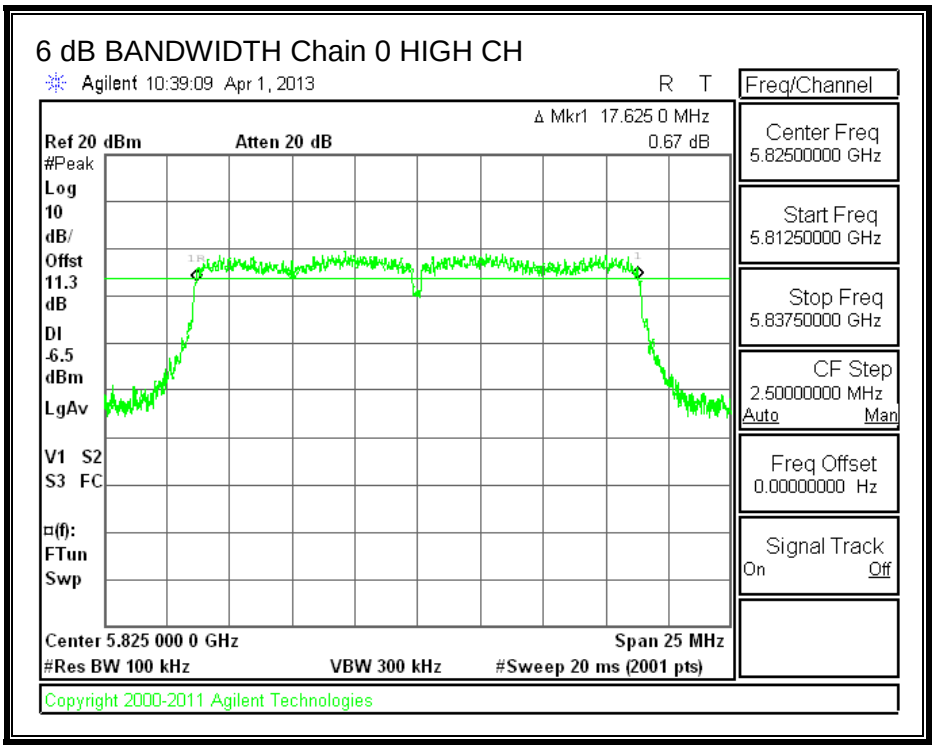
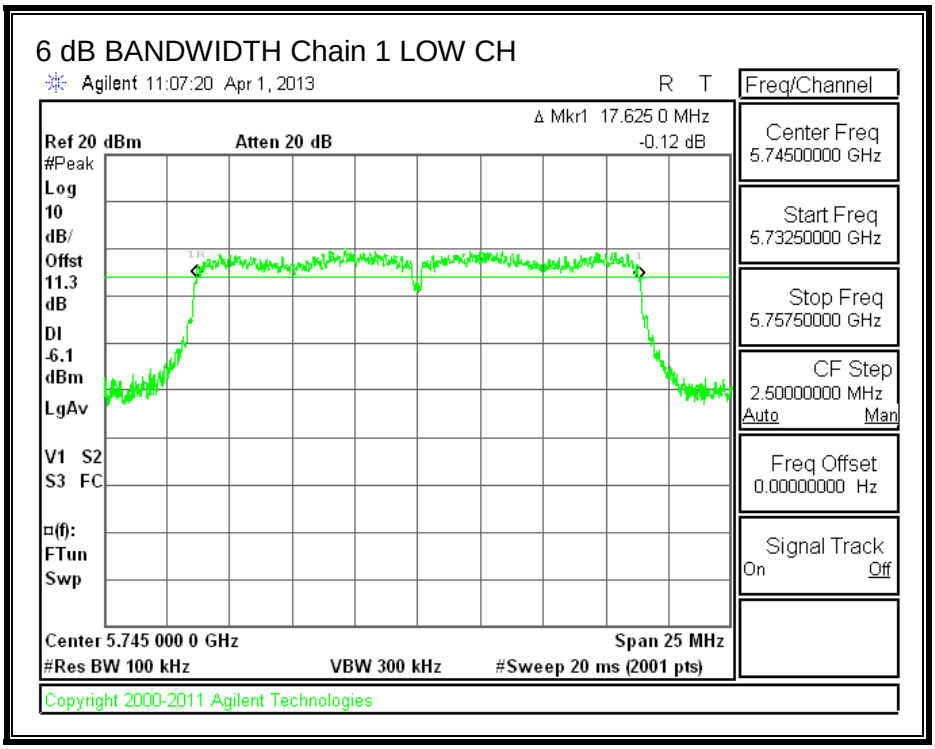
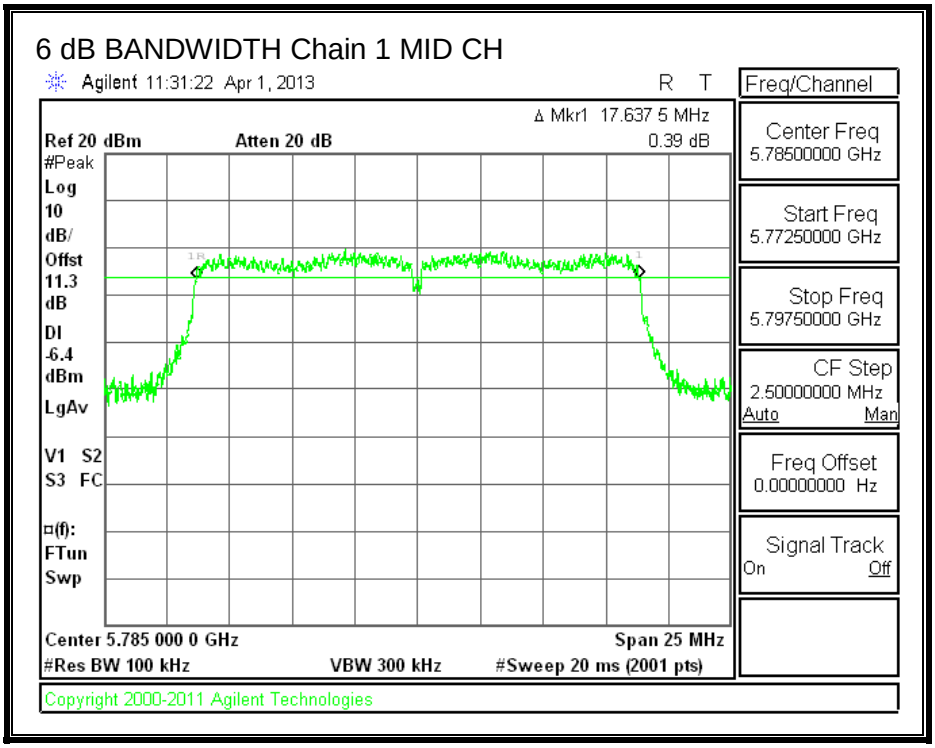


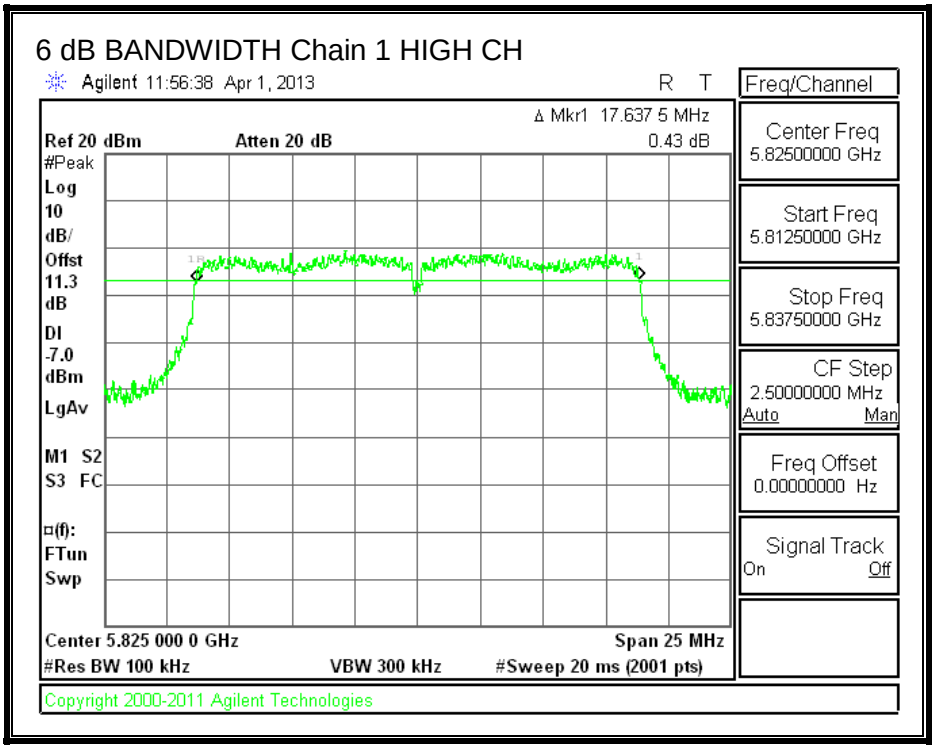
6 dB BANDWIDTH, Chain 1



6 dB BANDWIDTH Chain 1 MID CH



6 dB BANDWIDTH Chain 1 HIGH CH



8.5.2. 99% BANDWIDTH

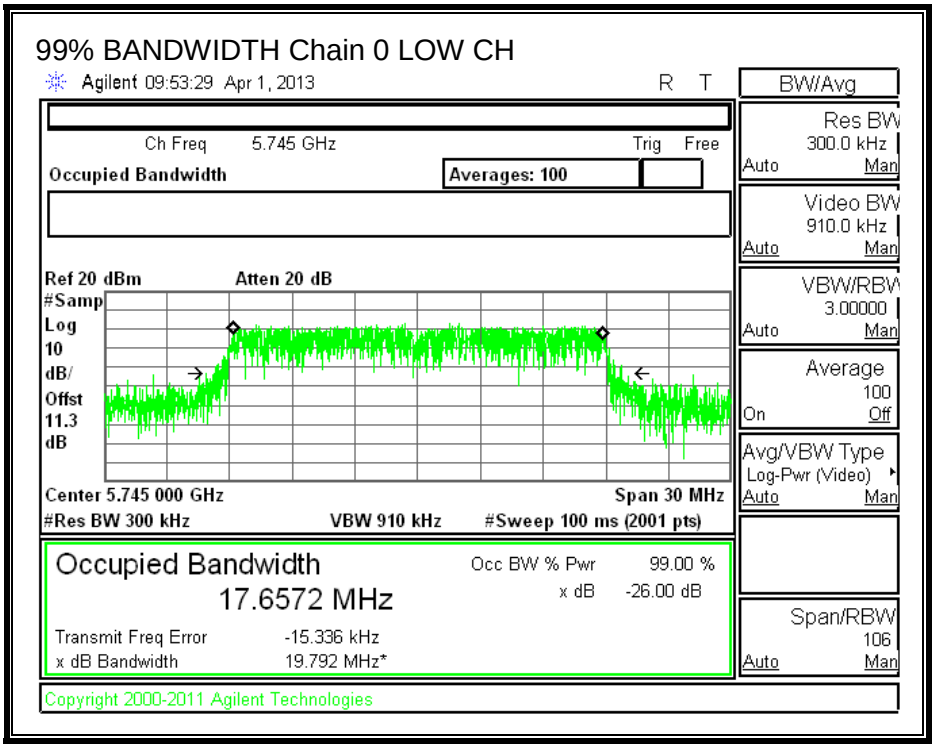
LIMITS

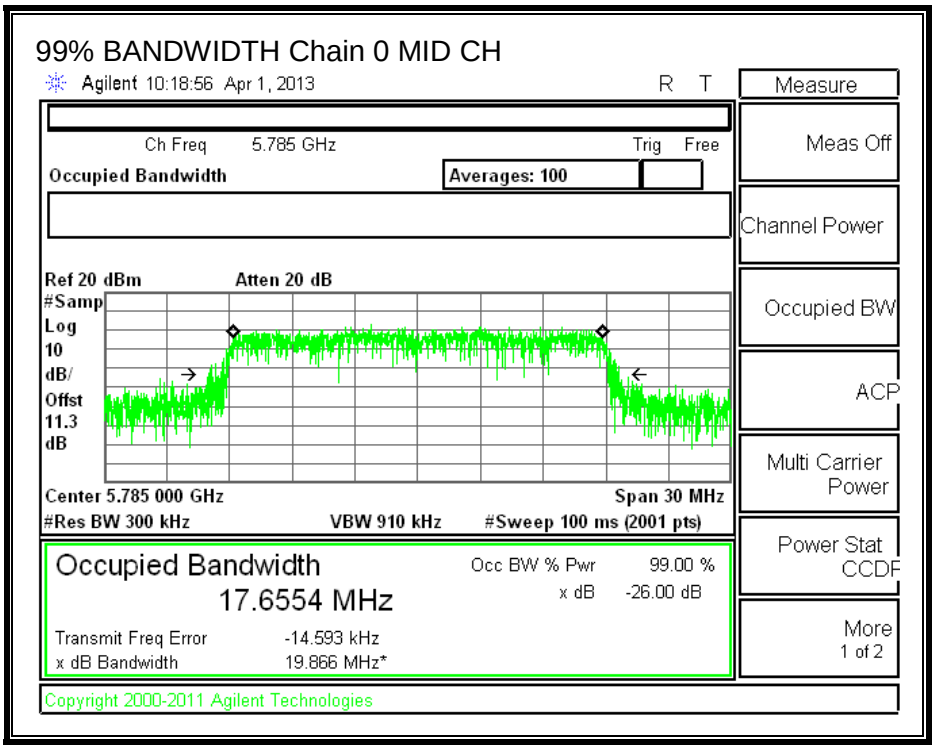
None; for reporting purposes only.

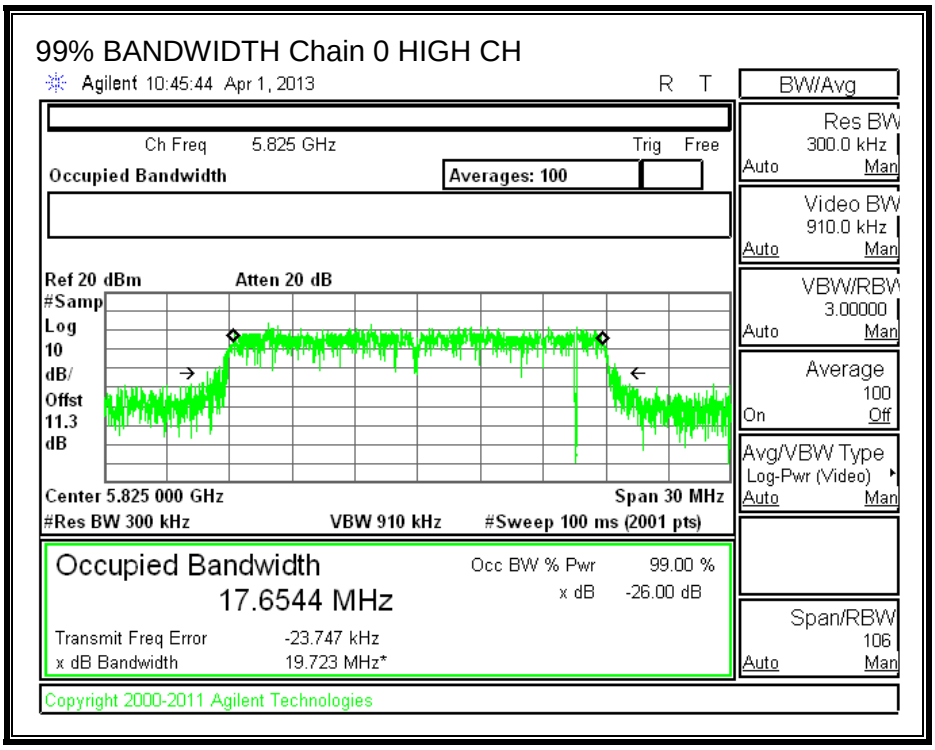
RESULTS

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5745	17.6572	17.6515
Mid	5785	17.6554	17.6607
High	5825	17.6544	17.6573

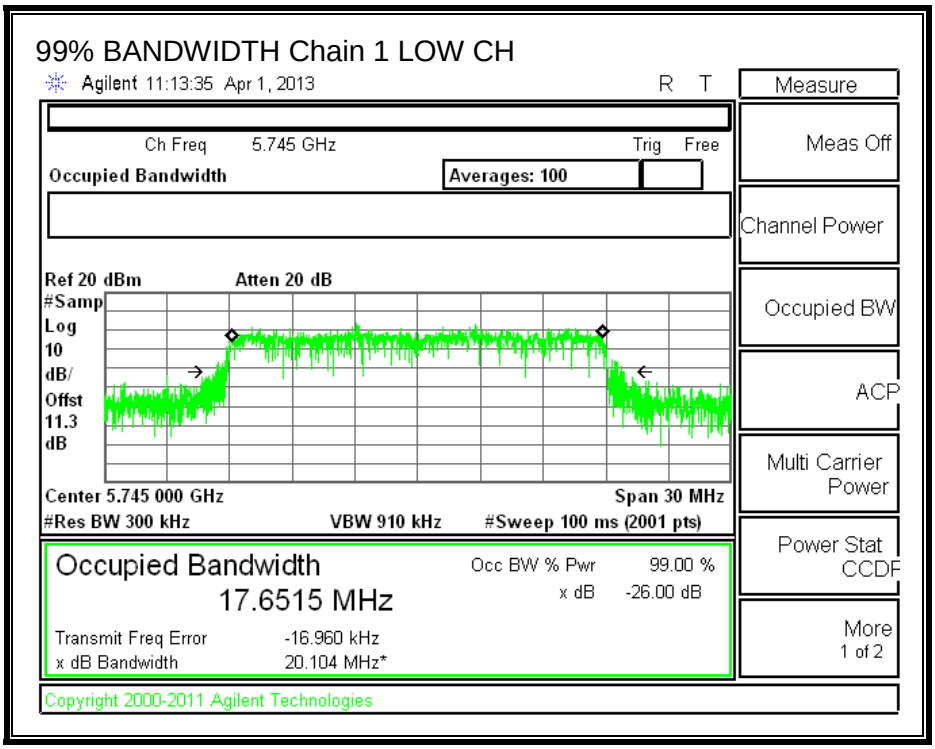
99% BANDWIDTH, Chain 0

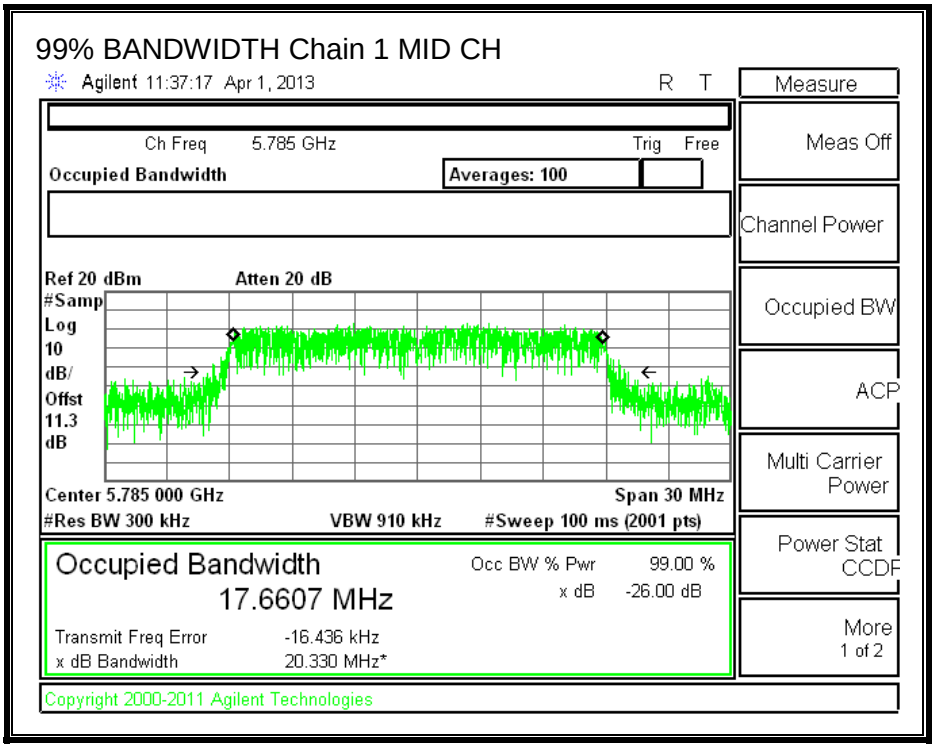


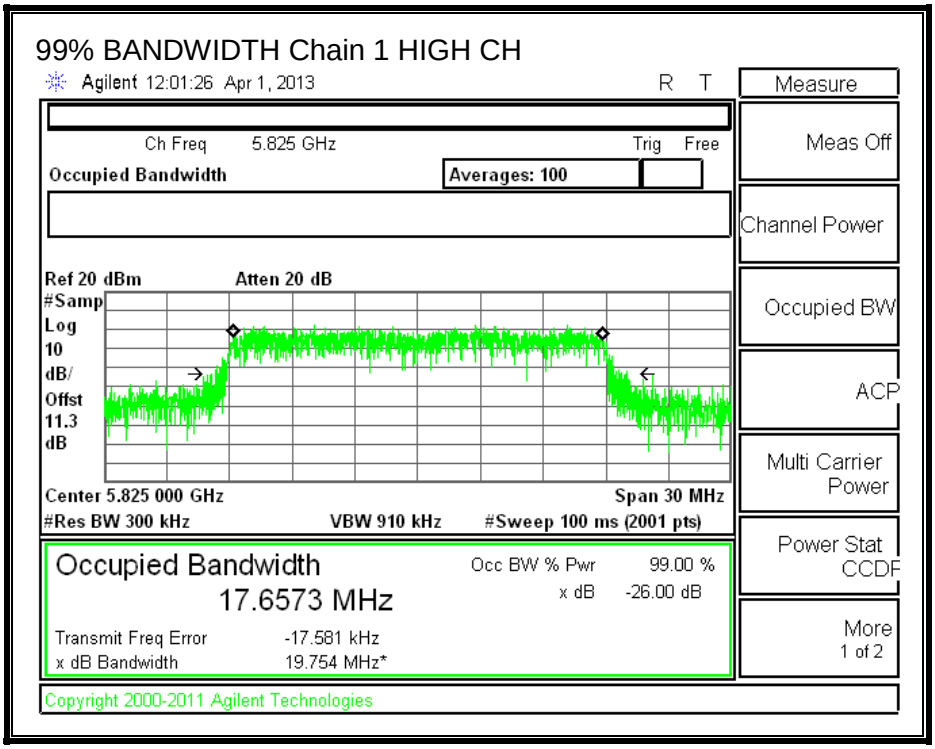




99% BANDWIDTH, Chain 1







8.5.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.3 dB (including 10 dB pad and 1.3dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5745	15.00	14.70	17.86
Mid	5785	14.90	15.20	18.06
High	5825	14.50	14.80	17.66

8.5.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
3.38	3.43	3.41

RESULTS

Limits

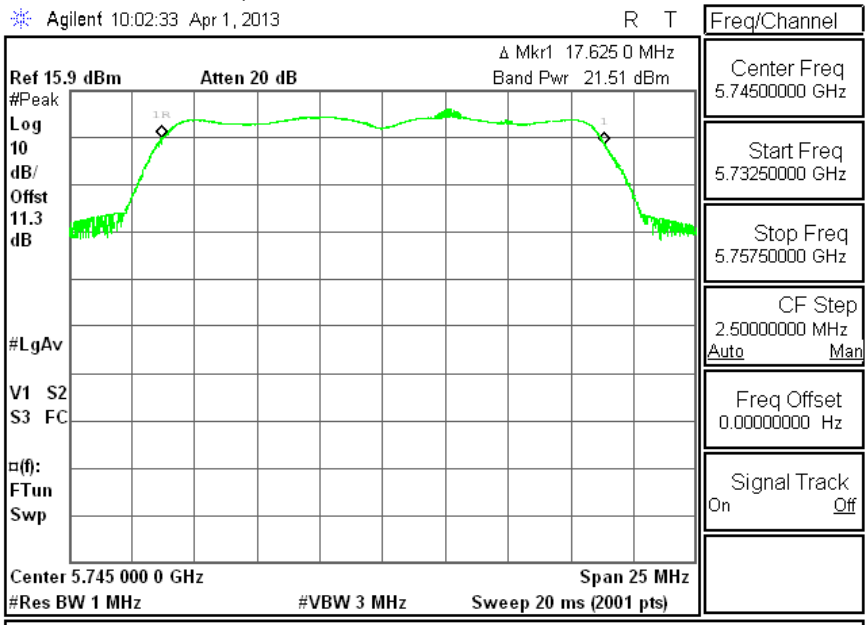
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5745	3.41	30.00	30	36	30.00
Mid	5785	3.41	30.00	30	36	30.00
High	5825	3.41	30.00	30	36	30.00

Results

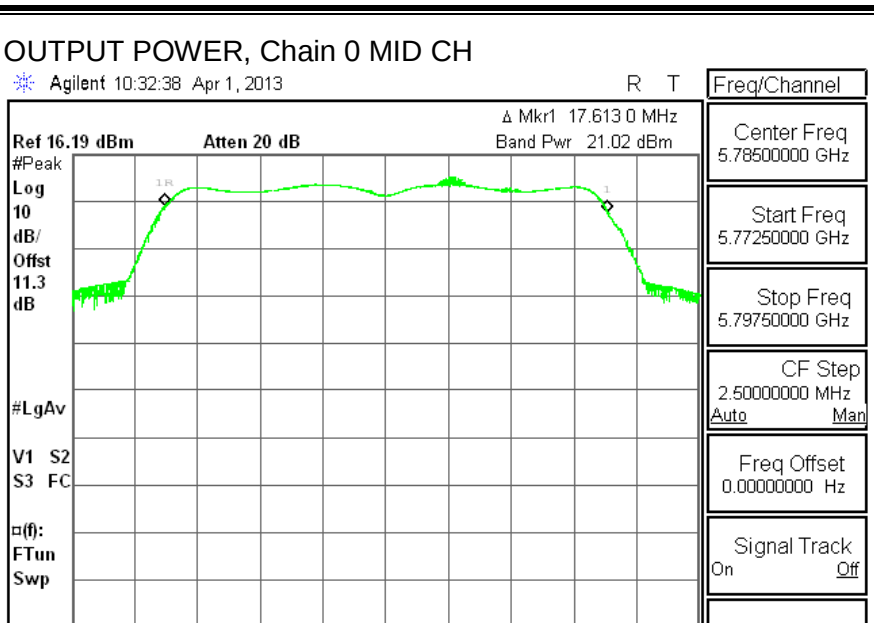
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	5745	21.51	21.18	24.36	30.00	-5.64
Mid	5785	21.02	21.05	24.05	30.00	-5.95
High	5825	20.91	20.80	23.87	30.00	-6.13

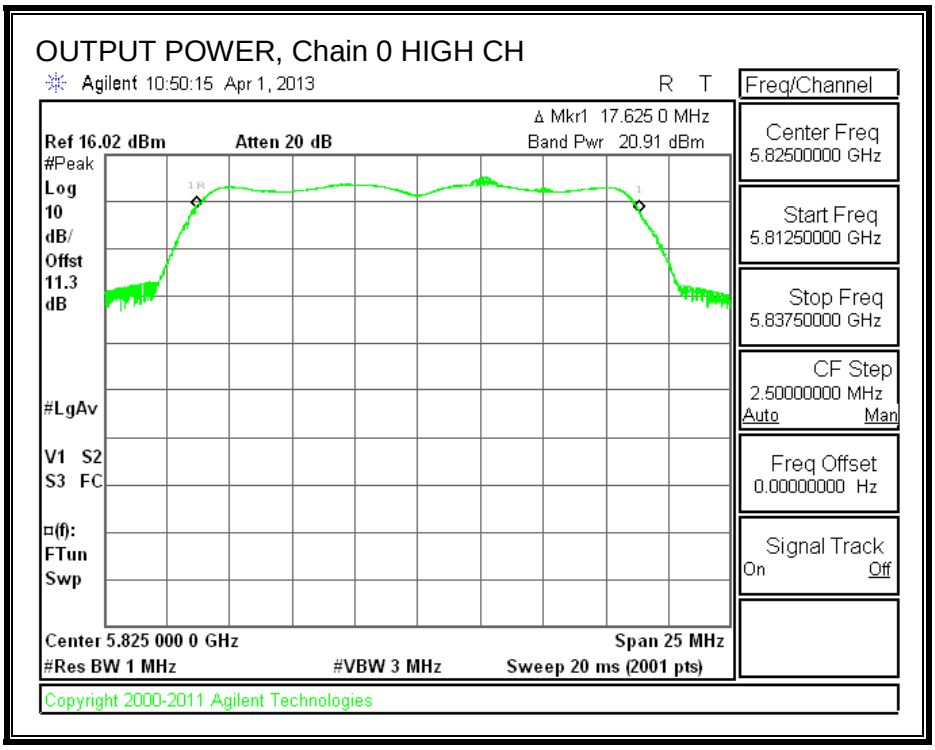
OUTPUT POWER, Chain 0

OUTPUT POWER, Chain 0 LOW CH

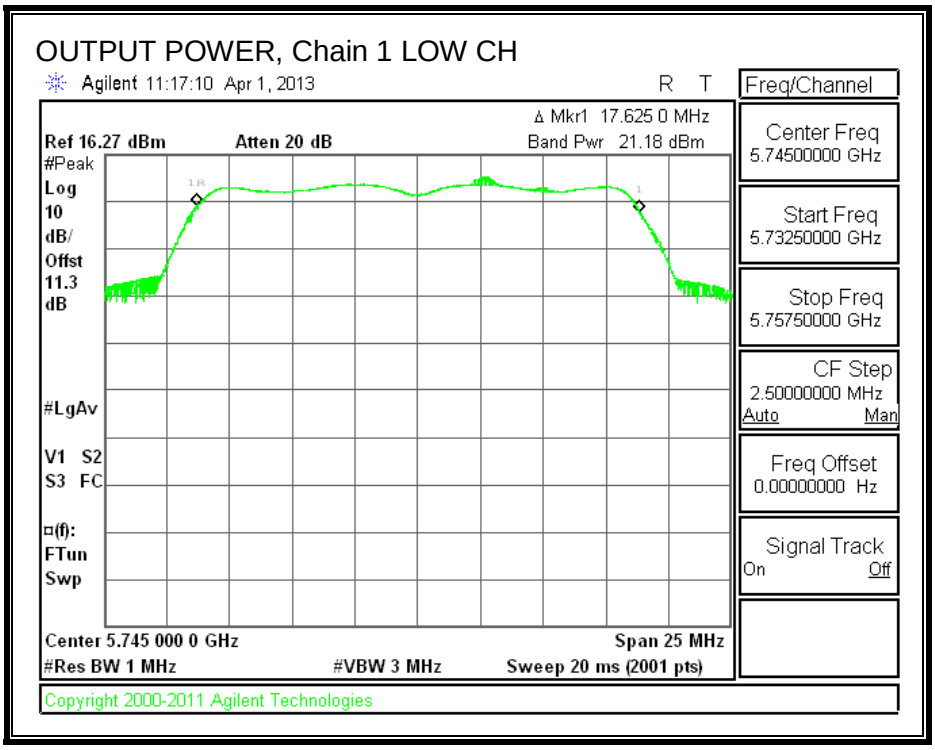


OUTPUT POWER, Chain 0 MID CH

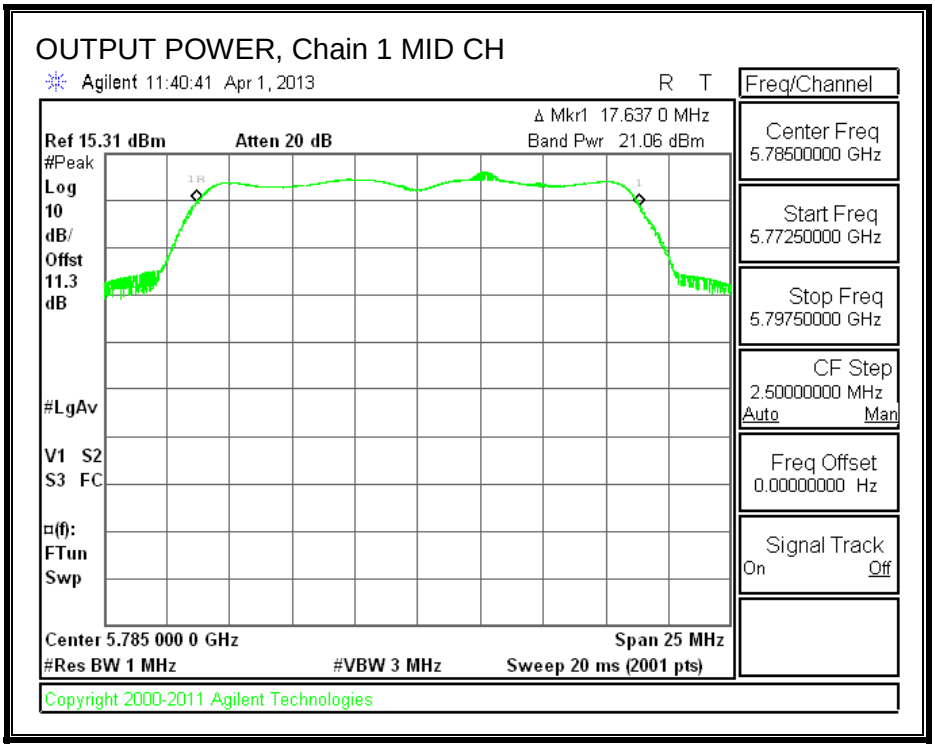




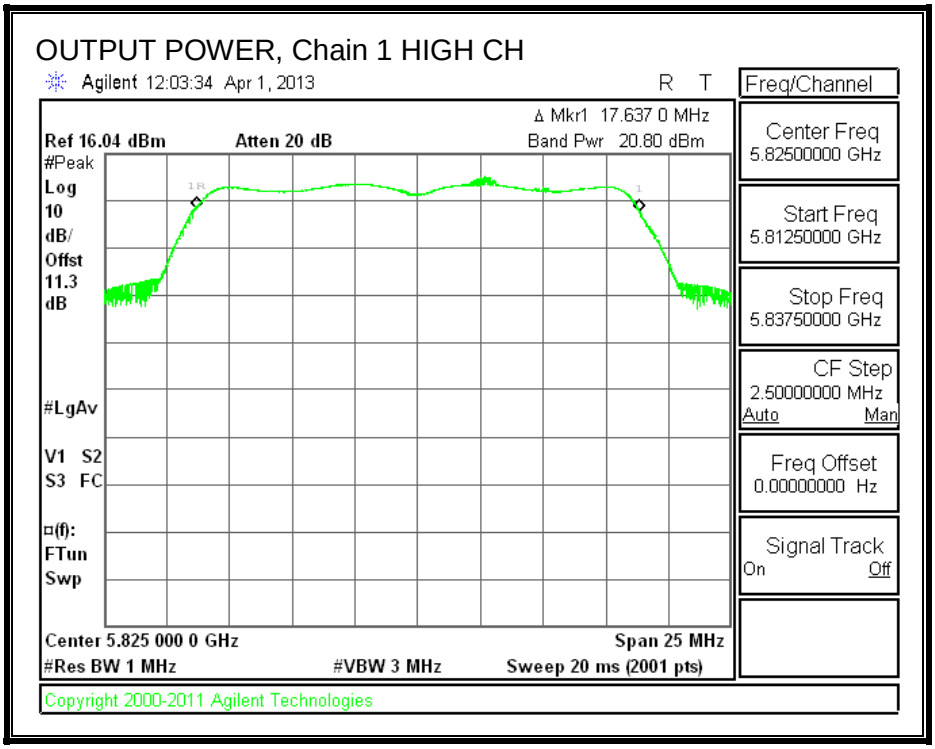
OUTPUT POWER, Chain 1



OUTPUT POWER, Chain 1 MID CH



OUTPUT POWER, Chain 1 HIGH CH



8.5.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

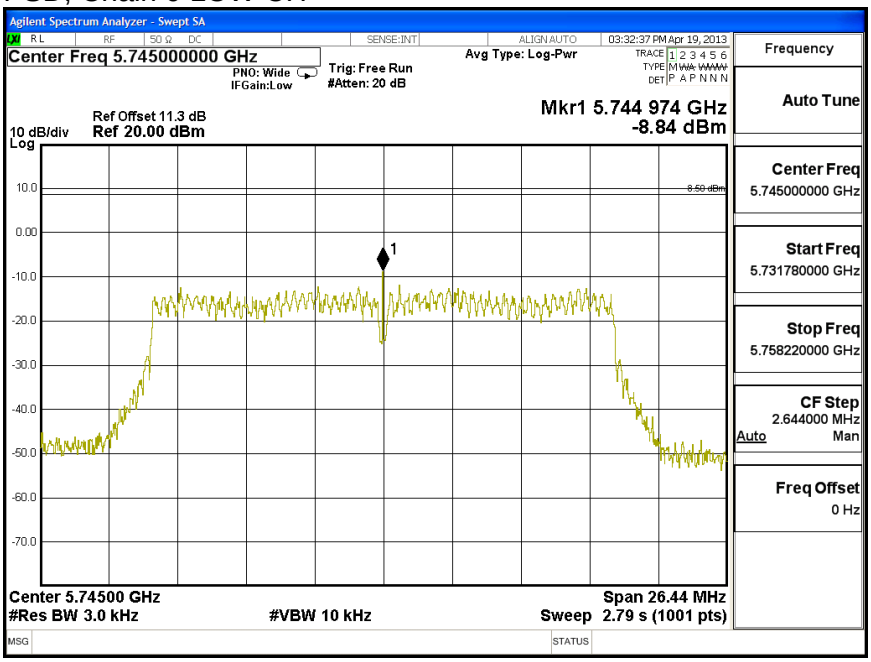
RESULTS

PSD Results

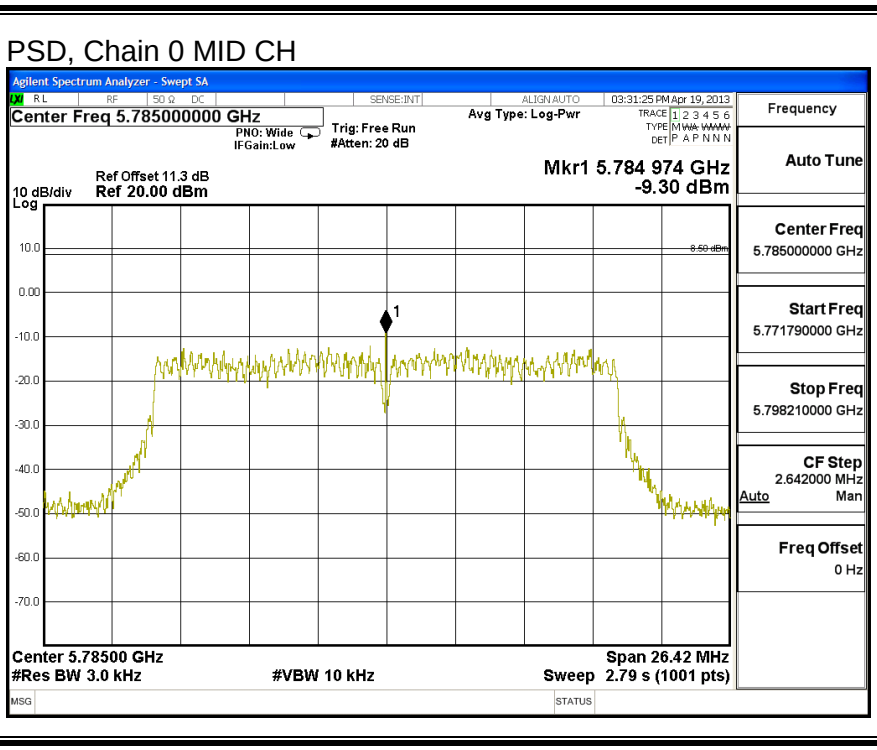
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-8.84	-11.75	-7.05	8.0	-15.0
Mid	5785	-9.30	-12.07	-7.46	8.0	-15.5
High	5825	-8.92	-11.81	-7.12	8.0	-15.1

PSD, Chain 0

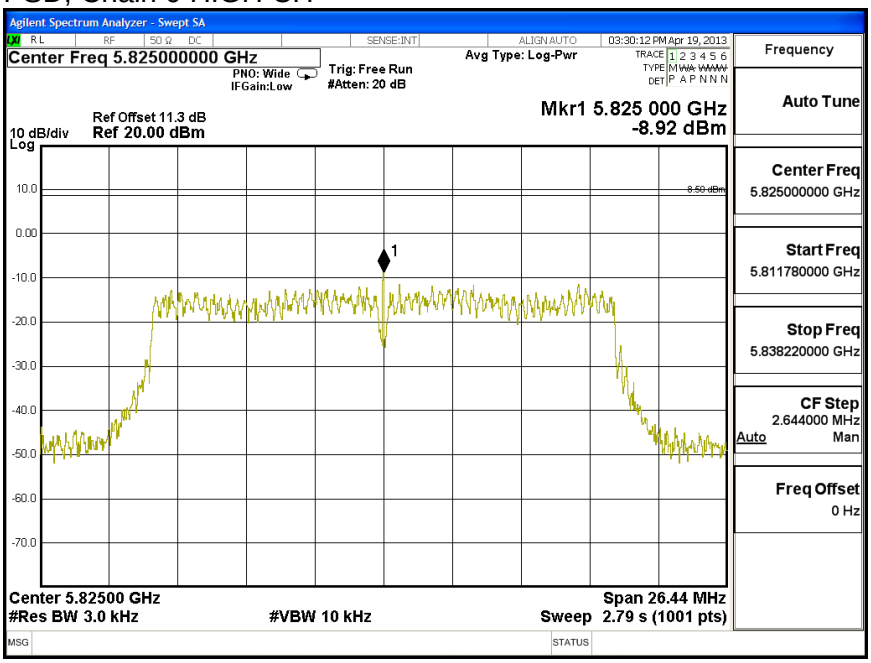
PSD, Chain 0 LOW CH



PSD, Chain 0 MID CH

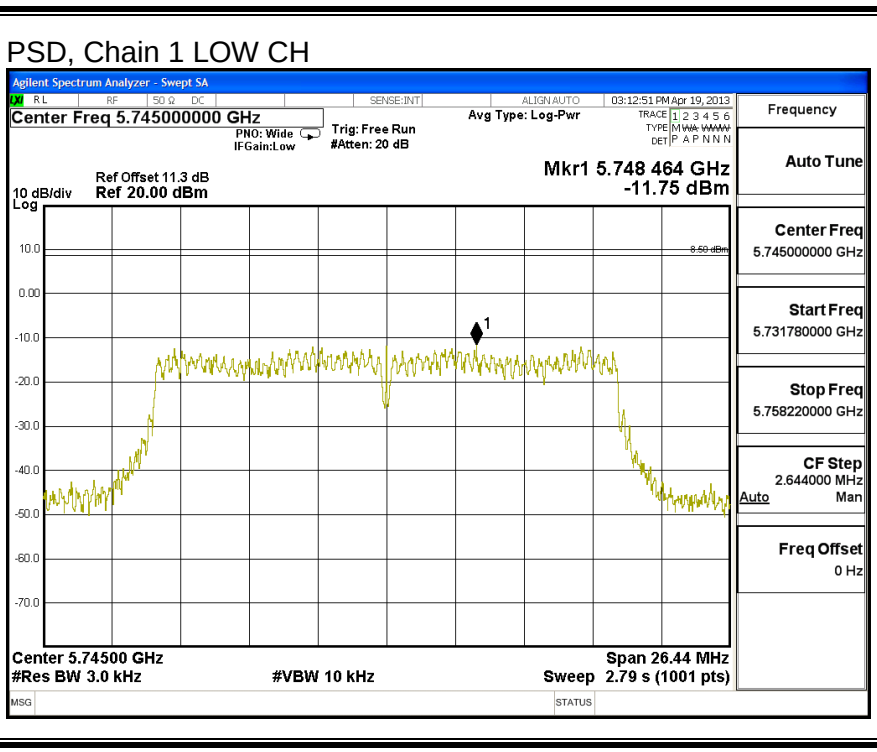


PSD, Chain 0 HIGH CH

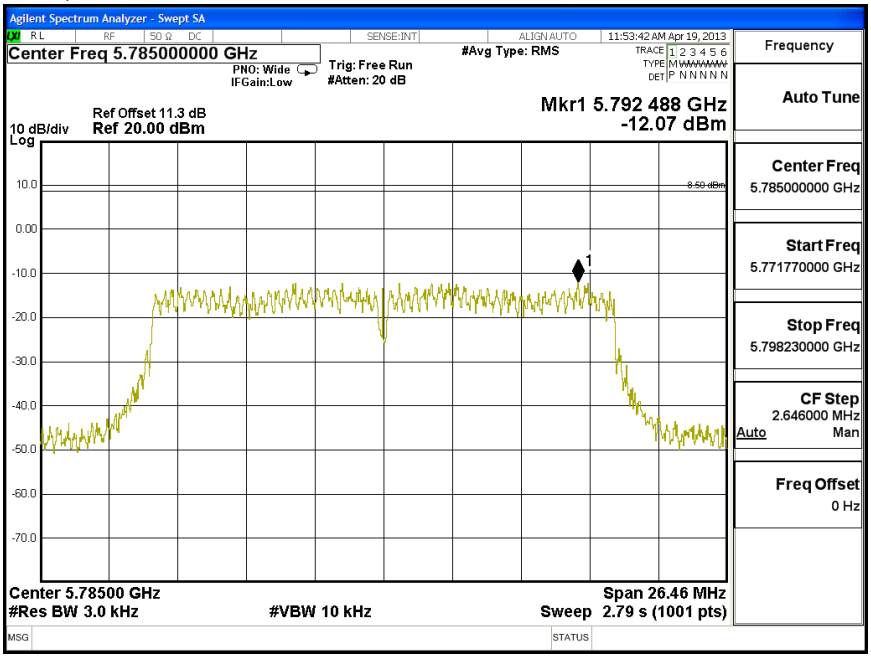


PSD, Chain 1

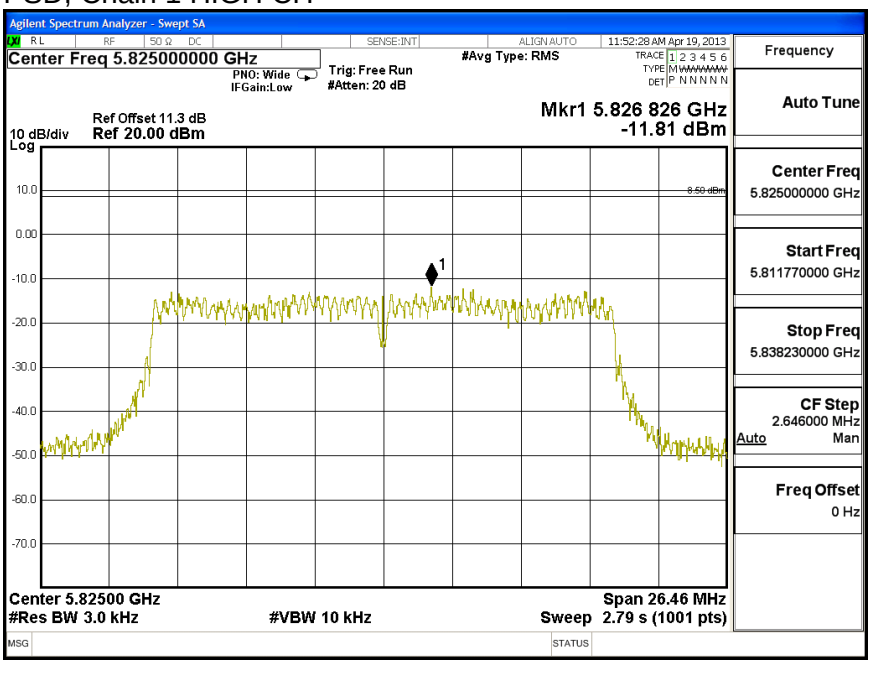
PSD, Chain 1 LOW CH



PSD, Chain 1 MID CH



PSD, Chain 1 HIGH CH



8.5.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

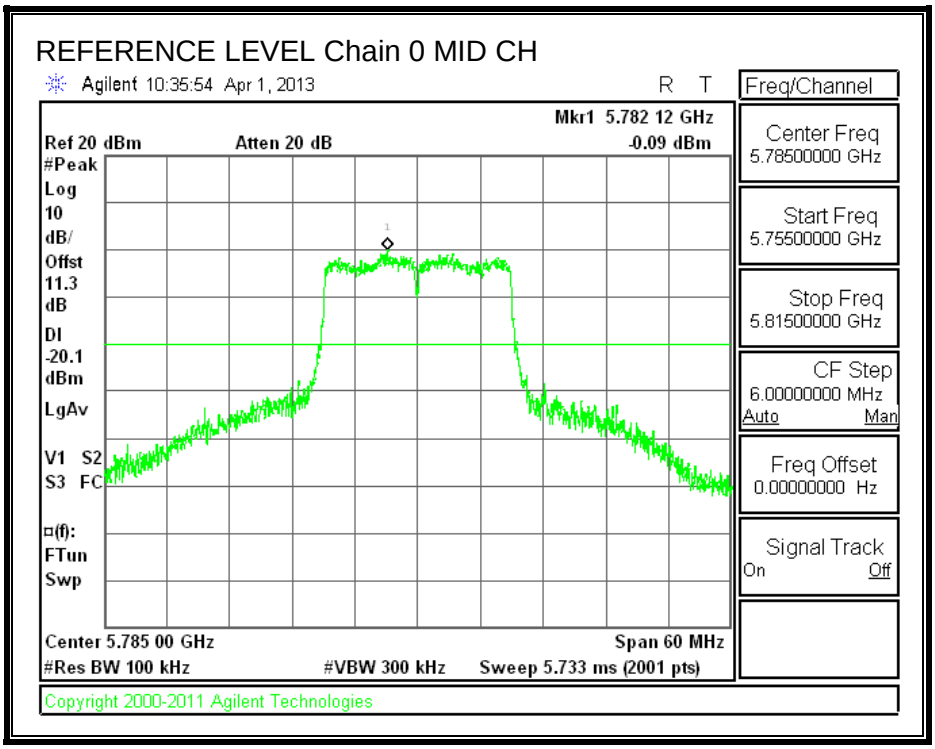
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

TEST PROCEDURE

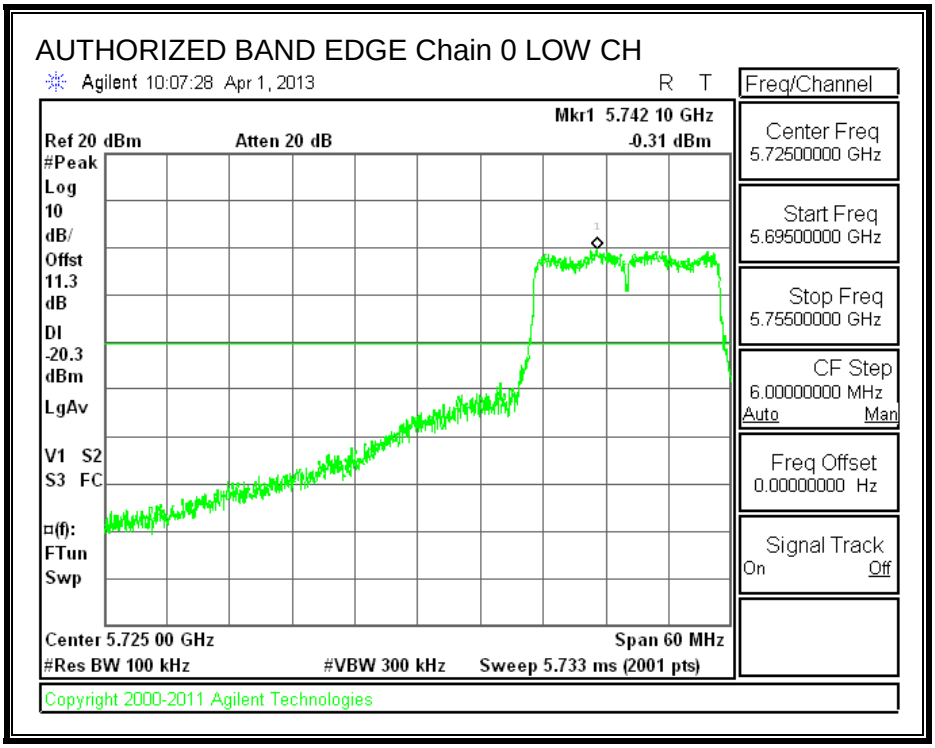
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, band edge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

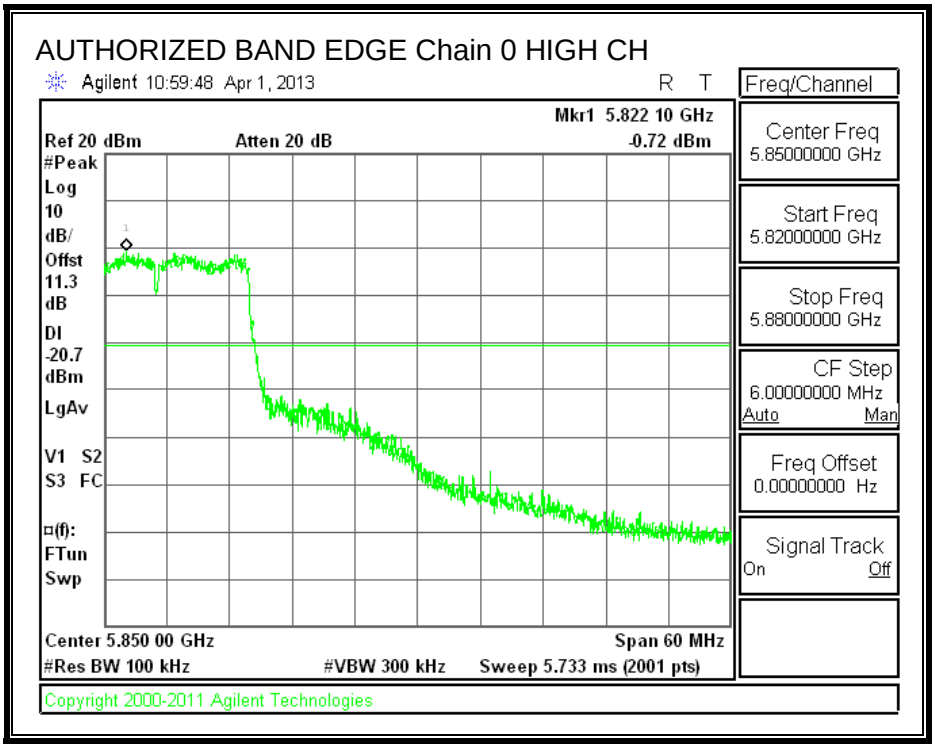
IN-BAND REFERENCE LEVEL, Chain 0



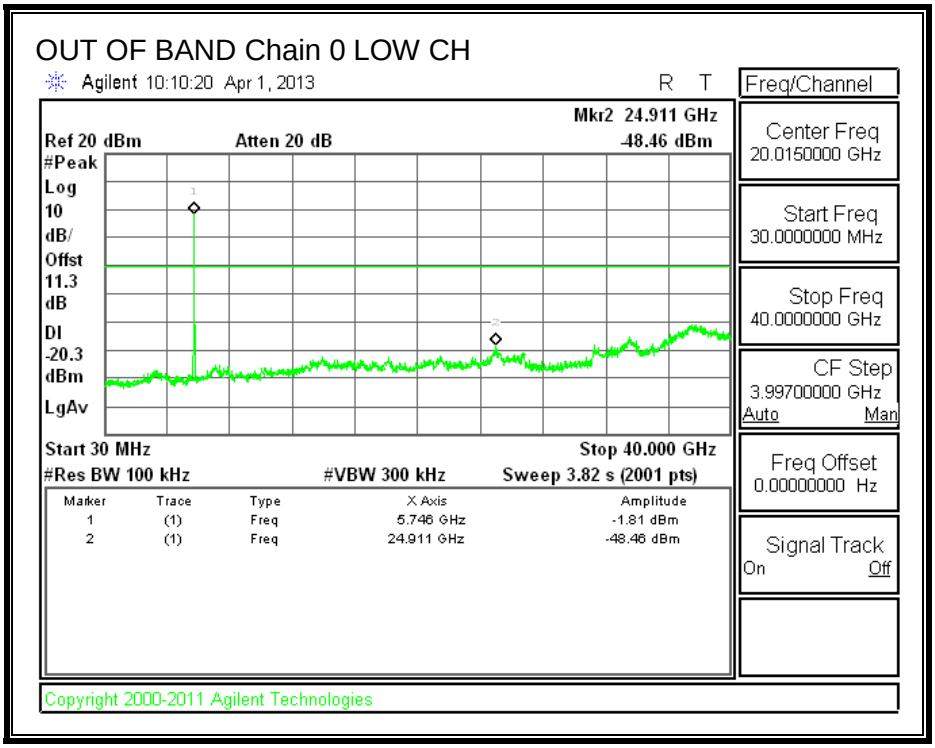
LOW CHANNEL BANDEDGE, Chain 0

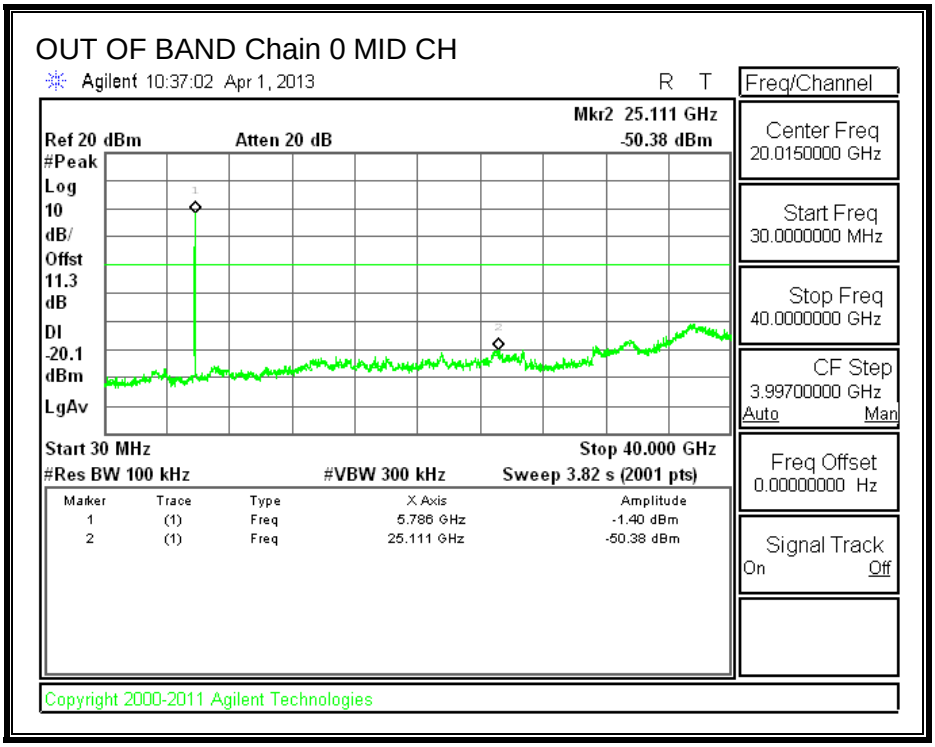


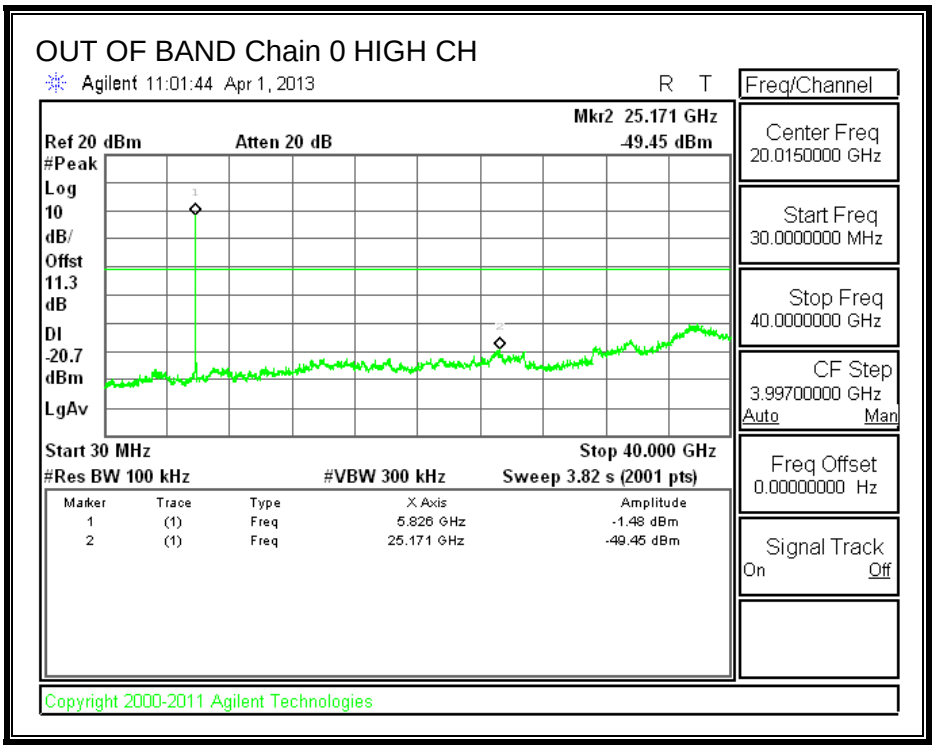
HIGH CHANNEL BANDEDGE, Chain 0



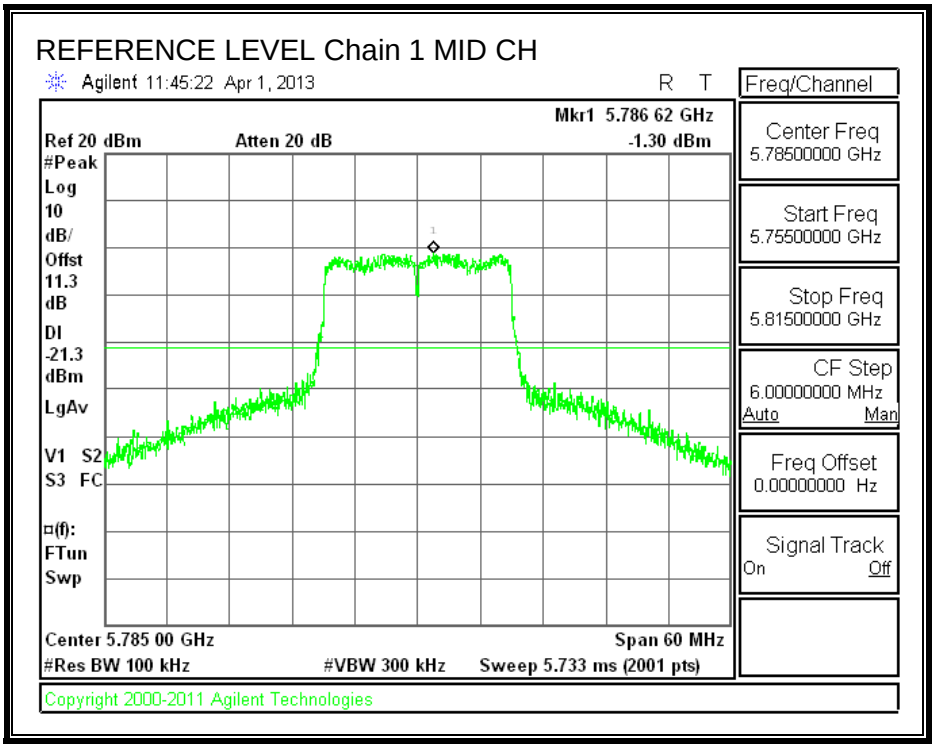
OUT-OF-BAND EMISSIONS, Chain 0



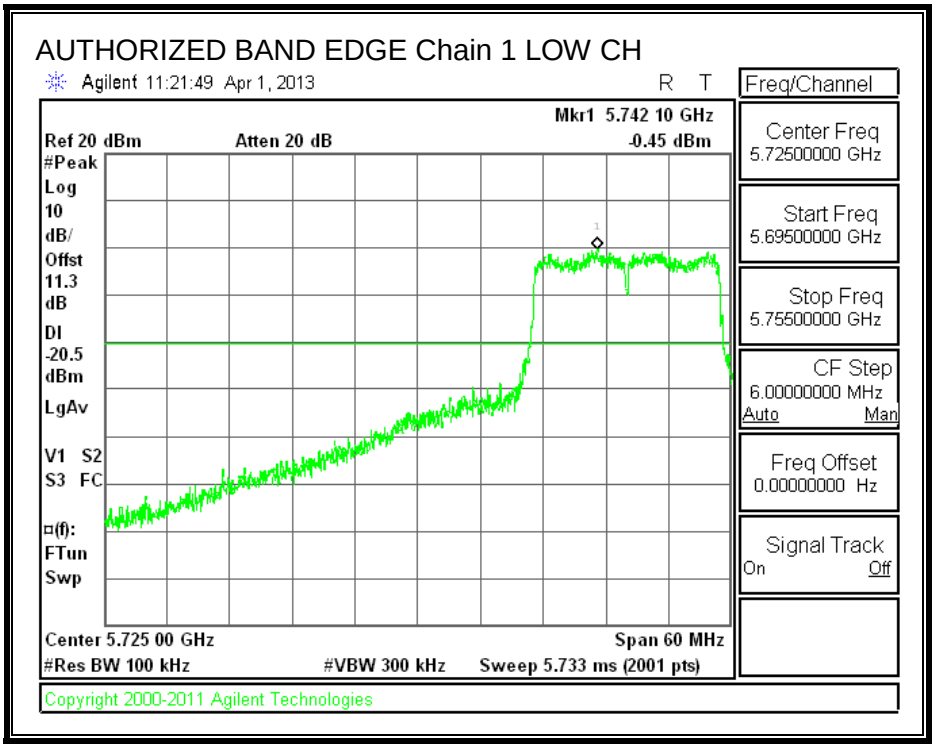




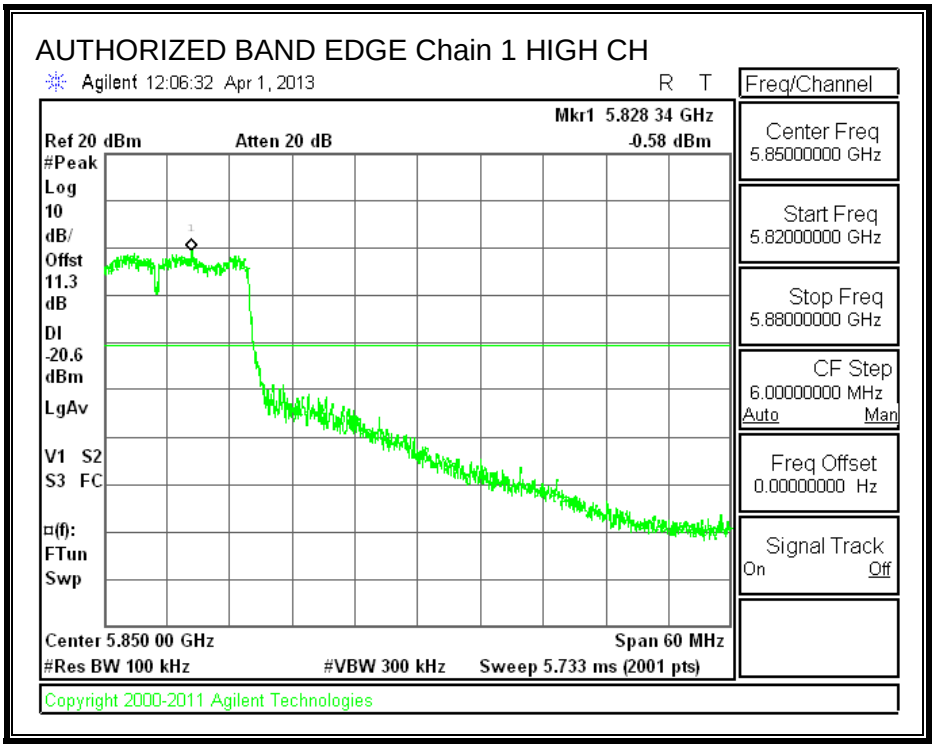
IN-BAND REFERENCE LEVEL, Chain 1



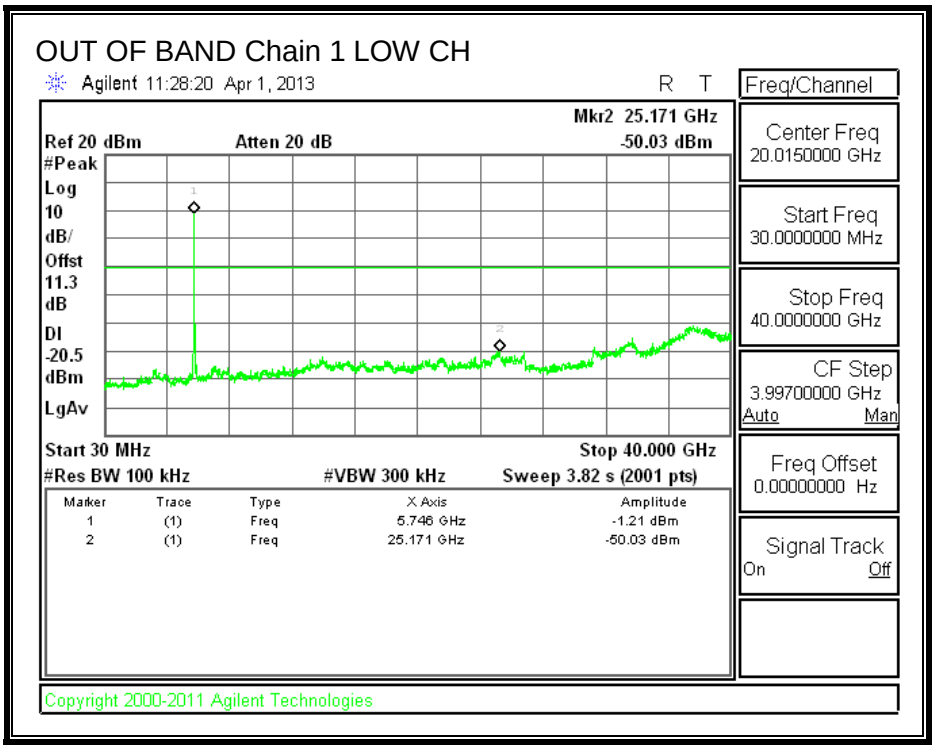
LOW CHANNEL BANDEDGE, Chain 1



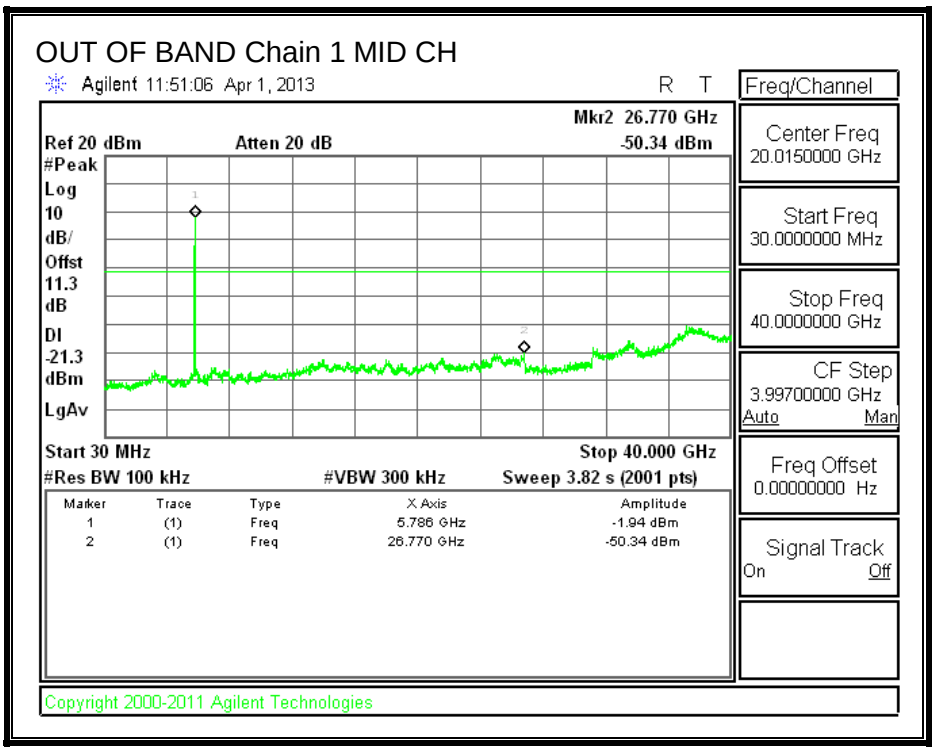
HIGH CHANNEL BANDEDGE, Chain 1



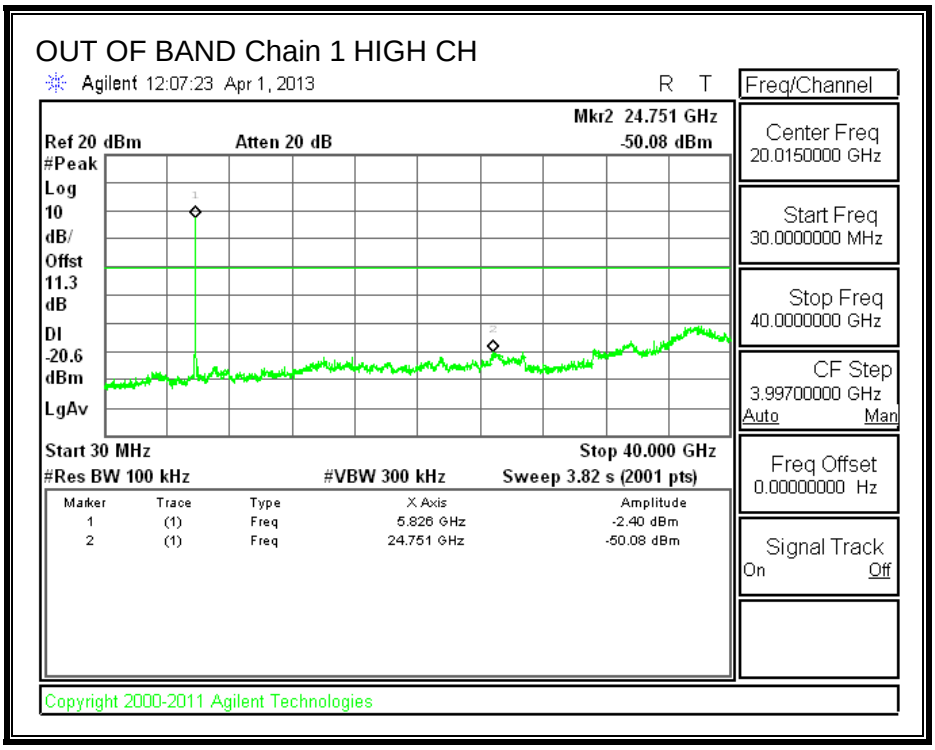
OUT OF BAND Chain 1 LOW CH



OUT OF BAND Chain 1 MID CH



OUT OF BAND Chain 1 HIGH CH



8.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

8.6.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

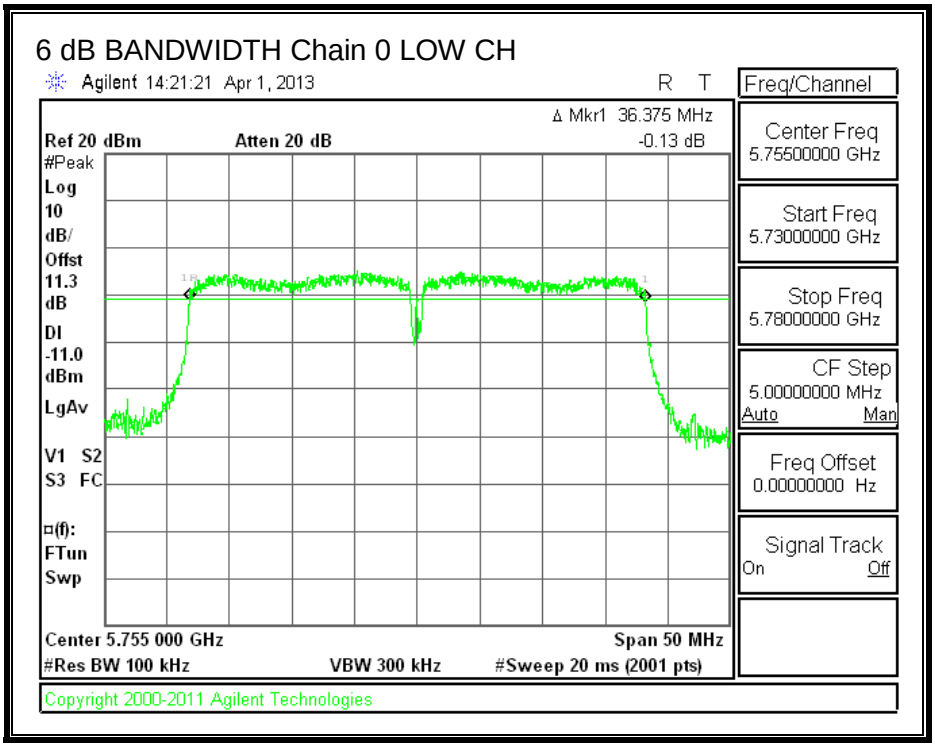
TEST PROCEDURE

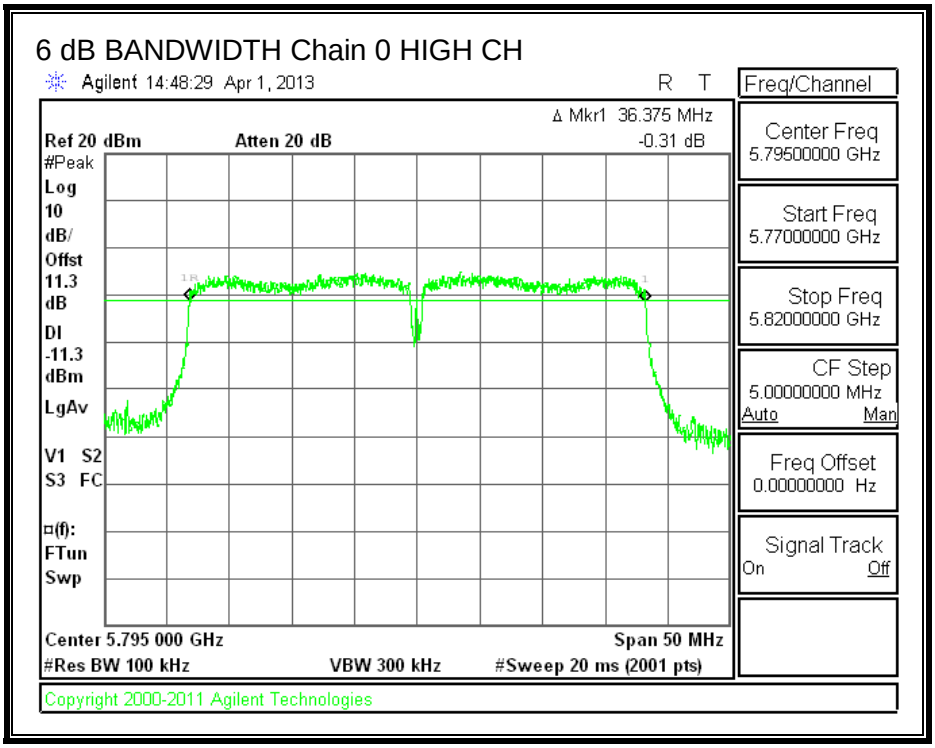
The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW >= 3 x RBW, peak detector and max hold.

RESULTS

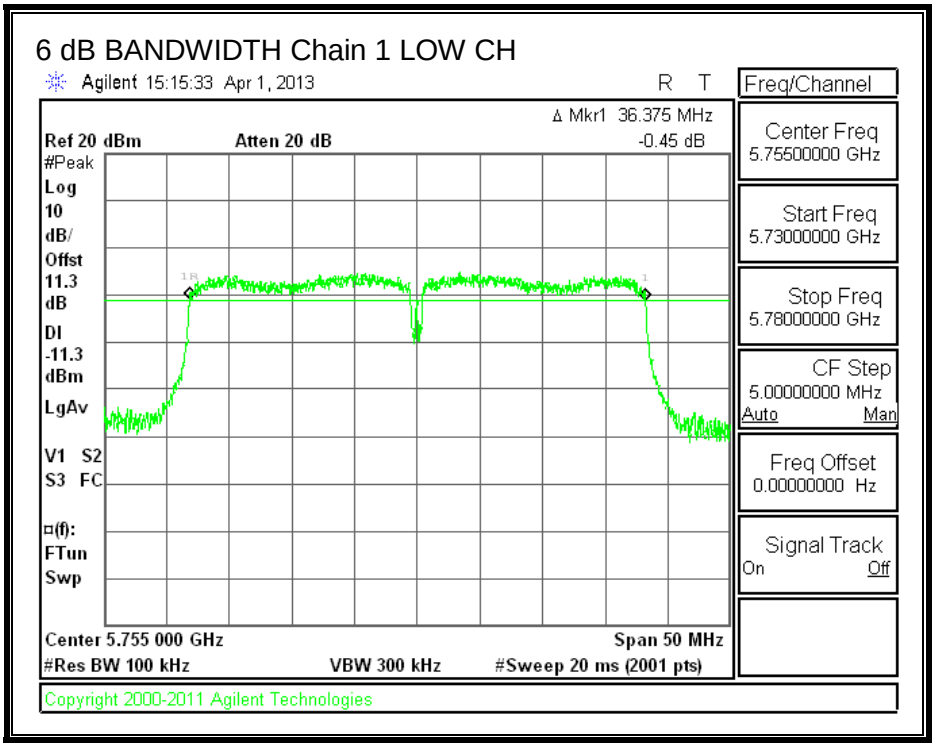
Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low	5755	36.375	36.375	0.5
High	5795	36.375	36.375	0.5

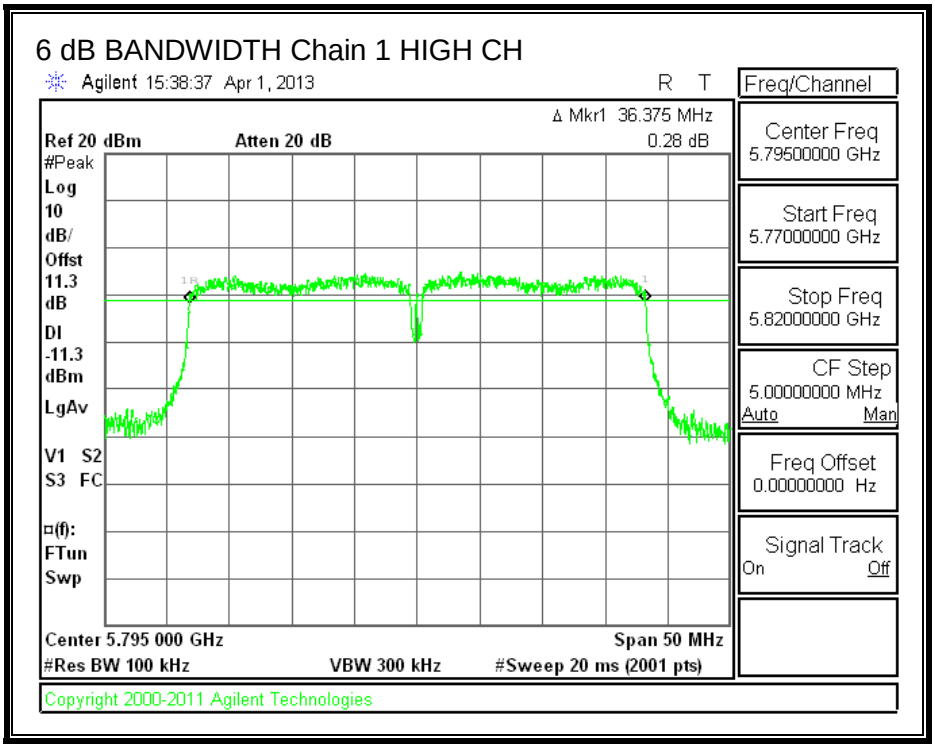
6 dB BANDWIDTH, Chain 0





6 dB BANDWIDTH, Chain 1





8.6.2. 99% BANDWIDTH

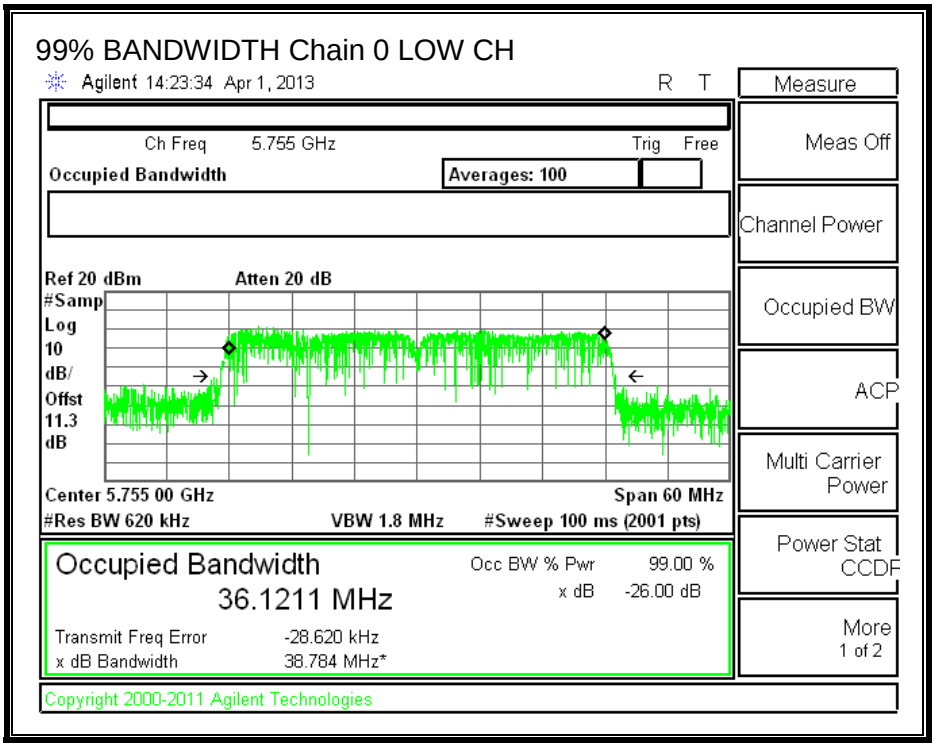
LIMITS

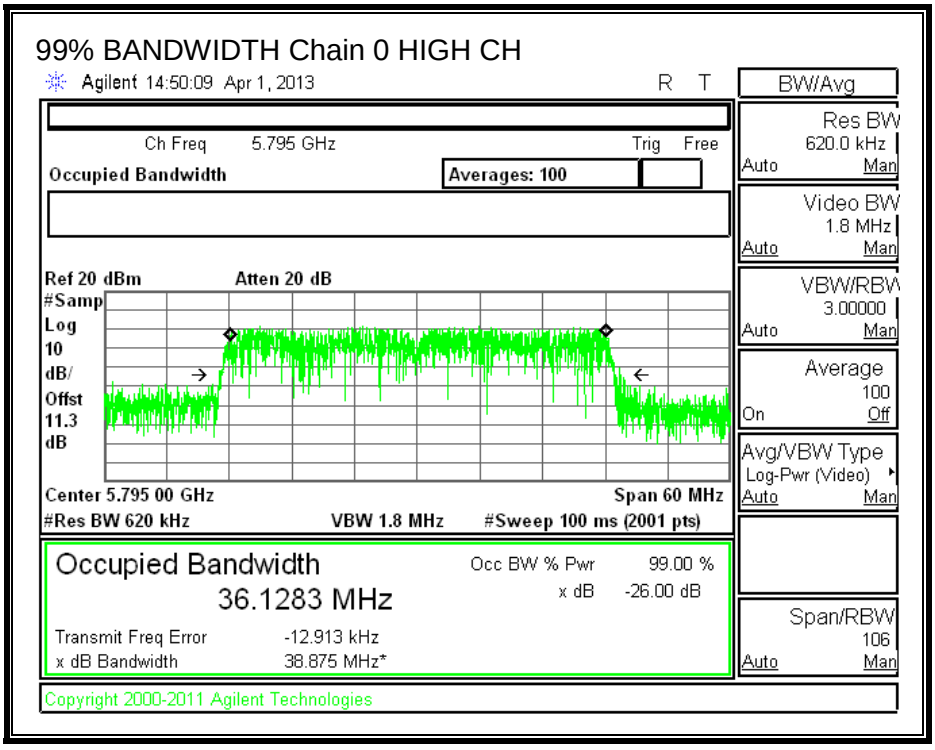
None; for reporting purposes only.

RESULTS

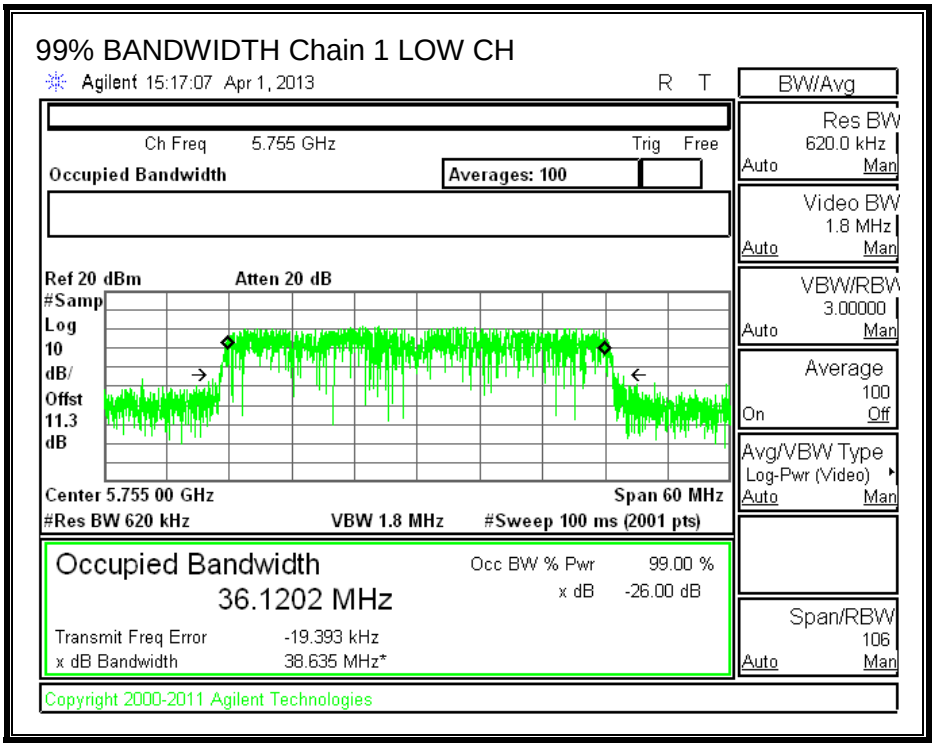
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5755	36.1211	36.1202
High	5795	36.1283	36.1236

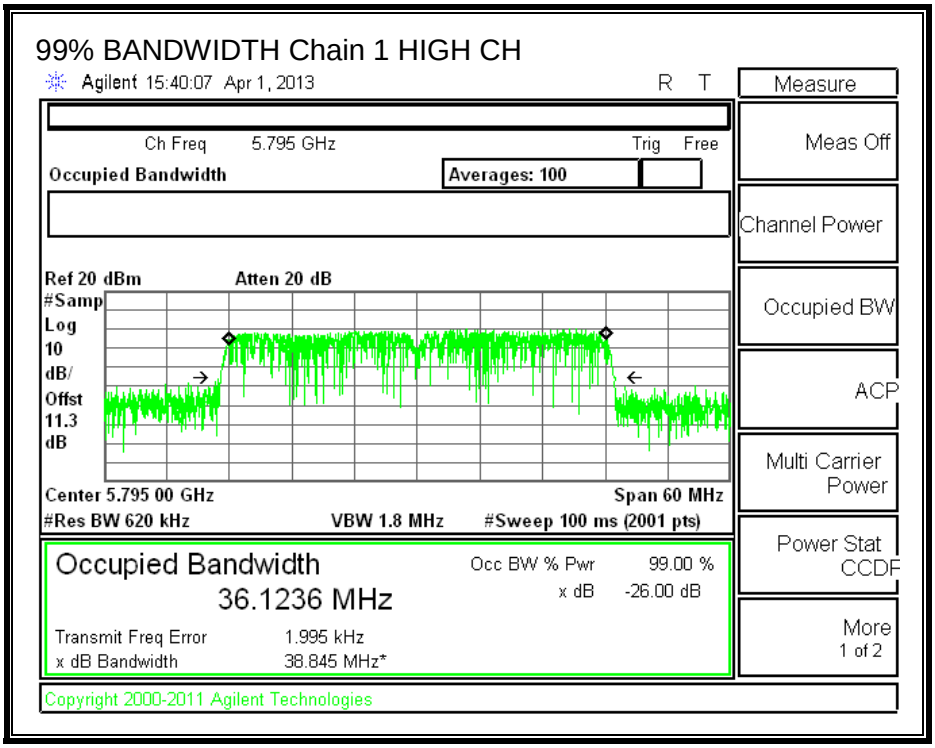
99% BANDWIDTH, Chain 0





99% BANDWIDTH, Chain 1





8.6.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.3 dB (including 10 dB pad and 1.3 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Chain 0 Power (dBm)	Chain 1 Power (dBm)	Total Power (dBm)
Low	5755	12.60	14.20	16.48
High	5795	12.60	14.20	16.48

8.6.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
3.38	3.43	3.41

RESULTS

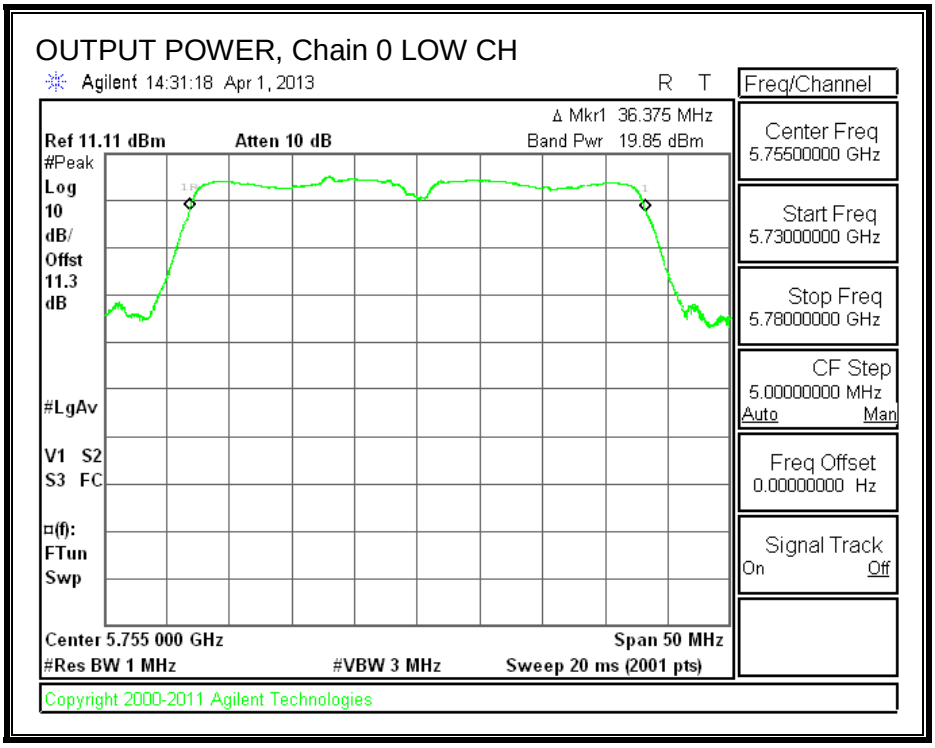
Limits

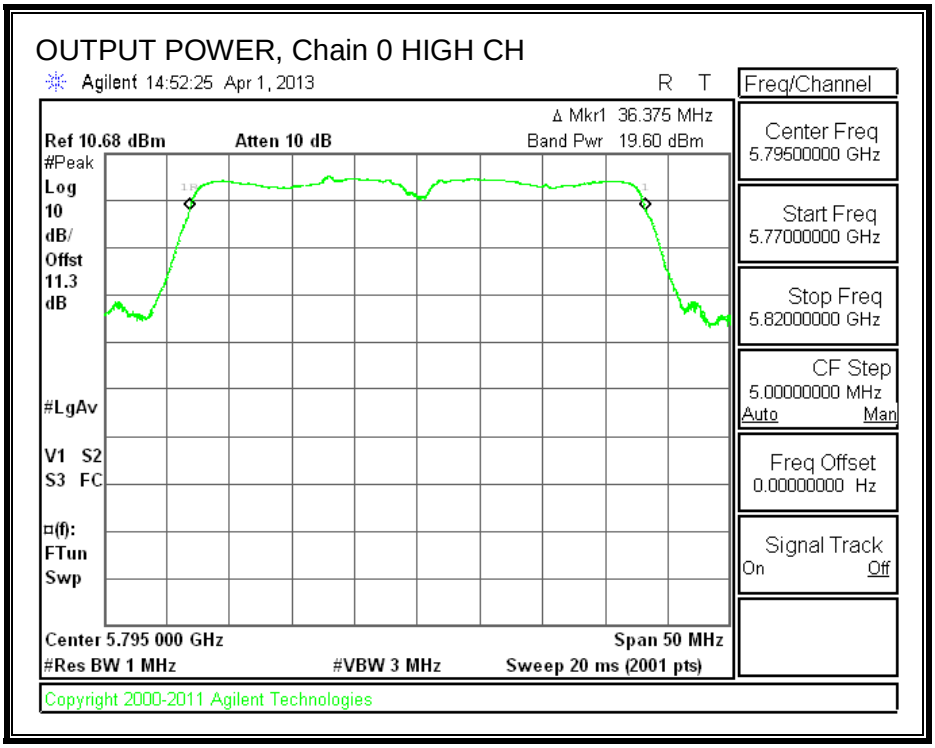
Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5755	3.41	30.00	30	36	30.00
High	5795	3.41	30.00	30	36	30.00

Results

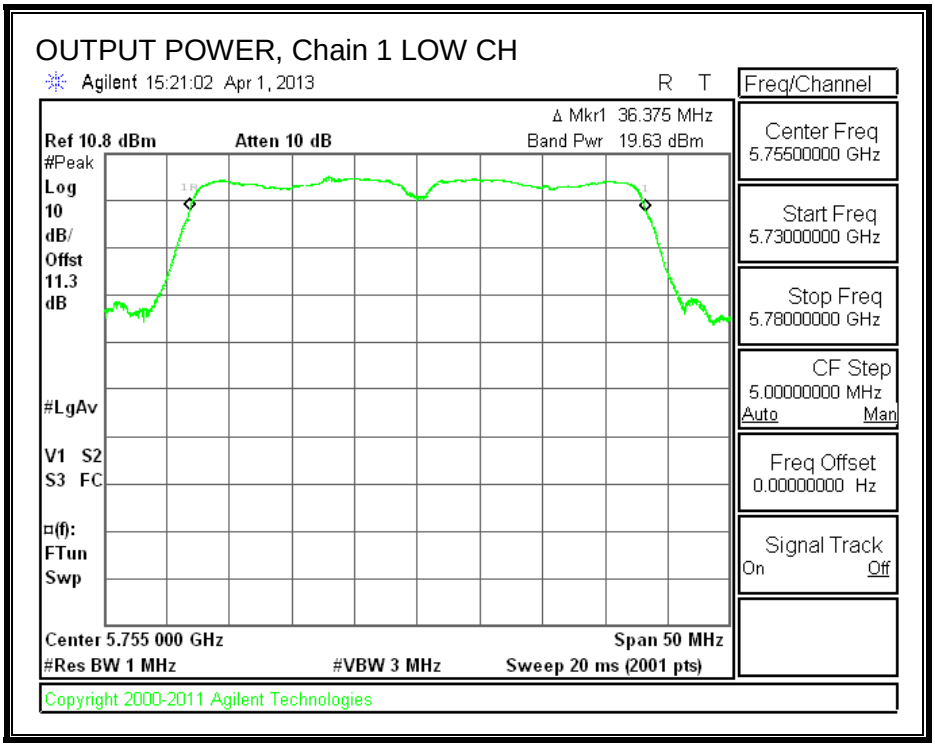
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	5755	19.85	19.63	22.75	30.00	-7.25
High	5795	19.60	19.66	22.64	30.00	-7.36

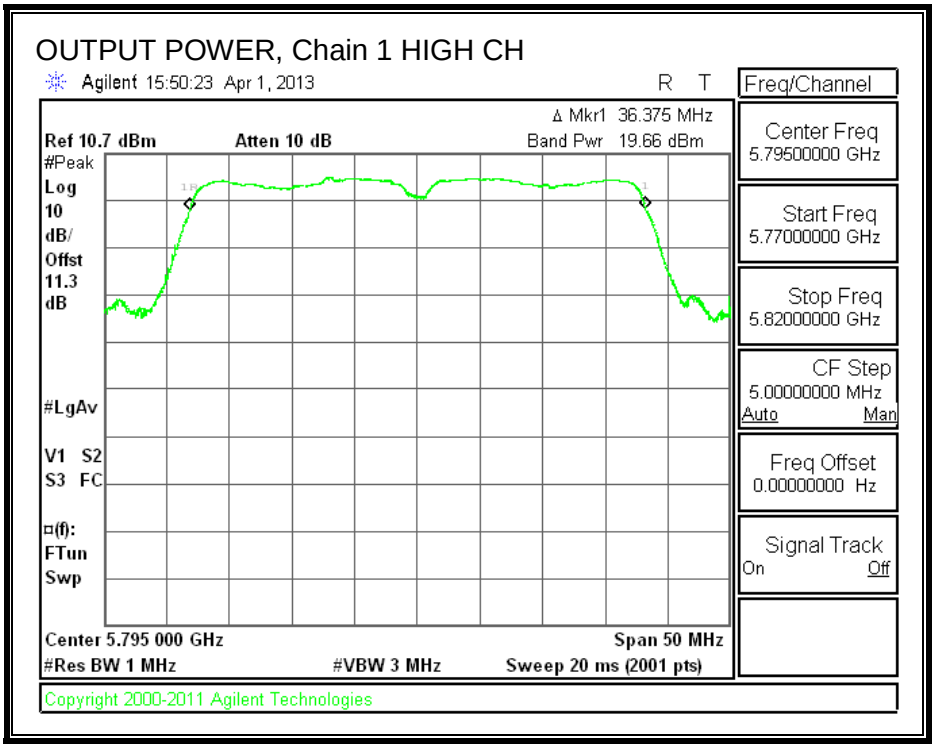
OUTPUT POWER, Chain 0





OUTPUT POWER, Chain 1





8.6.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

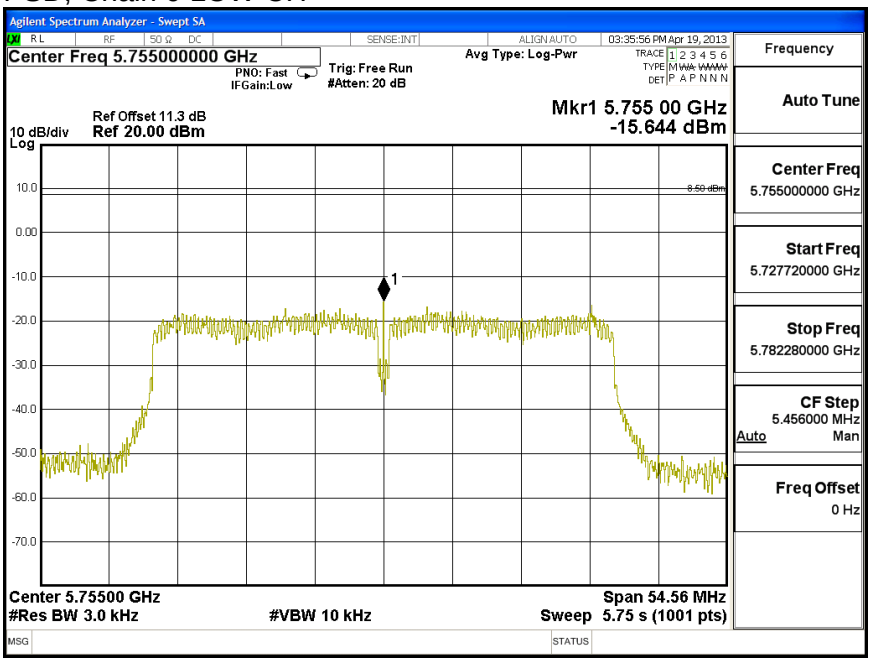
RESULTS

PSD Results

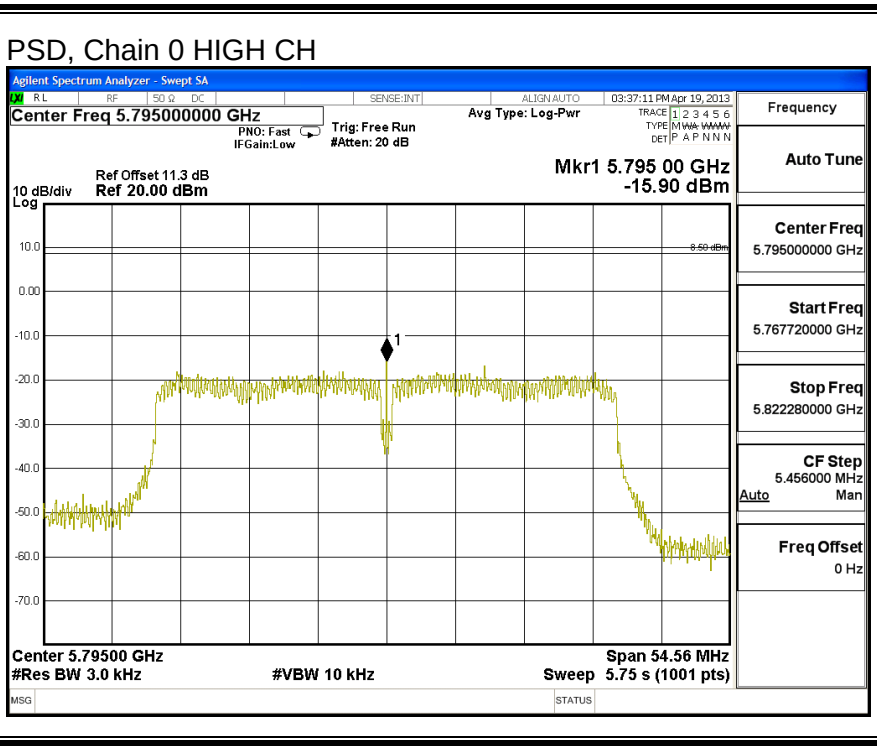
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-15.64	-13.20	-11.24	8.0	-19.2
High	5795	-15.90	-14.39	-12.07	8.0	-20.1

PSD, Chain 0

PSD, Chain 0 LOW CH

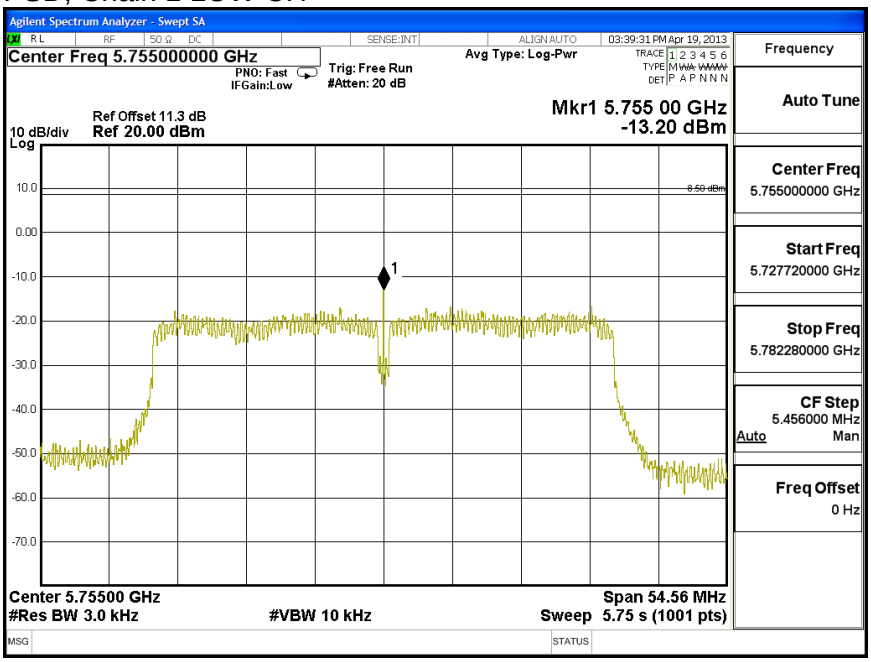


PSD, Chain 0 HIGH CH

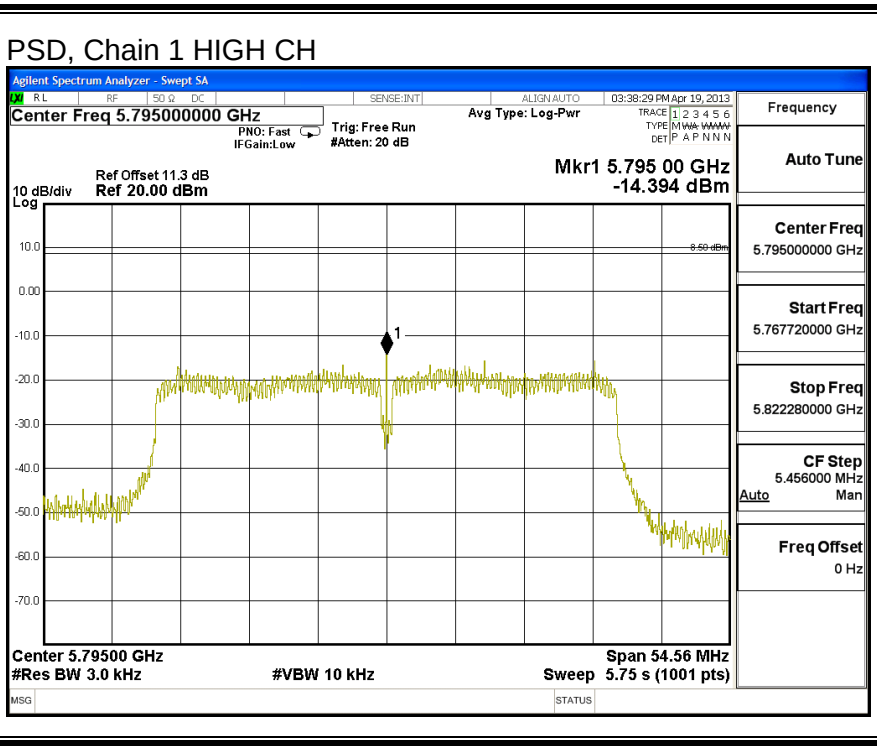


PSD, Chain 1

PSD, Chain 1 LOW CH



PSD, Chain 1 HIGH CH



8.6.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

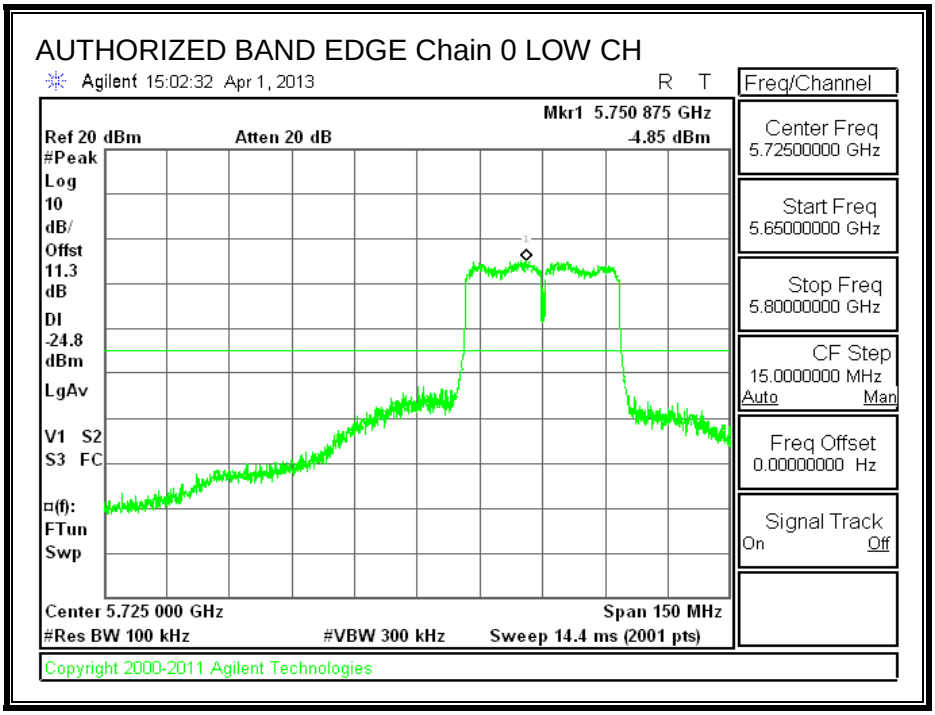
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

TEST PROCEDURE

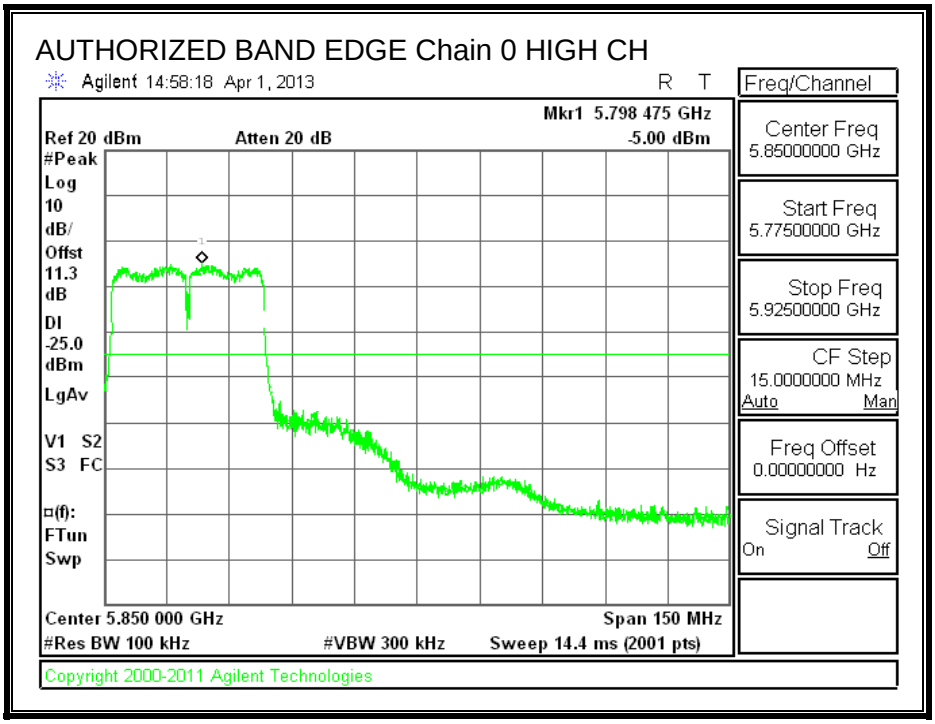
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

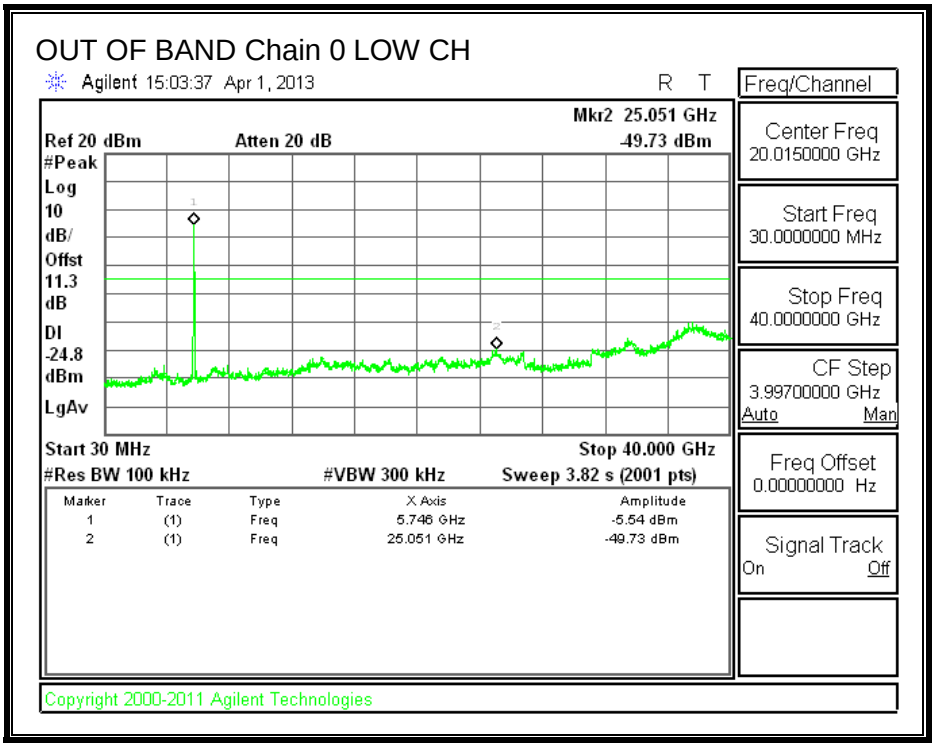
LOW CHANNEL BANDEDGE, Chain 0

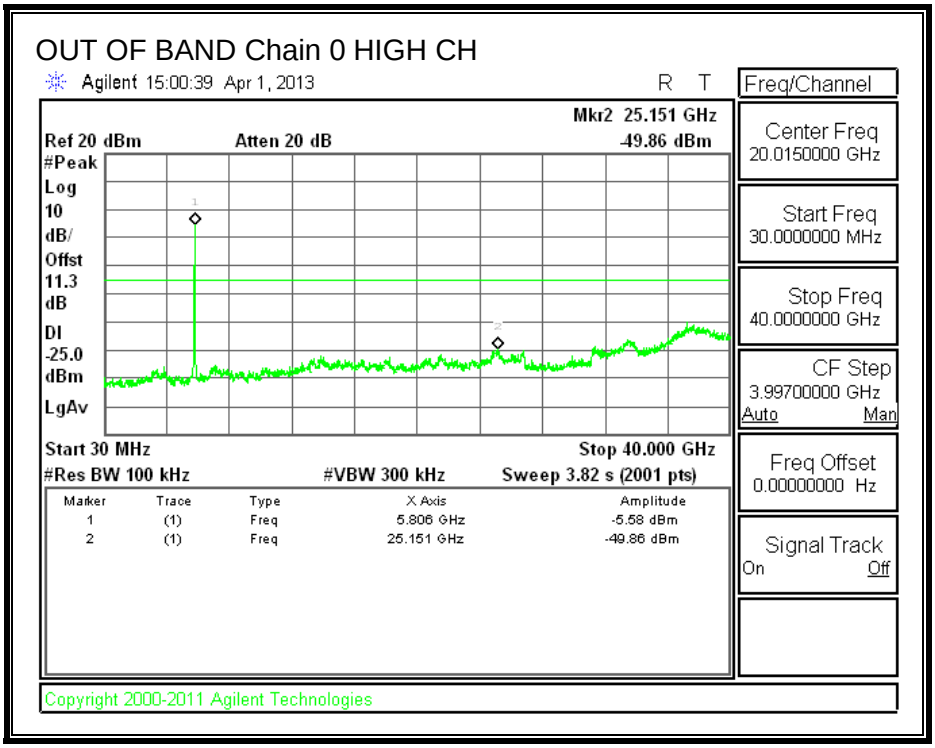


HIGH CHANNEL BANDEDGE, Chain 0

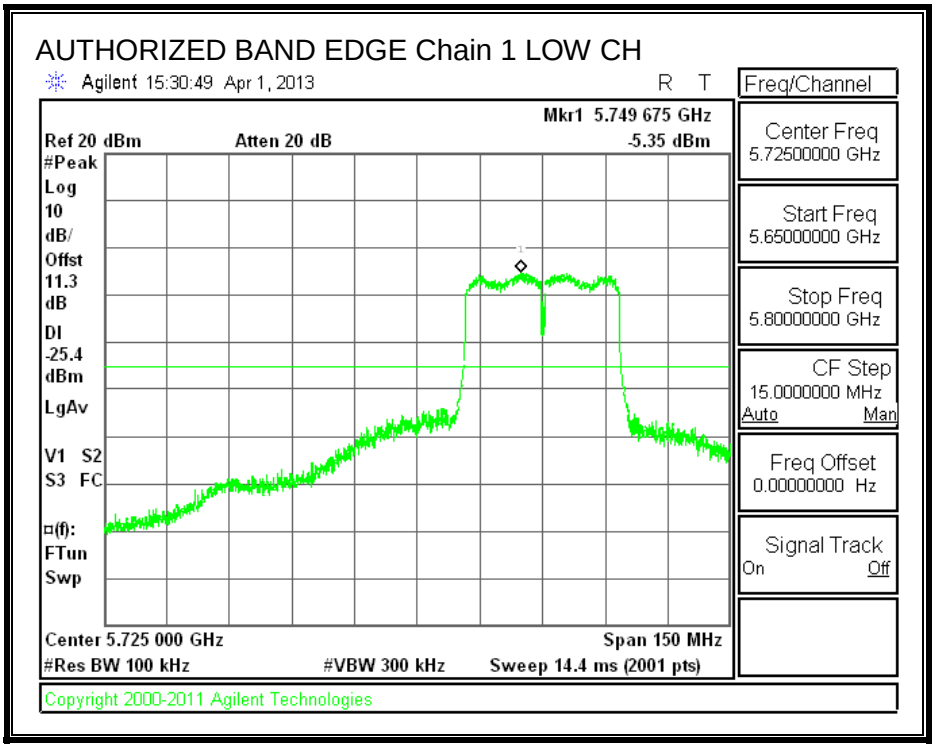


OUT-OF-BAND EMISSIONS, Chain 0

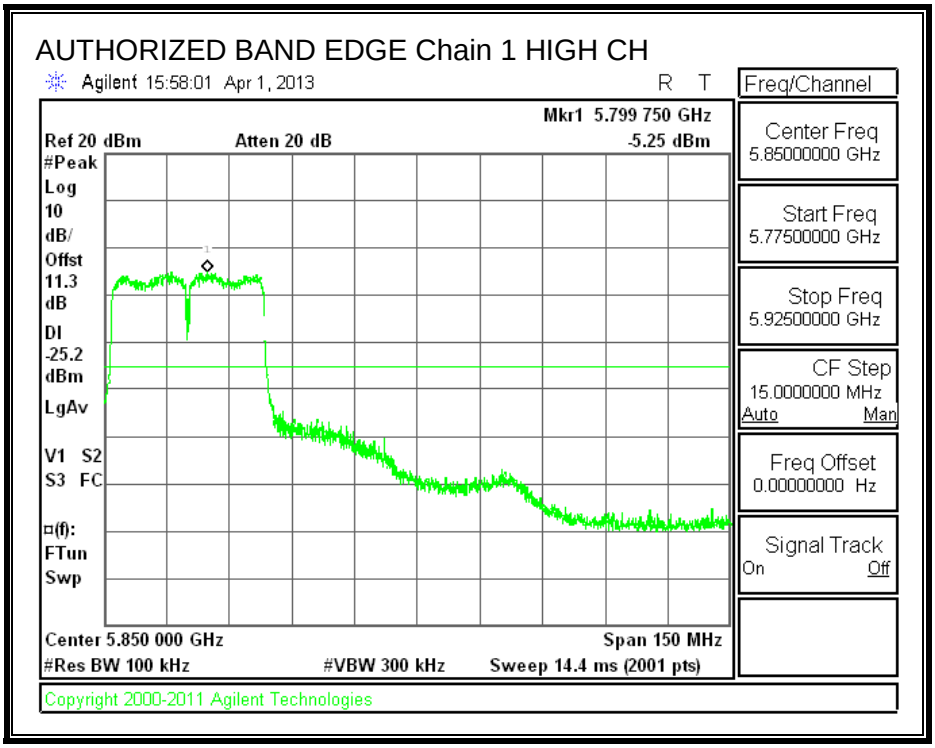




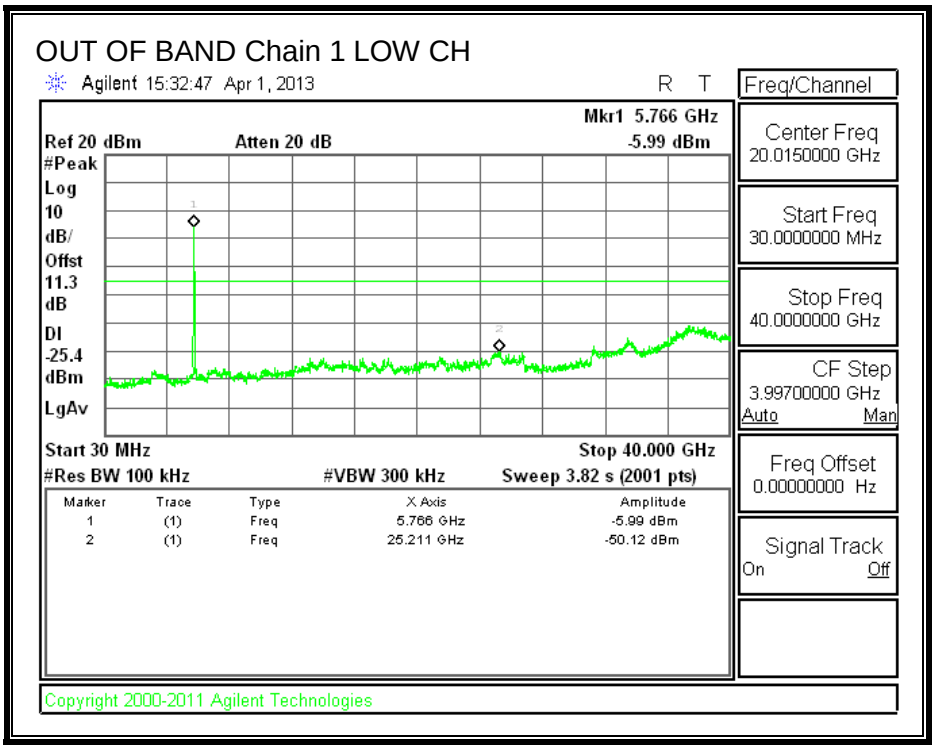
LOW CHANNEL BANDEDGE, Chain 1



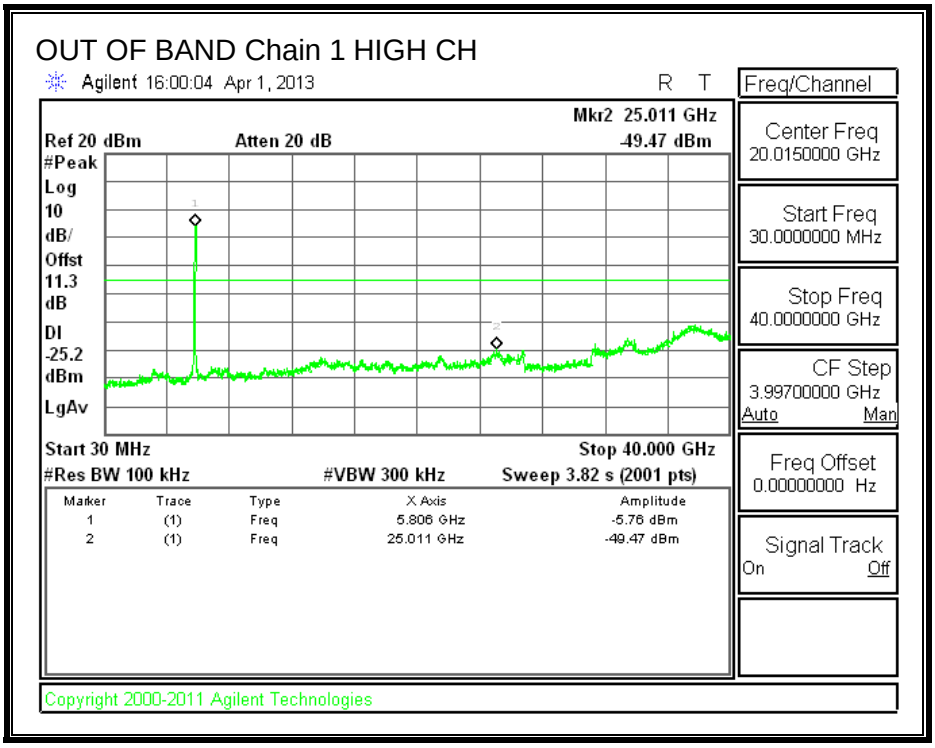
HIGH CHANNEL BANDEDGE, Chain 1



OUT OF BAND Chain 1 LOW CH



OUT OF BAND Chain 1 HIGH CH



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

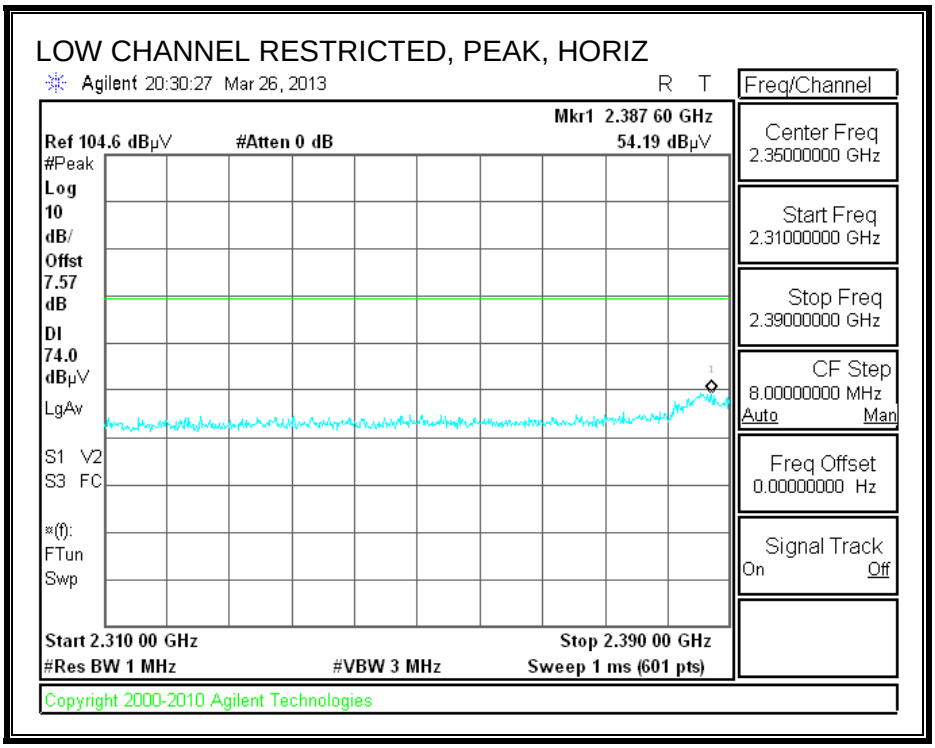
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

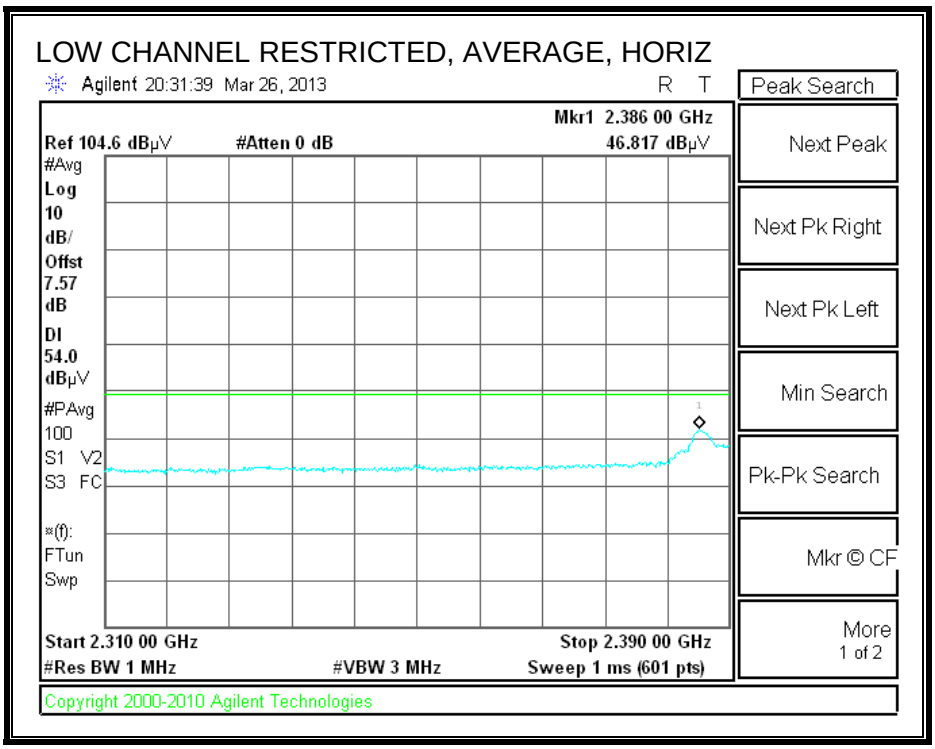
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

9.2. TRANSMITTER ABOVE 1 GHz

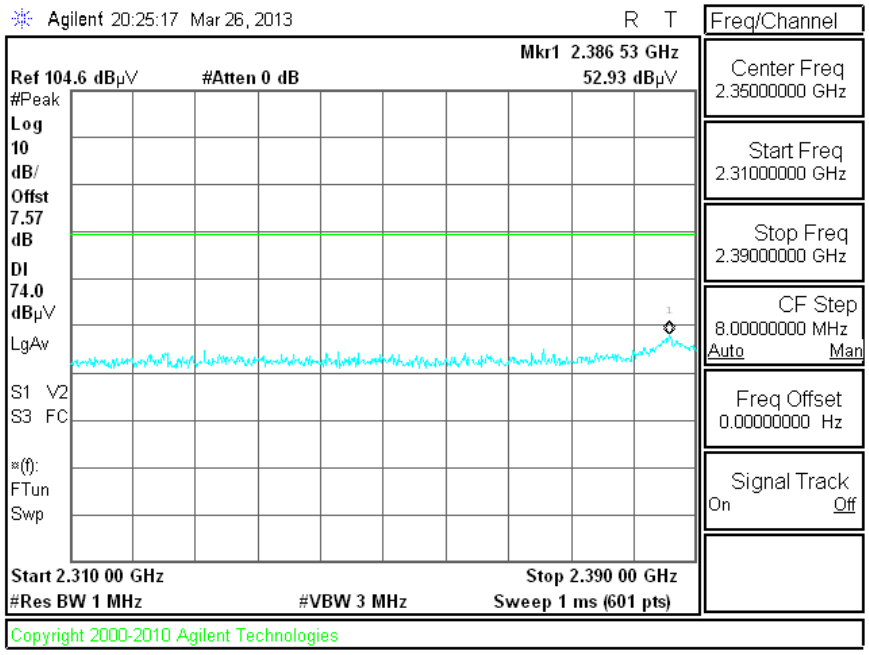
9.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

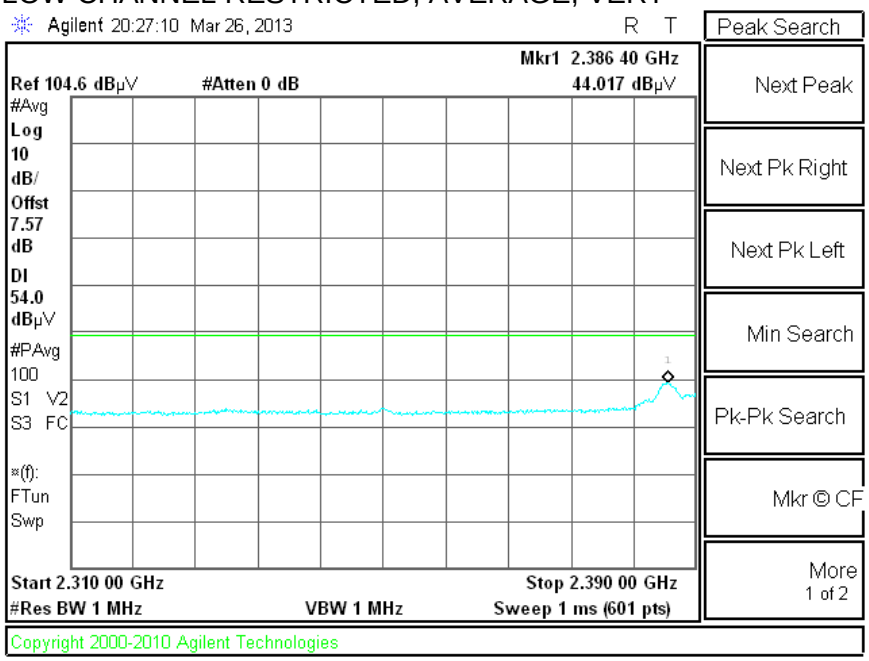




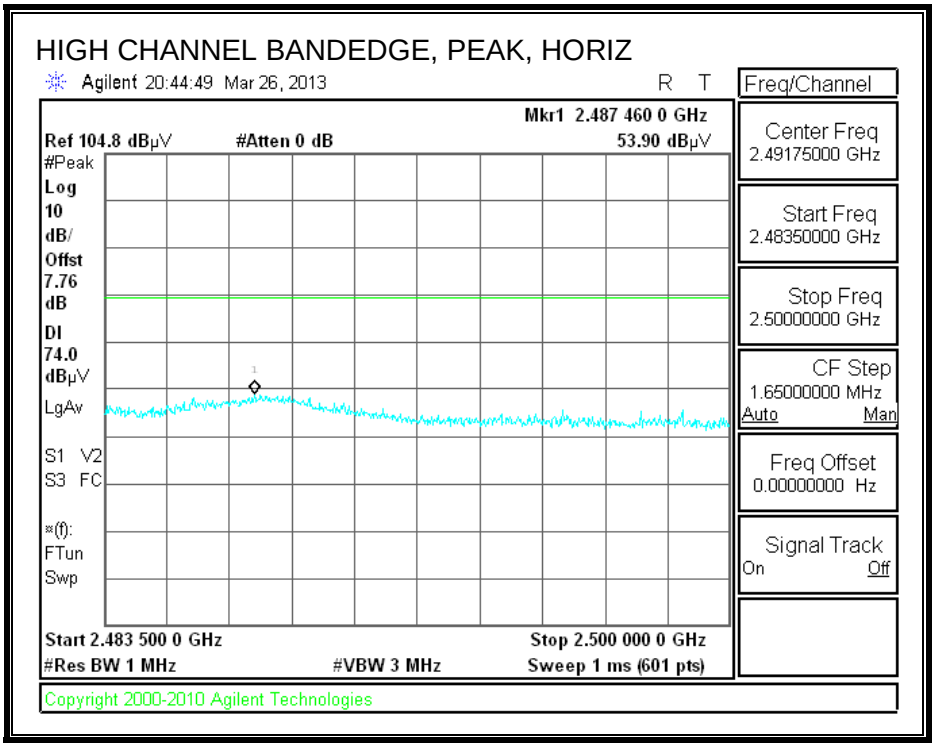
LOW CHANNEL RESTRICTED, PEAK, VERT

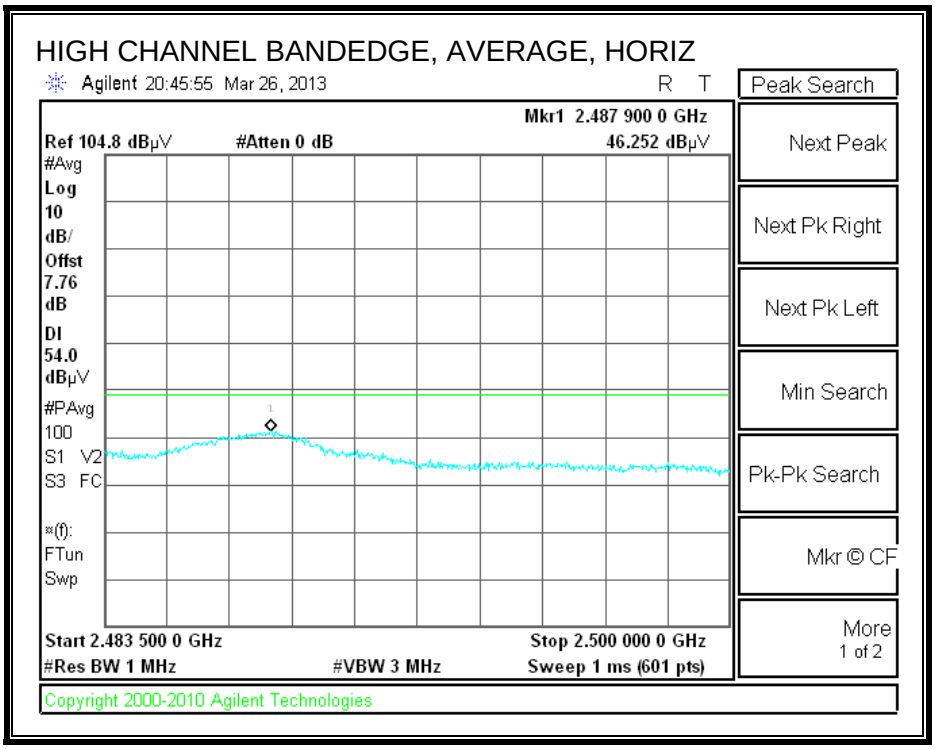


LOW CHANNEL RESTRICTED, AVERAGE, VERT

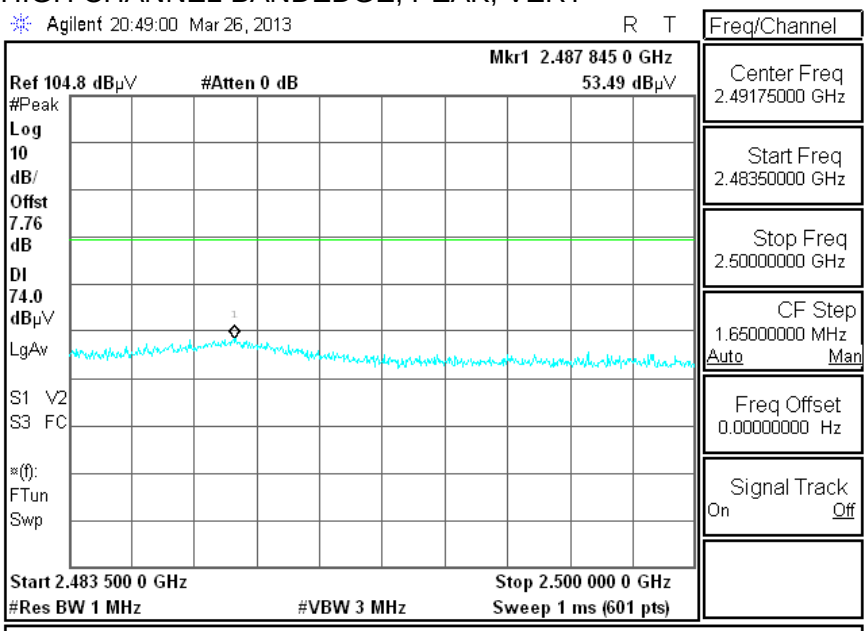


AUTHORIZED BANDEDGE (HIGH CHANNEL)

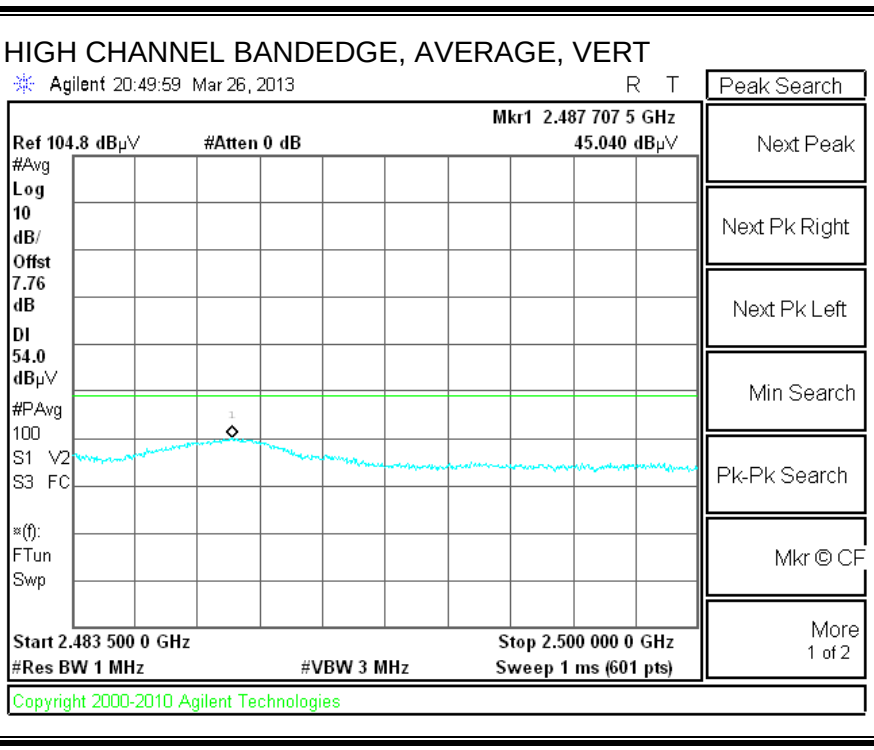




HIGH CHANNEL BANDEDGE, PEAK, VERT



HIGH CHANNEL BANDEDGE, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

LOW CH

Project :13U14860

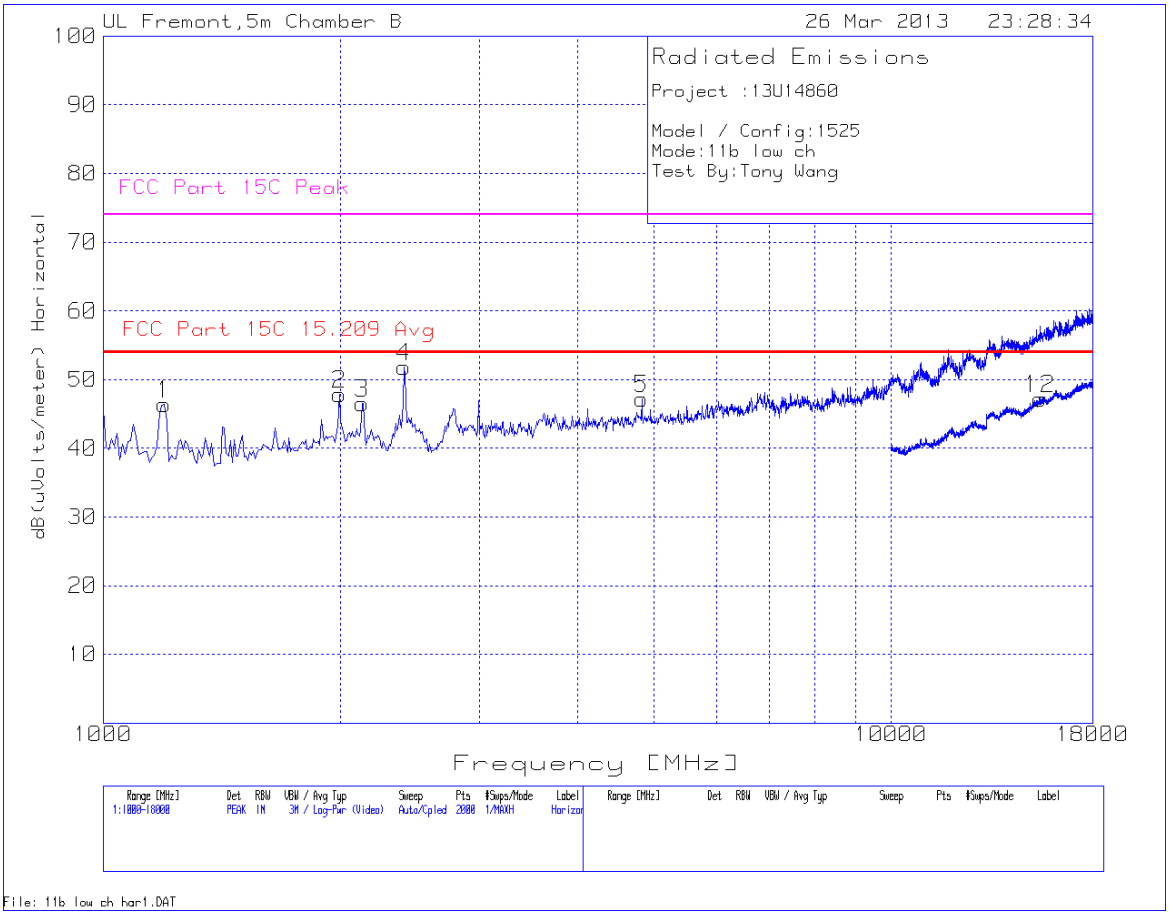
Model / Config:1525
Mode:11b low ch
Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T186 BRF 2.4-2.5GHz [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1195.402	49.85	PK	28.30	-35.70	3.40	0.50	46.35	54.0	-7.7	74.0	-27.7	200	Horz	Y	
2	1994.003	46.33	PK	31.80	-35.00	4.20	0.50	47.83	54.0	-6.2	74.0	-26.2	200	Horz	N	
3	2129.935	44.72	PK	32.00	-35.00	4.30	0.50	46.52	54.0	-7.5	74.0	-27.5	200	Horz	N	
4	2410.295	49.33	PK	32.40	-35.00	4.60	0.50	51.83	-	-	-	-	103	Horz	N	(Fundamental
5	4823.088	39.93	PK	34.70	-34.90	7.00	0.50	47.23	54.0	-6.8	74.0	-26.8	103	Horz	Y	
12	15453.273	25.43	PK	40.80	-32.90	13.40	0.50	47.23	54.0	-6.8	74.0	-26.8	100	Horz	Y	
6	1186.907	49.76	PK	28.30	-35.70	3.40	0.50	46.26	54.0	-7.7	74.0	-27.7	200	Vert	Y	
7	1416.292	47.99	PK	28.30	-35.40	3.60	0.50	44.99	54.0	-9.0	74.0	-29.0	100	Vert	Y	
8	1994.003	46.49	PK	31.80	-35.00	4.20	0.50	47.99	54.0	-6.0	74.0	-26.0	100	Vert	N	
9	2125.720	41.69	PK1	32.00	-35.00	4.30	0.50	43.49	-	-	74.0	-30.5	329	Vert	N	
	2125.240	31.07	AD1	32.00	-35.00	4.30	0.50	32.87	54.0	-21.1	-	-	329	Vert	N	
10	2410.295	53.43	PK	32.40	-35.00	4.60	0.50	55.93	-	-	-	-	200	Vert	N	(Fundamental
11	2786.750	44.88	PK1	32.80	-35.10	5.00	0.50	48.08	-	-	74.0	-25.9	213	Vert	Y	
	2789.900	32.79	AD1	32.80	-35.10	5.00	0.50	35.99	54.0	-18.0	-	-	213	Vert	Y	
13	16192.904	24.95	PK	41.40	-32.70	13.80	0.50	47.95	54.0	-6.1	74.0	-26.1	200	Vert	Y	

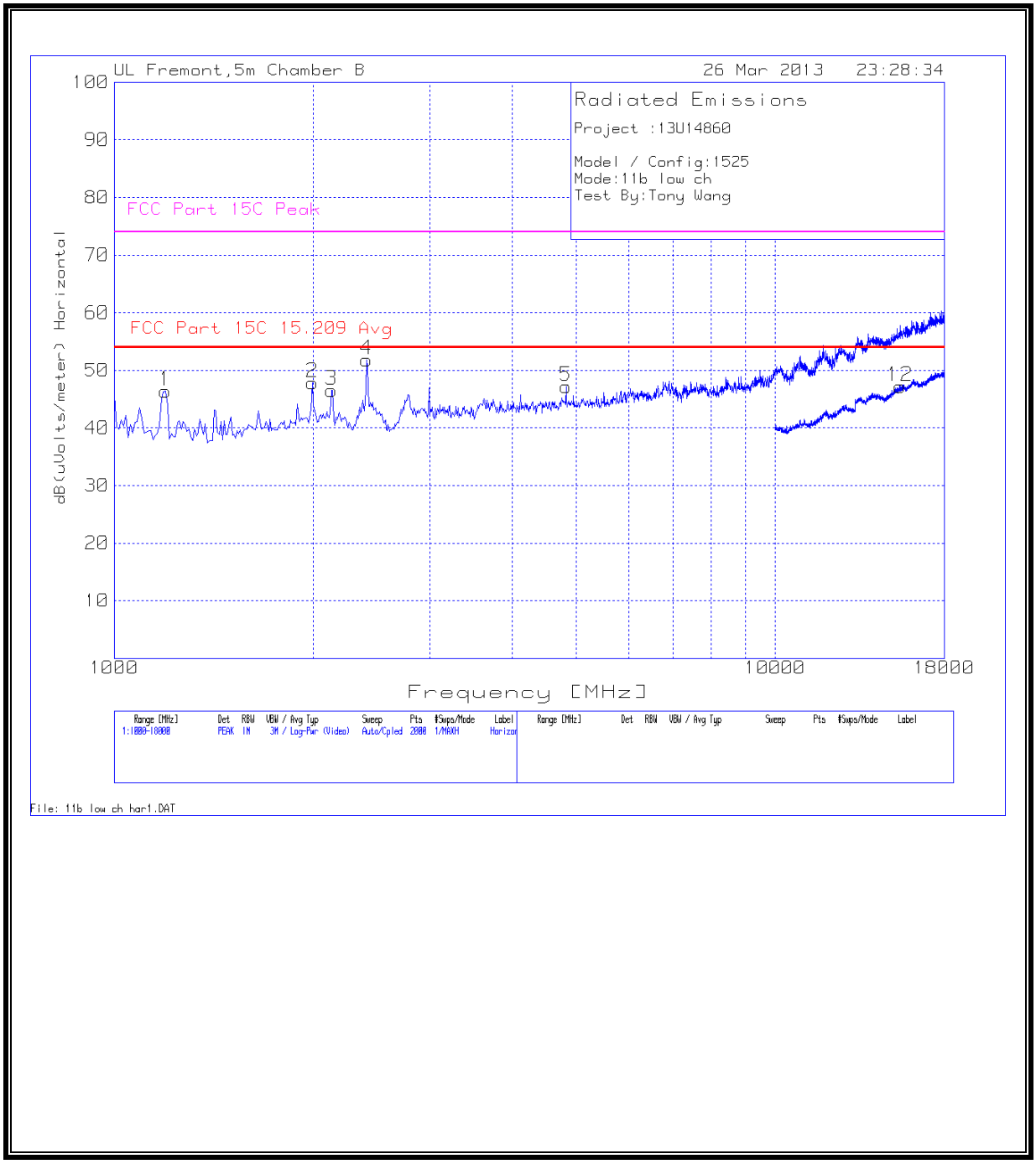
Notes:

There was no signal from EUT above the system noise floor up to 26 GHz.

LOW CH Horizontal



LOW CH Vertical



MID CH

Project :13U14860

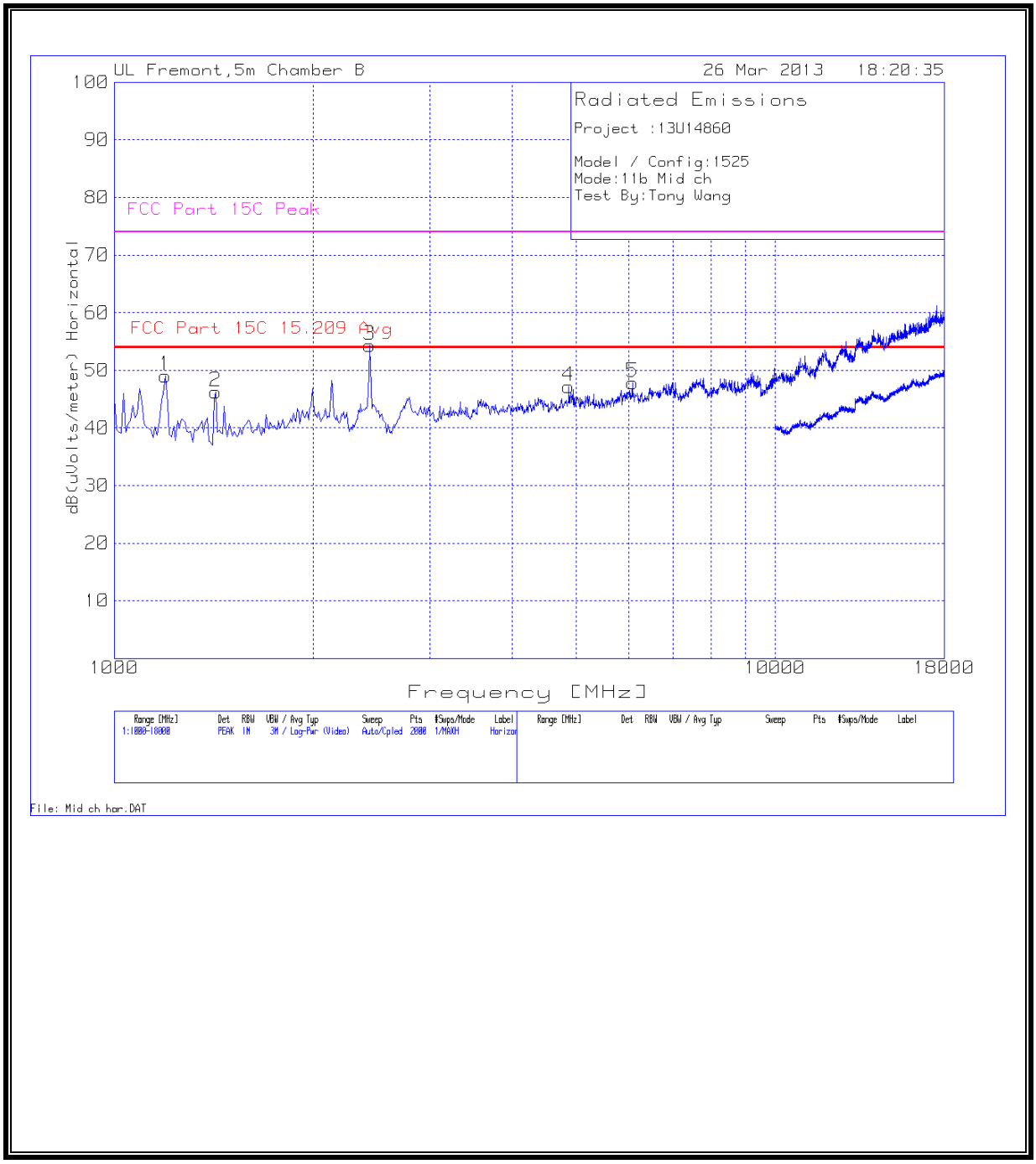
Model / Config:1525
Mode:11b Mid ch
Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T186 BRF 2.4-2.5GHz [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1191.730	52.64	PK1	28.30	-35.70	3.40	0.00	48.64	-	-	74.0	-25.4	287	Horz	Y	
	1190.840	32.36	AD1	28.30	-35.70	3.40	0.00	33.36	54.0	-20.6	-	-	287	Horz	Y	
2	1424.788	49.17	PK	28.30	-35.30	3.60	0.50	46.27	54.0	-7.7	74.0	-27.7	200	Horz	Y	
3	2435.782	51.7	PK	32.4	-35	4.7	0.5	54.3	-	-	-	-	200	Horz	N	(Fundamental)
4	4874.063	39.76	PK	34.70	-34.90	7.10	0.50	47.16	54.0	-6.8	74.0	-26.8	200	Horz	Y	
5	6080.460	38.35	PK	35.90	-34.90	8.00	0.50	47.85	54.0	-6.1	74.0	-26.2	200	Horz	N	
															N	
6	1186.907	50.89	PK	28.30	-35.70	3.40	0.50	47.39	54.0	-6.6	74.0	-26.6	200	Vert	Y	
7	1416.292	48.33	PK	28.30	-35.40	3.60	0.50	45.33	54.0	-8.6	74.0	-28.7	100	Vert	Y	
8	1997.900	57.37	PK1	31.80	-35.00	4.20	0.00	58.37	-	-	74.0	-15.6	112	Vert	N	
	1996.600	38.41	AD1	31.80	-35.00	4.20	0.00	39.41	54.0	-14.6	-	-	112	Vert	N	
9	2136.720	46.69	PK1	32.00	-35.00	4.30	0.50	48.49	-	-	74.0	-25.5	329	Vert	N	
	2135.240	34.07	AD1	32.00	-35.00	4.30	0.50	35.87	54.0	-18.1	-	-	329	Vert	N	
10	2435.782	55.00	PK	32.40	-35.00	4.70	0.50	57.60	-	-	-	-	200	Vert	N	(Fundamental)
11	2786.750	44.88	PK1	32.80	-35.10	5.00	0.50	48.08	-	-	74.0	-25.9	213	Vert	Y	
	2789.900	32.79	AD1	32.80	-35.10	5.00	0.50	35.99	54.0	-18.0	-	-	213	Vert	Y	
12	4389.805	41.16	PK	34.30	-34.90	6.60	0.50	47.66	54.0	-6.3	74.0	-26.3	100	Vert	Y	

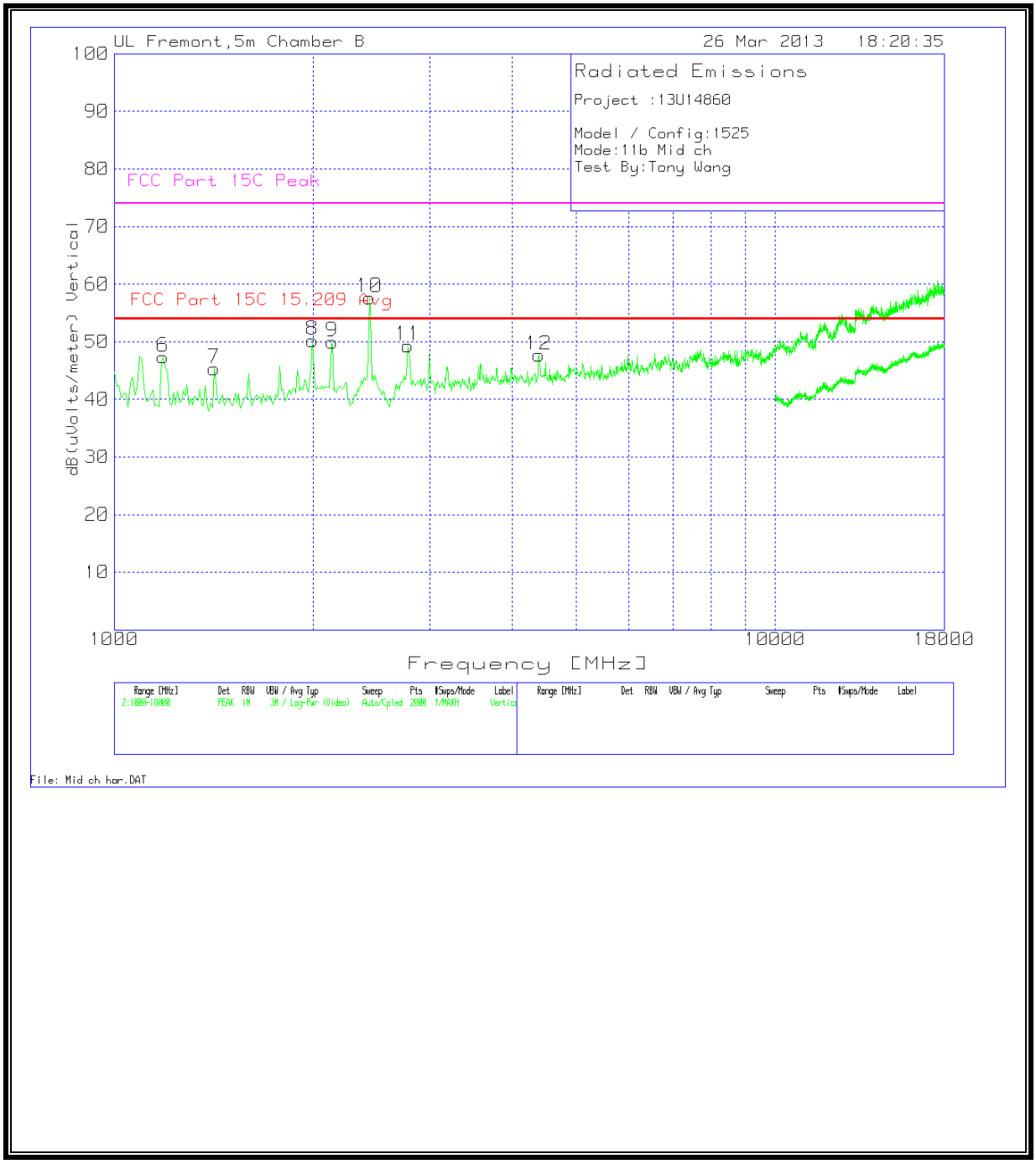
Notes:

There was no signal from EUT above the system noise floor up to 26 GHz.

MID CH Horizontal



MID CH Vertical



HIGH CH

Project :13U14860

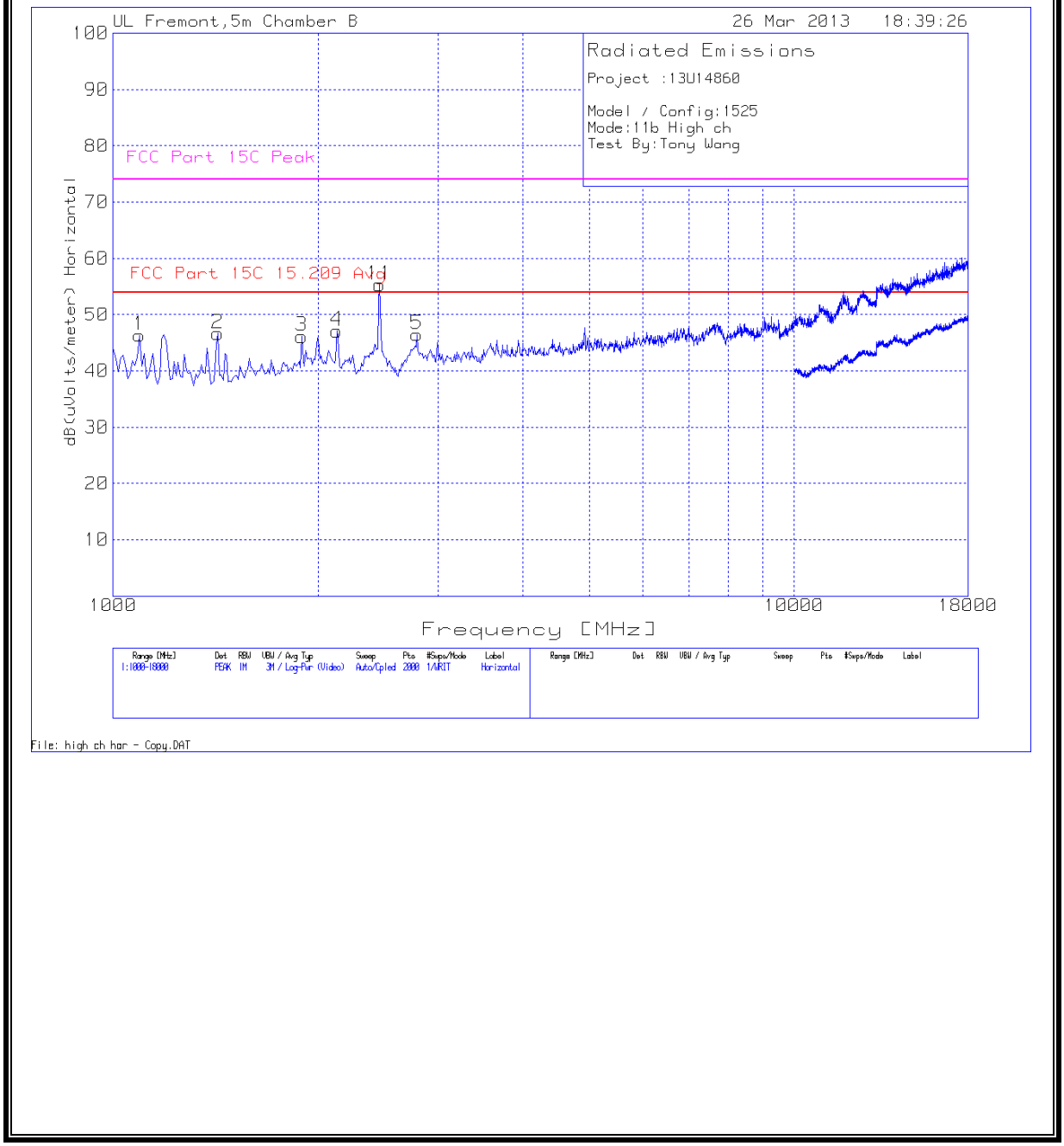
Model / Config:1525
Mode:11b High ch
Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T186 BRF 2.4-2.5GHz [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1093.453	50.64	PK	27.80	-35.90	3.30	0.50	46.34	54.0	-7.6	74.0	-27.7	200	Horz	Y	
2	1424.788	49.57	PK	28.30	-35.30	3.60	0.50	46.67	54.0	-7.3	74.0	-27.3	200	Horz	Y	
3	1892.054	45.46	PK	31.10	-35.00	4.10	0.50	46.16	54.0	-7.8	74.0	-27.8	200	Horz	N	
4	2129.935	45.31	PK	32.00	-35.00	4.30	0.50	47.11	54.0	-6.9	74.0	-26.9	200	Horz	N	
11	2461.269	52.73	PK	32.40	-35.00	4.70	0.50	55.33	-	-	-	-	200	Horz	N	(Fundamental)
5	2792.604	43.19	PK	32.90	-35.10	5.00	0.50	46.49	54.0	-7.5	74.0	-27.5	200	Horz	Y	
6	1186.907	51.02	PK	28.30	-35.70	3.40	0.50	47.52	54.0	-6.5	74.0	-26.5	200	Vert	Y	
7	1424.788	50.79	PK	28.30	-35.30	3.60	0.50	47.89	54.0	-6.1	74.0	-26.1	100	Vert	Y	
8	2125.720	47.69	PK1	32.00	-35.00	4.30	0.50	49.49	-	-	74.0	-24.5	329	Vert	N	
	2125.240	31.07	AD1	32.00	-35.00	4.30	0.50	32.87	54.0	-21.1	-	-	329	Vert	N	
9	2461.269	52.19	PK	32.40	-35.00	4.70	0.50	54.79	-	-	-	-	200	Vert	N	(Fundamental)
10	4372.814	41.26	PK	34.30	-34.90	6.60	0.50	47.96	54.0	-6.1	74.0	-26.0	100	Vert	Y	

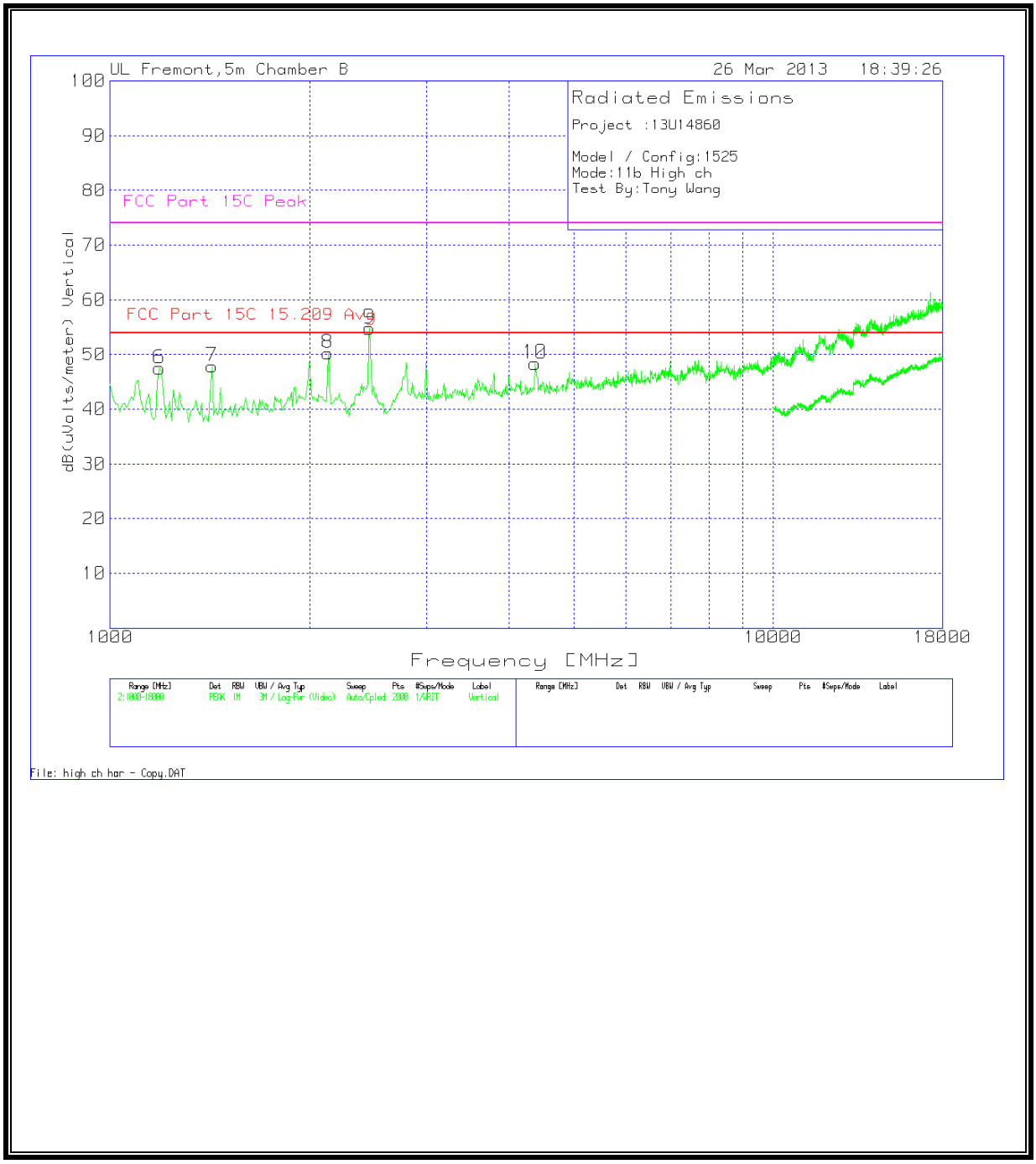
Notes:

There was no signal from EUT above the system noise floor up to 26 GHz.

HIGH CH Horizontal

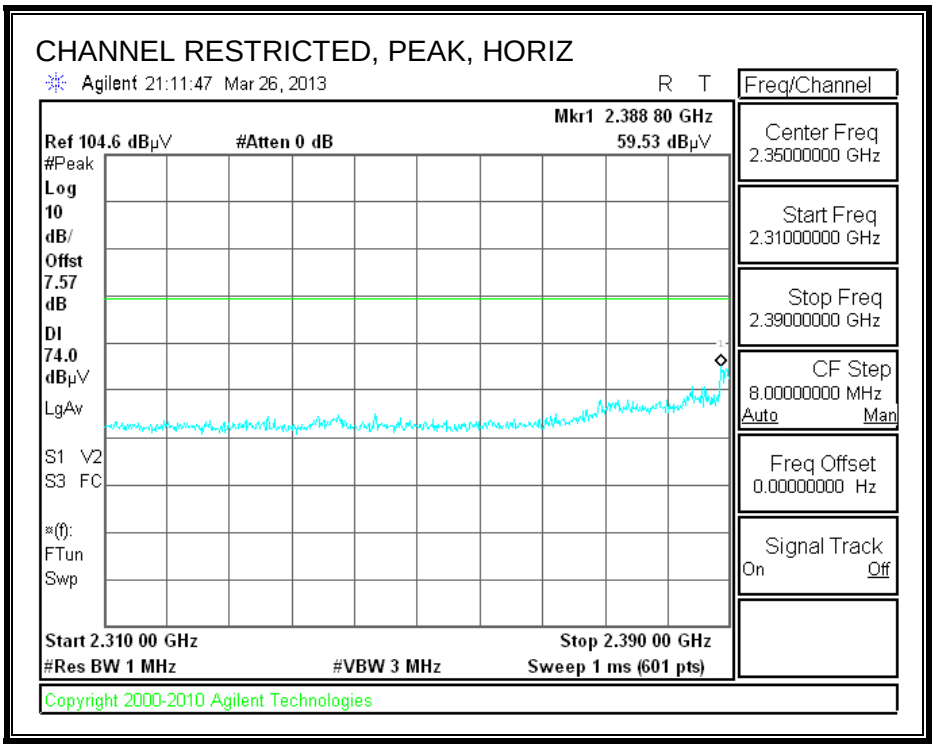


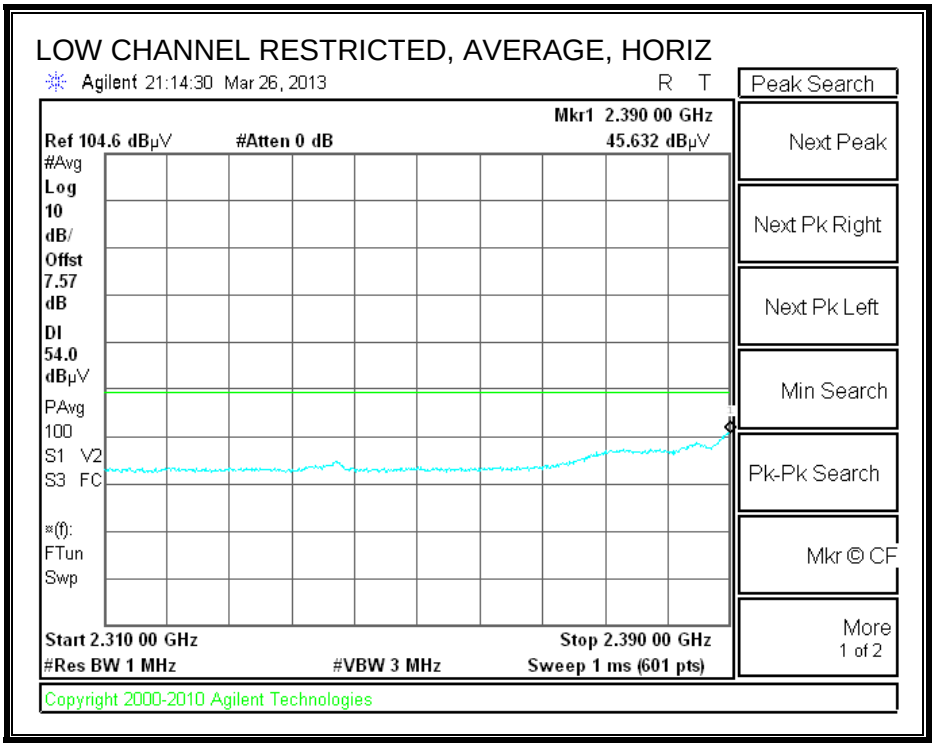
HIGH CH Vertical



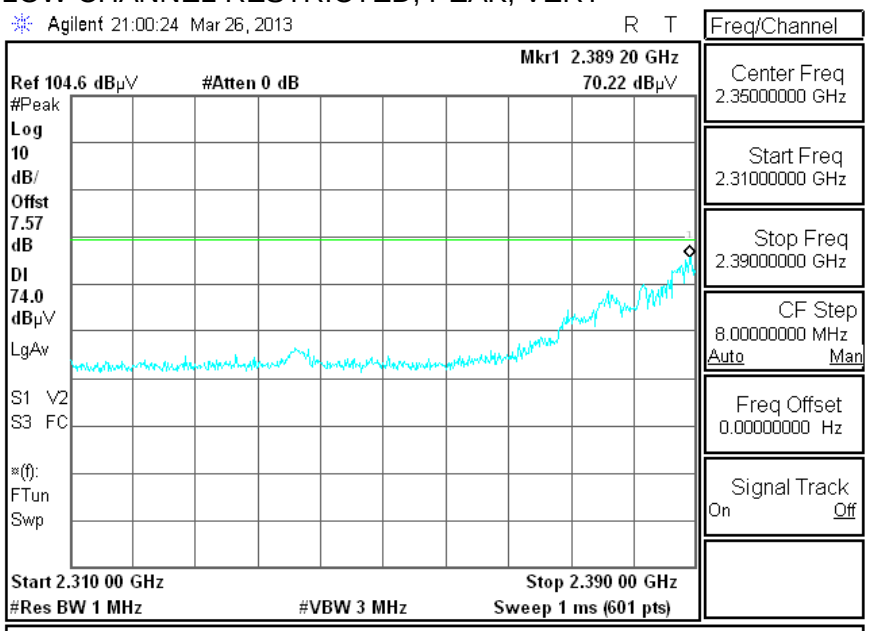
9.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

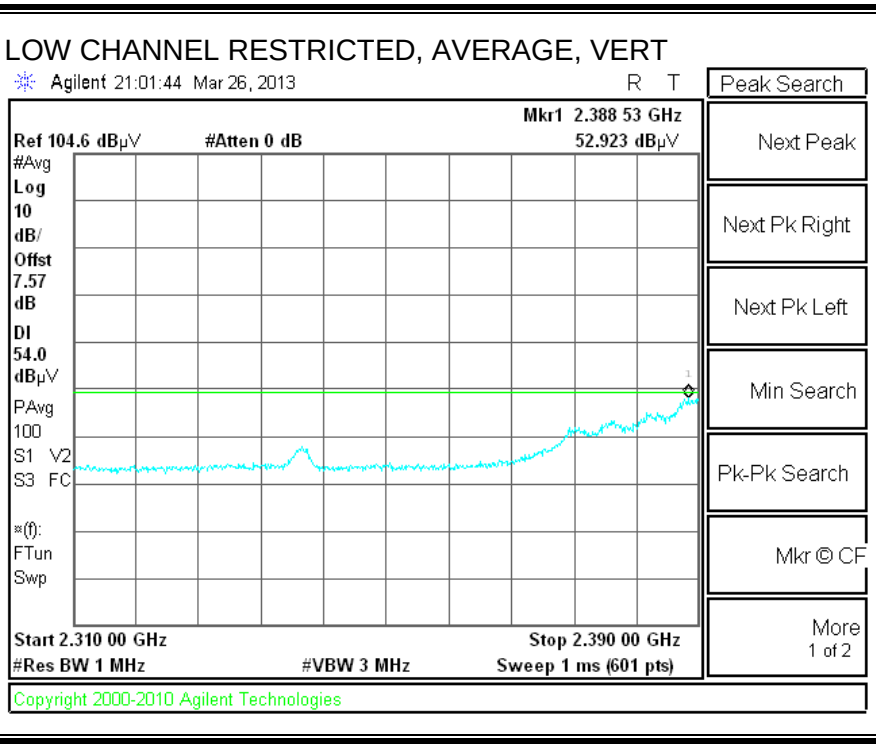




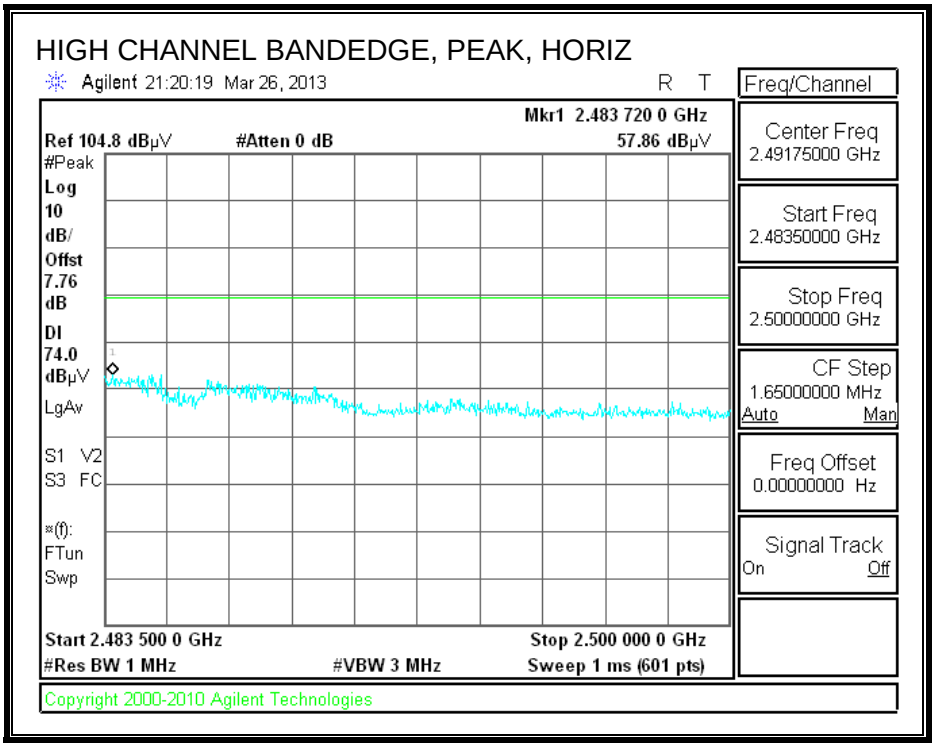
LOW CHANNEL RESTRICTED, PEAK, VERT

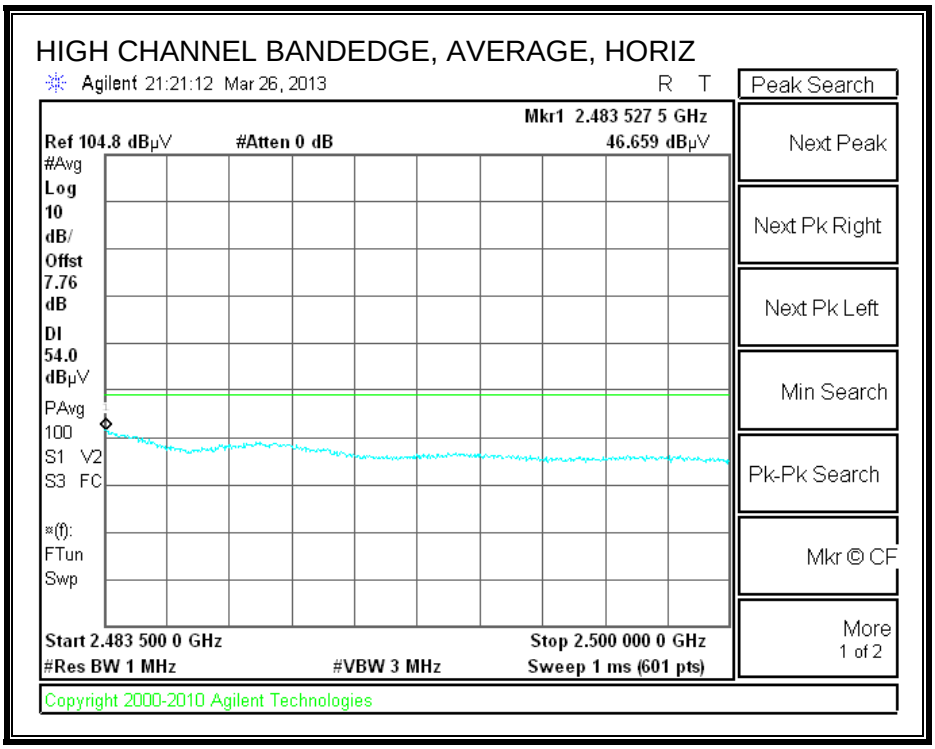


LOW CHANNEL RESTRICTED, AVERAGE, VERT

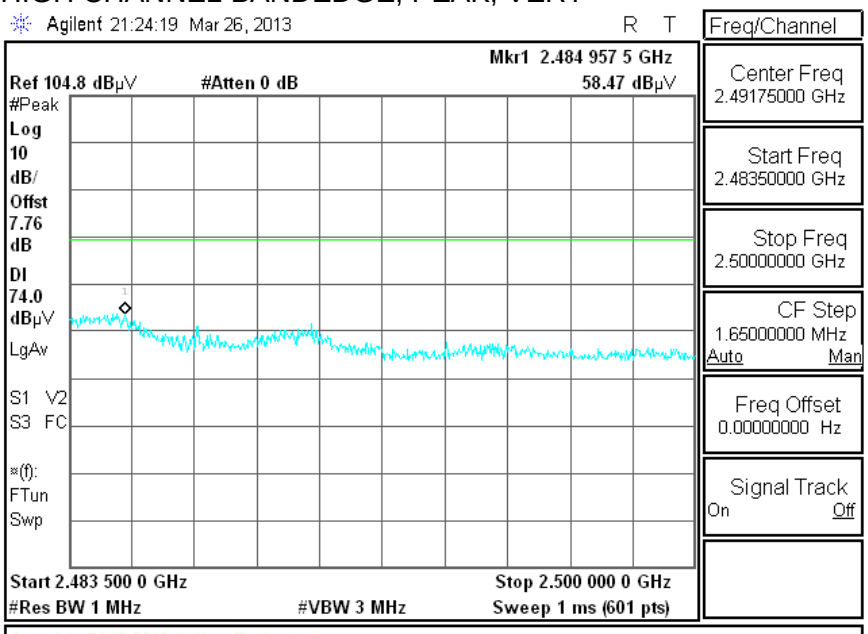


AUTHORIZED BANDEDGE (HIGH CHANNEL)

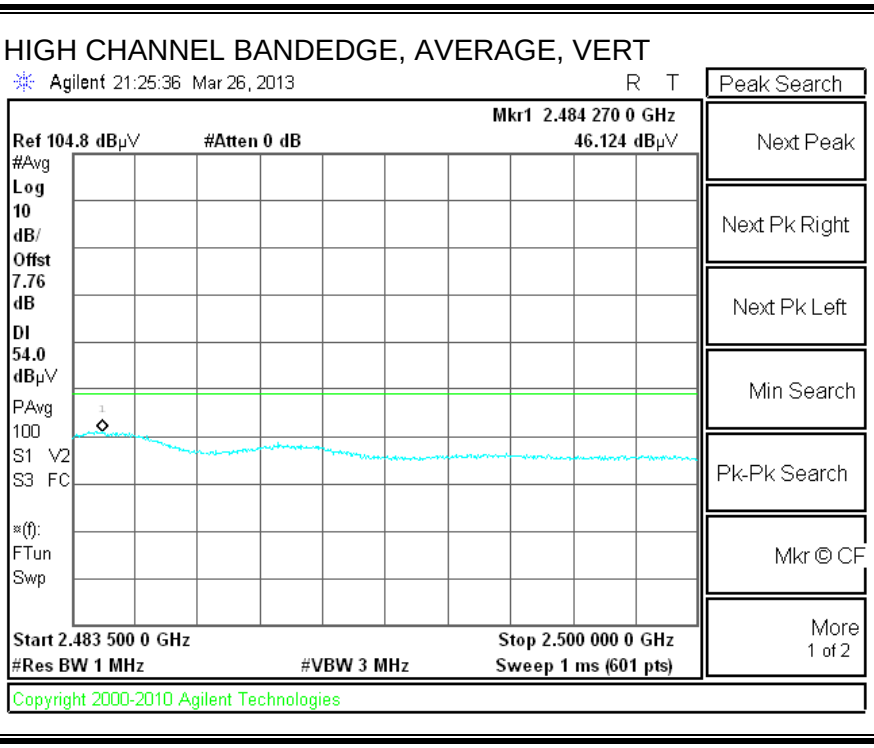




HIGH CHANNEL BANDEDGE, PEAK, VERT



HIGH CHANNEL BANDEDGE, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

LOW CH

Project :13U14860

Model / Config:1525

Mode:11g Low ch

Test By:Tony Wang

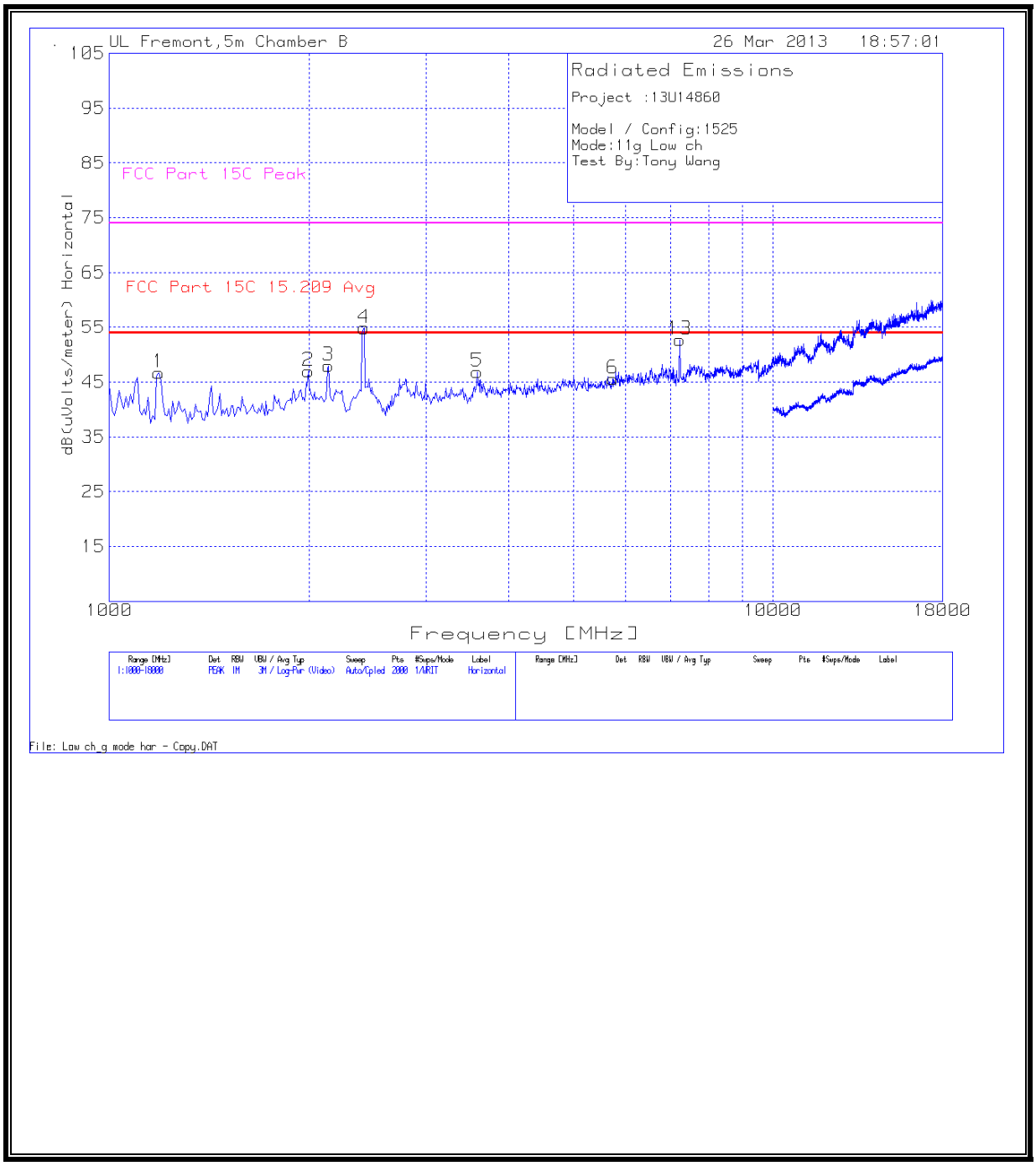
Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T186 BRF 2.4-2.5GHz [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1186.907	50.21	PK	28.30	-35.70	3.40	0.50	46.71	54.0	-7.3	74.0	-27.3	200	Horz	Y	
2	1994.003	45.52	PK	31.80	-35.00	4.20	0.50	47.02	54.0	-7.0	74.0	-27.0	200	Horz	N	
3	2138.431	46.01	PK	32.00	-35.00	4.40	0.50	47.91	54.0	-6.1	74.0	-26.1	200	Horz	N	
4	2418.791	52.37	PK	32.40	-35.00	4.60	0.50	54.87	-	-	-	-	200	Horz	N	(Fundamental
5	3582.709	42.19	PK	33.40	-35.00	5.80	0.50	46.89	54.0	-7.1	74.0	-27.1	200	Horz	N	
6	5732.134	36.99	PK	35.20	-34.90	7.80	0.50	45.59	54.0	-8.4	74.0	-28.4	200	Horz	N	
13	7235.882	42.62	PK	35.80	-35.00	8.80	0.50	52.72	54.0	-1.3	74.0	-21.3	100	Horz	N	
7	1186.907	51.14	PK	28.30	-35.70	3.40	0.50	47.64	54.0	-6.3	74.0	-26.4	200	Vert	Y	
8	1994.950	49.29	PK1	31.80	-35.00	4.20	0.50	50.29	54.0	-3.7	74.0	-23.7	144	Vert	N	
	1995.890	37.86	AD1	31.80	-35.00	4.20	0.50	38.86	54.0	-15.1	74.0	-35.1	144	Vert	N	
9	2128.950	46.60	PK1	32.00	-35.00	4.30	0.50	47.90	54.0	-6.1	74.0	-25.1	290	Vert	N	
	2131.210	35.80	AD1	32.00	-35.00	4.30	0.50	37.10	54.0	-16.9	74.0	-36.9	290	Vert	N	
10	2418.791	55.72	PK	32.40	-35.00	4.60	0.50	58.22	-	-	-	-	200	Vert	N	(Fundamental
11	2785.070	44.62	PK1	32.80	-35.10	5.00	0.50	47.32	-	-	74.0	-26.7	200	Vert	Y	
	2781.750	34.16	AD1	32.80	-35.10	5.00	0.50	36.86	54.0	-17.1	-	-	200	Vert	Y	
12	3990.505	41.04	PK	33.90	-34.80	6.20	0.50	46.84	54.0	-7.1	74.0	-27.2	100	Vert	Y	
14	7227.386	40.88	PK	35.80	-35.00	8.80	0.50	50.98	54.0	-3.0	74.0	-23.0	200	Vert	N	

Notes:

There was no signal from EUT above the system noise floor up to 26 GHz.

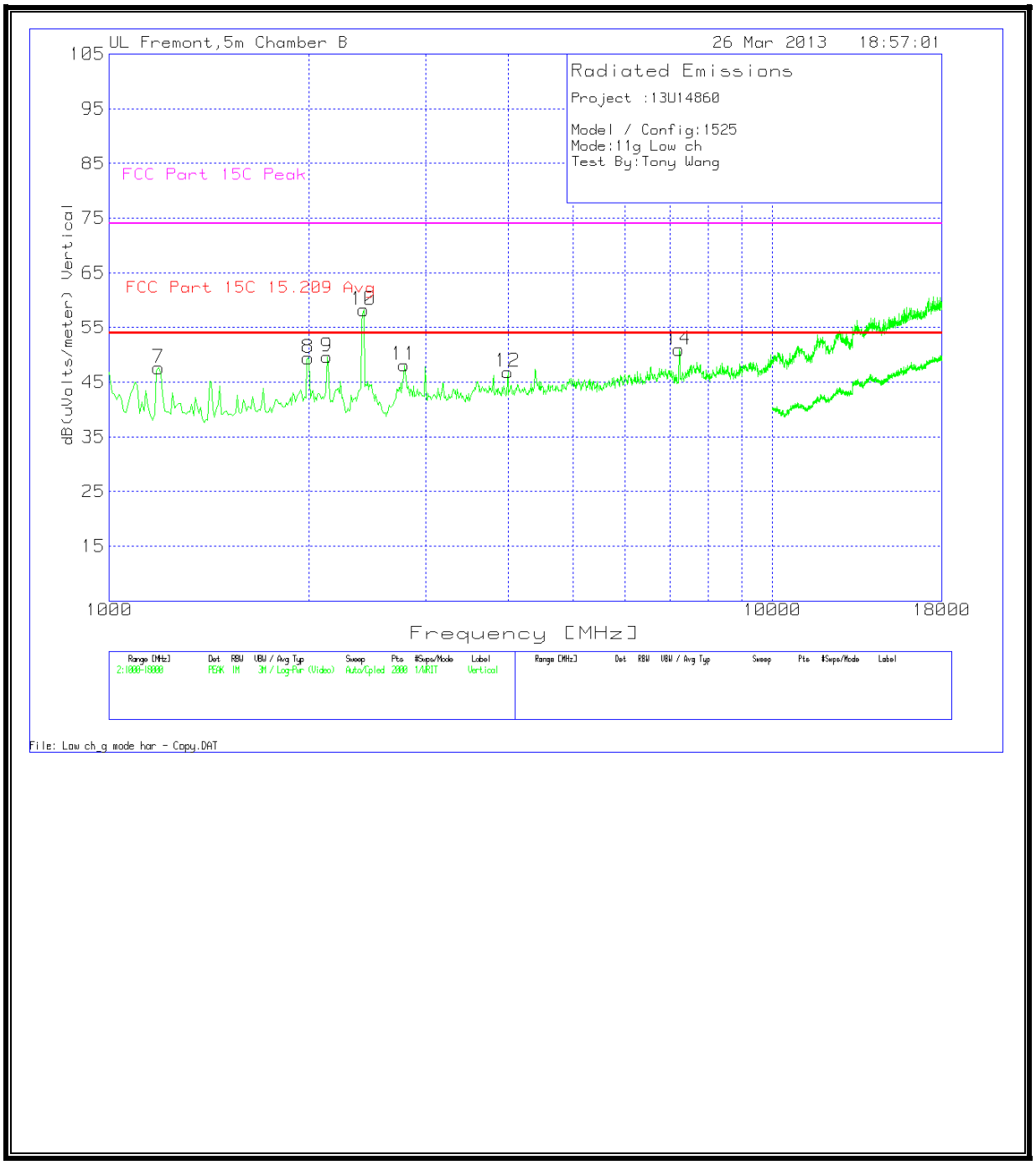
HARMONICS AND SPURIOUS EMISSIONS

LOW CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

LOW CH Vertical



HARMONICS AND SPURIOUS EMISSIONS

MID CH

Project :13U14860

Model / Config:1525

Mode:11g Mid ch

Test By:Tony Wang

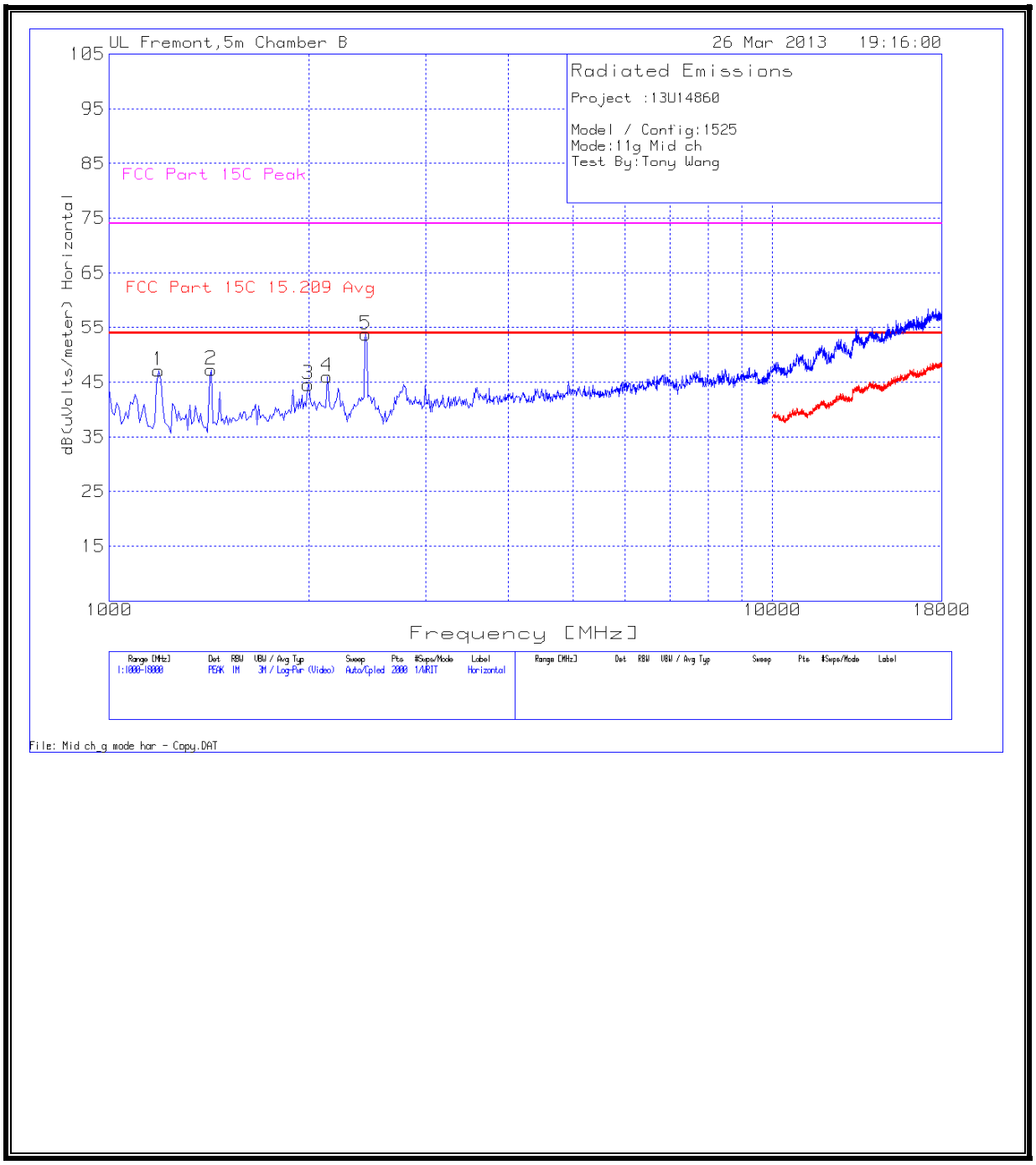
Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T186 BRF 2.4-2.5GHz [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1186.907	50.63	PK	28.30	-35.70	3.40	0.50	47.13	54.0	-6.8	74.0	-26.9	200	Horz	Y	
2	1424.788	50.21	PK	28.30	-35.30	3.60	0.50	47.31	54.0	-6.7	74.0	-26.7	200	Horz	Y	
3	1994.003	43.10	PK	31.80	-35.00	4.20	0.50	44.60	54.0	-9.4	74.0	-29.4	200	Horz	N	
4	2129.935	44.24	PK	32.00	-35.00	4.30	0.50	46.04	54.0	-7.9	74.0	-28.0	200	Horz	N	
5	2435.782	51.17	PK	32.40	-35.00	4.70	0.50	53.77	-	-	-	-	200	Horz	N	(Fundamental)
6	1186.907	51.14	PK	28.30	-35.70	3.40	0.50	47.64	54.0	-6.3	74.0	-26.4	200	Vert	Y	
7	1424.788	49.43	PK	28.30	-35.30	3.60	0.50	46.53	54.0	-7.4	74.0	-27.5	100	Vert	Y	
8	2126.950	47.60	PK1	32.00	-35.00	4.30	0.50	49.40	54.0	-4.6	74.0	-24.6	290	Vert	N	
	2131.210	36.80	AD1	32.00	-35.00	4.30	0.50	38.60	54.0	-21.4	74.0	-35.4	290	Vert	N	
9	2435.782	53.56	PK	32.40	-35.00	4.70	0.50	56.16	-	-	-	-	200	Vert	N	(Fundamental)
10	2789.550	47.37	PK1	32.80	-35.10	5.00	0.10	50.17	54.0	-3.8	74.0	-23.8	138	Vert	Y	
	2787.670	35.72	AD1	32.80	-35.10	5.00	0.10	42.52	54.0	-15.5	74.0	-35.5	138	Vert	Y	
11	2996.502	44.18	PK	33.10	-35.20	5.30	0.50	47.88	54.0	-6.1	74.0	-26.1	100	Vert	N	
12	7302.298	46.54	PK1	35.80	-35.00	8.90	0.50	56.74	-	-	74.0	-17.3	178	Vert	Y	
	7302.193	31.08	AD1	35.80	-35.00	8.90	0.50	41.28	54.0	-12.7	-	-	178	Vert	Y	

Notes:

There was no signal from EUT above the system noise floor up to 26 GHz.

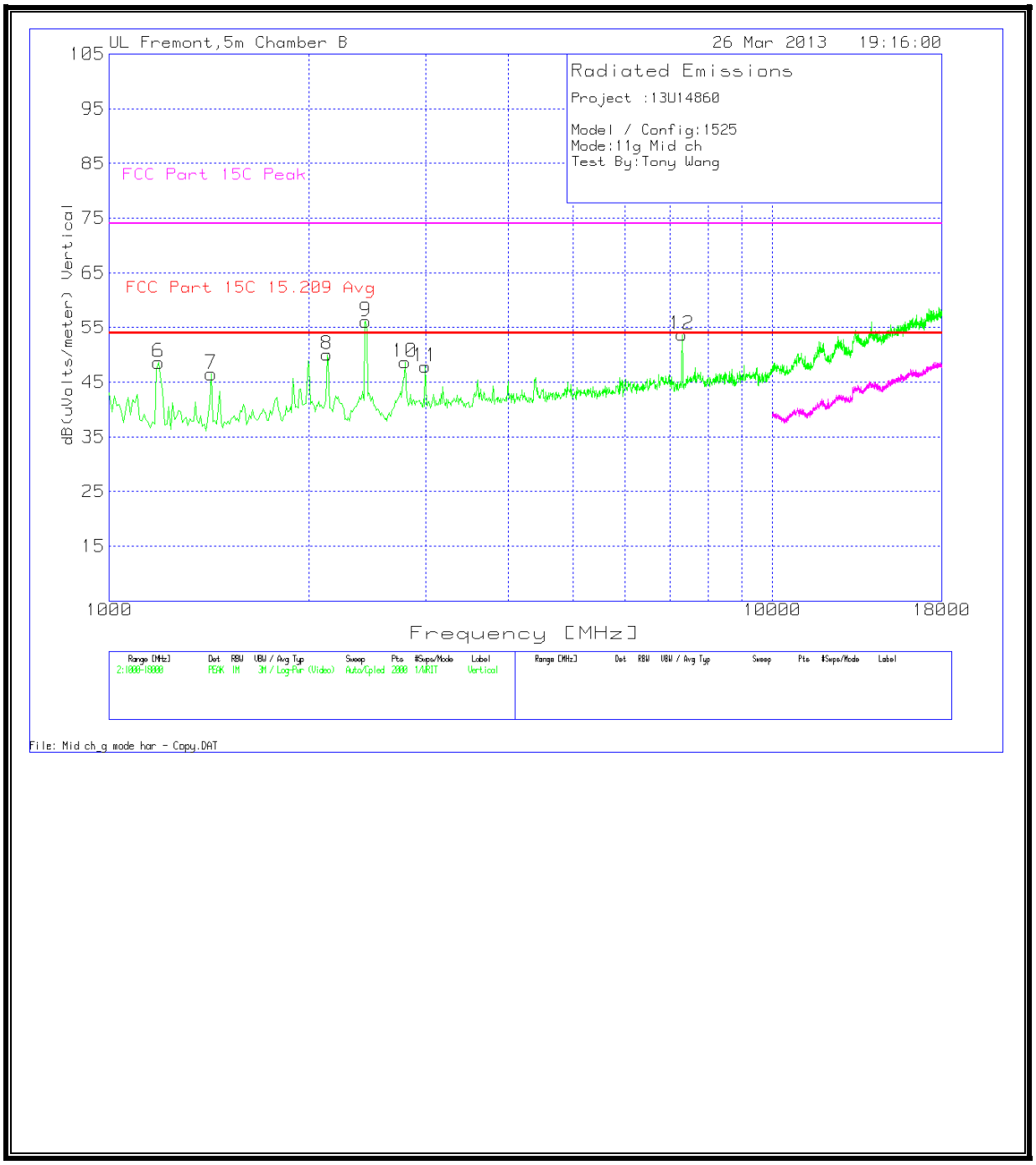
HARMONICS AND SPURIOUS EMISSIONS

MID CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

MID CH Vertical



HARMONICS AND SPURIOUS EMISSIONS

HIGH CH

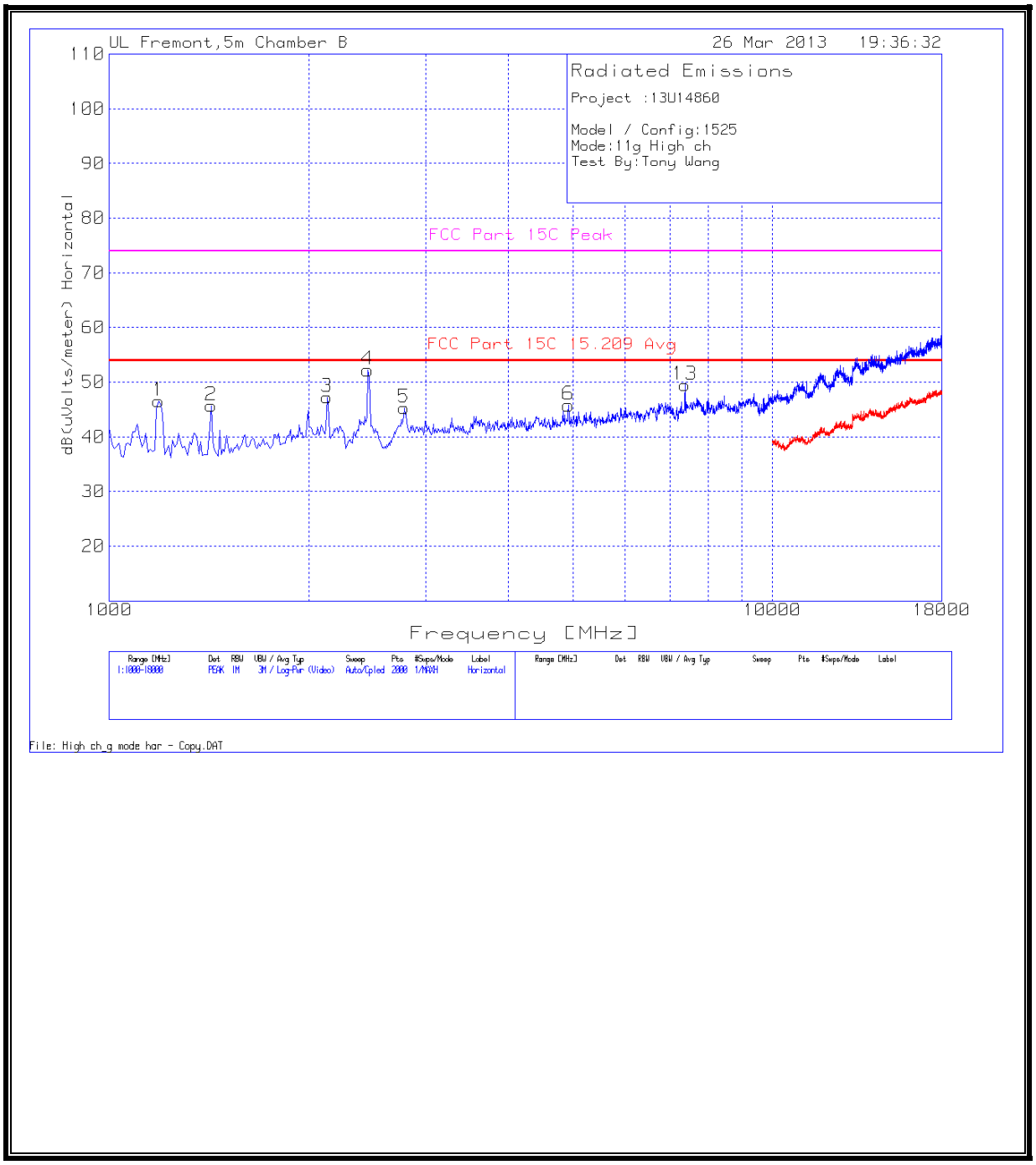
Project :13U14860																
Model / Config:1525																
Mode:11g High ch																
Test By:Tony Wang																
Marker No.	**Test Frequency [MHz]**	**Meter Reading [dBuV]**	**Detector Type**	**T345 Antenna Factor [dB/m]**	**T145 Preamp [dB]**	**Cable Factor [dB]**	**T186 BRF 2.4-2.5GHz [dB]**	**Field Strength [dBuV/m]**	**FCC Part 15C 15.209 Avg Limit [dBuV/m]**	**Margin [dB]**	**FCC Part 15C Peak Limit [dBuV/m]**	**Margin [dB]**	**Height [cm]**	**Polarity**	**Restricted Band?**	
1	1186.907	50.06	PK	28.30	-35.70	3.40	0.50	46.56	54.0	-7.4	74.0	-27.4	200	Horz	Y	
2	1424.788	48.64	PK	28.30	-35.30	3.60	0.50	45.74	54.0	-8.2	74.0	-28.3	200	Horz	Y	
3	2129.935	45.46	PK	32.00	-35.00	4.30	0.50	47.26	54.0	-6.7	74.0	-26.7	200	Horz	N	
4	2452.774	49.65	PK	32.40	-35.00	4.70	0.50	52.25	-	-	-	-	100	Horz	N	(Fundamental)
5	2784.108	42.10	PK	32.80	-35.10	5.00	0.50	45.30	54.0	-8.7	74.0	-28.7	200	Horz	Y	
6	4925.037	38.52	PK	34.60	-34.90	7.10	0.50	45.82	54.0	-8.2	74.0	-28.2	200	Horz	Y	
13	7388.480	45.16	PK1	35.90	-35.00	8.90	0.50	55.46	-	-	74.0	-18.5	125	Horz	Y	
	7388.160	30.21	AD1	35.90	-35.00	8.90	0.50	40.51	54.0	-13.5	-	-	125	Horz	Y	
7	1186.907	51.36	PK	28.30	-35.70	3.40	0.50	47.86	54.0	-6.1	74.0	-26.1	100	Vert	Y	
8	1997.090	50.07	PK1	31.80	-35.00	4.20	0.50	51.67	-	-	74.0	-22.3	112	Vert	N	
	1996.160	40.41	AD1	31.80	-35.00	4.20	0.50	41.91	54.0	-12.1	-	-	112	Vert	N	
9	2126.950	49.60	PK1	32.00	-35.00	4.30	0.50	51.40	-	-	74.0	-22.6	290	Vert	N	
	2131.210	38.80	AD1	32.00	-35.00	4.30	0.50	40.60	54.0	-13.4	-	-	290	Vert	N	
10	2469.765	52.50	PK	32.50	-35.00	4.70	0.50	55.20	-	-	-	-	200	Vert	N	(Fundamental)
11	2801.099	44.53	PK	32.90	-35.10	5.00	0.50	47.83	54.0	-6.1	74.0	-26.2	100	Vert	Y	
12	4381.309	39.13	PK	34.30	-34.90	6.60	0.50	45.63	54.0	-8.3	74.0	-28.4	100	Vert	Y	
14	7377.350	51.06	PK1	35.90	-35.00	8.90	0.50	61.36	-	-	74.0	-12.6	175	Vert	Y	
	7382.300	35.17	AD1	35.90	-35.00	8.90	0.50	45.47	54.0	-8.5	-	-	175	Vert	Y	

Notes:

There was no signal from EUT above the system noise floor up to 26 GHz.

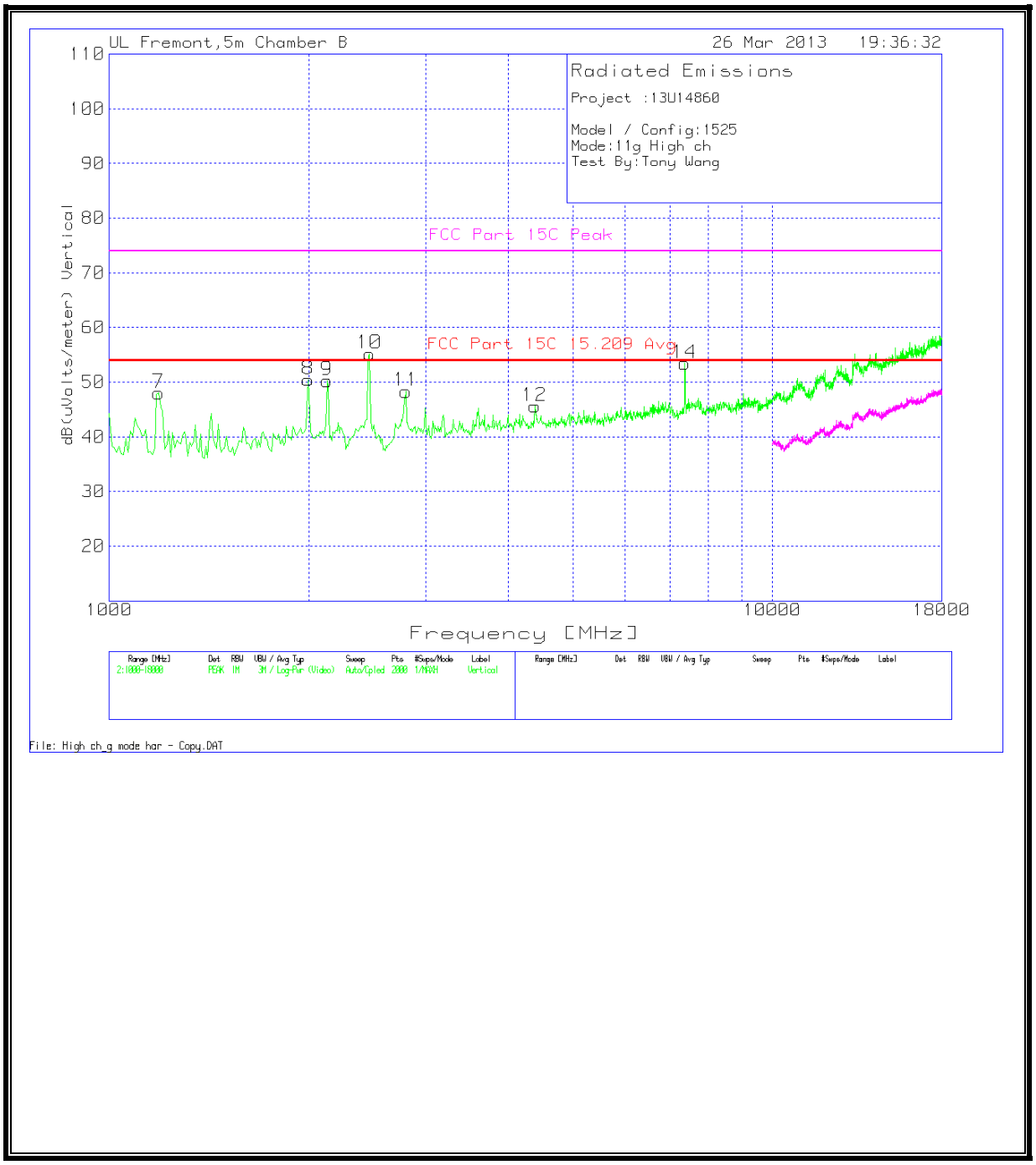
HARMONICS AND SPURIOUS EMISSIONS

HIGH CH Horizontal



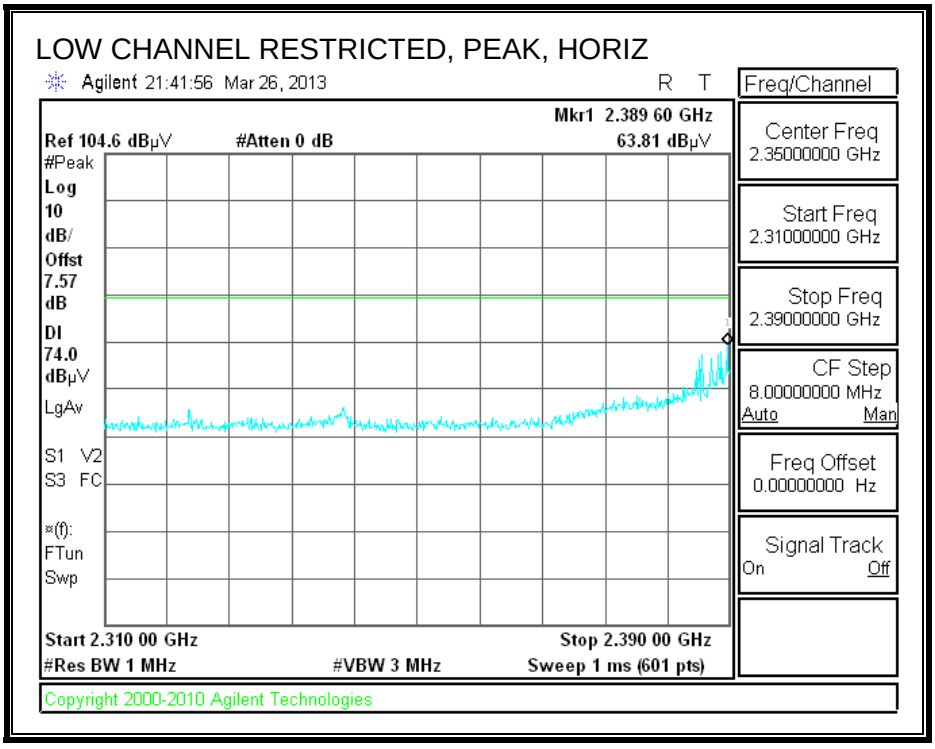
HARMONICS AND SPURIOUS EMISSIONS

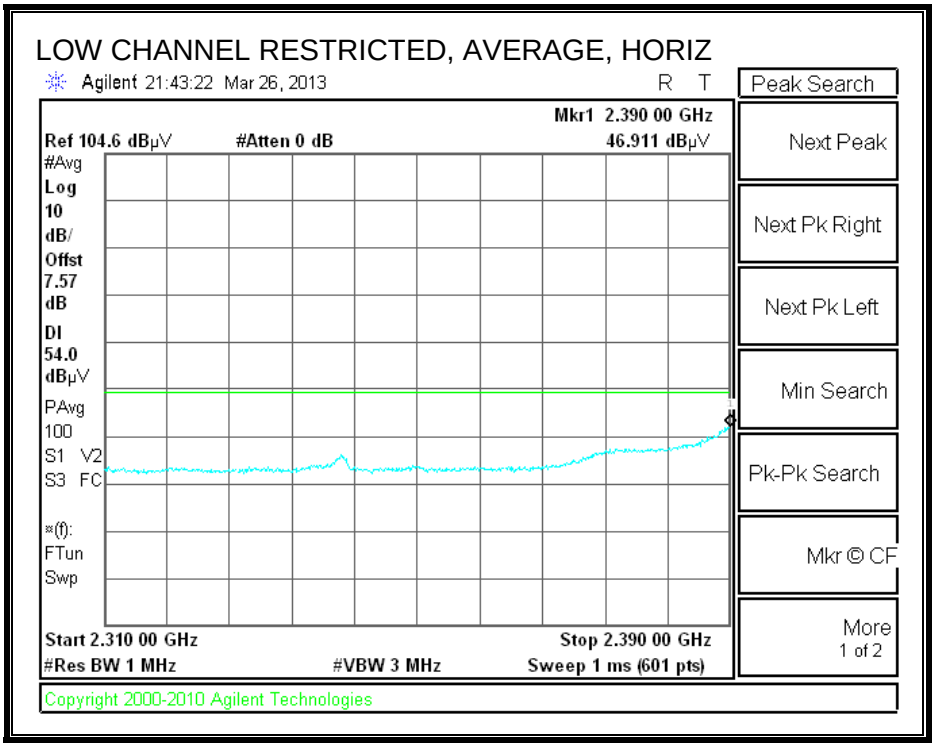
HIGH CH Vertical

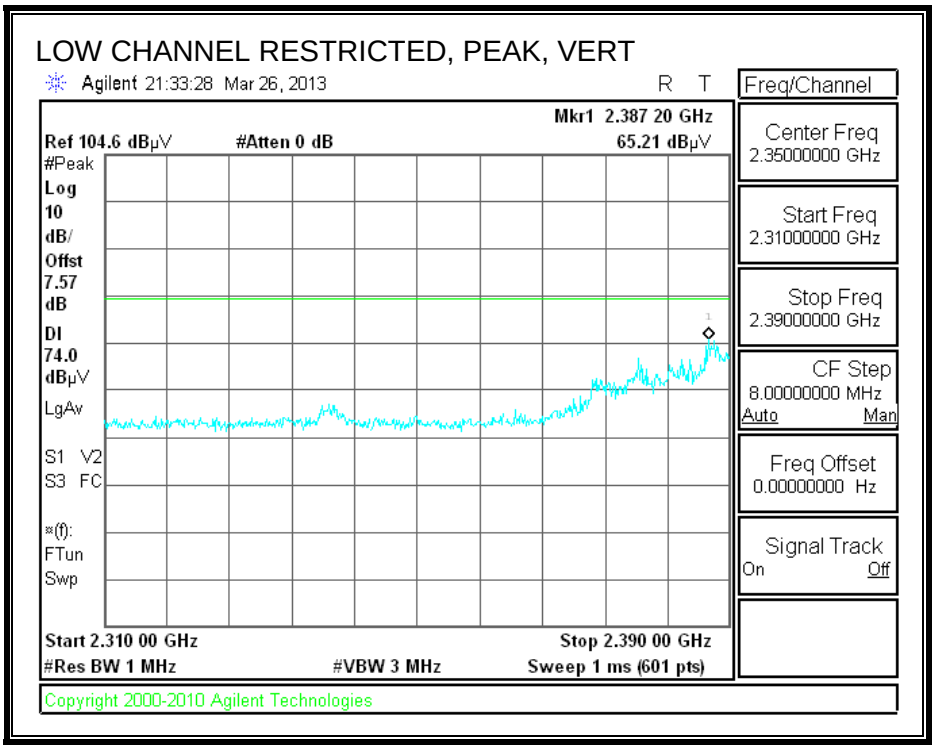


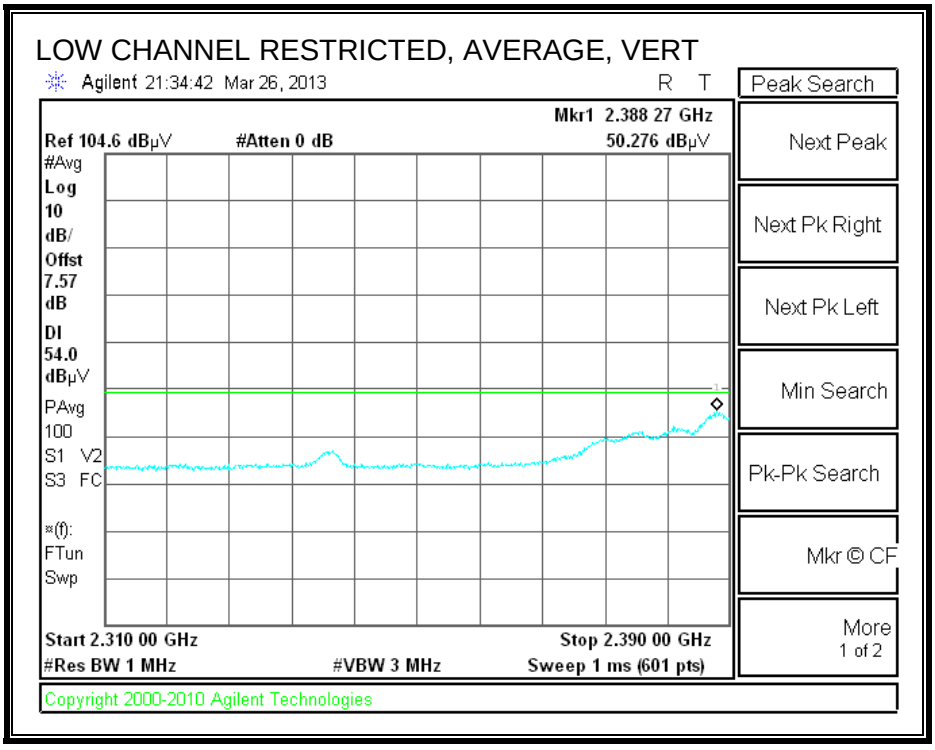
9.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

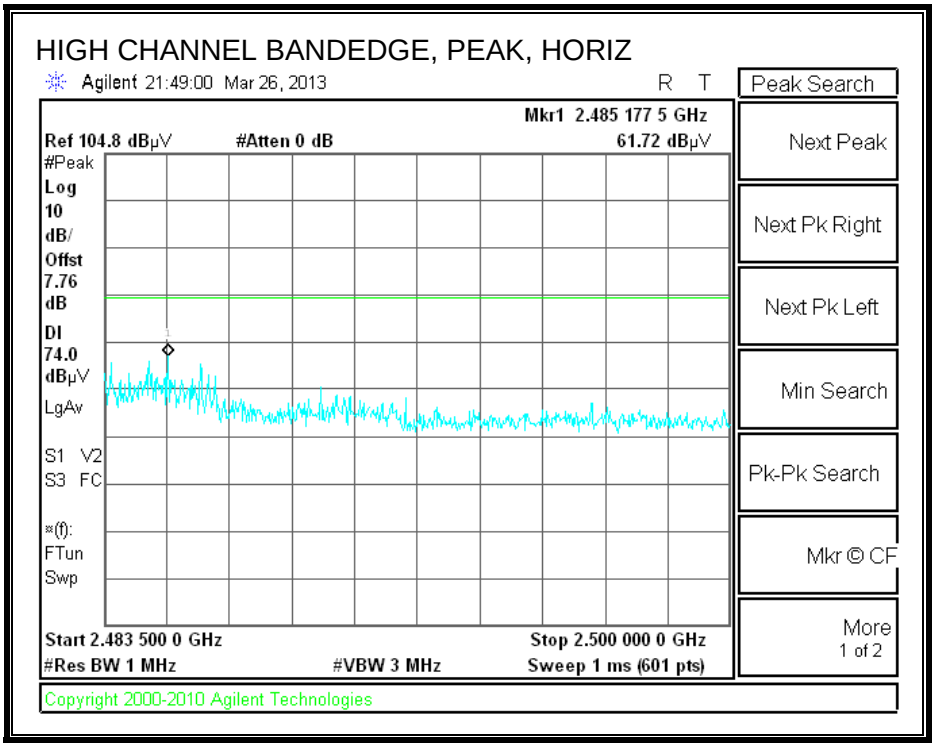


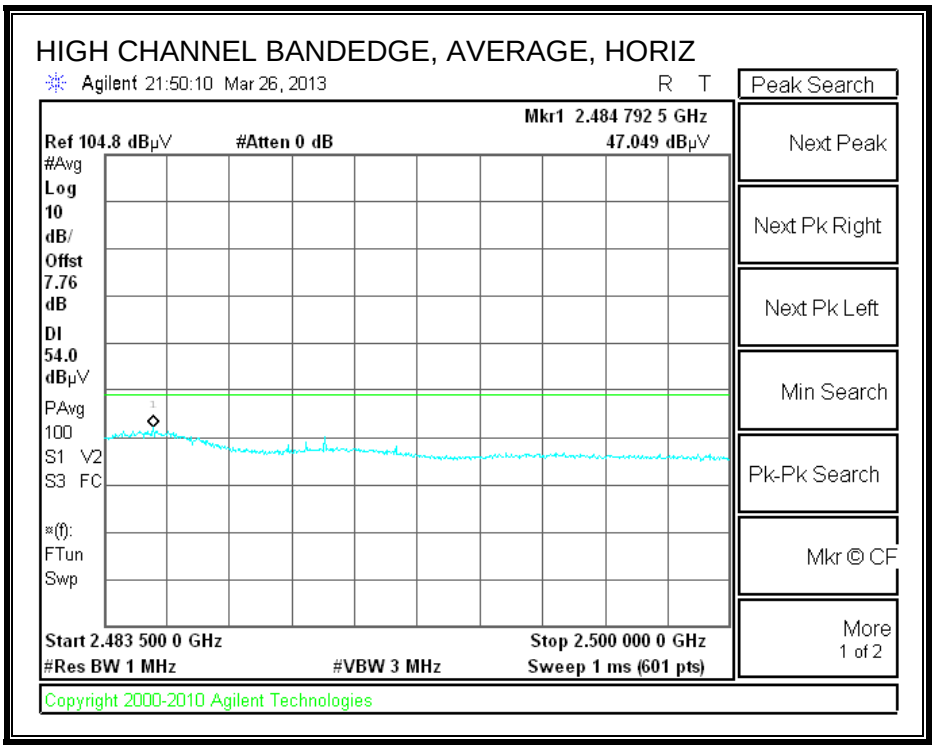




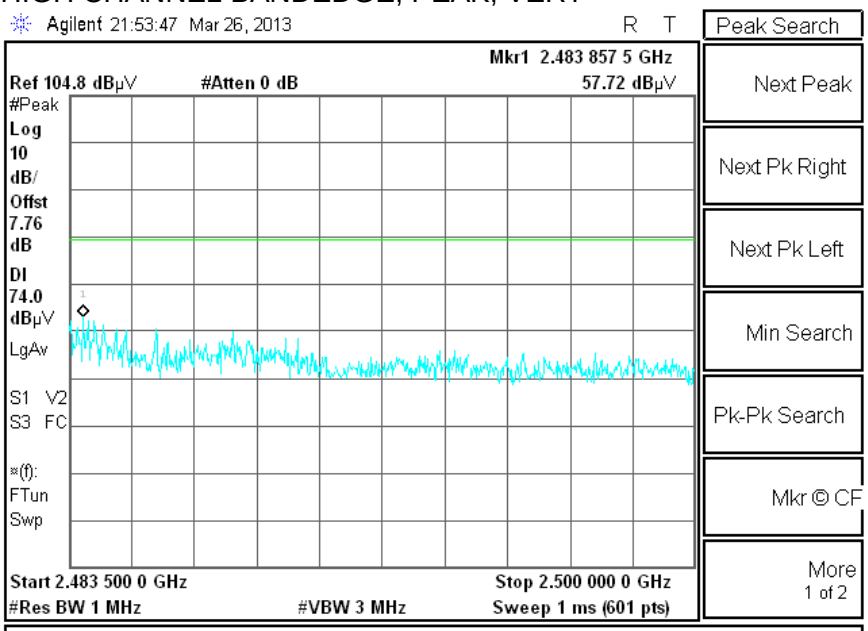


AUTHORIZED BANDEDGE (HIGH CHANNEL)

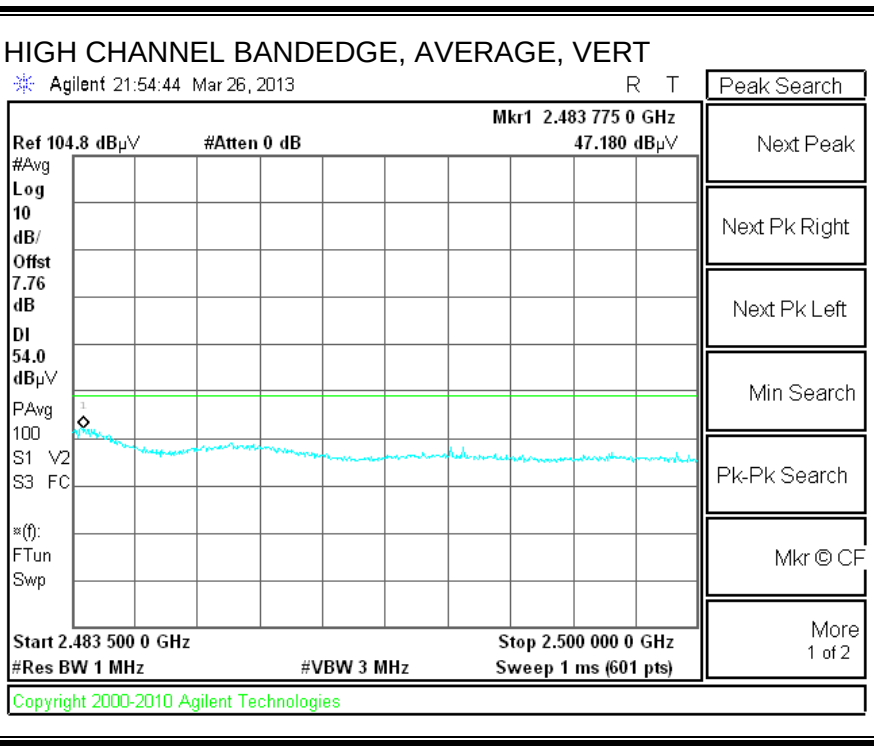




HIGH CHANNEL BANDEDGE, PEAK, VERT



HIGH CHANNEL BANDEDGE, AVERAGE, VERT



HARMONICS AND SPURIOUS EMISSIONS

LOW CH

Project :13U14860

Model / Config:1525
Mode:11n Low ch
Test By:Tony Wang

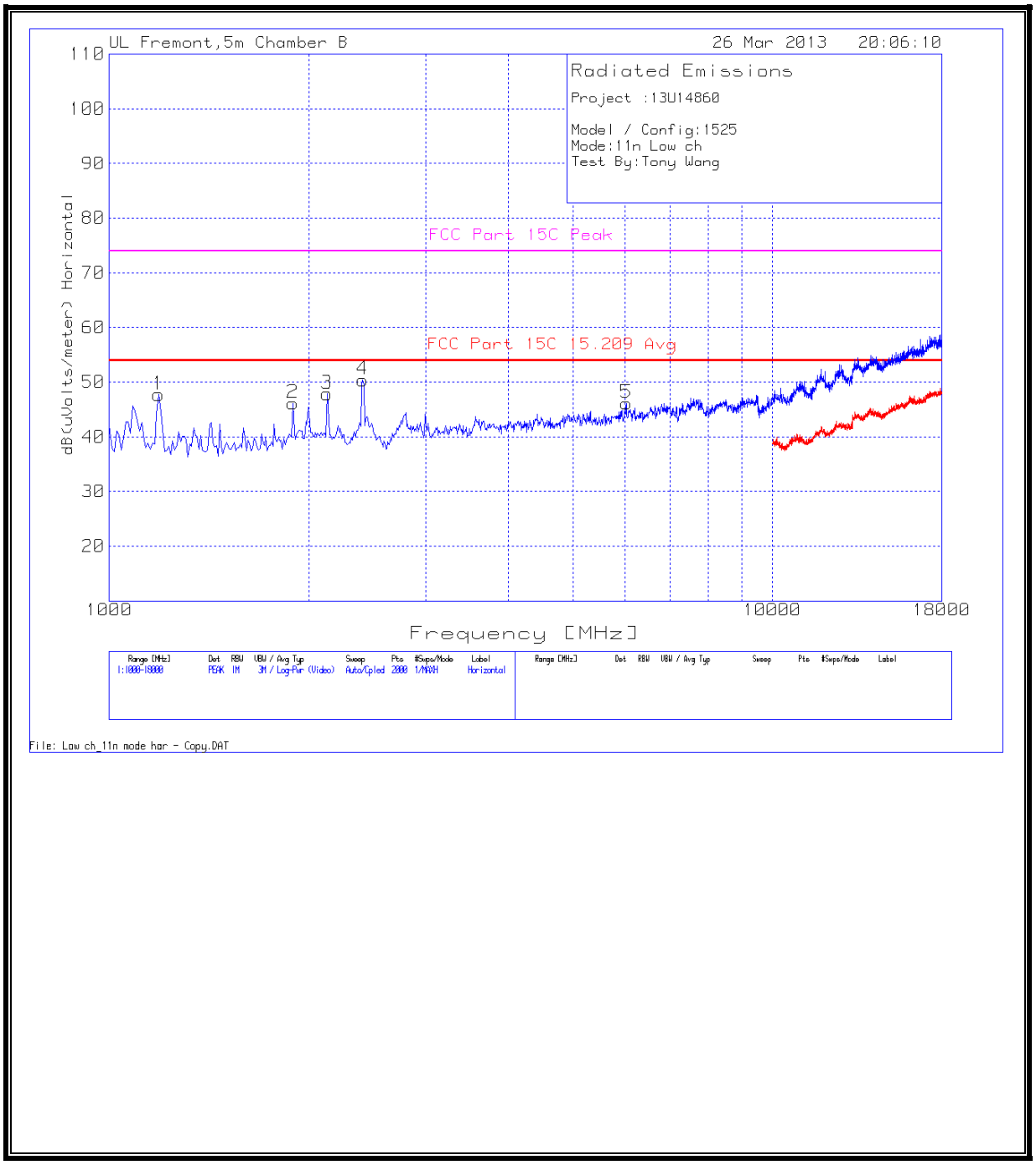
Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T186 BRF 2.4-2.5GHz [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1186.907	51.25	PK	28.30	-35.70	3.40	0.50	47.75	54.0	-6.2	74.0	-26.3	200	Horz	Y	
2	1892.054	45.47	PK	31.10	-35.00	4.10	0.50	46.17	54.0	-7.8	74.0	-27.8	200	Horz	N	
3	2129.935	46.07	PK	32.00	-35.00	4.30	0.50	47.87	54.0	-6.1	74.0	-26.1	200	Horz	N	
4	2410.295	47.94	PK	32.40	-35.00	4.60	0.50	50.44	-	-	-	-	100	Horz	N	(Fundamenta
5	6020.990	36.65	PK	35.90	-34.90	8.00	0.50	46.15	54.0	-7.8	74.0	-27.9	200	Horz	N	
6	1191.730	53.64	PK1	28.30	-35.70	3.40	0.50	50.14	-	-	74.0	-23.9	287	Vert	Y	
	1190.840	39.86	AD1	28.30	-35.70	3.40	0.50	41.36	54.0	-12.6	-	-	287	Vert	Y	
7	1994.003	46.31	PK	31.80	-35.00	4.20	0.50	47.81	54.0	-6.2	74.0	-26.2	100	Vert	N	
8	2125.720	49.69	PK1	32.00	-35.00	4.30	0.50	51.49	-	-	74.0	-22.5	329	Vert	N	
	2125.240	39.07	AD1	32.00	-35.00	4.30	0.50	40.87	54.0	-13.1	-	-	329	Vert	N	
9	2418.791	51.89	PK	32.40	-35.00	4.60	0.50	54.39	-	-	-	-	200	Vert	N	(Fundamenta
10	2792.604	44.67	PK	32.90	-35.10	5.00	0.50	47.97	54.0	-6.0	74.0	-26.0	100	Vert	Y	
11	4381.309	40.16	PK	34.30	-34.90	6.60	0.50	46.66	54.0	-7.3	74.0	-27.3	100	Vert	Y	
12	7227.386	39.08	PK	35.80	-35.00	8.80	0.50	49.18	54.0	-4.8	74.0	-24.8	200	Vert	N	

Notes:

There was no signal from EUT above the system noise floor up to 26 GHz.

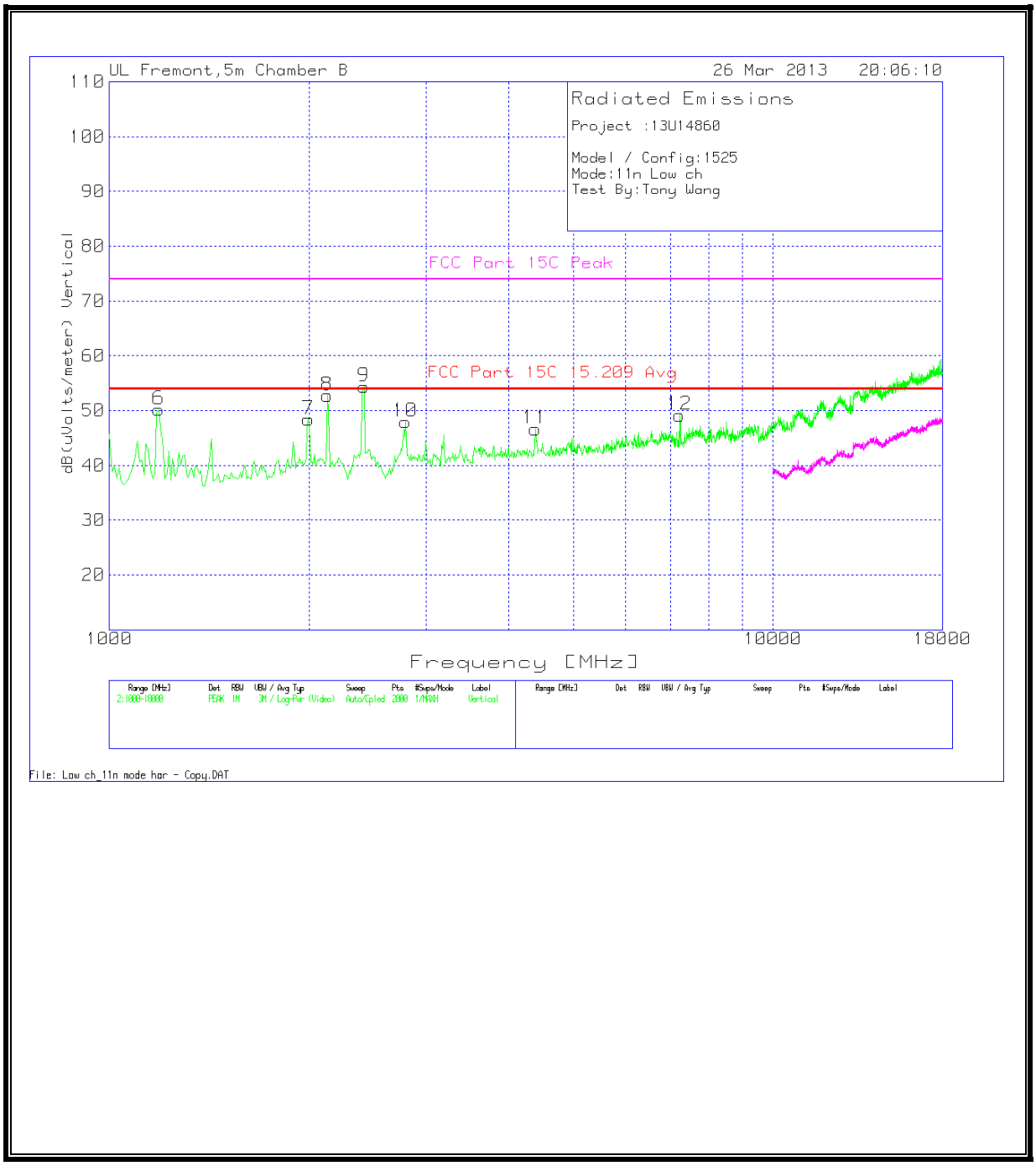
HARMONICS AND SPURIOUS EMISSIONS

LOW CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

LOW CH Vertical



HARMONICS AND SPURIOUS EMISSIONS

MID CH

Project :13U14860

Model / Config:1525
Mode:11n Mid ch
Test By:Tony Wang

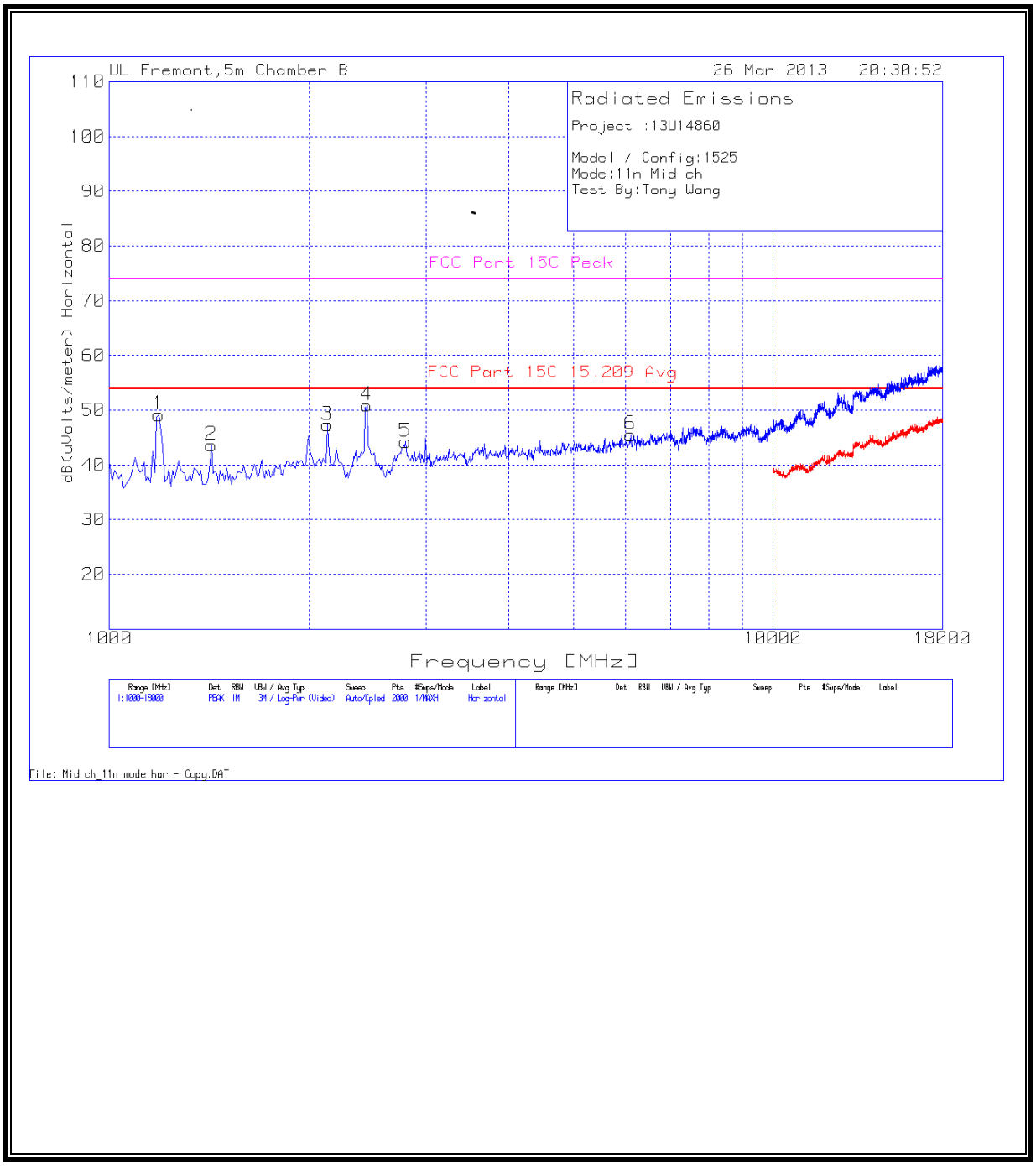
Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T186 BRF 2.4-2.5GHz [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1190.140	53.52	PK1	28.30	-35.70	3.40	0.50	50.03	-	-	74.0	-24.0	279	Horz	Y	
	1189.360	40.08	AD1	28.30	-35.70	3.40	0.50	42.38	54.0	-11.6	-	-	279	Horz	Y	
2	1424.788	46.51	PK	28.30	-35.30	3.60	0.50	43.61	54.0	-10.4	74.0	-30.4	200	Horz	Y	
3	2129.935	45.51	PK	32.00	-35.00	4.30	0.50	47.31	54.0	-6.7	74.0	-26.7	200	Horz	N	
4	2444.278	48.27	PK	32.40	-35.00	4.70	0.50	50.87	-	-	-	-	200	Horz	N	(Fundamental
5	2792.604	40.95	PK	32.90	-35.10	5.00	0.50	44.25	54.0	-9.7	74.0	-29.8	200	Horz	Y	
6	6097.451	36.04	PK	35.90	-34.90	8.00	0.50	45.54	54.0	-8.4	74.0	-28.5	200	Horz	N	
7	1093.453	51.04	PK	27.80	-35.90	3.30	0.50	46.74	54.0	-7.2	74.0	-27.3	200	Vert	Y	
8	1188.230	52.64	PK1	28.30	-35.70	3.40	0.50	49.14	-	-	74.0	-23.9	276	Vert	Y	
	1190.020	38.86	AD1	28.30	-35.70	3.40	0.50	40.36	54.0	-13.6	-	-	276	Vert	Y	
9	1424.788	50.75	PK	28.30	-35.30	3.60	0.50	47.85	54.0	-6.1	74.0	-26.2	100	Vert	Y	
10	2125.720	49.19	PK1	32.00	-35.00	4.30	0.50	51.99	-	-	74.0	-22.0	290	Vert	N	
	2125.240	38.09	AD1	32.00	-35.00	4.30	0.50	39.89	54.0	-14.1	-	-	290	Vert	N	
11	2435.782	51.71	PK	32.40	-35.00	4.70	0.50	54.31	-	-	-	-	200	Vert	N	(Fundamental
12	2783.900	49.33	PK1	32.80	-35.10	5.00	0.50	52.53	-	-	74.0	-21.7	137	Vert	Y	
	2782.350	35.45	AD1	32.80	-35.10	5.00	0.50	38.65	54.0	-15.3	-	-	137	Vert	Y	
13	3183.408	39.97	PK	33.20	-35.10	5.40	0.50	43.97	54.0	-10.0	74.0	-30.0	100	Vert	N	
14	7306.410	47.71	PK1	35.80	-35.00	8.90	0.50	57.91	-	-	74.0	-16.1	125	Vert	Y	
	7311.930	33.23	AD1	35.80	-35.00	8.90	0.50	43.43	54.0	-10.5	-	-	125	Vert	Y	

Notes:

There was no signal from EUT above the system noise floor up to 26 GHz.

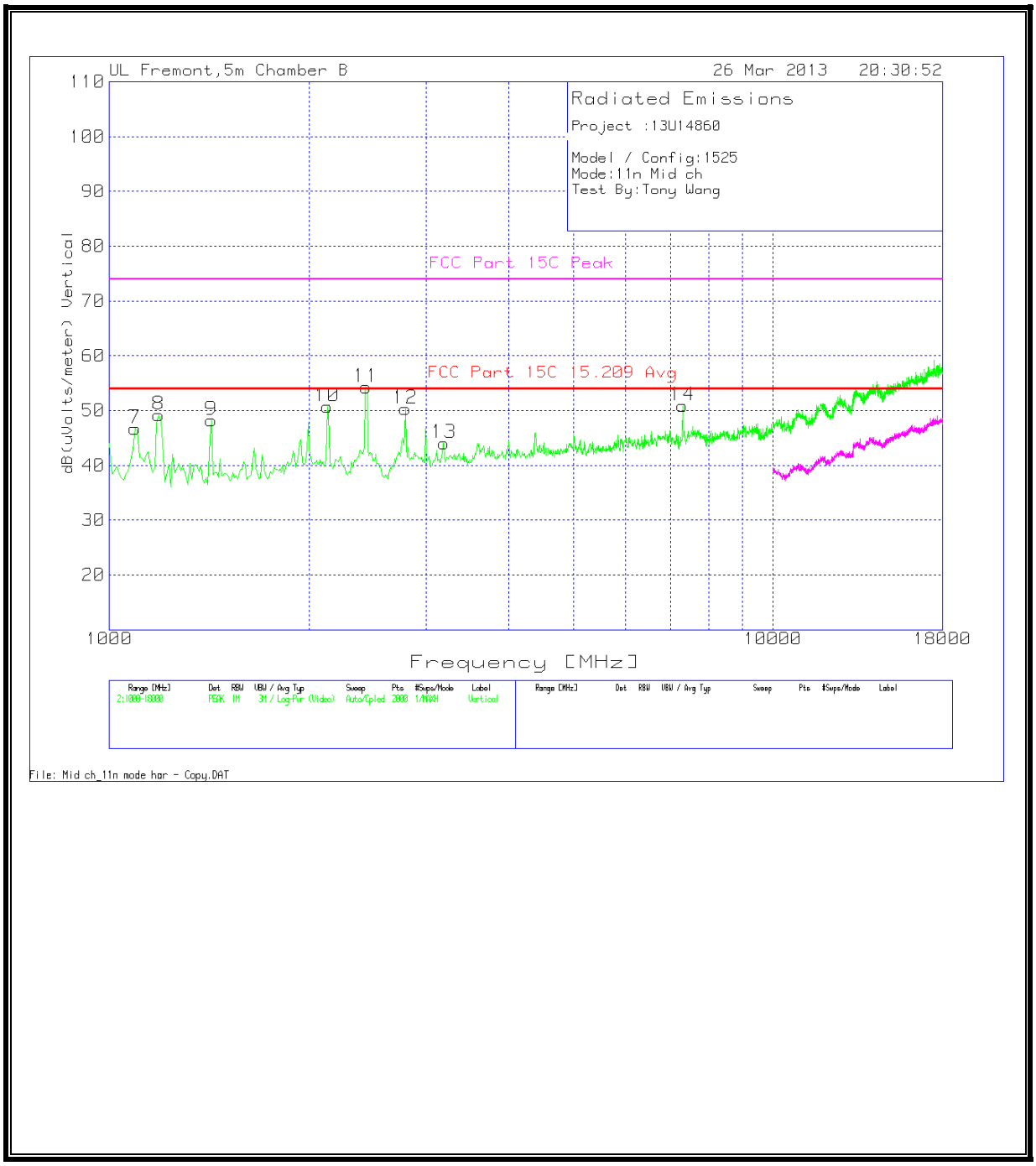
HARMONICS AND SPURIOUS EMISSIONS

MID CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

MID CH Vertical



HARMONICS AND SPURIOUS EMISSIONS

HIGH CH

Project :13U14860

Model / Config:1525
Mode:11n High ch
Test By:Tony Wang

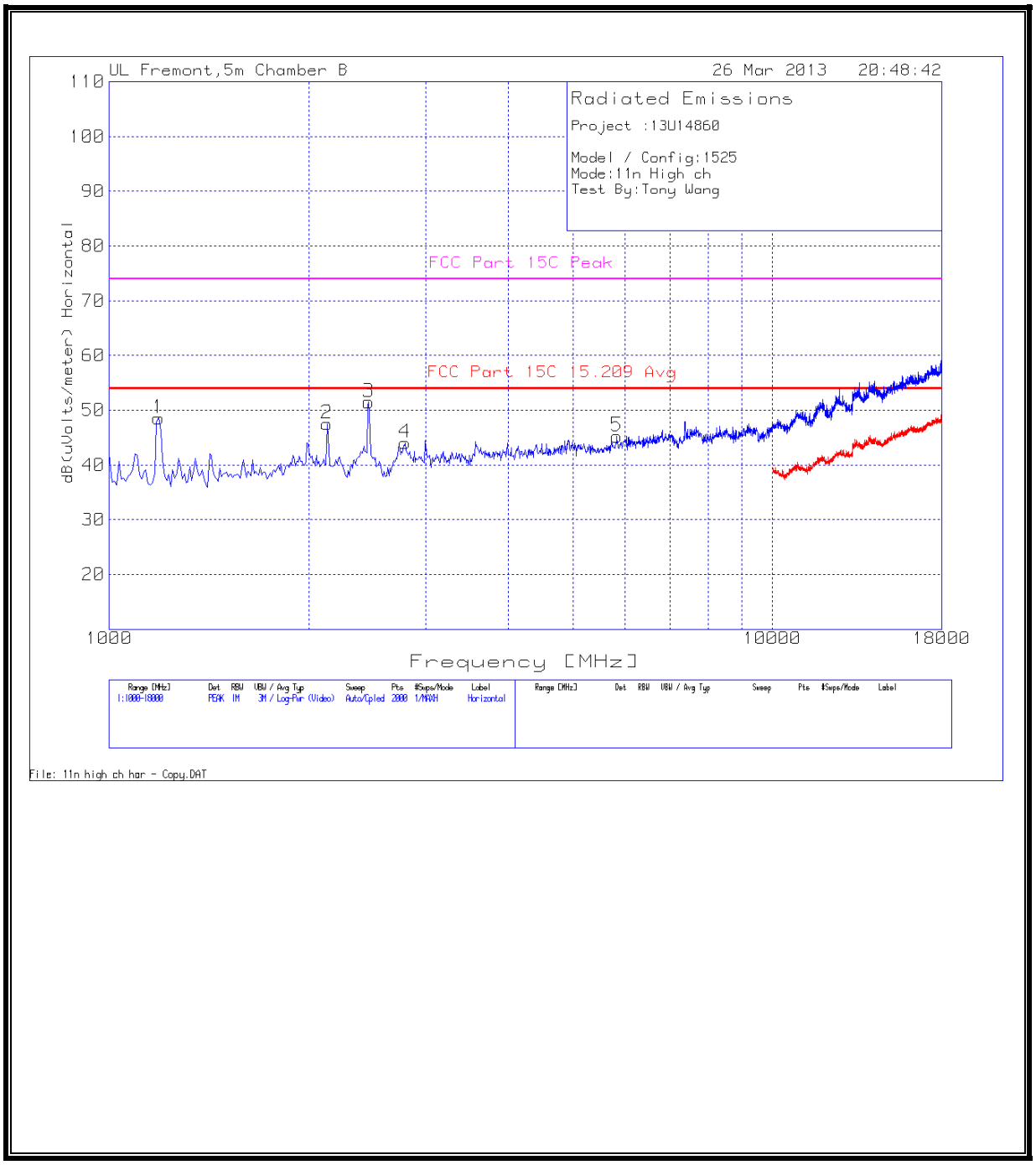
Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T186 BRF 2.4-2.5GHz [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1186.907	31.35	PK	28.30	-35.70	3.40	0.50	47.85	54.0	-6.1	74.0	-26.2	200	Horz	Y	
2	2129.935	45.72	PK	32.00	-35.00	4.30	0.50	47.52	54.0	-6.5	74.0	-26.5	200	Horz	N	
3	2461.269	48.90	PK	32.40	-35.00	4.70	0.50	51.50	-	-	-	-	100	Horz	N	(Fundamental)
4	2792.604	40.77	PK	32.90	-35.10	5.00	0.50	44.07	54.0	-9.9	74.0	-29.9	200	Horz	Y	
5	5825.587	36.45	PK	35.40	-34.90	7.80	0.50	45.25	54.0	-8.7	74.0	-28.8	200	Horz	N	
6	1188.230	53.64	PK1	28.30	-35.70	3.40	0.50	50.14	-	-	74.0	-22.9	278	Vert	Y	
	1190.020	38.56	AD1	28.30	-35.70	3.40	0.50	40.06	54.0	-13.9	-	-	278	Vert	Y	
7	1424.788	50.29	PK	28.30	-35.30	3.60	0.50	47.39	54.0	-6.6	74.0	-26.6	200	Vert	Y	
8	1996.600	48.22	PK1	31.80	-35.00	4.20	0.50	49.72	-	-	74.0	-24.3	100	Vert	N	
	1997.900	37.37	AD1	31.80	-35.00	4.20	0.50	38.87	54.0	-15.1	-	-	100	Vert	N	
9	2127.810	47.19	PK1	32.00	-35.00	4.30	0.50	49.99	-	-	74.0	-24.0	200	Vert	N	
	2126.950	37.04	AD1	32.00	-35.00	4.30	0.50	38.84	54.0	-15.0	-	-	200	Vert	N	
10	2461.269	51.23	PK	32.40	-35.00	4.70	0.50	53.83	-	-	-	-	200	Vert	N	(Fundamental)
11	2792.604	44.52	PK	32.90	-35.10	5.00	0.50	47.82	54.0	-6.2	74.0	-26.2	100	Vert	Y	
12	3582.709	40.63	PK	33.40	-35.00	5.80	0.50	45.33	54.0	-8.6	74.0	-28.7	100	Vert	N	
13	7384.480	48.23	PK1	35.90	-35.00	8.90	0.50	58.53	-	-	74.0	-15.5	180	Vert	Y	
	7388.600	31.32	AD1	35.90	-35.00	8.90	0.50	41.62	54.0	-12.4	-	-	180	Vert	Y	

Notes:

There was no signal from EUT above the system noise floor up to 26 GHz.

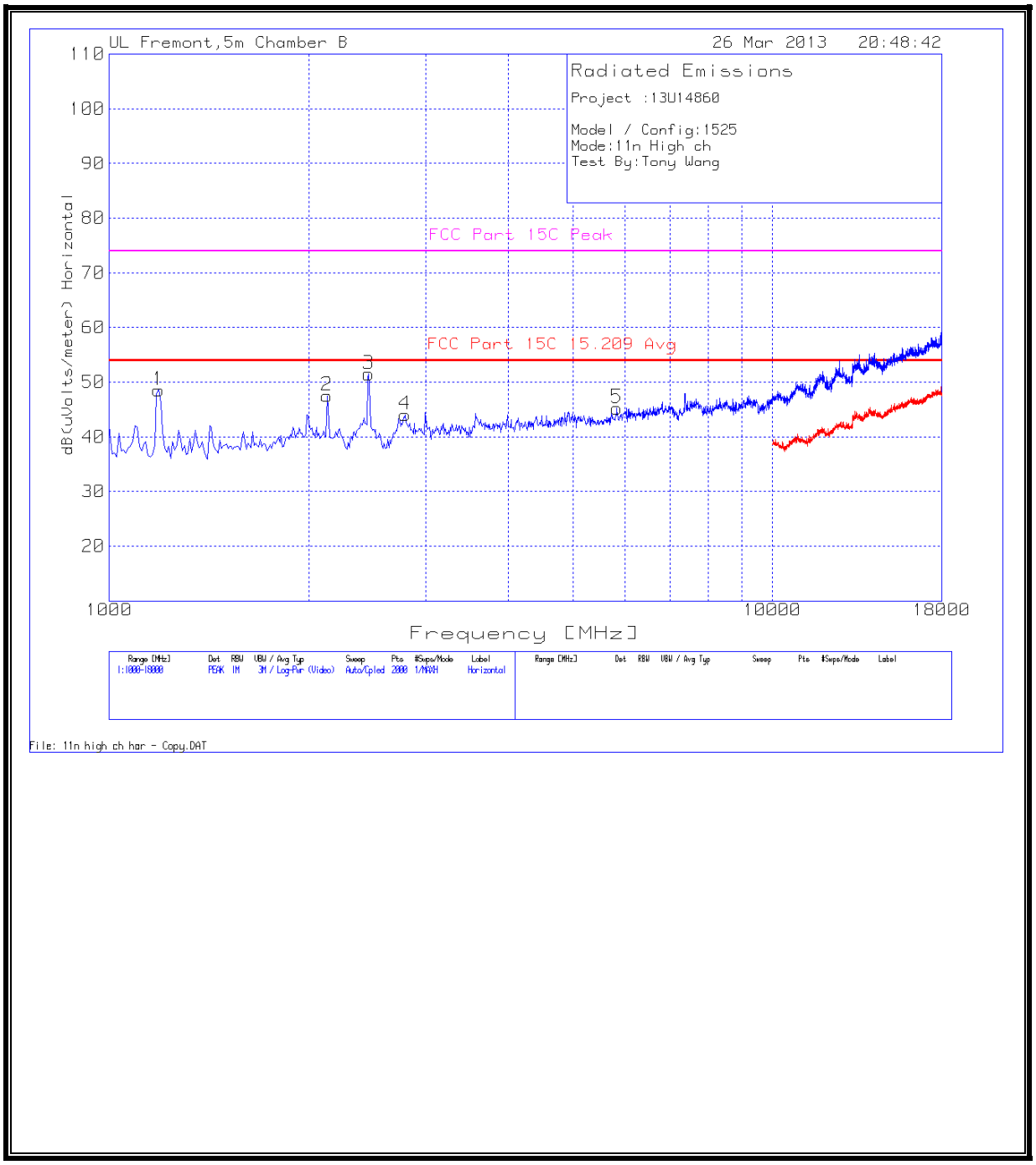
HARMONICS AND SPURIOUS EMISSIONS

HIGH CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

HIGH CH Vertical



9.2.4. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

LOW CH

Project :13U14860

Model / Config:1525

Mode:11na 5.8ghz low ch set16

Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T162 5.8GHz BRF [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1910.345	43.89	PK	31.20	-35.00	4.10	0.10	44.29	54.0	-9.7	74.0	-29.7	100	Horz	N	
2	3668.366	41.27	PK	33.60	-35.00	5.90	0.20	45.97	54.0	-8.0	74.0	-28.0	100	Horz	Y	
9	5739.730	42.93	PK	35.20	-34.90	7.80	0.90	51.93	-	-	-	-	200	Horz	N	(Fundamental
3	6099.250	37.28	PK	35.90	-34.90	8.00	0.70	46.98	54.0	-7.0	74.0	-27.0	100	Horz	N	
7	7865.067	36.56	PK	36.20	-35.10	9.20	0.40	47.26	54.0	-6.7	74.0	-26.7	200	Horz	N	
4	1844.378	43.88	PK	30.70	-35.10	4.00	0.10	43.58	54.0	-10.4	74.0	-30.4	100	Vert	N	
5	3734.333	41.80	PK	33.80	-34.90	6.00	0.00	46.70	54.0	-7.3	74.0	-27.3	200	Vert	Y	
10	5743.028	45.91	PK	35.20	-34.90	7.80	0.90	54.91	-	-	-	-	200	Vert	N	(Fundamental
6	6194.903	36.90	PK	36.00	-34.90	8.10	0.50	46.60	54.0	-7.4	74.0	-27.4	200	Vert	N	
8	8260.070	36.86	PK	36.10	-35.20	9.40	0.20	47.36	54.0	-6.6	74.0	-26.6	200	Vert	Y	

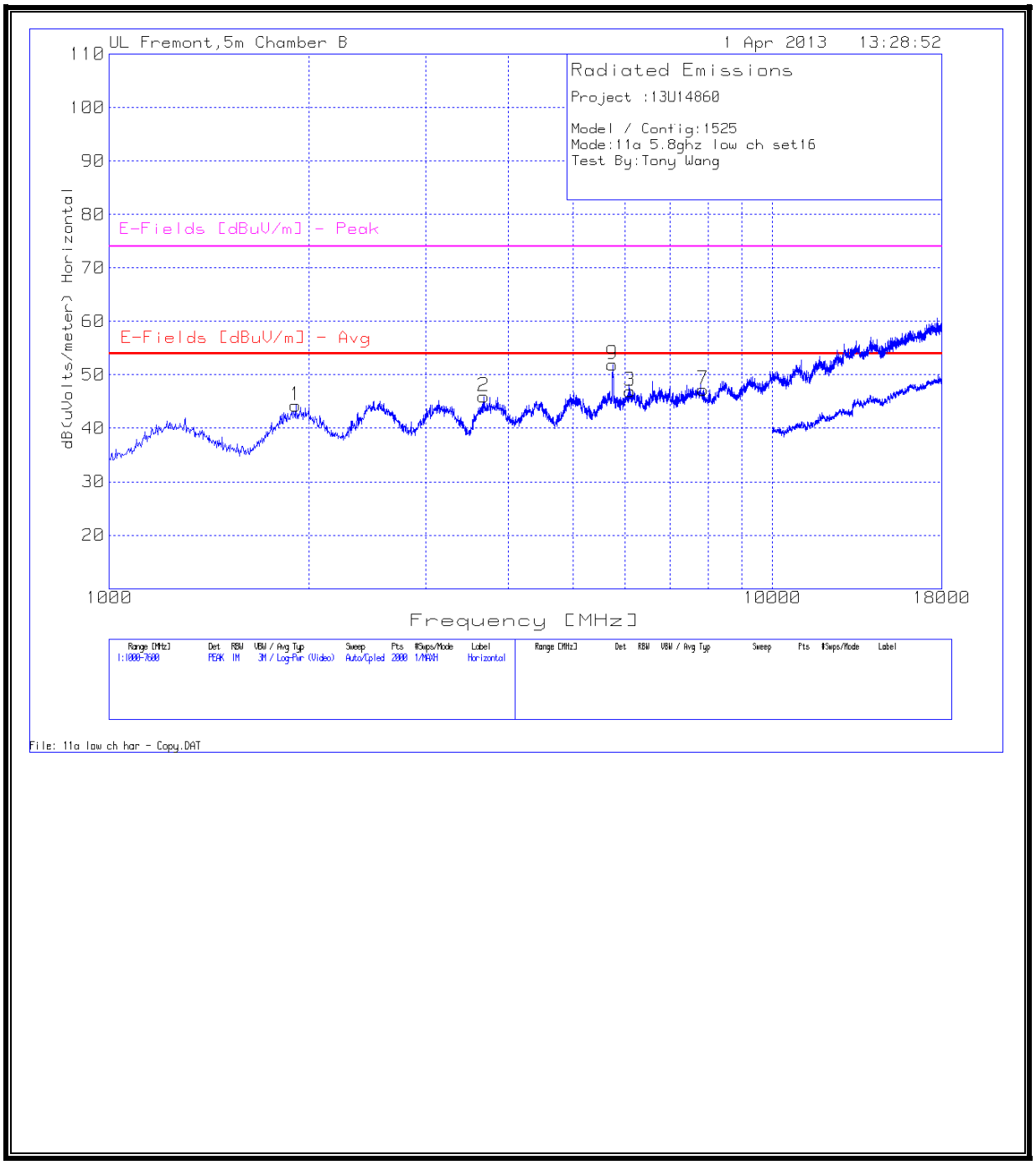
Notes:

1) The PK limit of 74 dBuV/m and the AVG limit of 54 dBuV/m only apply in restricted bands, outside restricted bands the limit is 68.3dBuV/m (-27dBm/MHz eirp). The plots and discrete measurements all show peak emissions are below 54dBuV/m from 1- 10 GHz, above 10 GHz emissions exceed the 54dBuV/m but are below 68dBuV/m.

2) There was no signal from EUT above the system noise floor up to 40 GHz.

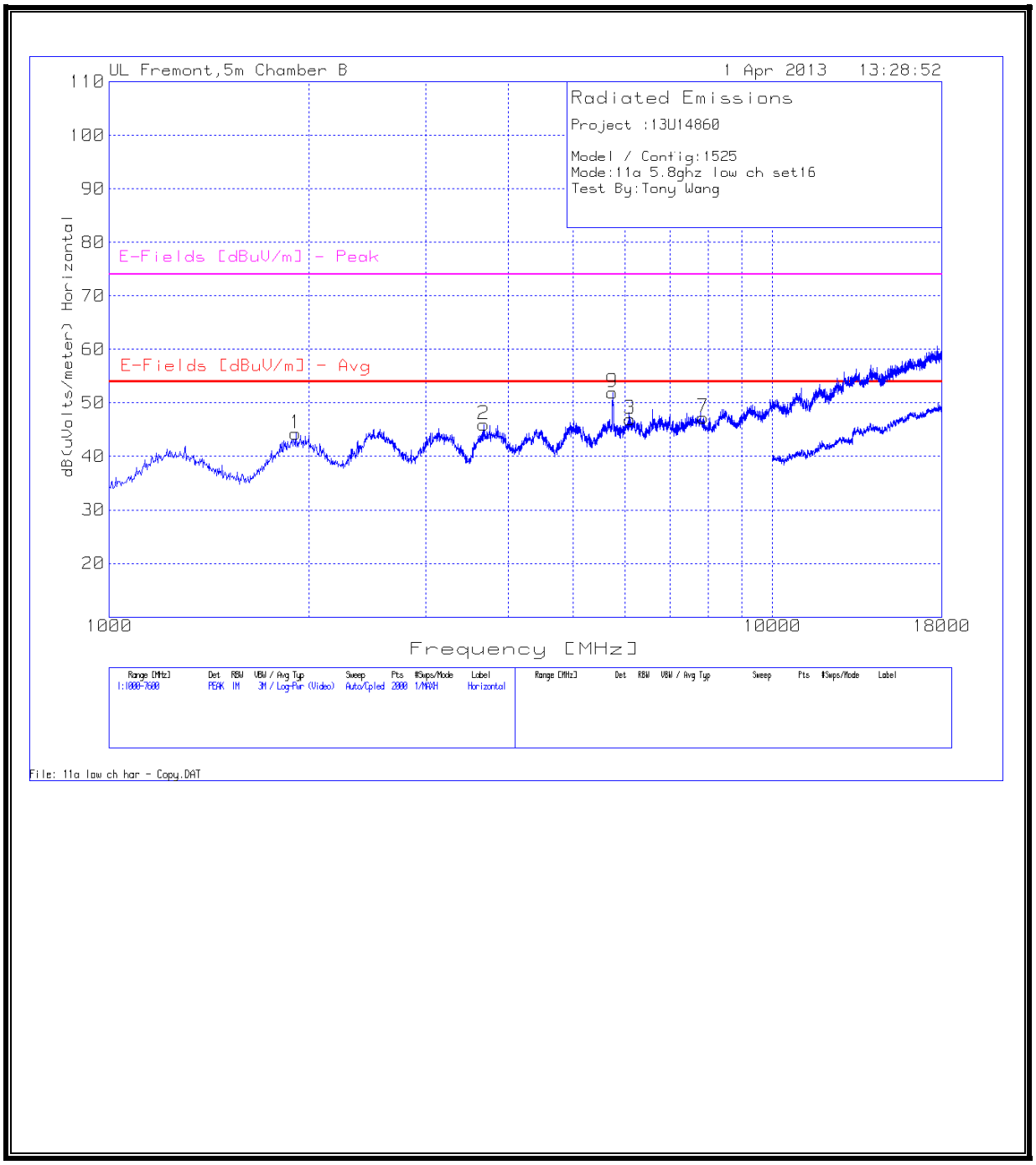
HARMONICS AND SPURIOUS EMISSIONS

LOW CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

LOW CH Vertical



HARMONICS AND SPURIOUS EMISSIONS

MID CH

Project :13U14860

Model / Config:1525

Mode:11a 5.8ghz Mid ch set16

Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T162 5.8GHz BRF [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1903.748	43.39	PK	31.10	-35.00	4.10	0.10	43.69	54.0	-10.3	74.0	-30.3	100	Horz	N	
2	3170.315	41.33	PK	33.20	-35.20	5.40	0.20	44.93	54.0	-9.0	74.0	-29.1	200	Horz	N	
3	4426.987	38.70	PK	34.40	-34.90	6.70	0.20	45.10	54.0	-8.9	74.0	-28.9	100	Horz	N	
9	5782.609	42.15	PK	35.30	-34.90	7.80	0.90	51.25	-	-	-	-	200	Horz	N	(Fundamental
7	7703.948	37.20	PK	36.20	-35.10	9.10	0.40	47.80	54.0	-6.2	74.0	-26.2	100	Horz	Y	
4	1963.118	43.25	PK	31.50	-35.00	4.20	0.10	44.05	54.0	-9.9	74.0	-30.0	100	Vert	N	
5	2639.280	42.23	PK	32.70	-35.10	4.90	0.20	44.93	54.0	-9.0	74.0	-29.1	200	Vert	N	
6	5103.148	39.26	PK	34.70	-34.90	7.30	0.30	46.66	54.0	-7.3	74.0	-27.3	200	Vert	Y	
10	5782.609	46.58	PK	35.30	-34.90	7.80	0.90	55.68	-	-	-	-	200	Vert	N	(Fundamental
8	8951.324	36.08	PK	36.70	-35.30	9.90	0.40	47.78	54.0	-6.2	74.0	-26.2	200	Vert	N	

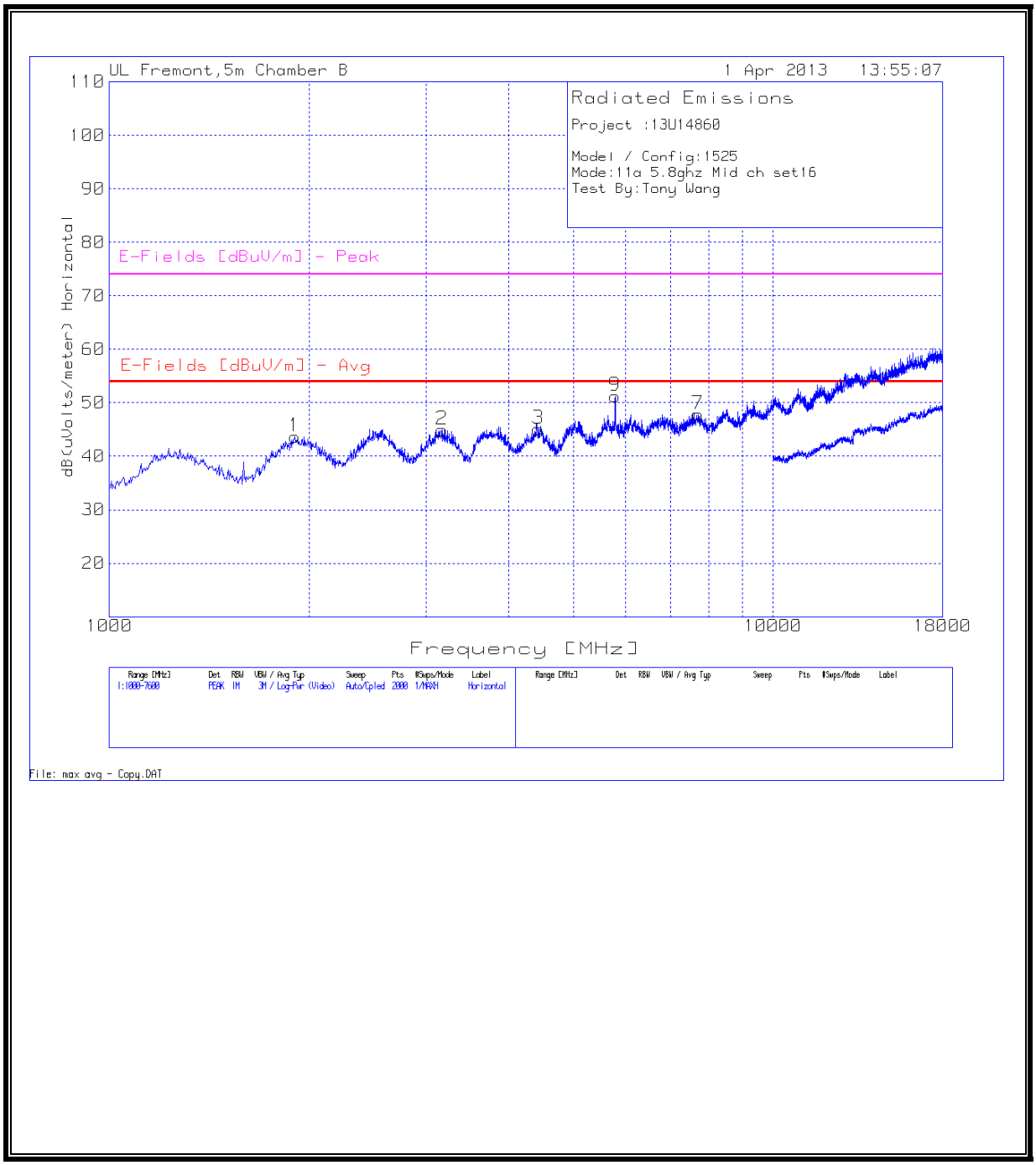
Notes:

1) The PK limit of 74 dBuV/m and the AVG limit of 54 dBuV/m only apply in restricted bands, outside restricted bands the limit is 68.3dBuV/m (-27dBm/MHz eirp). The plots and discrete measurements all show peak emissions are below 54dBuV/m from 1- 10 GHz, above 10 GHz emissions exceed the 54dBuV/m but are below 68dBuV/m.

2) There was no signal from EUT above the system noise floor up to 40 GHz.

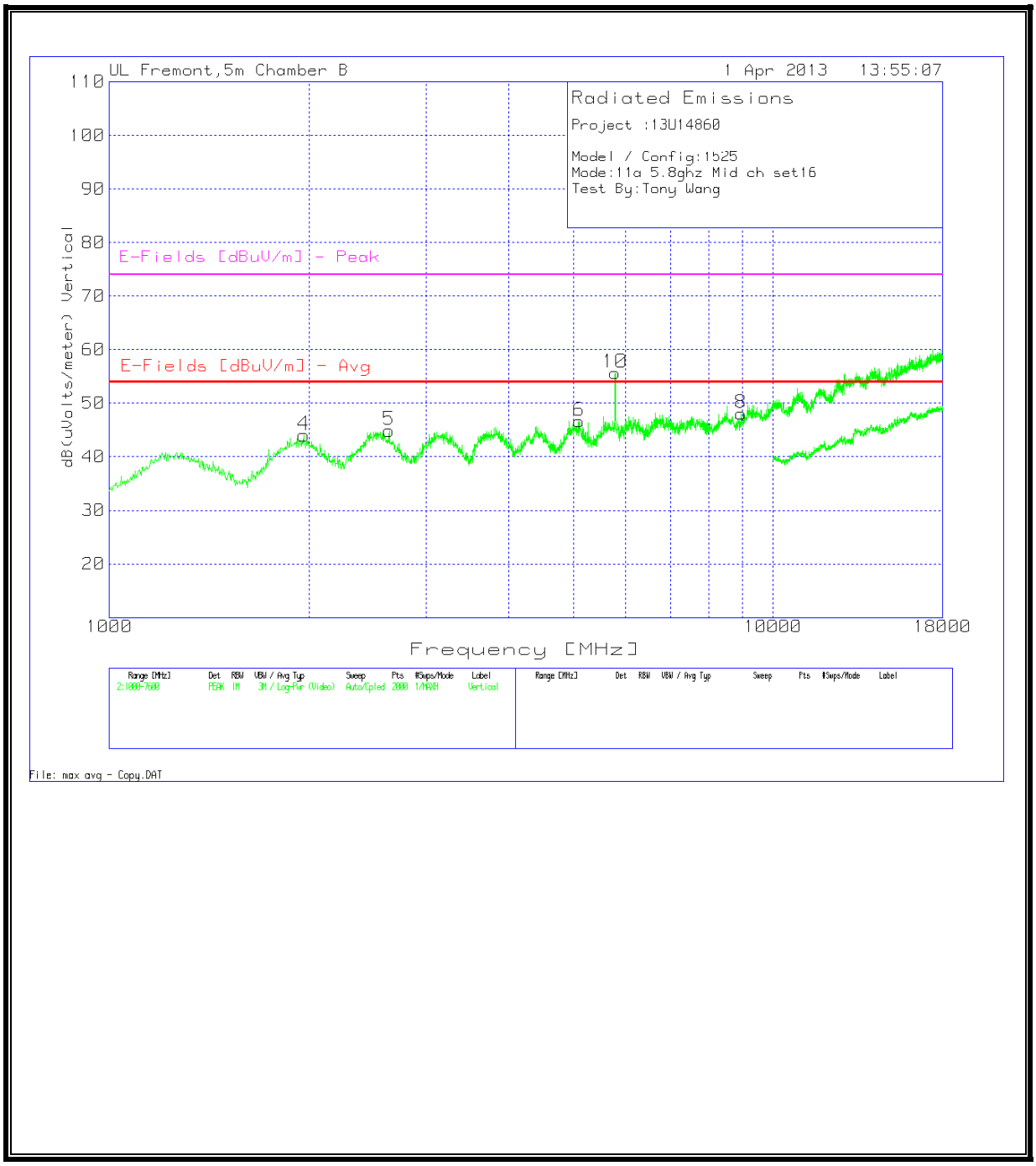
HARMONICS AND SPURIOUS EMISSIONS

MID CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

MID CH Vertical



HARMONICS AND SPURIOUS EMISSIONS

HIGH CH

Project :13U14860

Model / Config:1525

Mode:11a 5.8ghz High ch set16

Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T162 5.8GHz BRF [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1890.555	42.67	PK	31.10	-35.00	4.10	0.10	42.97	54.0	-11.0	74.0	-31.0	348	Horz	N	
2	2652.474	41.77	PK	32.70	-35.10	4.90	0.20	44.47	54.0	-9.5	74.0	-29.5	248	Horz	N	
3	4928.336	39.31	PK	34.60	-34.90	7.10	0.30	46.41	54.0	-7.6	74.0	-27.6	248	Horz	Y	
10	5825.487	42.33	PK	35.40	-34.90	7.80	0.90	51.53	-	-	-	-	348	Horz	N	(Fundamental)
4	6316.942	36.99	PK	36.00	-35.00	8.20	0.30	46.49	54.0	-7.5	74.0	-27.5	248	Horz	N	
8	7896.252	36.77	PK	36.10	-35.20	9.20	0.30	47.17	54.0	-6.8	74.0	-26.8	200	Horz	N	
5	1926.837	43.17	PK	31.30	-35.00	4.10	0.10	43.67	54.0	-10.3	74.0	-30.3	200	Vert	N	
6	2579.910	42.80	PK	32.60	-35.10	4.80	0.20	45.30	54.0	-8.7	74.0	-28.7	200	Vert	N	
7	3797.001	40.25	PK	33.80	-34.90	6.00	0.30	45.45	54.0	-8.5	74.0	-28.6	100	Vert	Y	
11	5822.189	45.40	PK	35.40	-34.90	7.80	0.90	54.60	-	-	-	-	200	Vert	N	(Fundamental)
9	8410.795	37.10	PK	36.20	-35.20	9.50	0.20	47.80	54.0	-6.2	74.0	-26.2	200	Vert	Y	

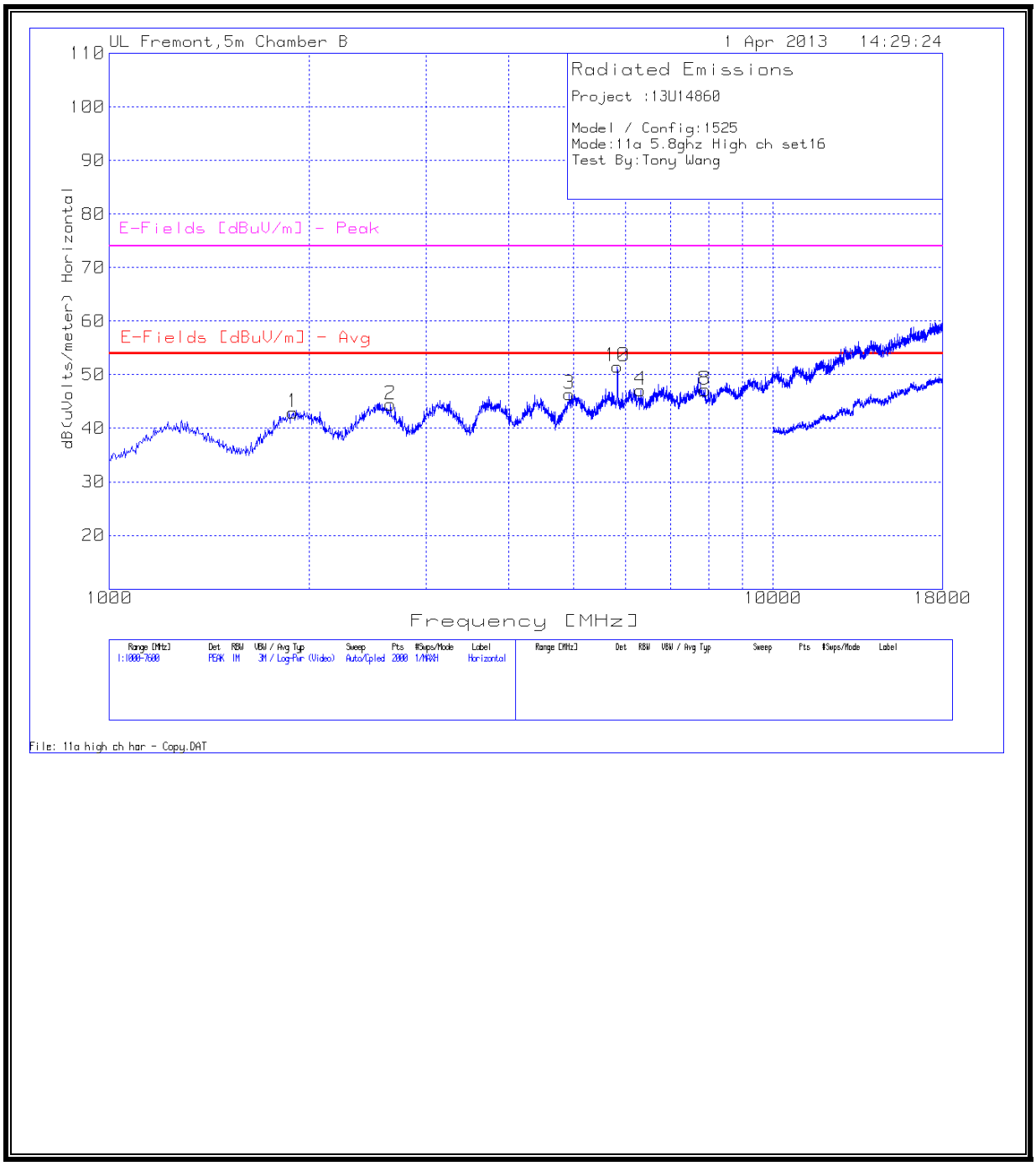
Notes:

1) The PK limit of 74 dBuV/m and the AVG limit of 54 dBuV/m only apply in restricted bands, outside restricted bands the limit is 68.3dBuV/m (-27dBm/MHz eirp). The plots and discrete measurements all show peak emissions are below 54dBuV/m from 1- 10 GHz, above 10 GHz emissions exceed the 54dBuV/m but are below 68dBuV/m.

2) There was no signal from EUT above the system noise floor up to 40 GHz.

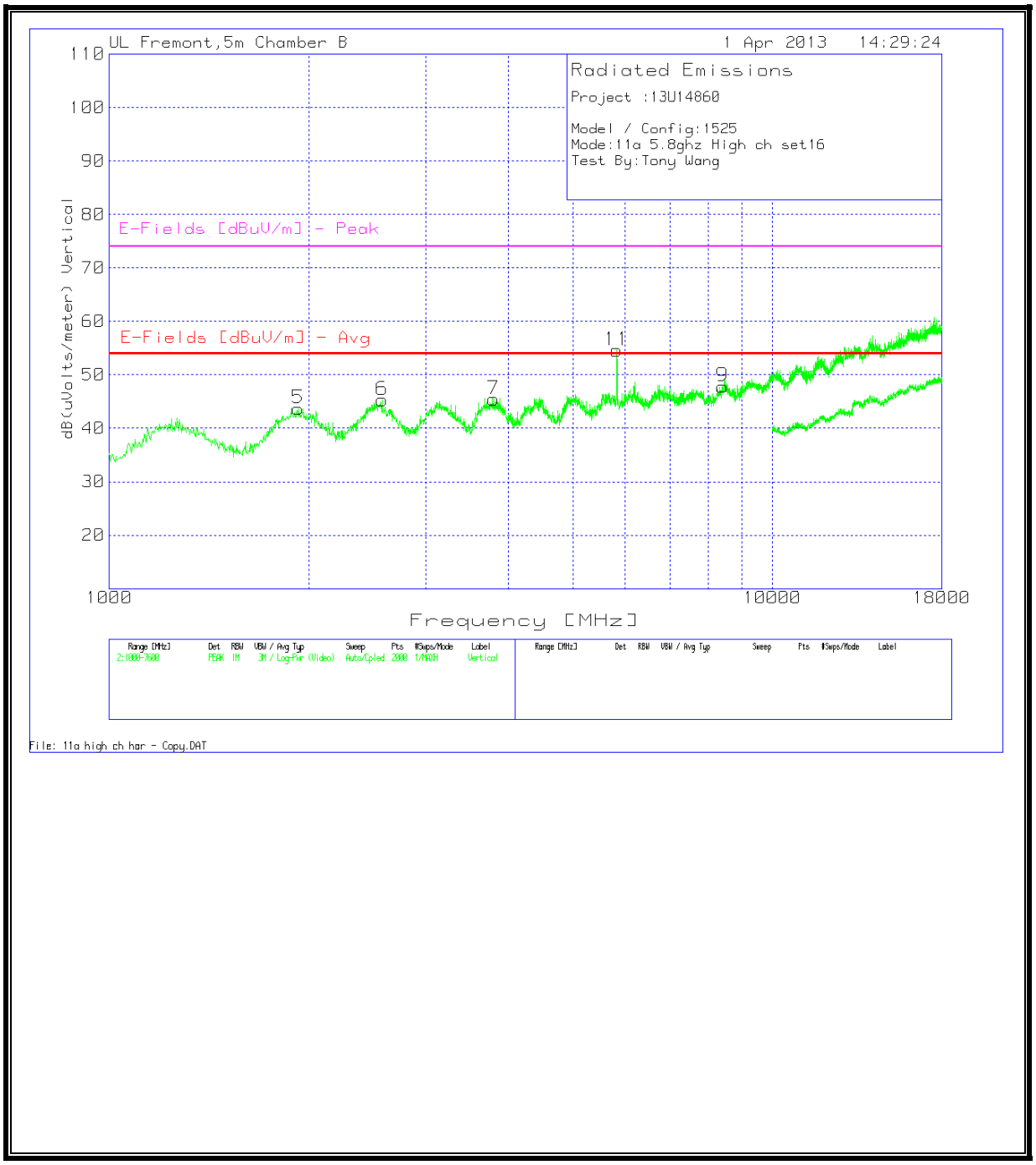
HARMONICS AND SPURIOUS EMISSIONS

HIGH CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

HIGH CH Vertical



9.2.5. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

LOW CH

Project :13U14860

Model / Config:1525

Mode:11n20 5.8GHz low ch set15

Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T162 5.8GHz BRF [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1194.010	55.59	PK1	28.30	-35.70	3.40	0.10	51.69	-	-	74.0	-22.3	178	Horz	Y	
	1197.560	39.34	AD1	28.30	-35.70	3.40	0.10	35.44	54.0	-18.5	-	-	178	Horz	Y	
2	1998.370	45.01	PK1	31.80	-35.00	4.20	0.10	46.11	-	-	74.0	-27.9	206	Horz	N	
	2000.010	33.04	AD1	31.80	-35.00	4.20	0.10	34.14	54.0	-19.8	-	-	206	Horz	N	
3	2791.004	44.97	PK	32.80	-35.10	5.00	0.20	47.87	54.0	-6.1	74.0	-26.1	200	Horz	Y	
9	5749.625	41.03	PK	35.20	-34.90	7.80	0.90	50.03	-	-	-	-	100	Horz	N	(Fundamental)
4	6011.590	41.50	PK1	35.90	-34.90	8.00	0.90	51.40	-	-	74.0	-22.6	137	Horz	N	
	6006.670	30.99	AD1	35.90	-34.90	8.00	0.90	40.89	54.0	-13.1	-	-	137	Horz	N	
5	1195.660	58.89	PK1	28.30	-35.70	3.40	0.10	54.99	-	-	74.0	-19.0	149	Vert	Y	
	1195.430	42.73	AD1	28.30	-35.70	3.40	0.10	38.83	54.0	-15.1	-	-	149	Vert	Y	
6	1997.430	55.31	PK1	31.80	-35.00	4.20	0.10	56.41	-	-	74.0	-17.6	103	Vert	N	
	1995.380	39.47	AD1	31.80	-35.00	4.20	0.10	40.57	54.0	-13.4	-	-	103	Vert	N	
7	2780.830	46.18	PK1	32.80	-35.10	5.00	0.20	49.08	-	-	74.0	-24.9	107	Vert	Y	
	2777.650	32.50	AD1	32.80	-35.10	5.00	0.20	35.40	54.0	-18.6	-	-	107	Vert	Y	
10	5749.625	41.14	PK	35.20	-34.90	7.80	0.90	50.14	-	-	-	-	100	Vert	N	(Fundamental)
8	6031.770	39.59	PK1	35.90	-34.90	8.00	0.90	49.49	-	-	74.0	-24.5	147	Vert	N	
	6031.660	29.39	AD1	35.90	-34.90	8.00	0.90	39.29	54.0	-14.7	-	-	147	Vert	N	

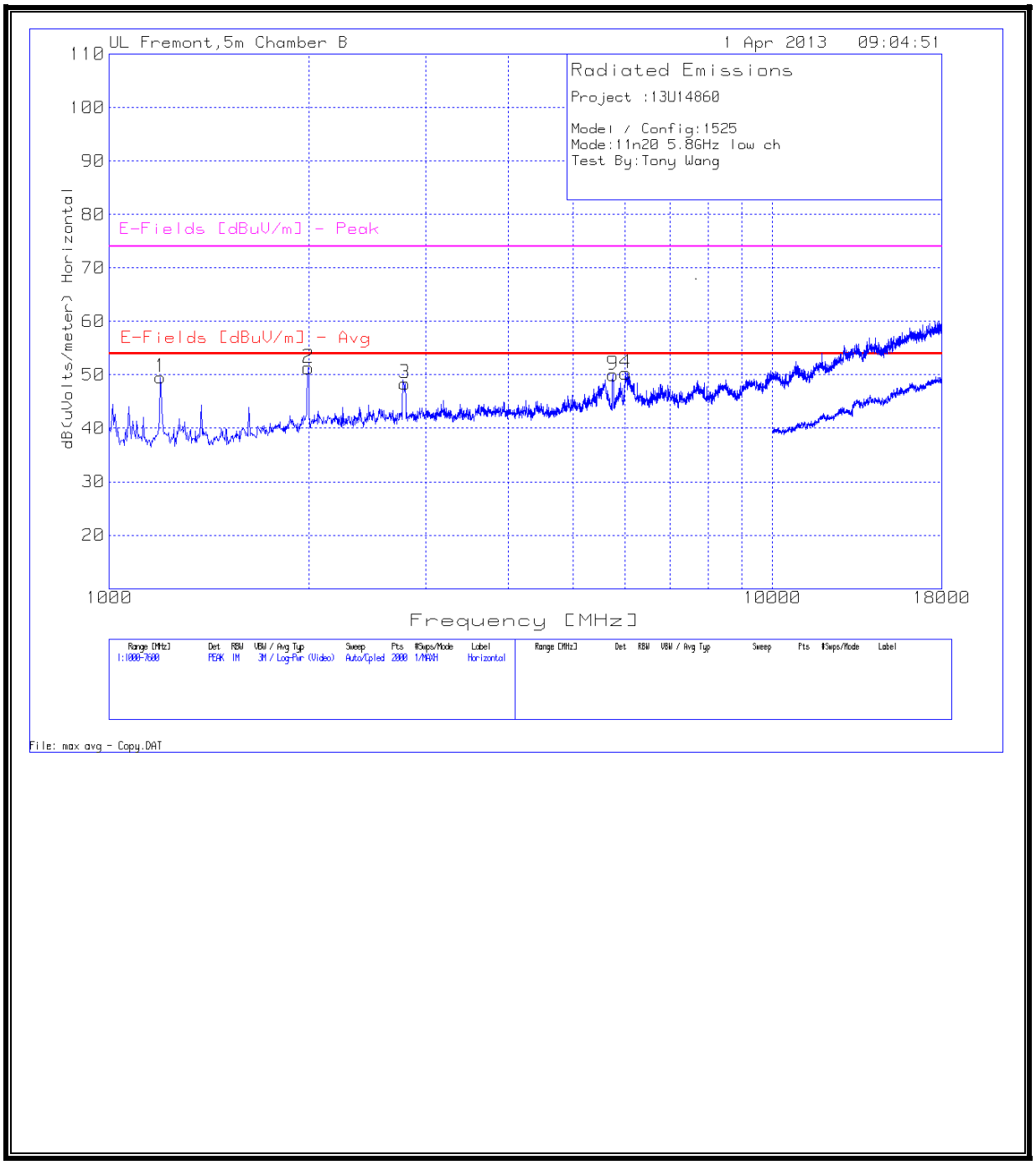
Notes:

1) The PK limit of 74 dBuV/m and the AVG limit of 54 dBuV/m only apply in restricted bands, outside restricted bands the limit is 68.3dBuV/m (-27dBm/MHz eirp). The plots and discrete measurements all show peak emissions are below 54dBuV/m from 1- 10 GHz, above 10 GHz emissions exceed the 54dBuV/m but are below 68dBuV/m.

2) There was no signal from EUT above the system noise floor up to 40 GHz.

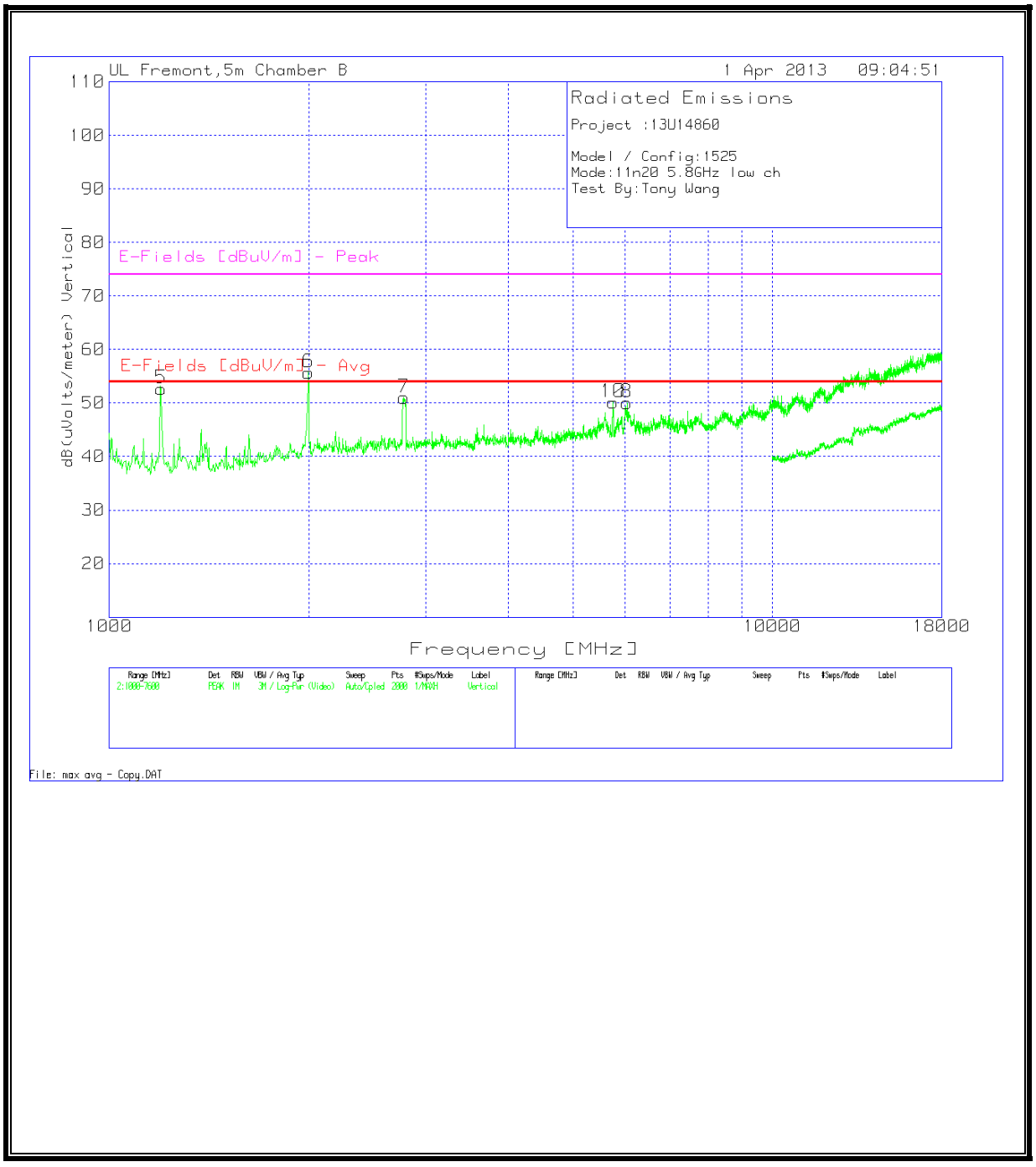
HARMONICS AND SPURIOUS EMISSIONS

LOW CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

LOW CH Vertical



HARMONICS AND SPURIOUS EMISSIONS

MID CH

Project :13U14860

Model / Config:1525

Mode:11n20 5.8ghz mid ch

Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T162 5.8GHz BRF [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1913.643	43.19	PK	31.20	-35.00	4.10	0.10	43.59	54.0	-10.4	74.0	-30.4	100	Horz	N	
2	2553.523	42.83	PK	32.60	-35.10	4.80	0.20	45.33	54.0	-8.6	74.0	-28.7	200	Horz	N	
3	3754.123	40.60	PK	33.80	-34.90	6.00	0.00	45.50	54.0	-8.5	74.0	-28.5	100	Horz	Y	
11	5789.205	40.59	PK	35.30	-34.90	7.80	0.90	49.69	-	-	-	-	200	Horz	N	(Fundamental
4	6775.412	37.53	PK	35.80	-35.00	8.50	0.20	47.03	54.0	-6.9	74.0	-27.0	100	Horz	N	
9	7732.520	37.33	PK1	36.20	-35.10	9.10	0.30	47.83	-	-	74.0	-26.2	200	Horz	Y	
	7728.550	27.18	AD1	36.20	-35.10	9.10	0.30	37.68	54.0	-16.3	-	-	200	Horz	Y	
	12794.720	33.96	PK1	39.20	-32.10	12.00	0.30	53.36	-	-	74.0	-20.6	163	Horz	N	
	12788.880	24.20	AD1	39.20	-32.10	12.00	0.10	43.40	54.0	-10.6	-	-	163	Horz	N	
5	1923.538	43.61	PK	31.30	-35.00	4.10	0.10	44.11	54.0	-9.9	74.0	-29.9	100	Vert	N	
6	2484.258	42.60	PK	32.50	-35.00	4.70	0.20	45.00	54.0	-9.0	74.0	-29.0	100	Vert	Y	
7	3836.582	39.93	PK	33.80	-34.90	6.10	0.20	45.13	54.0	-8.8	74.0	-28.9	100	Vert	Y	
12	5789.205	44.89	PK	35.30	-34.90	7.80	0.90	53.99	-	-	-	-	200	Vert	N	(Fundamental
8	6175.112	37.55	PK	36.00	-34.90	8.10	0.50	47.25	54.0	-6.7	74.0	-26.8	200	Vert	N	
10	7797.501	36.57	PK	36.20	-35.10	9.20	0.40	47.27	54.0	-6.7	74.0	-26.7	200	Vert	N	

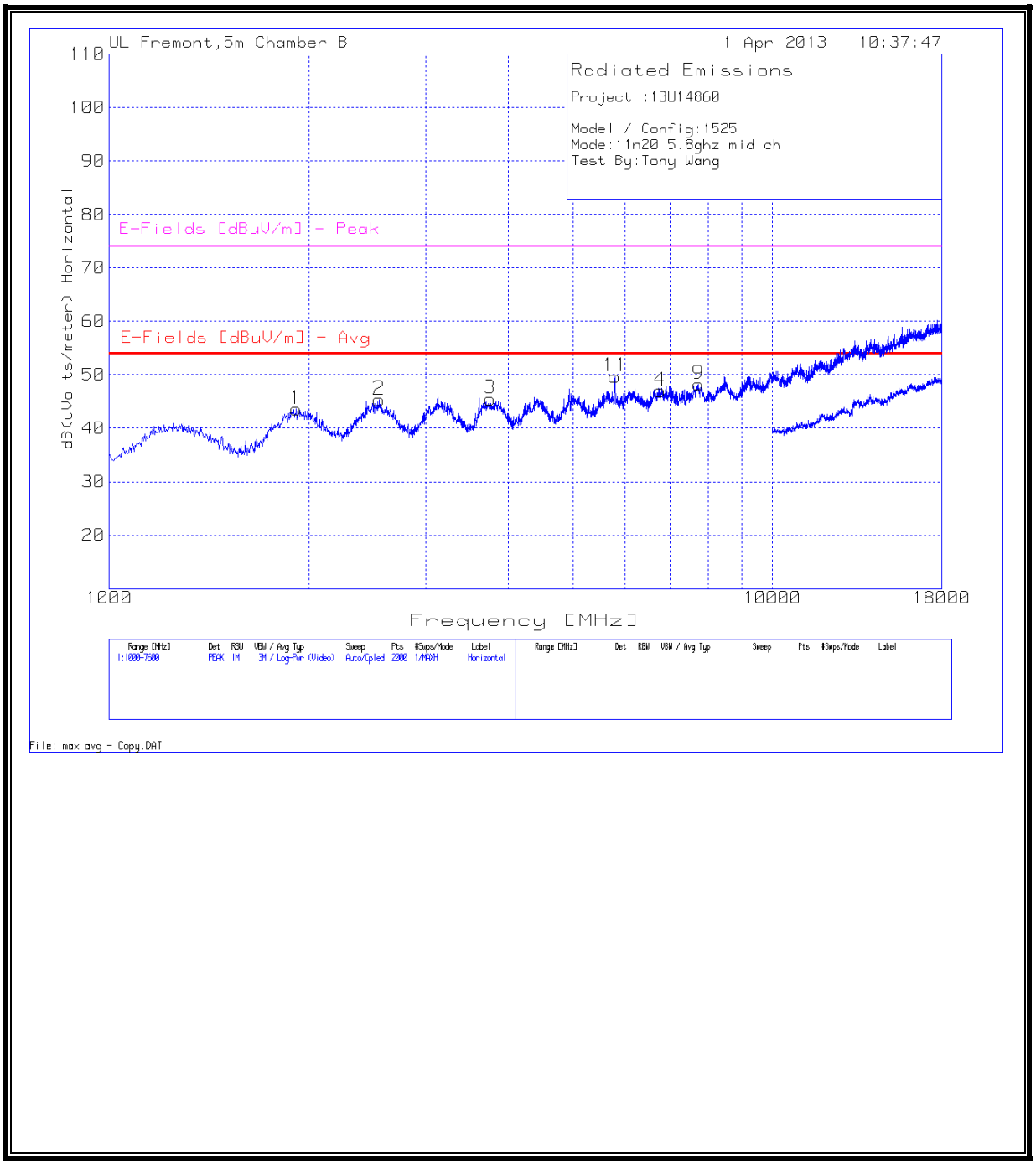
Notes:

1) The PK limit of 74 dBuV/m and the AVG limit of 54 dBuV/m only apply in restricted bands, outside restricted bands the limit is 68.3dBuV/m (-27dBm/MHz eirp). The plots and discrete measurements all show peak emissions are below 54dBuV/m from 1- 10 GHz, above 10 GHz emissions exceed the 54dBuV/m but are below 68dBuV/m.

2) There was no signal from EUT above the system noise floor up to 40 GHz.

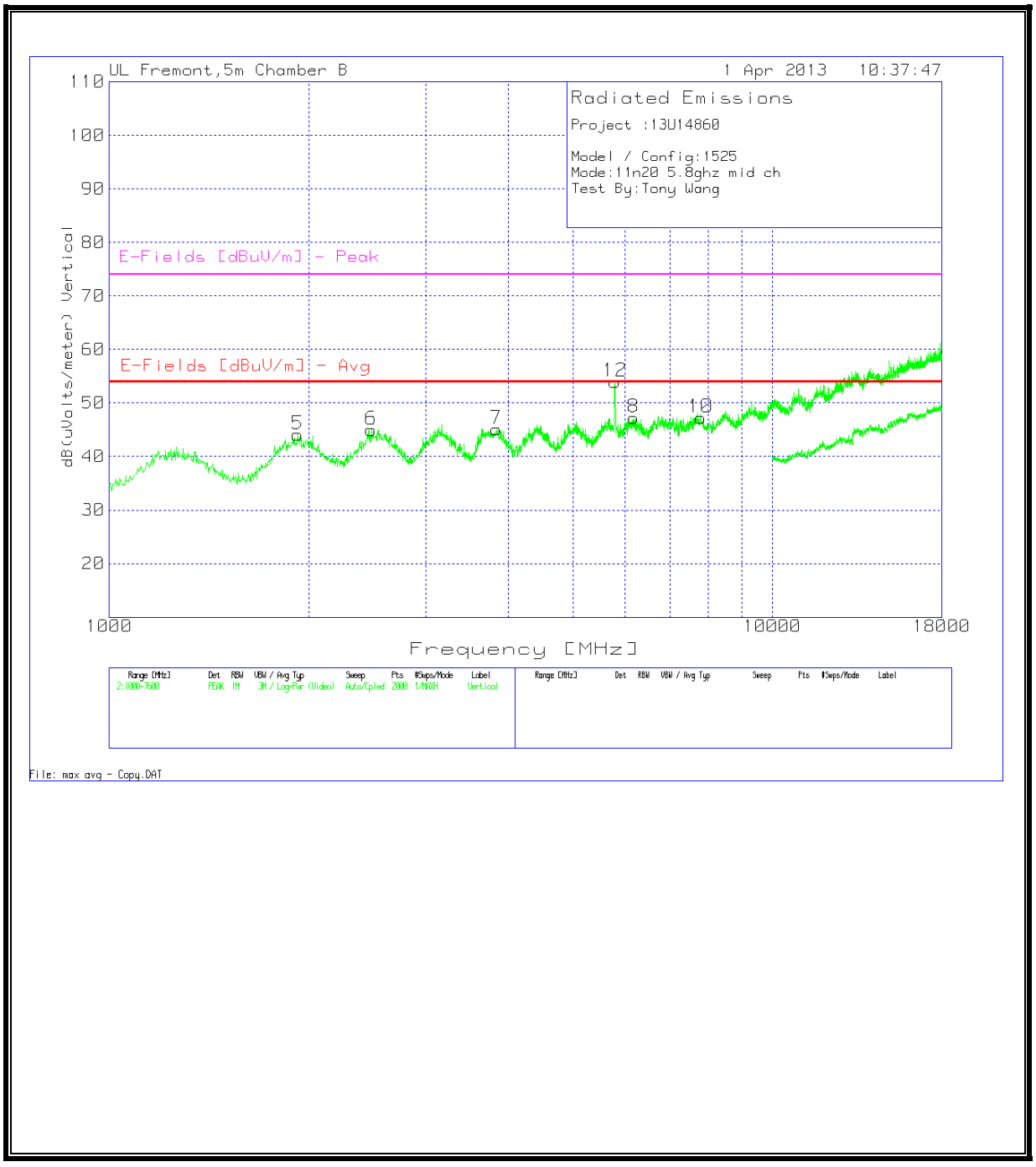
HARMONICS AND SPURIOUS EMISSIONS

MID CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

MID CH Vertical



HARMONICS AND SPURIOUS EMISSIONS

HIGH CH

Project :13U14860

Model / Config:1525

Mode:11n20 5.8ghz High ch set15

Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T162 5.8GHz BRF [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1940.030	44.34	PK	31.40	-35.00	4.10	0.10	44.94	54.0	-9.0	74.0	-29.1	100	Horz	N	
2	4483.058	39.13	PK	34.50	-34.90	6.70	0.30	45.73	54.0	-8.2	74.0	-28.3	200	Horz	N	
11	5818.891	40.54	PK	35.40	-34.90	7.80	0.90	49.74	-	-	-	-	200	Horz	N	(Fundamental)
3	6340.030	37.85	PK	36.00	-35.00	8.20	0.30	47.35	54.0	-6.6	74.0	-26.7	200	Horz	N	
9	7800.660	37.28	PK1	36.20	-35.10	9.20	0.40	47.98	-	-	74.0	-26.0	274	Horz	N	
	7802.420	27.37	AD1	36.20	-35.10	9.20	0.40	38.07	54.0	-15.9	-	-	274	Horz	N	
10	8629.085	36.54	PK	36.30	-35.20	9.70	0.20	47.54	54.0	-6.4	74.0	-26.5	100	Horz	N	
4	1831.184	43.62	PK	30.70	-35.10	4.00	0.10	43.32	54.0	-10.7	74.0	-30.7	200	Vert	N	
5	2540.330	43.65	PK	32.50	-35.00	4.80	0.20	46.15	54.0	-7.8	74.0	-27.9	100	Vert	N	
6	3239.580	42.07	PK	33.30	-35.10	5.50	0.10	45.87	54.0	-8.1	74.0	-28.1	200	Vert	N	
7	4413.793	41.26	PK	34.40	-34.90	6.60	0.20	47.56	54.0	-6.4	74.0	-26.4	200	Vert	N	
12	5825.487	46.02	PK	35.40	-34.90	7.80	0.90	55.22	-	-	-	-	200	Vert	N	(Fundamental)
8	6669.865	36.76	PK	35.80	-35.00	8.40	0.30	46.26	54.0	-7.7	74.0	-27.7	200	Vert	N	

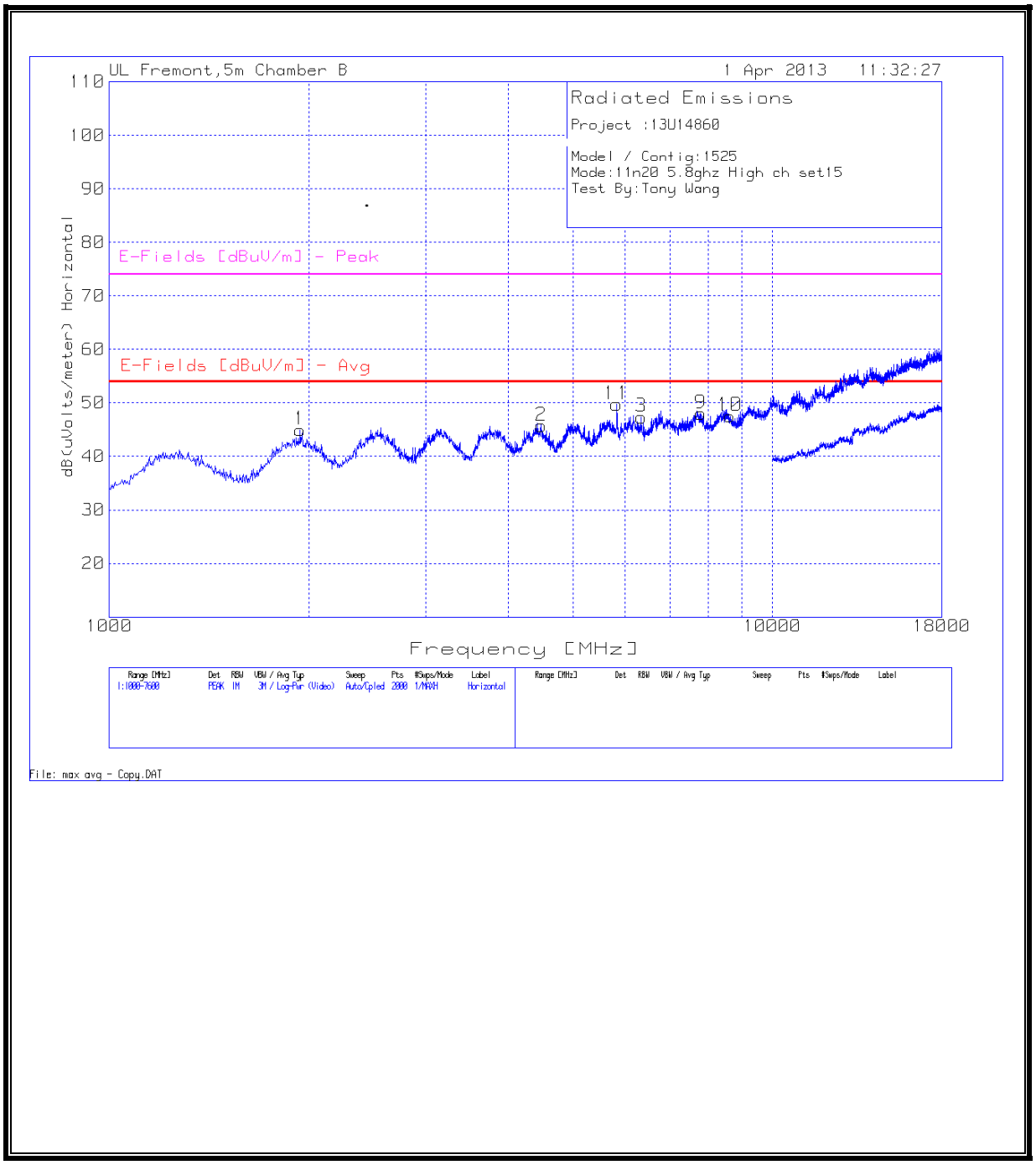
Notes:

1) The PK limit of 74 dBuV/m and the AVG limit of 54 dBuV/m only apply in restricted bands, outside restricted bands the limit is 68.3dBuV/m (-27dBm/MHz eirp). The plots and discrete measurements all show peak emissions are below 54dBuV/m from 1- 10 GHz, above 10 GHz emissions exceed the 54dBuV/m but are below 68dBuV/m.

2) There was no signal from EUT above the system noise floor up to 40 GHz.

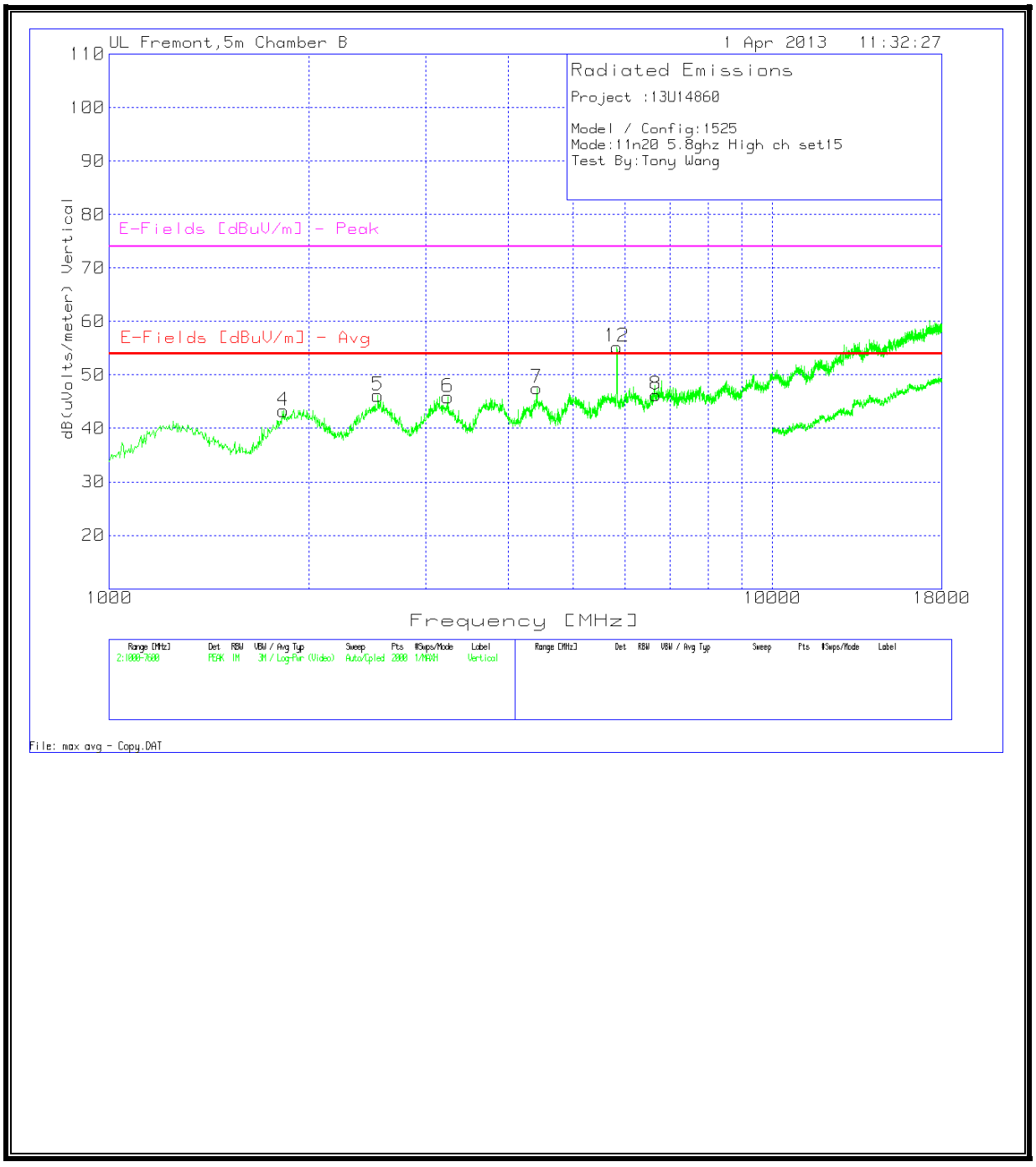
HARMONICS AND SPURIOUS EMISSIONS

Horizontal



HARMONICS AND SPURIOUS EMISSIONS

Vertical



9.2.6. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

LOW CH

Project :13U14860

Model / Config:1525

Mode:11n40 5.8ghz low ch set14

Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T162 5.8GHz BRF [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1850.975	43.58	PK	30.80	-35.10	4.10	0.10	43.48	54.0	-10.5	74.0	-30.5	400	Horz	N	
2	2520.540	42.78	PK	32.50	-35.00	4.80	0.20	45.28	54.0	-8.7	74.0	-28.7	300	Horz	N	
3	3137.331	42.88	PK	33.20	-35.20	5.40	0.20	46.48	54.0	-7.5	74.0	-27.5	400	Horz	N	
10	5762.819	39.20	PK	35.20	-34.90	7.80	0.90	48.20	-	-	-	-	400	Horz	N	(Fundamental)
4	6188.306	37.32	PK	36.00	-34.90	8.10	0.50	47.02	54.0	-7.0	74.0	-27.0	300	Horz	N	
8	7792.304	37.06	PK	36.20	-35.10	9.20	0.40	47.76	54.0	-6.2	74.0	-26.2	100	Horz	N	
5	1883.958	43.26	PK	31.00	-35.00	4.10	0.10	43.46	54.0	-10.5	74.0	-30.5	200	Vert	N	
6	3770.615	40.47	PK	33.80	-34.90	6.00	0.10	45.47	54.0	-8.5	74.0	-28.5	200	Vert	Y	
11	5759.520	43.66	PK	35.20	-34.90	7.80	0.90	52.66	-	-	-	-	200	Vert	N	(Fundamental)
7	5931.034	37.60	PK	35.70	-34.90	7.90	0.90	47.20	54.0	-6.8	74.0	-26.8	200	Vert	N	
9	8821.389	36.37	PK	36.50	-35.20	9.80	0.20	47.67	54.0	-6.3	74.0	-26.3	100	Vert	N	

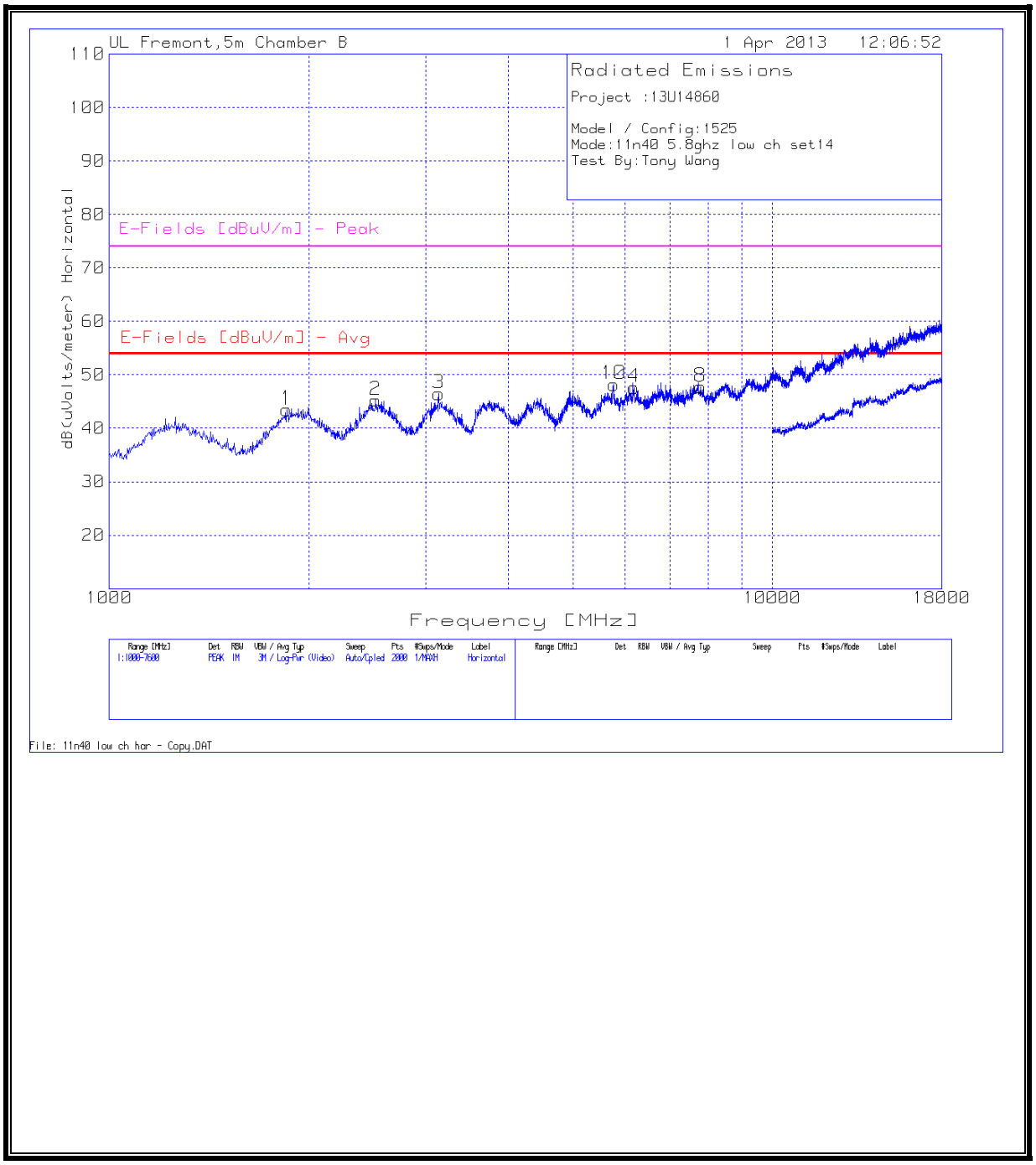
Notes:

1) The PK limit of 74 dBuV/m and the AVG limit of 54 dBuV/m only apply in restricted bands, outside restricted bands the limit is 68.3dBuV/m (-27dBm/MHz eirp). The plots and discrete measurements all show peak emissions are below 54dBuV/m from 1- 10 GHz, above 10 GHz emissions exceed the 54dBuV/m but are below 68dBuV/m.

2) There was no signal from EUT above the system noise floor up to 40 GHz.

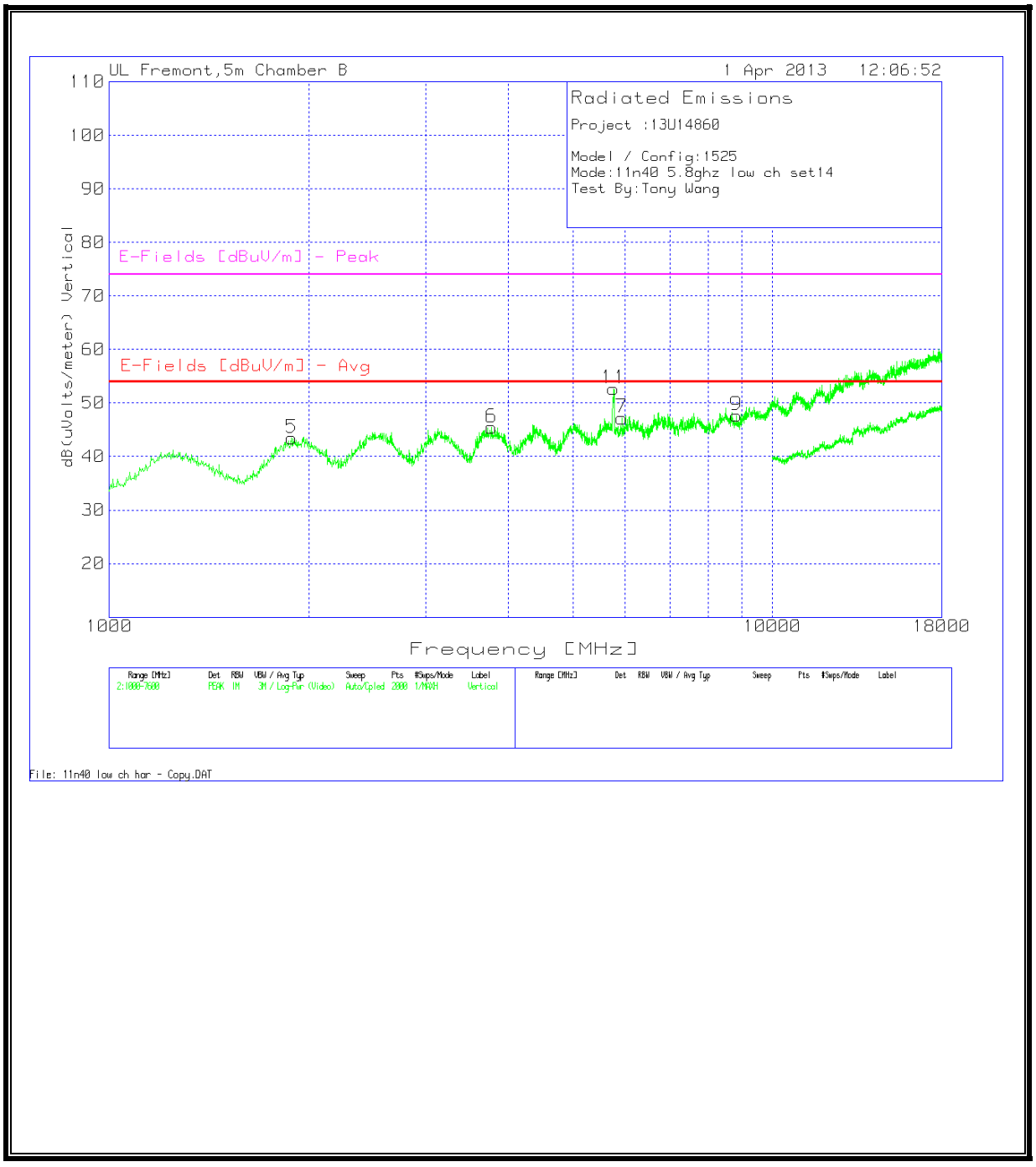
HARMONICS AND SPURIOUS EMISSIONS

LOW CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

LOW CH Vertical



HARMONICS AND SPURIOUS EMISSIONS

HIGH CH

Project :13U14860

Model / Config:1525

Mode:11n40 5.8ghz High ch set14

Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T345 Antenna Factor [dB/m]	T145 Preamp [dB]	Cable Factor [dB]	T162 5.8GHz BRF [dB]	Field Strength [dBuV/m]	FCC Part 15C 15.209 Avg Limit [dBuV/m]	Margin [dB]	FCC Part 15C Peak Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?	
1	1933.433	43.04	PK	31.30	-35.00	4.10	0.10	43.54	54.0	-10.4	74.0	-30.5	200	Horz	N	
2	3140.630	41.85	PK	33.20	-35.20	5.40	0.20	45.45	54.0	-8.5	74.0	-28.6	200	Horz	N	
3	3724.438	41.07	PK	33.70	-34.90	6.00	0.10	45.97	54.0	-8.0	74.0	-28.0	200	Horz	Y	
10	5799.100	38.64	PK	35.30	-34.90	7.80	0.90	47.74	-	-	-	-	200	Horz	N	(Fundamental
4	6181.709	37.40	PK	36.00	-34.90	8.10	0.50	47.10	54.0	-6.9	74.0	-26.9	200	Horz	N	
8	7755.922	37.31	PK	36.20	-35.10	9.10	0.30	47.81	54.0	-6.2	74.0	-26.2	100	Horz	N	
5	1989.505	42.78	PK	31.70	-35.00	4.20	0.10	43.78	54.0	-10.2	74.0	-30.2	200	Vert	N	
6	4410.495	40.08	PK	34.40	-34.90	6.60	0.20	46.38	54.0	-7.6	74.0	-27.6	200	Vert	N	
11	5799.100	41.95	PK	35.30	-34.90	7.80	0.90	51.05	-	-	-	-	200	Vert	N	(Fundamental
7	6999.700	37.71	PK	35.90	-35.00	8.70	0.30	47.61	54.0	-6.4	74.0	-26.4	200	Vert	N	
9	8228.886	37.01	PK	36.10	-35.20	9.40	0.30	47.61	54.0	-6.4	74.0	-26.4	200	Vert	Y	

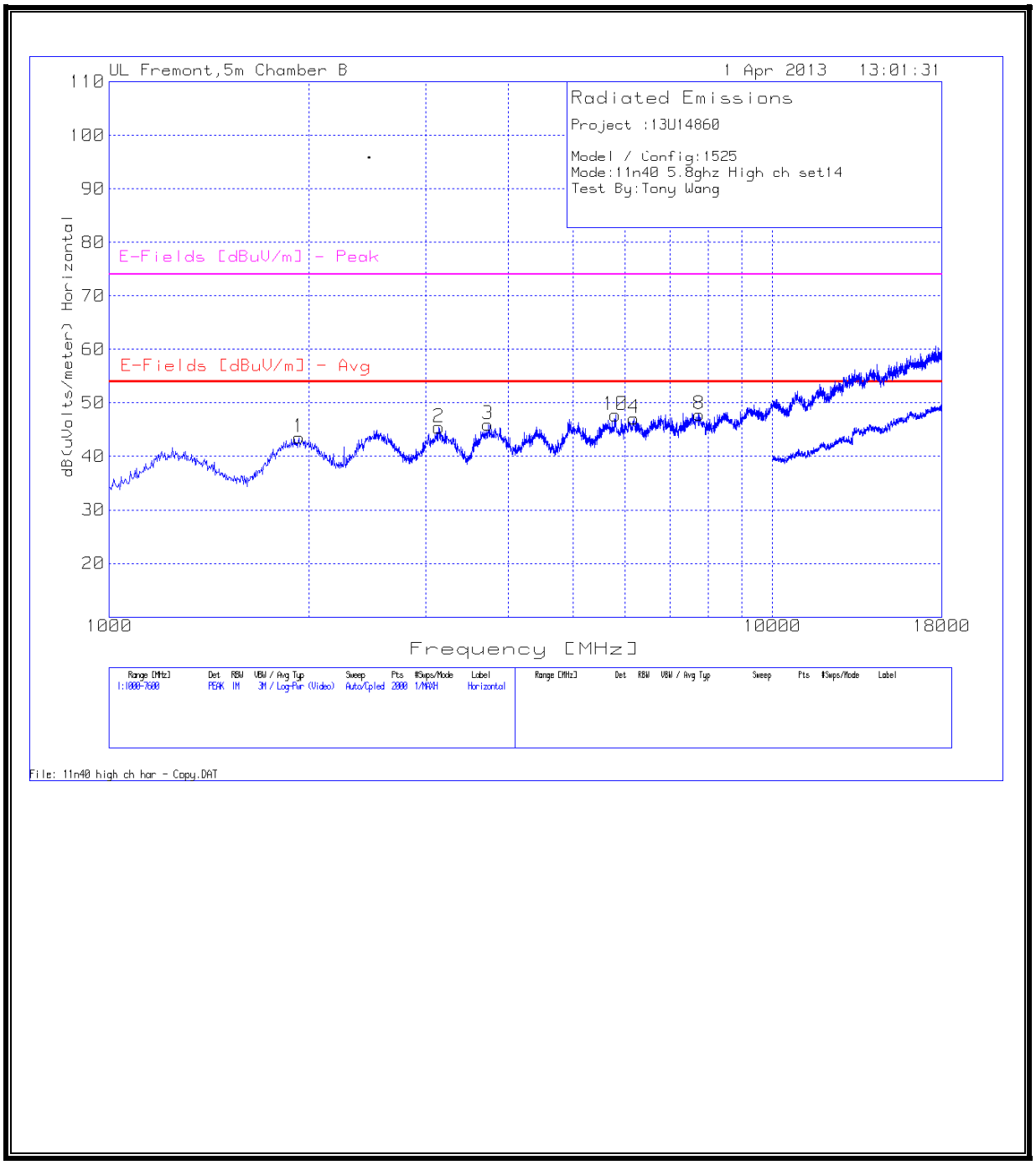
Notes:

1) The PK limit of 74 dBuV/m and the AVG limit of 54 dBuV/m only apply in restricted bands, outside restricted bands the limit is 68.3dBuV/m (-27dBm/MHz eirp). The plots and discrete measurements all show peak emissions are below 54dBuV/m from 1- 10 GHz, above 10 GHz emissions exceed the 54dBuV/m but are below 68dBuV/m.

2) There was no signal from EUT above the system noise floor up to 40 GHz.

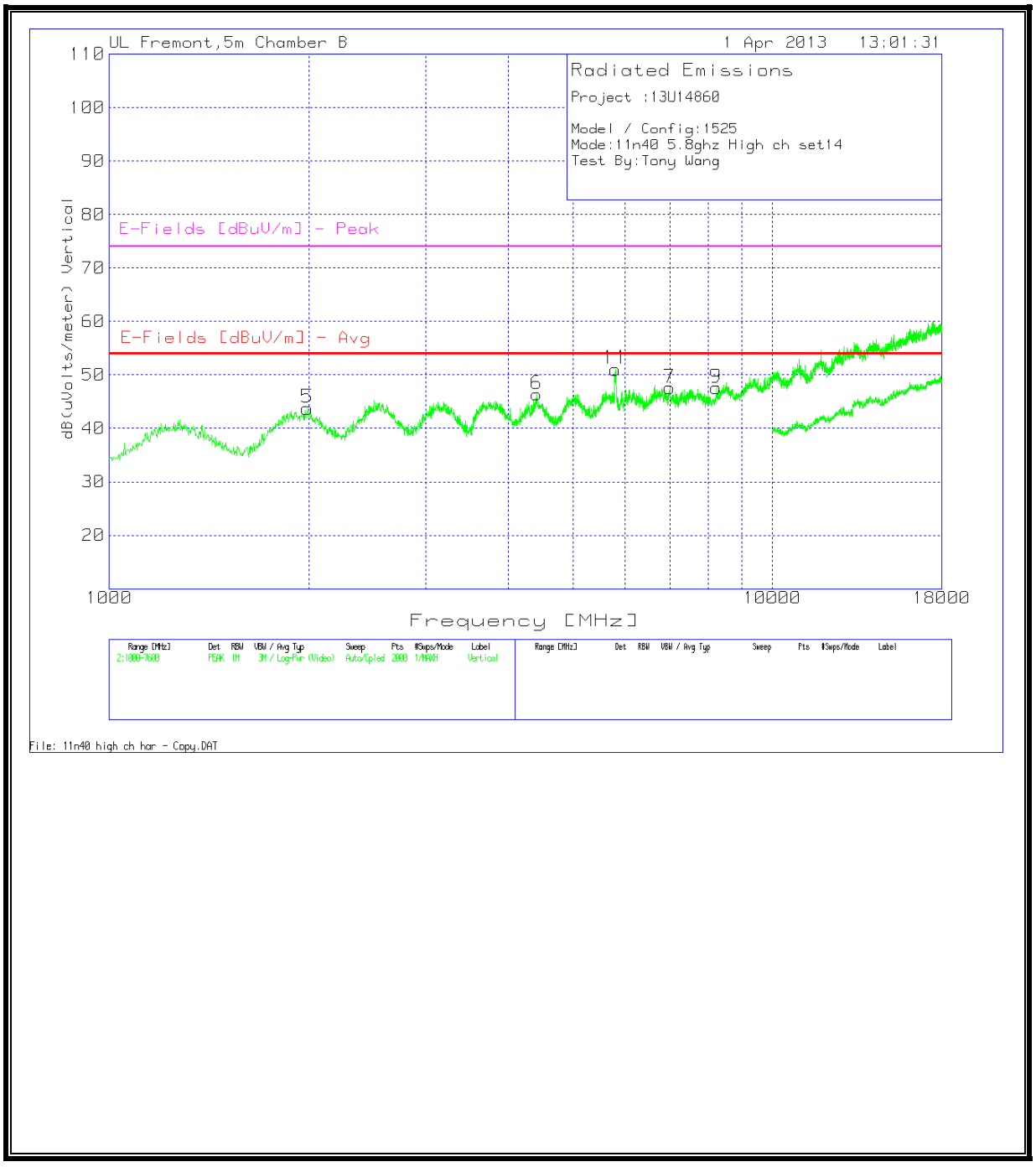
HARMONICS AND SPURIOUS EMISSIONS

HIGH CH Horizontal



HARMONICS AND SPURIOUS EMISSIONS

HIGH CH Vertical

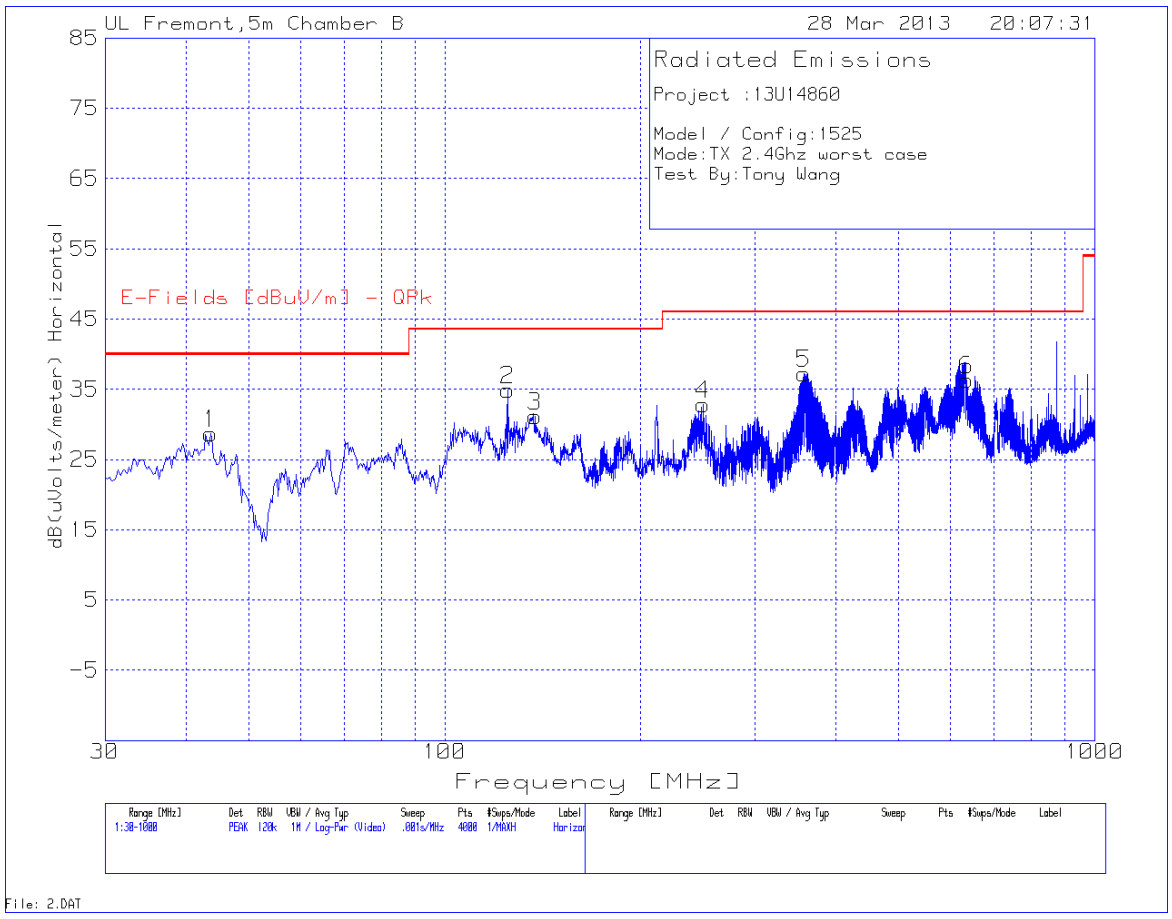


9.1. WORST-CASE BELOW 1 GHz

FOR 2.4 GHZ

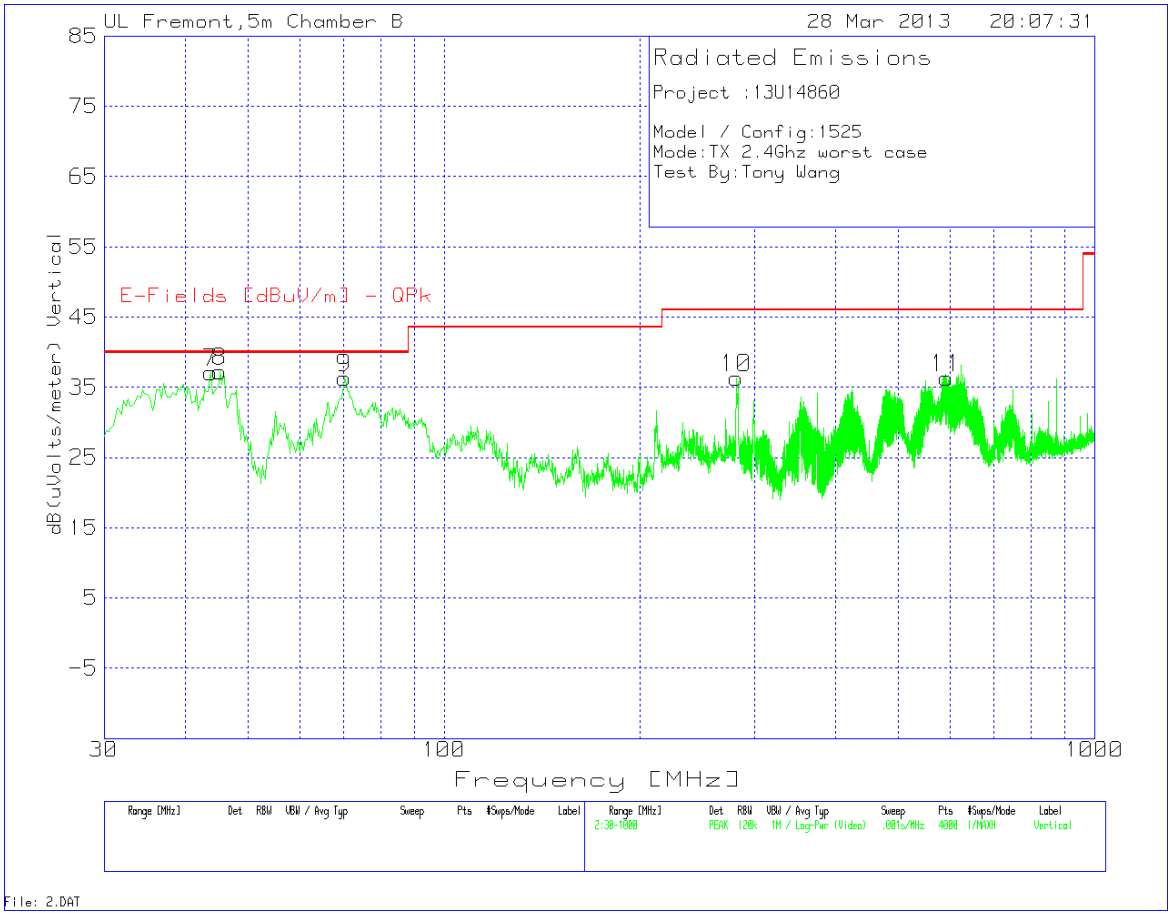
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



HORIZONTAL DATA and VERTICAL DATA

Project :13U14860

Model / Config:1525

Mode:TX 2.4Ghz worst case

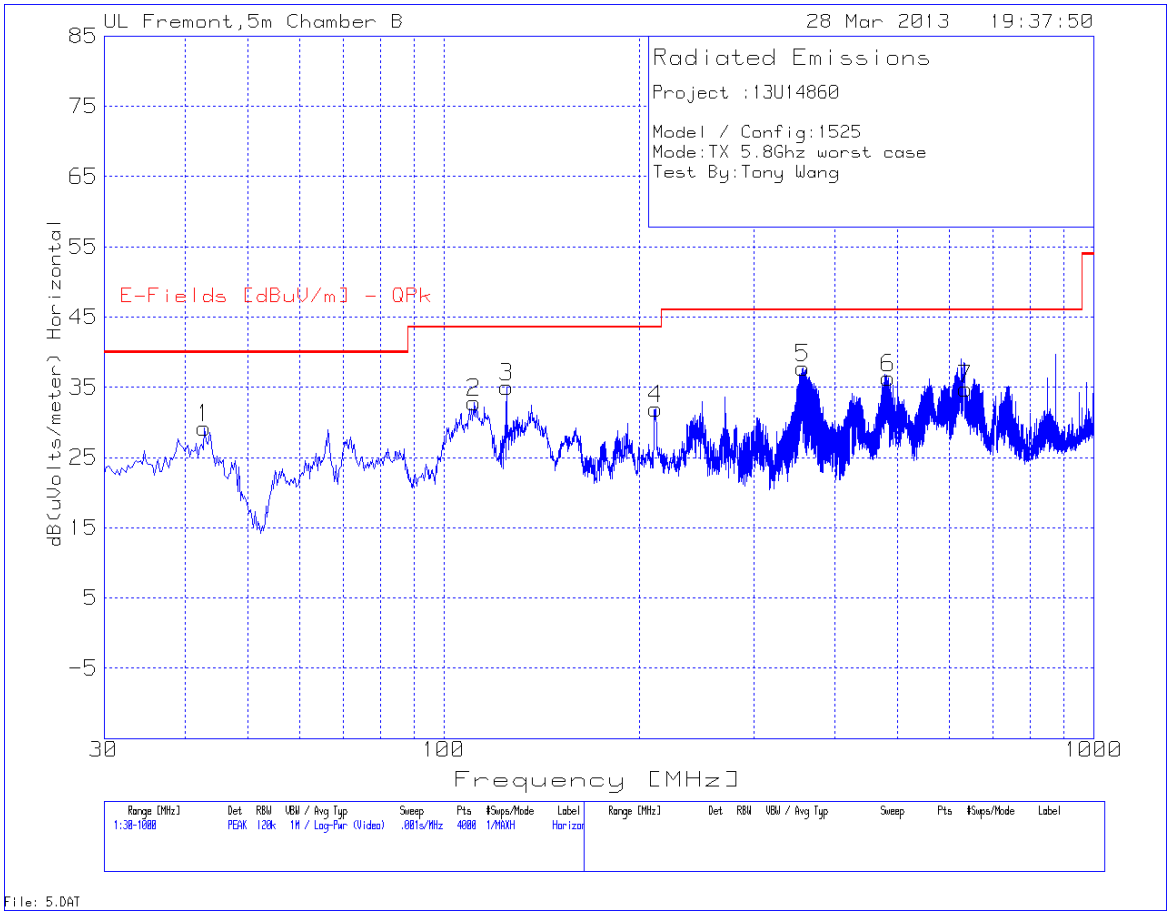
Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T243 Antenna Factor [dB/m]	T10 Preamp/Cable Gain/loss [dB]	Field Strength [dBuV/m]	FCC 15.209 QP Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?
1	43.570	46.77	PK	10.80	-28.90	28.67	40.0	-11.3	300	Horz	N
2	124.989	48.78	PK	14.10	-28.00	34.88	43.5	-8.6	200	Horz	Y
3	137.589	45.95	PK	13.20	-28.00	31.15	43.5	-12.4	200	Horz	Y
4	249.783	48.23	PK	11.50	-26.90	32.83	46.0	-13.2	100	Horz	Y
5	357.372	49.08	PK	14.50	-26.30	37.28	46.0	-8.7	100	Horz	N
6	635.069	42.67	PK	19.60	-25.90	36.37	46.0	-9.7	100	Horz	N
	41.613	52.38	QP	12.30	-29.00	35.68	40.0	-4.3	102	Vert	N
	42.953	51.91	QP	11.30	-28.90	34.31	40.0	-5.7	105	Vert	N
7	43.510	51.40	QP	10.90	-28.90	33.40	40.0	-6.6	103	Vert	N
8	45.266	56.25	PK	9.90	-28.90	37.25	40.0	-2.8	200	Vert	N
	68.484	53.18	QP	7.80	-28.70	32.28	40.0	-7.7	117	Vert	N
9	70.225	57.09	PK	7.90	-28.70	36.29	40.0	-3.7	200	Vert	N
10	281.526	49.57	PK	13.40	-26.60	36.37	46.0	-9.7	200	Vert	Y
11	591.451	43.92	PK	18.50	-26.10	36.32	46.0	-9.7	200	Vert	N

FOR 5,8GHZ

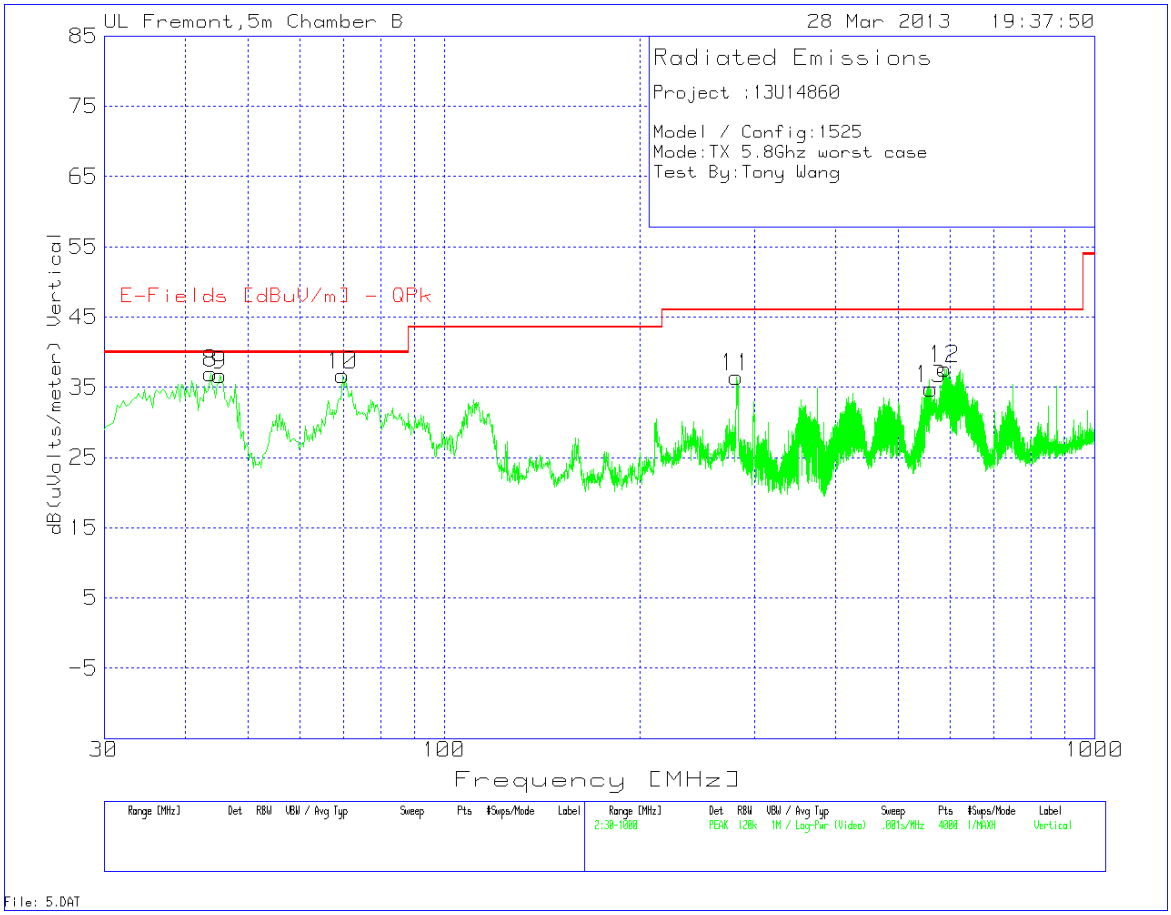
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



HORIZONTAL DATA and VERTICAL DATA

Project :13U14860

Model / Config:1525

Mode:TX 5.8Ghz worst case

Test By:Tony Wang

Marker No.	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T243 Antenna Factor [dB/m]	T10 Preamp/Cable Gain/loss [dB]	Field Strength [dBuV/m]	FCC 15.209 QP Limit [dBuV/m]	Margin [dB]	Height [cm]	Polarity	Restricted Band?
1	42.843	46.70	PK	11.40	-28.90	29.20	40.0	-10.8	200	Horz	N
2	111.419	48.34	PK	12.80	-28.30	32.84	43.5	-10.7	300	Horz	Y
3	124.989	48.93	PK	14.10	-28.00	35.03	43.5	-8.5	300	Horz	Y
4	212.223	48.68	PK	10.40	-27.10	31.98	43.5	-11.5	200	Horz	N
5	357.372	49.55	PK	14.50	-26.30	37.75	46.0	-8.3	100	Horz	N
6	482.893	45.17	PK	17.70	-26.50	36.37	46.0	-9.7	100	Horz	N
7	635.069	41.08	PK	19.60	-25.90	34.78	46.0	-11.2	200	Horz	N
	42.947	53.22	QP	11.30	-28.90	35.62	40.0	-4.4	101	Vert	N
	43.505	52.82	QP	10.90	-28.90	34.82	40.0	-5.2	101	Vert	N
8	43.812	55.14	PK	10.70	-28.90	36.94	40.0	-3.1	200	Vert	N
9	45.266	55.76	PK	9.90	-28.90	36.76	40.0	-3.2	200	Vert	N
10	69.740	57.51	PK	7.90	-28.70	36.71	40.0	-3.3	200	Vert	N
	71.003	54.79	QP	7.90	-28.70	33.99	40.0	-6.0	101	Vert	N
11	281.042	49.68	PK	13.40	-26.60	36.48	46.0	-9.5	200	Vert	Y
13	560.435	42.54	PK	18.40	-26.20	34.74	46.0	-11.3	200	Vert	N
12	588.059	45.17	PK	18.50	-26.00	37.67	46.0	-8.4	200	Vert	N

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
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.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

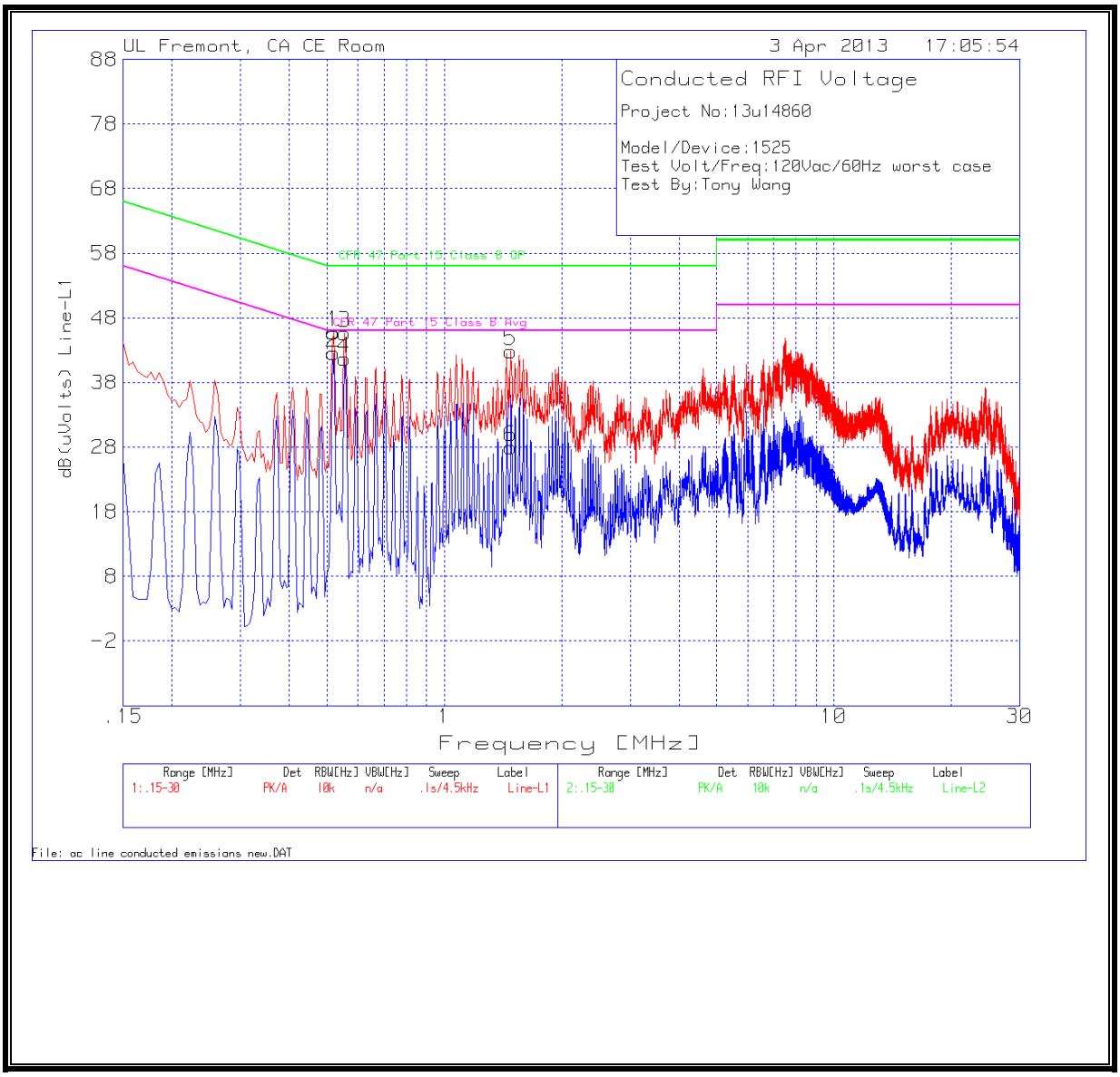
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

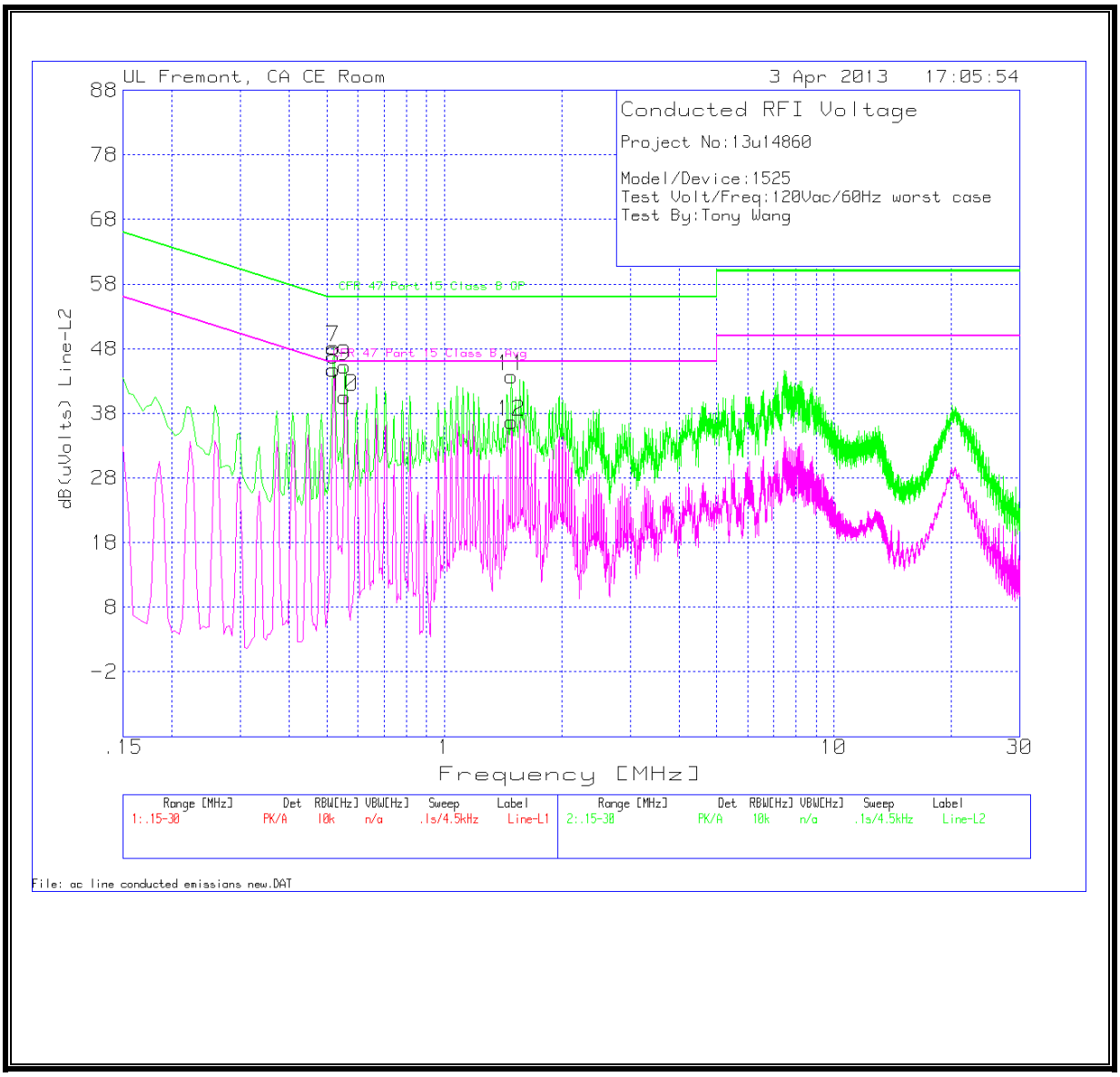
6 WORST EMISSIONS

Project No:13u14860										
Model/Device:1525										
Test Volt/Freq:120Vac/60Hz 2.4GHz worst case										
Test By:Tony Wang										
Conductor	**Test Frequency [MHz]**	**Meter Reading [dBuV]**	**Detector Type**	**T24 Voltage Correction Factor [dB]**	**Cables 1&3 Loss [dB]**	**RF Line Voltage [dBuV]**	**CFR 47 Part 15 Class B QP [dBuV]**	**Margin [dB]**	**CFR 47 Part 15 Class B Avg [dBuV]**	**Margin [dB]**
Line L1	0.519	45.67	PK	0.10	0.00	45.77	56.0	-10.2	-	-
Line L1	0.519	42.44	Av	0.10	0.00	42.54	-	-	46.0	-3.5
Line L1	0.555	45.53	PK	0.10	0.00	45.63	56.0	-10.4	-	-
Line L1	0.555	41.56	Av	0.10	0.00	41.66	-	-	46.0	-4.3
Line L1	1.0725	42.14	PK	0.10	0.00	42.24	56.0	-13.8	-	-
Line L1	1.0725	34.51	Av	0.10	0.00	34.61	-	-	46.0	-11.4
Line L1	1.4775	42.59	PK	0.10	0.10	42.79	56.0	-13.2	-	-
Line L1	1.4775	27.78	Av	0.10	0.10	27.98	-	-	46.0	-18.0
Line L1	7.4985	44.66	PK	0.10	0.10	44.86	60.0	-15.1	-	-
Line L1	7.4985	28.19	Av	0.10	0.10	28.39	-	-	50.0	-21.6
Line L2	0.519	48.10	PK	0.10	0.00	48.20	56.0	-7.8	-	-
Line L2	0.519	44.72	Av	0.10	0.00	44.82	-	-	46.0	-1.2
Line L2	0.5235	45.73	PK	0.10	0.00	45.83	56.0	-10.2	-	-
Line L2	0.5235	42.08	Av	0.10	0.00	42.18	-	-	46.0	-3.8
Line L2	1.113	41.90	PK	0.10	0.00	42.00	56.0	-14.0	-	-
Line L2	1.113	34.68	Av	0.10	0.00	34.78	-	-	46.0	-11.2
Line L2	1.4865	43.51	PK	0.10	0.10	43.71	56.0	-12.3	-	-
Line L2	1.4865	36.55	Av	0.10	0.10	36.75	-	-	46.0	-9.3
Line L2	1.9725	40.42	PK	0.10	0.10	40.62	56.0	-15.4	-	-
Line L2	1.9725	34.21	Av	0.10	0.10	34.41	-	-	46.0	-11.6

LINE 1 RESULTS



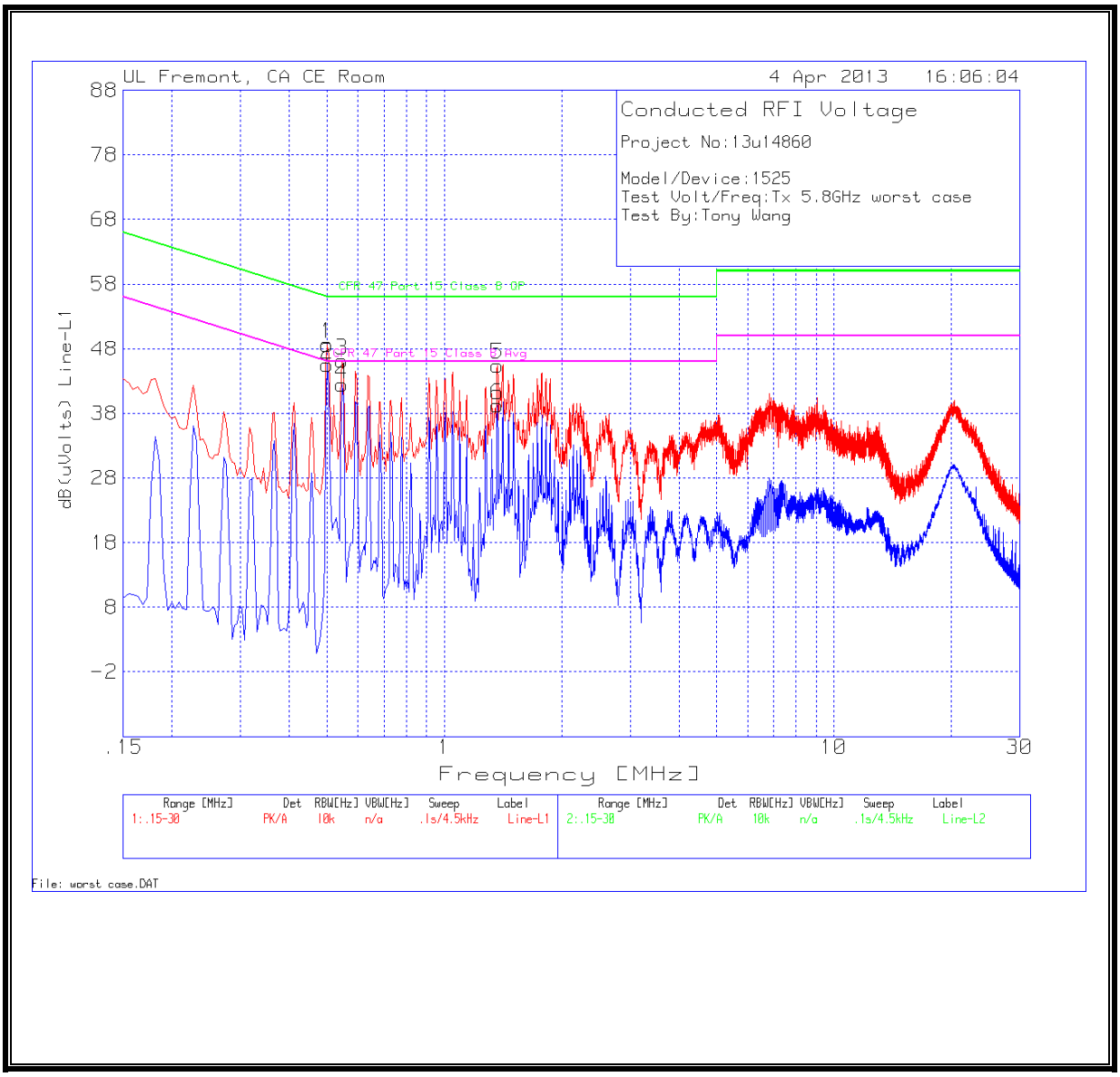
LINE 2 RESULTS



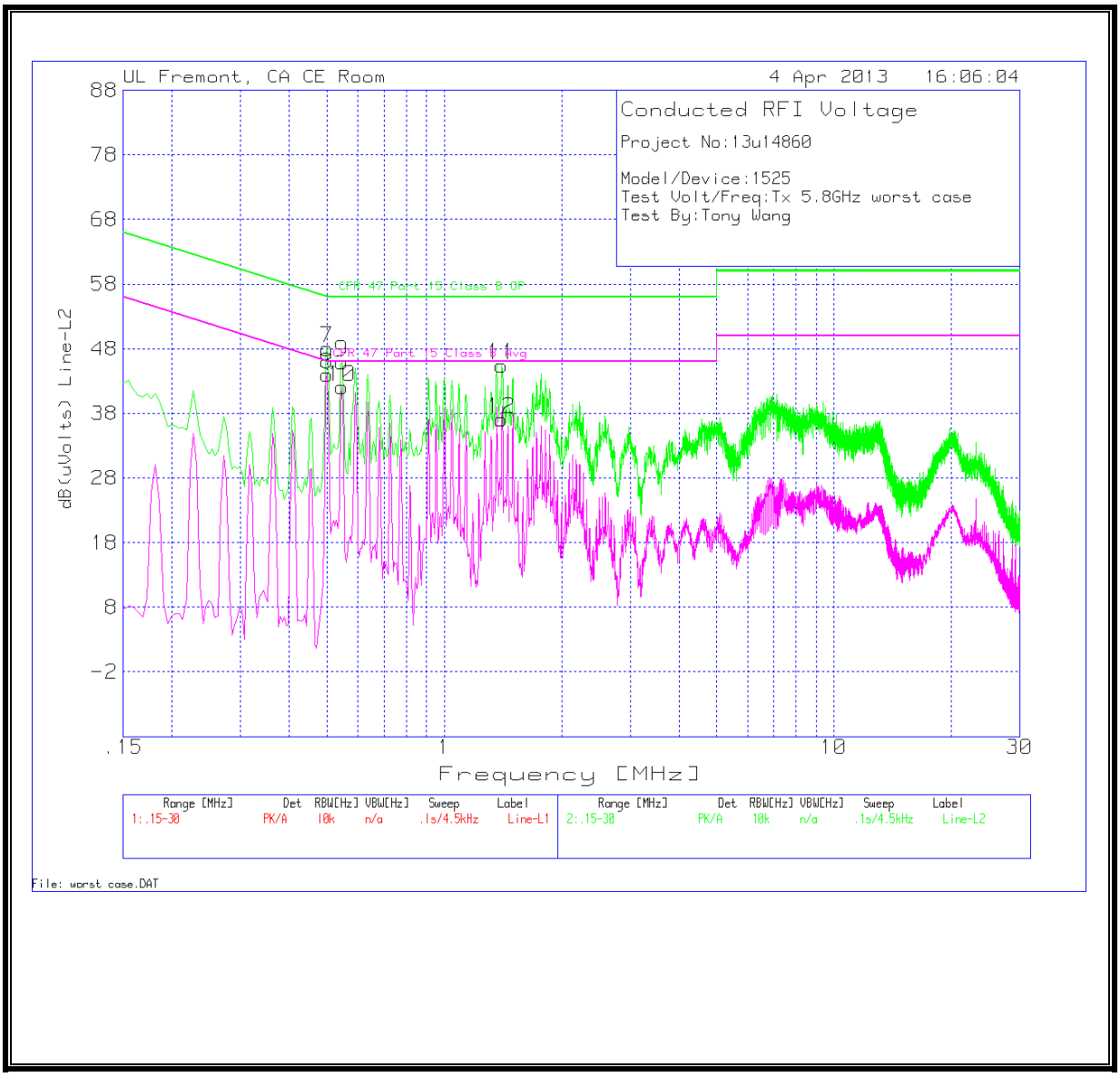
6 WORST EMISSIONS

Project No:13u14860										
Model/Device:1525										
Test Volt/Freq:Tx 5.8GHz worst case										
Test By:Tony Wang										
Conductor	Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	T24 Voltage Correction Factor [dB]	Cables 1&3 Loss [dB]	RF Line Voltage [dBuV]	CFR 47 Part 15 Class B QP [dBuV]	Margin [dB]	CFR 47 Part 15 Class B Avg [dBuV]	Margin [dB]
Line L1	0.501	48.57	PK	0.10	0.00	48.67	56.0	-7.3	-	-
Line L1	0.501	45.38	Av	0.10	0.00	45.48	-	-	46.0	-0.5
Line L1	0.546	46.07	PK	0.10	0.00	46.17	56.0	-9.8	-	-
Line L1	0.546	42.35	Av	0.10	0.00	42.45	-	-	46.0	-3.6
Line L1	1.3695	45.27	PK	0.10	0.10	45.47	56.0	-10.5	-	-
Line L1	1.3695	39.04	Av	0.10	0.10	39.24	-	-	46.0	-6.8
Line L2	0.501	47.93	PK	0.10	0.00	48.03	56.0	-8.0	-	-
Line L2	0.501	43.93	Av	0.10	0.00	44.03	-	-	46.0	-2.0
Line L2	0.546	45.77	PK	0.10	0.00	45.87	56.0	-10.1	-	-
Line L2	0.546	42.02	Av	0.10	0.00	42.12	-	-	46.0	-3.9
Line L2	1.4055	45.36	PK	0.10	0.00	45.46	56.0	-10.5	-	-
Line L2	1.4055	36.98	Av	0.10	0.00	37.08	-	-	46.0	-8.9

LINE 1 RESULTS



LINE 2 RESULTS



11. MAXIMUM PERMISSIBLE RF EXPOSURE

11.1. FCC RULES

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.
NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

11.2. IC RULES

IC Safety Code 6, Section 2.2.1 (a) A person other than an RF and microwave exposed worker shall not be exposed to electromagnetic radiation in a frequency band listed in Column 1 of Table 5, if the field strength exceeds the value given in Column 2 or 3 of Table 5, when averaged spatially and over time, or if the power density exceeds the value given in Column 4 of Table 5, when averaged spatially and over time.

Table 5
Exposure Limits for Persons Not Classed As RF and Microwave Exposed Workers (Including the General Public)

1 Frequency (MHz)	2 Electric Field Strength; rms (V/m)	3 Magnetic Field Strength; rms (A/m)	4 Power Density (W/m^2)	5 Averaging Time (min)
0.003–1	280	2.19		6
1–10	$280/f$	$2.19/f$		6
10–30	28	$2.19/f$		6
30–300	28	0.073	2*	6
300–1 500	$1.585f^{0.5}$	$0.0042f^{0.5}$	$f/150$	6
1 500–15 000	61.4	0.163	10	6
15 000–150 000	61.4	0.163	10	$616\,000/f^{1.2}$
150 000–300 000	$0.158f^{0.5}$	$4.21 \times 10^{-4}f^{0.5}$	$6.67 \times 10^{-5}f$	$616\,000/f^{1.2}$

* Power density limit is applicable at frequencies greater than 100 MHz.

Notes: 1. Frequency, f, is in MHz.
2. A power density of 10 W/m^2 is equivalent to 1 mW/cm^2.
3. A magnetic field strength of 1 A/m corresponds to 1.257 microtesla (μT) or 12.57 milligauss (mG).

11.3. EQUATIONS

POWER DENSITY

Power density is given by:

S = EIRP / (4 * Pi * D^2)

Where

S = Power density in mW/cm^2
EIRP = Equivalent Isotropic Radiated Power in mW
D = Separation distance in cm

Power density in units of mW/cm^2 is converted to units of W/m^2 by multiplying by 10.

DISTANCE

Distance is given by:

D = SQRT (EIRP / (4 * Pi * S))

Where

D = Separation distance in cm
EIRP = Equivalent Isotropic Radiated Power in mW
S = Power density in mW/cm^2

SOURCE-BASED DUTY CYCLE

Where applicable (for example, multi-slot cell phone applications) a duty cycle factor may be applied.

Source-based time-averaged EIRP = (DC / 100) * EIRP

Where

DC = Duty Cycle in %, as applicable
EIRP = Equivalent Isotropic Radiated Power in W

MIMO AND COLOCATED TRANSMITTERS (IDENTICAL LIMIT FOR ALL TRANSMITTERS)

For multiple chain devices, and colocated transmitters operating simultaneously in frequency bands where the limit is identical, the total power density is calculated using the total EIRP obtained by summing the EIRP (in linear units) of each transmitter.

Total EIRP = (EIRP1) + (EIRP2) + ... + (EIRPn)

where

EIRPx = Source-based time-averaged EIRP of chain x or transmitter x

The total EIRP is then used to calculate the Power Density or the Distance as applicable.

MIMO AND COLOCATED TRANSMITTERS

For multiple colocated transmitters operating simultaneously in frequency bands where different limits apply:

The Power Density at the specified separation distance is calculated for each transmitter chain or transmitter.

The fraction of the exposure limit is calculated for each chain or transmitter as
(Power Density of chain or transmitter) / (Limit applicable to that chain or transmitter).

The fractions are summed.

Compliance is established if the sum of the fractions is less than or equal to one.

11.4. LIMITS AND IC EXEMPTION

VARIABLE LIMITS

For mobile radio equipment operating in the cellular phone band, the lowest power density limit is calculated using the lowest frequency:

824 MHz / 1500 = 0.55 mW/cm^2 (FCC)
824 MHz / 150 = 5.5 W/m^2 (IC).

FIXED LIMITS

For operation in the PCS band, the 2.4 GHz band and the 5 GHz bands:

From FCC §1.1310 Table 1 (B), the maximum value of S = 1.0 mW/cm^2
From IC Safety Code 6, Section 2.2 Table 5 Column 4, S = 10 W/m^2

INDUSTRY CANADA EXEMPTION

RSS-102 Clause 2.5.2 RF exposure evaluation is required if the separation distance between the user and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 1.5 GHz and the maximum e.i.r.p. of the device is equal to or less than 2.5 W;
- at or above 1.5 GHz and the maximum e.i.r.p. of the device is equal to or less than 5 W.

11.5. RF EXPOSURE RESULTS

In the table(s) below, Power and Gain are entered in units of dBm and dBi respectively and conversions to linear forms are used for the calculations.

Calculation for the Network Radio

Multiple chain or colocated transmitters									
Band	**Mode**	**Chain for MIMO**	**Separatio Distance (cm)**	**Output Power (dBm)**	**Antenna Gain (dBi)**	**Duty Cycle (%)**	**EIRP (mW)**	**FCC Power Density (mW/cm^2)**	**IC Density (W/m^2)**
2.4 GHz	WLAN	1		17.50	3.38	100.0	122.5		
2.4 GHz	WLAN	2		17.50	4.61	100.0	162.6		
5 GHz	WLAN	1		16.50	3.38	100.0	97.3		
5 GHz	WLAN	2		16.50	3.43	100.0	98.4		
Combined			20				483.7	0.096	0.96

Worst Case calculation of both Radios

Multiple chain or colocated transmitters									
Band	**Mode**	**Chain for MIMO**	**Separatio Distance (cm)**	**Output Power (dBm)**	**Antenna Gain (dBi)**	**Duty Cycle (%)**	**EIRP (mW)**	**FCC Power Density (mW/cm^2)**	**IC Density (W/m^2)**
5 GHz	Accessory WLAN	1		11.50	3.14	100.0	29.1		
2.4 GHz	Network WLAN	2		17.50	3.38	100.0	122.5		
2.4 GHz	Network WLAN	3		17.50	4.61	100.0	162.6		
Combined			20				331.2	0.066	0.66

Note: antenna gains in the tables above are worst-case gains for individual chains

The device operates above 1.5 GHz with a maximum EIRP less than or equal to 5 Watts as a mobile device with a minimum separation distance of 20 cm, therefore it is exempt from routine RF Exposure Evaluation under RSS-102.