

MEASUREMENT REPORT

FCC PART 15.407 802.11a/n/ac UNII

Applicant Name:

SEOWON INTECH CO., LTD.
69, LS-ro
115beon-gil, Gunpo-si
Gyeonggi-do, 15809 South Korea

Date of Testing:

02/11/2022 ~ 05/23/2022

Test Report Issue Date:

06/28/2022

Test Site/Location:

PCTEST Lab. Yongin-Si, Gyeonggi-do, South Korea

Test Report Serial No.:

1M2202090014-04.V7M

FCC ID:

V7MESLCTGA

APPLICANT:

SEOWON INTECH CO., LTD.

Application Type:

Certification

Model:

SLC-150T42GA

EUT Type:

LTE Indoor CPE

Frequency Range:

5180 – 5825MHz

Modulation Type:

OFDM

FCC Classification:

Unlicensed National Information Infrastructure (UNII)

Test Procedure(s):

ANSI C63.10-2013, KDB 789033 D02 v02r01,
KDB 662911 D01 v02r01

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013 and KDB 789033 D02 v02r01. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



Prepared by



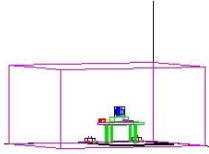
Reviewed by

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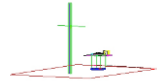
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UNII Band	Channel Bandwidth (MHz)	Tx Frequency (MHz)	ANT1		ANT2		MIMO	
			Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)	Max. Power (mW)	Max. Power (dBm)
1	20	5180 - 5240	15.346	11.86	15.596	11.93	31.623	15.00
2A		5260 - 5320	15.776	11.98	15.704	11.96	30.903	14.90
2C		5500 - 5720	15.776	11.98	15.631	11.94	31.550	14.99
3		5745 - 5825	15.740	11.97	15.776	11.98	29.785	14.74

EUT Overview

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Korea Test Location

These measurement tests were conducted at the PCTEST Korea CO., LTD. facility located at 13, Heungdeok 1-ro, Giheung-gu, Yongin-si, Gyeonggi-do, 16954, South Korea. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Korea located in Yongin-si, Gyeonggi-do, 16954, South Korea.

- PCTEST is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation(A2LA) with Certificate number 2041.04 for Specific Absorption Rate (SAR), and Electromagnetic Compatibility (EMC) & Telecommunications testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISSED Standards (RSS).
- PCTEST Korea facility is accredited, designated, and recognized in accordance with the provision of Radio Wave Act and International Standard ISO/IEC 17025:2017 under the National Radio Research Agency.
 - Designation Number / CABID: KR0169
 - Test Firm Registration Number of FCC: 417945
 - Test Firm Registration Number of ISSED: 26168

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Seowon Intech LTE Indoor CPE FCC ID: V7MESLCTGA**. The test data contained in this report pertains only to the emissions due to the EUT's UNII transmitter.

Test Device Serial No.: 00003, 00004

2.2 Device Capabilities

This device contains the following capabilities:

LTE Band 48, 2.4GHz WIFI (802.11b/g/n), UNII 5GHz (802.11a/n/ac)

Band 1		Band 2A		Band 2C		Band 3	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
36	5180	52	5260	100	5500	149	5745
:	:	:	:	:	:	:	:
42	5210	56	5280	120	5600	157	5785
:	:	:	:	:	:	:	:
48	5240	64	5320	144	5720	165	5825

Table 2-1. 802.11a / 802.11n / 802.11ac (20MHz) Frequency / Channel Operations

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Notes:

- 5GHz NII operation is possible in 20MHz. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section B)2)b) of ANSI C63.10-2013 and KDB 789033 D02 v02r01. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Maximum Achievable Duty Cycles				
802.11 Mode/Band		ANT1	ANT2	MIMO
		Duty Cycle [%]	Duty Cycle [%]	Duty Cycle [%]
2.4GHz	b	98.9	99.4	98.9
	g	93.3	94.3	95.3
	n	95.5	94.7	93.8
5GHz	a	96.0	96.3	96.3
	n (HT20)	96.3	97.5	97.1
	ac (HT20)	97.1	97.1	97.8

Table 2-2. Measured Duty Cycles

- The device employs MIMO technology. Below are the possible configurations.

WiFi Configurations		SISO		SDM		CDD	
		ANT1	ANT2	ANT1	ANT2	ANT1	ANT2
5GHz	11a	✓	✓	✗	✗	✓	✓
	11n/ac (20MHz)	✓	✓	✓	✓	✓	✓

Table 2-3. Frequency / Channel Operations

✓ = Support ; ✗ = NOT Support

SISO = Single Input Single Output

SDM = Spatial Diversity Multiplexing – MIMO function

CDD = Cyclic Delay Diversity - 2Tx Function

- This device supports simultaneous transmission operation, which allows for two SISO channels to operate independent of one another in the WLAN 2.4GHz and UNII 5GHz bands simultaneously on each antenna. The following tables show the worst case configurations determined during testing. The data for these configurations is contained in this test report.

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Configuration 1: ANT1 transmitting in 2.4GHz mode and ANT2 in 5GHz mode

Description	2.4 GHz Emission	5 GHz Emission
Antenna	1	2
Channel	6	100
Operating Frequency (MHz)	2437	5500
Data Rate (Mbps)	1	6
Mode	b	a

Table 2-4. Config-1 (ANT1 2.4GHz & ANT2 5GHz)

Configuration 2: ANT1 transmitting in 5GHz mode and ANT2 in 2.4GHz mode

Description	2.4 GHz Emission	5 GHz Emission
Antenna	2	1
Channel	6	100
Operating Frequency (MHz)	2437	5500
Data Rate (Mbps)	1	6
Mode	B	a

Table 2-5. Config-2 (ANT1 5GHz & ANT2 2.4GHz)

2.3 Antenna Description

Following antenna was used for the testing.

Frequency [GHz]	Antenna 1 Gain (dBi)	Antenna 2 Gain (dBi)	Directional Gain (dBi)
5.15	3	3.1	6.06
5.2	4	4.3	7.16
5.3	4.4	3.8	7.12
5.5	4.5	5.1	7.82
5.6	5.5	5.9	8.71
5.7	4.6	4.4	7.51
5.725	5.3	5.7	8.51
5.8	4.4	4.7	7.56
5.85	2.9	4.6	6.8
5.875	3.4	4.5	6.98

Table 2-6. Antenna Peak Gain

2.4 Test Configuration

The EUT was tested per the guidance of KDB 789033 D02 v02r01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing. See Sections 3.2 for AC line conducted emissions test setups, 3.3 for radiated emissions test setups, and 7.2, 7.3, 7.4, and 7.5 for antenna port conducted emissions test setups.

2.5 Software and Firmware

The test was conducted with firmware version 2.20.701 installed on the EUT.

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2.6 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

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3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 789033 D02 v02r01 were used in the measurement of the EUT.

Deviation from measurement procedure.....None

3.2 AC Line Conducted Emissions

The line-conducted facility is located inside a 10'x16'x9' shielded enclosure. The shielded enclosure is manufactured by SY cooperation Enclosures. The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-5. A 1m x 1.5m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50μH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. The external power line filter is an ETS Lindgren Model LPRX-4X30 (100dB Attenuation, 14kHz-18GHz) and the two EMI/RFI filters are ETS Lindgren Model LRW-2030-S1 (100dB Minimum Insertion Loss, 14kHz – 10GHz). These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference groundplane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions is used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

Line conducted emissions test results are shown in Section 7.8. The EMI Receiver mode of the ESW43 was used to perform AC line conducted emissions testing. Automated test software was used to perform the AC line conducted emissions testing. Automated measurement software utilized is Rohde & Schwarz EMC32, Version 10.20.01.

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3.3 Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33 depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 414788 D01.

3.4 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

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4.0 ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antennas of the EUT are **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT complies with the requirement of §15.203.

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5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty ($\pm$ dB)
Conducted Bench Top Measurements	1.20
Line Conducted Disturbance	3.07
Radiated Disturbance (<1GHz)	3.01
Radiated Disturbance (>1GHz)	5.56
Radiated Disturbance (>18GHz)	3.16

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6.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Com-Power	AL-130R	Active Loop Antenna	2020-10-29	Biennial	2022-10-28	10160045
Fairview Microwave	FM2CP1122-10	Coupler	2021-07-07	Annual	2022-07-06	1946
Keysight Technologies	N9030B	PXA Signal Analyzer	2021-05-01	Annual	2022-04-30	MY57142018
Mini-Circuits	BW-N10W5+	Attenuator	2021-07-06	Annual	2022-07-05	1607
Rohde & Schwarz	TS-PR18	Preamplifier	2021-07-08	Annual	2022-07-07	102141
Rohde & Schwarz	TS-PR1840	Preamplifier	2021-07-07	Annual	2022-07-06	100049
Rohde & Schwarz	ENV216	Two-Line V-Network	2021-05-24	Annual	2022-05-23	101319
Rohde & Schwarz	FSW43	Signal & Spectrum Analyzer	2022-01-18	Annual	2023-01-17	101250
Rohde & Schwarz	ESW43	EMI TEST Receiver	2021-07-06	Annual	2022-07-05	101761
Rohde & Schwarz	TS-SFUNIT-Rx	Shielded Filter Unit	2022-01-19	Annual	2023-01-18	102151
Schwarzbeck	VULB9162	Broadband TRILOG Antenna	2021-07-13	Biennial	2023-07-12	9162-217
Sunol Sciences	DRH-118	Horn Antenna	2021-07-14	Biennial	2023-07-13	A102416-1

Table 6-1. Annual Test Equipment Calibration Schedule

Note:

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

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7.0 TEST RESULTS

7.1 Summary

Company Name: SEOWON INTECH CO., LTD.
FCC ID: V7MESLCTGA
FCC Classification: Unlicensed National Information Infrastructure (UNII)

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
N/A	RSS-Gen [6.6]	26dB Bandwidth	N/A	CONDUCTED	PASS	Section 7.2
15.407(e)	RSS-Gen [6.6]	6dB Bandwidth	>500kHz(5725-5850MHz)		PASS	Section 7.3
15.407 (a.1.iv), (a.2), (a.3)	RSS-247 [6.2]	Maximum Conducted Output Power	Maximum conducted powers must meet the limits detailed in 15.407 (a) (RSS-247 [6.2])		PASS	Section 7.4
15.407 (a.1.iv), (a.2), (a.3)	RSS-247 [6.2]	Maximum Power Spectral Density	Maximum power spectral density must meet the limits detailed in 15.407 (a) (RSS-247 [6.2])		PASS	Section 7.5
15.407(h)	RSS-247 [6.3]	Dynamic Frequency Selection	See DFS Test Report		PASS	See DFS Test Report
15.407(b.1), (2), (3), (4)	RSS-247 [6.2]	Undesirable Emissions	Undesirable emissions must meet the limits detailed in 15.407(b) (RSS-247 [6.2])	RADIATED	PASS	Section 7.6, 7.7
15.205, 15.407(b.1), (4), (5), (6)	RSS-Gen [8.9]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-Gen [8.9])		PASS	Section 7.6, 7.7
15.407	RSS-Gen [8.8]	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.207 (RSS-Gen [8.8]) limits	LINE CONDUCTED	PASS	Section 7.8

Table 7-1. Summary of Test Results

Notes:

- 1) All channels, modes, and modulations/data rates were investigated among all UNII bands. The test results shown in the following sections represent the worst-case emissions.
- 2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST “UNII Automation,” Version 4.7.
- 5) For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST “Chamber Automation,” Version 1.3.1.

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7.2 26dB Bandwidth Measurement – 802.11a/n/ac RSS-Gen [6.2]

Test Overview and Limit

The bandwidth at 26dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26dB bandwidth.

The 26dB bandwidth is used to determine the conducted power limits.

Test Procedure Used

ANSI C63.10-2013 – Section 12.4
KDB 789033 D02 v02r01 – Section C

Test Settings

1. The signal analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to $X = 26$. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth
3. $VBW \geq 3 \times RBW$
4. Detector = Peak
5. Trace mode = max hold

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

None.

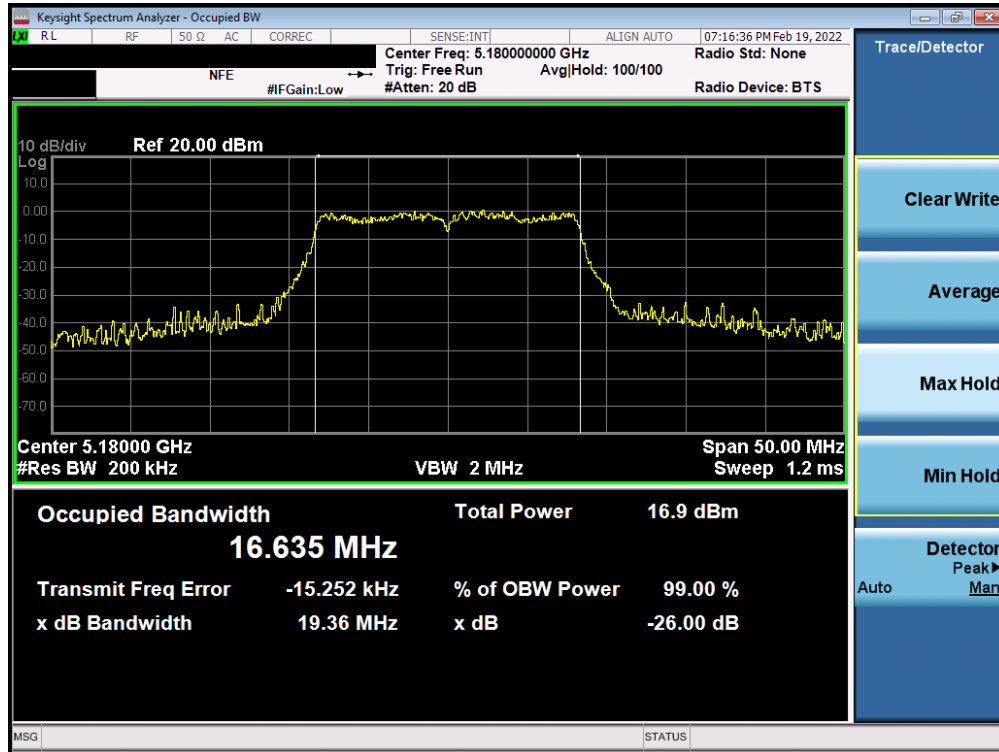
FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 15 of 173

SISO Antenna-1 26 dB Bandwidth Measurements

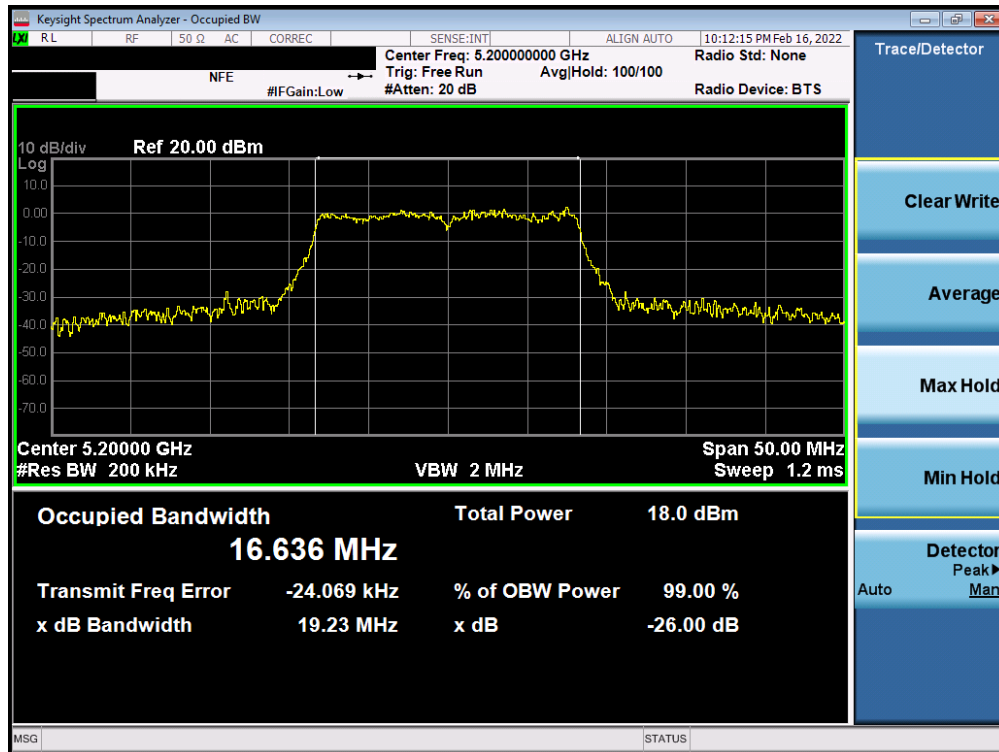
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 26dB Bandwidth [MHz]
Band 1	5180	36	a	6	19.36
	5200	40	a	6	19.23
	5240	48	a	6	19.37
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	19.98
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	20.81
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	22.49
Band 2A	5260	52	a	6	19.28
	5280	56	a	6	19.40
	5320	64	a	6	19.76
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	22.63
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	20.15
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	24.29
Band 2C	5500	100	a	6	19.34
	5600	120	a	6	19.33
	5720	144	a	6	19.46
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	21.75
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	20.18
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	20.24

Table 7-2. Conducted Bandwidth Measurements SISO ANT1

FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 16 of 173

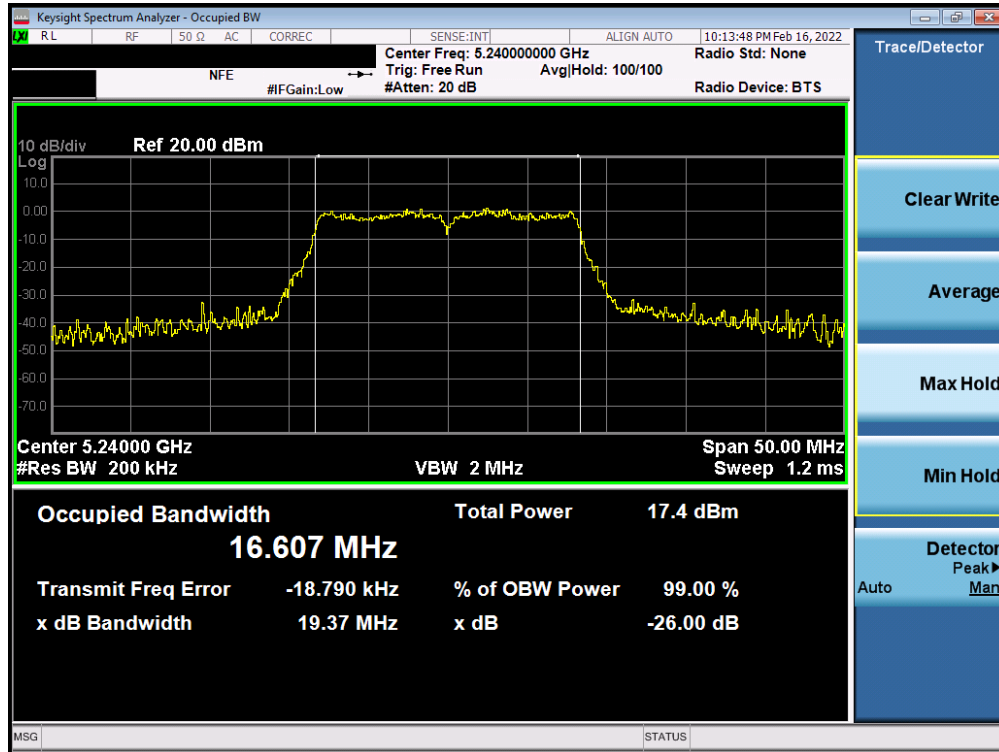


Plot 7-1. 26dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 36)

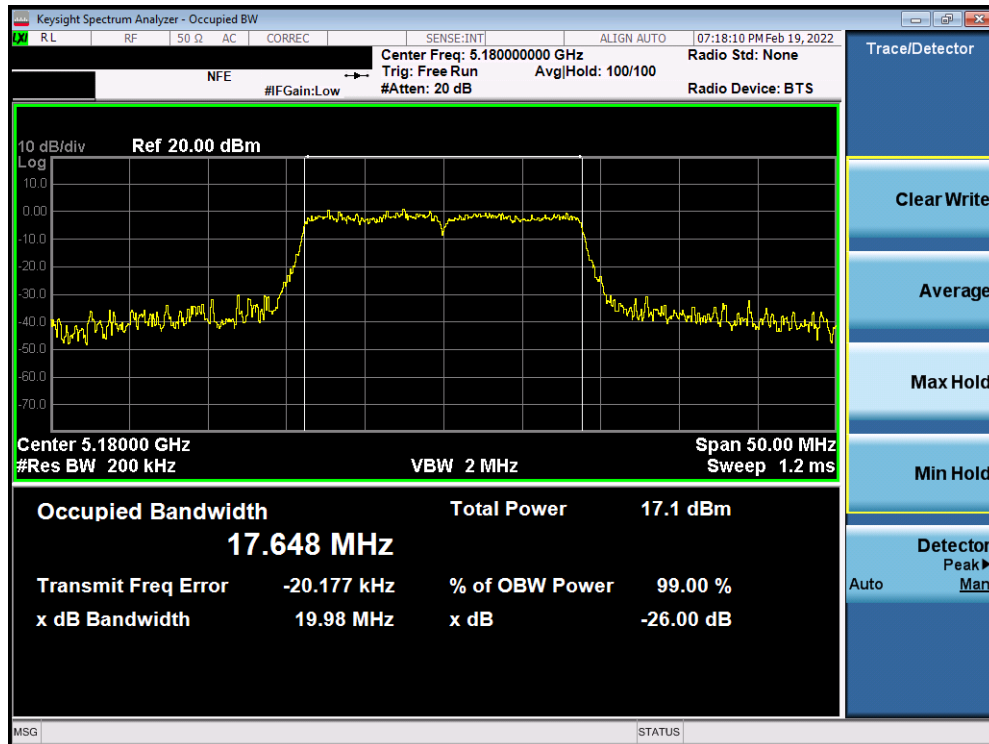


Plot 7-2. 26dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 40)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 17 of 173

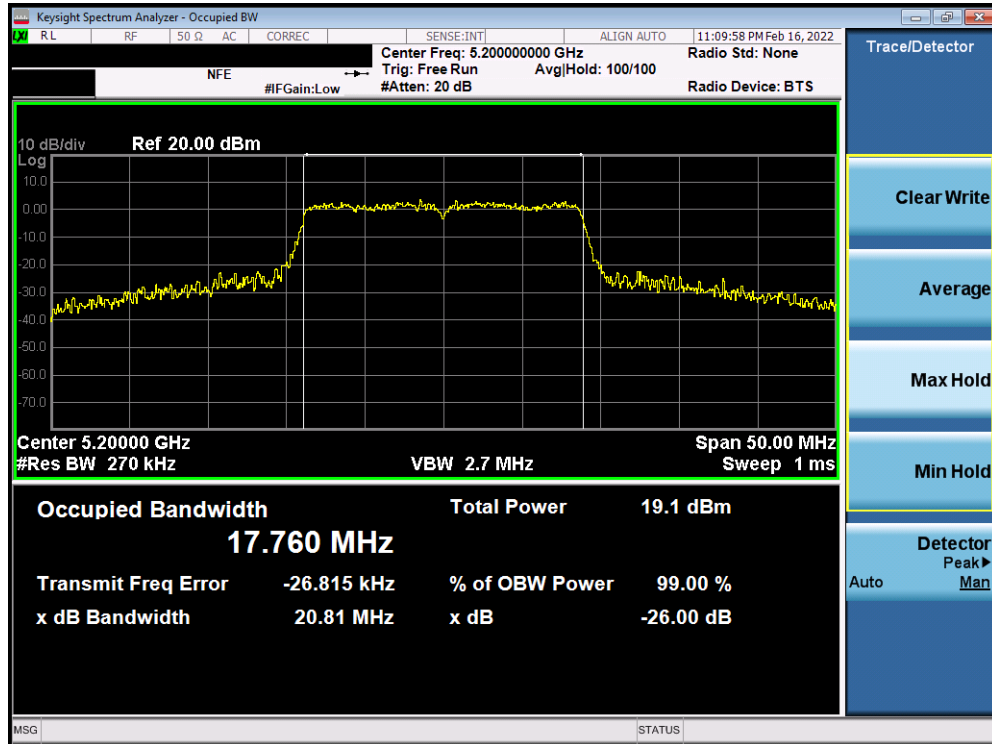


Plot 7-3. 26dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 48)

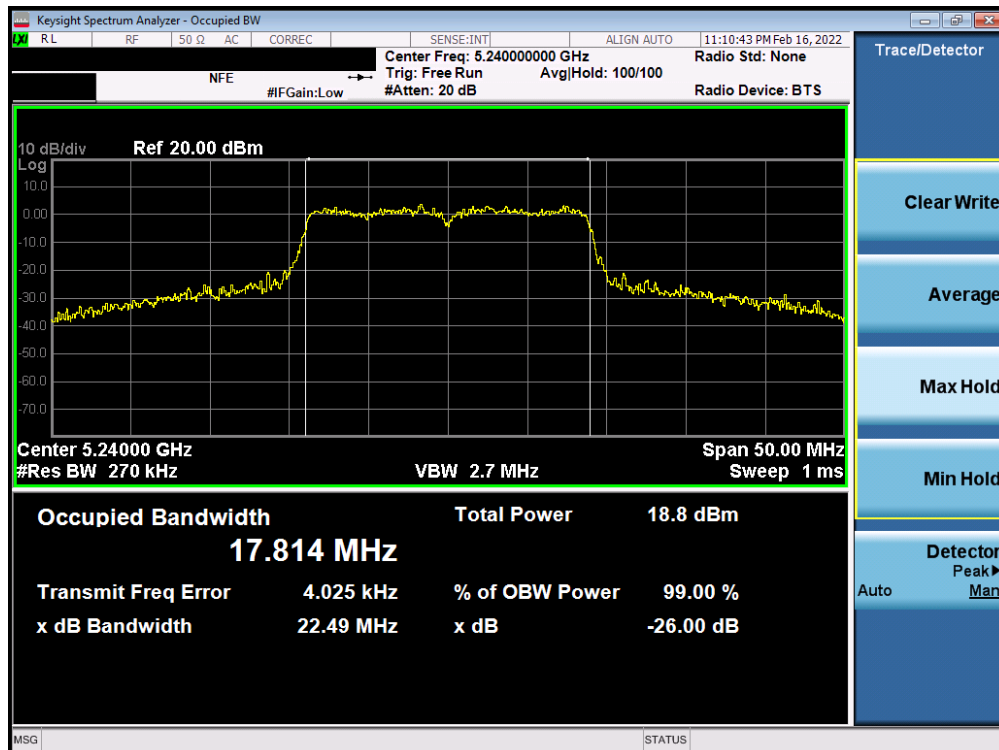


Plot 7-4. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 18 of 173

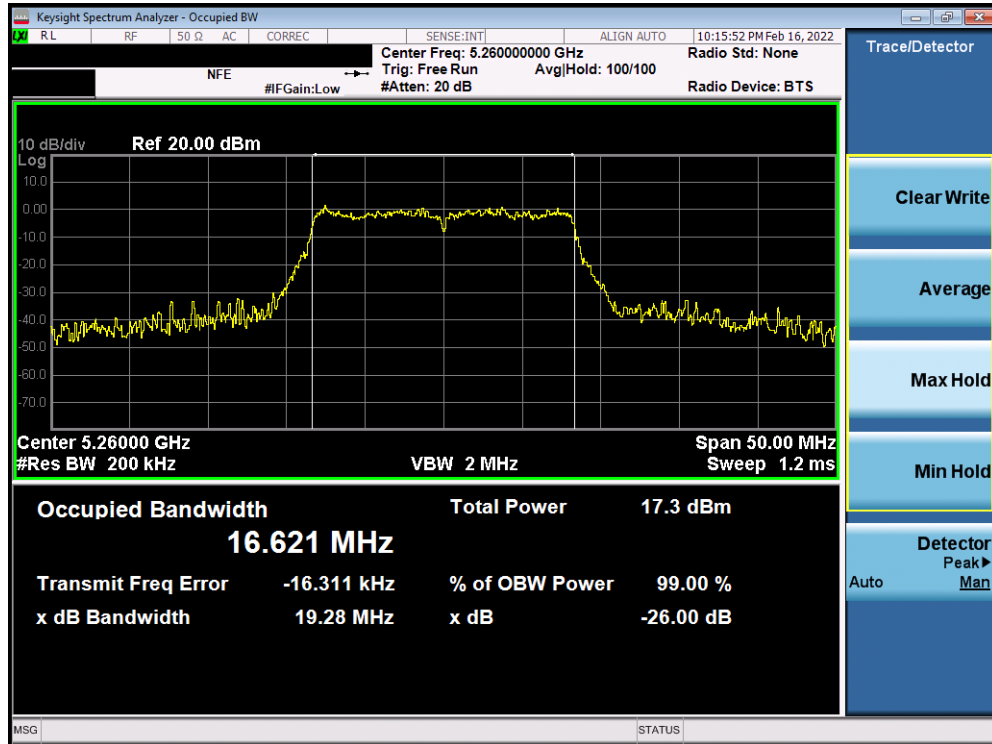


Plot 7-5. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

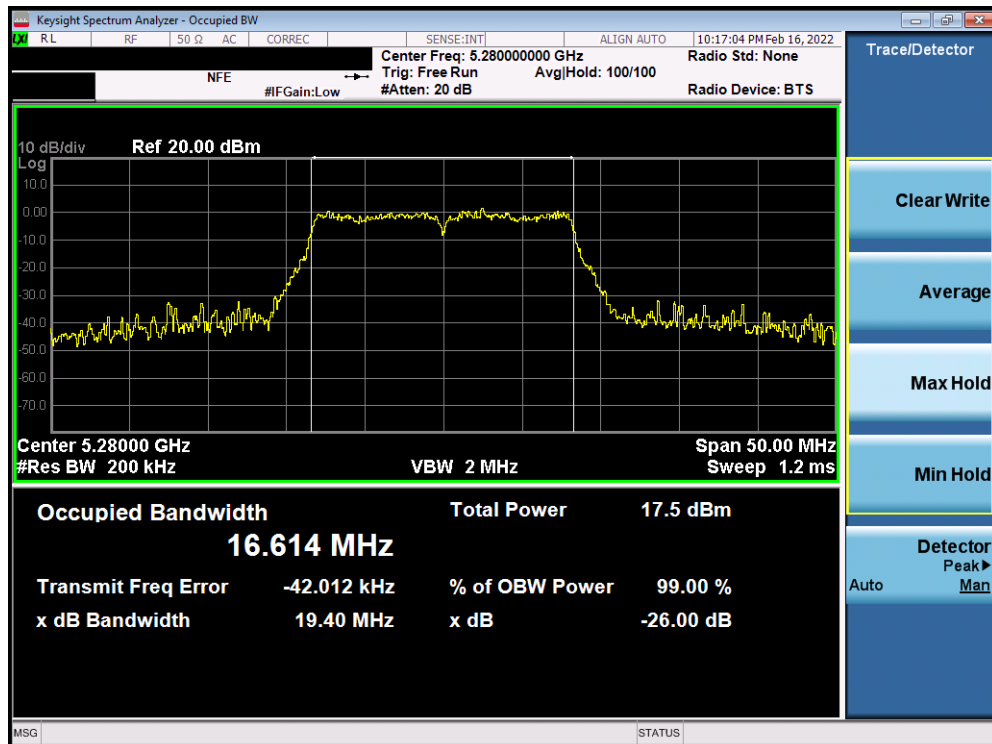


Plot 7-6. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 19 of 173

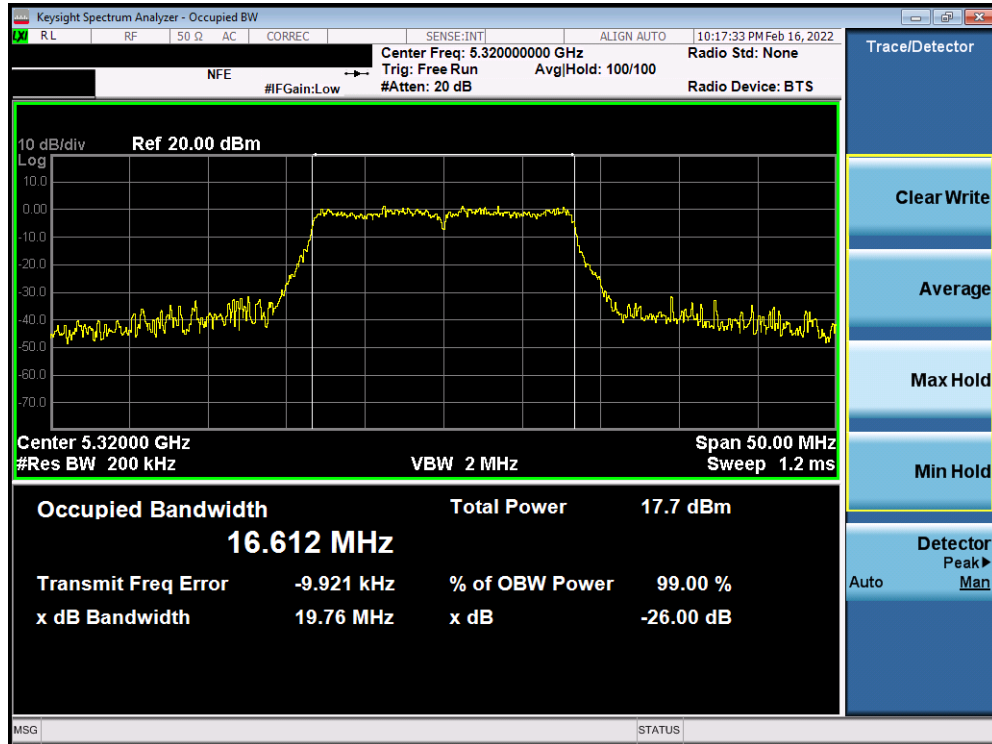


Plot 7-7. 26dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 52)

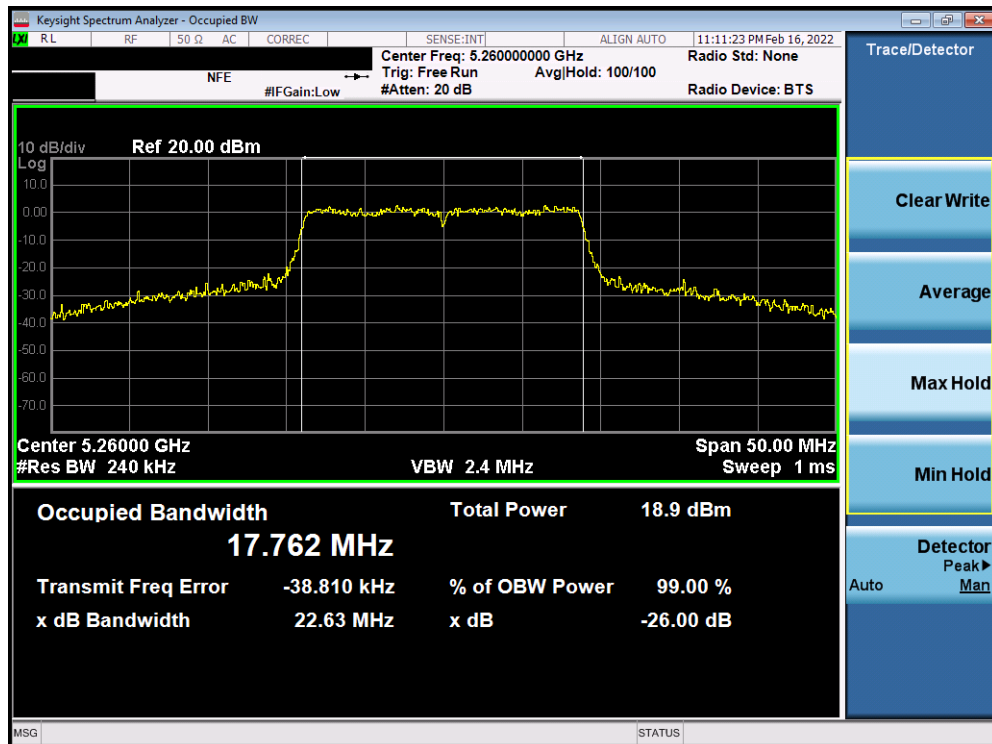


Plot 7-8. 26dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 56)

FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 20 of 173

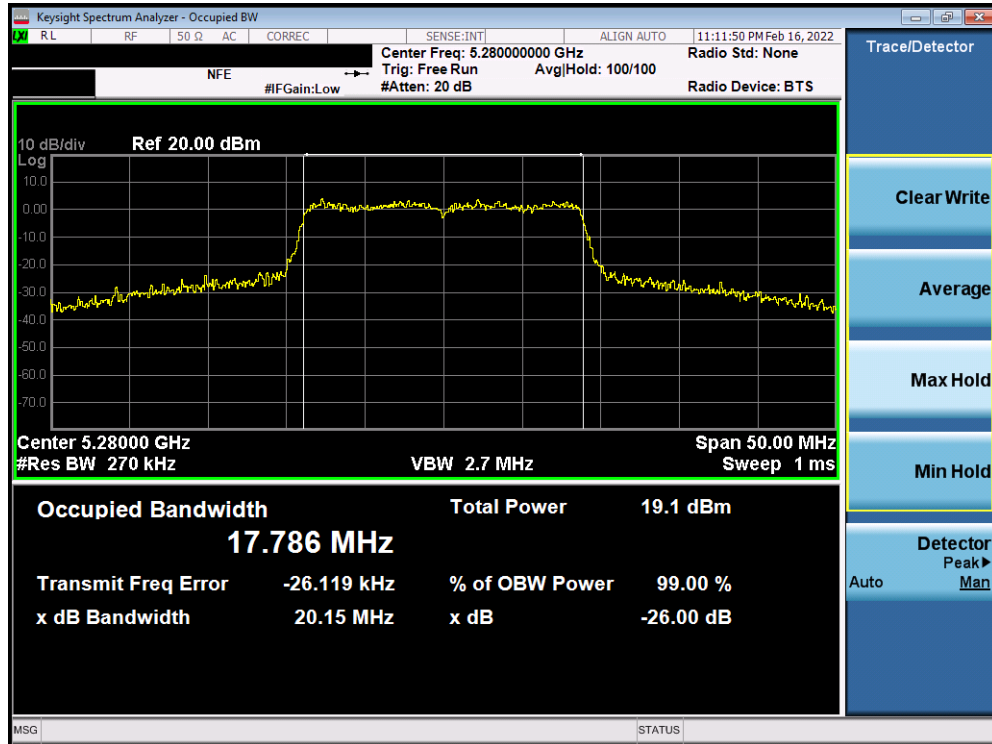


Plot 7-9. 26dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 64)

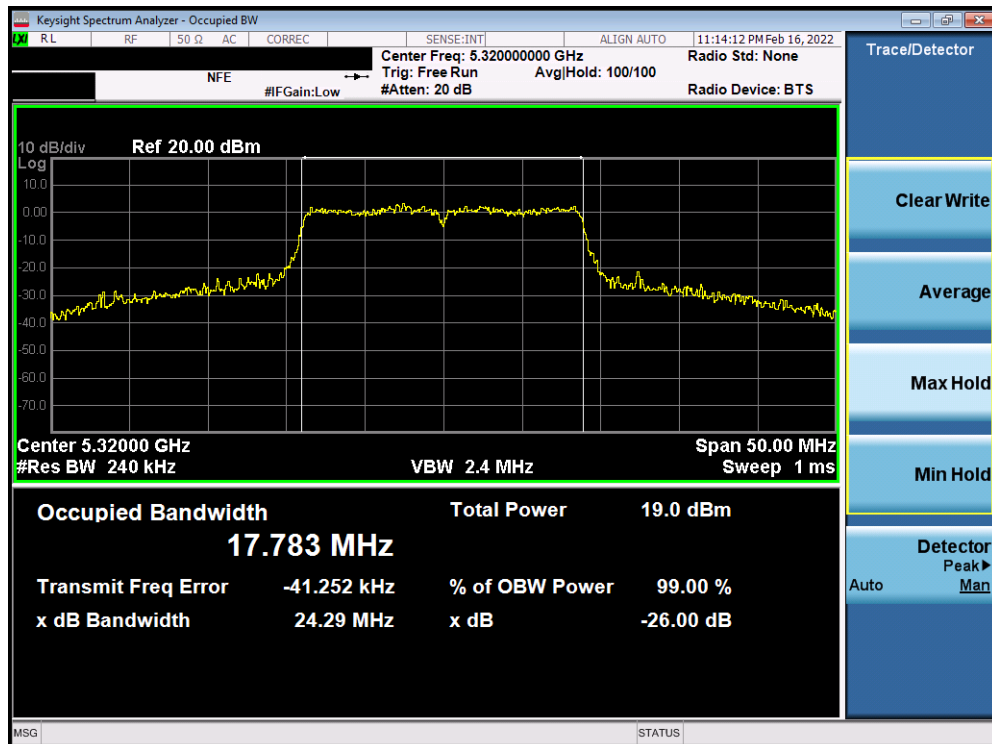


Plot 7-10. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 21 of 173

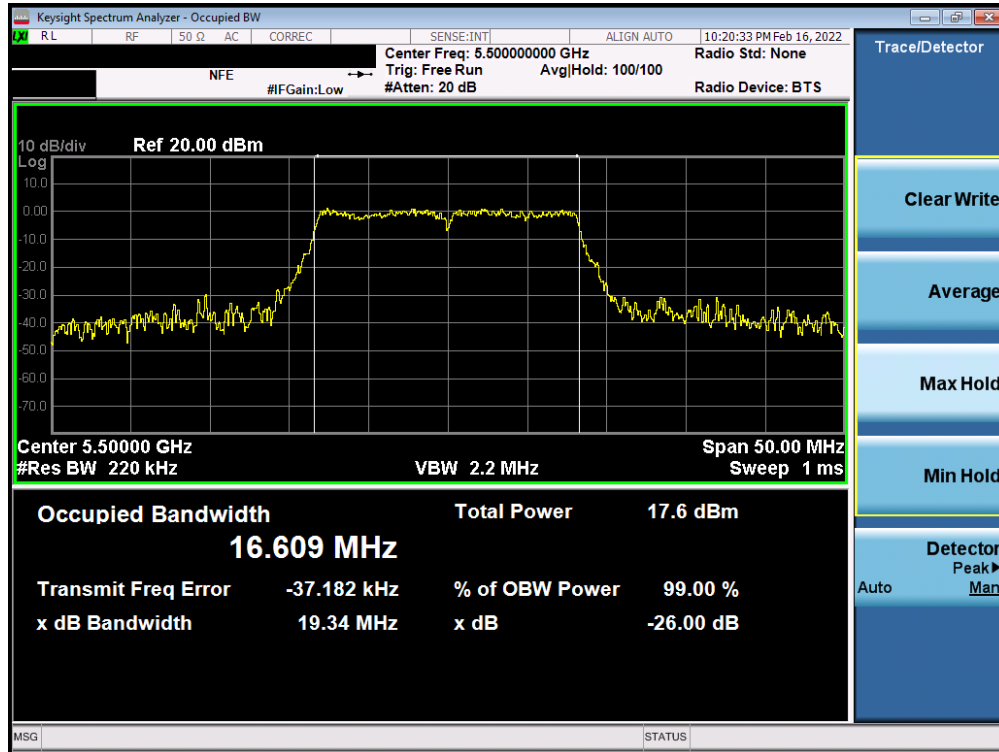


Plot 7-11. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

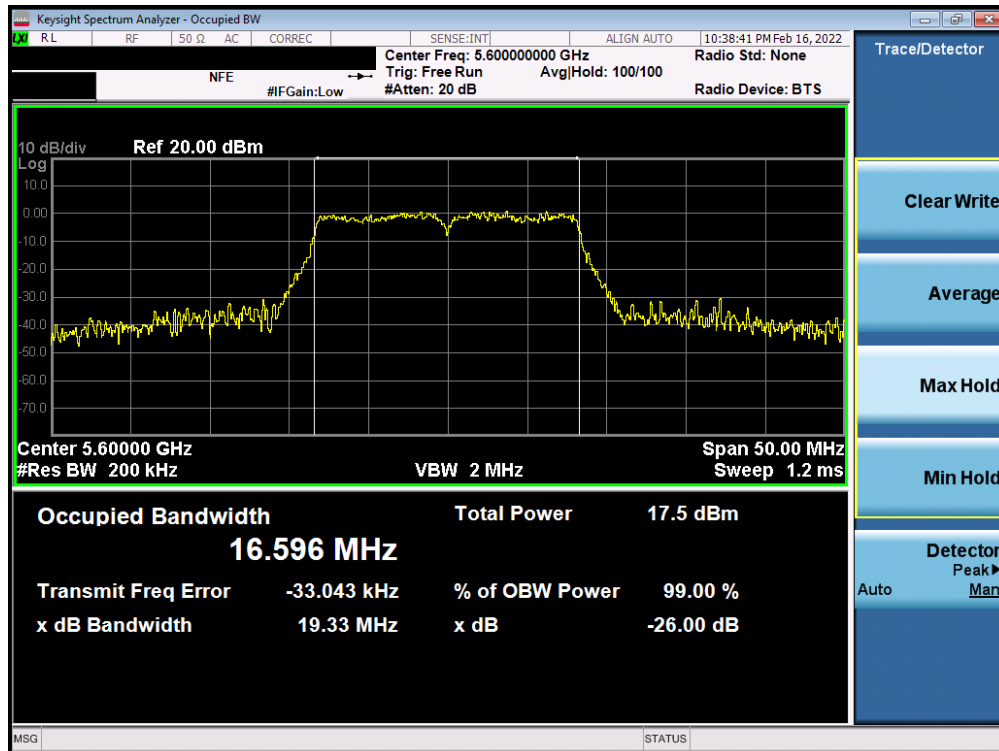


Plot 7-12. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 22 of 173

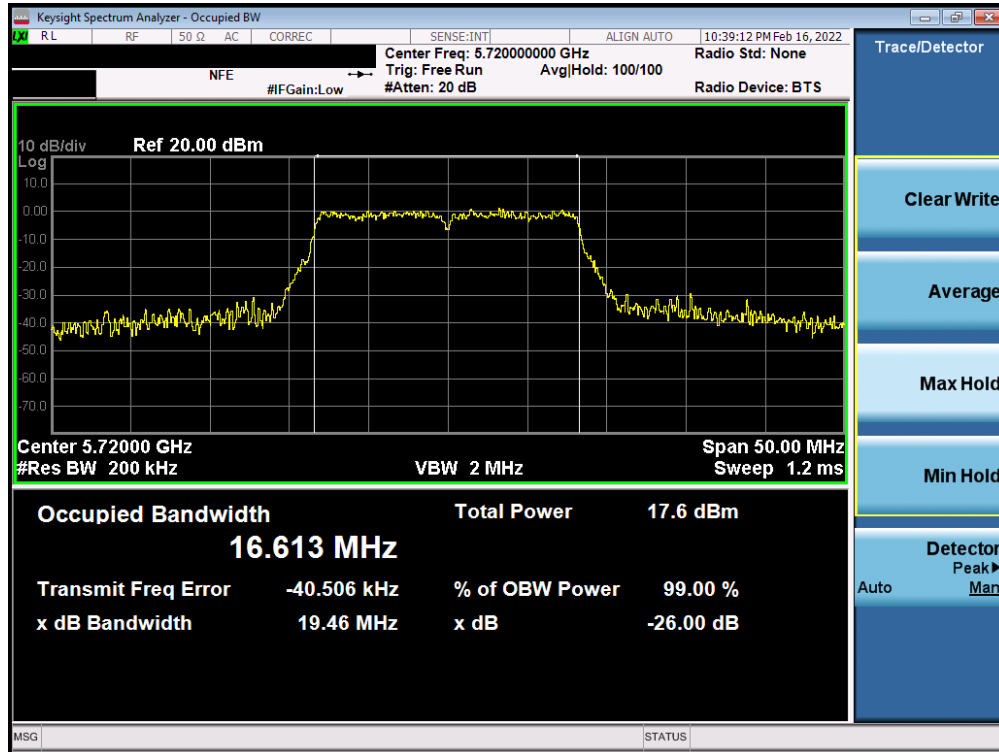


Plot 7-13. 26dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 100)

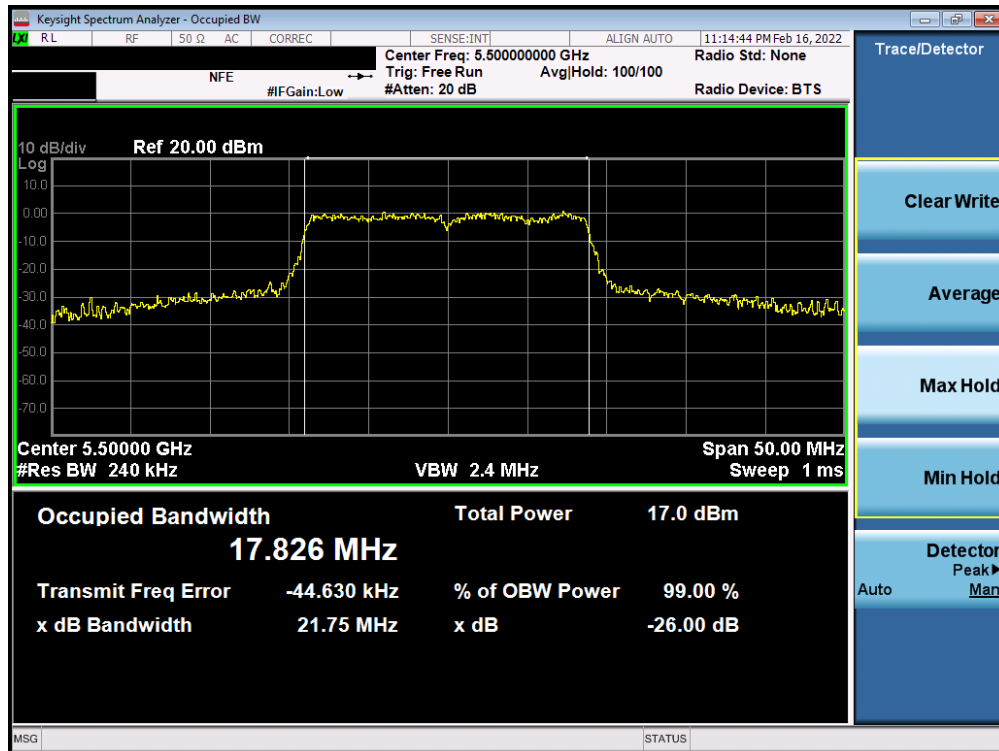


Plot 7-14. 26dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 23 of 173

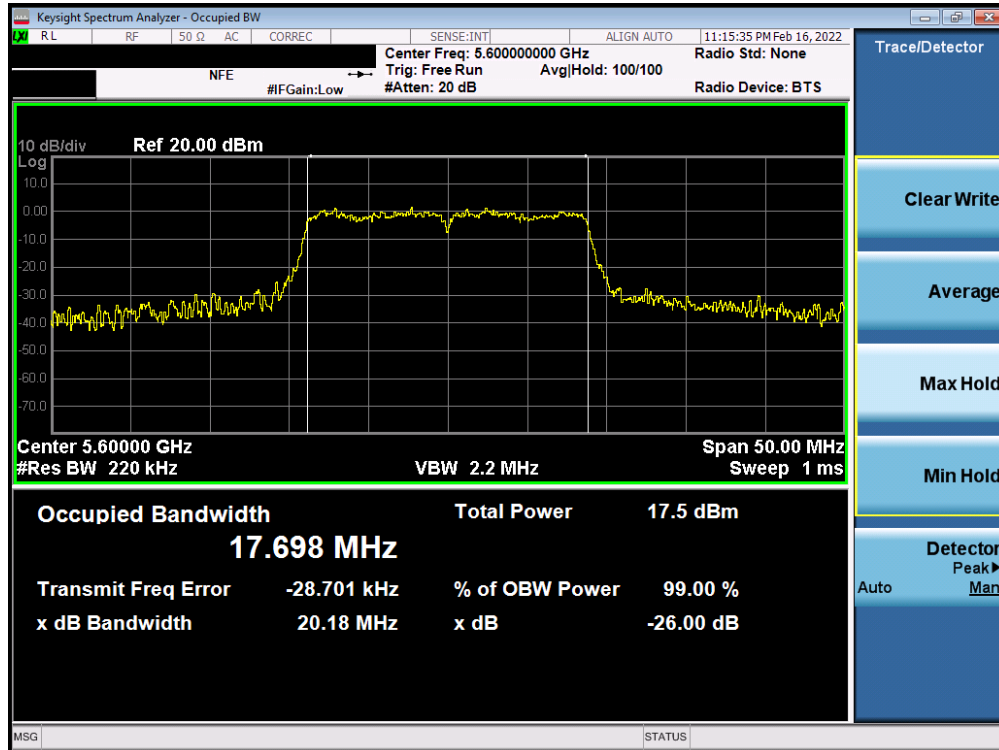


Plot 7-15. 26dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 144)

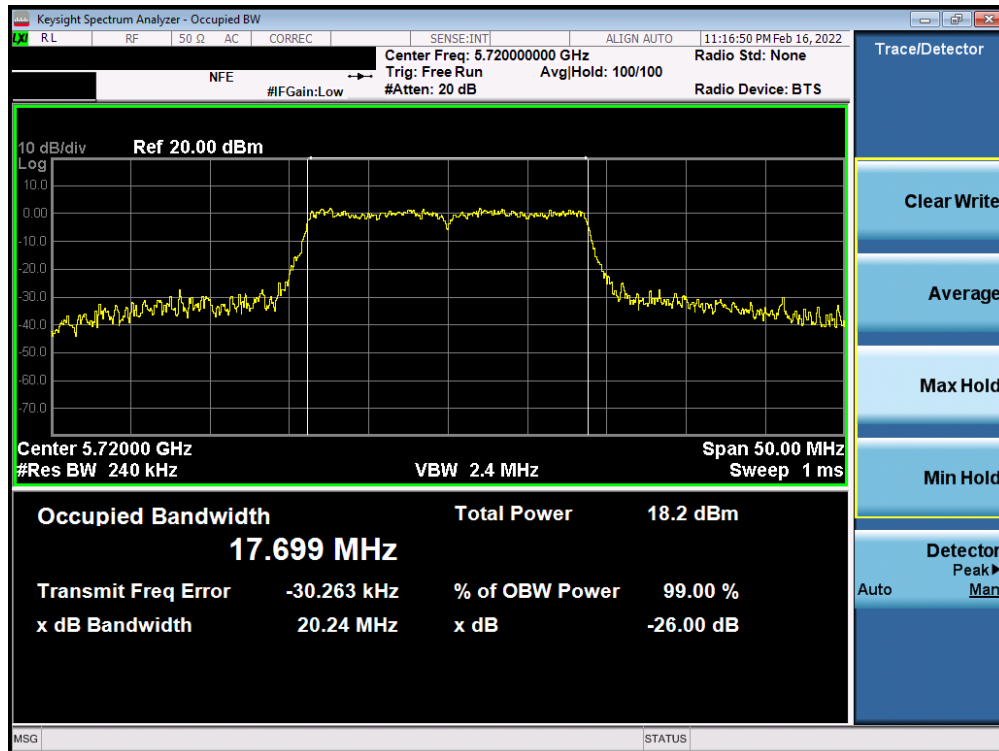


Plot 7-16. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 24 of 173



Plot 7-17. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)



Plot 7-18. 26dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 140144)

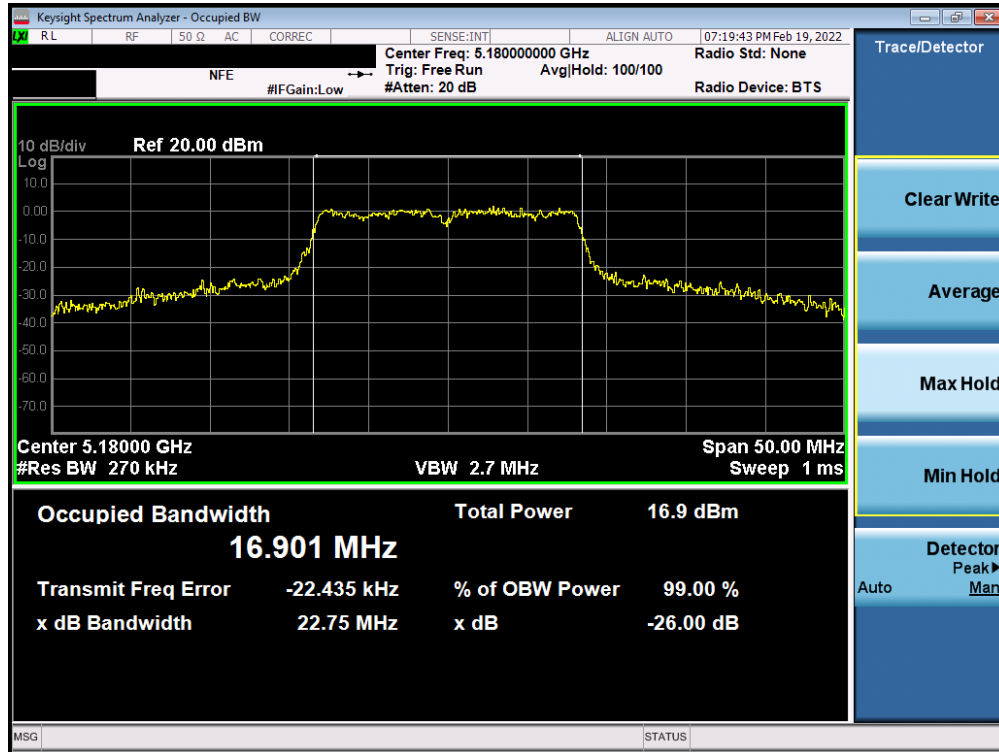
FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 25 of 173

SISO Antenna-2 26dB Bandwidth Measurements

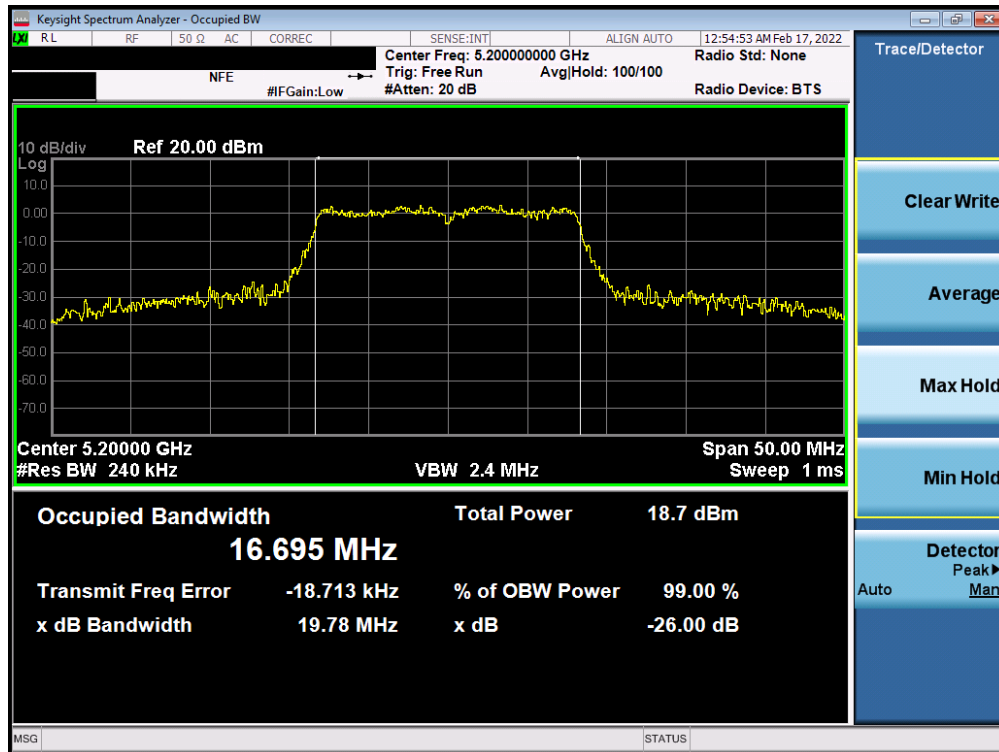
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 26dB Bandwidth [MHz]
Band 1	5180	36	a	6	22.75
	5200	40	a	6	19.78
	5240	48	a	6	21.65
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	22.83
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	20.14
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	19.98
Band 2A	5260	52	a	6	20.82
	5280	56	a	6	20.91
	5320	64	a	6	19.57
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	19.78
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	20.27
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	19.64
Band 2C	5500	100	a	6	20.86
	5600	120	a	6	21.56
	5720	144	a	6	23.80
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	19.99
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	25.61
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	21.25

Table 7-3. Conducted Bandwidth Measurements SISO ANT2

FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 26 of 173

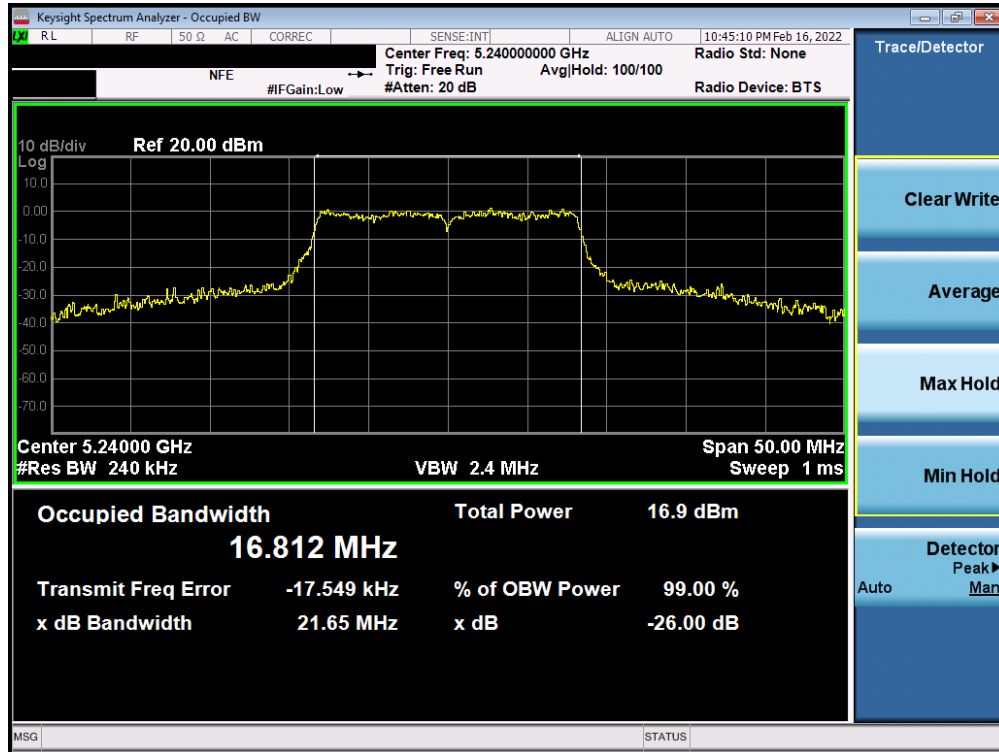


Plot 7-19. 26dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 36)

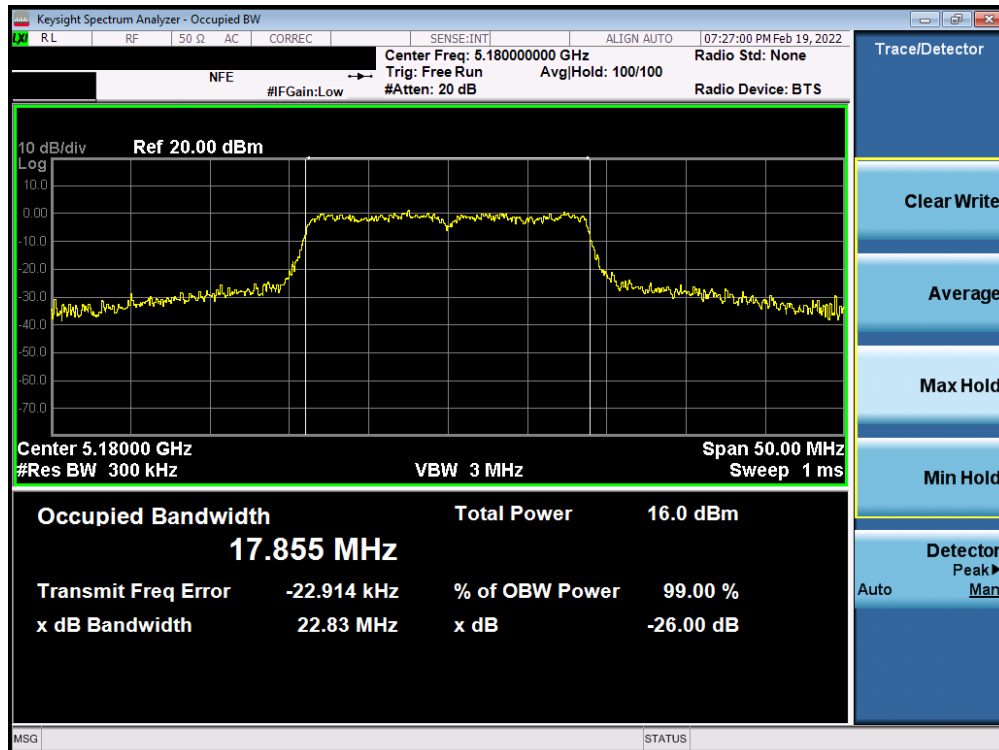


Plot 7-20. 26dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 40)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 27 of 173

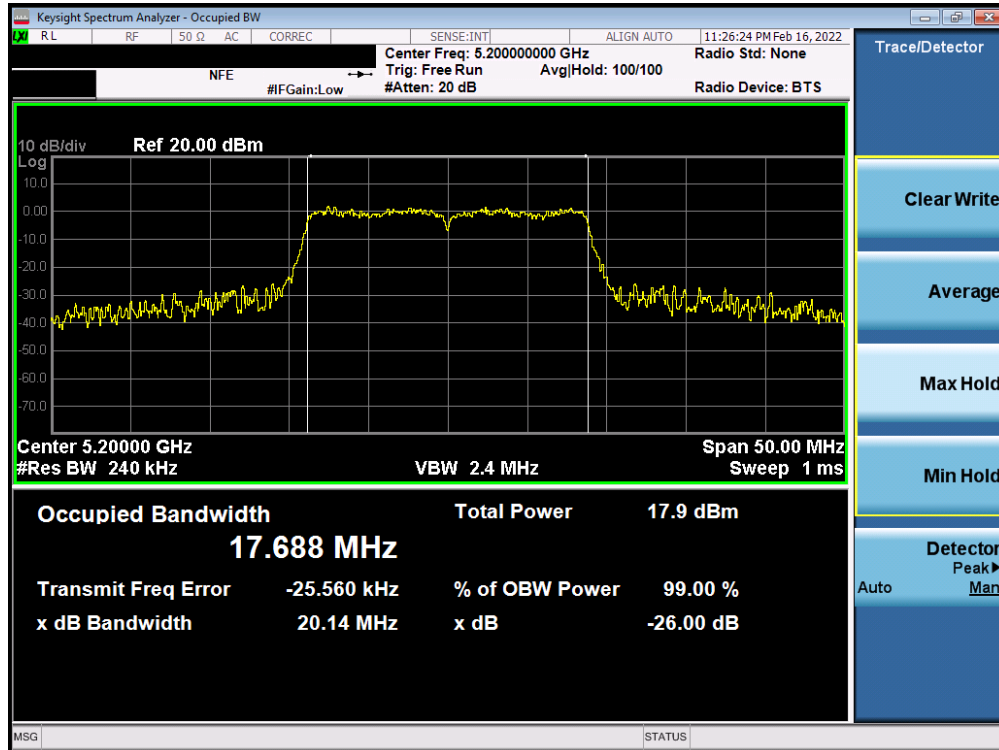


Plot 7-21. 26dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 48)

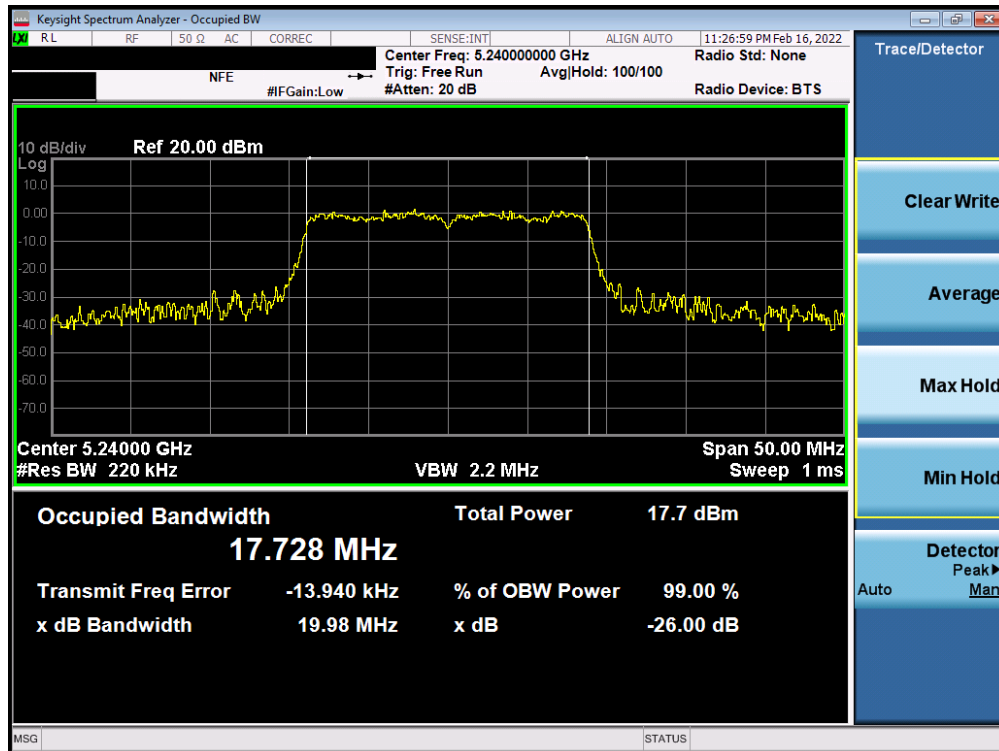


Plot 7-22. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

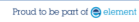
FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 28 of 173

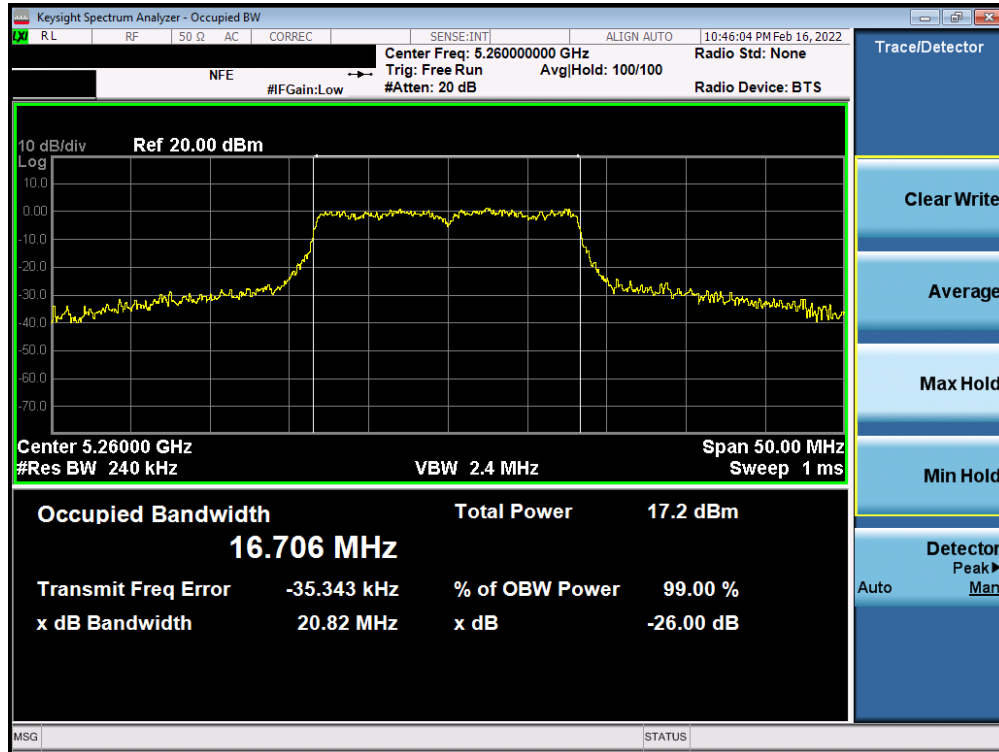


Plot 7-23. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

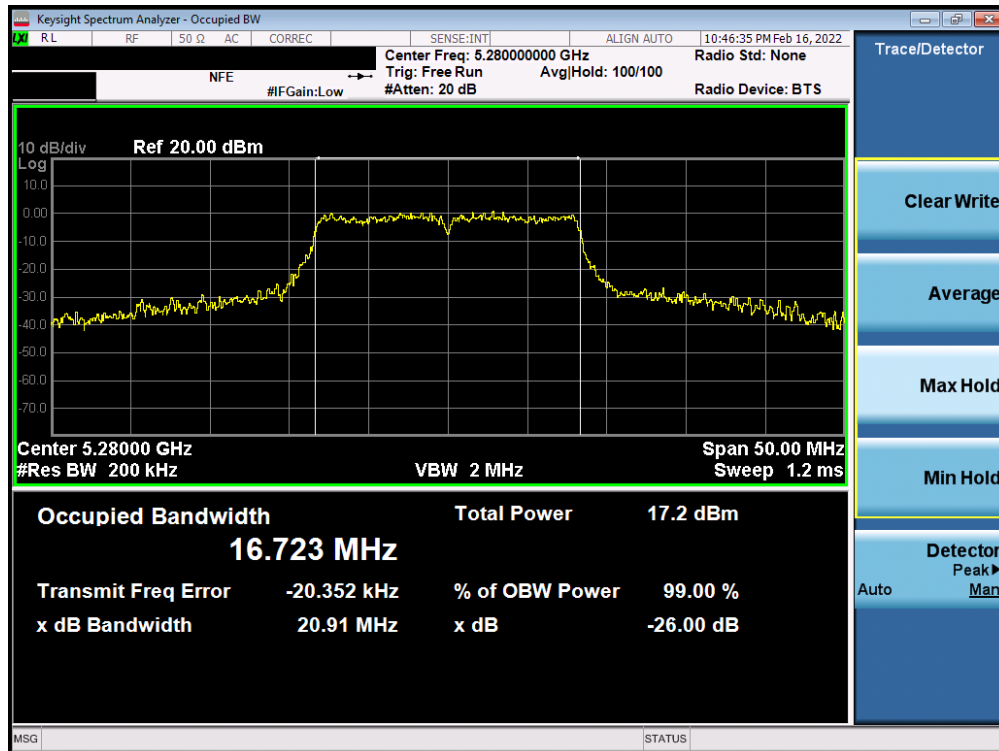


Plot 7-24. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: V7MESLCTGA	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 29 of 173

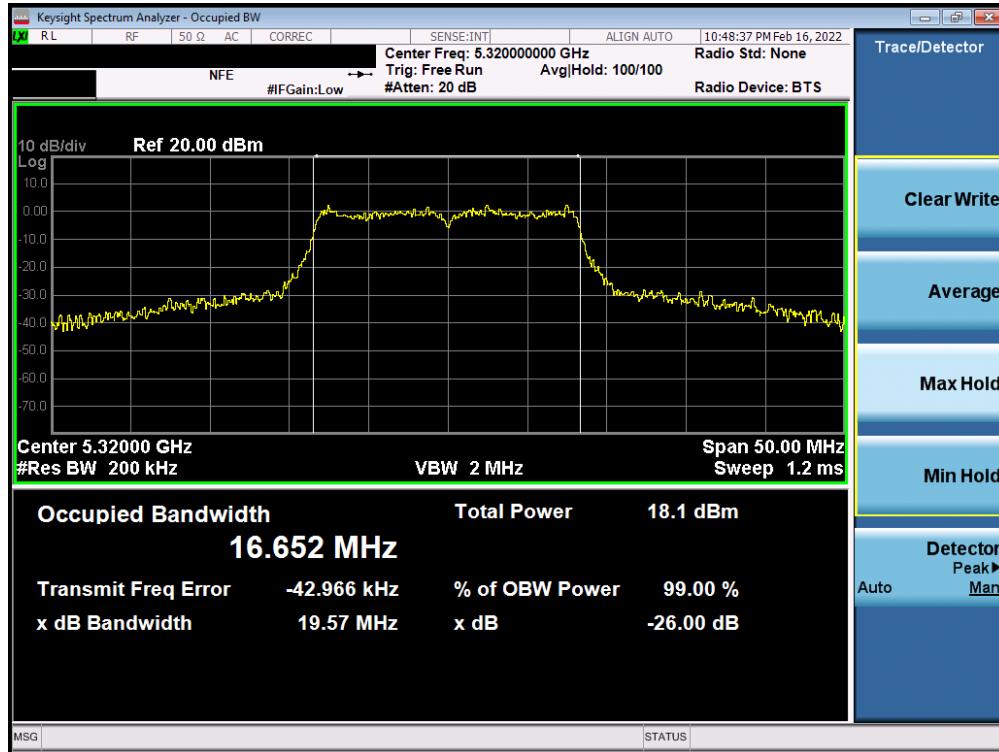


Plot 7-25. 26dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 52)

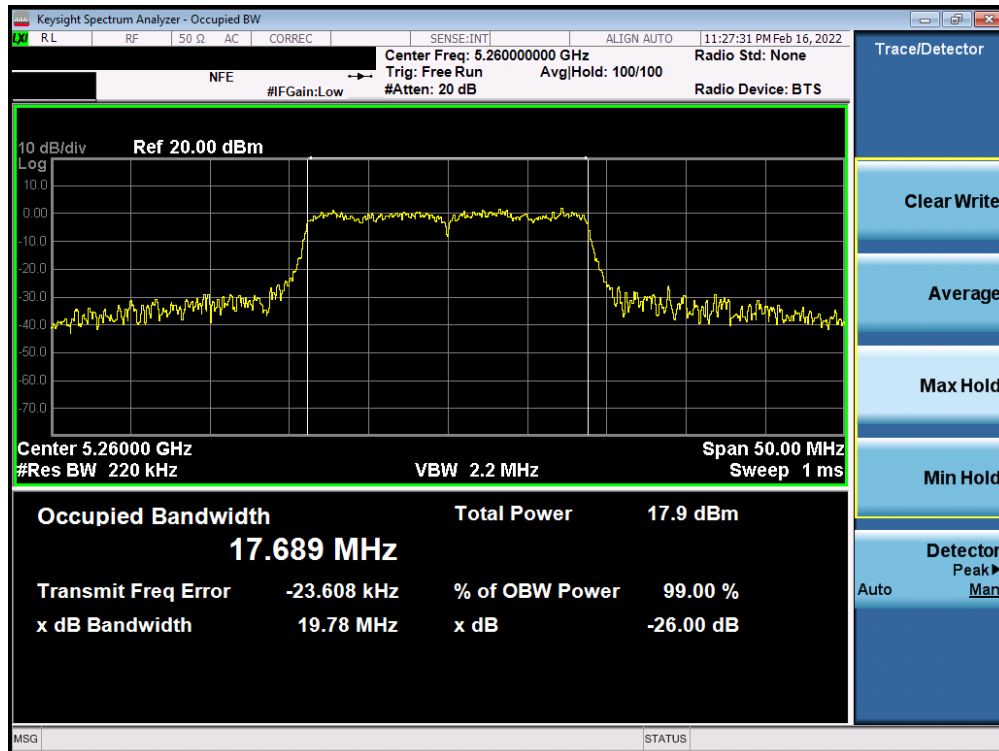


Plot 7-26. 26dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 56)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 30 of 173

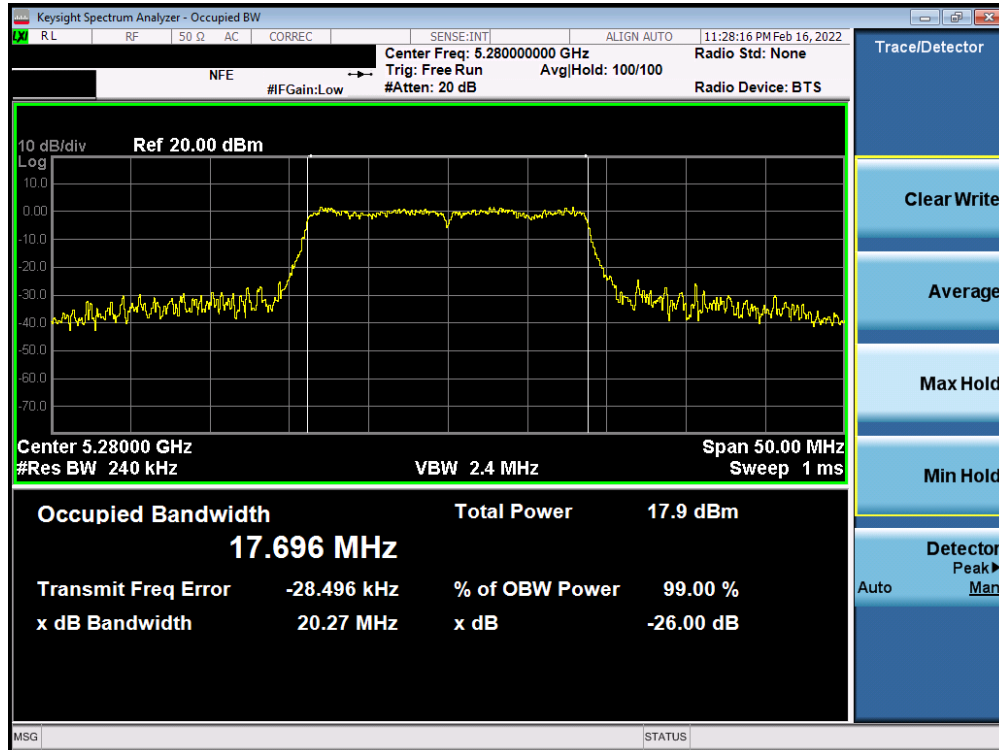


Plot 7-27. 26dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 64)

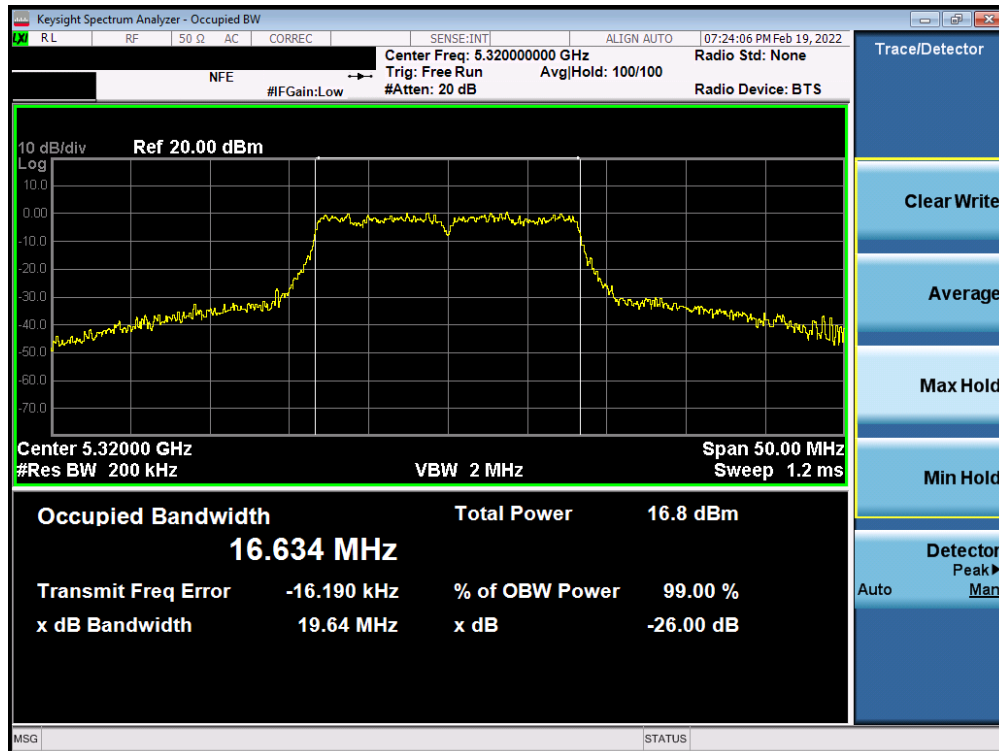


Plot 7-28. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 31 of 173

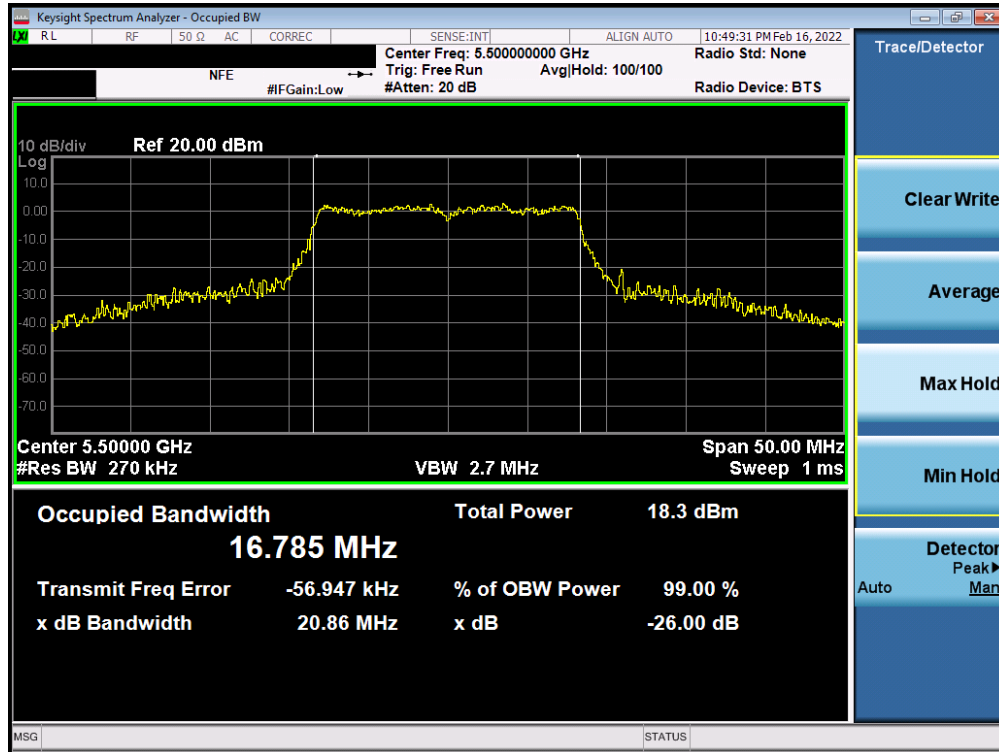


Plot 7-29. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

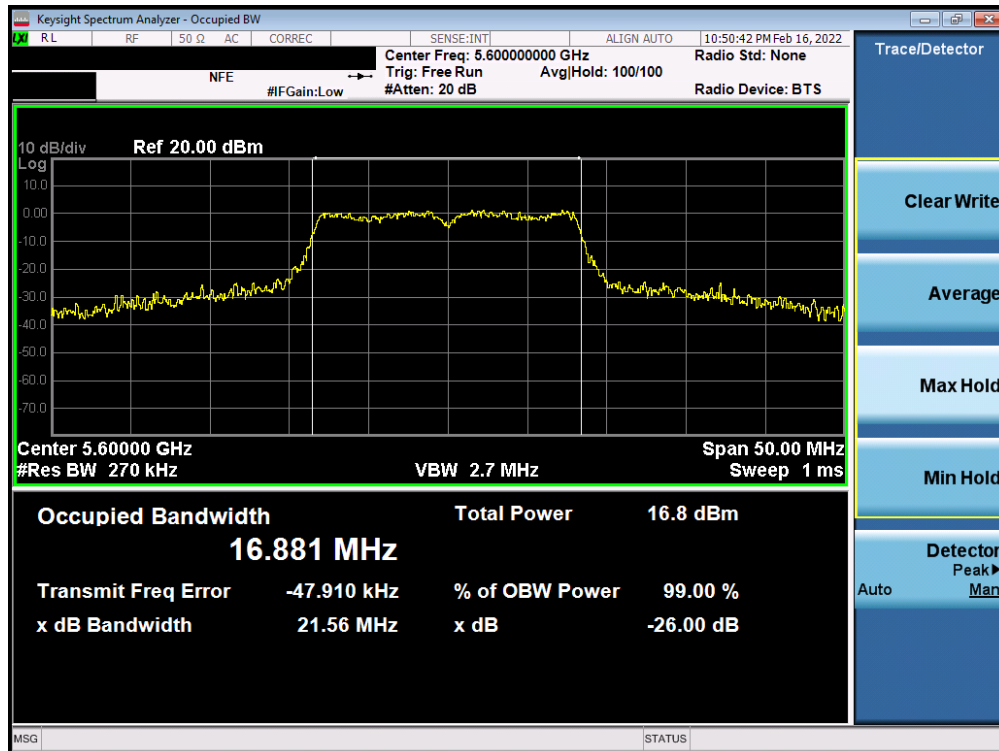


Plot 7-30. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 32 of 173

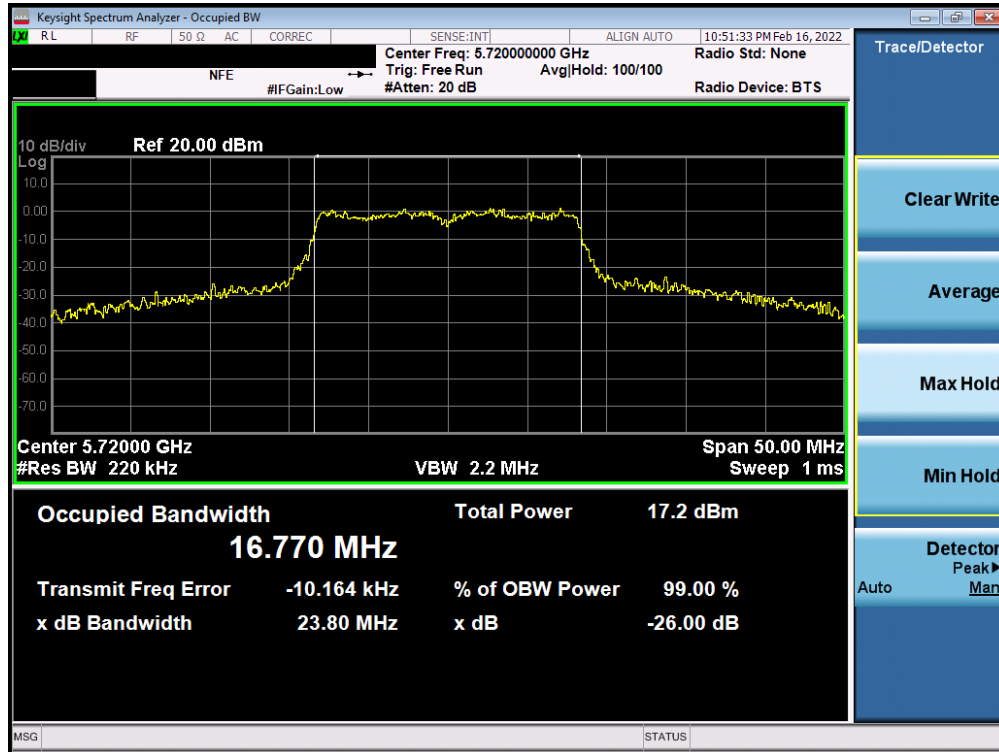


Plot 7-31. 26dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 100)

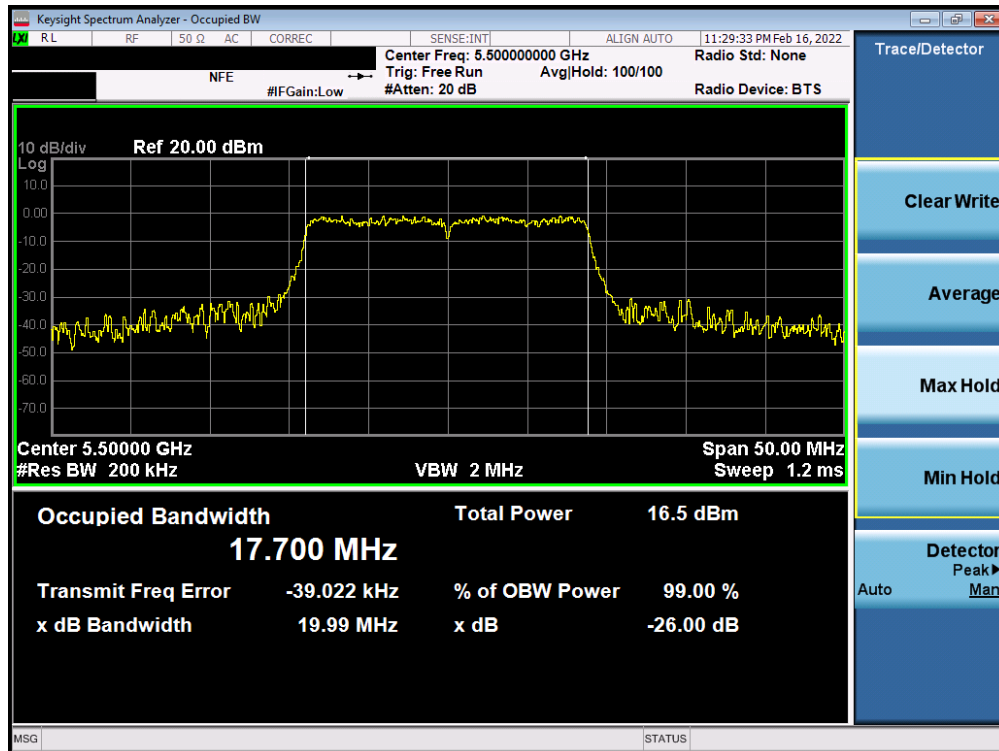


Plot 7-32. 26dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 33 of 173

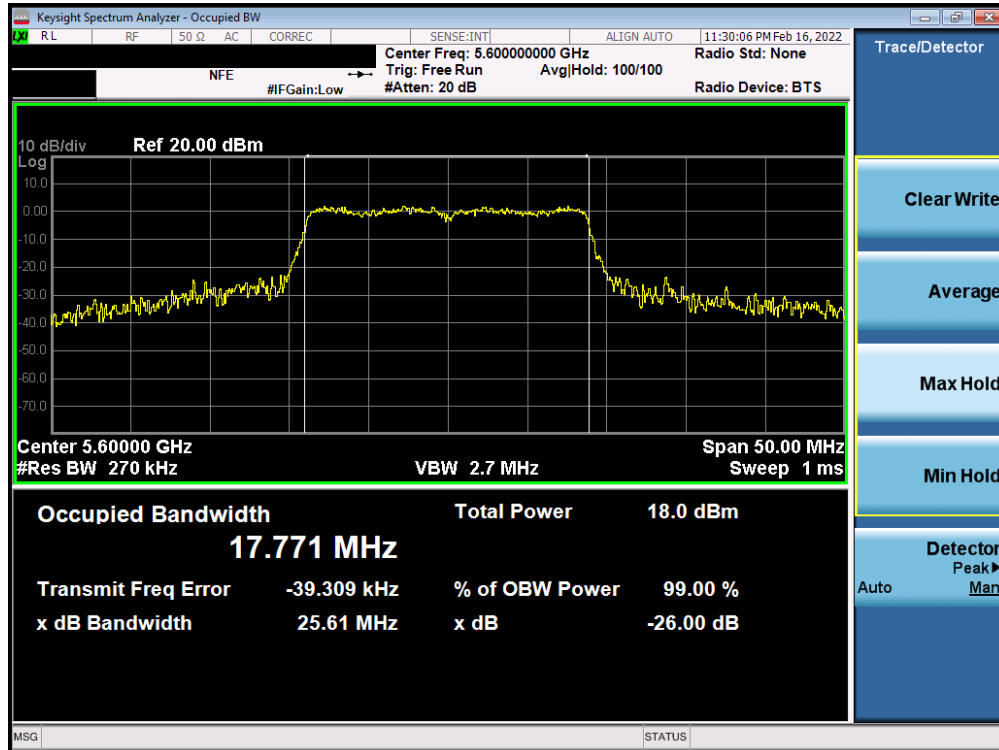


Plot 7-33. 26dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 144)

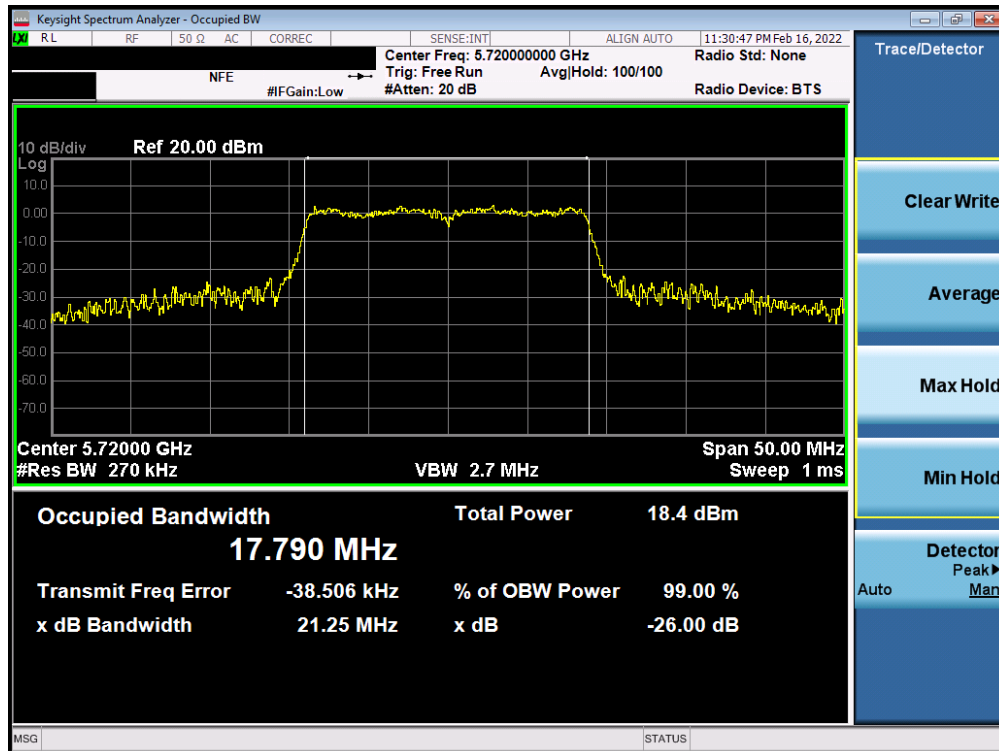


Plot 7-34. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 34 of 173



Plot 7-35. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)



Plot 7-36. 26dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 35 of 173

7.3 6dB Bandwidth Measurement – 802.11a/n/ac §15.407 (e); RSS-Gen [6.2]

Test Overview and Limit

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 6dB bandwidth.

In the 5.725 – 5.850GHz band, the 6dB bandwidth must be ≥ 500 kHz.

Test Procedure Used

ANSI C63.10-2013 – Section 6.9.2
KDB 789033 D02 v02r01 – Section C

Test Settings

1. The signal analyzers' automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to $X = 6$. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 100 kHz
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-2. Test Instrument & Measurement Setup

Test Notes

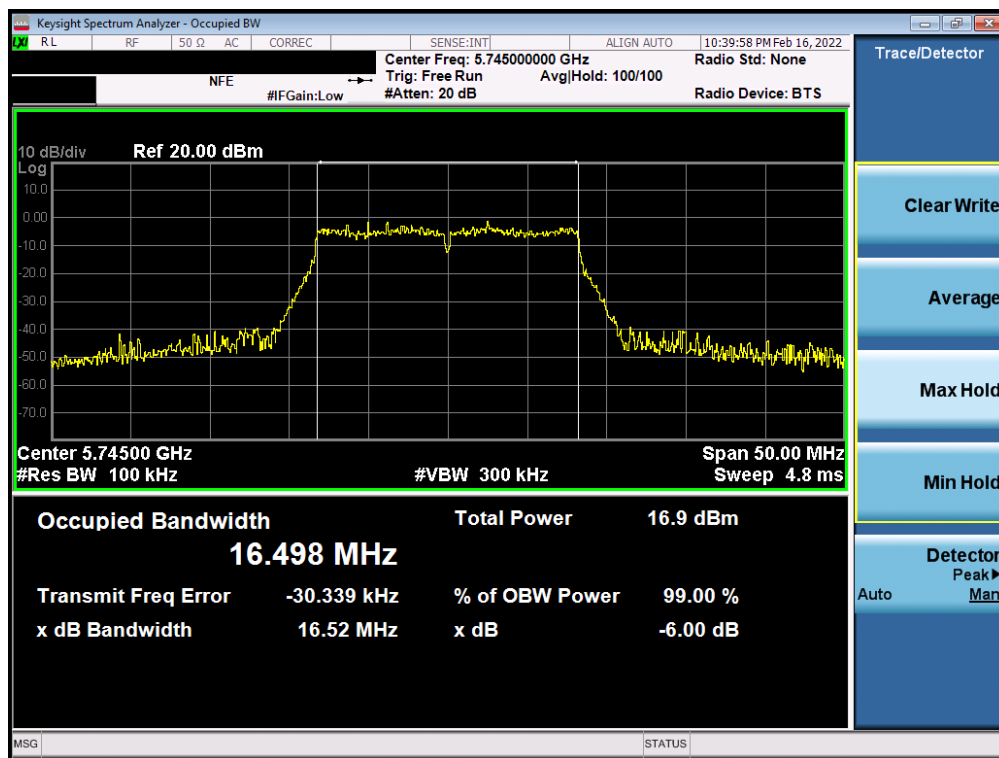
None.

FCC ID: V7MESLCTGA	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 36 of 173

SISO Antenna-1 6 dB Bandwidth Measurements

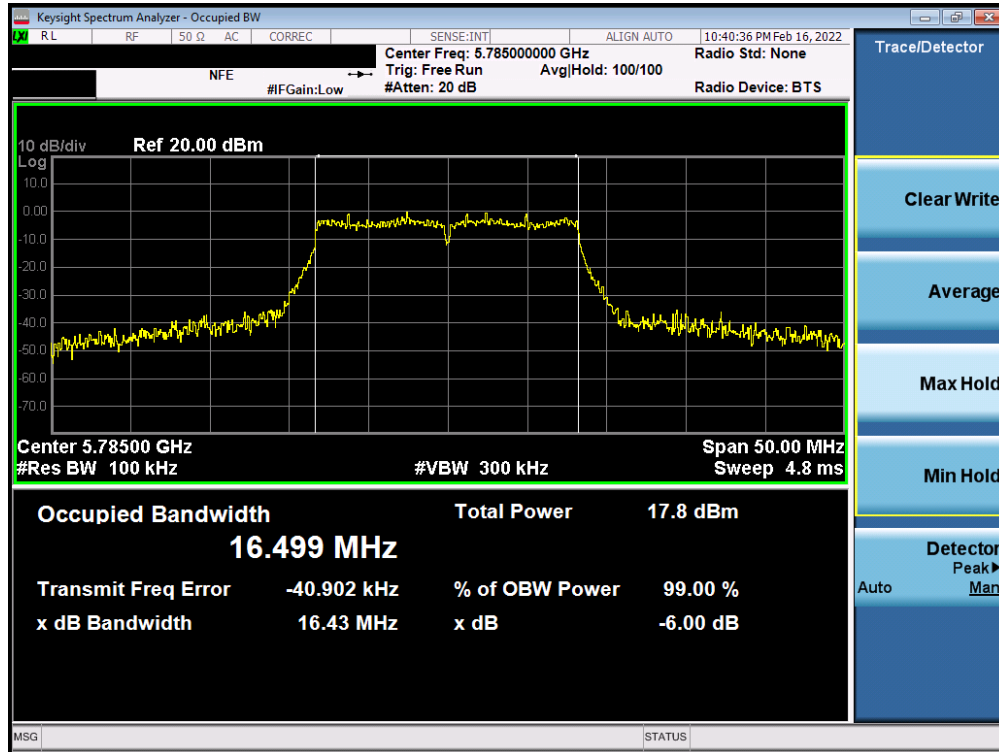
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3	5745	149	a	6	16.52
	5785	157	a	6	16.43
	5825	165	a	6	16.42
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	17.61
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	17.60
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	17.65

Table 7-4. Conducted Bandwidth Measurements SISO ANT1

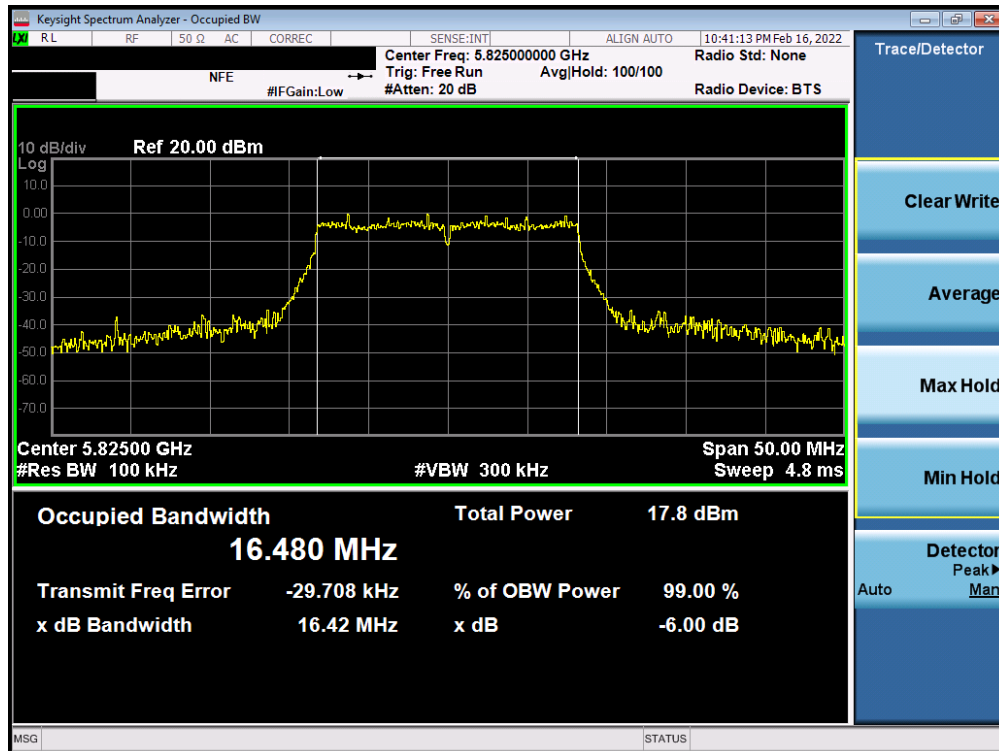


Plot 7-37. 6dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 149)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 37 of 173

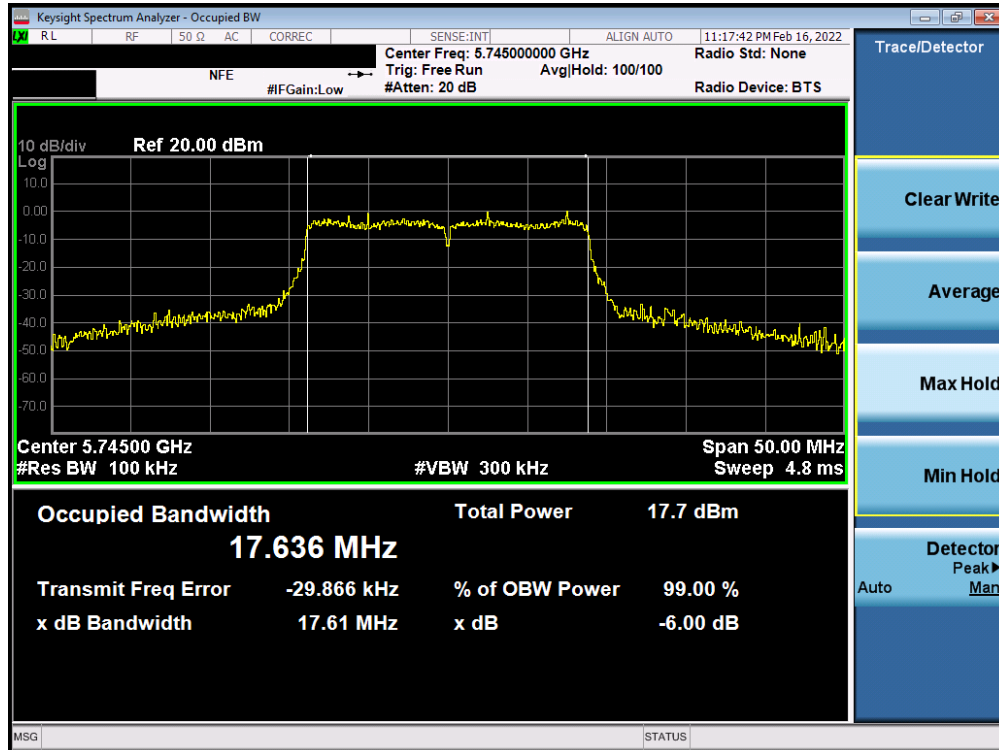


Plot 7-38. 6dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 157)

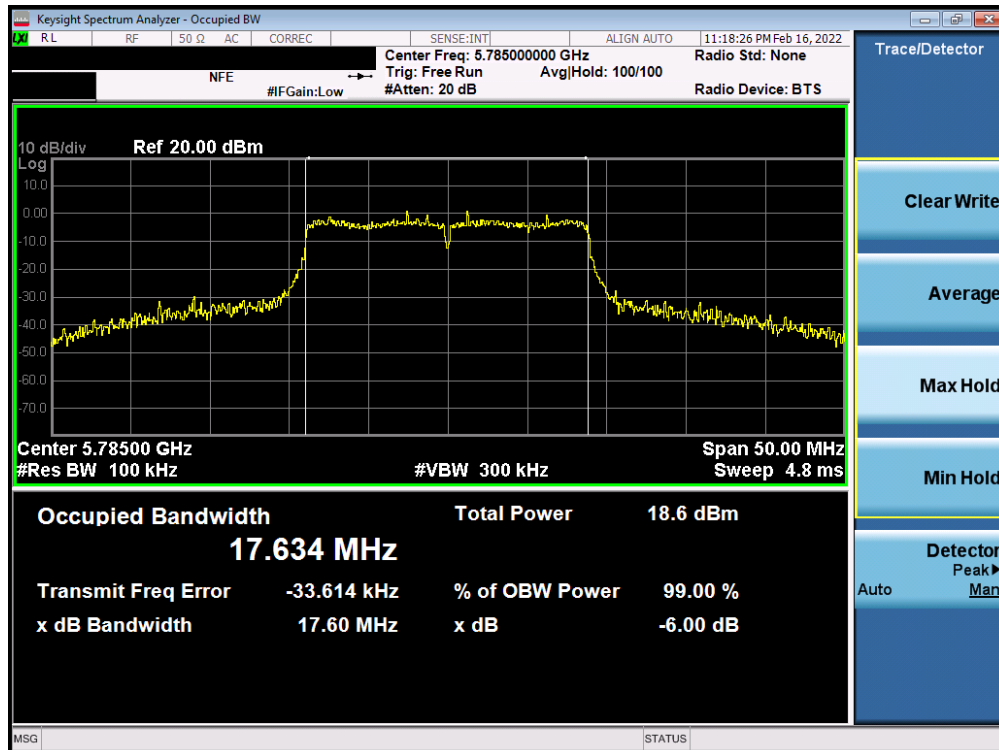


Plot 7-39. 6dB Bandwidth Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 165)

FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 38 of 173

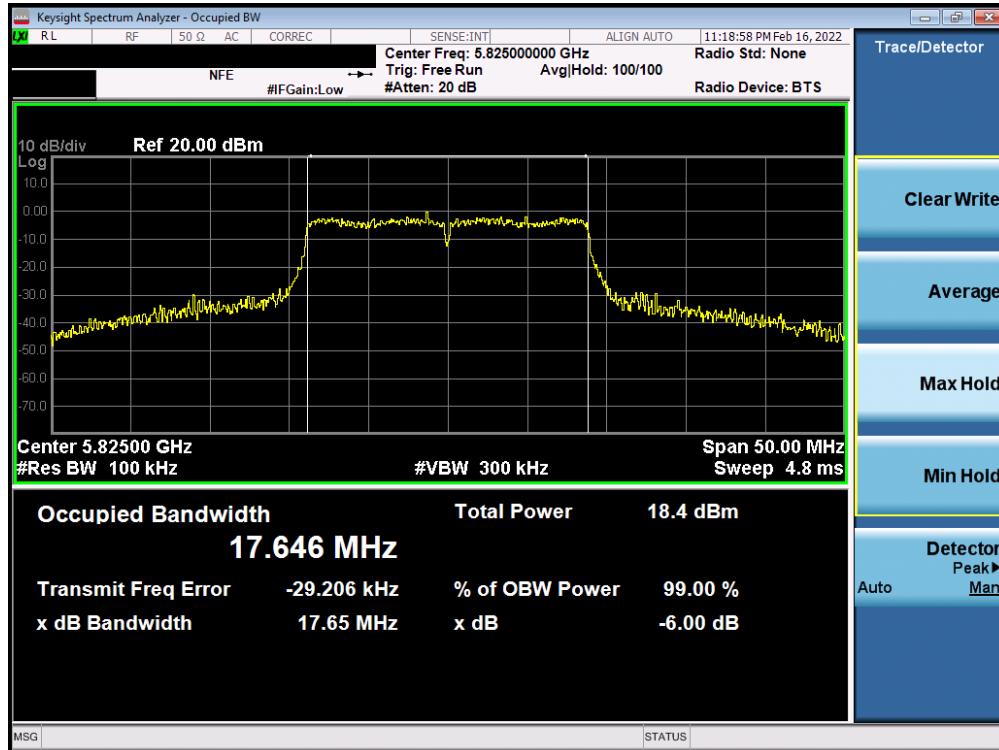


Plot 7-40. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



Plot 7-41. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 39 of 173



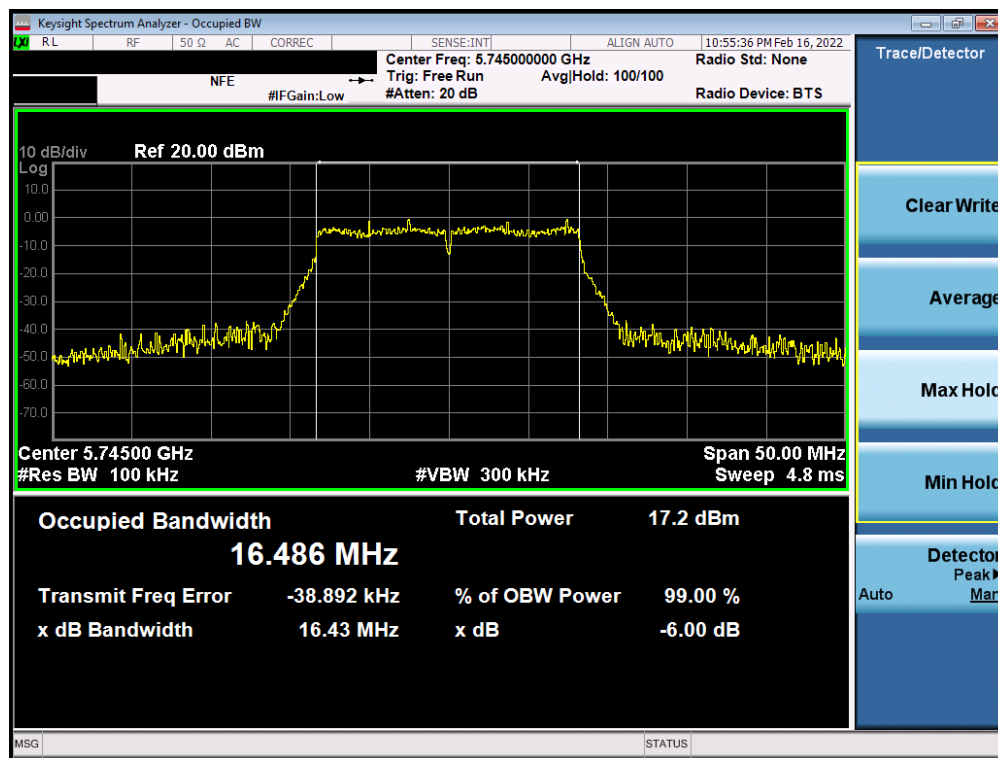
Plot 7-42. 6dB Bandwidth Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 40 of 173

SISO Antenna-2 6dB Bandwidth Measurements

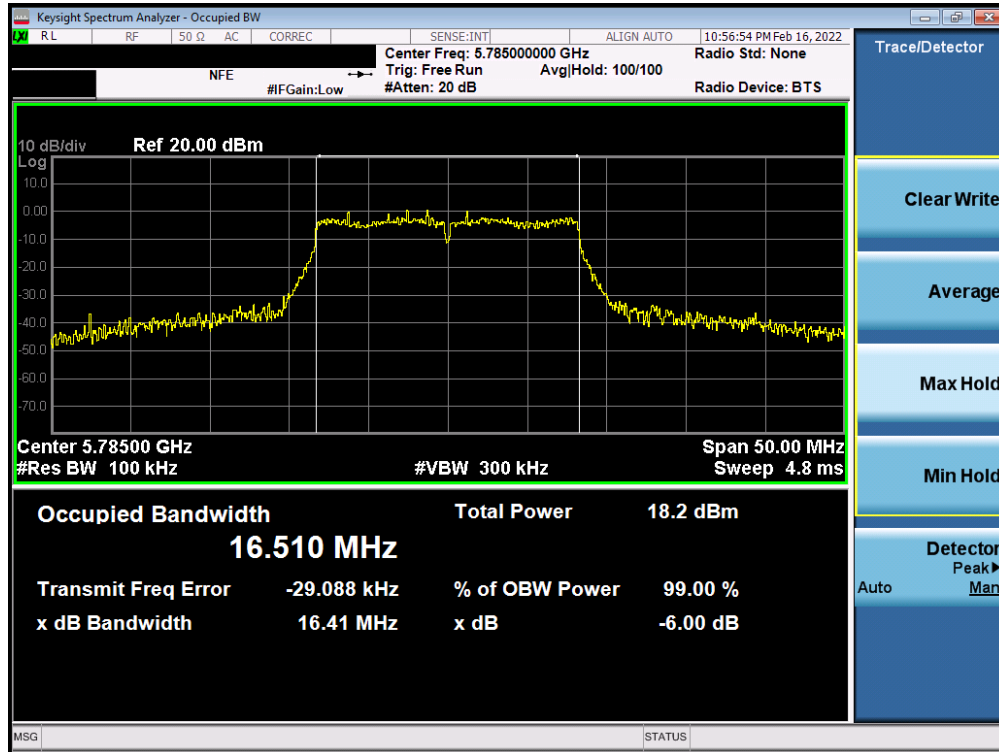
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured 6dB Bandwidth [MHz]
Band 3	5745	149	a	6	16.43
	5785	157	a	6	16.41
	5825	165	a	6	16.41
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	17.59
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	17.56
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	17.60

Table 7-5. Conducted Bandwidth Measurements SISO ANT2

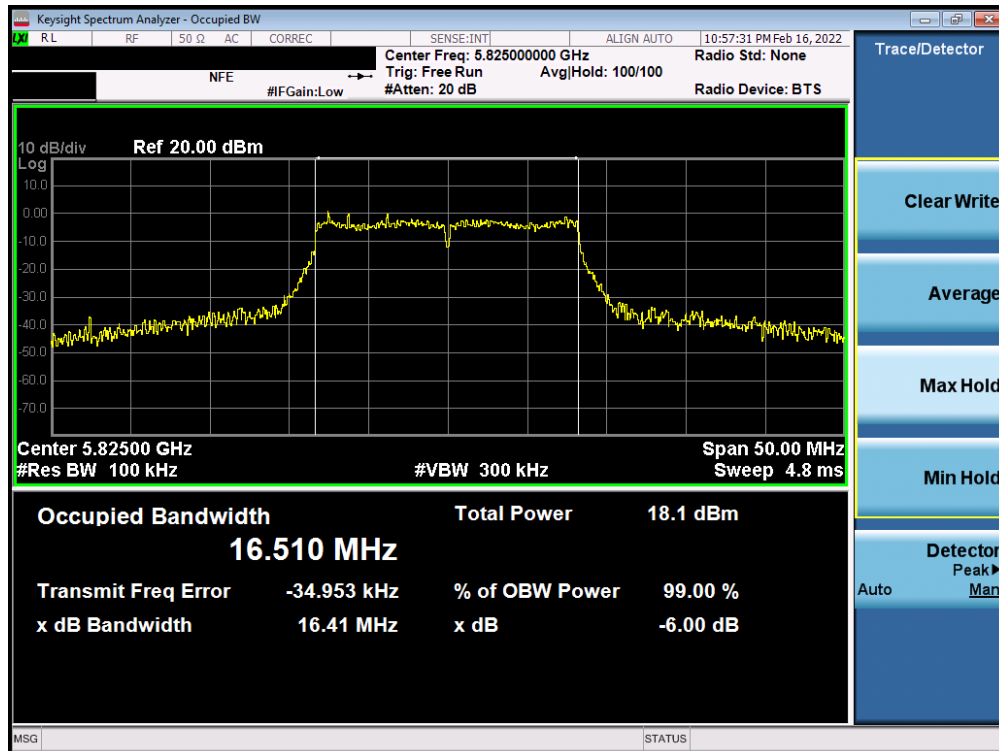


Plot 7-43. 6dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 149)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 41 of 173

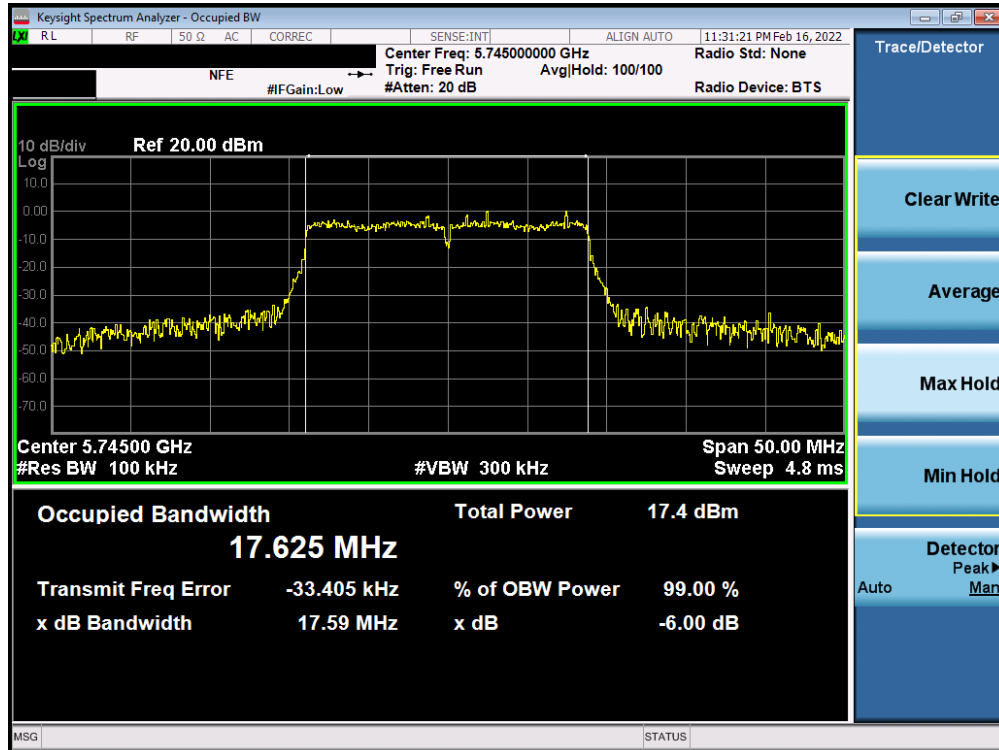


Plot 7-44. 6dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 157)

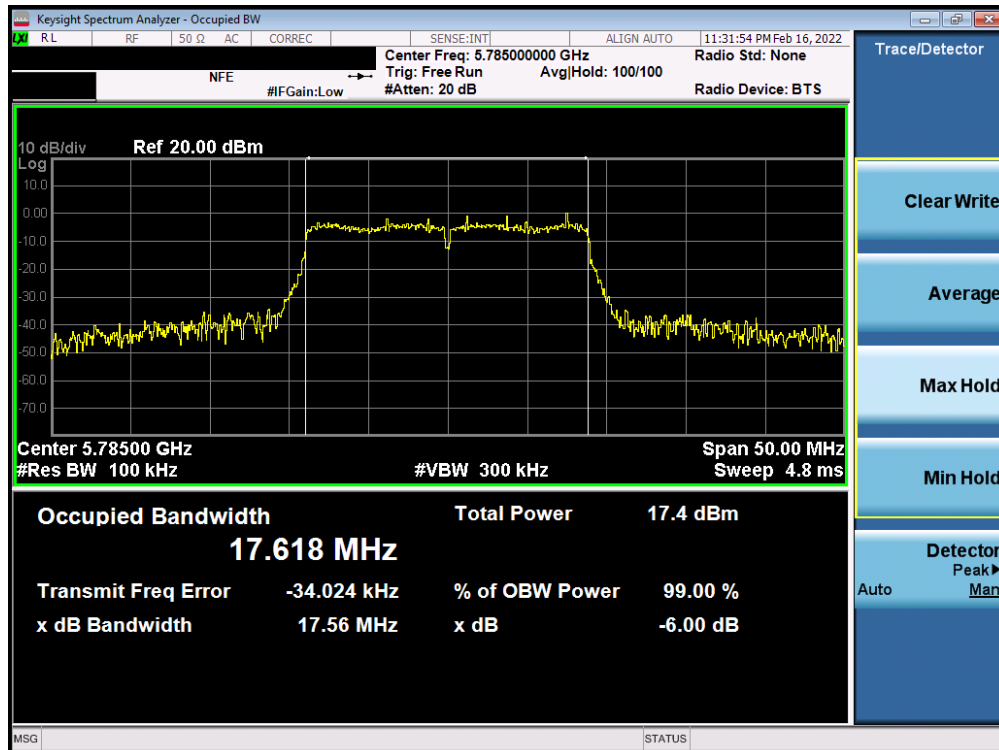


Plot 7-45. 6dB Bandwidth Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 165)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 42 of 173

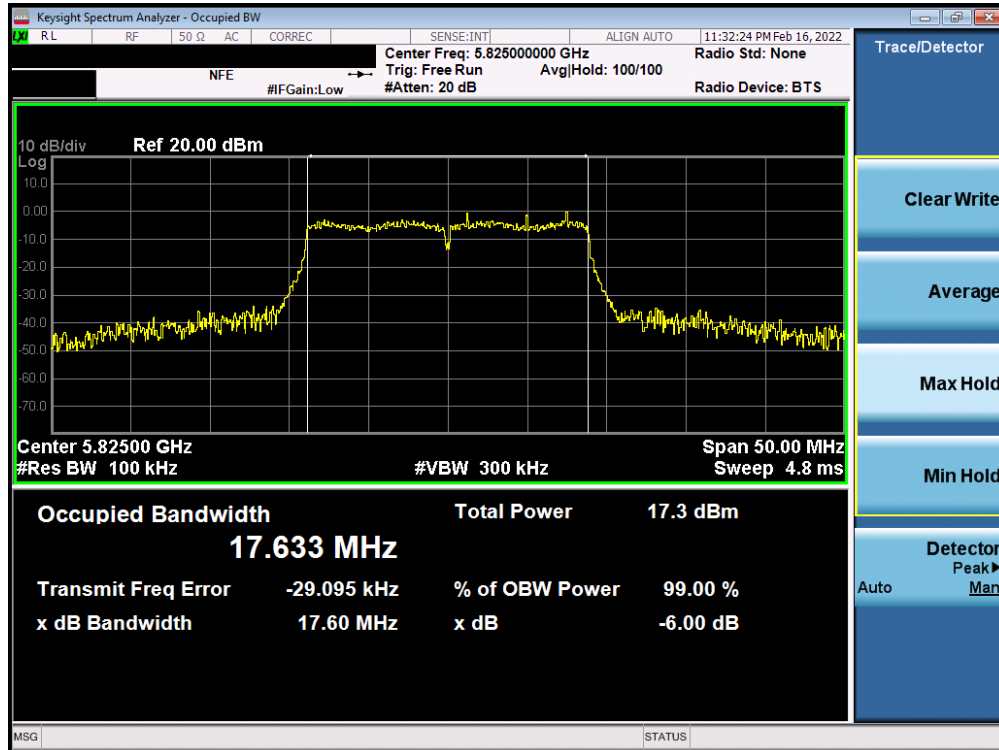


Plot 7-46. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



Plot 7-47. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 43 of 173



Plot 7-48. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 44 of 173

7.4 UNII Output Power Measurement – 802.11a/n/ac §15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies.

In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is 1W (30dBm).

In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(19.28) = 23.85\text{dBm}$.

In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) or $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(19.34) = 23.86\text{dBm}$.

In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm).

If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G
KDB 789033 D02 v02r01 – Section E3)b) Method PM-G
ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique
KDB 662911 v02r01 – Section E1) Measure-and-Sum Technique

Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

None

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 45 of 173

SISO Antenna-1 Conducted Output Power Measurements

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	IEEE Transmission Mode			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
				802.11a	802.11n	802.11ac		
	5180	36	AVG	10.73	10.94	11.23	30.00	-18.77
	5200	40	AVG	11.55	11.77	11.55	30.00	-18.23
	5220	44	AVG	11.76	11.68	11.67	30.00	-18.24
	5240	48	AVG	11.52	11.61	11.86	30.00	-18.14
	5260	52	AVG	11.61	11.56	11.96	23.85	-11.89
	5280	56	AVG	11.54	11.74	11.89	23.85	-11.96
	5300	60	AVG	11.79	11.86	11.86	23.85	-11.99
	5320	64	AVG	11.87	11.98	11.35	23.85	-11.87
	5500	100	AVG	11.67	11.83	11.30	23.86	-12.03
	5600	120	AVG	11.89	11.97	11.89	23.86	-11.89
	5620	124	AVG	11.79	11.87	11.88	23.86	-11.98
	5720	144	AVG	11.90	11.98	11.95	23.86	-11.88
	5745	149	AVG	11.70	11.51	11.87	30.00	-18.13
	5765	153	AVG	11.91	11.78	11.88	30.00	-18.09
	5785	157	AVG	11.62	11.75	11.78	30.00	-18.22
	5805	161	AVG	11.54	11.71	11.97	30.00	-18.03
	5825	165	AVG	11.38	11.56	11.95	30.00	-18.05

Table 7-6. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power

FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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SISO Antenna-2 Conducted Output Power Measurements

5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	IEEE Transmission Mode			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
				802.11a	802.11n	802.11ac		
	5180	36	AVG	10.81	9.90	9.91	30.00	-19.19
	5200	40	AVG	11.93	11.51	11.51	30.00	-18.07
	5220	44	AVG	11.88	11.53	11.56	30.00	-18.12
	5240	48	AVG	11.87	11.68	11.65	30.00	-18.13
	5260	52	AVG	11.67	11.81	11.79	23.85	-12.04
	5280	56	AVG	11.54	11.96	11.92	23.85	-11.89
	5300	60	AVG	11.71	11.52	11.55	23.85	-12.14
	5320	64	AVG	10.75	11.46	11.56	23.85	-12.29
	5500	100	AVG	11.51	11.91	11.94	23.86	-11.92
	5600	120	AVG	11.88	11.60	11.63	23.86	-11.98
	5620	124	AVG	11.89	11.53	11.50	23.86	-11.97
	5720	144	AVG	11.64	11.51	11.63	23.86	-12.22
	5745	149	AVG	11.86	11.52	11.55	30.00	-18.14
	5765	153	AVG	11.79	11.56	11.78	30.00	-18.21
	5785	157	AVG	11.84	11.67	11.98	30.00	-18.02
	5805	161	AVG	11.86	11.88	11.89	30.00	-18.11
	5825	165	AVG	11.75	11.26	11.23	30.00	-18.25

Table 7-7. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power

FCC ID: V7MESLCTGA	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 47 of 173

MIMO Maximum Conducted Output Power Measurements

802.11a 5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Directional Ant. Gain [dBi]	Adjusted Conducted Power Limit [dBm]	Conducted Power Margin [dB]
				ANT1	ANT2	MIMO				
	5180	36	AVG	9.67	8.43	12.10	30.00	7.16	28.84	-16.74
	5200	40	AVG	12.39	11.28	14.88	30.00	7.16	28.84	-13.96
	5220	44	AVG	11.97	11.77	14.88	30.00	7.16	28.84	-13.96
	5240	48	AVG	11.71	11.85	14.79	30.00	7.16	28.84	-14.05
	5260	52	AVG	11.83	11.30	14.58	23.98	7.12	22.86	-8.28
	5280	56	AVG	11.95	10.98	14.50	23.98	7.12	22.86	-8.36
	5300	60	AVG	12.00	11.26	14.66	23.98	7.12	22.86	-8.20
	5320	64	AVG	10.85	9.89	13.41	23.98	7.12	22.86	-9.45
	5500	100	AVG	12.09	11.71	14.91	23.98	7.82	22.16	-7.25
	5600	120	AVG	12.65	10.71	14.80	23.98	8.71	21.27	-6.47
	5620	124	AVG	12.66	10.87	14.87	23.98	8.71	21.27	-6.40
	5720	144	AVG	12.64	11.07	14.94	23.98	7.51	22.47	-7.53
	5745	149	AVG	11.82	11.31	14.58	30.00	8.51	27.49	-12.91
	5765	153	AVG	11.84	11.14	14.51	30.00	8.51	27.49	-12.98
	5785	157	AVG	11.87	11.13	14.53	30.00	7.56	28.44	-13.91
	5805	161	AVG	11.80	11.21	14.53	30.00	7.56	28.44	-13.91
	5825	165	AVG	11.78	11.31	14.56	30.00	7.56	28.44	-13.88

Table 7-8. MIMO 20MHz BW 802.11a (UNII) Maximum Conducted Output Power

802.11n 5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Directional Ant. Gain [dBi]	Adjusted Conducted Power Limit [dBm]	Conducted Power Margin [dB]
				ANT1	ANT2	MIMO				
	5180	36	AVG	9.93	8.85	12.43	30.00	7.16	28.84	-16.41
	5200	40	AVG	12.46	11.28	14.92	30.00	7.16	28.84	-13.92
	5220	44	AVG	12.55	11.18	14.93	30.00	7.16	28.84	-13.91
	5240	48	AVG	12.56	11.23	14.96	30.00	7.16	28.84	-13.88
	5260	52	AVG	12.01	11.31	14.68	23.98	7.12	22.86	-8.18
	5280	56	AVG	12.10	10.89	14.55	23.98	7.12	22.86	-8.31
	5300	60	AVG	12.09	11.30	14.72	23.98	7.12	22.86	-8.14
	5320	64	AVG	11.06	10.17	13.65	23.98	7.12	22.86	-9.21
	5500	100	AVG	12.12	11.78	14.96	23.98	7.82	22.16	-7.20
	5600	120	AVG	12.31	10.55	14.53	23.98	8.71	21.27	-6.74
	5620	124	AVG	12.32	10.56	14.54	23.98	8.71	21.27	-6.73
	5720	144	AVG	12.67	11.14	14.98	23.98	7.51	22.47	-7.49
	5745	149	AVG	11.92	11.09	14.54	30.00	8.51	27.49	-12.95
	5765	153	AVG	12.04	11.22	14.66	30.00	8.51	27.49	-12.83
	5785	157	AVG	12.04	11.24	14.67	30.00	7.56	28.44	-13.77
	5805	161	AVG	12.01	11.23	14.65	30.00	7.56	28.44	-13.79
	5825	165	AVG	11.87	11.09	14.51	30.00	7.56	28.44	-13.93

Table 7-9. MIMO 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

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802.11ac 5GHz (20MHz Bandwidth)	Freq [MHz]	Channel	Detector	Conducted Power [dBm]			Conducted Power Limit [dBm]	Directional Ant. Gain [dBi]	Adjusted Conducted Power Limit [dBm]	Conducted Power Margin [dB]
				ANT1	ANT2	MIMO				
	5180	36	AVG	9.90	8.72	12.36	23.98	7.16	22.82	-10.46
	5200	40	AVG	12.53	11.33	14.98	23.98	7.16	22.82	-7.84
	5220	44	AVG	12.43	11.01	14.79	23.98	7.16	22.82	-8.03
	5240	48	AVG	12.61	11.21	14.98	23.98	7.16	22.82	-7.84
	5260	52	AVG	12.53	11.13	14.90	23.98	7.12	22.86	-7.96
	5280	56	AVG	12.19	10.72	14.53	23.98	7.12	22.86	-8.33
	5300	60	AVG	12.15	11.44	14.82	23.98	7.12	22.86	-8.04
	5320	64	AVG	11.00	10.03	13.55	23.98	7.12	22.86	-9.31
	5500	100	AVG	11.28	11.02	14.16	23.98	7.82	22.16	-8.00
	5600	120	AVG	12.29	10.51	14.50	23.98	8.71	21.27	-6.77
	5620	124	AVG	12.31	10.41	14.47	23.98	8.71	21.27	-6.80
	5720	144	AVG	11.97	11.00	14.52	23.98	7.51	22.47	-7.95
	5745	149	AVG	11.99	11.22	14.63	30.00	8.51	27.49	-12.86
	5765	153	AVG	12.01	11.32	14.69	30.00	8.51	27.49	-12.80
	5785	157	AVG	12.06	11.37	14.74	30.00	7.56	28.44	-13.70
	5805	161	AVG	11.98	11.33	14.68	30.00	7.56	28.44	-13.76
	5825	165	AVG	11.86	11.23	14.57	30.00	7.56	28.44	-13.87

Table 7-10. MIMO 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power

Note:

Per ANSI C63.10-2013 and KDB 662911 v02r01 Section E1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2013 Section 14.4.3, the directional gain is calculated using the following formula, where G_N is the gain of the nth antenna and N_{ANT} , the total number of antennas used.

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi}$$

Sample MIMO Calculations:

- At 5180MHz in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 9.93 dBm for Antenna-1 and 8.85 dBm for Antenna-2.

$$\text{Antenna 1} + \text{Antenna 2} = \text{MIMO}$$

$$(9.93 \text{ dBm} + 8.85 \text{ dBm}) = (9.84 \text{ mW} + 7.67 \text{ mW}) = 17.51 \text{ mW} = 12.43 \text{ dBm}$$

- This section contains MIMO conducted power measurements with directional gains that exceed the 6dBi limit specified in 15.407(a). As a result, the maximum conducted output power limits are reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For example, when the specified limit is 250mW (23.98dBm) and the directional gain is 7.82dBi, then the adjusted limit is:

$$23.98\text{dBm} - (7.82\text{dBi} - 6\text{dBi}) = 22.16\text{dBm}$$

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7.5 Maximum Power Spectral Density – 802.11a/n/ac §15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

In the 5.15 – 5.25GHz band, the maximum permissible power spectral density is 17dBm/MHz.

In the 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2

KDB 789033 D02 v02r01 – Section F

ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique

KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points $\geq 2 \times (\text{span/RBW})$
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-4. Test Instrument & Measurement Setup

Test Notes

None

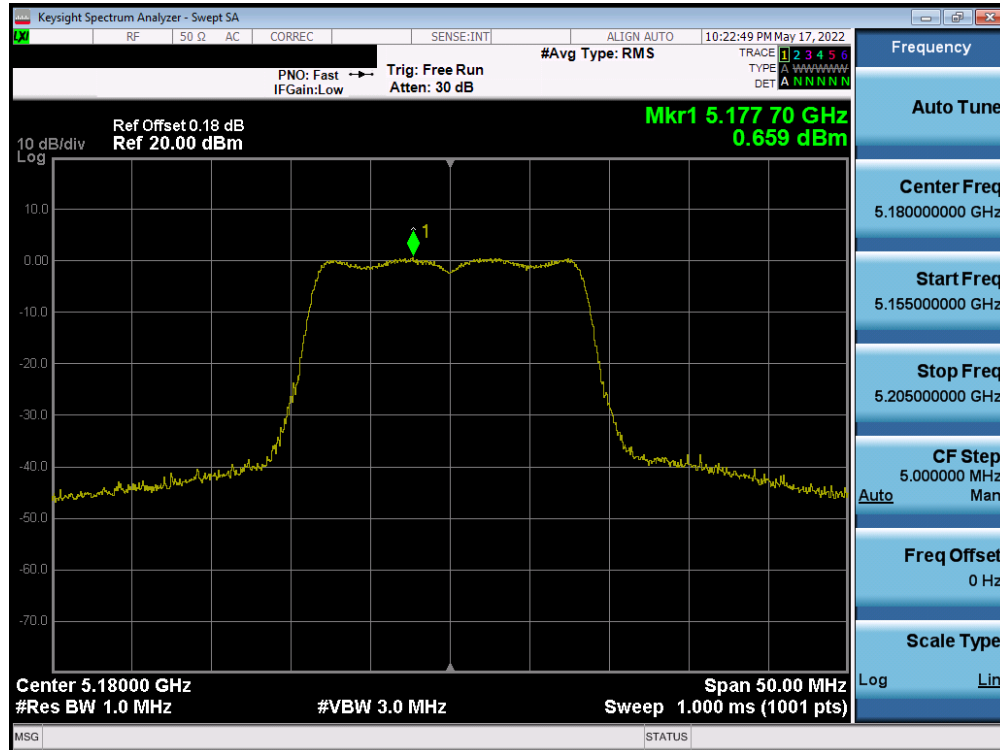
FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 50 of 173

SISO Antenna-1 Power Spectral Density Measurements

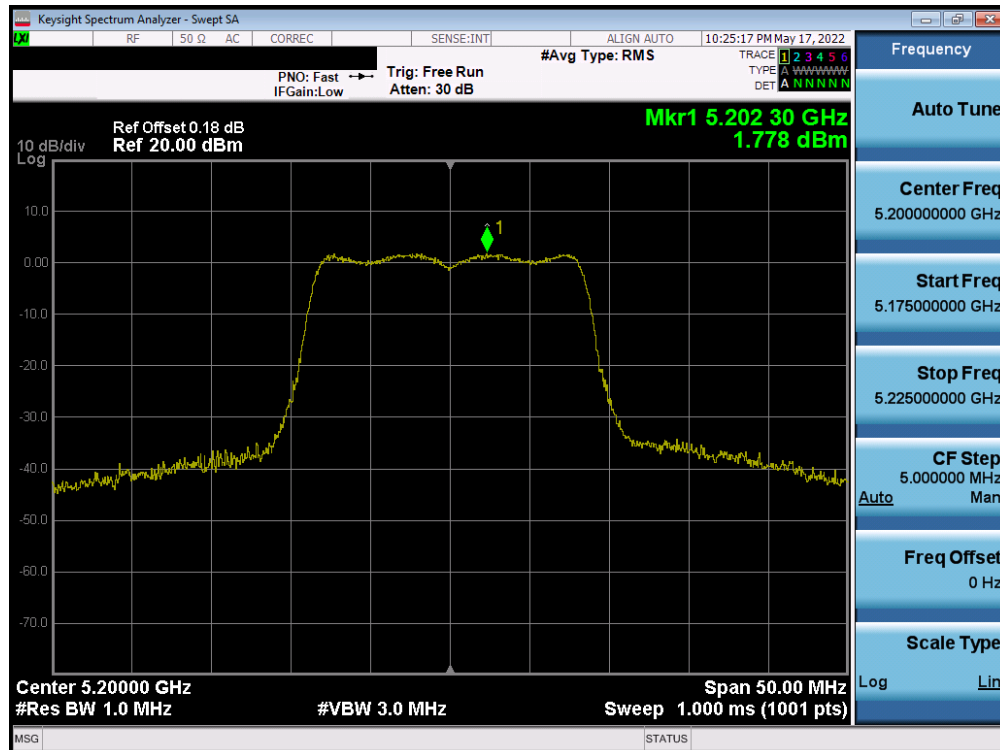
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	0.66	17.0	-16.34
	5200	40	a	6	1.78	17.0	-15.22
	5240	48	a	6	1.25	17.0	-15.75
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	0.46	17.0	-16.54
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	1.88	17.0	-15.12
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	1.13	17.0	-15.88
Band 2A	5260	52	a	6	1.38	11.0	-9.62
	5280	56	a	6	1.37	11.0	-9.64
	5320	64	a	6	1.60	11.0	-9.40
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	1.27	11.0	-9.73
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	1.43	11.0	-9.57
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	1.26	11.0	-9.74
Band 2C	5500	100	a	6	1.22	11.0	-9.78
	5600	120	a	6	1.29	11.0	-9.71
	5720	144	a	6	1.50	11.0	-9.50
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	1.18	11.0	-9.82
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	1.12	11.0	-9.88
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	1.39	11.0	-9.61

Table 7-11. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT1

FCC ID: V7MESLCTGA	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 51 of 173

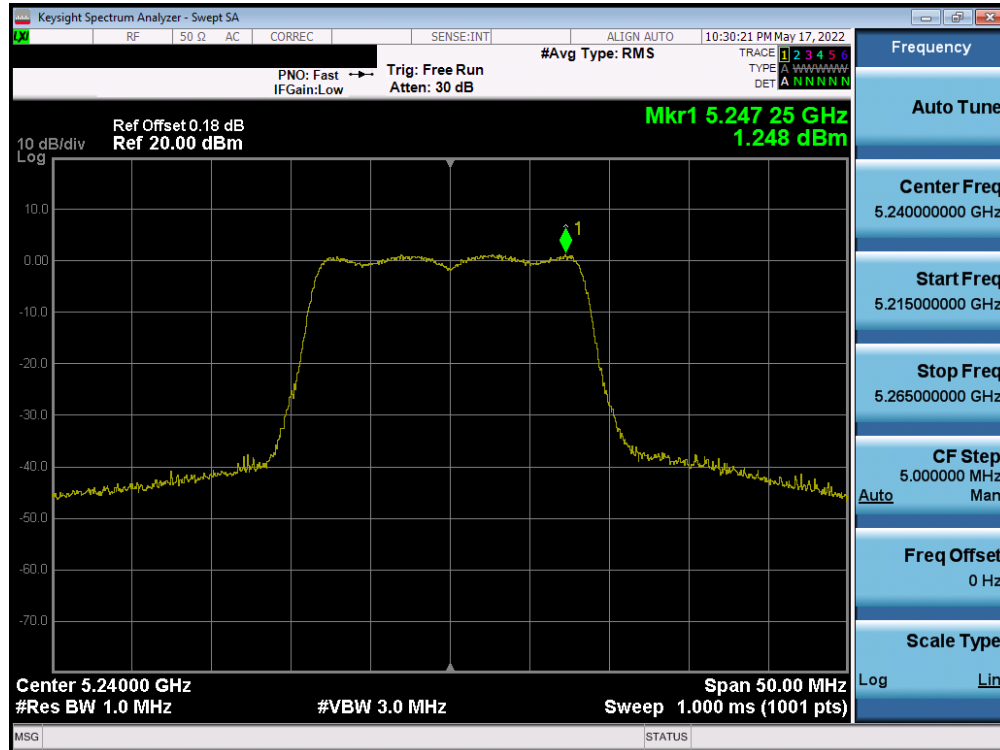


Plot 7-49. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 36)

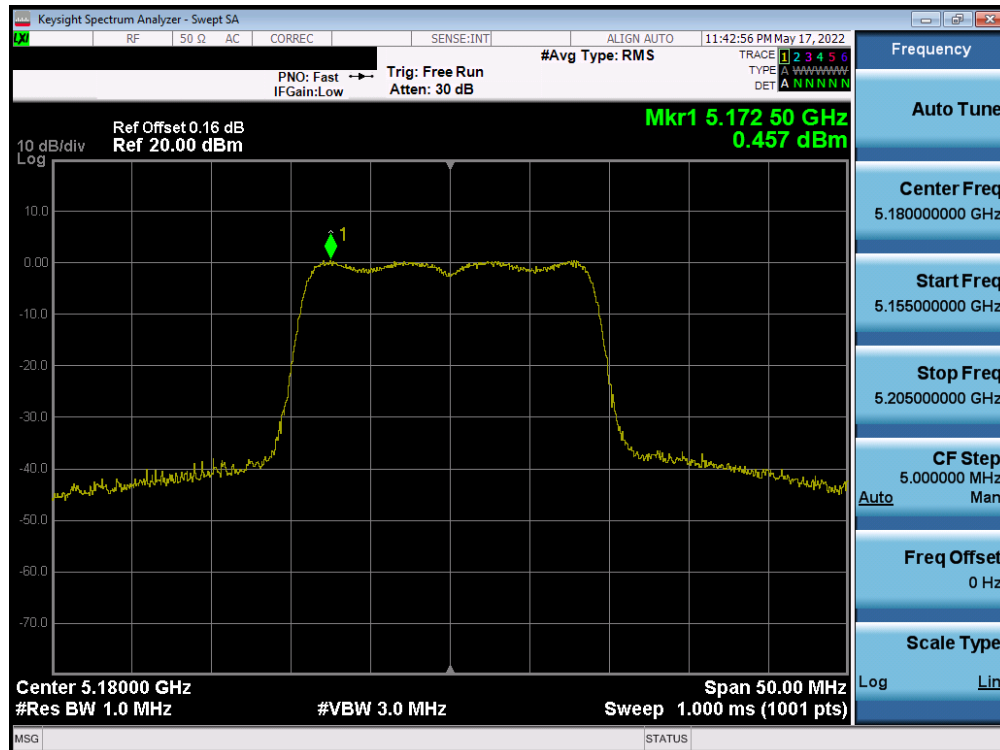


Plot 7-50. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 40)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 52 of 173

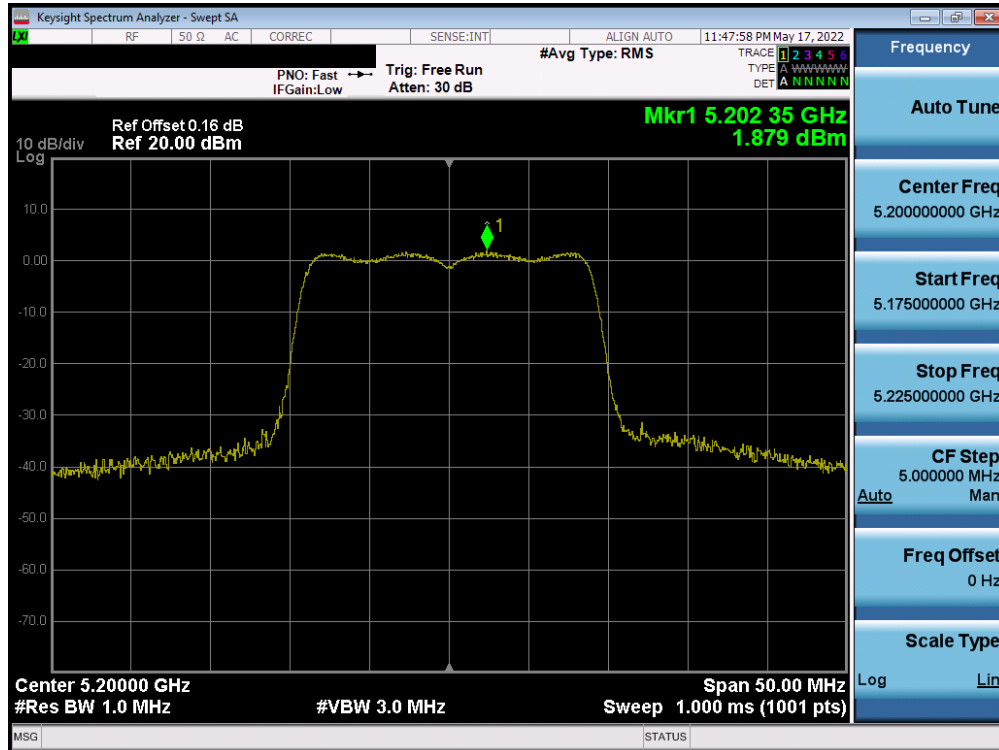


Plot 7-51. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 48)

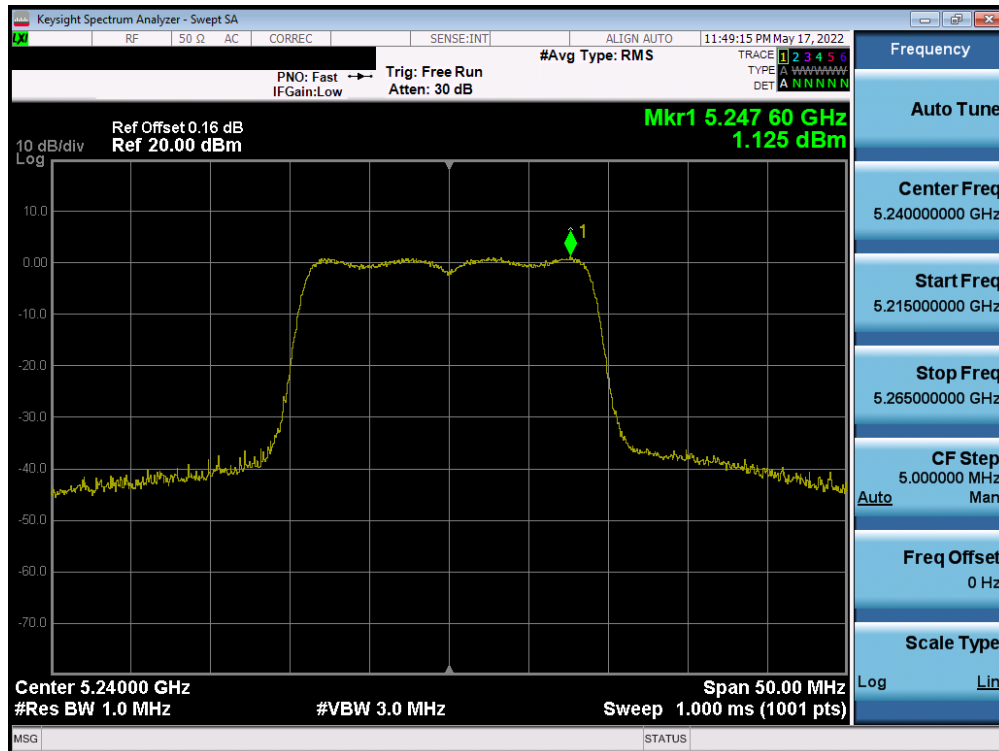


Plot 7-52. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 53 of 173

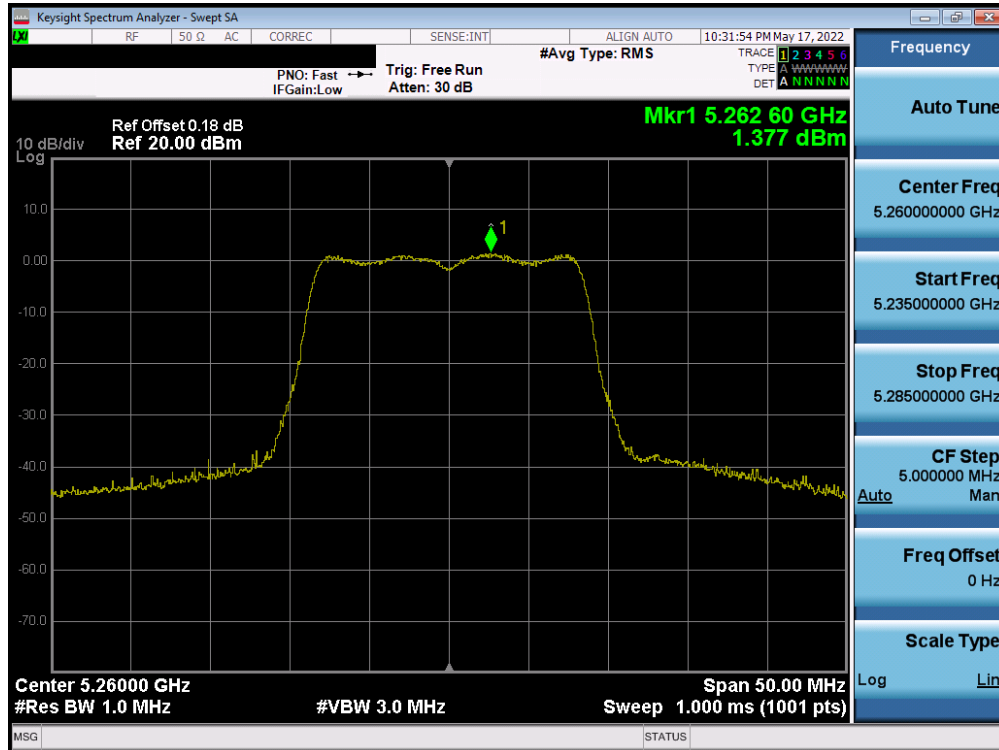


Plot 7-53. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

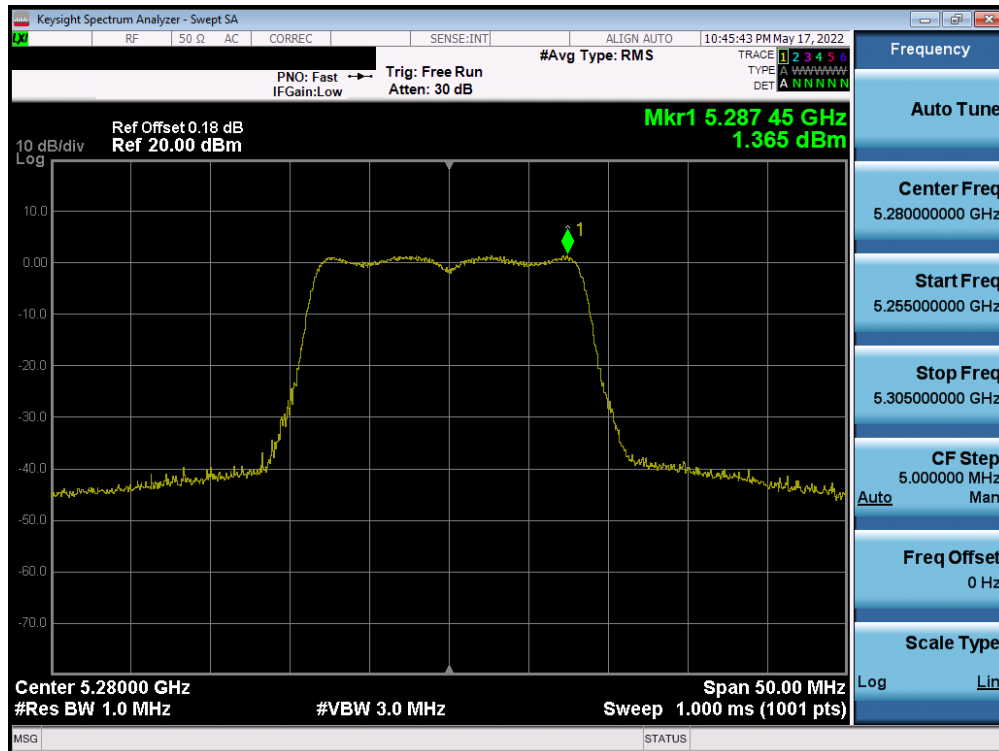


Plot 7-54. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 54 of 173

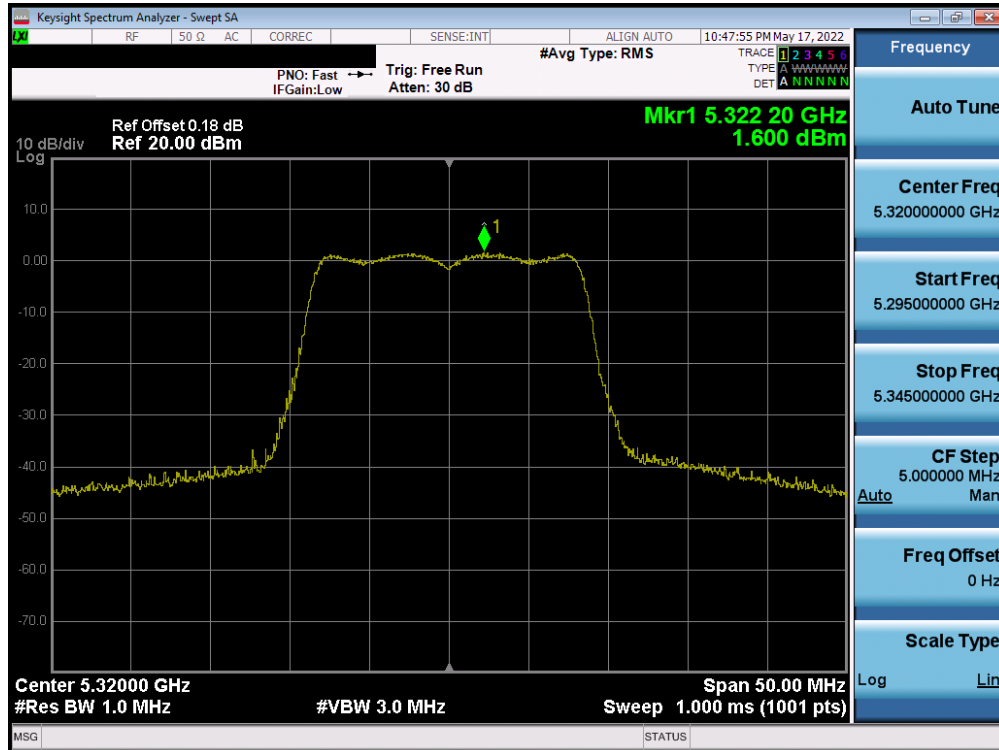


Plot 7-55. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 52)

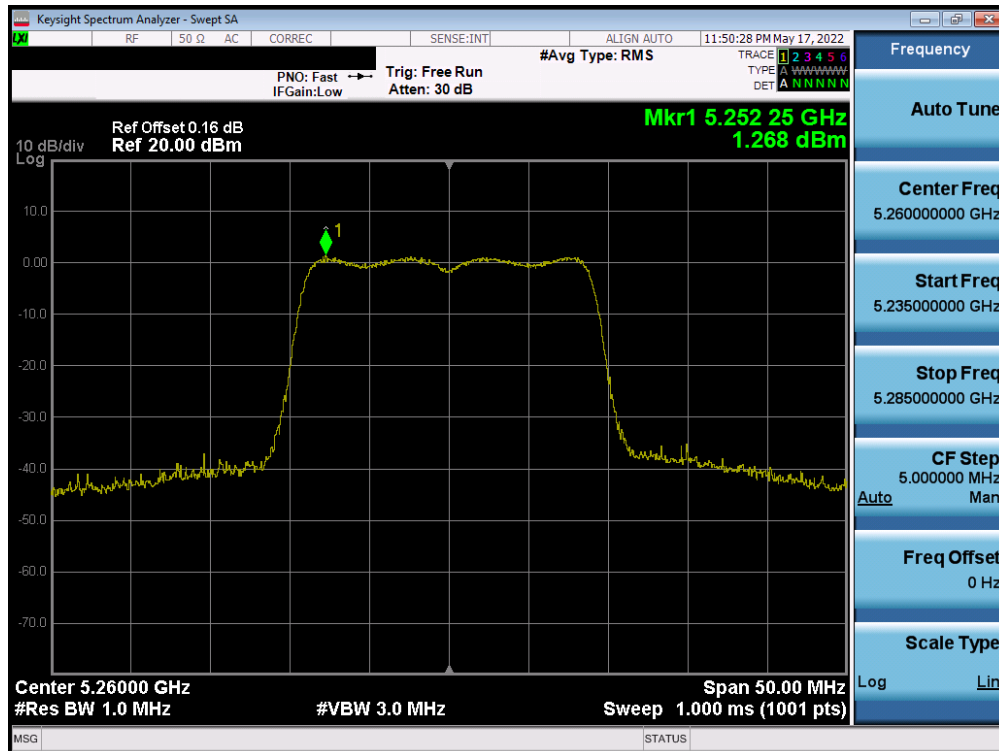


Plot 7-56. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 56)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 55 of 173

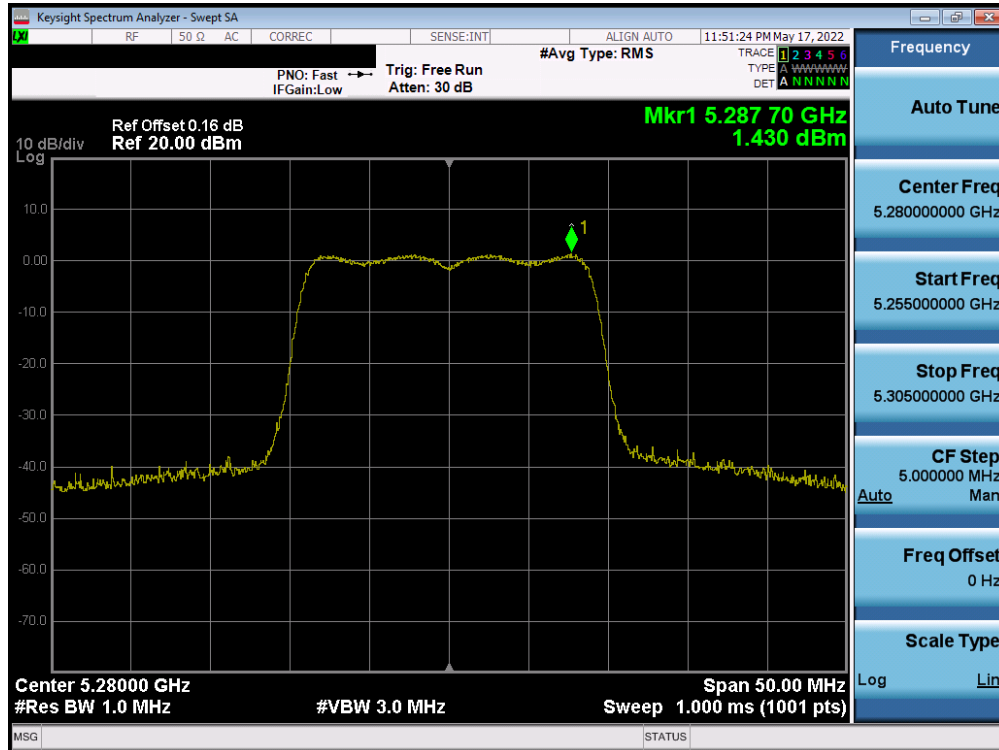


Plot 7-57. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 64)

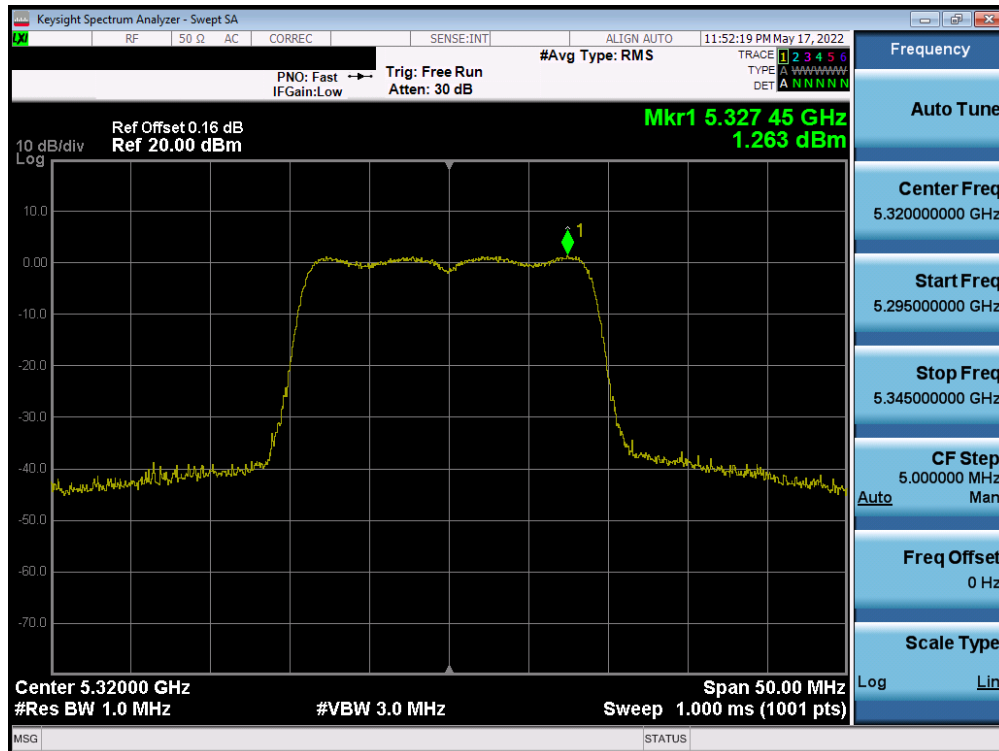


Plot 7-58. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 56 of 173

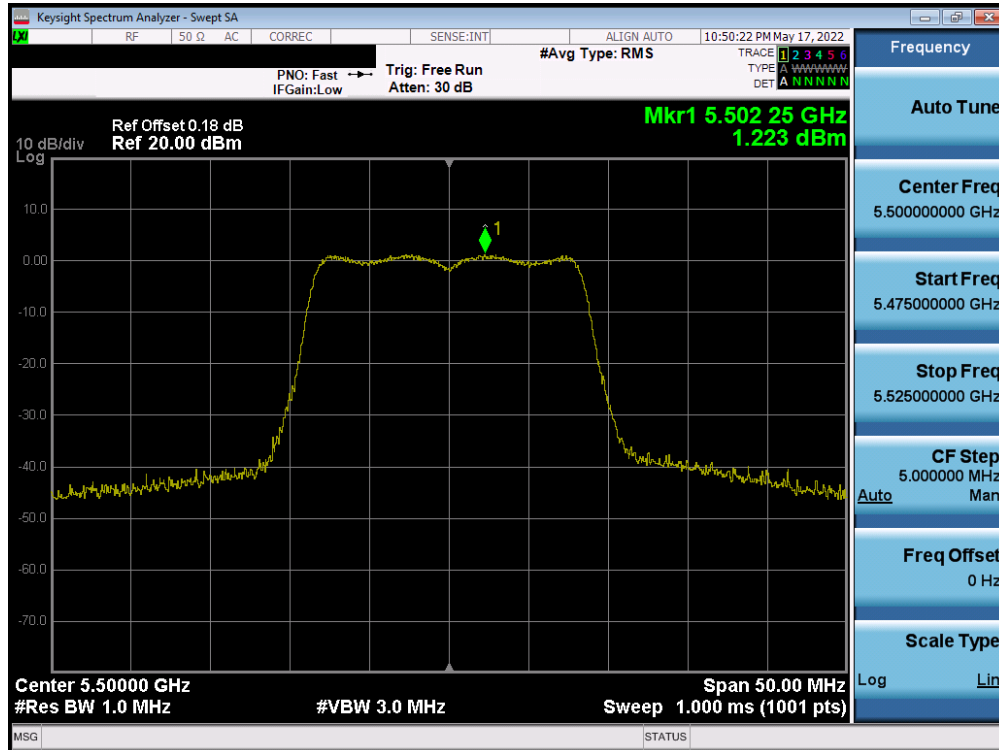


Plot 7-59. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) - Ch. 56)

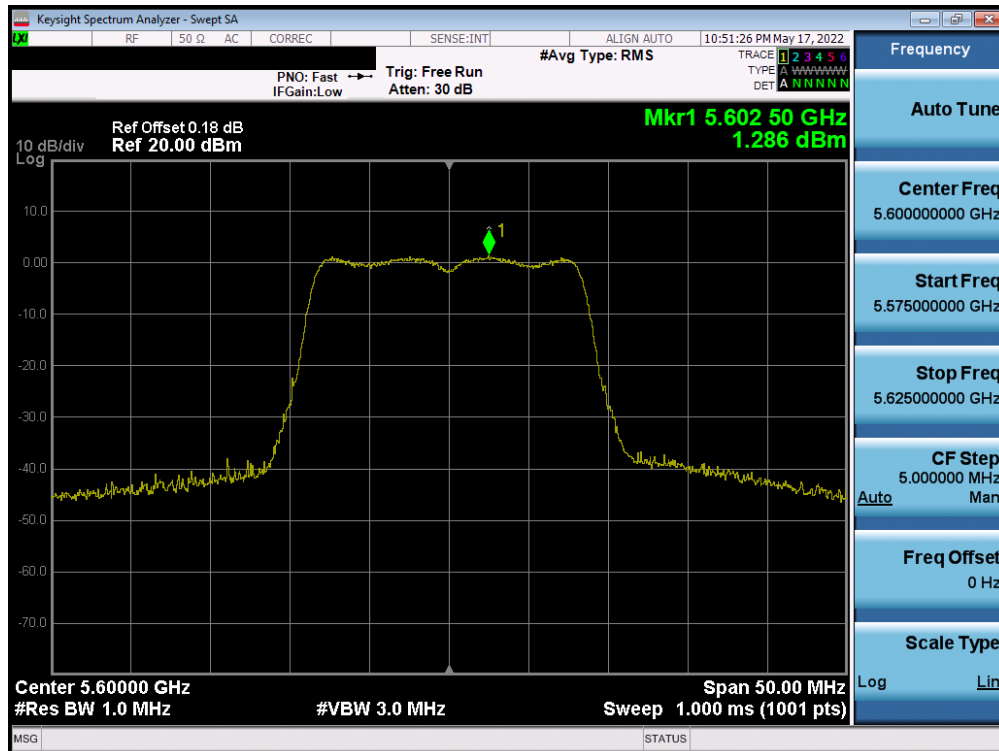


Plot 7-60. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) - Ch. 64)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 57 of 173

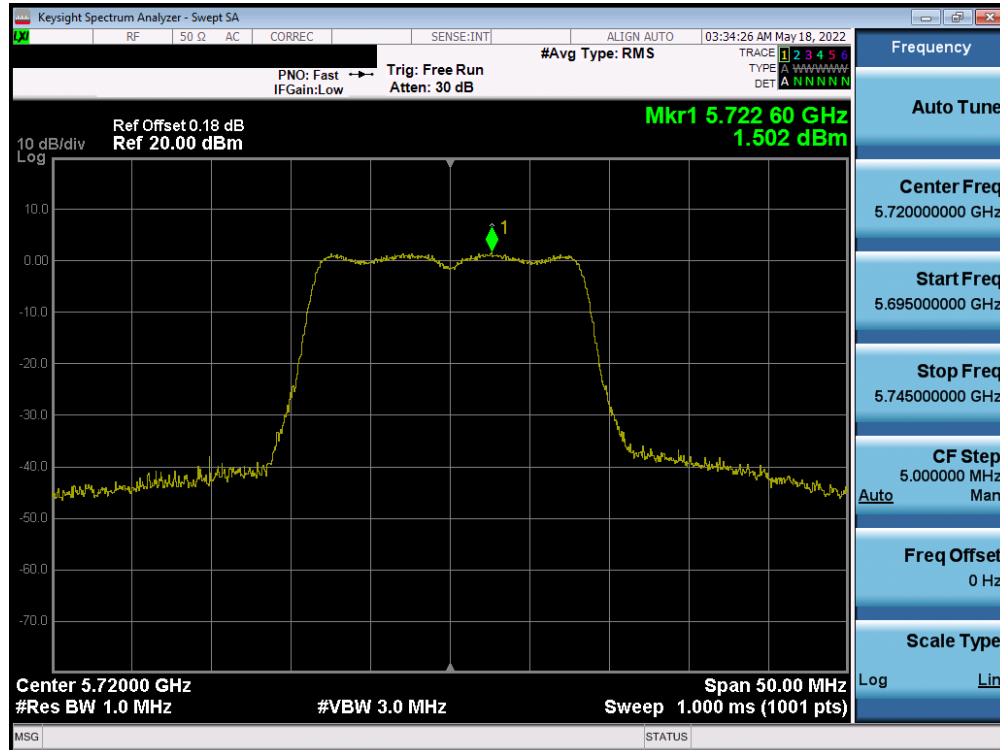


Plot 7-61. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 100)

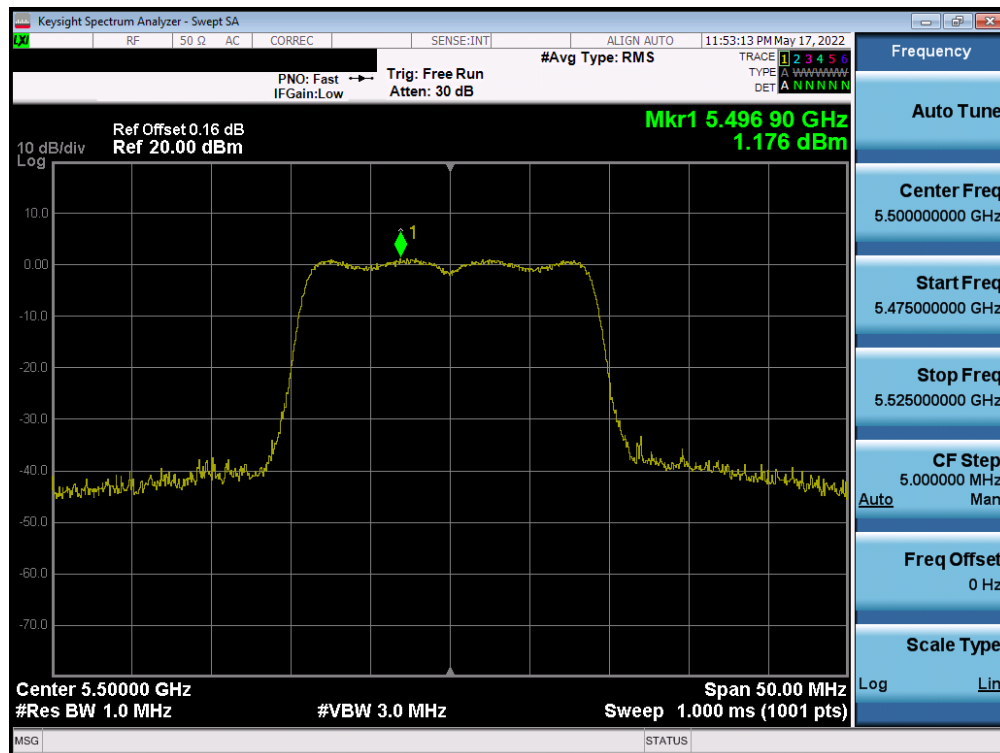


Plot 7-62. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 58 of 173

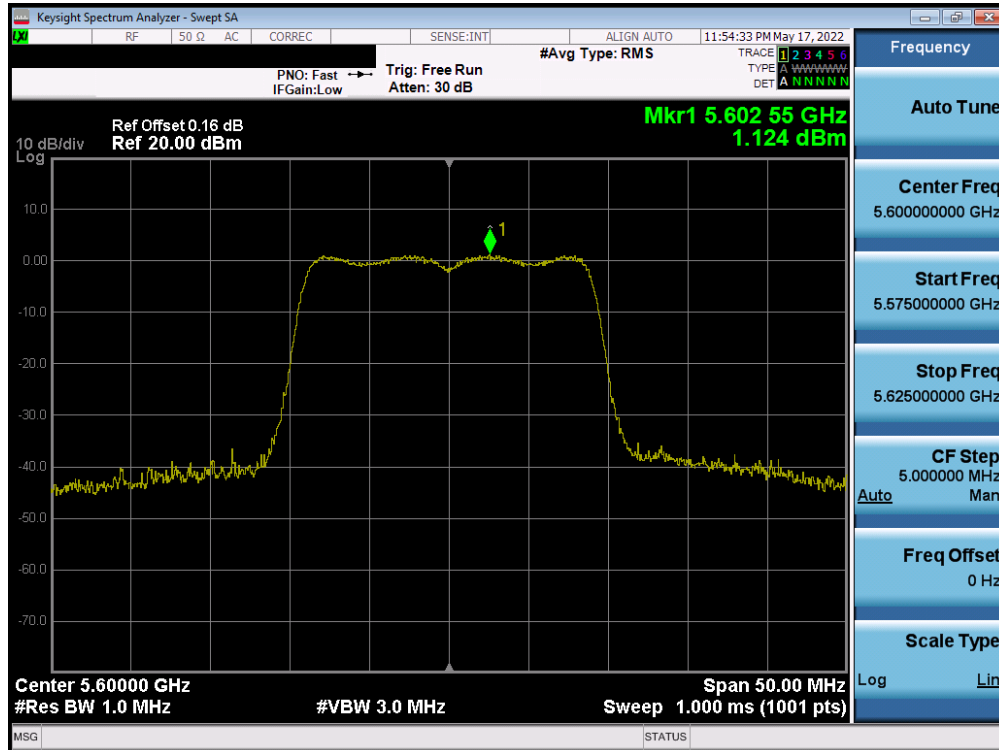


Plot 7-63. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 144)

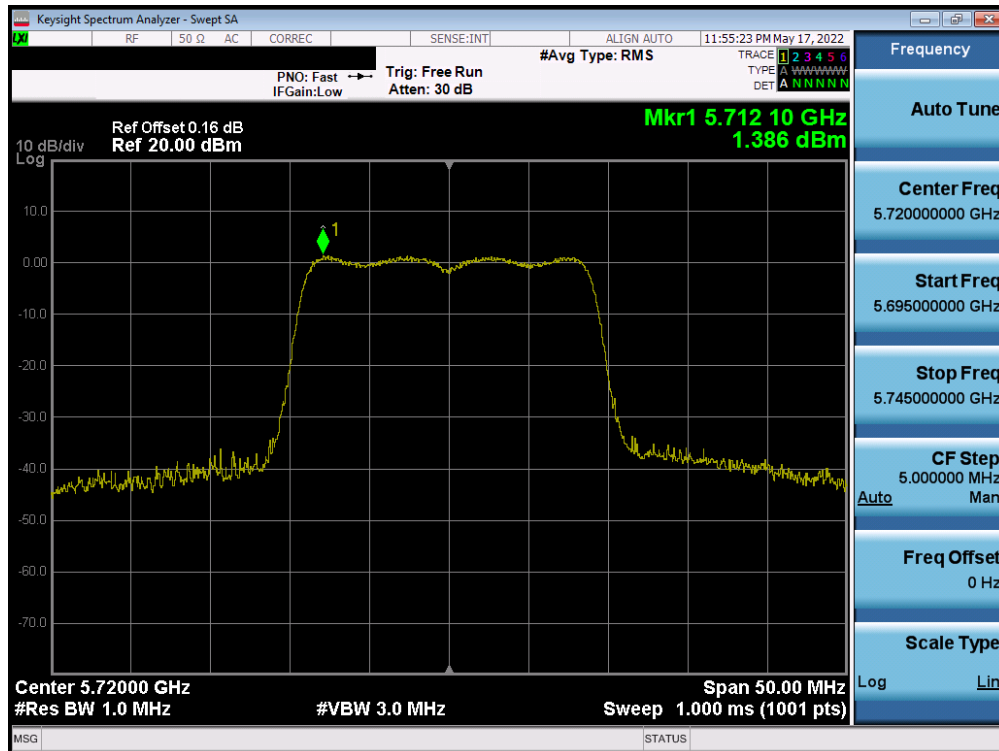


Plot 7-64. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 59 of 173



Plot 7-65. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

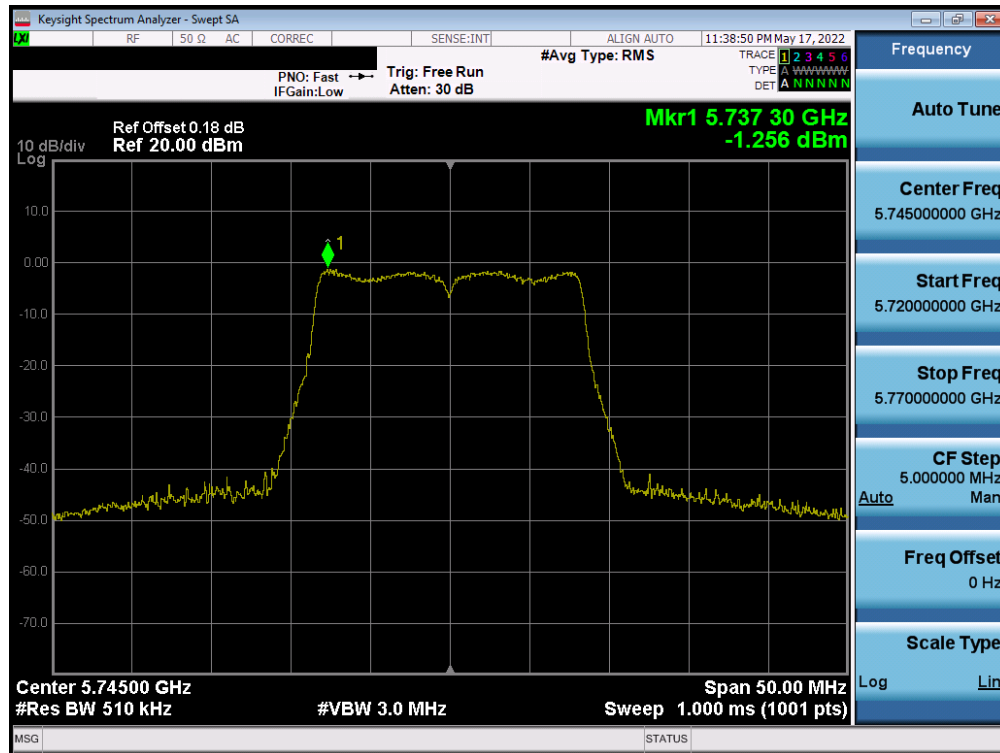


Plot 7-66. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 60 of 173

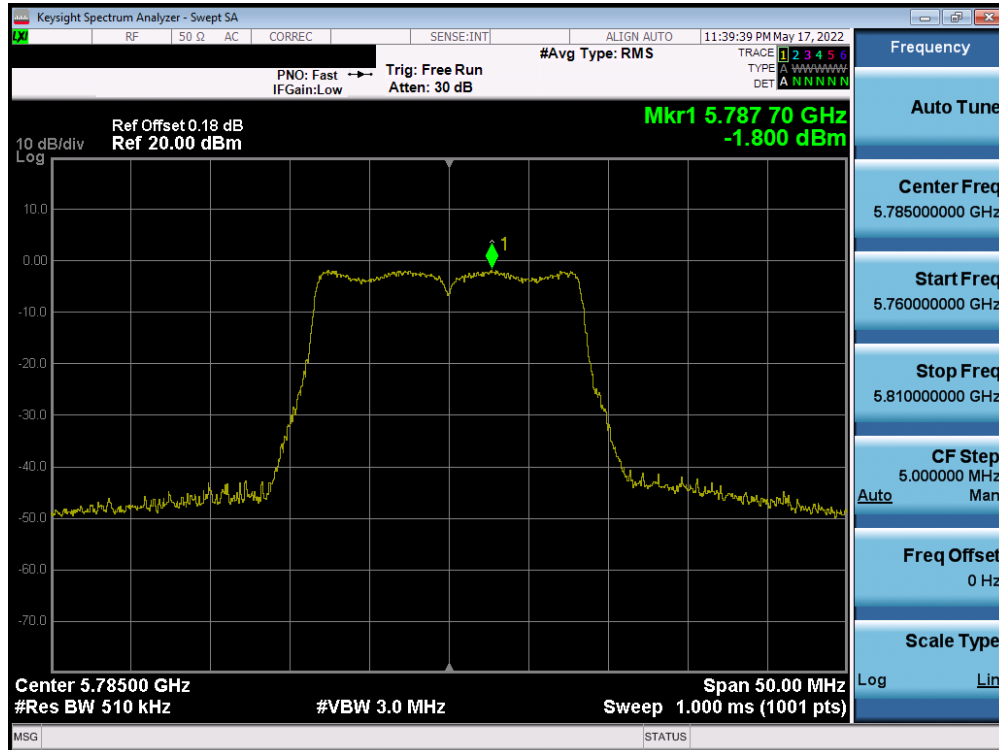
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
Band 3	5745	149	a	6	-1.26	30.0	-31.26
	5785	157	a	6	-1.80	30.0	-31.80
	5825	165	a	6	-1.92	30.0	-31.92
	5745	149	n (20MHz)	6.5/7.2 (MCS0)	-1.49	30.0	-31.49
	5785	157	n (20MHz)	6.5/7.2 (MCS0)	-1.80	30.0	-31.80
	5825	165	n (20MHz)	6.5/7.2 (MCS0)	-2.02	30.0	-32.02

Table 7-12. Band 3 Conducted Power Spectral Density Measurements SISO ANT1

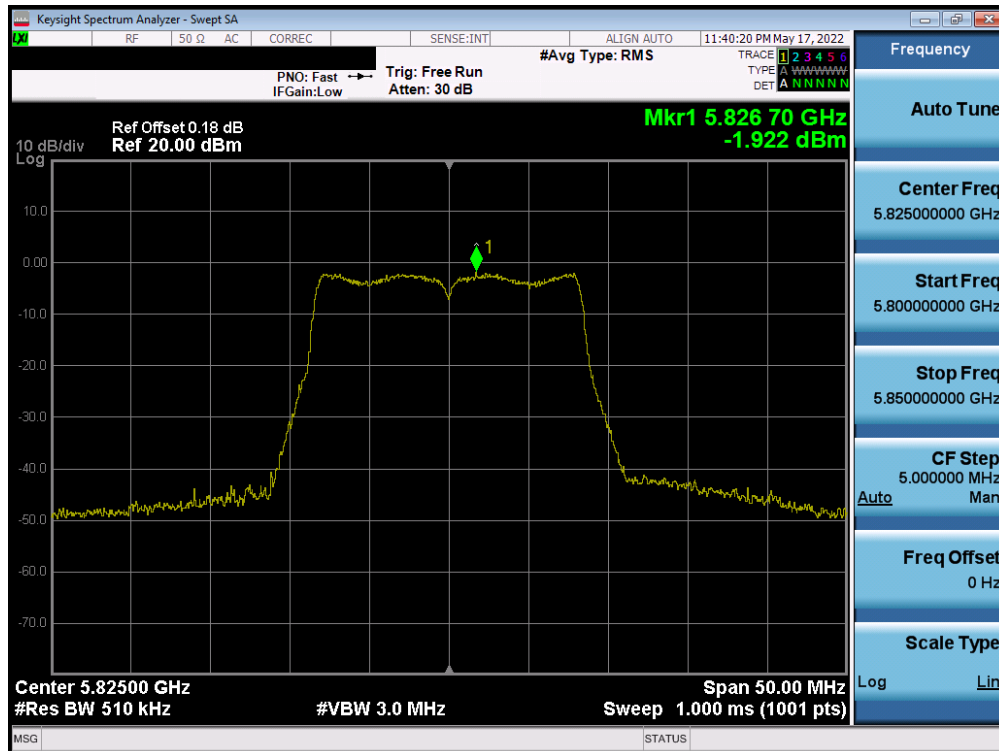


Plot 7-67. Power Spectral Density Plot SISO ANT1 (802.11a) (UNII Band 3) – Ch. 149)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 61 of 173

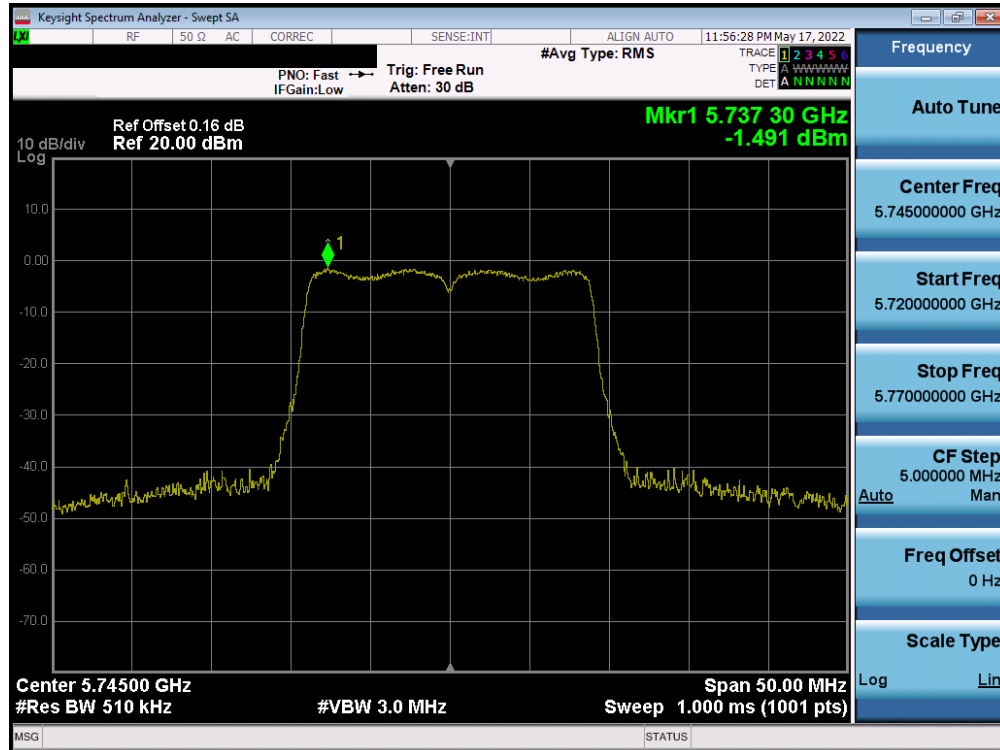


Plot 7-68. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 157)

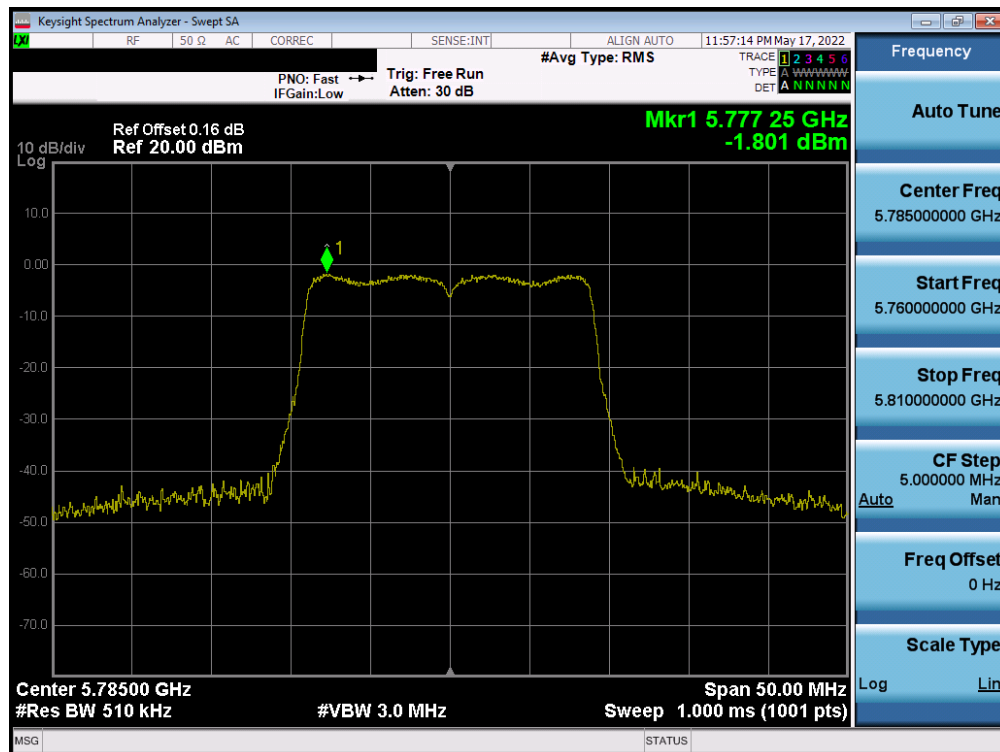


Plot 7-69. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 165)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 62 of 173

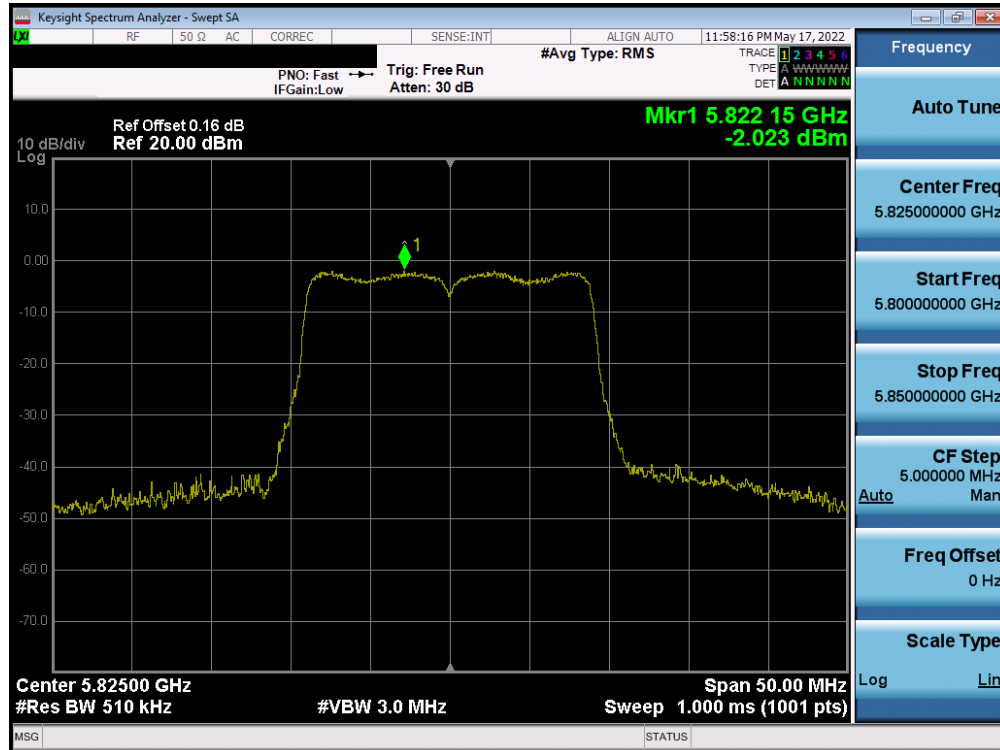


Plot 7-70. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)



Plot 7-71. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

FCC ID: V7MESLCTGA		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 63 of 173



Plot 7-72. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

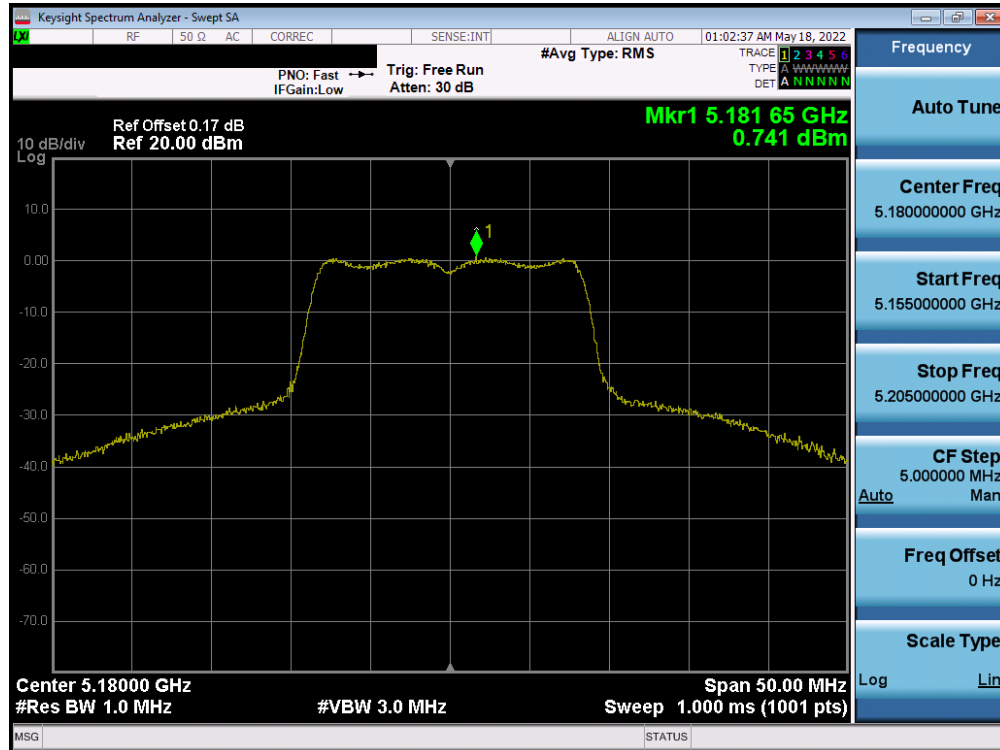
FCC ID: V7MESLCTGA	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 64 of 173

SISO Antenna-2 Power Spectral Density Measurements

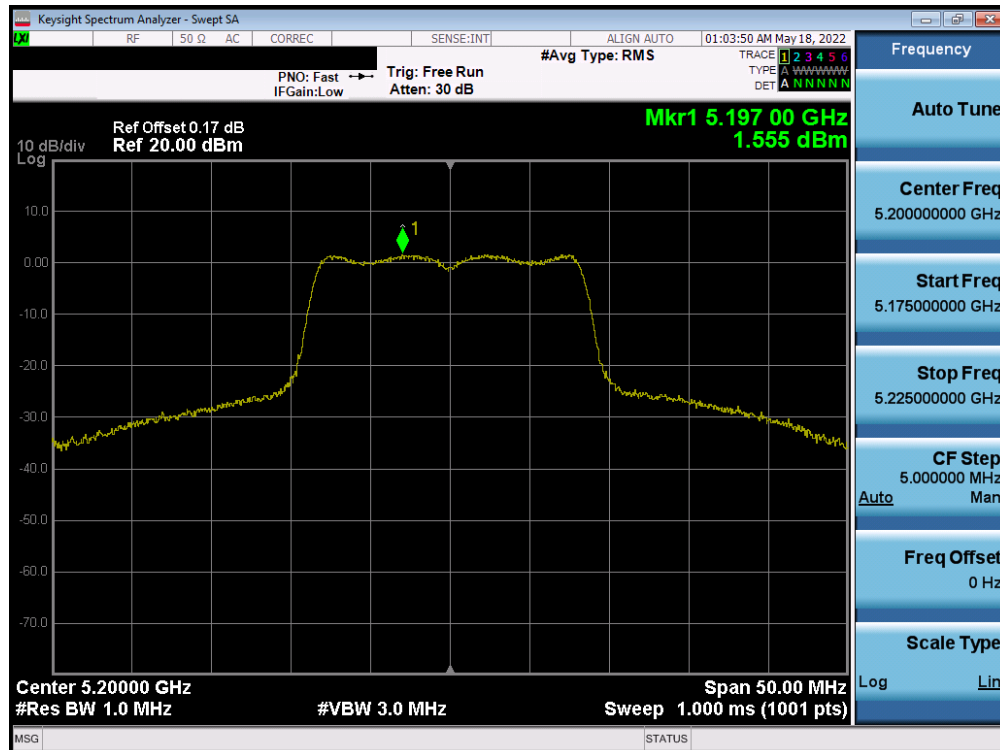
	Frequency [MHz]	Channel No.	802.11 Mode	Data Rate [Mbps]	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	a	6	0.74	17.0	-16.26
	5200	40	a	6	1.56	17.0	-15.45
	5240	48	a	6	1.95	17.0	-15.05
	5180	36	n (20MHz)	6.5/7.2 (MCS0)	-0.77	17.0	-17.77
	5200	40	n (20MHz)	6.5/7.2 (MCS0)	0.72	17.0	-16.28
	5240	48	n (20MHz)	6.5/7.2 (MCS0)	0.75	17.0	-16.25
Band 2A	5260	52	a	6	2.00	11.0	-9.00
	5280	56	a	6	2.25	11.0	-8.75
	5320	64	a	6	0.65	11.0	-10.35
	5260	52	n (20MHz)	6.5/7.2 (MCS0)	0.81	11.0	-10.19
	5280	56	n (20MHz)	6.5/7.2 (MCS0)	0.95	11.0	-10.06
	5320	64	n (20MHz)	6.5/7.2 (MCS0)	0.55	11.0	-10.45
Band 2C	5500	100	a	6	0.80	11.0	-10.20
	5600	120	a	6	1.56	11.0	-9.45
	5720	144	a	6	0.85	11.0	-10.15
	5500	100	n (20MHz)	6.5/7.2 (MCS0)	0.48	11.0	-10.52
	5600	120	n (20MHz)	6.5/7.2 (MCS0)	0.41	11.0	-10.59
	5720	144	n (20MHz)	6.5/7.2 (MCS0)	0.93	11.0	-10.07

Table 7-13. Conducted Power Spectral Density Measurements SISO ANT2

FCC ID: V7MESLCTGA	 PCTEST Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 65 of 173

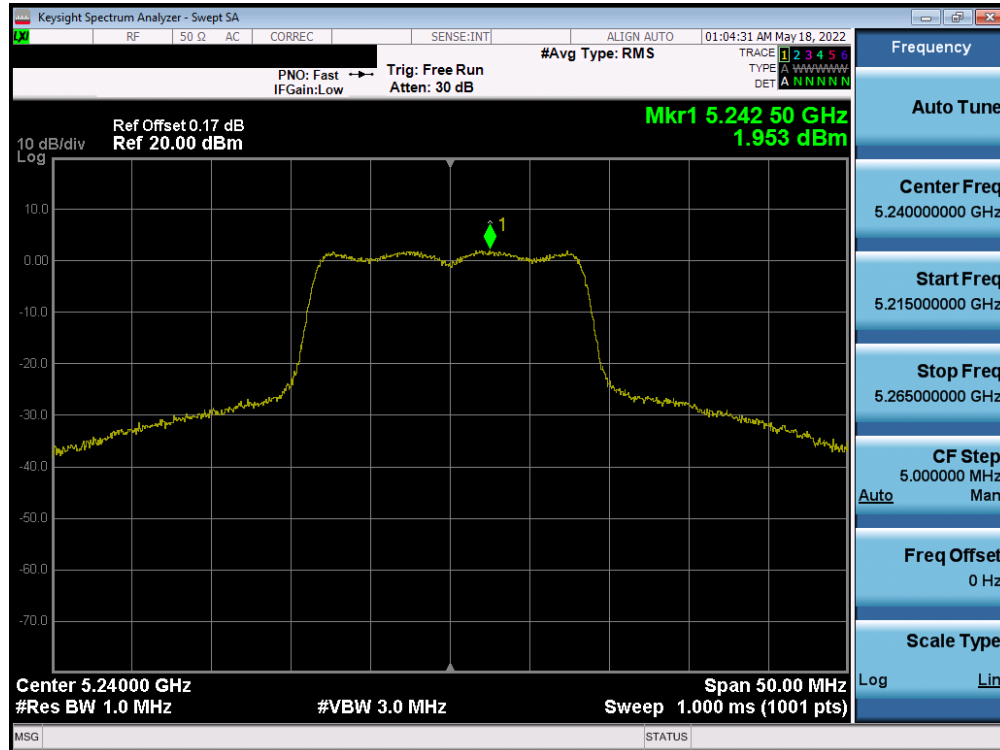


Plot 7-73. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 36)

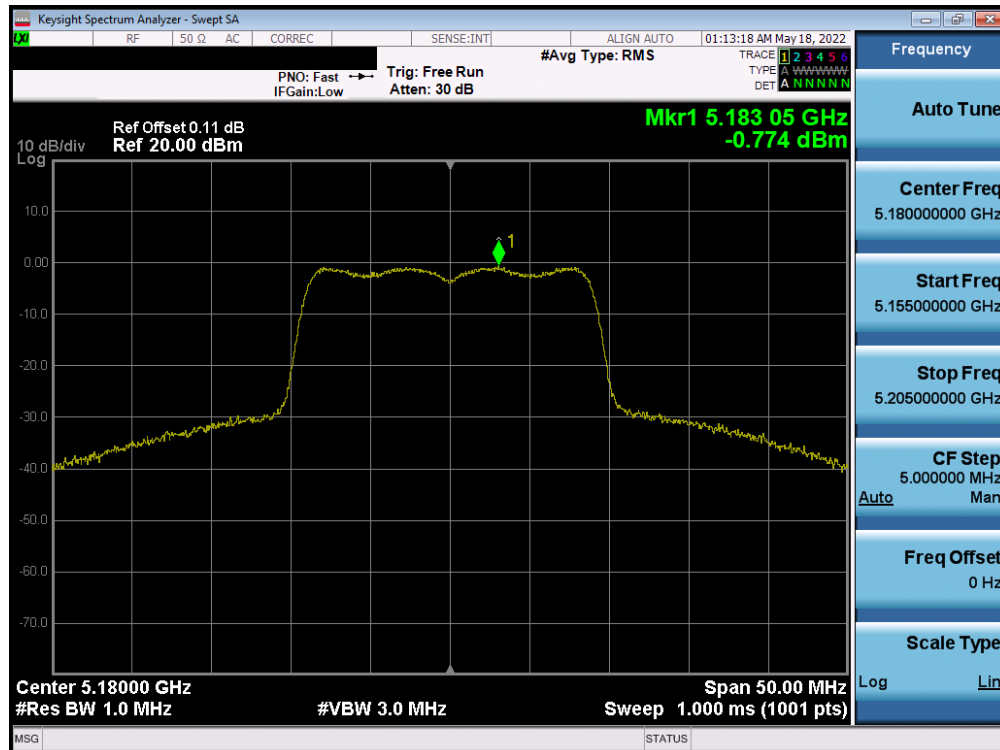


Plot 7-74. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 40)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 66 of 173

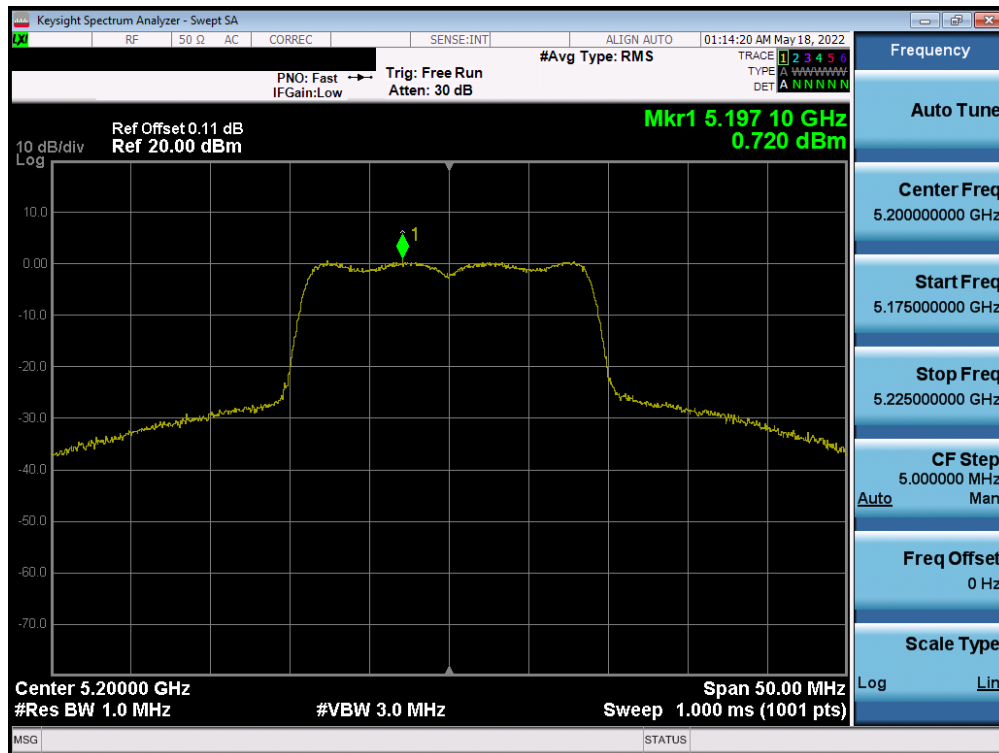


Plot 7-75. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 48)

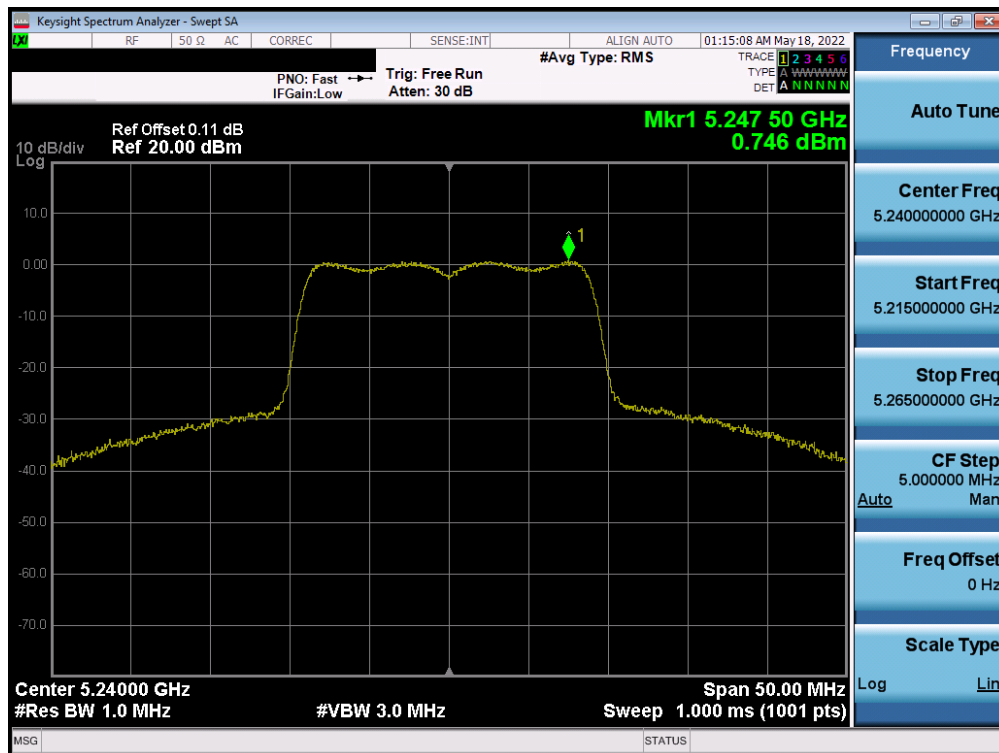


Plot 7-76. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 67 of 173

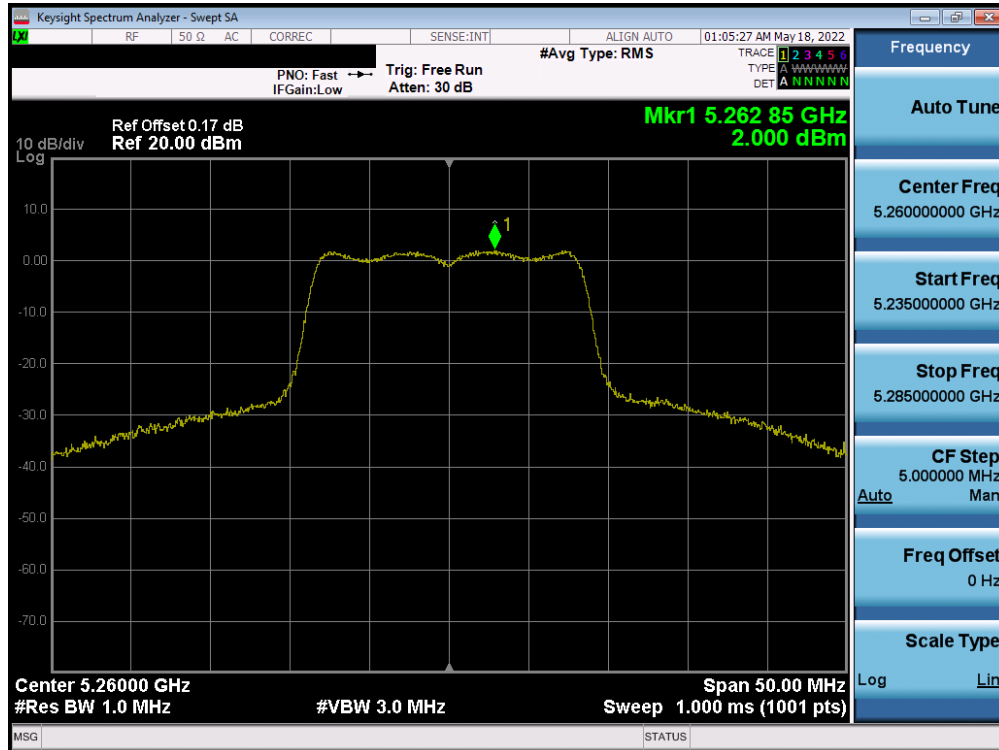


Plot 7-77. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

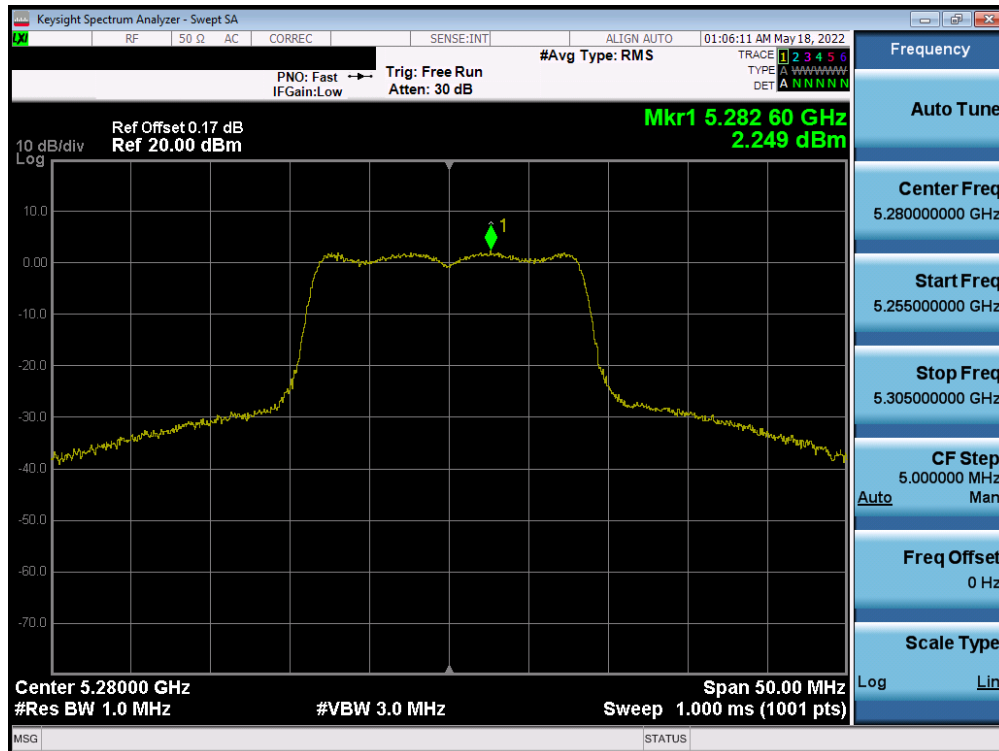


Plot 7-78. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 68 of 173

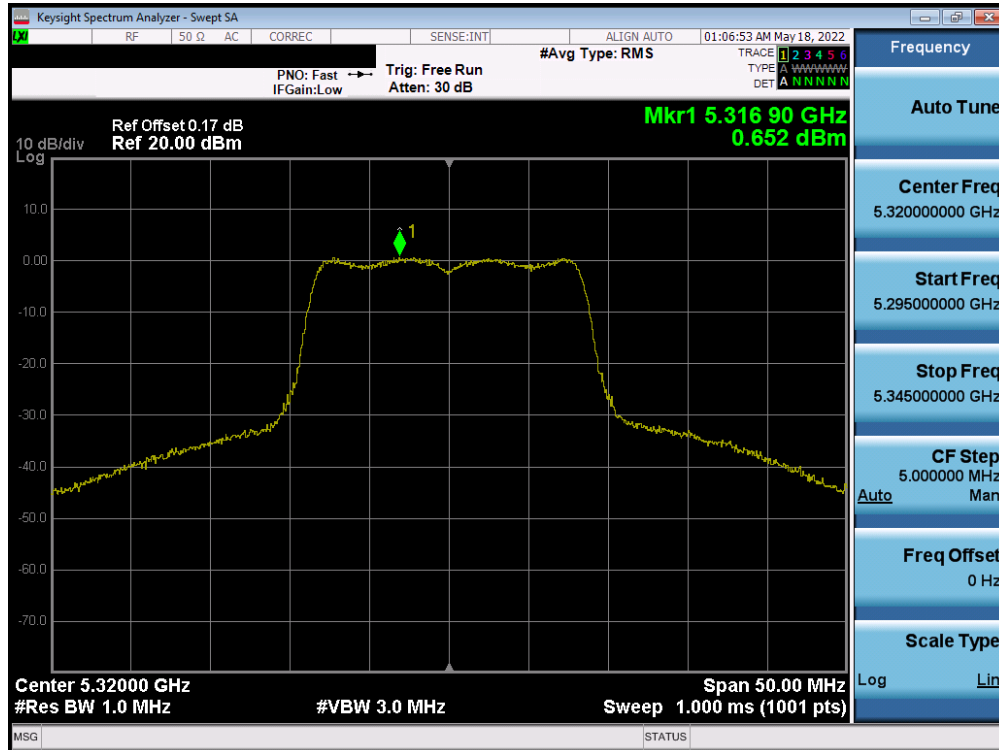


Plot 7-79. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 52)

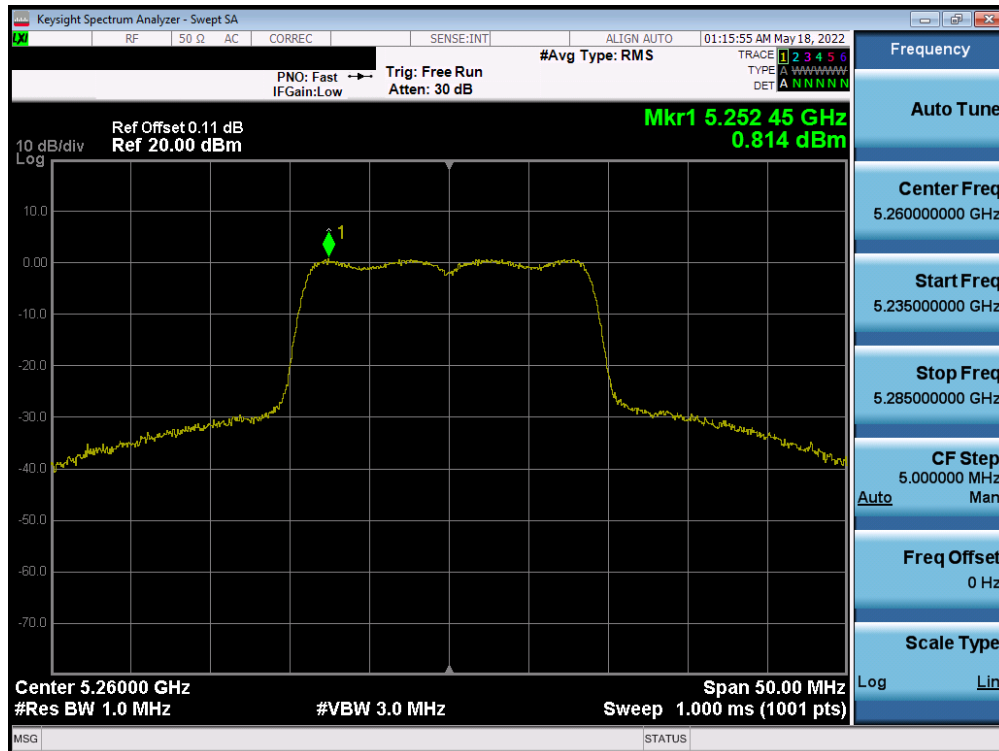


Plot 7-80. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 56)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 69 of 173

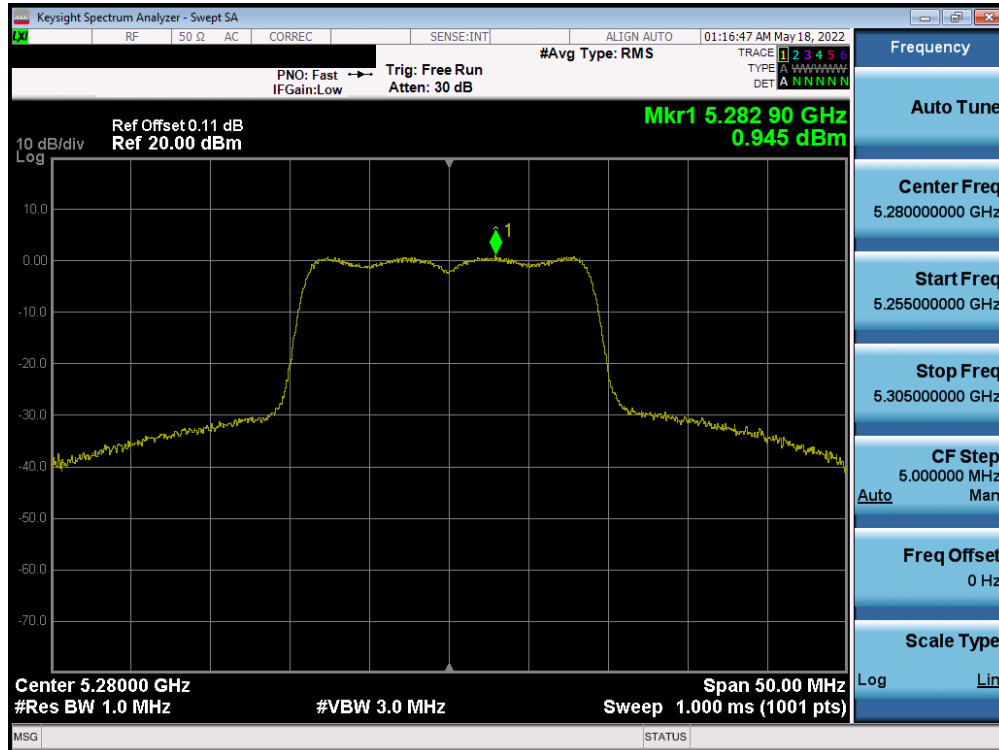


Plot 7-81. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 64)

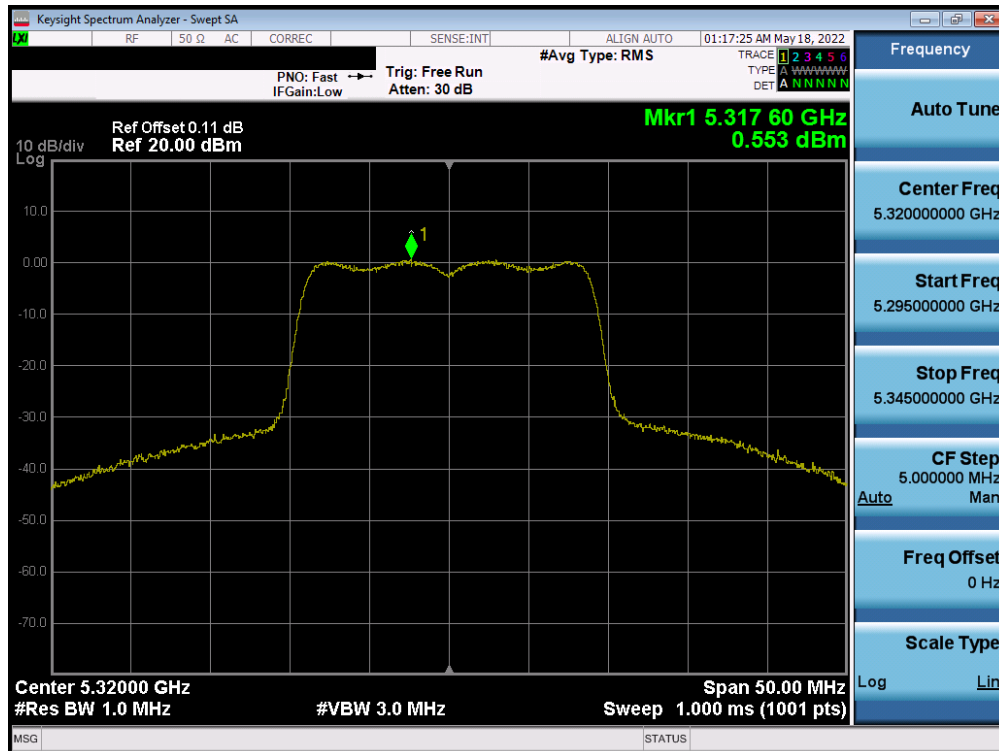


Plot 7-82. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 70 of 173

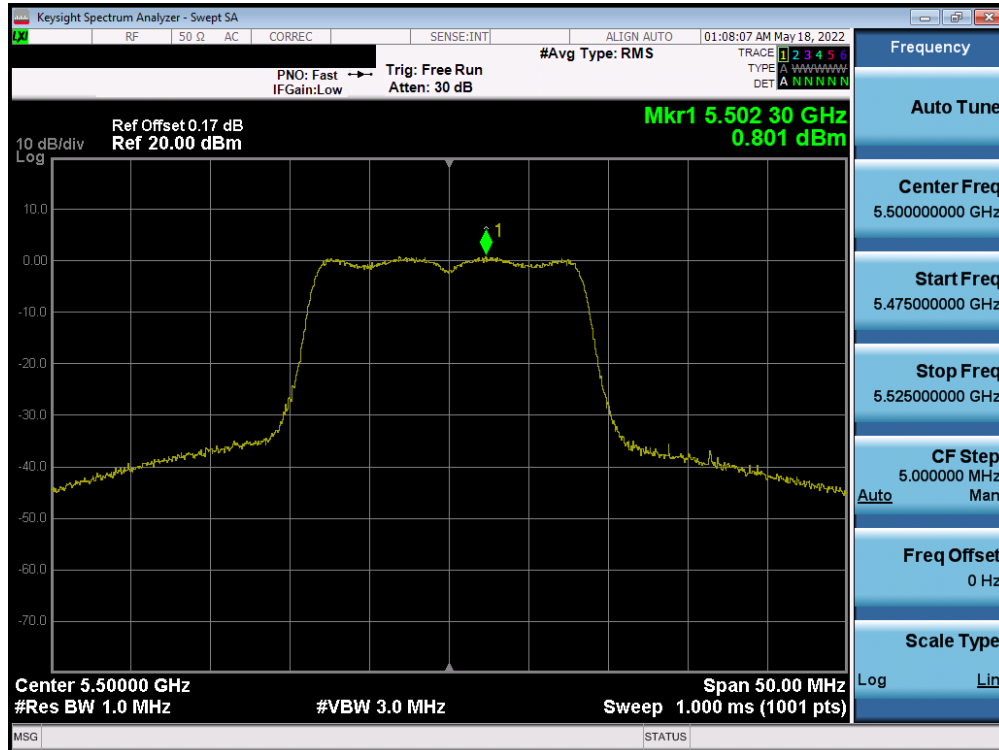


Plot 7-83. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

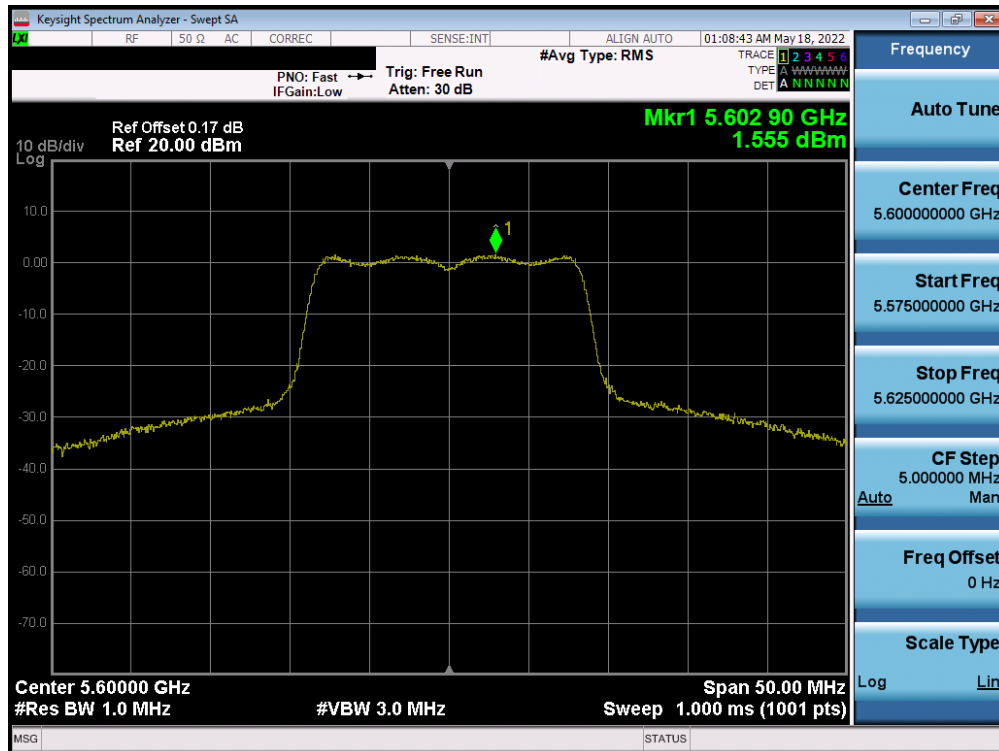


Plot 7-84. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 71 of 173

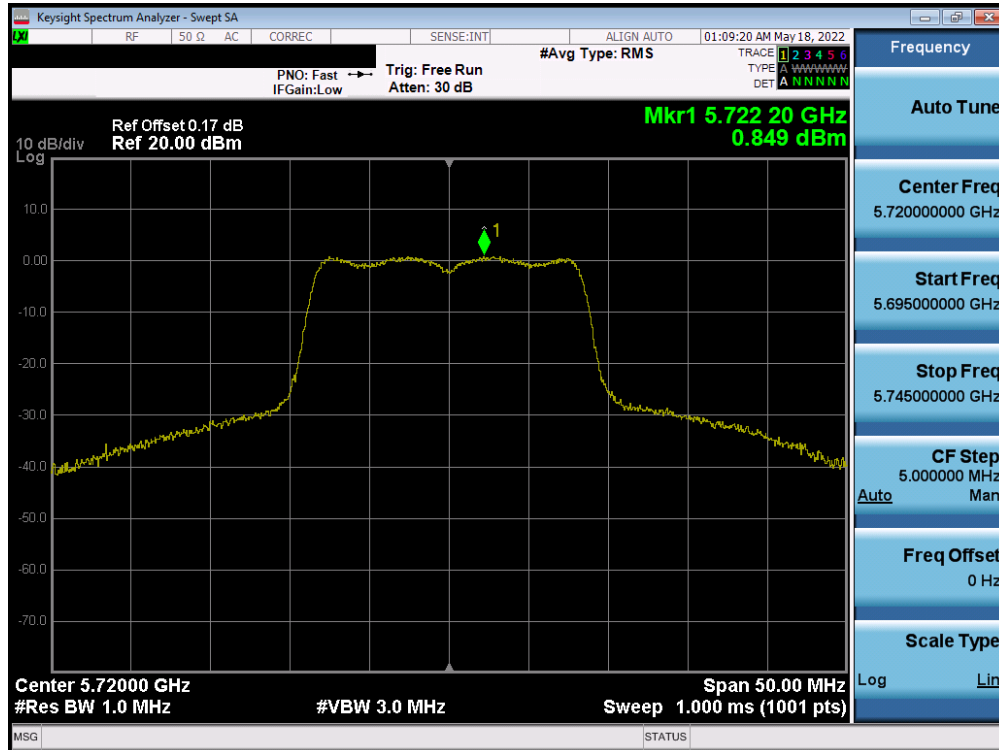


Plot 7-85. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 100)

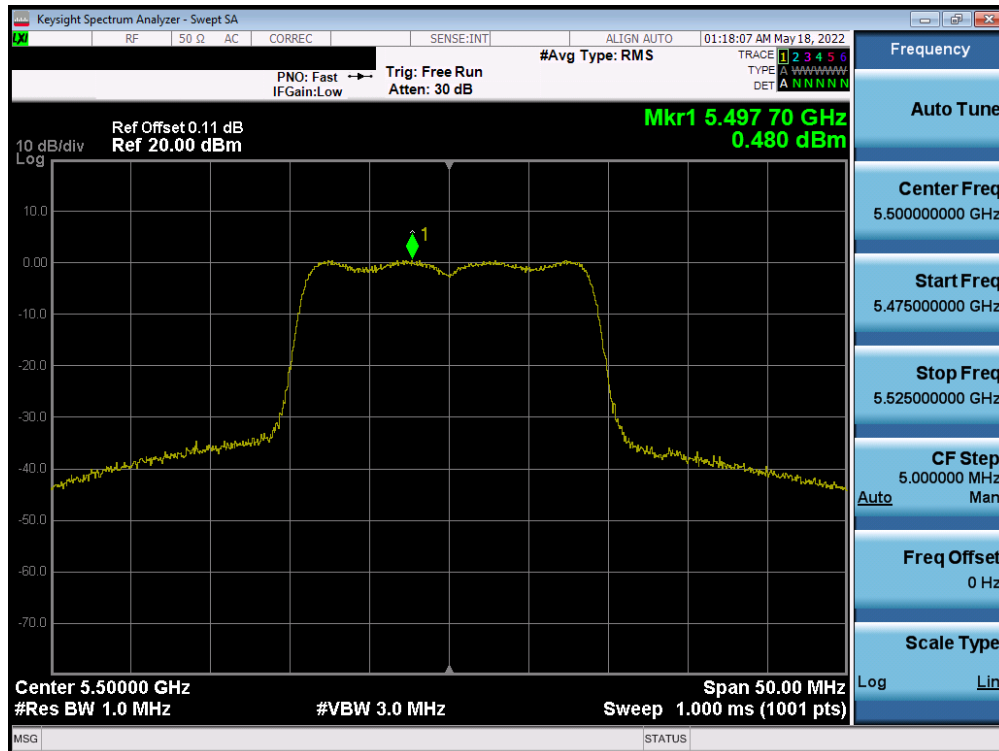


Plot 7-86. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 120)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Plot 7-87. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 144)



Plot 7-88. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: V7MESLCTGA	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1M2202090014-04.V7M	Test Dates: 02/11/2022 ~ 05/23/2022	EUT Type: LTE Indoor CPE	Page 73 of 173