

Appendix C

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: Portable Data Collector

Trade Mark: Newland

Test Model: NLS-N7

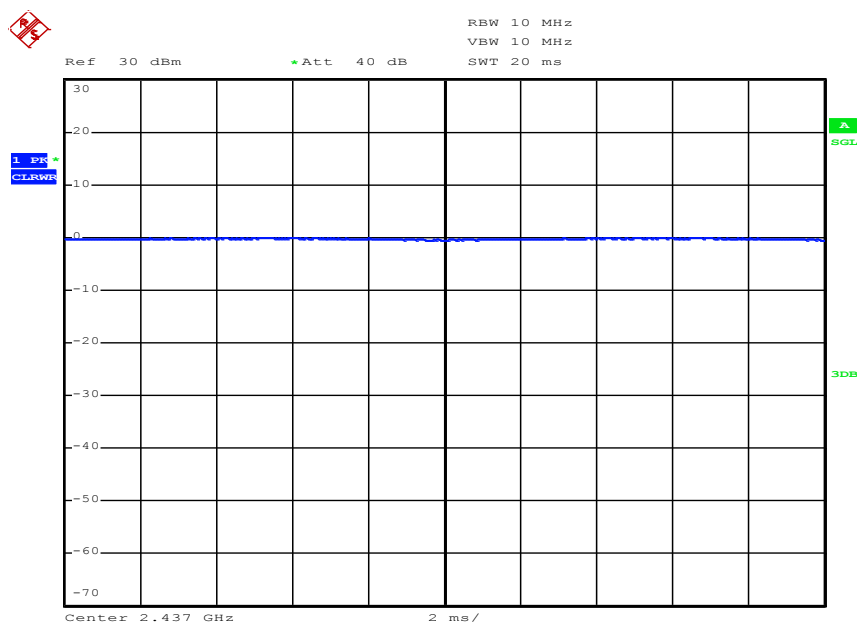
Environmental Conditions

Temperature:	24.7 ° C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	JK ZHOU
Supervised by:	Wang.Chuang

C.1 Duty Cycle

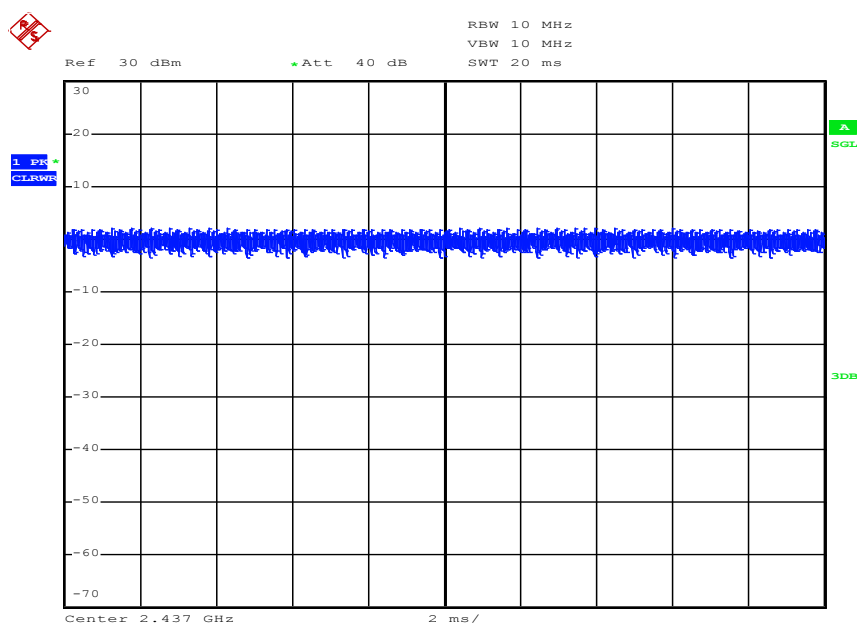
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	100	PASS
11G	2437	Ant1	100	PASS
11N20SISO	2437	Ant1	100	PASS
11N40SISO	2437	Ant1	100	PASS

Duty Cycle_11B_2437_Ant1



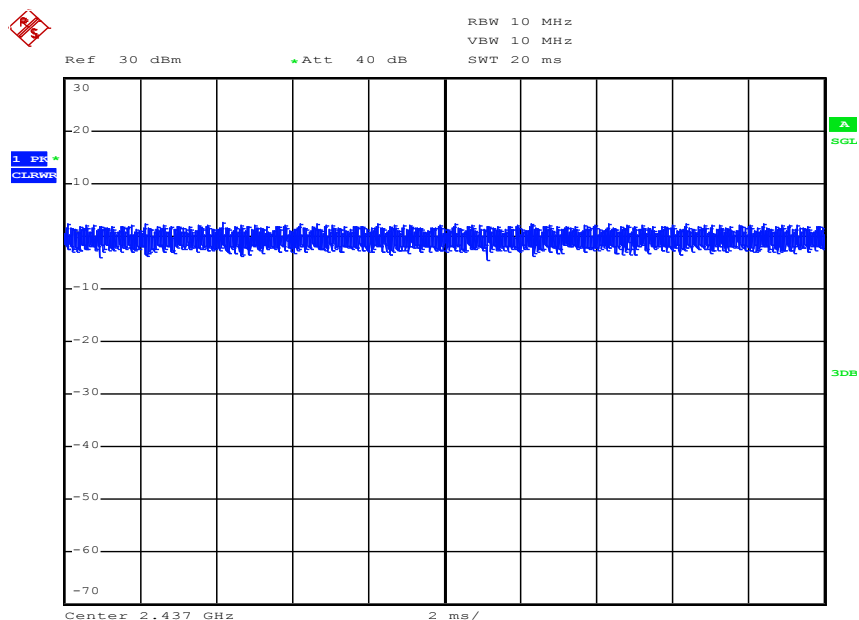
Date: 21.SEP.2019 11:55:46

Duty Cycle_11G_2437_Ant1



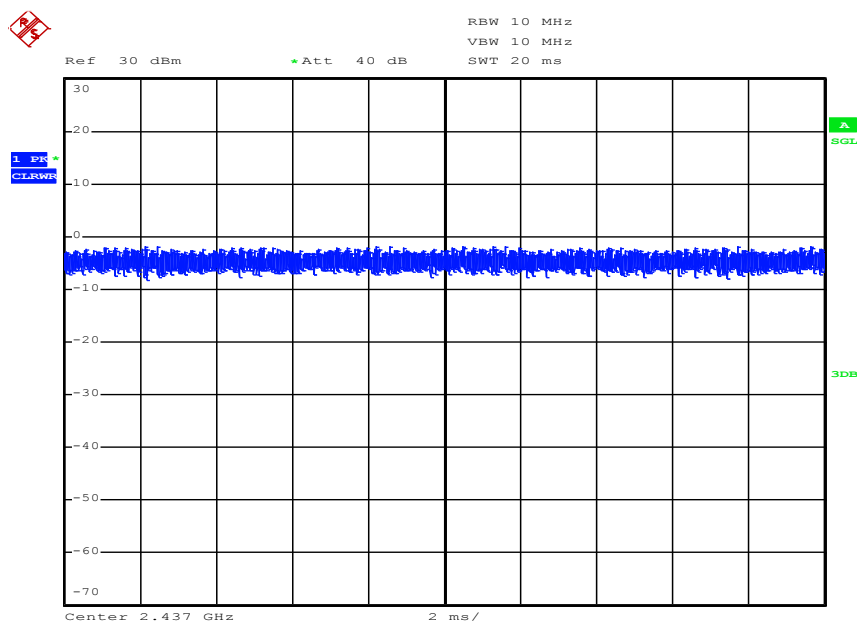
Date: 21.SEP.2019 11:56:18

Duty Cycle_11N20SISO_2437_Ant1



Date: 21.SEP.2019 11:56:49

Duty Cycle_11N40SISO_2437_Ant1



Date: 21.SEP.2019 11:57:17

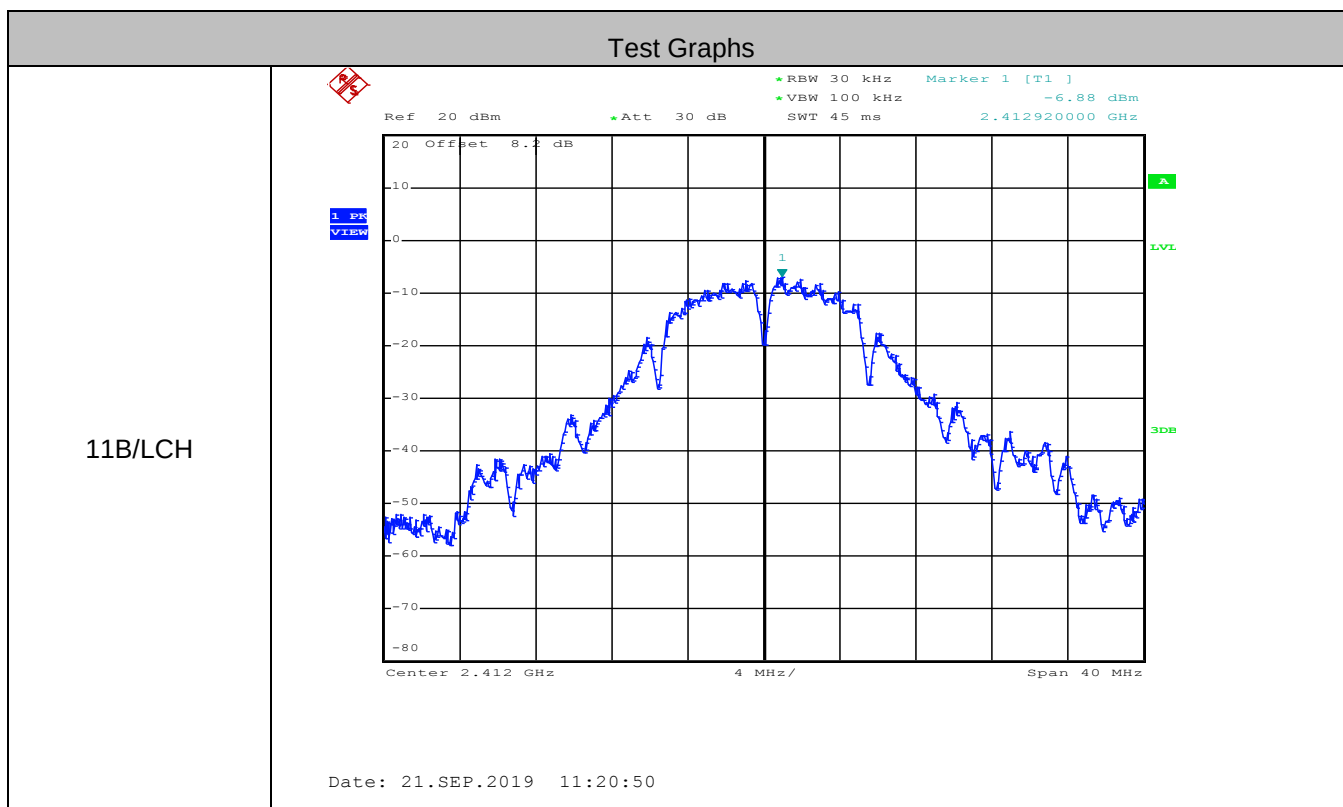
C.2 Maximum Peak Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	10.87	30	PASS
	MCH	9.31	30	PASS
	HCH	9.33	30	PASS
11G	LCH	13.89	30	PASS
	MCH	12.52	30	PASS
	HCH	12.57	30	PASS
11N20SISO	LCH	10.93	30	PASS
	MCH	12.70	30	PASS
	HCH	12.61	30	PASS
11N40SISO	LCH	10.64	30	PASS
	MCH	11.96	30	PASS
	HCH	12.09	30	PASS

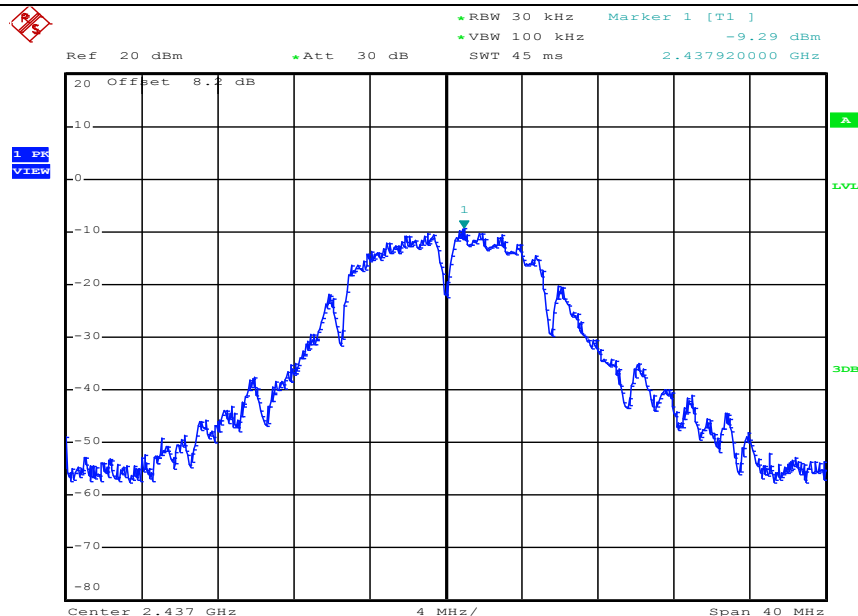
C.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/30KHz]	RBW Factor (dB)	Report PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-6.88	-10	-16.88	8	PASS
	MCH	-9.29	-10	-19.29	8	PASS
	HCH	-9.54	-10	-19.54	8	PASS
11G	LCH	-9.93	-10	-19.93	8	PASS
	MCH	-10.58	-10	-20.58	8	PASS
	HCH	-10.93	-10	-20.93	8	PASS
11N20SISO	LCH	-12.93	-10	-22.93	8	PASS
	MCH	-10.33	-10	-20.33	8	PASS
	HCH	-10.19	-10	-20.19	8	PASS
11N40SISO	LCH	-19.28	-10	-29.28	8	PASS
	MCH	-14.69	-10	-24.69	8	PASS
	HCH	-14.49	-10	-24.49	8	PASS

Note: RBW Factor= $10 \cdot \log(3\text{kHz}/30\text{kHz}) = -10$

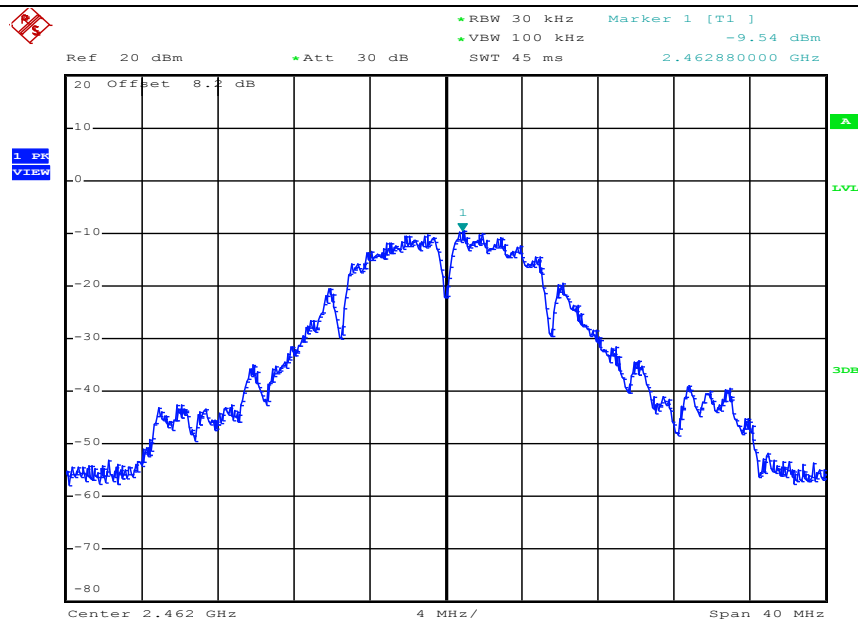


11B/MCH



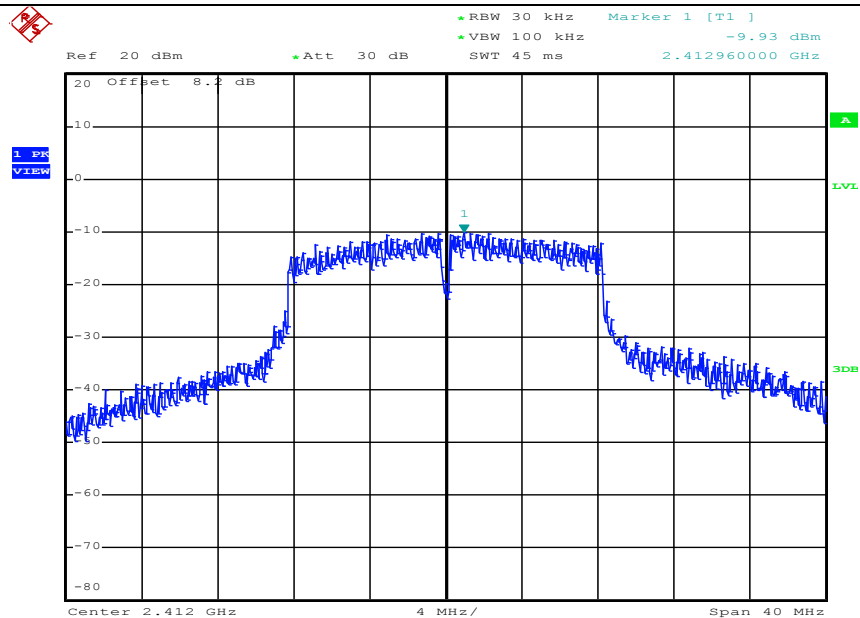
Date: 21.SEP.2019 11:23:25

11B/HCH



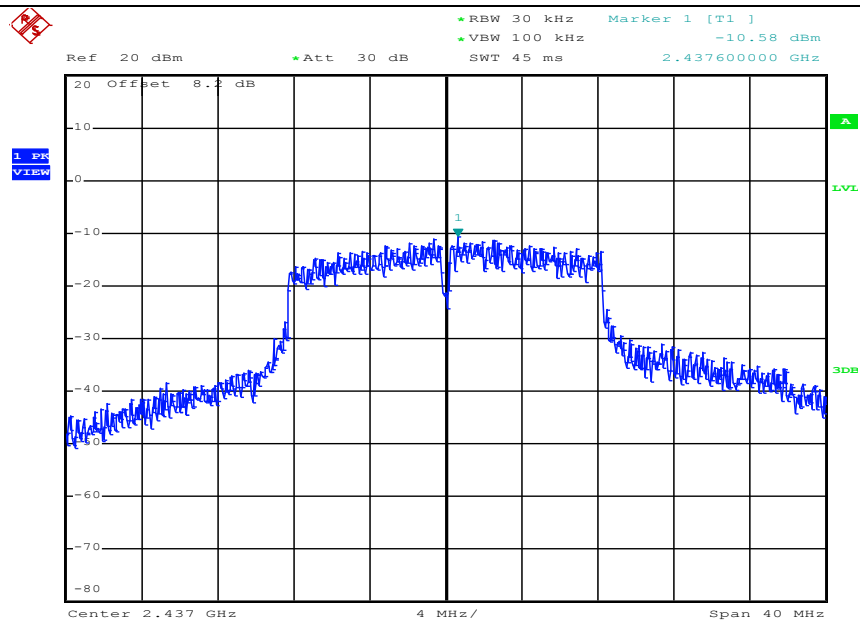
Date: 21.SEP.2019 11:25:13

11G/LCH



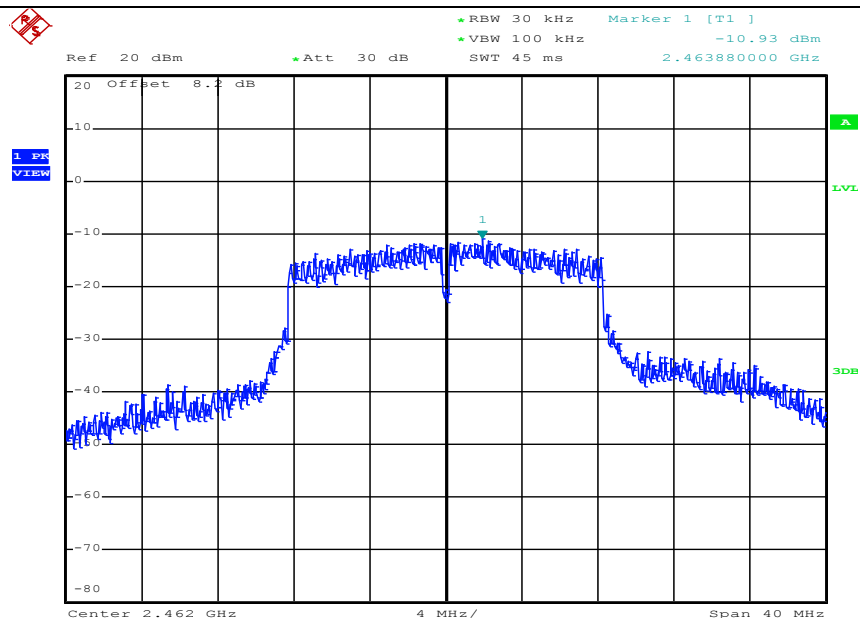
Date: 21.SEP.2019 11:27:56

11G/MCH



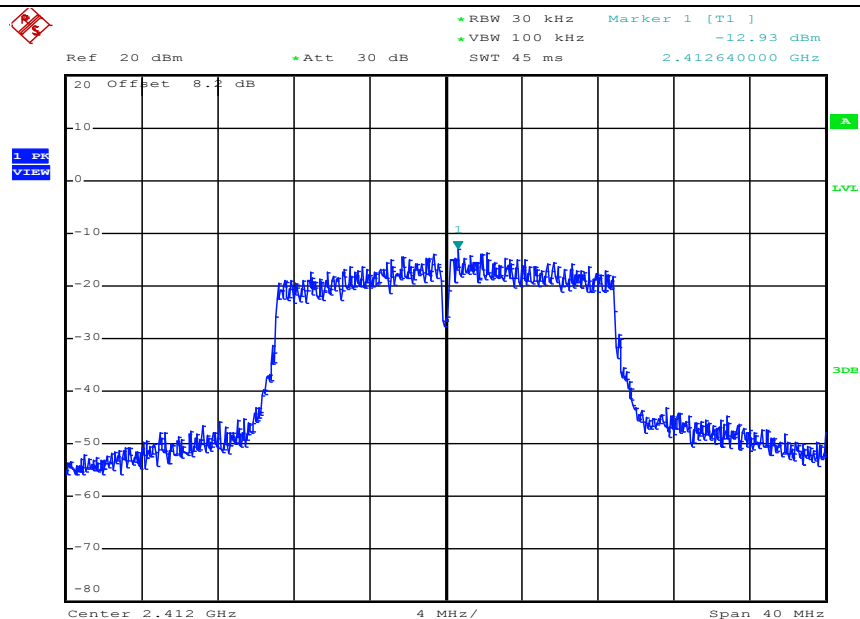
Date: 21.SEP.2019 11:30:31

11G/HCH



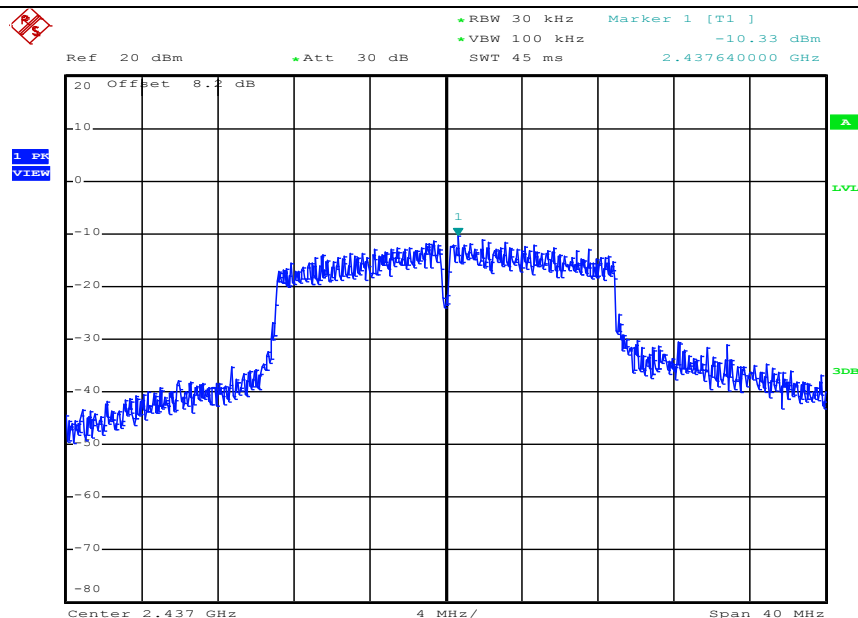
Date: 21.SEP.2019 11:32:19

11N20SISO/LCH



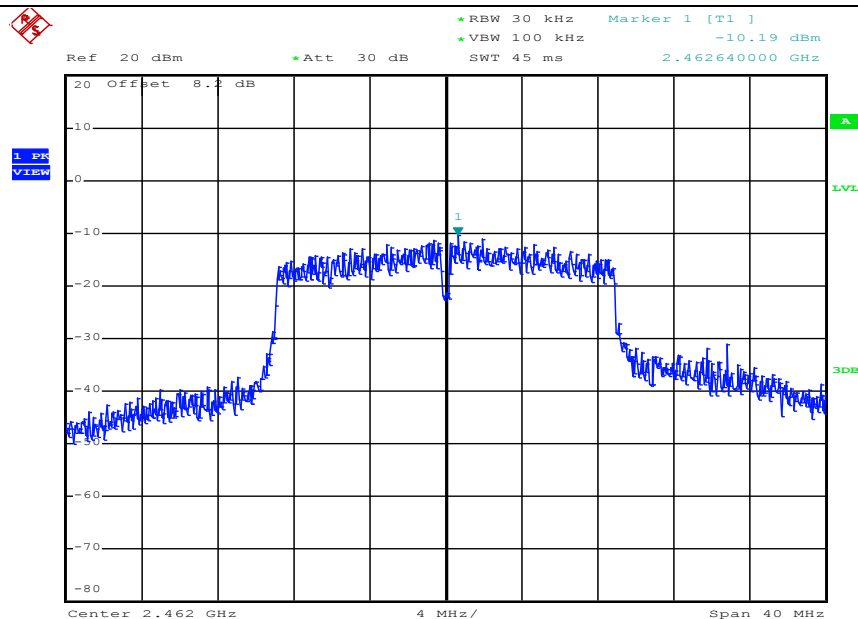
Date: 21.SEP.2019 11:34:57

11N20SISO/MCH



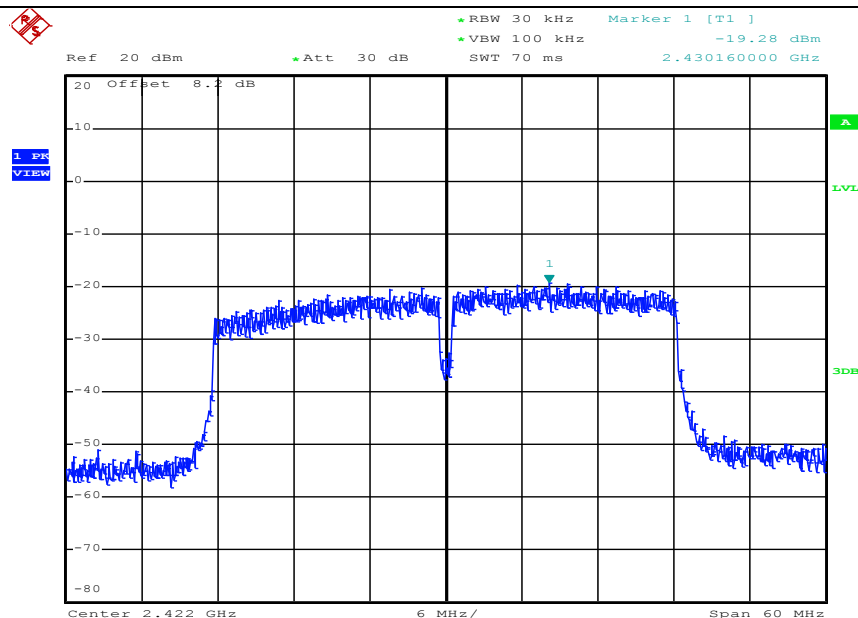
Date: 21.SEP.2019 11:37:32

11N20SISO/HCH



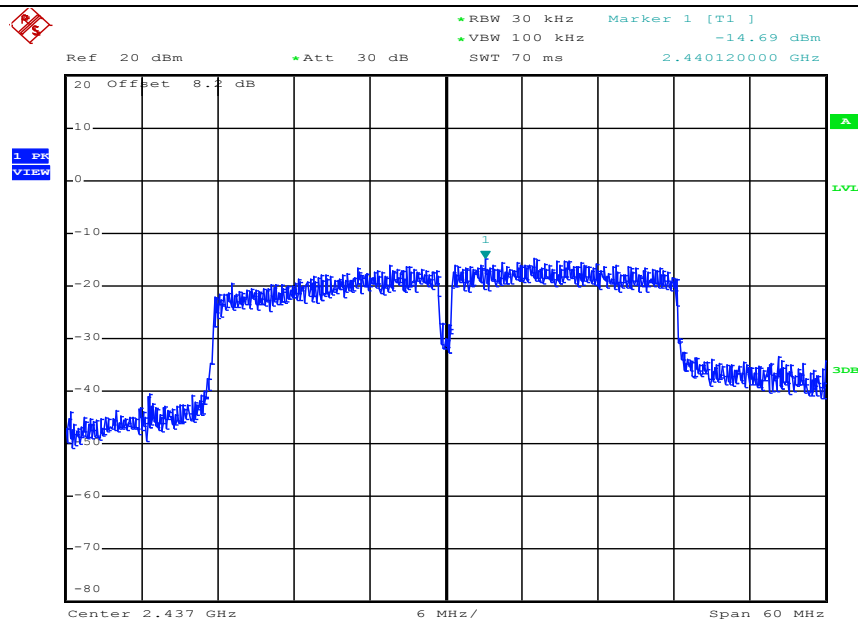
Date: 21.SEP.2019 12:00:21

11N40SISO/LCH



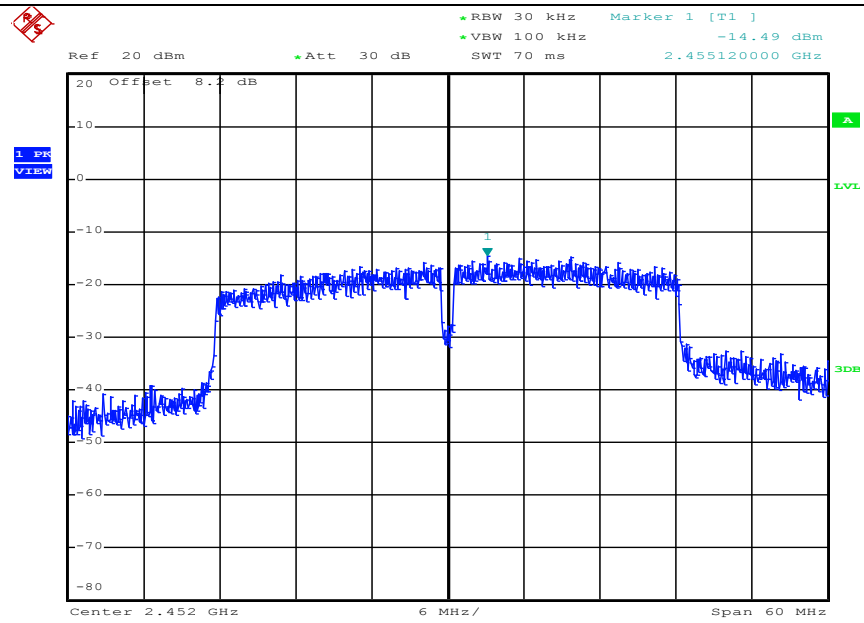
Date: 21.SEP.2019 11:43:21

11N40SISO/MCH



Date: 21.SEP.2019 11:47:41

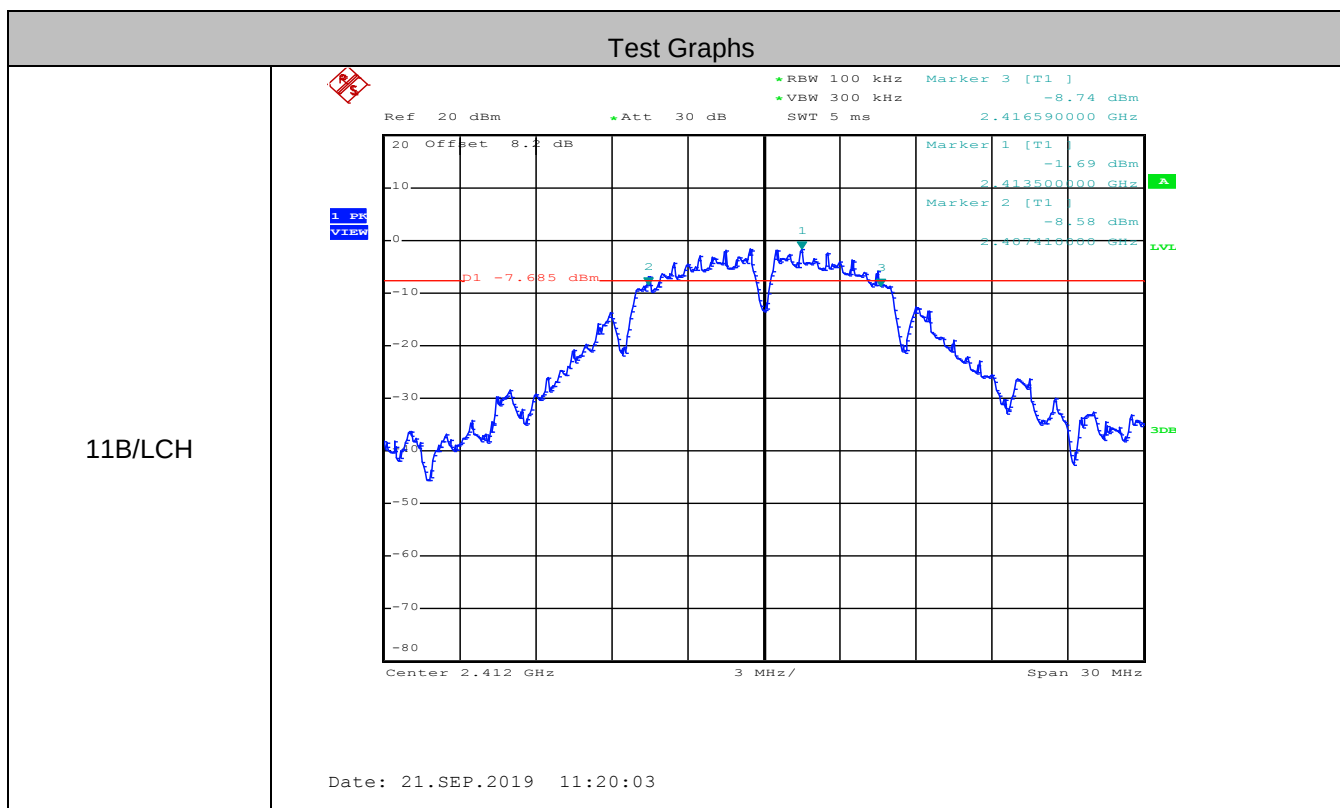
11N40SISO/HCH



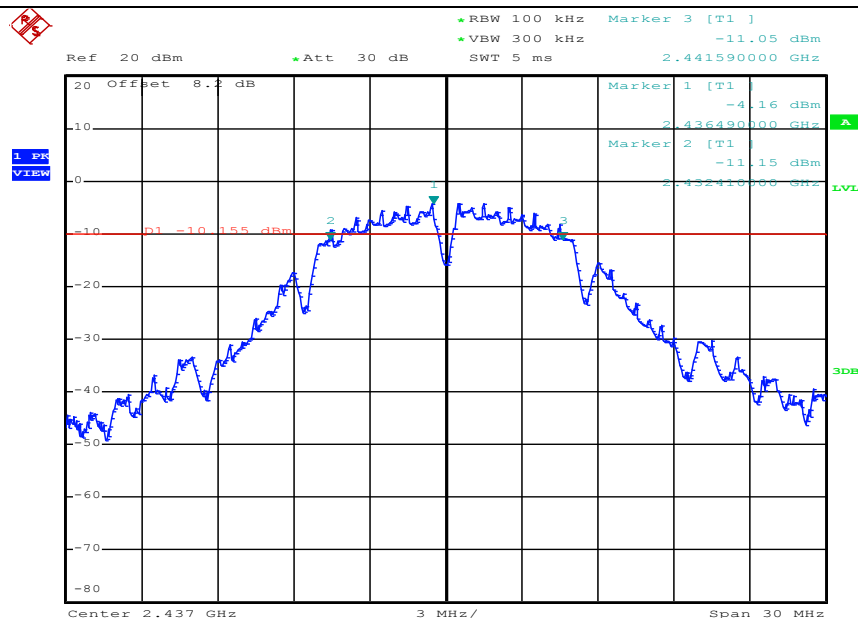
Date: 21.SEP.2019 11:50:18

C.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.180	≥ 0.5	PASS
	MCH	9.180	≥ 0.5	PASS
	HCH	9.180	≥ 0.5	PASS
11G	LCH	16.410	≥ 0.5	PASS
	MCH	16.470	≥ 0.5	PASS
	HCH	16.410	≥ 0.5	PASS
11N20SISO	LCH	17.640	≥ 0.5	PASS
	MCH	17.670	≥ 0.5	PASS
	HCH	17.640	≥ 0.5	PASS
11N40SISO	LCH	35.880	≥ 0.5	PASS
	MCH	35.820	≥ 0.5	PASS
	HCH	35.220	≥ 0.5	PASS

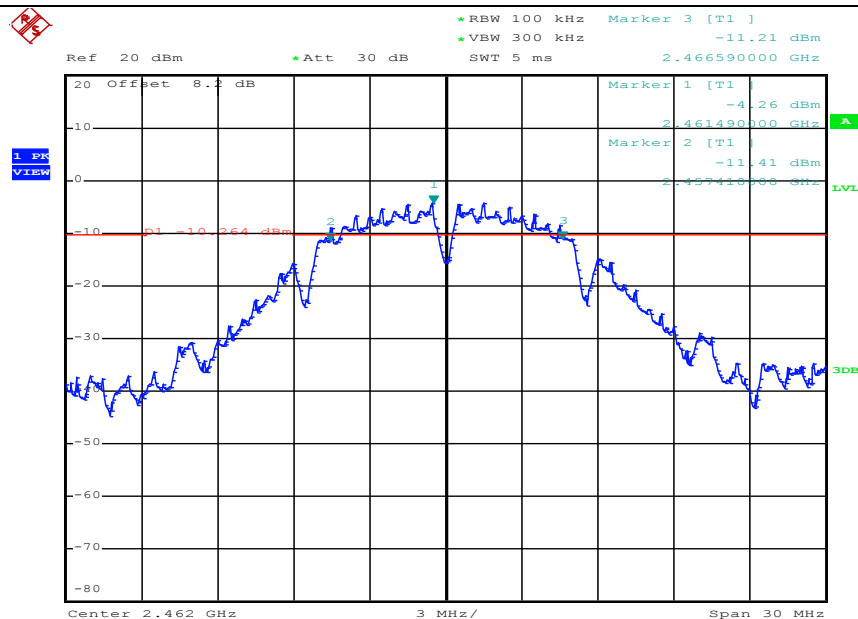


11B/MCH



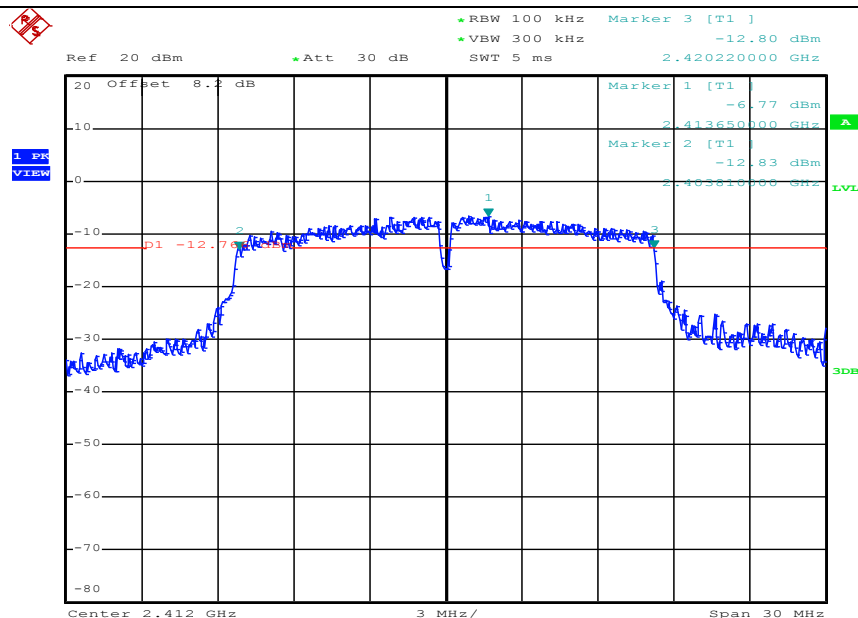
Date: 21.SEP.2019 11:22:38

11B/HCH



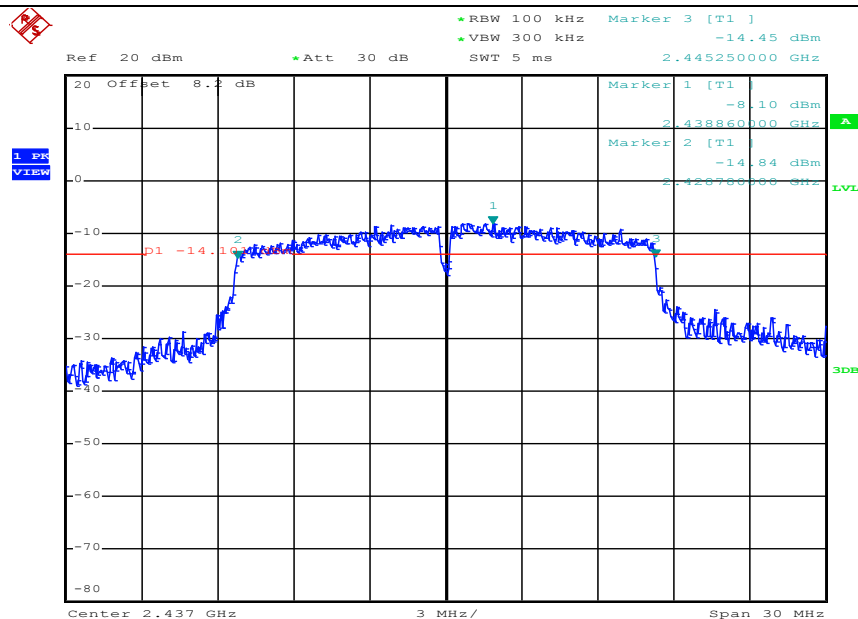
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11G/LCH



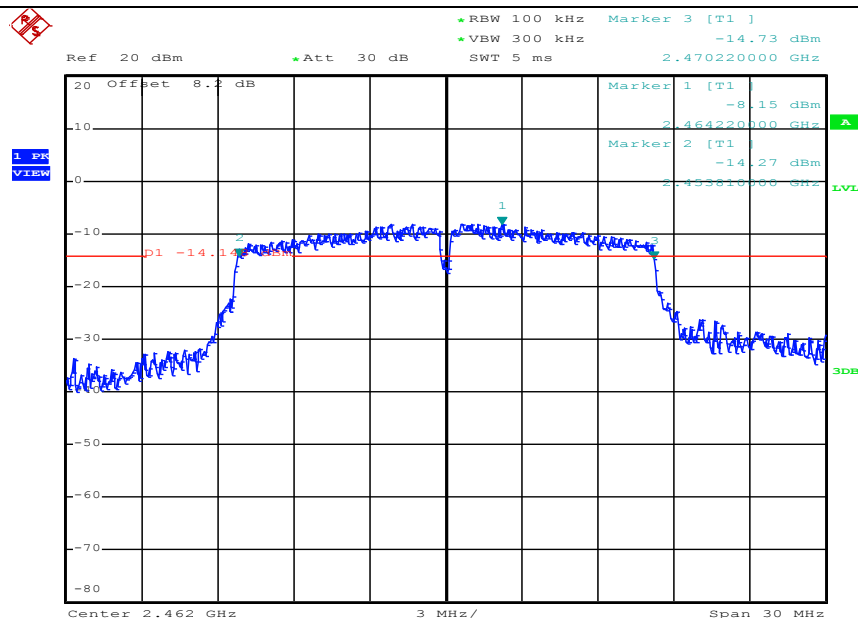
Date: 21.SEP.2019 11:27:09

11G/MCH



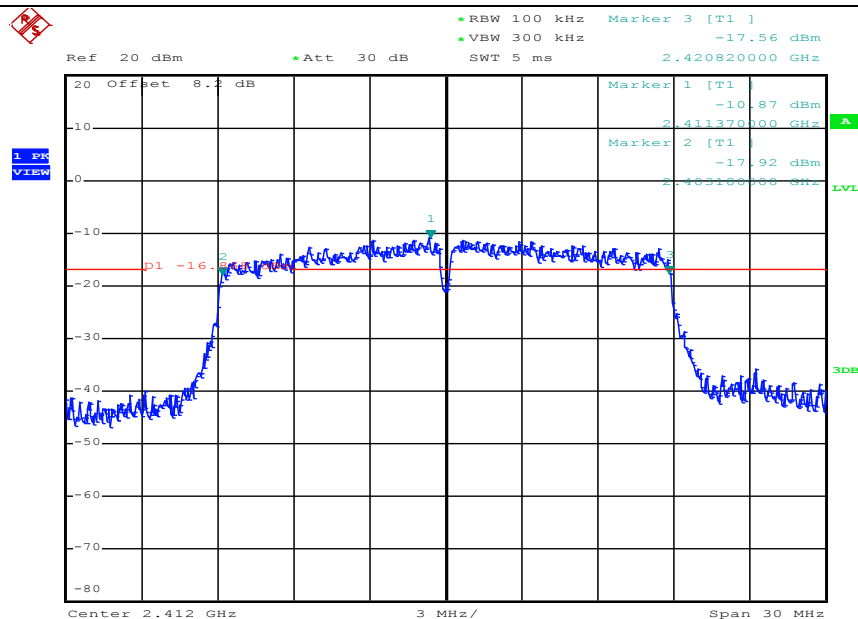
Date: 21.SEP.2019 11:29:44

11G/HCH



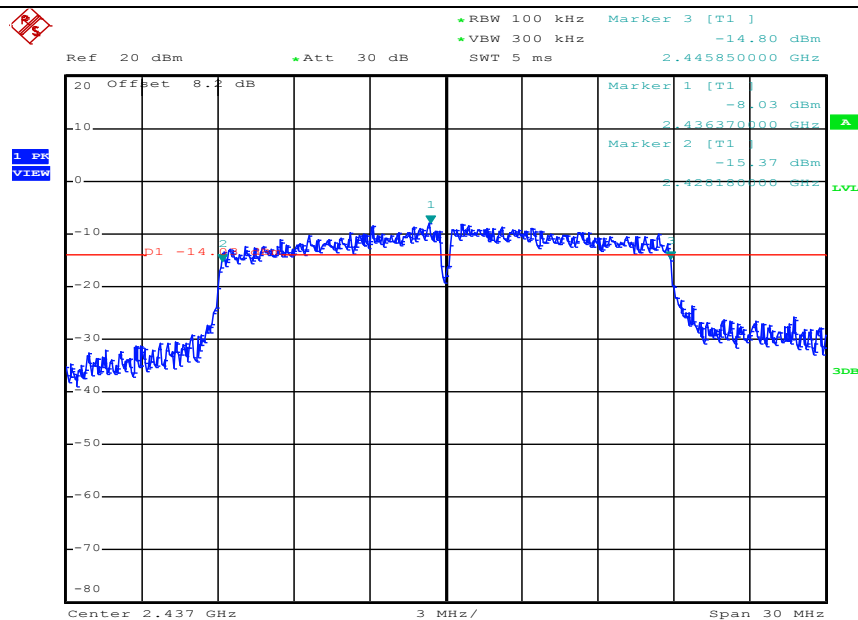
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11N20SISO/LCH



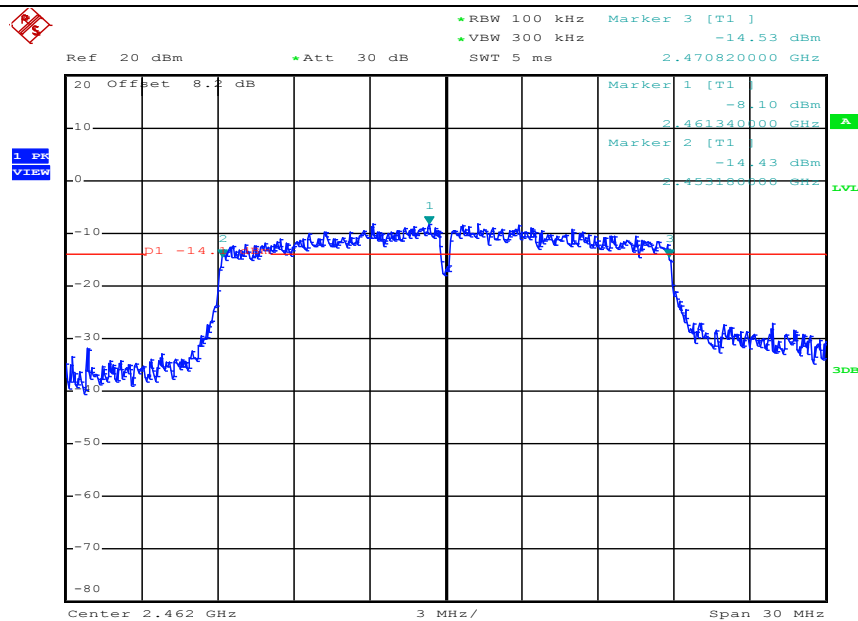
Date: 21.SEP.2019 11:34:10

11N20SISO/MCH



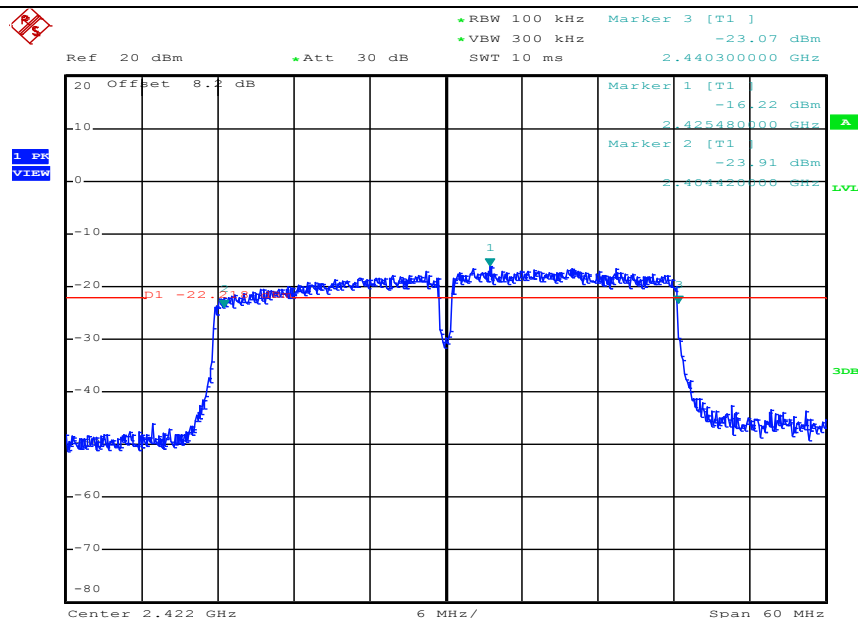
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11N20SISO/HCH



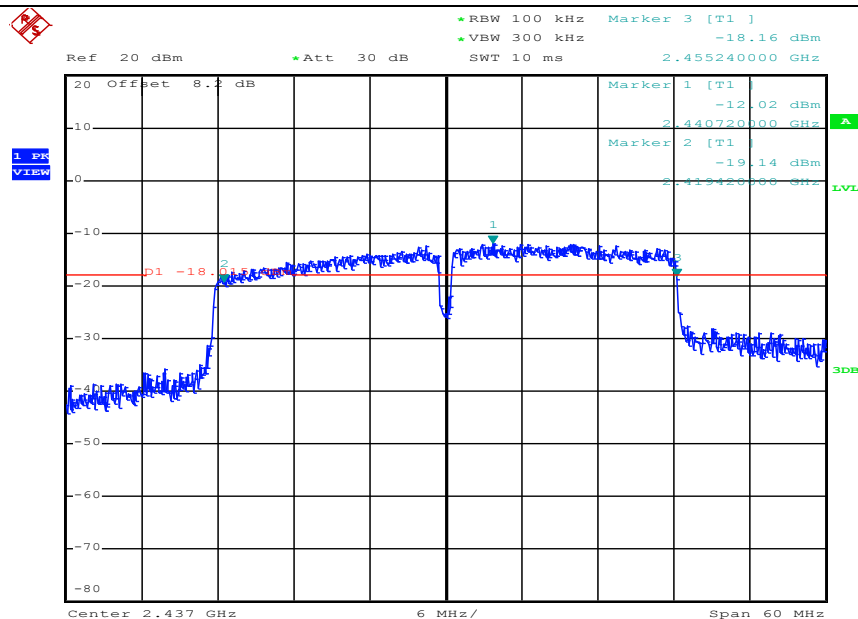
Date: 21.SEP.2019 11:38:35

11N40SISO/LCH



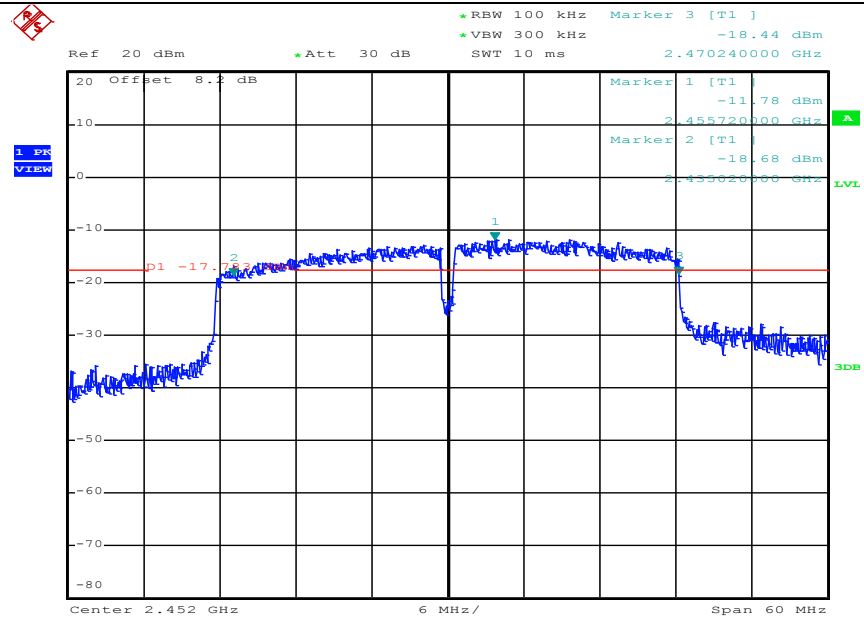
Date: 21.SEP.2019 11:42:34

11N40SISO/MCH



Date: 21.SEP.2019 11:46:54

11N40SISO/HCH



Date: 21.SEP.2019 11:49:31

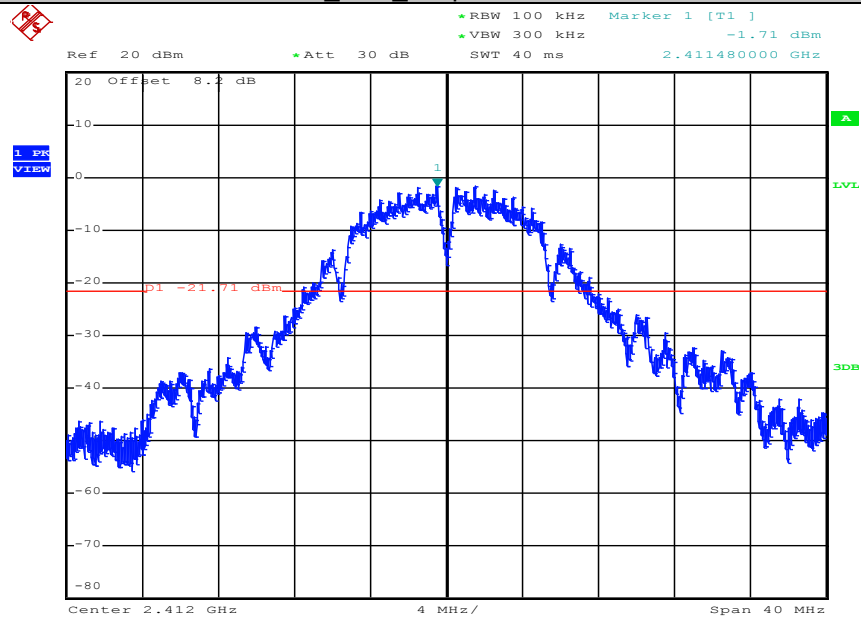
C.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdic
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					t
11B	LCH	-1.71	-31.450	-21.710	PASS
	MCH	-4.26	-31.580	-24.260	PASS
	HCH	-4.27	-30.800	-24.270	PASS
11G	LCH	-6.85	-31.800	-26.850	PASS
	MCH	-8.29	-32.110	-28.290	PASS
	HCH	-8.11	-32.370	-28.110	PASS
11N20 SISO	LCH	-11.04	-31.320	-31.040	PASS
	MCH	-8.02	-31.520	-28.020	PASS
	HCH	-8.22	-31.780	-28.220	PASS
11N40 SISO	LCH	-9.78	-31.420	-29.780	PASS
	MCH	-9.82	-31.440	-29.820	PASS
	HCH	-10.09	-32.330	-30.090	PASS

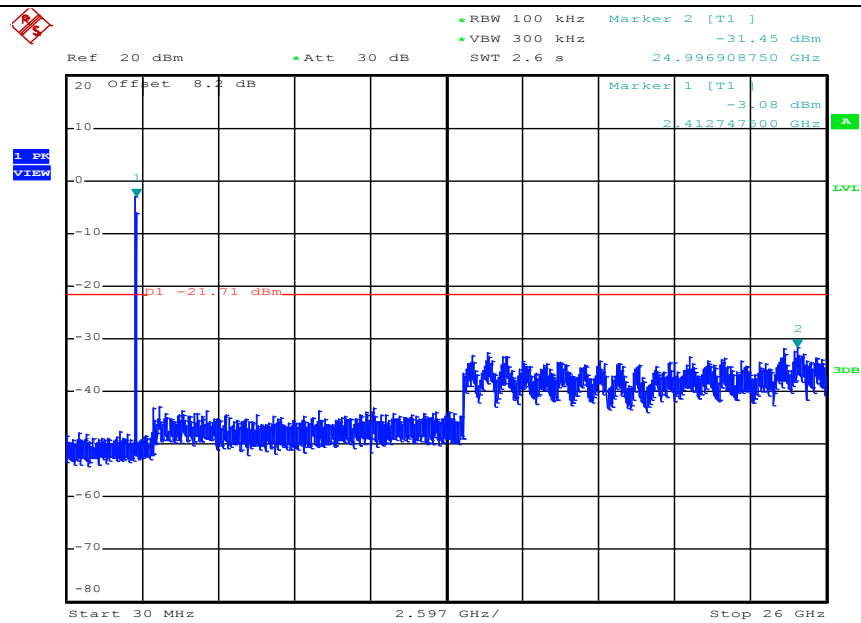
11B LCH Graphs

Pref/11B/LCH



Date: 21.SEP.2019 11:21:16

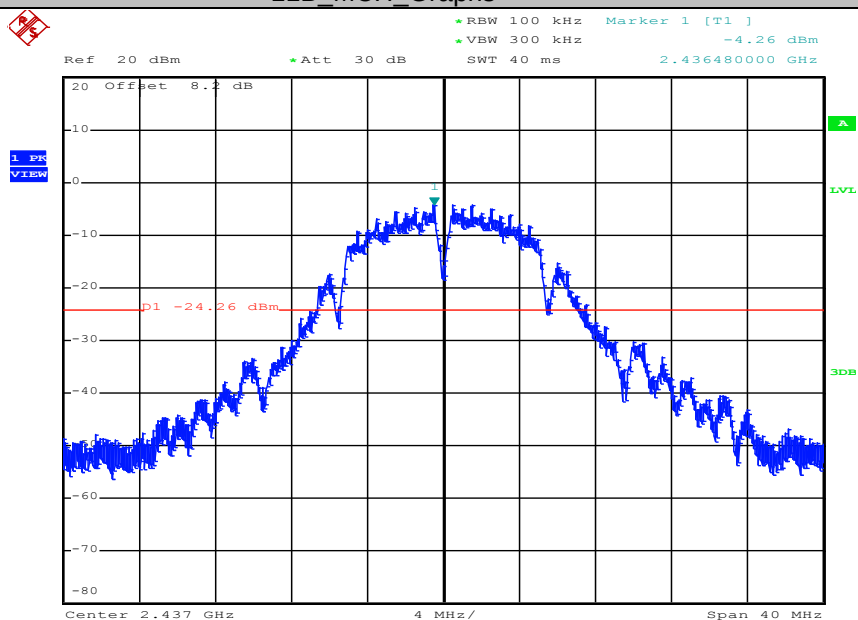
Puw/11B/LCH



Date: 21.SEP.2019 11:21:31

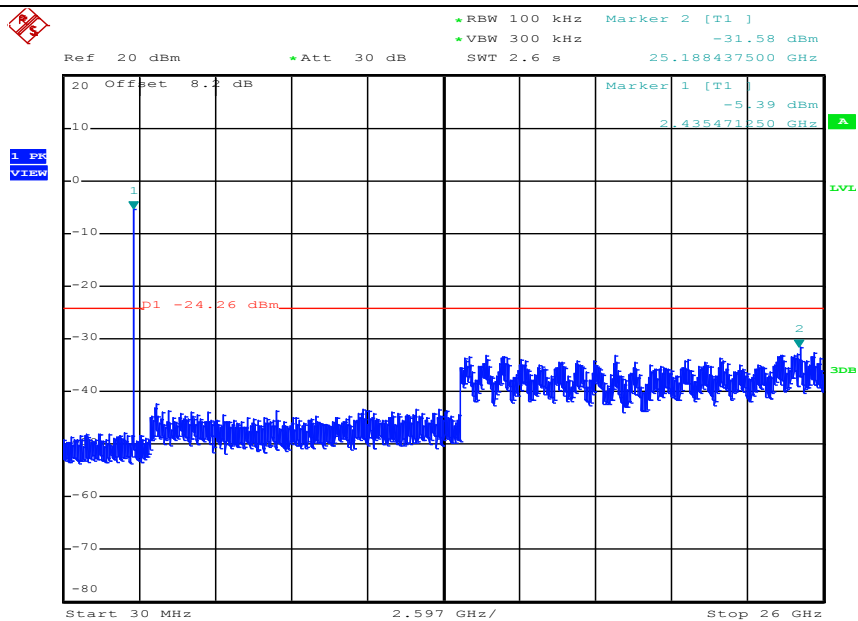
11B_MCH_Graphs

Pref/11B/MCH



Date: 21.SEP.2019 11:23:37

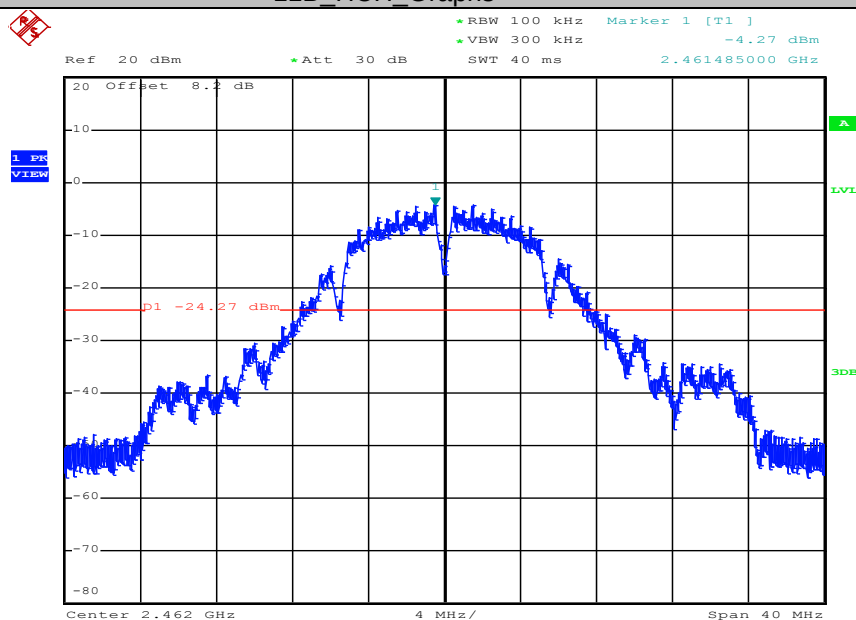
Puw/11B/MCH



Date: 21.SEP.2019 11:23:51

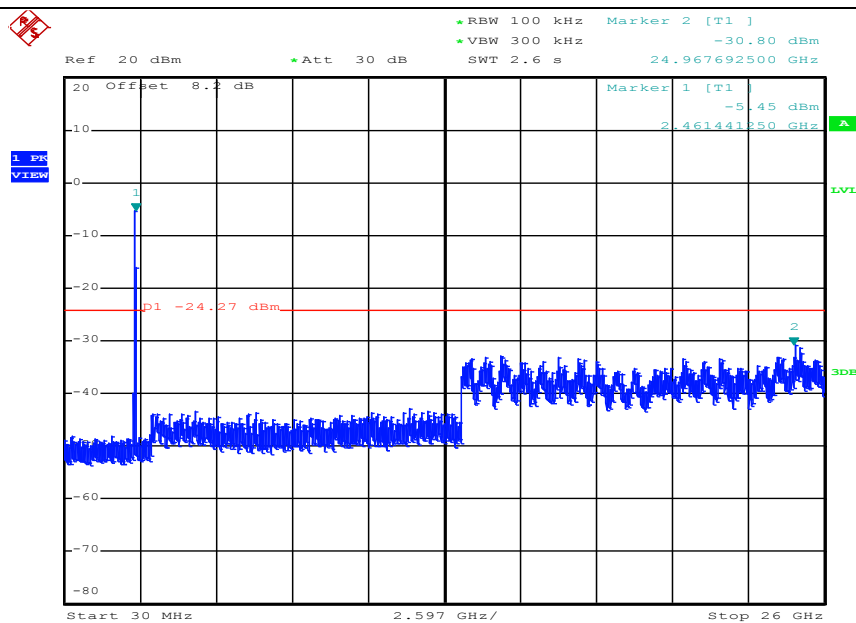
11B_HCH_Graphs

Pref/11B/HCH



Date: 21.SEP.2019 11:25:39

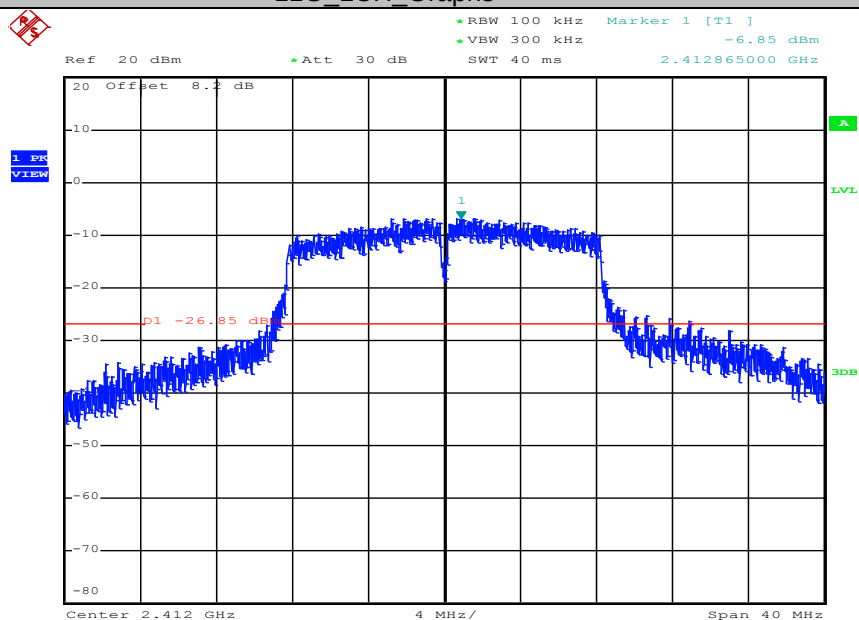
Puw/11B/HCH



Date: 21.SEP.2019 11:25:54

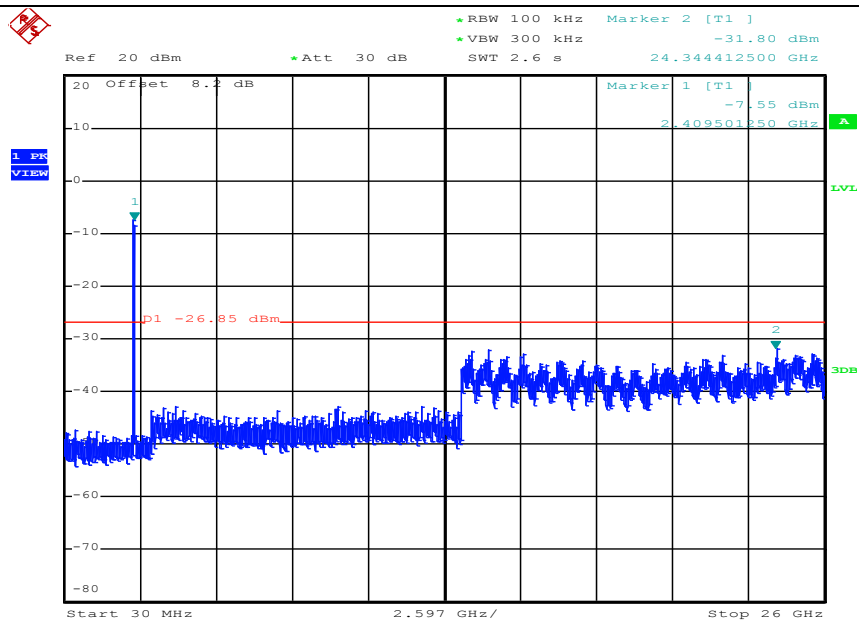
11G_LCH_Graphs

Pref/11G/LCH



Date: 21.SEP.2019 11:28:22

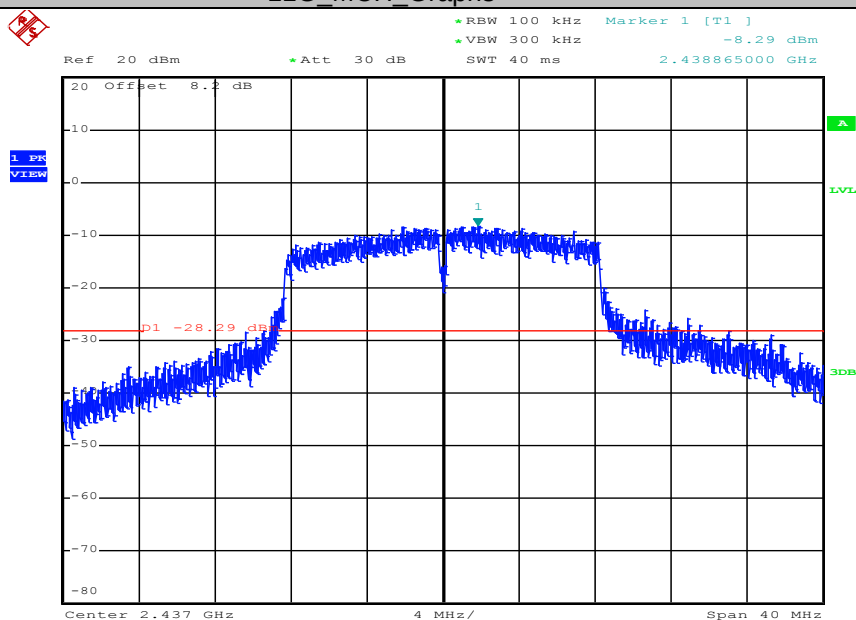
Puw/11G/LCH



Date: 21.SEP.2019 11:28:37

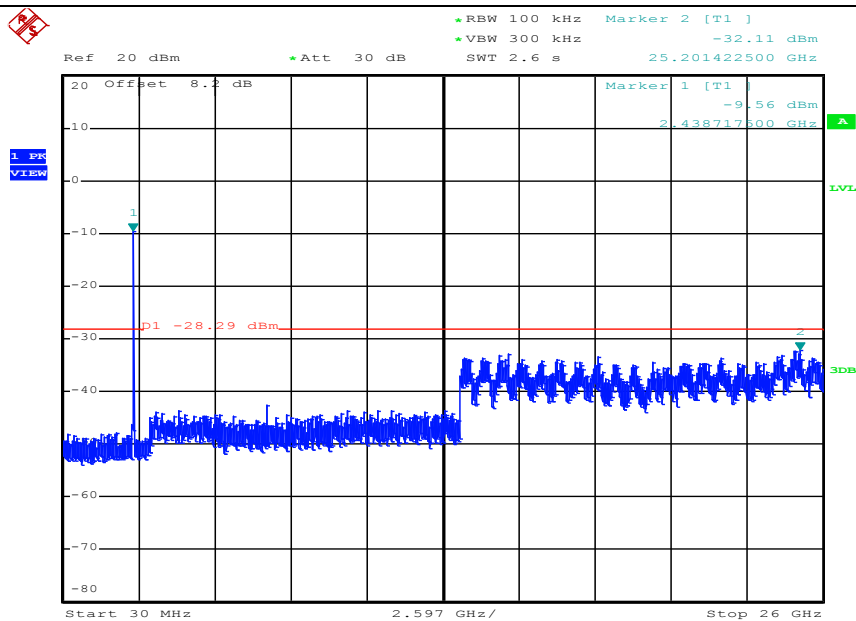
11G_MCH_Graphs

Pref/11G/MCH



Date: 21.SEP.2019 11:30:43

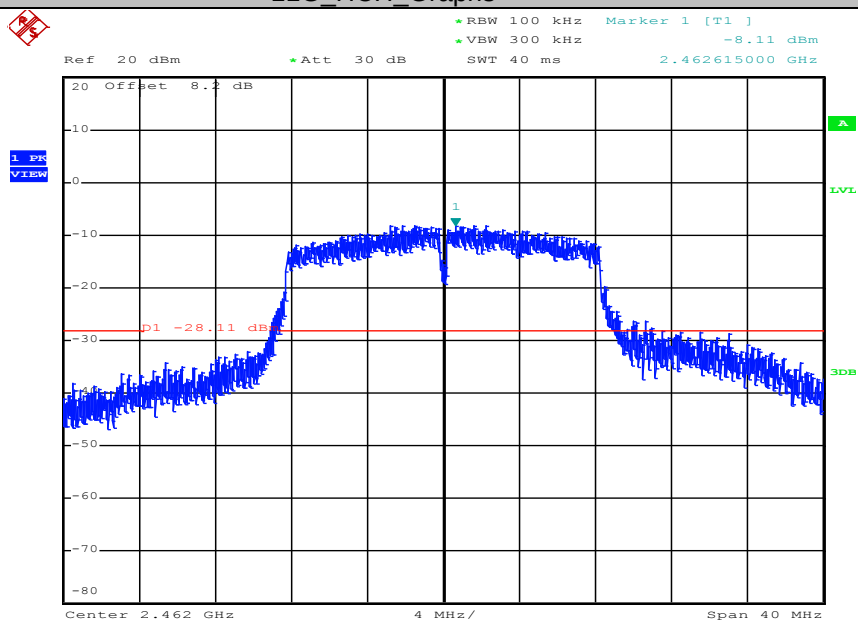
Puw/11G/MCH



Date: 21.SEP.2019 11:30:58

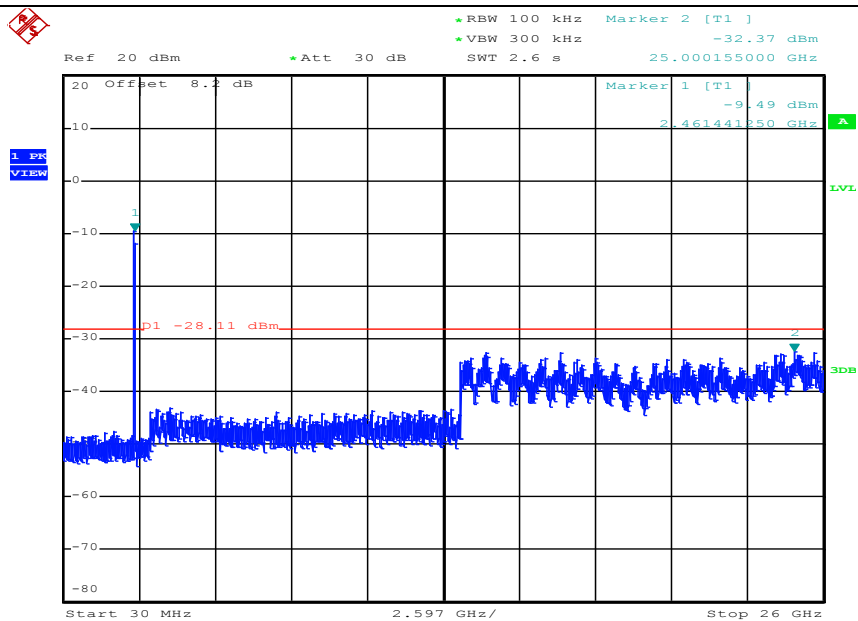
11G HCH Graphs

Pref/11G/HCH



Date: 21.SEP.2019 11:32:45

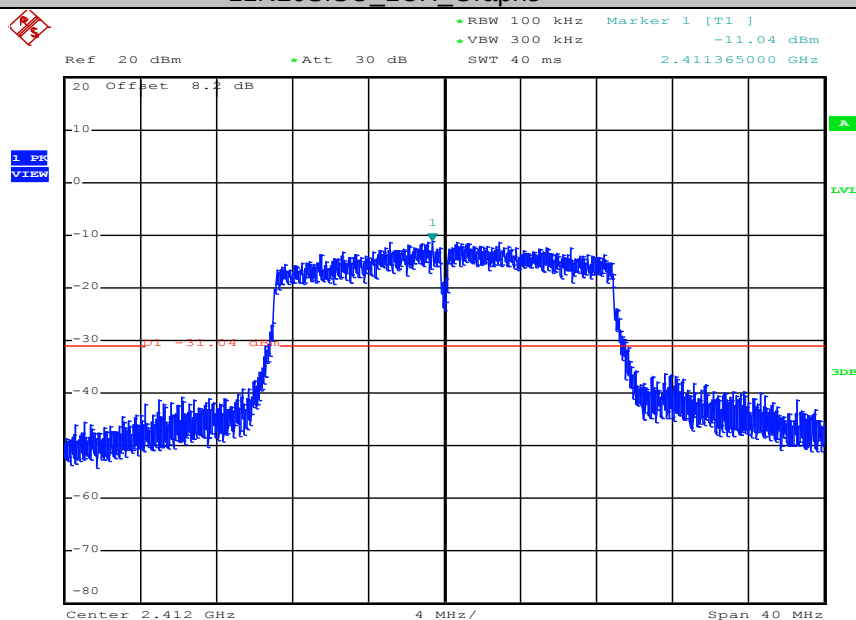
Puw/11G/HCH



Date: 21.SEP.2019 11:32:59

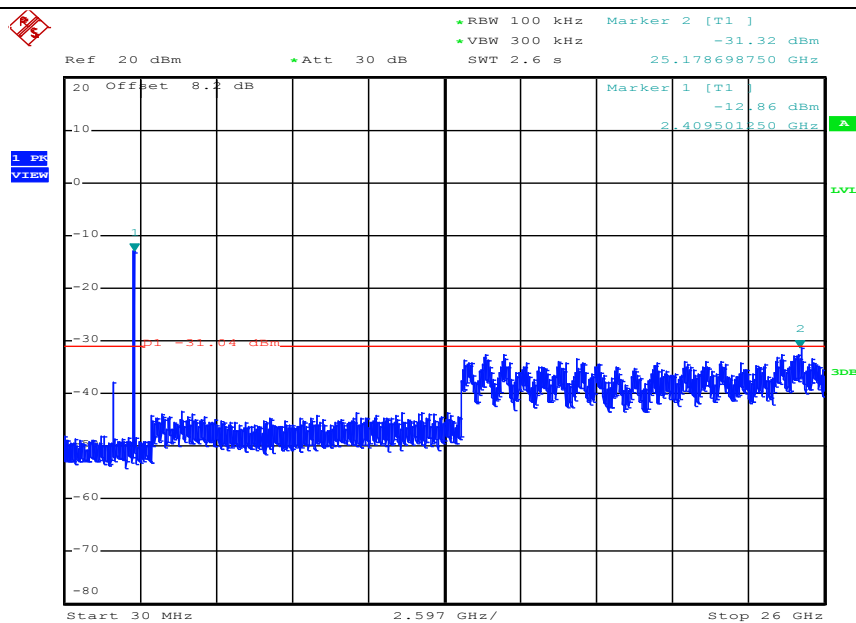
11N20SISO LCH Graphs

Pref/11N20SIS
O/LCH



Date: 21.SEP.2019 11:35:23

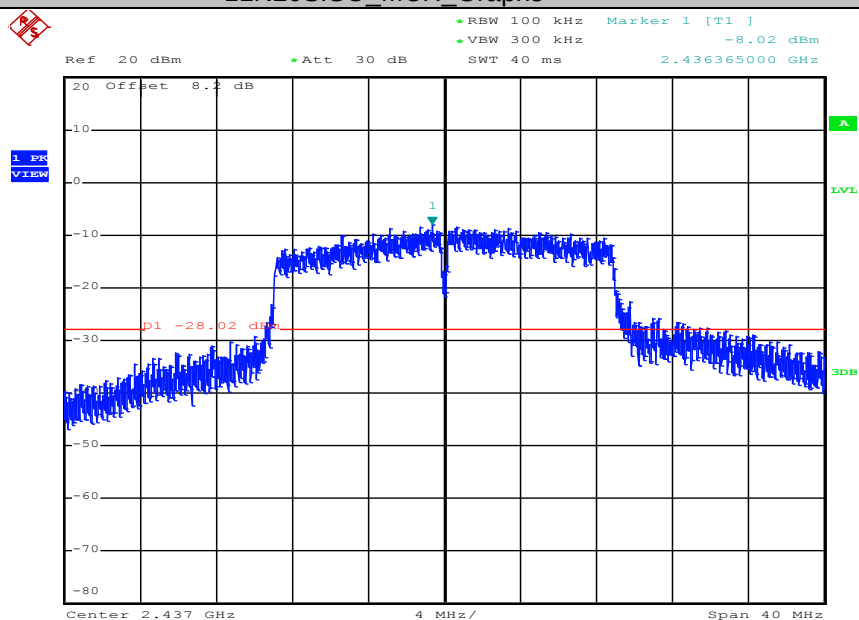
Puw/11N20
SISO/LCH



Date: 21.SEP.2019 11:35:37

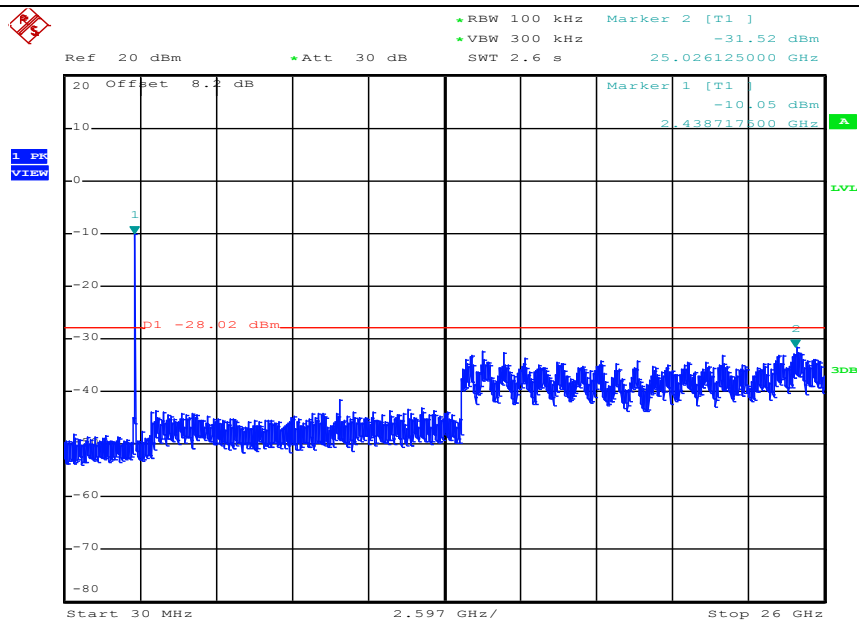
11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH



Date: 21.SEP.2019 11:37:44

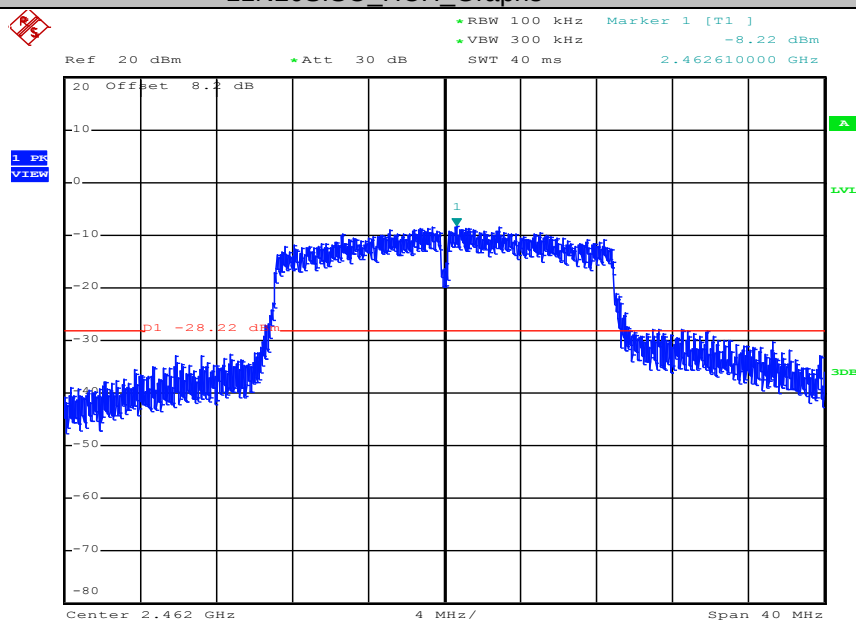
Puw/11N20
SISO/MCH



Date: 21.SEP.2019 11:37:59

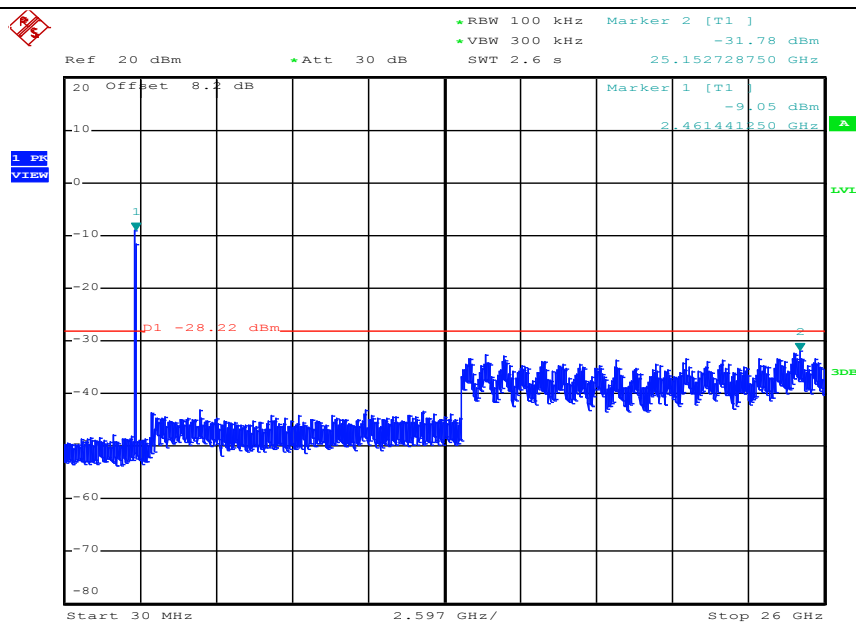
11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCH



Date: 21.SEP.2019 11:39:48

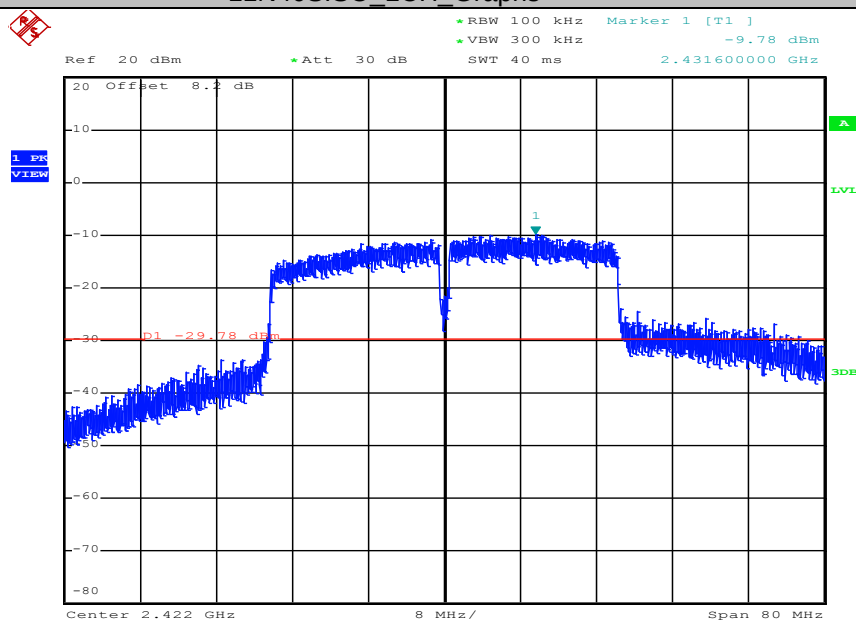
Puw/11N20
SISO/HCH



Date: 21.SEP.2019 11:40:03

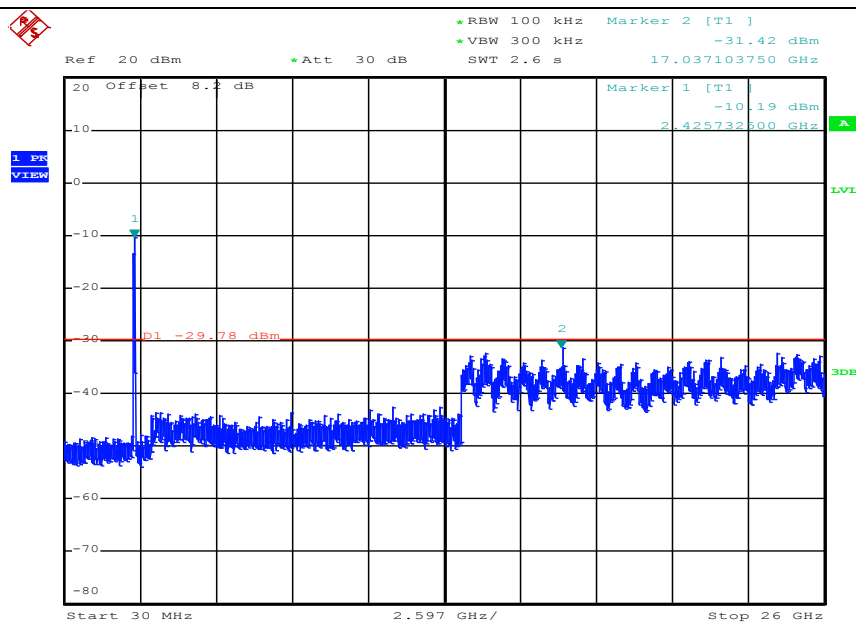
11N40SISO LCH Graphs

Pref/11N40
SISO/LCH



Date: 21.SEP.2019 11:45:24

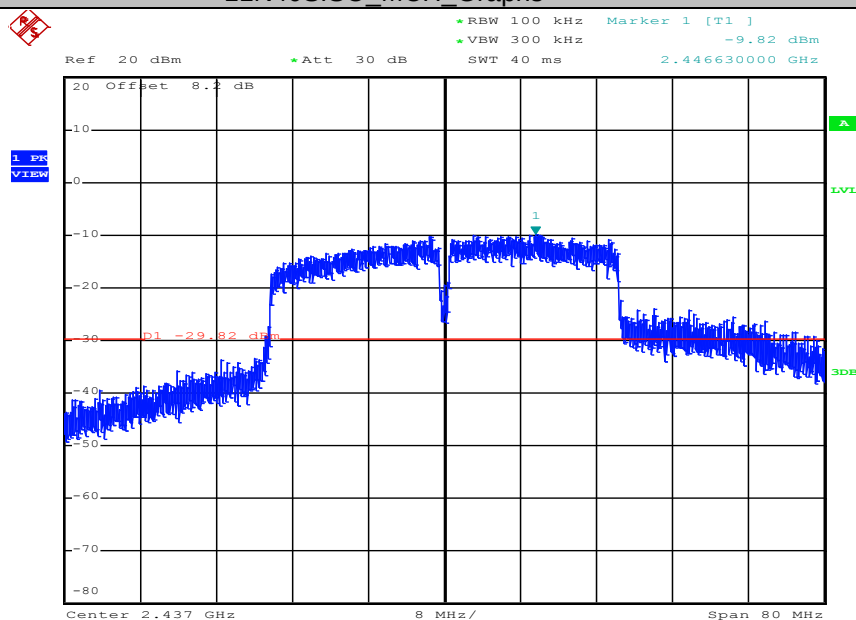
Puw/11N40
SISO/LCH



Date: 21.SEP.2019 11:45:39

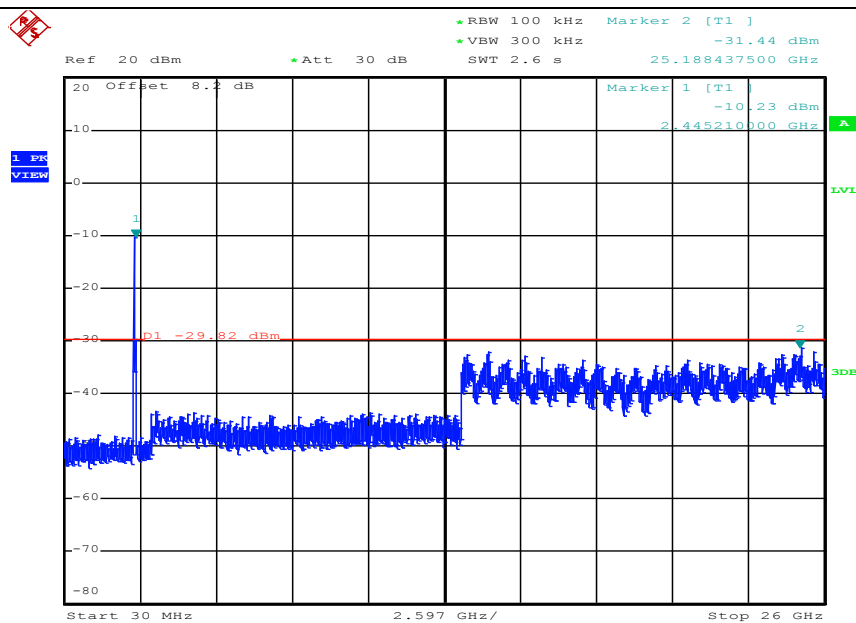
11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH



Date: 21.SEP.2019 11:48:41

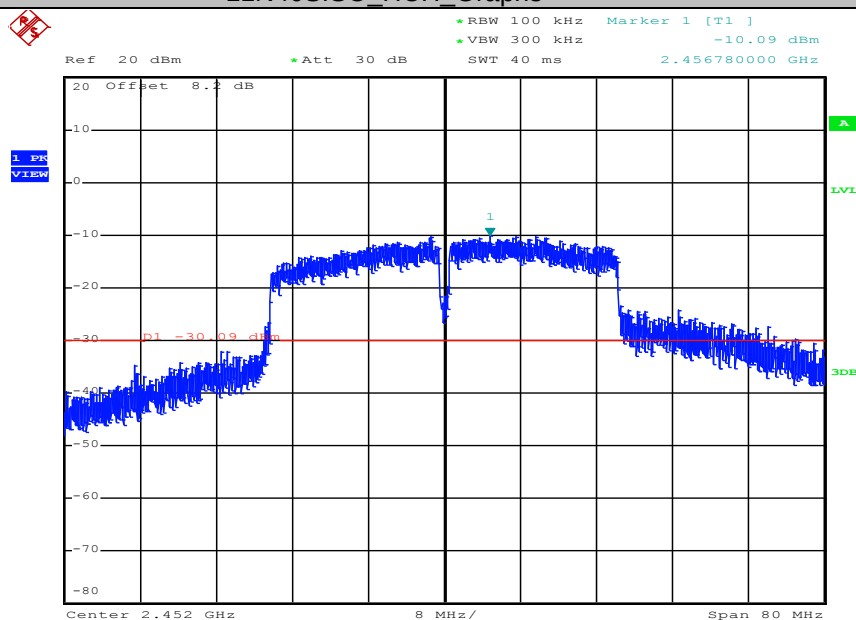
Puw/11N40
SISO/MCH



Date: 21.SEP.2019 11:48:56

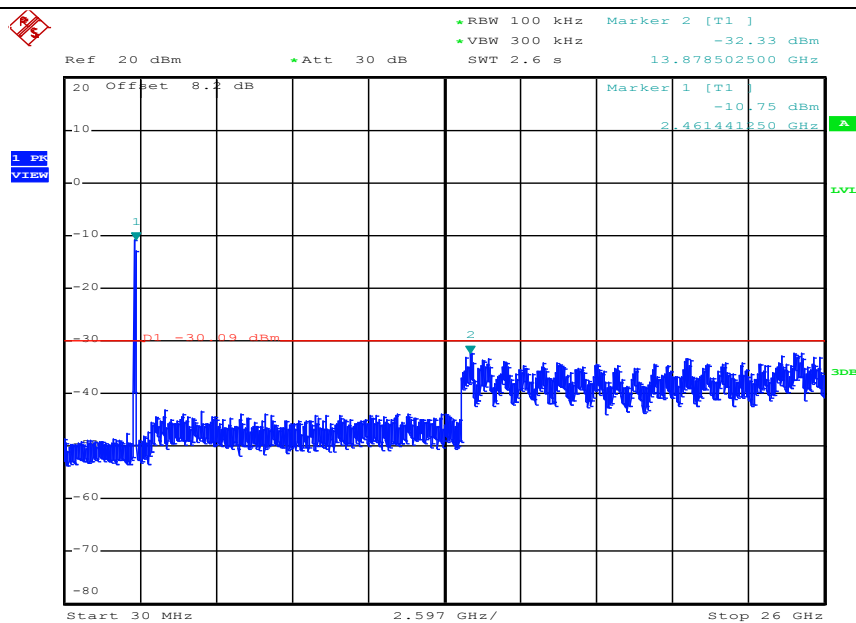
11N40SISO_HCH_Graphs

Pref/11N40
SISO/HCH



Date: 21.SEP.2019 11:52:07

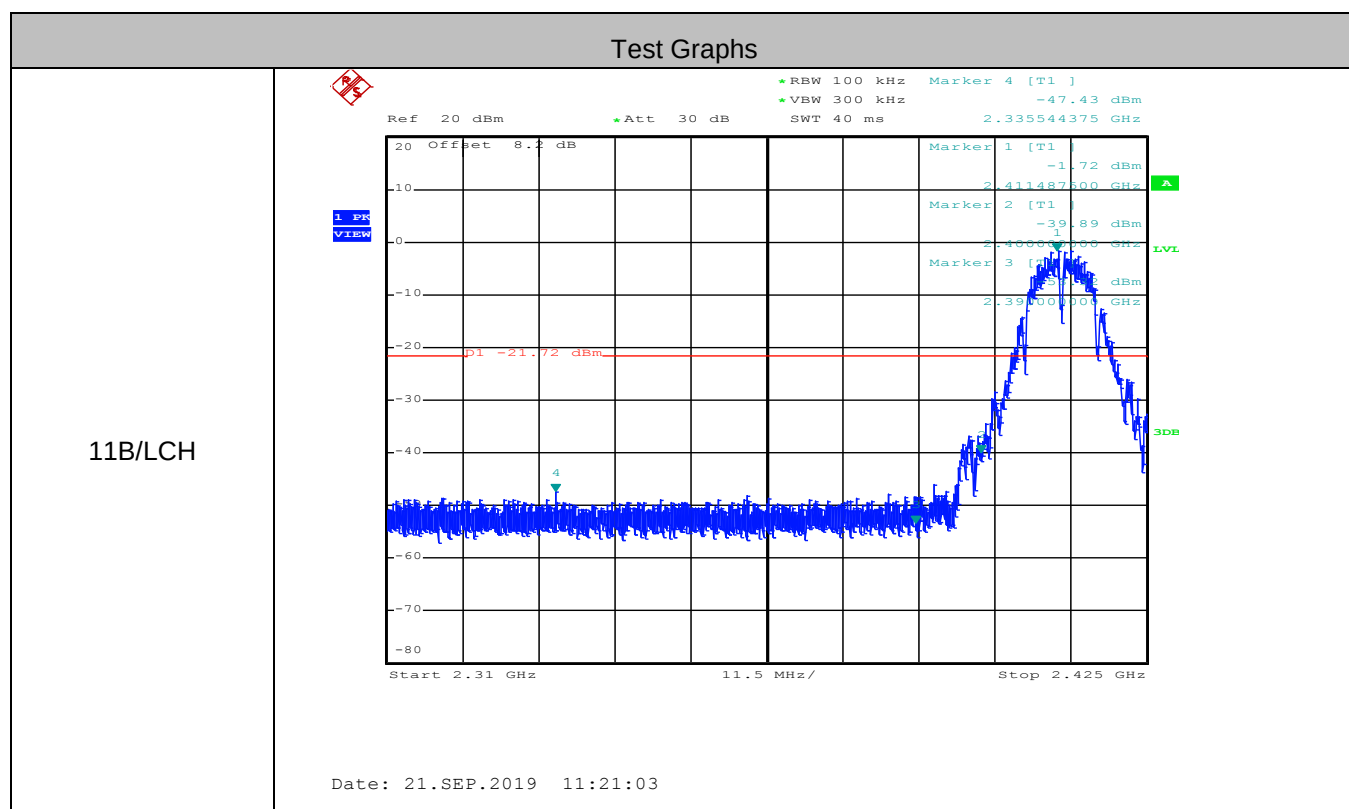
Puw/11N40
SISO/HCH



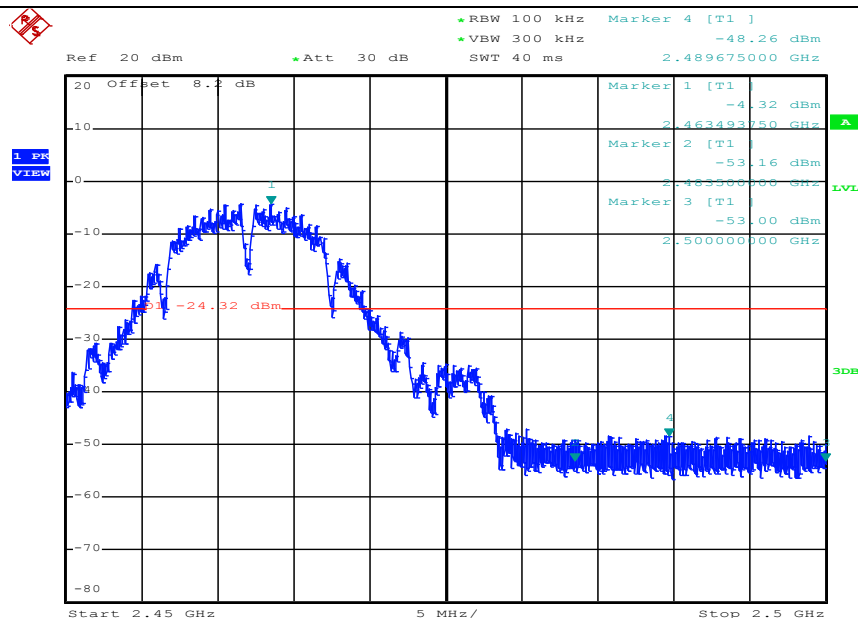
Date: 21.SEP.2019 11:52:21

C.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.720	-47.429	-21.72	PASS
	HCH	-4.320	-48.262	-24.32	PASS
11G	LCH	-7.070	-42.154	-27.07	PASS
	HCH	-8.070	-39.531	-28.07	PASS
11N20SISO	LCH	-11.500	-47.734	-31.5	PASS
	HCH	-8.390	-37.249	-28.39	PASS
11N40SISO	LCH	-16.530	-47.403	-36.53	PASS
	HCH	-13.880	-37.586	-33.88	PASS

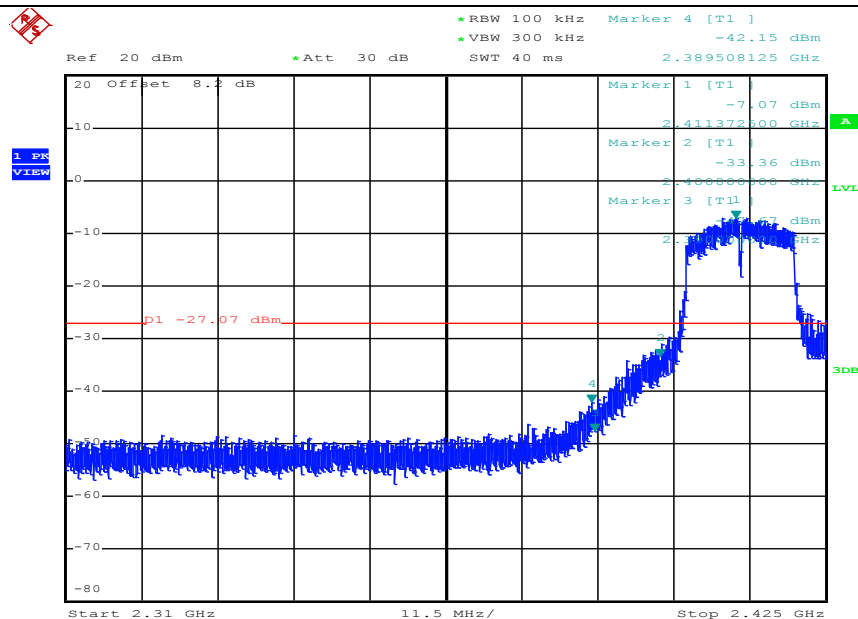


11B/HCH



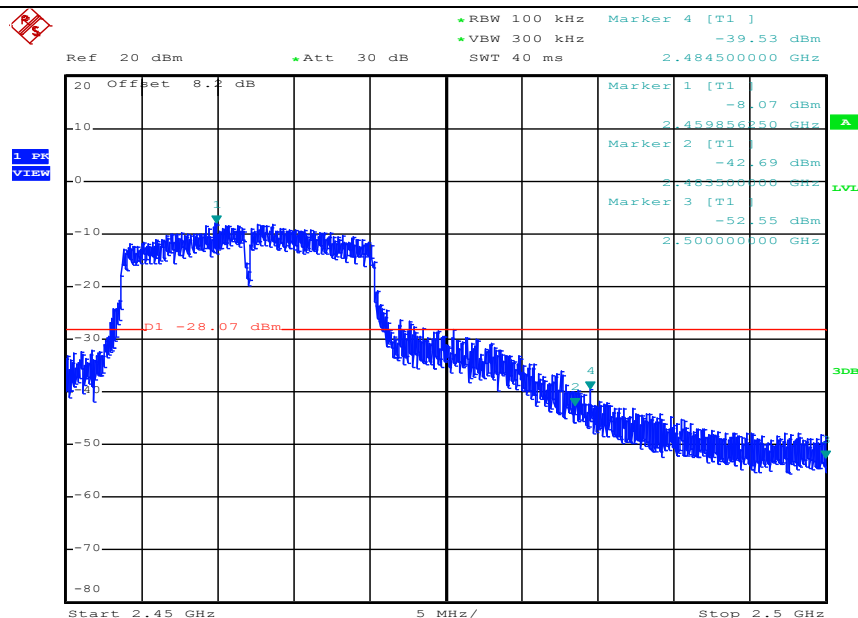
Date: 21.SEP.2019 11:25:27

11G/LCH



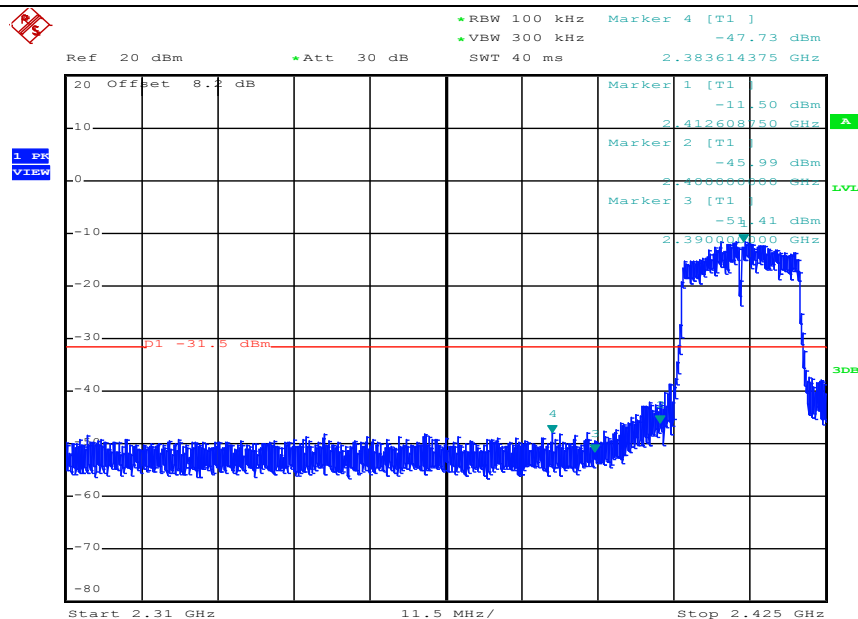
Date: 21.SEP.2019 11:28:09

11G/HCH



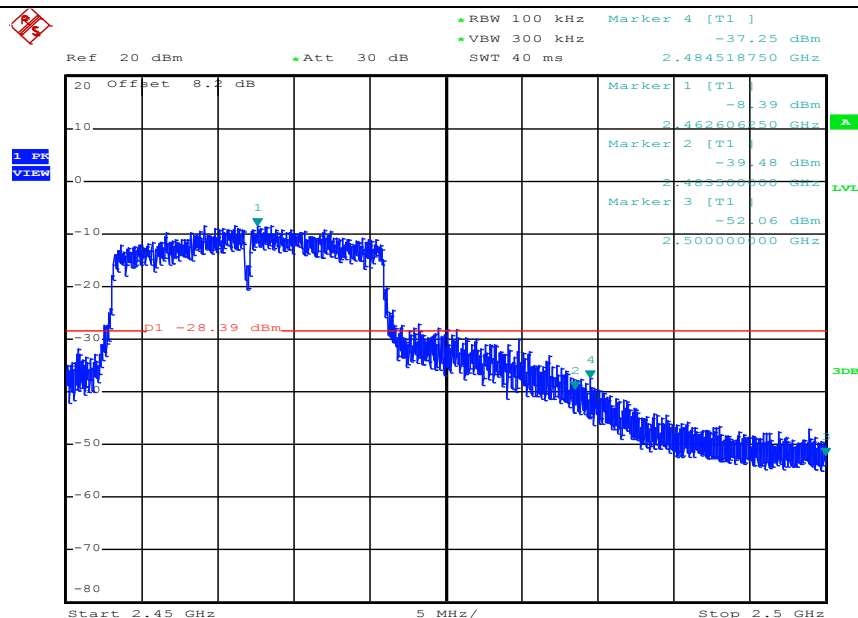
Date: 21.SEP.2019 11:32:32

11N20SISO/LCH



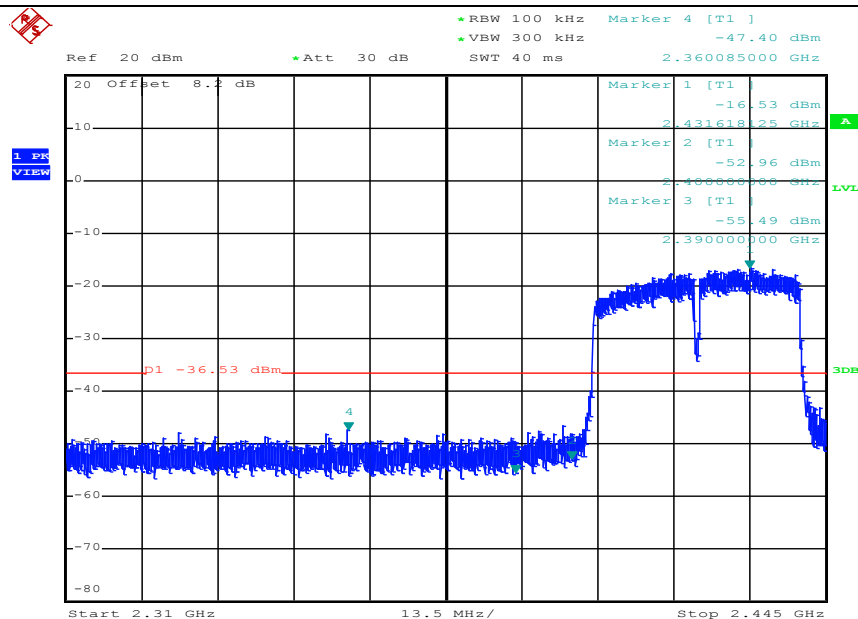
Date: 21.SEP.2019 11:35:10

11N20SISO/HCH



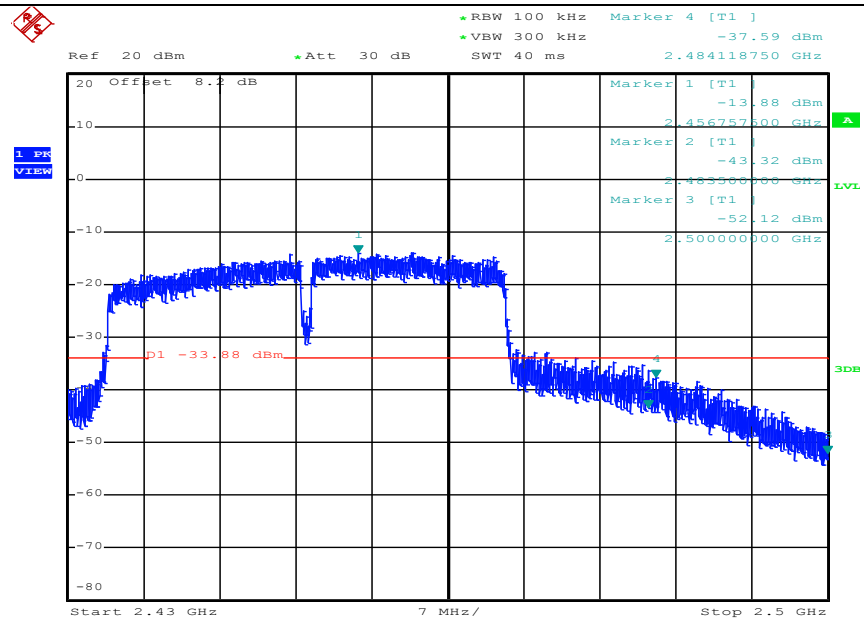
Date: 21.SEP.2019 11:39:35

11N40SISO/LCH



Date: 21.SEP.2019 11:43:34

11N40SISO/HCH



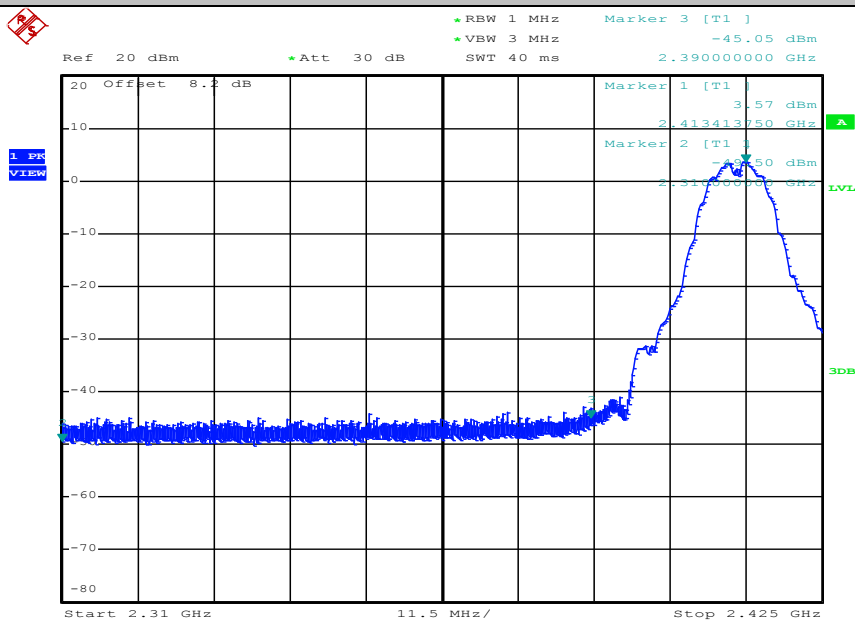
Date: 21.SEP.2019 11:51:07

C.7 Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-49.50	2.0	0	45.76	PEAK	74	PASS
	2412	Ant1	2310.0	-57.80	2.0	0	37.46	AV	54	PASS
	2412	Ant1	2390.0	-45.05	2.0	0	50.21	PEAK	74	PASS
	2412	Ant1	2390.0	-54.85	2.0	0	40.41	AV	54	PASS
	2462	Ant1	2483.5	-48.07	2.0	0	47.19	PEAK	74	PASS
	2462	Ant1	2483.5	-56.60	2.0	0	38.66	AV	54	PASS
	2462	Ant1	2500.0	-47.97	2.0	0	47.29	PEAK	74	PASS
	2462	Ant1	2500.0	-57.83	2.0	0	37.43	AV	54	PASS
11G	2412	Ant1	2310.0	-48.82	2.0	0	46.44	PEAK	74	PASS
	2412	Ant1	2310.0	-57.75	2.0	0	37.51	AV	54	PASS
	2412	Ant1	2390.0	-32.48	2.0	0	62.78	PEAK	74	PASS
	2412	Ant1	2390.0	-45.66	2.0	0	49.60	AV	54	PASS
	2462	Ant1	2483.5	-26.67	2.0	0	68.59	PEAK	74	PASS
	2462	Ant1	2483.5	-41.88	2.0	0	53.38	AV	54	PASS
	2462	Ant1	2500.0	-43.43	2.0	0	51.83	PEAK	74	PASS
	2462	Ant1	2500.0	-55.84	2.0	0	39.42	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-47.03	2.0	0	48.23	PEAK	74	PASS
	2412	Ant1	2310.0	-57.77	2.0	0	37.49	AV	54	PASS
	2412	Ant1	2390.0	-42.86	2.0	0	52.40	PEAK	74	PASS
	2412	Ant1	2390.0	-55.07	2.0	0	40.19	AV	54	PASS
	2462	Ant1	2483.5	-30.25	2.0	0	65.01	PEAK	74	PASS
	2462	Ant1	2483.5	-46.39	2.0	0	48.87	AV	54	PASS
	2462	Ant1	2500.0	-47.03	2.0	0	48.23	PEAK	74	PASS
	2462	Ant1	2500.0	-56.95	2.0	0	38.31	AV	54	PASS
11N40 SISO	2422	Ant1	2310.0	-48.11	2.0	0	47.15	PEAK	74	PASS
	2422	Ant1	2310.0	-57.76	2.0	0	37.50	AV	54	PASS

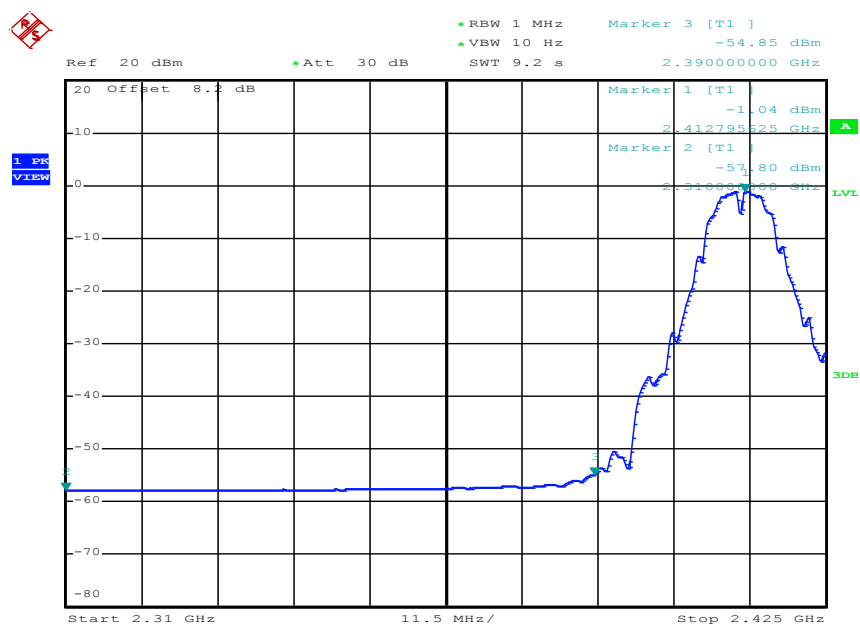
	2422	Ant1	2390.0	-30.63	2.0	0	64.63	PEAK	74	PASS
	2422	Ant1	2390.0	-41.60	2.0	0	53.66	AV	54	PASS
	2452	Ant1	2483.5	-27.53	2.0	0	67.73	PEAK	74	PASS
	2452	Ant1	2483.5	-41.36	2.0	0	53.90	AV	54	PASS
	2452	Ant1	2500.0	-38.79	2.0	0	56.47	PEAK	74	PASS
	2452	Ant1	2500.0	-54.14	2.0	0	41.12	AV	54	PASS

Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



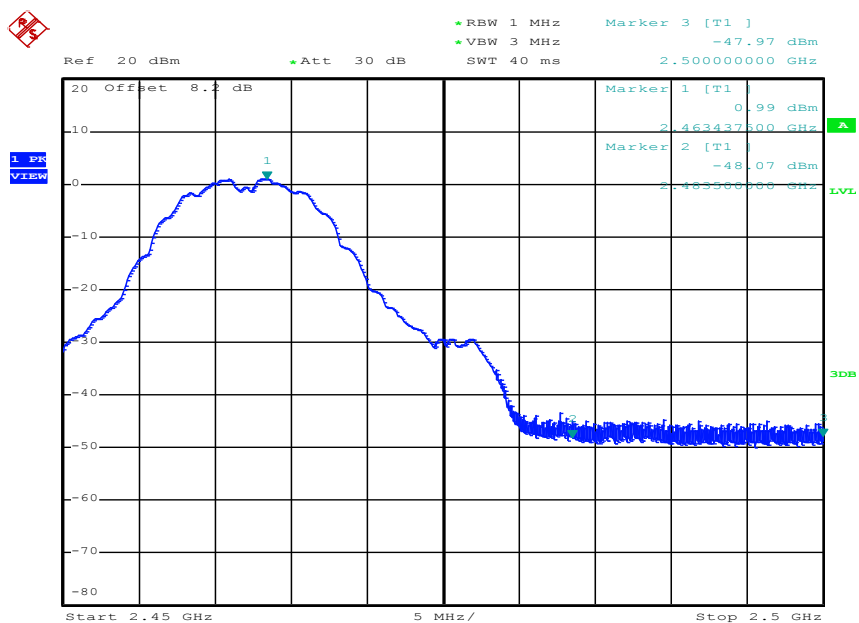
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Restrict-band band-edge measurements_11B_2412_Ant1_AV



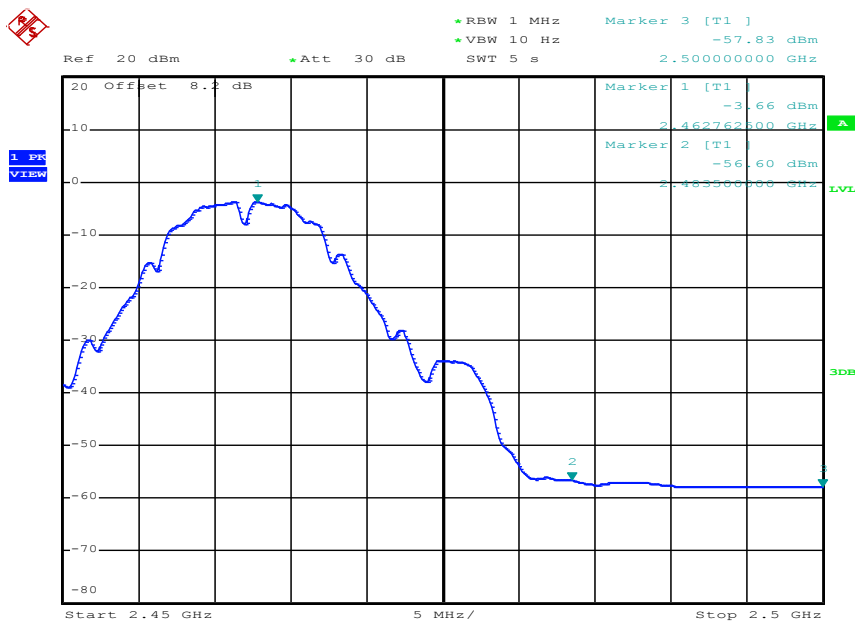
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Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



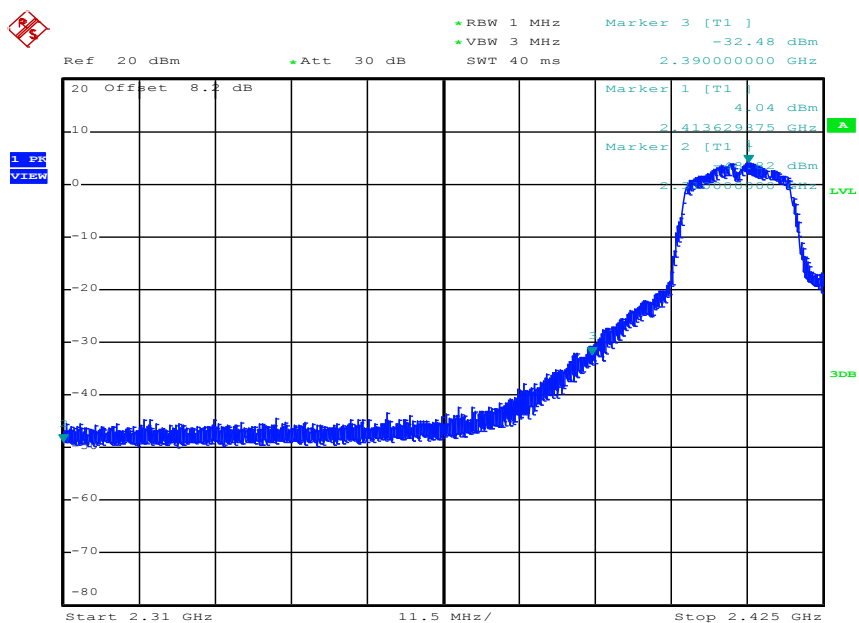
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Restrict-band band-edge measurements_11B_2462_Ant1_AV



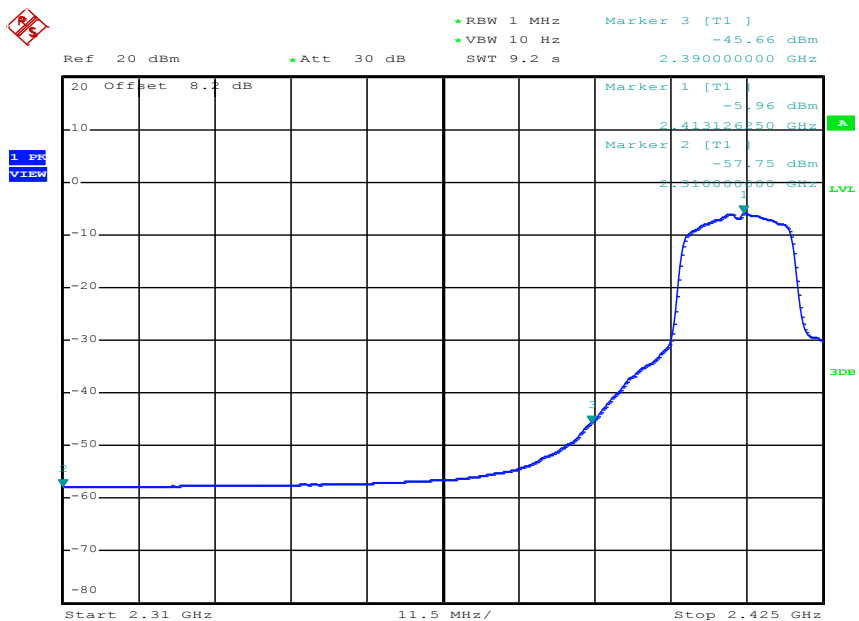
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Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



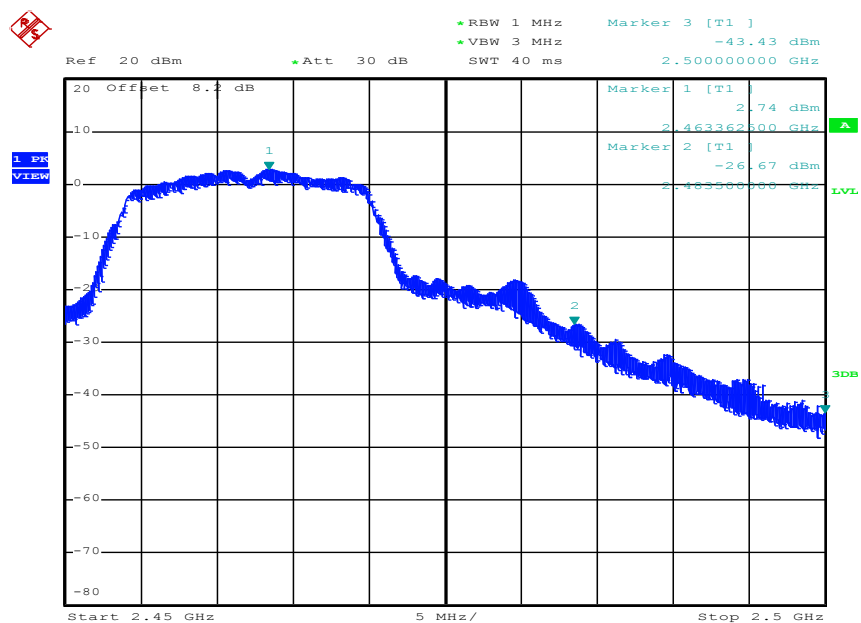
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Restrict-band band-edge measurements_11G_2412_Ant1_AV



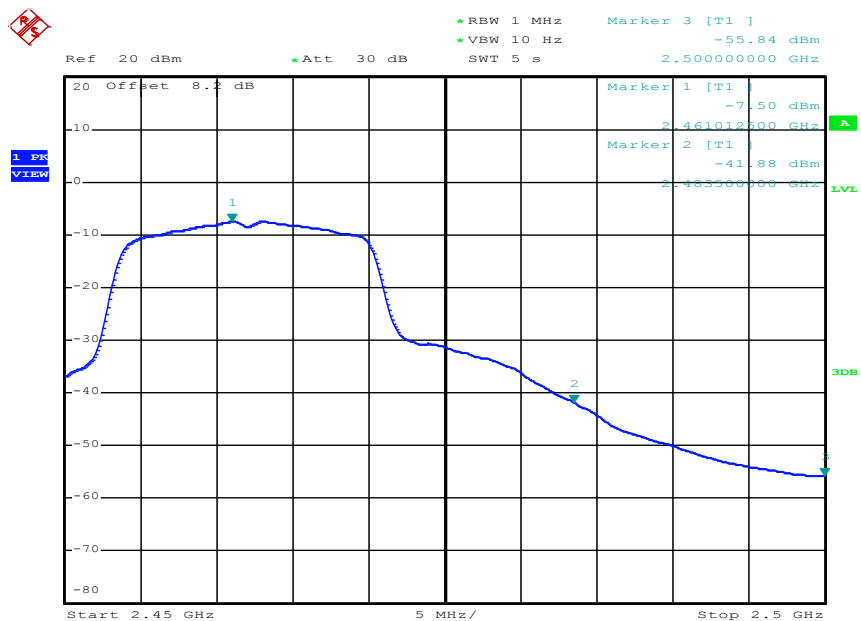
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Restrict-band band-edge measurements_11G_2462_Ant1_PEAK



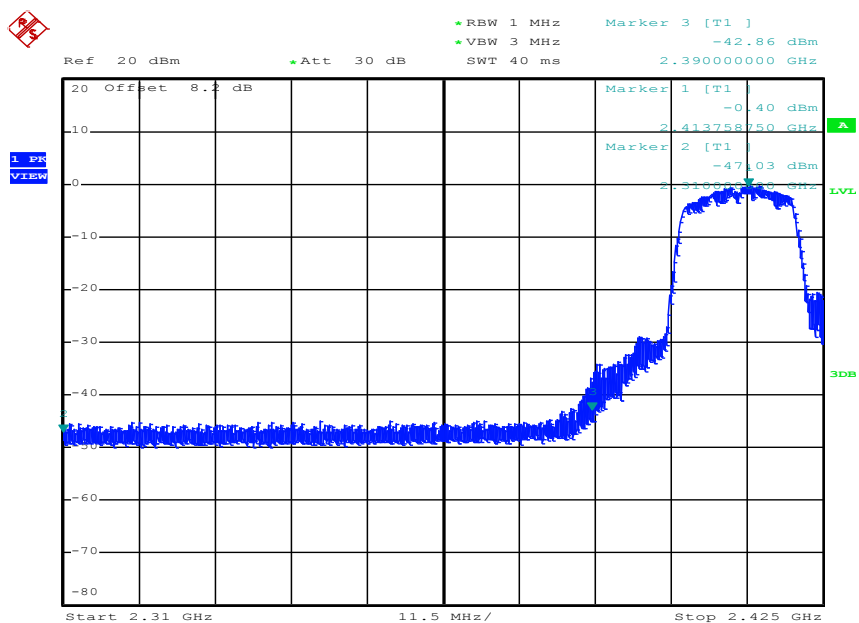
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Restrict-band band-edge measurements_11G_2462_Ant1_AV



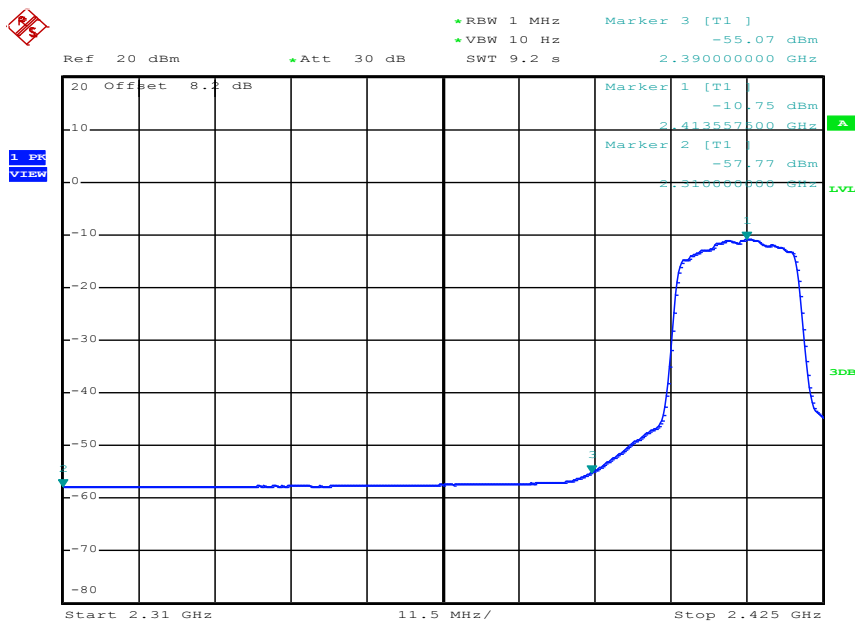
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Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



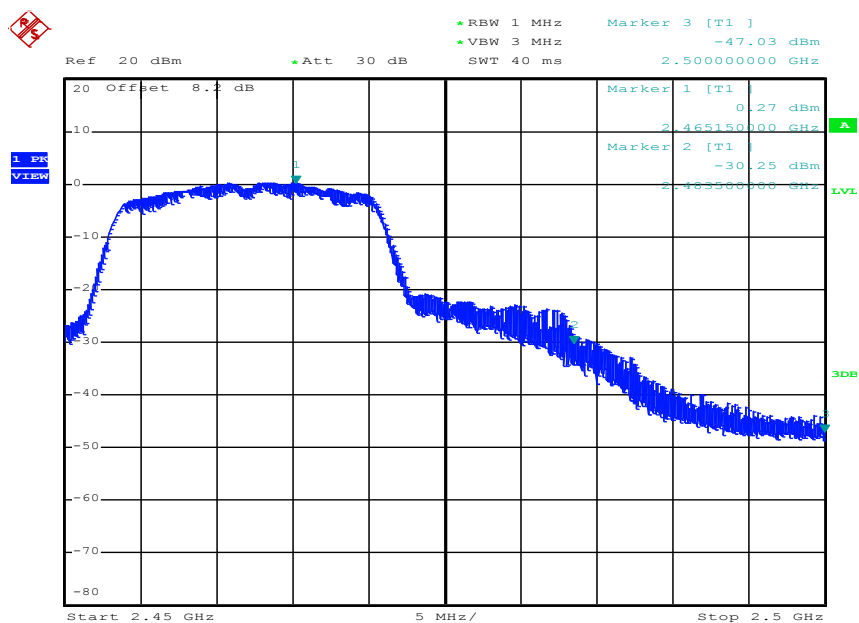
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Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



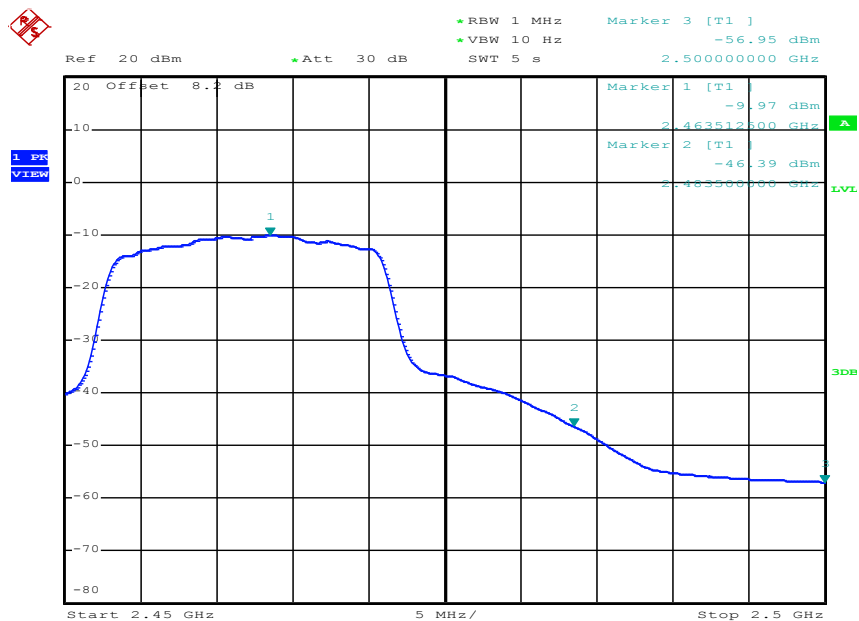
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Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



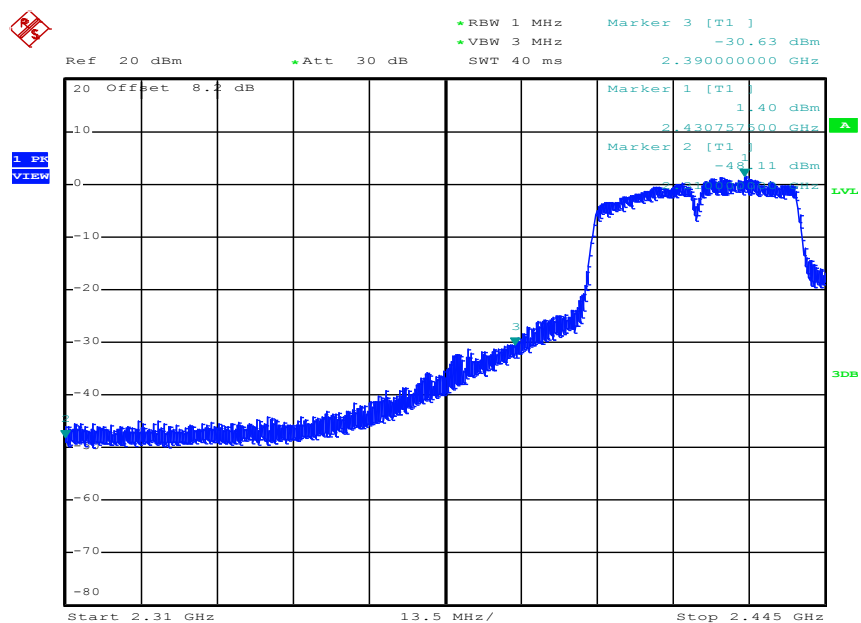
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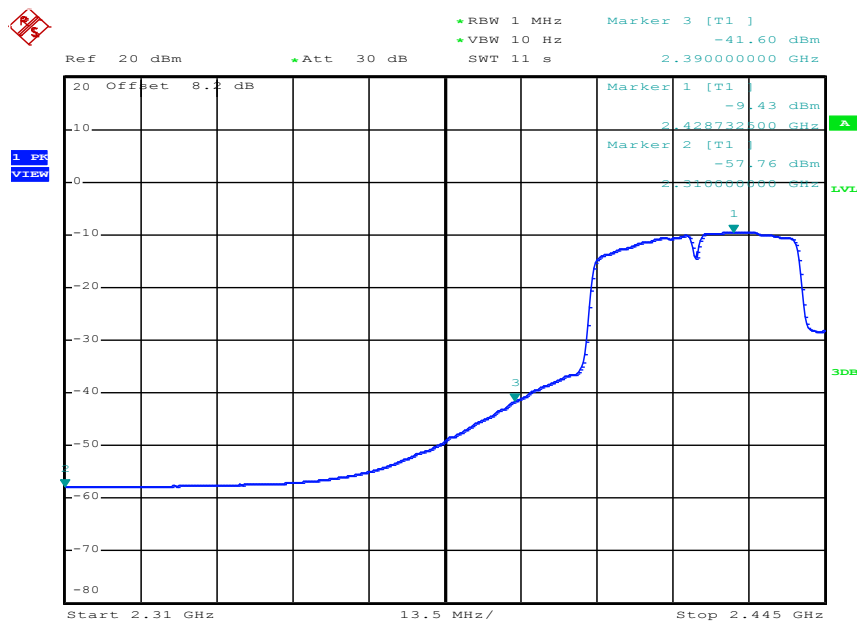
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Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



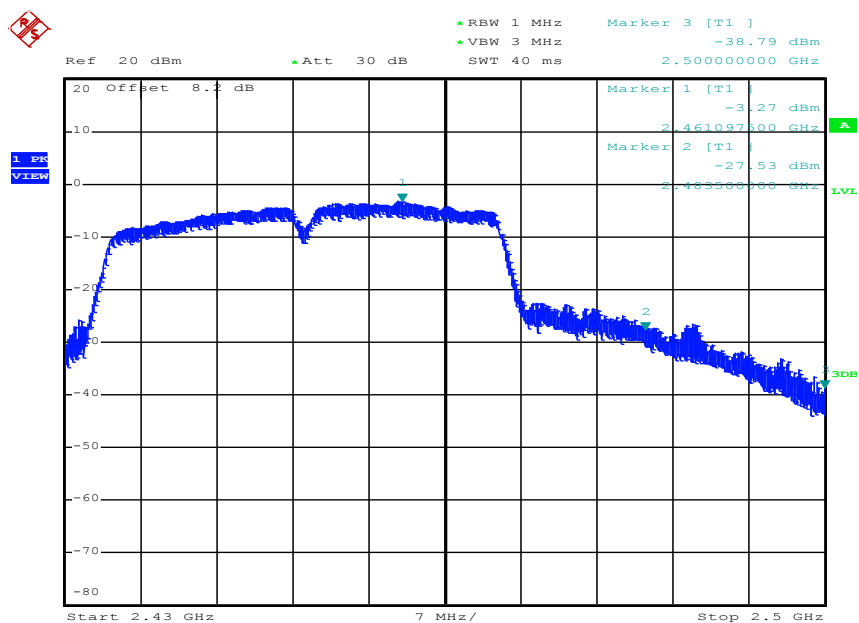
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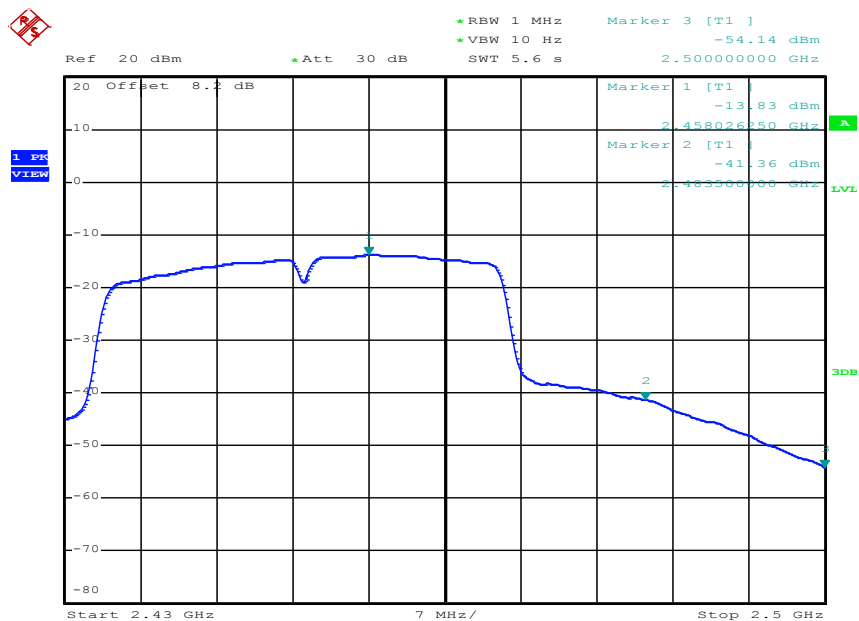
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Restrict-band band-edge measurements_11N40SISO_2452_Ant1_PEAK



Date: 21.SEP.2019 11:54:27

Restrict-band band-edge measurements_11N40SISO_2452_Ant1_AV



Date: 21.SEP.2019 11:54:42