



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 1 of 159

TEST REPORT

Application No.: SHCR2512003450HS
FCC ID: 2BUW7X9P
Applicant: Suzhou JONR Technology Co.,Ltd
Address of Applicant: Unit A0403, International Science Park Phase IV, 1355 Jinjihu Avenue, Suzhou Industrial Park
Manufacturer: Suzhou JONR Technology Co.,Ltd
Address of Manufacturer: Unit A0403, International Science Park Phase IV, 1355 Jinjihu Avenue, Suzhou Industrial Park
Factory: Kunshan Xintaili Intelligent Technology Co., Ltd
Address of Factory: No.1689 Zizhu Road, Yushan Town
Equipment Under Test (EUT):
EUT Name: Robot Vacuum Cleaner
Model No.: X9 Pro, X9, X9 Max, W1, W1 Max, W1 Pro, XT3512
Remark: Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: JONR
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2025-12-29
Date of Test: 2025-12-31 to 2026-02-04
Date of Issue: 2026-02-05

Test Result:

Pass*

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

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Member of the SGS Group (SGS SA)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China



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SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 2 of 159

Revision Record			
Version	Description	Date	Remark
00	Original	2026-02-05	/

Authorized for issue by:				
Tested By		Bill Wu		
		Bill Wu/Project Engineer		
Approved By		Parlam Zhan		
		Parlam Zhan / Reviewer		

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)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2020) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2020) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2020) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2020) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Conducted Average Output Power		ANSI C63.10 (2020) Section 11.9.2	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth		ANSI C63.10 (2020) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Power Spectrum Density		ANSI C63.10 (2020) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement		ANSI C63.10 (2020) Section 6.10.4	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions		ANSI C63.10 (2020) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model X9 Pro was tested since their differences were the model number and appearance.



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 4 of 159

3 Contents

	Page
1 COVER PAGE	1
2 Test Summary.....	3
3 Contents	4
4 General Information.....	6
4.1 Details of E.U.T.	6
4.2 Description of Support Units.....	6
4.3 Power level setting using in test.....	6
4.4 Measurement Uncertainty	7
4.5 Test Location	8
4.6 Test Facility.....	8
4.7 Deviation from Standards	8
4.8 Abnormalities from Standard Conditions	8
5 Equipment List	9
6 Radio Spectrum Technical Requirement.....	11
6.1 Antenna Requirement	11
6.1.1 Test Requirement:	11
6.1.2 Conclusion	11
7 Radio Spectrum Matter Test Results	12
7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)	12
7.1.1 E.U.T. Operation	12
7.1.2 Test Mode Description	12
7.1.3 Test Setup Diagram	13
7.1.4 Measurement Procedure and Data.....	13
7.2 Radiated Emissions which fall in the restricted bands	16
7.2.1 E.U.T. Operation	16
7.2.2 Test Mode Description	16
7.2.3 Test Setup Diagram	17
7.2.4 Measurement Procedure and Data.....	17
7.3 Radiated Spurious Emissions Below 1GHz.....	46
7.3.1 E.U.T. Operation	46
7.3.2 Test Mode Description	46
7.3.3 Test Setup Diagram	47
7.3.4 Measurement Procedure and Data.....	47
7.4 Radiated Spurious Emissions Above 1GHz	52
7.4.1 E.U.T. Operation	52
7.4.2 Test Mode Description	52
7.4.3 Test Setup Diagram	52
7.4.4 Measurement Procedure and Data.....	53
7.5 Conducted Average Output Power	104
7.5.1 E.U.T. Operation	104
7.5.2 Test Mode Description	104
7.5.3 Test Setup Diagram	104
7.5.4 Measurement Procedure and Data.....	104
7.6 Minimum 6dB Bandwidth.....	105
7.6.1 E.U.T. Operation	105
7.6.2 Test Mode Description	105



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 5 of 159

7.6.3	Test Setup Diagram	105
7.6.4	Measurement Procedure and Data	105
7.7	Power Spectrum Density	106
7.7.1	E.U.T. Operation	106
7.7.2	Test Mode Description	106
7.7.3	Test Setup Diagram	106
7.7.4	Measurement Procedure and Data	106
7.8	Conducted Band Edges Measurement	107
7.8.1	E.U.T. Operation	107
7.8.2	Test Mode Description	107
7.8.3	Test Setup Diagram	107
7.8.4	Measurement Procedure and Data	107
7.9	Conducted Spurious Emissions	108
7.9.1	E.U.T. Operation	108
7.9.2	Test Mode Description	108
7.9.3	Test Setup Diagram	108
7.9.4	Measurement Procedure and Data	108
8	Test Setup Photo	109
9	EUT Constructional Details (EUT Photos)	109
10	Appendix	109



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 6 of 159

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 14.4V 4.8Ah Rechargeable battery
Test voltage:	AC 120V/60Hz for charging station
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz;802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (DBPSK, DQPSK, CCK); 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
Number of Channels:	802.11b/g/n(HT20):11;802.11n(HT40):7
Channel Spacing:	5MHz
Antenna Type:	FPC Antenna
Antenna Gain:	4 dBi (Provided by manufacturer)
Date Rate:	802.11b:1/2/5.5./11Mbps 802.11g:6/9/12/18/24/36/48/54Mbps 802.11n:MCS0-MCS7

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Charging station			
Laptop	LENOVO	L460	-
Serial port adapter plate	-	Test Plate 3	-

4.3 Power level setting using in test

Channel	802.11b	802.11g	802.11n(HT20)
1	46	60	60
6	46	60	60
11	46	60	60
Channel	802.11n(HT40)		
3	60		
6	60		
9	60		

4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty cycle	0.4%
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)
		5.9dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		4.8dB (1GHz-6GHz)
		5.0dB (6GHz-18GHz)
		5.4dB (18GHz-40GHz)
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.

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal 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).
3. Sample source: sent by customer.

4.6 Test Facility

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

- **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

- **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

- **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.
Company Number: 8617A

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Conducted Test					
Spectrum Analyzer	Keysight	N9020B	SHEM241-1	2025/12/17	2026/12/16
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2025/04/30	2026/04/29
Signal Generator	R&S	SMR20	SHEM006-1	2025/07/30	2026/07/29
Signal Generator	Agilent	N5182A	SHEM182-1	2025/07/30	2026/07/29
Communication Tester	R&S	CMW270	SHEM183-1	2025/04/30	2026/04/29
Communication Tester	R&S	CMW500	SHEM268-1	2025/04/30	2026/04/29
Power Sensor	Keysight	U2021XA * 4	SHEM293-1	2025/07/30	2026/07/29
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2024/11/05	2026/11/04
AC Power Stabilizer	APC	KDF-31020T-V0-F0	SHEM216-1	2025/12/17	2026/12/16
DC Power Supply	HP	6010A	SHEM222-1	2025/12/17	2026/12/16
Conducted test Cable	/	RF01~RF04	/	2025/12/17	2026/12/16
Switcher	Tonscend	JS0806	SHEM293-1	2025/07/30	2026/07/29
Test software	Tonscend	JS Tonscend BT/WIFI System	Version: 2.6	/	/
Switcher+Power Sensor	TST	TSPS2023R	SHEM263-1	2025/07/30	2026/07/29
Test software	TST	TST PASS	Version: 2.0	/	/
RF Radiated Test					
Spectrum Analyzer	Keysight	N9010A	SHEM181-2	2025/04/30	2026/04/29
Communication Tester	R&S	CMW500	SHEM268-1	2025/04/30	2026/04/29
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2025/12/17	2026/12/16
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2025/08/31	2027/08/30
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM202-1	2025/04/12	2027/04/11
Horn Antenna (1-18GHz)	Schwarzbeck	HF906	SHEM009-1	2024/08/05	2026/08/04
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2025/08/31	2027/08/30
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2025/08/31	2027/08/30
Pre-Amplifier	HP	8447D	SHEM236-1	2025/12/17	2026/12/16
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2025/12/17	2026/12/16
Band Filter	LORCH	9BRX-875/X150	SHEM156-1	/	/
Band Filter	LORCH	13BRX-1950/X500	SHEM083-2	/	/
Band Filter	LORCH	5BRX-2400/X200	SHEM155-1	/	/
Band Filter	LORCH	5BRX-5500/X1000	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2023/05/06	2026/05/05
RE test Cable	/	PT18-NMMN-10M	SHEM217-2	2025/07/30	2026/07/29
Test software	ESE	E3	Version: 6.111221a	/	/



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 10 of 159

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2025/12/17	2026/12/16
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2025/12/17	2026/12/16
Line impedance stabilization network	EMCO	3816_2	SHEM019-1	2025/12/17	2026/12/16
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2025/12/17	2026/12/16
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2023/12/19	2026/12/18
CE test Cable	/	9kHz-30MHz	SHEM172-2	2025/12/17	2026/12/16
Test Software	ESE	e3	Version: 6.191211	N/A	N/A

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 FPC antenna and no consideration of replacement. The best case gain of the antenna is 4 dBi.

Antenna location: Refer to internal photo.

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 (2020) Section 6.2

Limit:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	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 (9kHz resolution bandwidth) 0.15M to 30MHz		

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.4 °C

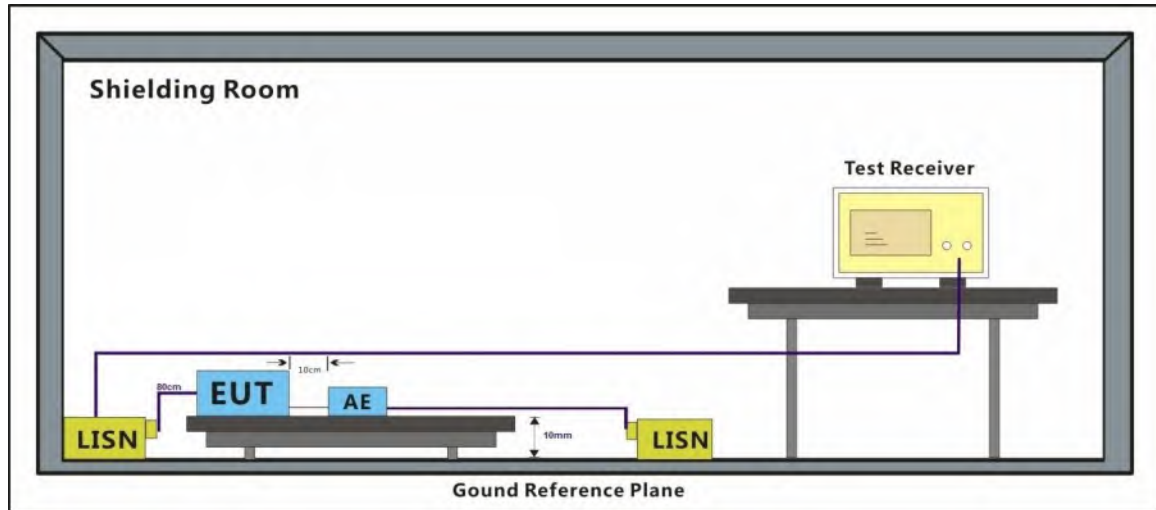
Humidity: 41.6 % RH

Atmospheric Pressure: 1031 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.

7.1.3 Test Setup Diagram

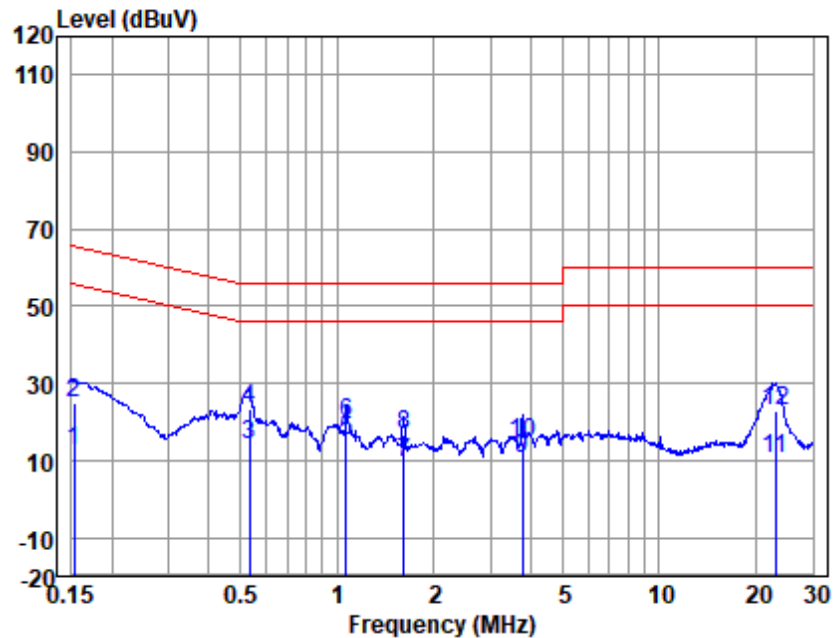


7.1.4 Measurement Procedure and Data

- 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 50ohm/50μH + 5ohm 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

Test Mode: 00; Line: Live line



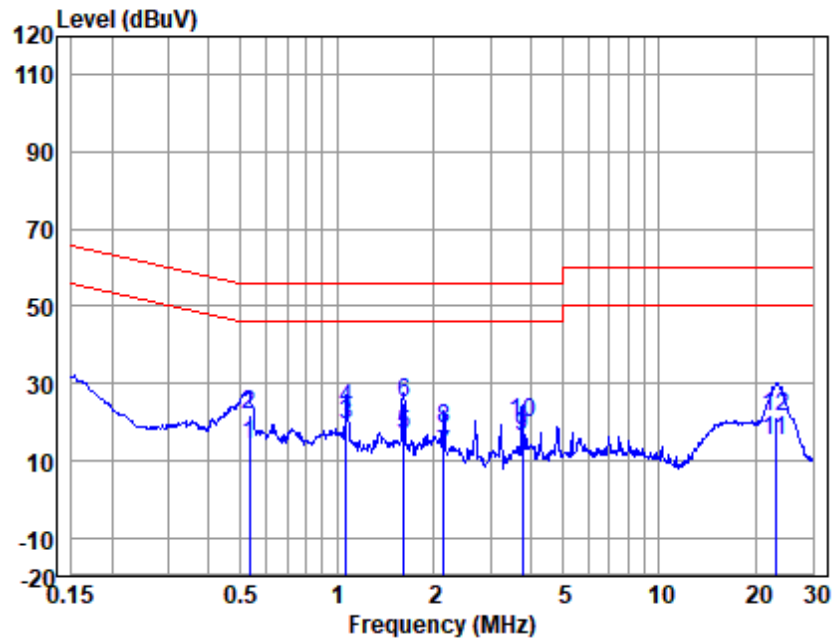
LISN : LINE
EUT/Project No : 3450HS
Test Mode : 00

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.15	2.36	0.10	9.90	12.36	55.87	-43.51	Average
2	0.15	15.15	0.10	9.90	25.15	65.87	-40.72	QP
3	0.53	3.95	0.10	9.90	13.95	46.00	-32.05	Average
4	0.53	13.17	0.10	9.90	23.17	56.00	-32.83	QP
5	1.07	5.35	0.10	9.90	15.35	46.00	-30.65	Average
6	1.07	9.93	0.10	9.90	19.93	56.00	-36.07	QP
7	1.61	-0.50	0.10	9.90	9.50	46.00	-36.50	Average
8	1.61	6.92	0.10	9.90	16.92	56.00	-39.08	QP
9	3.76	0.30	0.17	9.97	10.44	46.00	-35.56	Average
10	3.76	4.66	0.17	9.97	14.80	56.00	-41.20	QP
11	23.02	-0.37	0.76	10.10	10.49	50.00	-39.51	Average
12	23.02	12.20	0.76	10.10	23.06	60.00	-36.94	QP

Notes1: Emission Level = Read Level + LISN Factor + Cable loss

Notes2: Average in Remark means CISPR AV detector

Test Mode: 00; Line: Neutral Line



LISN : NEUTRAL
EUT/Project No : 3450HS
Test Mode : 00

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.53	3.97	0.10	9.90	13.97	46.00	-32.03	Average
2	0.53	12.07	0.10	9.90	22.07	56.00	-33.93	QP
3	1.07	9.11	0.10	9.90	19.11	46.00	-26.89	Average
4	1.07	13.40	0.10	9.90	23.40	56.00	-32.60	QP
5	1.61	6.82	0.10	9.90	16.82	46.00	-29.18	Average
6	1.61	14.80	0.10	9.90	24.80	56.00	-31.20	QP
7	2.14	1.38	0.11	9.91	11.40	46.00	-34.60	Average
8	2.14	8.19	0.11	9.91	18.21	56.00	-37.79	QP
9	3.76	6.24	0.17	9.97	16.38	46.00	-29.62	Average
10	3.76	9.46	0.17	9.97	19.60	56.00	-36.40	QP
11	23.02	4.41	0.66	10.10	15.17	50.00	-34.83	Average
12	23.02	10.55	0.66	10.10	21.31	60.00	-38.69	QP

Notes1: Emission Level = Read Level + LISN Factor + Cable loss

Notes2: Average in Remark means CISPR AV detector

7.2 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 (2020) Section 6.10.5

Measurement Distance: 3m

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.

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.6 °C

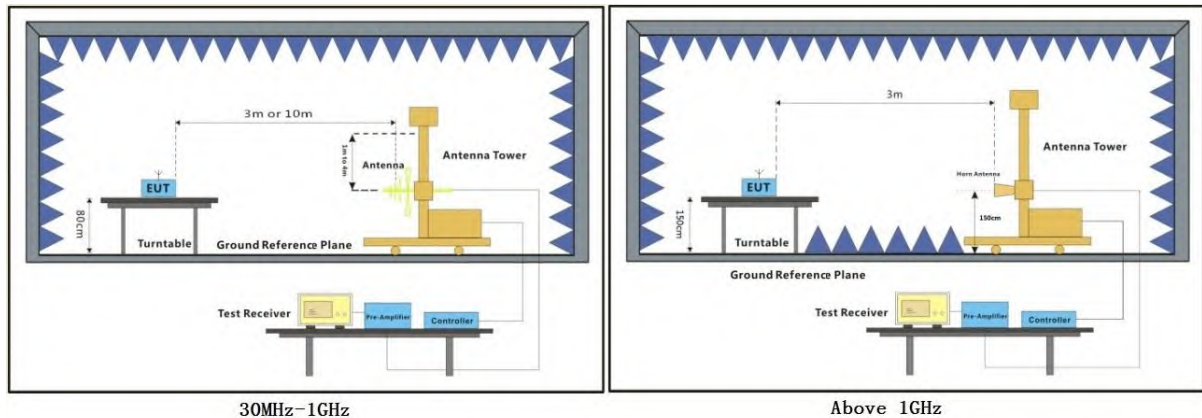
Humidity: 58.6 % RH

Atmospheric Pressure: 1021 mbar

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



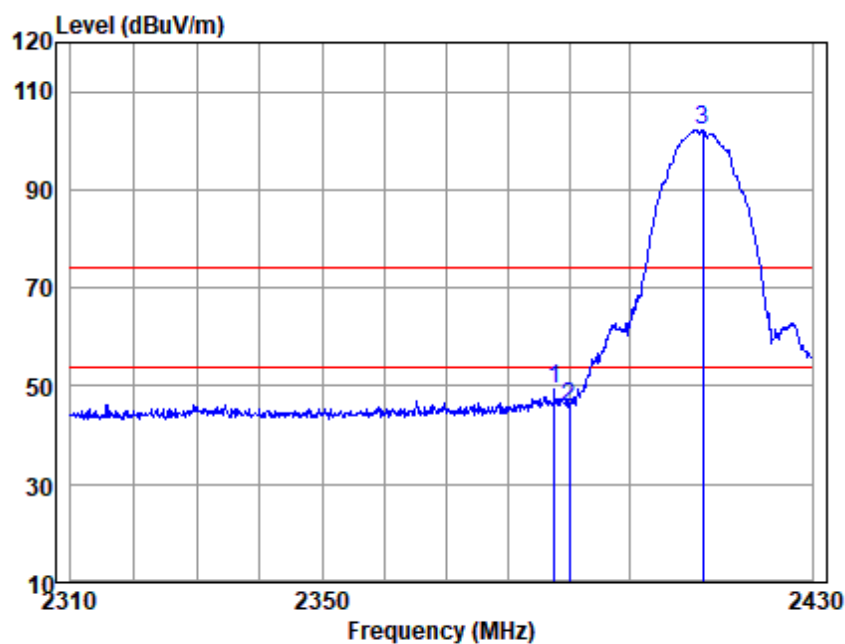
7.2.4 Measurement Procedure and Data

- 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.

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



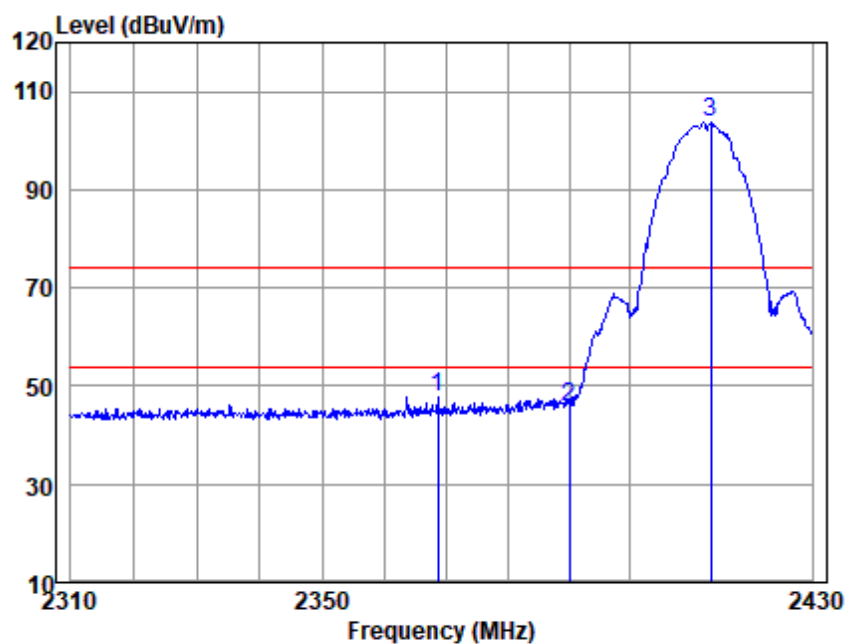
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2387.549	52.42	28.80	3.33	35.18	49.37	74.00	-24.63	Peak
2390.000	48.92	28.80	3.33	35.18	45.87	74.00	-28.13	Peak
2411.977	105.27	28.90	3.35	35.20	102.32	74.00	28.32	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



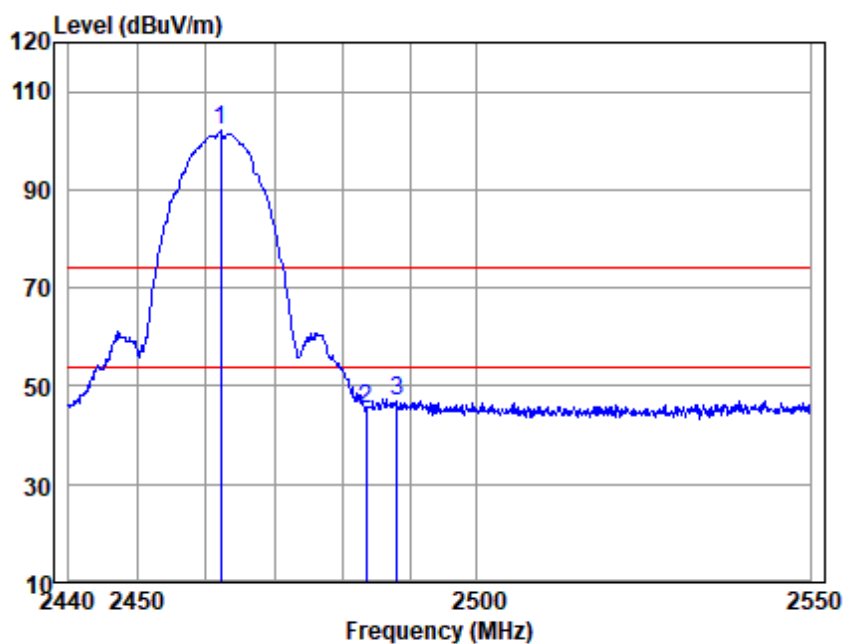
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2368.641	50.97	28.68	3.31	35.16	47.80	74.00	-26.20	Peak
2390.000	48.67	28.80	3.33	35.18	45.62	74.00	-28.38	Peak
2413.321	106.84	28.90	3.35	35.20	103.89	74.00	29.89	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



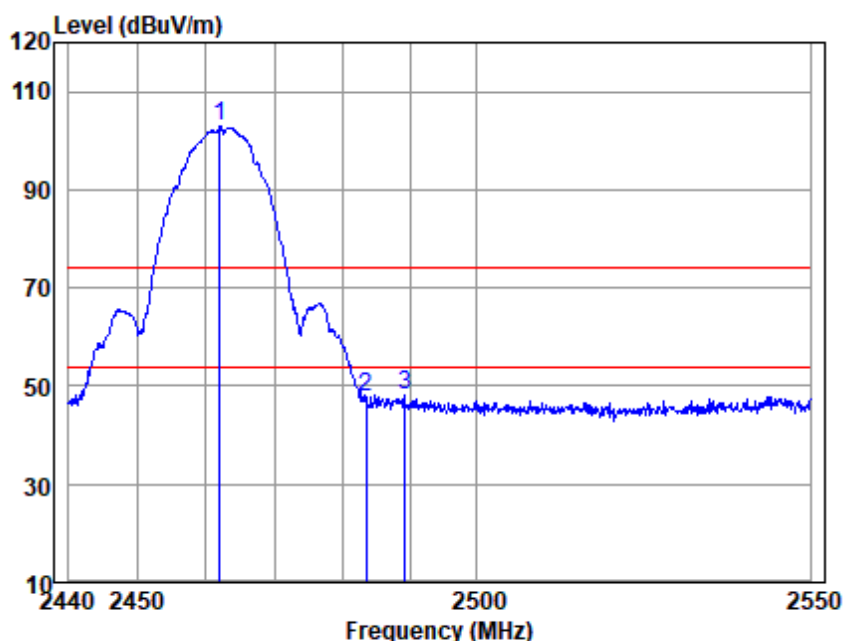
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2462.156	104.74	29.05	3.39	35.24	101.94	74.00	27.94	Peak
2483.500	47.98	29.09	3.41	35.26	45.22	74.00	-28.78	Peak
2488.132	49.74	29.09	3.41	35.26	46.98	74.00	-27.02	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



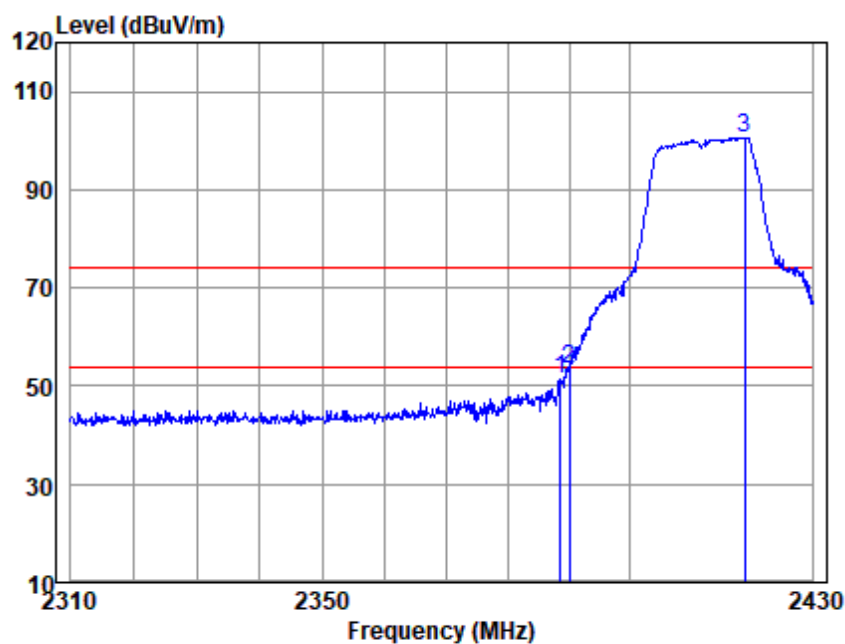
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2462.048	105.82	29.05	3.39	35.24	103.02	74.00	29.02	Peak
2483.500	50.42	29.09	3.41	35.26	47.66	74.00	-26.34	Peak
2489.229	50.88	29.10	3.41	35.26	48.13	74.00	-25.87	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



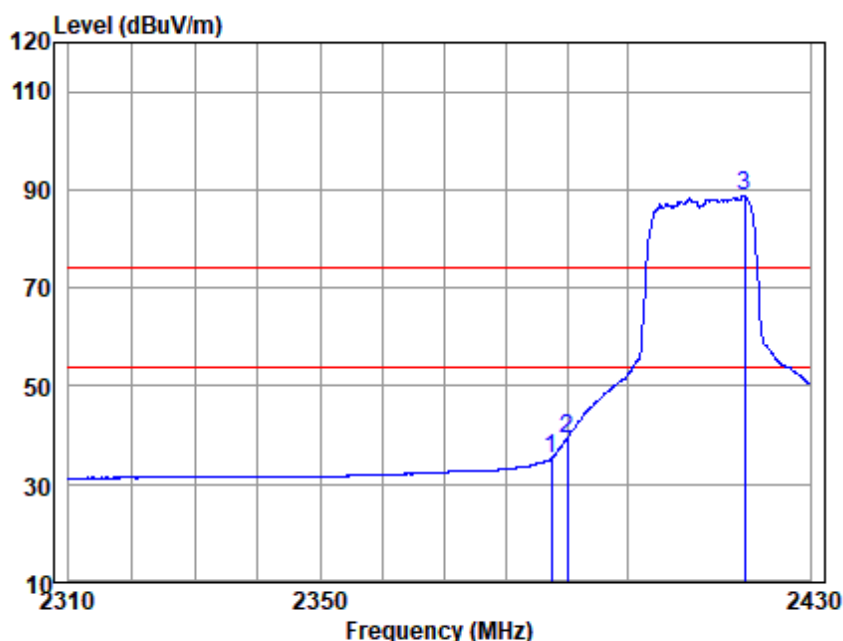
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2388.637	54.57	28.80	3.33	35.18	51.52	74.00	-22.48	Peak
2390.000	56.64	28.80	3.33	35.18	53.59	74.00	-20.41	Peak
2418.827	103.57	28.92	3.36	35.21	100.64	74.00	26.64	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



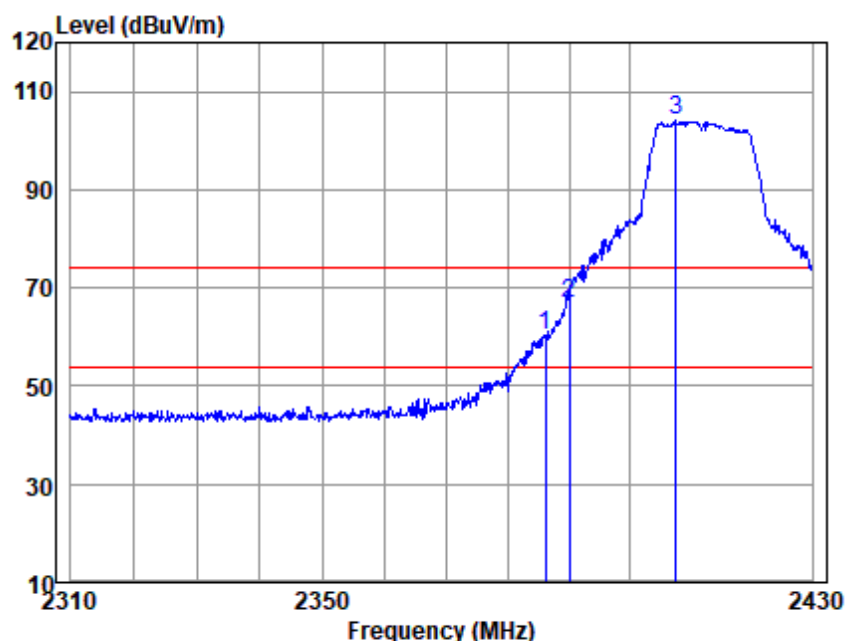
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2387.428	38.27	28.80	3.33	35.18	35.22	54.00	-18.78	Average
2390.000	42.43	28.80	3.33	35.18	39.38	54.00	-14.62	Average
2419.194	91.77	28.92	3.36	35.21	88.84	54.00	34.84	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



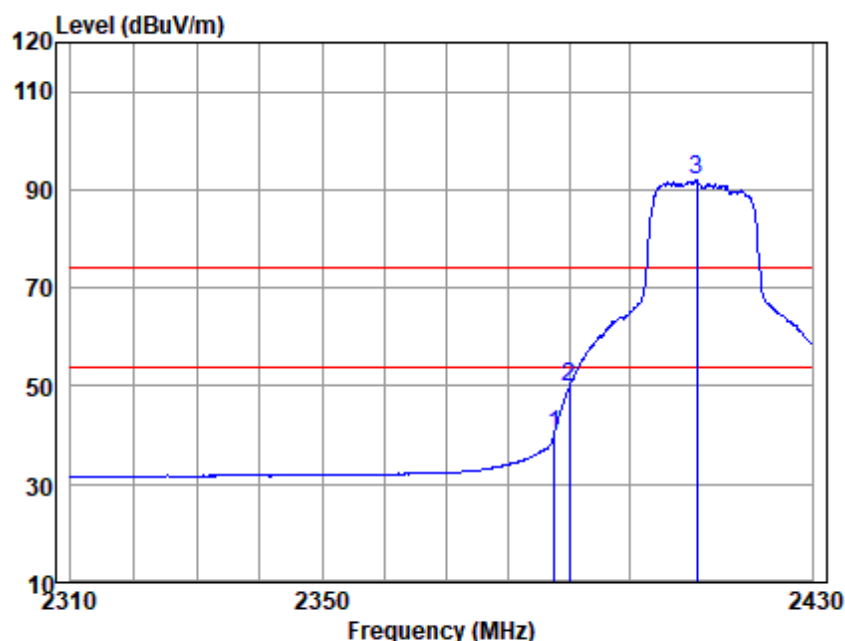
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2386.098	63.40	28.80	3.33	35.18	60.35	74.00	-13.65	Peak
2390.000	70.06	28.80	3.33	35.18	67.01	74.00	-6.99	Peak
2407.461	107.23	28.89	3.34	35.20	104.26	74.00	30.26	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



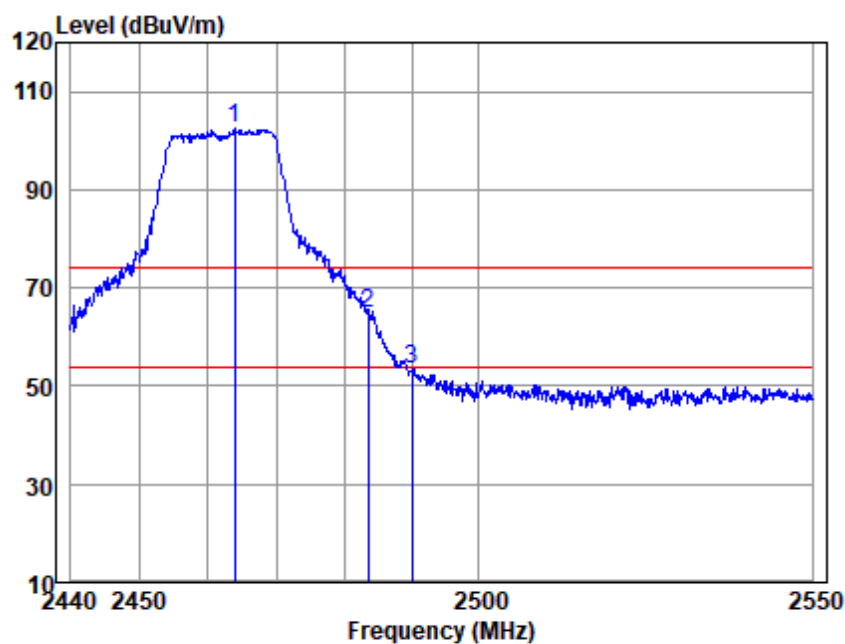
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2387.549	43.27	28.80	3.33	35.18	40.22	54.00	-13.78	Average
2390.000	52.68	28.80	3.33	35.18	49.63	54.00	-4.37	Average
2411.000	95.09	28.89	3.34	35.20	92.12	54.00	38.12	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



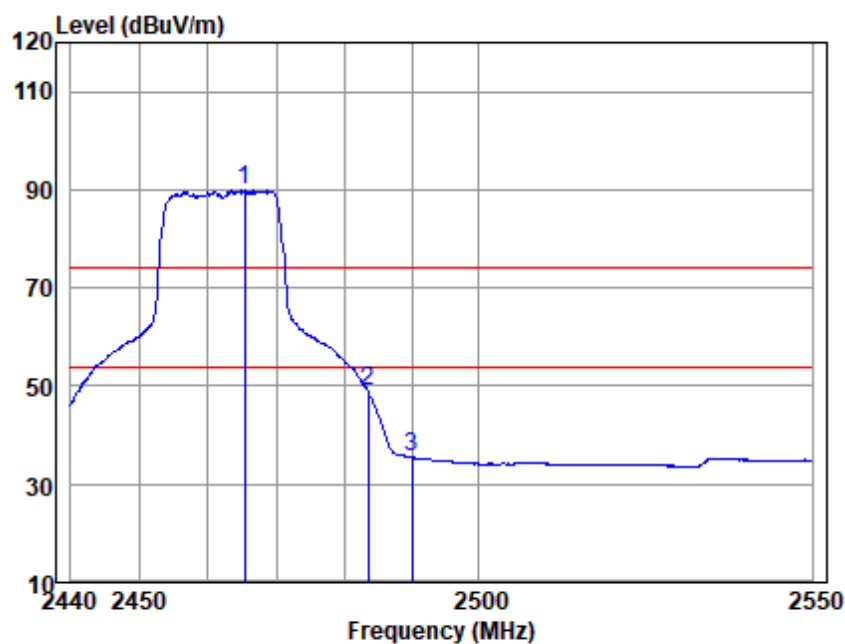
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2463.894	105.55	29.05	3.39	35.24	102.75	74.00	28.75	Peak
2483.500	67.56	29.09	3.41	35.26	64.80	74.00	-9.20	Peak
2489.998	56.21	29.10	3.41	35.26	53.46	74.00	-20.54	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



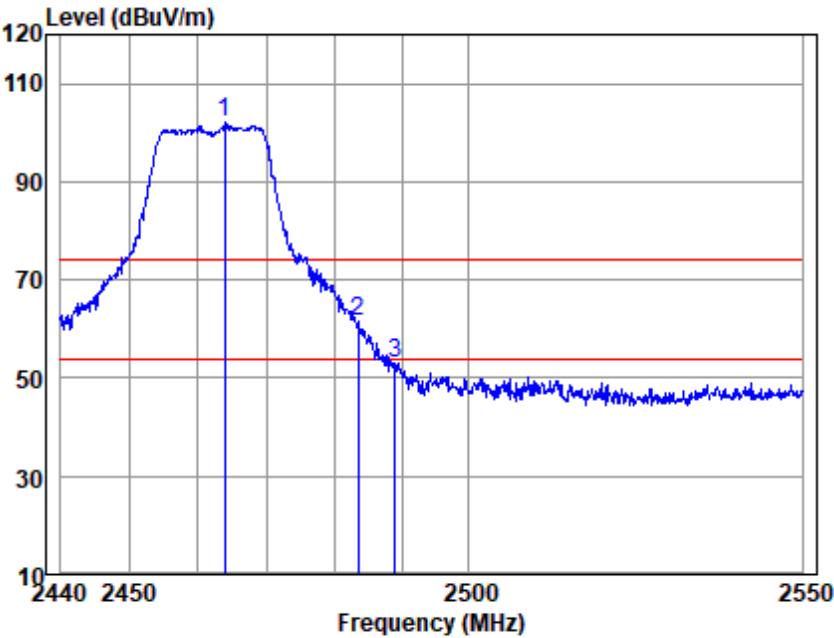
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2465.416	92.64	29.05	3.39	35.24	89.84	54.00	35.84	Average
2483.500	51.74	29.09	3.41	35.26	48.98	54.00	-5.02	Average
2490.108	38.20	29.10	3.41	35.26	35.45	54.00	-18.55	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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

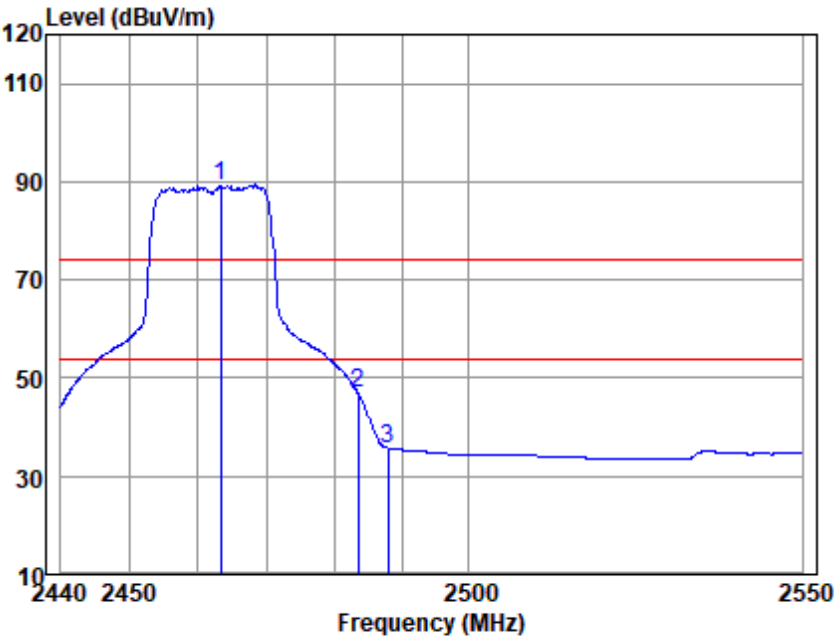


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2463.894	104.86	29.05	3.39	35.24	102.06	74.00	28.06	Peak
2483.500	64.39	29.09	3.41	35.26	61.63	74.00	-12.37	Peak
2489.010	55.87	29.09	3.41	35.26	53.11	74.00	-20.89	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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

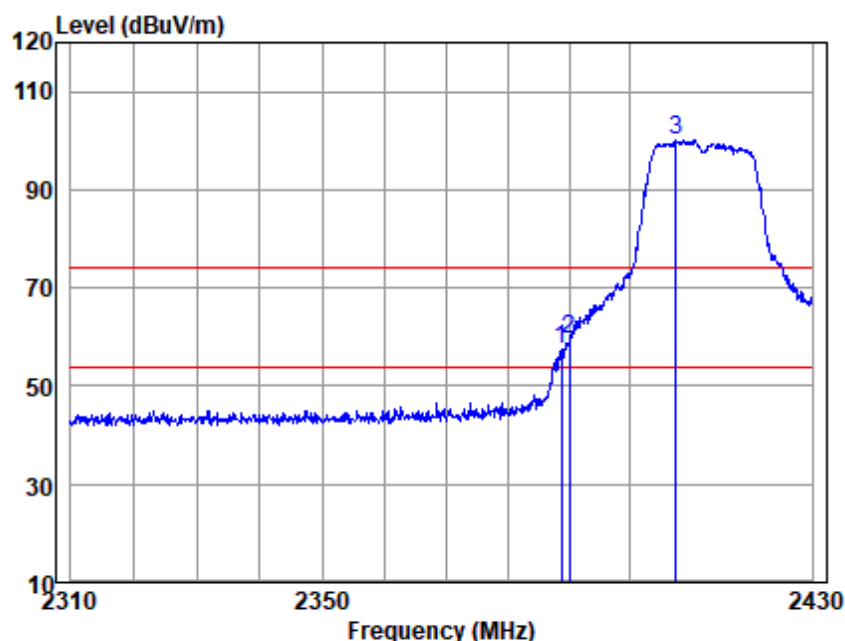


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2463.351	91.97	29.05	3.39	35.24	89.17	54.00	35.17	Average
2483.500	49.66	29.09	3.41	35.26	46.90	54.00	-7.10	Average
2488.022	38.51	29.09	3.41	35.26	35.75	54.00	-18.25	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



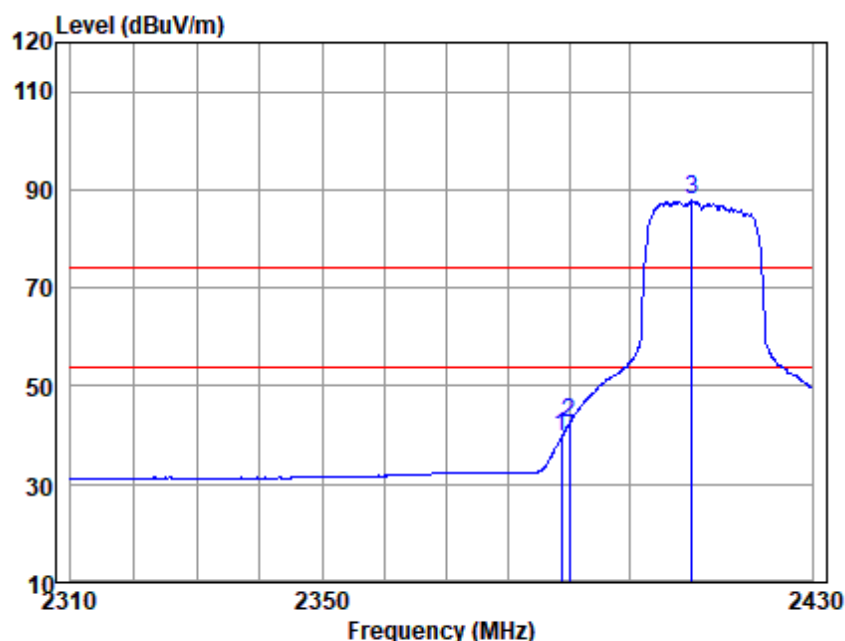
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2388.758	60.55	28.80	3.33	35.18	57.50	74.00	-16.50	Peak
2390.000	62.38	28.80	3.33	35.18	59.33	74.00	-14.67	Peak
2407.461	103.12	28.89	3.34	35.20	100.15	74.00	26.15	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



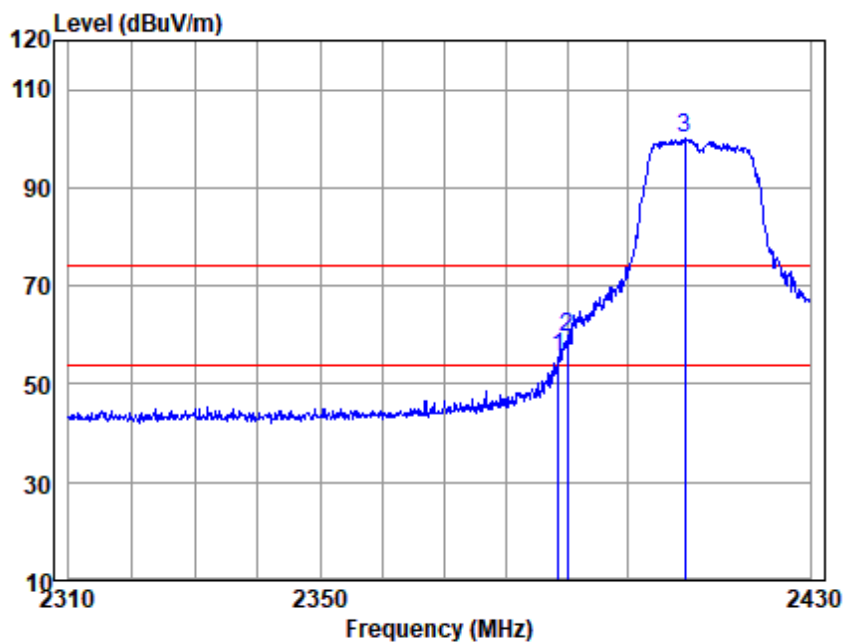
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2388.758	42.72	28.80	3.33	35.18	39.67	54.00	-14.33	Average
2390.000	45.33	28.80	3.33	35.18	42.28	54.00	-11.72	Average
2410.145	90.82	28.89	3.34	35.20	87.85	54.00	33.85	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



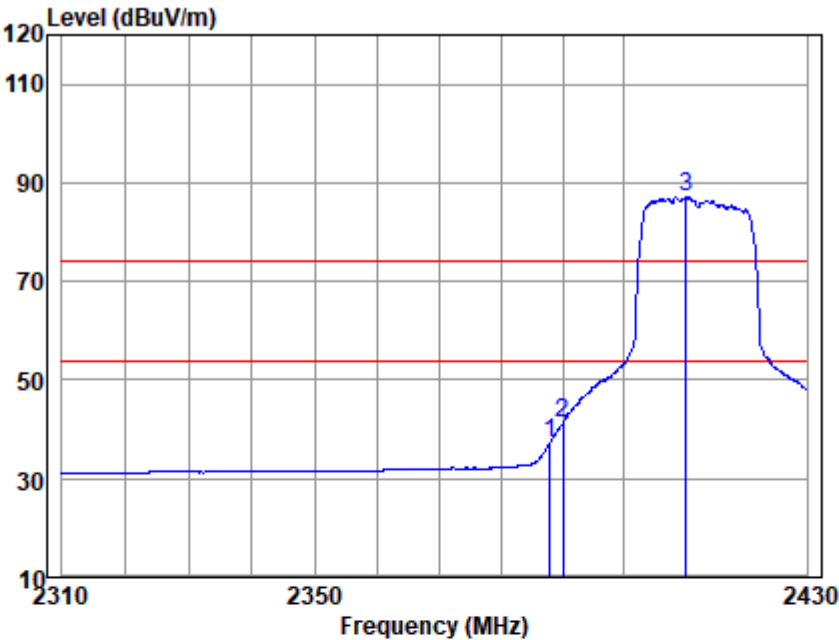
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2388.516	58.50	28.80	3.33	35.18	55.45	74.00	-18.55	Peak
2390.000	62.70	28.80	3.33	35.18	59.65	74.00	-14.35	Peak
2409.291	102.92	28.89	3.34	35.20	99.95	74.00	25.95	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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

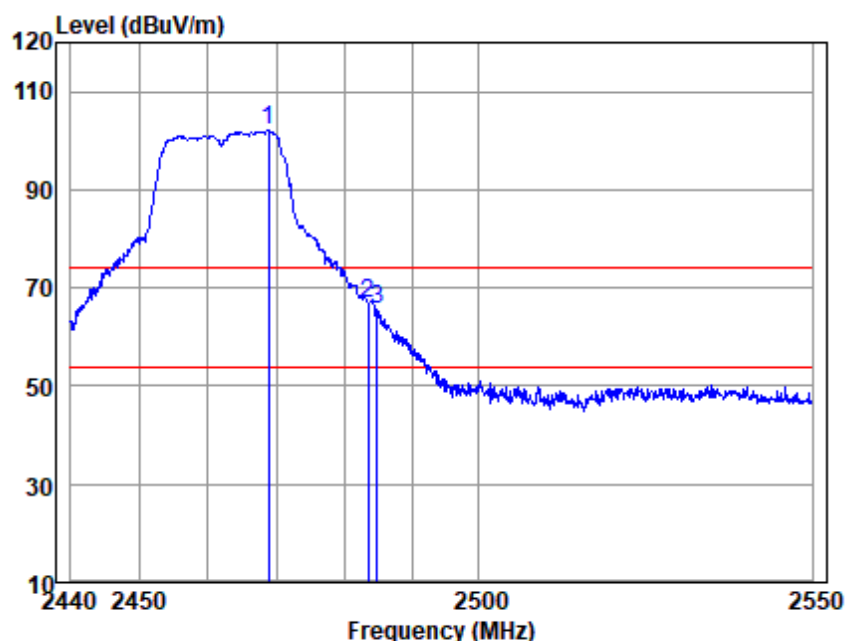


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2387.912	40.26	28.80	3.33	35.18	37.21	54.00	-16.79	Average
2390.000	44.26	28.80	3.33	35.18	41.21	54.00	-12.79	Average
2410.145	90.24	28.89	3.34	35.20	87.27	54.00	33.27	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



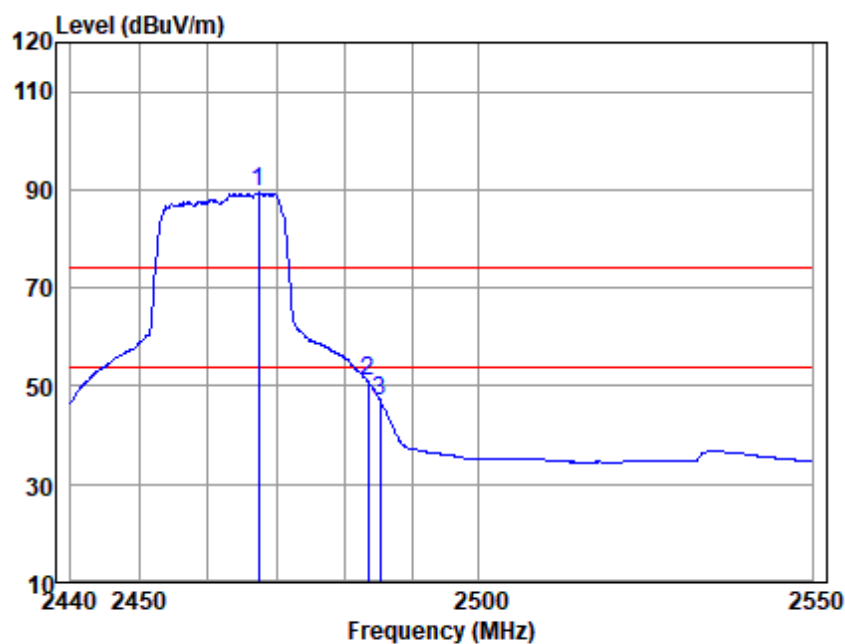
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2468.897	104.89	29.06	3.40	35.25	102.10	74.00	28.10	Peak
2483.500	69.63	29.09	3.41	35.26	66.87	74.00	-7.13	Peak
2484.843	68.26	29.09	3.41	35.26	65.50	74.00	-8.50	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



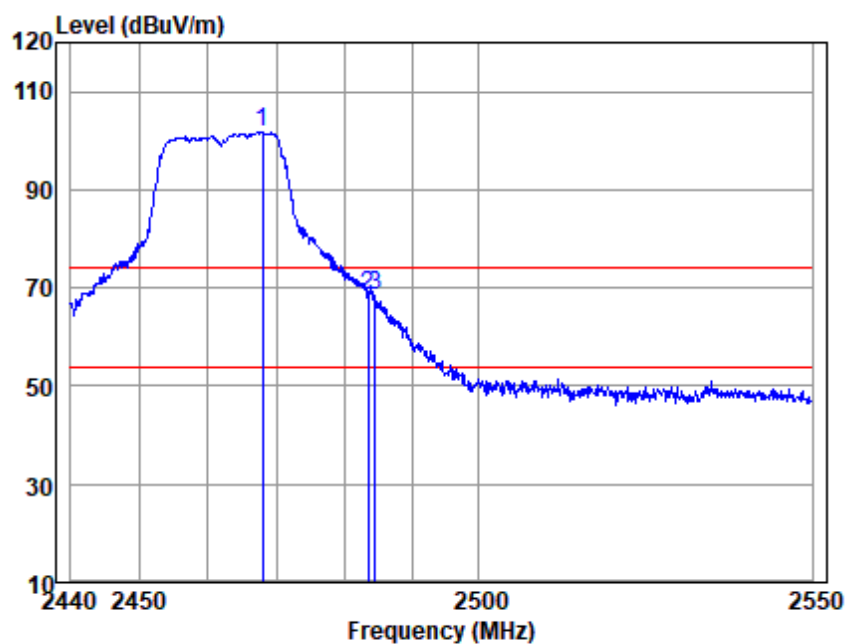
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2467.482	92.22	29.05	3.39	35.24	89.42	54.00	35.42	Average
2483.500	53.76	29.09	3.41	35.26	51.00	54.00	-3.00	Average
2485.391	49.69	29.09	3.41	35.26	46.93	54.00	-7.07	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



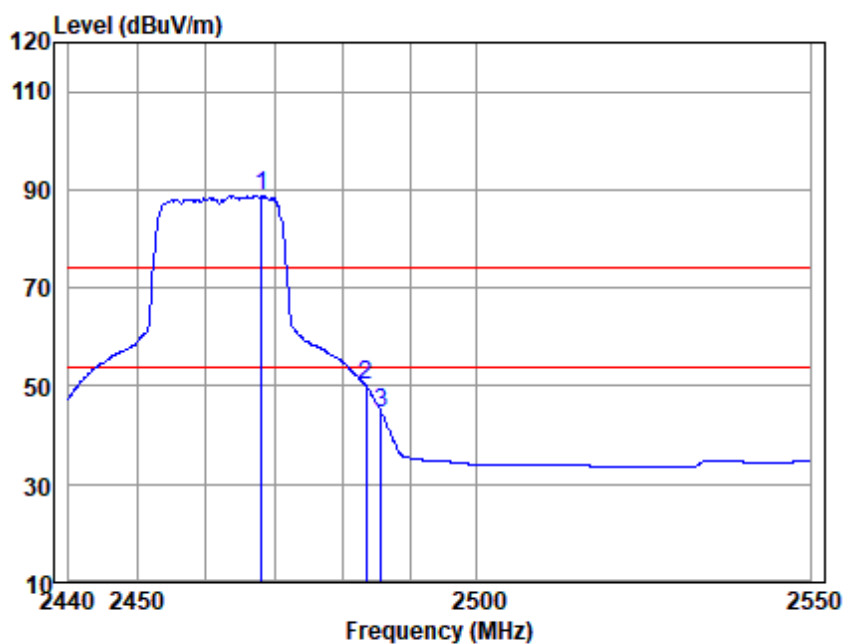
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2468.026	104.49	29.06	3.40	35.25	101.70	74.00	27.70	Peak
2483.500	71.20	29.09	3.41	35.26	68.44	74.00	-5.56	Peak
2484.514	71.36	29.09	3.41	35.26	68.60	74.00	-5.40	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



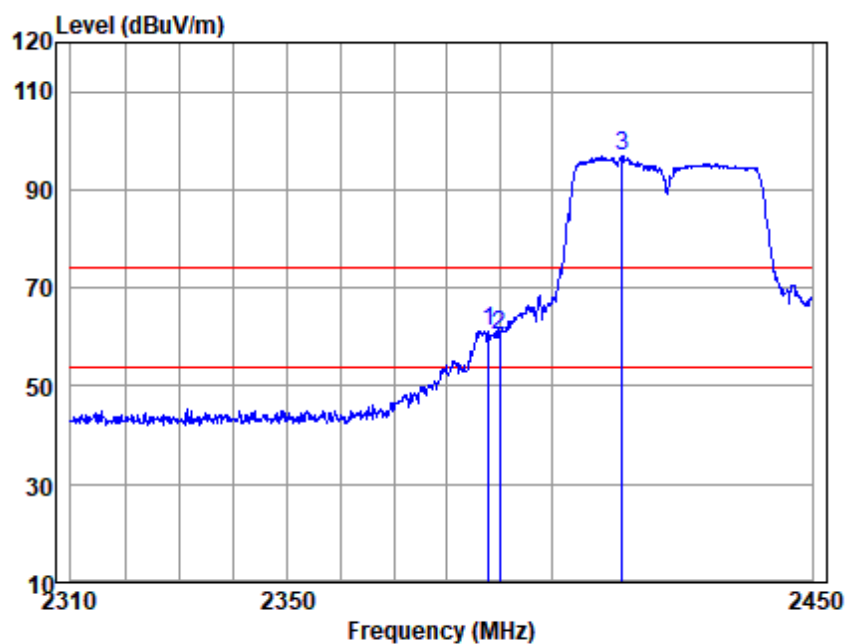
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2468.135	91.72	29.06	3.40	35.25	88.93	54.00	34.93	Average
2483.500	52.75	29.09	3.41	35.26	49.99	54.00	-4.01	Average
2485.829	47.36	29.09	3.41	35.26	44.60	54.00	-9.40	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



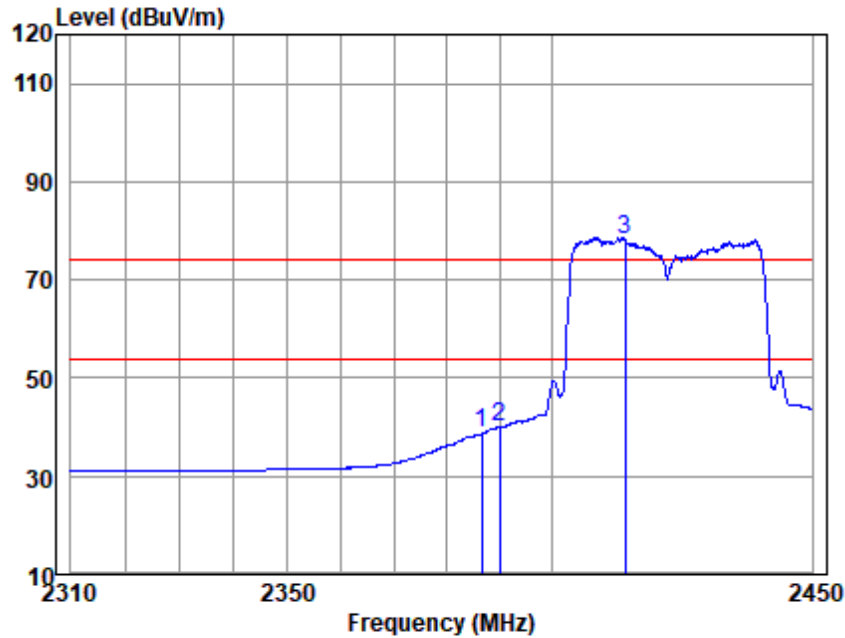
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2387.946	64.29	28.80	3.33	35.18	61.24	74.00	-12.76	Peak
2390.000	63.58	28.80	3.33	35.18	60.53	74.00	-13.47	Peak
2413.372	99.81	28.90	3.35	35.20	96.86	74.00	22.86	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



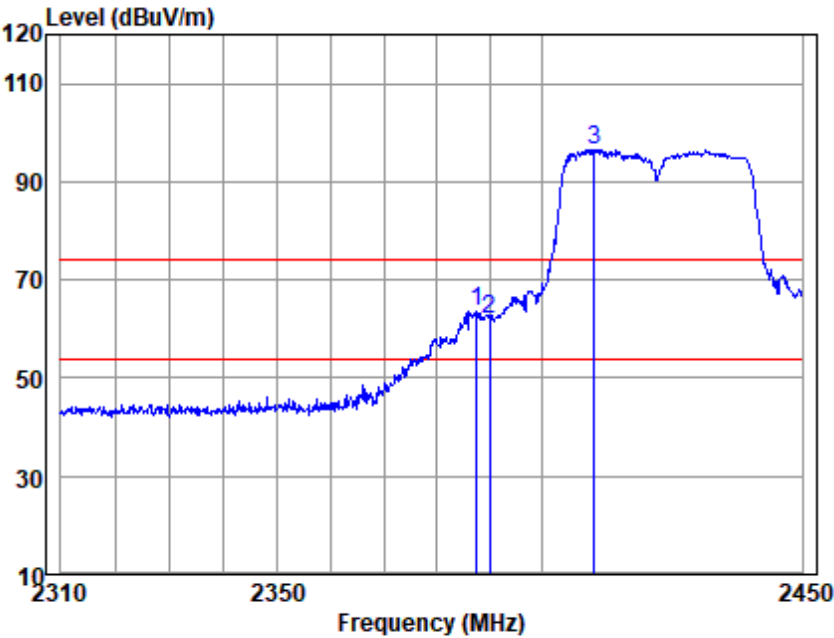
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2386.682	41.69	28.80	3.33	35.18	38.64	54.00	-15.36	Average
2390.000	43.04	28.80	3.33	35.18	39.99	54.00	-14.01	Average
2413.940	81.09	28.90	3.35	35.20	78.14	54.00	24.14	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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

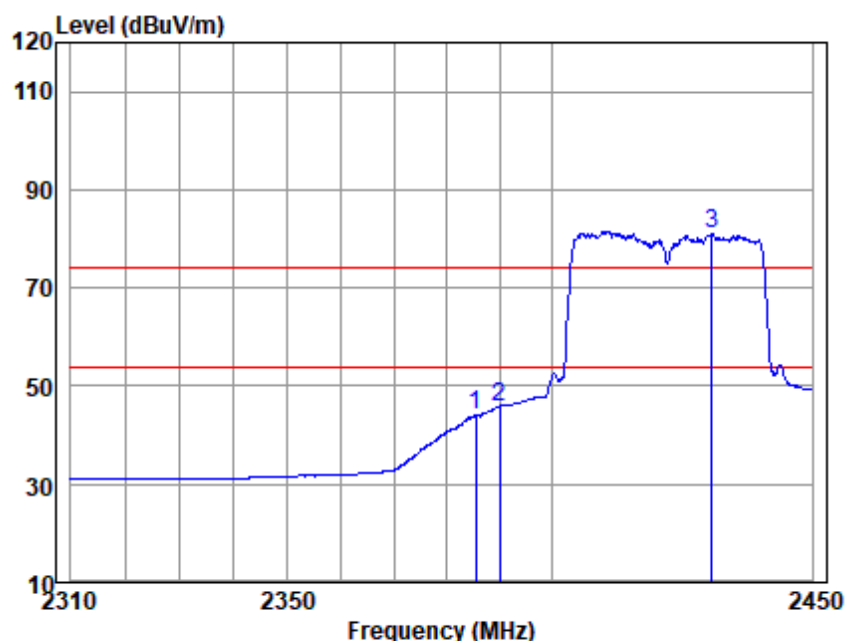


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2387.524	66.58	28.80	3.33	35.18	63.53	74.00	-10.47	Peak
2390.000	64.98	28.80	3.33	35.18	61.93	74.00	-12.07	Peak
2409.966	99.58	28.89	3.34	35.20	96.61	74.00	22.61	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



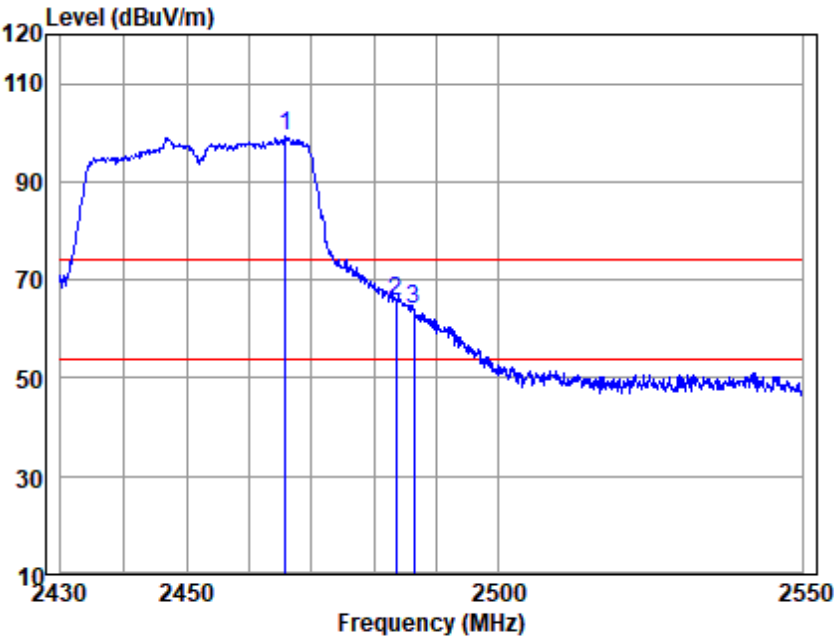
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2385.418	47.05	28.80	3.33	35.18	44.00	54.00	-10.00	Average
2390.000	48.88	28.80	3.33	35.18	45.83	54.00	-8.17	Average
2430.615	84.01	28.96	3.36	35.21	81.12	54.00	27.12	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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

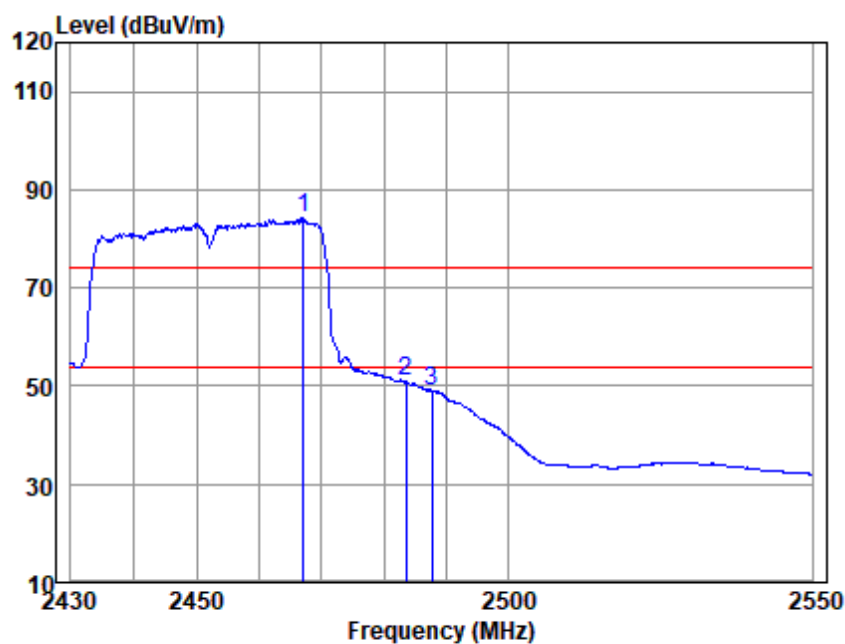


Antenna Polarity :HORIZONTAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2465.751	102.15	29.05	3.39	35.24	99.35	74.00	25.35	Peak
2483.500	68.34	29.09	3.41	35.26	65.58	74.00	-8.42	Peak
2486.519	66.68	29.09	3.41	35.26	63.92	74.00	-10.08	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



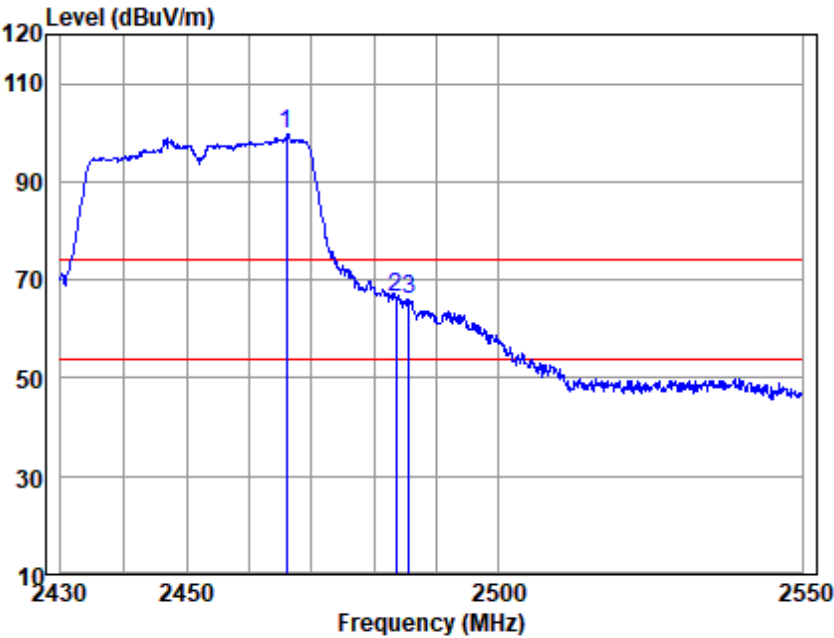
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2467.059	86.94	29.05	3.39	35.24	84.14	54.00	30.14	Average
2483.500	53.57	29.09	3.41	35.26	50.81	54.00	-3.19	Average
2487.718	51.80	29.09	3.41	35.26	49.04	54.00	-4.96	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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

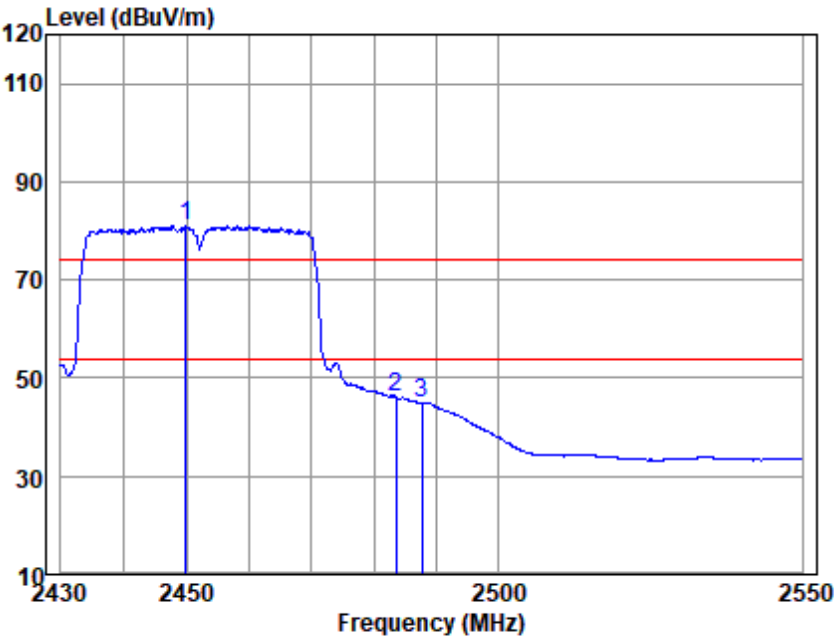


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2465.989	102.68	29.05	3.39	35.24	99.88	74.00	25.88	Peak
2483.500	69.02	29.09	3.41	35.26	66.26	74.00	-7.74	Peak
2485.680	68.58	29.09	3.41	35.26	65.82	74.00	-8.18	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
2449.876	83.98	29.02	3.38	35.23	81.15	54.00	27.15	Average
2483.500	48.84	29.09	3.41	35.26	46.08	54.00	-7.92	Average
2487.718	47.78	29.09	3.41	35.26	45.02	54.00	-8.98	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

7.3 Radiated Spurious Emissions Below 1GHz

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

Test Method: ANSI C63.10 (2020) 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

Note

1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

2. At frequencies below 1GHz, measurements may be performed at a distance different to specified in the regulations.

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor+ Aux Factor (if applicable)

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

EX. Below 30MHz, Aux Factor = 40 dB/decade of distance, the aux factor is $40\log(3/300) = -80\text{dB}$ (for 3m test distance).

EX. Above 30MHz, Aux Factor = 20 dB/decade of distance, the aux factor is $20\log(10/3) = 10.46\text{dB}$ (for 10m test distance).

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 21.8 °C

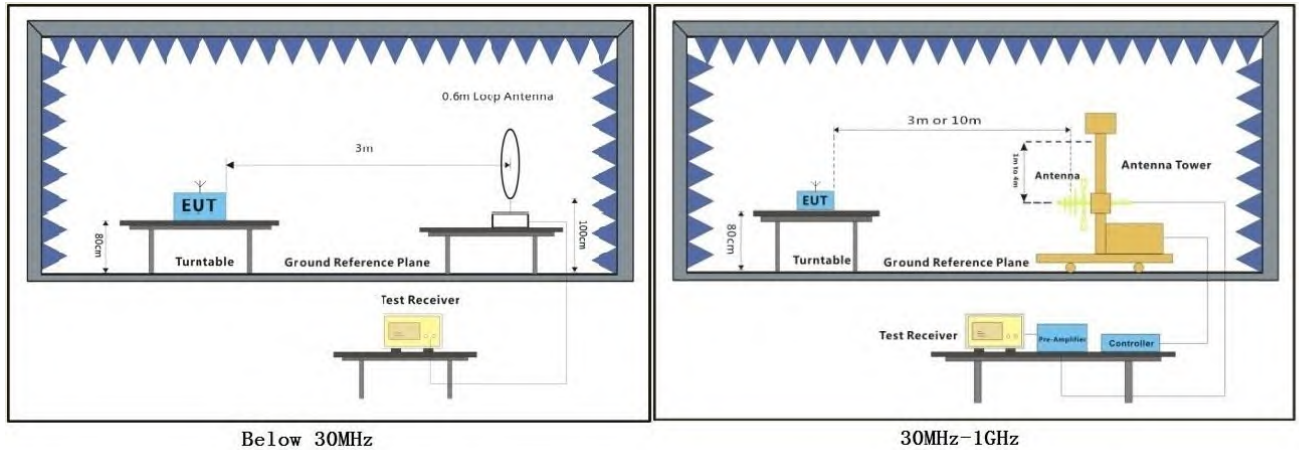
Humidity: 52.3 % RH

Atmospheric Pressure: 1031 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



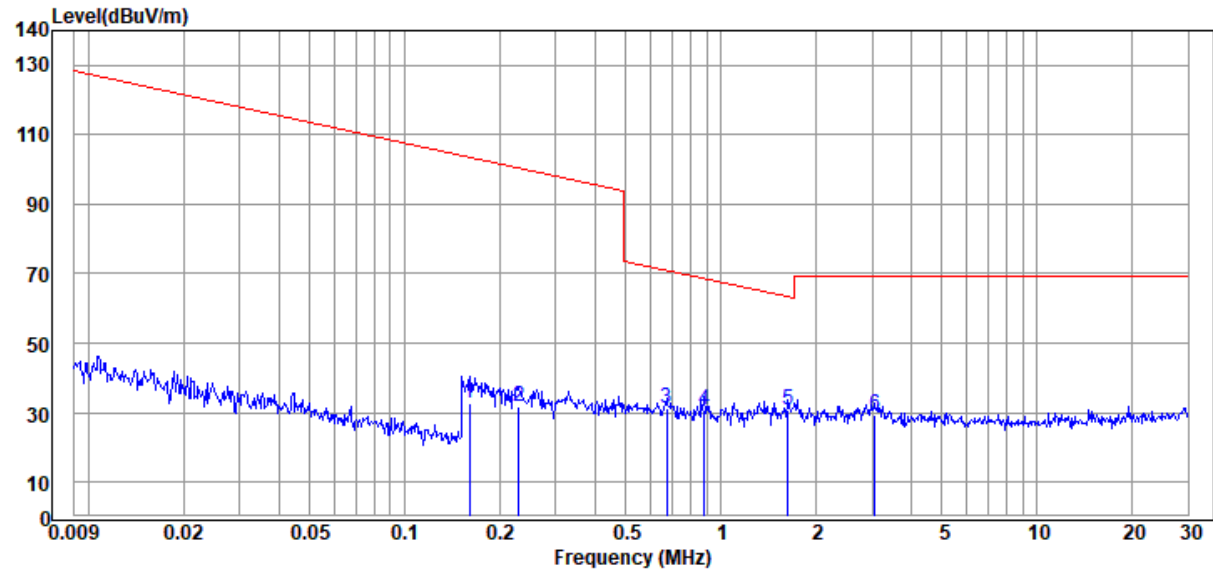
7.3.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8m above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3m or 10m away from the interference-receiving antenna, which was mounted on the variable-height antenna tower.
- c. The antenna height is varied from 1m to 4m 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 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1m) 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:

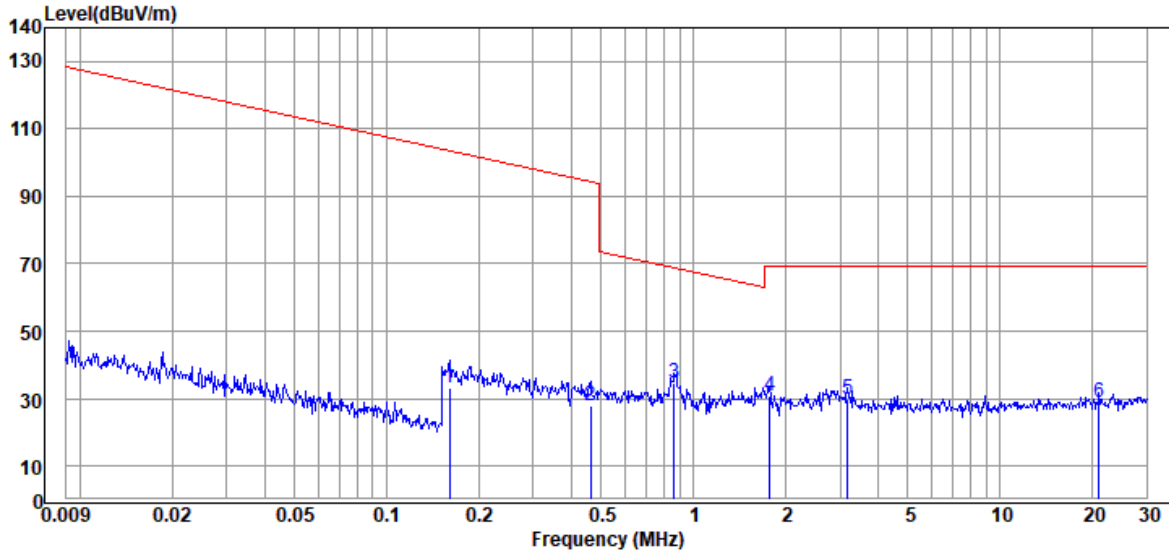
1. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only below points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
2. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the worst-case test curve is displayed.

Coaxial:



Item	Freq.	Read Level	Antenna Factor	Cable Loss	Result Level@3m	Result Level@S PEC	Limit Line@SP EC	Over Limit	Detector
(Mark)	(MHz)	(dBμV)	(dB/m)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.160	15.05	17.30	0.30	32.65	-47.35	23.50	-70.85	Average
2	0.229	14.00	17.30	0.30	31.60	-48.40	20.40	-68.80	Average
3	0.674	13.44	17.40	0.30	31.14	-8.86	31.04	-39.90	QP
4	0.888	12.92	17.50	0.30	30.72	-9.28	28.65	-37.93	QP
5	1.631	12.81	17.67	0.30	30.78	-9.22	23.39	-32.61	QP
6	3.070	11.40	17.81	0.30	29.51	-10.49	29.5	-39.99	QP

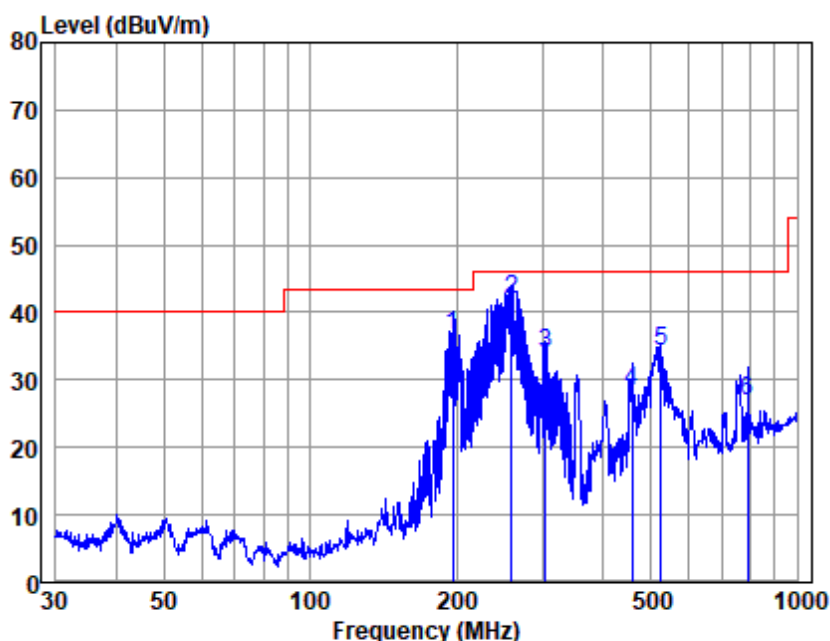
Coplanar:



Item	Freq.	Read Level	Antenna Factor	Cable Loss	Result Level@3m	Result Level@S PEC	Limit Line@SP EC	Over Limit	Detector
(Mark)	(MHz)	(dBμV)	(dB/m)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.160	15.71	17.30	0.30	33.31	-46.69	23.50	-70.19	Average
2	0.460	10.36	17.30	0.30	27.96	-52.04	14.35	-66.39	Average
3	0.866	16.96	17.50	0.30	34.76	-5.24	28.87	-34.11	QP
4	1.769	12.61	17.68	0.30	30.59	-9.41	29.50	-38.91	QP
5	3.172	11.88	17.82	0.30	30.00	-10.00	29.50	-39.50	QP
6	20.995	9.86	18.63	0.35	28.84	-11.16	29.50	-40.66	QP

Note: For test distance other than what is specified, but fulfilling the requirements of section 15.31(f) (2) the field strength is calculated by adding additionally an extrapolation factor of 40dB/decade (inverse linear distance for field strength measurements). So the Distance Extrapolation Factor in dB is $40 \cdot \log(D_{TEST} / D_{SPEC})$ where D_{TEST} = Test Distance and D_{SPEC} = Specified Distance. Field strength limit (dBμV/m)@test distance= Field strength limit (dBμV/m)@specified distance +Distance Extrapolation Factor

Test Mode: 00; Polarity: Horizontal



Antenna Polarity :HORIZONTAL

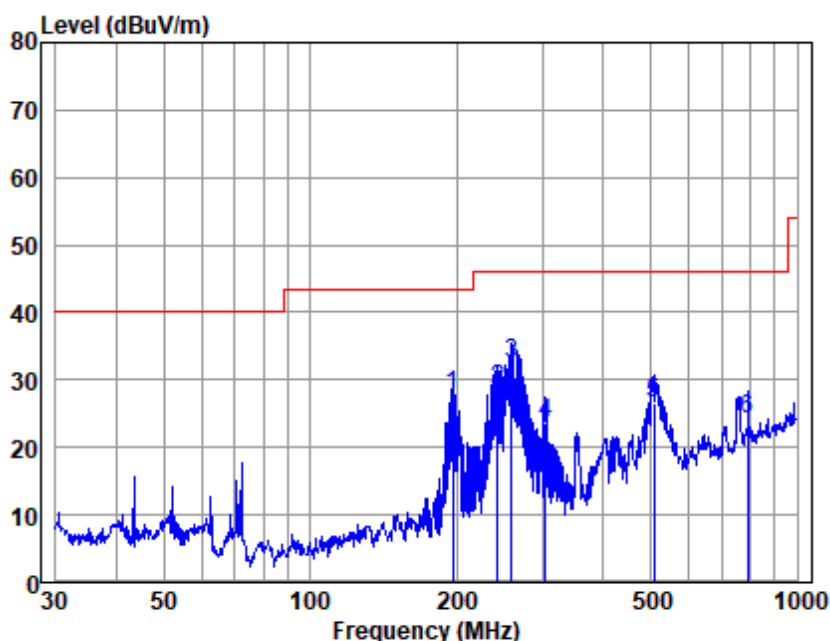
EUT/Project :3450HS

Test mode :00

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	195.822	56.92	9.80	2.88	32.91	36.69	43.50	-6.81	QP
2	259.234	60.32	11.18	3.36	32.81	42.05	46.00	-3.95	QP
3	304.610	50.15	12.77	3.65	32.75	33.82	46.00	-12.18	QP
4	457.507	40.03	16.32	4.58	32.60	28.33	46.00	-17.67	QP
5	524.554	44.71	17.10	4.93	32.60	34.14	46.00	-11.86	QP
6	793.396	30.68	22.22	6.16	32.12	26.94	46.00	-19.06	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Test Mode: 00; Polarity: Vertical



Antenna Polarity :VERTICAL

EUT/Project :3450HS

Test mode :00

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	195.822	48.08	9.80	2.88	32.91	27.85	43.50	-15.65	QP
2	242.525	47.74	10.60	3.24	32.83	28.75	46.00	-17.25	QP
3	259.234	50.72	11.18	3.36	32.81	32.45	46.00	-13.55	QP
4	304.610	39.84	12.77	3.65	32.75	23.51	46.00	-22.49	QP
5	508.258	37.37	17.08	4.86	32.60	26.71	46.00	-19.29	QP
6	793.396	28.07	22.22	6.16	32.12	24.33	46.00	-21.67	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

7.4 Radiated Spurious Emissions Above 1GHz

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

Test Method: ANSI C63.10 (2020) Section 6.6

Measurement Distance: 3m

Limit:

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

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C

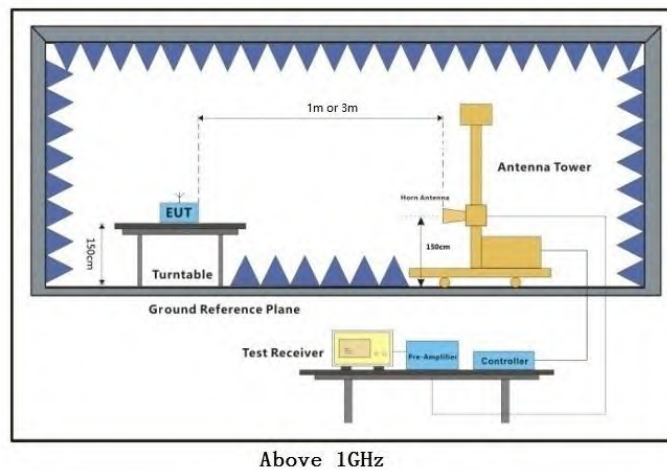
Humidity: 58.6 % RH

Atmospheric Pressure: 1021 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



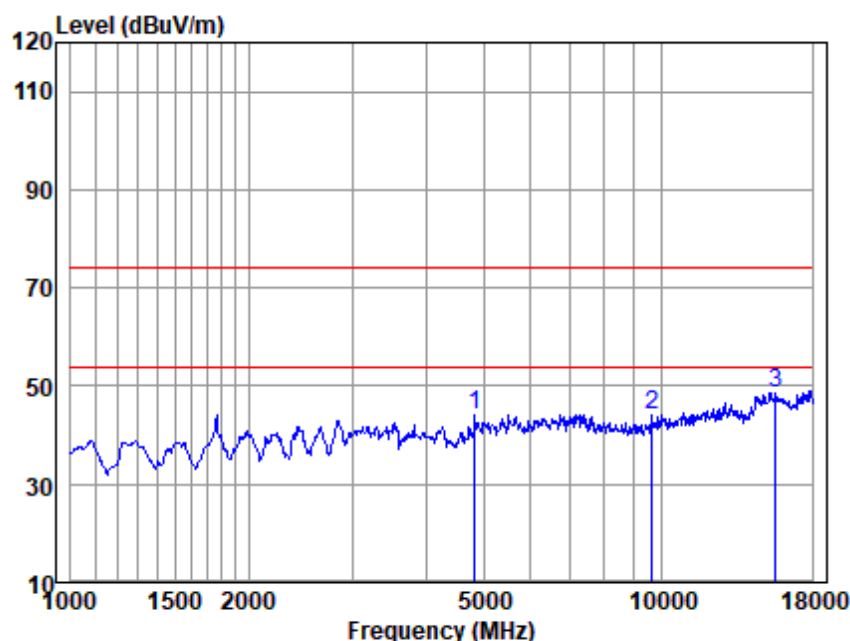
7.4.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5m above the ground at a 3m fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3m away from the interference-receiving antenna from 1GHz to 40GHz.
- b. The interference-receiving antenna was mounted on the variable-height antenna tower, with its boresight facing the EUT throughout the test.
- c. The antenna height is varied from 1m to 4m 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 1m to 4m 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. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- g. 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.
- h. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Scan from 18GHz to 10th harmonic of the highest frequency or 40 GHz, whichever is lower.
2. 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.
3. For the frequency above 18GHz, testing had been executed under all test modes, only the worst-case test curve is displayed in the report.
4. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s). Only the worst-case mode with the highest output power and the mode with the highest output power spectral density for each modulation family (e.g., OFDM and direct sequence spread spectrum) is recorded in the test report.

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



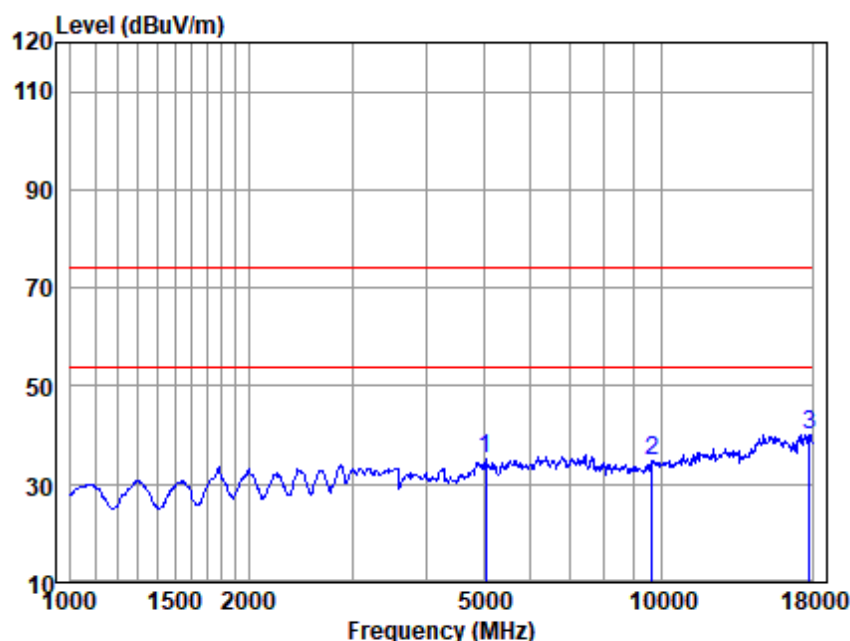
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4831.962	42.09	33.63	5.25	36.79	44.18	74.00	-29.82	Peak
9641.257	35.39	37.71	8.76	37.56	44.30	74.00	-29.70	Peak
15622.990	33.72	43.19	12.40	40.81	48.50	74.00	-25.50	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



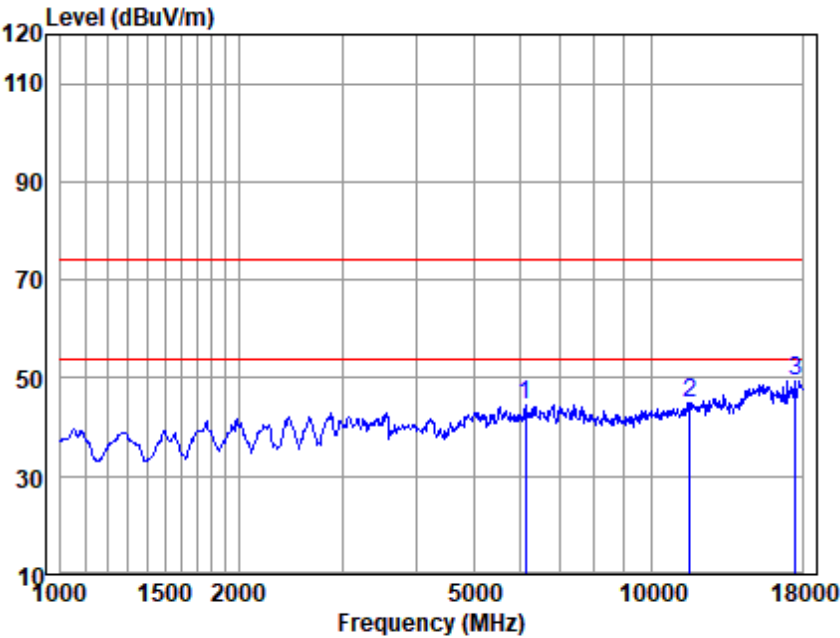
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
5046.062	32.85	33.69	5.41	36.85	35.10	54.00	-18.90	Average
9641.257	25.89	37.71	8.76	37.56	34.80	54.00	-19.20	Average
17844.590	23.99	42.99	13.79	40.57	40.20	54.00	-13.80	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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

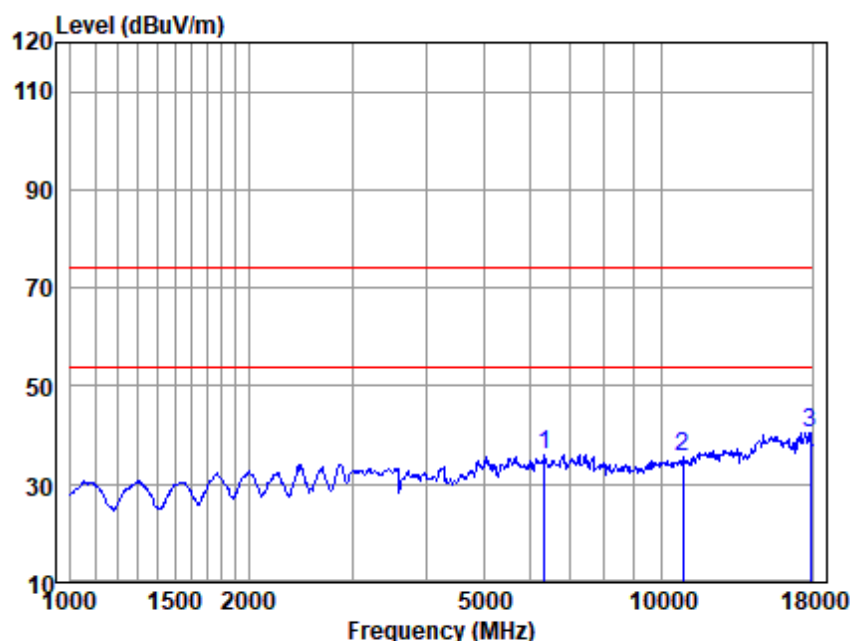


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6124.292	39.57	35.32	6.30	36.88	44.31	74.00	-29.69	Peak
11633.930	34.39	38.29	9.66	37.31	45.03	74.00	-28.97	Peak
17537.800	33.60	42.28	13.60	39.98	49.50	74.00	-24.50	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



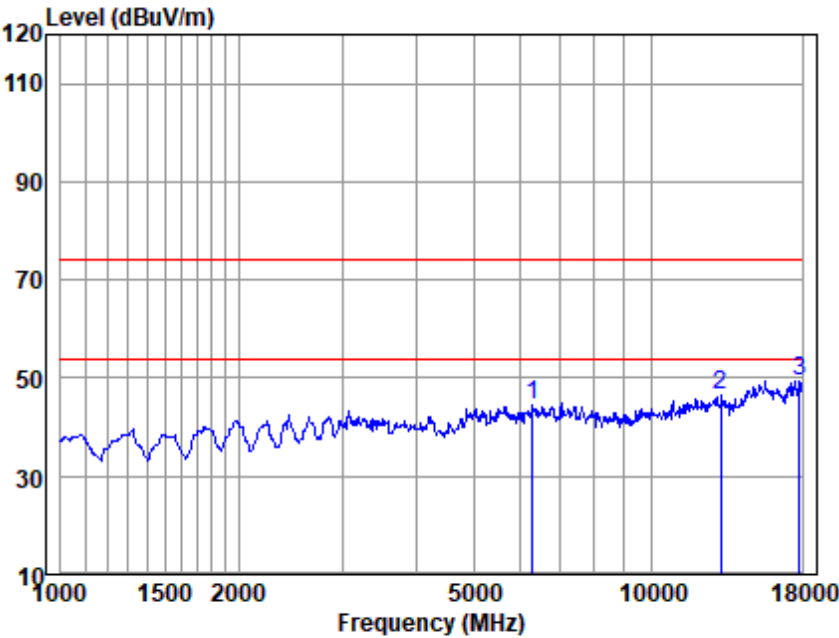
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6340.436	31.35	35.51	6.52	37.58	35.80	54.00	-18.20	Average
10885.670	25.00	38.28	9.26	36.84	35.70	54.00	-18.30	Average
17896.250	24.20	43.04	13.82	40.51	40.55	54.00	-13.45	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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

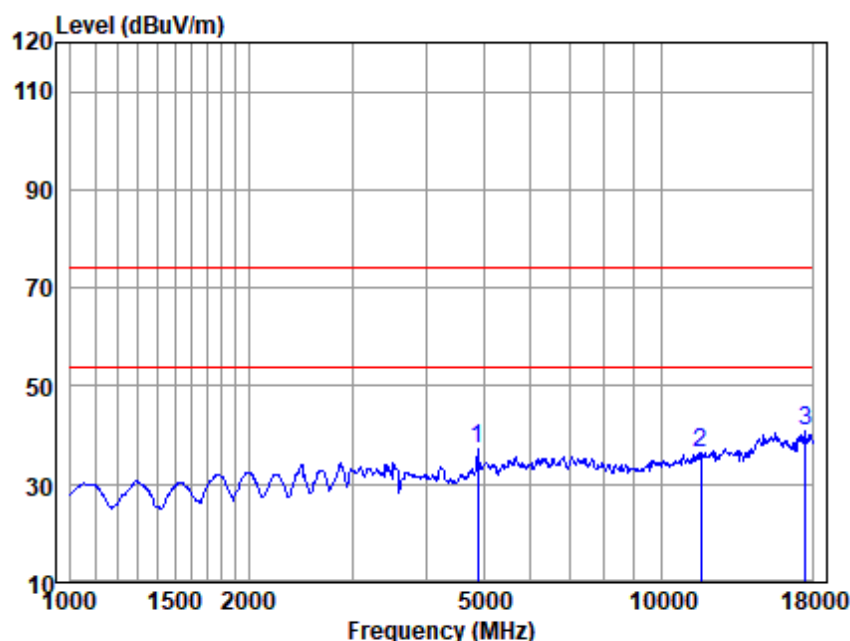


Antenna Polarity :HORIZONTAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6303.890	39.97	35.54	6.48	37.63	44.36	74.00	-29.64	Peak
13135.540	36.15	39.27	10.78	39.65	46.55	74.00	-27.45	Peak
17844.590	33.27	42.99	13.79	40.57	49.48	74.00	-24.52	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



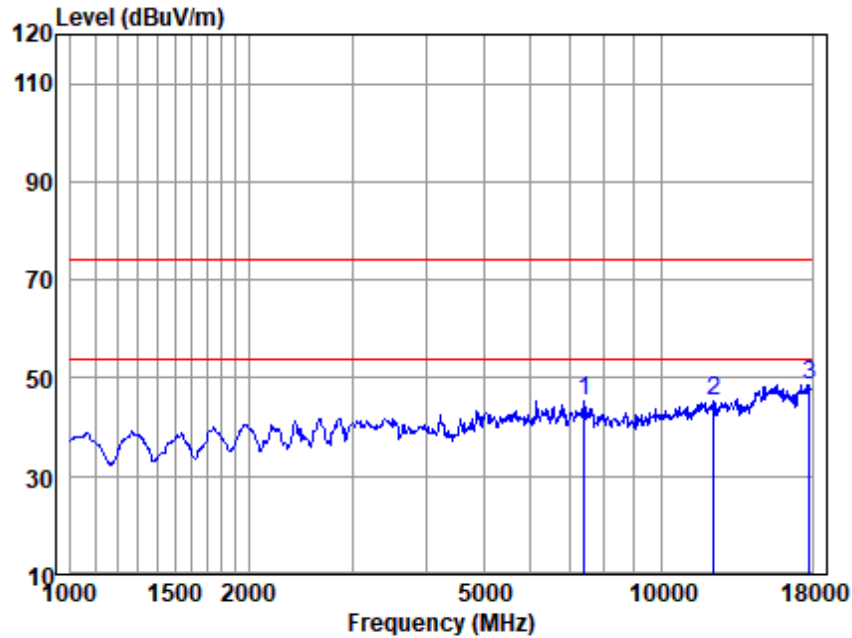
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4888.151	35.24	33.66	5.29	36.81	37.38	54.00	-16.62	Average
11667.600	25.86	38.27	9.68	37.44	36.37	54.00	-17.63	Average
17537.800	24.89	42.28	13.60	39.98	40.79	54.00	-13.21	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



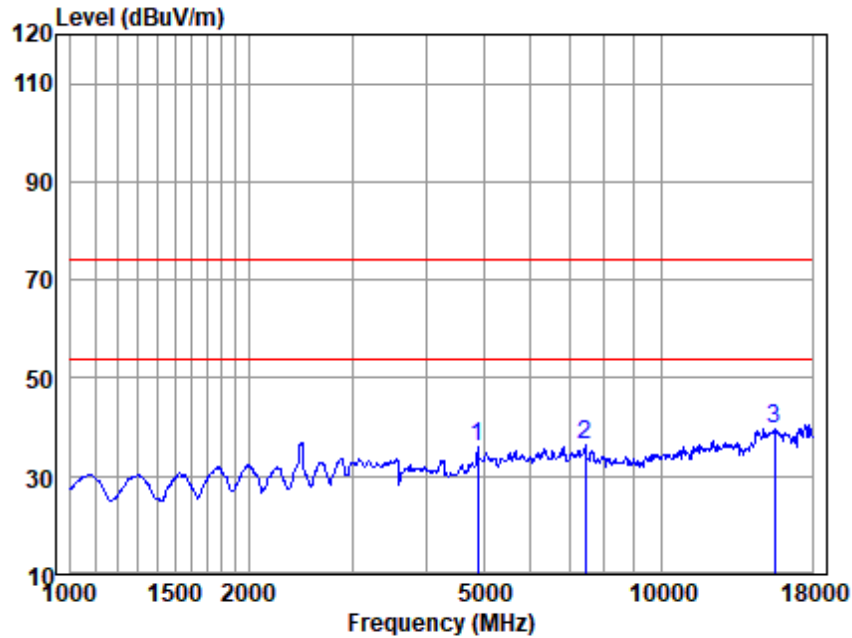
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
7411.461	38.73	36.34	7.51	37.35	45.23	74.00	-28.77	Peak
12290.700	35.23	38.66	10.17	38.64	45.42	74.00	-28.58	Peak
17793.090	32.74	42.90	13.75	40.64	48.75	74.00	-25.25	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



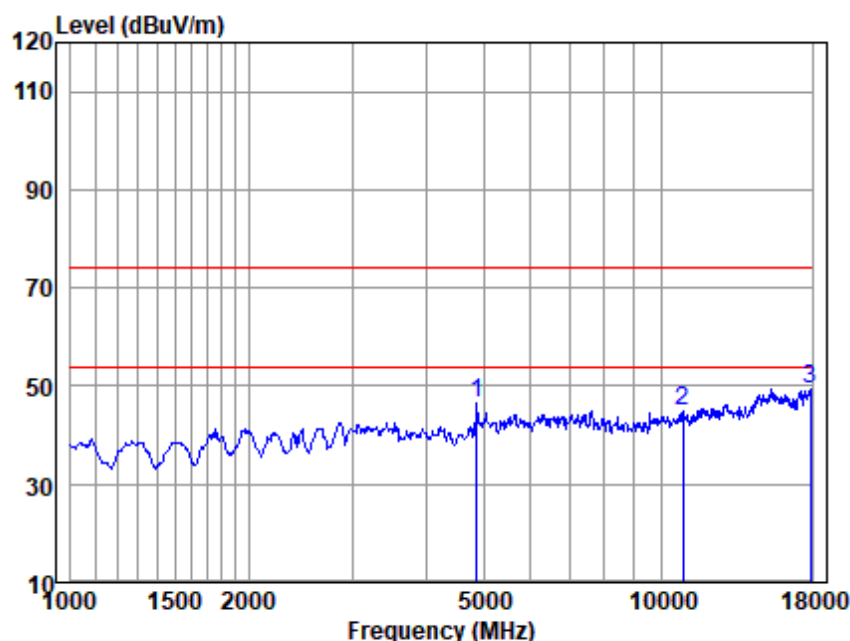
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4888.151	33.73	33.66	5.29	36.81	35.87	54.00	-18.13	Average
7432.914	29.93	36.31	7.53	37.34	36.43	54.00	-17.57	Average
15577.900	24.82	43.29	12.37	40.81	39.67	54.00	-14.33	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



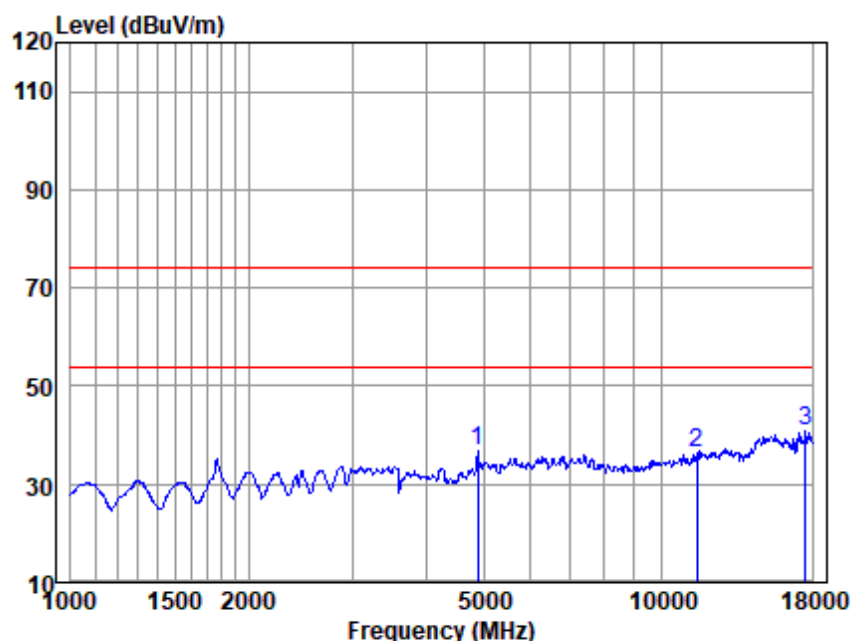
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4874.043	44.29	33.66	5.28	36.81	46.42	74.00	-27.58	Peak
10885.670	34.34	38.28	9.26	36.84	45.04	74.00	-28.96	Peak
17896.250	33.13	43.04	13.82	40.51	49.48	74.00	-24.52	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



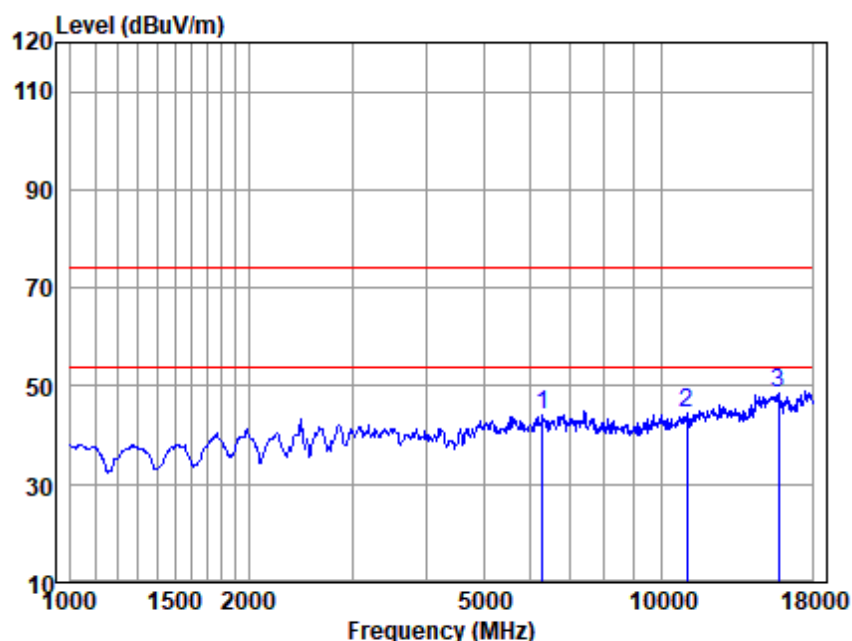
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4888.151	34.80	33.66	5.29	36.81	36.94	54.00	-17.06	Average
11467.000	26.30	38.28	9.52	37.68	36.42	54.00	-17.58	Average
17537.800	24.82	42.28	13.60	39.98	40.72	54.00	-13.28	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



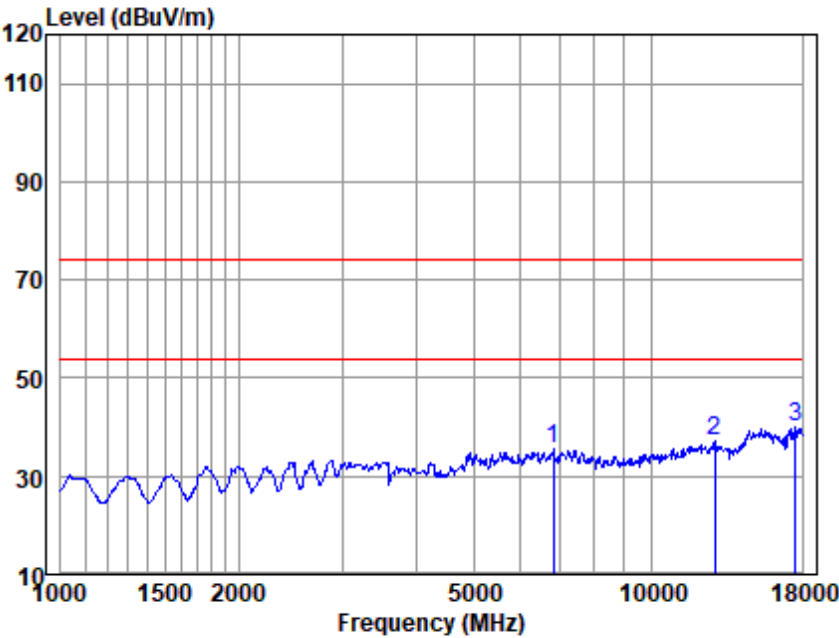
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6285.695	38.85	35.53	6.46	36.65	44.19	74.00	-29.81	Peak
11044.130	34.86	38.28	9.32	38.04	44.42	74.00	-29.58	Peak
15804.660	34.37	42.62	12.50	40.80	48.69	74.00	-25.31	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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

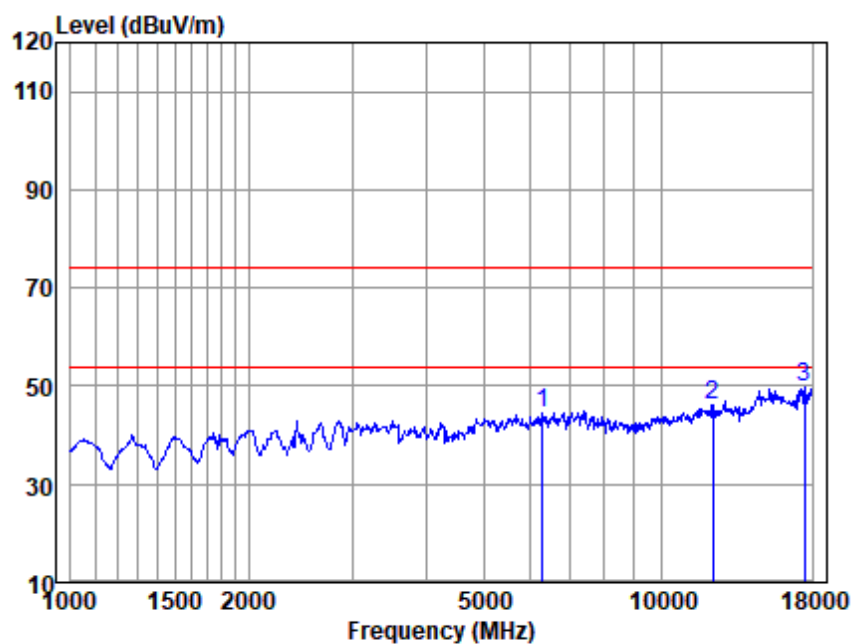


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6815.551	29.64	35.91	6.98	36.94	35.59	54.00	-18.41	Average
12798.240	27.08	39.02	10.54	39.53	37.11	54.00	-16.89	Average
17537.800	24.02	42.28	13.60	39.98	39.92	54.00	-14.08	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6303.890	40.16	35.54	6.48	37.63	44.55	74.00	-29.45	Peak
12219.850	36.15	38.60	10.11	38.65	46.21	74.00	-27.79	Peak
17487.180	35.25	42.21	13.57	41.05	49.98	74.00	-24.02	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



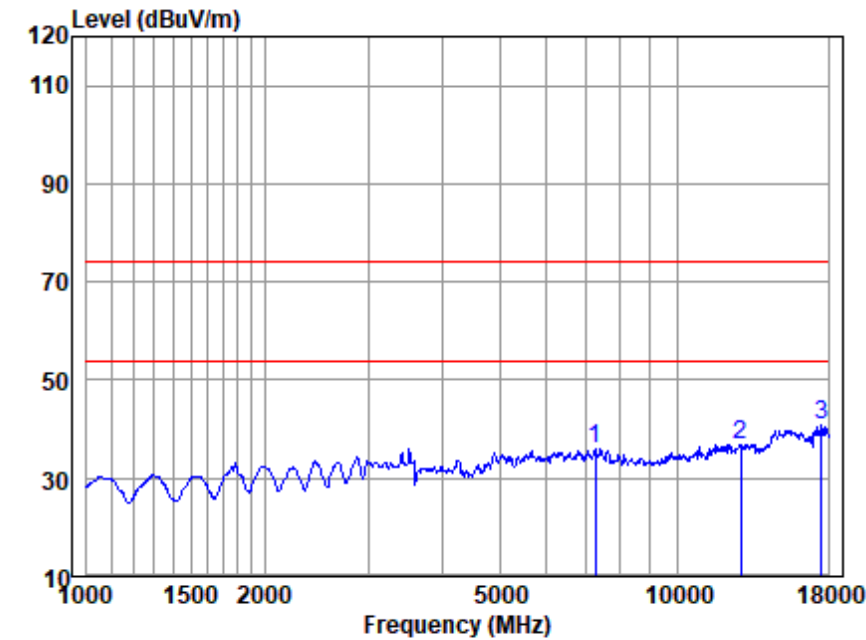
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 67 of 159

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

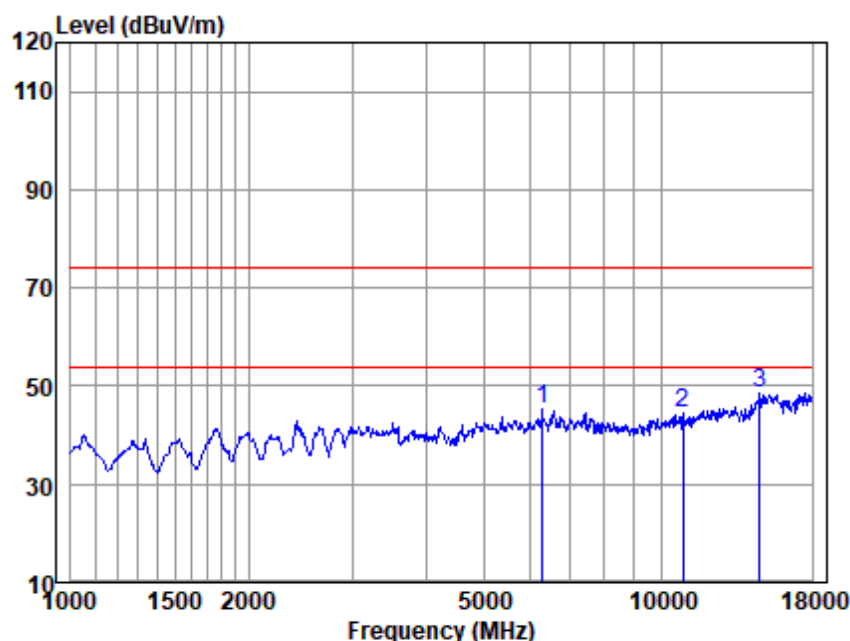


Antenna Polarity :HORIZONTAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7263.015	29.85	36.30	7.38	37.48	36.05	54.00	-17.95	Average
12798.240	26.91	39.02	10.54	39.53	36.94	54.00	-17.06	Average
17537.800	25.06	42.28	13.60	39.98	40.96	54.00	-13.04	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



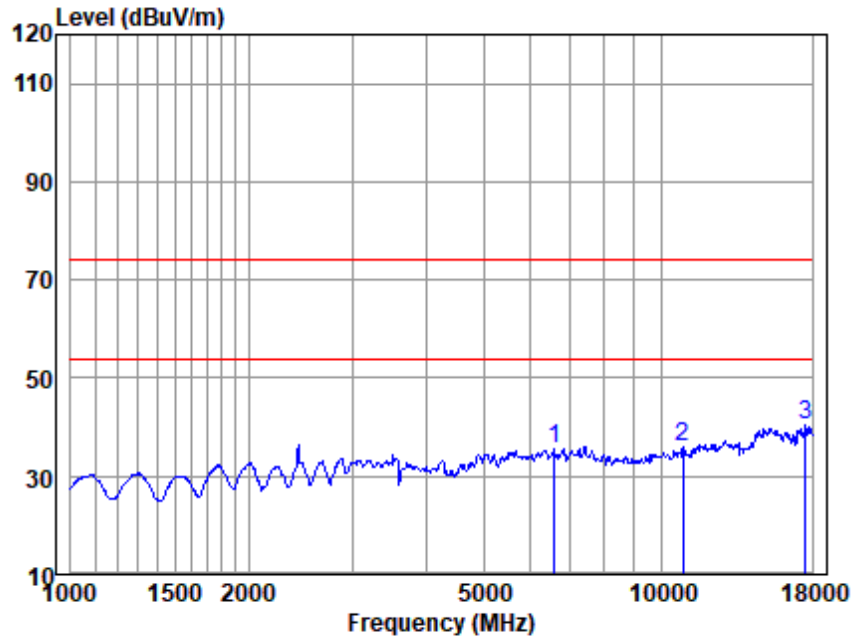
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6285.695	39.82	35.53	6.46	36.65	45.16	74.00	-28.84	Peak
10885.670	33.78	38.28	9.26	36.84	44.48	74.00	-29.52	Peak
14660.480	36.10	41.97	11.81	41.42	48.46	74.00	-25.54	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



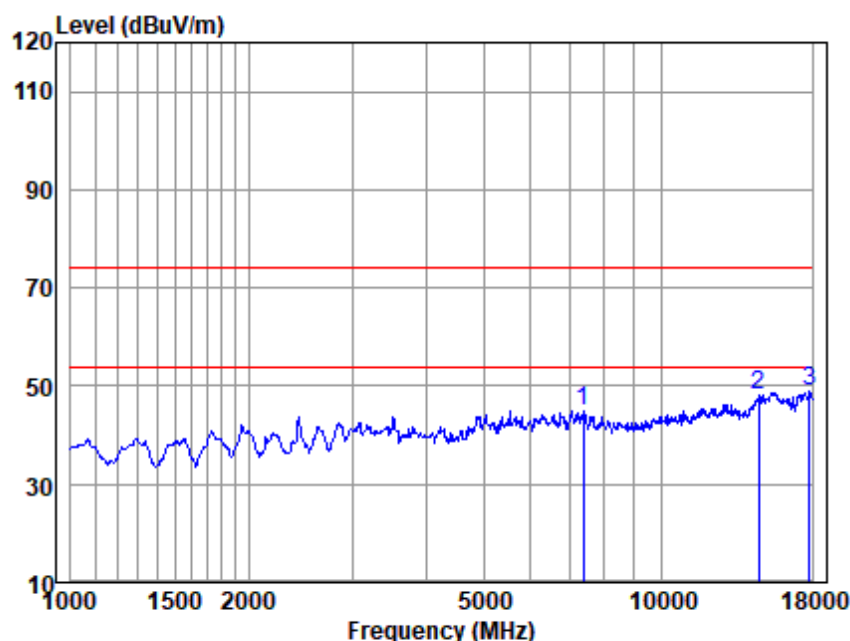
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6583.209	30.53	35.49	6.76	37.24	35.54	54.00	-18.46	Average
10885.670	25.27	38.28	9.26	36.84	35.97	54.00	-18.03	Average
17537.800	24.39	42.28	13.60	39.98	40.29	54.00	-13.71	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



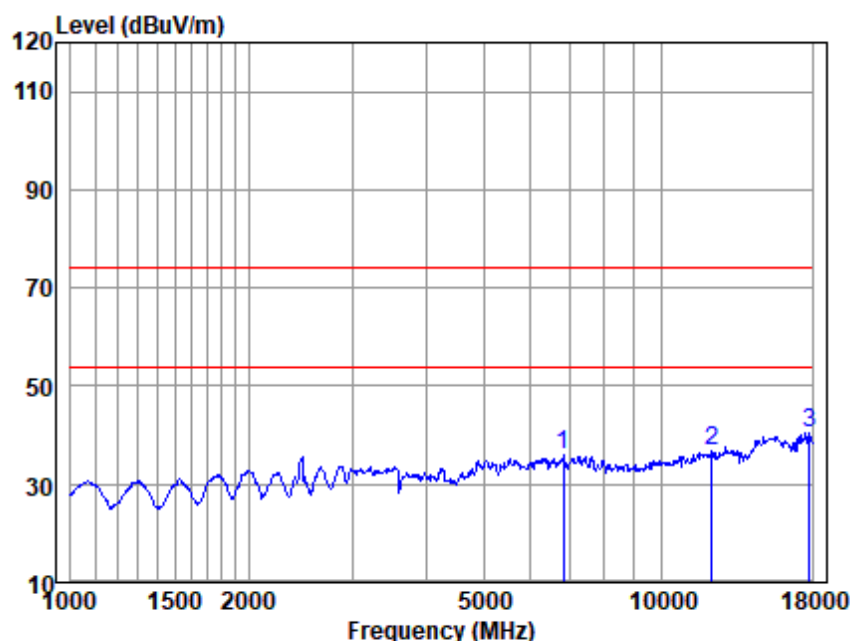
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7368.741	38.62	36.35	7.47	37.39	45.05	74.00	-28.95	Peak
14618.170	35.98	41.70	11.78	41.49	47.97	74.00	-26.03	Peak
17793.090	32.76	42.90	13.75	40.64	48.77	74.00	-25.23	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



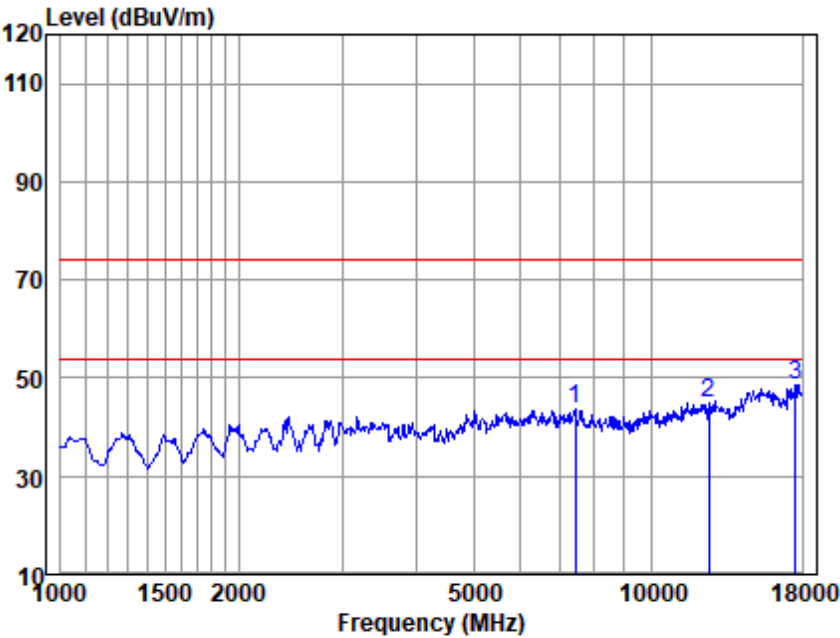
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6815.551	29.88	35.91	6.98	36.94	35.83	54.00	-18.17	Average
12184.580	26.82	38.59	10.09	38.66	36.84	54.00	-17.16	Average
17844.590	24.36	42.99	13.79	40.57	40.57	54.00	-13.43	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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

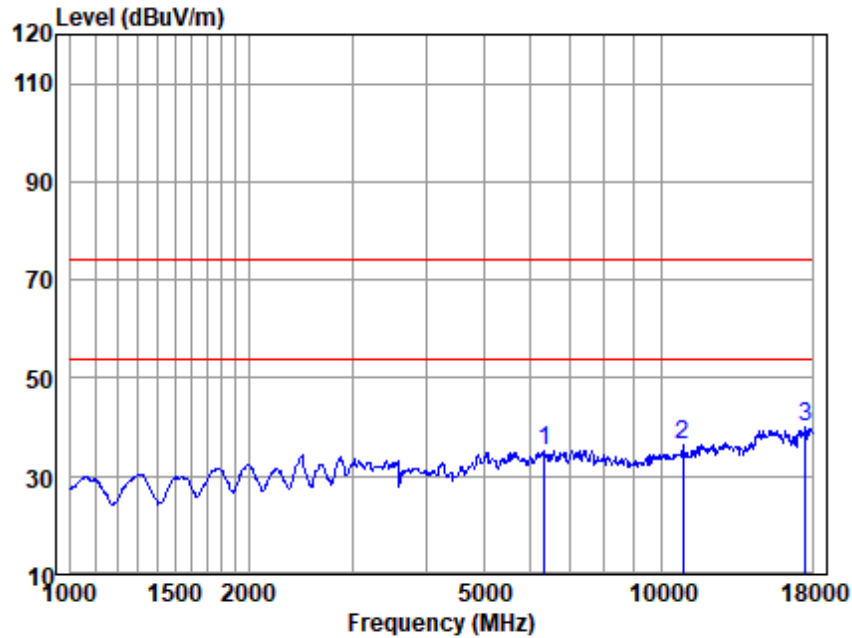


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
7432.914	37.29	36.31	7.53	37.34	43.79	74.00	-30.21	Peak
12505.710	35.50	38.71	10.33	39.59	44.95	74.00	-29.05	Peak
17537.800	32.73	42.28	13.60	39.98	48.63	74.00	-25.37	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



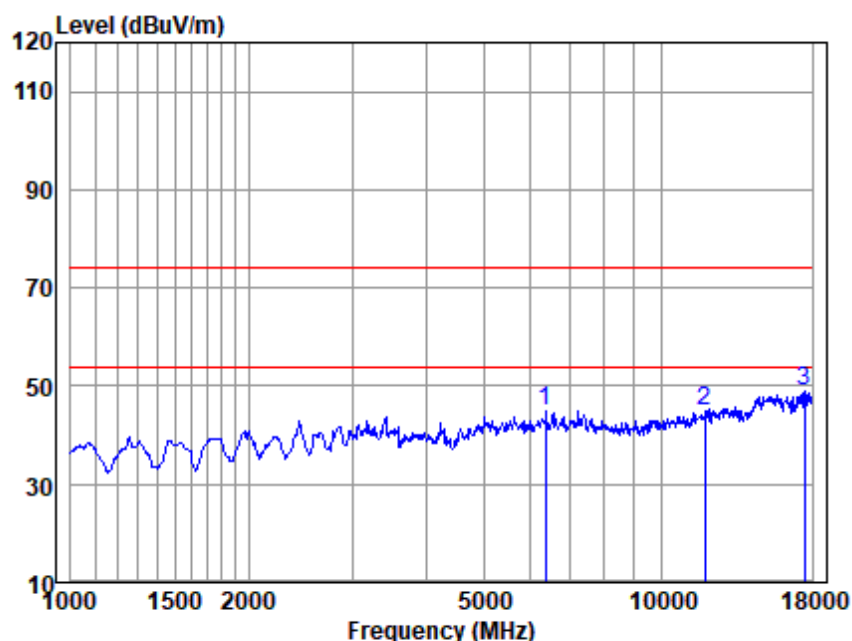
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6340.436	30.72	35.51	6.52	37.58	35.17	54.00	-18.83	Average
10885.670	25.54	38.28	9.26	36.84	36.24	54.00	-17.76	Average
17537.800	24.26	42.28	13.60	39.98	40.16	54.00	-13.84	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6377.195	40.23	35.49	6.56	37.52	44.76	74.00	-29.24	Peak
11871.710	35.08	38.18	9.84	38.19	44.91	74.00	-29.09	Peak
17487.180	34.41	42.21	13.57	41.05	49.14	74.00	-24.86	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor



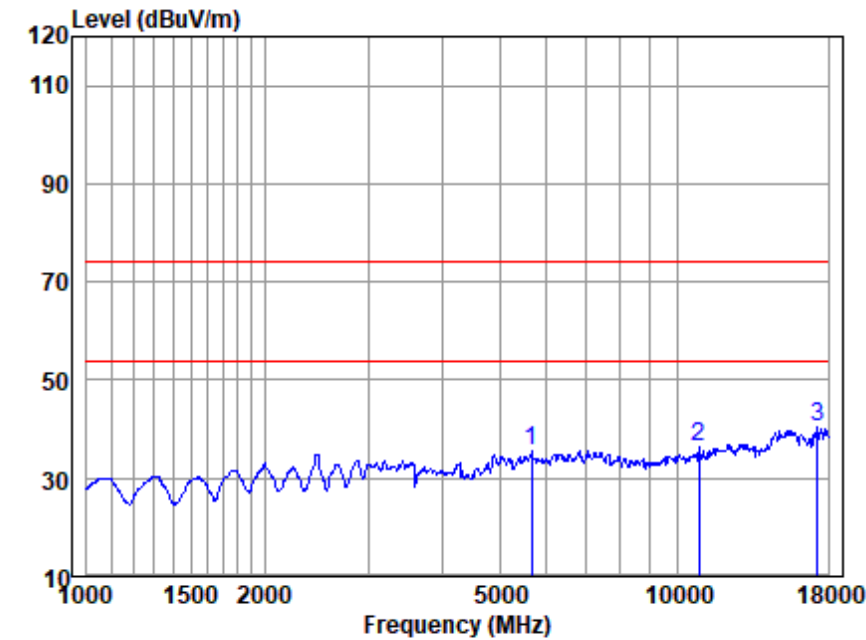
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SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 75 of 159

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

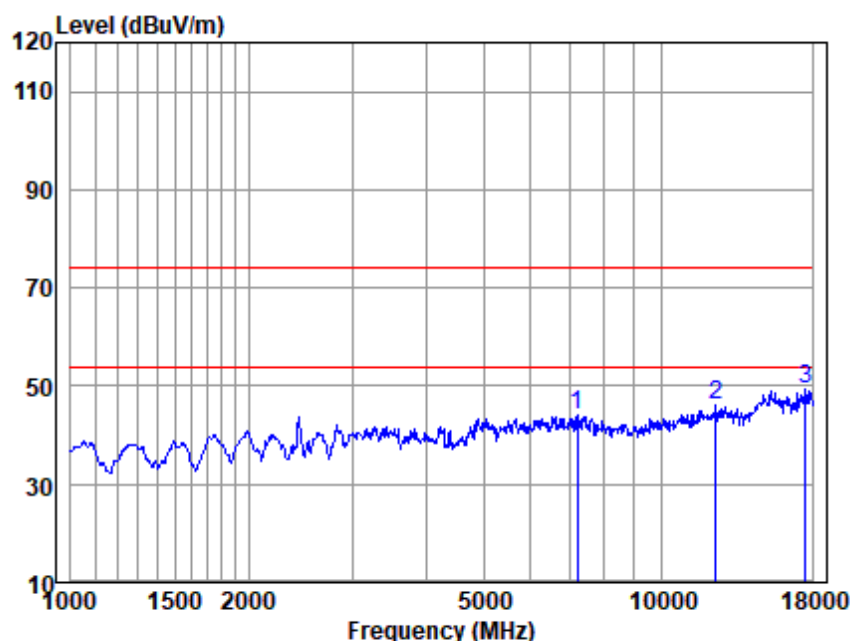


Antenna Polarity :HORIZONTAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
5664.525	32.27	34.51	5.82	37.01	35.59	54.00	-18.41	Average
10885.670	25.59	38.28	9.26	36.84	36.29	54.00	-17.71	Average
17286.170	25.13	42.05	13.44	40.32	40.30	54.00	-13.70	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



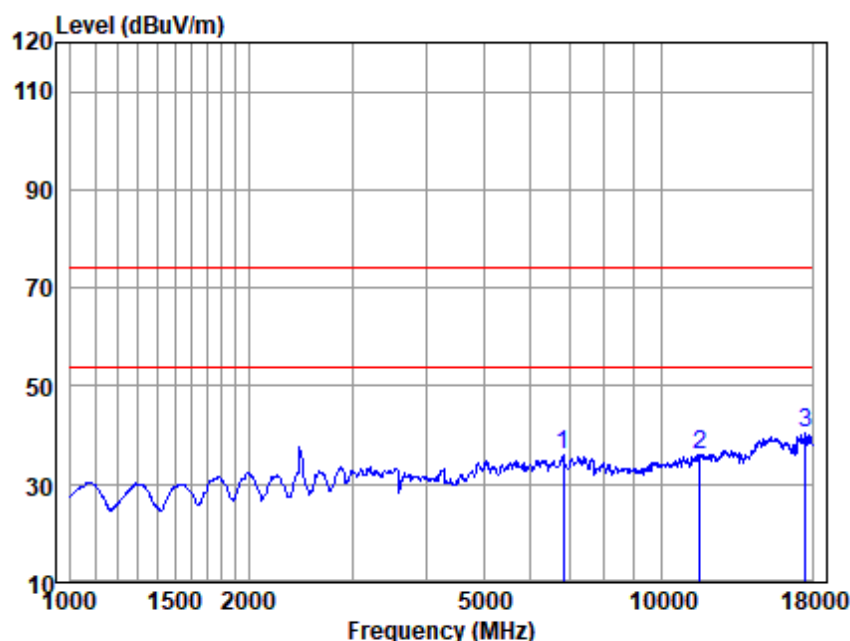
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7200.309	37.97	36.24	7.33	37.53	44.01	74.00	-29.99	Peak
12361.950	35.74	38.66	10.22	38.62	46.00	74.00	-28.00	Peak
17537.800	33.32	42.28	13.60	39.98	49.22	74.00	-24.78	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



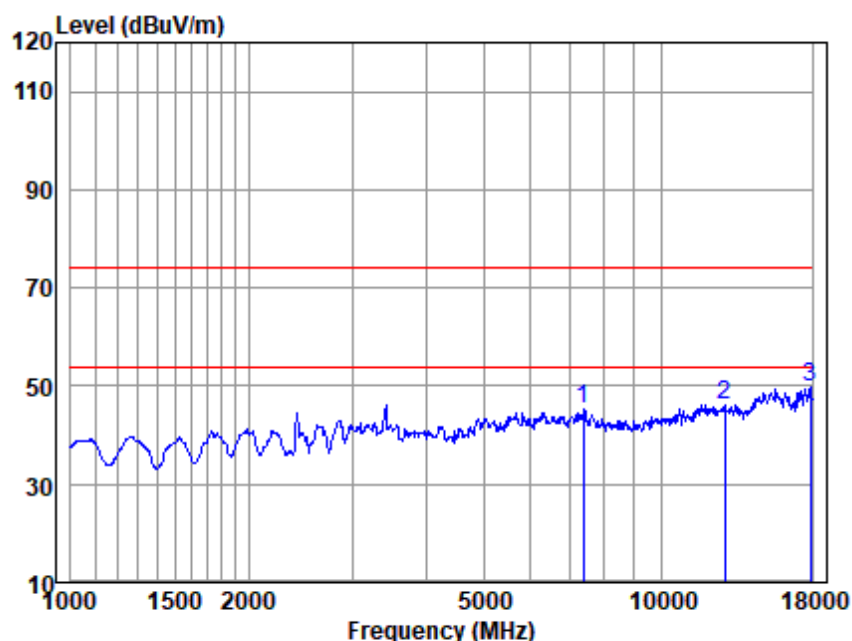
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6815.551	30.09	35.91	6.98	36.94	36.04	54.00	-17.96	Average
11633.930	25.38	38.29	9.66	37.31	36.02	54.00	-17.98	Average
17537.800	24.65	42.28	13.60	39.98	40.55	54.00	-13.45	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



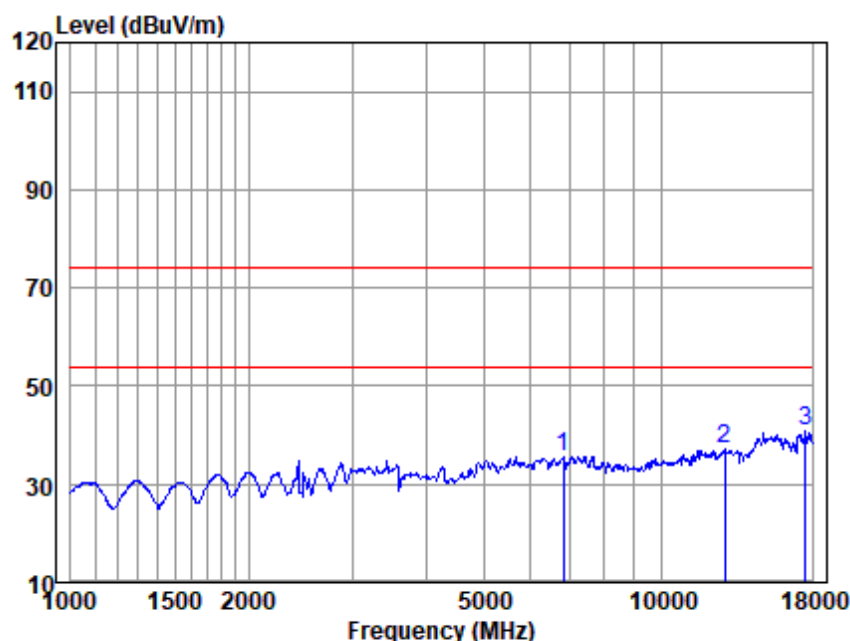
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7368.741	38.80	36.35	7.47	37.39	45.23	74.00	-28.77	Peak
12798.240	36.20	39.02	10.54	39.53	46.23	74.00	-27.77	Peak
17896.250	33.33	43.04	13.82	40.51	49.68	74.00	-24.32	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



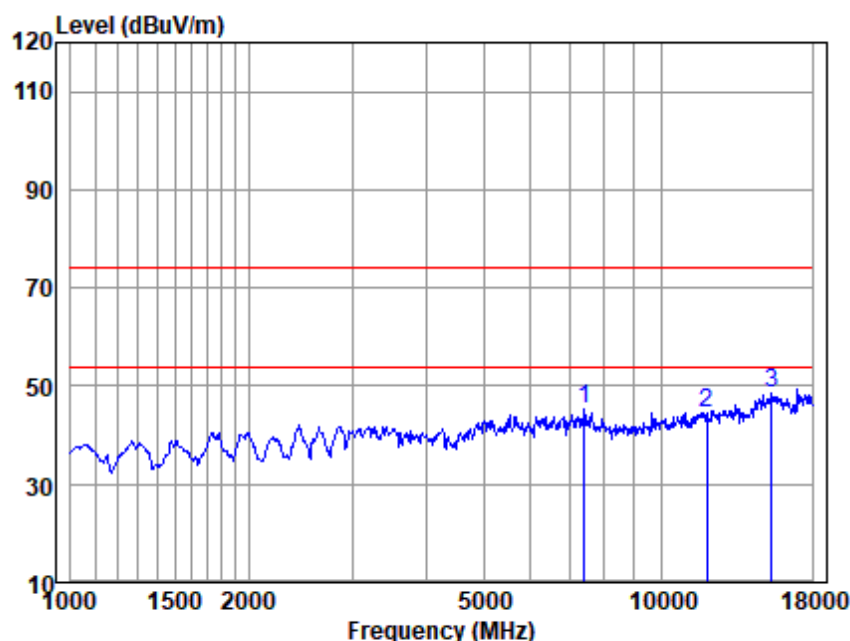
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6815.551	29.74	35.91	6.98	36.94	35.69	54.00	-18.31	Average
12798.240	27.19	39.02	10.54	39.53	37.22	54.00	-16.78	Average
17537.800	24.92	42.28	13.60	39.98	40.82	54.00	-13.18	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



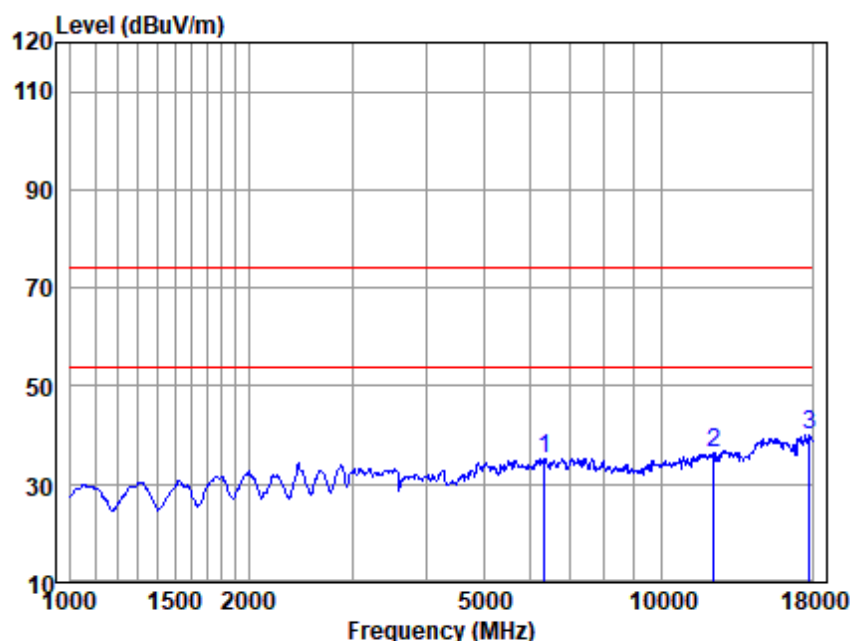
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
7411.461	38.88	36.34	7.51	37.35	45.38	74.00	-28.62	Peak
11940.540	34.98	38.22	9.90	38.45	44.65	74.00	-29.35	Peak
15354.390	34.71	43.59	12.24	41.83	48.71	74.00	-25.29	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



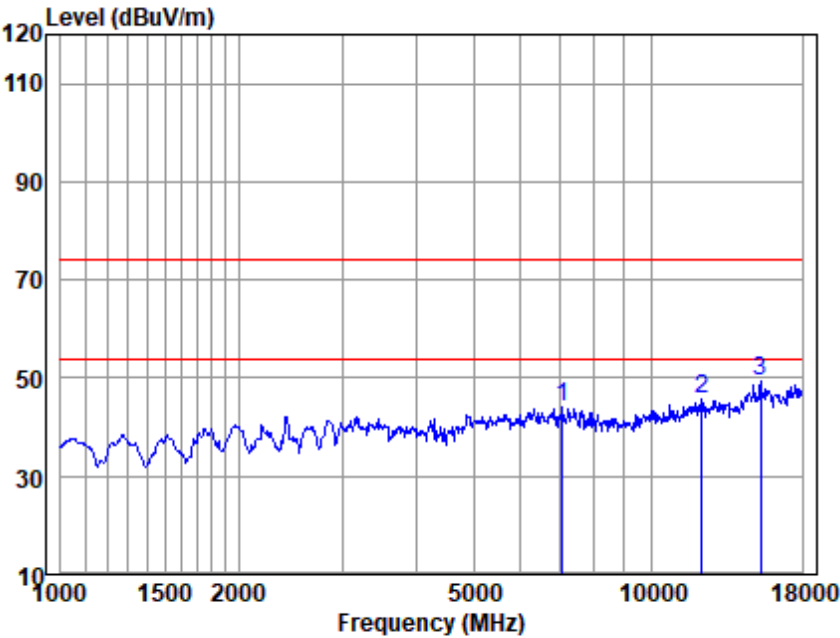
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6340.436	30.83	35.51	6.52	37.58	35.28	54.00	-18.72	Average
12290.700	26.23	38.66	10.17	38.64	36.42	54.00	-17.58	Average
17844.590	23.99	42.99	13.79	40.57	40.20	54.00	-13.80	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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

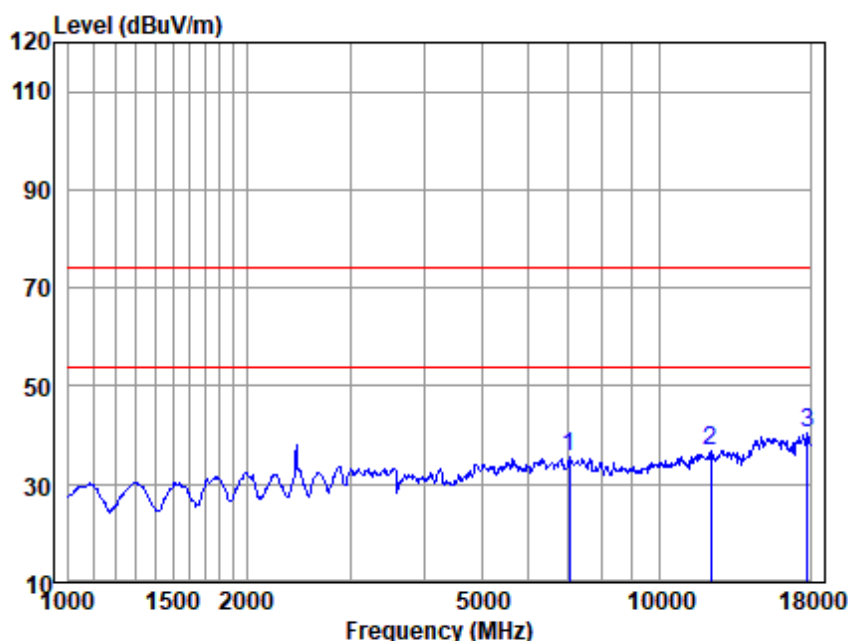


Antenna Polarity :HORIZONTAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7076.516	38.55	36.07	7.22	37.64	44.20	74.00	-29.80	Peak
12184.580	35.69	38.59	10.09	38.66	45.71	74.00	-28.29	Peak
15310.070	35.52	43.48	12.21	41.83	49.38	74.00	-24.62	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



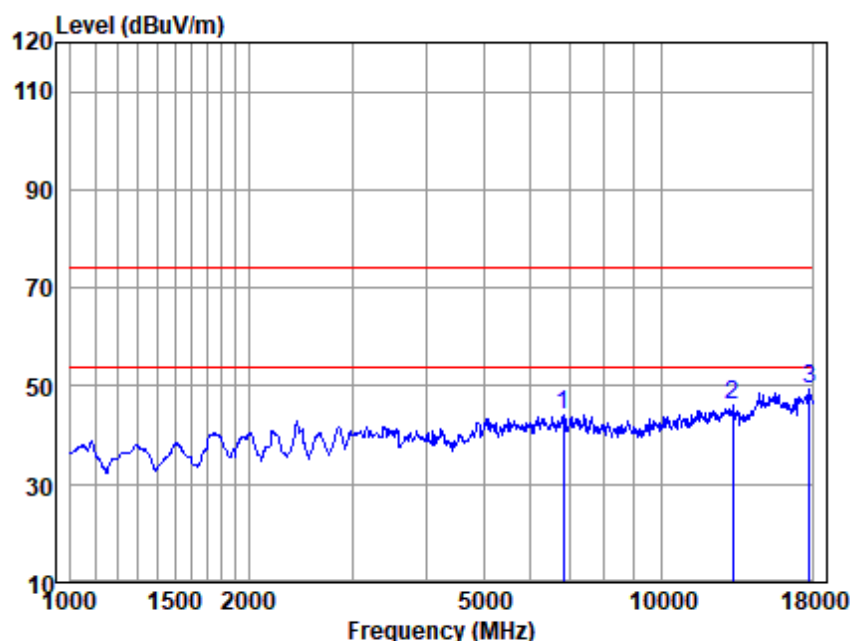
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7035.727	29.94	36.01	7.18	37.67	35.46	54.00	-18.54	Average
12219.850	26.66	38.60	10.11	38.65	36.72	54.00	-17.28	Average
17844.590	24.05	42.99	13.79	40.57	40.26	54.00	-13.74	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



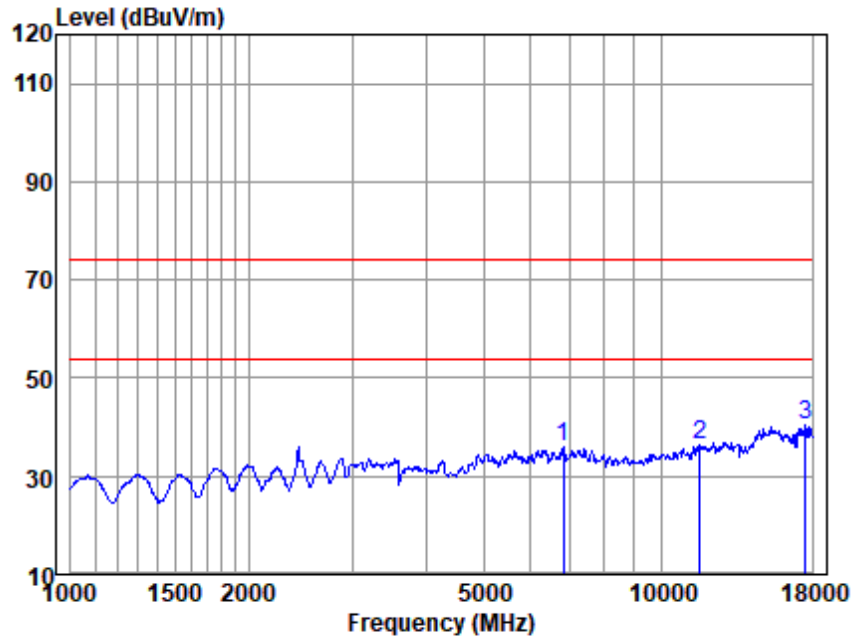
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6815.551	38.33	35.91	6.98	36.94	44.28	74.00	-29.72	Peak
13211.690	35.76	39.30	10.84	39.74	46.16	74.00	-27.84	Peak
17793.090	33.45	42.90	13.75	40.64	49.46	74.00	-24.54	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



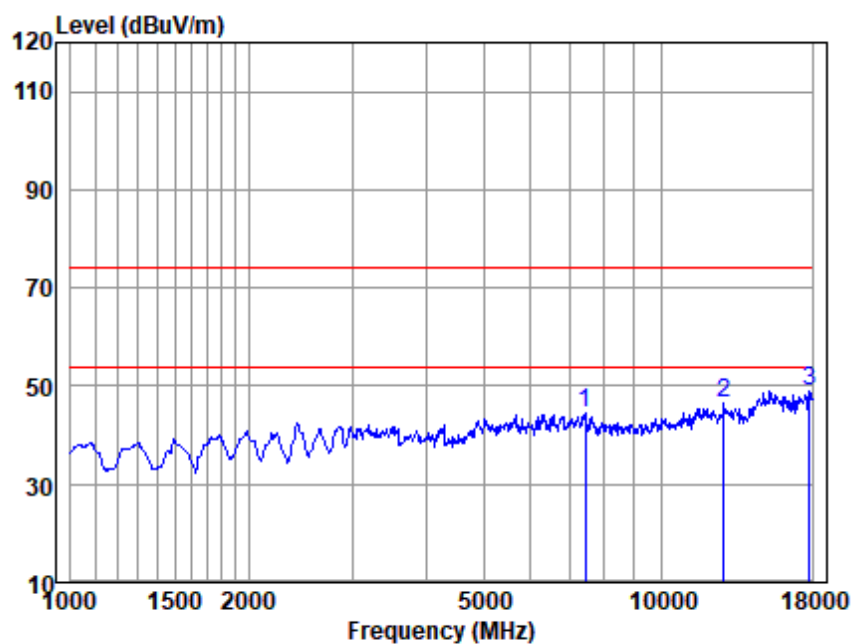
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6815.551	29.86	35.91	6.98	36.94	35.81	54.00	-18.19	Average
11633.930	25.64	38.29	9.66	37.31	36.28	54.00	-17.72	Average
17537.800	24.40	42.28	13.60	39.98	40.30	54.00	-13.70	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



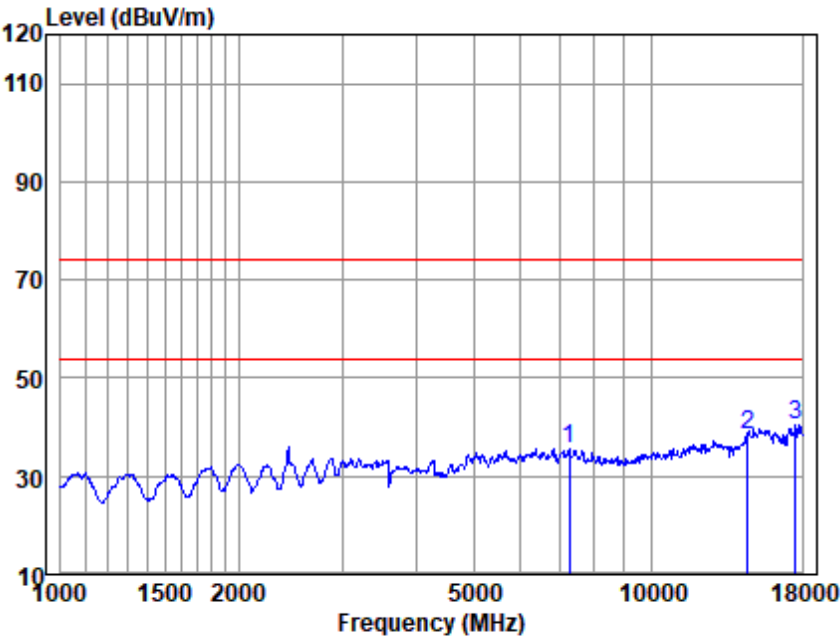
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7432.914	37.88	36.31	7.53	37.34	44.38	74.00	-29.62	Peak
12761.300	36.48	39.01	10.52	39.54	46.47	74.00	-27.53	Peak
17793.090	32.90	42.90	13.75	40.64	48.91	74.00	-25.09	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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

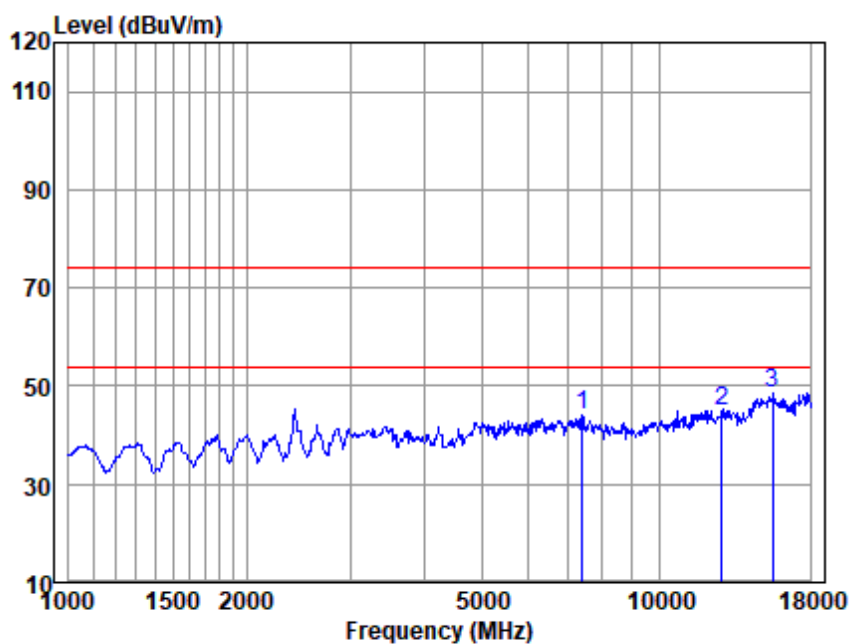


Antenna Polarity :HORIZONTAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7263.015	29.50	36.30	7.38	37.48	35.70	54.00	-18.30	Average
14533.910	26.74	41.62	11.73	41.63	38.46	54.00	-15.54	Average
17537.800	24.56	42.28	13.60	39.98	40.46	54.00	-13.54	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7411.461	37.41	36.34	7.51	37.35	43.91	74.00	-30.09	Peak
12761.300	35.05	39.01	10.52	39.54	45.04	74.00	-28.96	Peak
15577.900	33.71	43.29	12.37	40.81	48.56	74.00	-25.44	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor



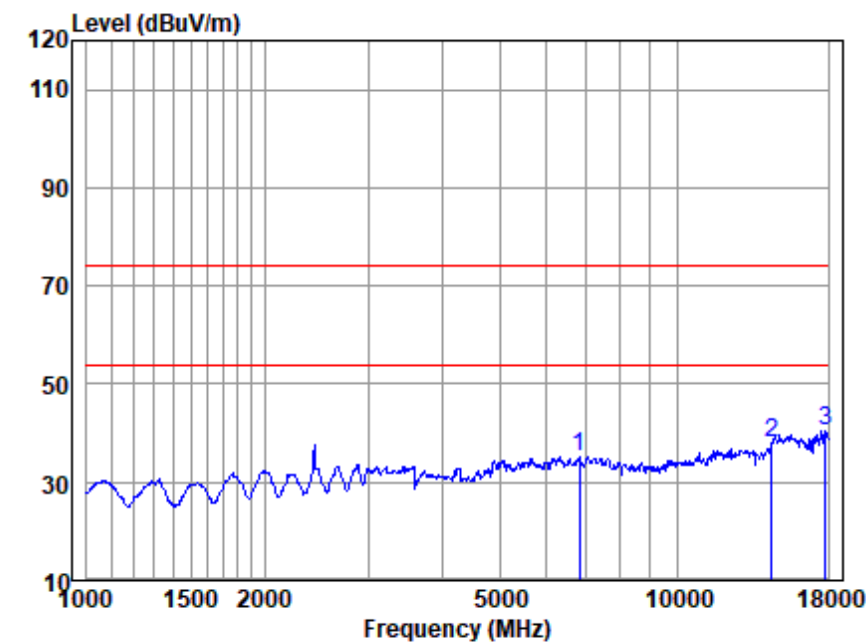
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 89 of 159

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

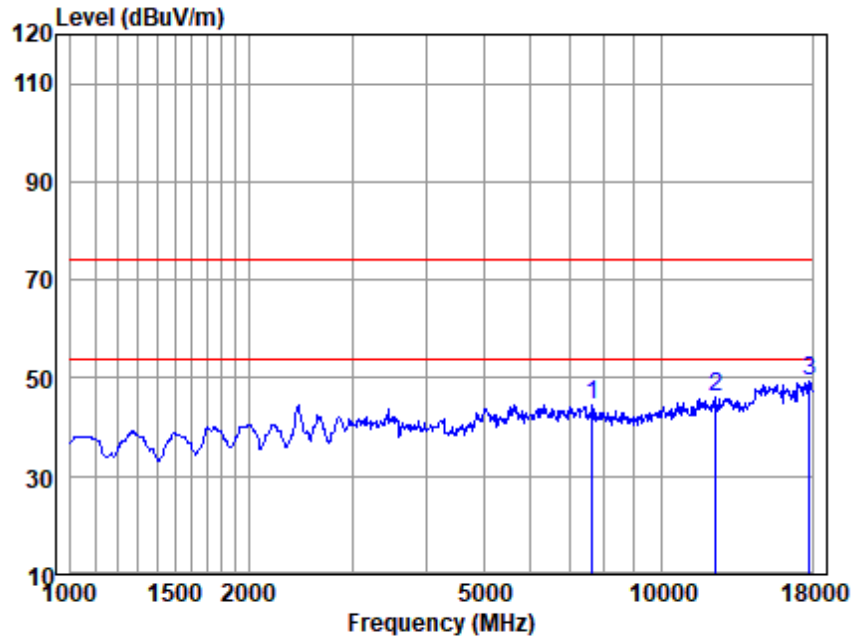


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
6815.551	29.28	35.91	6.98	36.94	35.23	54.00	-18.77	Average
14450.130	26.57	41.35	11.67	41.78	37.81	54.00	-16.19	Average
17844.590	24.38	42.99	13.79	40.57	40.59	54.00	-13.41	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



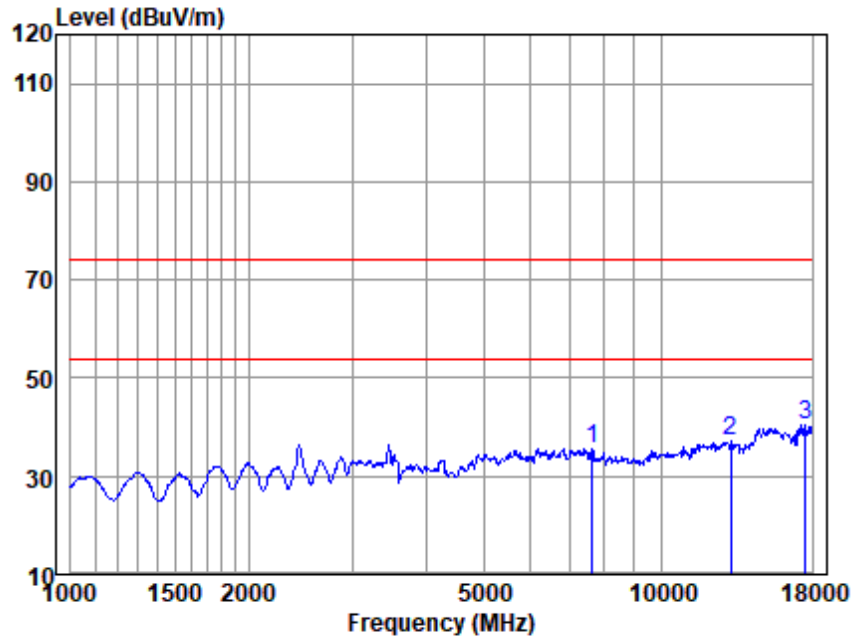
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7650.888	37.79	36.13	7.71	37.16	44.47	74.00	-29.53	Peak
12361.950	35.75	38.66	10.22	38.62	46.01	74.00	-27.99	Peak
17844.590	32.98	42.99	13.79	40.57	49.19	74.00	-24.81	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



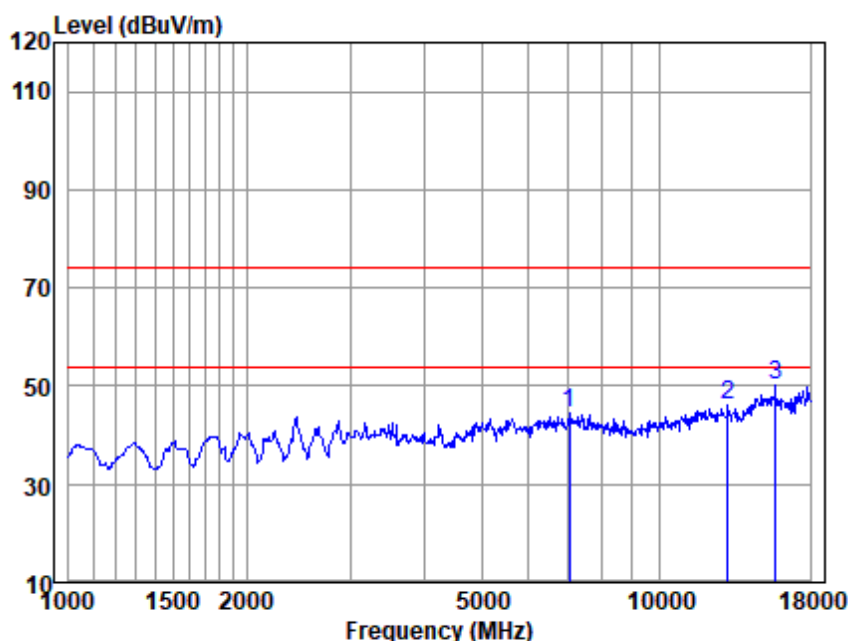
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7628.806	29.01	36.14	7.69	37.17	35.67	54.00	-18.33	Average
13135.540	26.66	39.27	10.78	39.65	37.06	54.00	-16.94	Average
17537.800	24.71	42.28	13.60	39.98	40.61	54.00	-13.39	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



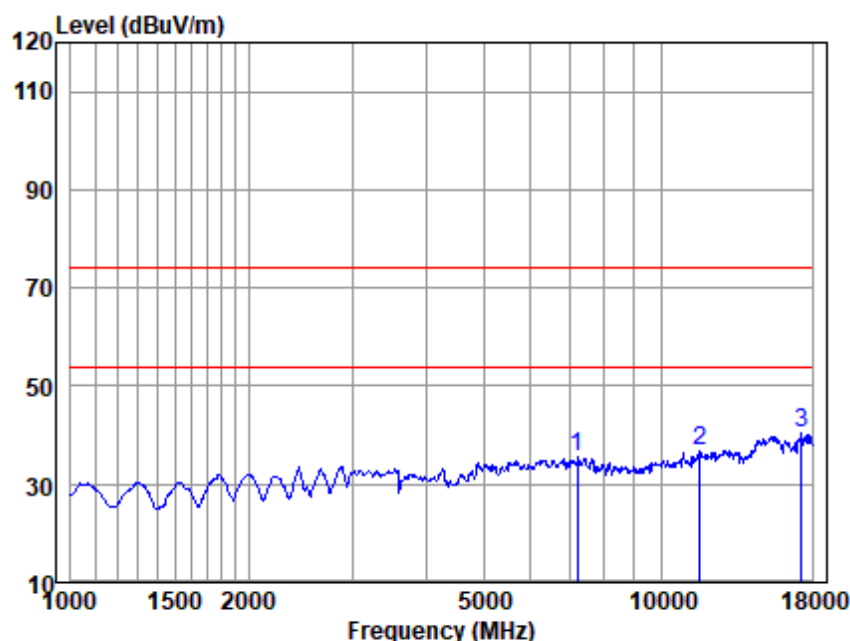
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7035.727	38.94	36.01	7.18	37.67	44.46	74.00	-29.54	Peak
13059.820	35.67	39.23	10.73	39.57	46.06	74.00	-27.94	Peak
15713.560	35.42	42.93	12.45	40.81	49.99	74.00	-24.01	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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



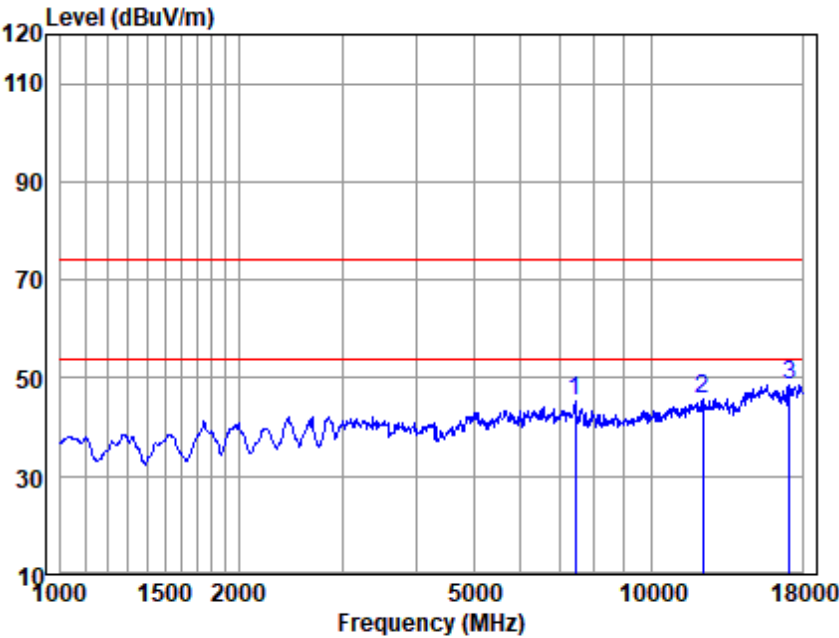
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7221.150	29.38	36.26	7.34	37.51	35.47	54.00	-18.53	Average
11633.930	25.99	38.29	9.66	37.31	36.63	54.00	-17.37	Average
17286.170	25.22	42.05	13.44	40.32	40.39	54.00	-13.61	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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

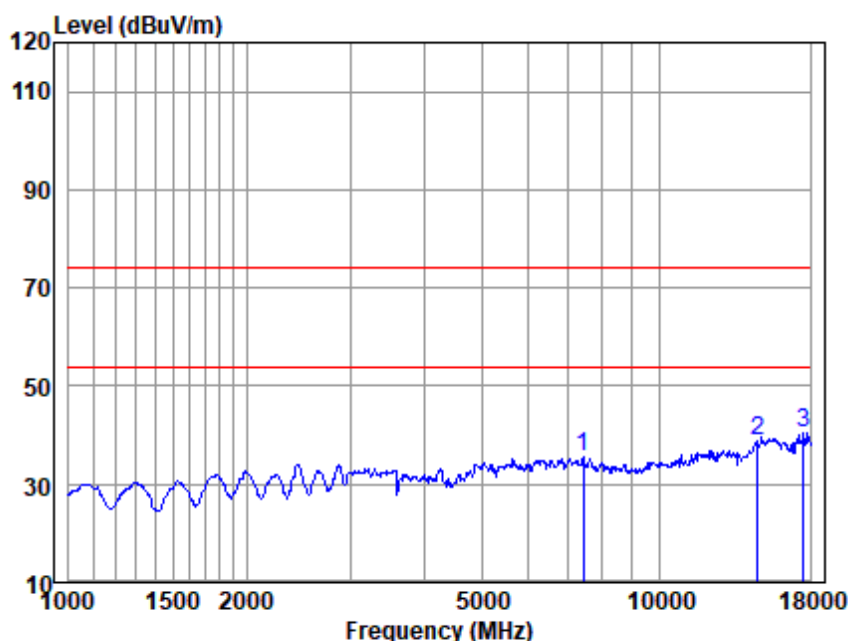


Antenna Polarity :HORIZONTAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7432.914	38.84	36.31	7.53	37.34	45.34	74.00	-28.66	Peak
12219.850	35.69	38.60	10.11	38.65	45.75	74.00	-28.25	Peak
17136.920	33.15	41.74	13.35	39.53	48.71	74.00	-25.29	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



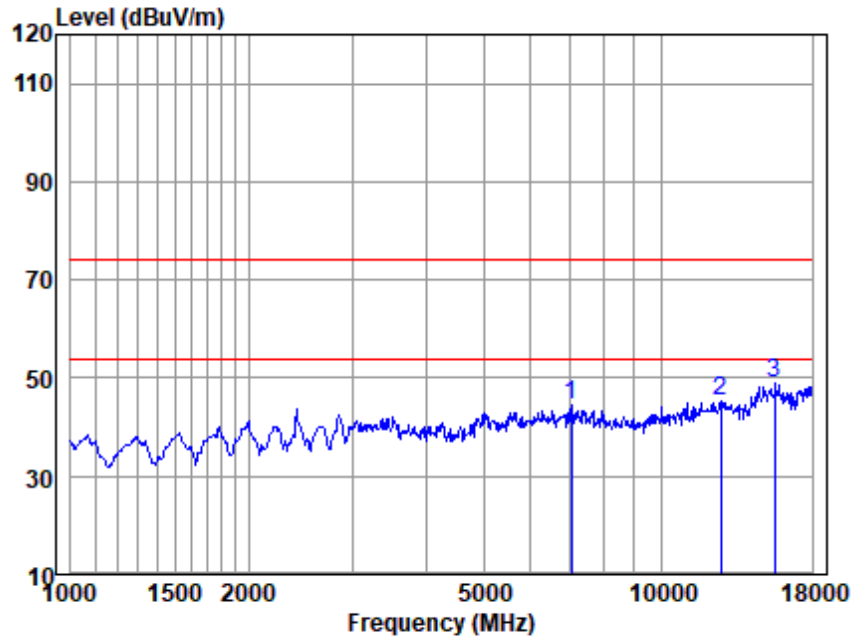
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7432.914	28.90	36.31	7.53	37.34	35.40	54.00	-18.60	Average
14660.480	26.62	41.97	11.81	41.42	38.98	54.00	-15.02	Average
17537.800	24.45	42.28	13.60	39.98	40.35	54.00	-13.65	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



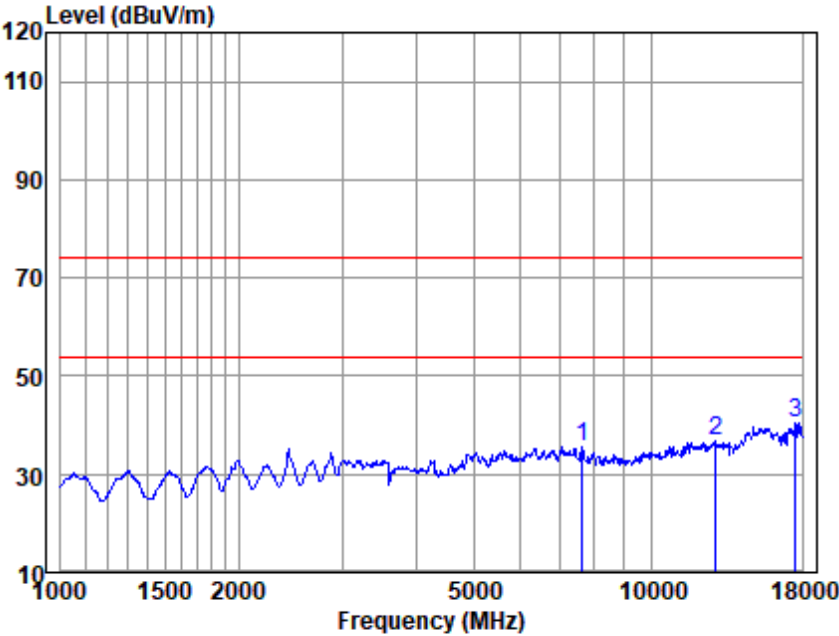
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7056.092	38.99	36.02	7.20	37.66	44.55	74.00	-29.45	Peak
12614.610	35.68	38.81	10.41	39.57	45.33	74.00	-28.67	Peak
15577.900	33.97	43.29	12.37	40.81	48.82	74.00	-25.18	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

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

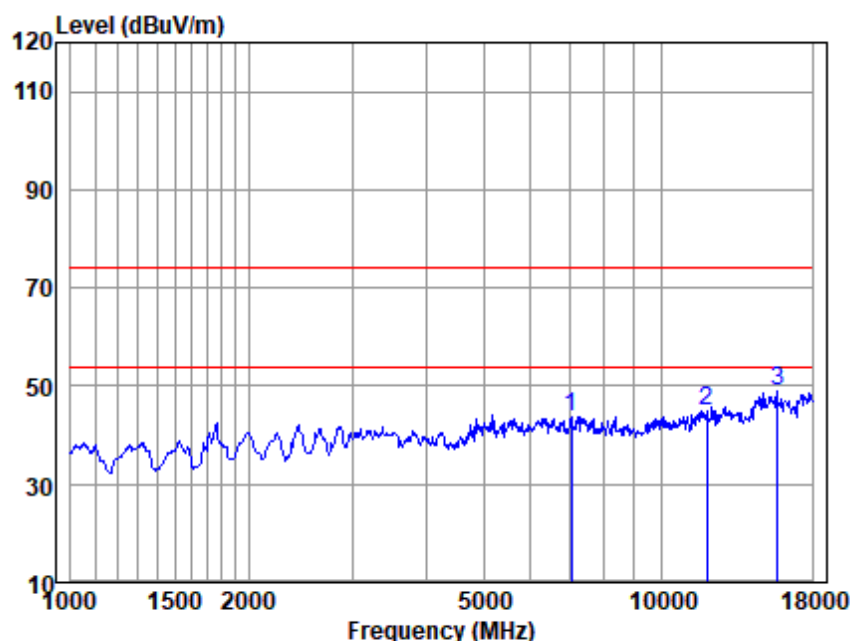


Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7628.806	28.98	36.14	7.69	37.17	35.64	54.00	-18.36	Average
12835.290	26.68	39.05	10.57	39.52	36.78	54.00	-17.22	Average
17537.800	24.41	42.28	13.60	39.98	40.31	54.00	-13.69	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7056.092	38.31	36.02	7.20	37.66	43.87	74.00	-30.13	Peak
11940.540	35.39	38.22	9.90	38.45	45.06	74.00	-28.94	Peak
15713.560	34.47	42.93	12.45	40.81	49.04	74.00	-24.96	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



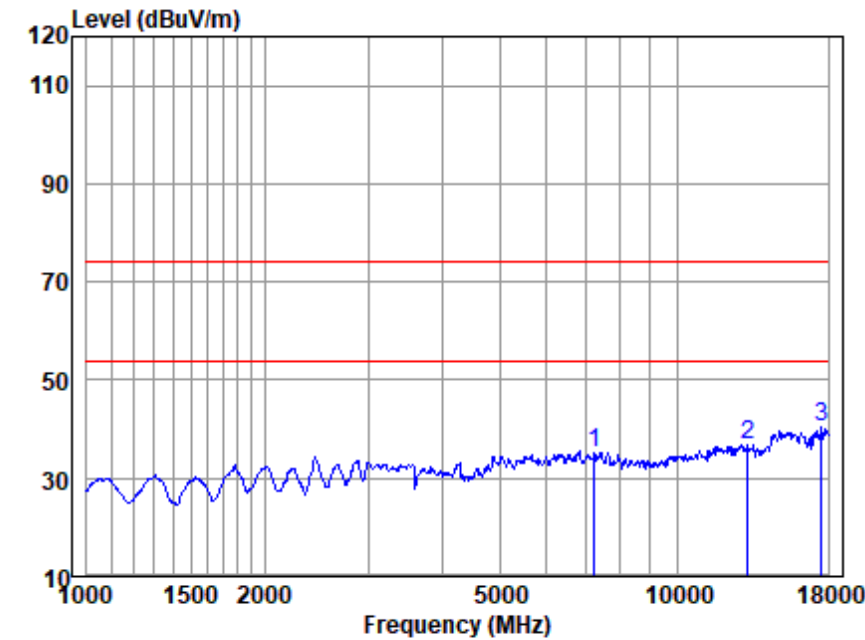
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 99 of 159

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

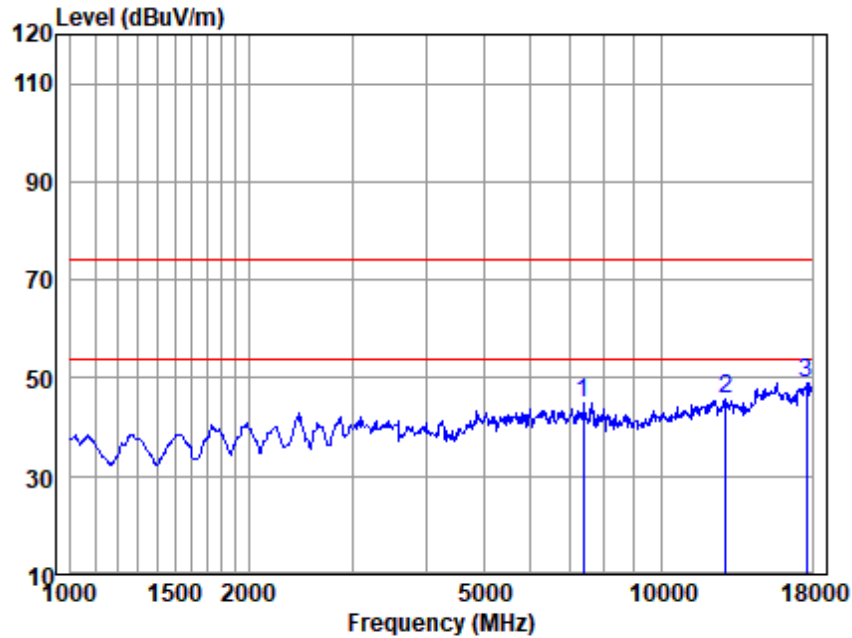


Antenna Polarity :HORIZONTAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7242.052	29.07	36.29	7.36	37.50	35.22	54.00	-18.78	Average
13173.560	26.59	39.28	10.81	39.70	36.98	54.00	-17.02	Average
17537.800	24.55	42.28	13.60	39.98	40.45	54.00	-13.55	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



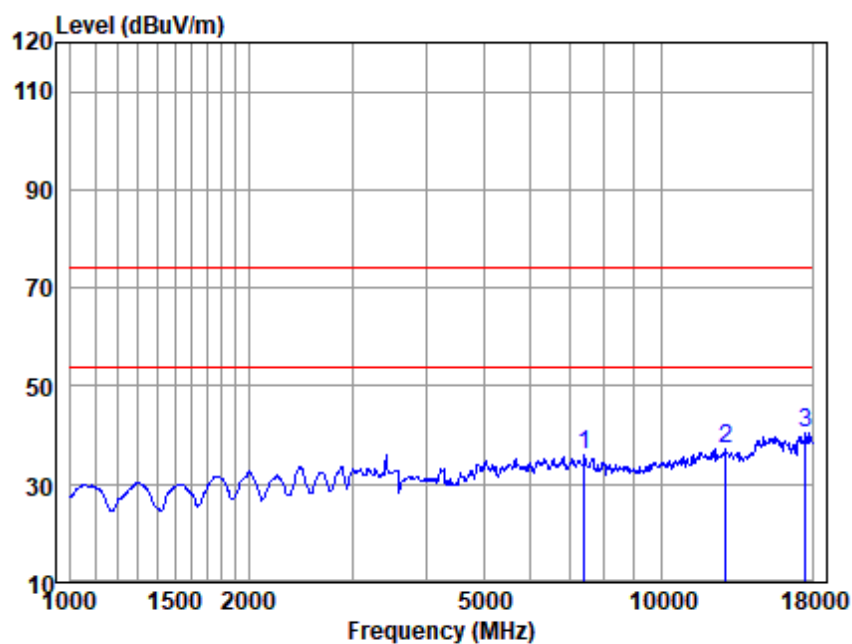
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7390.070	38.47	36.36	7.49	37.37	44.95	74.00	-29.05	Peak
12872.440	35.42	39.07	10.60	39.51	45.58	74.00	-28.42	Peak
17639.470	33.78	42.53	13.66	40.85	49.12	74.00	-24.88	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



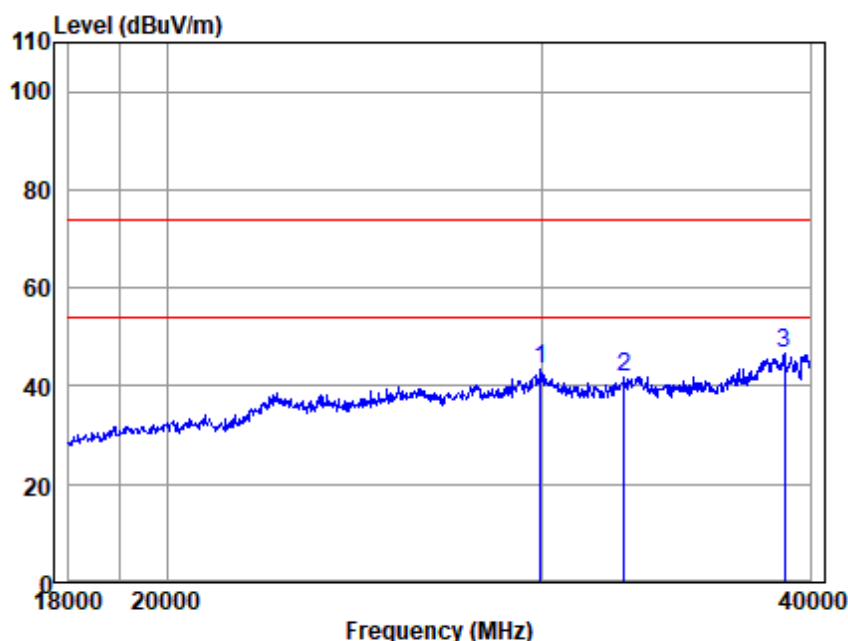
Antenna Polarity :VERTICAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
7411.461	29.29	36.34	7.51	37.35	35.79	54.00	-18.21	Average
12872.440	27.05	39.07	10.60	39.51	37.21	54.00	-16.79	Average
17537.800	24.36	42.28	13.60	39.98	40.26	54.00	-13.74	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



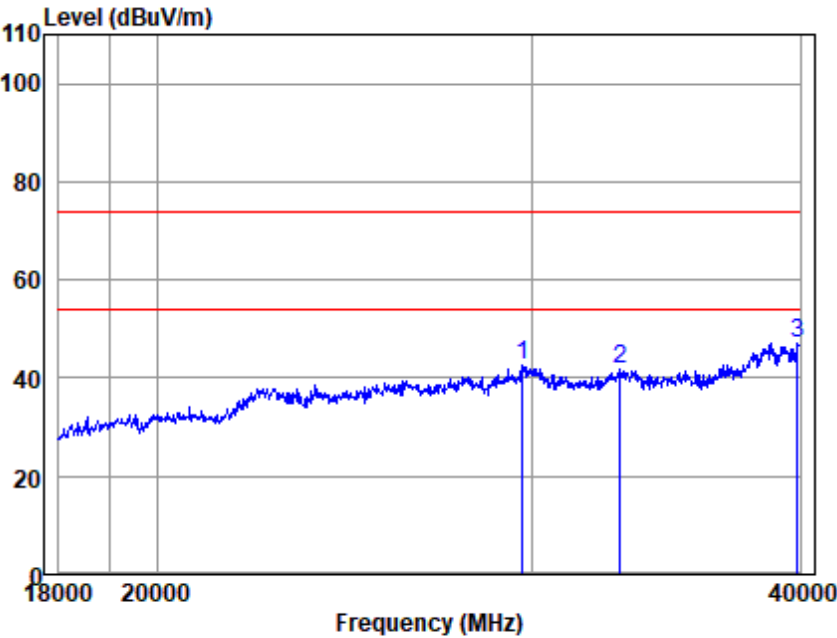
Antenna Polarity :HORIZONTAL

EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
29934.790	53.26	40.44	4.01	54.30	43.41	74.00	-30.59	Peak
32735.300	53.31	41.49	3.80	56.75	41.85	74.00	-32.15	Peak
38928.640	54.73	43.55	4.71	56.41	46.58	74.00	-27.42	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamplifier Factor

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



Antenna Polarity :VERTICAL
EUT/Project :3450HS

Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
29649.320	53.64	40.22	3.99	55.19	42.66	74.00	-31.34	Peak
32945.090	52.56	41.98	3.79	56.71	41.62	74.00	-32.38	Peak
39904.290	53.70	43.69	4.97	55.38	46.98	74.00	-27.02	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Note:For the frequency above 18GHz, testing has been executed under all test modes, and for the emissions whose peak level is lower than the average limit, only the worst-case test curve is displayed in the test report.

7.5 Conducted Average Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2020) Section 11.9.2

Limit:

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

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 23.6 °C

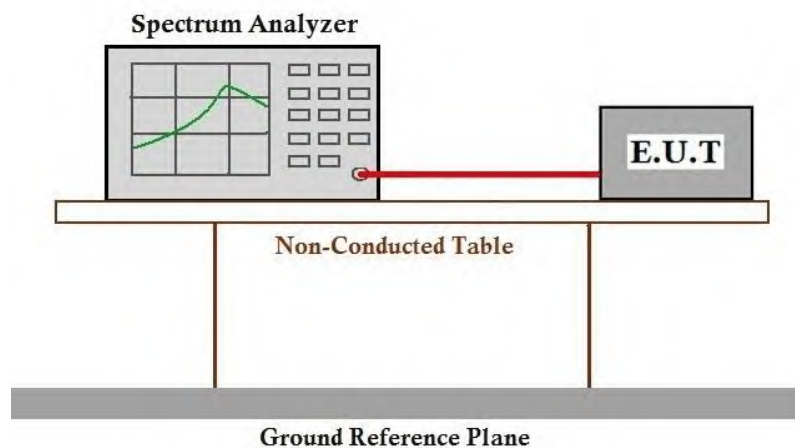
Humidity: 58.6 % RH

Atmospheric Pressure: 1021 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



7.5.4 Measurement Procedure and Data

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

Please Refer to Appendix for Details

7.6 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)

Test Method: ANSI C63.10 (2020) Section 11.8.1

Limit:

≥500 kHz

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 23.6 °C

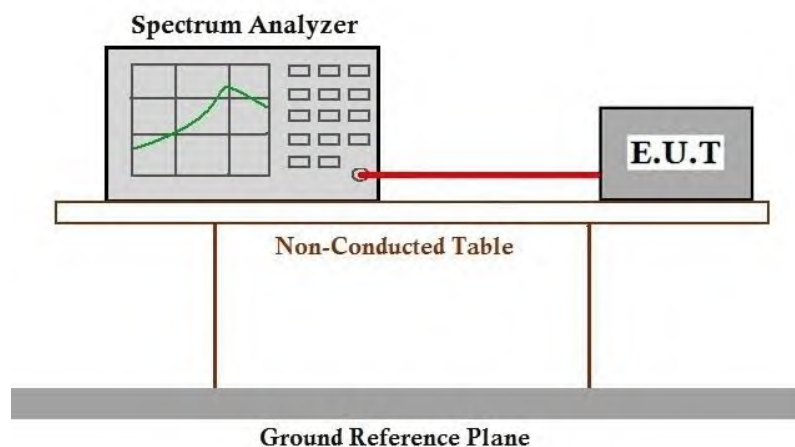
Humidity: 58.6 % RH

Atmospheric Pressure: 1021 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

Please Refer to Appendix for Details

7.7 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)

Test Method: ANSI C63.10 (2020) Section 11.10.2

Limit:

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

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C

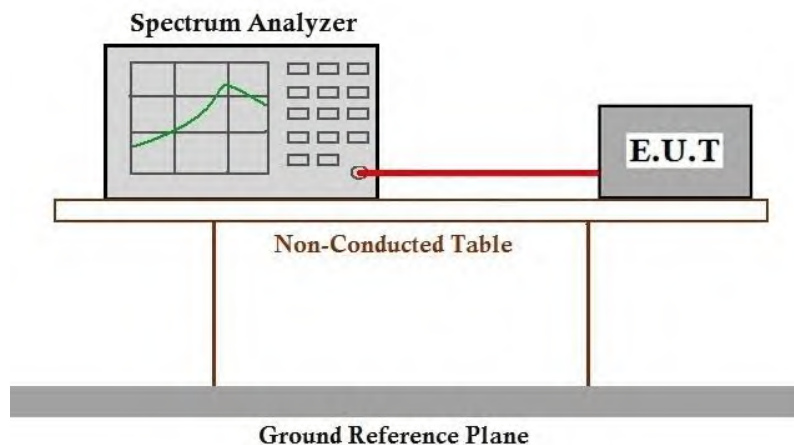
Humidity: 58.6 % RH

Atmospheric Pressure: 1021 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.

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.8 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2020) Section 6.10.4

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)).

7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 23.6 °C

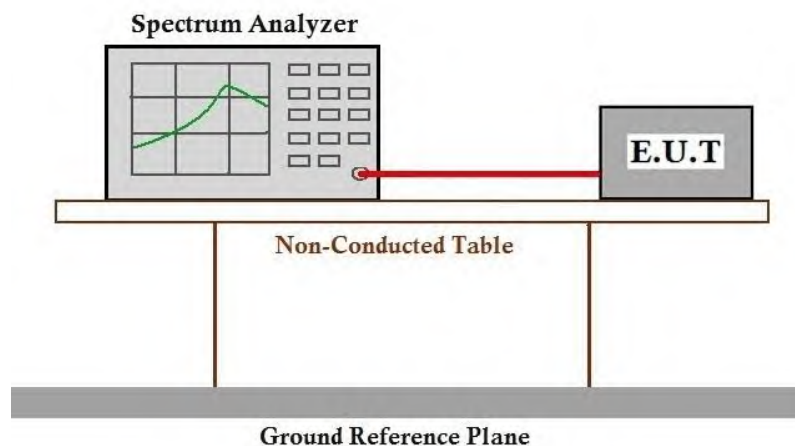
Humidity: 58.6 % RH

Atmospheric Pressure: 1021 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.

7.8.3 Test Setup Diagram



7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.9 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2020) 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)).

7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 23.3 °C

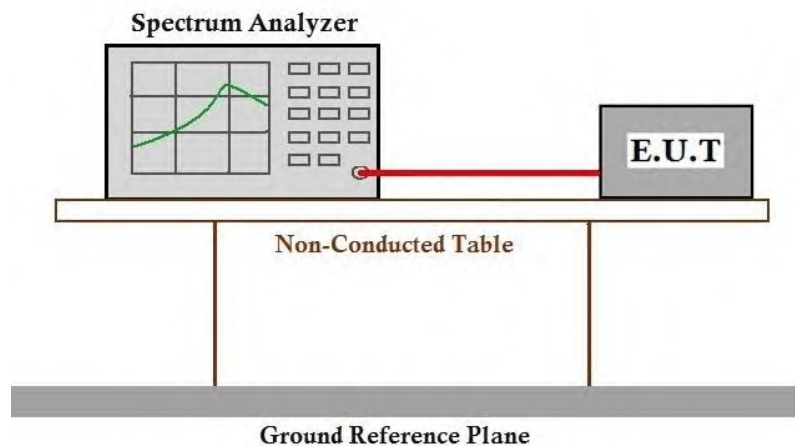
Humidity: 58.6 % RH

Atmospheric Pressure: 1021 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



7.9.4 Measurement Procedure and Data

Please Refer to Appendix for Details



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 109 of 159

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SHCR2512003450HS

9 EUT Constructional Details (EUT Photos)

Refer to Appendix_Photographs of EUT Constructional Details for SHCR2512003450HS

10 Appendix

1. Duty Cycle

1.1 Test Result

1.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	12.416	12.560	98.85	0.05	0.63
		2437	12.420	12.580	98.73	0.06	1.00
		2462	12.427	12.590	98.71	0.06	1.08
802.11g	SISO	2412	2.070	2.234	92.66	0.33	5.54
		2437	2.071	2.227	93.00	0.32	5.56
		2462	2.072	2.236	92.67	0.33	5.97
802.11n (HT20)	SISO	2412	1.926	2.091	92.11	0.36	6.43
		2437	1.921	2.083	92.22	0.35	5.51
		2462	1.921	2.072	92.71	0.33	4.22
802.11n (HT40)	SISO	2422	0.946	1.098	86.16	0.65	9.39
		2437	0.950	1.115	85.20	0.70	11.76
		2452	0.945	1.106	85.44	0.68	10.07



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

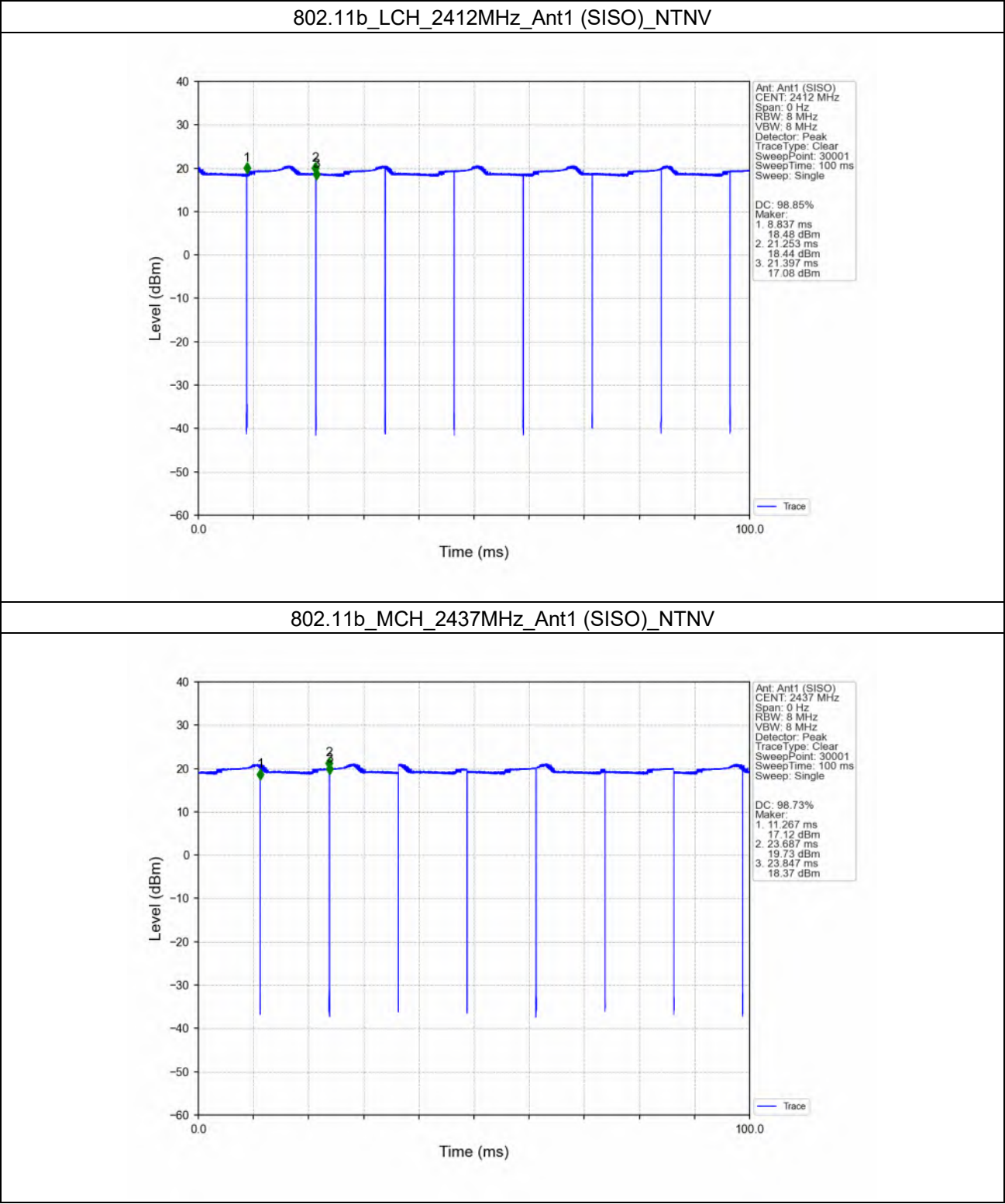
SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

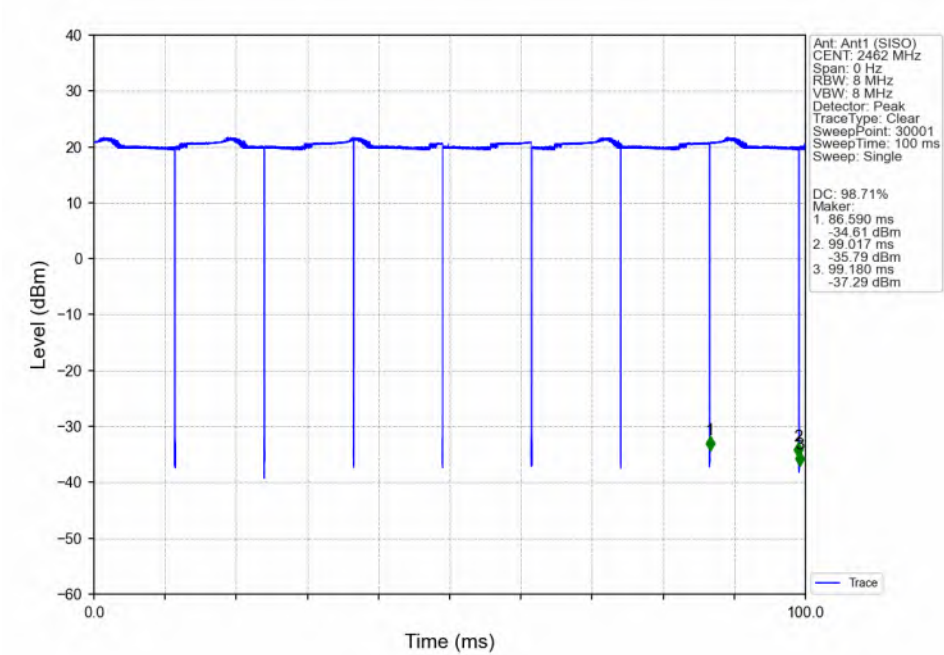
Page: 110 of 159

1.2 Test Graph

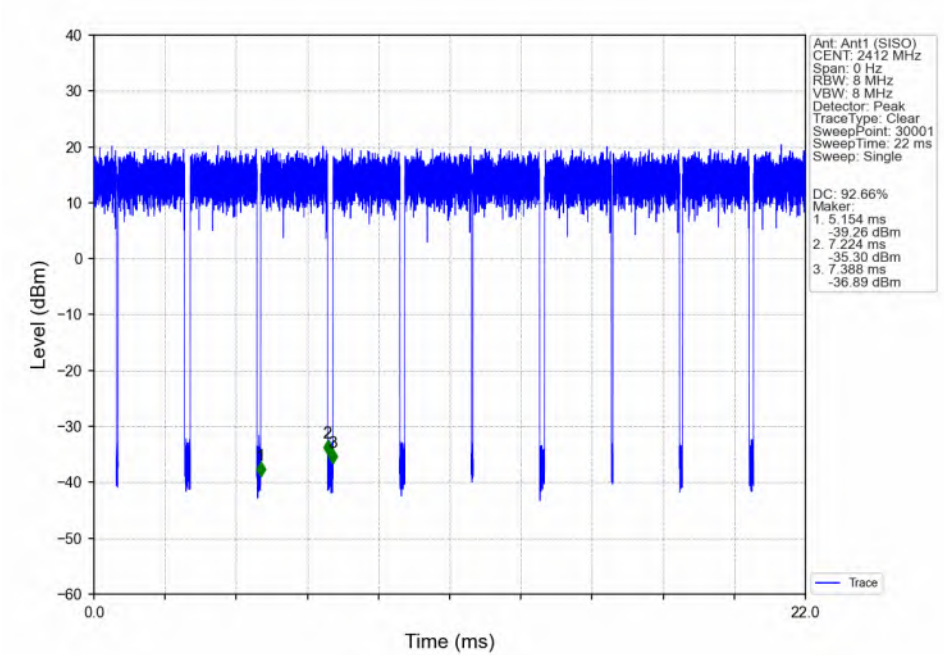
1.2.1 Ant1



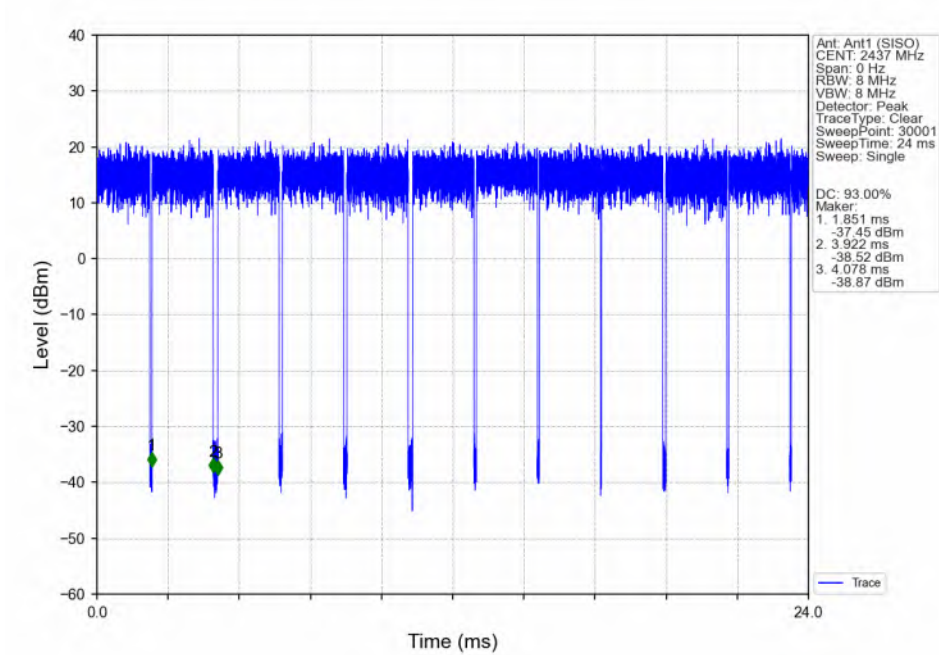
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



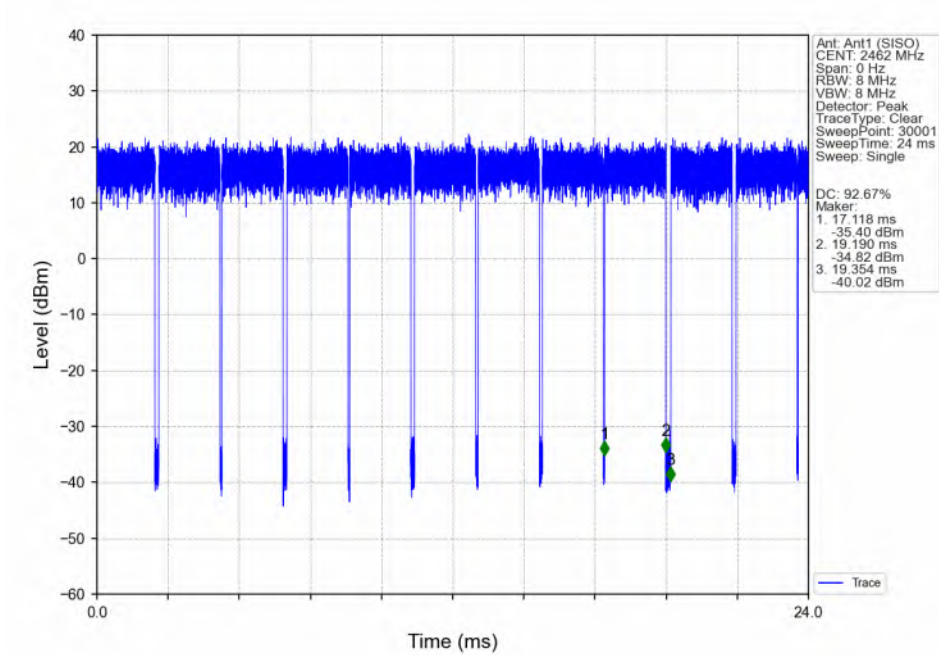
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



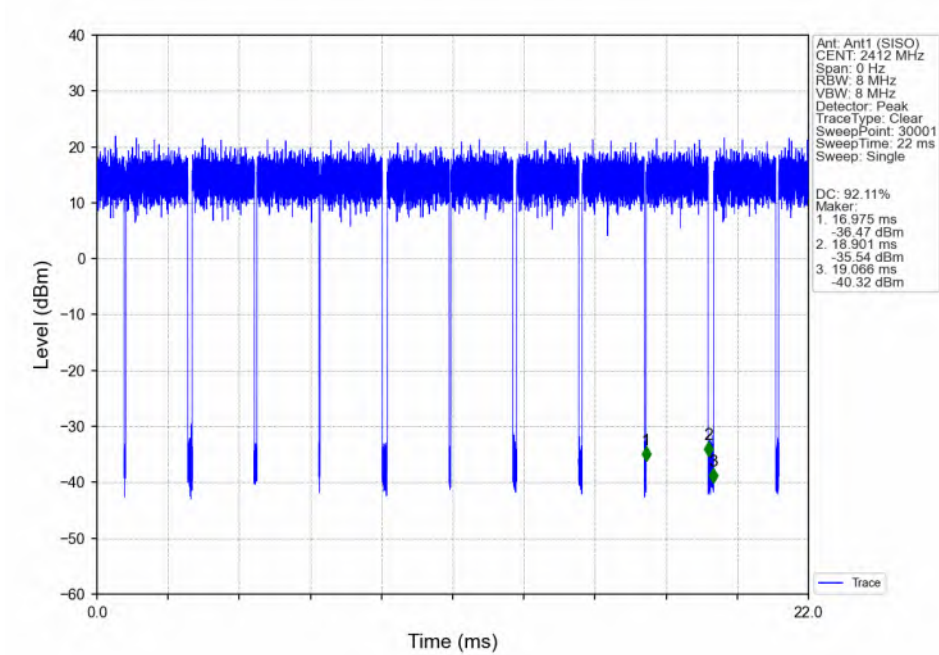
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



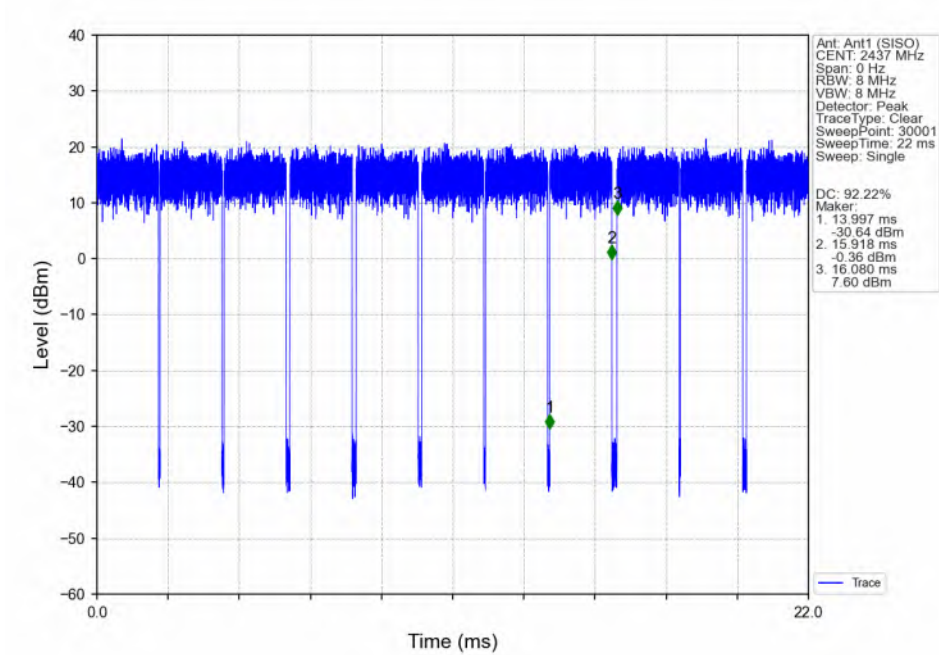
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



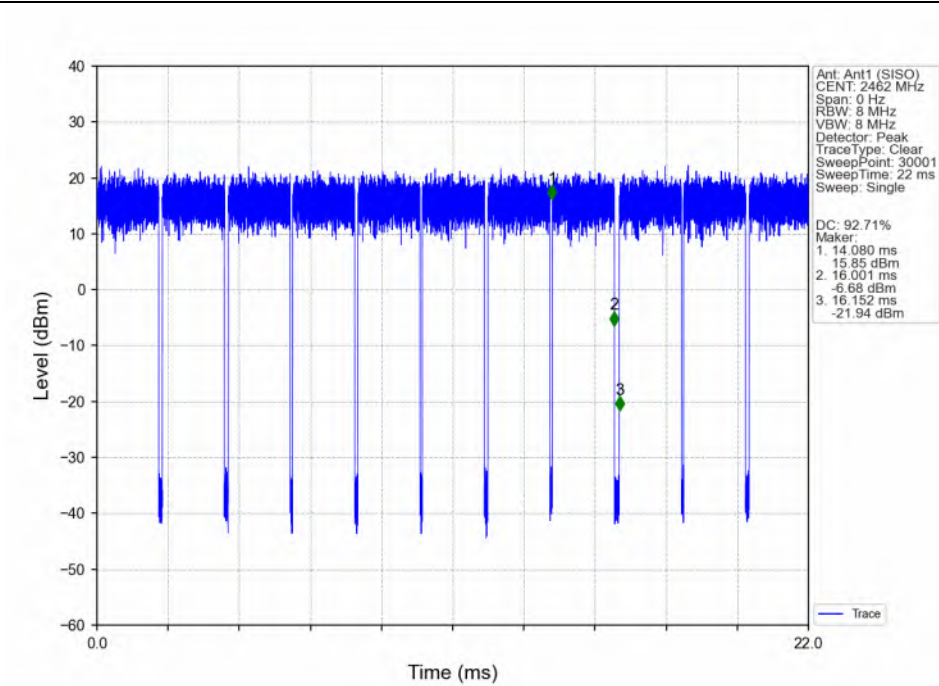
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



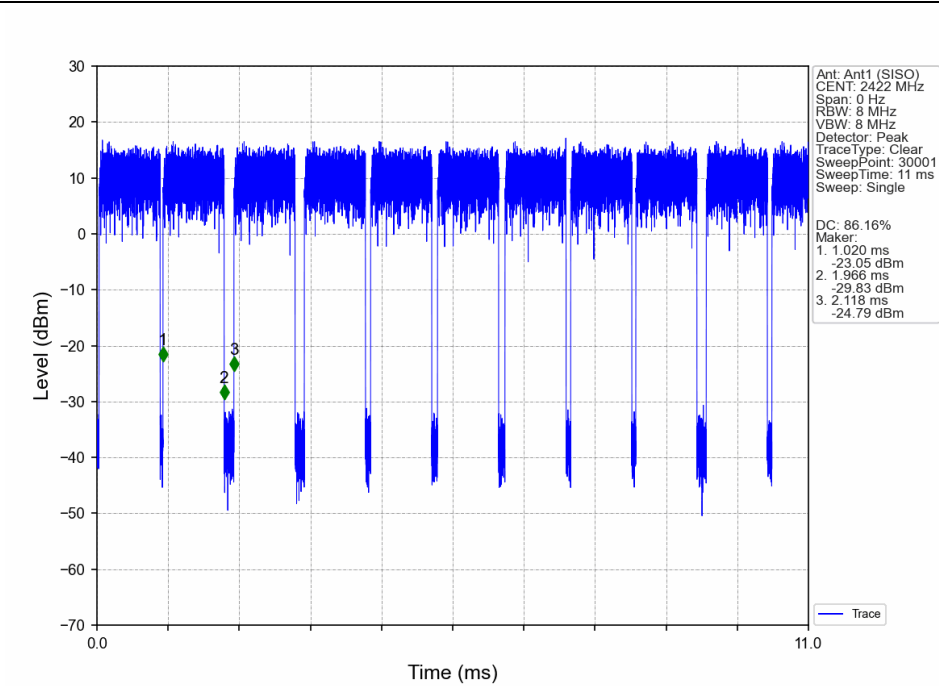
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



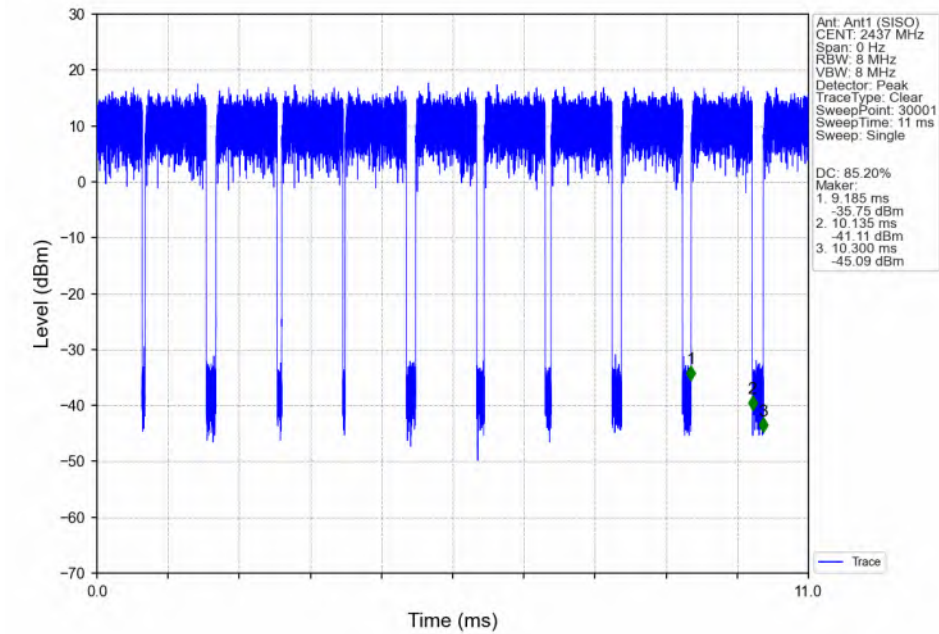
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



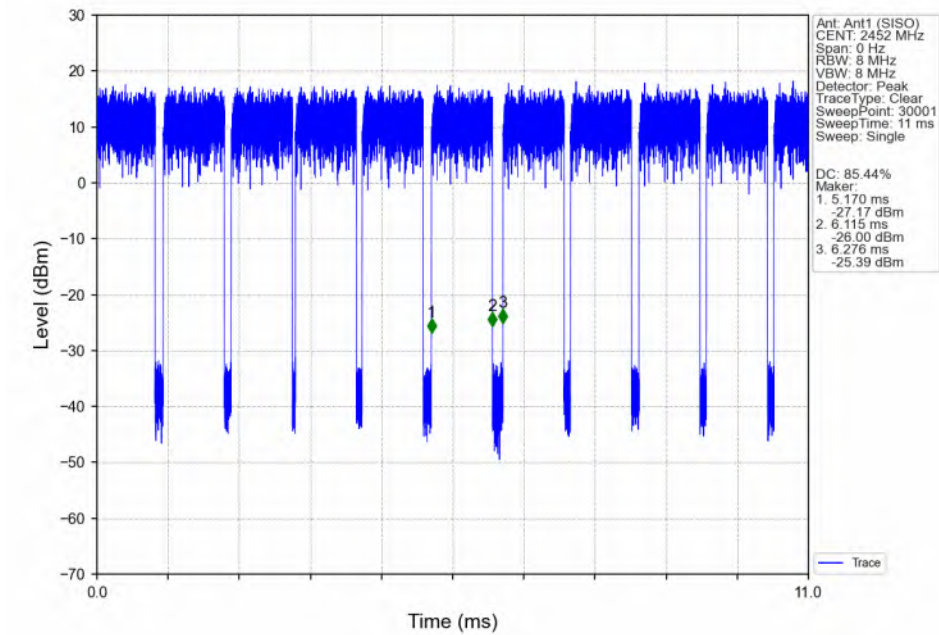
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV





SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 116 of 159

2. Bandwidth

2.1 Test Result

2.1.1 OBW

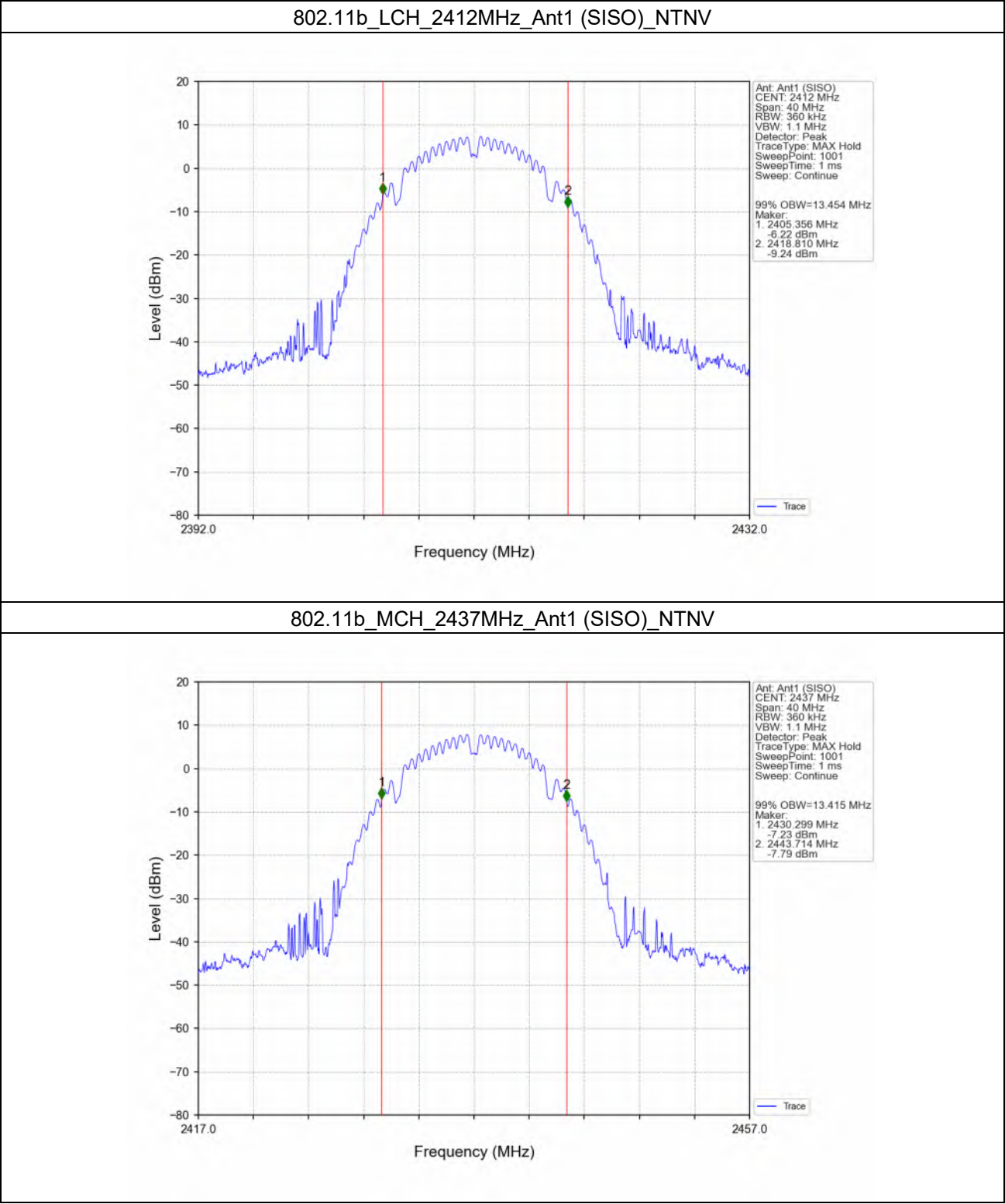
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	13.454	/	Pass
		2437	1	13.415	/	Pass
		2462	1	13.390	/	Pass
802.11g	SISO	2412	1	17.483	/	Pass
		2437	1	17.912	/	Pass
		2462	1	17.797	/	Pass
802.11n (HT20)	SISO	2412	1	18.418	/	Pass
		2437	1	18.545	/	Pass
		2462	1	18.784	/	Pass
802.11n (HT40)	SISO	2422	1	36.601	/	Pass
		2437	1	36.778	/	Pass
		2452	1	36.688	/	Pass

2.1.2 6dB BW

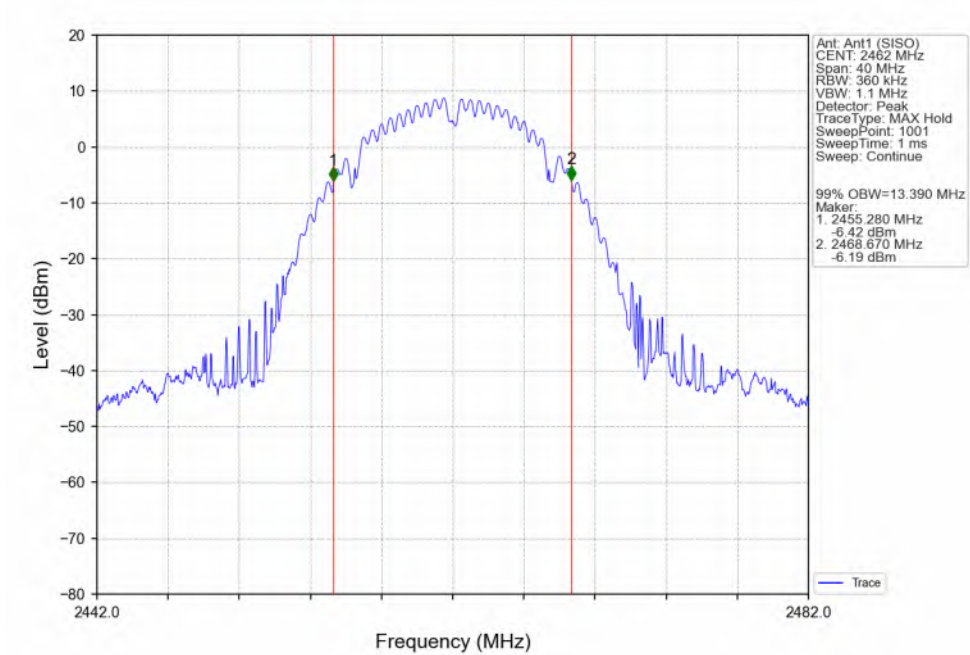
Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	9.164	≥ 0.5	Pass
		2437	1	9.180	≥ 0.5	Pass
		2462	1	9.160	≥ 0.5	Pass
802.11g	SISO	2412	1	16.813	≥ 0.5	Pass
		2437	1	17.002	≥ 0.5	Pass
		2462	1	16.434	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.744	≥ 0.5	Pass
		2437	1	17.828	≥ 0.5	Pass
		2462	1	17.785	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	36.329	≥ 0.5	Pass
		2437	1	36.529	≥ 0.5	Pass
		2452	1	36.227	≥ 0.5	Pass

2.2 Test Graph

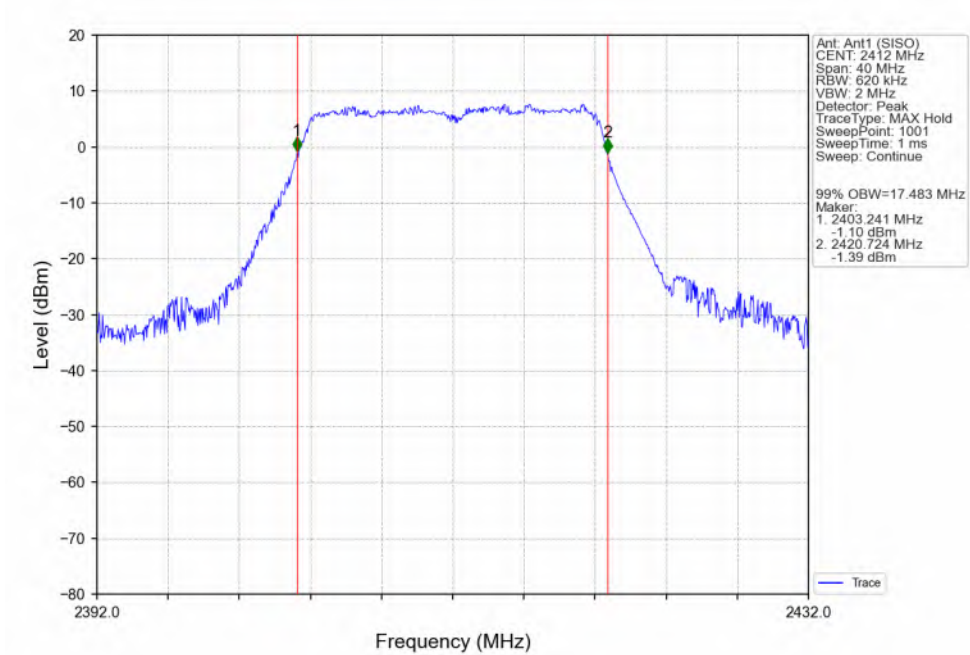
2.2.1 OBW



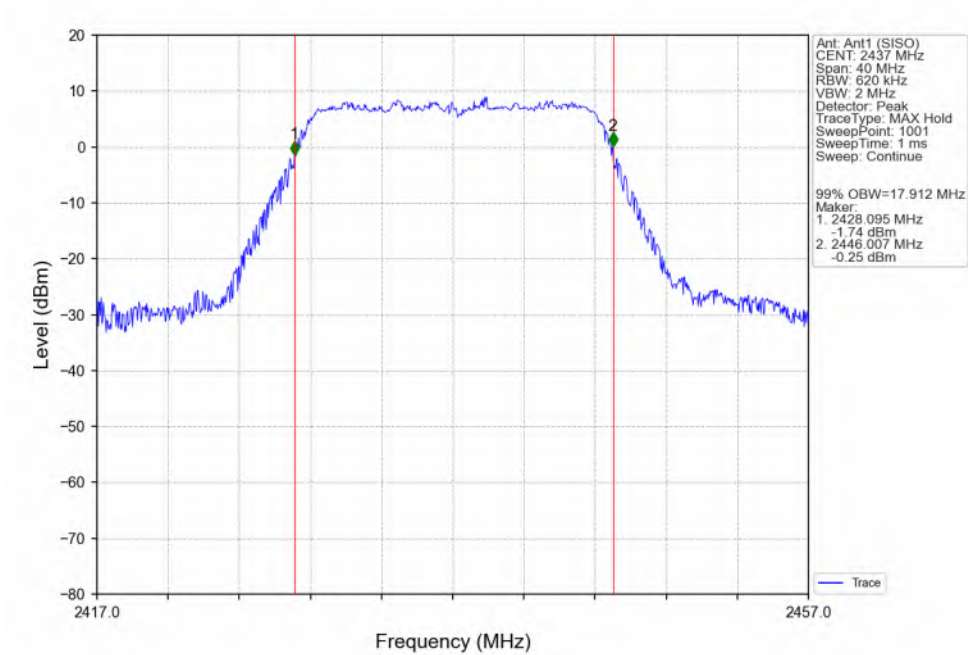
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



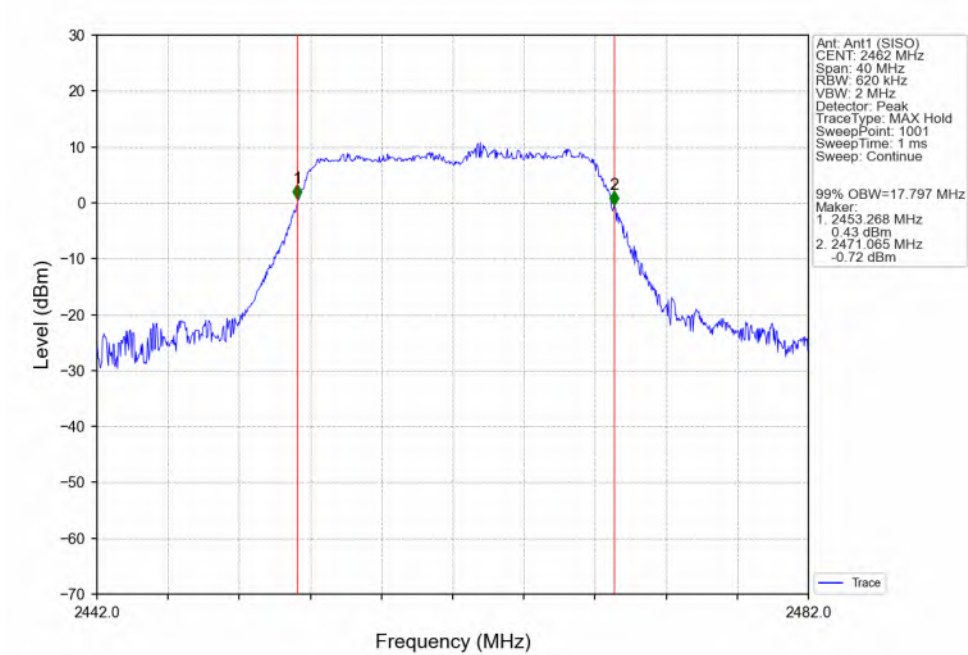
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



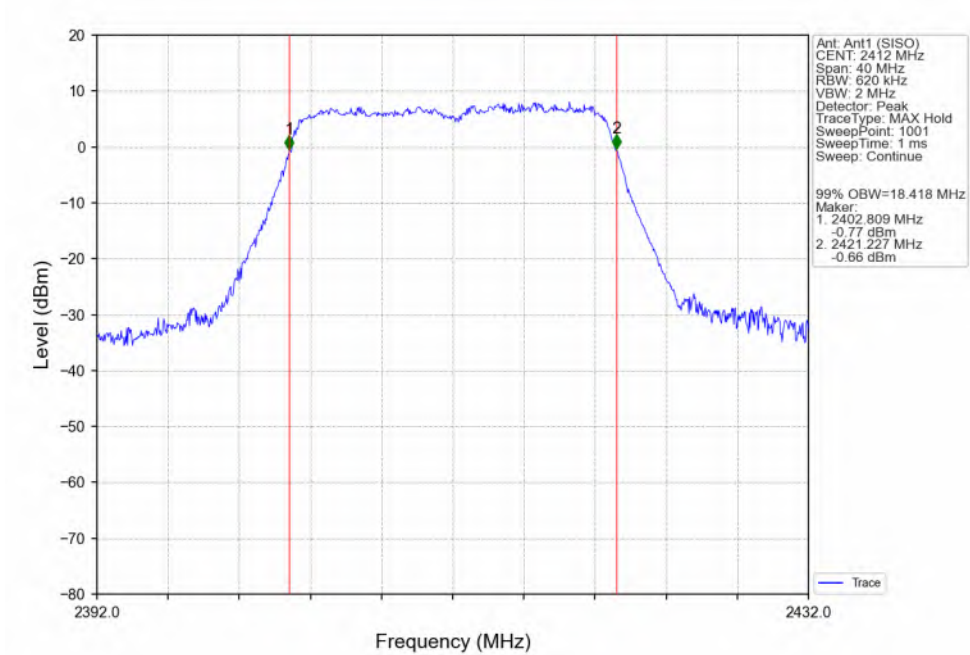
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



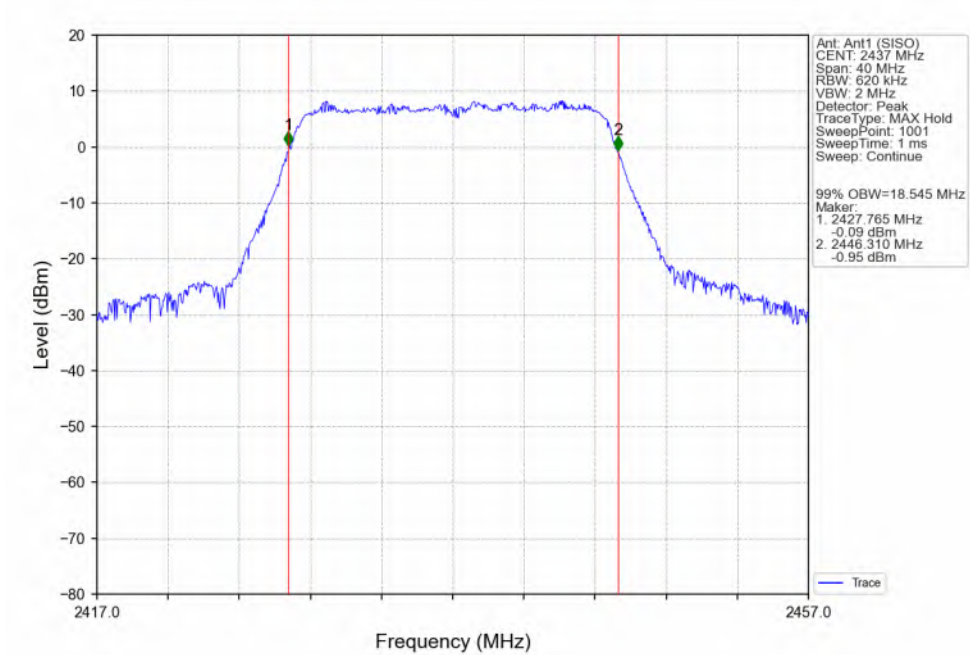
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



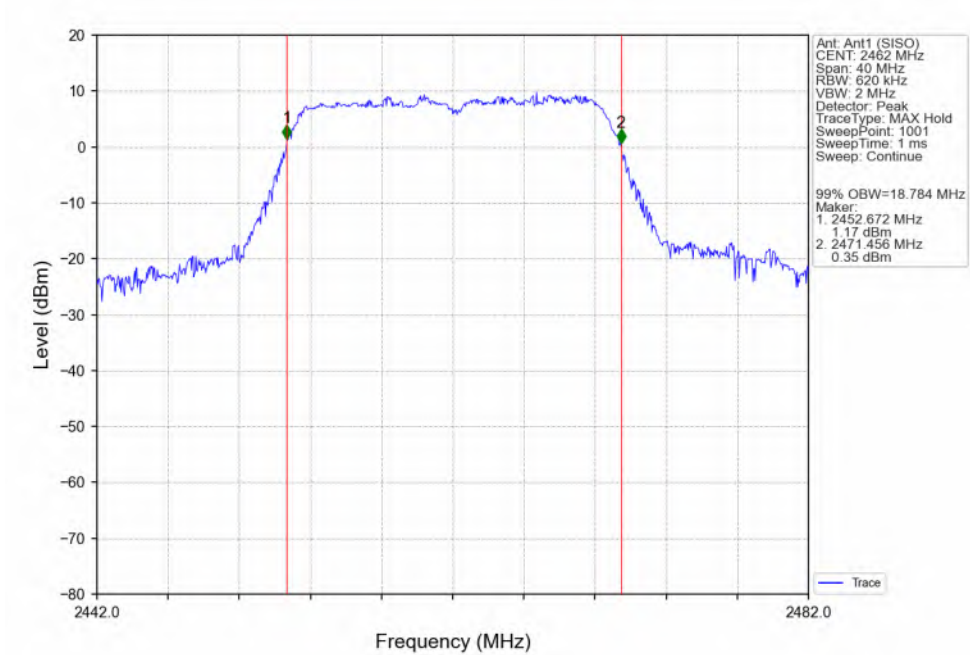
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



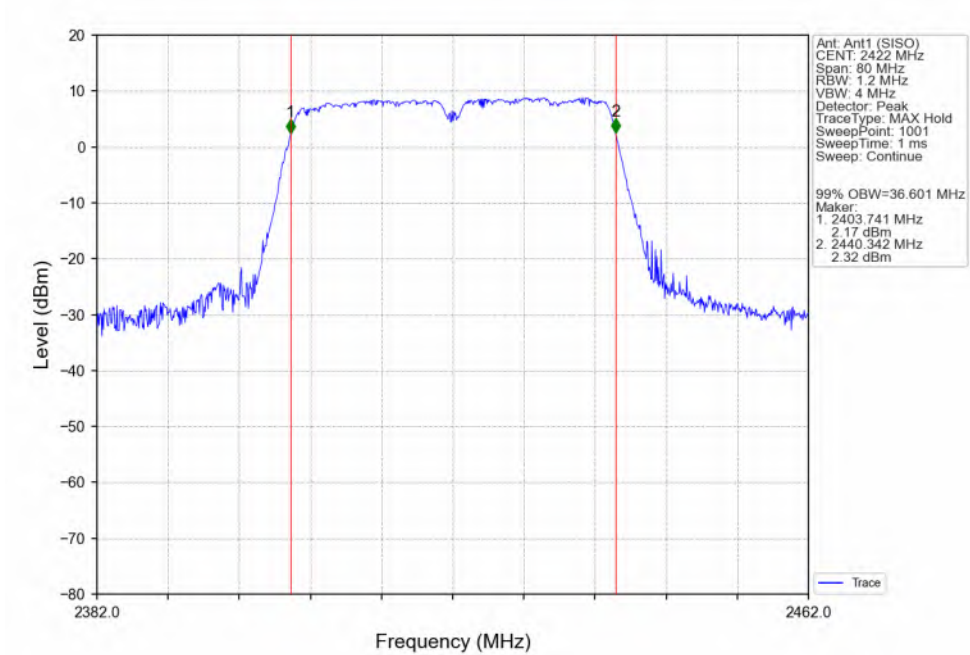
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



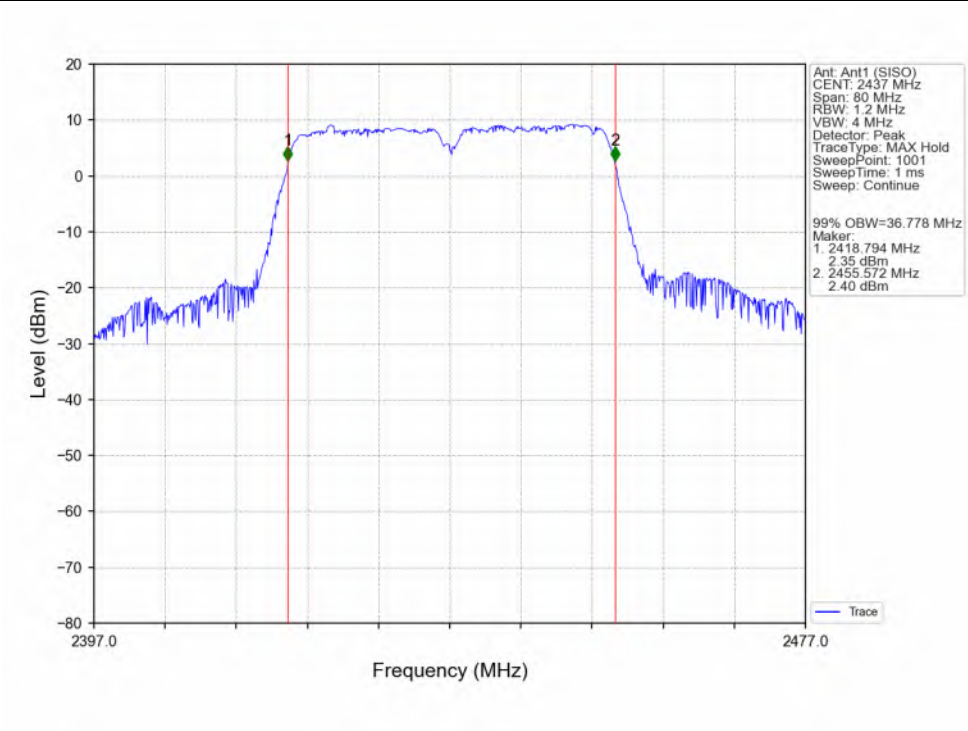
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



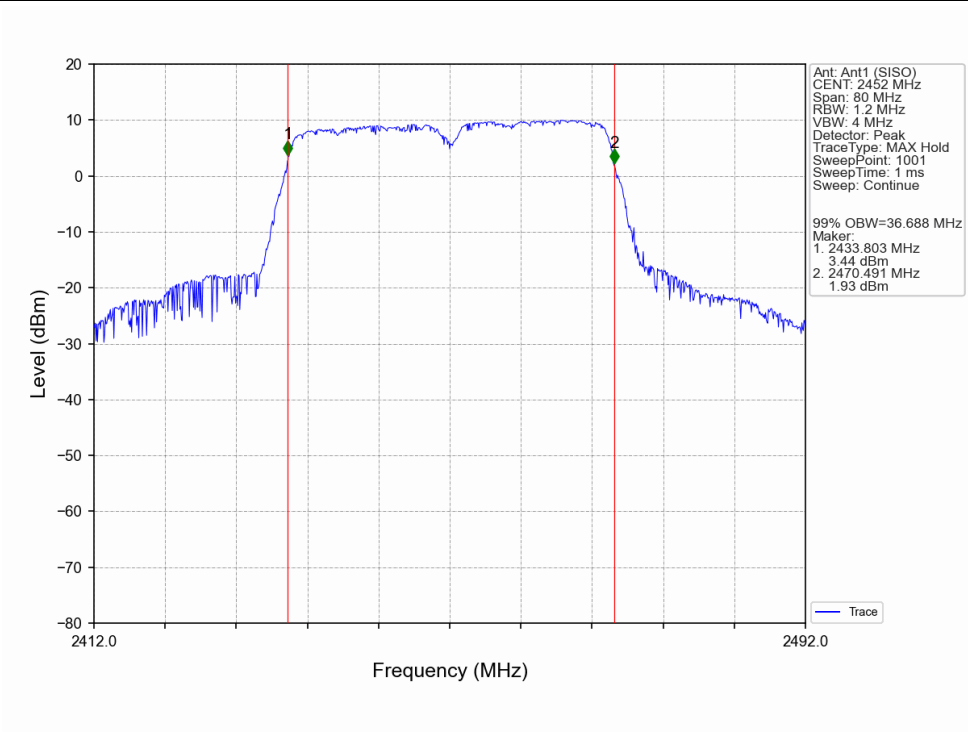
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV





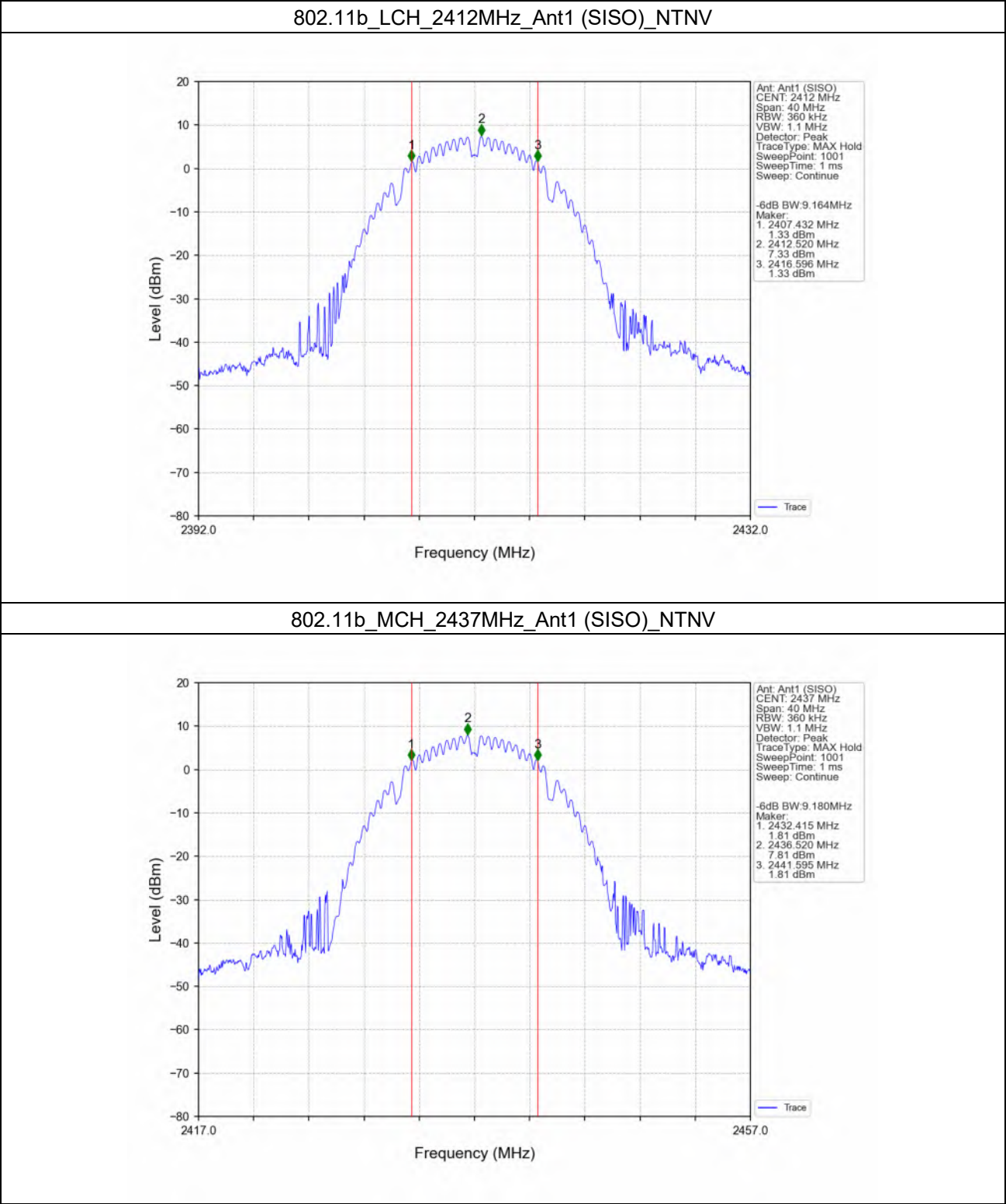
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

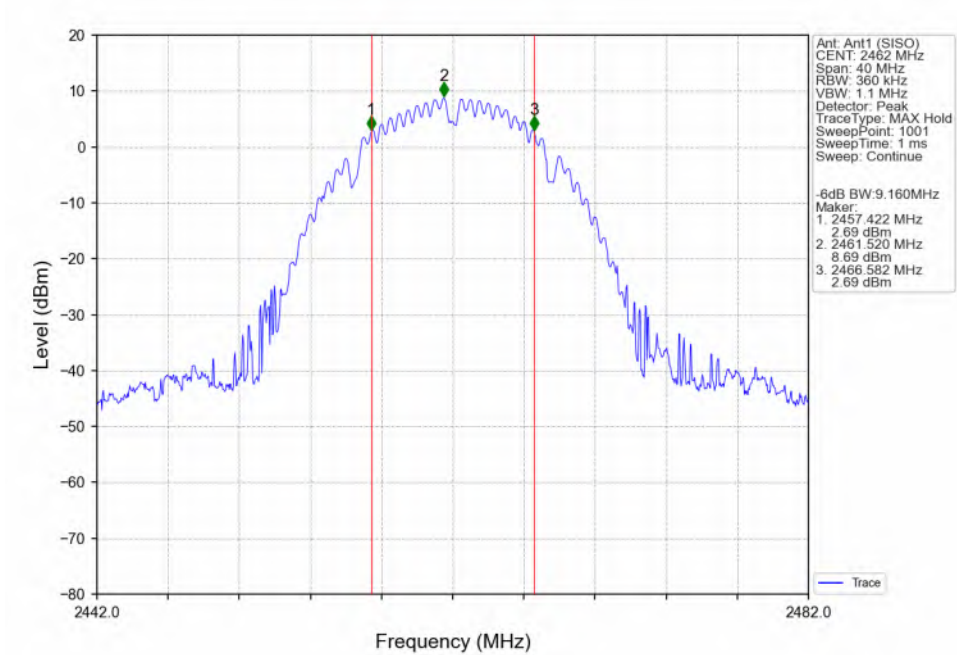
Report No.: SHCR251200345001

Page: 123 of 159

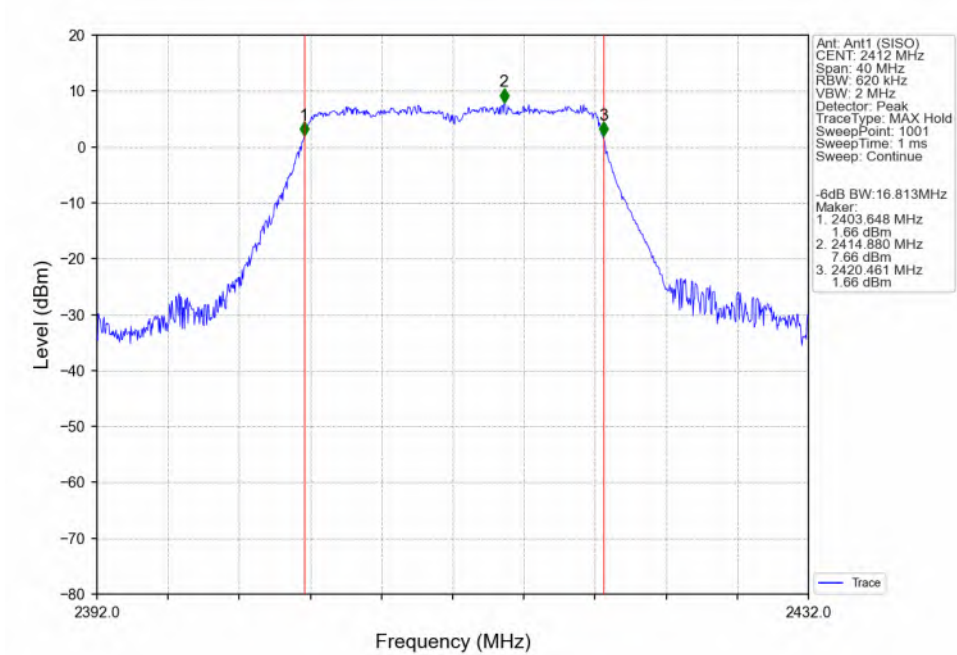
2.2.2 6dB BW



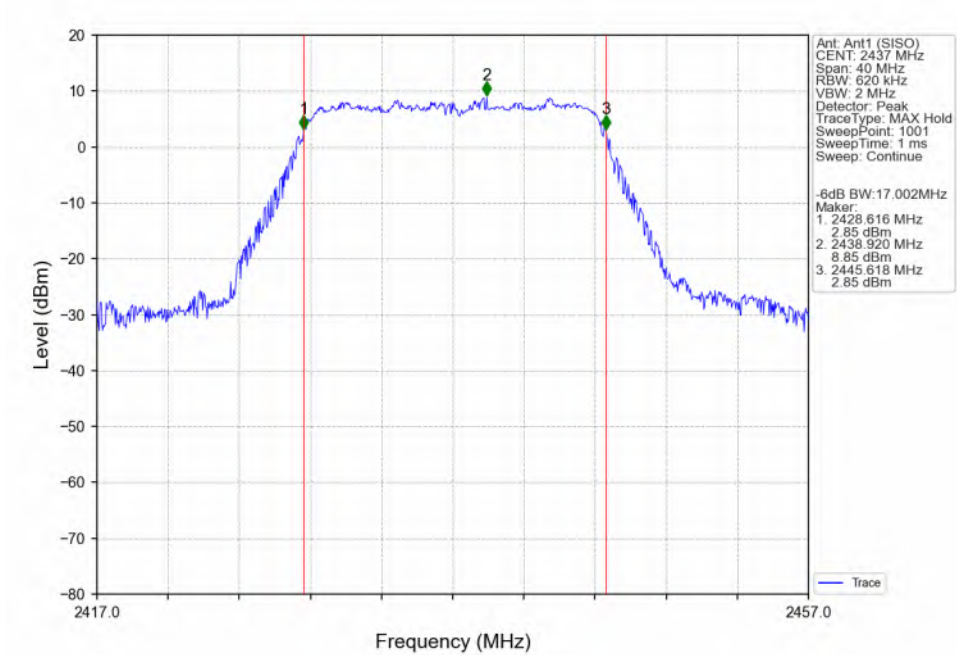
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



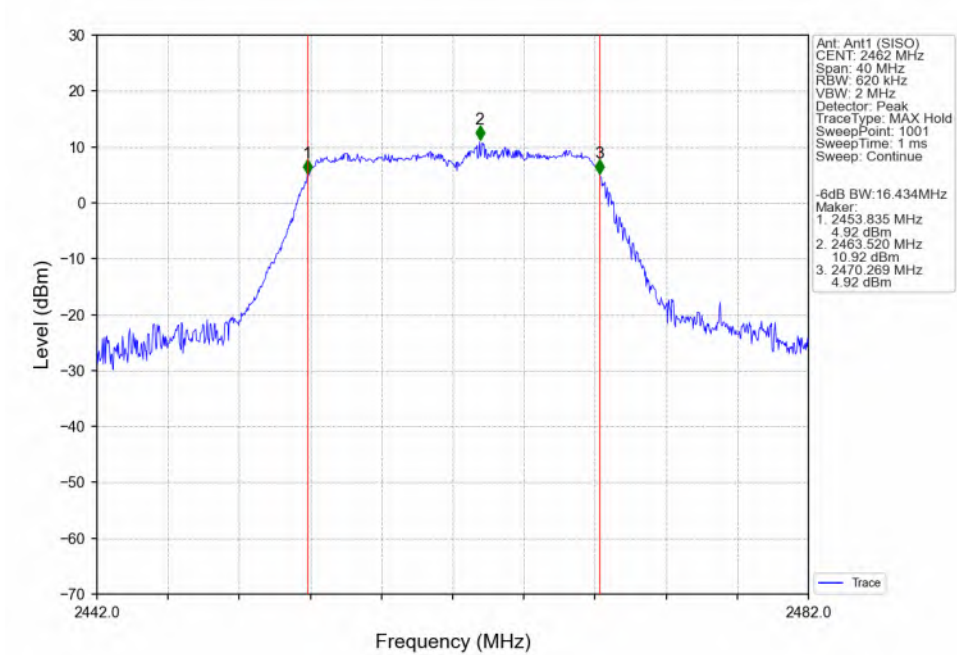
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



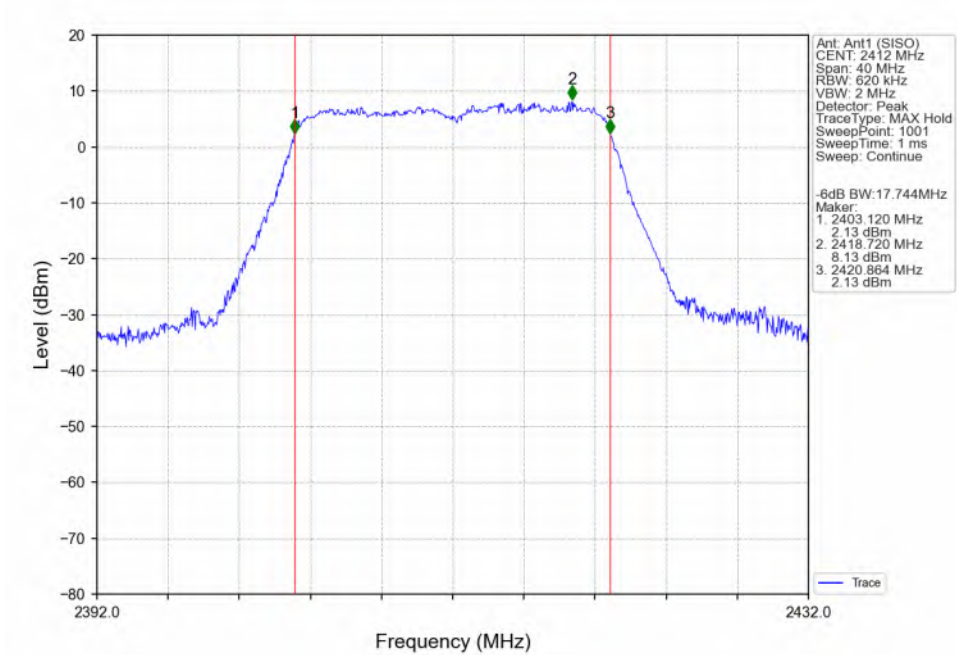
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



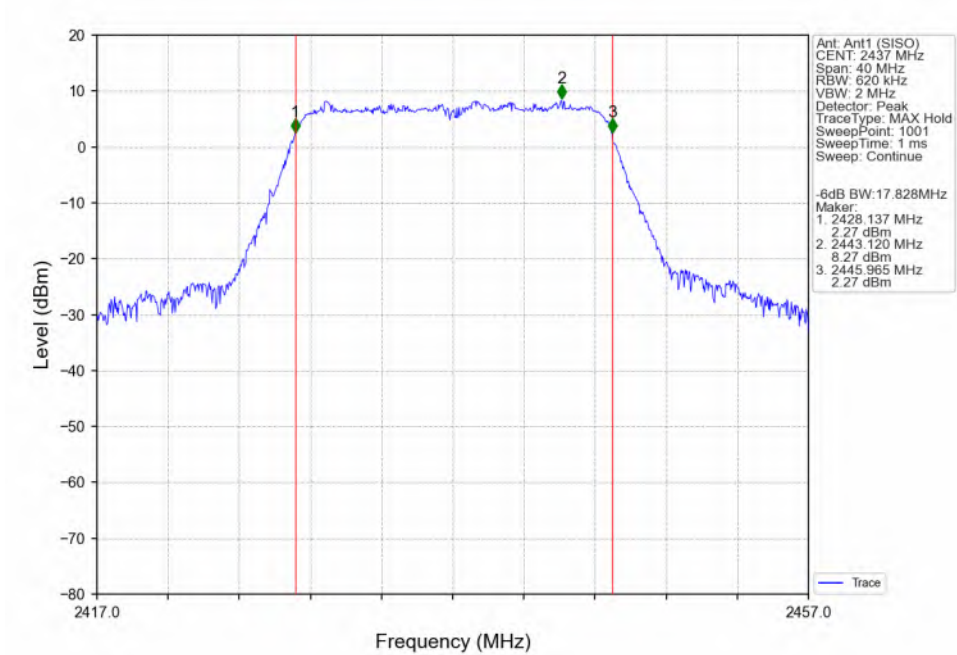
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



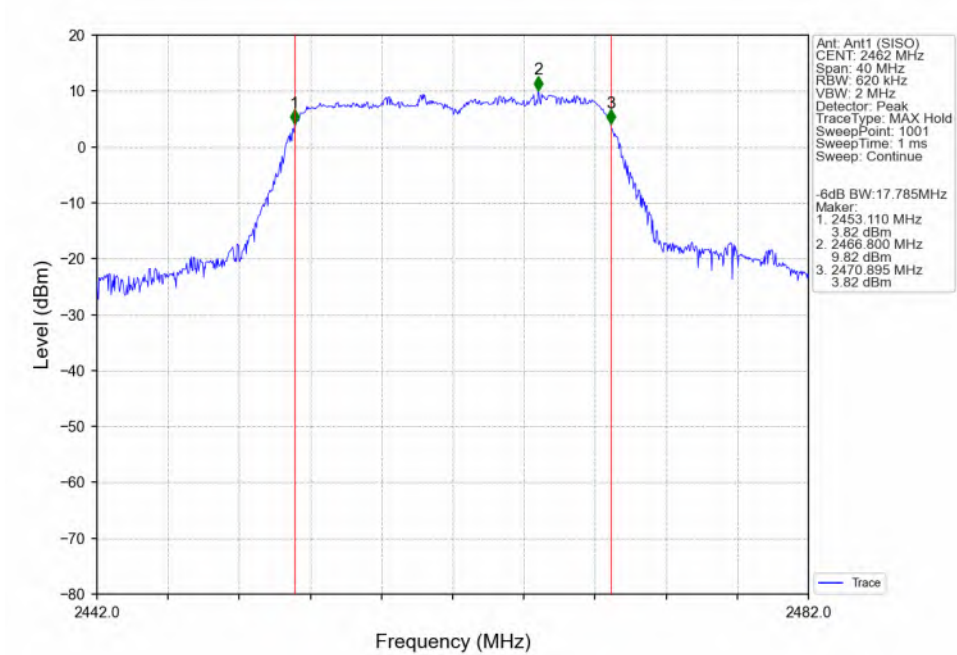
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



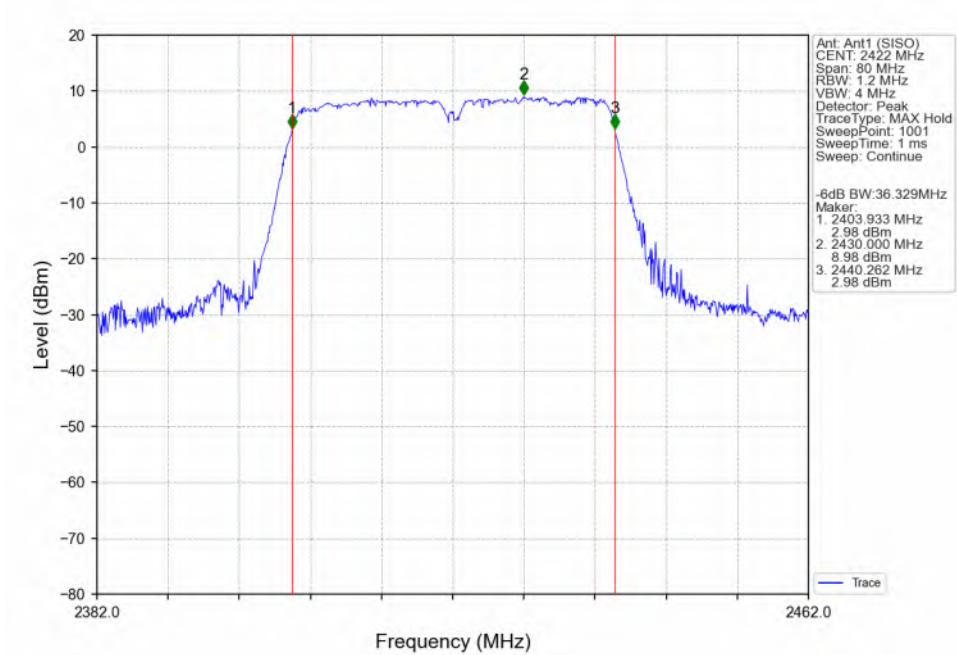
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



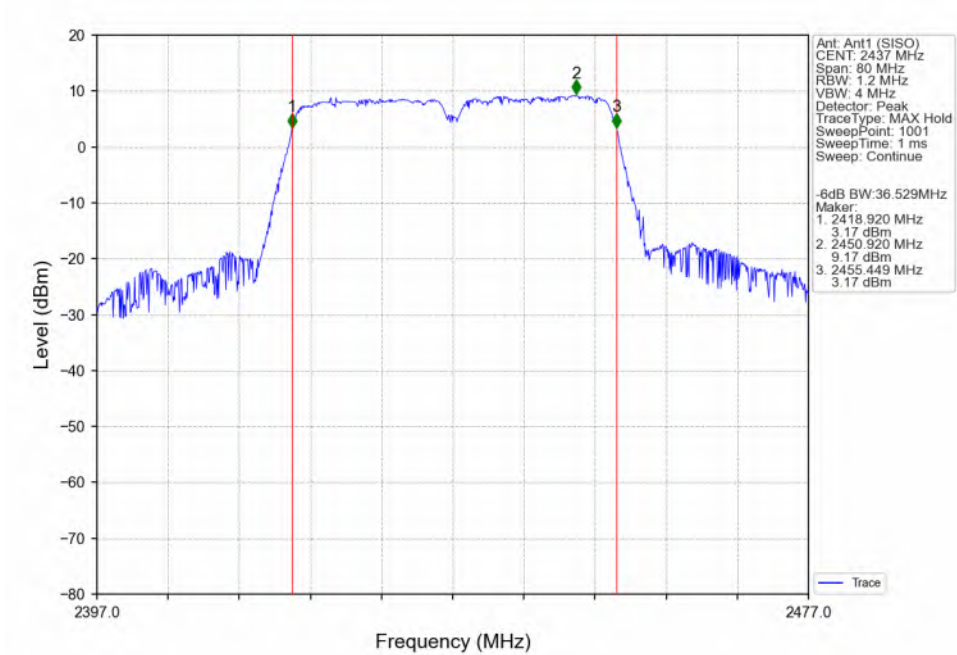
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



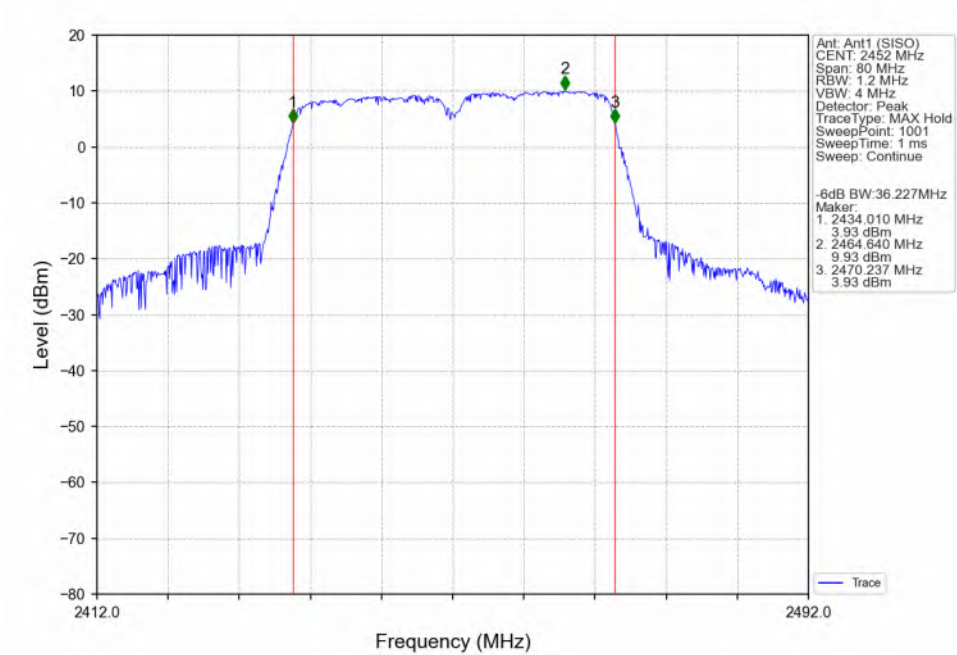
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV





SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 129 of 159

3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	15.19	<=30	Pass
		2437	15.75	<=30	Pass
		2462	16.53	<=30	Pass
802.11g	SISO	2412	13.39	<=30	Pass
		2437	14.12	<=30	Pass
		2462	15.21	<=30	Pass
802.11n (HT20)	SISO	2412	13.58	<=30	Pass
		2437	14.13	<=30	Pass
		2462	15.17	<=30	Pass
802.11n (HT40)	SISO	2422	13.84	<=30	Pass
		2437	14.14	<=30	Pass
		2452	14.78	<=30	Pass
Note1: Antenna Gain: Ant1: 4dBi;					



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

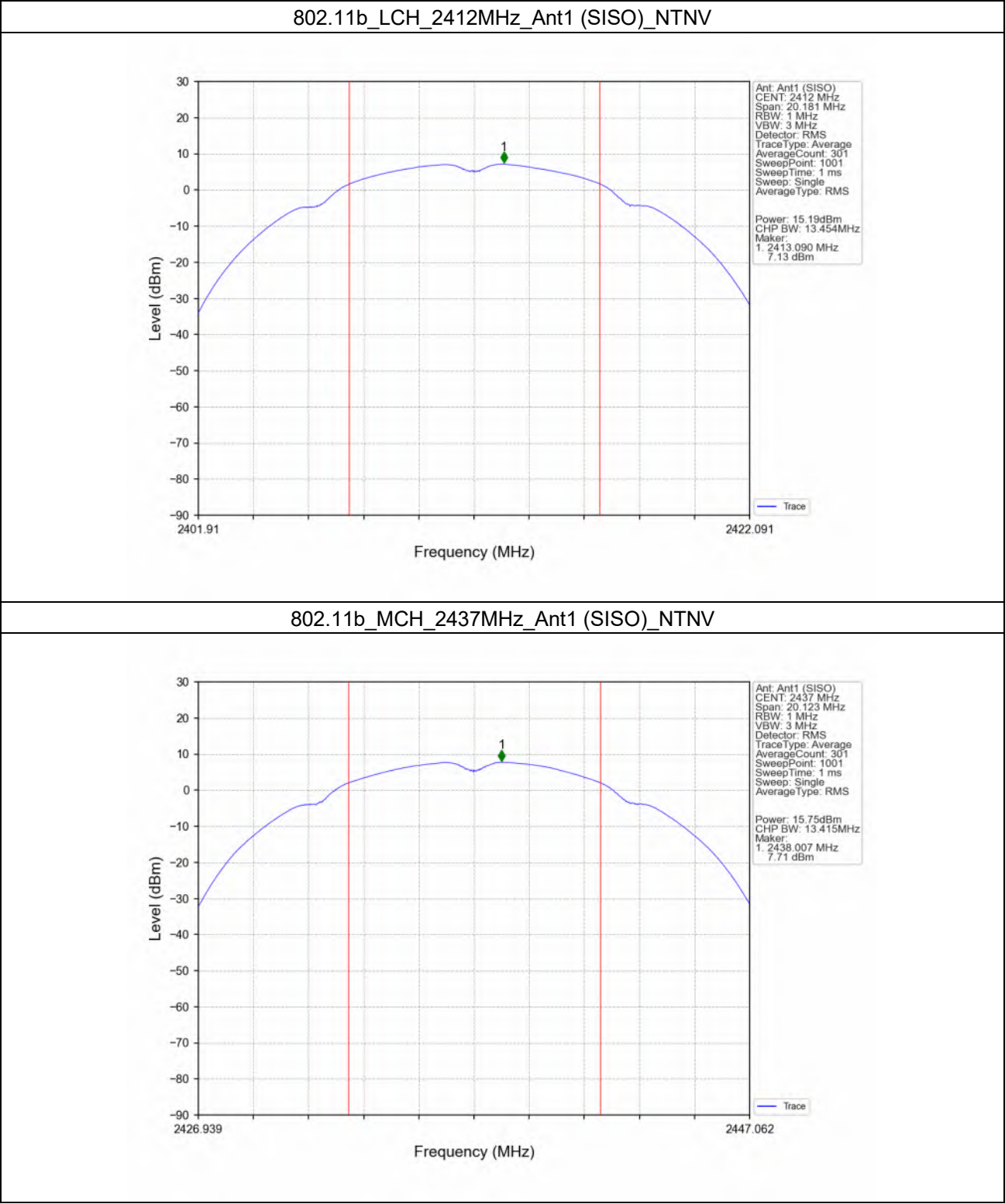
SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

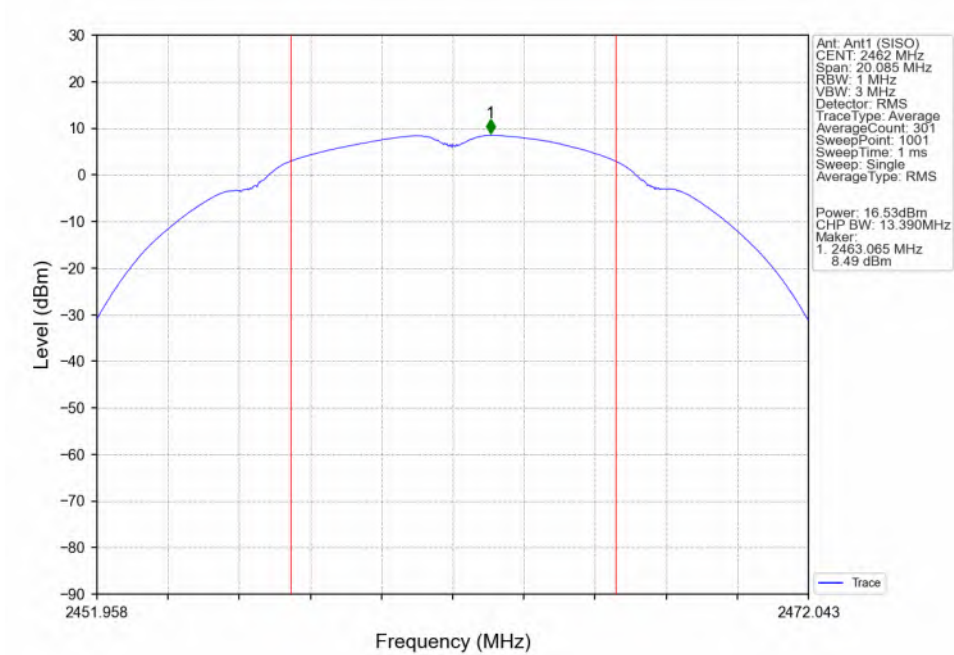
Page: 130 of 159

3.2 Test Graph

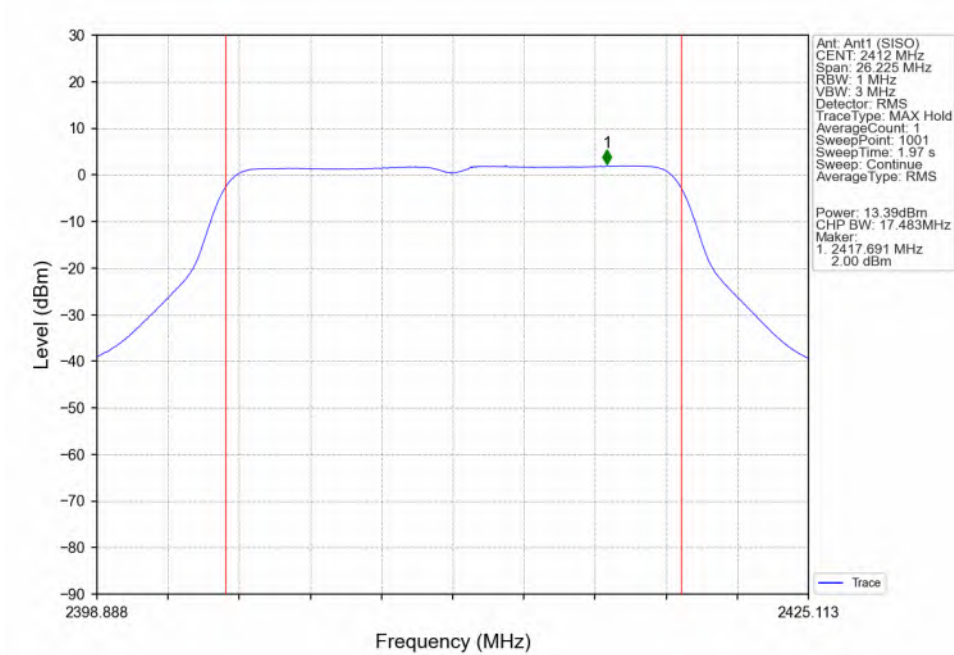
3.2.1 Power



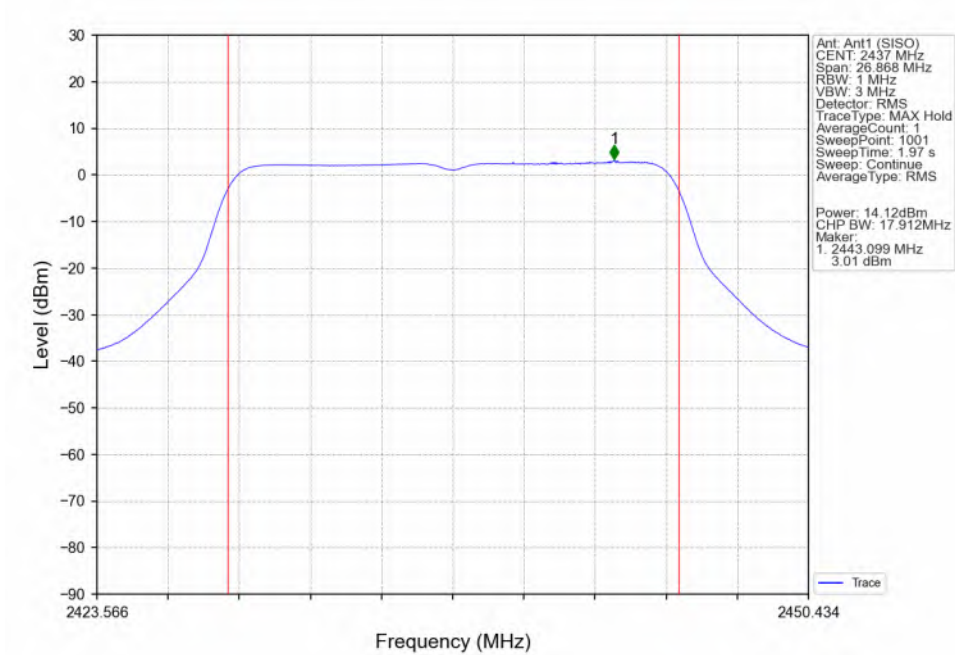
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



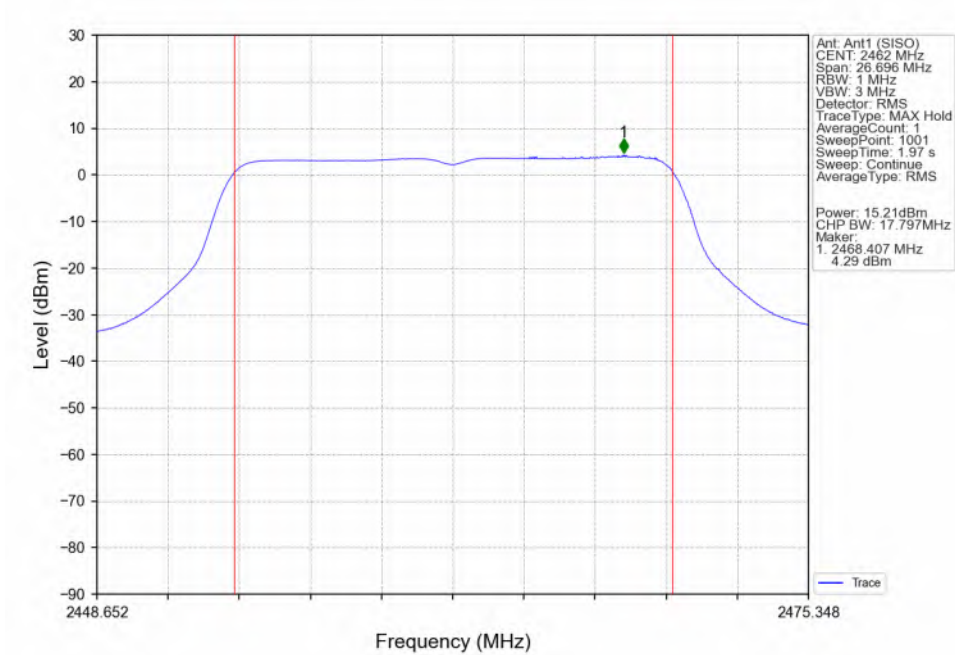
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



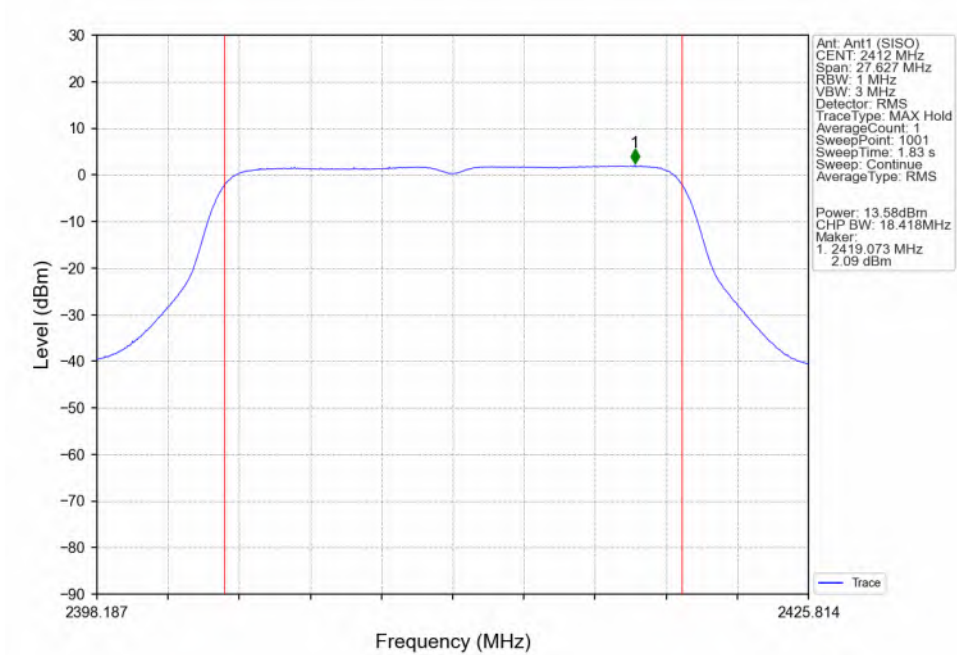
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



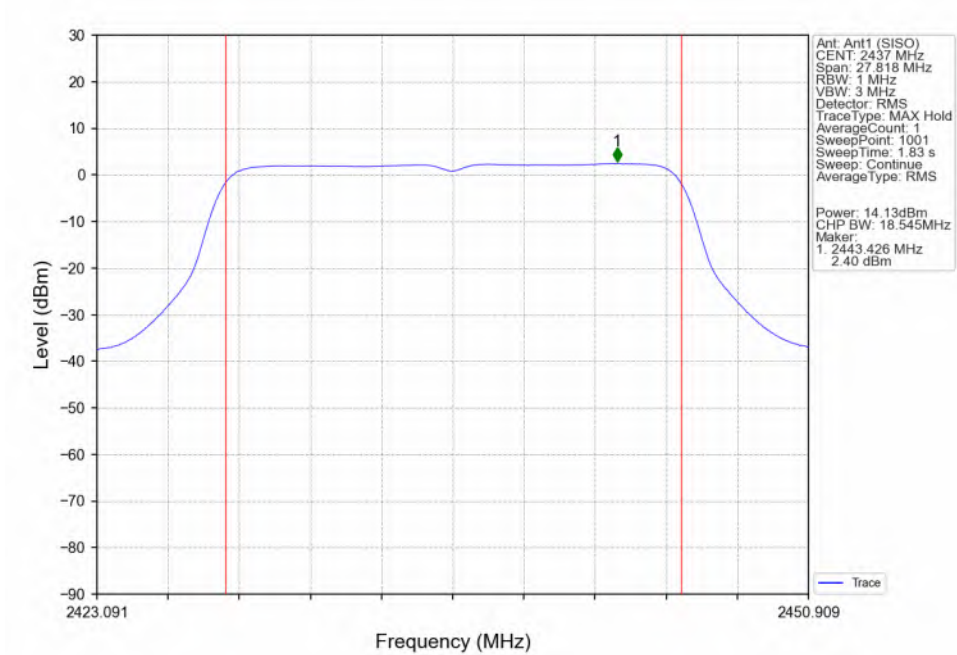
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



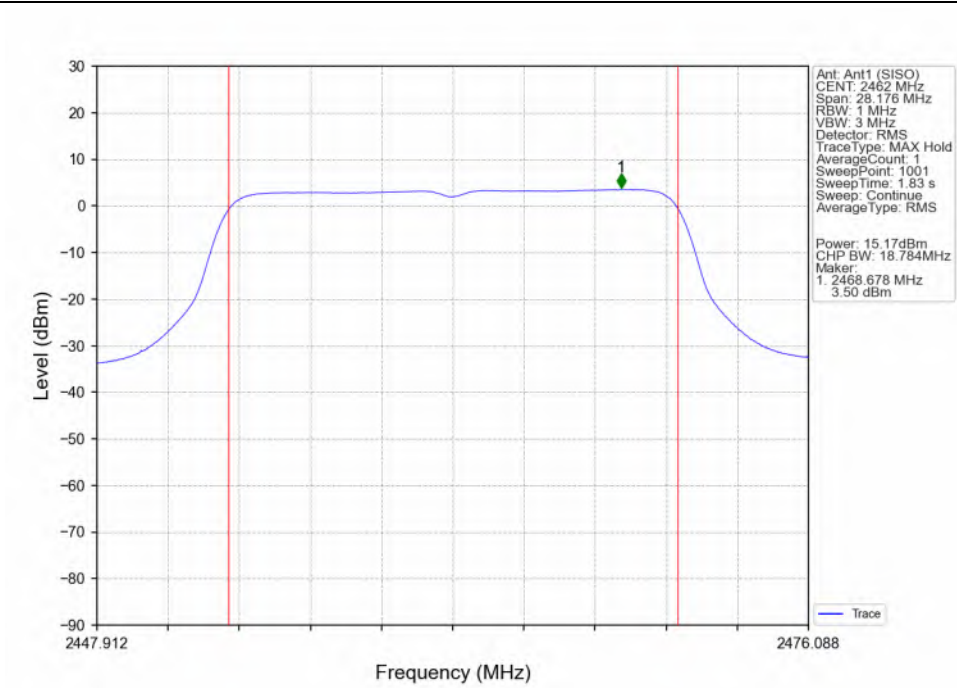
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



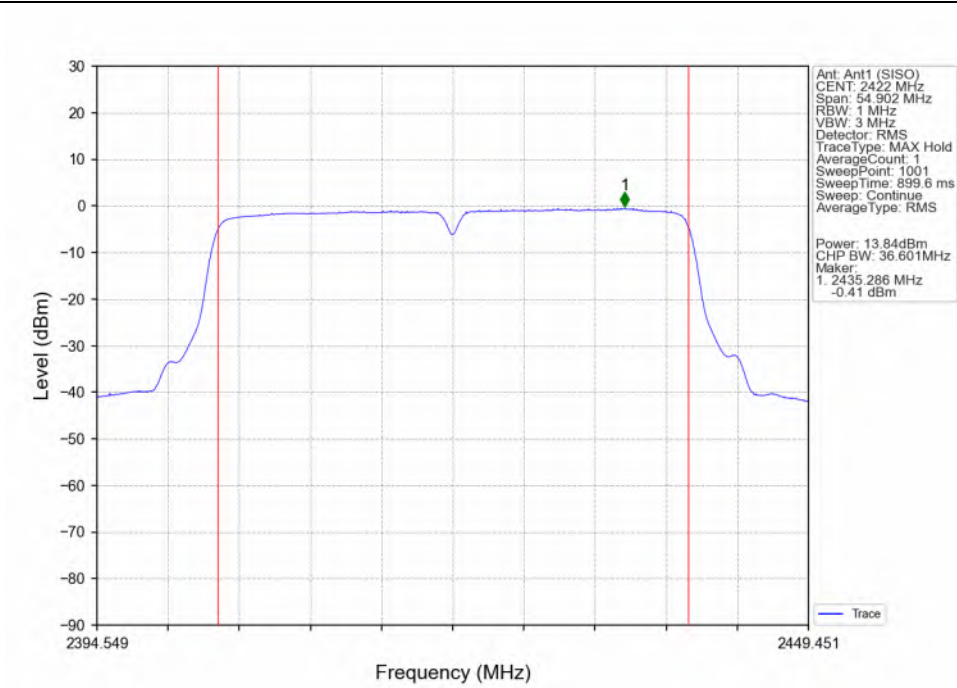
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



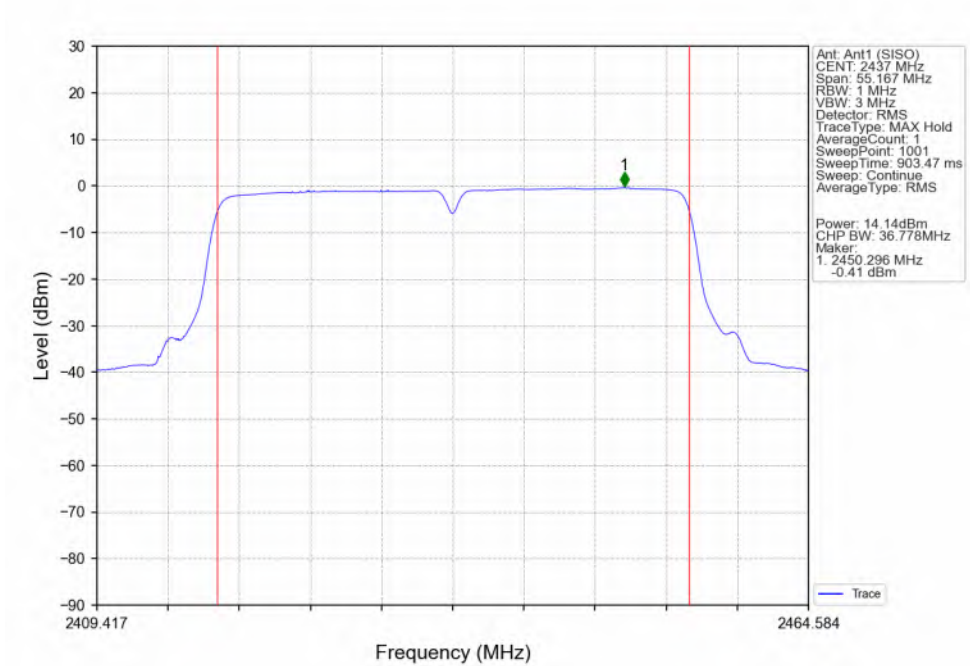
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



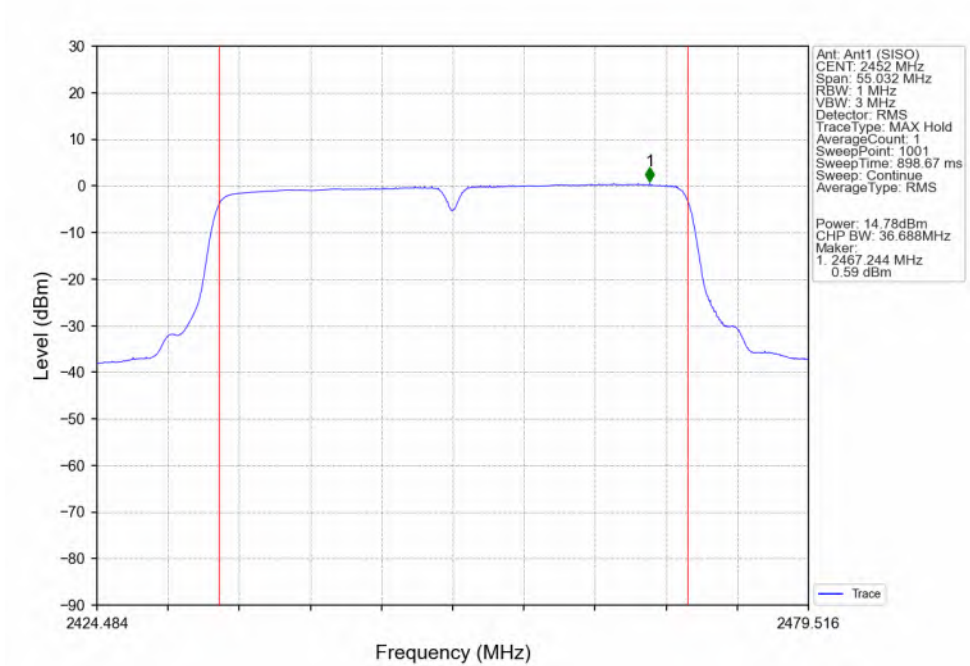
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV





SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 136 of 159

4. Maximum Power Spectral Density

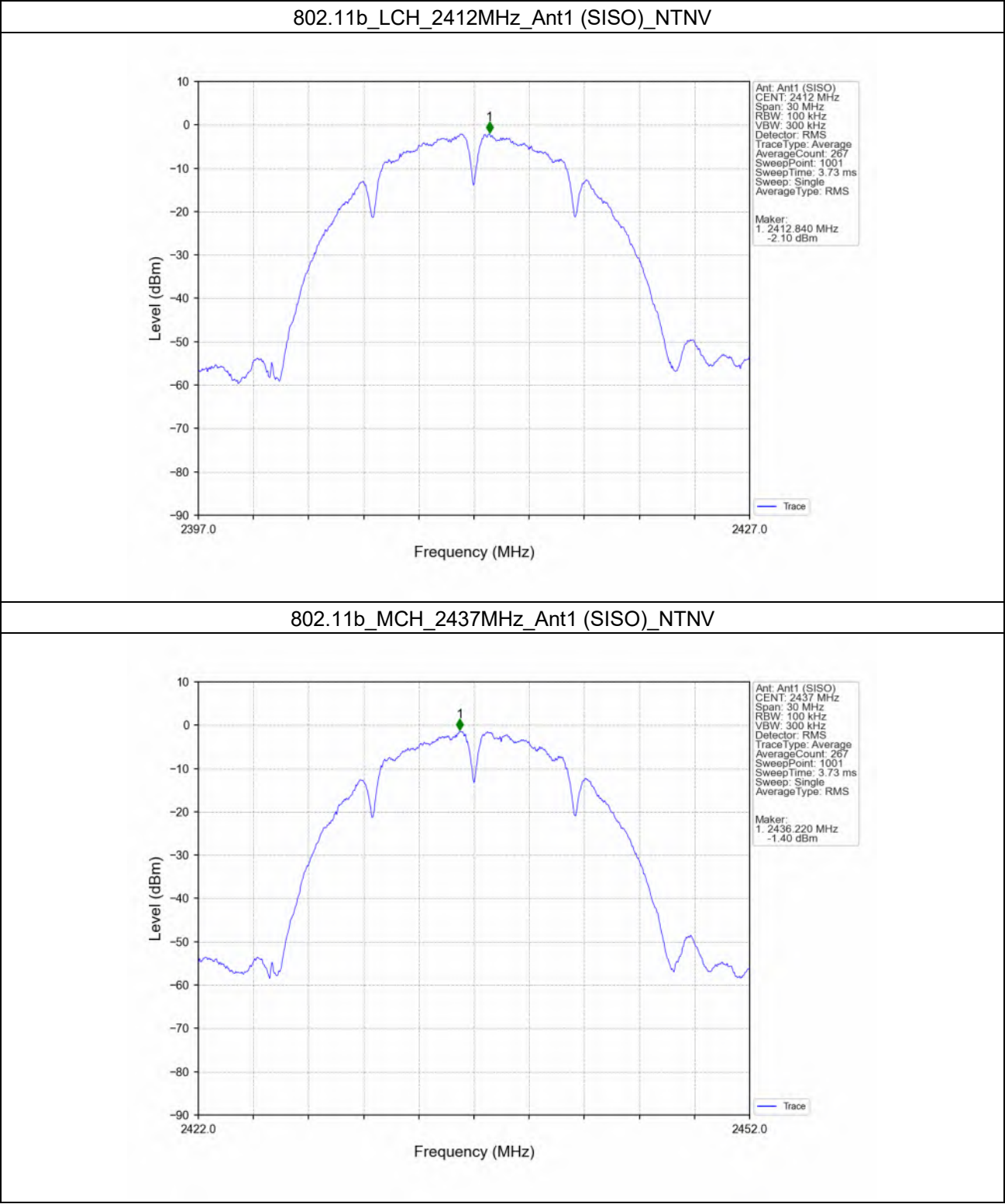
4.1 Test Result

4.1.1 PSD

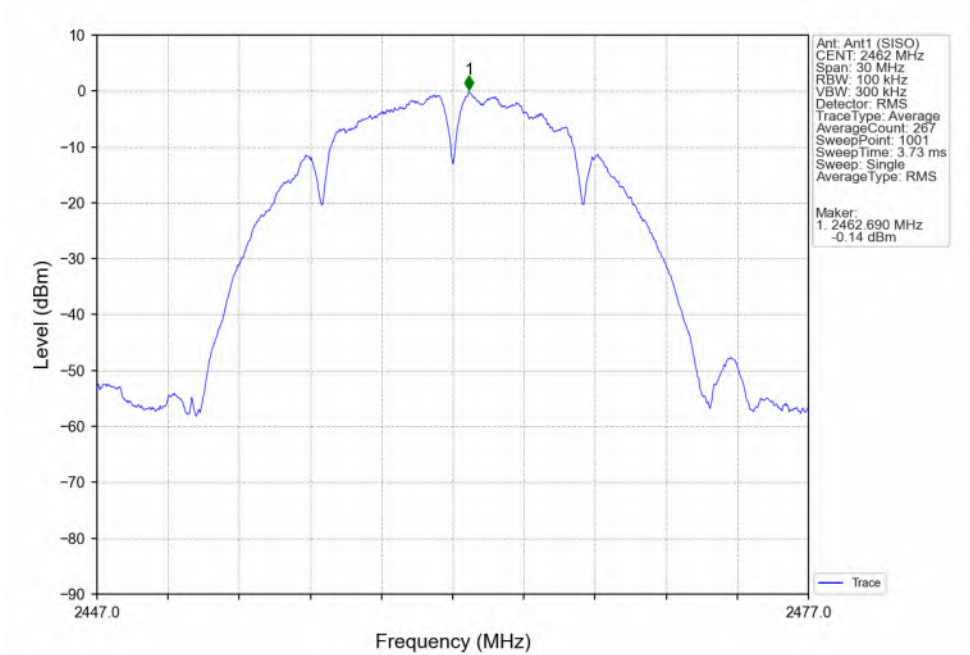
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-2.10	<=8	Pass
		2437	-1.40	<=8	Pass
		2462	-0.14	<=8	Pass
802.11g	SISO	2412	-6.97	<=8	Pass
		2437	-6.25	<=8	Pass
		2462	-4.93	<=8	Pass
802.11n (HT20)	SISO	2412	-6.78	<=8	Pass
		2437	-6.40	<=8	Pass
		2462	-5.58	<=8	Pass
802.11n (HT40)	SISO	2422	-9.40	<=8	Pass
		2437	-9.21	<=8	Pass
		2452	-8.50	<=8	Pass
Note1: Antenna Gain: Ant1: 4dBi;					

4.2 Test Graph

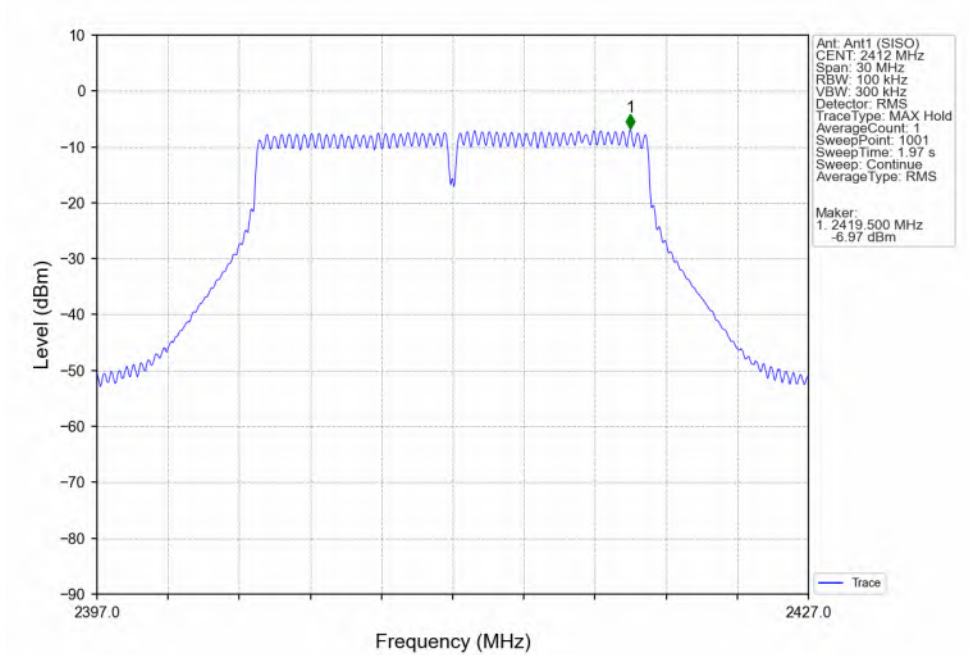
4.2.1 PSD



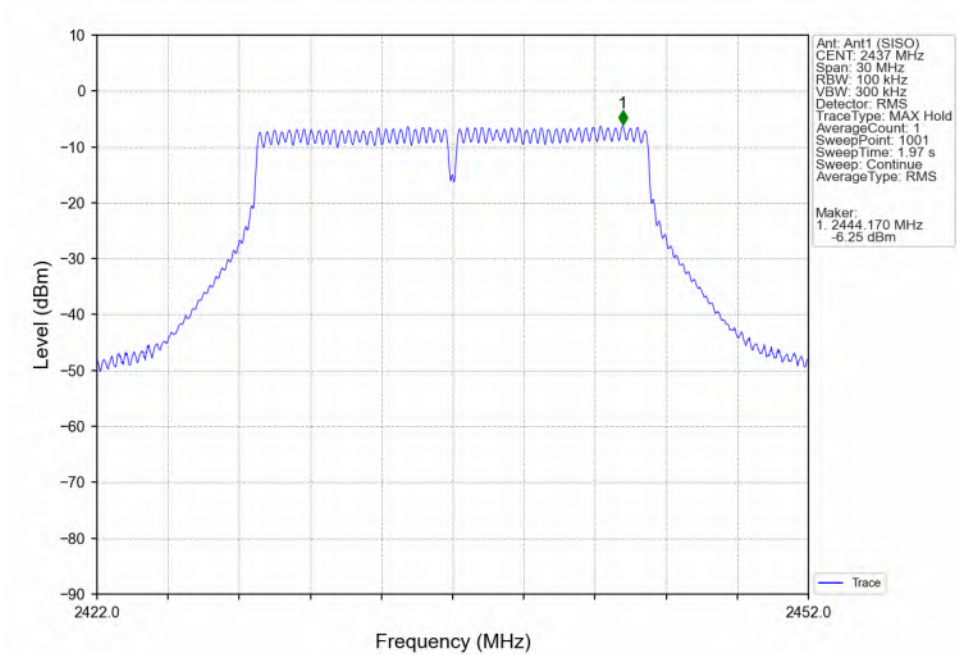
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



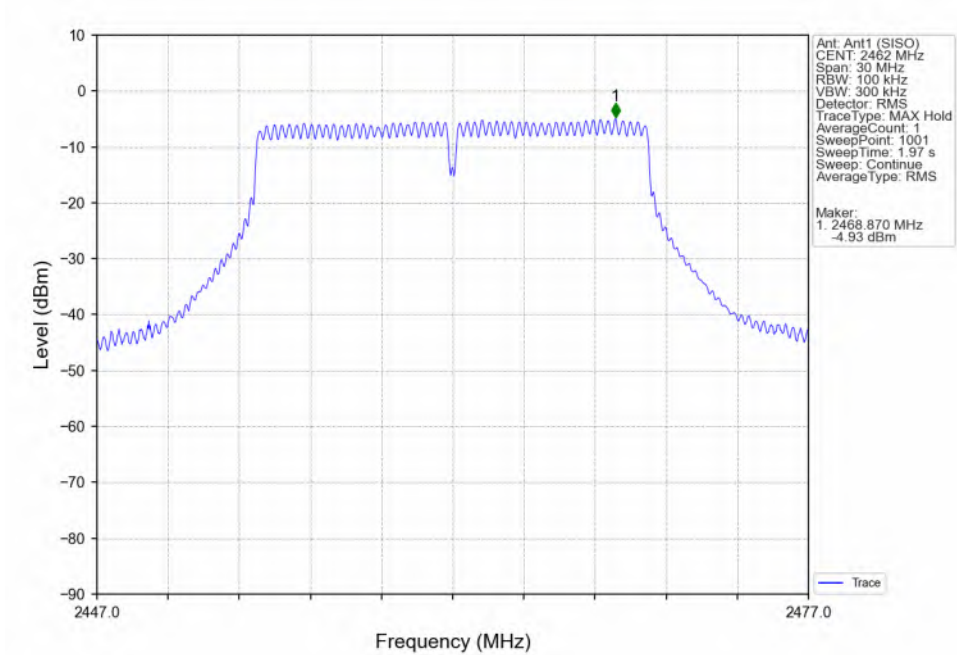
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



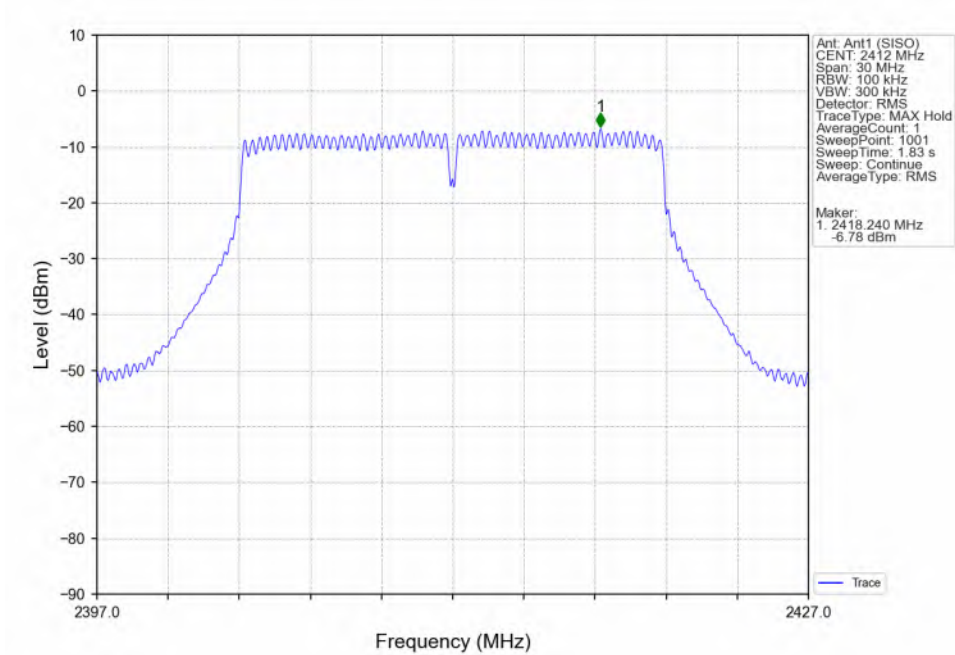
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



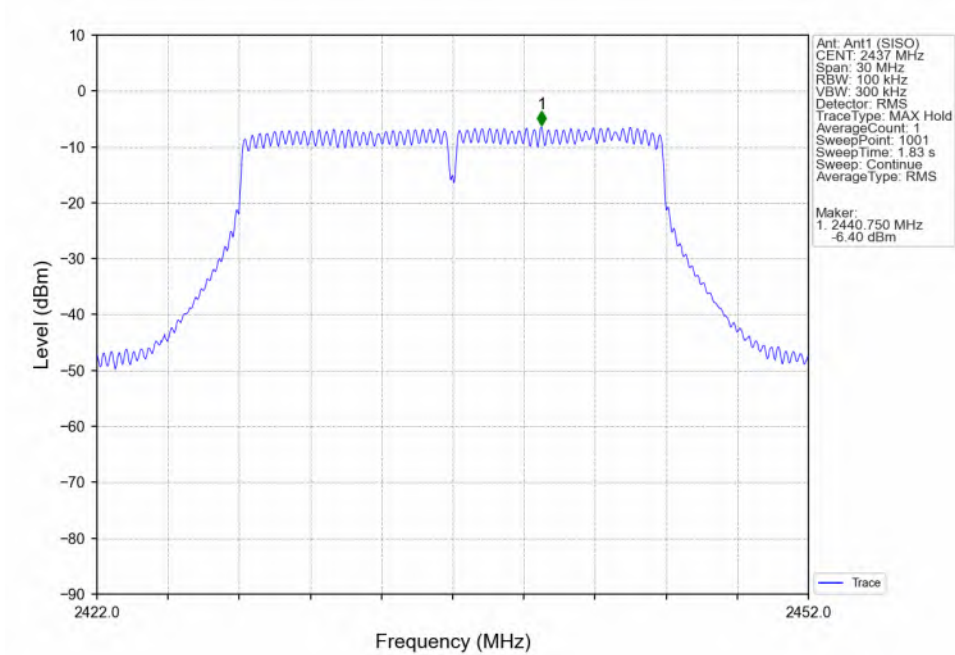
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



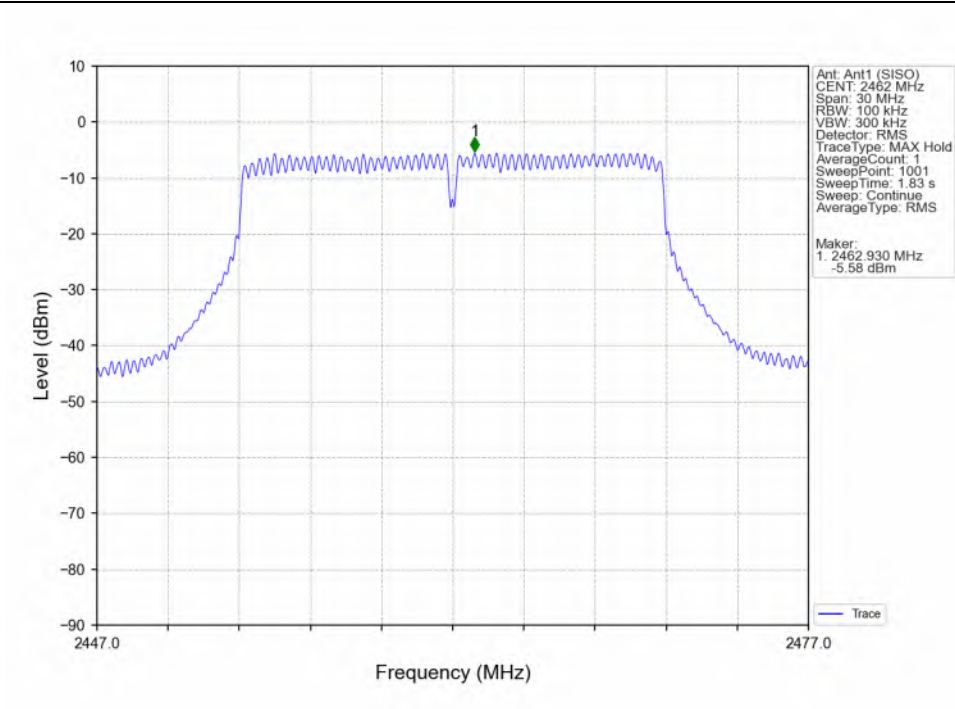
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



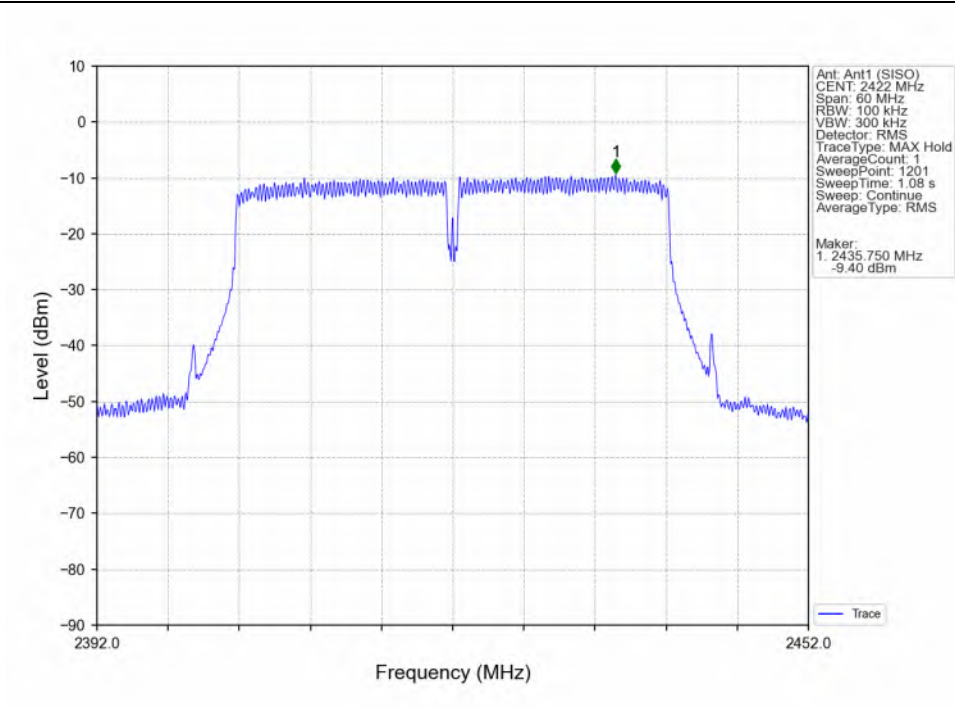
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



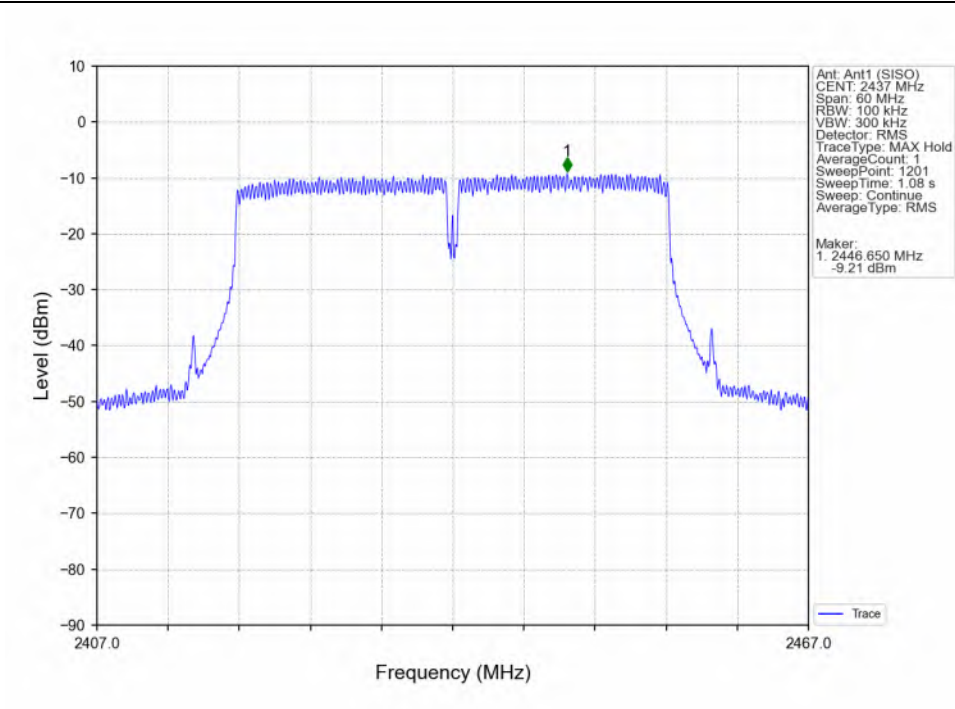
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



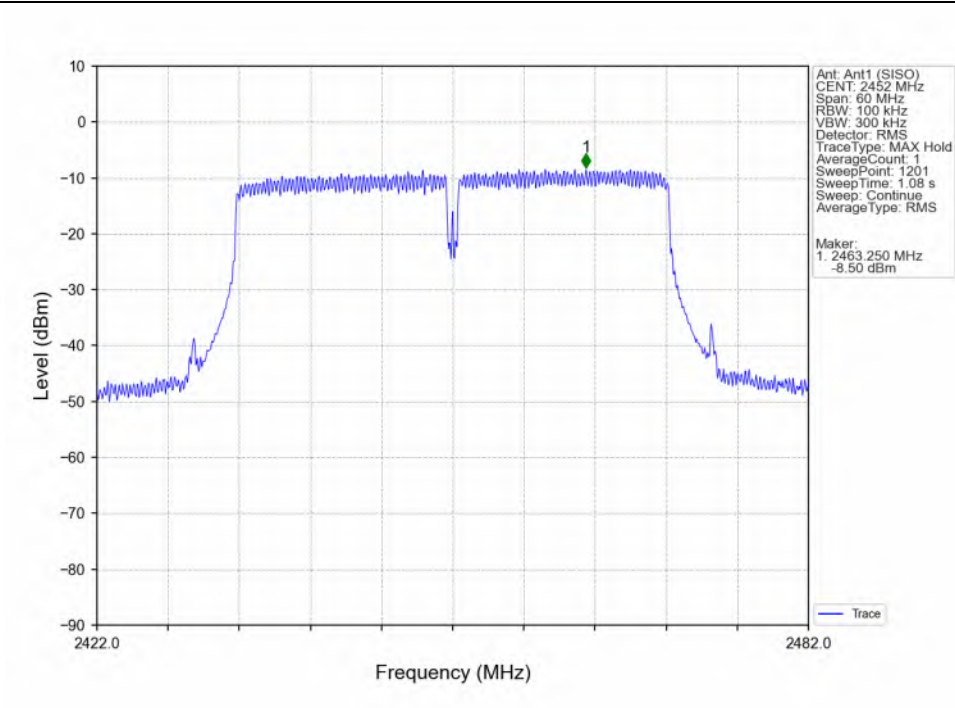
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV





SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

Page: 143 of 159

5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
802.11b	SISO	2412	1	6.88
		2437	1	7.59
		2462	1	8.47
802.11g	SISO	2412	1	2.17
		2437	1	2.79
		2462	1	3.88
802.11n (HT20)	SISO	2412	1	1.72
		2437	1	2.67
		2462	1	3.90
802.11n (HT40)	SISO	2422	1	-0.41
		2437	1	0.06
		2452	1	0.79

5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	8.47	-21.53	Pass
		2437	1	8.47	-21.53	Pass
		2462	1	8.47	-21.53	Pass
802.11g	SISO	2412	1	3.88	-26.12	Pass
		2437	1	3.88	-26.12	Pass
		2462	1	3.88	-26.12	Pass
802.11n (HT20)	SISO	2412	1	3.90	-26.10	Pass
		2437	1	3.90	-26.10	Pass
		2462	1	3.90	-26.10	Pass
802.11n (HT40)	SISO	2422	1	0.79	-29.21	Pass
		2437	1	0.79	-29.21	Pass
		2452	1	0.79	-29.21	Pass



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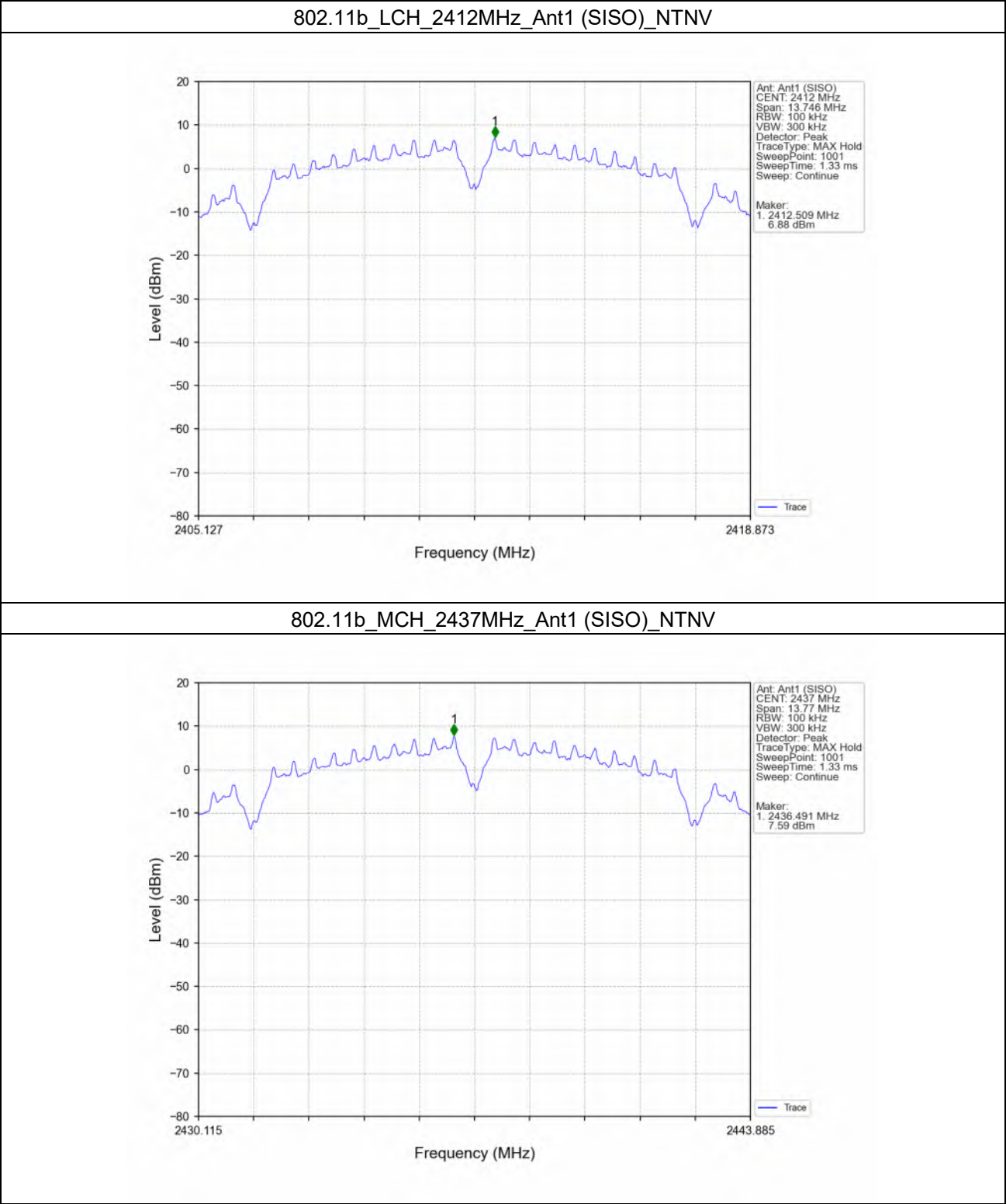
SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

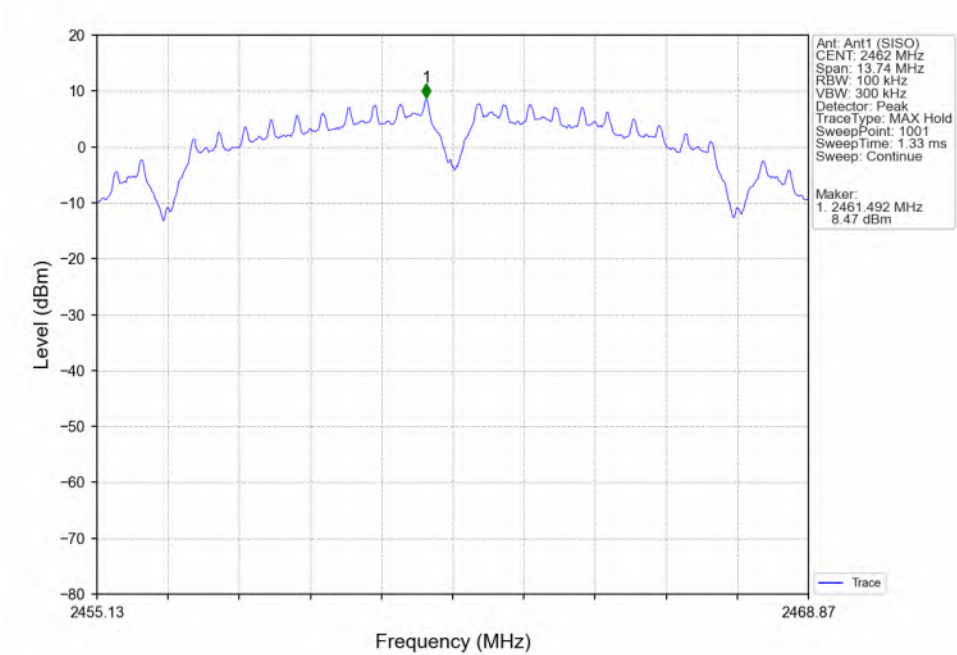
Page: 144 of 159

5.2 Test Graph

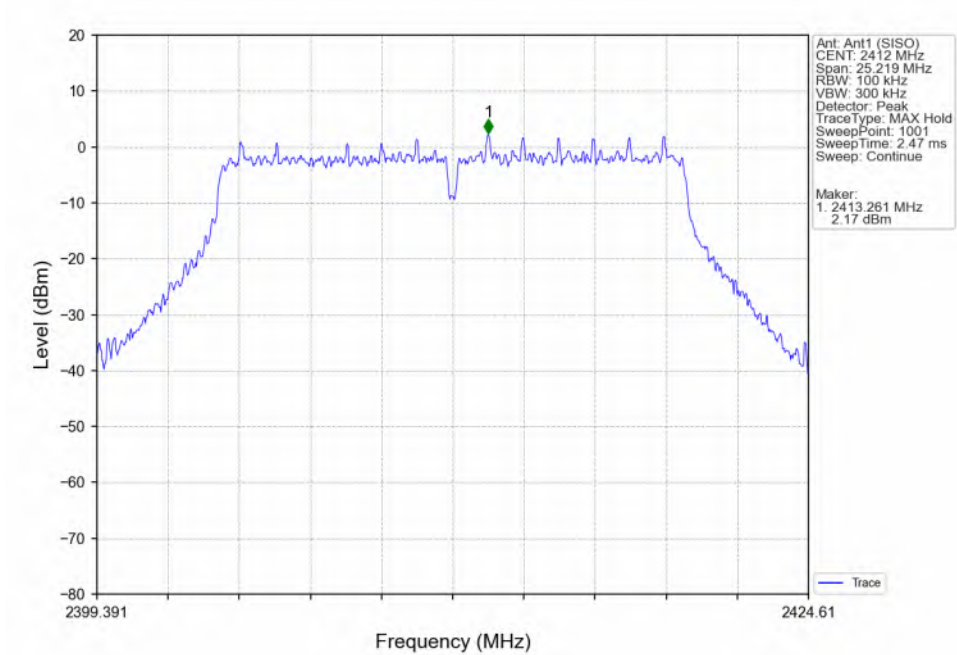
5.2.1 Ref



802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



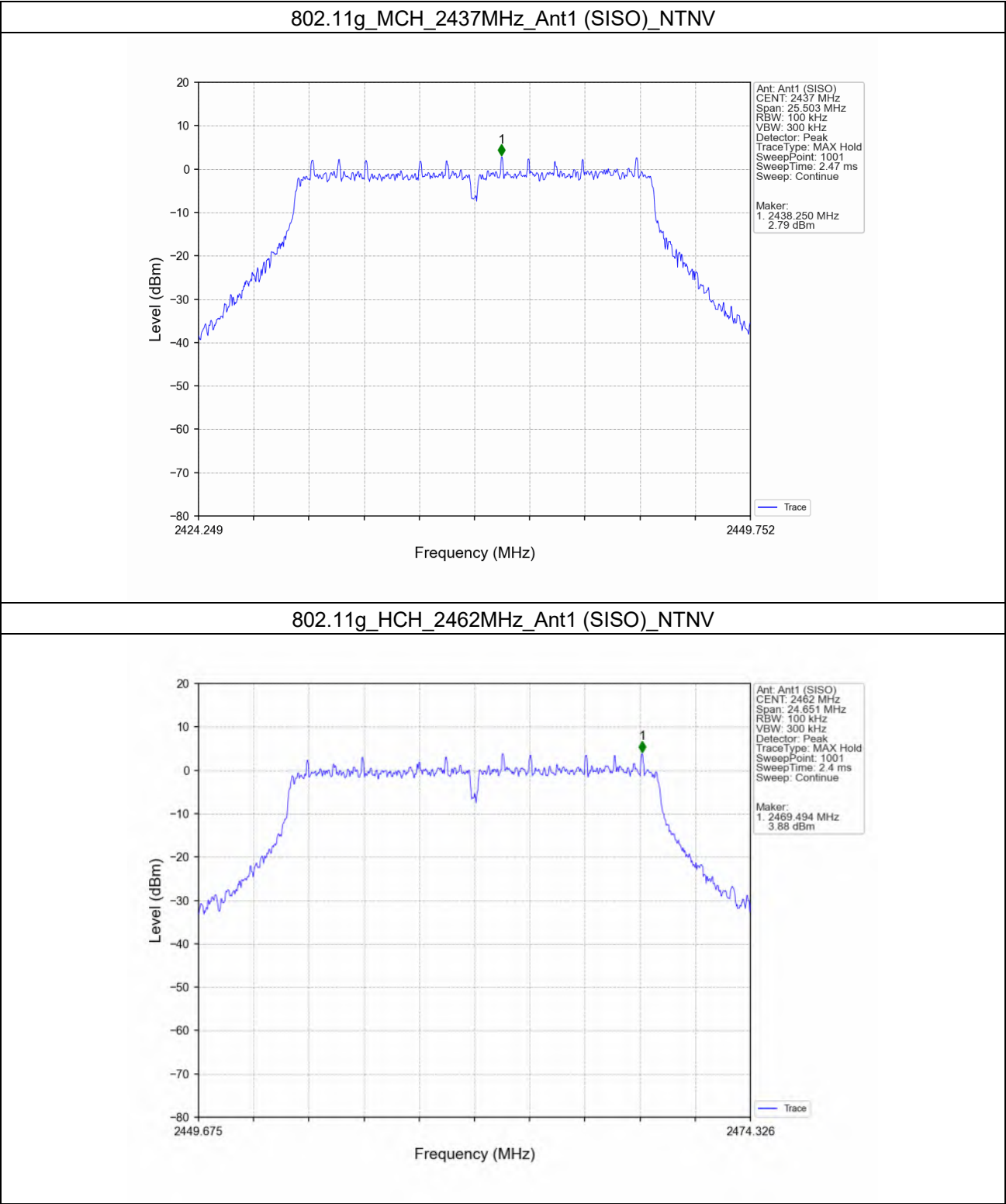


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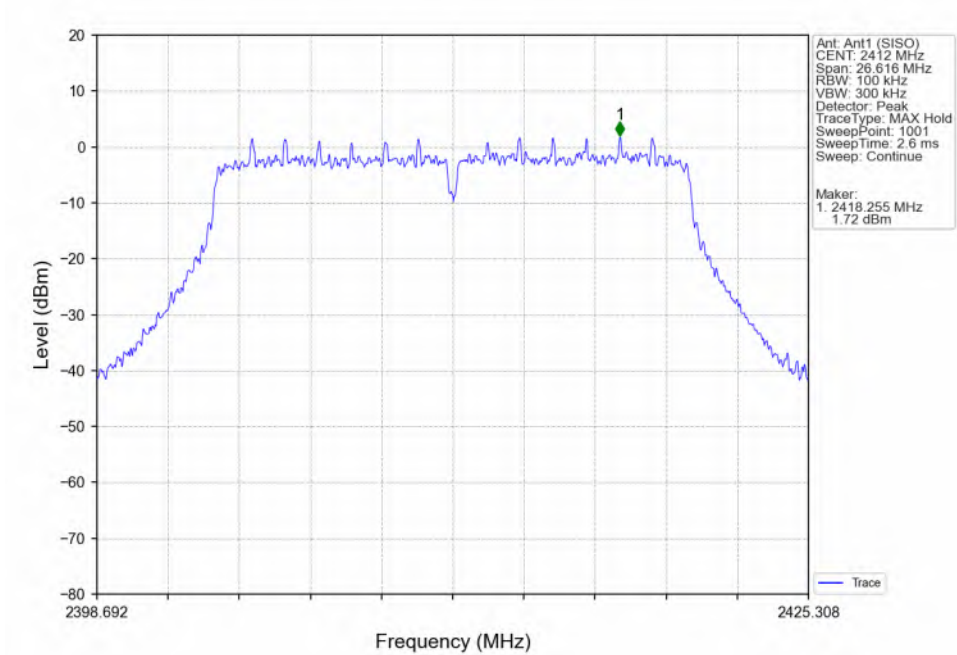
SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

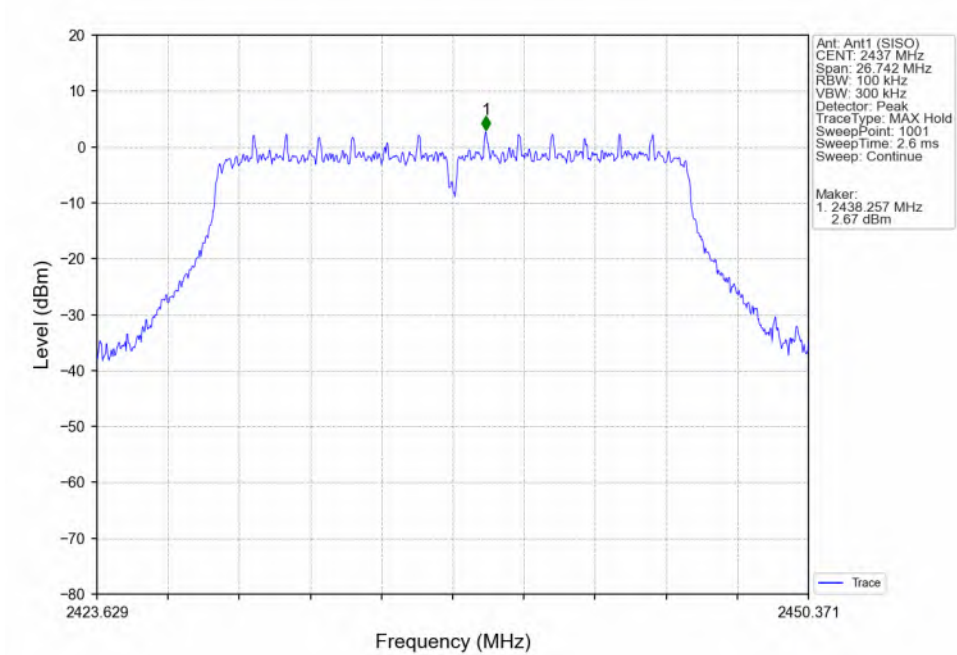
Page: 146 of 159



802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



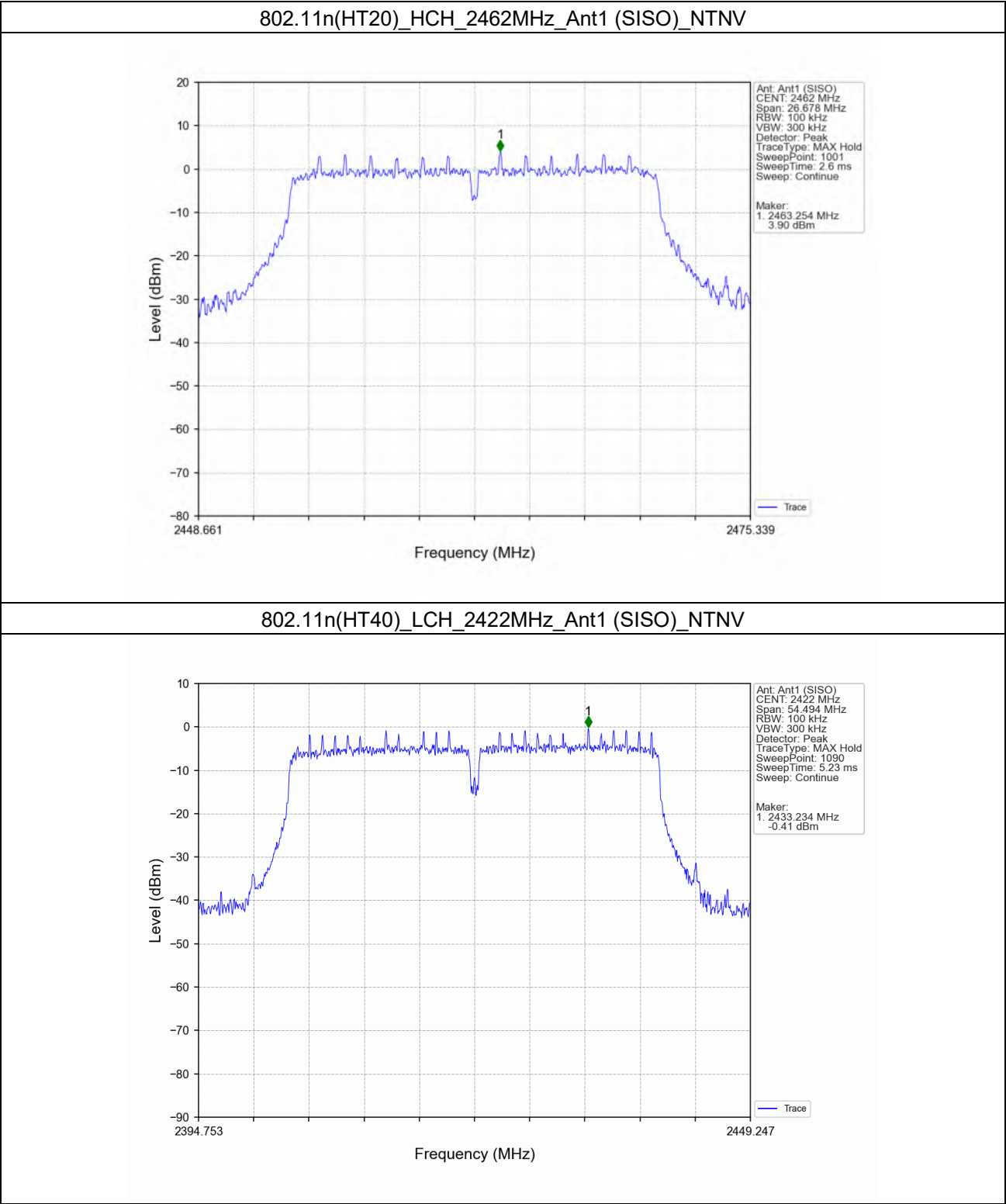


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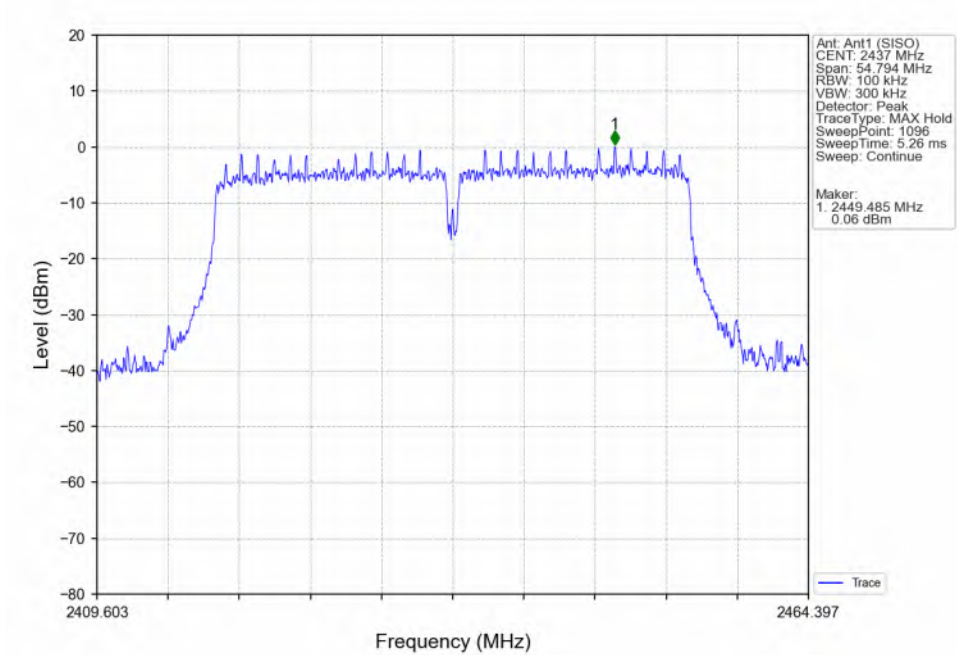
SHEM-TRF-001 Rev. 02 Sep01, 2023

Report No.: SHCR251200345001

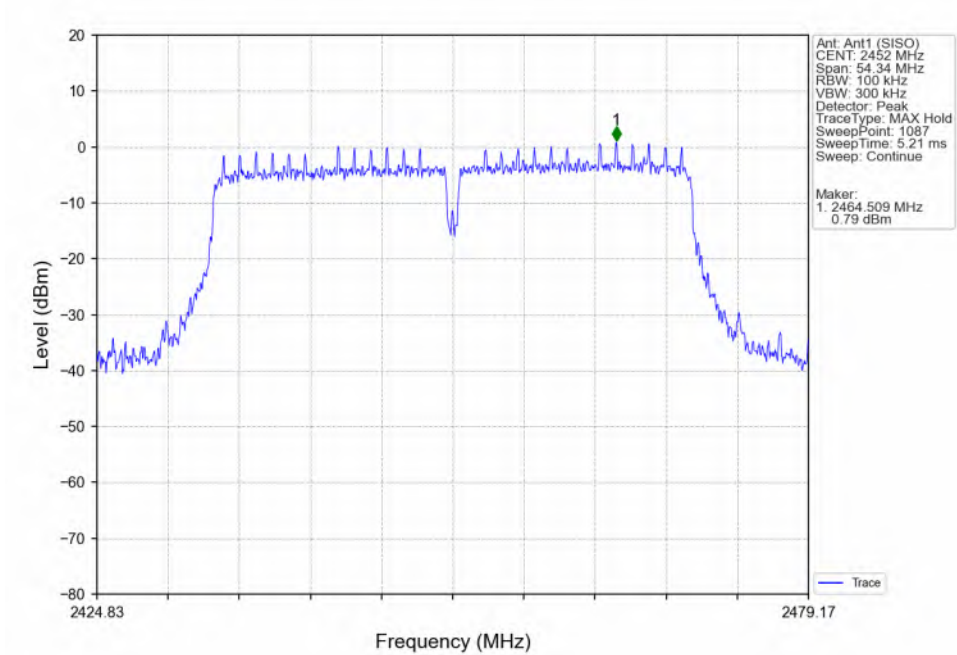
Page: 148 of 159



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV





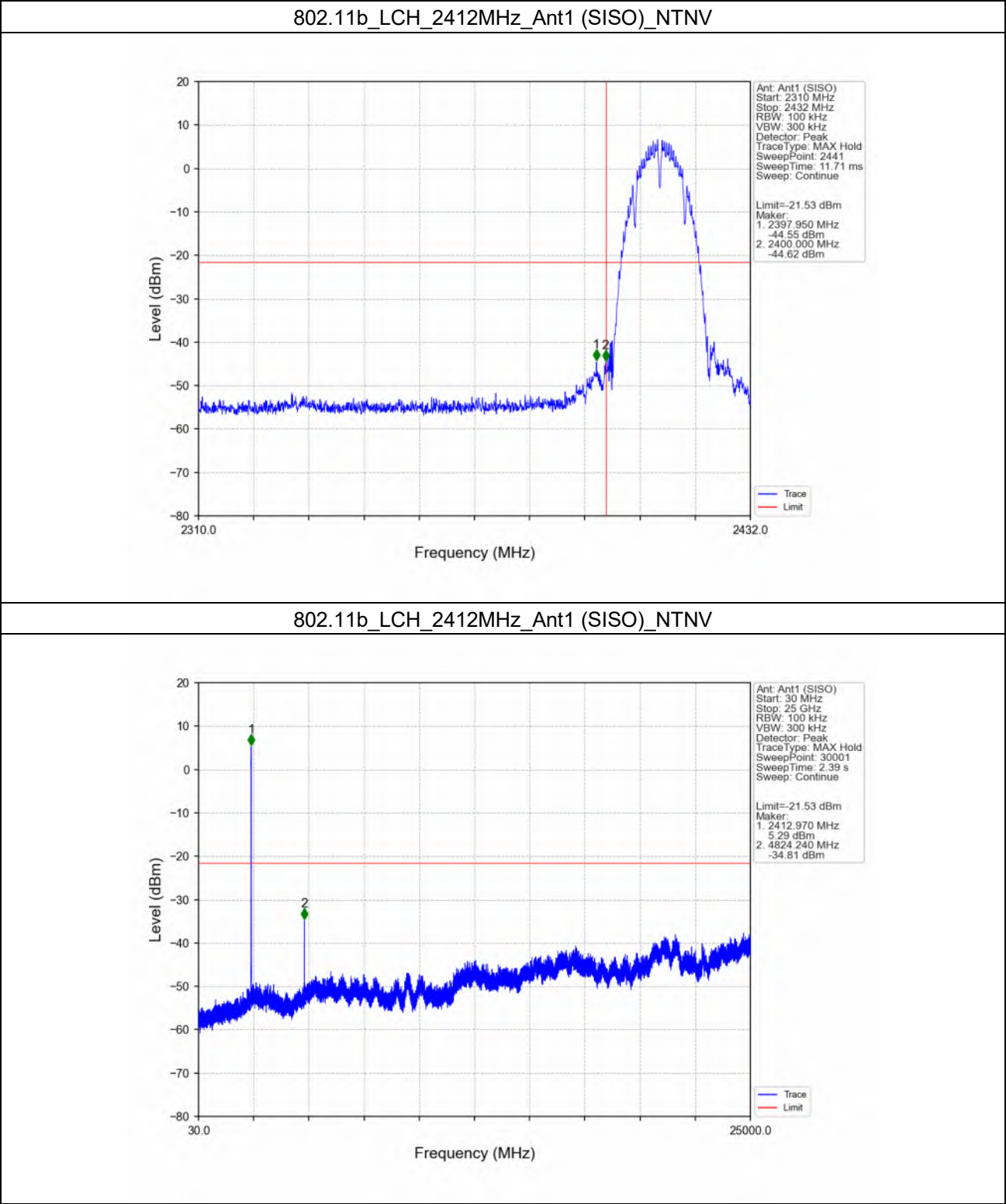
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

SHEM-TRF-001 Rev. 02 Sep01, 2023

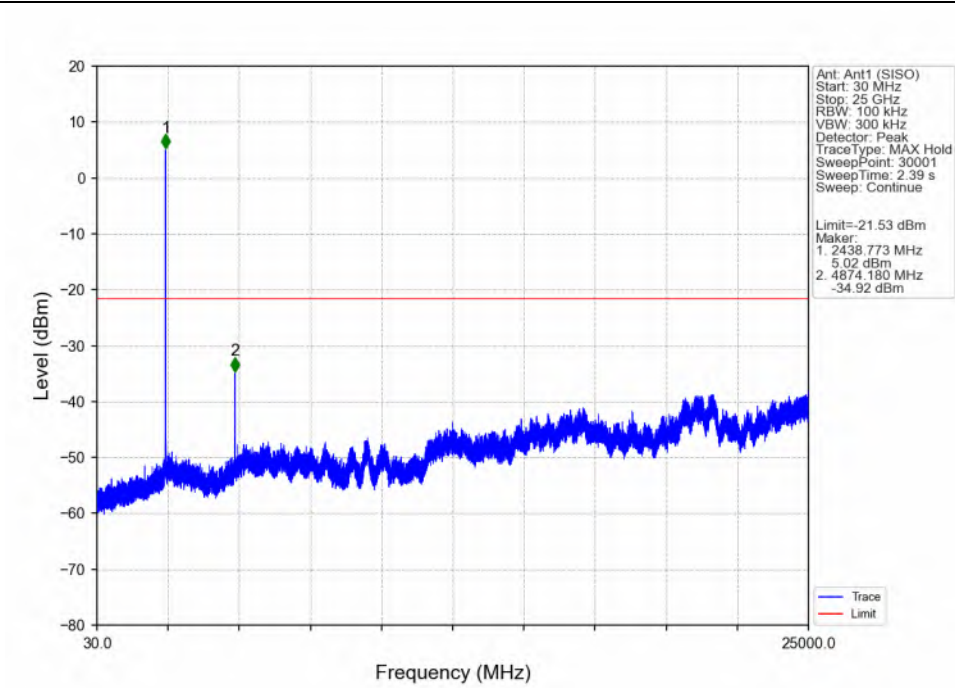
Report No.: SHCR251200345001

Page: 150 of 159

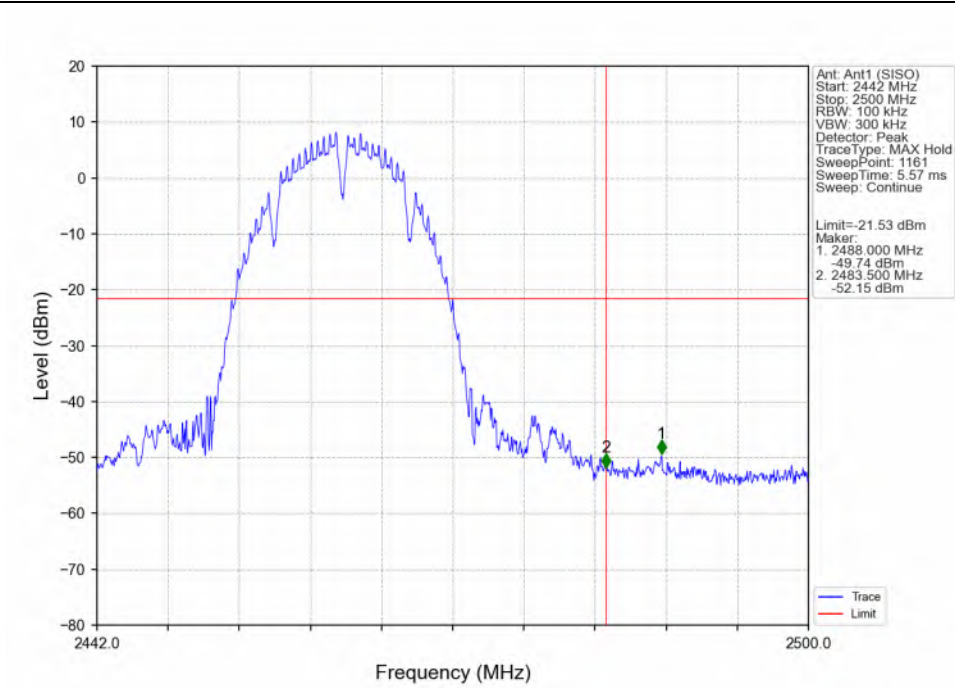
5.2.2 CSE



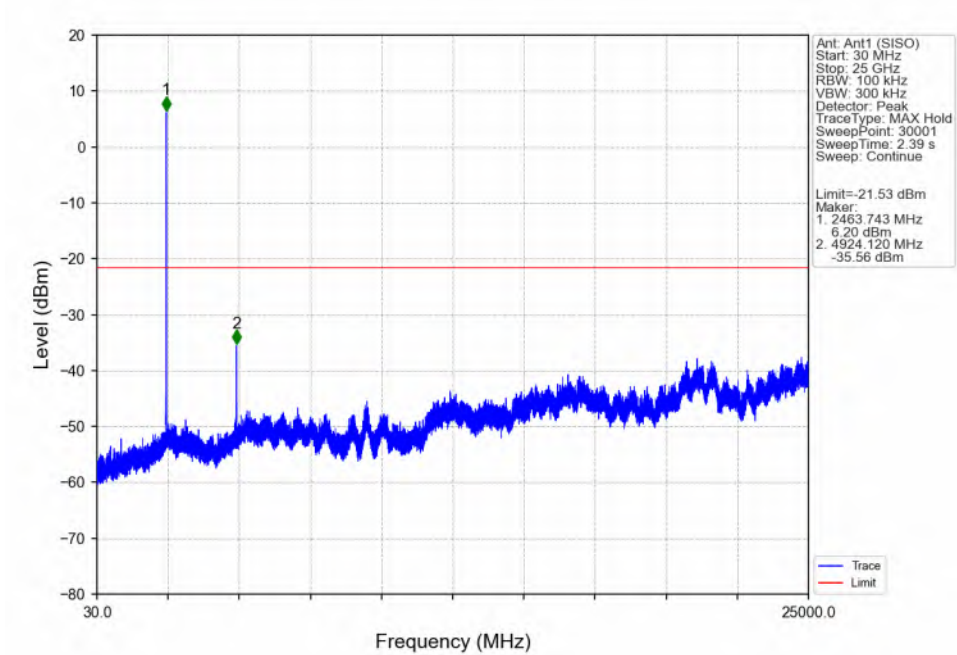
802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



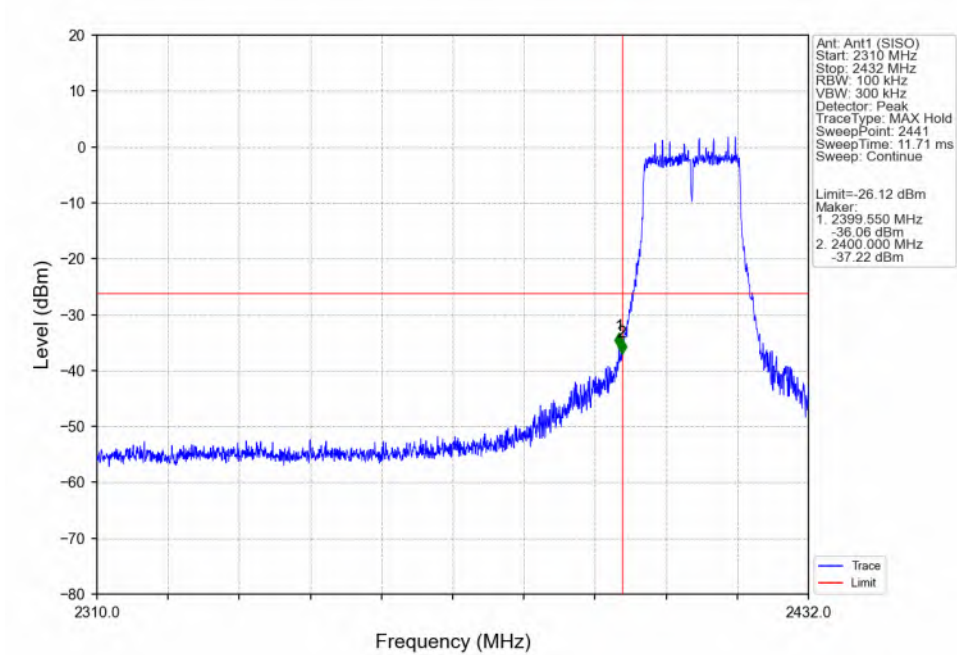
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



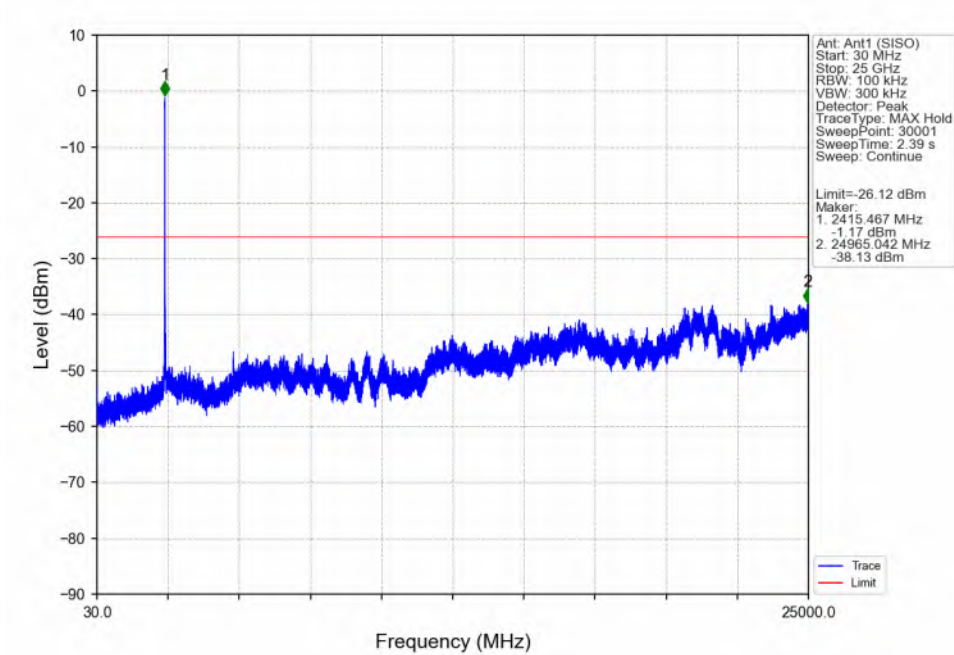
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



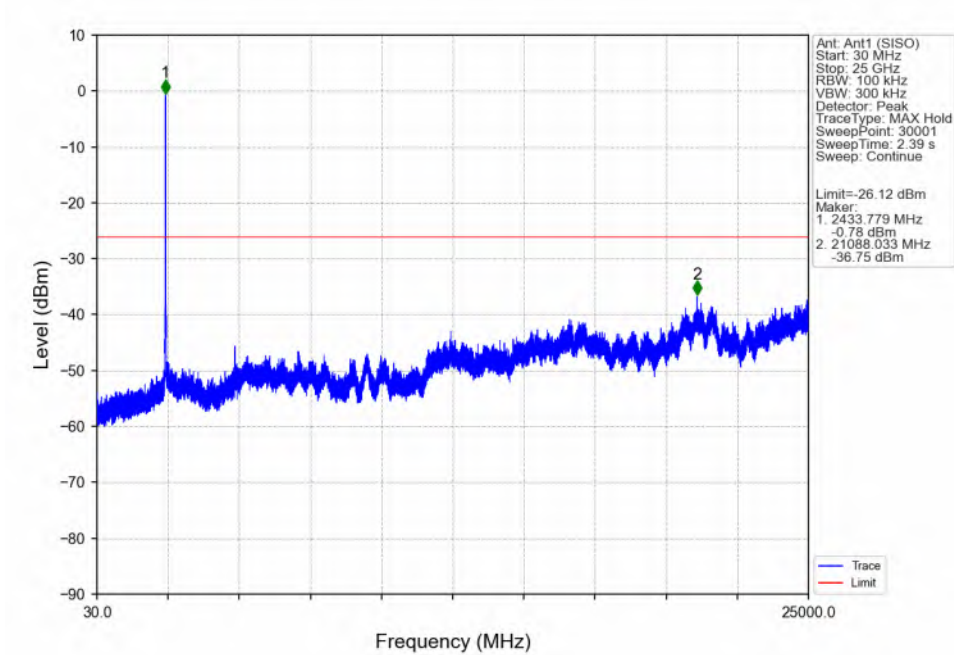
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



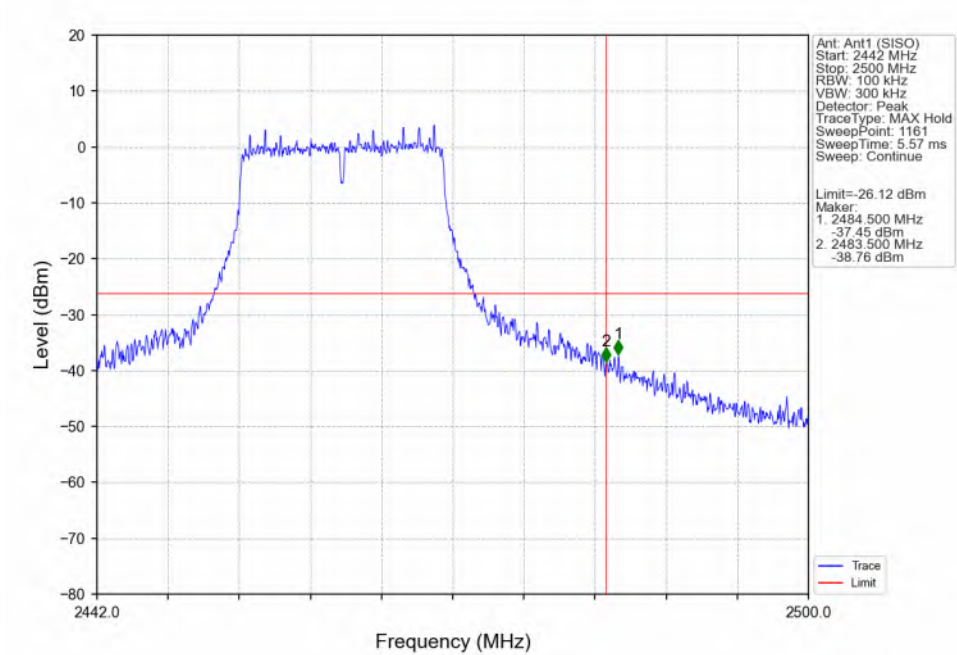
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



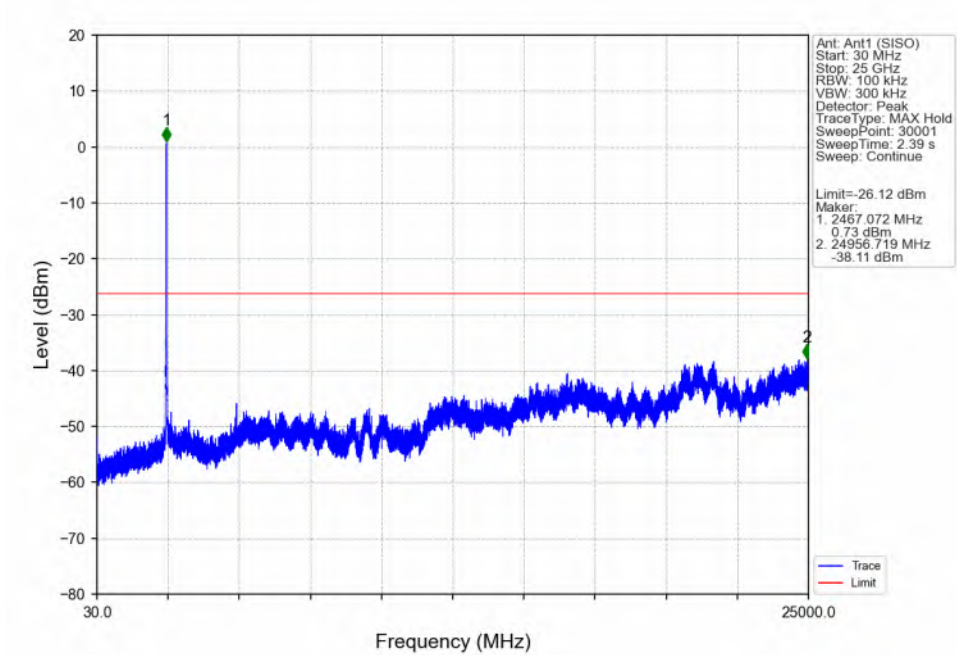
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



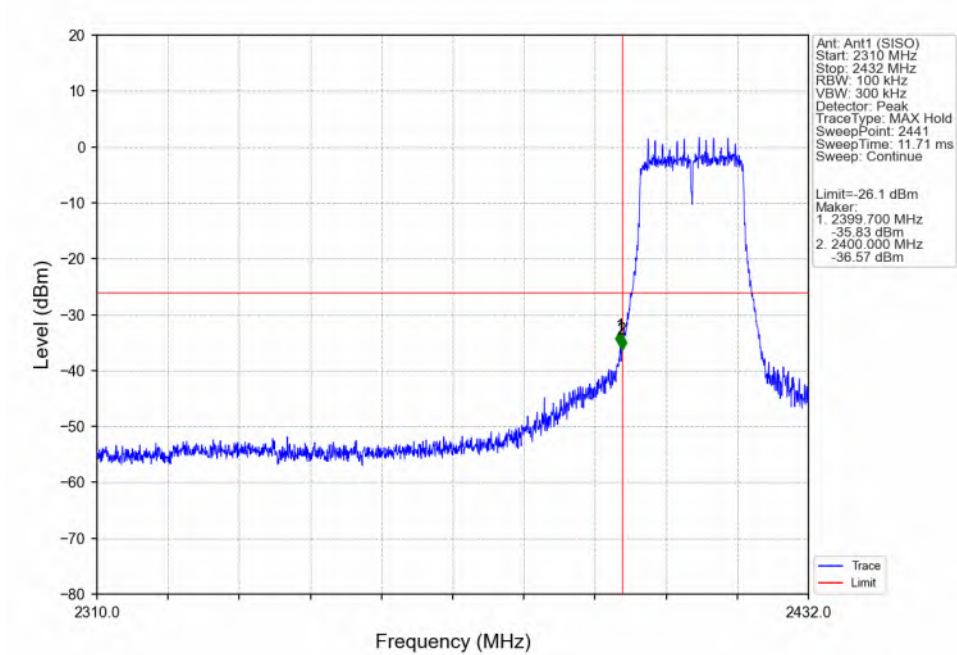
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



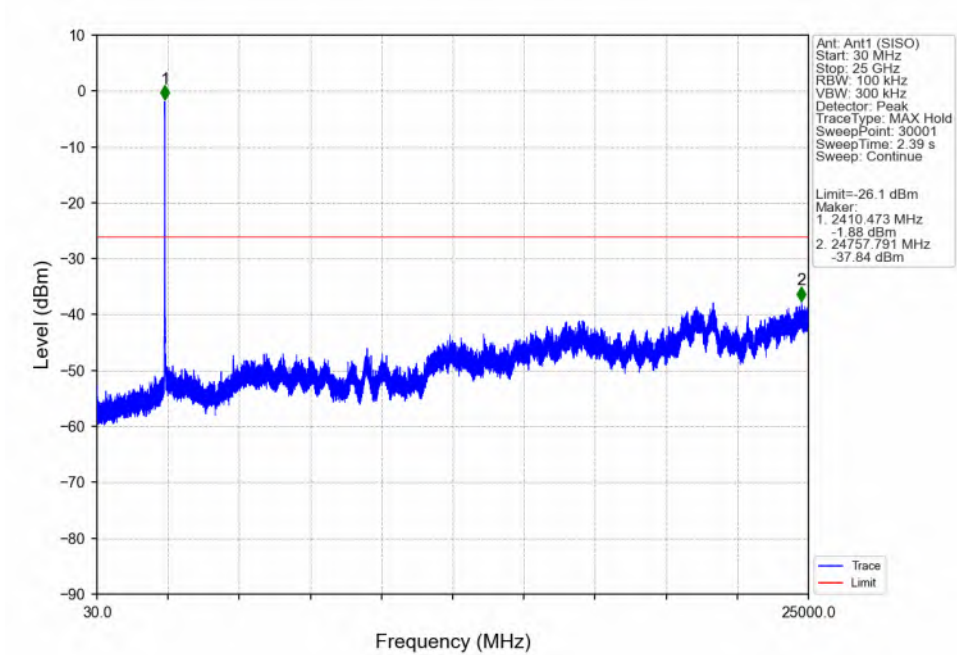
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



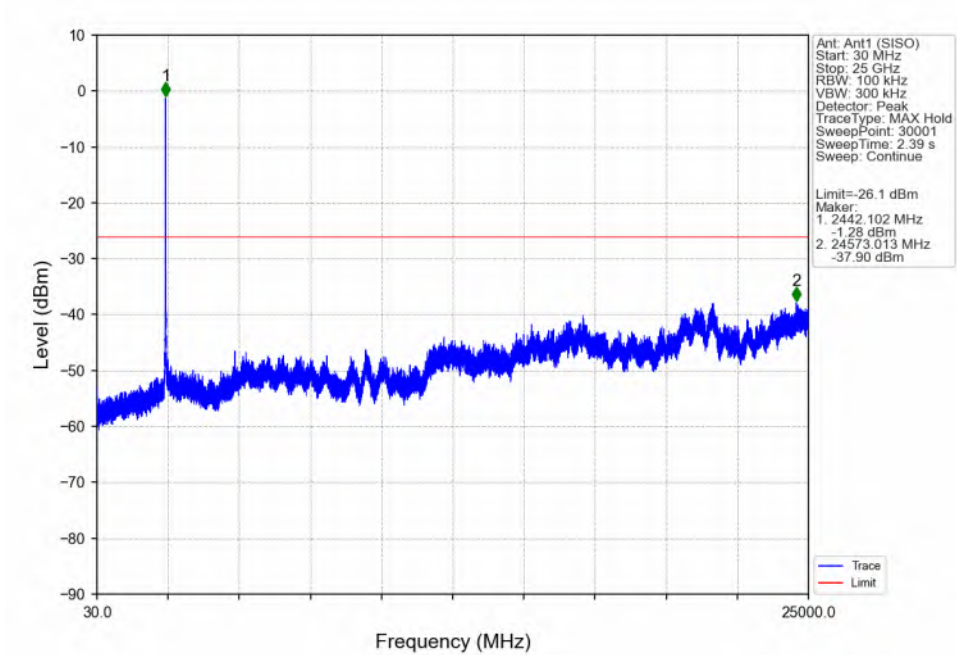
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



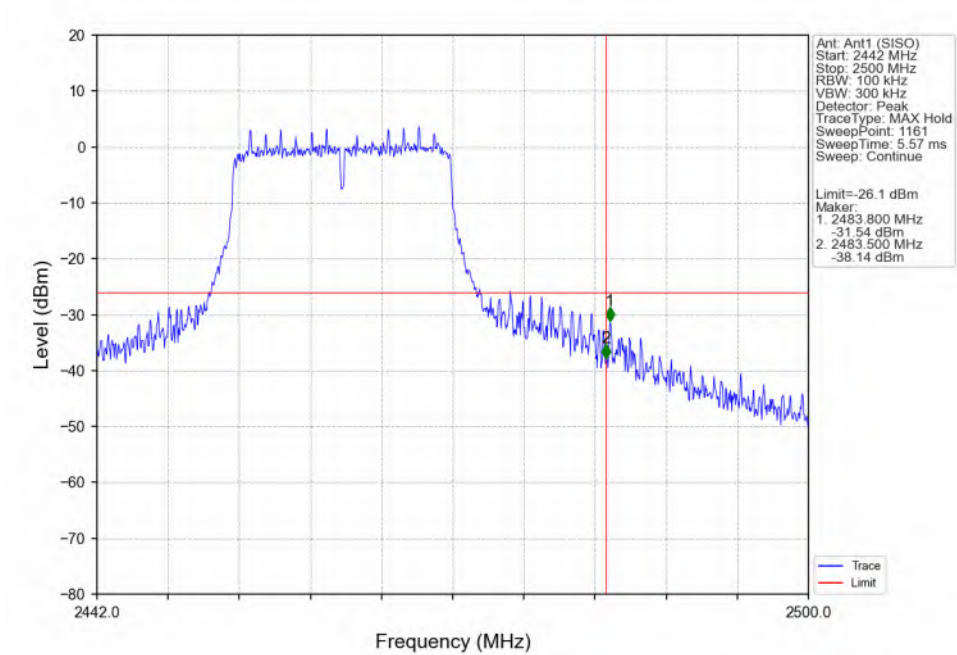
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



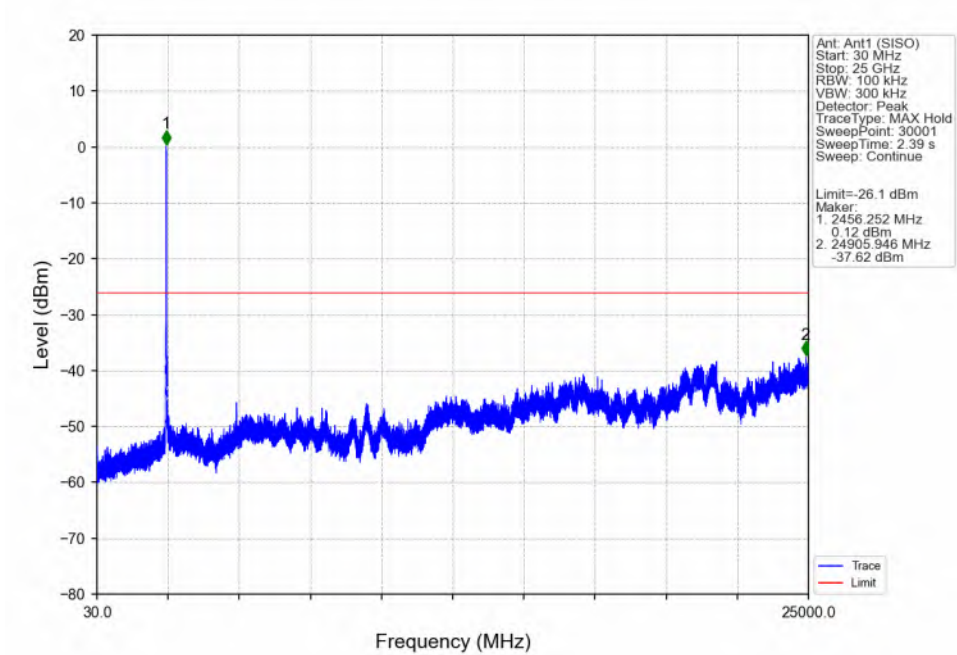
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



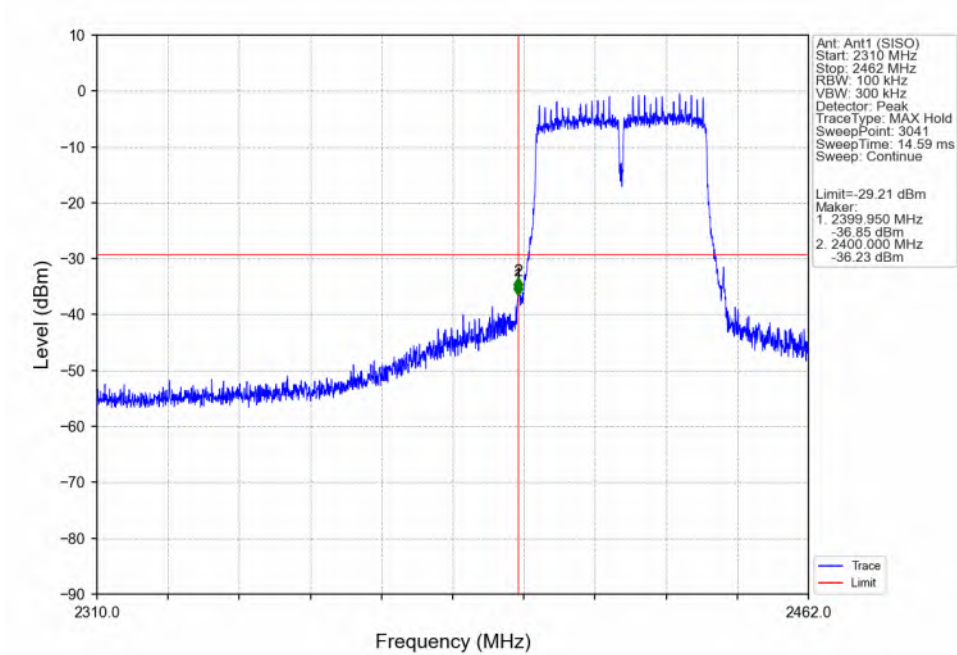
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



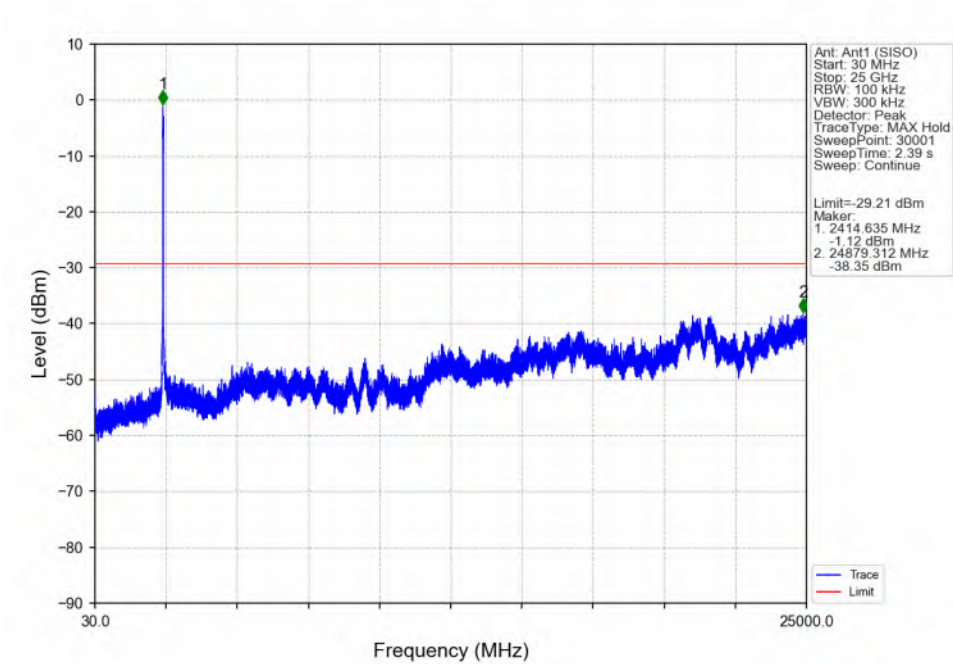
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



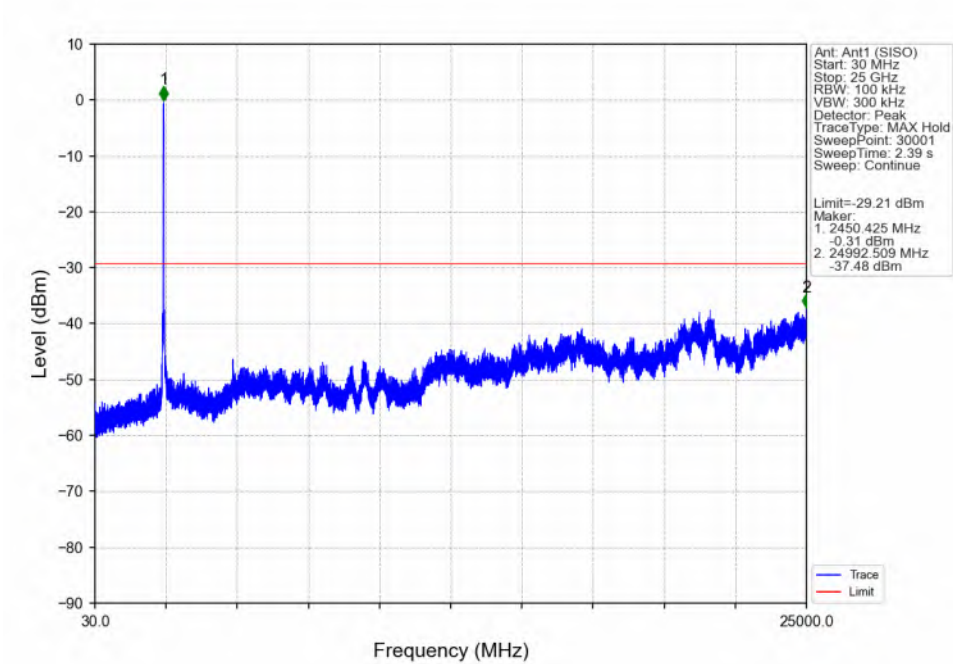
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



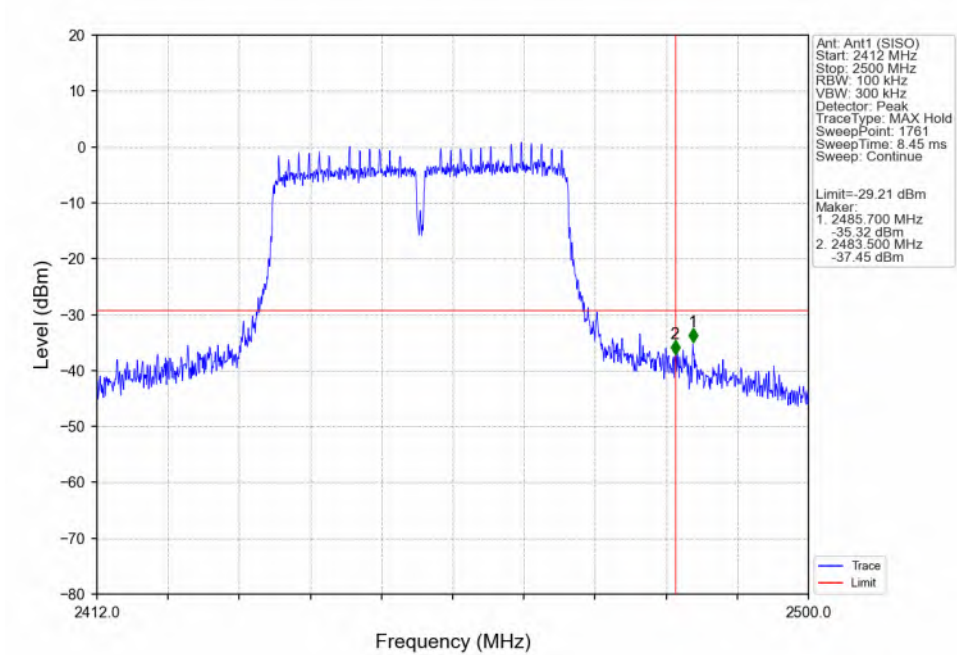
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV

