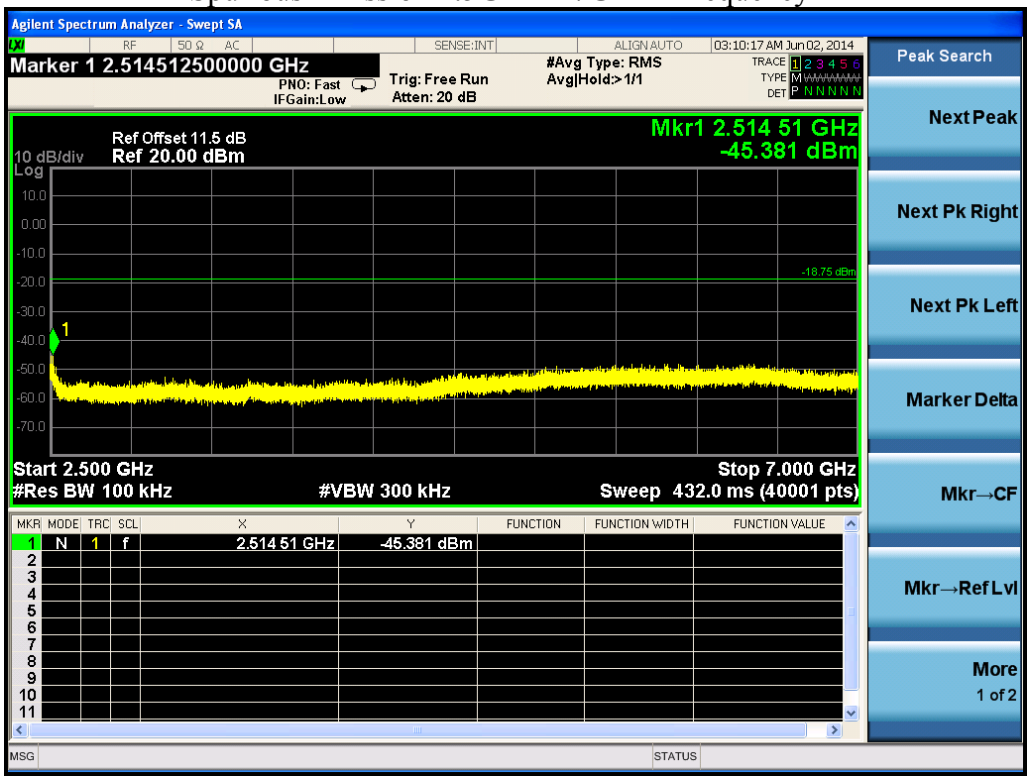
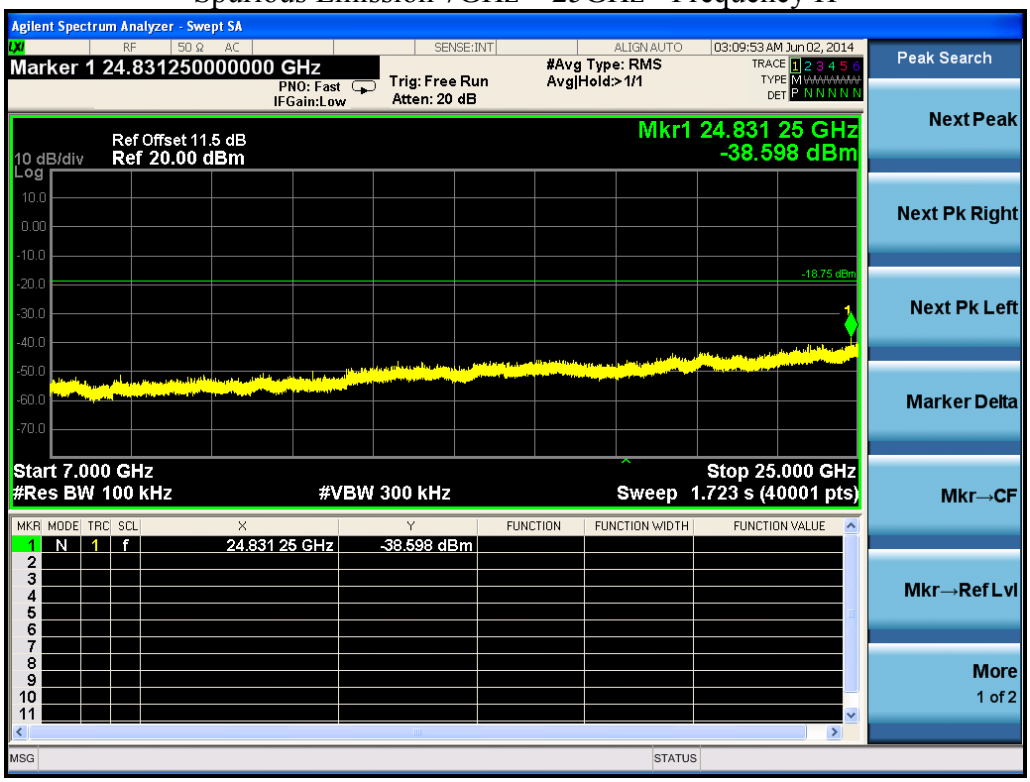
Spurious Emission 2.5GHz ~ 7GHz - Frequency H

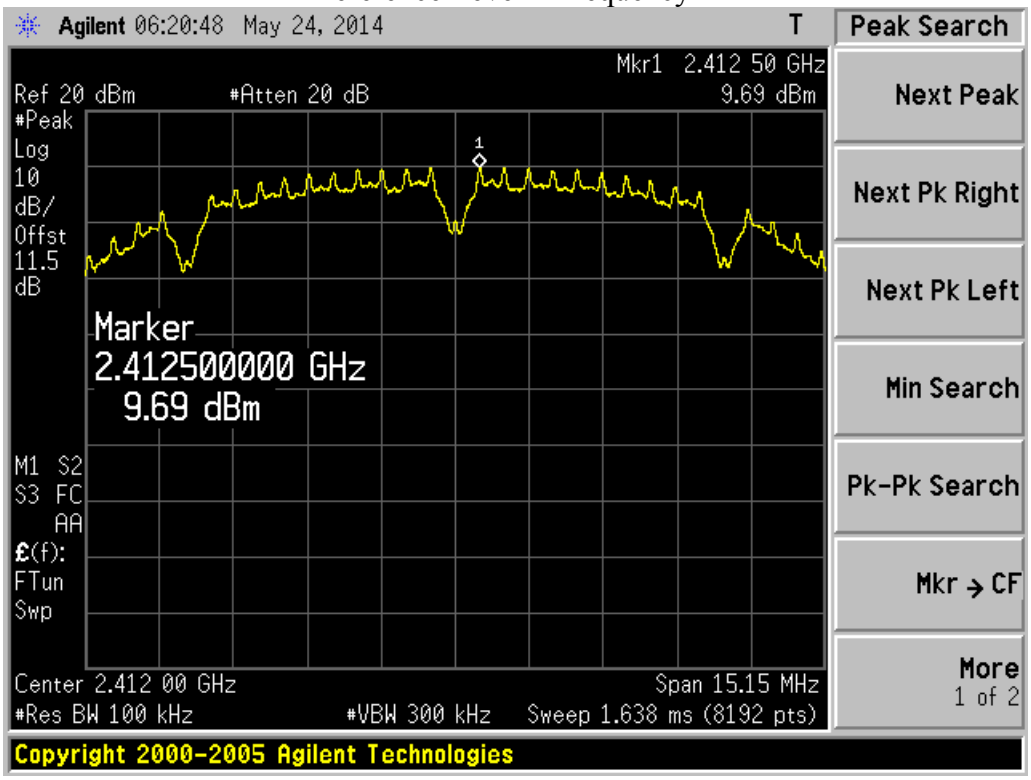


Spurious Emission 7GHz ~ 25GHz - Frequency H

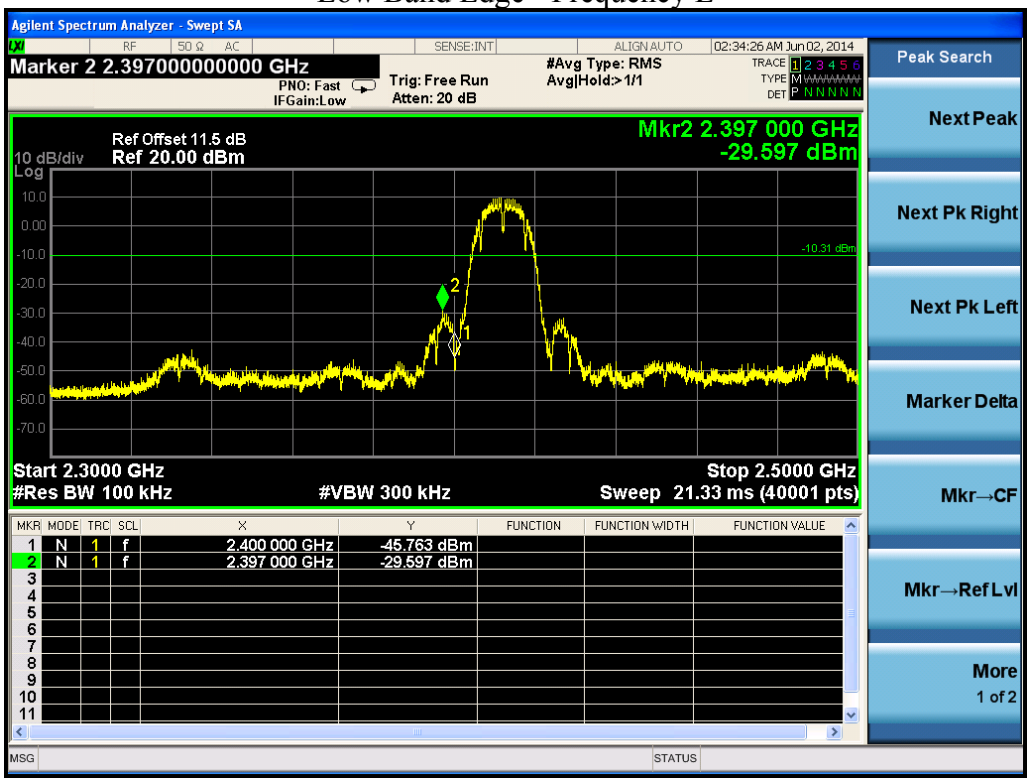


802.11b Out-of-Band Emissions – Chain 1

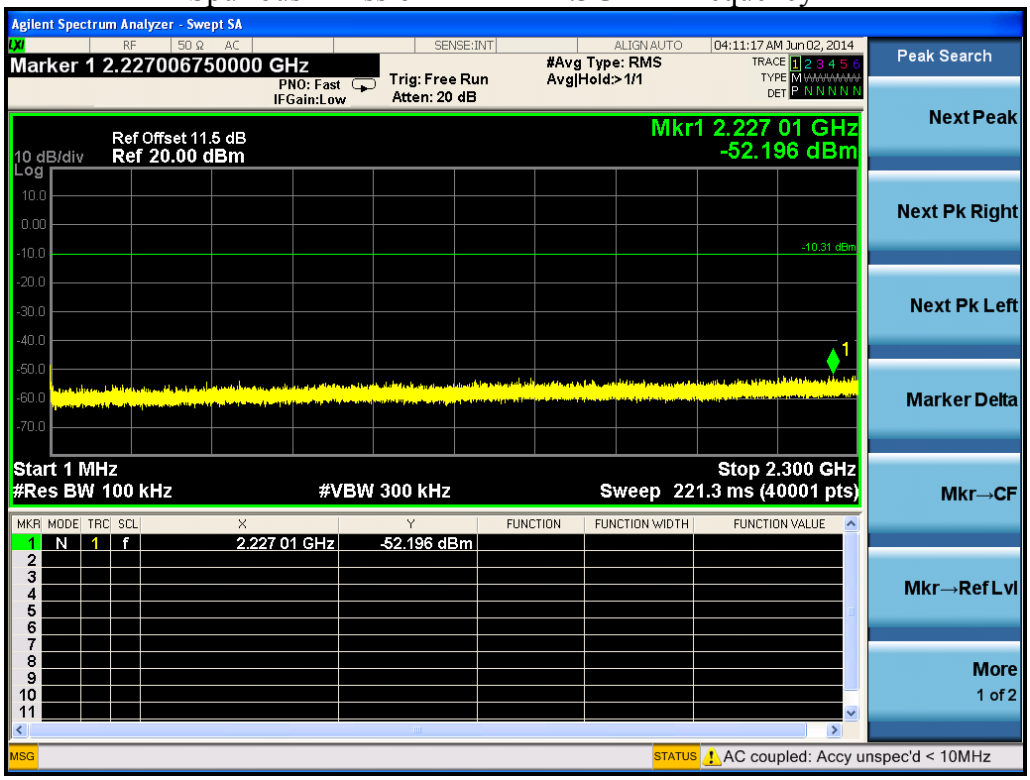
Reference Level – Frequency L



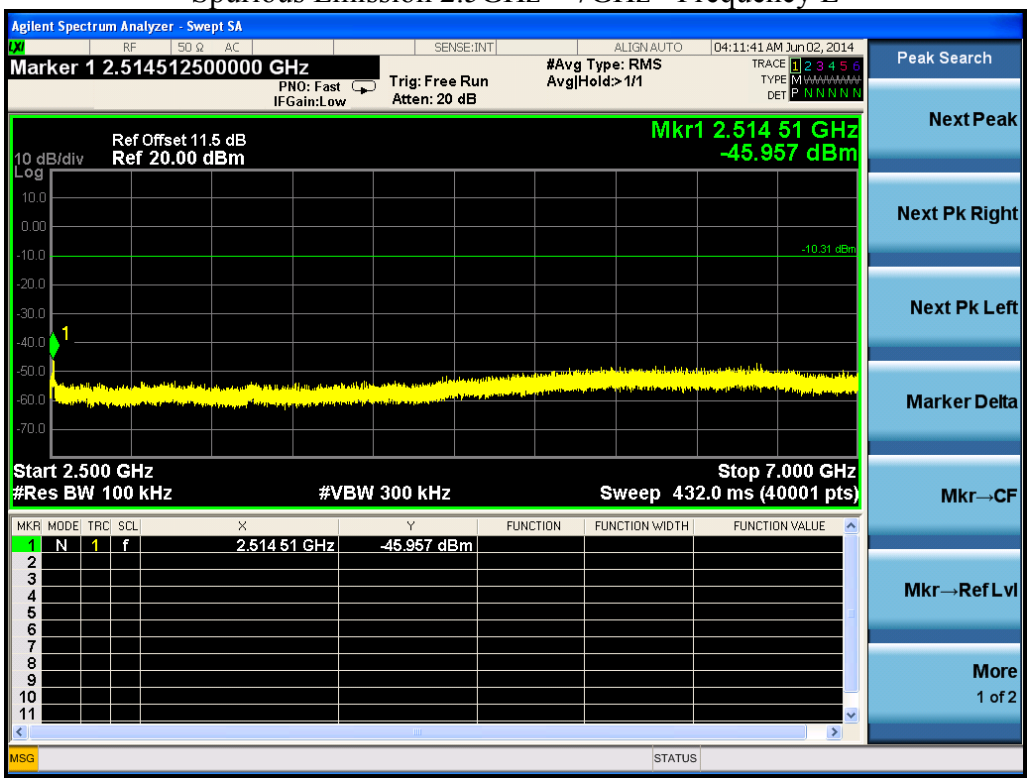
Low Band Edge - Frequency L



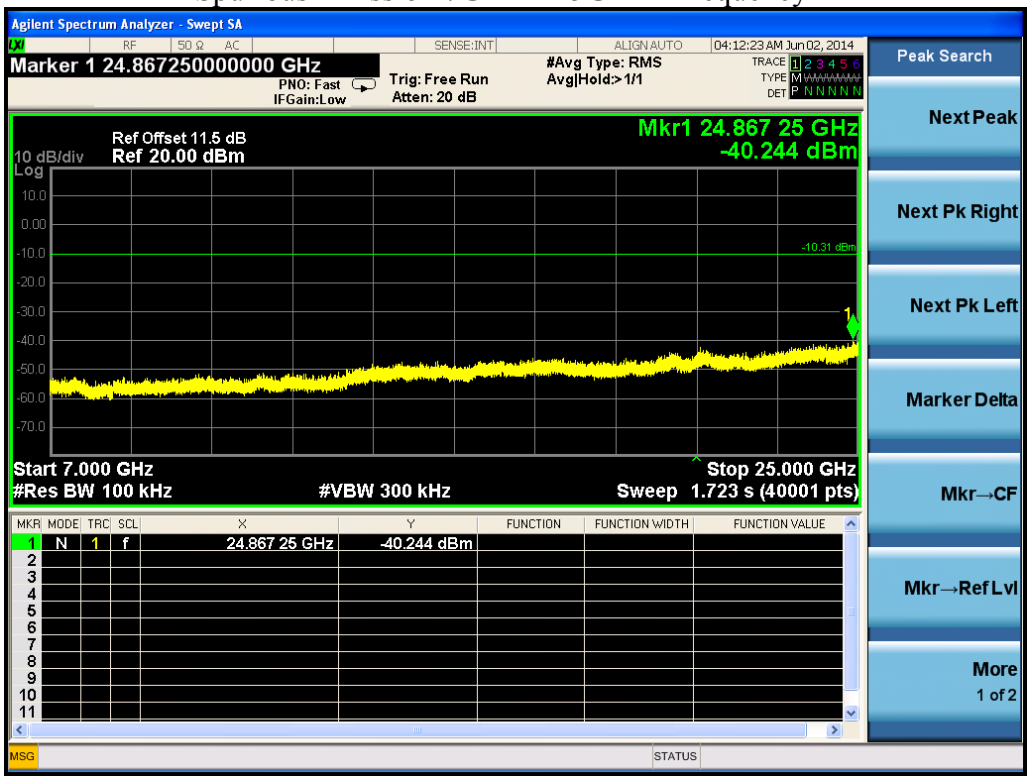
Spurious Emission 1MHz ~ 2.3GHz - Frequency L



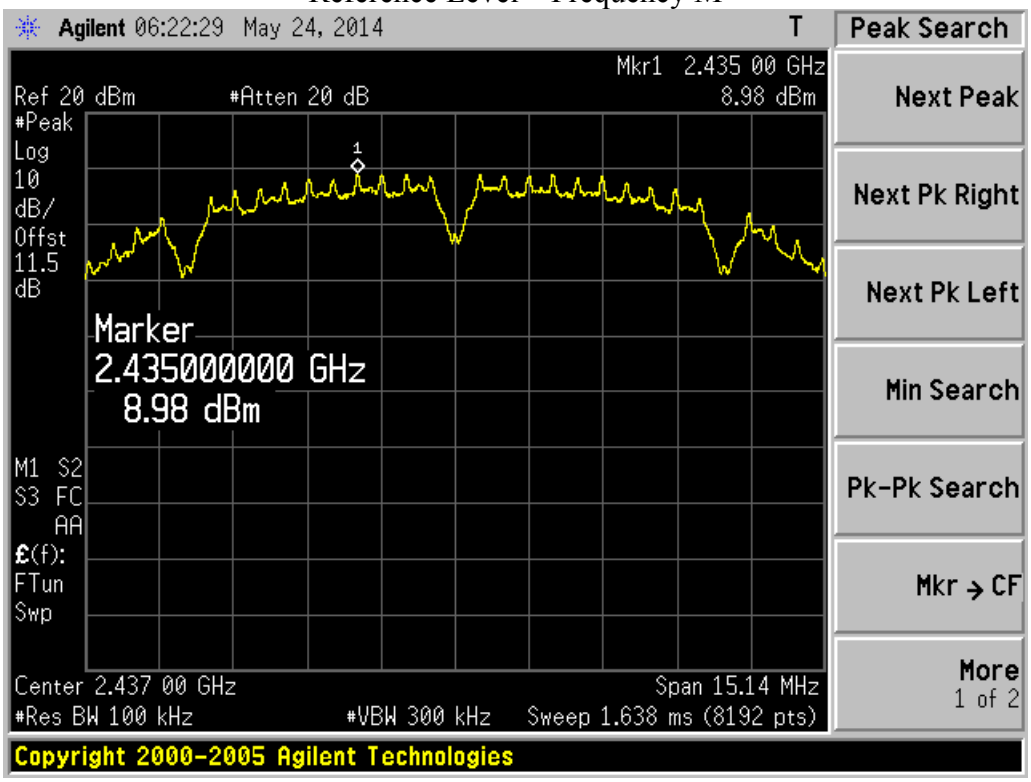
Spurious Emission 2.5GHz ~ 7GHz - Frequency L



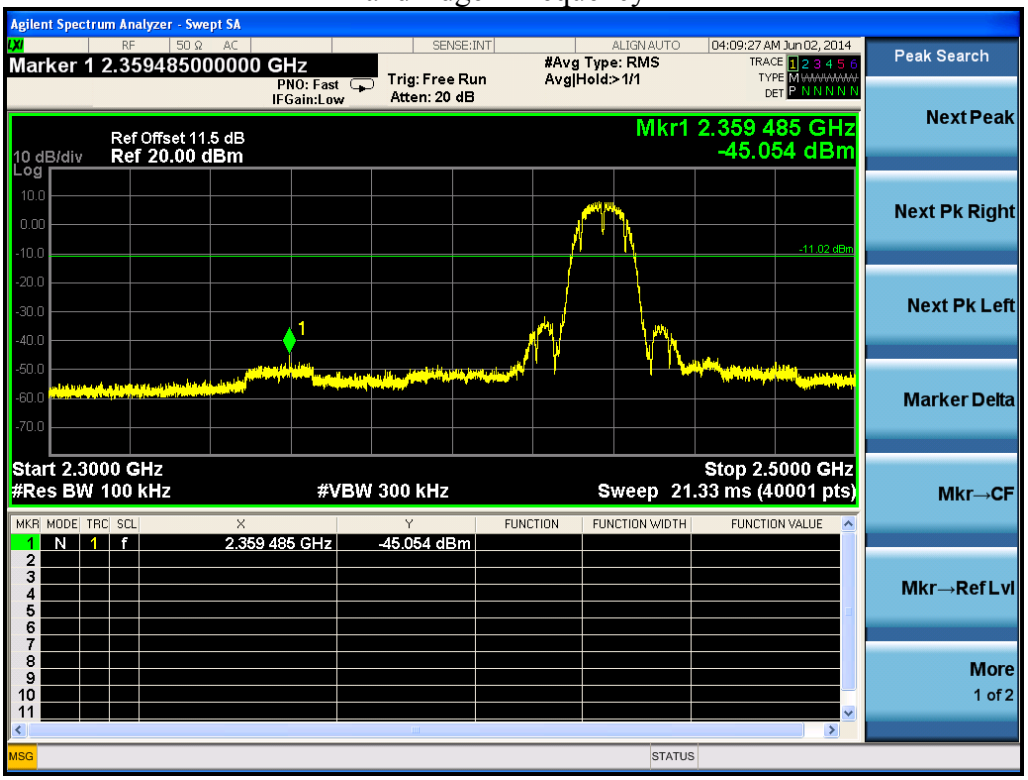
Spurious Emission 7GHz ~ 25GHz - Frequency L



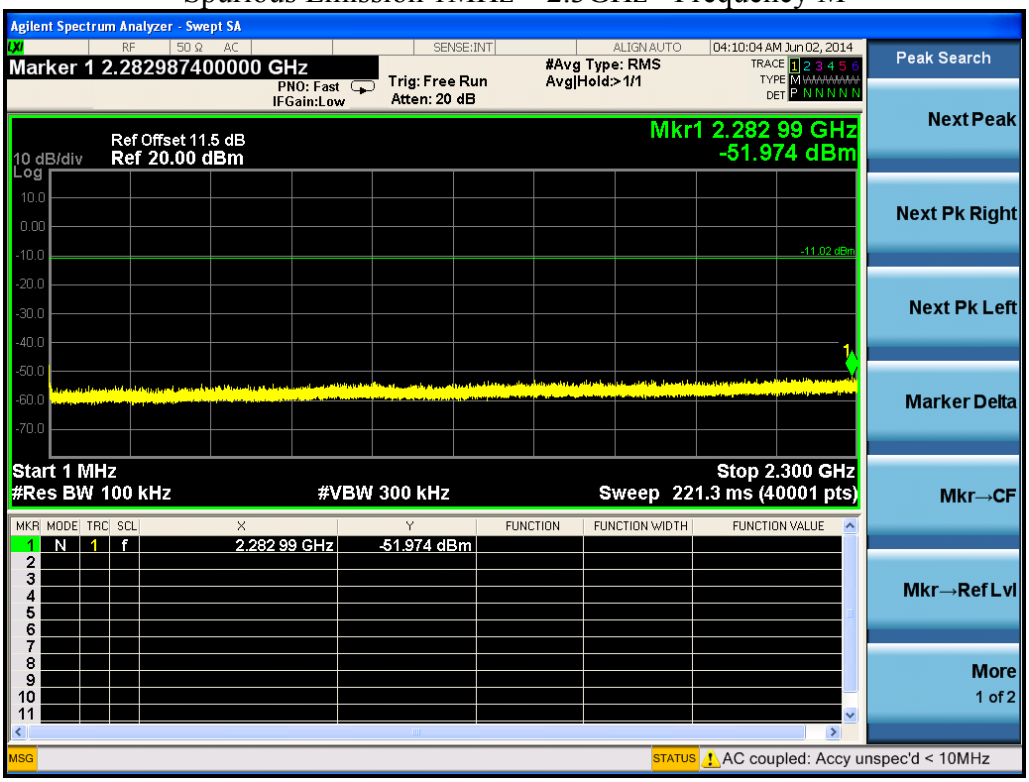
Reference Level – Frequency M



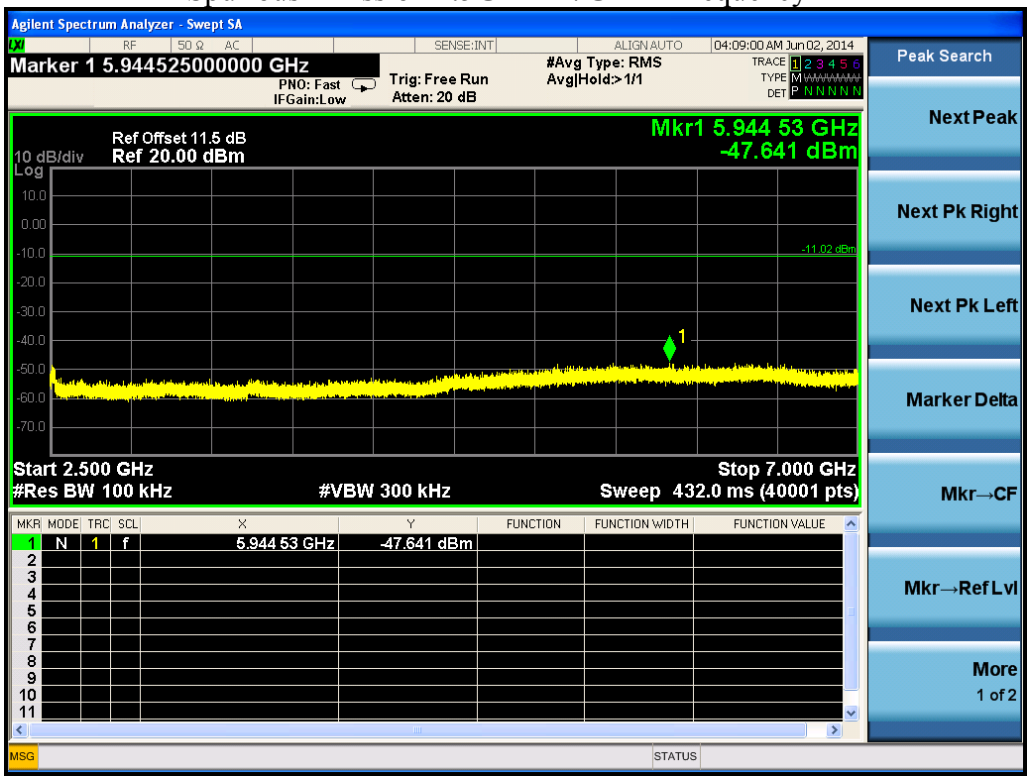
Band Edge - Frequency M



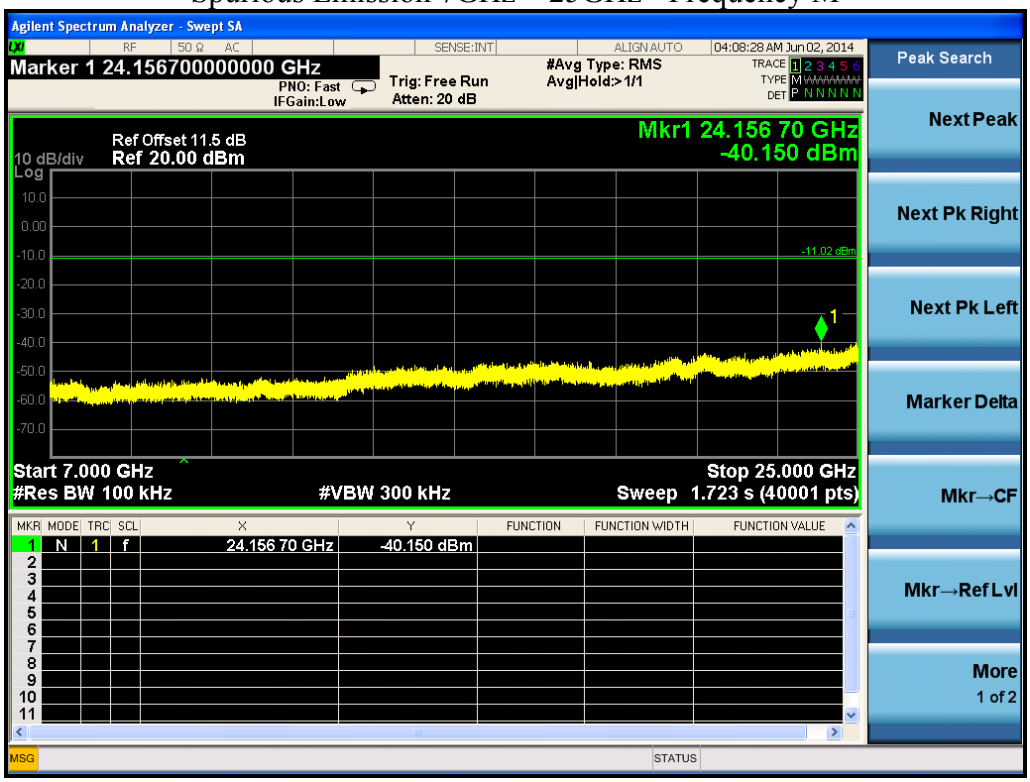
Spurious Emission 1MHz ~ 2.3GHz - Frequency M



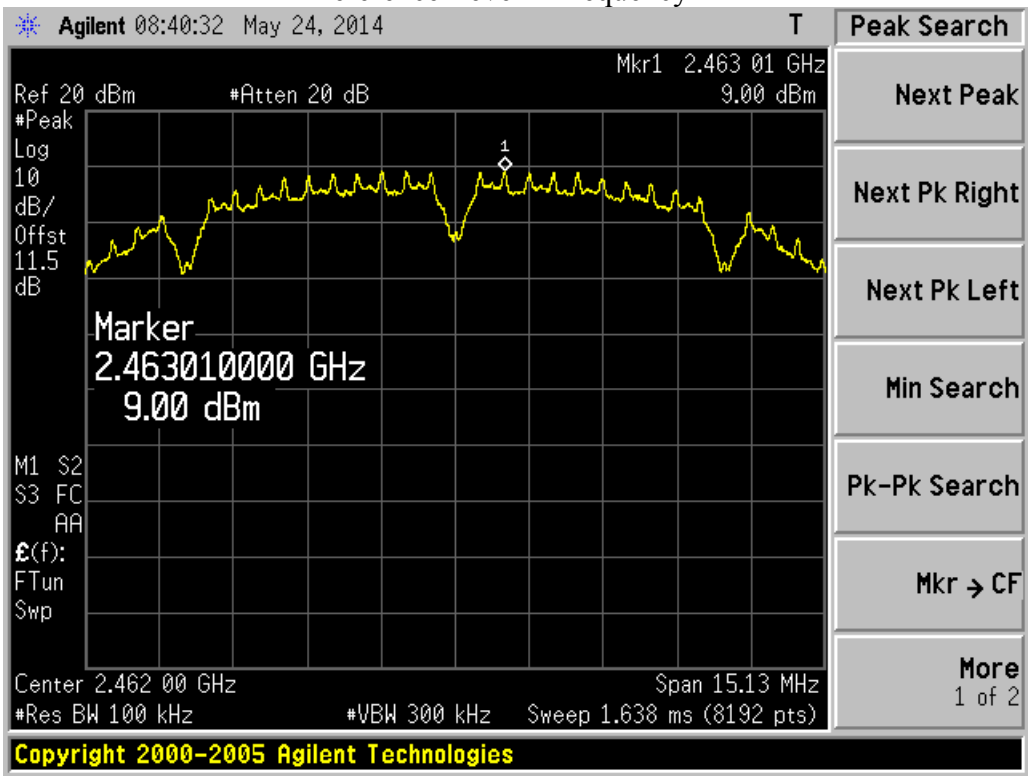
Spurious Emission 2.5GHz ~ 7GHz - Frequency M



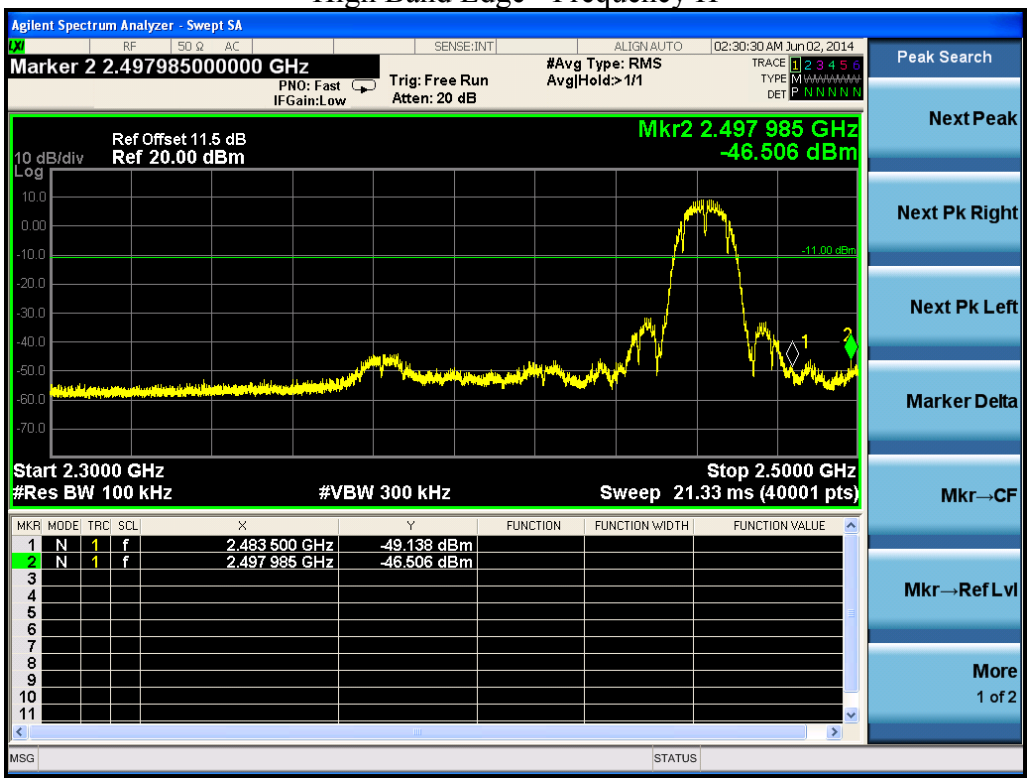
Spurious Emission 7GHz ~ 25GHz - Frequency M



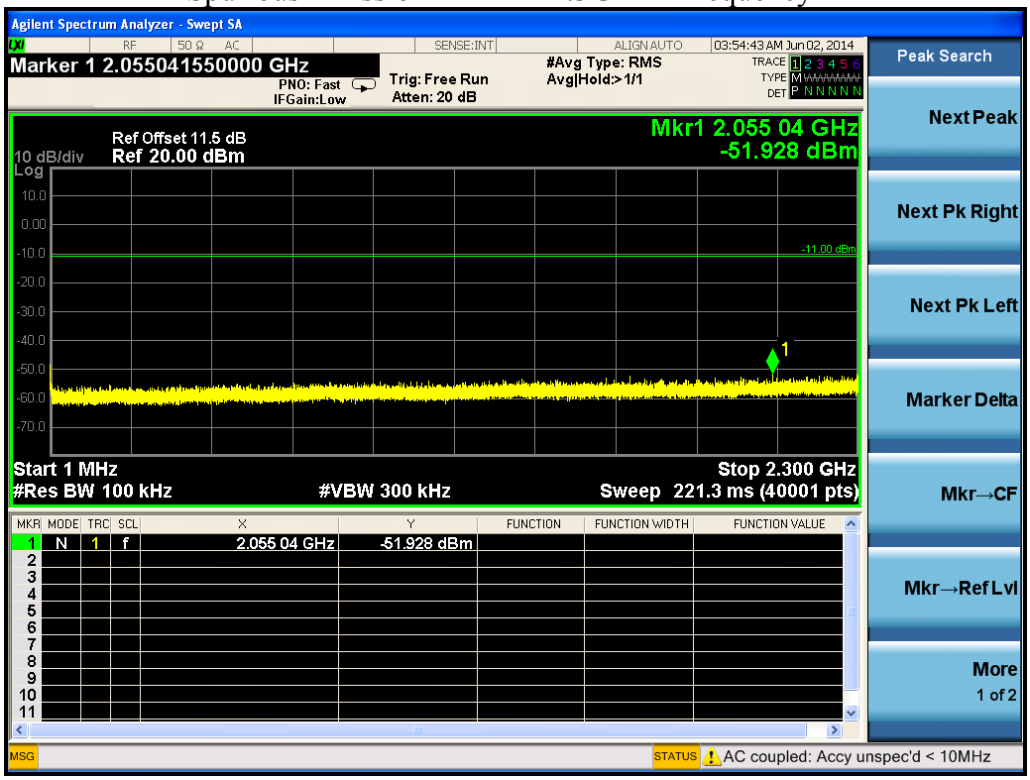
Reference Level – Frequency H



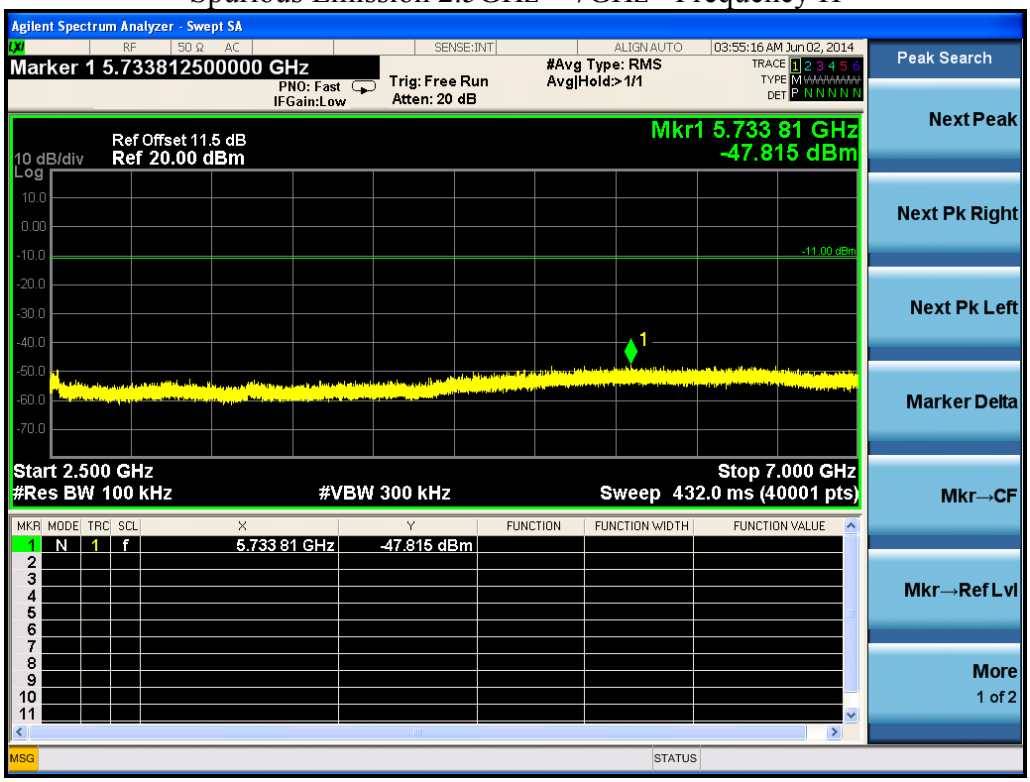
High Band Edge - Frequency H



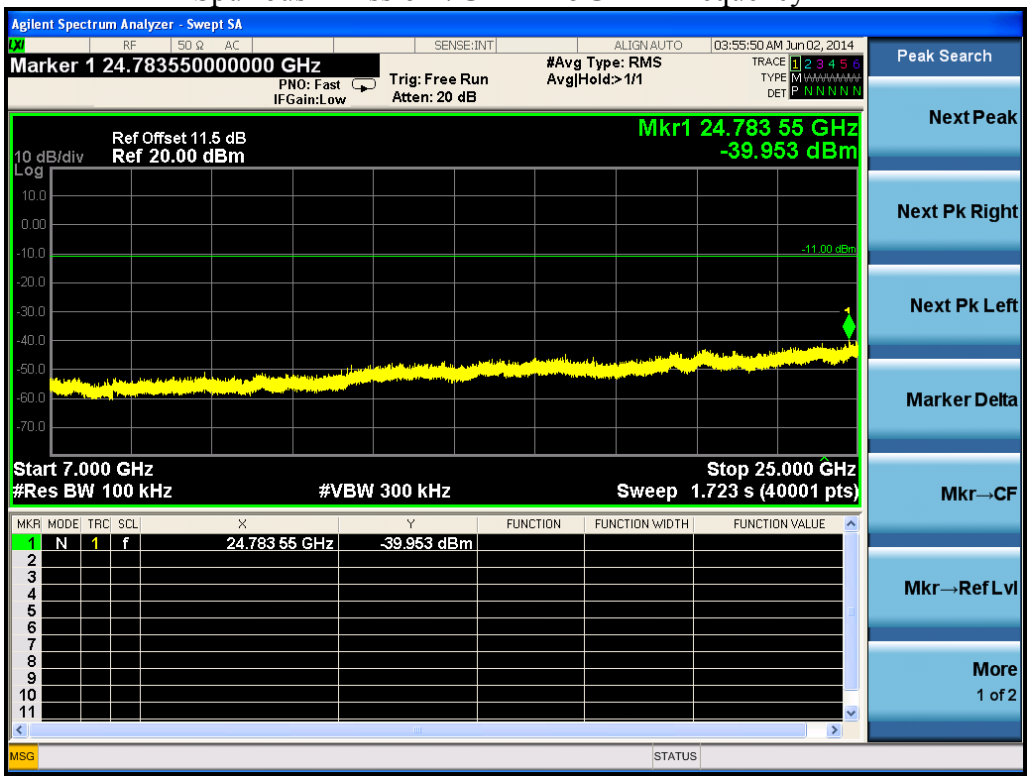
Spurious Emission 1MHz ~ 2.3GHz - Frequency H



Spurious Emission 2.5GHz ~ 7GHz - Frequency H

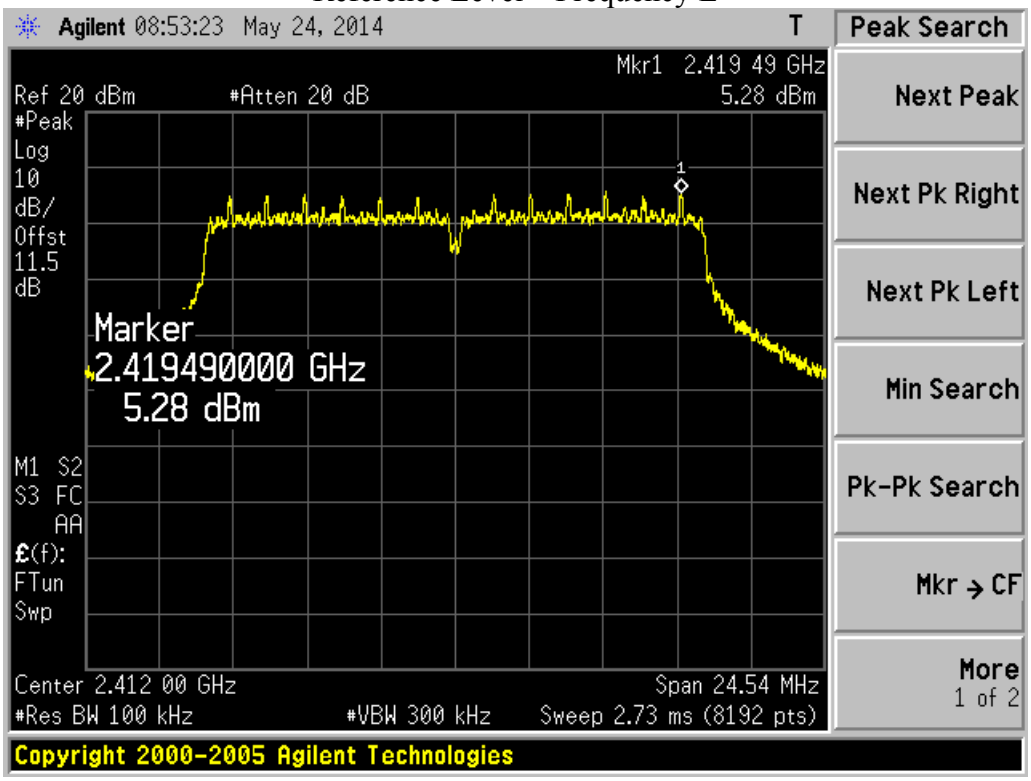


Spurious Emission 7GHz ~ 25GHz - Frequency H

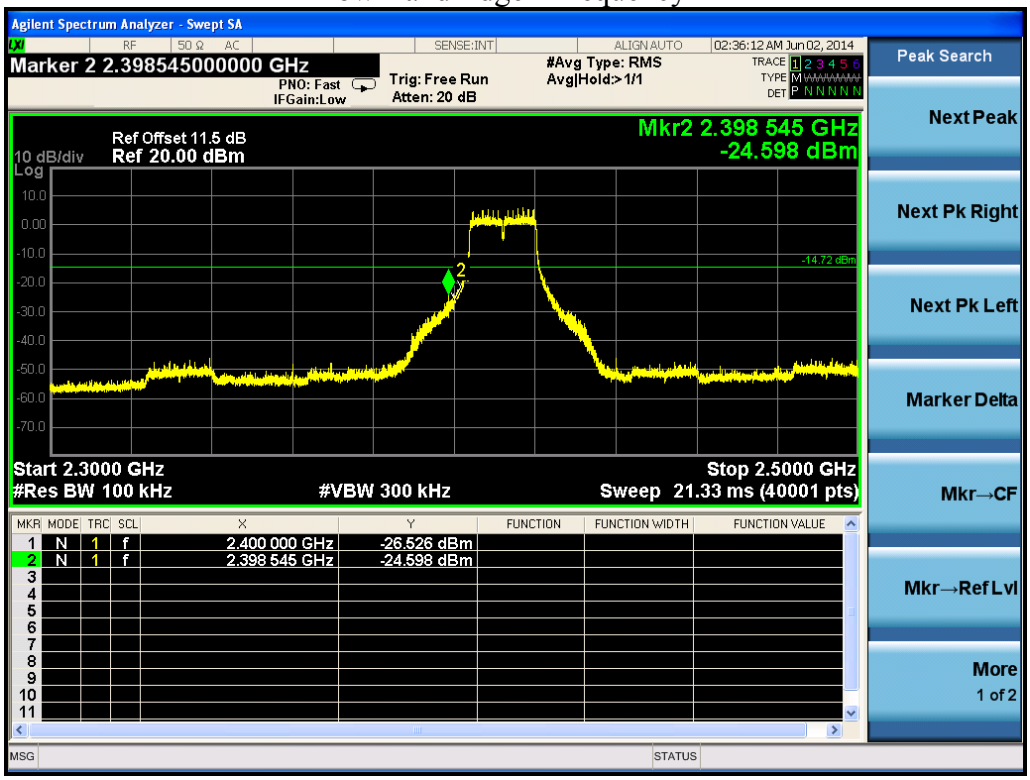


802.11g Out-of-Band Emissions – Chain 1

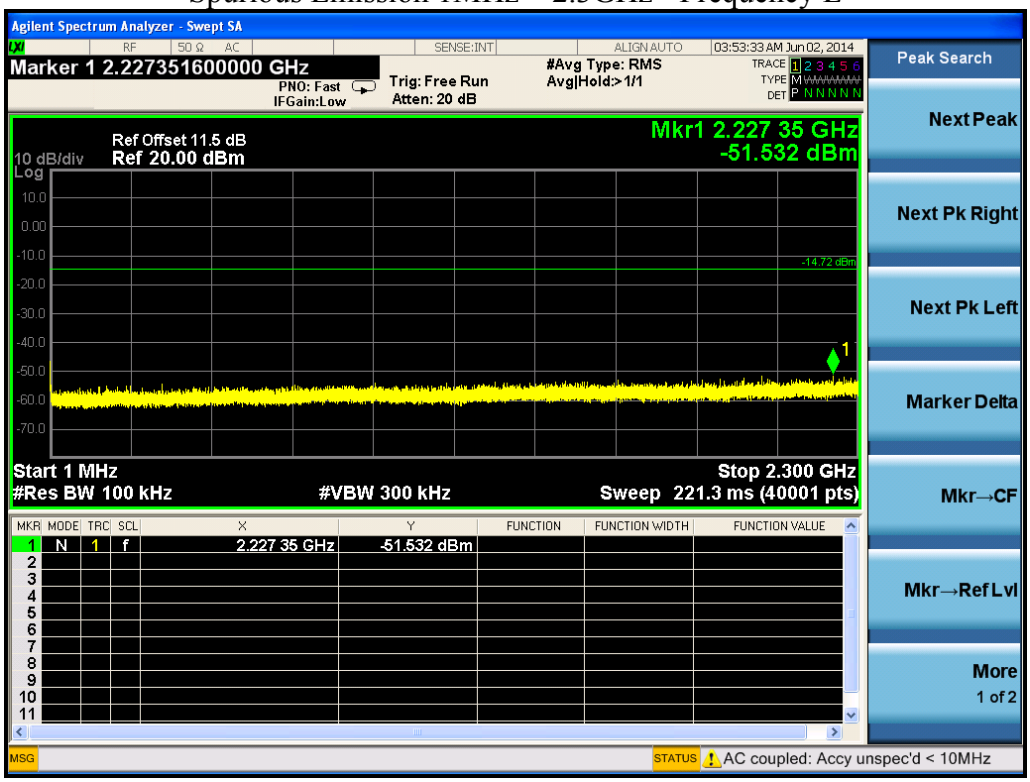
Reference Level – Frequency L



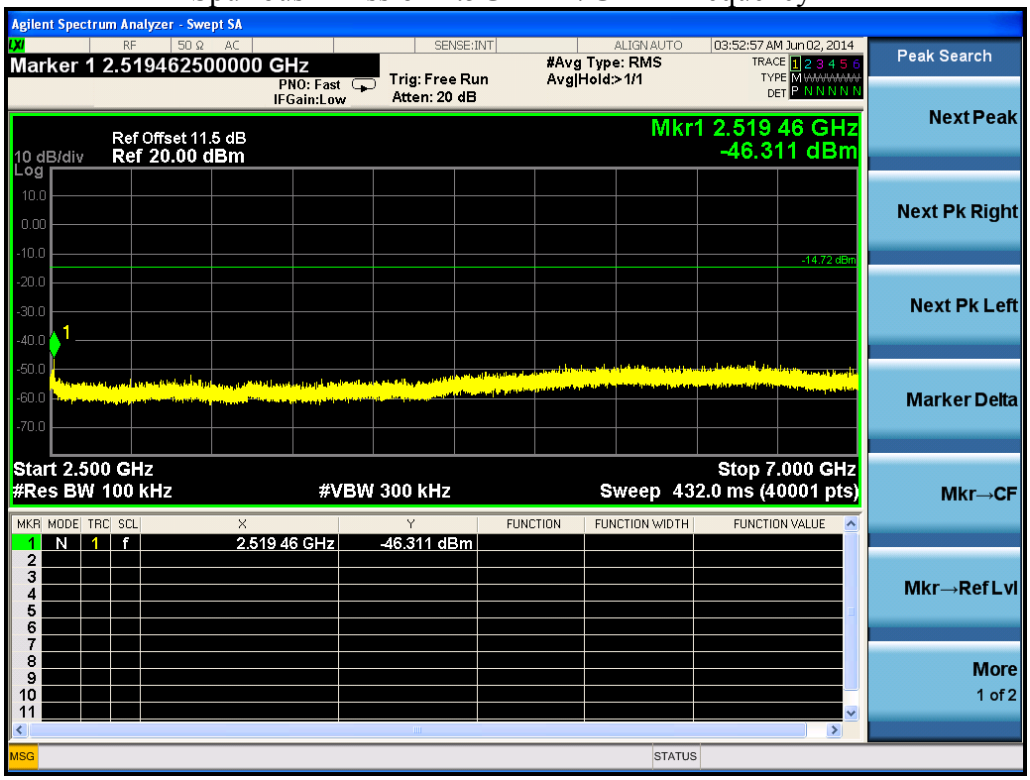
Low Band Edge - Frequency L



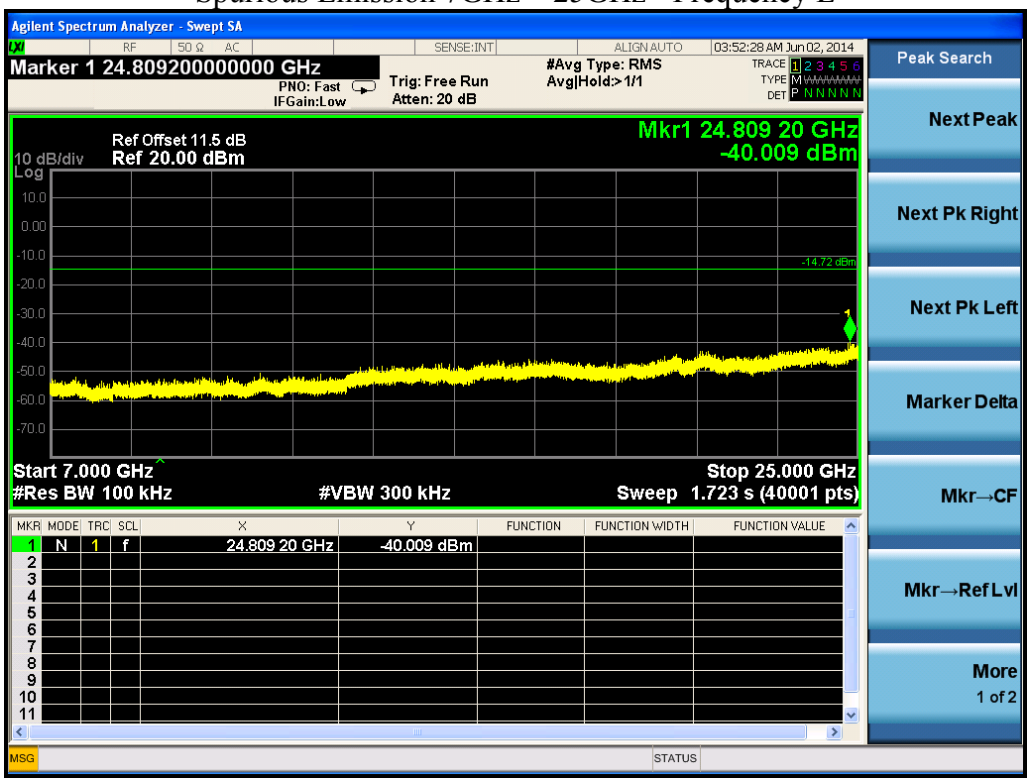
Spurious Emission 1MHz ~ 2.3GHz - Frequency L



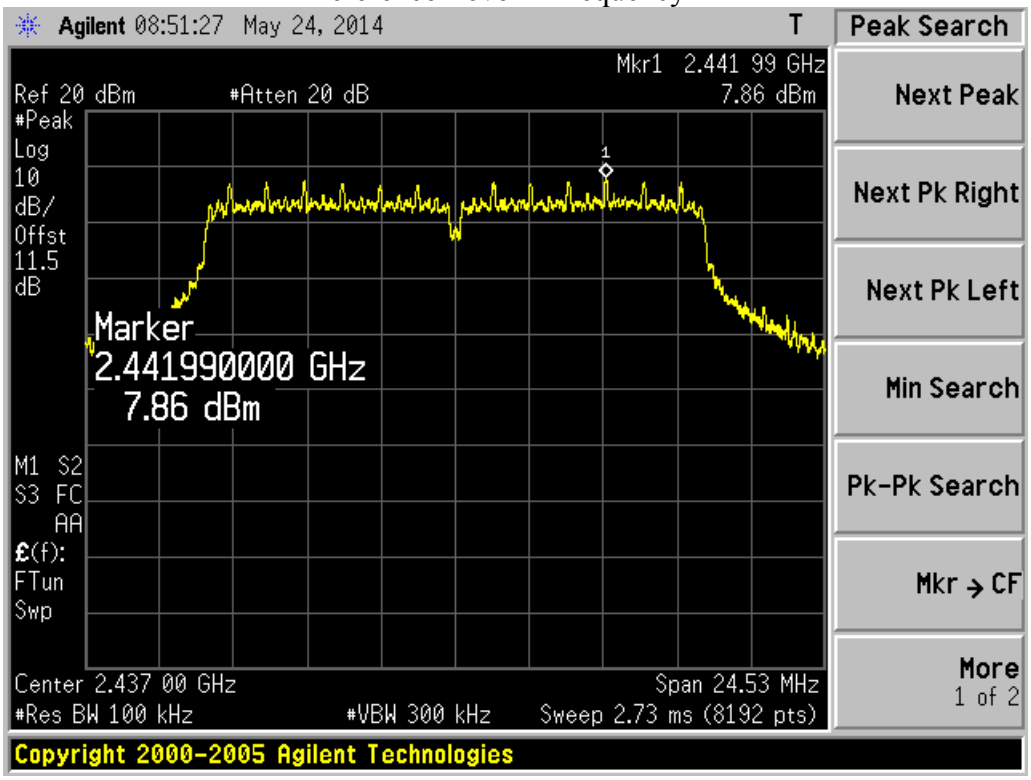
Spurious Emission 2.5GHz ~ 7GHz - Frequency L



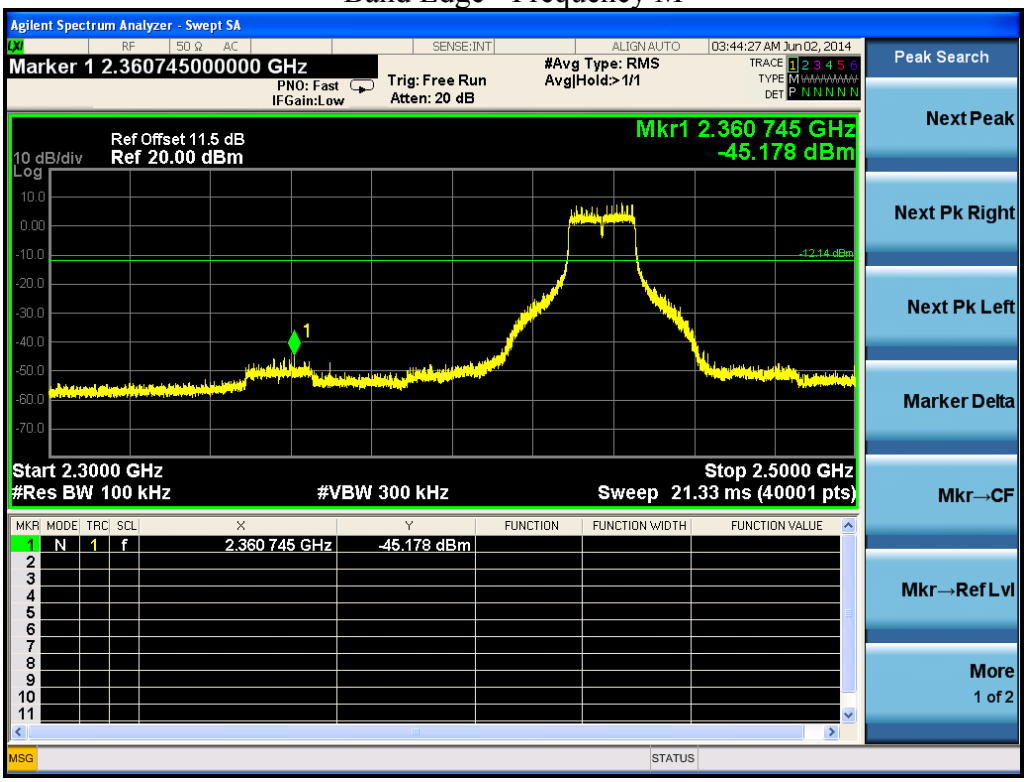
Spurious Emission 7GHz ~ 25GHz - Frequency L



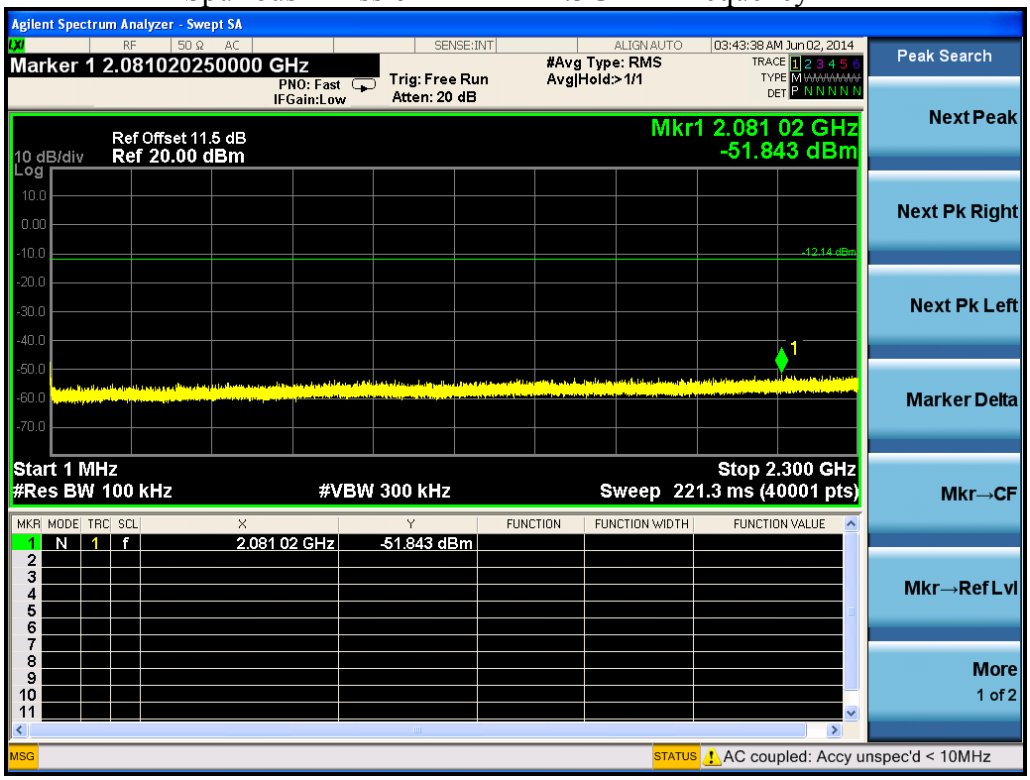
Reference Level – Frequency M



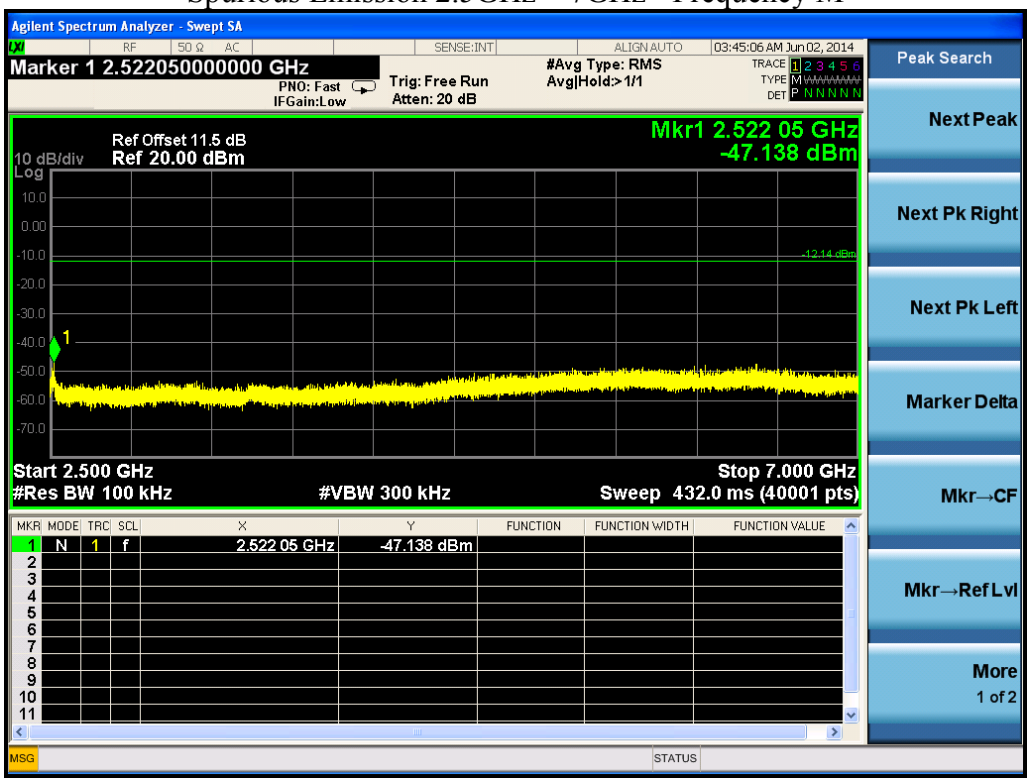
Band Edge - Frequency M



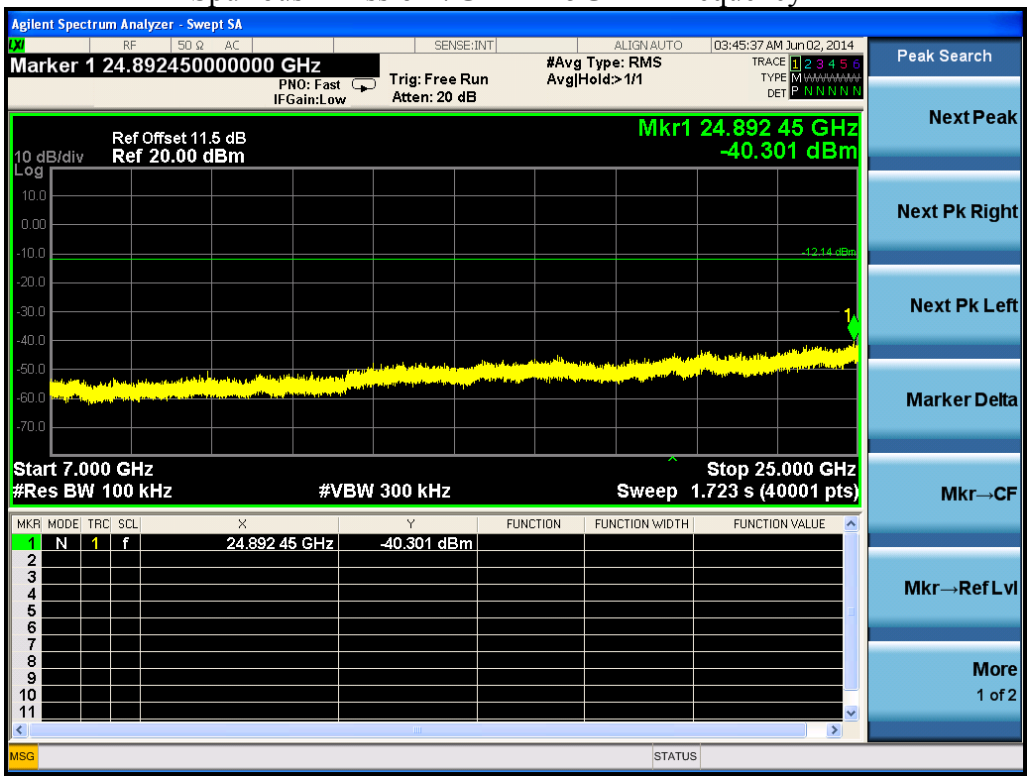
Spurious Emission 1MHz ~ 2.3GHz - Frequency M



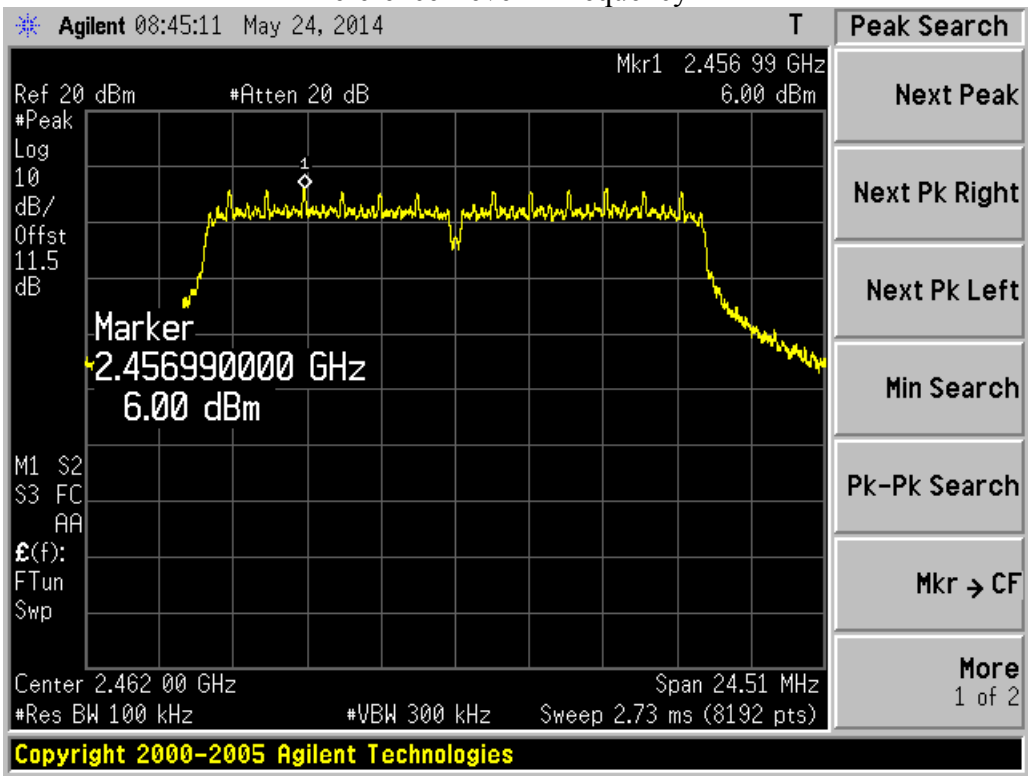
Spurious Emission 2.5GHz ~ 7GHz - Frequency M



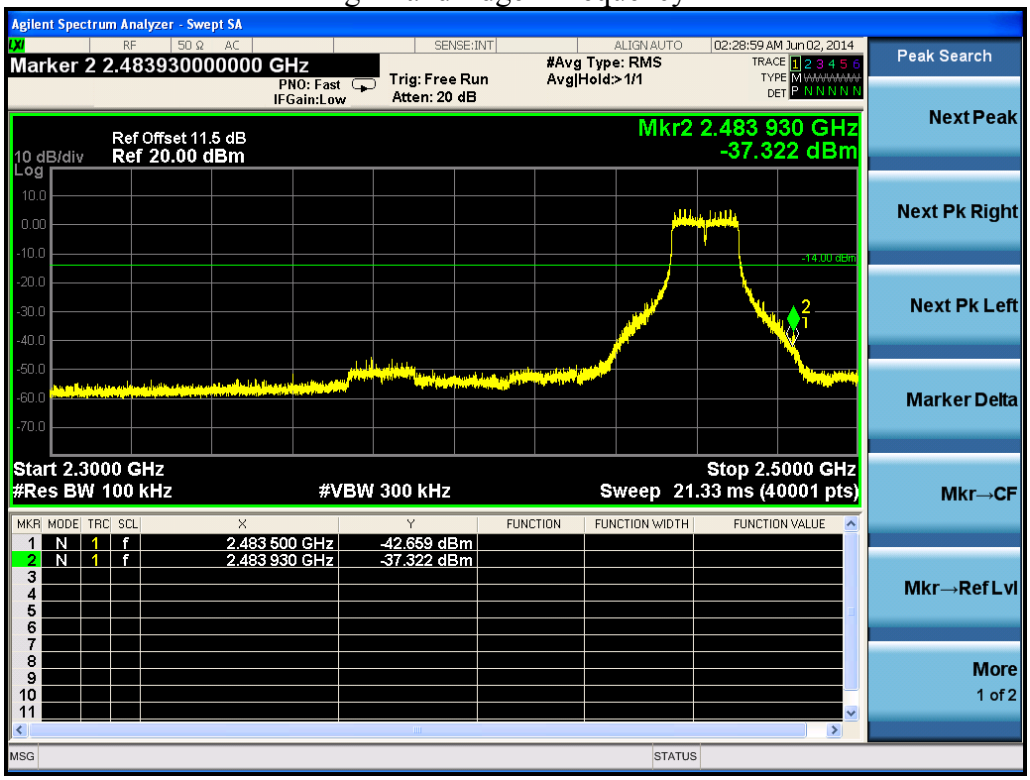
Spurious Emission 7GHz ~ 25GHz - Frequency M



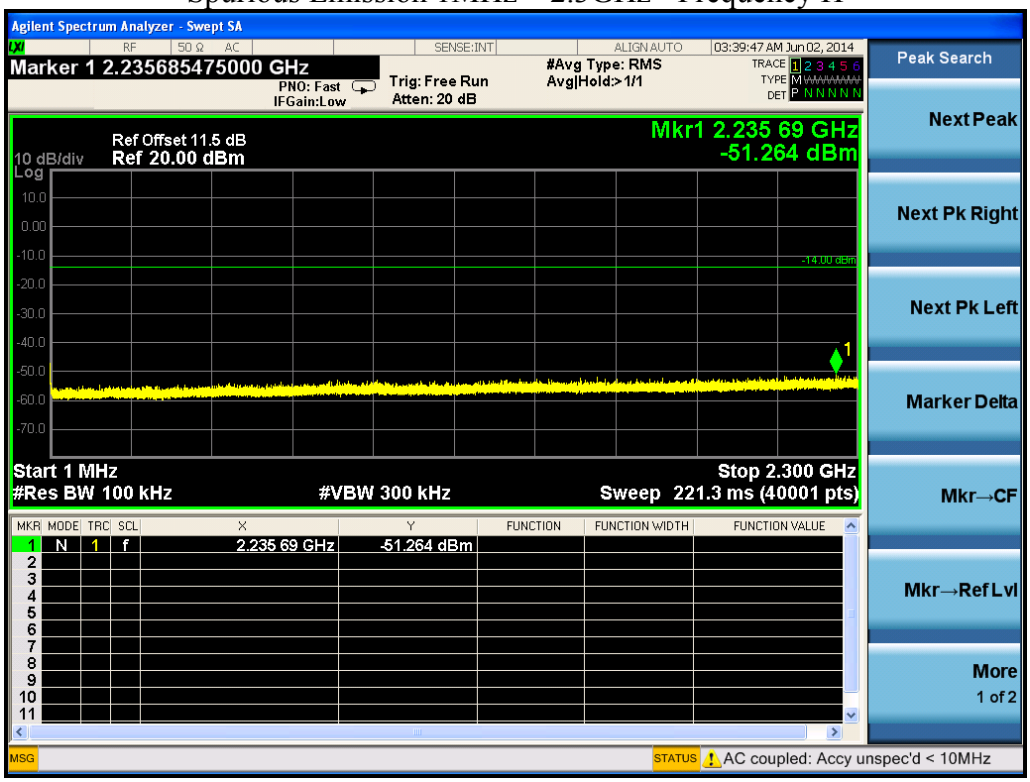
Reference Level – Frequency H



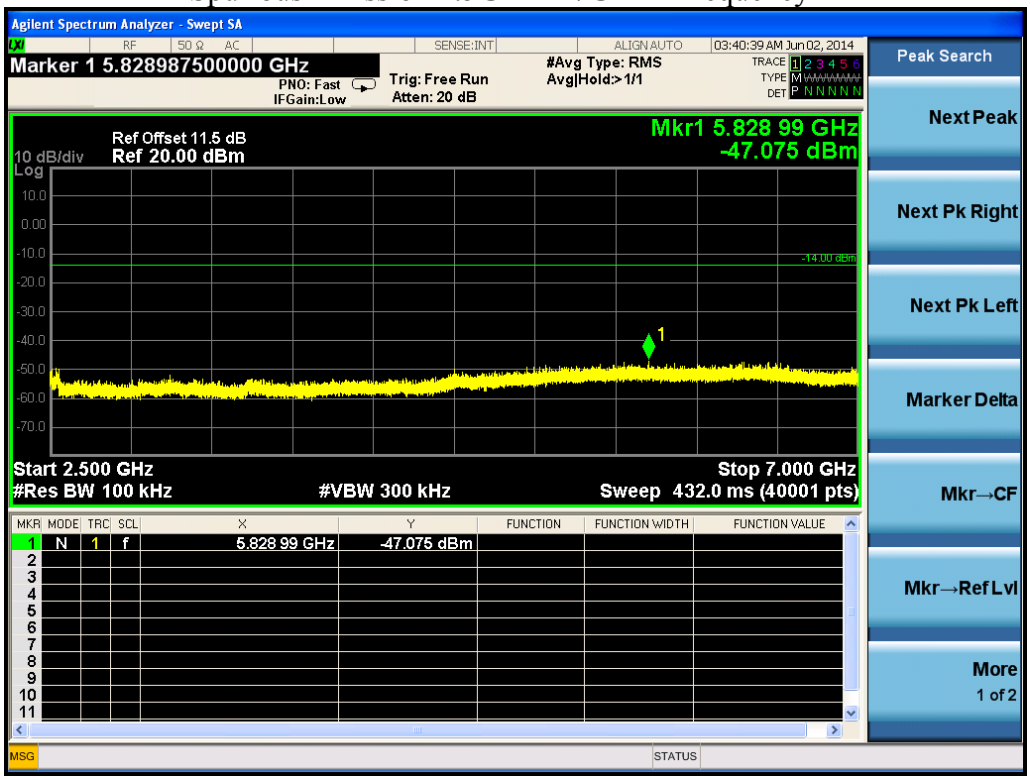
High Band Edge - Frequency H



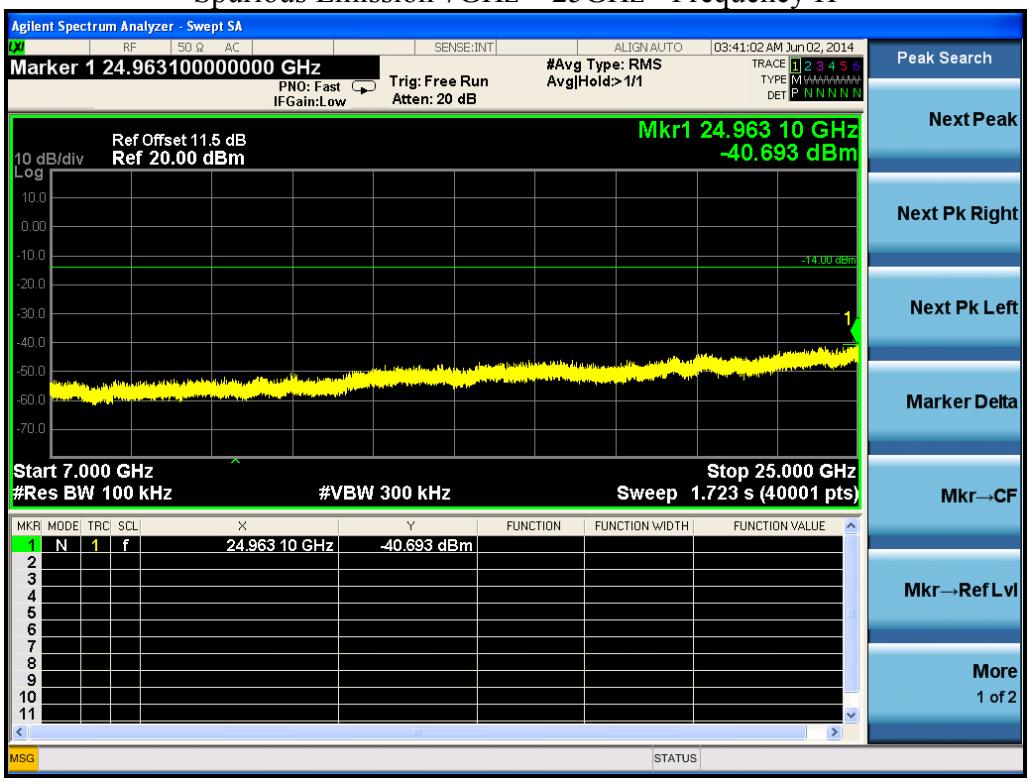
Spurious Emission 1MHz ~ 2.3GHz - Frequency H



Spurious Emission 2.5GHz ~ 7GHz - Frequency H

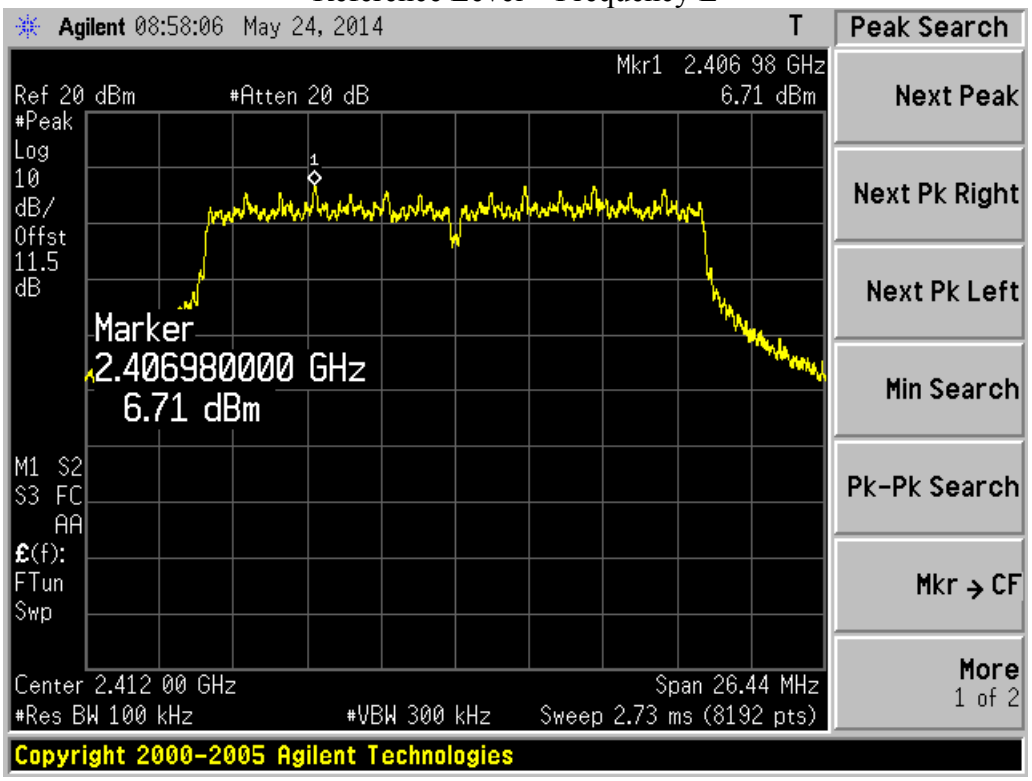


Spurious Emission 7GHz ~ 25GHz - Frequency H

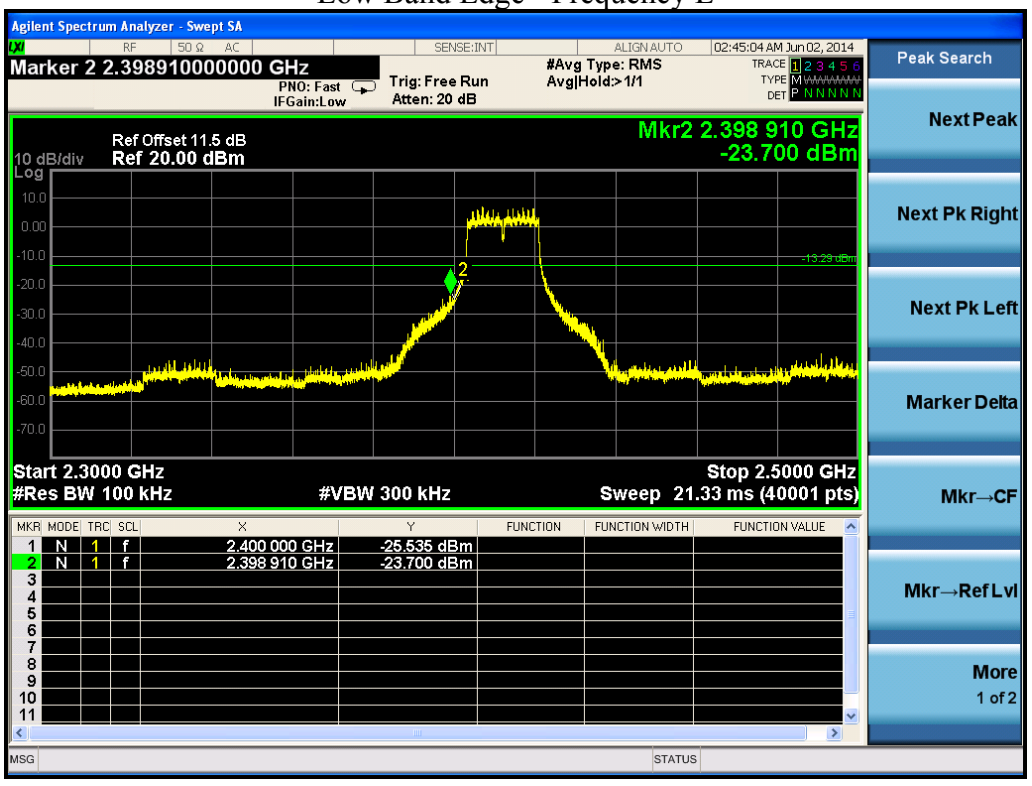


802.11n20 Out-of-Band Emissions – Chain 1

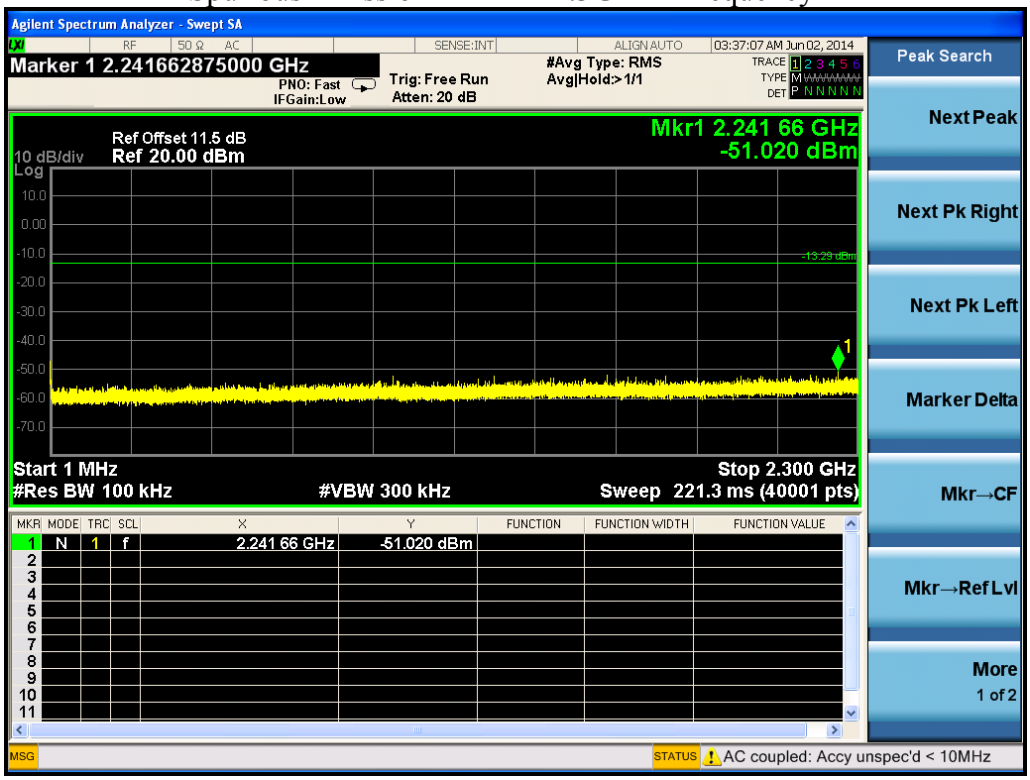
Reference Level – Frequency L



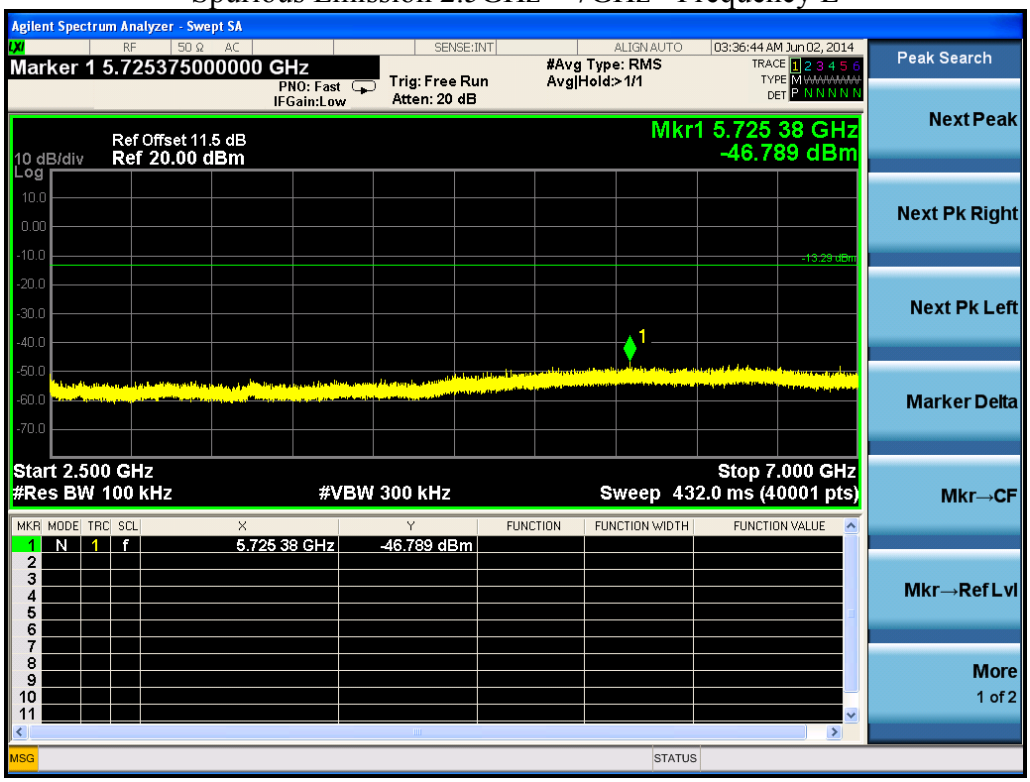
Low Band Edge - Frequency L



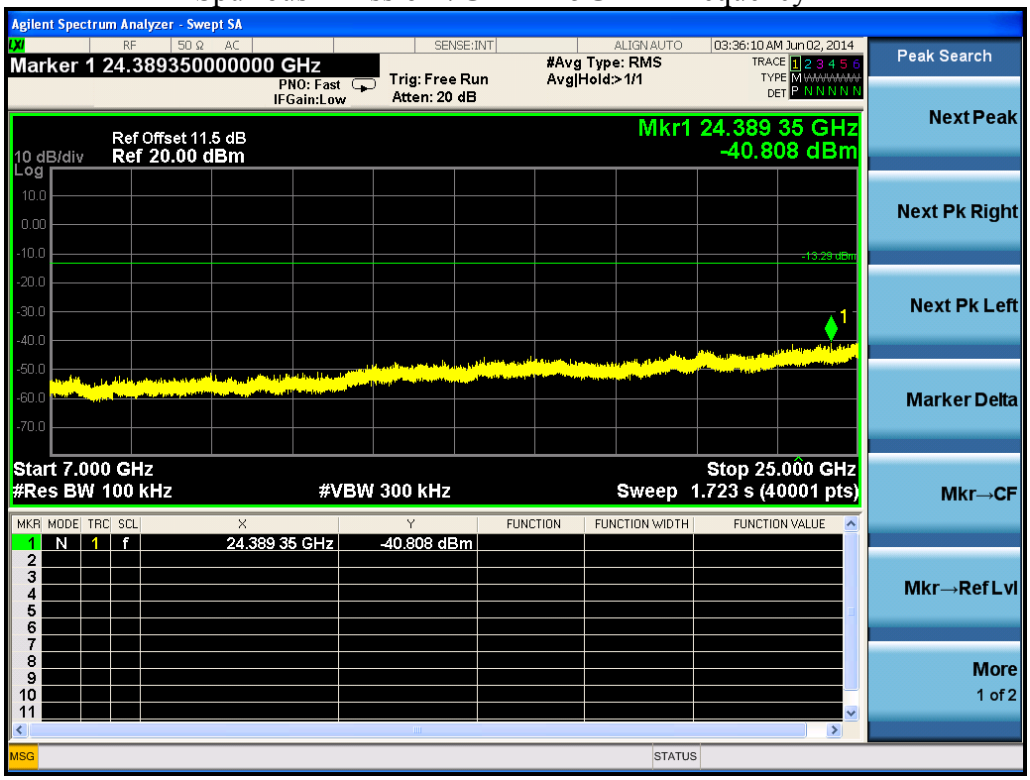
Spurious Emission 1MHz ~ 2.3GHz - Frequency L



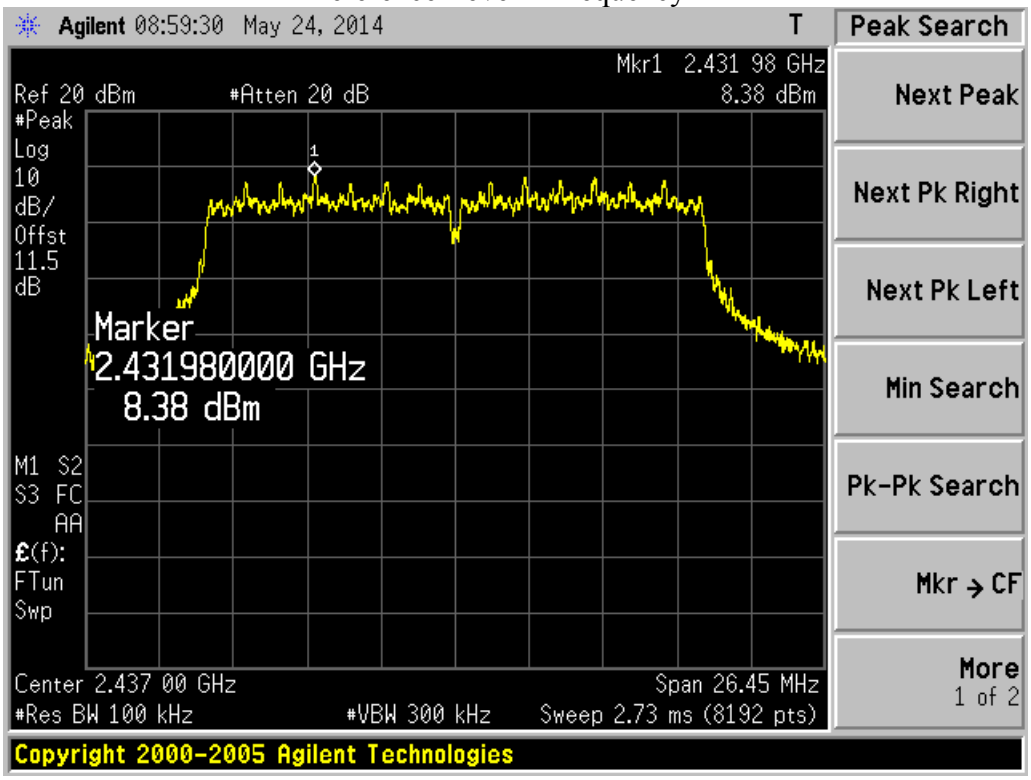
Spurious Emission 2.5GHz ~ 7GHz - Frequency L



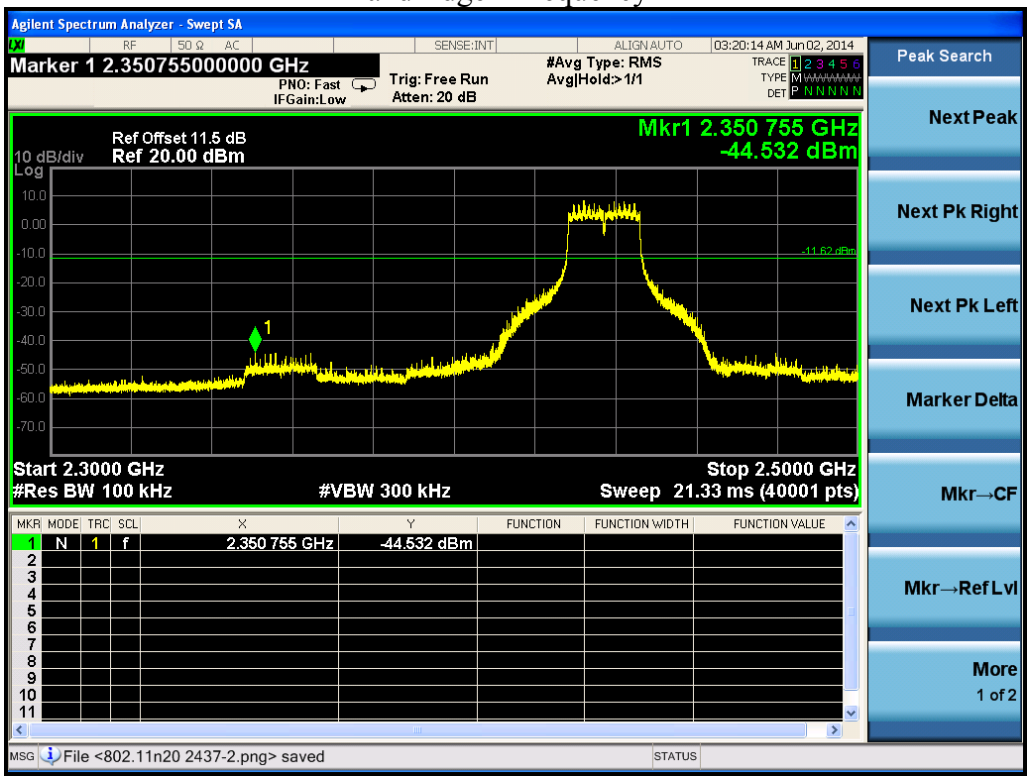
Spurious Emission 7GHz ~ 25GHz - Frequency L



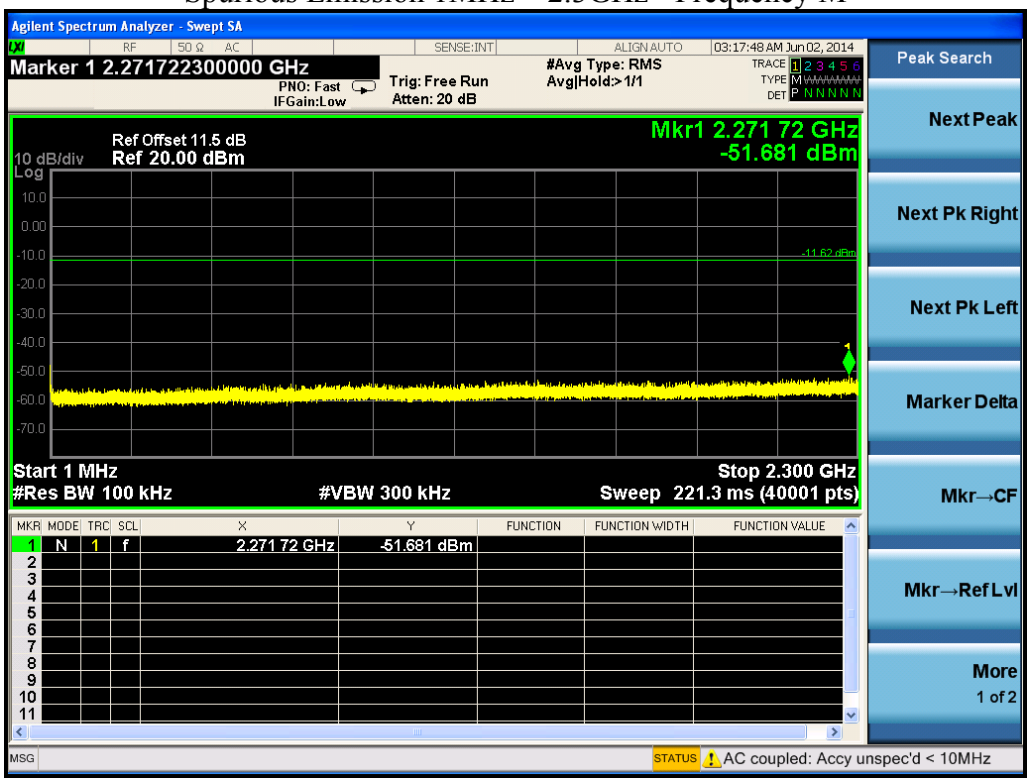
Reference Level – Frequency M



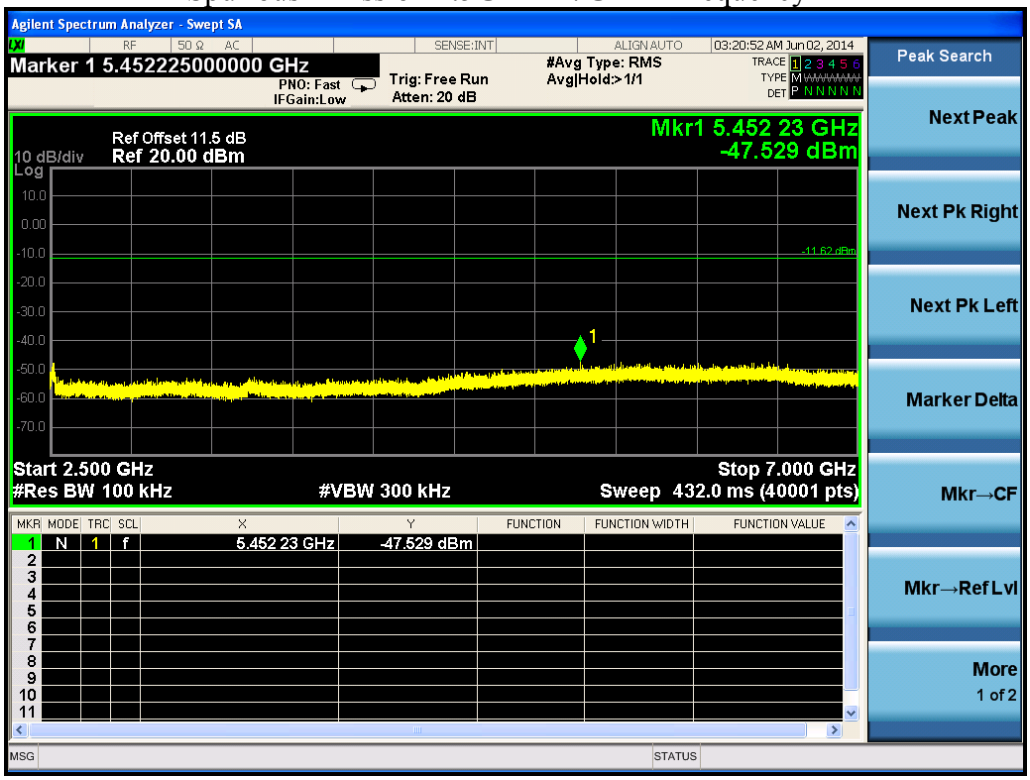
Band Edge - Frequency M



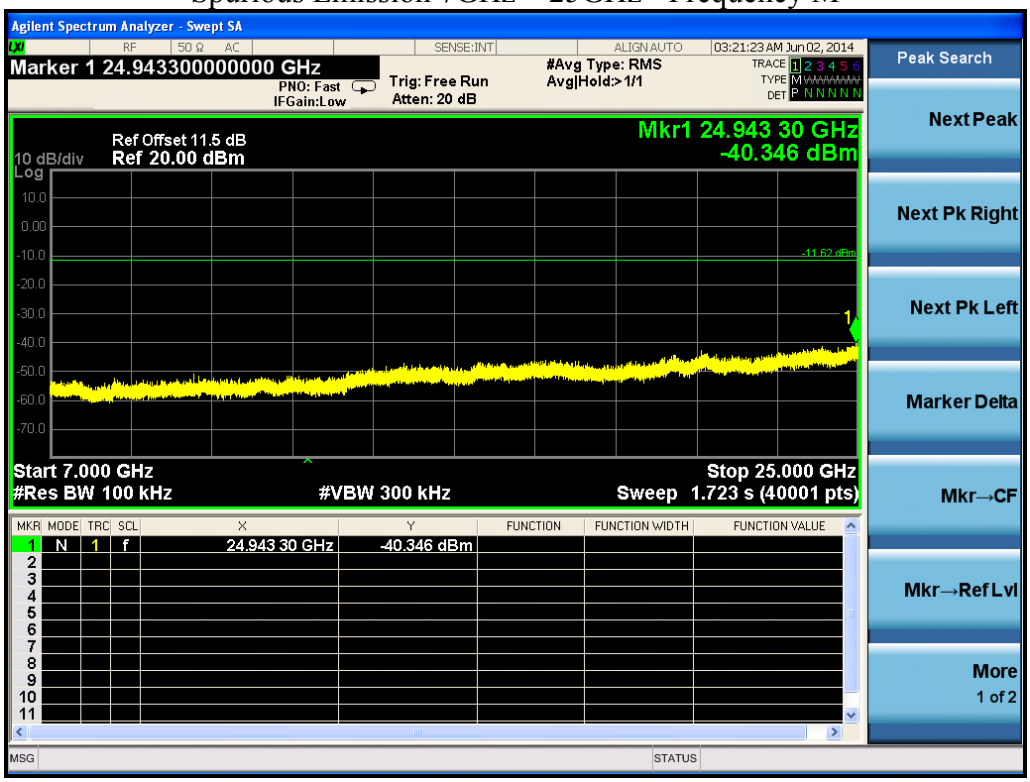
Spurious Emission 1MHz ~ 2.3GHz - Frequency M



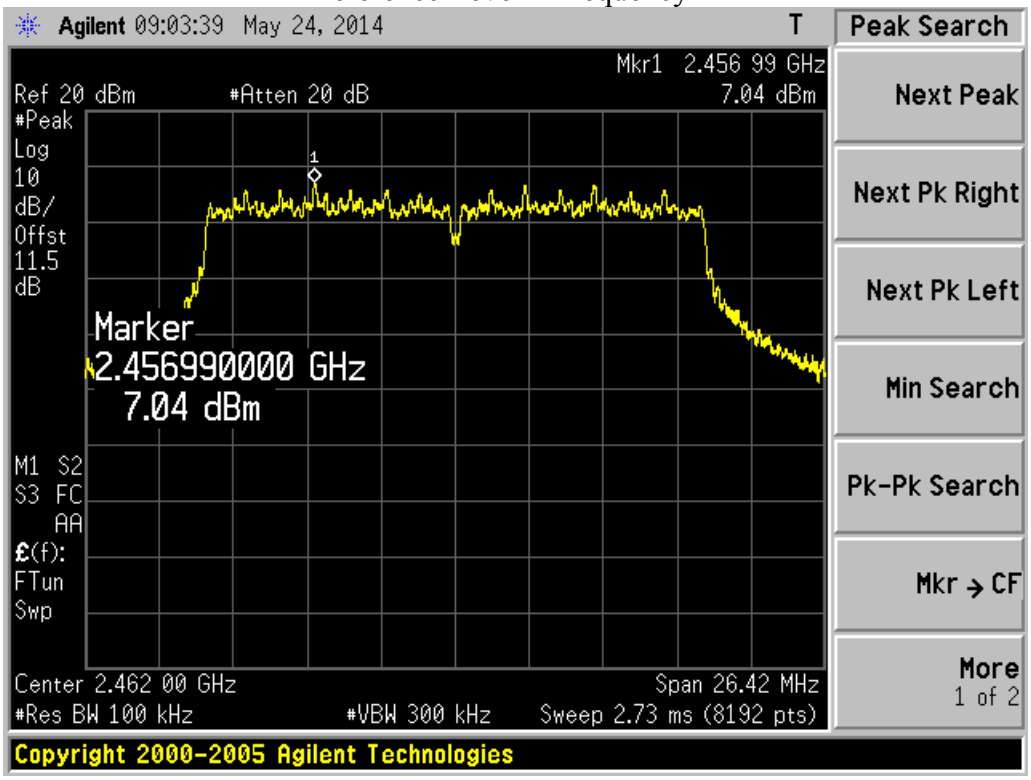
Spurious Emission 2.5GHz ~ 7GHz - Frequency M



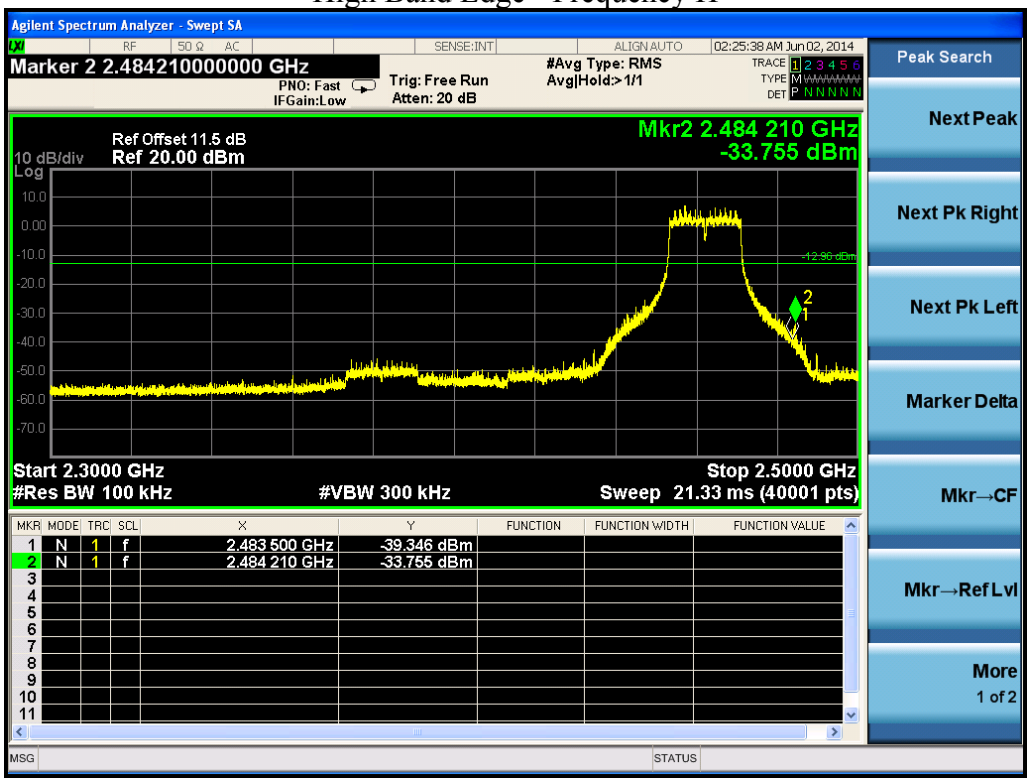
Spurious Emission 7GHz ~ 25GHz - Frequency M



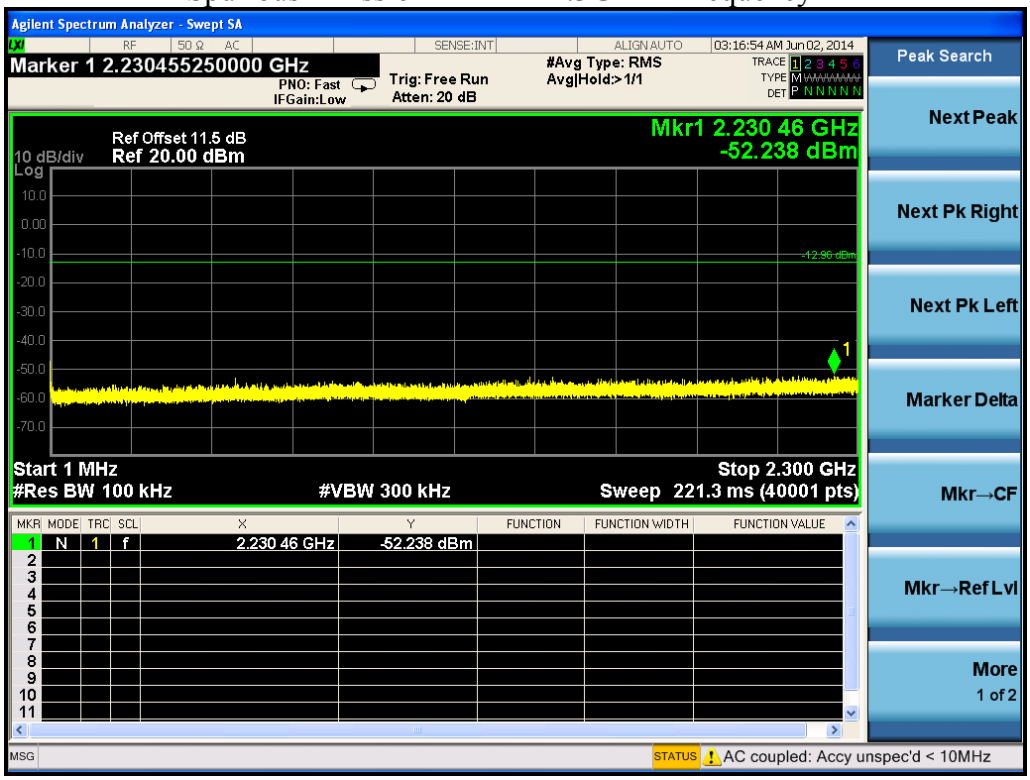
Reference Level – Frequency H



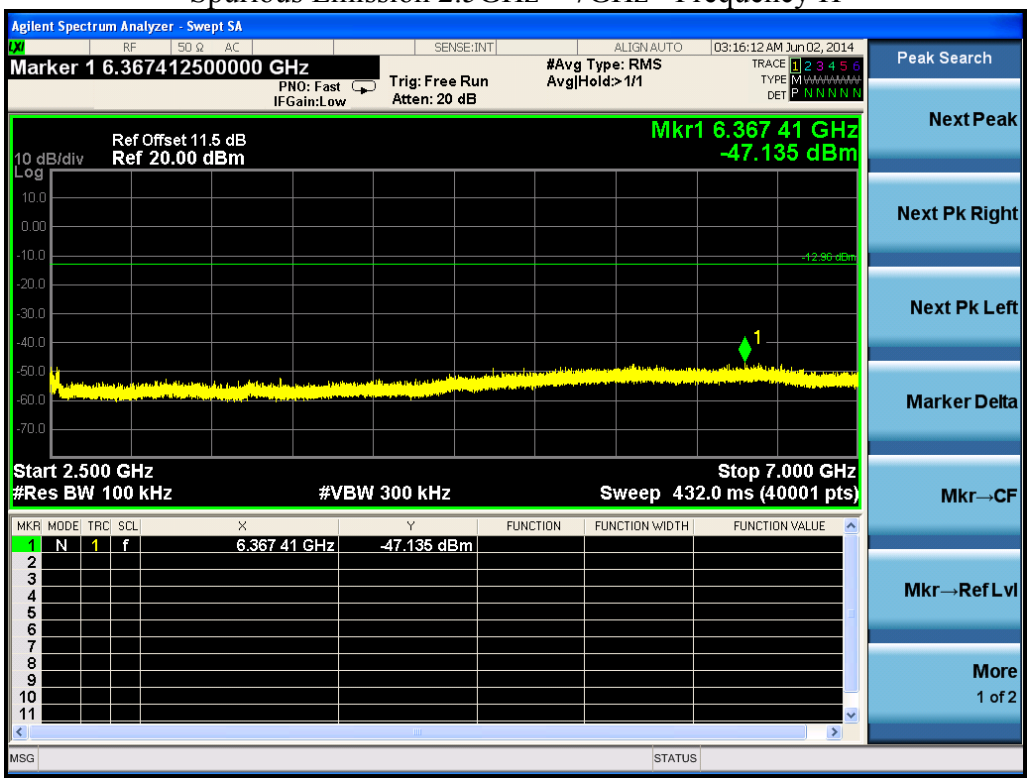
High Band Edge - Frequency H



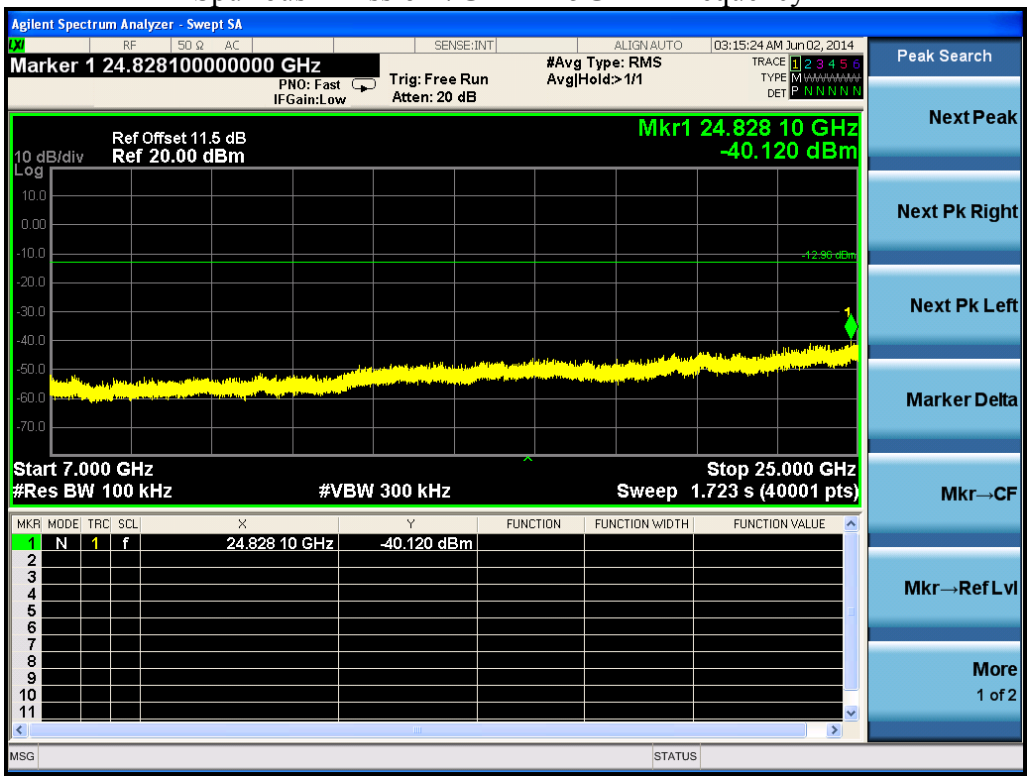
Spurious Emission 1MHz ~ 2.3GHz - Frequency H



Spurious Emission 2.5GHz ~ 7GHz - Frequency H

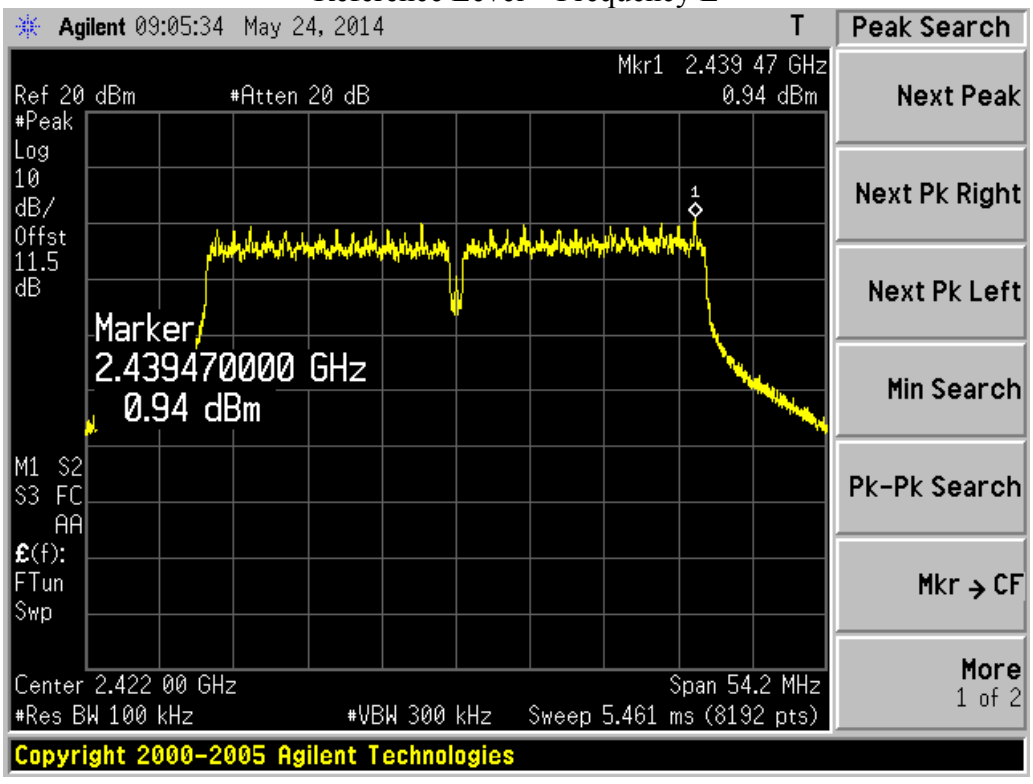


Spurious Emission 7GHz ~ 25GHz - Frequency H

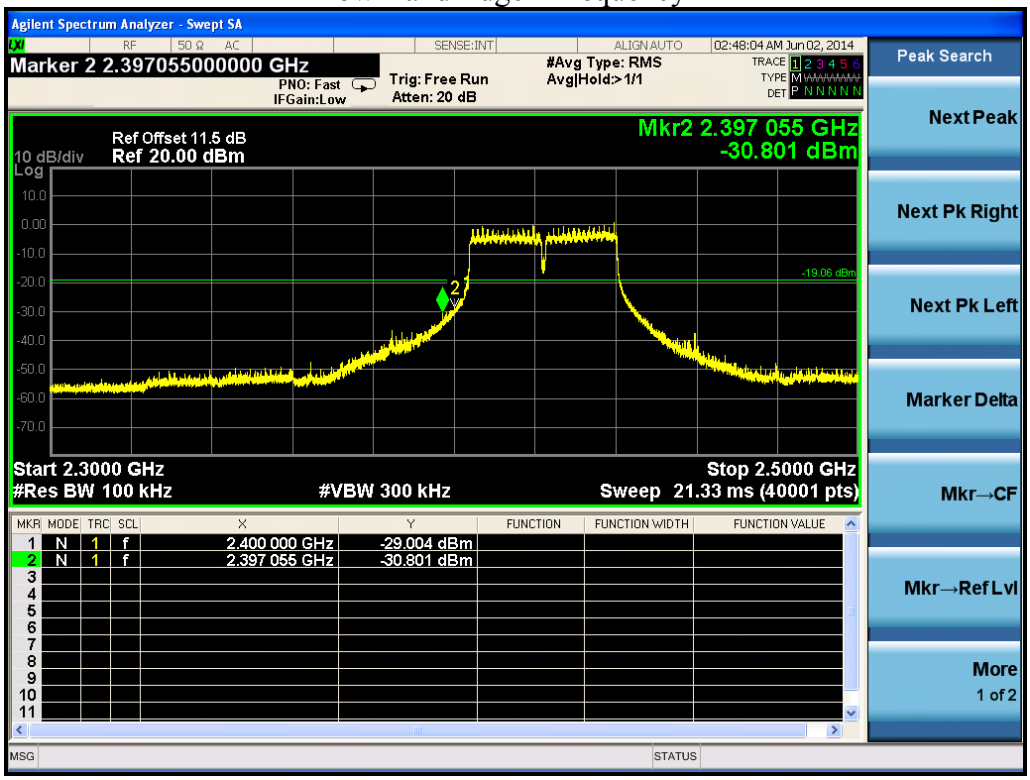


802.11n40 Out-of-Band Emissions – Chain 1

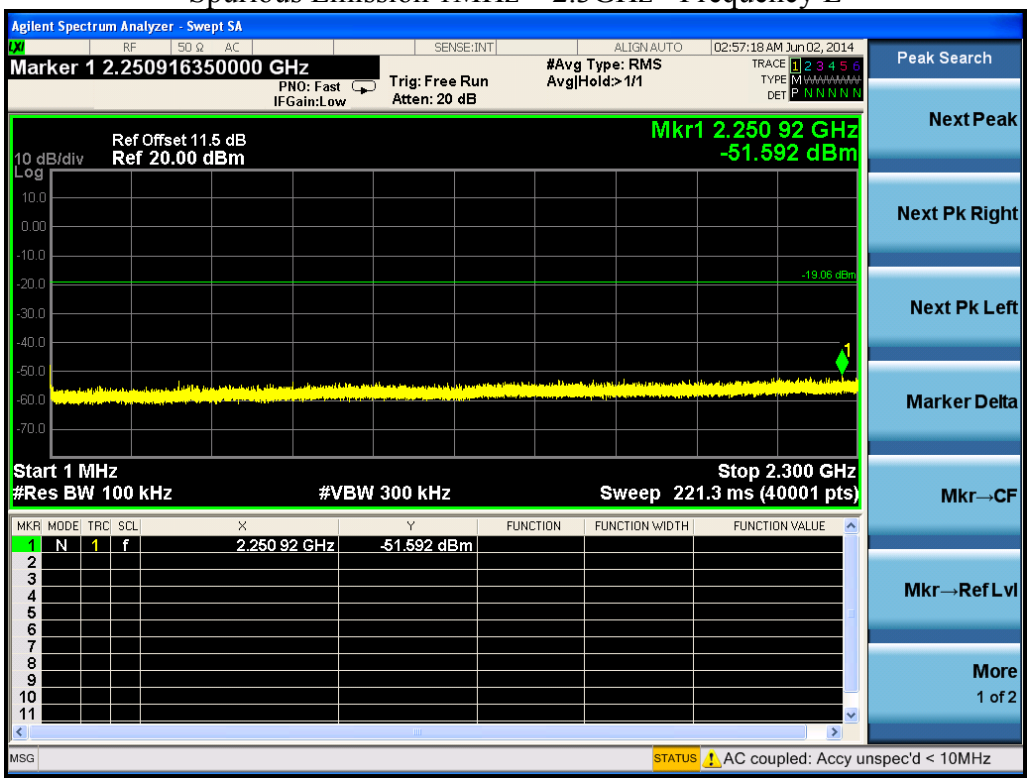
Reference Level – Frequency L



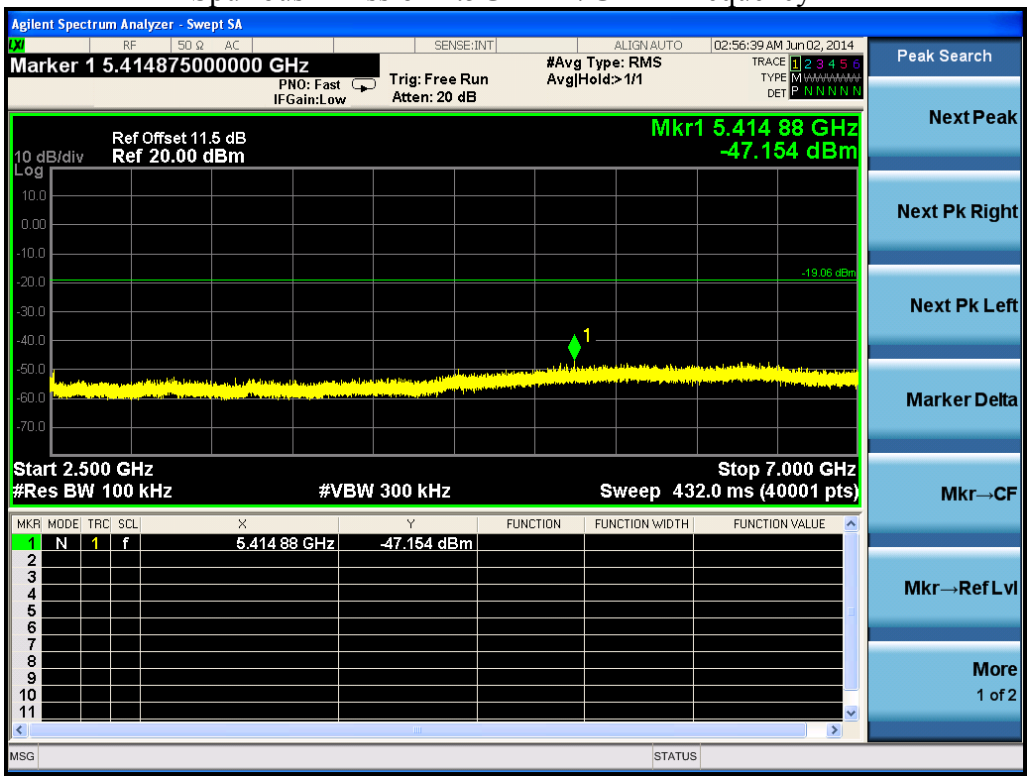
Low Band Edge - Frequency L



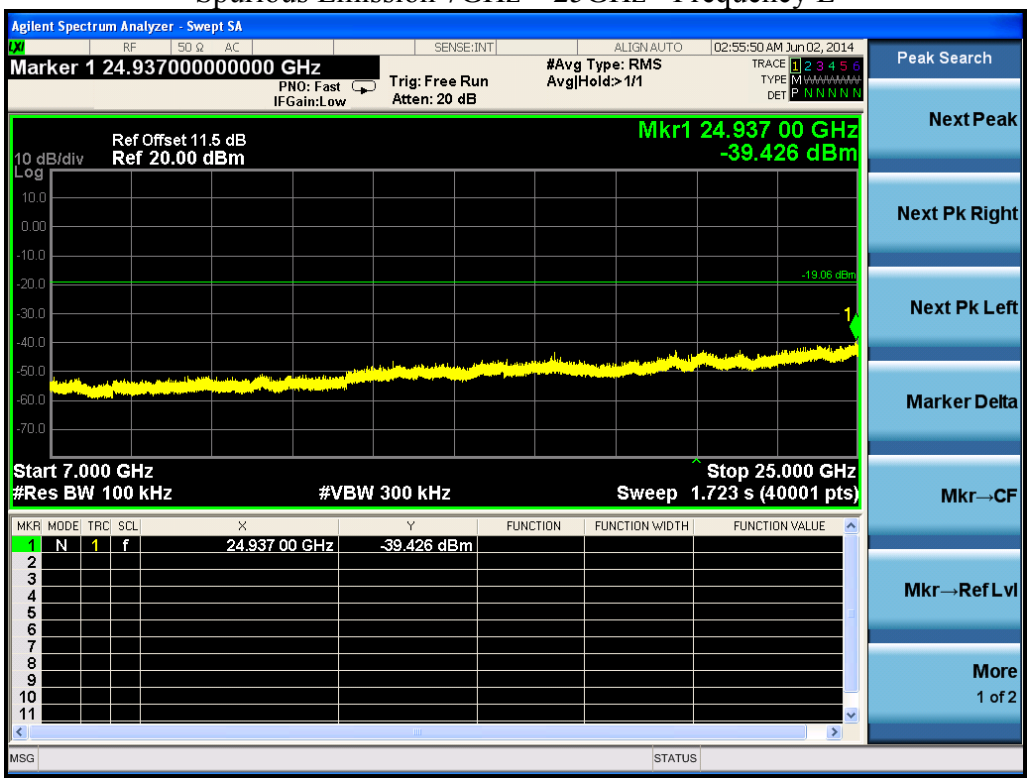
Spurious Emission 1MHz ~ 2.3GHz - Frequency L



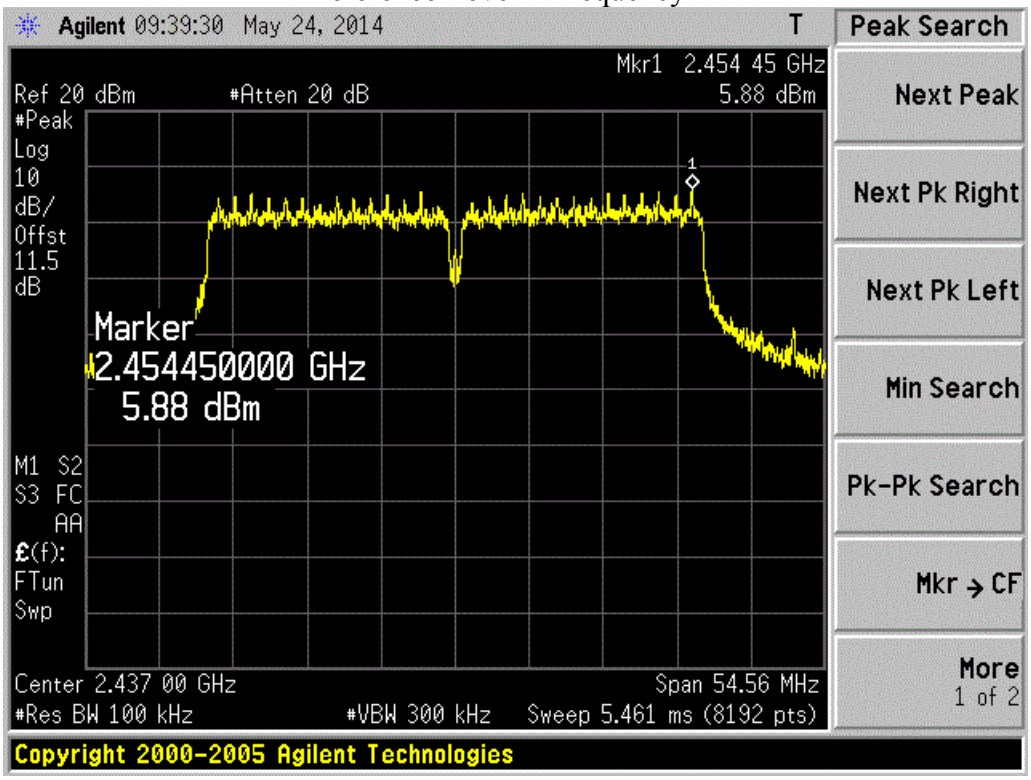
Spurious Emission 2.5GHz ~ 7GHz - Frequency L



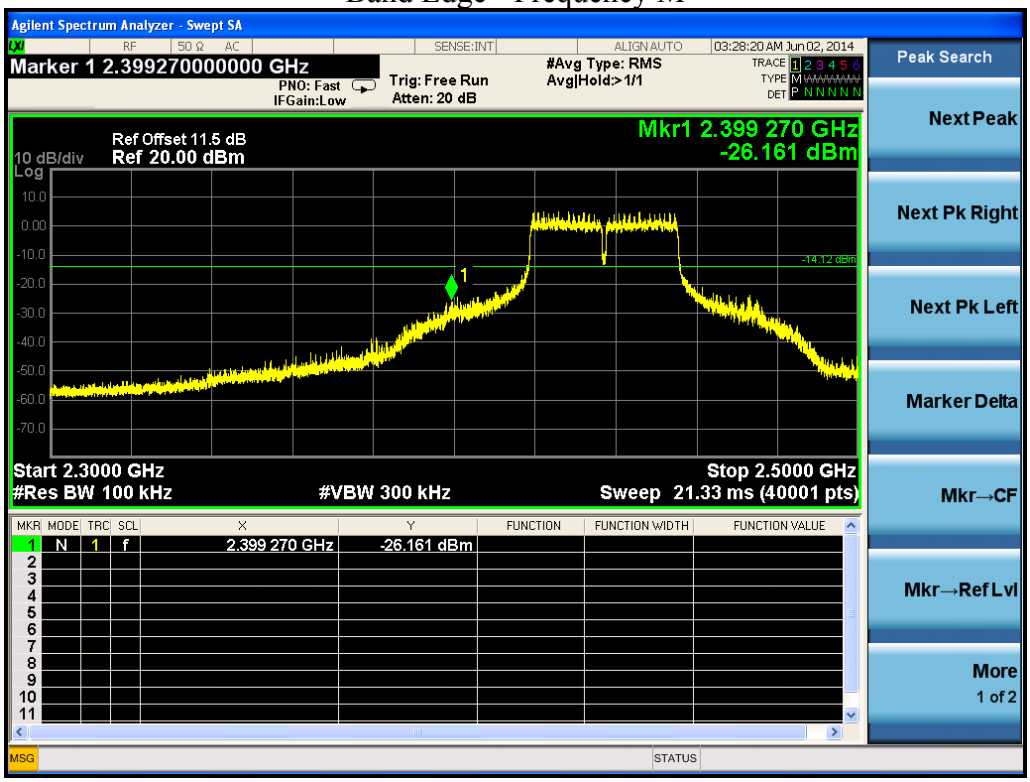
Spurious Emission 7GHz ~ 25GHz - Frequency L



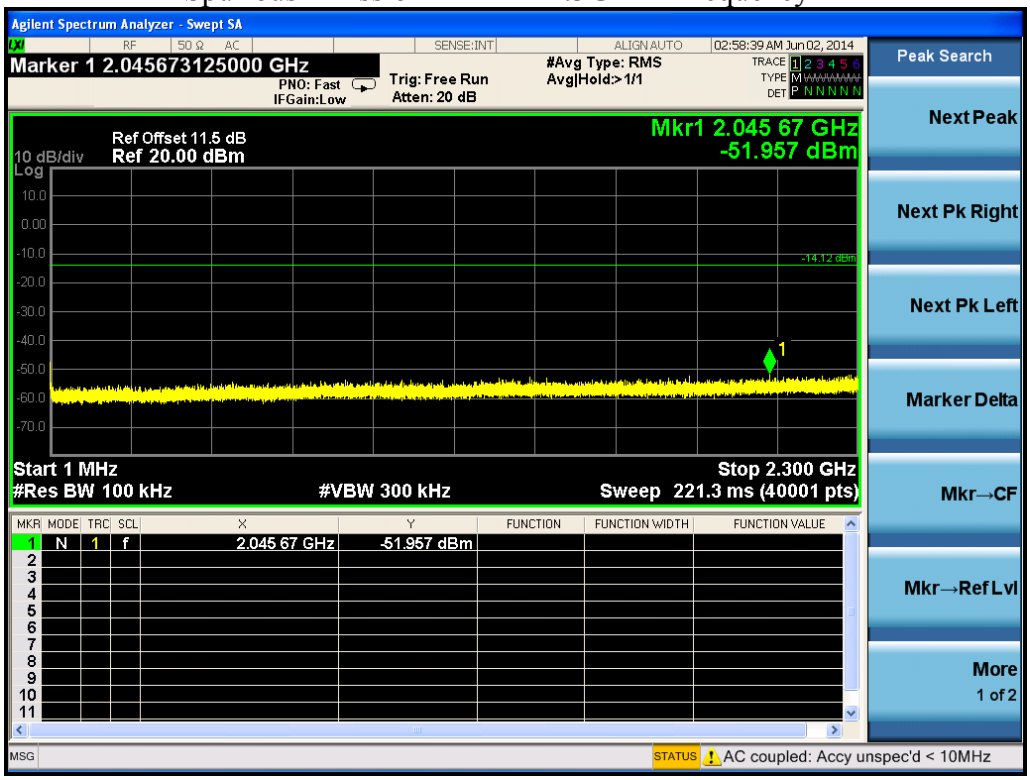
Reference Level – Frequency M



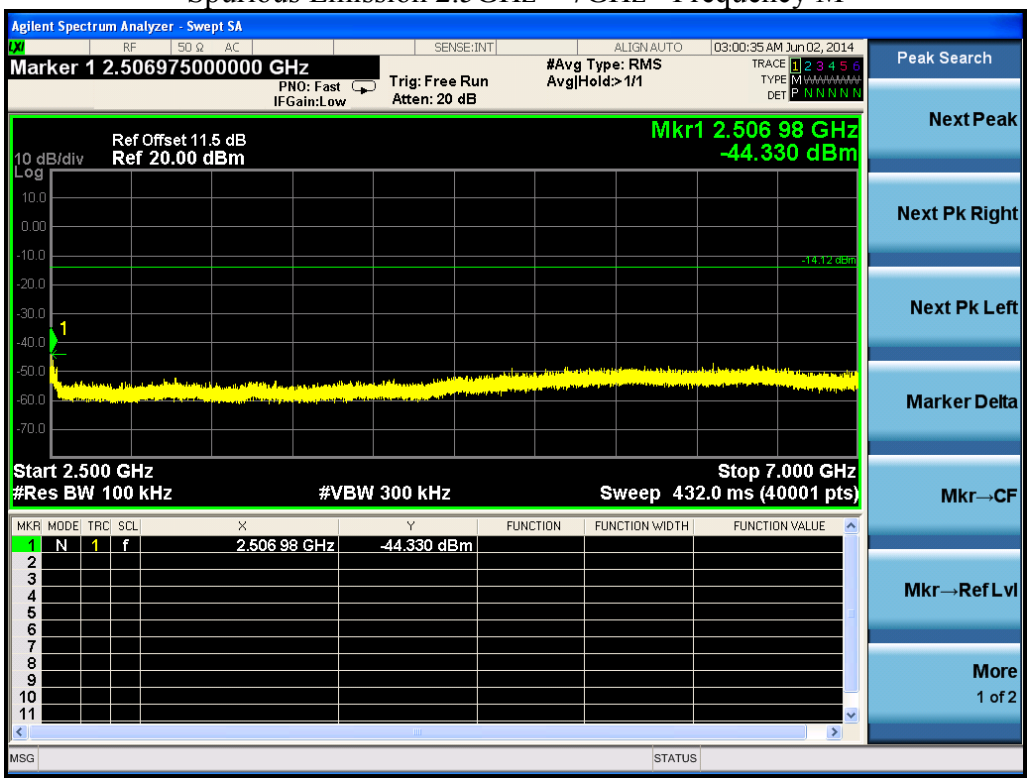
Band Edge - Frequency M



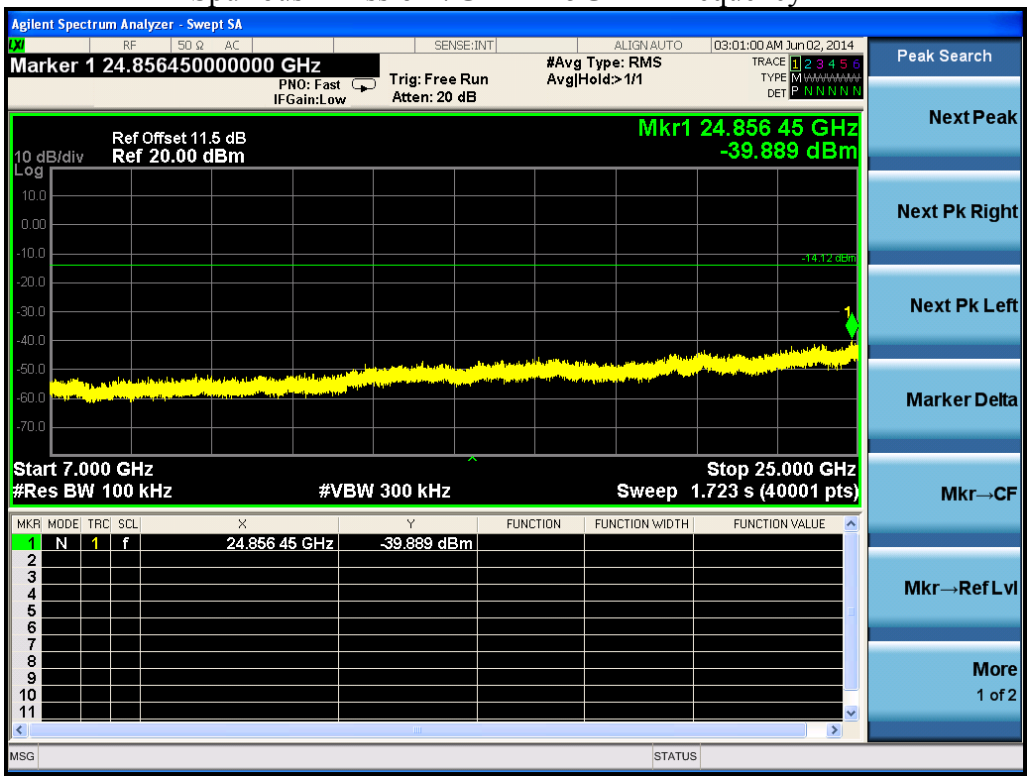
Spurious Emission 1MHz ~ 2.3GHz - Frequency M



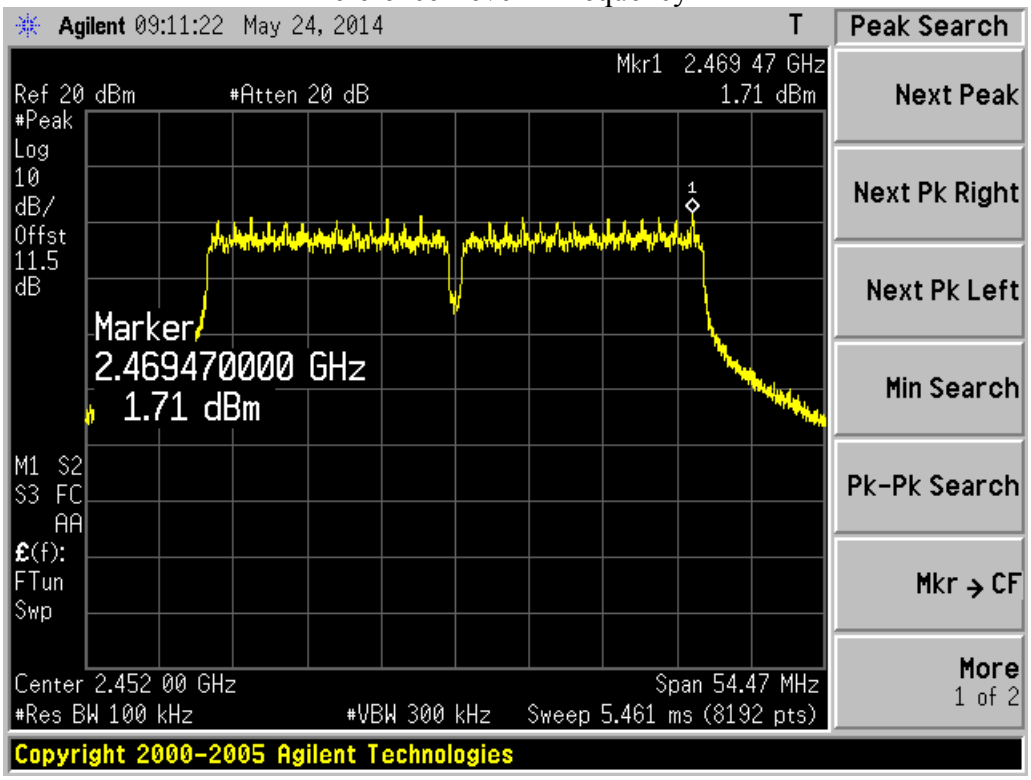
Spurious Emission 2.5GHz ~ 7GHz - Frequency M



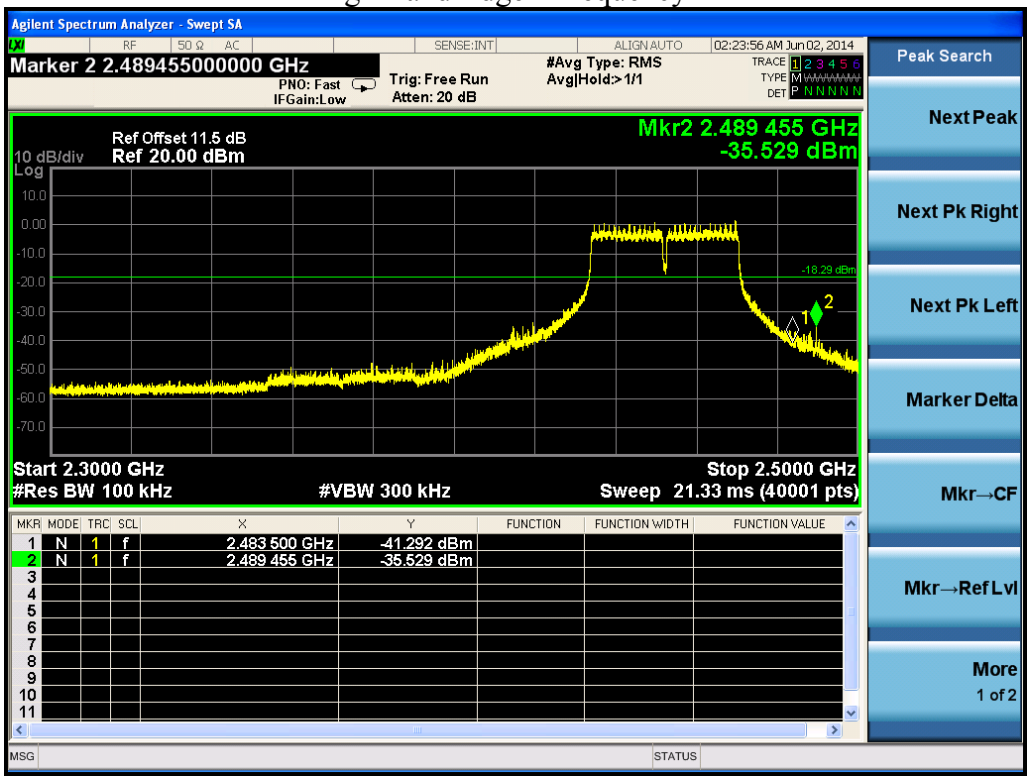
Spurious Emission 7GHz ~ 25GHz - Frequency M



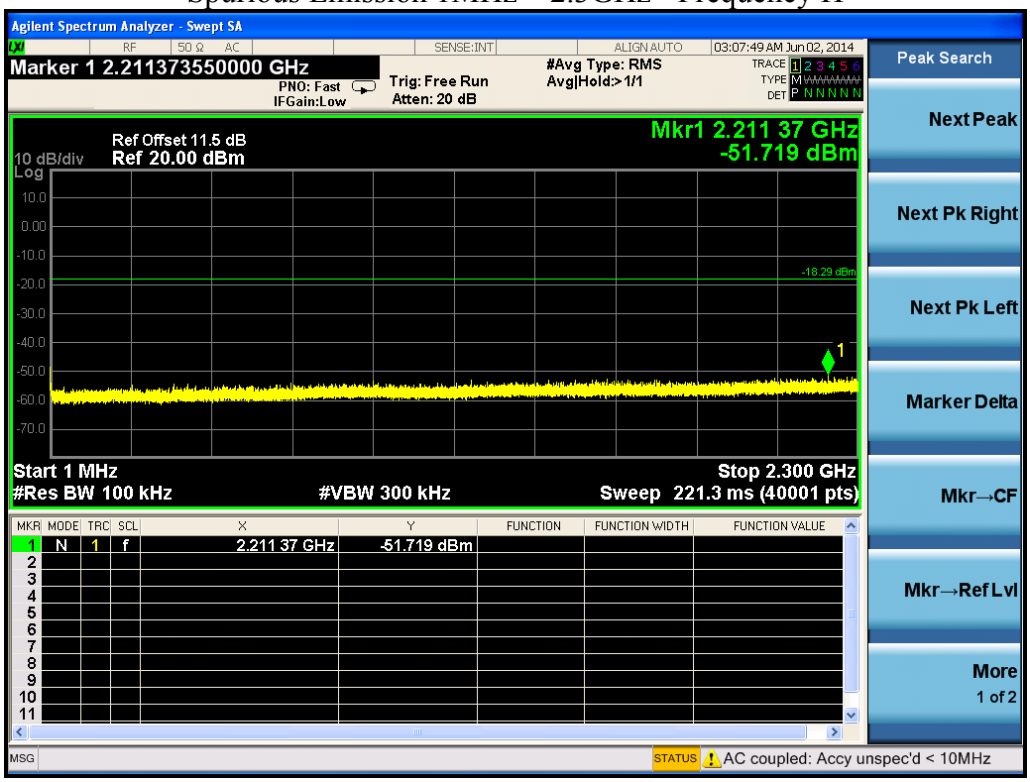
Reference Level – Frequency H



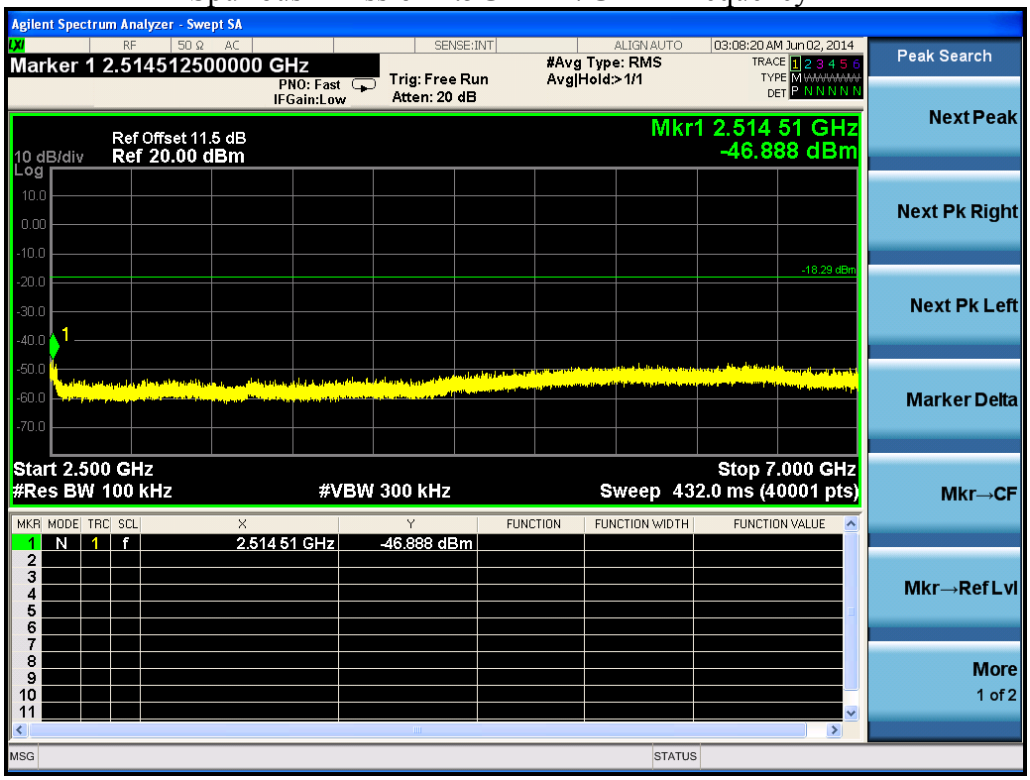
High Band Edge - Frequency H



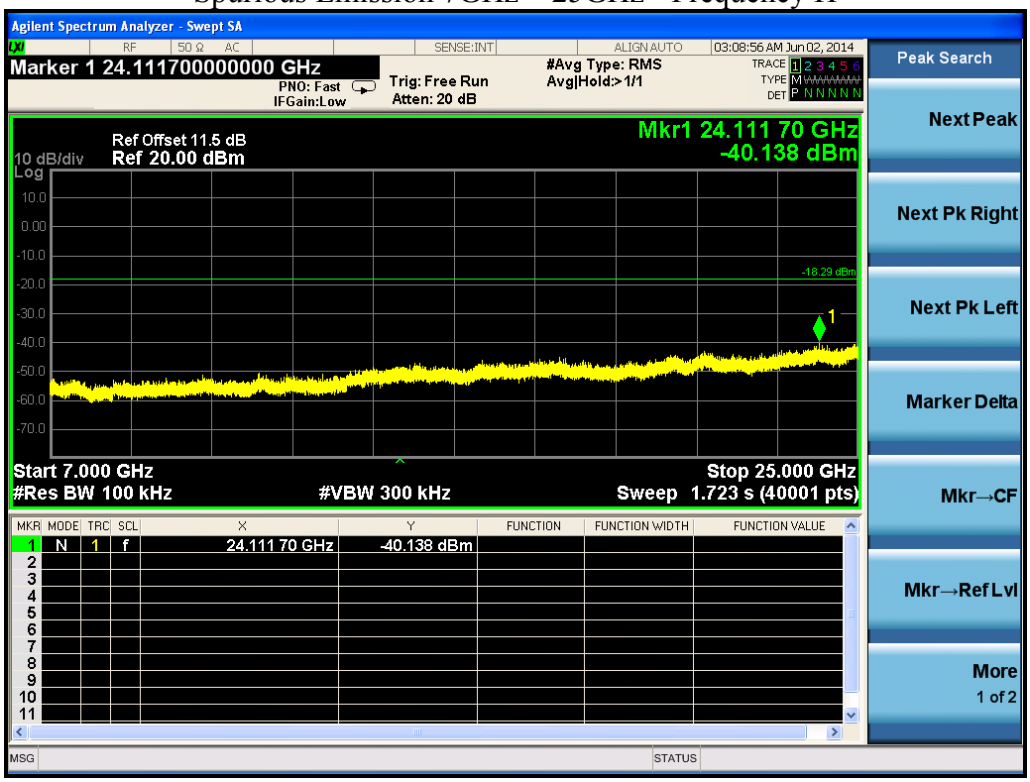
Spurious Emission 1MHz ~ 2.3GHz - Frequency H



Spurious Emission 2.5GHz ~ 7GHz - Frequency H

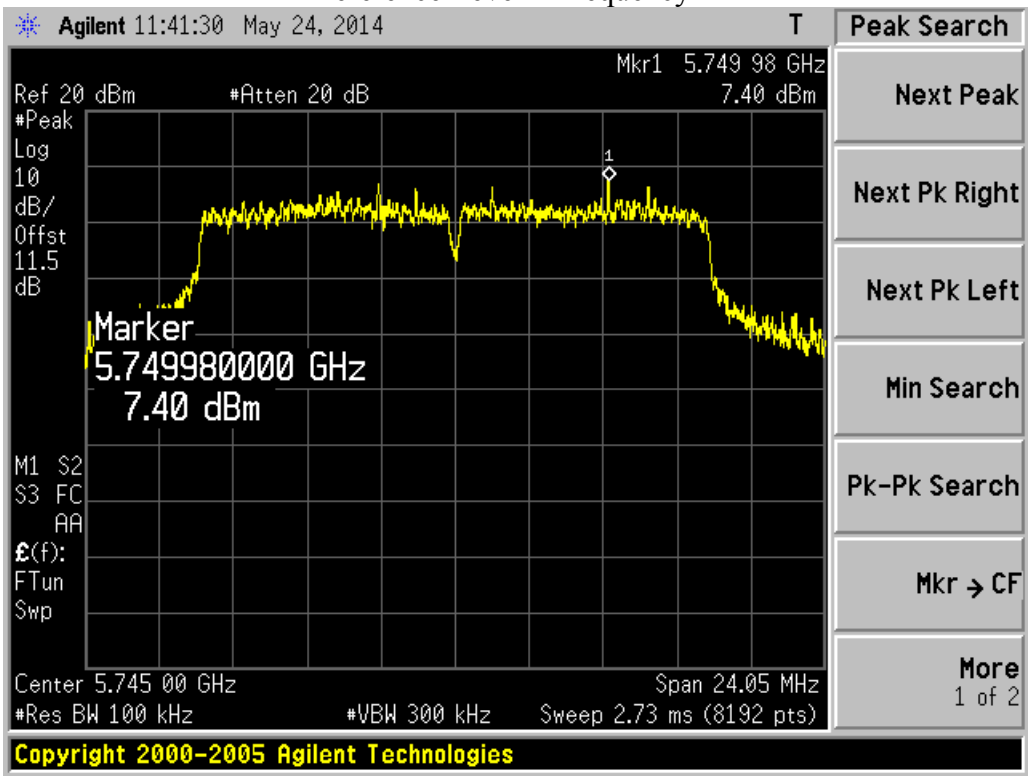


Spurious Emission 7GHz ~ 25GHz - Frequency H

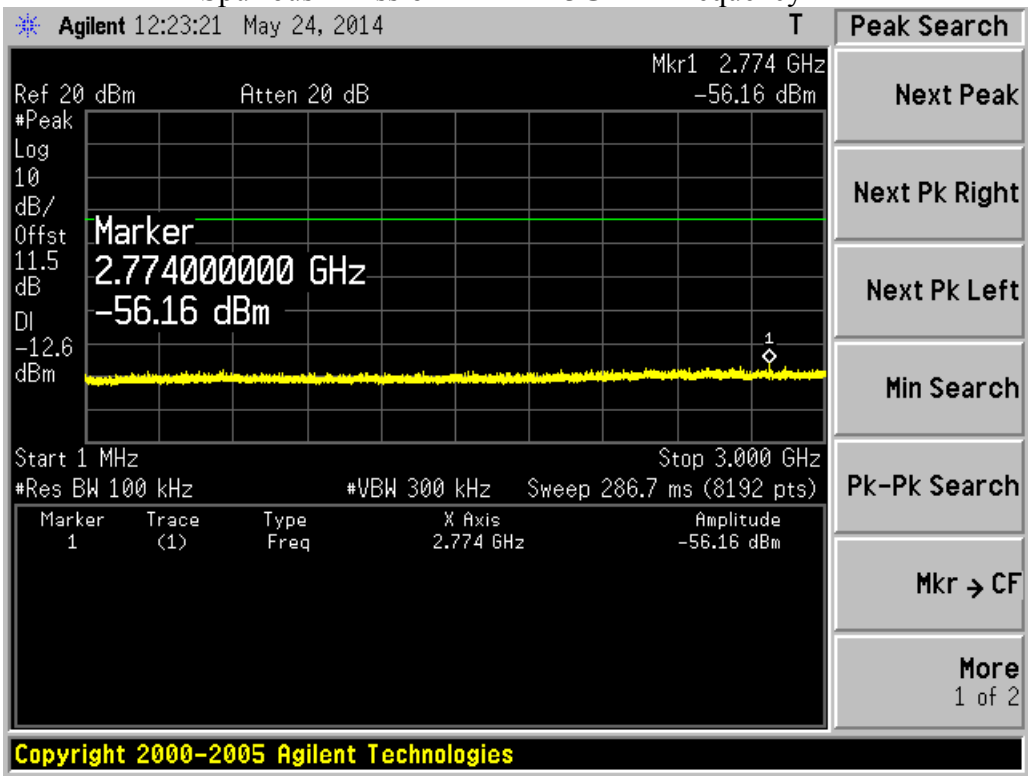


802.11a Out-of-Band Emissions – Chain 0

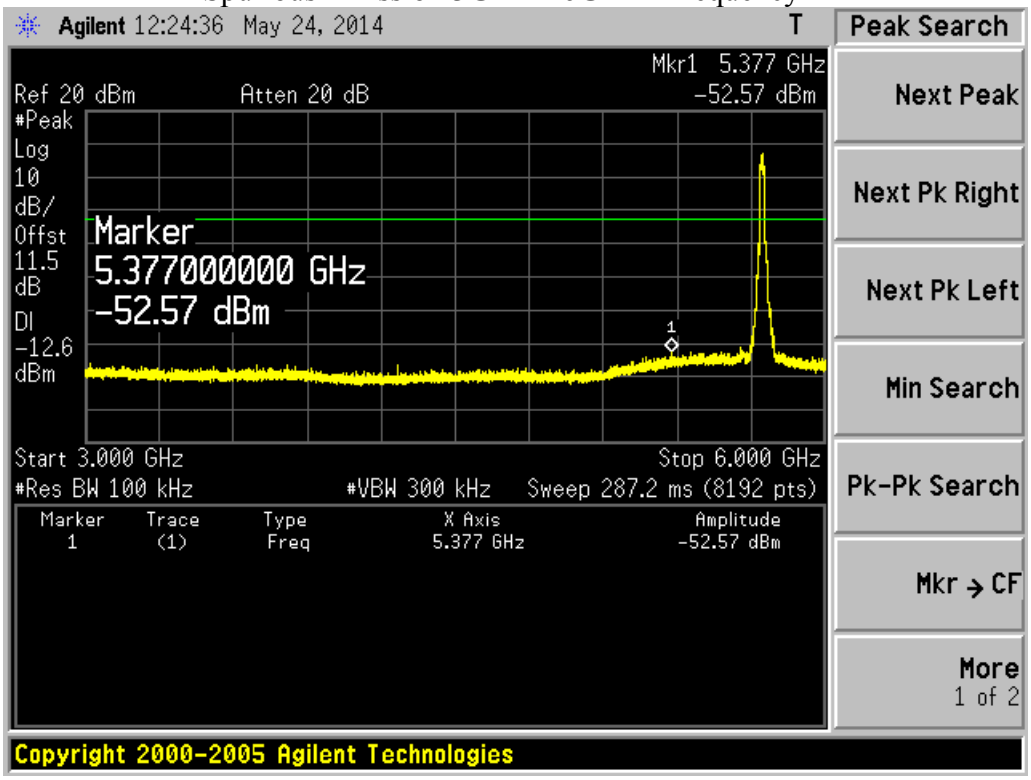
Reference Level – Frequency L



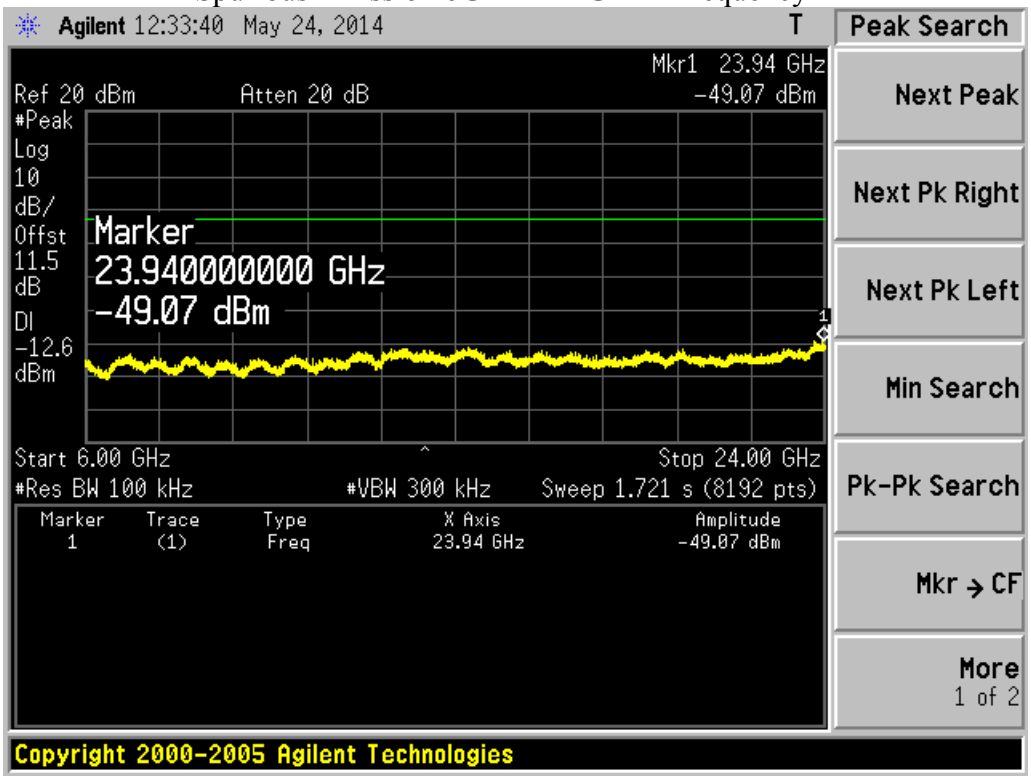
Spurious Emission 1MHz ~ 3GHz - Frequency L



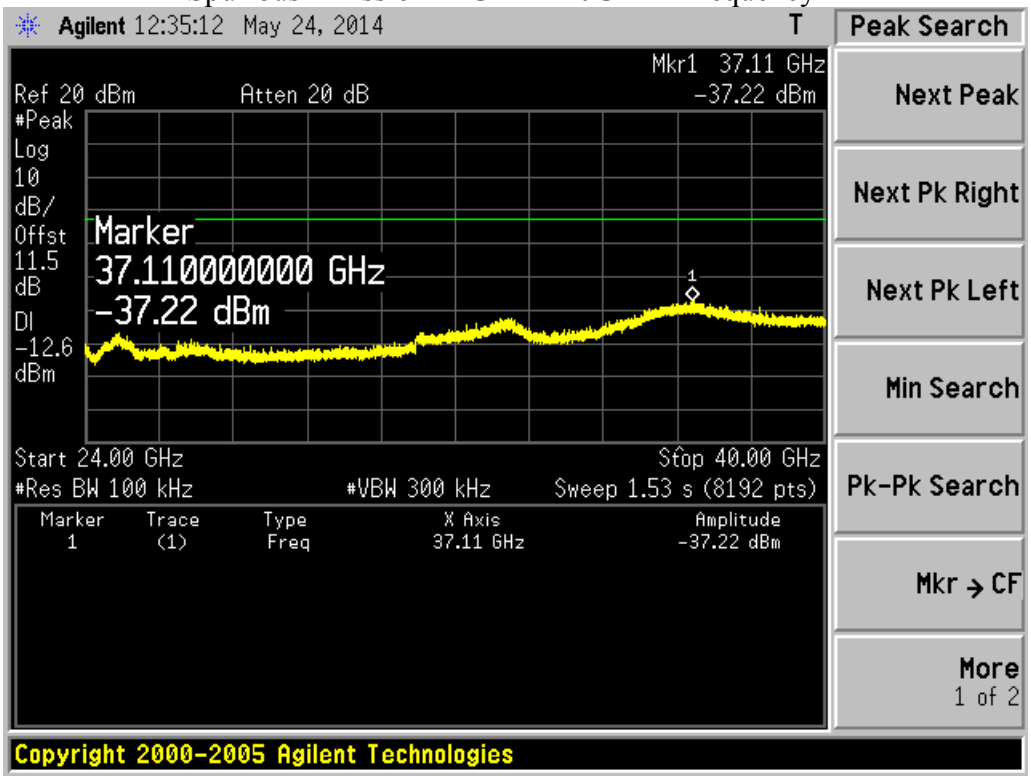
Spurious Emission 3GHz ~ 6GHz - Frequency L



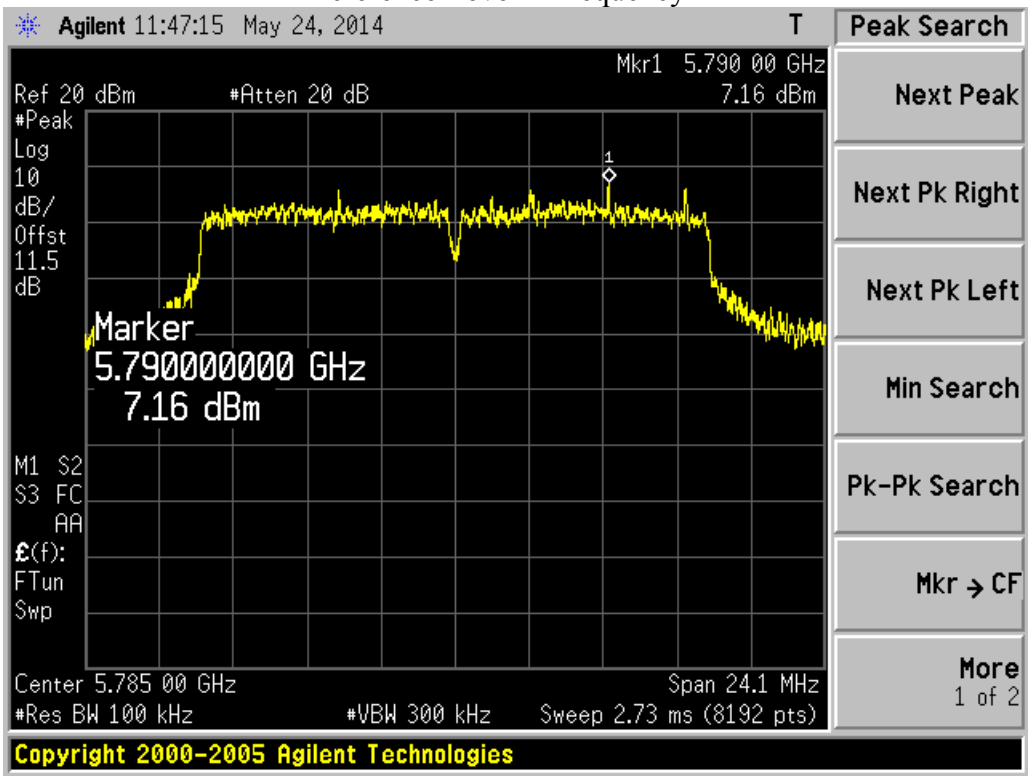
Spurious Emission 6GHz ~ 24GHz - Frequency L



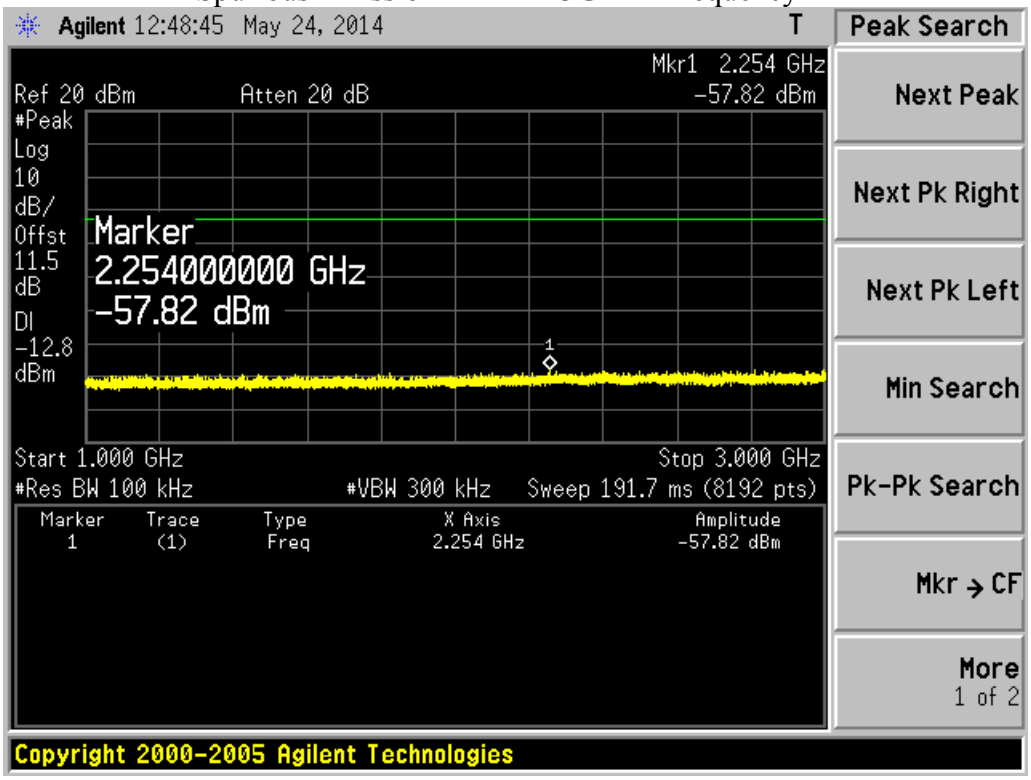
Spurious Emission 24GHz ~ 40GHz - Frequency L



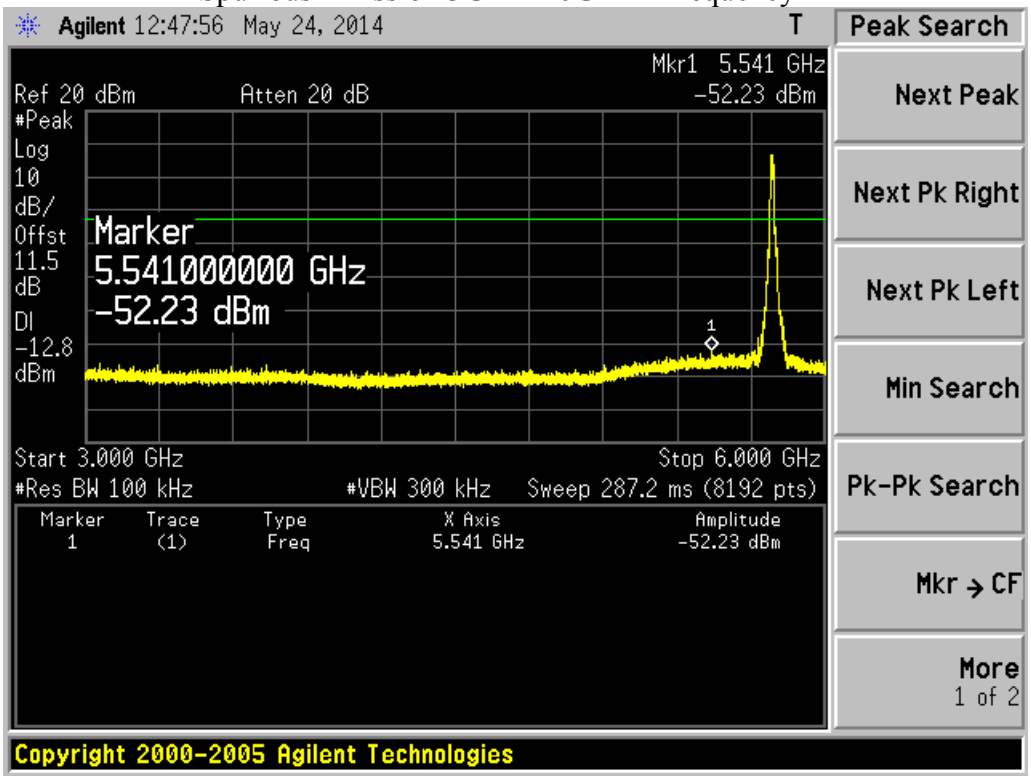
Reference Level – Frequency M



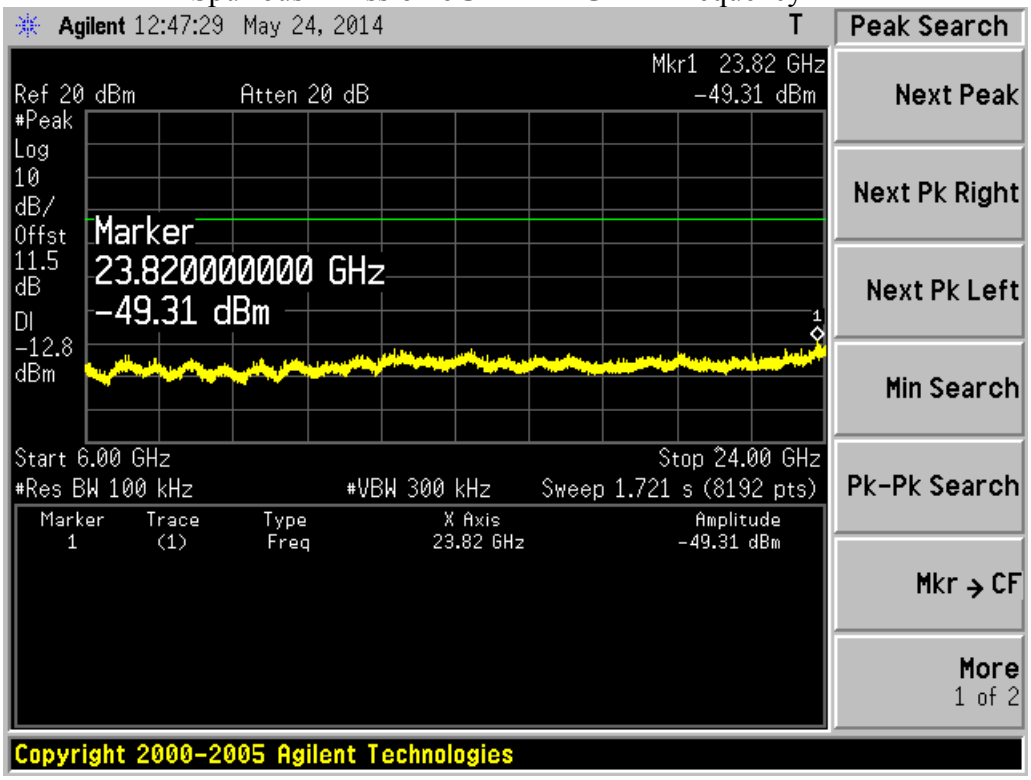
Spurious Emission 1MHz ~ 3GHz - Frequency M



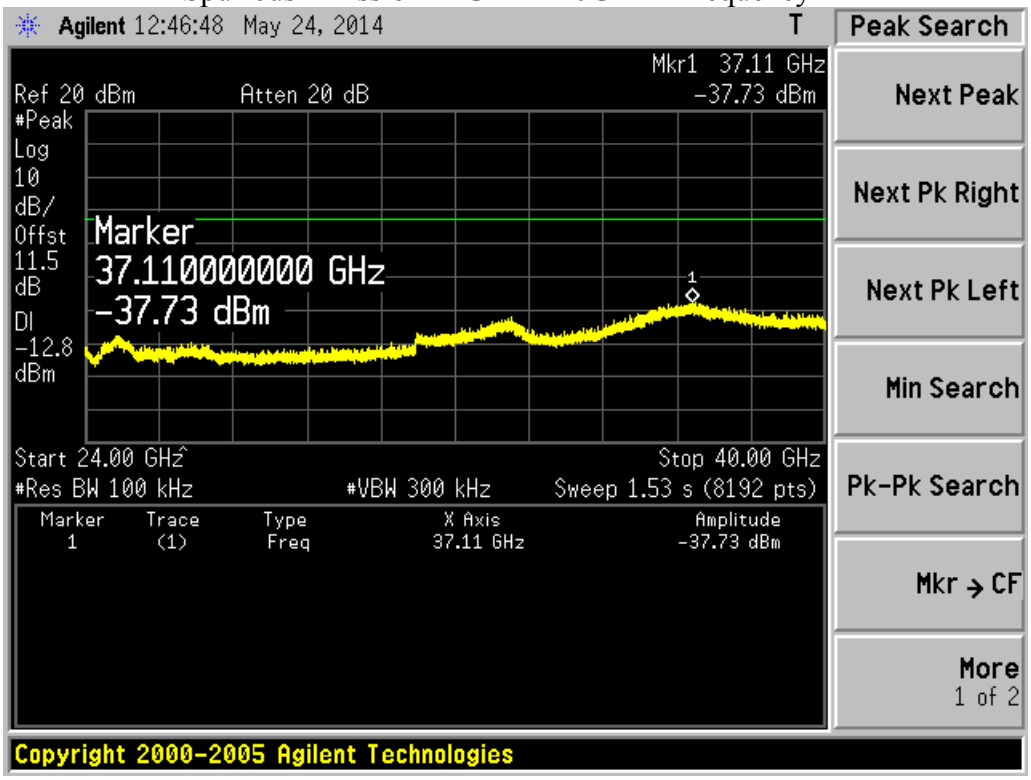
Spurious Emission 3GHz ~ 6GHz - Frequency M



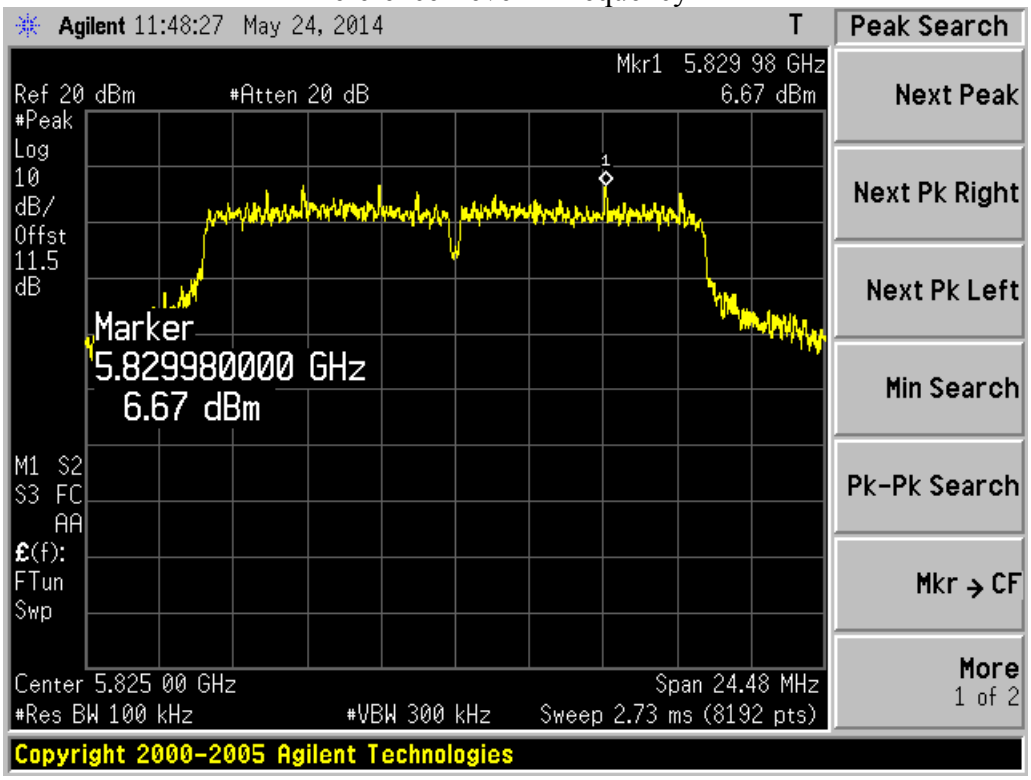
Spurious Emission 6GHz ~ 24GHz - Frequency M



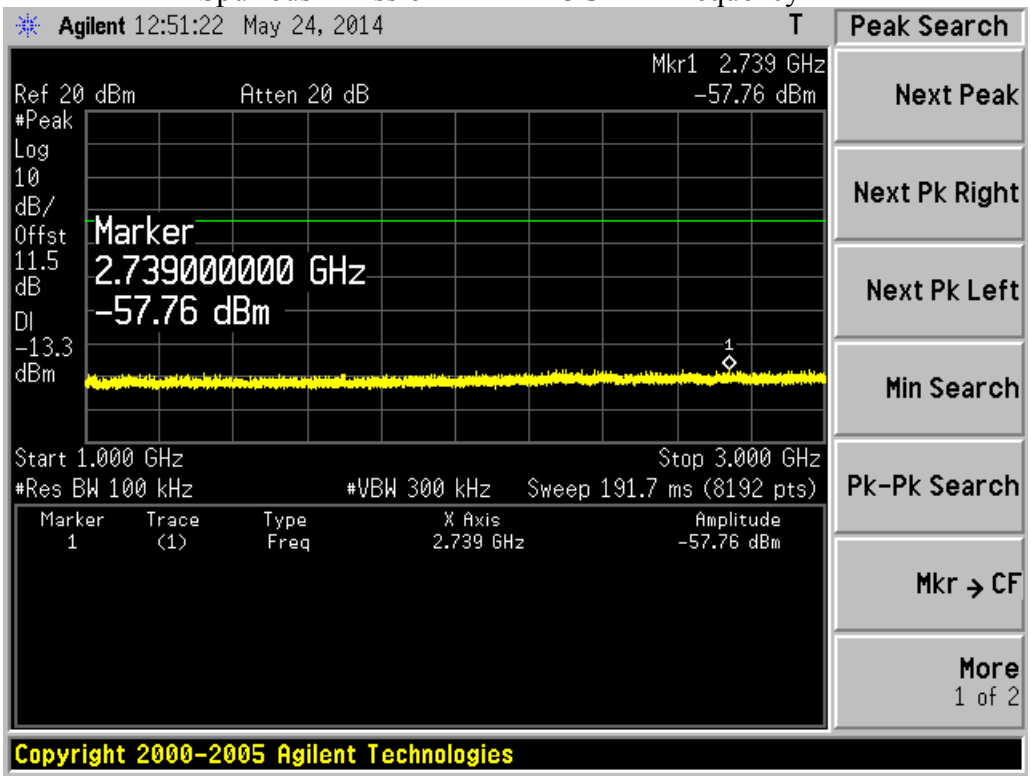
Spurious Emission 24GHz ~ 40GHz - Frequency M



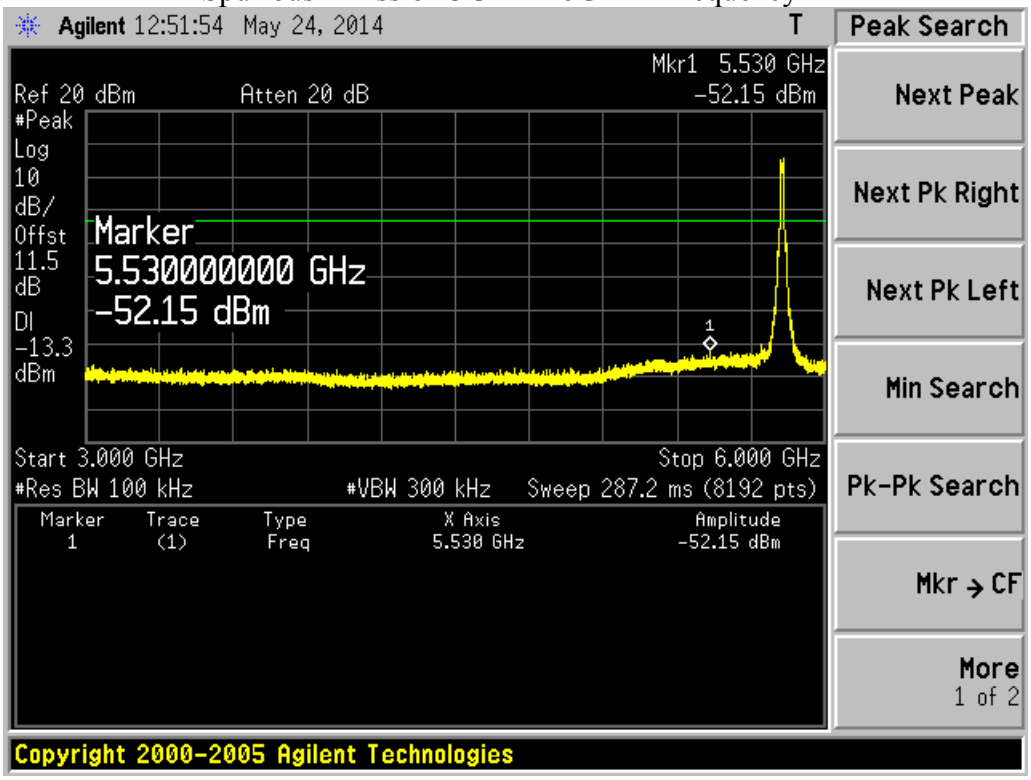
Reference Level – Frequency H



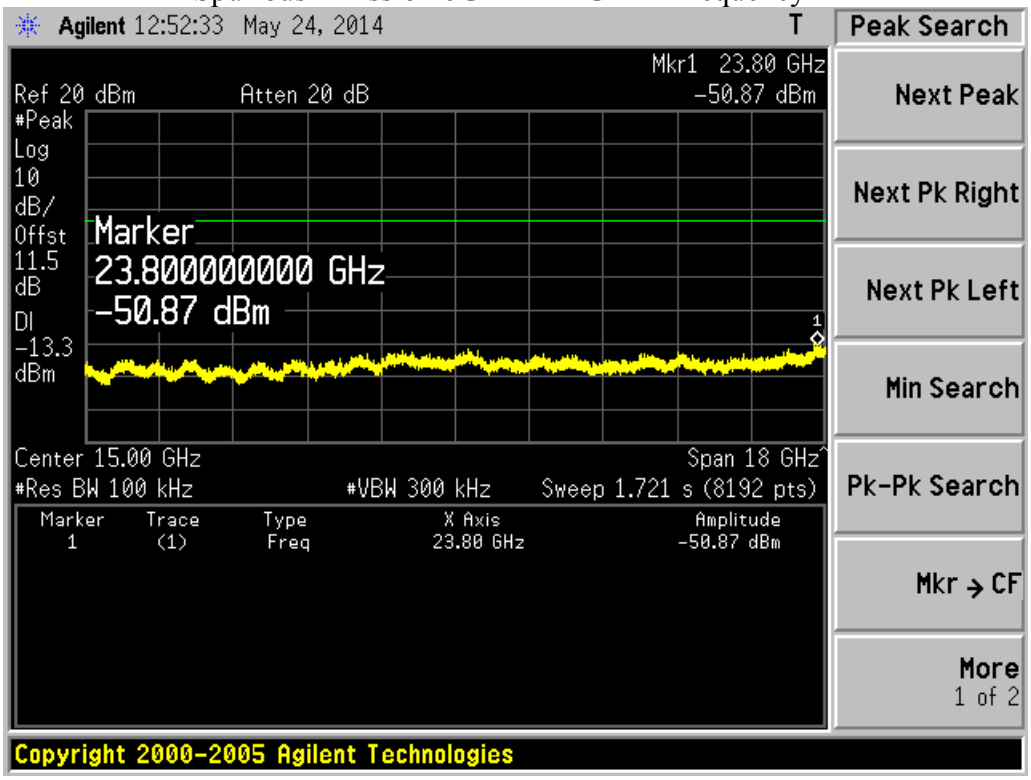
Spurious Emission 1MHz ~ 3GHz - Frequency H



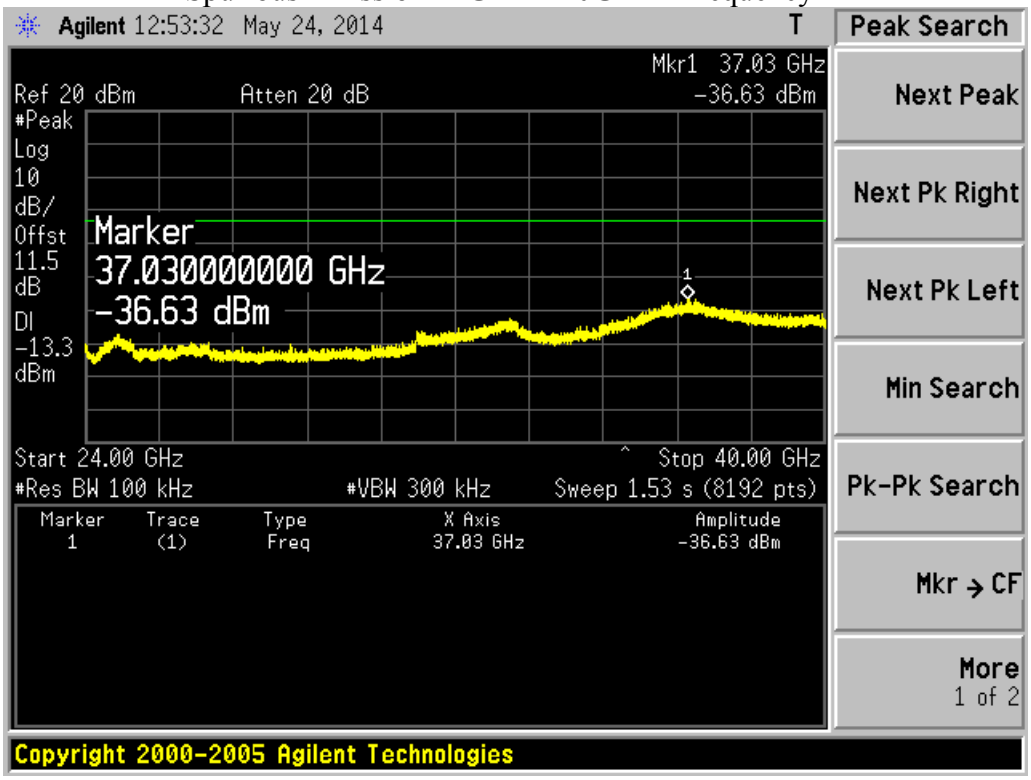
Spurious Emission 3GHz ~ 6GHz - Frequency H



Spurious Emission 6GHz ~ 24GHz - Frequency H

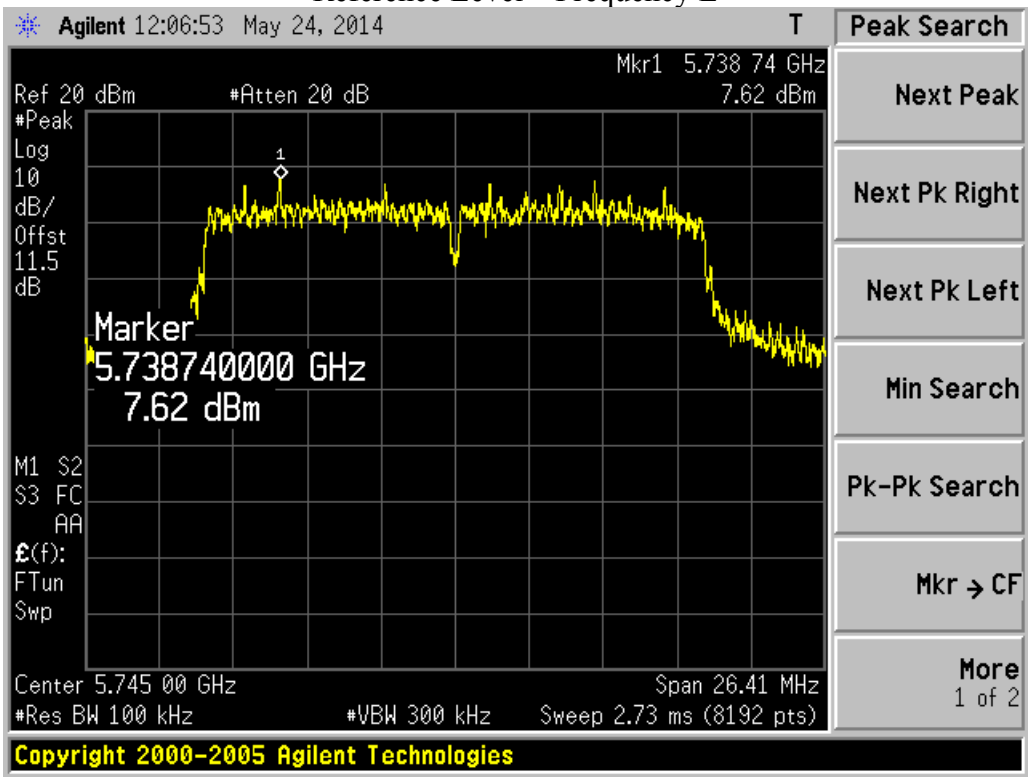


Spurious Emission 24GHz ~ 40GHz - Frequency H

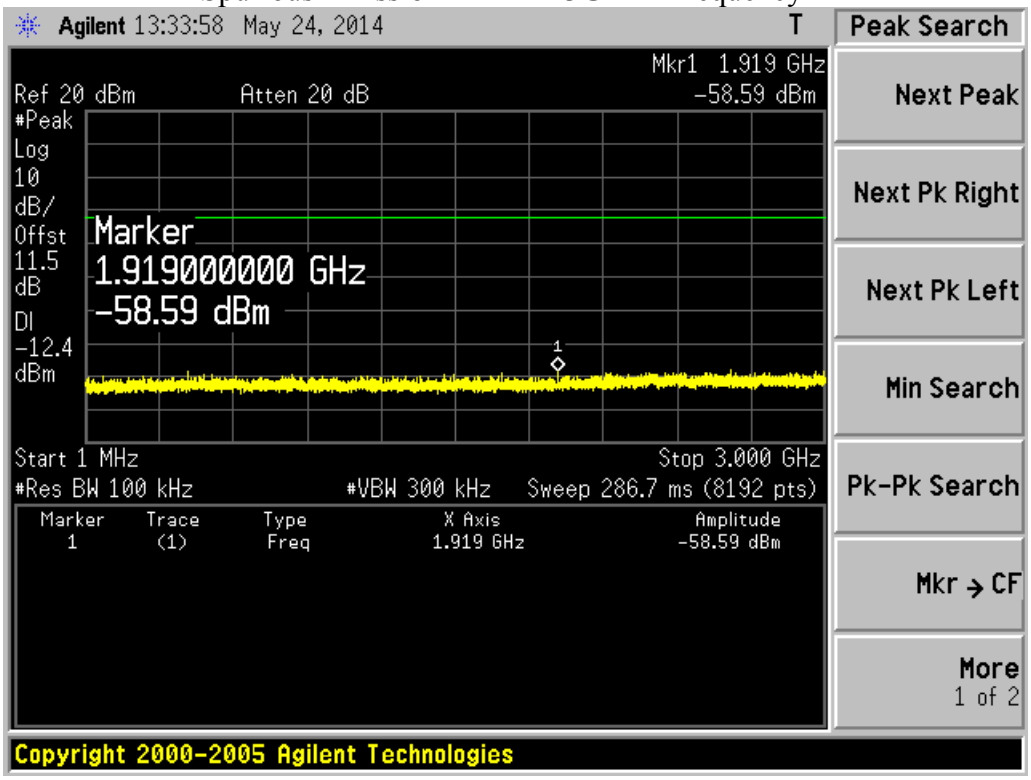


802.11n20 Out-of-Band Emissions – Chain 0

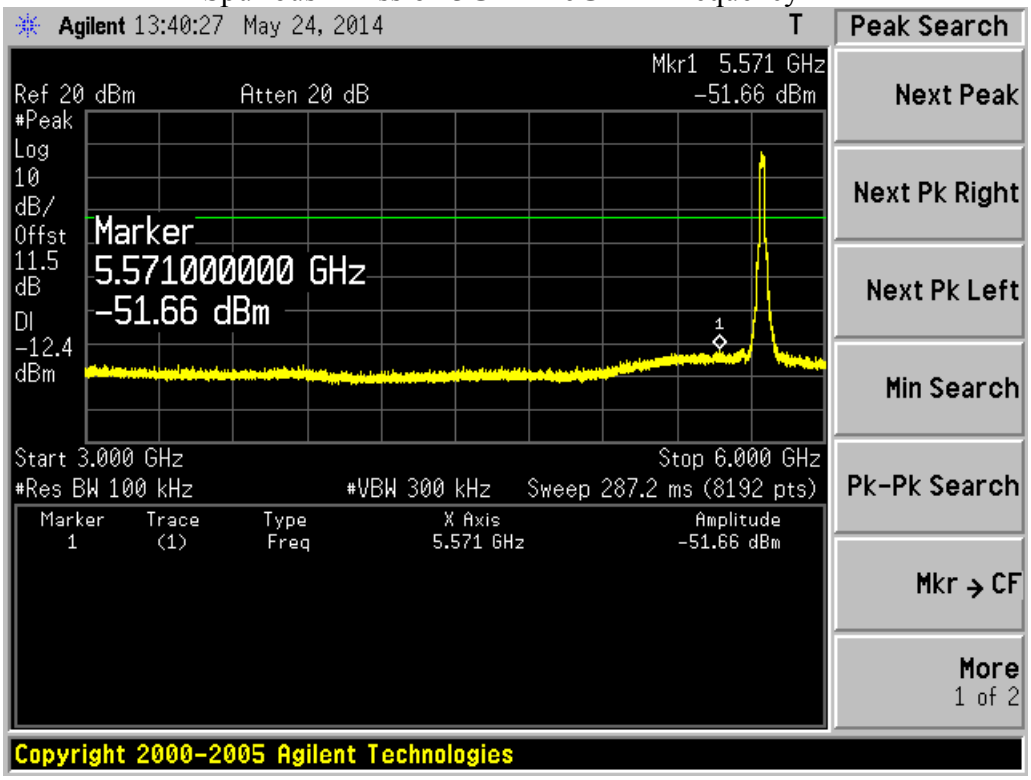
Reference Level – Frequency L



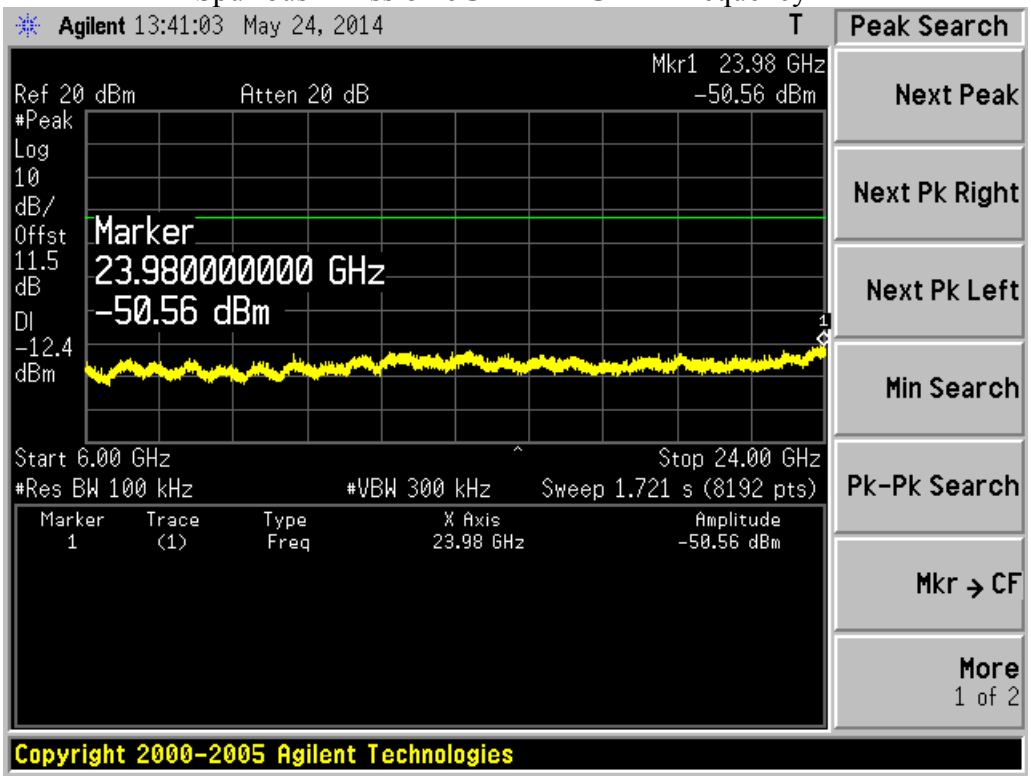
Spurious Emission 1MHz ~ 3GHz - Frequency L



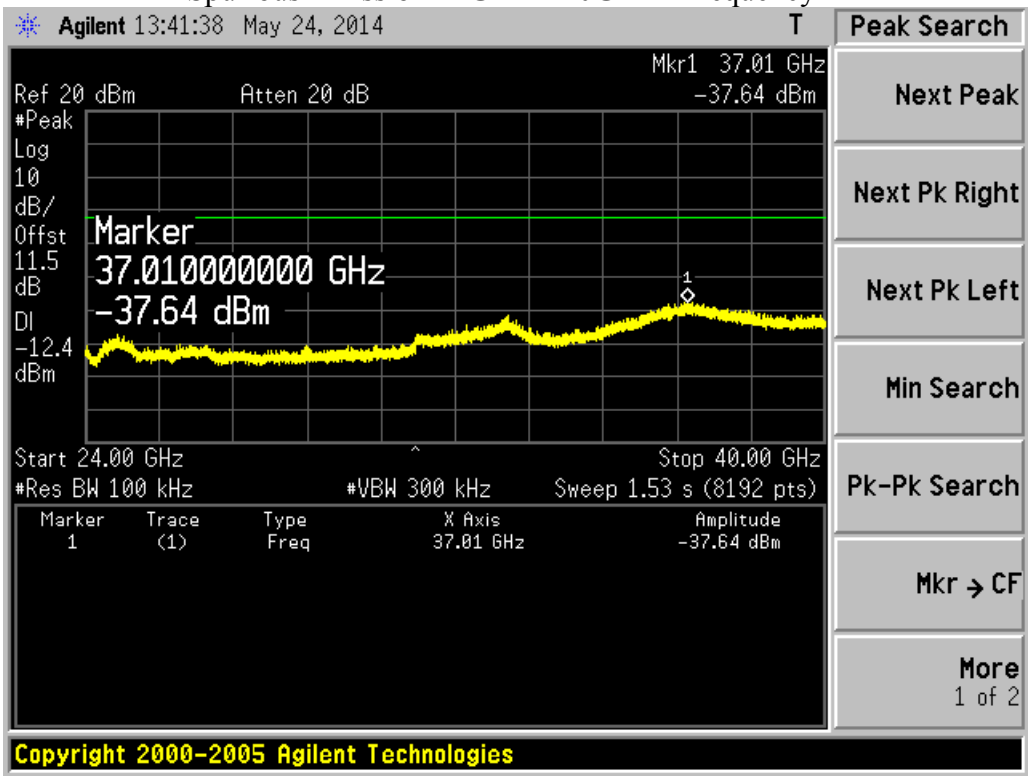
Spurious Emission 3GHz ~ 6GHz - Frequency L



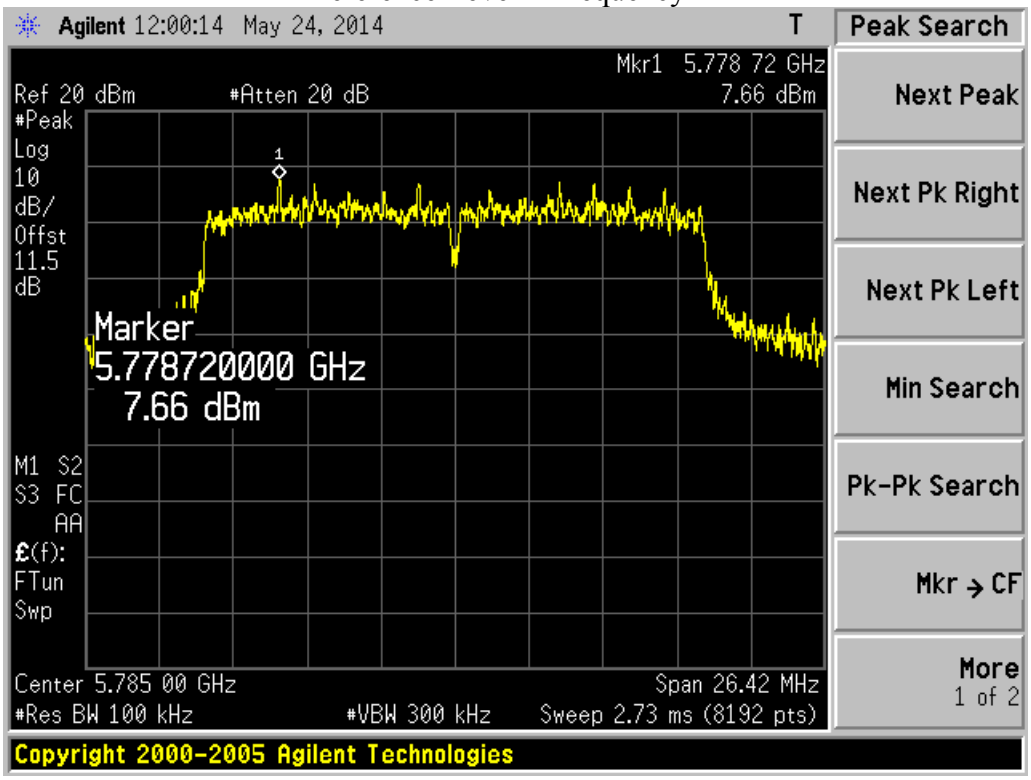
Spurious Emission 6GHz ~ 24GHz - Frequency L



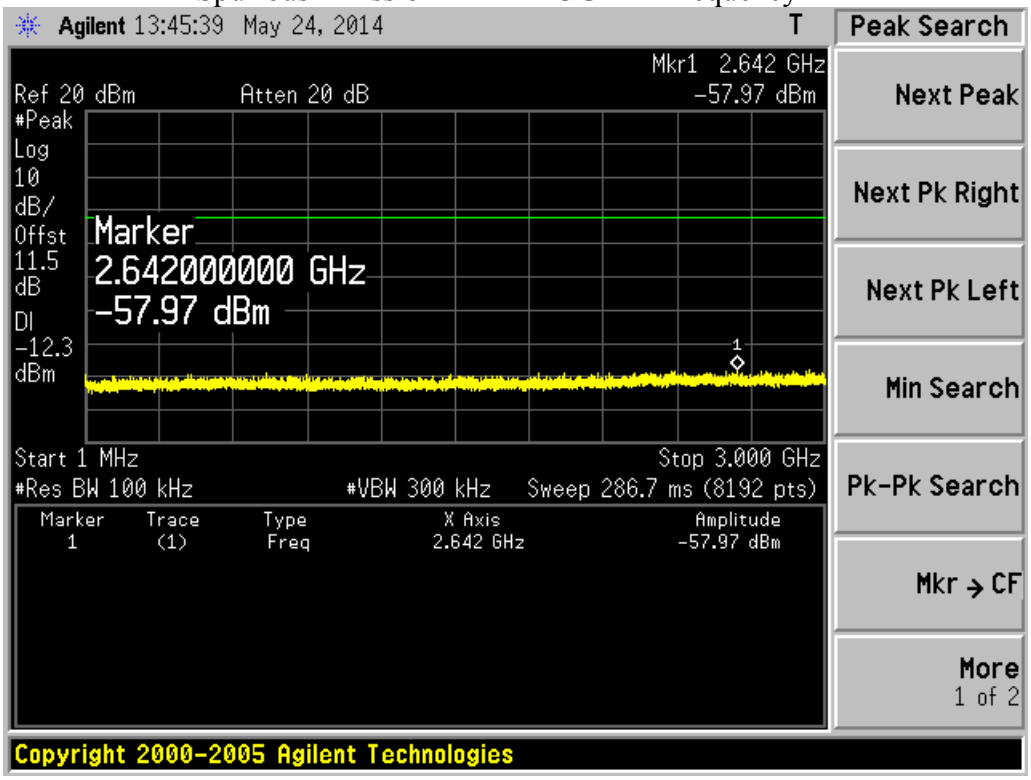
Spurious Emission 24GHz ~ 40GHz - Frequency L



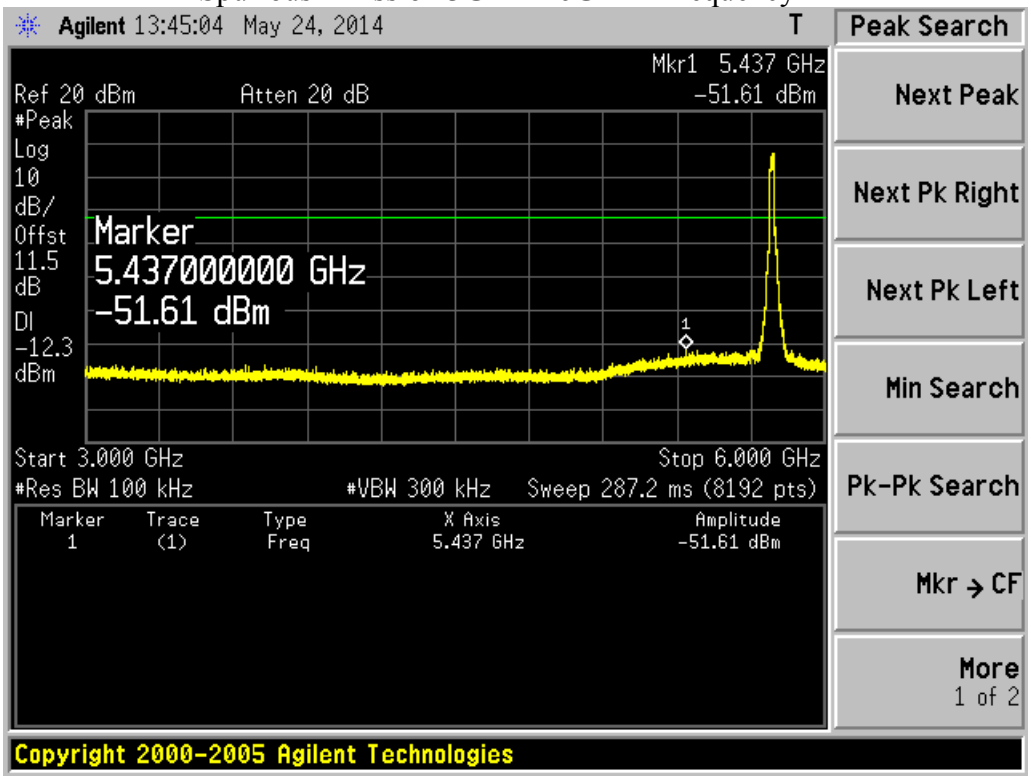
Reference Level – Frequency M



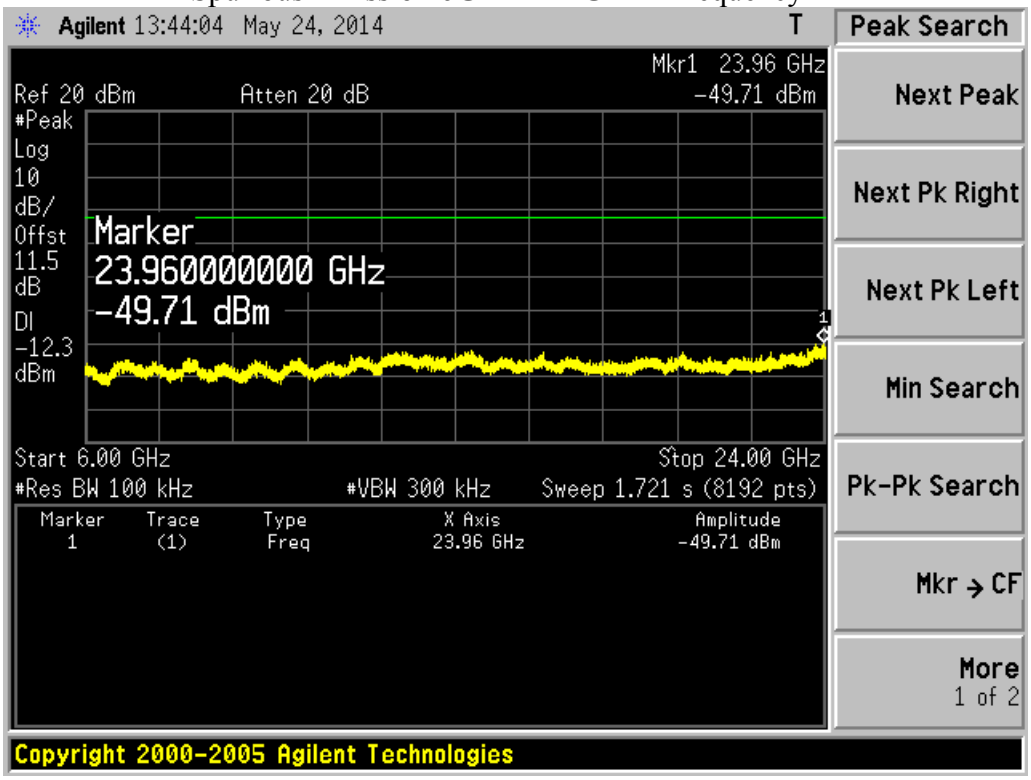
Spurious Emission 1MHz ~ 3GHz - Frequency M



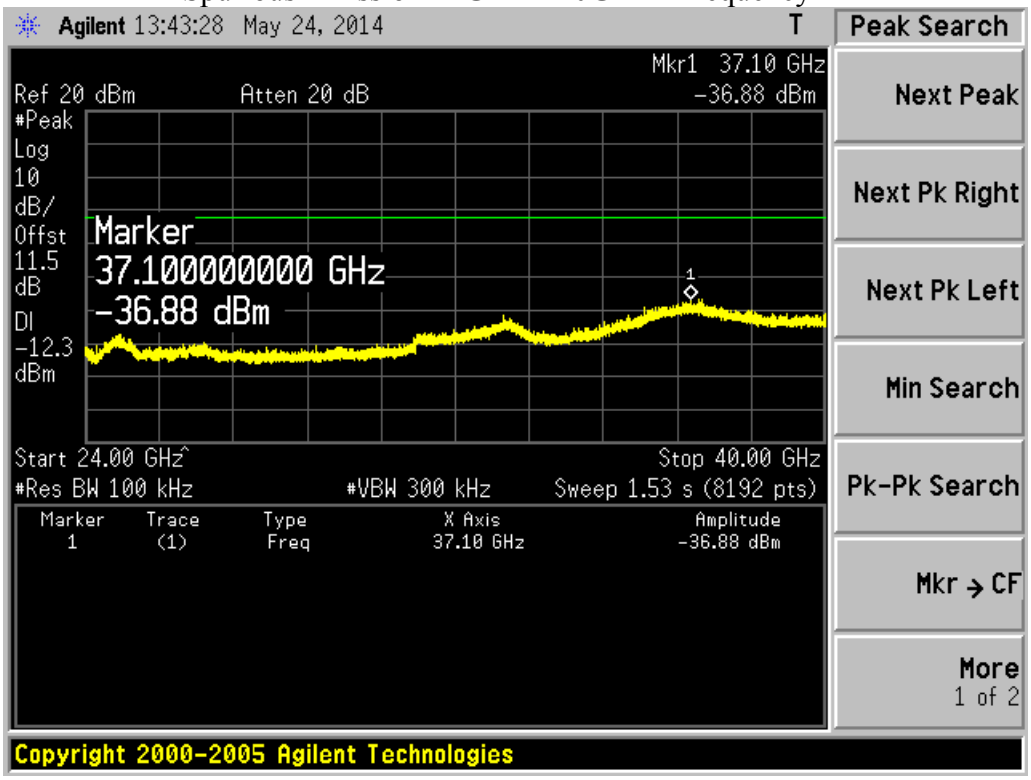
Spurious Emission 3GHz ~ 6GHz - Frequency M



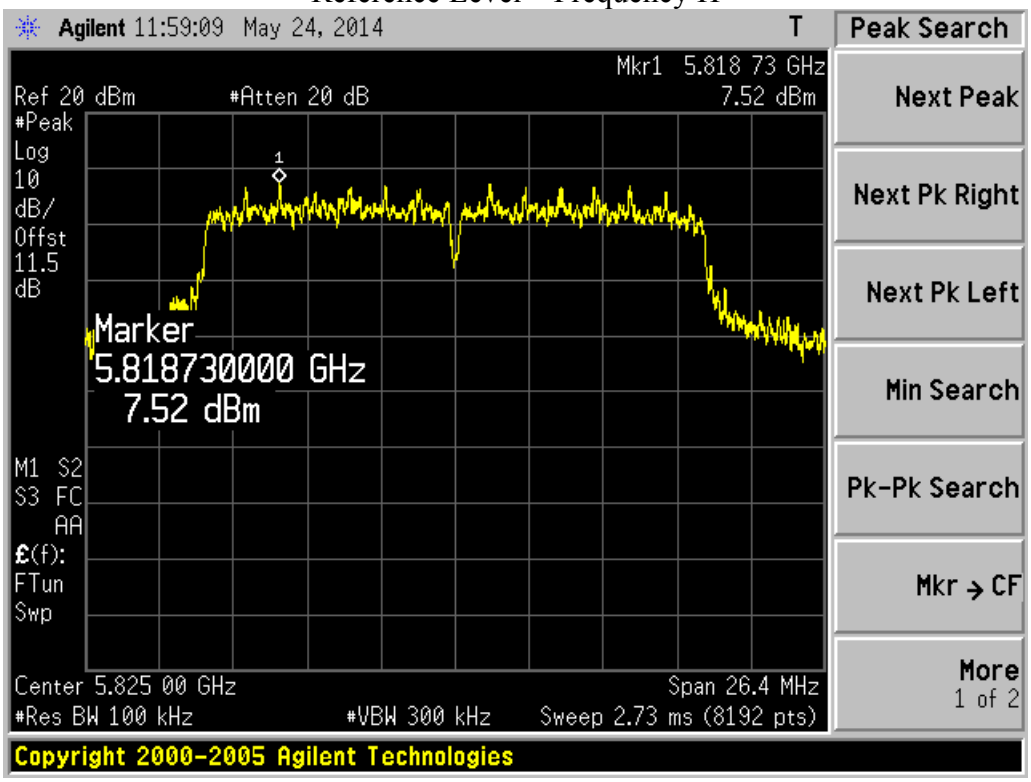
Spurious Emission 6GHz ~ 24GHz - Frequency M



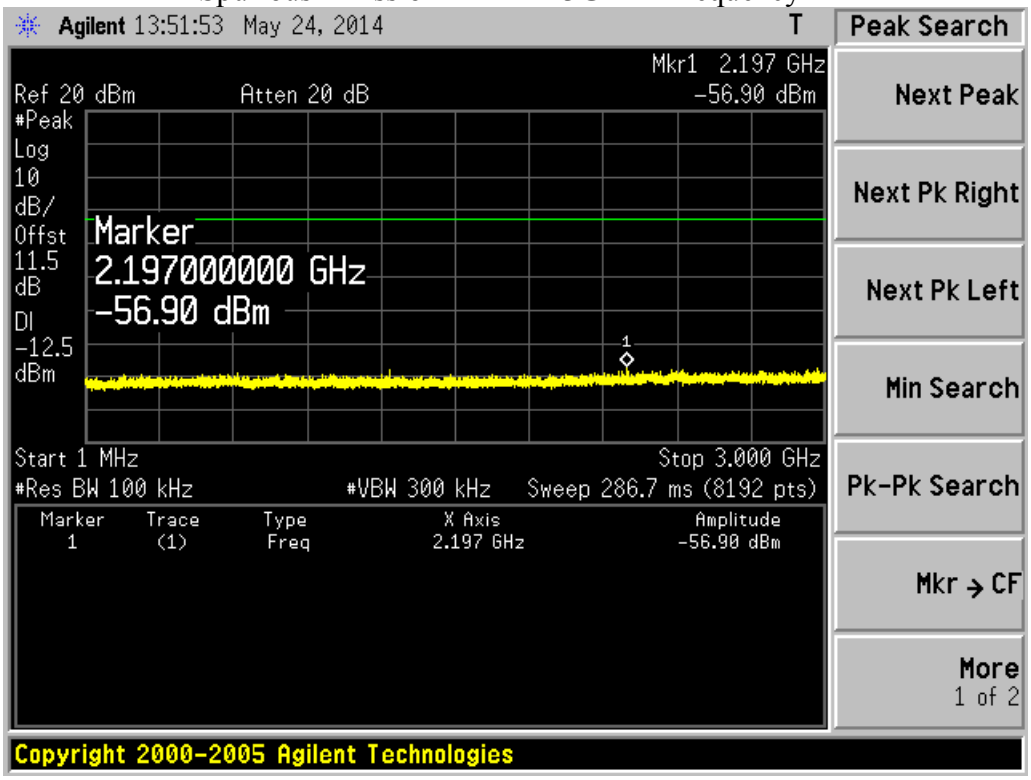
Spurious Emission 24GHz ~ 40GHz - Frequency M



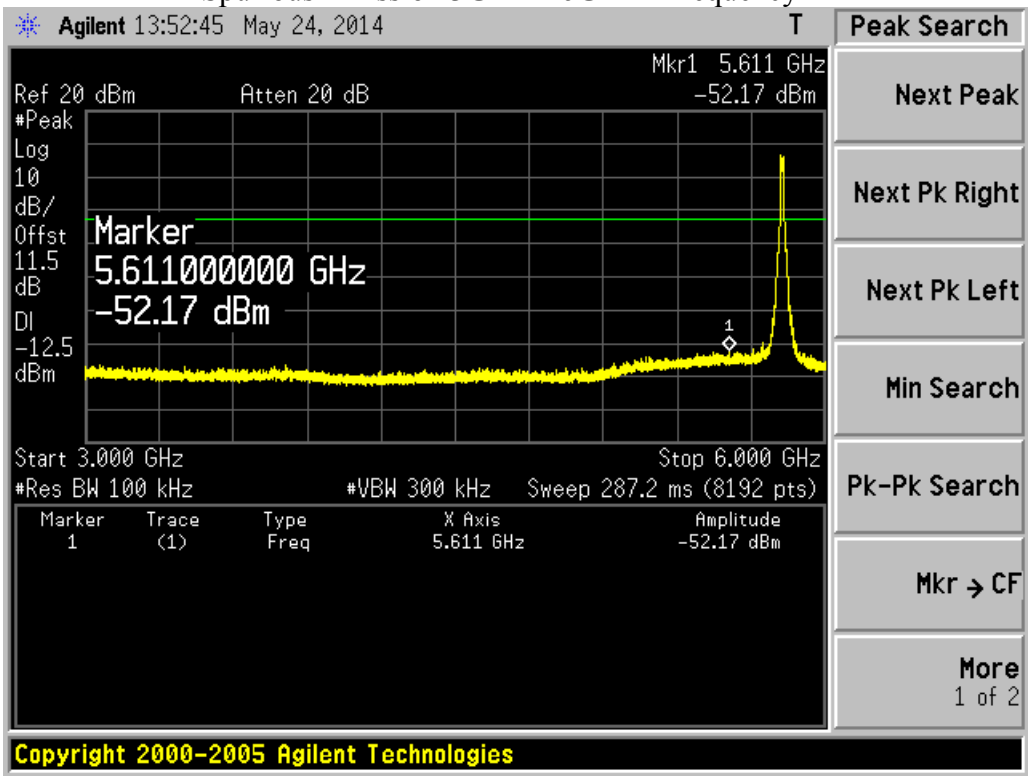
Reference Level – Frequency H



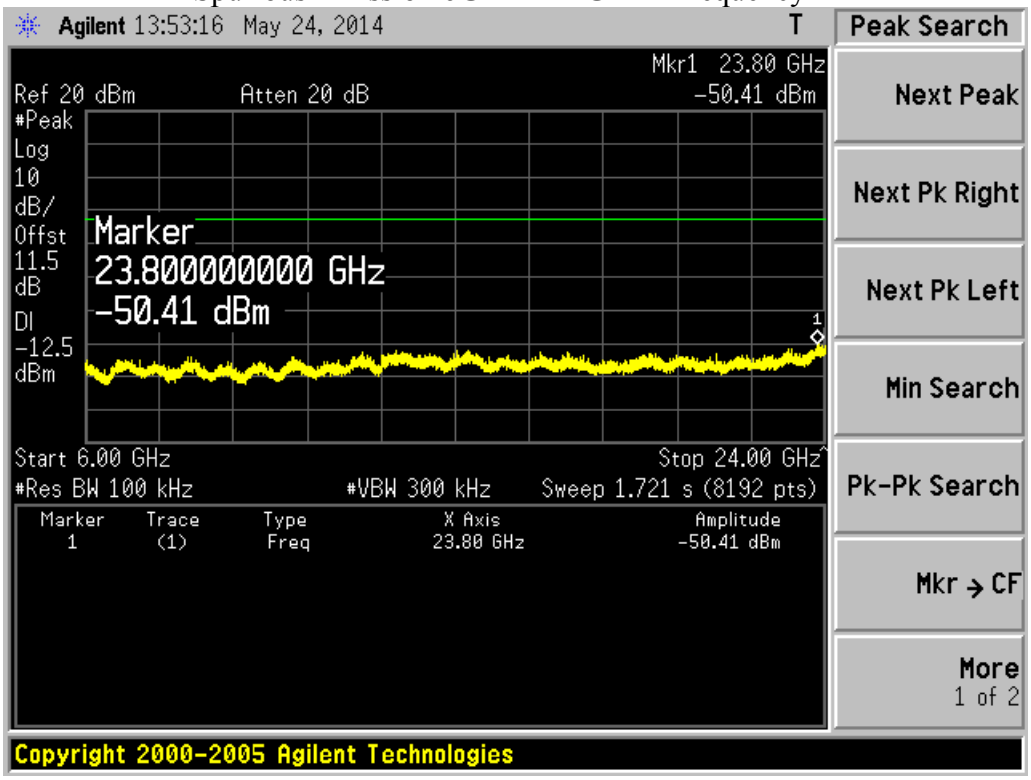
Spurious Emission 1MHz ~ 3GHz - Frequency H



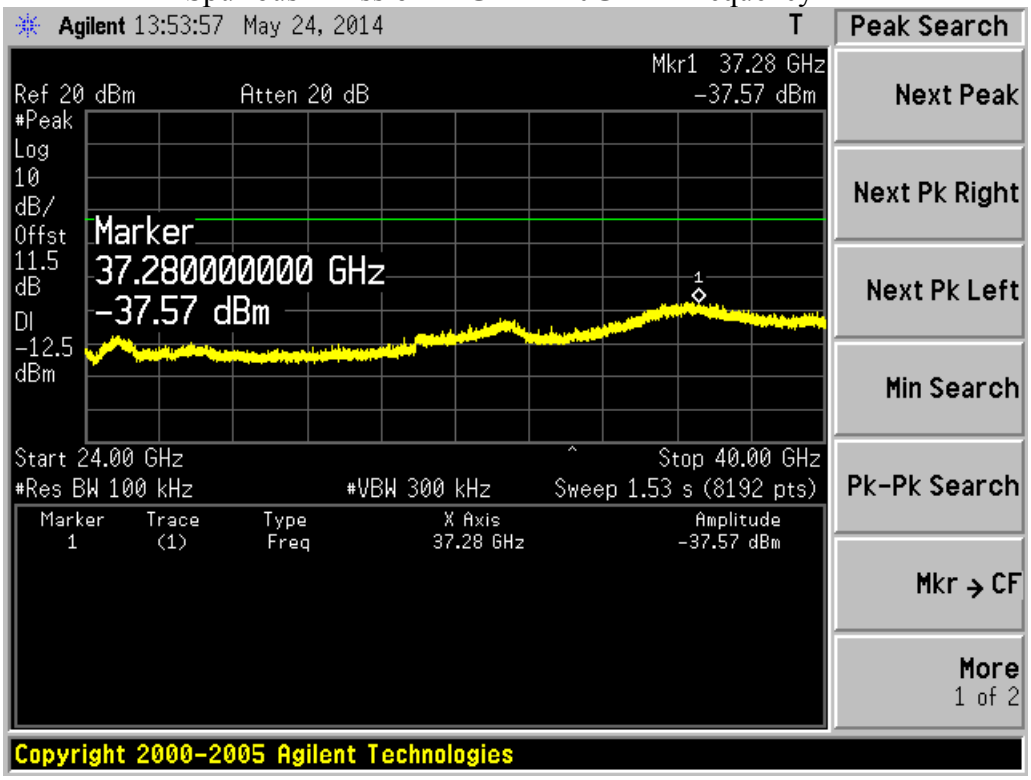
Spurious Emission 3GHz ~ 6GHz - Frequency H



Spurious Emission 6GHz ~ 24GHz - Frequency H

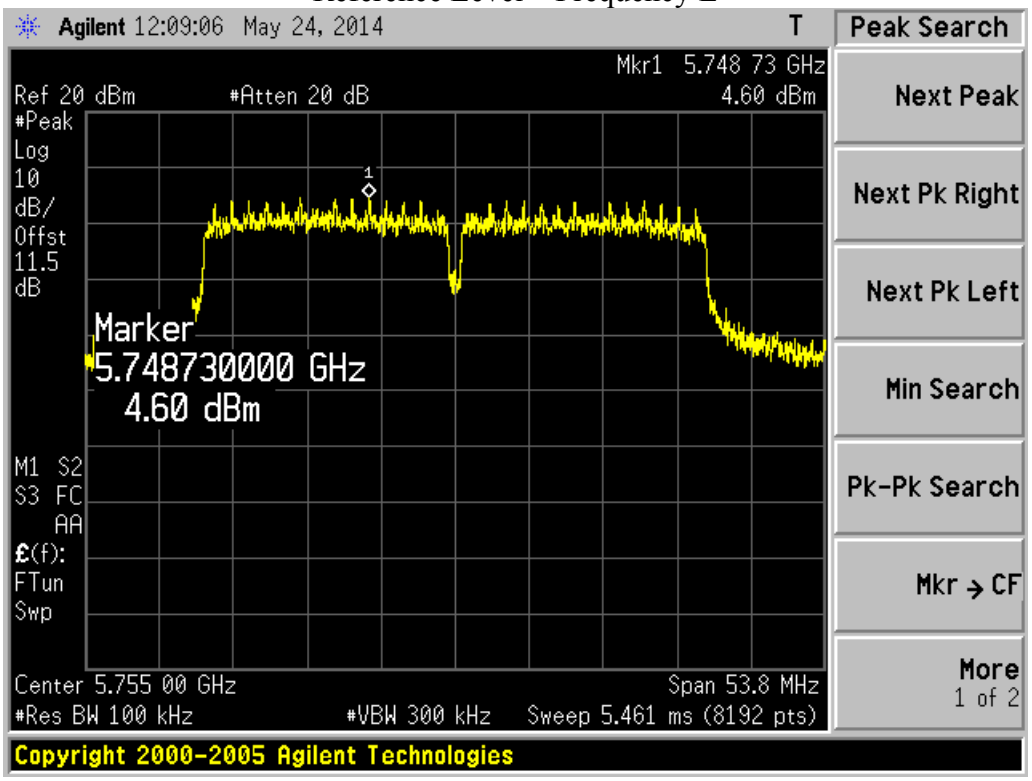


Spurious Emission 24GHz ~ 40GHz - Frequency H

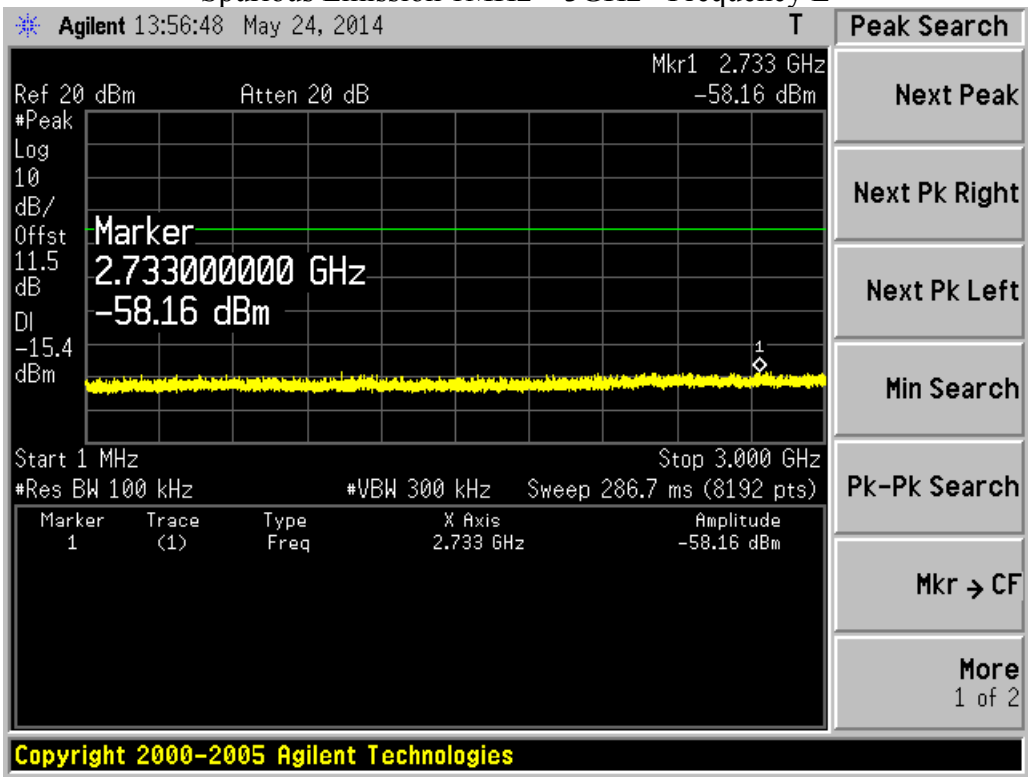


802.11n40 Out-of-Band Emissions – Chain 0

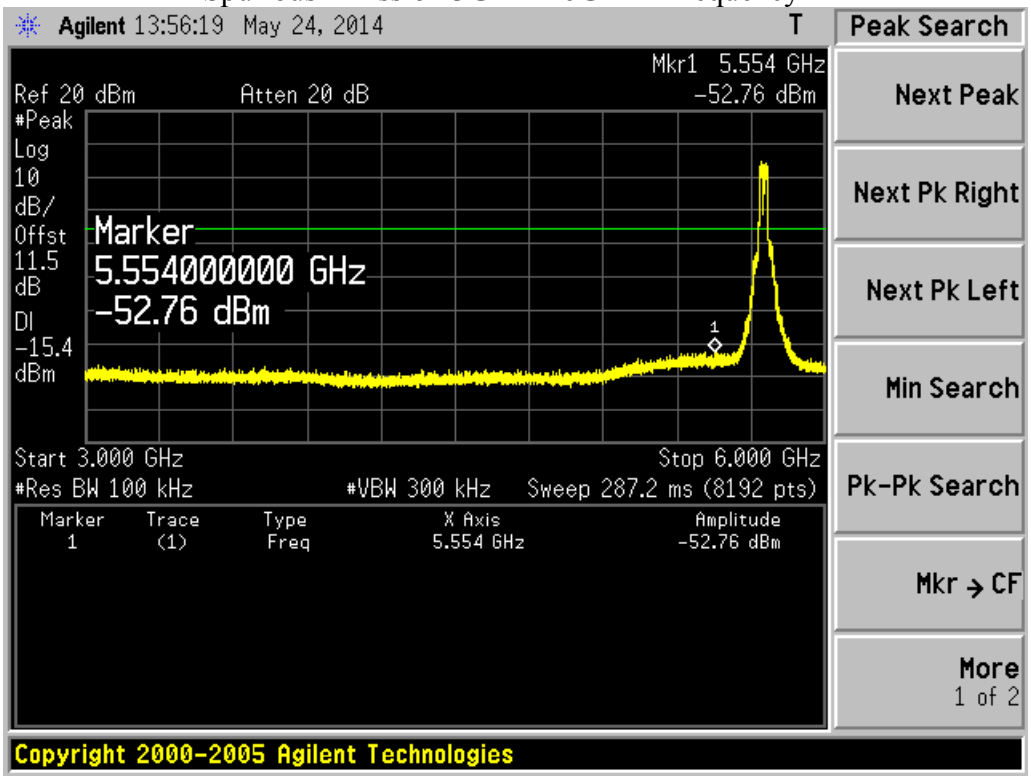
Reference Level – Frequency L



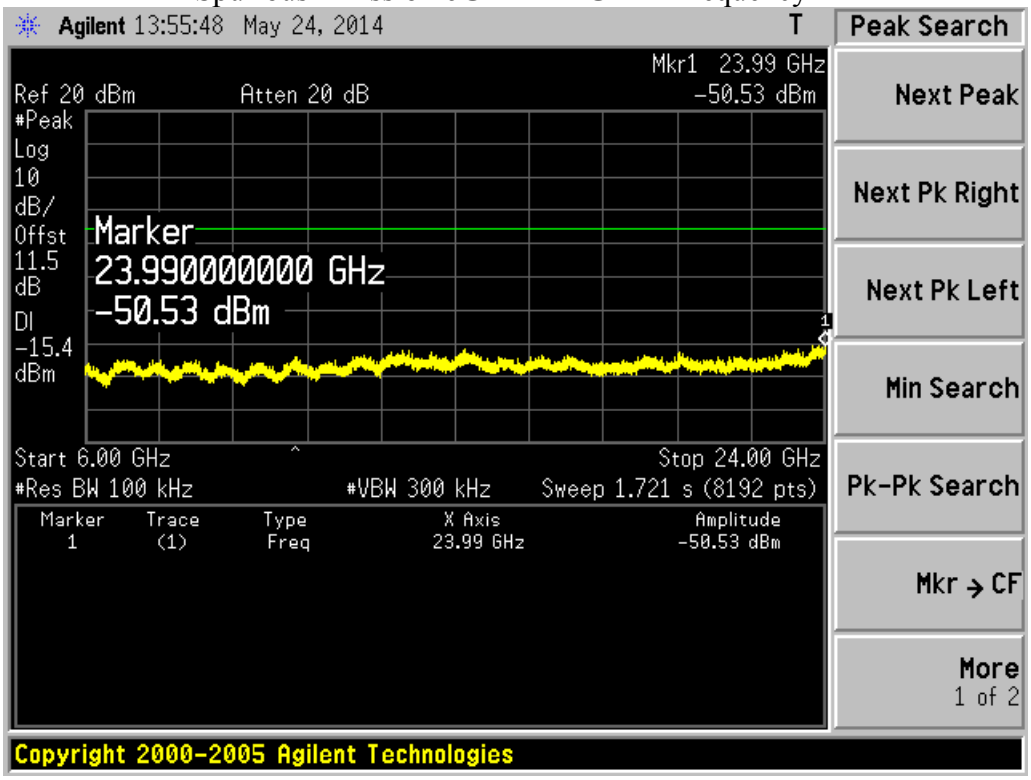
Spurious Emission 1MHz ~ 3GHz - Frequency L



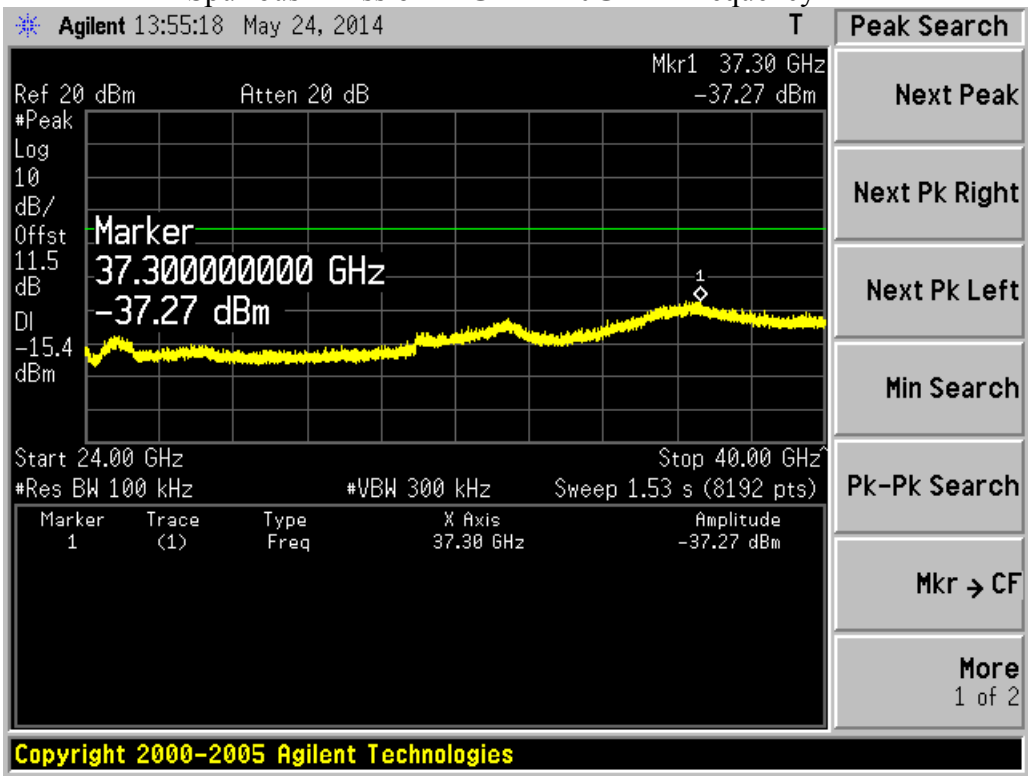
Spurious Emission 3GHz ~ 6GHz - Frequency L



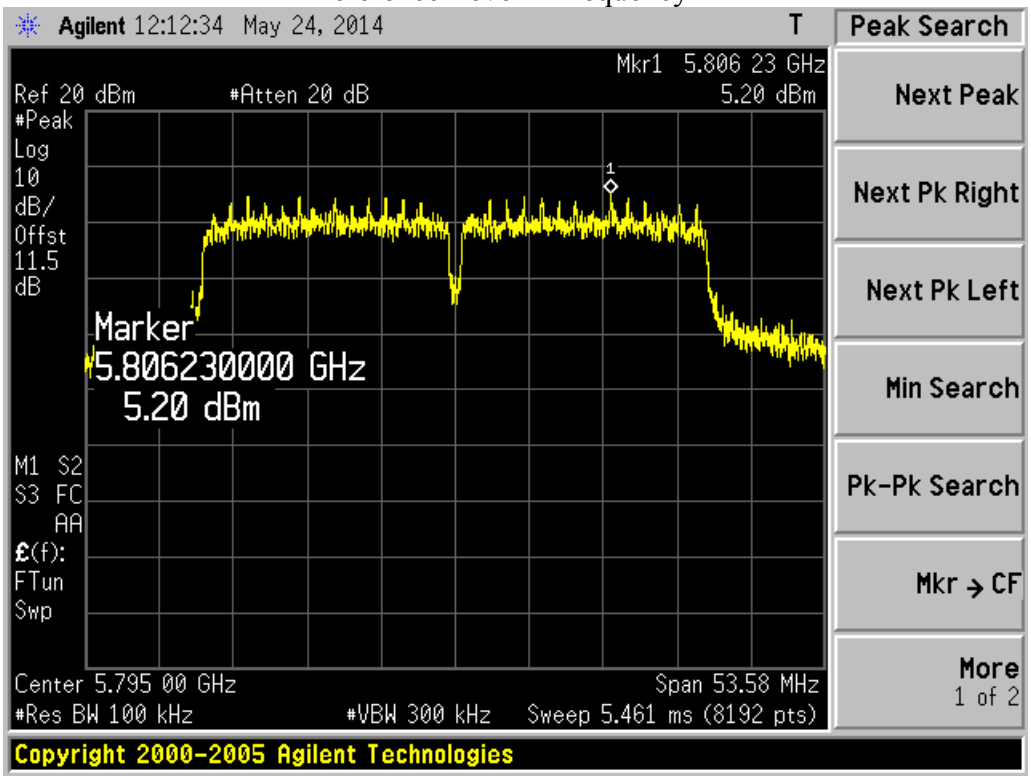
Spurious Emission 6GHz ~ 24GHz - Frequency L



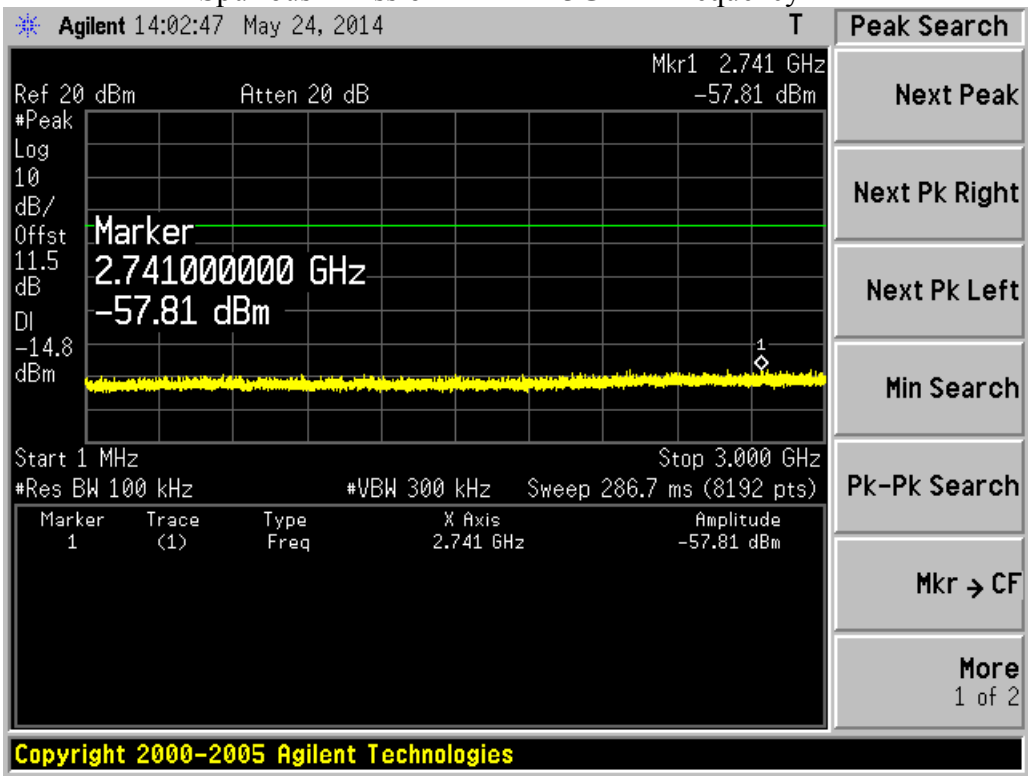
Spurious Emission 24GHz ~ 40GHz - Frequency L



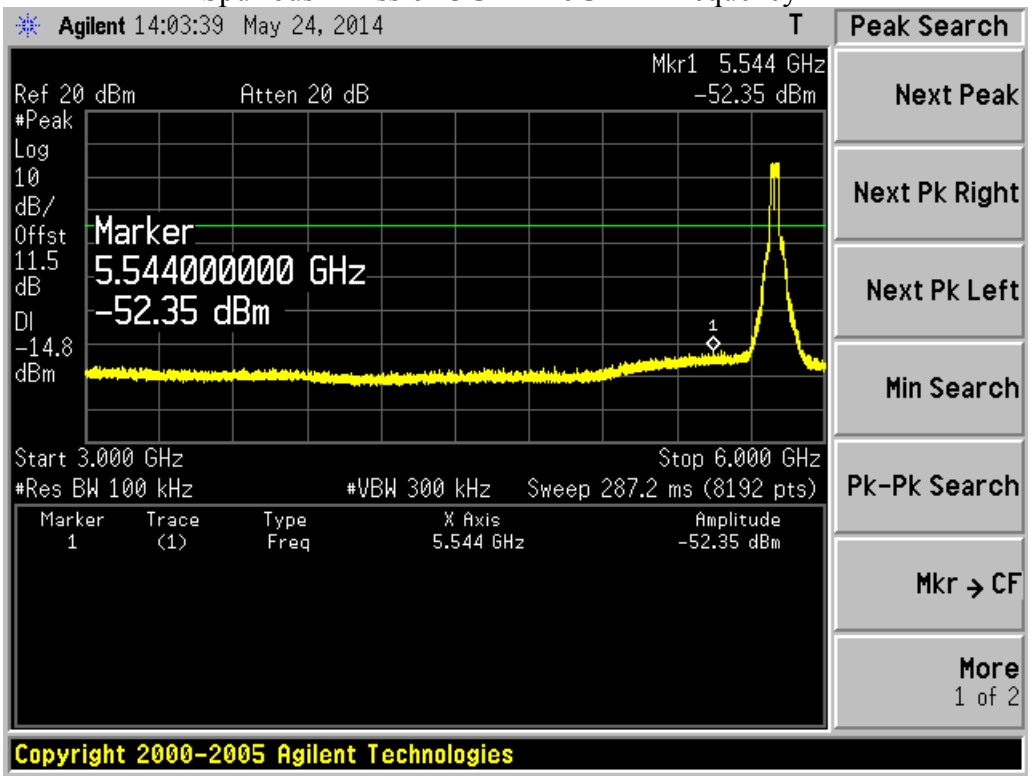
Reference Level – Frequency H



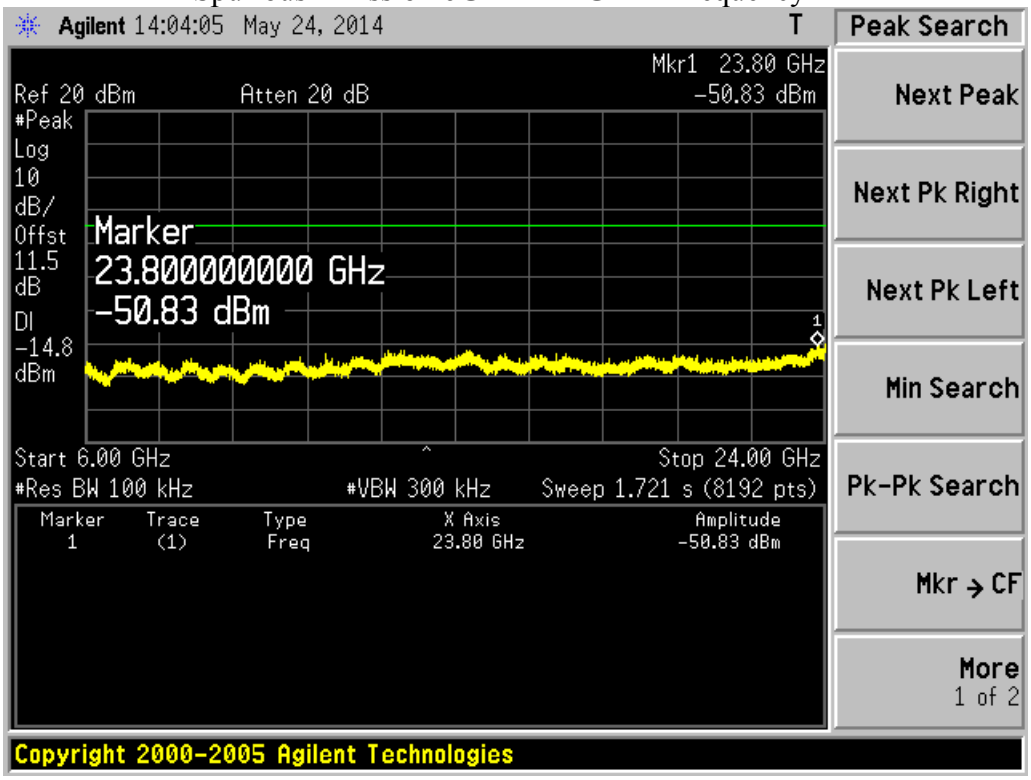
Spurious Emission 1MHz ~ 3GHz - Frequency H



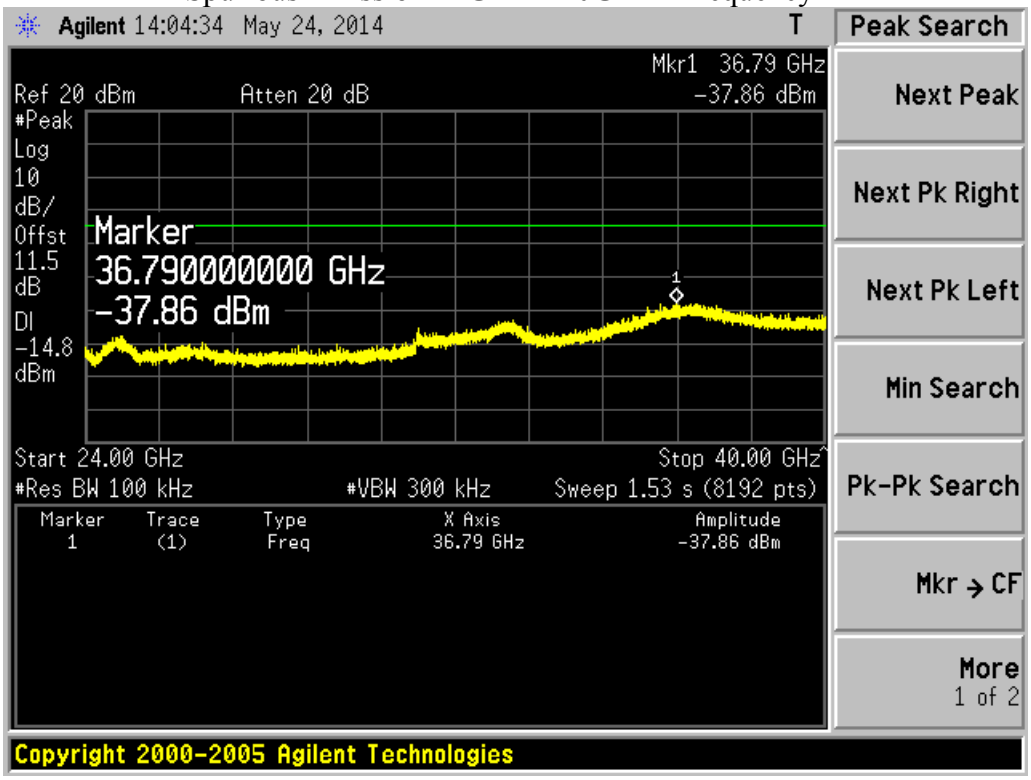
Spurious Emission 3GHz ~ 6GHz - Frequency H



Spurious Emission 6GHz ~ 24GHz - Frequency H

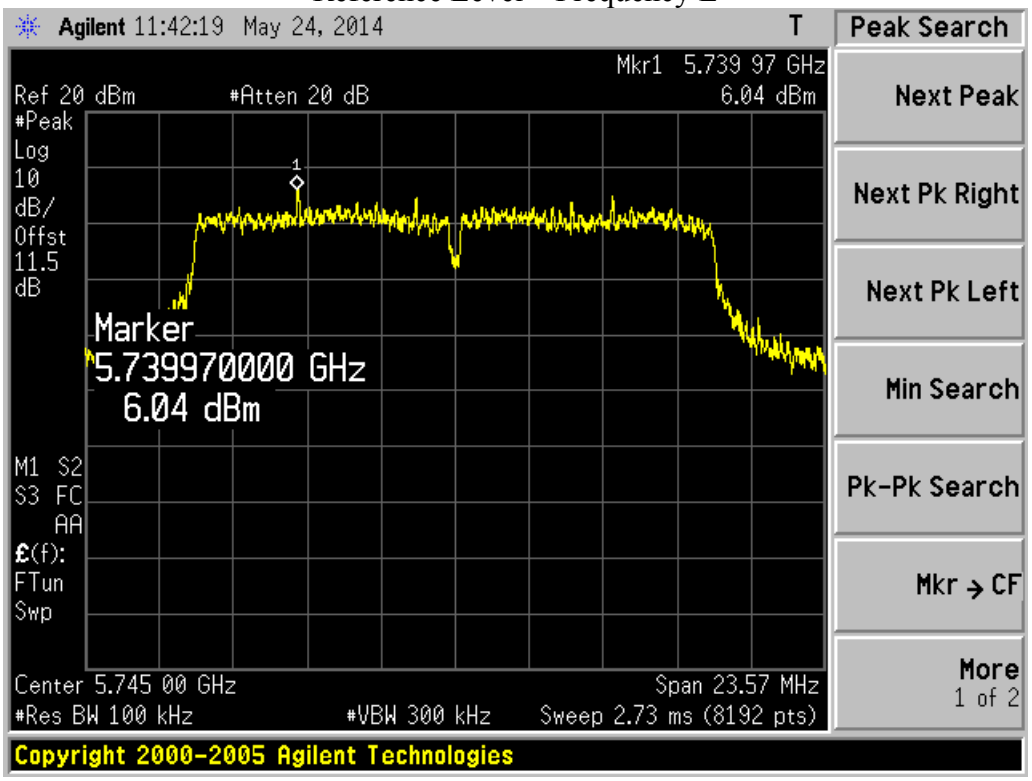


Spurious Emission 24GHz ~ 40GHz - Frequency H

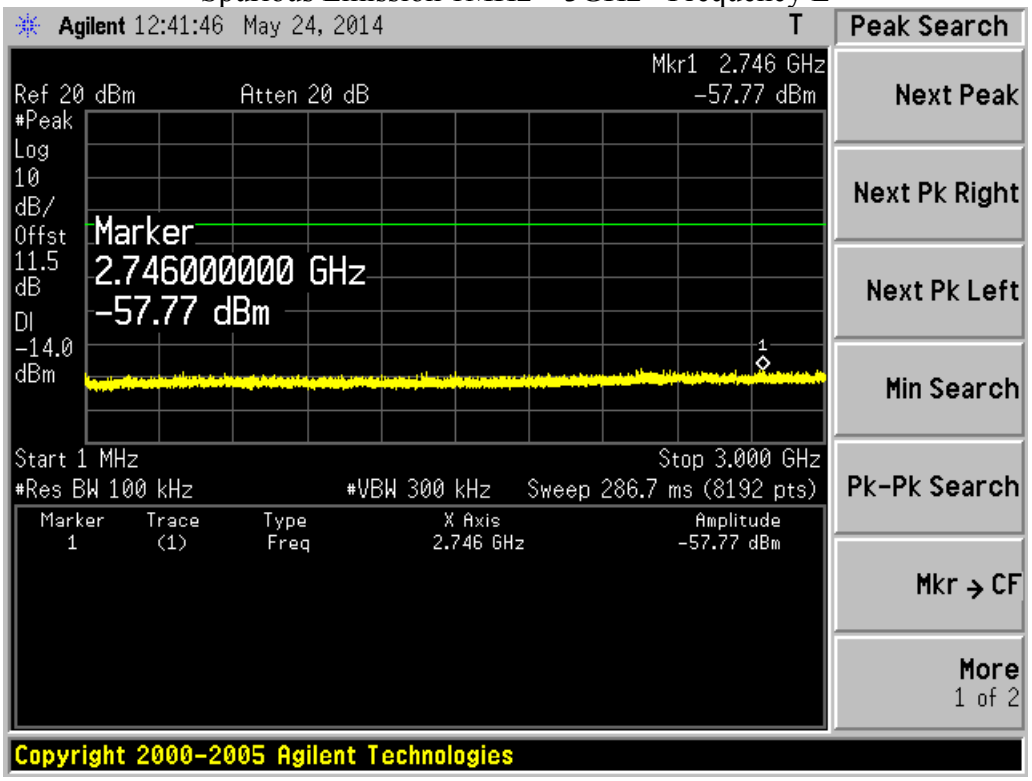


802.11a Out-of-Band Emissions – Chain 1

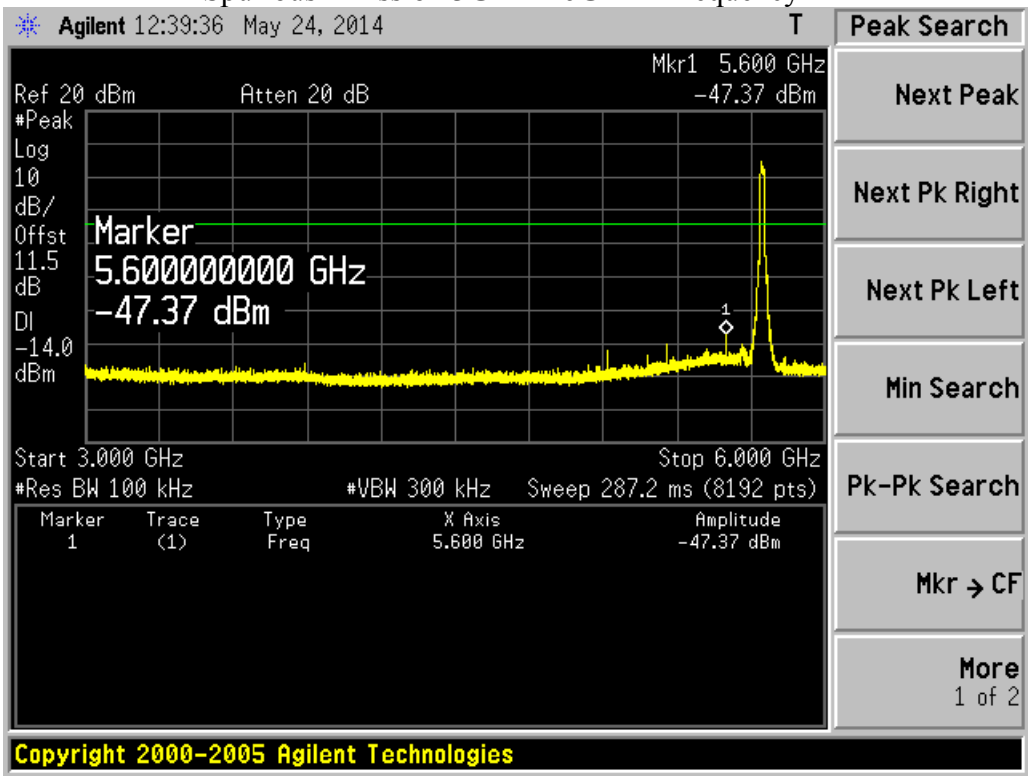
Reference Level – Frequency L



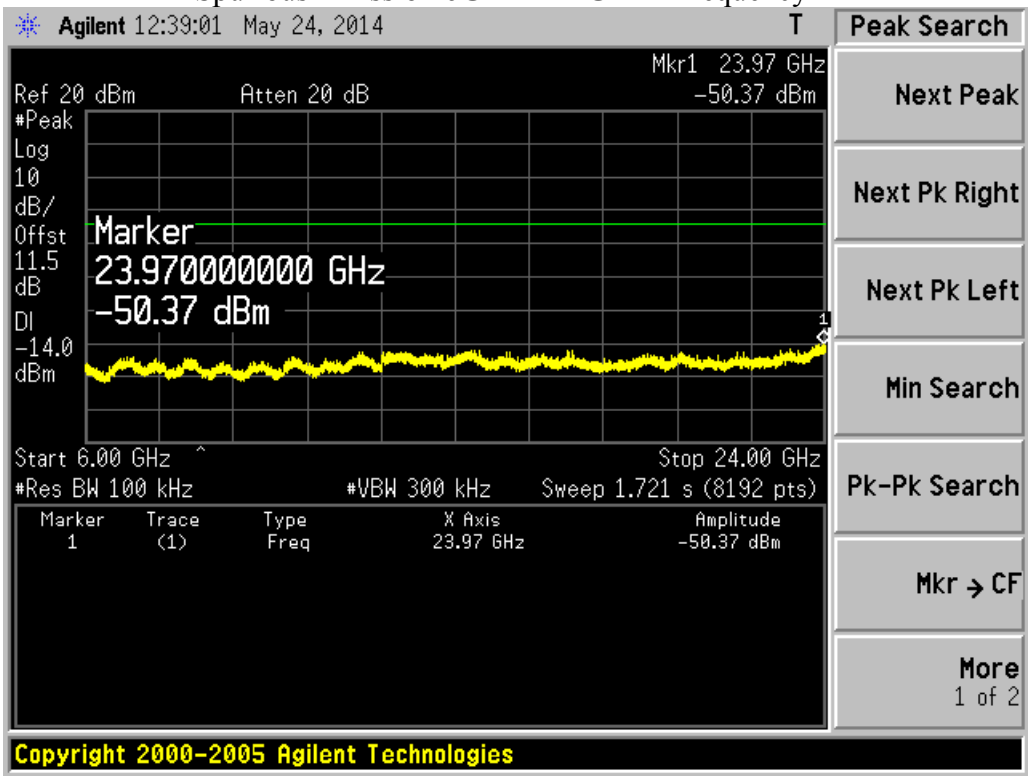
Spurious Emission 1MHz ~ 3GHz - Frequency L



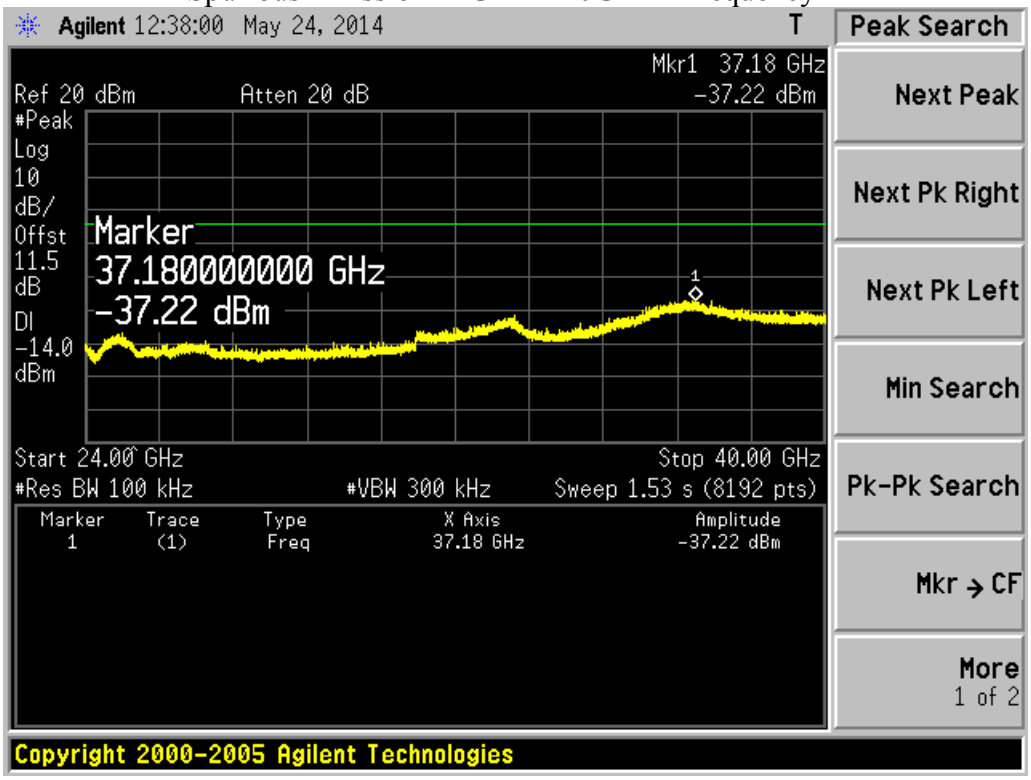
Spurious Emission 3GHz ~ 6GHz - Frequency L



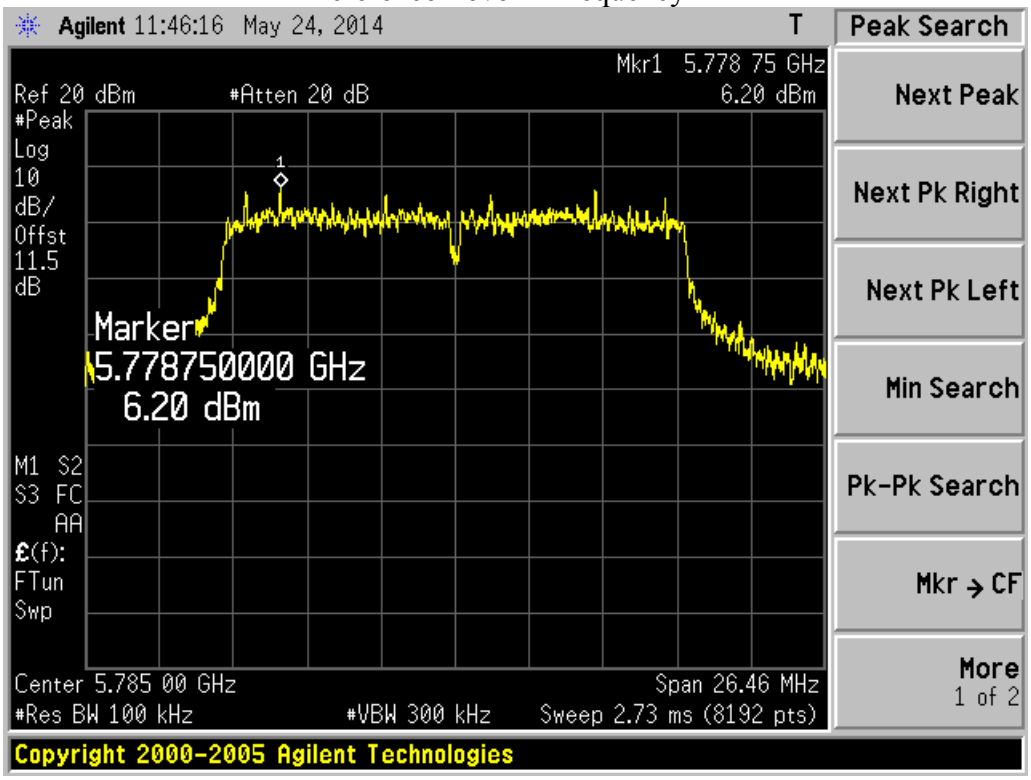
Spurious Emission 6GHz ~ 24GHz - Frequency L



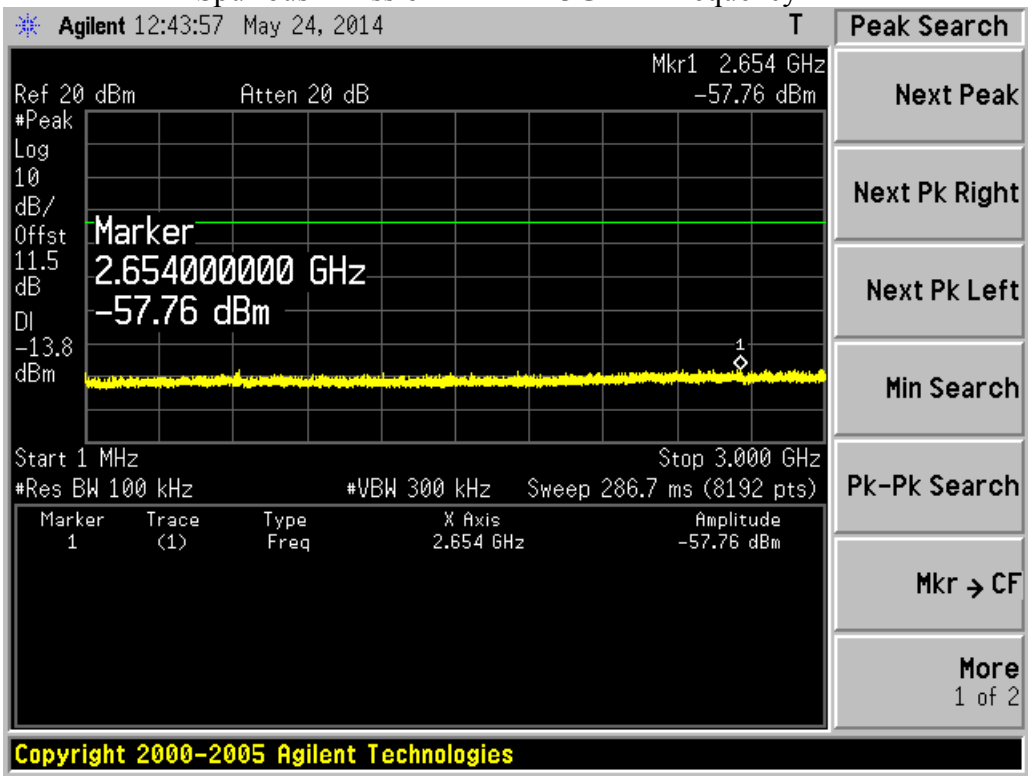
Spurious Emission 24GHz ~ 40GHz - Frequency L



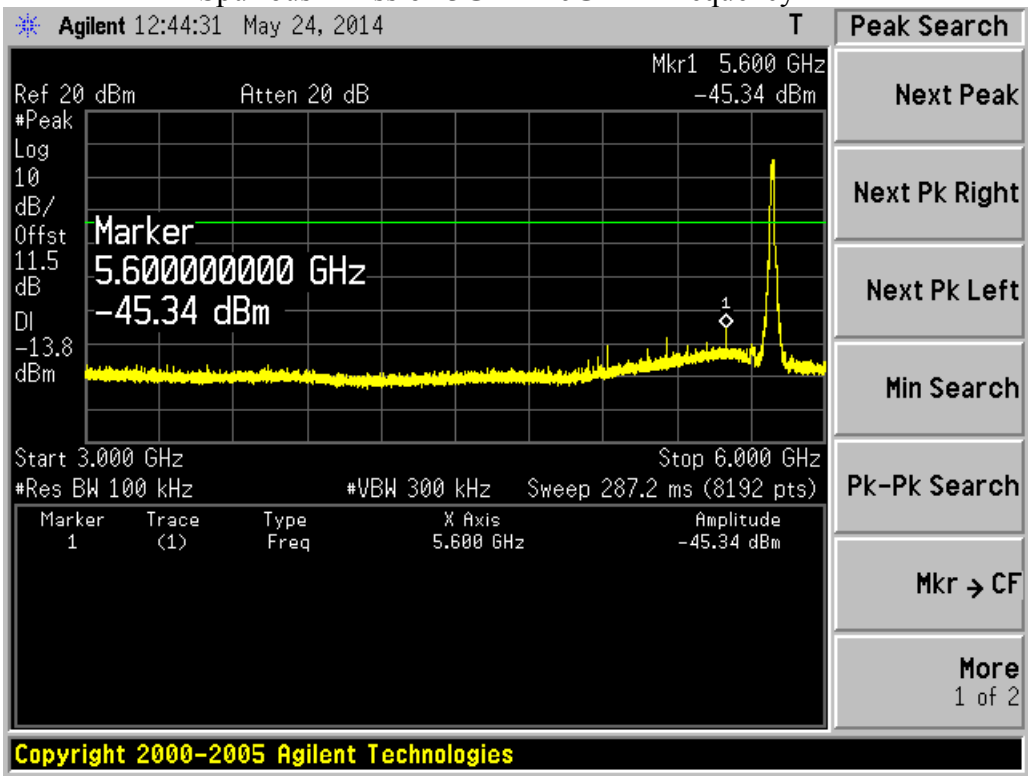
Reference Level – Frequency M



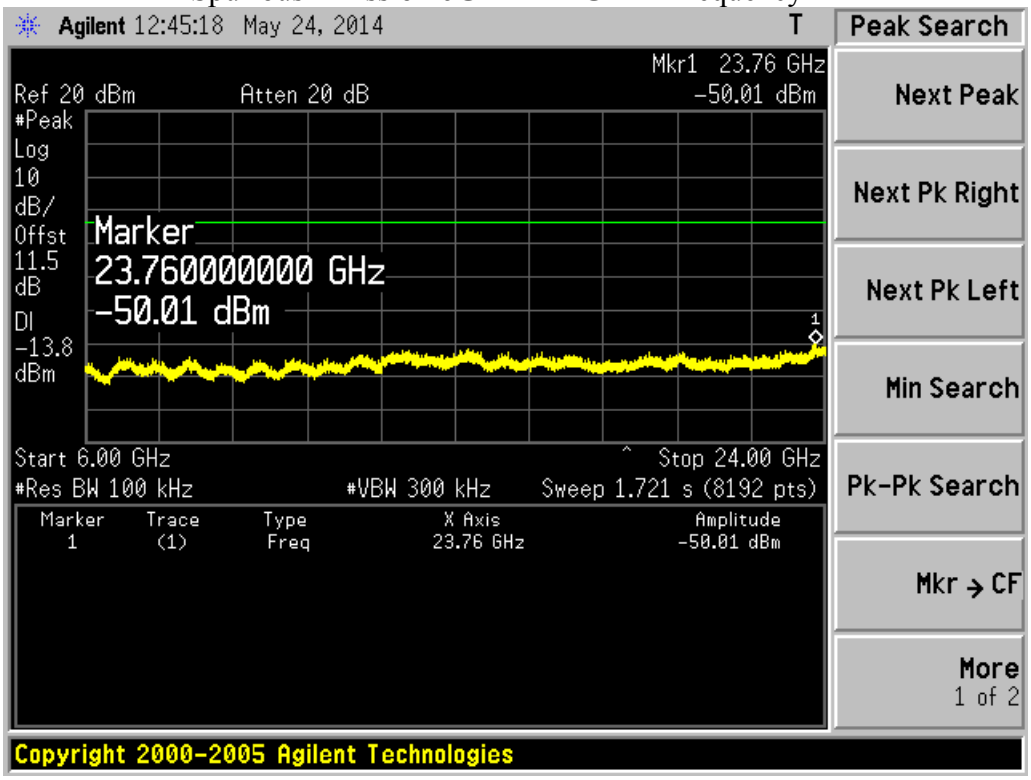
Spurious Emission 1MHz ~ 3GHz - Frequency M



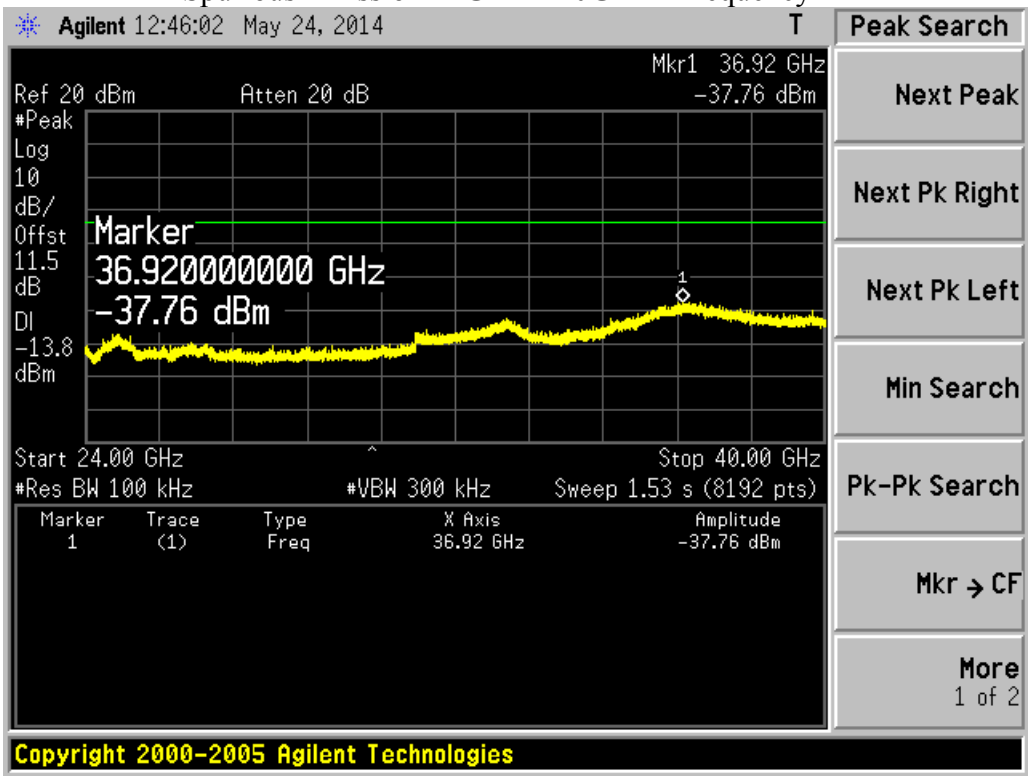
Spurious Emission 3GHz ~ 6GHz - Frequency M



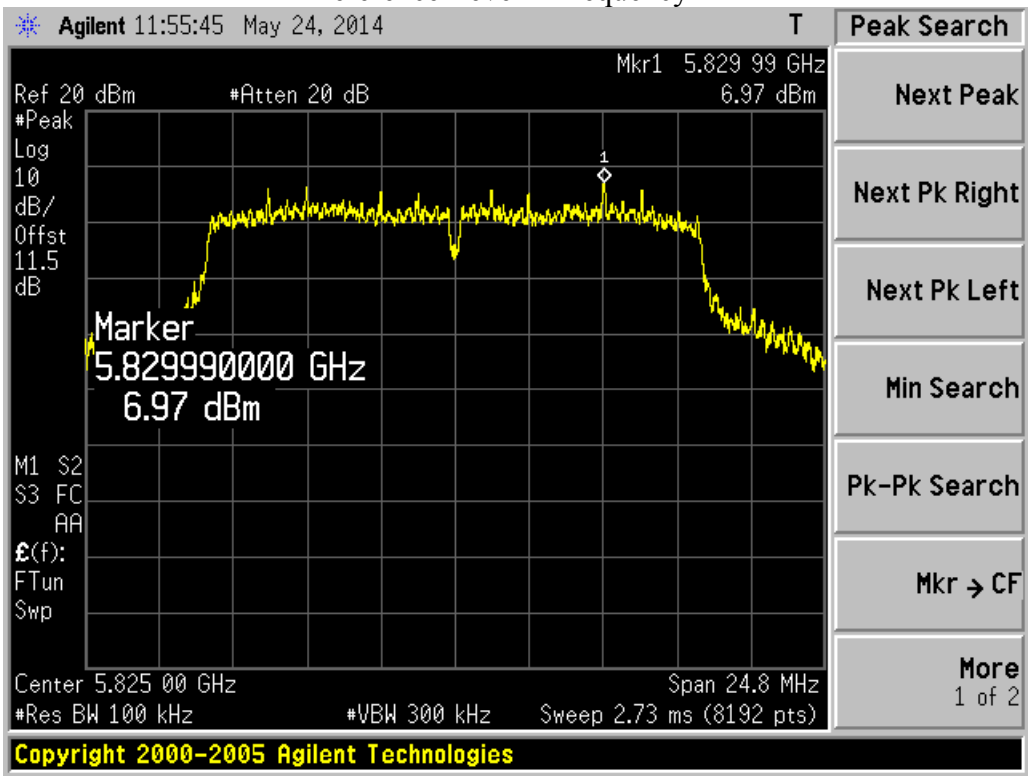
Spurious Emission 6GHz ~ 24GHz - Frequency M



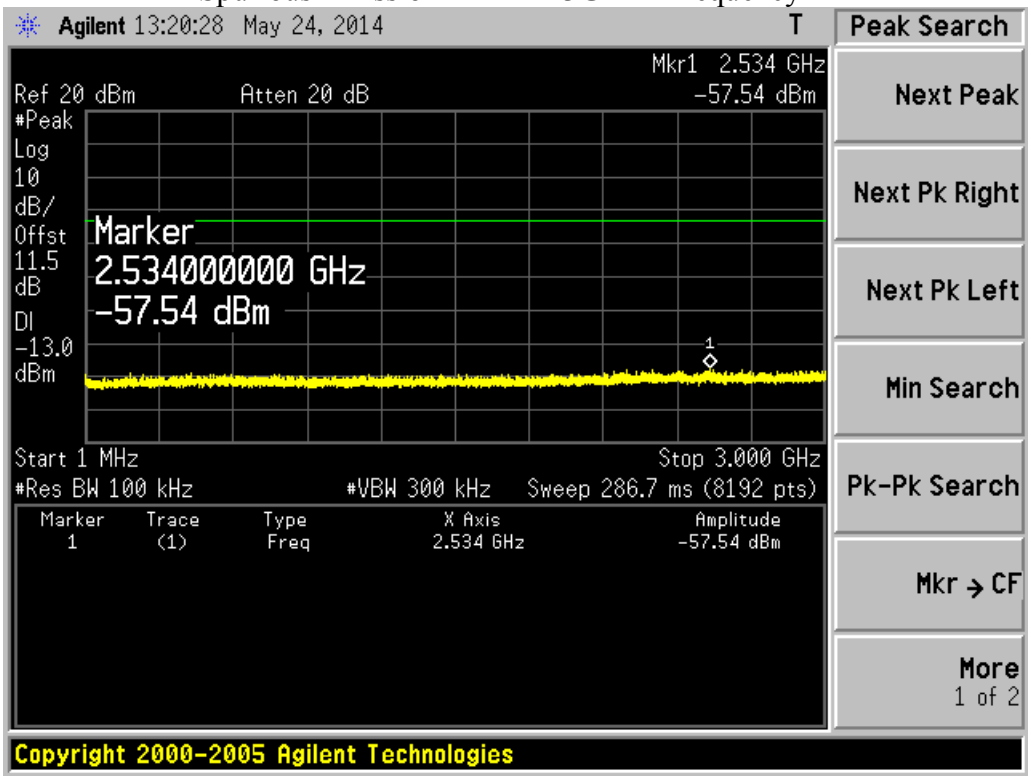
Spurious Emission 24GHz ~ 40GHz - Frequency M



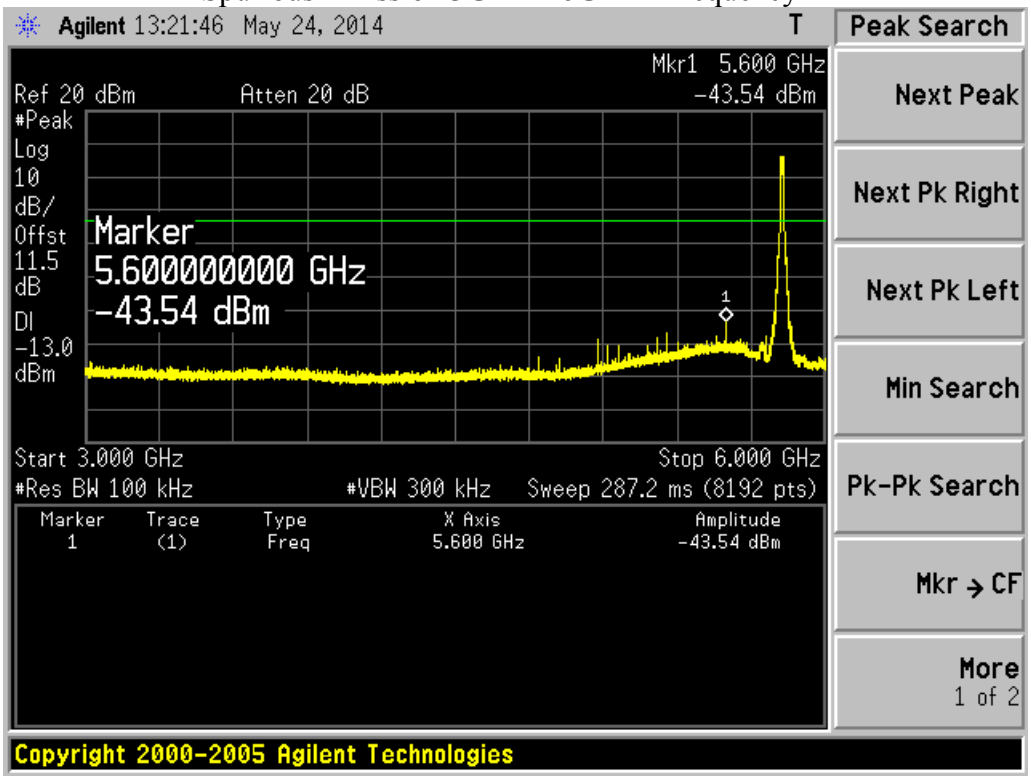
Reference Level – Frequency H



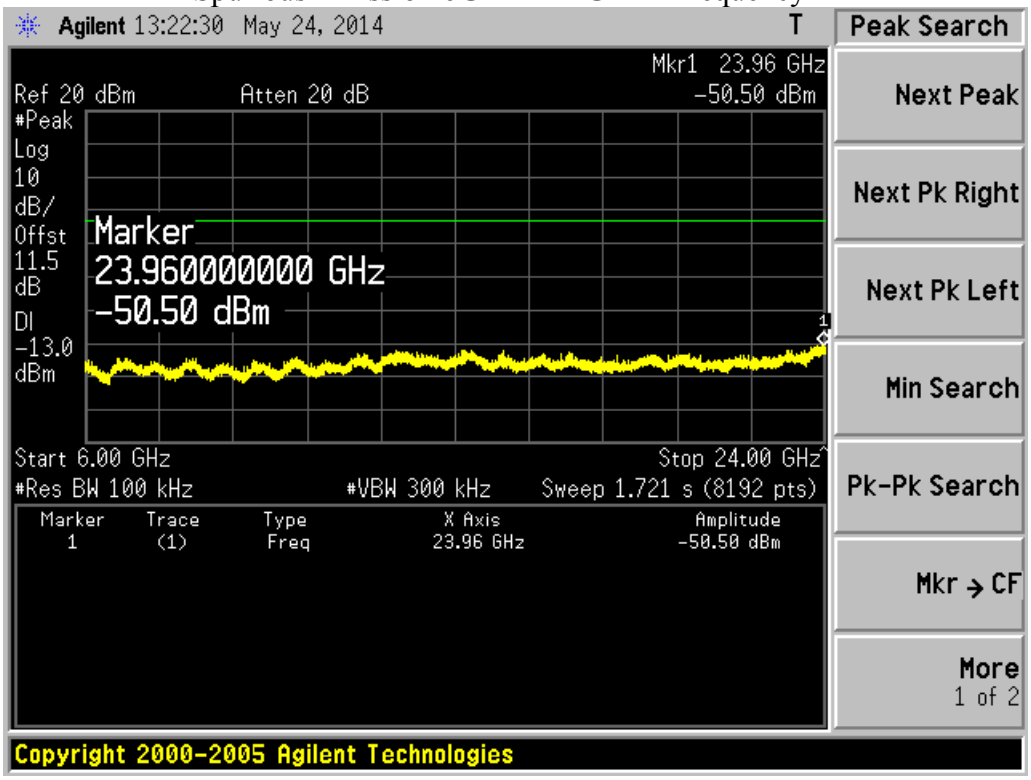
Spurious Emission 1MHz ~ 3GHz - Frequency H



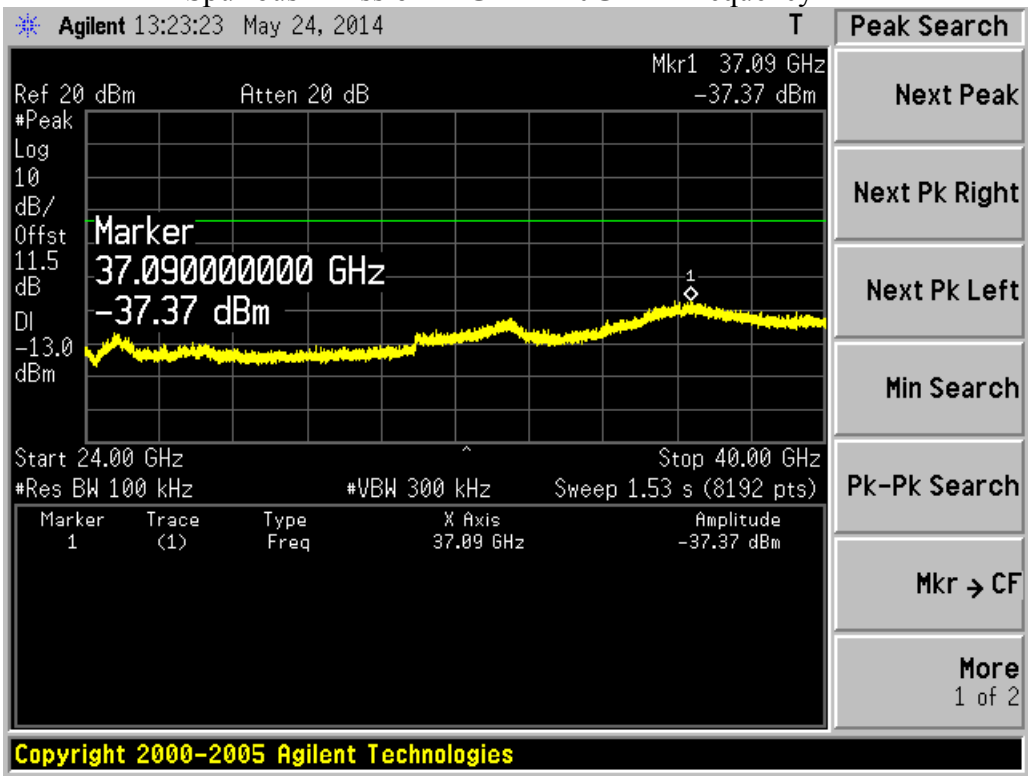
Spurious Emission 3GHz ~ 6GHz - Frequency H



Spurious Emission 6GHz ~ 24GHz - Frequency H

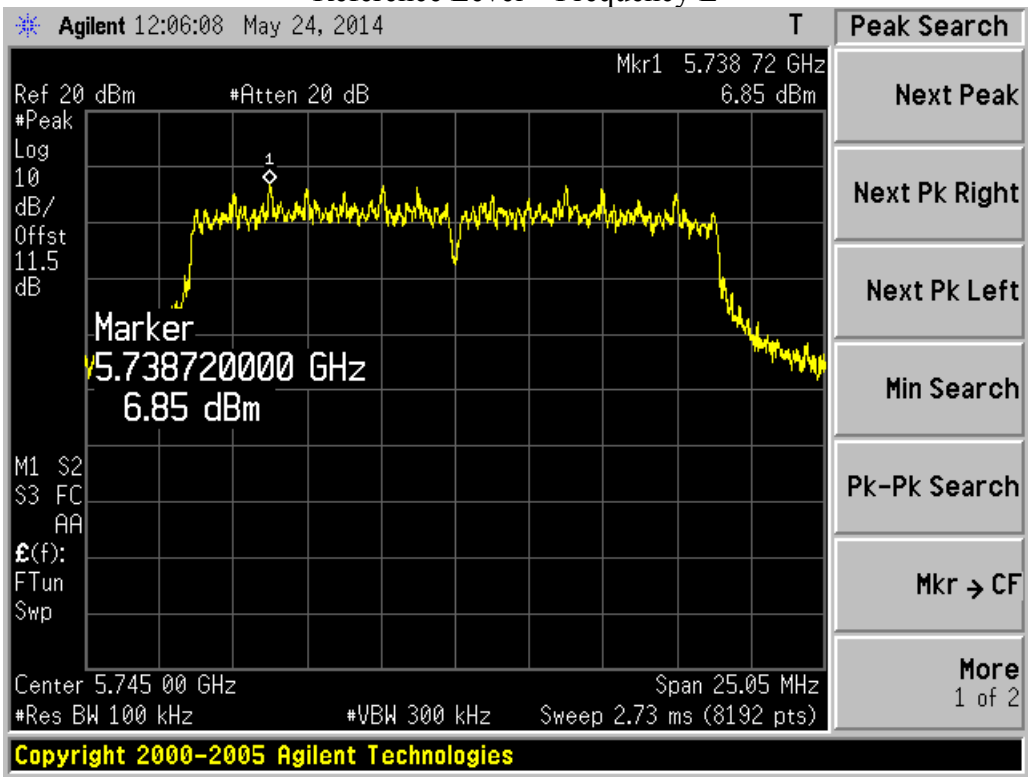


Spurious Emission 24GHz ~ 40GHz - Frequency H

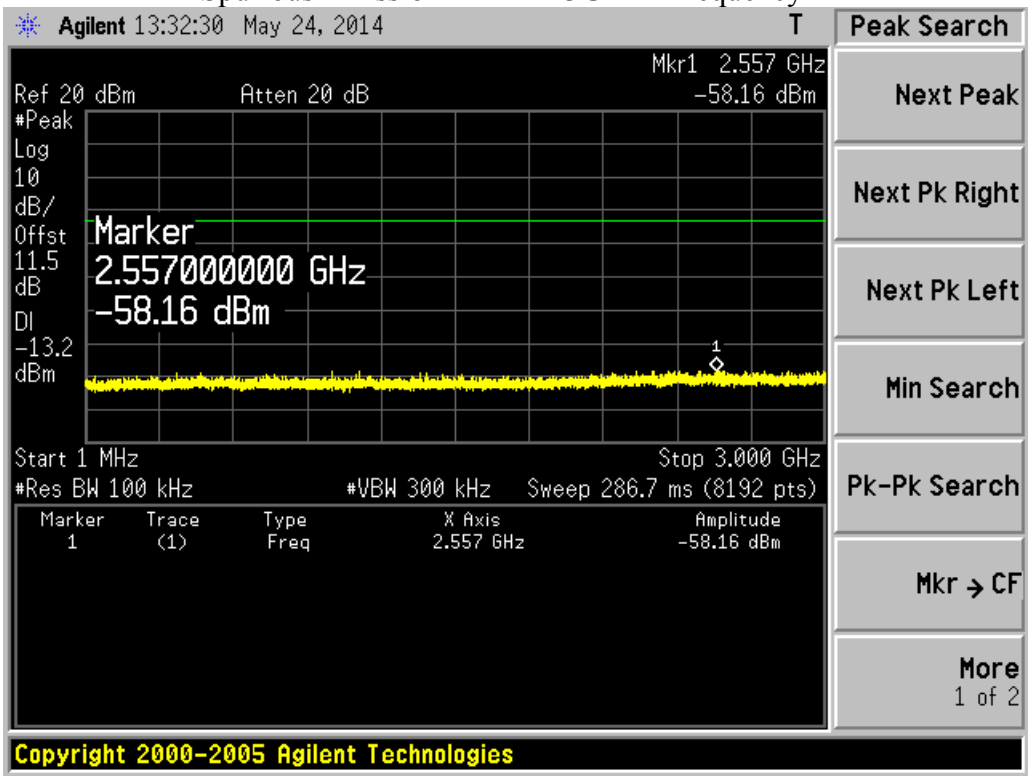


802.11n20 Out-of-Band Emissions – Chain 1

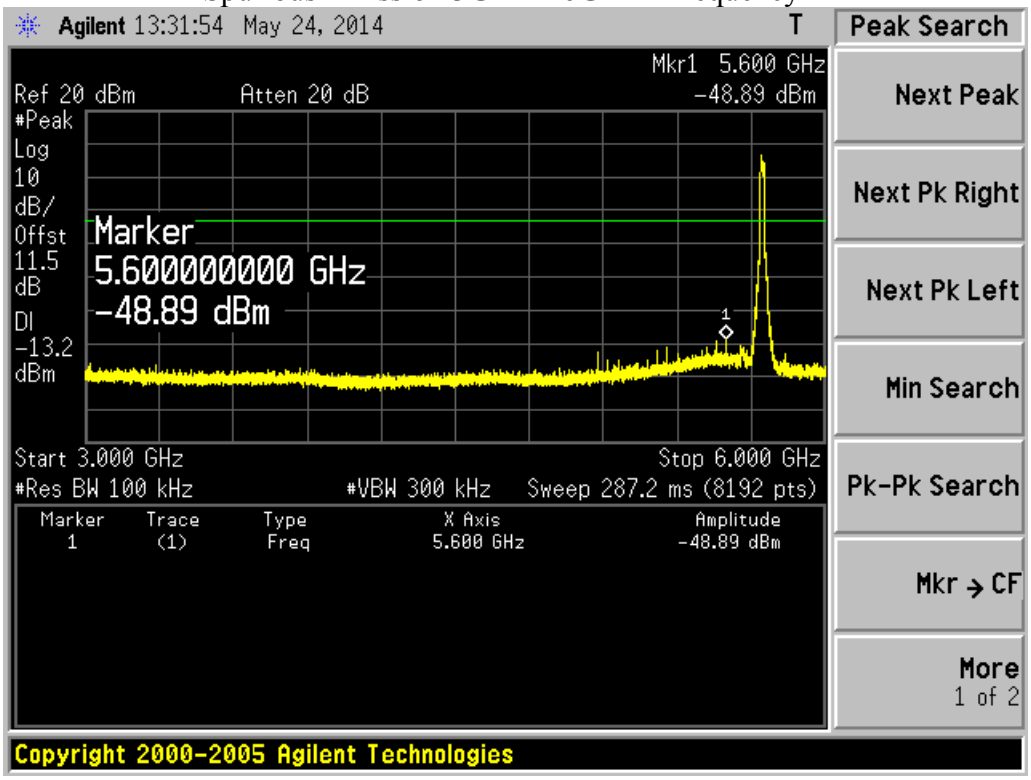
Reference Level – Frequency L



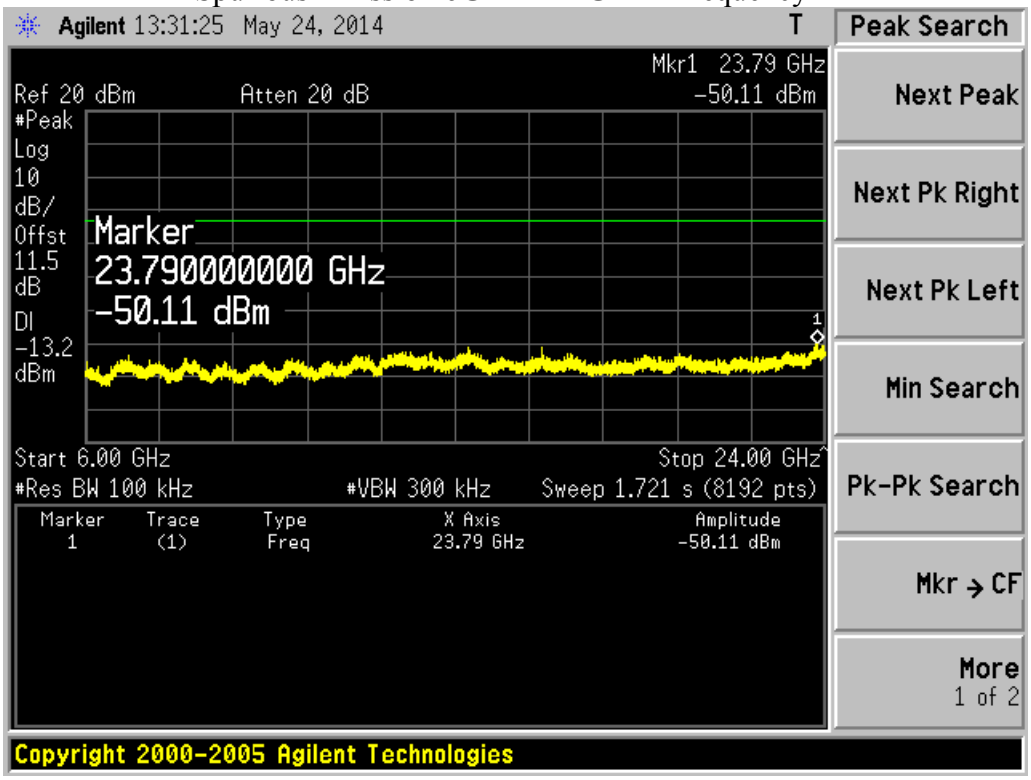
Spurious Emission 1MHz ~ 3GHz - Frequency L



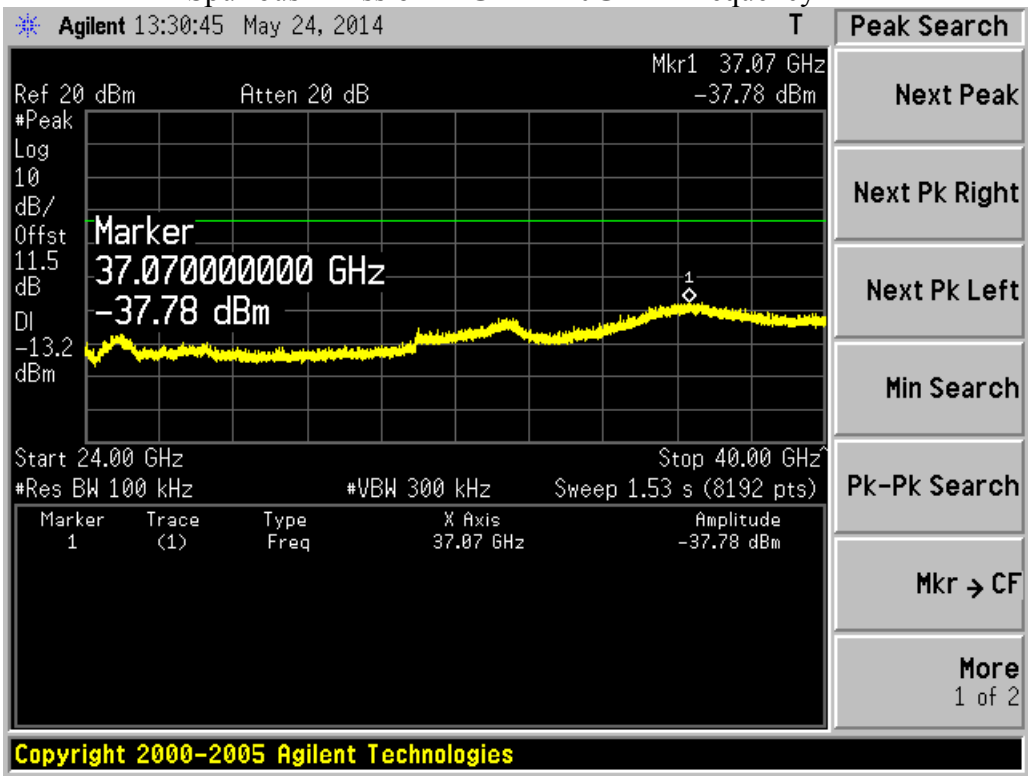
Spurious Emission 3GHz ~ 6GHz - Frequency L



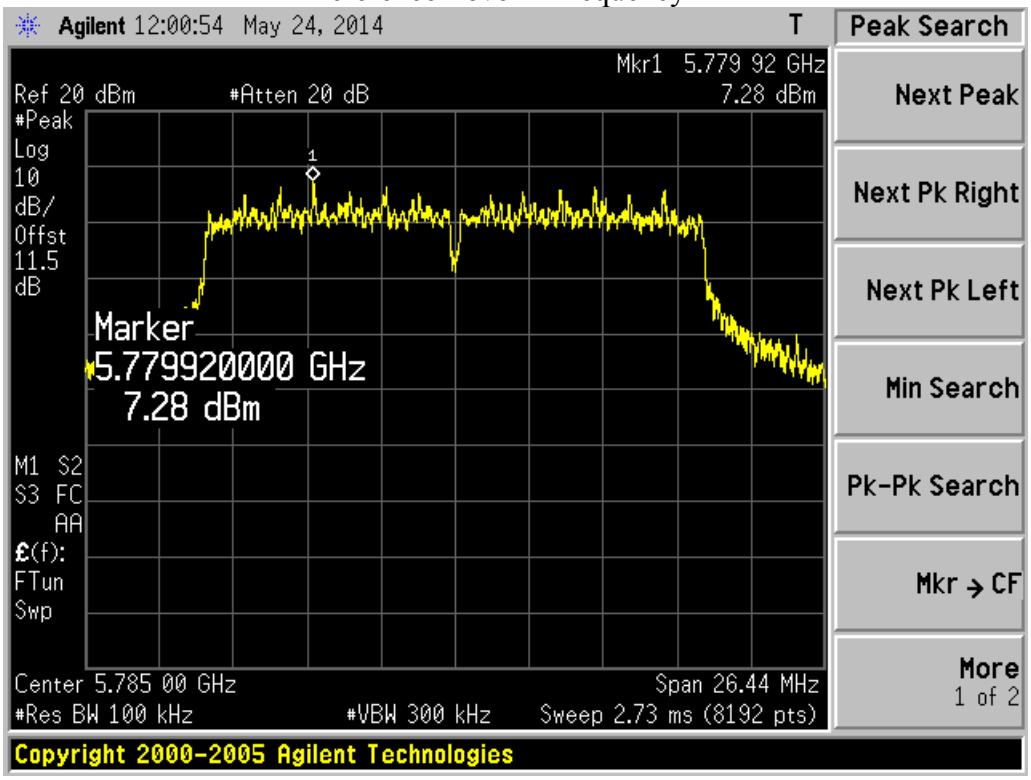
Spurious Emission 6GHz ~ 24GHz - Frequency L



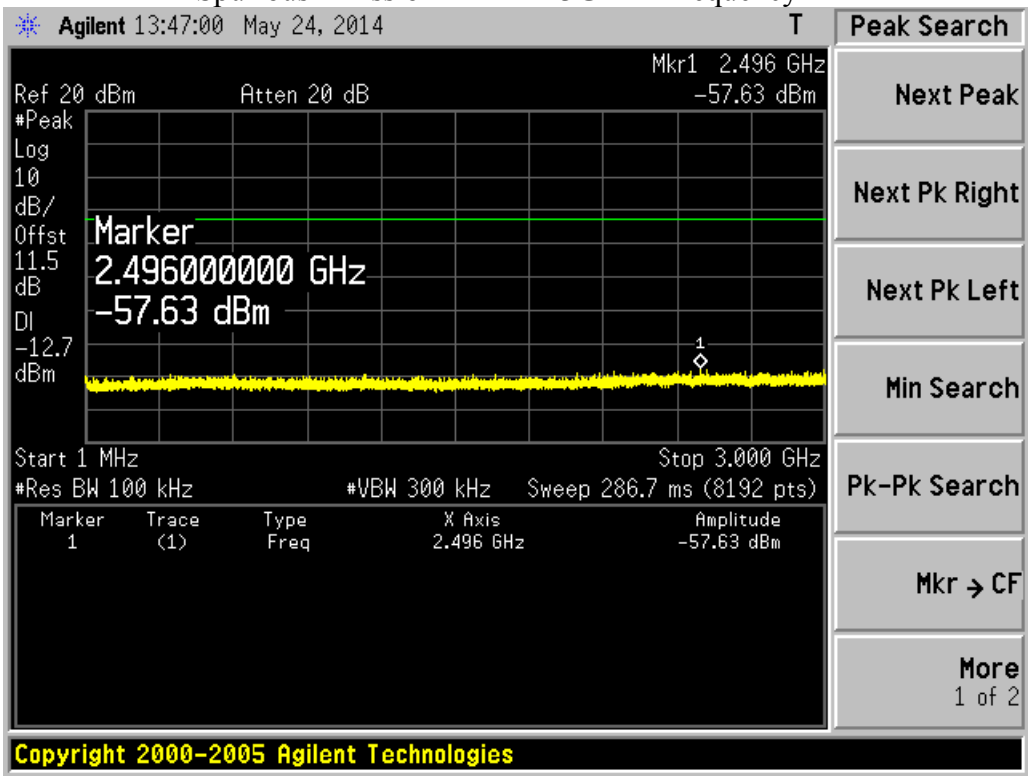
Spurious Emission 24GHz ~ 40GHz - Frequency L



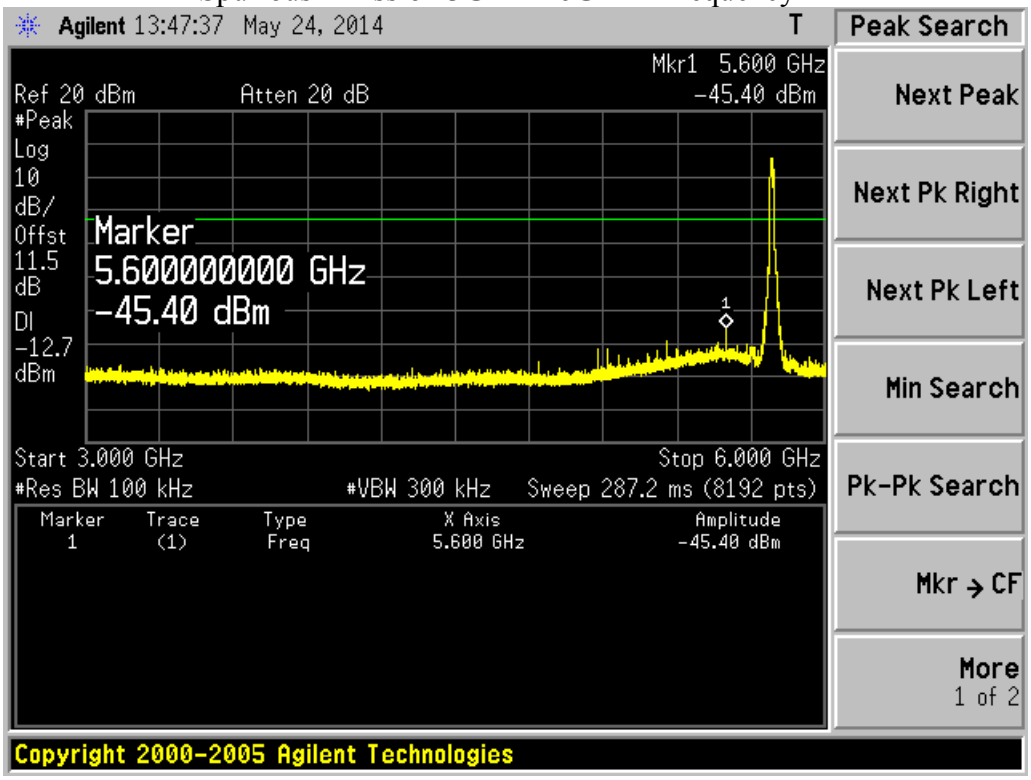
Reference Level – Frequency M



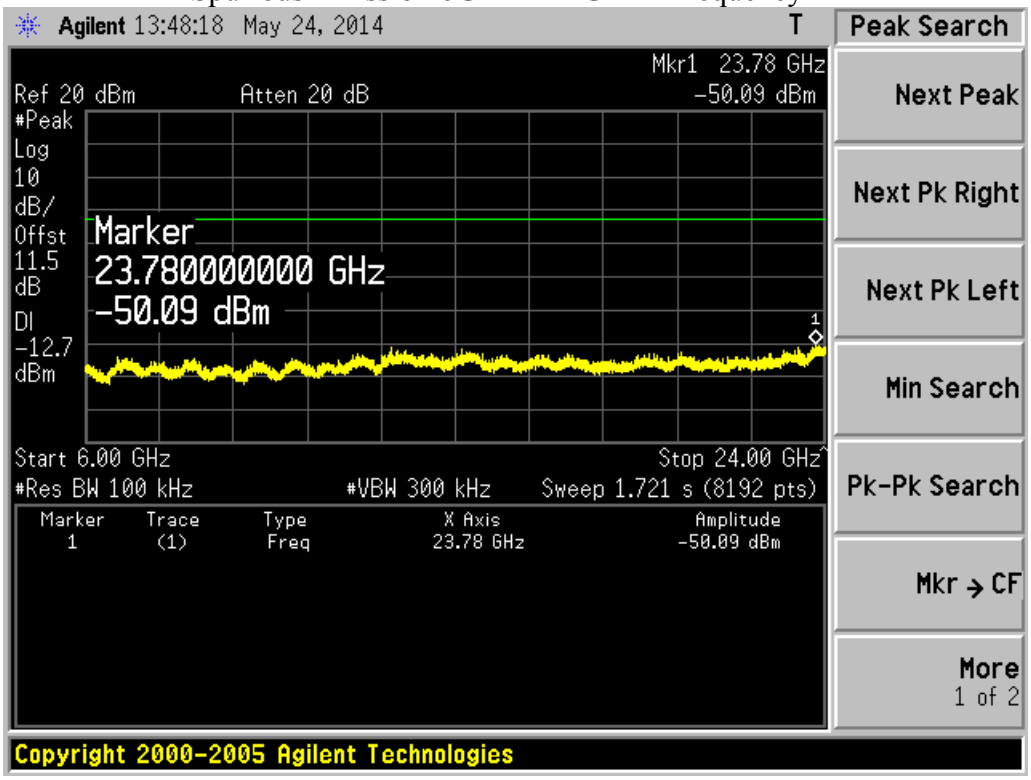
Spurious Emission 1MHz ~ 3GHz - Frequency M



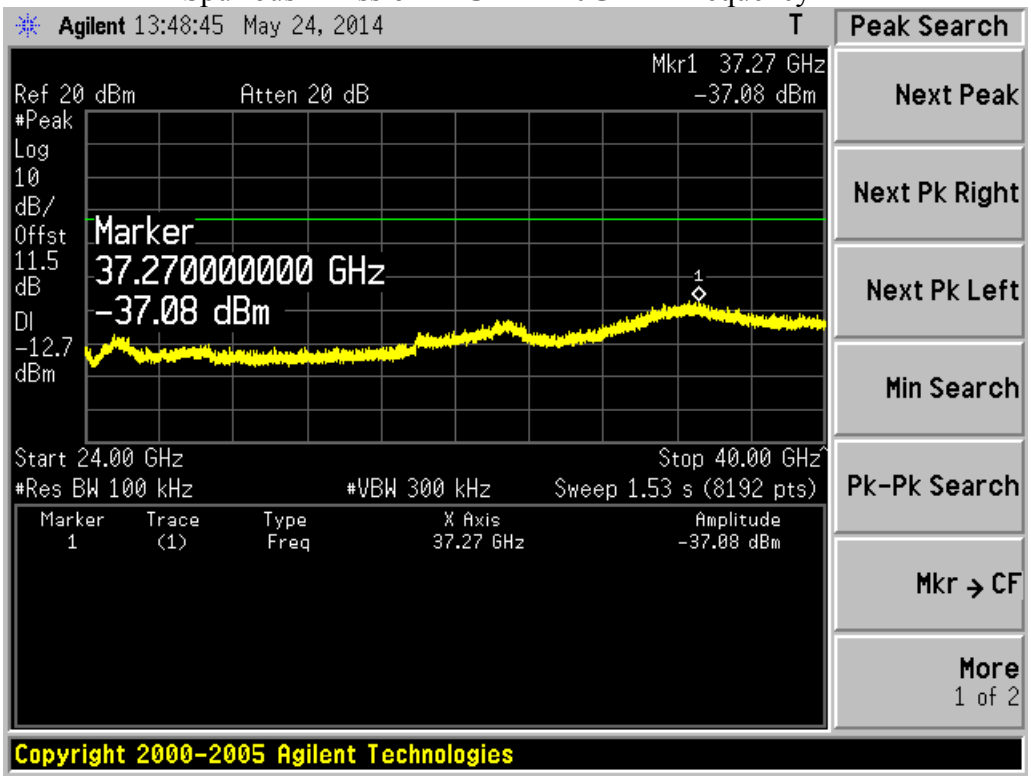
Spurious Emission 3GHz ~ 6GHz - Frequency M



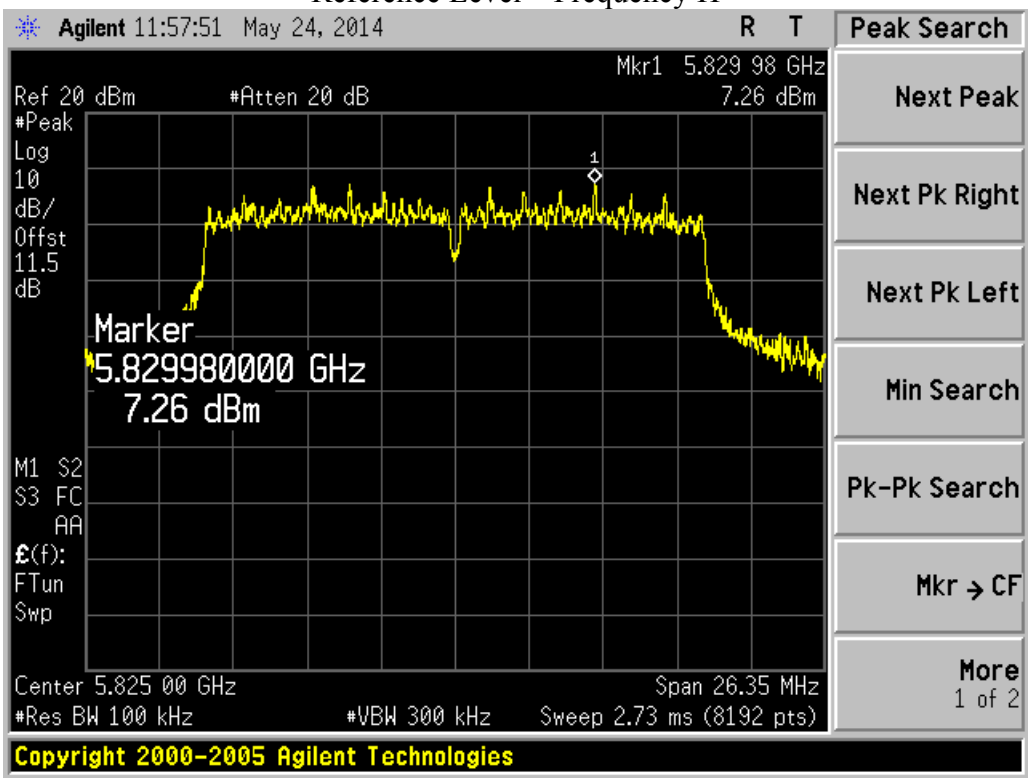
Spurious Emission 6GHz ~ 24GHz - Frequency M



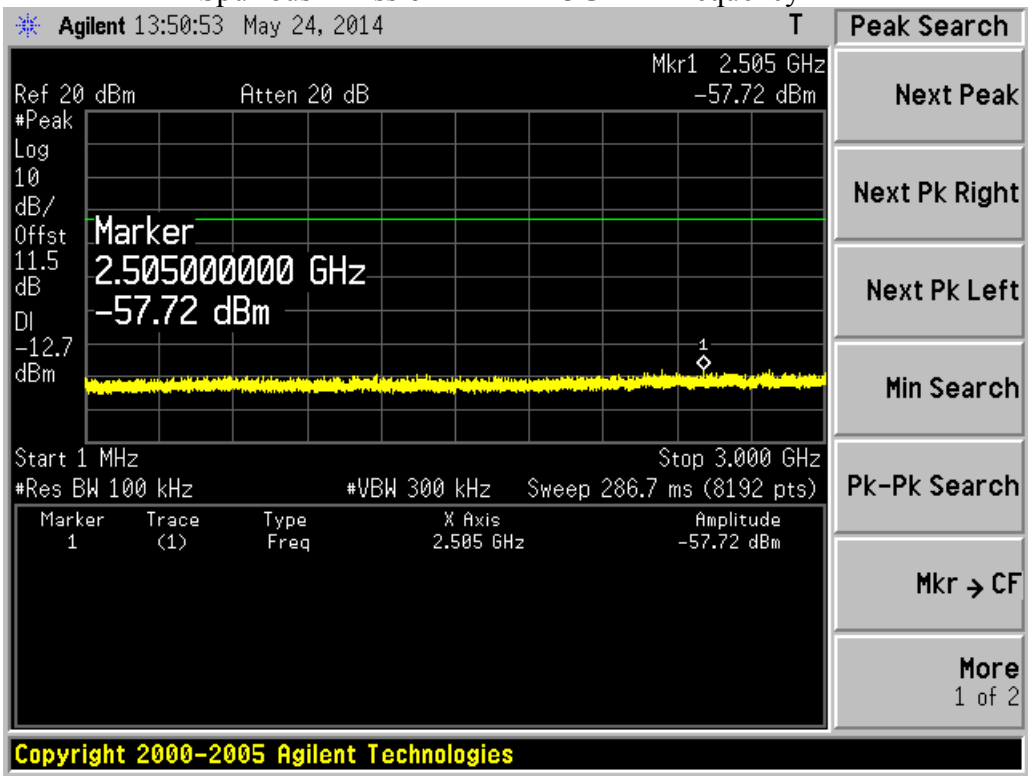
Spurious Emission 24GHz ~ 40GHz - Frequency M



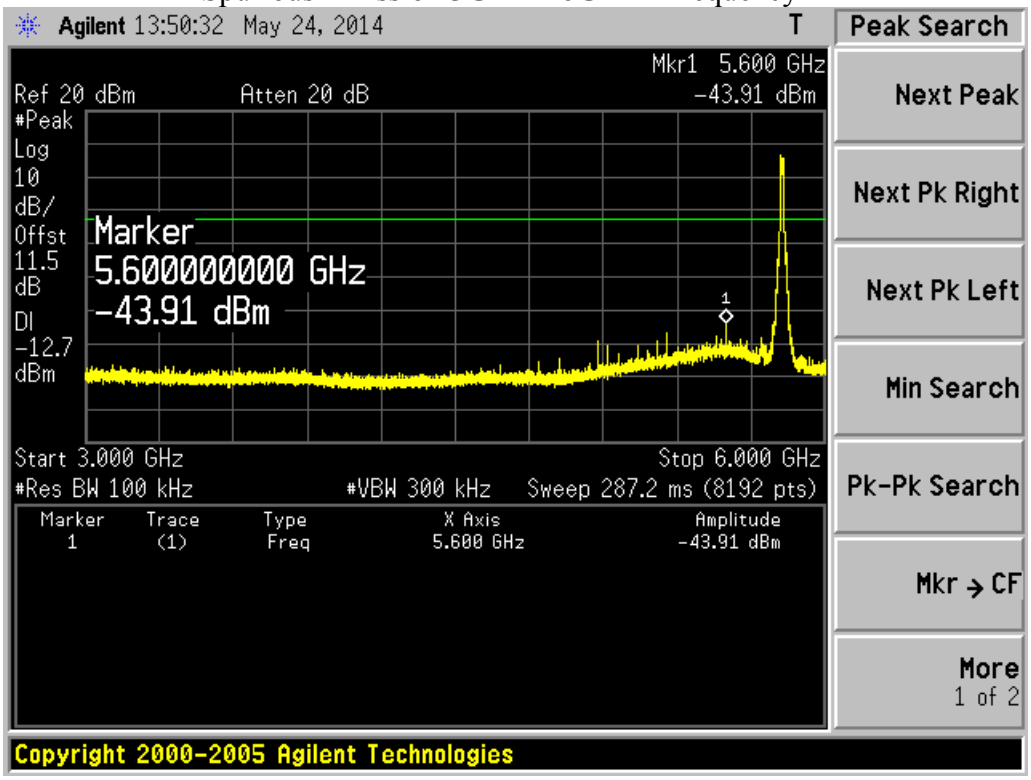
Reference Level – Frequency H



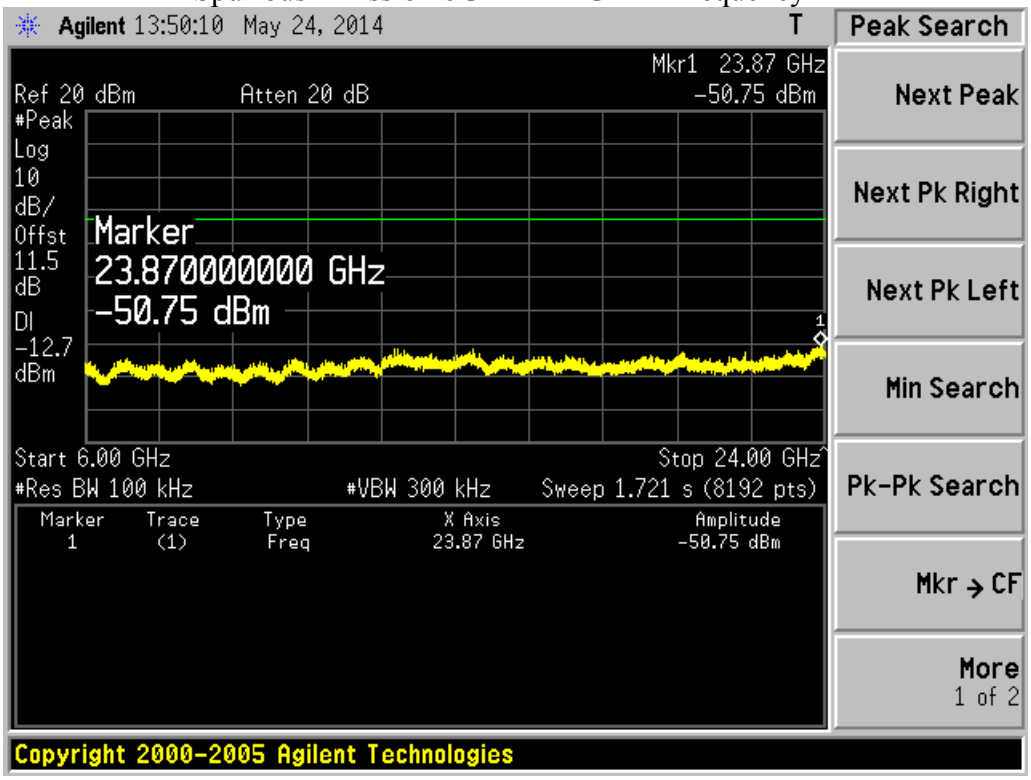
Spurious Emission 1MHz ~ 3GHz - Frequency H



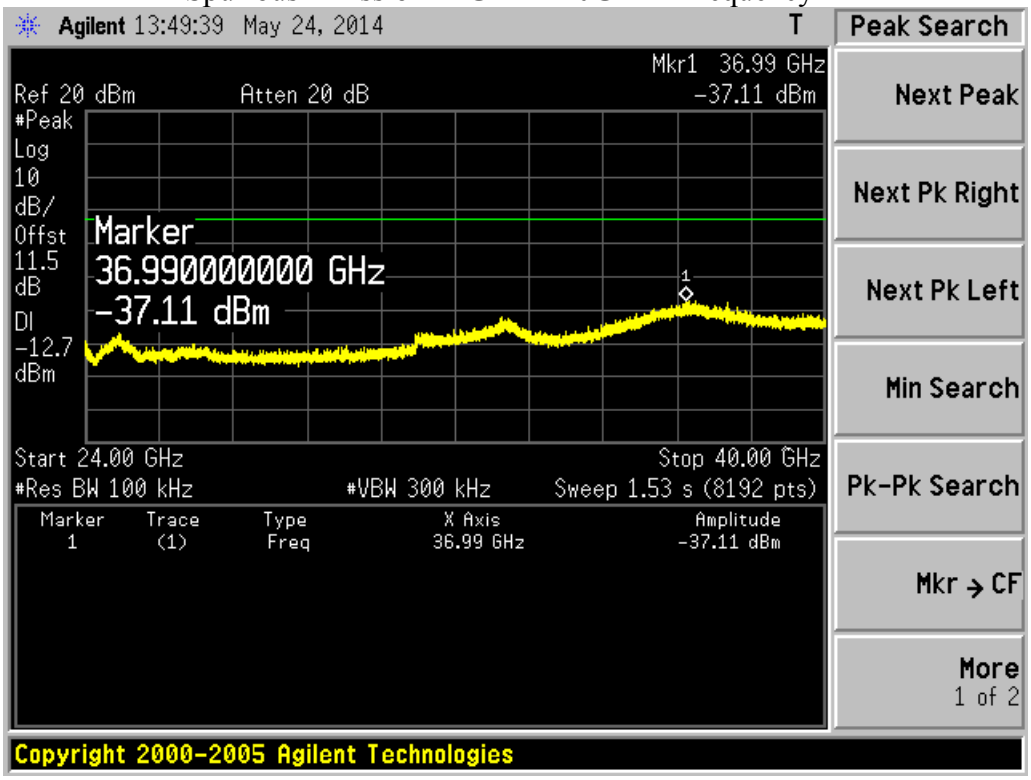
Spurious Emission 3GHz ~ 6GHz - Frequency H



Spurious Emission 6GHz ~ 24GHz - Frequency H

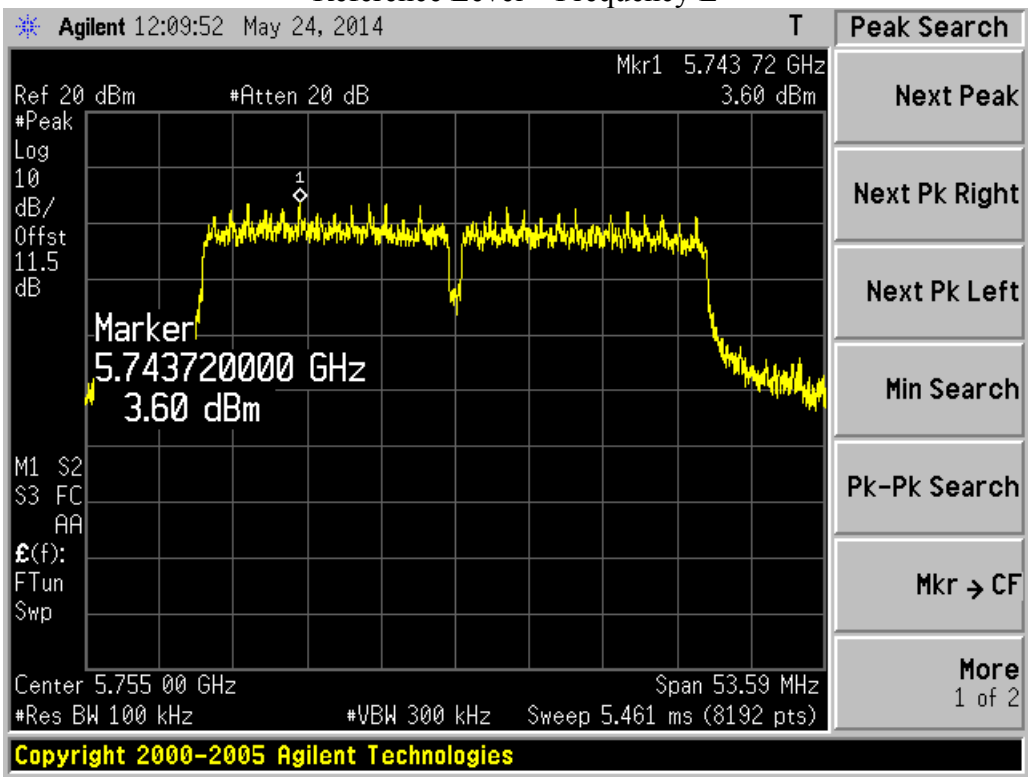


Spurious Emission 24GHz ~ 40GHz - Frequency H

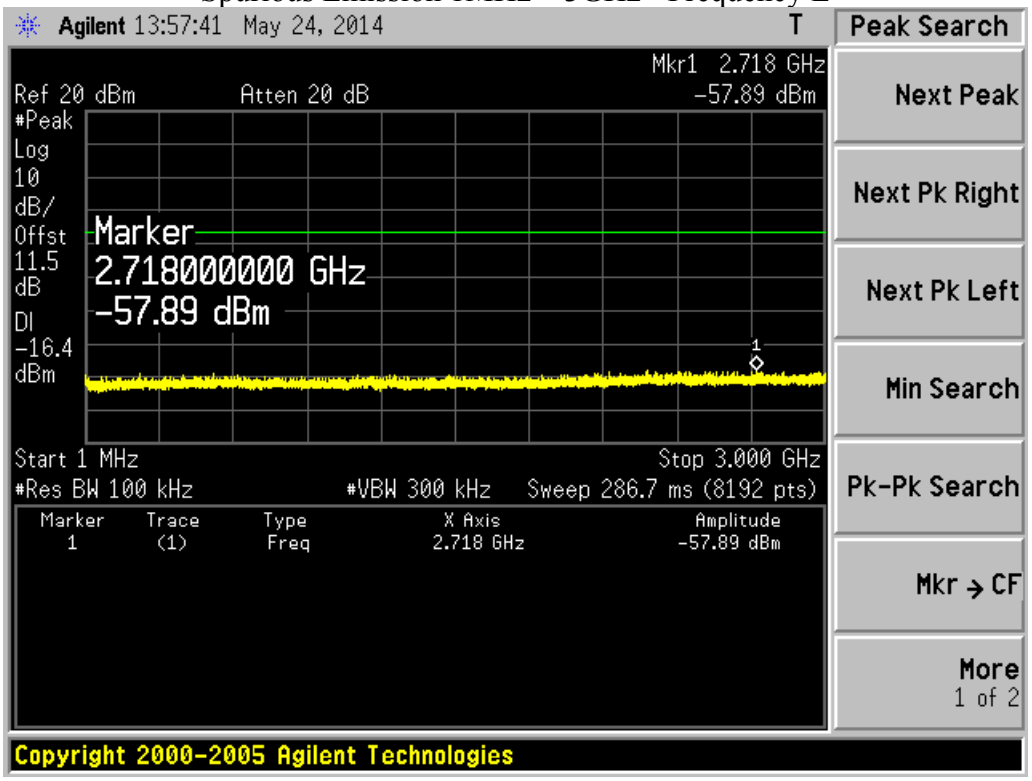


802.11n40 Out-of-Band Emissions – Chain 1

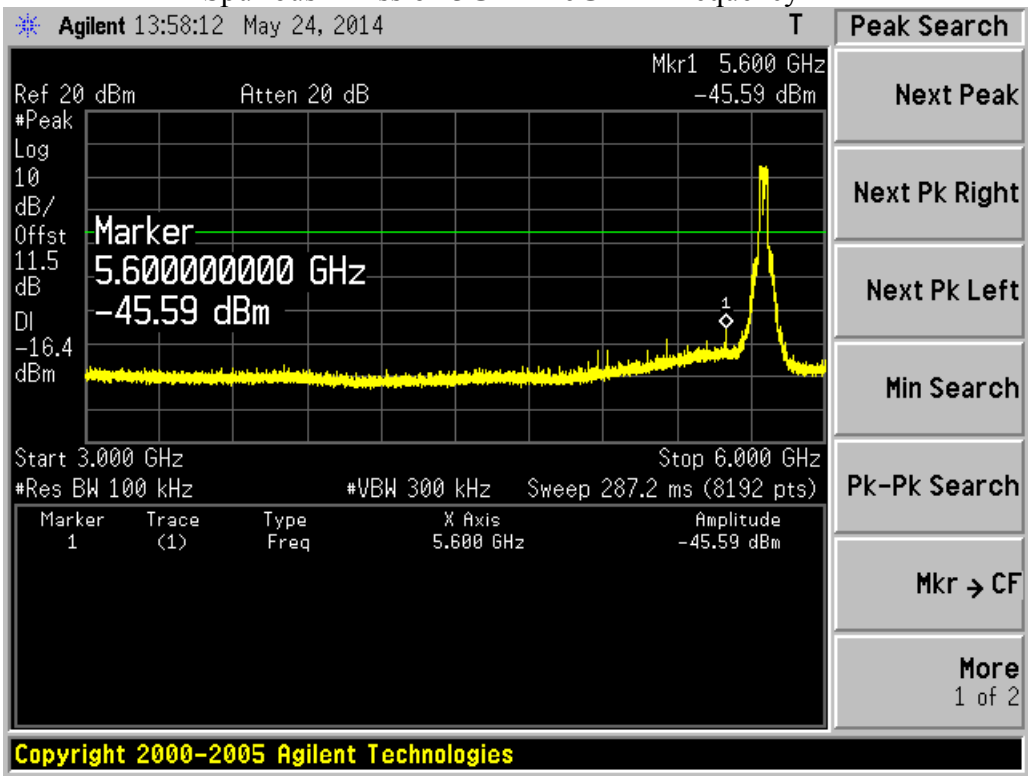
Reference Level – Frequency L



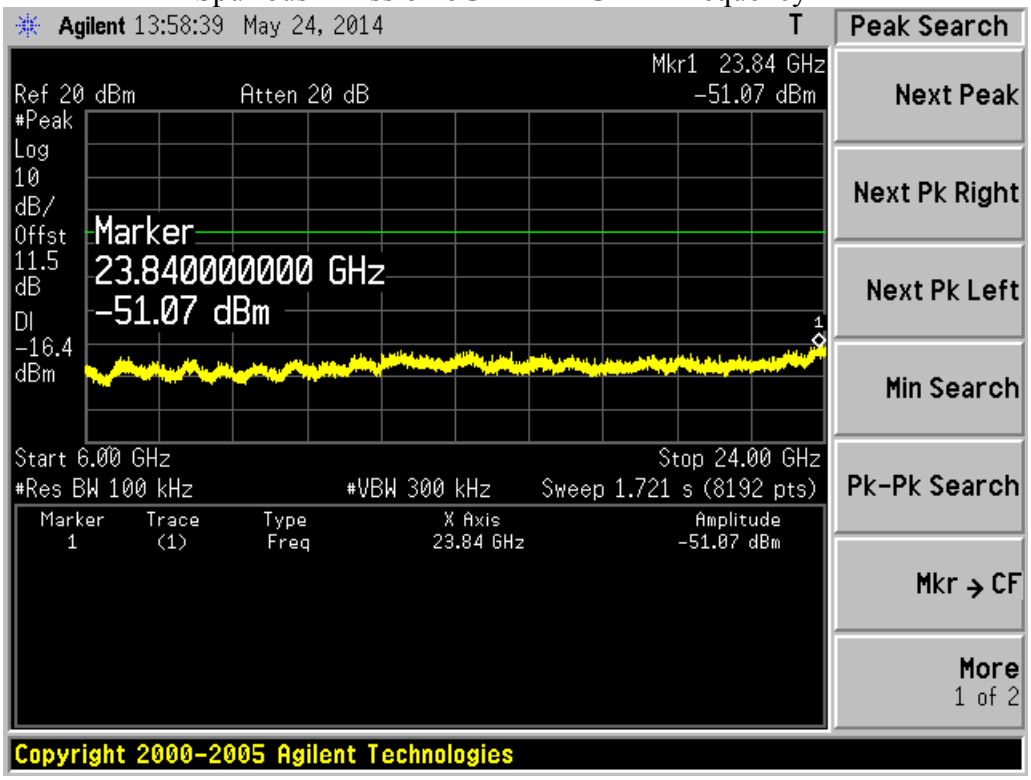
Spurious Emission 1MHz ~ 3GHz - Frequency L



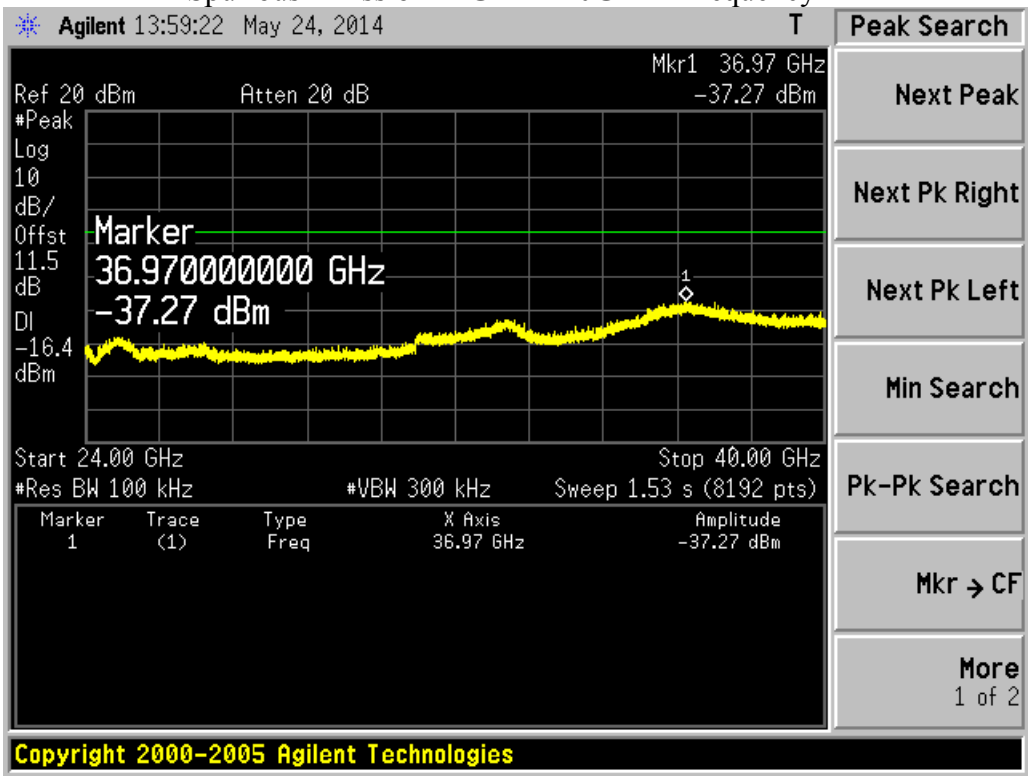
Spurious Emission 3GHz ~ 6GHz - Frequency L



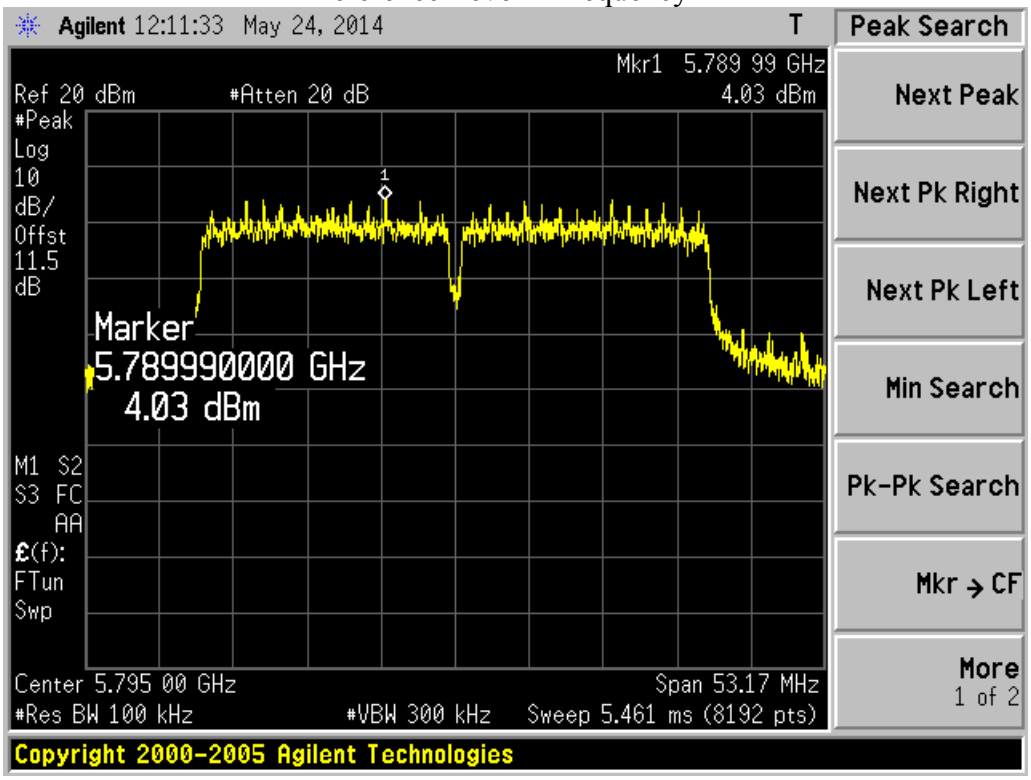
Spurious Emission 6GHz ~ 24GHz - Frequency L



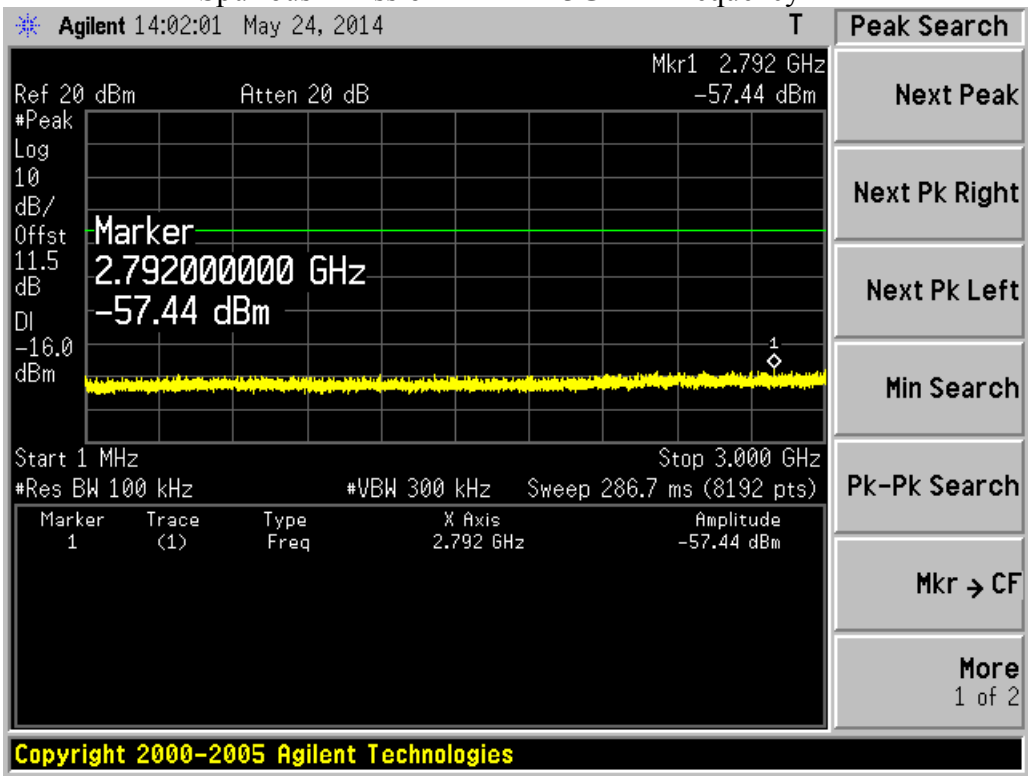
Spurious Emission 24GHz ~ 40GHz - Frequency L



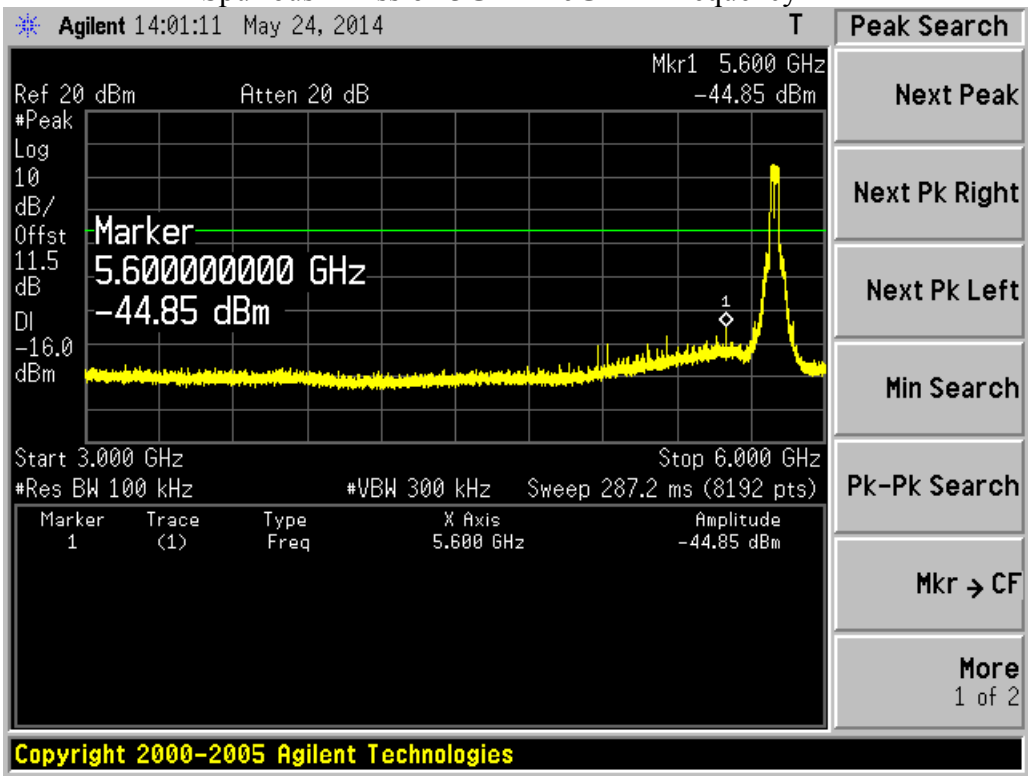
Reference Level – Frequency H



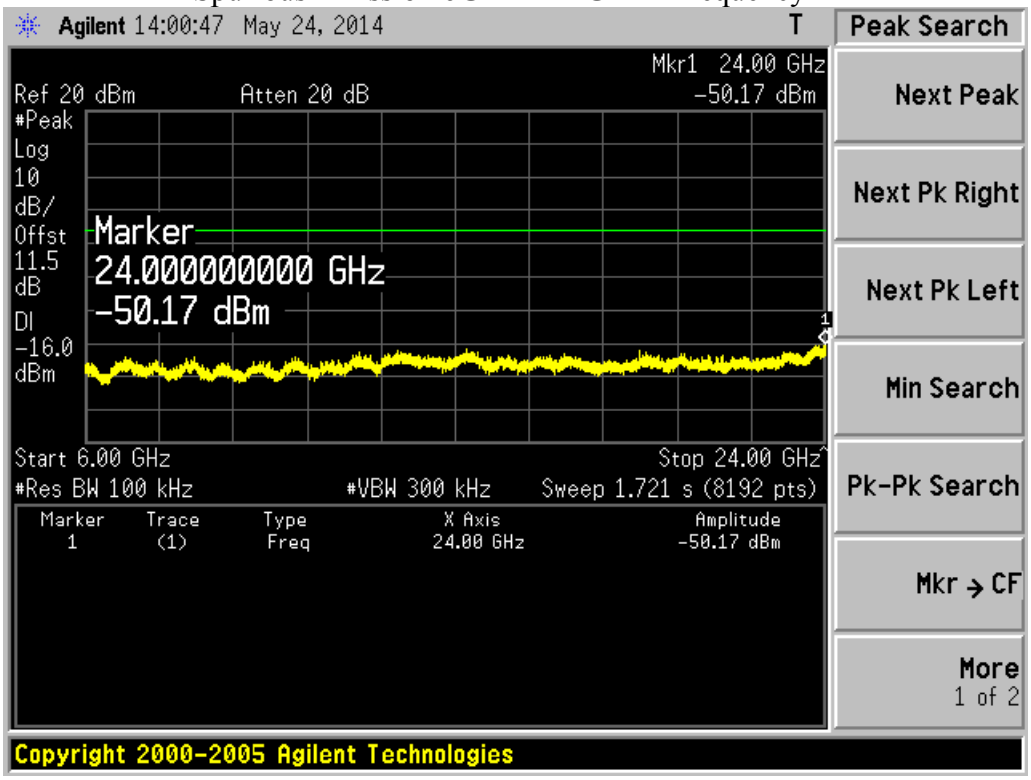
Spurious Emission 1MHz ~ 3GHz - Frequency H



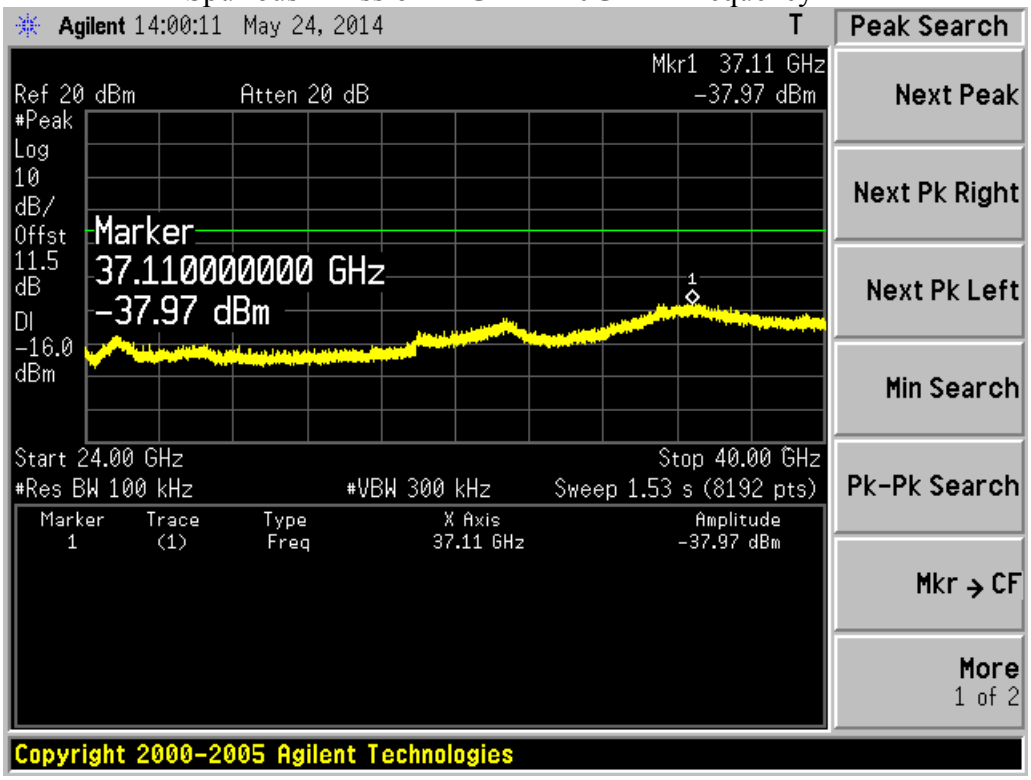
Spurious Emission 3GHz ~ 6GHz - Frequency H



Spurious Emission 6GHz ~ 24GHz - Frequency H



Spurious Emission 24GHz ~ 40GHz - Frequency H



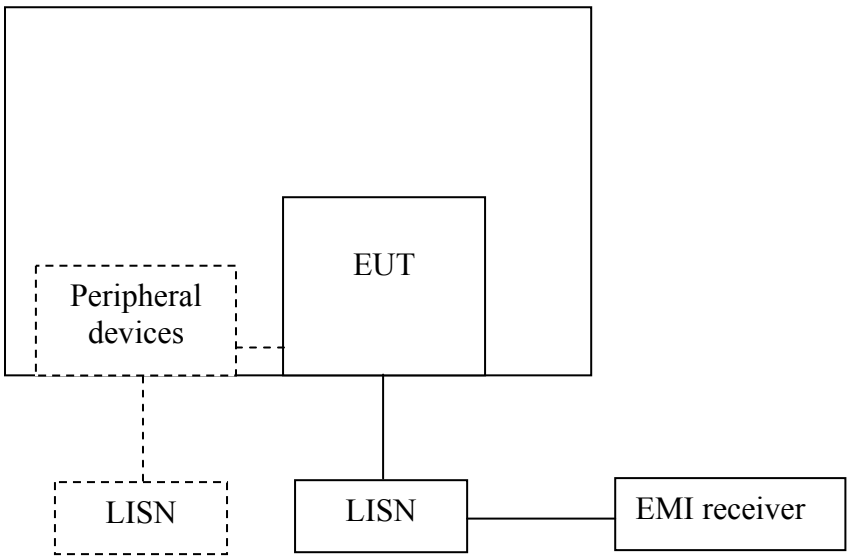
8. Power line conducted emission

Test result: **Pass**

8.1 Limit

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	QP	AV
0.15-0.5	66 to 56*	56 to 46 *
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

8.2 Test configuration



☒ For table top equipment, wooden support is 0.8m height table

☐ For floor standing equipment, wooden support is 0.1m height rack.

8.3 Test procedure and test set up

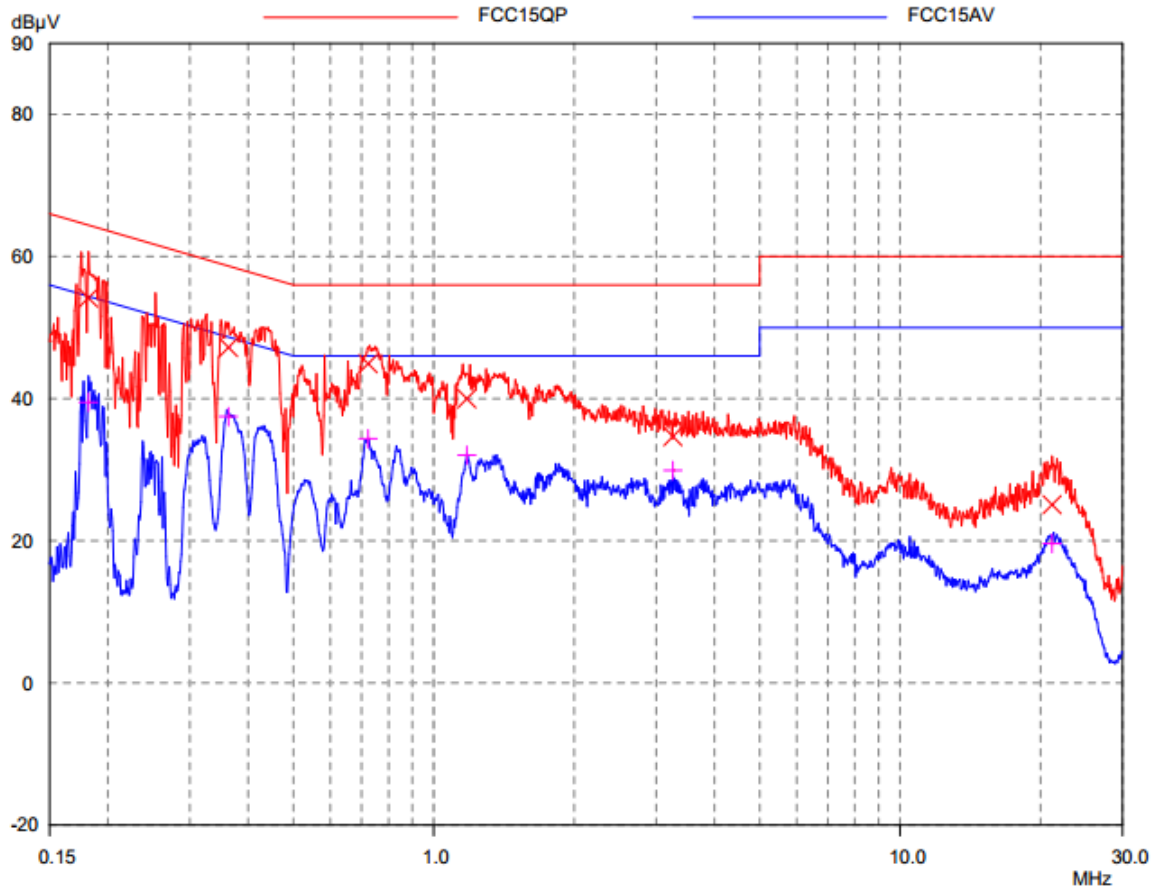
The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50Ω/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50Ω/50uH coupling impedance with 50Ω termination.
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 on conducted measurement.
The bandwidth of the test receiver is set at 9 kHz.

8.4 Test protocol

Temperature : 25 °C
Relative Humidity : 55 %

Supplied by AC-DC adaptor:

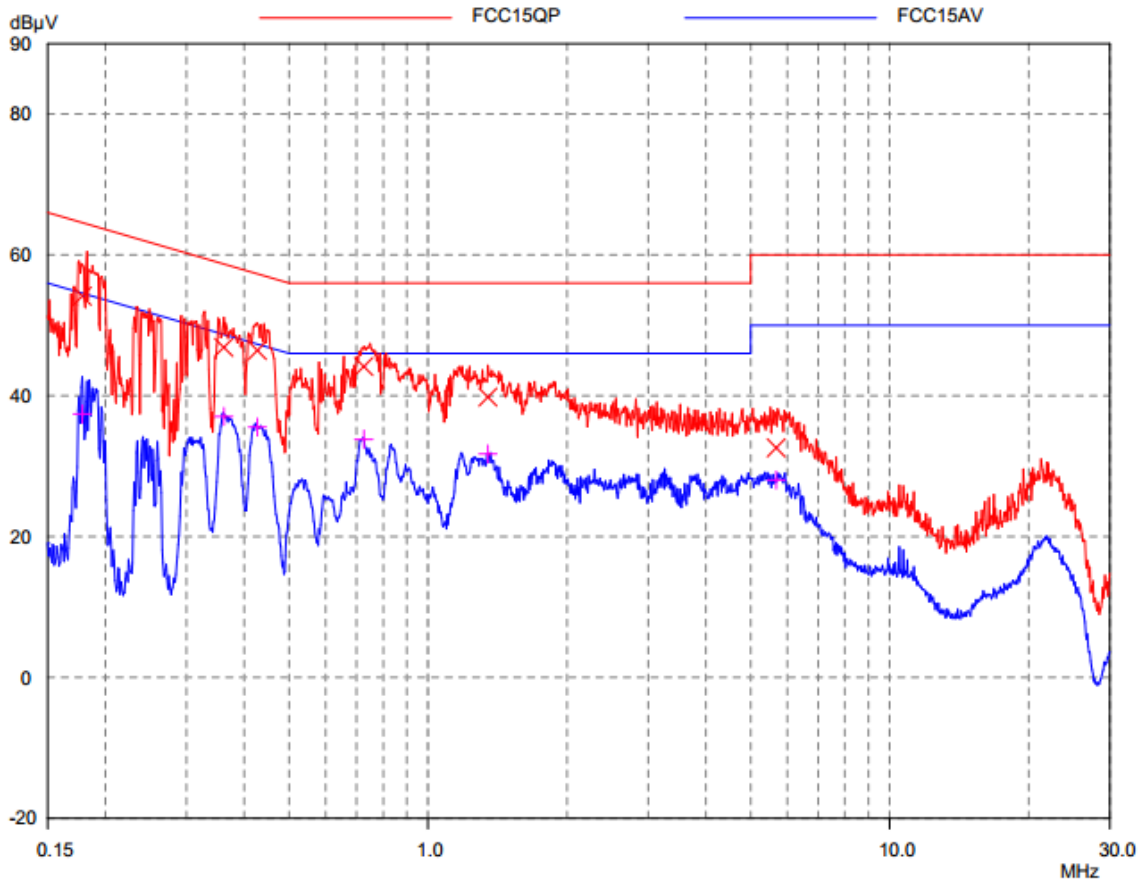
L Line



Test Data:

Frequency (MHz)	Quasi-peak			Average		
	level dB(µV)	Limit dB(µV)	Margin (dB)	level dB(µV)	limit dB(µV)	Margin (dB)
0.182	54.17	64.41	10.24	39.50	54.41	14.91
0.362	47.23	58.67	11.44	37.48	48.67	11.19
0.723	44.92	56.00	11.08	34.35	46.00	11.65
1.177	39.99	56.00	16.01	32.05	46.00	13.95
3.257	34.68	56.00	21.32	29.89	46.00	16.11
21.178	25.08	60.00	34.92	19.61	50.00	30.39

N Line

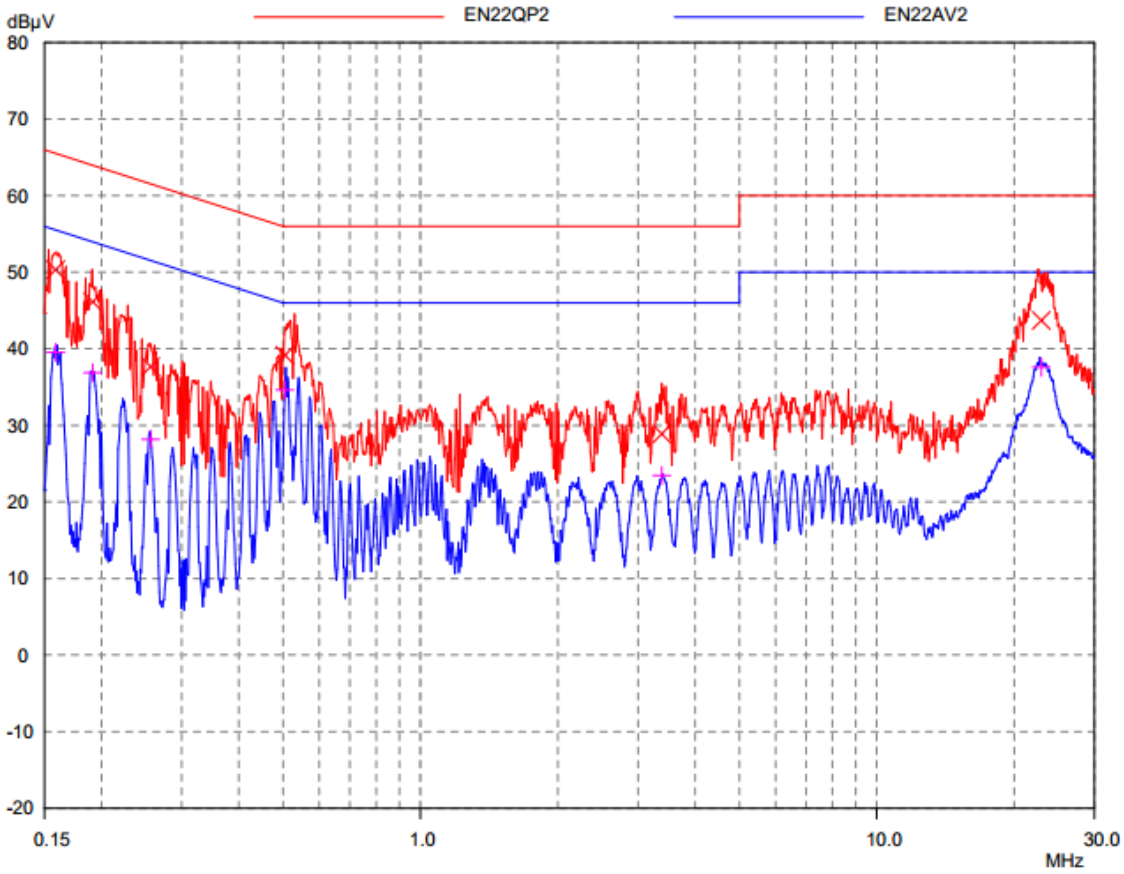


Test Data:

Frequency (MHz)	Quasi-peak			Average		
	level dB(µV)	Limit dB(µV)	Margin (dB)	level dB(µV)	limit dB(µV)	Margin (dB)
0.178	54.16	64.57	10.41	37.40	54.57	17.17
0.361	46.87	58.71	11.84	37.05	48.71	11.66
0.427	46.44	57.31	10.87	35.55	47.31	11.76
0.726	44.14	56.00	11.86	33.81	46.00	12.19
1.348	39.81	56.00	16.19	31.74	46.00	14.26
5.672	32.60	60.00	27.40	28.04	50.00	21.96

Supplied by POE adaptor:

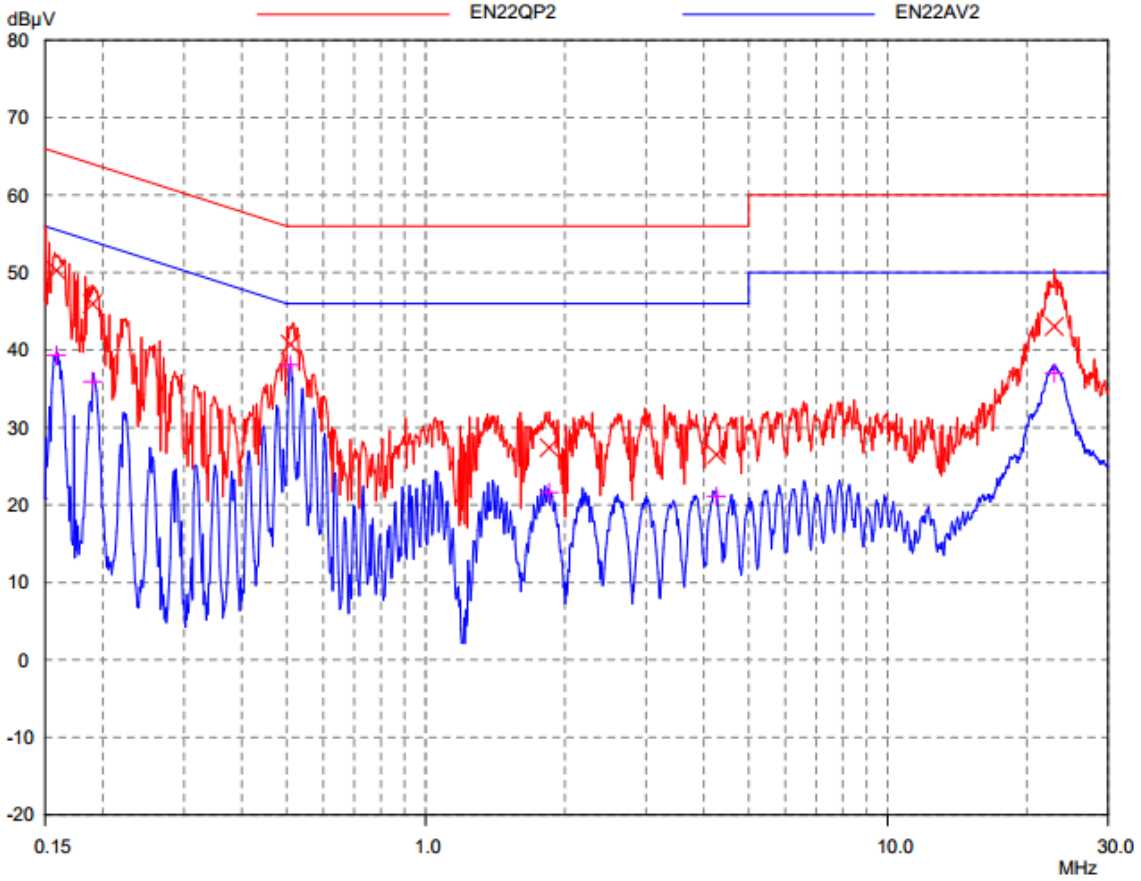
L Line



Test Data:

Frequency (MHz)	Quasi-peak			Average		
	level dB(µV)	Limit dB(µV)	Margin (dB)	level dB(µV)	limit dB(µV)	Margin (dB)
0.159	50.33	65.54	15.21	39.55	55.54	15.99
0.191	46.13	63.98	17.85	36.88	53.98	17.10
0.256	37.66	61.56	23.90	28.19	51.56	23.37
0.505	39.16	56.00	16.84	34.62	46.00	11.38
3.376	28.89	56.00	27.11	23.43	46.00	22.57
22.939	43.71	60.00	16.29	37.60	50.00	12.40

N line

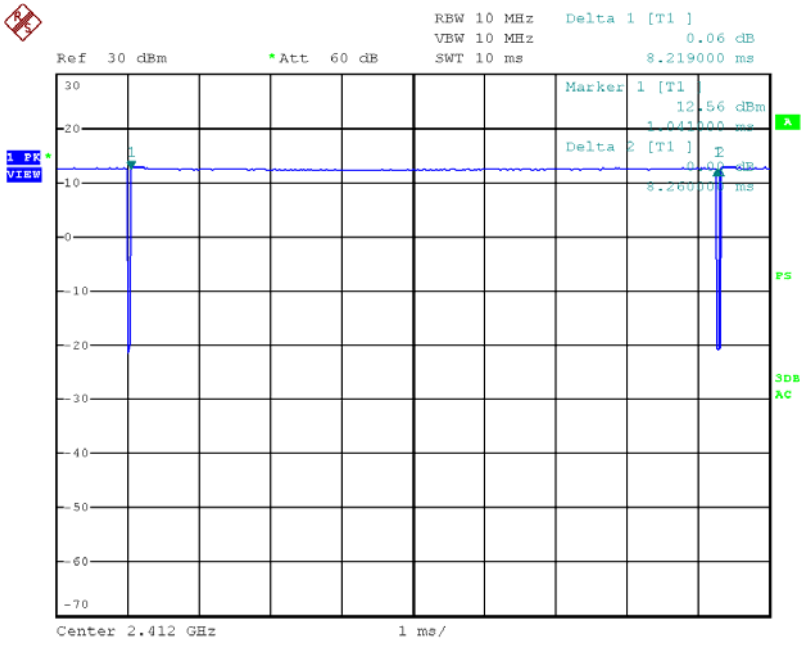


Test Data:

Frequency (MHz)	Quasi-peak			Average		
	level dB(µV)	Limit dB(µV)	Margin (dB)	level dB(µV)	limit dB(µV)	Margin (dB)
0.159	50.27	65.54	15.27	39.36	55.54	16.18
0.190	45.97	64.04	18.07	35.93	54.04	18.11
0.509	40.73	56.00	15.27	38.10	46.00	7.90
1.848	27.40	56.00	28.60	21.62	46.00	24.38
4.255	26.49	56.00	29.51	21.12	46.00	24.88
22.939	43.03	60.00	16.97	37.02	50.00	12.98

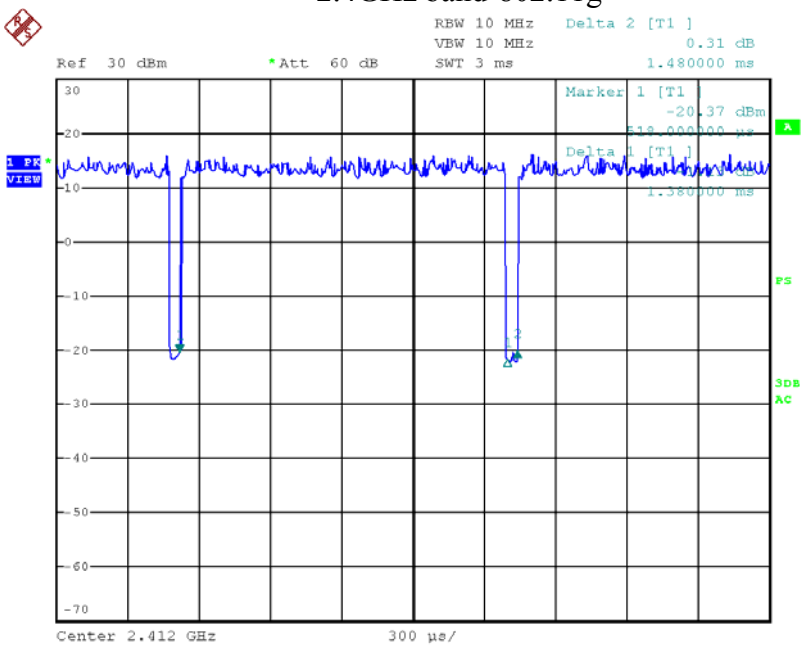
Appendix: Test Graph of Duty Cycle

2.4GHz band-802.11b



Date: 16.MAY.2014 11:38:46

2.4GHz band-802.11g



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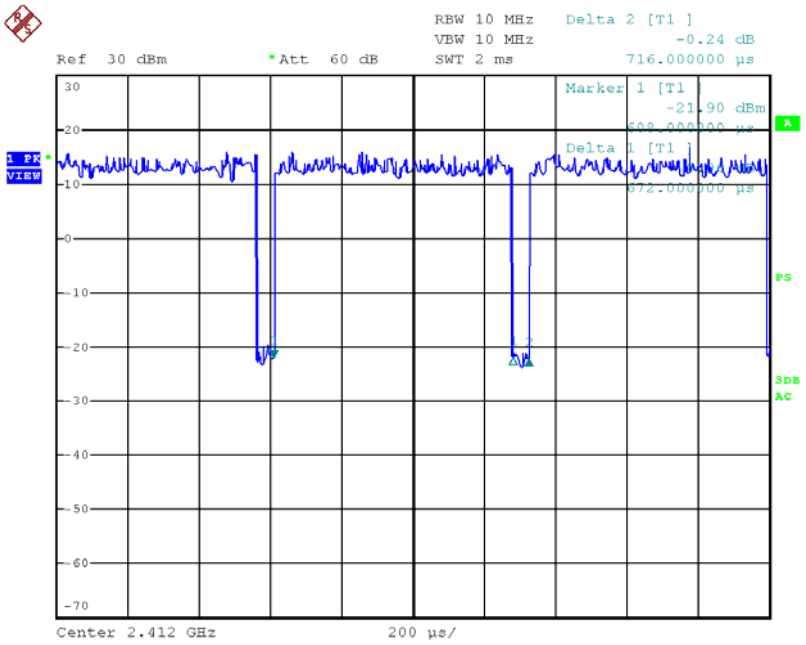
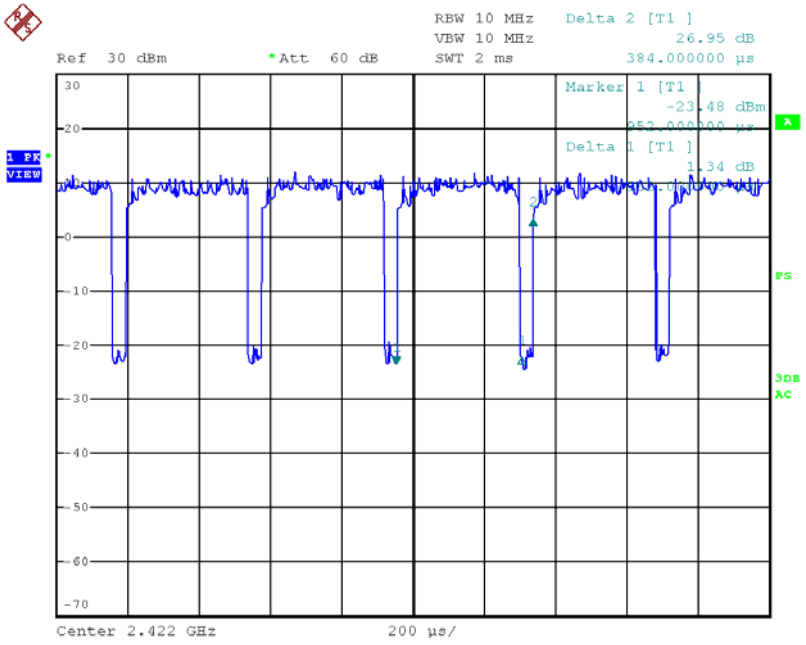
2.4GHz band-802.11n20



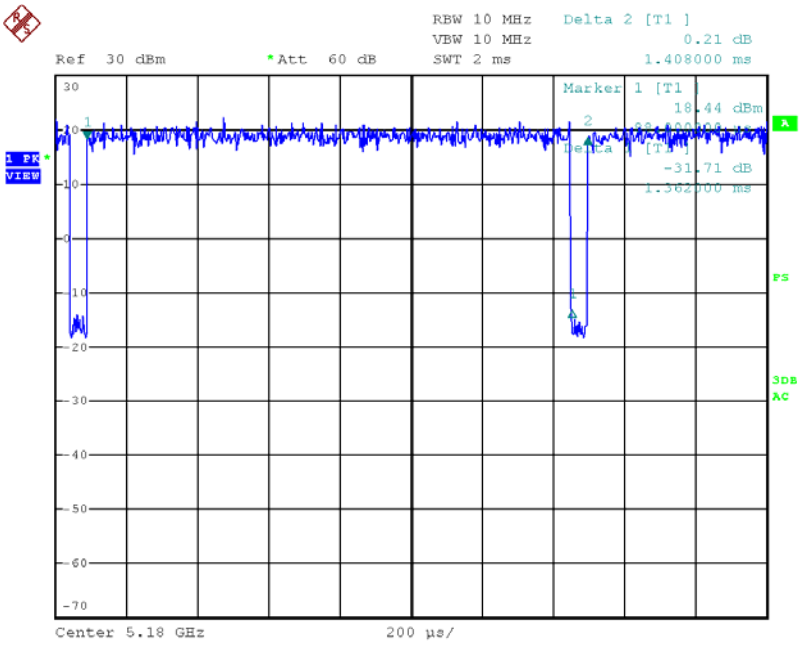
Date: 16.MAY.2014 11:33:29

2.4GHz band-802.11n40



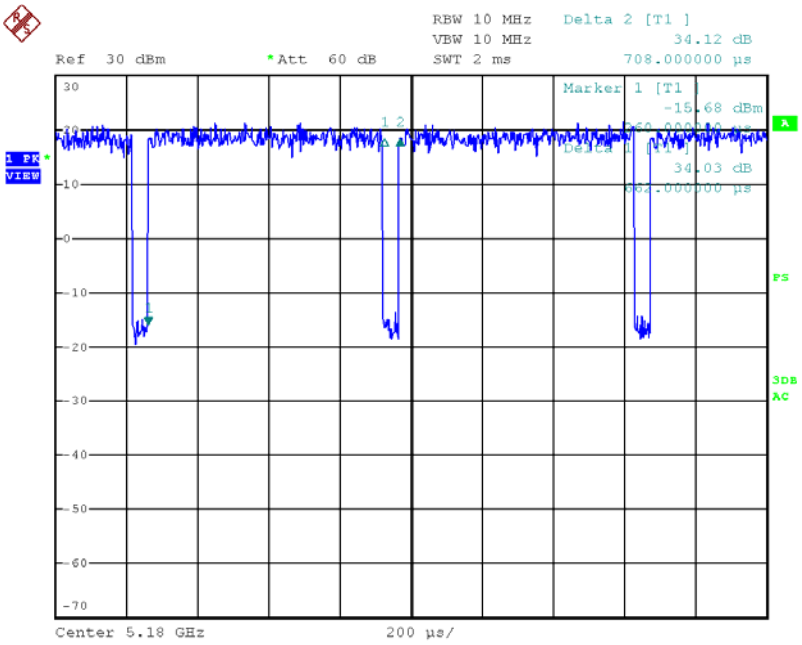
Date: 16.MAY.2014 11:31:22

5GHz band-802.11a



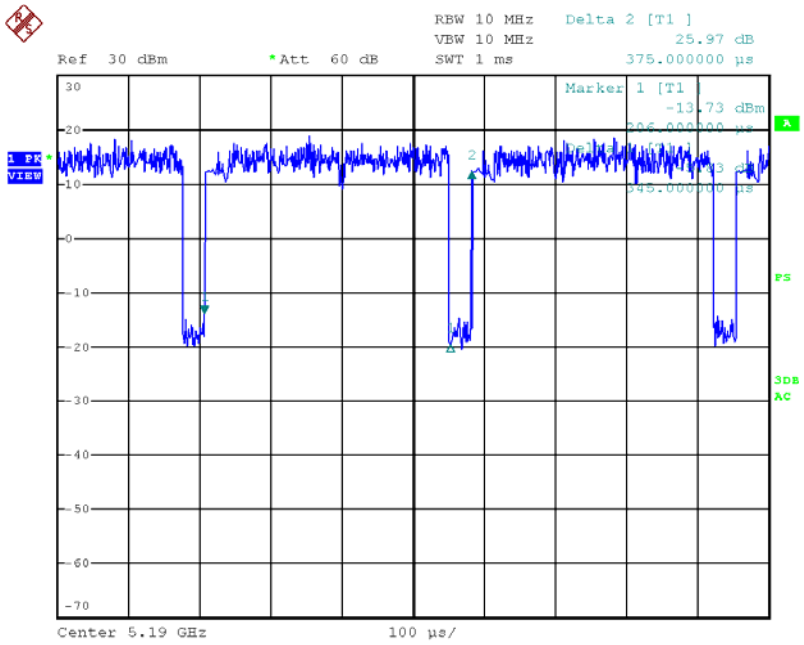
Date: 16.MAY.2014 11:43:22

5GHz band-802.11n HT20



Date: 16.MAY.2014 11:45:04

5GHz band-802.11n HT40



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