CERTIFICATION TEST REPORT

Report Number. : 12216366-E4V2

Applicant	:	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	:	A2105
FCC ID	:	BCG-E3237A
EUT Description	:	SMARTPHONE
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART E

Date Of Issue:
August 27, 2018

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538 U.S.A.
TEL: (510) 771-1000
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NVLAP Lab code: 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	8/21/2018	Initial Issue	Chin Pang
V2	8/27/2018	Addressed TCB's Questions	Hung Thai

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TABLE OF CONTENTS

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: SMARTPHONE

MODEL: A2105

SERIAL NUMBER: C7CWM00CK3MD

DATE TESTED: MAY 18, 2018 – AUGUST 01, 2018

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	COMPLIES

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By:

Chin Pang
CONSUMER TECHNOLOGY DIVISION
Senior Engineer
UL Verification Services Inc.

Prepared By:

Tri Pham
CONSUMER TECHNOLOGY DIVISION
TEST ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 14-30, FCC KDB 662911 D01 v02r01, FCC KDB 905462 D02 v02/D03 v01r02/D06 v02, FCC KDB 789033 D02 v02r01, ANSI C63.10-2013, FCC 06-96.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street	47658 Kato Rd
☐ Chamber A (ISED:2324B-1)	☒ Chamber D (ISED:22541-1)	☐ Chamber K (ISED:2324A-1)
☐ Chamber B (ISED:2324B-2)	☐ Chamber E (ISED:22541-2)	☐ Chamber L (ISED:2324A-3)
☐ Chamber C (ISED:2324B-3)	☐ Chamber F (ISED:22541-3)	
	☐ Chamber G (ISED:22541-4)	
	☒ Chamber H (ISED:22541-5)	

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through C are covered under ISED company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under ISED company address code 22541 with site numbers 22541 -1 through 22541-5, respectively. Chambers K and L are covered under ISED company address code 2324A with site numbers 2324A-1 and 2324A-3, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at NVLAP Lab Search.

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4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.24 dB

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The Apple iPhone, is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, TD-SCDMA, CDMA, IEEE 802.11a/b/g/n/ac, Bluetooth, GPS and NFC. All models support at least one UICC based SIM. The second SIM is either UICC based, electronic SIM (e-SIM), or second SIM is not present. The device has a built-in inductive charging receiver which is not user accessible. The rechargeable battery is not user accessible.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.2 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.2 GHz band, 1TX			
5180-5240	802.11a	Covered by 802.11n HT20 1TX	
5180-5240	802.11n HT20	20.91	123.31
5190-5230	802.11n HT40	19.48	88.72
5180-5240	802.11ac VHT20	Covered by 802.11n HT20 1TX	
5190-5230	802.11ac VHT40	Covered by 802.11n HT40 1TX	
5210	802.11ac VHT80	17.43	55.34
5.2 GHz band, 2TX			
5180-5240	802.11n HT20 CDD	20.93	123.88
5180-5240	802.11n HT20 SDM	Covered by 802.11n HT20 2TX CDD	
5180-5240	802.11n HT20 STBC		
5190-5230	802.11n HT40 CDD	22.40	173.78
5190-5230	802.11n HT40 SDM	Covered by 802.11n HT40 2TX CDD	
5190-5230	802.11n HT40 STBC		
5180-5240	802.11ac VHT20 CDD	Covered by 802.11n HT20 2TX CDD	
5180-5240	802.11ac VHT20 SDM		
5180-5240	802.11ac VHT20 STBC		
5190-5230	802.11ac VHT40 CDD	Covered by 802.11n HT40 2TX CDD	
5190-5230	802.11ac VHT40 SDM		
5190-5230	802.11ac VHT40 STBC		
5210	802.11ac VHT80 CDD	19.42	87.50
5210	802.11ac VHT80 SDM	Covered by 802.11ac VHT80 2TX CDD	
5210	802.11ac VHT80 STBC		

5.3 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.3 GHz band, 1TX			
5260 - 5320	802.11a	Covered by 802.11n HT20 1TX	
5260 - 5320	802.11n HT20	20.95	124.45
5270 - 5310	802.11n HT40	19.44	87.90
5260 - 5320	802.11ac VHT20	Covered by 802.11n HT20 1TX	
5270 - 5310	802.11ac VHT40	Covered by 802.11n HT40 1TX	
5290	802.11ac VHT80	17.42	55.21
5.3 GHz band, 2TX			
5260 - 5320	802.11n HT20 CDD	20.91	123.31
5260 - 5320	802.11n HT20 SDM	Covered by 802.11n HT20 2TX CDD	
5260 - 5320	802.11n HT20 STBC		
5270 - 5310	802.11n HT40 CDD	22.43	174.98
5270 - 5310	802.11n HT40 SDM	Covered by 802.11n HT40 2TX CDD	
5270 - 5310	802.11n HT40 STBC		
5260 - 5320	802.11ac VHT20 CDD	Covered by 802.11n HT20 2TX CDD	
5260 - 5320	802.11ac VHT20 SDM		
5260 - 5320	802.11ac VHT20 STBC		
5270 - 5310	802.11ac VHT40 CDD	Covered by 802.11n HT40 2TX CDD	
5270 - 5310	802.11ac VHT40 SDM		
5270 - 5310	802.11ac VHT40 STBC		
5290	802.11ac VHT80 CDD	19.42	87.50
5290	802.11ac VHT80 SDM	Covered by 802.11n VHT80 2TX CDD	
5290	802.11ac VHT80 STBC		

5.6 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.6 GHz band, 1TX			
5500-5720	802.11a	Covered by 802.11n HT20 1TX	
5500-5720	802.11n HT20	20.88	122.46
5510-5710	802.11n HT40	19.43	87.70
5500-5720	802.11ac VHT20	Covered by 802.11n HT20 1TX	
5510-5710	802.11ac VHT40	Covered by 802.11n HT40 1TX	
5530-5690	802.11ac VHT80	19.42	87.50
5.6 GHz band, 2TX			
5500-5720	802.11n HT20 CDD	20.94	124.17
5500-5720	802.11n HT20 SDM	Covered by 802.11n HT20 2TX CDD	
5500-5720	802.11n HT20 STBC		
5510-5710	802.11n HT40 CDD	22.47	176.60
5510-5710	802.11n HT40 SDM	Covered by 802.11n HT40 2TX CDD	
5510-5710	802.11n HT40 STBC		
5500-5720	802.11ac VHT20 CDD	Covered by 802.11n HT20 2TX CDD	
5500-5720	802.11ac VHT20 SDM		
5500-5720	802.11ac VHT20 STBC		
5510-5710	802.11ac VHT40 CDD	Covered by 802.11n HT40 2TX CDD	
5510-5710	802.11ac VHT40 SDM		
5510-5710	802.11ac VHT40 STBC		
5530-5690	802.11ac VHT80 CDD	22.45	175.79
5530-5690	802.11ac VHT80 SDM	Covered by 802.11ac VHT80 2TX CDD	
5530-5690	802.11ac VHT80 STBC		

5.8 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.8 GHz band, 1TX			
5745-5825	802.11a	Covered by 802.11 HT20 1TX	
5745-5825	802.11n HT20	21.48	140.60
5755-5795	802.11n HT40	19.44	87.90
5745-5825	802.11ac VHT20	Covered by 802.11 HT20 1TX	
5755-5795	802.11ac VHT40	Covered by 802.11 HT40 1TX	
5775	802.11ac VHT80	19.40	87.10
5.8 GHz band, 2TX			
5745-5825	802.11n HT20 CDD	24.47	279.90
5745-5825	802.11n HT20 SDM	Covered by 802.11 HT20 2TX CDD	
5745-5825	802.11n HT20 STBC		
5755-5795	802.11n HT40 CDD	22.44	175.39
5755-5795	802.11n HT40 SDM	Covered by 802.11 HT40 2TX CDD	
5755-5795	802.11n HT40 STBC		
5745-5825	802.11ac VHT20 CDD	Covered by 802.11 HT20 2TX CDD	
5745-5825	802.11ac VHT20 SDM		
5745-5825	802.11ac VHT20 STBC		
5755-5795	802.11ac VHT40 CDD	Covered by 802.11 HT40 2TX CDD	
5755-5795	802.11ac VHT40 SDM		
5755-5795	802.11ac VHT40 STBC		
5775	802.11ac VHT80 CDD	22.43	174.98
5775	802.11ac VHT80 SDM	Covered by 802.11ac VHT80 2TX CDD	
5775	802.11ac VHT80 STBC		

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Range (GHz)	Antenna 4 (dBi)	Antenna 5 (dBi)
5.2	-5.3	-5.0
5.3	-5.0	-5.2
5.6	-3.8	-3.9
5.8	-3.7	-4.9

5.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was v1.29.99992

The test utility software used during testing was QRCT v3.0.264.0.

5.5. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z on Ant 6 (Antenna 6) and Ant 5 (Antenna 5), it was determined that X (Flatbed) orientation was the worst-case orientation for Ant 4; and Y (Landscape) orientation was the worst case for Ant 5 and 2TX.

For radiated harmonics spurious below 1GHz, 1-18GHz L/M/H channels, 18-40GHz, and power line conducted emissions were performed with the EUT set at the 2TX CDD mode among the CDD/SDM modes with power setting equal or higher than SISO modes as worst-case scenario.

Radiated band edge, harmonic, and spurious emissions from 1GHz to 18GHz were performed with the EUT was set to transmit at highest power on Low/Middle/High channels.

Below 1GHz tests were performed with EUT connected to AC power adapter as the worst case; and for above 1GHz, the worst-case configuration reported was tested with EUT only. For AC line conducted emission, test was investigated with AC power adapter and with laptop.

There were no emissions found below 30MHz within 20dB of the limit.

For simultaneous transmission with the Bluetooth was investigated, no noticeable emission was found.

Worst-case data rates as provided by the client were:

802.11n HT20mode: MCS0
802.11n HT40mode: MCS0
802.11ac VHT80 mode: MCS0

There are two vendors of the WiFi/Bluetooth radio modules: variant 1 and variant 2. The Wi-Fi/Bluetooth radio modules have the same mechanical outline (e.g., the same package dimension and pin-out layout), use the same on-board antenna matching circuit, have an identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances.

Baseline testing was performed on the two variants to determine the worst case on all conducted power and radiated emissions.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Apple	MacBook Pro	C02PM012G3QD	FCC DoC
AC/DC Adapter	Delta Electronic	A1286	N/A	N/A
Dongle	N/A	N/A	N/A	NA

I/O CABLES (CONDUCTED TEST)

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	Antenna	1	SMA	Un-Shielded	0.2	To spectrum Analyzer
2	USB	1	USB	Shielded	1	N/A
3	AC	1	AC	Un-shielded	2	N/A

I/O CABLES (RADIATED ABOVE 1 GHZ)

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
None Used						

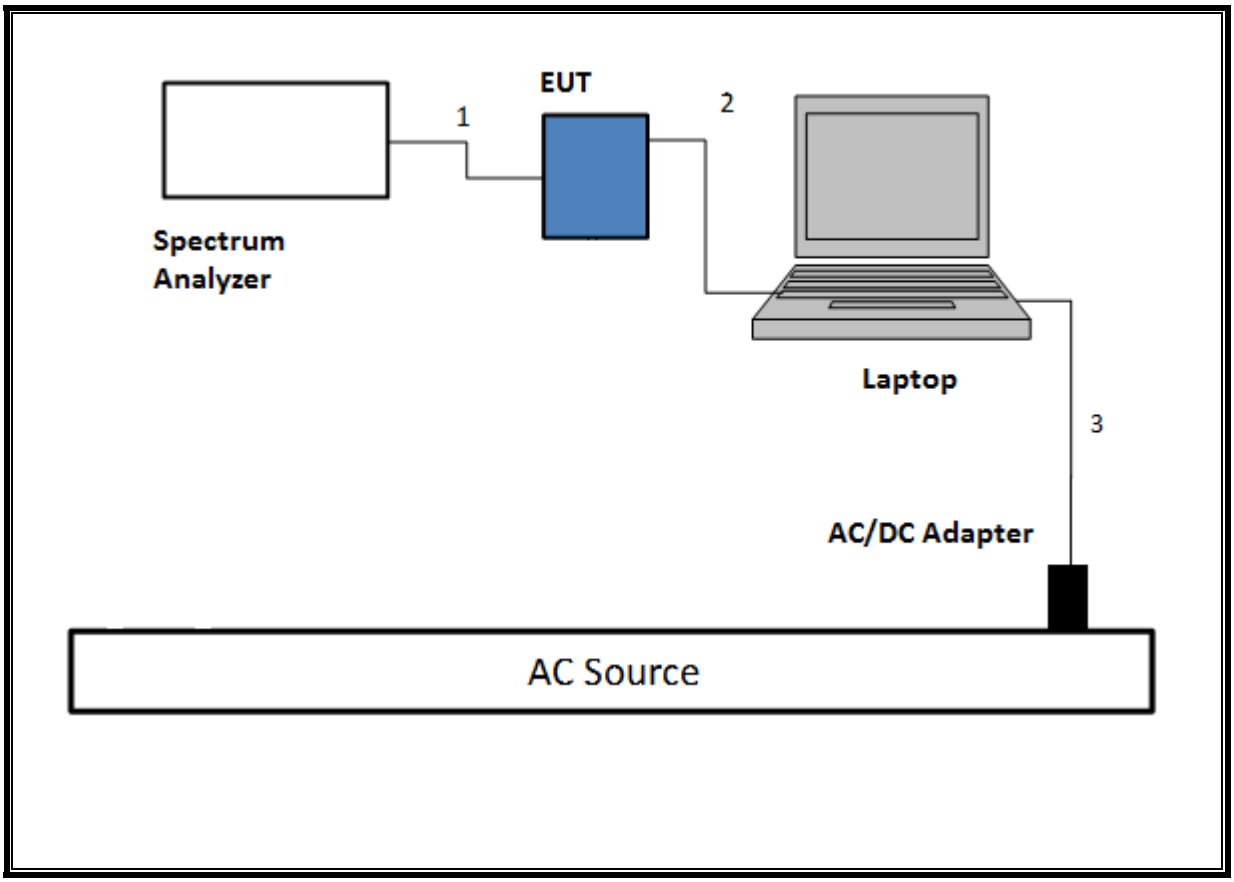
I/O CABLES (AC POWER CONDUCTED TEST AND BELOW 1 GHZ)

I/O Cable List						
Cable No	**Port**	**# of identical**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Un-shielded	1	N/A

TEST SETUP CONDUCTED PORT

The EUT is connected to a test laptop during the tests. Test software exercised the EUT

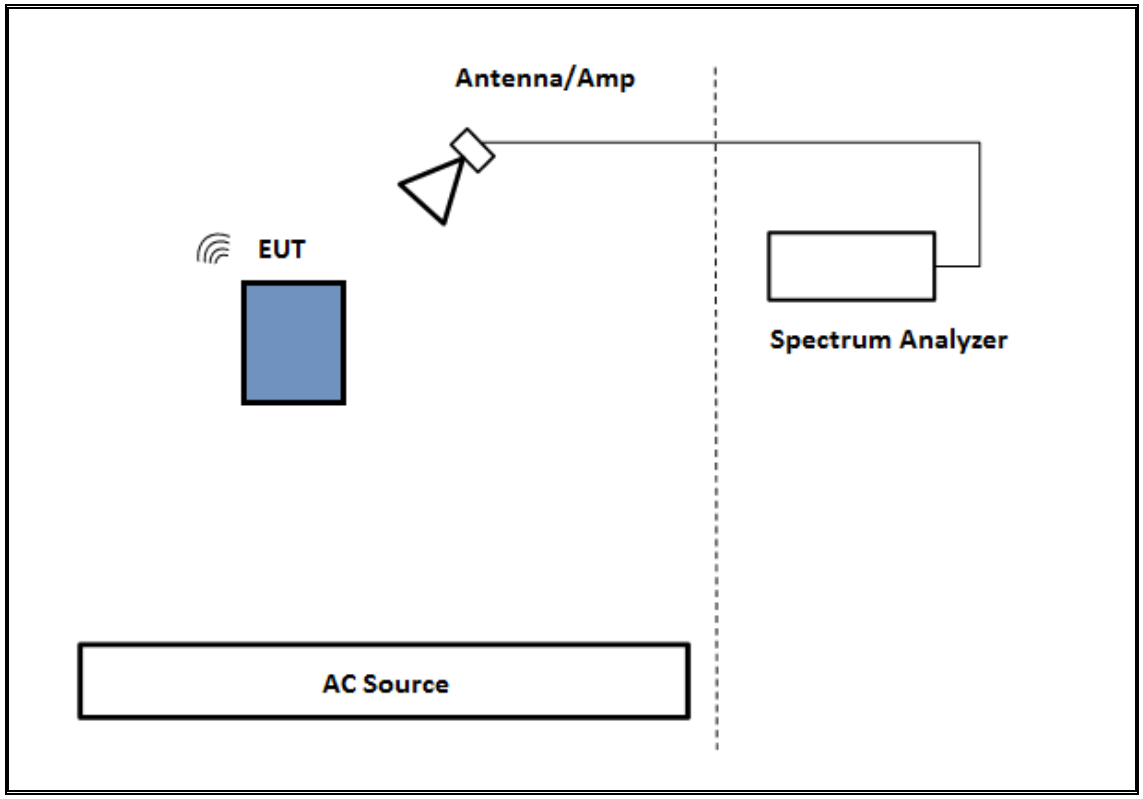
SETUP DIAGRAM FOR CONDUCTED TESTS



TEST SETUP- RADIATED-ABOVE 1 GHZ

The EUT was powered by Battery. Test software exercised the EUT.

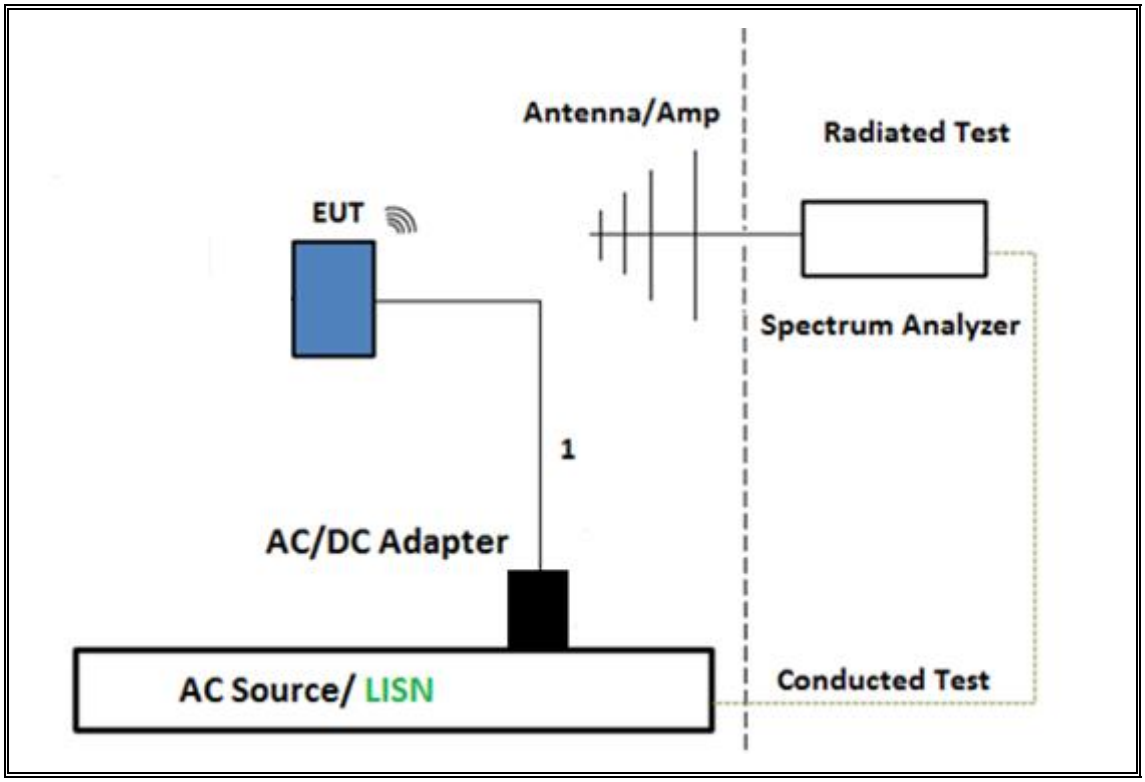
SETUP DIAGRAM



TEST SETUP- BELOW 1GHZ & AC LINE CONDUCTED TESTS

The EUT was powered by AC cord. Test software exercised the EUT.

SETUP DIAGRAM



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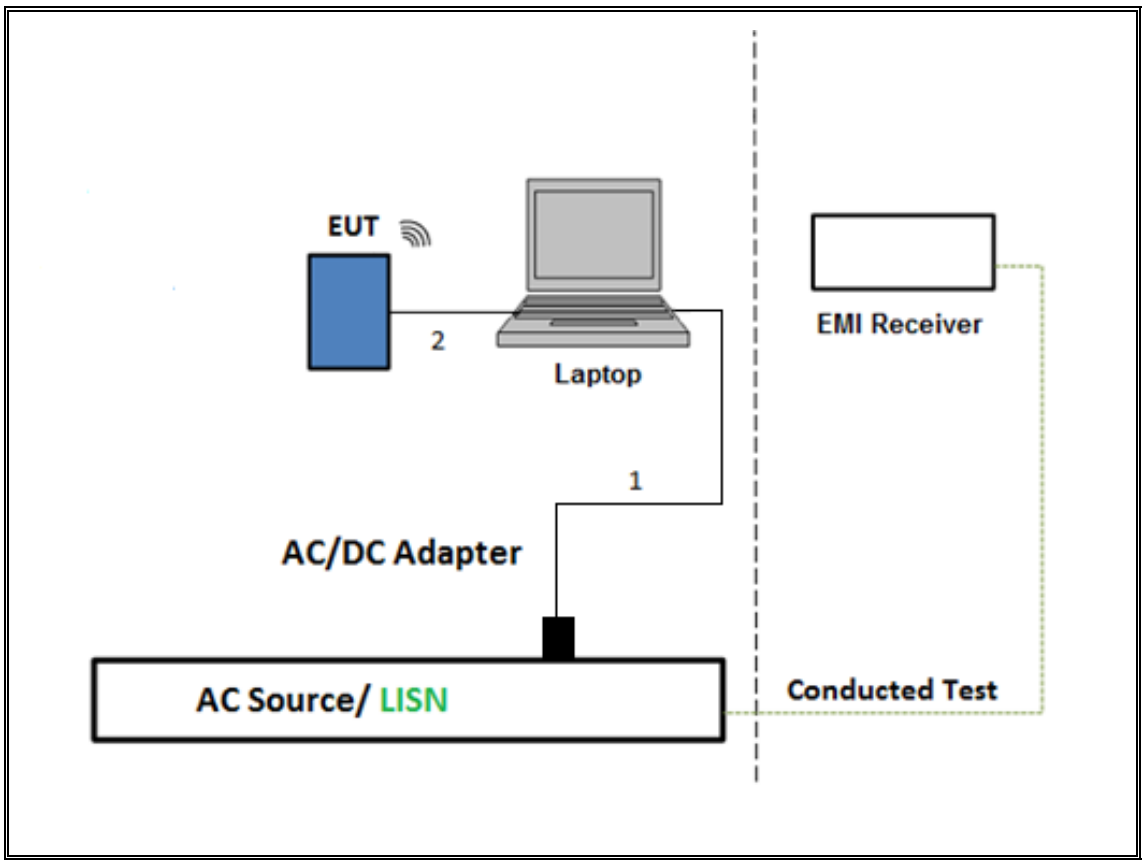
TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION



6. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 789033 D02 v02r01, Section B.

6 dB Emission BW: KDB 789033 D02 v02r01, Section C.2

26 dB Emission BW: KDB 789033 D02 v02r01, Section C.1

99% Occupied BW: KDB 789033 D02 v02r01, Section D.

Conducted Output Power: KDB 789033 D02 v02r01, Section E.3.b (Method PM-G) and KDB 789033 D02 v02r01, Section E.2.b (Method SA-2)

Power Spectral Density: KDB 789033 D02 v02r01, Section F

Unwanted emissions in restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, and G.5.

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

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7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Description	Manufacturer	Model	ID Num	Cal Due
*Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T862	05/24/2018
**Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T862	05/24/2019
*Antenna, Horn 1-18GHz	ETS Lindgren	3117	T136	06/26/2018
**Antenna, Horn 1-18GHz	ETS Lindgren	3117	T136	07/02/2019
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T346	04/03/2019
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T345	04/25/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB1	T185	04/19/2019
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T835	12/15/2018
*Amplifier, 1 to 18GHz, 35dB	Amplical	AMP1G18-35	T1569	06/03/2018
**Amplifier, 1 to 18GHz, 35dB	Amplical	AMP1G18-35	T1569	06/03/2019
*Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T1165	06/12/2018
**Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T1165	06/12/2019
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T740	12/30/2018
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T741	12/30/2018
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T1131	12/30/2018
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T340	12/15/2018
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T906	02/16/2019
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1454	01/08/2019
Spectrum Analyzer, PSA, 3Hz to 44GHz	Agilent (Keysight) Technologies	E4446A	T177	04/12/2019
Antenna, Active Loop 9KHz to 30MHz	ETS-Lindgren	6502	T757	09/14/2018
Power Meter, P-series single channel	Agilent (Keysight) Technologies	N1911A	T227	10/27/2018
Power Sensor	Keysight	N1921A	T1226	08/30/2018
Antenna Horn, 18 to 26GHz	ARA	MWH-1826	T89	01/18/2019
*Pre-Amp 18-26GHz	Agilent Technology	8449B	T404	07/23/2018
Antenna Horn 26-40GHz	ARA	MWH-2640	T90	08/25/2018
Amplifier, 26GHz to 40GHz	Miteq	TTA2640-35-HG	T1864	03/09/2019
AC Line Conducted				
EMI Test Receiver 9Khz-7GHz	Rohde & Schwarz	ESCI7	T1436	01/25/2019
Power Cable, Line Conducted Emissions	UL	PG1	T861	08/31/2018
**LISN for Conducted Emissions CISPR-16	Fischer	50/250-25-2-01	T1310	06/19/2019

UL AUTOMATION SOFTWARE			
Radiated Software	UL	UL EMC	Ver 9.5, April 26, 2016
Conducted Software	UL	UL EMC	Ver 5.4, October 13, 2016
AC Line Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015

Note:
*Testing is completed before equipment expiration date.
**Testing was done after calibration due date.

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8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11n HT20 1TX/2TX	1.920	1.940	0.990	98.97%	0.00	0.010
802.11n HT40 1TX/2TX	0.943	0.965	0.978	97.77%	0.10	1.060
802.11ac VHT80 1TX/2TX	0.461	0.482	0.956	95.64%	0.19	2.171

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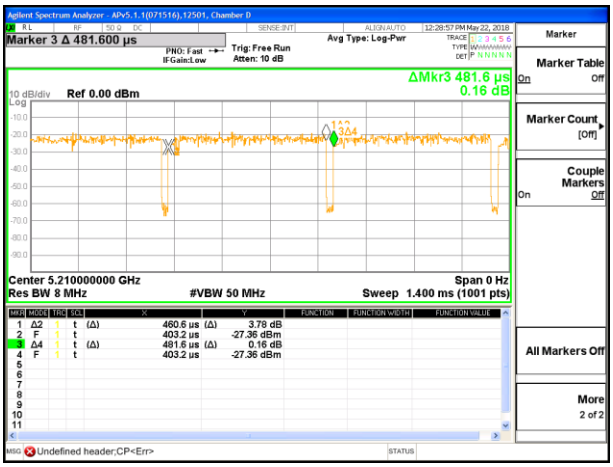
DUTY CYCLE PLOTS

DUTY CYCLE 802.11n HT20 1TX/2TX MODE

DUTY CYCLE 802.11n HT40 1TX/2TX MODE



DUTY CYCLE 802.11ac VHT80 1TX/2TX MODE

8.2. 26 dB BANDWIDTH

LIMITS

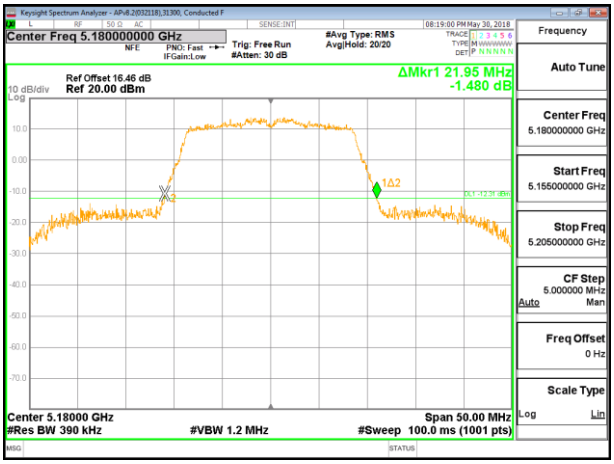
None; for reporting purposes only.

RESULTS

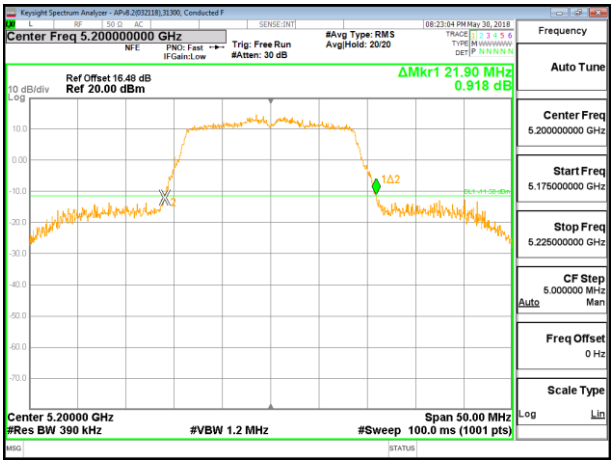
8.2.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND

1TX Antenna 4

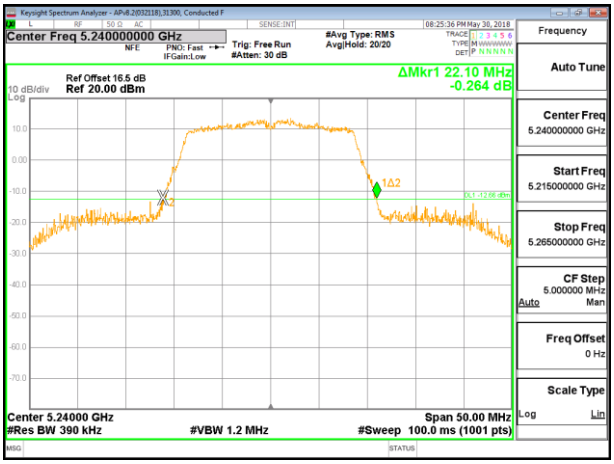
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	21.95
Mid	5200	21.90
High	5240	22.10



LOW CHANNEL



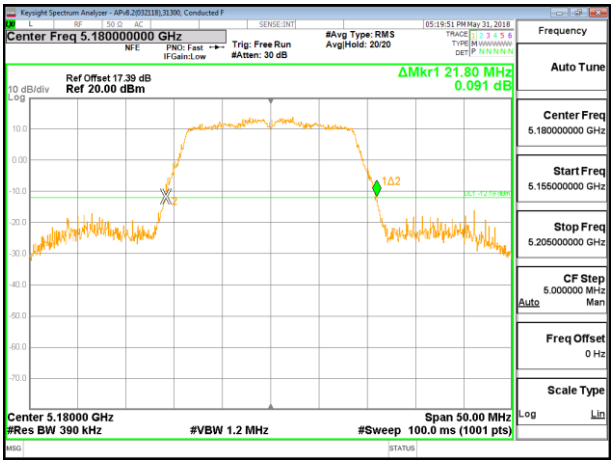
MID CHANNEL



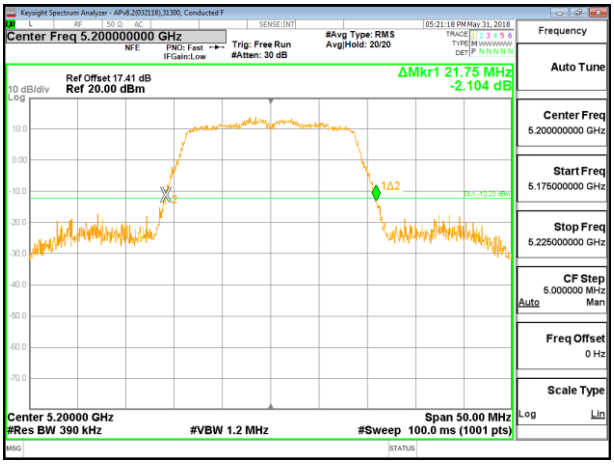
HIGH CHANNEL

1TX ANTENNA 5

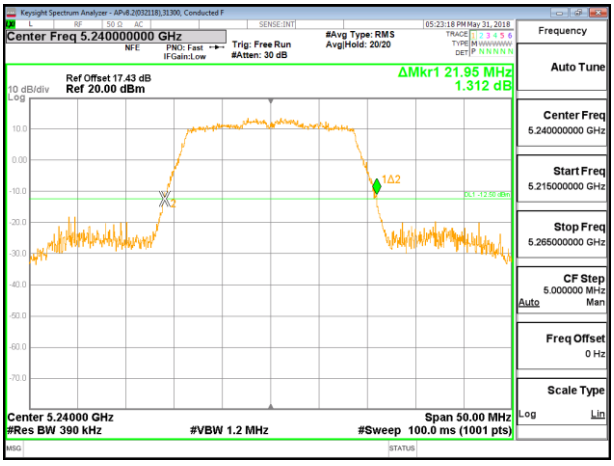
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	21.80
Mid	5200	21.75
High	5240	21.95



LOW CHANNEL



MID CHANNEL

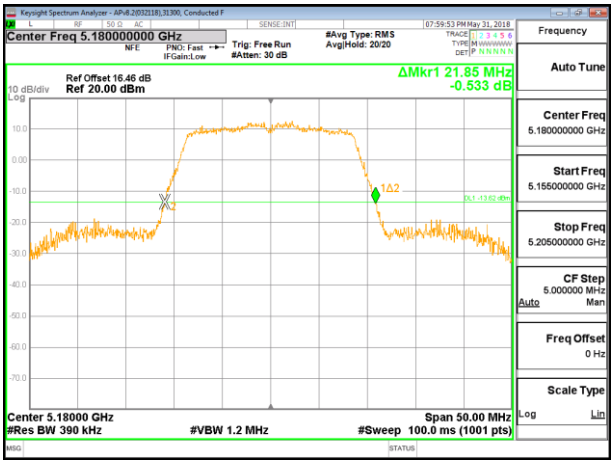


HIGH CHANNEL

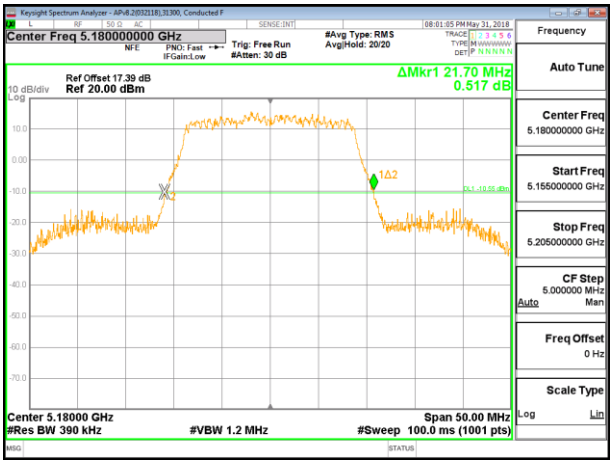
2TX Antenna 4 + ANTENNA 5 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Ant 4 (MHz)	26 dB Bandwidth Ant 5 (MHz)
Low	5180	21.85	21.70
Mid	5200	21.85	21.65
High	5240	21.90	21.45

LOW CHANNEL

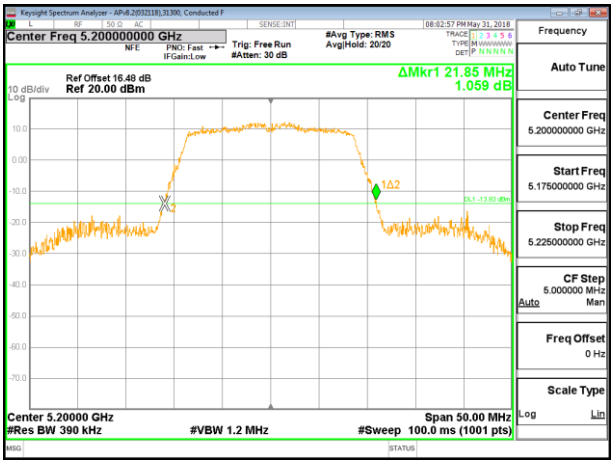


LOW CHANNEL ANTENNA 4

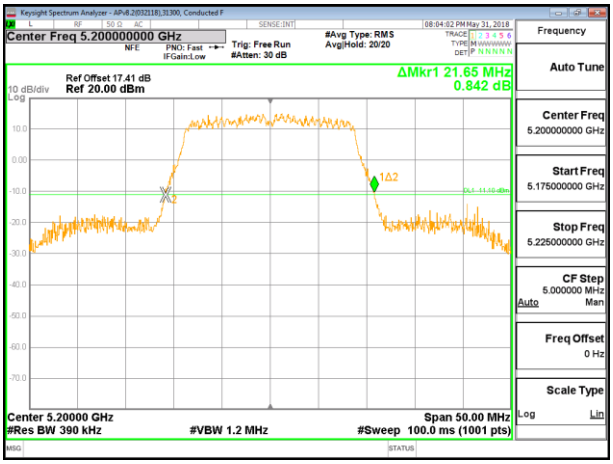


LOW CHANNEL ANTENNA 5

MID CHANNEL



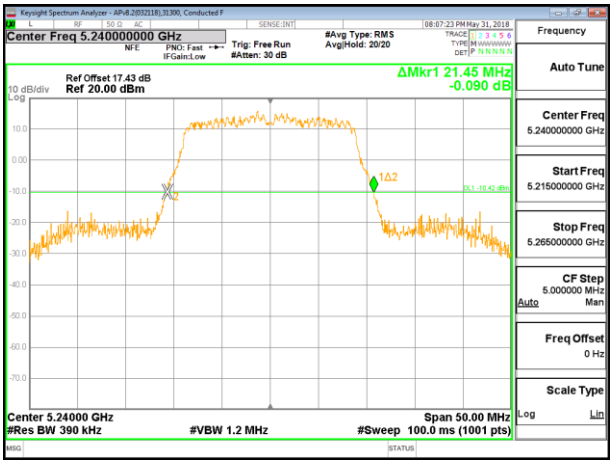
MID CHANNEL ANTENNA 4



MID CHANNEL ANTENNA 5

HIGH CHANNEL

HIGH CHANNEL ANTENNA 4



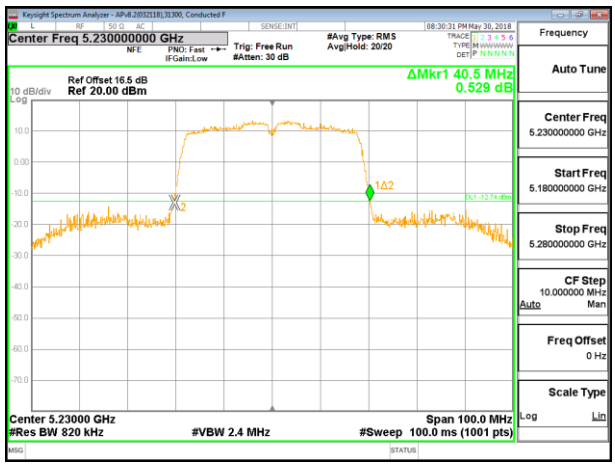
HIGH CHANNEL ANTENNA 5

8.2.2. 802.11n HT40 MODE IN THE 5.2 GHz BAND

1TX Antenna 4

Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5190	40.60
High	5230	40.50

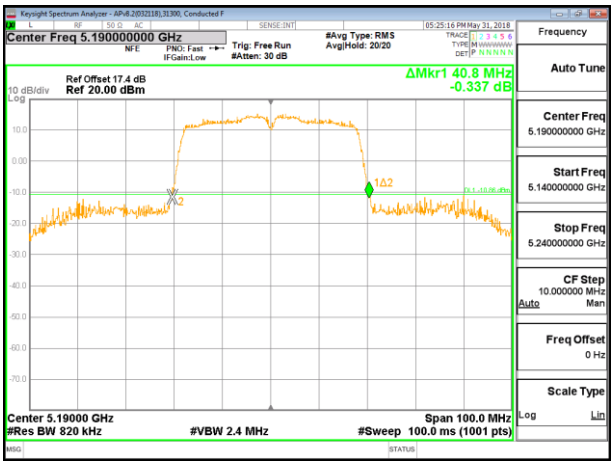
LOW CHANNEL



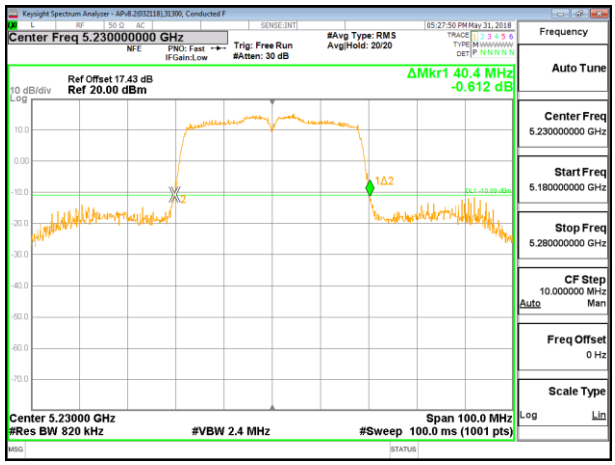
HIGH CHANNEL

1TX ANTENNA 5

Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5190	40.80
High	5230	40.40



LOW CHANNEL

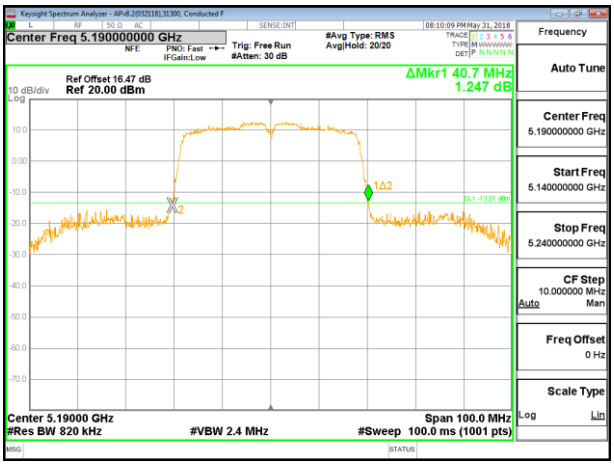


HIGH CHANNEL

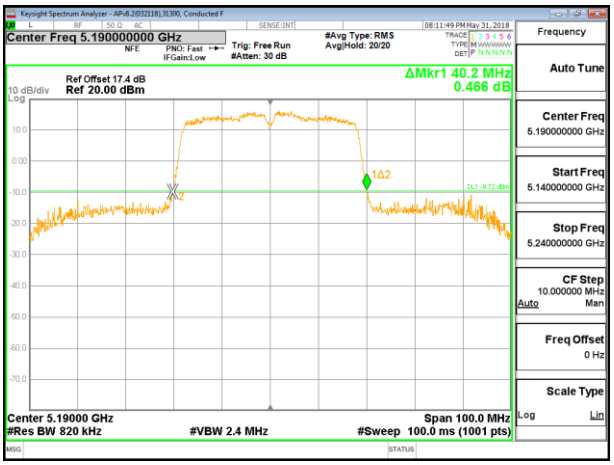
2TX Antenna 4 + ANTENNA 5 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Ant 4 (MHz)	26 dB Bandwidth Ant 5 (MHz)
Low	5190	40.70	40.20
High	5230	40.40	40.20

LOW CHANNEL

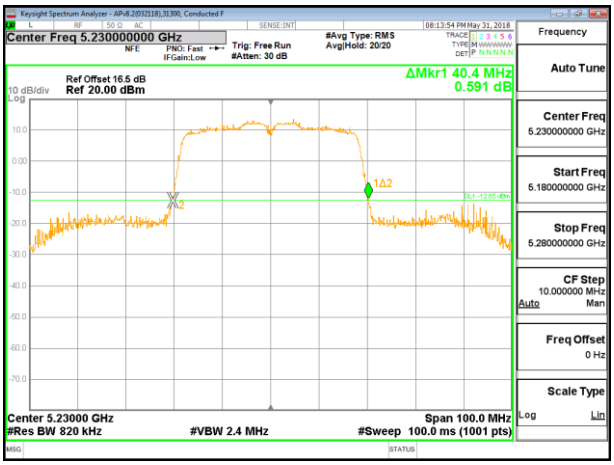


LOW CHANNEL ANTENNA 4

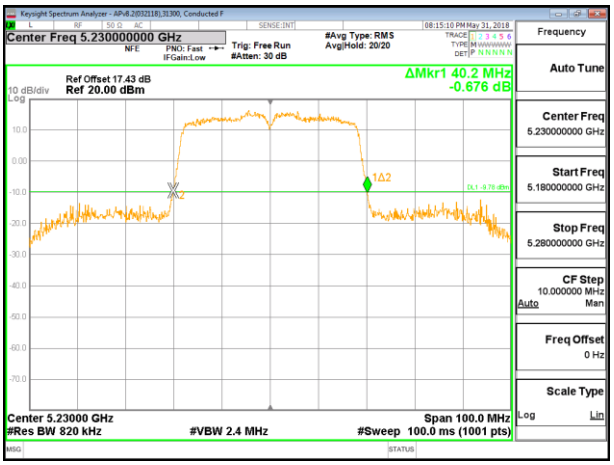


LOW CHANNEL ANTENNA 5

HIGH CHANNEL



HIGH CHANNEL ANTENNA 4

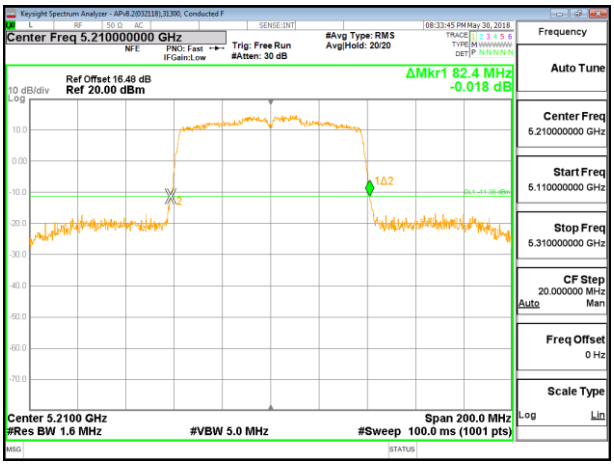


HIGH CHANNEL ANTENNA 5

8.2.3. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

1TX Antenna 4

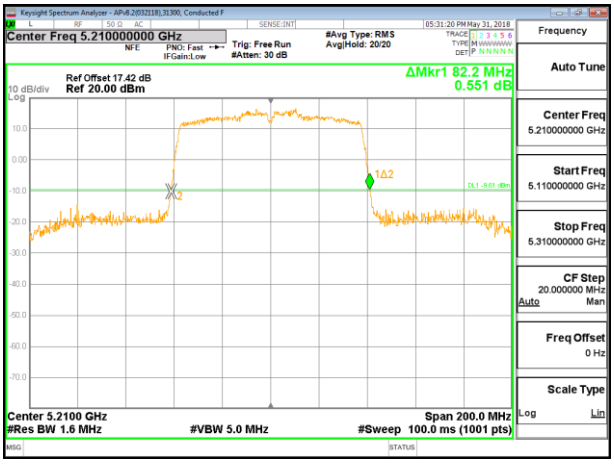
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5210	82.40



MID CHANNEL

1TX ANTENNA 5

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5210	82.20

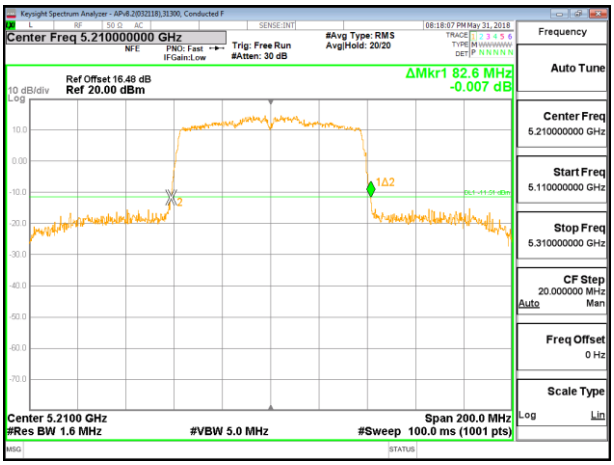


MID CHANNEL

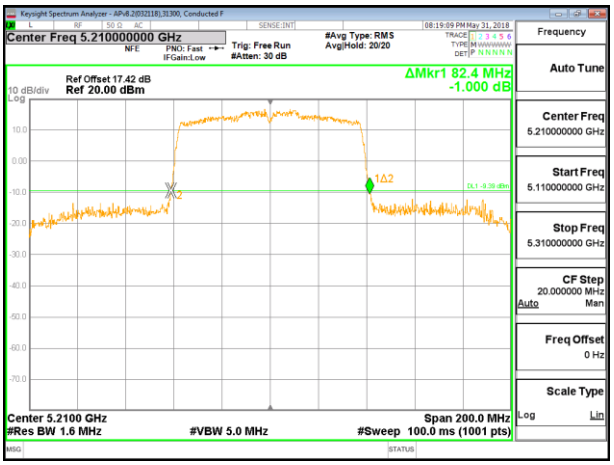
2TX Antenna 4 + ANTENNA 5 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Ant 4 (MHz)	26 dB Bandwidth Ant 5 (MHz)
Mid	5210	82.60	82.40

MID CHANNEL



MID CHANNEL ANTENNA 4

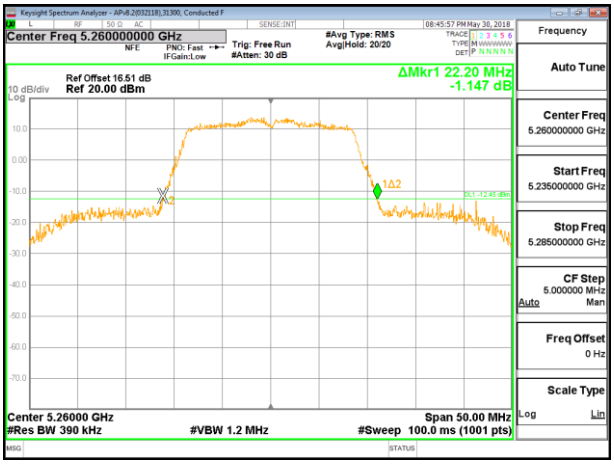


MID CHANNEL ANTENNA 5

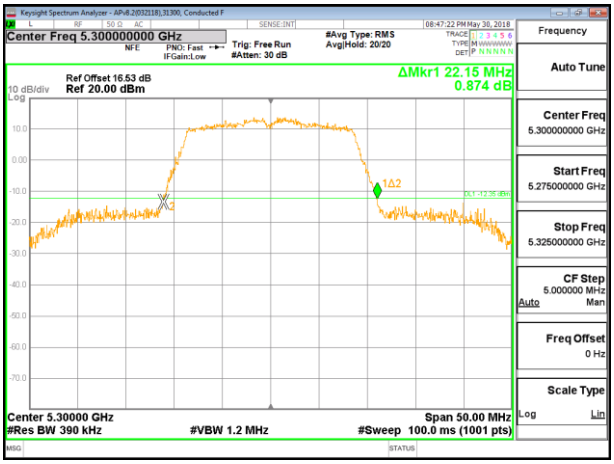
8.2.4. 802.11n HT20 MODE IN THE 5.3 GHz BAND

1TX Antenna 4

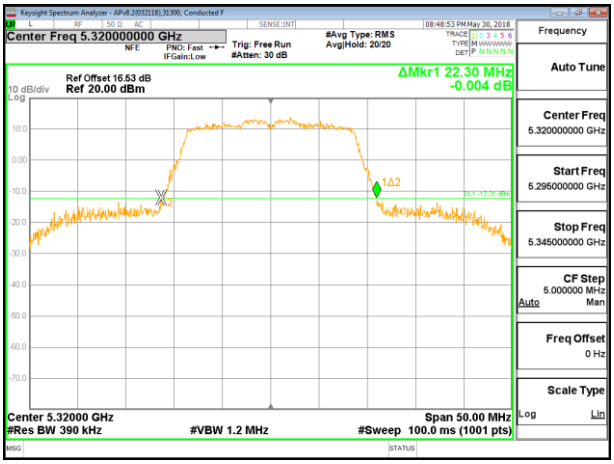
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	22.20
Mid	5300	22.15
High	5320	22.30



LOW CHANNEL



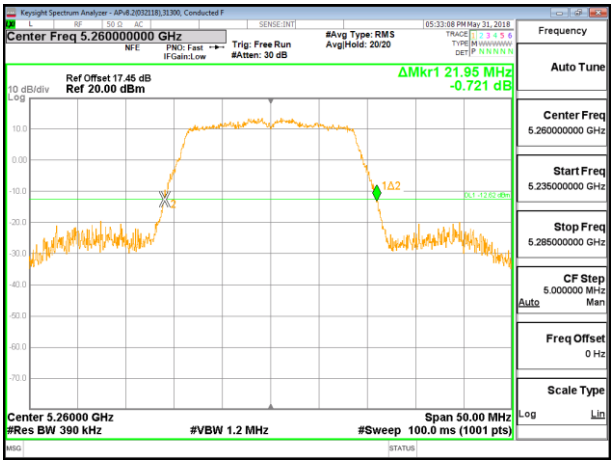
MID CHANNEL



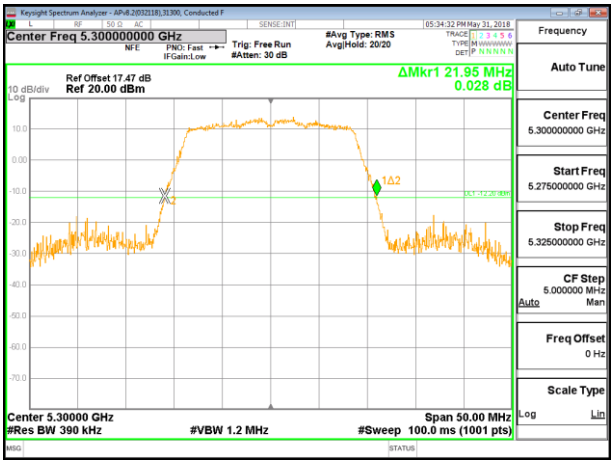
HIGH CHANNEL

1TX ANTENNA 5

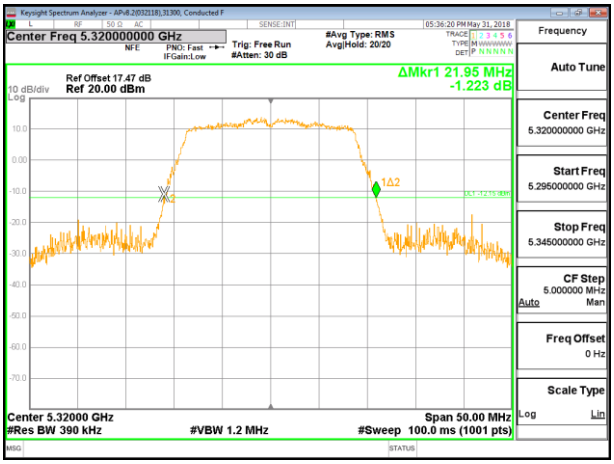
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	21.95
Mid	5300	21.95
High	5320	21.95



LOW CHANNEL



MID CHANNEL

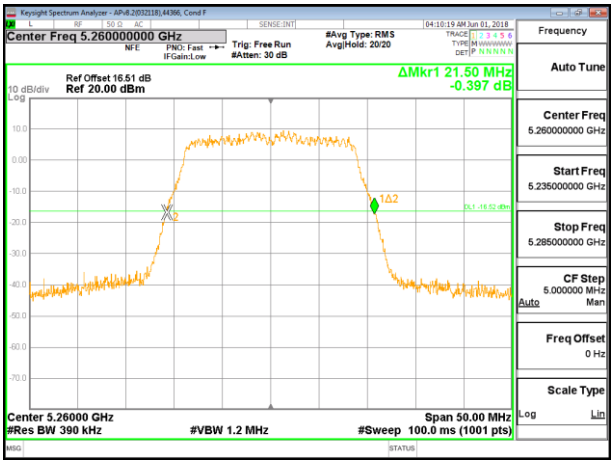


HIGH CHANNEL

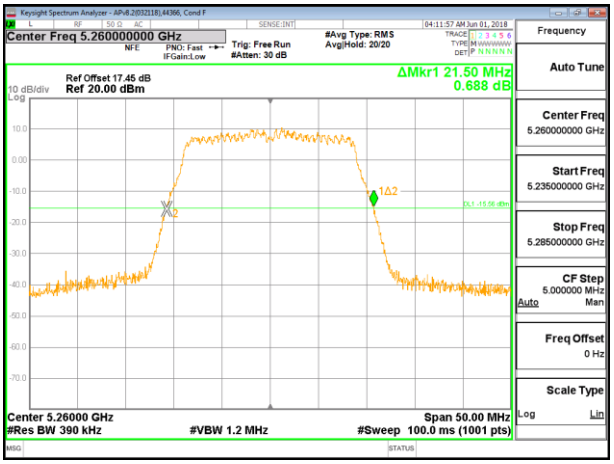
2TX Antenna 4 + ANTENNA 5 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Ant 4 (MHz)	26 dB Bandwidth Ant 5 (MHz)
Low	5260	21.50	21.50
Mid	5300	21.55	21.55
High	5320	21.60	21.50

LOW CHANNEL

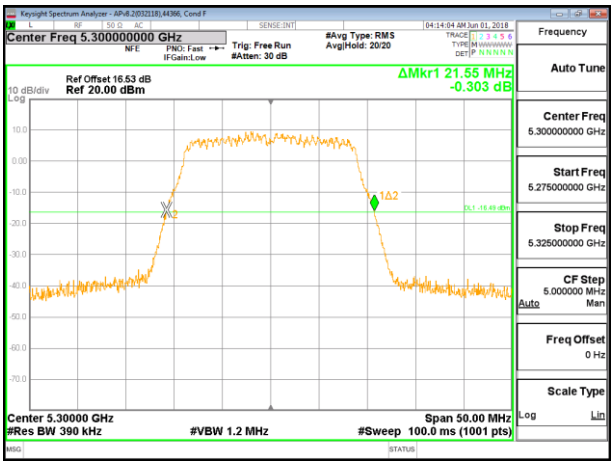


LOW CHANNEL ANTENNA 4

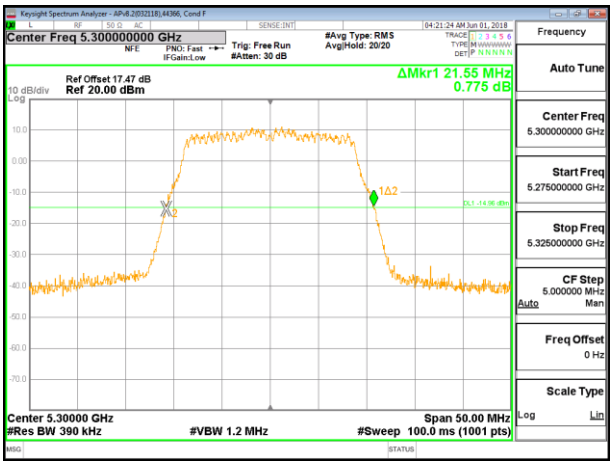


LOW CHANNEL ANTENNA 5

MID CHANNEL

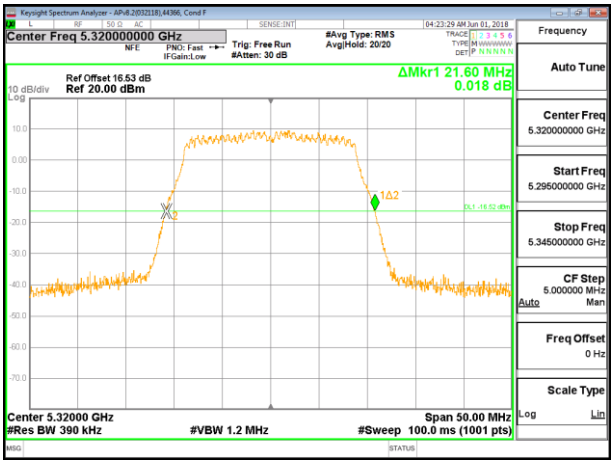


MID CHANNEL ANTENNA 4

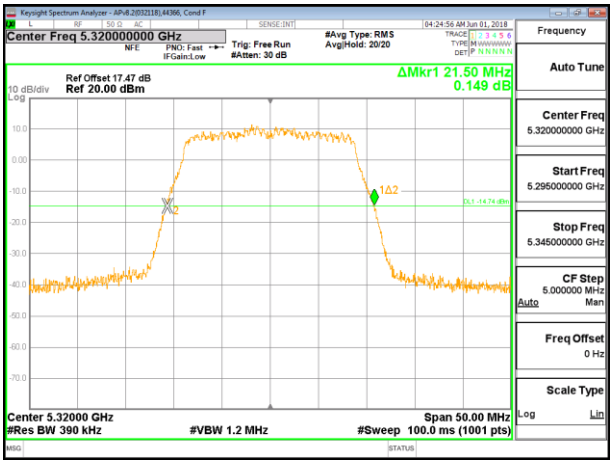


MID CHANNEL ANTENNA 5

HIGH CHANNEL



HIGH CHANNEL ANTENNA 4

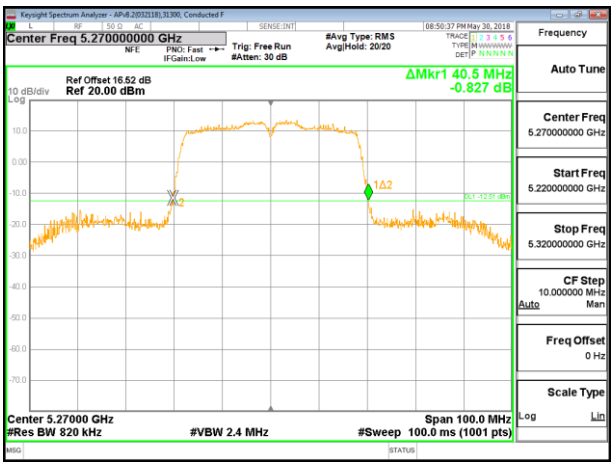


HIGH CHANNEL ANTENNA 5

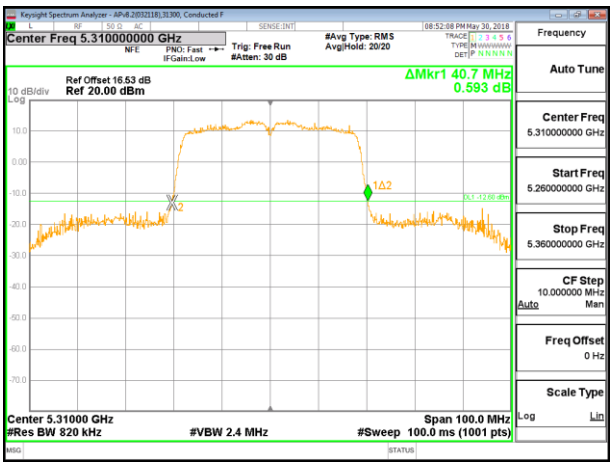
8.2.5. 802.11n HT40 MODE IN THE 5.3 GHz BAND

1TX Antenna 4

Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5270	40.50
High	5310	40.70



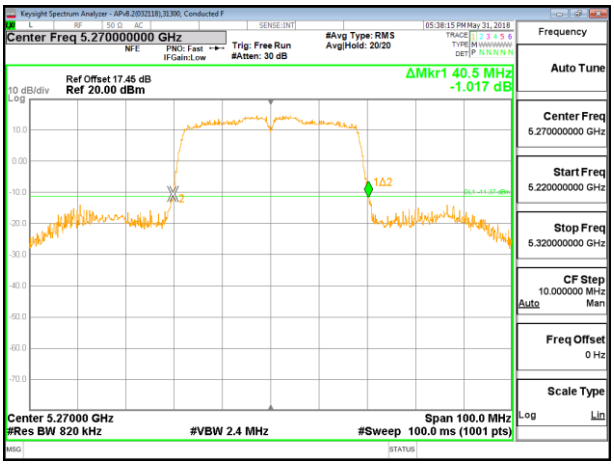
LOW CHANNEL



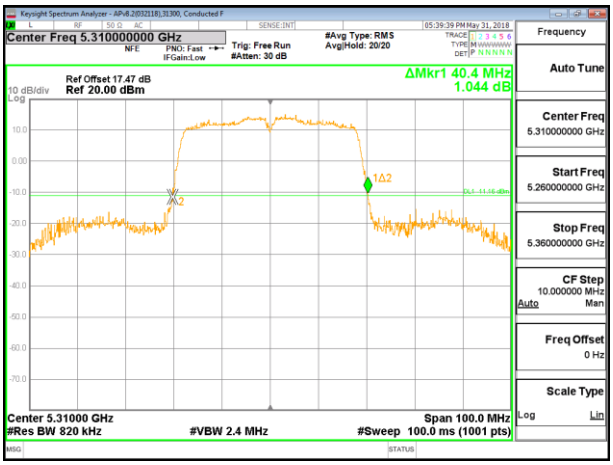
HIGH CHANNEL

1TX ANTENNA 5

Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5270	40.50
High	5310	40.40



LOW CHANNEL

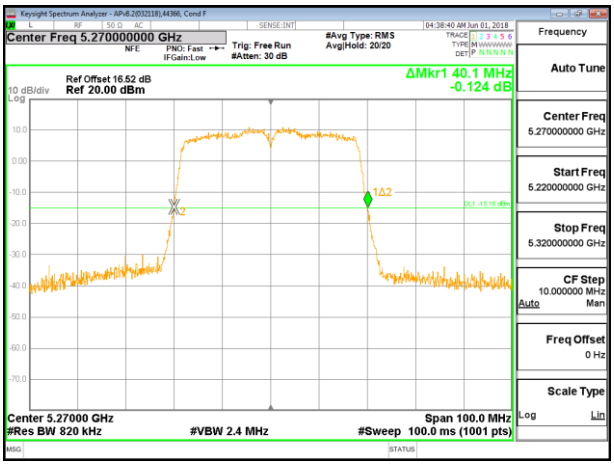


HIGH CHANNEL

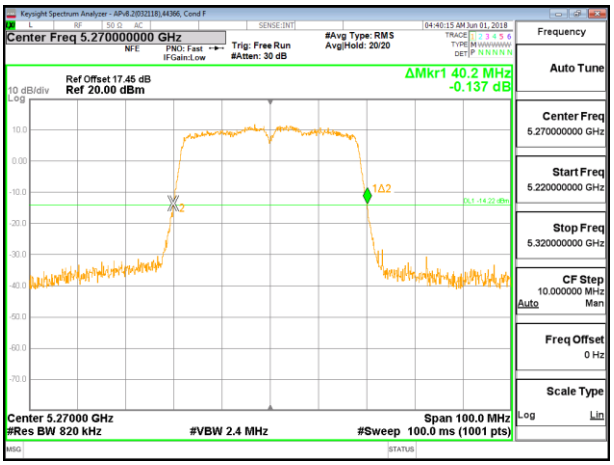
2TX Antenna 4 + ANTENNA 5 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Ant 4 (MHz)	26 dB Bandwidth Ant 5 (MHz)
Low	5270	40.10	40.20
High	5310	40.00	40.00

LOW CHANNEL

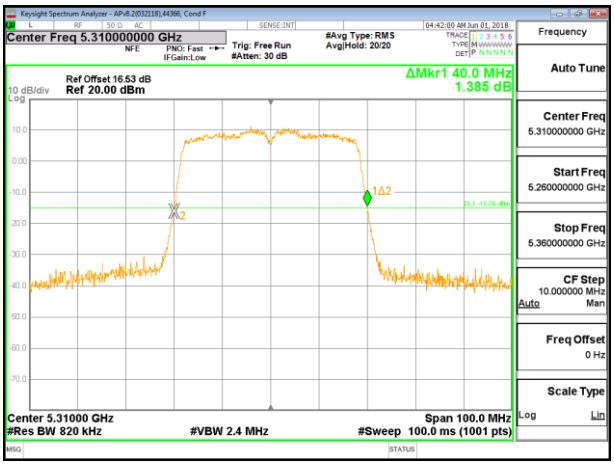


LOW CHANNEL ANTENNA 4

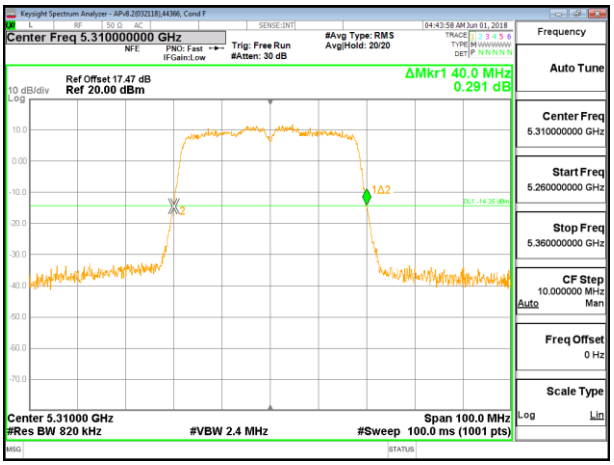


LOW CHANNEL ANTENNA 5

HIGH CHANNEL



HIGH CHANNEL ANTENNA 4

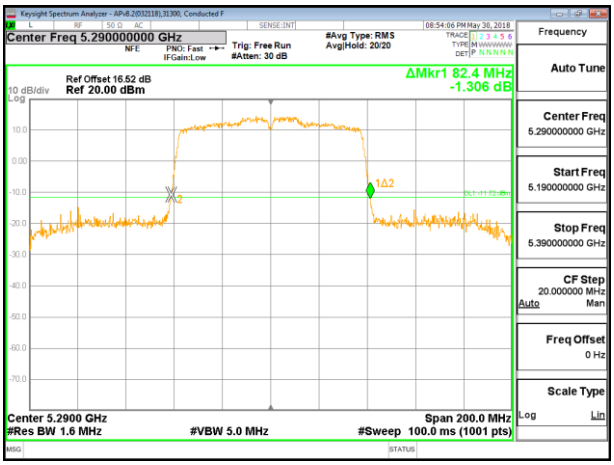


HIGH CHANNEL ANTENNA 5

8.2.6. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

1TX Antenna 4

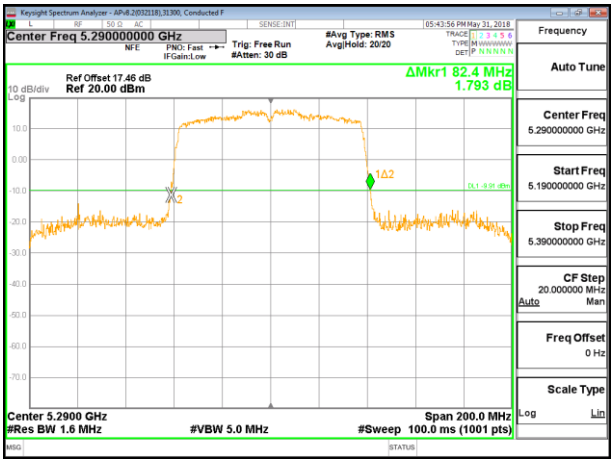
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5290	82.40



MID CHANNEL

1TX ANTENNA 5

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5290	82.40

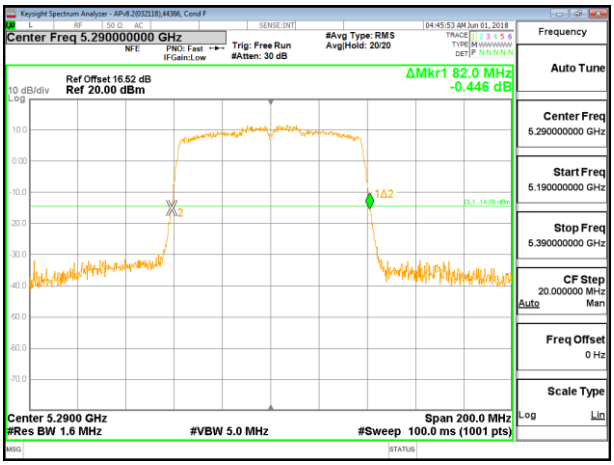


MID CHANNEL

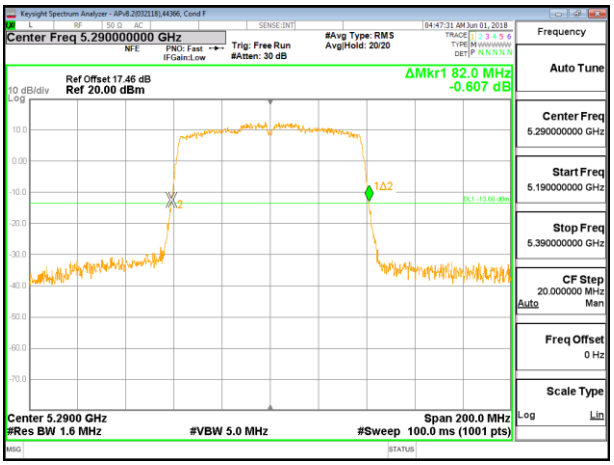
2TX Antenna 4 + ANTENNA 5 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Ant 4 (MHz)	26 dB Bandwidth Ant 5 (MHz)
Mid	5290	82.00	82.00

MID CHANNEL



MID CHANNEL ANTENNA 4

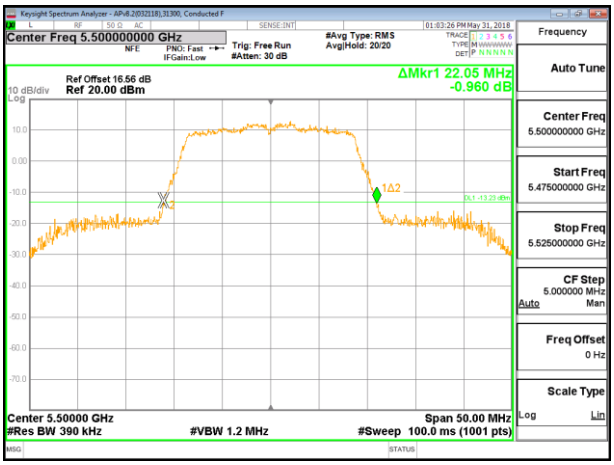


MID CHANNEL ANTENNA 5

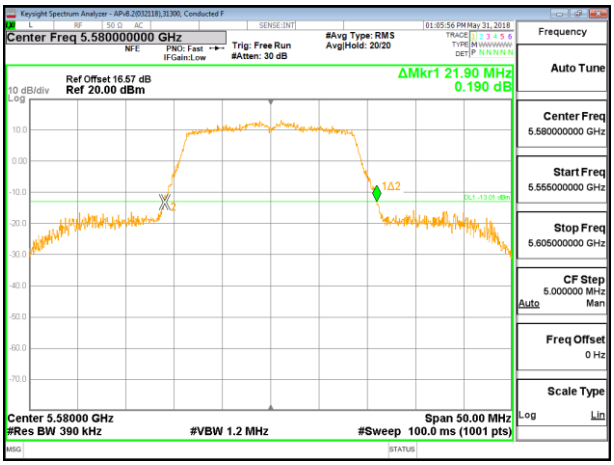
8.2.7. 802.11n HT20 MODE IN THE 5.6 GHz BAND

1TX Antenna 4

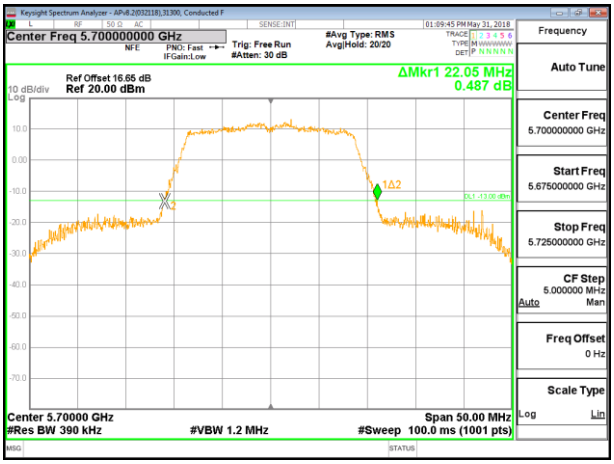
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	22.05
Mid	5580	21.90
High	5700	22.05
144	5720	21.85



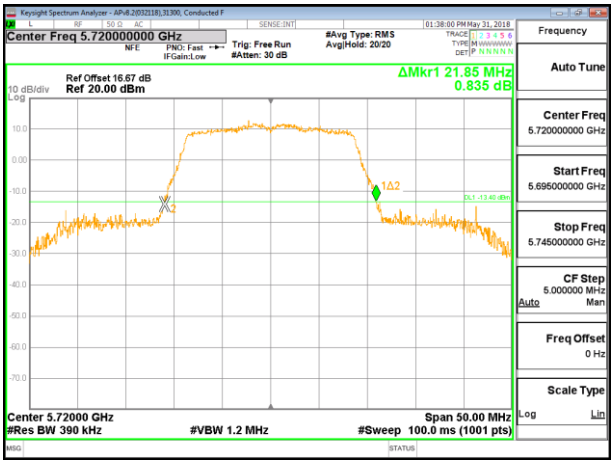
LOW CHANNEL



MID CHANNEL



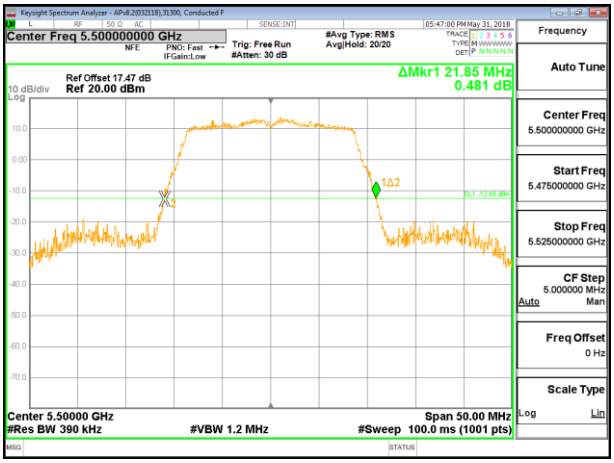
HIGH CHANNEL



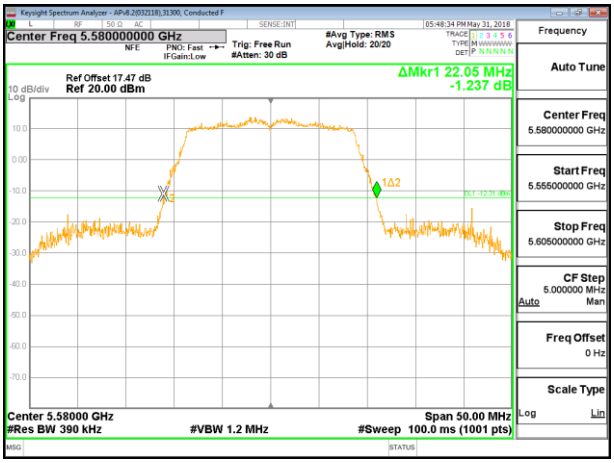
CHANNEL 144

1TX ANTENNA 5

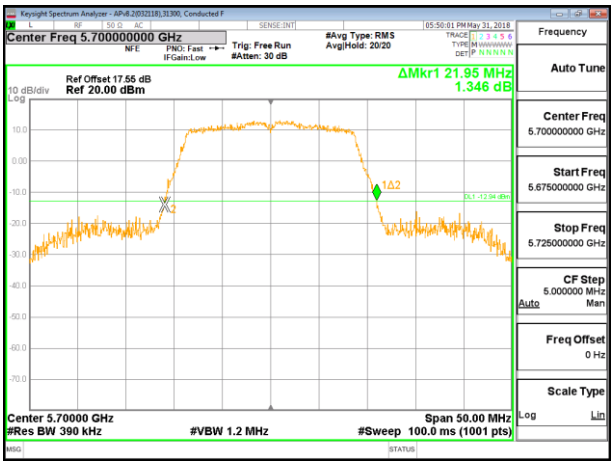
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	21.85
Mid	5580	22.05
High	5700	21.95
144	5720	21.95



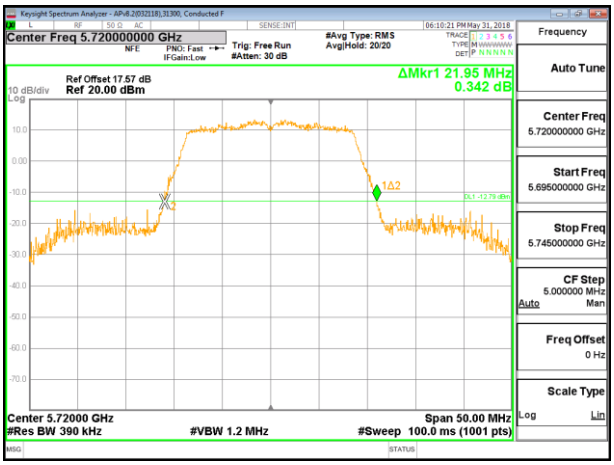
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

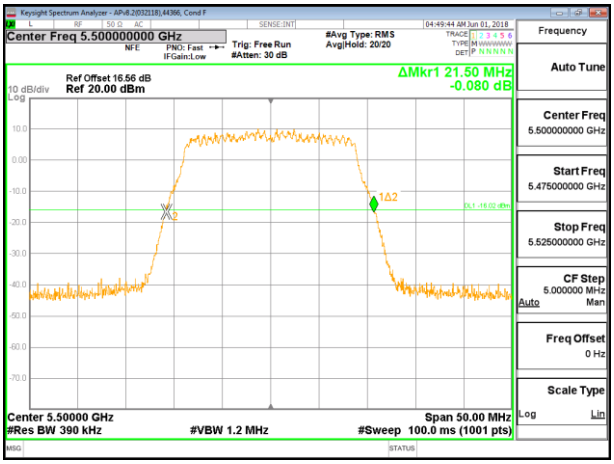


CHANNEL 144

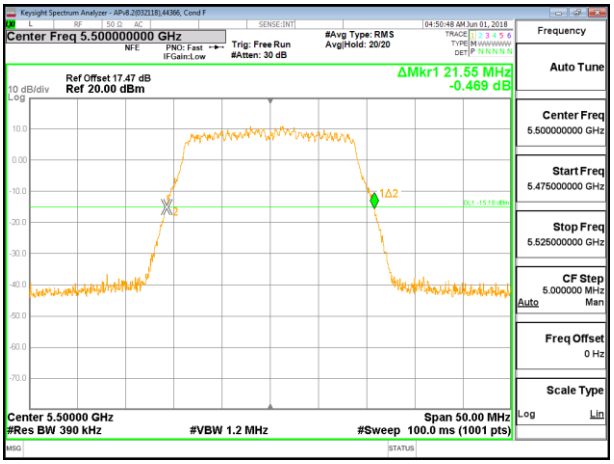
2TX Antenna 4 + ANTENNA 5 CDD MODE

Channel	Frequency (MHz)	26 dB Bandwidth Ant 4 (MHz)	26 dB Bandwidth Ant 5 (MHz)
Low	5500	21.50	21.55
Mid	5580	21.60	21.45
High	5700	21.45	21.50
144	5720	21.50	21.55

LOW CHANNEL

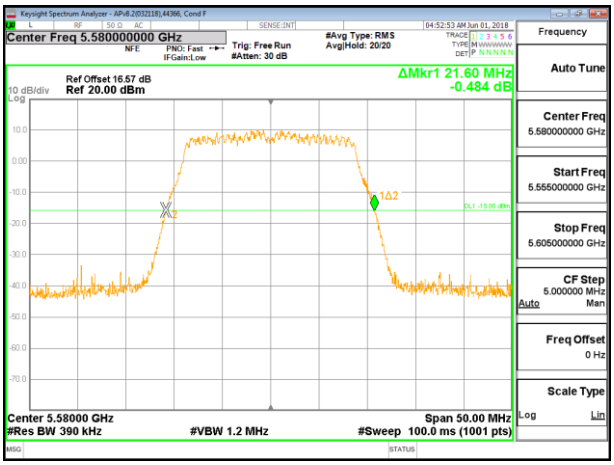


LOW CHANNEL ANTENNA 4

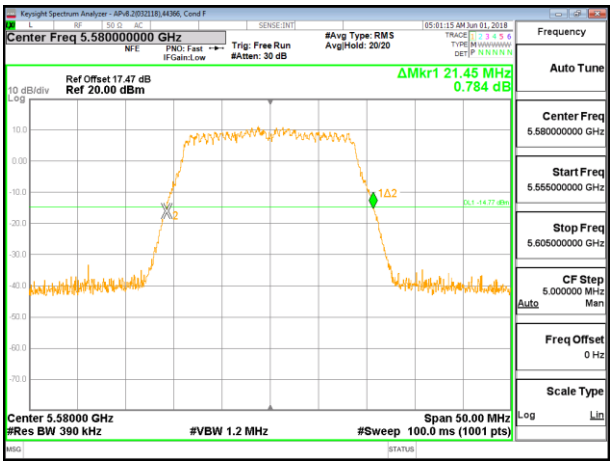


LOW CHANNEL ANTENNA 5

MID CHANNEL

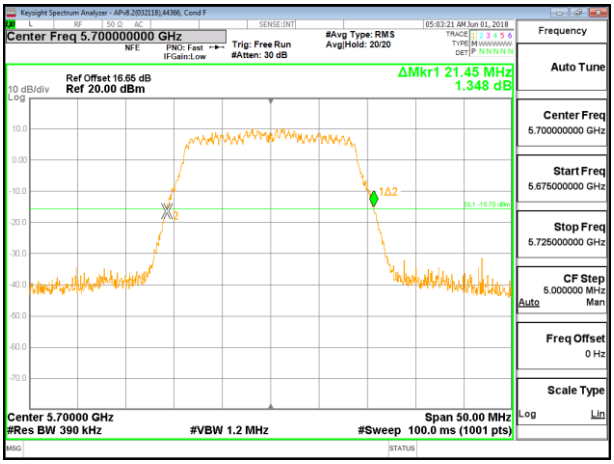


MID CHANNEL ANTENNA 4

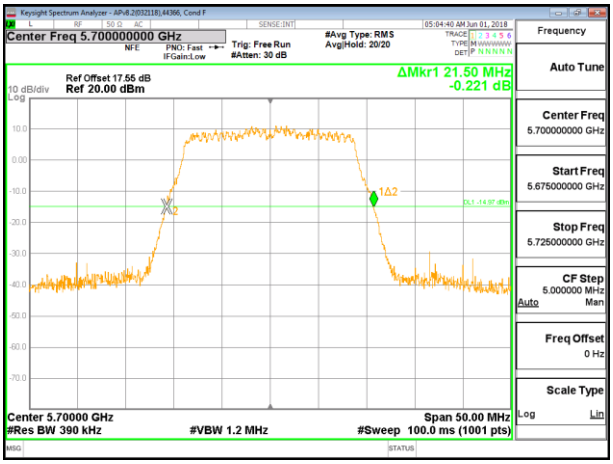


MID CHANNEL ANTENNA 5

HIGH CHANNEL

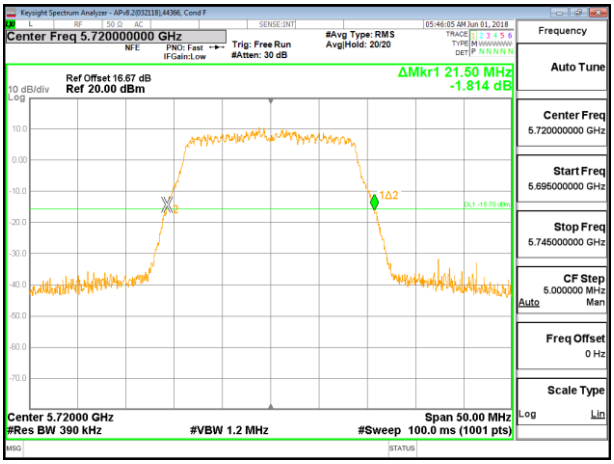


HIGH CHANNEL ANTENNA 4

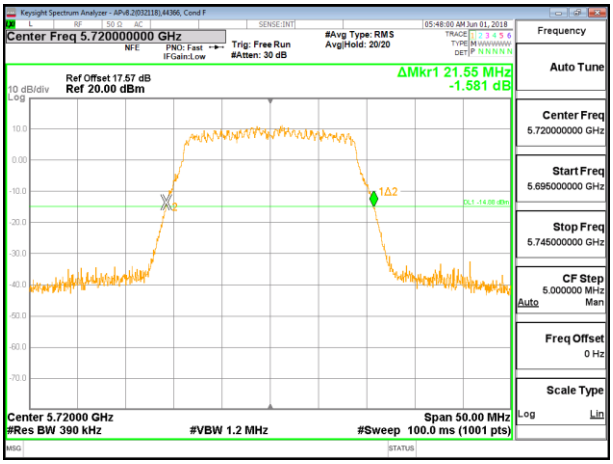


HIGH CHANNEL ANTENNA 5

CHANNEL 144



CHANNEL 144 ANTENNA 4



CHANNEL 144 ANTENNA 5