



TEST REPORT

REPORT NUMBER: 123W00020-WIFI 2.4G RF

ON

Type of Equipment: 4G Smart Phone
Type of Designation: MobiWire H6322, Altice S35
Brand Name: MobiWire, Altice
Manufacturer: MobiWire SAS
FCC ID: QPN-H6322

ACCORDING TO

FCC Part15

Chongqing Academy of Information and Communications Technology

Month date, year

Jun 16, 2023

Signature

Xiang Luoyong

Director

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.



Report No.: 123W00020-WIFI 2.4G RF

Revision Version

Report Number	Revision	Date	Memo
123W00020-WIFI 2.4G RF	00	2023-06-16	Initial creation of test report

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1. Test Laboratory

1.1. Testing Location

Name:	Chongqing Academy of Information and Communications Technology
FCC/IC Registration Number:	CN1239
Address:	Building C, Technology Innovation Center, No.8, Yuma Road, Chayuan New Area, Nan'an District, Chongqing, People's Republic of China
Postal Code:	401336
Telephone:	0086-23-88069965
Fax:	0086-23-88608777

1.2. Testing Environment

Normal Temperature:	15-35°C
Relative Humidity:	25-75%

1.3. Project data

Testing Start Date:	2023-05-23
Testing End Date:	2023-05-26

1.4. Signature



2023-06-16

Dong Junxin
(Prepared this test report)

Date

2023-06-16

Li Xu
(Reviewed this test report)

Date

2023-06-16

Xiang Luoyong
Director of the laboratory
(Approved this test report)

Date

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2. Client Information

2.1. Applicant Information

Company Name:	MobiWire SAS
Address /Post:	107 Boulevard de la Mission Marchand 92400 Courbevoie,France
City:	Courbevoie
Country:	France
Telephone:	+33625028368
Fax:	N/A
Email:	olivier.tiennault@mobiwire.com
Contact Person:	Olivier Tiennault

2.2. Manufacturer Information

Company Name:	MobiWire SAS
Address /Post:	107 Boulevard de la Mission Marchand 92400 Courbevoie,France
City:	Courbevoie
Country:	France
Telephone:	+33625028368
Fax:	N/A
Email:	olivier.tiennault@mobiwire.com
Contact Person:	Olivier Tiennault

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3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	4G Smart Phone
Model name	MobiWire H6322, Altice S35
Brand name	MobiWire, Altice
GSM Frequency Band	GSM:850/ 900/ 1800/1900
WCDMA Frequency Band	WCDMA:B1/B2/B5/B8
LTE Frequency Band	LTE: B1/2/3/4/5/7/8/20/28/38/41
BLUETOOTH Frequency Band	2402MHz-2480MHz
WLAN Frequency Band	Wi-Fi 2.4G:802.11b/g/n, Wi-Fi 5G U-NII-1/ U-NII-2a/U-NII-2c/U-NII-3:802.11a/n/ac
Type of modulation	CCK OFDM
Extreme Temperature	-10-55°C
Nominal Voltage	3.85V
Extreme High Voltage	4.4V
Extreme Low Voltage	3.6V

Note: Photographs of EUT are shown in ANNEX A of this test report.

Note: High and low voltage values in extreme condition test are given by manufacturer.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
S4	354365420003740 354365420003757	V01	Mobiwire_H6322_V01	2023-05-23
S8	354365420006222 354365420006230	V01	Mobiwire_H6322_V01	2023-05-23
S9	354365420009044 354365420009051	V01	Mobiwire_H6322_V01	2023-05-23

*EUT ID: is used to identify the test sample in the lab internally.

Technology	Band	UL Freq.(MHz)	DL Freq.(MHz)
WLAN	2.4G	2412MHz-2472MHz	--

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3.3. Outline of Equipment under Test

3.4. Internal Identification of AE used during the test

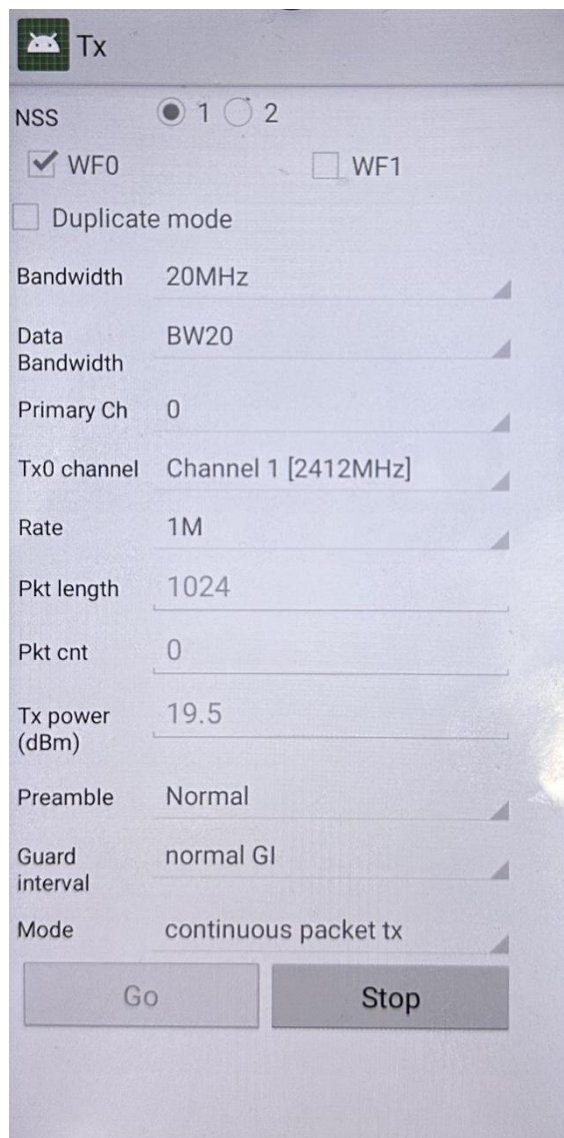
AE ID*	Description	dB*
AE1	RF cable	1dB

*AE ID: is used to identify the test sample in the lab internally.

dB*: is provided customer.

3.5. EUT Test RF Confagle Configuration

EUT uses MTK working control emission measurement, Change power level, channel, rate and HT .



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4. Reference Documents

4.1. Documents supplied by applicant

PICS/PIXIT, referring to Annex B for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title
FCC Part15	FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz
KDB 558074-2019	Guidance for Performing Compliance Measurements on Frequency Hopping Spread Spectrum systems (DSS) Operating Under §15.247

5. Test Equipments Utilized

5.1. RF Test System

No.	Equipment	Model	SN	HW Version	SW Version	Manufacture	Cal.Due Date
1	Spectrum analyzer	FSQ 26	201137/026	--	--	R&S	2023-06-29
2	Spectrum analyzer	FSW26	104280	--	--	R&S	2023-06-29
3	DC Power Supply	3303D	801128	--	--	Topward	2023-06-29

5.2. RSE and CE Test System

No.	Equipment	Model	SN	HW Version	SW Version	Manufacture	Cal.Due Date
1	EMI Test Receiver	ESU40	100307	--	--	R&S	2023-06-29
2	TRILOG Broadband Antenna	VULB9163	9163-586	--	--	Schwarzbeck	2024-10-28
3	Horn antenna	9120D	1083	--	--	Schwarzbeck	2024-12-14
4	Horn antenna	DATE 1152	LM7127	--	--	ETS	2024-09-06
5	Horn antenna	DATE 1012	LM5945	--	--	ETS	2024-09-06
6	Amplifier1	SCU-08F1	8320027	--	--	R&S	2023-06-29
7	Amplifier2	SCU-18F	180093	--	--	R&S	2023-06-29
8	2-Line V-Network	ENV216	102368	--	--	R&S	2024-05-27
9	Test Receiver	ESR 3	101382	03	3.48 SP2	R&S	2024-01-28
10	Test Receiver	ESW 26	101382	00	1.50 SP1	R&S	2023-06-29

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5.3. Climate Chamber

No.	Name	Type	SN	Manufacture	Cal.Due Date
--	--	--	--	--	--

5.4. Anechoic chamber Vibration table

No.	Name	Type	SN	Manufacture	Cal.Due Date
1	Fully-Anechoic Chamber	FAC5	--	TDK	2024-09-22
2	Anechoic Chamber	SAC 10	--	TDK	2026-08-26

5.5. Test software

No.	Name	version	SN	Manufacture
1	EMC32 (Transmitter Spurious Emission-Radiated Above 1GHz)	V 10.20.01	--	R&S
2	EMC32 (Transmitter Spurious Emission-Radiated Below 1GHz)	V9.26.01	--	R&S
3	EMC32 (AC Powerline Conducted Emission)	V 10.40.10	--	R&S

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6. Test Results

6.1. Summary of Test Results

A brief summary of the tests carried out is shown as following

FCC Rules	Name of Test	Result
15.247(b)	Duty cycle	Pass
15.247(b)	Maximum Peak Output Power	Pass
15.247(e)	Peak Power Spectral Density	Pass
15.247(a)	Occupied Bandwidth	Pass
15.247(d)	Band Edges Compliance	Pass
15.247(d)	Transmitter Spurious Emission-Conducted	Pass
15.247/15.205/15.209	Transmitter Spurious Emission-Radiated	Pass
15.207	AC Powerline Conducted Emission	Pass

NOTE:
The MobiWire H6322, Altice 535, manufactured by MobiWire SAS is a new product for testing.
The following configurations were tested for radiation spurious emission:

6.2. Duty cycle

Specifications:	FCC 47 Part 15.247(b)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Measurement Uncertainty:

Measurement Uncertainty	--
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Test Procedure

This measurement is according to ANSI C63.10 clause 11.6

Measurements of duty cycle and transmission duration shall be performed using one of the following techniques:

a) A diode detector and an oscilloscope that together have a sufficiently short response time to permit accurate measurements of the ON and OFF times of the transmitted signal.

b) The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:

1) Set the center frequency of the instrument to the center frequency of the transmission.

2) Set $RBW \geq OBW$ if possible; otherwise, set RBW to the largest available value.

3) Set $VBW \geq RBW$. Set detector = peak or average.

4) The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if $T \leq 16.7 \mu s$.)

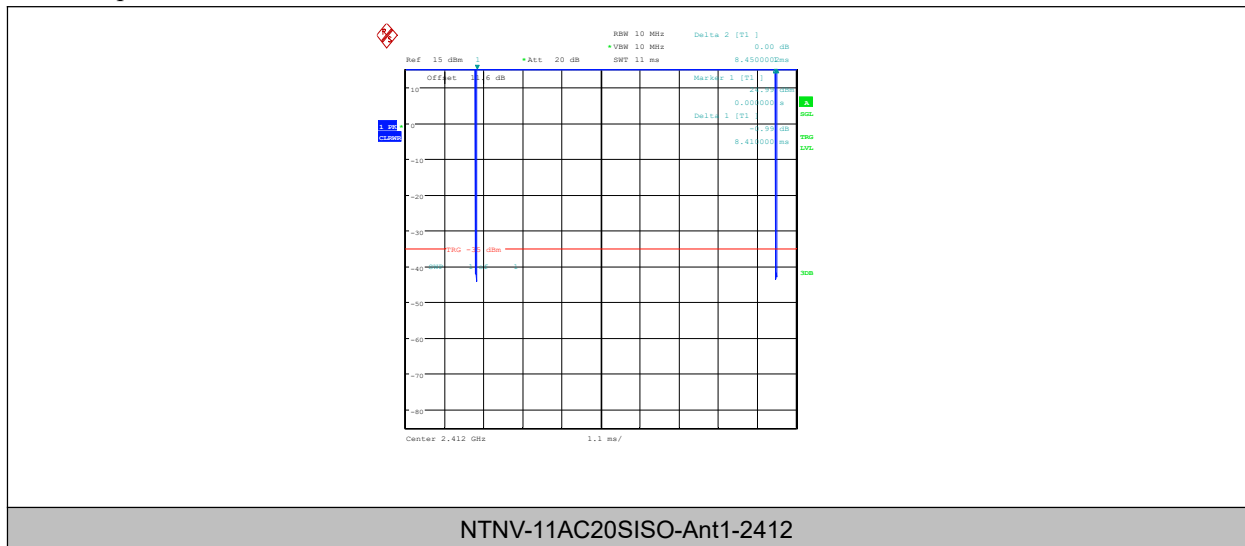
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Measurement Results

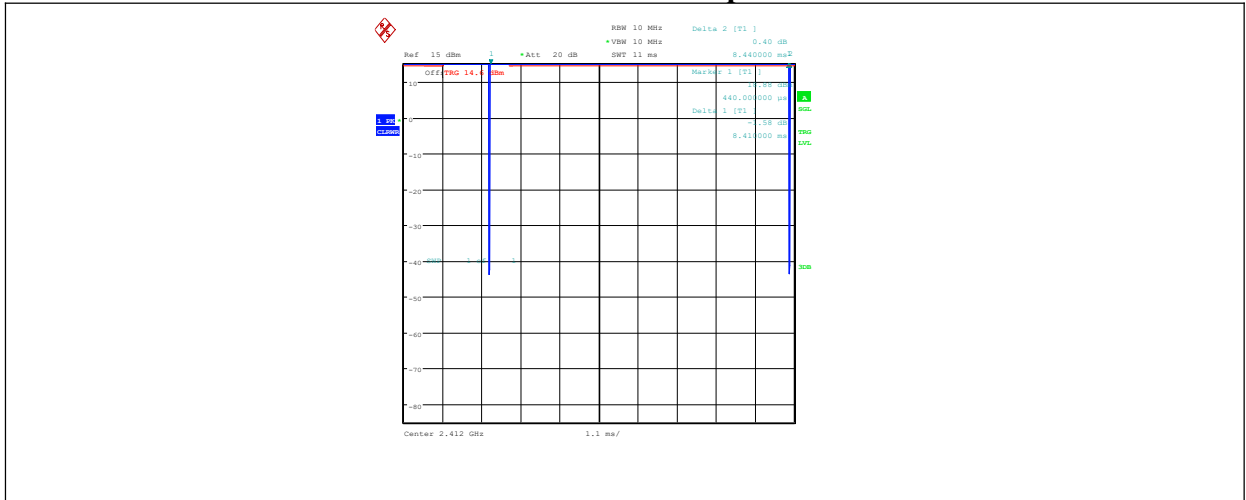
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Factor
11AC20SISO	Ant1	2412	8.41	8.45	99.53	0.02
11B	Ant1	2412	8.41	8.44	99.64	0.02
11B	Ant1	2437	8.41	8.45	99.53	0.02
11B	Ant1	2462	8.41	8.44	99.64	0.02
11G	Ant1	2412	1.40	1.44	97.22	0.12
11G	Ant1	2437	1.40	1.44	97.22	0.12
11G	Ant1	2462	1.40	1.44	97.22	0.12
11N20SISO	Ant1	2412	1.31	1.35	97.04	0.13
11N20SISO	Ant1	2437	1.31	1.35	97.04	0.13
11N20SISO	Ant1	2462	1.30	1.34	97.01	0.13
11N40SISO	Ant1	2422	0.65	0.69	94.20	0.26
11N40SISO	Ant1	2437	0.65	0.70	92.86	0.32
11N40SISO	Ant1	2452	0.65	0.69	94.20	0.26

Test Graphs

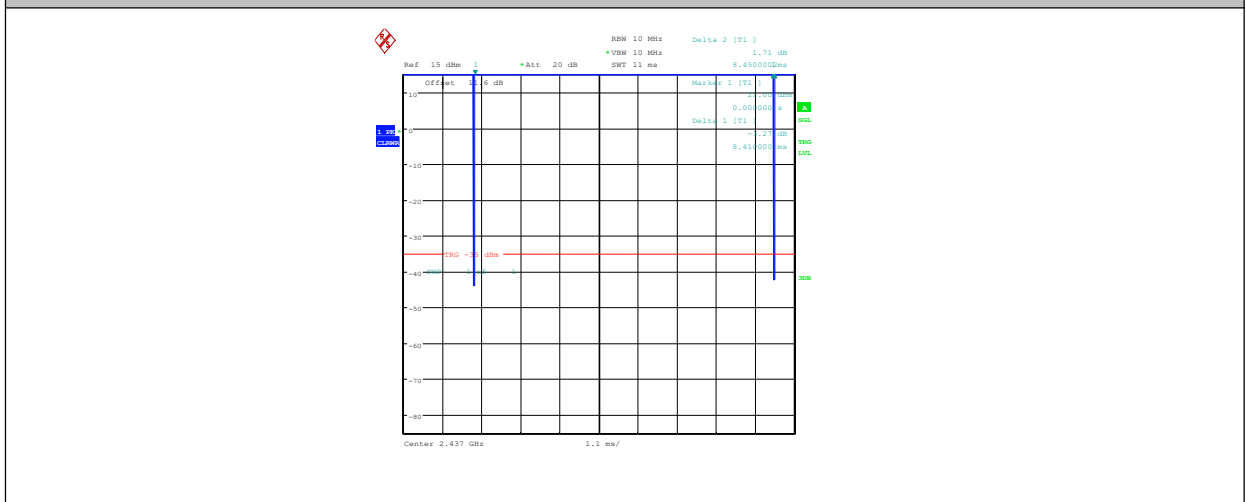


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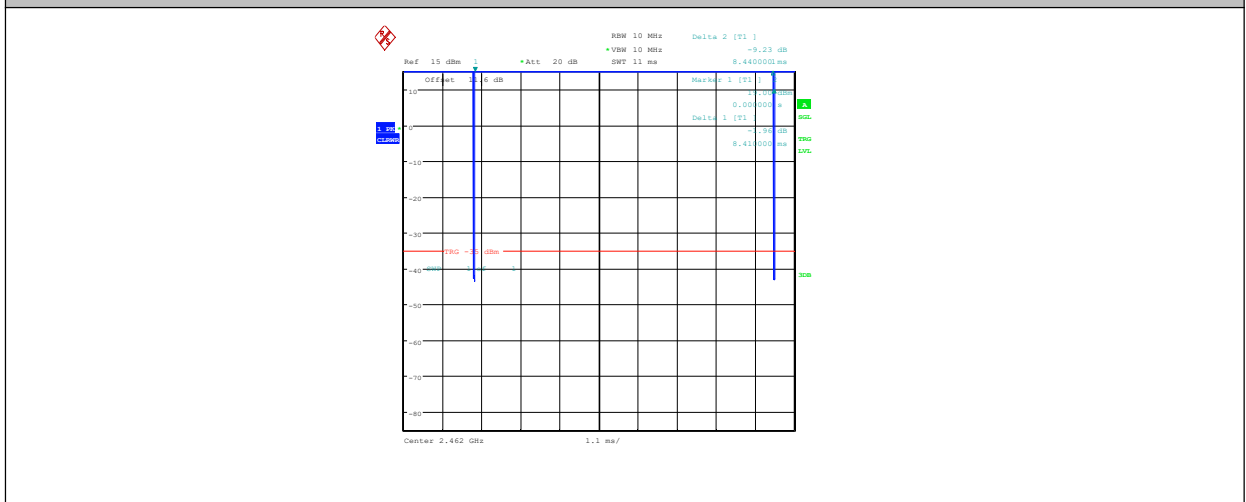
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NTNV-11B-Ant1-2412



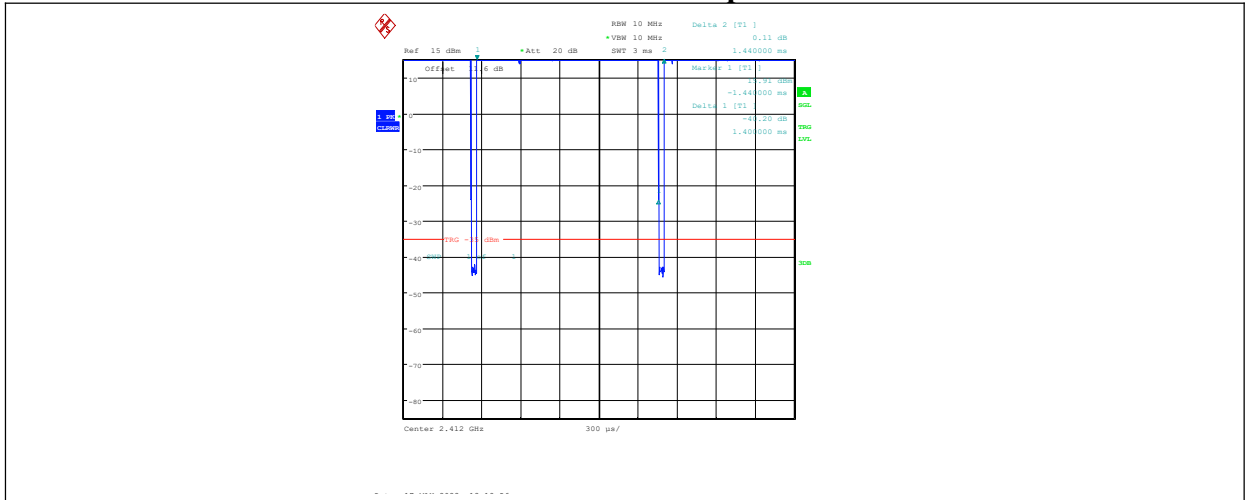
NTNV-11B-Ant1-2437



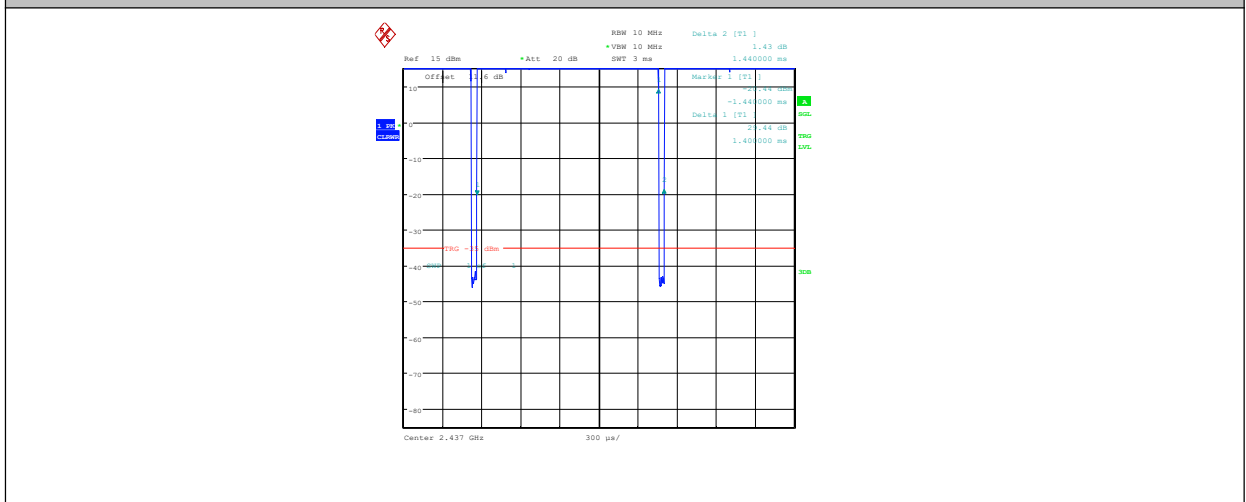
NTNV-11B-Ant1-2462

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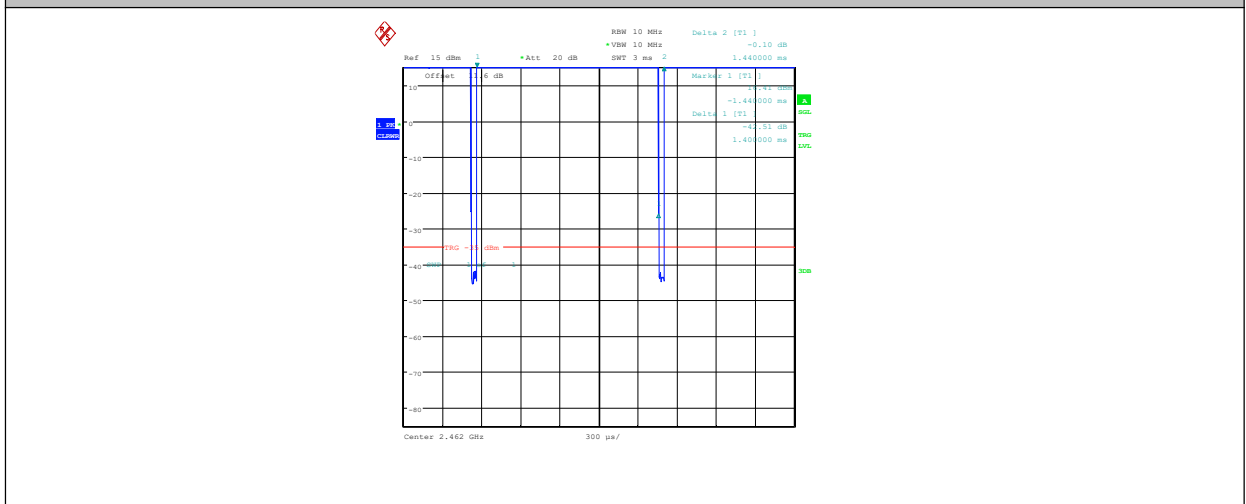
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NTNV-11G-Ant1-2412



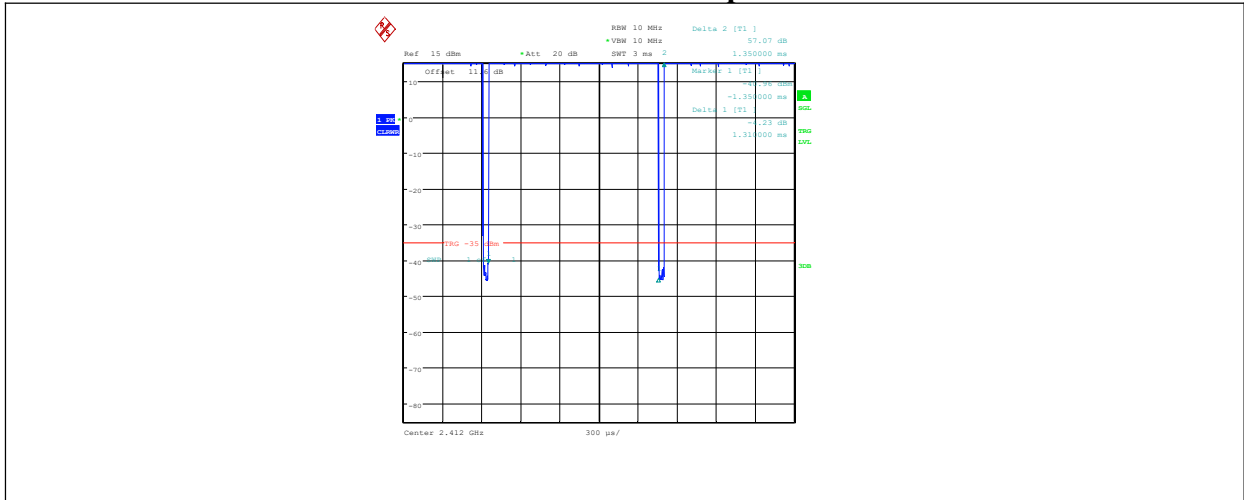
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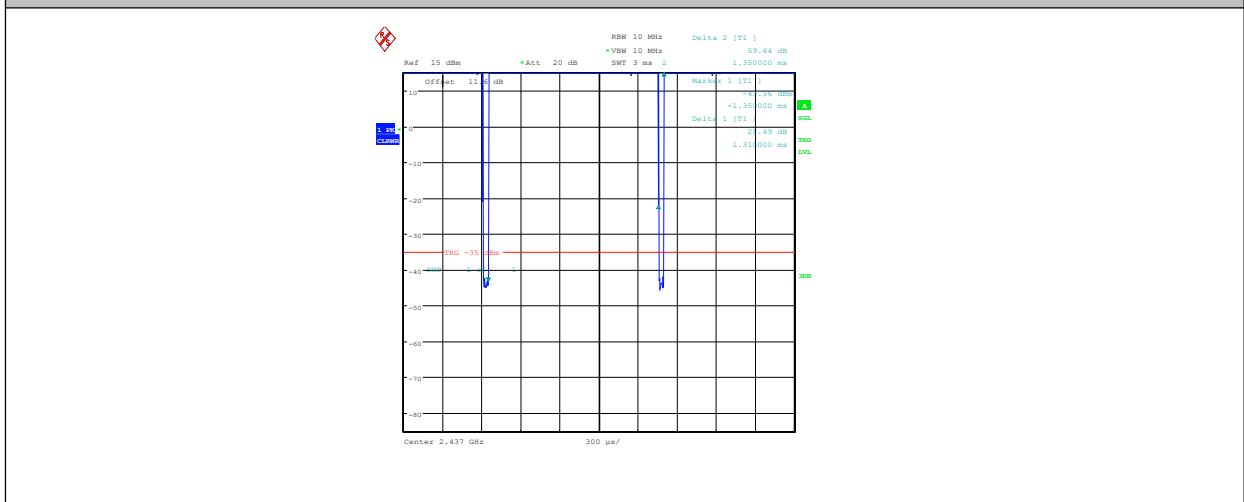
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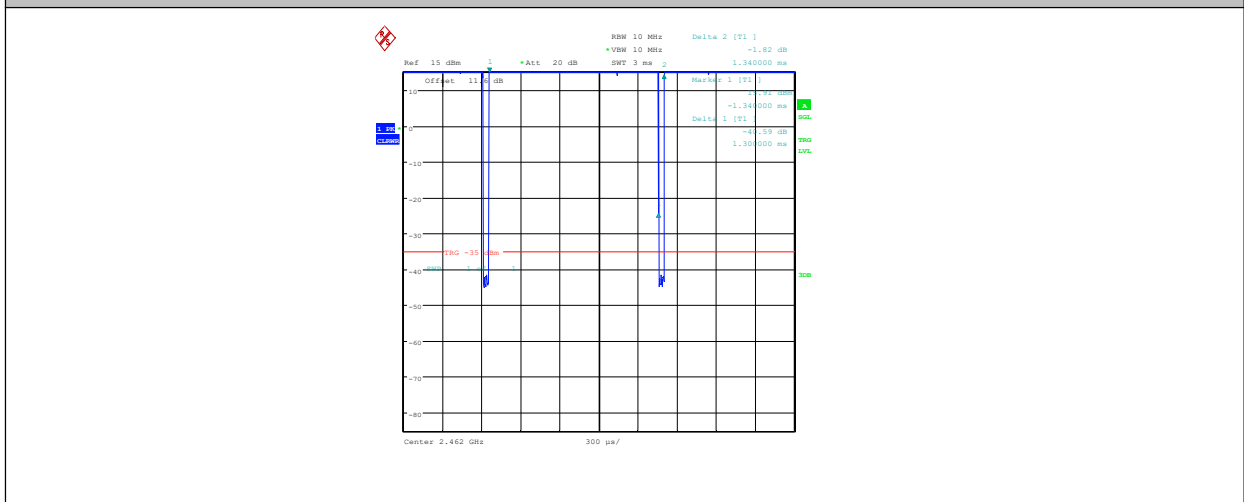
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NTNV-11N20SISO-Ant1-2412



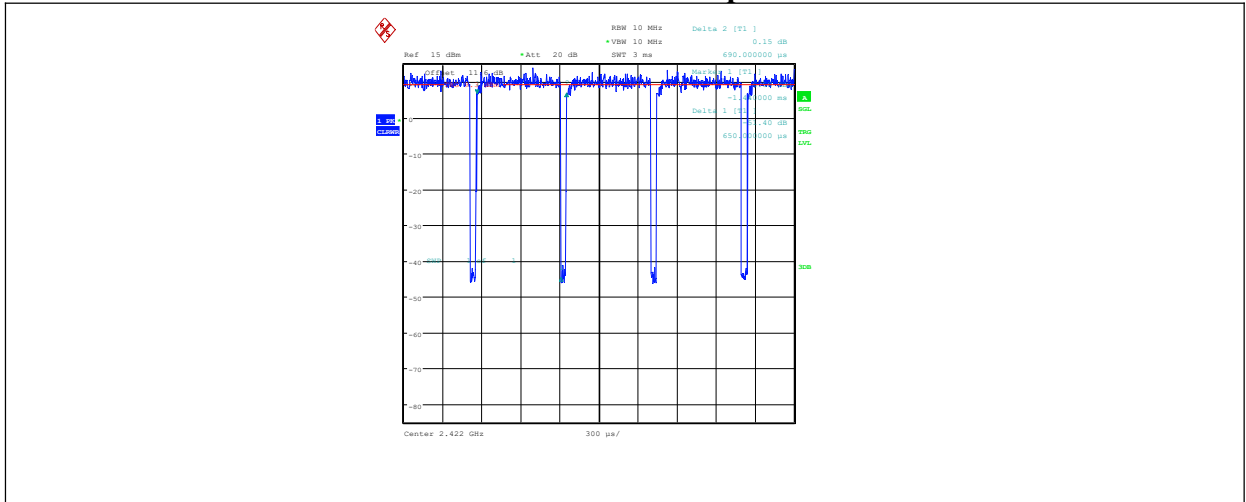
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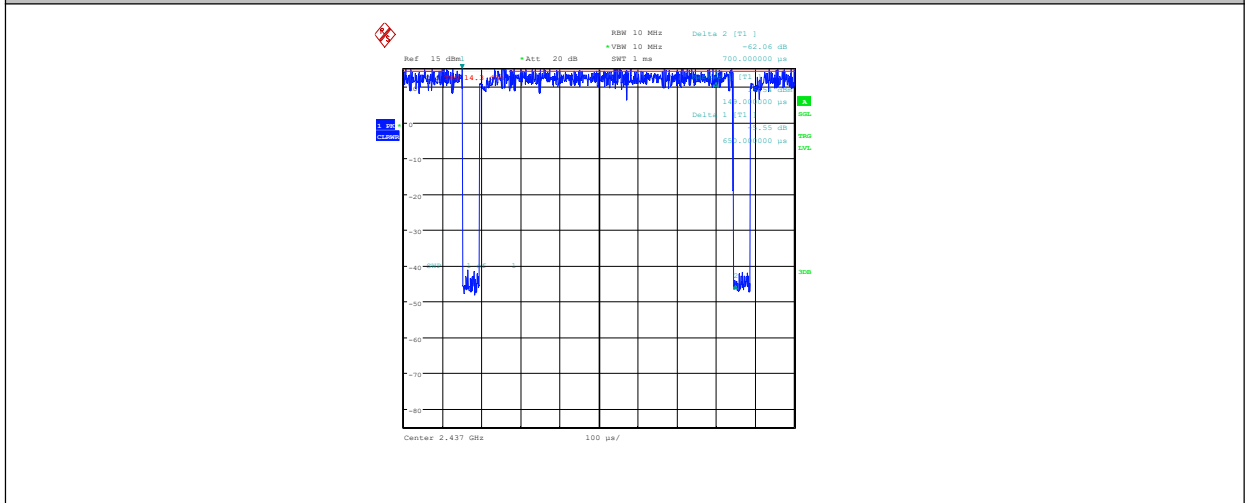
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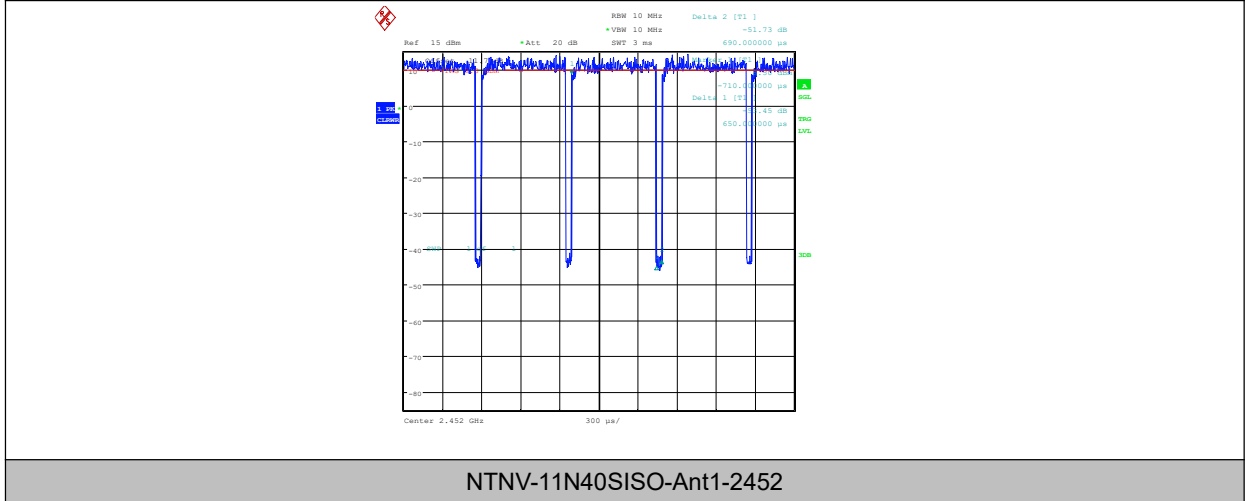
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NTNV-11N40SISO-Ant1-2422



NTNV-11N40SISO-Ant1-2437



NTNV-11N40SISO-Ant1-2452

6.3. Output Power-Conducted

Specifications:	FCC 47 Part 15.247(b)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247(b)(3)	<30

Measurement Uncertainty:

Measurement Uncertainty	±0.48dBm
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Test Procedure

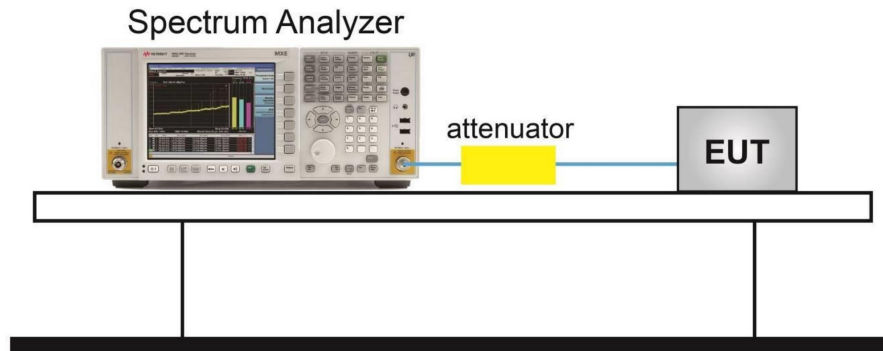
The measurement is according to ANSI C63.10 clause 11.9.

1. Set span to at least 1.5 times the OBW.
2. Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
3. Set VBW $\geq 3 \times$ RBW.
4. Number of points in sweep $\geq 2 \times$ span / RBW. (This gives bin-to-bin spacing \leq RBW/2, so that narrowband signals are not lost between frequency bins.)
5. Sweep time = auto.
6. Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
7. If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".
8. Trace average at least 100 traces in power averaging (i.e., RMS) mode.i) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum

Test setup

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Antenna gain of EUT

No.	Item(s)	Data
1	Antenna gain of EUT	1.15 dBi

Note: The data is provided by the customer may affect the validity of the test results in this report, and the impact and consequences of this shall be undertaken by the customer.

Maximum Average Output Power-conducted

Measurement Results

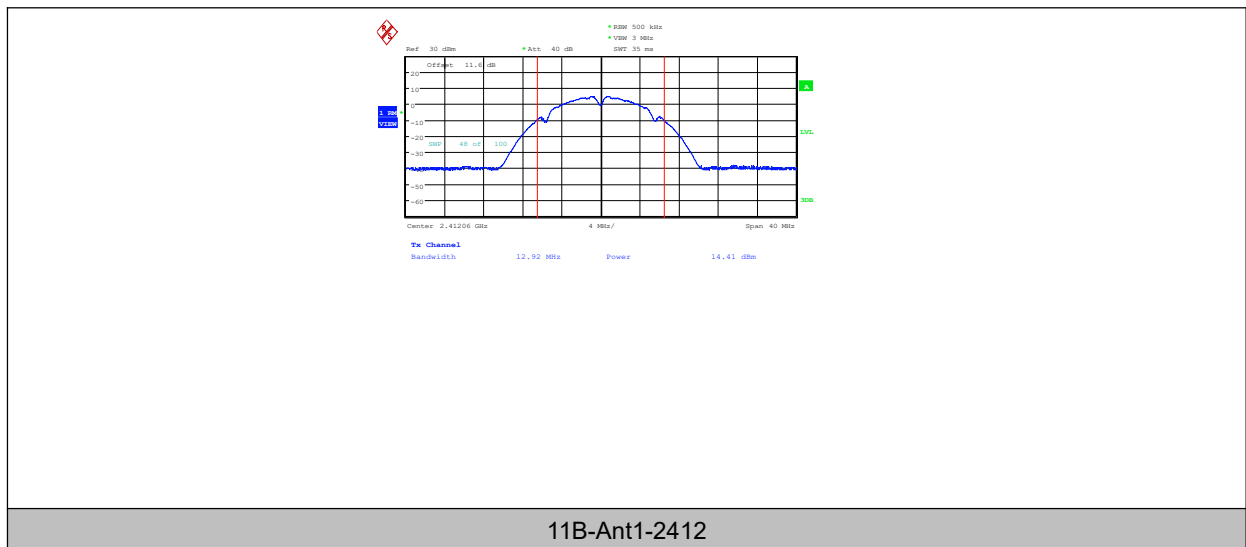
TestMode	Antenna	Frequency[MHz]	Set Power	Peak Power[dBm]	Conducted Limit[dBm]	EIRP [dBm]	EIRP Limit[dBm]	Verdict
11B	Ant1	2412	16.5	14.41	≤30.00	15.56	≤36.00	PASS
11B	Ant1	2437	16.5	14.71	≤30.00	15.86	≤36.00	PASS
11B	Ant1	2462	16.5	14.94	≤30.00	16.09	≤36.00	PASS
11G	Ant1	2412	16	13.93	≤30.00	15.08	≤36.00	PASS
11G	Ant1	2437	16	14.2	≤30.00	15.35	≤36.00	PASS
11G	Ant1	2462	16	14.33	≤30.00	15.48	≤36.00	PASS
11N20SISO	Ant1	2412	16	13.81	≤30.00	14.96	≤36.00	PASS
11N20SISO	Ant1	2437	16	14.14	≤30.00	15.29	≤36.00	PASS
11N20SISO	Ant1	2462	16	14.17	≤30.00	15.32	≤36.00	PASS
11N40SISO	Ant1	2422	12	10.03	≤30.00	11.18	≤36.00	PASS
11N40SISO	Ant1	2437	15	13.26	≤30.00	14.41	≤36.00	PASS
11N40SISO	Ant1	2452	12	10.32	≤30.00	11.47	≤36.00	PASS

Conclusion: PASS

Note: The Duty Cycle Factor is compensated in the graph.

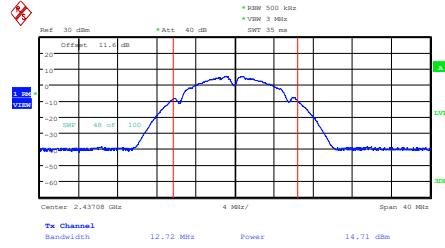
The 11b data rate 1Mbps is selected as worse condition, 11g data rate 6Mbps is selected as worse condition, 11n data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

TEST PLOTS:



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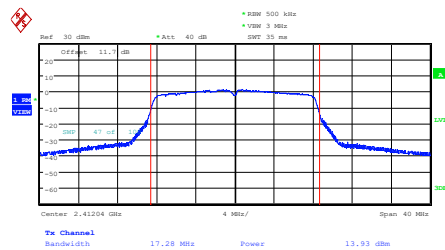
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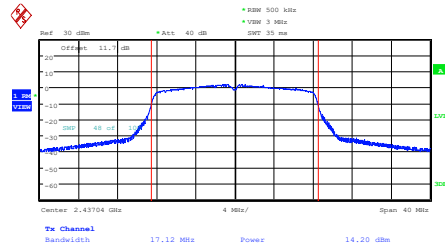
11B-Ant1-2437



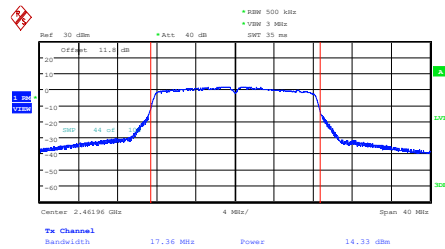
11B-Ant1-2462



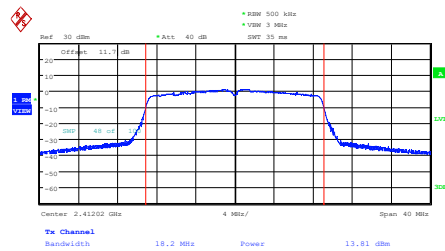
11G-Ant1-2412



11G-Ant1-2437



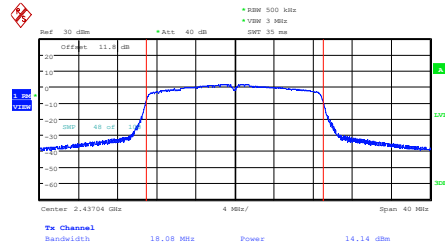
11G-Ant1-2462



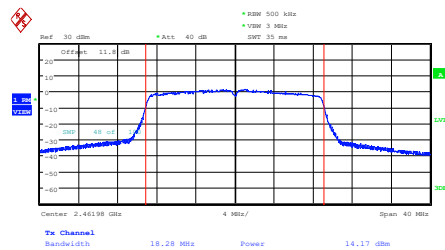
11N20SISO-Ant1-2412

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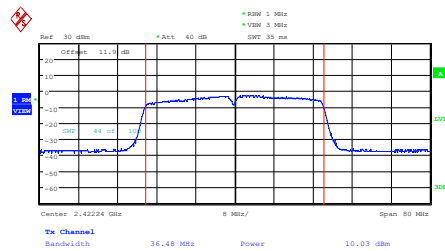
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11N20SISO-Ant1-2437



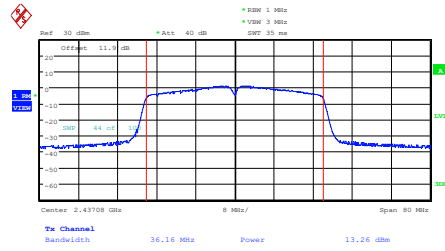
11N20SISO-Ant1-2462



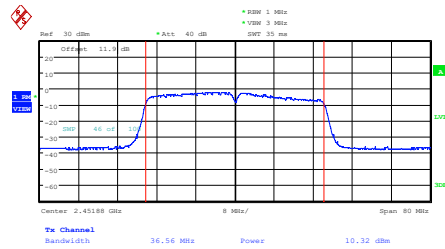
11N40SISO-Ant1-2422

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11N40SISO-Ant1-2437



11N40SISO-Ant1-2452

6.4. Peak Power Spectral Density

Specifications:	FCC CFR Part 15.247(e)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC CFR Part 15.247(e)	$\leq 8\text{dBm}/3\text{ KHz}$

Measurement Uncertainty:

Measurement Uncertainty	$\pm 0.5\text{dB}$
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Test procedures

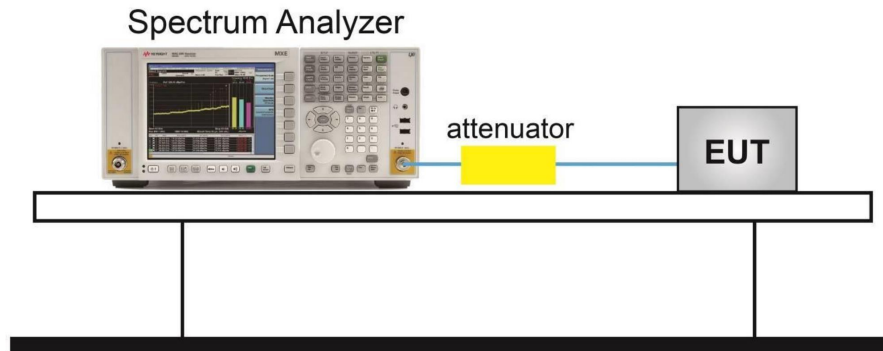
The measurement is according to ANSI C63.10 clause 11.10.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set analyzer center frequency to DTS channel center frequency.
4. Set the span to 1.5 times the DTS bandwidth.
5. Set the RBW=3kHz
6. Set the VBW $\geq [3 \times \text{RBW}]$.
7. Detector = peak.
8. Sweep time = auto couple.
9. Trace mode = max hold.
10. Allow trace to fully stabilize.
11. Use the peak marker function to determine the maximum amplitude level within the RBW.
12. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat

Test setup

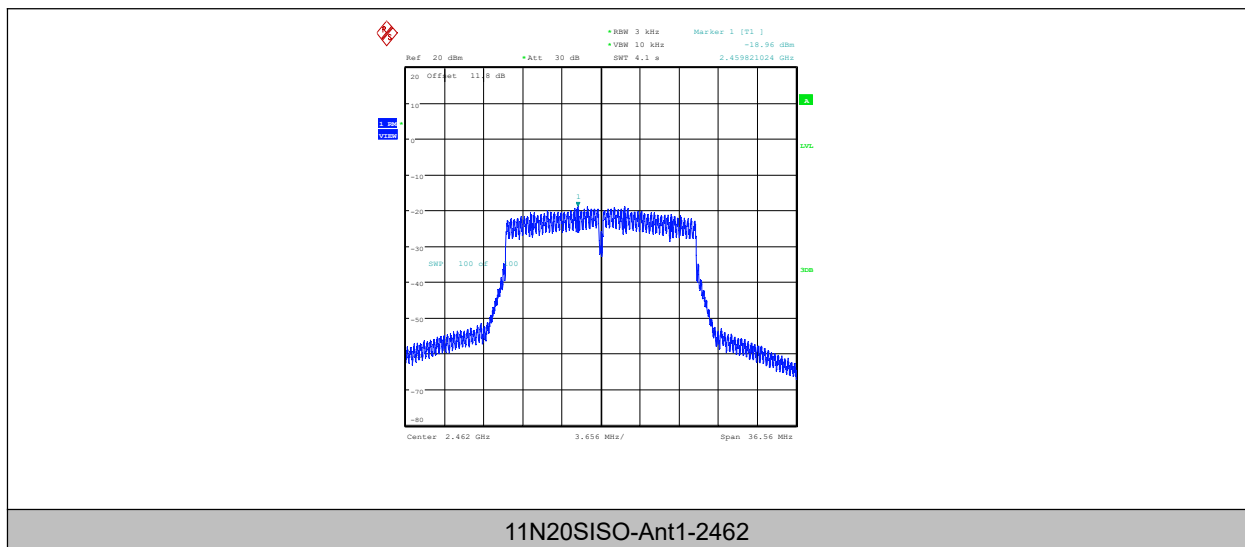
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Measurement Result

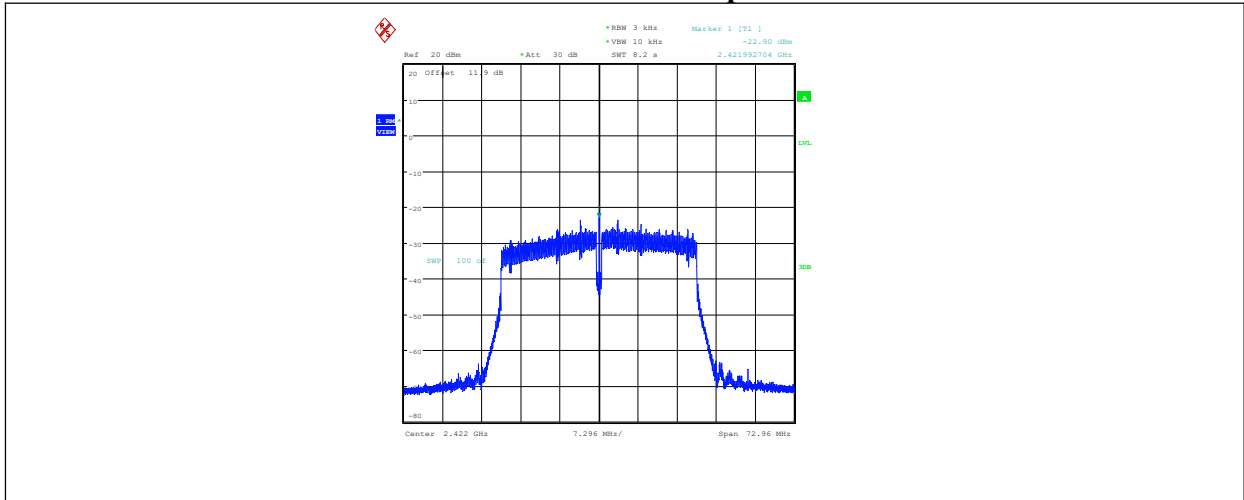
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11N20SISO	Ant1	2462	-18.96	≤8.00	PASS
11N40SISO	Ant1	2422	-22.9	≤8.00	PASS
11N40SISO	Ant1	2437	-19.91	≤8.00	PASS
11N40SISO	Ant1	2452	-22.82	≤8.00	PASS
11B	Ant1	2412	-16.01	≤8.00	PASS
11B	Ant1	2437	-16.61	≤8.00	PASS
11B	Ant1	2462	-16.39	≤8.00	PASS
11G	Ant1	2412	-18.94	≤8.00	PASS
11G	Ant1	2437	-18.72	≤8.00	PASS
11G	Ant1	2462	-18.84	≤8.00	PASS
11N20SISO	Ant1	2412	-18.81	≤8.00	PASS
11N20SISO	Ant1	2437	-18.69	≤8.00	PASS



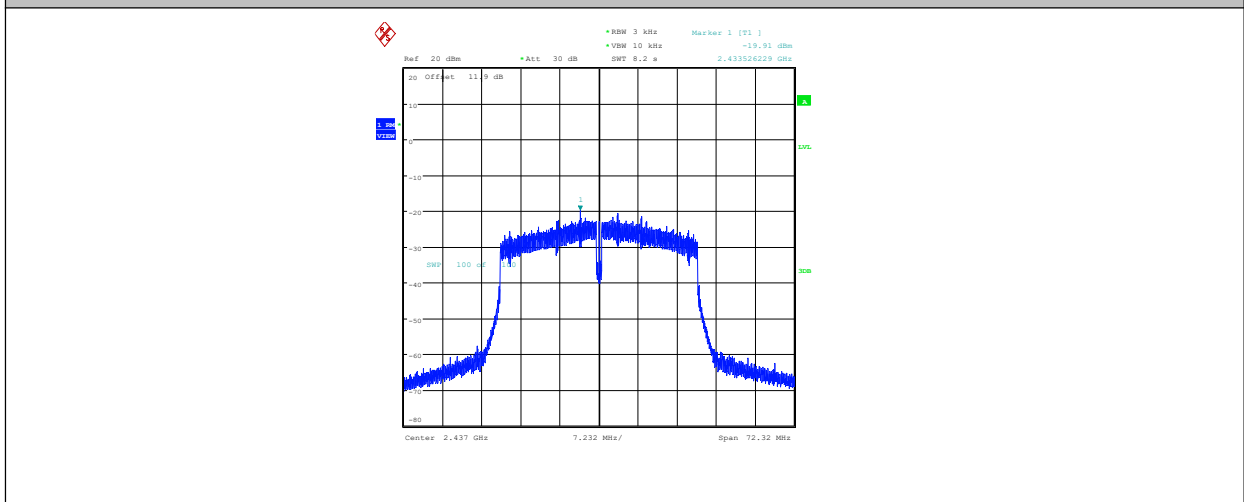
11N20SISO-Ant1-2462

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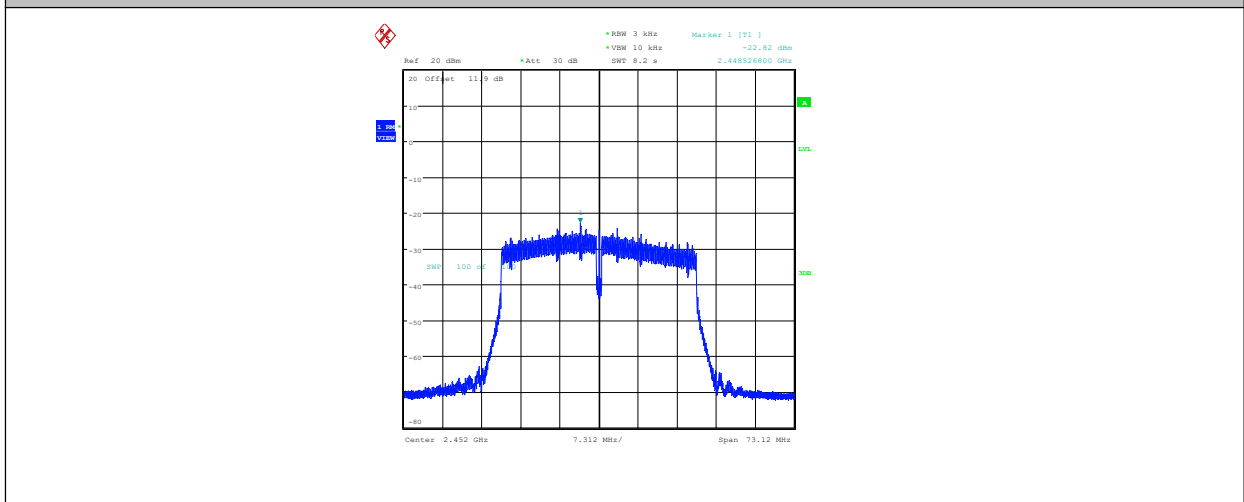
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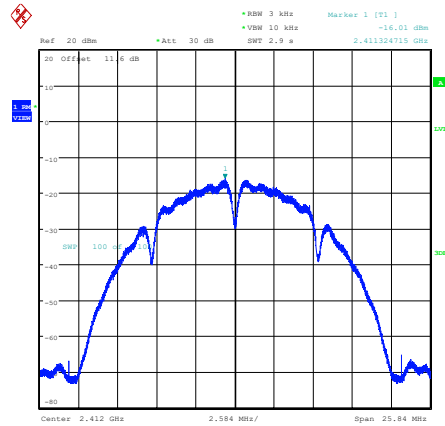
11N40SISO-Ant1-2422



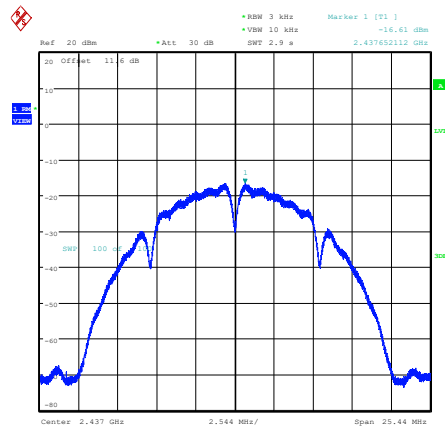
11N40SISO-Ant1-2437



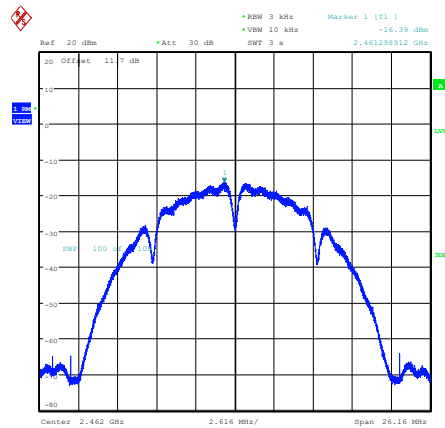
11N40SISO-Ant1-2452



11B-Ant1-2412



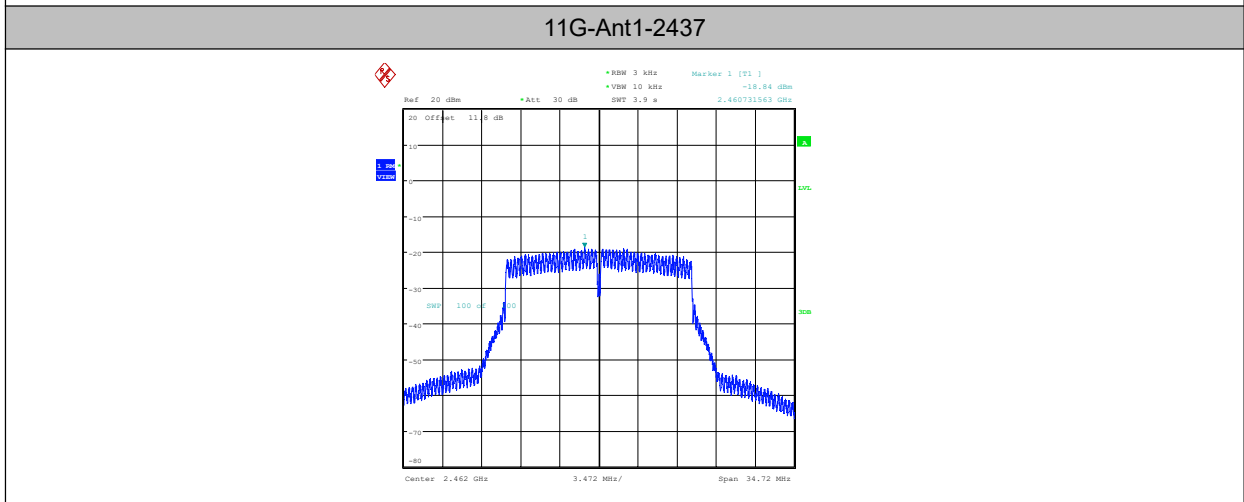
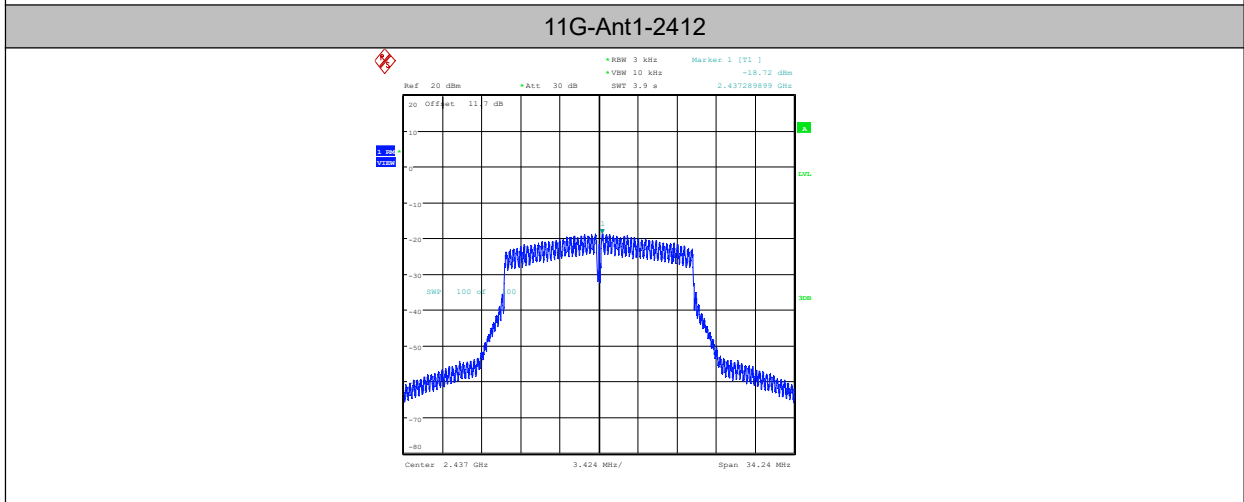
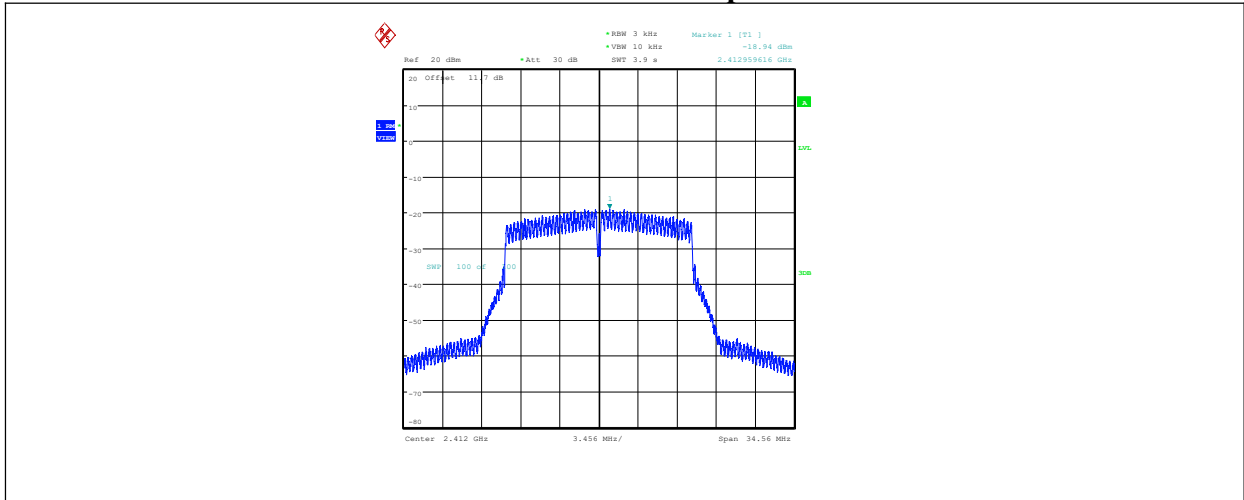
11B-Ant1-2437



11B-Ant1-2462

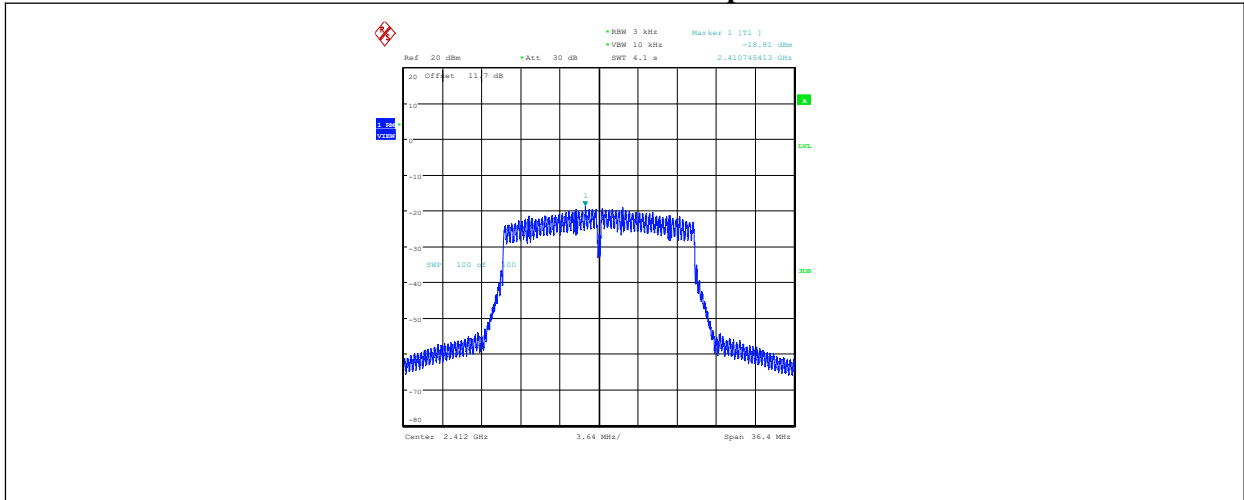
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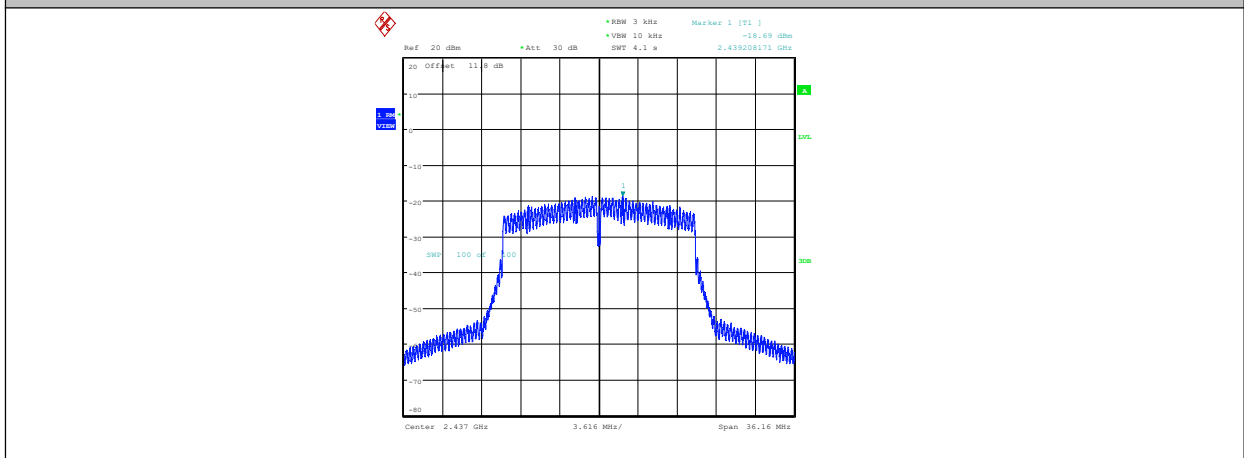


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11N20SISO-Ant1-2412



11N20SISO-Ant1-2437

6.5. Occupied Channel Bandwidth

Specifications:	FCC 47 Part 15.247(a)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247(a) (2)	≥500KHz

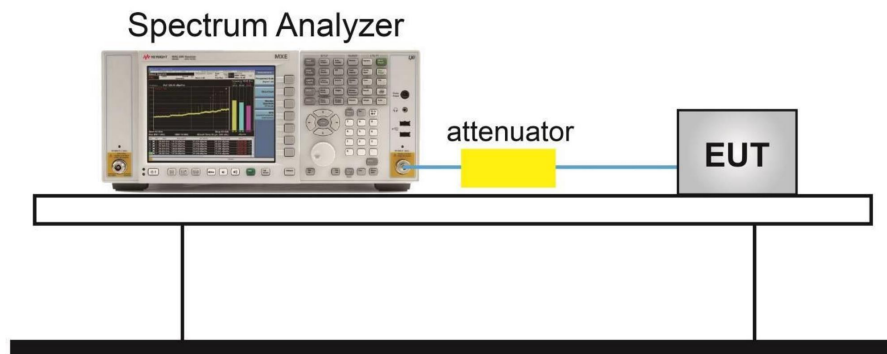
Measurement Uncertainty:

Measurement Uncertainty	20kHz
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Test procedures

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set RBW = 100 kHz.
4. Set the VBW ≥ [3 × RBW].
5. Detector = peak.
6. Trace mode = max hold.
7. Sweep = auto couple.
8. Allow the trace to stabilize.
9. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Setup

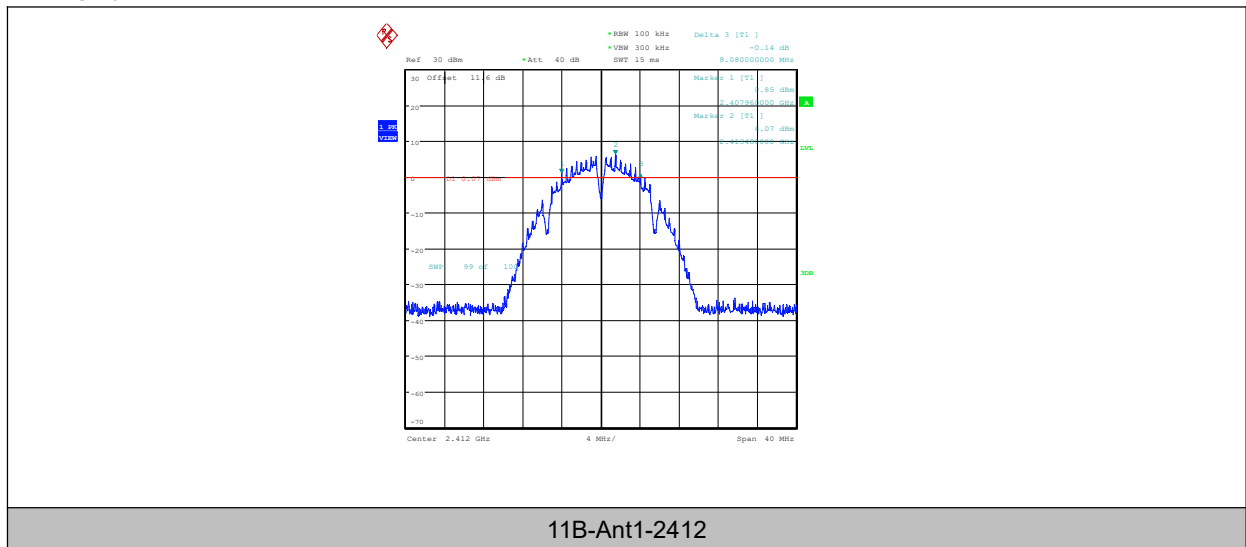


Measurement Results

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.08	2407.96	2416.04	0.5	PASS
11B	Ant1	2437	7.56	2433.44	2441.00	0.5	PASS
11B	Ant1	2462	8.08	2457.48	2465.56	0.5	PASS
11G	Ant1	2412	15.08	2404.44	2419.52	0.5	PASS
11G	Ant1	2437	15.12	2429.44	2444.56	0.5	PASS
11G	Ant1	2462	16.28	2453.84	2470.12	0.5	PASS
11N20SISO	Ant1	2412	13.88	2405.68	2419.56	0.5	PASS
11N20SISO	Ant1	2437	15.08	2429.48	2444.56	0.5	PASS
11N20SISO	Ant1	2462	15.24	2454.24	2469.48	0.5	PASS
11N40SISO	Ant1	2422	35.12	2404.48	2439.60	0.5	PASS
11N40SISO	Ant1	2437	35.04	2419.48	2454.52	0.5	PASS
11N40SISO	Ant1	2452	35.04	2434.48	2469.52	0.5	PASS

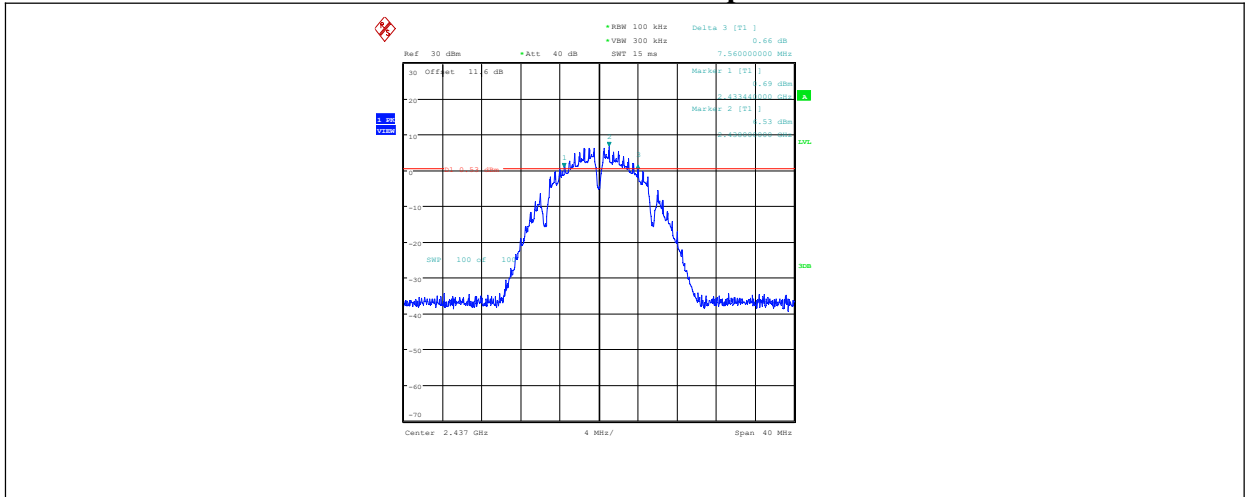
Conclusion: PASS

Test graphs as below

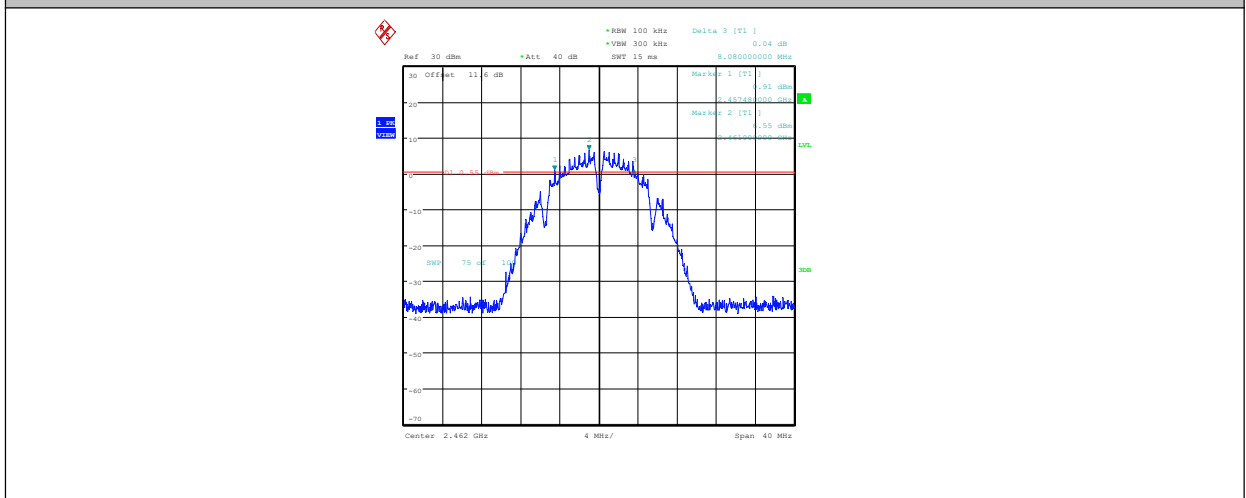


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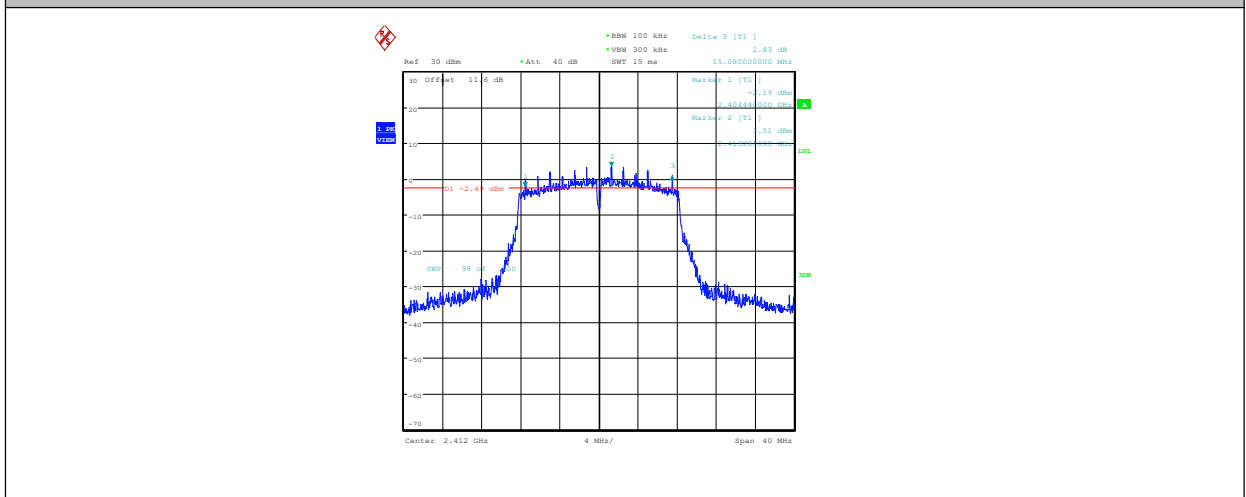
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11B-Ant1-2437



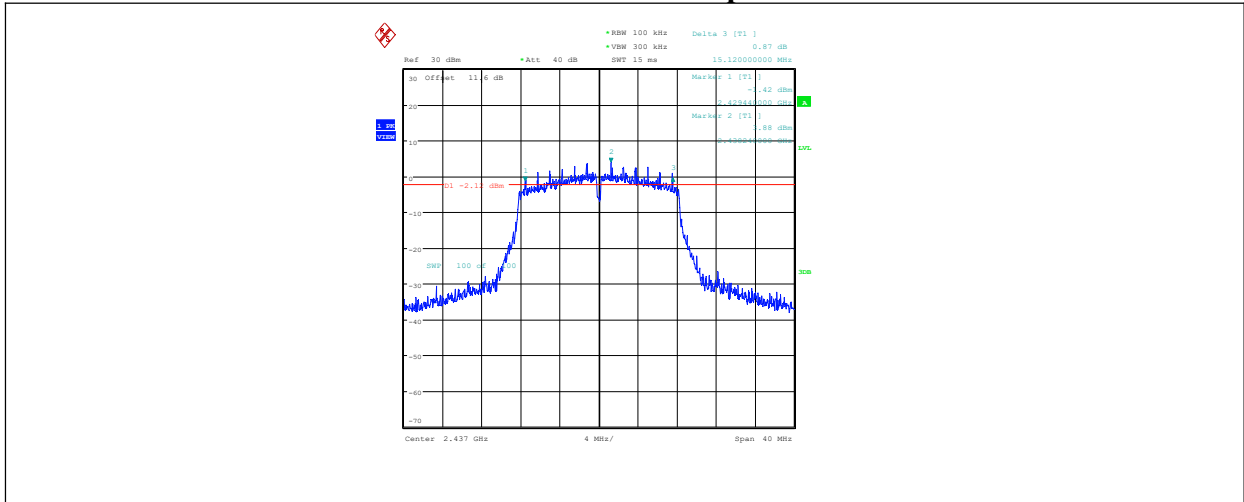
11B-Ant1-2462



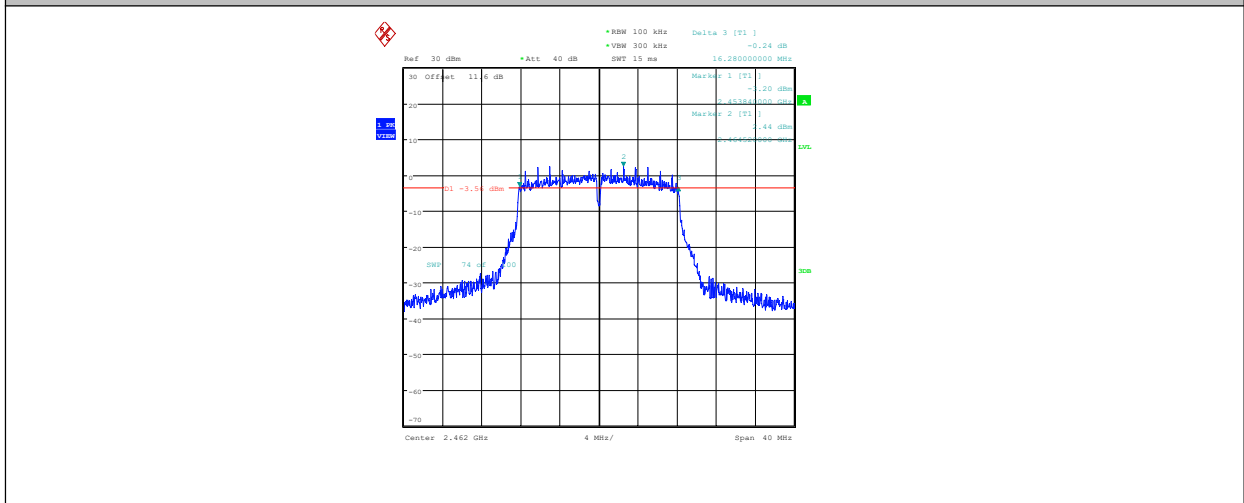
11G-Ant1-2412

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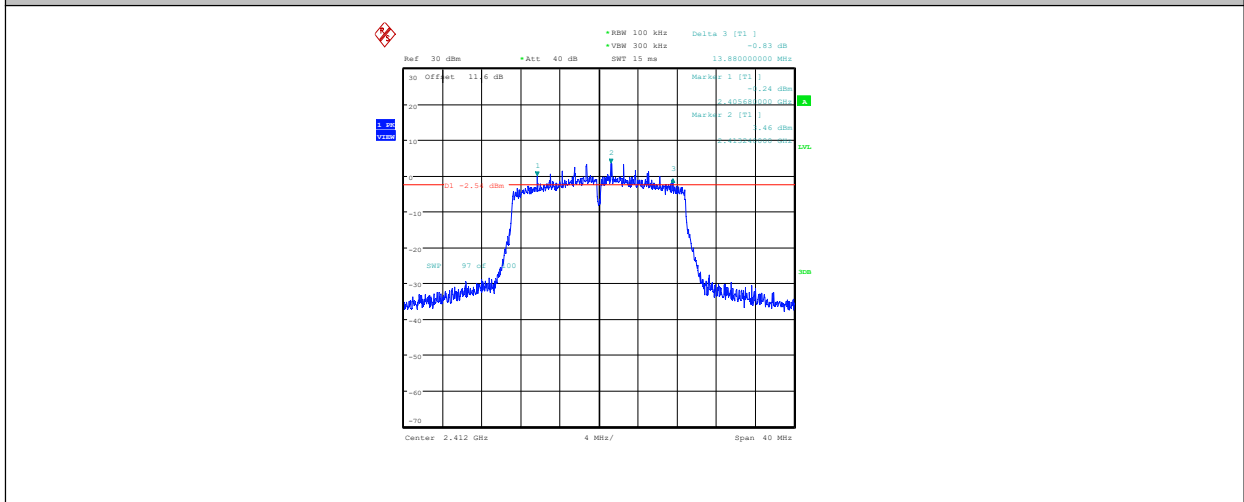
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11G-Ant1-2437



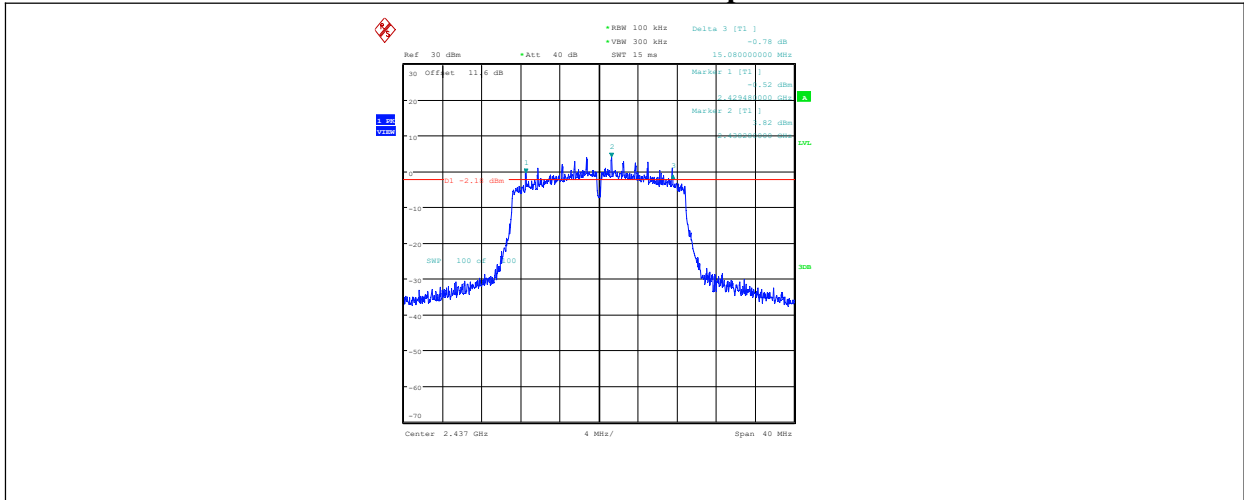
11G-Ant1-2462



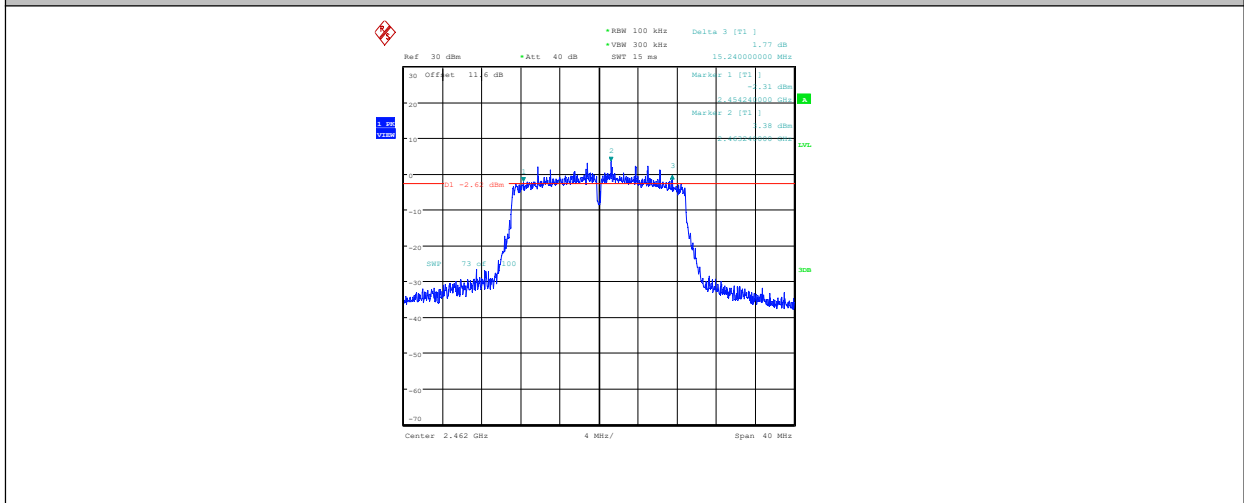
11N20SISO-Ant1-2412

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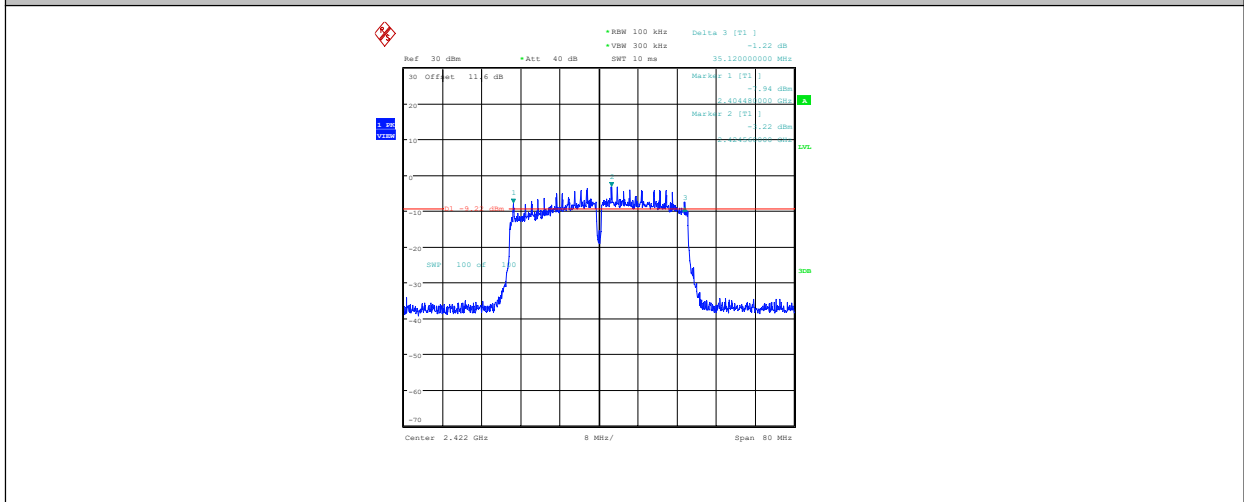
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11N20SISO-Ant1-2437



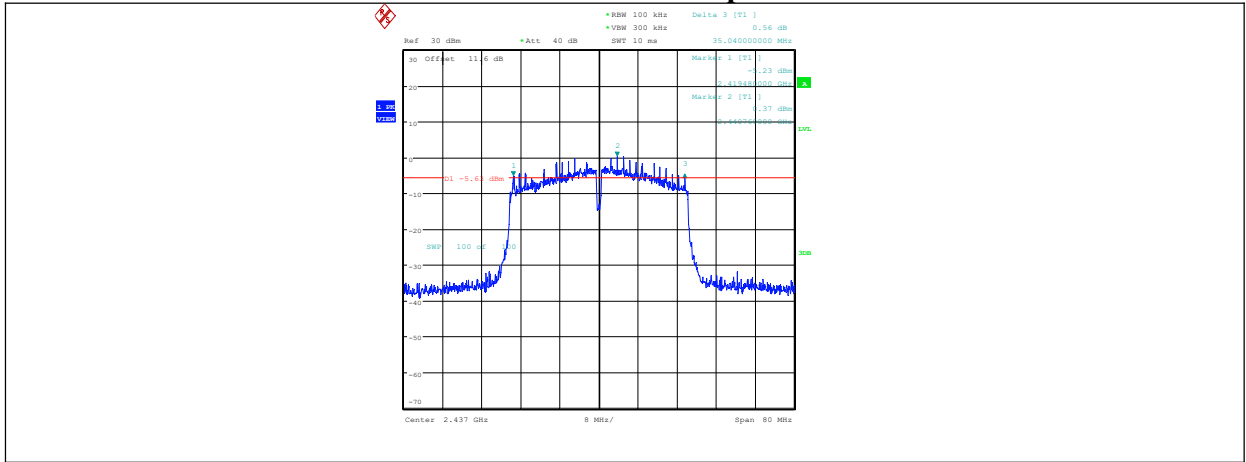
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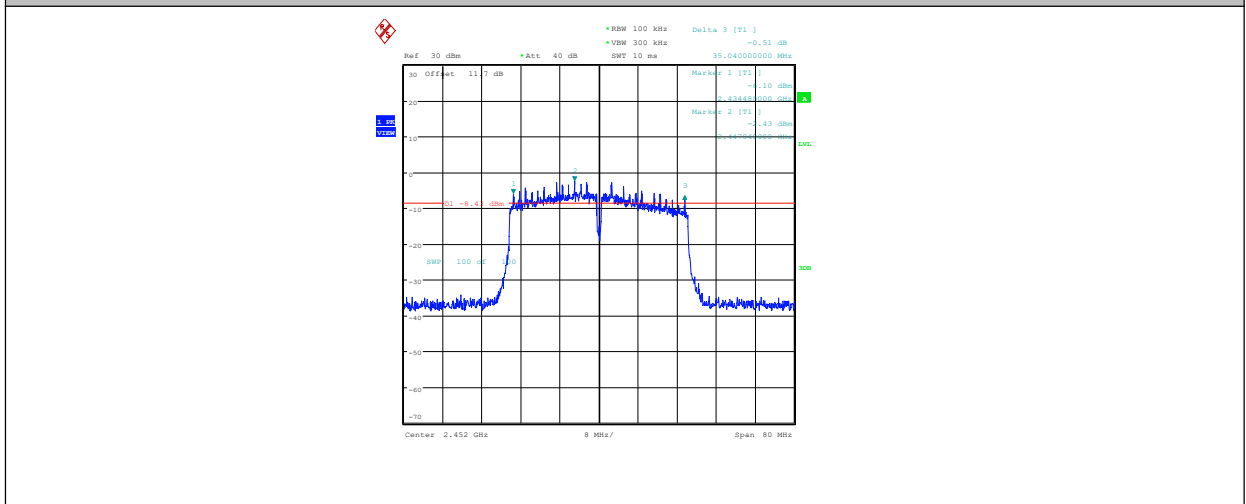
11N40SISO-Ant1-2422

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11N40SISO-Ant1-2437



11N40SISO-Ant1-2452

6.6. Band Edges Compliance

Specifications:	FCC 47 Part 15.247(d)
DUT Serial Number:	S4,S8,S9
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247(d)	>30

Measurement Uncertainty:

Measurement Uncertainty	±0.94dBm/KHz
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Test procedures

The measurement is according to ANSI C63.10 clause11.13.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set instrument center frequency to the frequency of the emission to be measured (must be within 2MHz of the authorized band edge).
4. Set span to 2 MHz.
5. RBW = 100 kHz.
6. VBW \geq [3 × RBW].
7. Detector = peak.
8. Sweep time = auto.
9. Trace mode = max hold.
10. Allow sweep to continue until the trace stabilizes

Measurement results

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	Low	2412	9.67	-40.3	≤-20.33	PASS
11B	Ant1	High	2462	9.98	-43.18	≤-20.02	PASS
11G	Ant1	Low	2412	4.43	-26.55	≤-25.57	PASS
11G	Ant1	High	2462	4.93	-40.05	≤-25.07	PASS
11N20SISO	Ant1	Low	2412	4.43	-25.81	≤-25.57	PASS

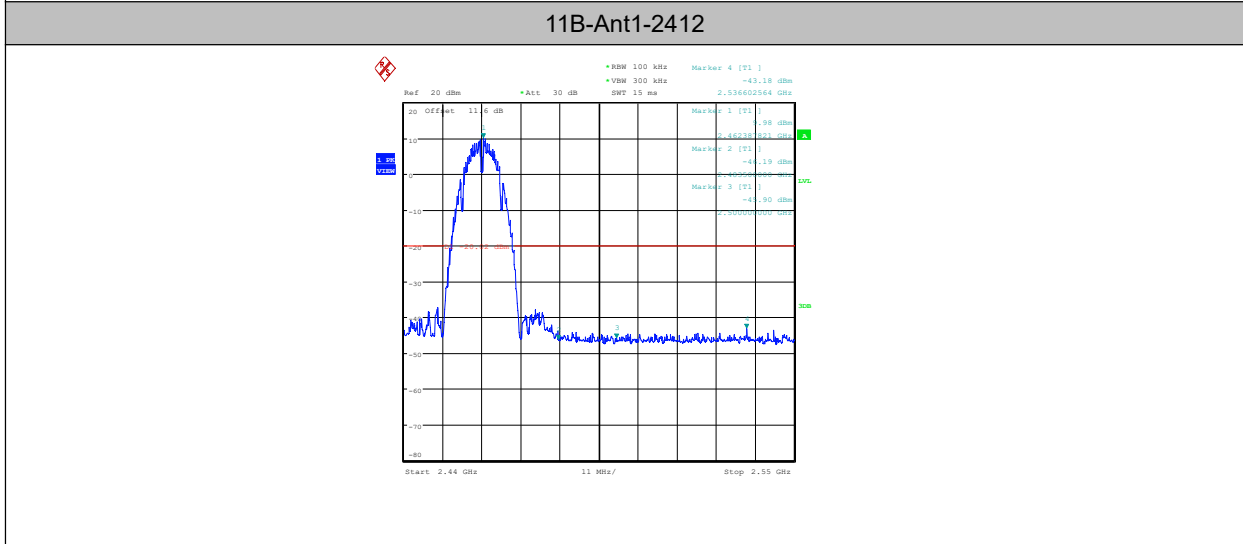
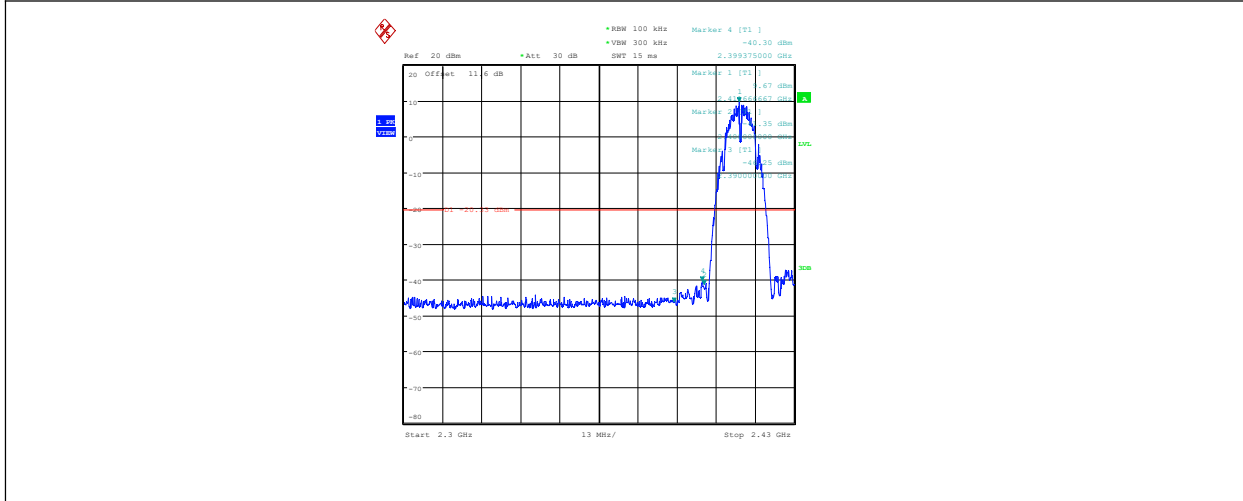
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Report No.: 123W00020-WIFI 2.4G RF

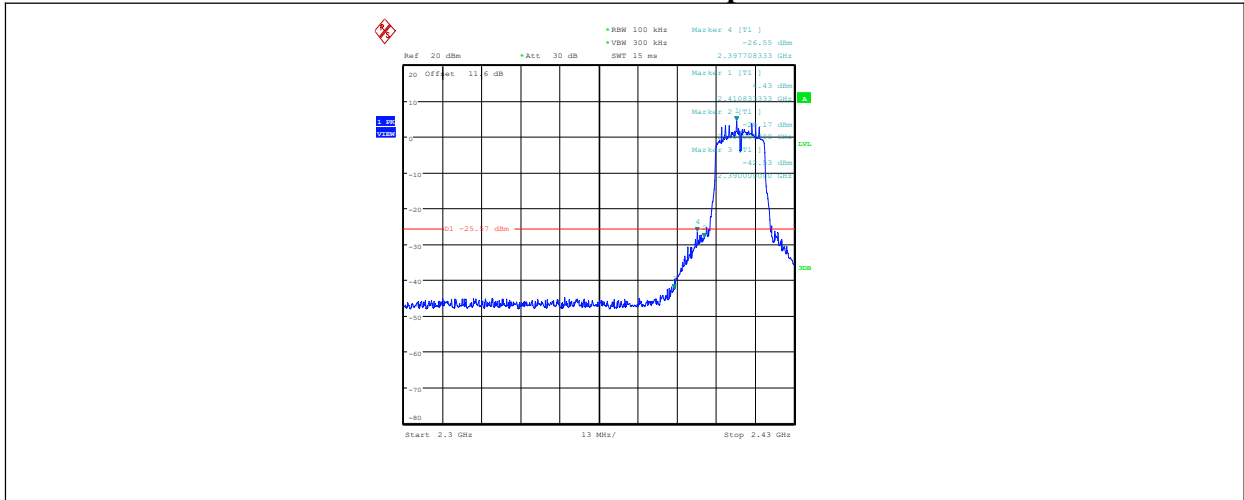
11N20SISO	Ant1	High	2462	5.38	-40.89	≤-24.62	PASS
11N40SISO	Ant1	Low	2422	1.47	-30.41	≤-28.53	PASS
11N40SISO	Ant1	High	2452	1.84	-37.93	≤-28.16	PASS

Conclusion: PASS

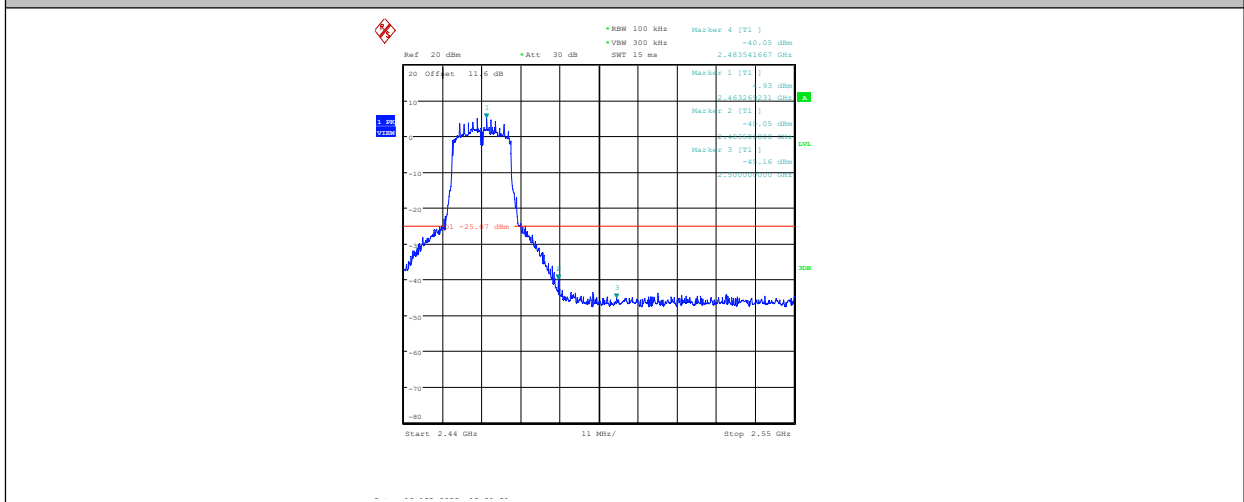


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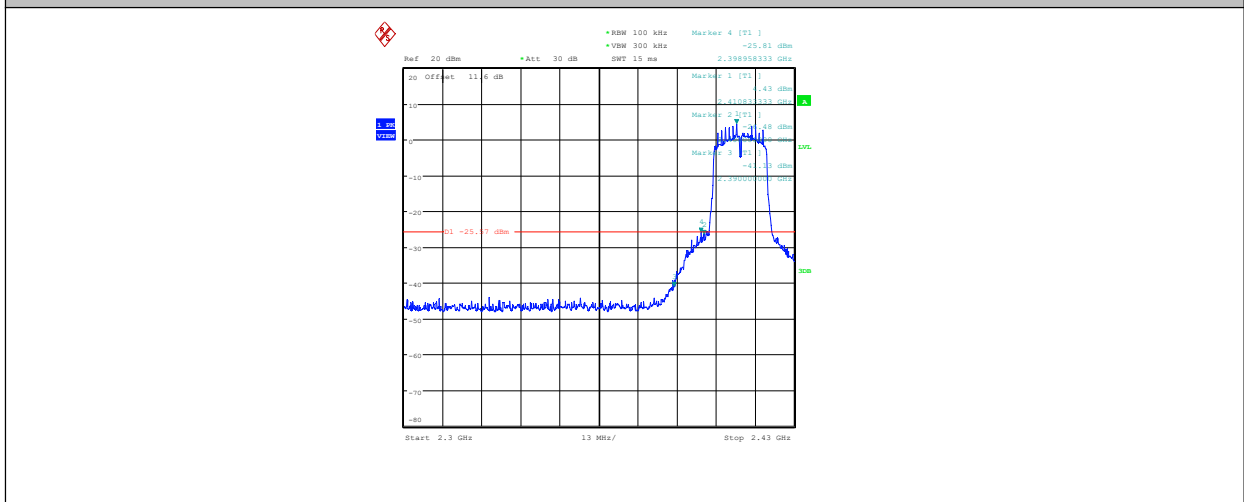
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11G-Ant1-2412



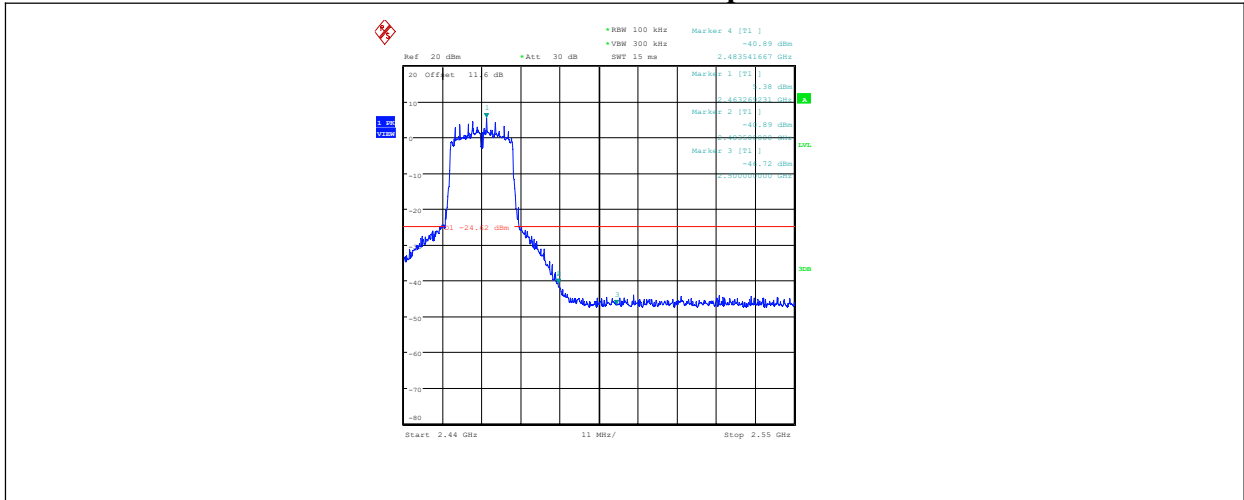
11G-Ant1-2462



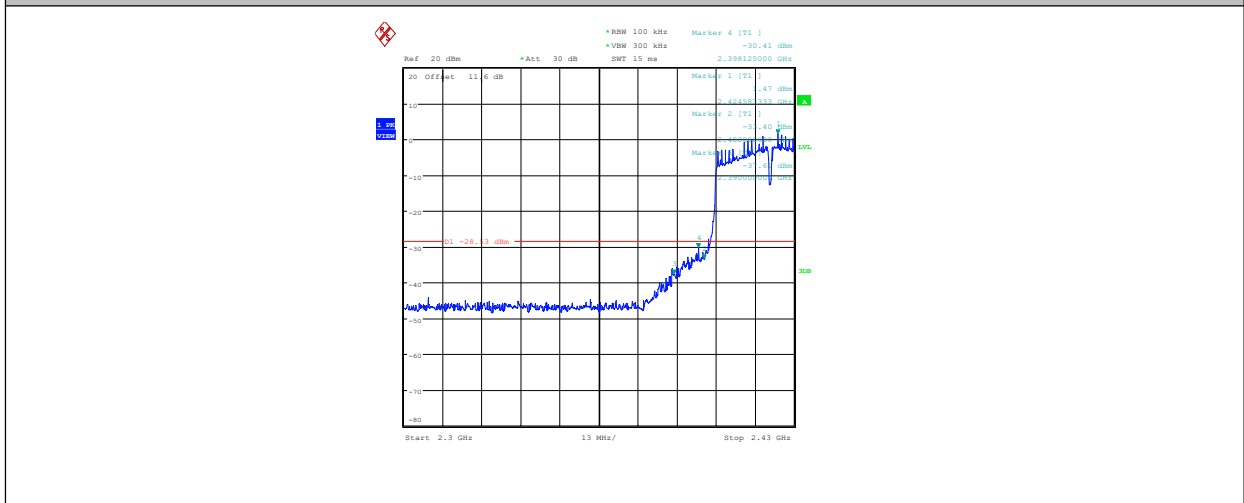
11N20SISO-Ant1-2412

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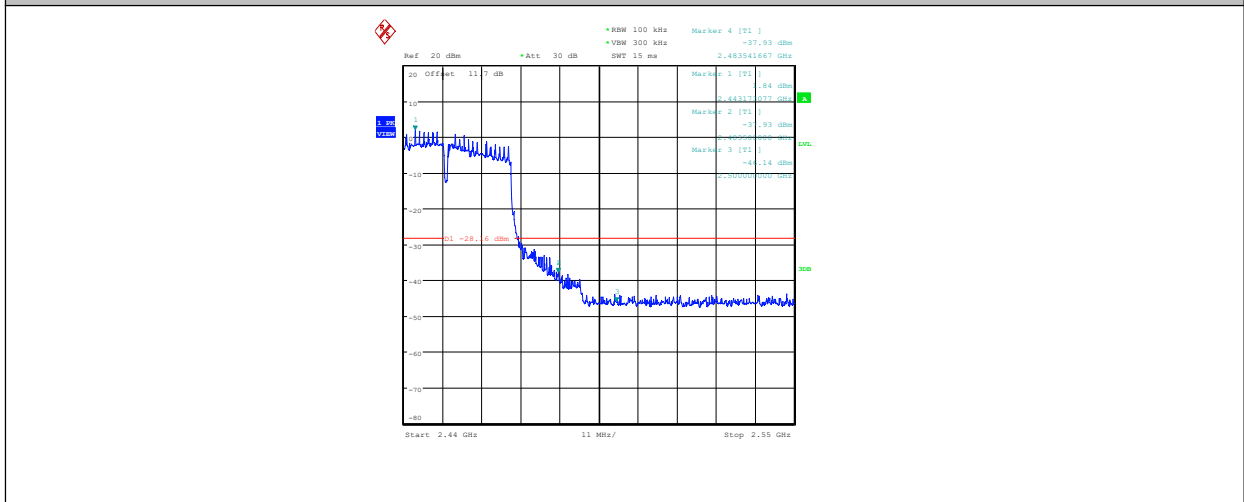
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11N20SISO-Ant1-2462



11N40SISO-Ant1-2422



6.7. Transmitter Spurious Emission-conducted

Specifications:	FCC 47 Part 15.247(d)
DUT Serial Number:	S4
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247(d)	30dB below highest level power in 100KHz bandwidth

Measurement Uncertainty:

Measurement Uncertainty	±0.94dB
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Test procedures

This measurement is according to ANSI C63.10 clause 11.11.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.

Reference level measurement

3. Set instrument center frequency to DTS channel center frequency.
4. Set the span to ≥ 1.5 times the DTS bandwidth.
5. Set the RBW = 100 kHz.
6. Set the VBW $\geq [3 \times \text{RBW}]$.
7. Detector = peak.
8. Sweep time = auto couple.
9. Trace mode = max hold.
10. Allow trace to fully stabilize.
11. Use the peak marker function to determine the maximum PSD level.

Emission level measurement

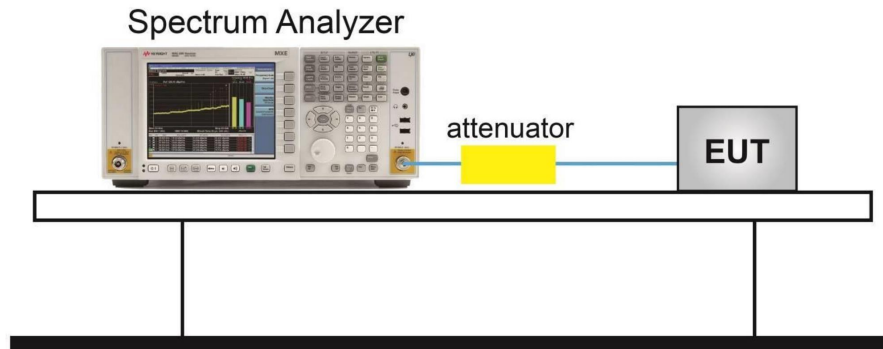
1. Set the center frequency and span to encompass frequency range to be measured.
2. Set the RBW = 100 kHz.
3. Set the VBW $\geq [3 \times \text{RBW}]$.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.

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7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level.

Test Setup



Measurement Result

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	0~Reference	9.40	9.40	---	PASS
11B	Ant1	2412	30~1000	9.40	-37.32	≤-20.6	PASS
11B	Ant1	2412	1000~26500	9.40	-51.63	≤-20.6	PASS
11B	Ant1	2437	0~Reference	9.86	9.86	---	PASS
11B	Ant1	2437	30~1000	9.86	-36.83	≤-20.14	PASS
11B	Ant1	2437	1000~26500	9.86	-50.48	≤-20.14	PASS
11B	Ant1	2462	0~Reference	10.10	10.10	---	PASS
11B	Ant1	2462	30~1000	10.10	-35.7	≤-19.9	PASS
11B	Ant1	2462	1000~26500	10.10	-52.7	≤-19.9	PASS
11G	Ant1	2412	0~Reference	4.71	4.71	---	PASS
11G	Ant1	2412	30~1000	4.71	-50.2	≤-25.29	PASS
11N20SISO	Ant1	2437	30~1000	5.40	-46.76	≤-24.6	PASS
11N20SISO	Ant1	2437	1000~26500	5.40	-52.45	≤-24.6	PASS
11N20SISO	Ant1	2462	0~Reference	5.25	5.25	---	PASS
11N20SISO	Ant1	2462	30~1000	5.25	-48.59	≤-24.75	PASS
11N20SISO	Ant1	2462	1000~26500	5.25	-52.02	≤-24.75	PASS
11N40SISO	Ant1	2422	0~Reference	1.57	1.57	---	PASS
11N40SISO	Ant1	2422	30~1000	1.57	-53.11	≤-28.43	PASS
11N40SISO	Ant1	2422	1000~26500	1.57	-52.39	≤-28.43	PASS
11N40SISO	Ant1	2437	0~Reference	2.56	2.56	---	PASS
11N40SISO	Ant1	2437	30~1000	2.56	-52.75	≤-27.44	PASS
11N40SISO	Ant1	2437	1000~26500	2.56	-52.11	≤-27.44	PASS

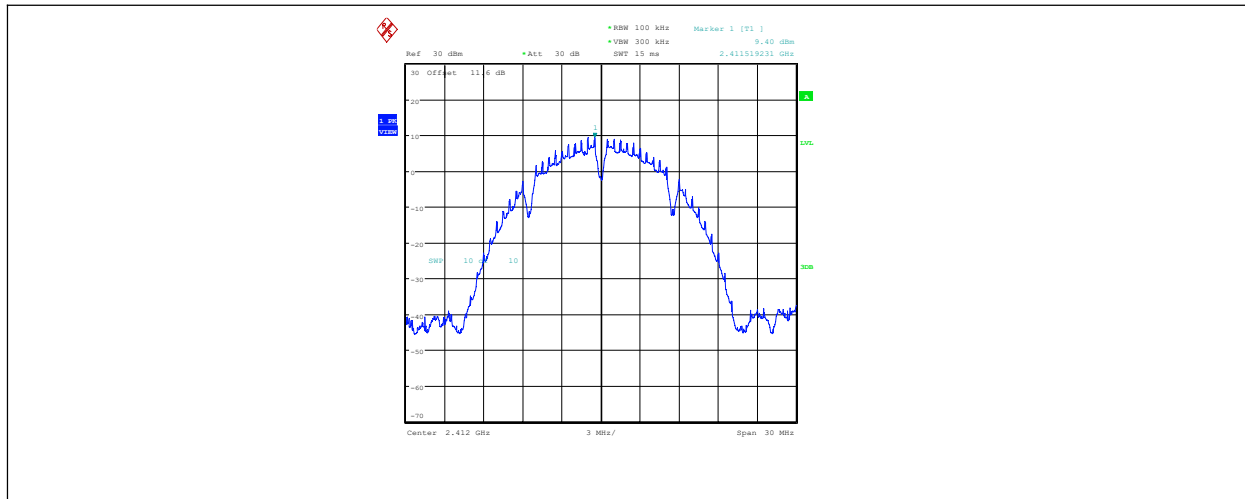
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 Tel: 0086-23-88069965 FAX: 0086-23-88608777

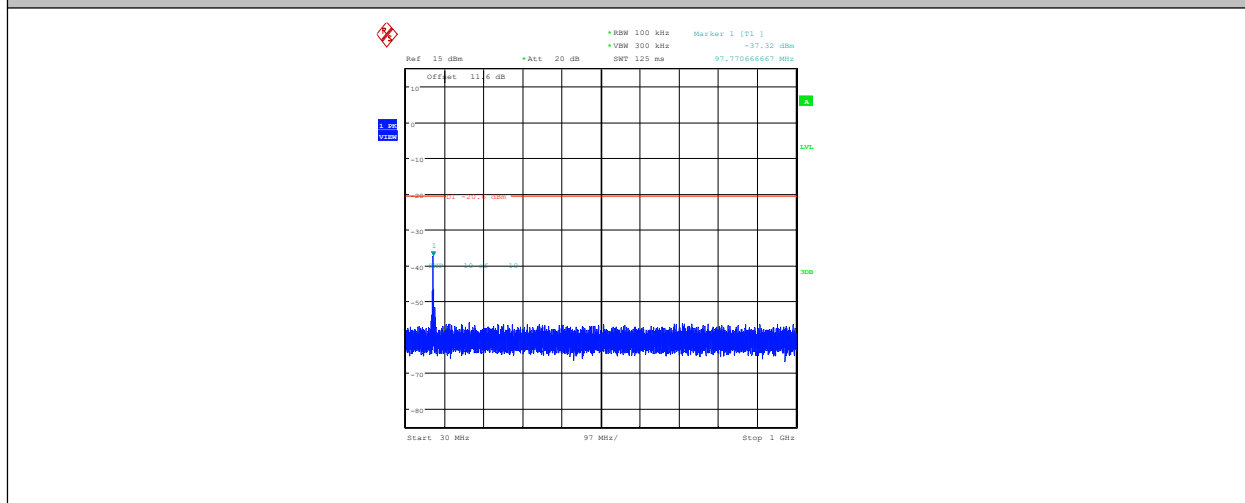
Report No.: 123W00020-WIFI 2.4G RF

11G	Ant1	2412	1000~26500	4.71	-52.61	≤-25.29	PASS
11G	Ant1	2437	0~Reference	5.36	5.36	---	PASS
11G	Ant1	2437	30~1000	5.36	-48.58	≤-24.64	PASS
11G	Ant1	2437	1000~26500	5.36	-52.2	≤-24.64	PASS
11G	Ant1	2462	0~Reference	5.22	5.22	---	PASS
11G	Ant1	2462	30~1000	5.22	-47.33	≤-24.78	PASS
11G	Ant1	2462	1000~26500	5.22	-48.68	≤-24.78	PASS
11N20SISO	Ant1	2412	0~Reference	4.59	4.59	---	PASS
11N20SISO	Ant1	2412	30~1000	4.59	-49.66	≤-25.41	PASS
11N20SISO	Ant1	2412	1000~26500	4.59	-52.63	≤-25.41	PASS
11N20SISO	Ant1	2437	0~Reference	5.40	5.40	---	PASS
11N40SISO	Ant1	2452	0~Reference	2.00	2.00	---	PASS
11N40SISO	Ant1	2452	30~1000	2.00	-52.72	≤-28	PASS
11N40SISO	Ant1	2452	1000~26500	2.00	-51.7	≤-28	PASS

TEST PLOTS:



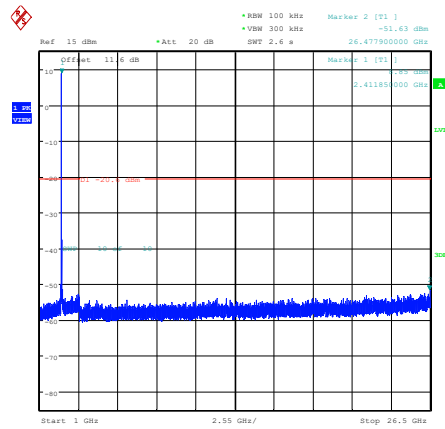
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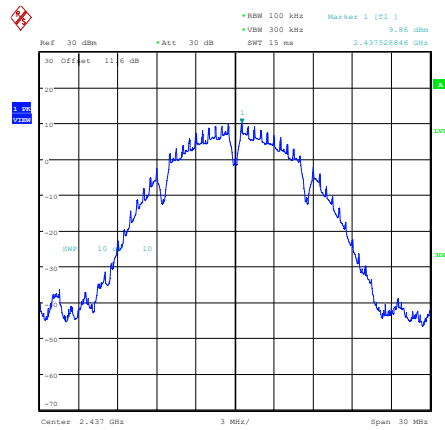
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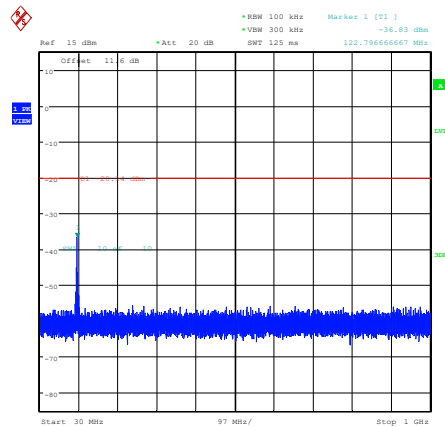
11B-Ant1-2412-30~1000



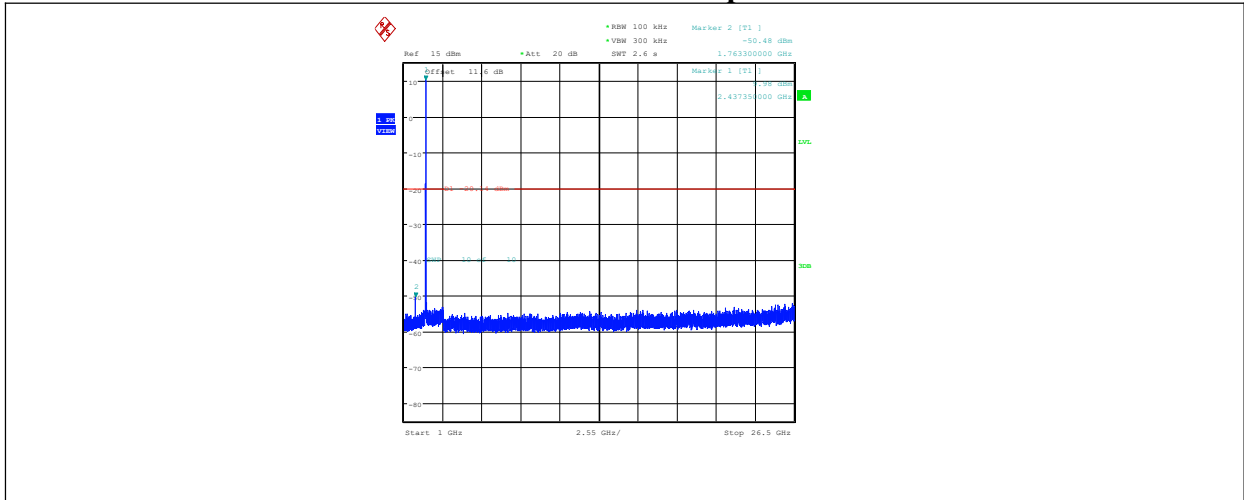
11B-Ant1-2412-1000~26500



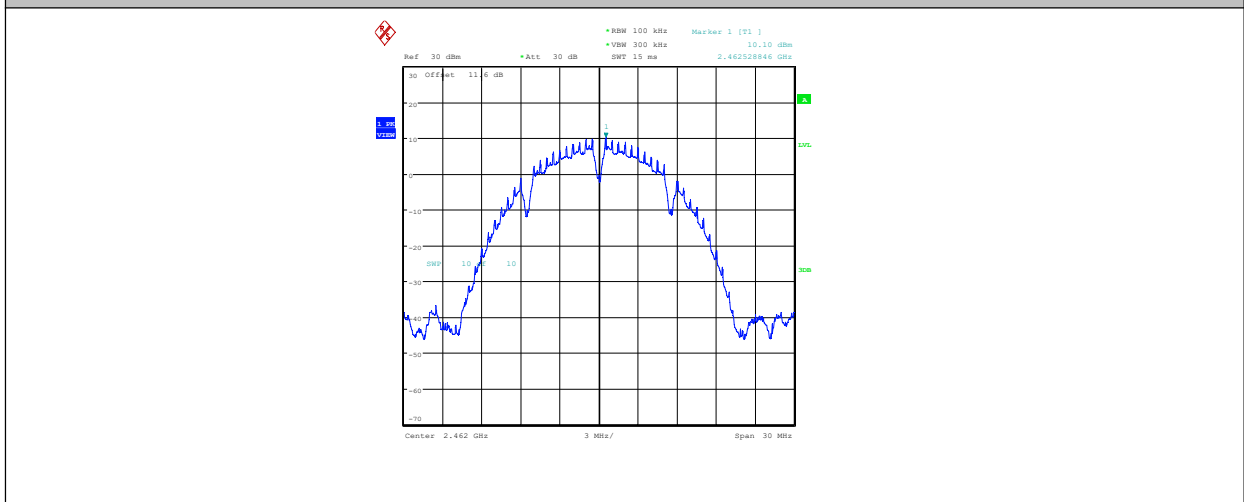
11B-Ant1-2437-0~Reference



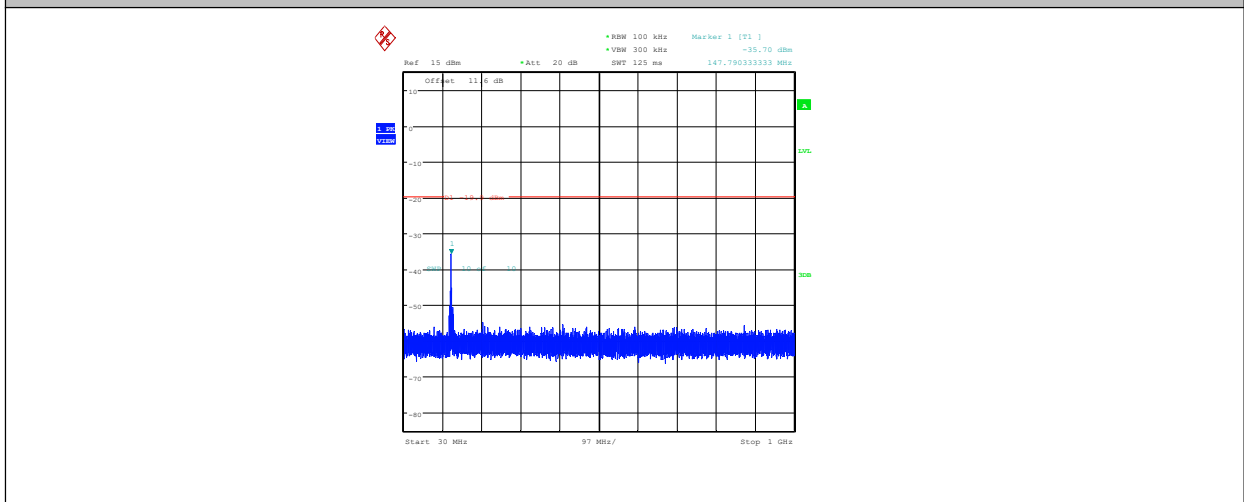
11B-Ant1-2437-30~1000



11B-Ant1-2437-1000~26500



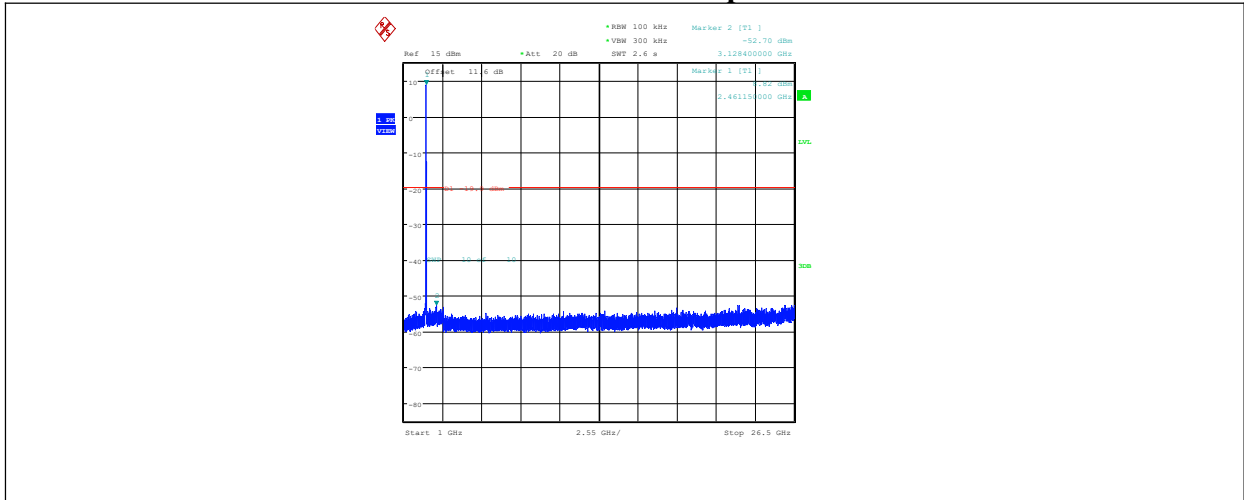
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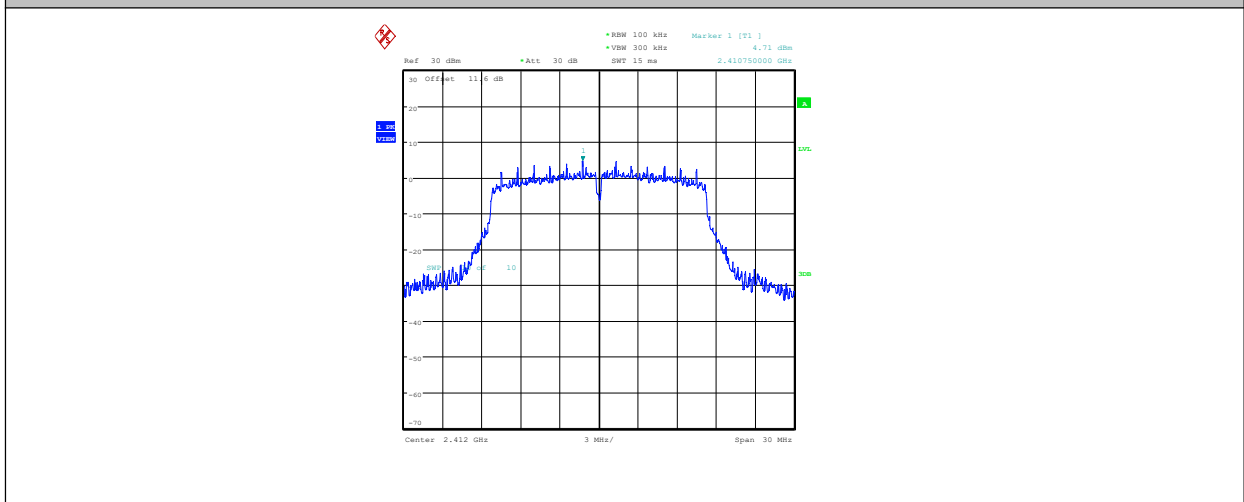
11B-Ant1-2462-30~1000

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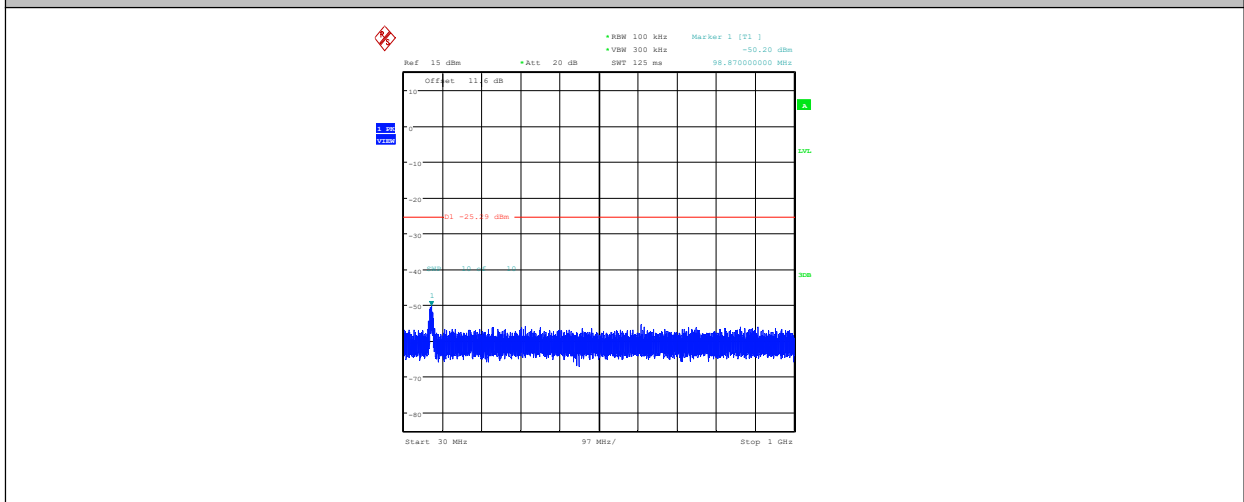
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11B-Ant1-2462-1000~26500



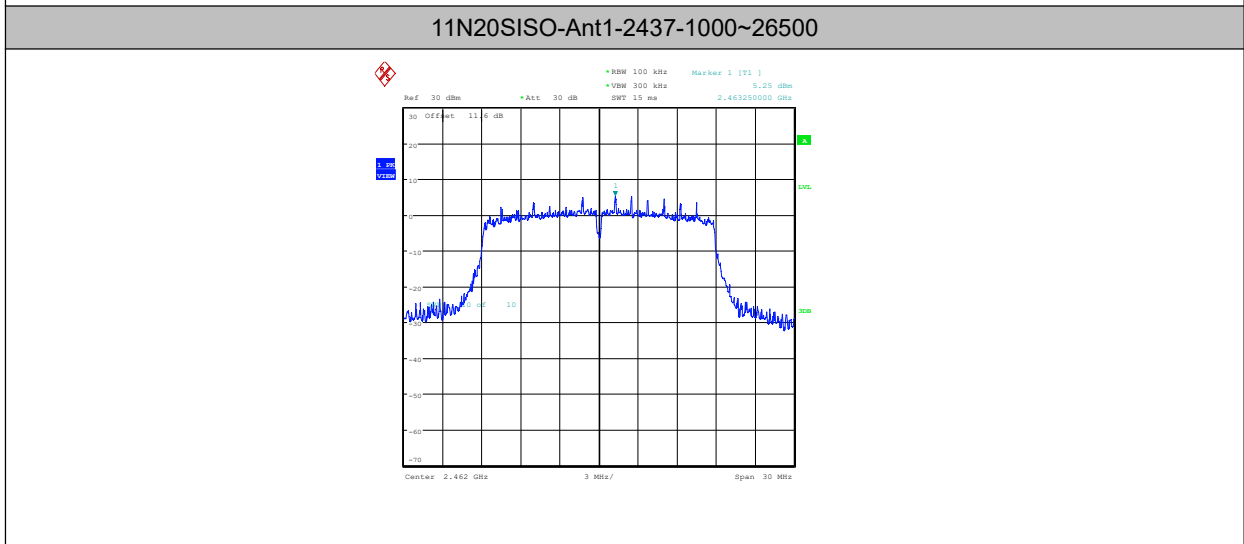
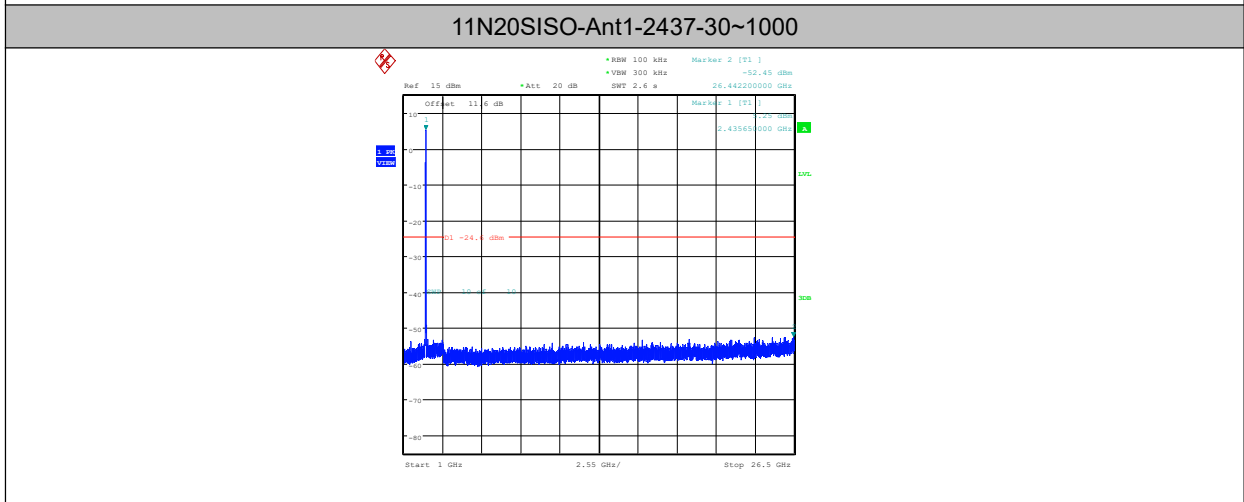
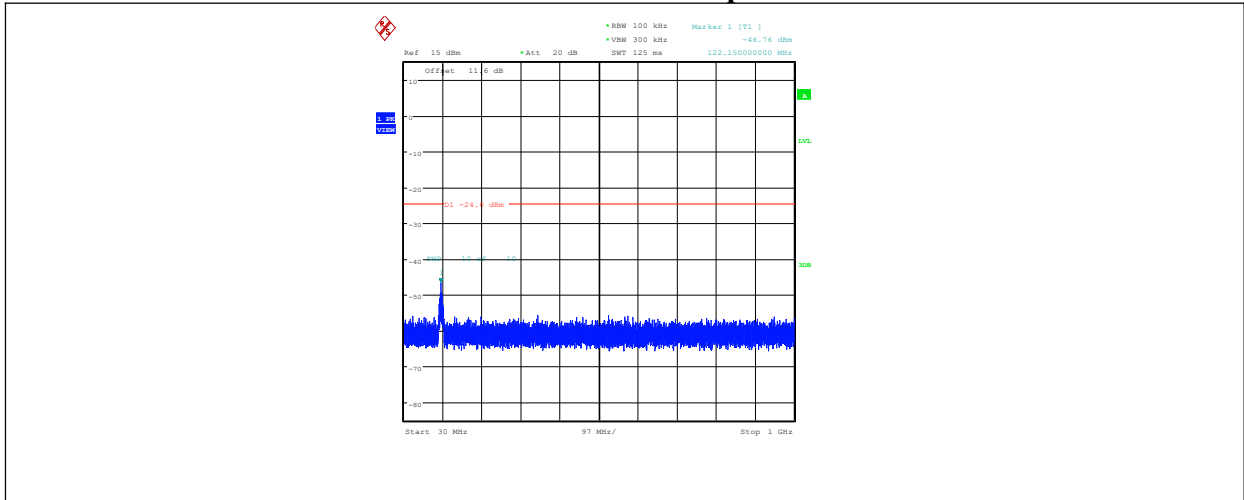
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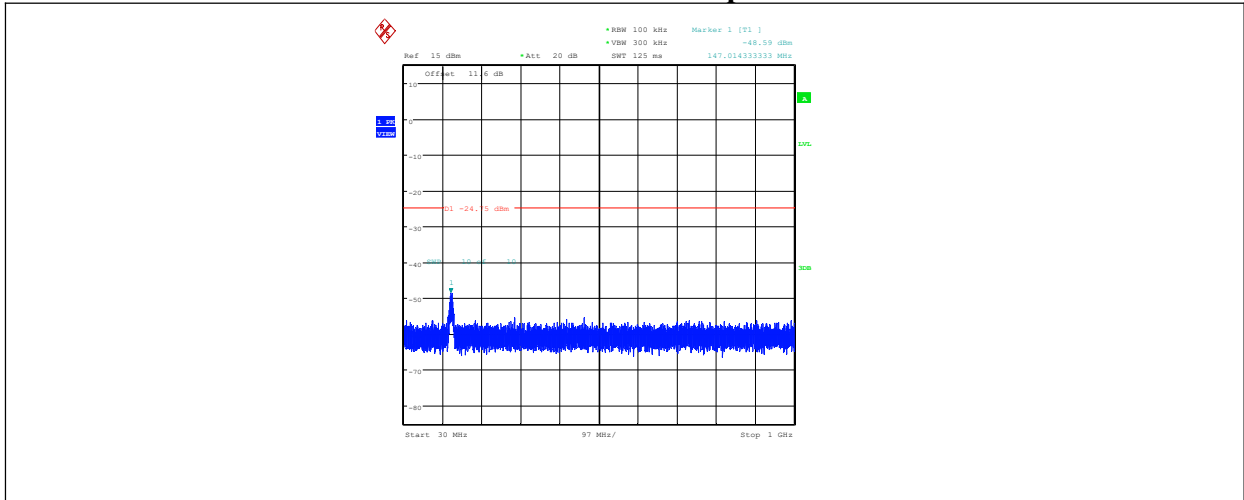


11G-Ant1-2412-30~1000

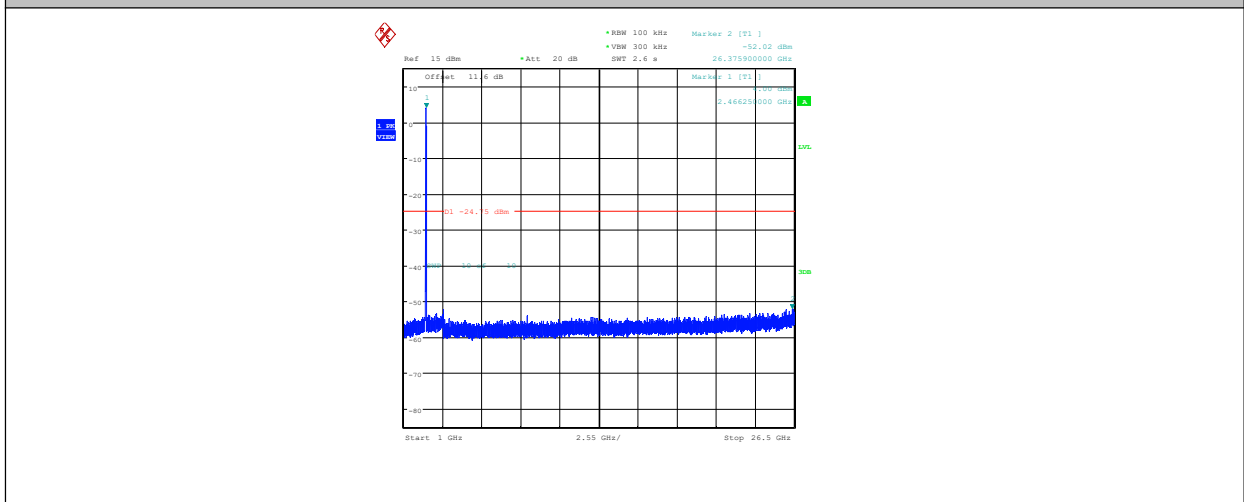
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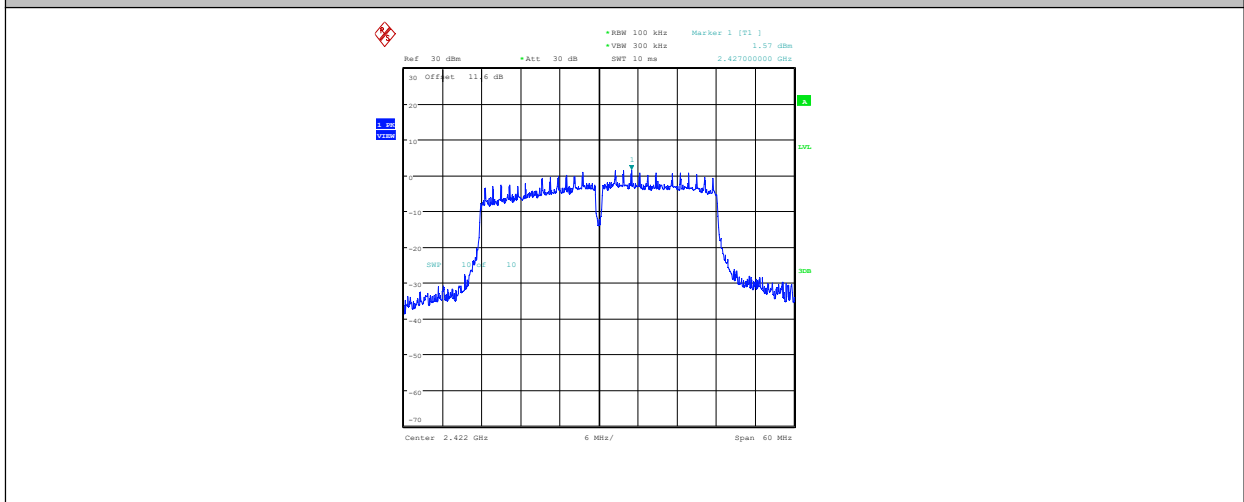




11N20SISO-Ant1-2462-30~1000



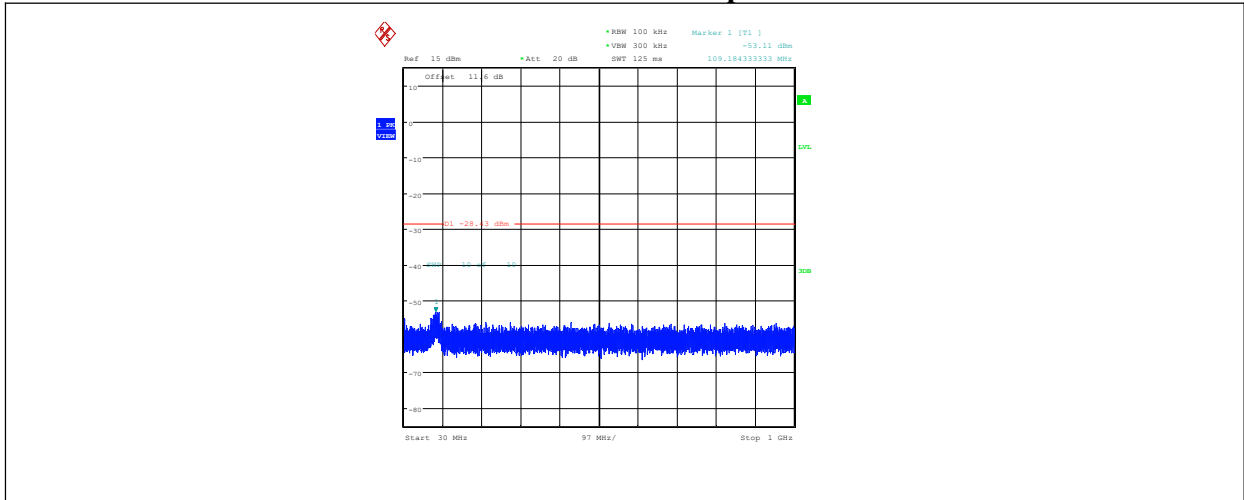
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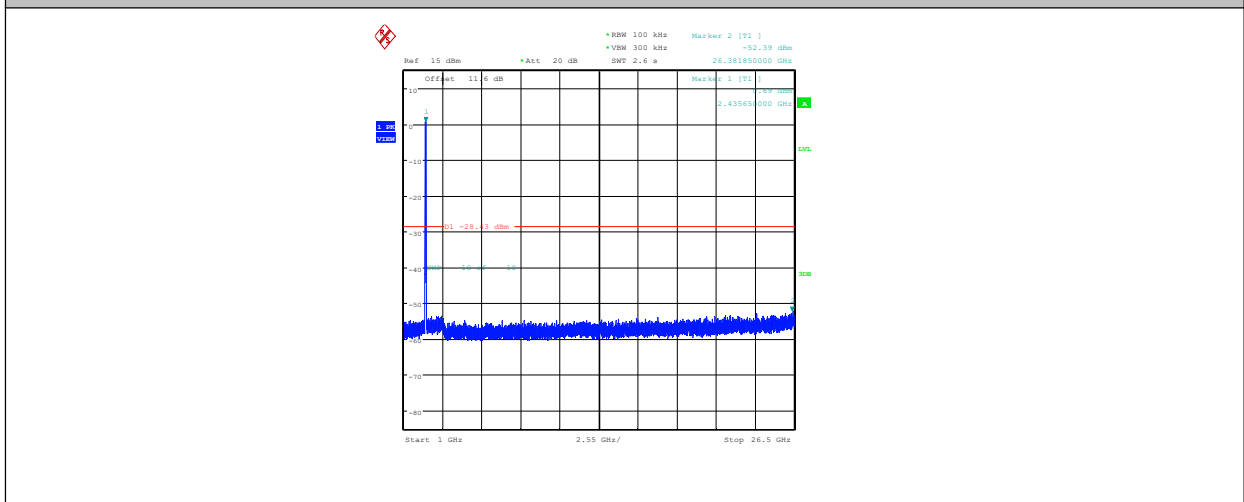
11N40SISO-Ant1-2422-0~Reference

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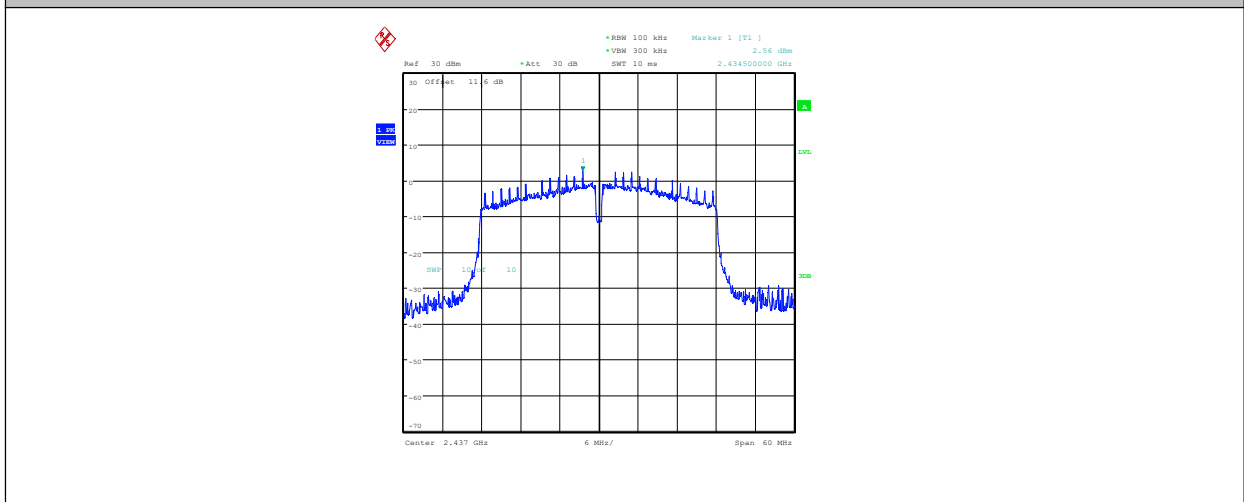
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11N40SISO-Ant1-2422-30~1000



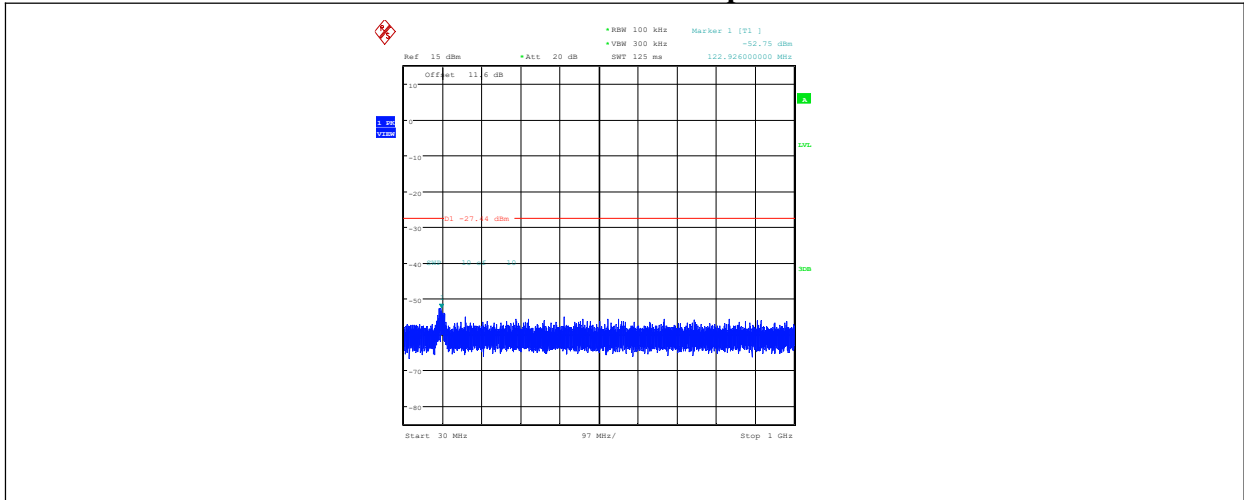
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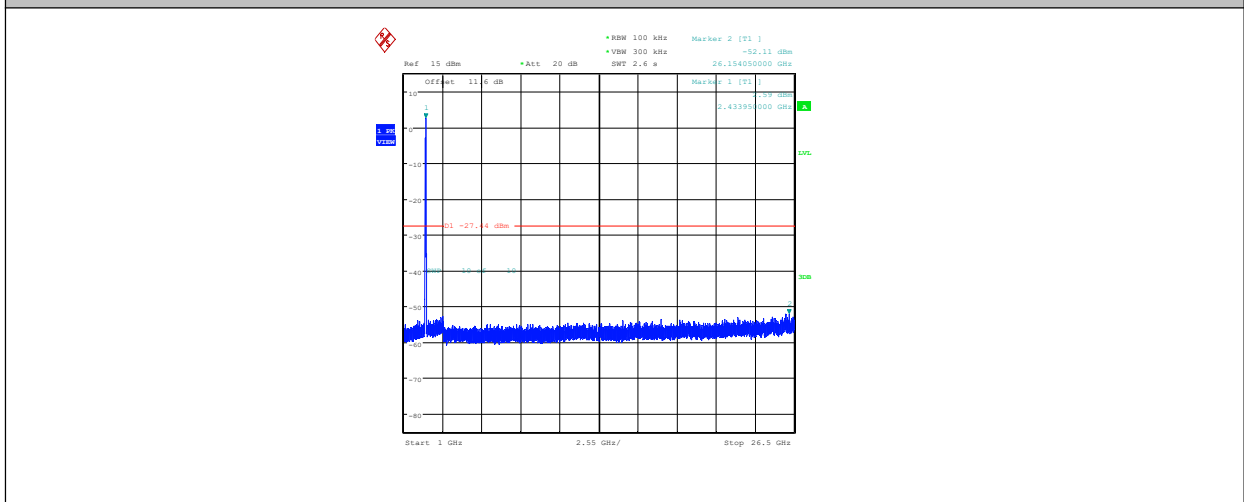
11N40SISO-Ant1-2437-0~Reference

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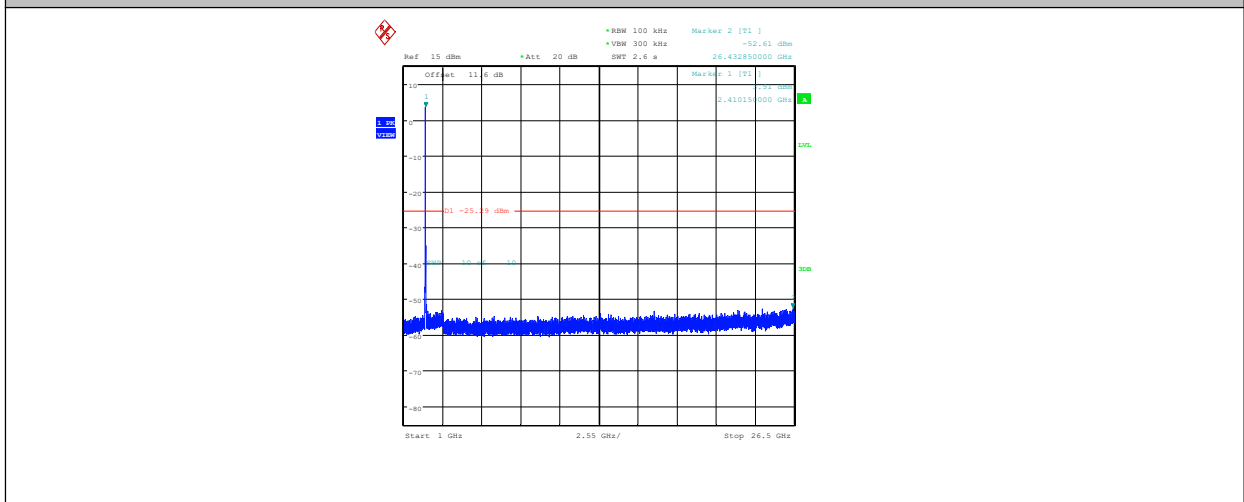
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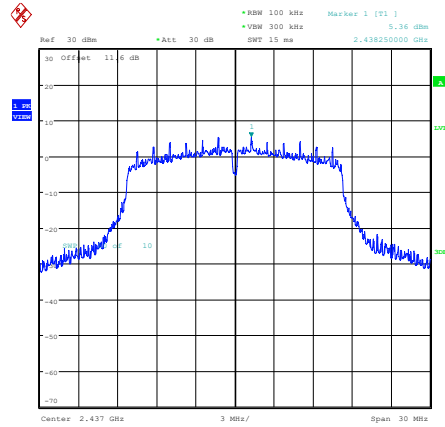
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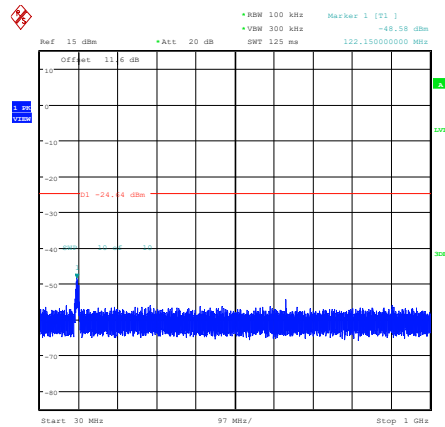
11N40SISO-Ant1-2437-1000~26500



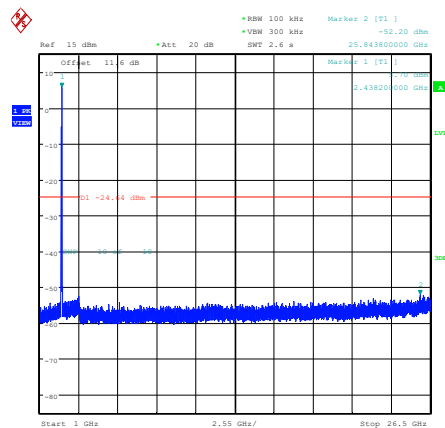
11G-Ant1-2412-1000~26500



11G-Ant1-2437-0~Reference



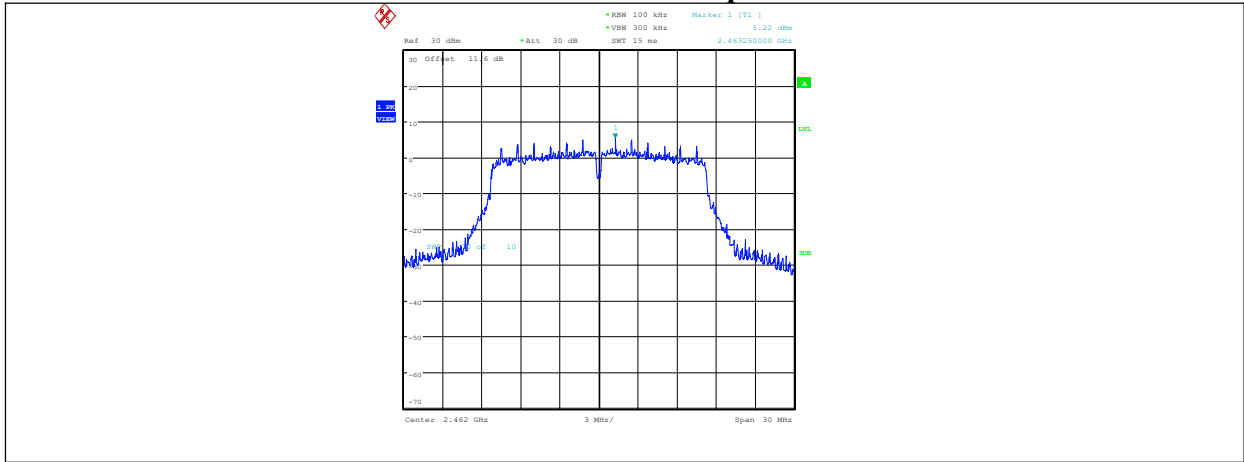
11G-Ant1-2437-30~1000



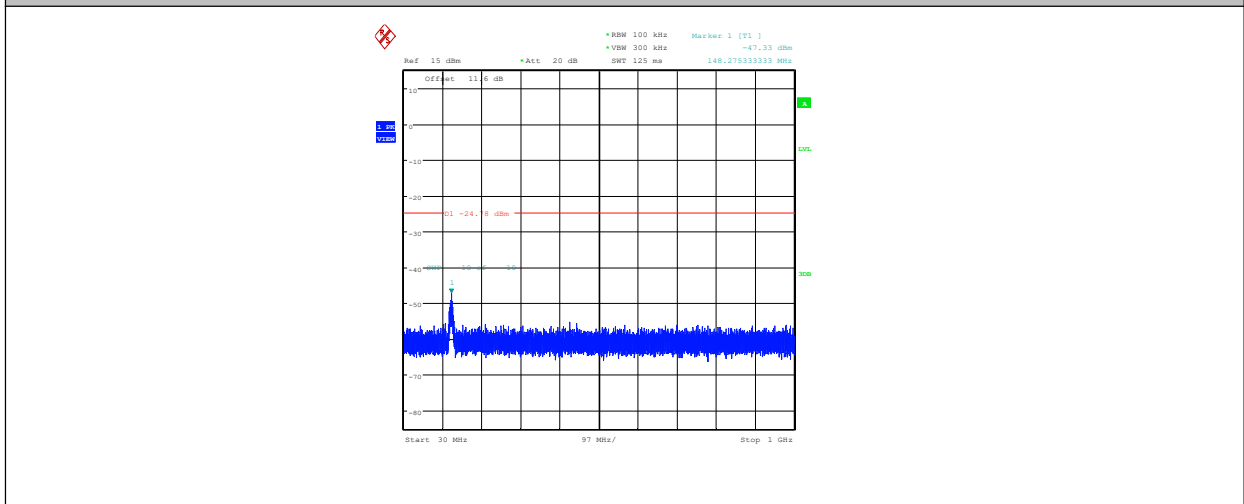
11G-Ant1-2437-1000~26500

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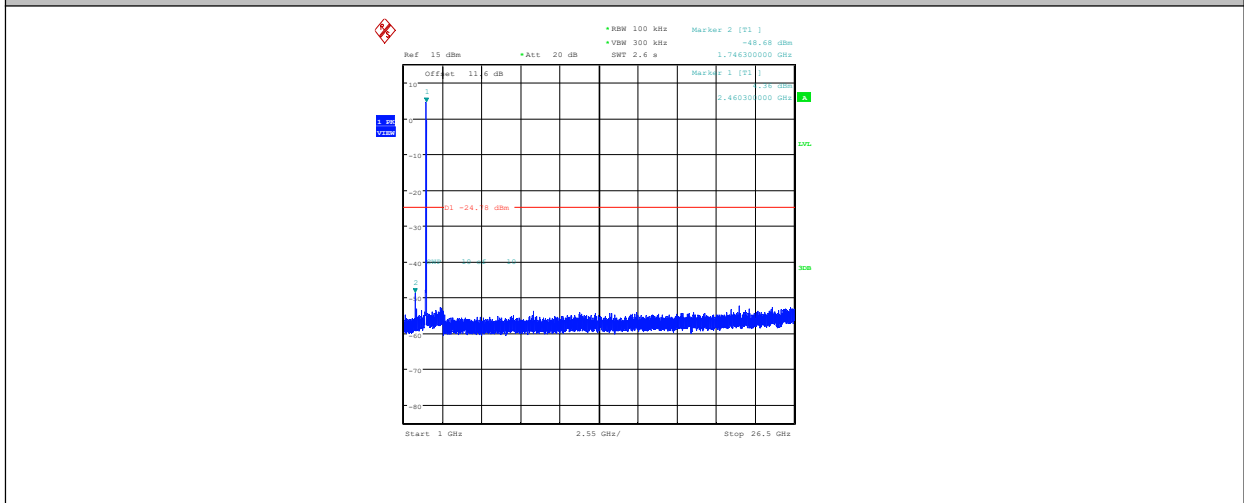
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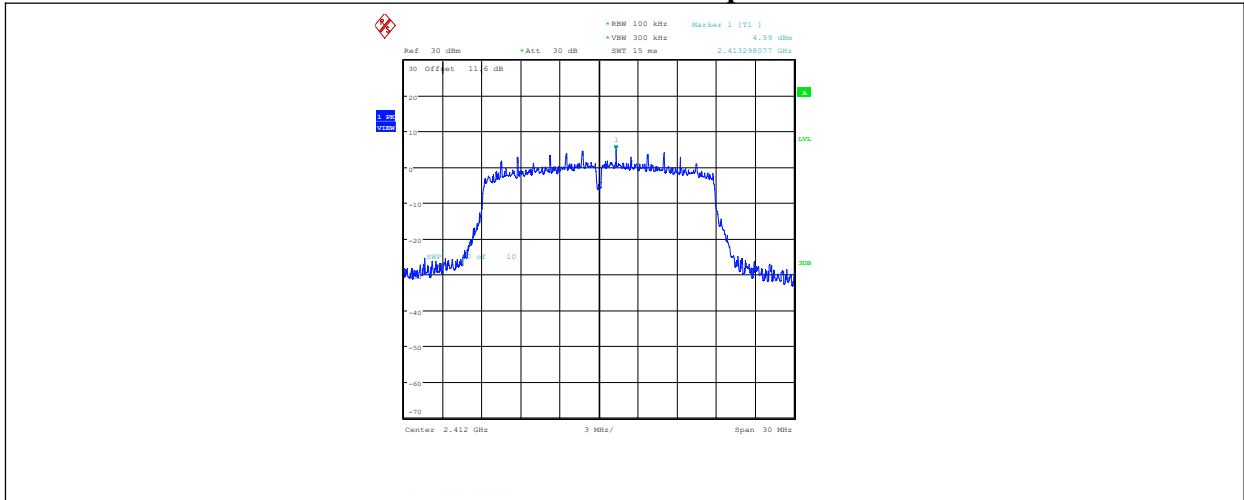
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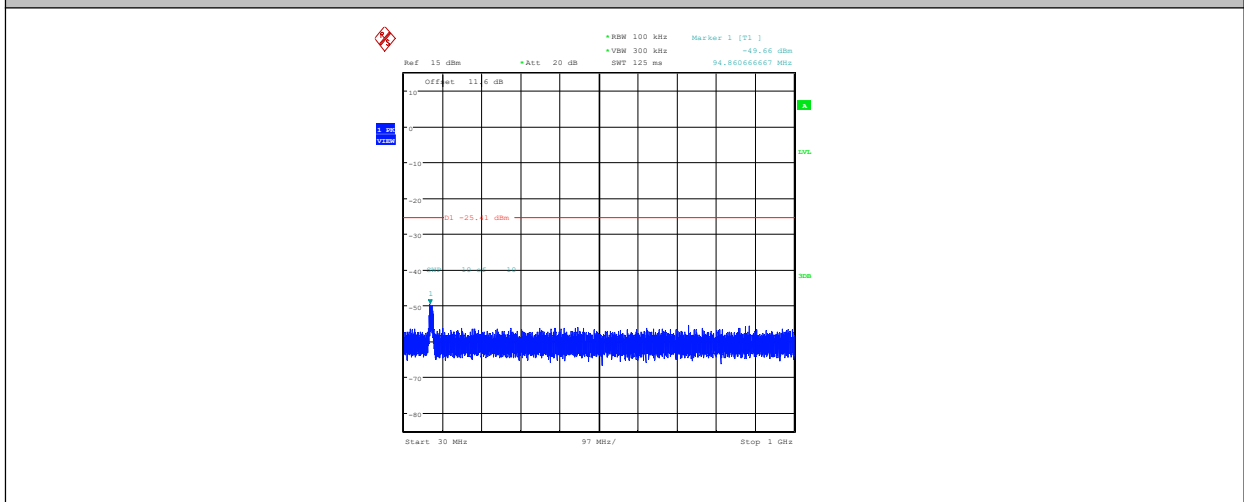
11G-Ant1-2462-30~1000



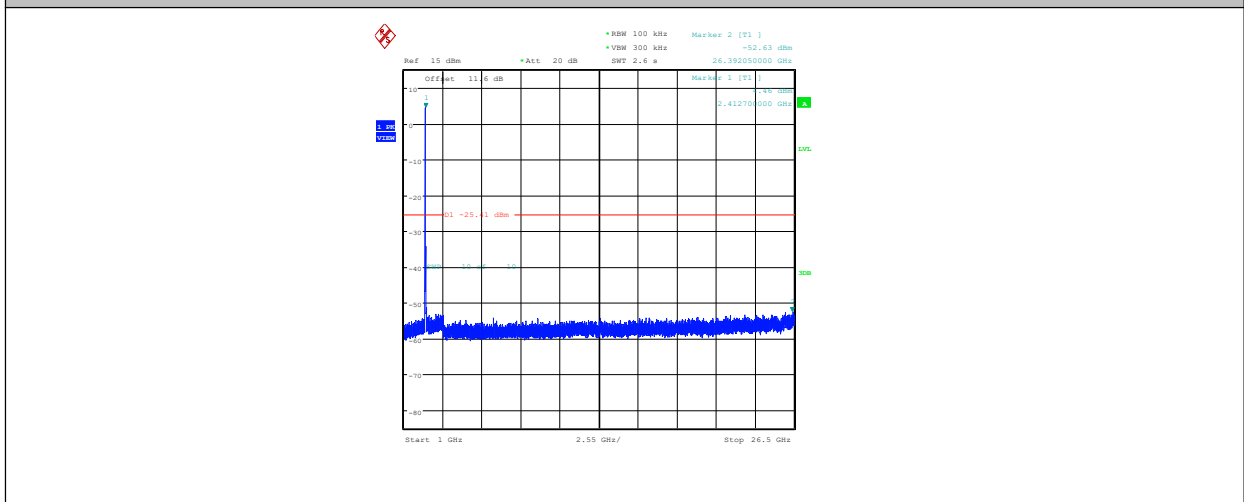
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11N20SISO-Ant1-2412-0~Reference



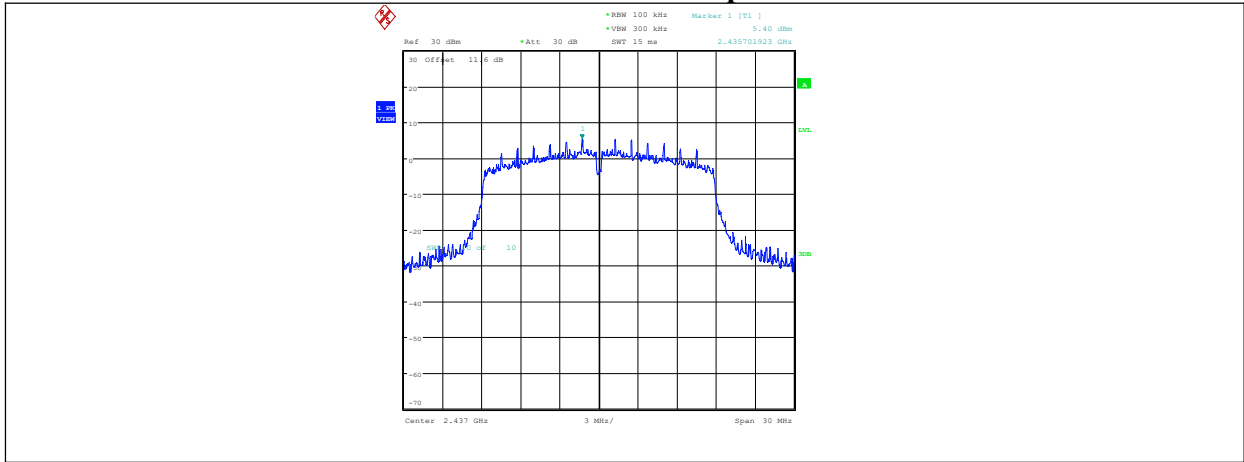
11N20SISO-Ant1-2412-30~1000



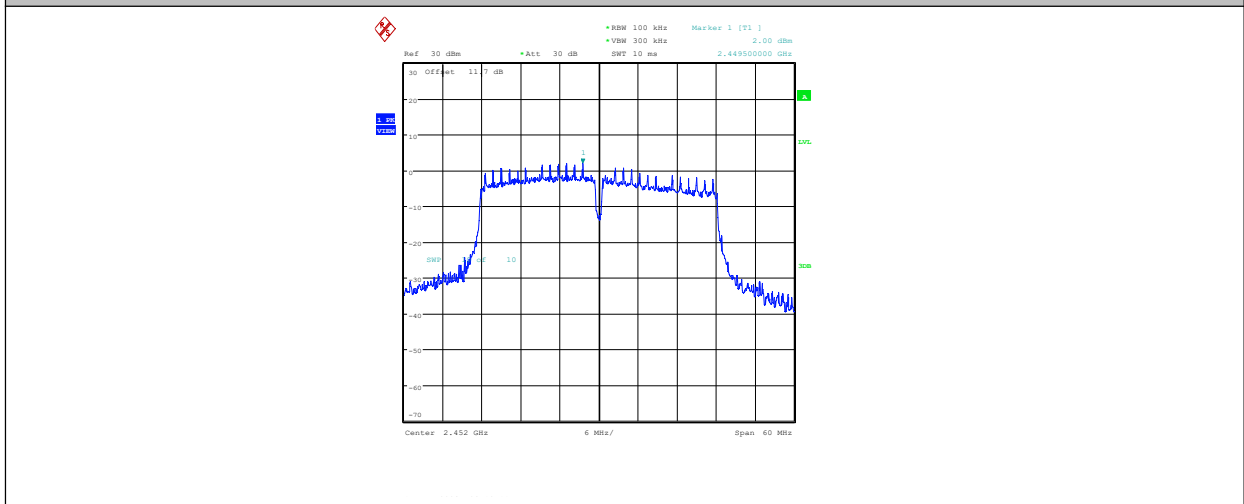
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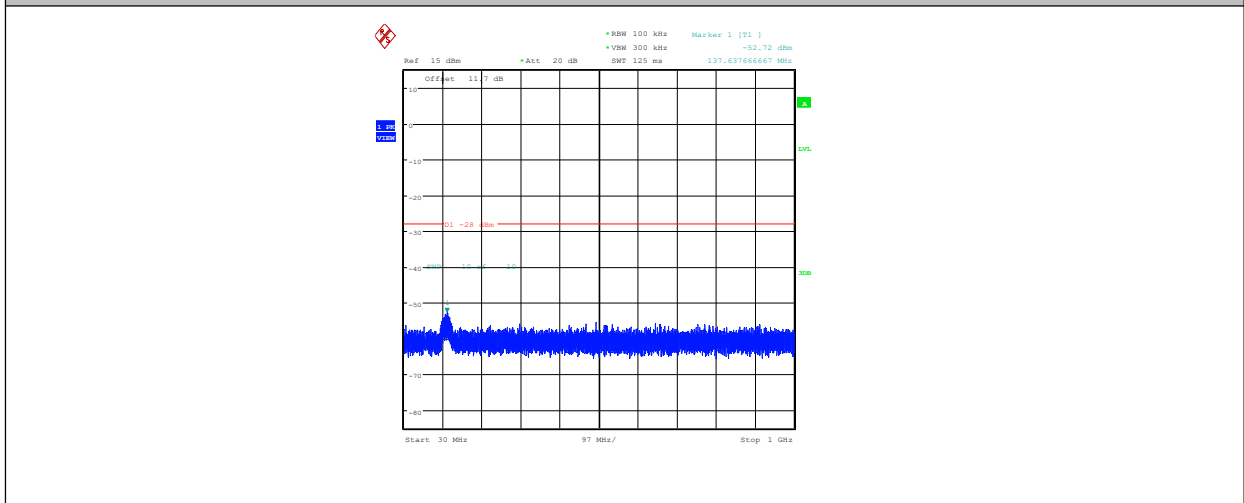
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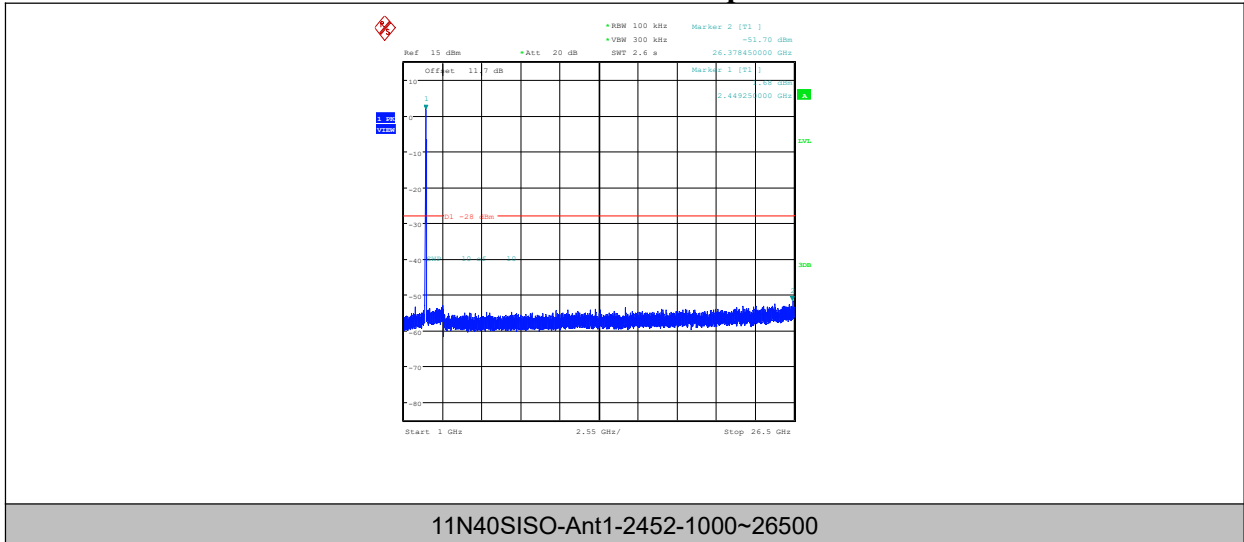
11N20SISO-Ant1-2437-0~Reference



11N40SISO-Ant1-2452-0~Reference



11N40SISO-Ant1-2452-30~1000



Note: 1. The out-of- limit signal in the picture is the main frequency signal.

2. The test data below 30MHz is more than 20dB lower than the limit value, so it is not provided in the report.

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6.8. Transmitter Spurious Emission-Radiated

Specifications:	FCC 47 Part 15.247,15.205,15.209
DUT Serial Number:	S8,S9
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Limit
FCC 47 Part 15.247,15.205,15.209	20dB below peak output power

Measurement Uncertainty:

Measurement Uncertainty	<p>30MHz-150MHz: 3.79 dB (k=2). 150MHz-1000MHz: 3.51dB (k=2). 1000MHz-6000MHz: 4.84 dB (k=2). 6000MHz-18000MHz: 4.52 dB (k=2).</p>
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In addition, radiated emissions which fall in the restricted bands, as defined in 25.205(a), must also comply with the radiated emission limits specified in 15.209(a)(see 15.205(c)).

The measurement is according to ANSI C63.10 clause 11.11 and 11.12.

Limit in restricted band

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009~0.49	2400/F (kHz)	129-94
0.49~1.705	24000/F (kHz)	74-63
1.705~30	30	70
30~88	100	40
88~216	150	43.5
216~960	200	46
Above 960	500	54

Test procedures

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a nonconducting platform, the top of which is 80 cm above

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Report No.: 123W00020-WIFI 2.4G RF

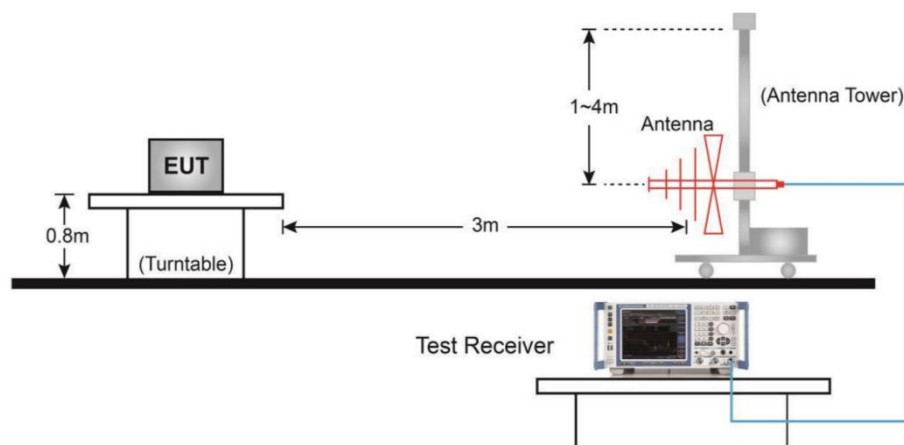
the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, but it may be larger or smaller to accommodate various sized EUTs. For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also ANSI C63.4-2013 section 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During testing, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emission from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission	RBW/VBW	Sweep Time (s)
0.009~30	9KHz/30KHz	Auto
30~1000	100KHz/300KHz	5
1000~4000	1MHz/3MHz	15
4000~18000	1MHz/3MHz	40
18000~26500	1MHz/3MHz	20

Test Setup

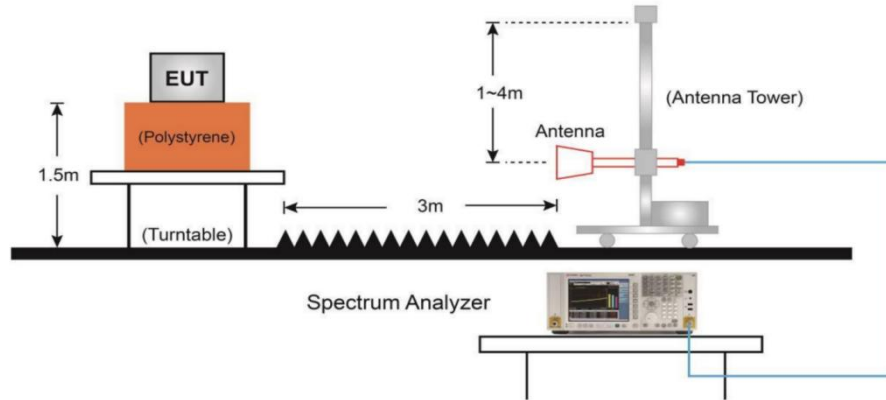
Below 1GHz Test Setup



Above 1GHz Test Setup

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Frequency of emission (MHz)	RBW/VBW	Sweep Times (s)
30~1000	100KHz/300KHz	5
1000~4000	1MHz/3MHz	15
4000~18000	1MHz/3MHz	40
18000~26500	1MHz/3MHz	20

Measurement Results

A "reference path loss" is established and A_{Rpi} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

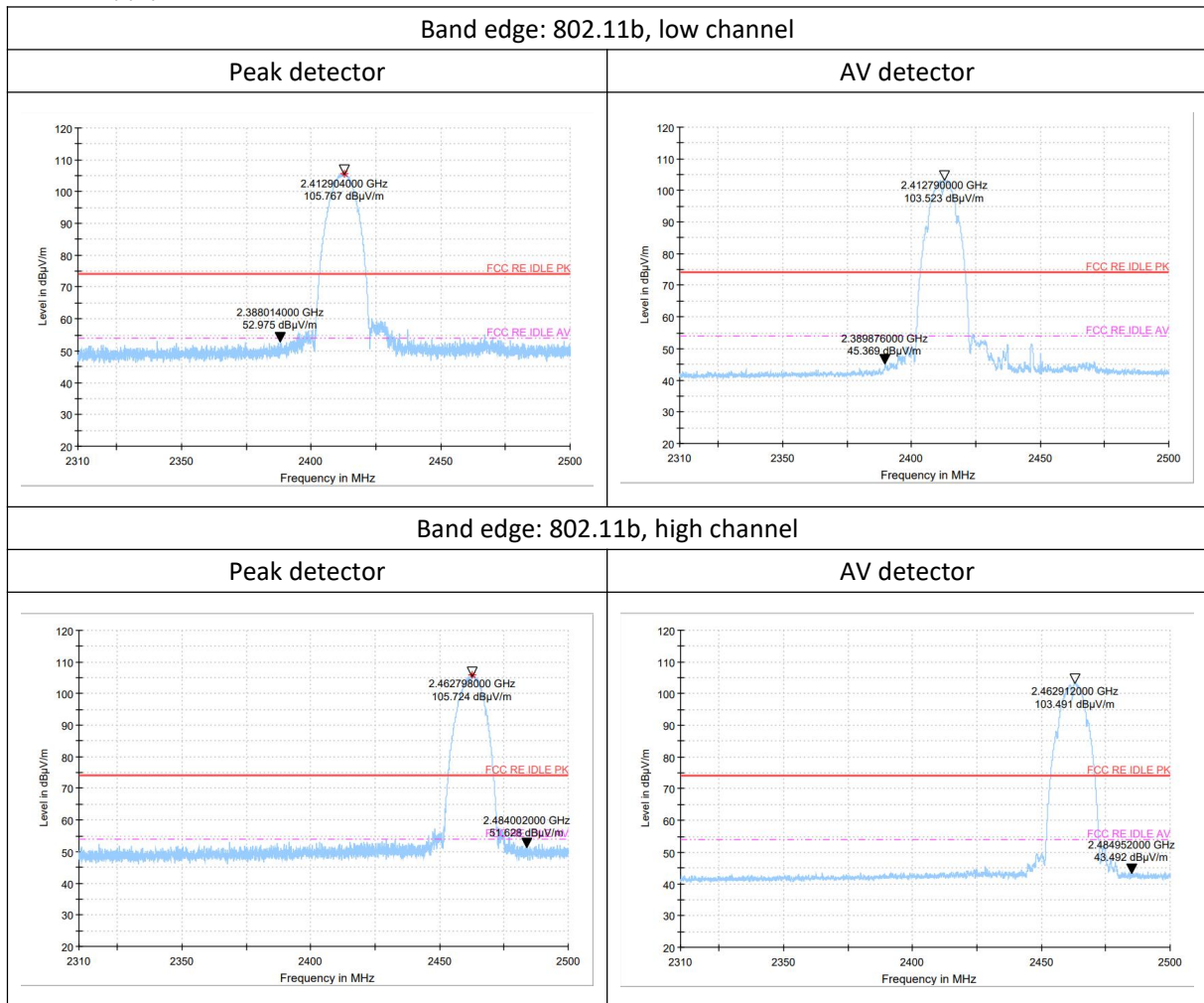
The measurement results are obtained as described below:

A_{Rpi} = Cable loss + Antenna Factor-Preamplifier gain

Result = P_{Mea} + Cable loss + Antenna Factor-Preamplifier gain = P_{Mea} + A_{Rpi} .

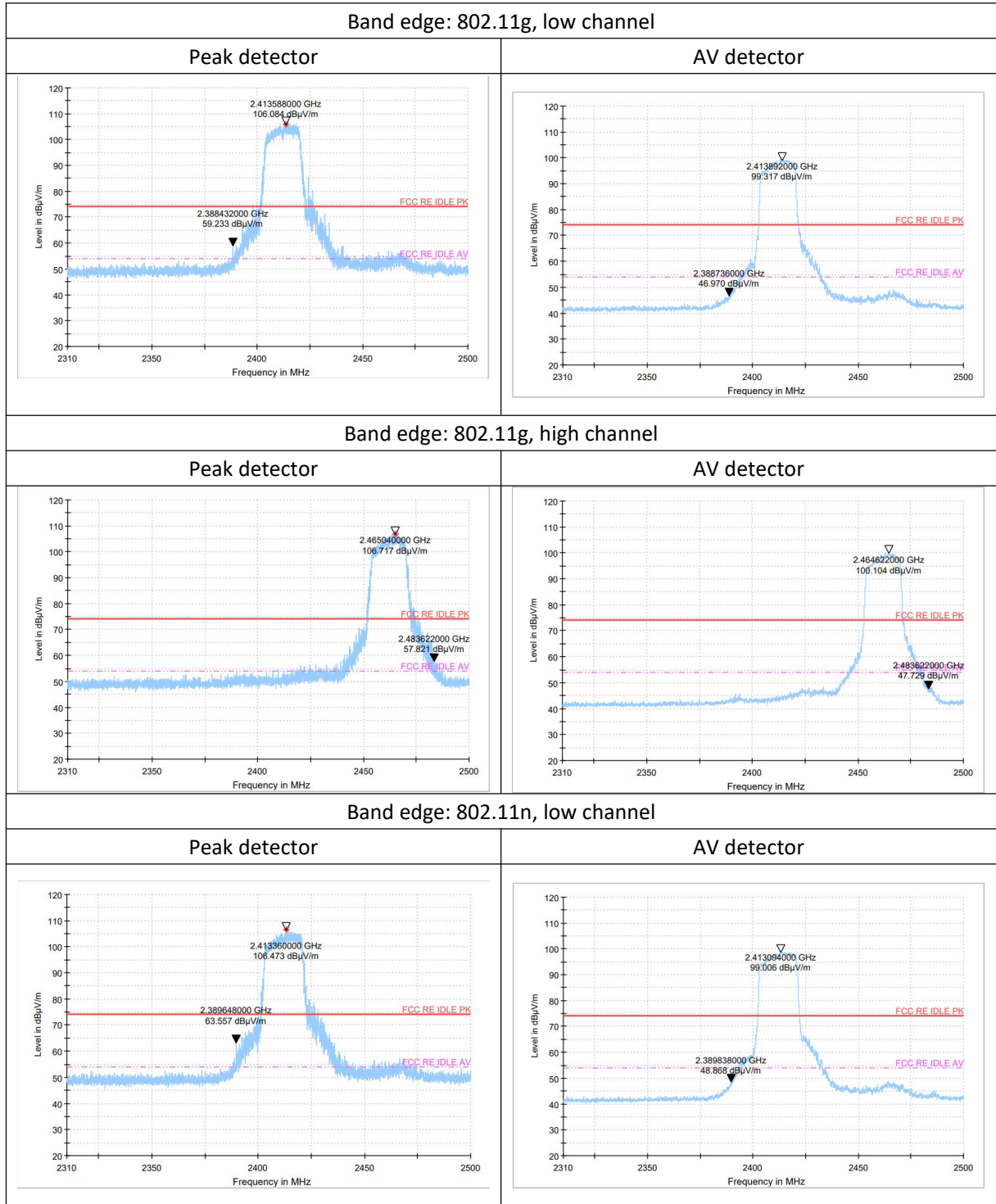
The test data below 30MHz is more than 20dB lower than the limit value, so it is not provided in the report.

Main Supply



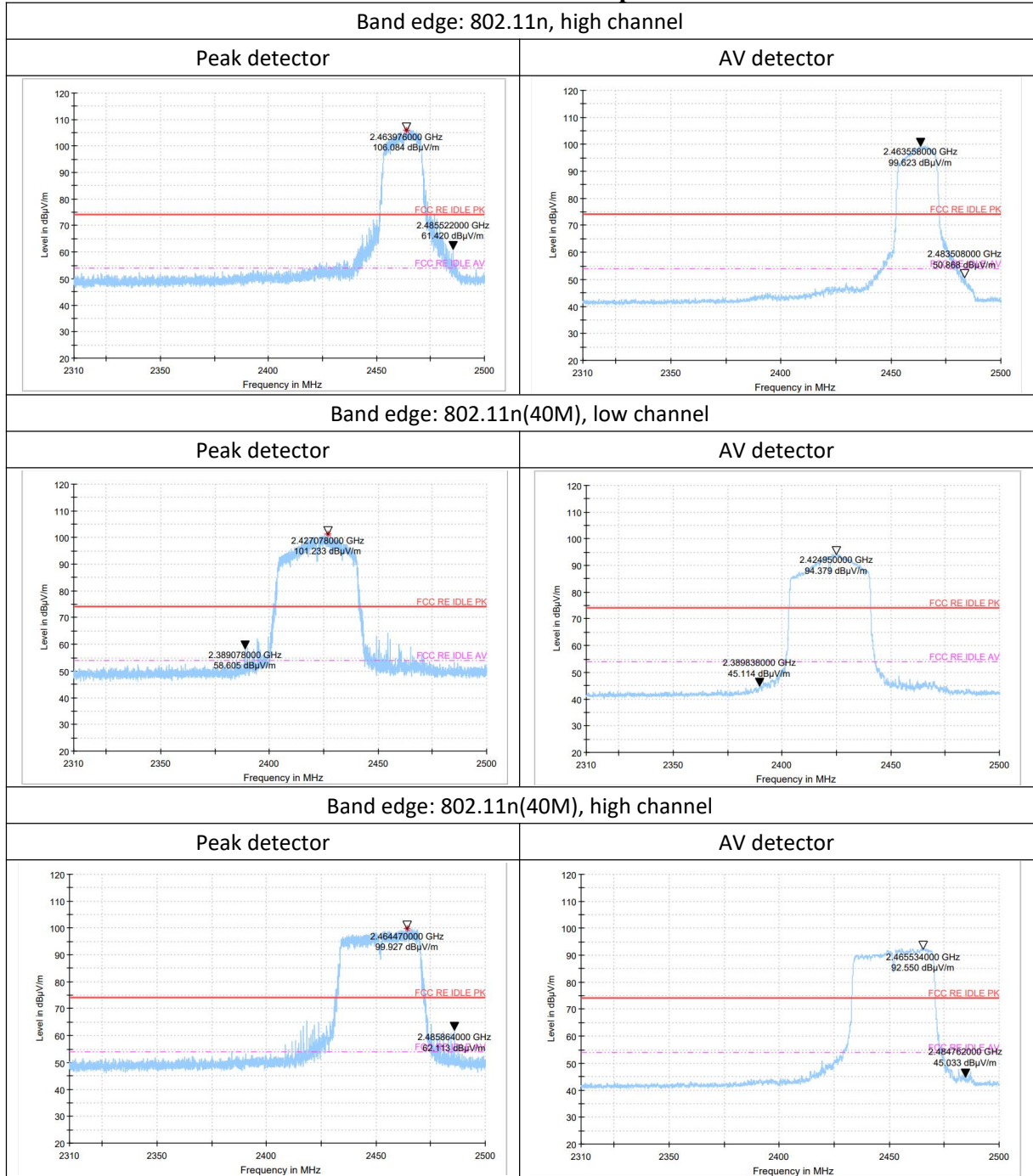
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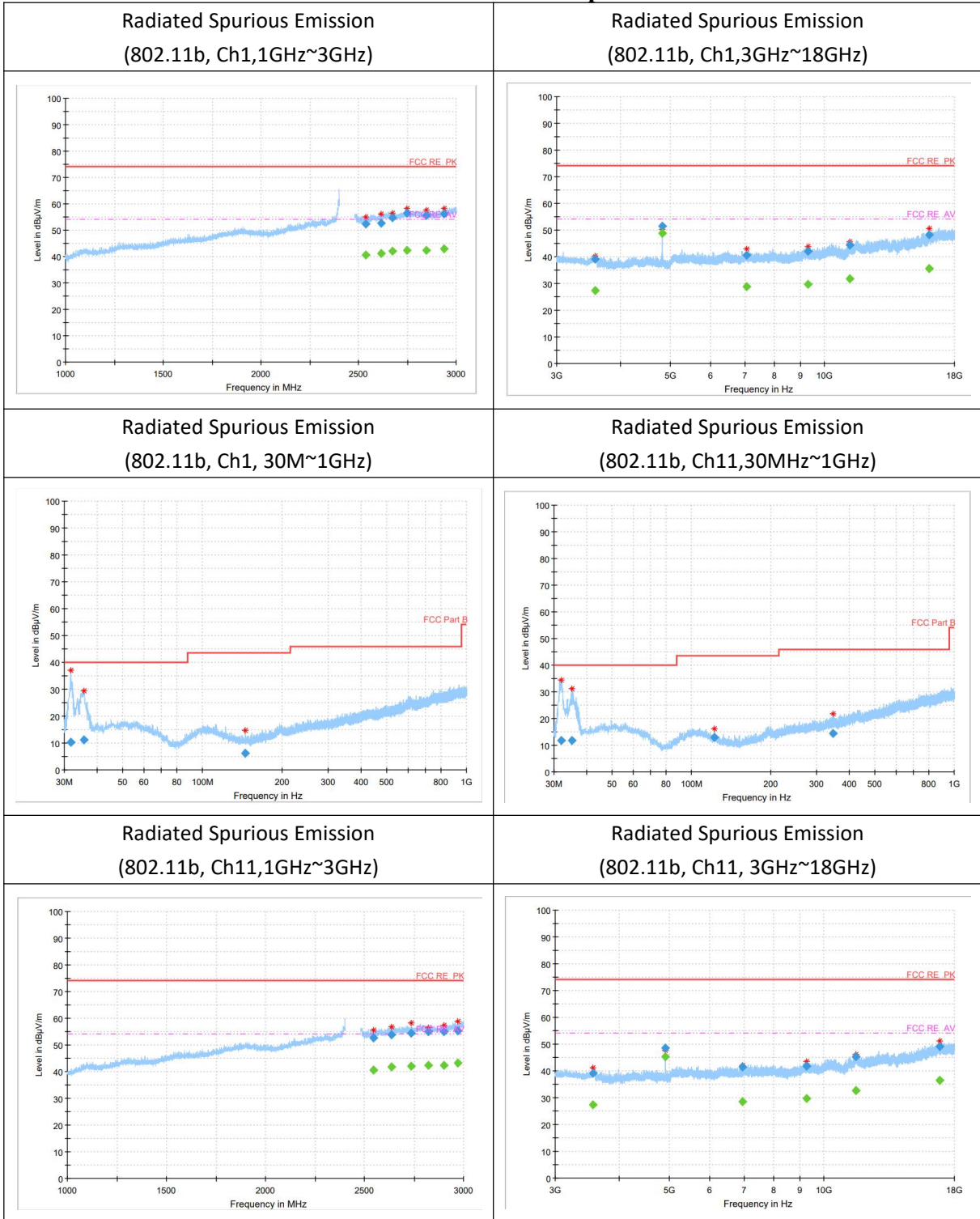
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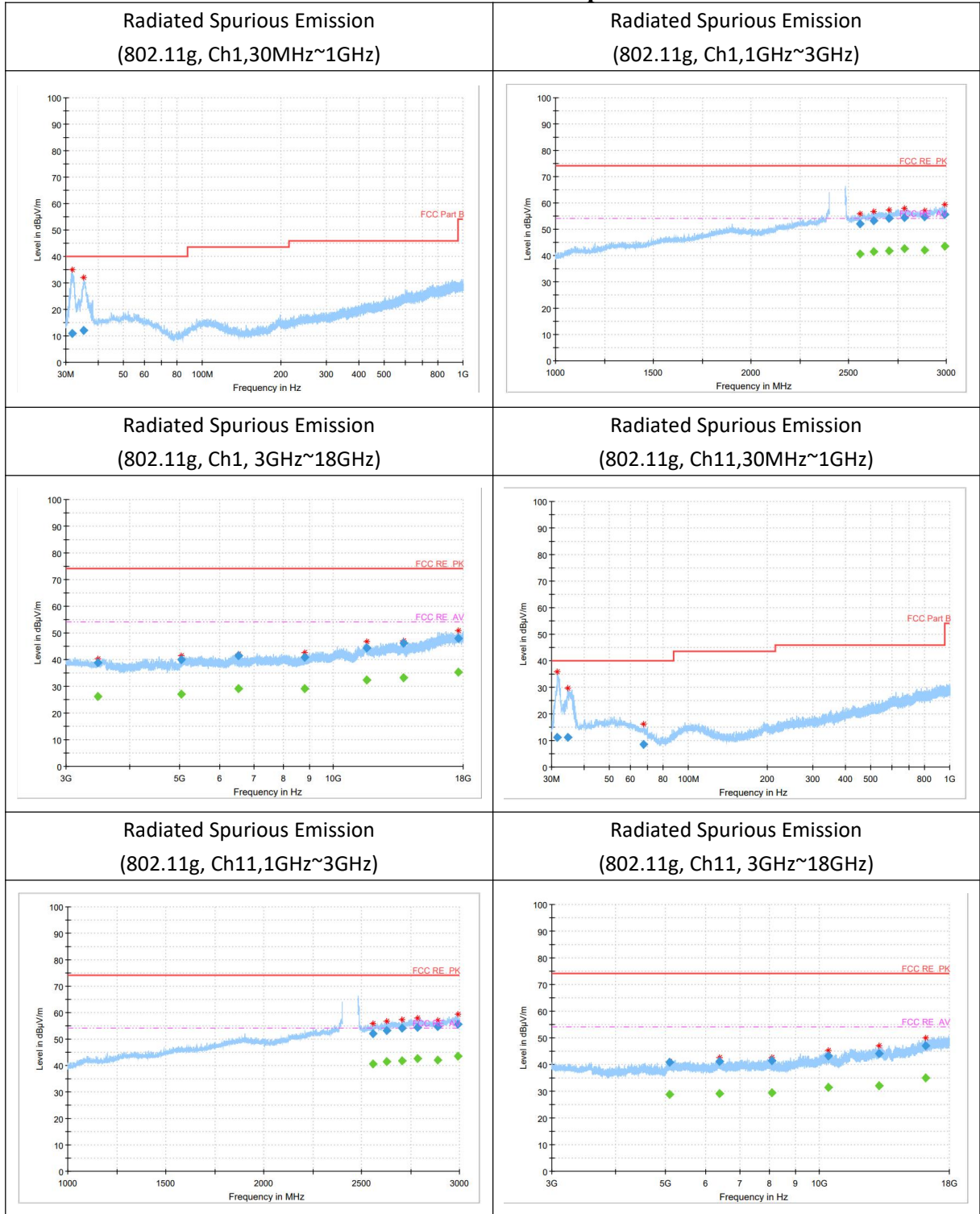
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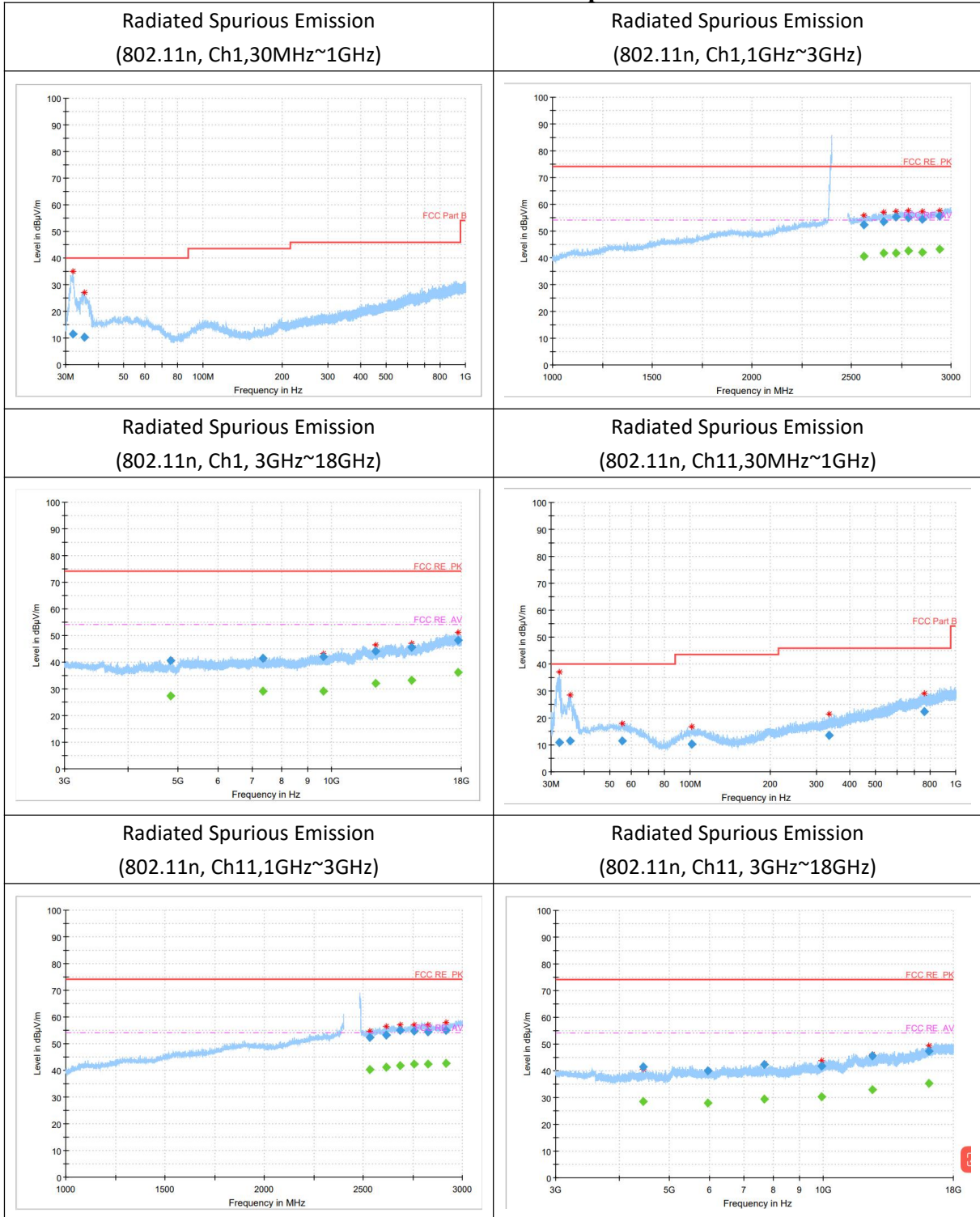
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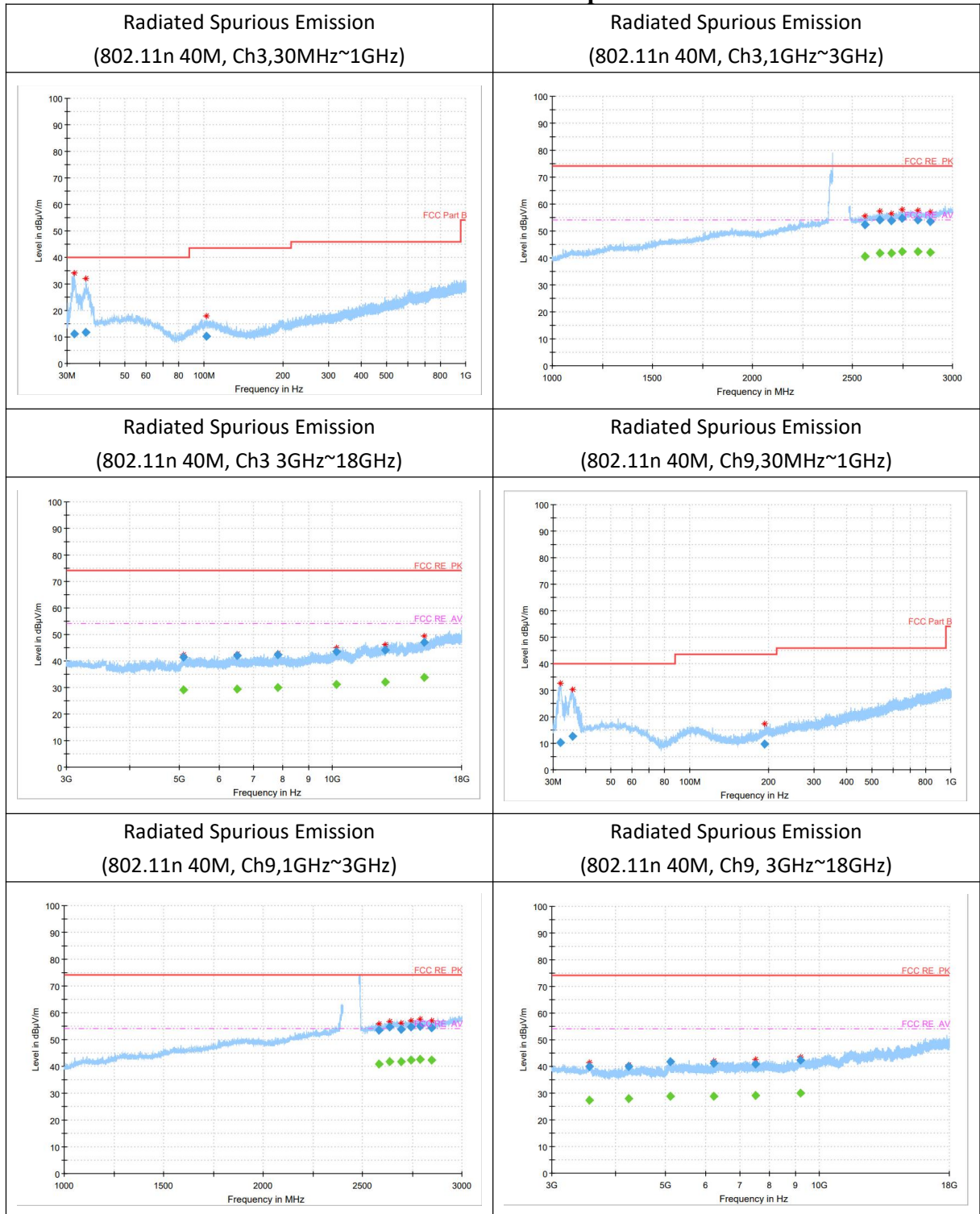
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Second supply

Band edge: 802.11n(40M), low channel	
Peak detector	AV detector

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