

Report No.: KSCR220800154902

Page: 1 of 133

TEST REPORT

Application No.: KSCR2208001549AT

FCC ID: 2AXNA-TTCSL

Applicant: AGM Global Vision LLC

Address of Applicant: 173 West Main Street, #962, Springerville, AZ 85938 USA

Manufacturer: AGM Global Vision LLC

Address of Manufacturer: 173 West Main Street, #962, Springerville, AZ 85938 USA

Equipment Under Test (EUT):

EUT Name: Thermal Imaging Rifle Scope

Model No.: AGM Adder LRF TS50-640.AGM Adder LRF TS19-256.AGM Adder LRF

TS25-256,AGM Adder LRF TS35-384,AGM Adder LRF TS50-384,AGM Adder LRF TS35-640,AGM Adder LRF TS19-256 G2,AGM Adder LRF TS25-256 G2,AGM Adder LRF TS35-384 G2,AGM Adder LRF TS50-384 G2,AGM Adder LRF TS35-640 G2,AGM Adder LRF TS50-640 G2,AGM Adder-X LRF TS19-256,AGM Adder-X LRF TS25-256,AGM Adder-X LRF TS35-384,AGM Adder-X LRF TS50-384,AGM Adder-X LRF TS35-640,AGM

Adder-X LRF TS50-640

Please refer to section 2 of this report which indicates which model was

actually tested and which were electrically identical.

Trade Mark:

✗≅

Standard(s): 47 CFR Part 15, Subpart C 15.247

Date of Receipt: 2022-08-29

Date of Test: 2022-09-02 to 2022-09-03

Date of Issue: 2022-09-05

Test Result: Pass*

Eric Lin Laboratory Manager

Fra Lin



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^{*} In the configuration tested, the EUT complied with the standards specified above.



Report No.: KSCR220800154902

Page: 2 of 133

	Revision Record			
Version	Description	Date	Remark	
00	Original	2022-09-05	/	

Authorized for issue by:		
	Damon zhou	
	Damon Zhou/Project Engineer	-
	Ena Li	
	Eric Lin /Reviewer	-



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Report No.: KSCR220800154902

Page: 3 of 133

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)		ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Conducted Peak Output Power		ANSI C63.10 (2013) Section 11.9.2	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth		ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Power Spectrum Density		ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement	47 CFR Part 15,	ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions	Subpart C 15.247	ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2013) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the Identical in electrical and electronic characters. Only the model AGM Adder LRF TS50-640 was tested since their differences were the model number, trade name, Color and appearance.



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Report No.: KSCR220800154902

Page: 4 of 133

3 Contents

		Page
1	1 COVER PAGE	1
2	2 TEST SUMMARY	3
3	3 CONTENTS	4
4	4 GENERAL INFORMATION	6
	4.1 DETAILS OF E.U.T	6
	4.2 DESCRIPTION OF SUPPORT UNITS	6
		6
		7
		7
		ns7
5	5 EQUIPMENT LIST	8
_		
6		ИENT9
		9
	,	g
	6.1.2 Conclusion	g
7	7 RADIO SPECTRUM MATTER TEST RESULT	⁻ S10
	7.1 CONDUCTED EMISSIONS AT AC POWER LINE	≣ (150κHz-30MHz)10
	7.1.1 E.U.T. Operation	10
		10
		11
		11
		14
	•	14
		16
		16
		17
	7.4.1 E.U.T. Operation	
	•	17
		17
	7.4.4 Measurement Procedure and Data	



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Report No.: KSCR220800154902

Page: 5 of 133

10	APPE	NDIX	81
9	EUT C	ONSTRUCTIONAL DETAILS (EUT PHOTOS)	80
8	TEST	SETUP PHOTO	80
	7.9.4	Measurement Procedure and Data	55
	7.9.3	Test Setup Diagram	
	7.9.2	Test Mode Description	
	7.9.1	E.U.T. Operation	
7.		RADIATED SPURIOUS EMISSIONS ABOVE 1GHz	
	7.8.4	Measurement Procedure and Data	
	7.8.3	Test Setup Diagram	
	7.8.2	Test Mode Description	49
	7.8.1	E.U.T. Operation	49
7.	8 F	RADIATED SPURIOUS EMISSIONS BELOW 1GHZ	49
	7.7.4	Measurement Procedure and Data	
	7.7.3	Test Setup Diagram	
	7.7.2	Test Mode Description	
	7.7.1	E.U.T. Operation	
7.	-	RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS	
	7.6.4	Measurement Procedure and Data	
	7.6.3	Test Setup Diagram	
	7.6.2	Test Mode Description	
	7.6.1	E.U.T. Operation	
7		CONDUCTED SPURIOUS EMISSIONS	
	7.5.4	Measurement Procedure and Data	
	7.5.3	Test Setup Diagram	
	7.5.2	Test Mode Description	
	7.5.1	E.U.T. Operation	18



8

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Report No.: KSCR220800154902

Page: 6 of 133

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 5V, 9V, 12V by Adapter or DC 3.6V by battery
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz;802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK);802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11;802.11n(HT40):7
Channel Spacing:	5MHz
Antenna Type:	PCB Antenna
Antenna Gain:	-2.16dBi(Provided by the manufacturer)

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	Lenovo	1	1

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4 x 10 ⁻⁸
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
8	RF Radiated Power	5.2dB (Below 1GHz)
0	Kr Kadiated Fower	5.9dB (Above 1GHz)
		4.2dB (Below 30MHz)
9	Radiated Spurious Emission Test	4.5dB (30MHz-1GHz)
9	Radiated Spurious Effission Test	5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
10	Temperature Test	1°C
11	Humidity Test	3%
12	Supply Voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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Report No.: KSCR220800154902

Page: 7 of 133

4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

- 1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
- 2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS

Compliance Certification Services (Kunshan) Inc. is accredited by the China National Accreditation Service for Conformity Assessment (CNAS). Registration No. CNAS L4354

A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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Page: 8 of 133

5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
Condu	Conducted Emission at Mains Terminals (150kHz-30MHz)					
1	EMI Test Receive	R&S	ESCI	KS301101	01/22/2022	01/21/2023
2	LISN	R&S	ENV216	KS301197	01/22/2022	01/21/2023
3	LISN	Schwarzbeck	NNLK 8129	KS301091	01/22/2022	01/21/2023
4	Pulse Limiter	R&S	ESH3-Z2	KUS1902E001	01/22/2022	01/21/2023
5	CE test Cable	Thermax	1	CZ301102	11/14/2021	11/13/2022
6	Test Software	Farad	EZ-EMC	/	N.C.R	N.C.R
RF Co	nducted Test					
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	08/22/2022	08/21/2023
2	Spectrum Analyzer	Keysight	N9020A	KUS2001M001-2	08/22/2022	08/21/2023
3	Spectrum Analyzer	Keysight	N9030B	KSEM021-1	01/22/2022	01/21/2023
4	Signal Generator	R&S	SMW200A	KSEM020-1	08/22/2022	08/21/2023
5	Signal Generator	Agilent	N5182A	KUS2001M001-1	08/22/2022	08/21/2023
6	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/22/2022	08/21/2023
7	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	04/01/2022	03/31/2023
8	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	08/22/2022	08/21/2023
9	Switcher	CCSRF	FY562	KUS2001M001-3	08/22/2022	08/21/2023
10	AC Power Source	EXTECH	6605	KS301178	N.C.R	N.C.R
11	DC Power Supply	Aglient	E3632A	KS301180	N.C.R	N.C.R
12	Conducted Test Cable	Thermax	RF01-RF04	CZ301111- CZ301120	01/16/2022	01/15/2023
13	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	04/01/2021	03/31/2023
14	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	04/14/2022	04/13/2023
15	Software	BST	TST-PASS	1	N/A	N/A
RF Ra	diated Test					
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/22/2022	08/21/2023
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	04/01/2022	03/31/2023
3	Signal Generator	Agilent	E8257C	KS301066	08/22/2022	08/21/2023
4	Loop Antenna	COM-POWER	AL-130R	KUS1806E001	04/13/2021	04/12/2023
5	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E005	06/29/2021	06/28/2023
6	Bilog Antenna	SCHWARZBECK	VULB9160	CZ301016	04/13/2021	04/12/2024
7	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	04/02/2022	04/01/2024
8	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	KS301186	02/22/2021	02/21/2023
9	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	03/17/2022	03/16/2023
10	Amplifier(30MHz~18GHz)	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-1	01/22/2022	01/21/2023
11	Amplifier(18~40GHz)	COM-POWER	PAM-840A	KUS1710E001	01/22/2022	01/21/2023
12	RE Test Cable	REBES MICROWAVE	1	CZ301097	11/14/2021	11/13/2022
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	01/04/2022	31/03/2023
14	Software	Faratronic	EZ_EMC-v 3A1	/	N/A	N/A



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Page: 9 of 133

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is -2.16dBi.

Antenna location: Refer to internal photo.



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Report No.: KSCR220800154902

Page: 10 of 133

7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207 Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Frequency of	Conducted limit(dBμV)		
emission(MHz)	Quasi-peak	Average	
0.15-0.5	66 to 56*	56 to 46*	
0.5-5	56	46	
5-30	60	50	
*Decreases with the logarithm of the frequency.			
Detector: Peak for pre-scan (9k	:Hz resolution bandwidth) 0.15M	to 30MHz	

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.8 °C Humidity: 41.9 % RH Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description	
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.	



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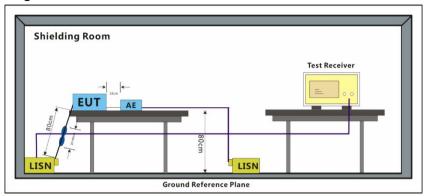
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Report No.: KSCR220800154902

Page: 11 of 133

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50 \text{ohm}/50 \mu\text{H} + 5 \text{ohm}$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: Level=Read Level+ Cable Loss+ LISN Factor



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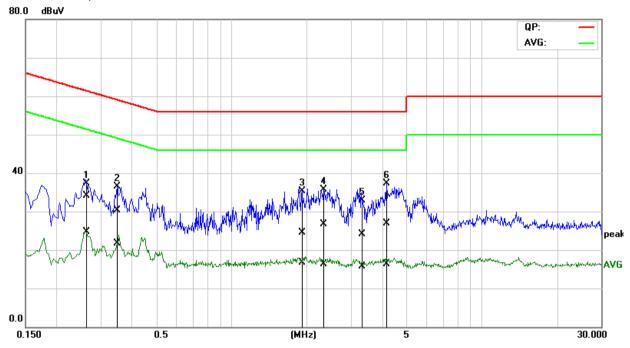
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Report No.: KSCR220800154902

Page: 12 of 133

Test Mode: 00; Line: Live line



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.2654	14.51	5.17	19.51	34.02	24.68	61.26	51.26	-27.24	-26.58	Pass
2	0.3515	10.84	2.11	19.52	30.36	21.63	58.93	48.93	-28.57	-27.30	Pass
3	1.8813	4.90	-2.98	19.64	24.54	16.66	56.00	46.00	-31.46	-29.34	Pass
4	2.3066	6.99	-3.33	19.67	26.66	16.34	56.00	46.00	-29.34	-29.66	Pass
5	3.3375	4.44	-4.07	19.73	24.17	15.66	56.00	46.00	-31.83	-30.34	Pass
6	4.1837	7.18	-3.55	19.77	26.95	16.22	56.00	46.00	-29.05	-29.78	Pass



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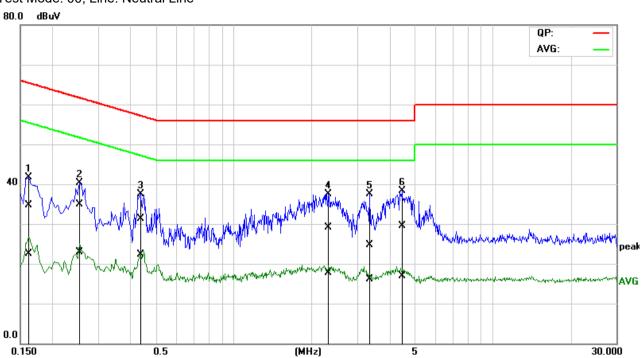
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Report No.: KSCR220800154902

Page: 13 of 133

Test Mode: 00; Line: Neutral Line



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1598	15.21	2.97	19.48	34.69	22.45	65.47	55.47	-30.78	-33.02	Pass
2	0.2542	15.48	3.42	19.50	34.98	22.92	61.62	51.62	-26.64	-28.70	Pass
3*	0.4368	11.73	2.74	19.54	31.27	22.28	57.12	47.12	-25.85	-24.84	Pass
4	2.3123	9.36	-1.88	19.67	29.03	17.79	56.00	46.00	-26.97	-28.21	Pass
5	3.3243	5.04	-3.64	19.73	24.77	16.09	56.00	46.00	-31.23	-29.91	Pass
6	4.4516	9.67	-2.78	19.77	29.44	16.99	56.00	46.00	-26.56	-29.01	Pass



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Report No.: KSCR220800154902

Page: 14 of 133

7.2 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)
Test Method: ANSI C63.10 (2013) Section 11.9.2

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
	1 for ≥50 hopping channels
902-928	0.25 for 25≤ hopping channels <50
	1 for digital modulation
	1 for ≥75 non-overlapping hopping channels
2400-2483.5	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

7.2.1 E.U.T. Operation

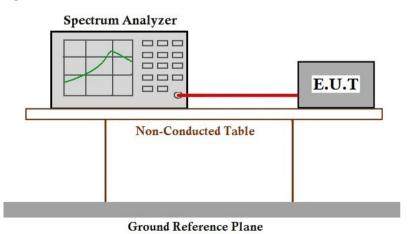
Operating Environment:

Temperature: 23.8 °C Humidity: 41.8 % RH Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

7.2.2 Test Mode Description						
Pre-scan / Final test	Mode Code	Description				
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.				

7.2.3 Test Setup Diagram





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Report No.: KSCR220800154902

Page: 15 of 133

7.2.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

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Report No.: KSCR220800154902

Page: 16 of 133

7.3 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)
Test Method: ANSI C63.10 (2013) Section 11.8.1

Limit: ≥500 kHz

7.3.1 E.U.T. Operation

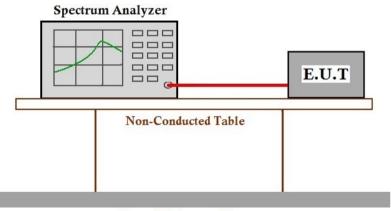
Operating Environment:

Temperature: 23.8 °C Humidity: 41.8 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.3.3 Test Setup Diagram



Ground Reference Plane

7.3.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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Report No.: KSCR220800154902

Page: 17 of 133

7.4 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)
Test Method: ANSI C63.10 (2013) Section 11.10.2

Limit:

≤8dBm in any 3 kHz band during any time interval of continuous transmission

7.4.1 E.U.T. Operation

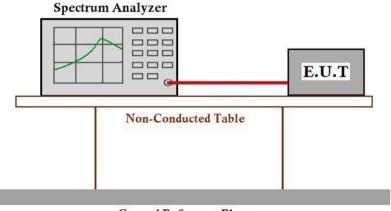
Operating Environment:

Temperature: 23.8 °C Humidity: 41.8 % RH Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.4.3 Test Setup Diagram



Ground Reference Plane

7.4.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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Report No.: KSCR220800154902

Page: 18 of 133

7.5 Conducted Band Edges Measurement

47 CFR Part 15, Subpart C 15.247(d) Test Requirement Test Method: ANSI C63.10 (2013) Section 11.13.3.2

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c).

7.5.1 E.U.T. Operation

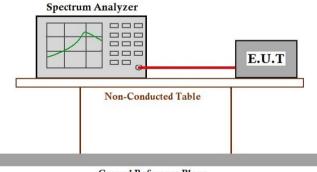
Operating Environment:

Temperature: 23.8 °C Humidity: 41.8 % RH Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.5.3 Test Setup Diagram



Ground Reference Plane

7.5.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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Report No.: KSCR220800154902

Page: 19 of 133

7.6 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)
Test Method: ANSI C63.10 (2013) Section 11.11

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c).

7.6.1 E.U.T. Operation

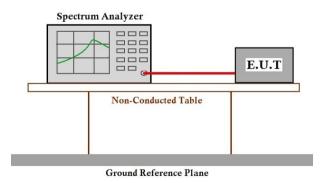
Operating Environment:

Temperature: 23.8 °C Humidity: 41.8 % RH Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

		•
Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

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Report No.: KSCR220800154902

Page: 20 of 133

7.7 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.10.5

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.



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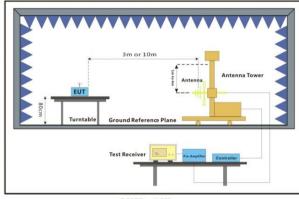
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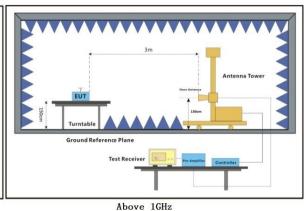


Report No.: KSCR220800154902

Page: 21 of 133

7.7.3 Test Setup Diagram





30MHz-1GHz



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Report No.: KSCR220800154902

Page: 22 of 133

7.7.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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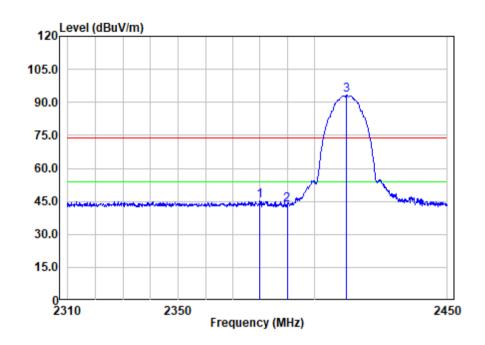
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Report No.: KSCR220800154902

Page: 23 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	•							
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2379.860	5.68	26.71	55.77	45.24	74.00	-28.76	Peak
2	2390.000	5.69	26.73	54.02	43.52	74.00	-30.48	Peak
3	2412.060	5.73	26.78	103.85	93.43	74.00	19.43	Peak



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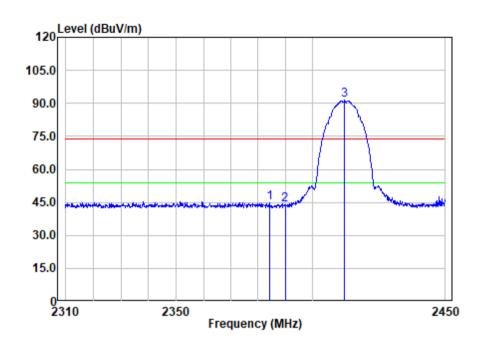
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Report No.: KSCR220800154902

Page: 24 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	•							
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2384.340	5.69	26.72	55.42	44.91	74.00	-29.09	Peak
2	2390.000	5.69	26.73	54.49	43.99	74.00	-30.01	Peak
3	2412.200	5.73	26.78	101.80	91.38	74.00	17.38	Peak



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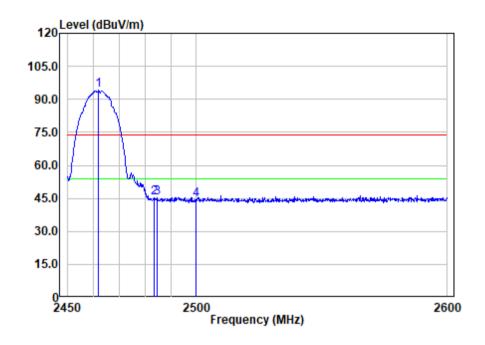
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Report No.: KSCR220800154902

Page: 25 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MH ₇	dB	dB/m		dBuV/m	dBuV/m	dB	
			•		•			
1	2462.150	5.80	26.96	104.22	94.04	74.00	20.04	Peak
2	2483.500	5.83	27.04	55.13	45.06	74.00	-28.94	Peak
3	2484.650	5.83	27.04	55.54	45.47	74.00	-28.53	Peak
4	2500.000	5.85	27.10	54.33	44.34	74.00	-29.66	Peak



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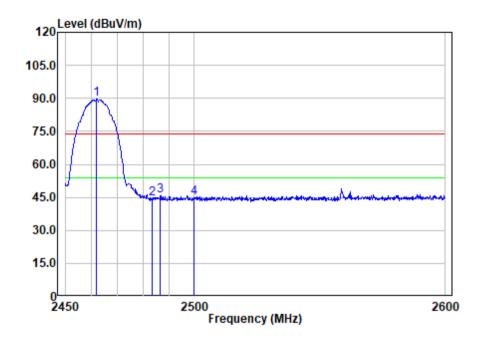
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Report No.: KSCR220800154902

Page: 26 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHZ	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2462.150	5.80	26.96	99.91	89.73	74.00	15.73	Peak
2	2483.500	5.83	27.04	54.33	44.26	74.00	-29.74	Peak
3	2486.600	5.83	27.05	55.66	45.60	74.00	-28.40	Peak
4	2500.000	5.85	27.10	54.74	44.75	74.00	-29.25	Peak



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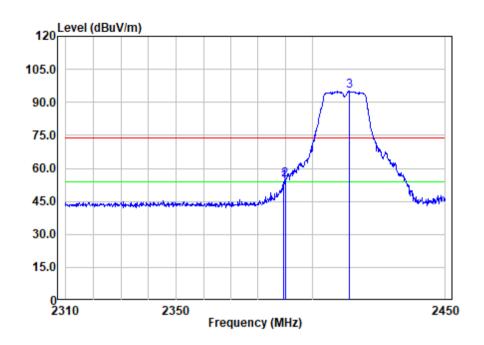
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Report No.: KSCR220800154902

Page: 27 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
_							
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
2389.520	5.69	26.73	64.51	54.01	74.00	-19.99	Peak
2390.000	5.69	26.73	65.25	54.75	74.00	-19.25	Peak
2414.020	5.73	26.79	105.32	94.91	74.00	20.91	Peak
	MHz 2389.520 2390.000	Freq Loss MHz dB 2389.520 5.69 2390.000 5.69	Hreq Loss Factor MHz dB dB/m 2389.520 5.69 26.73 2390.000 5.69 26.73	Freq Loss Factor Level MHz dB dB/m dBuV 2389.520 5.69 26.73 64.51 2390.000 5.69 26.73 65.25	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 2389.520 5.69 26.73 64.51 54.01 2390.000 5.69 26.73 65.25 54.75	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m 2389.520 5.69 26.73 64.51 54.01 74.00 2390.000 5.69 26.73 65.25 54.75 74.00	Cable Ant Read Limit Over



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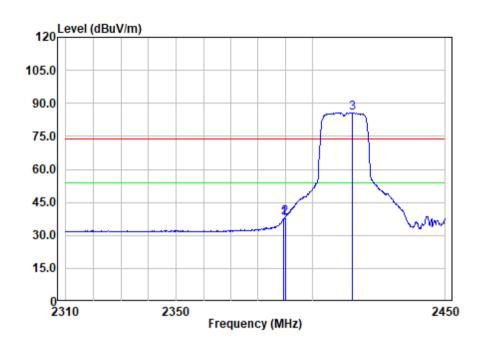
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Report No.: KSCR220800154902

Page: 28 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.380	5.69	26.73	47.91	37.41	54.00	-16.59	Average
2	2390.000	5.69	26.73	48.60	38.10	54.00	-15.90	Average
3	2415.140	5.73	26.79	96.09	85.68	54.00	31.68	Average



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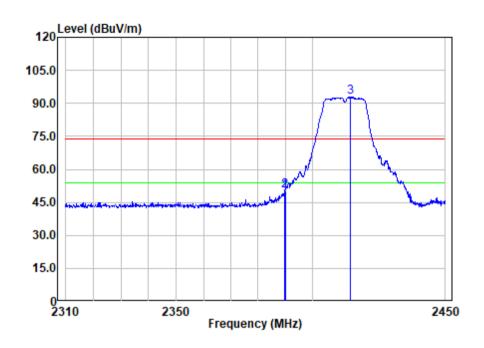
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Report No.: KSCR220800154902

Page: 29 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
2389.660	5.69	26.73	60.50	50.00	74.00	-24.00	Peak
2390.000	5.69	26.73	60.89	50.39	74.00	-23.61	Peak
2414.160	5.73	26.79	103.23	92.82	74.00	18.82	Peak
	MHz 2389.660 2390.000	Freq Loss MHz dB 2389.660 5.69 2390.000 5.69	MHz dB dB/m 2389.660 5.69 26.73 2390.000 5.69 26.73	MHz dB dB/m dBuV 2389.660 5.69 26.73 60.50 2390.000 5.69 26.73 60.89	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 2389.660 5.69 26.73 60.50 50.00 2390.000 5.69 26.73 60.89 50.39	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m 2389.660 5.69 26.73 60.50 50.00 74.00 2390.000 5.69 26.73 60.89 50.39 74.00	Cable Ant Read Limit Over



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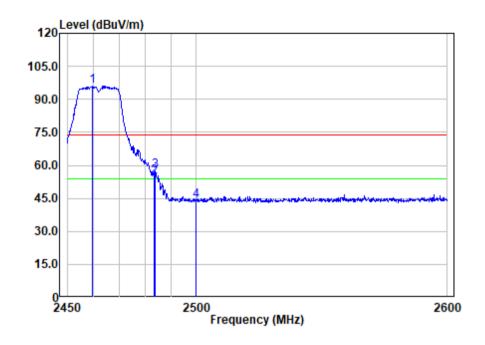
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Report No.: KSCR220800154902

Page: 30 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2459.600	5.79	26.95	106.07	95.87	74.00	21.87	Peak
2	2483.500	5.83	27.04	64.96	54.89	74.00	-19.11	Peak
3	2483.900	5.83	27.04	67.66	57.59	74.00	-16.41	Peak
4	2500.000	5.85	27.10	53.81	43.82	74.00	-30.18	Peak



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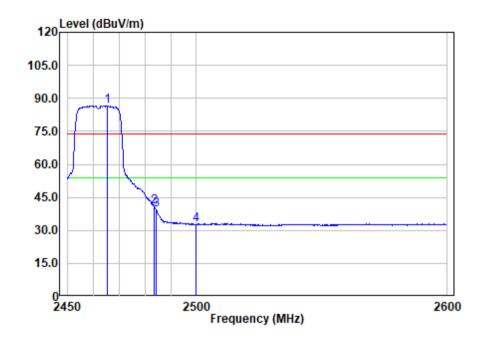
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Report No.: KSCR220800154902

Page: 31 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2465.300	5.80	26.98	96.69	86.53	54.00	32.53	Average
2	2483.500	5.83	27.04	50.92	40.85	54.00	-13.15	Average
3	2484.200	5.83	27.04	49.61	39.54	54.00	-14.46	Average
4	2500.000	5.85	27.10	42.78	32.79	54.00	-21.21	Average



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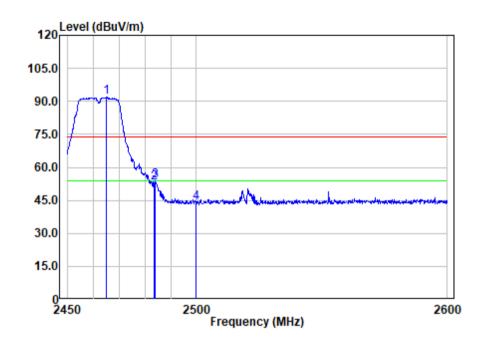
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Report No.: KSCR220800154902

Page: 32 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2465.000	5.80	26.97	102.01	91.84	74.00	17.84	Peak
2	2483.500	5.83	27.04	62.97	52.90	74.00	-21.10	Peak
3	2484.050	5.83	27.04	63.83	53.76	74.00	-20.24	Peak
4	2500.000	5.85	27.10	53.79	43.80	74.00	-30.20	Peak



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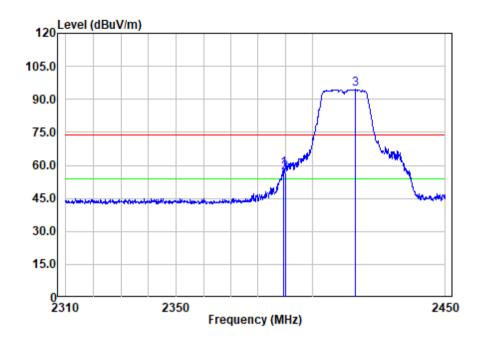
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Report No.: KSCR220800154902

Page: 33 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.380	5.69	26.73	68.78	58.28	74.00	-15.72	Peak
2	2390.000	5.69	26.73	67.19	56.69	74.00	-17.31	Peak
3	2416.120	5.73	26.80	104.85	94.45	74.00	20.45	Peak



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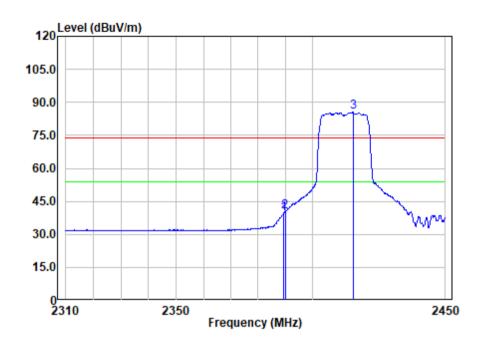
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Report No.: KSCR220800154902

Page: 34 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



	Freq		Ant Factor					Remark
			dB/m					
1	2389.380	5.69	26.73	49.83	39.33	54.00	-14.67	Average
2	2390.000	5.69	26.73	50.79	40.29	54.00	-13.71	Average
3	2415.280	5.73	26.80	95.79	85.39	54.00	31.39	Average



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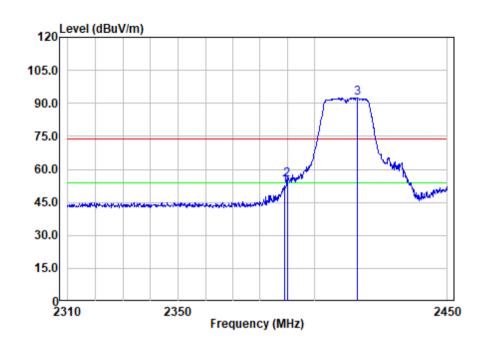
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Report No.: KSCR220800154902

Page: 35 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



		Cable	Ant	Read		Limit	0ver		
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark	
	_								
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB		
1	2389.240	5.69	26.73	63.13	52.63	74.00	-21.37	Peak	
2	2390.000	5.69	26.73	65.68	55.18	74.00	-18.82	Peak	
3	2415.980	5.73	26.80	102.80	92.40	74.00	18.40	Peak	



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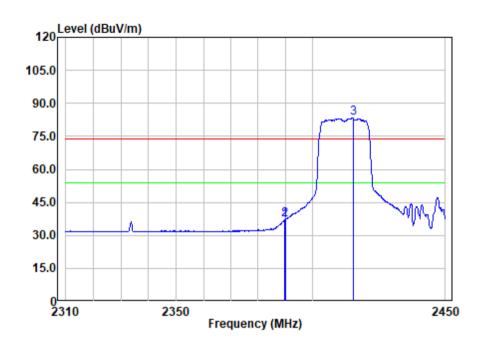
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Report No.: KSCR220800154902

Page: 36 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



		Cable	Ant	Read		Limit	0ver		
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB		
1	2389.660	5.69	26.73	47.13	36.63	54.00	-17.37	Average	
2	2390.000	5.69	26.73	47.46	36.96	54.00	-17.04	Average	
3	2415.280	5.73	26.80	93.63	83.23	54.00	29.23	Average	



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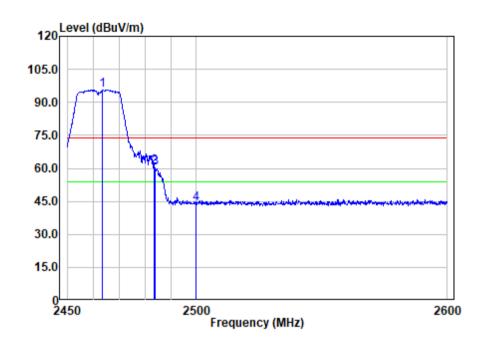
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Report No.: KSCR220800154902

Page: 37 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



	_							
	Freq	Loss	Factor	Level	Level	Line	Limit	Kemark
-	MHz	dB	dB/m	dBuV	$\overline{\text{dBuV/m}}$	dBuV/m	dB	
1	2463.650	5.80	26.97	105.85	95.68	74.00	21.68	Peak
2	2483.500	5.83	27.04	70.84	60.77	74.00	-13.23	Peak
3	2484.050	5.83	27.04	70.19	60.12	74.00	-13.88	Peak
4	2500.000	5.85	27.10	54.06	44.07	74.00	-29.93	Peak



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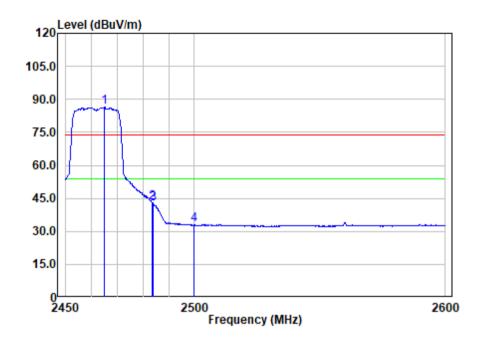
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Report No.: KSCR220800154902

Page: 38 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	——dB	
1	2465.150	5.80	26.97	96.52	86.35	54.00	32.35	Average
2	2483.500	5.83	27.04	53.28	43.21	54.00	-10.79	Average
3	2484.050	5.83	27.04	52.80	42.73	54.00	-11.27	Average
4	2500.000	5.85	27.10	42.95	32.96	54.00	-21.04	Average



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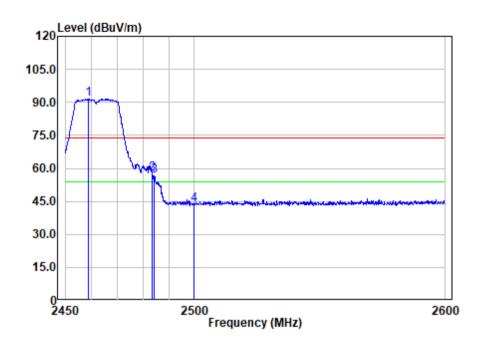
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Report No.: KSCR220800154902

Page: 39 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	——dB	
1	2459.000	5.79	26.95	101.68	91.48	74.00	17.48	Peak
2	2483.500	5.83	27.04	67.78	57.71	74.00	-16.29	Peak
3	2484.500	5.83	27.04	66.64	56.57	74.00	-17.43	Peak
4	2500.000	5.85	27.10	53.62	43.63	74.00	-30.37	Peak



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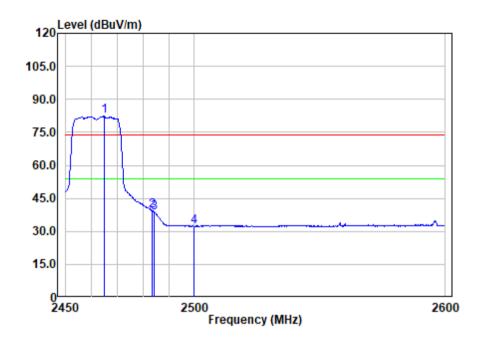
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Report No.: KSCR220800154902

Page: 40 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2465.150	5.80	26.97	92.47	82.30	54.00	28.30	Average
2	2483.500	5.83	27.04	49.34	39.27	54.00	-14.73	Average
3	2484.500	5.83	27.04	48.50	38.43	54.00	-15.57	Average
4	2500.000	5.85	27.10	42.34	32.35	54.00	-21.65	Average



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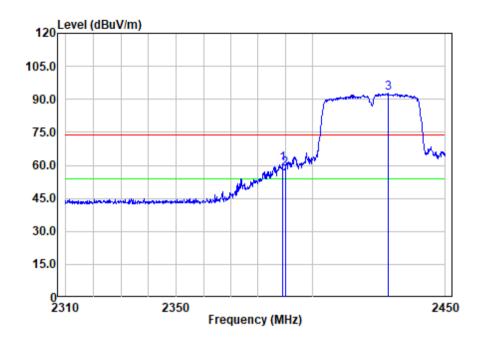
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Report No.: KSCR220800154902

Page: 41 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
2389.100	5.69	26.73	70.99	60.49	74.00	-13.51	Peak
2390.000	5.69	26.73	69.12	58.62	74.00	-15.38	Peak
2428.440	5.75	26.84	102.99	92.65	74.00	18.65	Peak
	MHz 2389.100 2390.000	Freq Loss MHz dB 2389.100 5.69 2390.000 5.69	Freq Loss Factor MHz dB dB/m 2389.100 5.69 26.73 2390.000 5.69 26.73	Freq Loss Factor Level MHz dB dB/m dBuV 2389.100 5.69 26.73 70.99 2390.000 5.69 26.73 69.12	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 2389.100 5.69 26.73 70.99 60.49 2390.000 5.69 26.73 69.12 58.62	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m 2389.100 5.69 26.73 70.99 60.49 74.00 2390.000 5.69 26.73 69.12 58.62 74.00	Cable Ant Read Limit Over



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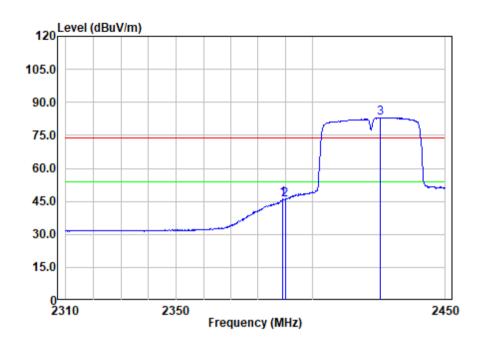
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Report No.: KSCR220800154902

Page: 42 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Freq		Ant Factor				Remark
MHz 2389.240 2390.000	5.69		56.62	46.12	54.00	_
2425.360						_



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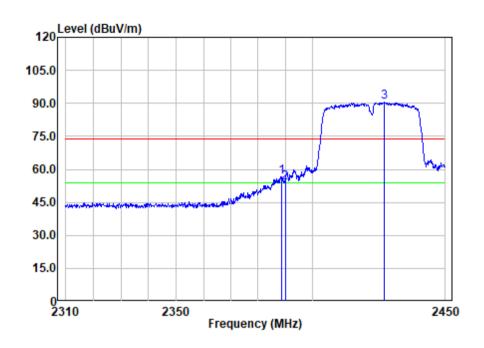
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Report No.: KSCR220800154902

Page: 43 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	•							
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2388.680	5.69	26.73	66.99	56.49	74.00	-17.51	Peak
2	2390.000	5.69	26.73	64.57	54.07	74.00	-19.93	Peak
3	2426.900	5.75	26.84	100.68	90.34	74.00	16.34	Peak



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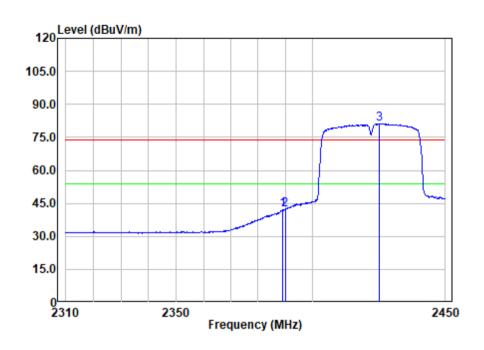
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Report No.: KSCR220800154902

Page: 44 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



	Freq		Ant Factor					Remark
			dB/m					
1	2388.960	5.69	26.73	52.78	42.28	54.00	-11.72	Average
2	2390.000	5.69	26.73	52.80	42.30	54.00	-11.70	Average
3	2425.220	5.74	26.83	91.57	81.21	54.00	27.21	Average



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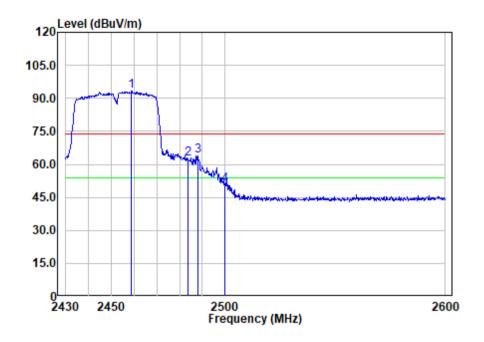
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Report No.: KSCR220800154902

Page: 45 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2458.730	5.79	26.95	103.59	93.39	74.00	19.39	Peak
2	2483.500	5.83	27.04	72.59	62.52	74.00	-11.48	Peak
3	2488.140	5.83	27.06	74.12	64.07	74.00	-9.93	Peak
4	2500.000	5.85	27.10	60.83	50.84	74.00	-23.16	Peak



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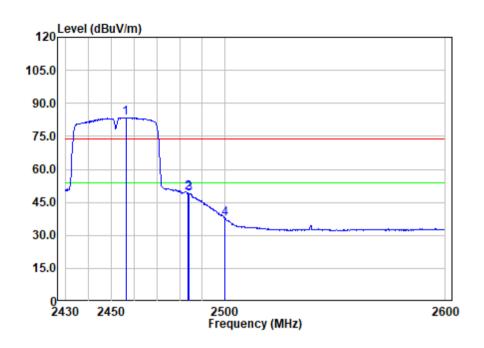
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Report No.: KSCR220800154902

Page: 46 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2456.350	5.79	26.94	93.74	83.53	54.00	29.53	Average
2	2483.500	5.83	27.04	59.60	49.53	54.00	-4.47	Average
3	2484.230	5.83	27.04	59.15	49.08	54.00	-4.92	Average
4	2500.000	5.85	27.10	47.75	37.76	54.00	-16.24	Average



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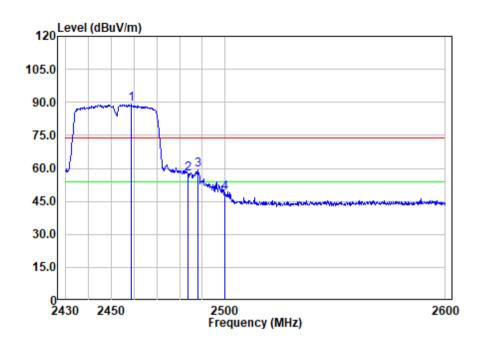
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Report No.: KSCR220800154902

Page: 47 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2458.900	5.79	26.95	99.28	89.08	74.00	15.08	Peak
2	2483.500	5.83	27.04	67.65	57.58	74.00	-16.42	Peak
3	2488.140	5.83	27.06	69.23	59.18	74.00	-14.82	Peak
4	2500.000	5.85	27.10	58.84	48.85	74.00	-25.15	Peak



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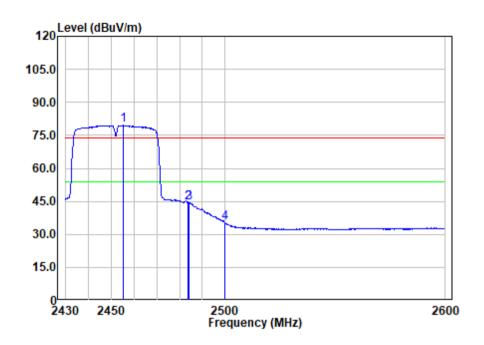
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Report No.: KSCR220800154902

Page: 48 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2455.330	5.79	26.94	89.72	79.51	54.00	25.51	Average
2	2483.500	5.83	27.04	54.60	44.53	54.00	-9.47	Average
3	2484.230	5.83	27.04	54.57	44.50	54.00	-9.50	Average
4	2500.000	5.85	27.10	45.44	35.45	54.00	-18.55	Average



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Report No.: KSCR220800154902

Page: 49 of 133

7.8 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4,6.5

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)		
0.009-0.490	2400/F(kHz)	300		
0.490-1.705	24000/F(kHz)	30		
1.705-30.0	30	30		
30-88	100	3		
88-216	150	3		
216-960	200	3		
960-1000	500	3		

7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.



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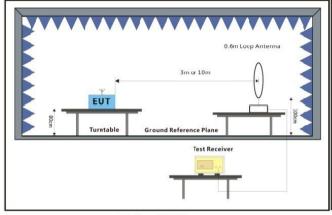
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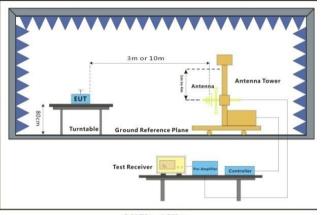


Report No.: KSCR220800154902

Page: 50 of 133

7.8.3 Test Setup Diagram





Below 30MHz 30MHz-1GHz



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Report No.: KSCR220800154902

Page: 51 of 133

7.8.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete. Remark:
- 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- 2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



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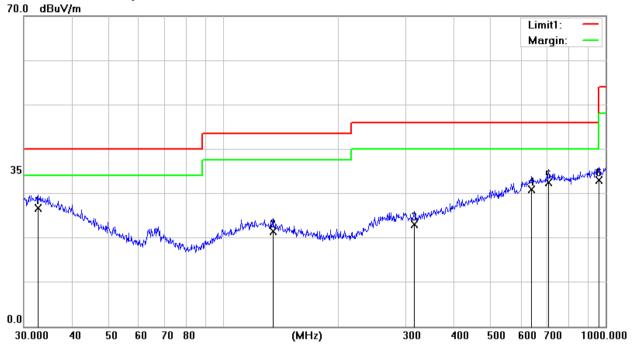
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Report No.: KSCR220800154902

Page: 52 of 133

Test Mode: 00; Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	32.6340	1.67	25.07	26.74	40.00	-13.26	100	0	QP
2	134.5592	2.29	19.13	21.42	43.50	-22.08	200	135	QP
3	315.4808	1.95	21.01	22.96	46.00	-23.04	200	66	QP
4	640.6110	3.03	27.81	30.84	46.00	-15.16	100	80	QP
5	709.1823	29.93	2.46	32.39	46.00	-13.61	200	337	QP
6	958.7943	30.46	2.58	33.04	46.00	-12.96	100	256	QP



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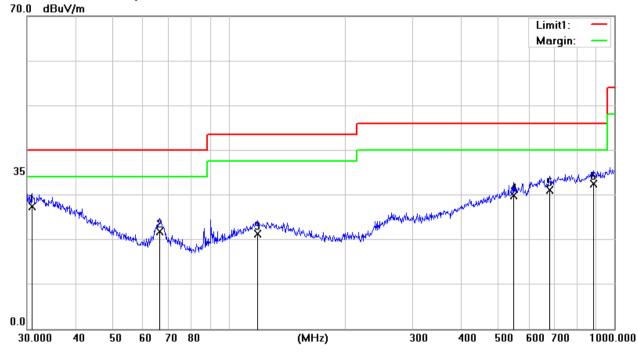
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Report No.: KSCR220800154902

Page: 53 of 133

Test Mode: 00; Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	30.8535	2.18	25.14	27.32	40.00	-12.68	200	47	QP
2	66.2662	6.60	15.19	21.79	40.00	-18.21	100	250	QP
3	118.6014	1.98	19.31	21.29	43.50	-22.21	200	76	QP
4	547.0977	2.65	27.14	29.79	46.00	-16.21	200	360	QP
5	679.9600	28.70	2.44	31.14	46.00	-14.86	100	86	QP
6	881.4067	30.13	2.33	32.46	46.00	-13.54	200	204	QP



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Report No.: KSCR220800154902

Page: 54 of 133

7.9 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.6

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

7.9.1 E.U.T. Operation

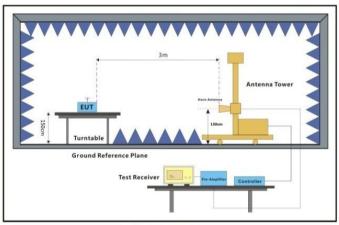
Operating Environment:

Temperature: 25 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.9.3 Test Setup Diagram



Above 1GHz



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Report No.: KSCR220800154902

Page: 55 of 133

7.9.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete. Remark:
- 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- 2. Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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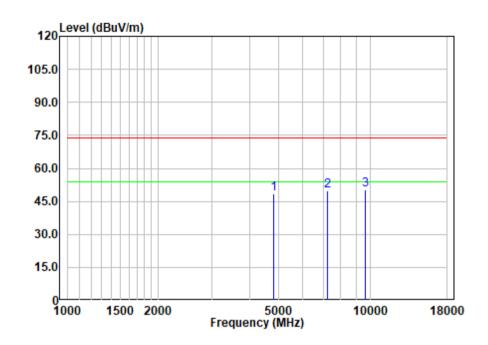
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Report No.: KSCR220800154902

Page: 56 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4824.000	8.13	34.18	48.21	48.28	74.00	-25.72	Peak
2	7236.000	10.37	35.44	46.46	49.66	74.00	-24.34	Peak
3	9648.000	12.32	36.96	43.27	50.23	74.00	-23.77	Peak



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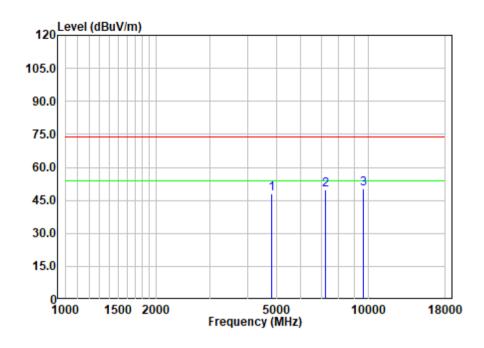
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Report No.: KSCR220800154902

Page: 57 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



	F		Ant					D I -
	Freq	LOSS	Factor	revel	rever	Line	Limit	Kemark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4824.000	8.13	34.18	48.09	48.16	74.00	-25.84	Peak
2	7236.000	10.37	35.44	46.43	49.63	74.00	-24.37	Peak
3	9648.000	12.32	36.96	43.26	50.22	74.00	-23.78	Peak



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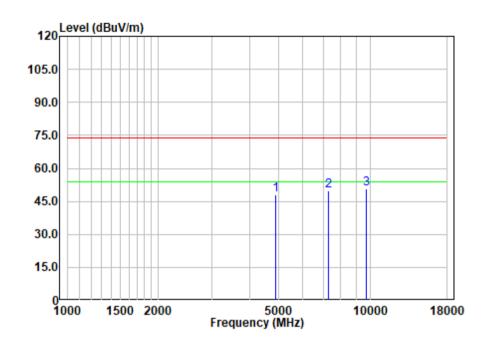
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Report No.: KSCR220800154902

Page: 58 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4874.000	8.16	34.18	47.78	48.20	74.00	-25.80	Peak
2	7311.000	10.44	35.46	46.44	49.84	74.00	-24.16	Peak
3	9748.000	12.40	37.04	43.74	50.57	74.00	-23.43	Peak



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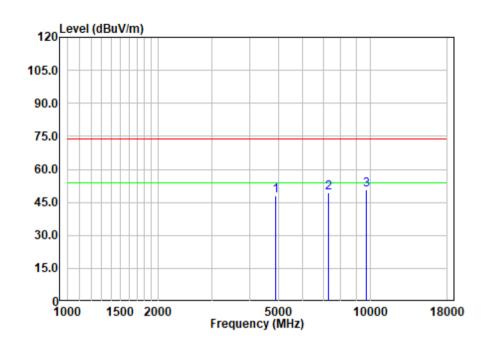
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Report No.: KSCR220800154902

Page: 59 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
_							
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4874.000	8.16	34.18	47.67	48.09	74.00	-25.91	Peak
7311.000	10.44	35.46	46.03	49.43	74.00	-24.57	Peak
9748.000	12.40	37.04	43.95	50.78	74.00	-23.22	Peak
	MHz 4874.000 7311.000	Freq Loss MHz dB 4874.000 8.16 7311.000 10.44	Freq Loss Factor MHz dB dB/m 4874.000 8.16 34.18 7311.000 10.44 35.46	MHz dB dB/m dBuV 4874.000 8.16 34.18 47.67 7311.000 10.44 35.46 46.03	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4874.000 8.16 34.18 47.67 48.09 7311.000 10.44 35.46 46.03 49.43	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m 4874.000 8.16 34.18 47.67 48.09 74.00 7311.000 10.44 35.46 46.03 49.43 74.00	MHz dB Limit Over Limit 4874.000 8.16 34.18 47.67 48.09 74.00 -25.91 7311.000 10.44 35.46 46.03 49.43 74.00 -24.57 9748.000 12.40 37.04 43.95 50.78 74.00 -23.22



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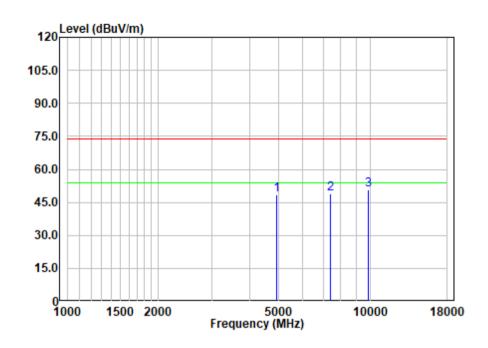
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Report No.: KSCR220800154902

Page: 60 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4924.000	8.19	34.17	47.65	48.32	74.00	-25.68	Peak
7386.000	10.52	35.49	45.50	49.07	74.00	-24.93	Peak
9848.000	12.49	37.12	43.39	50.57	74.00	-23.43	Peak
	MHz 4924.000 7386.000	Freq Loss MHz dB 4924.000 8.19 7386.000 10.52	Freq Loss Factor MHz dB dB/m 4924.000 8.19 34.17 7386.000 10.52 35.49	Freq Loss Factor Level MHz dB dB/m dBuV 4924.000 8.19 34.17 47.65 7386.000 10.52 35.49 45.50	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4924.000 8.19 34.17 47.65 48.32 7386.000 10.52 35.49 45.50 49.07	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m 4924.000 49.07 74.00 7386.000 10.52 35.49 45.50 49.07 74.00	MHz dB Limit Over Limit 4924.000 8.19 34.17 47.65 48.32 74.00 -25.68 7386.000 10.52 35.49 45.50 49.07 74.00 -24.93 9848.000 12.49 37.12 43.39 50.57 74.00 -23.43



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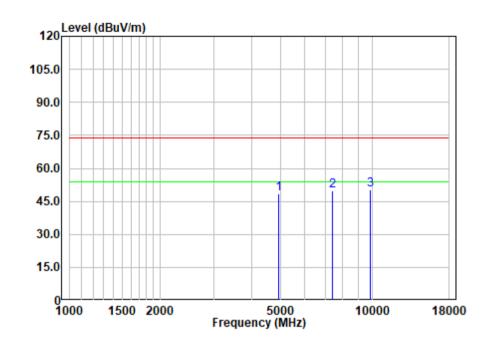
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Report No.: KSCR220800154902

Page: 61 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	8.19	34.17	47.77	48.44	74.00	-25.56	Peak
2	7386.000	10.52	35.49	46.17	49.74	74.00	-24.26	Peak
3	9848.000	12.49	37.12	43.06	50.24	74.00	-23.76	Peak



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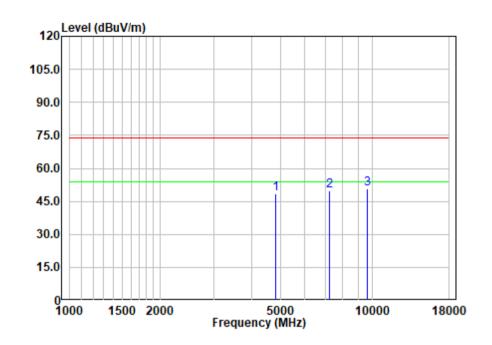
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Report No.: KSCR220800154902

Page: 62 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



	F		Ant					D I -
	Freq	LOSS	Factor	revel	rever	Line	Limit	Kemark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4824.000	8.13	34.18	48.54	48.61	74.00	-25.39	Peak
2	7236.000	10.37	35.44	46.78	49.98	74.00	-24.02	Peak
3	9648.000	12.32	36.96	43.67	50.63	74.00	-23.37	Peak



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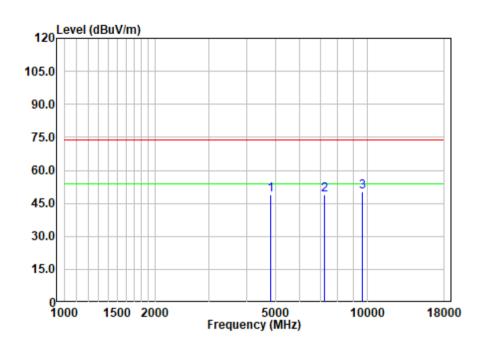
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Report No.: KSCR220800154902

Page: 63 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4824.000	8.13	34.18	48.88	48.95	74.00	-25.05	Peak
7236.000	10.37	35.44	45.83	49.03	74.00	-24.97	Peak
9648.000	12.32	36.96	43.10	50.06	74.00	-23.94	Peak
	MHz 4824.000 7236.000	Freq Loss MHz dB 4824.000 8.13 7236.000 10.37	Freq Loss Factor MHz dB dB/m 4824.000 8.13 34.18 7236.000 10.37 35.44	Freq Loss Factor Level MHz dB dB/m dBuV 4824.000 8.13 34.18 48.88 7236.000 10.37 35.44 45.83	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4824.000 8.13 34.18 48.88 48.95 7236.000 10.37 35.44 45.83 49.03	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m 48.24.000 48.24.000 34.18 48.88 48.95 74.00 7236.000 10.37 35.44 45.83 49.03 74.00	MHz dB Limit Over Limit 4824.000 8.13 34.18 48.88 48.95 74.00 -25.05 7236.000 10.37 35.44 45.83 49.03 74.00 -24.97 9648.000 12.32 36.96 43.10 50.06 74.00 -23.94



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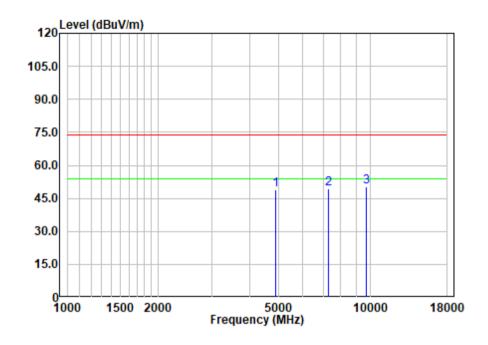
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Report No.: KSCR220800154902

Page: 64 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:middle



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
_							
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4874.000	8.16	34.18	48.39	48.81	74.00	-25.19	Peak
7311.000	10.44	35.46	45.78	49.18	74.00	-24.82	Peak
9748.000	12.40	37.04	43.57	50.40	74.00	-23.60	Peak
	MHz 4874.000 7311.000	Freq Loss MHz dB 4874.000 8.16 7311.000 10.44	Freq Loss Factor MHz dB dB/m 4874.000 8.16 34.18 7311.000 10.44 35.46	Freq Loss Factor Level MHz dB dB/m dBuV 4874.000 8.16 34.18 48.39 7311.000 10.44 35.46 45.78	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4874.000 8.16 34.18 48.39 48.81 7311.000 10.44 35.46 45.78 49.18	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m 4874.000 48.81 74.00 7311.000 10.44 35.46 45.78 49.18 74.00	MHz dB Limit Over Limit 4874.000 8.16 34.18 48.39 48.81 74.00 -25.19 7311.000 10.44 35.46 45.78 49.18 74.00 -24.82 9748.000 12.40 37.04 43.57 50.40 74.00 -23.60



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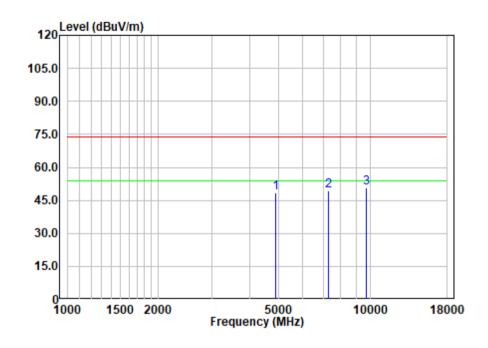
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Report No.: KSCR220800154902

Page: 65 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:middle



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
_							
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4874.000	8.16	34.18	47.97	48.39	74.00	-25.61	Peak
7311.000	10.44	35.46	45.98	49.38	74.00	-24.62	Peak
9748.000	12.40	37.04	43.81	50.64	74.00	-23.36	Peak
	MHz 4874.000 7311.000	Freq Loss MHz dB 4874.000 8.16 7311.000 10.44	Freq Loss Factor MHz dB dB/m 4874.000 8.16 34.18 7311.000 10.44 35.46	Freq Loss Factor Level MHz dB dB/m dBuV 4874.000 8.16 34.18 47.97 7311.000 10.44 35.46 45.98	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4874.000 8.16 34.18 47.97 48.39 7311.000 10.44 35.46 45.98 49.38	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m 4874.000 8.16 34.18 47.97 48.39 74.00 7311.000 10.44 35.46 45.98 49.38 74.00	MHz dB Limit Over 4874.000 8.16 34.18 47.97 48.39 74.00 -25.61 7311.000 10.44 35.46 45.98 49.38 74.00 -24.62 9748.000 12.40 37.04 43.81 50.64 74.00 -23.36



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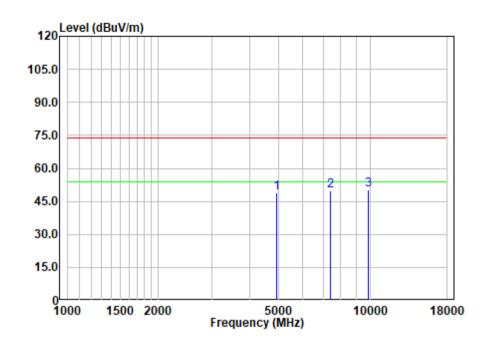
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Report No.: KSCR220800154902

Page: 66 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	8.19	34.17	48.22	48.89	74.00	-25.11	Peak
2	7386.000	10.52	35.49	46.05	49.62	74.00	-24.38	Peak
3	9848.000	12.49	37.12	43.18	50.36	74.00	-23.64	Peak



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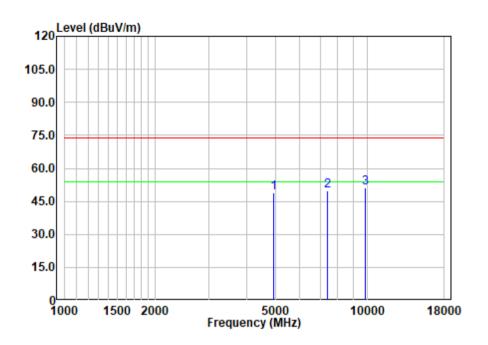
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Report No.: KSCR220800154902

Page: 67 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4924.000	8.19	34.17	48.22	48.89	74.00	-25.11	Peak
7386.000	10.52	35.49	46.35	49.92	74.00	-24.08	Peak
9848.000	12.49	37.12	43.81	50.99	74.00	-23.01	Peak
	MHz 4924.000 7386.000	Freq Loss MHz dB 4924.000 8.19 7386.000 10.52	Freq Loss Factor MHz dB dB/m 4924.000 8.19 34.17 7386.000 10.52 35.49	Freq Loss Factor Level MHz dB dB/m dBuV 4924.000 8.19 34.17 48.22 7386.000 10.52 35.49 46.35	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4924.000 8.19 34.17 48.22 48.89 7386.000 10.52 35.49 46.35 49.92	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m 4924.000 34.17 48.22 48.89 74.00 7386.000 10.52 35.49 46.35 49.92 74.00	MHz dB Limit Over 4924.000 8.19 34.17 48.22 48.89 74.00 -25.11 7386.000 10.52 35.49 46.35 49.92 74.00 -24.08 9848.000 12.49 37.12 43.81 50.99 74.00 -23.01



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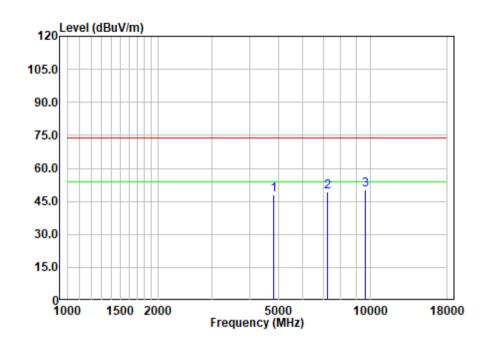
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Report No.: KSCR220800154902

Page: 68 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4824.000	8.13	34.18	47.95	48.02	74.00	-25.98	Peak
7236.000	10.37	35.44	46.21	49.41	74.00	-24.59	Peak
9648.000	12.32	36.96	43.42	50.38	74.00	-23.62	Peak
	MHz 4824.000 7236.000	Freq Loss MHz dB 4824.000 8.13 7236.000 10.37	Freq Loss Factor MHz dB dB/m 4824.000 8.13 34.18 7236.000 10.37 35.44	Freq Loss Factor Level MHz dB dB/m dBuV 4824.000 8.13 34.18 47.95 7236.000 10.37 35.44 46.21	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4824.000 8.13 34.18 47.95 48.02 7236.000 10.37 35.44 46.21 49.41	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m 48.02 74.00 7236.000 10.37 35.44 46.21 49.41 74.00	Cable Ant Read Limit Over Loss Factor Freq Loss Factor Level Level Level Line Limit MHz dB dB/m dBuV dBuV/m dBuV/m dB 4824.000 8.13 34.18 47.95 48.02 74.00 -25.98 7236.000 10.37 35.44 46.21 49.41 74.00 -24.59 9648.000 12.32 36.96 43.42 50.38 74.00 -23.62



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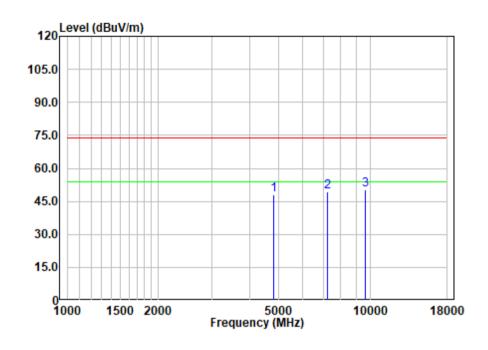
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Report No.: KSCR220800154902

Page: 69 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4824.000	8.13	34.18	48.06	48.13	74.00	-25.87	Peak
2	7236.000	10.37	35.44	45.98	49.18	74.00	-24.82	Peak
3	9648.000	12.32	36.96	43.47	50.43	74.00	-23.57	Peak



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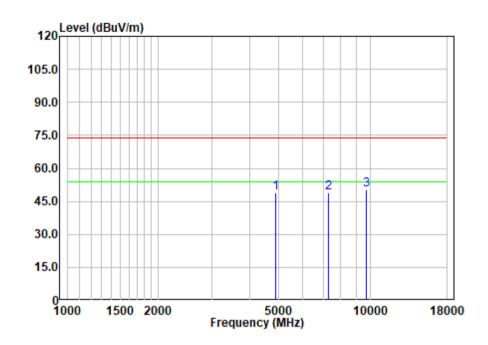
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Report No.: KSCR220800154902

Page: 70 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	_							
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4874.000	8.16	34.18	48.43	48.85	74.00	-25.15	Peak
2	7311.000	10.44	35.46	45.71	49.11	74.00	-24.89	Peak
3	9748.000	12.40	37.04	43.61	50.44	74.00	-23.56	Peak



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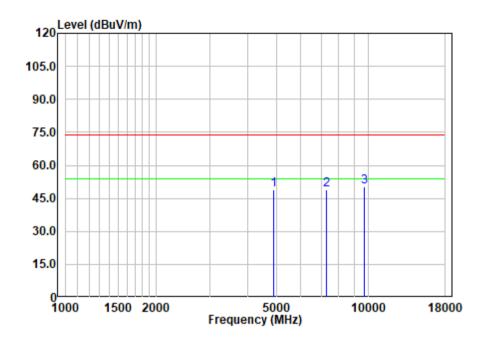
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Report No.: KSCR220800154902

Page: 71 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4874.000	8.16	34.18	48.31	48.73	74.00	-25.27	Peak
2	7311.000	10.44	35.46	45.69	49.09	74.00	-24.91	Peak
3	9748.000	12.40	37.04	43.44	50.27	74.00	-23.73	Peak



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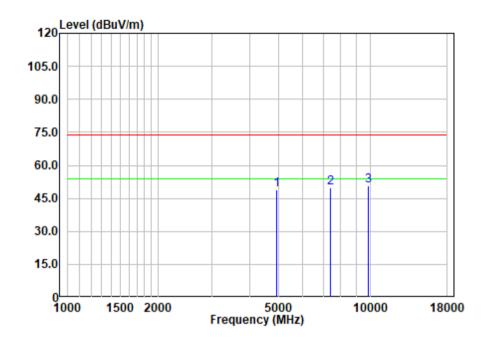
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Report No.: KSCR220800154902

Page: 72 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
_							
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4924.000	8.19	34.17	48.15	48.82	74.00	-25.18	Peak
7386.000	10.52	35.49	46.18	49.75	74.00	-24.25	Peak
9848.000	12.49	37.12	43.37	50.55	74.00	-23.45	Peak
	MHz 4924.000 7386.000	Freq Loss MHz dB 4924.000 8.19 7386.000 10.52	Freq Loss Factor MHz dB dB/m 4924.000 8.19 34.17 7386.000 10.52 35.49	Freq Loss Factor Level MHz dB dB/m dBuV 4924.000 8.19 34.17 48.15 7386.000 10.52 35.49 46.18	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4924.000 8.19 34.17 48.15 48.82 7386.000 10.52 35.49 46.18 49.75	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m 4924.000 48.15 48.82 74.00 74.00 7386.000 10.52 35.49 46.18 49.75 74.00	MHz dB Limit Over Limit 4924.000 8.19 34.17 48.15 48.82 74.00 -25.18 7386.000 10.52 35.49 46.18 49.75 74.00 -24.25 9848.000 12.49 37.12 43.37 50.55 74.00 -23.45



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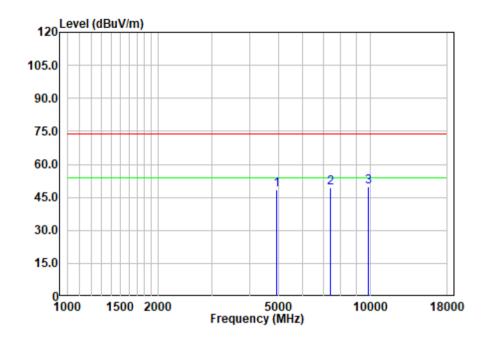
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Report No.: KSCR220800154902

Page: 73 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	8.19	34.17	47.72	48.39	74.00	-25.61	Peak
2	7386.000	10.52	35.49	46.00	49.57	74.00	-24.43	Peak
3	9848.000	12.49	37.12	42.85	50.03	74.00	-23.97	Peak



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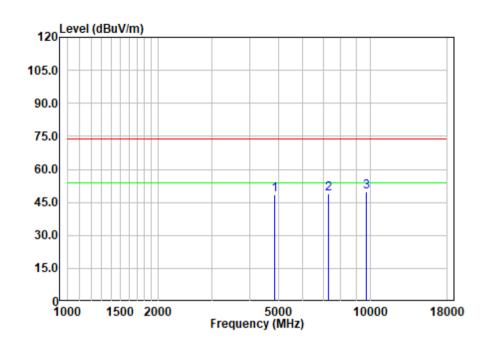
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Report No.: KSCR220800154902

Page: 74 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
_							
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4844.000	8.15	34.18	48.36	48.58	74.00	-25.42	Peak
7266.000	10.40	35.45	45.76	49.05	74.00	-24.95	Peak
9688.000	12.35	36.99	43.32	50.02	74.00	-23.98	Peak
	MHz 4844.000 7266.000	Freq Loss MHz dB 4844.000 8.15 7266.000 10.40	Freq Loss Factor MHz dB dB/m 4844.000 8.15 34.18 7266.000 10.40 35.45	MHz dB dB/m dBuV 4844.000 8.15 34.18 48.36 7266.000 10.40 35.45 45.76	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4844.000 8.15 34.18 48.36 48.58 7266.000 10.40 35.45 45.76 49.05	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m 4844.000 8.15 34.18 48.36 48.58 74.00 7266.000 10.40 35.45 45.76 49.05 74.00	MHz dB Level Level Limit Over 4844.000 8.15 34.18 48.36 48.58 74.00 -25.42 7266.000 10.40 35.45 45.76 49.05 74.00 -24.95 9688.000 12.35 36.99 43.32 50.02 74.00 -23.98



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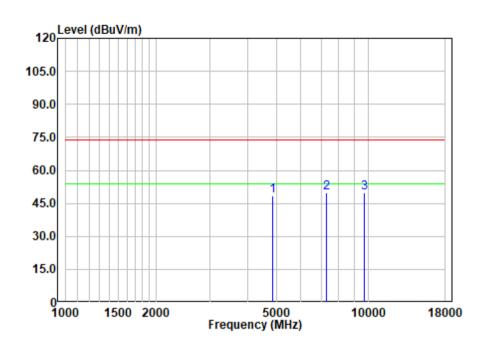
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Report No.: KSCR220800154902

Page: 75 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



			Ant					_
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4844.000							Peak
2	7266.000	10.40	35.45	46.44	49.73	74.00	-24.27	Peak
3	9688.000	12.35	36.99	43.31	50.01	74.00	-23.99	Peak



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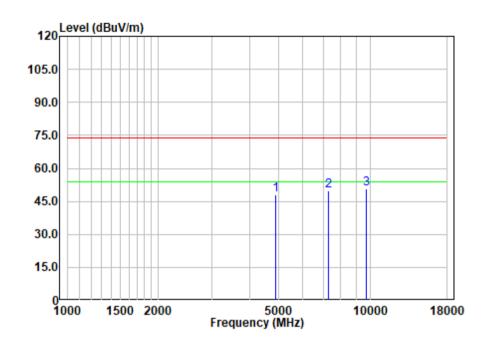
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Report No.: KSCR220800154902

Page: 76 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



		Cable	Ant	Read		Limit	0ver	
	Freq	Loss	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4874.000	8.16	34.18	47.74	48.16	74.00	-25.84	Peak
2	7311.000	10.44	35.46	46.22	49.62	74.00	-24.38	Peak
3	9748.000	12.40	37.04	43.70	50.53	74.00	-23.47	Peak



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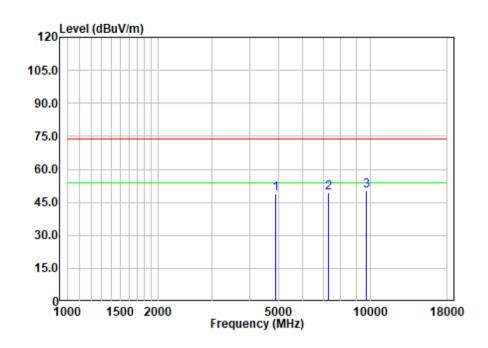
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Report No.: KSCR220800154902

Page: 77 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



	-		Ant					ь .
	Freq	LOSS	Factor	revel	revel	Line	Limit	Kemark
	MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4874.000	8.16	34.18	48.48	48.90	74.00	-25.10	Peak
2	7311.000	10.44	35.46	45.99	49.39	74.00	-24.61	Peak
3	9748.000	12.40	37.04	43.51	50.34	74.00	-23.66	Peak



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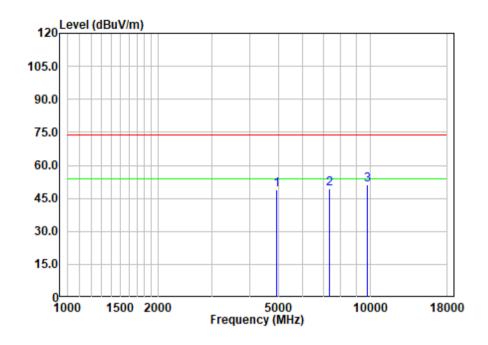
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Report No.: KSCR220800154902

Page: 78 of 133

Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4904.000	8.18	34.17	48.09	48.70	74.00	-25.30	Peak
7356.000	10.49	35.48	46.00	49.50	74.00	-24.50	Peak
9808.000	12.46	37.09	43.89	50.99	74.00	-23.01	Peak
	MHz 4904.000 7356.000	Freq Loss MHz dB 4904.000 8.18 7356.000 10.49	Freq Loss Factor MHz dB dB/m 4904.000 8.18 34.17 7356.000 10.49 35.48	Freq Loss Factor Level MHz dB dB/m dBuV 4904.000 8.18 34.17 48.09 7356.000 10.49 35.48 46.00	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4904.000 8.18 34.17 48.09 48.70 7356.000 10.49 35.48 46.00 49.50	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m dBuV/m 4904.000 74.00 74.00 7356.000 10.49 35.48 46.00 49.50 74.00	MHz dB Level Level Limit Over 4904.000 8.18 34.17 48.09 48.70 74.00 -25.30 7356.000 10.49 35.48 46.00 49.50 74.00 -24.50 9808.000 12.46 37.09 43.89 50.99 74.00 -23.01



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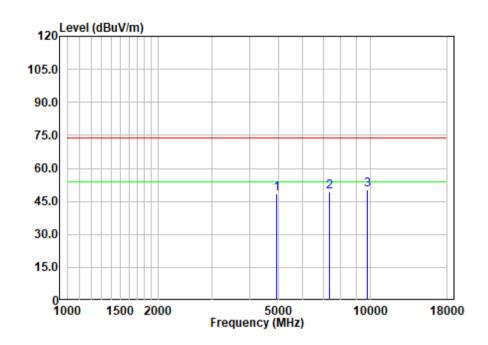
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Report No.: KSCR220800154902

Page: 79 of 133

Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



	Cable	Ant	Read		Limit	0ver	
Freq	Loss	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dBuV	dBuV/m	dBuV/m	dB	
4904.000	8.18	34.17	47.68	48.29	74.00	-25.71	Peak
7356.000	10.49	35.48	46.02	49.52	74.00	-24.48	Peak
9808.000	12.46	37.09	43.33	50.43	74.00	-23.57	Peak
	MHz 4904.000 7356.000	Freq Loss MHz dB 4904.000 8.18 7356.000 10.49	Freq Loss Factor MHz dB dB/m 4904.000 8.18 34.17 7356.000 10.49 35.48	Freq Loss Factor Level MHz dB dB/m dBuV 4904.000 8.18 34.17 47.68 7356.000 10.49 35.48 46.02	Freq Loss Factor Level Level MHz dB dB/m dBuV dBuV/m 4904.000 8.18 34.17 47.68 48.29 7356.000 10.49 35.48 46.02 49.52	Freq Loss Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m 4904.000 8.18 34.17 47.68 48.29 74.00 7356.000 10.49 35.48 46.02 49.52 74.00	MHz dB Limit Over Limit 4904.000 8.18 34.17 47.68 48.29 74.00 -25.71 7356.000 10.49 35.48 46.02 49.52 74.00 -24.48 9808.000 12.46 37.09 43.33 50.43 74.00 -23.57



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Report No.: KSCR220800154902

Page: 80 of 133

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2208001549AT

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2208001549AT



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Report No.: KSCR220800154902

Page: 81 of 133

10 Appendix

Appendix for KSCR220800154902-2.4G

Channel	802.11b	802.11g	802.11n(HT20)
Channel	Ant 1	Ant 1	Ant 1
1	37	48	48
6	37	48	48
11	37	48	48
Channal	802.11n(HT40)		
Channel	Ant 1		
3	49		
6	49		
9	49		

1. Duty Cycle

1.1 Ant1

1.1.1 Test Result

	Ant1									
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)			
		2412	100.000	100.000	100.00	0.00	0.00			
802.11b	SISO	2437	100.000	100.000	100.00	0.00	0.00			
		2462	100.000	100.000	100.00	0.00	0.00			
	SISO	2412	100.000	100.000	100.00	0.00	0.00			
802.11g		2437	100.000	100.000	100.00	0.00	0.00			
		2462	100.000	100.000	100.00	0.00	0.00			
000.44	SISO	2412	100.000	100.000	100.00	0.00	0.00			
802.11n (HT20)		2437	100.000	100.000	100.00	0.00	0.00			
(11120)		2462	100.000	100.000	100.00	0.00	0.00			
000.44		2422	100.000	100.000	100.00	0.00	0.00			
802.11n (HT40)	SISO	2437	100.000	100.000	100.00	0.00	0.00			
(11140)		2452	100.000	100.000	100.00	0.00	0.00			



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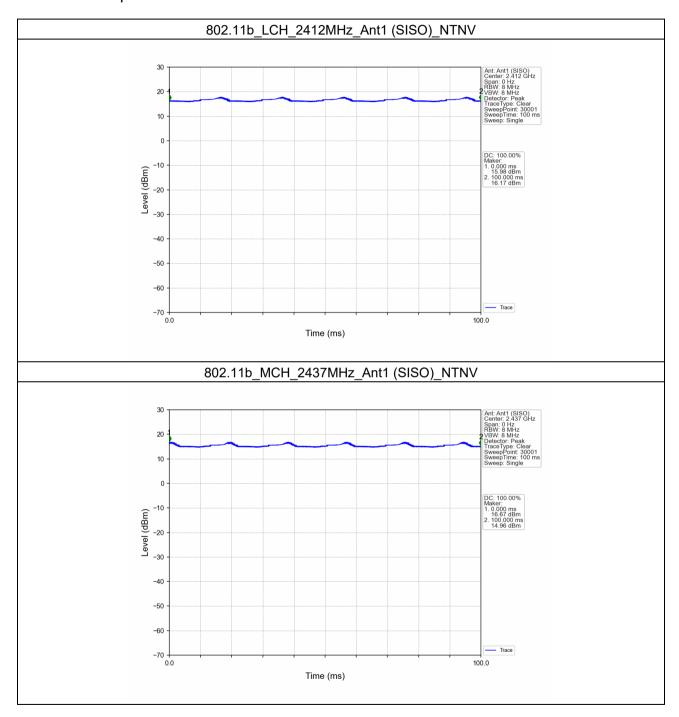
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Report No.: KSCR220800154902

Page: 82 of 133

1.1.2 Test Graph





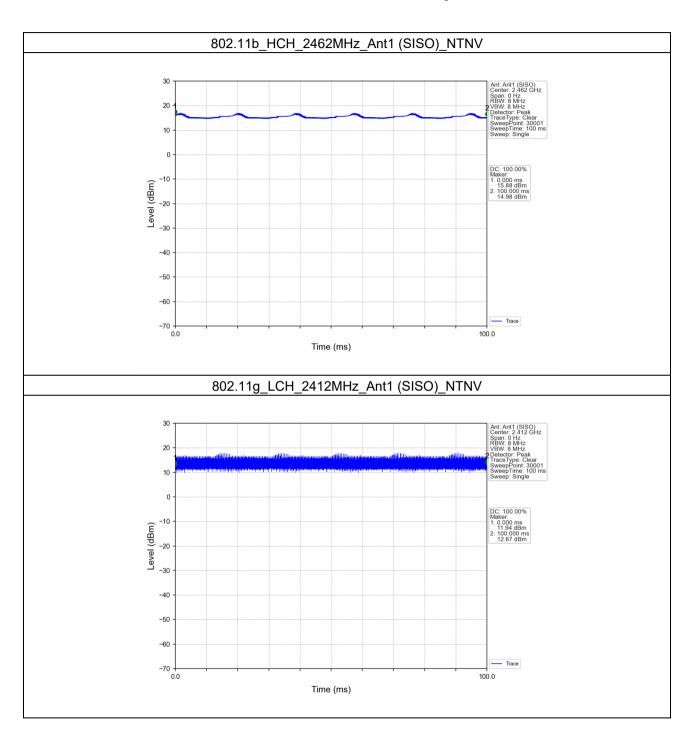
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Report No.: KSCR220800154902

Page: 83 of 133





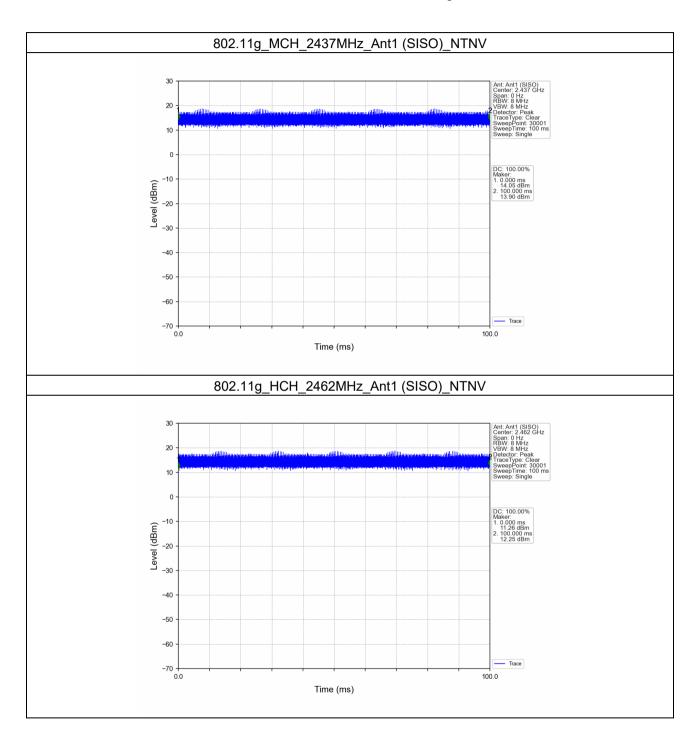
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Report No.: KSCR220800154902

Page: 84 of 133





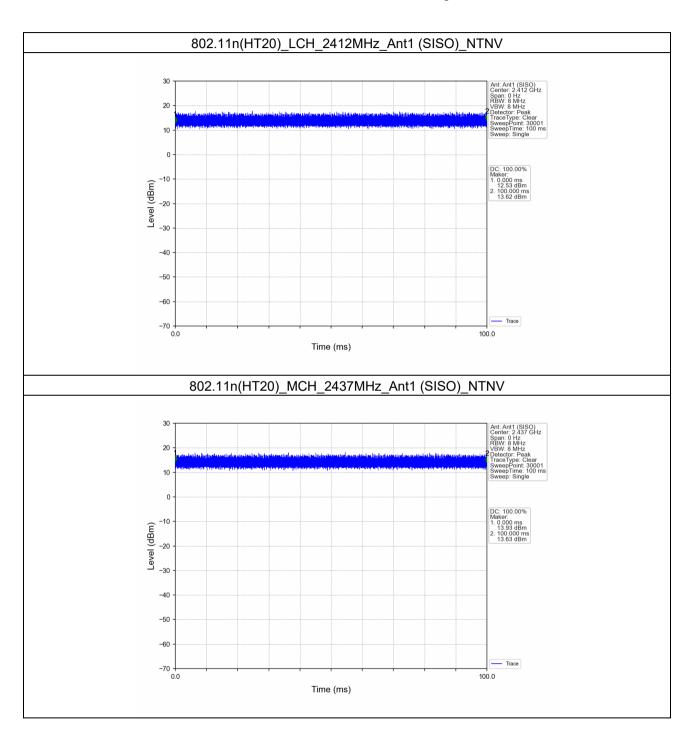
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Report No.: KSCR220800154902

Page: 85 of 133





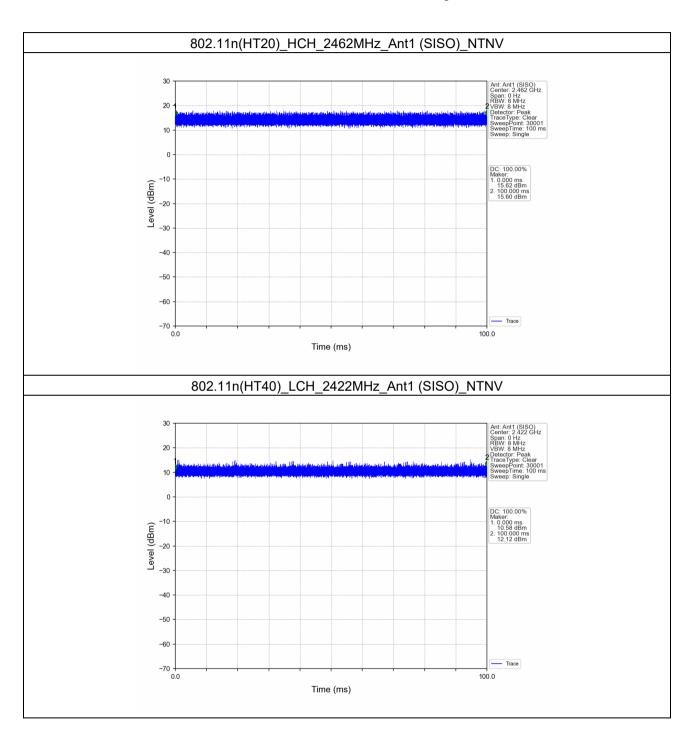
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Page: 86 of 133





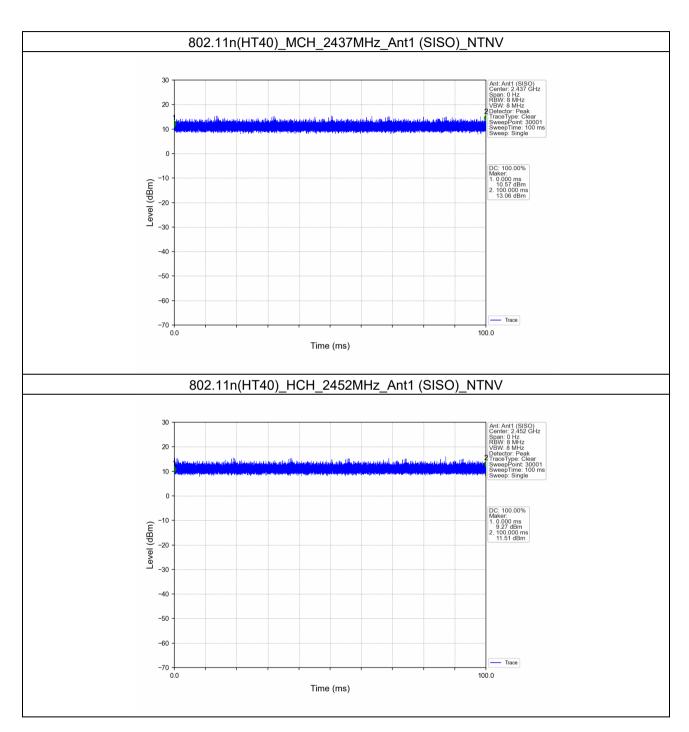
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Page: 87 of 133





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Report No.: KSCR220800154902

Page: 88 of 133

2. Bandwidth

2.1 OBW

2.1.1 Test Result

Mode	TX	Frequency	ANT	99% Occupied Bandwidth (MHz)	Verdict	
Mode	Туре	(MHz)		Result	verdict	
		2412	1	14.969	Pass	
802.11b	SISO	2437	1	14.914	Pass	
		2462	1	14.893	Pass	
	SISO	2412	1	17.494	Pass	
802.11g		2437	1	17.557	Pass	
		2462	1	17.580	Pass	
	SISO	2412	1	18.386	Pass	
802.11n (HT20)		2437	1	18.405	Pass	
(11120)		2462	1	18.404	Pass	
		2422	1	36.213	Pass	
802.11n (HT40)	SISO	2437	1	36.240	Pass	
(11140)		2452	1	36.262	Pass	



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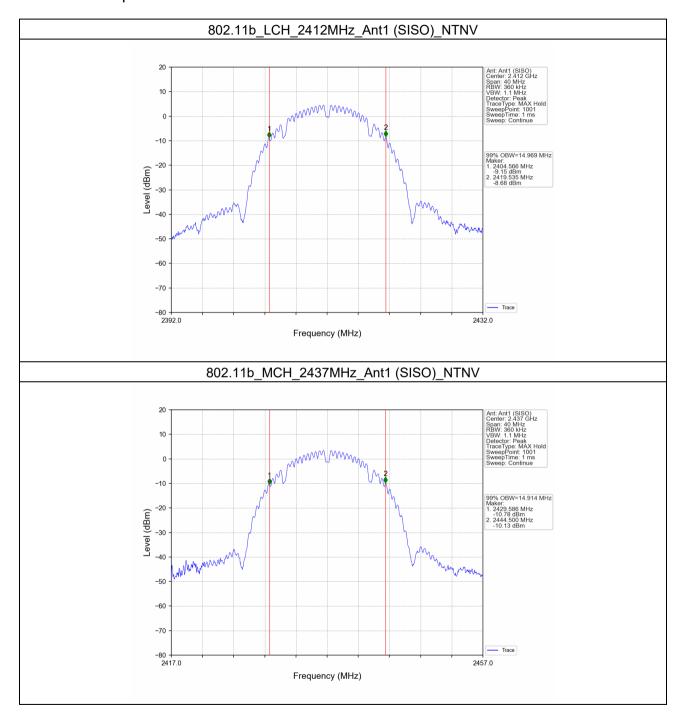
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Page: 89 of 133

2.1.2 Test Graph





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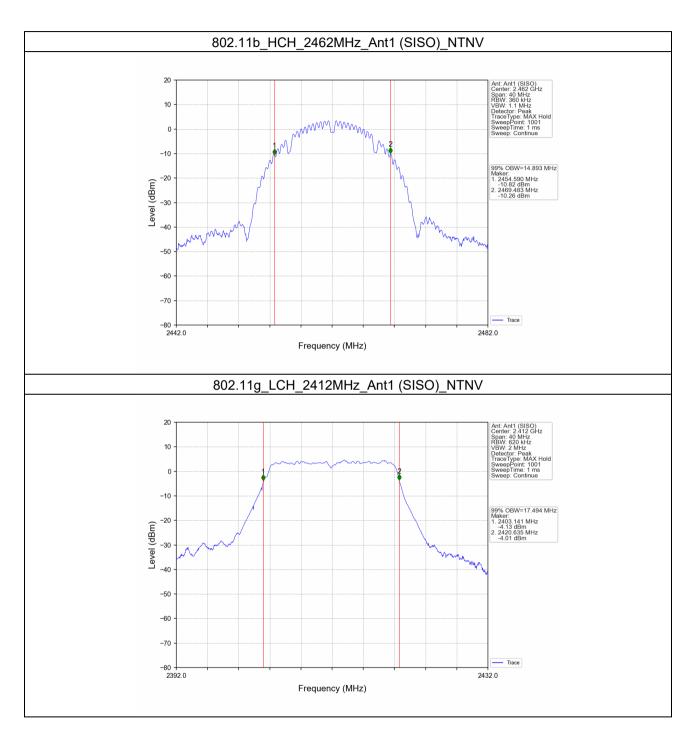
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Page: 90 of 133





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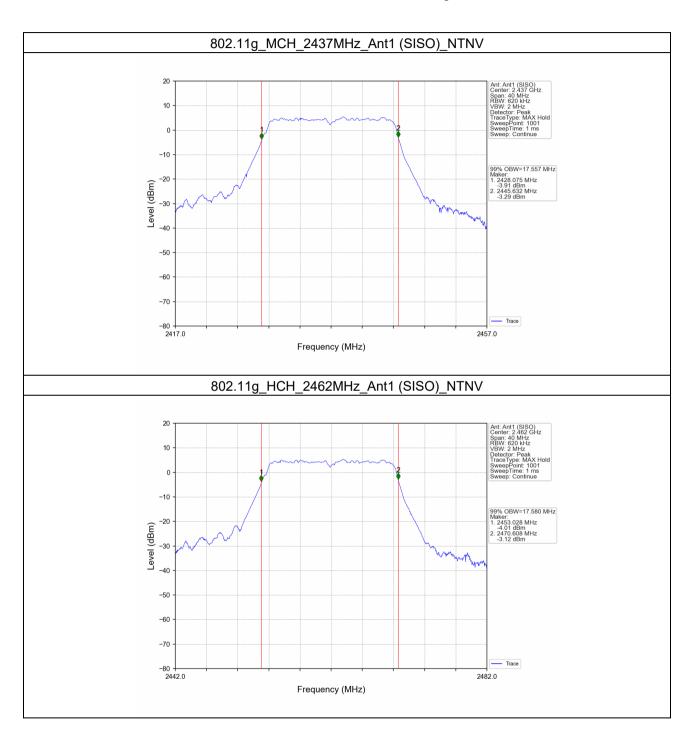
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Report No.: KSCR220800154902

Page: 91 of 133





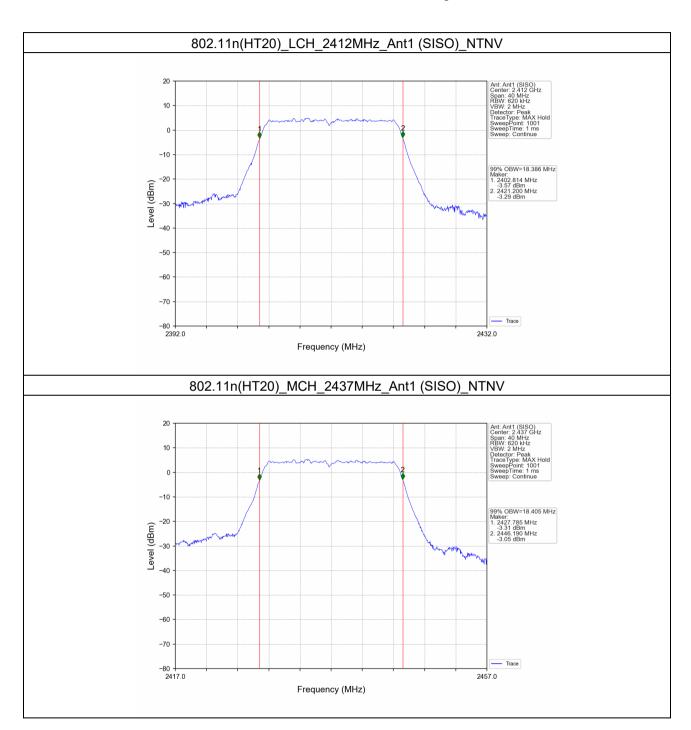
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Page: 92 of 133





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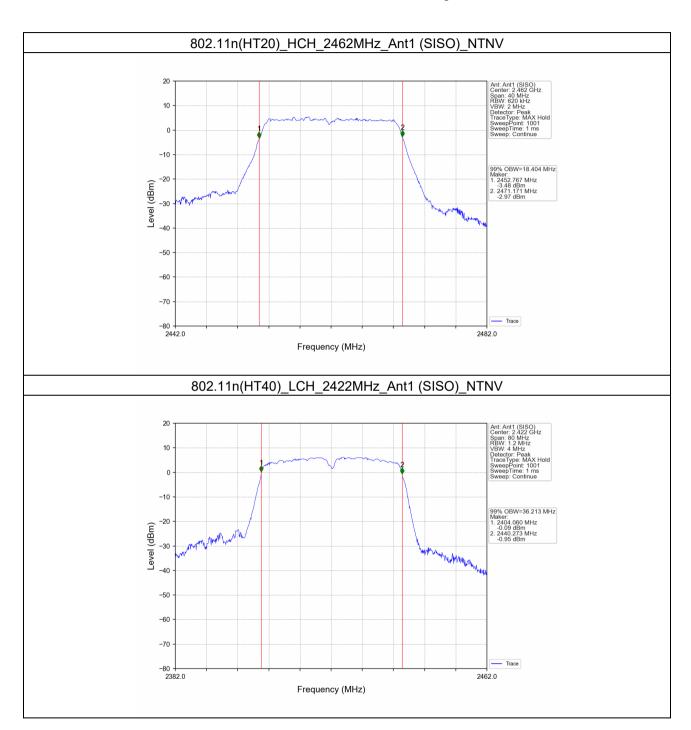
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Page: 93 of 133





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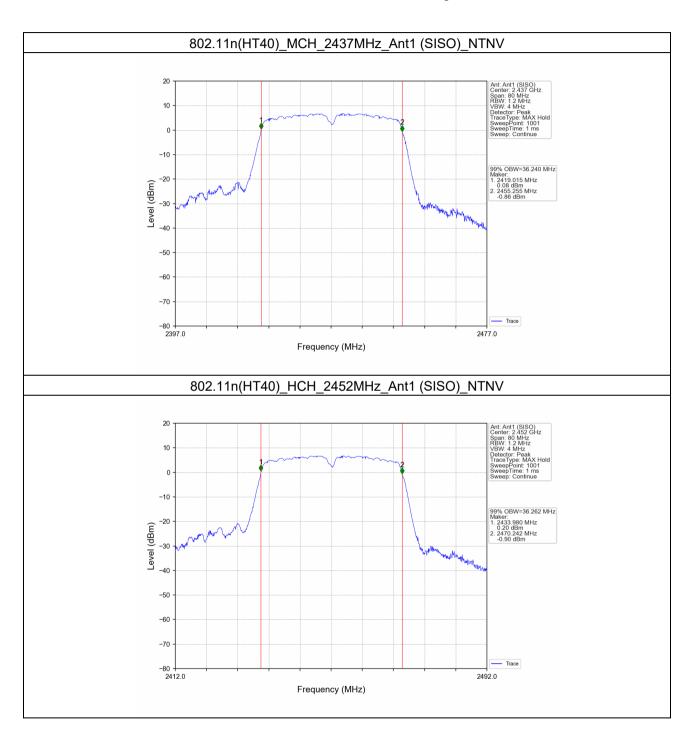
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Report No.: KSCR220800154902

Page: 94 of 133





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Report No.: KSCR220800154902

Page: 95 of 133

2.2 6dB BW

2.2.1 Test Result

Mode	TX	Frequency	ANIT	6dB Bandv	vidth (MHz)	Vardiet
Mode	Туре	(MHz)	ANT	Result	Limit	Verdict
		2412	1	10.103	>=0.5	Pass
802.11b	SISO	2437	1	10.096	>=0.5	Pass
		2462	1	10.096	>=0.5	Pass
		2412	1	16.591	>=0.5	Pass
802.11g	SISO	2437	1	16.595	>=0.5	Pass
		2462	1	16.595	>=0.5	Pass
000.44		2412	1	17.789	>=0.5	Pass
802.11n (HT20)	SISO	2437	1	17.796	>=0.5	Pass
(11120)		2462	1	17.784	>=0.5	Pass
000.44		2422	1	36.364	>=0.5	Pass
802.11n (HT40)	SISO	2437	1	36.360	>=0.5	Pass
(11140)		2452	1	36.353	>=0.5	Pass



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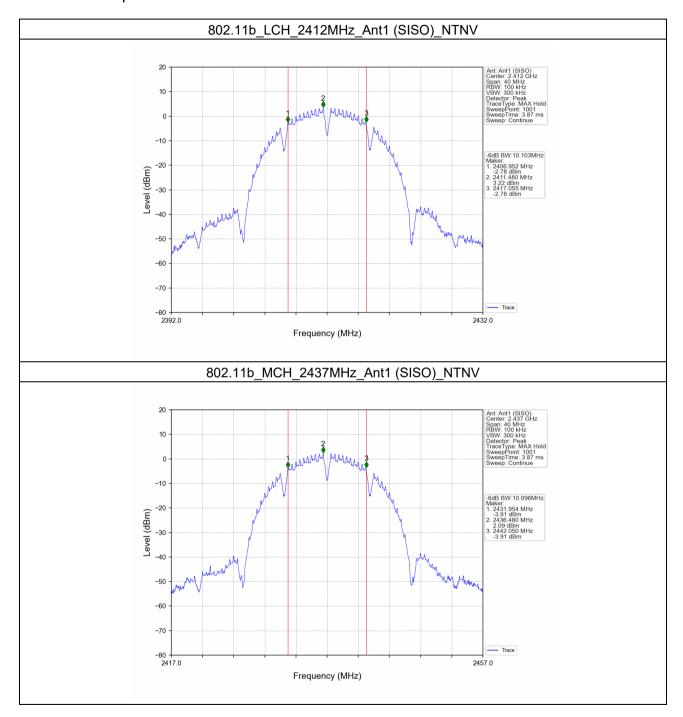
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Report No.: KSCR220800154902

Page: 96 of 133

2.2.2 Test Graph





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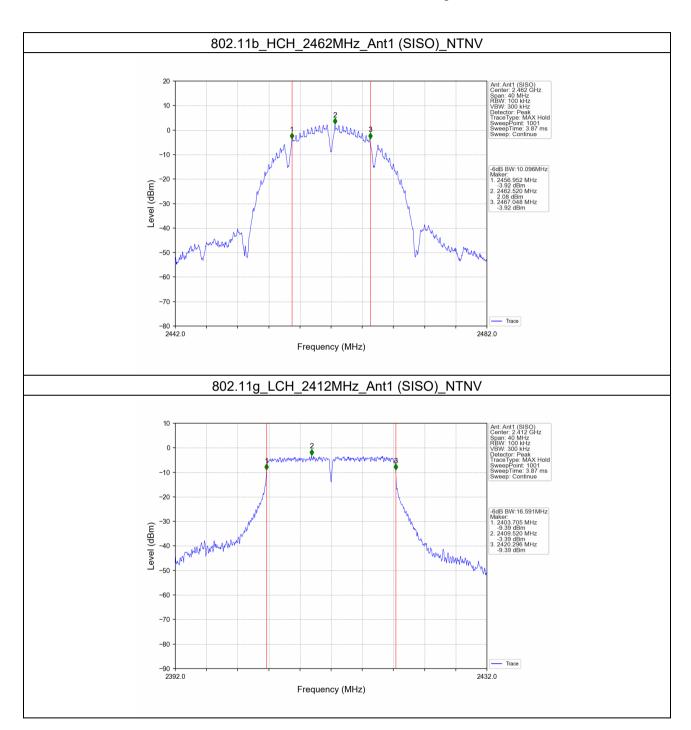
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Page: 97 of 133





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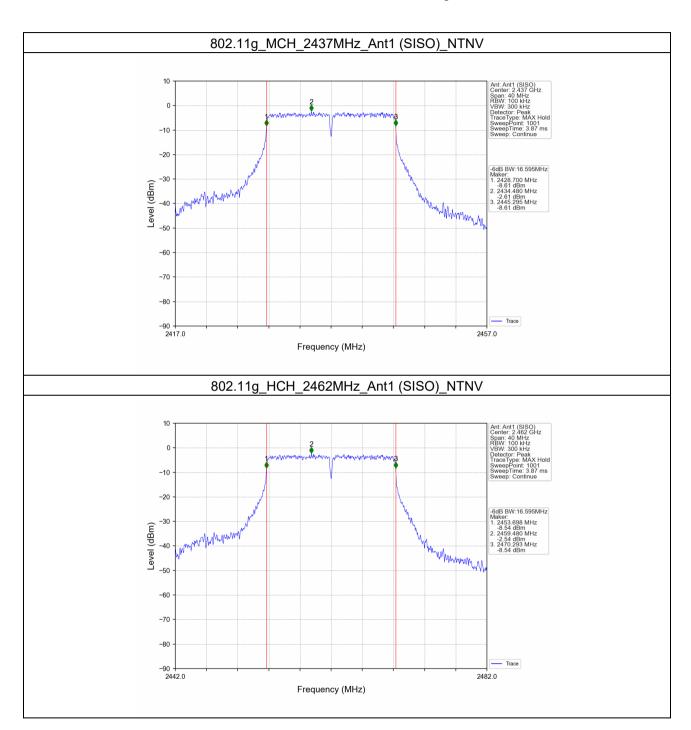
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Page: 98 of 133





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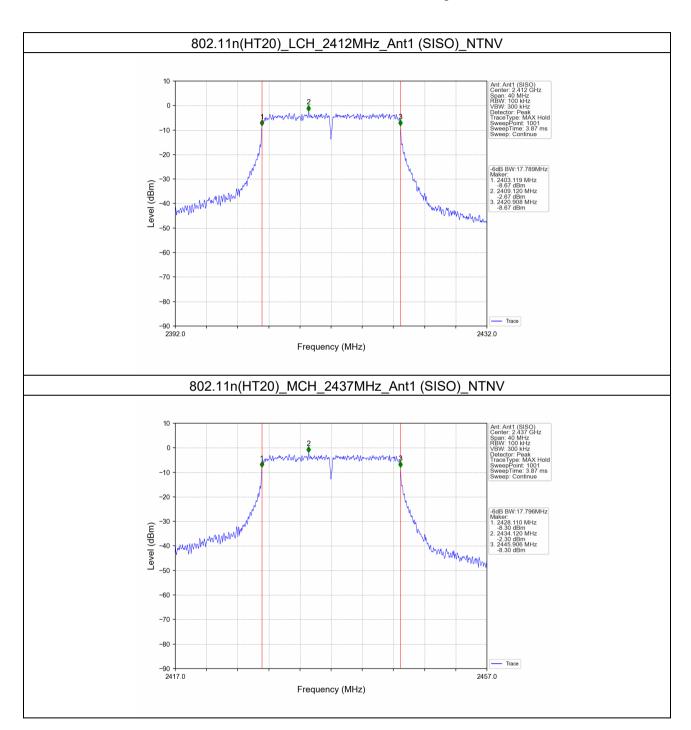
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Page: 99 of 133





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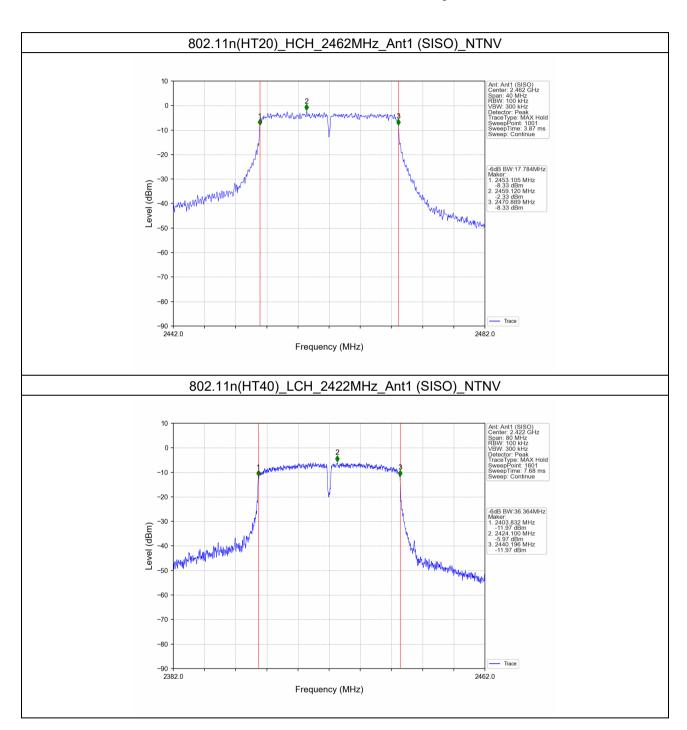
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Page: 100 of 133





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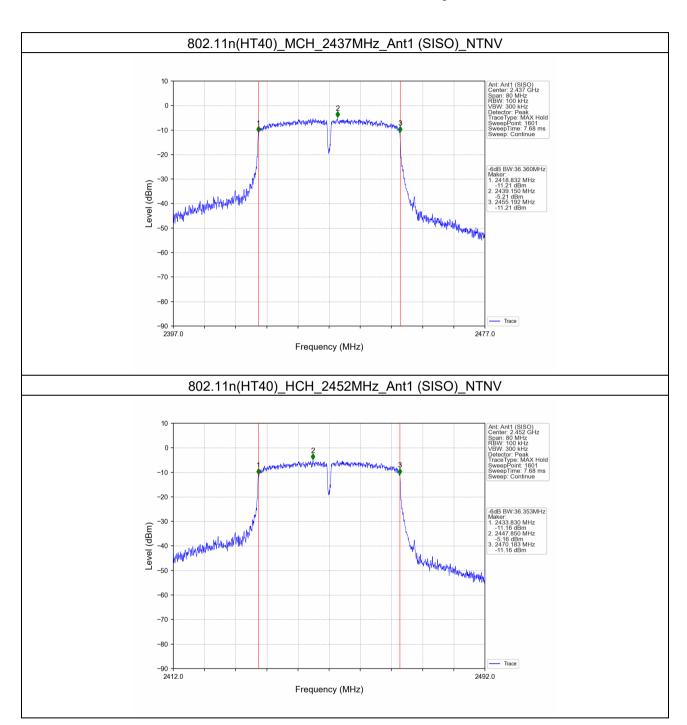
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Page: 101 of 133





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Report No.: KSCR220800154902

Page: 102 of 133

3. Maximum Conducted Output Power

3.1 Power

3.1.1 Test Result

Mode	TX	Frequency	Maximum Average Condu	ıcted Output Power (dBm)	Vardiat					
Wode	Туре	(MHz)	ANT1	Limit	Verdict					
		2412	8.22	<=30	Pass					
802.11b	SISO	2437	8.12	<=30	Pass					
		2462	8.08	<=30	Pass					
		2412	7.66	<=30	Pass					
802.11g	SISO	2437	8.01	<=30	Pass					
		2462	7.98	<=30	Pass					
000.44	SISO	2412	7.59	<=30	Pass					
802.11n (HT20)		2437	7.90	<=30	Pass					
(11120)		2462	7.89	<=30	Pass					
000.44							2422	7.82	<=30	Pass
802.11n (HT40)	SISO	2437	7.97	<=30	Pass					
(11140)		2452	7.99	<=30	Pass					
Note1: Ante	nna Gain: A	Ant1: -2.16dBi;								



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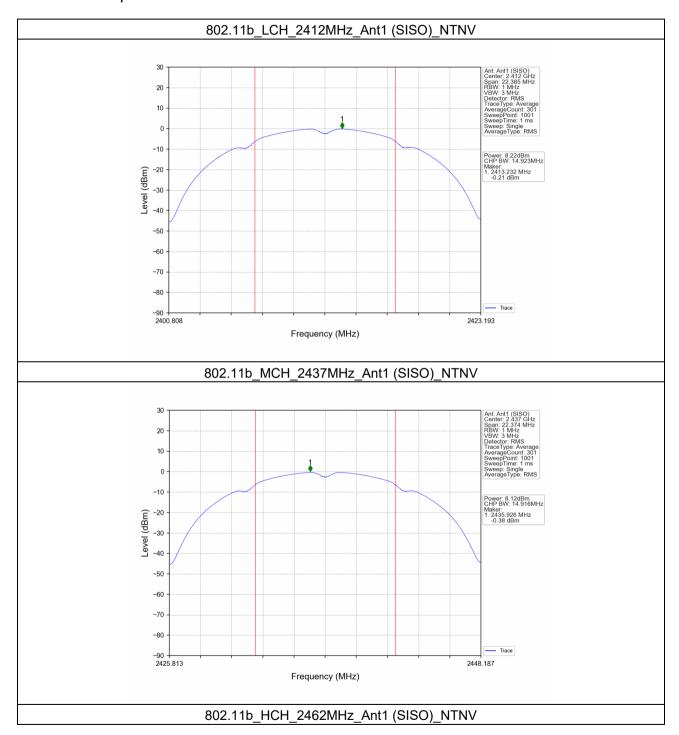
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Page: 103 of 133

3.1.2 Test Graph





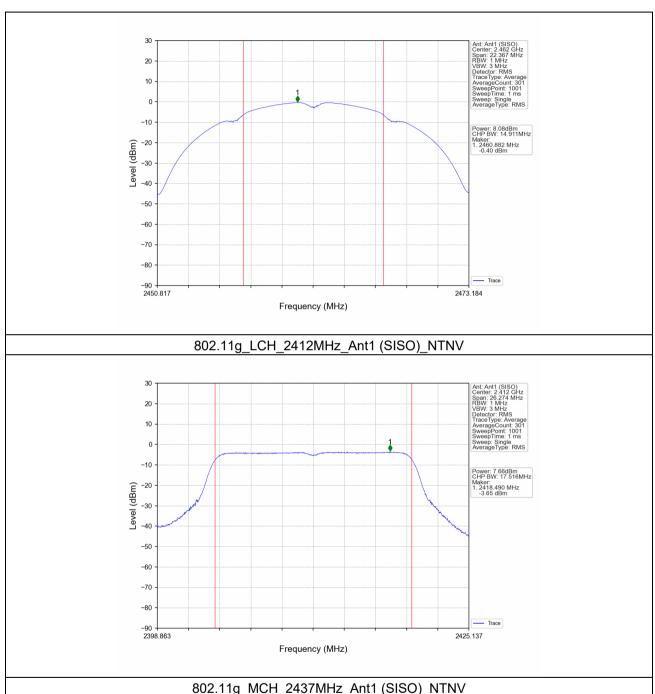
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Report No.: KSCR220800154902

Page: 104 of 133





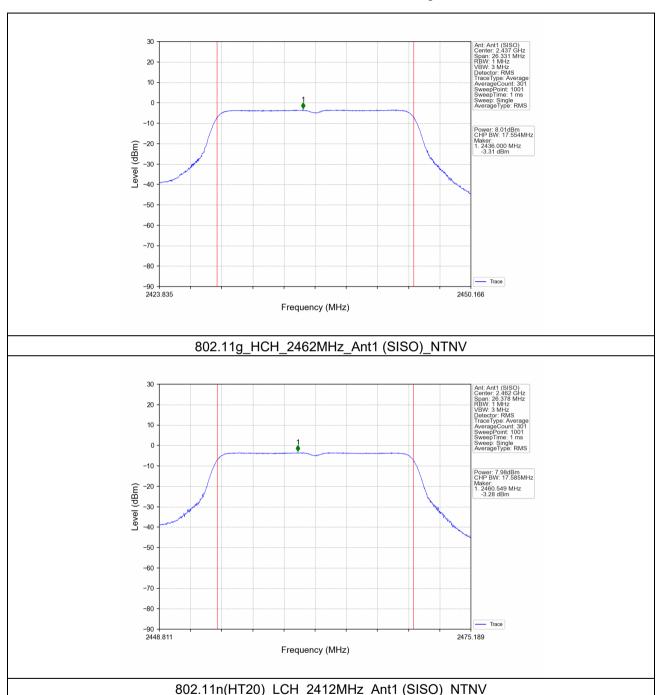
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Page: 105 of 133





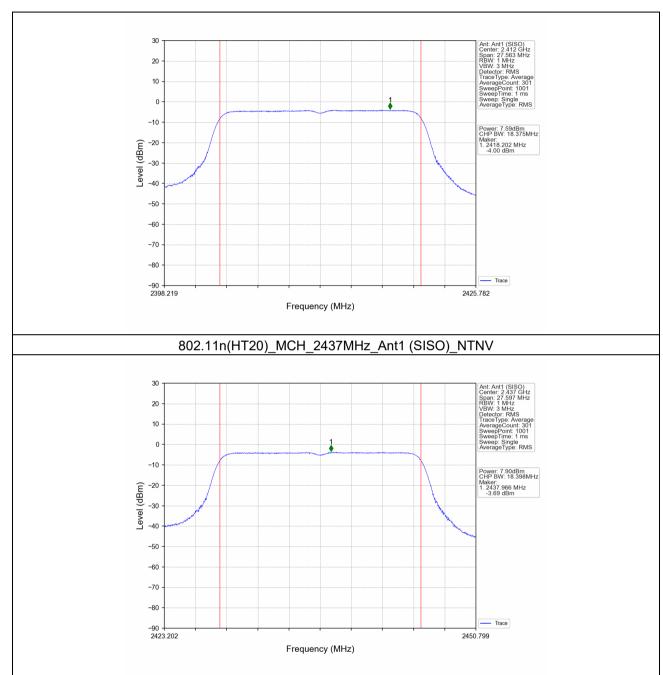
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Page: 106 of 133



802.11n(HT20) HCH 2462MHz Ant1 (SISO) NTNV



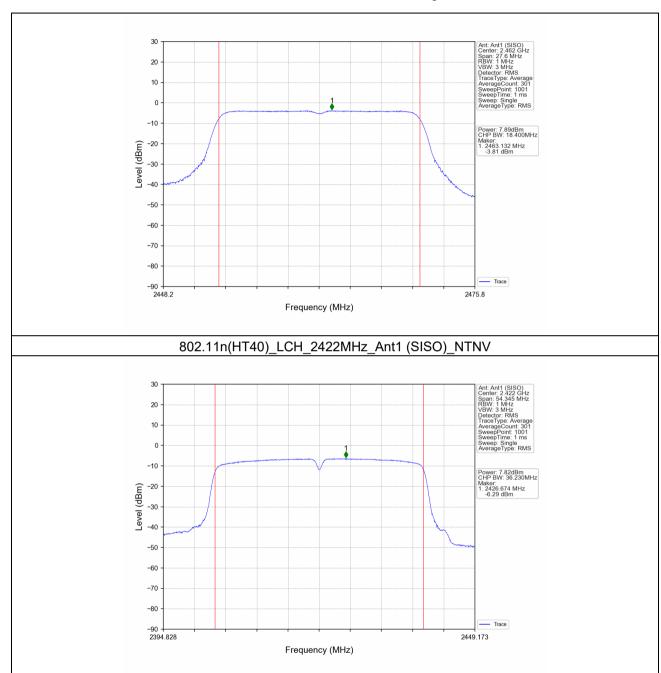
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Page: 107 of 133



802.11n(HT40) MCH 2437MHz Ant1 (SISO) NTNV



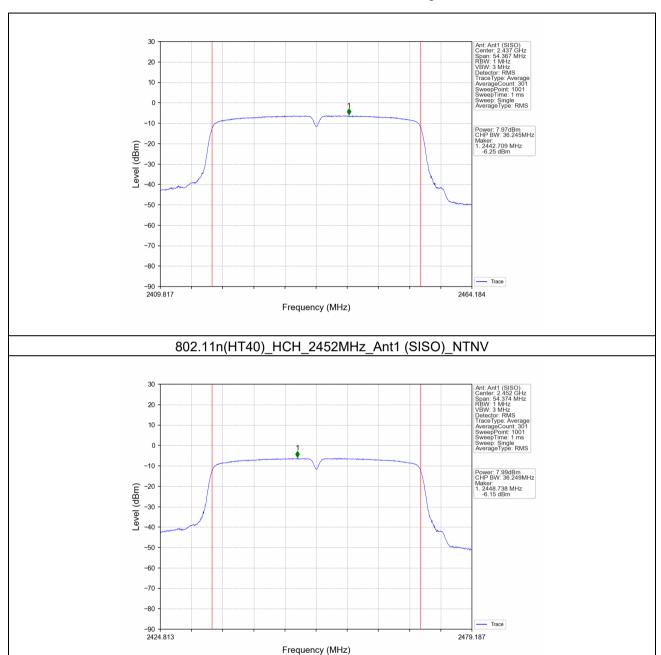
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Report No.: KSCR220800154902

Page: 109 of 133

4. Maximum Power Spectral Density

4.1 PSD

4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PS	Mandiat			
			ANT1	Limit	Verdict		
802.11b	SISO	2412	-21.32	<=8	Pass		
		2437	-21.52	<=8	Pass		
		2462	-21.54	<=8	Pass		
802.11g	SISO	2412	-20.60	<=8	Pass		
		2437	-20.59	<=8	Pass		
		2462	-20.25	<=8	Pass		
802.11n (HT20)	SISO	2412	-20.47	<=8	Pass		
		2437	-20.32	<=8	Pass		
		2462	-20.21	<=8	Pass		
802.11n (HT40)	SISO	2422	-21.48	<=8	Pass		
		2437	-21.32	<=8	Pass		
		2452	-20.64	<=8	Pass		
Note1: Antenna Gain: Ant1: -2.16dBi;							



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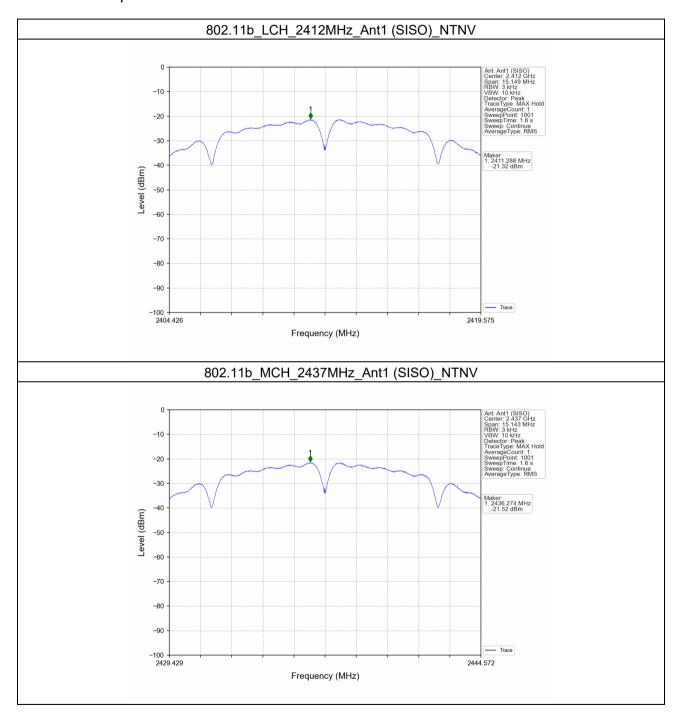
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Page: 110 of 133

4.1.2 Test Graph





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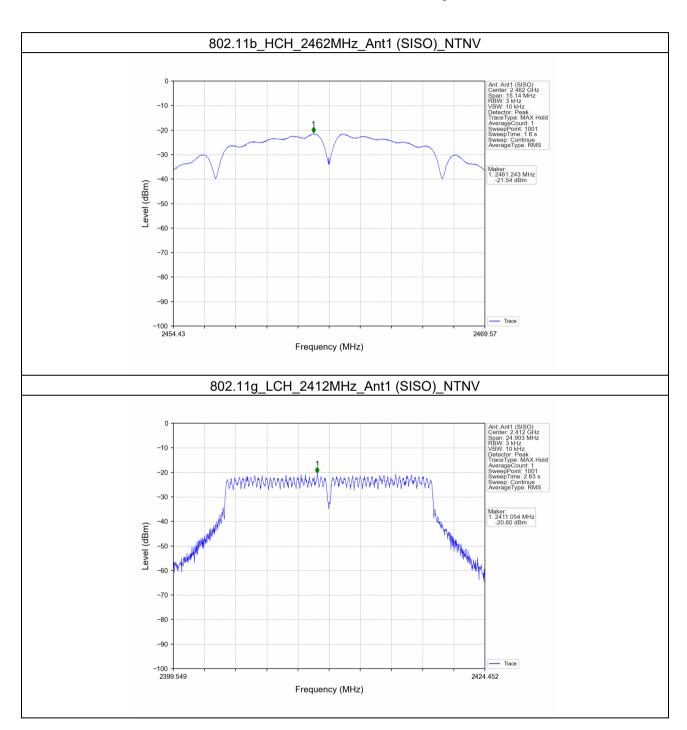
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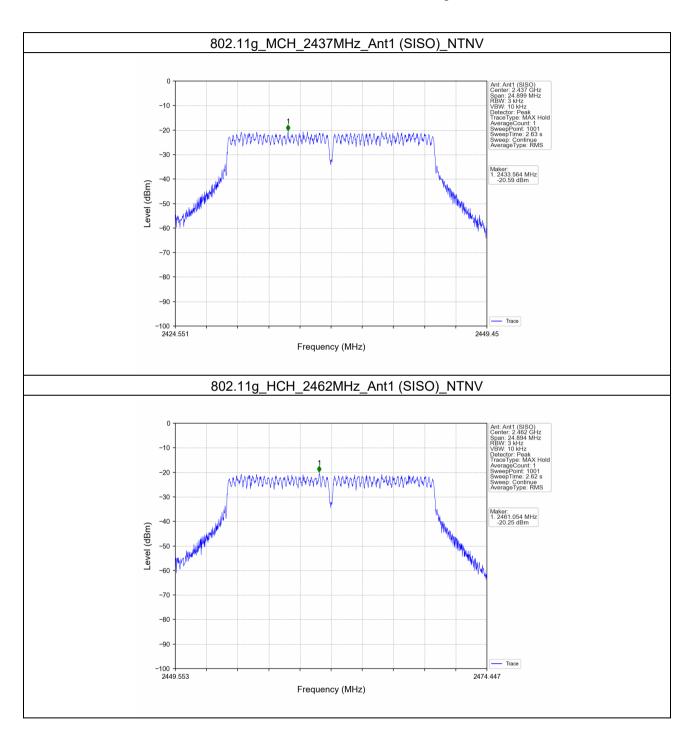
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Page: 112 of 133





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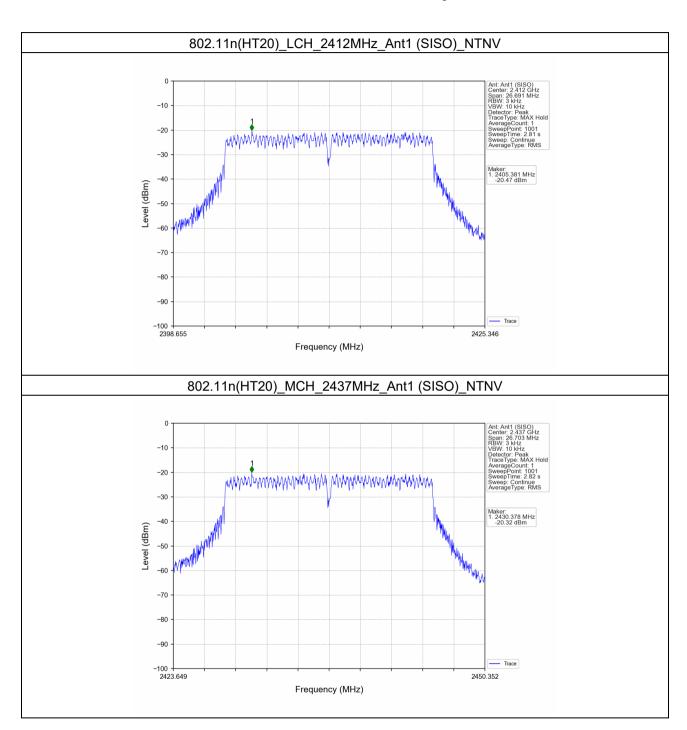
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Page: 113 of 133





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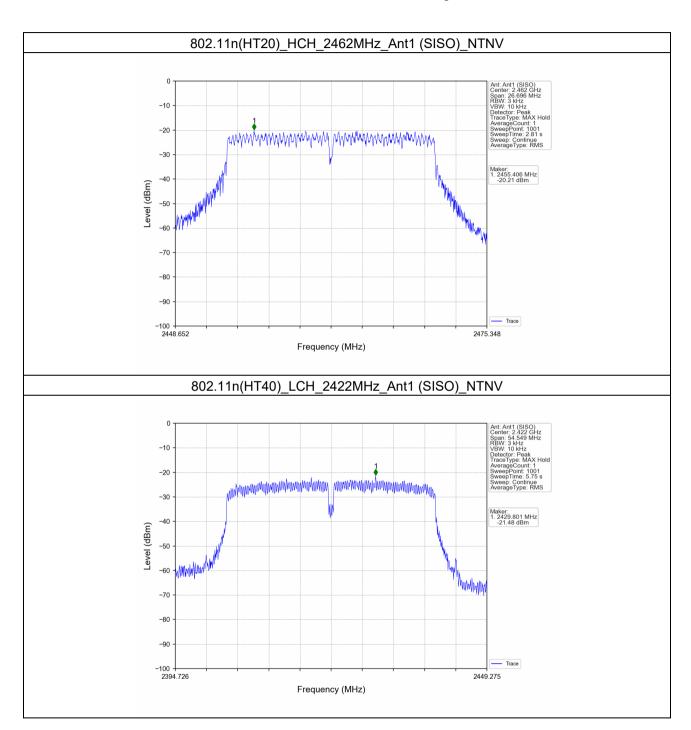
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Report No.: KSCR220800154902

Page: 114 of 133





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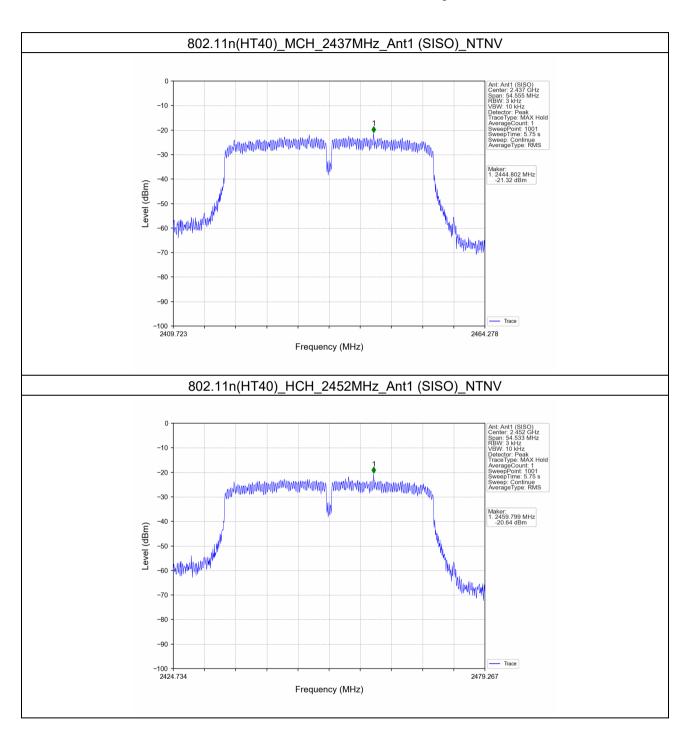
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Report No.: KSCR220800154902

Page: 115 of 133





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Report No.: KSCR220800154902

Page: 116 of 133

5. Unwanted Emissions InStandard Non-restricted Frequency Bands

5.1 Ref

5.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
802.11b	SISO	2412	1	1.78
		2437	1	2.11
		2462	1	2.08
802.11g	SISO	2412	1	-2.96
		2437	1	-2.66
		2462	1	-2.60
802.11n (HT20)	SISO	2412	1	-2.68
		2437	1	-2.54
		2462	1	-2.36
802.11n (HT40)	SISO	2422	1	-5.45
		2437	1	-5.24
		2452	1	-5.30

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.



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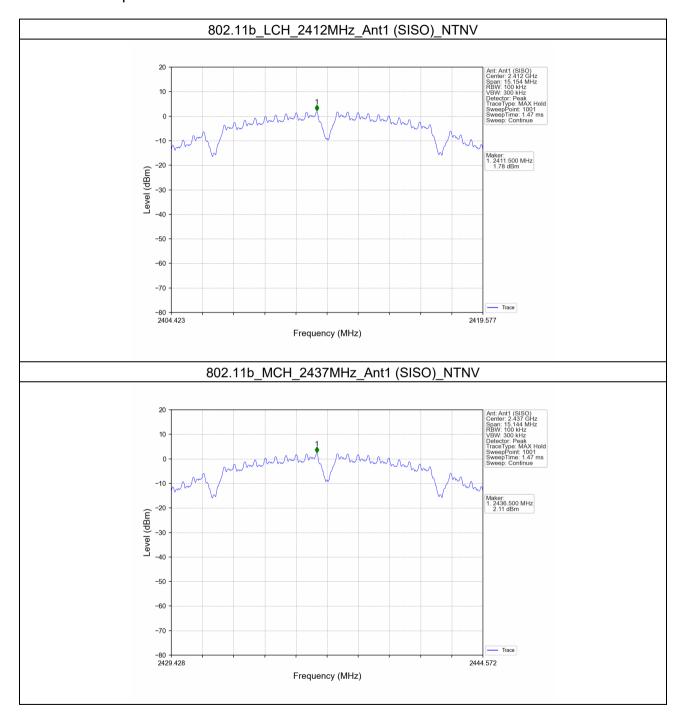
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Page: 117 of 133

5.1.2 Test Graph





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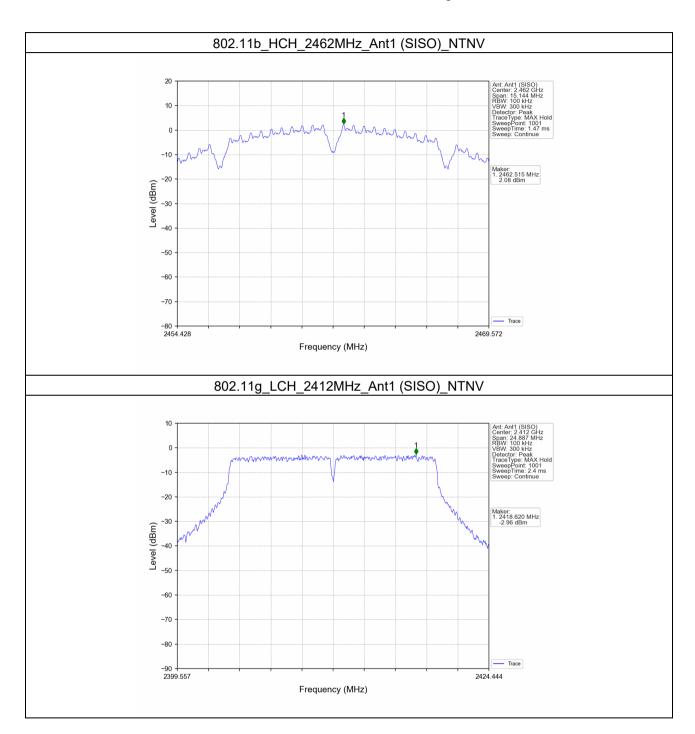
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Report No.: KSCR220800154902

Page: 118 of 133





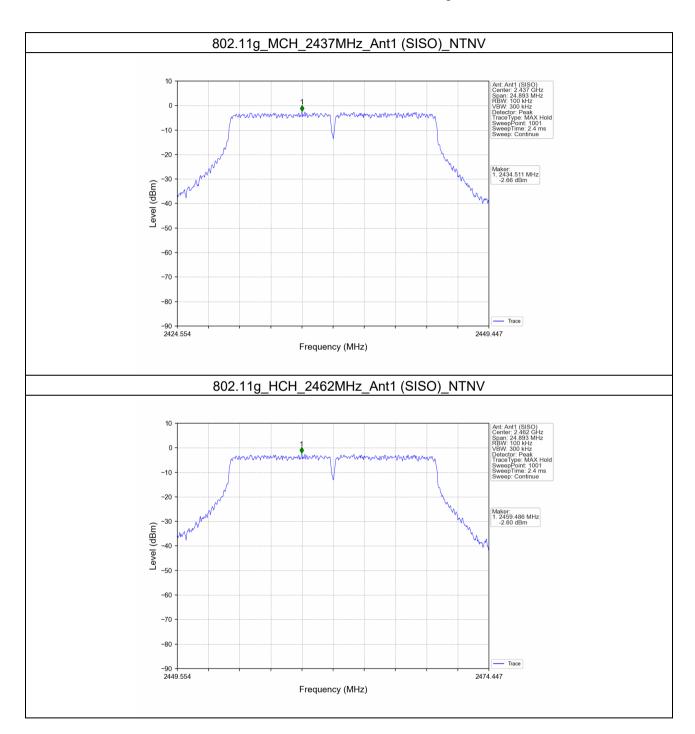
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Page: 119 of 133





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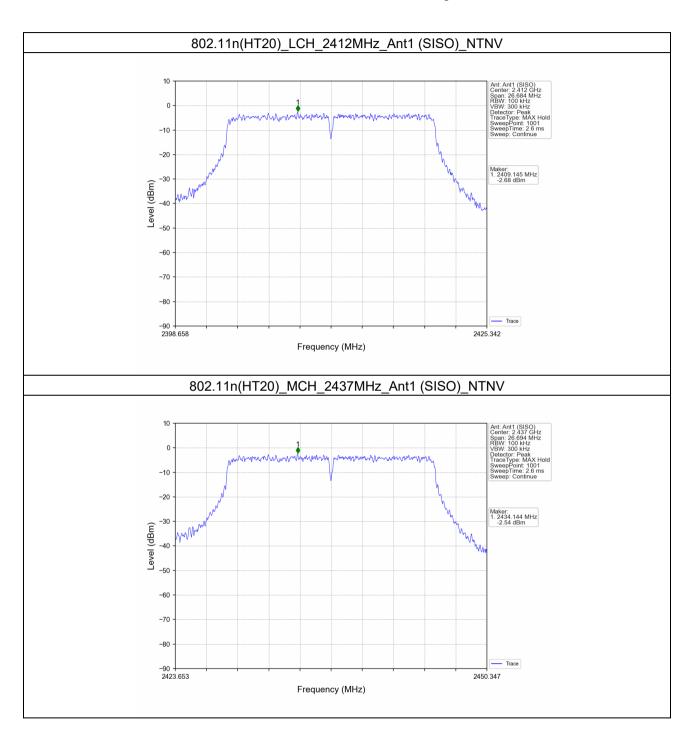
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Report No.: KSCR220800154902

Page: 120 of 133





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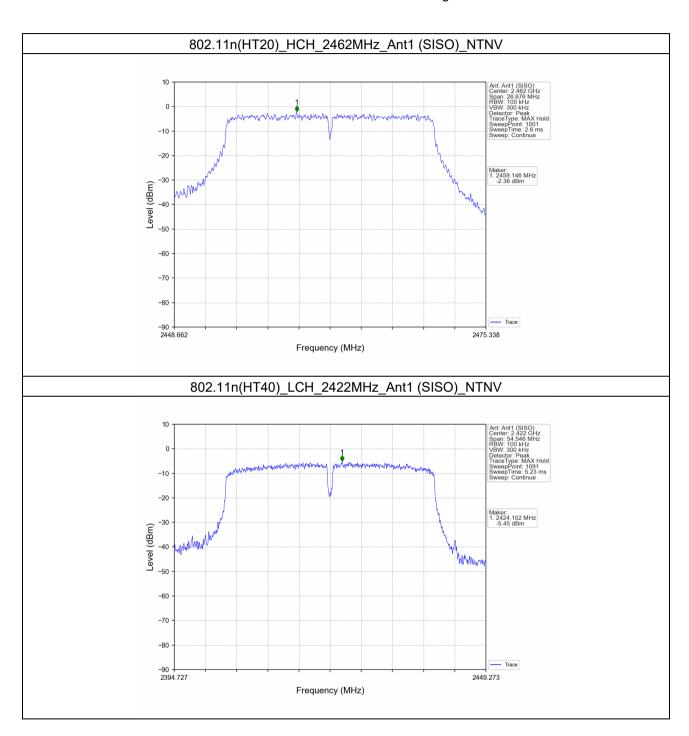
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Page: 121 of 133





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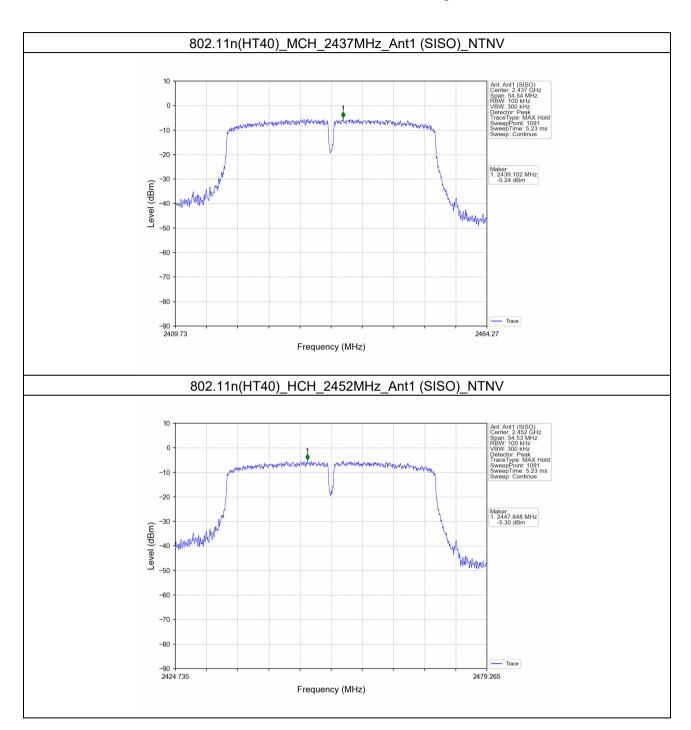
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Page: 122 of 133





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Report No.: KSCR220800154902

Page: 123 of 133

5.2 CSE

5.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	2.11	-27.89	Pass
		2437	1	2.11	-27.89	Pass
		2462	1	2.11	-27.89	Pass
802.11g	SISO	2412	1	-2.60	-32.60	Pass
		2437	1	-2.60	-32.60	Pass
		2462	1	-2.60	-32.60	Pass
802.11n (HT20)	SISO	2412	1	-2.36	-32.36	Pass
		2437	1	-2.36	-32.36	Pass
		2462	1	-2.36	-32.36	Pass
802.11n (HT40)	SISO	2422	1	-5.24	-35.24	Pass
		2437	1	-5.24	-35.24	Pass
		2452	1	-5.24	-35.24	Pass

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.

Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.



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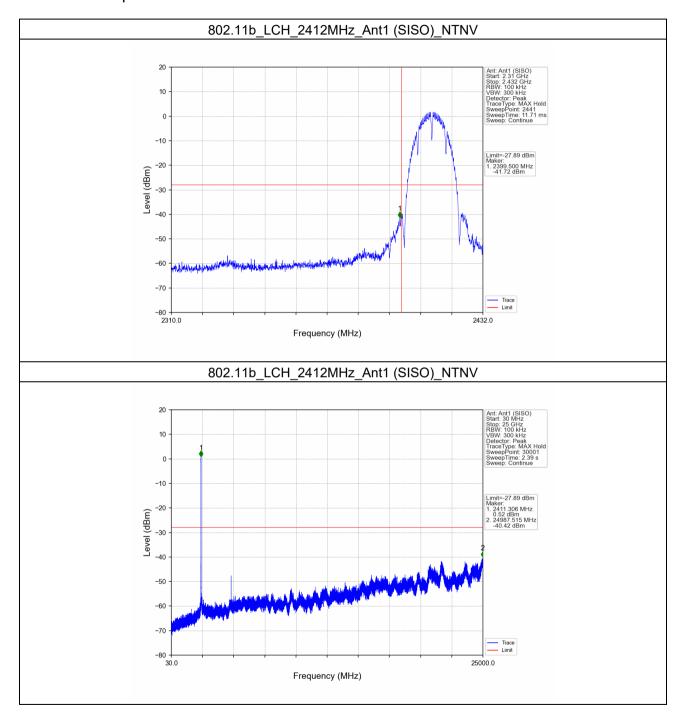
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Page: 124 of 133

5.2.2 Test Graph





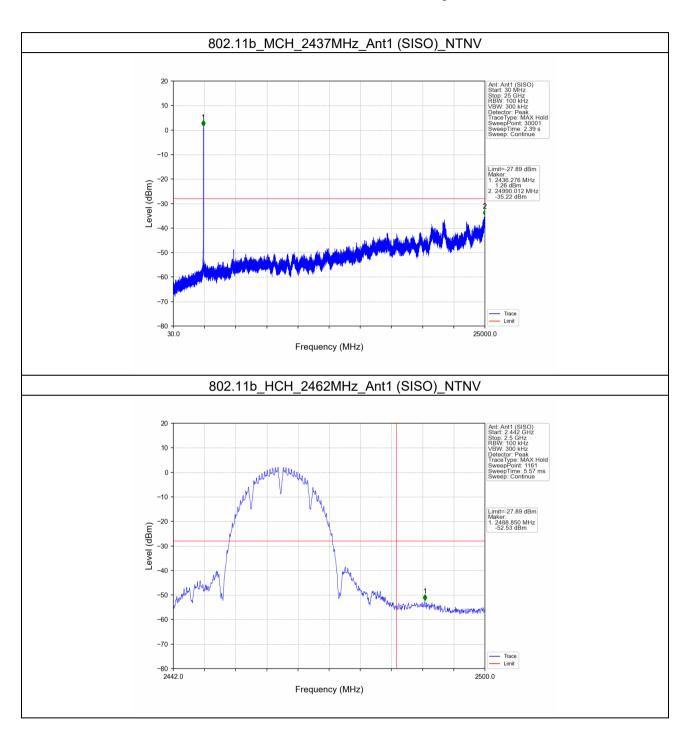
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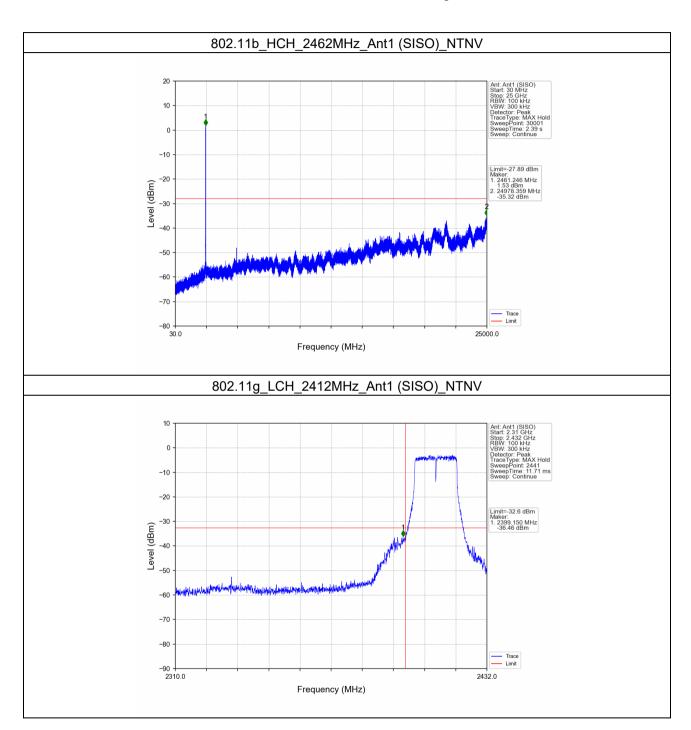
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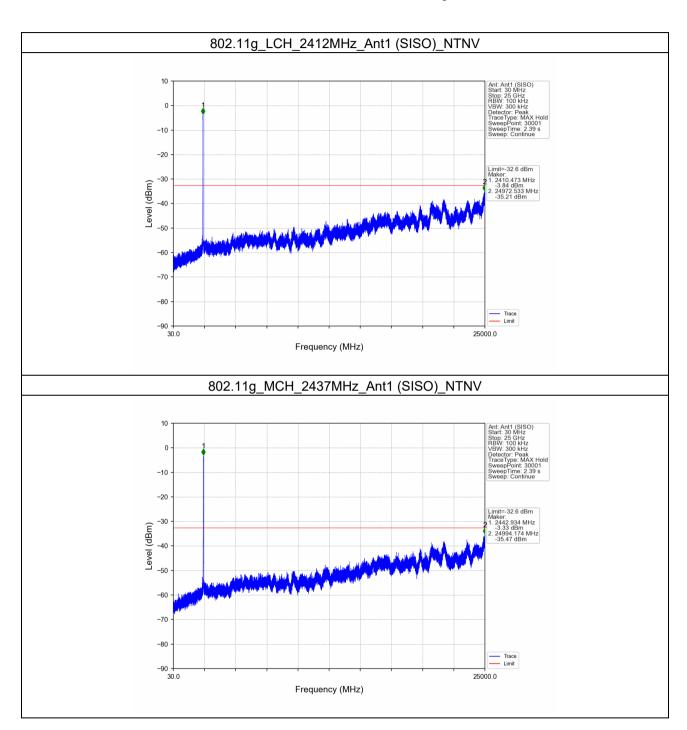
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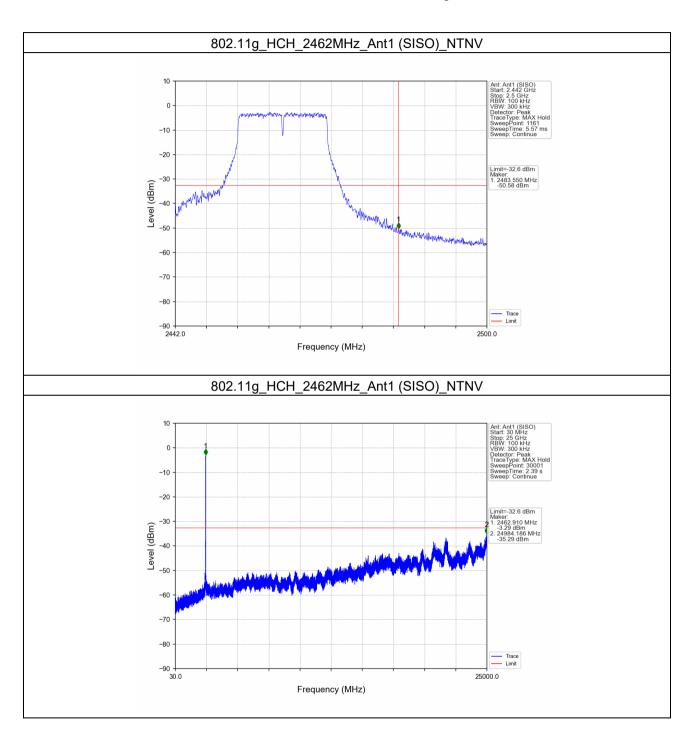
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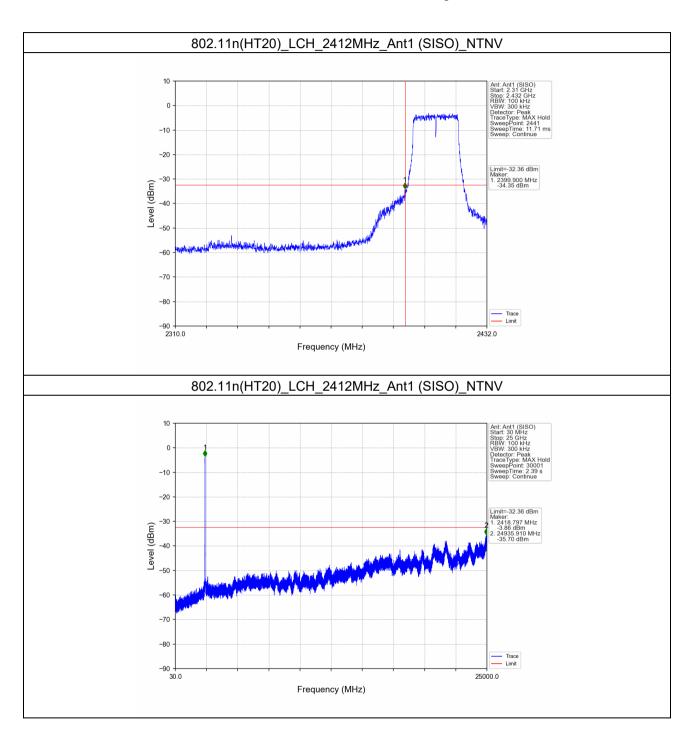
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Page: 129 of 133





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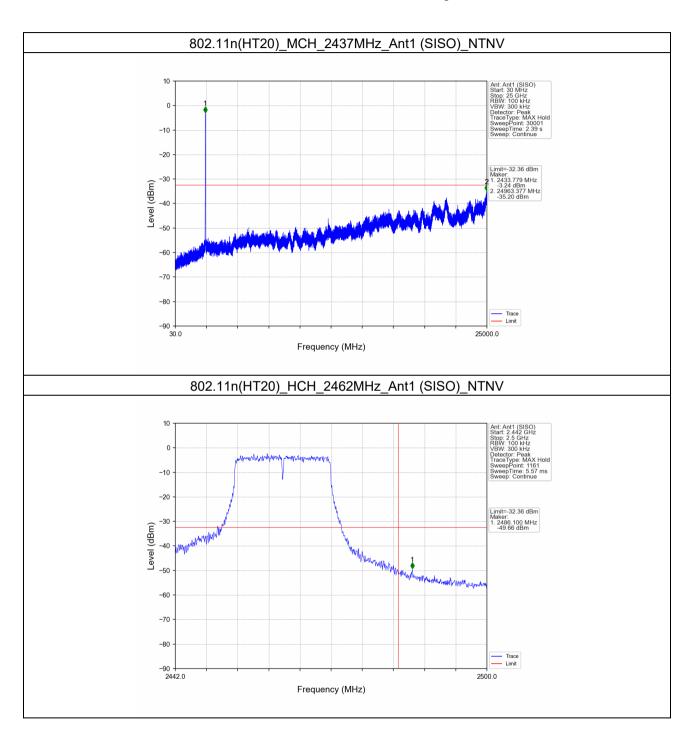
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Page: 130 of 133





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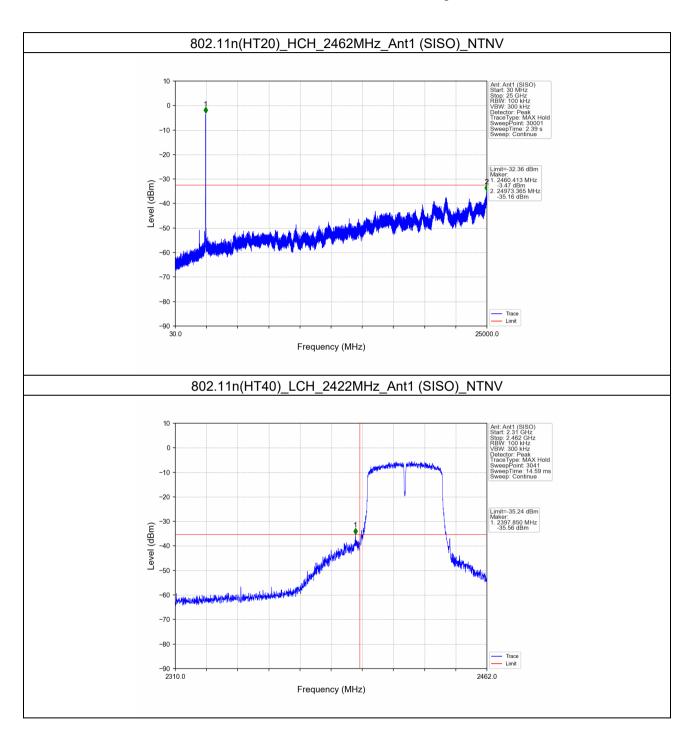
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Report No.: KSCR220800154902

Page: 131 of 133





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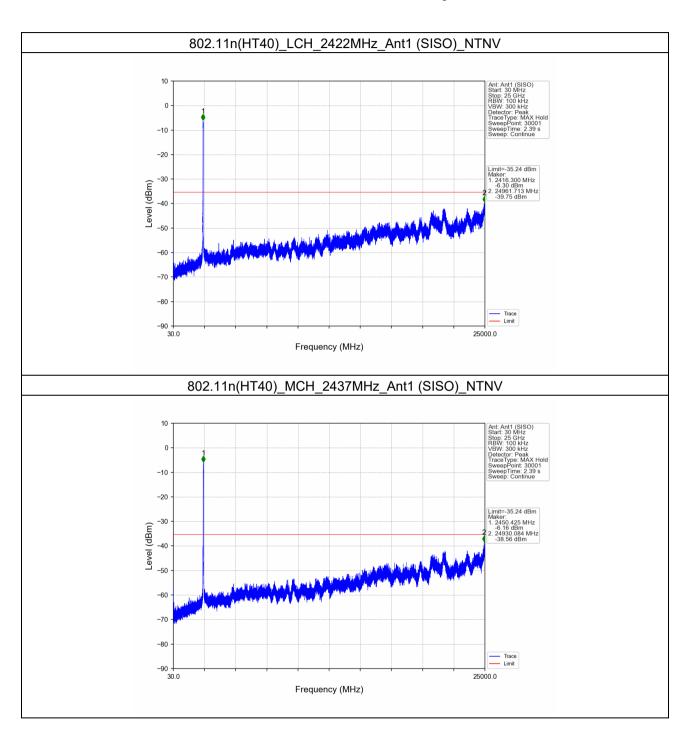
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Report No.: KSCR220800154902

Page: 132 of 133





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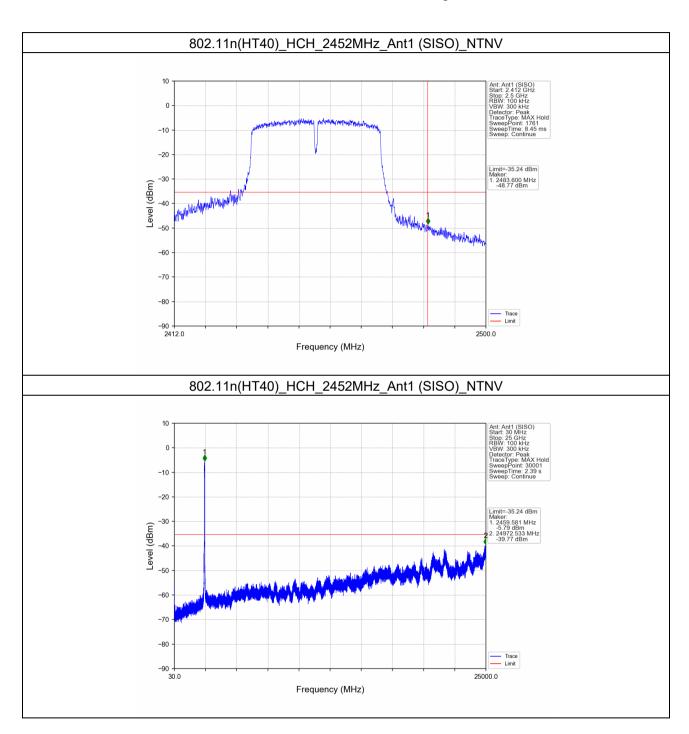
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Report No.: KSCR220800154902

Page: 133 of 133



- End of the Report -



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