8.6.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% BW UAT 1 (MHz)	99% BW LAT 3 (MHz)
Low_1	2412	17.705	17.702
Low_2	2417	17.762	17.857
Low_3	2422	17.664	16.282
Mid	2437	17.839	18.579
High_9	2452	17.783	17.863
High_10	2457	17.809	17.770
High_11	2462	17.766	17.674
High_12	2467	17.877	17.630
High_13	2472	17.872	17.816

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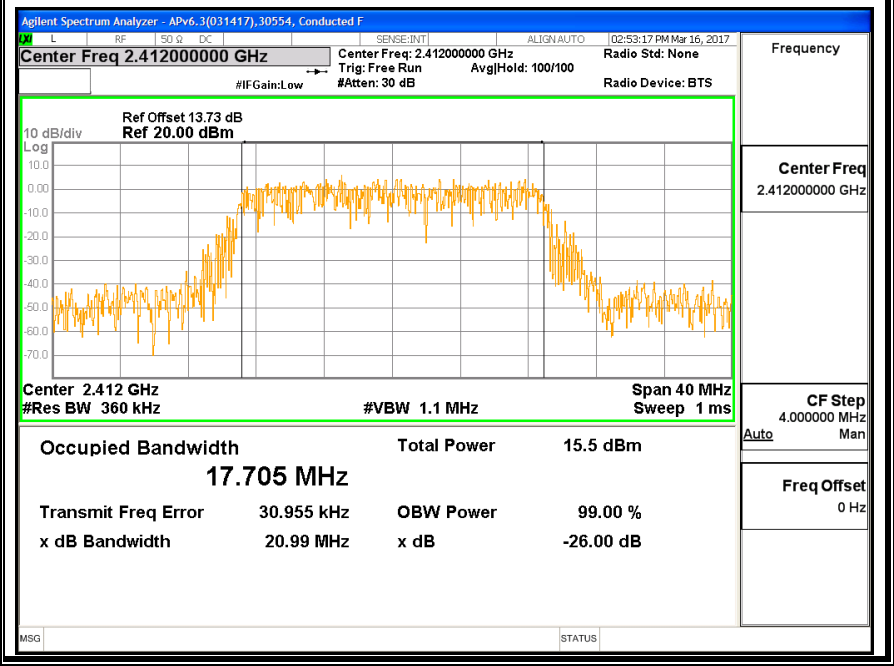
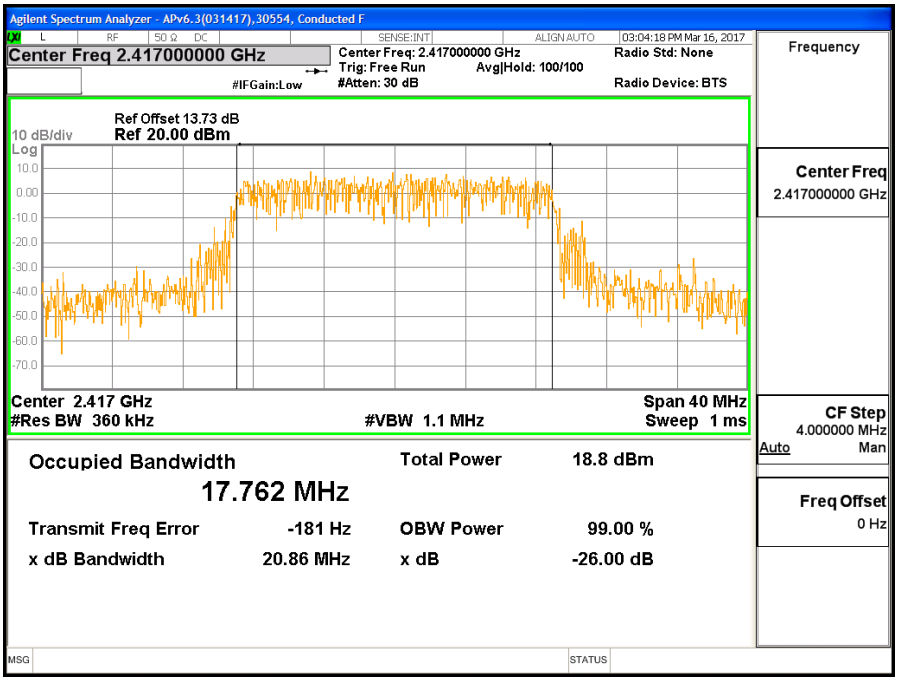
99% BANDWIDTH, UAT 1

99% BANDWIDTH LOW CH_1



99% BANDWIDTH LOW CH_2



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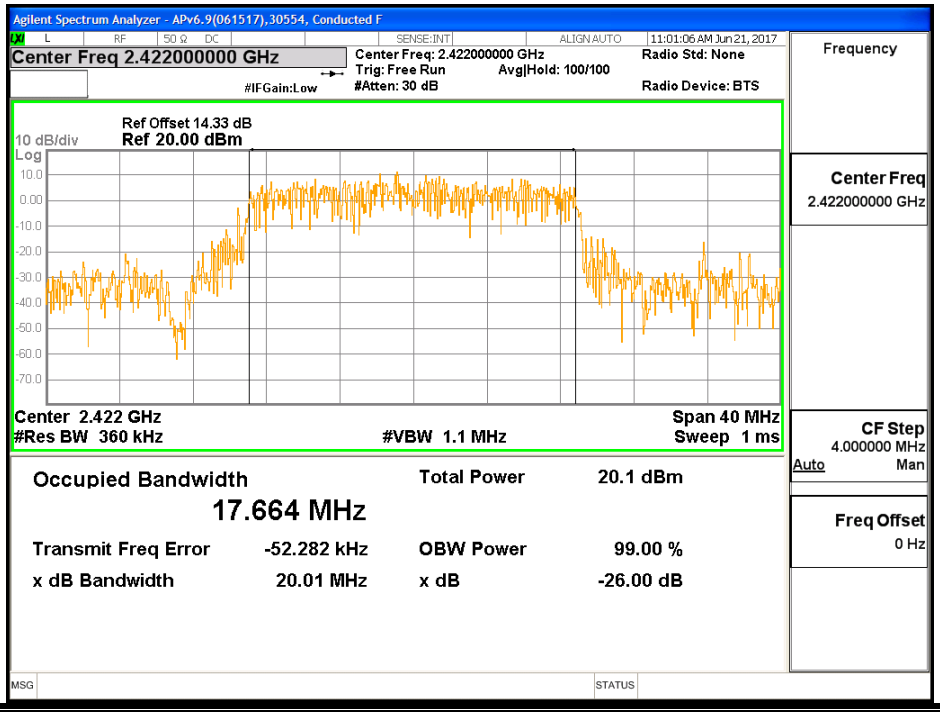
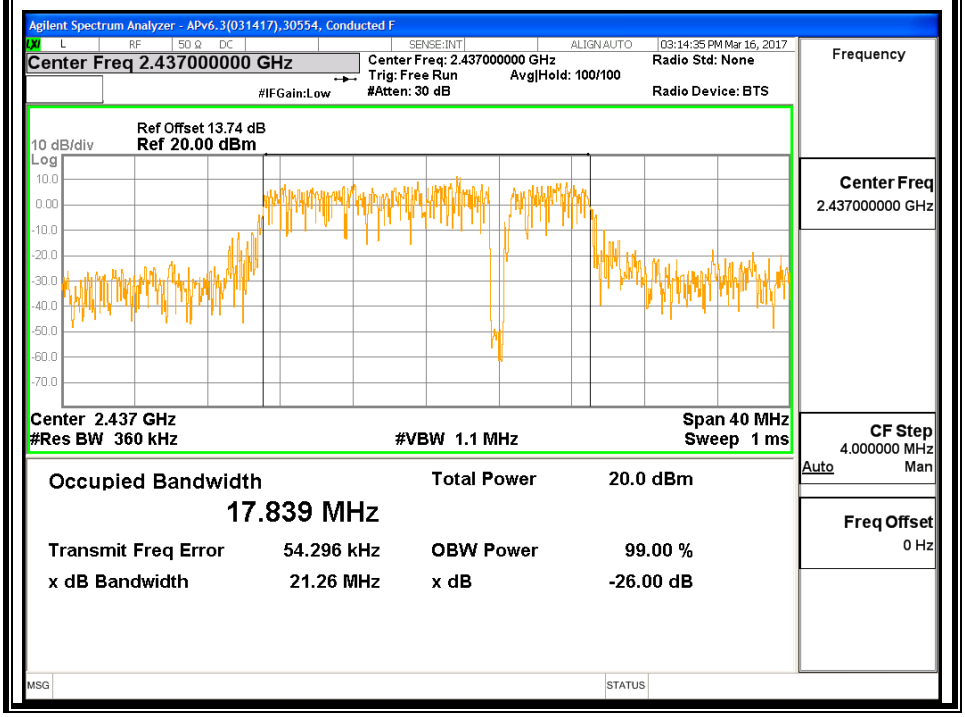
99% BANDWIDTH LOW CH_3



99% BANDWIDTH MID CH_6



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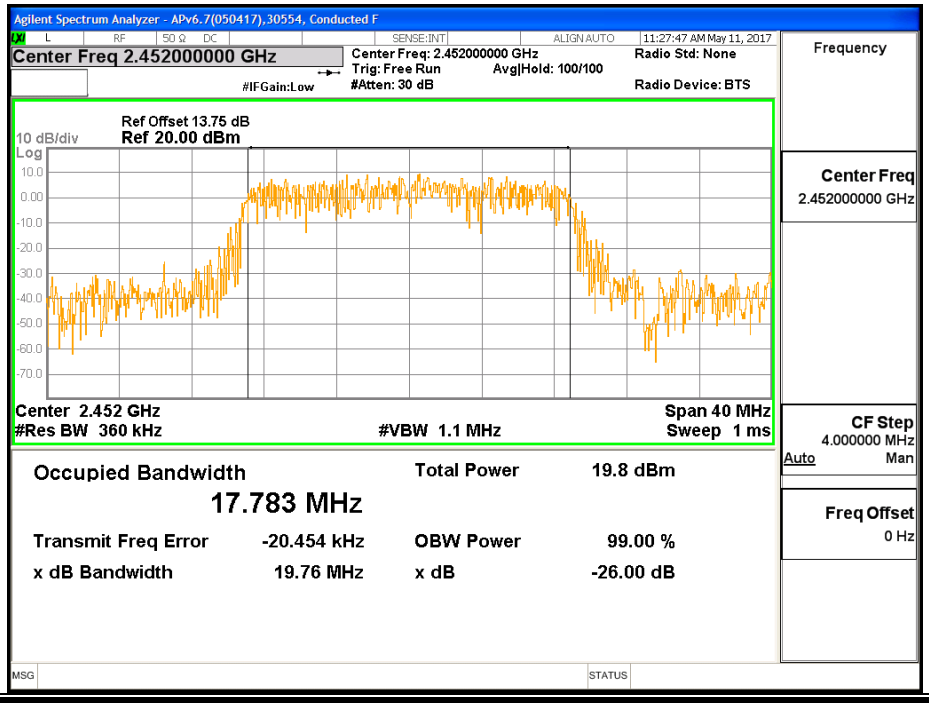
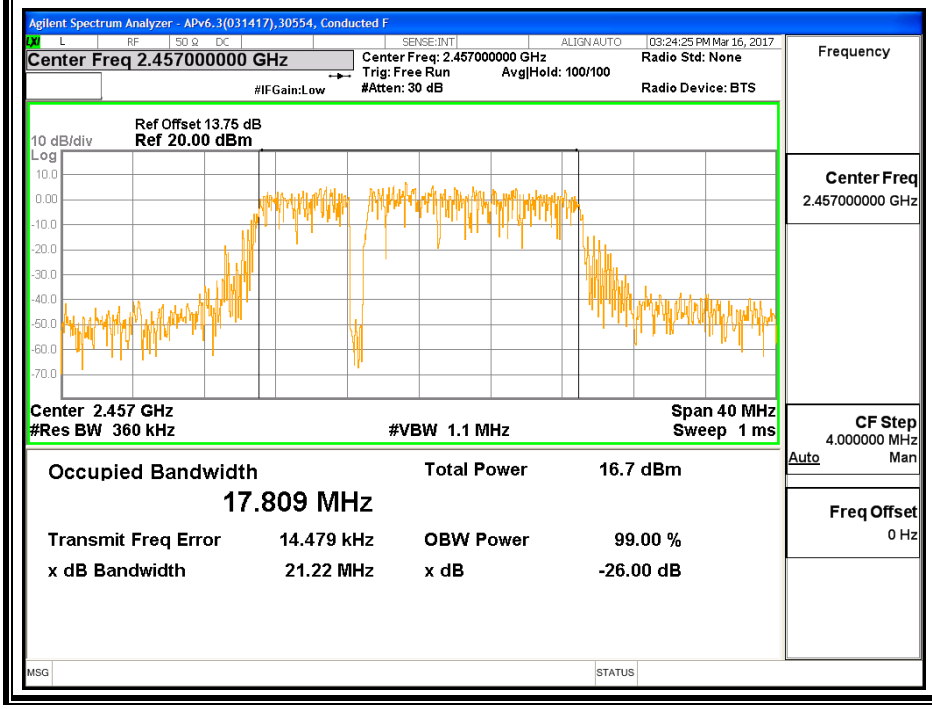
99% BANDWIDTH HIGH CH 9



99% BANDWIDTH HIGH CH 10



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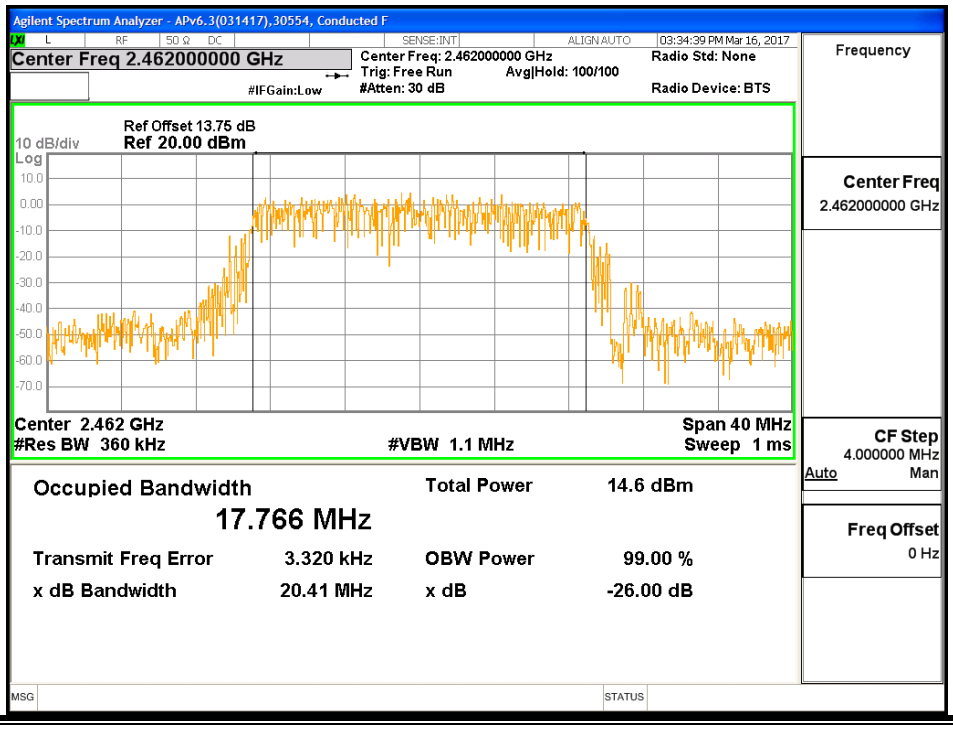
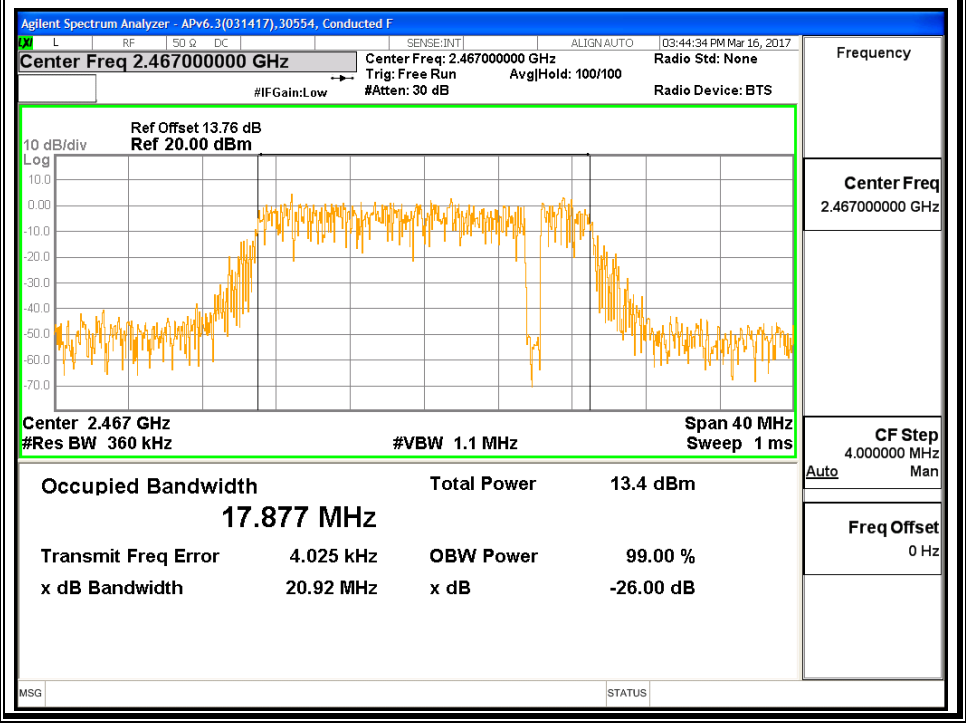
99% BANDWIDTH HIGH CH 11



99% BANDWIDTH HIGH CH 12



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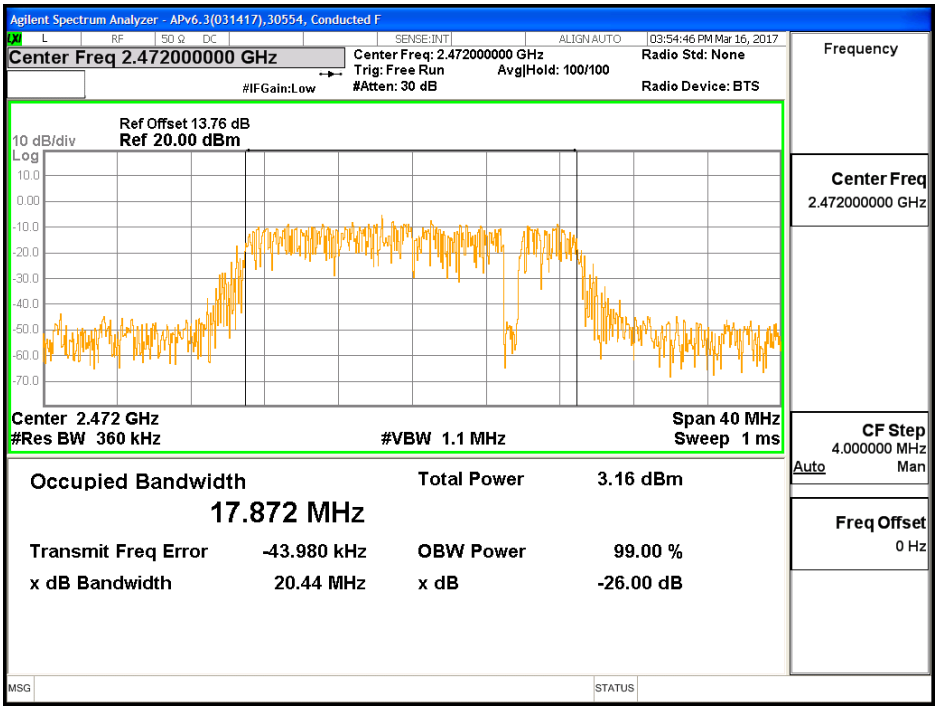
99% BANDWIDTH HIGH CH 13



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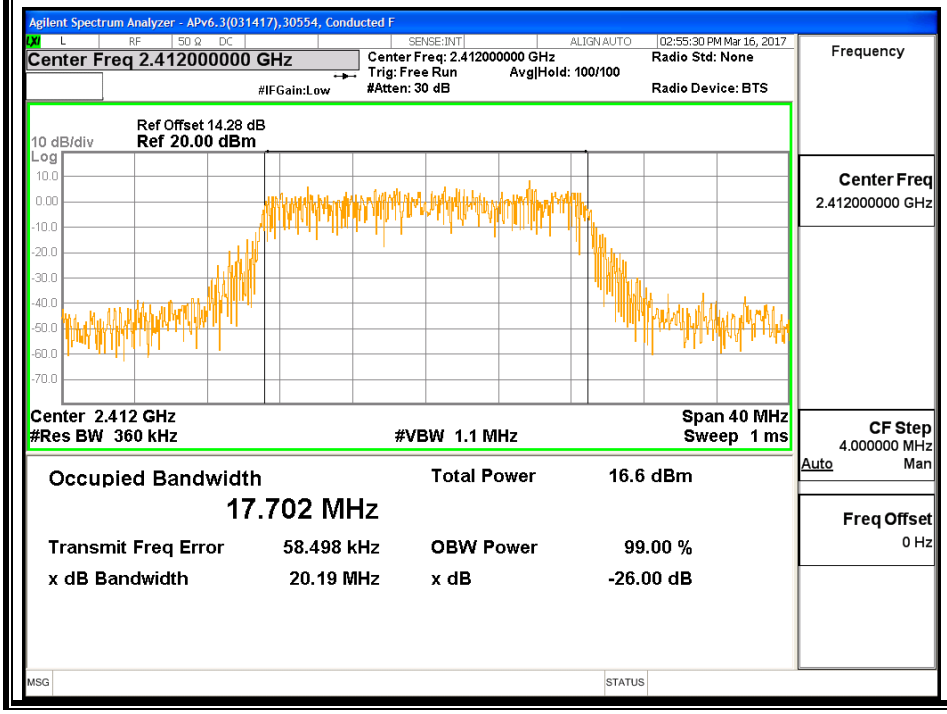
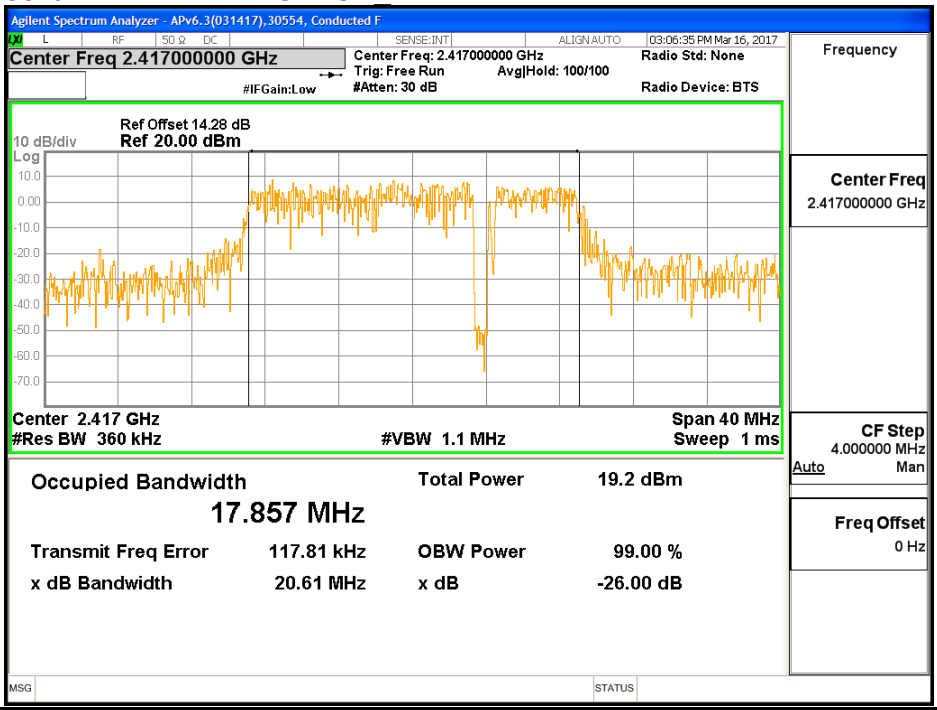
99% BANDWIDTH, LAT 3

99% BANDWIDTH LOW CH_1



99% BANDWIDTH LOW CH_2



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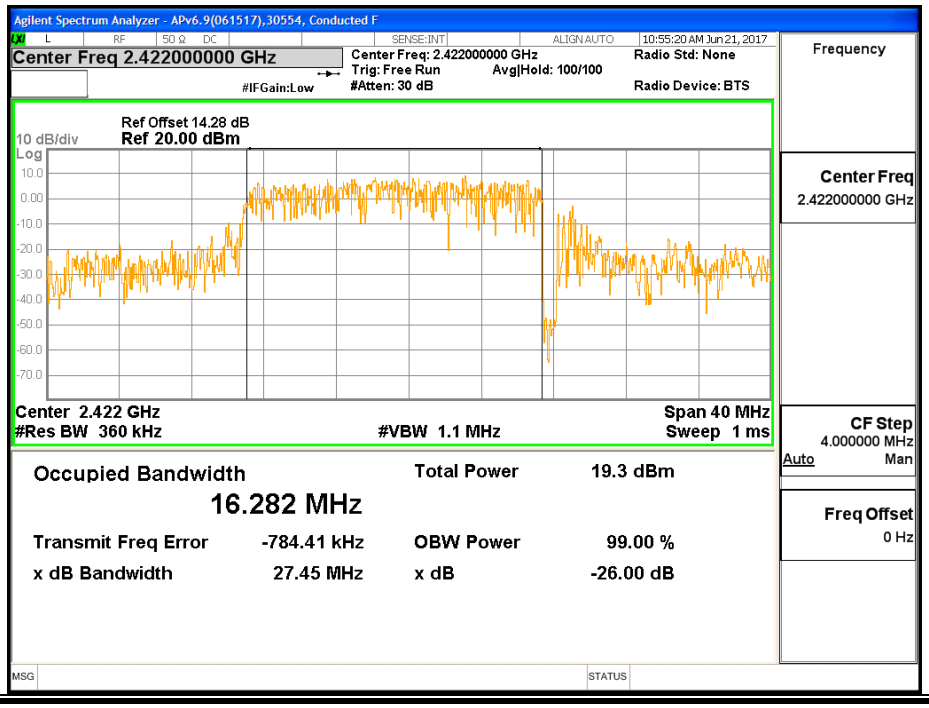
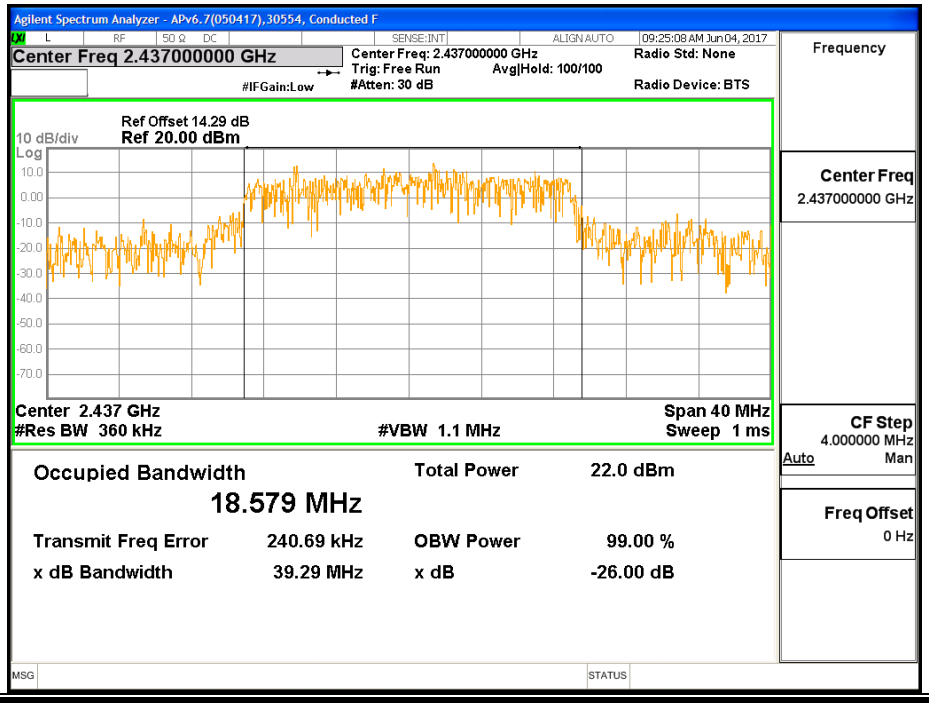
99% BANDWIDTH LOW CH_3



99% BANDWIDTH MID CH



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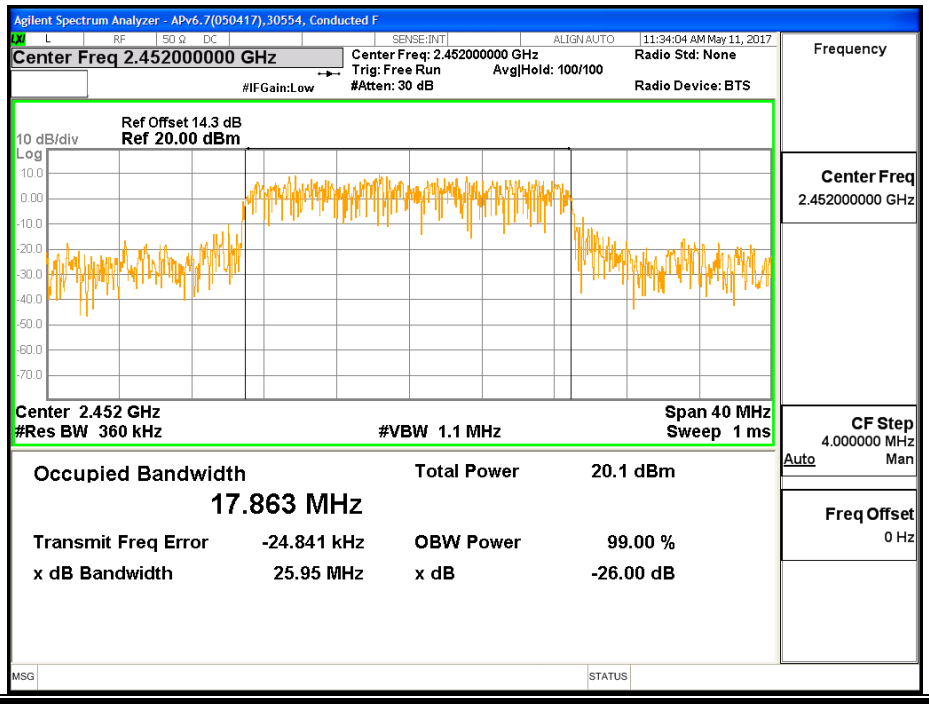
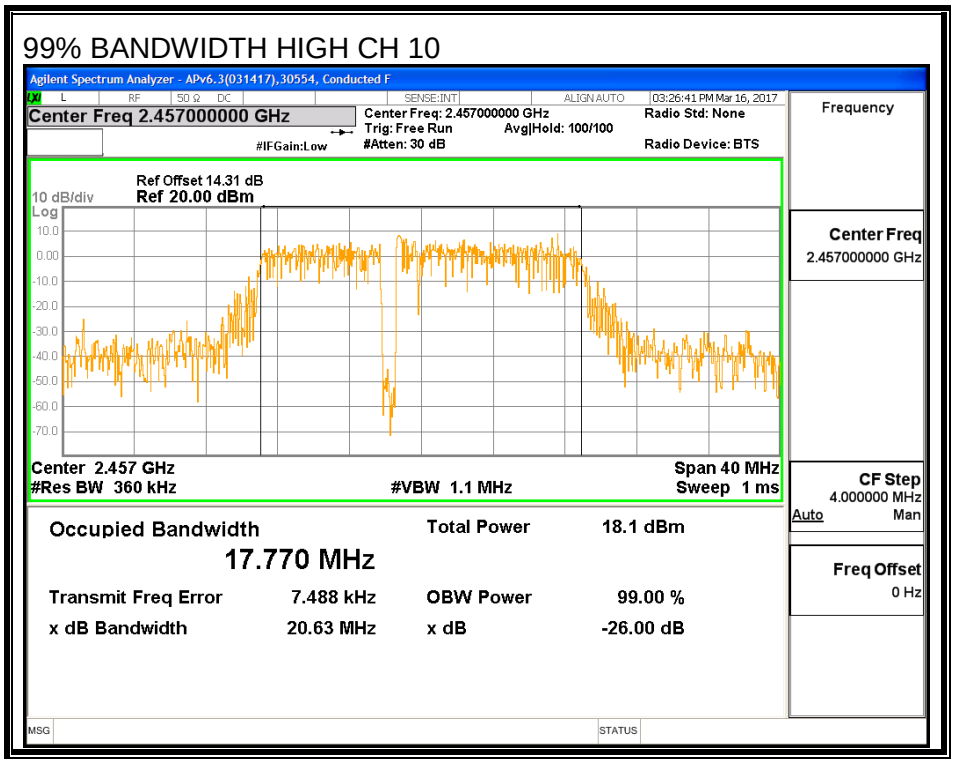
99% BANDWIDTH HIGH CH 9



99% BANDWIDTH HIGH CH 10



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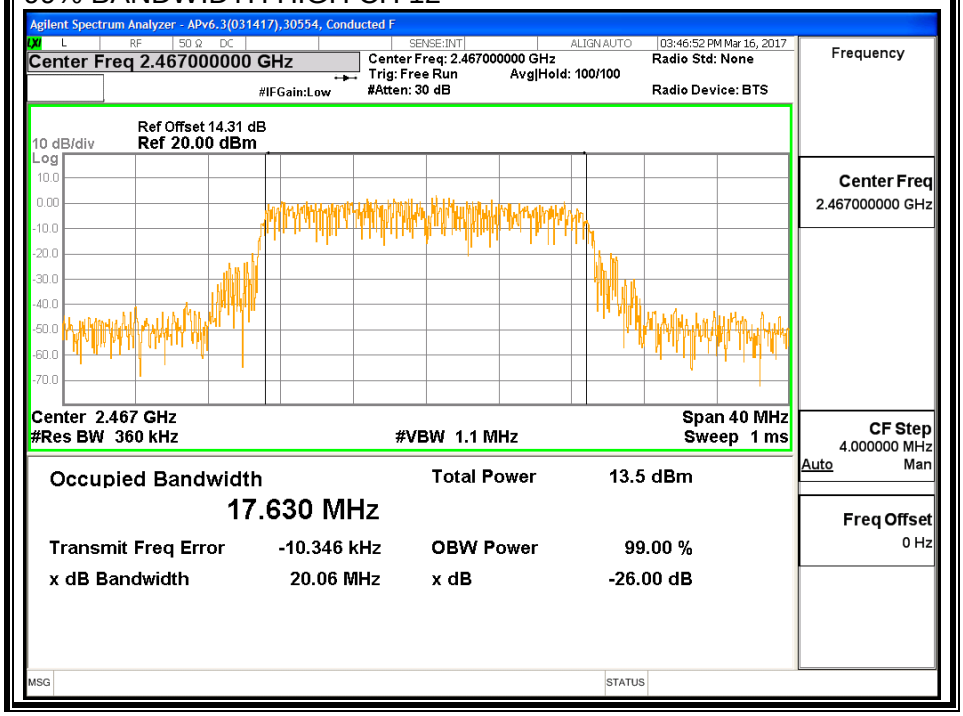
99% BANDWIDTH HIGH CH 11

99% BANDWIDTH HIGH CH 12



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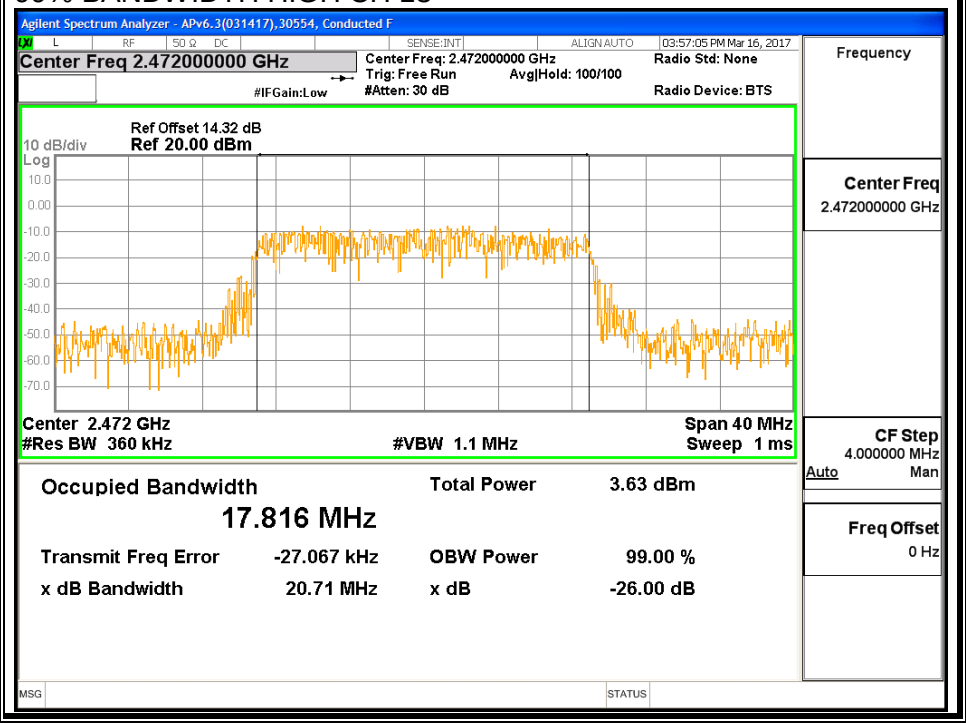
99% BANDWIDTH HIGH CH 13



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8.6.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	UAT 1 Power (dBm)	LAT 3 Power (dBm)	Total Power (dBm)
Low_1	2412	14.75	14.92	17.85
Low_2	2417	17.73	17.94	20.85
Low_3	2422	19.34	19.49	22.43
Mid	2437	20.25	20.73	23.51
High_9	2452	19.39	19.43	22.42
High_10	2457	16.25	16.42	19.35
High_11	2462	14.26	14.46	17.37
High_12	2467	12.76	12.89	15.84
High_13	2472	3.78	3.94	6.87

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8.6.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 (5.4) (d)

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

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

UAT 1 Gain (dBi)	LAT 3 Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
1.01	-2.24	-0.32

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RESULTS

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low_1	2412	-0.32	30.00	30	36	30.00
Low_2	2417	-0.32	30.00	30	36	30.00
Low_3	2422	-0.32	30.00	30	36	30.00
Mid	2437	-0.32	30.00	30	36	30.00
High_9	2452	-0.32	30.00	30	36	30.00
High_10	2457	-0.32	30.00	30	36	30.00
High_11	2462	-0.32	30.00	30	36	30.00
High_12	2467	-0.32	30.00	30	36	30.00
High_13	2472	-0.32	30.00	30	36	30.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd Power**

Results

Channel	Frequency (MHz)	UAT 1 Meas Power (dBm)	LAT 3 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low_1	2412	21.52	21.69	24.62	30.00	-5.38
Low_2	2417	24.50	24.71	27.62	30.00	-2.38
Low_3	2422	25.91	26.04	28.99	30.00	-1.01
Mid	2437	26.65	26.82	29.75	30.00	-0.25
High_9	2452	25.89	26.20	29.06	30.00	-0.94
High_10	2457	23.02	23.19	26.12	30.00	-3.88
High_11	2462	21.03	21.23	24.14	30.00	-5.86
High_12	2467	19.53	19.66	22.61	30.00	-7.39
High_13	2472	10.55	10.71	13.64	30.00	-16.36

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8.6.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-247 (5.2) (b)

For digitally modulated systems, the power spectral density conducted form the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

DIRECTIONAL ANTENNA GAIN

For PSD used correlated gain: The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

UAT 1 Antenna Gain (dBi)	LAT 3 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
1.01	-2.24	2.55

RESULTS

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD

PSD Results

Channel	Frequency (MHz)	UAT 1 Meas (dBm/3kHz)	LAT 3 Meas (dBm/3kHz)	Total Corr'd PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low_1	2412	-9.815	-8.442	-6.064	8.0	-14.1
Low_2	2417	-6.898	-5.527	-3.148	8.0	-11.1
Low_3	2422	-5.281	-4.342	-1.776	9.0	-10.8
Mid	2437	-5.668	-3.043	-1.150	8.0	-9.1
High_9	2452	-5.225	-4.797	-1.995	9.0	-11.0
High_10	2457	-8.658	-6.830	-4.638	8.0	-12.6
High_11	2462	-10.311	-9.933	-7.108	8.0	-15.1
High_12	2467	-11.270	-11.337	-8.293	8.0	-16.3
High_13	2472	-21.804	-21.919	-18.851	8.0	-26.9

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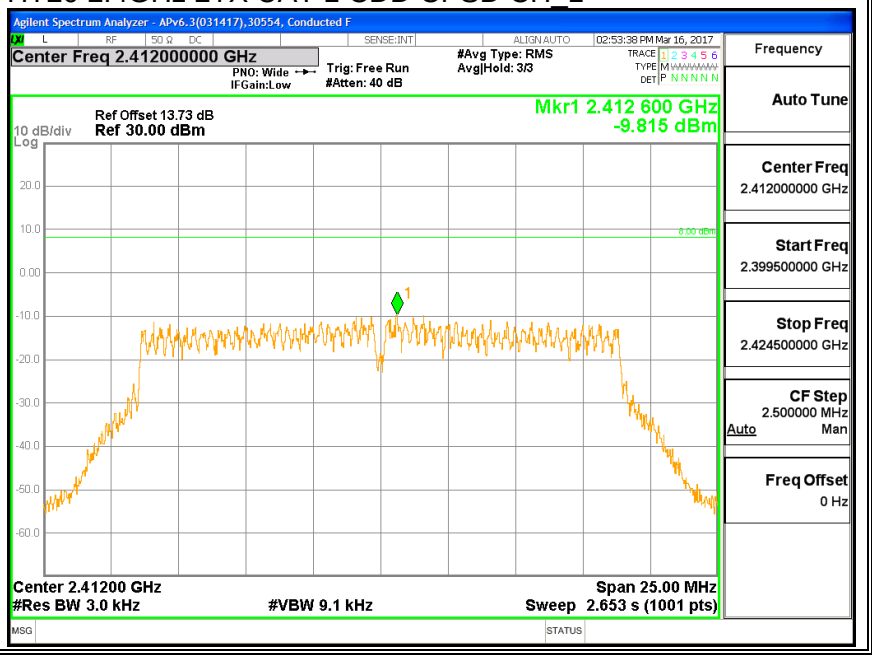
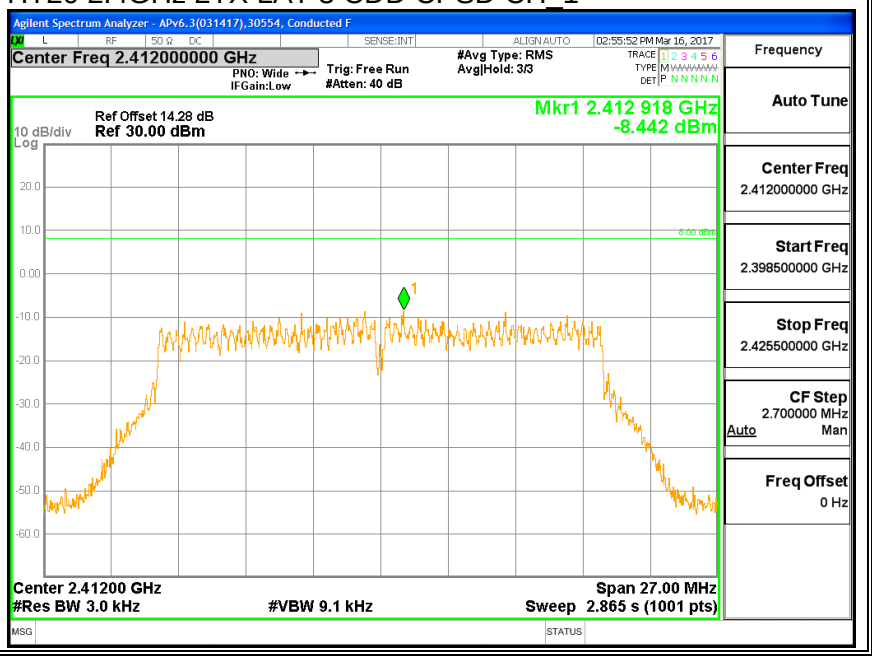
HT20 2.4GHz 2TX UAT 1 CDD CPSD CH_1



HT20 2.4GHz 2TX LAT 3 CDD CPSD CH_1



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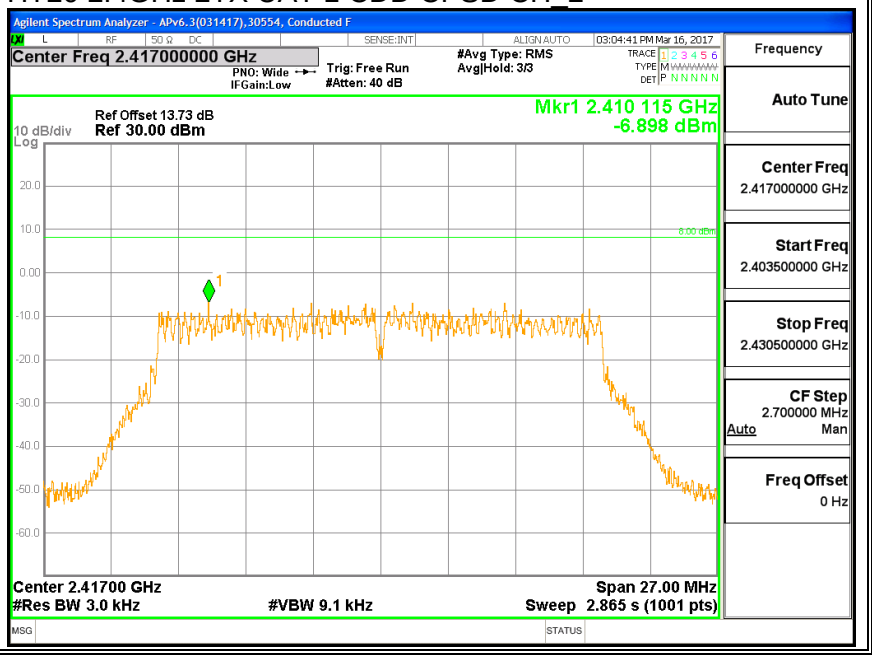
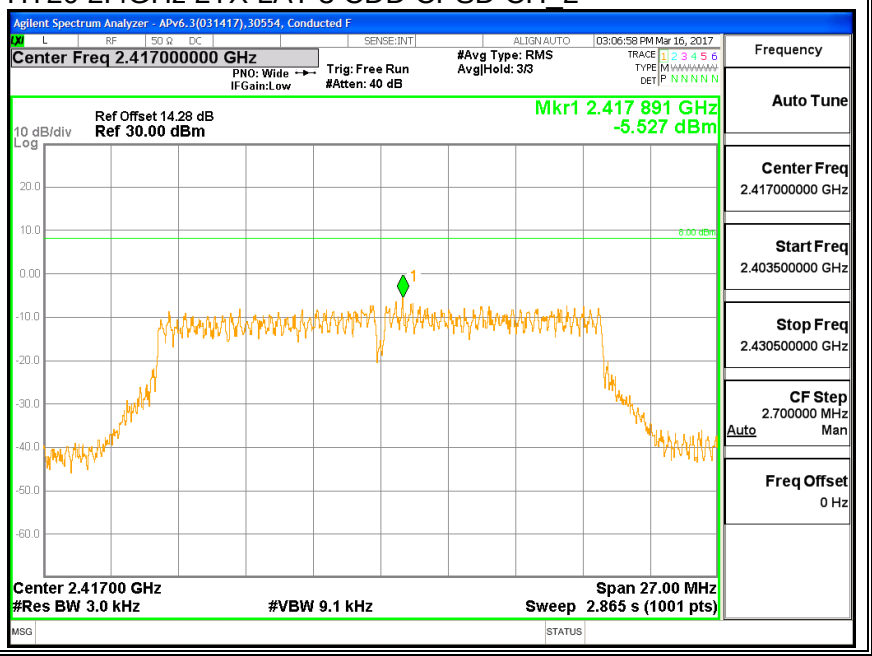
HT20 2.4GHz 2TX UAT 1 CDD CPSD CH_2



HT20 2.4GHz 2TX LAT 3 CDD CPSD CH_2



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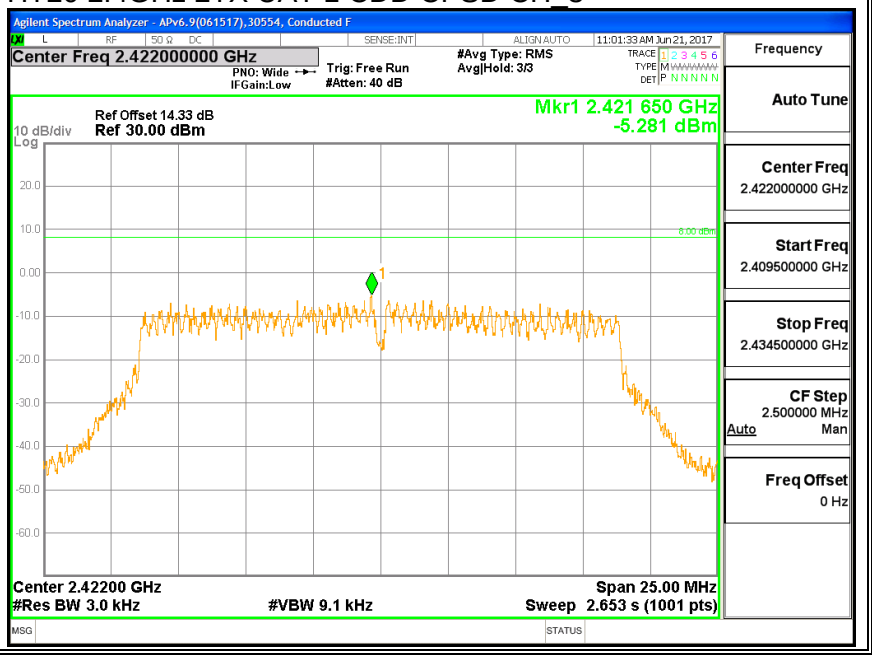
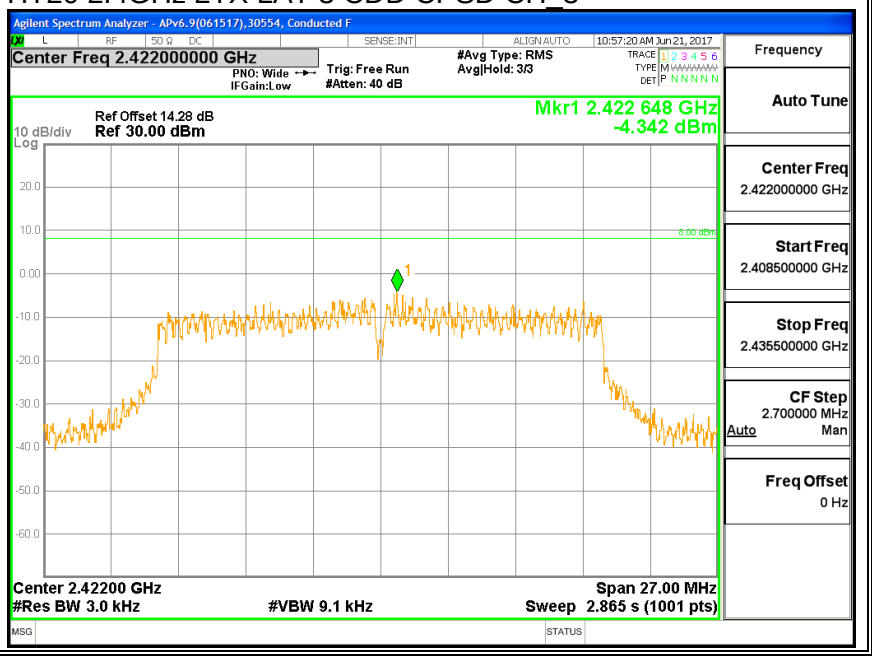
HT20 2.4GHz 2TX UAT 1 CDD CPSD CH_3



HT20 2.4GHz 2TX LAT 3 CDD CPSD CH_3



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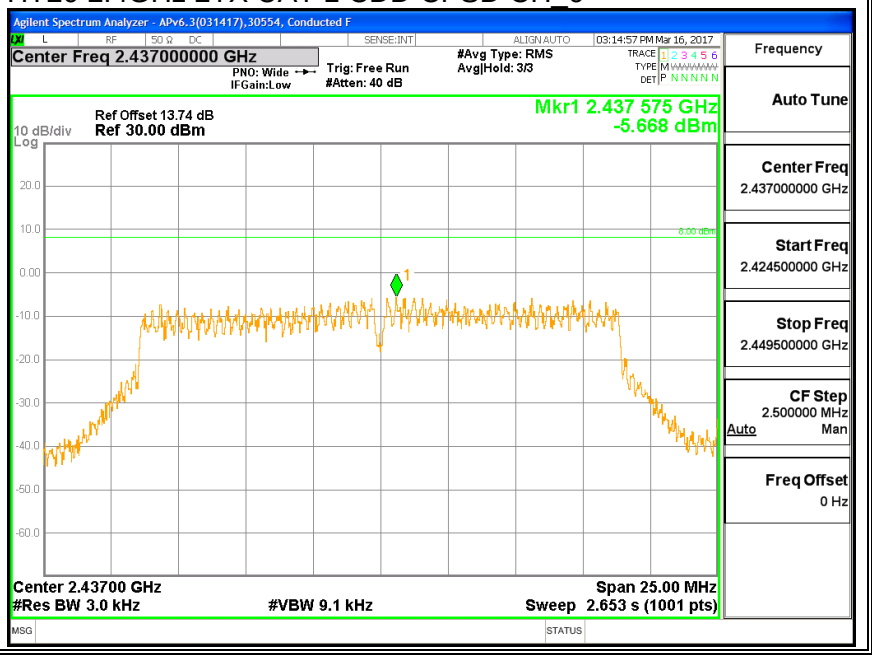
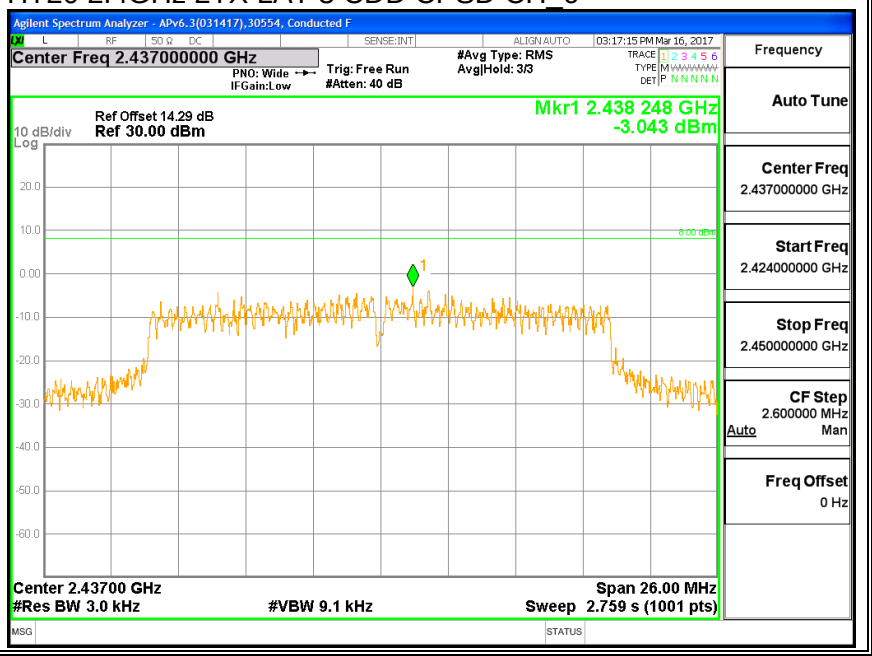
HT20 2.4GHz 2TX UAT 1 CDD CPSD CH_6



HT20 2.4GHz 2TX LAT 3 CDD CPSD CH_6



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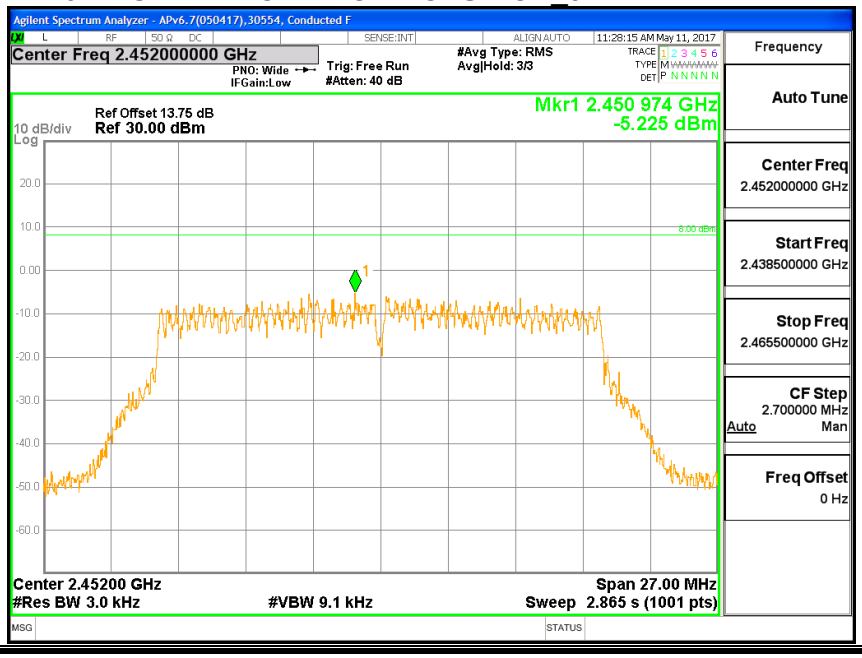
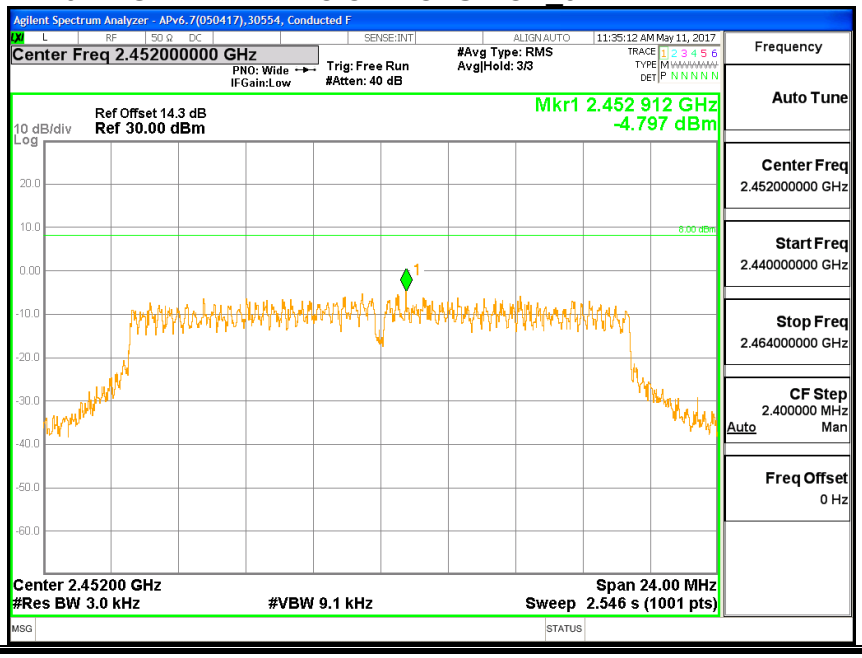
HT20 2.4GHz 2TX UAT 1 CDD CPSD CH_9



HT20 2.4GHz 2TX LAT 3 CDD CPSD CH_9



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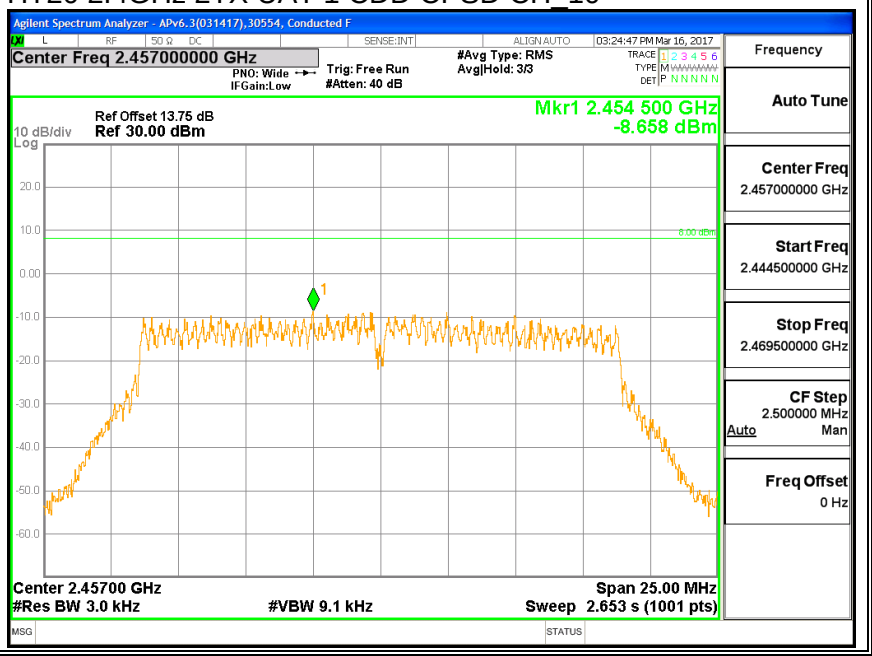
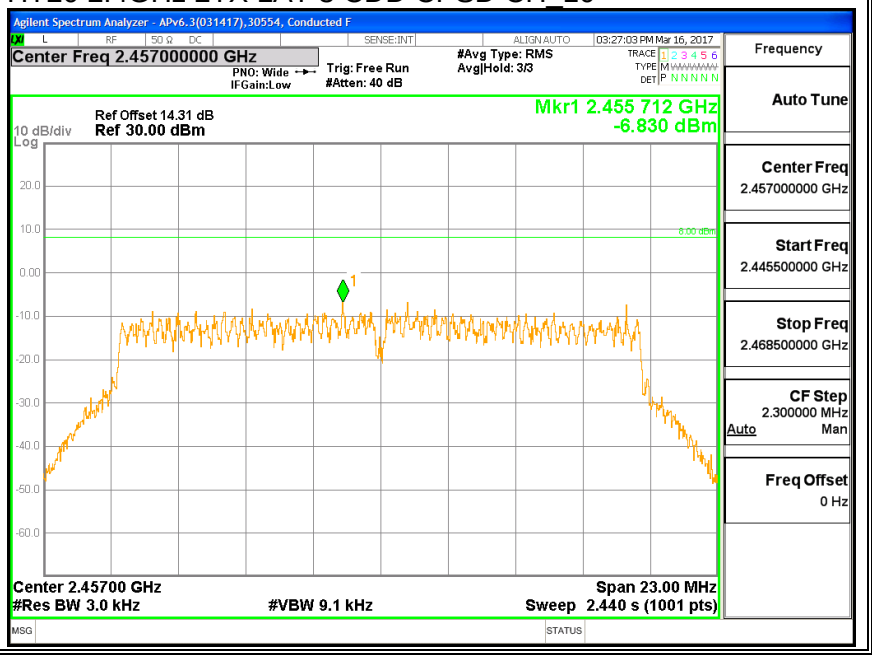
HT20 2.4GHz 2TX UAT 1 CDD CPSD CH_10



HT20 2.4GHz 2TX LAT 3 CDD CPSD CH_10



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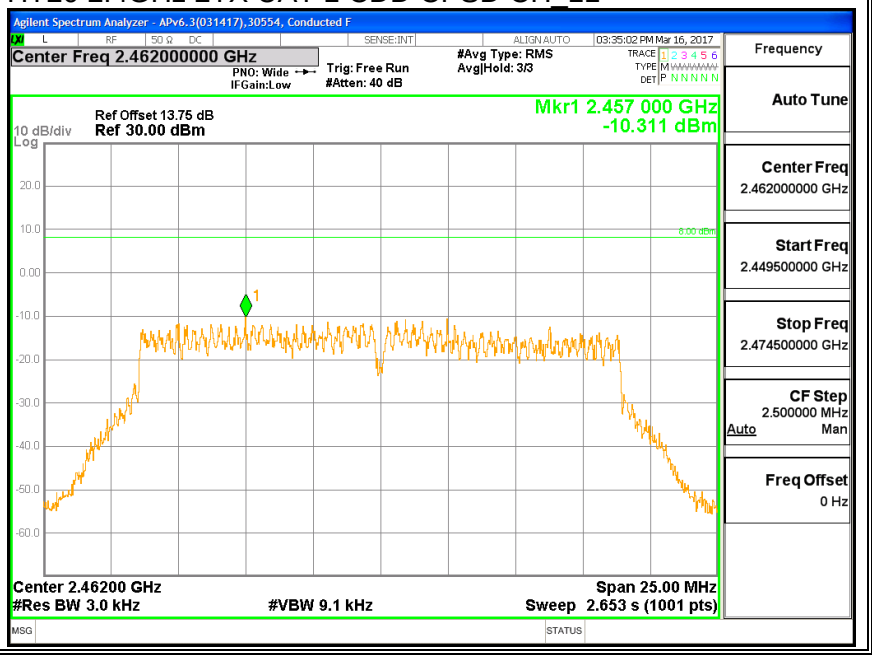
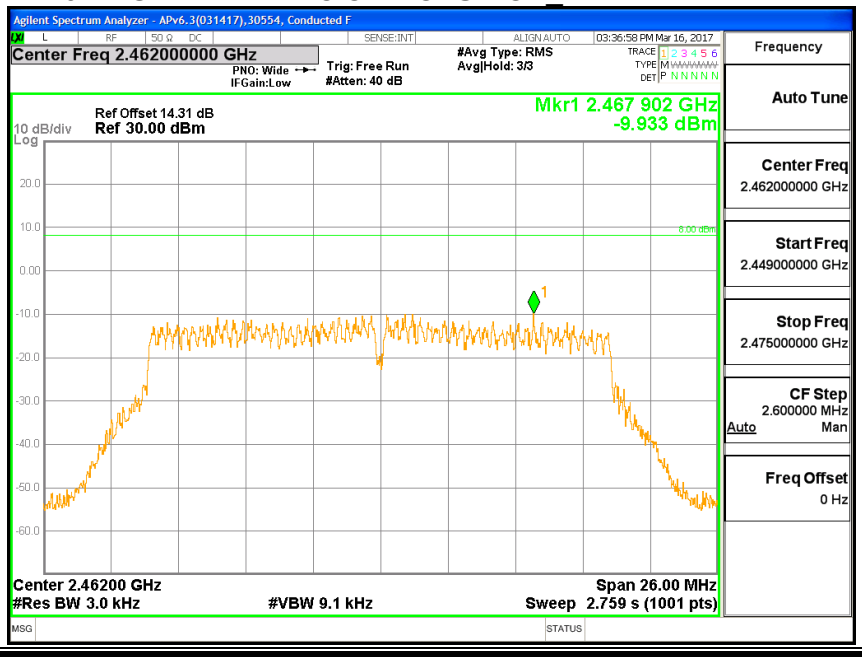
HT20 2.4GHz 2TX UAT 1 CDD CPSD CH_11



HT20 2.4GHz 2TX LAT 3 CDD CPSD CH_11



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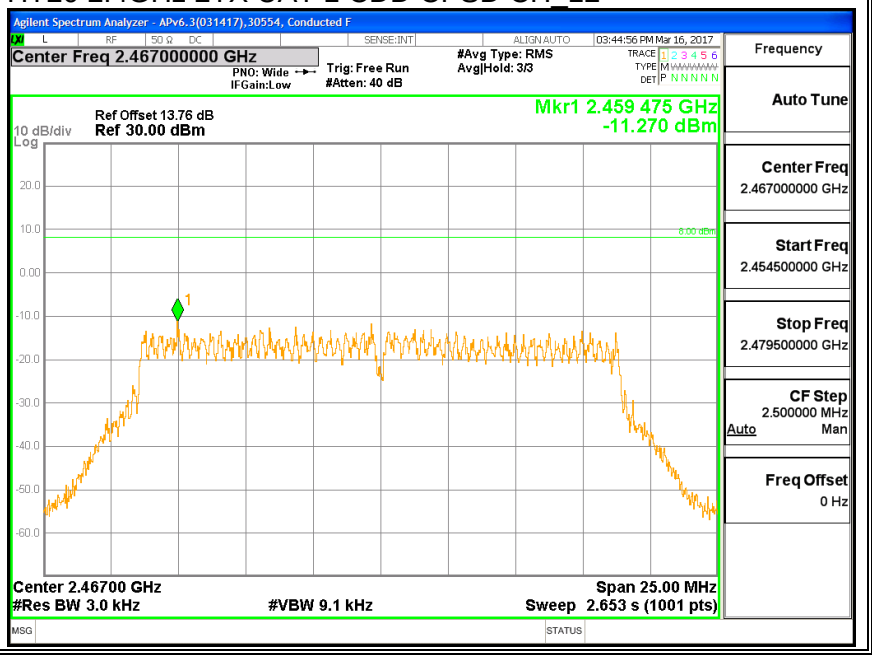
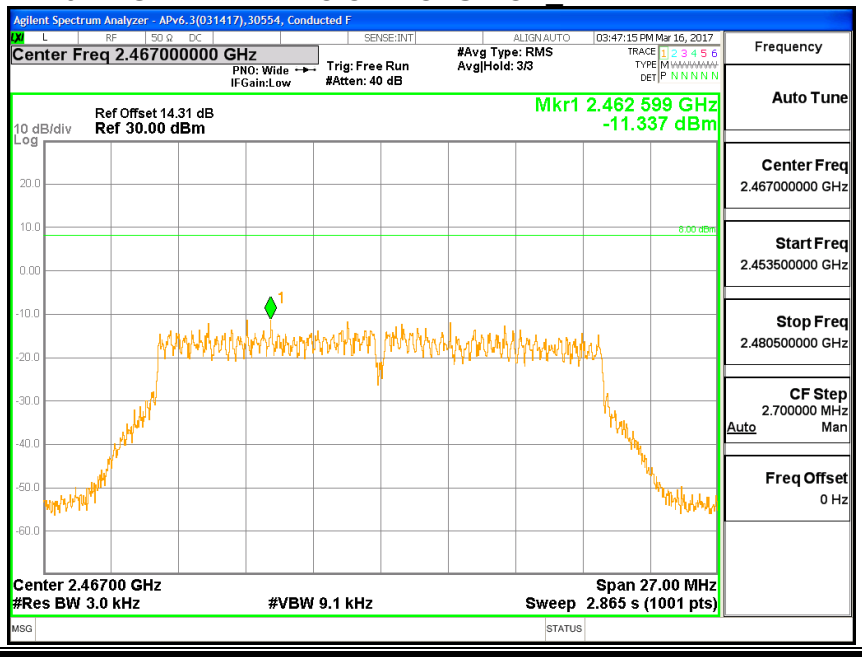
HT20 2.4GHz 2TX UAT 1 CDD CPSD CH_12



HT20 2.4GHz 2TX LAT 3 CDD CPSD CH_12



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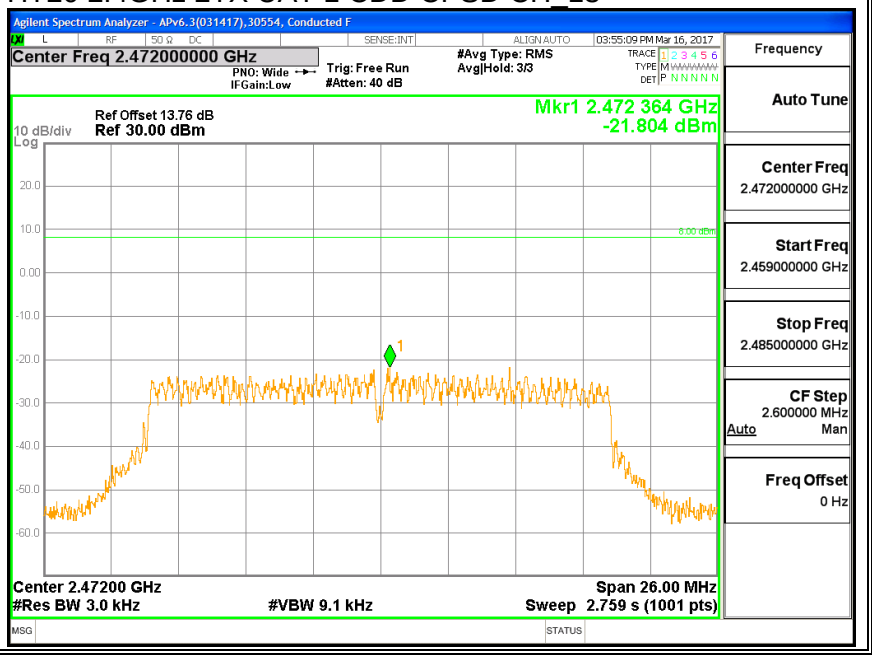
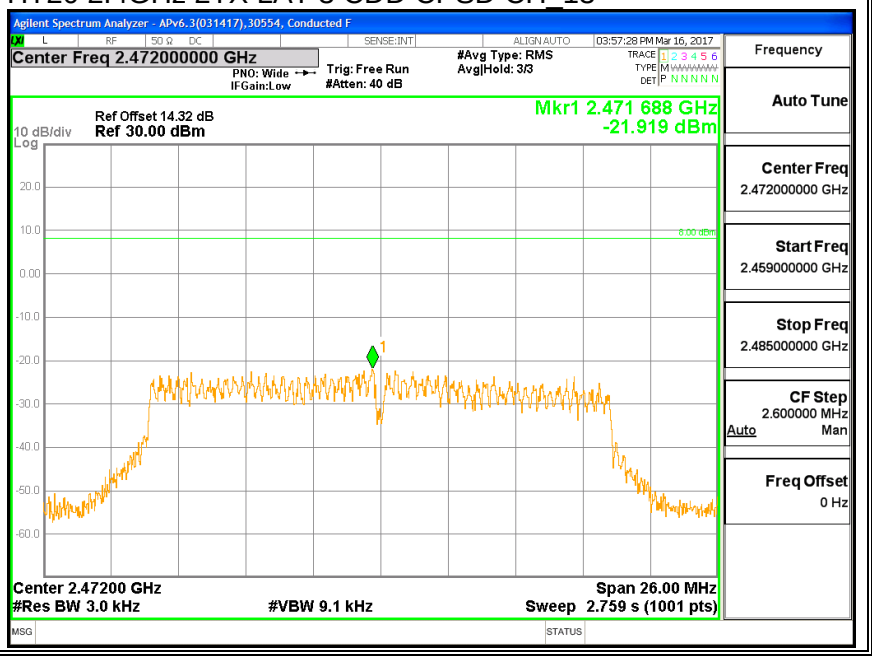
HT20 2.4GHz 2TX UAT 1 CDD CPSD CH_13



HT20 2.4GHz 2TX LAT 3 CDD CPSD CH_13



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8.6.6. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-247 (5.5)

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.

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47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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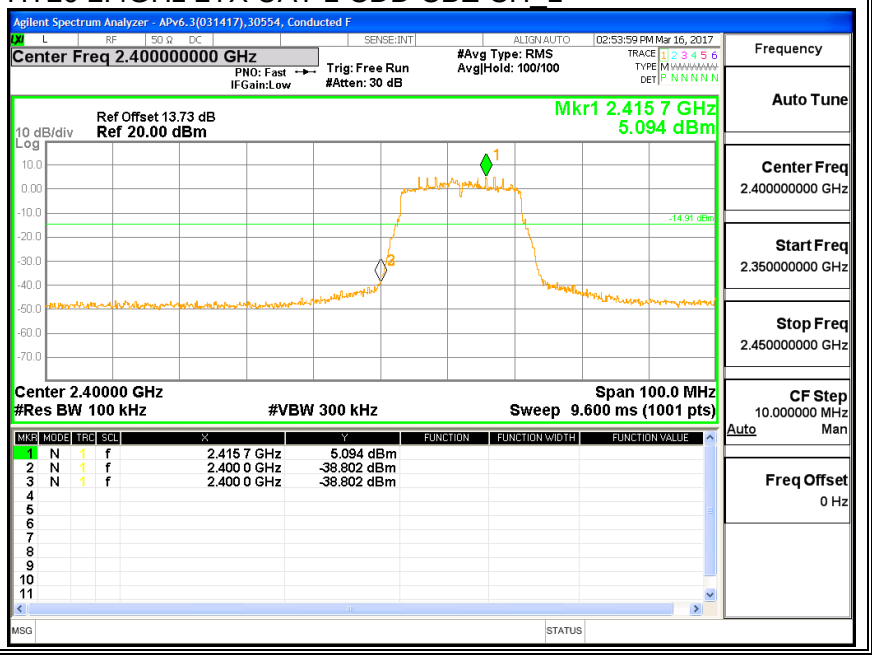
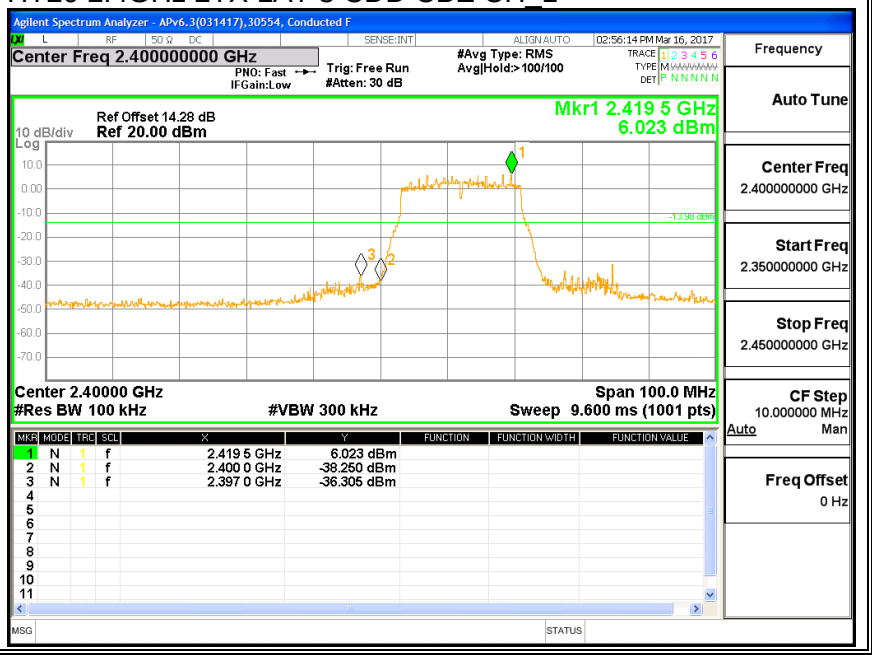
RESULTS

HT20 2.4GHz 2TX UAT 1 CDD CBE CH_1



HT20 2.4GHz 2TX LAT 3 CDD CBE CH_1



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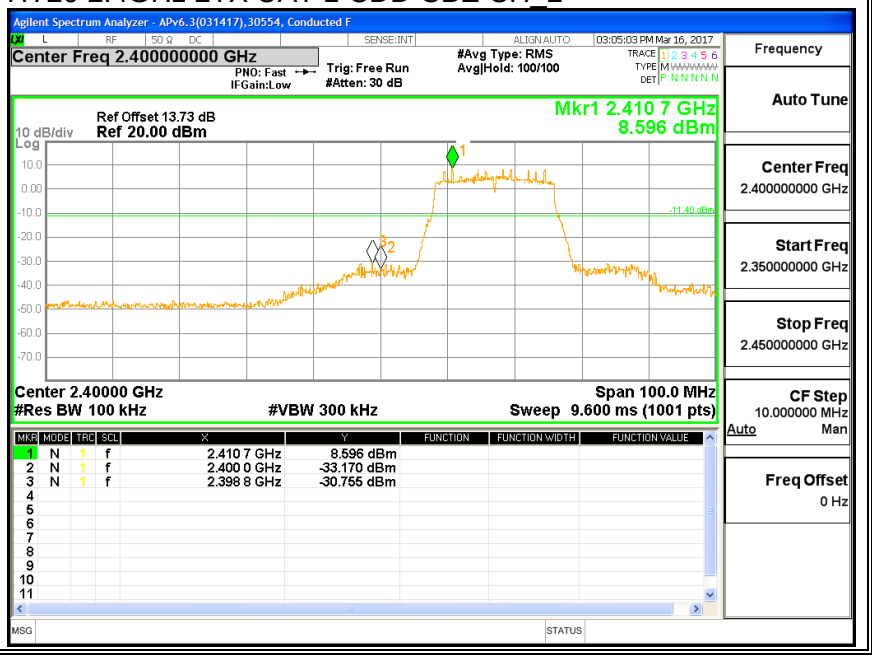

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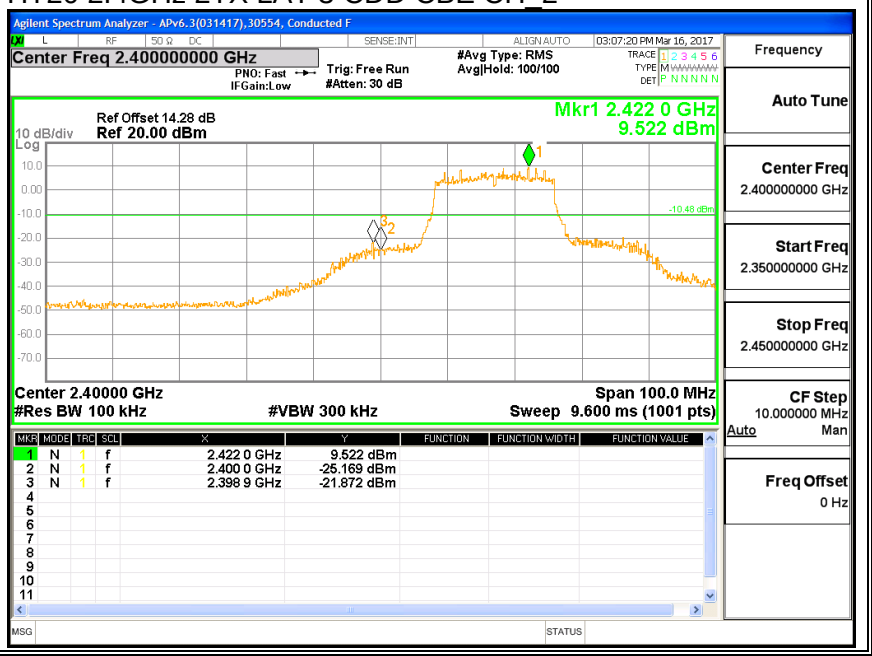

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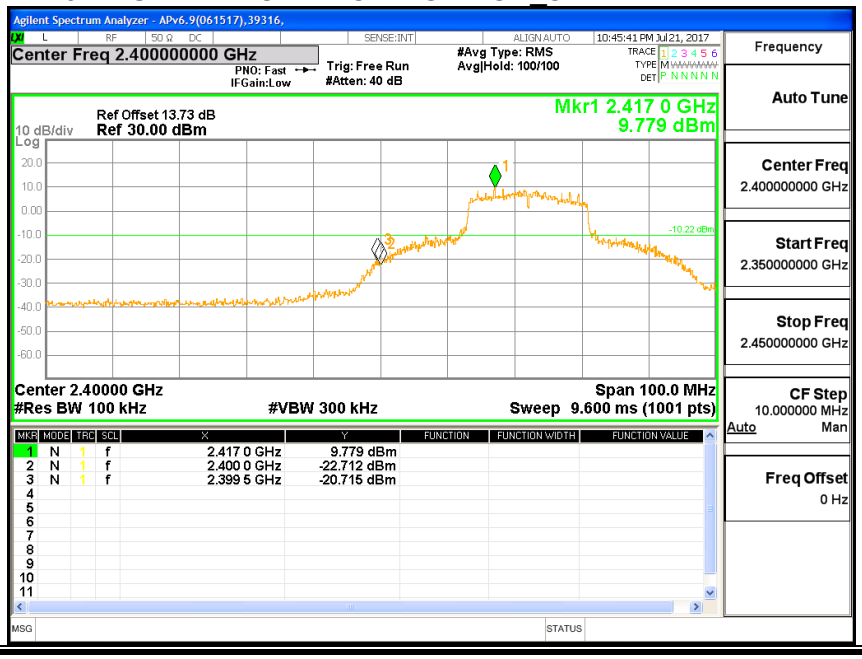

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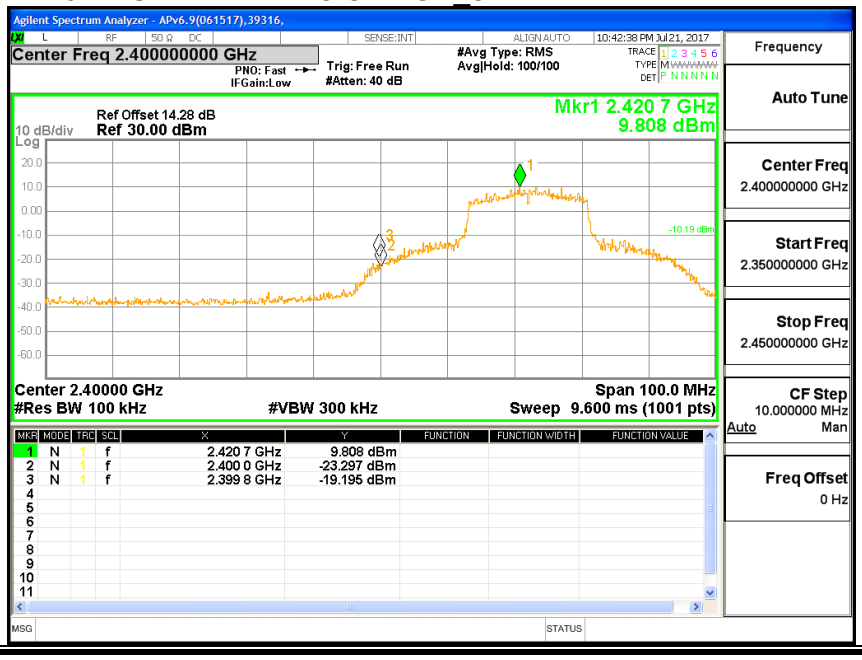

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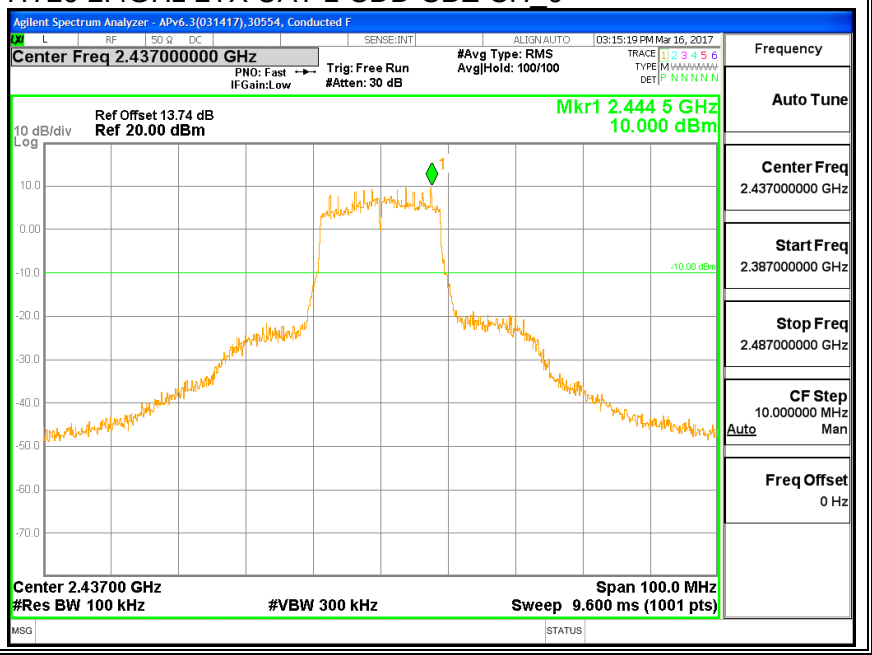
HT20 2.4GHz 2TX UAT 1 CDD CBE CH_6



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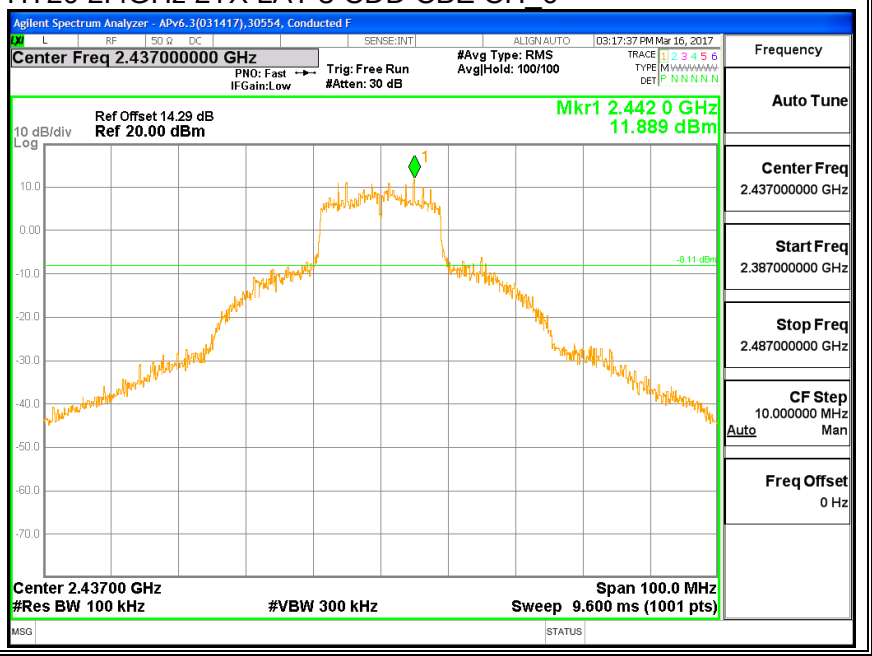

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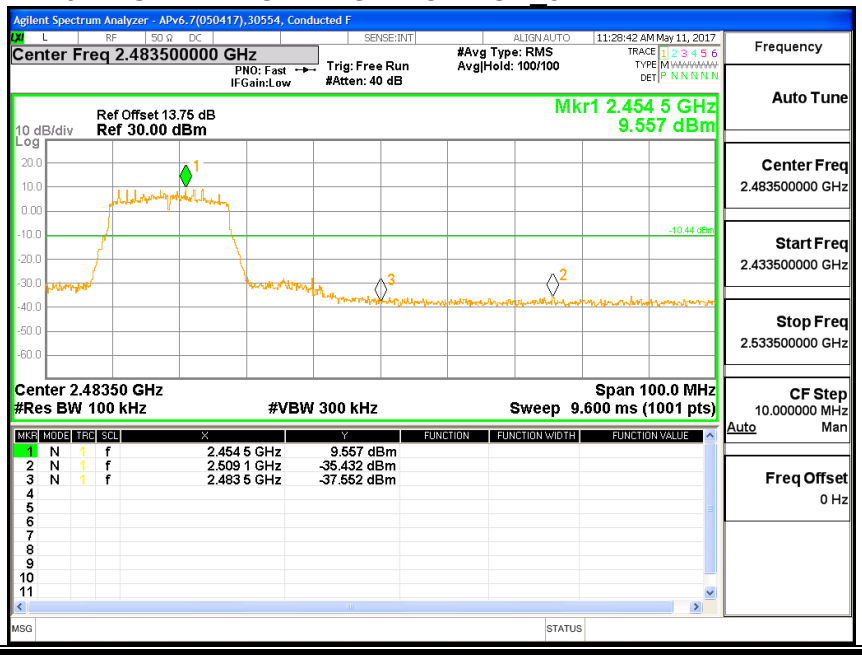
HT20 2.4GHz 2TX UAT 1 CDD CBE CH_9



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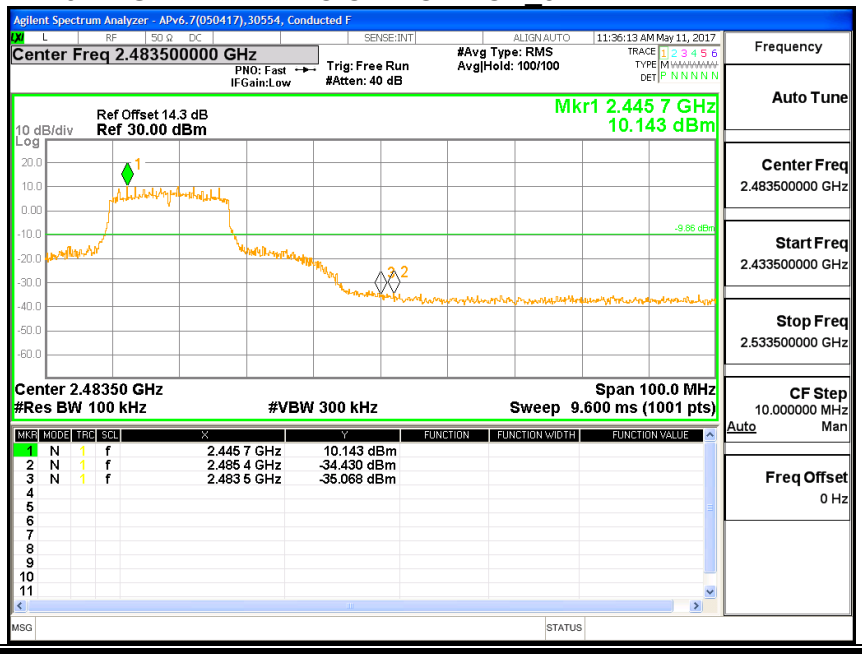

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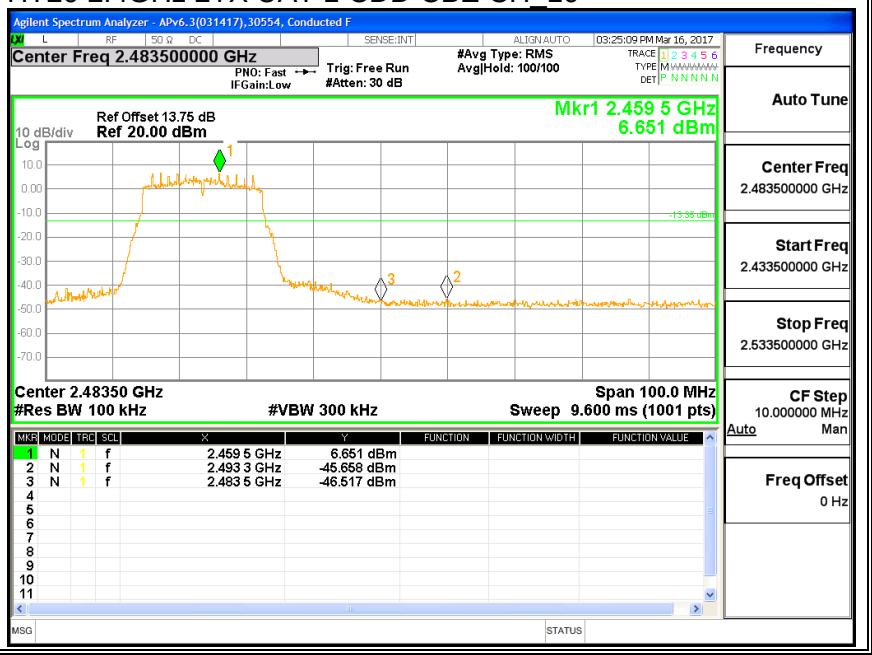
HT20 2.4GHz 2TX UAT 1 CDD CBE CH_10



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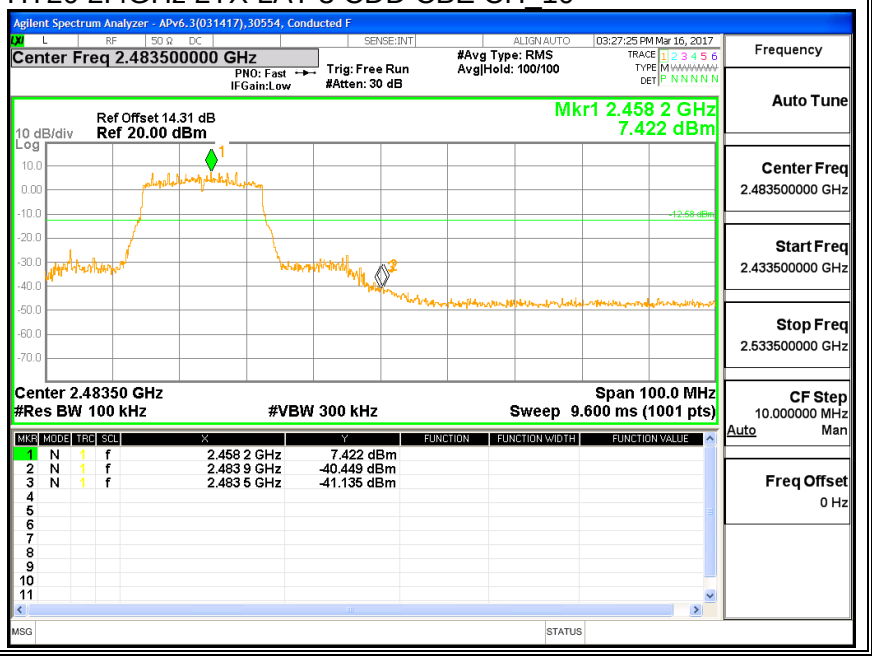

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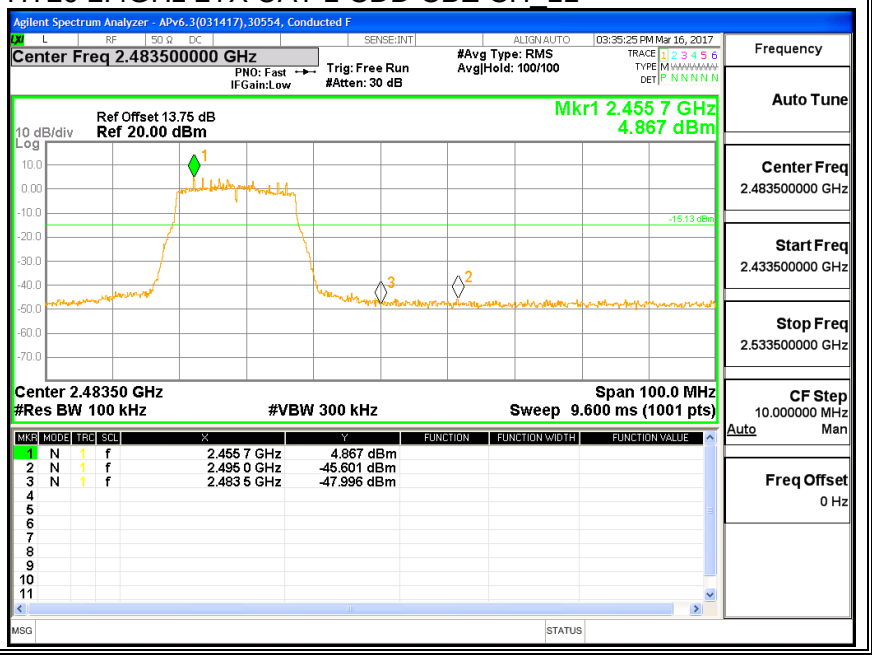
HT20 2.4GHz 2TX UAT 1 CDD CBE CH_11



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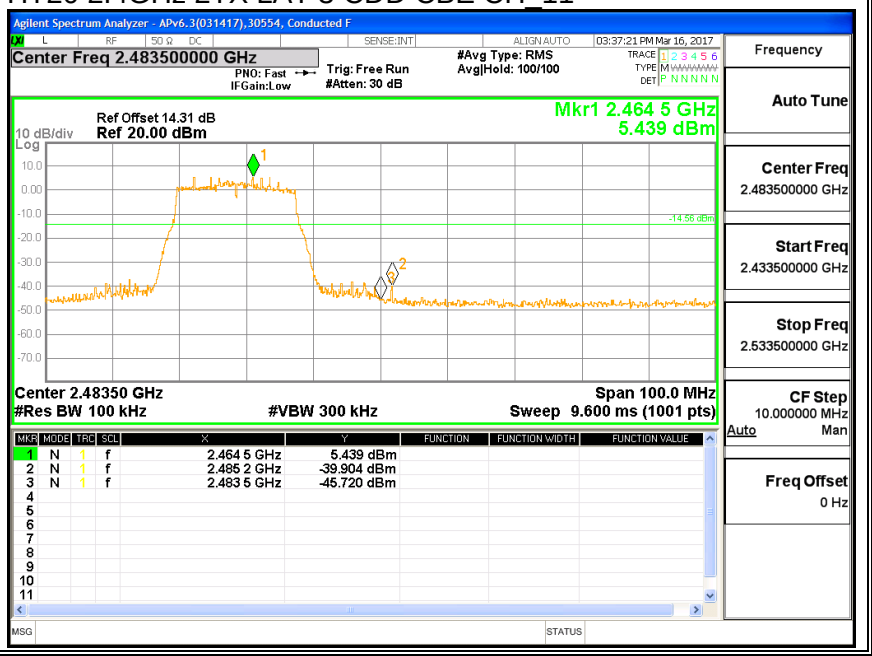

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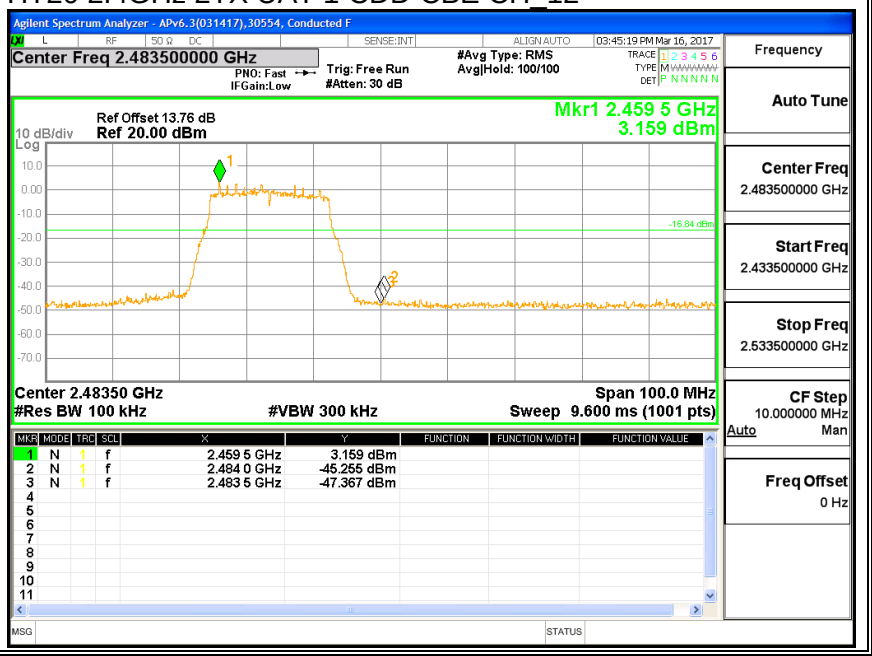

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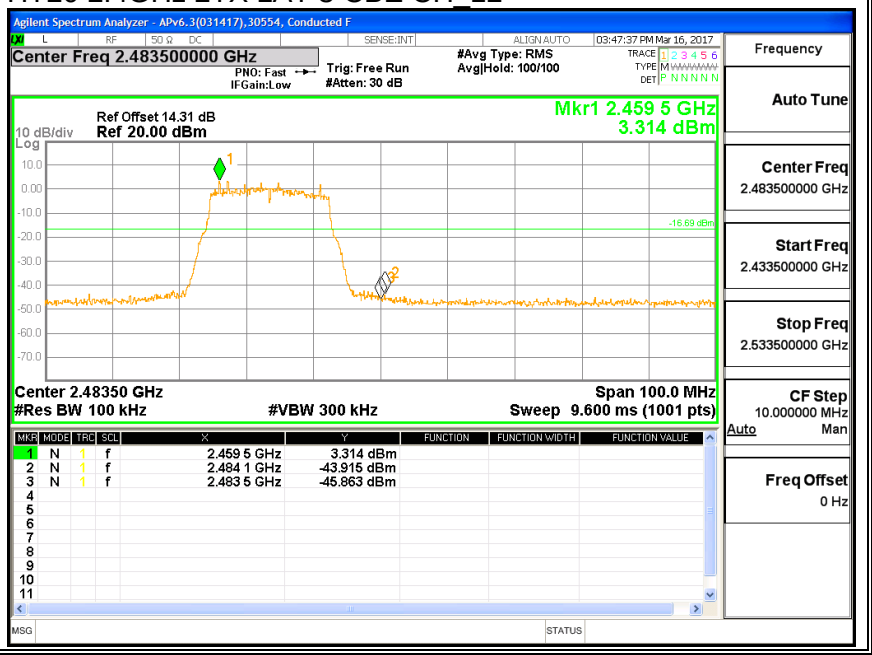

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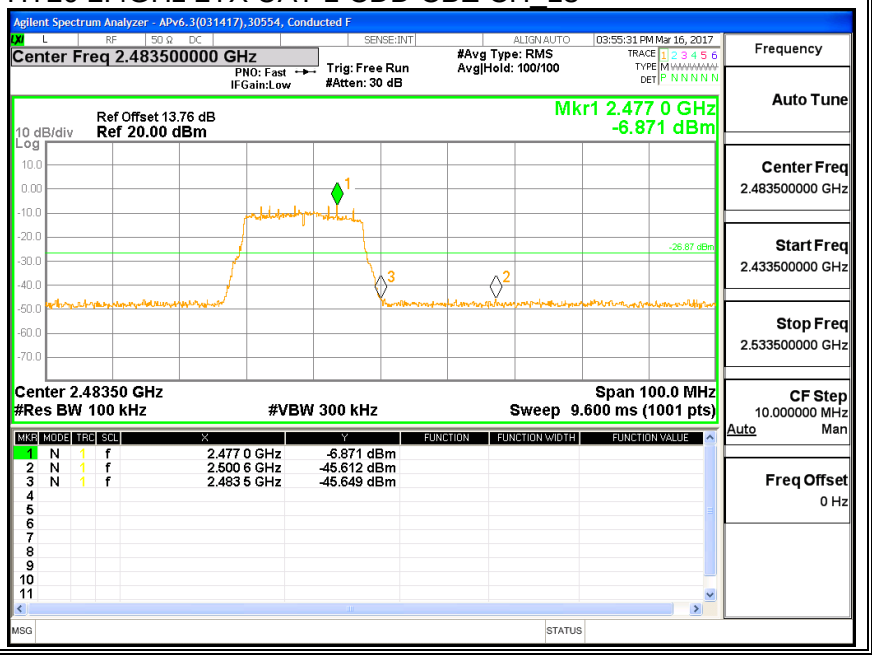
HT20 2.4GHz 2TX UAT 1 CDD CBE CH_13



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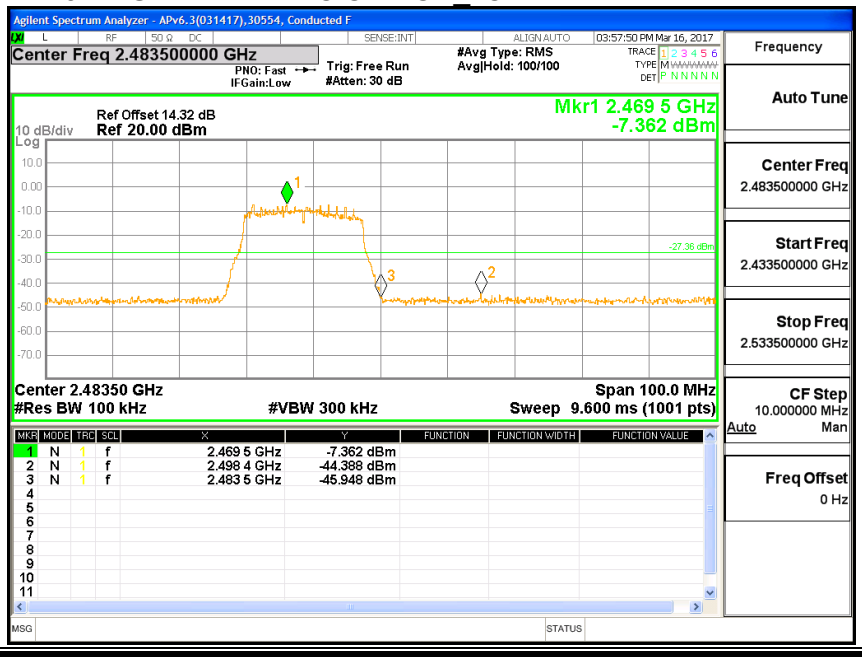

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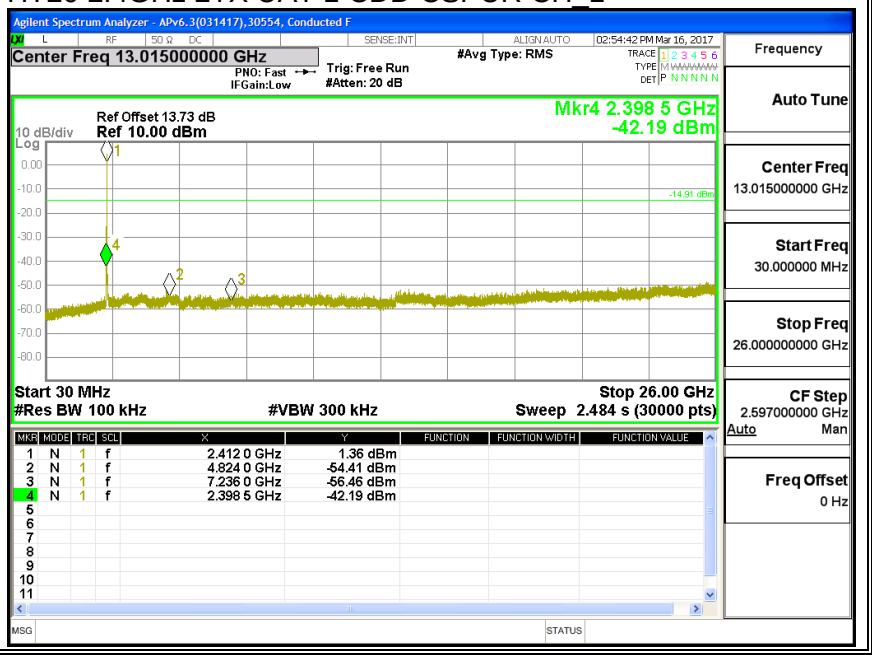

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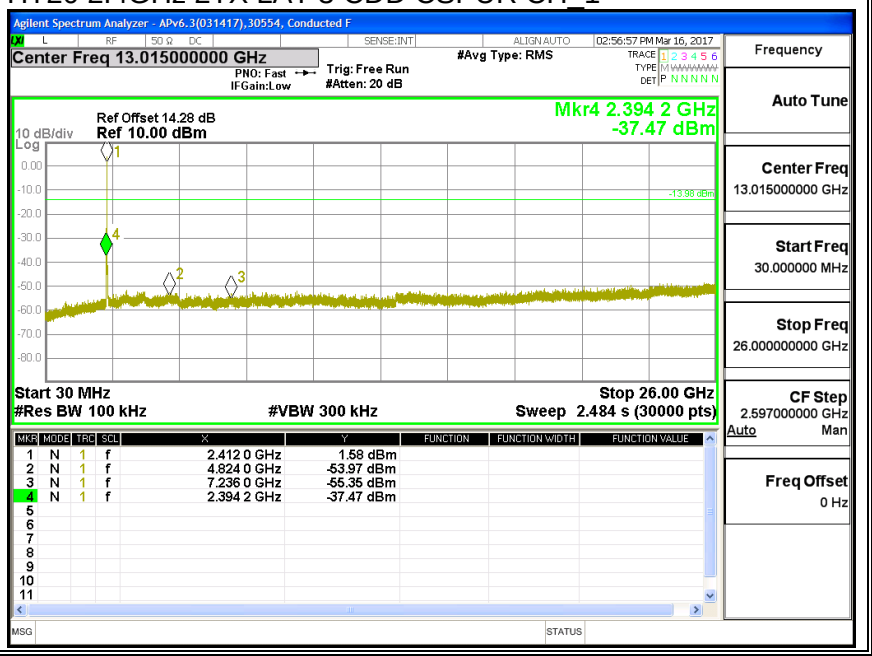

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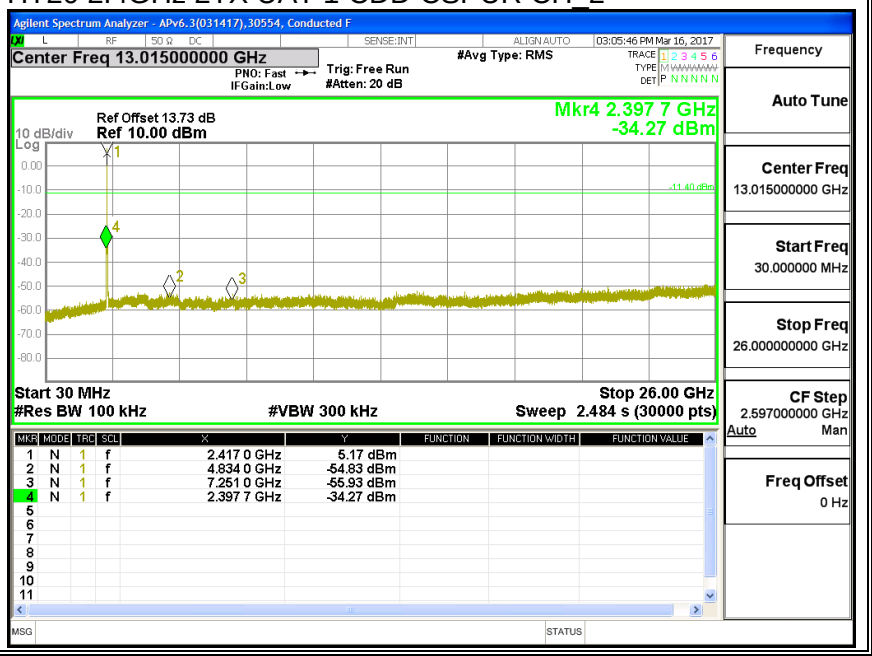
HT20 2.4GHz 2TX UAT 1 CDD CSPUR CH_2



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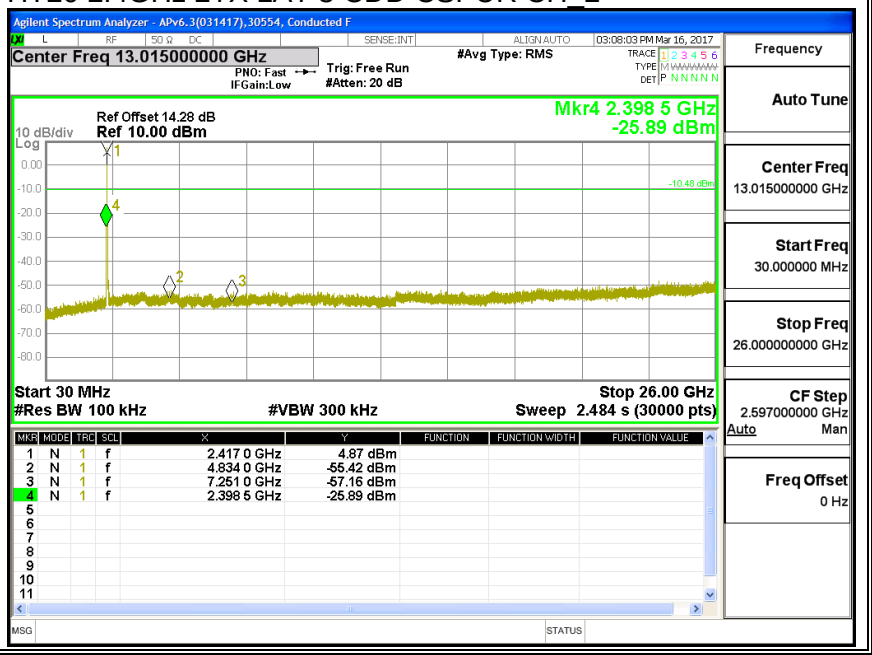

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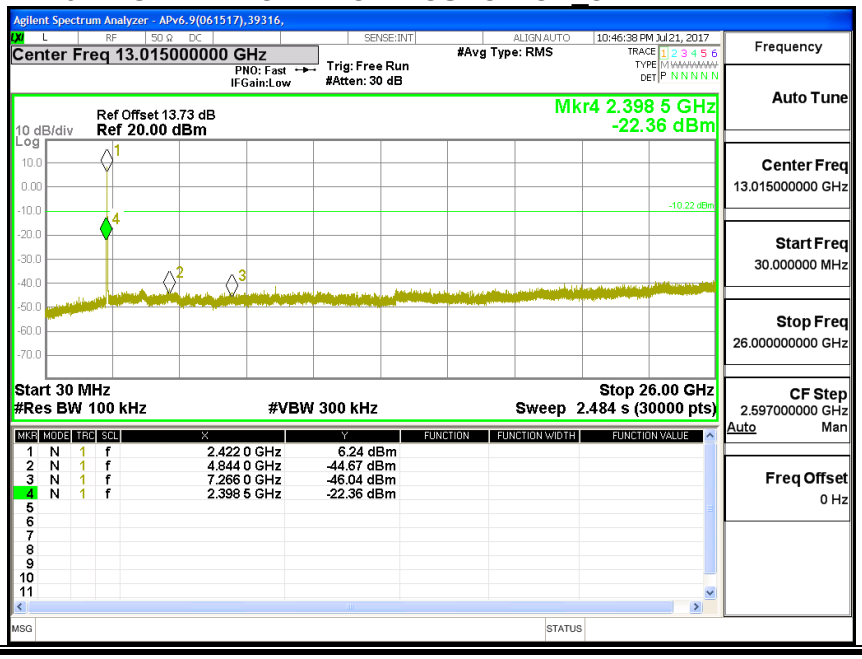

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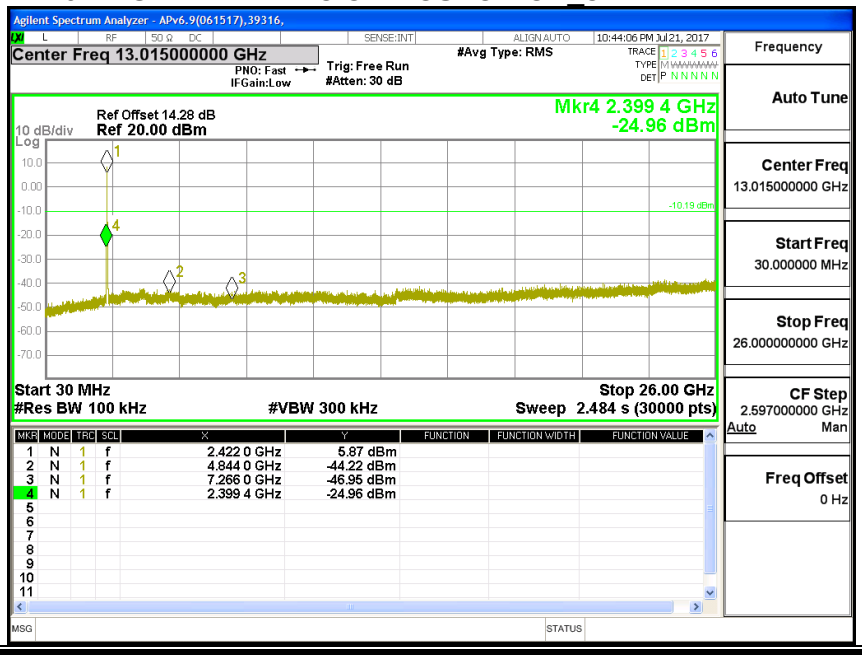

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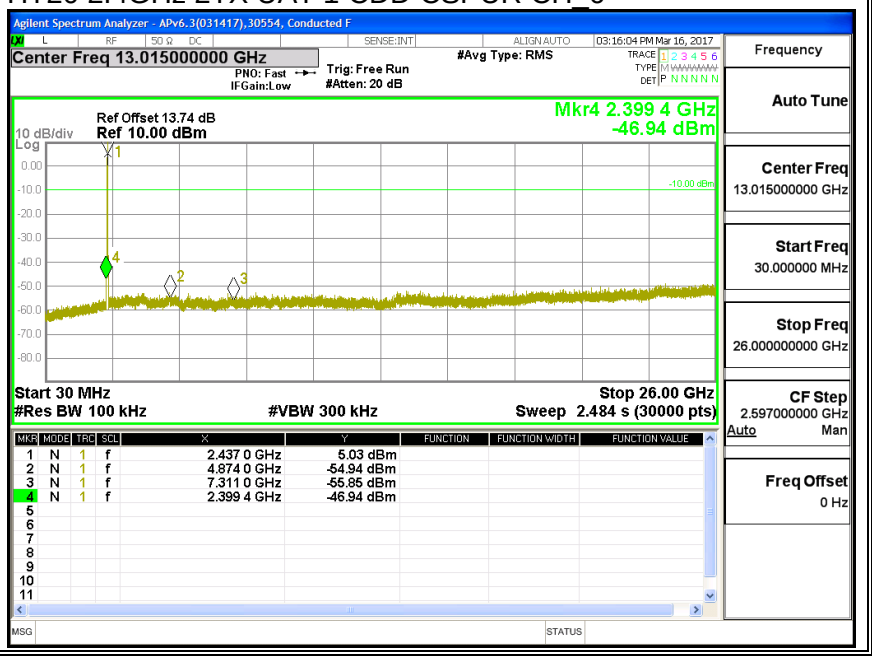
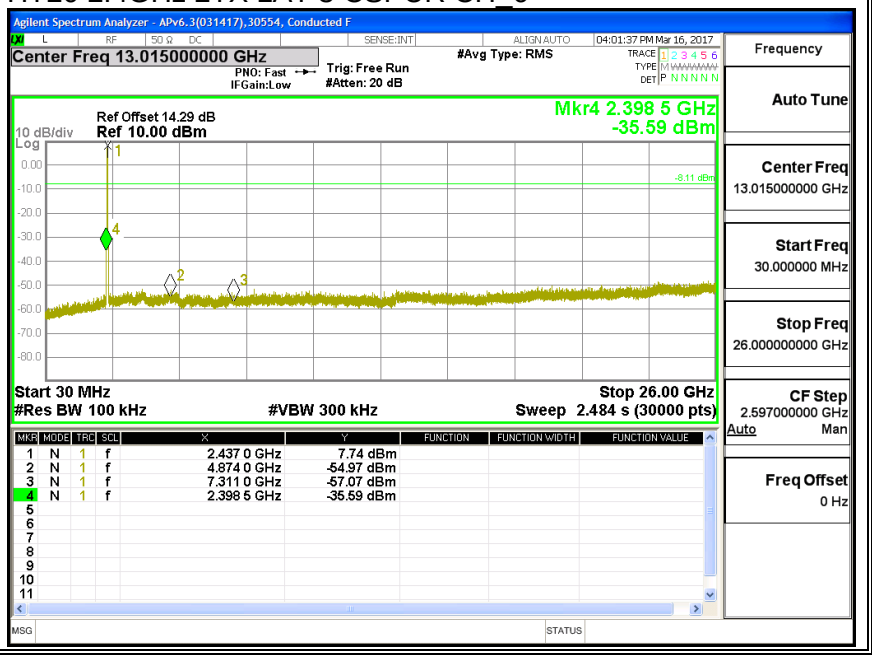
HT20 2.4GHz 2TX UAT 1 CDD CSPUR CH_6



HT20 2.4GHz 2TX LAT 3 CSPUR CH_6



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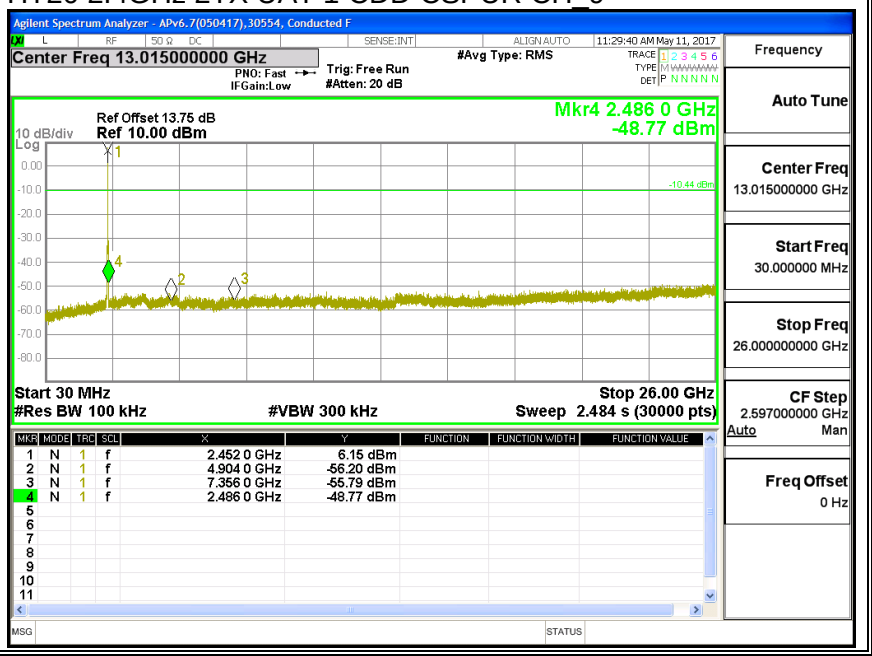
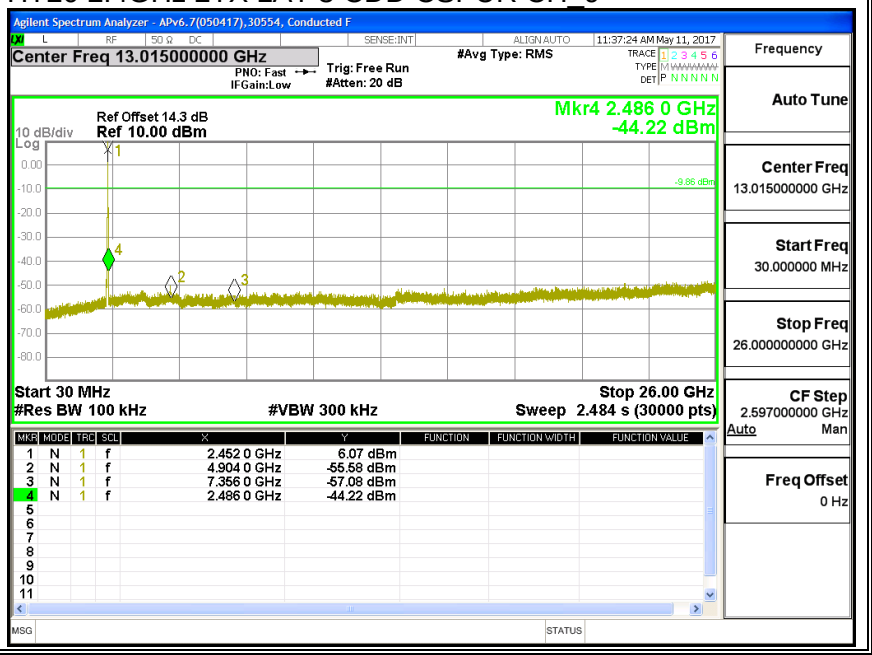
HT20 2.4GHz 2TX UAT 1 CDD CSPUR CH_9



HT20 2.4GHz 2TX LAT 3 CDD CSPUR CH_9



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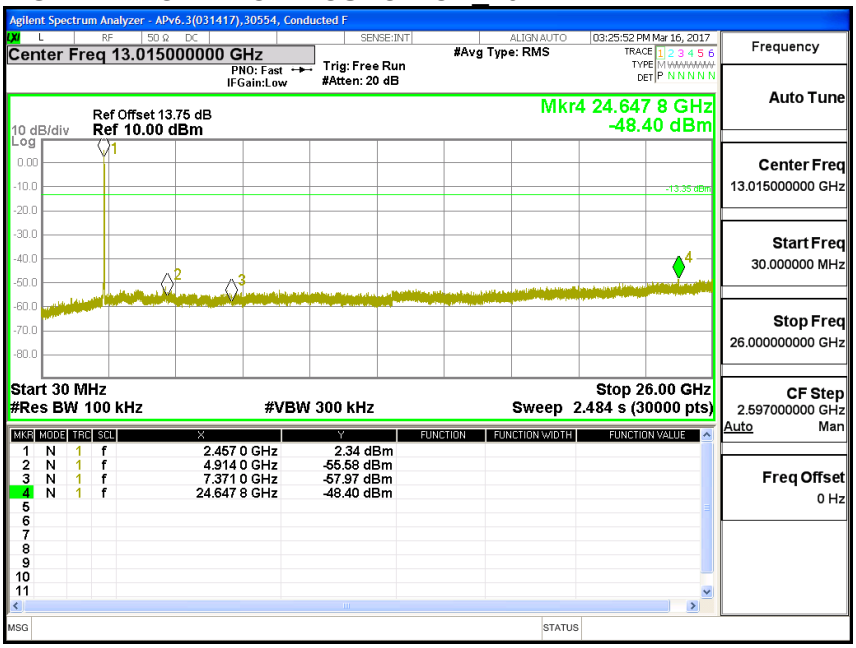
2.4GHz 2TX UAT 1 CDD CSPUR CH_10



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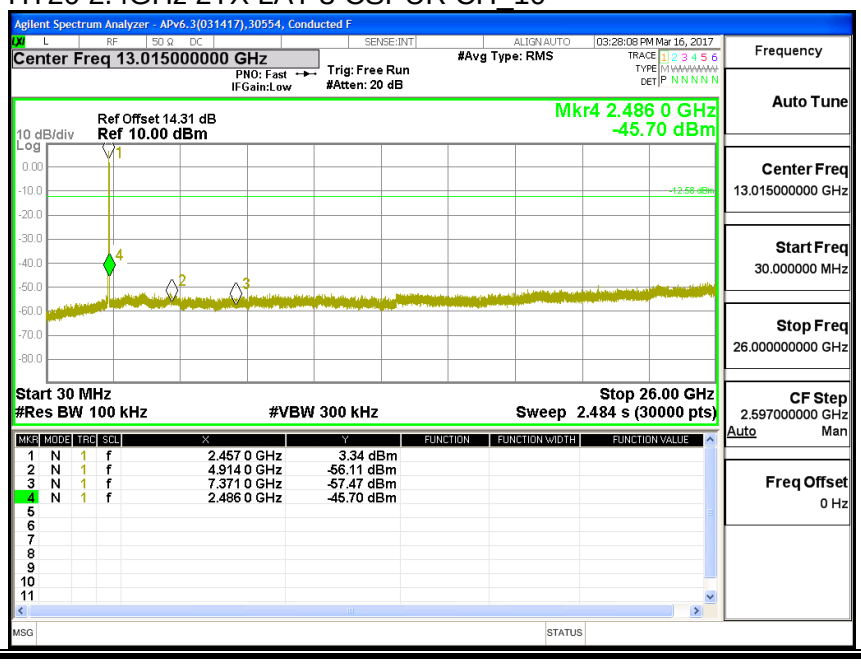

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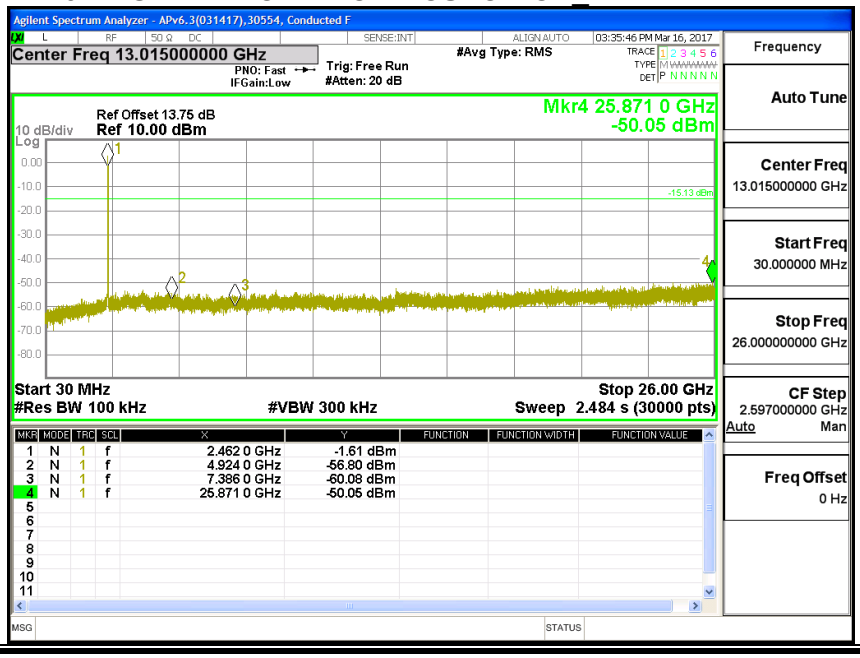
HT20 2.4GHz 2TX UAT 1 CDD CSPUR CH_11



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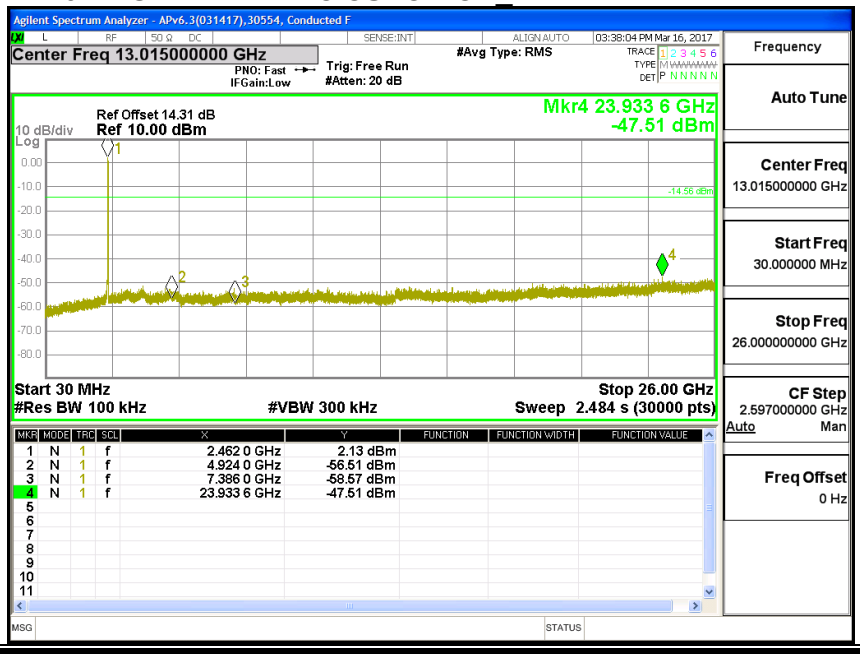

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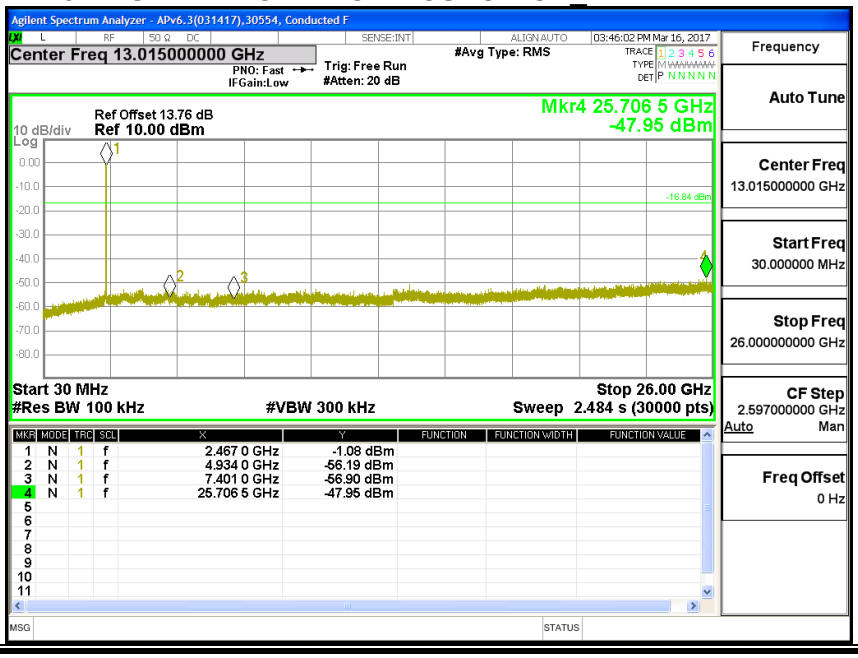
HT20 2.4GHz 2TX UAT 1 CDD CSPUR CH_12



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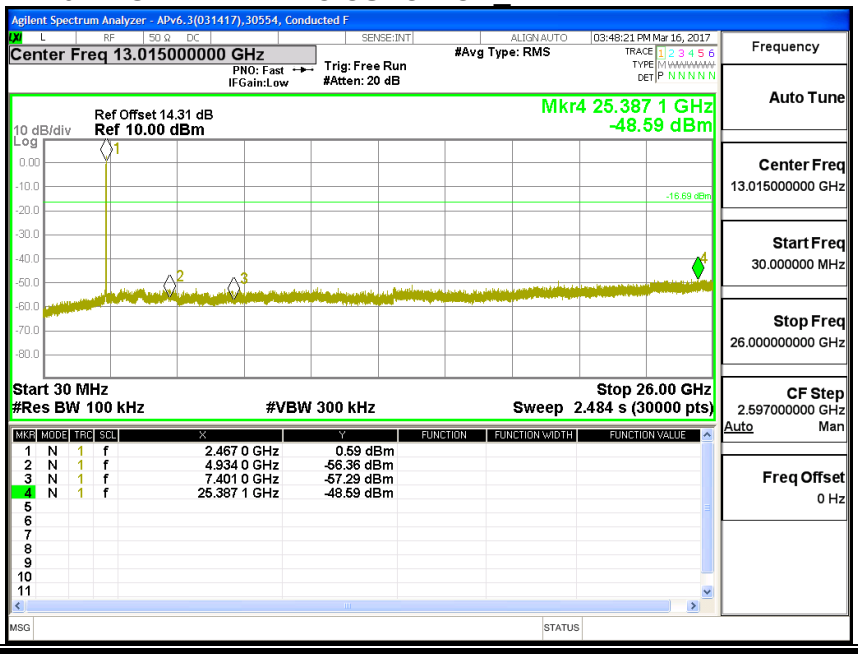

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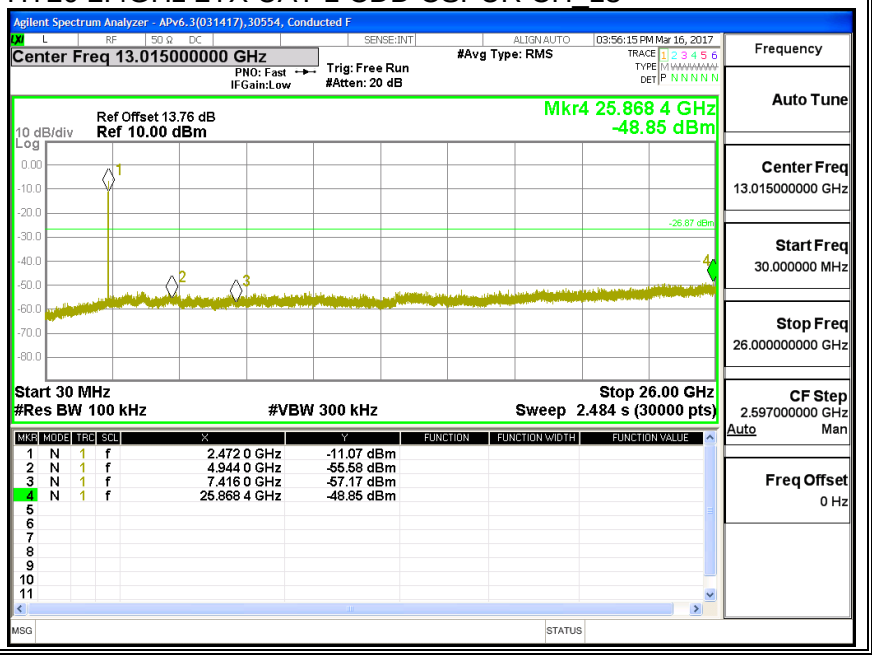
HT20 2.4GHz 2TX UAT 1 CDD CSPUR CH_13



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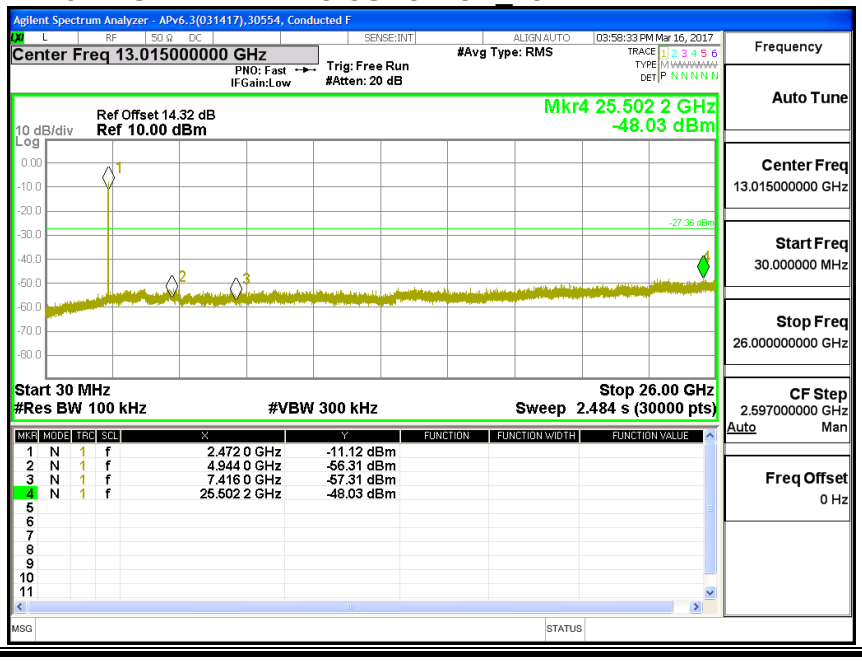

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9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN, Section 8.9 and 8.10.

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 for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

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 pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

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

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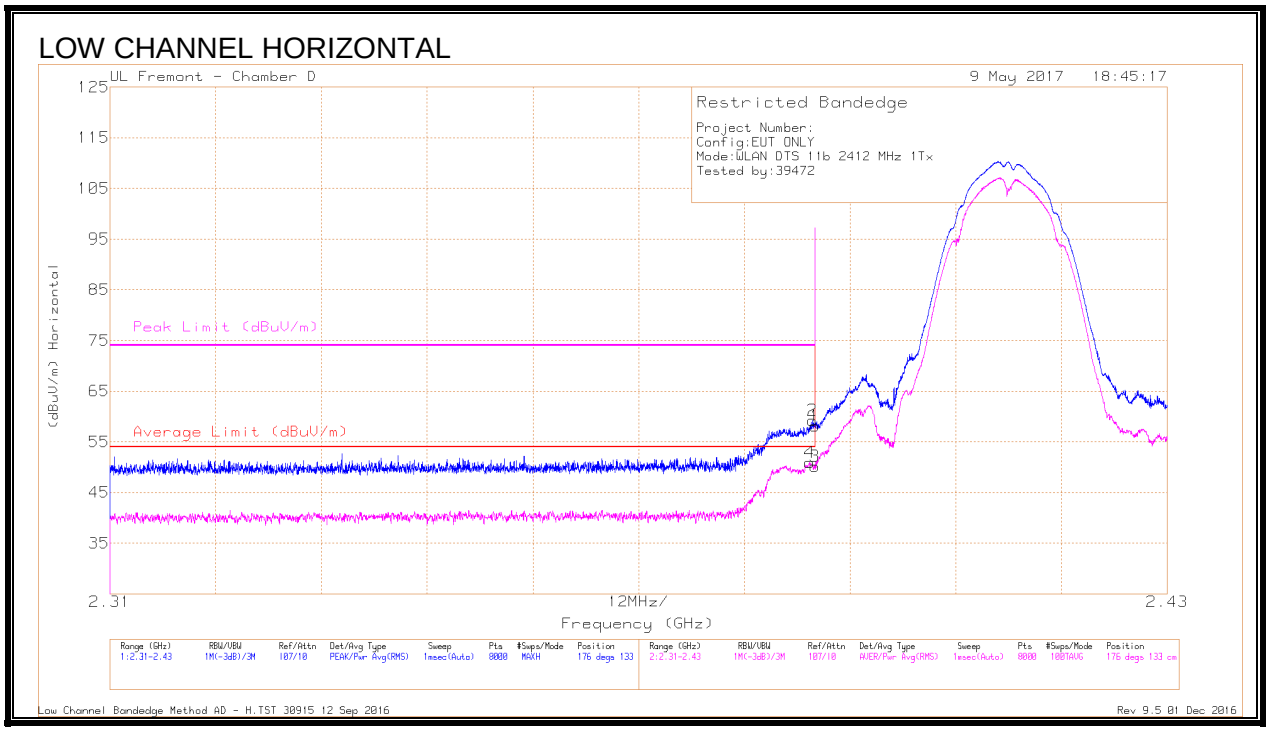
9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. 11b UAT 1 SISO MODE IN THE 2.4GHz BAND

AUTHORIZED BANDEDGE (LOW CHANNEL, CH 1)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	46.82	Pk	32	-20.7	58.12	-	-	74	-15.88	176	133	H
2	* 2.39	48.05	Pk	32	-20.8	59.25	-	-	74	-14.75	176	133	H
3	* 2.39	38.92	RMS	32	-20.7	50.22	54	-3.78	-	-	176	133	H
4	* 2.389	39.73	RMS	32	-20.8	50.93	54	-3.07	-	-	176	133	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection
Low Channel Bandedge Method AD - H.TST 30915 12 Sep 2016
Rev 9.5 01 Dec 2016

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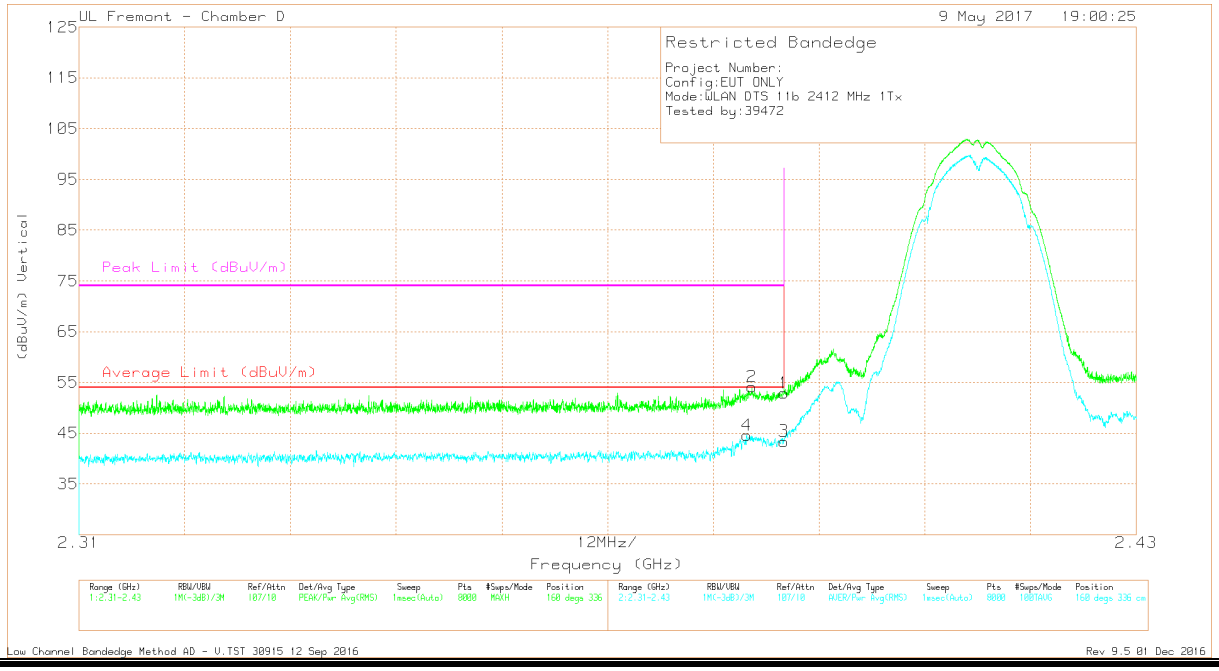
LOW CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.63	Pk	32	-20.7	52.93	-	-	74	-21.07	160	336	V
2	* 2.386	42.9	Pk	32	-20.8	54.1	-	-	74	-19.9	160	336	V
3	* 2.39	32.1	RMS	32	-20.7	43.4	54	-10.6	-	-	160	336	V
4	* 2.386	33.41	RMS	32	-20.8	44.61	54	-9.39	-	-	160	336	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection
Low Channel Bandedge Method AD - V.TST 30915 12 Sep 2016
Rev 9.5 01 Dec 2016

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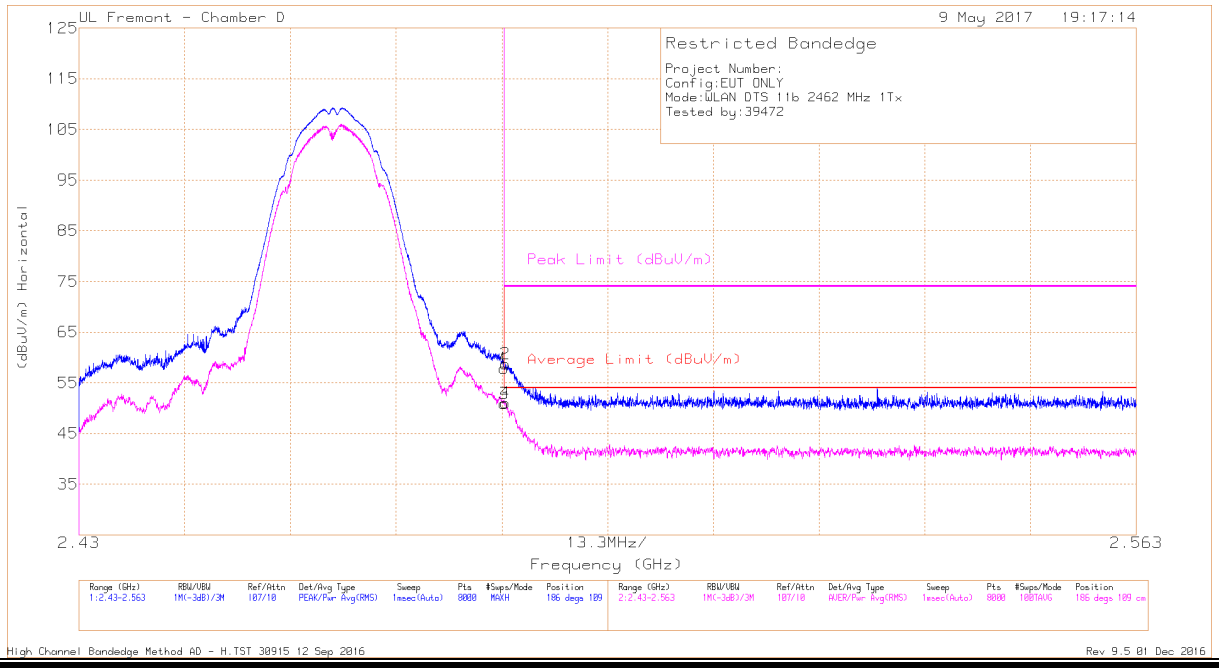
AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 11)

HIGH CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	46.18	Pk	32.5	-20.8	57.88	-	-	74	-16.12	186	109	H
2	* 2.484	47	Pk	32.5	-20.8	58.7	-	-	74	-15.3	186	109	H
3	* 2.484	39.25	RMS	32.5	-20.8	50.95	54	-3.05	-	-	186	109	H
4	* 2.484	39.29	RMS	32.5	-20.8	50.99	54	-3.01	-	-	186	109	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection
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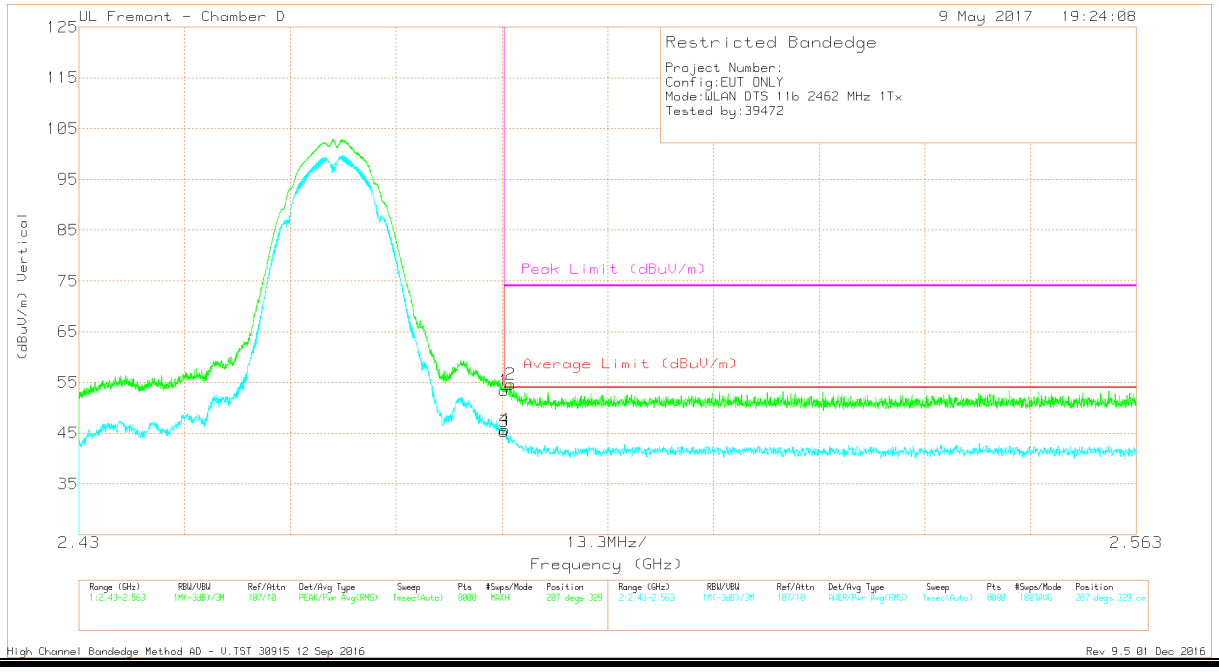
HIGH CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	41.71	Pk	32.5	-20.8	53.41	-	-	74	-20.59	207	329	V
2	* 2.484	42.99	Pk	32.5	-20.8	54.69	-	-	74	-19.31	207	329	V
3	* 2.484	33.6	RMS	32.5	-20.8	45.3	54	-8.7	-	-	207	329	V
4	* 2.484	33.97	RMS	32.5	-20.8	45.67	54	-8.33	-	-	207	329	V

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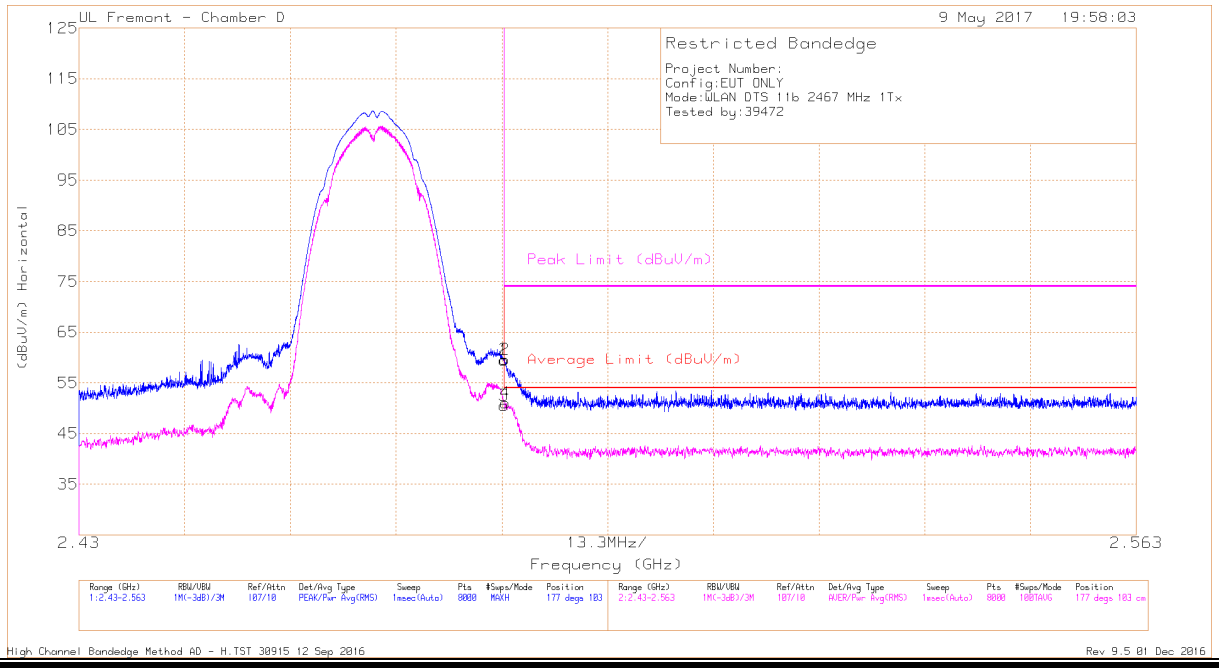
AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 12)

HIGH CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	47.81	Pk	32.5	-20.8	59.51	-	-	74	-14.49	177	103	H
2	* 2.484	47.9	Pk	32.5	-20.8	59.6	-	-	74	-14.4	177	103	H
3	* 2.484	38.89	RMS	32.5	-20.8	50.59	54	-3.41	-	-	177	103	H
4	* 2.484	39.33	RMS	32.5	-20.8	51.03	54	-2.97	-	-	177	103	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
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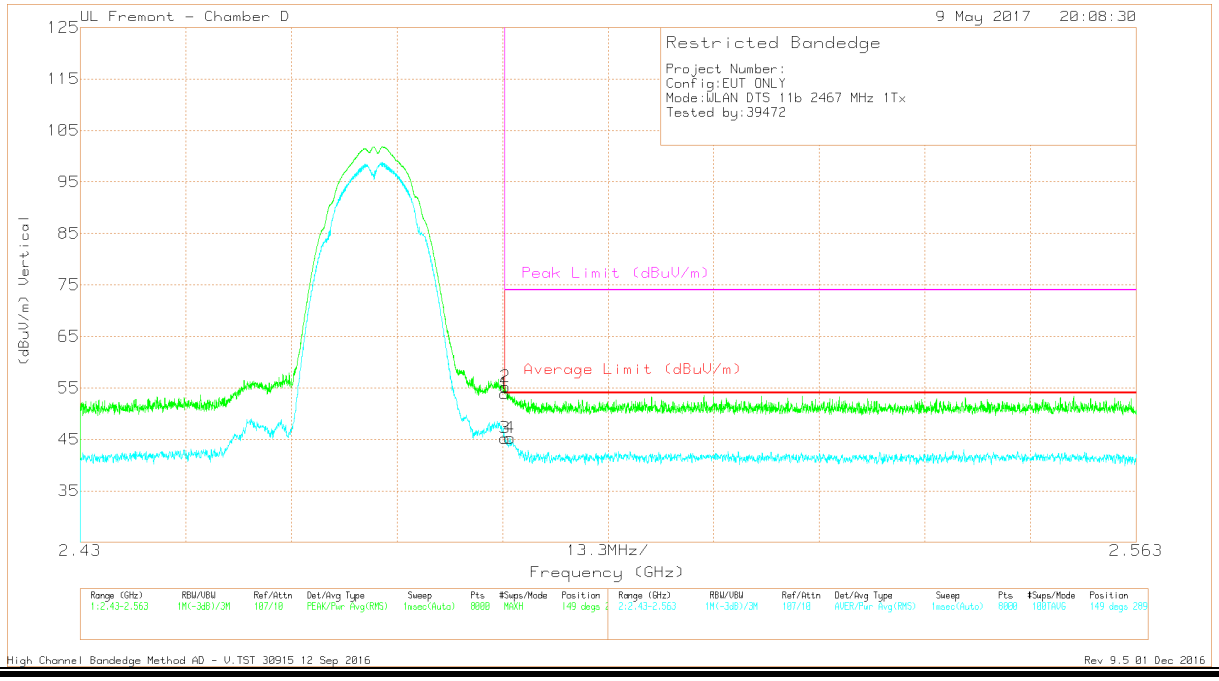
HIGH CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	42.22	Pk	32.5	-20.8	53.92	-	-	74	-20.08	149	289	V
2	* 2.484	43.53	Pk	32.5	-20.8	55.23	-	-	74	-18.77	149	289	V
3	* 2.484	33.55	RMS	32.5	-20.8	45.25	54	-8.75	-	-	149	289	V
4	* 2.484	33.57	RMS	32.5	-20.8	45.27	54	-8.73	-	-	149	289	V

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