Certificate of Calibration

Customer Address:	Rental Unit
Certificate:	24081201DR
Product:	Signal Generator
Manufacturer:	Keysight
Model:	N5183B
Serial:	MY59100227
Notes:	9kHz to 20GHz 10MHz out measures 5.8dBm @ 10,000,000.0Hz
Date of Calibration:	8/12/2024
Next Calibration:	*

The next calibration date is defined by the equipment user/owner. We recommend calibration annually.

Calibration Equipment

Model	Description	Serial Number	Due Date
N9010A	Signal Analyzer	MY54510521	9/1/2024
E4419B	Power Meter	GB39512253	6/14/2025
E9300A	Power Sensor	MY50000164	6/21/2026

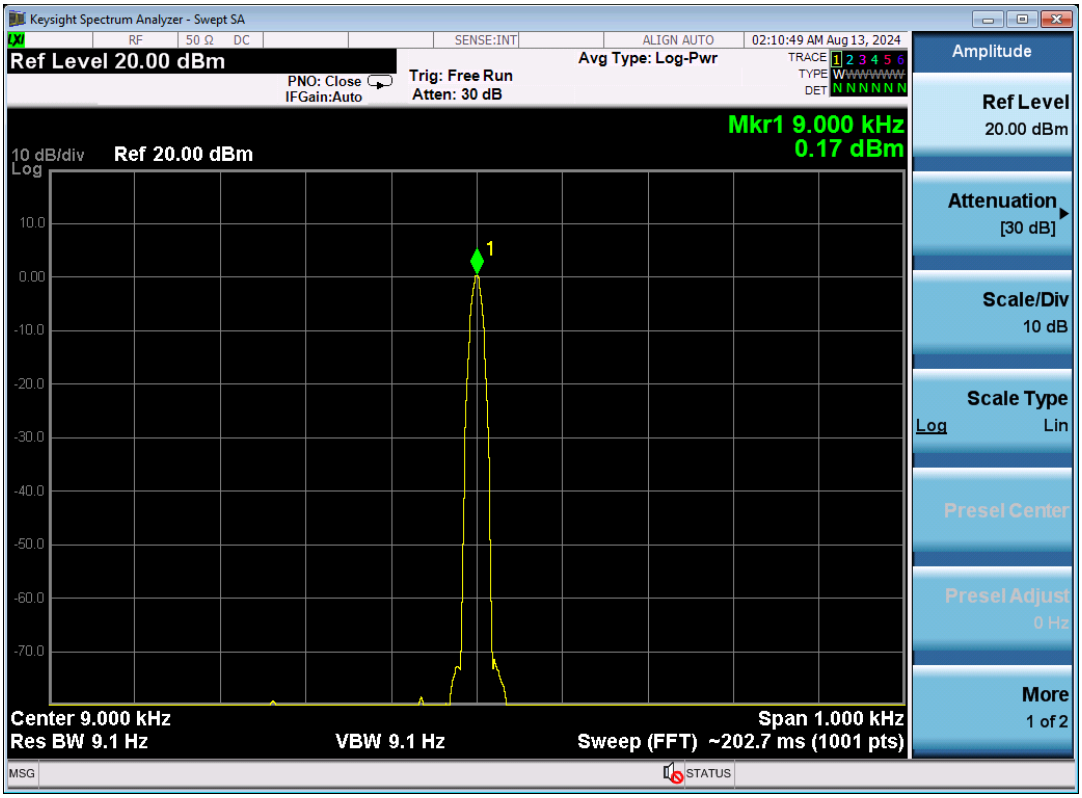
The above equipment was tested and found to be within the Manufacturer's specification. The results of the tests performed are held on file at TheEMCShop.com; see the comments below. The Calibration was carried out in accordance with the general requirements of the manufacturer's specifications using laboratory standards which are traceable to the National Institute of Standards and Technology (NIST) except where none exist. Tests are carried out in environmental conditions controlled appropriately to the instrument's specification.The above instrument was tested and found to be within the Manufacturer's specification.

Ambient Conditions of Laboratory	
Temperature (°C):	**21**
Relative Humidity (%):	**41**

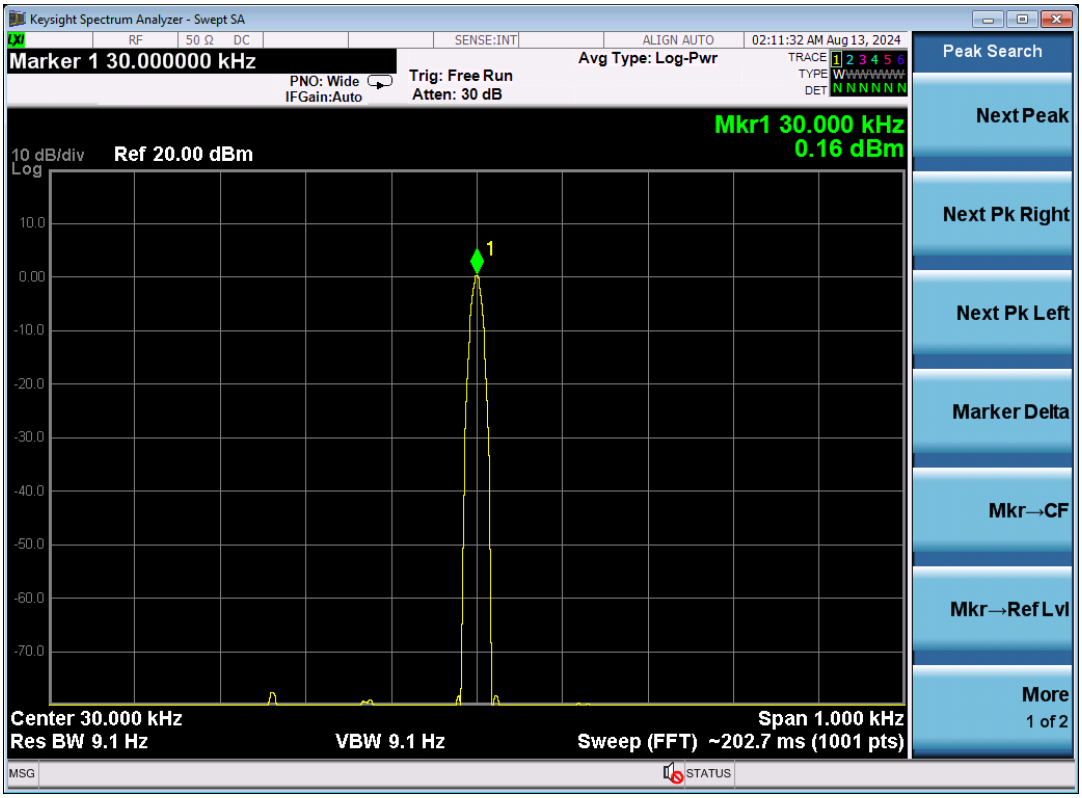
Technician: **Dan Raines**

Technician Signature: _____

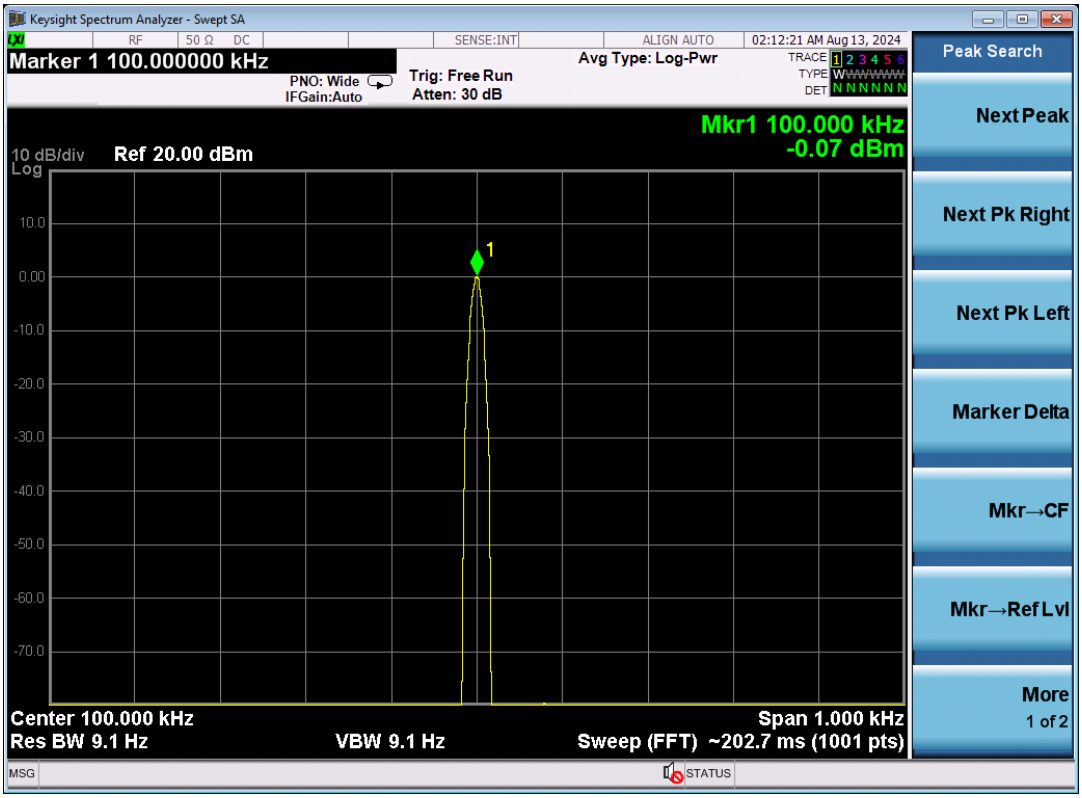
Signal Output at 0dB, 9kHz, RF cable loss not accounted for.



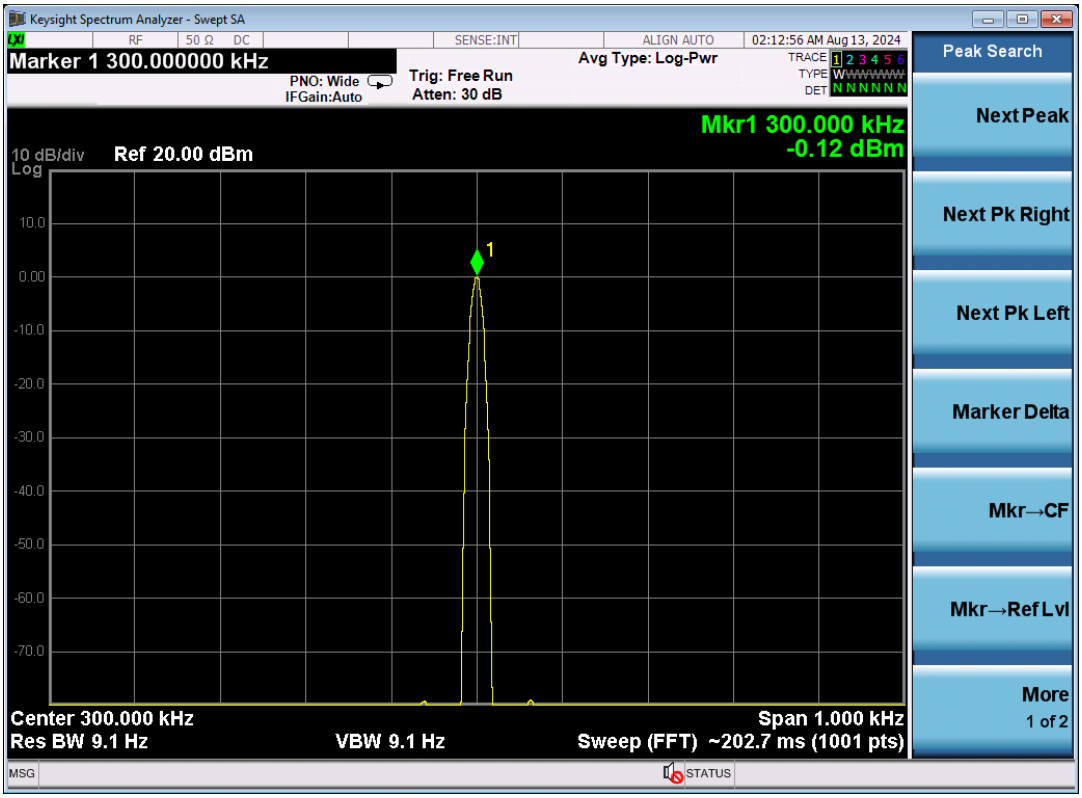
Signal Output at 0dB, 30kHZ, RF cable loss not accounted for.



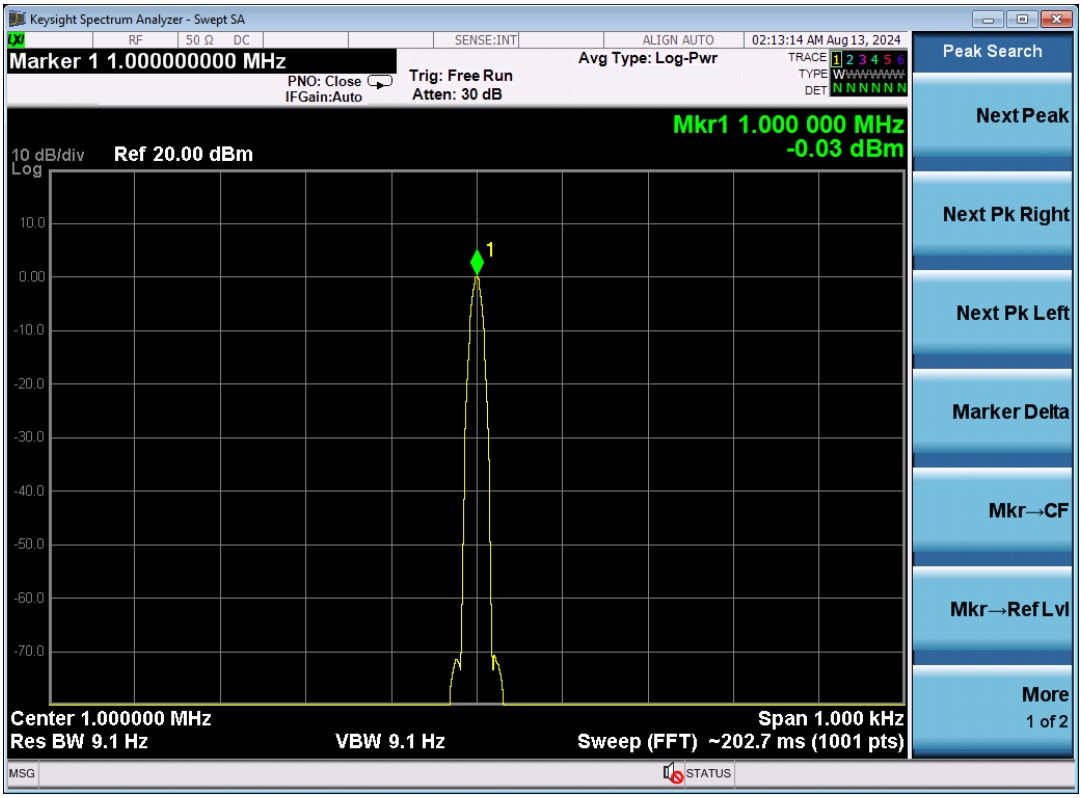
Signal Output at 0dB, 100kHz, RF cable loss not accounted for.



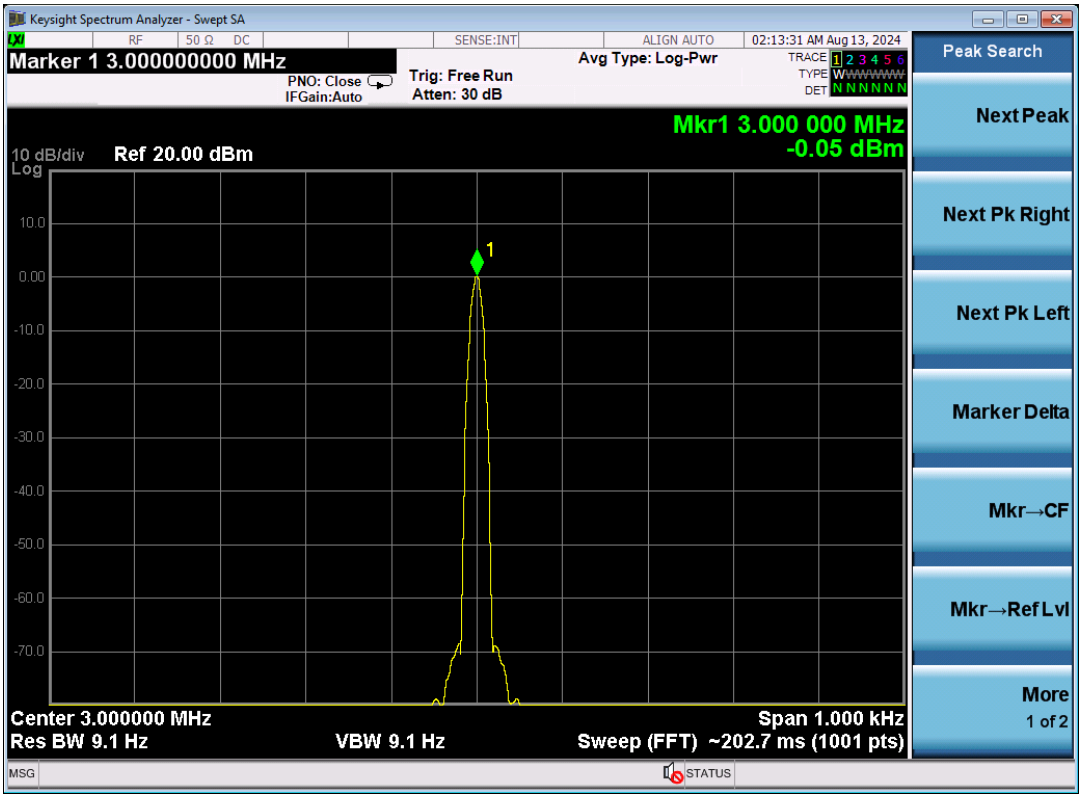
Signal Output at 0dB, 300kHz, RF cable loss not accounted for.



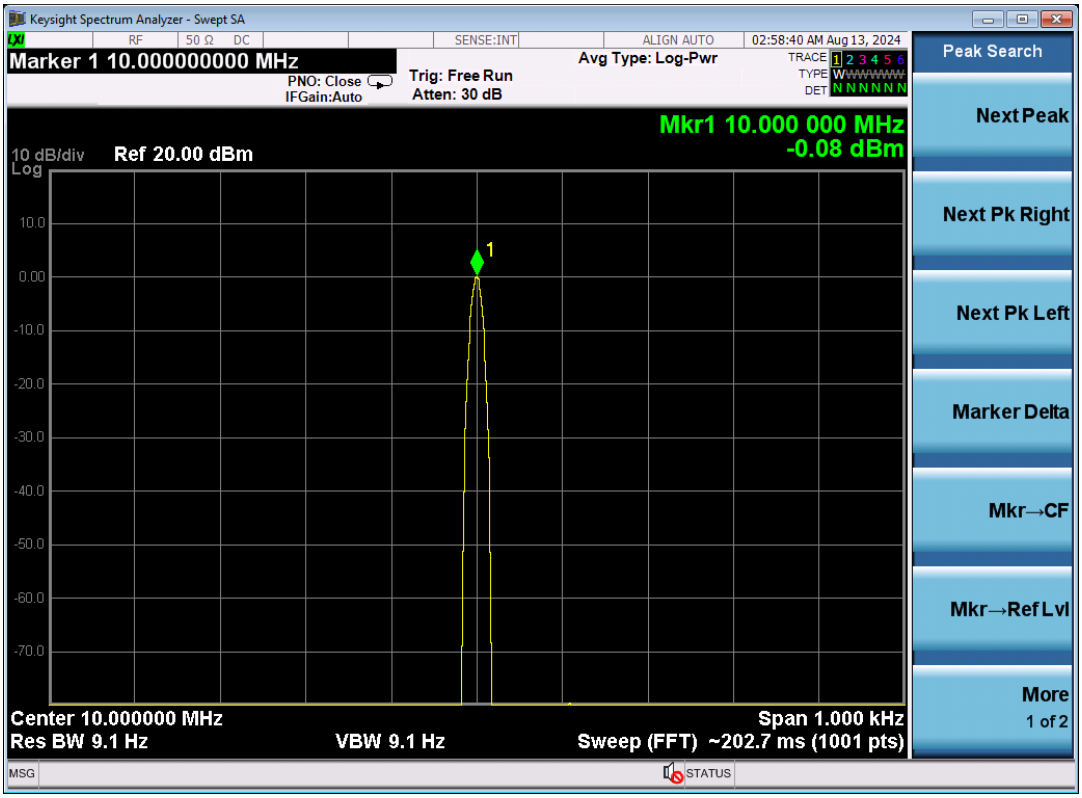
Signal Output at 0dB, 1MHz, RF cable loss not accounted for.



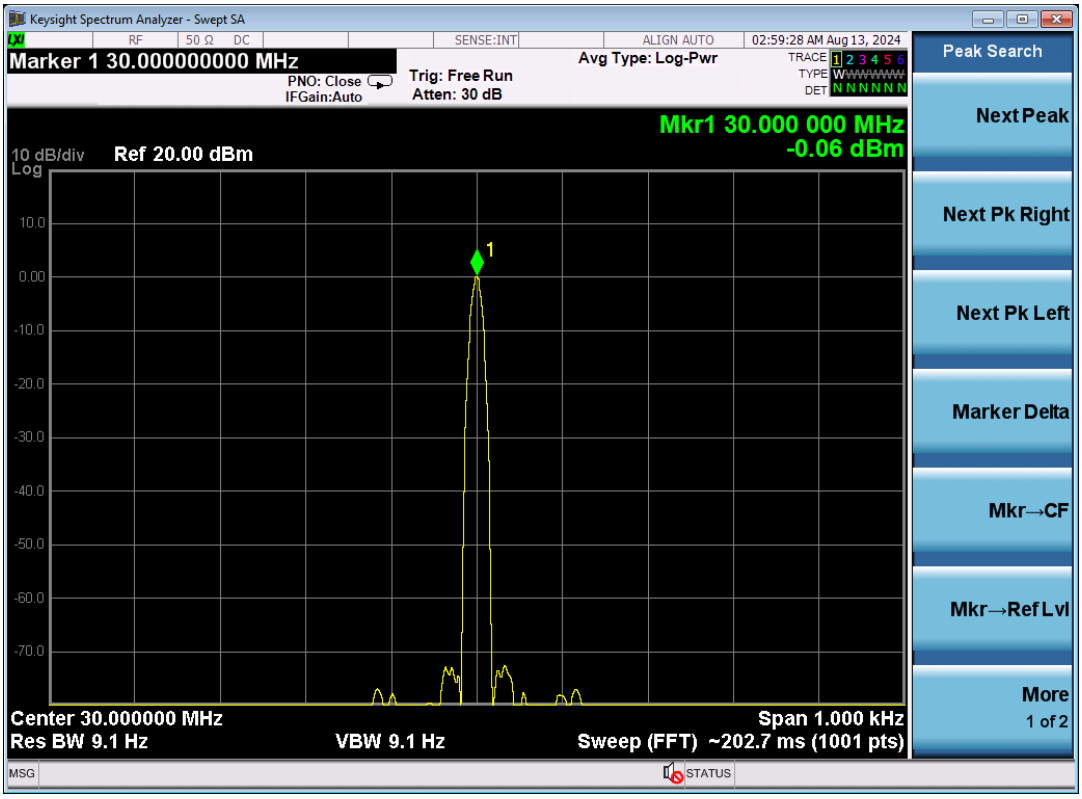
Signal Output at 0dB, 3MHz, RF cable loss not accounted for.



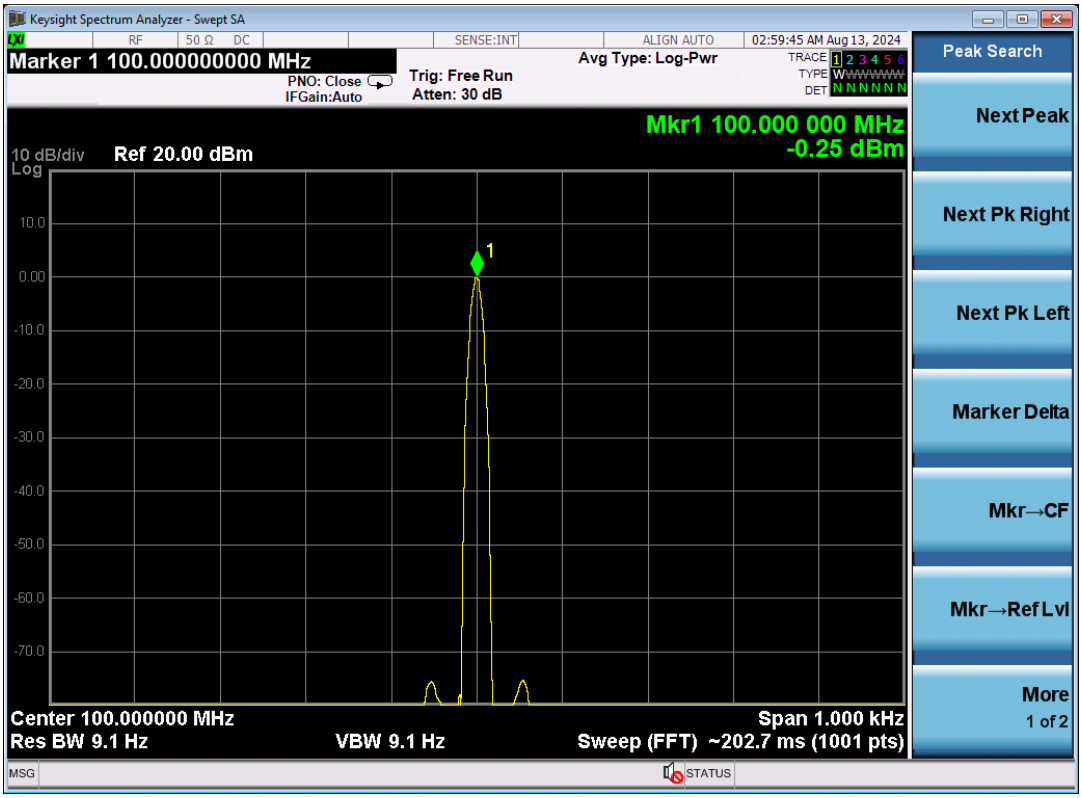
Signal Output at 0dB, 10MHz, RF cable loss not accounted for.



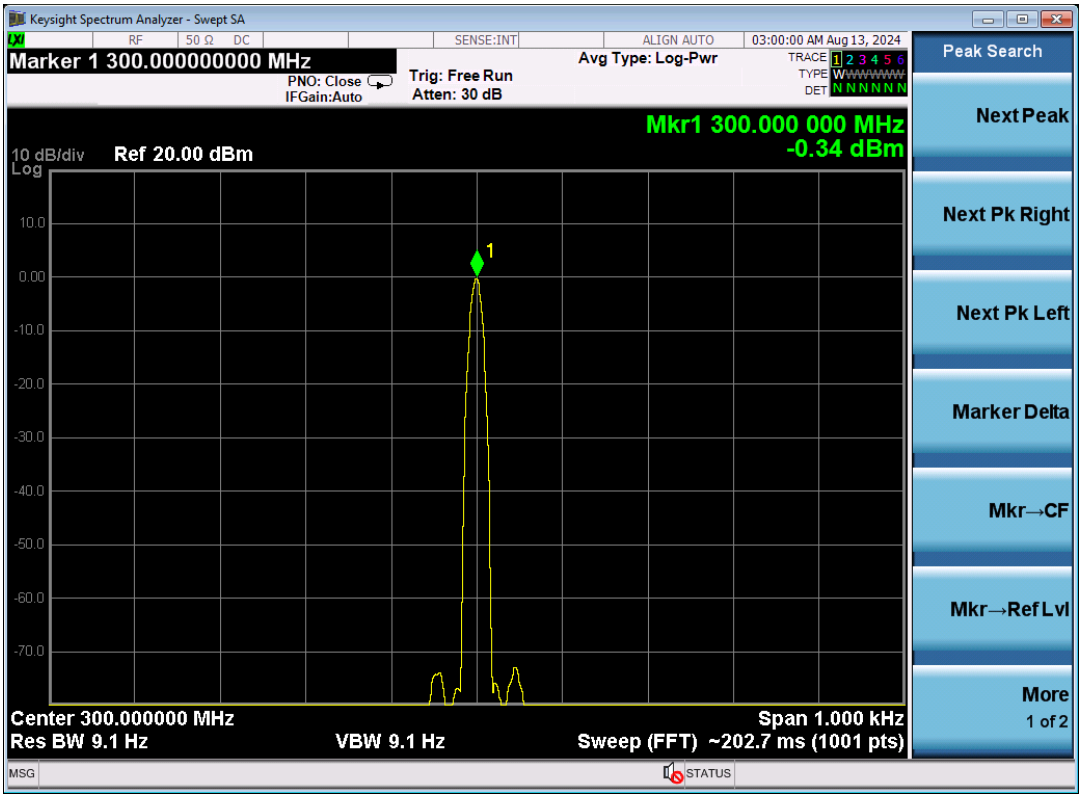
Signal Output at 0dB, 30MHz, RF cable loss not accounted for.



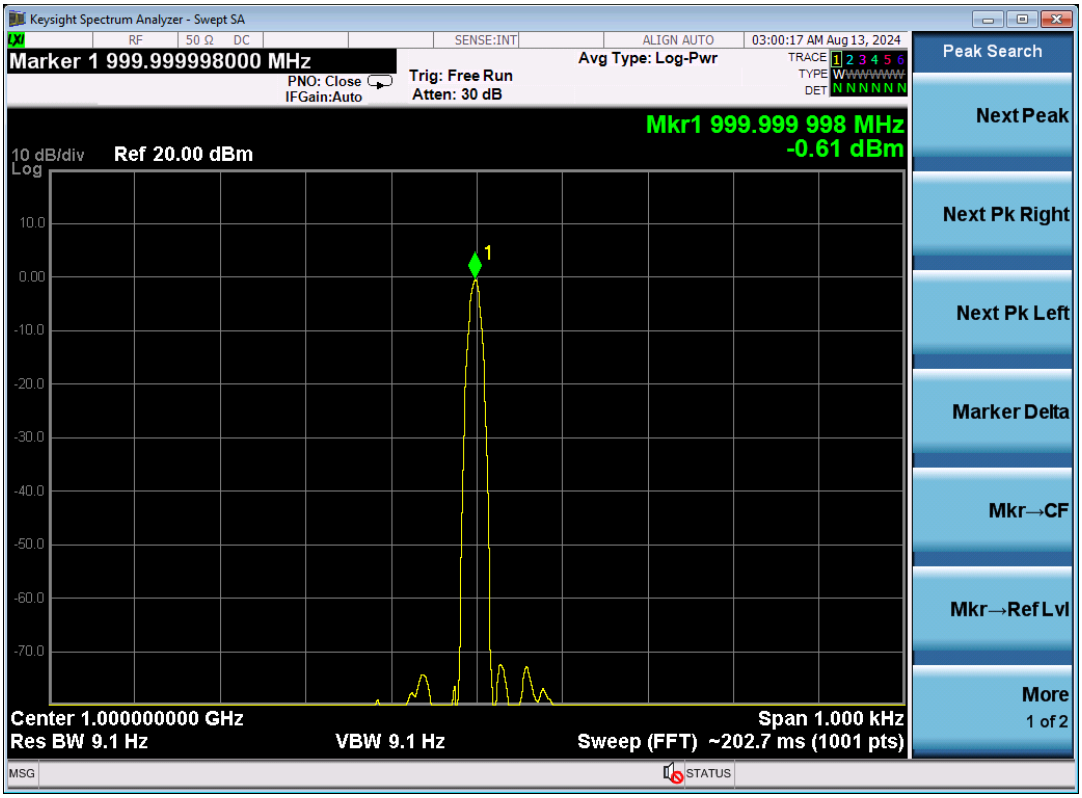
Signal Output at 0dB, 100MHz, RF cable loss not accounted for.



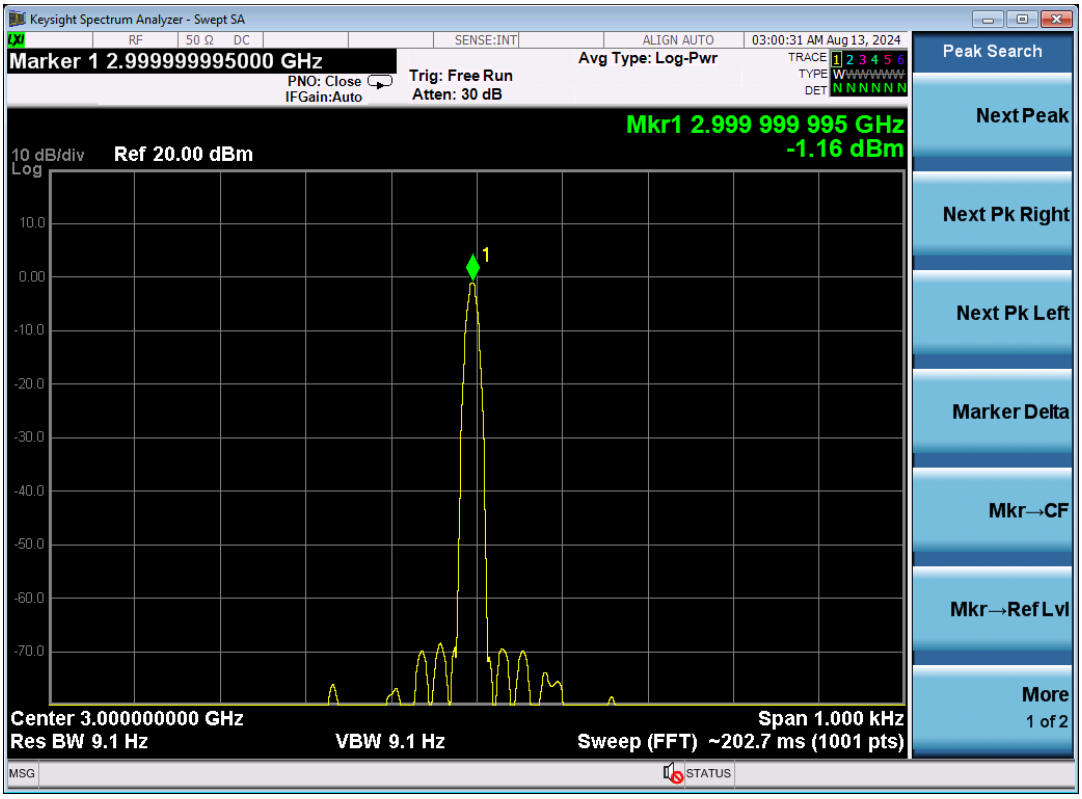
Signal Output at 0dB, 300MHz, RF cable loss not accounted for.



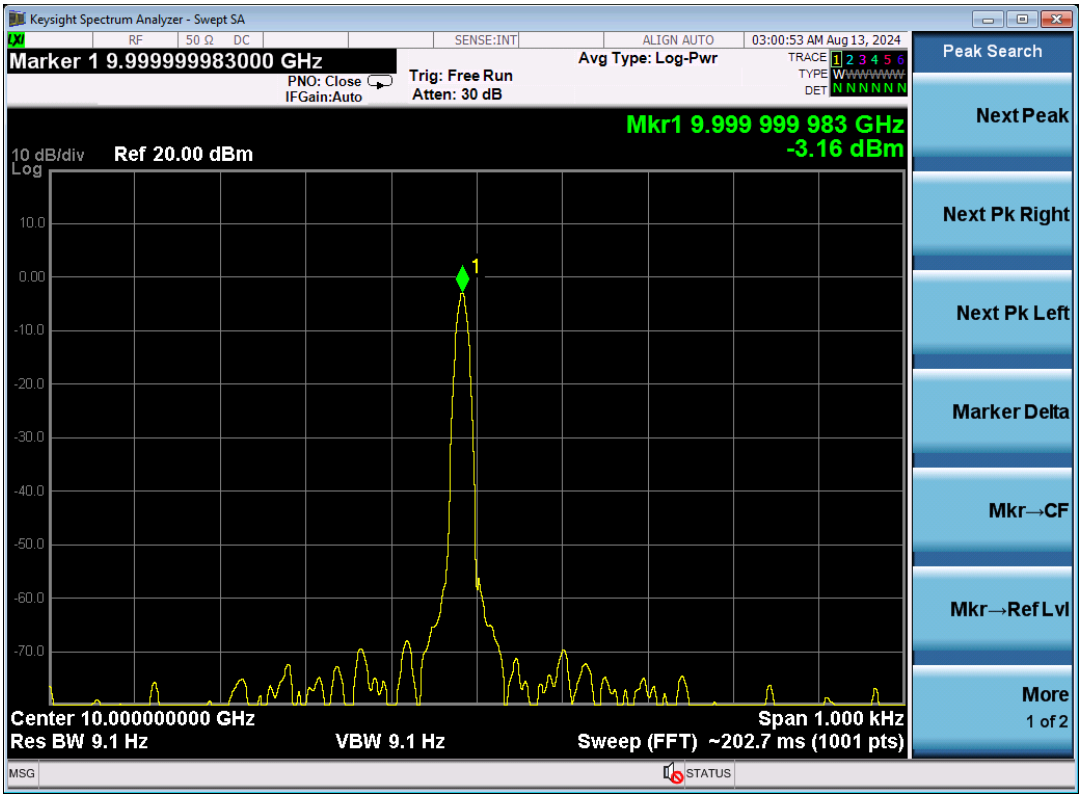
Signal Output at 0dB, 1GHz, RF cable loss not accounted for.



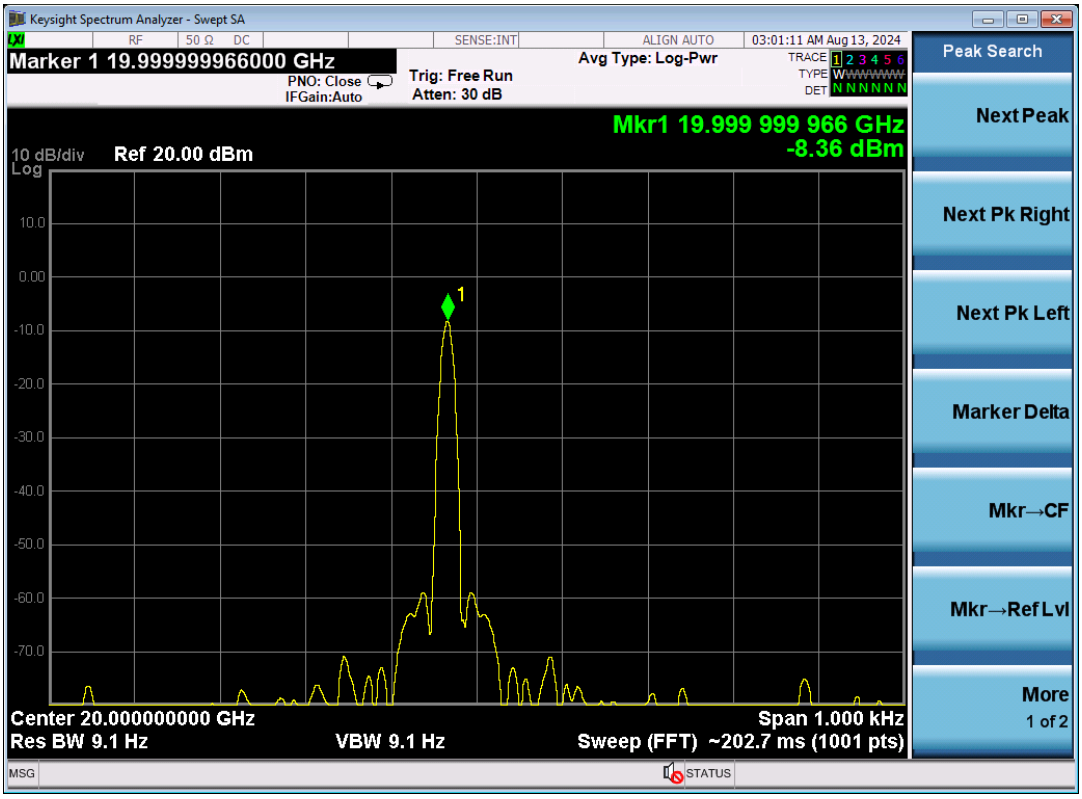
Signal Output at 0dB, 3GHz, RF cable loss not accounted for.



Signal Output at 0dB, 10GHz, RF cable loss not accounted for.



Signal Output at 0dB, 20GHz, RF cable loss not accounted for.



Power Level measurements above -40dBm are done with Sensor and Meter

1dB step Accuracy tested at 9kHz

Nominal (dBm)	Actual (dBm)	Difference (dBm)	Tol. Error (dBm)	Verdict
0.00	0.20	0.20	±1.00	PASS
-1.00	-0.80	0.20	±1.00	PASS
-2.00	-1.80	0.20	±1.00	PASS
-3.00	-2.80	0.20	±1.00	PASS
-4.00	-3.80	0.20	±1.00	PASS
-5.00	-4.80	0.20	±1.00	PASS
-6.00	-5.80	0.20	±1.00	PASS
-7.00	-6.80	0.20	±1.00	PASS
-8.00	-7.80	0.20	±1.00	PASS
-9.00	-8.80	0.20	±1.00	PASS
-10.00	-9.80	0.20	±1.00	PASS

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1dB step Accuracy tested at 20GHz

Nominal (dBm)	Actual (dBm)	Difference (dBm)	Tol. Error (dBm)	Verdict
0.00	-0.30	-0.30	±1.00	PASS
-1.00	-1.20	-0.20	±1.00	PASS
-2.00	-2.20	-0.20	±1.00	PASS
-3.00	-3.20	-0.20	±1.00	PASS
-4.00	-4.20	-0.20	±1.00	PASS
-5.00	-5.20	-0.20	±1.00	PASS
-6.00	-6.20	-0.20	±1.00	PASS
-7.00	-7.20	-0.20	±1.00	PASS
-8.00	-8.20	-0.20	±1.00	PASS
-9.00	-9.10	-0.10	±1.00	PASS
-10.00	-10.10	-0.10	±1.00	PASS

Power Level measurements above -40dBm are done with Sensor and Meter

Power Level Accuracy versus Frequency tested at 14dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	14.20	±1.00	N/A
30kHz	14.20	±1.00	N/A
100kHz	13.90	±1.00	N/A
150kHz	13.90	±1.00	PASS
300kHz	13.90	±1.00	PASS
1MHz	13.90	±1.00	PASS
3MHz	13.90	±1.00	PASS
10MHz	13.90	±1.00	PASS
30MHz	13.90	±1.00	PASS
100MHz	13.90	±1.00	PASS
300MHz	13.90	±1.00	PASS
1GHz	14.00	±1.00	PASS
3GHz	14.00	±1.00	PASS
10GHz	13.90	±1.00	PASS
20GHz	13.80	±1.00	PASS

Power Level Accuracy versus Frequency tested at 10dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	10.30	±1.00	PASS
30kHz	10.20	±1.00	PASS
100kHz	9.90	±1.00	PASS
150kHz	9.90	±1.00	PASS
300kHz	9.90	±1.00	PASS
1MHz	9.90	±1.00	PASS
3MHz	9.90	±1.00	PASS
10MHz	9.90	±1.00	PASS
30MHz	9.90	±1.00	PASS
100MHz	9.90	±1.00	PASS
300MHz	9.90	±1.00	PASS
1GHz	10.00	±1.00	PASS
3GHz	10.00	±1.00	PASS
10GHz	10.00	±1.00	PASS
20GHz	9.80	±1.00	PASS

Power Level Accuracy versus Frequency tested at 0dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	0.20	±1.00	PASS
30kHz	0.20	±1.00	PASS
100kHz	-0.10	±1.00	PASS
150kHz	-0.10	±1.00	PASS
300kHz	-0.10	±1.00	PASS
1MHz	-0.10	±1.00	PASS
3MHz	-0.10	±1.00	PASS
10MHz	-0.10	±1.00	PASS
30MHz	-0.10	±1.00	PASS
100MHz	0.10	±1.00	PASS
300MHz	-0.10	±1.00	PASS
1GHz	0.00	±1.00	PASS
3GHz	0.00	±1.00	PASS
10GHz	-0.10	±1.00	PASS
20GHz	-0.20	±1.00	PASS

Power Level Accuracy versus Frequency tested at -10dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	-9.80	±1.00	PASS
30kHz	-9.80	±1.00	PASS
100kHz	-10.10	±1.00	PASS
150kHz	-10.10	±1.00	PASS
300kHz	-10.10	±1.00	PASS
1MHz	-10.00	±1.00	PASS
3MHz	-10.10	±1.00	PASS
10MHz	-10.10	±1.00	PASS
30MHz	-10.10	±1.00	PASS
100MHz	-10.10	±1.00	PASS
300MHz	-10.00	±1.00	PASS
1GHz	-9.90	±1.00	PASS
3GHz	-9.90	±1.00	PASS
10GHz	-10.00	±1.00	PASS
20GHz	-10.10	±1.00	PASS

Power Level Accuracy versus Frequency tested at -20dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	-19.80	±1.00	PASS
30kHz	-19.90	±1.00	PASS
100kHz	-20.10	±1.00	PASS
150kHz	-20.10	±1.00	PASS
300kHz	-20.10	±1.00	PASS
1MHz	-20.10	±1.00	PASS
3MHz	-20.10	±1.00	PASS
10MHz	-20.20	±1.00	PASS
30MHz	-20.00	±1.00	PASS
100MHz	-20.00	±1.00	PASS
300MHz	-20.00	±1.00	PASS
1GHz	-20.00	±1.00	PASS
3GHz	-20.00	±1.00	PASS
10GHz	-20.10	±1.00	PASS
20GHz	-20.30	±1.00	PASS

Power Level Accuracy versus Frequency tested at -30dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	-29.80	±1.00	PASS
30kHz	-29.90	±1.00	PASS
100kHz	-30.10	±1.00	PASS
150kHz	-30.10	±1.00	PASS
300kHz	-30.20	±1.00	PASS
1MHz	-30.00	±1.00	PASS
3MHz	-30.10	±1.00	PASS
10MHz	-30.20	±1.00	PASS
30MHz	-30.00	±1.00	PASS
100MHz	-30.00	±1.00	PASS
300MHz	-30.00	±1.00	PASS
1GHz	-30.00	±1.00	PASS
3GHz	-30.00	±1.00	PASS
10GHz	-30.10	±1.00	PASS
20GHz	-30.30	±1.00	PASS

Power Level measurements below -40dBm are done with Signal Analyzer
Accounting for the RF cable loss at that frequency

Power Level Accuracy versus Frequency tested at -40dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	-39.80	±1.00	PASS
30kHz	-39.90	±1.00	PASS
100kHz	-40.10	±1.00	PASS
150kHz	-40.10	±1.00	PASS
300kHz	-40.10	±1.00	PASS
1MHz	-40.00	±1.00	PASS
3MHz	-40.10	±1.00	PASS
10MHz	-40.20	±1.00	PASS
30MHz	-39.90	±1.00	PASS
100MHz	-39.90	±1.00	PASS
300MHz	-39.90	±1.00	PASS
1GHz	-39.90	±1.00	PASS
3GHz	-39.90	±1.00	PASS
10GHz	-40.00	±1.00	PASS
20GHz	-40.30	±1.00	PASS

Power Level Accuracy versus Frequency tested at -50dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	-49.70	±1.00	PASS
30kHz	-49.80	±1.00	PASS
100kHz	-50.00	±1.00	PASS
150kHz	-50.00	±1.00	PASS
300kHz	-50.00	±1.00	PASS
1MHz	-49.90	±1.00	PASS
3MHz	-50.00	±1.00	PASS
10MHz	-50.20	±1.00	PASS
30MHz	-49.90	±1.00	PASS
100MHz	-50.10	±1.00	PASS
300MHz	-49.90	±1.00	PASS
1GHz	-49.90	±1.00	PASS
3GHz	-49.90	±1.00	PASS
10GHz	-50.00	±1.00	PASS
20GHz	-50.30	±1.00	PASS

Power Level Accuracy versus Frequency tested at -60dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	-59.70	±1.00	PASS
30kHz	-59.70	±1.00	PASS
100kHz	-60.00	±1.00	PASS
150kHz	-60.00	±1.00	PASS
300kHz	-60.00	±1.00	PASS
1MHz	-59.90	±1.00	PASS
3MHz	-60.00	±1.00	PASS
10MHz	-60.20	±1.00	PASS
30MHz	-60.00	±1.00	PASS
100MHz	-60.10	±1.00	PASS
300MHz	-59.90	±1.00	PASS
1GHz	-59.90	±1.00	PASS
3GHz	-59.90	±1.00	PASS
10GHz	-60.00	±1.00	PASS
20GHz	-60.50	±1.00	PASS

Power Level Accuracy versus Frequency tested at -70dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	-69.60	±1.00	PASS
30kHz	-69.70	±1.00	PASS
100kHz	-69.90	±1.00	PASS
150kHz	-69.90	±1.00	PASS
300kHz	-69.90	±1.00	PASS
1MHz	-69.80	±1.00	PASS
3MHz	-69.90	±1.00	PASS
10MHz	-70.30	±1.00	PASS
30MHz	-70.10	±1.00	PASS
100MHz	-70.20	±1.00	PASS
300MHz	-70.10	±1.00	PASS
1GHz	-70.10	±1.00	PASS
3GHz	-70.10	±1.00	PASS
10GHz	-70.20	±1.00	PASS
20GHz	-70.50	±1.00	PASS

Power Level Accuracy versus Frequency tested at -80dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	-79.60	±1.00	PASS
30kHz	-79.90	±1.00	PASS
100kHz	-80.00	±1.00	PASS
150kHz	-80.10	±1.00	PASS
300kHz	-80.10	±1.00	PASS
1MHz	-80.00	±1.00	PASS
3MHz	-80.20	±1.00	PASS
10MHz	-80.40	±1.00	PASS
30MHz	-80.10	±1.00	PASS
100MHz	-80.30	±1.00	PASS
300MHz	-80.10	±1.00	PASS
1GHz	-80.10	±1.00	PASS
3GHz	-80.10	±1.00	PASS
10GHz	-80.20	±1.00	PASS
20GHz	-80.50	±1.00	PASS

Power Level Accuracy versus Frequency tested at -90dBm

Frequency	Actual (dBm)	Tol. Error (dBm)	Verdict
9kHz	-89.70	±1.00	PASS
30kHz	-89.90	±1.00	PASS
100kHz	-90.00	±1.00	PASS
150kHz	-90.00	±1.00	PASS
300kHz	-90.10	±1.00	PASS
1MHz	-89.90	±1.00	PASS
3MHz	-90.30	±1.00	PASS
10MHz	-90.40	±1.00	PASS
30MHz	-90.20	±1.00	PASS
100MHz	-90.30	±1.00	PASS
300MHz	-90.10	±1.00	PASS
1GHz	-90.10	±1.00	PASS
3GHz	-90.20	±1.00	PASS
10GHz	-90.20	±1.00	PASS
20GHz	-90.50	±1.00	PASS

Frequency Accuracy Out

Frequency	Actual (Hz)	Verdict
9kHz	9,000	PASS
30kHz	30,000	PASS
100kHz	100,000	PASS
300kHz	300,000	PASS
1MHz	1,000,000	PASS
3MHz	3,000,000	PASS
10MHz	10,000,000	PASS
30MHz	30,000,000	PASS
100MHz	100,000,000	PASS
300MHz	300,000,000	PASS
1GHz	9,999,999,998	PASS
3GHz	2,999,999,985	PASS
10GHz	9,999,999,983	PASS
20GHz	19,999,999,966	PASS