Scott Adcook STTW Systems Engineer Raytheon SAS – Microsystems 714.690.5055

AN/PPS-26A Sense Through the Wall (STTW) Measured Emissions for Stage 4 Spectrum Certification

The following plots show the measured spectral emissions for each of three operating modes of the AN/PPS-26A STTW handheld radar. These emissions data are measured directly from the radar's transmit port.

Antenna Characteristics:

After the transmit port, there are additional losses incurred in the antenna array backplane as described that lowers the peak radiated power of the unit. The antenna feed loss is approximately 2 dB.

Measured Transmitter Data:

401MQ3N Mode:

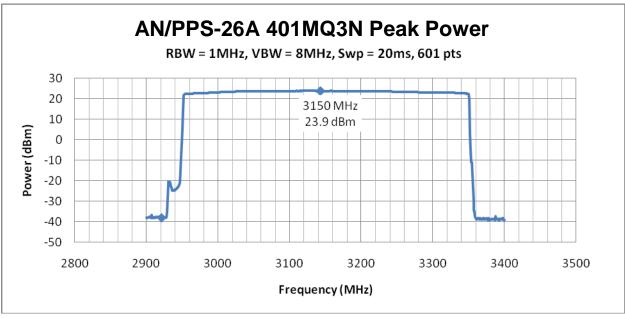
Fo = 3150 MHz

Peak Power: 23.9 dBm (250 mW)

Lower Sideband

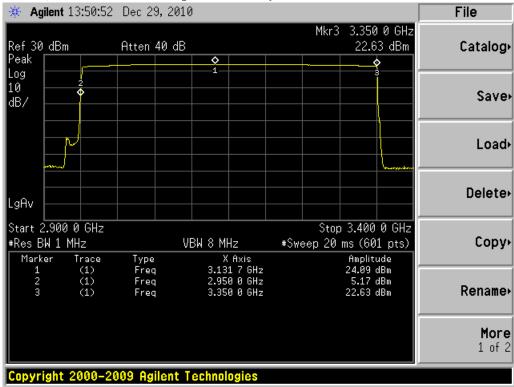
Frequency	Half BW Offset (Fo)	Measured Level(dBc)	Measured Level(dBm)
2951.8 MHz	-198.20 MHz	-3.3 dBc	20.6 dBm
2950.2 MHz	-199.80 MHz	-20.7 dBc	3.24 dBm
2947.7 MHz	-202.3 MHz	-40.1 dBc	-16.2 dBm
2928.8 MHz	-221.25 MHz	-61.9 dBc	-38.0 dBm
Upper Sideban	d		

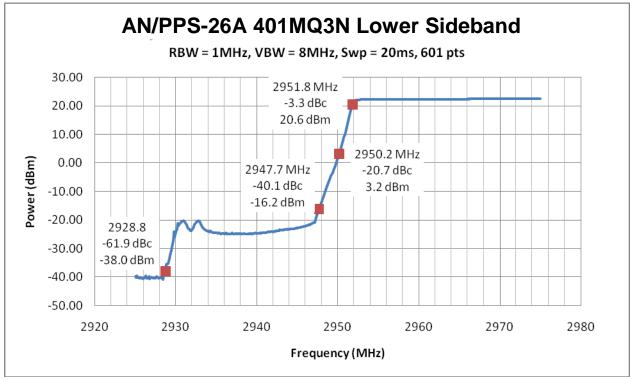
Frequency	Half BW Offset (Fo)	Measured Level(dBc)	Measured Level(dBm)
3349.5 MHz	199.5 MHz	-3.5 dBc	20.5 dBm
3350.9 MHz	200.9 MHz	-20.9 dBc	3.0 dBm
3353.5 MHz	203.5 MHz	-40.2 dBc	-16.3 dBm
3357.6 MHz	207.6 MHz	-60.4 dBc	-36.5 dBm



Full Bandwidth Plot:

401MQ3N Full Bandwidth Spectrum Analyzer Plot

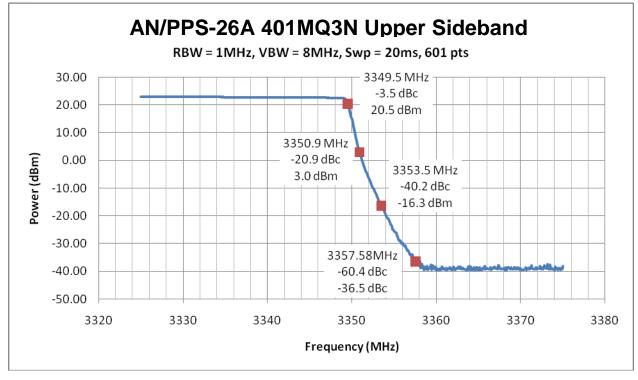




Lower Sideband Plot (Zoomed):

401MQ3N Lower Sideband Spectrum Analyzer Plot

🔆 Agilent	14:35:39	Dec 29,20	10			File
Ref 24.09 Peak	dBm	Atten 40 d		Mkr4	2.928 92 GHz -35.63 dBm	Catalog•
Log 10 dB/			2 3			Save
	*					Load⊦
LgAv						Delete
Center 2.9 #Res BW 1 Marker			VBW 8 MHz X Axis	#Sweep 20	Span 50 MHz ms (601 pts) Amplitude	Сорун
1 2 3 4	(1) (1) (1) (1)	Freq Freq Freq Freq	2.951 92 GHz 2.950 25 GHz 2.947 75 GHz 2.928 92 GHz		21.13 dBm 3.98 dBm -15.38 dBm -35.63 dBm	Rename,
						More 1 of 2
Copyright	2000-20	009 Agilent	Technologies			



Upper Sideband Plot (Zoomed):

401MQ3N Upper Sideband Spectrum Analyzer Plot

🔆 Agilent 🛛	14:42:11	Dec 29, 201	0					File
Ref 24.09 d Peak	IBm	Atten 40 dB	Ý.		Mkr4	3.357 -35.5	50 GHz 7 dBm	Catalo
Log 10 dB/			2					Sav
				4			and and a state of the state of	Loa
LgAv								Delet
Center 3.35 #Res BW 1 M Marker			BW 8 MHz X Axis	#Swe	eep 20	Span 5 ms (60) Amplitu	1 pts)	Сор
1 2 3 4	(1) (1) (1) (1)	Freq Freq Freq Freq	3.349 42 GHz 3.350 83 GHz 3.353 42 GHz 3.357 50 GHz			21.16 c 4.06 c -15.63 c -35.57 c	18m 18m 18m	Renam
								Moi 1 of
Copyright	2000-20	009 Agilent 1	echnologies					

322MQ3N Mode:

Fo = 3150 MHz

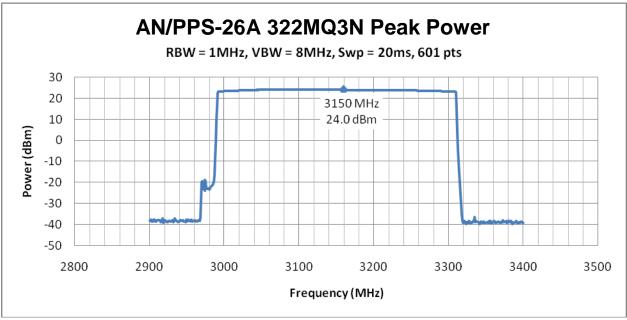
Peak Power: 24.0 dBm (251 mW)

Lower Sideband

Frequency	Half BW Offset (Fo)	Measured Level(dBc)	Measured Level(dBm)
2990.9 MHz	-159.1 MHz	-3.8 dBc	20.2 dBm
2989.4 MHz	-160.6 MHz	-20.1 dBc	3.9 dBm
2986.9 MHz	-163.1 MHz	-40.7 dBc	-16.7 dBm
2968.0 MHz	-182.0 MHz	-61.3 dBc	-37.3 dBm

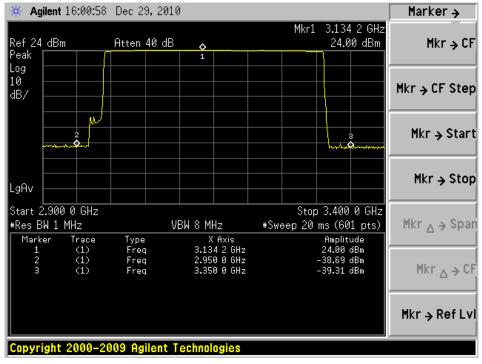
Upper Sideband

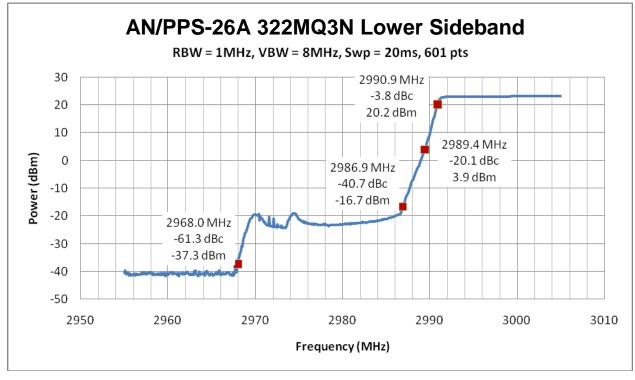
11			
Frequency	Half BW Offset (Fo)	Measured Level(dBc)	Measured Level(dBm)
3310.0 MHz	160.0 MHz	-3.5 dBc	20.5 dBm
3311.3 MHz	161.3 MHz	-20.7 dBc	3.3 dBm
3313.9 MHz	163.9 MHz	-40.4 dBc	-16.4 dBm
3317.8 MHz	167.8 MHz	-60.6 dBc	-36.6 dBm



Full Bandwidth Plot:

322MQ3N Full Bandwidth Spectrum Analyzer Plot

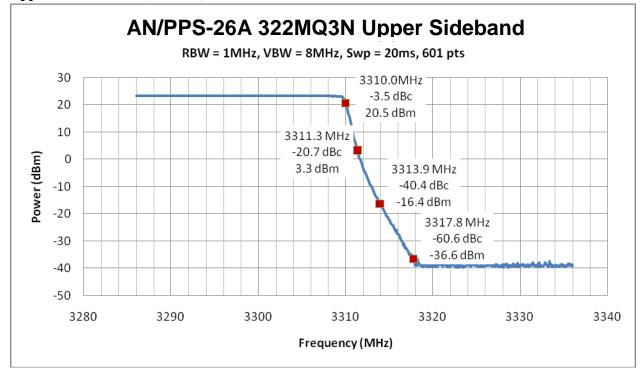




Lower Sideband Plot (Zoomed):

322MQ3N Lower Sideband Spectrum Analyzer Plot

🔆 Agilent	16:12:24	Dec 29,20	10					SV	veep
Ref 24 dBm Peak	1	Atten 40 d	3		Mkr4		08 GHz 29 dBm	Sw Auto	eep Time 20.00 ms <u>Man</u>
Log 10 dB/				3 3 0				Single	Sweep Cont
		4 	^					Aut <u>Norm</u>	o Sweep Time Accy
LgAv								On	Gate Off
Center 2.98 #Res BW 1	MHz		VBW 8 MHz		eep 20	ms (60		Gat	e Setup
Marker 1 2 3 4	Trace (1) (1) (1) (1)	Type Freq Freq Freq Freq	X Ax 2.991 00 2.989 50 2.987 00 2.968 08	GHz GHz GHz		Amplit 21.11 4.22 -15.93 -35.29	dBm dBm dBm		Points 601
Copyright	2000-20	09 Agilent	Technologi	es					



Upper Sideband Plot (Zoomed):

-	17:58 Dec 29,				Marker
Ref 24 dBm	Atten 40) dB	Mkr4	3.317 42 GHz -35.85 dBm	Select Marker
Peak Log 10 dB/					Norma
			4 Martin Martin		Delta
LgAv					Delta Pair (Tracking Ref Ref <u>4</u>
	z ace Type	VBW 8 MHz X Axis		Span 50 MHz ms (601 pts) Amplitude	Span Pai i Span <u>Cente</u>
2 (3 (1) Freq 1) Freq 1) Freq 1) Freq 1) Freq	3.309 92 GHz 3.311 25 GHz 3.314 00 GHz 3.317 42 GHz		21.29 dBm 4.13 dBm -16.38 dBm -35.85 dBm	Of
					More 1 of 2
Copyright 20	00-2009 Agile	nt Technologies			

322MQ3N Upper Sideband

269MQ3N Mode:

Fo = 3150 MHz

Peak Power: 23.9 dBm (250 mW)

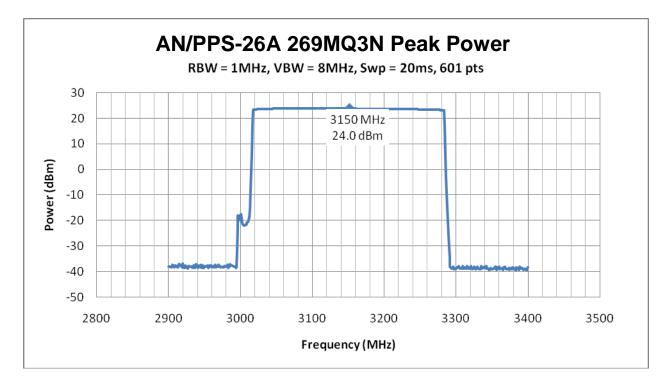
Lower Sideband

Half BW Offset (Fo)	Measured Level(dBc)	Measured Level(dBm)
-132.7 MHz	-3.2 dBc	20.8 dBm
-134.2 MHz	-20.8 dBc	3.2 dBm
-136.4 MHz	-40.5 dBc	-16.5 dBm
-155.1 MHz	-60.5 dBc	-36.5 dBm
	-132.7 MHz -134.2 MHz -136.4 MHz	-132.7 MHz -3.2 dBc -134.2 MHz -20.8 dBc -136.4 MHz -40.5 dBc

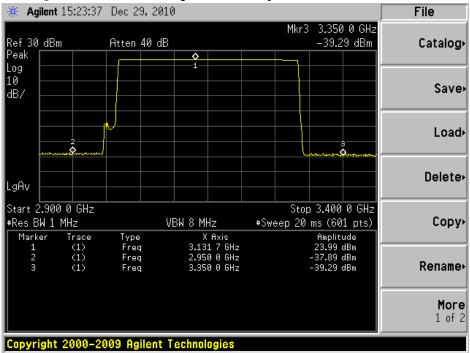
Upper Sideband

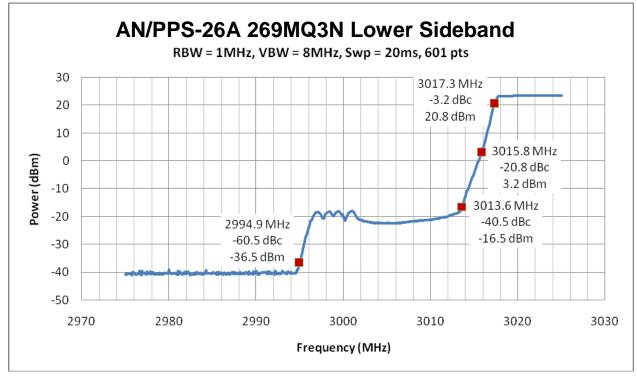
11			
Frequency	Half BW Offset (Fo)	Measured Level(dBc)	Measured Level(dBm)
3283.5 MHz	133.5 MHz	-3.0 dBc	21.0 dBm
3284.8 MHz	134.8 MHz	-20.6 dBc	3.4 dBm
3287.3 MHz	137.3 MHz	-40.3 dBc	-16.3 dBm
3291.0 MHz	141.0 MHz	-60.6 dBc	-36.6 dBm

Full Bandwidth Plot:



269MQ3N Full Bandwidth Spectrum Analyzer Plot

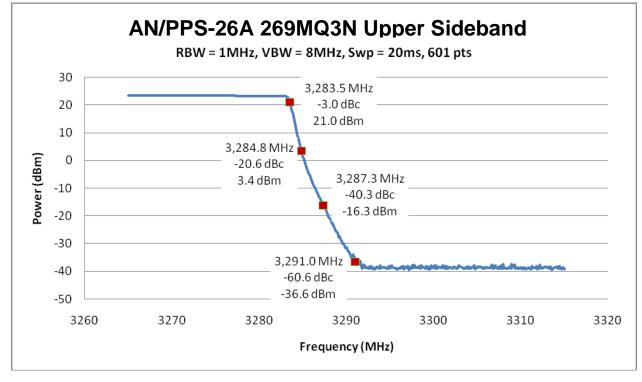




Lower Sideband Plot (Zoomed):

269MQ3N Lower Sideband Spectrum Analyzer Plot

🔆 Agilent 15:44:11	Dec 29, 201	0	-		S۷	/eep
Ref 24 dBm Peak	Atten 40 dB		Mkr4	2.994 92 GHz -36.46 dBm	Swo Auto	eep Time 20.00 ms Man
Log 10 dB/			3		Single	Sweep Cont
		4	\$		Aut <u>Norm</u>	o Sweep Time Accy
LgAv					On	Gate <u>Off</u>
Center 3.000 00 GH #Res BW 1 MHz	V	BW 8 MHz	#Sweep 20	Span 50 MHz ms (601 pts)	Gat	e Setup•
Marker Trace 1 (1) 2 (1) 3 (1) 4 (1)	Type Freq Freq Freq Freq	X Axis 3.017 33 GHz 3.015 92 GHz 3.013 58 GHz 2.994 92 GHz		Amplitude 20.81 dBm 4.02 dBm -16.45 dBm -36.46 dBm		Points 601
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Upper Sideband Plot (Zoomed):

269MQ3N Upper Sideband Spectrum Analyzer Plot

