

## 9. RADIATED TEST RESULTS

### 9.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

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.

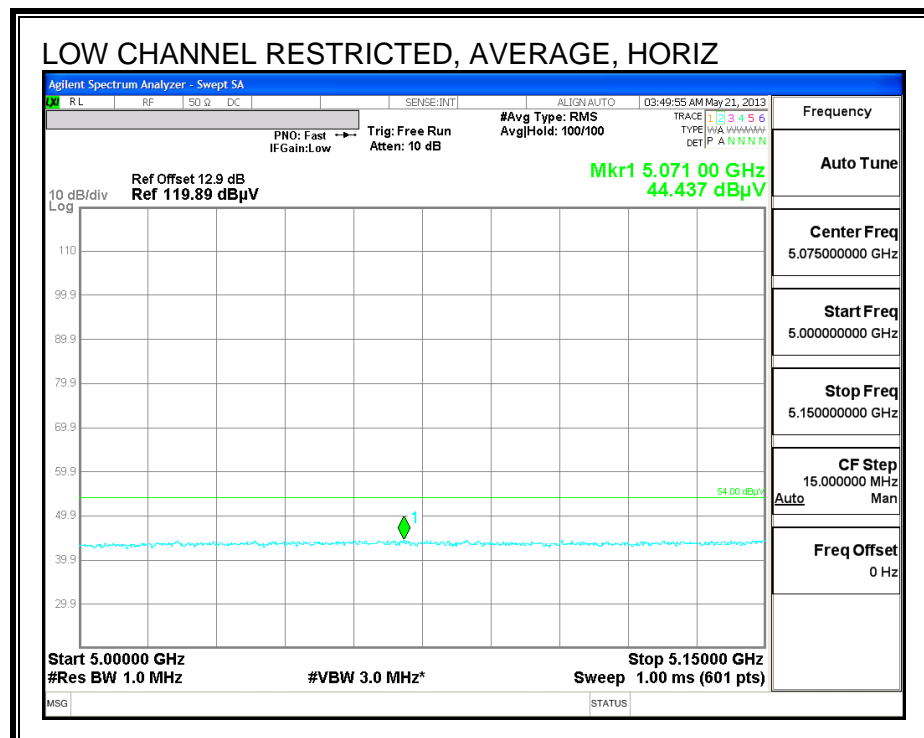
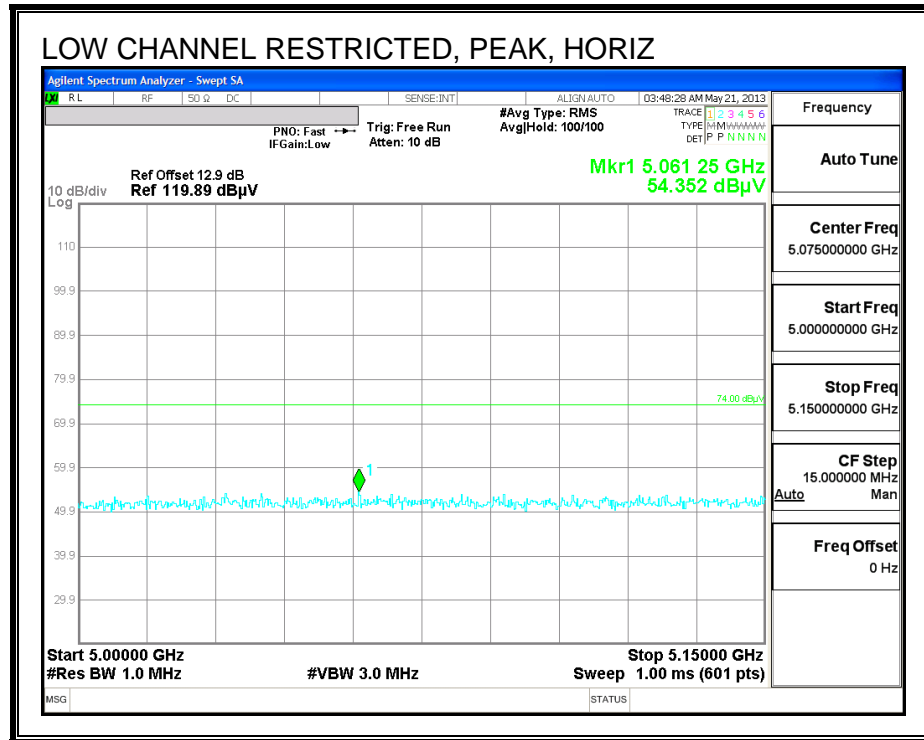
#### TEST RESULT

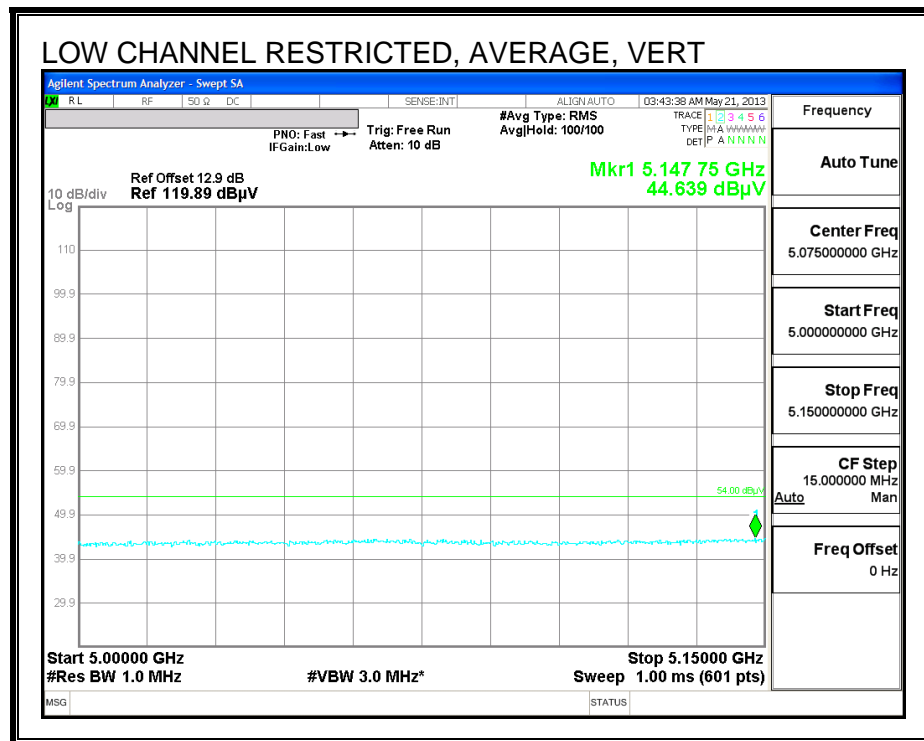
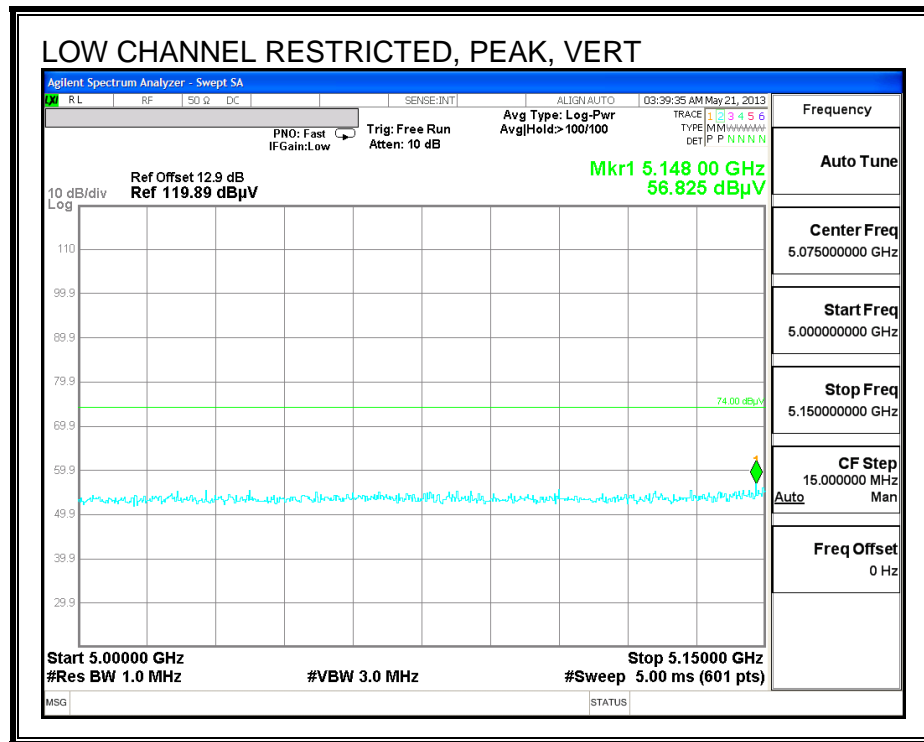
No other spurious emissions were found above 18G.

## 9.2. TRANSMITTER ABOVE 1 GHz

### 9.2.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

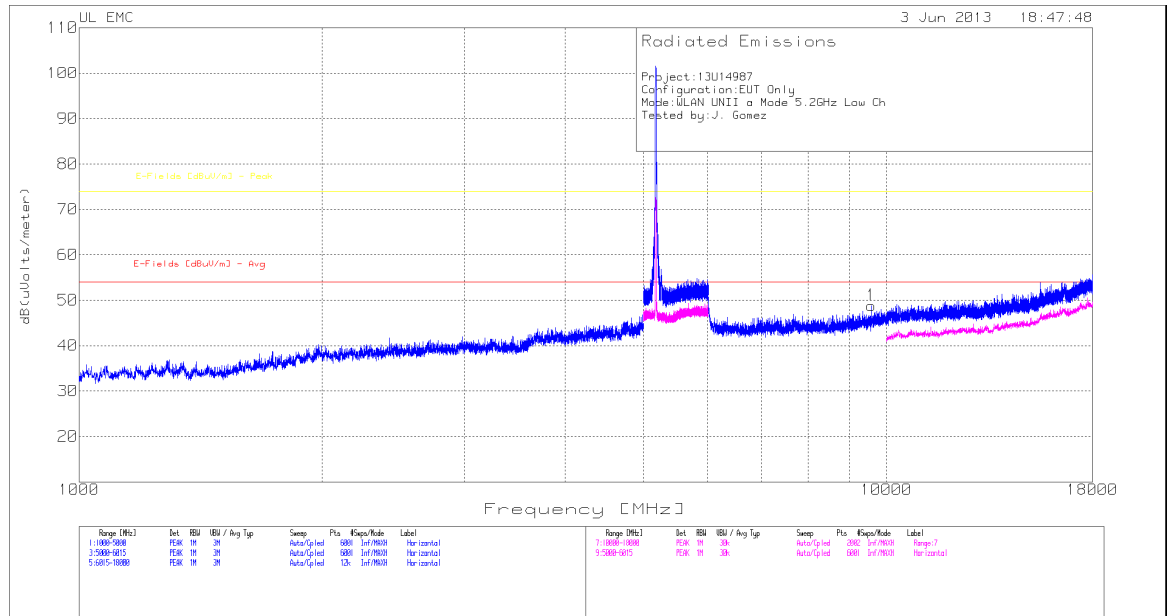
#### RESTRICTED BANDEDGE (LOW CHANNEL)





# **HARMONICS AND SPURIOUS EMISSIONS**

## **LOW CHANNEL RESTRICTED, HORIZONTAL**

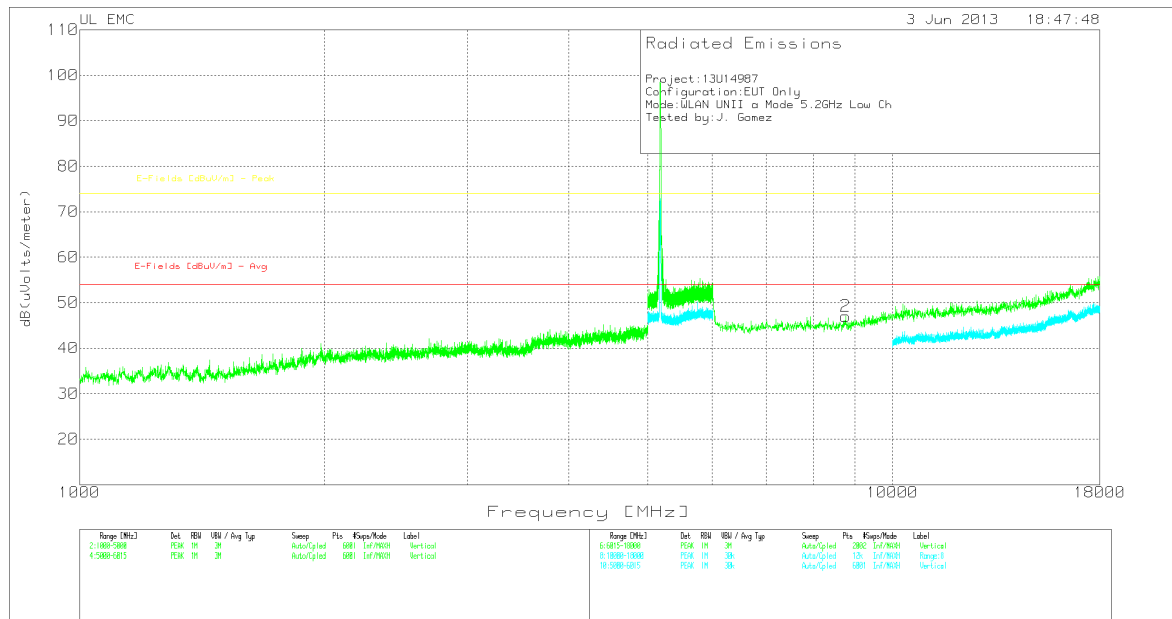


New Low 6-14-13.DAT

Rev 9.5 13 Jun 2013

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor (dB/m)	Preamplifier 6 GHz HPF dB	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	9.576	38.12	PK	37.5	-26.8	48.82	53.97	-5.15	74	-25.18	199	H
PK - Peak Detector												

# LOW CHANNEL RESTRICTED, VERTICAL

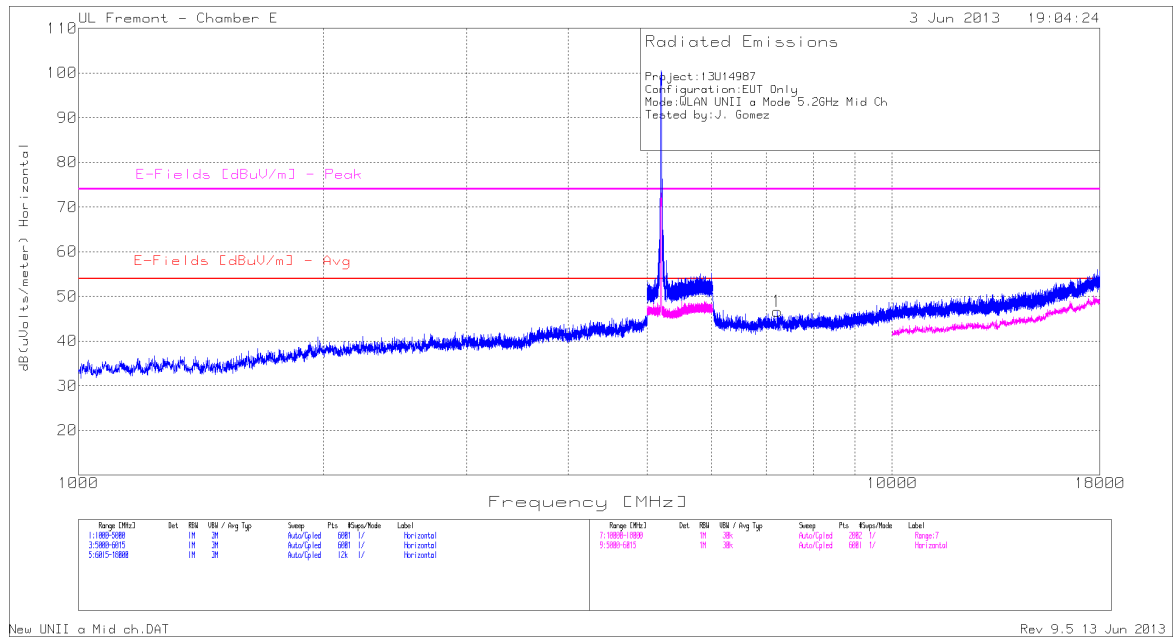


New Low 6-14-13.DAT

Rev 9.5 13 Jun 2013

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamplifier/6 GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	8.758	38.1	PK	36.6	-27.7	47	53.97	-6.97	74	-27	109	V
PK - Peak Detector												

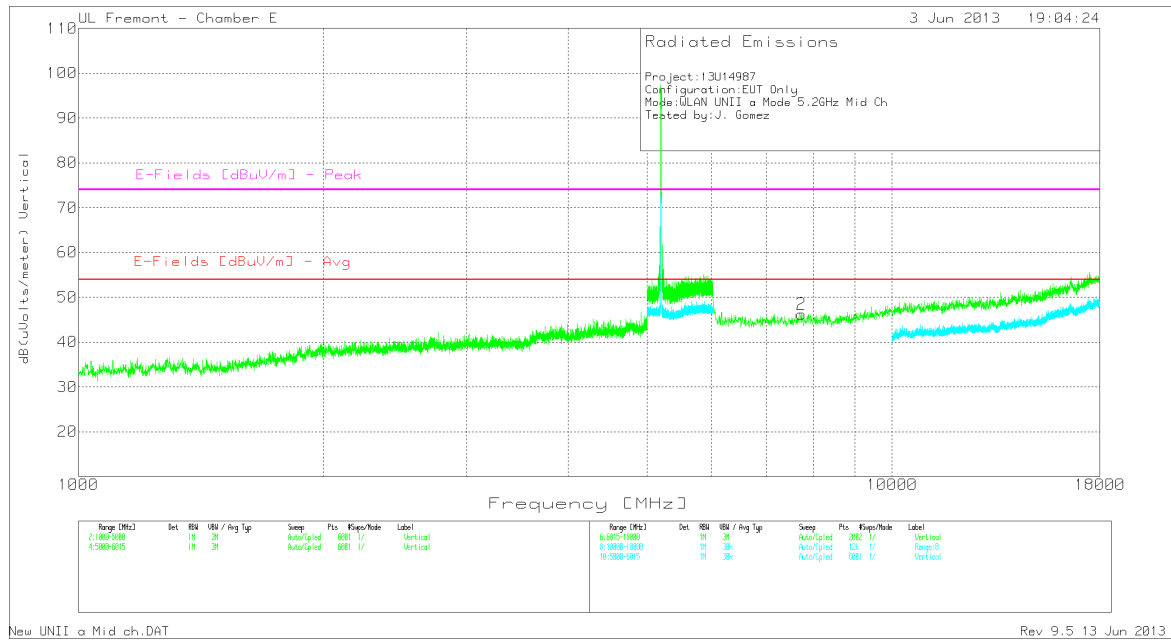
# MID CHANNEL RESTRICTED, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	7.226	39.81	PK	36	-29.2	46.61	53.97	-7.36	74	-27.39	199	H

PK - Peak detector

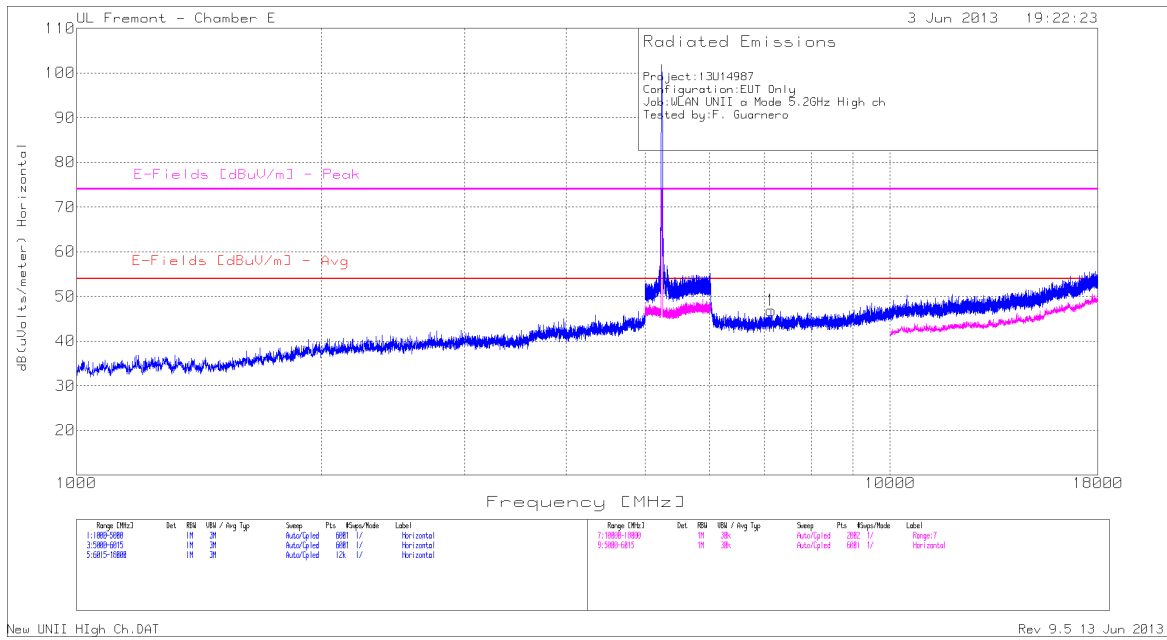
# MID CHANNEL RESTRICTED, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.734	38.84	PK	36.2	-28.8	46.24	53.97	-7.73	74	-27.76	199	V

PK - Peak detector

# HIGH CHANNEL RESTRICTED, HORIZONTAL

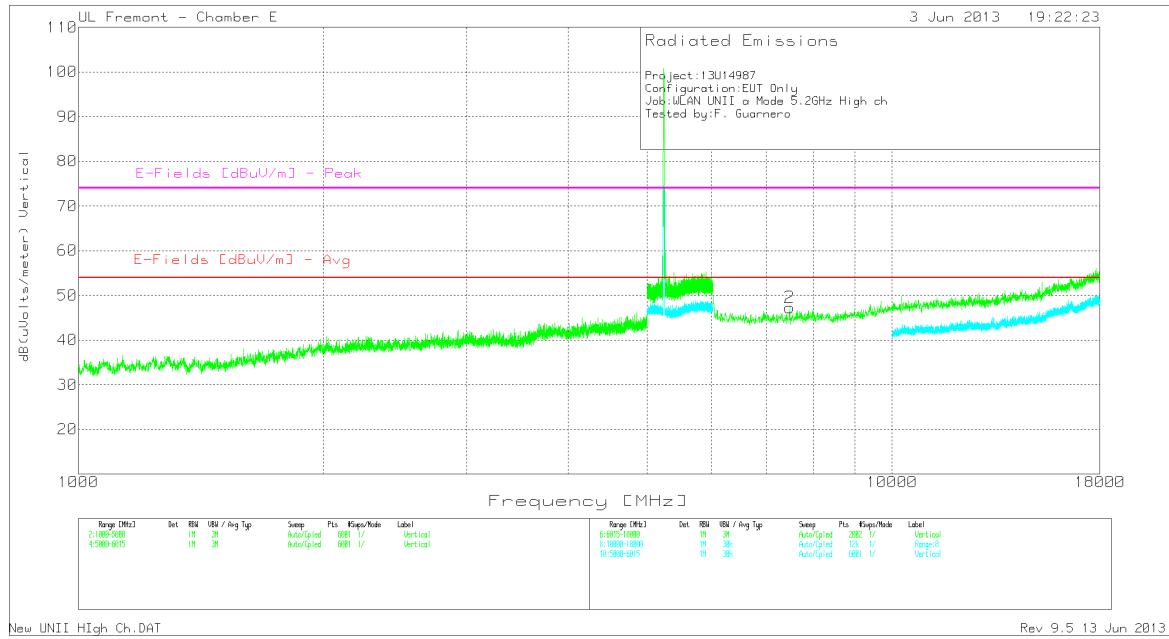


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	7.14	40.56	PK	36	-29.7	46.86	53.97	-7.11	74	-27.14	199	H

PK - Peak detector



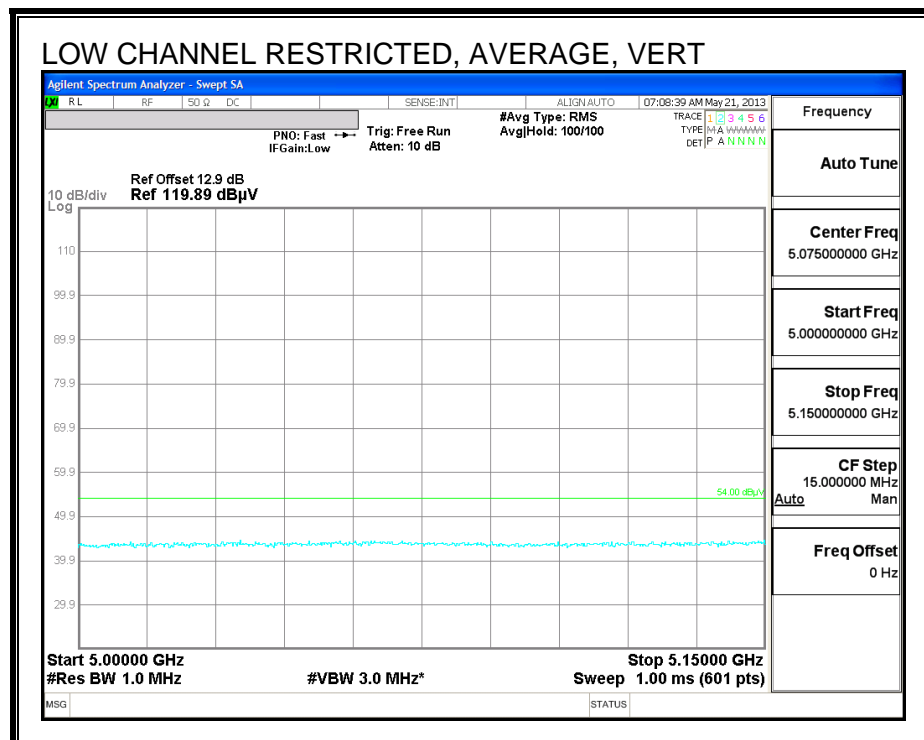
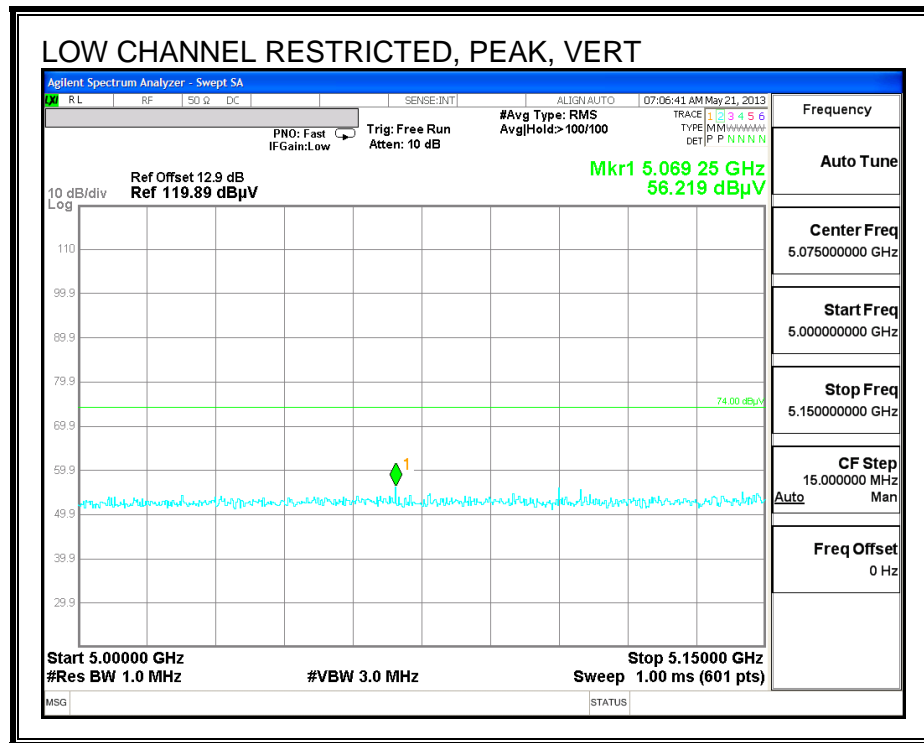
# HIGH CHANNEL RESTRICTED, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.482	40.58	PK	36.1	-29.4	47.28	53.97	-6.69	74	-26.72	199	V

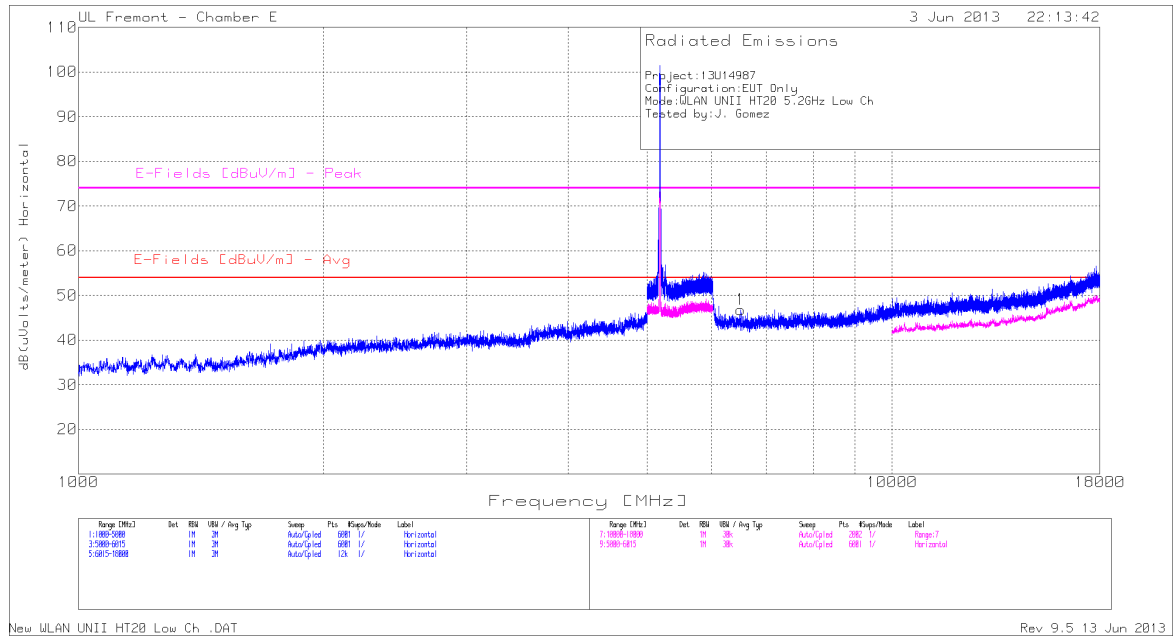
PK - Peak detector





## HARMONICS AND SPURIOUS EMISSIONS

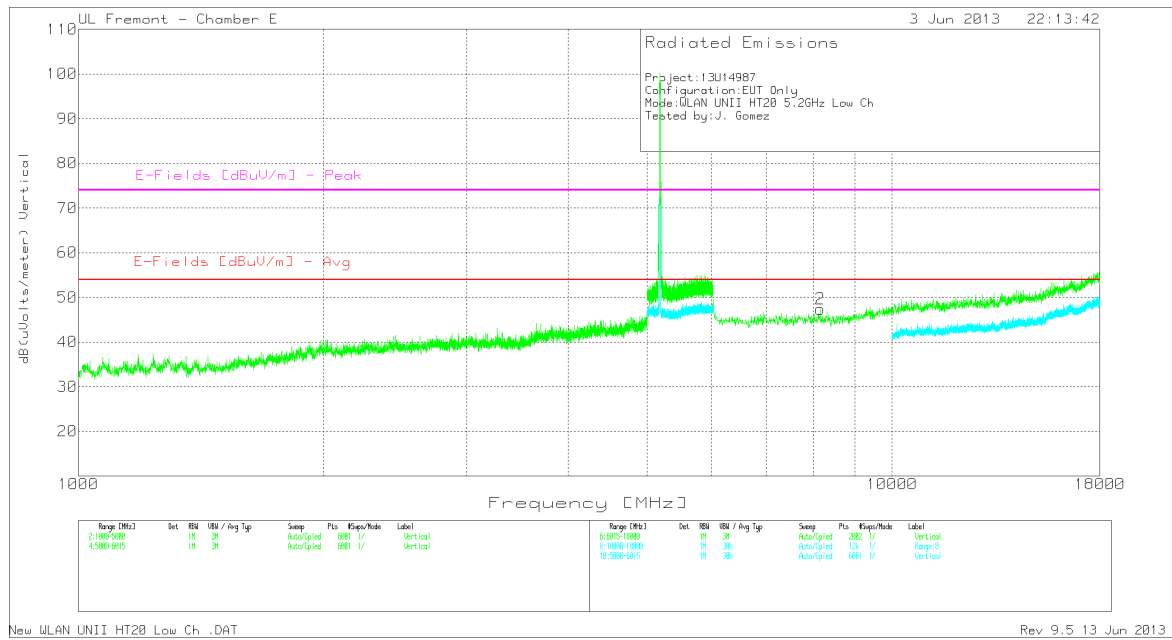
### LOW CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.513	40.42	PK	35.8	-29.4	46.82	53.97	-7.15	74	-27.18	199	H

PK - Peak detector

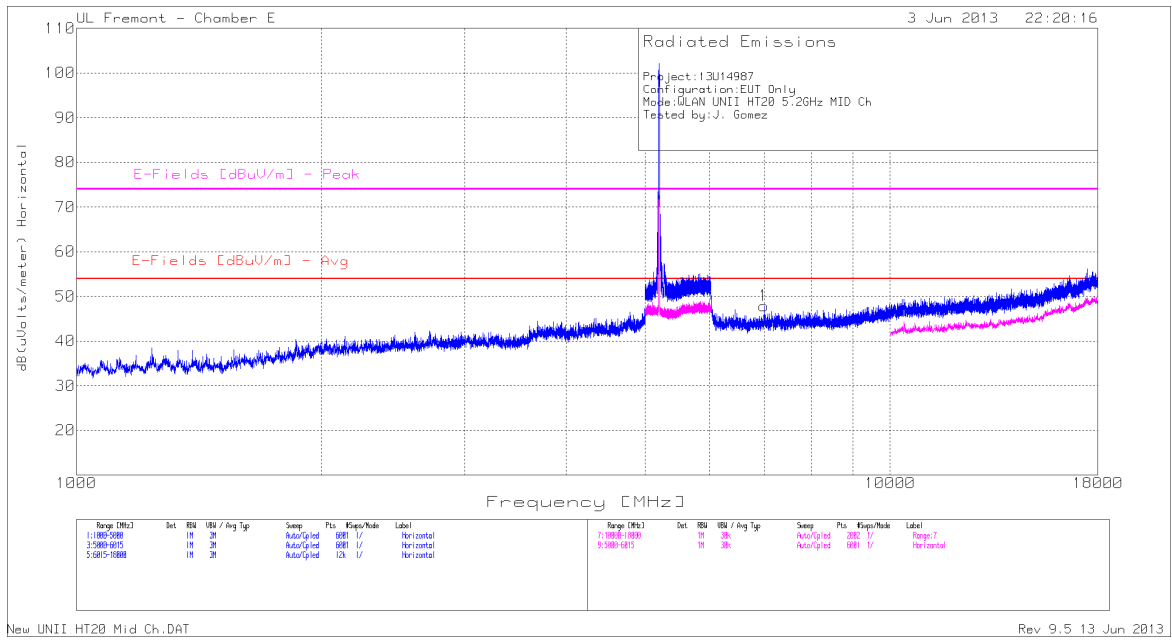
## LOW CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	8.159	39.69	PK	36.2	-28.5	47.39	53.97	-6.58	74	-26.61	199	V

PK - Peak detector

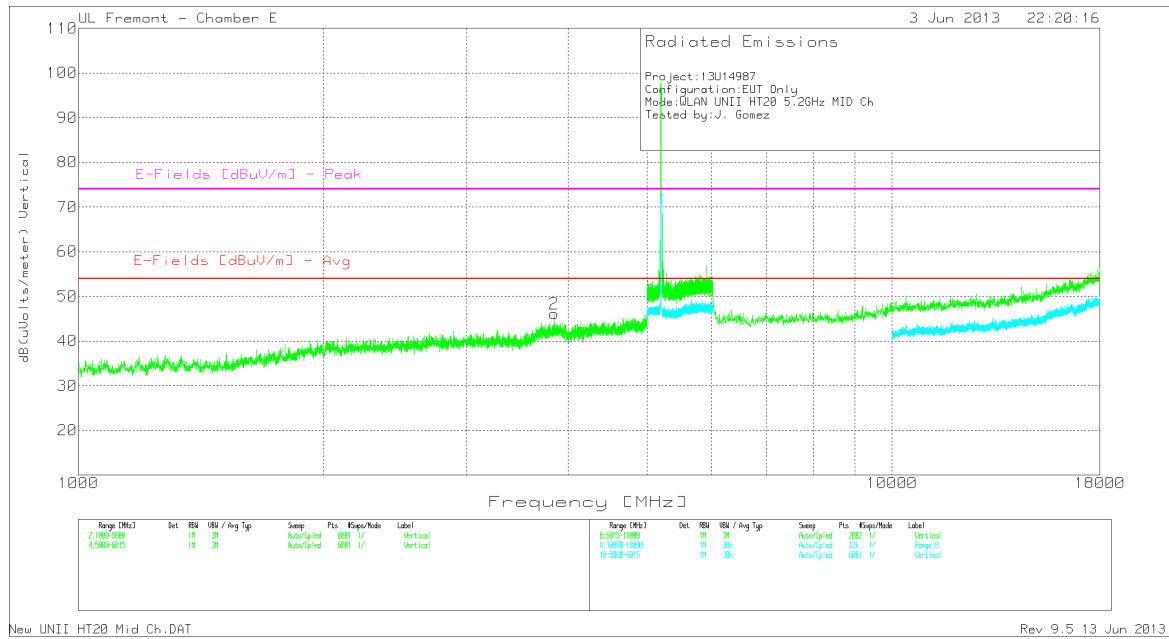
# MID CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.996	40.91	PK	36	-29	47.91	53.97	-6.06	74	-26.09	199	H

PK - Peak detector

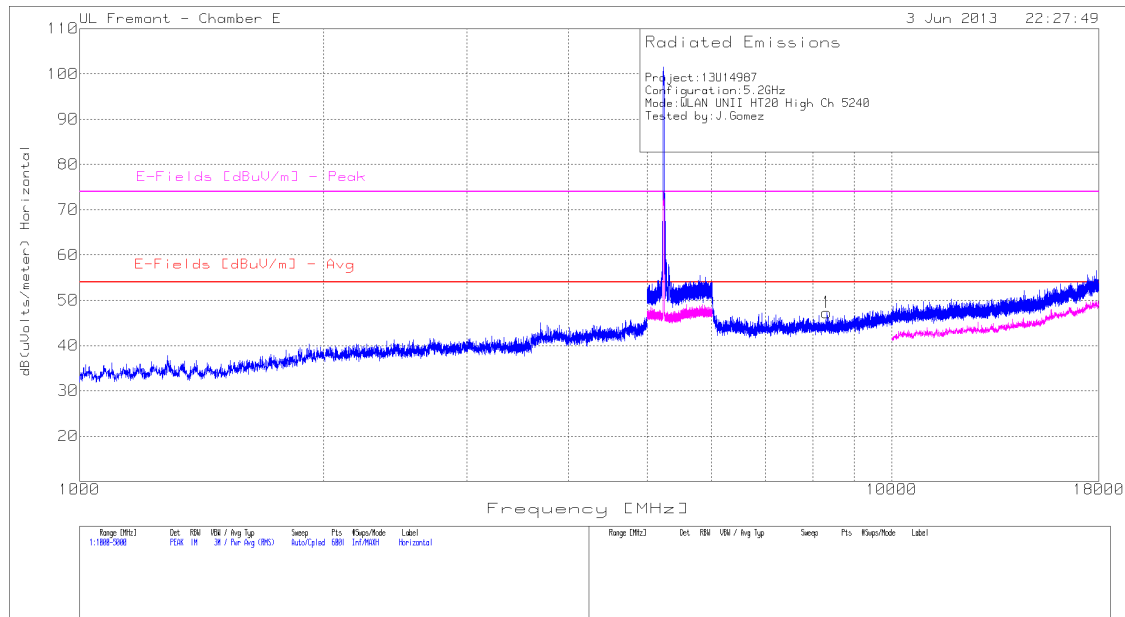
## MID CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/Cable 5GHz LPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	3.843	44.39	PK	33.7	-32	46.09	53.97	-7.88	74	-27.91	199	V

- Peak detector

## HIGH CHANNEL, HORIZONTAL

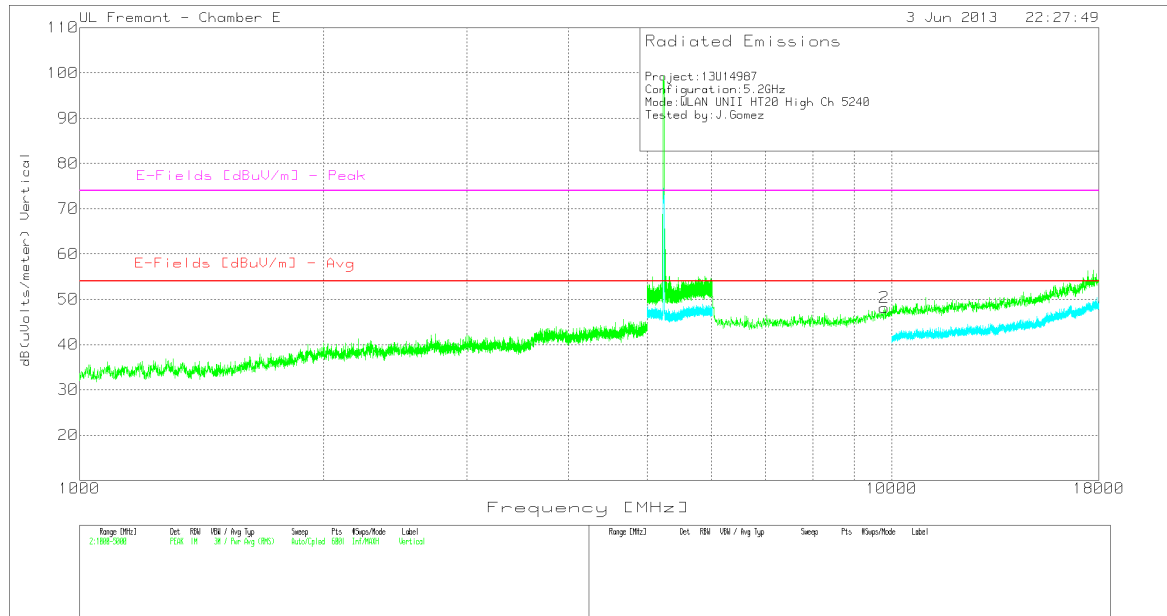


File: New UNII HT20 High Ch.DAT

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable /5GHz HPF dB	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	10.415	35	PK	38.4	-25.1	48.3	53.97	-5.67	74	-25.7	109	H
PK - Peak Detector												



# HIGH CHANNEL, VERTICAL

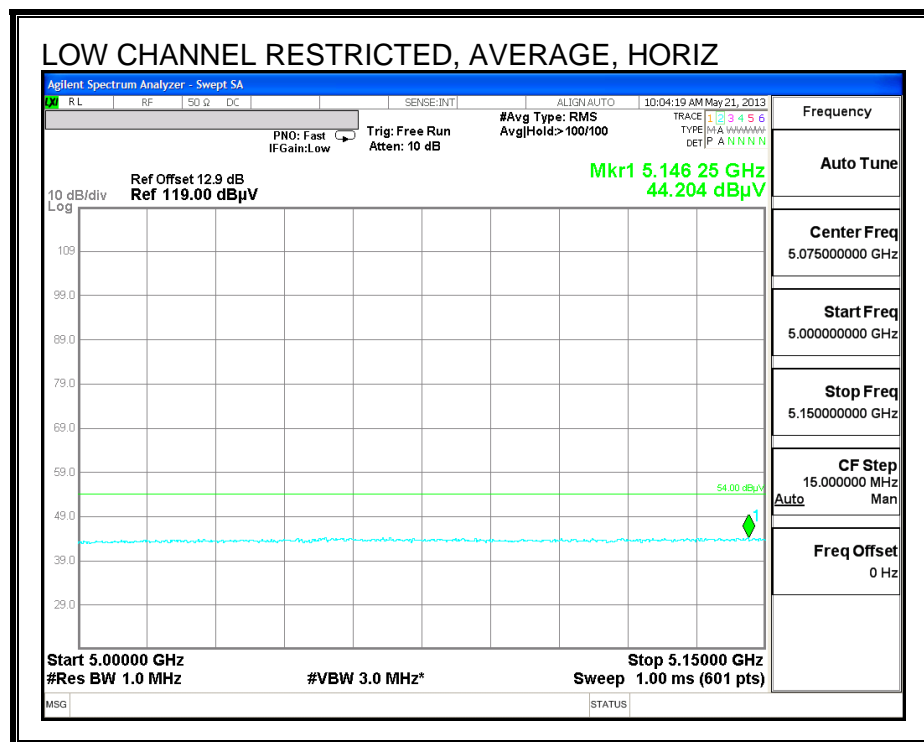
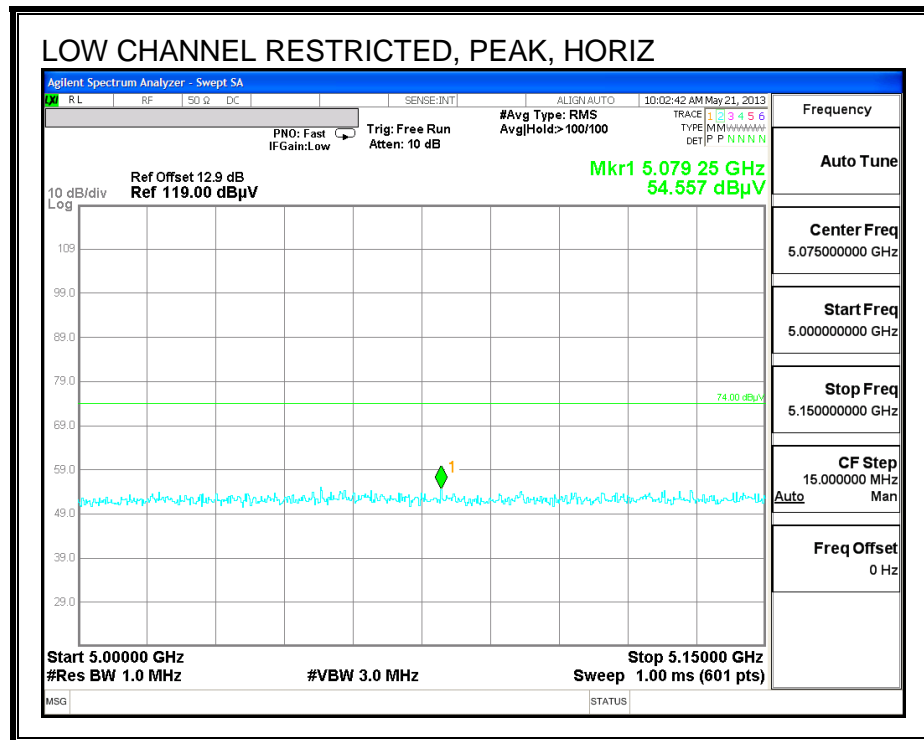


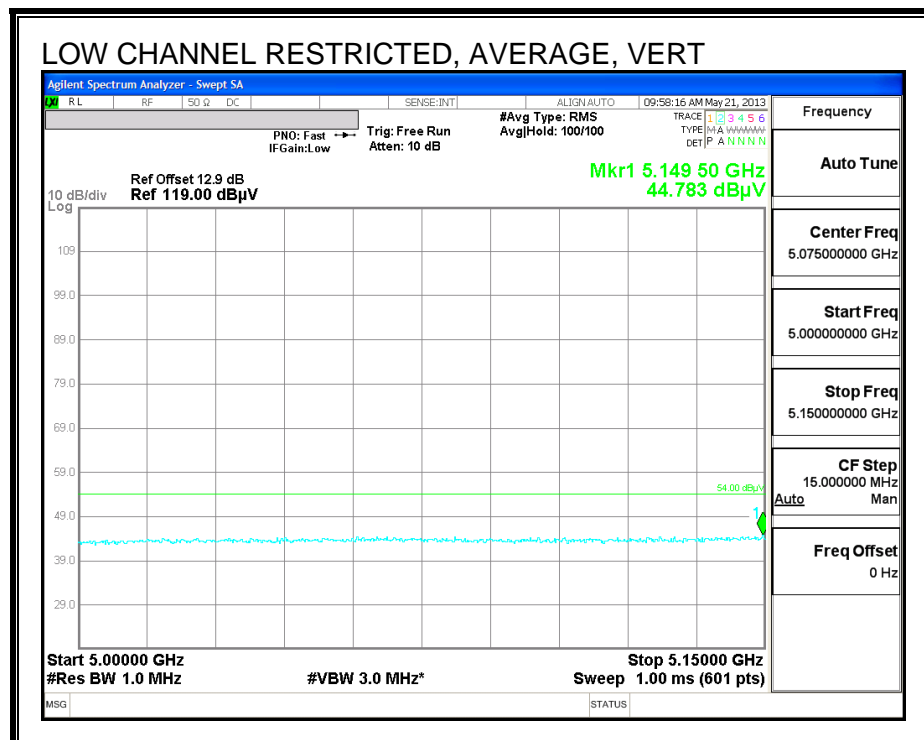
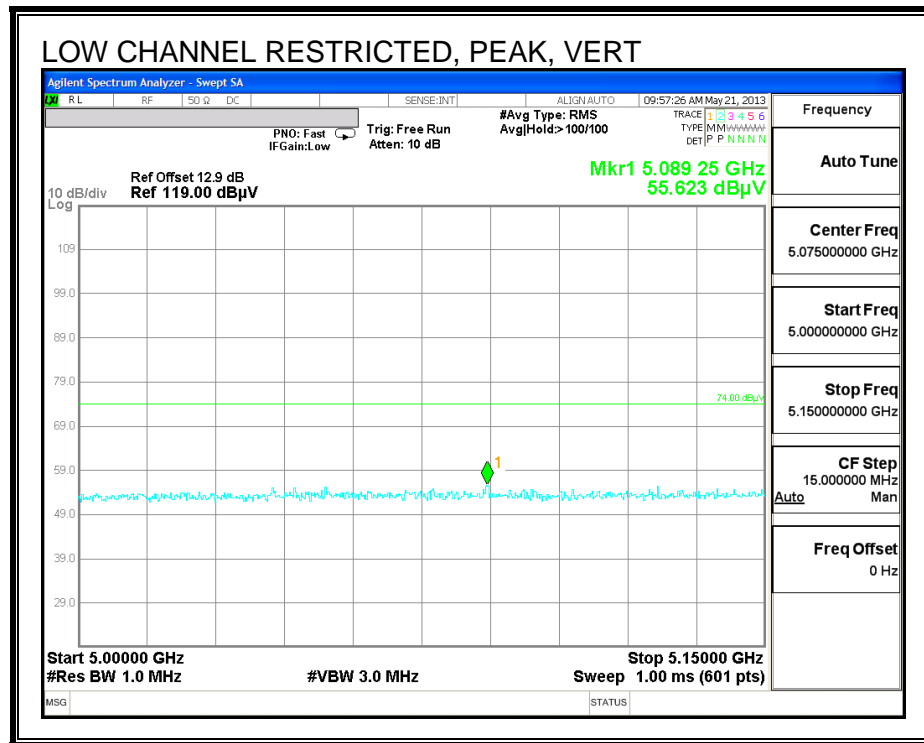
File: New UNII HT20 High Ch.DAT

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable /6 GHz HPF dB	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	10.345	35.54	PK	38.3	-25.4	48.44	53.97	-5.53	74	-25.56	199	V
PK - Peak Detector												

### 9.2.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND

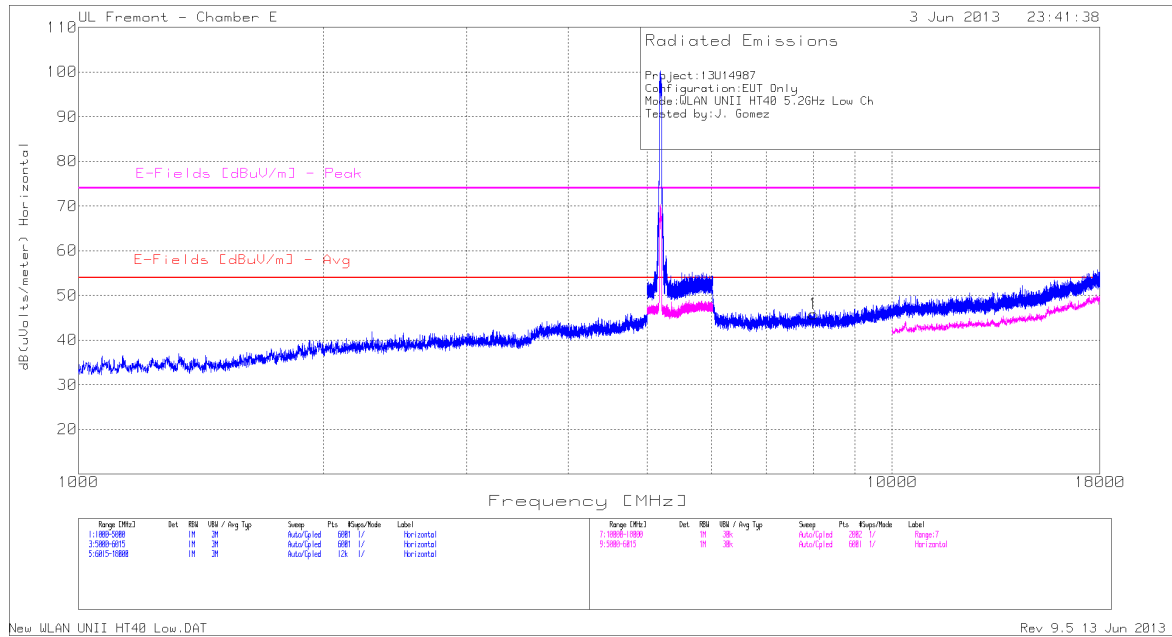
#### RESTRICTED BANDEDGE (LOW CHANNEL)





## HARMONICS AND SPURIOUS EMISSIONS

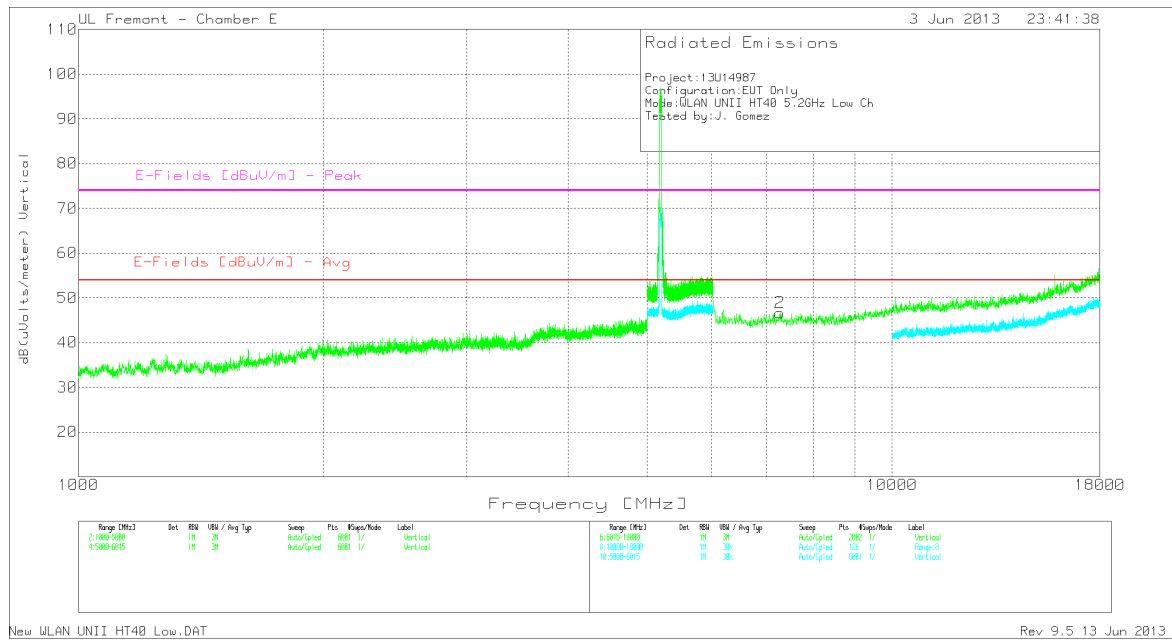
### LOW CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	8.005	38.36	PK	36.2	-28.7	45.86	53.97	-8.11	74	-28.14	199	H

PK - Peak detector

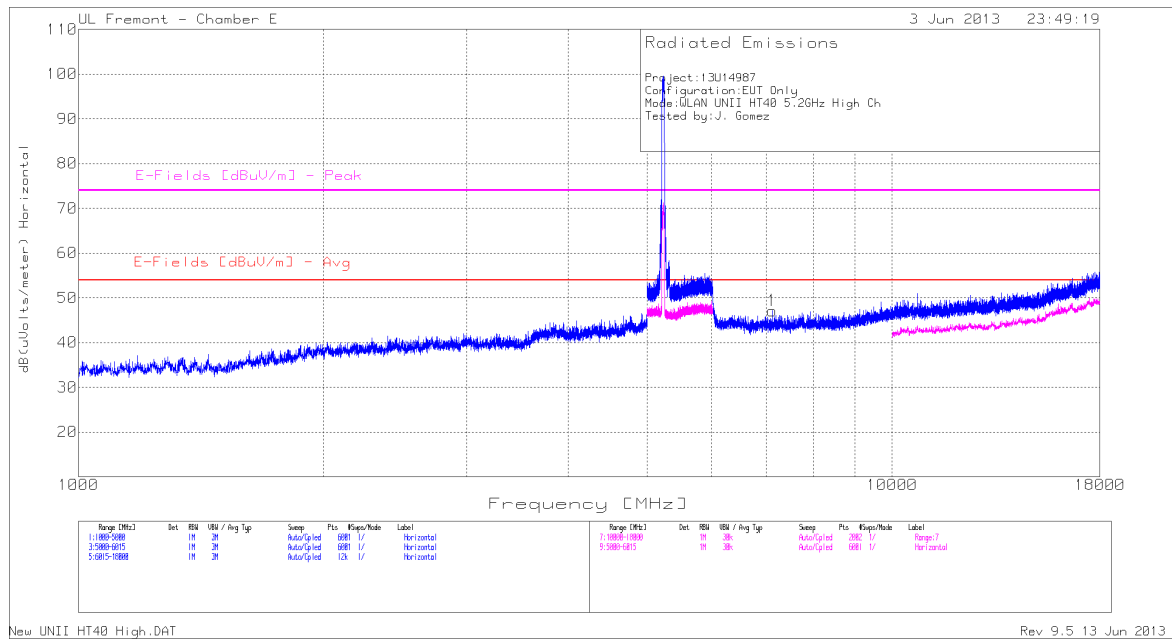
## LOW CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.279	39.46	PK	36	-28.8	46.66	53.97	-7.31	74	-27.34	199	V

PK - Peak detector

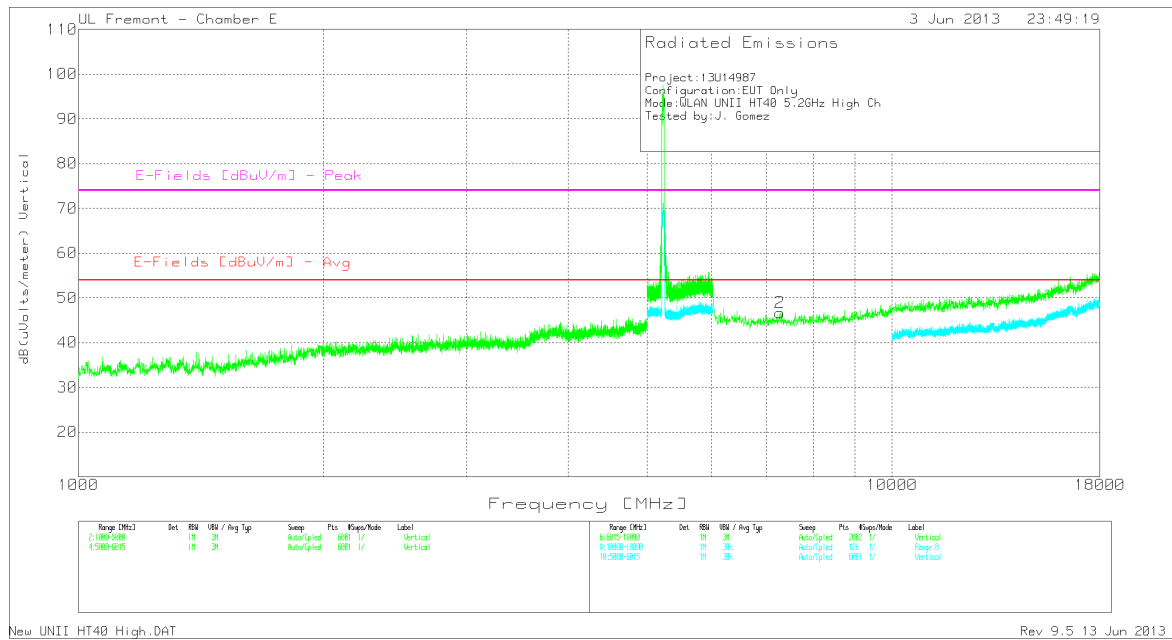
# HIGH CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	7.122	40.73	PK	36	-29.6	47.13	53.97	-6.84	74	-26.87	199	H

PK - Peak detector

## HIGH CHANNEL, VERTICAL

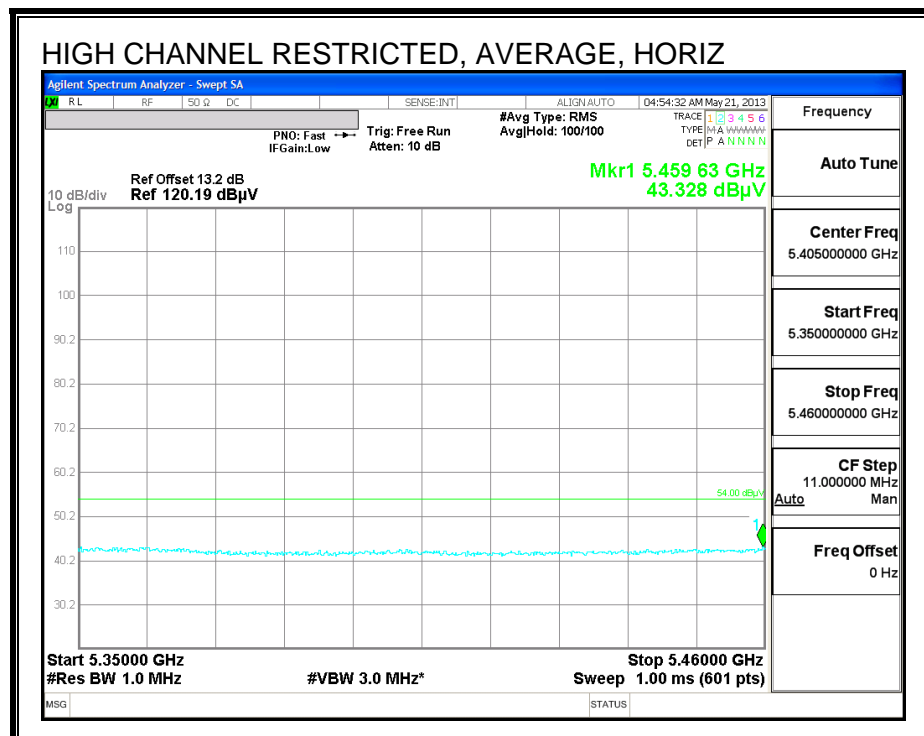
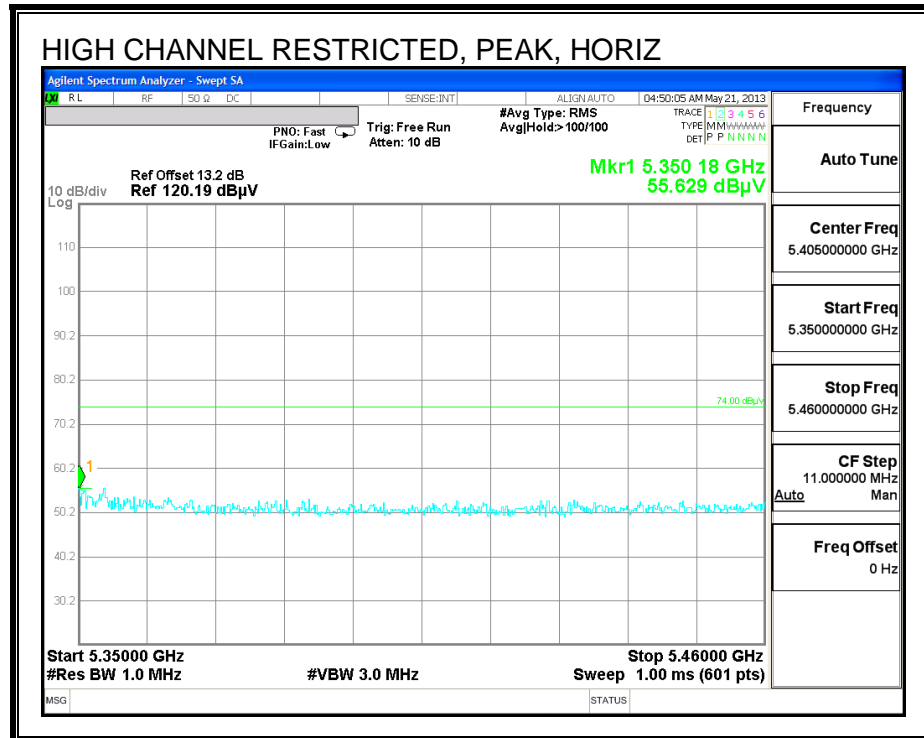


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.279	39.48	PK	36	-28.8	46.68	53.97	-7.29	74	-27.32	199	V

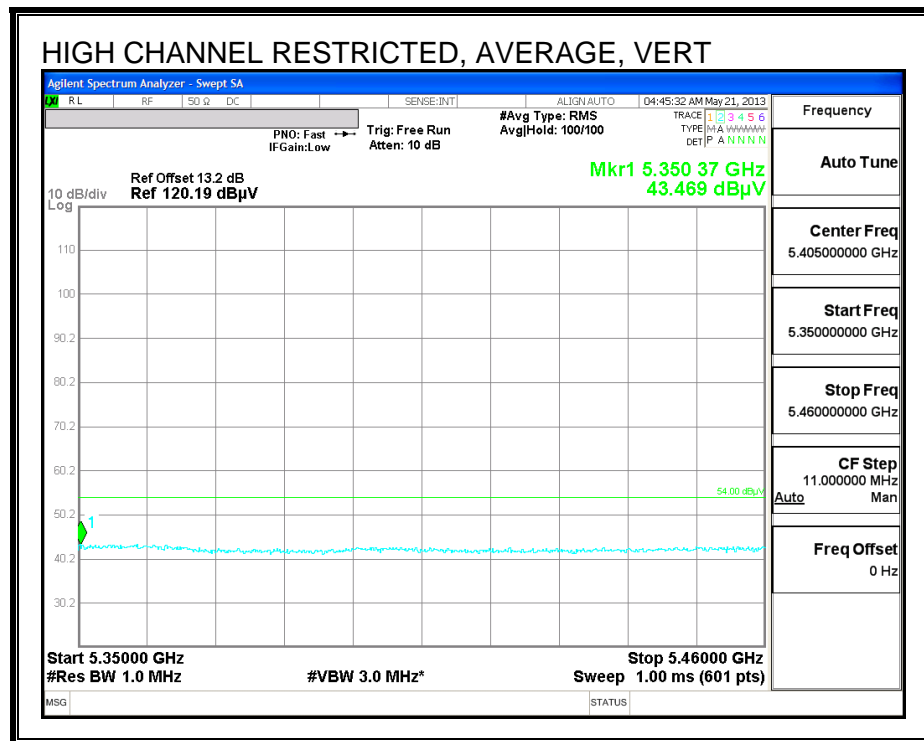
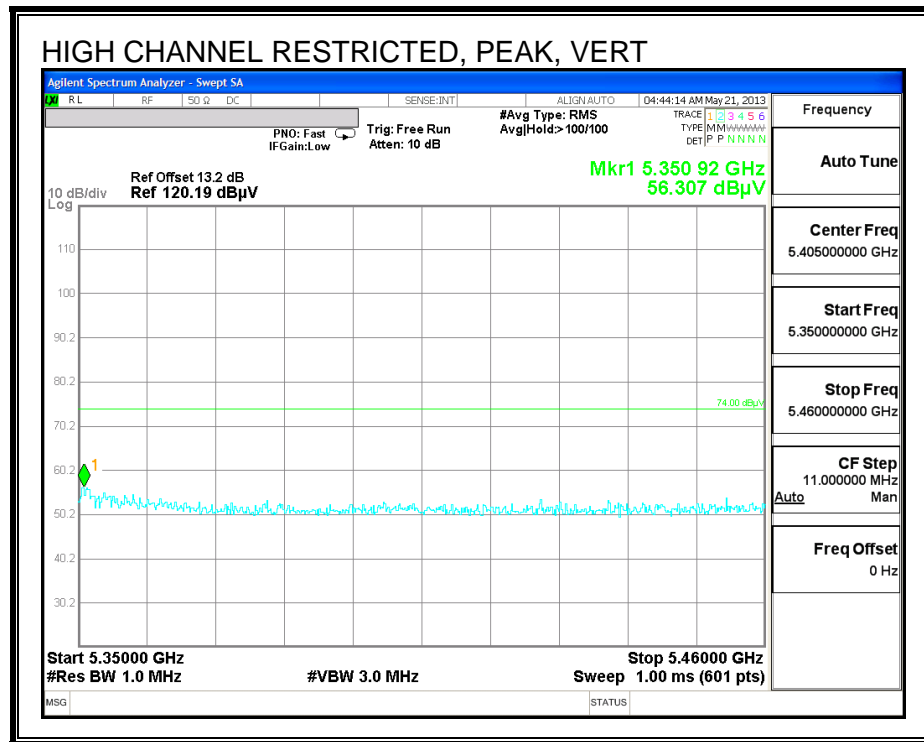
PK - Peak detector

## 9.2.4. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND

### RESTRICTED BANDEDGE (HIGH CHANNEL)

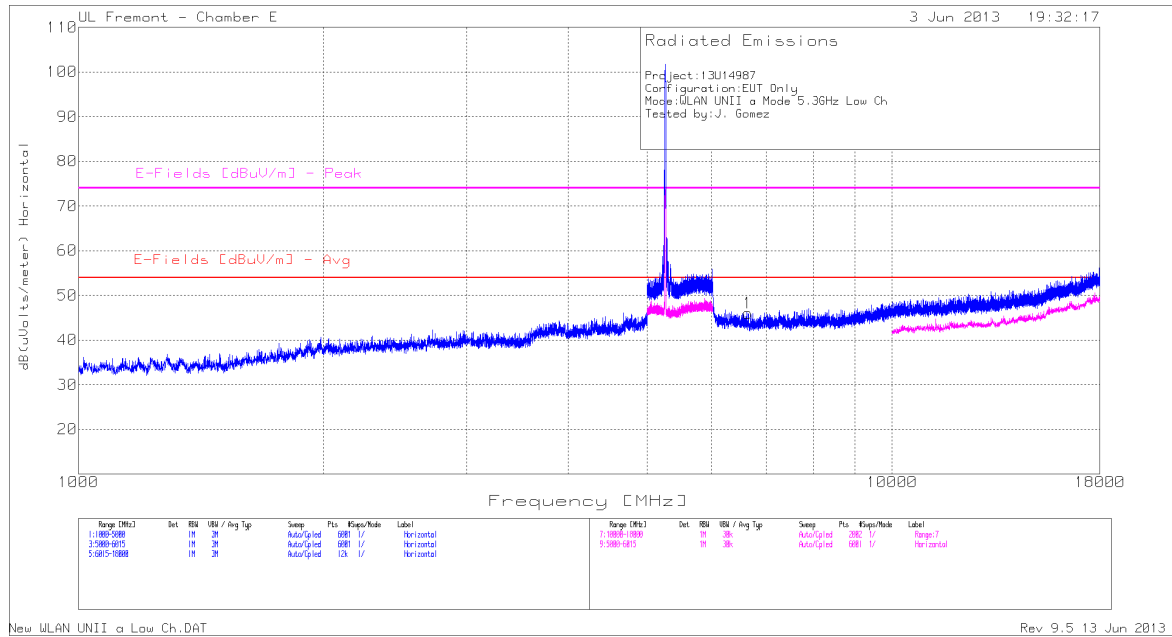






## HARMONICS AND SPURIOUS EMISSIONS

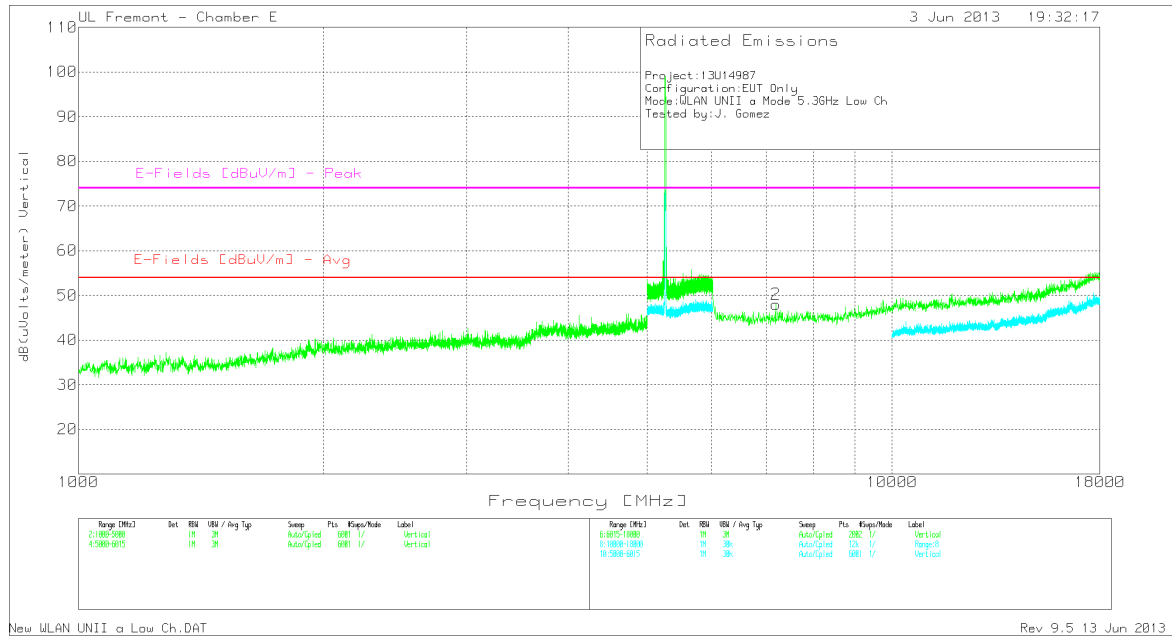
### LOW CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.651	39.91	PK	35.8	-29.7	46.01	53.97	-7.96	74	-27.99	100	H

PK - Peak detector

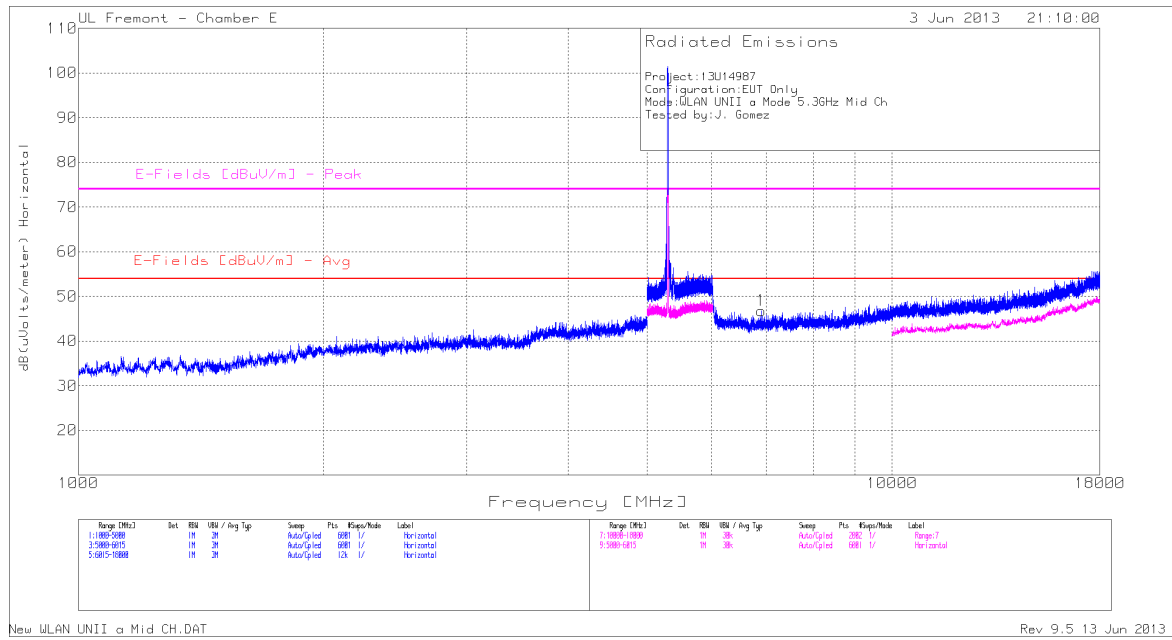
## LOW CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.195	41.37	PK	36	-29.4	47.97	53.97	-6	74	-26.03	199	V

PK - Peak detector

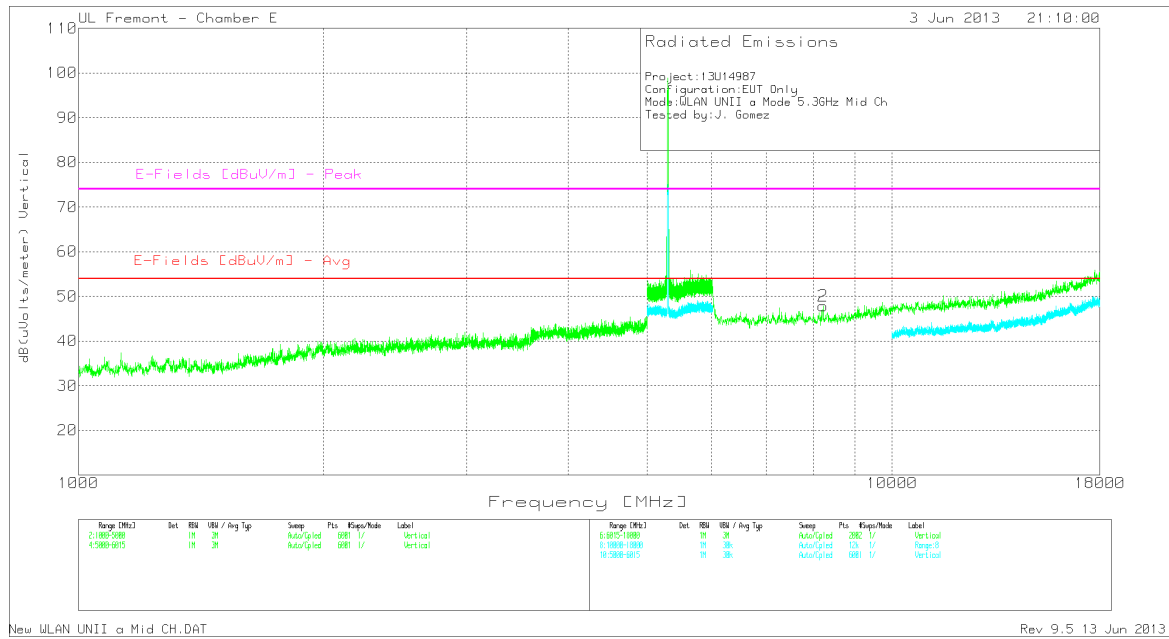
# MID CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.908	40.7	PK	35.9	-29.8	46.8	53.97	-7.17	74	-27.2	199	H

PK - Peak detector

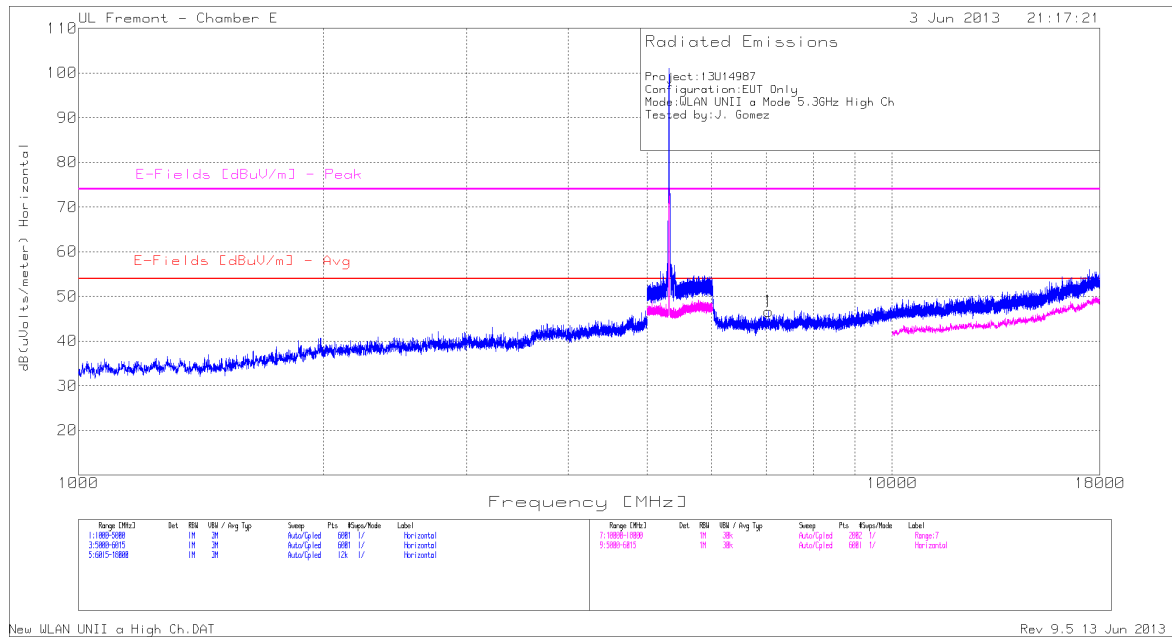
## MID CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	8.225	40.13	PK	36.2	-28.5	47.83	53.97	-6.14	74	-26.17	199	V

PK - Peak detector

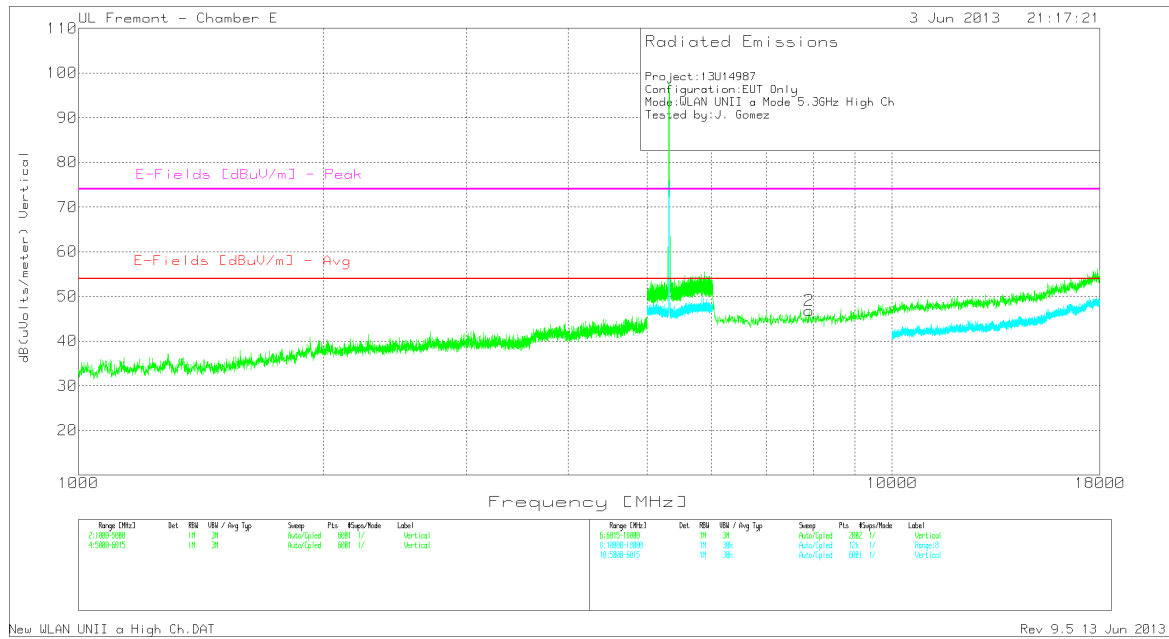
## HIGH CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	7.048	39.61	PK	36	-29	46.61	53.97	-7.36	74	-27.39	199	H

PK - Peak detector

# HIGH CHANNEL, VERTICAL

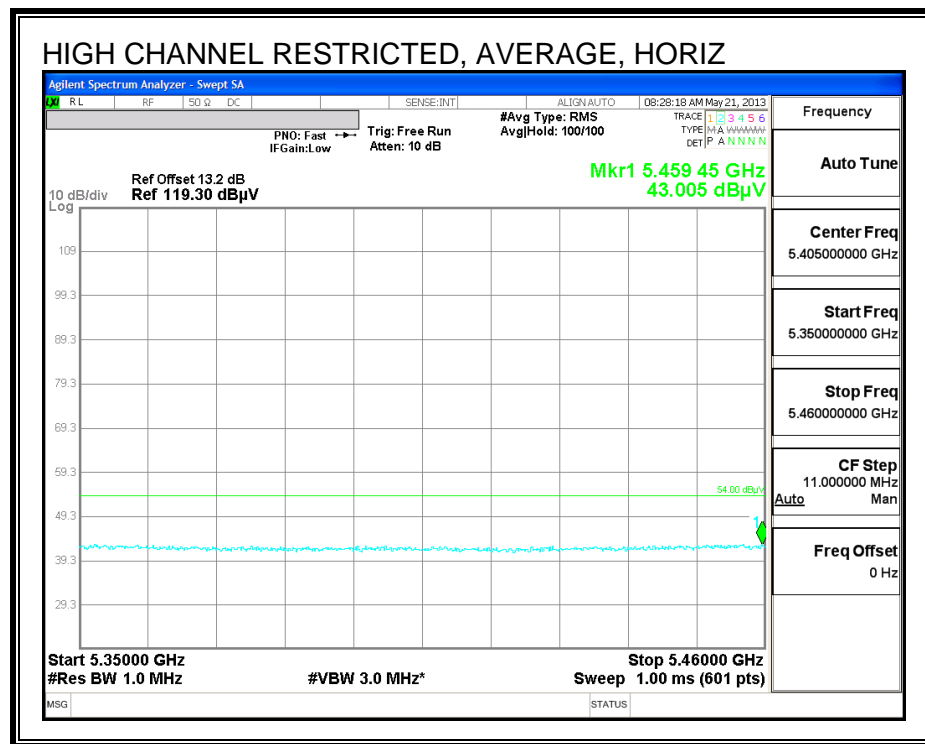
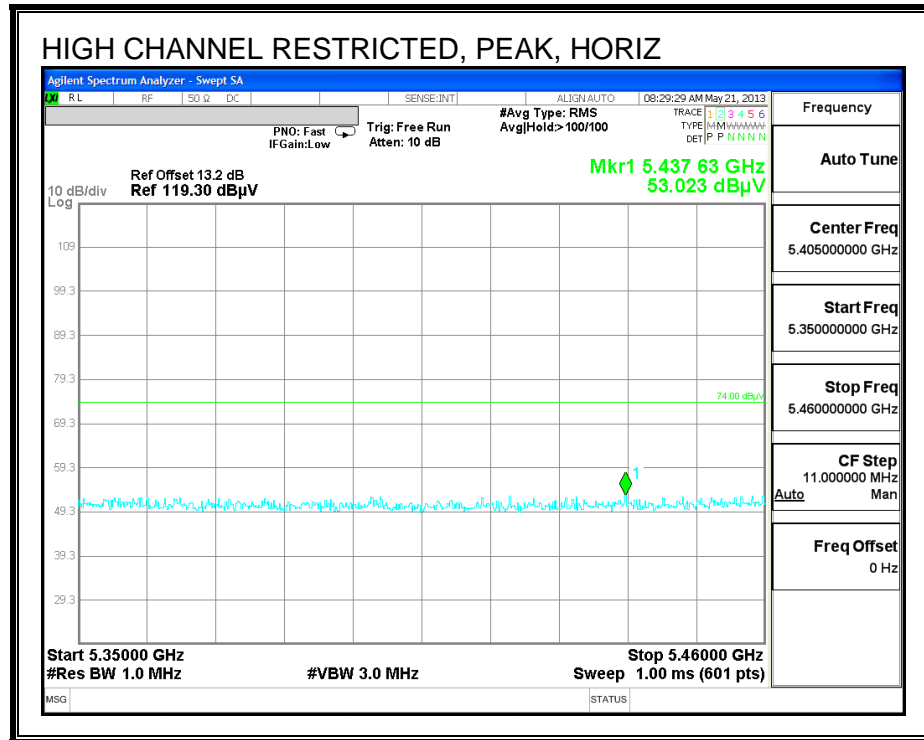


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.908	38.72	PK	36.2	-28.1	46.82	53.97	-7.15	74	-27.18	199	V

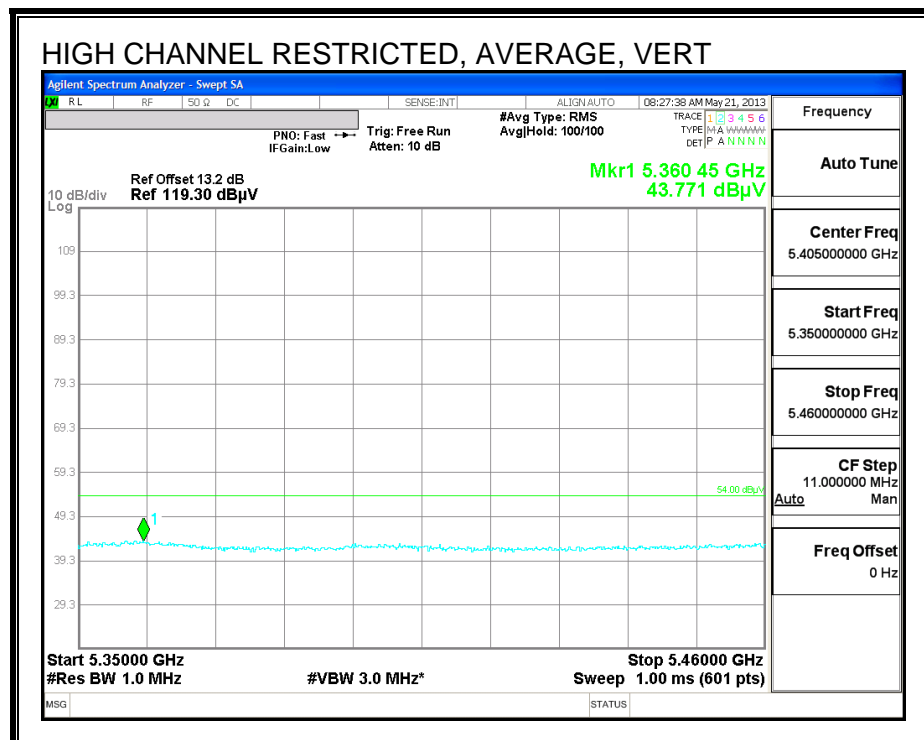
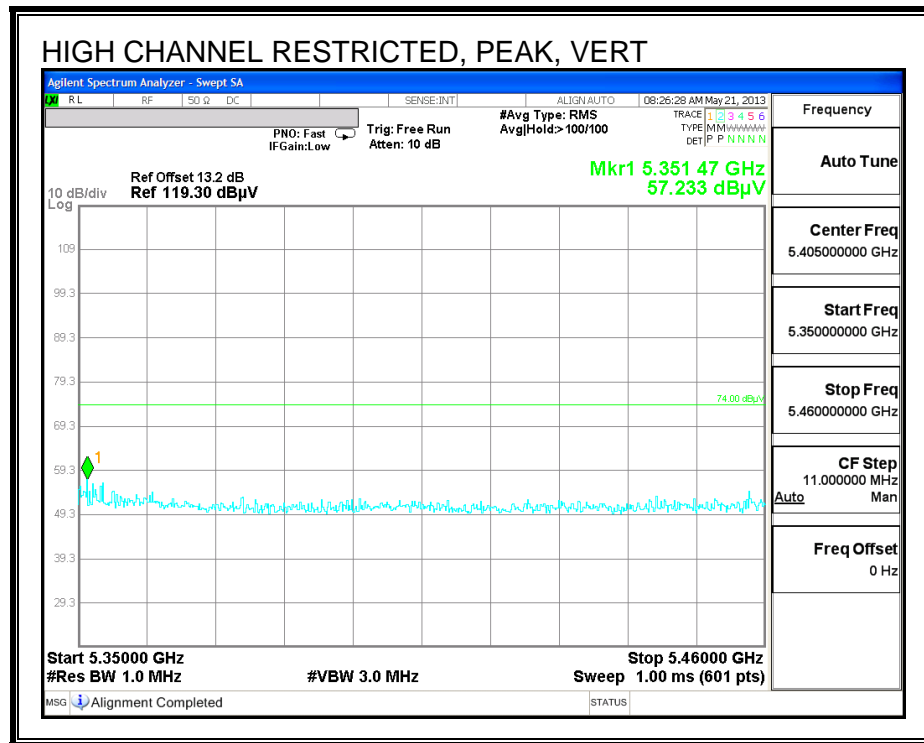
PK - Peak detector

## 9.2.5. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND

### RESTRICTED BANDEDGE (HIGH CHANNEL)

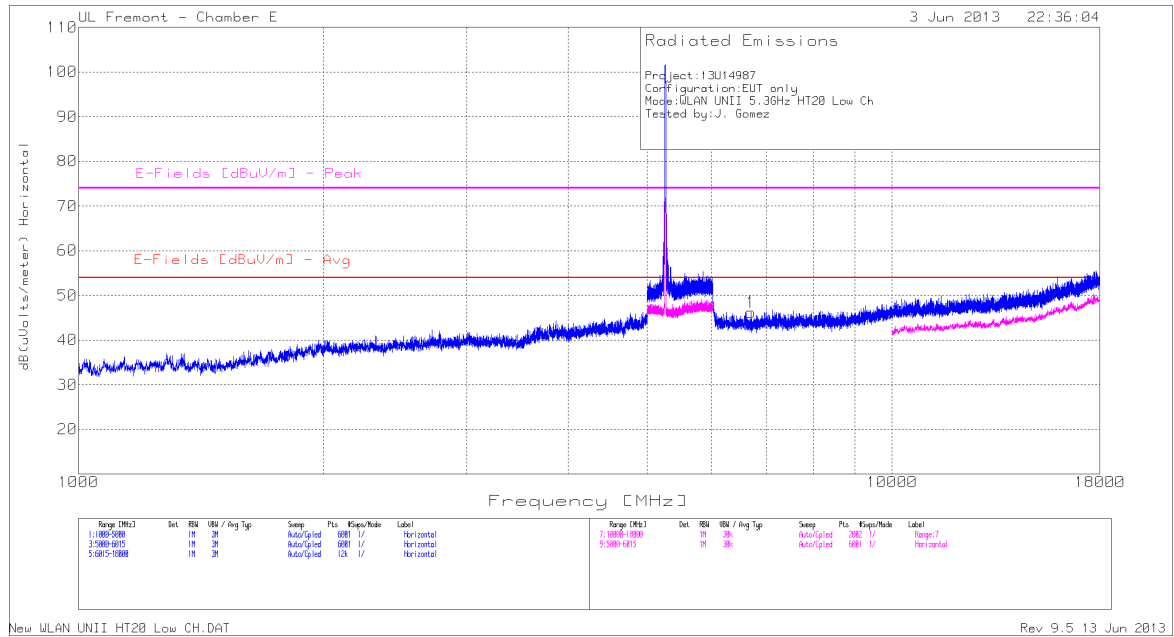






# HARMONICS AND SPURIOUS EMISSIONS

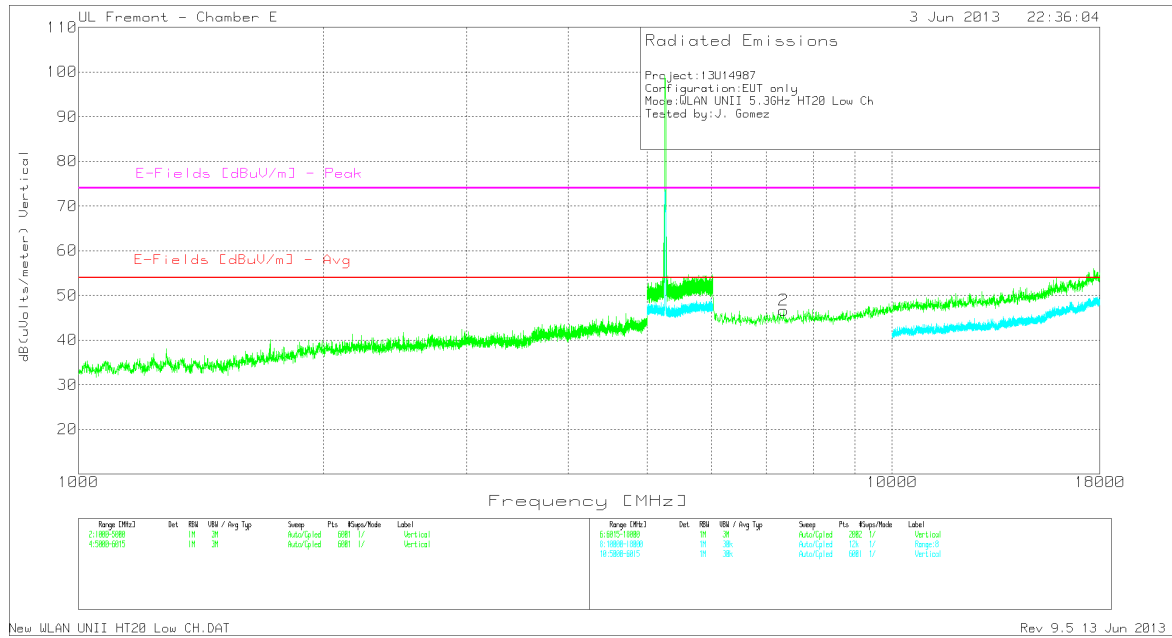
## LOW CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.703	40.27	PK	35.8	-29.9	46.17	53.97	-7.8	74	-27.83	199	H

PK - Peak detector

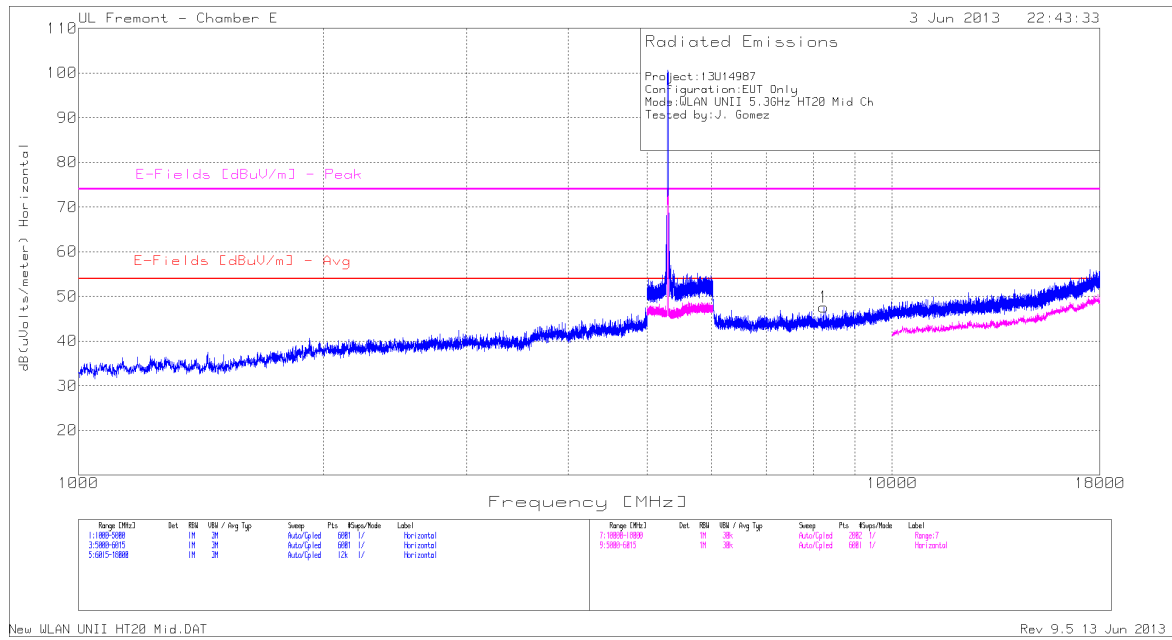
## LOW CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.357	39.16	PK	36	-28.5	46.66	53.97	-7.31	74	-27.34	199	V

PK - Peak detector

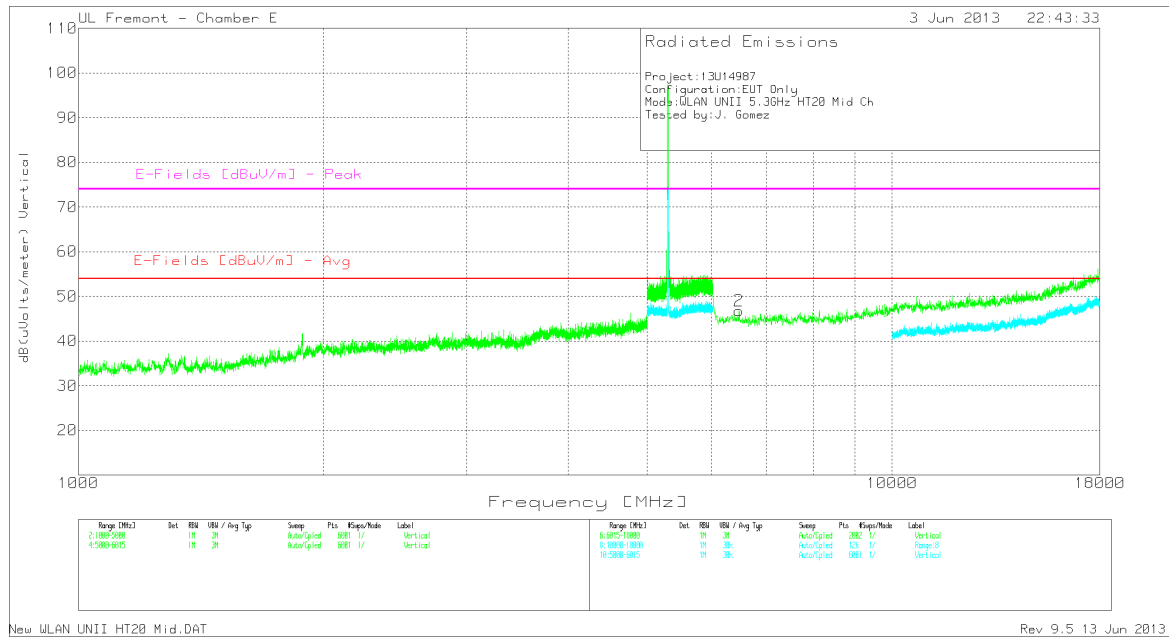
# MID CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	8.241	39.51	PK	36.2	-28.1	47.61	53.97	-6.36	74	-26.39	199	H

PK - Peak detector

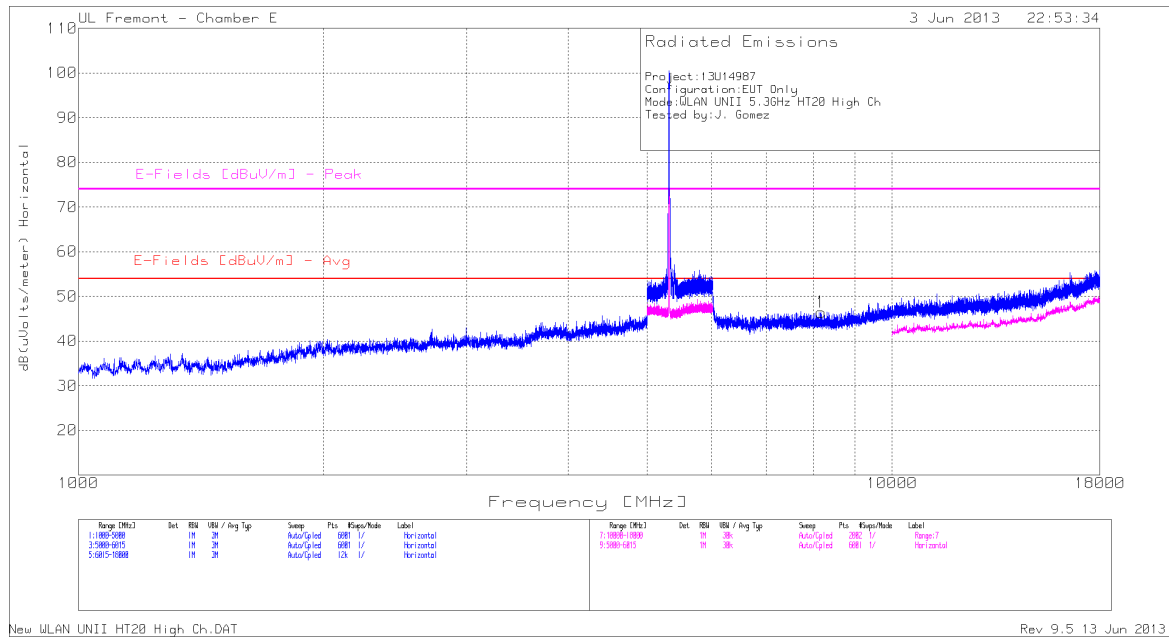
## MID CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	6.482	40.68	PK	35.8	-29.7	46.78	53.97	-7.19	74	-27.22	199	V

PK - Peak detector

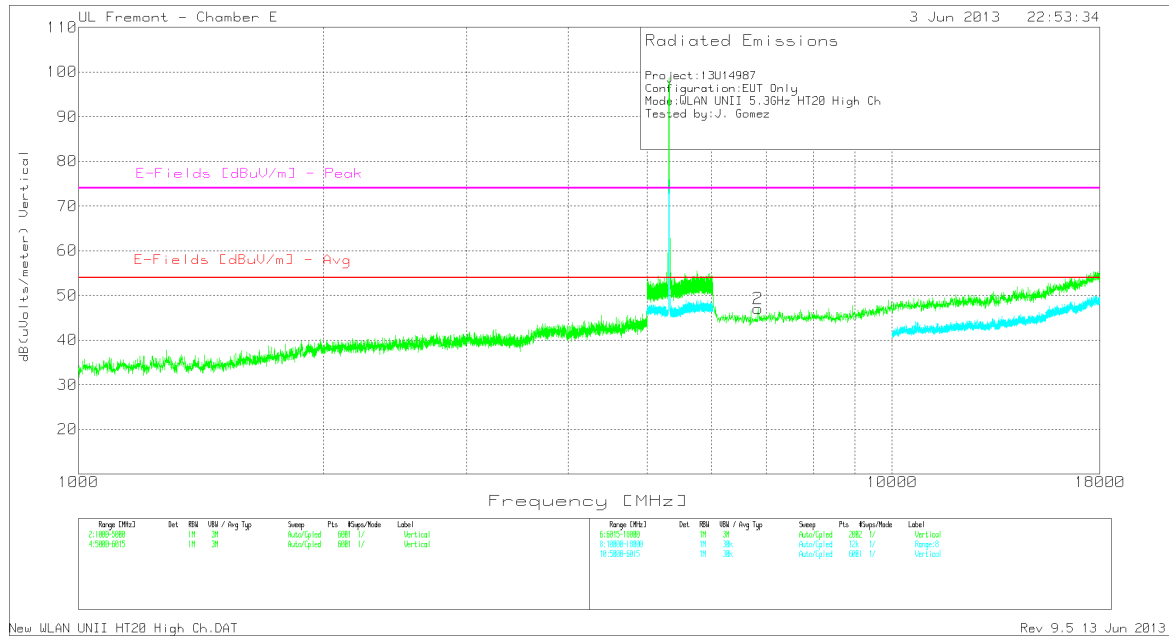
# HIGH CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	8.179	38.84	PK	36.2	-28.6	46.44	53.97	-7.53	74	-27.56	199	H

PK - Peak detector

## HIGH CHANNEL, VERTICAL

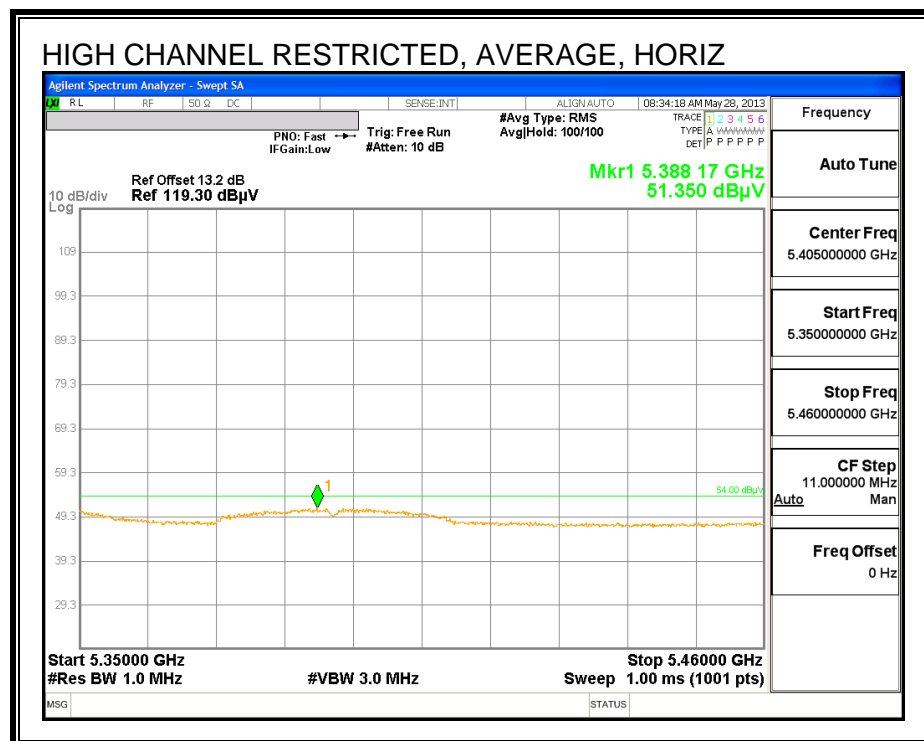
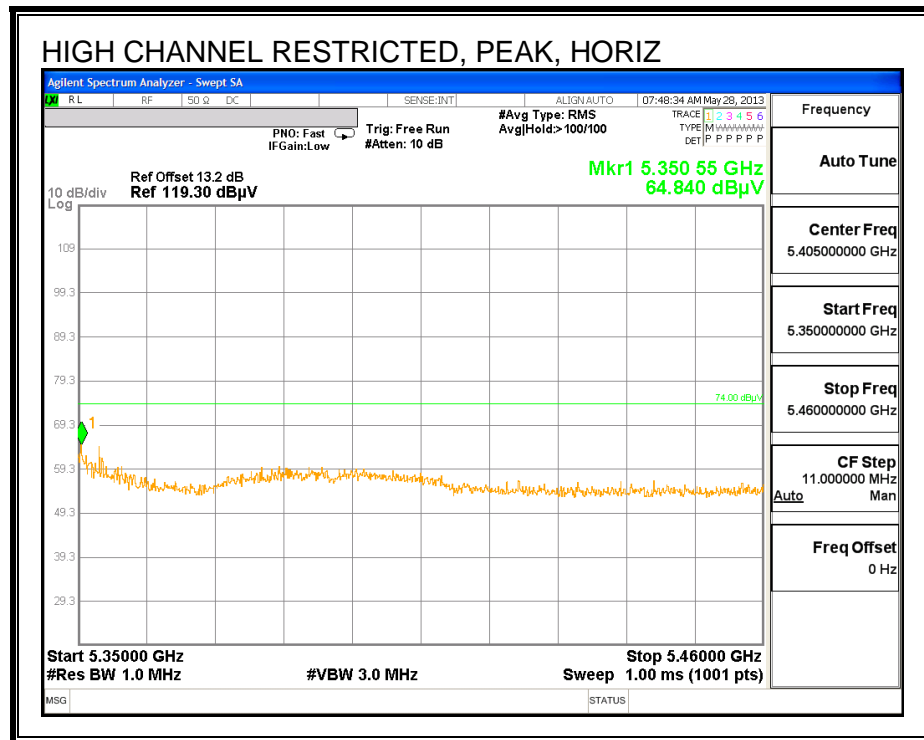


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	6.842	41.06	PK	35.9	-29.9	47.06	53.97	-6.91	74	-26.94	199	V

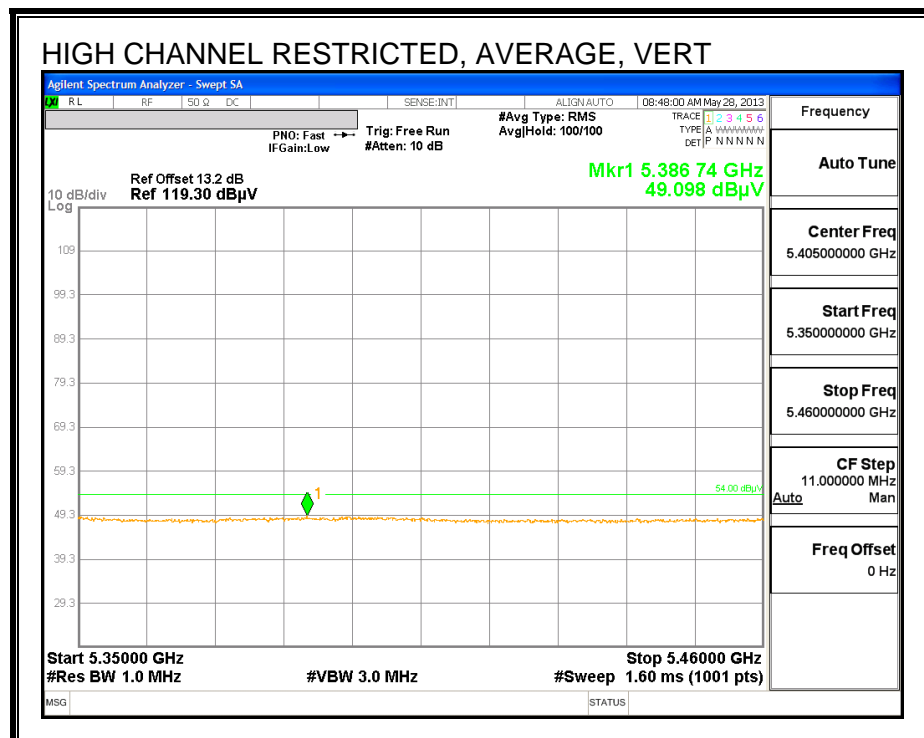
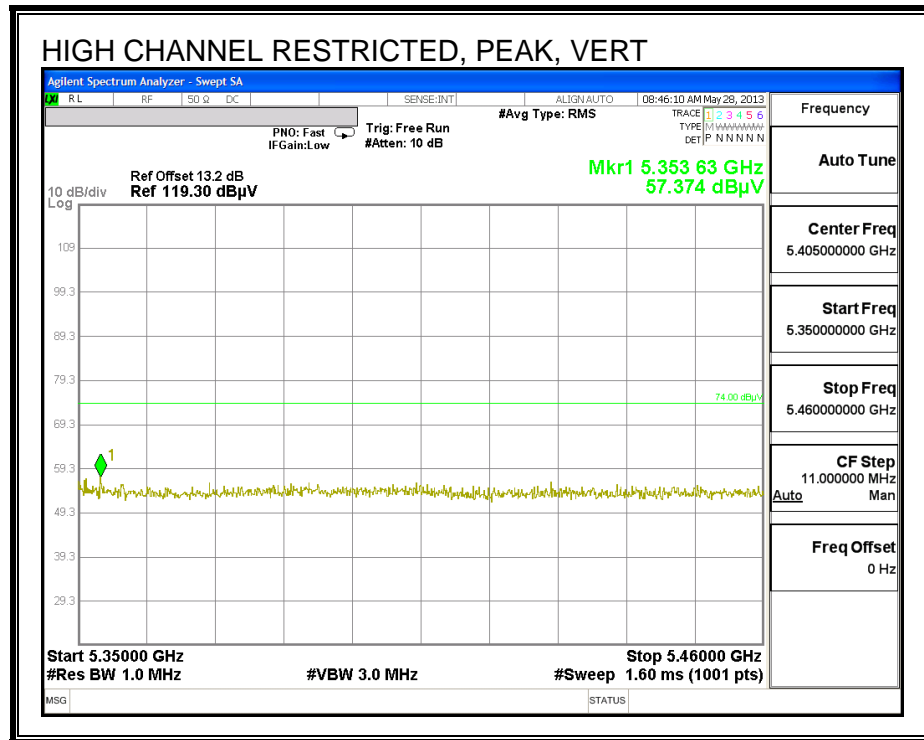
PK - Peak detector

## 9.2.6. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND

### RESTRICTED BANEDGE (HIGH CHANNEL)

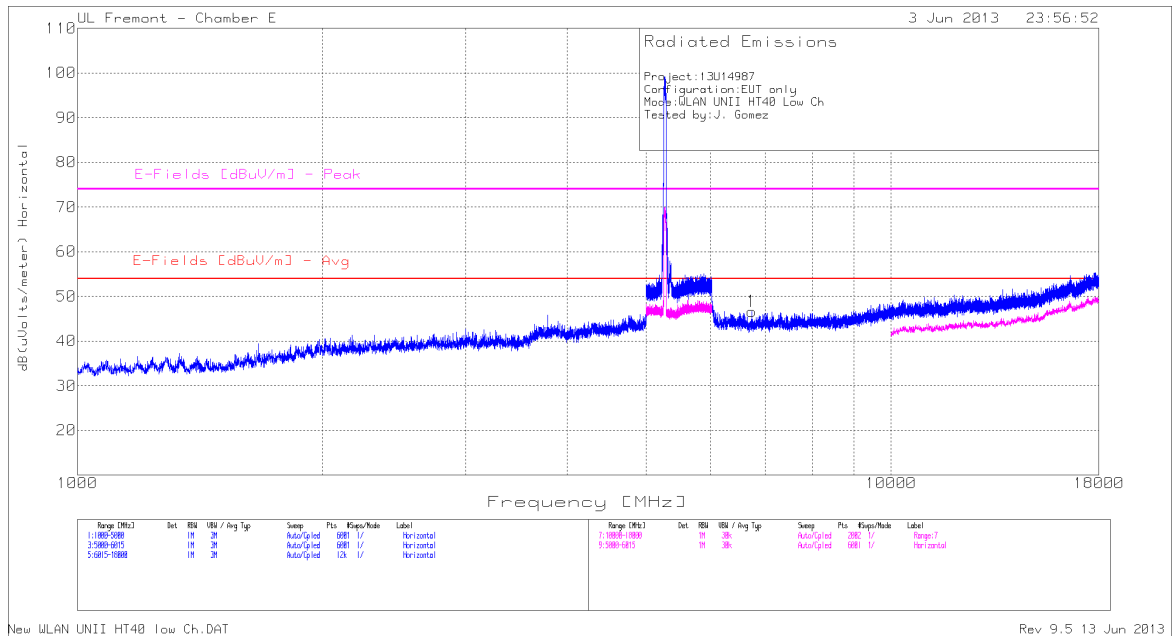






## HARMONICS AND SPURIOUS EMISSIONS

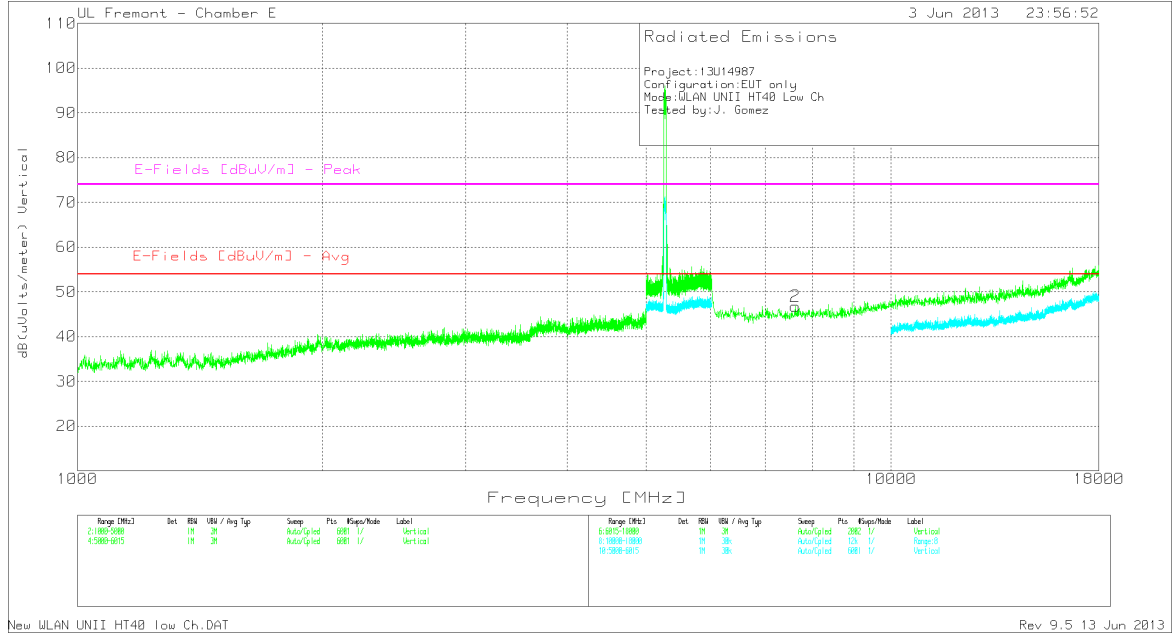
### LOW CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.74	40.75	PK	35.8	-29.9	46.65	53.97	-7.32	74	-27.35	199	H

PK - Peak detector

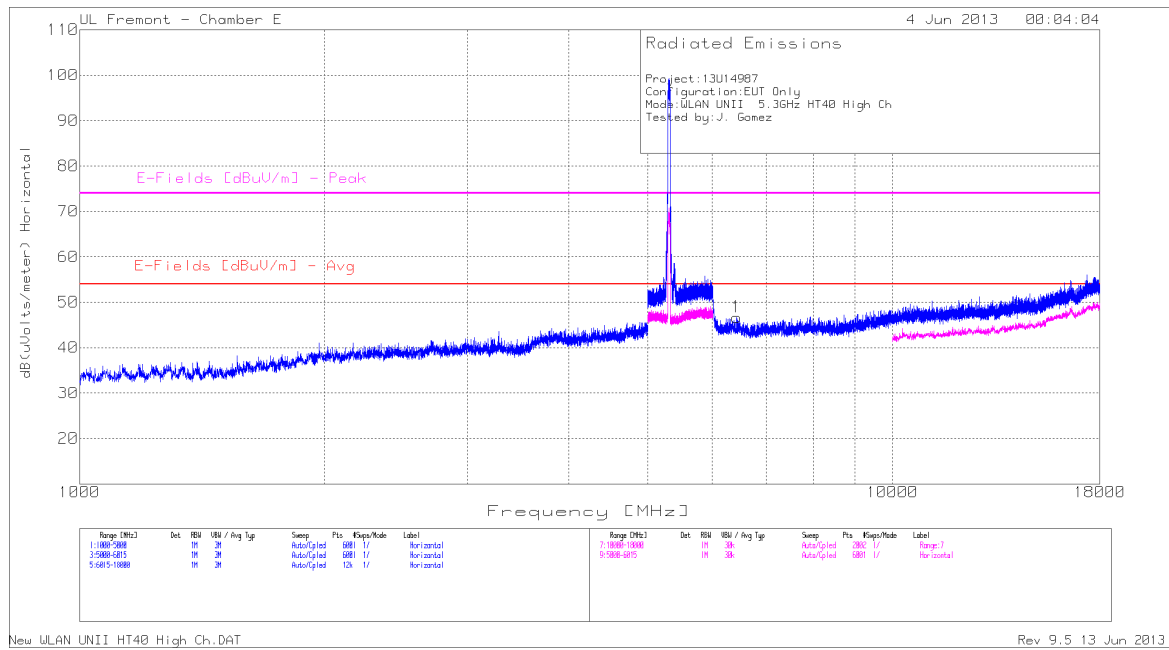
## LOW CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.626	39.37	PK	36.2	-28.8	46.77	53.97	-7.2	74	-27.23	199	V

PK - Peak detector

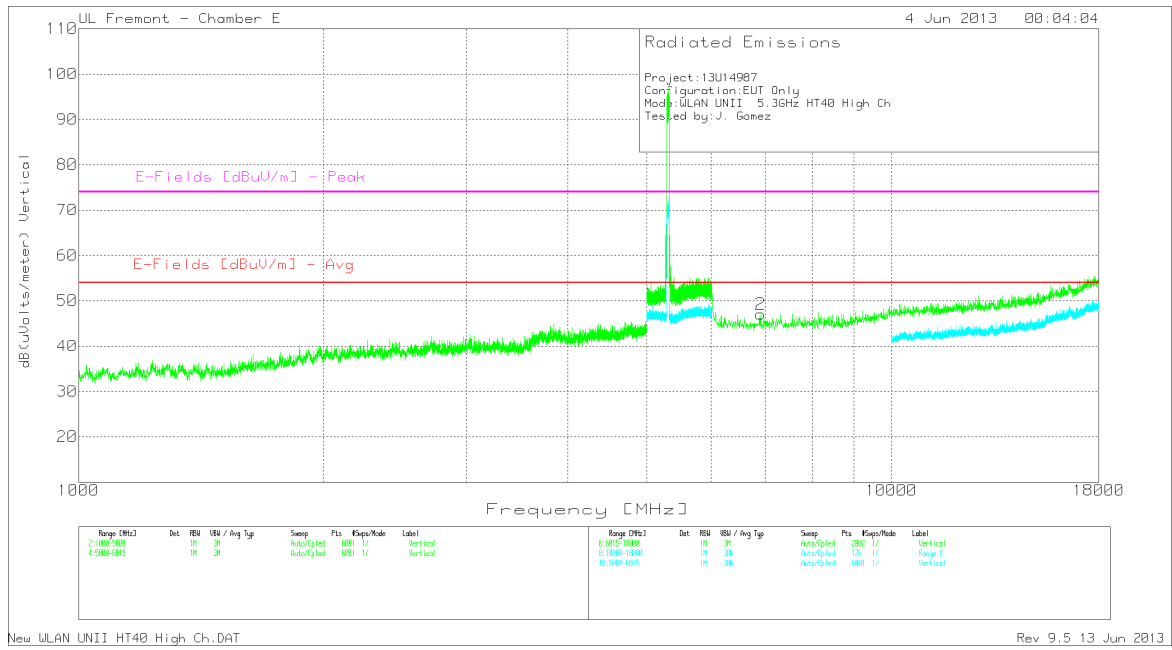
# HIGH CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamplifier/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.434	41.27	PK	35.8	-30.4	46.67	53.97	-7.3	74	-27.33	199	H

PK - Peak detector

## HIGH CHANNEL, VERTICAL

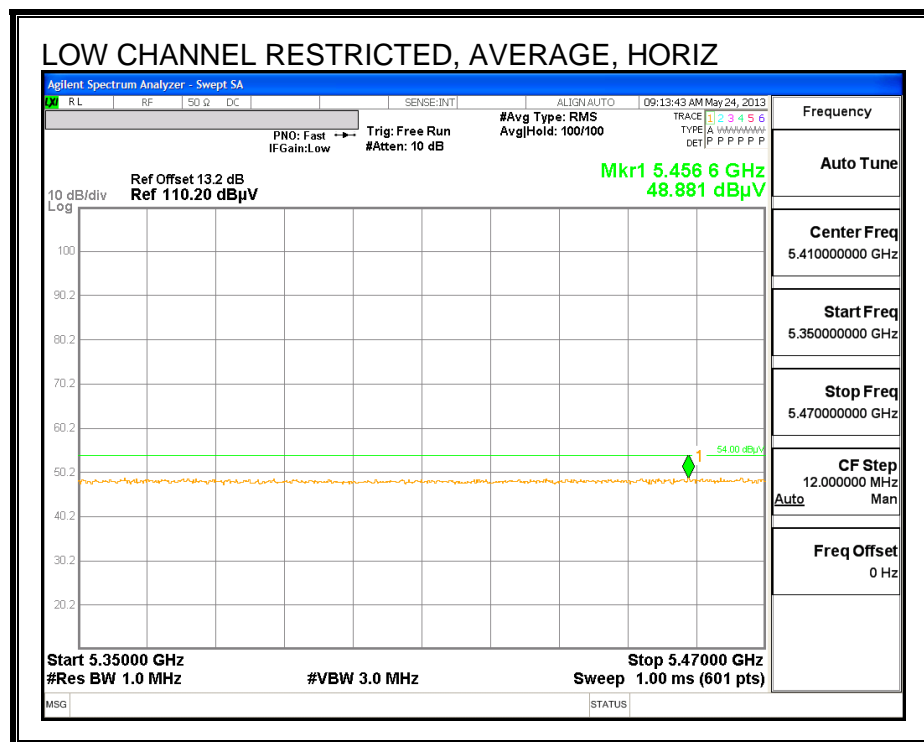
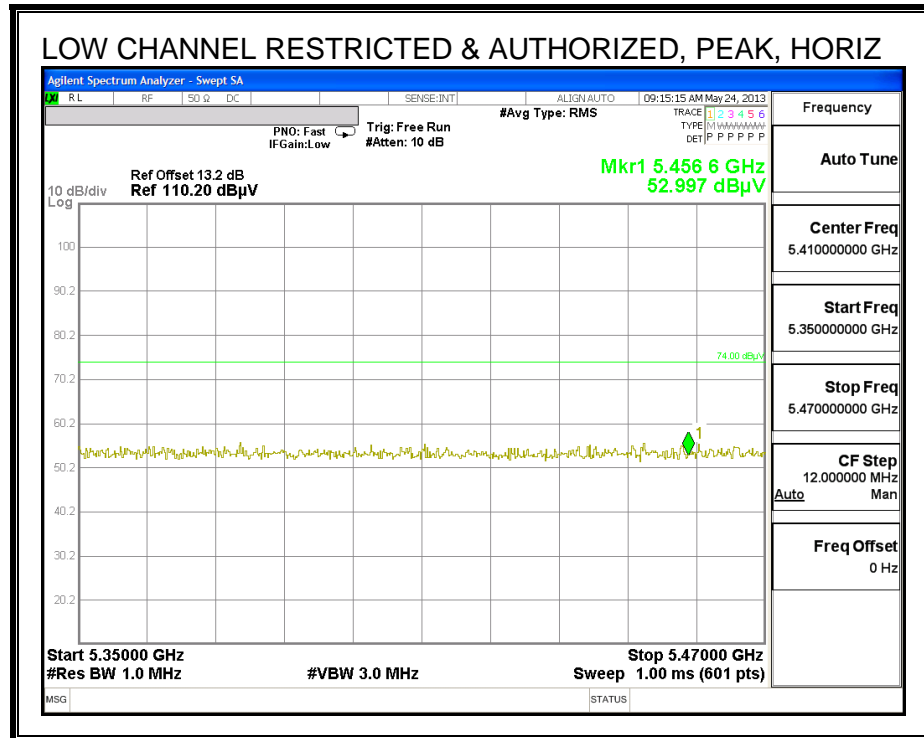


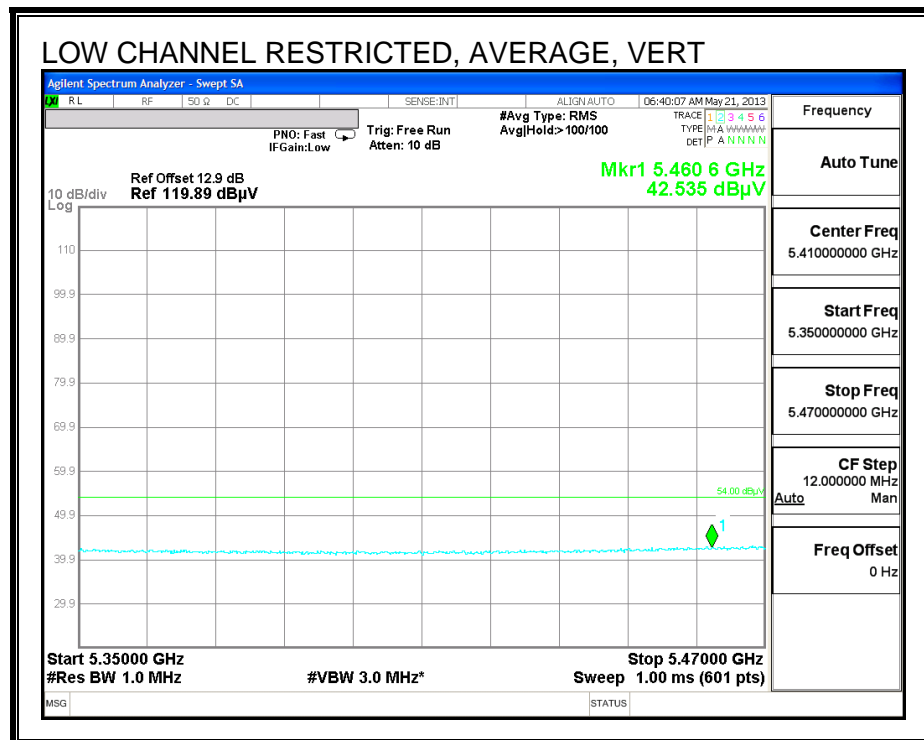
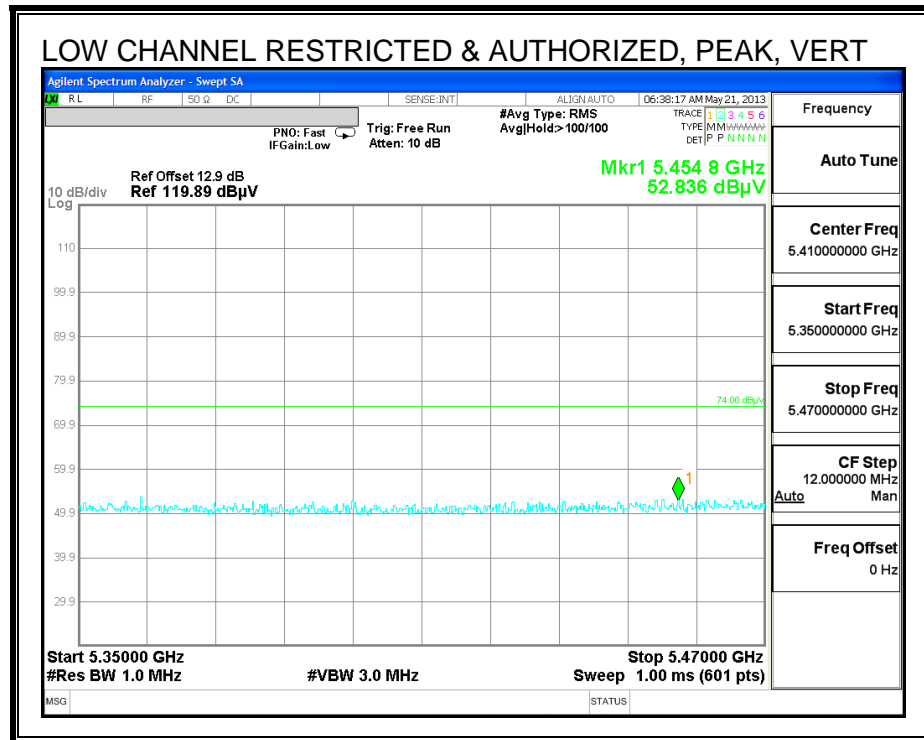
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	6.907	40.95	PK	35.9	-29.8	47.05	53.97	-6.92	74	-26.95	199	V

PK - Peak detector

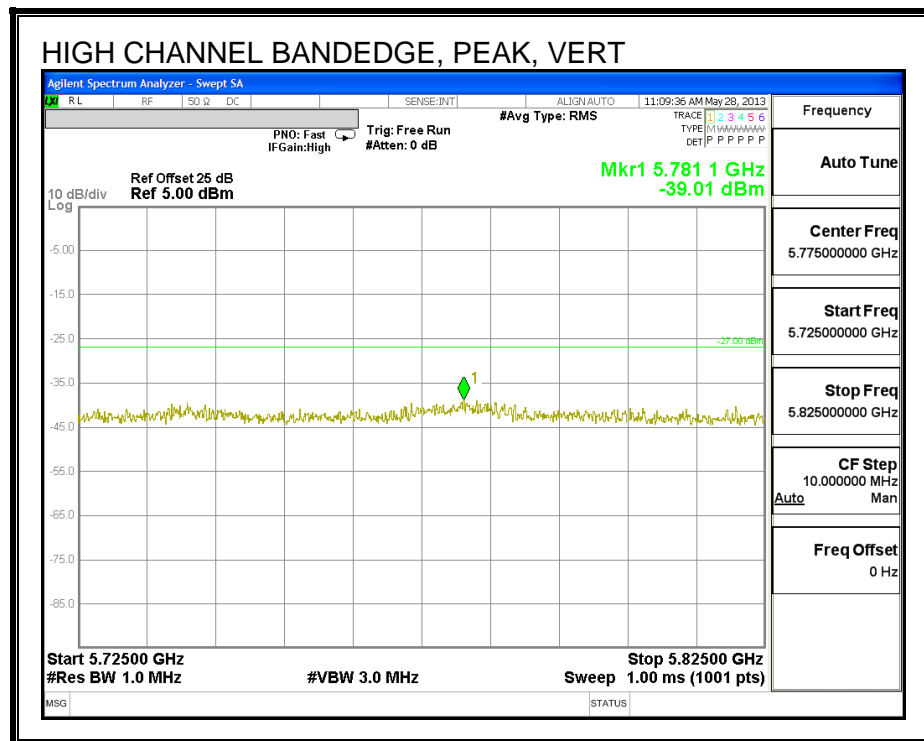
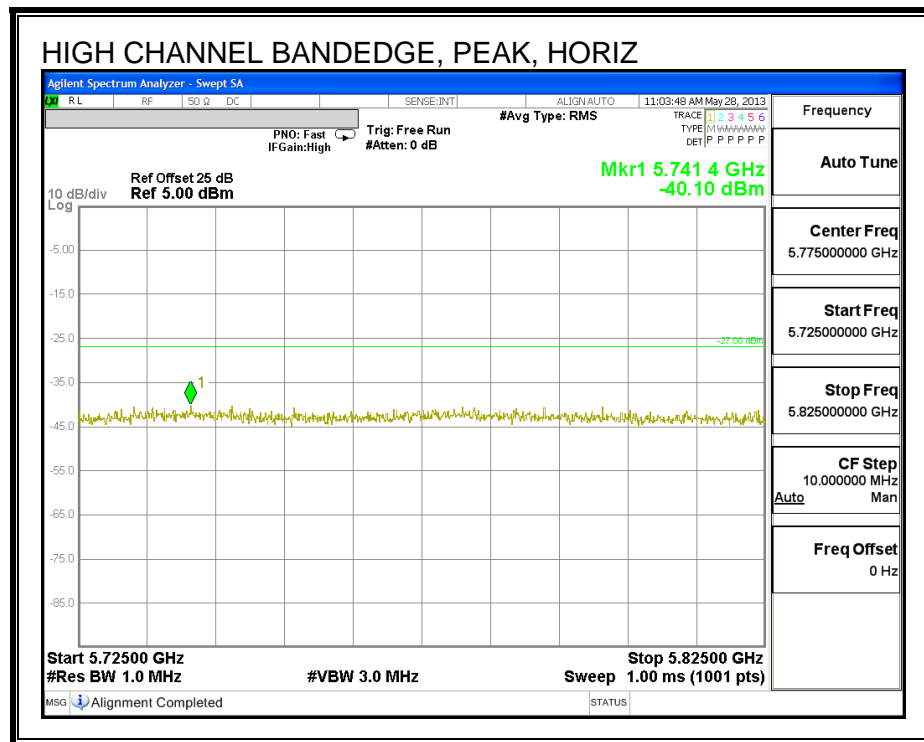
## 9.2.7. TX ABOVE 1 GHz 802.11a MODE IN THE 5.6 GHz BAND

### RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





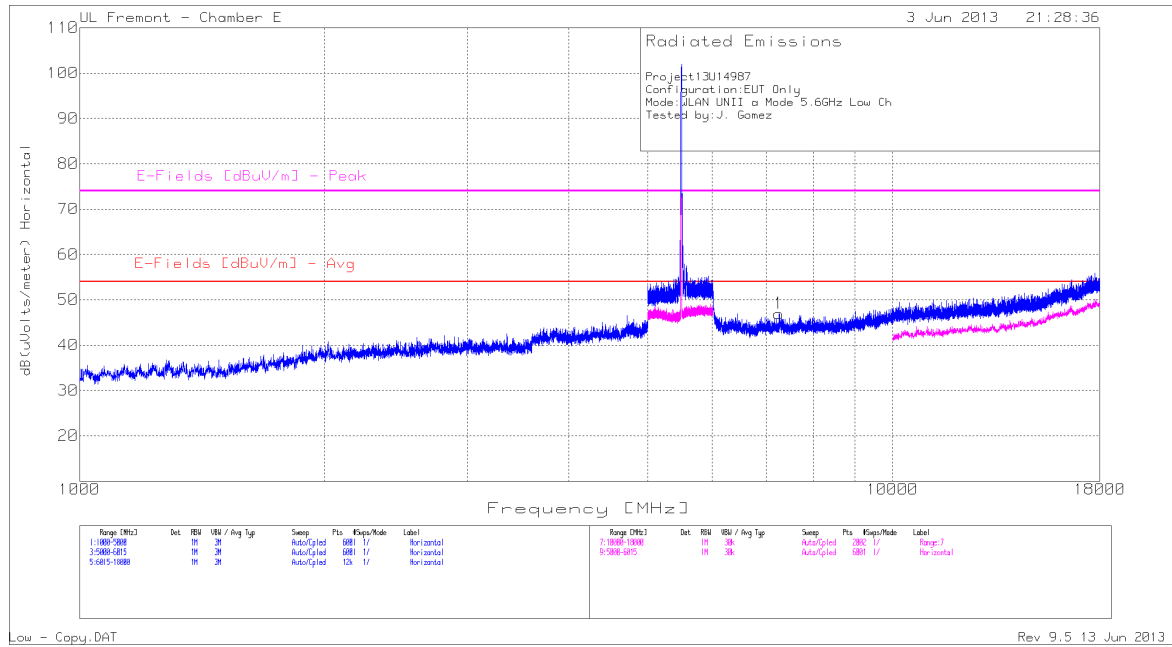
**AUTHORIZED BANDEDGE (HIGH CHANNEL)**





## HARMONICS AND SPURIOUS EMISSIONS

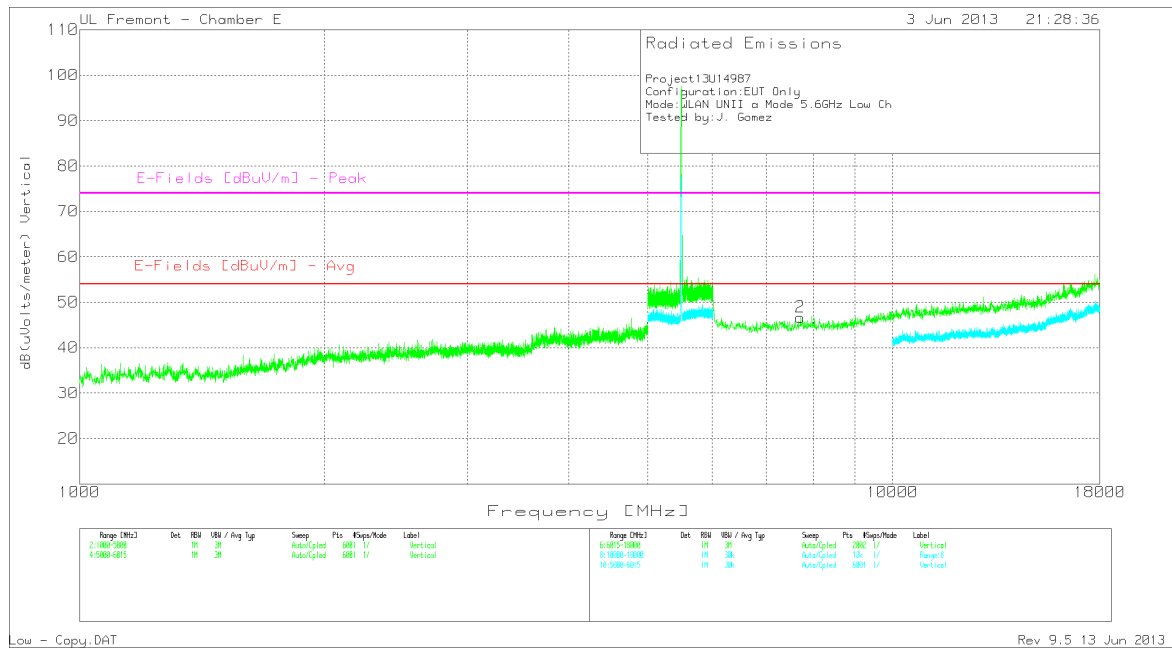
### LOW CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	7.25	40.15	PK	36	-29.2	46.95	53.97	-7.02	74	-27.05	199	H

PK - Peak detector

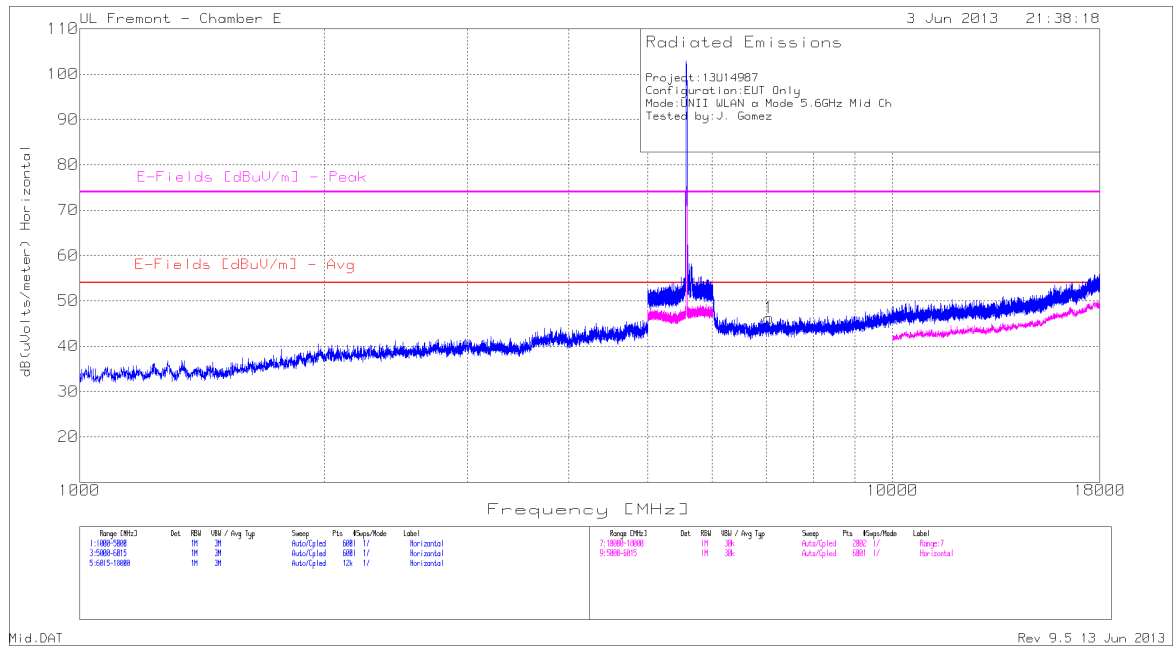
## LOW CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.704	38.88	PK	36.2	-28.4	46.68	53.97	-7.29	74	-27.32	101	V

PK - Peak detector

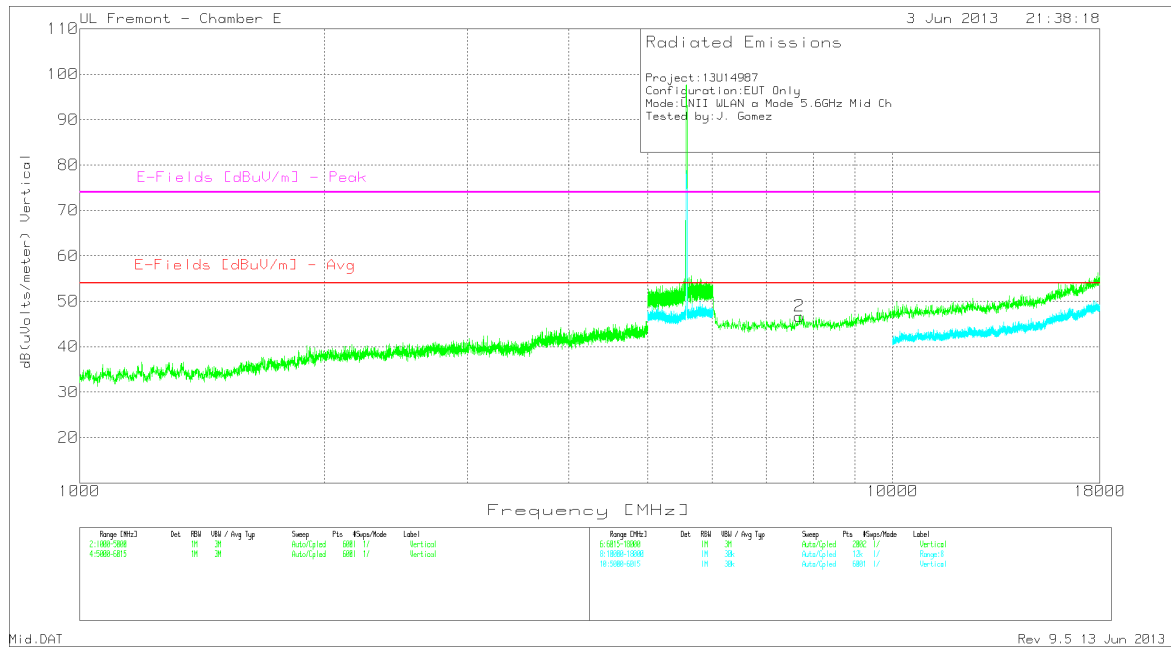
## MID CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	7.054	39.34	PK	36	-29.1	46.24	53.97	-7.73	74	-27.76	199	H

PK - Peak detector

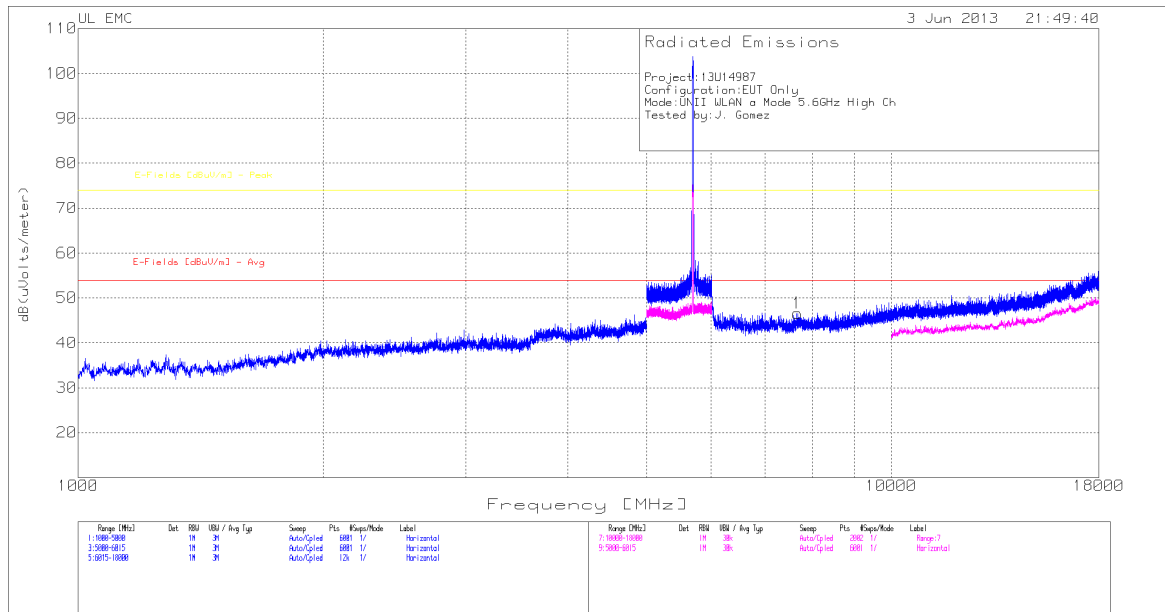
# MID CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.686	39.19	PK	36.2	-28.7	46.69	53.97	-7.28	74	-27.31	199	V

PK - Peak detector

## HIGH CHANNEL, HORIZONTAL

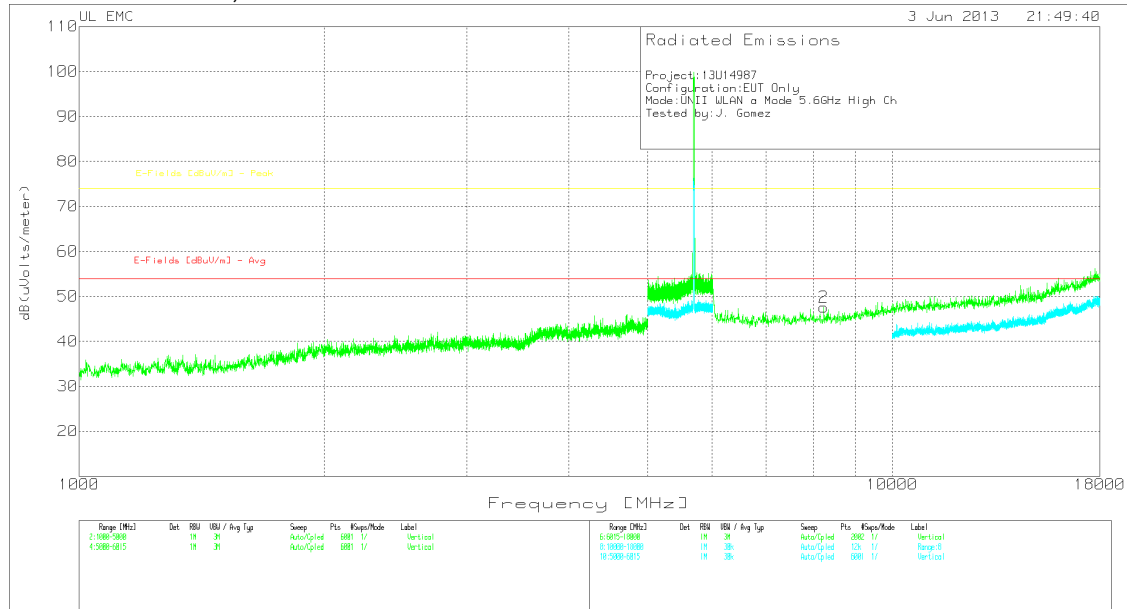


\*.TST

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Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable /6GHz HPF dB	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	7.669	39.07	PK	36.2	-28.7	46.57	53.97	-7.4	74	-27.43	199	H
PK - Peak Detector												

# HIGH CHANNEL, VERTICAL



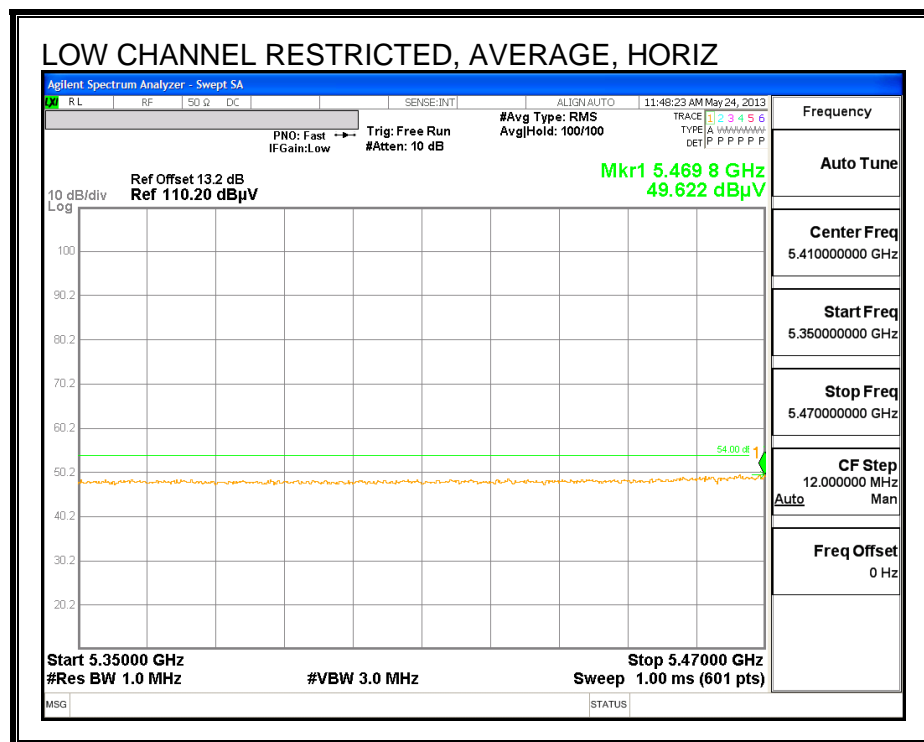
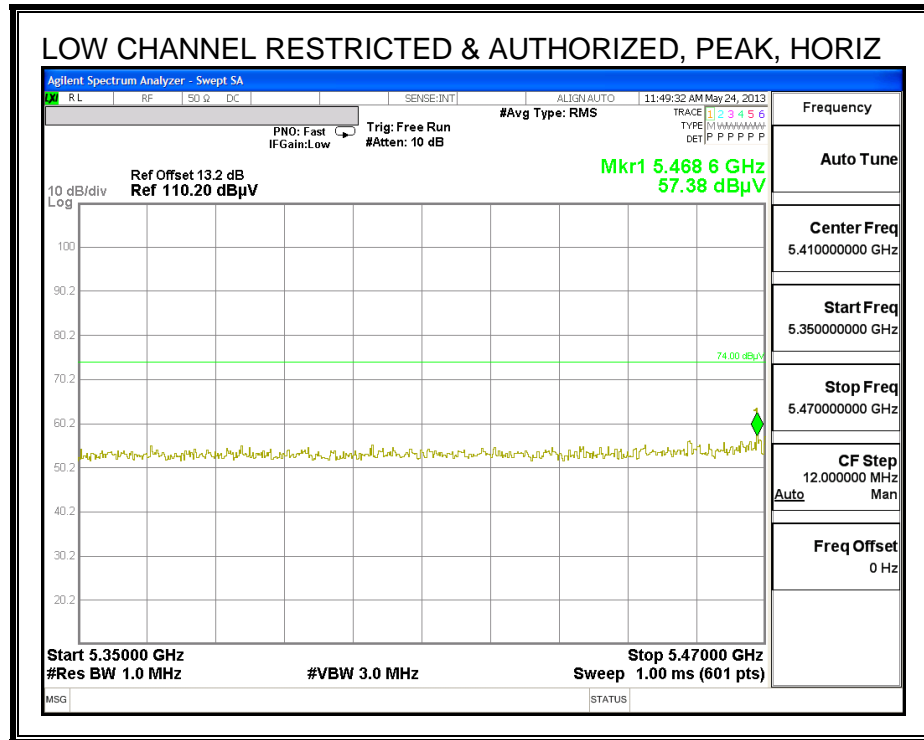
\*.TST

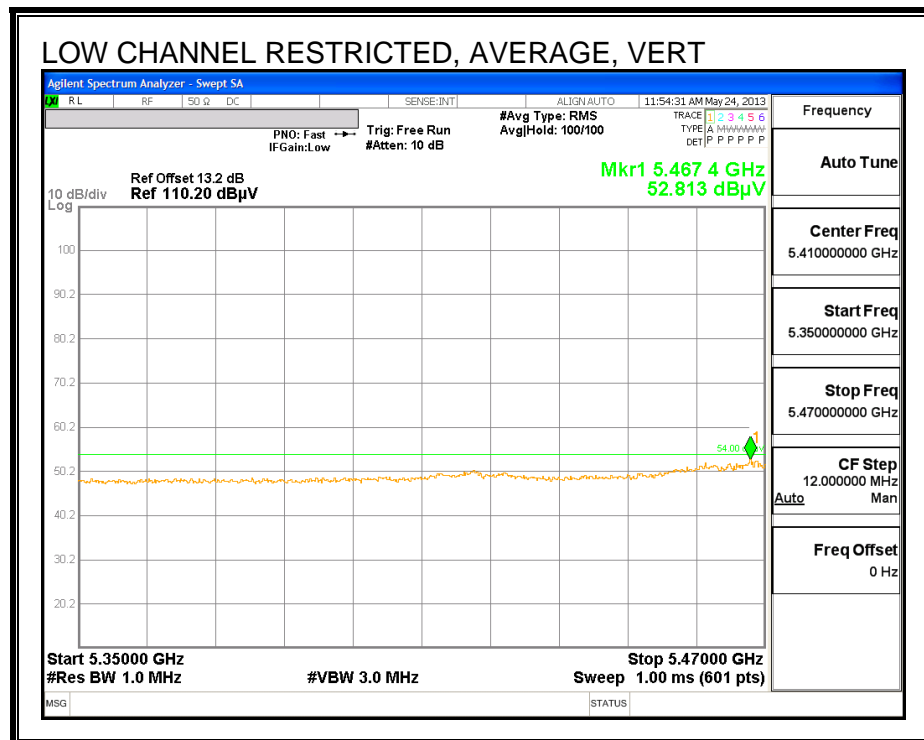
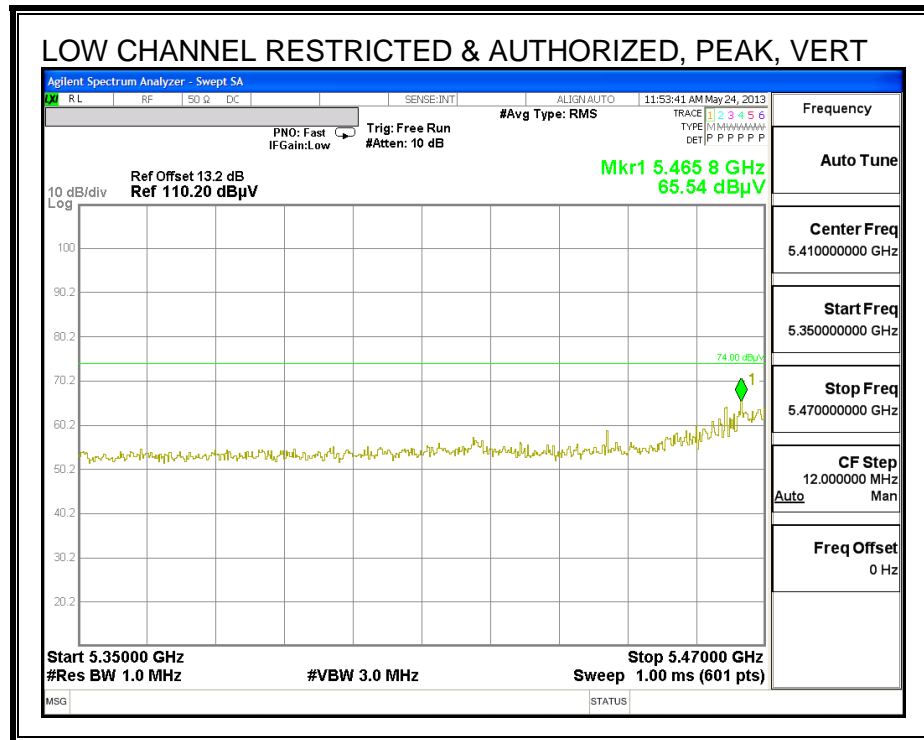
Rev 9.5 13 Jun 2013

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable /6 GHz HPF dB	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	8.237	39.59	PK	36.2	-28.2	47.59	53.97	-6.38	74	-26.41	199	V
PK - Peak Detector												

## 9.2.8. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.6 GHz BAND

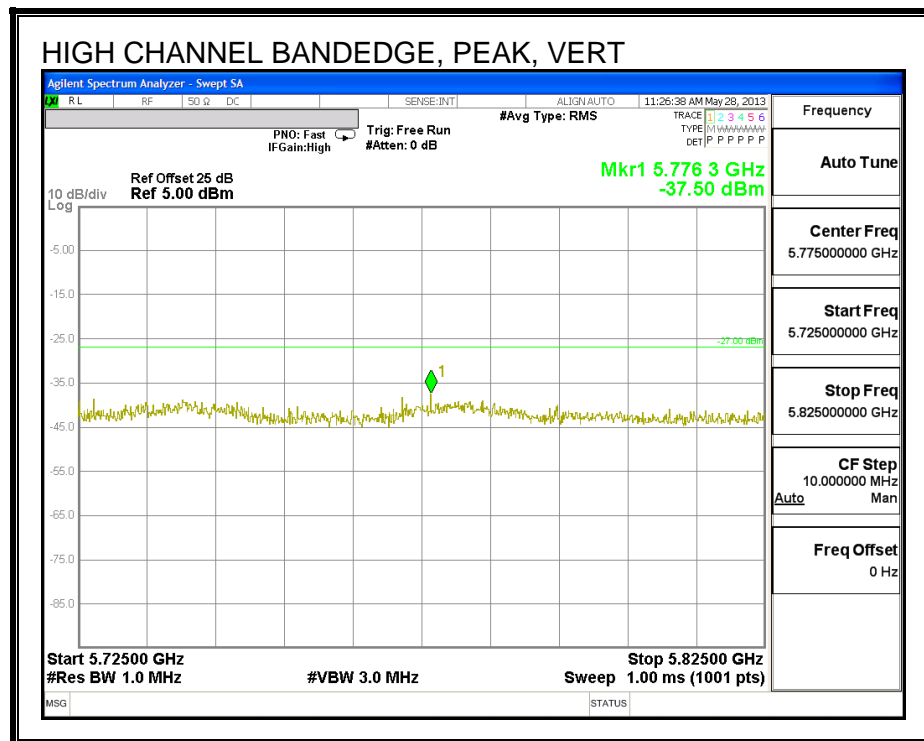
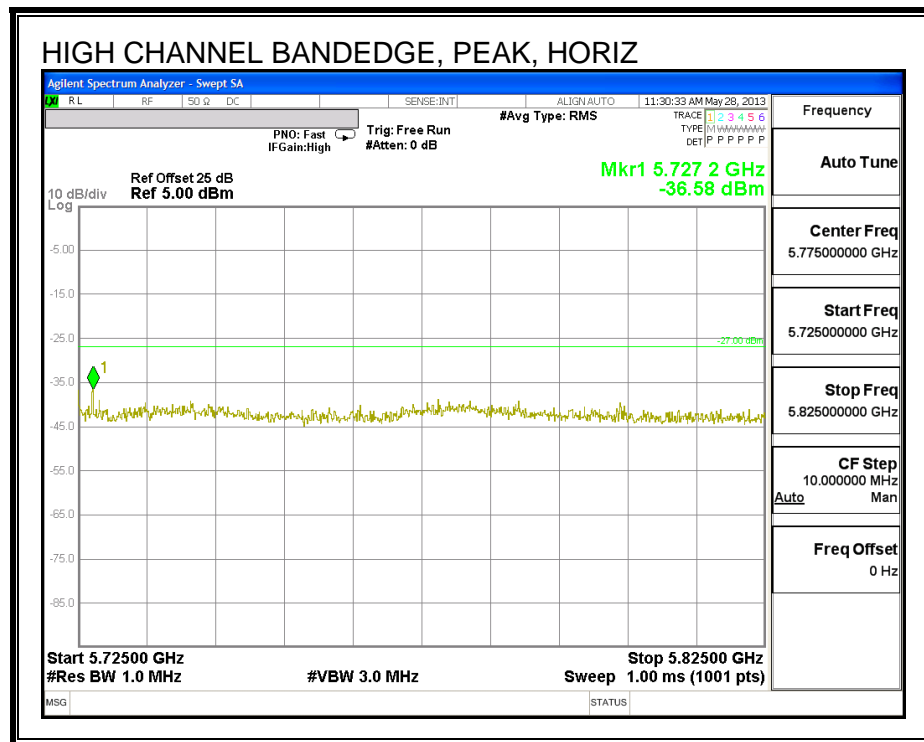
### RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





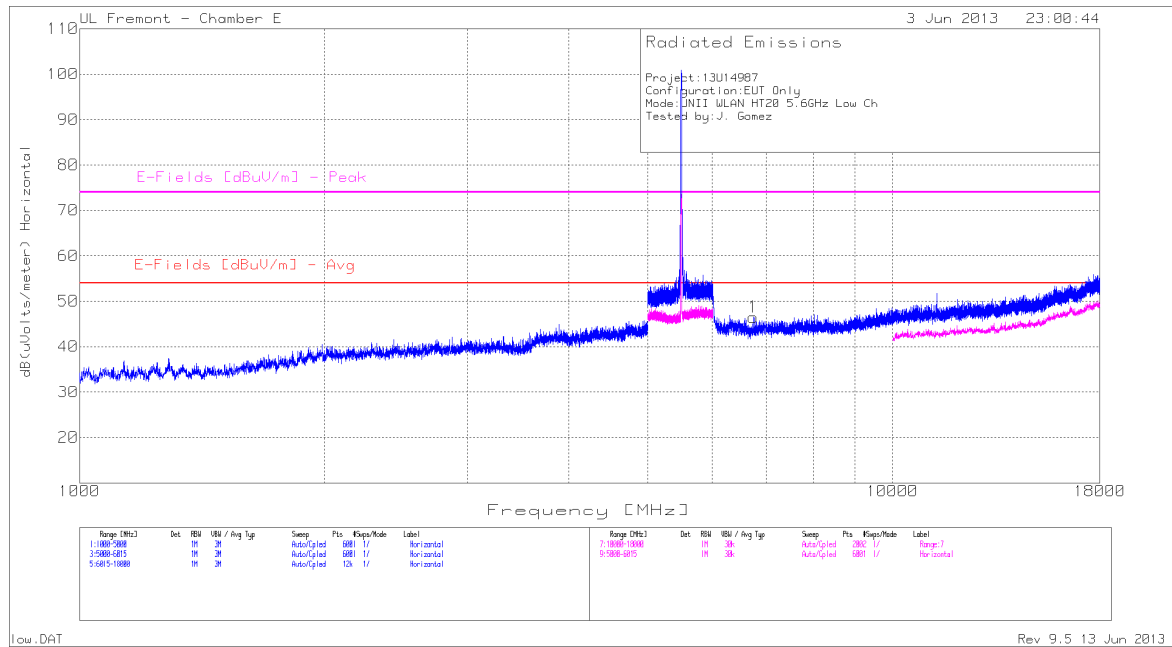


**AUTHORIZED BANDEDGE (HIGH CHANNEL)**



## HARMONICS AND SPURIOUS EMISSIONS

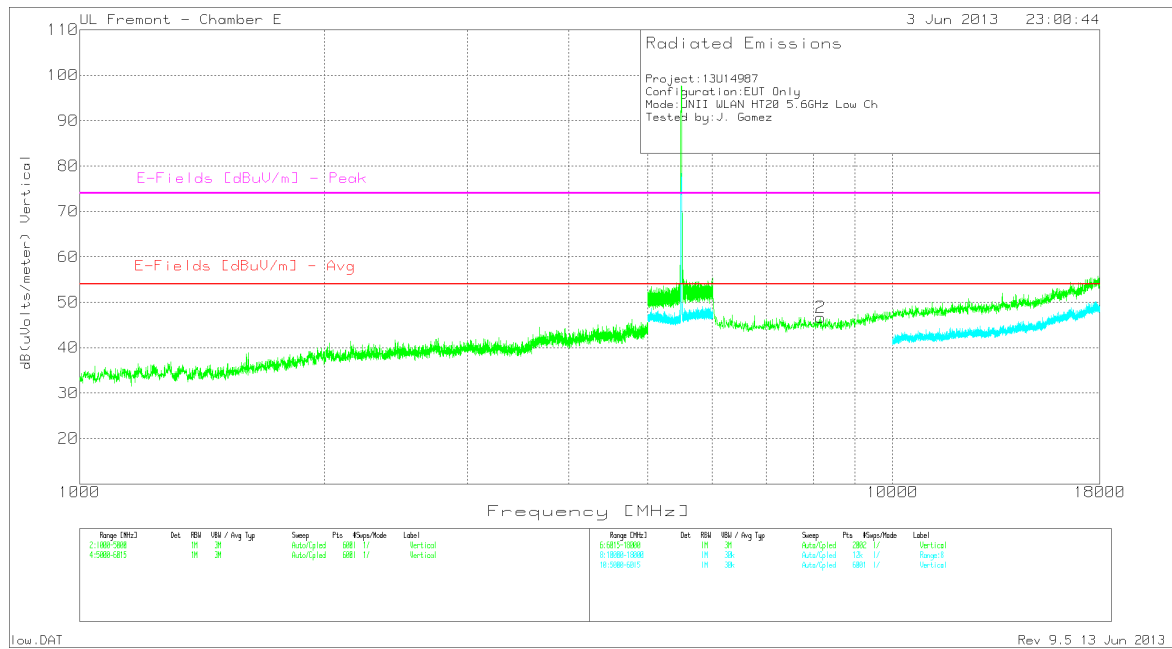
### LOW CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.743	40.58	PK	35.8	-29.9	46.48	53.97	-7.49	74	-27.52	199	H

PK - Peak detector

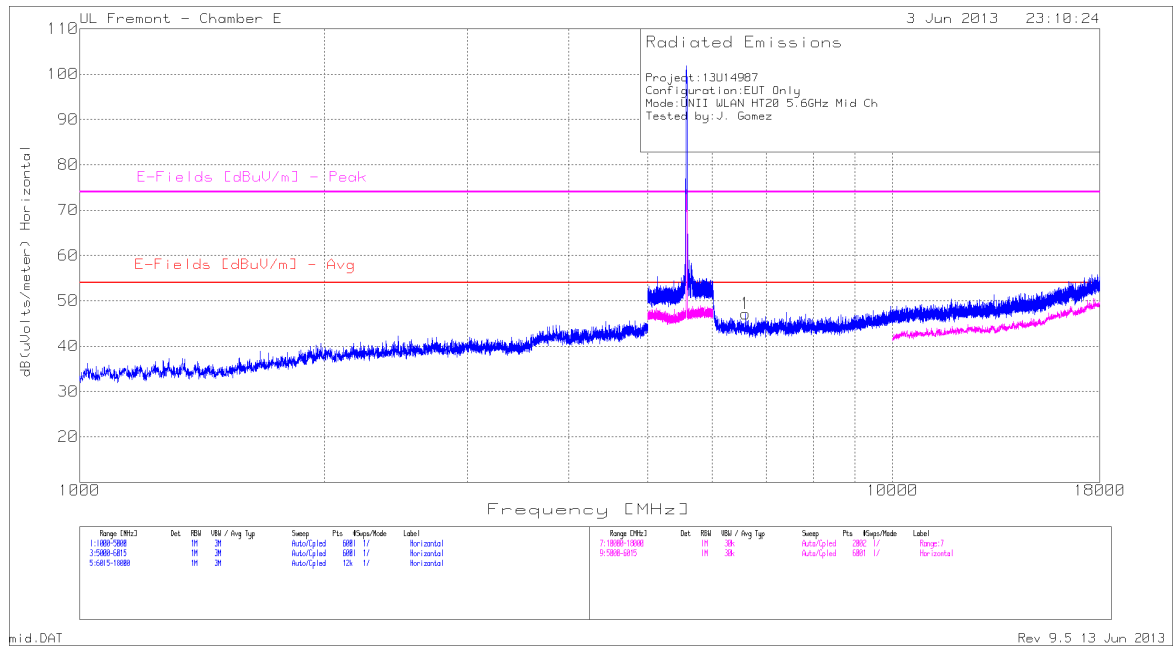
## LOW CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	8.159	38.96	PK	36.2	-28.5	46.66	53.97	-7.31	74	-27.34	199	V

PK - Peak detector

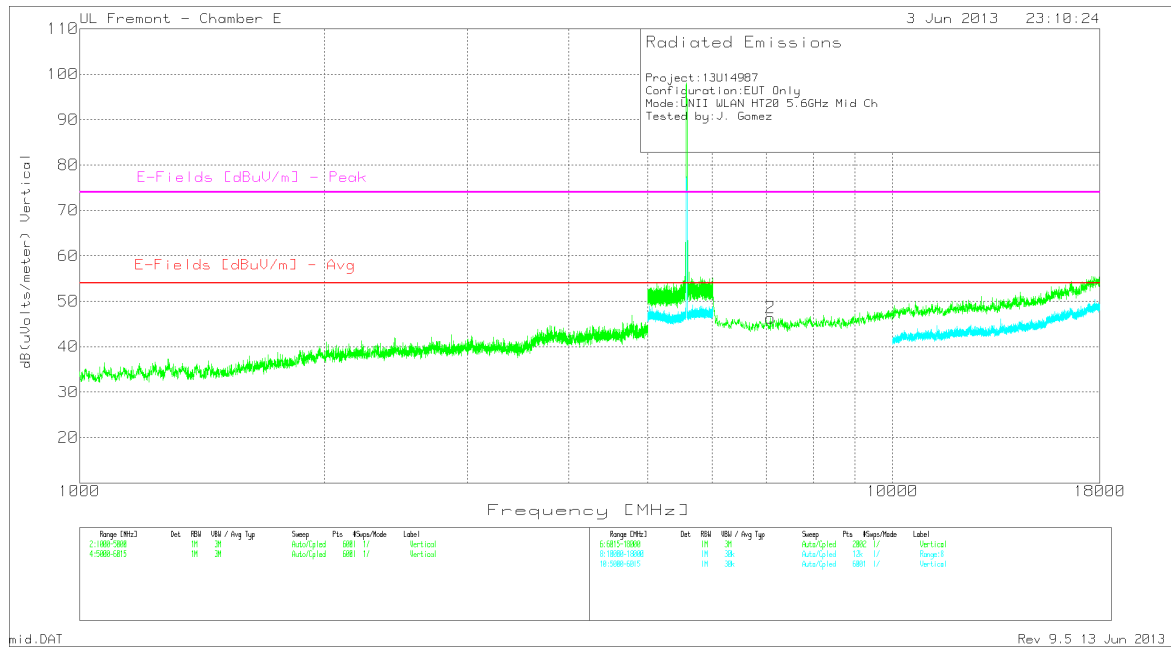
# MID CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.599	40.57	PK	35.8	-29.2	47.17	53.97	-6.8	74	-26.83	199	H

PK - Peak detector

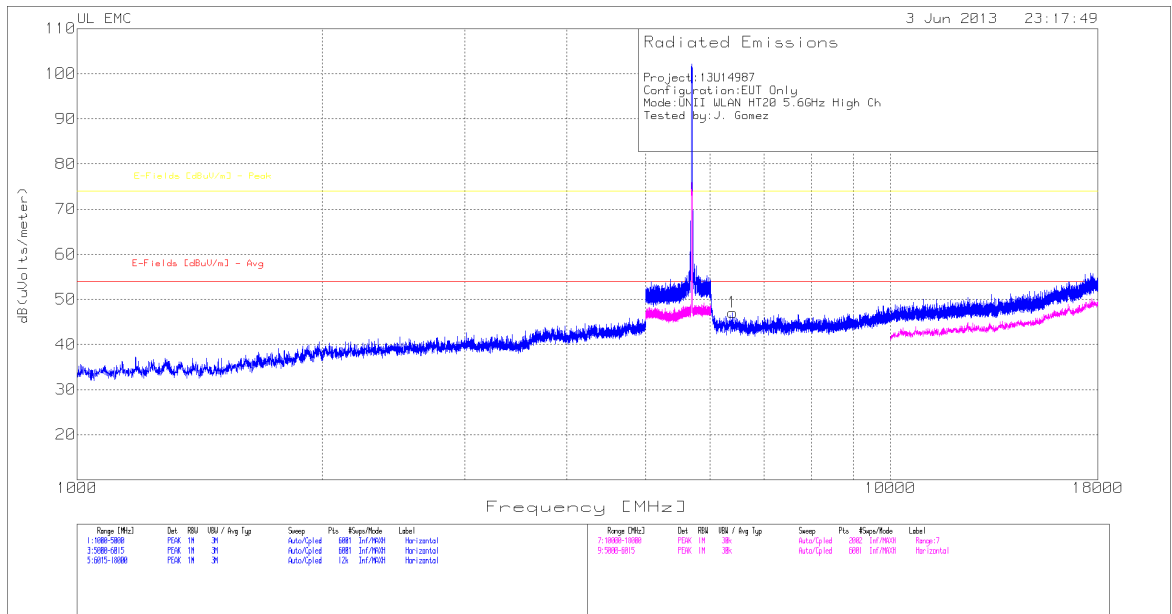
# MID CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.081	39.65	PK	36	-29.3	46.35	53.97	-7.62	74	-27.65	199	V

PK - Peak detector

# HIGH CHANNEL, HORIZONTAL

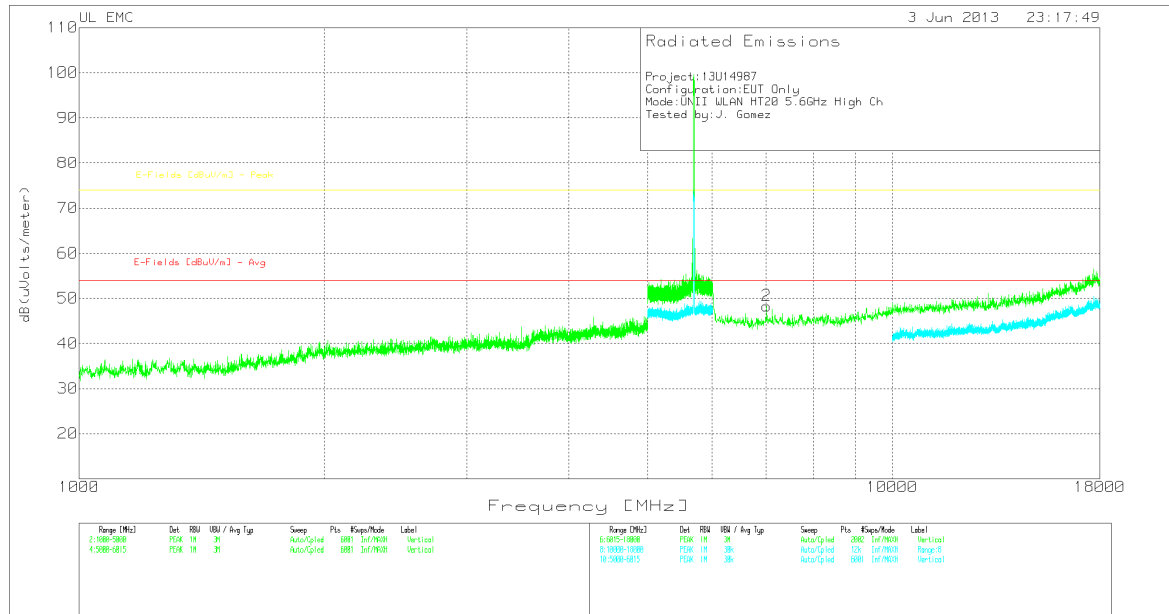


High - Copy.DAT

Rev 9.5 13 Jun 2013

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor (dB/m)	Preamp/cable /6GHz HPF dB	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.401	41.17	PK	35.8	-29.9	47.07	53.97	-6.9	74	-26.93	199	H
PK - Peak Detector												

# HIGH CHANNEL, VERTICAL



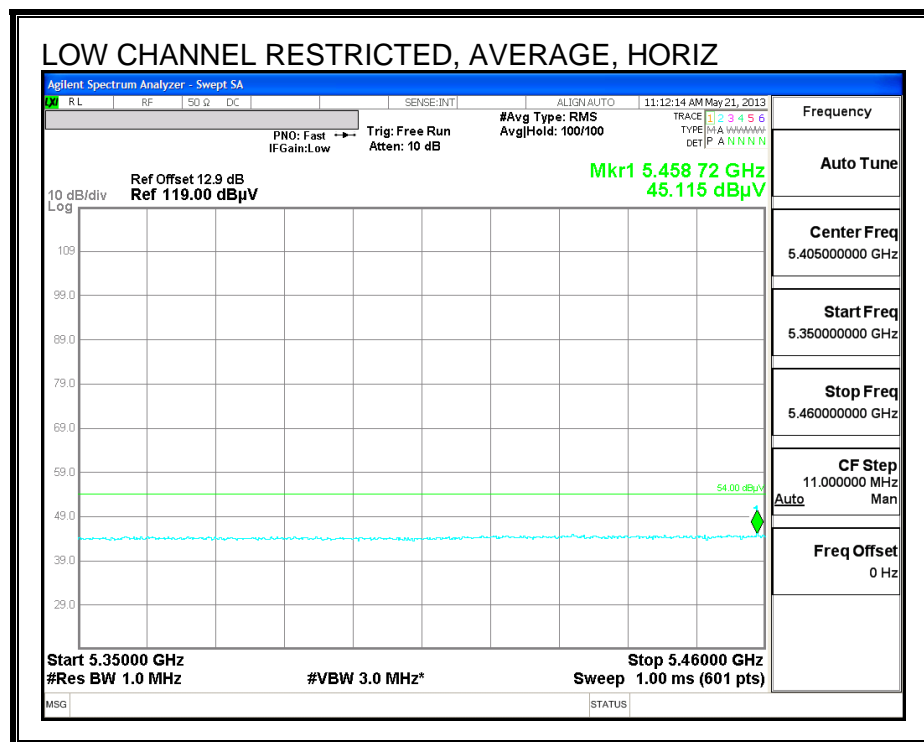
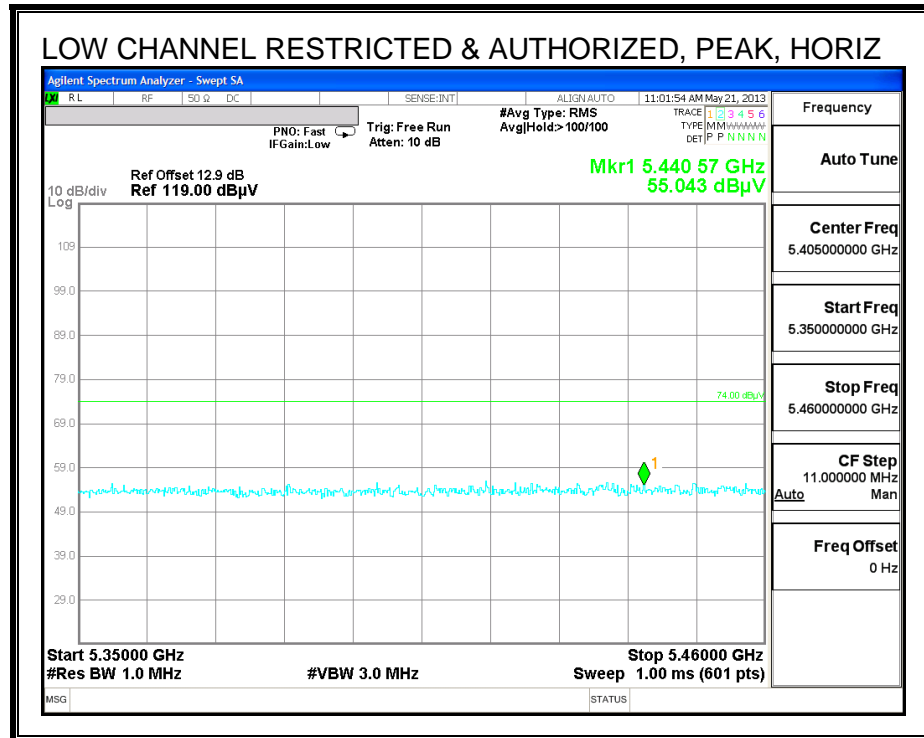
High - Copy.DAT

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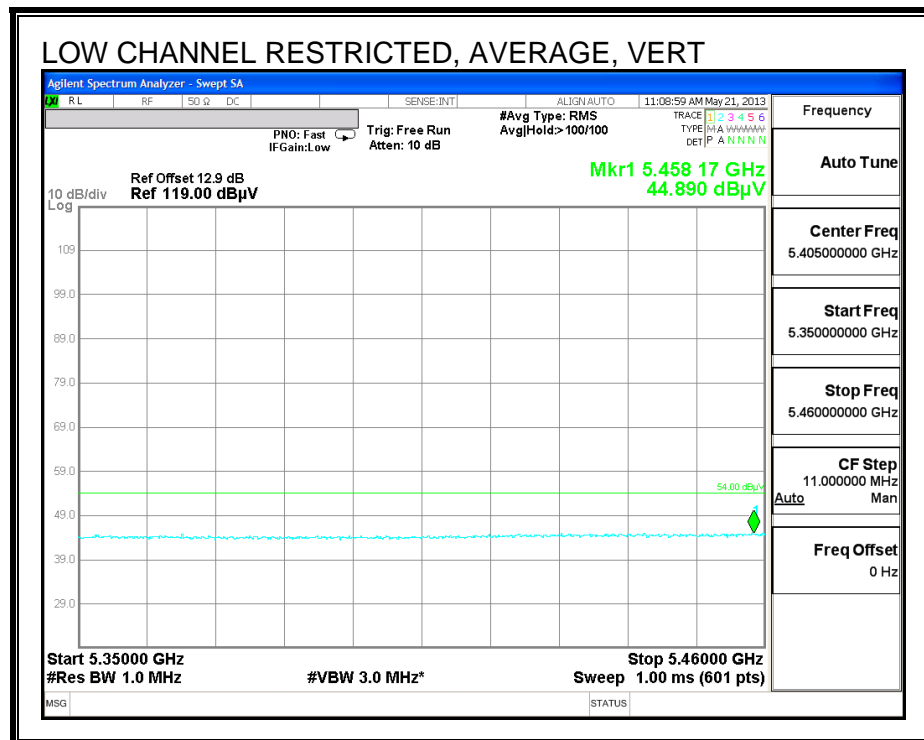
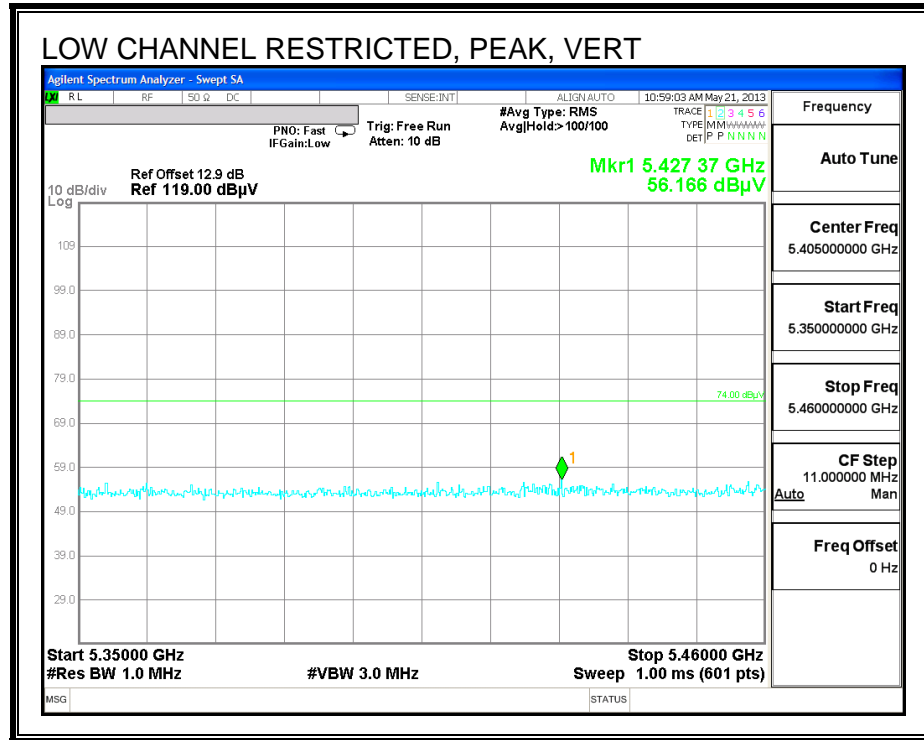
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable /6GHz HPF dB	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.009	41.4	PK	36	-29.1	48.3	53.97	-5.67	74	-25.7	199	V
PK - Peak Detector												

## 9.2.9. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.6 GHz BAND

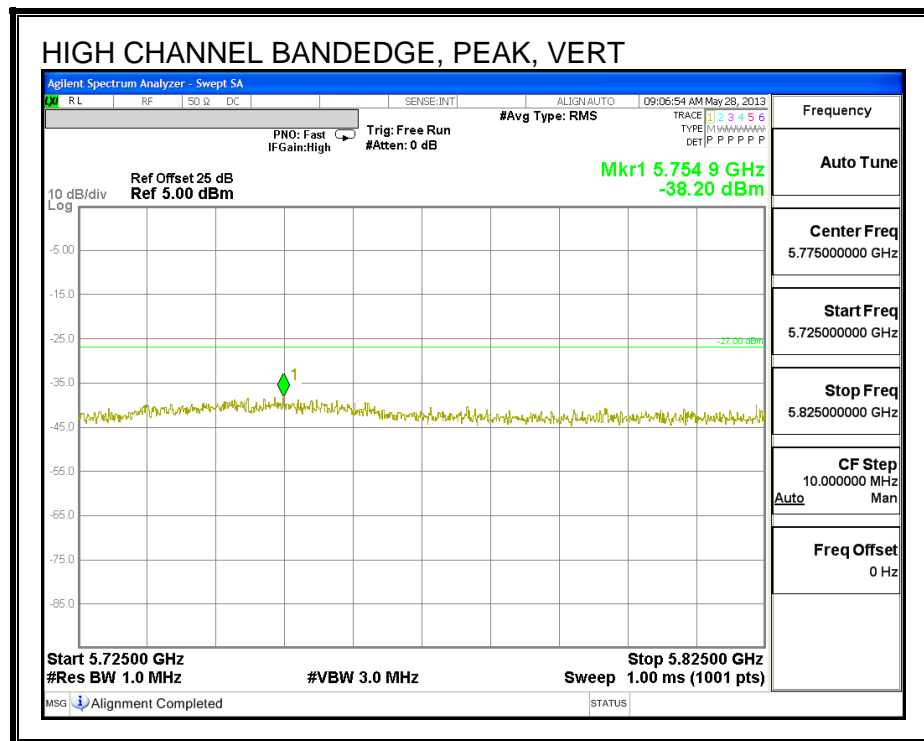
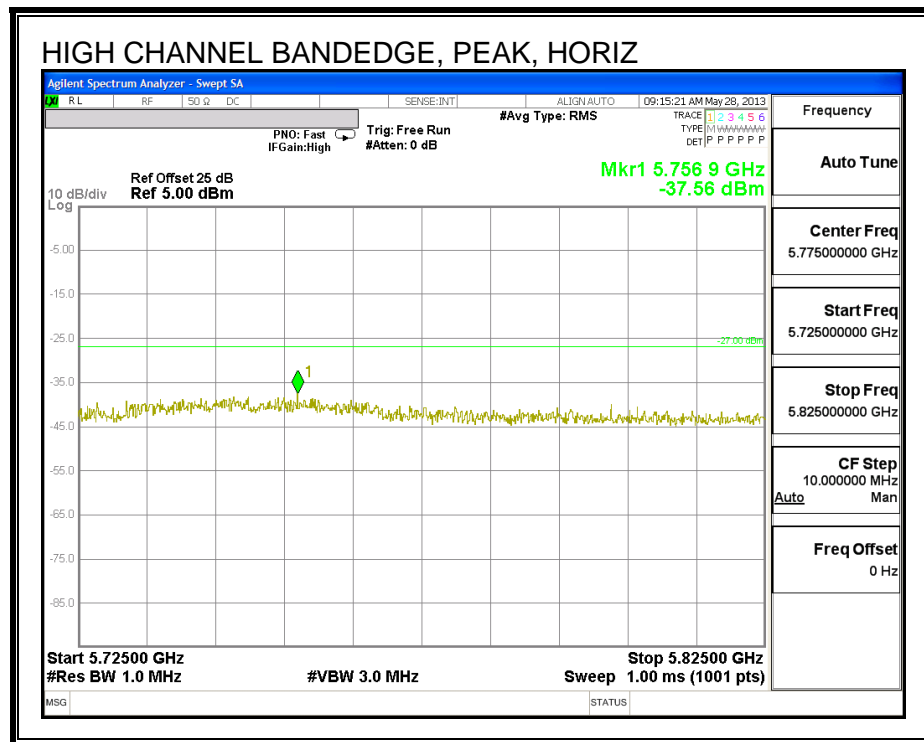
### RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)





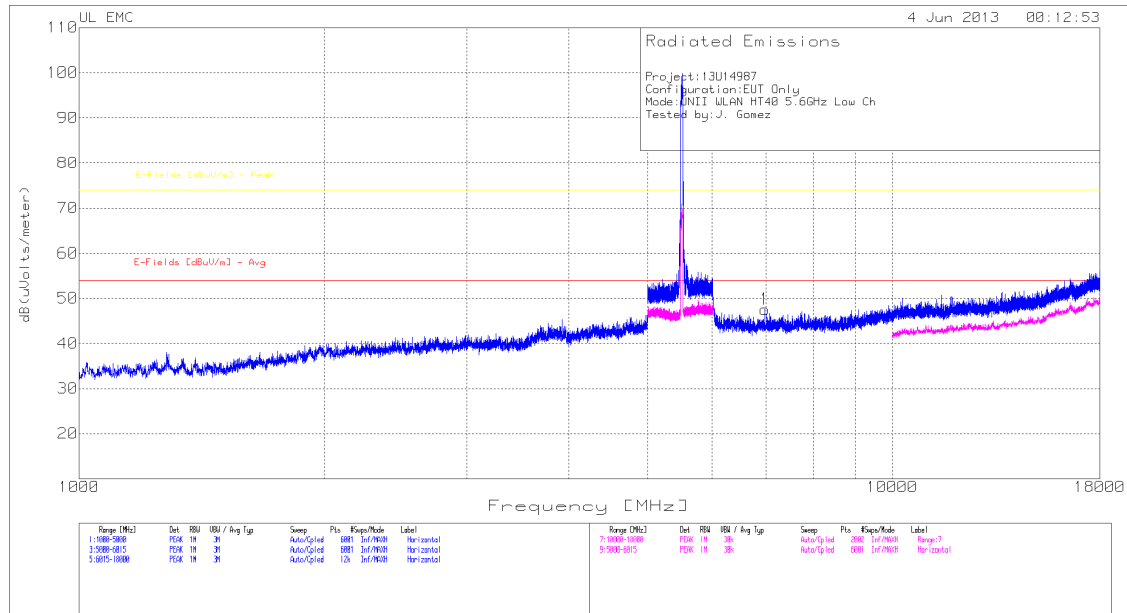


**AUTHORIZED BANDEDGE (HIGH CHANNEL)**



# **HARMONICS AND SPURIOUS EMISSIONS**

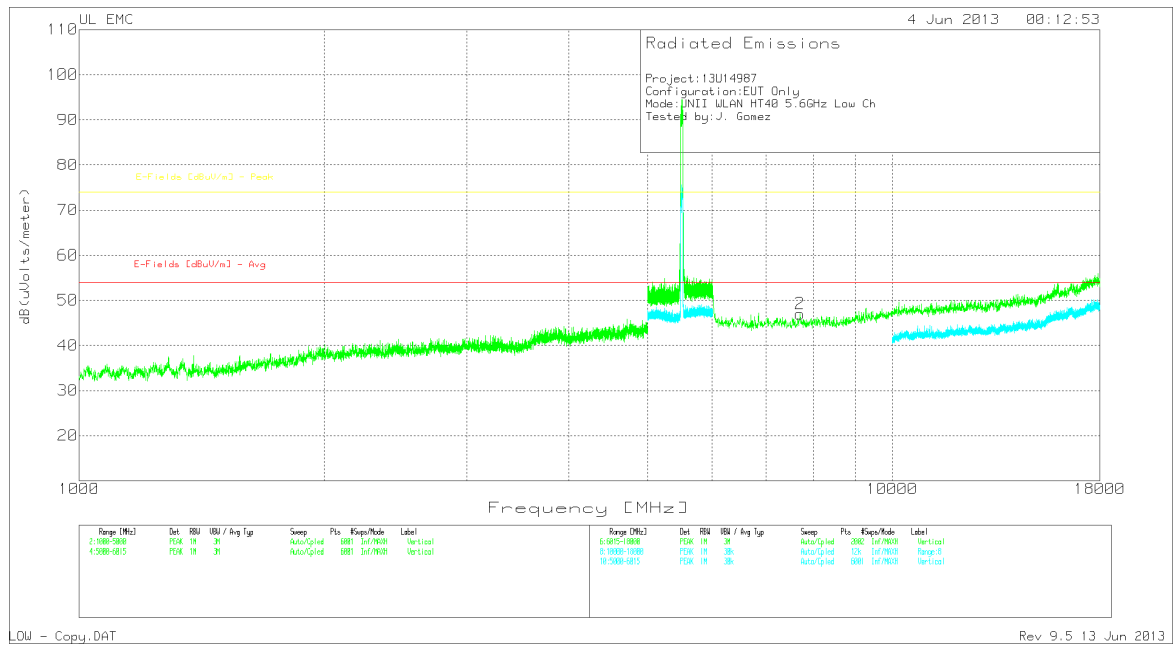
## **LOW CHANNEL, HORIZONTAL**



LOW - Copy.DAT Rev 9.5 13 Jun 2013

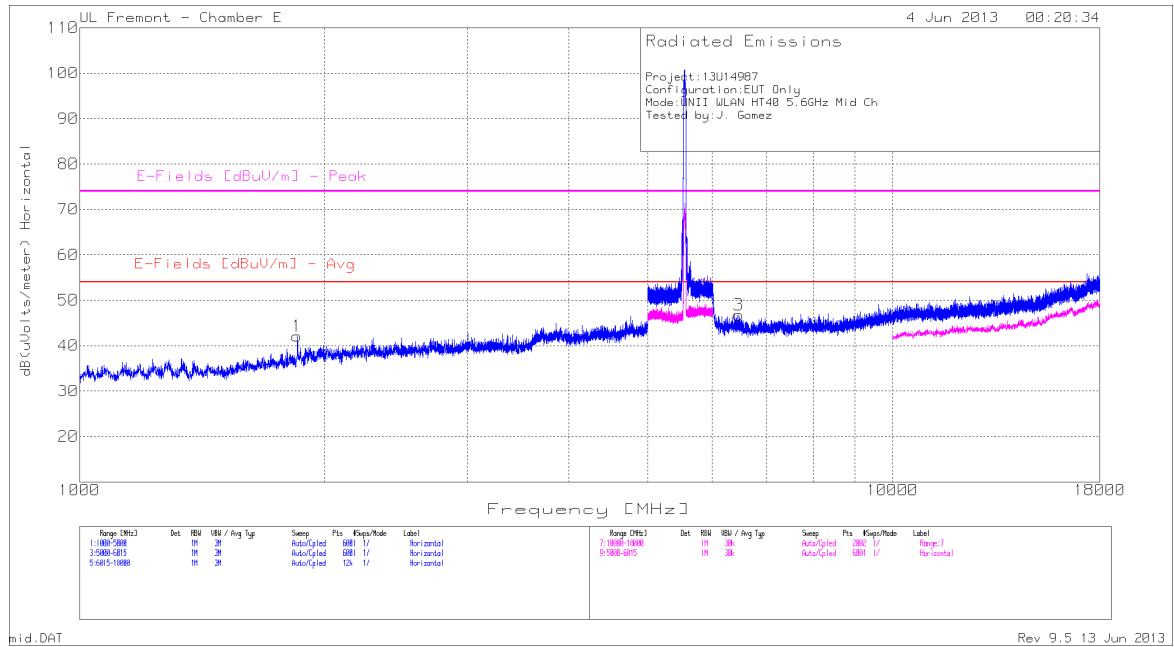
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable /6GHz HPF dB	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	6.971	40.54	PK	36	-29	47.54	53.97	-6.43	74	-26.46	199	H
PK - Peak Detector												

# LOW CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable /6GHz HPF dB	Corrected Reading dB(uVolts /meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.704	39.22	PK	36.2	-28.4	47.02	53.97	-6.95	74	-26.98	109	V
PK - Peak Detector												

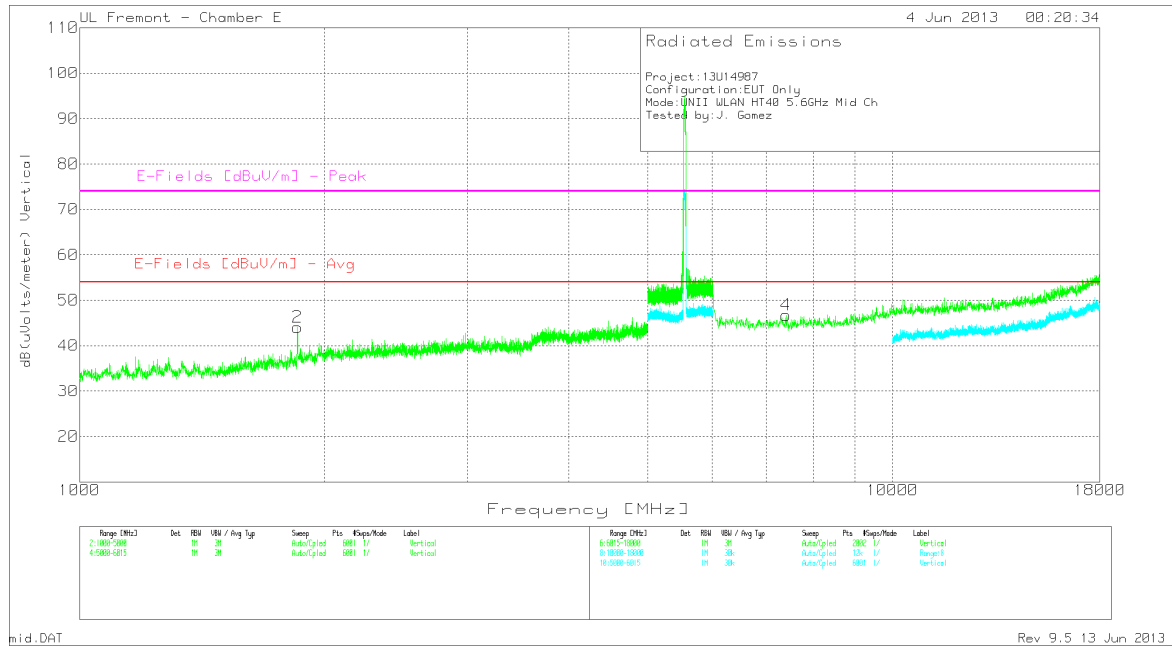
# MID CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/Cable 5GHz LPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	1.852	45.3	PK	31.2	-34.4	42.1	53.97	-11.87	74	-31.9	199	H
3	6.471	40.97	PK	35.8	-30	46.77	53.97	-7.2	74	-27.23	199	H

PK - Peak detector

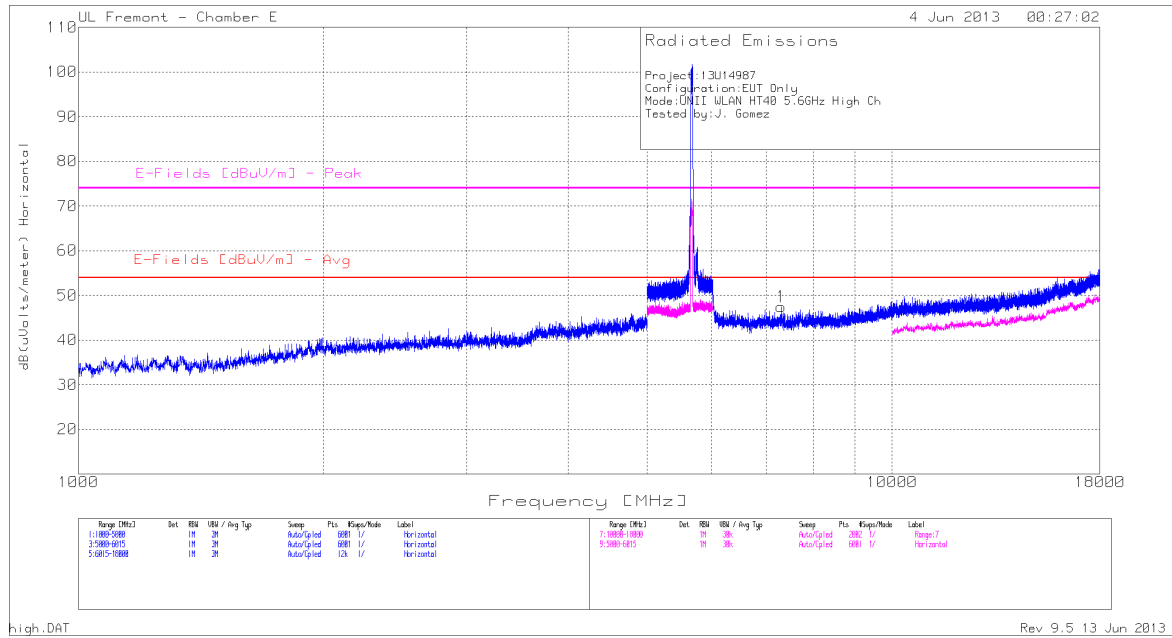
# MID CHANNEL, VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	1.853	47.26	PK	31.2	-34.4	44.06	53.97	-9.91	74	-29.94	199	V
4	7.399	39.42	PK	36.1	-28.8	46.72	53.97	-7.25	74	-27.28	199	V

PK - Peak detector

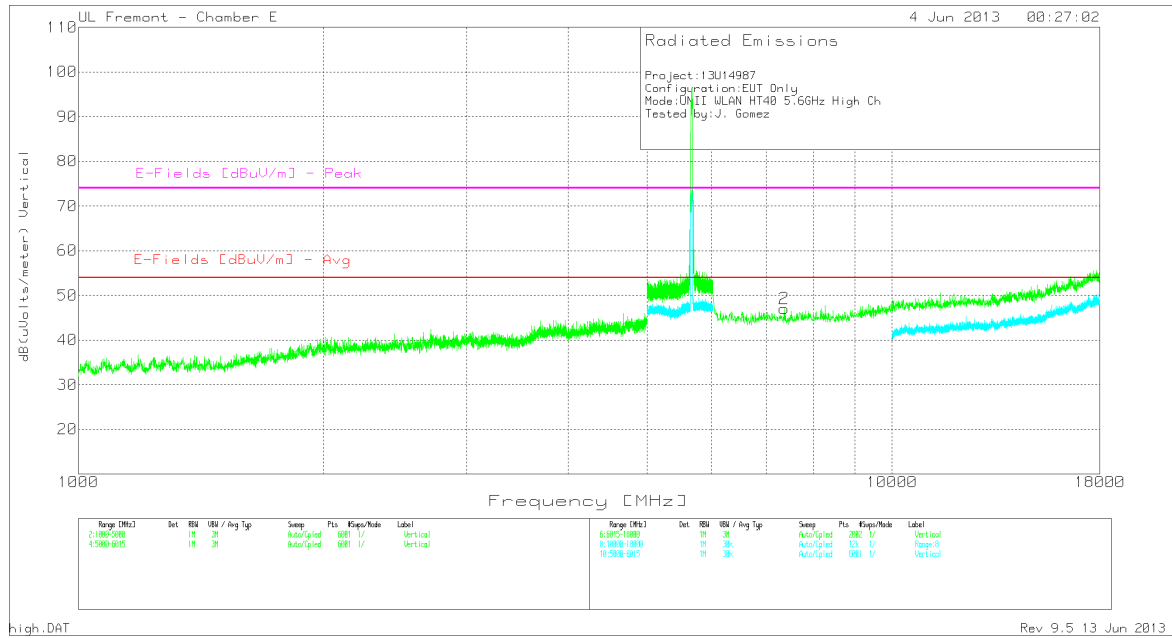
## HIGH CHANNEL, HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
1	7.305	40.26	PK	36	-28.8	47.46	53.97	-6.51	74	-26.54	199	H

PK - Peak detector

# HIGH CHANNEL, VERTICAL



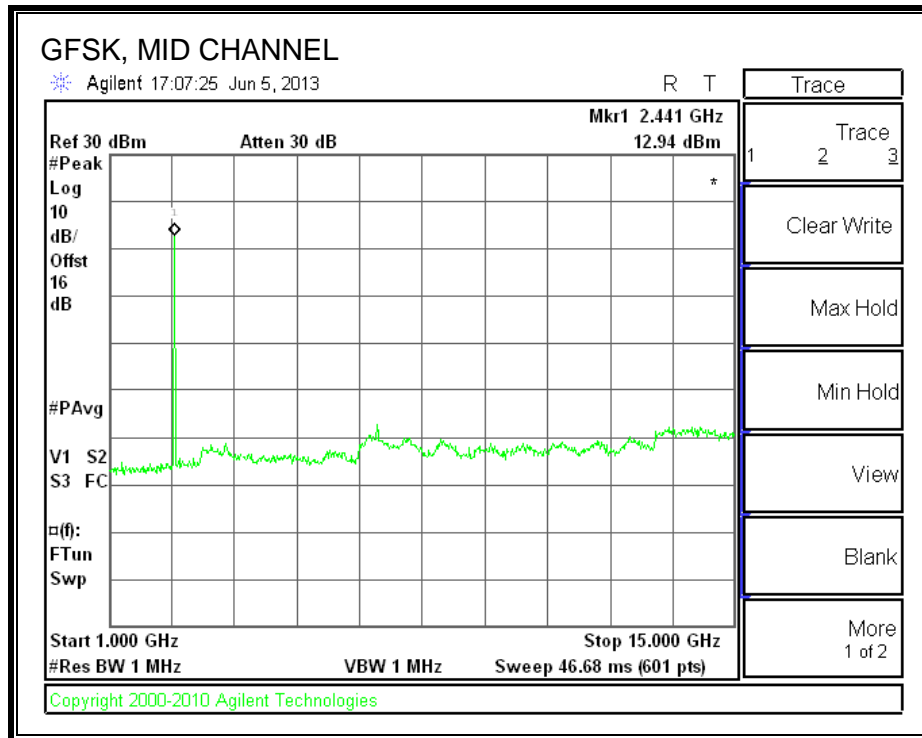
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T346 Ant Factor [dB/m]	Preamp/cable/6GHz HPF dB	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height (cm)	Polarity
2	7.369	39.75	PK	36	-28.7	47.05	53.97	-6.92	74	-26.95	199	V

PK - Peak detector

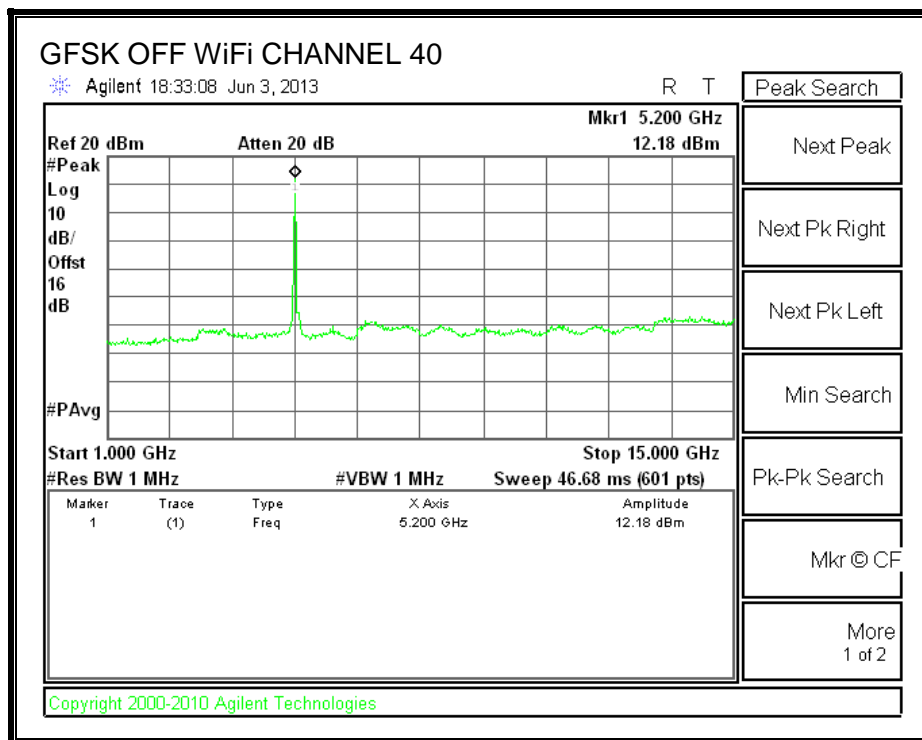


## 9.2.10. 2.4GHz and 5GHz Band Co-Location

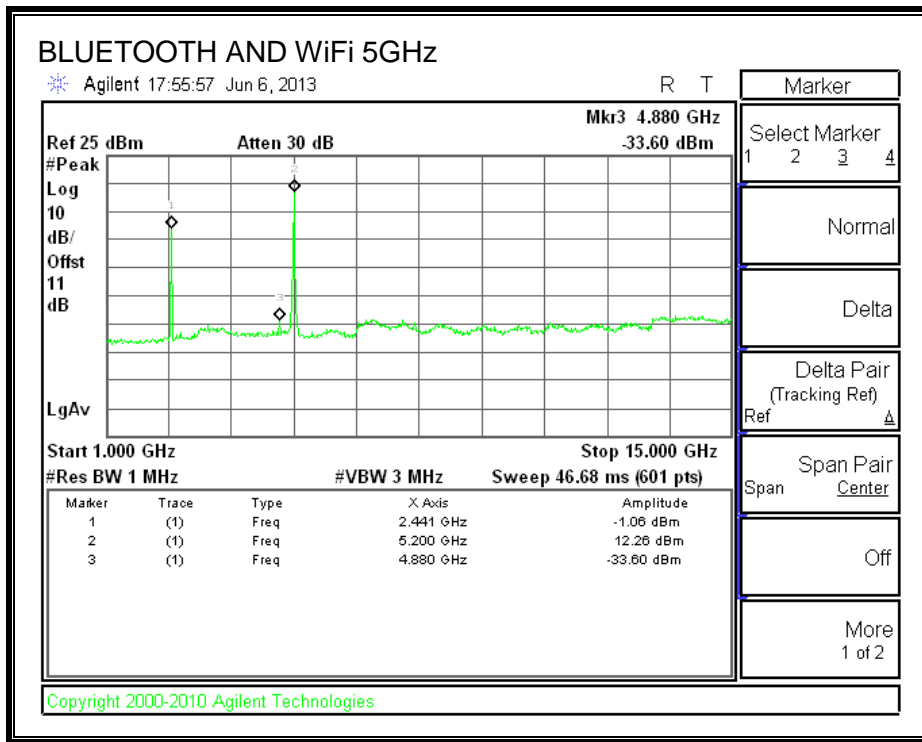
### BLUETOOTH ON



### BLUETOOTH OFF WiFi ON

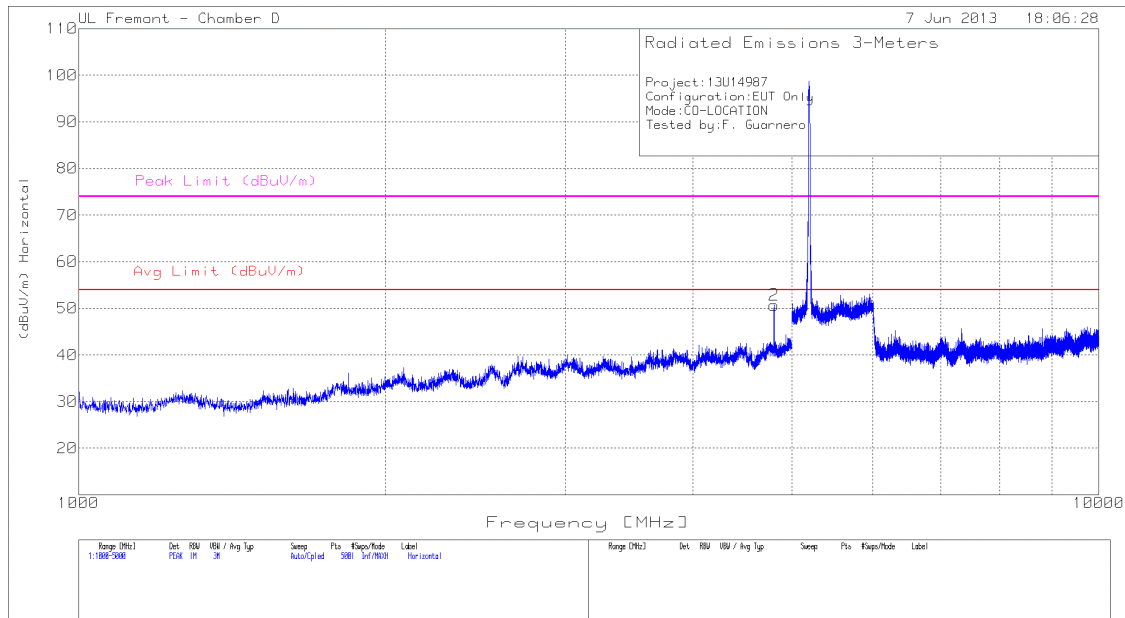


**BLUETOOTH AND WiFi CO-LOCATION**



# HARMONICS AND SPURIOUS EMISSIONS

## CO-LOCATION HORIZONTAL



File: QUTOK\_SCAN - FCC Part15C All 50kHz UNII and DTS Spurious Emissions with Average Scan - Copy.TST

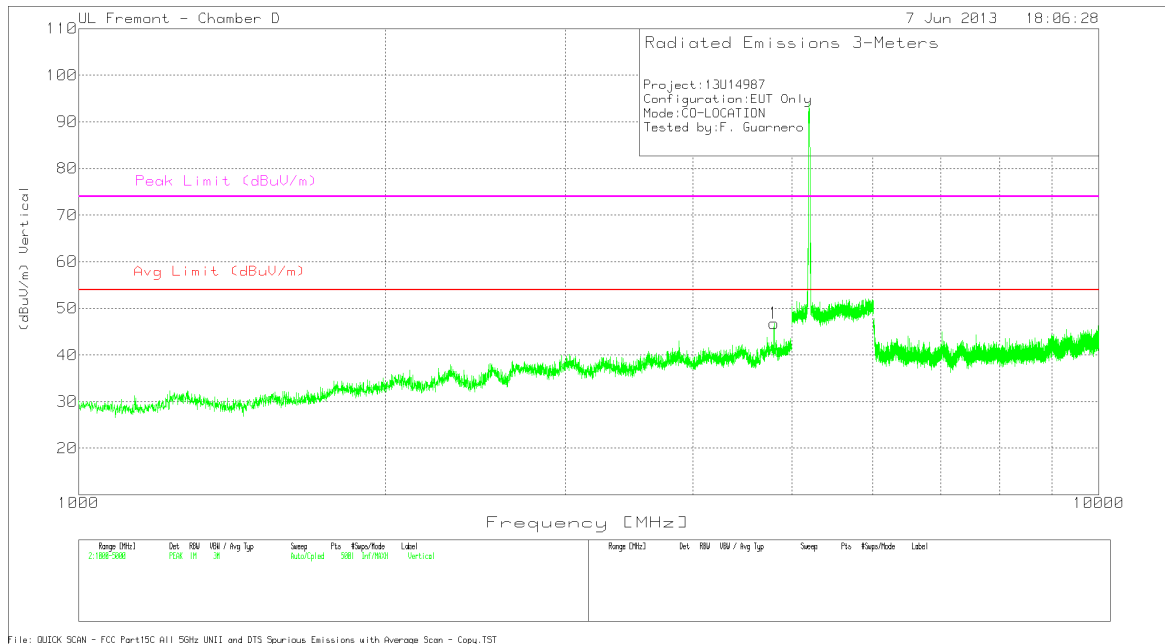
### Horizontal 1000 - 5000MHz

Marker No.	Test Frequency	Meter Reading (dBuV)	Detector	T344 Ant Factor [dB/m]	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Height [cm]	Polarity
2	4804.8	47.17	PK	34.4	-30.9	50.67	53.97	-3.3	74	-23.33	101	Horz
	4803.89	42.26	MAV1	34.4	-30.9	45.76	53.97	-8.21	74	-28.24	151	Horz

PK - Peak detector

MAV1 - KDB558074 v02 10.2.3.2/8.2.1 Option 1 Maximum RMS Average

## CO-LOCATION VERTICAL



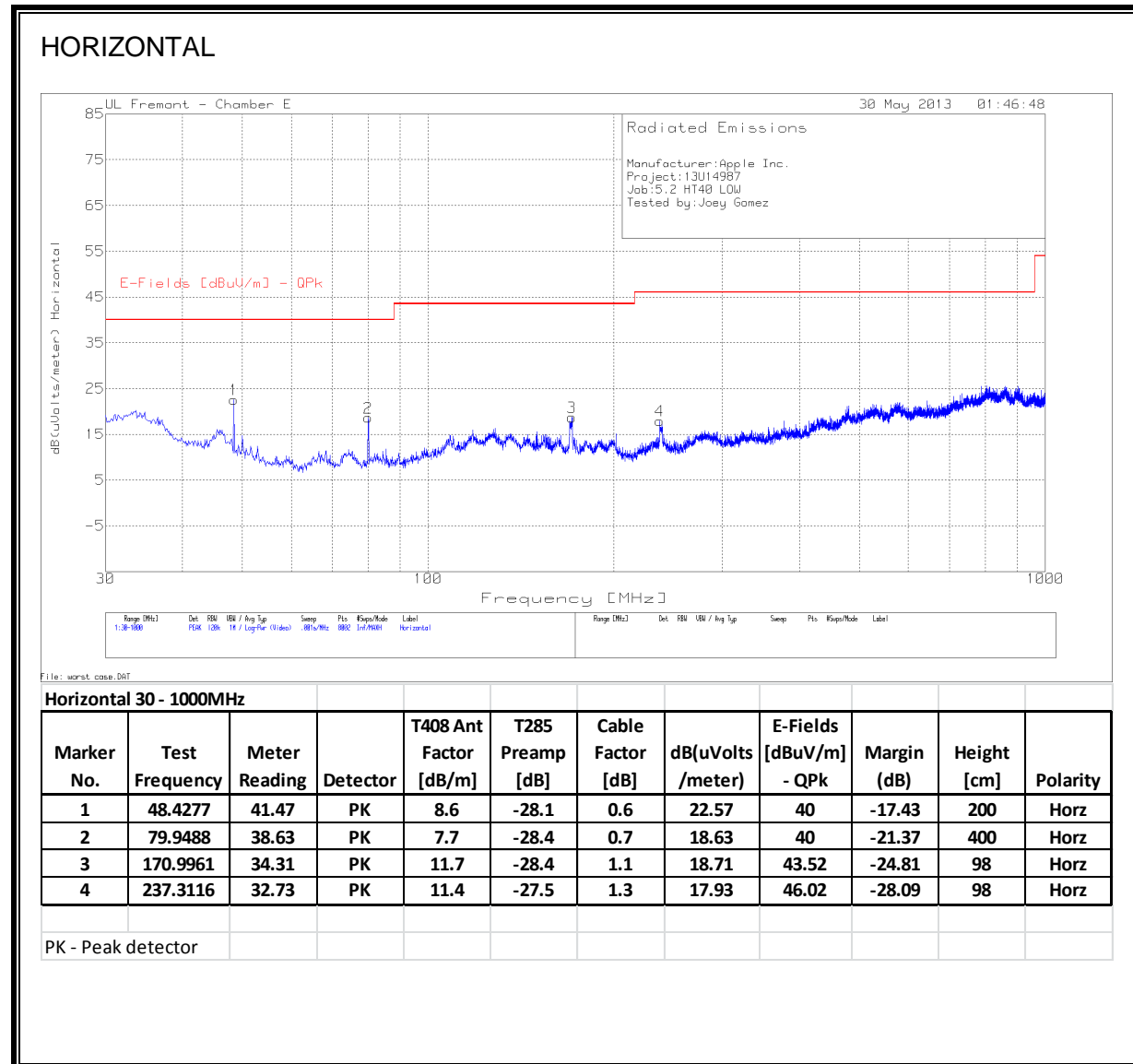
### Vertical 1000 - 5000MHz

Marker No.	Test Frequency	Meter Reading (dBuV)	Detector	T344 Ant Factor [dB/m]	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Height [cm]	Polarity
1	4804.8	43.3	PK	34.4	-30.9	46.8	53.97	-7.17	74	-27.2	101	Vert

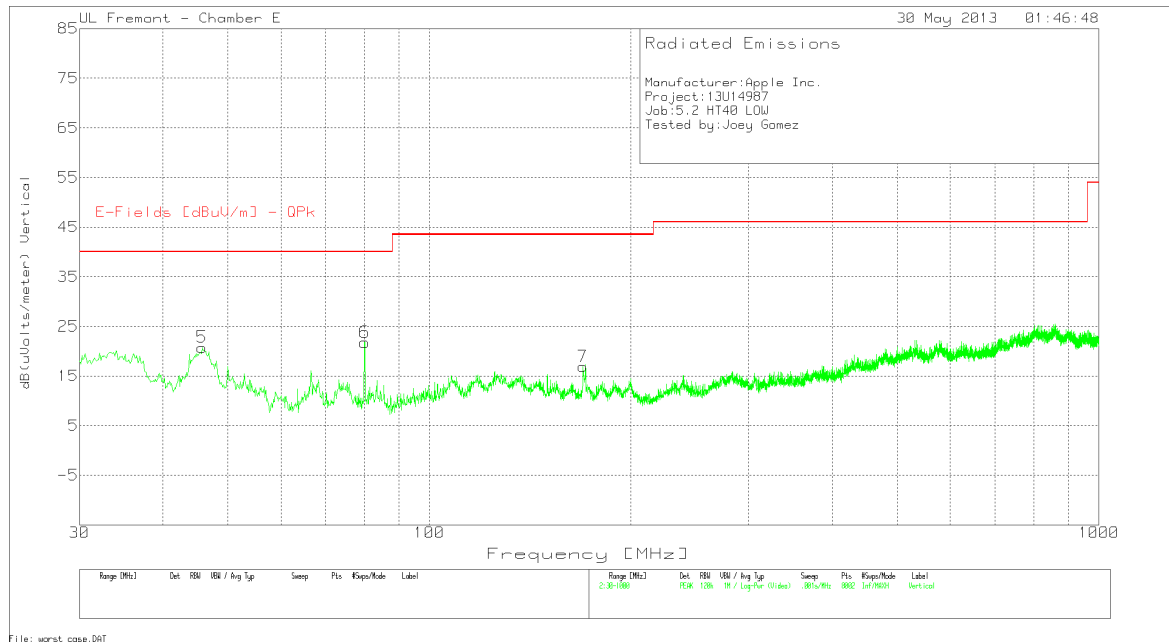
PK - Peak detector

### 9.3. WORST-CASE BELOW 1 GHz

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



## VERTICAL



### Vertical 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T408 Ant Factor [dB/m]	T285 Preamp [dB]	Cable Factor [dB]	dB(uVolts /meter)	E-Fields [dBuV/m] - QPk	Margin (dB)	Height [cm]	Polarity
5	45.7605	38.25	PK	10	-28.1	0.6	20.75	40	-19.25	200	Vert
6	80.07	41.78	PK	7.7	-28.4	0.7	21.78	40	-18.22	400	Vert
7	169.5413	32.62	PK	11.7	-28.5	1.1	16.92	43.52	-26.6	200	Vert

PK - Peak detector

## 10. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dB $\mu$ V)	
	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

### Line-L1 .15 - 30MHz

Test Frequency	Meter Reading	Detector	T24 IL L1.TXT (dB)	LC Cables 1&3.TXT (dB)	dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin	CISPR 11/22 Class B Average	Margin
0.159	54.38	QP	0.1	0	54.48	65.52	-11.04	-	-
0.159	48.7	Av	0.1	0	48.8	-	-	55.5	-6.7
0.8295	48.8	PK	0.1	0	48.9	56	-7.1	-	-
0.8295	30.76	Av	0.1	0	30.86	-	-	46	-15.14
7.278	39.71	PK	0.1	0.1	39.91	60	-20.09	-	-
7.278	25.72	Av	0.1	0.1	25.92	-	-	50	-24.08
16.854	45.42	PK	0.2	0.2	45.82	60	-14.18	-	-
16.854	28.85	Av	0.2	0.2	29.25	-	-	50	-20.75

### Line-L2 .15 - 30MHz

Test Frequency	Meter Reading	Detector	T24 IL L2.TXT (dB)	LC Cables 2&3.TXT (dB)	dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin	CISPR 11/22 Class B Average	Margin
0.1545	54.75	PK	0.1	0	54.85	65.8	-10.95	-	-
0.1545	40.25	Av	0.1	0	40.35	-	-	55.8	-15.45
0.78	42.3	PK	0.1	0	42.4	56	-13.6	-	-
0.78	24.89	Av	0.1	0	24.99	-	-	46	-21.01
2.4585	35.55	PK	0.1	0.1	35.75	56	-20.25	-	-
2.4585	22.07	Av	0.1	0.1	22.27	-	-	46	-23.73
17.5425	42	PK	0.2	0.2	42.4	60	-17.6	-	-
17.5425	29.72	Av	0.2	0.2	30.12	-	-	50	-19.88

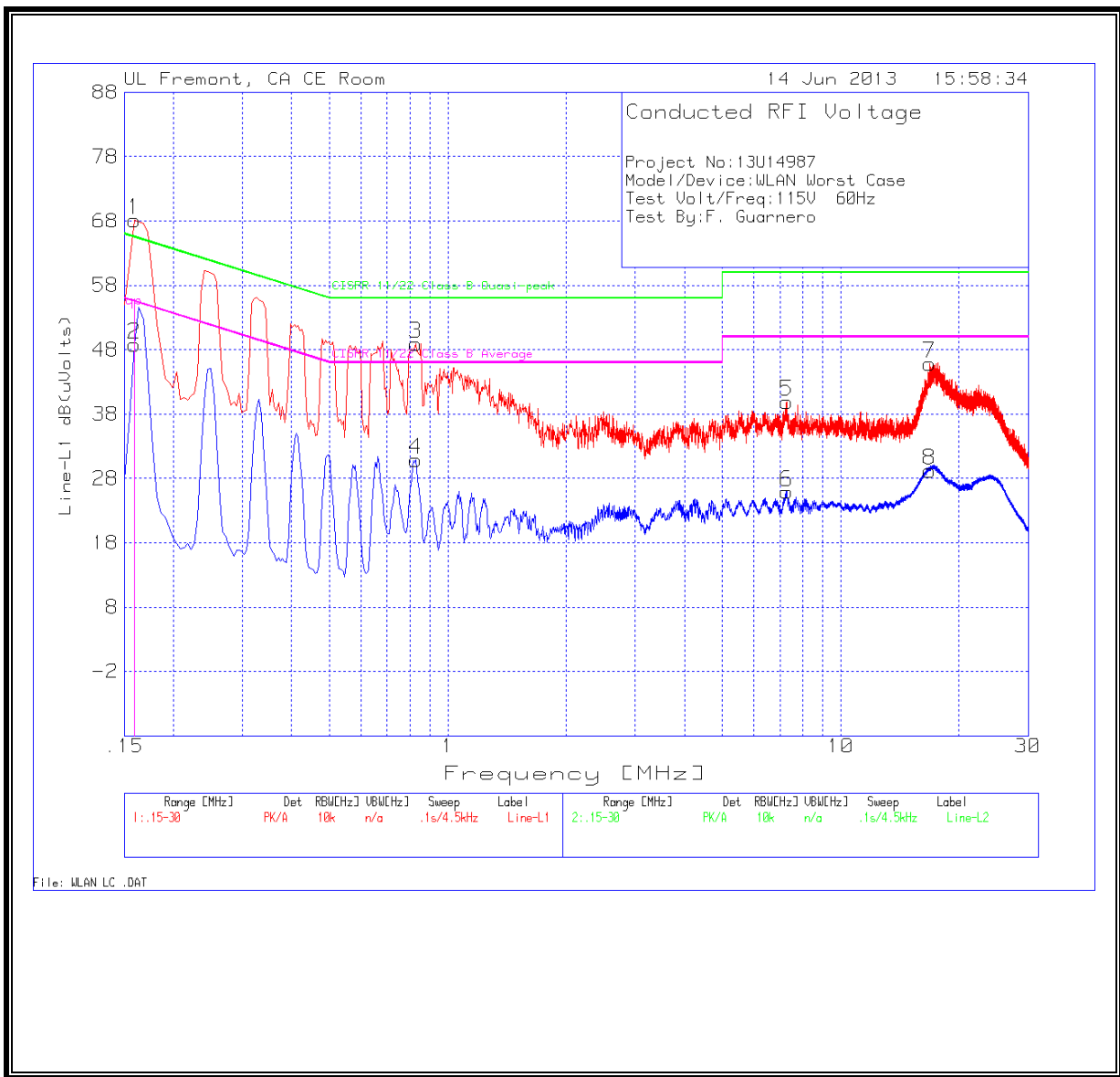
PK - Peak detector

QP - Quasi-Peak detector

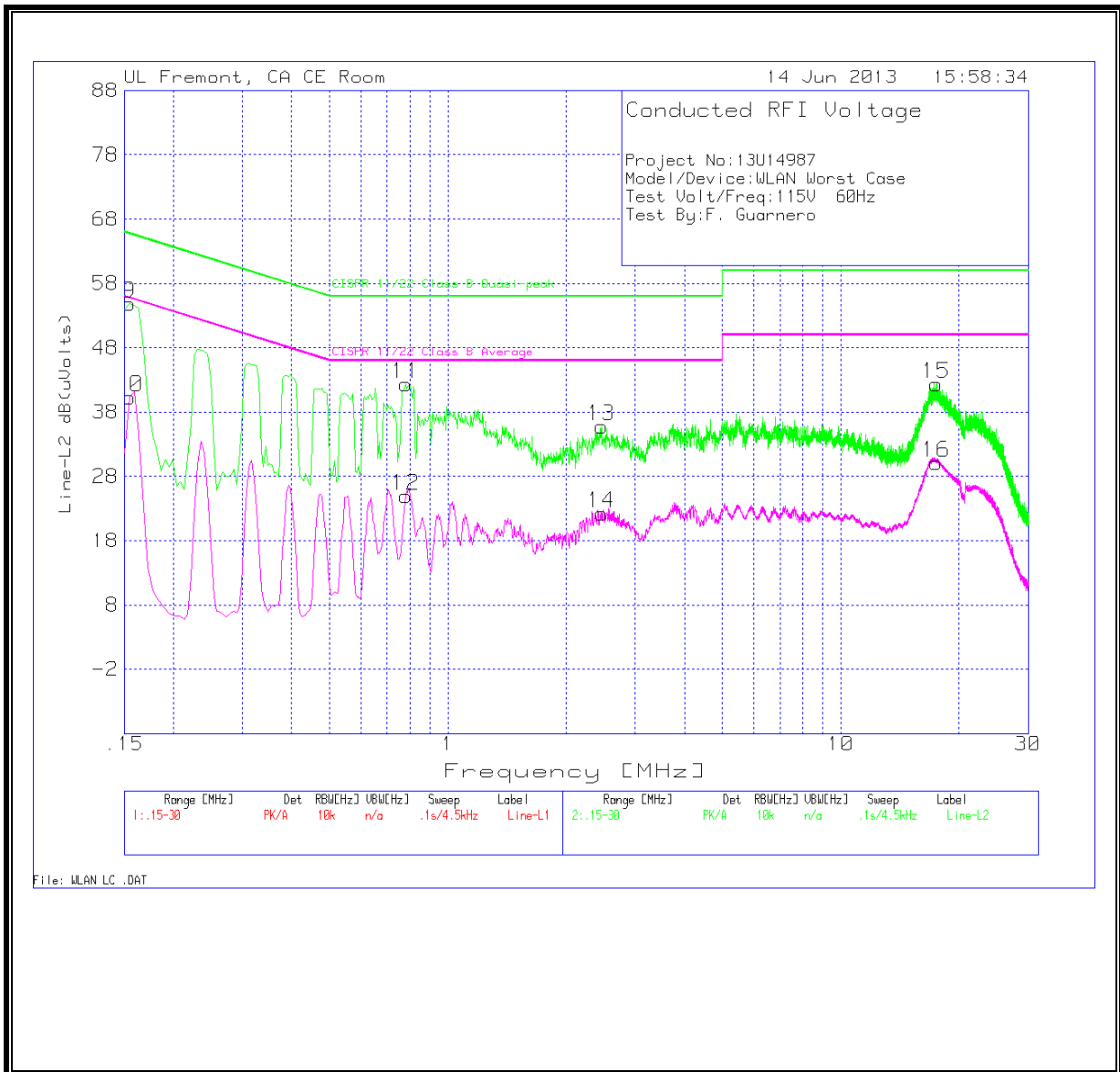
Av - Average detector

## LINE 1 RESULTS





**LINE 2 RESULTS**



## 11. DYNAMIC FREQUENCY SELECTION

### 11.1. OVERVIEW

#### 11.1.1. LIMITS

##### FCC

§15.407 (h) and FCC 06-96 APPENDIX "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

**Table 1: Applicability of DFS requirements prior to use of a channel**

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required

**Table 2: Applicability of DFS requirements during normal operation**

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes

**Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring**

Maximum Transmit Power	Value (see note)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
<p>Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna</p> <p>Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.</p>	

**Table 4: DFS Response requirement values**

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period
<p>The instant that the <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> begins is as follows:</p> <p>For the Short pulse radar Test Signals this instant is the end of the <i>Burst</i>.</p> <p>For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated.</p> <p>For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.</p> <p>The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.</p>	

**Table 5 – Short Pulse Radar Test Waveforms**

Radar Type	Pulse Width (Microseconds)	PRI (Microseconds)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

**Table 6 – Long Pulse Radar Test Signal**

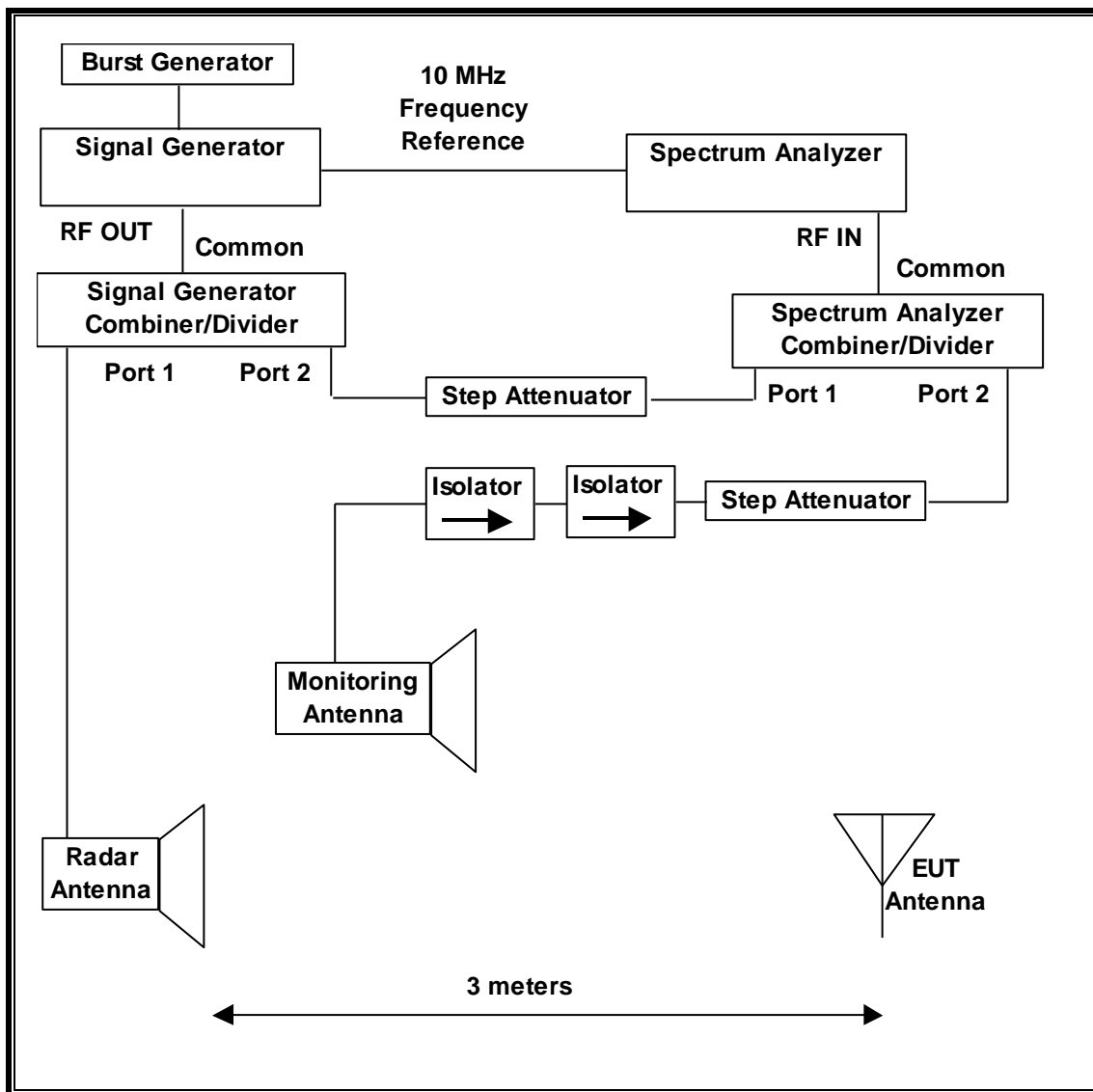
Radar Waveform	Bursts	Pulses per Burst	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

**Table 7 – Frequency Hopping Radar Test Signal**

Radar Waveform	Pulse Width (μsec)	PRI (μsec)	Burst Length (ms)	Pulses per Hop	Hopping Rate (kHz)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	300	9	.333	70%	30

## 11.1.2. TEST AND MEASUREMENT SYSTEM

### RADIATED METHOD SYSTEM BLOCK DIAGRAM



## **SYSTEM OVERVIEW**

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from  $F_L$  to  $F_H$  for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

## **SYSTEM CALIBRATION**

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

### **ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL**

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

### **TEST AND MEASUREMENT EQUIPMENT**

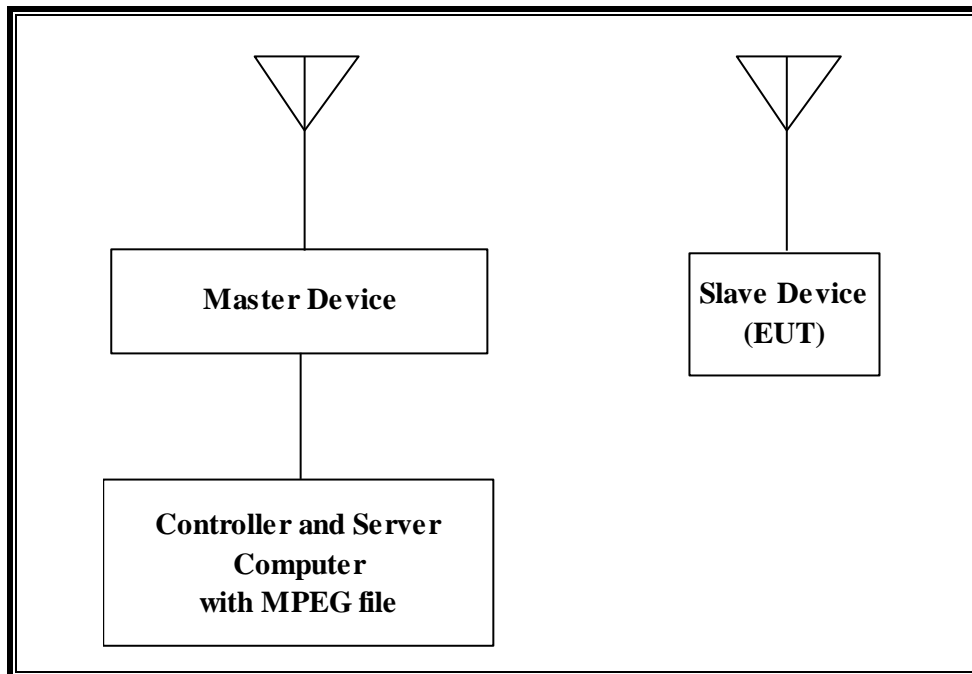
The following test and measurement equipment was utilized for the DFS tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset Number	Cal Due
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/18/13
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	11/20/13



### 11.1.3. SETUP OF EUT (CLIENT MODE)

#### RADIATED METHOD EUT TEST SETUP



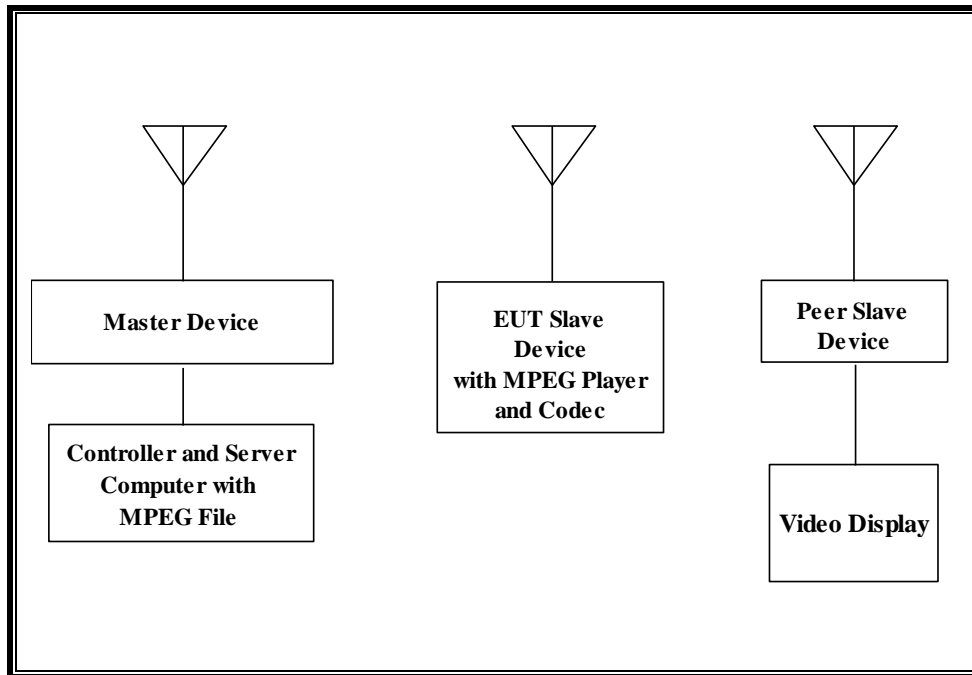
#### SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Wireless Access Point (Master Device)	Cisco	AIR-AP1252AG-A-K9	FTX130390D9	LDK102061
AC Adapter (AP)	Delta Electronics	EADP-45BB B	DTH1049902N	DoC
Notebook PC (Controller/Server)	Apple	MacBook Pro A1150	AOU257941	DoC
AC Adapter (Controller/Server PC)	Delta Electronics	A1330	MV952157KAGKA	DoC

#### 11.1.4. SETUP OF EUT (CLIENT-TO-CLIENT COMMUNICATIONS MODE)

##### RADIATED METHOD EUT TEST SETUP



##### SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Wireless Access Point (Master Device)	Cisco	AIR-AP1252AG-A-K9	FTX130390D9	LDK102061
AC Adapter (AP)	Delta Electronics	EADP-45BB B	DTH1049902N	DoC
Notebook PC (Controller/Server)	Apple	MacBook Pro A1150	AOU257941	DoC
AC Adapter (Controller/Server PC)	Delta Electronics	A1330	MV952157KAGKA	DoC
Apple TV (Peer Slave)	Apple	A1469	V07JV1Z7FF54	BCGA1469
Video Display	Dell	U2410f	CN-0FJ525N-72872-1B5-AGAL	DoC

### **11.1.5. DESCRIPTION OF EUT**

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 14.21 dBm EIRP in the 5250-5350 MHz band and 15.36 dBm EIRP in the 5470-5725 MHz band.

The only antenna assembly utilized with the EUT has a gain of -0.37 dBi in the 5250-5350 MHz band and 1.31 dBi in the 5470-5725 MHz band.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is  $-64 + 1 = -63$  dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides margin to the limit.

The EUT uses one transmitter/receiver chain connected to an antenna to perform radiated tests.

WLAN traffic is generated by streaming the video file TestFile.mp2 "6 ½ Magic Hours" from the Master to the Slave in full motion video mode using Safari web browser.

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11a/n architecture. Two nominal channel bandwidths of 20 MHz and 40 MHz are implemented.

The software installed in the EUT is 11A5400f.

### **UNIFORM CHANNEL SPREADING**

This requirement is not applicable to Slave radio devices.

### **OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS**

The Master Device is a Cisco Access Point, FCC ID: LDK102061. The minimum antenna gain for the Master Device is 3.5 dBi.

The rated output power of the Master unit is  $> 23\text{dBm}$  (EIRP). Therefore the required interference threshold level is  $-64\text{ dBm}$ . After correction for procedural adjustments, the required radiated threshold at the antenna port is  $-64 + 1 = -63\text{ dBm}$ .

The calibrated radiated DFS Detection Threshold level is set to  $-64\text{ dBm}$ . The tested level is lower than the required level hence it provides margin to the limit.

The software installed in the access point is 12.4(25d)JA1.

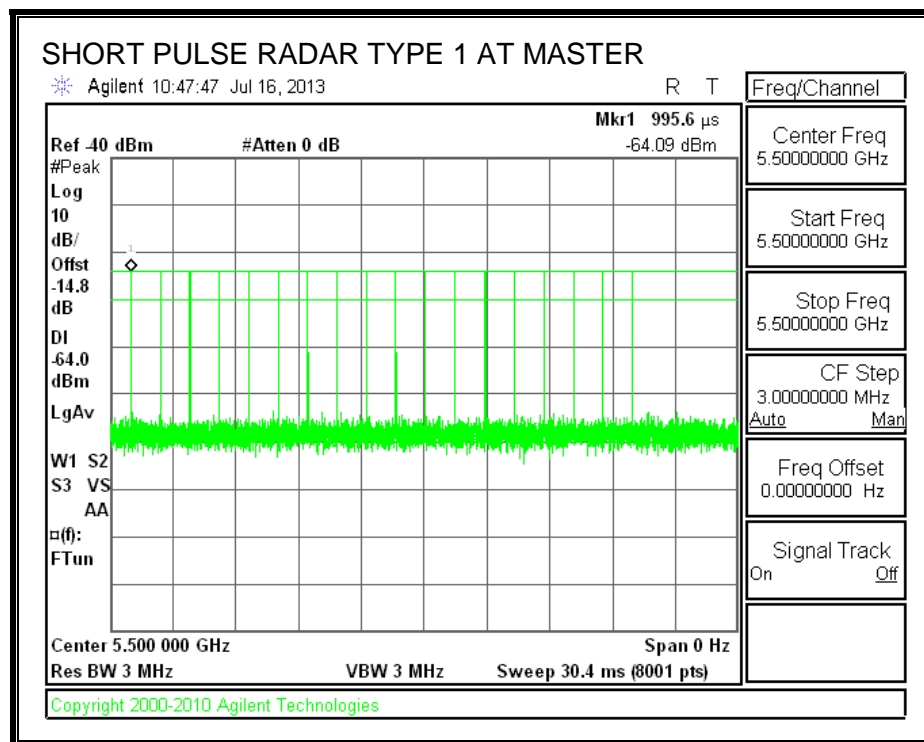
## 11.2. CLIENT MODE RESULTS FOR 20 MHz BANDWIDTH

### 11.2.1. TEST CHANNEL

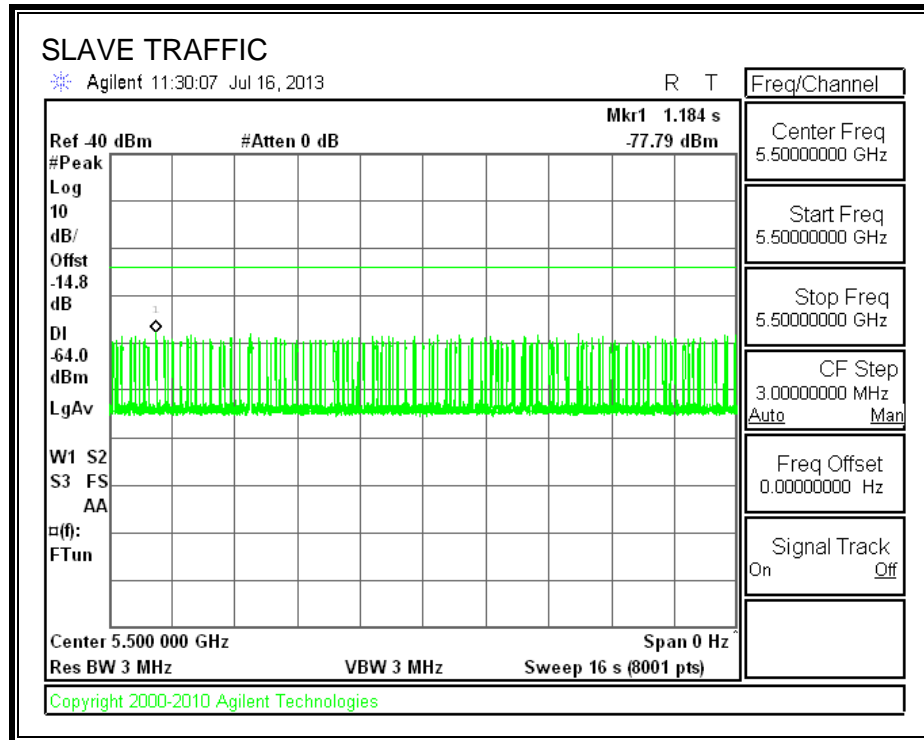
All tests were performed at a channel center frequency of 5500 MHz.

### 11.2.2. RADAR WAVEFORM AND TRAFFIC

#### RADAR WAVEFORM



**TRAFFIC**



### 11.2.3. OVERLAPPING CHANNEL TESTS

#### RESULTS

These tests are not applicable.

### 11.2.4. MOVE AND CLOSING TIME

#### REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =  
(Number of analyzer bins showing transmission) \* (dwell time per bin)

The observation period over which the FCC aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

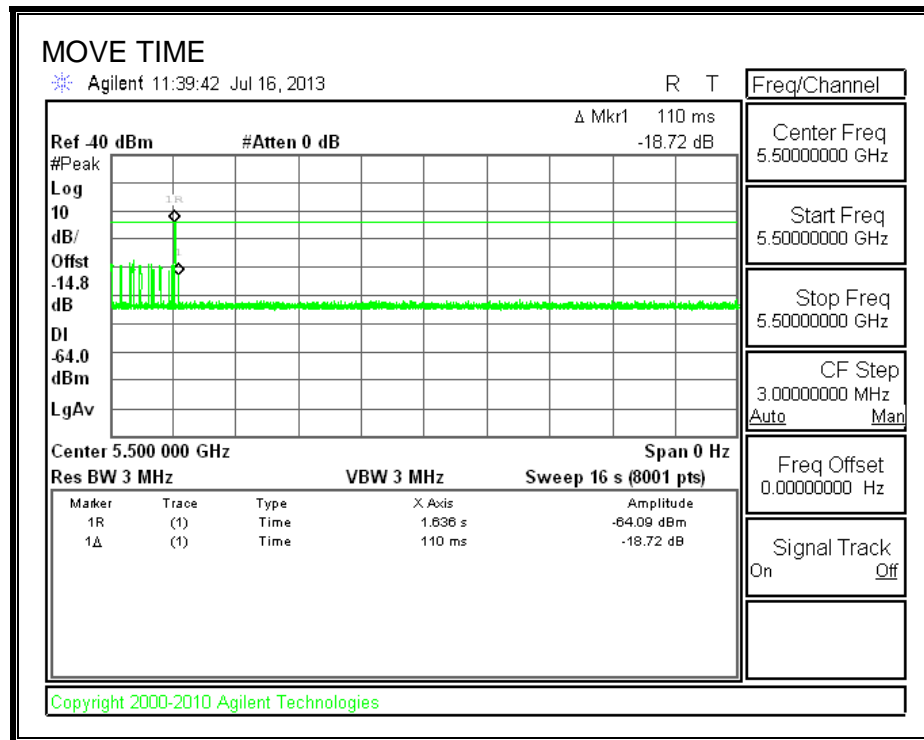
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

#### RESULTS

Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	0.110	10

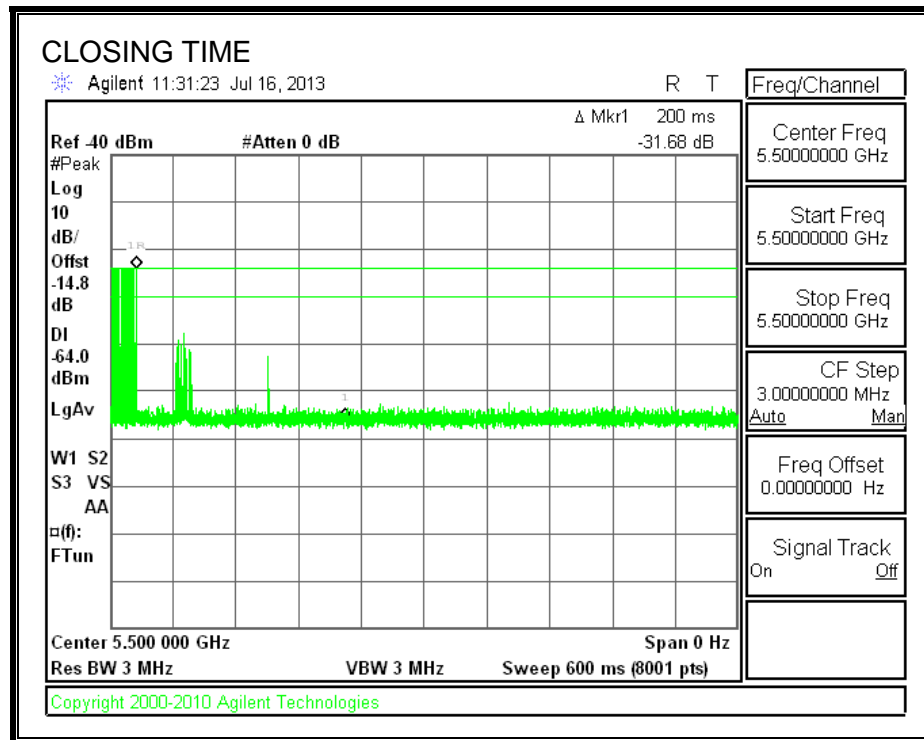
Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	0.0	60
IC	2.0	260

# MOVE TIME



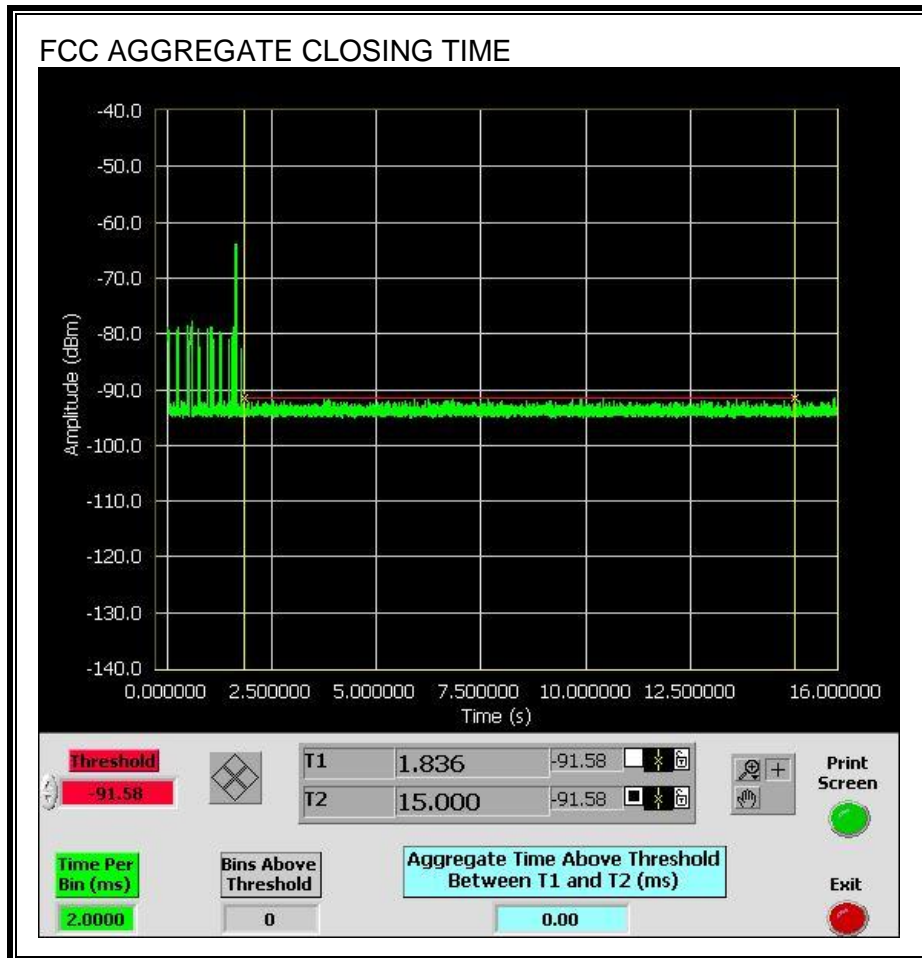


# **CHANNEL CLOSING TIME**

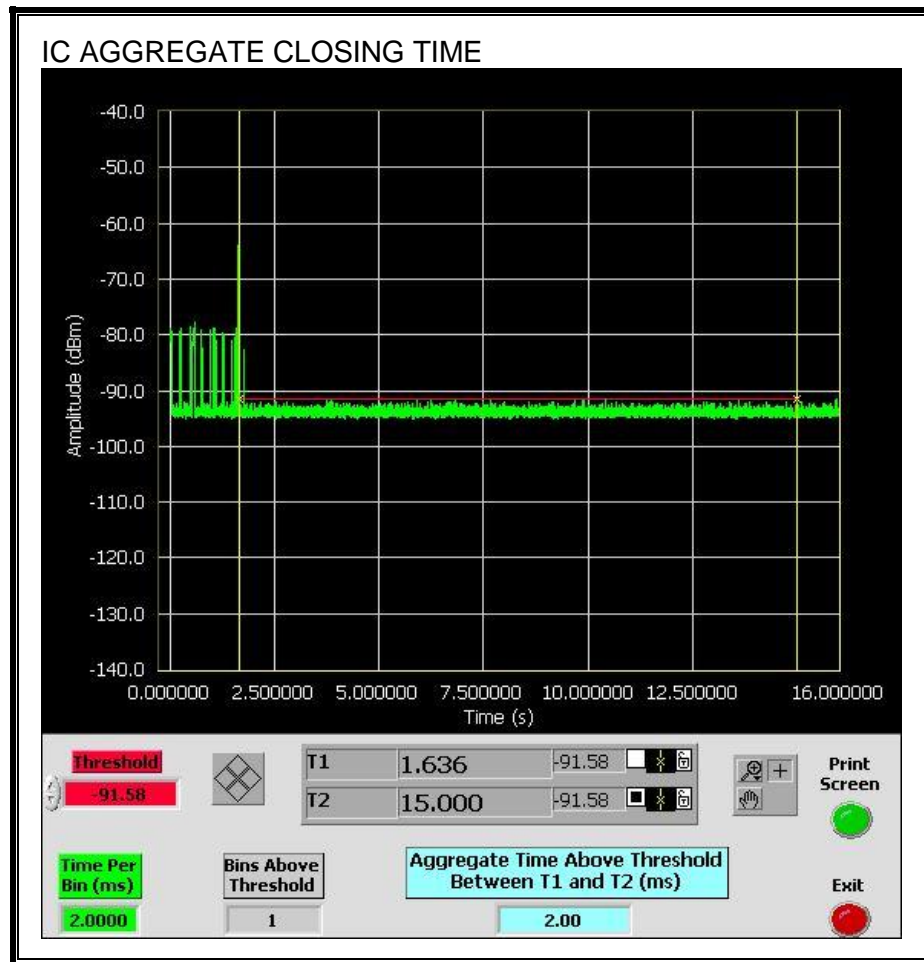


### AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the FCC aggregate monitoring period.



Only intermittent transmissions are observed during the IC aggregate monitoring period.



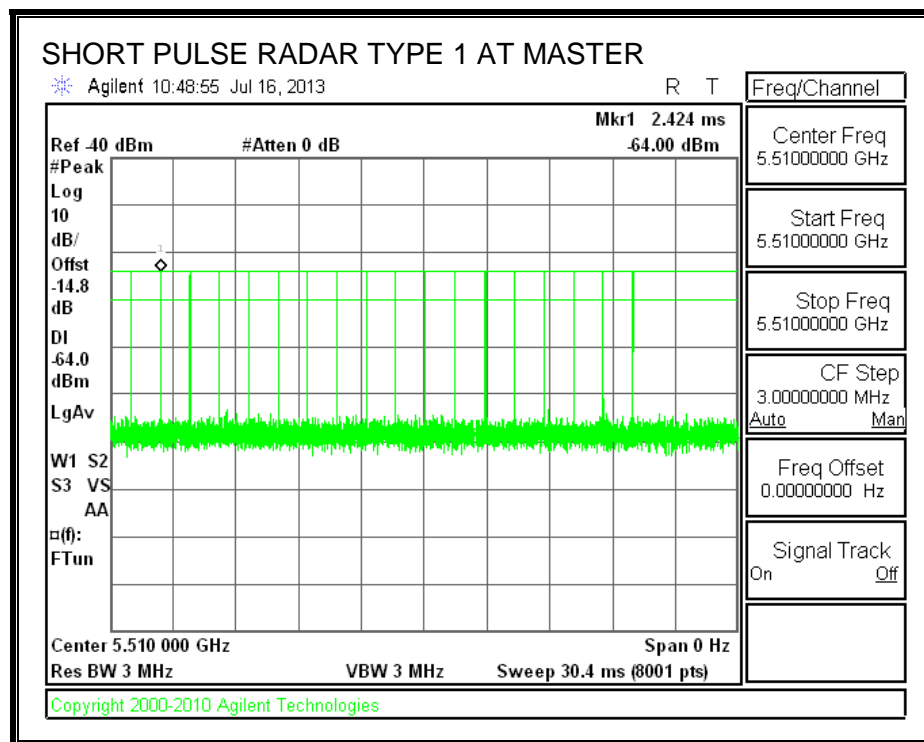
### 11.3. CLIENT MODE RESULTS FOR 40 MHz BANDWIDTH

#### 11.3.1. TEST CHANNEL

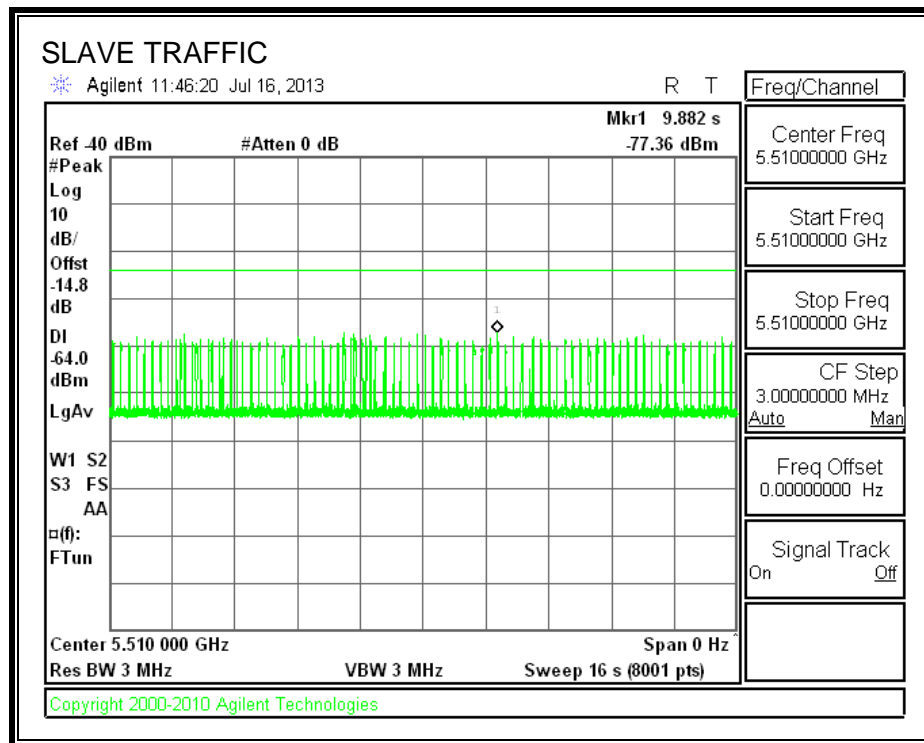
All tests were performed at a channel center frequency of 5510 MHz.

#### 11.3.2. RADAR WAVEFORM AND TRAFFIC

##### RADAR WAVEFORM



**TRAFFIC**



### 11.3.3. OVERLAPPING CHANNEL TESTS

#### RESULTS

These tests are not applicable.

### 11.3.4. MOVE AND CLOSING TIME

#### REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =  
(Number of analyzer bins showing transmission) \* (dwell time per bin)

The observation period over which the FCC aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

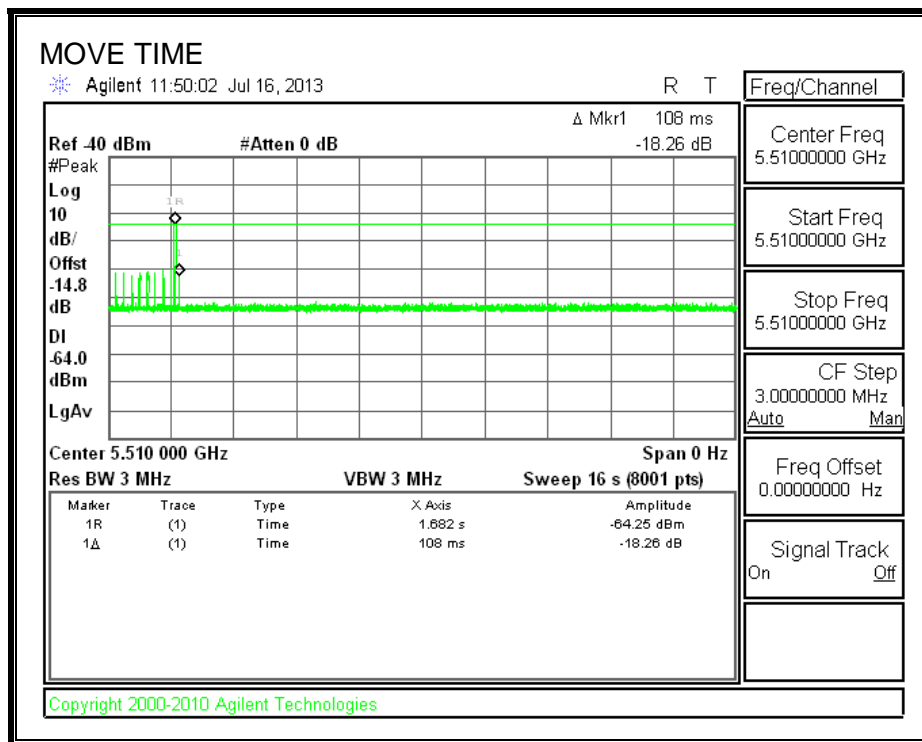
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

#### RESULTS

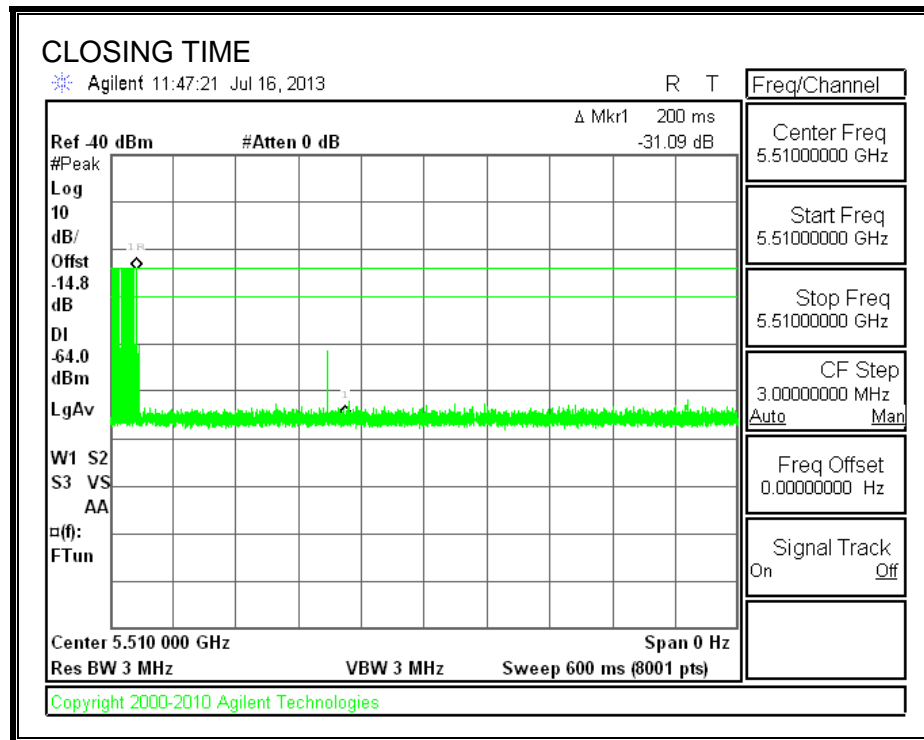
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	0.108	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	0.0	60
IC	2.0	260

# **MOVE TIME**



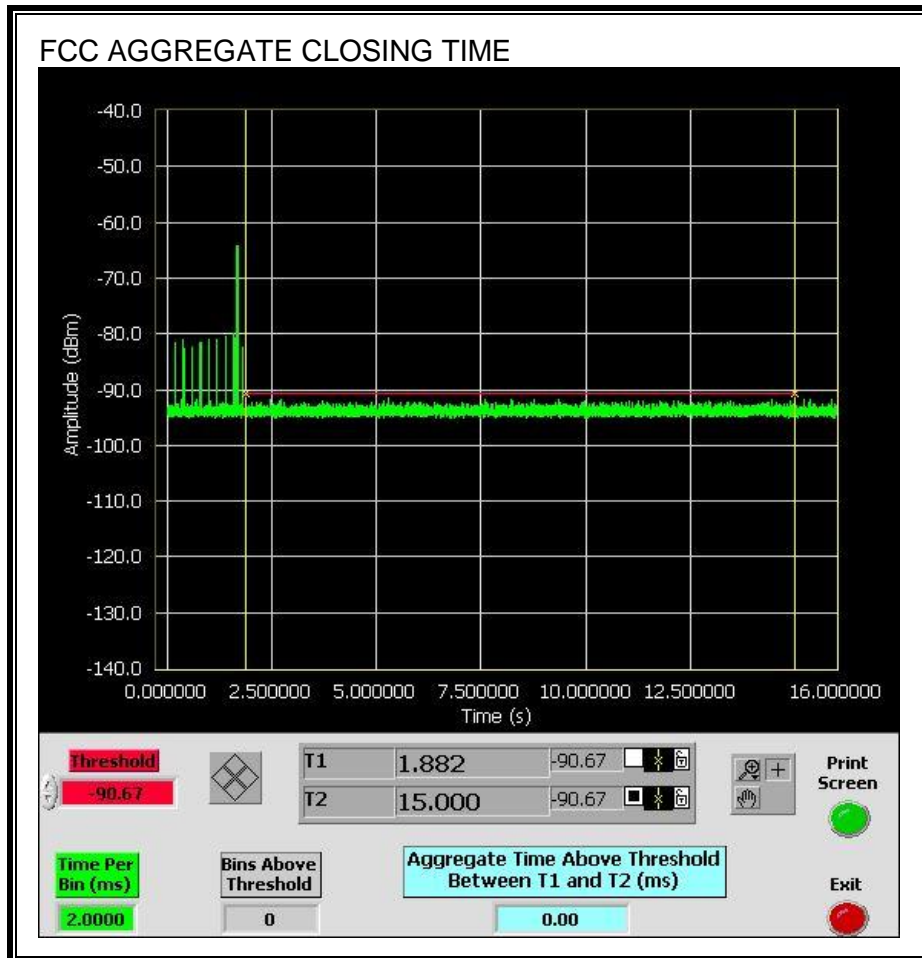
# **CHANNEL CLOSING TIME**



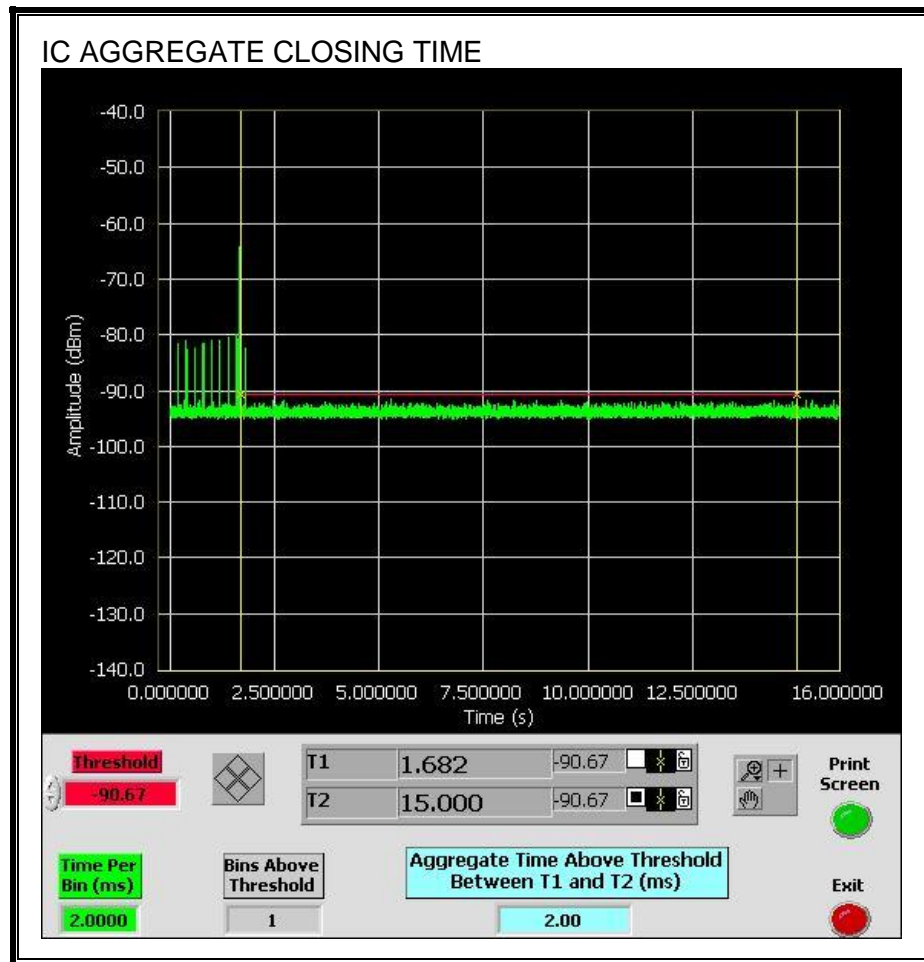


### AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the FCC aggregate monitoring period.



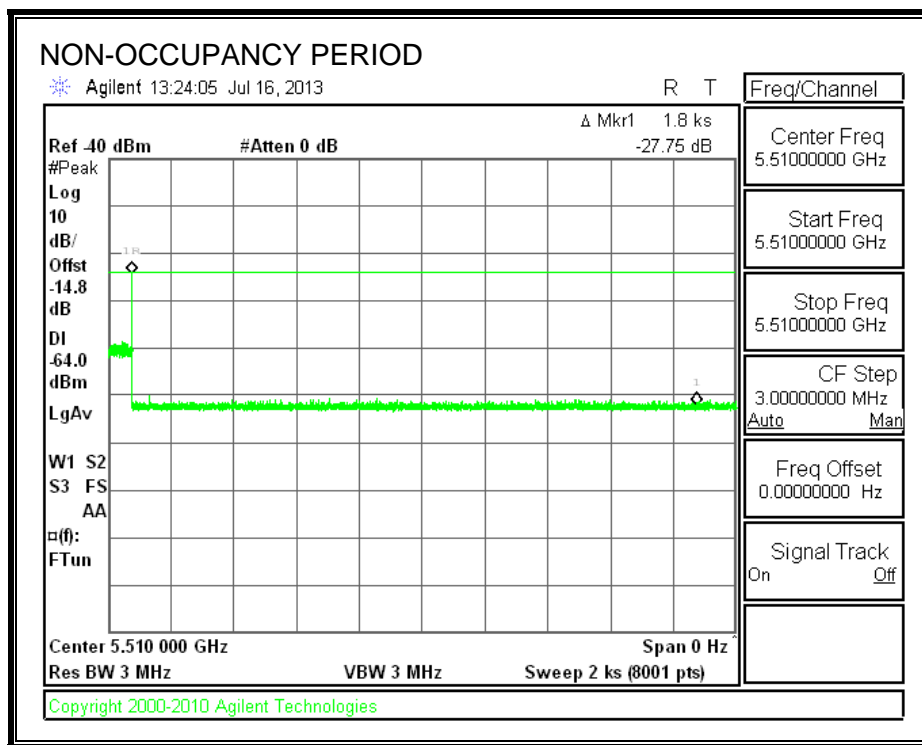
Only intermittent transmissions are observed during the IC aggregate monitoring period.



### 11.3.5. NON-OCCUPANCY PERIOD

#### RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.



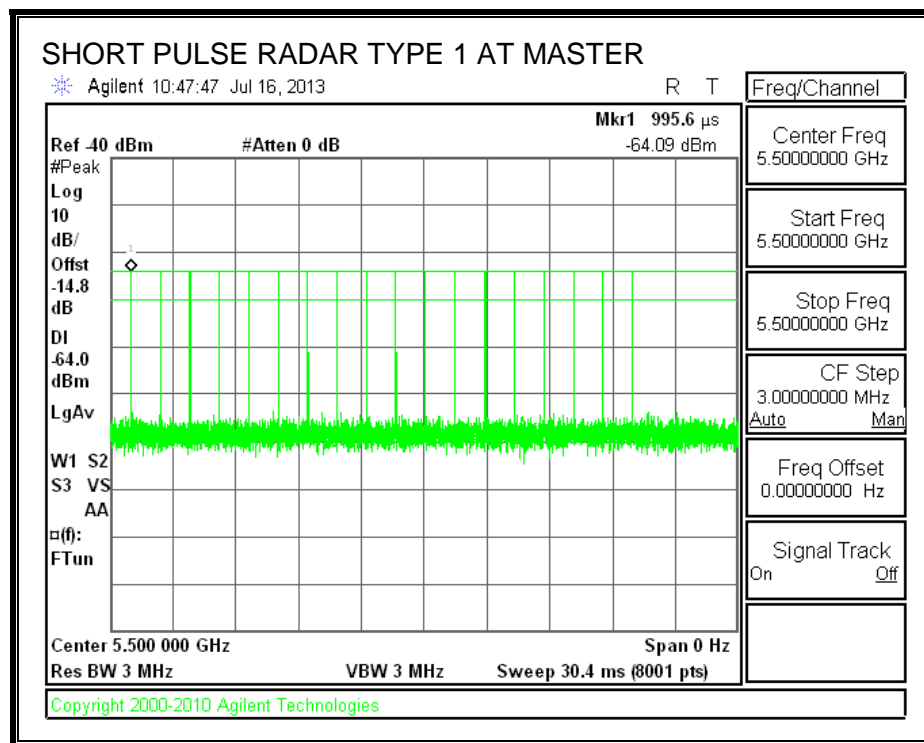
## 11.4. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 20 MHz BANDWIDTH

### 11.4.1. TEST CHANNEL

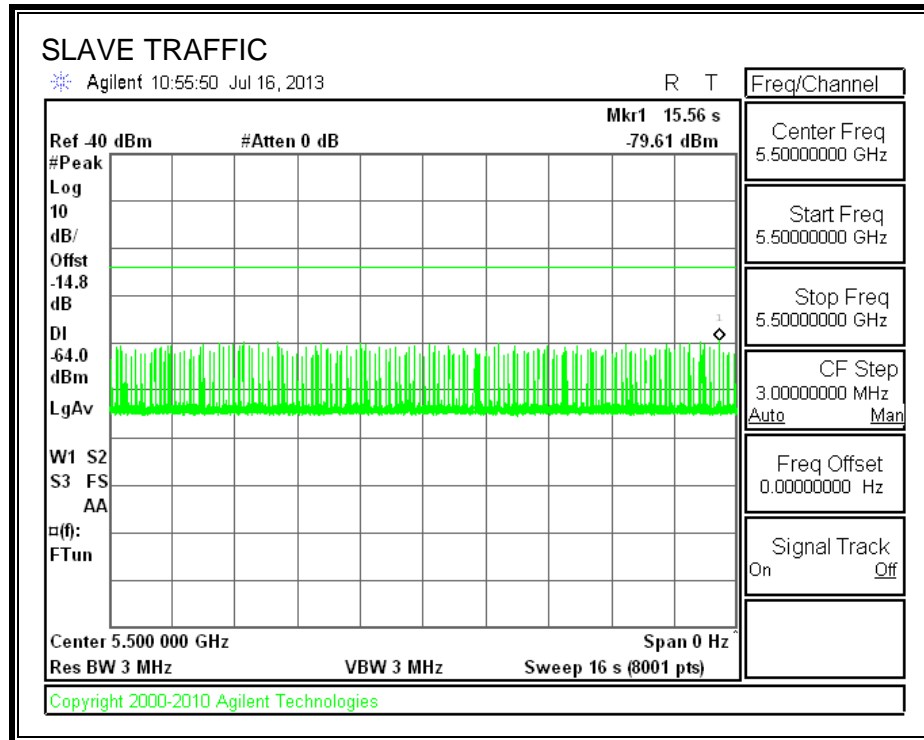
All tests were performed at a channel center frequency of 5500 MHz.

### 11.4.2. RADAR WAVEFORM AND TRAFFIC

#### RADAR WAVEFORM



**TRAFFIC**



### 11.4.3. OVERLAPPING CHANNEL TESTS

#### RESULTS

These tests are not applicable.

### 11.4.4. MOVE AND CLOSING TIME

#### REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =  
(Number of analyzer bins showing transmission) \* (dwell time per bin)

The observation period over which the FCC aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

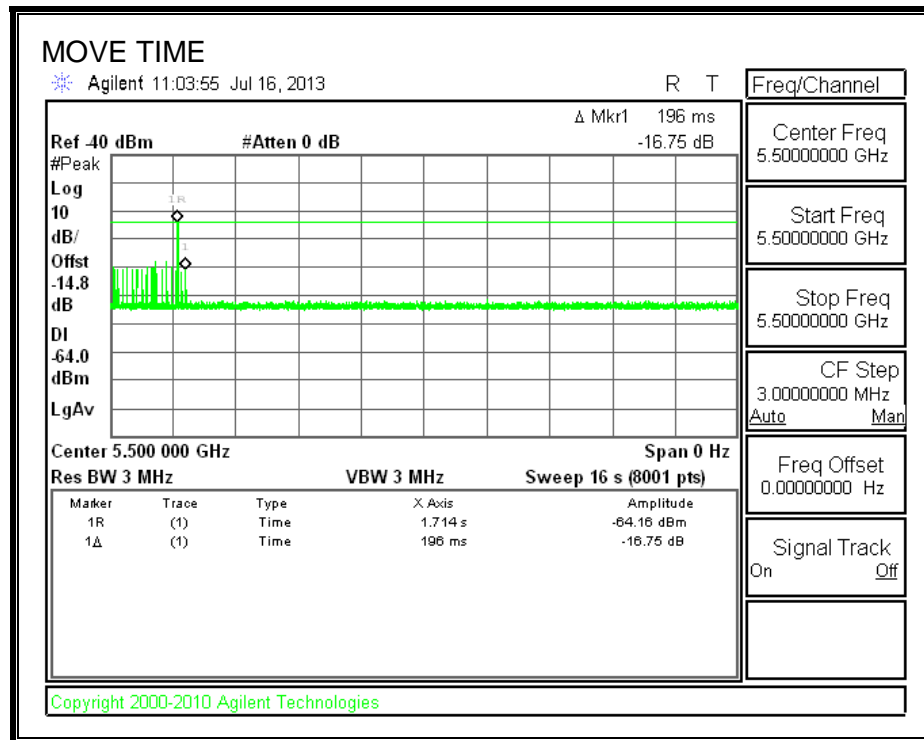
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

#### RESULTS

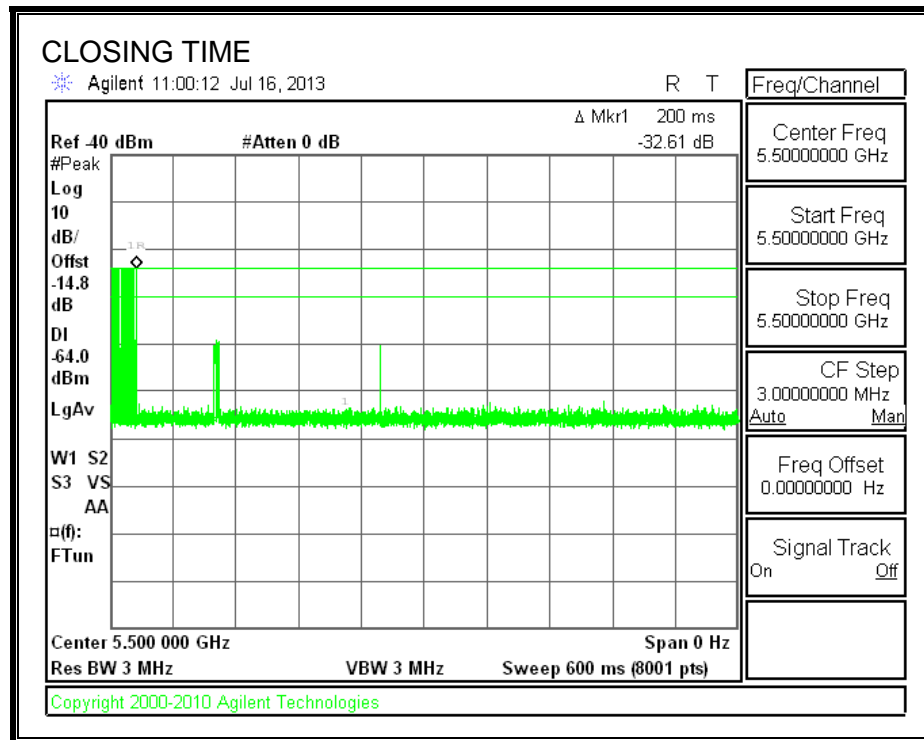
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	0.196	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	0.0	60
IC	4.0	260

# MOVE TIME



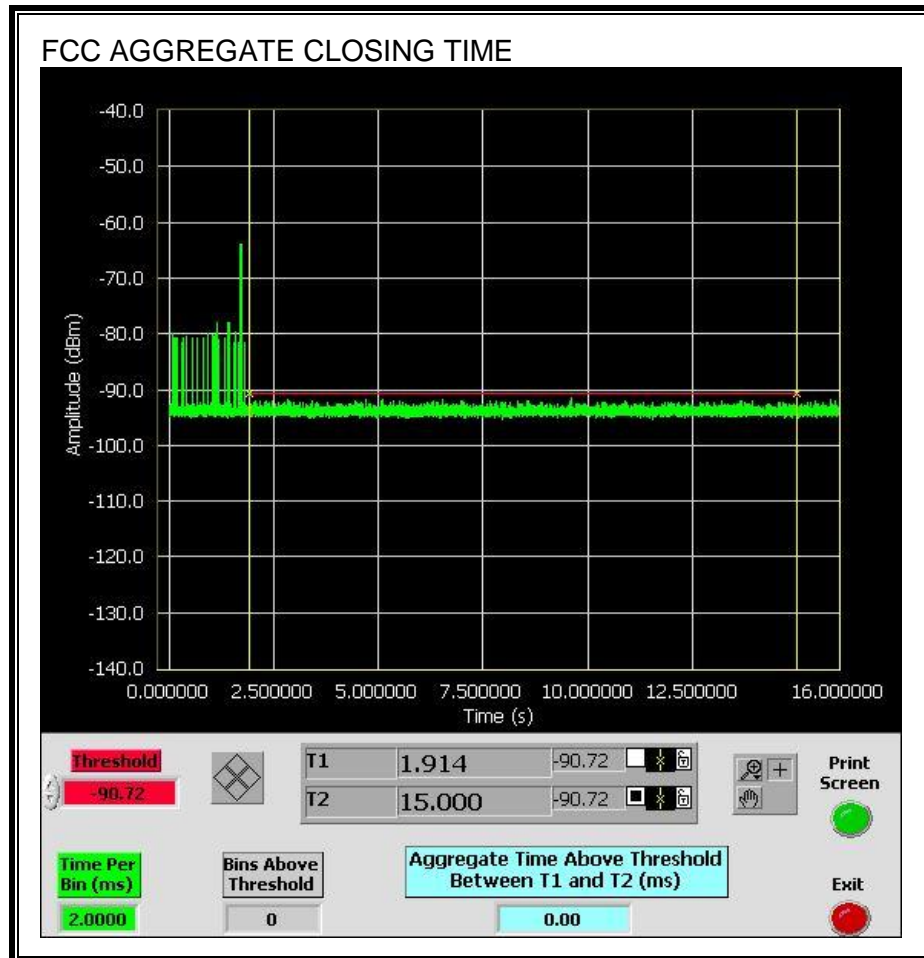
**CHANNEL CLOSING TIME**



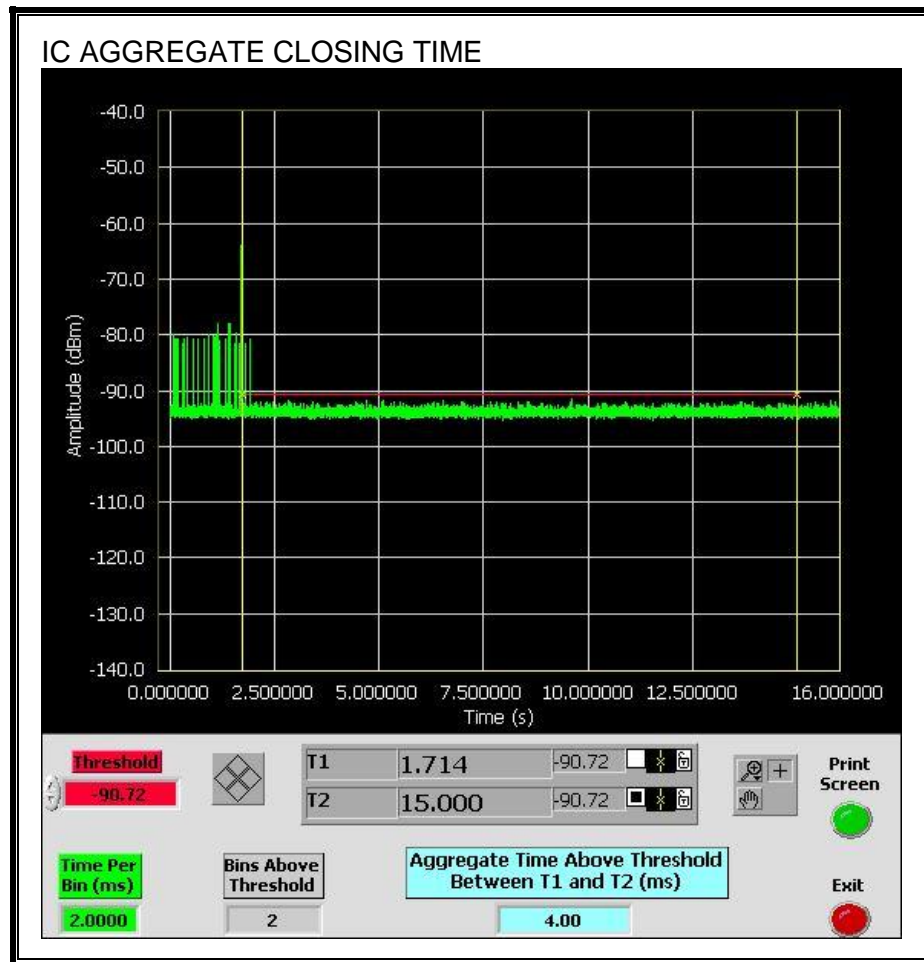


### AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the FCC aggregate monitoring period.



Only intermittent transmissions are observed during the IC aggregate monitoring period.



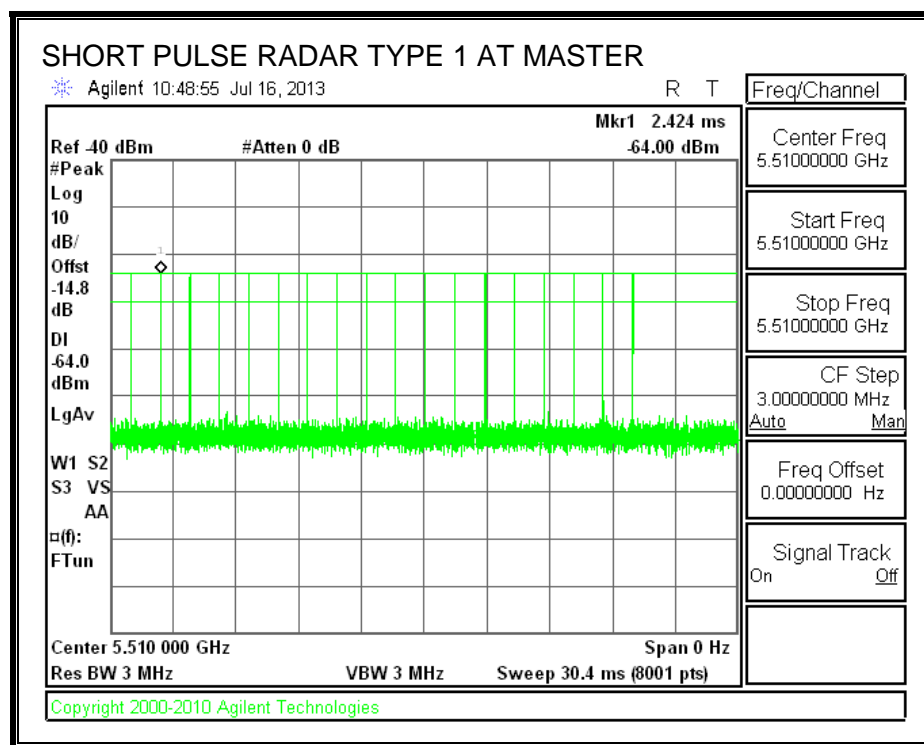
## 11.5. CLIENT-TO-CLIENT COMMUNICATIONS MODE RESULTS FOR 40 MHz BANDWIDTH

### 11.5.1. TEST CHANNEL

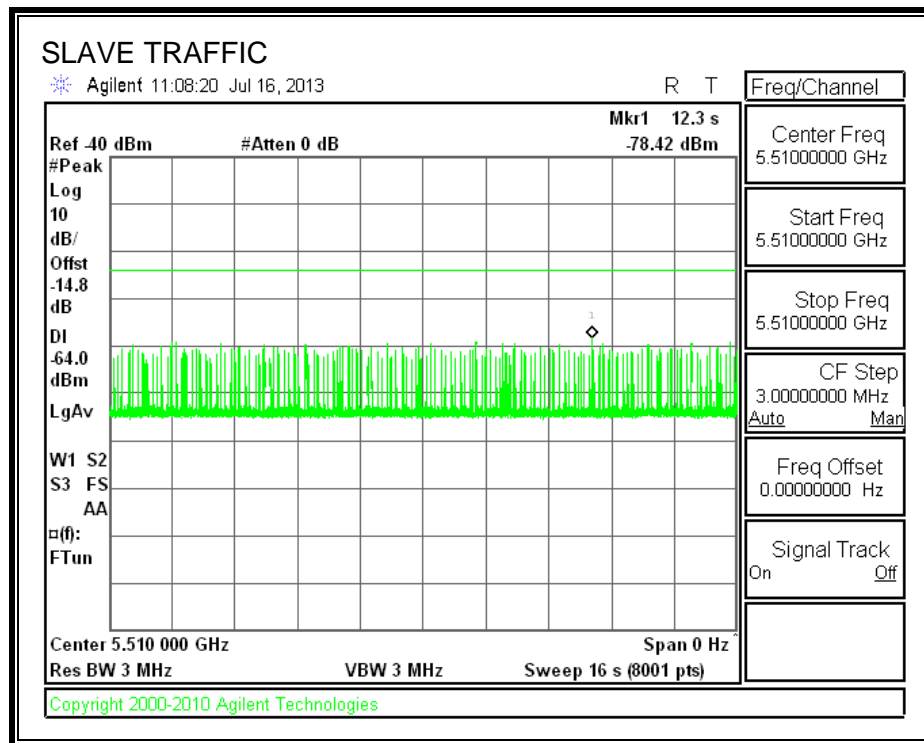
All tests were performed at a channel center frequency of 5510 MHz.

### 11.5.2. RADAR WAVEFORM AND TRAFFIC

#### RADAR WAVEFORM



**TRAFFIC**



### 11.5.3. OVERLAPPING CHANNEL TESTS

#### RESULTS

These tests are not applicable.

### 11.5.4. MOVE AND CLOSING TIME

#### REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =  
(Number of analyzer bins showing transmission) \* (dwell time per bin)

The observation period over which the FCC aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

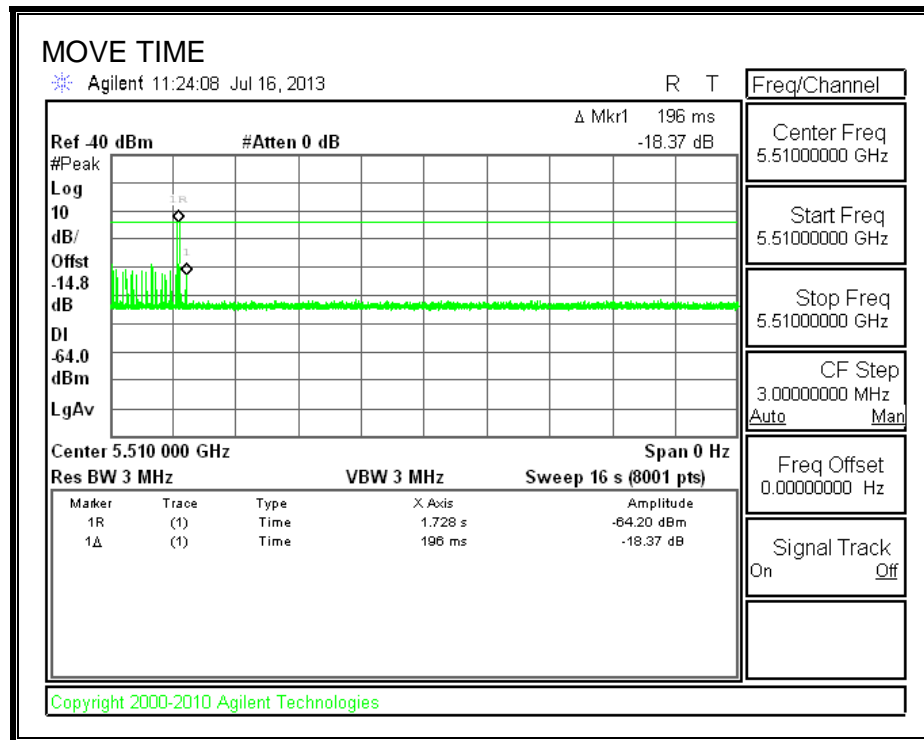
The observation period over which the IC aggregate time is calculated begins at (Reference Marker) and ends no earlier than (Reference Marker + 10 sec).

#### RESULTS

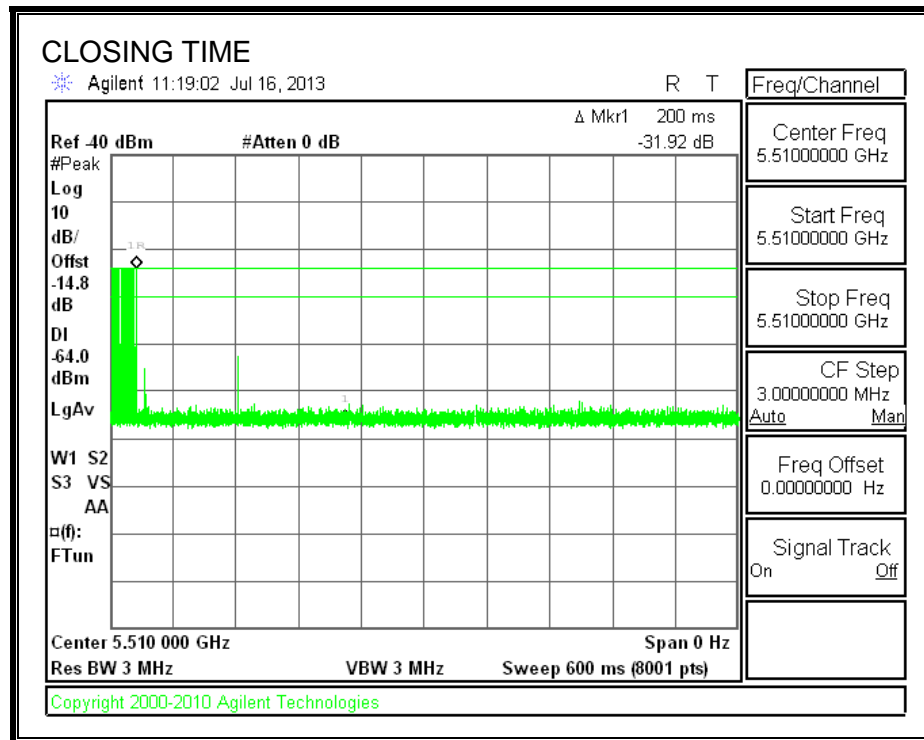
Agency	Channel Move Time (sec)	Limit (sec)
FCC / IC	0.196	10

Agency	Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
FCC	0.0	60
IC	6.0	260

## MOVE TIME

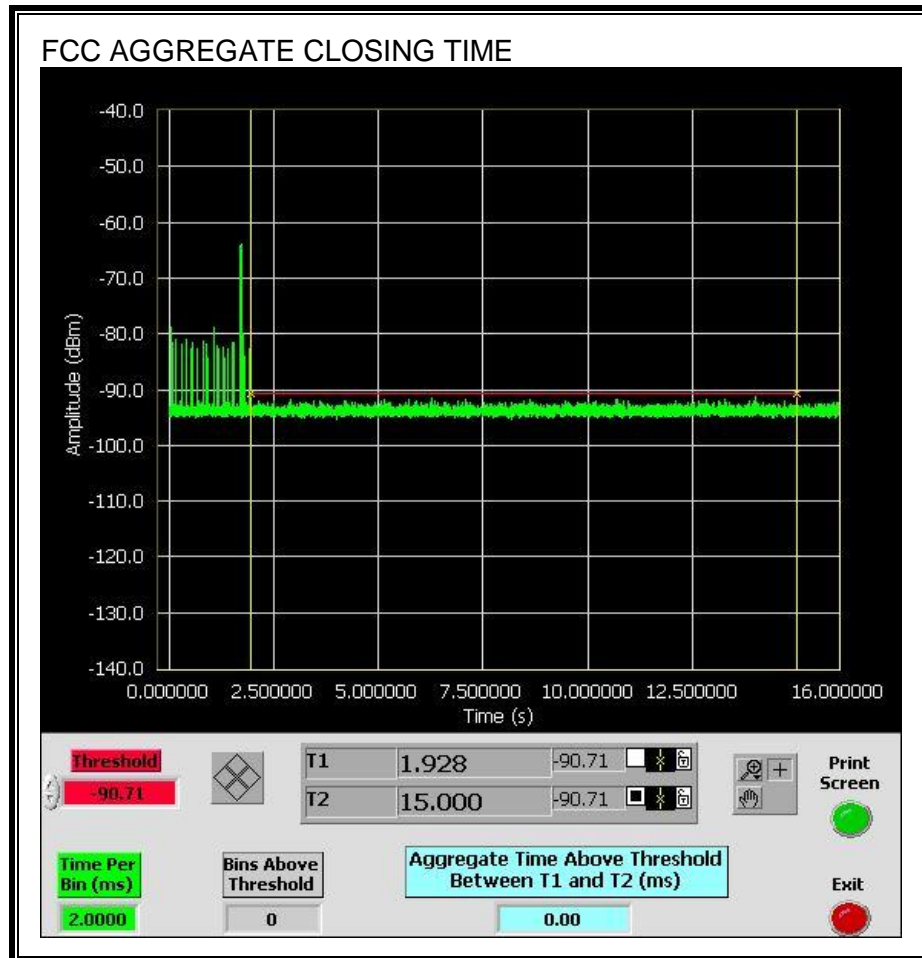


# **CHANNEL CLOSING TIME**



### AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the FCC aggregate monitoring period.





Only intermittent transmissions are observed during the IC aggregate monitoring period.

