



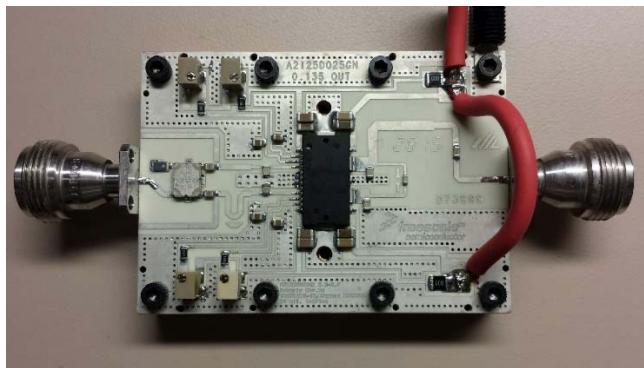
DPD/PA Test Report

RF Transceiver	AD9375
Power Amplifier	A2I25D025GN
PA Type	Symmetrical Doherty
Transistor Type	LDMOS
Operating Frequency Range (MHz)	2300-2700
Gain (dB)	28-29
Drin Efficiency (%)	38 – 40
P1dB (dBm)	43
Supply Voltage	28 V
Bandwidths Tested	20 MHz and 40 MHz

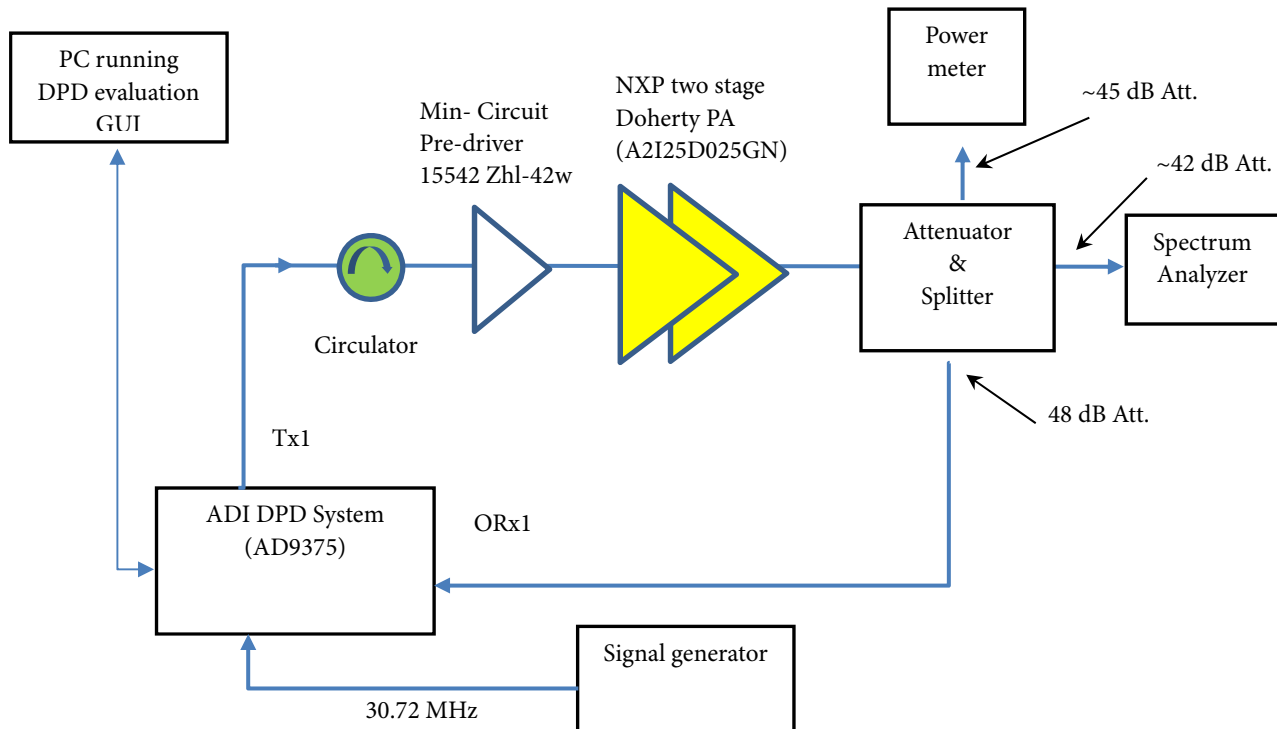


SUMMARY

- A2I25D025N is a 2-stage IC, symmetric Doherty designed using the wideband Doherty design technique. Target band is 2.3 to 2.7 GHz.
- Characterized from 2.3 to 2.7 GHz using 1c WCDMA and CW
- Performance Summary
 - Doherty Gain: 28 to 29 dB across band
 - Doherty Efficiency at 8 dB OBO: >38% from 2.3 to 2.7 GHz
 - 40 MHz LTE linearization
 - 2.35 GHz:, 38.7 dBm Pavg, -57 dBc ACP, 41.6% Total Efficiency
 - 2.6 GHz:, 38.9 dBm Pavg, -55 dBc ACP, 40.5 % Total Efficiency
- This report sets out the summary of results for 20MHz and 40MHz bandwidths in 3GPP Bands 40, 41 and 7. The appendix contains more detailed results showing performance versus output power.



BLOCK DIAGRAM



PERFORMANCE SUMMARY

Band 40: 2300 MHz to 2400 MHz 20 MHz (1X20 MHZ LTE SIGNAL)

Frequency	Signal Bandwidth	Test Signal PAR=7.5dB	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	37.8	0.51	-53.63	-53.46	55.69	-54.55	42.2
2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	37.9	0.53	-52.1	-52.79	-54.08	-54.44	41.6

40 MHz (2X20 MHZ LTE SIGNAL)

Frequency	Signal Bandwidth	Test Signal PAR=7.5dB	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2310MHz (Bottom)	40 MHz	E-TM3.1 40 MHz LTE	38.0	0.53	-51.43	-50.54	-50.94	-51.05	42.6
2380MHz (Top)	40 MHz	E-TM3.1 40 MHz LTE	37.9	0.55	-52.25	-52.5	-52.79	-53.74	42.1

Band 41 / Band 7: 2496 MHz to 2690 MHz 20 MHz (1X20 MHZ LTE SIGNAL)

Frequency	Signal Bandwidth	Test Signal PAR=7.5dB	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2506MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	38.0	0.52	-54.41	-54.61	-55.47	-56.75	43.2
2680MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	38.0	0.52	-51.35	-51.7	-53.77	-54.81	43.6

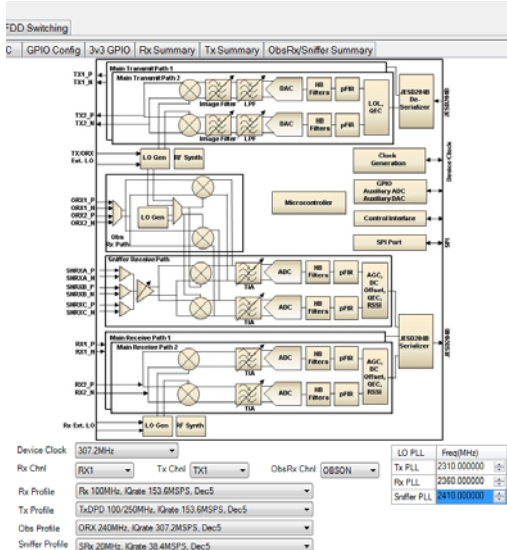
40 MHz (2X20 MHZ LTE SIGNAL)

Frequency	Signal Bandwidth	Test Signal PAR=7.5dB	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2516MHz (Middle)	40 MHz	E-TM3.1 40 MHz LTE	38.0	0.52	-50.56	-50.22	-52.51	-51.91	42.9
2670MHz (Top)	40 MHz	E-TM3.1 40 MHz LTE	37.9	0.52	-50.03	-49.97	-50.43	-51.96	43.1

Performance Details

Setup Overview:

Example: DPD calibration for 2310 MHz



Device Clock	307.2MHz
Rx Chnl	RX1
Tx Chnl	TX1
ObsRx Chnl	OBSON
Rx Profile	Rx 100MHz, IQrate 153.6MSPS, Dec5
Tx Profile	TxDPD 100/250MHz, IQrate 153.6MSPS, Dec5
Obs Profile	ORX 240MHz, IQrate 307.2MSPS, Dec5
Sniffer Profile	SRx 20MHz, IQrate 38.4MSPS, Dec5

	LO PLL	Freq(MHz)
Tx PLL	2310.000000	
Rx PLL	2360.000000	
Sniffer PLL	2410.000000	

➤ For all these DPD measurements the AD9375 DPD configuration is the same (Model 2 AND 2048 samples)

General

Update Period: 500 ms

Delay Offset: + 0 4/16 samples

PN-Seq Level: 255

PN-Seq Iters: 2¹⁰

CLGC Configuration

Tx Atten Min. Limit: 0 dB

Control Ratio: 75 %

DPD Configuration

DPD memory model: Model 2

Samples per update: 2048

☐ Automatically reject outlier samples.

☒ Update saved model at high Tx RMS.

Saved model weight: 20

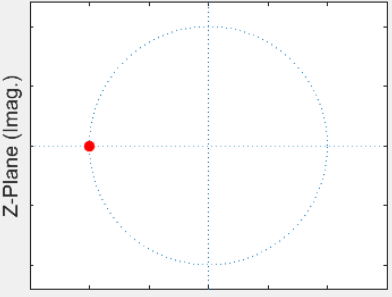
Model averaging factor: 5

Model error threshold: 10 %

AM-AM Outlier threshold: 50 %

Saturation threshold: 87 %

Frequency-weighting terms: 1



Z-Plane (Real)
(Weight: 64 + 0i)

Tip: hover over a text box for more information about the configuration value.

Apply Close

BAND 40 2300-2400 MHZ SUMMARY**20 MHz (2X20 MHz LTE SIGNAL)**

Frequency	Signal Bandwidth	Test Signal	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2310MHz (Bottom)	20 MHz	E-TM3.1 40 MHz LTE	38.02	0.5316	-51.43	-50.54	-50.94	-51.05	42.59
2390MHz (Top)	20 MHz	E-TM3.1 40 MHz LTE	37.93	0.549	-52.25	-52.5	-52.79	-53.74	42.11

ACLR Results B40 Bottom Frequency

2310 MHz, 20 MHz BANDWIDTH ACLR RESULTS

➤ Pout after DPD=37.8 dBm

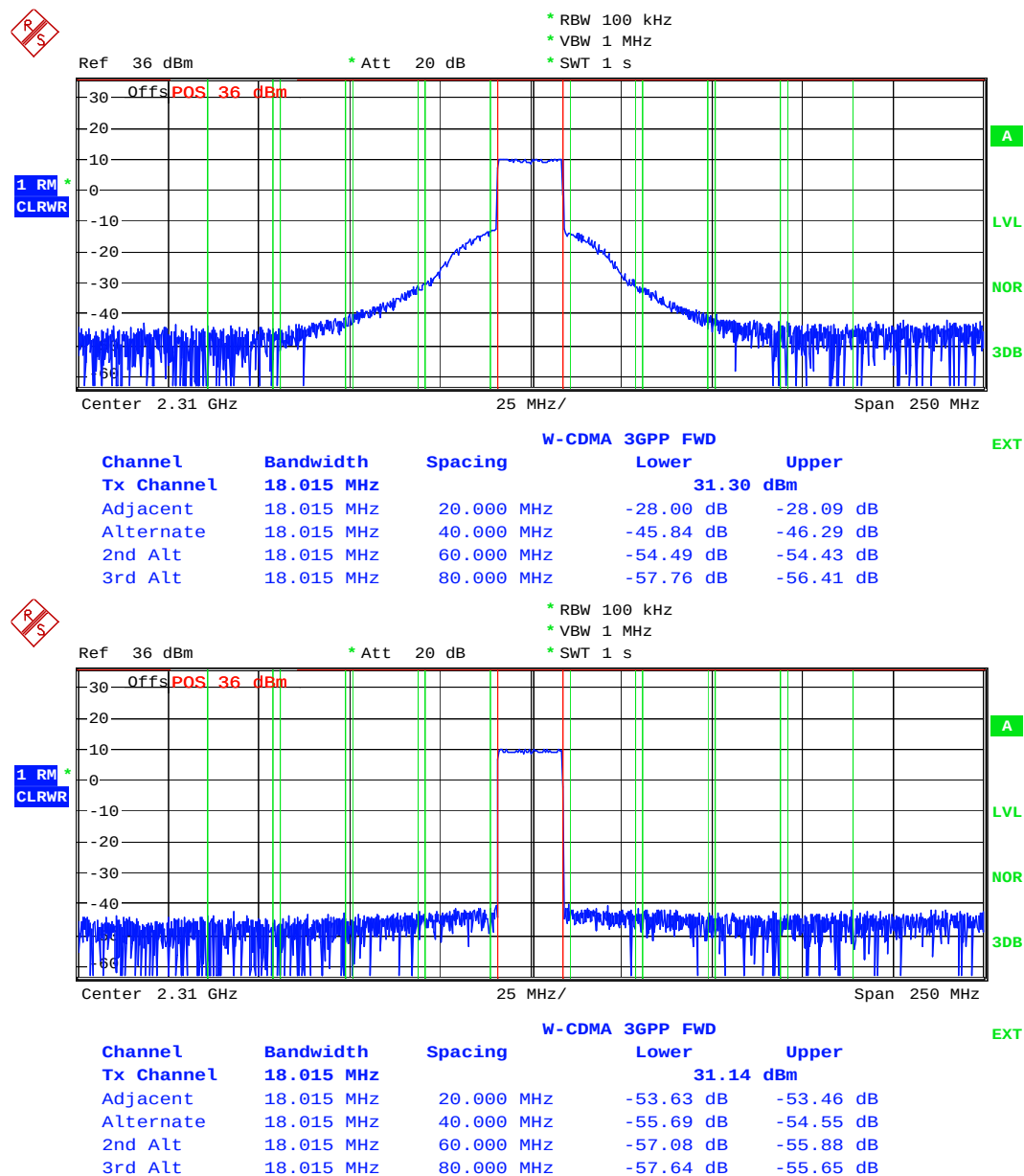
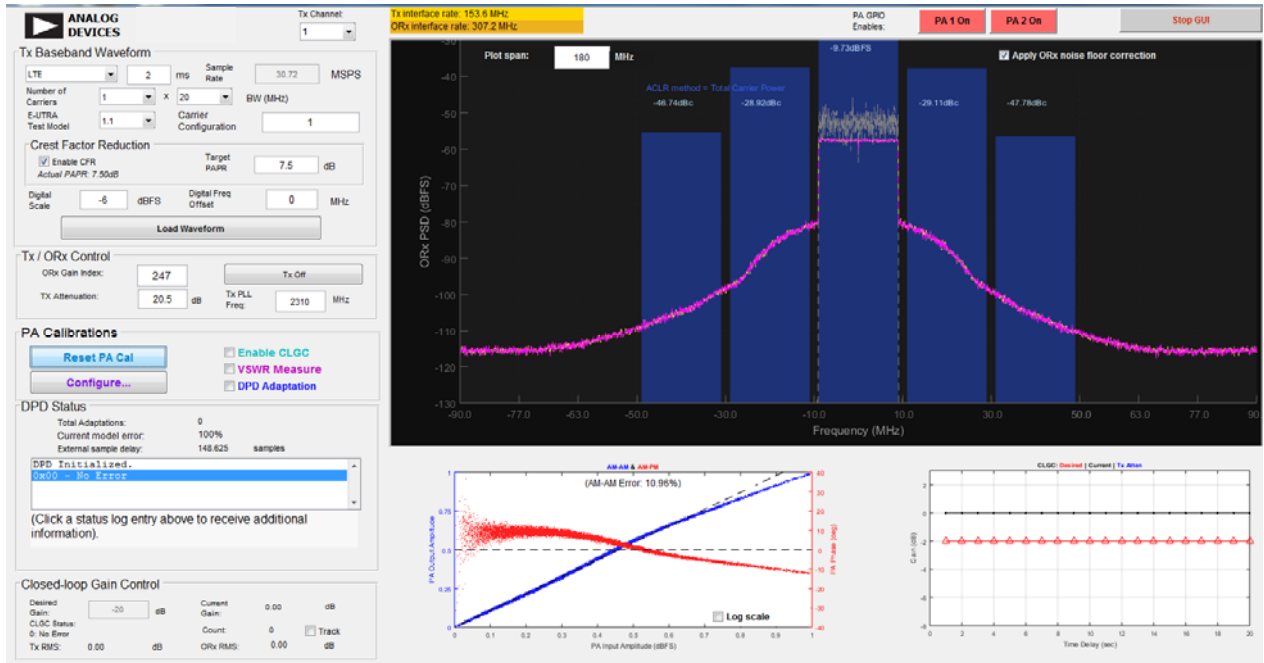


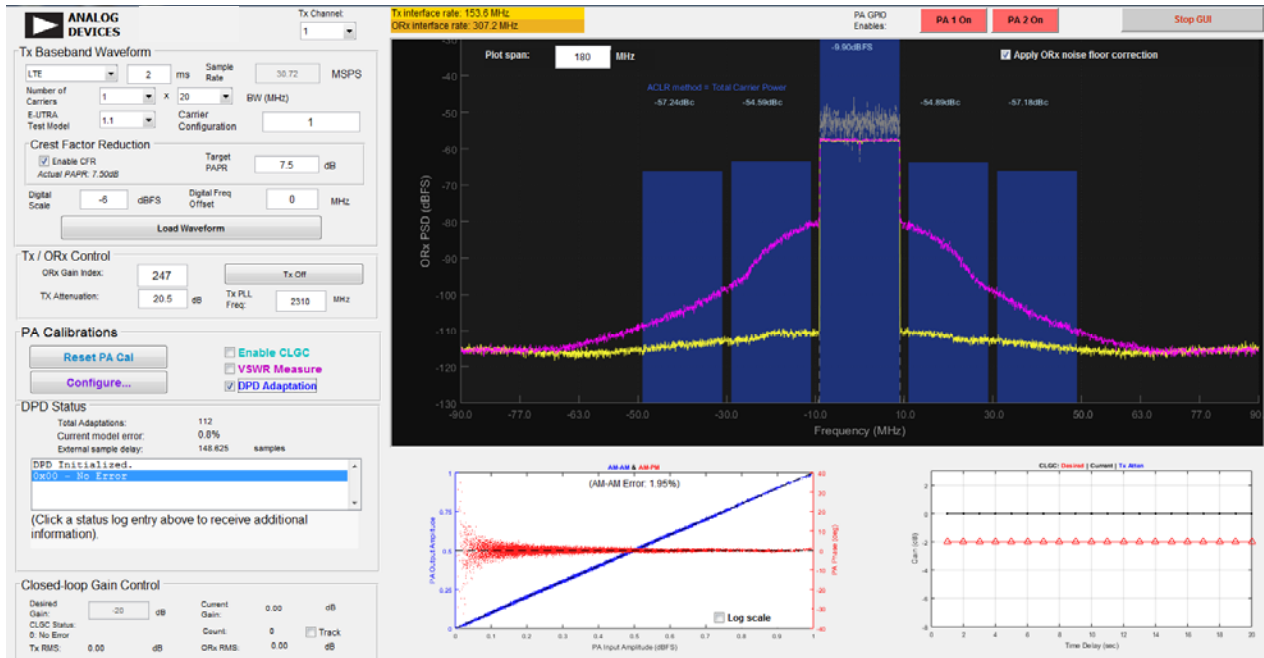
Figure 1.4 Frequency 2310 MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.8 dBm)

- The DPD GUI at 8 dB OBO (37.8 dBm output power after DPD):

Before DPD



After DPD



ACLR RESULTS B40 TOP FREQUENCY

2390 MHZ, 20 MHZ BANDWIDTH ACLR RESULTS

- For all these DPD measurements the AD9375 DPD configuration is the same (Model 1 AND 2048 samples)

The screenshot displays the AD9375 configuration interface with three main sections: General, CLGC Configuration, and DPD Configuration.

General:

- Update Period: 500 ms
- Delay Offset: + 0 0/16 samples
- PN-Seq Level: 255
- PN-Seq Iters: 2^10

CLGC Configuration:

- Tx Atten Min. Limit: 0 dB
- Control Ratio: 75 %

DPD Configuration:

- DPD memory model: Model 1
- Samples per update: 2048
- ☐ Automatically reject outlier samples.
- ☒ Update saved model at high Tx RMS.
- Saved model weight: 20
- Model averaging factor: 5
- Model error threshold: 10 %
- AM-AM Outlier threshold: 50 %
- Saturation threshold: 87 %

Frequency-weighting terms: 1

Z-Plane (Imag.) vs Z-Plane (Real) plot:

The plot shows a circle with a red dot at the origin (0,0). The x-axis is labeled "Z-Plane (Real)" and the y-axis is labeled "Z-Plane (Imag.)". Below the plot, it says "(Weight: 64 + 0i)".

Buttons: Apply, Close

Tip: hover over a text box for more information about the configuration value.

➤ Pout after DPD=37.93 dBm

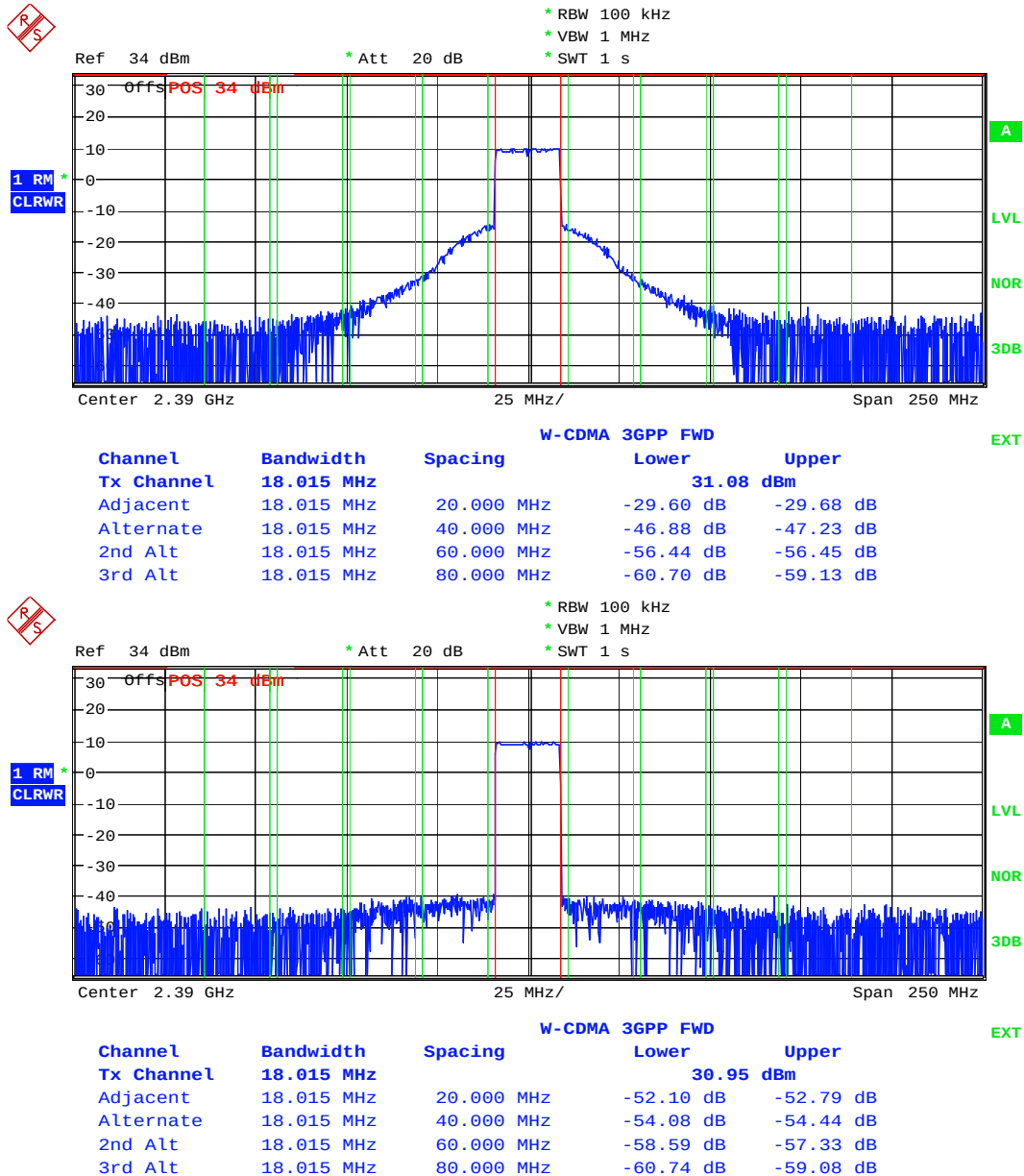
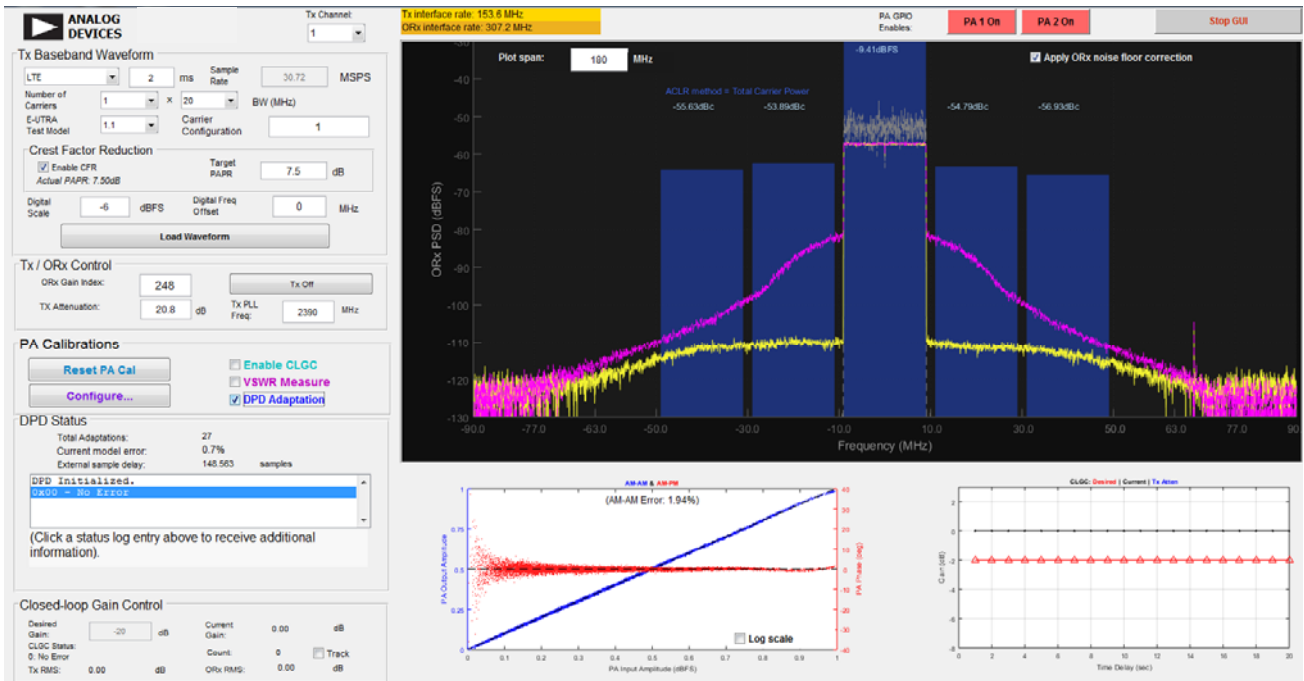


Figure 3.3 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.93 dBm)

- The DPD GUI at ~8dB OBO (37.93 dBm output power after DPD):

After DPD



40 MHz (2X20 MHz LTE SIGNAL)

Frequency	Signal Bandwidth	Test Signal	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2320 MHz (Bottom)	40 MHz	E-TM3.1 40 MHz LTE	38.02	0.5316	-51.43	-50.54	-50.94	-51.05	42.59
2380MHz (Top)	40 MHz	E-TM3.1 40 MHz LTE	37.93	0.549	-52.25	-52.5	-52.79	-53.74	42.11

ACLR RESULTS B40 BOTTOM FREQUENCY

2310 MHz, 40 MHz BANDWIDTH ACLR RESULTS

➤ Pout after DPD=38.02 dBm

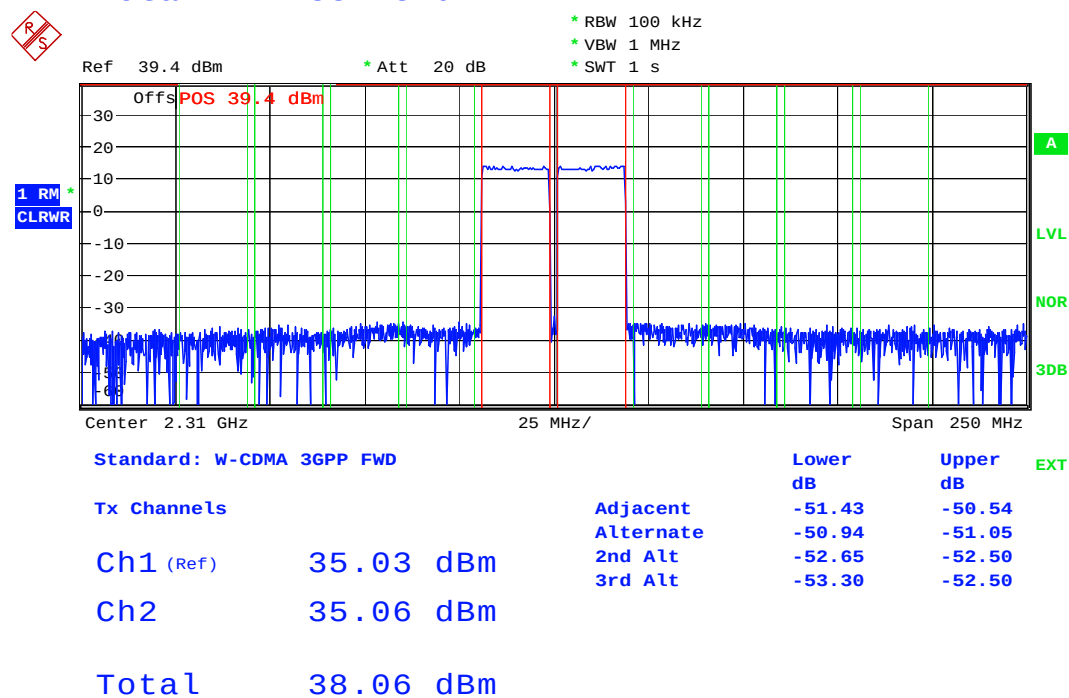
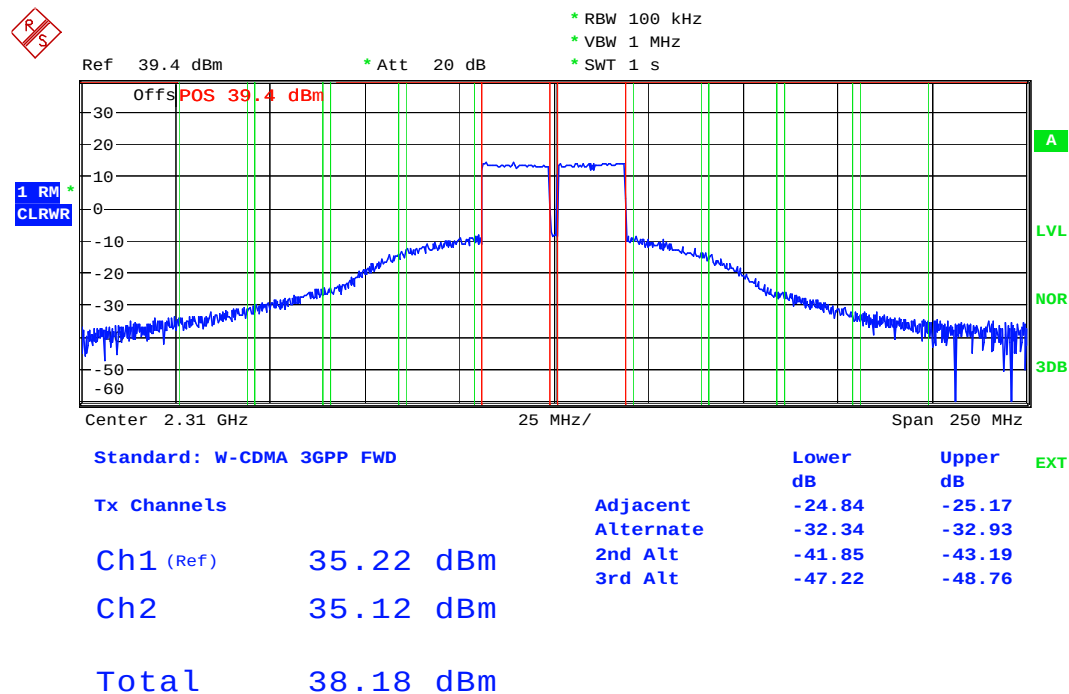
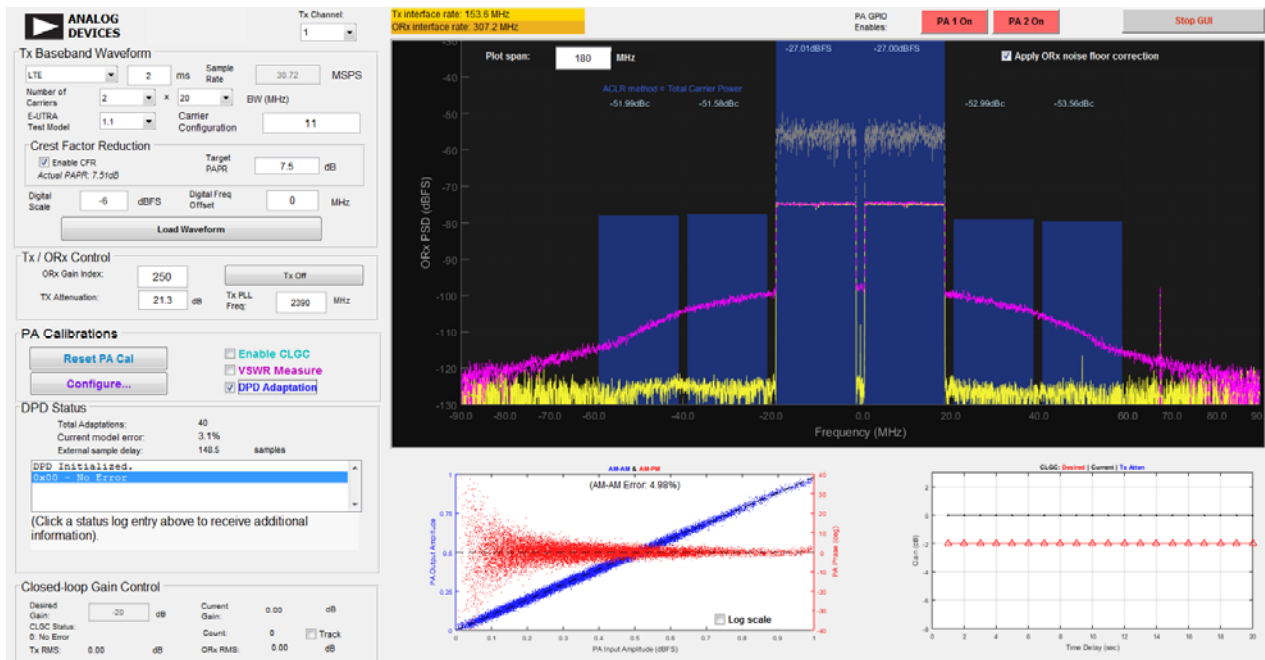
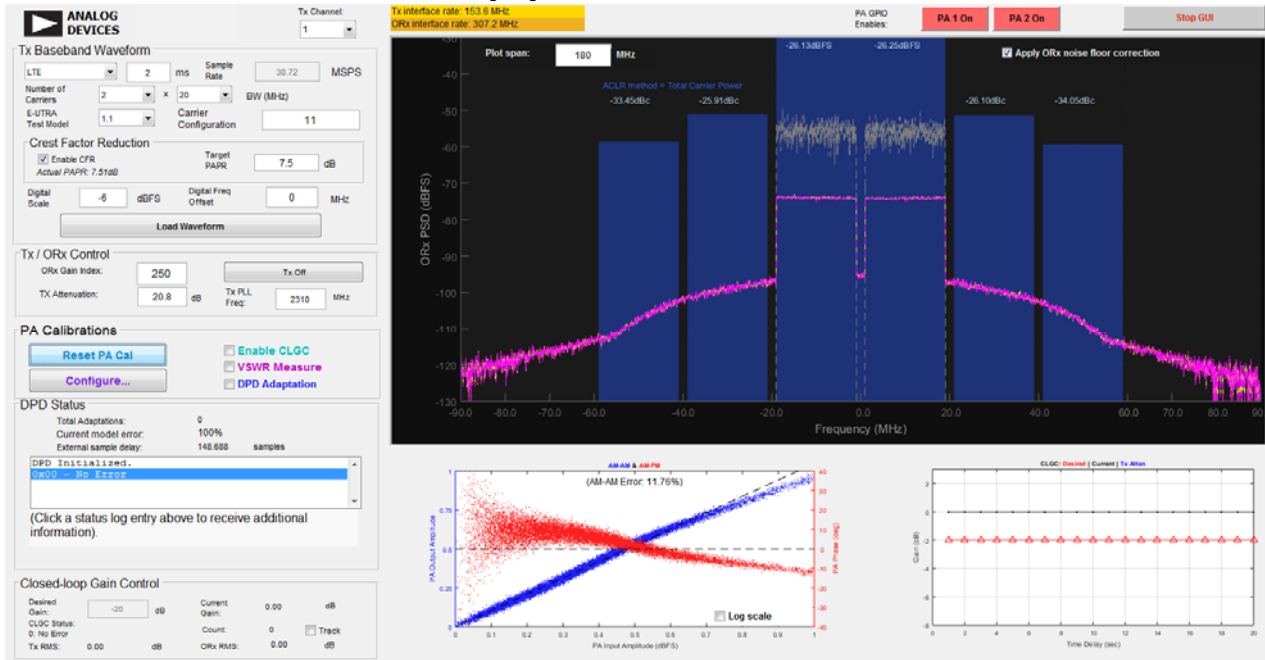


Figure 4.1 Frequency 2310MHz, 40 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.02 dBm)

- The DPD GUI at ~8dB OBO (38.02 dBm output power after DPD):



ACLR RESULTS B40 TOP FREQUENCY

2390 MHz, 40 MHz BANDWIDTH ACLR RESULTS

➤ Pout after DPD=37.93 dBm

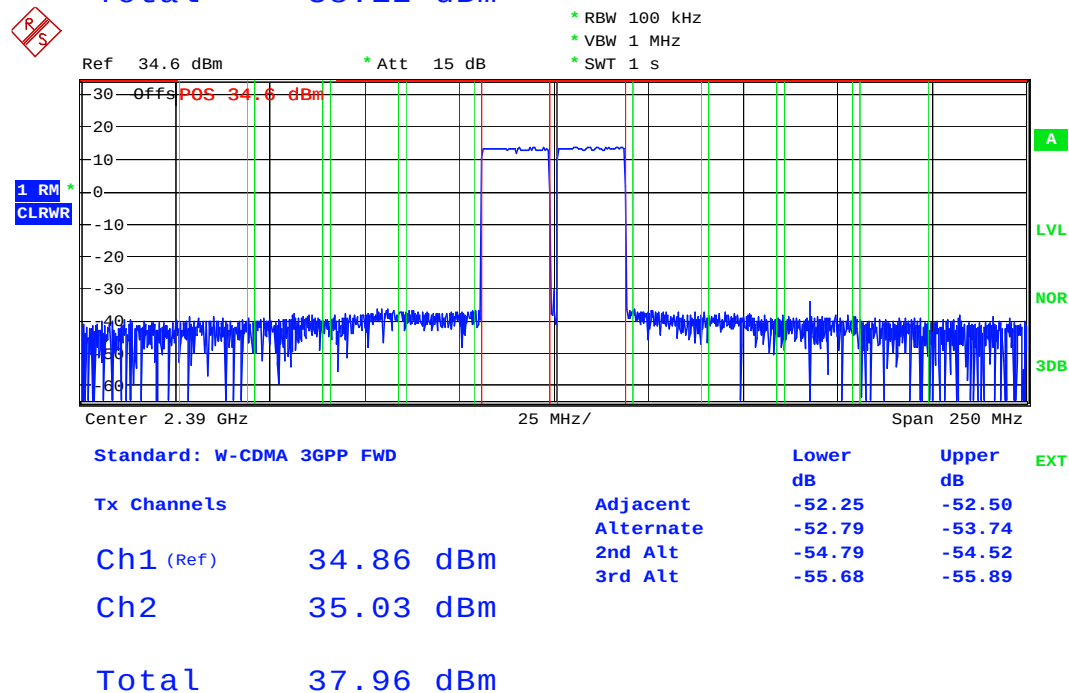
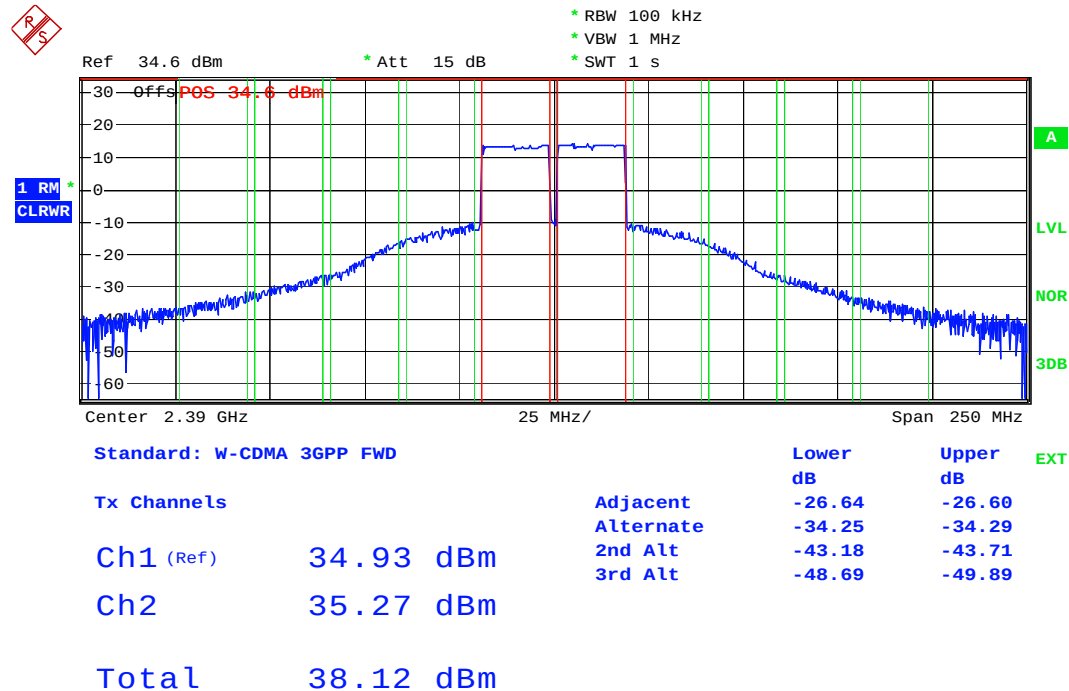
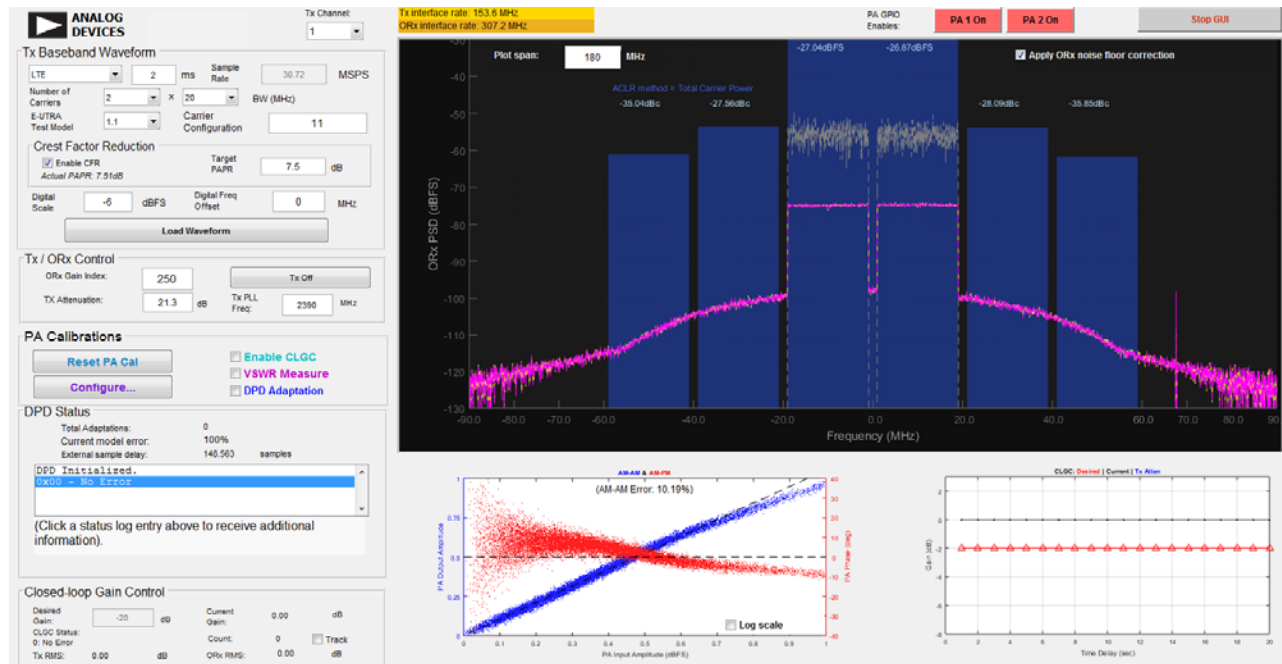
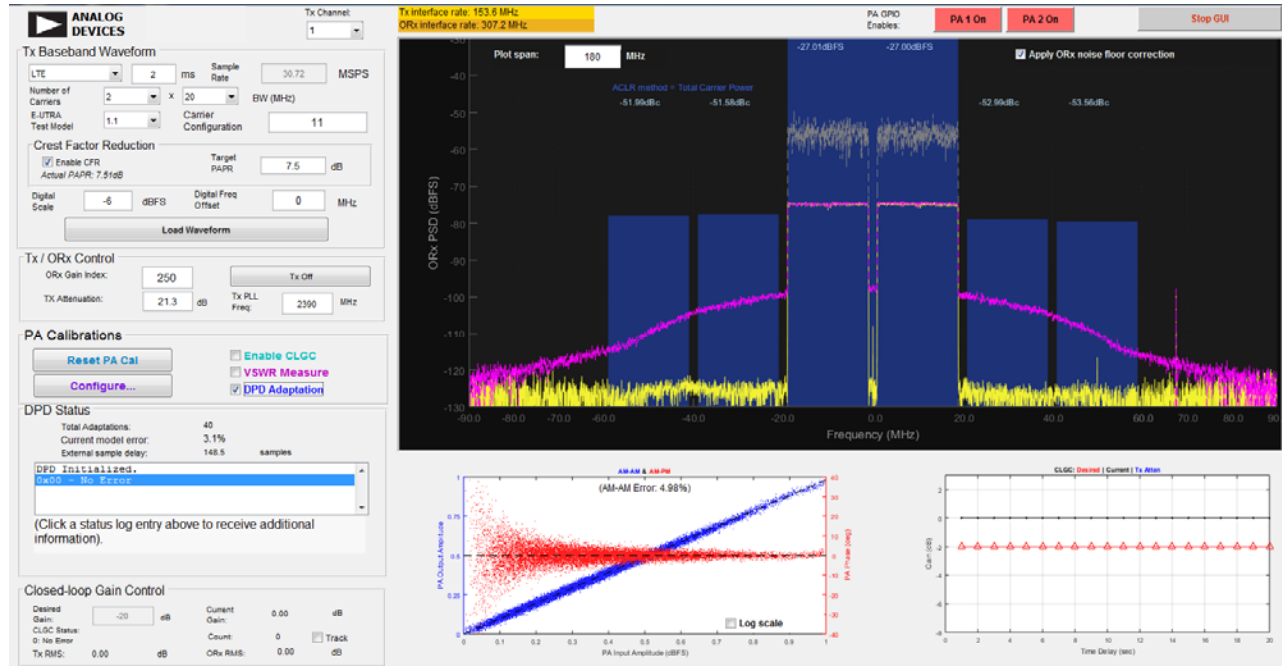


Figure 4.2 Frequency 2390MHz, 40 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.93 dBm)

- The DPD GUI at ~8dB OBO (37.93 dBm output power after DPD):



B41 2496-2690 MHZ SUMMARY**20 MHz (1X20 MHz LTE SIGNAL)**

Frequency	Signal Bandwidth	Test Signal PAR=7.5dB	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2506MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	38	0.522	-54.41	-54.61	-55.47	-56.75	43.17
2680MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	38.03	0.520	-51.35	-51.7	-53.77	-54.81	43.64

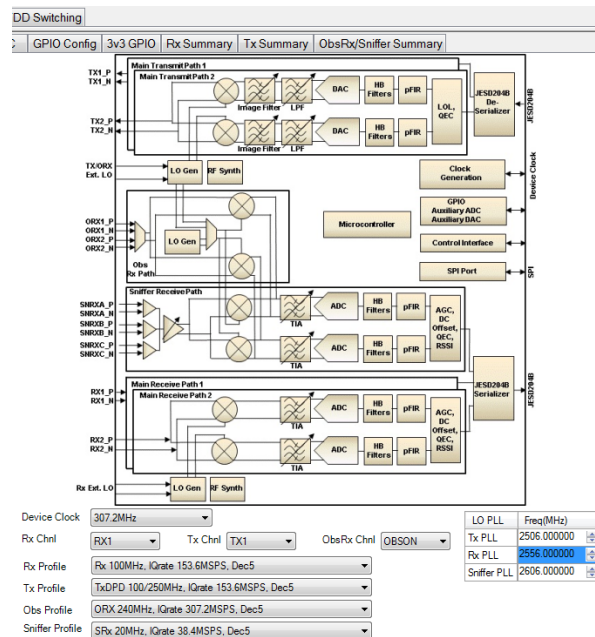
ACLR RESULTS B41 BOTTOM FREQUENCY

2506 MHZ, 20 MHZ BANDWIDTH ACLR RESULTS

LTE 20 MHz

2506MHz, 20 MHz Bandwidth ACLR RESULTS

DPD setting:



General

Update Period: 500 ms

Delay Offset: 0 / 0.16 samples

PN-Seq Level: 255

PN-Seq Iters: 2-10

CLGC Configuration

Tx Atten Min. Limit: 0 dB

Control Ratio: 75 %

DPD Configuration

DPD memory model: Model 2

Samples per update: 2048

☐ Automatically reject outlier samples.

☒ Update saved model at high Tx RMS.

Saved model weight: 20

Model averaging factor: 5

Model error threshold: 10 %

AM-AM Outlier threshold: 50 %

Saturation threshold: 87 %

Frequency-weighting terms: 1

Z-Plane (Real)

(Weight: 64 + 0i)

Tip: hover over a text box for more information about the configuration value.

Apply Close

➤ Pout after DPD=38 dBm

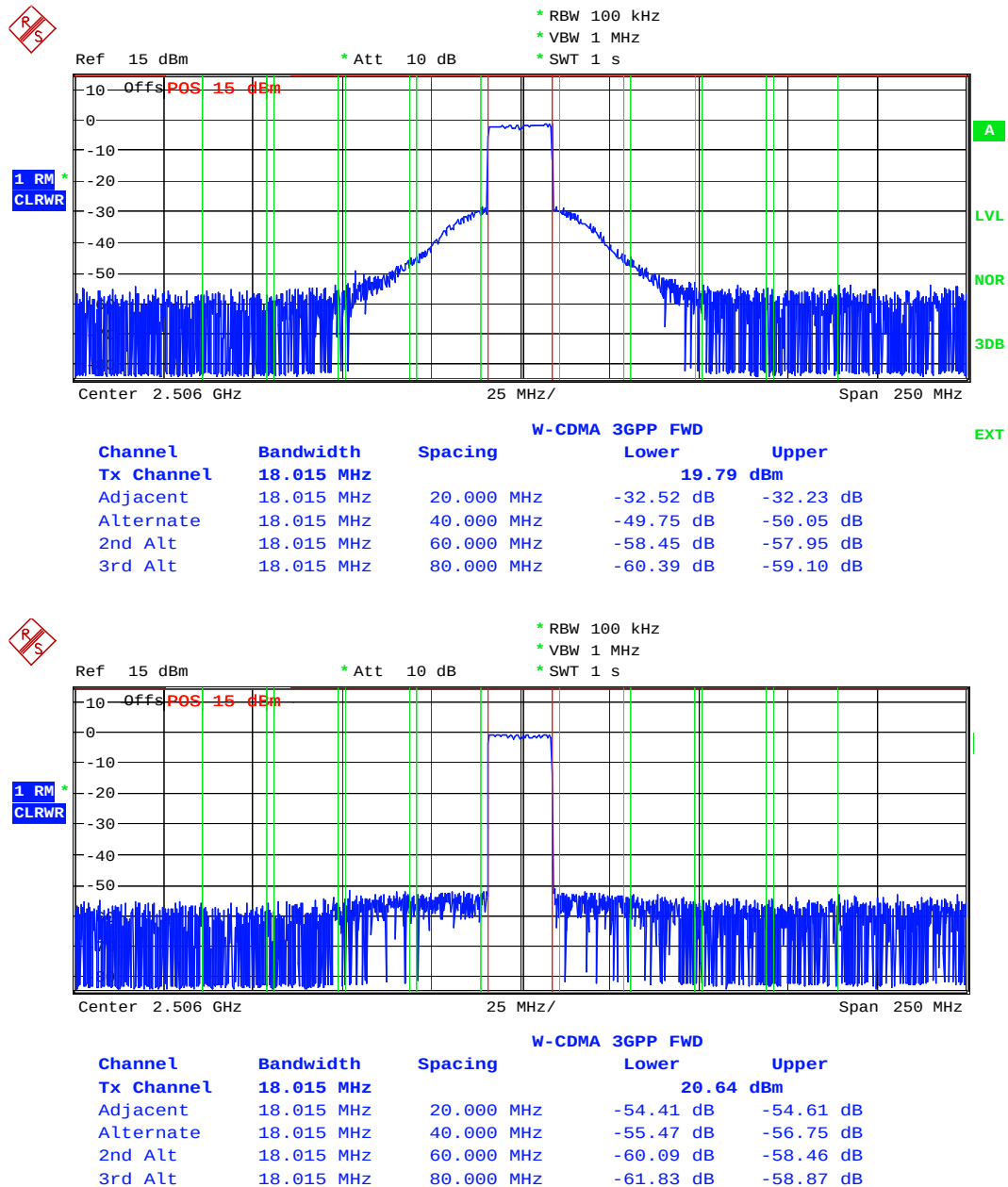
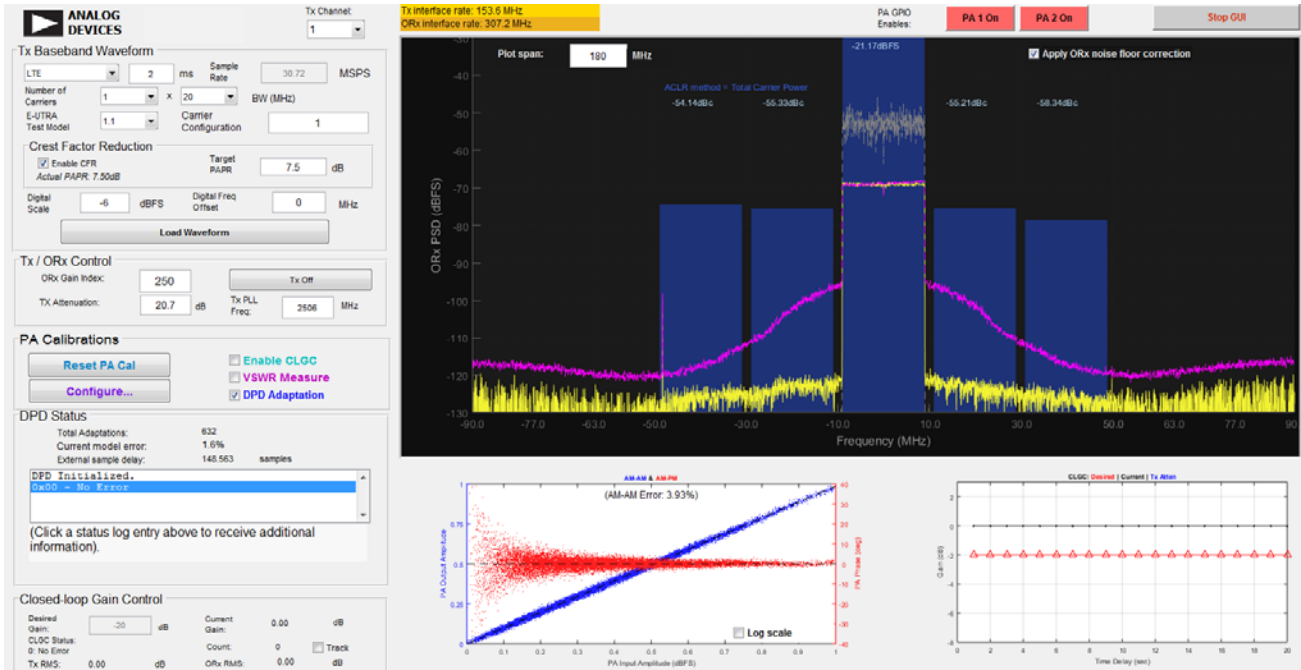


Figure 5.1 Frequency 2506MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38 dBm)



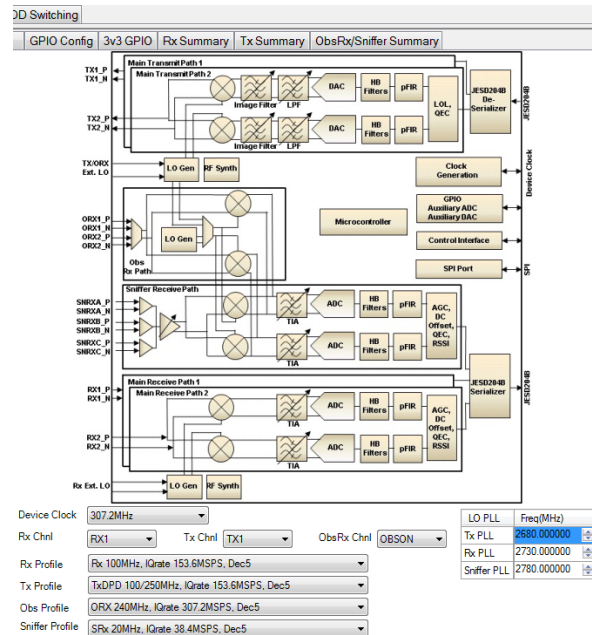
ACLR RESULTS B41 TOP FREQUENCY

2680 MHz, 20 MHz BANDWIDTH ACLR RESULTS

LTE 20 MHz

2680MHz, 20 MHz Bandwidth ACLR RESULTS

DPD setting:



General Configuration:

- Update Period: 500 ms
- Delay Offset: 0 / 0/16 samples
- PN-Seq Level: 255
- PN-Seq Iters: 2¹⁰

CLGC Configuration:

- Tx Atten Min. Limit: 0 dB
- Control Ratio: 75 %

DPD Configuration:

- DPD memory model: Model 2
- Samples per update: 2048
- ☐ Automatically reject outlier samples.
- ☒ Update saved model at high TX RMS.
- Saved model weight: 20
- Model averaging factor: 5
- Model error threshold: 10 %
- AM-AM Outlier threshold: 50 %
- Saturation threshold: 87 %

Frequency-weighting terms: 1

Z-Plane (Imag.)

Z-Plane (Real) (Weight: 64 + 0i)

Tip: hover over a text box for more information about the configuration value.

Apply Close

➤ Pout after DPD=38.03 dBm

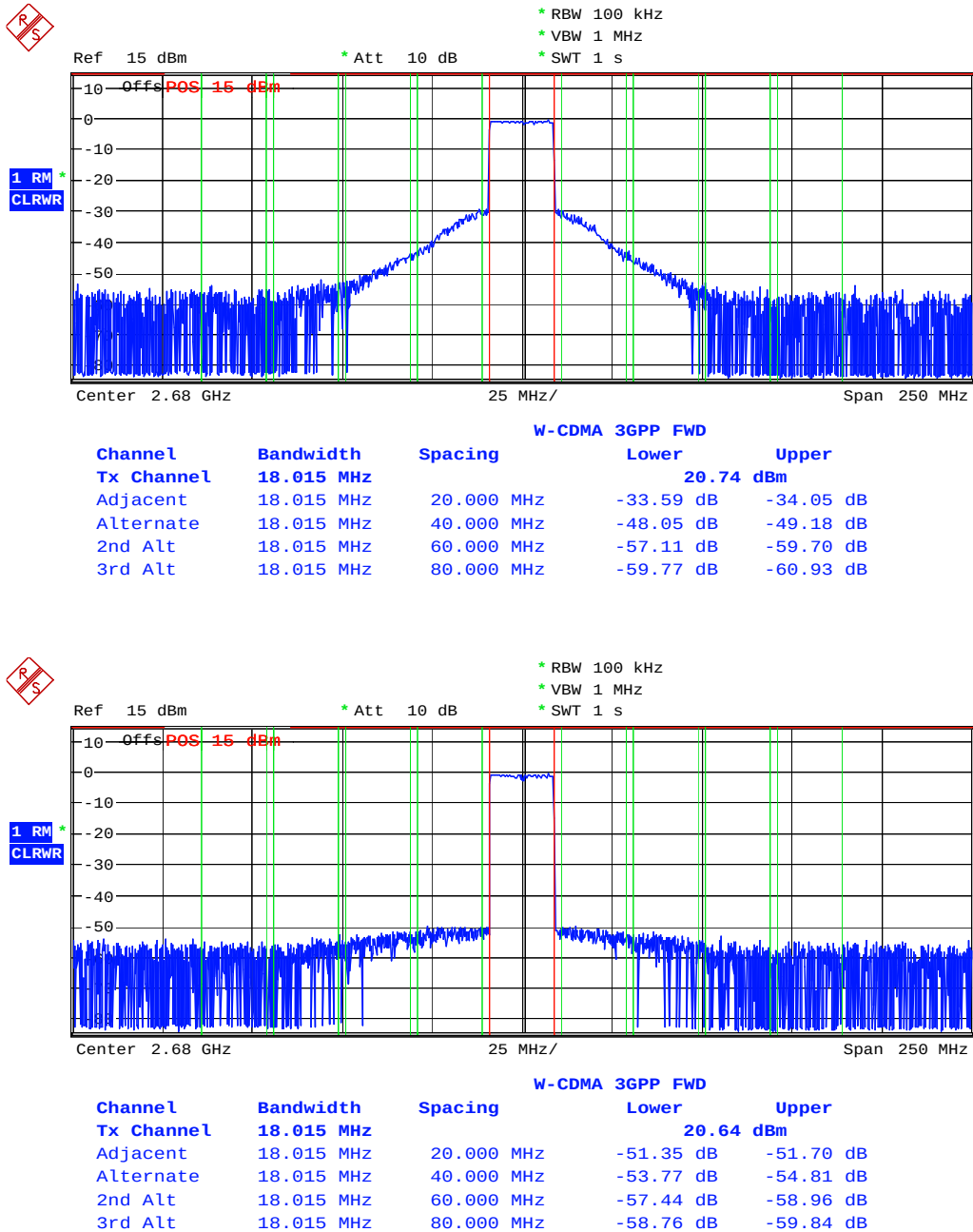
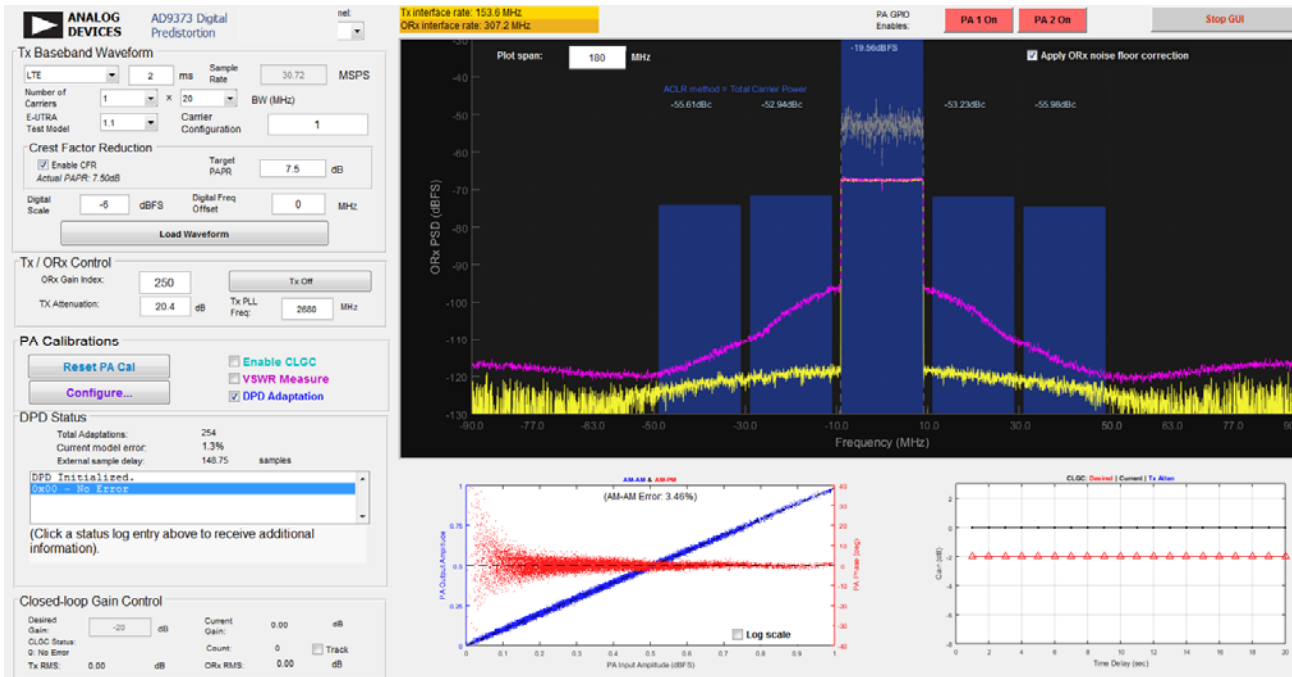


Figure 5.2 Frequency 2680 MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.03 dBm)



40 MHz (2X20 MHz LTE SIGNAL)

Frequency	Signal Bandwidth	Test Signal PAR=7.5dB	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2516MHz (Middle)	40 MHz	E-TM3.1 40 MHz LTE	38.01	0.522	-50.56	-50.22	-52.51	-51.91	42.87
2670MHz (Top)	40 MHz	E-TM3.1 40 MHz LTE	37.93	0.517	-50.03	-49.97	-50.43	-51.96	43.09

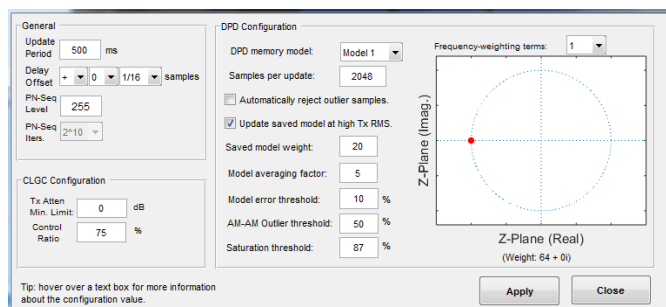
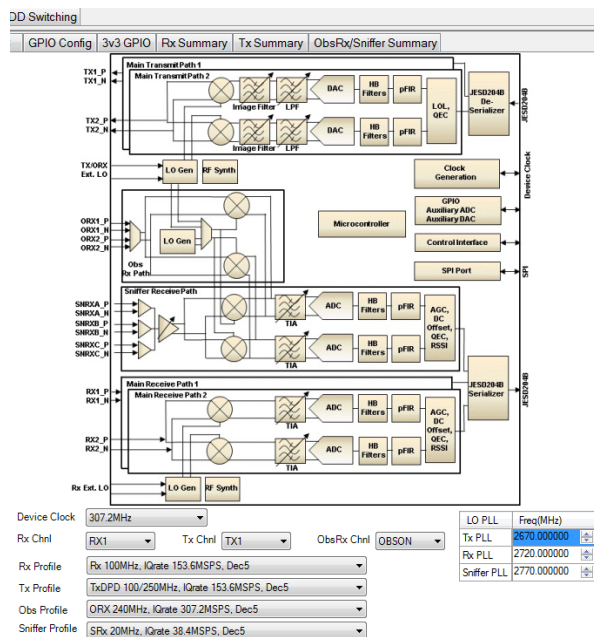
ACLR RESULTS B41 BOTTOM FREQUENCY

2516 MHZ, 40 MHZ BANDWIDTH ACLR RESULTS

LTE 40 MHz

2516MHz, 40 MHz Bandwidth ACLR RESULTS

DPD setting:



➤ Pout after DPD=37.97 dBm

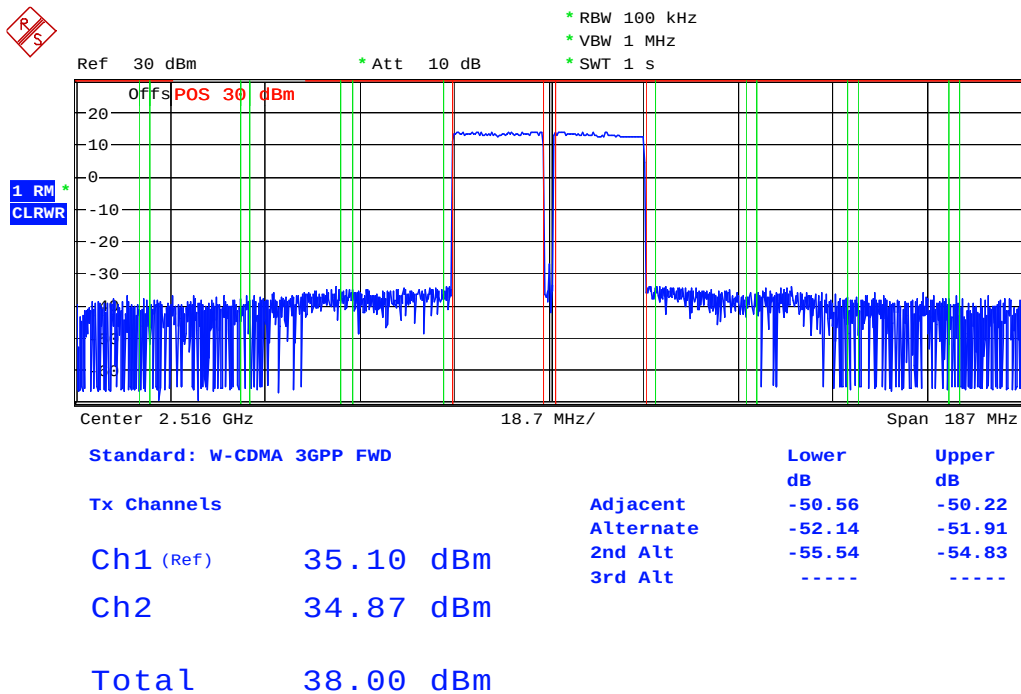
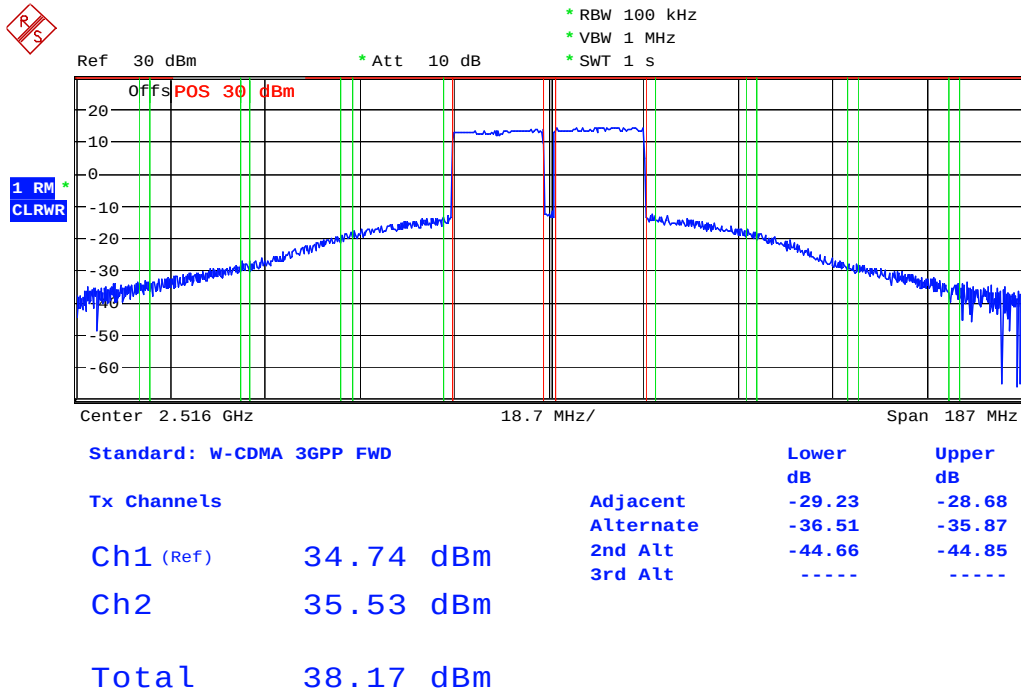
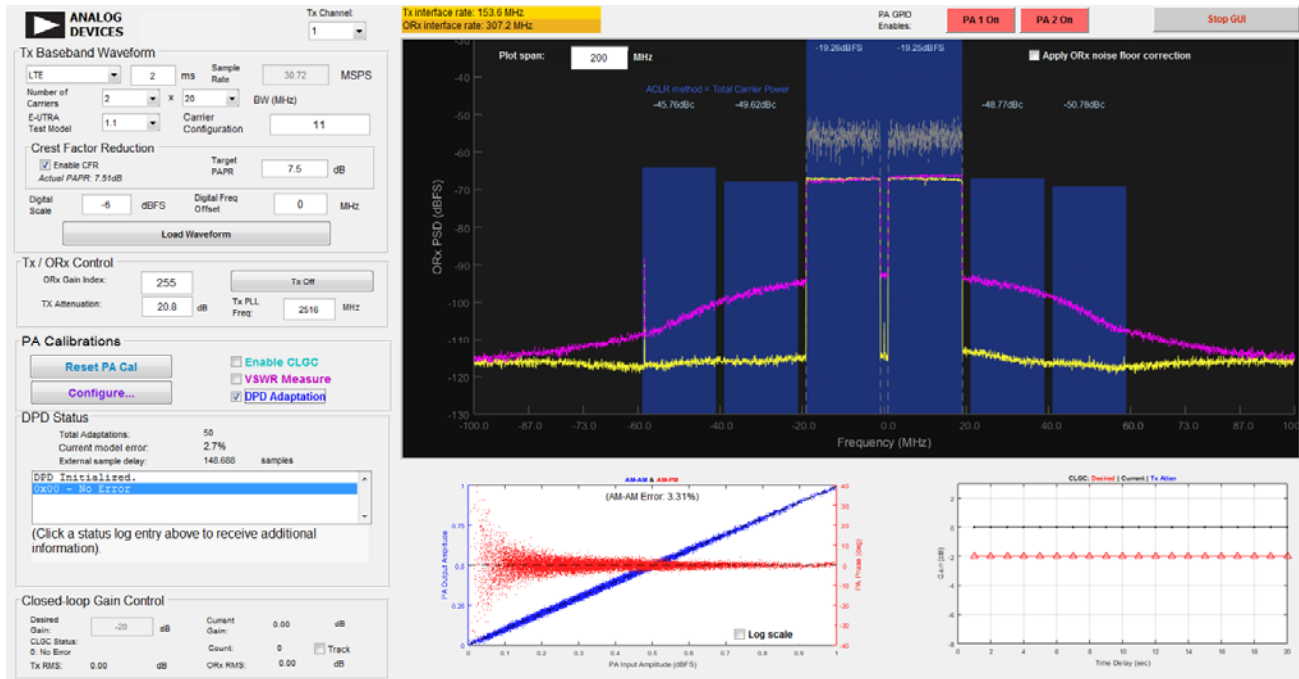


Figure 6.1 Frequency 2516 MHz, 40 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.97 dBm)



ACLR RESULTS B41 TOP FREQUENCY

2670 MHZ, 40 MHZ BANDWIDTH ACLR RESULTS

➤ Pout after DPD=37.96 dBm

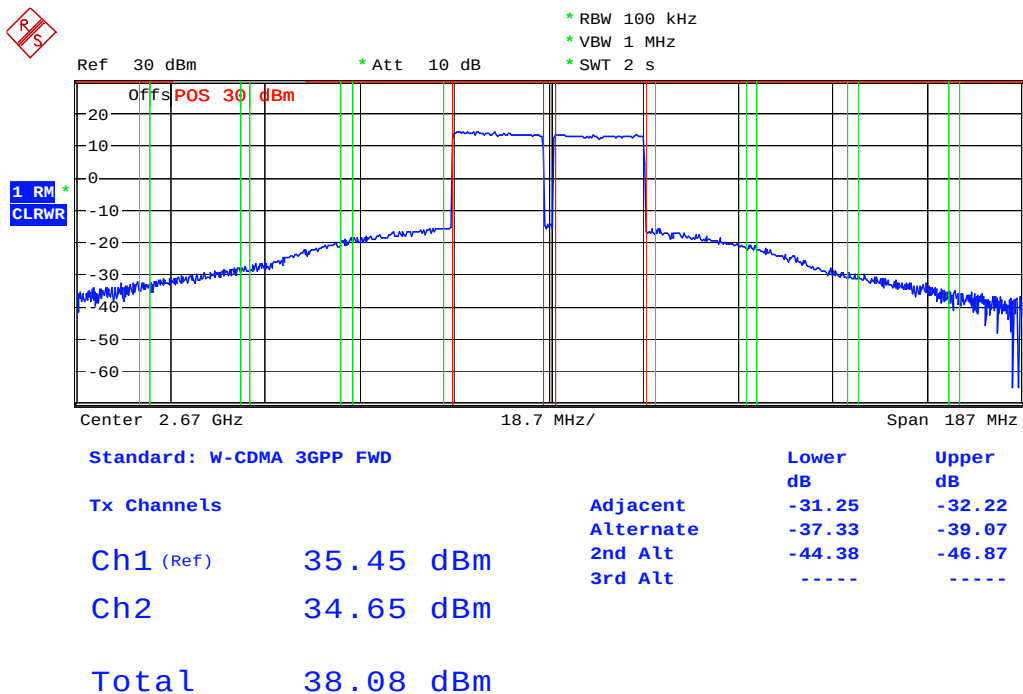
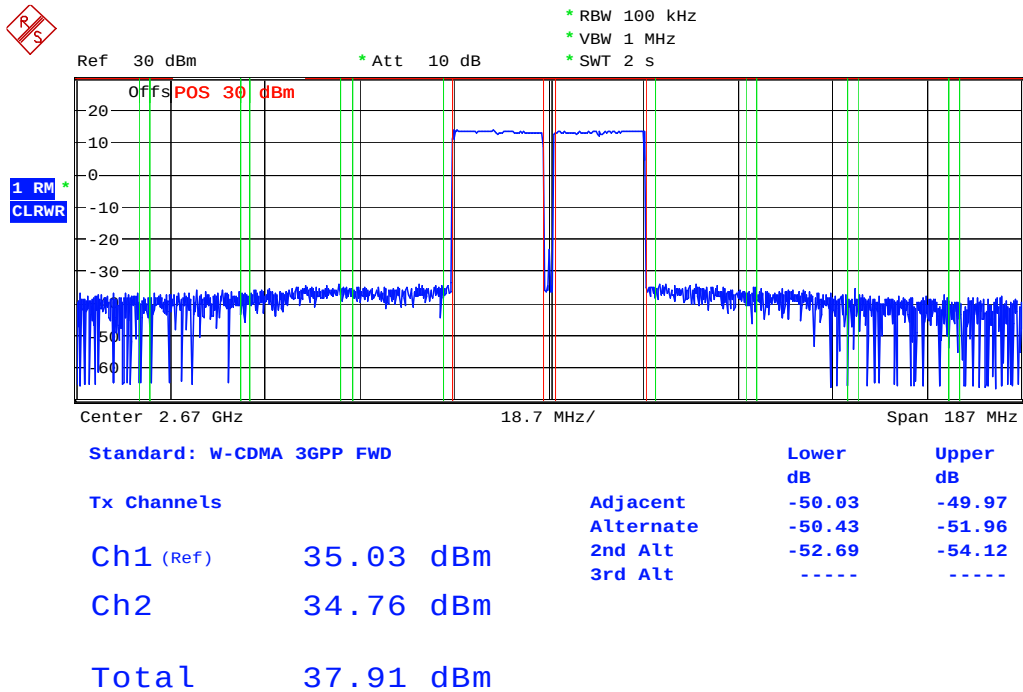
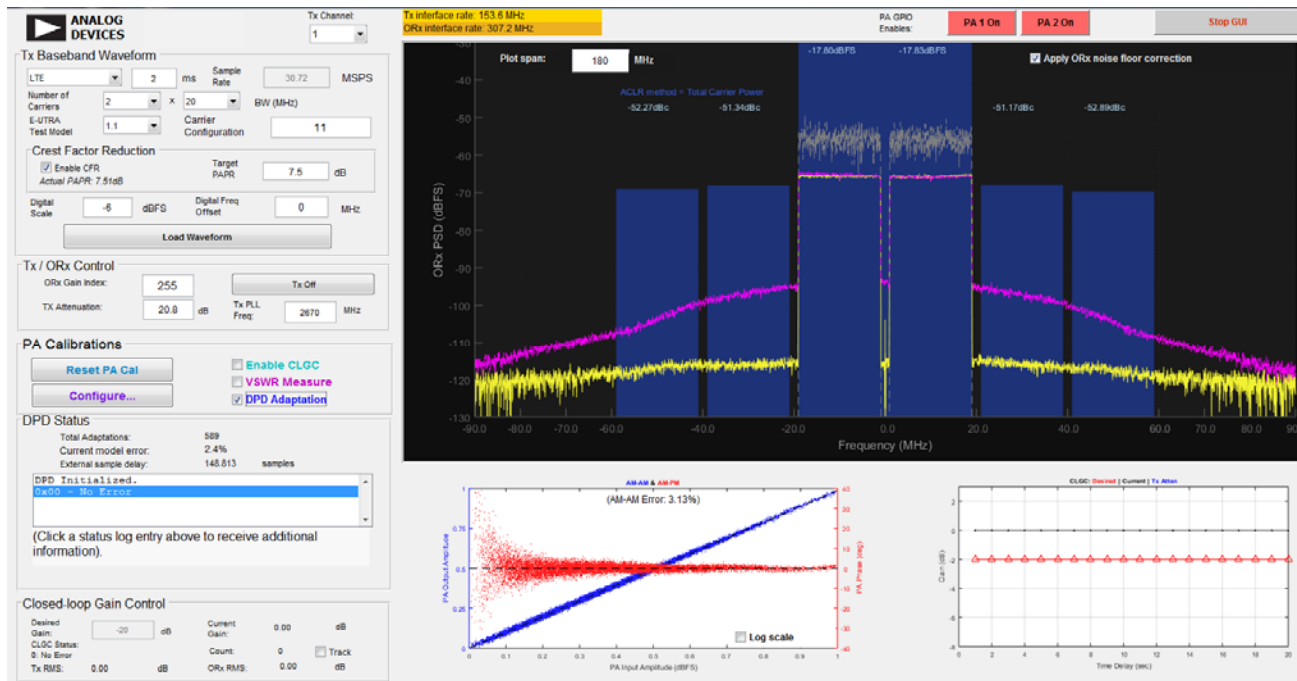


Figure 6.2 Frequency 2670 MHz, 40 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.95 dBm)



Appendix

FULL POWER AND FREQUENCY SWEEP BAND 40

2310MHZ (B40 BOTTOM)

Frequency	Signal Bandwidth	Test Signal PAR=7.5dB	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	38.95	0.6336	-47.59	-45.18	-51.16	-47.34	44.26
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	38.37	0.5616	-51.7	-51.57	-53.96	-53.01	43.69
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	38.21	0.5476	-52.22	-52.23	-54.48	-53.42	43.19
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	37.8	0.5106	-53.63	-53.46	-55.69	-54.55	42.15
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	37.35	0.4776	-54.9	-54.53	-56.76	-55.43	40.62
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	36.89	0.4476	-55.74	-55.49	-57.77	-56.38	38.99
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	36.44	0.4176	-56.59	-56.19	-58.51	-56.92	37.68
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	35.45	0.3666	-56.77	-56.76	-58.35	-57.05	34.17
2310MHz (Bottom)	20 MHz	E-TM3.1 20 MHz LTE	34.47	0.3246	-57.65	-56.95	-57.89	-56.72	30.80

ACLR RESULTS B40 BOTTOM FREQUENCY 2310 MHZ, 20 MHZ BANDWIDTH ACLR RESULTS

➤ Pout after DPD=38.95 dBm

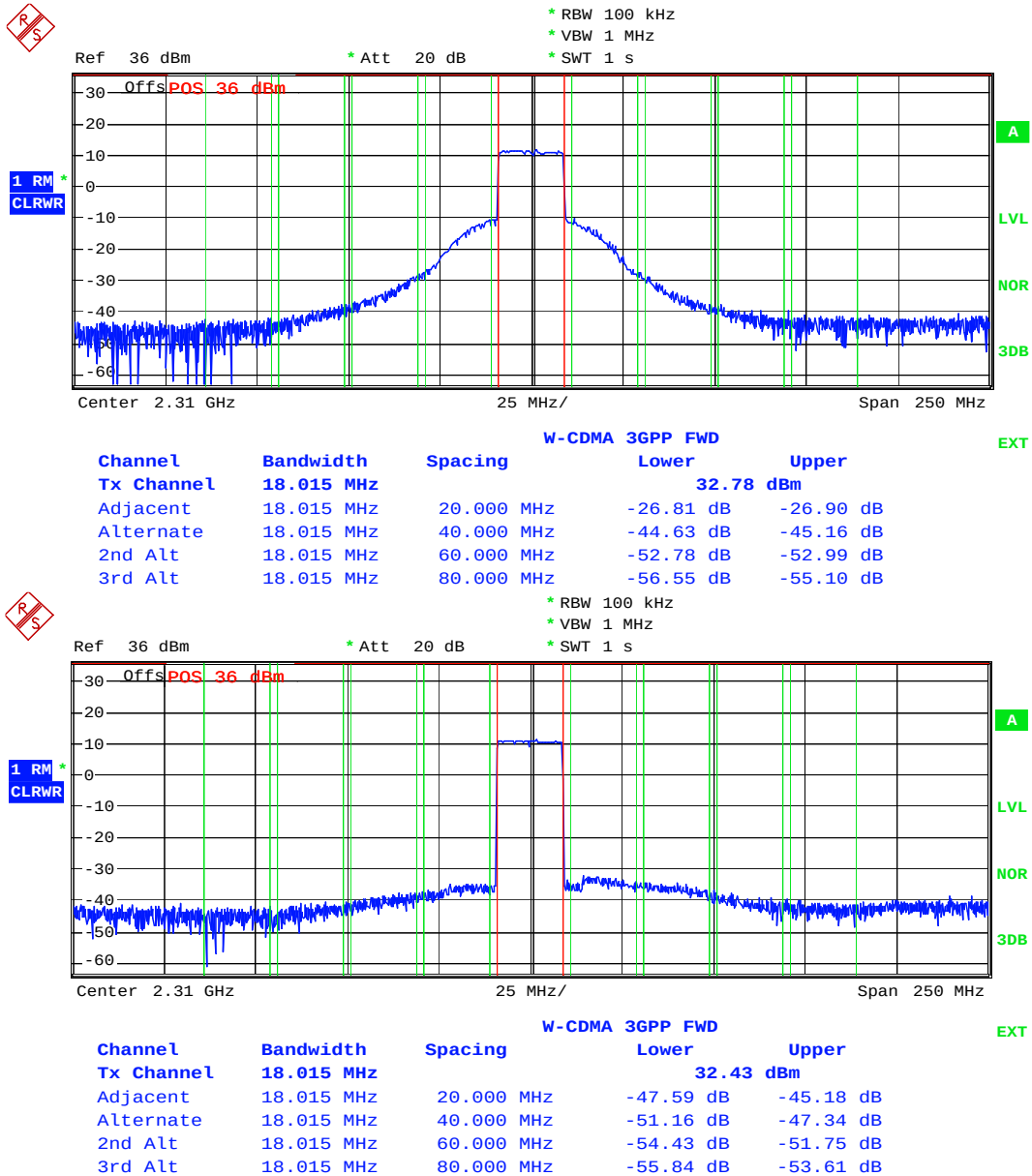


Figure 2.1 Frequency 2310MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.95 dBm)

➤ Pout after DPD=38.37 dBm

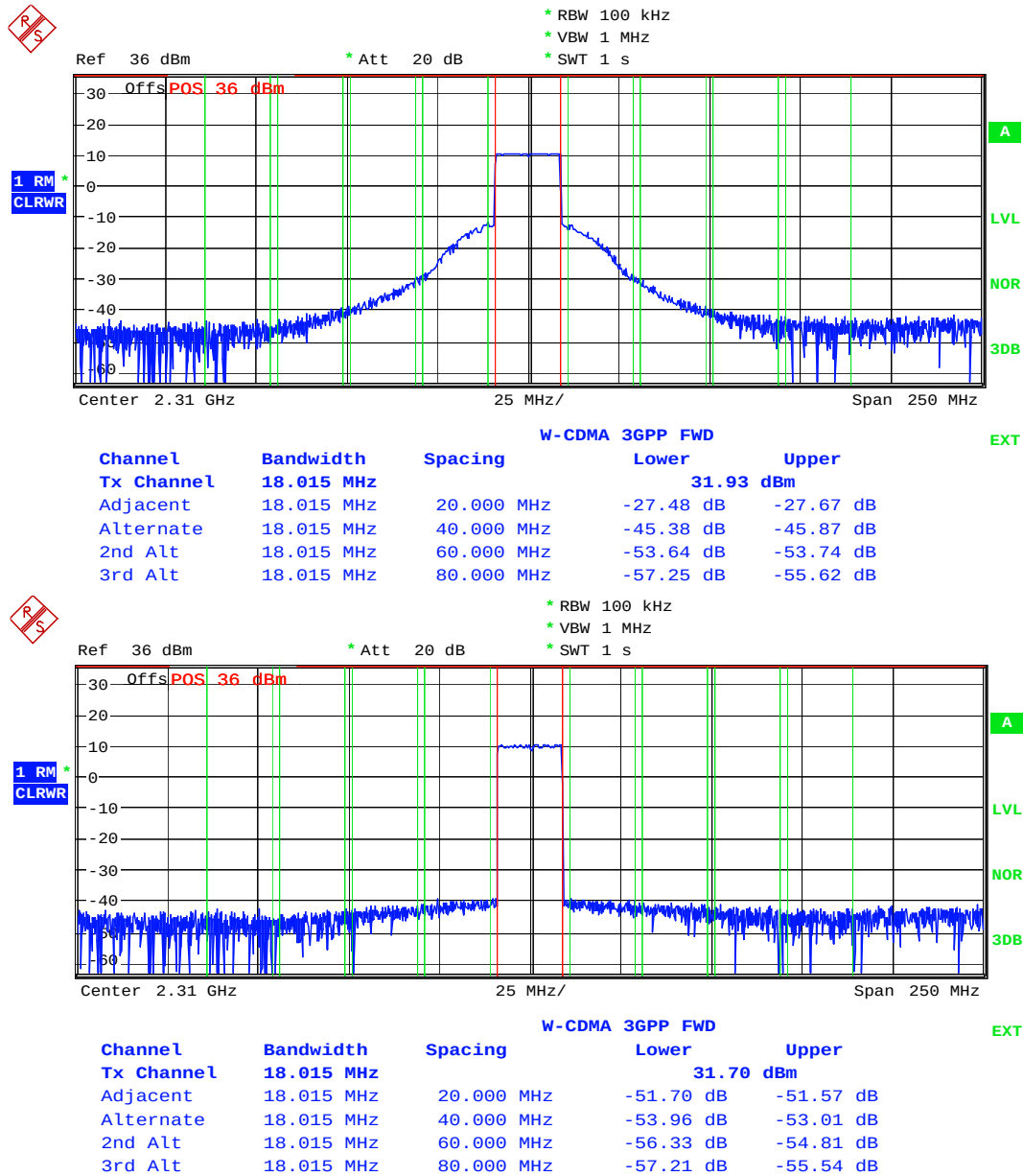


Figure 3.2 Frequency 2310MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.37 dBm)

➤ Pout after DPD=38.2 dBm

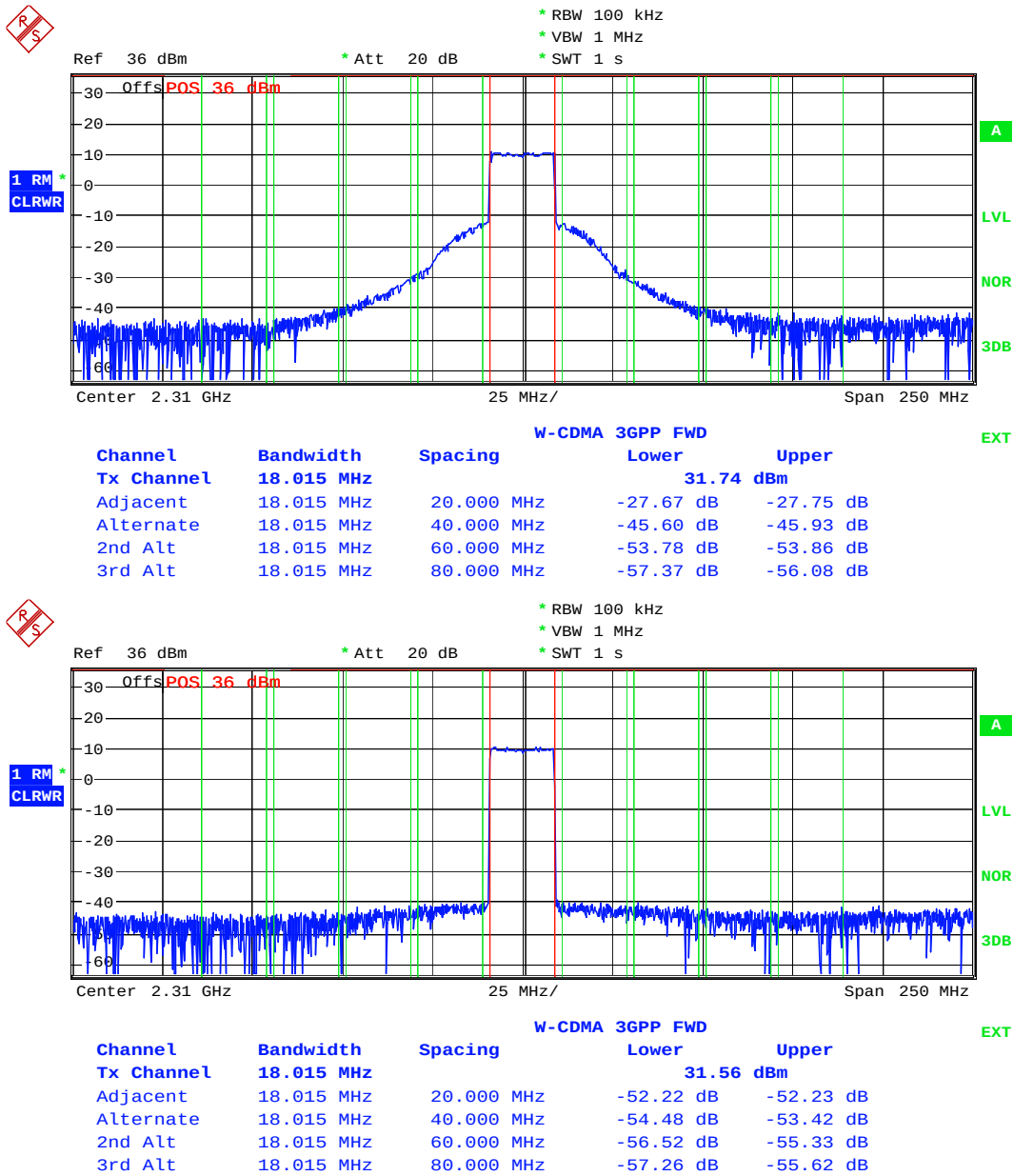


Figure 4.3 Frequency 2310MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.2 dBm)

➤ Pout after DPD=37.8 dBm

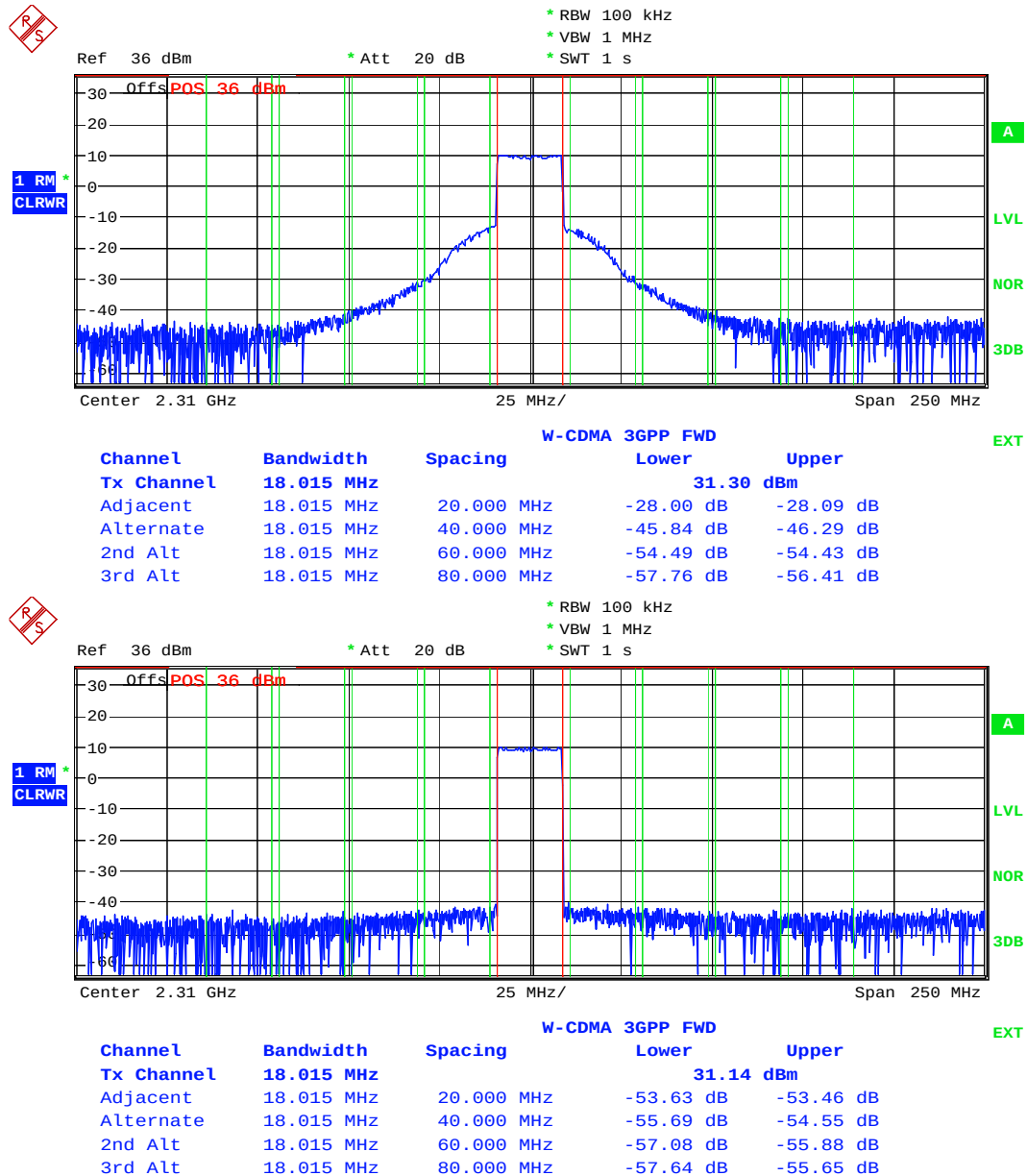


Figure 5.4 Frequency 2310MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.8 dBm)

➤ Pout after DPD=37.35 dBm

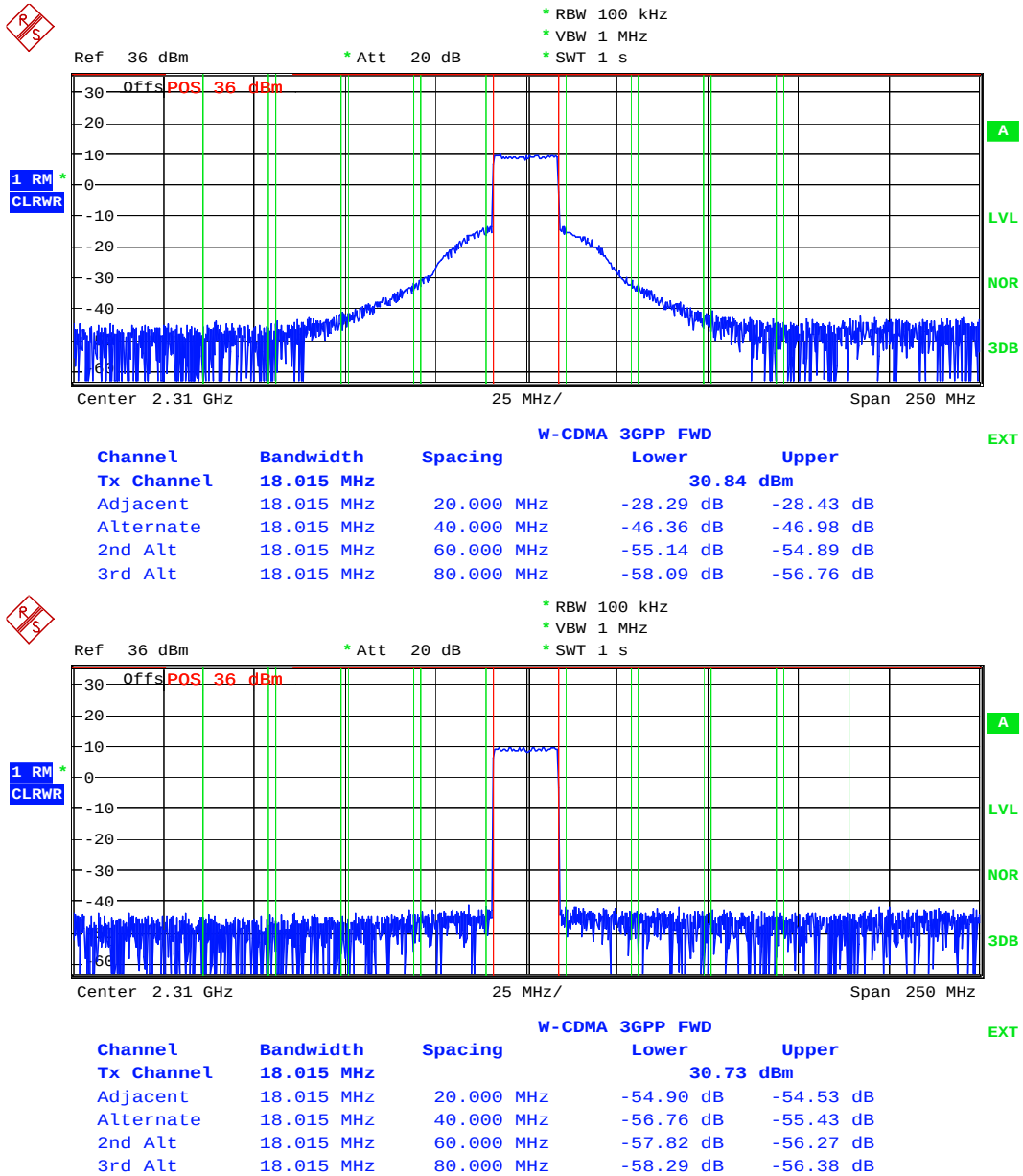


Figure 6.5 Frequency 2310MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.35 dBm)

➤ Pout after DPD=36.89 dBm

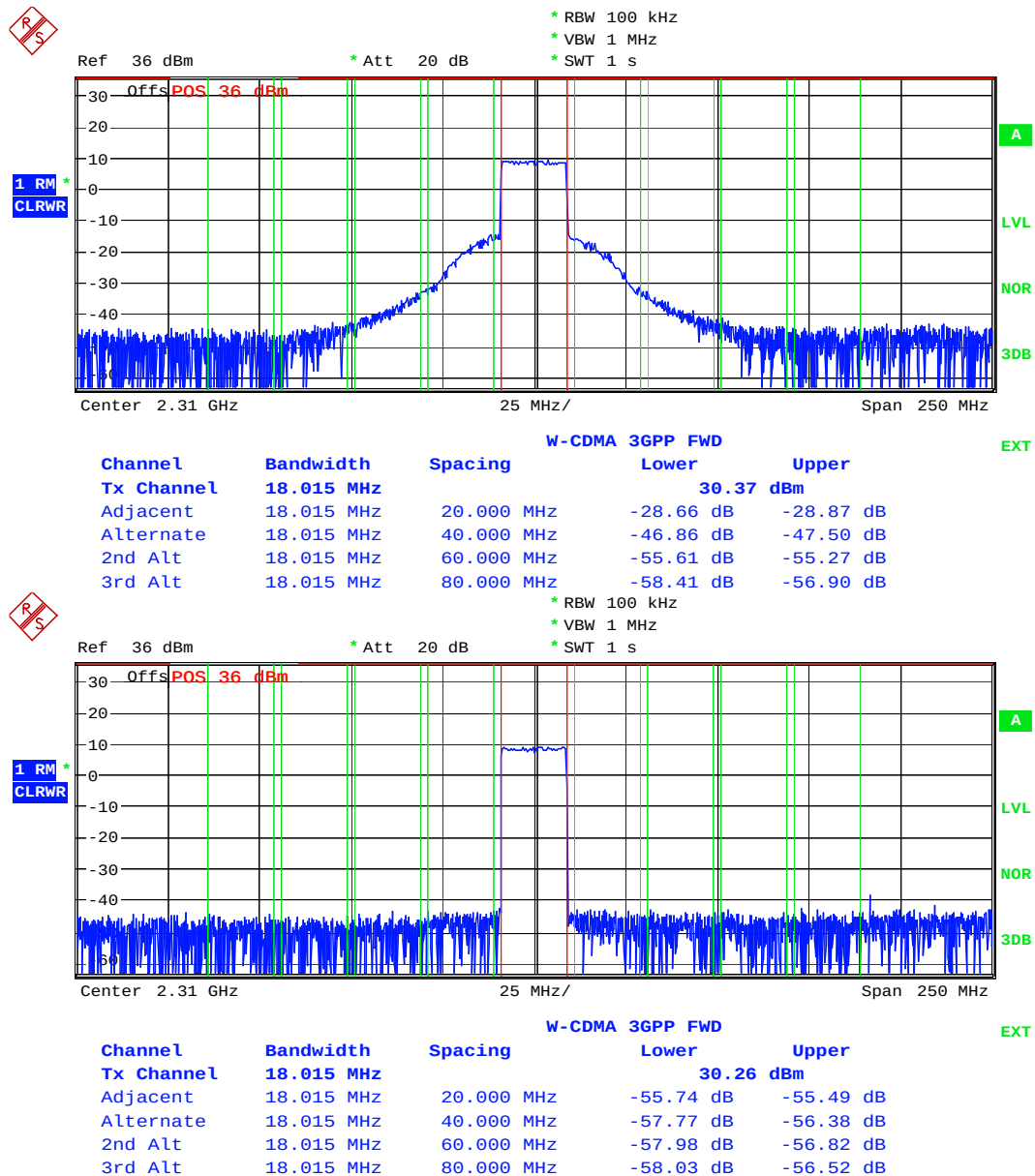
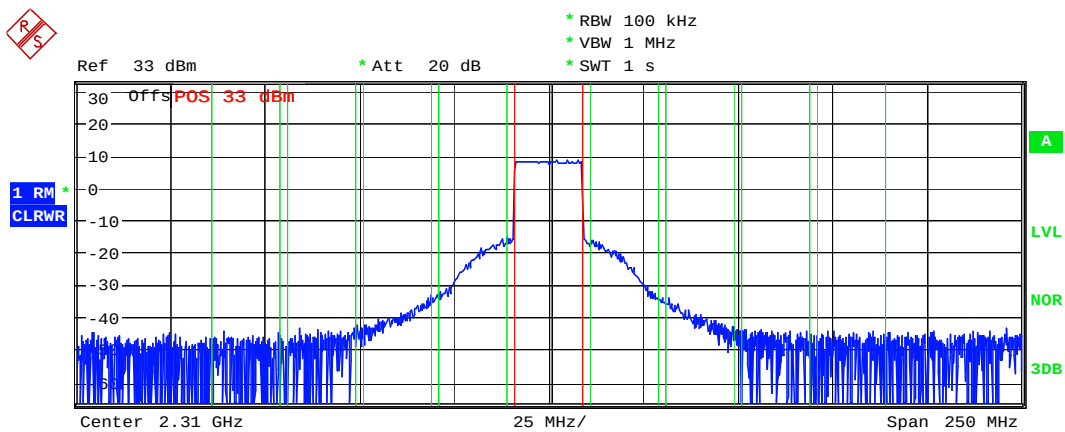
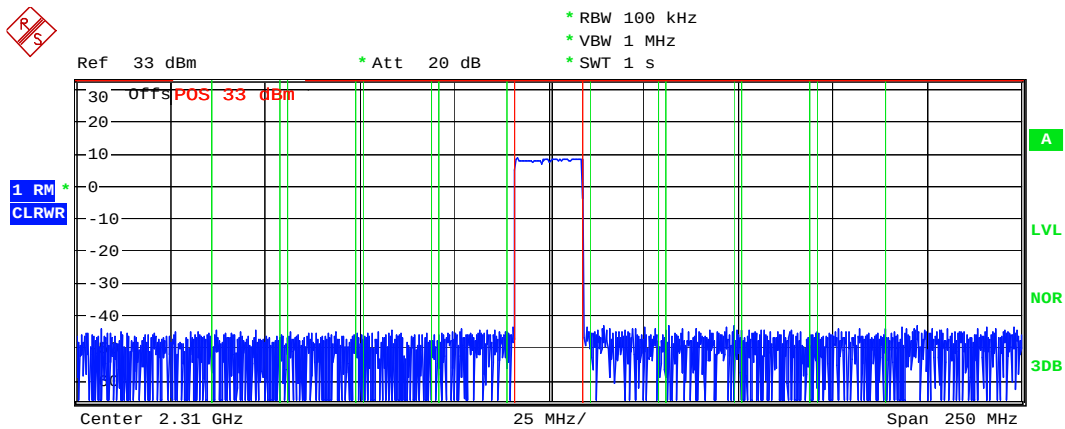


Figure 7.6 Frequency 2310MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.13 dBm)

➤ Pout after DPD=36.44 dBm



W-CDMA 3GPP FWD				
Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	18.015 MHz			29.94 dBm
Adjacent	18.015 MHz	20.000 MHz	-29.18 dB	-29.27 dB
Alternate	18.015 MHz	40.000 MHz	-47.46 dB	-47.96 dB
2nd Alt	18.015 MHz	60.000 MHz	-56.10 dB	-55.83 dB
3rd Alt	18.015 MHz	80.000 MHz	-58.15 dB	-56.77 dB



W-CDMA 3GPP FWD				
Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	18.015 MHz			29.82 dBm
Adjacent	18.015 MHz	20.000 MHz	-56.59 dB	-56.19 dB
Alternate	18.015 MHz	40.000 MHz	-58.51 dB	-56.92 dB
2nd Alt	18.015 MHz	60.000 MHz	-58.08 dB	-57.40 dB
3rd Alt	18.015 MHz	80.000 MHz	-58.27 dB	-56.84 dB

Figure 8.7 Frequency 2310MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=36.44 dBm)

➤ Pout after DPD=35.45 dBm

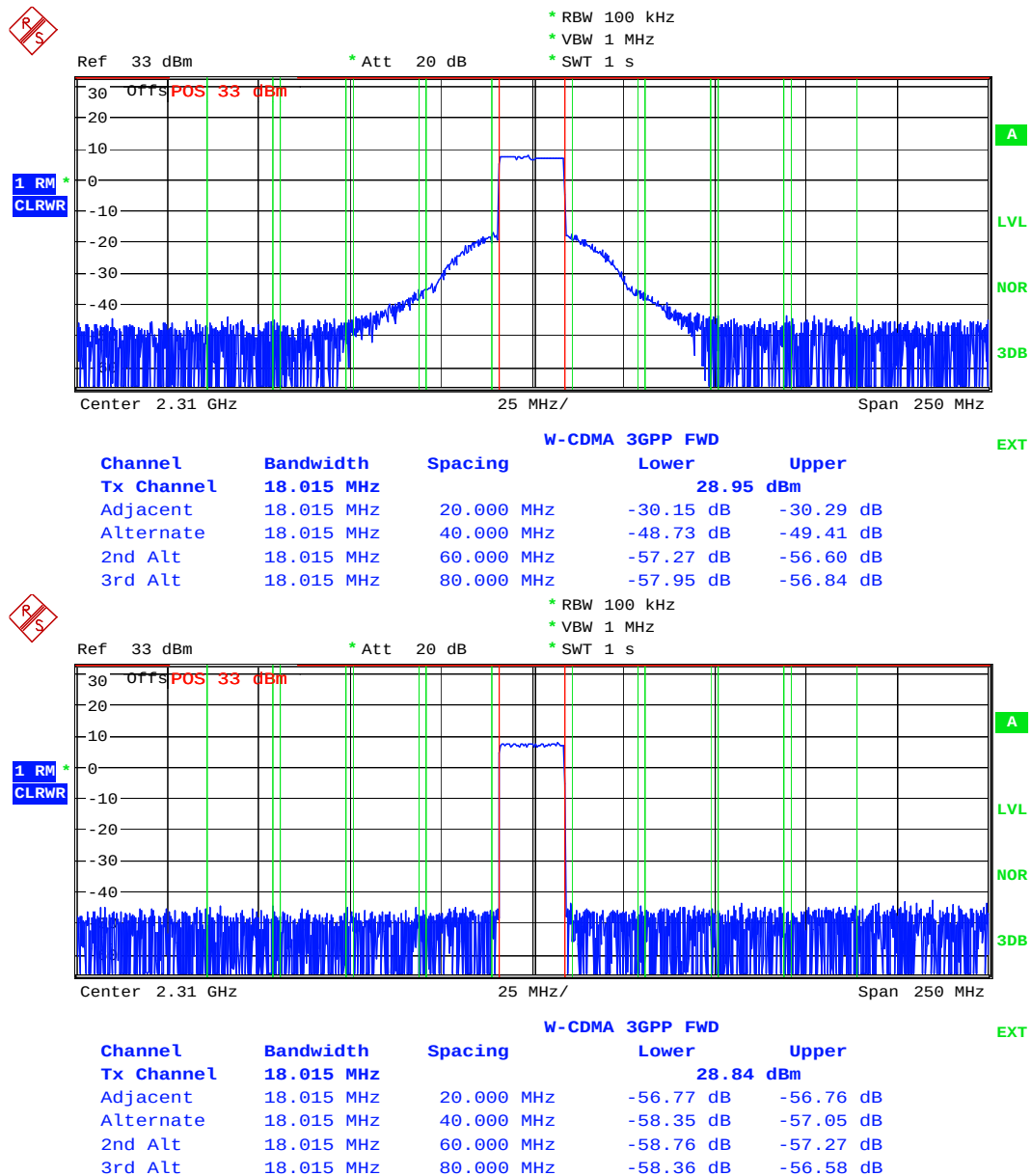
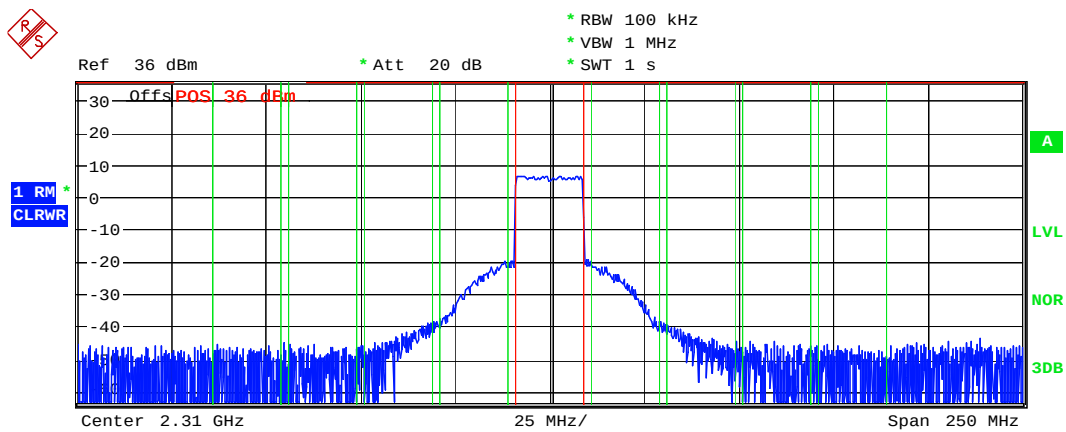
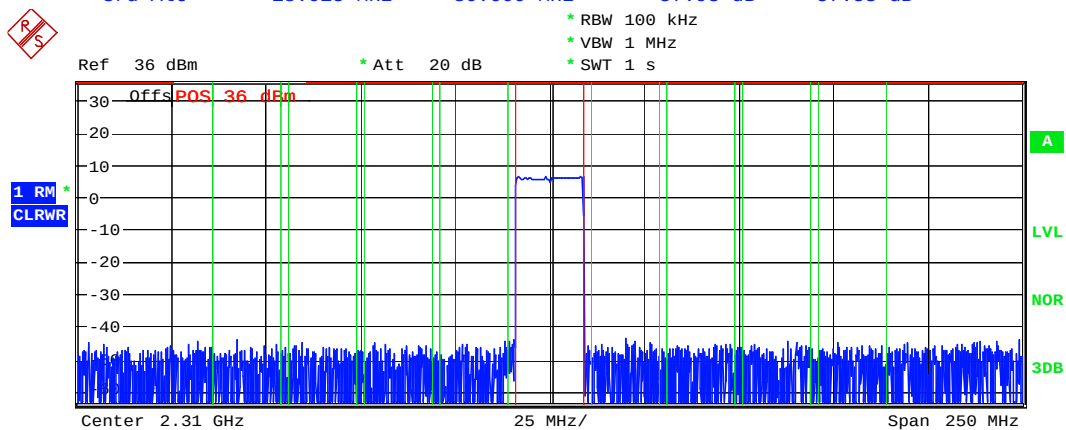


Figure 9.8 Frequency 2310MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=35.45 dBm)

➤ Pout after DPD=34.47 dBm



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	18.015 MHz			27.94 dBm
Adjacent	18.015 MHz	20.000 MHz	-31.43 dB	-31.66 dB
Alternate	18.015 MHz	40.000 MHz	-50.42 dB	-51.02 dB
2nd Alt	18.015 MHz	60.000 MHz	-57.61 dB	-56.41 dB
3rd Alt	18.015 MHz	80.000 MHz	-57.93 dB	-57.53 dB

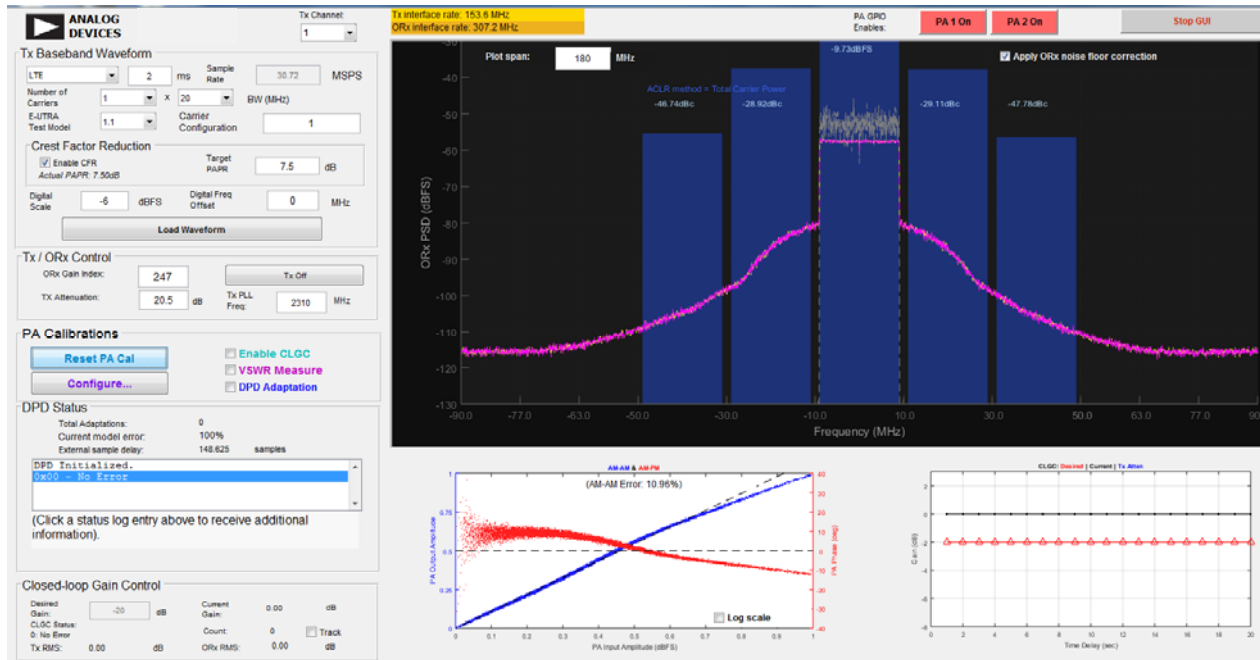


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	18.015 MHz			27.85 dBm
Adjacent	18.015 MHz	20.000 MHz	-57.65 dB	-56.95 dB
Alternate	18.015 MHz	40.000 MHz	-57.89 dB	-56.72 dB
2nd Alt	18.015 MHz	60.000 MHz	-57.64 dB	-57.11 dB
3rd Alt	18.015 MHz	80.000 MHz	-58.08 dB	-57.20 dB

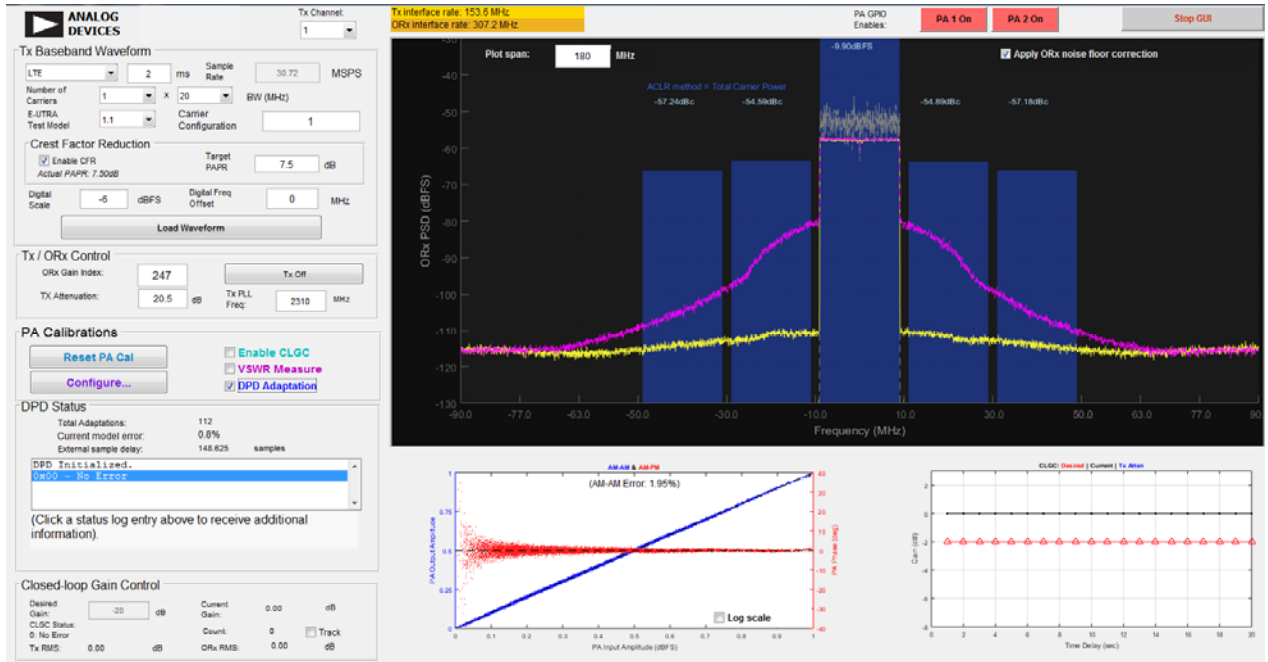
Figure 10.9 Frequency 2310MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=34.47dBm)

- The DPD GUI at 8dB OBO (37.8 dBm output power after DPD):

Before DPD



After DPD



1. 2350MHz (Middle)

Frequency	Signal Bandwidth	Test Signal PAR=7.5dB	Output Power (dBm)	I (A) at Vd=28V	ACLR +1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)
2350MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	38.8	0.6126	-48.22	-47.97	-51.28	-50.8	44.22
2350MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	38.42	0.5736	-51.4	-51.56	-53.62	-53.31	43.27
2350MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	38.02	0.5396	-53.51	-53.84	-55.18	-55.34	41.95
2350MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	37.58	0.5006	-54.47	-54.86	-56.04	-56.04	40.86

2350MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	37.13	0.4696	-56.13	-56.6	-57.82	-57.37	39.27
2350MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	36.66	0.4396	-56.98	-57.55	-58.82	-57.98	37.65
2350MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	36.18	0.4106	-56.68	-57.04	-58.05	-57.61	36.09
2350MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	35.22	0.3596	-56.42	-56.61	57.43	-57.0	33.04
2350MHz (Middle)	20 MHz	E-TM3.1 20 MHz LTE	34.22	0.3186	-56.5	-56.12	-57.24	-55.78	29.62

ACLR RESULTS MIDDLE FREQUENCY

2350 MHZ, 20 MHZ BANDWIDTH ACLR RESULTS

For all these DPD measurements the AD9375 DPD configuration is the same (Model 2 AND 2048 samples)

General

Update Period: 500 ms

Delay Offset: + 0 4/16 samples

PN-Seq Level: 255

PN-Seq Iters: 2*10

CLGC Configuration

Tx Atten Min. Limit: 0 dB

Control Ratio: 75 %

DPD Configuration

DPD memory model: Model 2

Samples per update: 2048

☐ Automatically reject outlier samples.

☒ Update saved model at high Tx RMS.

Saved model weight: 20

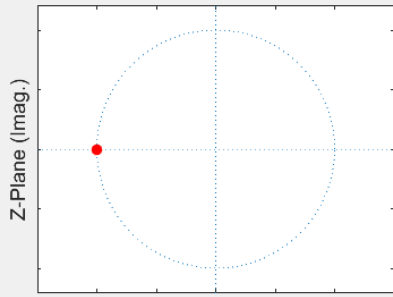
Model averaging factor: 5

Model error threshold: 10 %

AM-AM Outlier threshold: 50 %

Saturation threshold: 87 %

Frequency-weighting terms: 1



Z-Plane (Real)

(Weight: 64 + 0i)

Tip: hover over a text box for more information about the configuration value.

Apply Close

➤ Pout after DPD=38.8 dBm

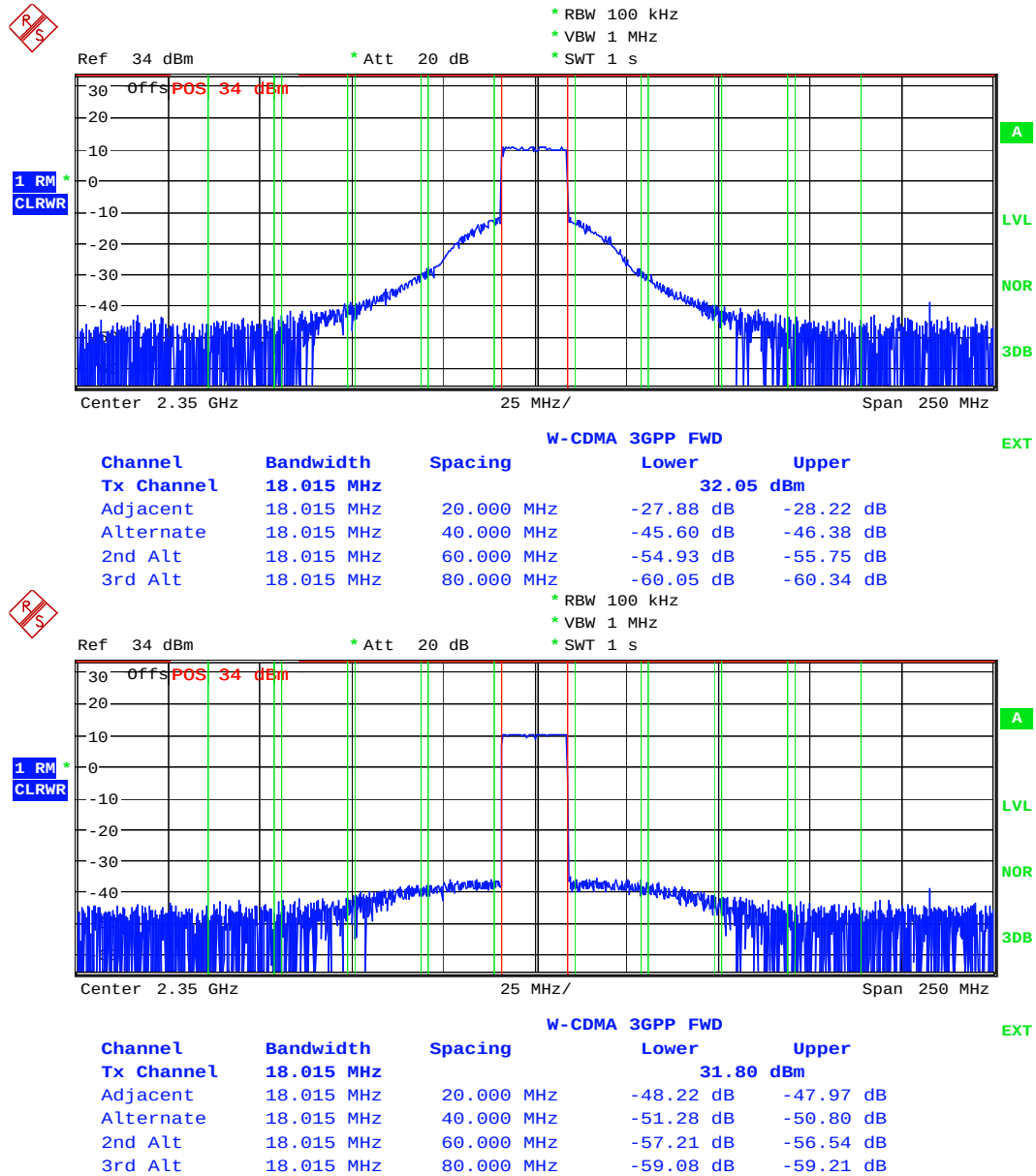


Figure 2.1 Frequency 2350MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.8 dBm)

➤ Pout after DPD=38.42 dBm

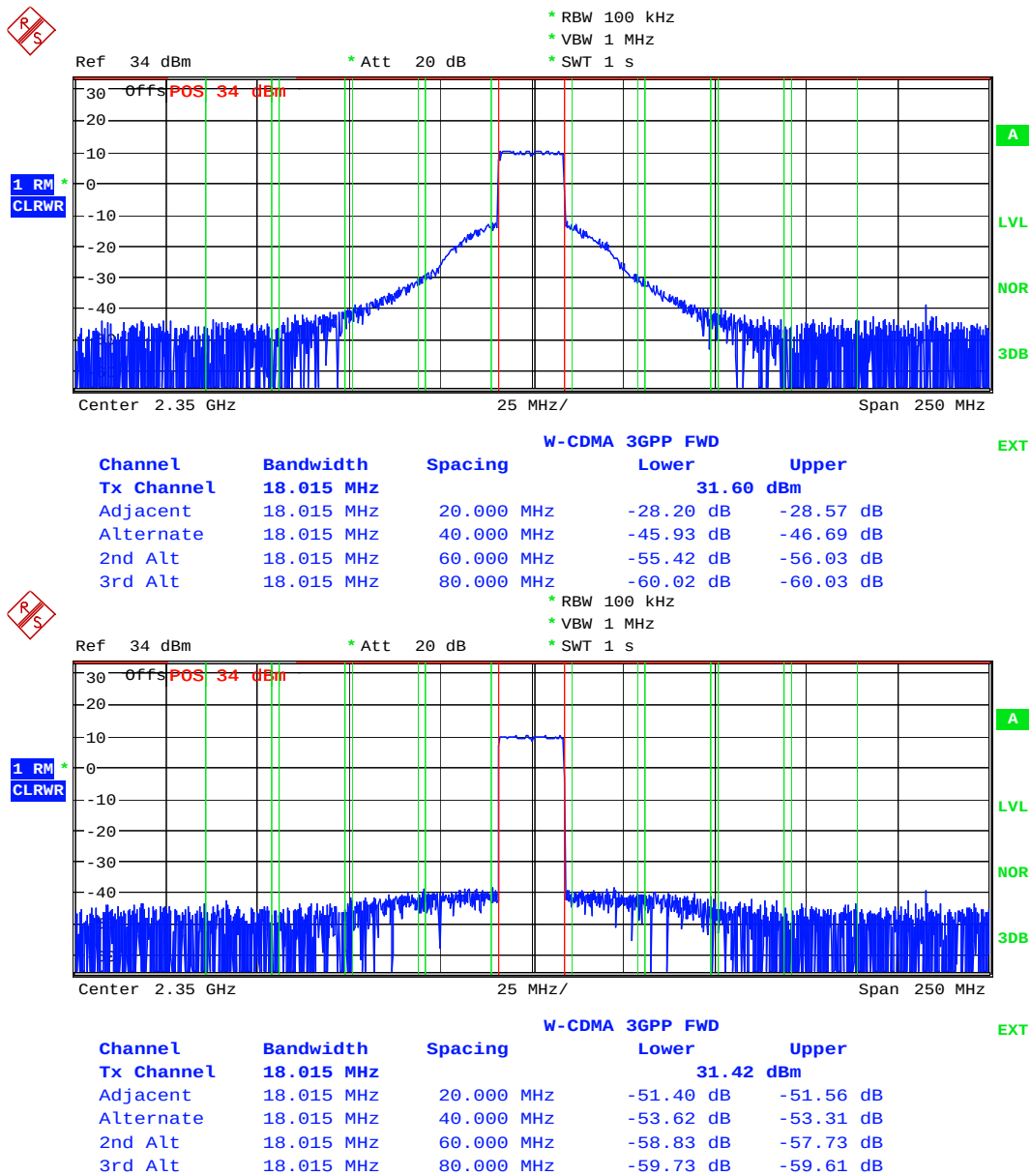


Figure 2.2 Frequency 2350MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.42 dBm)

➤ Pout after DPD=38.02 dBm

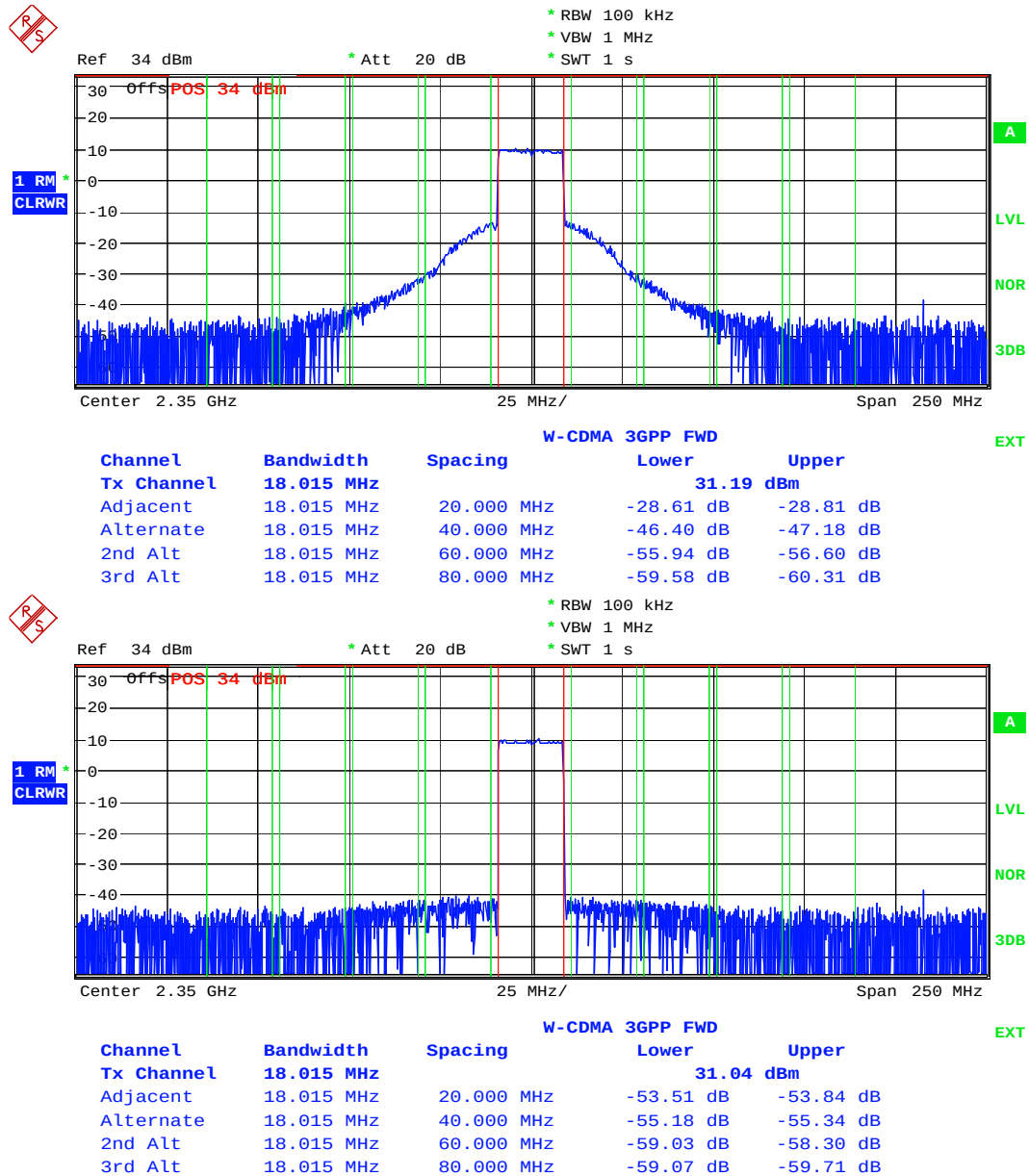


Figure 2.3 Frequency 2350MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.02 dBm)

➤ Pout after DPD=37.58 dBm

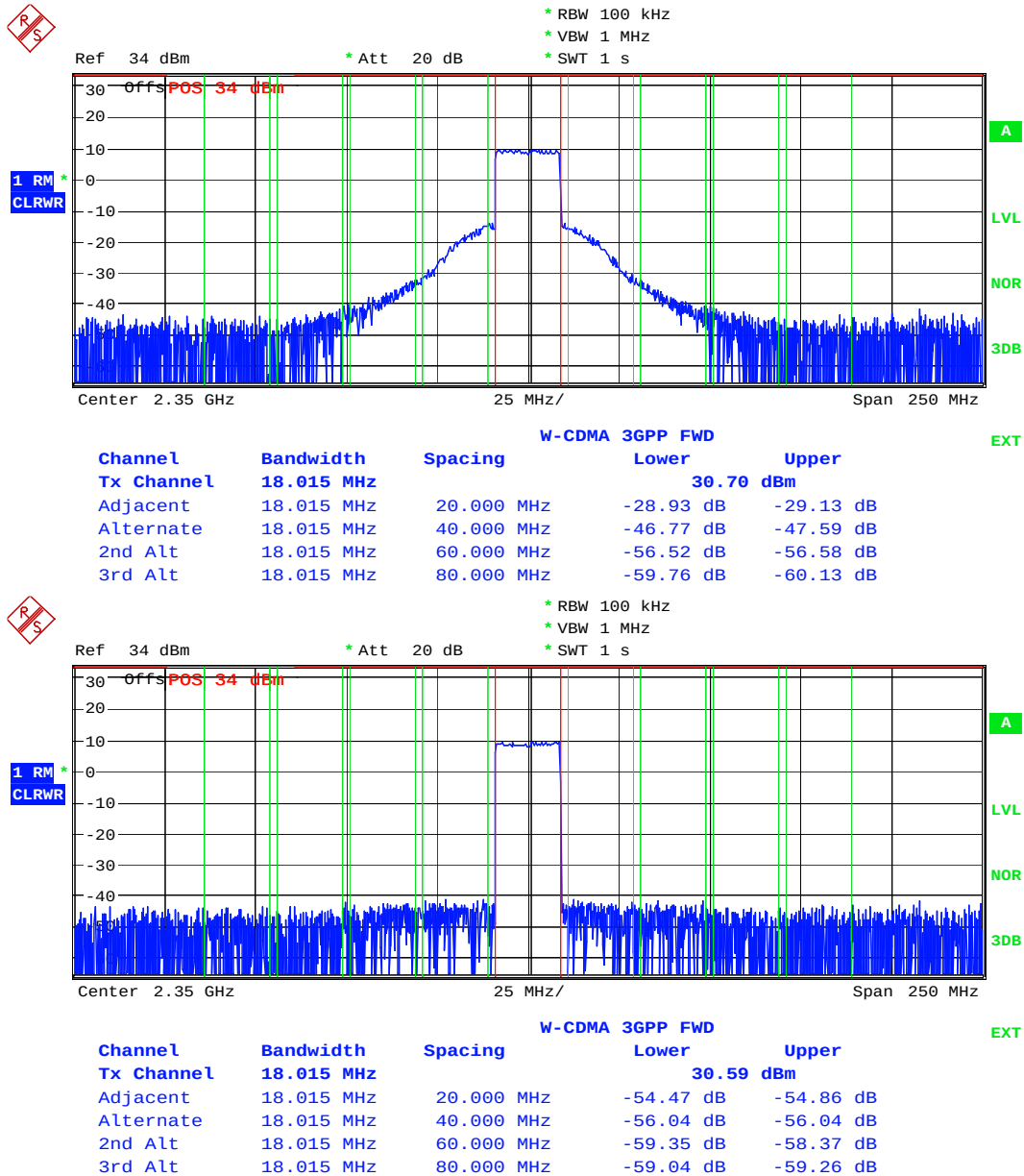


Figure 2.4 Frequency 2350MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.58 dBm)

➤ Pout after DPD=37.13 dBm

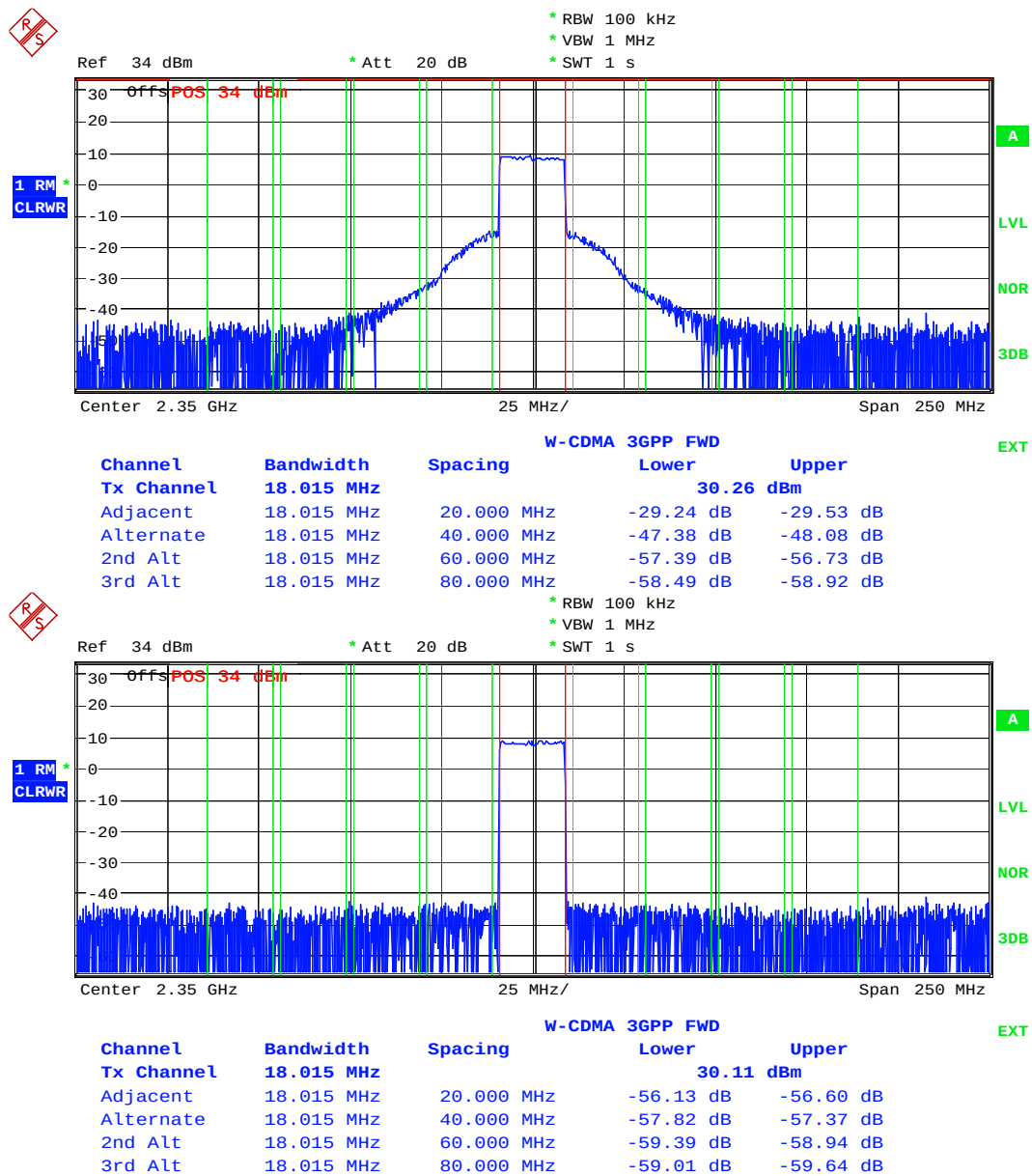


Figure 2.5 Frequency 2350MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.13 dBm)

➤ Pout after DPD=36.66 dBm

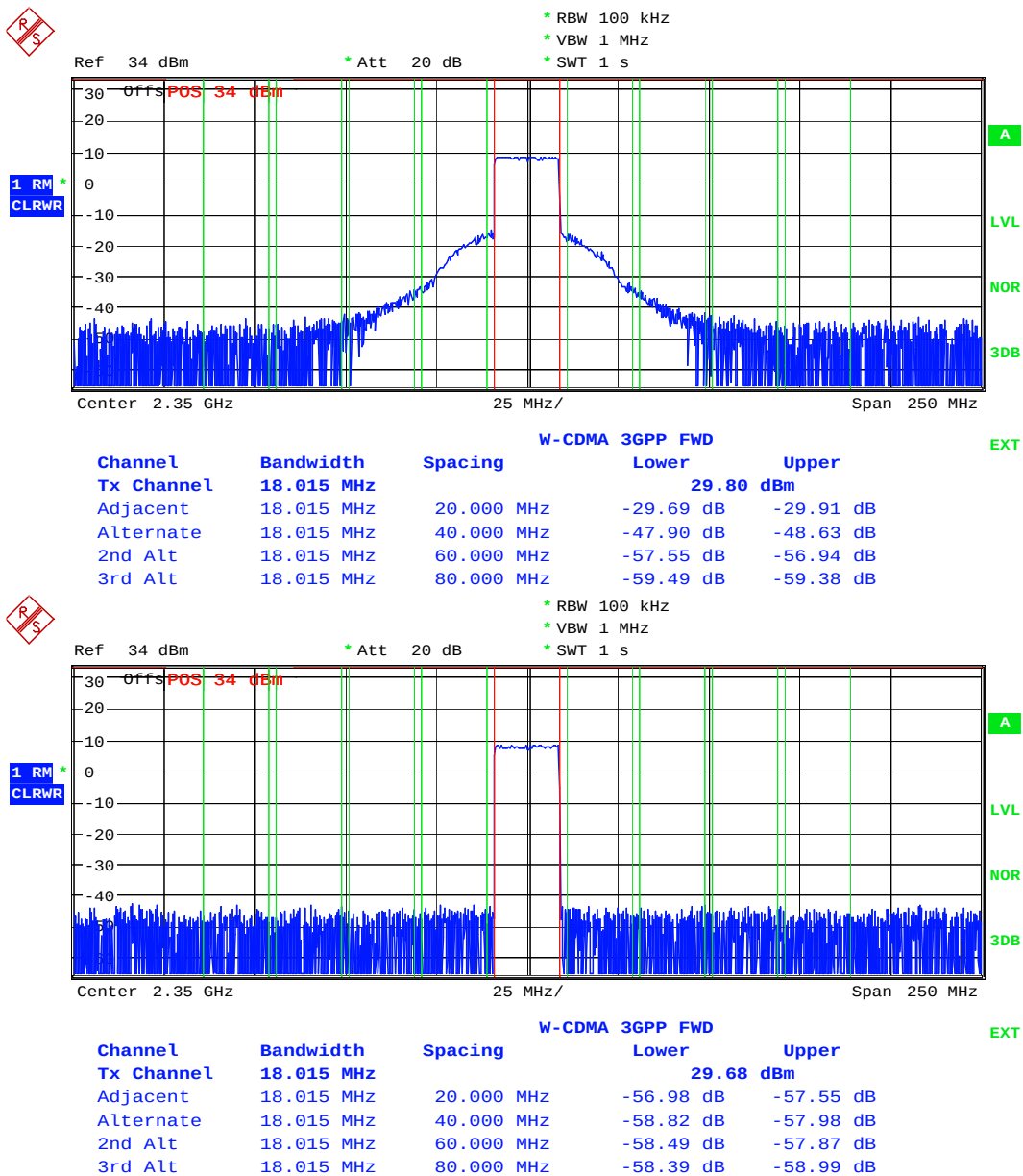


Figure 2.6 Frequency 2350MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=36.66 dBm)

➤ Pout after DPD=36.18 dBm

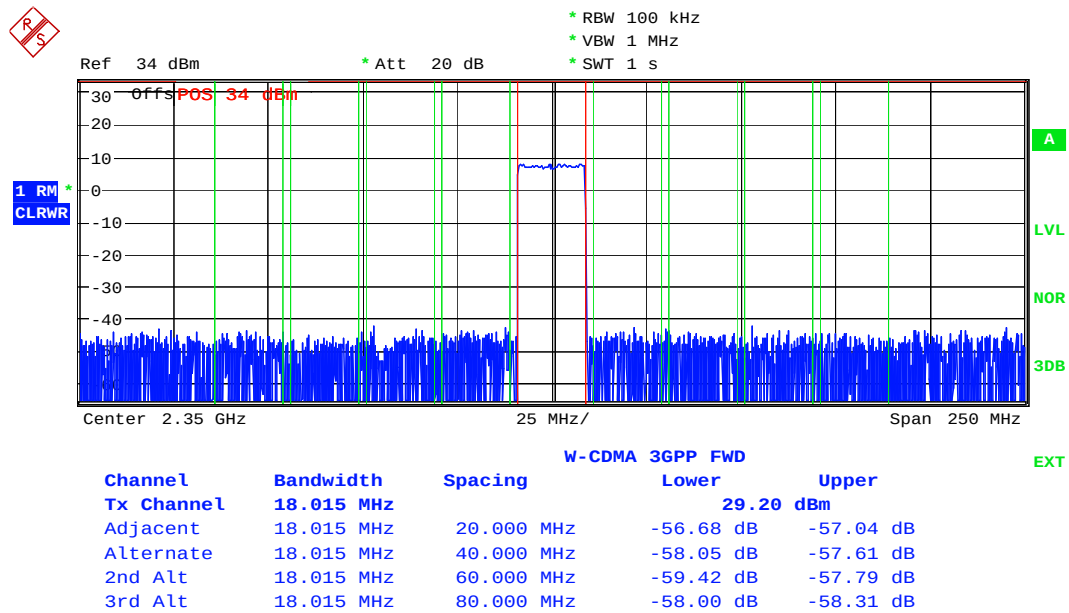
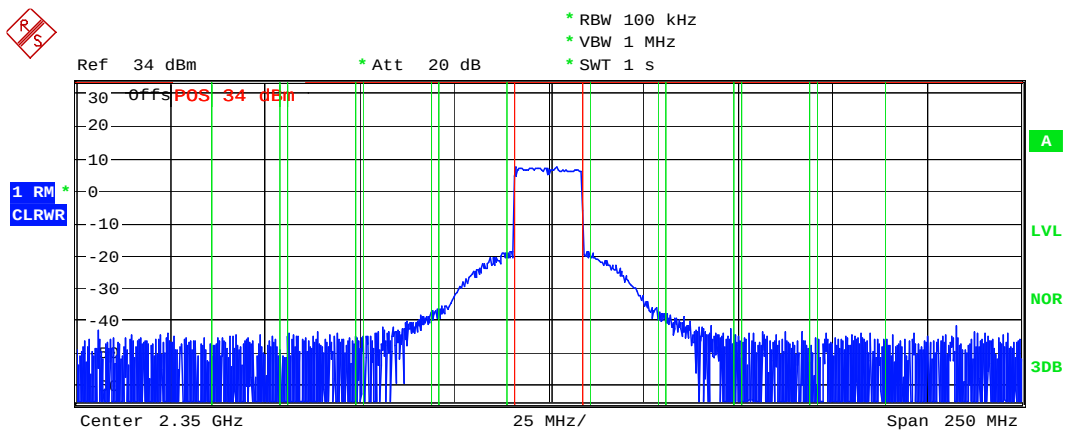
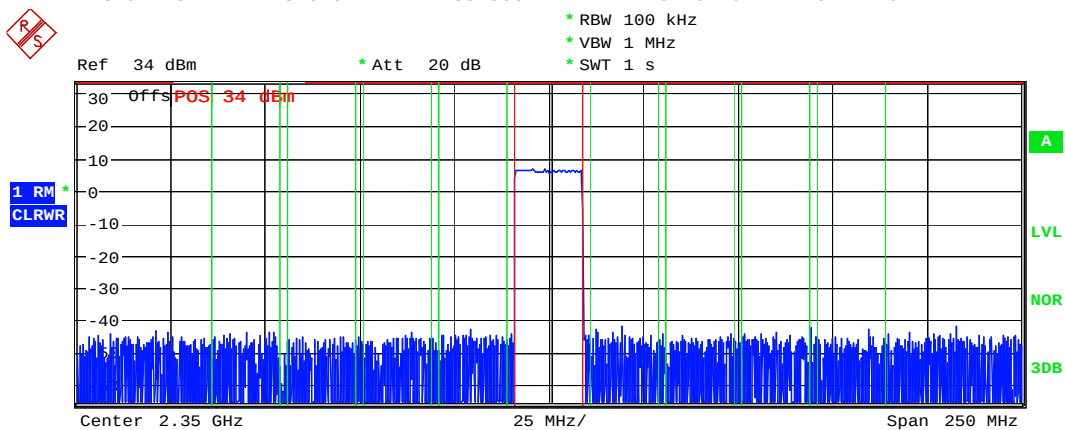


Figure 2.7 Frequency 2350MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=36.18 dBm)

➤ Pout after DPD=35.22 dBm



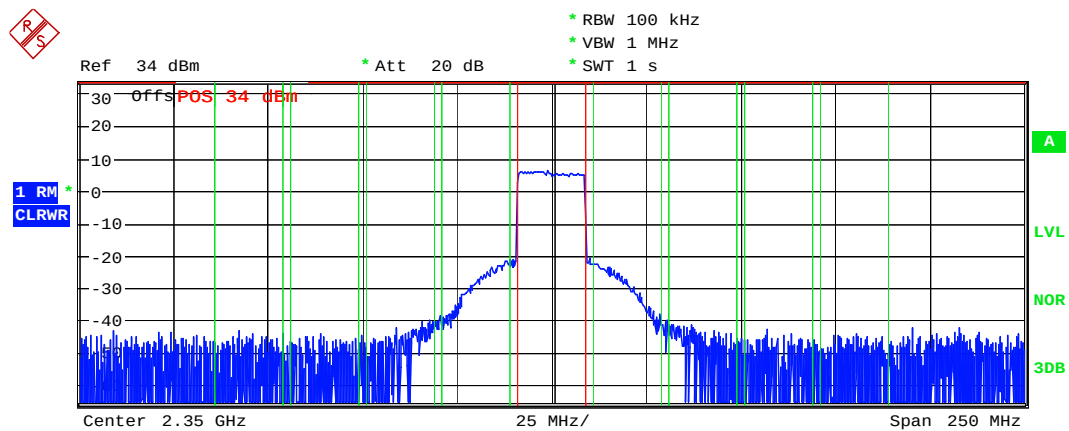
Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	18.015 MHz			28.34 dBm
Adjacent	18.015 MHz	20.000 MHz	-31.12 dB	-31.36 dB
Alternate	18.015 MHz	40.000 MHz	-50.01 dB	-50.50 dB
2nd Alt	18.015 MHz	60.000 MHz	-57.20 dB	-56.90 dB
3rd Alt	18.015 MHz	80.000 MHz	-57.94 dB	-57.14 dB



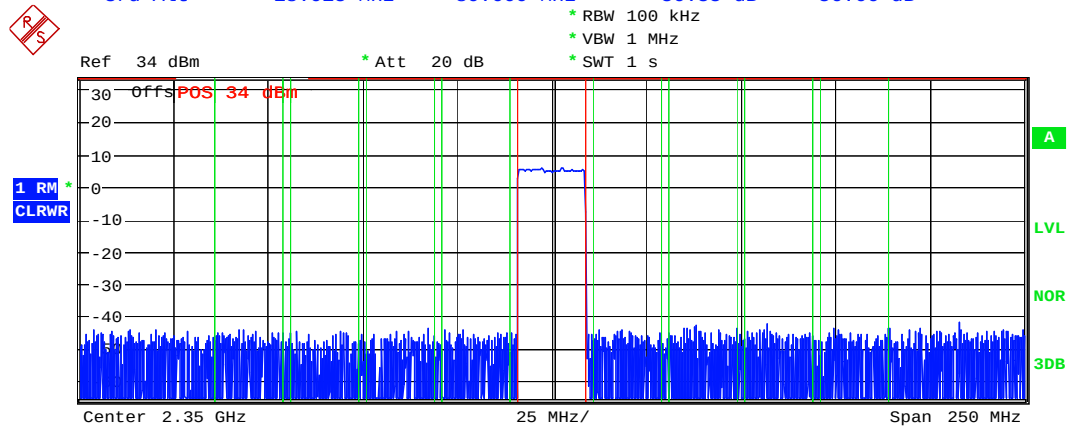
Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	18.015 MHz			28.21 dBm
Adjacent	18.015 MHz	20.000 MHz	-56.42 dB	-56.61 dB
Alternate	18.015 MHz	40.000 MHz	-57.43 dB	-57.00 dB
2nd Alt	18.015 MHz	60.000 MHz	-58.44 dB	-56.78 dB
3rd Alt	18.015 MHz	80.000 MHz	-57.29 dB	-57.76 dB

Figure 2.8 Frequency 2350MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=35.22 dBm)

➤ Pout after DPD=34.22 dBm



Channel	Bandwidth	Spacing	W-CDMA 3GPP FWD Lower	Upper
Tx Channel	18.015 MHz		27.35 dBm	
Adjacent	18.015 MHz	20.000 MHz	-32.50 dB	-32.60 dB
Alternate	18.015 MHz	40.000 MHz	-51.50 dB	-51.75 dB
2nd Alt	18.015 MHz	60.000 MHz	-57.22 dB	-56.41 dB
3rd Alt	18.015 MHz	80.000 MHz	-56.55 dB	-56.66 dB

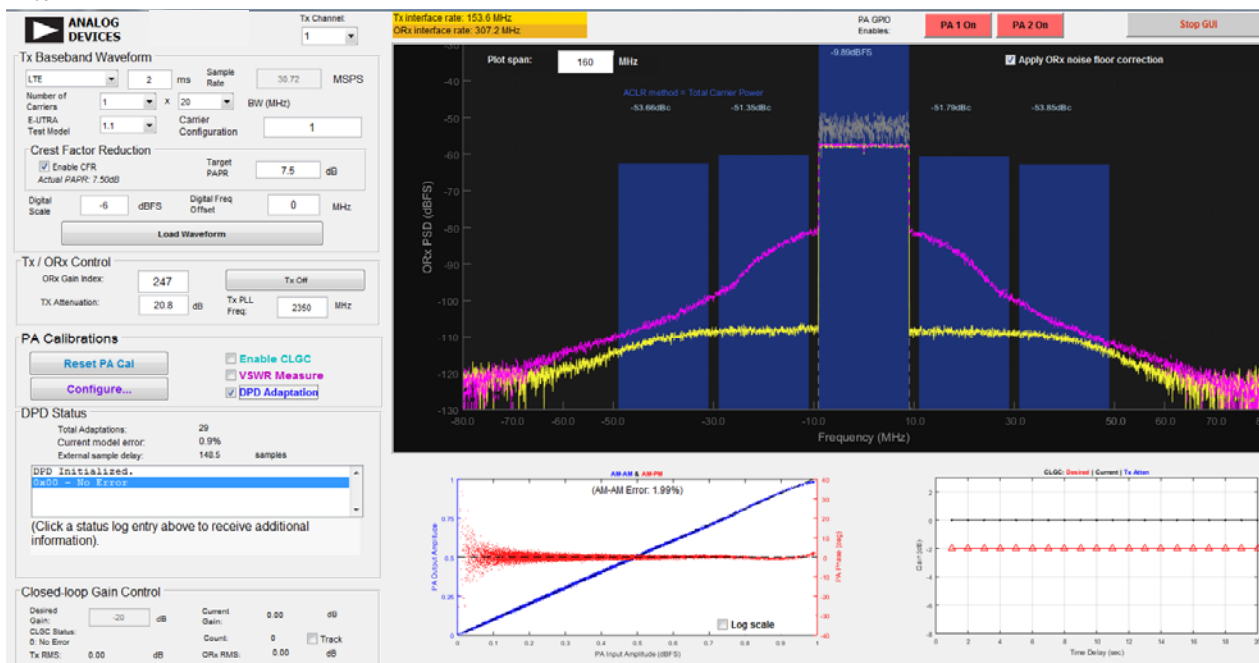


Channel	Bandwidth	Spacing	W-CDMA 3GPP FWD Lower	Upper
Tx Channel	18.015 MHz		27.21 dBm	
Adjacent	18.015 MHz	20.000 MHz	-56.50 dB	-56.12 dB
Alternate	18.015 MHz	40.000 MHz	-57.24 dB	-55.78 dB
2nd Alt	18.015 MHz	60.000 MHz	-58.19 dB	-56.01 dB
3rd Alt	18.015 MHz	80.000 MHz	-56.07 dB	-56.75 dB

Figure 2.9 Frequency 2350MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=34.22 dBm)

- The DPD GUI at ~8dB OBO (38.02 dBm output power after DPD):

After DPD



2. 2390MHz (Top)

Frequency	Signal Bandwidth	Test Signal PAR=7.5dB	Output Power (dBm)	I (A) at Vd=28V	ACLR+1 (dBc)	ACLR-1 (dBc)	ACLR+2 (dBc)	ACLR-2 (dBc)	Drain Efficiency (%)

2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	38.75	0.6076	-48.64	-48.77	-51.16	-50.81	44.08
2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	38.34	0.5716	-50.87	-51.2	-52.79	-53.13	42.63
2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	37.93	0.5336	-52.1	-52.79	-54.08	-54.44	41.56
2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	37.48	0.4976	-52.88	-53.57	-54.67	-55.1	40.18
2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	37.03	0.4636	-57.23	-57.79	-58.73	-58.99	38.88
2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	36.56	0.4336	-57.4	-58.03	-59.64	-60.1	37.30
2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	36.1	0.4056	-57.32	-57.57	-60.05	-59.61	35.87
2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	35.11	0.3566	-57.86	-58.24	-59.62	-60.22	32.48
2390MHz (Top)	20 MHz	E-TM3.1 20 MHz LTE	34.11	0.3166	-58.55	-58.85	-60.38	-60.86	29.06

ACLR RESULTS TOP FREQUENCY**2390 MHZ, 20 MHZ BANDWIDTH ACLR RESULTS**

- For all these DPD measurements the AD9375 DPD configuration is the same (Model 1 AND 2048 samples)

The screenshot displays the AD9375 DPD Configuration window, which is divided into three main sections: General, CLGC Configuration, and DPD Configuration.

General:

- Update Period: 500 ms
- Delay Offset: 0 samples
- PN-Seq Level: 255
- PN-Seq Iters: 2^10

CLGC Configuration:

- Tx Atten Min. Limit: 0 dB
- Control Ratio: 75 %

DPD Configuration:

- DPD memory model: Model 1
- Samples per update: 2048
- ☐ Automatically reject outlier samples.
- ☒ Update saved model at high Tx RMS.
- Saved model weight: 20
- Model averaging factor: 5
- Model error threshold: 10 %
- AM-AM Outlier threshold: 50 %
- Saturation threshold: 87 %

Frequency-weighting terms: 1

Z-Plane (Imag.) vs Z-Plane (Real) plot:

The plot shows a unit circle with a red dot at the origin (0,0). The x-axis is labeled "Z-Plane (Real)" and the y-axis is labeled "Z-Plane (Imag.)". The weight is indicated as (Weight: 64 + 0i).

Buttons: Apply, Close

Tip: hover over a text box for more information about the configuration value.

➤ Pout after DPD=38.75 dBm

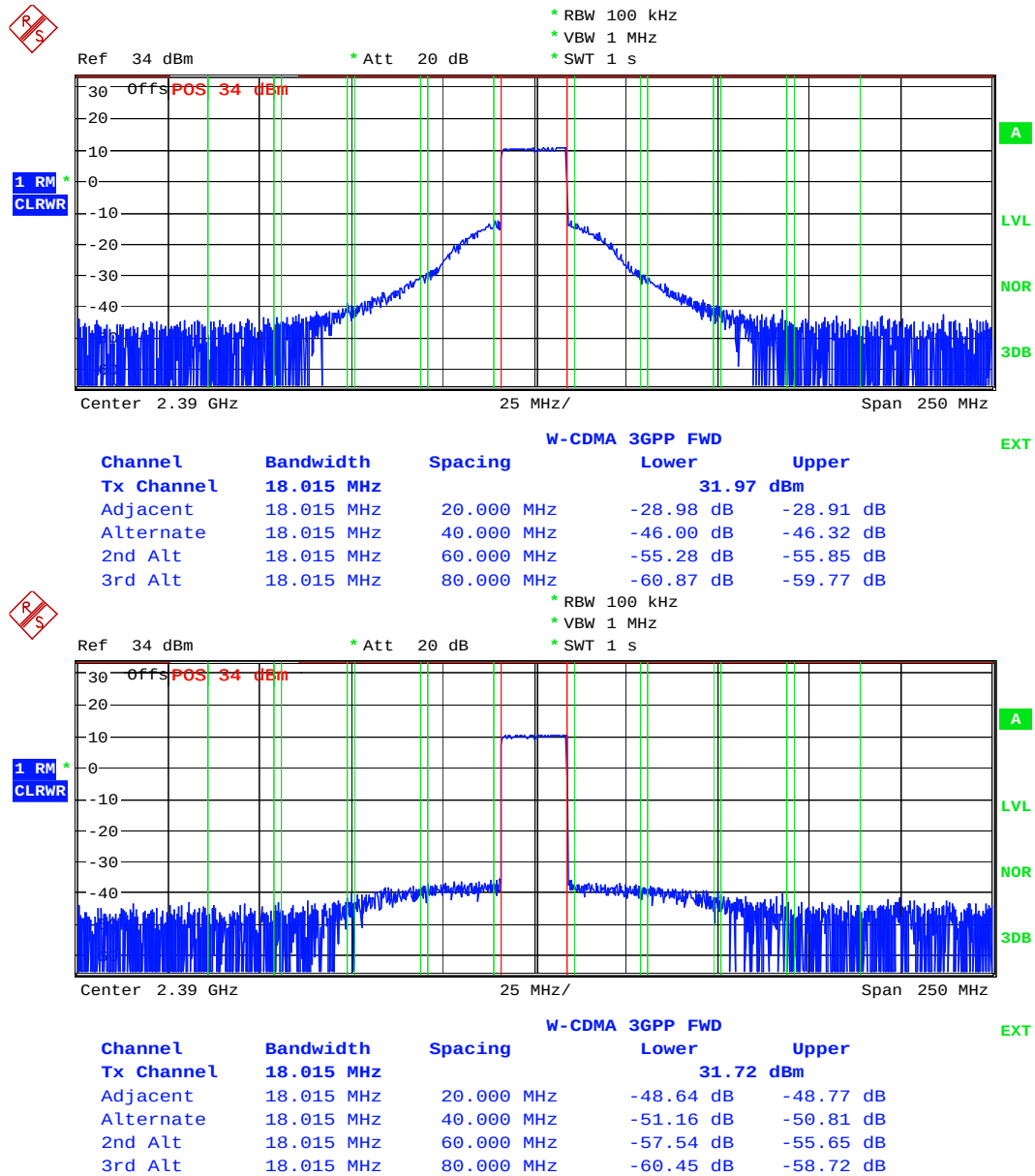


Figure 3.1 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.75 dBm)

➤ Pout after DPD=38.34 dBm

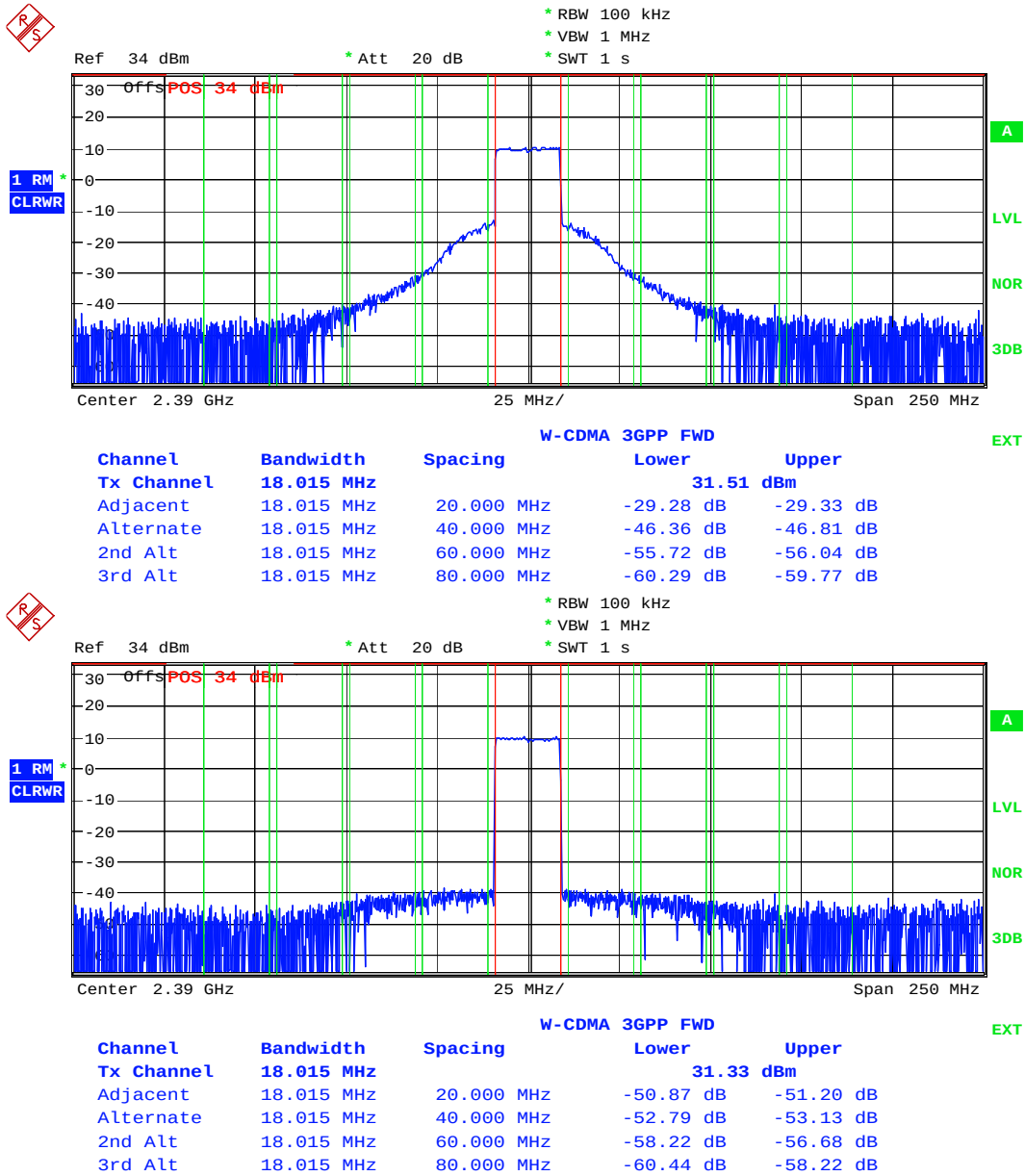


Figure 3.2 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=38.34 dBm)

➤ Pout after DPD=37.93 dBm

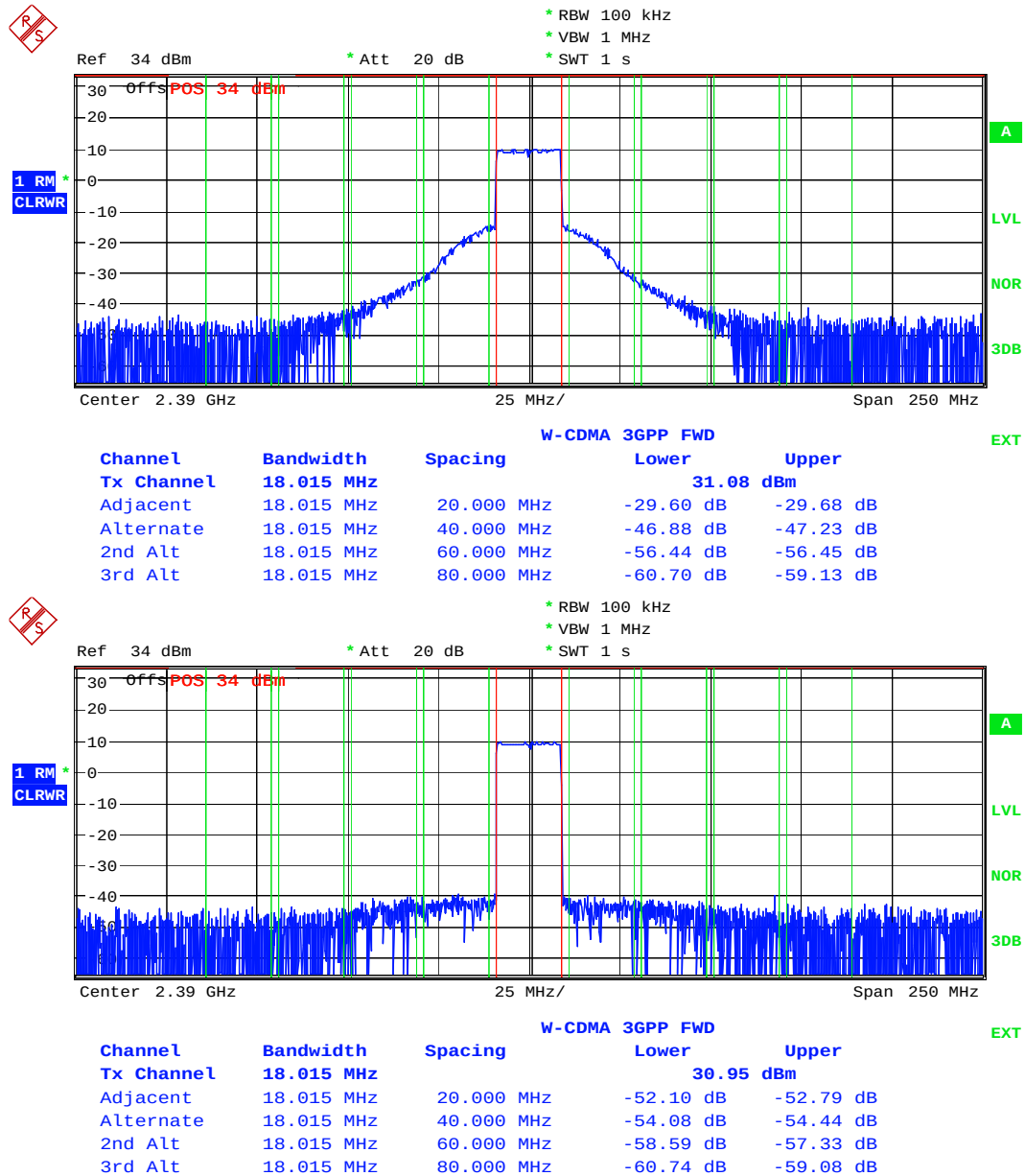


Figure 3.3 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.93 dBm)

➤ Pout after DPD=37.48 dBm

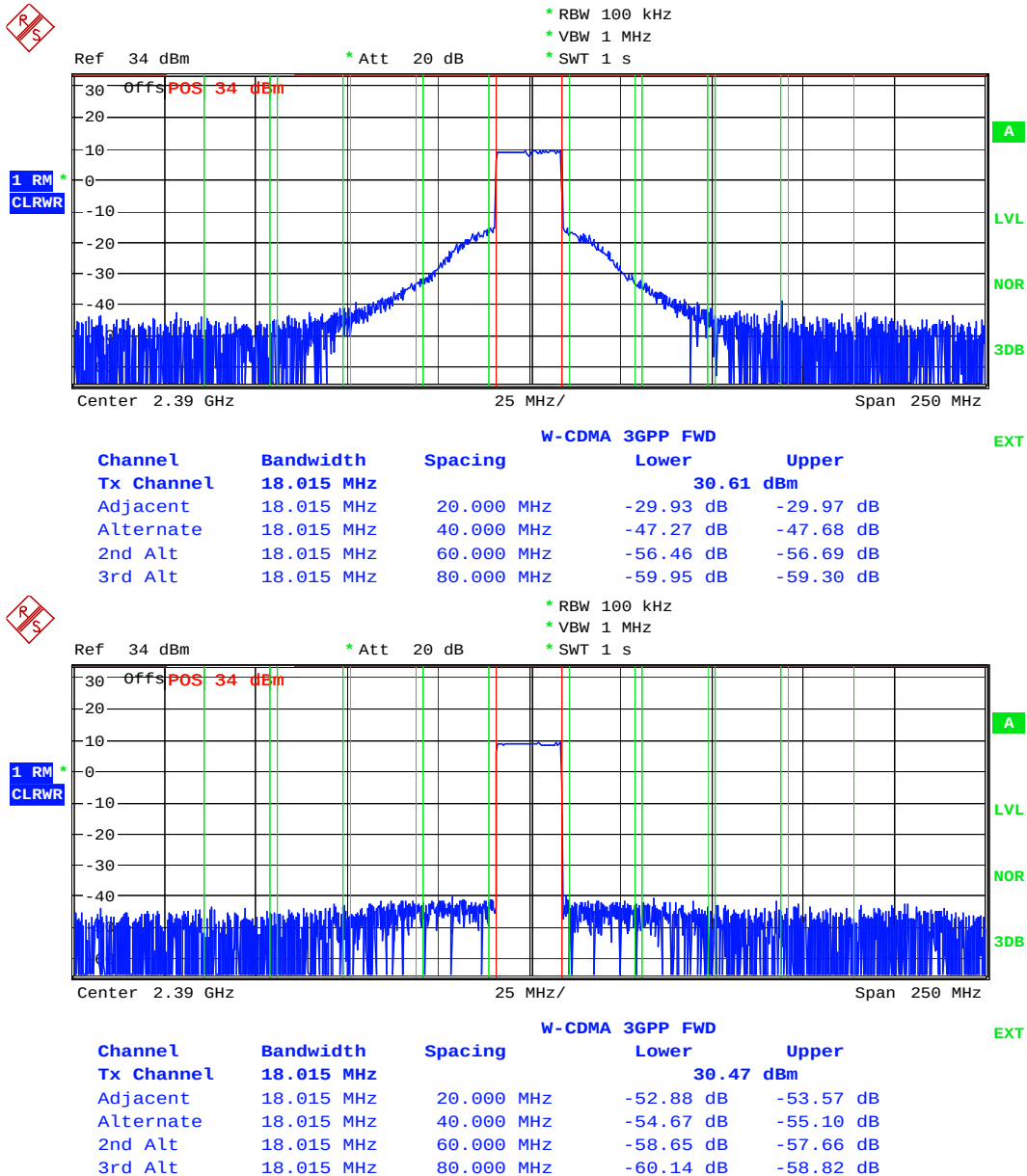


Figure 3.4 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.48 dBm)

➤ Pout after DPD=37.03 dBm

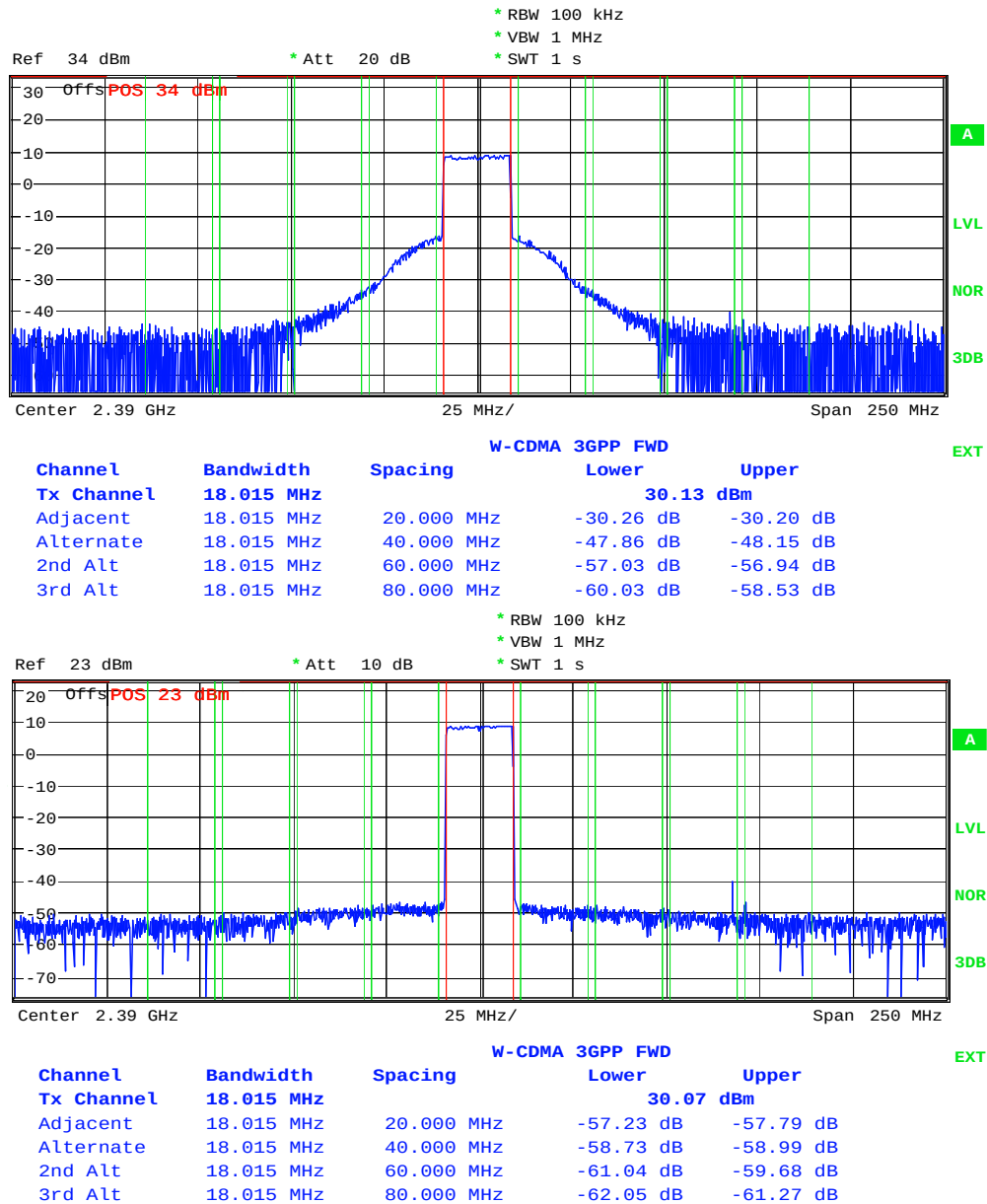


Figure 3.5 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=37.03 dBm)

➤ Pout after DPD=36.56 dBm

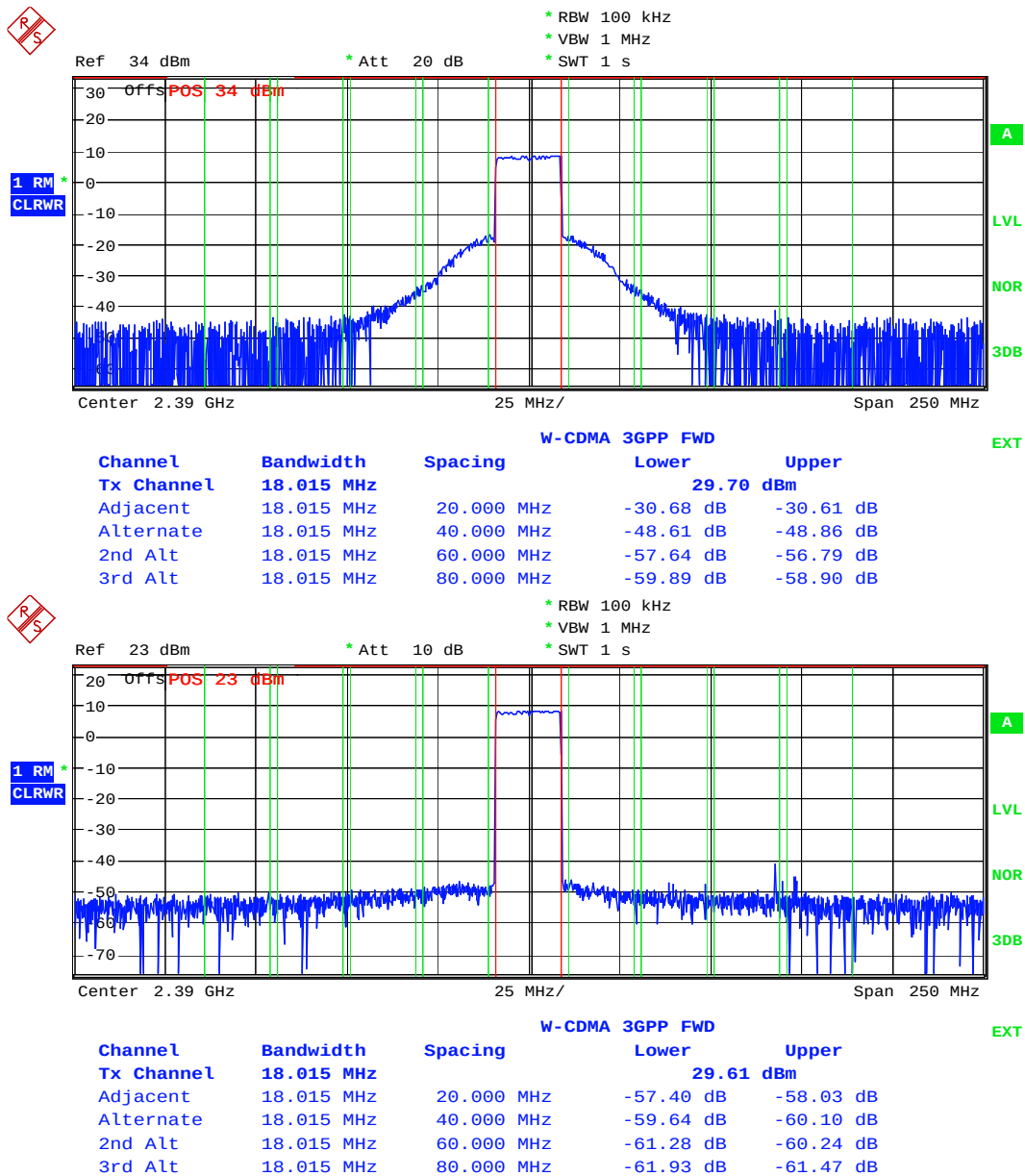


Figure 3.6 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=36.56 dBm)

➤ Pout after DPD=36.1 dBm

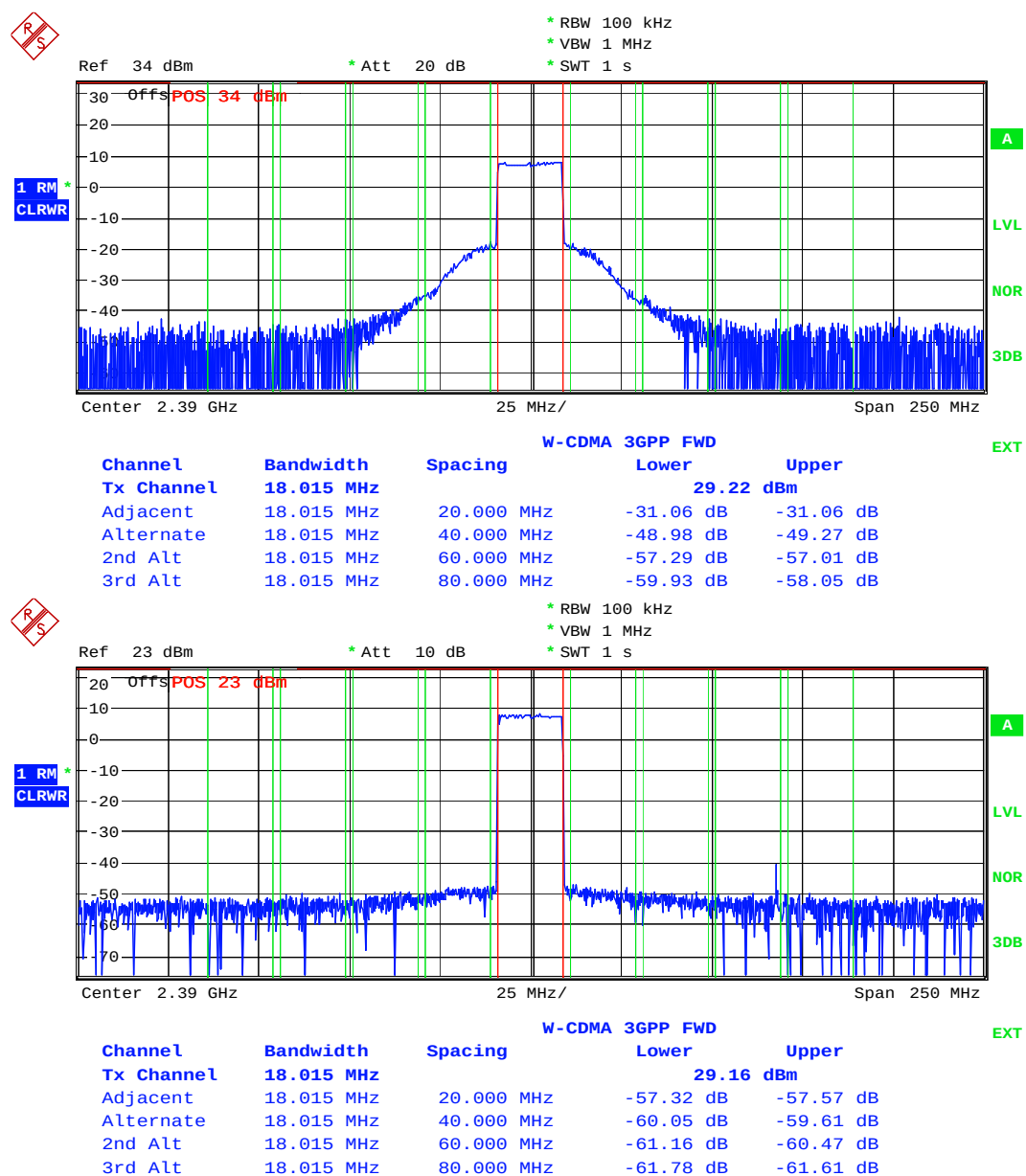


Figure 3.7 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=36.1 dBm)

➤ Pout after DPD=35.11 dBm

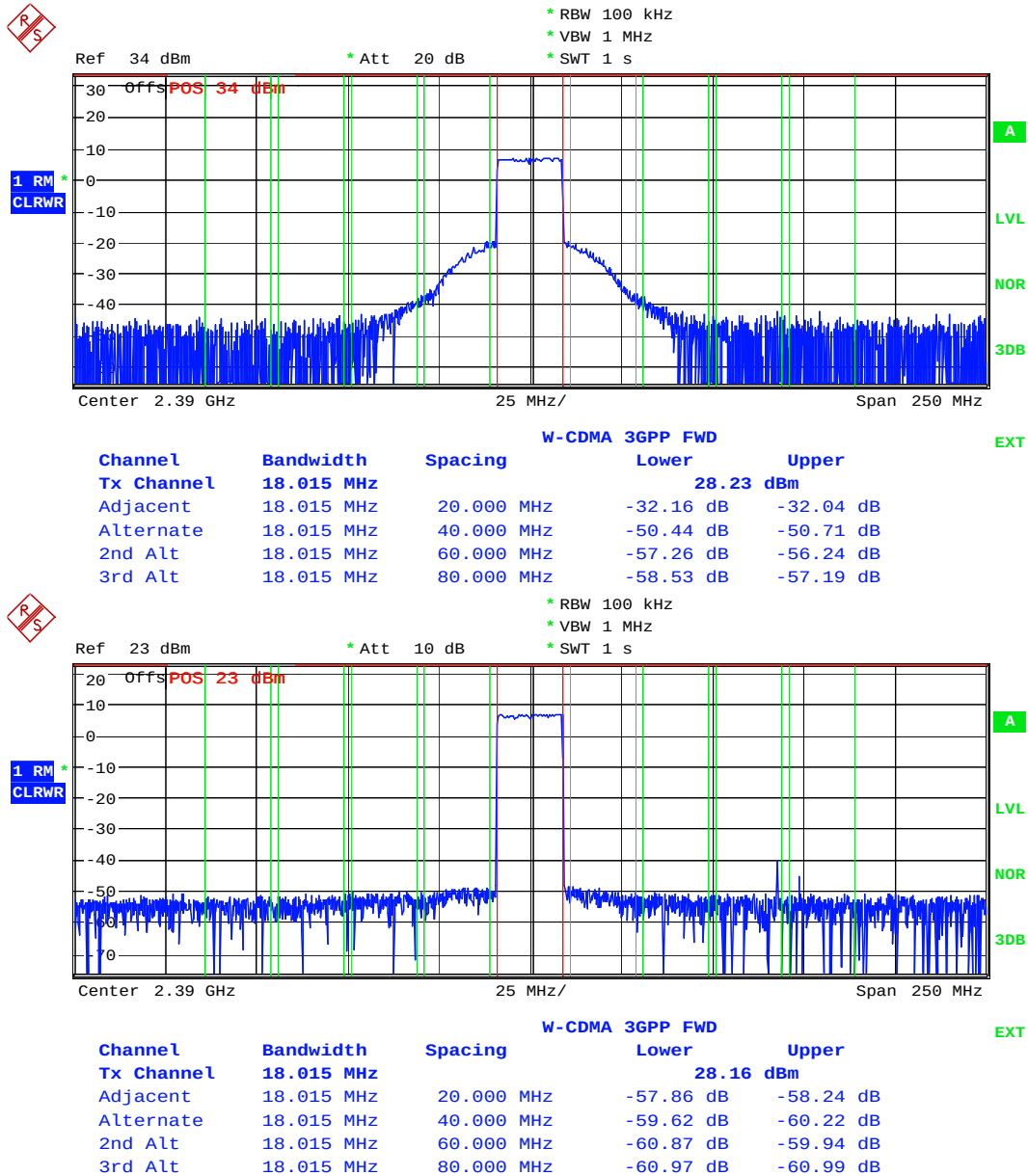


Figure 3.8 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=35.11 dBm)

➤ Pout after DPD=34.11 dBm

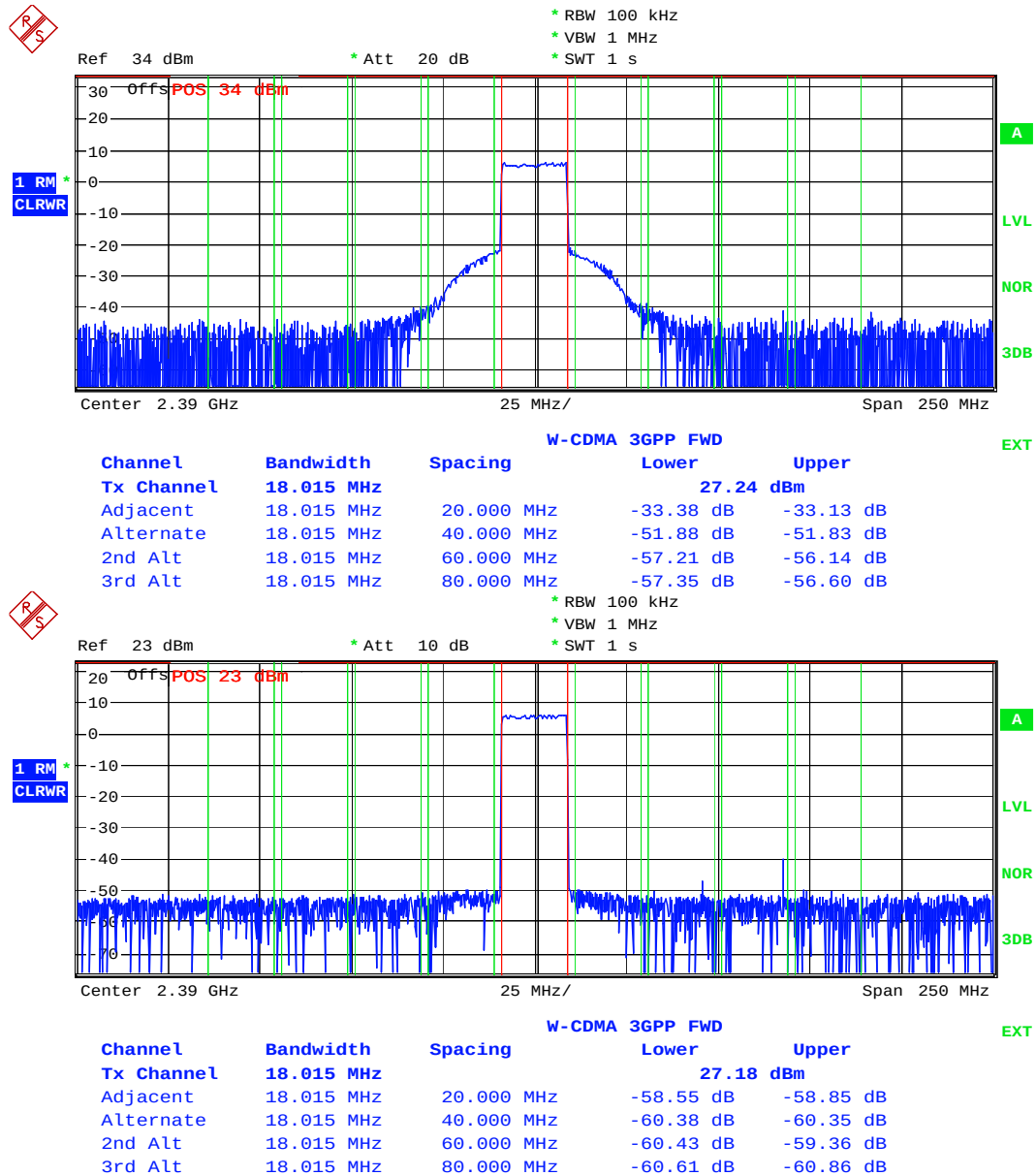


Figure 3.9 Frequency 2390MHz, 20 MHz E-TM3.1 Signal, before and after DPD (Pout after DPD=34.11 dBm)

- The DPD GUI at ~8dB OBO (37.93 dBm output power after DPD):

After DPD

