

7. RF Antenna Conducted Spurious

Name of Test	RF Antenna Conducted Spurious
Base Standard	FCC 15.247(d)

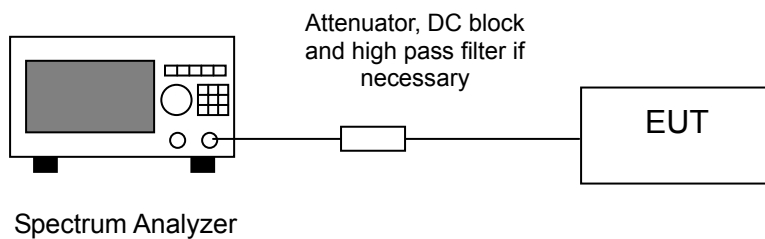
Test Result: Complies
Measurement Data: See plots below

Method of Measurement:

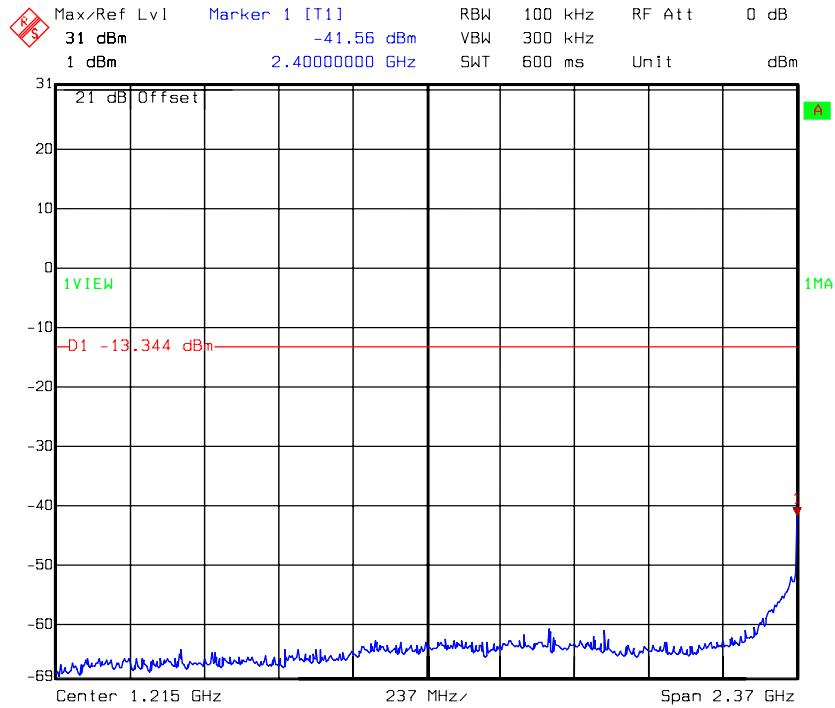
Reference FCC document: KDB558074 D01

The measurements were performed from 30 MHz to 25 GHz RF antenna conducted per FCC 15.247 (d) was measured from the EUT antenna port using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 300 kHz. Harmonics and spurious noise must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. The table below is the results from the highest emission for each channel within the authorized band. This table was used to determine the spurious limits for each channel.

Test Diagram:



Conducted spurious @ 802.11b mode channel 1 (Part 1)



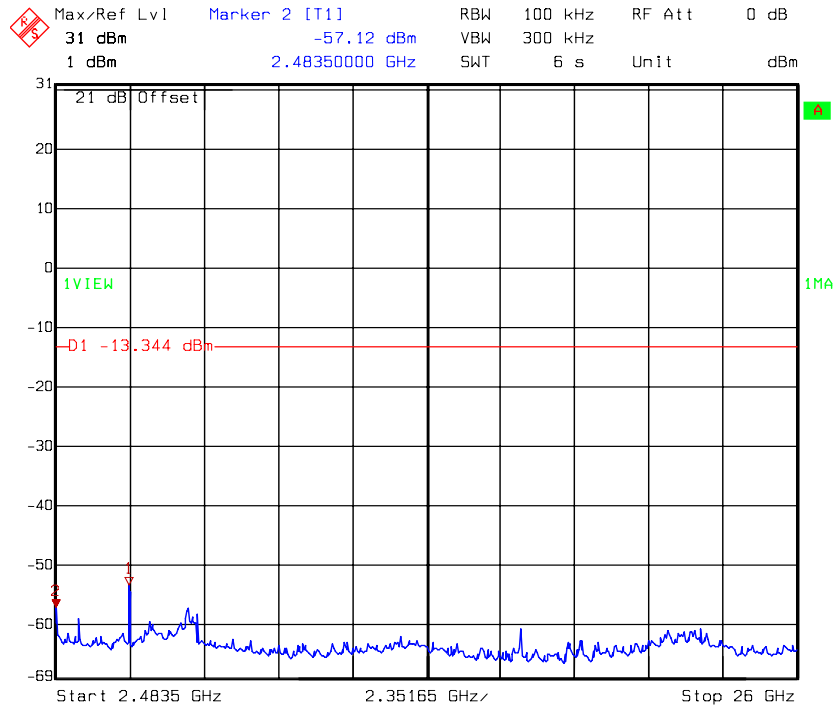
Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11b_Chain0_Ch1_2412

Conducted spurious @ 802.11b mode channel 1 (Part 2)



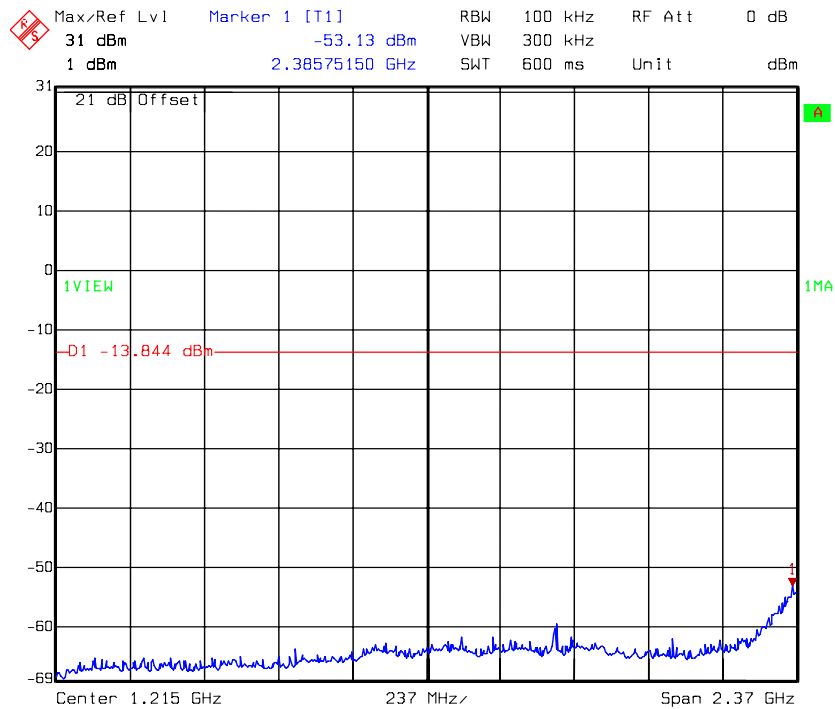
Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11b_Chain0_Ch1_2412

Conducted spurious @ 802.11b mode channel 1 (Part 3)



Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11b_Chain0_Ch1_2412

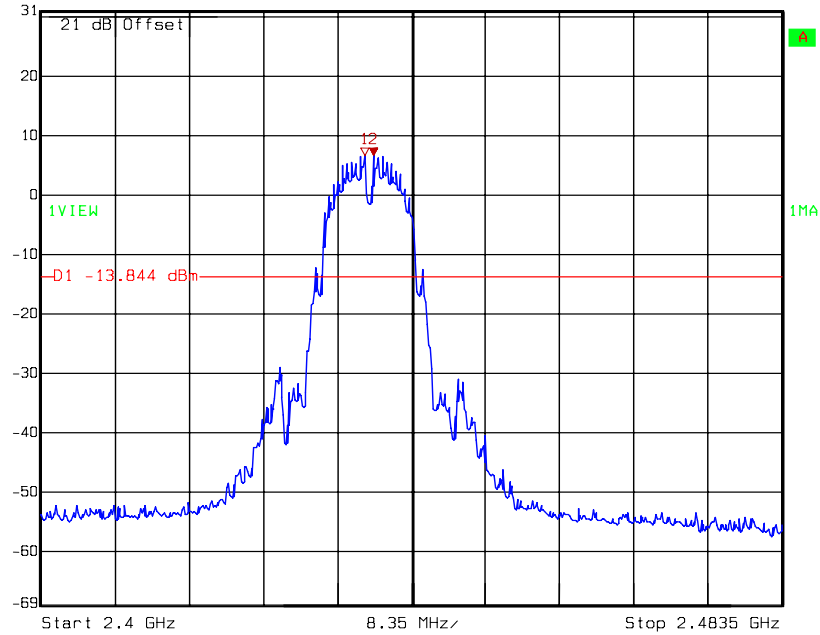
Conducted spurious @ 802.11b mode channel 6 (Part 1)



Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11b_Chain0_Ch6_2437

Conducted spurious @ 802.11b mode channel 6 (Part 2)

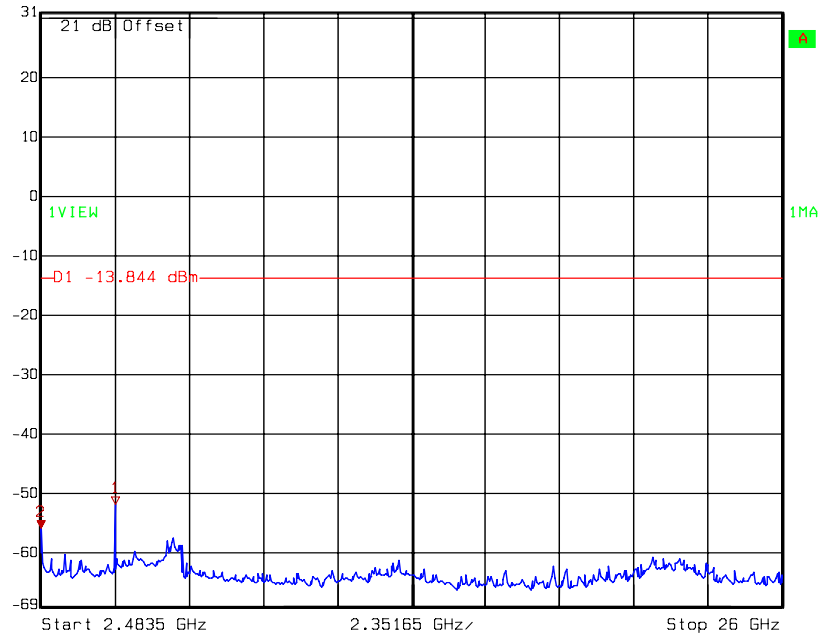
	Max/Ref Lvl	Marker 2 [T1]	RBW	100 kHz	RF Att	0 dB
	31 dBm	6.50 dBm	VBW	300 kHz		
	1 dBm	2.43748297 GHz	SWT	21 ms	Unit	dBm



Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11b_Chain0_Ch6_2437

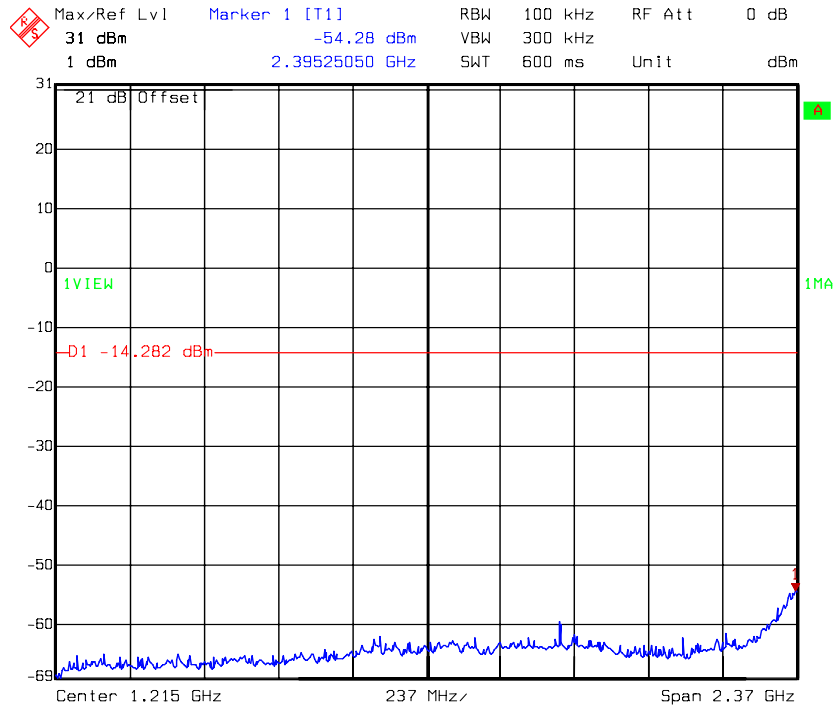
Conducted spurious @ 802.11b mode channel 6 (Part 3)

	Max/Ref Lvl	Marker 2 [T1]	RBW	100 kHz	RF Att	0 dB
	31 dBm	-55.98 dBm	VBW	300 kHz		
	1 dBm	2.48350000 GHz	SWT	6 s	Unit	dBm



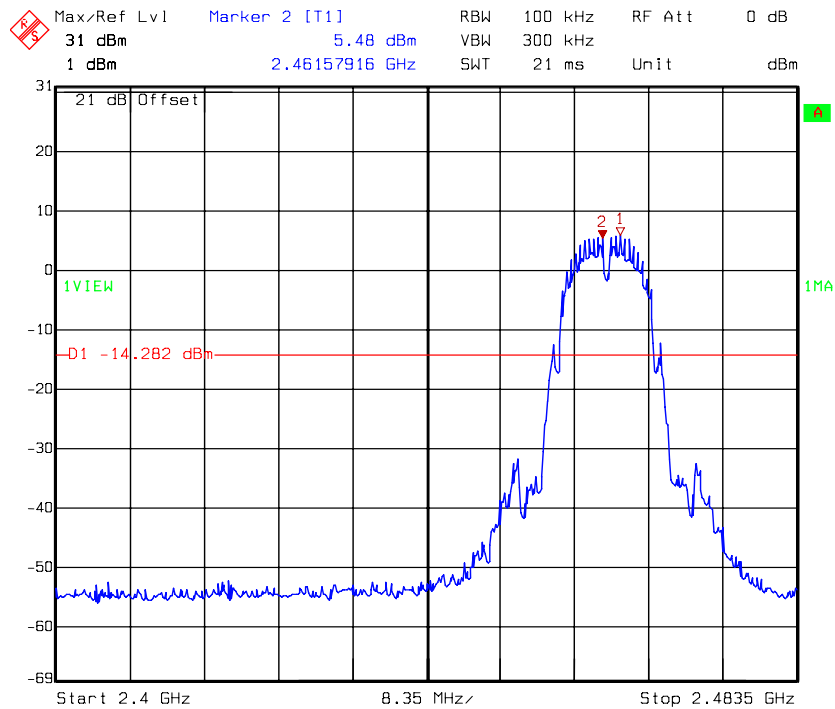
Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11b_Chain0_Ch6_2437

Conducted spurious @ 802.11b mode channel 11 (Part 1)



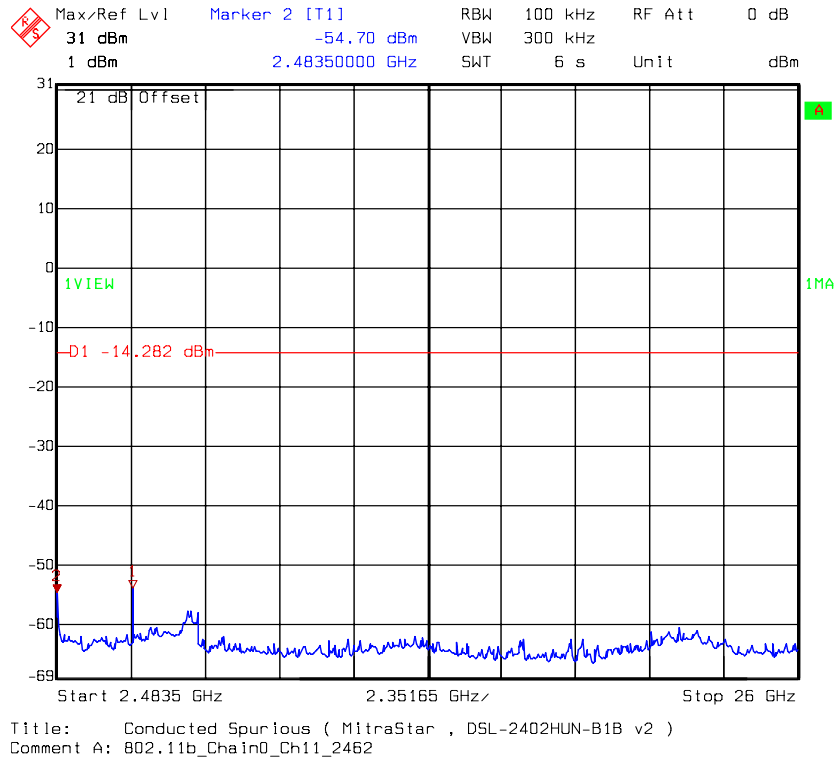
Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11b_Chain0_Ch11_2462

Conducted spurious @ 802.11b mode channel 11 (Part 2)

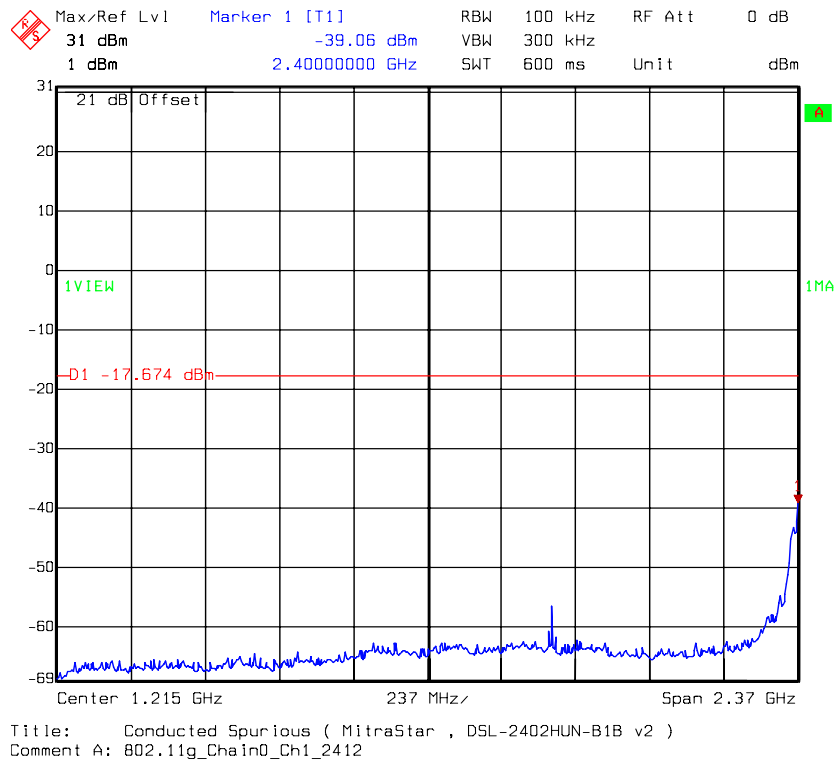


Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11b_Chain0_Ch11_2462

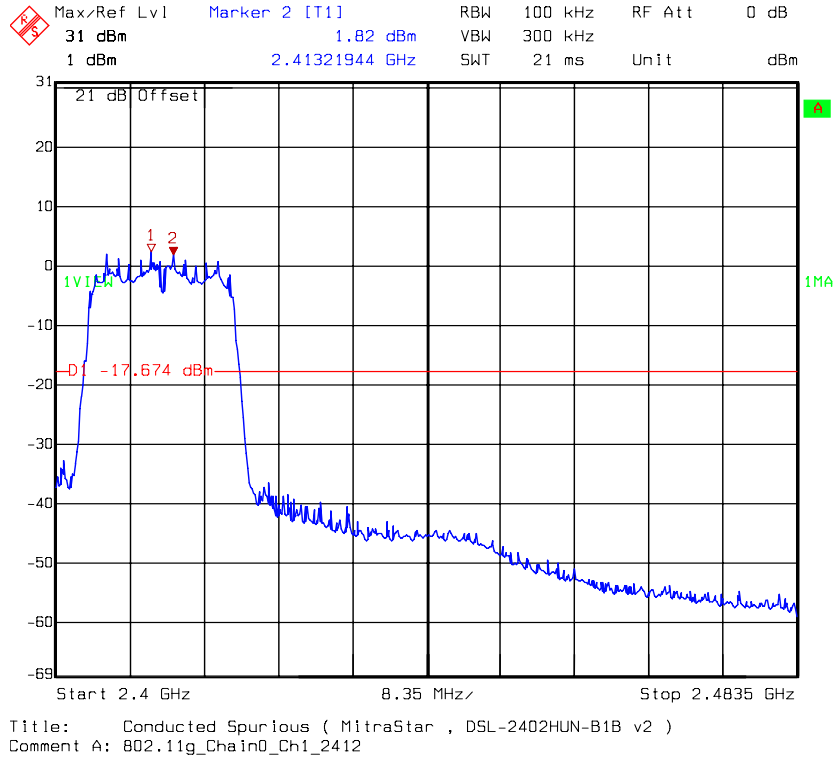
Conducted spurious @ 802.11b mode channel 11 (Part 3)



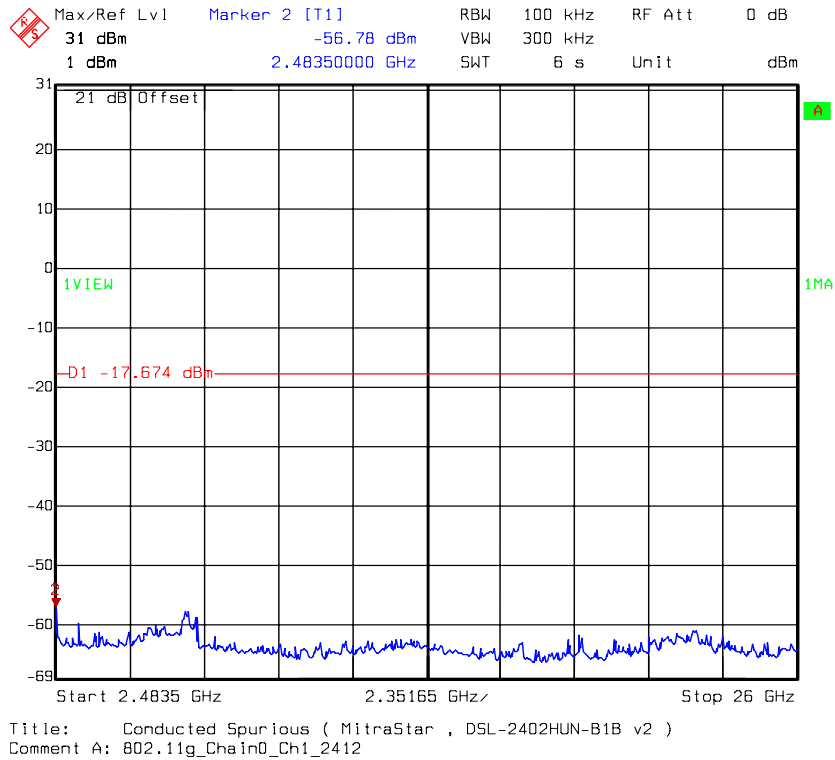
Chain 0: Conducted spurious @ 802.11g mode channel 1 (Part 1)



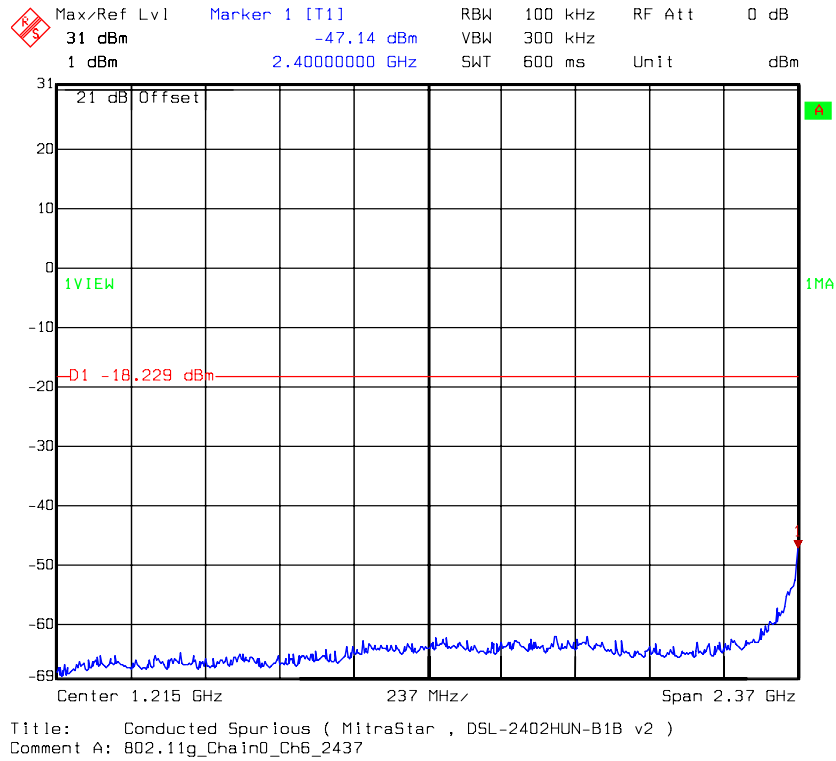
Chain 0: Conducted spurious @ 802.11g mode channel 1 (Part 2)



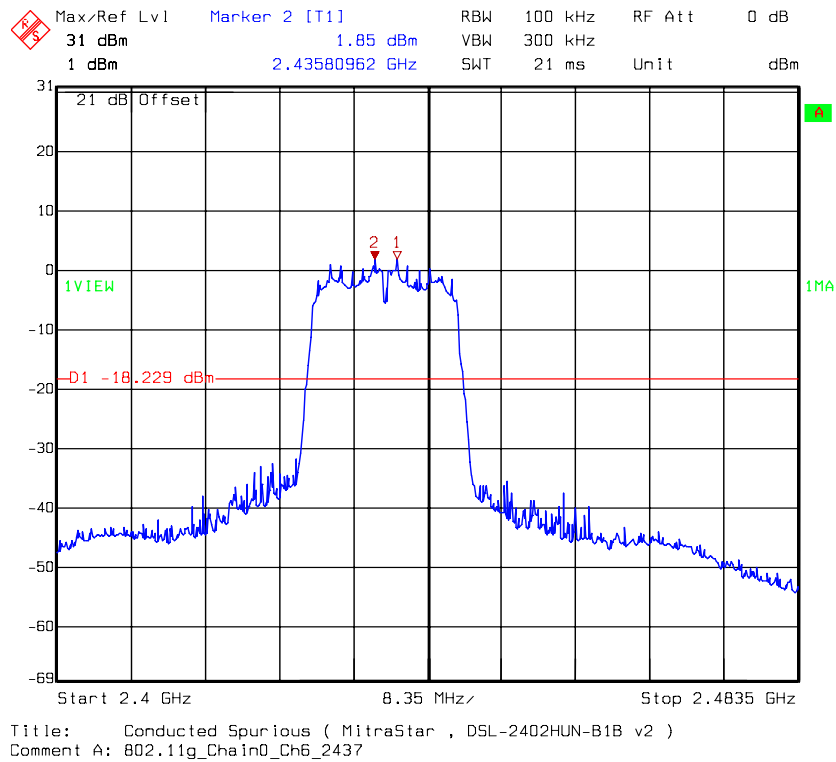
Chain 0: Conducted spurious @ 802.11g mode channel 1 (Part 3)



Chain 0: Conducted spurious @ 802.11g mode channel 6 (Part 1)

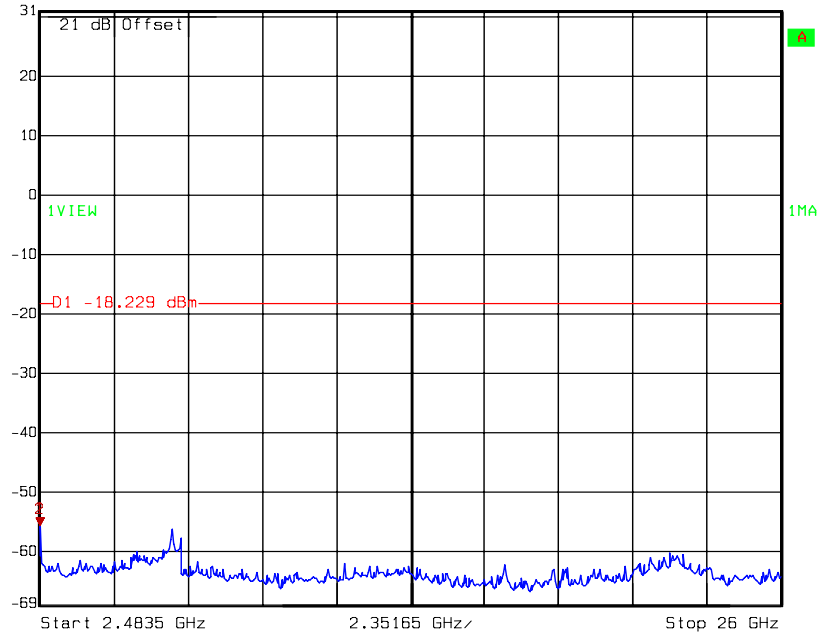


Chain 0: Conducted spurious @ 802.11g mode channel 6 (Part 2)



Chain 0: Conducted spurious @ 802.11g mode channel 6 (Part 3)

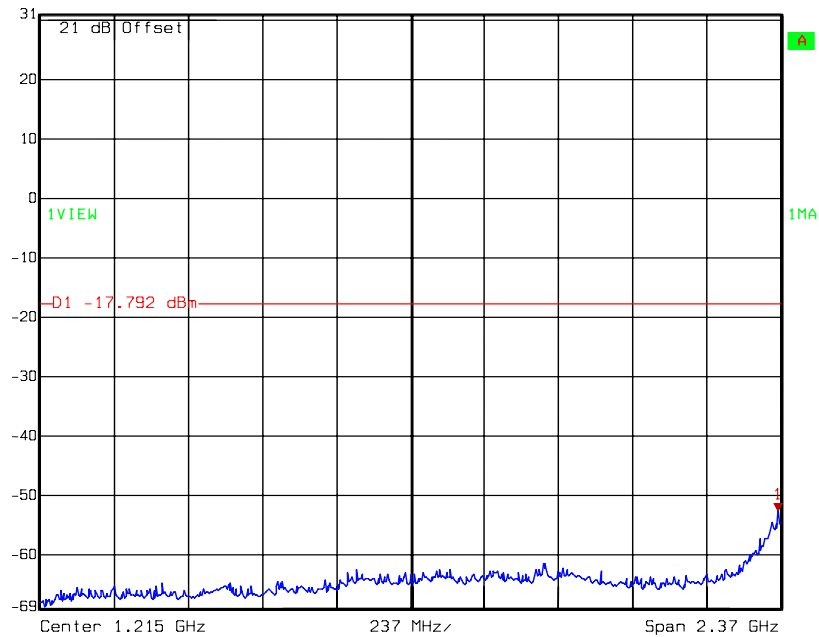
	Max/Ref Lvl	Marker 2 [T1]	RBW	100 kHz	RF Att	0 dB
	31 dBm	-55.67 dBm	VBW	300 kHz		
	1 dBm	2.48350000 GHz	SWT	6 s	Unit	dBm



Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11g_Chain0_Ch6_2437

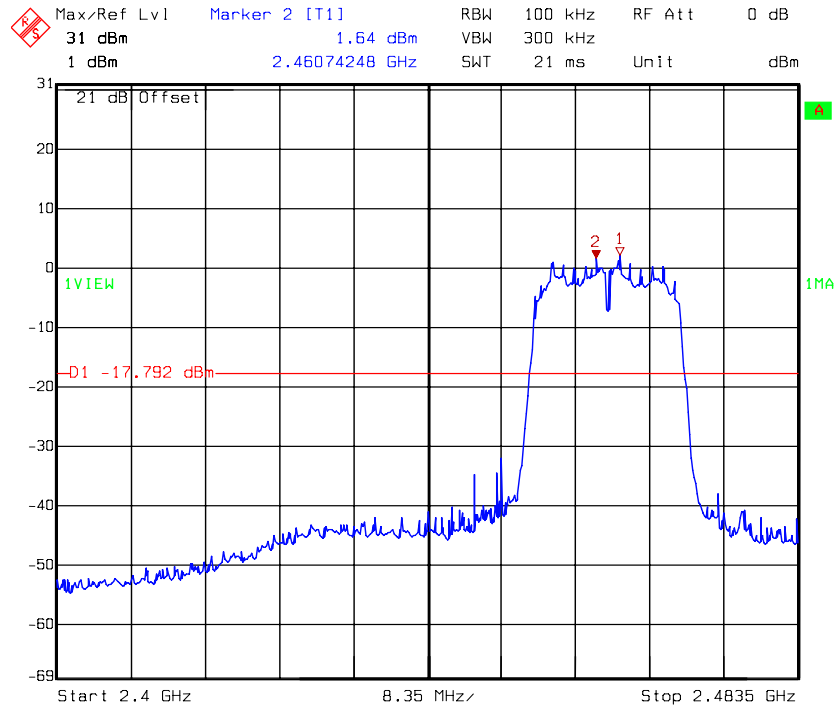
Chain 0: Conducted spurious @ 802.11g mode channel 11 (Part 1)

	Max/Ref Lvl	Marker 1 [T1]	RBW	100 kHz	RF Att	0 dB
	31 dBm	-52.55 dBm	VBW	300 kHz		
	1 dBm	2.39050100 GHz	SWT	600 ms	Unit	dBm



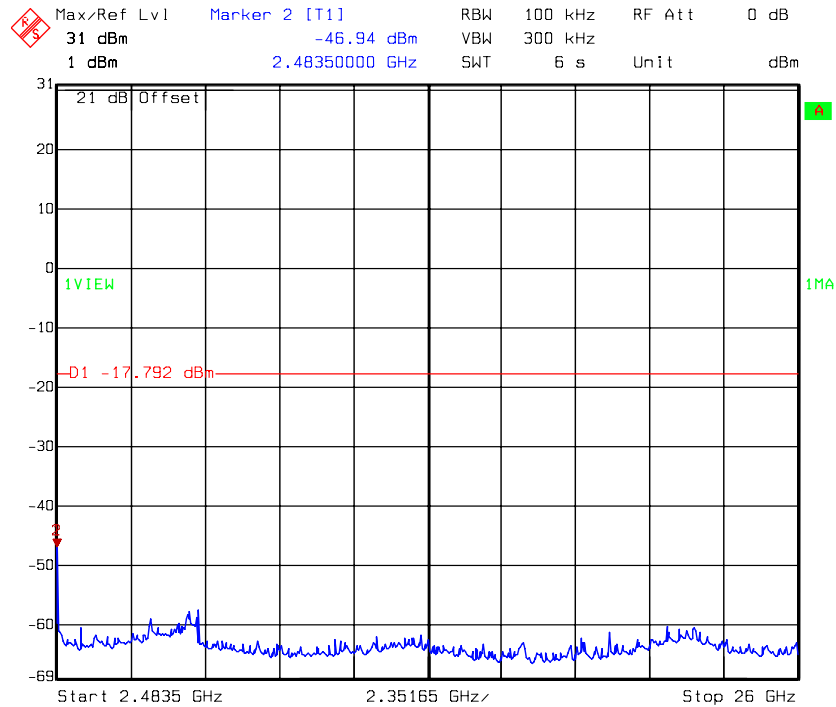
Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11g_Chain0_Ch11_2462

Chain 0: Conducted spurious @ 802.11g mode channel 11 (Part 2)



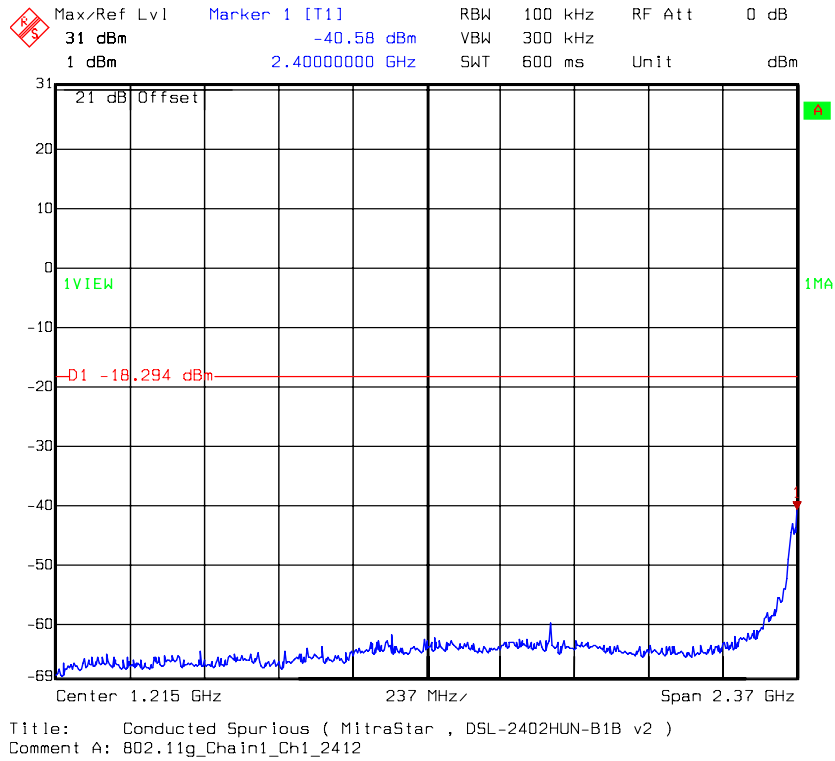
Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11g_Chain0_Ch11_2462

Chain 0: Conducted spurious @ 802.11g mode channel 11 (Part 3)

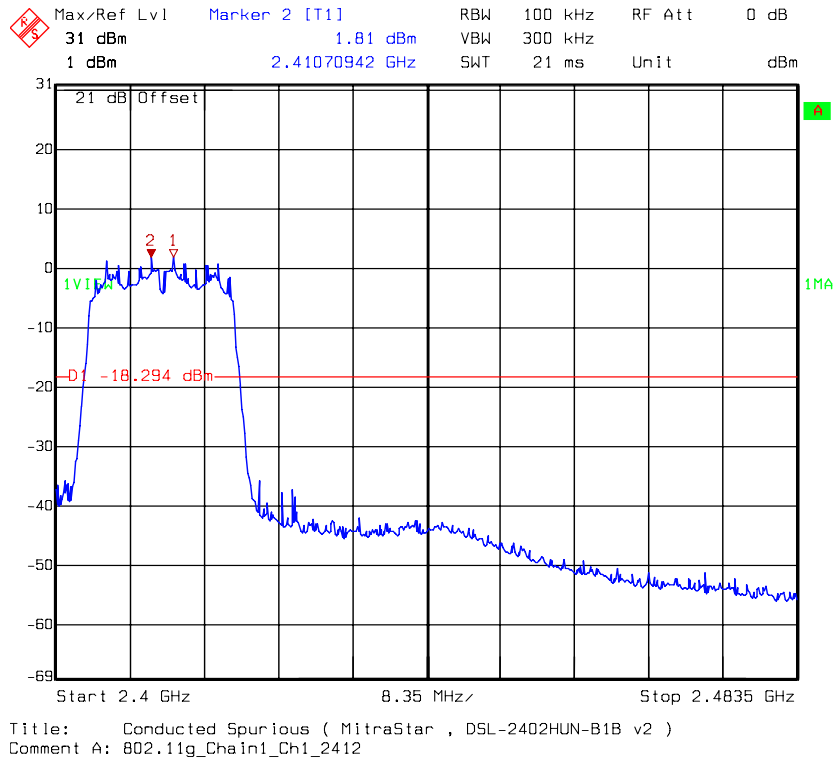


Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11g_Chain0_Ch11_2462

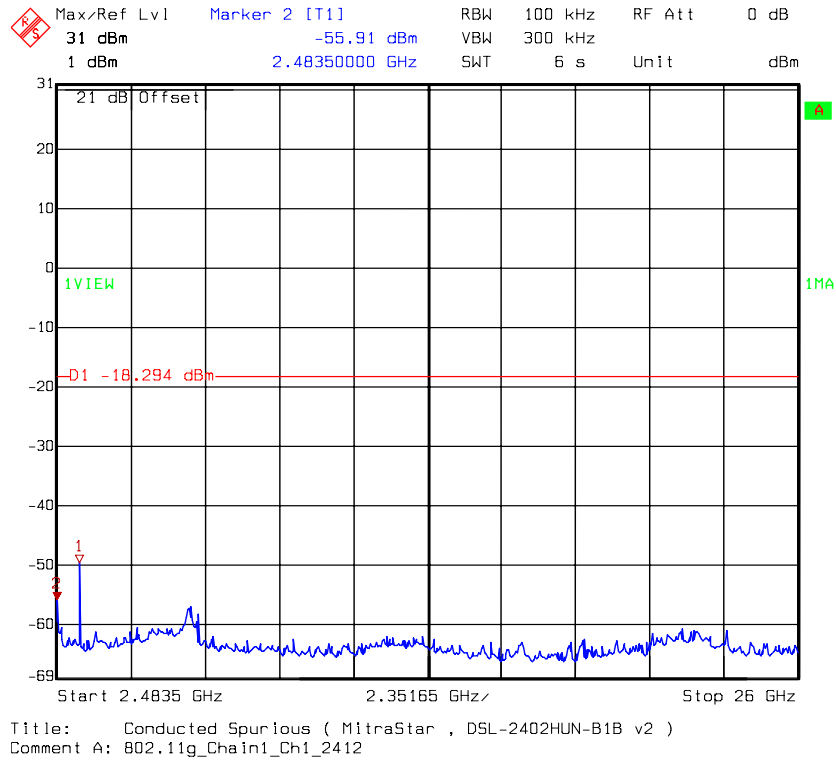
Chain 1: Conducted spurious @ 802.11g mode channel 1 (Part 1)



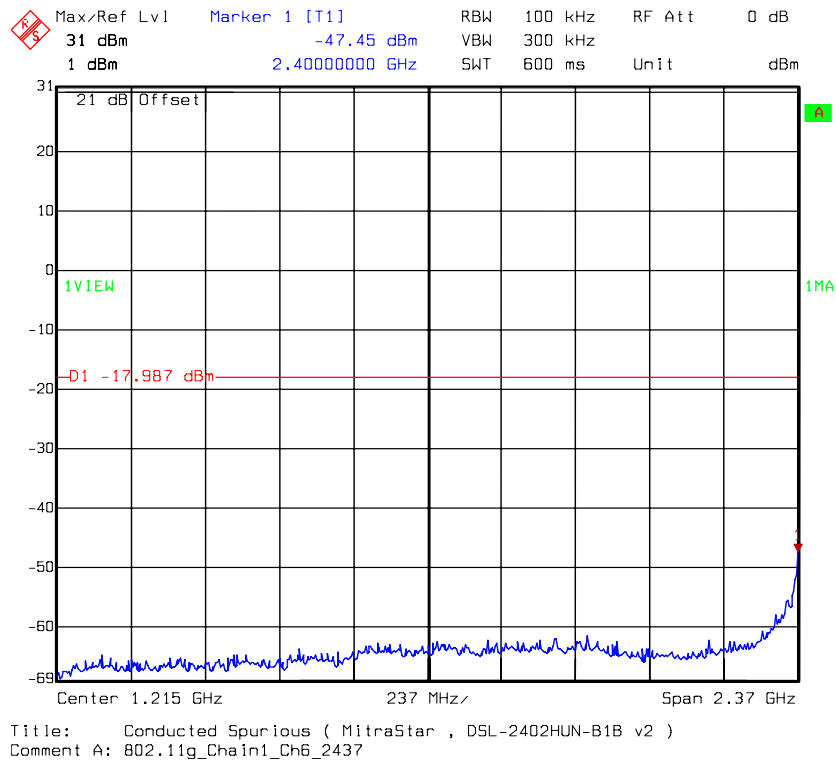
Chain 1: Conducted spurious @ 802.11g mode channel 1 (Part 2)



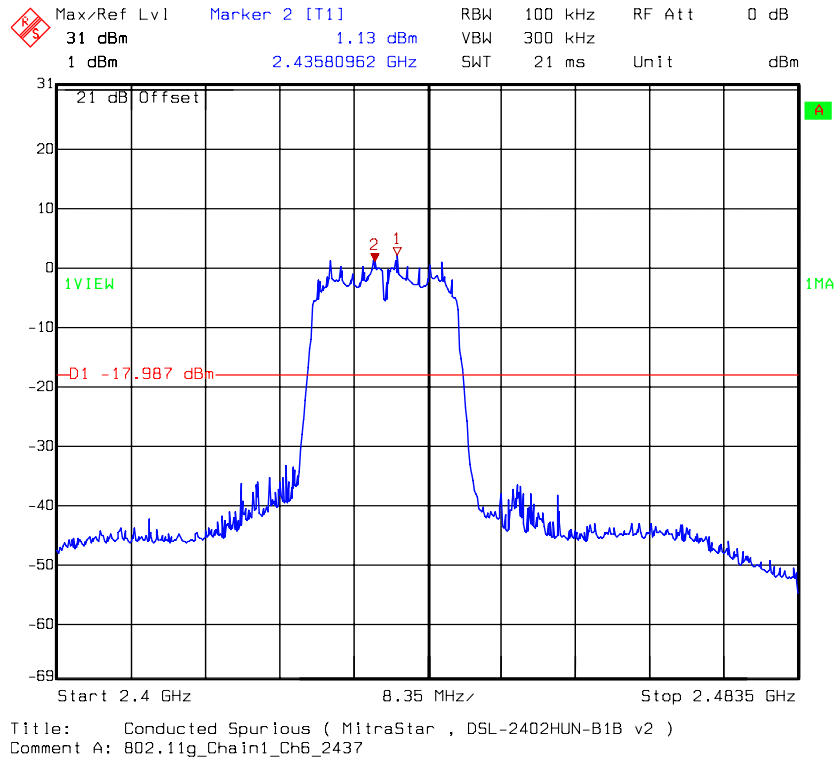
Chain 1: Conducted spurious @ 802.11g mode channel 1 (Part 3)



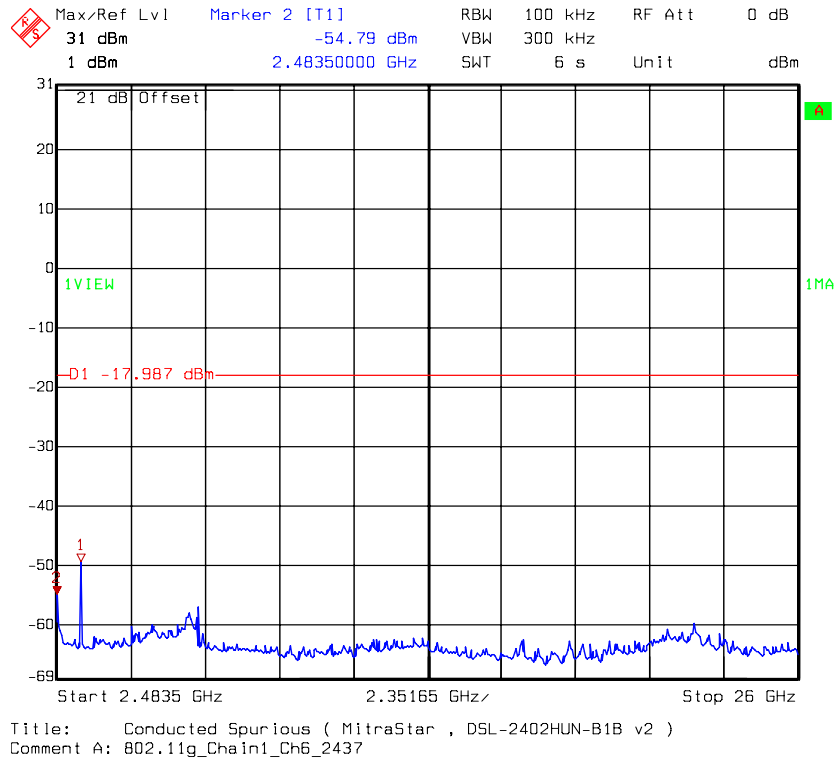
Chain 1: Conducted spurious @ 802.11g mode channel 6 (Part 1)



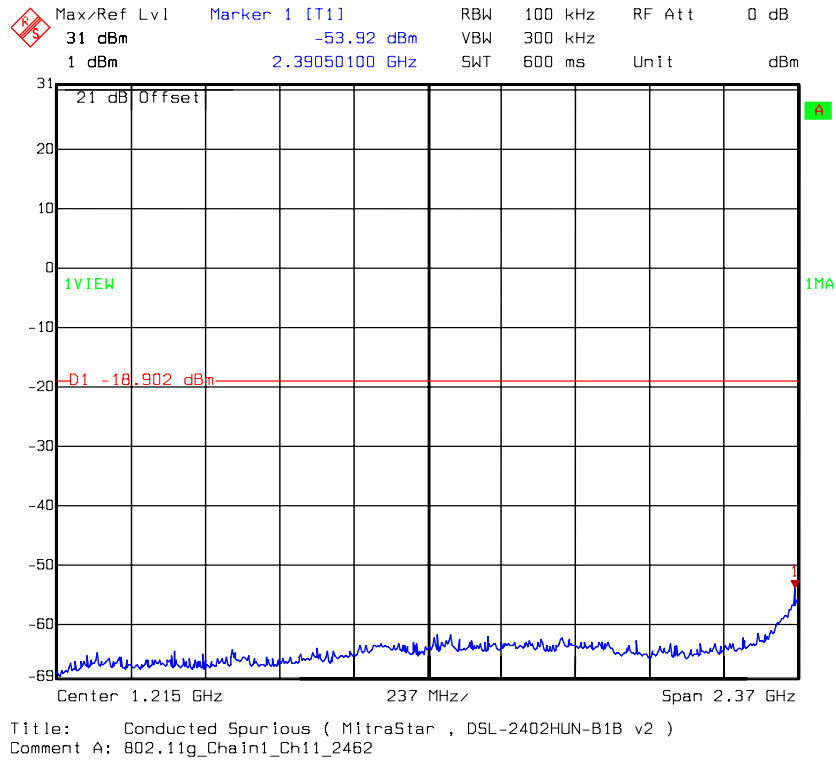
Chain 1: Conducted spurious @ 802.11g mode channel 6 (Part 2)



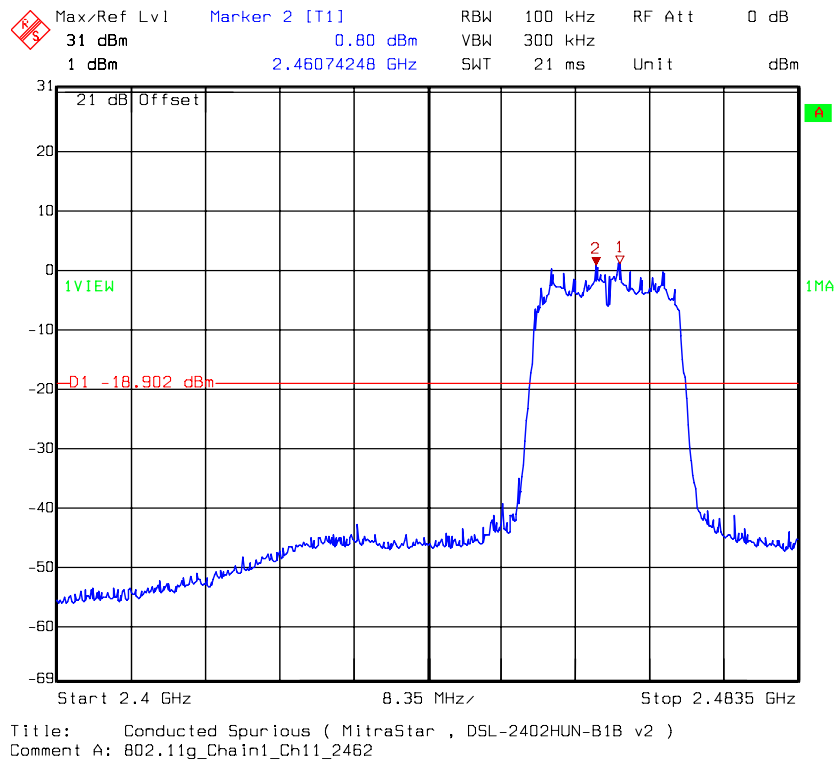
Chain 1: Conducted spurious @ 802.11g mode channel 6 (Part 3)



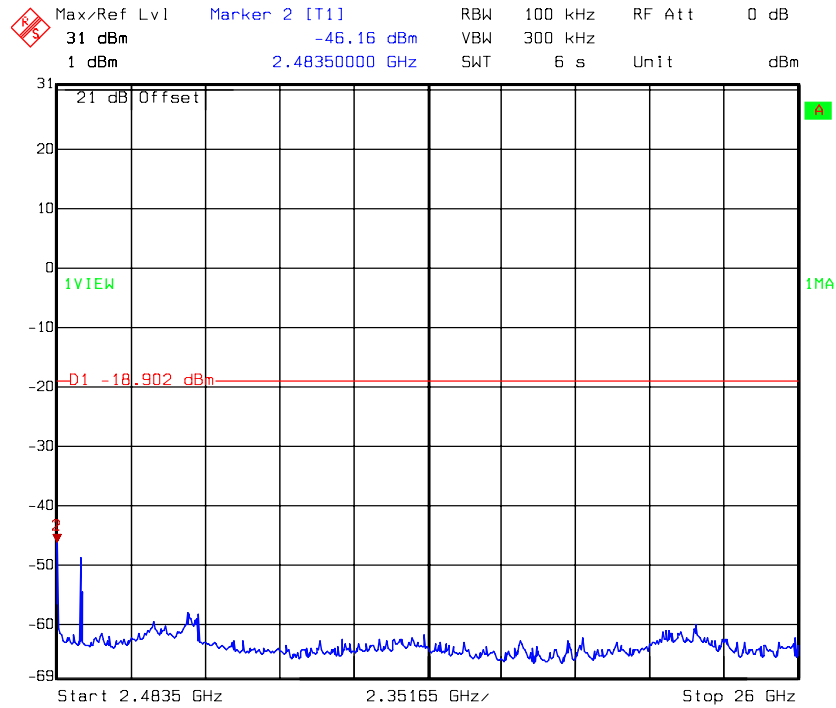
Chain 1: Conducted spurious @ 802.11g mode channel 11 (Part 1)



Chain 1: Conducted spurious @ 802.11g mode channel 11 (Part 2)

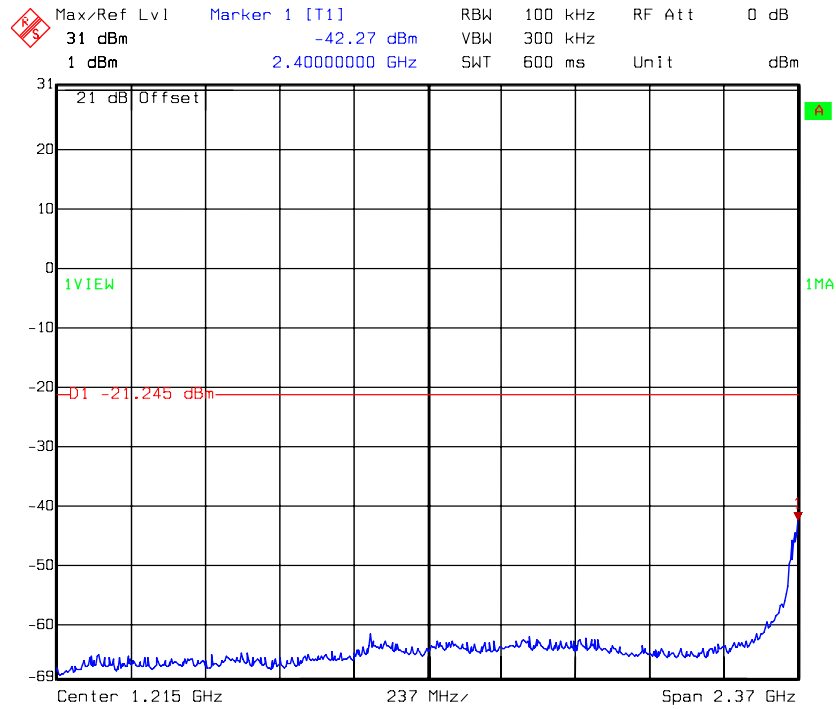


Chain 1: Conducted spurious @ 802.11g mode channel 11 (Part 3)



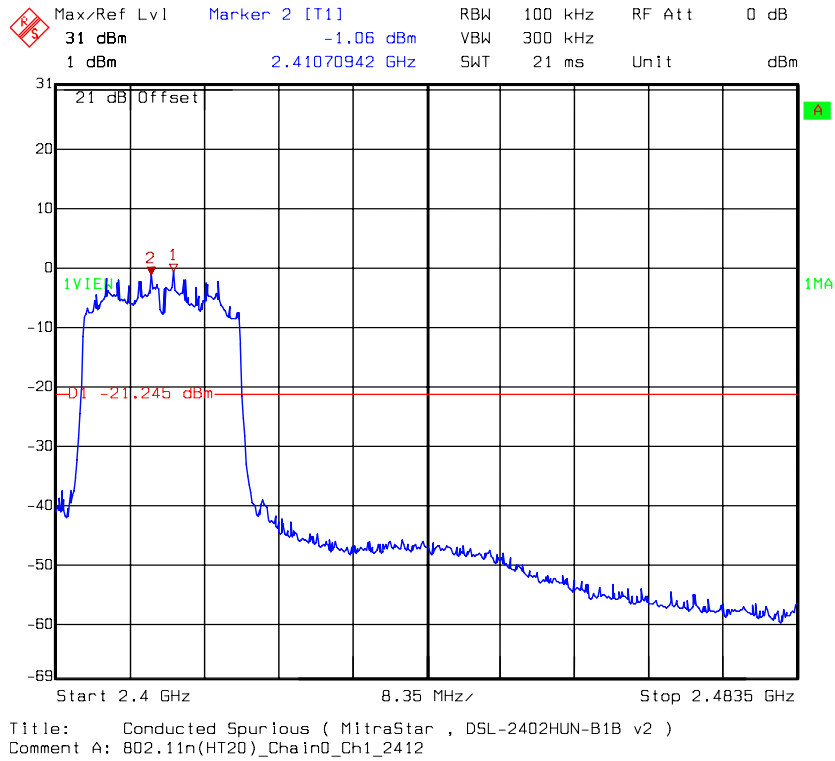
Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11g_Chain1_Ch11_2462

Chain 0: Conducted spurious @ 802.11n HT20 mode channel 1 (Part 1)

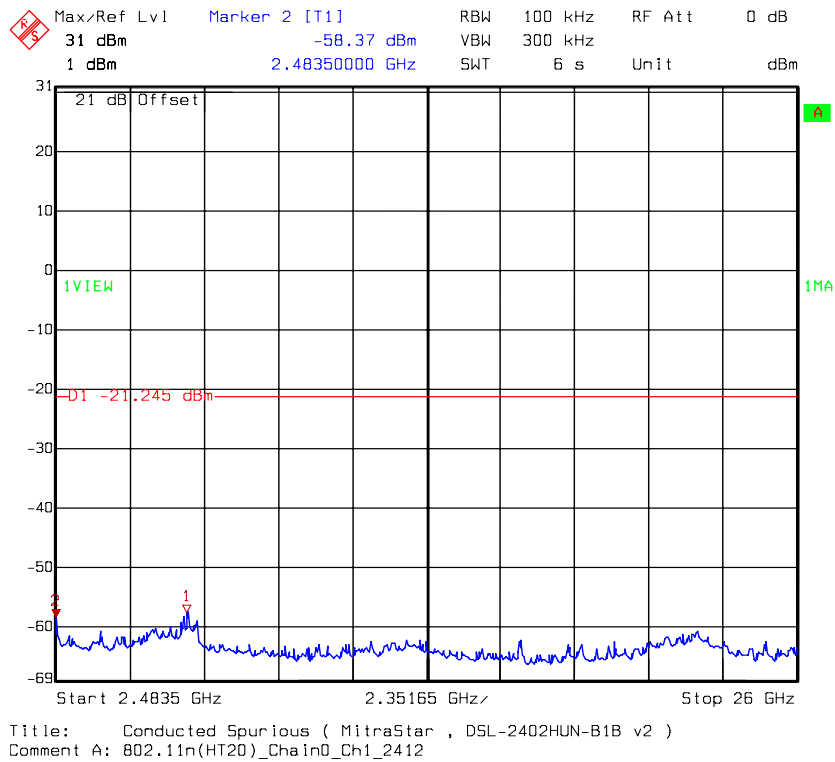


Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11n(HT20)_Chain0_Ch1_2412

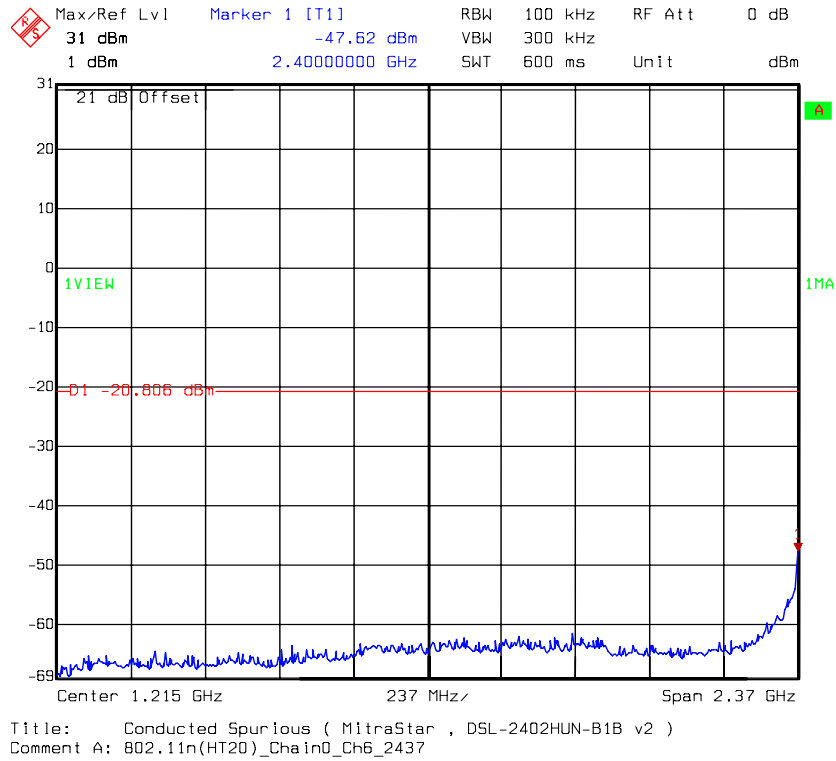
Chain 0: Conducted spurious @ 802.11n HT20 mode channel 1 (Part 2)



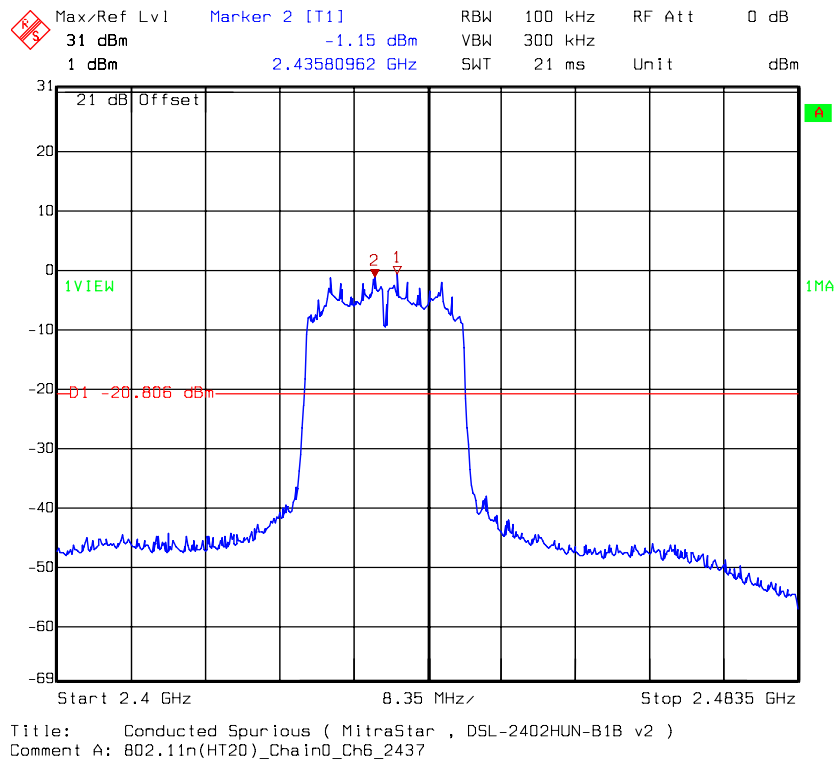
Chain 0: Conducted spurious @ 802.11n HT20 mode channel 1 (Part 3)



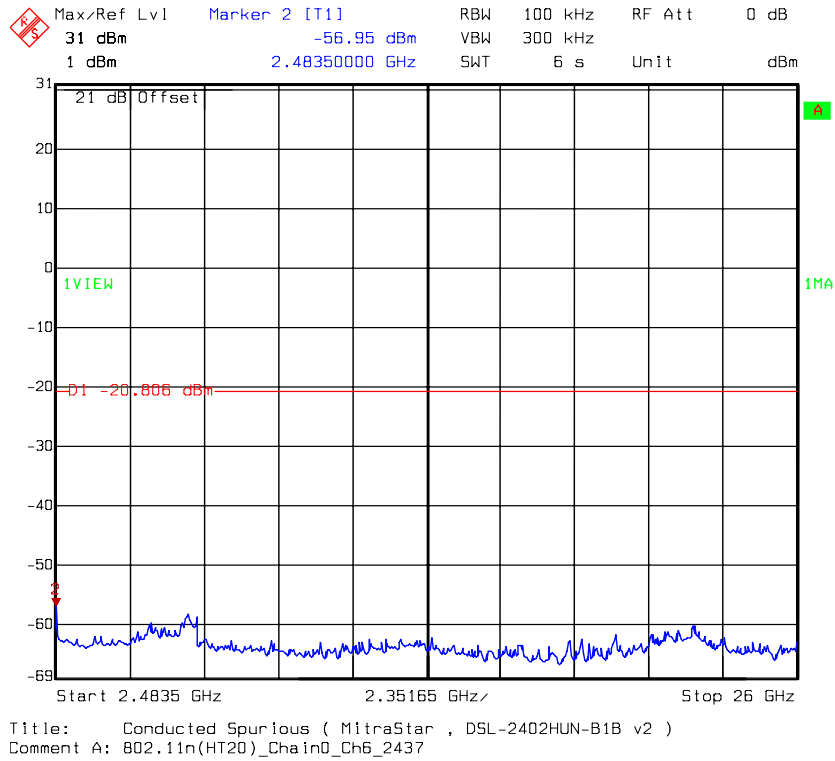
Chain 0: Conducted spurious @ 802.11n HT20 mode channel 6 (Part 1)



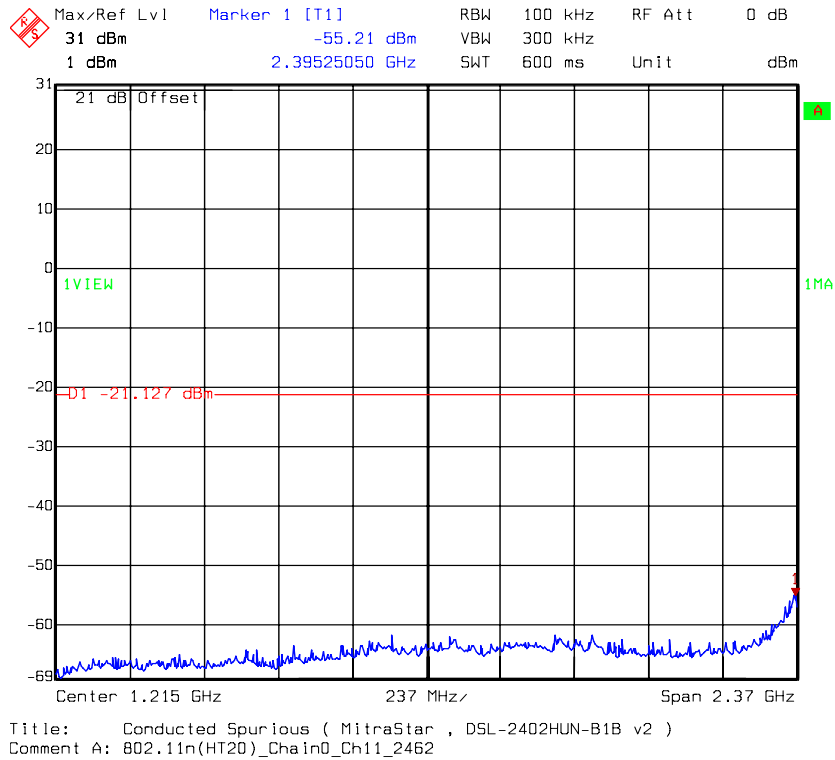
Chain 0: Conducted spurious @ 802.11n HT20 mode channel 6 (Part 2)



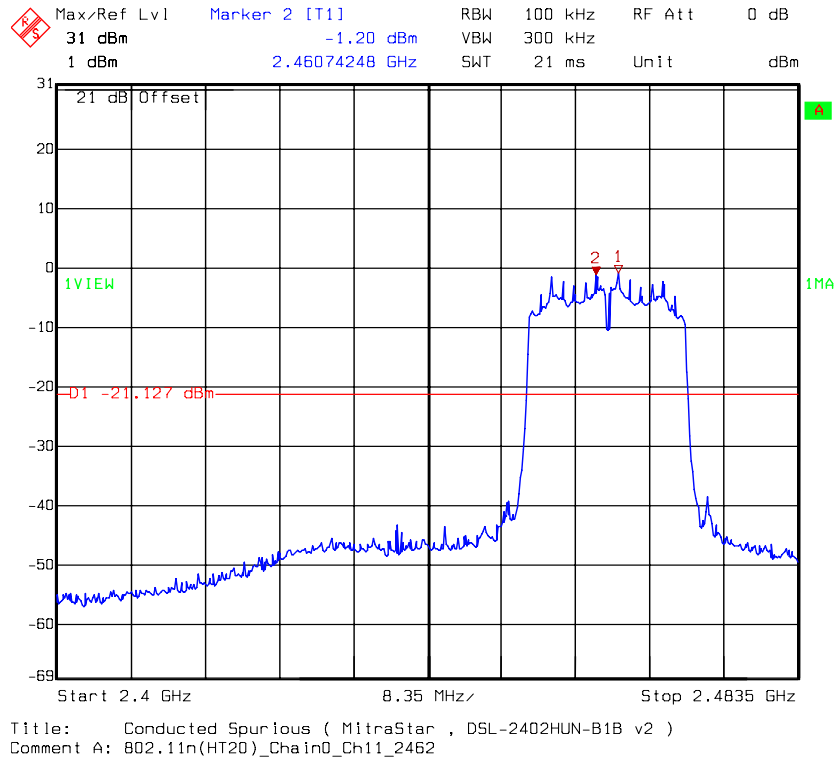
Chain 0: Conducted spurious @ 802.11n HT20 mode channel 6 (Part 3)



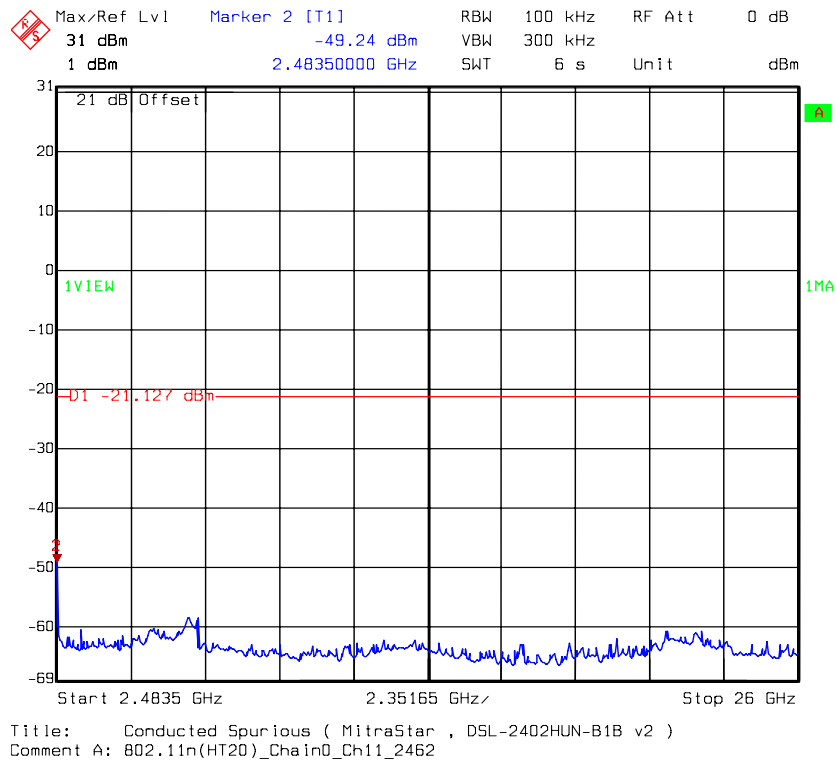
Chain 0: Conducted spurious @ 802.11n HT20 mode channel 11 (Part 1)



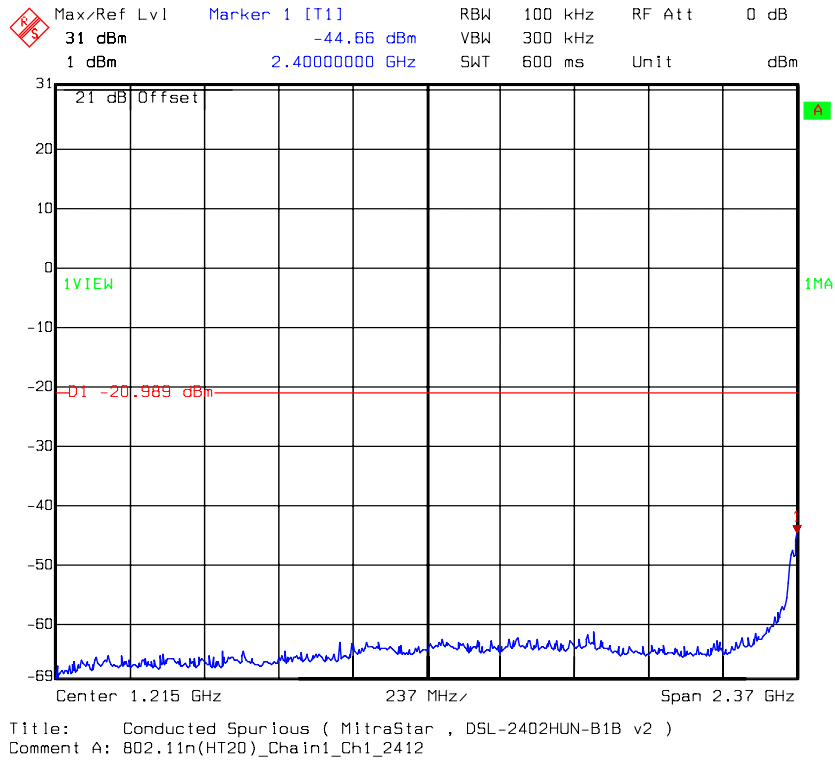
Chain 0: Conducted spurious @ 802.11n HT20 mode channel 11 (Part 2)



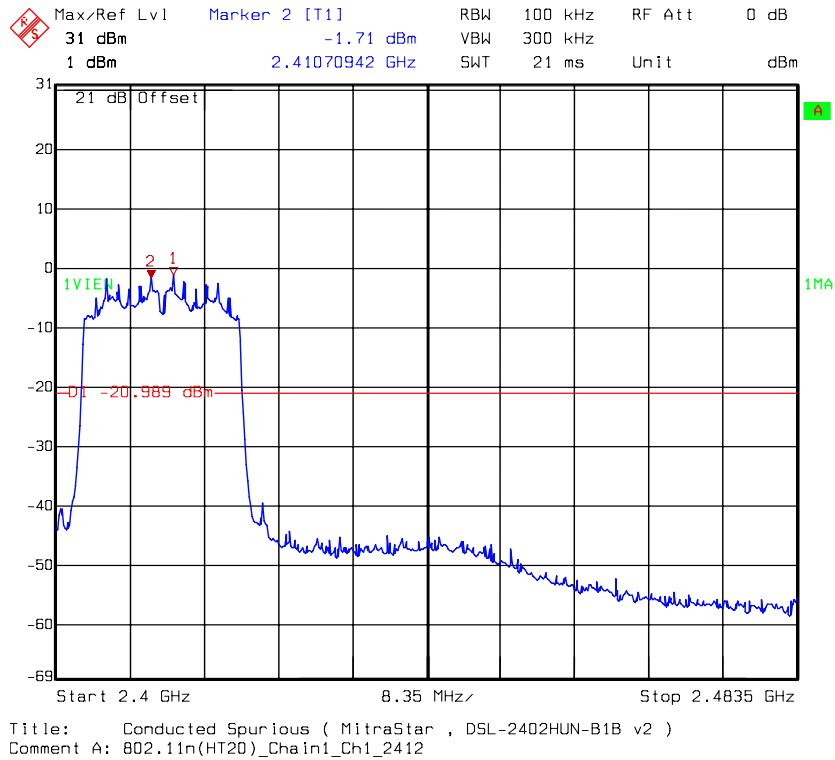
Chain 0: Conducted spurious @ 802.11n HT20 mode channel 11 (Part 3)



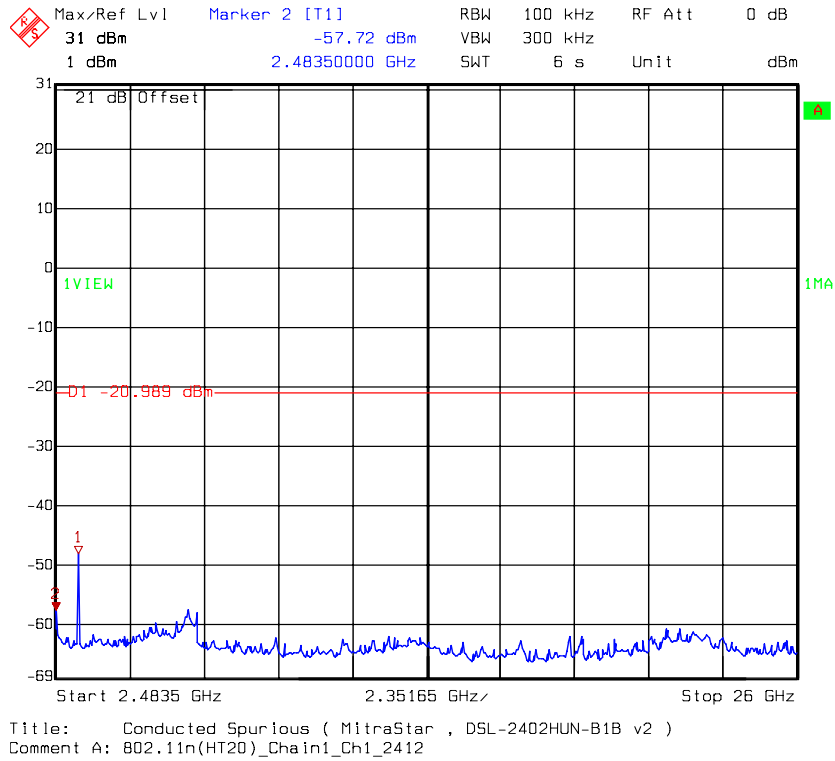
Chain 1: Conducted spurious @ 802.11n HT20 mode channel 1 (Part 1)



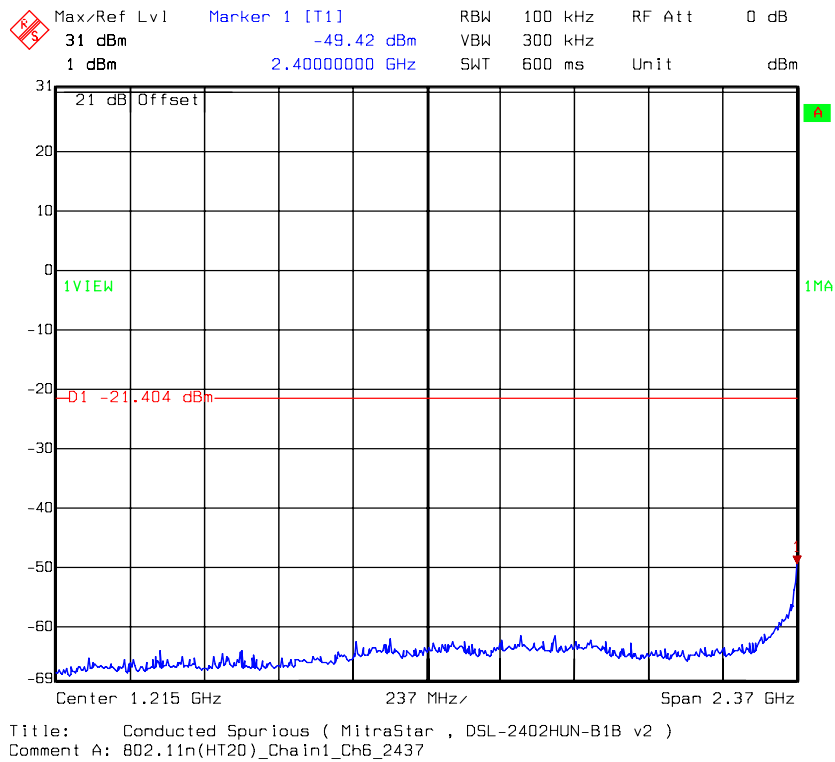
Chain 1: Conducted spurious @ 802.11n HT20 mode channel 1 (Part 2)



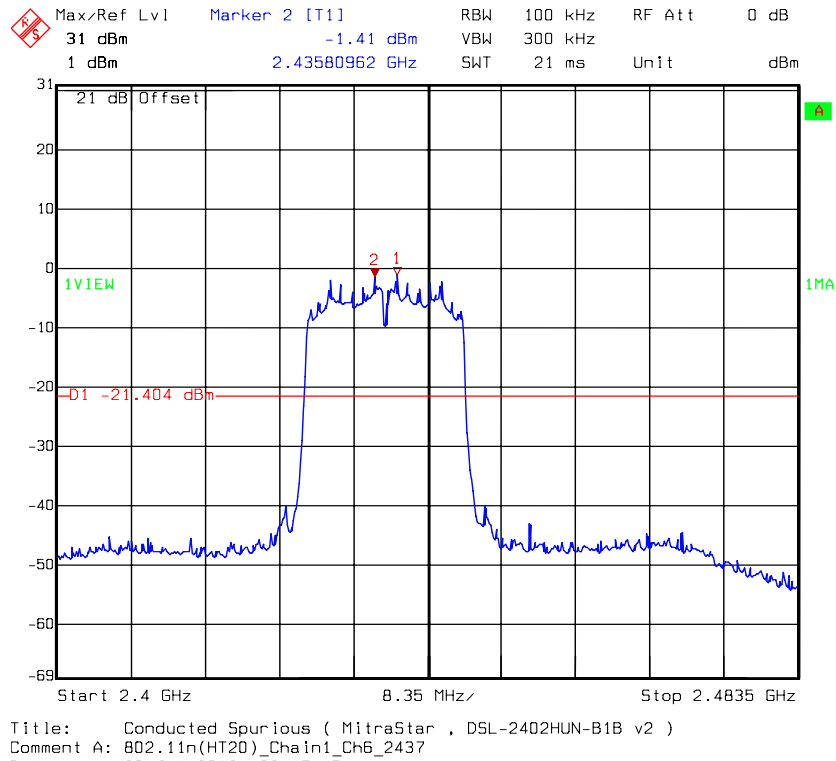
Chain 1: Conducted spurious @ 802.11n HT20 mode channel 1 (Part 3)



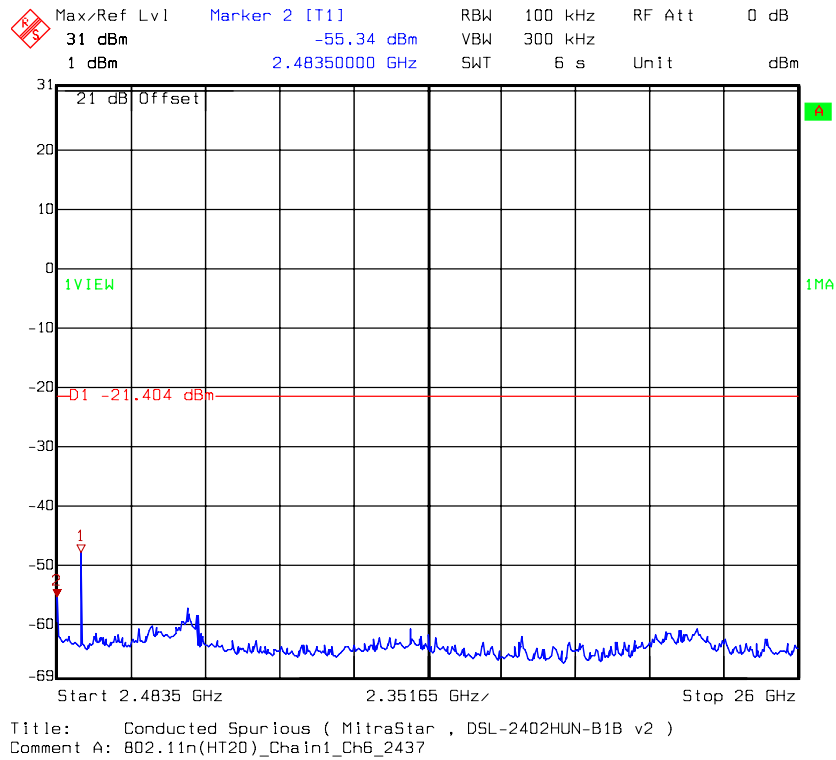
Chain 1: Conducted spurious @ 802.11n HT20 mode channel 6 (Part 1)



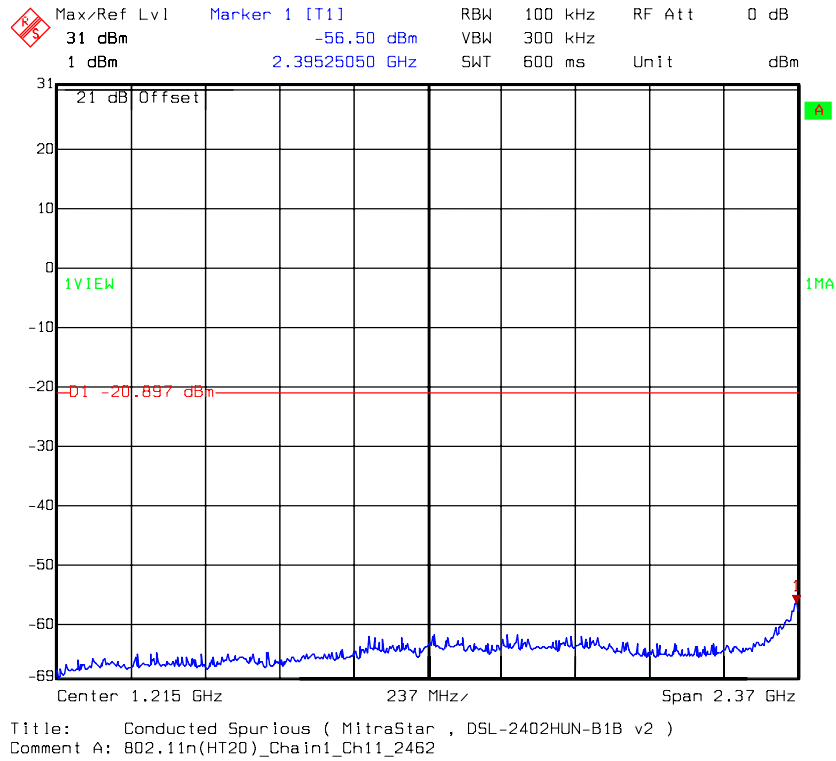
Chain 1: Conducted spurious @ 802.11n HT20 mode channel 6 (Part 2)



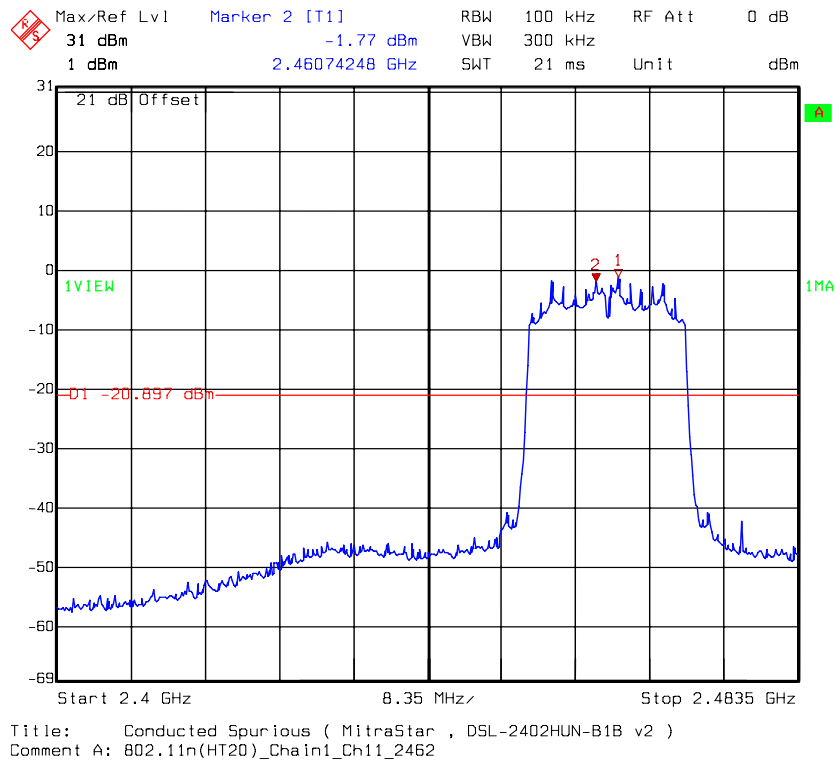
Chain 1: Conducted spurious @ 802.11n HT20 mode channel 6 (Part 3)



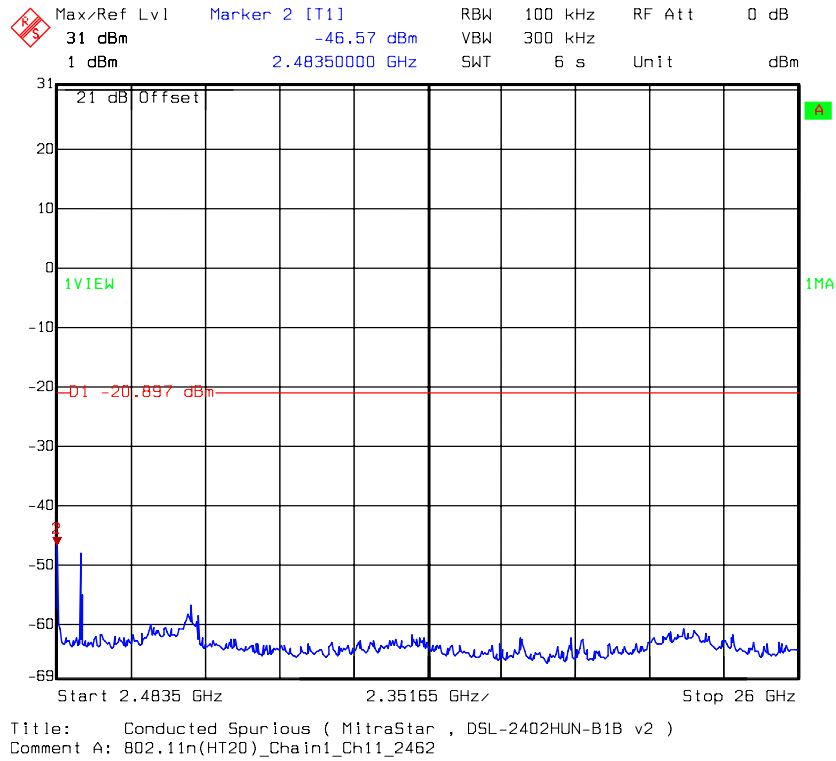
Chain 1: Conducted spurious @ 802.11n HT20 mode channel 11 (Part 1)



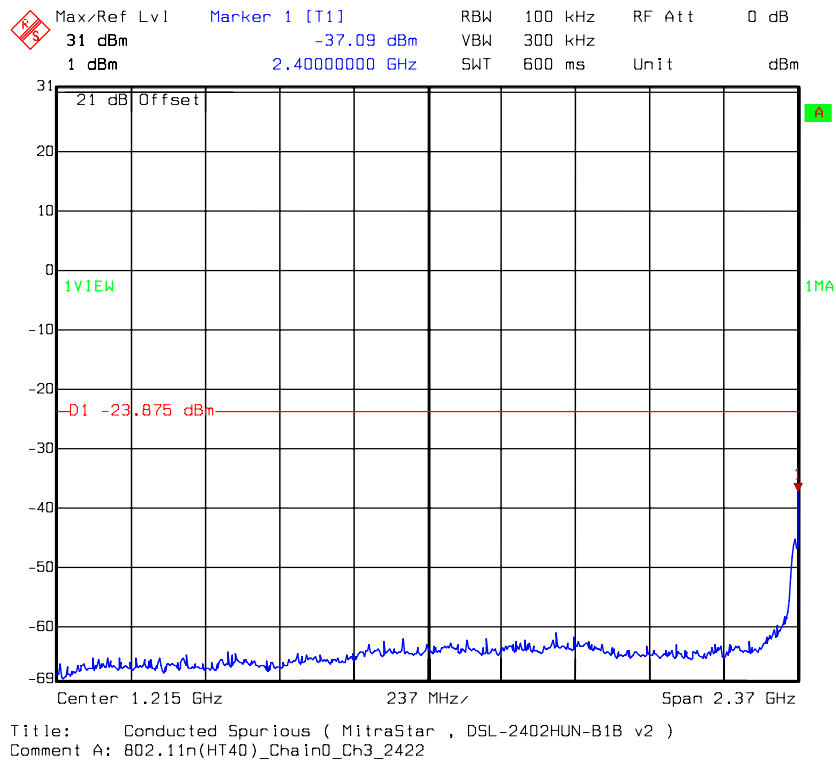
Chain 1: Conducted spurious @ 802.11n HT20 mode channel 11 (Part 2)



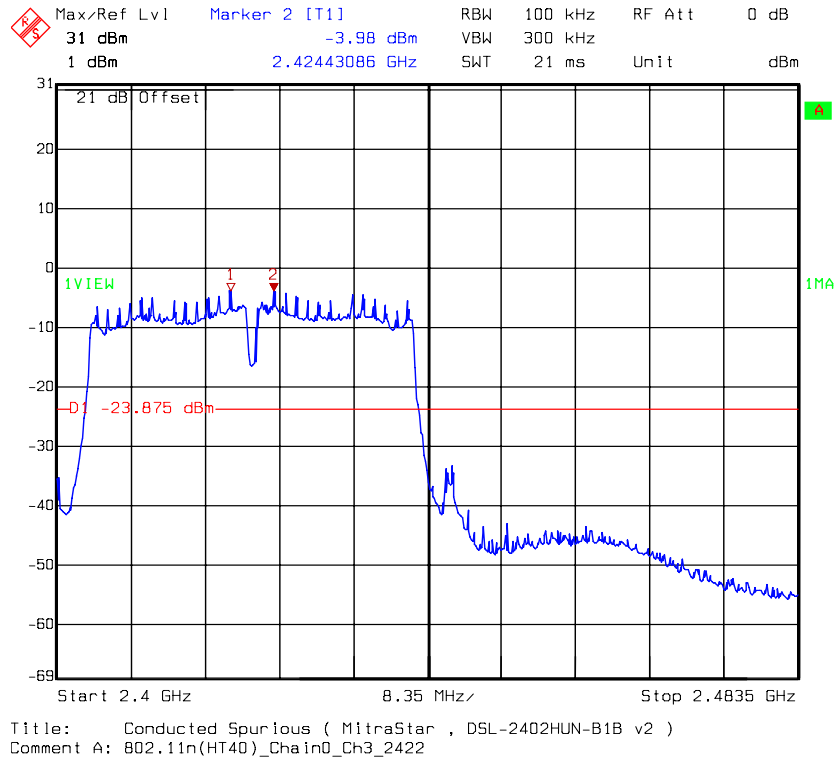
Chain 1: Conducted spurious @ 802.11n HT20 mode channel 11 (Part 3)



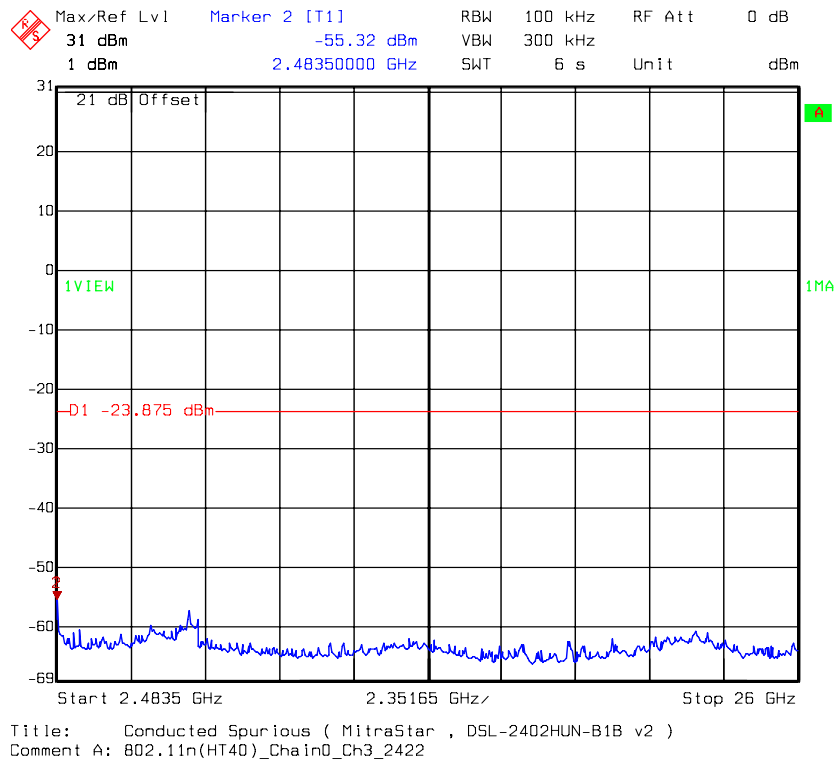
Chain 0: Conducted spurious @ 802.11n HT40 mode channel 3 (Part 1)



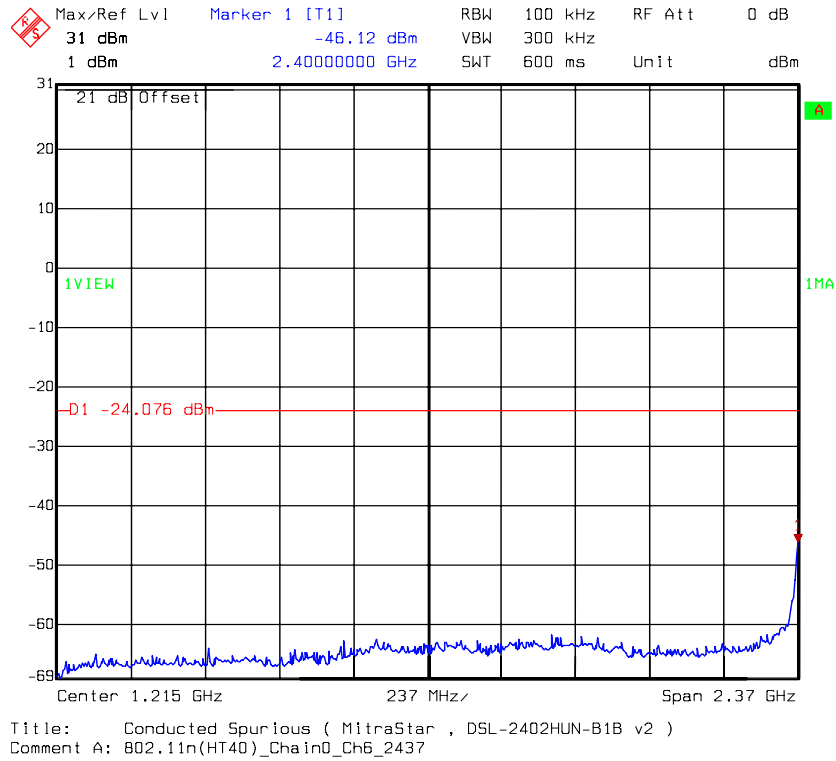
Chain 0: Conducted spurious @ 802.11n HT40 mode channel 3 (Part 2)



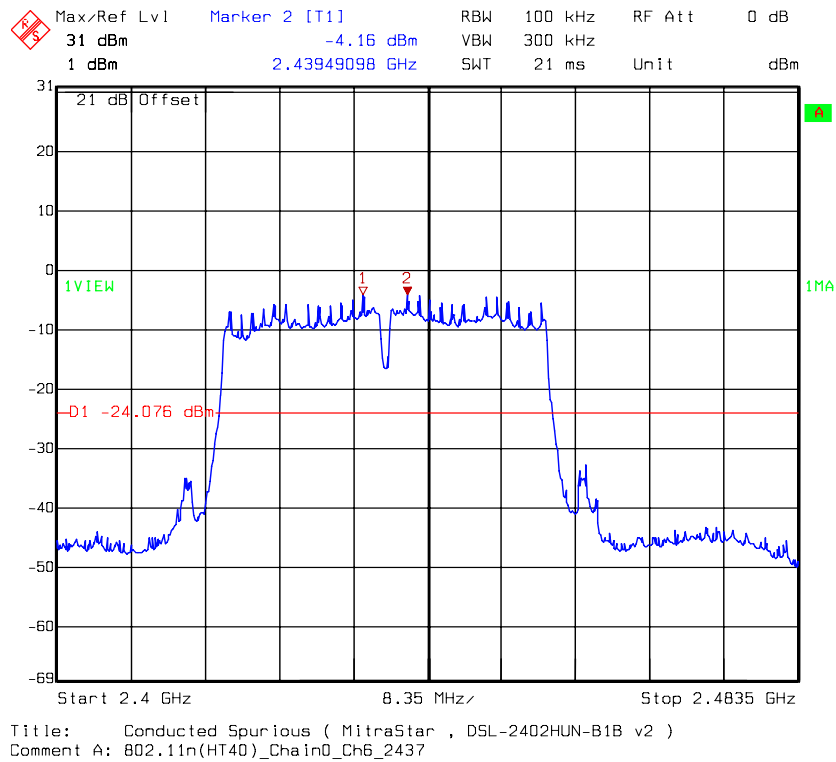
Chain 0: Conducted spurious @ 802.11n HT40 mode channel 3 (Part 3)



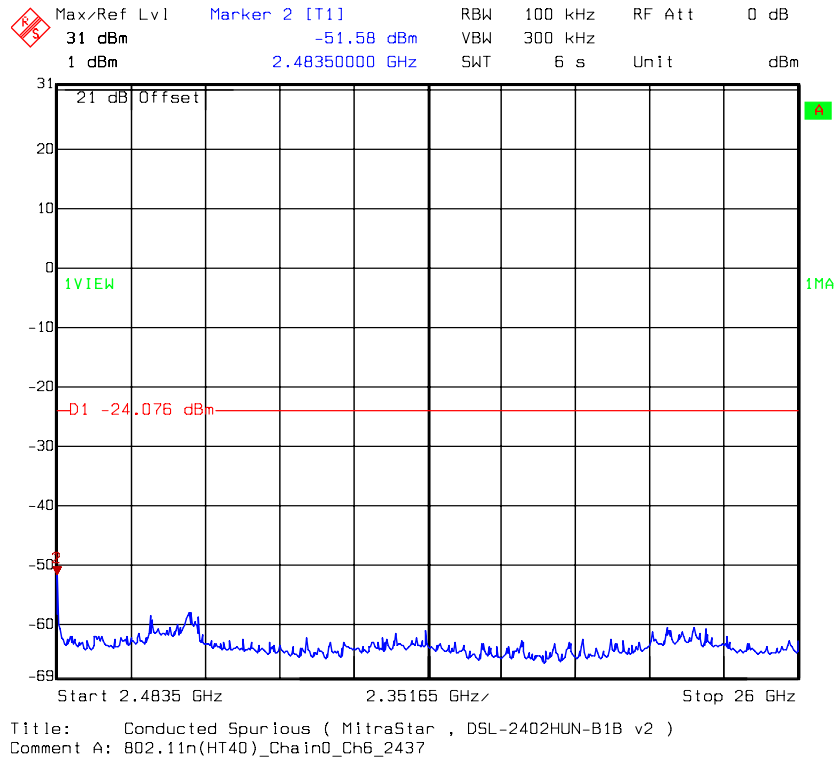
Chain 0: Conducted spurious @ 802.11n HT40 mode channel 6 (Part 1)



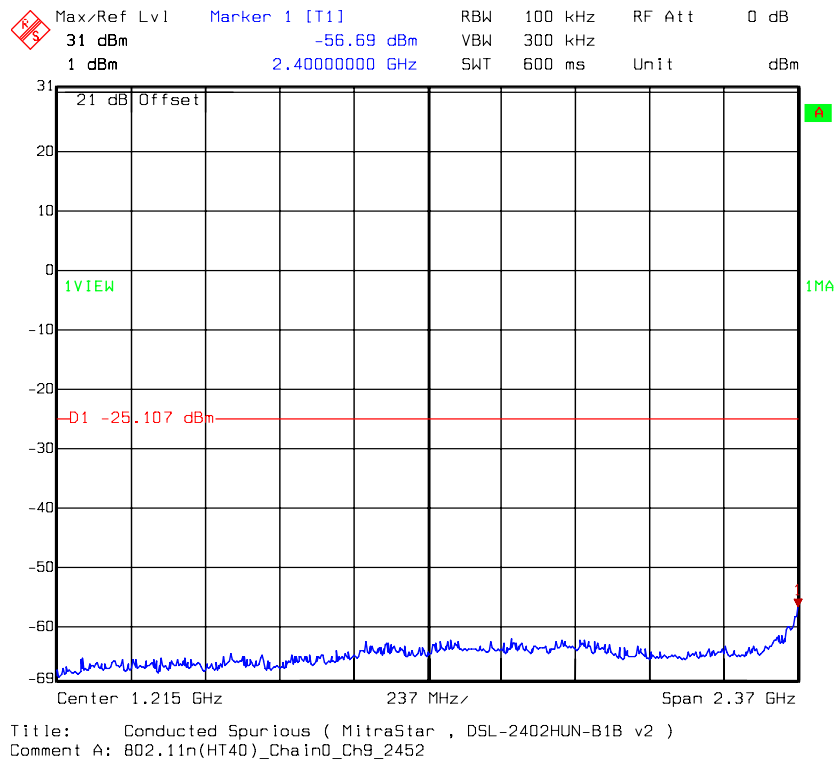
Chain 0: Conducted spurious @ 802.11n HT40 mode channel 6 (Part 2)



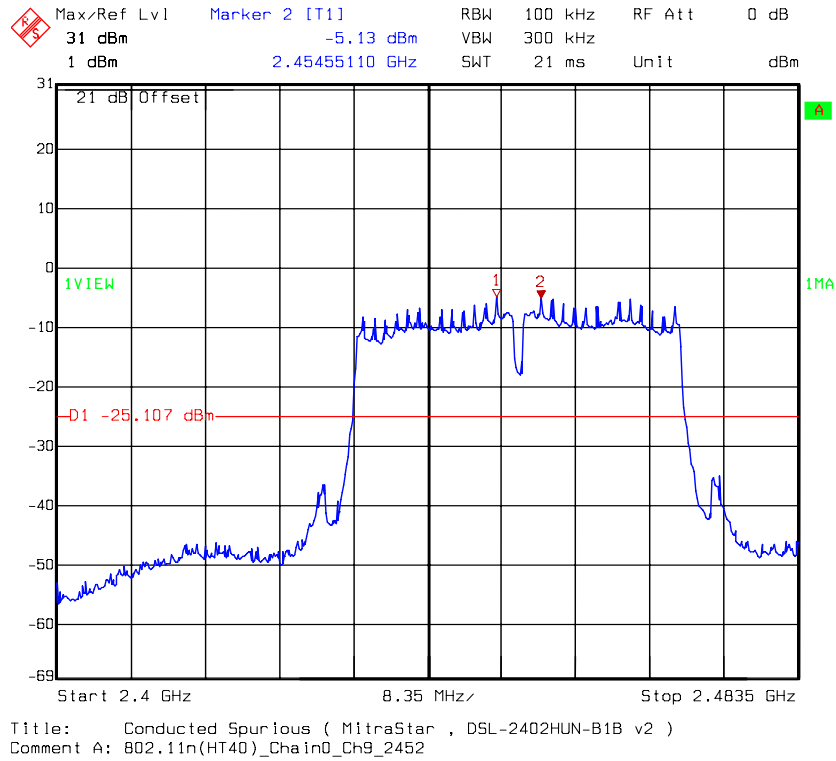
Chain 0: Conducted spurious @ 802.11n HT40 mode channel 6 (Part 3)



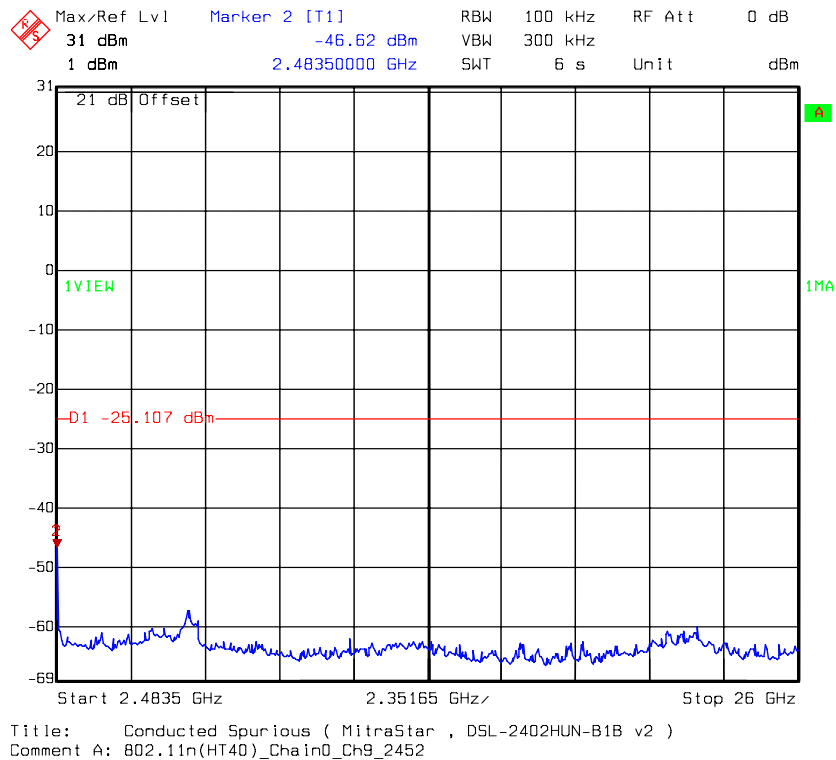
Chain 0: Conducted spurious @ 802.11n HT40 mode channel 9 (Part 1)



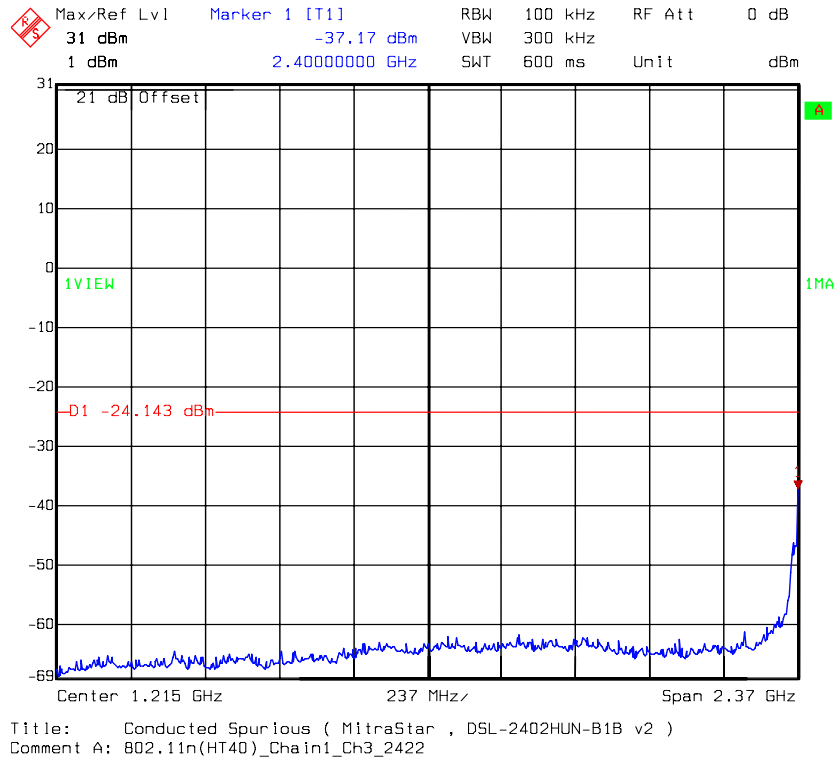
Chain 0: Conducted spurious @ 802.11n HT40 mode channel 9 (Part 2)



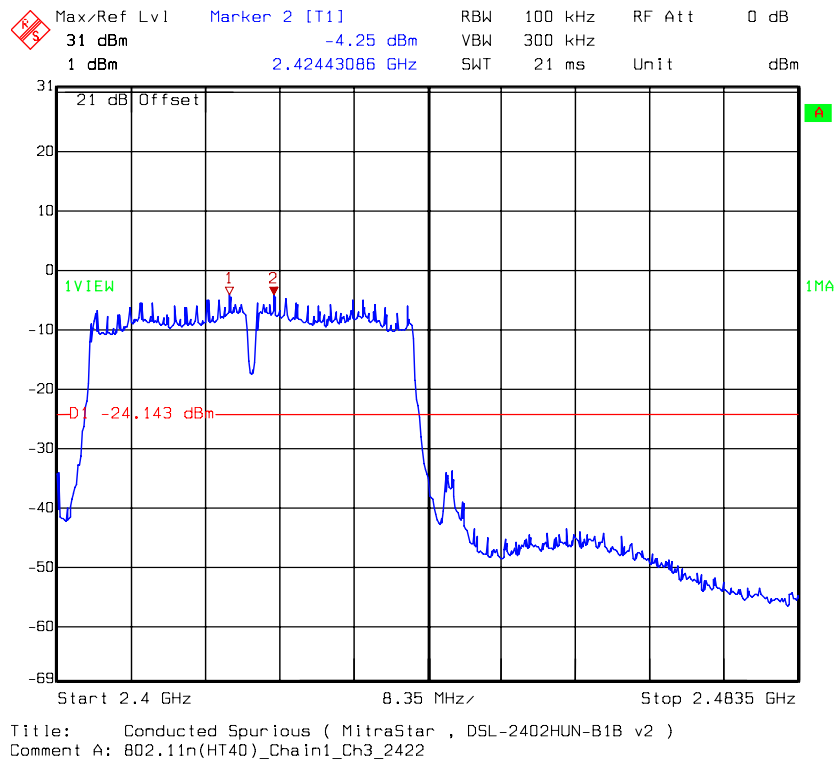
Chain 0: Conducted spurious @ 802.11n HT40 mode channel 9 (Part 3)



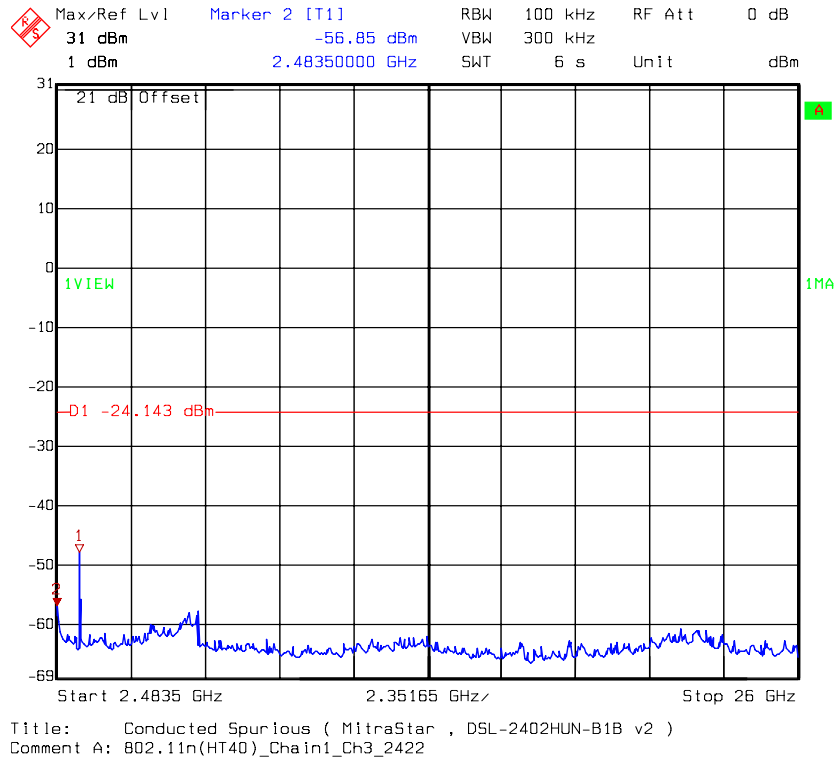
Chain 1: Conducted spurious @ 802.11n HT40 mode channel 3 (Part 1)



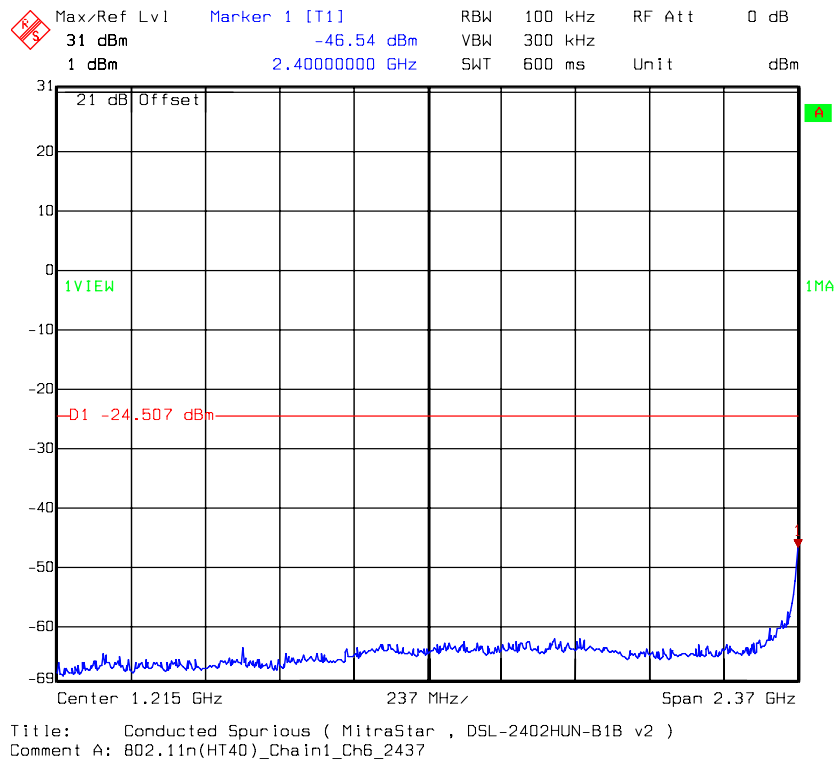
Chain 1: Conducted spurious @ 802.11n HT40 mode channel 3 (Part 2)



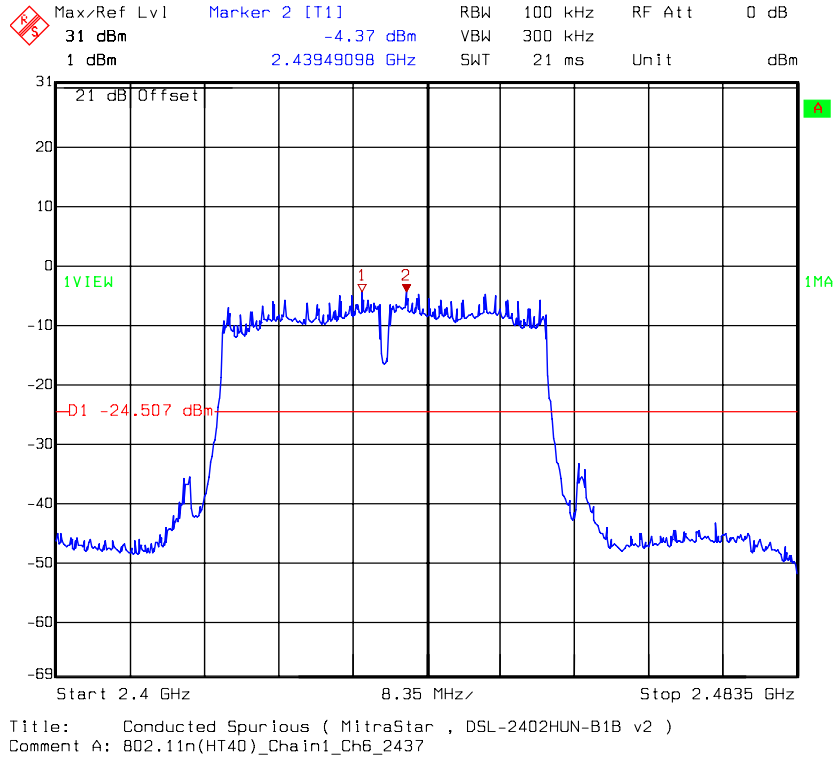
Chain 1: Conducted spurious @ 802.11n HT40 mode channel 3 (Part 3)



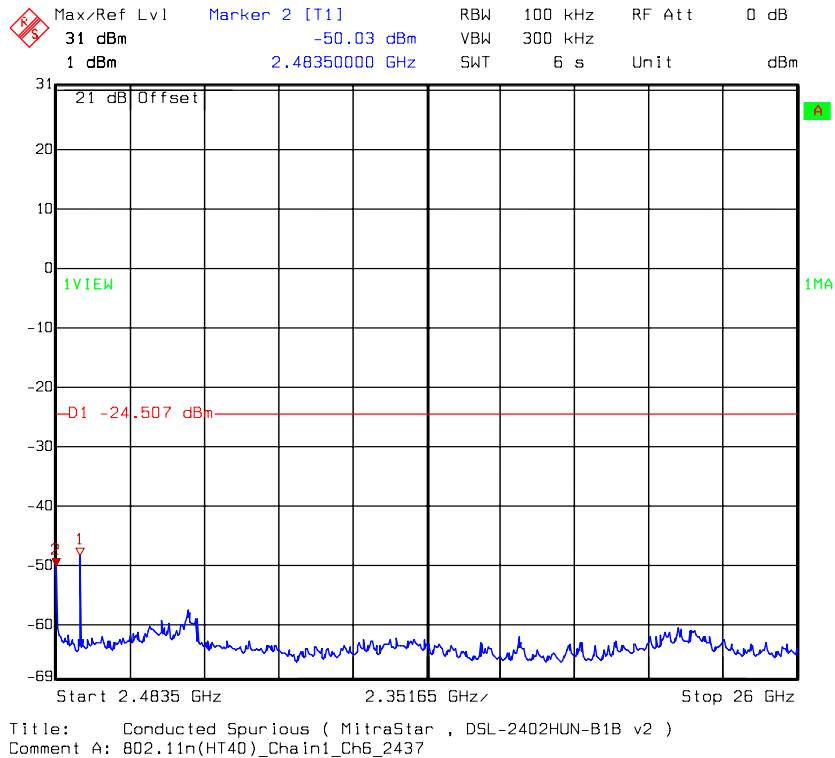
Chain 1: Conducted spurious @ 802.11n HT40 mode channel 6 (Part 1)



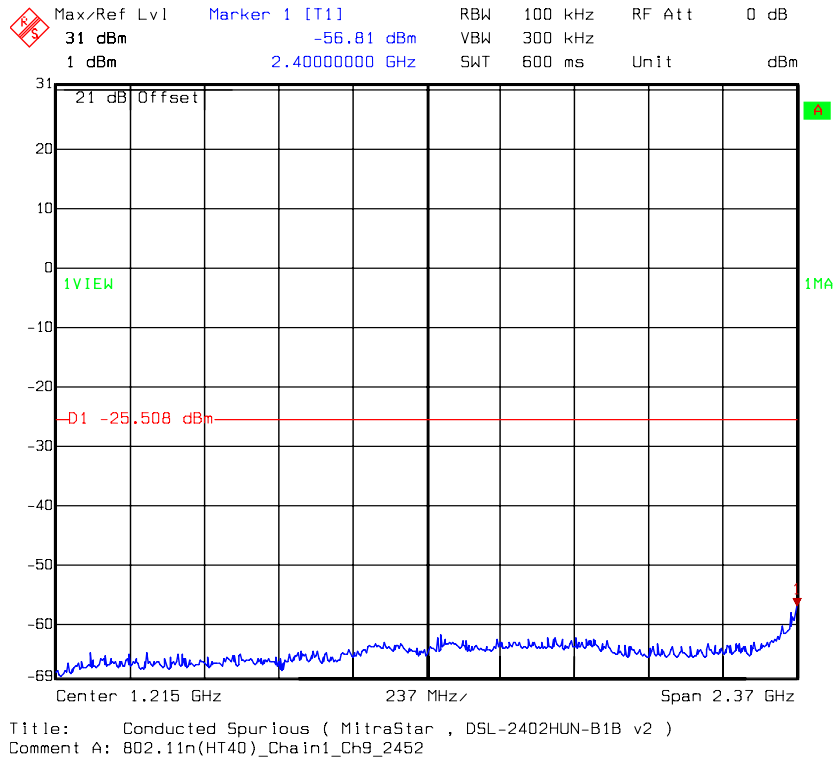
Chain 1: Conducted spurious @ 802.11n HT40 mode channel 6 (Part 2)



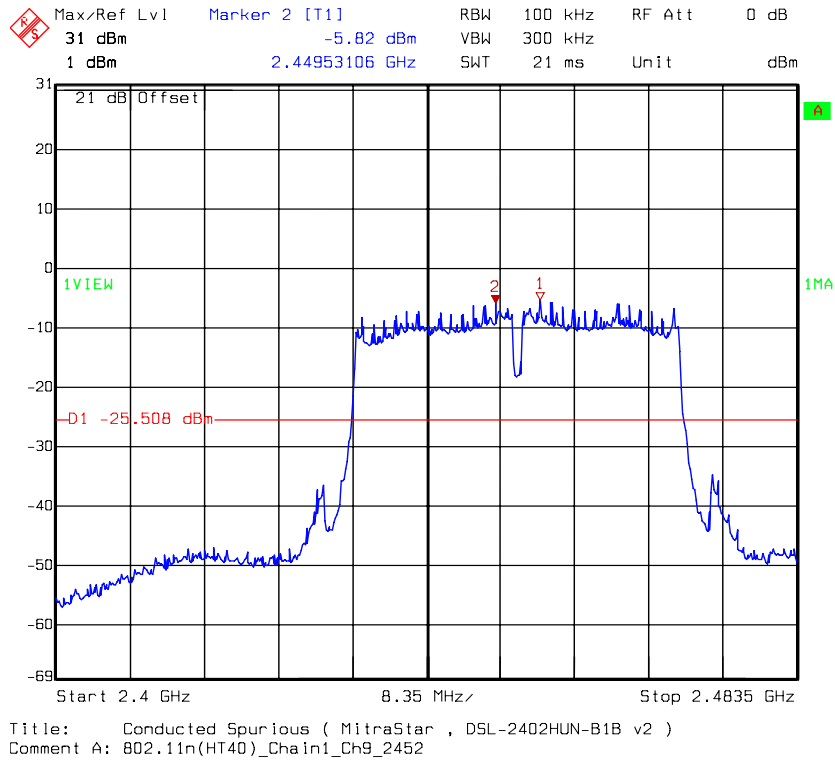
Chain 1: Conducted spurious @ 802.11n HT40 mode channel 6 (Part 3)



Chain 1: Conducted spurious @ 802.11n HT40 mode channel 9 (Part 1)

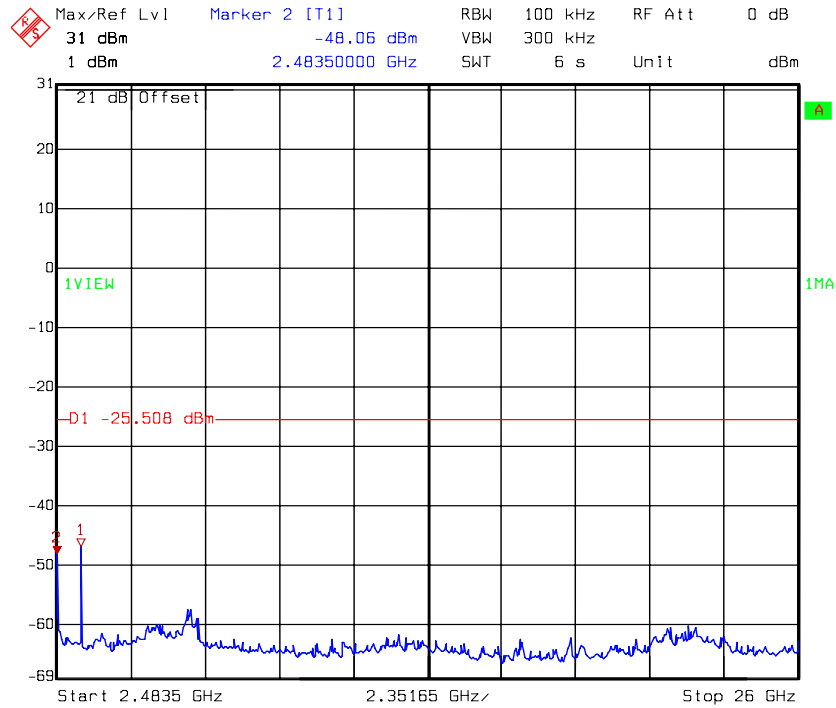


Chain 1: Conducted spurious @ 802.11n HT40 mode channel 9 (Part 2)





Chain 1: Conducted spurious @ 802.11n HT40 mode channel 9 (Part 3)



Title: Conducted Spurious (MitraStar , DSL-2402HUN-B1B v2)
Comment A: 802.11n(HT40)_Chain1_Ch9_2452

8. Radiated Spurious Emission

Name of Test	Radiated Spurious Emission
Base Standard	FCC 15.247(d), 15.209, 15.205

Test Result: Complies
Measurement Data: See Tables below

Method of Measurement:

Reference FCC document: KDB558074 D01, ANSI C63.4

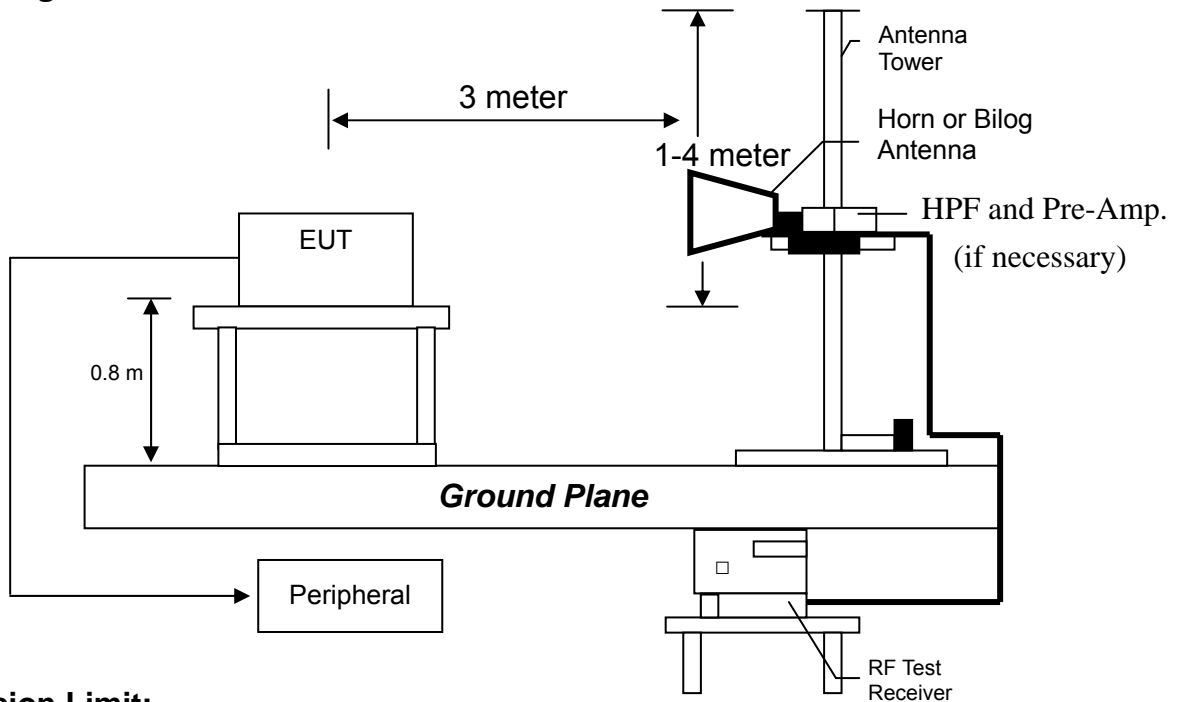
The frequency range from 30 MHz to 1000 MHz using Bilog Antenna.

The frequency range over 1 GHz using Horn Antenna.

Radiated emissions were investigated cover the frequency range from 30 MHz to 1000 MHz using a receiver RBW of 120 kHz record QP reading, and the frequency over 1 GHz using a spectrum analyzer RBW of 1 MHz and 10 Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1 MHz RBW/VBW) recorded also on the report.

The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter. The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent 3 meters reading using inverse scaling with distance. The EUT configuration please refer to the "Spurious set-up photo.pdf".

Test Diagram:



Emission Limit:

The spurious Emission shall test through the 10th harmonic. 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).

Frequency (MHz)	Limits (dBµV/m@ 3 meter)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

- Note:**
- (1) The EUT was tested while in a continuous transmit mode and the worst case data rates are 1 Mbps data rate for 802.11b mode, 6 Mbps data rate for 802.11g mode, 6.5 Mbps data rate for 802.11n HT20 mode and 13 Mbps data rate for 802.11n HT40 mode. The EUT was tuned to a low, middle and high channel.
 - (2) The EUT operating at 2.4 GHz ISM band. Frequency Range scanned from 30 MHz to 25 GHz.

Measurement results: frequencies equal to or less than 1 GHz

The test was performed on EUT under 802.11b, 802.11g, 802.11n HT20 and 802.11n HT40 continuously transmitting mode. The worst case occurred at 802.11b Tx channel 1.

EUT : DSL-2402HNU-B1B v2
 Worst Case : 802.11b Tx at channel 1

Antenna Polariz. (V/H)	Freq. (MHz)	Receiver Detector	Corr. Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
V	78.50	QP	10.39	16.55	26.94	40.00	-13.06
V	125.06	QP	9.47	16.49	25.95	43.50	-17.55
V	183.26	QP	13.10	11.85	24.94	43.50	-18.56
V	249.22	QP	12.22	14.73	26.94	46.00	-19.06
V	375.32	QP	16.40	10.59	26.99	46.00	-19.01
V	499.48	QP	18.43	13.15	31.57	46.00	-14.43
H	43.58	QP	14.20	10.21	24.41	40.00	-15.59
H	154.16	QP	13.60	7.90	21.50	43.50	-22.00
H	249.22	QP	12.36	14.03	26.39	46.00	-19.61
H	276.38	QP	13.21	13.50	26.70	46.00	-19.30
H	357.86	QP	15.48	12.49	27.96	46.00	-18.04
H	499.48	QP	18.64	13.06	31.70	46.00	-14.30

Remark:

1. Corr. Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Corr. Factor

Measurement results: frequency above 1GHz

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11b Tx at channel 1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4824	PK	V	35.1	38.54	49.42	52.86	54	-1.14
4824	PK	H	35.1	38.54	42.78	46.22	54	-7.78

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11b Tx at channel 6

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4874	PK	V	35.1	38.54	47.91	51.35	54	-2.65
4874	PK	H	35.1	38.54	41.27	44.71	54	-9.29

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11b Tx at channel 11

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4924	PK	V	35.1	38.54	46.13	49.57	54	-4.43
4924	PK	H	35.1	38.54	41.52	44.96	54	-9.04

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1GHz to 25GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11g Tx at channel 1 Chain 0

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4824	PK	V	35.1	38.54	45.59	49.03	54	-4.97
4824	PK	H	35.1	38.54	41.03	44.47	54	-9.53

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11g Tx at channel 6 Chain 0

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4874	PK	V	35.1	38.54	48.96	52.40	54	-1.60
4874	PK	H	35.1	38.54	43.85	47.29	54	-6.71
7311	PK	H	33.0	44.60	36.03	47.63	54	-6.37

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11g Tx at channel 11 Chain 0

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4924	PK	V	35.1	38.54	48.93	52.37	54	-1.63
7386	PK	V	33.0	44.60	35.49	47.09	54	-6.91
4924	PK	H	35.1	38.54	44.42	47.86	54	-6.14

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11g Tx at channel 1 Chain 1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4824	PK	V	35.1	38.54	38.52	41.96	54	-12.04
4824	PK	H	35.1	38.54	38.97	42.41	54	-11.59

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11g Tx at channel 6 Chain 1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4874	PK	V	35.1	38.54	39.48	42.92	54	-11.08
4874	PK	H	35.1	38.54	42.23	45.67	54	-8.33

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11g Tx at channel 11 Chain 1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4924	PK	V	35.1	38.54	39.87	43.31	54	-10.69
4924	PK	H	35.1	38.54	40.27	43.71	54	-10.29

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11n HT20 Tx at channel 1

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4824	PK	V	35.1	38.54	42.43	45.87	54	-8.13
4824	PK	H	35.1	38.54	41.28	44.72	54	-9.28

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11n HT20 Tx at channel 6

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4874	PK	V	35.1	38.54	42.53	45.97	54	-8.03
4874	PK	H	35.1	38.54	40.32	43.76	54	-10.24

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11n HT20 Tx at channel 11

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4924	PK	V	35.1	38.54	40.98	44.42	54	-9.58
4924	PK	H	35.1	38.54	38.10	41.54	54	-12.46

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11n HT40 Tx at channel 3

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4844	PK	V	35.1	38.54	37.71	41.15	54	-12.85
4844	PK	H	35.1	38.54	38.75	42.19	54	-11.81

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.

EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11n HT40 Tx at channel 6

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4874	PK	V	35.1	38.54	39.26	42.70	54	-11.30
4874	PK	H	35.1	38.54	38.65	42.09	54	-11.91

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.



EUT : DSL-2402HNU-B1B v2
Test Condition : 802.11n HT40 Tx at channel 9

Frequency (MHz)	Spectrum Analyzer Detector	Antenna Polariz. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
4904	PK	V	35.1	38.54	37.56	41.00	54	-13.00
4904	PK	H	35.1	38.54	37.58	41.02	54	-12.98

Remark:

1. Correction Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Correction Factor – Preamp. Gain
3. The frequency measured ranges from 1 GHz to 25 GHz. The data value listed above which is higher than the system noise floor.



9. Emission on Band Edge

Name of Test	Emission Band Edge
Base Standard	FCC 15.247(d)

Test Result: Complies
Measurement Data: See Tables & plots below

Method of Measurement:

Reference FCC document: KDB558074 D01, ANSI C63.4

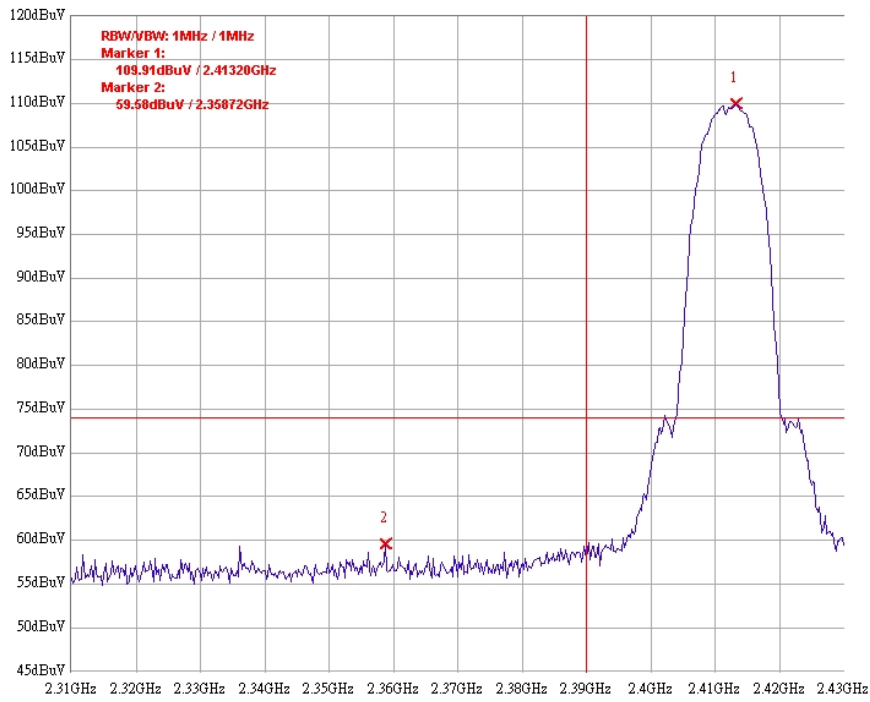
The frequency range from 30 MHz to 1000 MHz using Bilog Antenna.

The frequency range over 1 GHz using Horn Antenna.

Radiated emissions were investigated cover the frequency range from 30 MHz to 1000 MHz using a receiver RBW of 120 kHz record QP reading, and the frequency over 1 GHz using a spectrum analyzer RBW of 1 MHz and 10 Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1 MHz RBW/VBW) recorded also on the report.

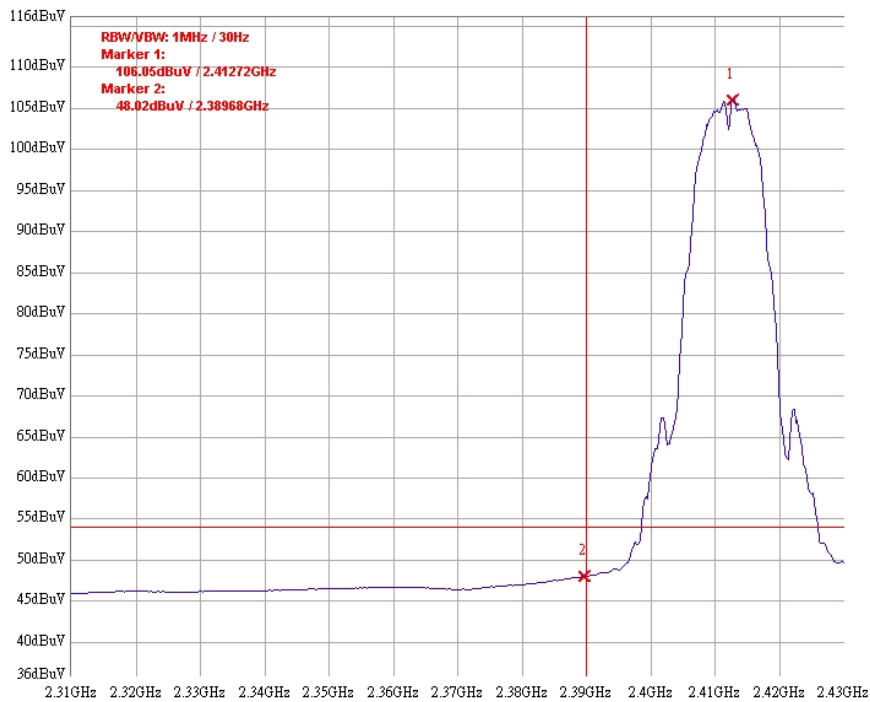
Channel	Measurement Freq. Band (MHz)	Detector	The Max. Field Strength in Restrict Band (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
Test Mode: 802.11b mode					
1 (lowest)	2310-2430	PK	59.58	74	-14.42
		AV	48.02	54	-5.98
11 (highest)	2450-2500	PK	59.84	74	-14.16
		AV	47.94	54	-6.06
Test Mode: Chain 0: 802.11g mode					
1 (lowest)	2310-2430	PK	69.96	74	-4.04
		AV	53.57	54	-0.43
11 (highest)	2450-2500	PK	68.97	74	-5.03
		AV	53.44	54	-0.56
Test Mode: Chain 1: 802.11g mode					
1 (lowest)	2310-2430	PK	67.11	74	-6.89
		AV	53.69	54	-0.31
11 (highest)	2450-2500	PK	68.29	74	-5.71
		AV	53.28	54	-0.72
Test Mode: 802.11n HT20 mode					
1 (lowest)	2310-2430	PK	66.16	74	-7.84
		AV	53.41	54	-0.59
11 (highest)	2450-2500	PK	66.05	74	-7.95
		AV	53.79	54	-0.21
Test Mode: 802.11n HT40 mode					
3 (lowest)	2310-2430	PK	67.98	74	-6.02
		AV	53.78	54	-0.22
9 (highest)	2450-2500	PK	68.29	74	-5.71
		AV	53.65	54	-0.35

Band edge @ 802.11b mode channel 1 (PK)



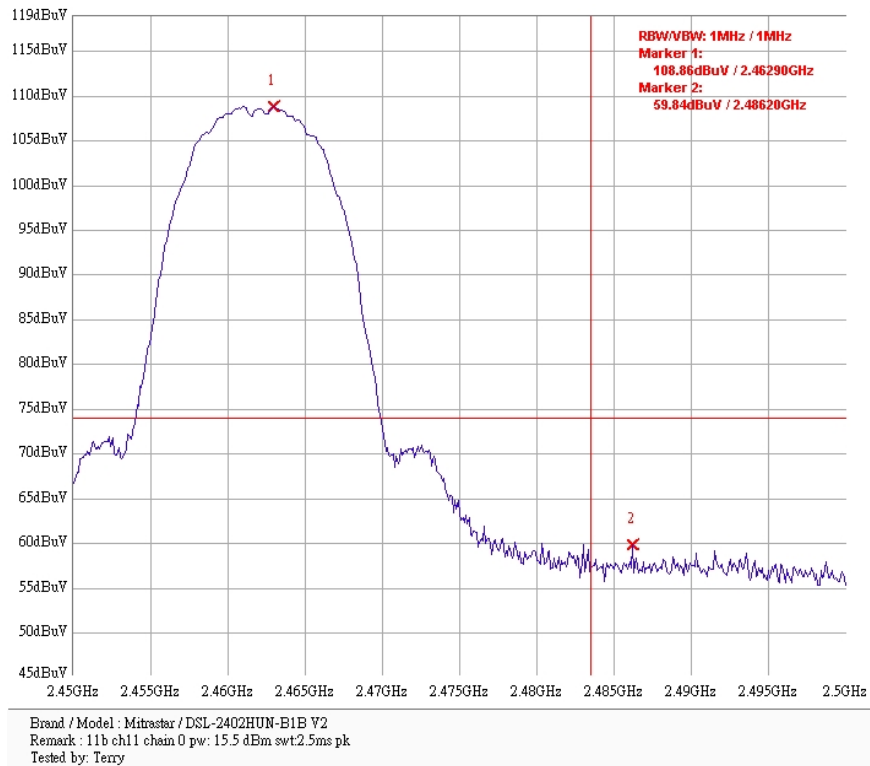
Brand / Model : Mitrasar / DSL-2402HUN-B1B V2
 Remark : 11b ch1 chain 0 pw: 15.5 dEm swt:5ms pk
 Tested by: Terry

Band edge @ 802.11b mode channel 1 (AV)

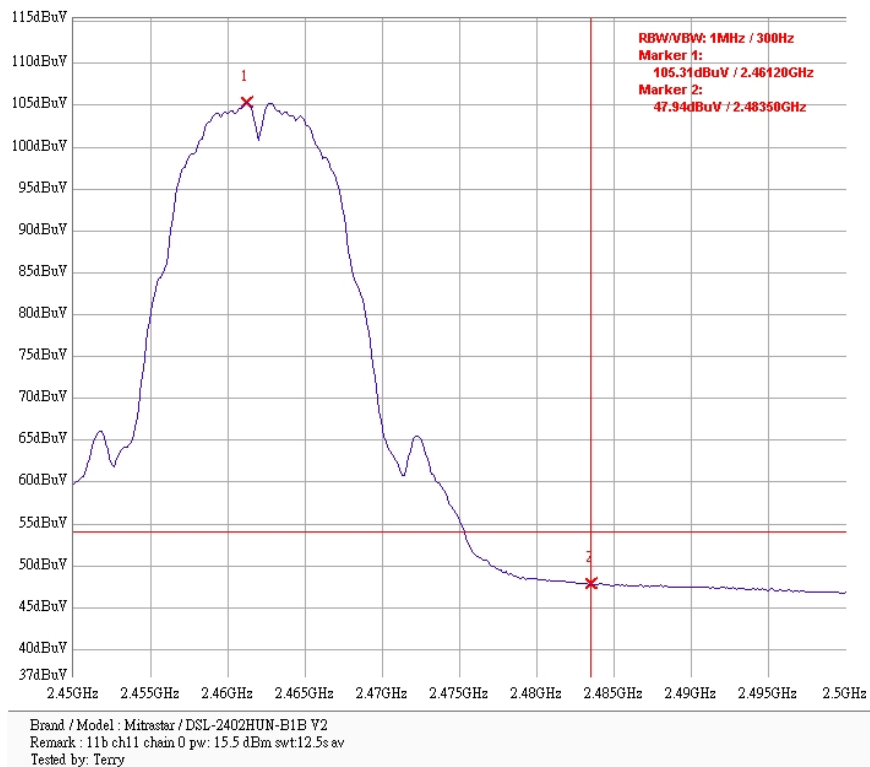


Brand / Model : Mitrasar / DSL-2402HUN-B1B V2
 Remark : 11b ch1 chain 0 pw: 15.5 dEm swt:30s av
 Tested by: Terry

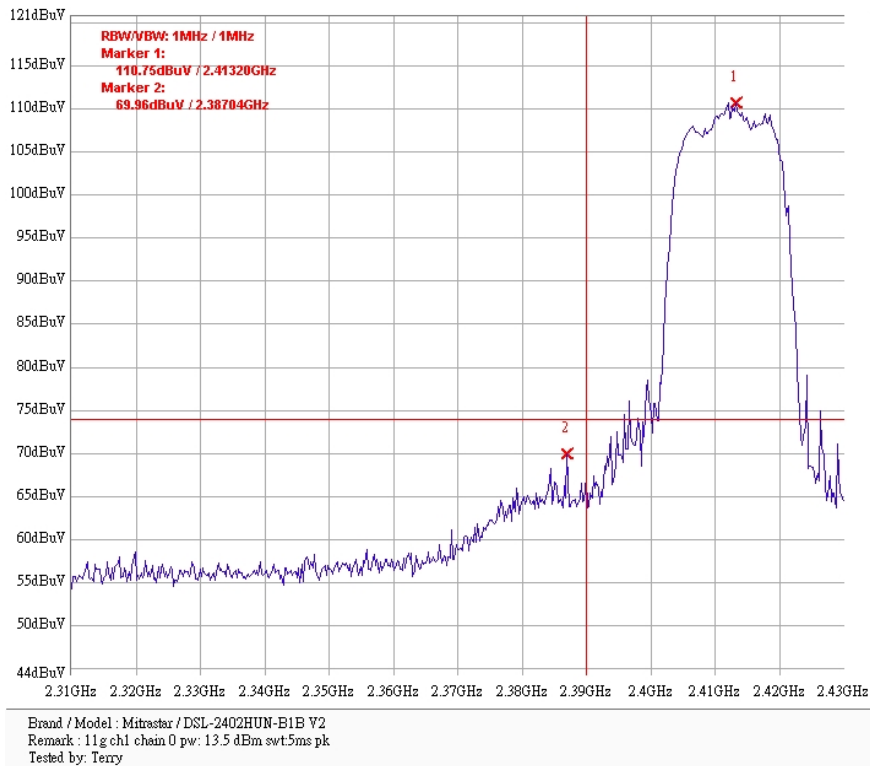
Band edge @ 802.11b mode channel 11 (PK)



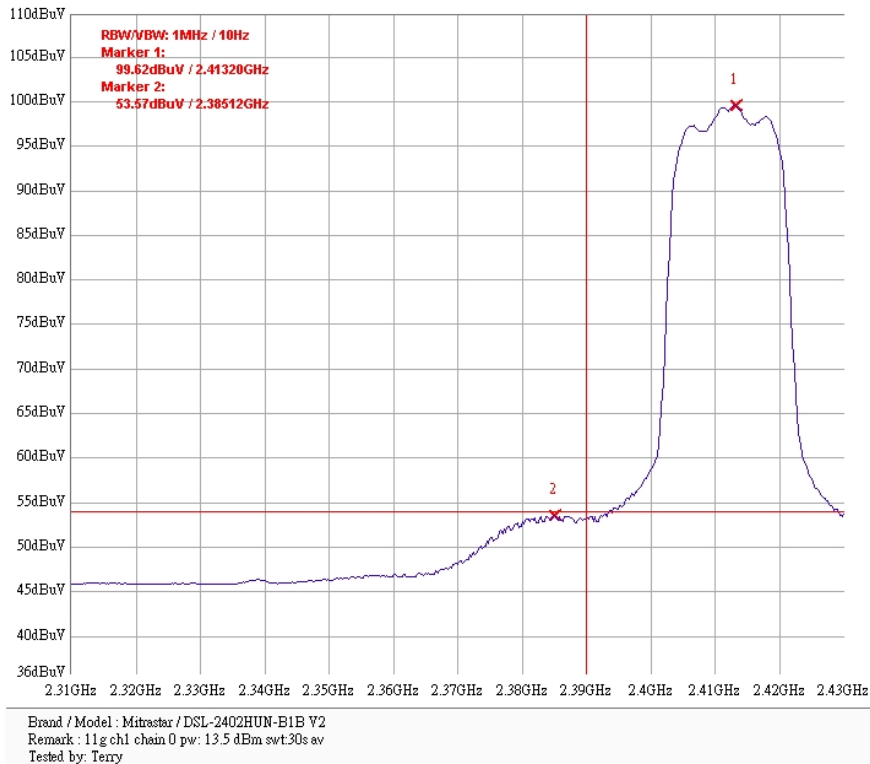
Band edge @ 802.11b mode channel 11 (AV)



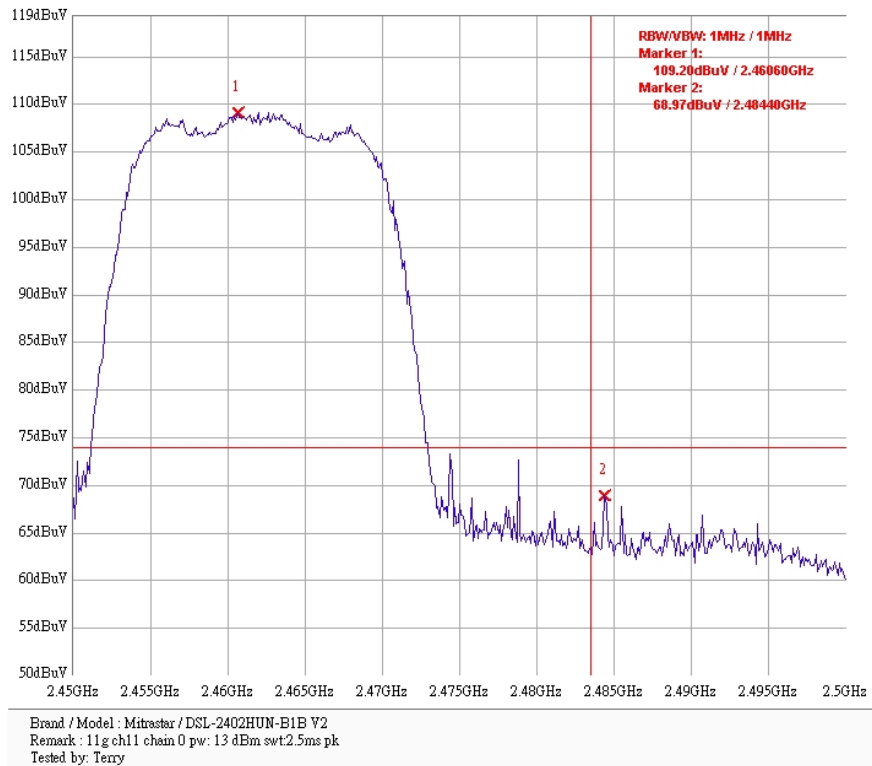
Chain 0: Band edge @ 802.11g mode channel 1 (PK)



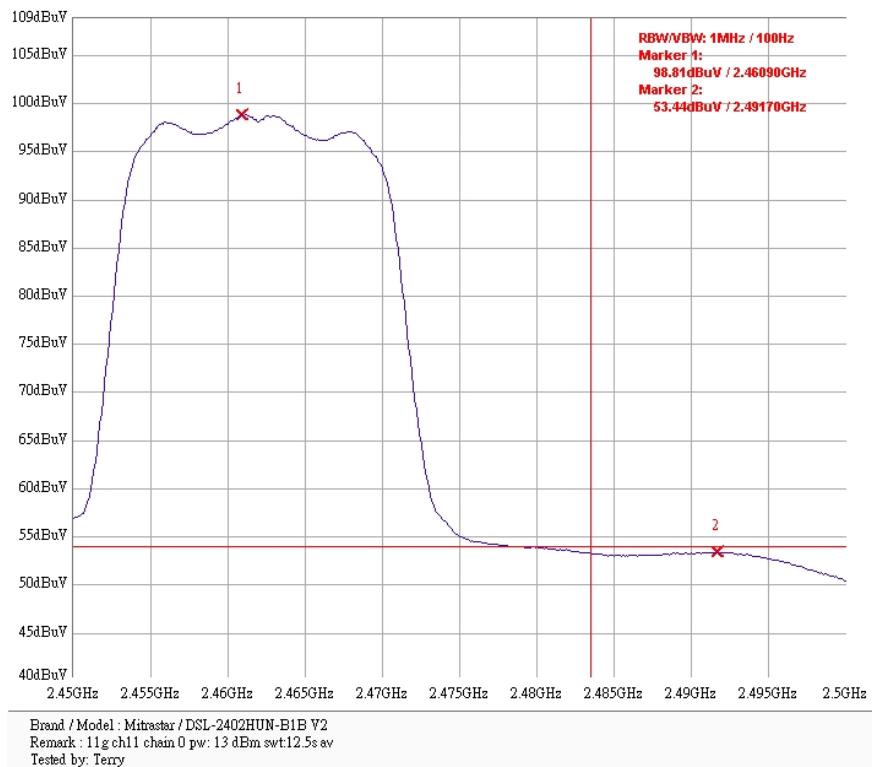
Chain 0: Band edge @ 802.11g mode channel 1 (AV)



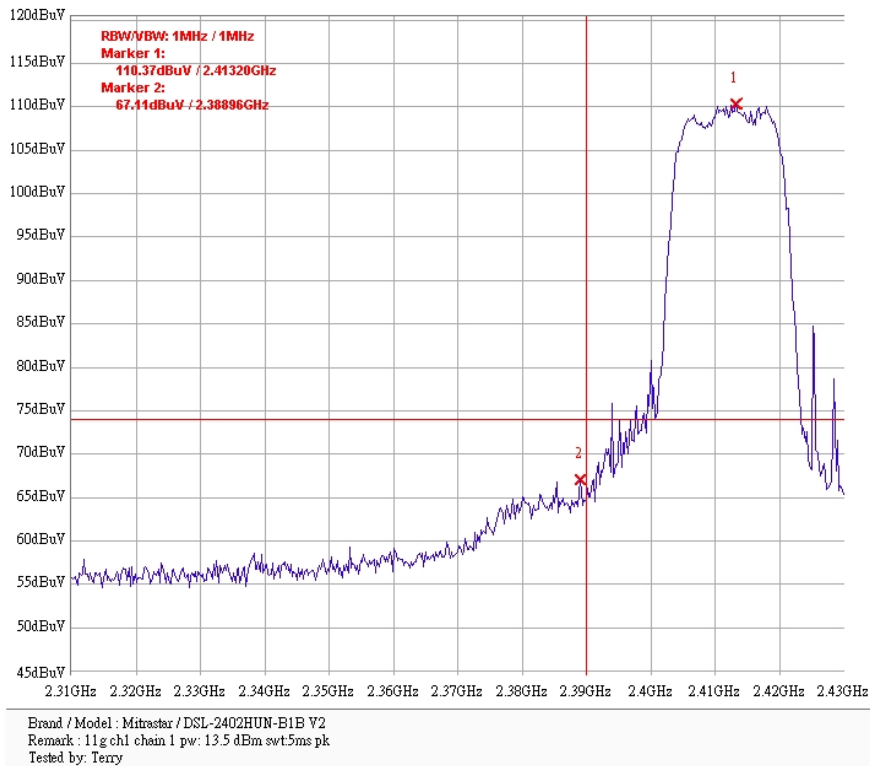
Chain 0: Band edge @ 802.11g mode channel 11 (PK)



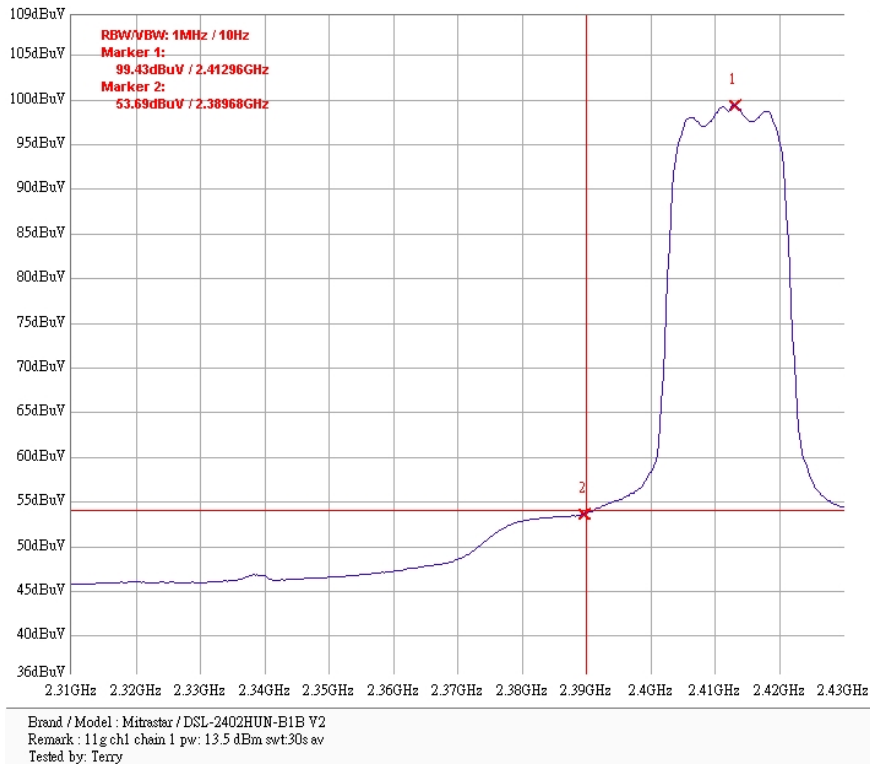
Chain 0: Band edge @ 802.11g mode channel 11 (AV)



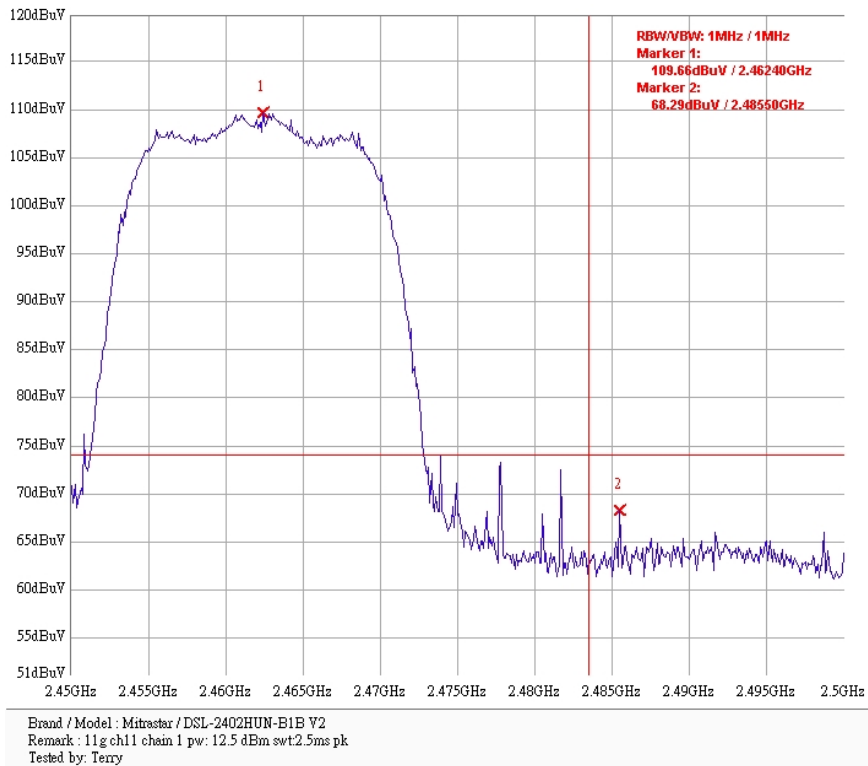
Chain 1: Band edge @ 802.11g mode channel 1 (PK)



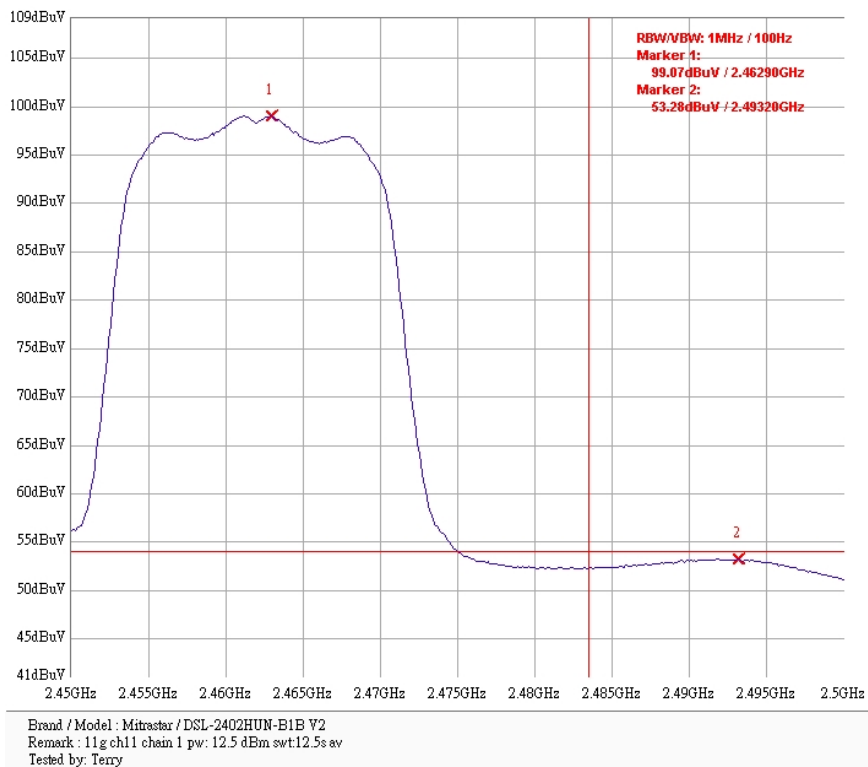
Chain 1: Band edge @ 802.11g mode channel 1 (AV)



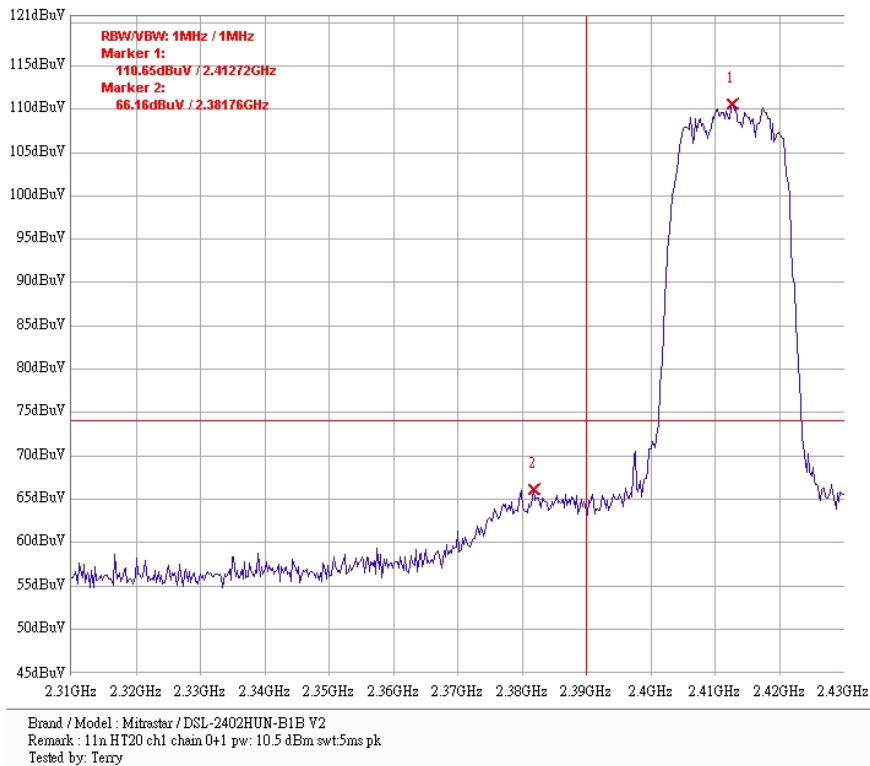
Chain 1: Band edge @ 802.11g mode channel 11 (PK)



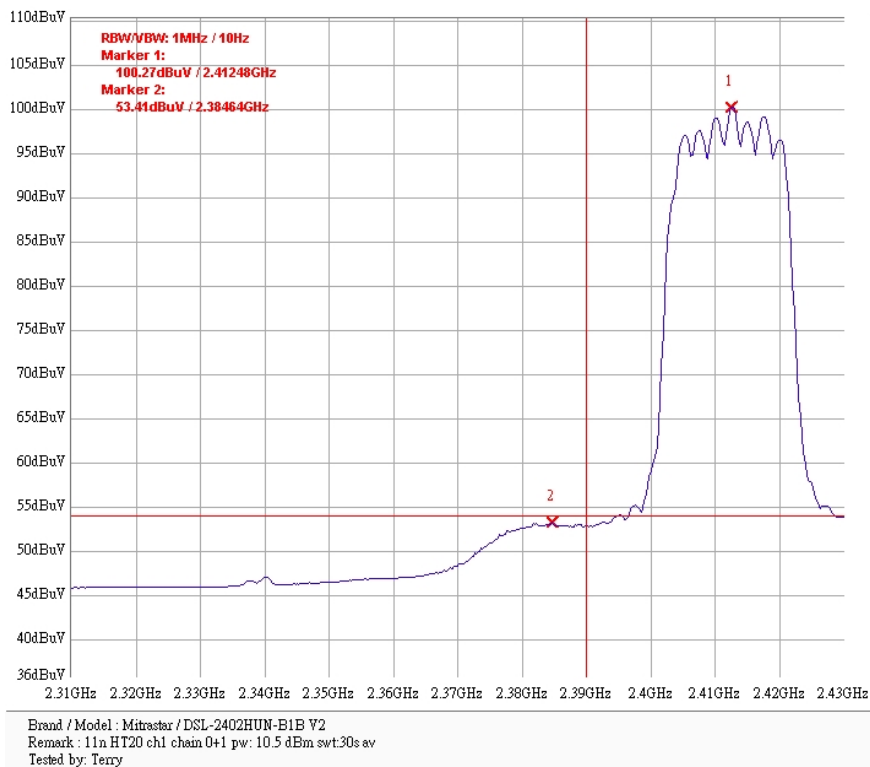
Chain 1: Band edge @ 802.11g mode channel 11 (AV)



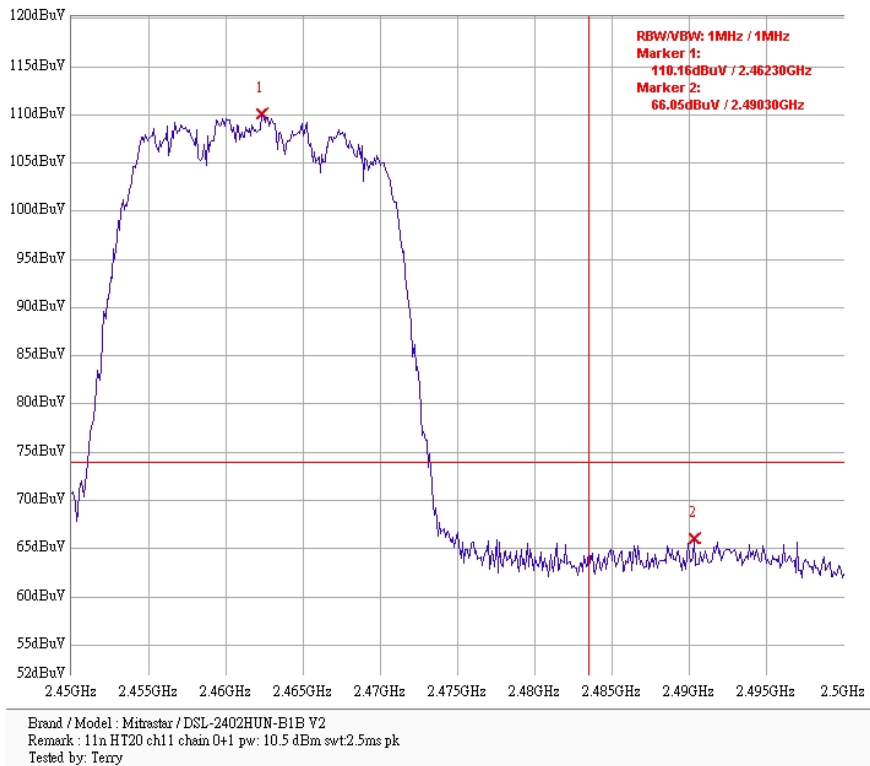
Band edge @ 802.11n HT20 mode channel 1 (PK)



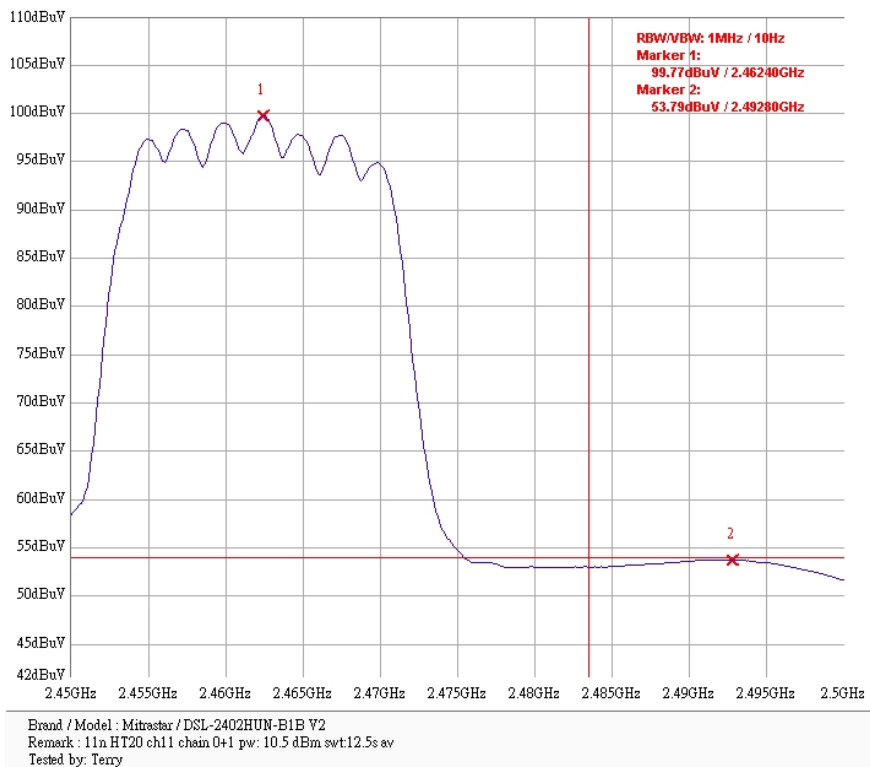
Band edge @ 802.11n HT20 mode channel 1 (AV)



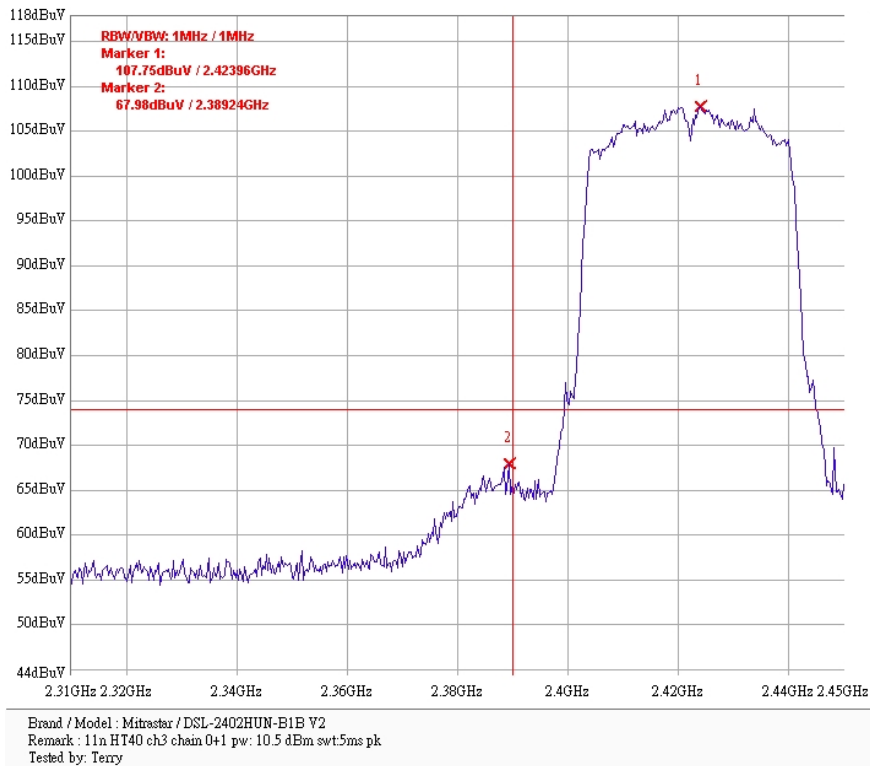
Band edge @ 802.11n HT20 mode channel 11 (PK)



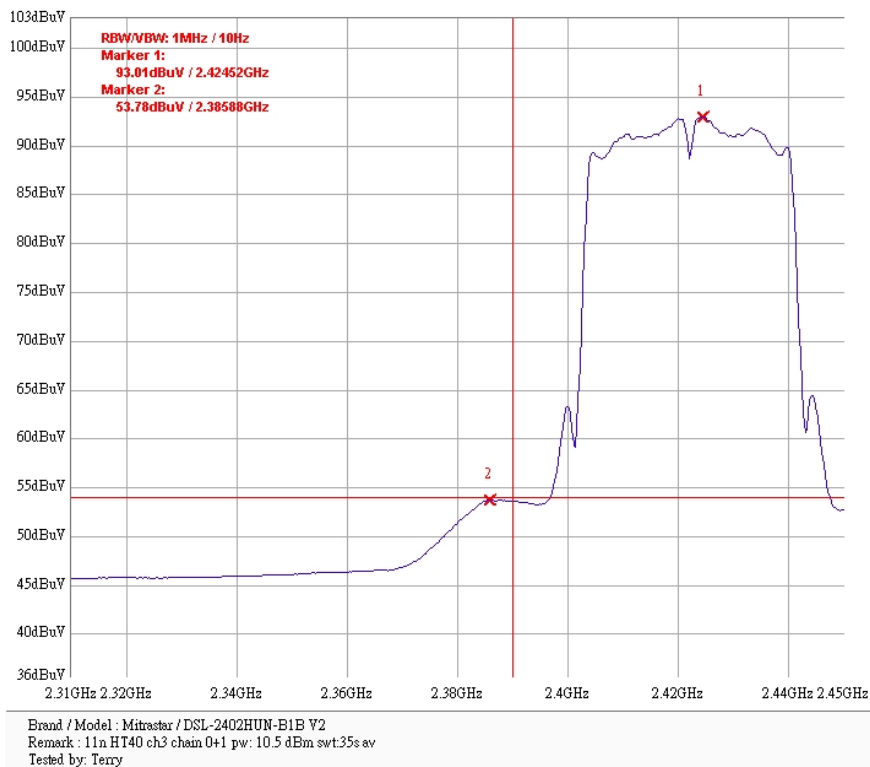
Band edge @ 802.11n HT20 mode channel 11 (AV)



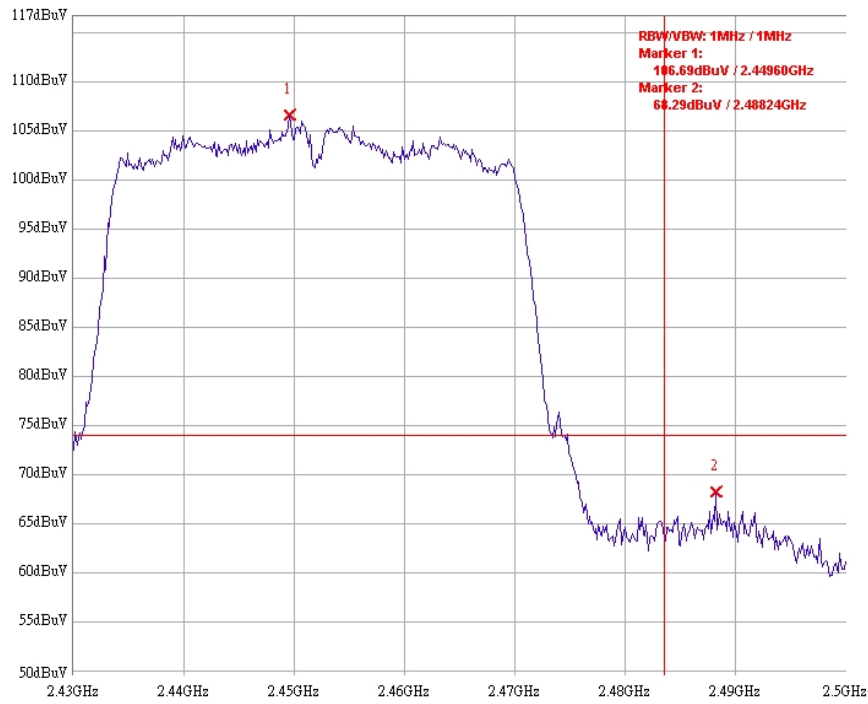
Band edge @ 802.11n HT40 mode channel 3 (PK)



Band edge @ 802.11n HT40 mode channel 3 (AV)

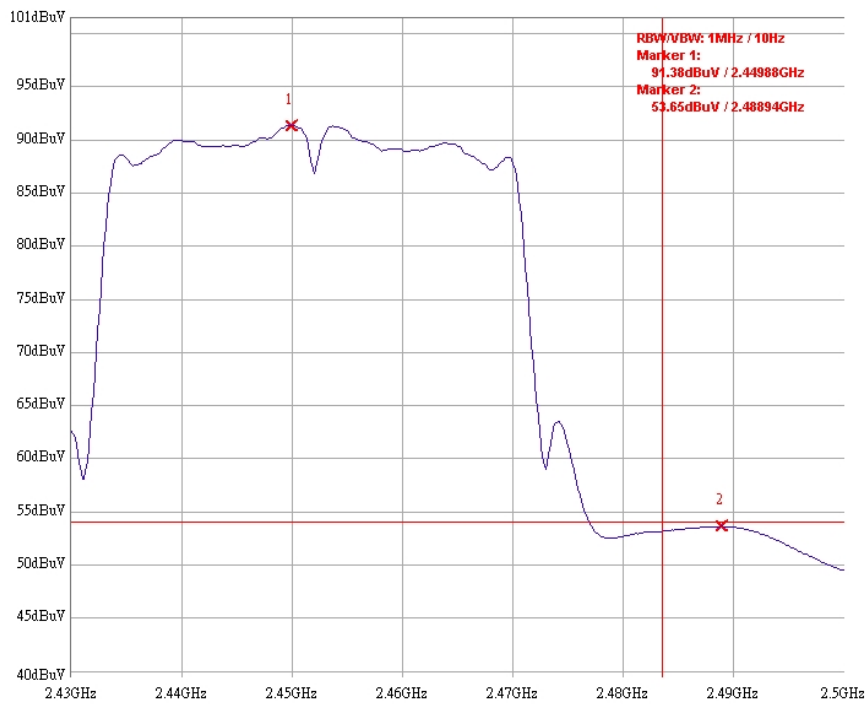


Band edge @ 802.11n HT40 mode channel 9 (PK)



Brand / Model : Mitrasar / DSL-2402HUN-B1B V2
Remark : 11n HT40 ch9 chain 0+1 pw: 9.5 dBm swt:2.5ms pk
Tested by: Terry

Band edge @ 802.11n HT40 mode channel 9 (AV)



Brand / Model : Mitrasar / DSL-2402HUN-B1B V2
Remark : 11n HT40 ch9 chain 0+1 pw: 9.5 dBm swt:17.5s av
Tested by: Terry

10. AC power line conducted emission

Name of Test	AC power line conducted emission
Base Standard	FCC 15.207

Test Result: Complies
Measurement Data: See Tables & plots below

Method of Measurement:

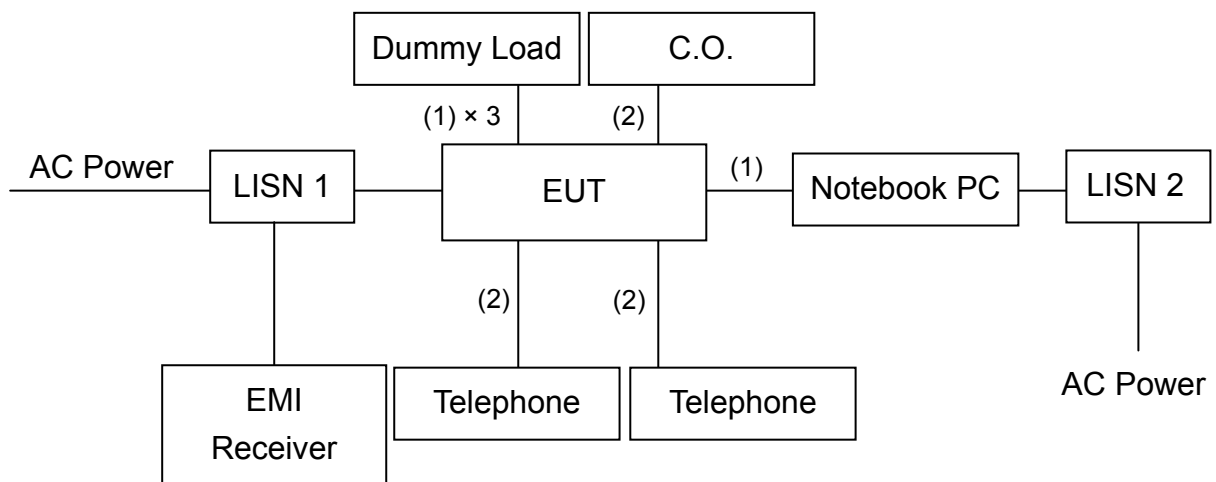
Reference FCC document: ANSI C63.4

The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50 ohm/50 uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 ohm/ 50 uH coupling impedance with 50 ohm termination. Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4/2003 on conducted measurement.

The bandwidth of the field strength meter (R & S Test Receiver ESCS 30) is set at 9 kHz.

The EUT configuration please refer to the “Conducted set-up photo.pdf”.

Test Diagram:



(1) RJ-45 UTP Cat.5 6 meter

(2) RJ-11 unshielded cable 1.8 meter

Emission Limit:

Freq. (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56*	56 – 46*
0.50~5.00	56	46
5.00~30.0	60	50

*Decreases with the logarithm of the frequency.

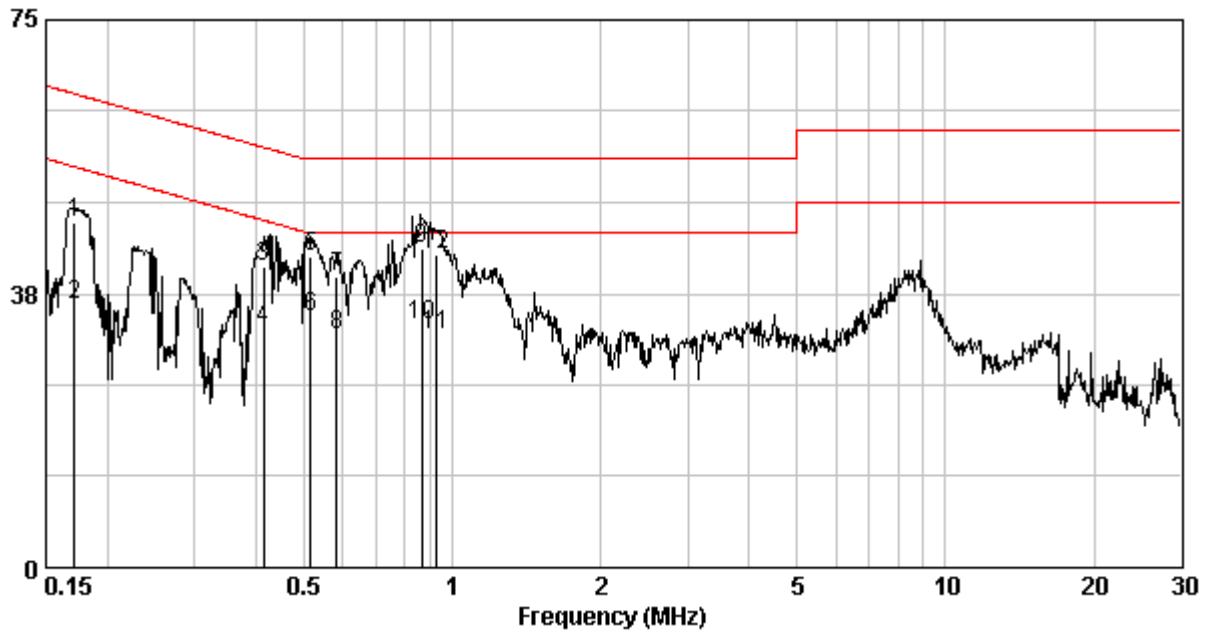
Note: The EUT was tested while in normal communication mode.

Phase : Line
EUT : DSL-2402HNU-B1B v2
Test Condition : Continuously mode

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB)	
						Qp	Av
0.172	0.14	47.21	64.89	35.88	54.89	-17.67	-19.00
0.413	0.15	41.10	57.58	32.71	47.58	-16.48	-14.87
0.516	0.16	42.50	56.00	34.39	46.00	-13.50	-11.61
0.582	0.16	39.94	56.00	31.83	46.00	-16.06	-14.17
0.866	0.18	43.68	56.00	33.37	46.00	-12.32	-12.63
0.928	0.18	42.87	56.00	31.88	46.00	-13.13	-14.12

Remark:

1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)

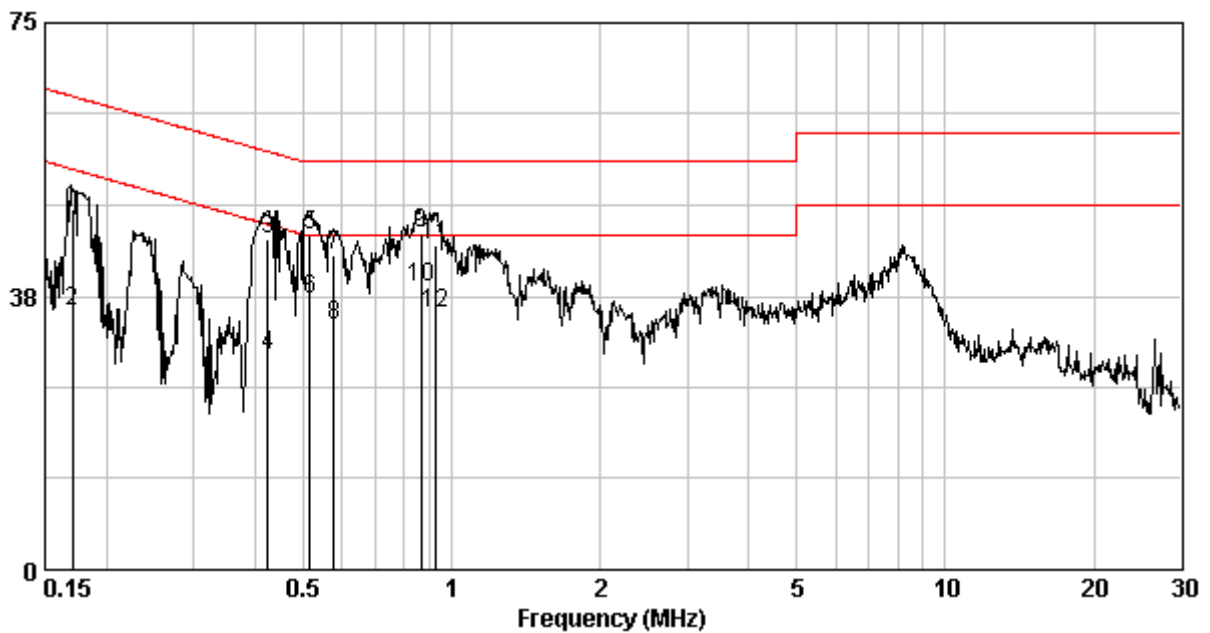


Phase : Neutral
EUT : DSL-2402HNU-B1B v2
Test Condition : Continuously mode

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB)	
						Qp	Av
0.170	0.27	49.34	64.94	35.56	54.94	-15.60	-19.38
0.424	0.25	45.37	57.37	29.42	47.37	-12.00	-17.95
0.516	0.26	45.82	56.00	37.22	46.00	-10.18	-8.78
0.576	0.26	43.01	56.00	33.62	46.00	-12.99	-12.38
0.866	0.27	46.23	56.00	38.76	46.00	-9.77	-7.24
0.928	0.27	44.52	56.00	35.12	46.00	-11.48	-10.88

Remark:

1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)



Appendix: Test Equipment List

Equipment	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100018	2011/12/6	2012/12/4
Spectrum Analyzer	Rohde&schwarz	FSP30	100137	2012/6/25	2013/6/25
Spectrum Analyzer	Rohde&schwarz	FSEK30	100186	2012/2/6	2013/2/5
Horn Antenna (1-18G)	Schwarzbeck	BBHA 9120 D	9120D-456	2010/8/31	2012/8/30
Horn Antenna (14-42G)	SHWARZBECK	BBHA 9170	BBHA9170159	2010/9/3	2012/9/2
Broadband Antenna	SCHWARZBECK	VULB 9168	9168-172	2011/7/26	2013/7/25
Pre-Amplifier	MITEQ	AFS44-001026 50--42-10P-44	1495287	2011/10/27	2013/10/26
Pre-Amplifier	MITEQ	JS4-26004000-- 27-8A	828825	2010/9/8	2012/9/7
Power Meter	Anritsu	ML2495A	0844001	2011/10/13	2012/10/12
Power Sensor	Anritsu	MA2411B	0738452	2011/10/13	2012/10/12
Temperature&Humidity Test Chamber	TERCHY	MHU-225LRU (SA)	950838	2012/6/15	2013/6/15
Two-Line V-Network	Rohde&schwarz	ESH3-Z5	838979/014	2011/10/19	2012/10/18

Note: The above equipments are within the valid calibration period.

Measurement Uncertainty:

Measurement uncertainty was calculated in accordance with TR 100 028-1.

Parameter	Uncertainty
Radiated Emission	±5.056 dB
Conducted Emission	±2.786 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of $k=2$.