



Report No.: SZEM190901809803

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# TEST REPORT

Application No.: SZEM1909018098CR

**Applicant:** Furrion Ltd.

Address of Applicant: Unit 503c & 505-508, Level 5, Core D, Cyberport 3, 100 Cyberport Road,

Hong Kong.

**Manufacturer:** Furrion Ltd.

Address of Manufacturer: Unit 503c & 505-508, Level 5, Core D, Cyberport 3, 100 Cyberport Road,

Hong Kong.

**Equipment Under Test (EUT):** 

**EUT Name:** LTE WiFi Router-Unlocked **Model No.:** FAN17B8F, FAN17B87 **.** 

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

actually tested and which were electrically identical.

Trade mark: FURRION

FCC ID: 2ABH3-FAN17B

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

**Date of Receipt:** 2019-09-02

**Date of Test:** 2019-09-05 to 2019-09-28

**Date of Issue:** 2019-10-08

Test Result: Pass\*

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Keny Xu EMC Laboratory Manager



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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



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	Revision Record							
Version	Chapter	Date	Modifier	Remark				
01		2019-10-08		Original				

Authorized for issue by:			
	Robsonti		
	Edison Li /Project Engineer	-	
	Evictu		
	Eric Fu /Reviewer	-	



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### **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	
Minimum 6dB	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Bandwidth	Subpart C 15.247	Section 11.8.1	C 15.247a(2)		
Conducted Peak	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Output Power	Subpart C 15.247	Section 11.9.1	C 15.247(b)(3)		
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass	
Conducted Band	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Edges Measurement	Subpart C 15.247	Section 11.13.3.2	C 15.247(d)		
Conducted Spurious	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Emissions	Subpart C 15.247	Section 11.11	C 15.247(d)		
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass	
Radiated Spurious	47 CFR Part 15,	ANSI C63.10 (2013)	47 CFR Part 15, Subpart	Pass	
Emissions	Subpart C 15.247	Section 6.4,6.5,6.6	C 15.209 & 15.247(d)		



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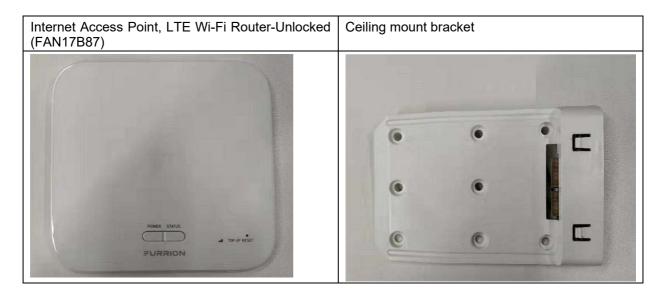
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#### **Declaration of EUT Family Grouping:**

Model No.: FAN17B8F, FAN17B87

Only the model FAN17B8F was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, only the difference as below:

Model	Description
FAN17B8F	Internet Access Point, LTE and Wi-Fi Router SIM Swappable with ceiling mount bracket
FAN17B87	Internet Access Point, LTE and Wi-Fi Router SIM Swappable without ceiling mount bracket





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### **General Information**

#### Details of E.U.T.

Power supply:	DC 12V
Internal source:	More than 108MHz
Type of Modulation:	802.11b: DSSS (CCK, DQPSK, DBPSK)
	802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK)
	802.11n (HT20/HT40): OFDM (64QAM, 16QAM, QPSK, BPSK)
Operating Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz
	802.11n(HT40): 2422MHz to 2452MHz
Channel Number:	802.11b/g/n(HT20): 11 Channels
	802.11n(HT40): 7 Channels
Channels Step:	Channels with 5MHz step
Sample Type:	Fixed production
Antenna Type:	External
Antenna Gain:	Antenna3/Antenna4:4dBi
	The two antennas can simultaneous transmission
This report is for RTL819	92ee module.

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DC Power	ZHAOXIN	RXN-305D	REF. No.SEA2700



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#### 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	± 7.25 x 10 <sup>-8</sup>
2	Duty cycle	± 0.37%
3	Occupied Bandwidth	± 3%
4	Conduction emission	± 3.0dB (150kHz to 30MHz)
5	RF conducted power	± 0.75dB
6	RF power density	± 2.84dB
7	Conducted Spurious emissions	± 0.75dB
8	DE Dadiated newer	± 4.5dB (Below 1GHz)
0	RF Radiated power	± 4.8dB (Above 1GHz)
0	Dadieted Courieus amissies test	± 4.5dB (Below 1GHz)
9	Radiated Spurious emission test	± 4.8dB (Above 1GHz)
10	Temperature test	± 1°C
11	Humidity test	± 3%
12	Supply voltages	± 1.5%
13	Time	± 3%



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#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

#### 4.5 Test Facility

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

#### CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

#### • A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

The 3m Fully-anechoic chamber for above 1GHz. 10m Semi-anechoic chamber for below 1GHz. Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

#### • FCC -Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

#### Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None



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# **Equipment List**

RF Conducted Test					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2019-09-24	2020-09-23
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2019-07-11	2020-07-10
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2019-09-24	2020-09-23
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2019-09-24	2020-09-23
Electric and Magnetic Field Analyzer	Narda	NBM- 550/EHP-50F	EMC2143	2018-02-07	2020-02-06
Electric Field Probe (100KHz-3GHz)	WANDEL & GOLTERMANN	EMR-20	EMC0907	2019-05-21	2020-05-20
EMF Tester	Narda	ELT-400	SZE039-4	2019-07-08	2020-07-07
Power Sensor	KEYSIGHT	U2021XA	SEM009-13	2019-04-12	2020-04-11

RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2019-09-24	2020-09-23
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2019-04-01	2020-03-31
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2019-07-11	2020-07-10



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Radiated Emissions which fall in the restricted bands/ Radiated Spurious Emissions											
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date						
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12						
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A						
Coaxial Cable	SGS	N/A	SEM026-01	2019-07-11	2020-07-10						
EXA Spectrum Analyzer	AgilentTechnologies Inc	N9010A	SEM004-12	2019-04-12	2020-04-11						
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12						
Horn Antenna (15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017-10-17	2020-10-16						
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23						
Pre-amplifier(18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2019-04-01	2020-03-31						
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2019-04-01	2020-03-31						
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23						
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21						

General used equipmen	t				
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Shanghai Meteorological ZJ1-2B S Industry Factory		SEM002-04	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2019-04-04	2020-04-03



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#### Radio Spectrum Technical Requirement 6

#### 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:**

this module is detachable antenna and no consideration of replacement. The best case gain of the antenna is 4dBi.

Antenna location: Refer to Internal photos and external photos.



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### 7 Radio Spectrum Matter Test Results

#### 7.1 Minimum 6dB Bandwidth

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

Limit: ≥500 kHz

#### 7.1.1 E.U.T. Operation

Operating Environment:

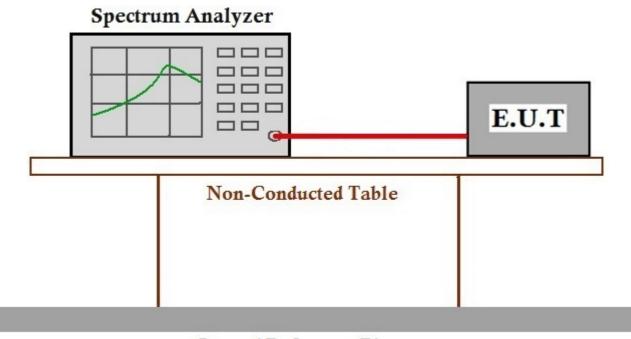
Temperature: 25.4 °C Humidity: 49.7 % RH Atmospheric Pressure: 1005 mbar

Test mode: n: 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).

Only the data of worst case is recorded in the report.

#### 7.1.2 Test Setup Diagram



#### Ground Reference Plane

#### 7.1.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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#### 7.2 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3) Test Method: ANSI C63.10 (2013) Section 11.9.1

Limit:

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

#### 7.2.1 E.U.T. Operation

Operating Environment:

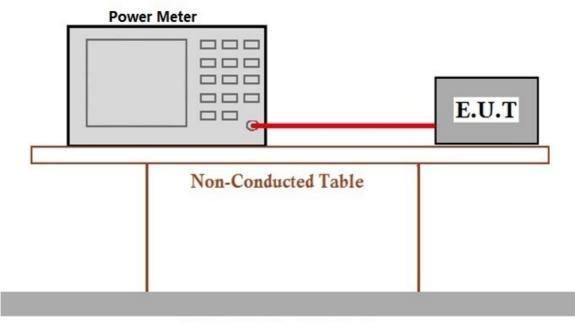
Temperature: 26.9 °C Atmospheric Pressure: 1005 mbar Humidity: 35.7 % RH

Test mode: n: 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).

Only the data of worst case is recorded in the report.

#### 7.2.2 Test Setup Diagram



Ground Reference Plane



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#### 7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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#### 7.3 Power Spectrum Density

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

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

transmission

#### 7.3.1 E.U.T. Operation

Operating Environment:

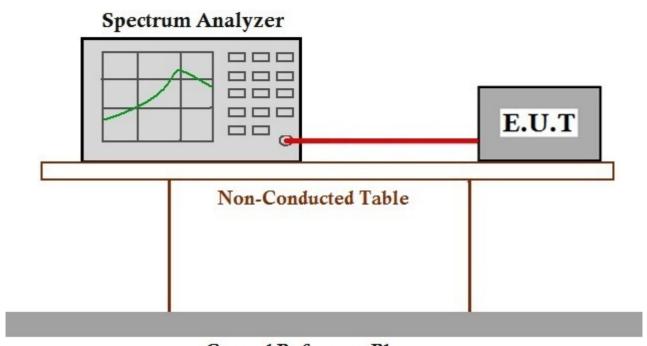
Temperature: 25.4 °C Humidity: 49.7 % RH Atmospheric Pressure: 1005 mbar

Test mode: n: 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).

Only the data of worst case is recorded in the report.

#### 7.3.2 Test Setup Diagram



### **Ground Reference Plane**

#### 7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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#### 7.4 Conducted Band Edges Measurement

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

Limit: In any 100 kHz bandwidth outside the frequency band in which the spread

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

§15.205(a), must also comply with the radiated emission limits specified in

§15.209(a) (see §15.205(c)

#### 7.4.1 E.U.T. Operation

Operating Environment:

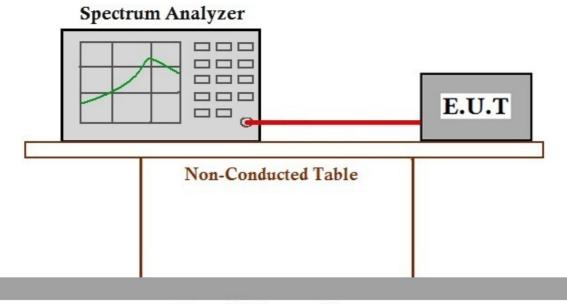
25.4 °C 49.8 % RH Atmospheric Pressure: 1005 mbar Temperature: Humidity:

Test mode: n: 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).

Only the data of worst case is recorded in the report.

#### 7.4.2 Test Setup Diagram



#### Ground Reference Plane



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#### 7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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#### 7.5 Conducted Spurious Emissions

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

Limit: In any 100 kHz bandwidth outside the frequency band in which the spread

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

§15.205(a), must also comply with the radiated emission limits specified in

§15.209(a) (see §15.205(c)

#### 7.5.1 E.U.T. Operation

Operating Environment:

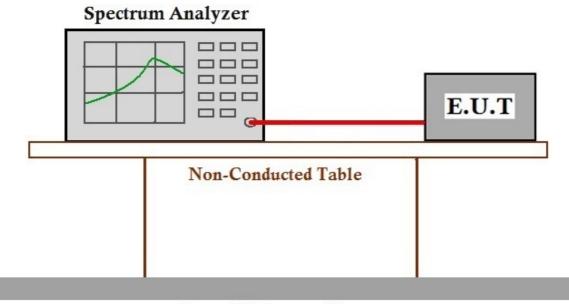
25.4 °C 49.7 % RH Atmospheric Pressure: 1005 mbar Temperature: Humidity:

Test mode: n: 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).

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#### 7.5.2 Test Setup Diagram



#### Ground Reference Plane



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#### 7.5.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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#### 7.6 Radiated Emissions which fall in the restricted bands

**Test Requirement** 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

Test Method: ANSI C63.10 (2013) 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.

#### 7.6.1 E.U.T. Operation

Operating Environment:

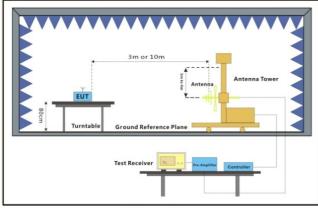
Humidity: 48.3 % RH Temperature: 24.4 °C Atmospheric Pressure: 1005 mbar

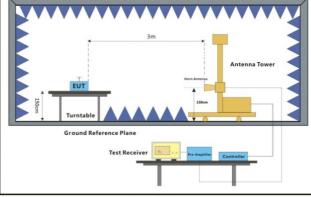
Test mode: n: TX mode Keep the EUT in continuously transmitting mode with all modulation

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).

Only the data of worst case is recorded in the report.

#### 7.6.2 Test Setup Diagram





30MHz-1GHz Above 1GHz



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#### 7.6.3 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.

Remark 3: Pretest the EUT at antenna 1 and antenna 2, found the antenna 2 which is worst case for 802.11b/g mode; Pretest the EUT at antenna 1, antenna 2 and MIMO mode, found the MIMO mode which is worst case for 802.11n HT20 and 802.11n HT40 mode; So, Only the worst test data is recorded in the report.



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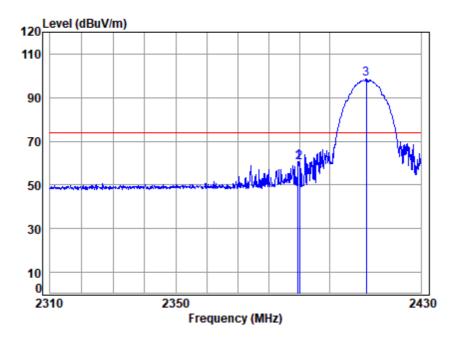
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Mode:n; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11B Note

	Freq		Ant Factor						
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.605	5.47	28.52	41.17	67.97	60.79	74.00	-13.21	peak
2	2390.000	5.47	28.52	41.17	67.50	60.32	74.00	-13.68	peak
3 *	2412.000	5.50	28.56	41.18	105.52	98.40	74.00	24.40	peak



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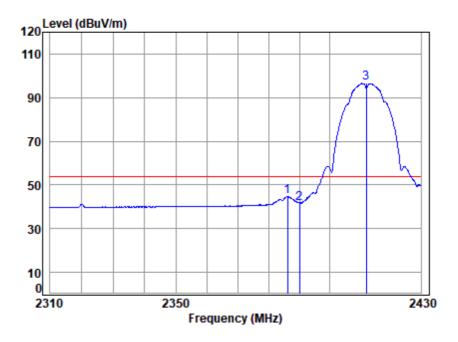
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Mode:n; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11B Note

Freq						Limit Line		Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2386.219 2390.000								_
* 2412.000	5.50	28.56	41.18	103,64	96.52	54.00	42.52	Average



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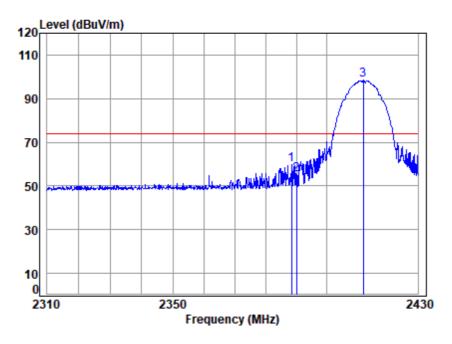
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Mode:n; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11B Note

Freq						Limit Line		Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2388.395 2390.000								
* 2412.000	5.50	28.56	41.18	105.81	98.69	74.00	24.69	Peak



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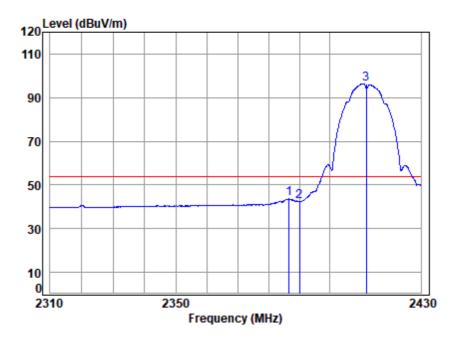
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Mode:n; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11B Note

Freq						Limit Line		Remark
MHz	dB	dB/m	——dB	dBuV	dBuV/m	dBuV/m	dB	
2386.703 2390.000 * 2412.000	5.47	28.52	41.17	49.70	42.52	54.00	-11.48	_



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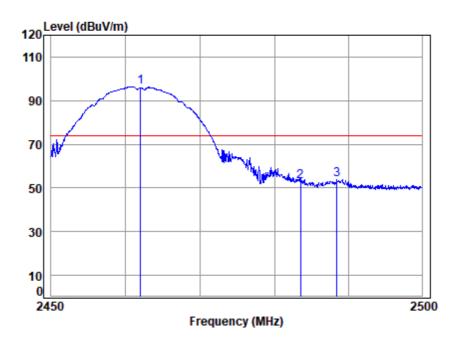
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Mode:n; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11B Note

Freq						Limit Line		Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
* 2462.000 2483.500 2488.461	5.60	28.67	41.21	59.86	52.92	74.00	-21.08	peak



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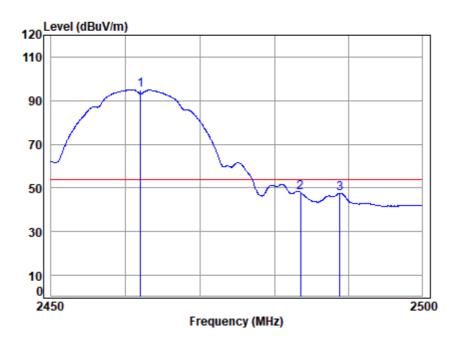
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Mode:n; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11B Note

	Freq						Limit Line		Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
	2462.000								_
2	2483.500	5.60	28.67	41.21	54.99	48.05	54.00	-5.95	Average
3	2488.863	5.61	28.68	41.21	54.41	47.49	54.00	-6.51	Average



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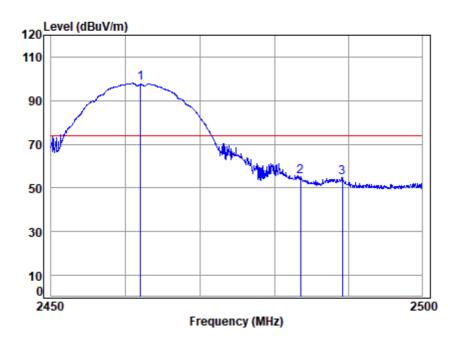
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Report No.: SZEM190901809803

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Mode:n; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11B Note

	Freq					Level			Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 *	2462.000	5.57	28.64	41.20	104.90	97.91	74.00	23.91	Peak
2	2483.500	5.60	28.67	41.21	62.17	55.23	74.00	-18.77	Peak
3	2489.165	5.61	28.68	41.21	61.77	54.85	74.00	-19.15	Peak



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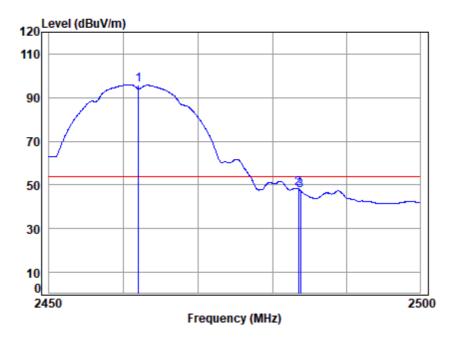
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Mode:n; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11B Note

	Freq						Limit Line		Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
	2462.000 2483.500								_
3	2483 790	5 60	28 67	41 21	54 33	47 39	54 00	-6 61	Average



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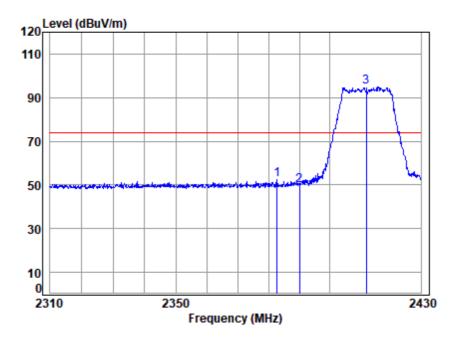
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Report No.: SZEM190901809803

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Mode:n; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11G Note

Freq						Limit Line		Remark	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
2382.717 2390.000								•	
* 2412.000								•	



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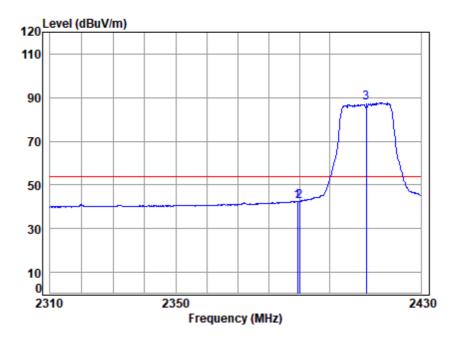
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Mode:n; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11G Note

Freq			Preamp Factor					Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2389.363 2390.000 * 2412.000	5.47	28.52	41.17	49.63	42.45	54.00	-11.55	_



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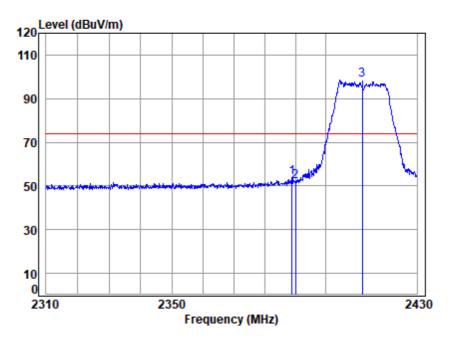
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Mode:n; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11G Note

Freq						Limit Line		
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2388.879 2390.000 * 2412.000	5.47	28.52	41.17	59.06	51.88	74.00	-22.12	Peak



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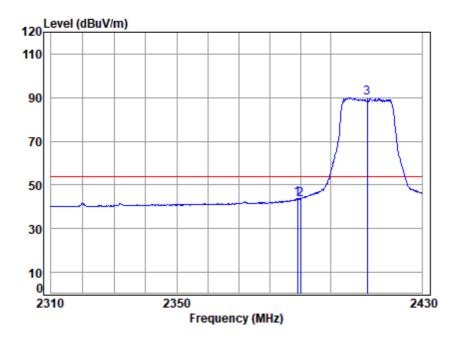
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Mode:n; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11G Note

Freq			Preamp Factor					
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2389.000 2390.000 * 2412.000	5.47	28.52	41.17	50.73	43.55	54.00	-10.45	_



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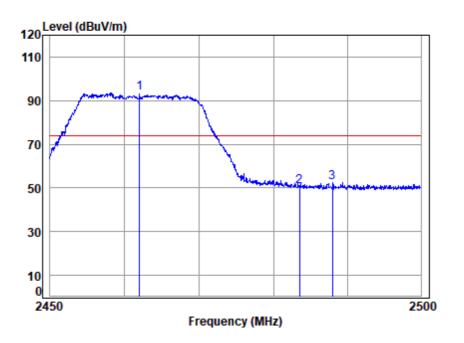
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Mode:n; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11G Note

Freq						Limit Line		Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
* 2462.000 2483.500 2488.008	5.60	28.67	41.21	57.74	50.80	74.00	-23.20	peak



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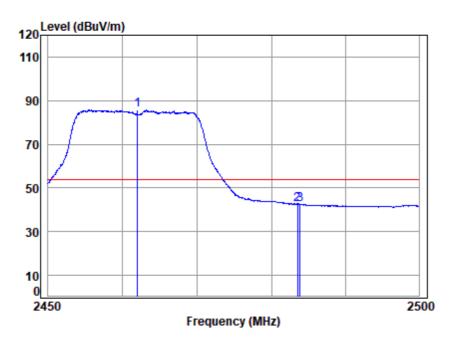
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Mode:n; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11G Note

Freq			Preamp Factor					Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
* 2462.000 2483.500								_
2483 890								_



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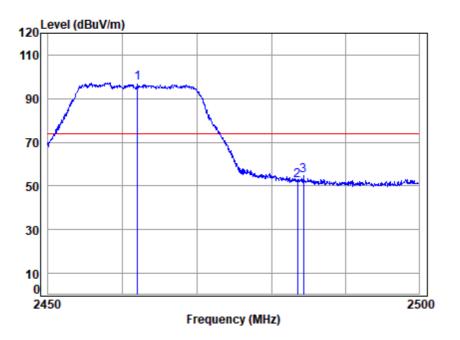
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Mode:n; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11G Note

Freq					Level			Remark
MHz	dB	dB/m	——dB	dBuV	dBuV/m	dBuV/m	——dB	
* 2462.000								
2483.500 2484.342								



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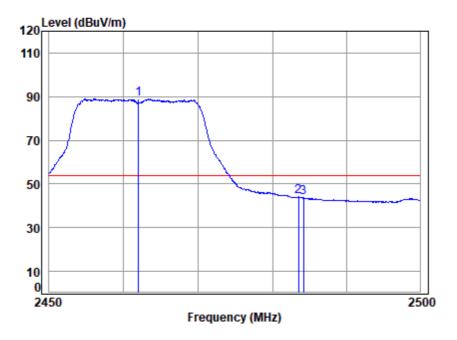
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Mode:n; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11G Note

	Freq			Preamp Factor					Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		_
	* 2462.000 2483.500								_	
3	2484,191	5.60	28.67	41.21	50.64	43.70	54.00	-10.30	Average	



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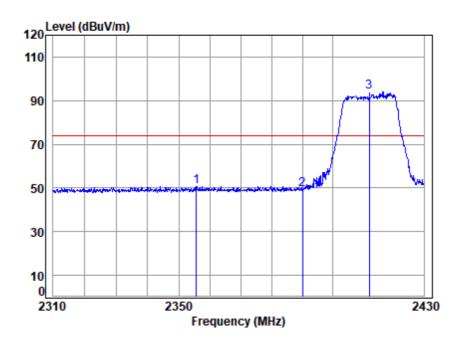
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11N20 Note

	Freq		Ant Factor						Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2355.720	5.43	28.46	41.16	58.05	50.78	74.00	-23.22	peak
2	2390.000	5.47	28.52	41.17	56.37	49.19	74.00	-24.81	peak
3 *	2412.000	5.50	28.56	41.18	101.03	93.91	74.00	19.91	peak



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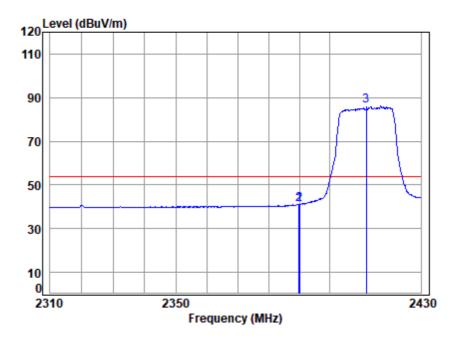
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WIFI 11N20 Note

Freq			Preamp Factor					Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2389.847 2390.000 * 2412.000	5.47	28.52	41.17	48.25	41.07	54.00	-12.93	Average



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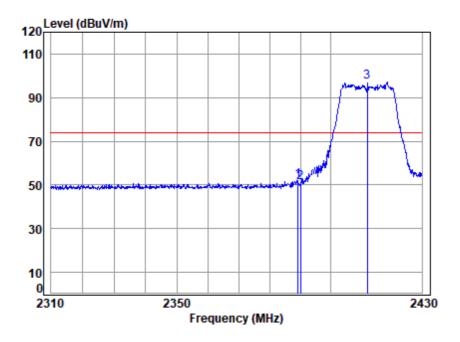
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2412 Band edge : 2.4G WTFT 11N20 Note

000										
		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
_										_
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	2389.242	5.47	28.52	41.17	59.14	51.96	74.00	-22.04	Peak	
2	2390.000	5.47	28.52	41.17	58.08	50.90	74.00	-23.10	Peak	
3 *	2412.000	5.50	28.56	41.18	104.21	97.09	74.00	23.09	Peak	



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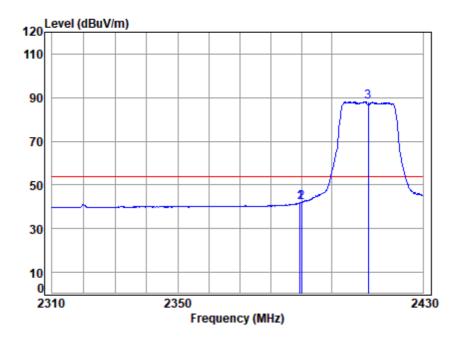
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Report No.: SZEM190901809803

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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2412 Band edge Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2	389.605	5.47	28.52	41.17	49.14	41.96	54.00	-12.04	Average
2	390.000	5.47	28.52	41.17	49.06	41.88	54.00	-12.12	Average
* 2	412.000	5.50	28.56	41.18	95.19	88.07	54.00	34.07	Average



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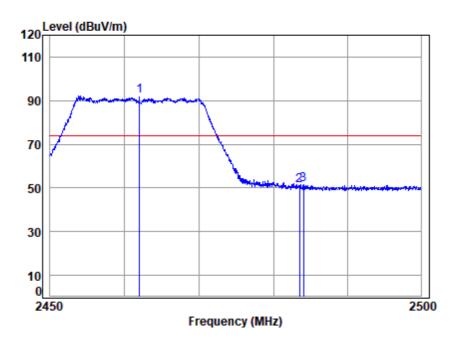
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11N20 Note

Freq			Preamp Factor					Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
* 2462.000 2483.500 2484.041	5.60	28.67	41.21	58.15	51.21	74.00	-22.79	peak



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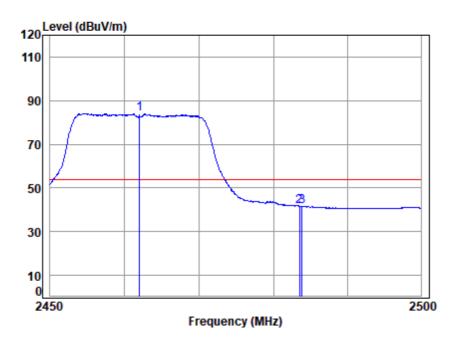
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11N20 Note

	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2	2462.000 2483.500	5.60	28.67	41.21	48.67	41.73	54.00	-12.27	Average
3	2483.840	5.60	28.67	41.21	48.49	41.55	54.00	-12.45	Average



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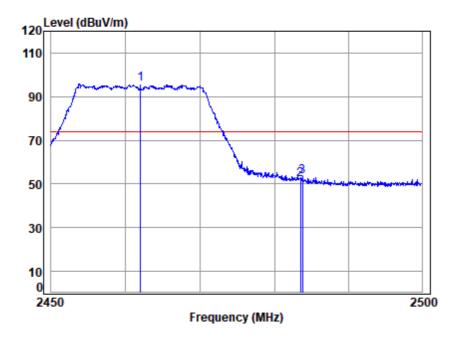
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11N20 Note

							Limit			
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		-
*	2462.000	5.57	28.64	41.20	103.01	96.02	74.00	22.02	Peak	
	2483.500	5.60	28.67	41.21	59.09	52.15	74.00	-21.85	Peak	
	2/183 790	5 60	28 67	A1 21	60 42	53 //8	74 00	-20 52	Peak	



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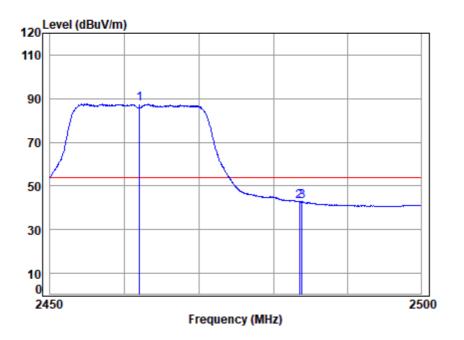
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2462 Band edge : 2.4G WIFI 11N20 Note

Freq			Preamp Factor					Remark	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		_
1 * 2462.000 2 2483.500								_	
3 2483.890	5.60	28.67	41.21	49.73	42.79	54.00	-11.21	Average	



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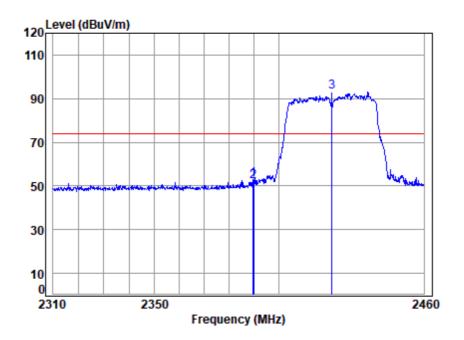
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Report No.: SZEM190901809803

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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2422 Band edge : 2.4G WIFI 11N40 Note

	Freq			Preamp Factor					Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
	2389.827 2390.000								•	
*	2422,000	5.52	28.57	41.19	99.98	92.88	74.00	18.88	peak	



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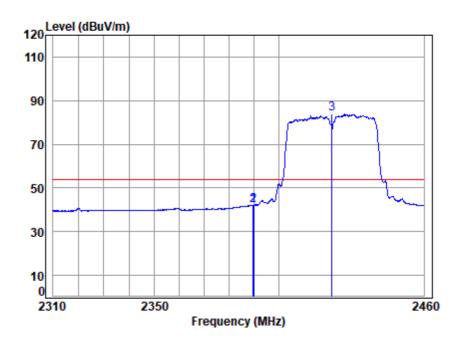
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2422 Band edge : 2.4G WIFI 11N40 Note

Freq			Preamp Factor					
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2389.827 2390.000 * 2422.000	5.47	28.52	41.17	49.27	42.09	54.00	-11.91	_



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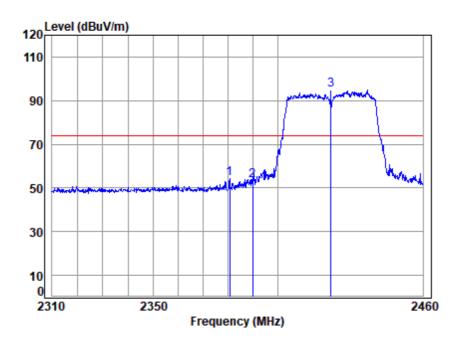
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2422 Band edge : 2.4G WIFI 11N40 Note

Freq						Limit Line		Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2380.673 2390.000								
* 2422 000	5 52	28 57	41 19	102 11	95 01	74 00	21 01	Peak



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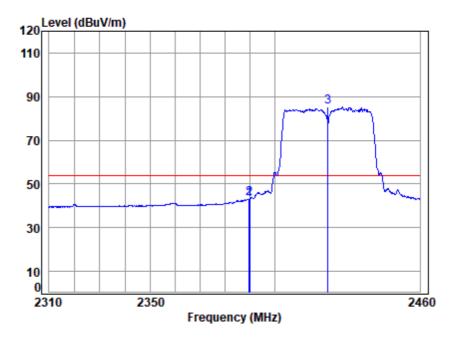
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2422 Band edge : 2.4G WIFI 11N40 Note

Freq			Preamp Factor					Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
2389.827 2390.000 * 2422.000	5.47	28.52	41.17	50.34	43.16	54.00	-10.84	_



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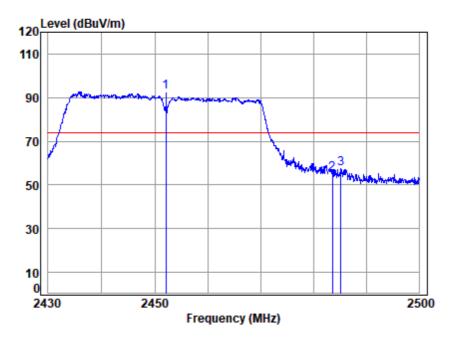
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2452 Band edge : 2.4G WIFI 11N40 Note

Freq			Preamp Factor					Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
* 2452.000 2483.500 2485.064	5.60	28.67	41.21	61.93	54.99	74.00	-19.01	peak



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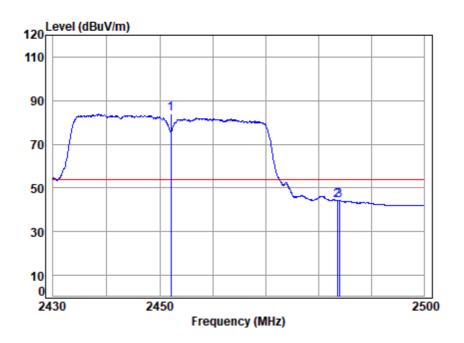
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR Mode : 2452 Band edge : 2.4G WIFI 11N40 Note

	Freq						Limit Line		Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
	2452.000 2483.500								_
3	2483.865	5.60	28.67	41.21	51.25	44.31	54.00	-9.69	Average



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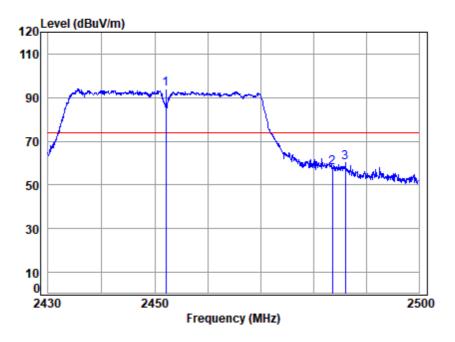
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2452 Band edge Note : 2.4G WIFI 11N40

Freq					Level			Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	——dB	
* 2452.000 2483.500								
2485 982								



1 2 3

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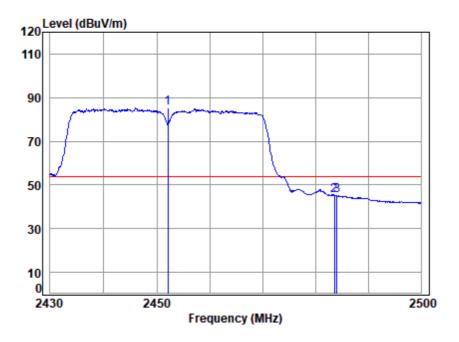
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR Mode : 2452 Band edge : 2.4G WIFI 11N40 Note

Freq						Limit Line		Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
* 2452.000 2483.500 2483.935	5.60	28.67	41.21	52.28	45.34	54.00	-8.66	Average



1 2 3

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#### 7.7 Radiated Spurious Emissions

**Test Requirement** 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6

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.



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#### 7.7.1 E.U.T. Operation

Operating Environment:

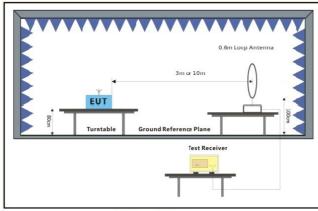
Humidity: 51 % RH Temperature: 25 °C Atmospheric Pressure: 1005 mbar

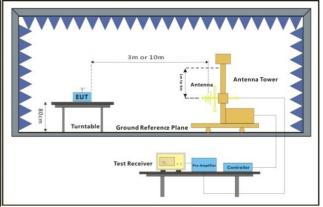
Test mode: n: TX mode\_Keep the EUT in continuously transmitting mode with all modulation

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).

Only the data of worst case is recorded in the report.

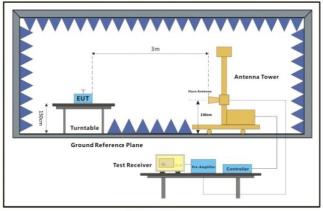
#### 7.7.2 Test Setup Diagram





Below 30MHz

30MHz-1GHz



Above 1GHz



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#### 7.7.3 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) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

- 3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 4) 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.
- 5) Pretest the EUT at antenna 1 and antenna 2, found the antenna 2 which is worst case for 802.11b/g mode; Pretest the EUT at antenna 1, antenna 2 and MIMO mode, found the MIMO mode which is worst case for 802.11n HT20 and 802.11n HT40 mode; So, Only the worst test data is recorded in the report.



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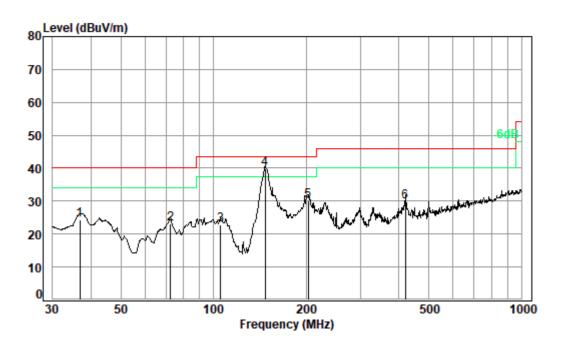


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#### Radiated emission below 1GHz

Mode:n; Polarization:Horizontal



Condition: 3m HORIZONTAL

Job No. : 18098CR

Test mode: n

	Freq			Preamp Factor				
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	36.77	0.60	18.97	27.44	32.33	24.46	40.00	-15.54
2	72.59	0.88	12.58	27.38	37.13	23.21	40.00	-16.79
3	105.64	1.22	13.73	27.31	35.18	22.82	43.50	-20.68
4 pp	147.40	1.31	14.39	27.10	51.15	39.75	43.50	-3.75
5	202.81	1.42	16.60	26.89	38.95	30.08	43.50	-13.42
6	420.58	2.29	22.89	27.28	32.06	29.96	46.00	-16.04



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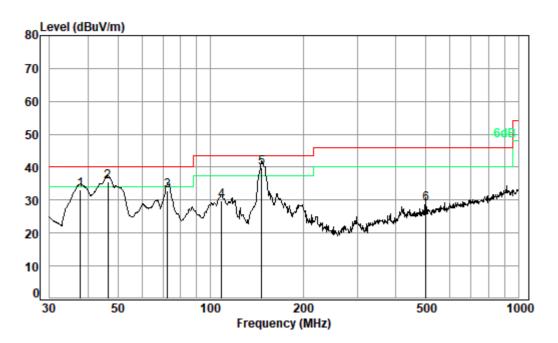
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Mode:n; Polarization:Vertical



Condition: 3m VERTICAL

Job No. : 18098CR

Test mode: n

	Ca Freq L			Preamp Factor				
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	37.81	0.60	18.48	27.43	41.40	33.05	40.00	-6.95
2	46.50	0.73	15.27	27.42	46.88	35.46	40.00	-4.54
3	72.59	0.88	12.58	27.38	46.79	32.87	40.00	-7.13
4	108.65	1.22	13.59	27.30	42.25	29.76	43.50	-13.74
5 pp	146.37	1.31	14.30	27.10	51.39	39.90	43.50	-3.60
6	501.18	2.60	24.63	27.61	29.22	28.84	46.00	-17.16



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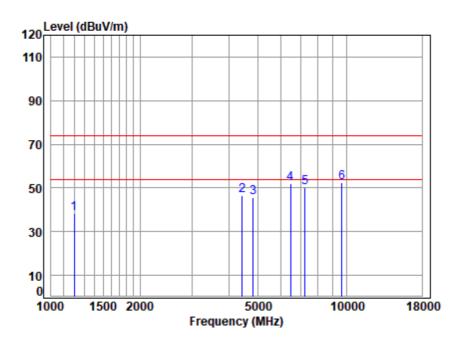


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#### Transmitter emission above 1GHz

Mode:n; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL : 18098CR\18099CR Job No

Mode : 2412 TX RSE : 2.4G WIFI 11B Note

		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
										_
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	1199.726	4.42	24.48	40.48	49.94	38.36	74.00	-35.64	peak	
2	4430.628	7.48	33.60	43.23	48.48	46.33	74.00	-27.67	peak	
3	4824.000	7.91	34.19	43.63	47.10	45.57	74.00	-28.43	peak	
4	6470.026	11.48	35.08	42.43	48.00	52.13	74.00	-21.87	peak	
5	7236.000	10.07	36.40	41.83	45.77	50.41	74.00	-23.59	peak	
6	9648.000	10.77	37.53	38.36	42.43	52.37	74.00	-21.63	peak	



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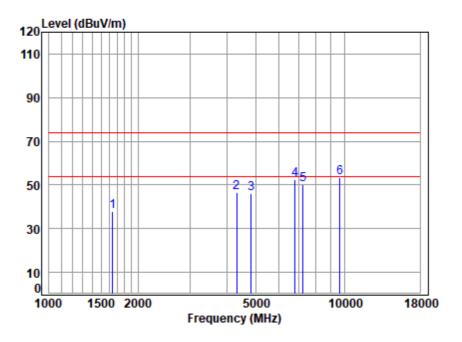
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Report No.: SZEM190901809803

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Mode:n; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2412 TX RSE : 2.4G WIFT 11B Note

OCC	. 2	TO WILL	1 110						
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1639.274	5.30	26.42	40.79	46.79	37.72	74.00	-36.28	peak
2	4316.859	7.36	33.60	43.11	48.92	46.77	74.00	-27.23	peak
3	4824.000	7.91	34.19	43.63	47.50	45.97	74.00	-28.03	peak
4	6795.879	10.69	35.94	42.17	47.86	52.32	74.00	-21.68	peak
5	7236.000	10.07	36.40	41.83	45.60	50.24	74.00	-23.76	peak
6	9648.000	10.77	37.53	38.36	43.32	53.26	74.00	-20.74	peak



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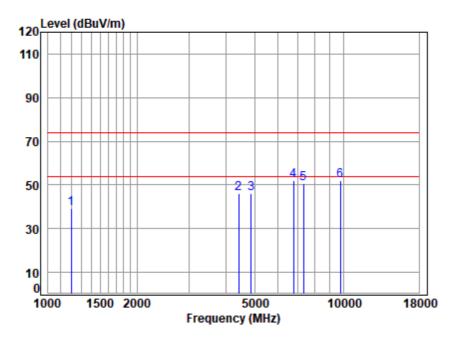
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Report No.: SZEM190901809803

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Mode:n; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:middle



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR

Mode : 2437 TX RSE : 2.4G WIFI 11B Note

	. 2.	TO WITH	1 110						
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1199.726	4.42	24.48	40.48	50.88	39.30	74.00	-34.70	peak
2	4417.841	7.47	33.60	43.22	48.45	46.30	74.00	-27.70	peak
3	4874.000	7.96	34.28	43.68	47.61	46.17	74.00	-27.83	peak
4	6776.265	10.75	35.89	42.18	47.59	52.05	74.00	-21.95	peak
5	7311.000	10.05	36.37	41.78	46.01	50.65	74.00	-23.35	peak
6	9748.000	10.82	37.55	38.20	41.99	52.16	74.00	-21.84	peak



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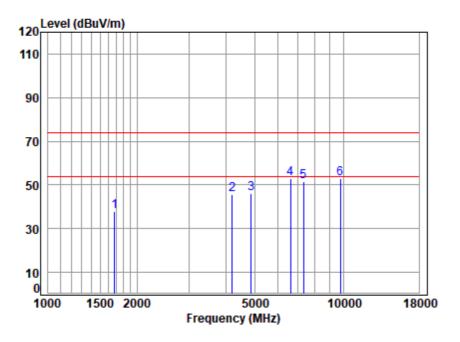
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Report No.: SZEM190901809803

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Mode:n; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:middle



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2437 TX RSE : 2.4G WIFI 11B Note

	. 2.	TO MILI	1 110						
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1677.621	5.25	26.58	40.82	46.76	37.77	74.00	-36.23	peak
2	4206.011	7.23	33.60	42.99	47.97	45.81	74.00	-28.19	peak
3	4874.000	7.96	34.28	43.68	47.52	46.08	74.00	-27.92	peak
4	6621.375	11.19	35.45	42.31	48.38	52.71	74.00	-21.29	peak
5	7311.000	10.05	36.37	41.78	46.81	51.45	74.00	-22.55	peak
6	9748.000	10.82	37.55	38.20	42.89	53.06	74.00	-20.94	peak



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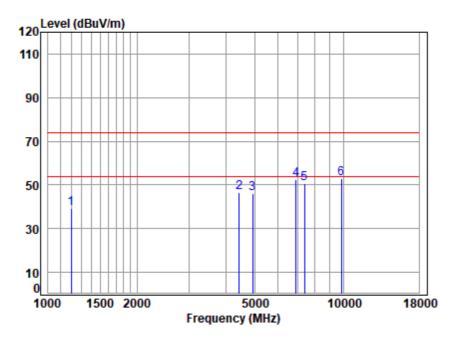
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Report No.: SZEM190901809803

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Mode:n; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR

Mode : 2462 TX RSE : 2.4G WIFI 11B Note

		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	1199.726	4.42	24.48	40.48	51.03	39.45	74.00	-34.55	peak	
2	4430.628	7.48	33.60	43.23	48.84	46.69	74.00	-27.31	peak	
3	4924.000	8.01	34.37	43.73	47.65	46.30	74.00	-27.70	peak	
4	6894.806	10.42	36.21	42.09	47.76	52.30	74.00	-21.70	peak	
5	7386.000	10.03	36.34	41.72	45.79	50.44	74.00	-23.56	peak	
6	9848.000	10.87	37.57	38.04	42.52	52.92	74.00	-21.08	peak	



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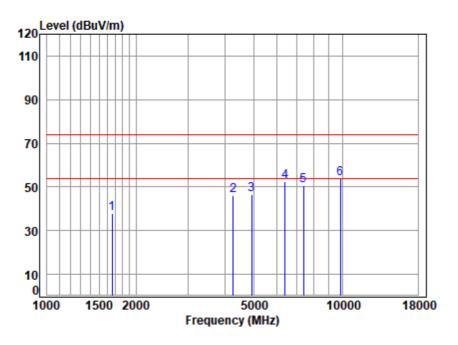
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Report No.: SZEM190901809803

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Mode:n; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2462 TX RSE : 2.4G WIFI 11B Note

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1663.137	5.27	26.52	40.81	47.01	37.99	74.00	-36.01	peak
2	4267.237	7.30	33.60	43.06	48.35	46.19	74.00	-27.81	peak
3	4924.000	8.01	34.37	43.73	47.78	46.43	74.00	-27.57	peak
4	6395.654	11.34	35.02	42.49	48.58	52.45	74.00	-21.55	peak
5	7386.000	10.03	36.34	41.72	46.16	50.81	74.00	-23.19	peak
6	9848.000	10.87	37.57	38.04	43.35	53.75	74.00	-20.25	peak



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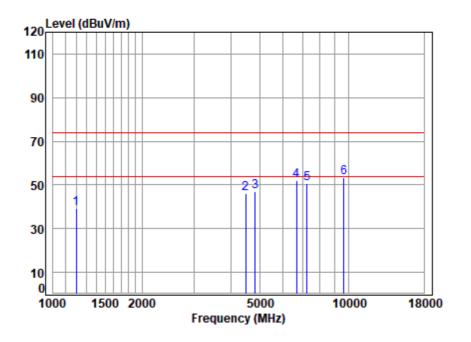
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Report No.: SZEM190901809803

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Mode:n; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR

Mode : 2412 TX RSE Note : 2.4G WIFI 11G

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	d Bu V/m	dB	
1	1199.726	4.42	24.48	40.48	50.90	39.32	74.00	-34.68	peak
2	4495.125	7.55	33.60	43.30	48.45	46.30	74.00	-27.70	peak
3	4824.000	7.91	34.19	43.63	48.47	46.94	74.00	-27.06	peak
4	6659.763	11.08	35.56	42.28	47.73	52.09	74.00	-21.91	peak
5	7236.000	10.07	36.40	41.83	46.07	50.71	74.00	-23.29	peak
6	9648,000	10.77	37.53	38.36	43.61	53.55	74.00	-20.45	peak



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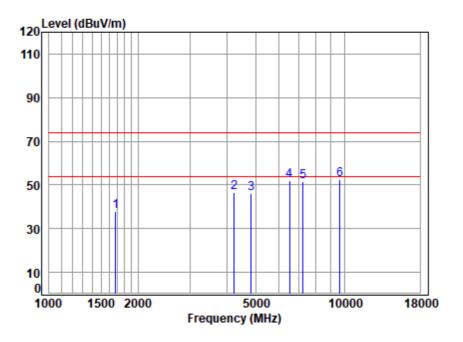
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Mode:n; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2412 TX RSE Note : 2.4G WIFI 11G

0.0		10 111							
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1682.477	5.25	26.60	40.82	46.70	37.73	74.00	-36.27	peak
2	4230.396	7.26	33.60	43.01	48.86	46.71	74.00	-27.29	peak
3	4824.000	7.91	34.19	43.63	47.65	46.12	74.00	-27.88	peak
4	6526.373	11.46	35.18	42.38	47.83	52.09	74.00	-21.91	peak
5	7236.000	10.07	36.40	41.83	47.08	51.72	74.00	-22.28	peak
6	9648.000	10.77	37.53	38.36	42.50	52.44	74.00	-21.56	peak



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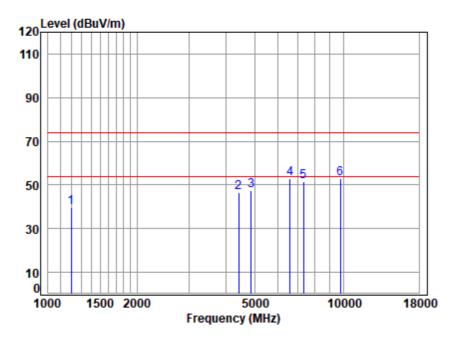
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Mode:n; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:middle



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR

Mode : 2437 TX RSE : 2.4G WIFI 11G Note

,,,,		TO WILL	1 110						
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1199.726	4.42	24.48	40.48	51.37	39.79	74.00	-34.21	peak
2	4417.841	7.47	33.60	43.22	48.71	46.56	74.00	-27.44	peak
3	4874.000	7.96	34.28	43.68	48.94	47.50	74.00	-26.50	peak
4	6583.209	11.30	35.34	42.34	48.59	52.89	74.00	-21.11	peak
5	7311.000	10.05	36.37	41.78	47.05	51.69	74.00	-22.31	peak
6	9748.000	10.82	37.55	38.20	42.83	53.00	74.00	-21.00	peak



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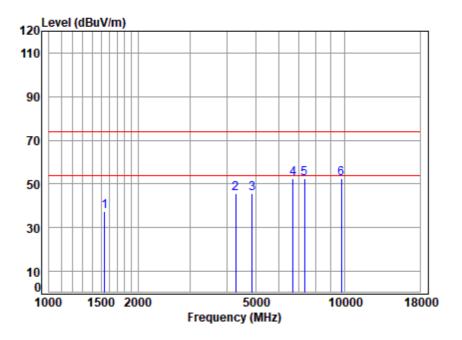
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Report No.: SZEM190901809803

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Mode:n; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:middle



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2437 TX RSE : 2.4G WIFI 11G Note

	. 2.	TO WITH	1 110						
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1542.733	5.42	26.00	40.73	46.75	37.44	74.00	-36.56	peak
2	4279.589	7.31	33.60	43.07	47.93	45.77	74.00	-28.23	peak
3	4874.000	7.96	34.28	43.68	47.00	45.56	74.00	-28.44	peak
4	6698.373	10.97	35.67	42.24	48.06	52.46	74.00	-21.54	peak
5	7311.000	10.05	36.37	41.78	47.78	52.42	74.00	-21.58	peak
6	9748.000	10.82	37.55	38.20	42.20	52.37	74.00	-21.63	peak



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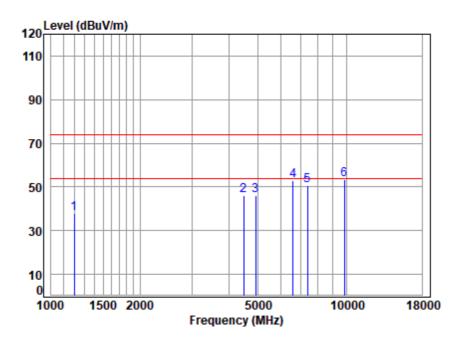
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Report No.: SZEM190901809803

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Mode:n; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR

Mode : 2462 TX RSE : 2.4G WIFI 11G Note

	. 2.	TO MILI	1 110						
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1199.726	4.42	24.48	40.48	49.67	38.09	74.00	-35.91	peak
2	4482.150	7.54	33.60	43.29	48.38	46.23	74.00	-27.77	peak
3	4924.000	8.01	34.37	43.73	47.22	45.87	74.00	-28.13	peak
4	6602.265	11.24	35.39	42.32	48.42	52.73	74.00	-21.27	peak
5	7386.000	10.03	36.34	41.72	46.05	50.70	74.00	-23.30	peak
6	9848.000	10.87	37.57	38.04	42.87	53.27	74.00	-20.73	peak



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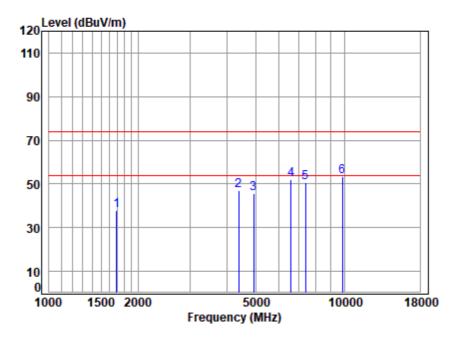
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Report No.: SZEM190901809803

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Mode:n; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2462 TX RSE : 2.4G WIFI 11G Note

			1 110						
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	d Bu V/m	d Bu V/m	dB	
1	1692.231	5.24	26.64	40.83	46.66	37.71	74.00	-36.29	peak
2	4379.699	7.43	33.60	43.18	48.93	46.78	74.00	-27.22	peak
3	4924.000	8.01	34.37	43.73	47.06	45.71	74.00	-28.29	peak
4	6602.265	11.24	35.39	42.32	47.59	51.90	74.00	-22.10	peak
5	7386.000	10.03	36.34	41.72	45.91	50.56	74.00	-23.44	peak
6	9848.000	10.87	37.57	38.04	42.93	53.33	74.00	-20.67	peak



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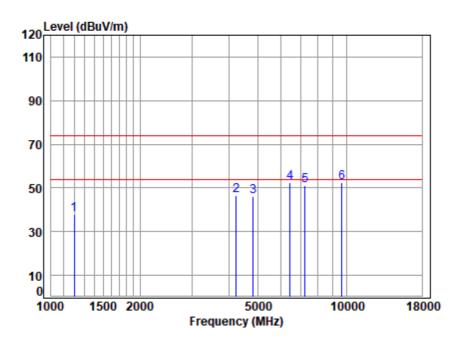
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Report No.: SZEM190901809803

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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL : 18098CR\18099CR Job No Mode

: 2412 TX RSE : 2.4G WIFI 11N20 Note

Cabla Ant Docomo

		Cable	Ant	Preamp	Kead		Limit	Over		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		-
1	1199.726	4.42	24.48	40.48	49.65	38.07	74.00	-35.93	peak	
2	4230.396	7.26	33.60	43.01	48.60	46.45	74.00	-27.55	peak	
3	4824.000	7.91	34.19	43.63	47.52	45.99	74.00	-28.01	peak	
4	6451.353	11.45	35.06	42.44	48.57	52.64	74.00	-21.36	peak	
5	7236.000	10.07	36.40	41.83	46.35	50.99	74.00	-23.01	peak	
6	9648.000	10.77	37.53	38.36	42.65	52.59	74.00	-21.41	neak	



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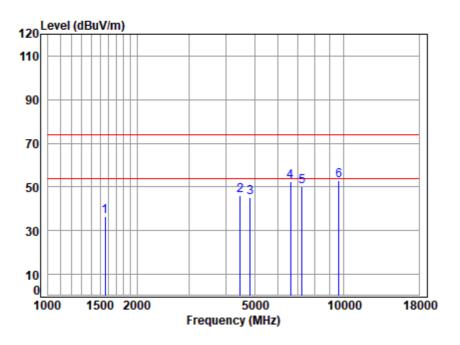
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Report No.: SZEM190901809803

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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2412 TX RSE

Note : 2.4G WIFI 11N20

				_					
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1560.673	5.40	26.08	40.75	45.92	36.65	74.00	-37.35	peak
2	4469.214	7.53	33.60	43.27	48.25	46.11	74.00	-27.89	peak
3	4824.000	7.91	34.19	43.63	46.59	45.06	74.00	-28.94	peak
4	6621.375	11.19	35.45	42.31	48.15	52.48	74.00	-21.52	peak
5	7236.000	10.07	36.40	41.83	45.56	50.20	74.00	-23.80	peak
6	9648.000	10.77	37.53	38.36	42.88	52.82	74.00	-21.18	peak



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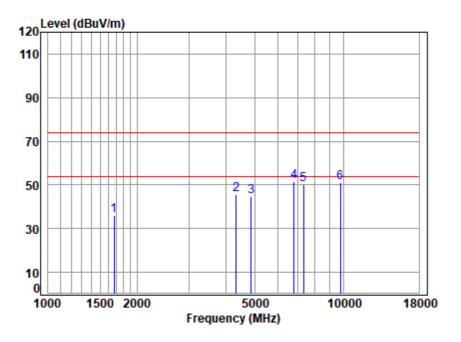
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Report No.: SZEM190901809803

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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:middle



Site : chamber

Condition: 3m HORIZONTAL Job No : 18098CR\18099CR

Mode : 2437 TX RSE : 2.4G WIFI 11N20 Note

> Cable Ant Preamp Read Limit 0ver Loss Factor Factor Level Level Line Limit Remark Frea MHz dB dB/m dB dBuV dBuV/m dBuV/m dB 1672.779 5.26 26.56 40.82 45.15 36.15 74.00 -37.85 peak 4329.354 7.37 33.60 43.12 47.87 45.72 74.00 -28.28 peak 7.96 34.28 43.68 45.95 44.51 74.00 -29.49 peak 4874.000 10.69 35.94 42.17 46.98 51.44 74.00 -22.56 peak 6795.879 7311.000 10.05 36.37 41.78 45.55 50.19 74.00 -23.81 peak

9748.000 10.82 37.55 38.20 40.90 51.07 74.00 -22.93 peak



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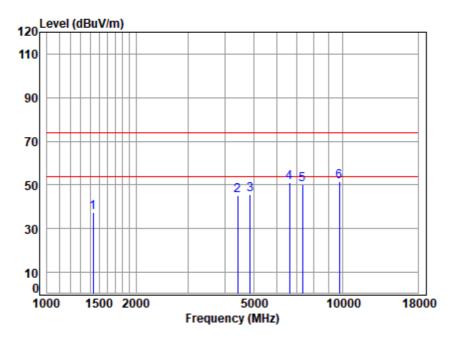
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:middle



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2437 TX RSE Note : 2.4G WIFI 11N20

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
L	1431.047	5.26	25.52	40.66	47.16	37.28	74.00	-36.72	peak
2	4417.841	7.47	33.60	43.22	47.53	45.38	74.00	-28.62	peak
3	4874.000	7.96	34.28	43.68	46.85	45.41	74.00	-28.59	peak
Ļ	6621.375	11.19	35.45	42.31	46.88	51.21	74.00	-22.79	peak
,	7311.000	10.05	36.37	41.78	45.36	50.00	74.00	-24.00	peak
5	9748,000	10.82	37.55	38.20	41.23	51.40	74.00	-22.60	peak



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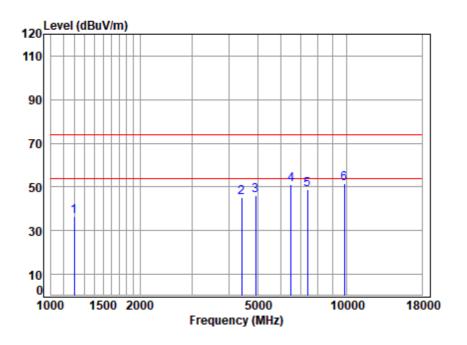
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL : 18098CR\18099CR Job No

Mode : 2462 TX RSE Note : 2.4G WIFI 11N20

> Cable Ant Preamp Read Limit 0ver Loss Factor Factor Level Level Line Limit Remark Frea

	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	1199.726	4.42	24.48	40.48	48.01	36.43	74.00	-37.57 peak
2	4417.841	7.47	33.60	43.22	47.39	45.24	74.00	-28.76 peak
3	4924.000	8.01	34.37	43.73	47.55	46.20	74.00	-27.80 peak
4	6488.754	11.52	35.09	42.41	47.10	51.30	74.00	-22.70 peak
5	7386.000	10.03	36.34	41.72	44.09	48.74	74.00	-25.26 peak
6	9848.000	10.87	37.57	38.04	41.37	51.77	74.00	-22.23 peak



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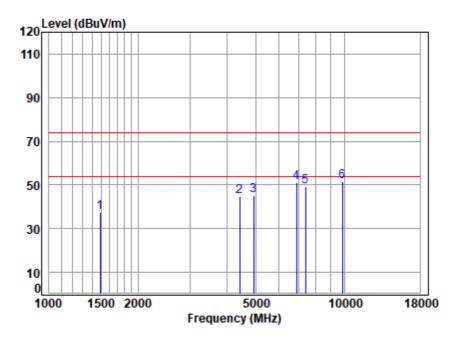
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2462 TX RSE

Note : 2.4G WIFI 11N20

				_					
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1490.142	5.45	25.76	40.70	46.81	37.32	74.00	-36.68	peak
2	4417.841	7.47	33.60	43.22	47.02	44.87	74.00	-29.13	peak
3	4924.000	8.01	34.37	43.73	46.55	45.20	74.00	-28.80	peak
4	6874.906	10.47	36.16	42.11	46.52	51.04	74.00	-22.96	peak
5	7386.000	10.03	36.34	41.72	44.83	49.48	74.00	-24.52	peak
6	9848.000	10.87	37.57	38.04	41.23	51.63	74.00	-22.37	peak



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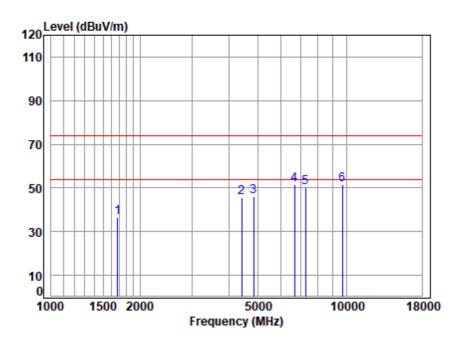
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL : 18098CR\18099CR Job No

Mode : 2422 TX RSE

Note : 2.4G WIFI 11N40

	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1677.621	5.25	26.58	40.82	45.62	36.63	74.00	-37.37	peak
2	4417.841	7.47	33.60	43.22	47.72	45.57	74.00	-28.43	peak
3	4844.000	7.93	34.23	43.65	47.48	45.99	74.00	-28.01	peak
4	6679.040	11.02	35.61	42.26	47.07	51.44	74.00	-22.56	peak
5	7266.000	10.06	36.39	41.81	45.40	50.04	74.00	-23.96	peak
6	9688,000	10.79	37.54	38.30	41.74	51.77	74.00	-22.23	peak



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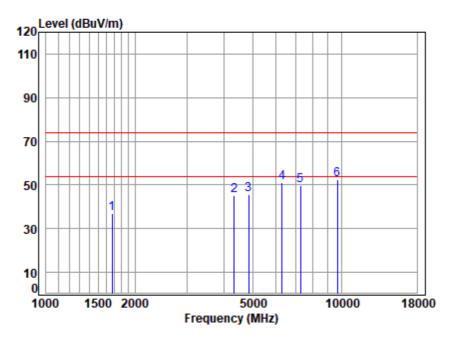
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Report No.: SZEM190901809803

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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2422 TX RSE Note : 2.4G WIFI 11N40

Cable Ant Preamn Read Limit Over

	Capie	AIIC	rreamp	neau		LIMIT	over.	
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1672.779	5.26	26.56	40.82	45.76	36.76	74.00	-37.24	peak
4329.354	7.37	33.60	43.12	47.16	45.01	74.00	-28.99	peak
4844.000	7.93	34.23	43.65	47.07	45.58	74.00	-28.42	peak
6303.890	11.17	34.95	42.57	47.64	51.19	74.00	-22.81	peak
7266.000	10.06	36.39	41.81	45.30	49.94	74.00	-24.06	peak
9688.000	10.79	37.54	38.30	42.43	52.46	74.00	-21.54	peak



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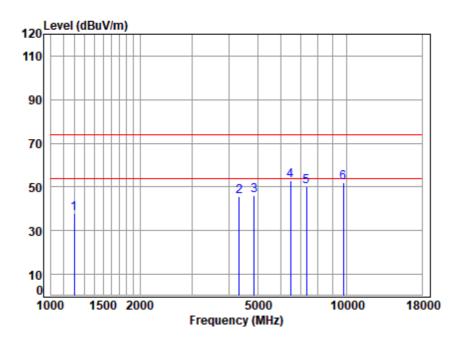
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Report No.: SZEM190901809803

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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:middle



Site : chamber

Condition: 3m HORIZONTAL
Job No : 18098CR\18099CR

Mode : 2437 TX RSE

Note : 2.4G WIFI 11N40

				_						
		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	d Bu V/m	dBuV/m	dB		
1	1199.726	4.42	24.48	40.48	49.40	37.82	74.00	-36.18	peak	
2	4341.886	7.38	33.60	43.14	47.78	45.62	74.00	-28.38	peak	
3	4874.000	7.96	34.28	43.68	47.62	46.18	74.00	-27.82	peak	
4	6470.026	11.48	35.08	42.43	48.96	53.09	74.00	-20.91	peak	
5	7311.000	10.05	36.37	41.78	45.40	50.04	74.00	-23.96	peak	
6	9748.000	10.82	37.55	38.20	41.69	51.86	74.00	-22.14	peak	



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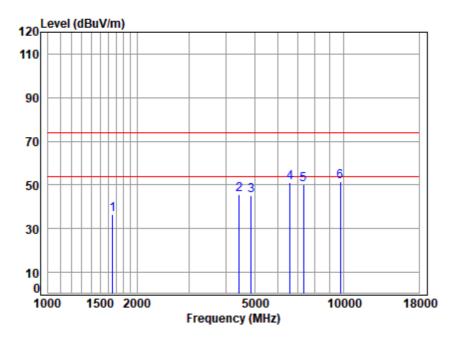
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:middle



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2437 TX RSE

Note : 2.4G WIFI 11N40

				_					
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1653.550	5.28	26.48	40.80	45.72	36.68	74.00	-37.32	peak
2	4443.453	7.50	33.60	43.25	47.80	45.65	74.00	-28.35	peak
3	4874.000	7.96	34.28	43.68	46.69	45.25	74.00	-28.75	peak
4	6583.209	11.30	35.34	42.34	46.88	51.18	74.00	-22.82	peak
5	7311.000	10.05	36.37	41.78	45.56	50.20	74.00	-23.80	peak
6	9748.000	10.82	37.55	38.20	41.52	51.69	74.00	-22.31	peak



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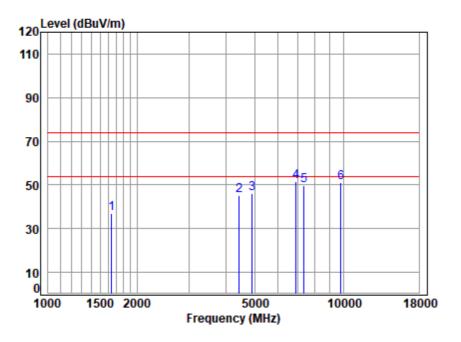
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Mode:n; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL : 18098CR\18099CR Job No

Mode : 2452 TX RSE

Note : 2.4G WIFI 11N40

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1644.019	5.30	26.44	40.80	45.85	36.79	74.00	-37.21	peak
2	4443.453	7.50	33.60	43.25	47.38	45.23	74.00	-28.77	peak
3	4904.000	7.99	34.33	43.71	47.55	46.16	74.00	-27.84	peak
4	6894.806	10.42	36.21	42.09	47.18	51.72	74.00	-22.28	peak
5	7356.000	10.04	36.36	41.75	45.30	49.95	74.00	-24.05	peak
6	9808,000	10.85	37.56	38.10	40.97	51.28	74.00	-22.72	peak



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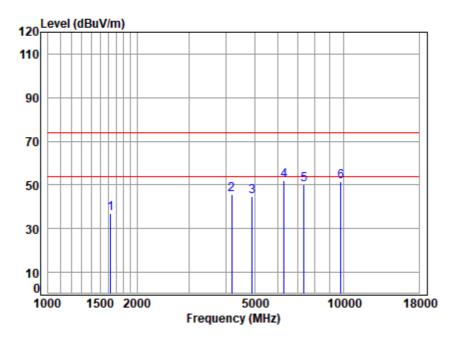
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Mode:n; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:High



Site : chamber Condition: 3m VERTICAL

Job No : 18098CR\18099CR

Mode : 2452 TX RSE

Note : 2.4G WIFI 11N40

				_					
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1629.825	5.31	26.38	40.79	46.25	37.15	74.00	-36.85	peak
2	4181.768	7.20	33.60	42.96	47.74	45.58	74.00	-28.42	peak
3	4904.000	7.99	34.33	43.71	46.05	44.66	74.00	-29.34	peak
4	6303.890	11.17	34.95	42.57	48.43	51.98	74.00	-22.02	peak
5	7356.000	10.04	36.36	41.75	45.35	50.00	74.00	-24.00	peak
6	9808.000	10.85	37.56	38.10	41.37	51.68	74.00	-22.32	peak



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#### 8 **Photographs**

#### 8.1 Test Setup

Please refer to setup photos.

#### 8.2 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.



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#### **Appendix** 9

#### 9.1 Appendix 15.247

#### 1.6dB Bandwidth

Test mode:	Test Channel	Ant	EBW[MHz]	Limit[MHz]	Verdict
11B	2412	Ant3	10.110	>=0.5	PASS
11B	2412	Ant4	10.110	>=0.5	PASS
11B	2437	Ant3	10.140	>=0.5	PASS
11B	2437	Ant4	10.140	>=0.5	PASS
11B	2462	Ant3	10.110	>=0.5	PASS
11B	2462	Ant4	10.110	>=0.5	PASS
11G	2412	Ant3	16.440	>=0.5	PASS
11G	2412	Ant4	10.140	>=0.5	PASS
11G	2437	Ant3	16.440	>=0.5	PASS
11G	2437	Ant4	16.500	>=0.5	PASS
11G	2462	Ant3	16.440	>=0.5	PASS
11G	2462	Ant4	16.500	>=0.5	PASS
11N20SISO	2412	Ant3	17.640	>=0.5	PASS
11N20SISO	2412	Ant4	17.670	>=0.5	PASS
11N20SISO	2437	Ant3	17.640	>=0.5	PASS
11N20SISO	2437	Ant4	17.640	>=0.5	PASS
11N20SISO	2462	Ant3	17.640	>=0.5	PASS
11N20SISO	2462	Ant4	17.640	>=0.5	PASS
11N40SISO	2422	Ant3	36.480	>=0.5	PASS
11N40SISO	2422	Ant4	36.480	>=0.5	PASS
11N40SISO	2437	Ant3	36.480	>=0.5	PASS
11N40SISO	2437	Ant4	36.480	>=0.5	PASS
11N40SISO	2452	Ant3	36.480	>=0.5	PASS
11N40SISO	2452	Ant4	36.120	>=0.5	PASS



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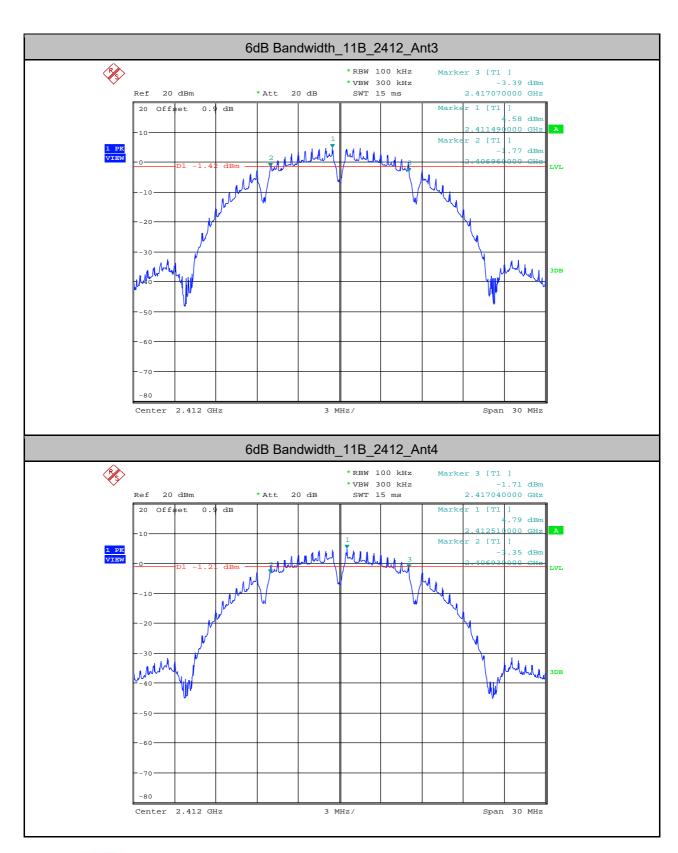
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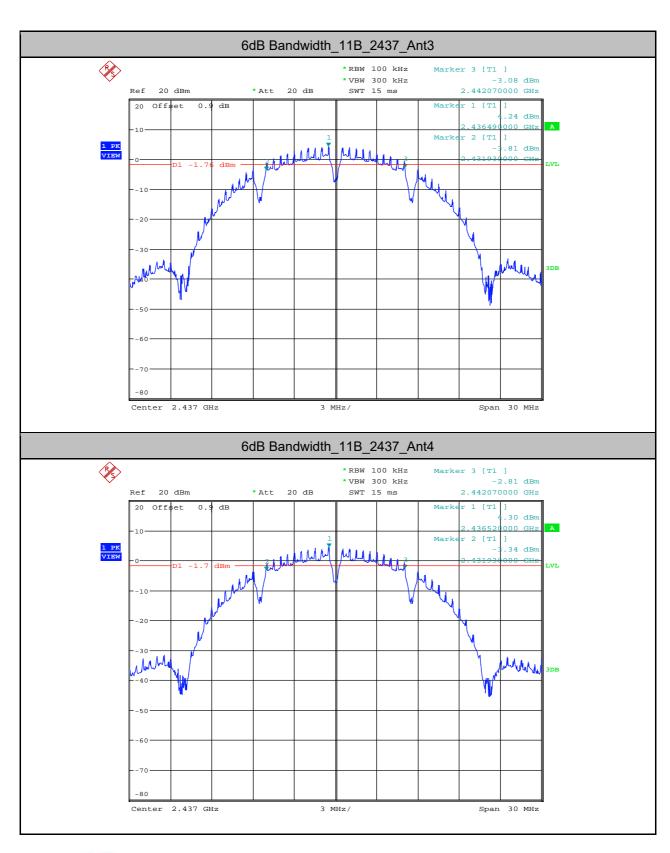
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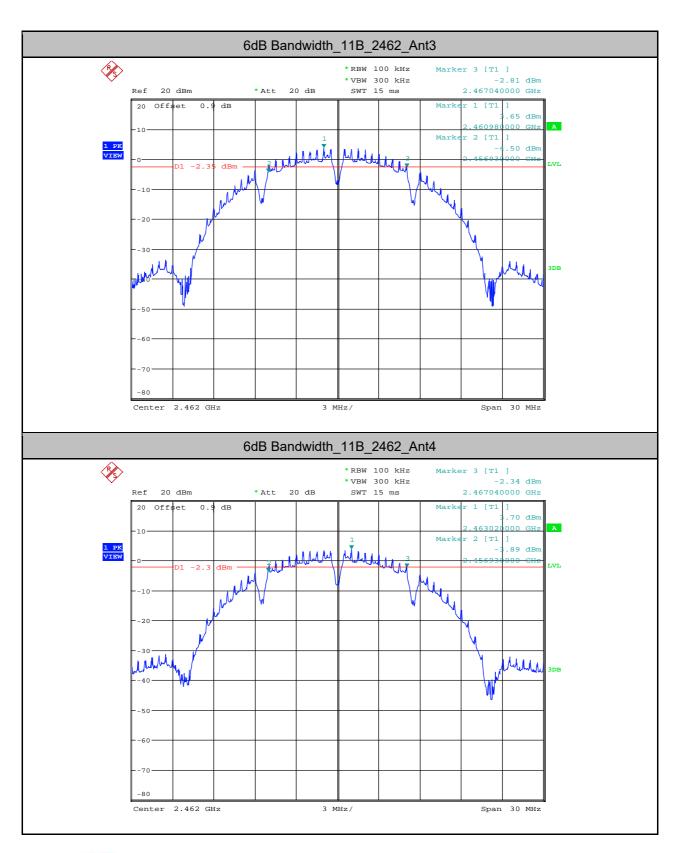
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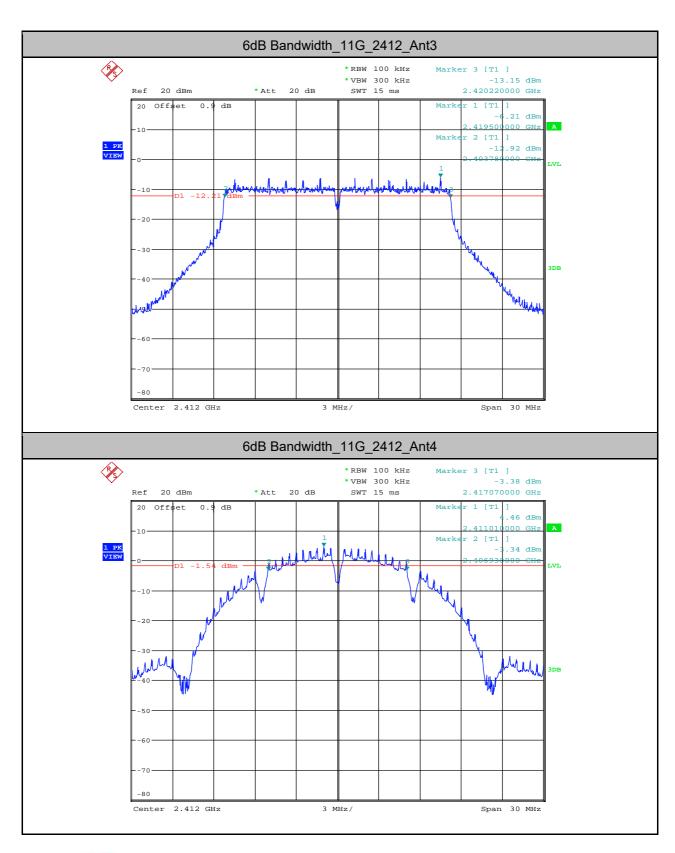
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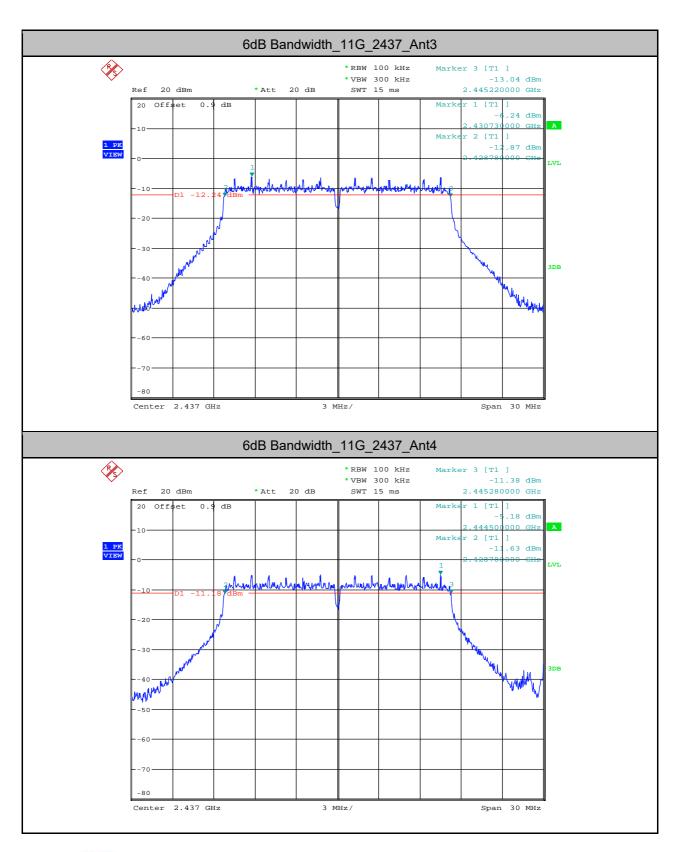
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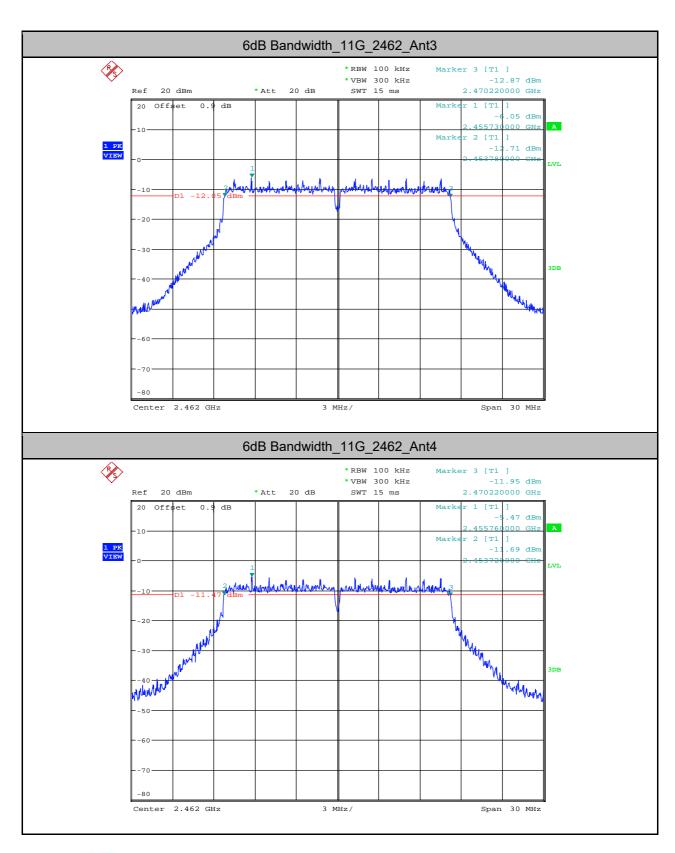
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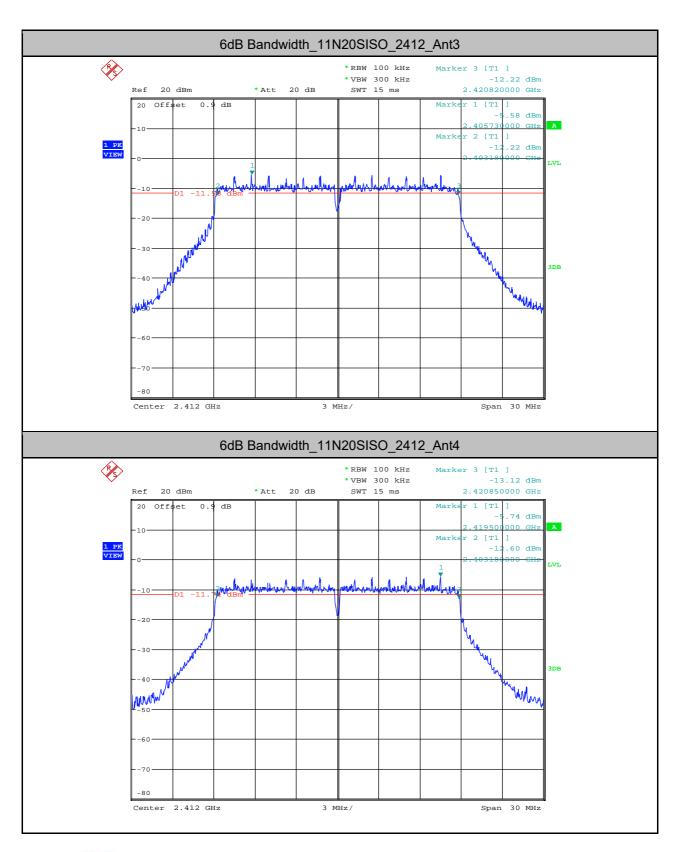
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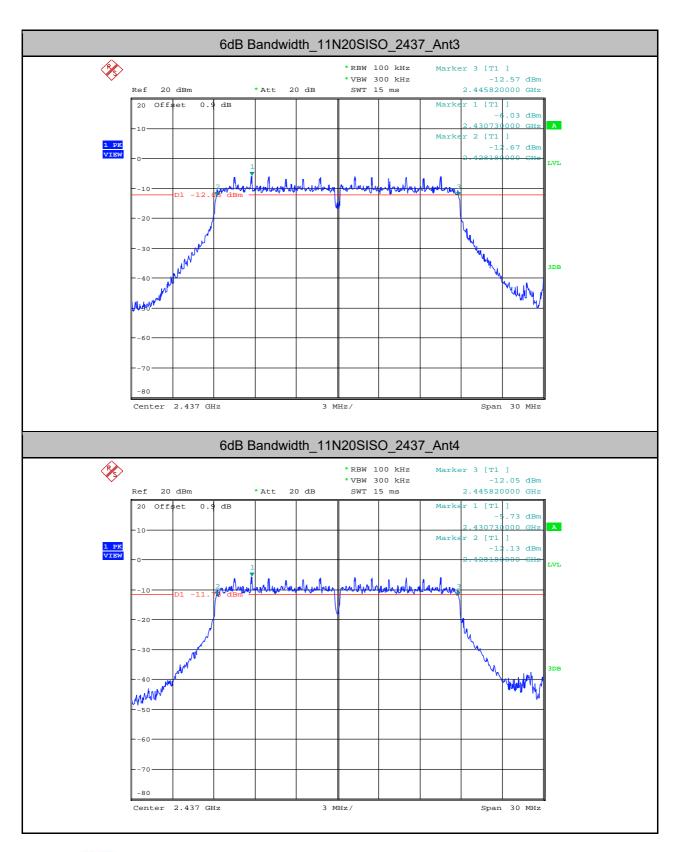
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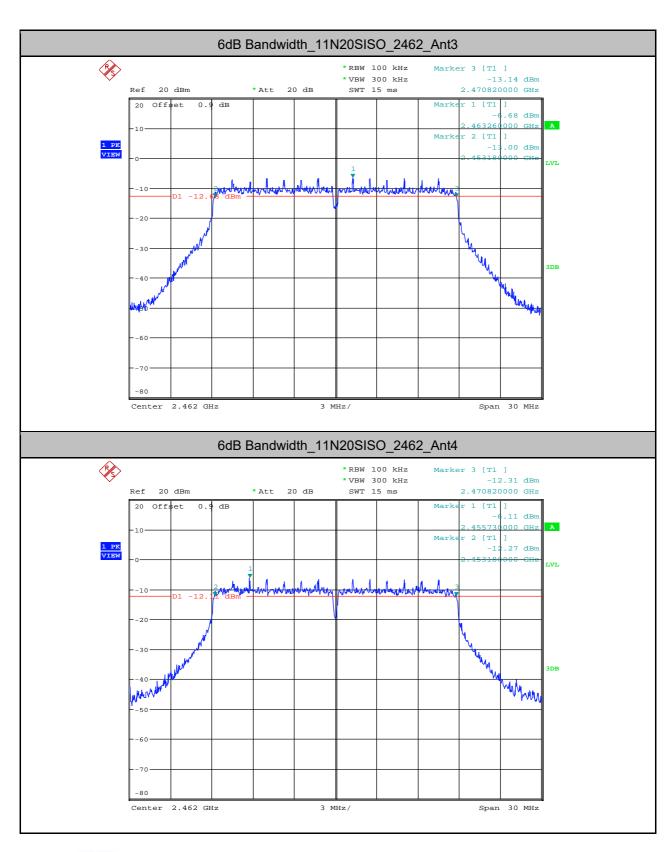
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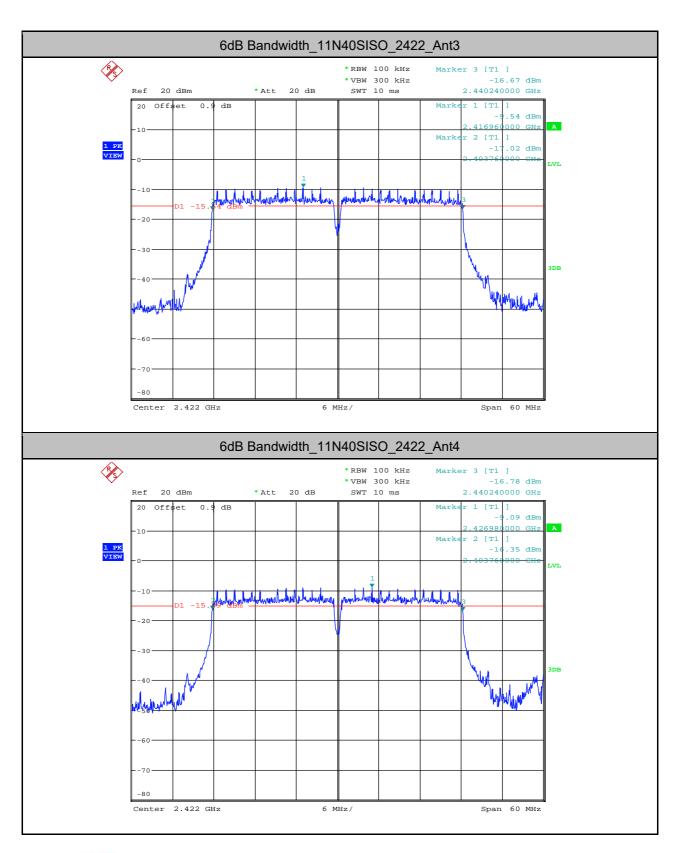
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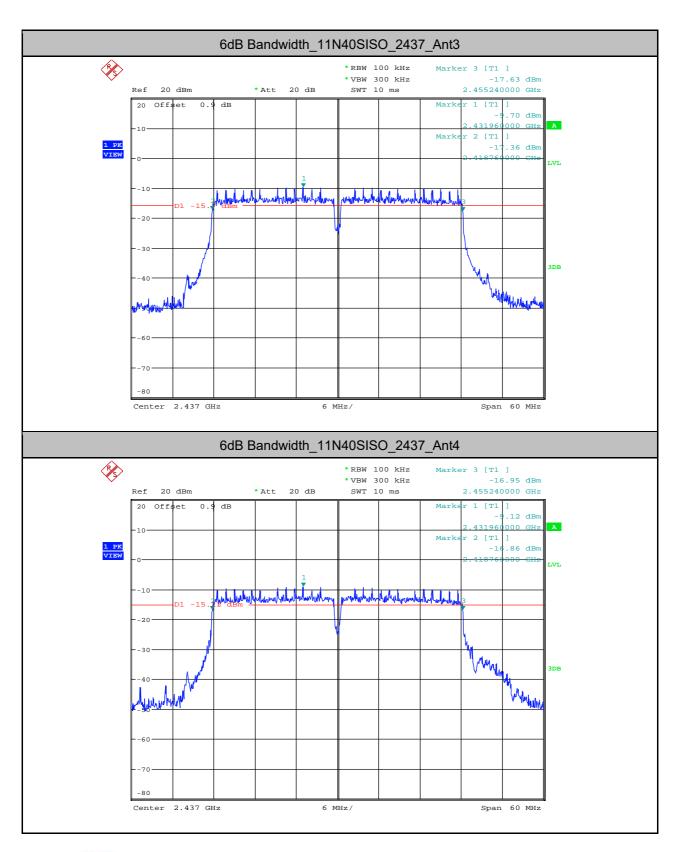
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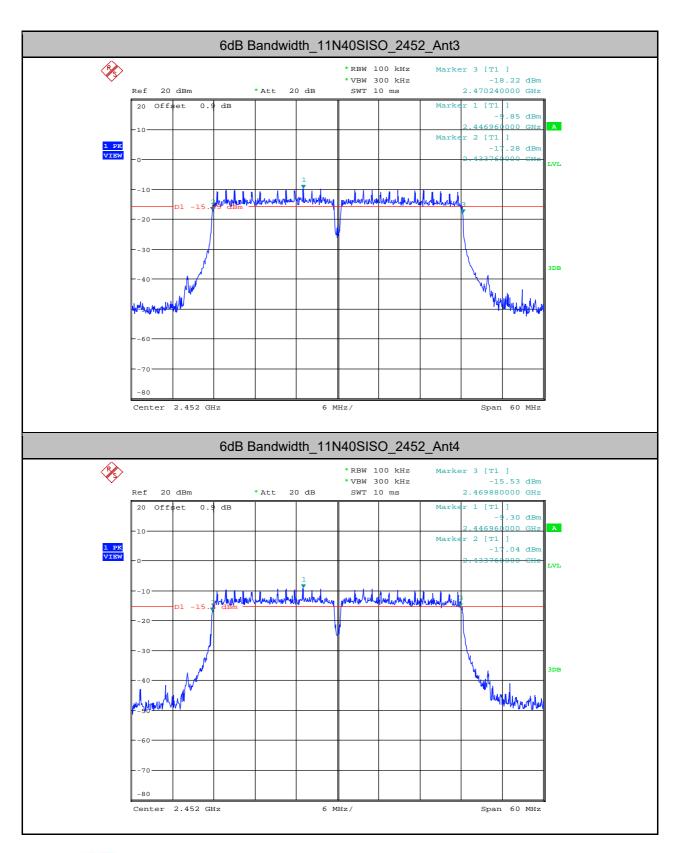
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#### 2.Maximum peak conducted output power

Test mode:	Test Channel	Ant	Power[dBm]	Limit[dBm]	Verdict
11B	2412	Ant3	17.6	<30	PASS
11B	2412	Ant4	17.35	<30	PASS
11B	2437	Ant3	16.99	<30	PASS
11B	2437	Ant4	17.19	<30	PASS
11B	2462	Ant3	16.46	<30	PASS
11B	2462	Ant4	16.66	<30	PASS
11G	2412	Ant3	16.32	<30	PASS
11G	2412	Ant4	15.43	<30	PASS
11G	2437	Ant3	16.02	<30	PASS
11G	2437	Ant4	15.53	<30	PASS
11G	2462	Ant3	14.31	<30	PASS
11G	2462	Ant4	15.08	<30	PASS
11N20SISO	2412	Ant3	14.72	<30	PASS
11N20SISO	2412	Ant4	14.83	<30	PASS
11N20SISO	2437	Ant3	14.39	<30	PASS
11N20SISO	2437	Ant4	14.72	<30	PASS
11N20SISO	2462	Ant3	14.01	<30	PASS
11N20SISO	2462	Ant4	14.2	<30	PASS
11N40SISO	2422	Ant3	14.04	<30	PASS
11N40SISO	2422	Ant4	14.34	<30	PASS
11N40SISO	2437	Ant3	13.53	<30	PASS
11N40SISO	2437	Ant4	14.23	<30	PASS
11N40SISO	2452	Ant3	13.44	<30	PASS
11N40SISO	2452	Ant4	14.02	<30	PASS



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#### MIMO:

11N20MIMO	2412	Ant3+4	17.79	<30	PASS
11N20MIMO	2437	Ant3+4	17.57	<30	PASS
11N20MIMO	2462	Ant3+4	17.12	<30	PASS
11N40MIMO	2422	Ant3+4	17.20	<30	PASS
11N40MIMO	2437	Ant3+4	16.90	<30	PASS
11N40MIMO	2452	Ant3+4	16.75	<30	PASS

Note: Since the number of transmit antennas is less than 4, Array gain=0dB.



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#### 3. Maximum Peak power spectral density

Test mode:	Test Channel	Ant	PSD[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	2412	Ant3	-9.1	<8.00	PASS
11B	2412	Ant4	-8.79	<8.00	PASS
11B	2437	Ant3	-10.18	<8.00	PASS
11B	2437	Ant4	-10	<8.00	PASS
11B	2462	Ant3	-10.59	<8.00	PASS
11B	2462	Ant4	-9.94	<8.00	PASS
11G	2412	Ant3	-17.92	<8.00	PASS
11G	2412	Ant4	-18.52	<8.00	PASS
11G	2437	Ant3	-16.17	<8.00	PASS
11G	2437	Ant4	-18.68	<8.00	PASS
11G	2462	Ant3	-18.93	<8.00	PASS
11G	2462	Ant4	-18.64	<8.00	PASS
11N20SISO	2412	Ant3	-18.86	<8.00	PASS
11N20SISO	2412	Ant4	-19.03	<8.00	PASS
11N20SISO	2437	Ant3	-20.51	<8.00	PASS
11N20SISO	2437	Ant4	-19.21	<8.00	PASS
11N20SISO	2462	Ant3	-20.26	<8.00	PASS
11N20SISO	2462	Ant4	-20.26	<8.00	PASS
11N40SISO	2422	Ant3	-23.49	<8.00	PASS
11N40SISO	2422	Ant4	-22.63	<8.00	PASS
11N40SISO	2437	Ant3	-23.1	<8.00	PASS
11N40SISO	2437	Ant4	-23.39	<8.00	PASS
11N40SISO	2452	Ant3	-23.82	<8.00	PASS
11N40SISO	2452	Ant4	-22.97	<8.00	PASS



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#### MIMO:

11N20MIMO	2412	Ant3+4	-15.93	<8.00	PASS
11N20MIMO	2437	Ant3+4	-16.83	<8.00	PASS
11N20MIMO	2462	Ant3+4	-17.25	<8.00	PASS
11N40MIMO	2422	Ant3+4	-20.04	<8.00	PASS
11N40MIMO	2437	Ant3+4	-20.23	<8.00	PASS
11N40MIMO	2452	Ant3+4	-20.37	<8.00	PASS



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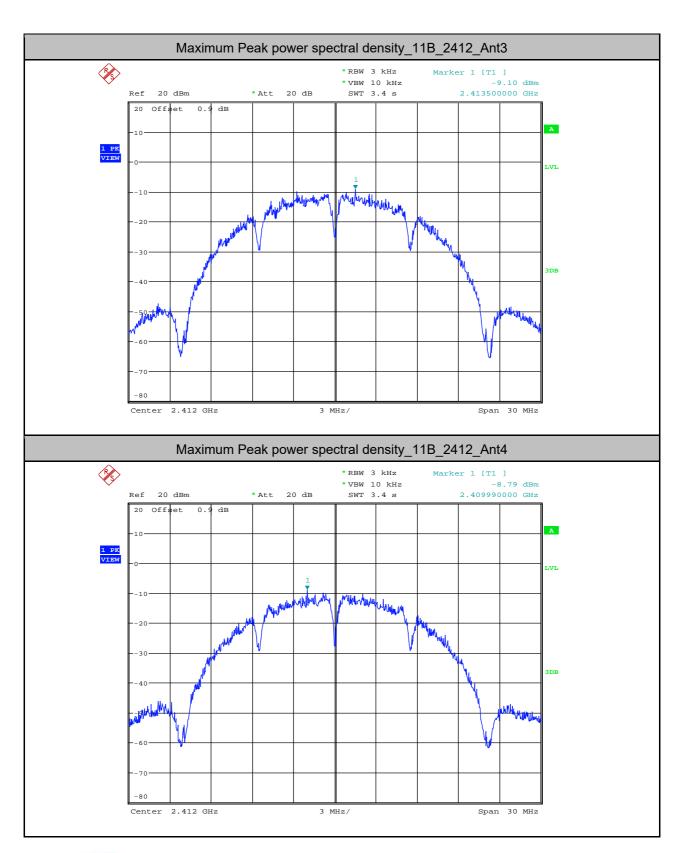
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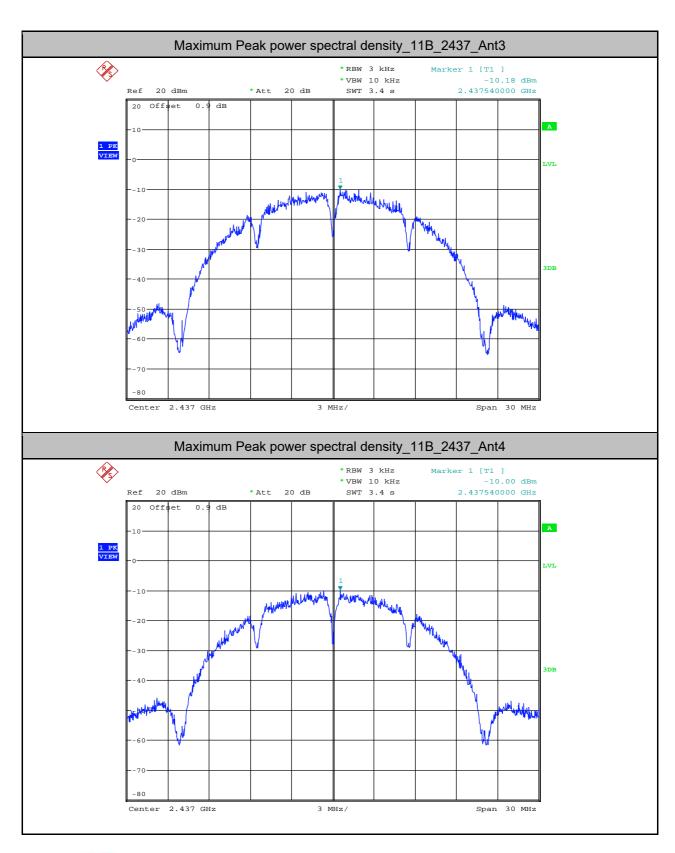
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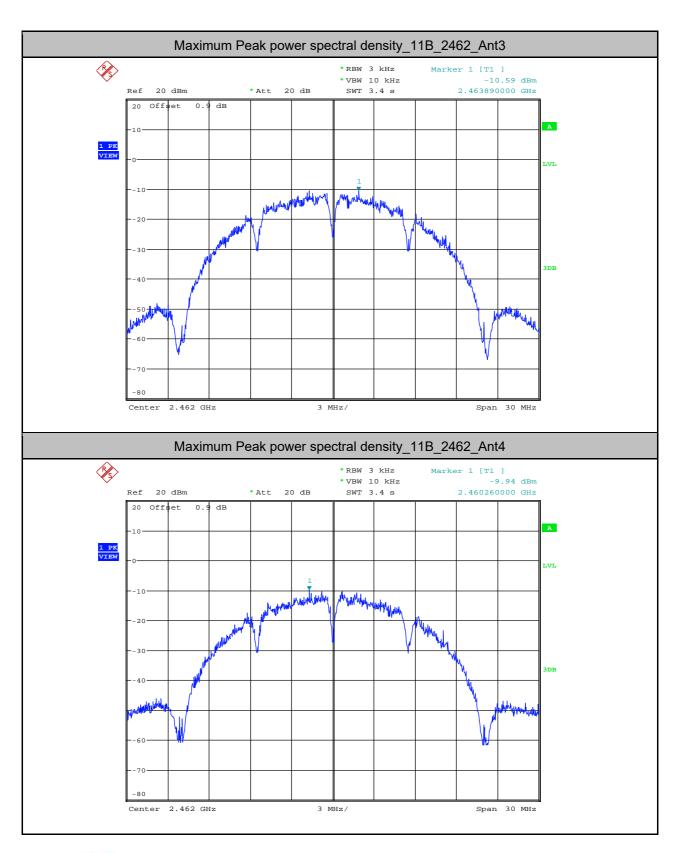
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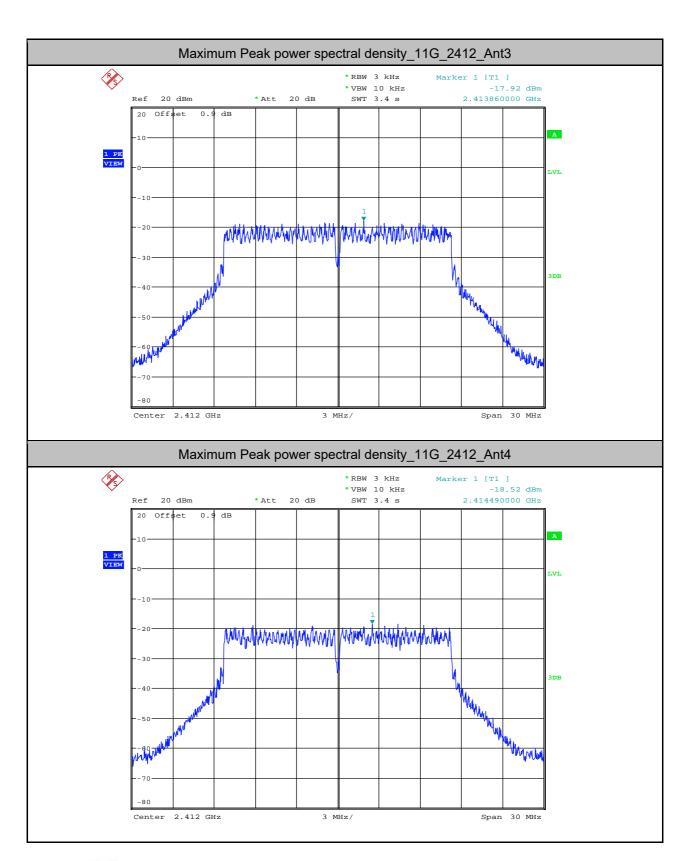
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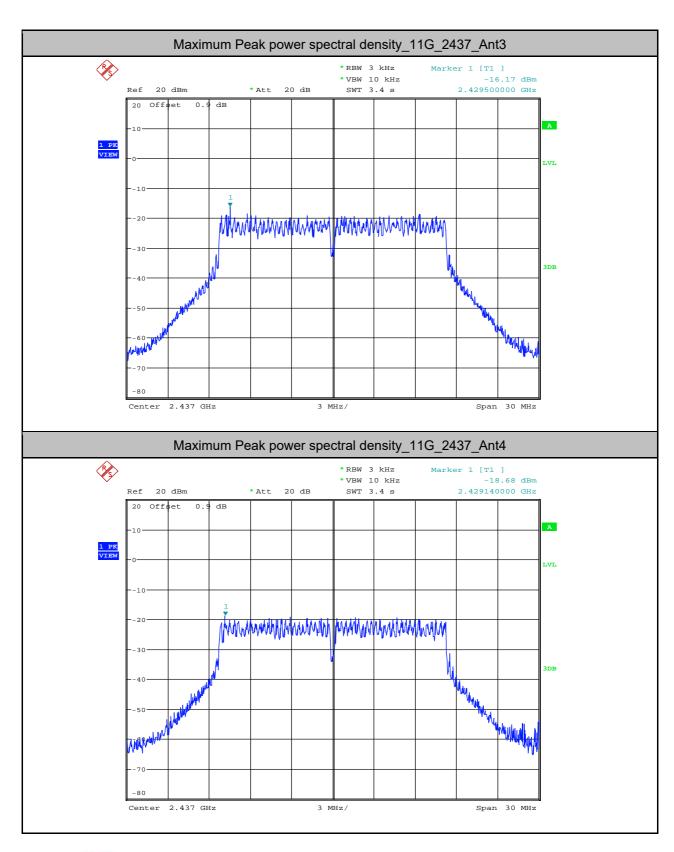
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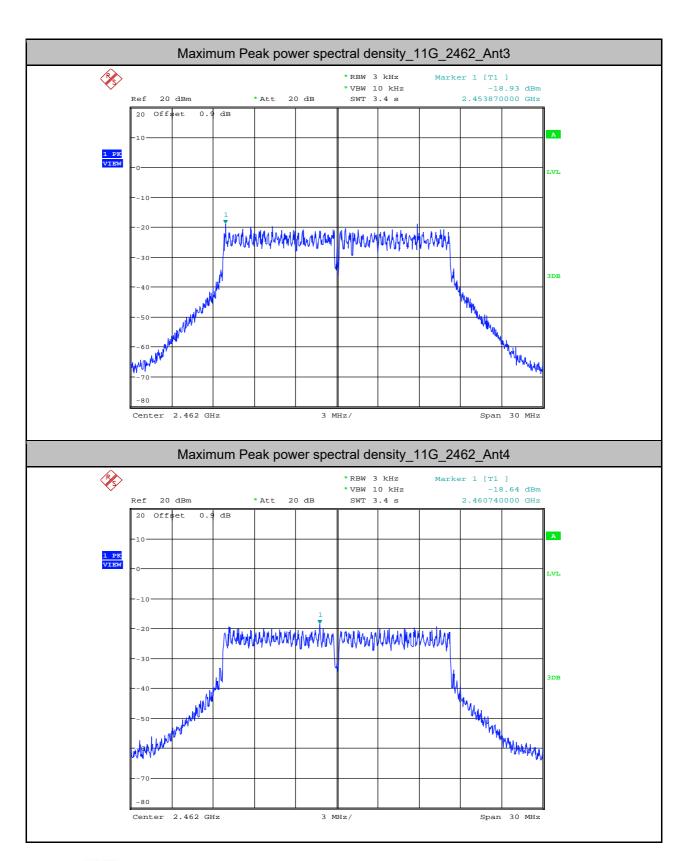
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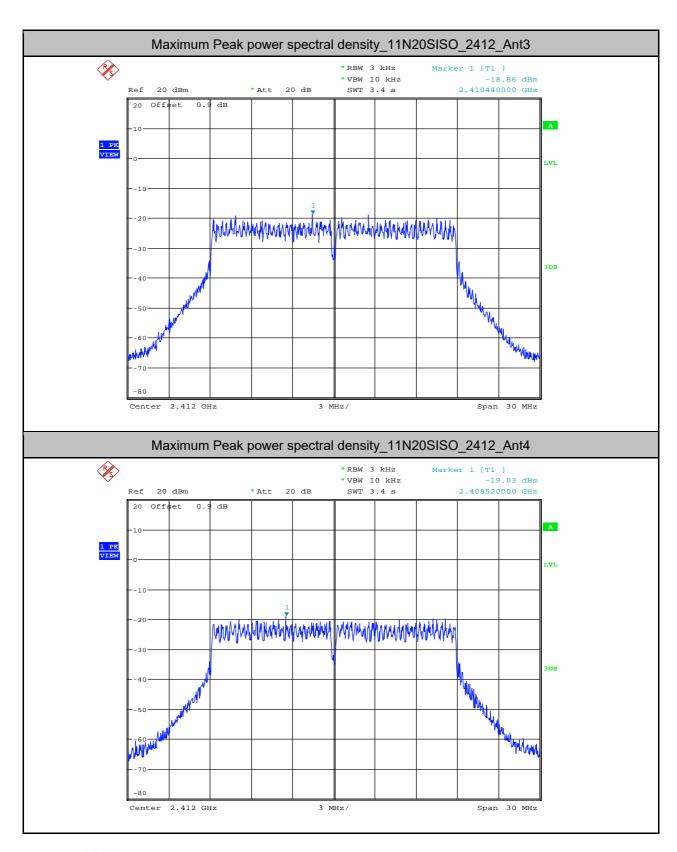
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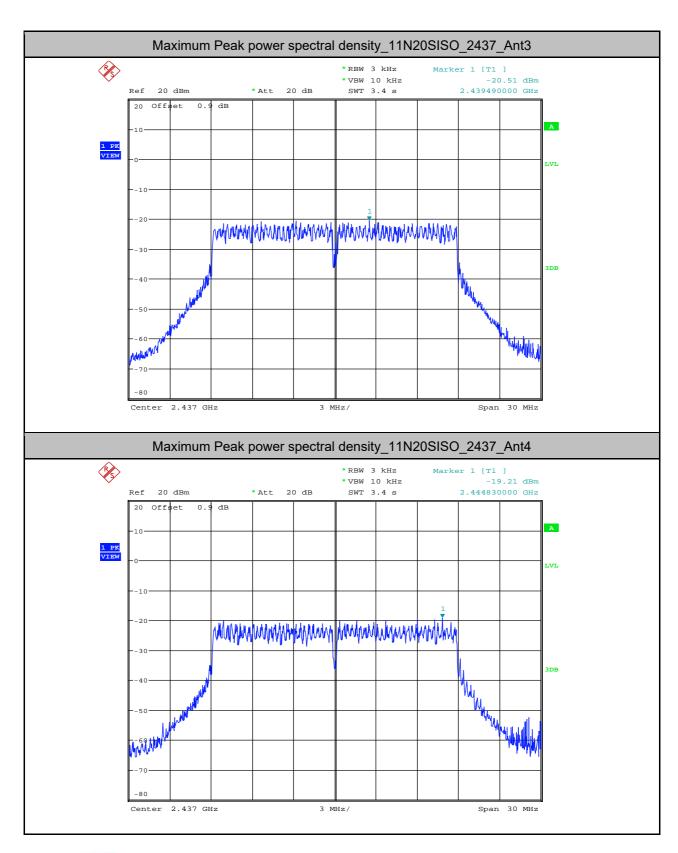
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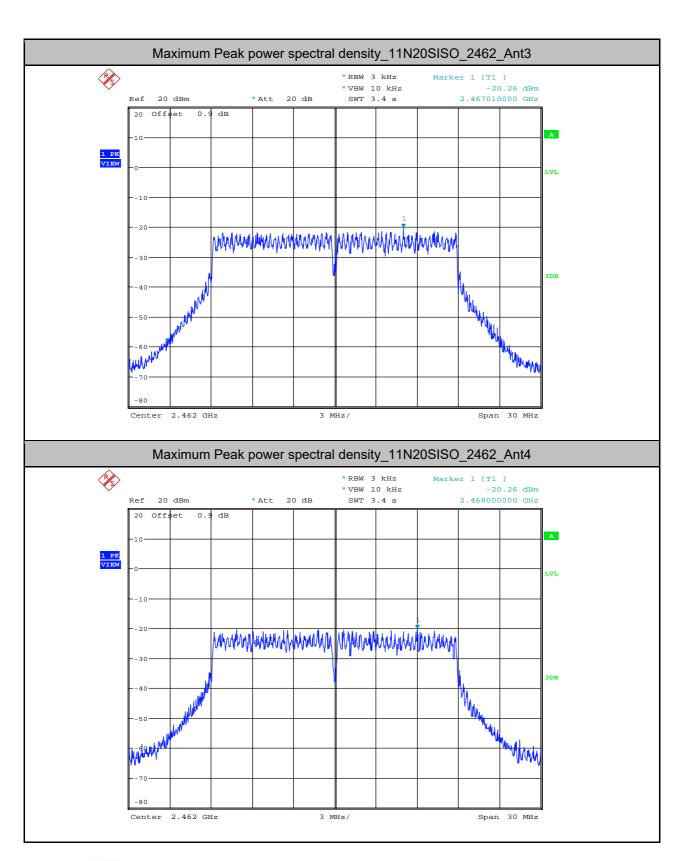
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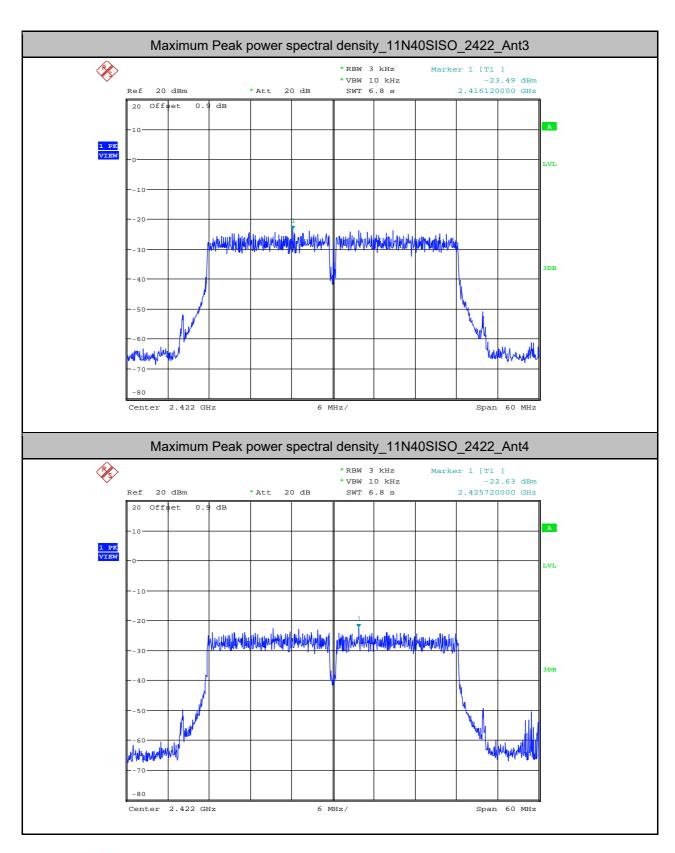
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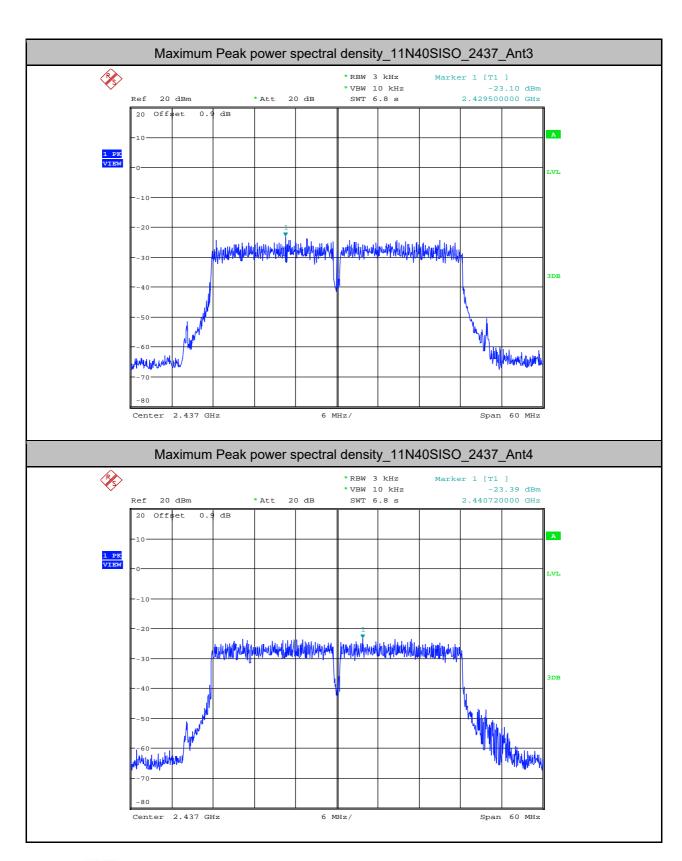
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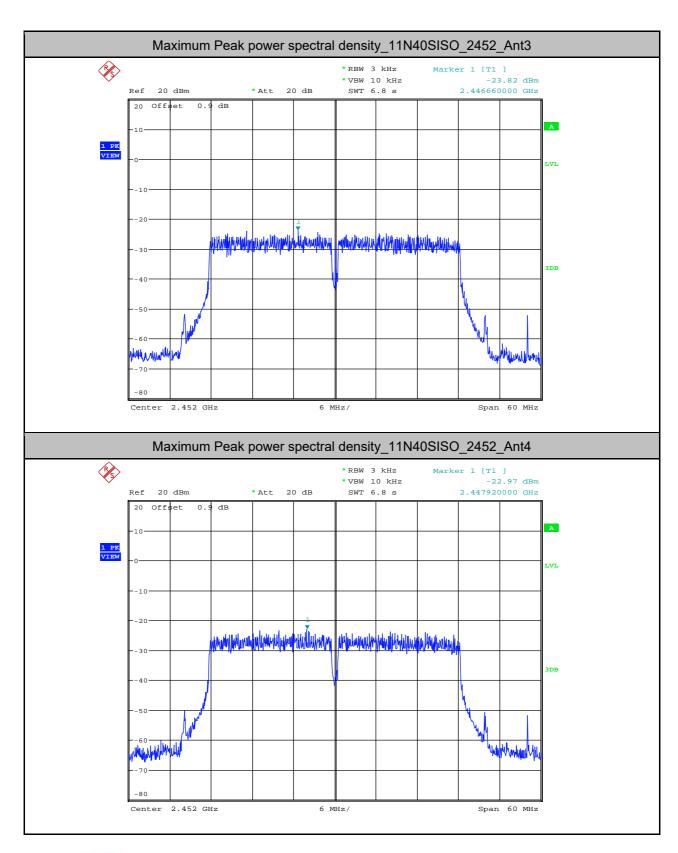
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#### 4.Band-edge for RF Conducted Emissions

Test Mode	Test Channel	Ant	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
11B	2412	Ant3	4.330	-46.191	<-15.67	PASS
11B	2412	Ant4	4.620	-45.168	<-15.38	PASS
11B	2462	Ant3	3.700	-44.163	<-16.3	PASS
11B	2462	Ant4	3.610	-44.697	<-16.39	PASS
11G	2412	Ant3	-6.310	-49.823	<-26.31	PASS
11G	2412	Ant4	-5.260	-50.401	<-25.26	PASS
11G	2462	Ant3	-6.160	-52.557	<-26.16	PASS
11G	2462	Ant4	-5.620	-50.083	<-25.62	PASS
11N20SISO	2412	Ant3	-5.970	-49.043	<-25.97	PASS
11N20SISO	2412	Ant4	-5.670	-52.340	<-25.67	PASS
11N20SISO	2462	Ant3	-6.390	-52.463	<-26.39	PASS
11N20SISO	2462	Ant4	-6.510	-49.586	<-26.51	PASS
11N40SISO	2422	Ant3	-9.670	-48.160	<-29.67	PASS
11N40SISO	2422	Ant4	-9.100	-49.016	<-29.1	PASS
11N40SISO	2452	Ant3	-9.870	-48.867	<-29.87	PASS
11N40SISO	2452	Ant4	-9.290	-46.774	<-29.29	PASS



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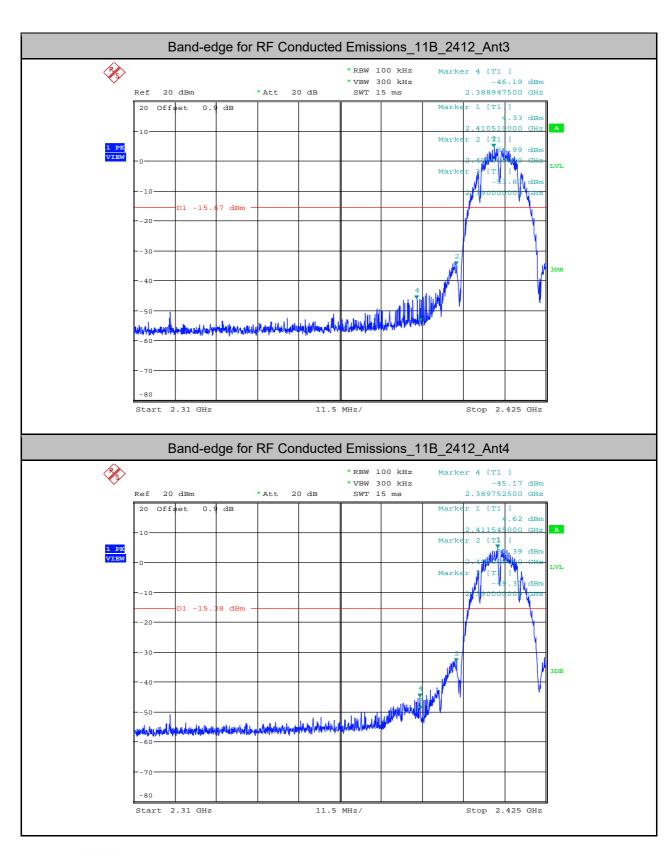
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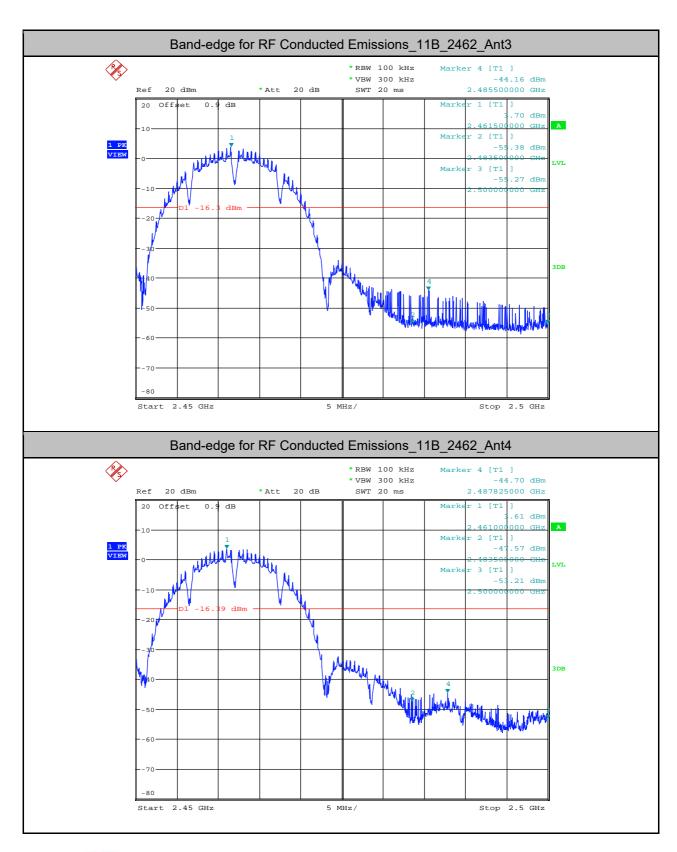
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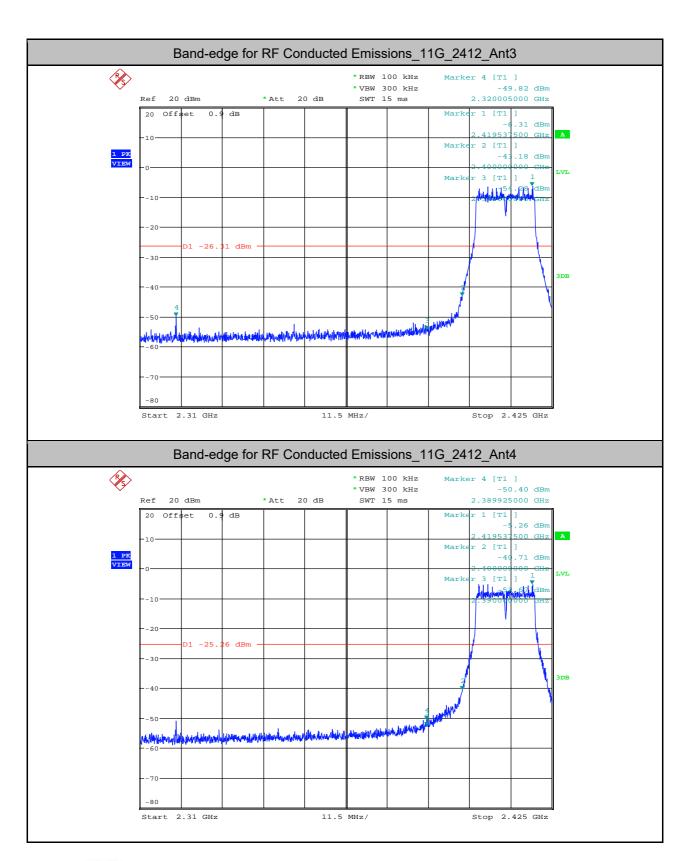
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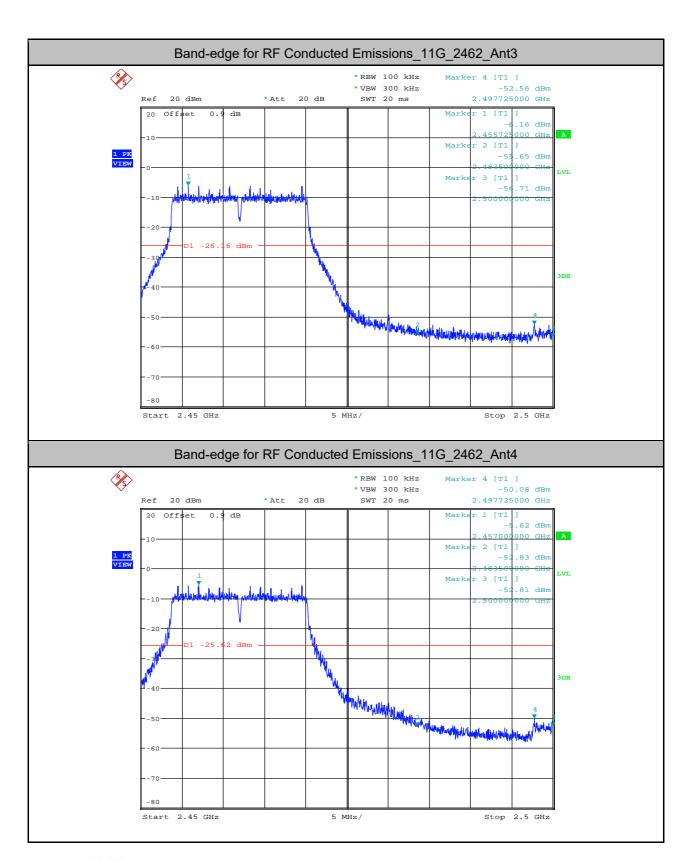
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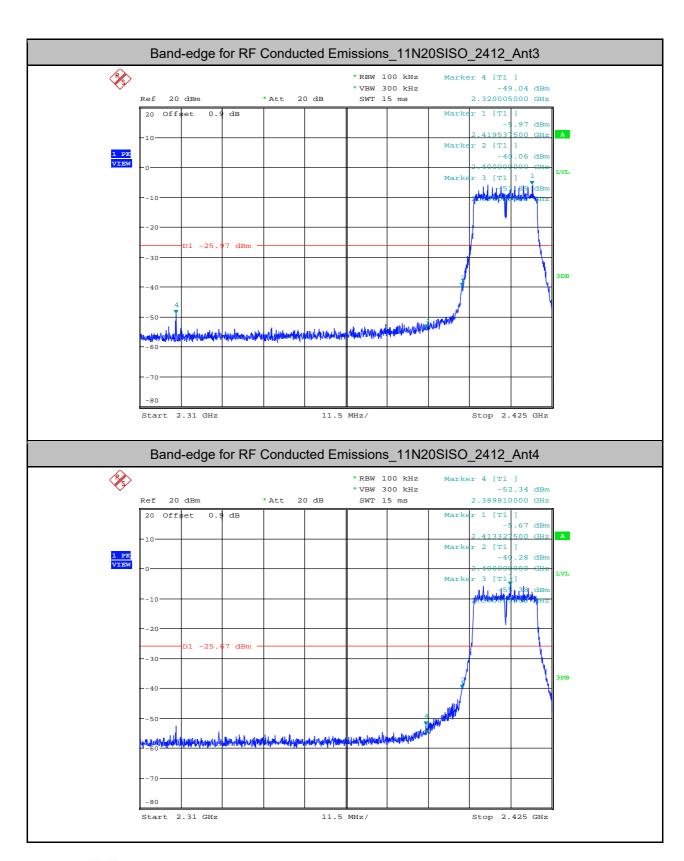
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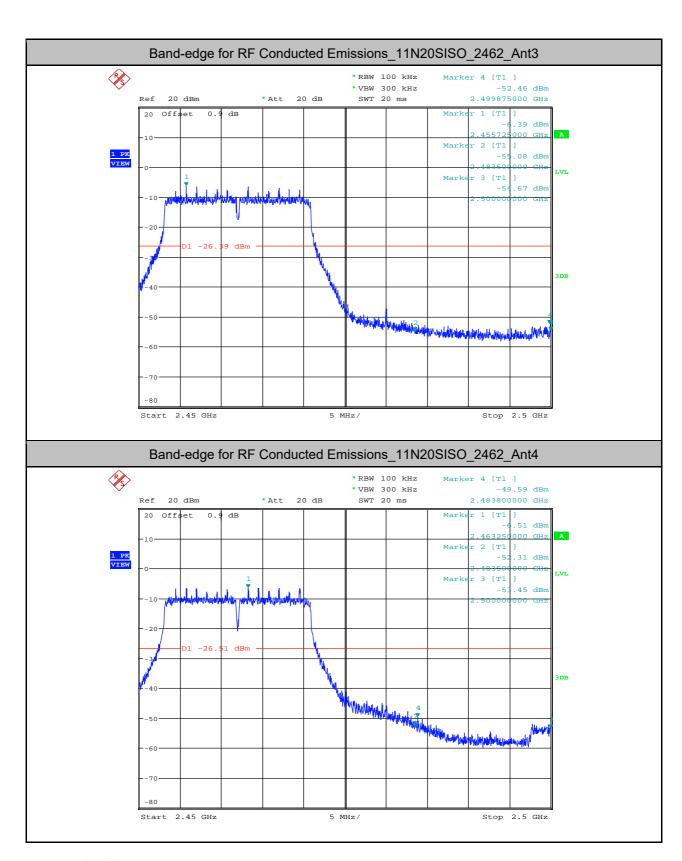
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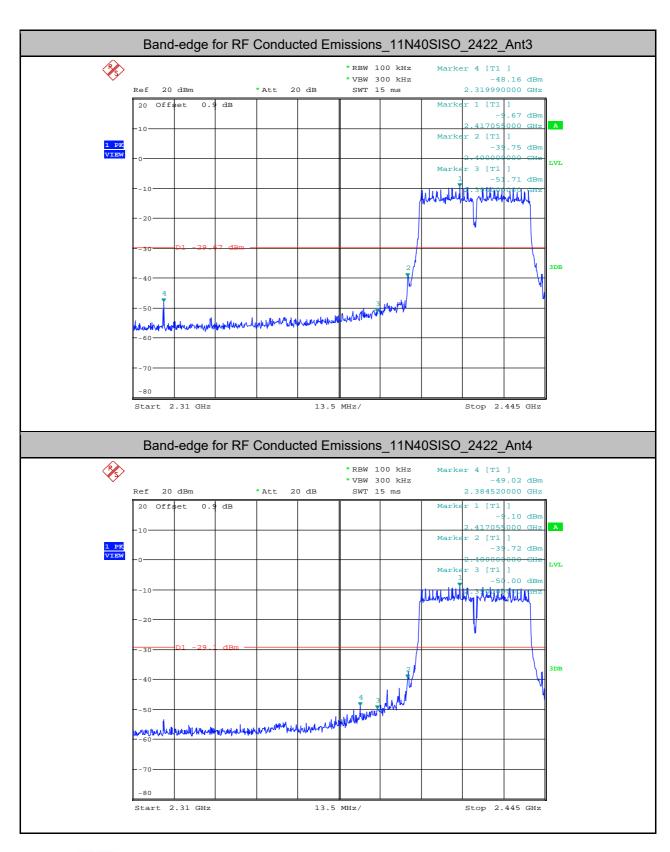
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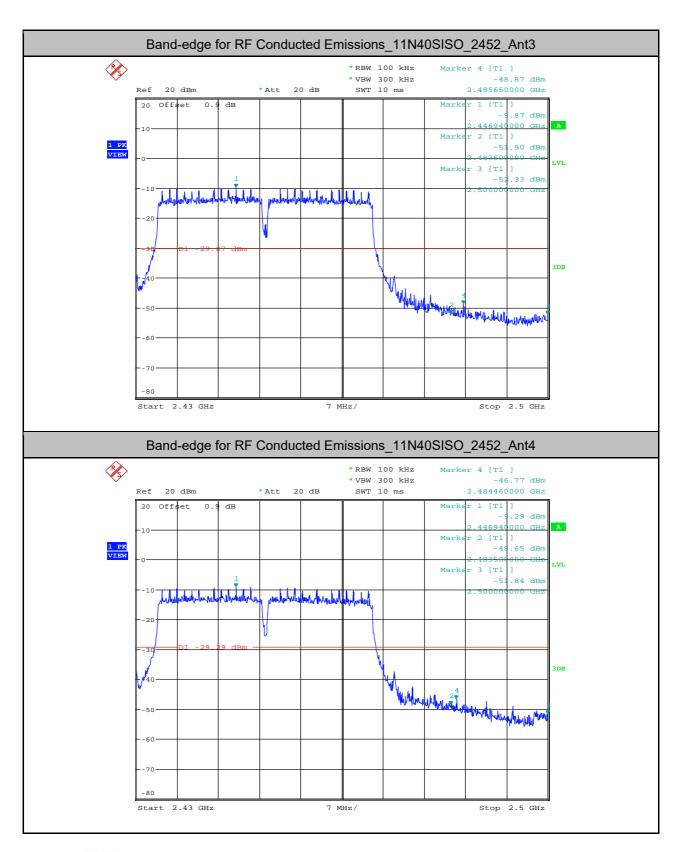
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#### **5.RF Conducted Spurious Emissions**

Test mode:	Test Channel	StartFre [MHz]	StopFre [MHz]	RBW [kHz]	VBW [kHz]	Pref[dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	2412	30	10000	1000	3000	4.3	-41.140	<-15.7	PASS
11B	2412	10000	25000	1000	3000	4.3	-44.820	<-15.7	PASS
11B	2412	30	10000	1000	3000	4.07	-42.690	<-15.93	PASS
11B	2412	10000	25000	1000	3000	4.07	-44.990	<-15.93	PASS
11B	2437	30	10000	1000	3000	3.56	-41.240	<-16.44	PASS
11B	2437	10000	25000	1000	3000	3.56	-44.890	<-16.44	PASS
11B	2437	30	10000	1000	3000	4.62	-42.450	<-15.38	PASS
11B	2437	10000	25000	1000	3000	4.62	-44.840	<-15.38	PASS
11B	2462	30	10000	1000	3000	3.33	-43.030	<-16.67	PASS
11B	2462	10000	25000	1000	3000	3.33	-44.310	<-16.67	PASS
11B	2462	30	10000	1000	3000	3.55	-43.170	<-16.45	PASS
11B	2462	10000	25000	1000	3000	3.55	-44.310	<-16.45	PASS
11G	2412	30	10000	1000	3000	-5.97	-44.390	<-25.97	PASS
11G	2412	10000	25000	1000	3000	-5.97	-44.730	<-25.97	PASS
11G	2412	30	10000	1000	3000	-5.75	-44.790	<-25.75	PASS
11G	2412	10000	25000	1000	3000	-5.75	-44.720	<-25.75	PASS
11G	2437	30	10000	1000	3000	-8.07	-44.300	<-28.07	PASS
11G	2437	10000	25000	1000	3000	-8.07	-44.860	<-28.07	PASS
11G	2437	30	10000	1000	3000	-7.82	-44.340	<-27.82	PASS
11G	2437	10000	25000	1000	3000	-7.82	-45.400	<-27.82	PASS
11G	2462	30	10000	1000	3000	-3.79	-42.800	<-23.79	PASS
11G	2462	10000	25000	1000	3000	-3.79	-44.680	<-23.79	PASS
11G	2462	30	10000	1000	3000	-5.44	-43.940	<-25.44	PASS
11G	2462	10000	25000	1000	3000	-5.44	-45.340	<-25.44	PASS
11N20SISO	2412	30	10000	1000	3000	-6.37	-42.730	<-26.37	PASS
11N20SISO	2412	10000	25000	1000	3000	-6.37	-44.940	<-26.37	PASS
11N20SISO	2412	30	10000	1000	3000	-6.94	-45.200	<-26.94	PASS
11N20SISO	2412	10000	25000	1000	3000	-6.94	-44.840	<-26.94	PASS



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2437	30	10000	1000	3000	-6.26	-43.380	<-26.26	PASS
2437	10000	25000	1000	3000	-6.26	-44.850	<-26.26	PASS
2437	30	10000	1000	3000	-6.77	-44.480	<-26.77	PASS
2437	10000	25000	1000	3000	-6.77	-45.040	<-26.77	PASS
2462	30	10000	1000	3000	-6.3	-44.000	<-26.3	PASS
2462	10000	25000	1000	3000	-6.3	-44.760	<-26.3	PASS
2462	30	10000	1000	3000	-6.38	-44.480	<-26.38	PASS
2462	10000	25000	1000	3000	-6.38	-44.510	<-26.38	PASS
2422	30	10000	1000	3000	-9.77	-41.560	<-29.77	PASS
2422	10000	25000	1000	3000	-9.77	-45.170	<-29.77	PASS
2422	30	10000	1000	3000	-9.26	-45.290	<-29.26	PASS
2422	10000	25000	1000	3000	-9.26	-44.860	<-29.26	PASS
2437	30	10000	1000	3000	-9.94	-43.200	<-29.94	PASS
2437	10000	25000	1000	3000	-9.94	-45.230	<-29.94	PASS
2437	30	10000	1000	3000	-9.12	-45.210	<-29.12	PASS
2437	10000	25000	1000	3000	-9.12	-44.960	<-29.12	PASS
2452	30	10000	1000	3000	-9.83	-43.790	<-29.83	PASS
2452	10000	25000	1000	3000	-9.83	-45.160	<-29.83	PASS
2452	30	10000	1000	3000	-9.23	-44.960	<-29.23	PASS
2452	10000	25000	1000	3000	-9.23	-45.450	<-29.23	PASS
	2437 2437 2437 2462 2462 2462 2462 2462 2422 2422 242	2437     10000       2437     30       2437     10000       2462     30       2462     10000       2462     30       2462     10000       2422     30       2422     10000       2422     30       2422     10000       2437     30       2437     10000       2437     30       2437     10000       2452     30       2452     30       2452     30	2437         10000         25000           2437         30         10000           2437         10000         25000           2462         30         10000           2462         10000         25000           2462         30         10000           2462         10000         25000           2422         30         10000           2422         30         10000           2422         30         10000           2437         30         10000           2437         10000         25000           2437         30         10000           2437         10000         25000           2452         30         10000           2452         30         10000           2452         30         10000	2437         10000         25000         1000           2437         30         10000         1000           2437         10000         25000         1000           2462         30         10000         1000           2462         10000         25000         1000           2462         10000         25000         1000           2462         10000         25000         1000           2422         30         10000         1000           2422         30         10000         1000           2422         30         10000         1000           2422         10000         25000         1000           2437         30         10000         1000           2437         10000         25000         1000           2437         10000         25000         1000           2437         10000         25000         1000           2452         30         10000         1000           2452         30         10000         1000           2452         30         10000         1000	2437         10000         25000         1000         3000           2437         30         10000         1000         3000           2437         10000         25000         1000         3000           2462         30         10000         1000         3000           2462         10000         25000         1000         3000           2462         10000         25000         1000         3000           2462         10000         25000         1000         3000           2422         30         10000         1000         3000           2422         10000         25000         1000         3000           2422         30         10000         1000         3000           2422         10000         25000         1000         3000           2437         30         10000         1000         3000           2437         10000         25000         1000         3000           2437         10000         25000         1000         3000           2437         10000         25000         1000         3000           2452         30         10000         1000 <td>2437         10000         25000         1000         3000         -6.26           2437         30         10000         1000         3000         -6.77           2437         10000         25000         1000         3000         -6.77           2462         30         10000         1000         3000         -6.3           2462         10000         25000         1000         3000         -6.3           2462         30         10000         1000         3000         -6.38           2462         10000         25000         1000         3000         -6.38           2422         30         10000         1000         3000         -9.77           2422         10000         25000         1000         3000         -9.77           2422         30         10000         1000         3000         -9.26           2422         10000         25000         1000         3000         -9.26           2437         30         10000         1000         3000         -9.94           2437         30         10000         1000         3000         -9.12           2437         10000         <td< td=""><td>2437         10000         25000         1000         3000         -6.26         -44.850           2437         30         10000         1000         3000         -6.77         -44.480           2437         10000         25000         1000         3000         -6.77         -45.040           2462         30         10000         1000         3000         -6.3         -44.000           2462         10000         25000         1000         3000         -6.3         -44.760           2462         30         10000         1000         3000         -6.38         -44.480           2462         10000         25000         1000         3000         -6.38         -44.510           2422         30         10000         1000         3000         -9.77         -41.560           2422         10000         25000         1000         3000         -9.77         -45.170           2422         30         10000         1000         3000         -9.26         -45.290           2422         10000         25000         1000         3000         -9.26         -44.860           2437         30         10000         1000<!--</td--><td>2437         10000         25000         1000         3000         -6.26         -44.850         &lt;-26.26</td>           2437         30         10000         1000         3000         -6.77         -44.480         &lt;-26.77</td>           2437         10000         25000         1000         3000         -6.77         -45.040         &lt;-26.77</td<></td> 2462         30         10000         1000         3000         -6.3         -44.000         <-26.3	2437         10000         25000         1000         3000         -6.26           2437         30         10000         1000         3000         -6.77           2437         10000         25000         1000         3000         -6.77           2462         30         10000         1000         3000         -6.3           2462         10000         25000         1000         3000         -6.3           2462         30         10000         1000         3000         -6.38           2462         10000         25000         1000         3000         -6.38           2422         30         10000         1000         3000         -9.77           2422         10000         25000         1000         3000         -9.77           2422         30         10000         1000         3000         -9.26           2422         10000         25000         1000         3000         -9.26           2437         30         10000         1000         3000         -9.94           2437         30         10000         1000         3000         -9.12           2437         10000 <td< td=""><td>2437         10000         25000         1000         3000         -6.26         -44.850           2437         30         10000         1000         3000         -6.77         -44.480           2437         10000         25000         1000         3000         -6.77         -45.040           2462         30         10000         1000         3000         -6.3         -44.000           2462         10000         25000         1000         3000         -6.3         -44.760           2462         30         10000         1000         3000         -6.38         -44.480           2462         10000         25000         1000         3000         -6.38         -44.510           2422         30         10000         1000         3000         -9.77         -41.560           2422         10000         25000         1000         3000         -9.77         -45.170           2422         30         10000         1000         3000         -9.26         -45.290           2422         10000         25000         1000         3000         -9.26         -44.860           2437         30         10000         1000<!--</td--><td>2437         10000         25000         1000         3000         -6.26         -44.850         &lt;-26.26</td>           2437         30         10000         1000         3000         -6.77         -44.480         &lt;-26.77</td>           2437         10000         25000         1000         3000         -6.77         -45.040         &lt;-26.77</td<>	2437         10000         25000         1000         3000         -6.26         -44.850           2437         30         10000         1000         3000         -6.77         -44.480           2437         10000         25000         1000         3000         -6.77         -45.040           2462         30         10000         1000         3000         -6.3         -44.000           2462         10000         25000         1000         3000         -6.3         -44.760           2462         30         10000         1000         3000         -6.38         -44.480           2462         10000         25000         1000         3000         -6.38         -44.510           2422         30         10000         1000         3000         -9.77         -41.560           2422         10000         25000         1000         3000         -9.77         -45.170           2422         30         10000         1000         3000         -9.26         -45.290           2422         10000         25000         1000         3000         -9.26         -44.860           2437         30         10000         1000 </td <td>2437         10000         25000         1000         3000         -6.26         -44.850         &lt;-26.26</td> 2437         30         10000         1000         3000         -6.77         -44.480         <-26.77	2437         10000         25000         1000         3000         -6.26         -44.850         <-26.26



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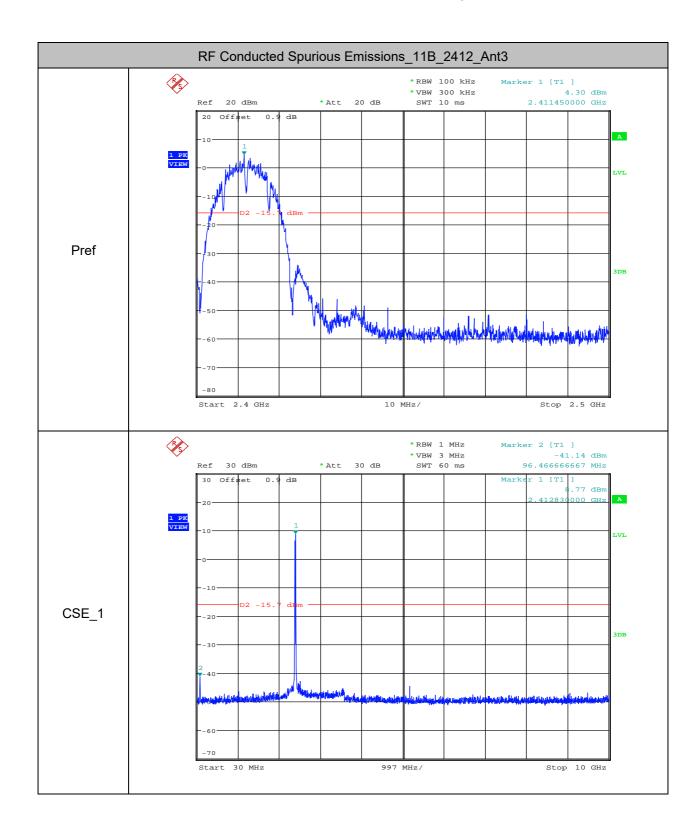
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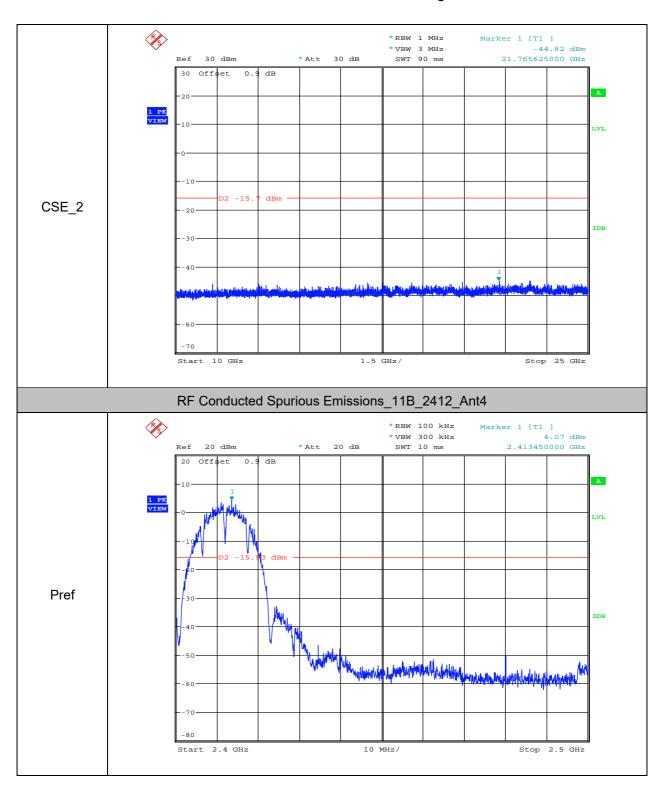
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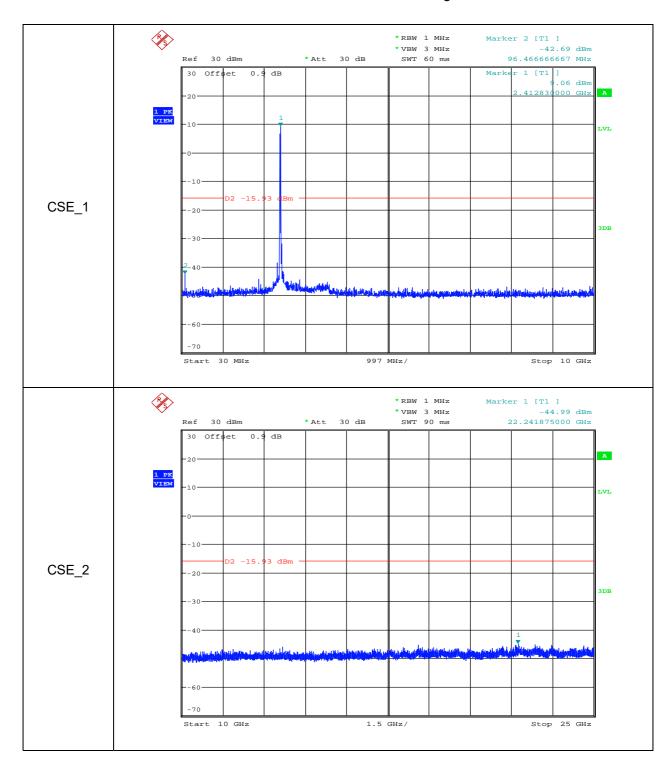
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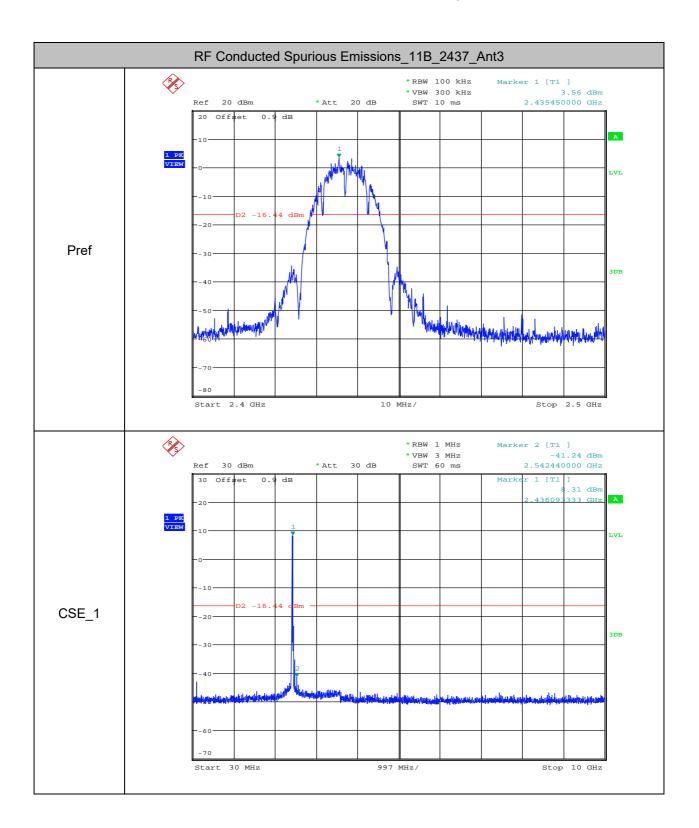
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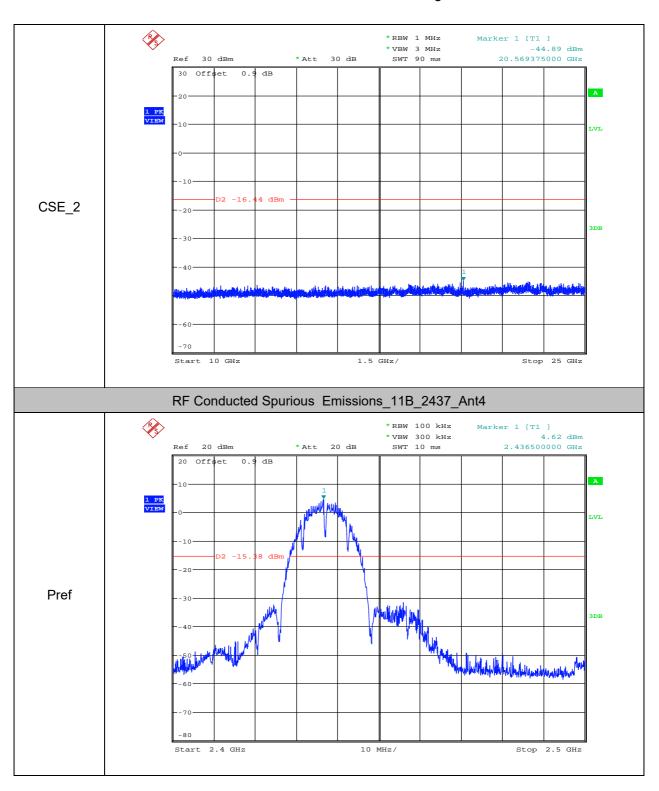
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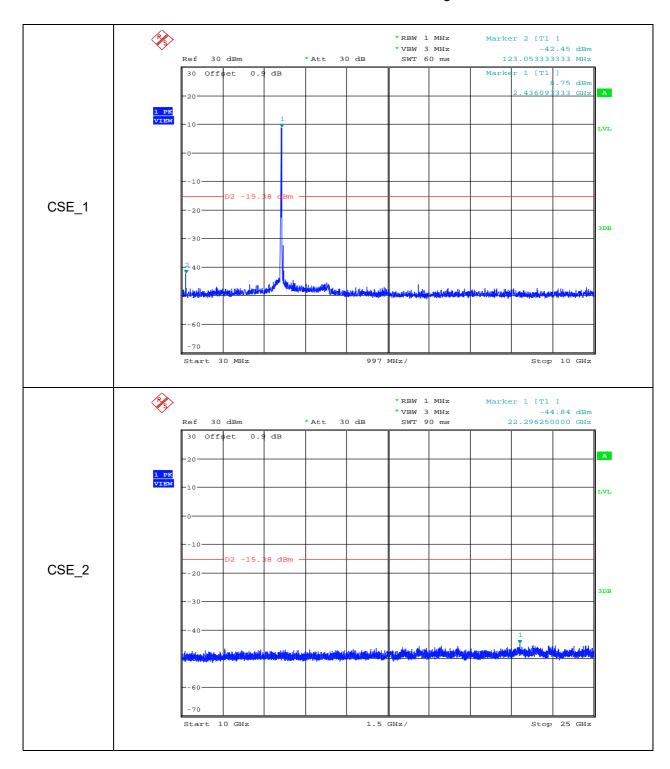
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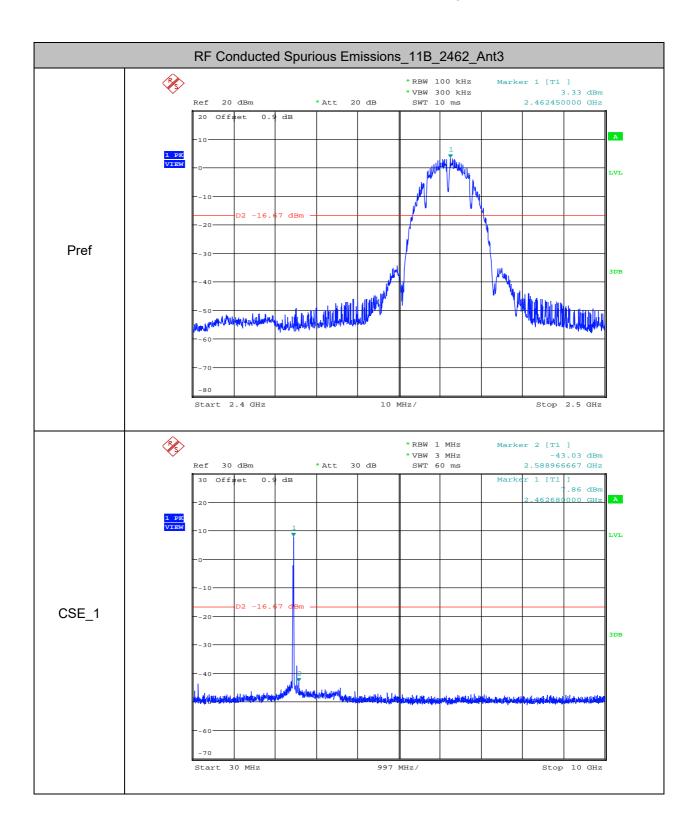
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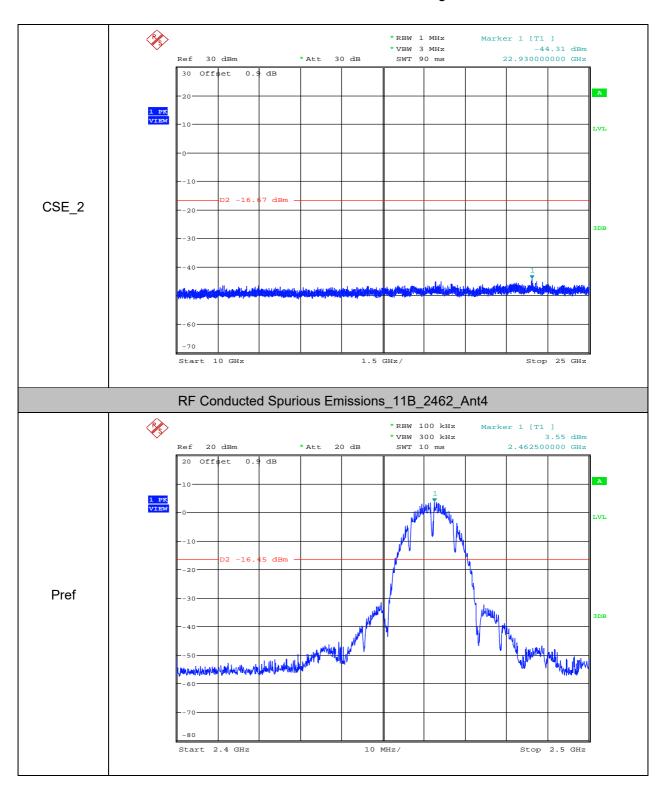
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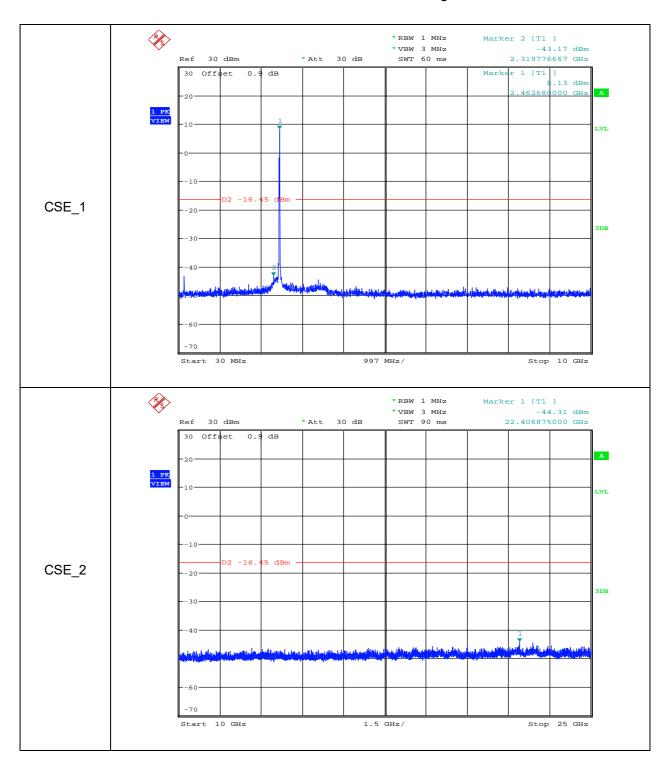
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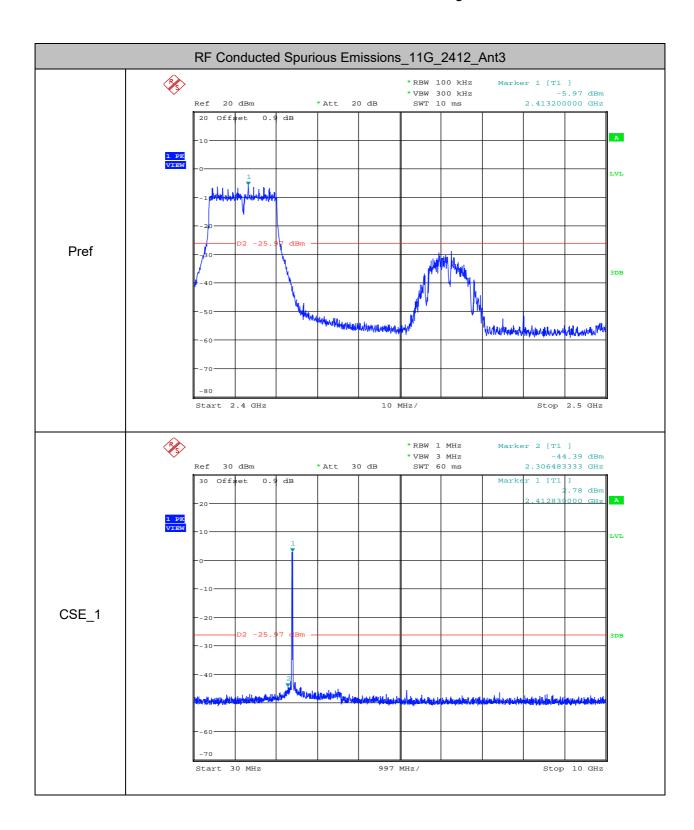
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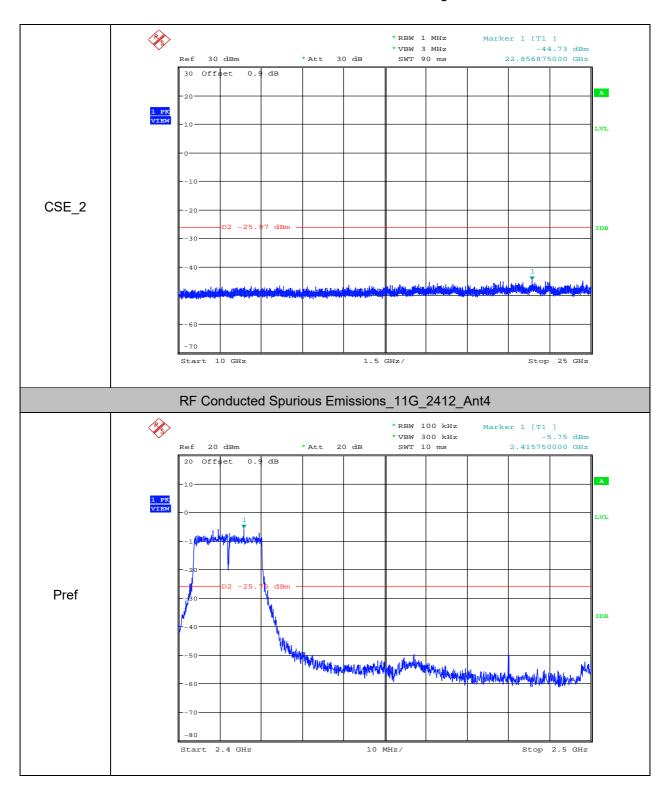
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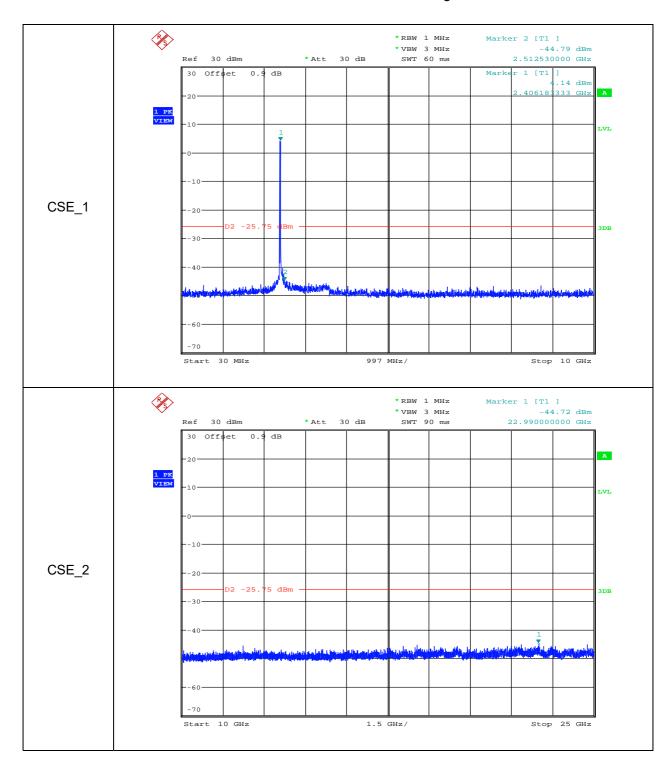
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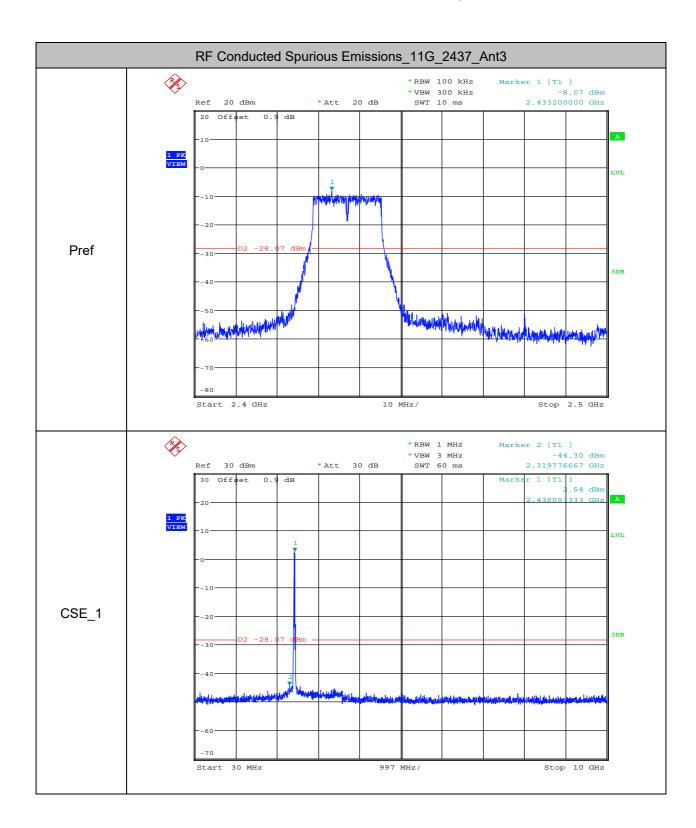
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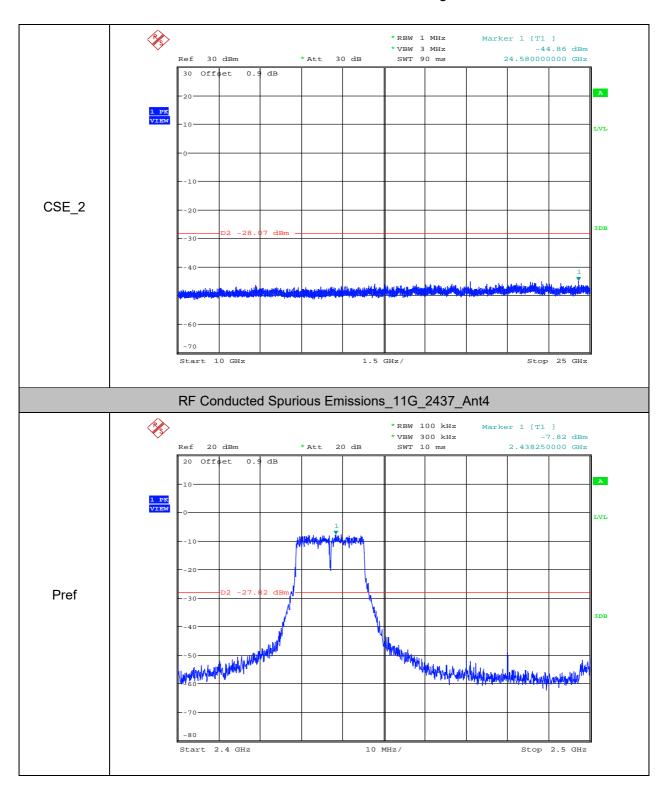
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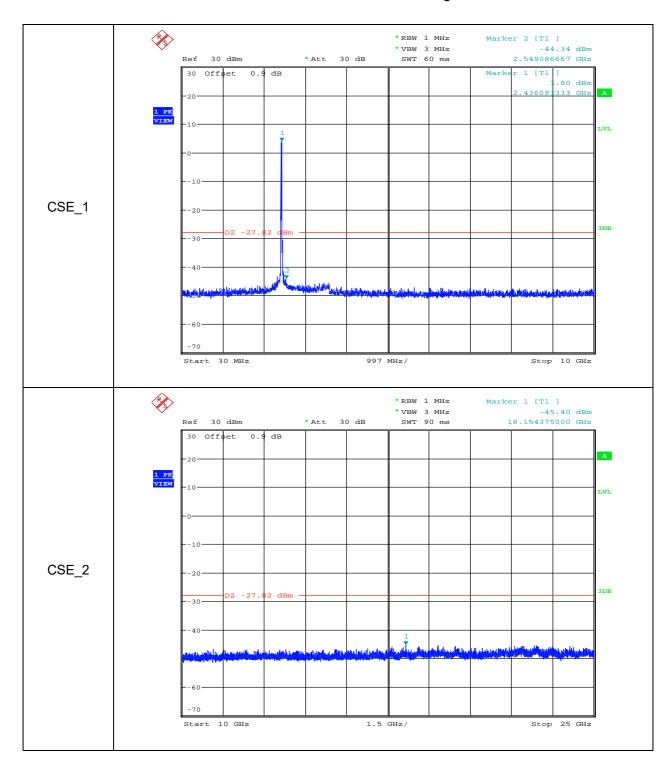
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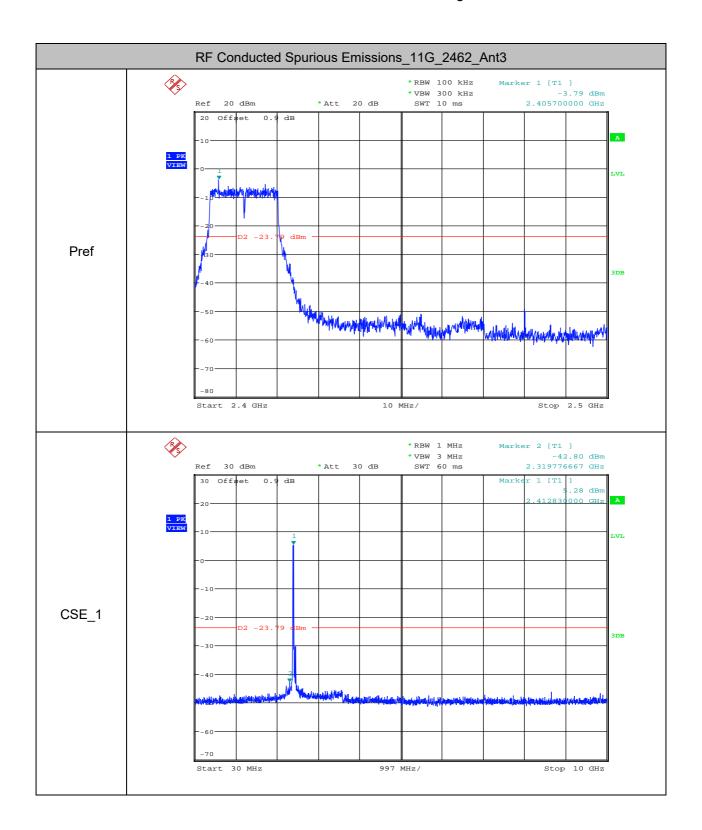
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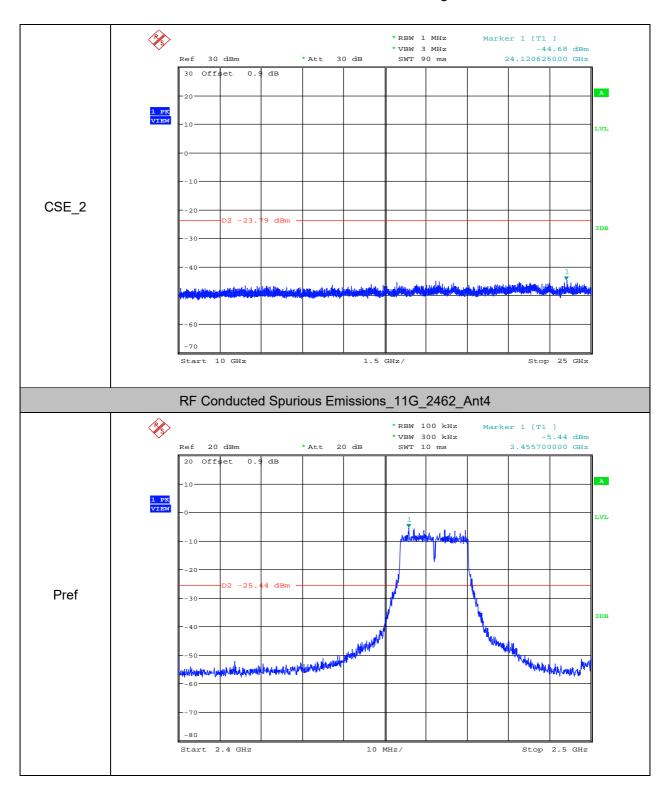
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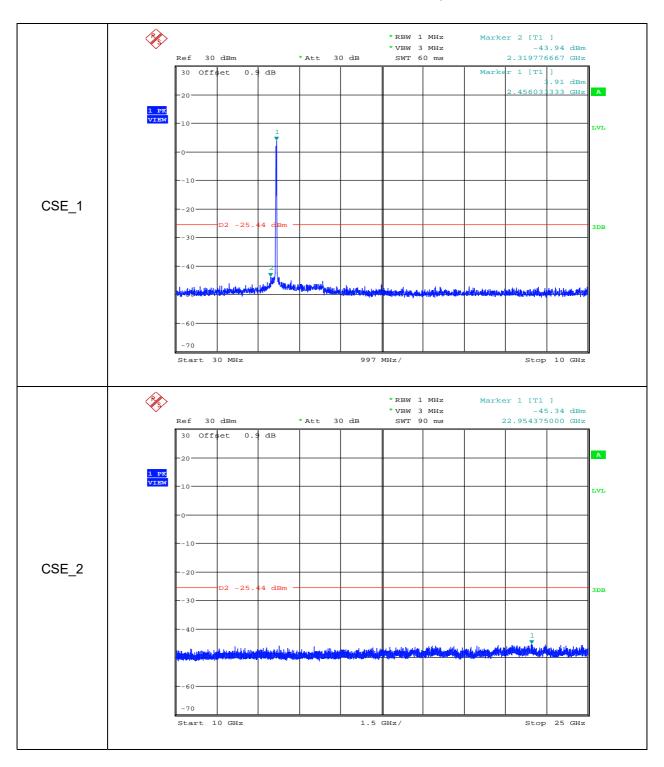
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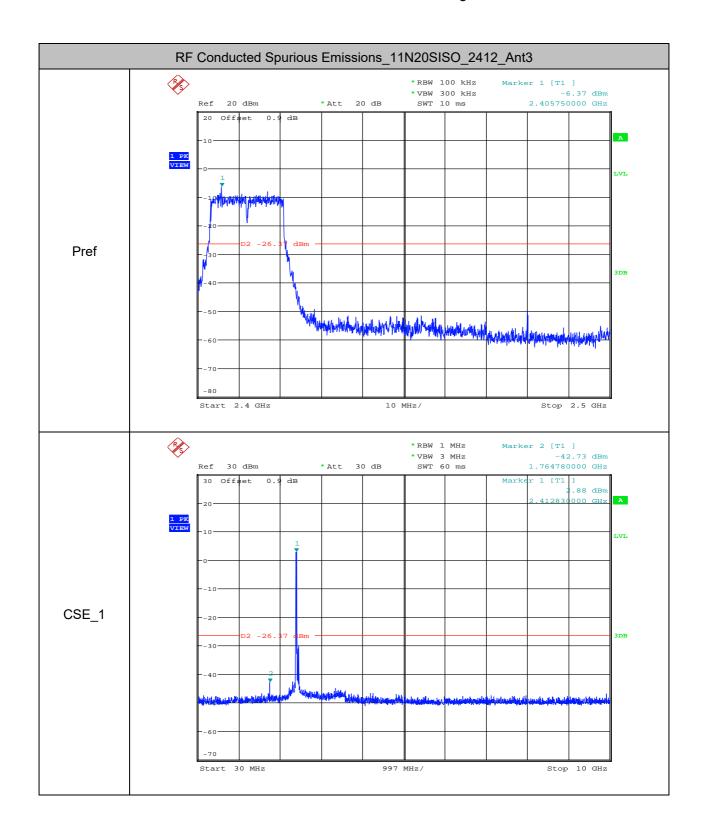
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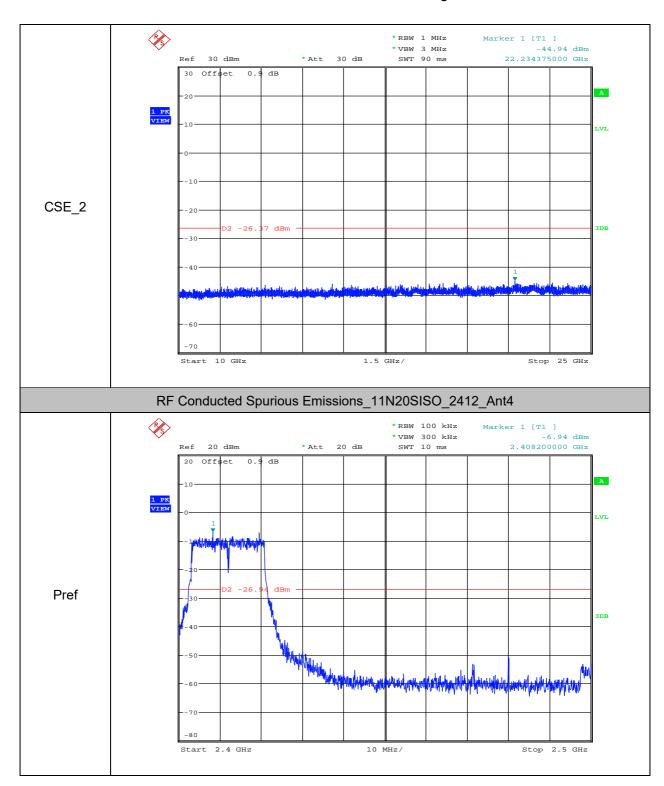
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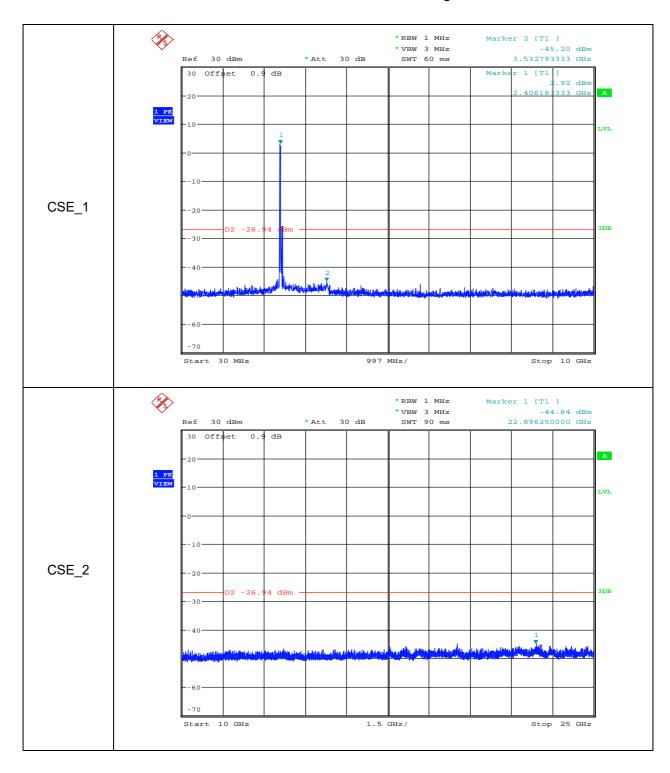
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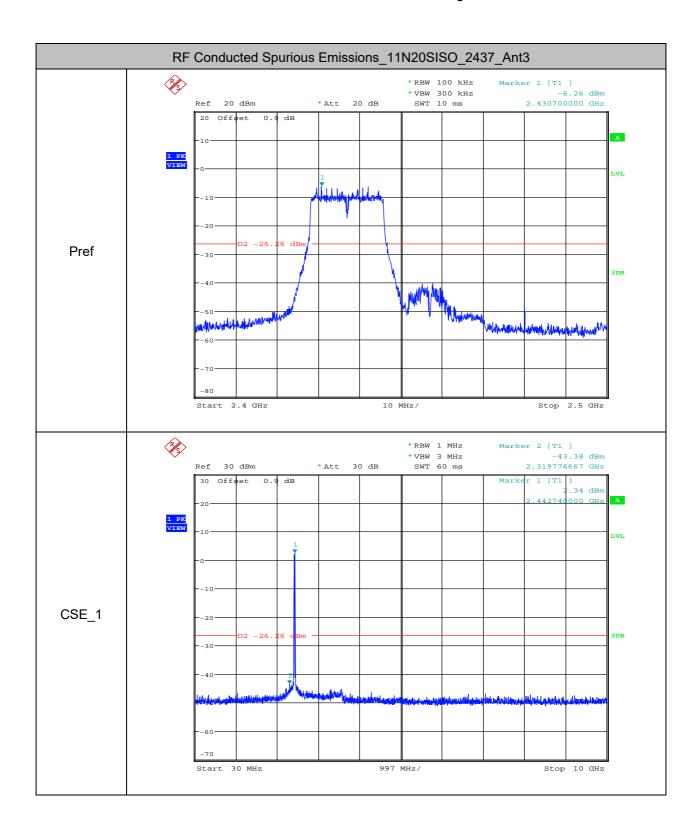
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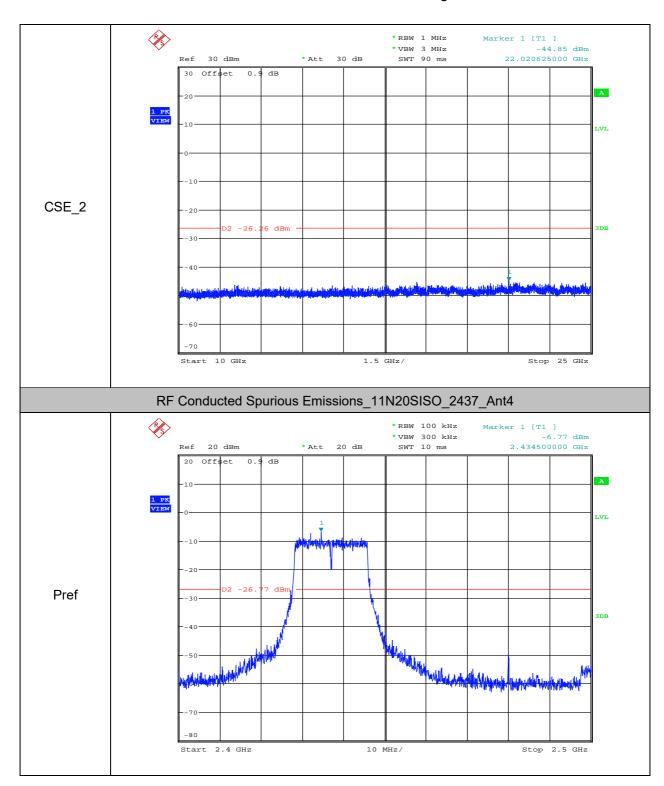
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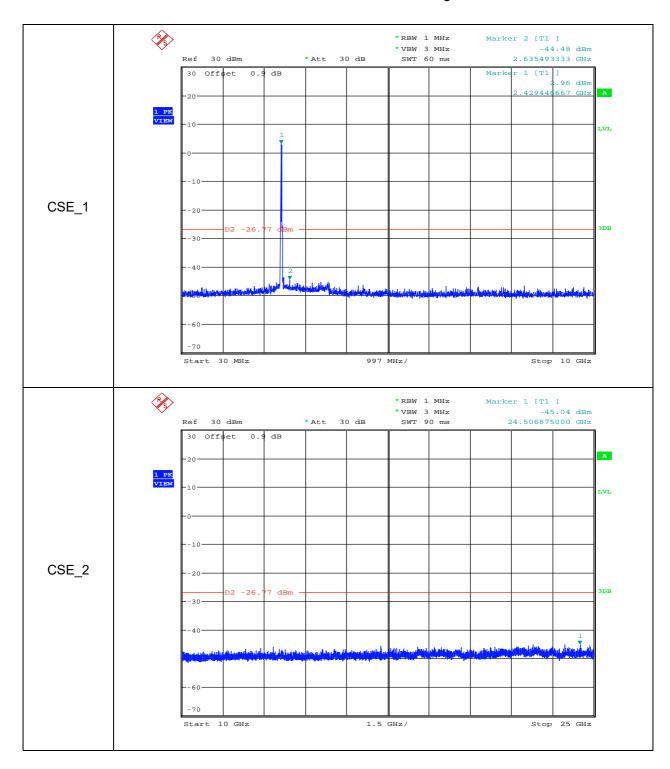
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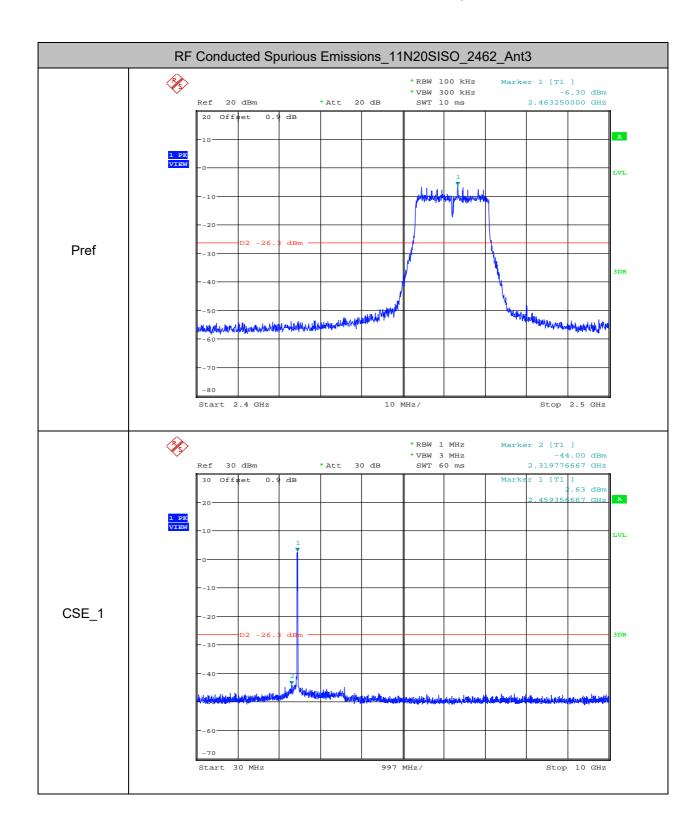
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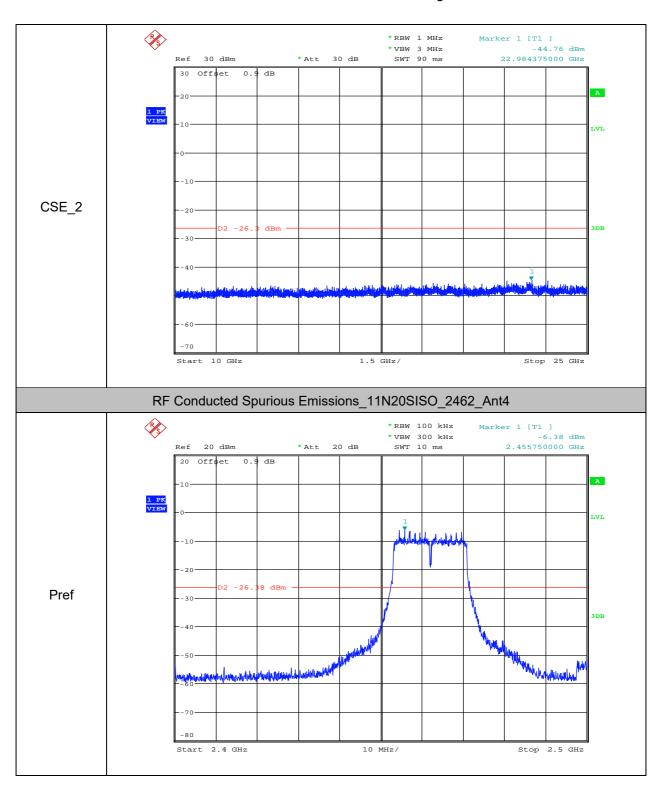
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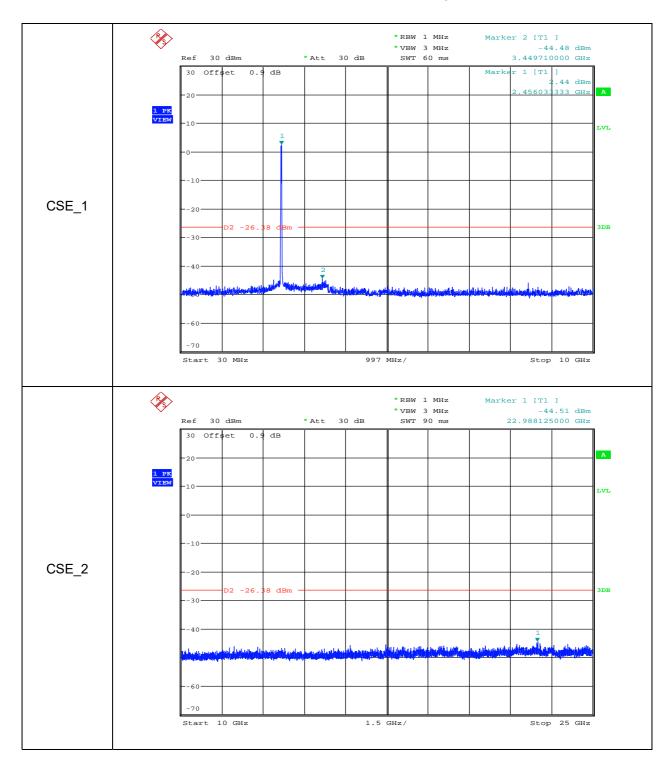
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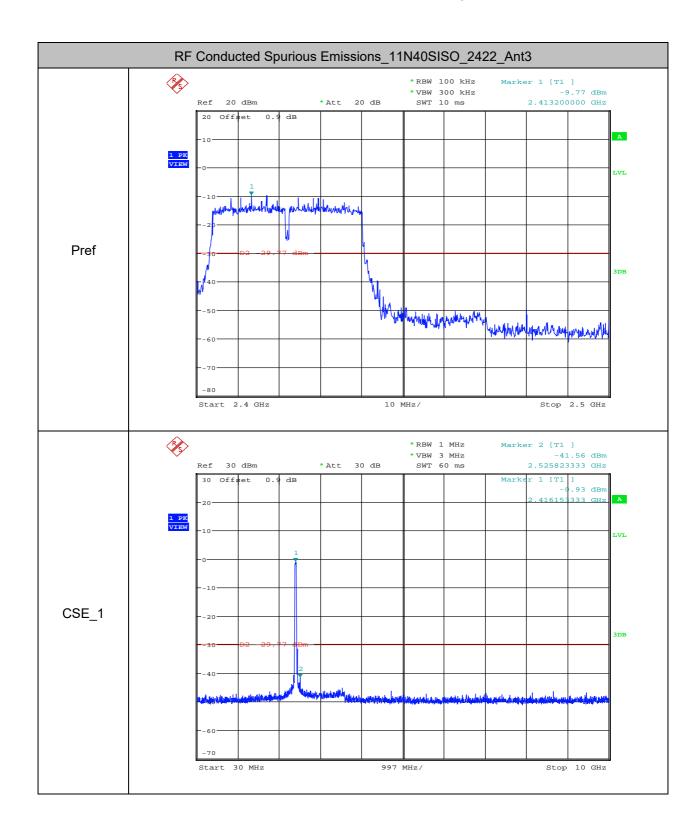
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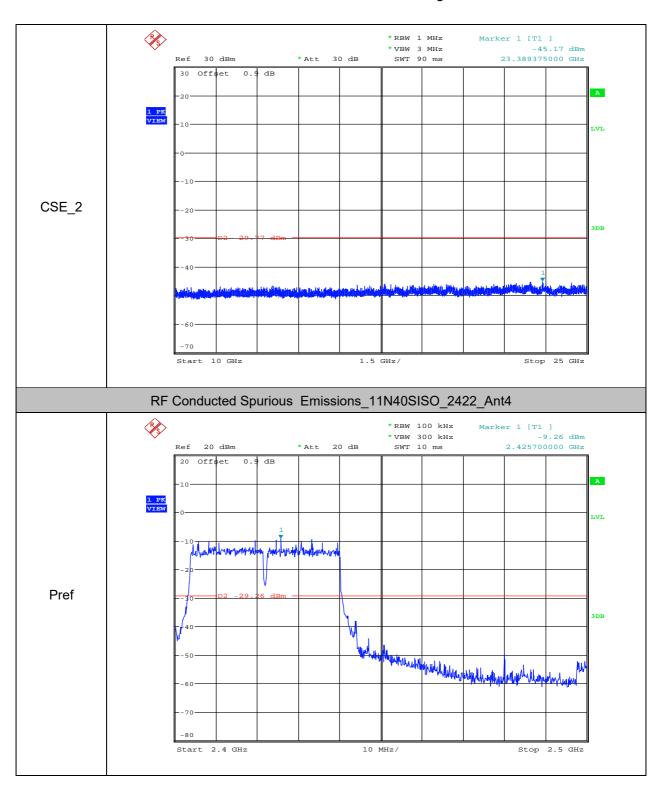
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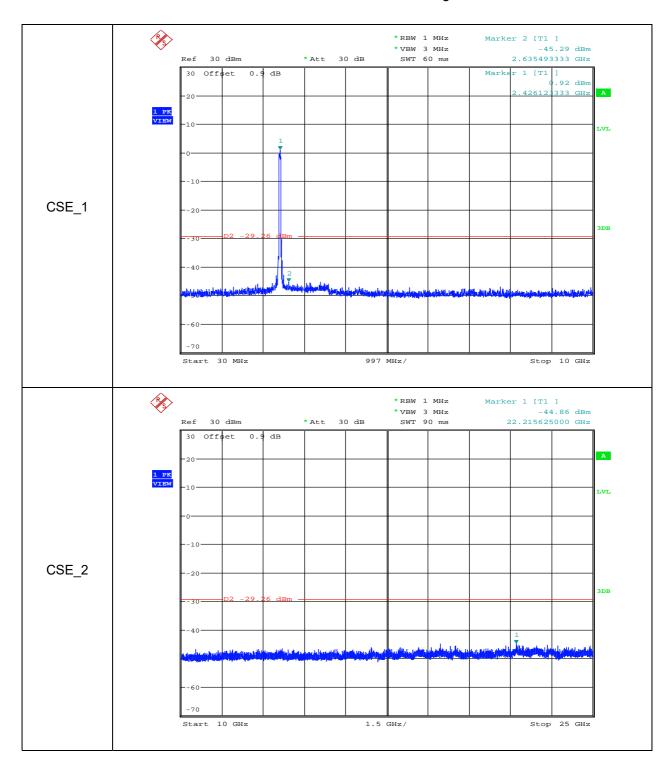
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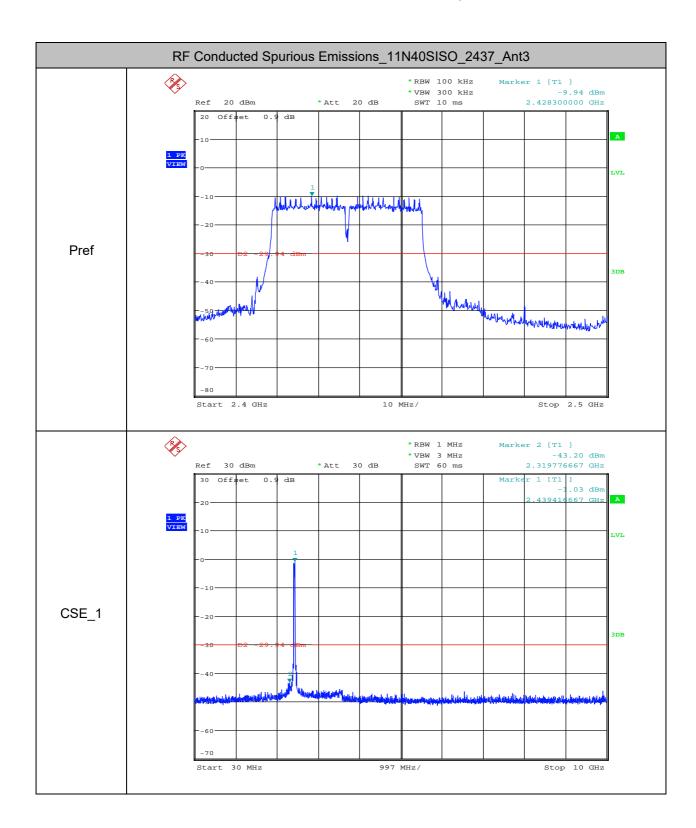
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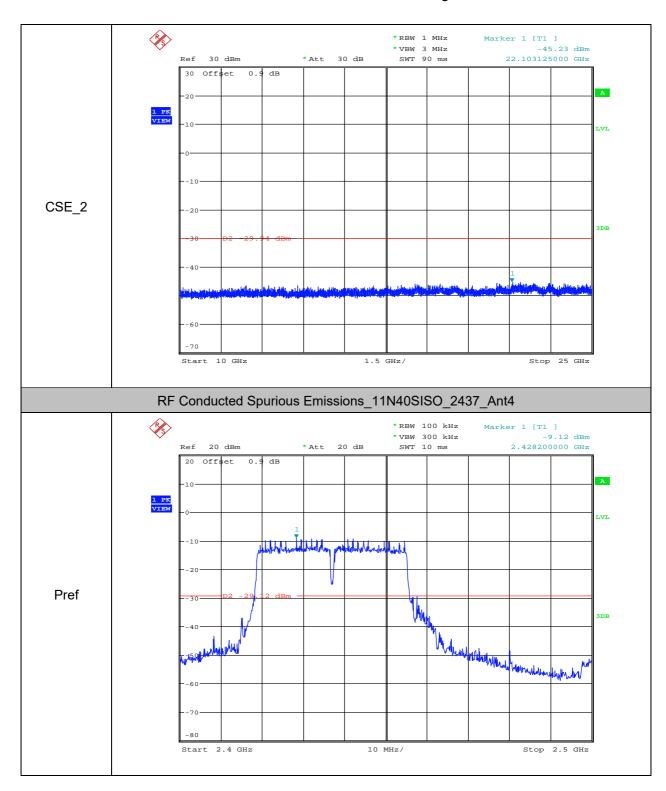
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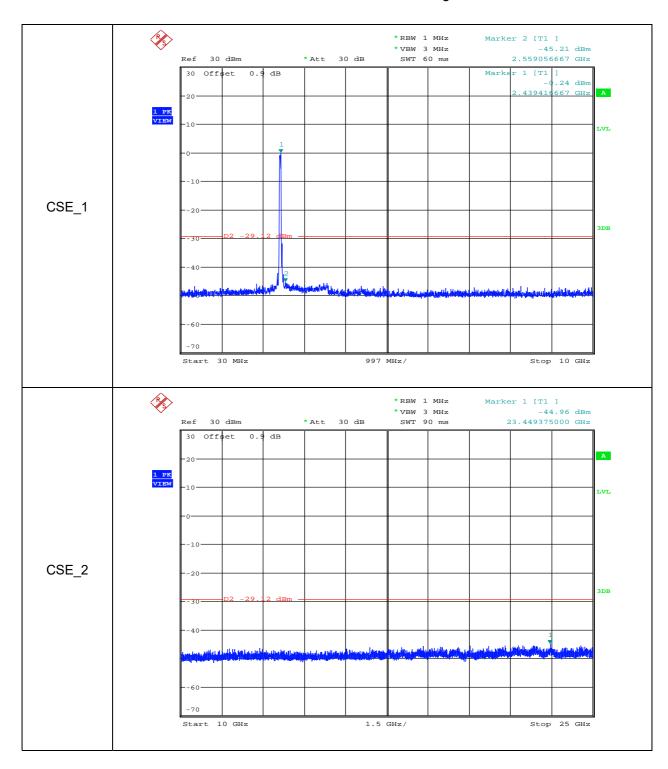
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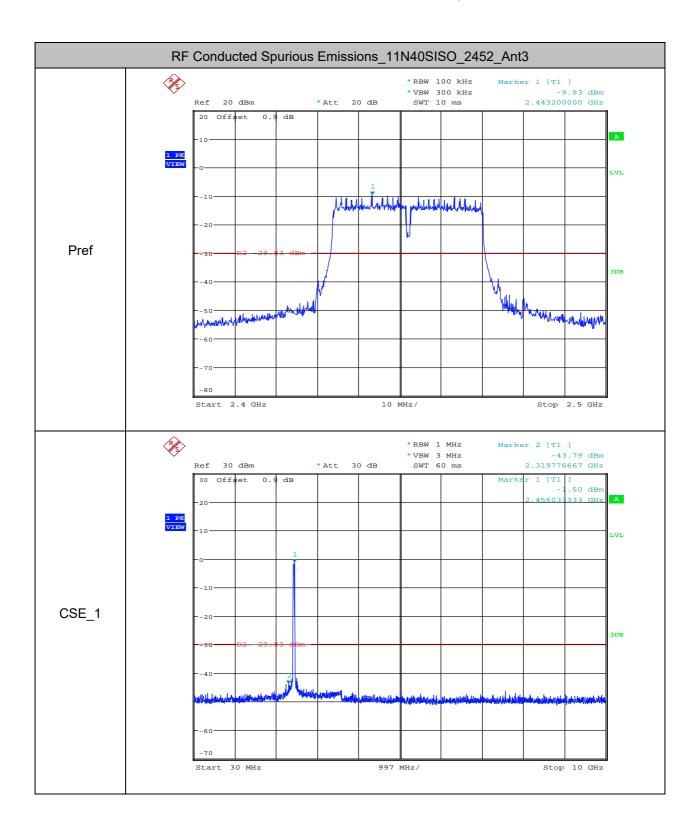
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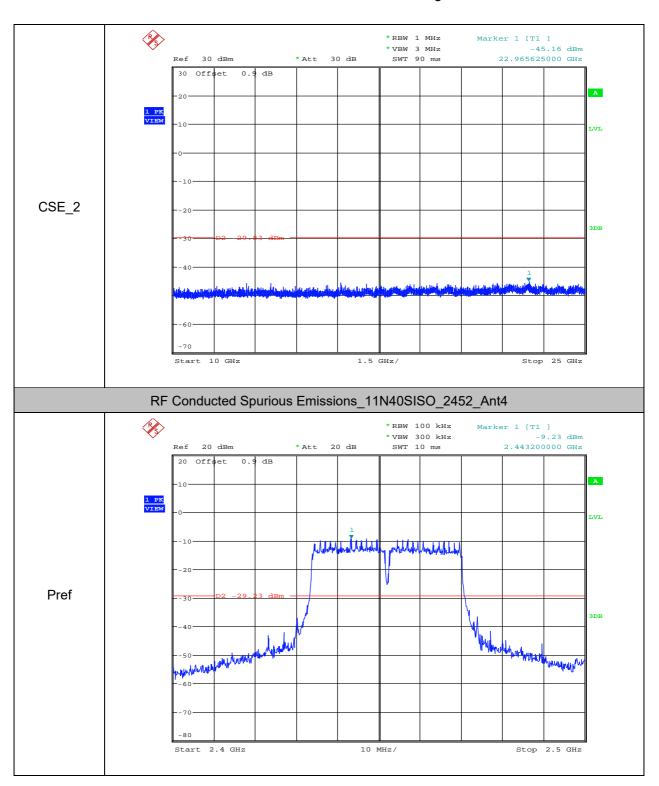
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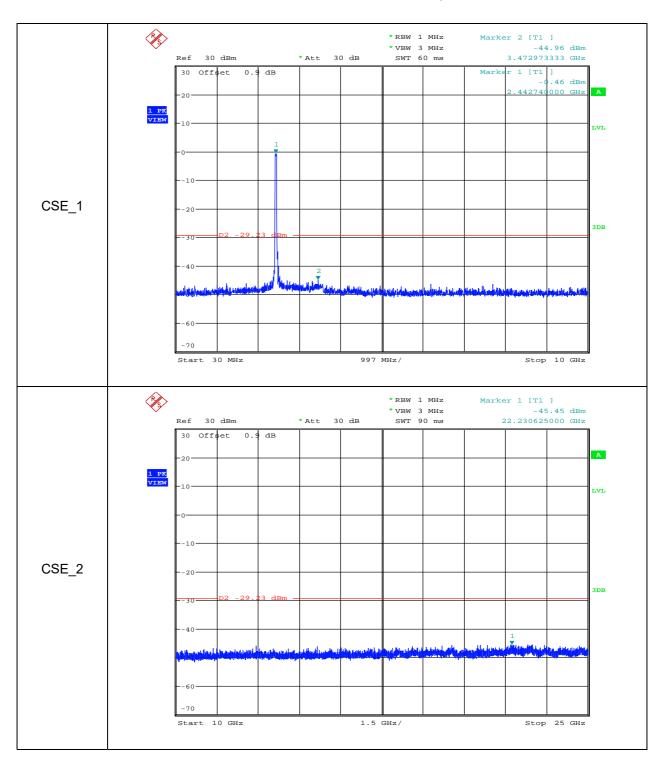
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