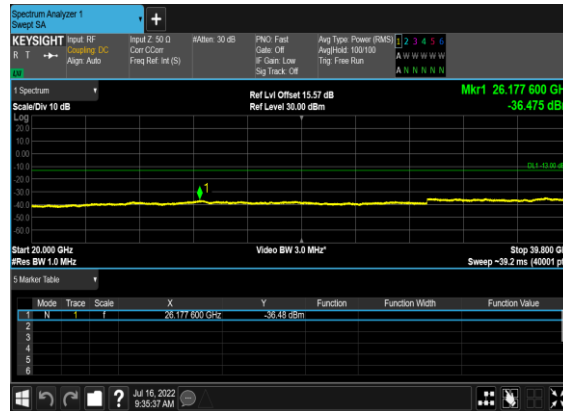


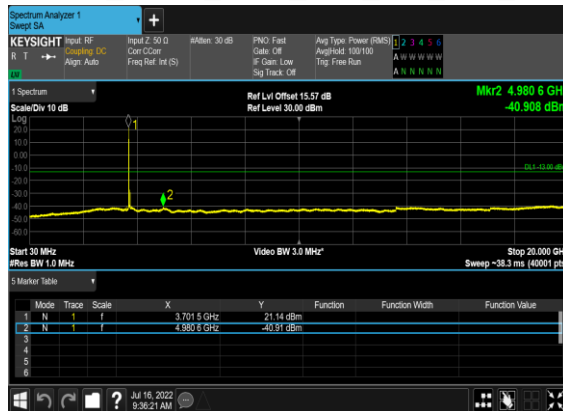
N77(50M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



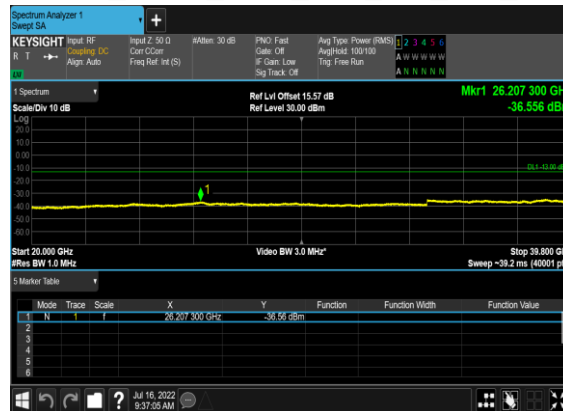
N77(50M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



N77(50M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



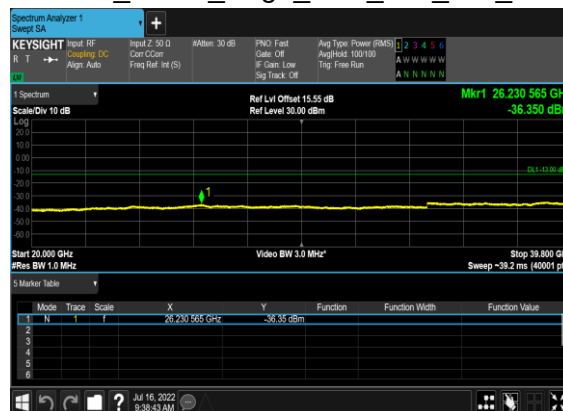
N77(50M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



N77(50M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



N77(50M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



Keysight Spectrum Analyzer 1
Sweep SA

KEYSIGHT Input RF: 50 Ω, Center Freq: 3.16 GHz, Span: 30 dB, PNO: Fast, Gate: Off, Avg Type: Power (RMS), Resolution BW: 100 Hz, Video BW: 3.0 MHz, Stop: 20.00 GHz, #Res: BW 1.0 MHz, Sweep: -38.3 ms (40001 pts)

Input RF: 50 Ω, Center Freq: 3.16 GHz, Span: 30 dB, PNO: Fast, Gate: Off, Avg Type: Power (RMS), Resolution BW: 100 Hz, Video BW: 3.0 MHz, Stop: 20.00 GHz, #Res: BW 1.0 MHz, Sweep: -38.3 ms (40001 pts)

Resolution BW: 100 Hz, Video BW: 3.0 MHz, Stop: 20.00 GHz, #Res: BW 1.0 MHz, Sweep: -38.3 ms (40001 pts)

Measurement Results:

Marker	Freq (GHz)	Power (dBm)
1	3.1613	20.16
2	3.9825	-40.573

The screenshot displays the Keysight Spectrum Analyzer 1 interface. The top panel shows the input signal as 'Sweep SA' and the input impedance as 'Input Z: 50 Ω'. The main display area shows a spectrum plot with a peak at 26.180570 GHz and a power level of -36.15 dBm. The plot is titled 'Mkr1 26.180570 GHz -36.15 dBm'. The x-axis is labeled 'Frequency' and the y-axis is labeled 'Power'. The plot shows a flat baseline with a single peak at the specified frequency. The bottom panel shows the 'Marker Table' with one marker at 26.180570 GHz and -36.15 dBm.

Keysight Spectrum Analyzer 1
Sweep SA

Input Z: 50 Ω
Sweeping DC
Align: Auto
Ref Level: 15.57 dB
Ref Level Offset: 30.0 dBm

Mkr1 26.180570 GHz
-36.15 dBm

Start: 20.000 GHz
Res BW: 1.0 MHz
Video BW: 3.0 MHz

Stop: 38.800 GHz
Sweep: -39.2 ms (40001 pts)

Marker	Frequency	Power
1	26.180570 GHz	-36.15 dBm

Spectrum Analyzer 1
Sweep SA

KEYSIGHT Input RF
R T → Display DC
Align Auto

Input Z: 50 Ω
Cen Freq: 3.9811 GHz
Span: 30 dB
PNO: Fast
Gate: Off
S: Gain: Low
Sig Track: Off

Avg Type: Power (RMS)
Averaging: 1001
Trig: Free Run

0 2 3 4 5 6
A W W W W W W
A N N N N N N

1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 15.52 dB
Ref Level 30.00 dBm

Mkr2 4.9801 GHz
-40.927 dBm

Start 30 MHz
#Res BW 1.0 MHz
Video BW 3.0 MHz

Stop 20.00 GHz
Sweep -38.1 ms (46001 pts)

S Marker Table

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.9311 GHz	21.33 dBm		
2	N	1	f	4.9801 GHz	-40.93 dBm		
3							
4							
5							
6							

Jul 16, 2022
8:41:07 AM

Keysight Spectrum Analyzer 1
Sweep SA

KEYSIGHT Input RF Input Z: 50 Ω Att: 30 dB P1dB Fast Avg Time: Power (RMS) 0.2 3 4 5 6
 R T → Display DC Corr: CCat Freq Ref: Int (S) Arg/Hold: 100/100 A W W W W W
 Auto Trig: Free Run N N N N N N

1 Spectrum
 Scale/Div 10 dB
 Log
 10.0
 9.0
 8.0
 7.0
 6.0
 5.0
 4.0
 3.0
 2.0
 1.0
 0.0
 -1.0
 -2.0
 -3.0
 -4.0
 -5.0
 -6.0
 -7.0
 -8.0
 -9.0
 -10.0

Ref Lvl Offset 15.52 dB
 Ref Level 30.00 dBm

Mkr1 26.176 610 GHz
 -36.582 dBm

Start 20.000 GHz
 #Res BW 1.0 MHz

Video BW 3.0 MHz

Stop 39.000 GHz
 Sweep ~39.2 ms (40001 pts)

S Marker Table

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	f	26.176 610 GHz	-36.58 dBm			
2							
3							
4							
5							
6							

Jul 18, 2022
 8:41:31 AM

Spectrum Analyzer 1
Sweep SA

KEYSIGHT Input RF
R T → Coupling DC
Align Auto

Input Z: 50 Ω
Con Corr
Freq Ref: 1st (S)

Att: 30 dB

PNO: Fast
Gate: Off
S' Gain: Low
Sig Track: Off

Avg Type: Power (RMS)
Averhld: 100100
Trig: Free Run

1 2 3 4 5 6
A W W W W W
A N N N N N

1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 15.57 dB
Ref Level 30.00 dBm

Mkr2 4.982 6 GHz
-40.429 dBm

Start 10 MHz
#Res BW 1.0 MHz
Video BW 3.0 MHz

Stop 20.00 GHz
Sweep -38.1 ms (46001 pts)

S Marker Table

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.931 1 GHz	18.91 dBm		
2	N	1	f	4.982 6 GHz	-40.43 dBm		
3							
4							
5							
6							

Jul 16, 2022
8:42:35 AM

Keysight Spectrum Analyzer 1
Sweep SA

KEYSIGHT Input RF: **Displaying DC** Input 2: 50.0 GHz Attenuation: 30 dB PNO Fast Gate: Off Avg Time: Power (RMS) 1 2 3 4 5 6
 R T ↔ Algs: Auto Corr C-Cor Freq Ref: Int (S) R' Gain: Low Arg/Hold: 100/100 A W W W W W
 Sig Track: Off Trg: Free Run N N N N N N

1 Spectrum
 Scale/Div 10 dB
 Log
 10.0
 9.0
 8.0
 7.0
 6.0
 5.0
 4.0
 3.0
 2.0
 1.0
 0.0
 -1.0
 -2.0
 -3.0
 -4.0
 -5.0
 -6.0
 -7.0
 -8.0
 -9.0
 -10.0

Start 20.000 GHz
#Res BW 1.0 MHz

Rel Lvl Offset 15.57 dB
Rel Level 30.00 dbm

Mkr1 26.270 660 GHz
-36.532 dBm

Video BW 3.0 MHz

Stop 38.000 GHz
Sweep ~39.2 ms 140001 pts

Marker Table

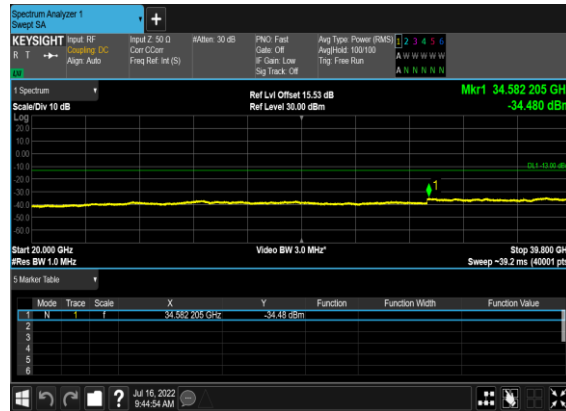
Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	f	26.270 660 GHz	-36.53 dbm			
2							
3							
4							
5							
6							

Jul 18, 2022
 8:43:19 AM

N77(100M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



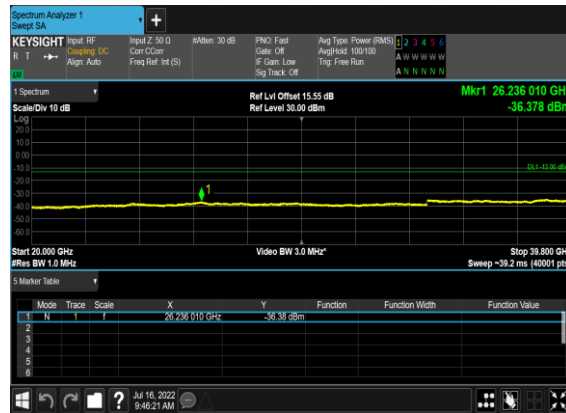
N77(100M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



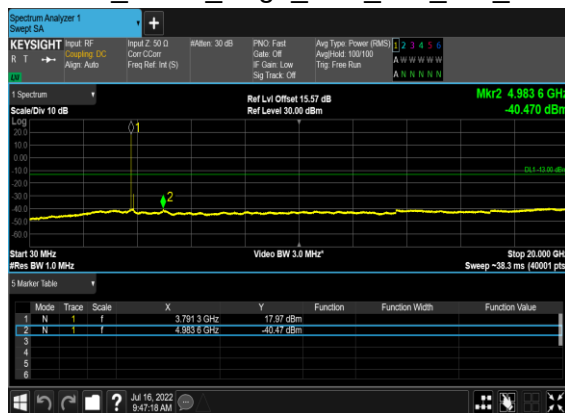
N77(100M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



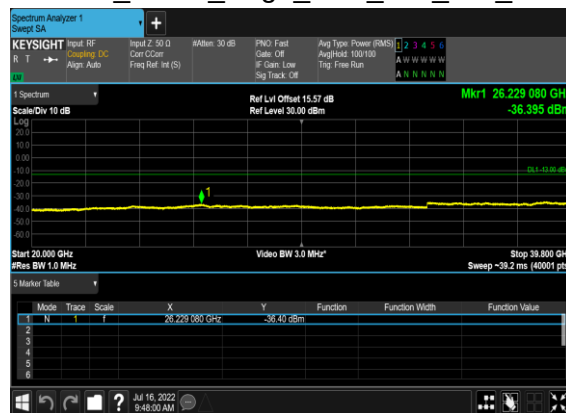
N77(100M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



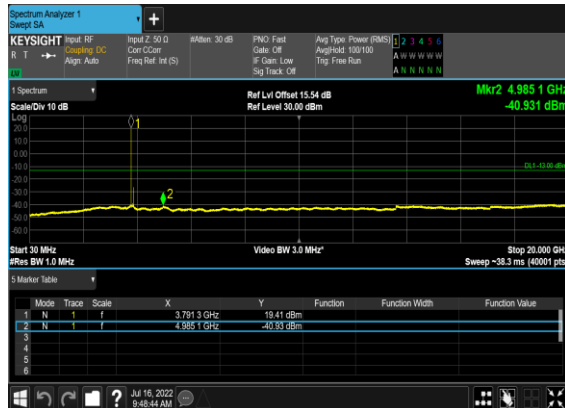
N77(100M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



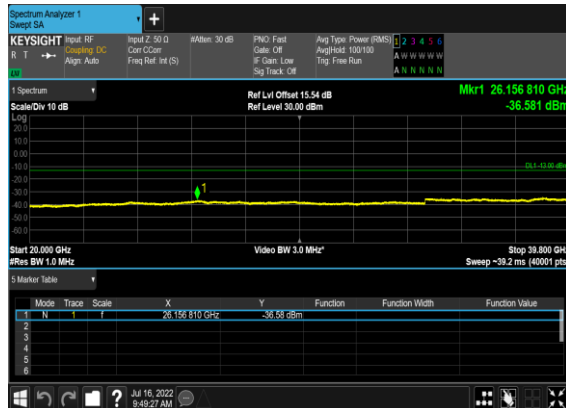
N77(100M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



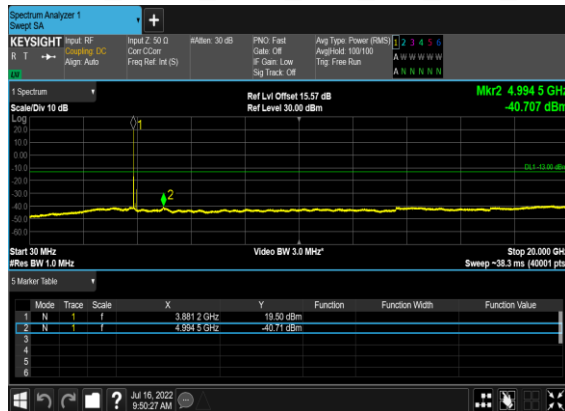
N77(100M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CH



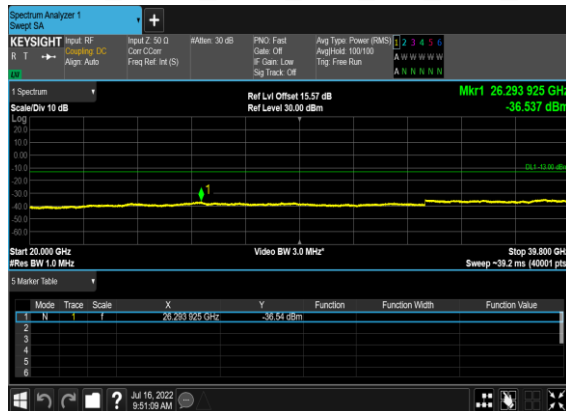
N77(100M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CH



N77(100M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CH



N77(100M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CH



N77(100M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH



N77(100M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH



Conducted Band Edge

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
77	30	10	647000	3705.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	10	647000	3705.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	10	647000	3705.0	DFT-s-OFDM BPSK	24@0	see graph	PASS
77	30	10	647000	3705.0	DFT-s-OFDM QPSK	24@0	see graph	PASS
77	30	10	665000	3975.0	DFT-s-OFDM BPSK	1@23	see graph	PASS
77	30	10	665000	3975.0	DFT-s-OFDM QPSK	1@23	see graph	PASS
77	30	10	665000	3975.0	DFT-s-OFDM BPSK	24@0	see graph	PASS
77	30	10	665000	3975.0	DFT-s-OFDM QPSK	24@0	see graph	PASS
77	30	50	648334	3725.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	50	648334	3725.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	50	648334	3725.01	DFT-s-OFDM BPSK	128@0	see graph	PASS
77	30	50	648334	3725.01	DFT-s-OFDM QPSK	128@0	see graph	PASS
77	30	50	663666	3954.99	DFT-s-OFDM BPSK	1@132	see graph	PASS
77	30	50	663666	3954.99	DFT-s-OFDM QPSK	1@132	see graph	PASS
77	30	50	663666	3954.99	DFT-s-OFDM BPSK	128@0	see graph	PASS
77	30	50	663666	3954.99	DFT-s-OFDM QPSK	128@0	see graph	PASS
77	30	100	650000	3750.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	100	650000	3750.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	100	650000	3750.0	DFT-s-OFDM BPSK	270@0	see graph	PASS
77	30	100	650000	3750.0	DFT-s-OFDM QPSK	270@0	see graph	PASS
77	30	100	662000	3930.0	DFT-s-OFDM BPSK	1@272	see graph	PASS
77	30	100	662000	3930.0	DFT-s-OFDM QPSK	1@272	see graph	PASS

77	30	100	662000	3930.0	DFT-s-OFDM BPSK	270@0	see graph	PASS
77	30	100	662000	3930.0	DFT-s-OFDM QPSK	270@0	see graph	PASS

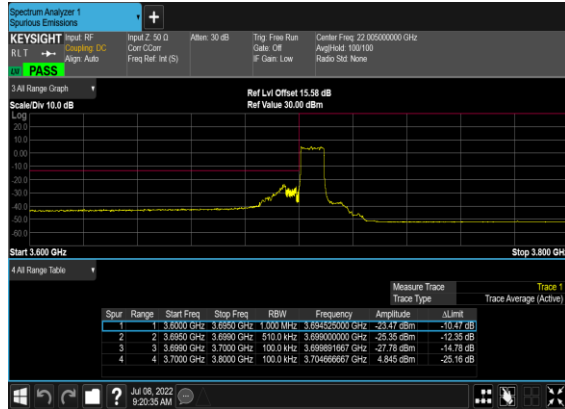
N77(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



N77(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



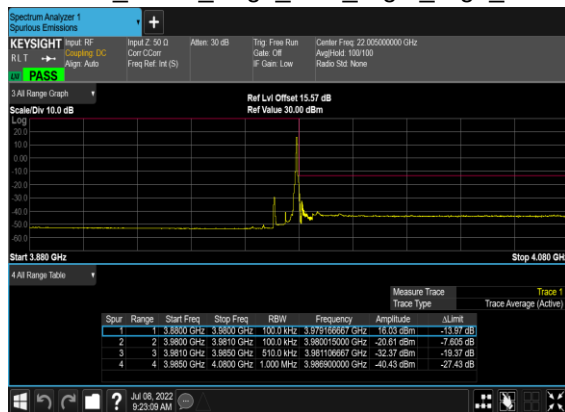
N77(10M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CH



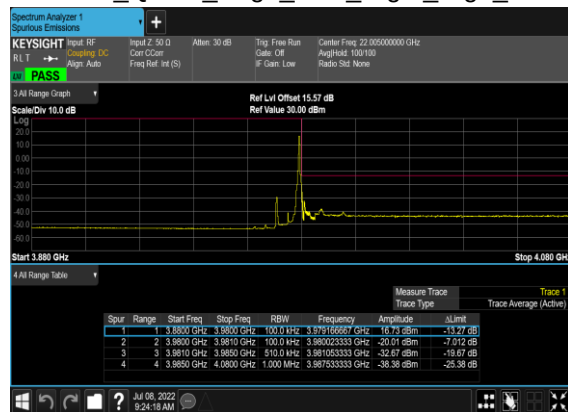
N77(10M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CH



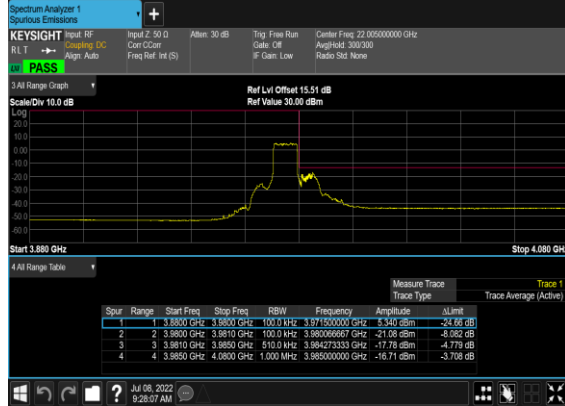
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OFDM_BPSK_Edge_1RB_Right_High_CH



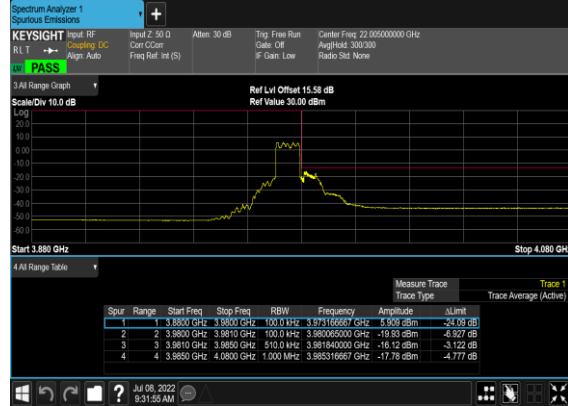
N77(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CH



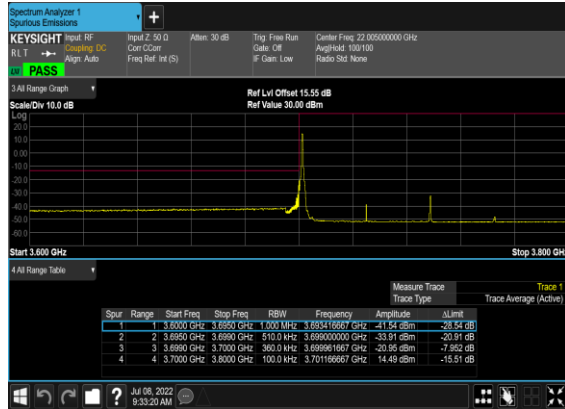
N77(10M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CH



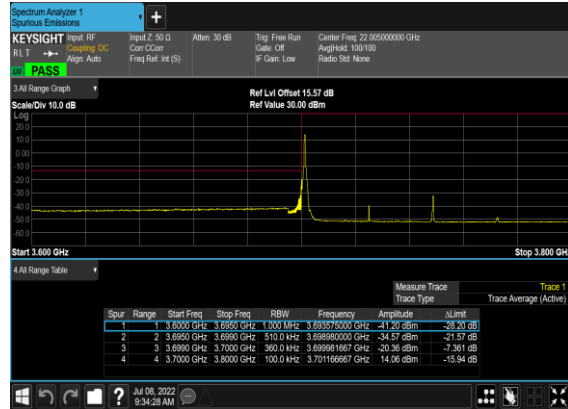
N77(10M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CH



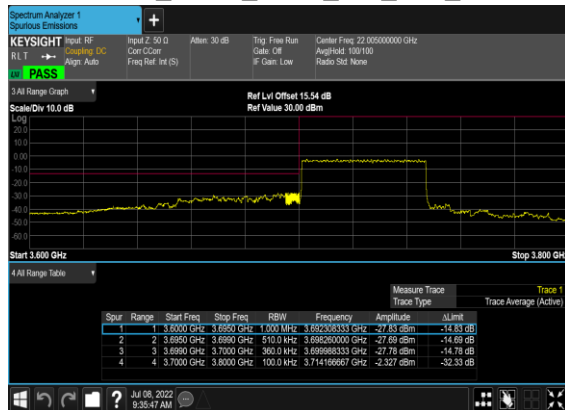
N77(50M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



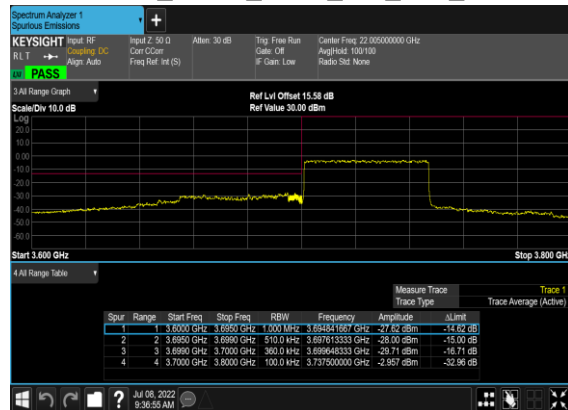
N77(50M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



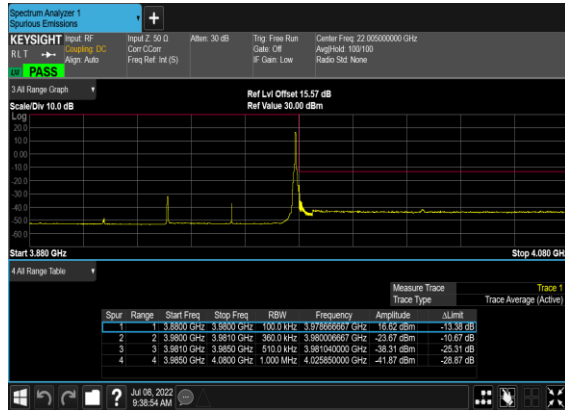
N77(50M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CH



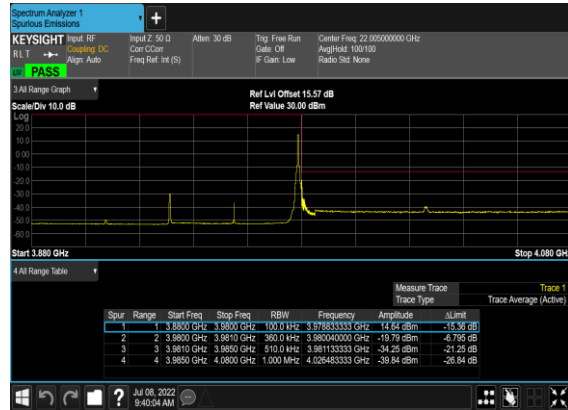
N77(50M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CH



N77(50M)_DFT-s-
OFDM_BPSK_Edge_1RB_Right_High_CH



N77(50M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CH



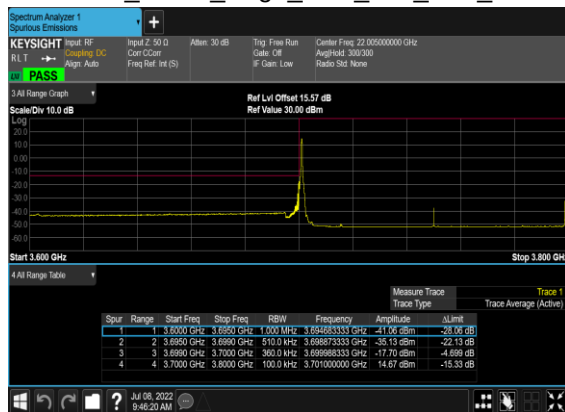
N77(50M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CH



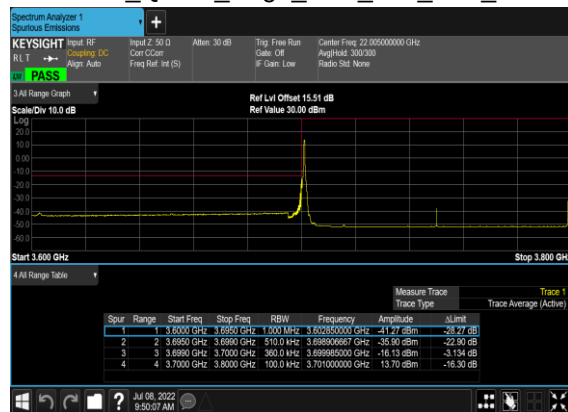
N77(50M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CH



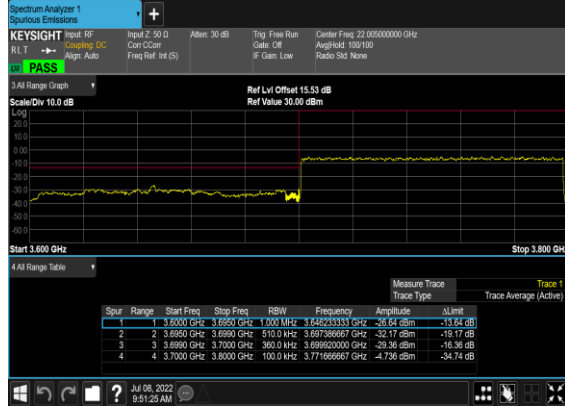
N77(100M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



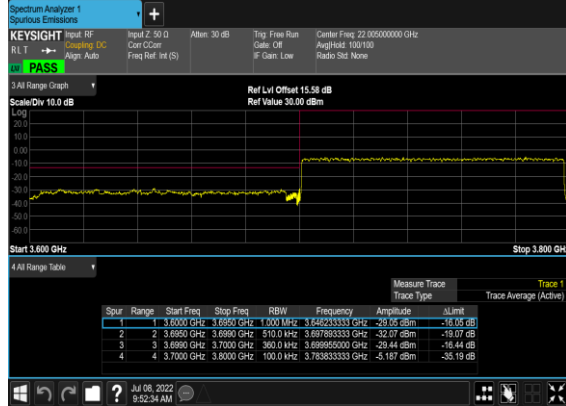
N77(100M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



N77(100M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CH



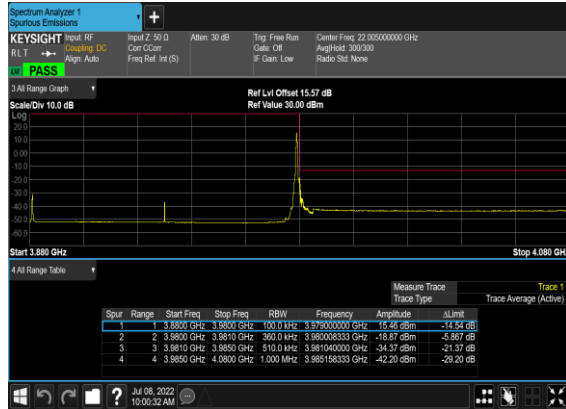
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OFDM_QPSK_Outer_Full_Low_CH



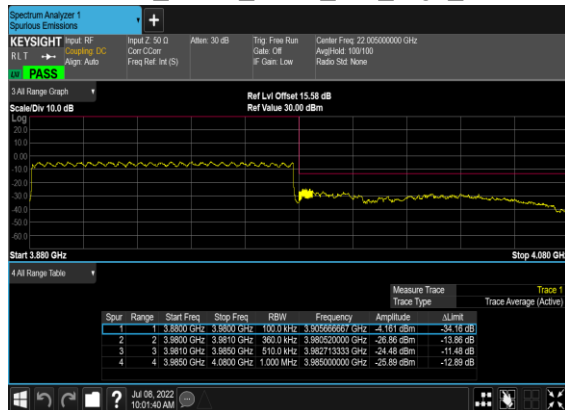
N77(100M)_DFT-s-
OFDM_BPSK_Edge_1RB_Right_High_CH



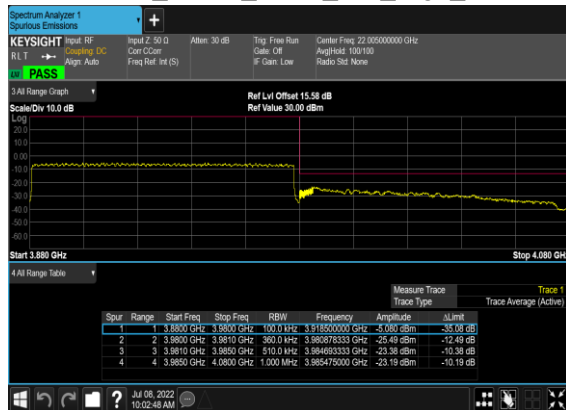
N77(100M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CH



N77(100M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CH



N77(100M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CH



Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Levi zhuo	Temperature :	22~23°C
		Relative Humidity :	40~42%

SA n77 / NR 100MHz / QPSK								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7584	-35.81	-13	-22.81	-46.29	2.76	13.24	H
	11376	-45.61	-13	-32.61	-55.20	3.42	13.01	H
	15180	-59.78	-13	-46.78	-69.39	3.83	13.44	H
	7584	-41.09	-13	-28.09	-51.53	2.80	13.24	V
	11376	-50.55	-13	-37.55	-60.10	3.46	13.01	V
	15180	-59.50	-13	-46.50	-69.06	3.88	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.