0

				Value	Limit	Result
				≤ 10 Sec	≤ 10 Sec	Pass



CLOSING TIME



XMIT 2020.03.25.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	18-Sep-19	18-Sep-20
Block - DC	Fairview Microwave	SD3379	AMM	13-Mar-20	13-Mar-21
Attenuator	Fairview Microwave	SA4018-20	TYE	18-Sep-19	18-Sep-20
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDI	NCR	NCR
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDF	NCR	NCR
Attenuator	Fairview Microwave	SA1501SMA	RKV	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5182B-506	TEV	23-Apr-18	23-Apr-21
Generator - Signal	Benchforge Manufacturing	Colt	TIN	NCR	NCR
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR

TEST DESCRIPTION

The master and client were connected using the conducted method described in the FCC KDB procedure via a series of splitters and attenuators which allows the radar signals to be injected and monitored. For master devices, the detection level was set prior to testing by temporarily replacing the master device with the analyzer and setting the power level according to Table 3 and Section 7.5. Where required, an approved Media file was streamed through the master and client or an alternative method to load the channel may be used instead. Channel loading requirements were also verified prior to testing. Configuration and status of the master and client devices were then monitored using the spectrum analyzer. The Closing Time test was performed by starting a transmission between the master and client device, and then injecting the appropriate radar signals. All transmission signals between the master and client in the first 200mS are allowed. After this time period, the number of transmissions signals are counted and multiplied by the pulse width value(s). This aggregate is then added to the 200mS allowance for the final value and compared to the specified limit.

CLOSING TIME



XMIT 2020.03.25.0

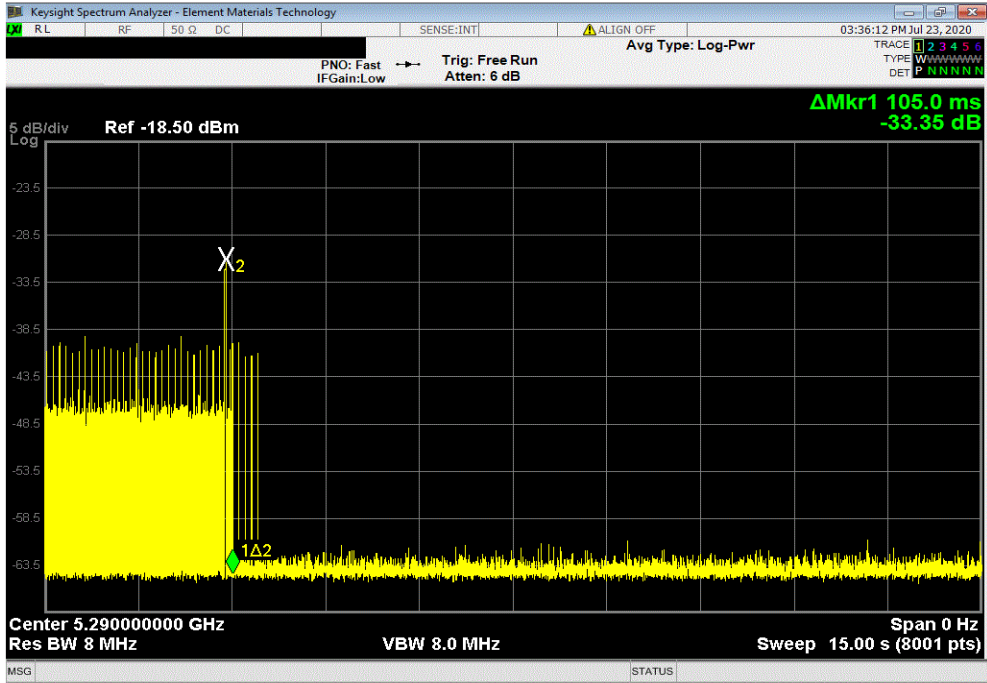
EUT: Samsung Model SM-H204V		Work Order: PCTE0004	
Serial Number: None		Date: 25-Jul-20	
Customer: PCTEST Engineering Laboratory, LLC		Temperature: 24.6 °C	
Attendees: None		Humidity: 53.1% RH	
Project: None		Barometric Pres.: 1018 mbar	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2020		ANSI C63.10:2013	
COMMENTS			
Radar was split across two of the four MIMO ports to more closely represent real world operation and was also client requested. Losses seen at the splitter in the measurement path were account for in the radar calibration leveling. Reference the DFS setup and master attenuation documentation for the attenuators used while under test. Ports 2 and 4 were tested. Per the DFS requirements only the widest bandwidth was tested. Internal Attn was reduced for better dynamic range.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		# of Signals	Pulse Width (mS)
		Initial Closing Time (mS)	Final Closing Time (mS)
		Limit (mS)	Result
MIMO Ports 2 and 4			
802.11ac 5.3 GHz			
80 MHz Channel Bandwidth			
Ch.58, 5290 MHz			
	Radar Type 0 200mS	5	N/A
	Radar Type 0 Aggregate	5	0.569
		105	N/A
		105	107.8
		200	Pass
		260	Pass

CLOSING TIME

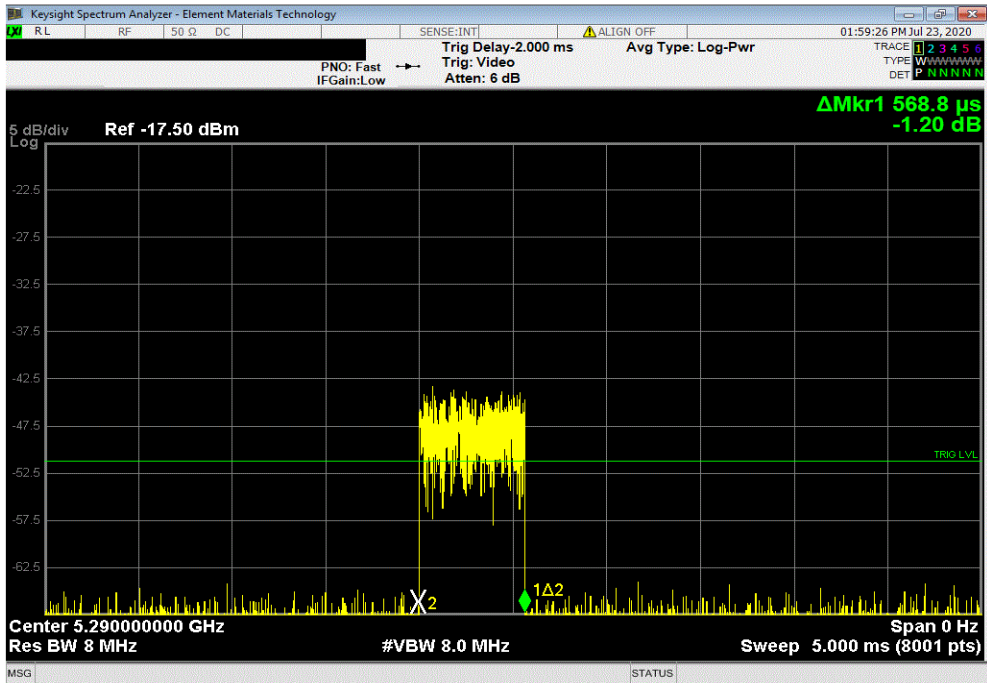


XMM 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Radar Type 0 200mS						
# of Signals	Pulse Width (mS)	Initial Closing Time (mS)	Final Closing Time (mS)	Limit (mS)	Result	
5	N/A	105	N/A	200	Pass	



MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Radar Type 0 Aggregate						
# of Signals	Pulse Width (mS)	Initial Closing Time (mS)	Final Closing Time (mS)	Limit (mS)	Result	
5	0.569	105	107.8	260	Pass	



NON OCCUPANCY PERIOD



XMIT 2020.03.25.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	18-Sep-19	18-Sep-20
Block - DC	Fairview Microwave	SD3379	AMM	13-Mar-20	13-Mar-21
Attenuator	Fairview Microwave	SA4018-20	TYE	18-Sep-19	18-Sep-20
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDI	NCR	NCR
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDF	NCR	NCR
Attenuator	Fairview Microwave	SA1501SMA	RKV	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5182B-506	TEV	23-Apr-18	23-Apr-21
Generator - Signal	Benchforge Manufacturing	Colt	TIN	NCR	NCR
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR

TEST DESCRIPTION

The master and client were connected using the conducted method described in the FCC KDB procedure via a series of splitters and attenuators which allows the communication and injected radar signals to be monitored simultaneously. The spectrum analyzer was configured to sweep the frequency for at least 30 minutes. The appropriate radar signal was injected and the channel was monitored to make sure the master and client devices vacated the channel and did not use it again for a period of time equal to or greater than 30 minutes.

NON OCCUPANCY PERIOD



XMN 2020 03 25.0

EUT: Samsung Model SM-H204V		Work Order: PCTE0004	
Serial Number: None		Date: 25-Jul-20	
Customer: PCTEST Engineering Laboratory, LLC		Temperature: 24.6 °C	
Attendees: None		Humidity: 53.6% RH	
Project: None		Barometric Pres.: 1017 mbar	
Tested by: Brandon Hobbs	Power: 110VAC/60Hz	Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2020		ANSI C63.10:2013	
COMMENTS			
Radar was split across two of the four MIMO ports to more closely represent real world operation and was also client requested. Losses seen at the splitter in the measurement path were account for in the radar calibration leveling. Reference the DFS setup and master attenuation documentation for the attenuators used while under test. Ports 2 and 4 were tested. Per the DFS requirements any single bandwidth can be tested. Internal Attn was reduced for better dynamic range. Converting 30 minute limit to seconds: 30 minutes x 60 sec / minute = 1800 second limit			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Value (Sec)	Limit (Sec)
MIMO Ports 2 and 4			
802.11ac 5.3 GHz			
20 MHz Channel Bandwidth			
Ch.60, 5300 MHz			
30min Non Occupancy Period		≥ 1800	≥ 1800
			Pass

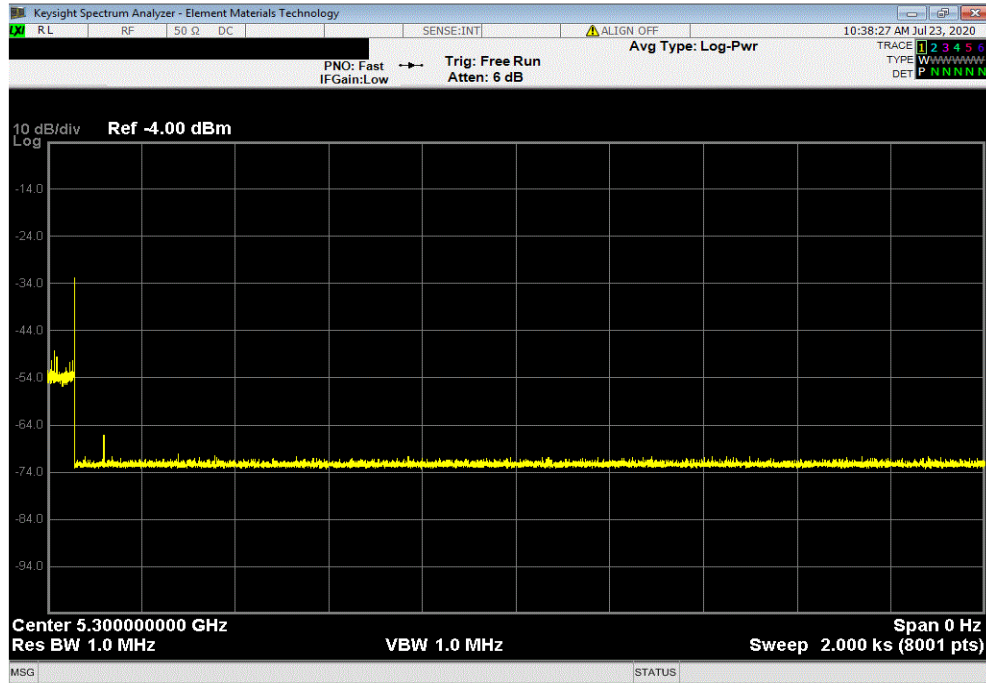
NON OCCUPANCY PERIOD



XMR 2020.03.25.0

MIMO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, 30min Non Occupancy Period

				Value (Sec)	Limit (Sec)	Result
				≥ 1800	≥ 1800	Pass



STATISTICAL PERFORMANCE CHECK

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	18-Sep-19	18-Sep-20
Block - DC	Fairview Microwave	SD3379	AMM	13-Mar-20	13-Mar-21
Attenuator	Fairview Microwave	SA4018-20	TYE	18-Sep-19	18-Sep-20
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDI	NCR	NCR
Power Divider/Combiner	Fairview Microwave	MP0208-2	PDF	NCR	NCR
Attenuator	Fairview Microwave	SA1501SMA	RKV	NCR	NCR
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Keysight	N5182B-506	TEV	23-Apr-18	23-Apr-21
Probe - Near Field Set	ETS Lindgren	7405	IPS	NCR	NCR
Generator - Signal	Benchforge Manufacturing	Colt	TIN	NCR	NCR
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBH	NCR	NCR

TEST DESCRIPTION

The master and client were connected using the conducted method described in the FCC KDB procedure via a series of splitters and attenuators which allows the radar signals to be injected and monitored. For master devices, the detection level was set prior to testing by temporarily replacing the master device with the analyzer and setting the power level according to Table 3 and Section 7.5. Where required, an approved Media file can be streamed between the master and client or an alternative random ping method to load the channel may be used instead. Channel loading requirements were also verified prior to testing. Configuration and status of the master and client devices were then monitored with the spectrum analyzer. Essentially, a move time test is performed on all the necessary radar types to make sure the master and client vacate the channel when a radar signal is injected. Numerous trials are performed for each radar type to establish a statistical analysis of detection probability, and the guidelines of section 7.8.4 of the procedure were used to calculate the data and determine if the results passed.

STATISTICAL PERFORMANCE CHECK



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EUT: Samsung Model SM-H204V		Work Order: PCTE0004	
Serial Number: None		Date: 28-Jul-20	
Customer: PCTEST Engineering Laboratory, LLC		Temperature: 24.6 °C	
Attendees: None		Humidity: 51.9% RH	
Project: None		Barometric Pres.: 1017 mbar	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2020		ANSI C63.10:2013	
COMMENTS			
Radar was split across two of the four MIMO ports to more closely represent real world operation and was also client requested. Losses seen at the splitter in the measurement path were account for in the radar calibration leveling. Reference the DFS setup and master attenuation documentation for the attenuators used while under test. Ports 2 and 4 were tested. Per the DFS requirements all bandwidths were tested.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Value	Limit
MIMO Ports 2 and 4			
802.11ac 5.3 GHz			
20 MHz Channel Bandwidth			
Ch.60, 5300 MHz			
	Radar Type 1 (A/B)	86.7%	60.0% Pass
	Radar Type 2	90.0%	60.0% Pass
	Radar Type 3	86.7%	60.0% Pass
	Radar Type 4	90.0%	60.0% Pass
	Radar Type 1-4 Summary	87.5%	80.0% Pass
	Radar Type 5	100.0%	80.0% Pass
	Radar Type 6	100.0%	70.0% Pass
40 MHz Channel Bandwidth			
Ch.62, 5310 MHz			
	Radar Type 1 (A/B)	100.0%	60.0% Pass
	Radar Type 2	100.0%	60.0% Pass
	Radar Type 3	80.0%	60.0% Pass
	Radar Type 4	90.0%	60.0% Pass
	Radar Type 1-4 Summary	92.5%	80.0% Pass
	Radar Type 5	100.0%	80.0% Pass
	Radar Type 6	93.3%	70.0% Pass
80 MHz Channel Bandwidth			
Ch.58, 5290 MHz			
	Radar Type 1 (A/B)	93.3%	60.0% Pass
	Radar Type 2	90.0%	60.0% Pass
	Radar Type 3	96.7%	60.0% Pass
	Radar Type 4	100.0%	60.0% Pass
	Radar Type 1-4 Summary	95.0%	80.0% Pass
	Radar Type 5	100.0%	80.0% Pass
	Radar Type 6	100.0%	70.0% Pass

STATISTICAL PERFORMANCE CHECK



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MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 1 (A/B)						
					Value	Limit
					86.7%	60.0%
						Result
						Pass

Trial #	Detected
1	PASS
2	PASS
3	PASS
4	PASS
5	FAIL
6	PASS
7	PASS
8	PASS
9	PASS
10	PASS
11	PASS
12	PASS
13	FAIL
14	PASS
15	PASS
16	PASS
17	PASS
18	FAIL
19	PASS
20	FAIL
21	PASS
22	PASS
23	PASS
24	PASS
25	PASS
26	PASS
27	PASS
28	PASS
29	PASS
30	PASS

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 2						
					Value	Limit
					90.0%	60.0%
						Result
						Pass

Trial #	Detected	No. of Pulses Per Burst	Pulse Width (us)	PRI (us)
1	PASS	pulses per burst: 23	tpw: 1.600 us	tpri: 159.000 us
2	FAIL	pulses per burst: 26	tpw: 2.500 us	tpri: 214.000 us
3	PASS	pulses per burst: 28	tpw: 3.700 us	tpri: 196.000 us
4	PASS	pulses per burst: 25	tpw: 1.700 us	tpri: 205.000 us
5	PASS	pulses per burst: 26	tpw: 4.400 us	tpri: 194.000 us
6	PASS	pulses per burst: 23	tpw: 4.500 us	tpri: 190.000 us
7	PASS	pulses per burst: 26	tpw: 2.600 us	tpri: 209.000 us
8	PASS	pulses per burst: 23	tpw: 4.200 us	tpri: 184.000 us
9	FAIL	pulses per burst: 24	tpw: 1.200 us	tpri: 160.000 us
10	PASS	pulses per burst: 29	tpw: 5.000 us	tpri: 182.000 us
11	PASS	pulses per burst: 26	tpw: 3.900 us	tpri: 182.000 us
12	PASS	pulses per burst: 28	tpw: 4.400 us	tpri: 167.000 us
13	PASS	pulses per burst: 25	tpw: 3.800 us	tpri: 170.000 us
14	PASS	pulses per burst: 24	tpw: 4.100 us	tpri: 150.000 us
15	PASS	pulses per burst: 29	tpw: 2.800 us	tpri: 170.000 us
16	PASS	pulses per burst: 27	tpw: 1.400 us	tpri: 207.000 us
17	FAIL	pulses per burst: 24	tpw: 2.400 us	tpri: 209.000 us
18	PASS	pulses per burst: 24	tpw: 4.000 us	tpri: 201.000 us
19	PASS	pulses per burst: 29	tpw: 2.000 us	tpri: 214.000 us
20	PASS	pulses per burst: 24	tpw: 3.100 us	tpri: 225.000 us
21	PASS	pulses per burst: 27	tpw: 4.900 us	tpri: 160.000 us
22	PASS	pulses per burst: 23	tpw: 4.300 us	tpri: 153.000 us
23	PASS	pulses per burst: 28	tpw: 3.500 us	tpri: 190.000 us
24	FAIL	pulses per burst: 25	tpw: 1.000 us	tpri: 188.000 us
25	PASS	pulses per burst: 26	tpw: 1.700 us	tpri: 197.000 us
26	PASS	pulses per burst: 27	tpw: 1.400 us	tpri: 202.000 us
27	PASS	pulses per burst: 27	tpw: 4.700 us	tpri: 196.000 us
28	PASS	pulses per burst: 25	tpw: 2.900 us	tpri: 212.000 us
29	PASS	pulses per burst: 28	tpw: 2.000 us	tpri: 153.000 us
30	PASS	pulses per burst: 28	tpw: 2.300 us	tpri: 174.000 us

STATISTICAL PERFORMANCE CHECK



XMM 2020.03.25.0

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 3						
				Value	Limit	Result
				86.7%	60.0%	Pass

Trial	Detected	No. of Pulses Per Burst	Pulse Width (us)	PRI (us)
#				
1	PASS	pulses per burst: 16	tpw: 9.600 us	tpri: 340.000 us
2	FAIL	pulses per burst: 16	tpw: 6.300 us	tpri: 355.000 us
3	PASS	pulses per burst: 17	tpw: 9.800 us	tpri: 225.000 us
4	PASS	pulses per burst: 18	tpw: 7.900 us	tpri: 358.000 us
5	PASS	pulses per burst: 16	tpw: 7.900 us	tpri: 386.000 us
6	PASS	pulses per burst: 18	tpw: 7.800 us	tpri: 486.000 us
7	PASS	pulses per burst: 16	tpw: 9.000 us	tpri: 425.000 us
8	PASS	pulses per burst: 17	tpw: 7.700 us	tpri: 337.000 us
9	PASS	pulses per burst: 18	tpw: 8.400 us	tpri: 387.000 us
10	PASS	pulses per burst: 17	tpw: 6.900 us	tpri: 330.000 us
11	PASS	pulses per burst: 16	tpw: 7.600 us	tpri: 337.000 us
12	FAIL	pulses per burst: 17	tpw: 6.100 us	tpri: 403.000 us
13	PASS	pulses per burst: 17	tpw: 9.200 us	tpri: 439.000 us
14	PASS	pulses per burst: 18	tpw: 9.200 us	tpri: 261.000 us
15	PASS	pulses per burst: 18	tpw: 6.000 us	tpri: 441.000 us
16	PASS	pulses per burst: 18	tpw: 9.000 us	tpri: 491.000 us
17	FAIL	pulses per burst: 18	tpw: 6.200 us	tpri: 210.000 us
18	PASS	pulses per burst: 17	tpw: 9.100 us	tpri: 441.000 us
19	PASS	pulses per burst: 17	tpw: 9.500 us	tpri: 327.000 us
20	PASS	pulses per burst: 16	tpw: 9.900 us	tpri: 216.000 us
21	PASS	pulses per burst: 16	tpw: 7.600 us	tpri: 253.000 us
22	PASS	pulses per burst: 18	tpw: 8.800 us	tpri: 474.000 us
23	PASS	pulses per burst: 16	tpw: 7.700 us	tpri: 377.000 us
24	PASS	pulses per burst: 16	tpw: 7.200 us	tpri: 440.000 us
25	FAIL	pulses per burst: 18	tpw: 9.100 us	tpri: 200.000 us
26	PASS	pulses per burst: 27	tpw: 1.400 us	tpri: 202.000 us
27	PASS	pulses per burst: 27	tpw: 4.700 us	tpri: 196.000 us
28	PASS	pulses per burst: 25	tpw: 2.900 us	tpri: 212.000 us
29	PASS	pulses per burst: 28	tpw: 2.000 us	tpri: 153.000 us
30	PASS	pulses per burst: 28	tpw: 2.300 us	tpri: 174.000 us

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 4						
				Value	Limit	Result
				90.0%	60.0%	Pass

Trial	Detected	No. of Pulses Per Burst	Pulse Width (us)	PRI (us)
#				
1	FAIL	pulses per burst: 16	tpw: 15.500 us	tpri: 231.000 us
2	PASS	pulses per burst: 16	tpw: 12.300 us	tpri: 371.000 us
3	PASS	pulses per burst: 15	tpw: 15.800 us	tpri: 376.000 us
4	PASS	pulses per burst: 16	tpw: 14.300 us	tpri: 278.000 us
5	FAIL	pulses per burst: 16	tpw: 15.600 us	tpri: 247.000 us
6	PASS	pulses per burst: 15	tpw: 17.300 us	tpri: 366.000 us
7	PASS	pulses per burst: 15	tpw: 19.600 us	tpri: 232.000 us
8	PASS	pulses per burst: 16	tpw: 14.200 us	tpri: 211.000 us
9	PASS	pulses per burst: 16	tpw: 12.100 us	tpri: 203.000 us
10	FAIL	pulses per burst: 16	tpw: 14.400 us	tpri: 270.000 us
11	PASS	pulses per burst: 16	tpw: 15.700 us	tpri: 480.000 us
12	PASS	pulses per burst: 15	tpw: 16.600 us	tpri: 249.000 us
13	PASS	pulses per burst: 14	tpw: 14.900 us	tpri: 362.000 us
14	PASS	pulses per burst: 13	tpw: 17.300 us	tpri: 394.000 us
15	PASS	pulses per burst: 16	tpw: 12.300 us	tpri: 412.000 us
16	PASS	pulses per burst: 16	tpw: 12.500 us	tpri: 354.000 us
17	PASS	pulses per burst: 15	tpw: 18.300 us	tpri: 269.000 us
18	PASS	pulses per burst: 14	tpw: 19.000 us	tpri: 242.000 us
19	PASS	pulses per burst: 15	tpw: 14.600 us	tpri: 292.000 us
20	PASS	pulses per burst: 13	tpw: 11.100 us	tpri: 211.000 us
21	PASS	pulses per burst: 12	tpw: 19.200 us	tpri: 296.000 us
22	PASS	pulses per burst: 13	tpw: 17.000 us	tpri: 213.000 us
23	PASS	pulses per burst: 14	tpw: 15.100 us	tpri: 460.000 us
24	PASS	pulses per burst: 14	tpw: 18.000 us	tpri: 411.000 us
25	PASS	pulses per burst: 14	tpw: 16.300 us	tpri: 247.000 us
26	PASS	pulses per burst: 15	tpw: 19.800 us	tpri: 459.000 us
27	PASS	pulses per burst: 14	tpw: 15.300 us	tpri: 378.000 us
28	PASS	pulses per burst: 13	tpw: 18.500 us	tpri: 498.000 us
29	PASS	pulses per burst: 15	tpw: 14.600 us	tpri: 346.000 us
30	PASS	pulses per burst: 14	tpw: 17.900 us	tpri: 269.000 us

STATISTICAL PERFORMANCE CHECK



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MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 1-4 Summary						
					Value	Limit
					87.5%	80.0%
						Result
						Pass

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 5						
					Value	Limit
					100.0%	80.0%
						Result
						Pass

Trial #	Detected
1	PASS
2	PASS
3	PASS
4	PASS
5	PASS
6	PASS
7	PASS
8	PASS
9	PASS
10	PASS
11	PASS
12	PASS
13	PASS
14	PASS
15	PASS
16	PASS
17	PASS
18	PASS
19	PASS
20	PASS
21	PASS
22	PASS
23	PASS
24	PASS
25	PASS
26	PASS
27	PASS
28	PASS
29	PASS
30	PASS

STATISTICAL PERFORMANCE CHECK



XMt 2020.03.25.0

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 20 MHz Channel Bandwidth, Ch.60, 5300 MHz, Radar Type 6						
				Value	Limit	Result
				100.0%	70.0%	Pass

Trial #	Detected
1	PASS
2	PASS
3	PASS
4	PASS
5	PASS
6	PASS
7	PASS
8	PASS
9	PASS
10	PASS
11	PASS
12	PASS
13	PASS
14	PASS
15	PASS
16	PASS
17	PASS
18	PASS
19	PASS
20	PASS
21	PASS
22	PASS
23	PASS
24	PASS
25	PASS
26	PASS
27	PASS
28	PASS
29	PASS
30	PASS

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, Radar Type 1 (A/B)						
				Value	Limit	Result
				100.0%	60.0%	Pass

Trial #	Detected
1	PASS
2	PASS
3	PASS
4	PASS
5	PASS
6	PASS
7	PASS
8	PASS
9	PASS
10	PASS
11	PASS
12	PASS
13	PASS
14	PASS
15	PASS
16	PASS
17	PASS
18	PASS
19	PASS
20	PASS
21	PASS
22	PASS
23	PASS
24	PASS
25	PASS
26	PASS
27	PASS
28	PASS
29	PASS
30	PASS

STATISTICAL PERFORMANCE CHECK



MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, Radar Type 2						
				Value	Limit	Result
				100.0%	60.0%	Pass

Trial	Detected	No. of Pulses Per Burst	Pulse Width (us)	PRI (us)
#				
1	PASS	pulses per burst: 23	tpw: 4.200 us	tpri: 177.000 us
2	PASS	pulses per burst: 23	tpw: 4.100 us	tpri: 206.000 us
3	PASS	pulses per burst: 24	tpw: 1.100 us	tpri: 178.000 us
4	PASS	pulses per burst: 27	tpw: 4.700 us	tpri: 193.000 us
5	PASS	pulses per burst: 23	tpw: 4.000 us	tpri: 184.000 us
6	PASS	pulses per burst: 23	tpw: 3.400 us	tpri: 170.000 us
7	PASS	pulses per burst: 29	tpw: 1.900 us	tpri: 205.000 us
8	PASS	pulses per burst: 27	tpw: 2.700 us	tpri: 153.000 us
9	PASS	pulses per burst: 27	tpw: 1.600 us	tpri: 197.000 us
10	PASS	pulses per burst: 28	tpw: 2.300 us	tpri: 182.000 us
11	PASS	pulses per burst: 23	tpw: 4.600 us	tpri: 181.000 us
12	PASS	pulses per burst: 26	tpw: 4.400 us	tpri: 172.000 us
13	PASS	pulses per burst: 29	tpw: 3.900 us	tpri: 163.000 us
14	PASS	pulses per burst: 27	tpw: 4.900 us	tpri: 177.000 us
15	PASS	pulses per burst: 26	tpw: 2.400 us	tpri: 223.000 us
16	PASS	pulses per burst: 26	tpw: 1.400 us	tpri: 194.000 us
17	PASS	pulses per burst: 28	tpw: 1.600 us	tpri: 186.000 us
18	PASS	pulses per burst: 27	tpw: 2.700 us	tpri: 150.000 us
19	PASS	pulses per burst: 27	tpw: 1.600 us	tpri: 216.000 us
20	PASS	pulses per burst: 23	tpw: 4.000 us	tpri: 183.000 us
21	PASS	pulses per burst: 25	tpw: 2.500 us	tpri: 225.000 us
22	PASS	pulses per burst: 28	tpw: 1.000 us	tpri: 213.000 us
23	PASS	pulses per burst: 29	tpw: 3.400 us	tpri: 187.000 us
24	PASS	pulses per burst: 26	tpw: 3.600 us	tpri: 216.000 us
25	PASS	pulses per burst: 26	tpw: 2.600 us	tpri: 203.000 us
26	PASS	pulses per burst: 28	tpw: 3.200 us	tpri: 154.000 us
27	PASS	pulses per burst: 27	tpw: 4.100 us	tpri: 218.000 us
28	PASS	pulses per burst: 23	tpw: 2.500 us	tpri: 156.000 us
29	PASS	pulses per burst: 23	tpw: 4.000 us	tpri: 169.000 us
30	PASS	pulses per burst: 27	tpw: 3.000 us	tpri: 164.000 us

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, Radar Type 3						
				Value	Limit	Result
				80.0%	60.0%	Pass

Trial	Detected	No. of Pulses Per Burst	Pulse Width (us)	PRI (us)
#				
1	PASS	pulses per burst: 16	tpw: 7.000 us	tpri: 233.000 us
2	PASS	pulses per burst: 18	tpw: 8.000 us	tpri: 444.000 us
3	PASS	pulses per burst: 17	tpw: 7.000 us	tpri: 385.000 us
4	PASS	pulses per burst: 18	tpw: 6.400 us	tpri: 412.000 us
5	PASS	pulses per burst: 16	tpw: 9.200 us	tpri: 218.000 us
6	PASS	pulses per burst: 16	tpw: 6.800 us	tpri: 480.000 us
7	FAIL	pulses per burst: 18	tpw: 8.100 us	tpri: 371.000 us
8	PASS	pulses per burst: 16	tpw: 6.300 us	tpri: 301.000 us
9	FAIL	pulses per burst: 18	tpw: 7.600 us	tpri: 486.000 us
10	PASS	pulses per burst: 18	tpw: 6.800 us	tpri: 205.000 us
11	FAIL	pulses per burst: 16	tpw: 7.800 us	tpri: 282.000 us
12	PASS	pulses per burst: 16	tpw: 6.700 us	tpri: 328.000 us
13	PASS	pulses per burst: 18	tpw: 7.700 us	tpri: 445.000 us
14	PASS	pulses per burst: 17	tpw: 7.600 us	tpri: 412.000 us
15	PASS	pulses per burst: 18	tpw: 7.100 us	tpri: 211.000 us
16	PASS	pulses per burst: 18	tpw: 6.200 us	tpri: 334.000 us
17	PASS	pulses per burst: 17	tpw: 6.400 us	tpri: 267.000 us
18	FAIL	pulses per burst: 17	tpw: 8.800 us	tpri: 286.000 us
19	PASS	pulses per burst: 16	tpw: 9.900 us	tpri: 452.000 us
20	PASS	pulses per burst: 17	tpw: 9.600 us	tpri: 205.000 us
21	FAIL	pulses per burst: 18	tpw: 9.500 us	tpri: 244.000 us
22	FAIL	pulses per burst: 17	tpw: 9.100 us	tpri: 455.000 us
23	PASS	pulses per burst: 16	tpw: 6.700 us	tpri: 280.000 us
24	PASS	pulses per burst: 17	tpw: 6.100 us	tpri: 291.000 us
25	PASS	pulses per burst: 18	tpw: 9.200 us	tpri: 363.000 us
26	PASS	pulses per burst: 18	tpw: 8.700 us	tpri: 386.000 us
27	PASS	pulses per burst: 16	tpw: 9.000 us	tpri: 220.000 us
28	PASS	pulses per burst: 17	tpw: 9.500 us	tpri: 439.000 us
29	PASS	pulses per burst: 17	tpw: 6.400 us	tpri: 238.000 us
30	PASS	pulses per burst: 16	tpw: 6.300 us	tpri: 220.000 us

STATISTICAL PERFORMANCE CHECK



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MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, Radar Type 4						
				Value	Limit	Result
				90.0%	60.0%	Pass

Trial #	Detected	No. of Pulses Per Burst	Pulse Width (us)	PRI (us)
1	PASS	pulses per burst: 16	tpw: 19.700 us	tpri: 369.000 us
2	FAIL	pulses per burst: 15	tpw: 19.900 us	tpri: 200.000 us
3	PASS	pulses per burst: 12	tpw: 12.800 us	tpri: 266.000 us
4	PASS	pulses per burst: 13	tpw: 19.600 us	tpri: 362.000 us
5	PASS	pulses per burst: 14	tpw: 13.800 us	tpri: 335.000 us
6	PASS	pulses per burst: 15	tpw: 13.800 us	tpri: 478.000 us
7	FAIL	pulses per burst: 14	tpw: 15.700 us	tpri: 485.000 us
8	PASS	pulses per burst: 12	tpw: 19.100 us	tpri: 398.000 us
9	PASS	pulses per burst: 13	tpw: 19.000 us	tpri: 435.000 us
10	FAIL	pulses per burst: 16	tpw: 16.600 us	tpri: 427.000 us
11	PASS	pulses per burst: 13	tpw: 13.700 us	tpri: 239.000 us
12	PASS	pulses per burst: 16	tpw: 11.800 us	tpri: 253.000 us
13	PASS	pulses per burst: 13	tpw: 20.000 us	tpri: 424.000 us
14	PASS	pulses per burst: 13	tpw: 16.200 us	tpri: 202.000 us
15	PASS	pulses per burst: 15	tpw: 11.400 us	tpri: 250.000 us
16	PASS	pulses per burst: 15	tpw: 16.500 us	tpri: 369.000 us
17	PASS	pulses per burst: 13	tpw: 11.000 us	tpri: 316.000 us
18	PASS	pulses per burst: 16	tpw: 15.600 us	tpri: 201.000 us
19	PASS	pulses per burst: 15	tpw: 17.500 us	tpri: 358.000 us
20	PASS	pulses per burst: 12	tpw: 17.200 us	tpri: 267.000 us
21	PASS	pulses per burst: 13	tpw: 15.500 us	tpri: 468.000 us
22	PASS	pulses per burst: 12	tpw: 11.100 us	tpri: 249.000 us
23	PASS	pulses per burst: 16	tpw: 12.600 us	tpri: 482.000 us
24	PASS	pulses per burst: 14	tpw: 17.400 us	tpri: 209.000 us
25	PASS	pulses per burst: 16	tpw: 15.100 us	tpri: 219.000 us
26	PASS	pulses per burst: 14	tpw: 12.100 us	tpri: 401.000 us
27	PASS	pulses per burst: 12	tpw: 18.700 us	tpri: 273.000 us
28	PASS	pulses per burst: 14	tpw: 15.200 us	tpri: 487.000 us
29	PASS	pulses per burst: 14	tpw: 16.600 us	tpri: 288.000 us
30	PASS	pulses per burst: 12	tpw: 13.400 us	tpri: 453.000 us

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, Radar Type 1-4 Summary						
				Value	Limit	Result
				92.5%	80.0%	Pass

STATISTICAL PERFORMANCE CHECK



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MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, Radar Type 5						
				Value	Limit	Result
				100.0%	80.0%	Pass

Trial #	Detected
1	PASS
2	PASS
3	PASS
4	PASS
5	PASS
6	PASS
7	PASS
8	PASS
9	PASS
10	PASS
11	PASS
12	PASS
13	PASS
14	PASS
15	PASS
16	PASS
17	PASS
18	PASS
19	PASS
20	PASS
21	PASS
22	PASS
23	PASS
24	PASS
25	PASS
26	PASS
27	PASS
28	PASS
29	PASS
30	PASS

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 40 MHz Channel Bandwidth, Ch.62, 5310 MHz, Radar Type 6						
				Value	Limit	Result
				93.3%	70.0%	Pass

Trial #	Detected
1	PASS
2	PASS
3	PASS
4	FAIL
5	PASS
6	PASS
7	PASS
8	PASS
9	PASS
10	PASS
11	PASS
12	FAIL
13	PASS
14	PASS
15	PASS
16	PASS
17	PASS
18	PASS
19	PASS
20	PASS
21	PASS
22	PASS
23	PASS
24	PASS
25	PASS
26	PASS
27	PASS
28	PASS
29	PASS
30	PASS

STATISTICAL PERFORMANCE CHECK



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MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Radar Type 1 (A/B)							
					Value	Limit	Result
					93.3%	60.0%	Pass

Trial #	Detected
1	PASS
2	PASS
3	PASS
4	PASS
5	PASS
6	PASS
7	PASS
8	PASS
9	FAIL
10	PASS
11	PASS
12	PASS
13	PASS
14	PASS
15	PASS
16	PASS
17	PASS
18	PASS
19	PASS
20	PASS
21	PASS
22	PASS
23	PASS
24	PASS
25	PASS
26	PASS
27	FAIL
28	PASS
29	PASS
30	PASS

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Radar Type 2							
					Value	Limit	Result
					90.0%	60.0%	Pass

Trial #	Detected	No. of Pulses Per Burst	Pulse Width (us)	PRI (us)
1	PASS	pulses per burst: 29	tpw: 3.700 us	tpri: 163.000 us
2	PASS	pulses per burst: 24	tpw: 1.900 us	tpri: 151.000 us
3	PASS	pulses per burst: 29	tpw: 4.100 us	tpri: 170.000 us
4	PASS	pulses per burst: 25	tpw: 5.000 us	tpri: 168.000 us
5	FAIL	pulses per burst: 25	tpw: 1.000 us	tpri: 215.000 us
6	PASS	pulses per burst: 24	tpw: 2.100 us	tpri: 153.000 us
7	PASS	pulses per burst: 24	tpw: 2.200 us	tpri: 151.000 us
8	PASS	pulses per burst: 28	tpw: 4.900 us	tpri: 209.000 us
9	PASS	pulses per burst: 23	tpw: 2.600 us	tpri: 171.000 us
10	PASS	pulses per burst: 27	tpw: 4.500 us	tpri: 221.000 us
11	PASS	pulses per burst: 28	tpw: 4.600 us	tpri: 175.000 us
12	PASS	pulses per burst: 23	tpw: 1.200 us	tpri: 163.000 us
13	FAIL	pulses per burst: 25	tpw: 4.100 us	tpri: 203.000 us
14	PASS	pulses per burst: 29	tpw: 4.400 us	tpri: 206.000 us
15	PASS	pulses per burst: 24	tpw: 4.100 us	tpri: 206.000 us
16	PASS	pulses per burst: 28	tpw: 1.900 us	tpri: 206.000 us
17	PASS	pulses per burst: 23	tpw: 4.900 us	tpri: 226.000 us
18	PASS	pulses per burst: 29	tpw: 3.600 us	tpri: 222.000 us
19	PASS	pulses per burst: 29	tpw: 1.700 us	tpri: 157.000 us
20	PASS	pulses per burst: 25	tpw: 3.600 us	tpri: 189.000 us
21	PASS	pulses per burst: 27	tpw: 1.300 us	tpri: 198.000 us
22	PASS	pulses per burst: 26	tpw: 1.800 us	tpri: 216.000 us
23	PASS	pulses per burst: 26	tpw: 4.400 us	tpri: 224.000 us
24	FAIL	pulses per burst: 27	tpw: 2.300 us	tpri: 214.000 us
25	PASS	pulses per burst: 23	tpw: 3.000 us	tpri: 226.000 us
26	PASS	pulses per burst: 27	tpw: 1.800 us	tpri: 171.000 us
27	PASS	pulses per burst: 25	tpw: 4.600 us	tpri: 213.000 us
28	PASS	pulses per burst: 29	tpw: 3.100 us	tpri: 223.000 us
29	PASS	pulses per burst: 27	tpw: 1.000 us	tpri: 218.000 us
30	PASS	pulses per burst: 25	tpw: 3.300 us	tpri: 187.000 us

STATISTICAL PERFORMANCE CHECK



MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Radar Type 3						
				Value	Limit	Result
				96.7%	60.0%	Pass
Trial	Detected	No. of Pulses	Pulse Width	PRI		
#		Per Burst	(us)	(us)		
1	PASS	pulses per burst: 18	tpw: 7.600 us	tpri: 229.000 us		
2	FAIL	pulses per burst: 18	tpw: 8.300 us	tpri: 321.000 us		
3	PASS	pulses per burst: 18	tpw: 9.000 us	tpri: 292.000 us		
4	PASS	pulses per burst: 18	tpw: 8.200 us	tpri: 375.000 us		
5	PASS	pulses per burst: 16	tpw: 7.400 us	tpri: 210.000 us		
6	PASS	pulses per burst: 16	tpw: 8.500 us	tpri: 409.000 us		
7	PASS	pulses per burst: 17	tpw: 8.900 us	tpri: 275.000 us		
8	PASS	pulses per burst: 18	tpw: 8.200 us	tpri: 422.000 us		
9	PASS	pulses per burst: 18	tpw: 7.100 us	tpri: 390.000 us		
10	PASS	pulses per burst: 18	tpw: 6.000 us	tpri: 420.000 us		
11	PASS	pulses per burst: 16	tpw: 7.200 us	tpri: 397.000 us		
12	PASS	pulses per burst: 18	tpw: 7.300 us	tpri: 499.000 us		
13	PASS	pulses per burst: 16	tpw: 7.300 us	tpri: 355.000 us		
14	PASS	pulses per burst: 16	tpw: 6.600 us	tpri: 374.000 us		
15	PASS	pulses per burst: 18	tpw: 8.100 us	tpri: 486.000 us		
16	PASS	pulses per burst: 16	tpw: 8.800 us	tpri: 224.000 us		
17	PASS	pulses per burst: 16	tpw: 6.500 us	tpri: 315.000 us		
18	PASS	pulses per burst: 17	tpw: 9.400 us	tpri: 253.000 us		
19	PASS	pulses per burst: 17	tpw: 7.100 us	tpri: 421.000 us		
20	PASS	pulses per burst: 16	tpw: 7.000 us	tpri: 211.000 us		
21	PASS	pulses per burst: 17	tpw: 6.300 us	tpri: 461.000 us		
22	PASS	pulses per burst: 17	tpw: 9.900 us	tpri: 500.000 us		
23	PASS	pulses per burst: 17	tpw: 8.500 us	tpri: 355.000 us		
24	PASS	pulses per burst: 18	tpw: 7.800 us	tpri: 239.000 us		
25	PASS	pulses per burst: 18	tpw: 9.600 us	tpri: 271.000 us		
26	PASS	pulses per burst: 17	tpw: 8.800 us	tpri: 344.000 us		
27	PASS	pulses per burst: 16	tpw: 9.200 us	tpri: 430.000 us		
28	PASS	pulses per burst: 17	tpw: 9.200 us	tpri: 344.000 us		
29	PASS	pulses per burst: 17	tpw: 7.700 us	tpri: 259.000 us		
30	PASS	pulses per burst: 18	tpw: 9.200 us	tpri: 433.000 us		

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Radar Type 4						
				Value	Limit	Result
				100.0%	60.0%	Pass
Trial	Detected	No. of Pulses	Pulse Width	PRI		
#		Per Burst	(us)	(us)		
1	PASS	pulses per burst: 14	tpw: 18.300 us	tpri: 391.000 us		
2	PASS	pulses per burst: 12	tpw: 16.100 us	tpri: 433.000 us		
3	PASS	pulses per burst: 14	tpw: 14.900 us	tpri: 278.000 us		
4	PASS	pulses per burst: 14	tpw: 12.800 us	tpri: 484.000 us		
5	PASS	pulses per burst: 14	tpw: 11.500 us	tpri: 274.000 us		
6	PASS	pulses per burst: 14	tpw: 12.100 us	tpri: 419.000 us		
7	PASS	pulses per burst: 15	tpw: 18.700 us	tpri: 329.000 us		
8	PASS	pulses per burst: 13	tpw: 14.300 us	tpri: 307.000 us		
9	PASS	pulses per burst: 15	tpw: 15.100 us	tpri: 469.000 us		
10	PASS	pulses per burst: 14	tpw: 15.500 us	tpri: 378.000 us		
11	PASS	pulses per burst: 15	tpw: 11.100 us	tpri: 434.000 us		
12	PASS	pulses per burst: 15	tpw: 19.700 us	tpri: 265.000 us		
13	PASS	pulses per burst: 15	tpw: 14.100 us	tpri: 208.000 us		
14	PASS	pulses per burst: 14	tpw: 18.700 us	tpri: 324.000 us		
15	PASS	pulses per burst: 14	tpw: 16.800 us	tpri: 376.000 us		
16	PASS	pulses per burst: 12	tpw: 17.500 us	tpri: 241.000 us		
17	PASS	pulses per burst: 12	tpw: 15.900 us	tpri: 257.000 us		
18	PASS	pulses per burst: 15	tpw: 16.200 us	tpri: 206.000 us		
19	PASS	pulses per burst: 12	tpw: 19.700 us	tpri: 477.000 us		
20	PASS	pulses per burst: 14	tpw: 16.500 us	tpri: 255.000 us		
21	PASS	pulses per burst: 14	tpw: 17.400 us	tpri: 301.000 us		
22	PASS	pulses per burst: 16	tpw: 17.800 us	tpri: 344.000 us		
23	PASS	pulses per burst: 14	tpw: 15.200 us	tpri: 407.000 us		
24	PASS	pulses per burst: 13	tpw: 17.200 us	tpri: 344.000 us		
25	PASS	pulses per burst: 12	tpw: 11.700 us	tpri: 401.000 us		
26	PASS	pulses per burst: 12	tpw: 12.500 us	tpri: 314.000 us		
27	PASS	pulses per burst: 14	tpw: 19.100 us	tpri: 229.000 us		
28	PASS	pulses per burst: 13	tpw: 16.500 us	tpri: 386.000 us		
29	PASS	pulses per burst: 14	tpw: 18.800 us	tpri: 337.000 us		
30	PASS	pulses per burst: 14	tpw: 16.900 us	tpri: 336.000 us		

STATISTICAL PERFORMANCE CHECK



MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Radar Type 1-4 Summary						
					Value	Limit
					95.0%	80.0%
						Result
						Pass

MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Radar Type 5						
					Value	Limit
					100.0%	80.0%
						Result
						Pass

Trial #	Detected
1	PASS
2	PASS
3	PASS
4	PASS
5	PASS
6	PASS
7	PASS
8	PASS
9	PASS
10	PASS
11	PASS
12	PASS
13	PASS
14	PASS
15	PASS
16	PASS
17	PASS
18	PASS
19	PASS
20	PASS
21	PASS
22	PASS
23	PASS
24	PASS
25	PASS
26	PASS
27	PASS
28	PASS
29	PASS
30	PASS

STATISTICAL PERFORMANCE CHECK



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MIMIO Ports 2 and 4, 802.11ac 5.3 GHz , 80 MHz Channel Bandwidth, Ch.58, 5290 MHz, Radar Type 6						
				Value	Limit	Result
				100.0%	70.0%	Pass

Trial #	Detected
1	PASS
2	PASS
3	PASS
4	PASS
5	PASS
6	PASS
7	PASS
8	PASS
9	PASS
10	PASS
11	PASS
12	PASS
13	PASS
14	PASS
15	PASS
16	PASS
17	PASS
18	PASS
19	PASS
20	PASS
21	PASS
22	PASS
23	PASS
24	PASS
25	PASS
26	PASS
27	PASS
28	PASS
29	PASS
30	PASS

STATISTICAL PERFORMANCE CHECK



Trial #1
PASS
Time: 28/07/2020 14:07:00
Channel Frequency: 5300
Channel BW: 20
Occupied BW (MHz): 20
Extern SG Frequency: 5300
--- Bin5RandParmGen Output ---

Random DFS waveform parameters (NewBin5) 7/28/2020 2:07:00 PM

Bin # Pulse Width(Pri(us) Pulses/Burst

Waveform Num = 1

Num of Bursts = 11

Burst Interval (us) = 1090909

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	210744	2	6	80	1866	1966	0	210744	0	1090908
2	1912198	2	6	65	1229	1987	0	2126774	1090909	2181817
3	367872	2	6	55	1604	1902	0	2497862	2181818	3272726
4	1337694	3	6	100	1383	1964	1088	3839062	3272727	4363635

STATISTICAL PERFORMANCE CHECK



Trial #4
 PASS
 Time: 28/07/2020 14:08:29
 Channel Frequency: 5300
 Channel BW: 20
 Occupied BW (MHz): 20
 Extern SG Frequency: 5300
 Waveform Num = 4
 Num of Bursts = 11
 Burst Interval (us) = 1090909

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	21877	3	19	50	1232	1836	1726	21877	0	1090908	
2	1485385	3	19	55	1724	1660	1949	1512056	1090909	2181817	
3	1261414	1	19	70	1421	0	0	2778803	2181818	3272726	
4	889447	3	19	65	1912	1726	1069	3669671	3272727	4363635	
5	1206781	1	19	70	1044	0	0	4881159	4363636	5454544	
6	651668	2	19	90	1836	1229	0	5533871	5454545	6545453	
7	1273091	2	19	90	1422	1272	0	6810027	6545454	7636362	
8	1609263	1	19	55	1656	0	0	8421984	7636363	8727271	

STATISTICAL PERFORMANCE CHECK



Trial #7
 PASS
 Time: 28/07/2020 14:09:31
 Channel Frequency: 5300
 Channel BW: 20
 Occupied BW (MHz): 20
 Extern SG Frequency: 5300
 Waveform Num = 7
 Num of Bursts = 20
 Burst Interval (us) = 600000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	455881	1	14	90	1158	0	0	455881	0	599999
2	593273	1	14	55	1710	0	0	1050312	600000	1199999
3	356143	1	14	95	1388	0	0	1408165	1200000	1799999
4	522087	2	14	80	1180	1586	0	1931640	1800000	2399999
5	673963	1	14	75	1704	0	0	2608369	2400000	2999999
6	869648	2	14	85	1639	1304	0	3479721	3000000	3599999
7	462846	3	14	100	1290	1492	1059	3945510	3600000	4199999

STATISTICAL PERFORMANCE CHECK



Trial #10

PASS

Time: 28/07/2020 14:10:23

Channel Frequency: 5300

Channel BW: 20

Occupied BW (MHz): 20

Extern SG Frequency: 5300

Waveform Num = 10

Num of Bursts = 20

Burst Interval (us) = 600000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst	Ir End Burst	Interval(us)
1	97501	1	6	60	1897	0	0	97501	0		599999
2	518360	3	6	100	1197	1483	1598	617758	600000		1199999
3	874711	3	6	55	1754	1064	1604	1496747	1200000		1799999
4	315087	1	6	95	1039	0	0	1816256	1800000		2399999
5	813470	1	6	60	1090	0	0	2630765	2400000		2999999
6	435811	3	6	90	1623	1166	1530	3067666	3000000		3599999
7	868765	3	6	80	1210	1098	1672	3940750	3600000		4199999
8	554216	2	6	80	1189	1093	0	4498946	4200000		4799999
9	698444	1	6	75	1861	0	0	5199672	4800000		5399999
10	488993	2	6	85	1489	1306	0	5690526	5400000		5999999
11	817274	2	6	70	1855	1978	0	6510595	6000000		6599999
12	401248	3	6	55	1430	1324	1693	6915676	6600000		7199999

STATISTICAL PERFORMANCE CHECK



Trial #13

PASS

Time: 28/07/2020 14:11:07

Channel Frequency: 5300

Channel BW: 20

Occupied BW (MHz): 20

Extern SG Frequency: 5294.0

Waveform Num = 13

Num of Bursts = 9

Burst Interval (us) = 1333333

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	263267	3	11	95	1531	1106	1413	263267	0	1333332	
2	1317160	1	11	100	1348	0	0	1584477	1333333	2666665	
3	1264809	2	11	70	1528	1991	0	2850634	2666666	3999998	
4	1191718	2	11	85	1158	1036	0	4045871	3999999	5333331	
5	2365060	2	11	70	1831	1199	0	6413125	5333332	6666664	
6	1325110	1	11	55	1969	0	0	7741265	6666665	7999997	
7	1127995	2	11	90	1697	1455	0	8871229	7999998	9333330	
8	1286027	2	11	70	1664	1618	0	10160408	9333331	10666663	
9	1459876	3	11	60	1685	1634	1328	11623566	10666664	11999996	

Total number of pulses in waveform = 18

STATISTICAL PERFORMANCE CHECK



Trial #16

PASS

Time: 28/07/2020 14:12:05

Channel Frequency: 5300

Channel BW: 20

Occupied BW (MHz): 20

Extern SG Frequency: 5293.2

Waveform Num = 16

Num of Bursts = 8

Burst Interval (us) = 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	1491454	1	12	70	1332	0	0	1491454	0	1499999	
2	806154	1	12	50	1103	0	0	2298940	1500000	2999999	
3	1514803	1	12	60	1022	0	0	3814846	3000000	4499999	
4	1357568	1	12	55	1140	0	0	5173436	4500000	5999999	
5	1633044	1	12	95	1924	0	0	6807620	6000000	7499999	
6	1641300	1	12	70	1314	0	0	8450844	7500000	8999999	

STATISTICAL PERFORMANCE CHECK



Trial #19

PASS

Time: 28/07/2020 14:13:12

Channel Frequency: 5300

Channel BW: 20

Occupied BW (MHz): 20

Extern SG Frequency: 5294.4

Waveform Num = 19

Num of Bursts = 8

Burst Interval (us) = 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	947608	1	12	55	1667	0	0	947608	0	1499999
2	1535234	1	12	80	1794	0	0	2484509	1500000	2999999
3	1446017	1	12	95	1609	0	0	3932320	3000000	4499999
4	1916755	3	12	85	1506	1164	1155	5850684	4500000	5999999
5	250074	1	12	85	1335	0	0	6104583	6000000	7499999
6	1716465	2	12	65	1628	1164	0	7822383	7500000	8999999
7	2638818	3	12	100	1592	1270	1541	10463993	9000000	10499999
8	1079769	3	12	55	1611	1916	1730	11548165	10500000	11999999

Total number of pulses in waveform = 15

STATISTICAL PERFORMANCE CHECK



Trial #22

PASS

Time: 28/07/2020 14:14:09

Channel Frequency: 5300

Channel BW: 20

Occupied BW (MHz): 20

Extern SG Frequency: 5304.0

Waveform Num = 22

Num of Bursts = 11

Burst Interval (us) = 1090909

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	1062244	1	13	80	1735	0	0	1062244	0	1090908	
2	105686	3	13	85	1788	1609	1923	1169665	1090909	2181817	
3	1665759	3	13	70	1087	1220	1225	2840744	2181818	3272726	
4	607845	3	13	60	1870	1778	1111	3452121	3272727	4363635	
5	1886160	2	13	65	1585	1938	0	5343040	4363636	5454544	
6	555340	1	13	85	1599	0	0	5901903	5454545	6545453	
7	776600	1	13	75	1098	0	0	6680102	6545454	7636362	
8	1920877	2	13	65	1067	1770	0	8602077	7636363	8727271	
9	883164	3	13	55	1228	1919	1082	9488078	8727272	9818180	
10	602483	3	13	80	1538	1669	1611	10094790	9818181	10909089	
11	947910	2	13	60	1377	1262	0	11047518	10909090	11999998	

STATISTICAL PERFORMANCE CHECK



Trial #25

PASS

Time: 28/07/2020 14:15:32

Channel Frequency: 5300

Channel BW: 20

Occupied BW (MHz): 20

Extern SG Frequency: 5306.0

Waveform Num = 25

Num of Bursts = 17

Burst Interval (us) = 705882

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	568102	2	14	90	1989	1558	0	568102	0	705881	
2	178324	1	14	95	1631	0	0	749973	705882	1411763	
3	737512	2	14	80	1871	1526	0	1489116	1411764	2117645	
4	1054306	3	14	65	1665	1625	1481	2546819	2117646	2823527	
5	656778	2	14	60	1147	1112	0	3208368	2823528	3529409	
6	749931	2	14	65	1449	1407	0	3960558	3529410	4235291	

STATISTICAL PERFORMANCE CHECK



Trial #28

PASS

Time: 28/07/2020 14:17:13

Channel Frequency: 5300

Channel BW: 20

Occupied BW (MHz): 20

Extern SG Frequency: 5306.8

Waveform Num = 28

Num of Bursts = 10

Burst Interval (us) = 1200000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	60577	3	11	50	1262	1705	1746	60577	0		1199999
2	1787037	1	11	55	1072	0	0	1852327	1200000		2399999
3	1608506	2	11	85	1145	1822	0	3461905	2400000		3599999
4	749853	2	11	75	1900	1908	0	4214725	3600000		4799999
5	1618281	3	11	70	1719	1653	1827	5836814	4800000		5999999
6	794994	2	11	100	1117	1568	0	6637007	6000000		7199999

STATISTICAL PERFORMANCE CHECK



Trial #1
PASS
Time: 28/07/2020 13:26:17
Channel Frequency: 5310
Channel BW: 40
Occupied BW (MHz): 40.00
Extern SG Frequency: 5310
--- Bin5RandParmGen Output ---

Random DFS waveform parameters (NewBin5) 7/28/2020 1:26:17 PM

Bin # Pulse Width(Pri(us) Pulses/Burst

Waveform Num = 1

Num of Bursts = 8

Burst Interval (us) = 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	1475464	1	11	55	1952	0	0	1475464	0	1499999
2	438438	3	11	75	1472	1758	1940	1915854	1500000	2999999
3	2382690	1	11	85	1096	0	0	4303714	3000000	4499999
4	361635	3	11	100	1416	1212	1699	4666445	4500000	5999999
5	1789794	1	11	85	1815	0	0	6460566	6000000	7499999
6	2189078	1	11	65	1799	0	0	8651459	7500000	8999999

STATISTICAL PERFORMANCE CHECK



Trial #4

PASS

Time: 28/07/2020 13:28:04

Channel Frequency: 5310

Channel BW: 40

Occupied BW (MHz): 40.00

Extern SG Frequency: 5310

Waveform Num = 4

Num of Bursts = 10

Burst Interval (us) = 1200000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	326437	2	18	70	1454	1473	0	326437	0	1199999
2	1579749	3	18	80	1804	1299	1783	1909113	1200000	2399999
3	1160228	2	18	70	1786	1890	0	3074227	2400000	3599999
4	1041070	1	18	90	1771	0	0	4118973	3600000	4799999
5	1553293	1	18	50	1050	0	0	5674037	4800000	5999999
6	1388536	2	18	100	1125	1344	0	7063623	6000000	7199999
7	223409	2	18	60	1183	1766	0	7289501	7200000	8399999
8	1904677	1	18	50	1420	0	0	9197127	8400000	9599999

STATISTICAL PERFORMANCE CHECK



Trial #7
 PASS
 Time: 28/07/2020 13:29:13
 Channel Frequency: 5310
 Channel BW: 40
 Occupied BW (MHz): 40.00
 Extern SG Frequency: 5310
 Waveform Num = 7
 Num of Bursts = 19
 Burst Interval (us) = 631579

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	173049	3	6	55	1650	1586	1581	173049	0	631578
2	696323	3	6	50	1062	1022	1620	874189	631579	1263157
3	669212	2	6	75	1458	1261	0	1547105	1263158	1894736
4	478609	1	6	90	1772	0	0	2028433	1894737	2526315
5	774425	3	6	100	1130	1225	1638	2804630	2526316	3157894
6	476682	2	6	100	1250	1781	0	3285305	3157895	3789473
7	801151	1	6	75	1242	0	0	4089487	3789474	4421052
8	464167	3	6	90	1257	1883	1822	4554896	4421053	5052631

STATISTICAL PERFORMANCE CHECK



Trial #10

PASS

Time: 28/07/2020 13:31:00

Channel Frequency: 5310

Channel BW: 40

Occupied BW (MHz): 40.00

Extern SG Frequency: 5310

Waveform Num = 10

Num of Bursts = 8

Burst Interval (us) = 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	970830	3	5	85	1545	1549	1730	970830	0	1499999
2	605035	3	5	80	1483	1045	1772	1580689	1500000	2999999
3	2045796	3	5	85	1903	1422	1195	3630785	3000000	4499999
4	1331484	2	5	90	1644	1880	0	4966789	4500000	5999999
5	1938526	1	5	100	1890	0	0	6908839	6000000	7499999
6	1986762	2	5	100	1410	1062	0	8897491	7500000	8999999

STATISTICAL PERFORMANCE CHECK



Trial #13

PASS

Time: 28/07/2020 13:32:20

Channel Frequency: 5310

Channel BW: 40

Occupied BW (MHz): 40.00

Extern SG Frequency: 5292.0

Waveform Num = 13

Num of Bursts = 9

Burst Interval (us) = 1333333

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	185540	3	8	95	1123	1004	1349	185540	0	1333332	
2	1306012	3	8	100	1088	1500	1517	1495028	1333333	2666665	
3	1247220	1	8	85	1608	0	0	2746353	2666666	3999998	
4	1405372	1	8	75	1786	0	0	4153333	3999999	5333331	
5	1288440	3	8	60	1380	1967	1044	5443559	5333332	6666664	
6	2003252	3	8	85	1136	1648	1891	7451202	6666665	7999997	
7	1154439	2	8	80	1986	1722	0	8610316	7999998	9333330	
8	1594238	3	8	80	1280	1286	1258	10208262	9333331	10666663	

STATISTICAL PERFORMANCE CHECK



Trial #16

PASS

Time: 28/07/2020 13:33:24

Channel Frequency: 5310

Channel BW: 40

Occupied BW (MHz): 40.00

Extern SG Frequency: 5294.0

Waveform Num = 16

Num of Bursts = 9

Burst Interval (us) = 1333333

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	647158	3	13	85	1382	1592	1359	647158	0		1333332
2	1367502	2	13	95	1988	1491	0	2018993	1333333		2666665
3	836871	2	13	80	1233	1444	0	2859343	2666666		3999998
4	2283632	2	13	50	1954	1252	0	5145652	3999999		5333331

STATISTICAL PERFORMANCE CHECK



Trial #19

PASS

Time: 28/07/2020 13:34:27

Channel Frequency: 5310

Channel BW: 40

Occupied BW (MHz): 40.00

Extern SG Frequency: 5294.8

Waveform Num = 19

Num of Bursts = 16

Burst Interval (us) = 750000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	263744	2	15	55	1017	1395	0	263744	0	749999
2	697738	2	15	55	1798	1075	0	963894	750000	1499999
3	712416	1	15	75	1271	0	0	1679183	1500000	2249999
4	936009	3	15	75	1539	1576	1759	2616463	2250000	2999999
5	853018	2	15	85	1023	1783	0	3474355	3000000	3749999
6	798638	1	15	70	1155	0	0	4275799	3750000	4499999

STATISTICAL PERFORMANCE CHECK



Trial #22

PASS

Time: 28/07/2020 13:35:41

Channel Frequency: 5310

Channel BW: 40

Occupied BW (MHz): 40.00

Extern SG Frequency: 5327.6

Waveform Num = 22

Num of Bursts = 11

Burst Interval (us) = 1090909

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	920909	3	13	80	1525	1586	1527	920909	0		1090908
2	572038	3	13	90	1756	1962	1337	1497585	1090909		2181817
3	1154903	3	13	90	1008	1126	1985	2657543	2181818		3272726
4	1592735	1	13	90	1482	0	0	4254397	3272727		4363635
5	884666	3	13	95	1131	1590	1951	5140545	4363636		5454544
6	823361	3	13	65	1438	1831	1188	5968578	5454545		6545453
7	1331683	1	13	100	1476	0	0	7304718	6545454		7636362
8	1291588	2	13	75	1519	1106	0	8597782	7636363		8727271
9	507768	2	13	60	1052	1900	0	9108175	8727272		9818180
10	1461363	1	13	70	1047	0	0	10572490	9818181		10909089
11	1367049	3	13	95	1277	1928	1411	11940586	10909090		11999998

STATISTICAL PERFORMANCE CHECK



Trial #25

PASS

Time: 28/07/2020 13:38:26

Channel Frequency: 5310

Channel BW: 40

Occupied BW (MHz): 40.00

Extern SG Frequency: 5327.2

Waveform Num = 25

Num of Bursts = 18

Burst Interval (us) = 666667

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	88106	1	14	55	1328	0	0	88106	0	666666
2	769799	3	14	80	1197	1706	1759	859233	666667	1333333

STATISTICAL PERFORMANCE CHECK



Trial #28

PASS

Time: 28/07/2020 13:41:35

Channel Frequency: 5310

Channel BW: 40

Occupied BW (MHz): 40.00

Extern SG Frequency: 5325.2

Waveform Num = 28

Num of Bursts = 18

Burst Interval (us) = 666667

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	475733	2	19	70	1401	1279	0	475733	0	666666
2	340840	1	19	80	1778	0	0	819253	666667	1333333
3	1040824	3	19	80	1145	1503	1722	1861855	1333334	2000000
4	399656	1	19	95	1972	0	0	2265881	2000001	2666667

STATISTICAL PERFORMANCE CHECK



Trial #1
PASS
Time: 28/07/2020 13:49:20
Channel Frequency: 5290
Channel BW: 80
Occupied BW (MHz): 80
Extern SG Frequency: 5290
--- Bin5RandParmGen Output ---

Random DFS waveform parameters (NewBin5) 7/28/2020 1:49:20 PM

Bin #	Pulse Width(Pri(us)	Pulses/Burst
Waveform Num = 1		

STATISTICAL PERFORMANCE CHECK



Trial #4
 PASS
 Time: 28/07/2020 13:50:15
 Channel Frequency: 5290
 Channel BW: 80
 Occupied BW (MHz): 80
 Extern SG Frequency: 5290
 Waveform Num = 4
 Num of Bursts = 18
 Burst Interval (us) = 666667

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	493602	2	6	85	1674	1201	0	493602	0	666666	
2	541713	3	6	85	1108	1378	1762	1038190	666667	1333333	
3	631981	3	6	90	1354	1901	1437	1674419	1333334	2000000	
4	336890	3	6	65	1205	1724	1573	2016001	2000001	2666667	
5	832310	2	6	75	1019	1899	0	2852813	2666668	3333334	
6	685081	1	6	80	1005	0	0	3540812	3333335	4000001	
7	909184	2	6	60	1995	1663	0	4451001	4000002	4666668	
8	788503	1	6	75	1831	0	0	5243162	4666669	5333335	
9	110086	3	6	100	1222	1847	1374	5355079	5333336	6000002	
10	1131697	2	6	90	1525	1780	0	6491219	6000003	6666669	

STATISTICAL PERFORMANCE CHECK



Trial #7
PASS
Time: 28/07/2020 13:51:25
Channel Frequency: 5290
Channel BW: 80
Occupied BW (MHz): 80
Extern SG Frequency: 5290
Waveform Num = 7
Num of Bursts = 13
Burst Interval (us) = 923077

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	30384	1	7	60	1850	0	0	30384	0	923076
2	1029926	2	7	65	1844	1558	0	1062160	923077	1846153
3	944804	1	7	55	1283	0	0	2010366	1846154	2769230
4	1542498	2	7	95	1547	1210	0	3554147	2769231	3692307
5	488595	3	7	100	1373	1202	1640	4045499	3692308	4615384

STATISTICAL PERFORMANCE CHECK



Trial #10

PASS

Time: 28/07/2020 13:52:59

Channel Frequency: 5290

Channel BW: 80

Occupied BW (MHz): 80

Extern SG Frequency: 5290

Waveform Num = 10

Num of Bursts = 19

Burst Interval (us) = 631579

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst	Ir End Burst	Interval(us)
1	110544	2	8	80	1245	1165	0	110544	0		631578
2	1141897	3	8	55	1509	1872	1085	1254851	631579		1263157
3	577566	2	8	50	1806	1027	0	1836883	1263158		1894736
4	631986	2	8	65	1843	1494	0	2471702	1894737		2526315
5	463270	3	8	55	1872	1601	1177	2938309	2526316		3157894
6	503723	3	8	70	1940	1164	1825	3446682	3157895		3789473
7	640242	1	8	70	1822	0	0	4091853	3789474		4421052
8	829221	2	8	95	1471	1864	0	4922896	4421053		5052631
9	243193	2	8	100	1475	1690	0	5169424	5052632		5684210
10	1047956	3	8	55	1810	1937	1343	6220545	5684211		6315789
11	191089	3	8	65	1364	1674	1755	6416724	6315790		6947368
12	708246	1	8	90	1852	0	0	7129763	6947369		7578947

STATISTICAL PERFORMANCE CHECK



Trial #13

PASS

Time: 28/07/2020 13:54:29

Channel Frequency: 5290

Channel BW: 80

Occupied BW (MHz): 80

Extern SG Frequency: 5256.4

Waveform Num = 13

Num of Bursts = 13

Burst Interval (us) = 923077

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	693885	1	19	65	1271	0	0	693885	0	923076
2	535857	1	19	95	1665	0	0	1231013	923077	1846153
3	673630	1	19	80	1529	0	0	1906308	1846154	2769230
4	992333	1	19	65	1311	0	0	2900170	2769231	3692307
5	1654652	1	19	60	1957	0	0	4556133	3692308	4615384
6	954156	1	19	90	1512	0	0	5512246	4615385	5538461
7	117697	3	19	60	1348	1209	1421	5631455	5538462	6461538
8	1504519	1	19	50	1506	0	0	7139952	6461539	7384615

STATISTICAL PERFORMANCE CHECK



Trial #16

PASS

Time: 28/07/2020 13:56:49

Channel Frequency: 5290

Channel BW: 80

Occupied BW (MHz): 80

Extern SG Frequency: 5252.4

Waveform Num = 16

Num of Bursts = 14

Burst Interval (us) = 857143

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	525805	1	5	95	1411	0	0	525805	0	857142	
2	744092	1	5	60	1448	0	0	1271308	857143	1714285	
3	844956	3	5	75	1836	1559	1738	2117712	1714286	2571428	
4	1090603	2	5	85	1537	1294	0	3213448	2571429	3428571	
5	499226	1	5	85	1533	0	0	3715505	3428572	4285714	
6	1286643	3	5	90	1561	1825	1633	5003681	4285715	5142857	
7	146949	3	5	55	1456	1107	1227	5155649	5142858	6000000	
8	1389105	2	5	65	1201	1627	0	6548544	6000001	6857143	
9	329191	2	5	70	1262	1830	0	6880563	6857144	7714286	

STATISTICAL PERFORMANCE CHECK



Trial #19

PASS

Time: 28/07/2020 13:57:49

Channel Frequency: 5290

Channel BW: 80

Occupied BW (MHz): 80

Extern SG Frequency: 5257.2

Waveform Num = 19

Num of Bursts = 17

Burst Interval (us) = 705882

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	133450	1	5	75	1960	0	0	133450	0	705881
2	1024611	2	5	65	1128	1029	0	1160021	705882	1411763
3	704180	1	5	95	1112	0	0	1866358	1411764	2117645
4	780881	1	5	50	1979	0	0	2648351	2117646	2823527
5	393285	3	5	80	1963	1239	1892	3043615	2823528	3529409
6	687545	3	5	100	1481	1064	1499	3736254	3529410	4235291
7	758108	3	5	75	1375	1756	1508	4498406	4235292	4941173
8	1089486	1	5	95	1796	0	0	5592531	4941174	5647055
9	264826	3	5	85	1389	1024	1989	5859153	5647056	6352937
10	894408	3	5	95	1066	1539	1757	6757963	6352938	7058819
11	516760	2	5	70	1183	1456	0	7279085	7058820	7764701
12	893483	1	5	65	1128	0	0	8175207	7764702	8470583
13	813020	2	5	60	1563	1275	0	8989355	8470584	9176465
14	566778	3	5	70	1895	1252	1273	9558971	9176466	9882347

STATISTICAL PERFORMANCE CHECK



Trial #22

PASS

Time: 28/07/2020 13:58:58

Channel Frequency: 5290

Channel BW: 80

Occupied BW (MHz): 80

Extern SG Frequency: 5327.6

Waveform Num = 22

Num of Bursts = 10

Burst Interval (us) = 1200000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	1043362	3	5	95	1262	1834	1925	1043362	0		1199999
2	484435	1	5	85	1693	0	0	1532818	1200000		2399999
3	1033578	3	5	60	1773	1839	1703	2568089	2400000		3599999
4	1974386	2	5	55	1681	1300	0	4547790	3600000		4799999
5	372395	1	5	100	1357	0	0	4923166	4800000		5999999
6	1982907	2	5	100	1155	1214	0	6907430	6000000		7199999
7	1202739	3	5	60	1493	1471	1846	8112538	7200000		8399999
8	1396521	3	5	50	1776	1580	1788	9513869	8400000		9599999
9	182797	3	5	75	1214	1818	1069	9701810	9600000		10799999
10	1361333	2	5	75	1906	1935	0	11067244	10800000		11999999

STATISTICAL PERFORMANCE CHECK



Trial #25

PASS

Time: 28/07/2020 14:00:01

Channel Frequency: 5290

Channel BW: 80

Occupied BW (MHz): 80

Extern SG Frequency: 5326.4

Waveform Num = 25

Num of Bursts = 20

Burst Interval (us) = 600000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst Interval(us)
1	107172	2	7	70	1762	1297	0	107172	0	599999
2	834598	3	7	70	1908	1416	1492	944829	600000	1199999
3	348353	2	7	75	1018	1240	0	1297998	1200000	1799999
4	515468	1	7	75	1239	0	0	1815724	1800000	2399999
5	736556	3	7	90	1069	1074	1748	2553519	2400000	2999999
6	567038	1	7	100	1179	0	0	3124448	3000000	3599999
7	589128	2	7	90	1739	1512	0	3714755	3600000	4199999

STATISTICAL PERFORMANCE CHECK



Trial #28

PASS

Time: 28/07/2020 14:00:55

Channel Frequency: 5290

Channel BW: 80

Occupied BW (MHz): 80

Extern SG Frequency: 5327.6

Waveform Num = 28

Num of Bursts = 13

Burst Interval (us) = 923077

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse1 Pri(us)	Pulse2 Pri(us)	Pulse3 Pri(us)	Start Loc (us)	Start Burst Ir	End Burst	Interval(us)
1	273550	3	6	95	1127	1737	1243	273550	0		923076
2	1380429	1	6	90	1077	0	0	1658086	923077	1846153	
3	956925	2	6	85	1308	1259	0	2616088	1846154	2769230	
4	976058	2	6	100	1649	1825	0	3594713	2769231	3692307	
5	389398	2	6	95	1178	1575	0	3987585	3692308	4615384	
6	1149044	3	6	50	1566	1710	1632	5139382	4615385	5538461	
7	1156763	1	6	60	1992	0	0	6301053	5538462	6461538	
8	538479	2	6	95	1629	1387	0	6841524	6461539	7384615	
9	929958	2	6	85	1609	1322	0	7774498	7384616	8307692	
10	578778	3	6	100	1919	1150	1891	8356207	8307693	9230769	
11	1781855	2	6	55	1355	1730	0	10143022	9230770	10153846	
12	431762	2	6	75	1364	1102	0	10577869	10153847	11076923	
13	1356939	2	6	90	1359	1854	0	11937274	11076924	12000000	