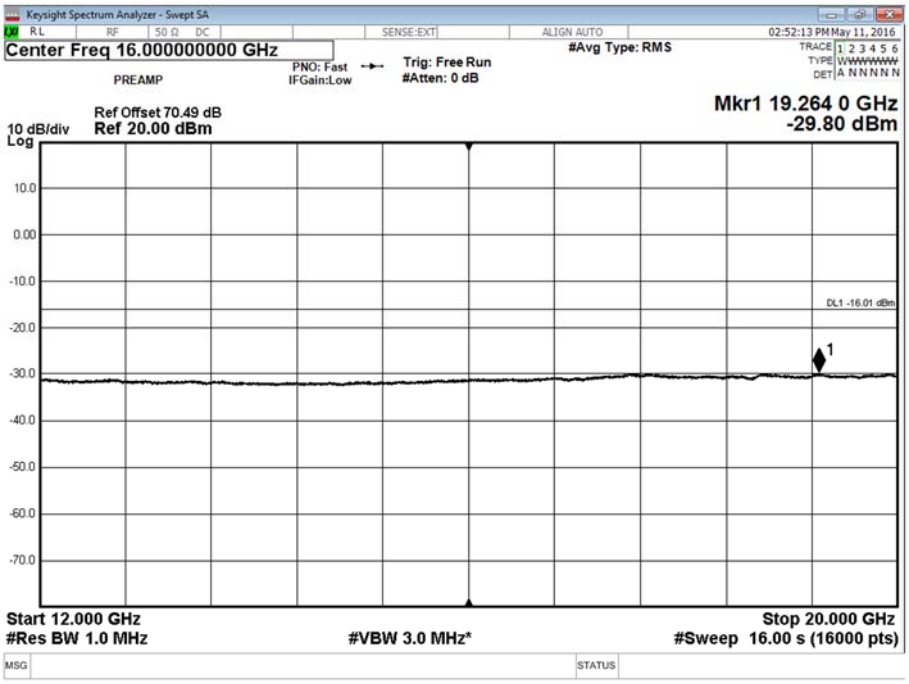
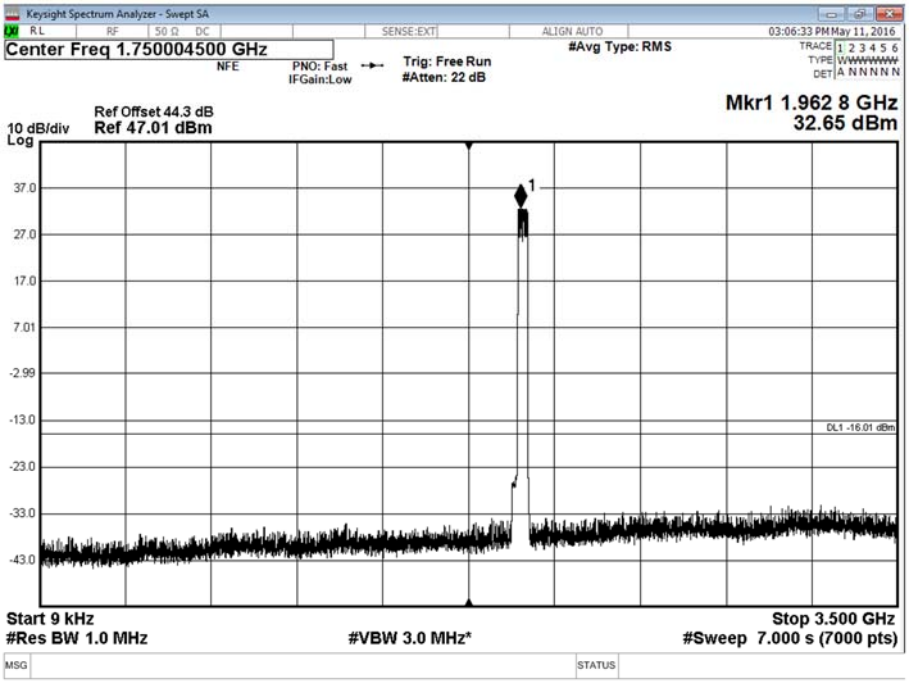
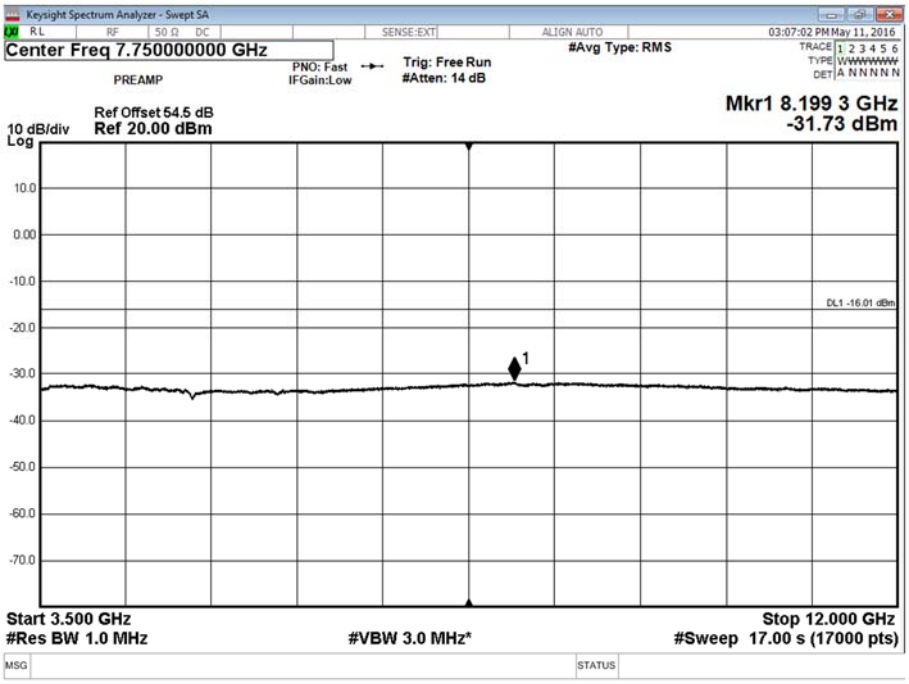
Channel Position M - Bandwidth 5.0 MHz - Antenna B



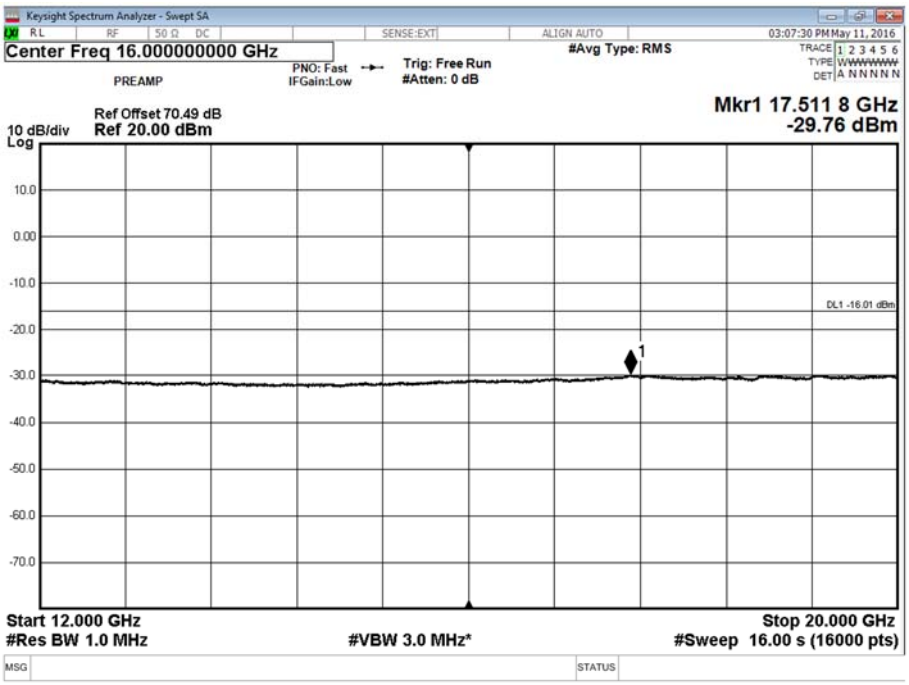
Channel Position T - Bandwidth 5.0 MHz - Antenna B



Channel Position T - Bandwidth 5.0 MHz - Antenna B



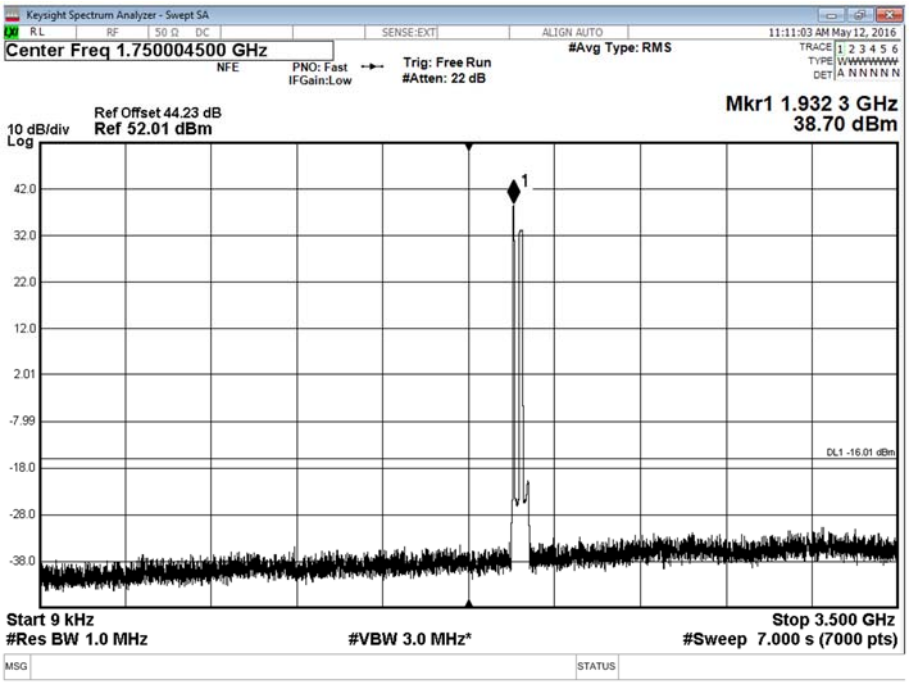
Channel Position T - Bandwidth 5.0 MHz - Antenna B



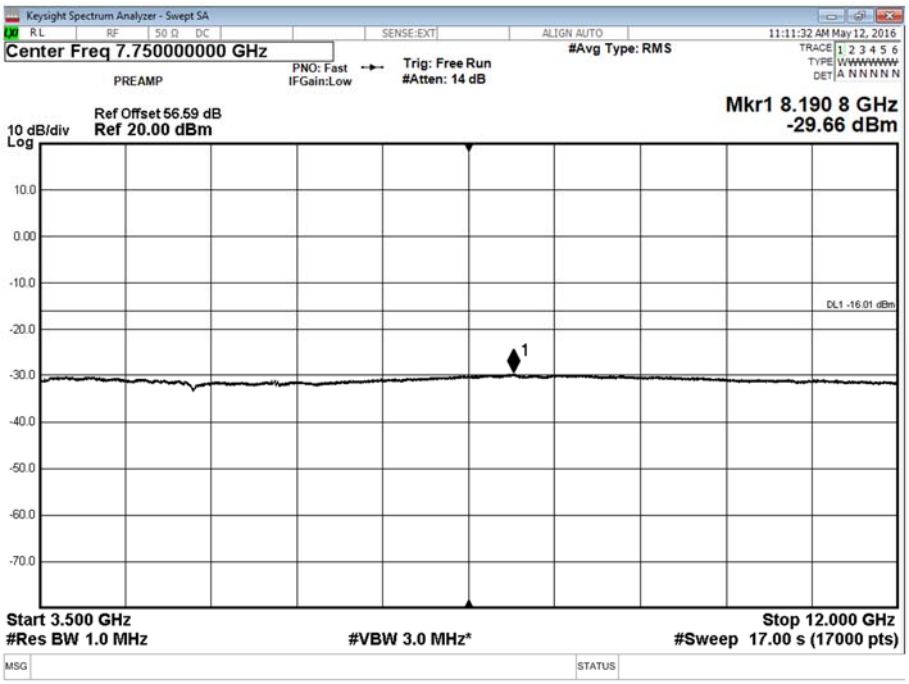
Configuration 12

Maximum Output Power 46.0 dBm

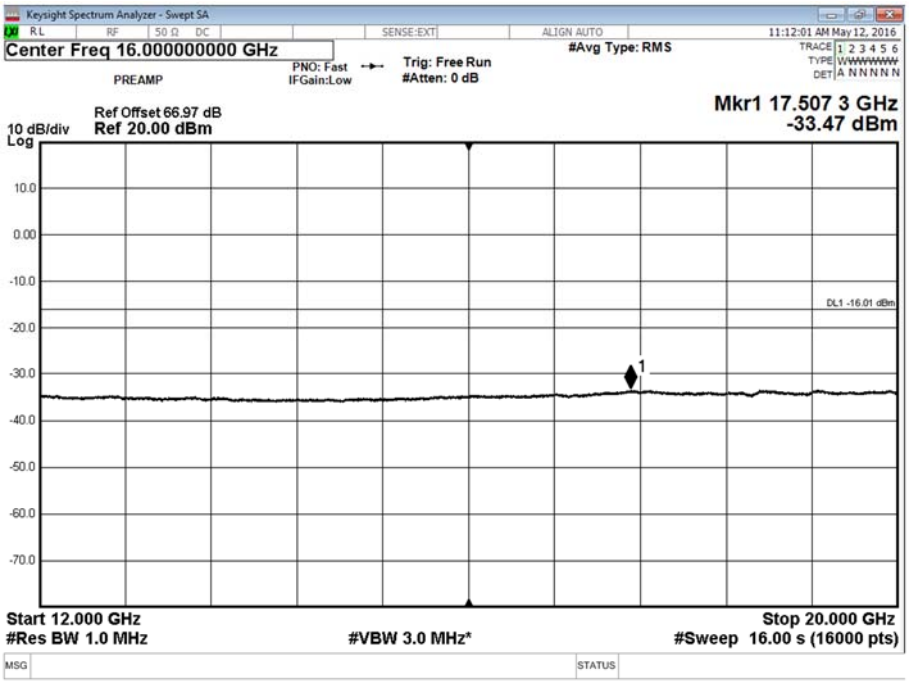
Channel Position BRFBW - Bandwidth 5.0 MHz - Antenna A



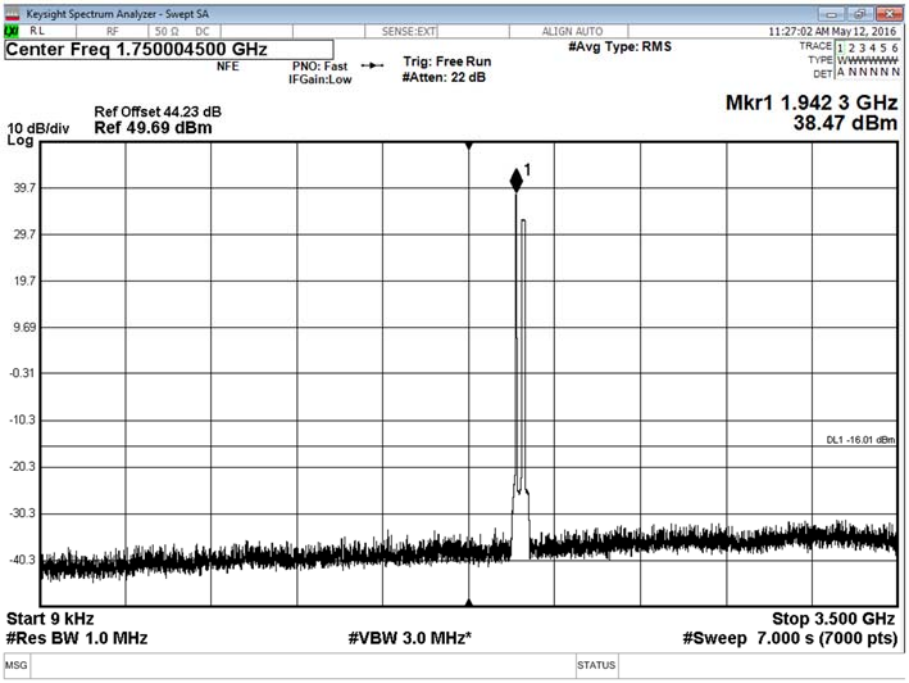
Channel Position BRFBW - Bandwidth 5.0 MHz - Antenna A



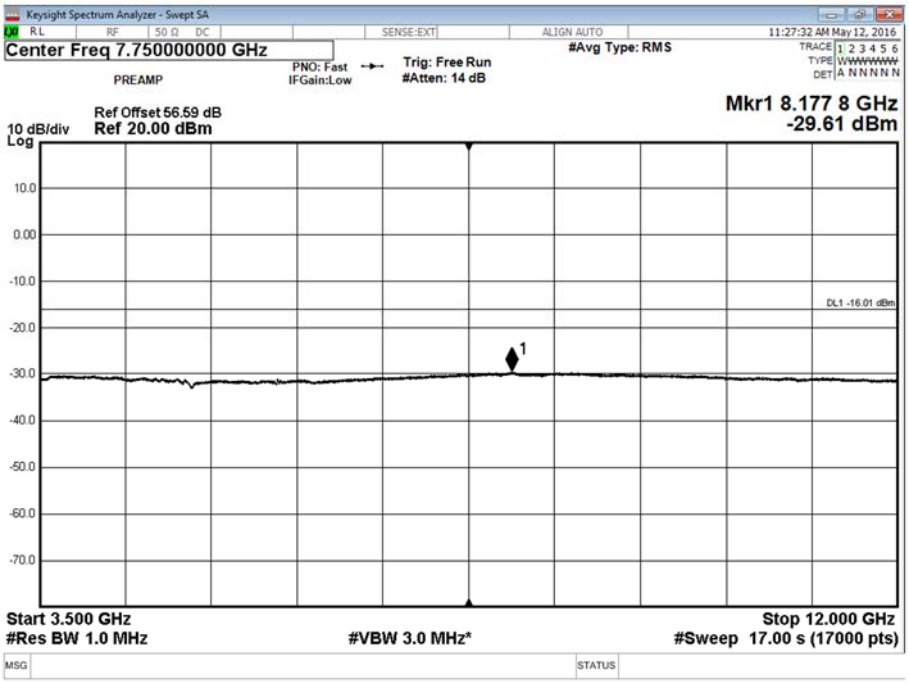
Channel Position BRFBW - Bandwidth 5.0 MHz - Antenna A



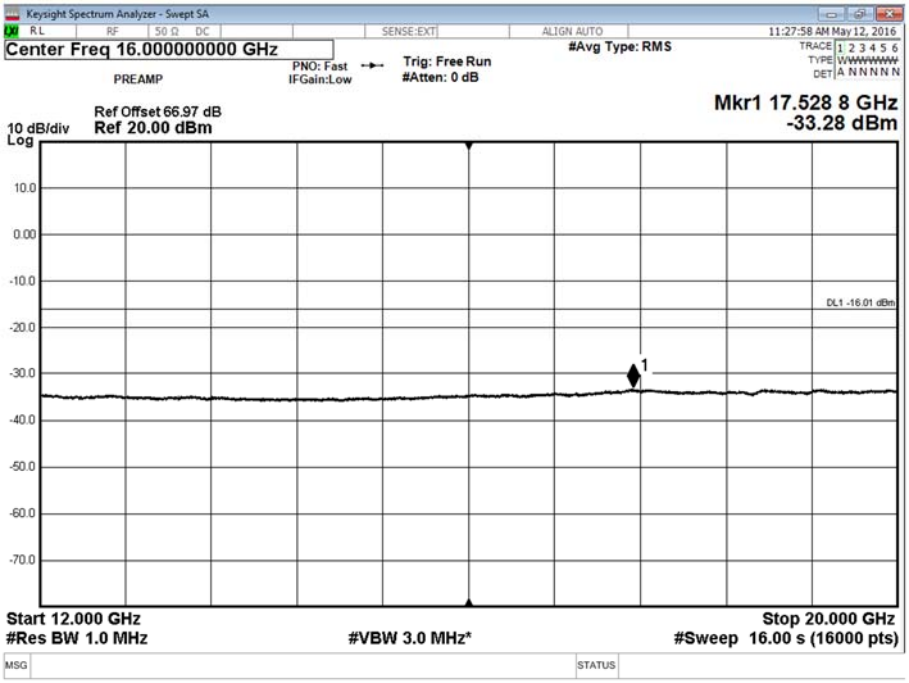
Channel Position MRFBW - Bandwidth 5.0 MHz - Antenna A



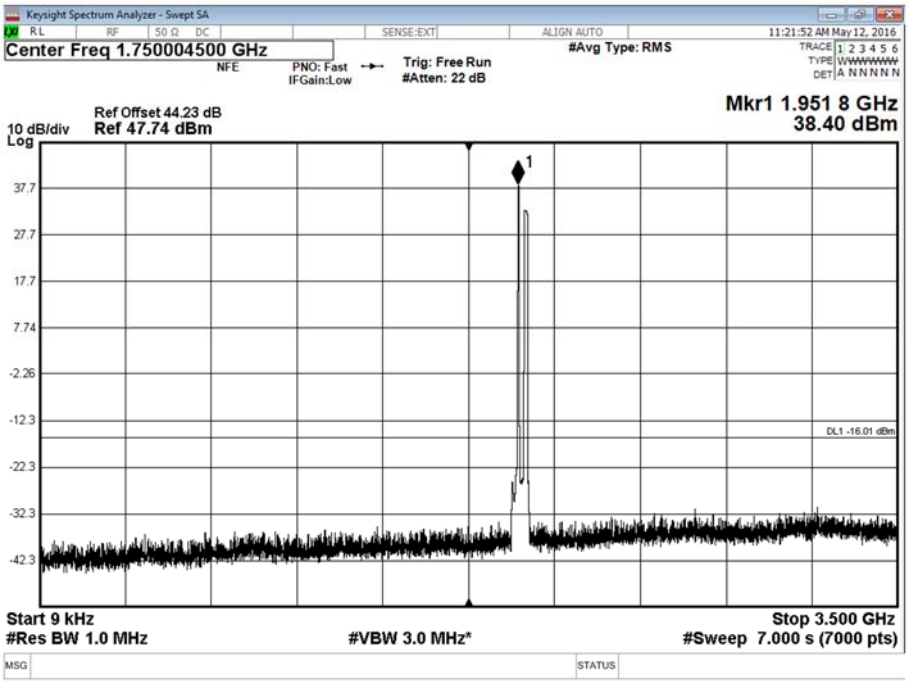
Channel Position MRFBW - Bandwidth 5.0 MHz - Antenna A



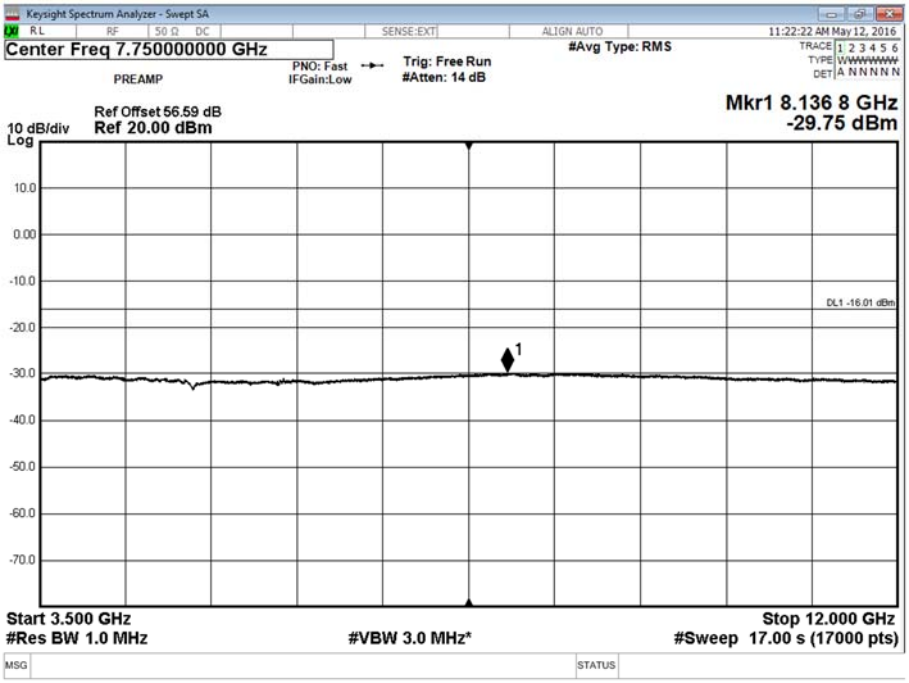
Channel Position MRFBW - Bandwidth 5.0 MHz - Antenna A



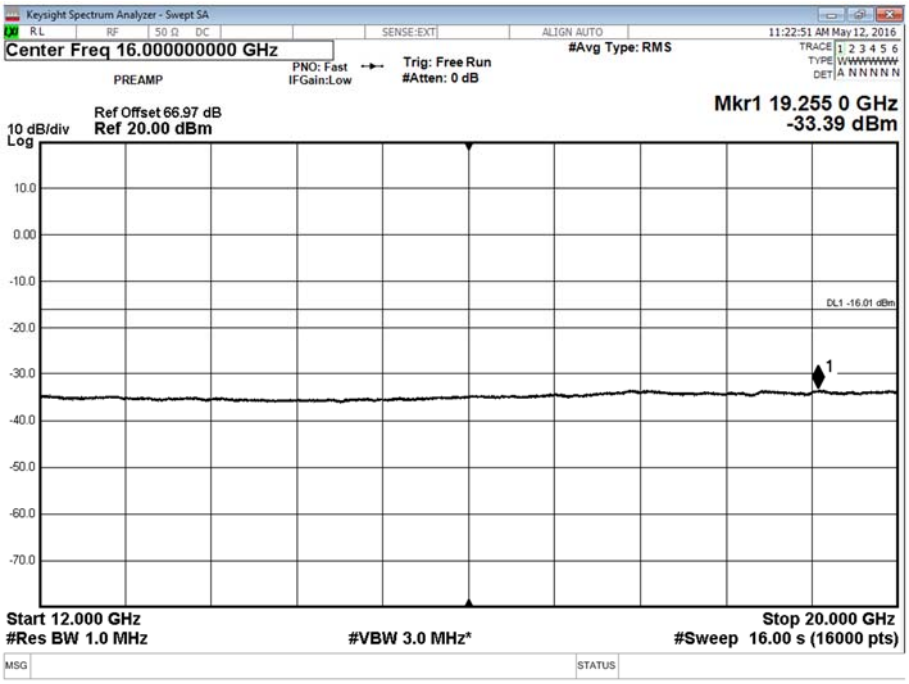
Channel Position TRFBW - Bandwidth 5.0 MHz - Antenna A



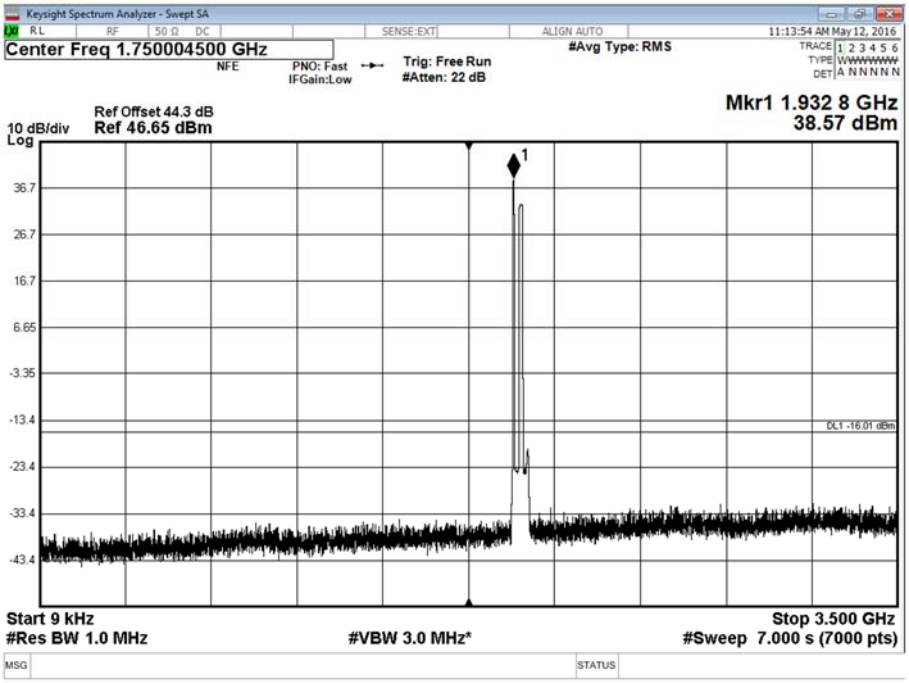
Channel Position TRFBW - Bandwidth 5.0 MHz - Antenna A



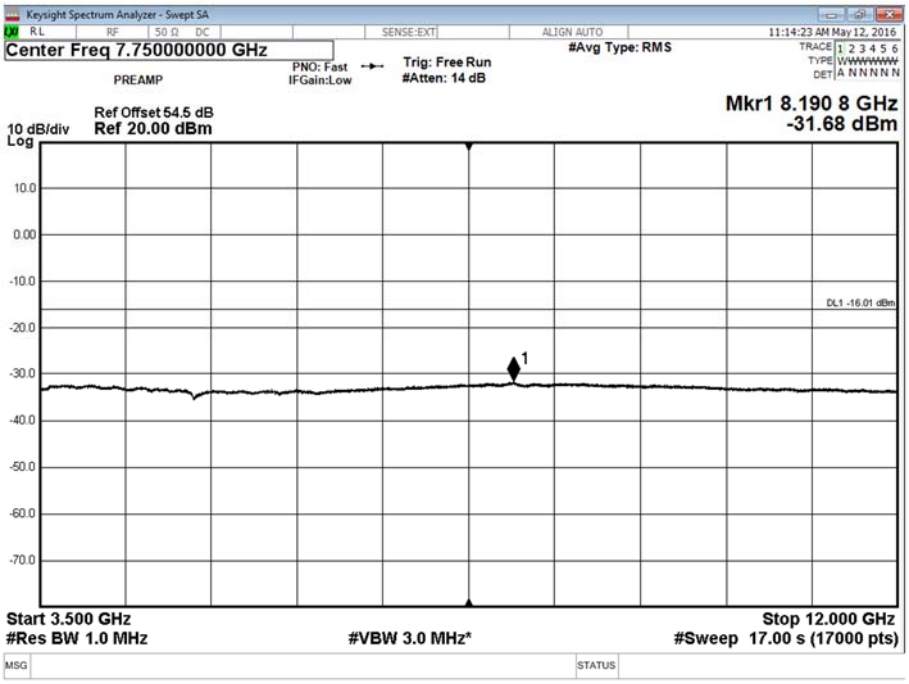
Channel Position TRFBW - Bandwidth 5.0 MHz - Antenna A



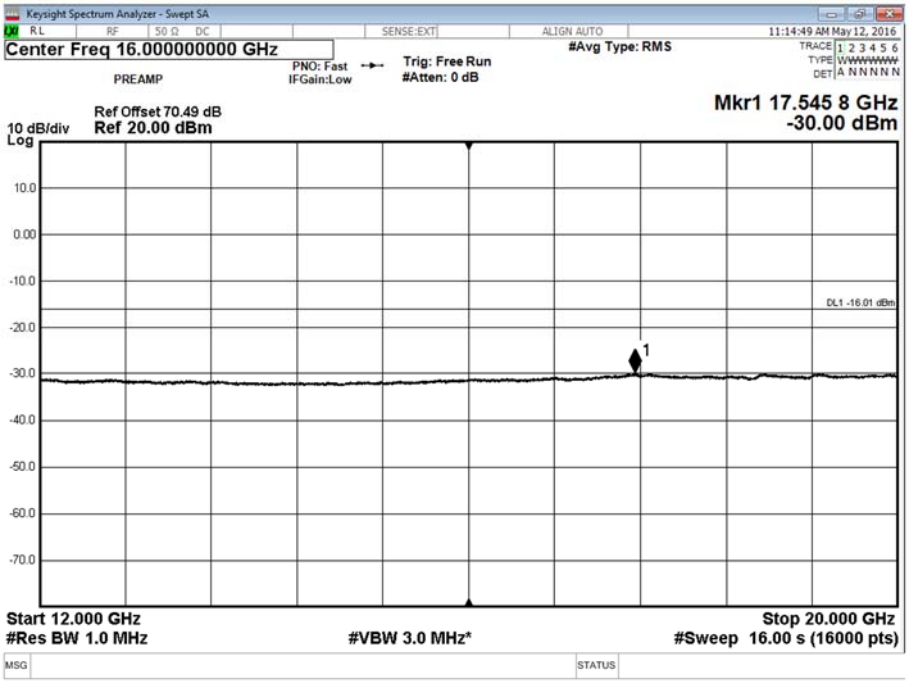
Channel Position BRFBW - Bandwidth 5.0 MHz - Antenna B



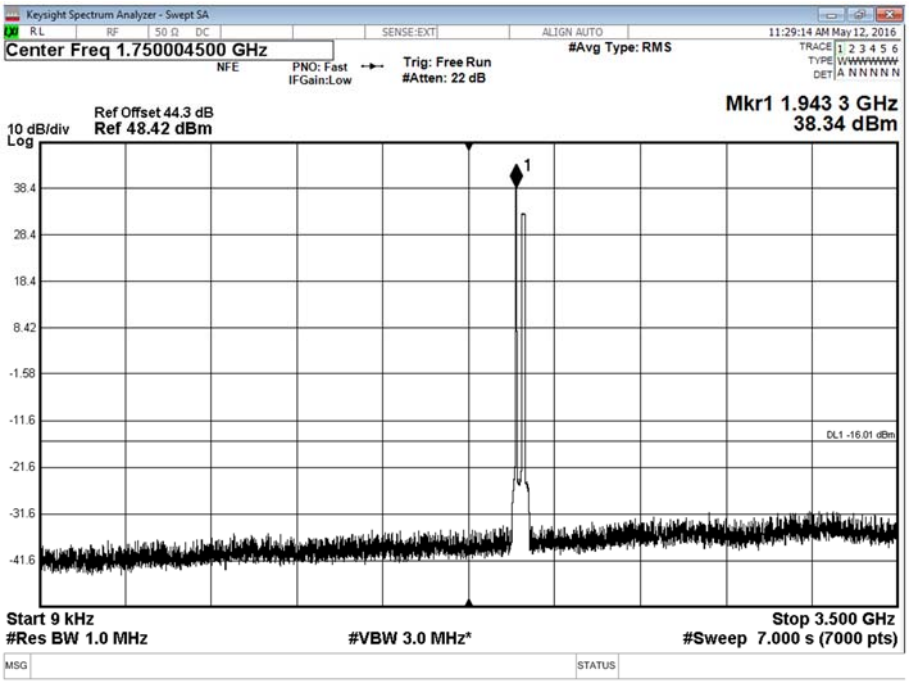
Channel Position BRFBW - Bandwidth 5.0 MHz - Antenna B



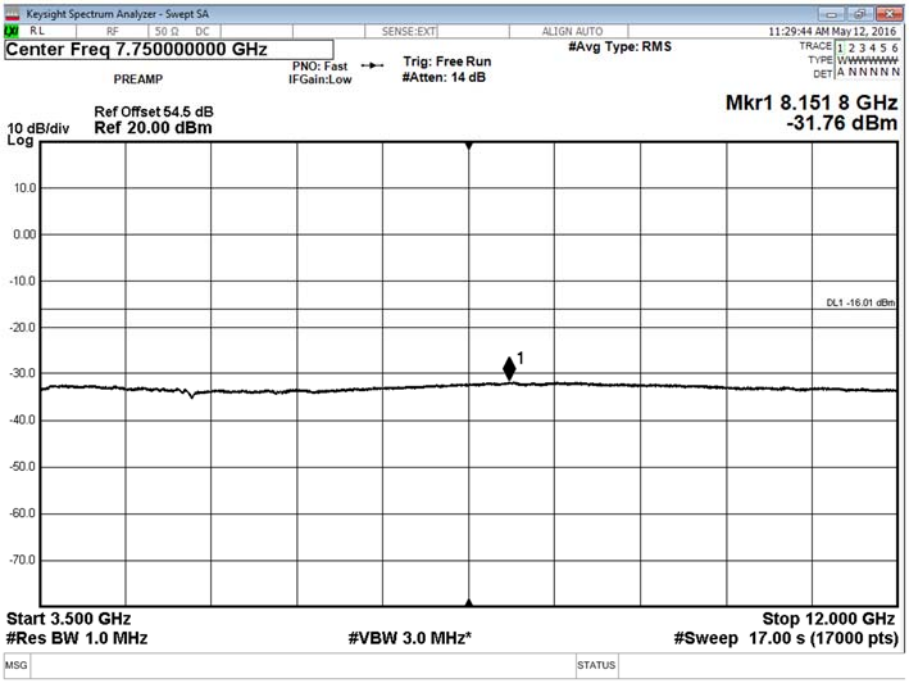
Channel Position BRFBW - Bandwidth 5.0 MHz - Antenna B



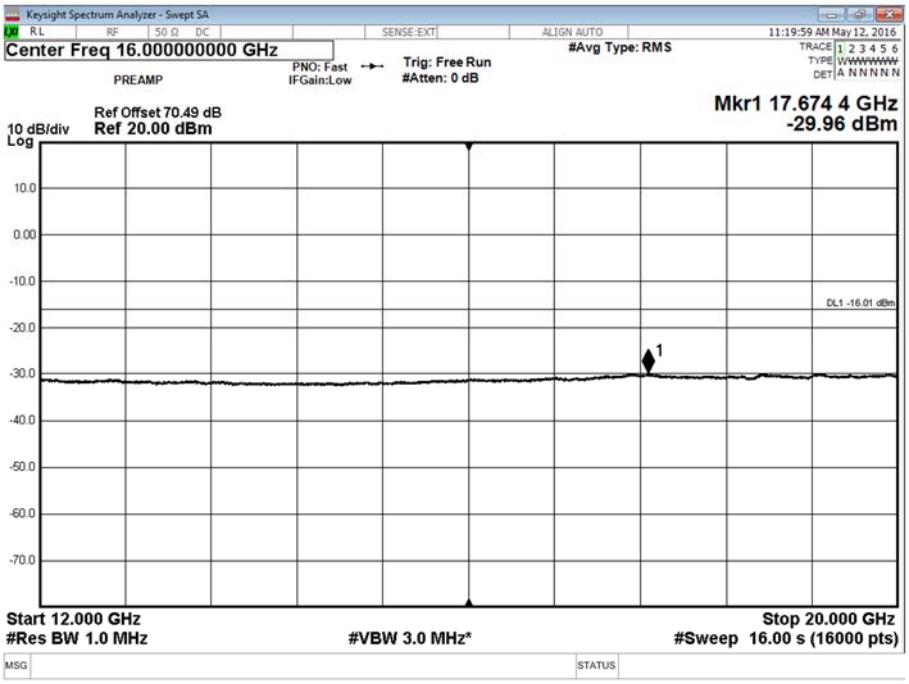
Channel Position MRFBW - Bandwidth 5.0 MHz - Antenna B



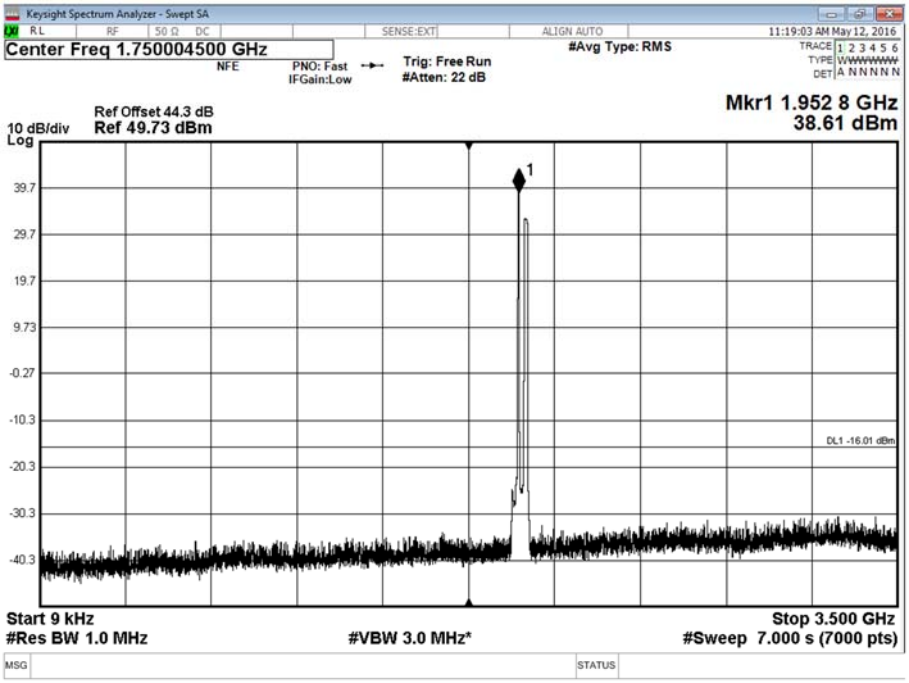
Channel Position MRFBW - Bandwidth 5.0 MHz - Antenna B



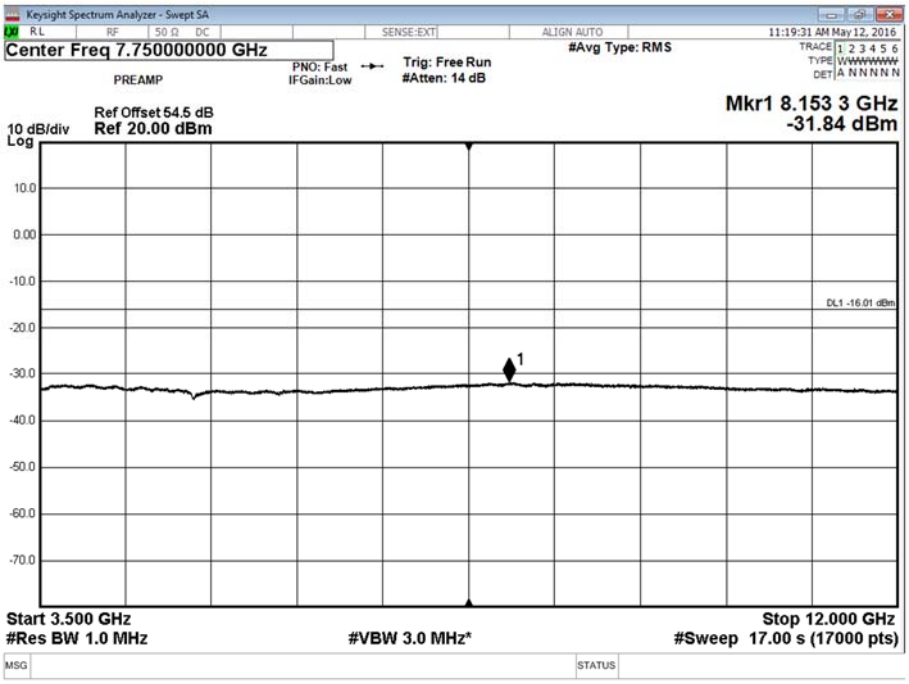
Channel Position MRFBW - Bandwidth 5.0 MHz - Antenna B



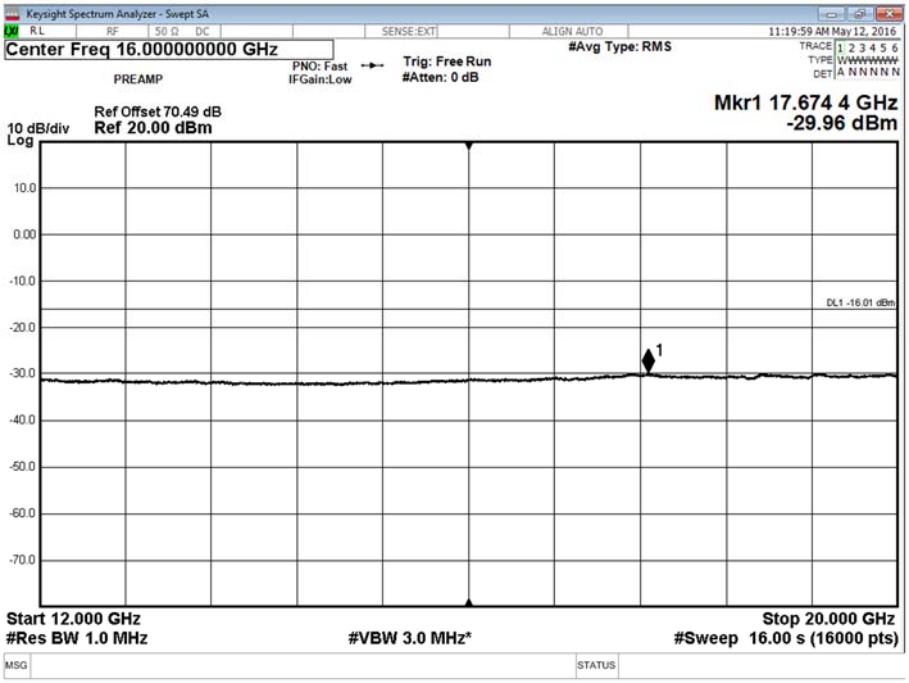
Channel Position TRFBW - Bandwidth 5.0 MHz - Antenna B



Channel Position TRFBW - Bandwidth 5.0 MHz - Antenna B



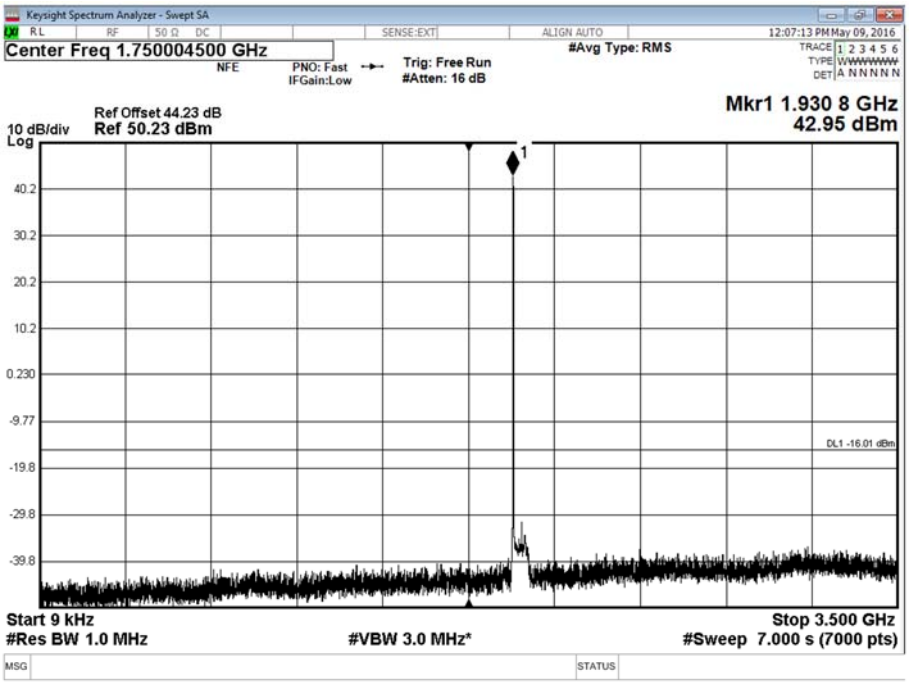
Channel Position TRFBW - Bandwidth 5.0 MHz - Antenna B



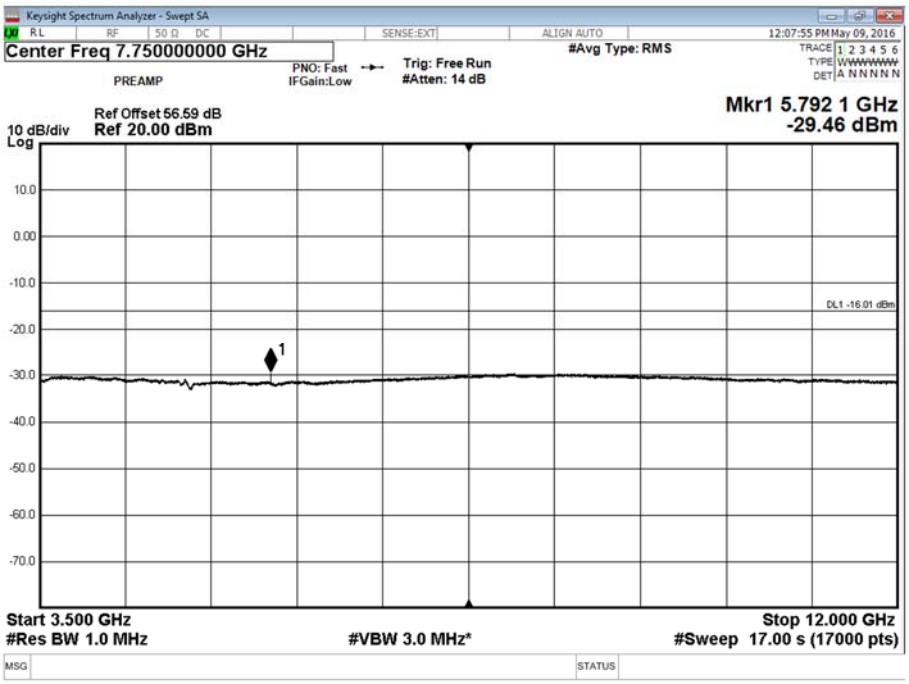
Configuration 1

Maximum Output Power 43.0 dBm for 1.4 MHz bandwidth, 46.0 dBm for 20 MHz bandwidth

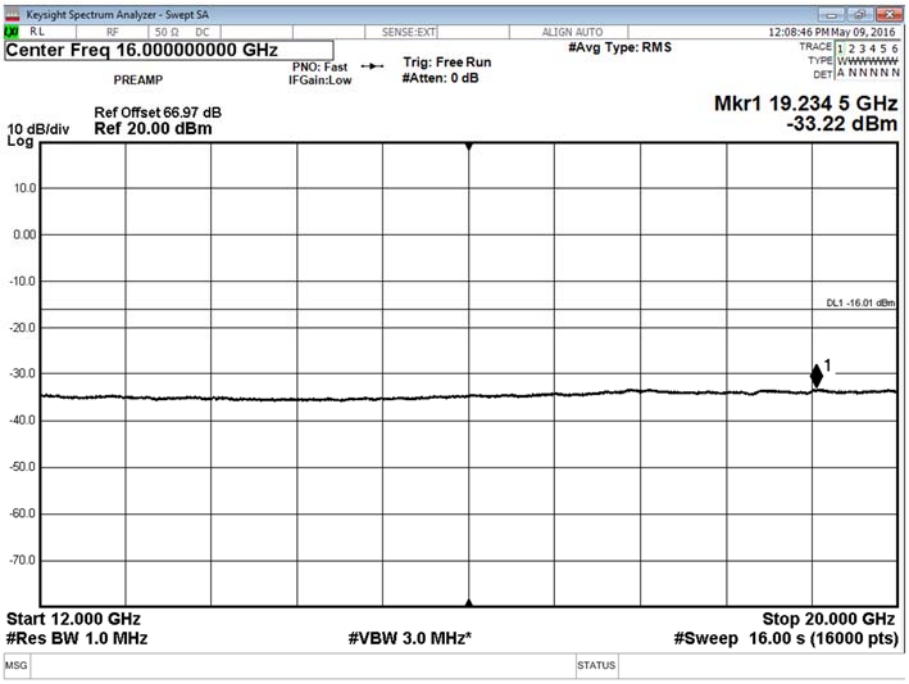
Channel Position B - Bandwidth 1.4 MHz - Antenna A



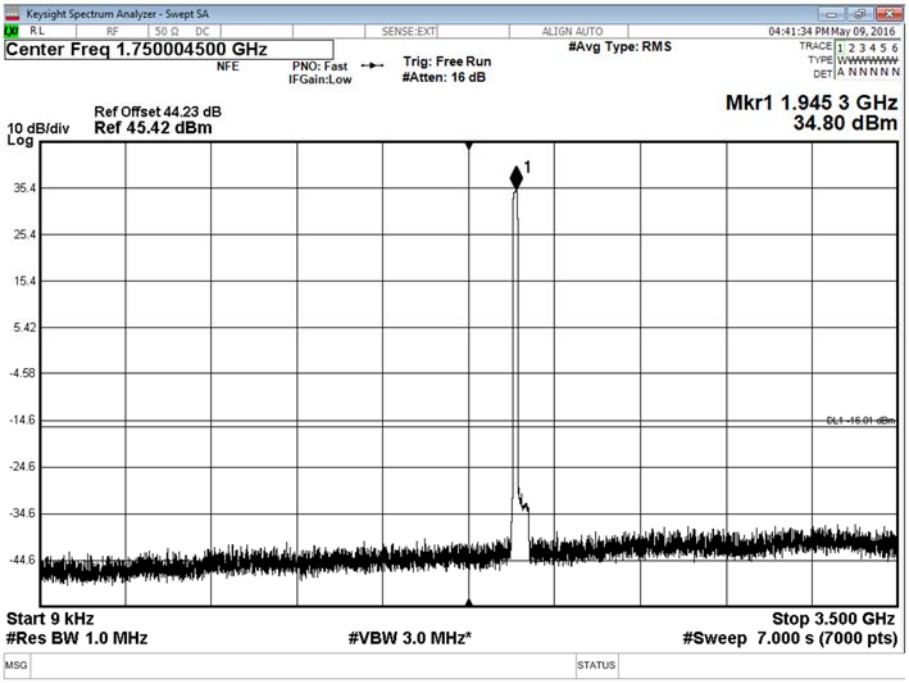
Channel Position B - Bandwidth 1.4 MHz - Antenna A



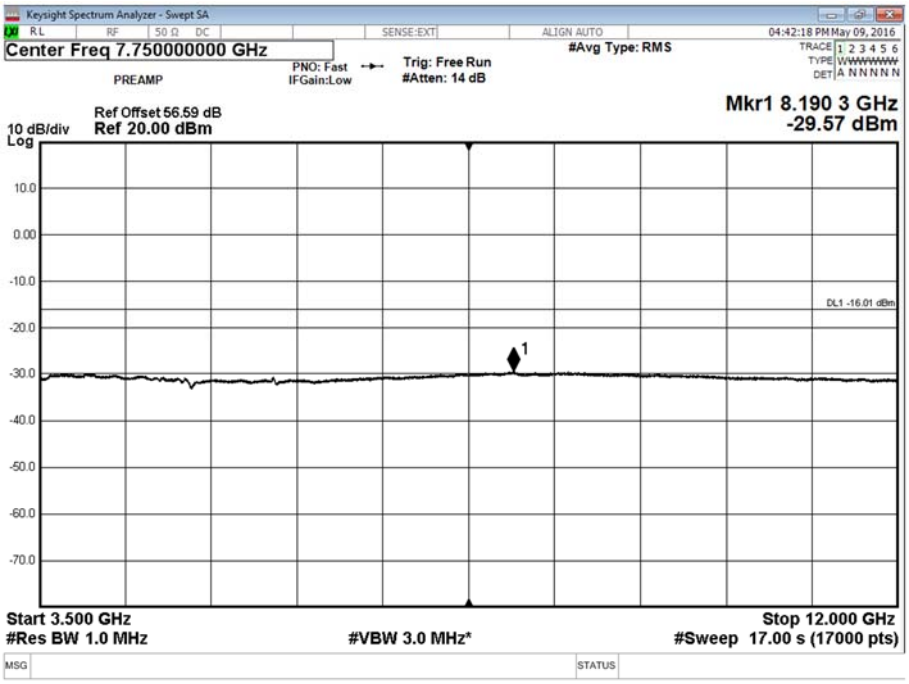
Channel Position B - Bandwidth 1.4 MHz - Antenna A



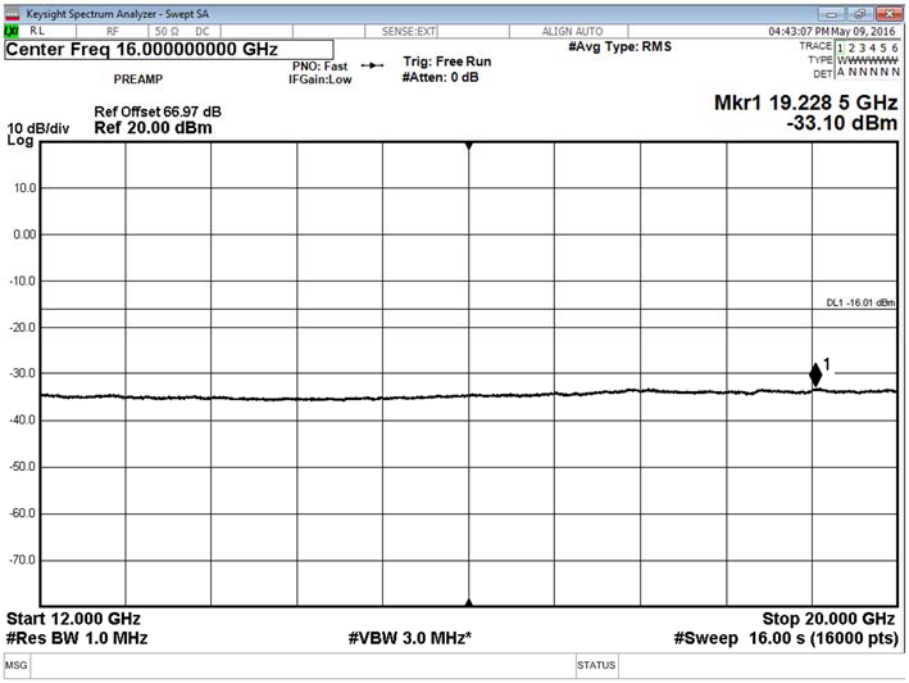
Channel Position B - Bandwidth 20.0 MHz - Antenna A



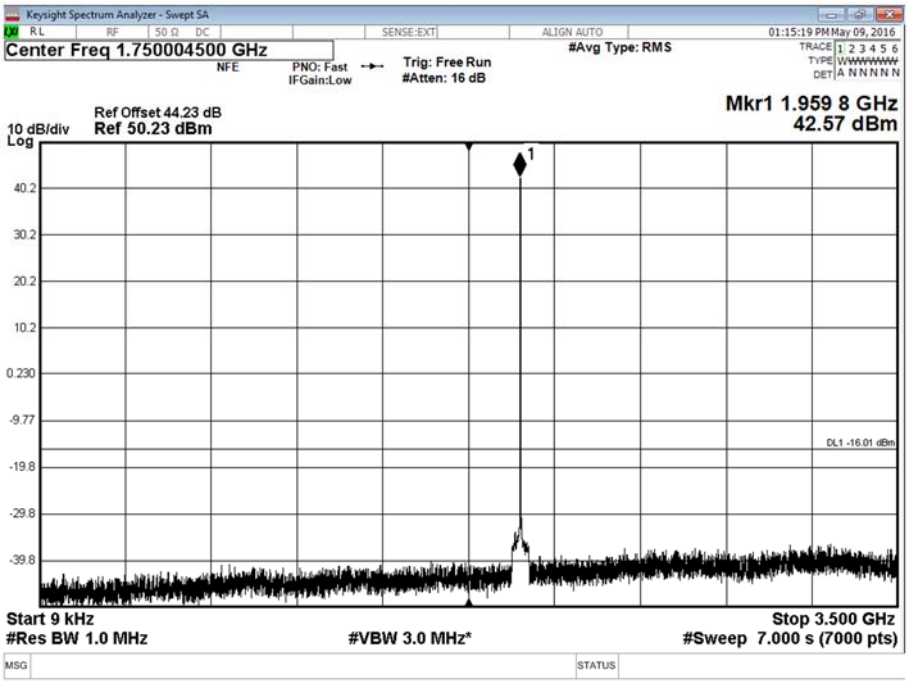
Channel Position B - Bandwidth 20.0 MHz - Antenna A



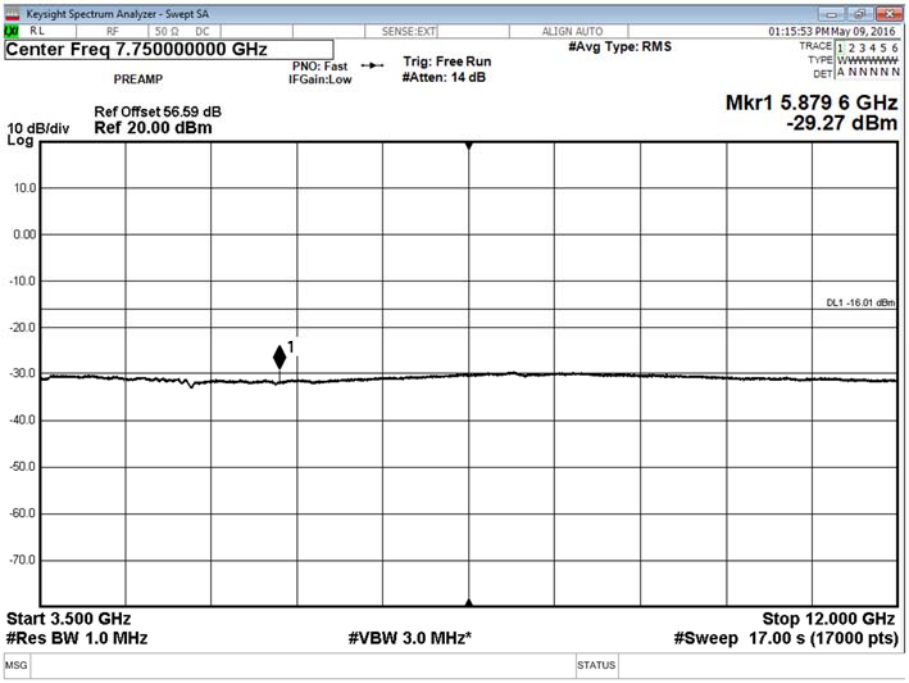
Channel Position B - Bandwidth 20.0 MHz - Antenna A



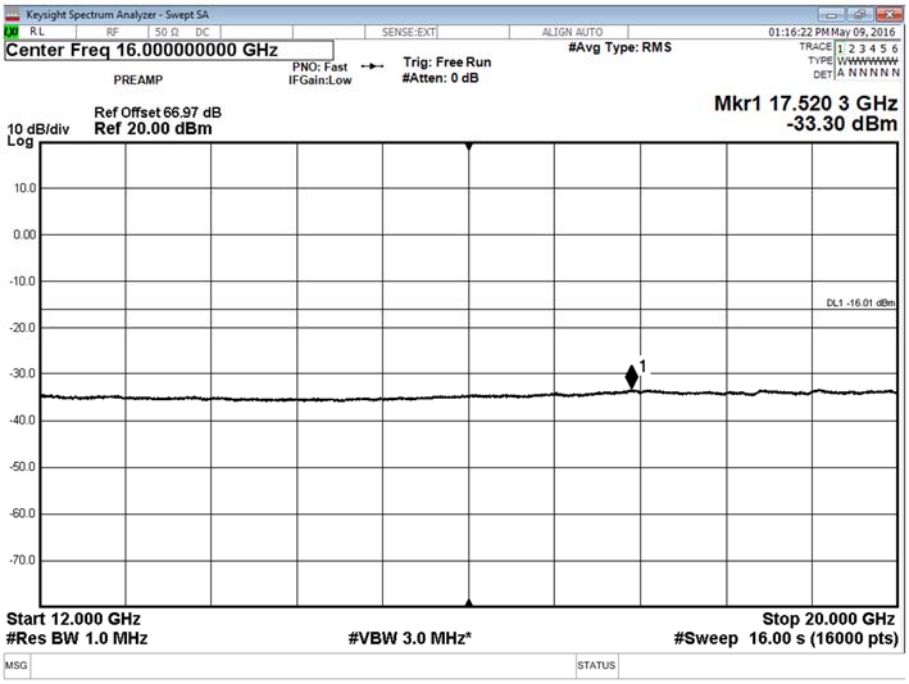
Channel Position M - Bandwidth 1.4 MHz - Antenna A



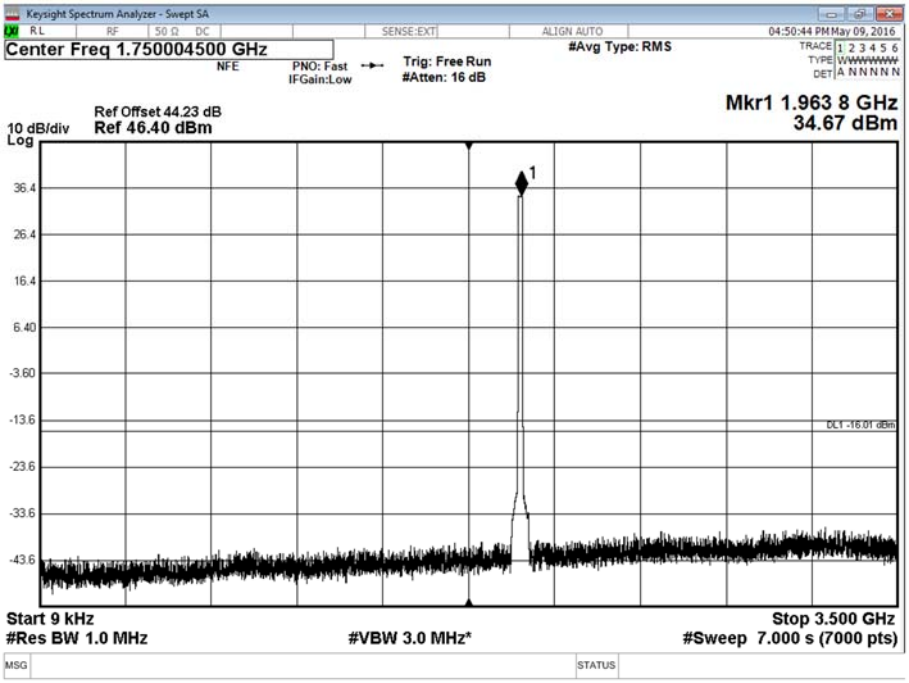
Channel Position M - Bandwidth 1.4 MHz - Antenna A



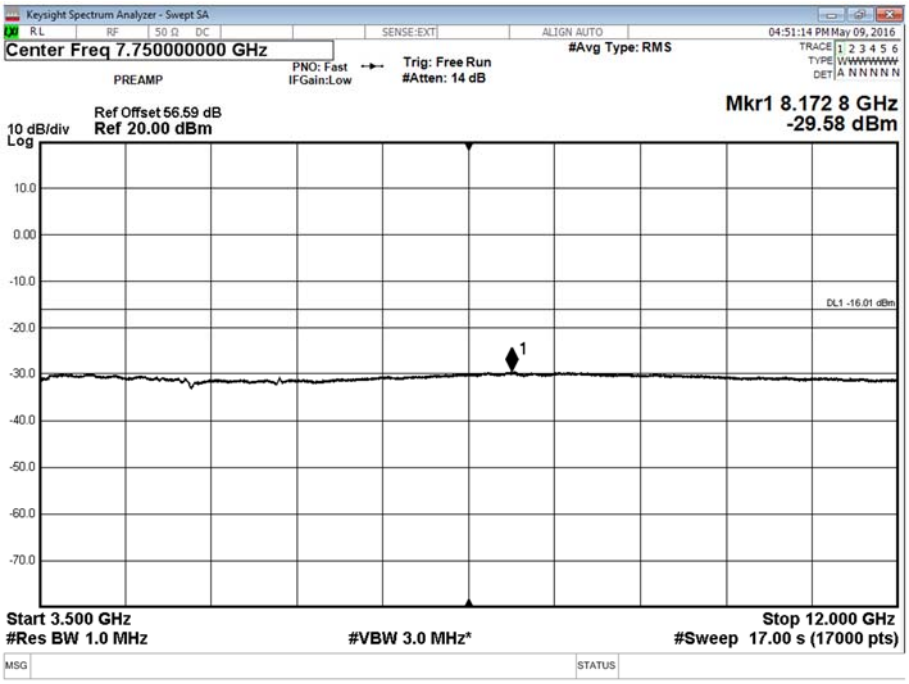
Channel Position M - Bandwidth 1.4 MHz - Antenna A



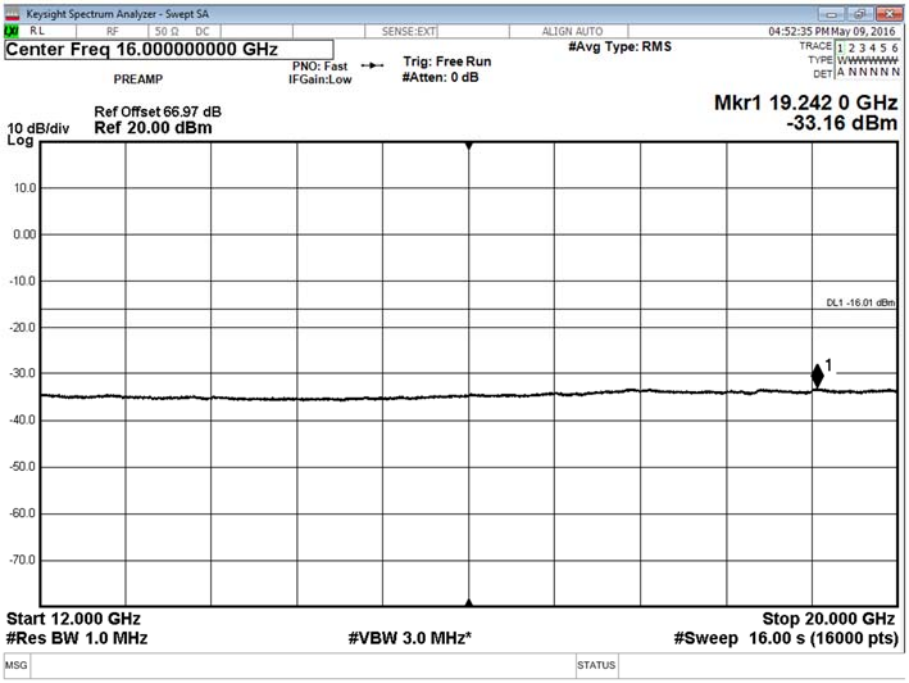
Channel Position M - Bandwidth 20.0 MHz - Antenna A



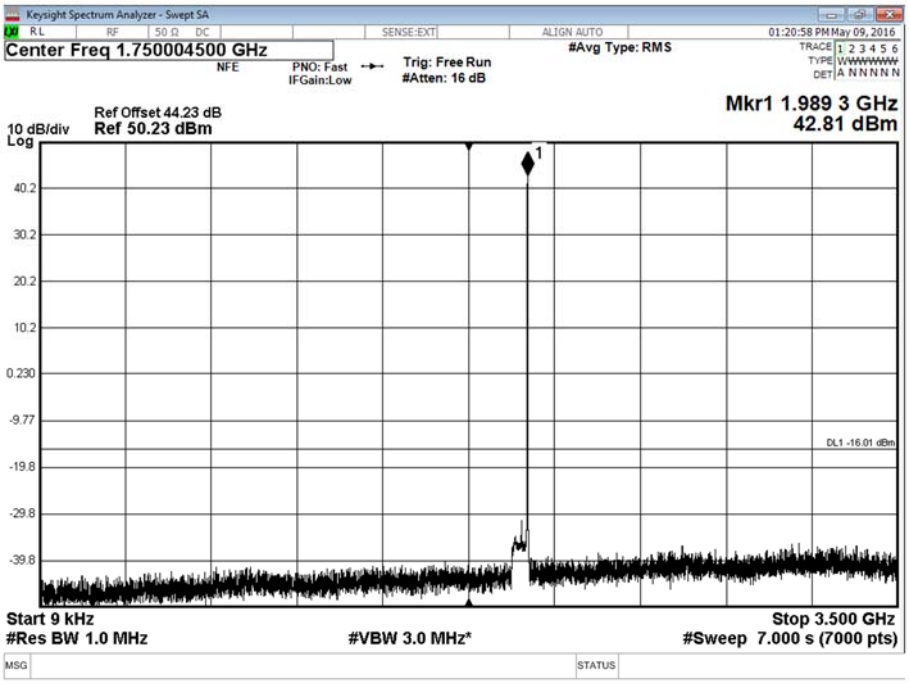
Channel Position M - Bandwidth 20.0 MHz - Antenna A



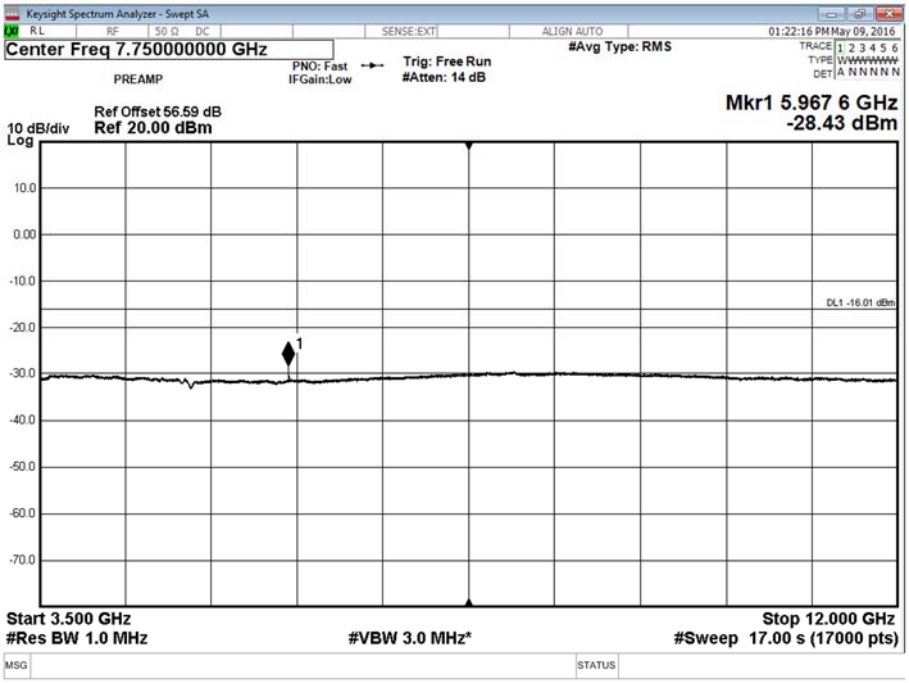
Channel Position M - Bandwidth 20.0 MHz - Antenna A



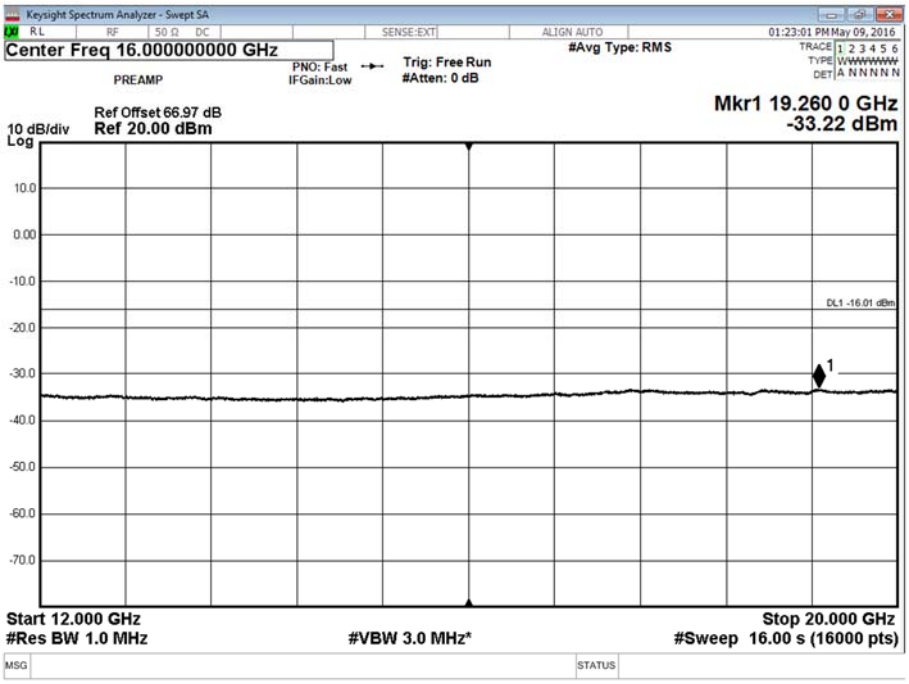
Channel Position T - Bandwidth 1.4 MHz - Antenna A



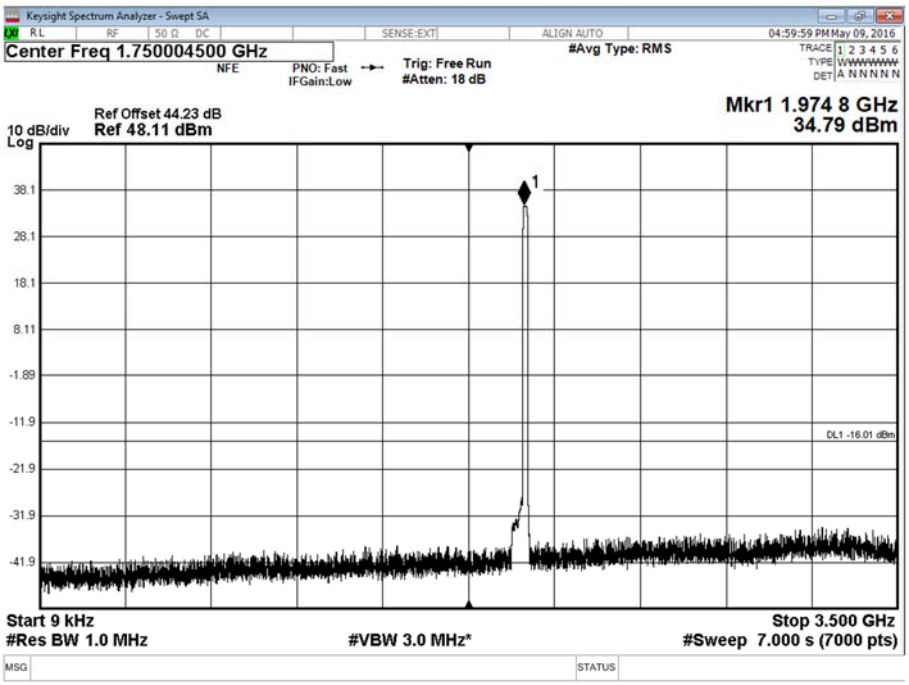
Channel Position T - Bandwidth 1.4 MHz - Antenna A



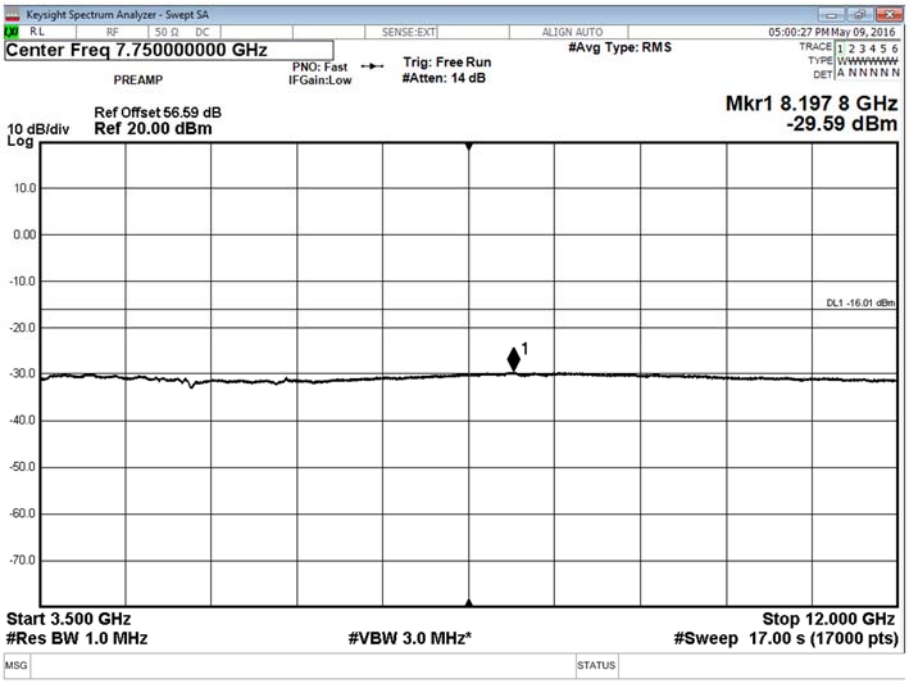
Channel Position T - Bandwidth 1.4 MHz - Antenna A



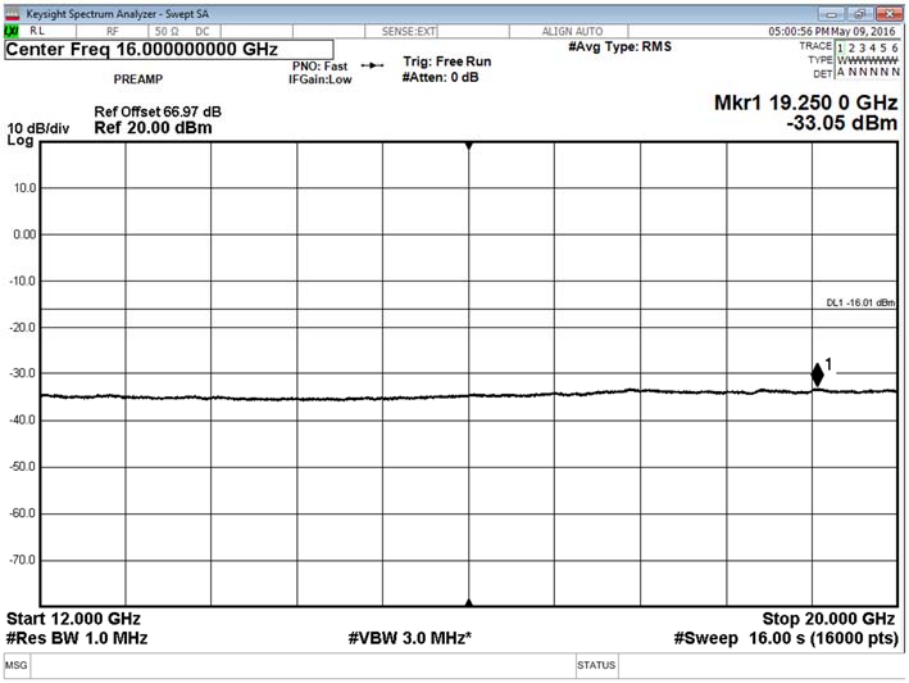
Channel Position T - Bandwidth 20.0 MHz - Antenna A



Channel Position T - Bandwidth 20.0 MHz - Antenna A



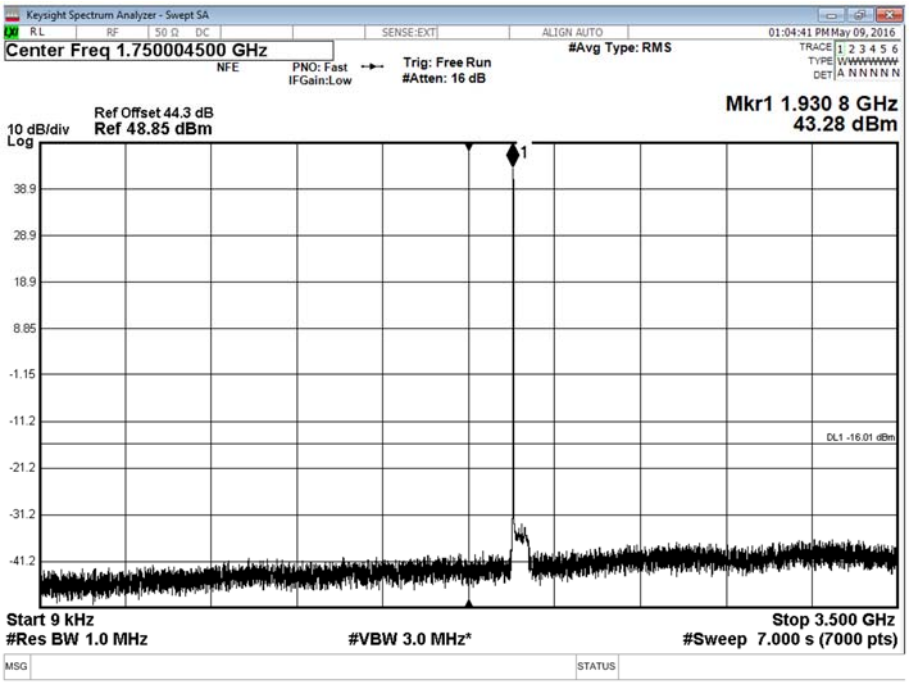
Channel Position T - Bandwidth 20.0 MHz - Antenna A



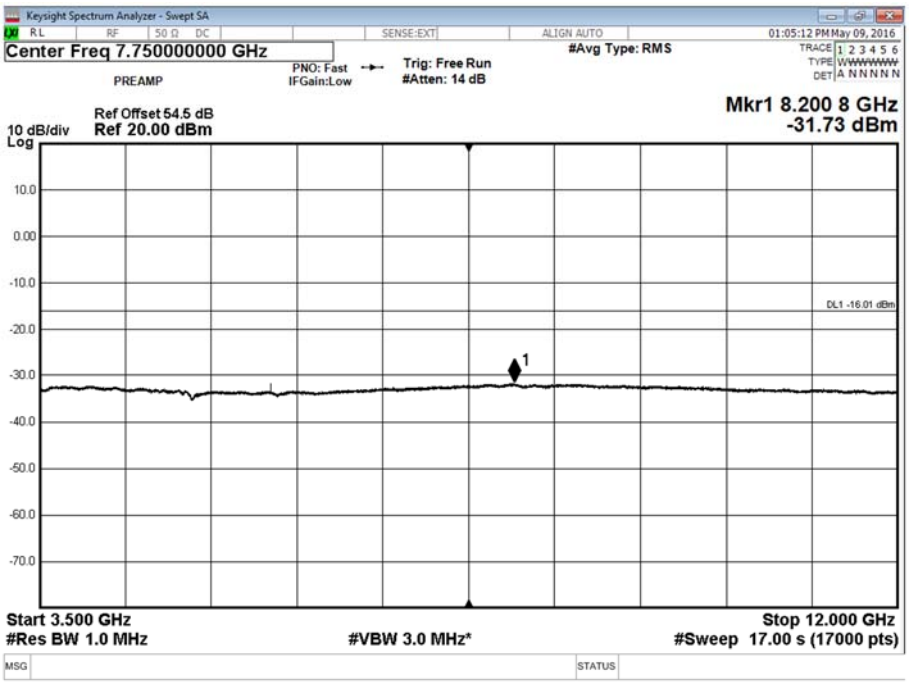
Configuration 1

Maximum Output Power 43.0 dBm for 1.4 MHz bandwidth, 46.0 dBm for 20 MHz bandwidth

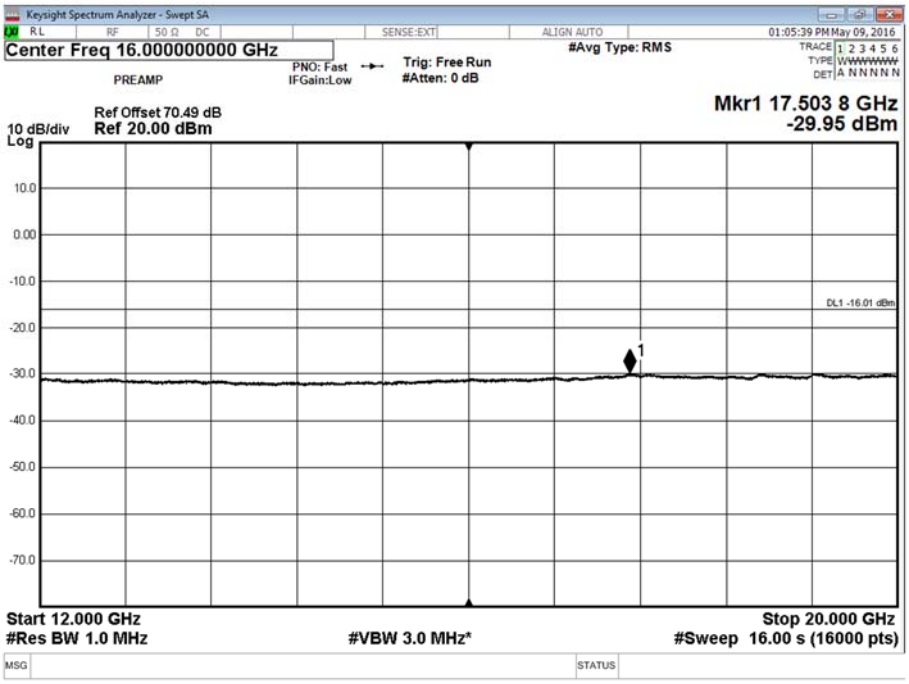
Channel Position B - Bandwidth 1.4 MHz - Antenna B



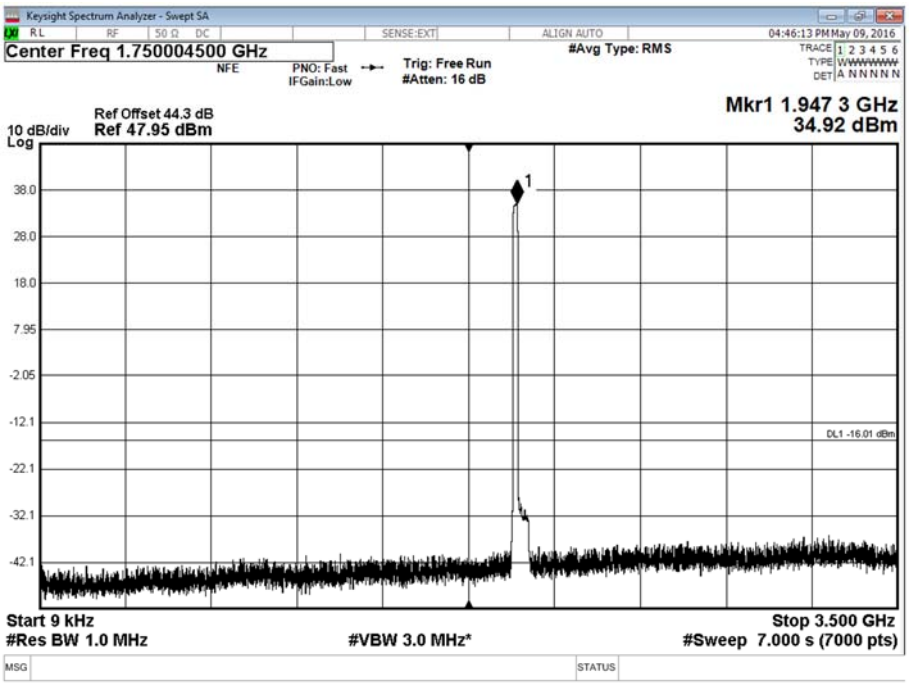
Channel Position B - Bandwidth 1.4 MHz - Antenna B



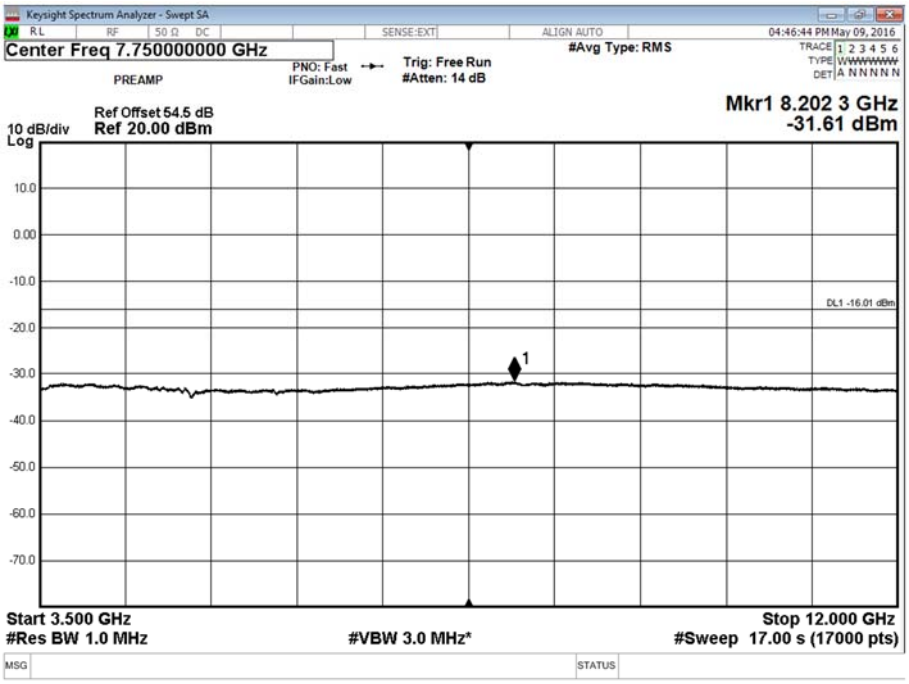
Channel Position B - Bandwidth 1.4 MHz - Antenna B



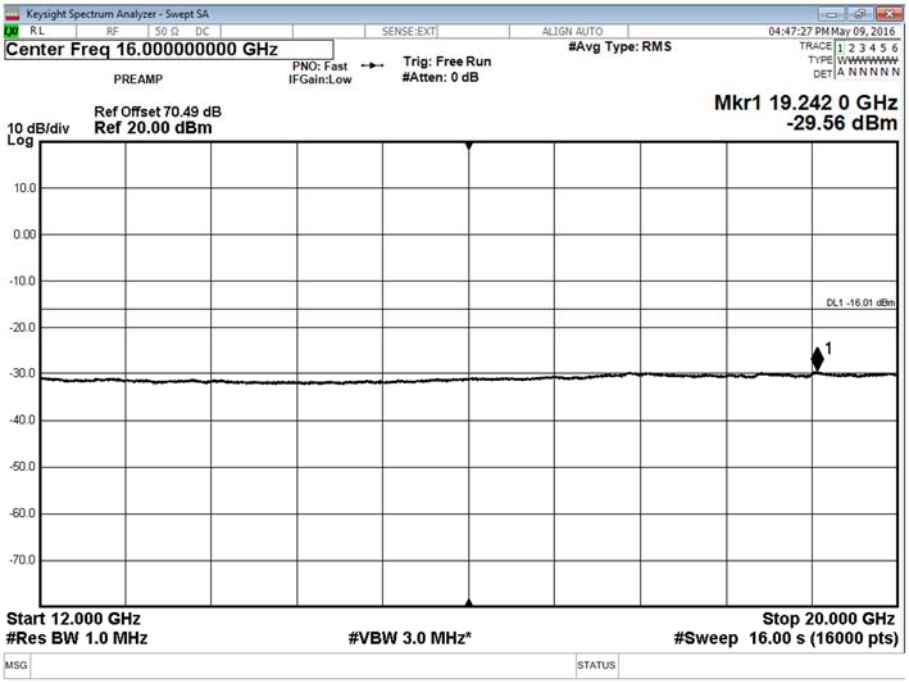
Channel Position B - Bandwidth 20.0 MHz - Antenna B



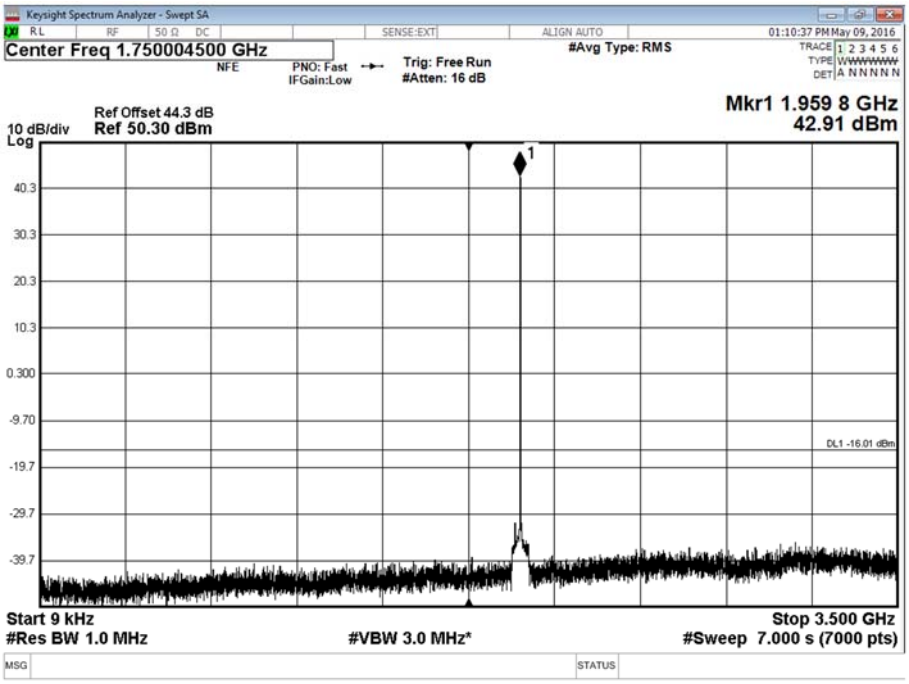
Channel Position B - Bandwidth 20.0 MHz - Antenna B



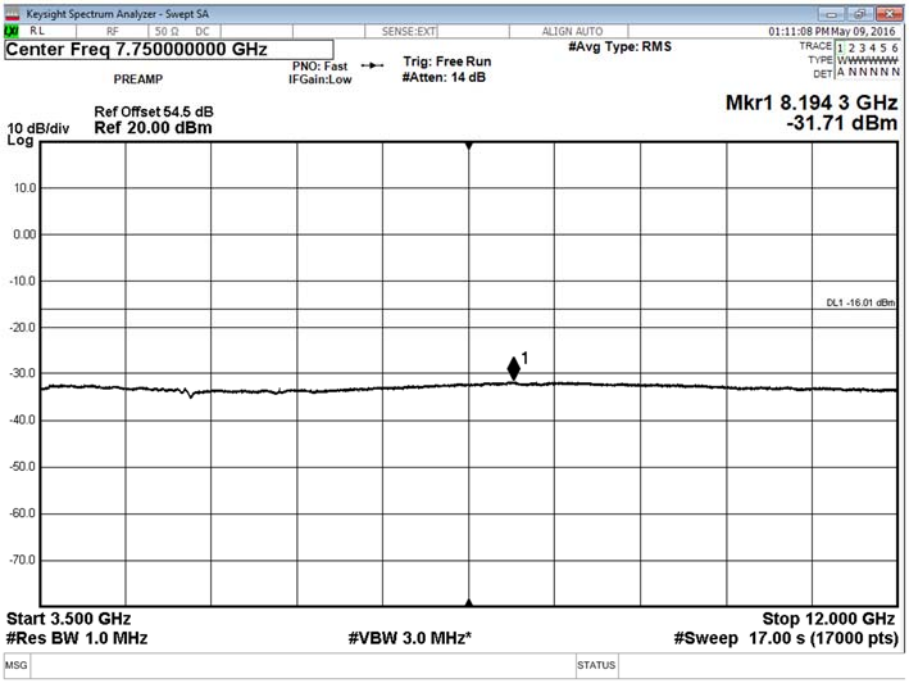
Channel Position B - Bandwidth 20.0 MHz - Antenna B



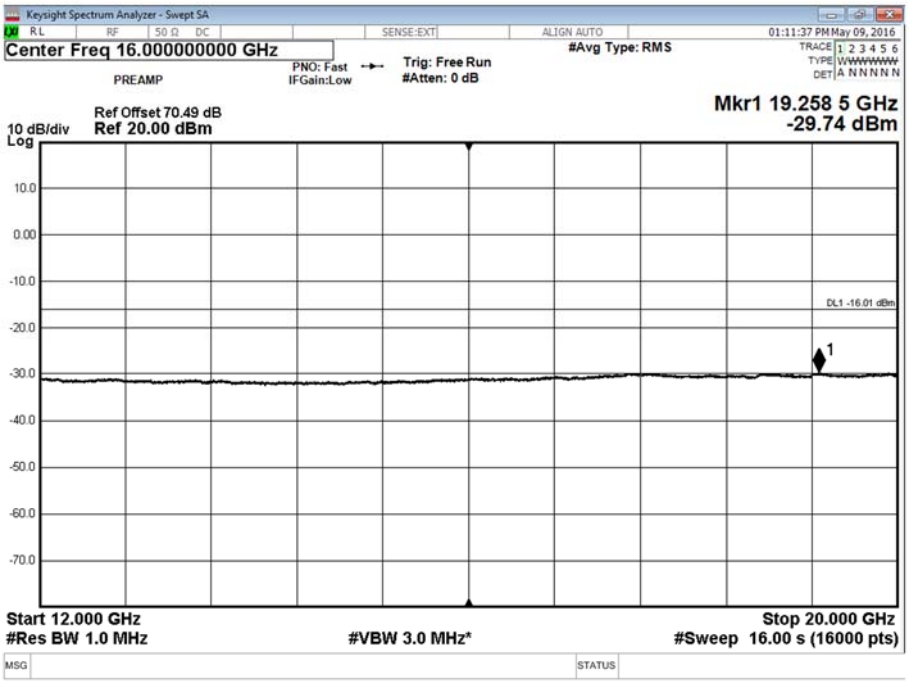
Channel Position M - Bandwidth 1.4 MHz - Antenna B



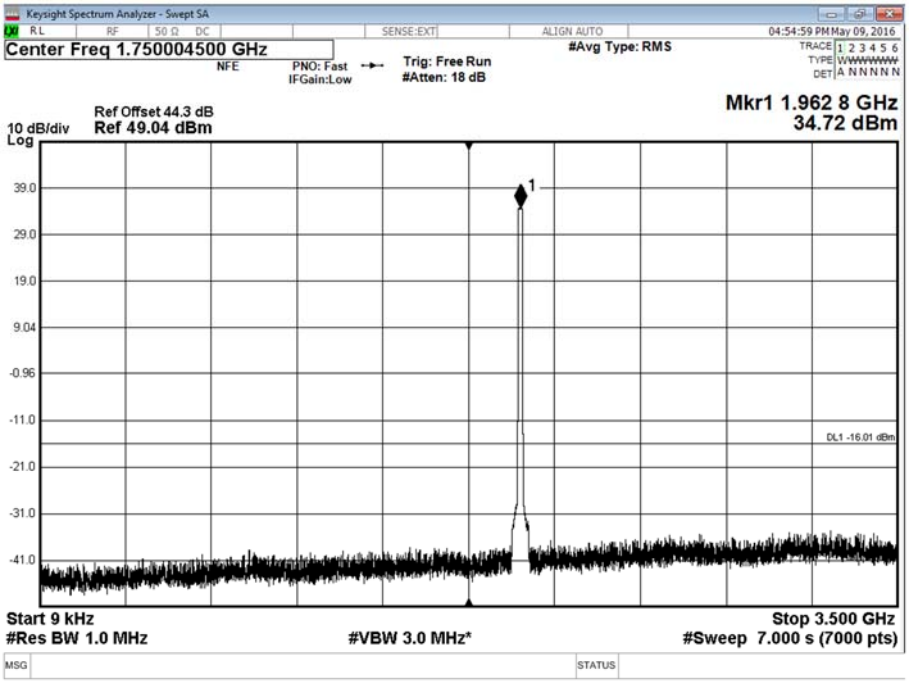
Channel Position M - Bandwidth 1.4 MHz - Antenna B



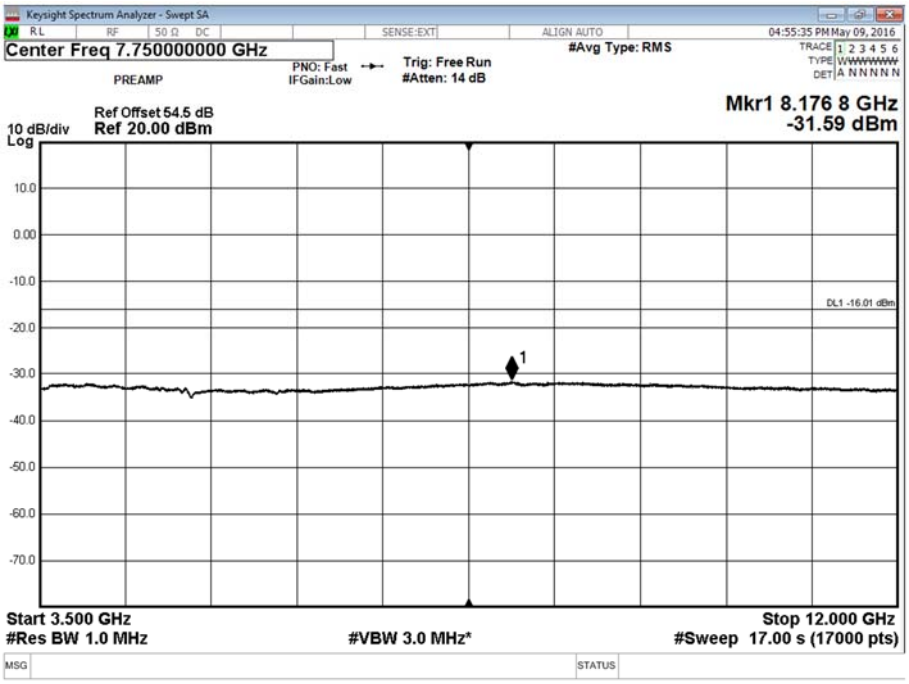
Channel Position M - Bandwidth 1.4 MHz - Antenna B



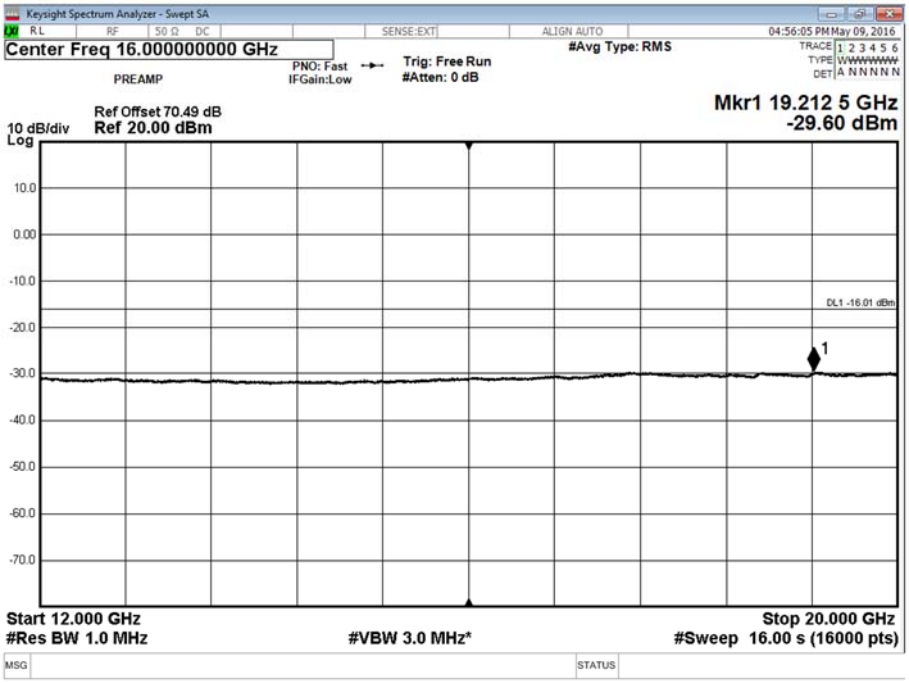
Channel Position M - Bandwidth 20.0 MHz - Antenna B



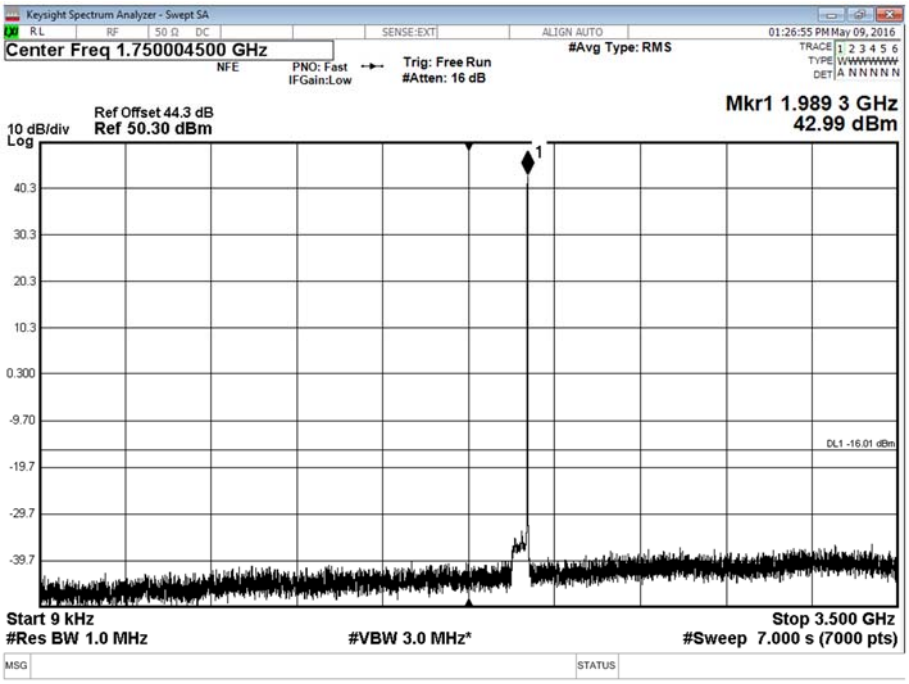
Channel Position M - Bandwidth 20.0 MHz - Antenna B



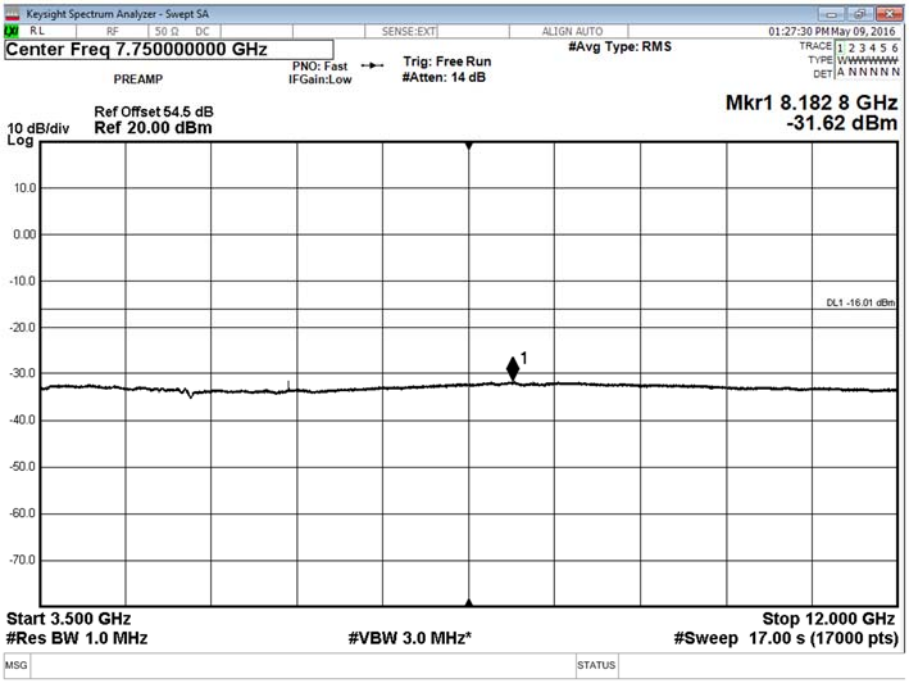
Channel Position M - Bandwidth 20.0 MHz - Antenna B



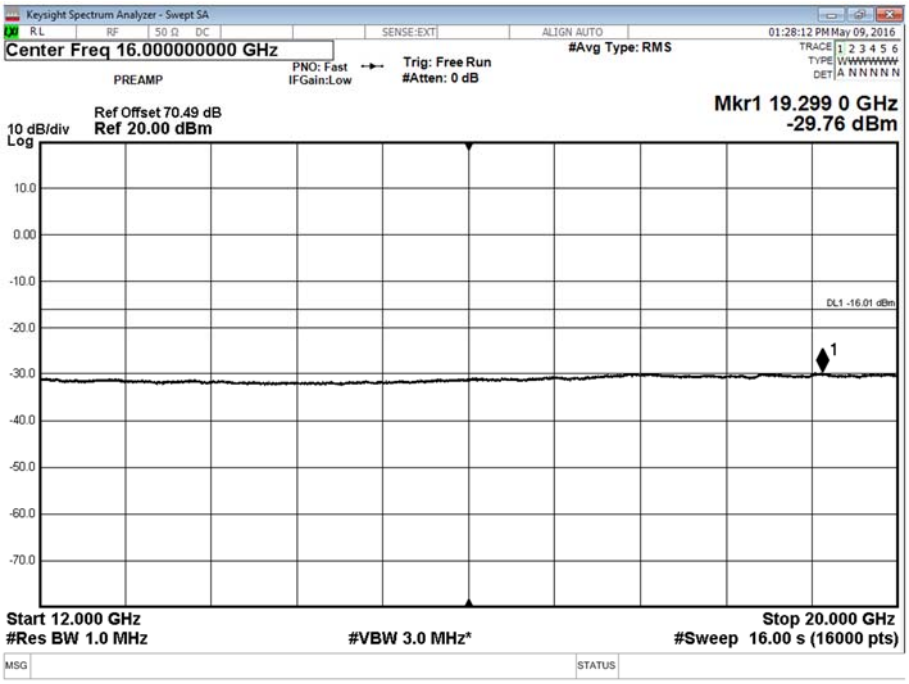
Channel Position T - Bandwidth 1.4 MHz - Antenna B



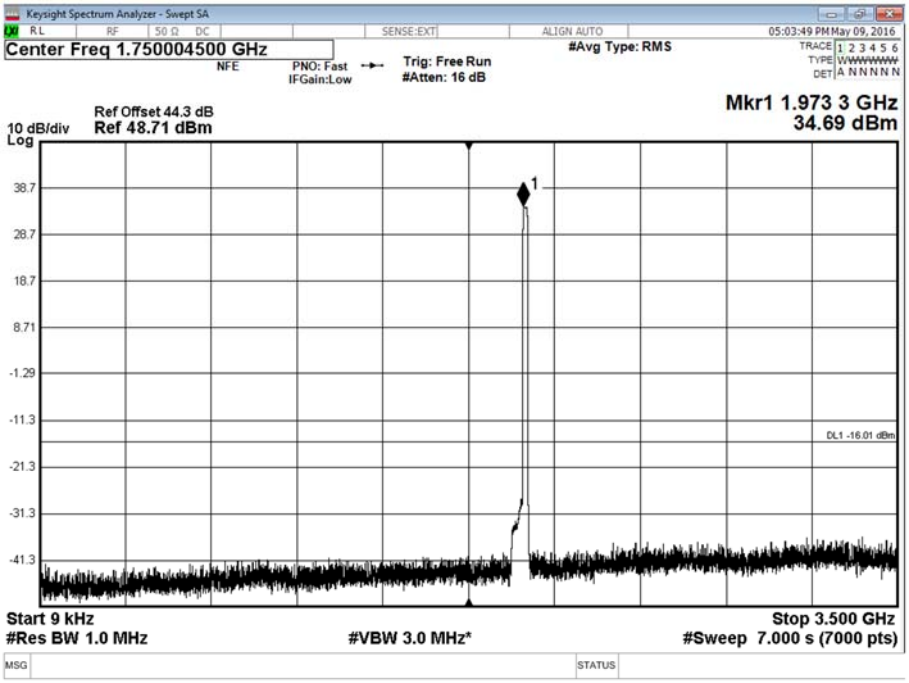
Channel Position T - Bandwidth 1.4 MHz - Antenna B



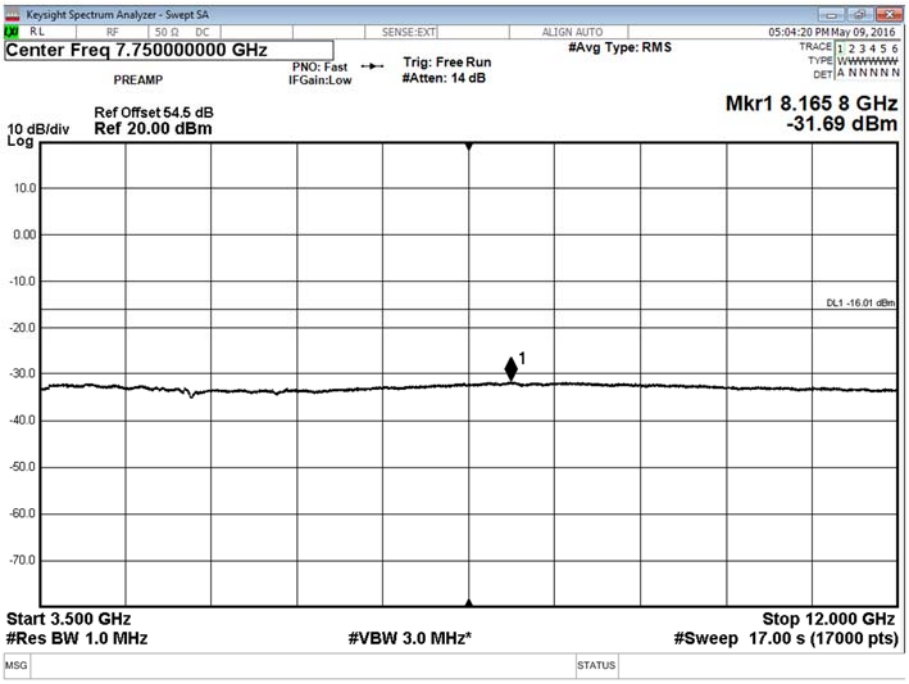
Channel Position T - Bandwidth 1.4 MHz - Antenna B



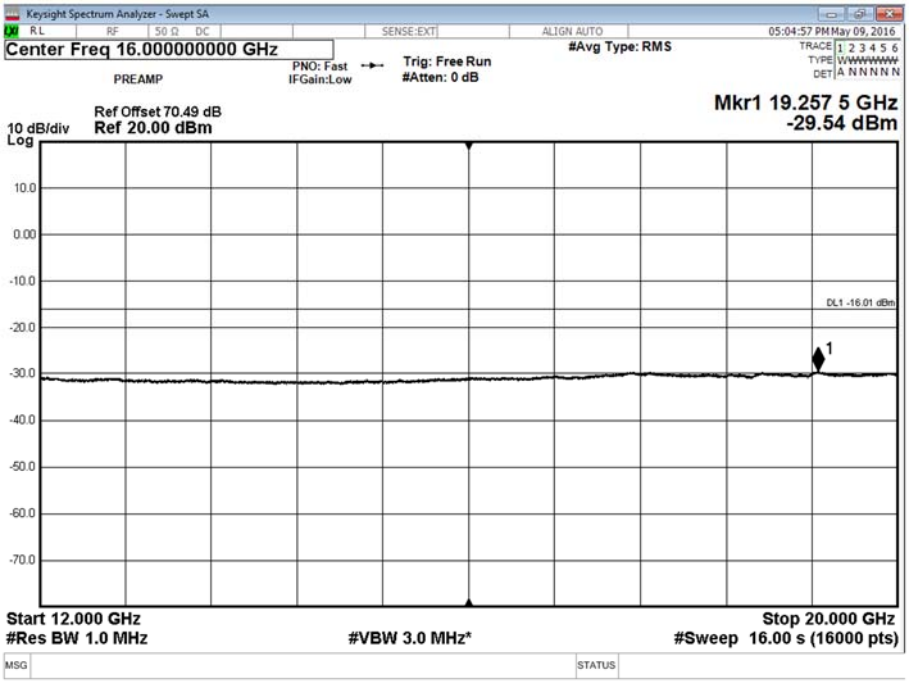
Channel Position T - Bandwidth 20.0 MHz - Antenna B



Channel Position T - Bandwidth 20.0 MHz - Antenna B



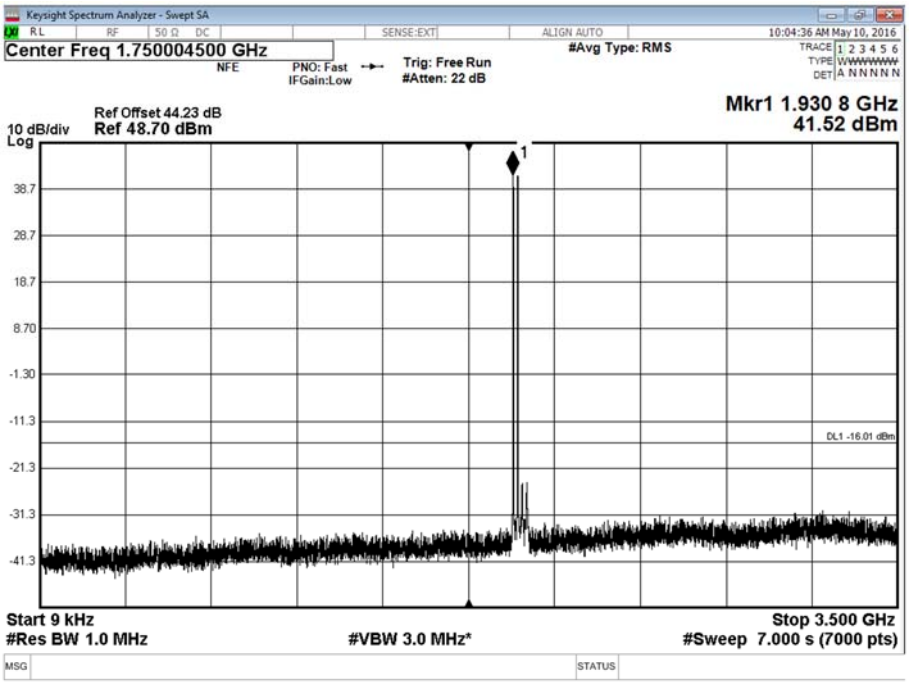
Channel Position T - Bandwidth 20.0 MHz - Antenna B



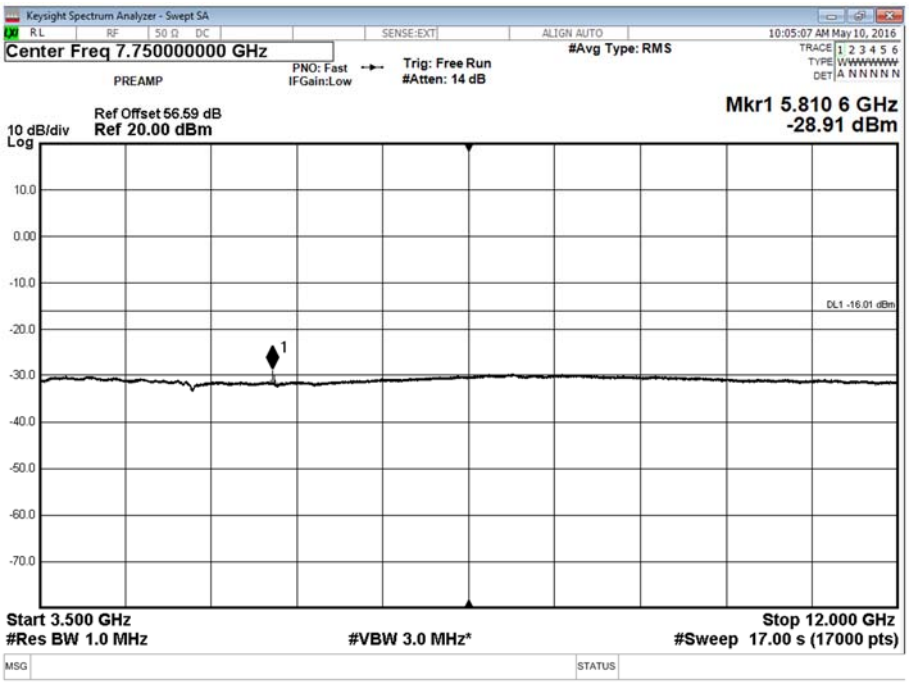
Configuration 2

Maximum Output Power 46.0 dBm

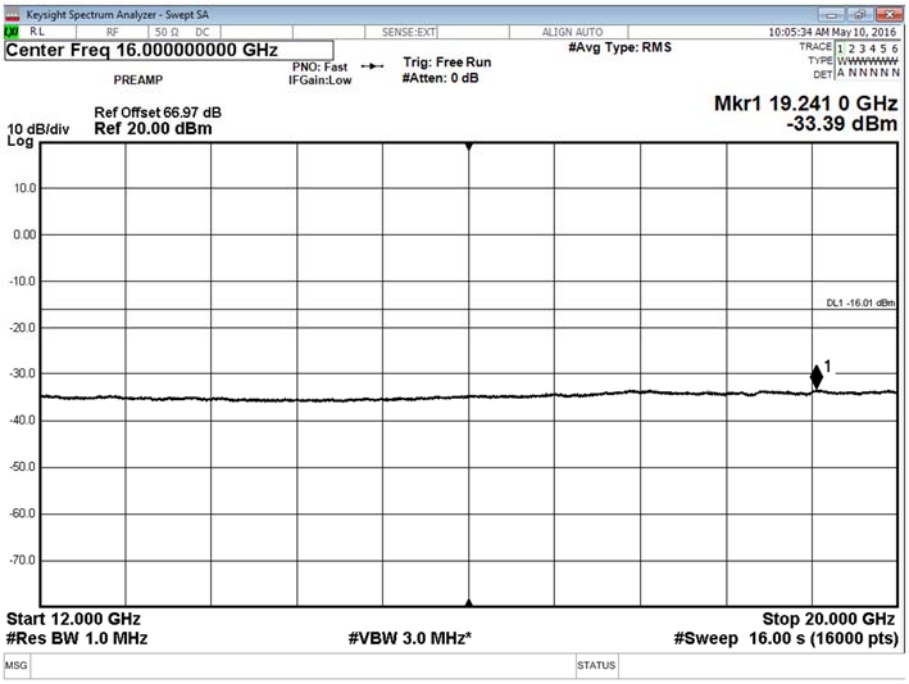
Channel Position B - Bandwidth 1.4 MHz - Antenna A



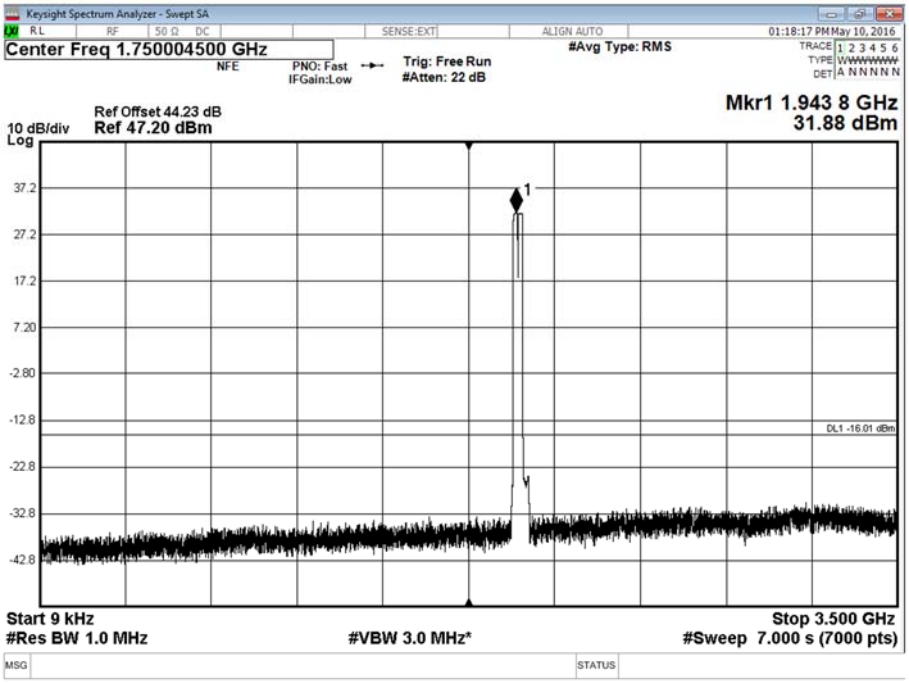
Channel Position B - Bandwidth 1.4 MHz - Antenna A



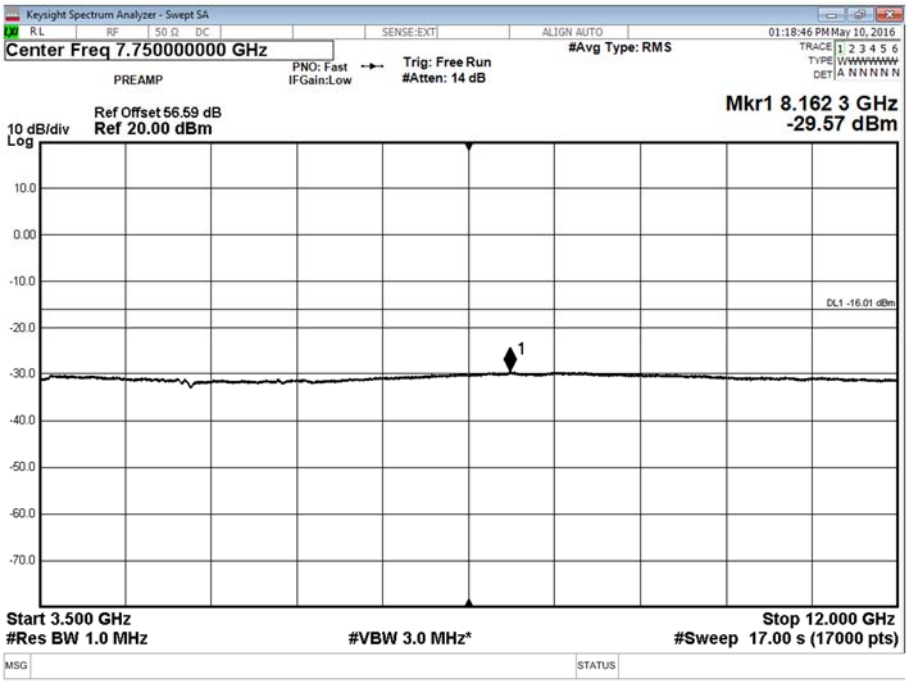
Channel Position B - Bandwidth 1.4 MHz - Antenna A



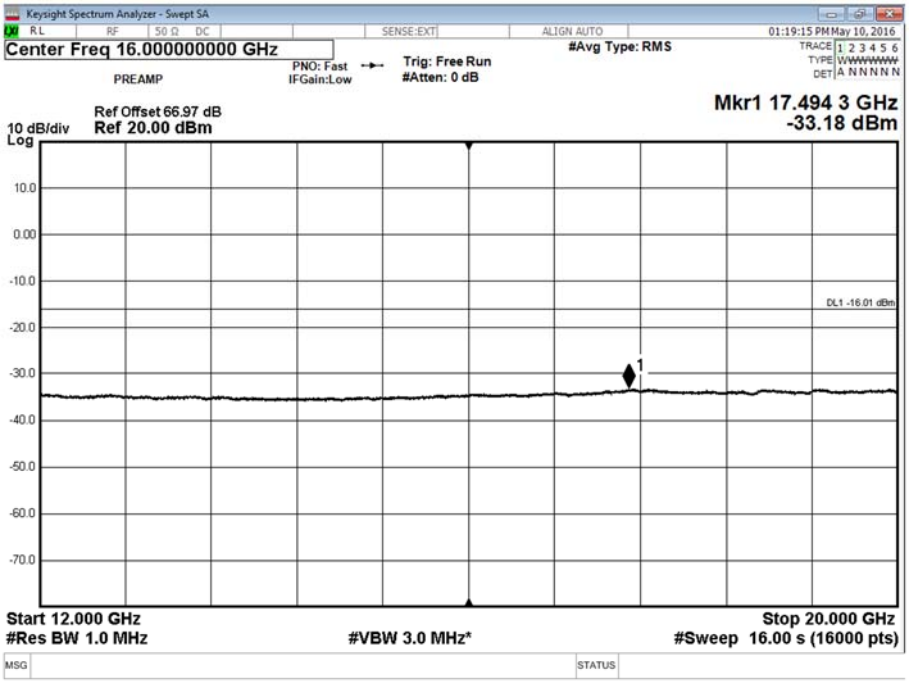
Channel Position B - Bandwidth 20.0 MHz - Antenna A



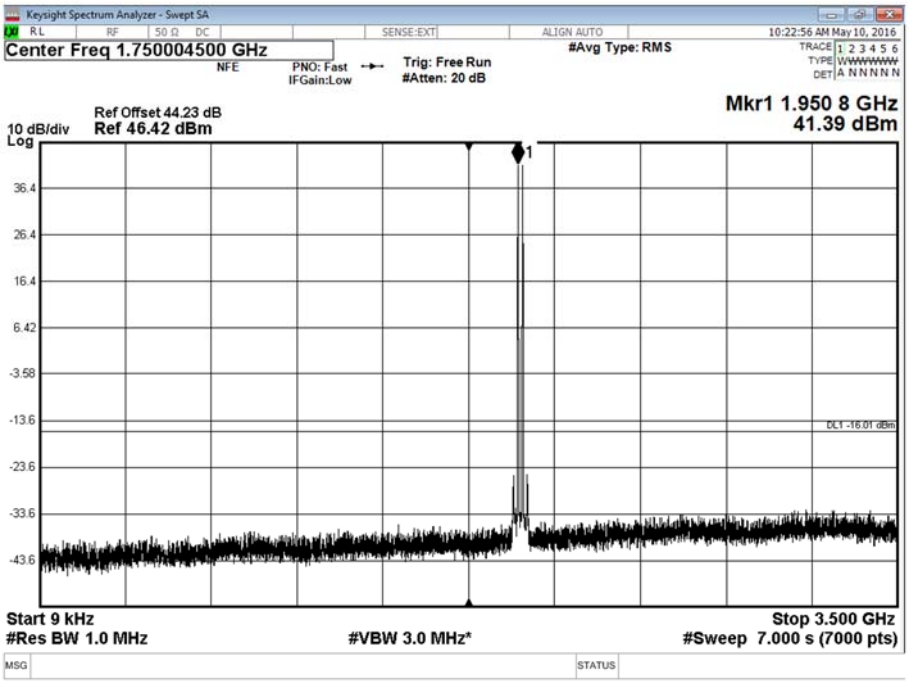
Channel Position B - Bandwidth 20.0 MHz - Antenna A



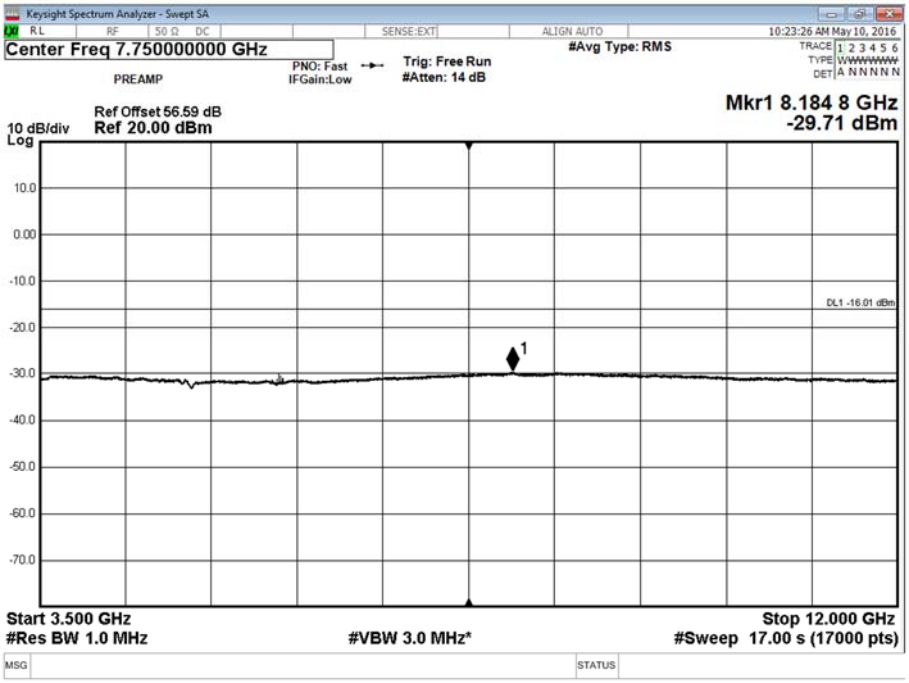
Channel Position B - Bandwidth 20.0 MHz - Antenna A



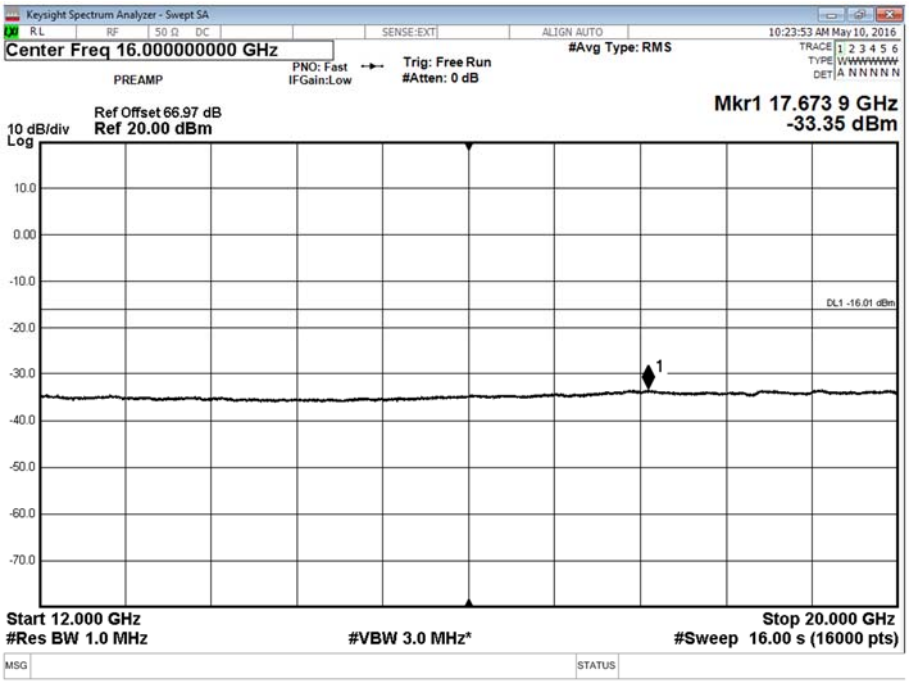
Channel Position M - Bandwidth 1.4 MHz - Antenna A



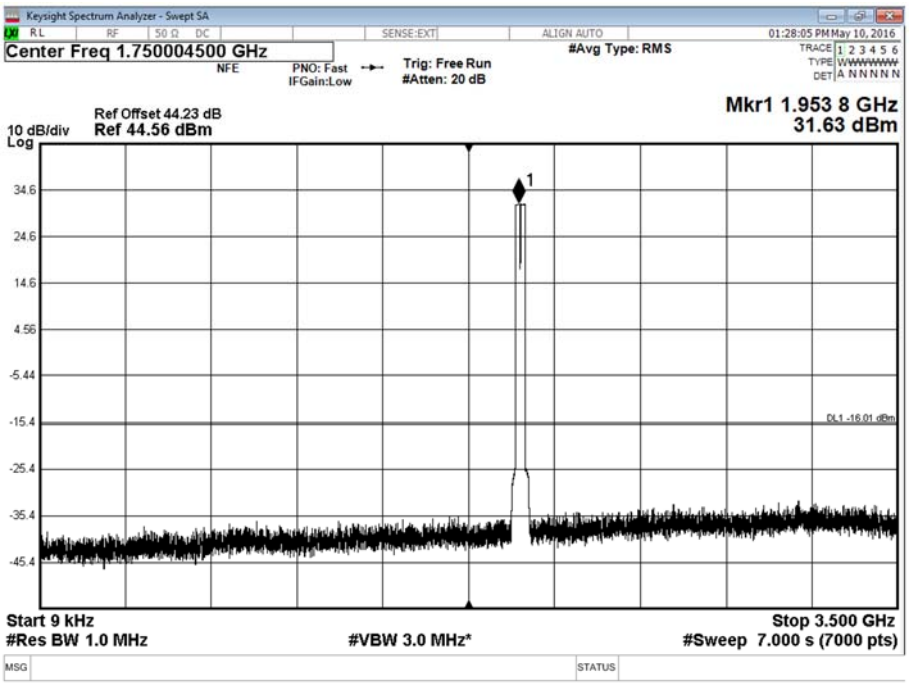
Channel Position M - Bandwidth 1.4 MHz - Antenna A



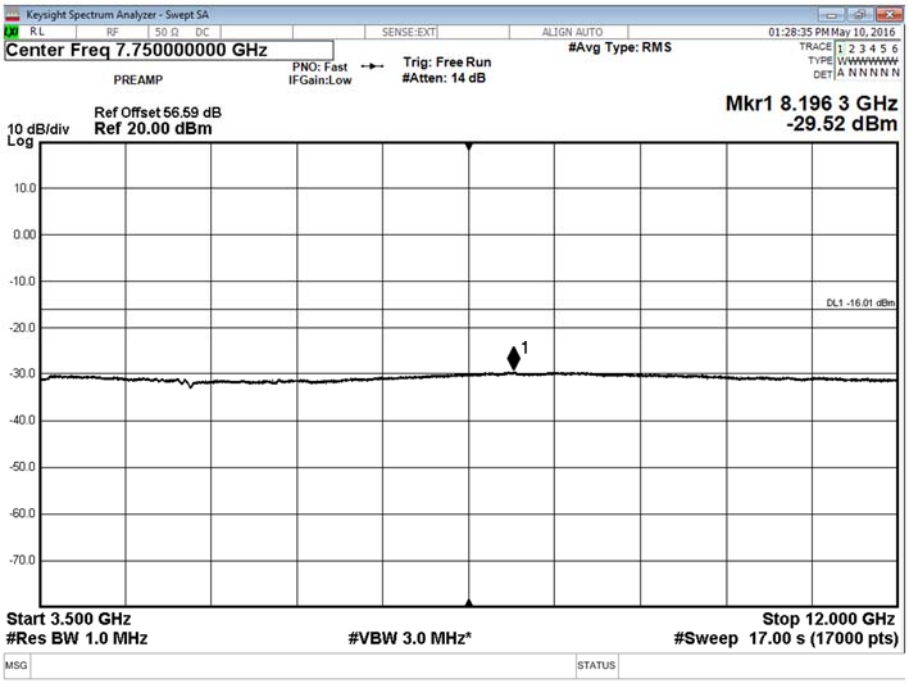
Channel Position M - Bandwidth 1.4 MHz - Antenna A



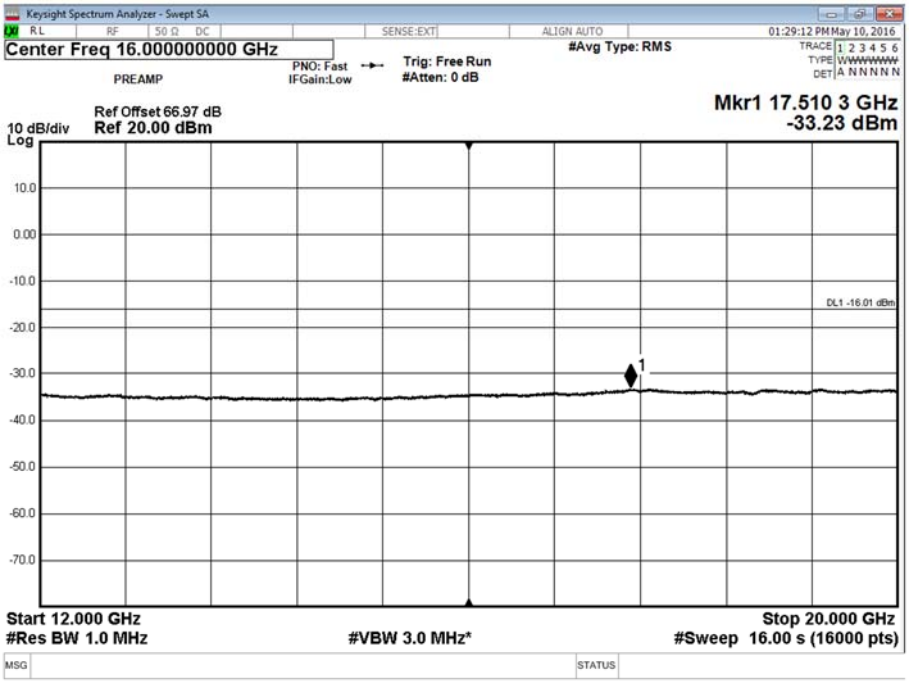
Channel Position M - Bandwidth 20.0 MHz - Antenna A



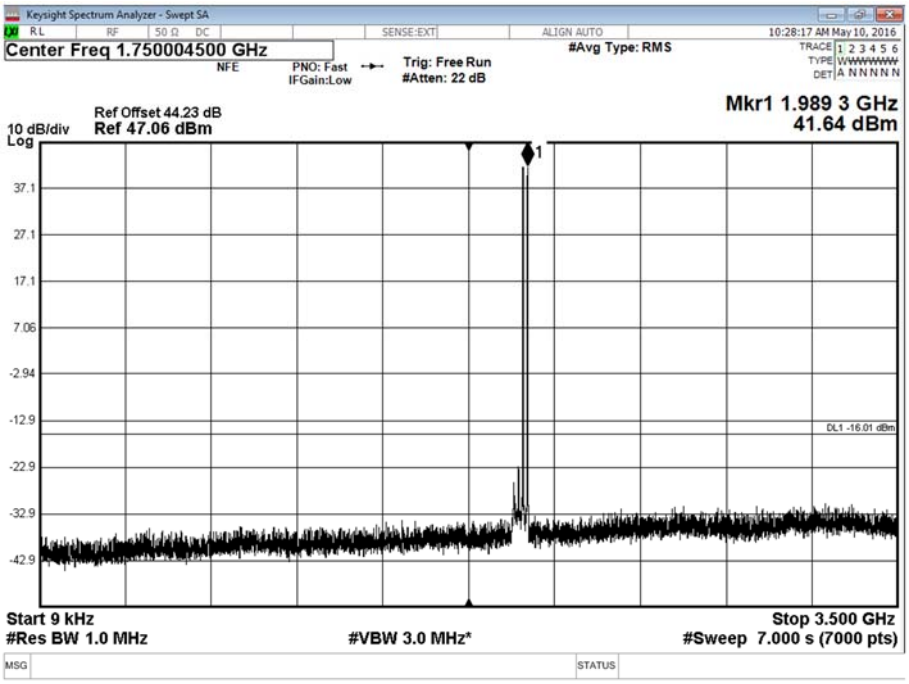
Channel Position M - Bandwidth 20.0 MHz - Antenna A



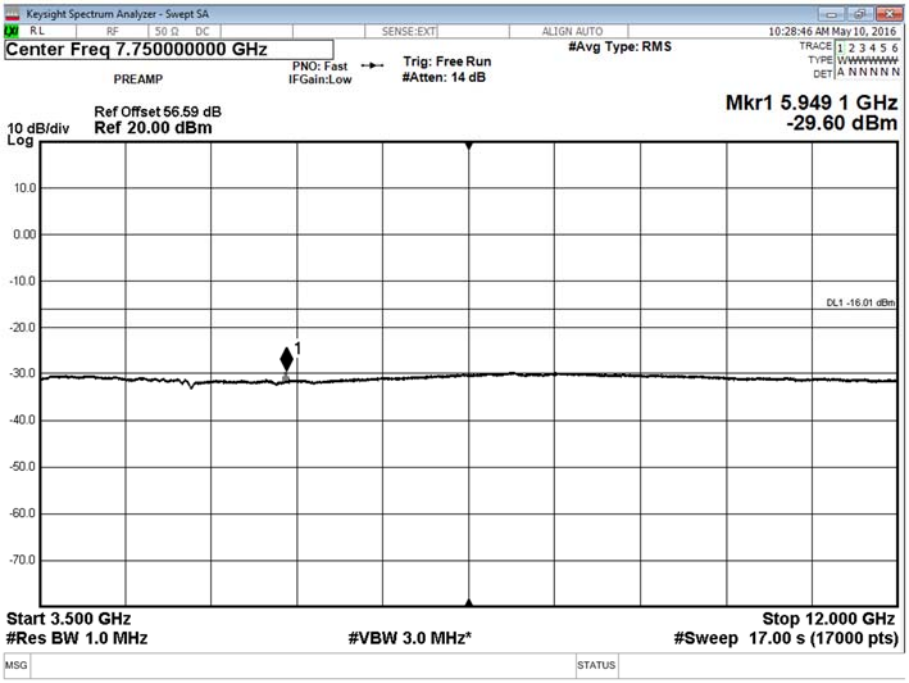
Channel Position M - Bandwidth 20.0 MHz - Antenna A



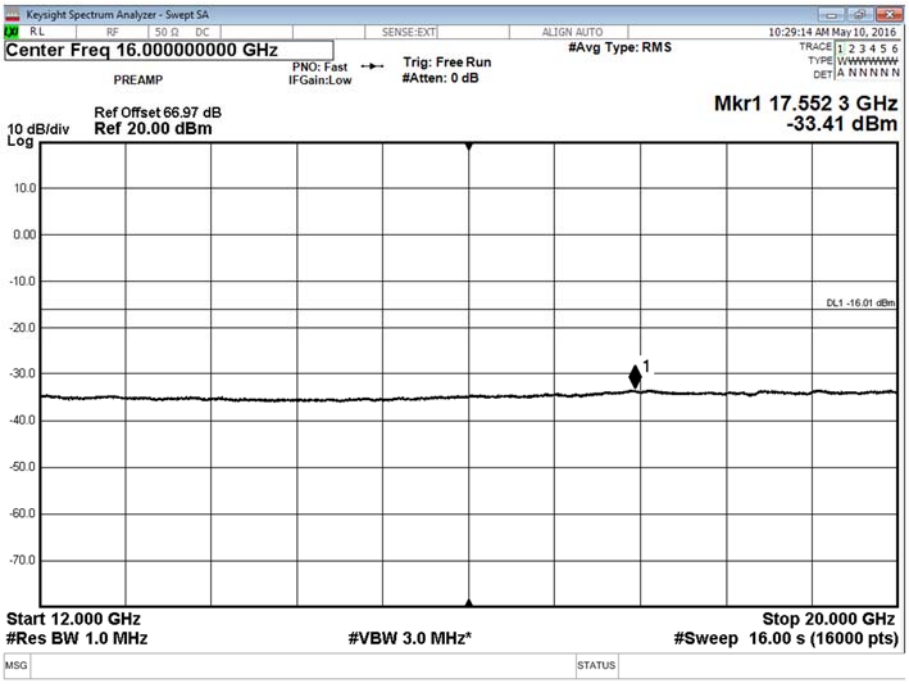
Channel Position T - Bandwidth 1.4 MHz - Antenna A



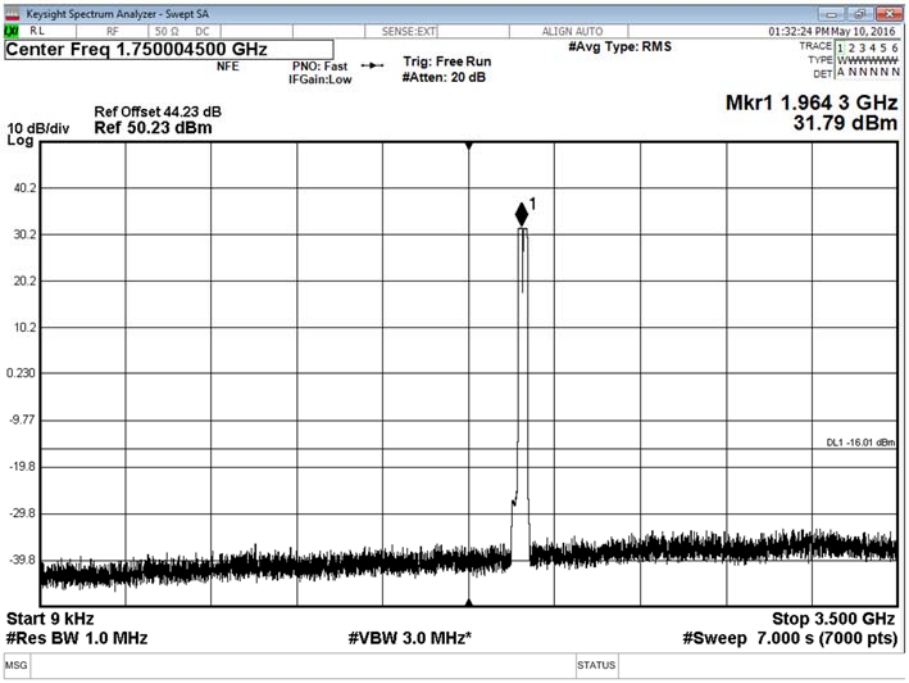
Channel Position T - Bandwidth 1.4 MHz - Antenna A



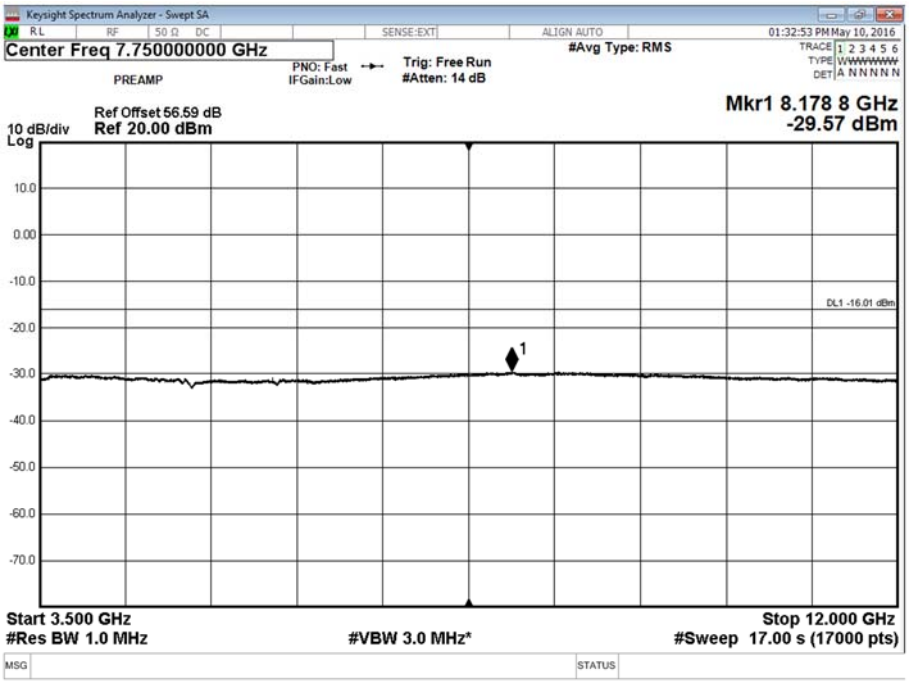
Channel Position T - Bandwidth 1.4 MHz - Antenna A



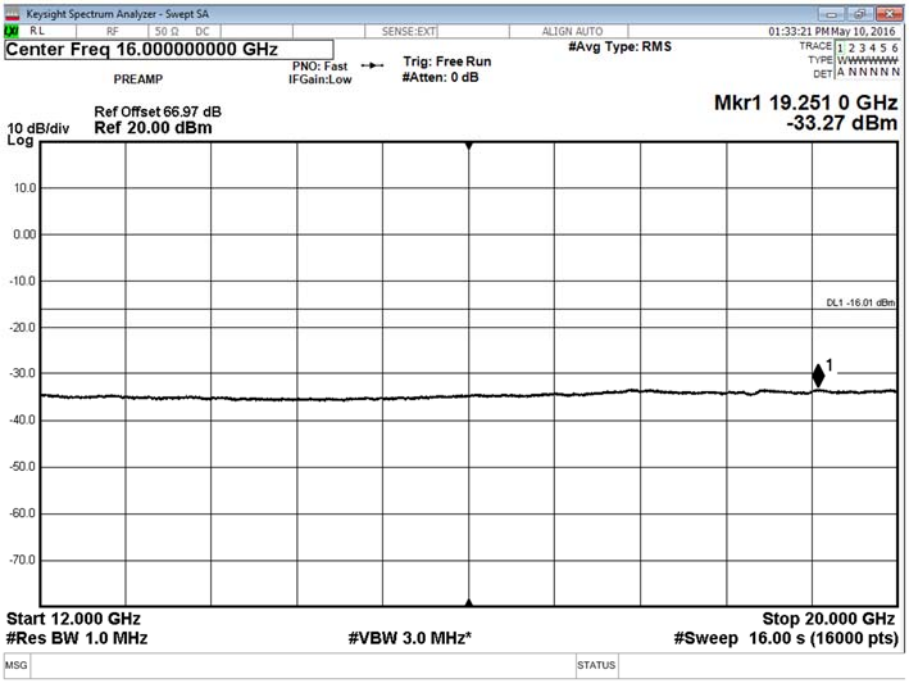
Channel Position T - Bandwidth 20.0 MHz - Antenna A



Channel Position T - Bandwidth 20.0 MHz - Antenna A



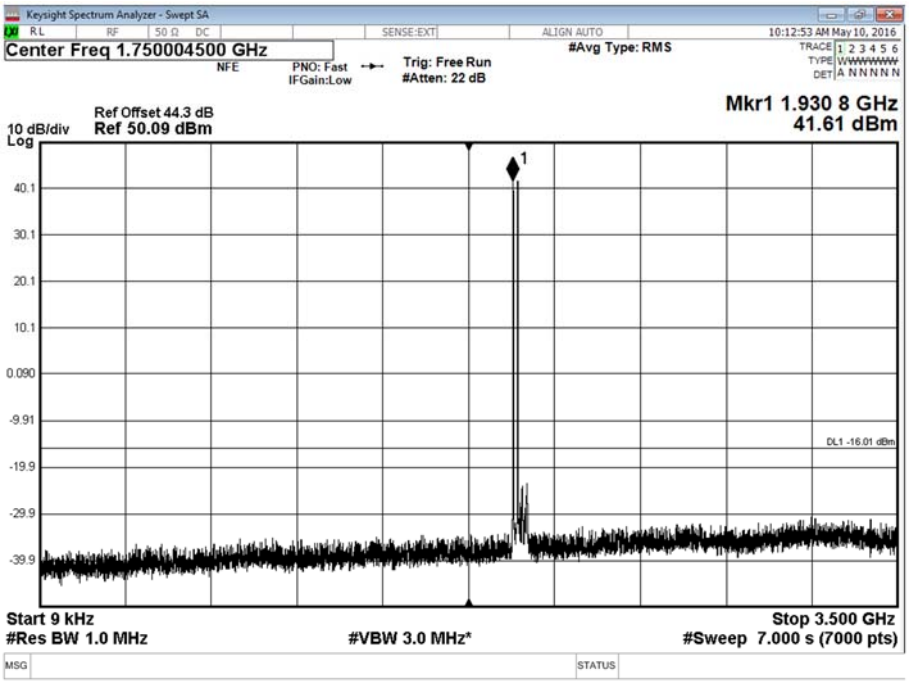
Channel Position T - Bandwidth 20.0 MHz - Antenna A



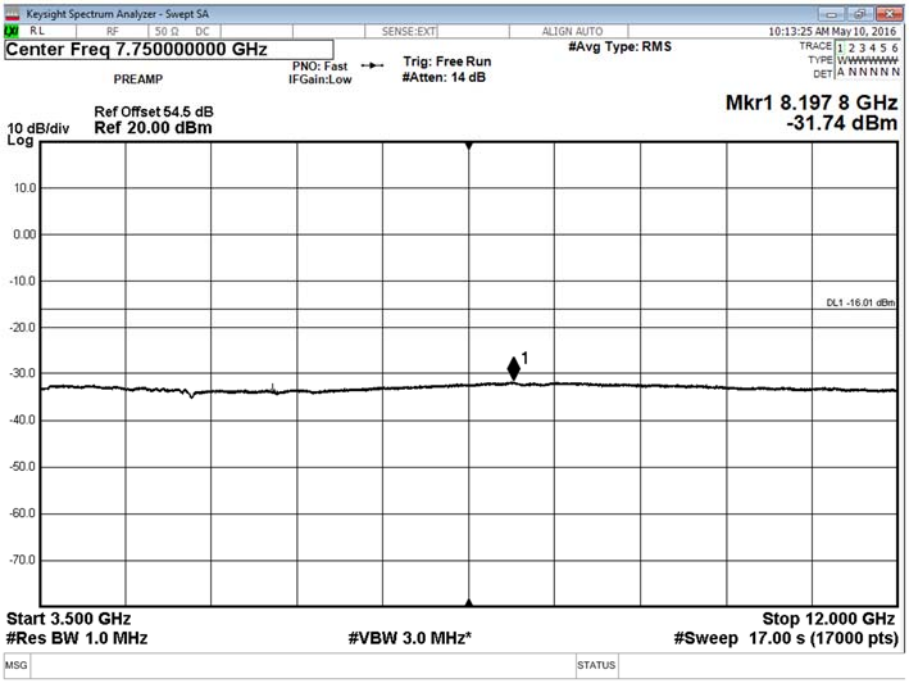
Configuration 2

Maximum Output Power 46.0 dBm

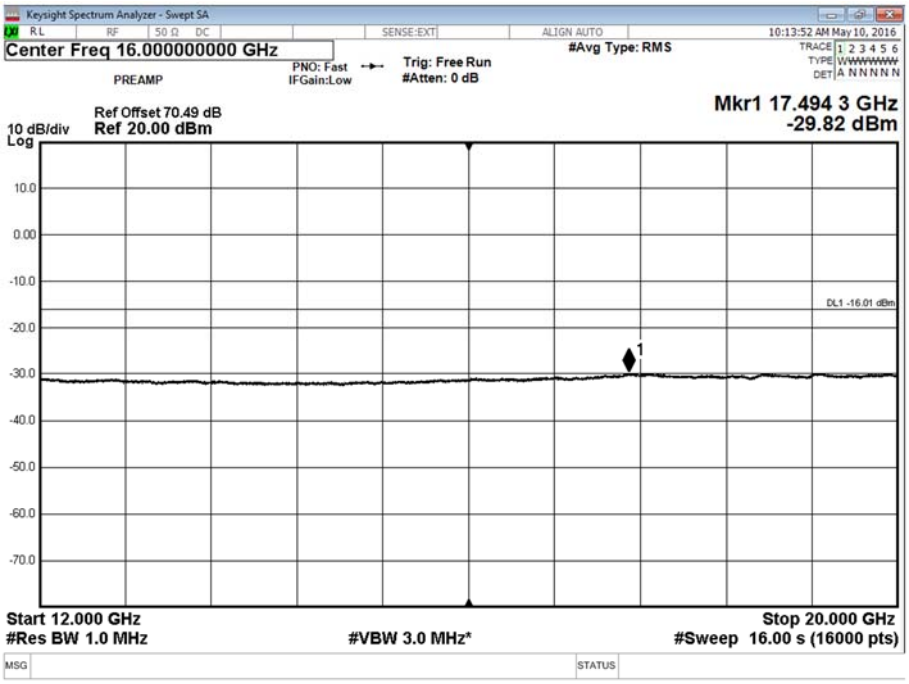
Channel Position B - Bandwidth 1.4 MHz - Antenna B



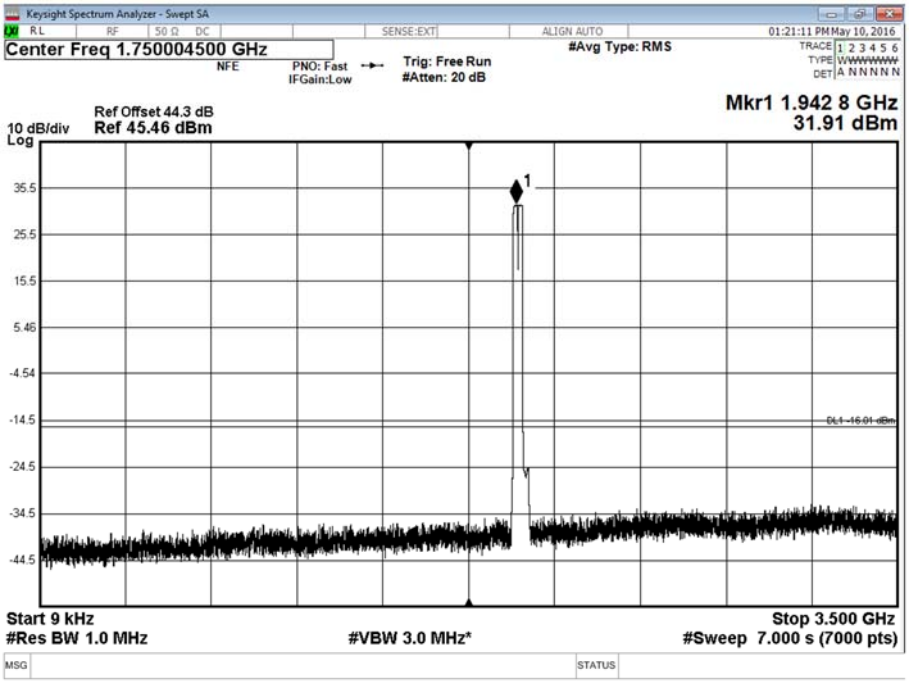
Channel Position B - Bandwidth 1.4 MHz - Antenna B



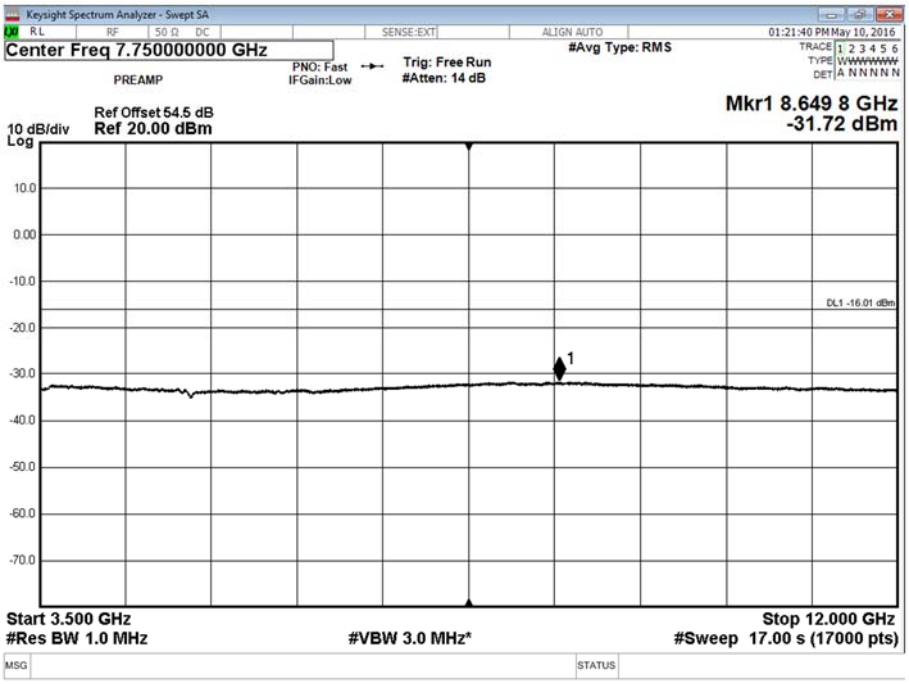
Channel Position B - Bandwidth 1.4 MHz - Antenna B



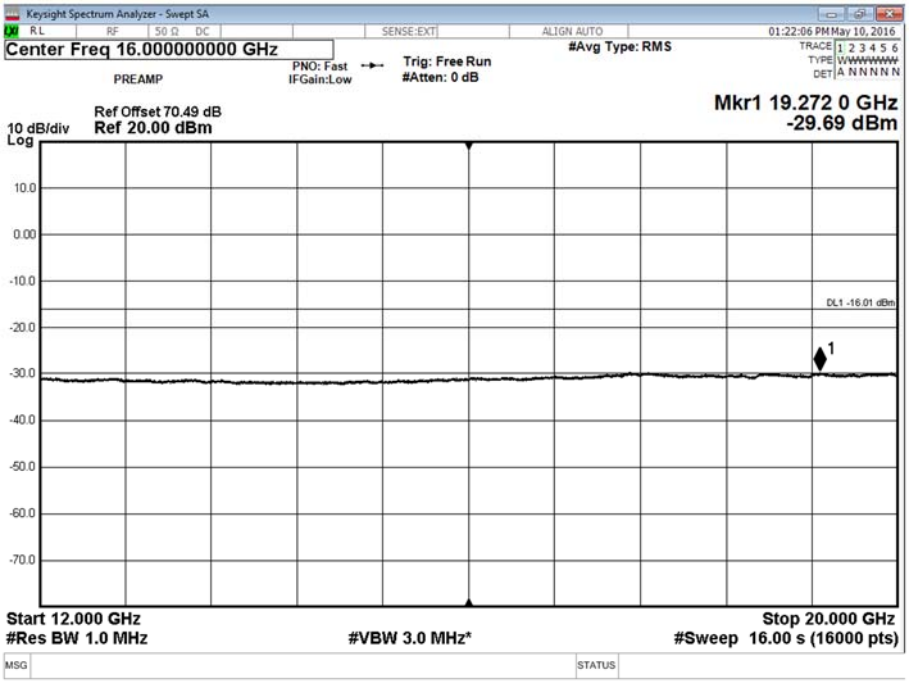
Channel Position B - Bandwidth 20.0 MHz - Antenna B



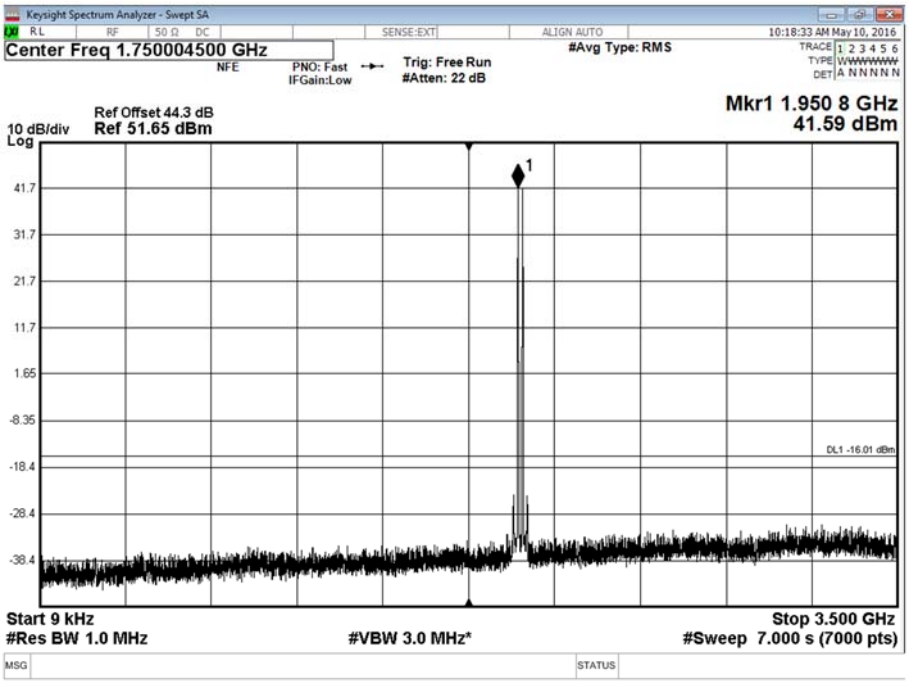
Channel Position B - Bandwidth 20.0 MHz - Antenna B



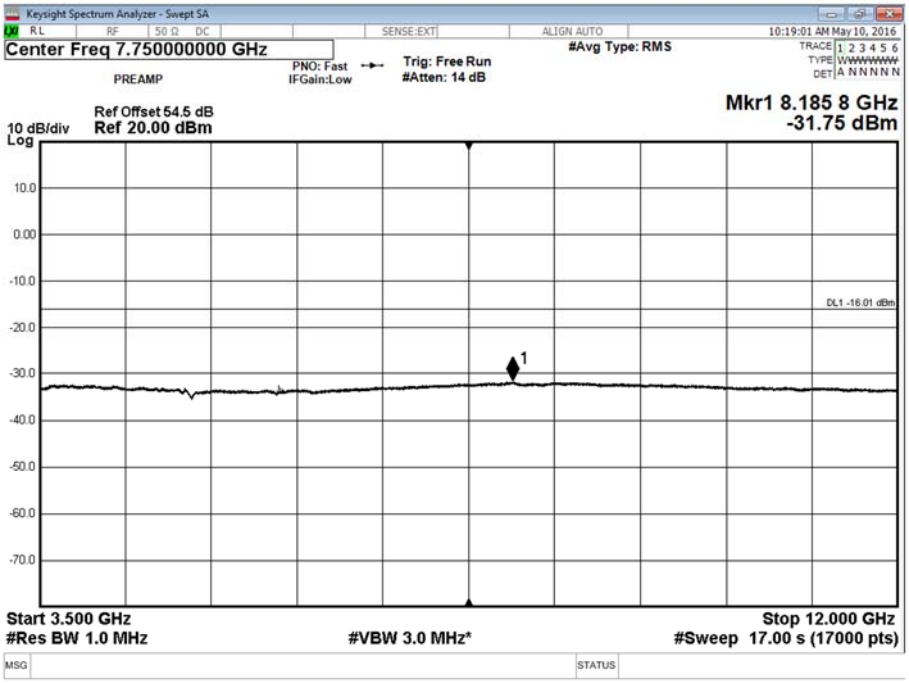
Channel Position B - Bandwidth 20.0 MHz - Antenna B



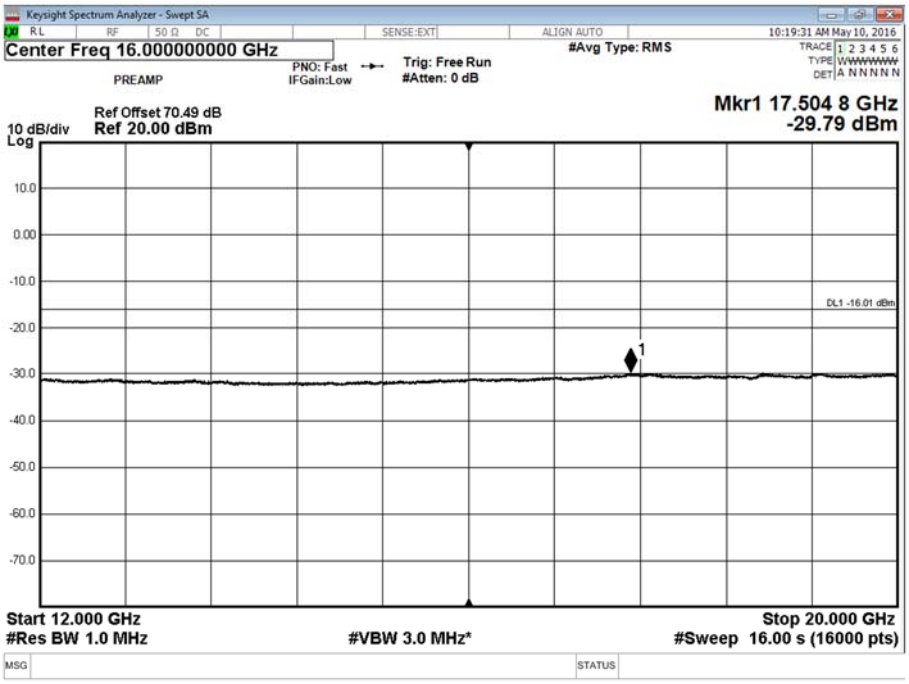
Channel Position M - Bandwidth 1.4 MHz - Antenna B



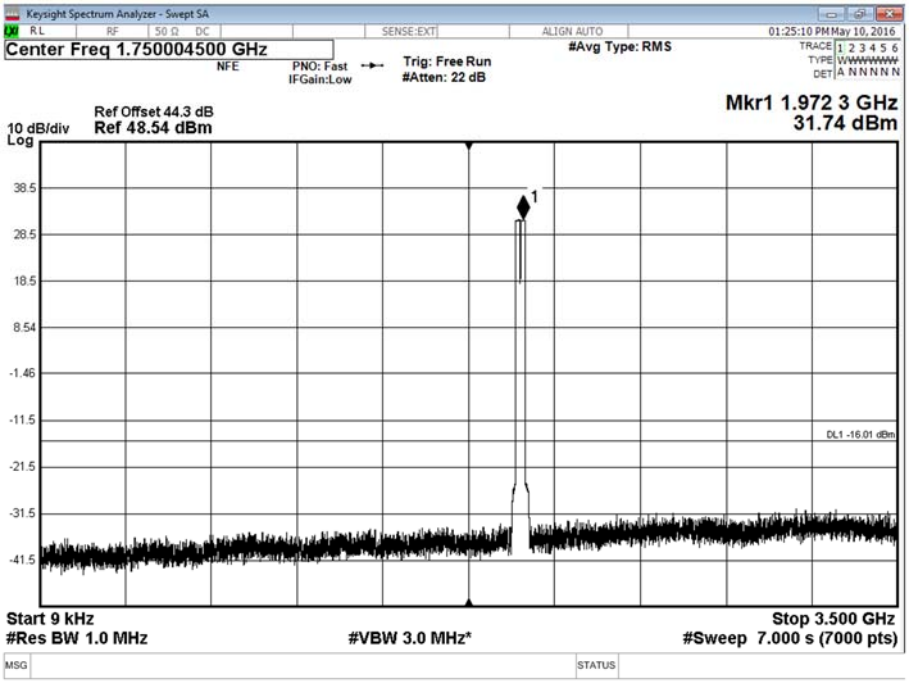
Channel Position M - Bandwidth 1.4 MHz - Antenna B



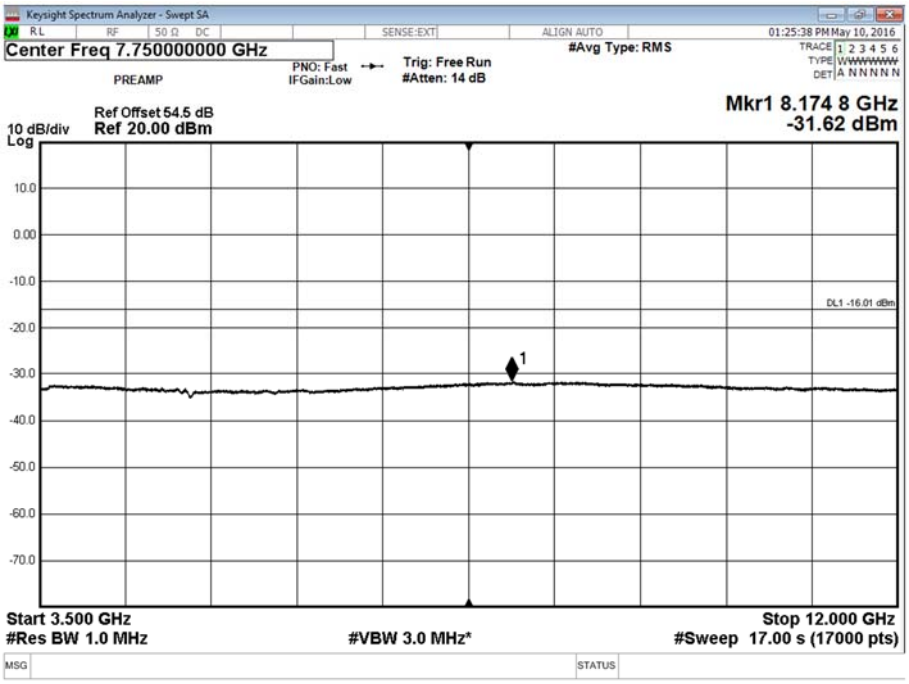
Channel Position M - Bandwidth 1.4 MHz - Antenna B



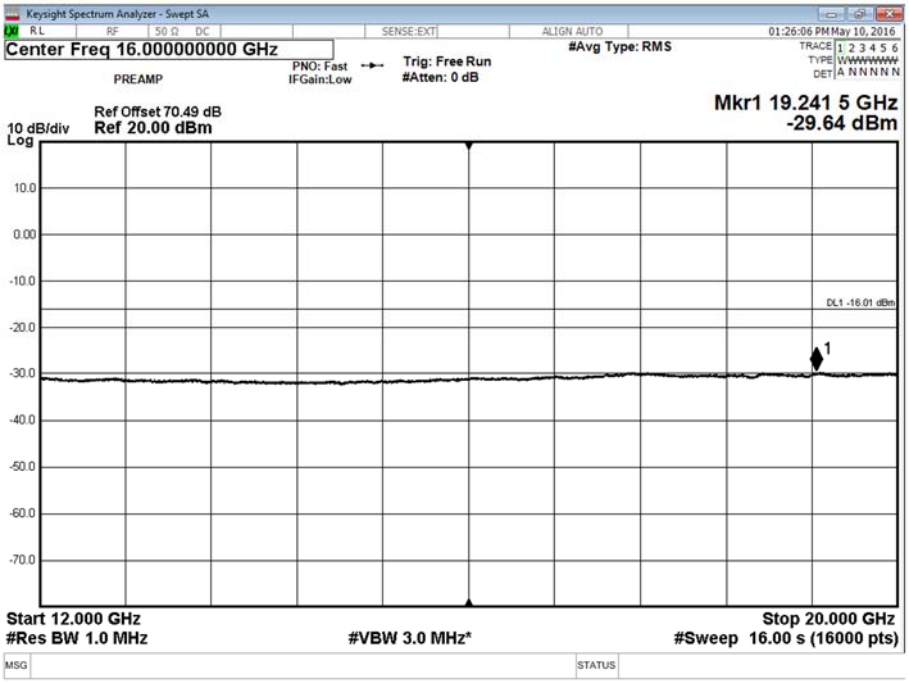
Channel Position M - Bandwidth 20.0 MHz - Antenna B



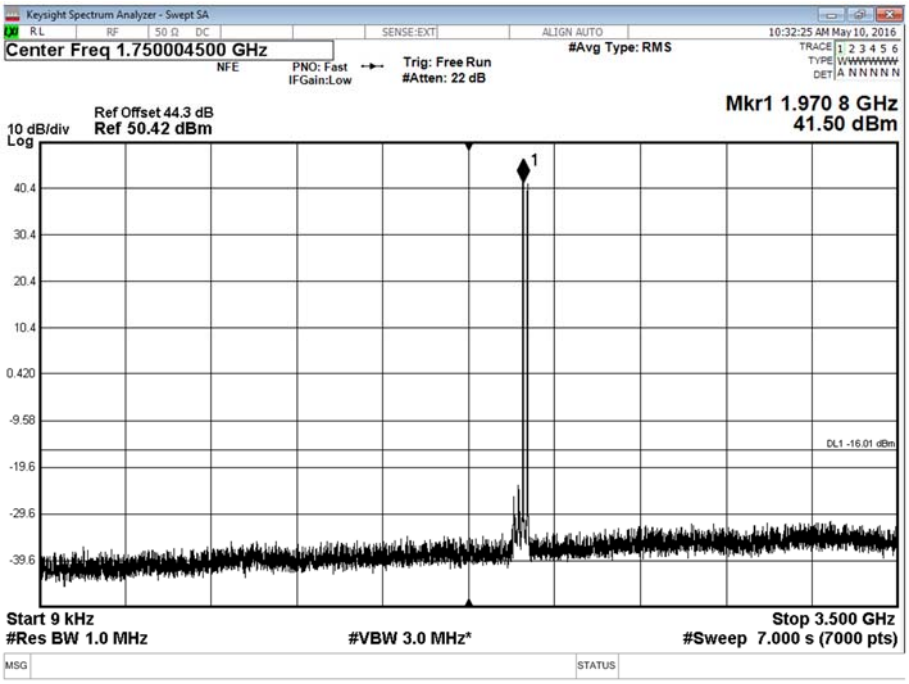
Channel Position M - Bandwidth 20.0 MHz - Antenna B



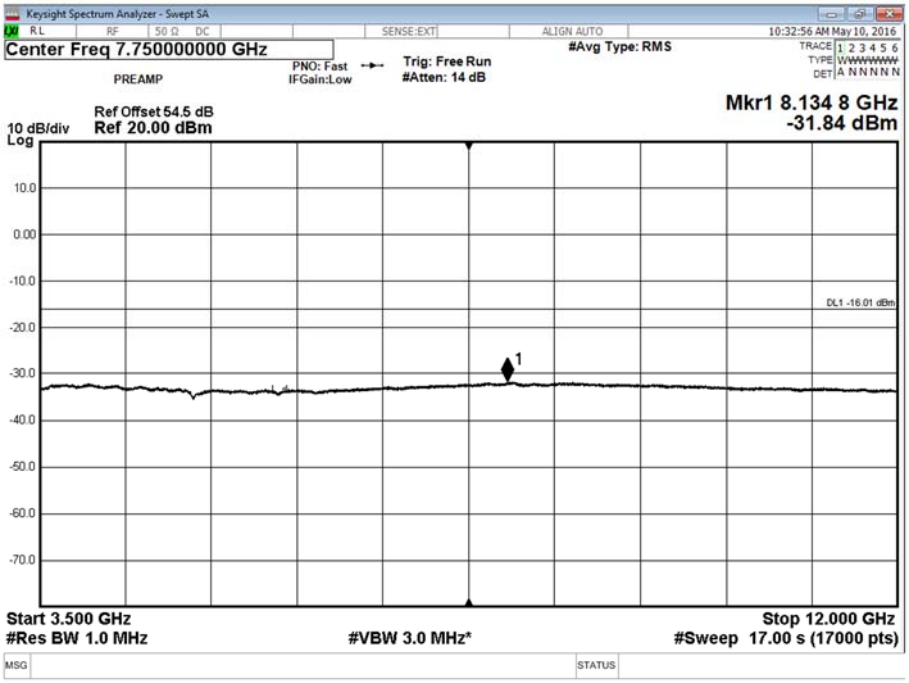
Channel Position M - Bandwidth 20.0 MHz - Antenna B



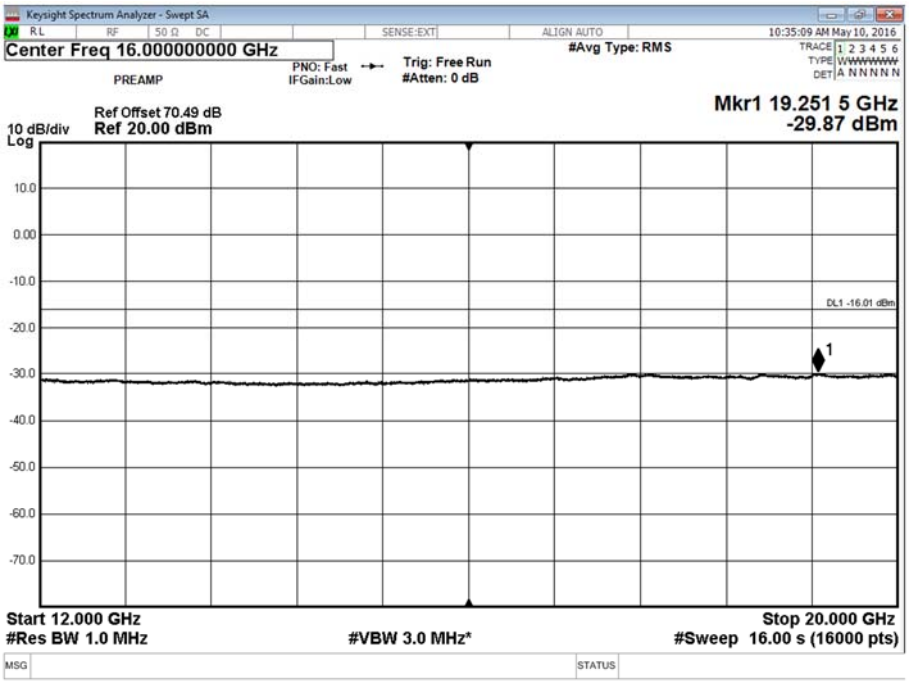
Channel Position T - Bandwidth 1.4 MHz - Antenna B



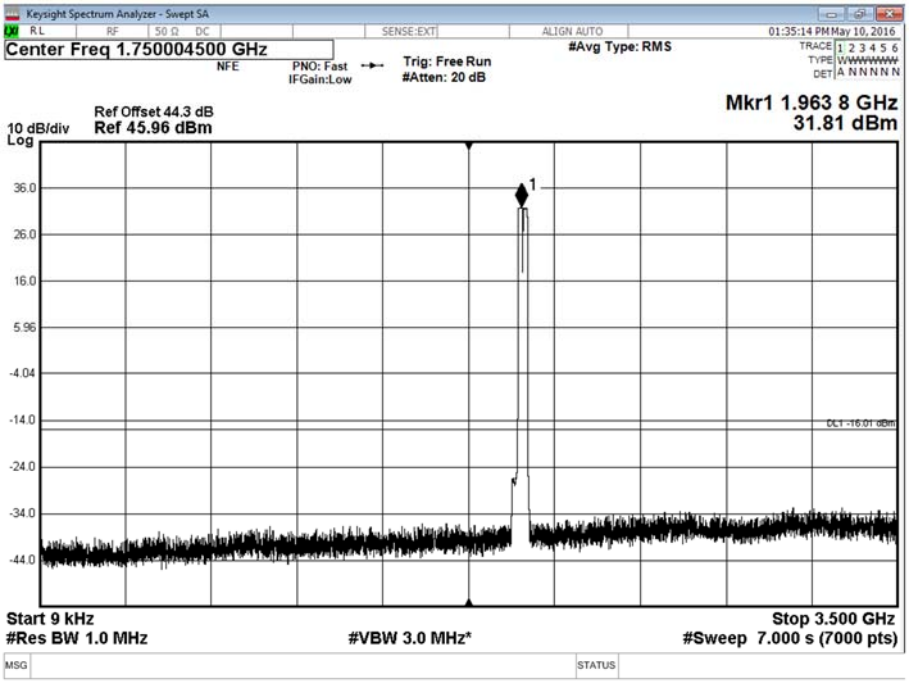
Channel Position T - Bandwidth 1.4 MHz - Antenna B



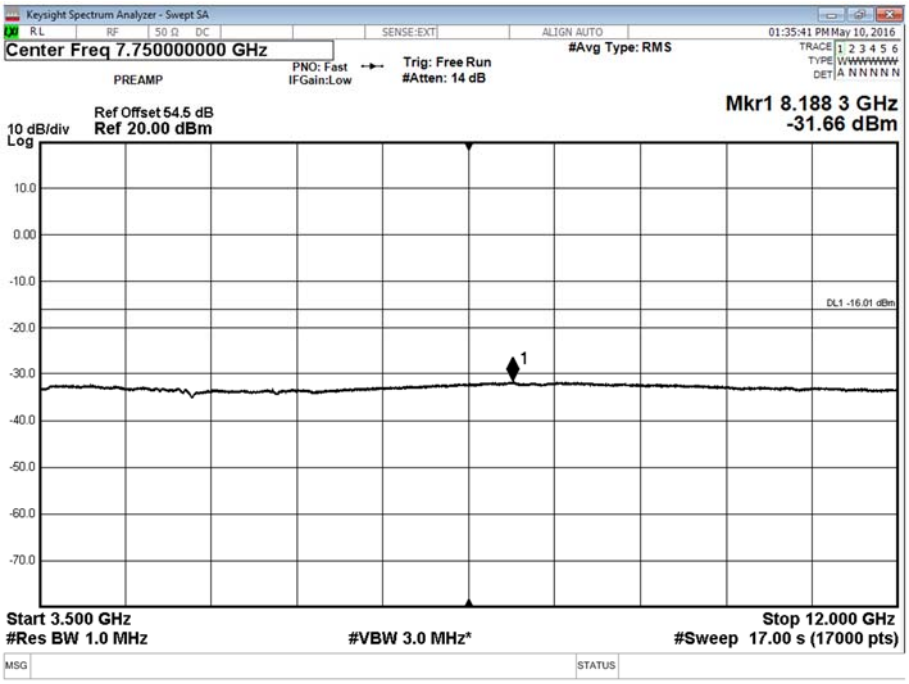
Channel Position T - Bandwidth 1.4 MHz - Antenna B



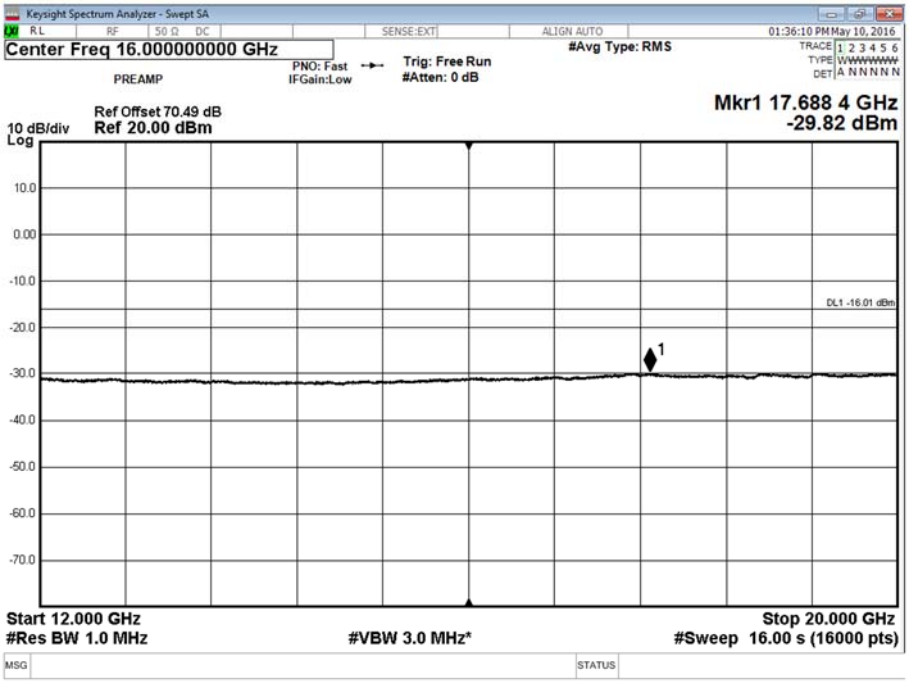
Channel Position T - Bandwidth 20.0 MHz - Antenna B



Channel Position T - Bandwidth 20.0 MHz - Antenna B



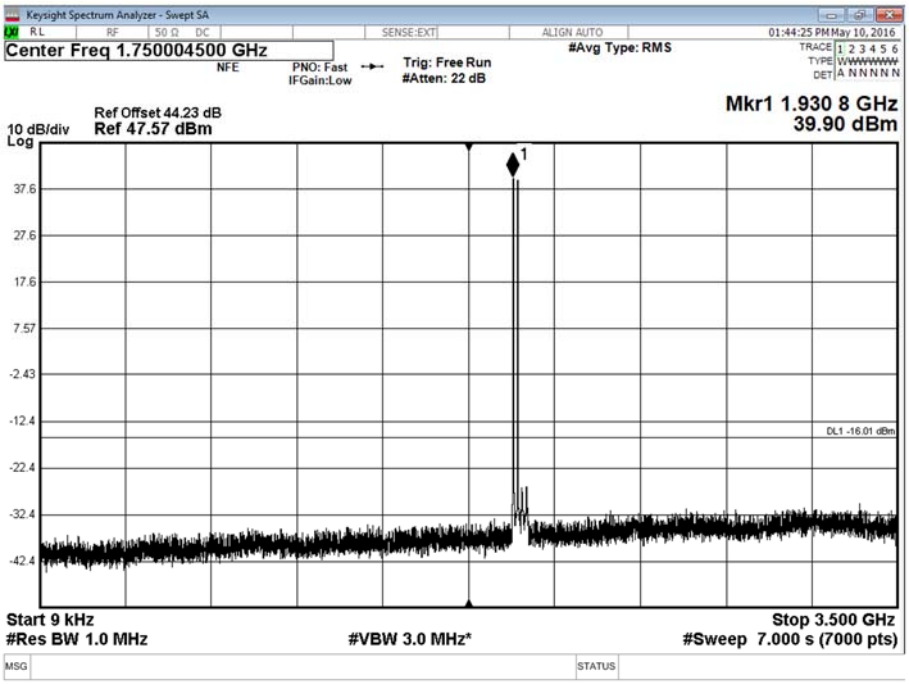
Channel Position T - Bandwidth 20.0 MHz - Antenna B



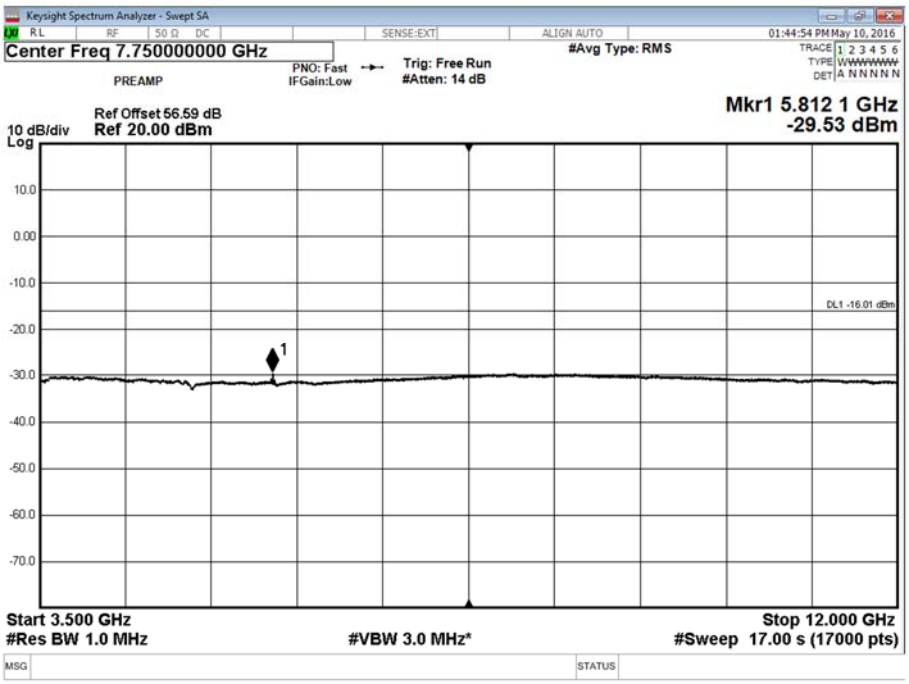
Configuration 3

Maximum Output Power 46.0 dBm

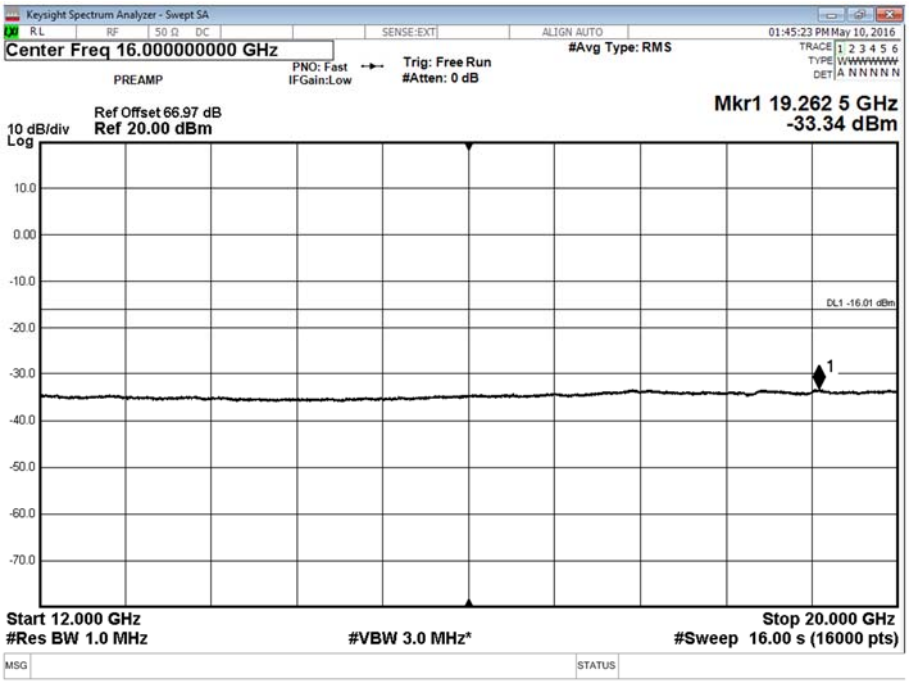
Channel Position B - Bandwidth 1.4 MHz - Antenna A



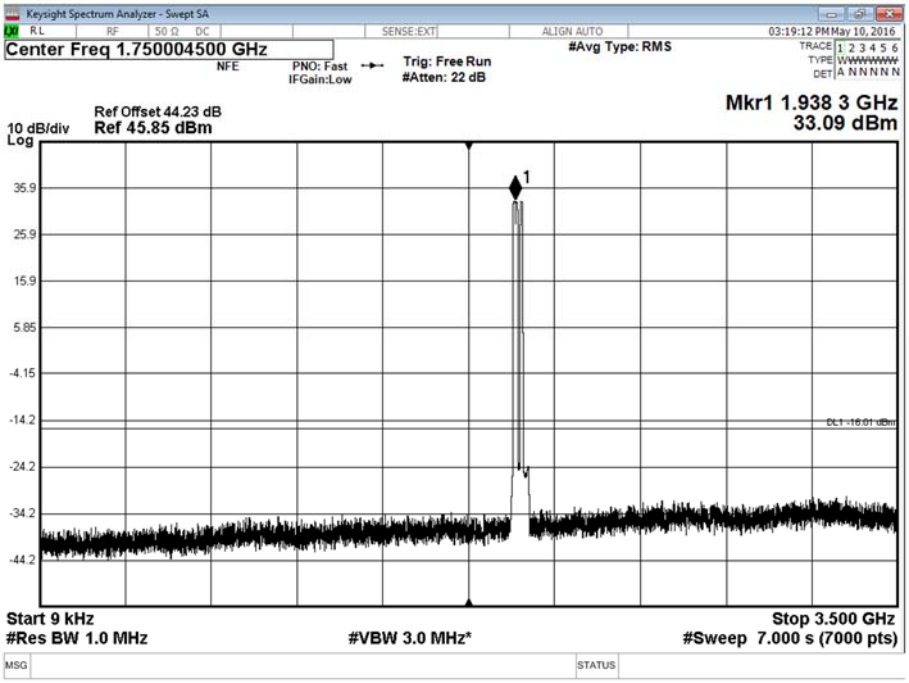
Channel Position B - Bandwidth 1.4 MHz - Antenna A



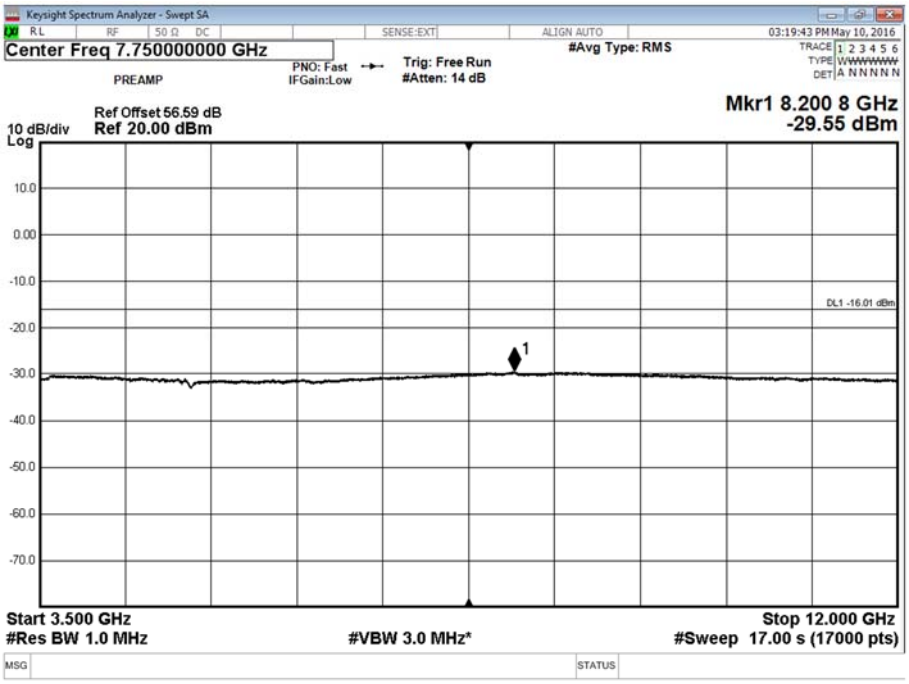
Channel Position B - Bandwidth 1.4 MHz - Antenna A



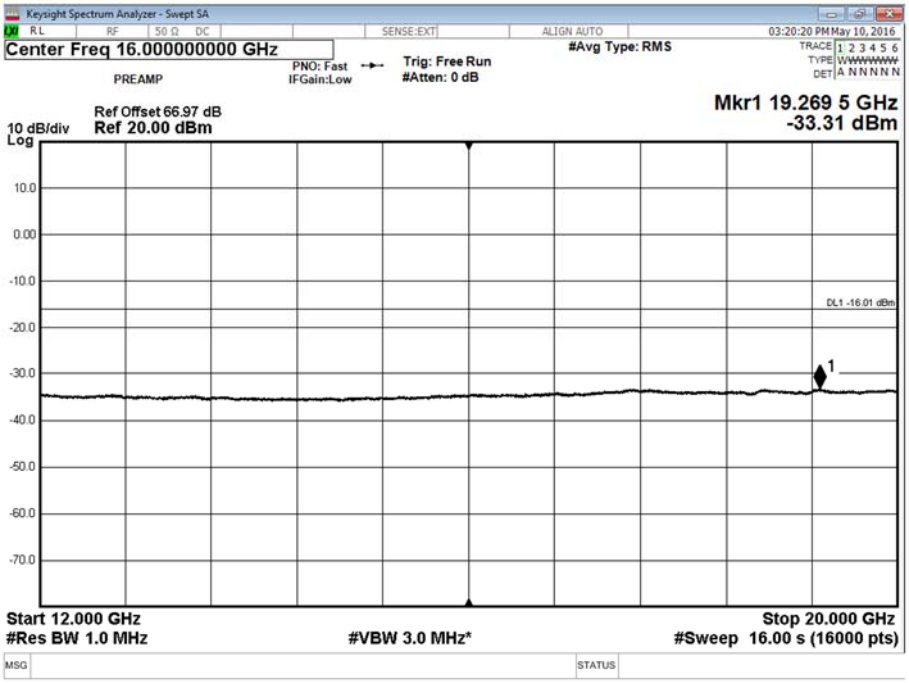
Channel Position B - Bandwidth 10.0 MHz - Antenna A



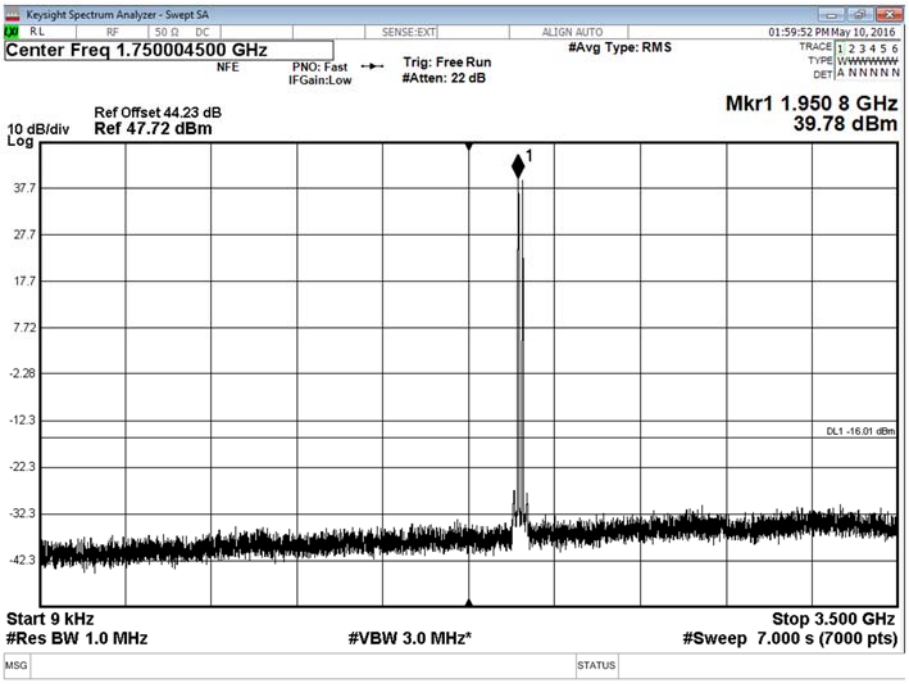
Channel Position B - Bandwidth 10.0 MHz - Antenna A



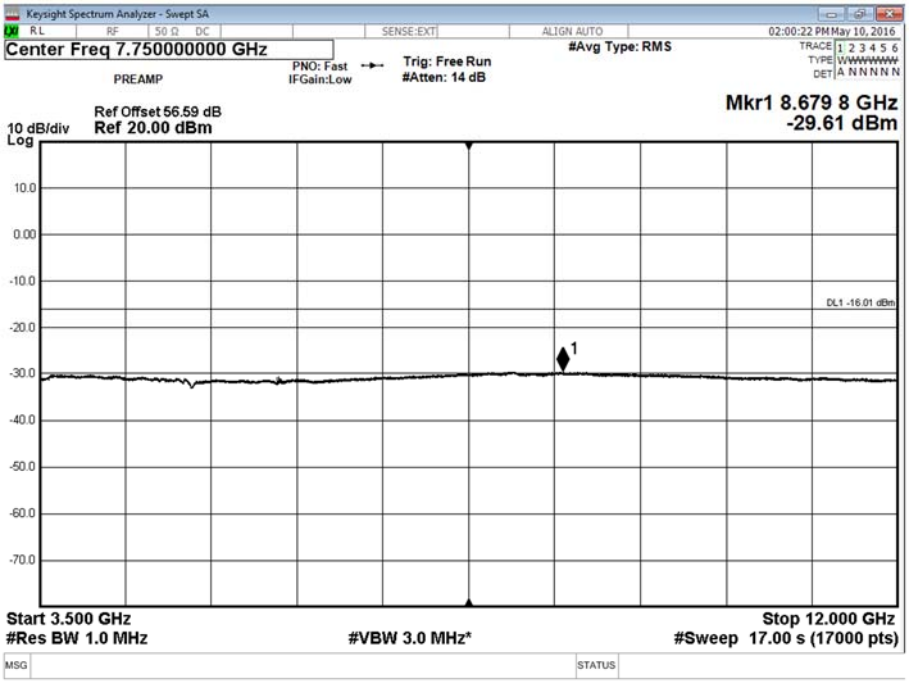
Channel Position B - Bandwidth 10.0 MHz - Antenna A



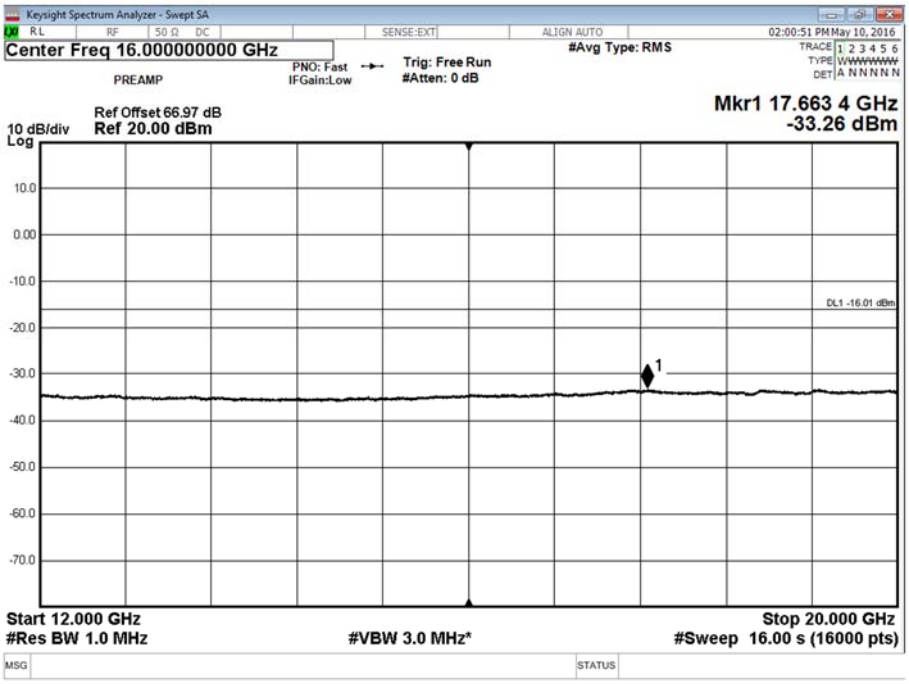
Channel Position M - Bandwidth 1.4 MHz - Antenna A



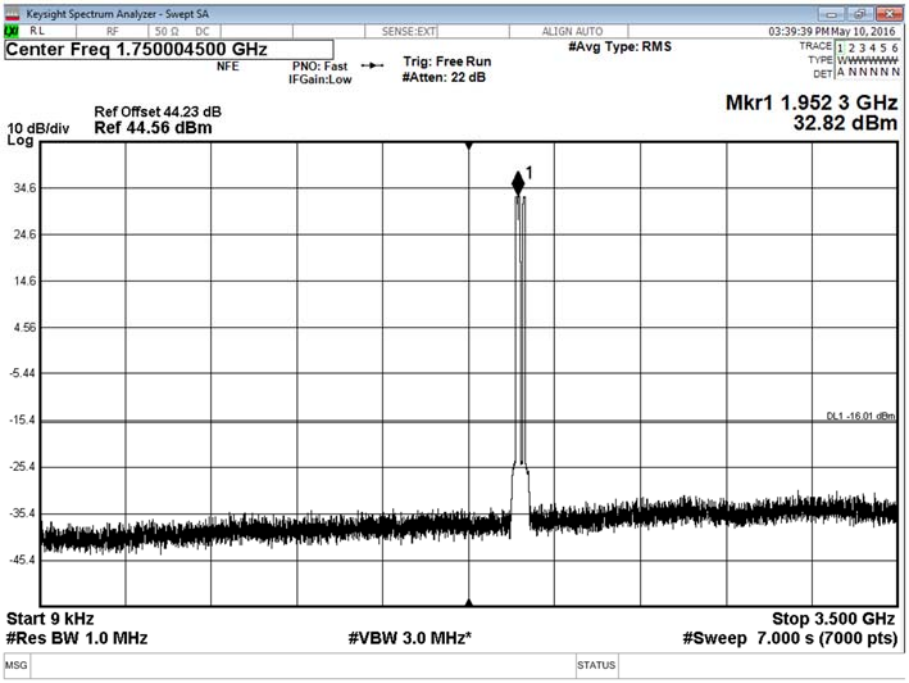
Channel Position M - Bandwidth 1.4 MHz - Antenna A



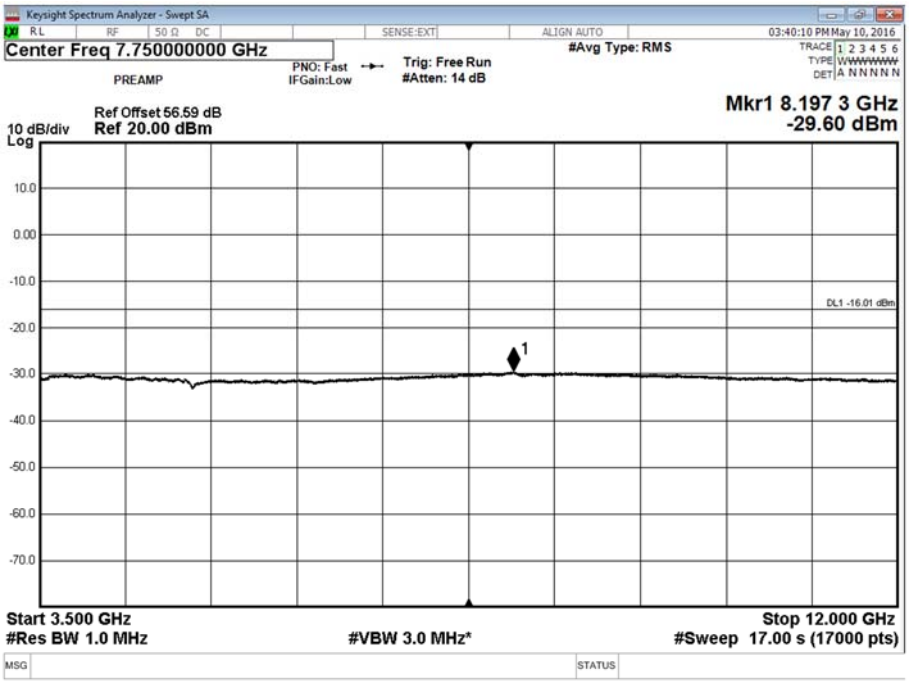
Channel Position M - Bandwidth 1.4 MHz - Antenna A



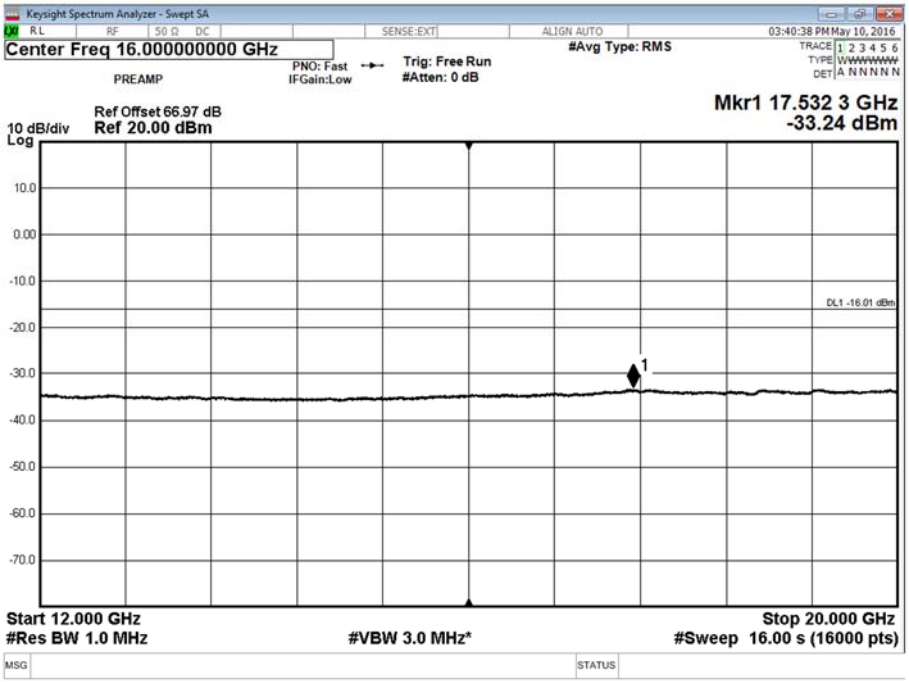
Channel Position M - Bandwidth 10.0 MHz - Antenna A



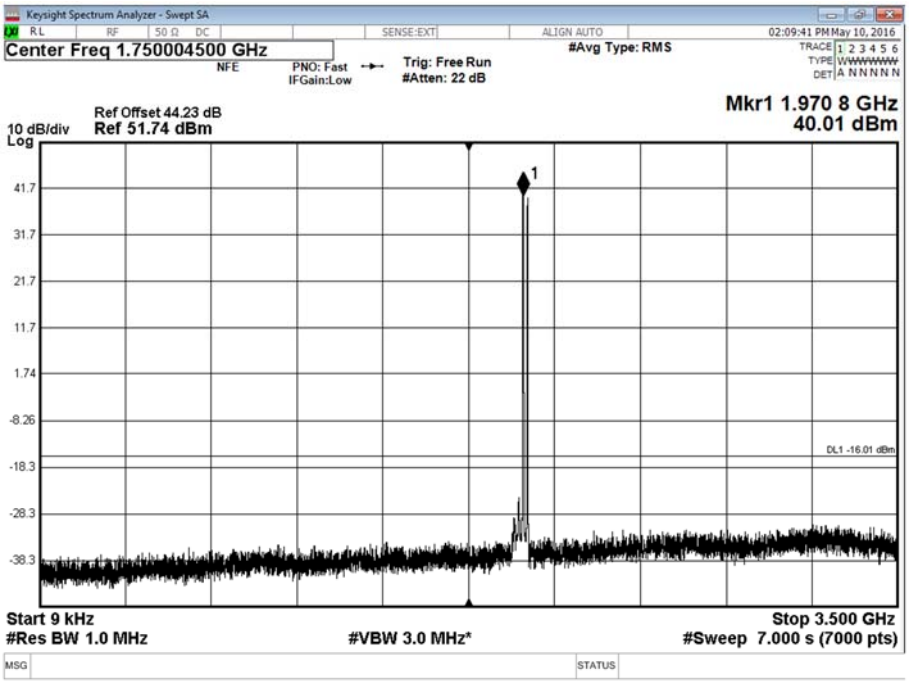
Channel Position M - Bandwidth 10.0 MHz - Antenna A



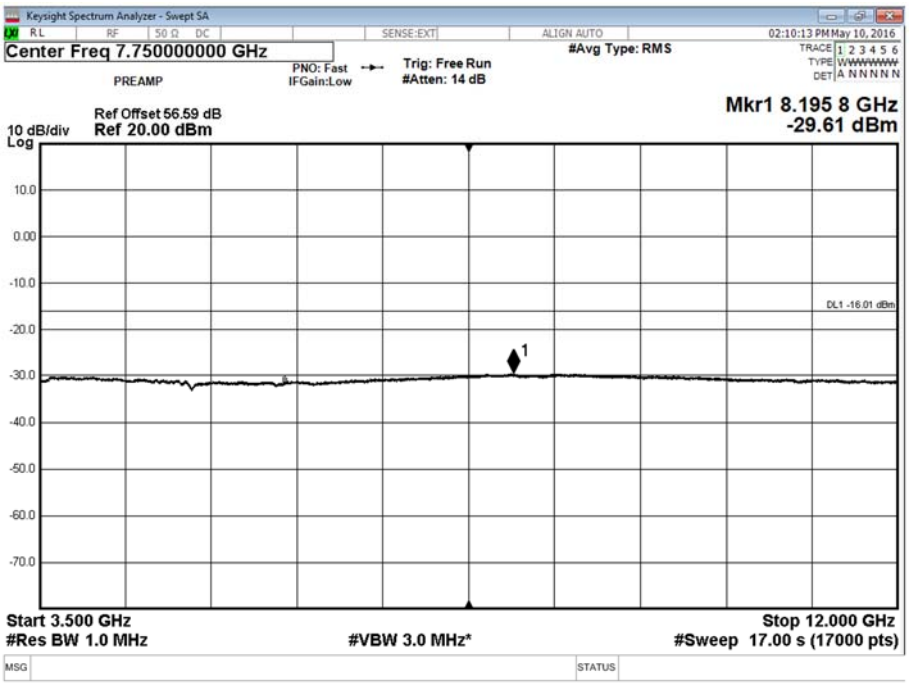
Channel Position M - Bandwidth 10.0 MHz - Antenna A



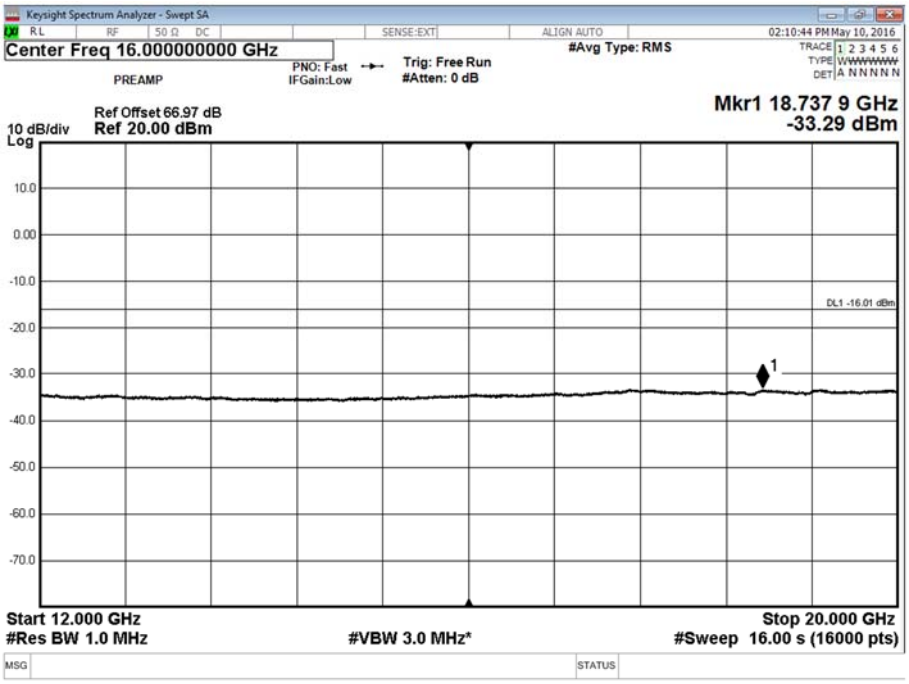
Channel Position T - Bandwidth 1.4 MHz - Antenna A



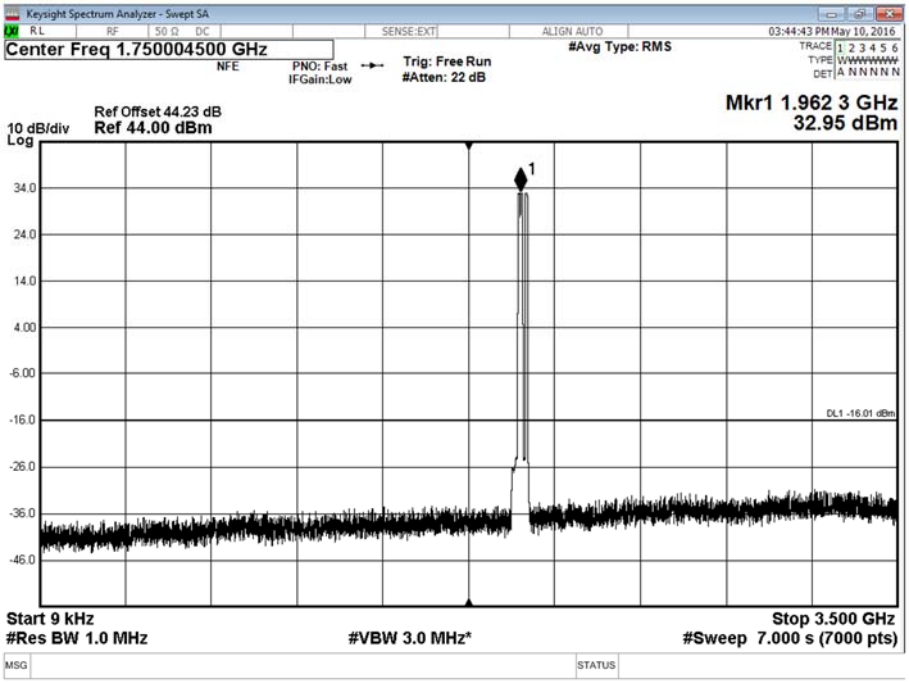
Channel Position T - Bandwidth 1.4 MHz - Antenna A



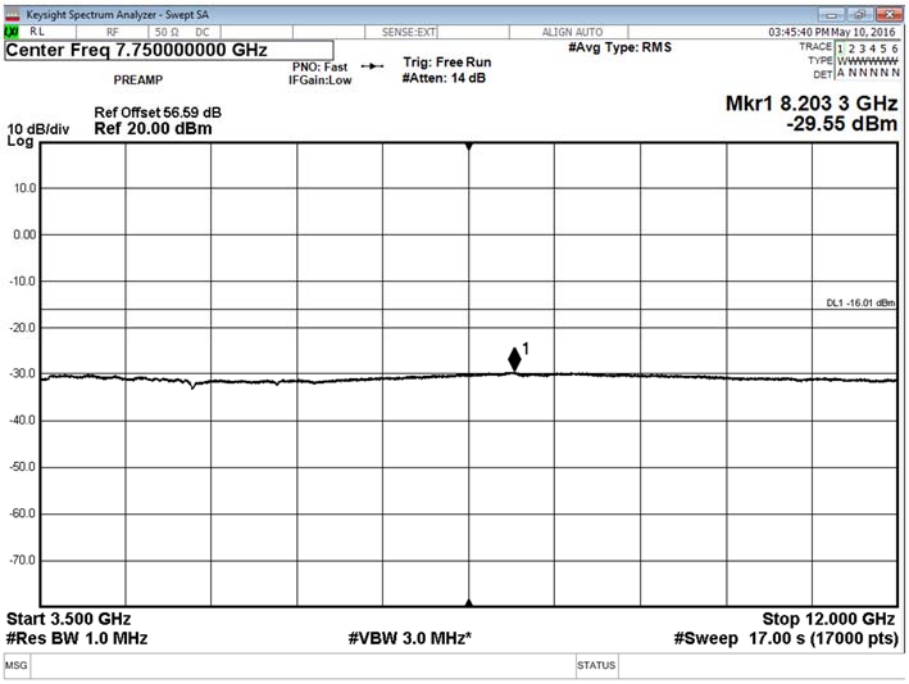
Channel Position T - Bandwidth 1.4 MHz - Antenna A



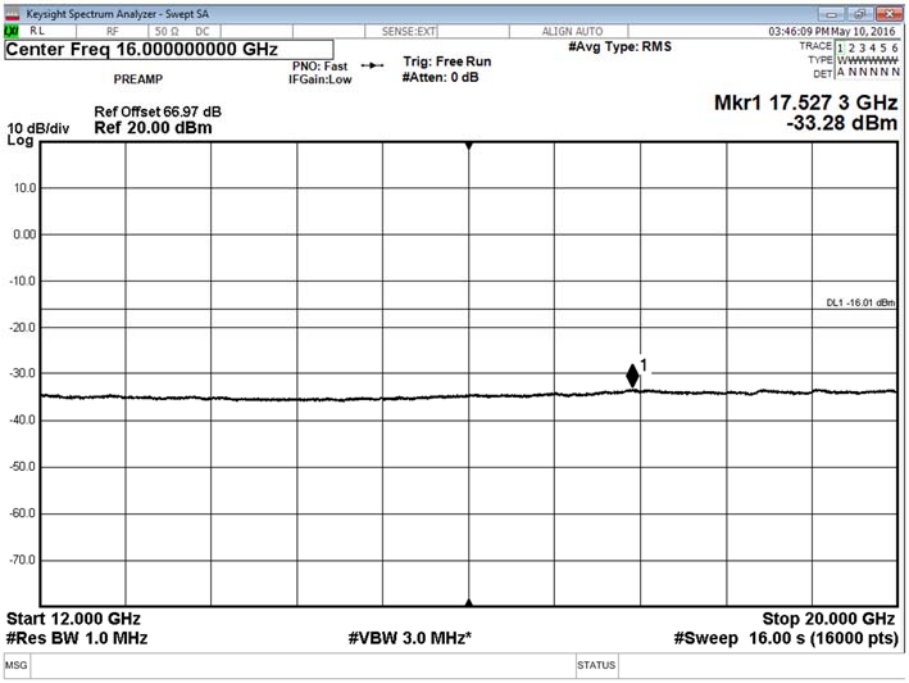
Channel Position T - Bandwidth 10.0 MHz - Antenna A



Channel Position T - Bandwidth 10.0 MHz - Antenna A



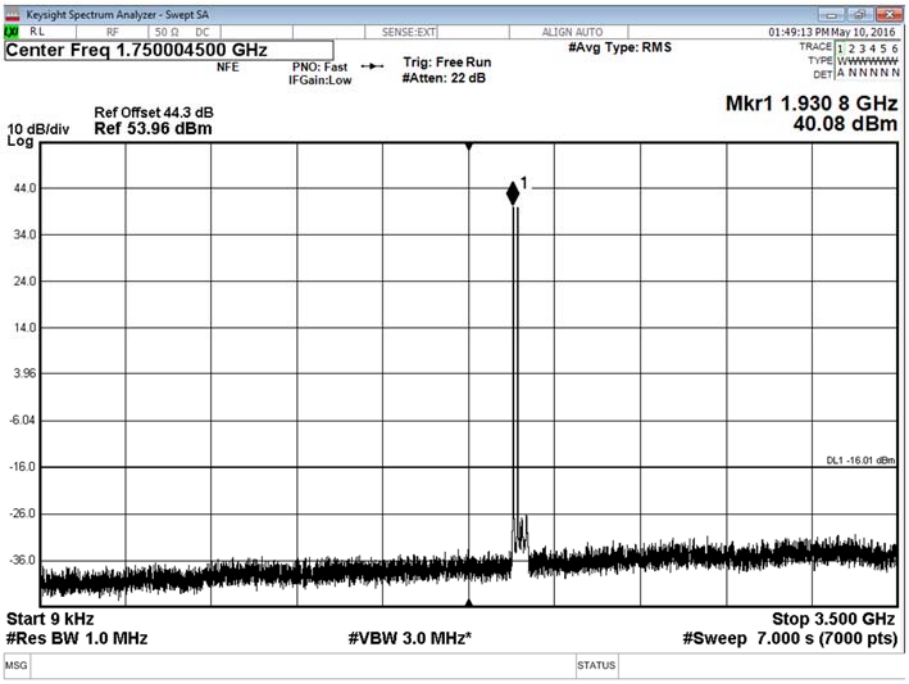
Channel Position T - Bandwidth 10.0 MHz - Antenna A



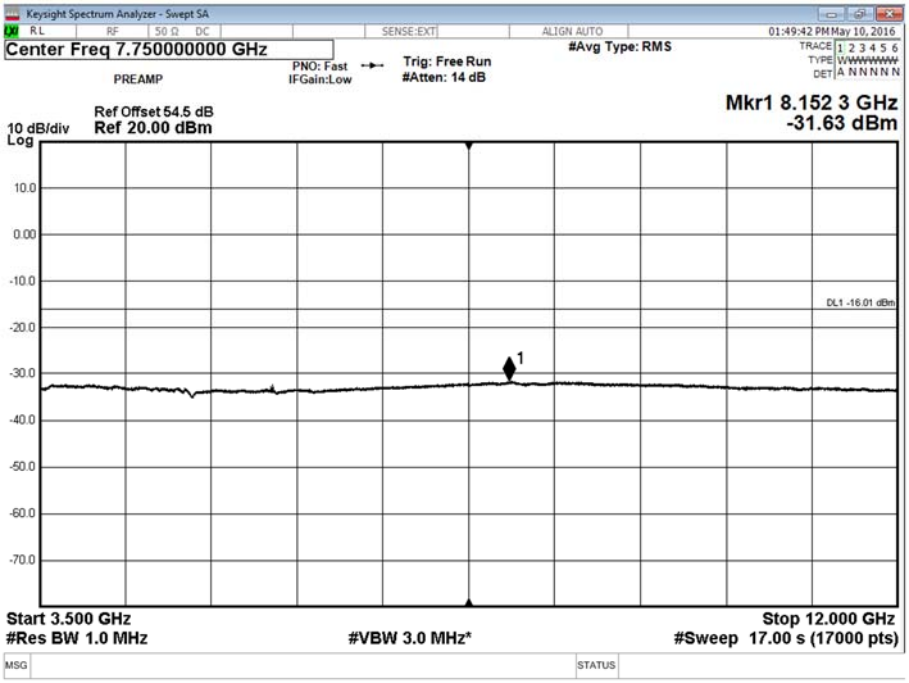
Configuration 3

Maximum Output Power 46.0 dBm

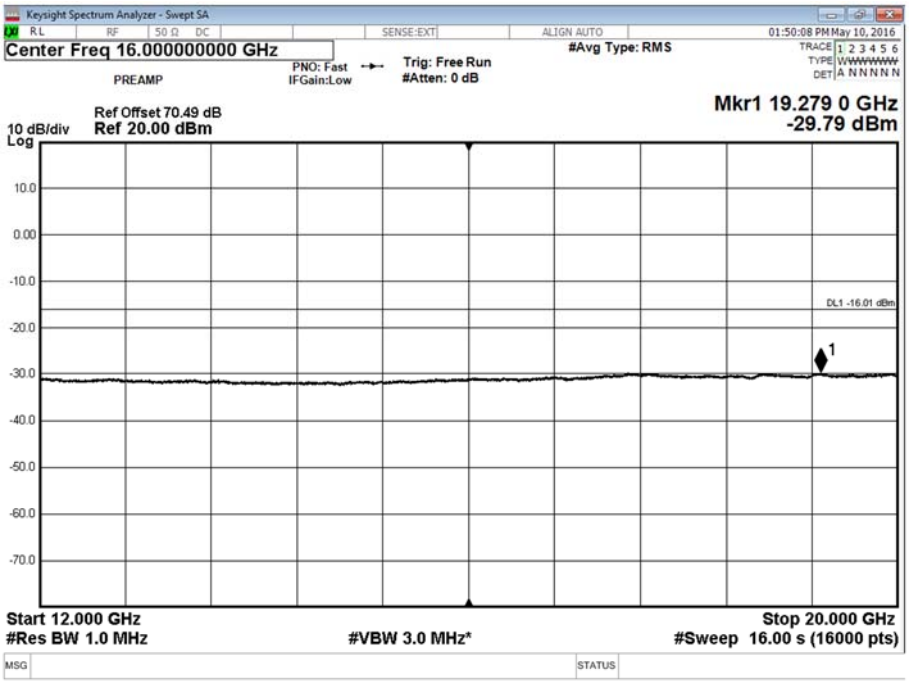
Channel Position B - Bandwidth 1.4 MHz - Antenna B



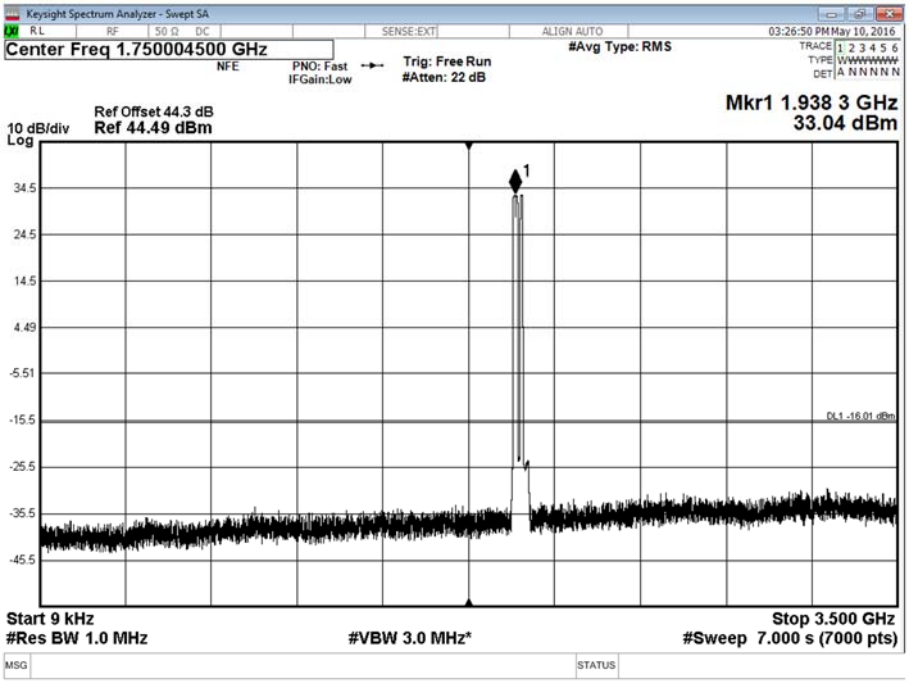
Channel Position B - Bandwidth 1.4 MHz - Antenna B



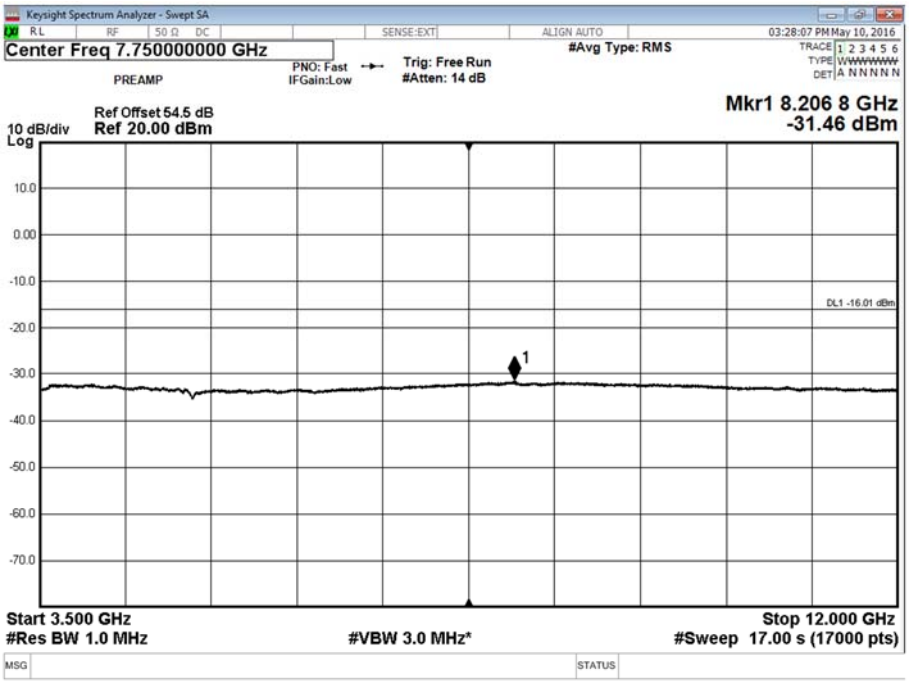
Channel Position B - Bandwidth 1.4 MHz - Antenna B



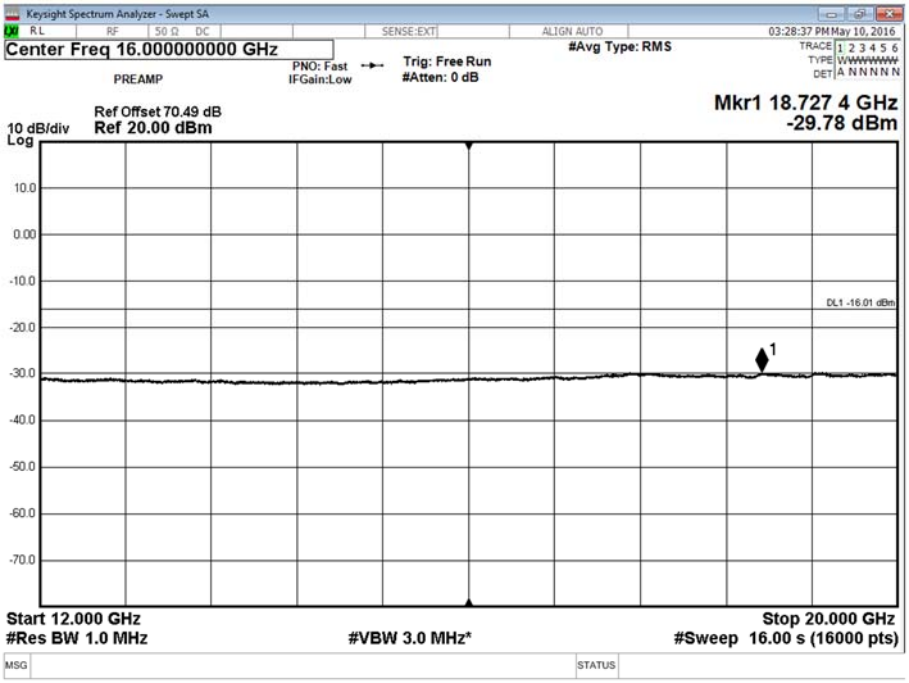
Channel Position B - Bandwidth 10.0 MHz - Antenna B



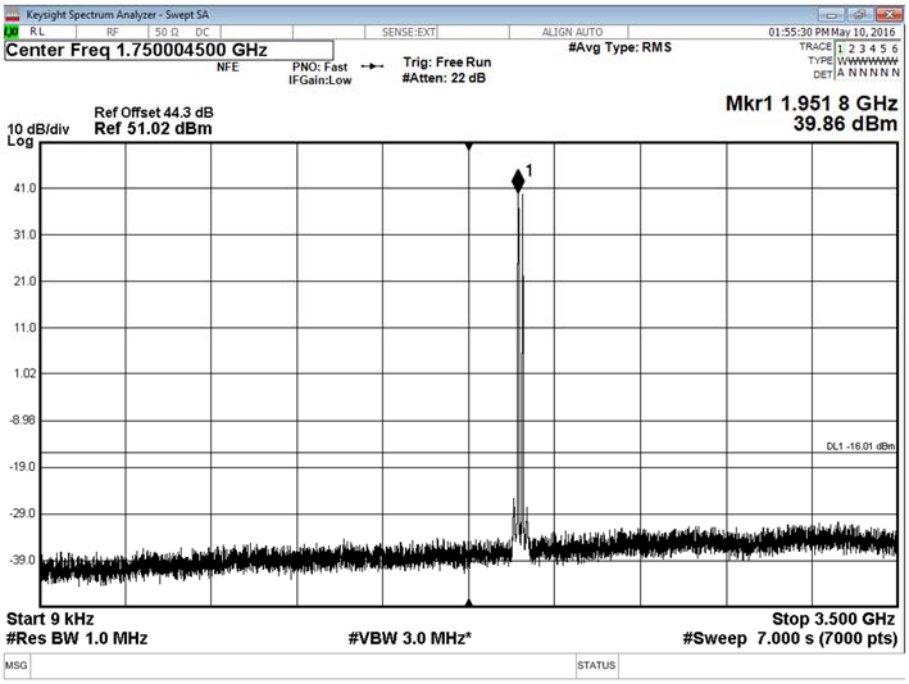
Channel Position B - Bandwidth 10.0 MHz - Antenna B



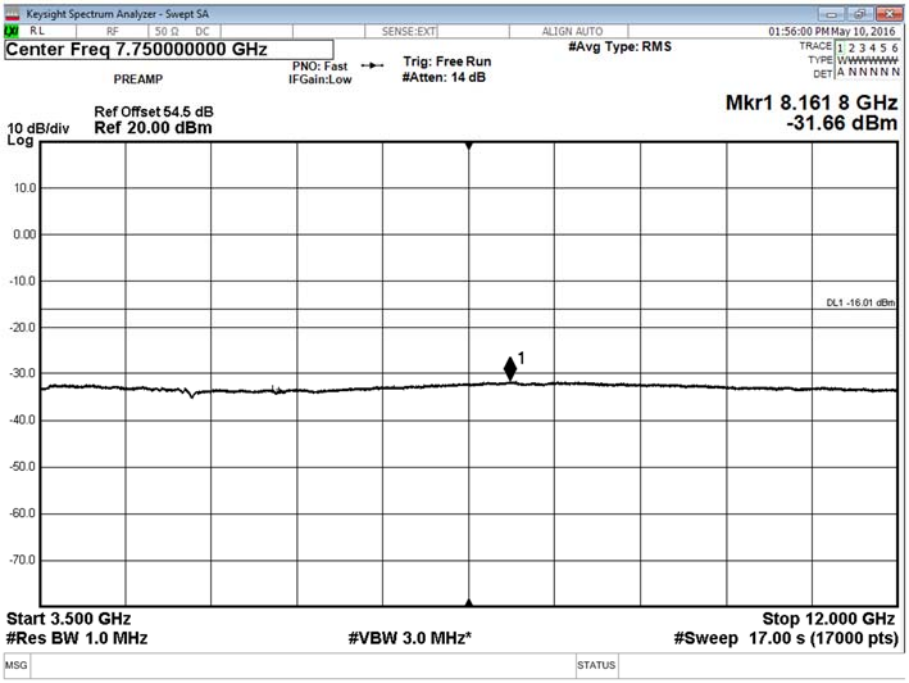
Channel Position B - Bandwidth 10.0 MHz - Antenna B



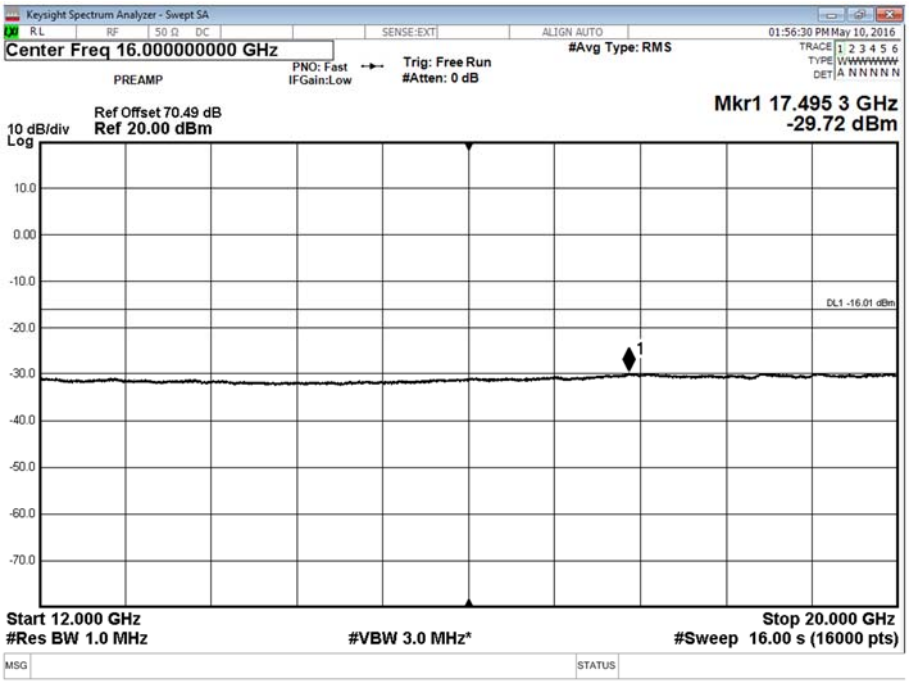
Channel Position M - Bandwidth 1.4 MHz - Antenna B



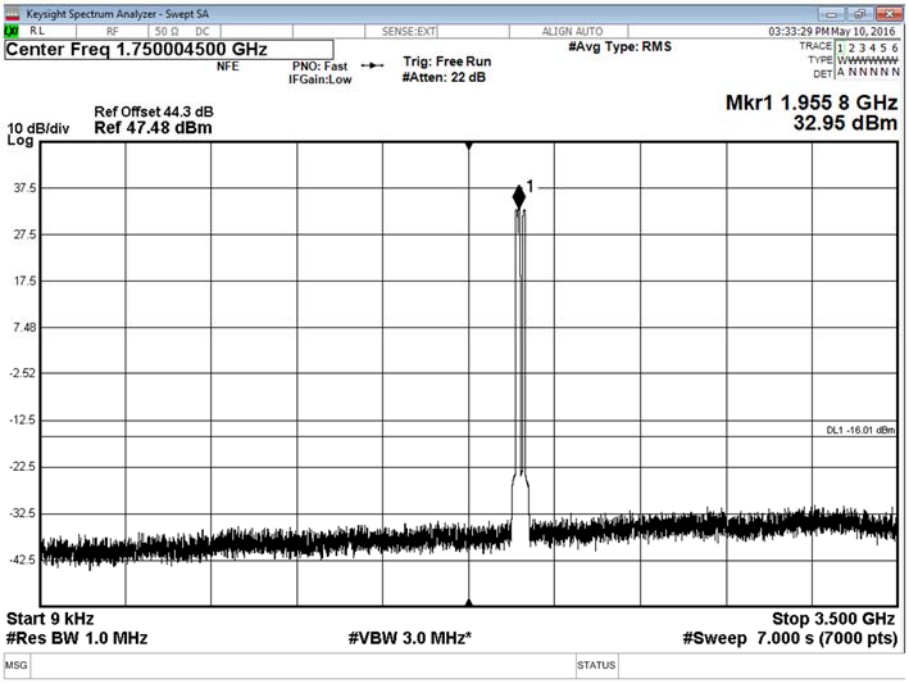
Channel Position M - Bandwidth 1.4 MHz - Antenna B



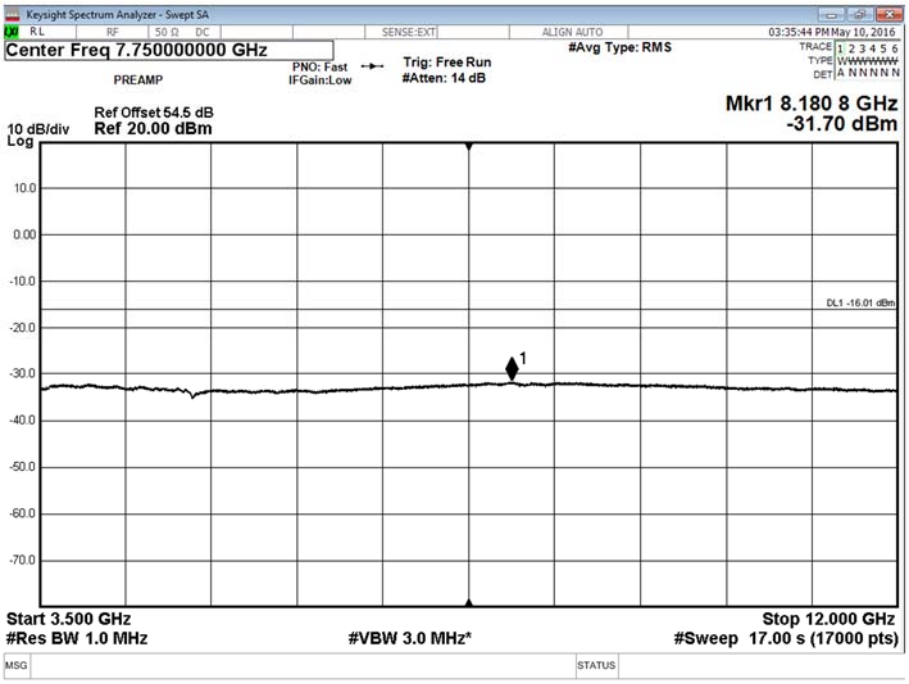
Channel Position M - Bandwidth 1.4 MHz - Antenna B



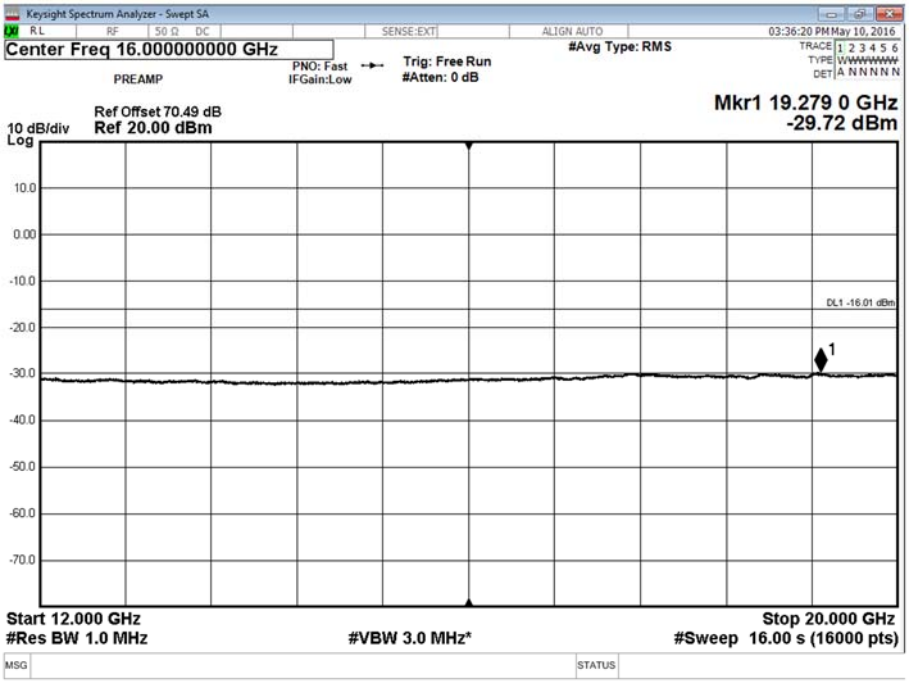
Channel Position M - Bandwidth 10.0 MHz - Antenna B



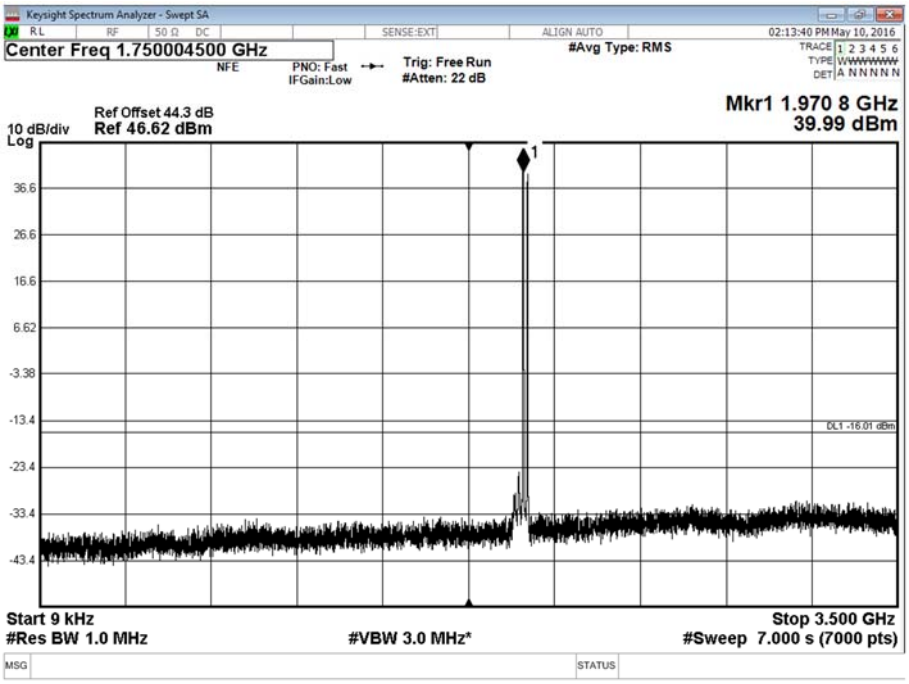
Channel Position M - Bandwidth 10.0 MHz - Antenna B



Channel Position M - Bandwidth 10.0 MHz - Antenna B

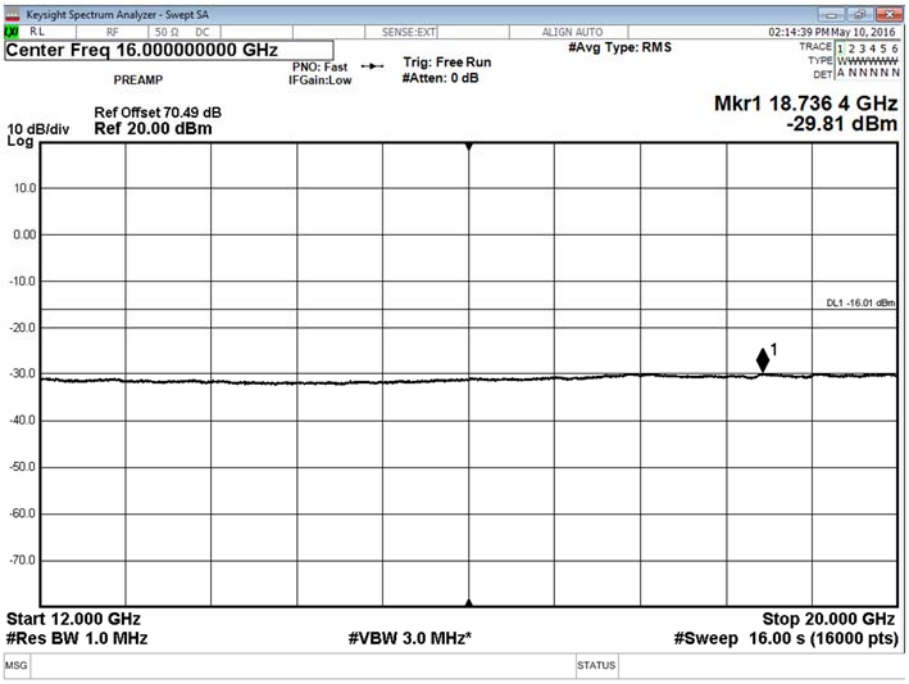


Channel Position T - Bandwidth 1.4 MHz - Antenna B

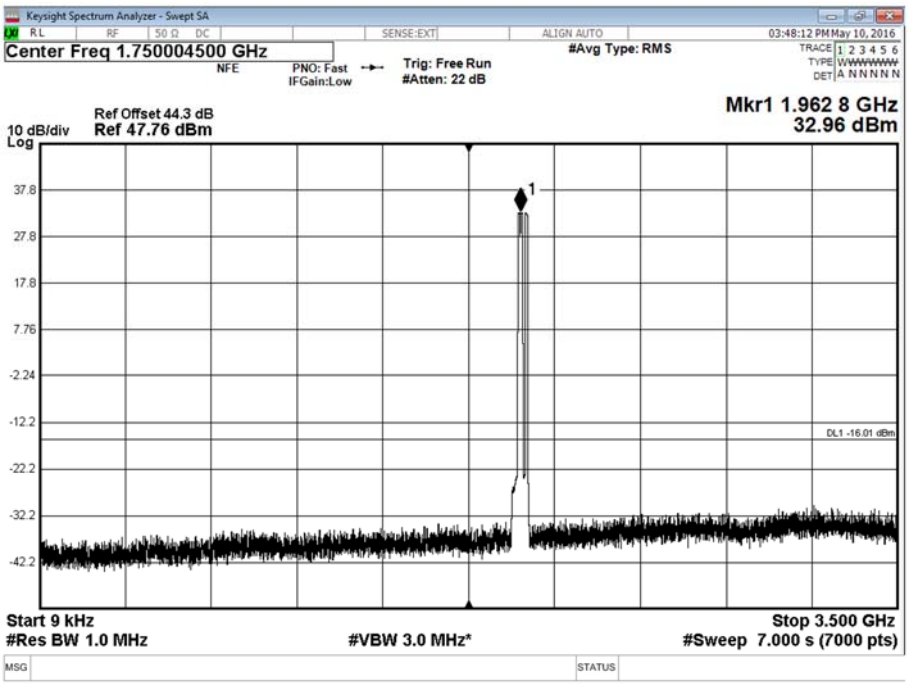


Channel Position T - Bandwidth 1.4 MHz - Antenna B

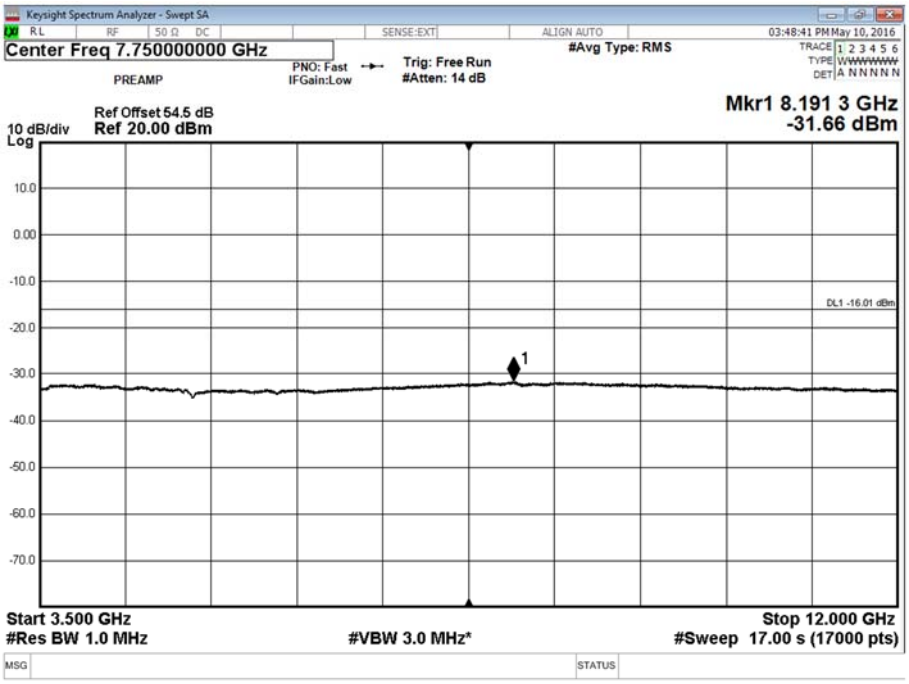
Channel Position T - Bandwidth 1.4 MHz - Antenna B



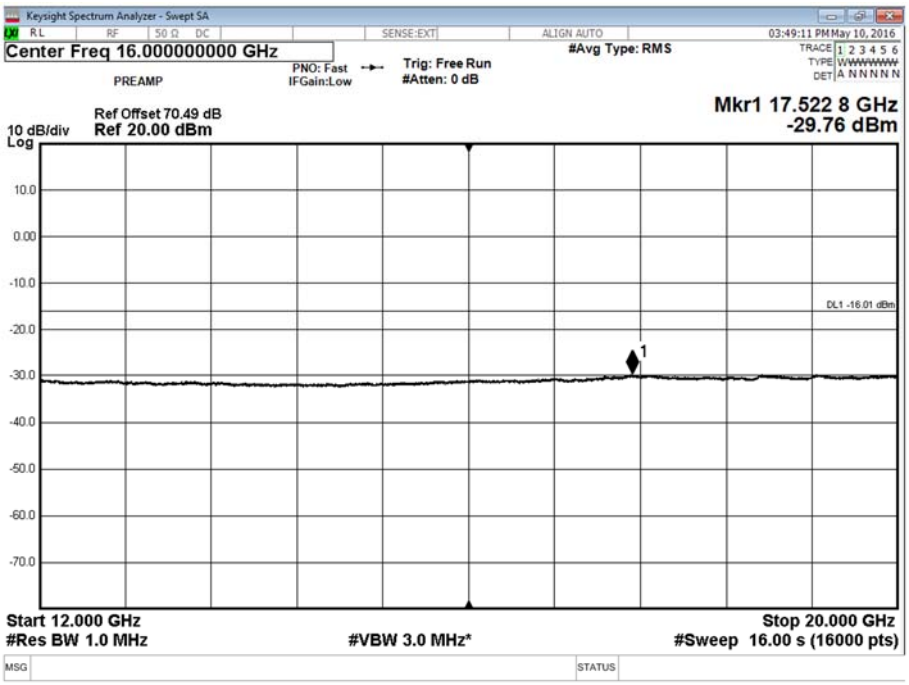
Channel Position T - Bandwidth 10.0 MHz - Antenna B



Channel Position T - Bandwidth 10.0 MHz - Antenna B



Channel Position T - Bandwidth 10.0 MHz - Antenna B



Limit	-16 dBm

2.5 FREQUENCY STABILITY

2.5.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055
FCC CFR 47 Part 24, Clause 24.235
Industry Canada RSS-133, Clause 6.3

2.5.2 Date of Test and Modification State

13 and 16 May 2016 - Modification State 0

2.5.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.4 Environmental Conditions

Ambient Temperature	24.2°C
Relative Humidity	21.2 - 26.6%

2.5.5 Test Method

The EUT was placed in a Climatic Chamber and connected to a Signal Analyser via attenuators.

The EUT was set to transmit at its maximum rated output power in the configuration described below.

The temperature was varied over the range -30˚C to +50˚C in 10˚C steps. At each temperature interval, the EUT was left to stabilise. After this period of time, the mean Frequency Error was measured and recorded on the Middle channel.

At 20˚C, the voltage was varied between 85% and 115% of the nominal declared voltage. At each extreme voltage, the mean Frequency Error was measured and recorded on the Middle channel

2.5.6 Test Results

Configuration 1

Maximum Output Power 46.0 dBm

Temperature	Frequency Error (Hz)
	Channel Position M
-30°C	4.93
-20°C	-5.00
-10°C	-4.94
0°C	5.02
+10°C	-6.54
+20°C	-5.29
+30°C	5.21
+40°C	-5.29
+50°C	-4.91

Configuration 6

Maximum Output Power 46.0 dBm

Temperature	Frequency Error (Hz)
	Channel Position M
-30°C	-5.27
-20°C	-3.40
-10°C	-5.72
0°C	-3.88
+10°C	-3.08
+20°C	-3.18
+30°C	-4.90
+40°C	4.76
+50°C	3.43

Configuration 1

Maximum Output Power 46.0 dBm

Voltage	Frequency Error (Hz)
	Channel Position M
-40.8 V	-5.92
-48.0 V	-5.29
-55.2 V	4.07

Configuration 6

Maximum Output Power 46.0 dBm

Voltage	Frequency Error (Hz)
	Channel Position M
-40.8 V	3.46
-48.0 V	-3.18
-55.2 V	3.98

Limit	±1.5 ppm or ±2.895 kHz

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Maximum Peak Output Power and Peak to Average Ratio - Conducted					
Hygrometer	Rotronic	HP21	4410	12	15-Apr-2017
DMM	Fluke	179	4007	12	31-Jul-2016
Spectrum Analyser	Agilent	PXA N9030A	MY55410202	12	24-Dec-2016
Network Analyser	Agilent	8722ES	US39175387	12	15-Oct-2016
PSU (DC)	Xantrex	XKW60-50	1001425551	-	O/P Mon
Attenuator (30dB)	Weinschel	WA48-30-33-LIM	A1995	-	O/P Mon
Attenuator (30 dB)	Weinschel	WA48-30-33-LIM	A1998	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1991	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1994	-	O/P Mon
RF Switch	Ericsson	RARFSW 4X1	001	-	O/P Mon
Switch Driver	Hewlett Packard	11713A	3748A06076	-	O/P Mon
PSU (DC)	Leader	730-3D	9801135	-	O/P Mon
Occupied Bandwidth					
Hygrometer	Rotronic	HP21	4410	12	15-Apr-2017
Hygrometer	Rotronic	HP21	4410	12	15-Apr-2017
DMM	Fluke	179	4007	12	31-Jul-2016
Spectrum Analyser	Agilent	PXA N9030A	MY55410202	12	24-Dec-2016
Network Analyser	Agilent	8722ES	US39175387	12	15-Oct-2016
PSU (DC)	Xantrex	XKW60-50	1001425551	-	O/P Mon
Attenuator (30dB)	Weinschel	WA48-30-33-LIM	A1995	-	O/P Mon
Attenuator (30 dB)	Weinschel	WA48-30-33-LIM	A1998	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1991	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1994	-	O/P Mon
RF Switch	Ericsson	RARFSW 4X1	001	-	O/P Mon
Switch Driver	Hewlett Packard	11713A	3748A06076	-	O/P Mon
PSU (DC)	Leader	730-3D	9801135	-	O/P Mon
Band Edge					
Hygrometer	Rotronic	HP21	4410	12	15-Apr-2017
Hygrometer	Rotronic	HP21	4410	12	15-Apr-2017
DMM	Fluke	179	4007	12	31-Jul-2016
Spectrum Analyser	Agilent	PXA N9030A	MY55410202	12	24-Dec-2016
Network Analyser	Agilent	8722ES	US39175387	12	15-Oct-2016
PSU (DC)	Xantrex	XKW60-50	1001425551	-	O/P Mon
Attenuator (30dB)	Weinschel	WA48-30-33-LIM	A1995	-	O/P Mon
Attenuator (30 dB)	Weinschel	WA48-30-33-LIM	A1998	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1991	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1994	-	O/P Mon
RF Switch	Ericsson	RARFSW 4X1	001	-	O/P Mon
Switch Driver	Hewlett Packard	11713A	3748A06076	-	O/P Mon
PSU (DC)	Leader	730-3D	9801135	-	O/P Mon

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Transmitter Spurious Emissions					
Hygrometer	Rotronic	HP21	4410	12	15-Apr-2017
Hygrometer	Rotronic	HP21	4410	12	15-Apr-2017
DMM	Fluke	179	4007	12	31-Jul-2016
Spectrum Analyser	Agilent	PXA N9030A	MY55410202	12	24-Dec-2016
Network Analyser	Agilent	8722ES	US39175387	12	15-Oct-2016
PSU (DC)	Xantrex	XKW60-50	1001425551	-	O/P Mon
Attenuator (30dB)	Weinschel	WA48-30-33-LIM	A1995	-	O/P Mon
Attenuator (30 dB)	Weinschel	WA48-30-33-LIM	A1998	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1991	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1994	-	O/P Mon
RF Switch	Ericsson	RARFSW 4X1	001	-	O/P Mon
Switch Driver	Hewlett Packard	11713A	3748A06076	-	O/P Mon
PSU (DC)	Leader	730-3D	9801135	-	O/P Mon
Frequency Stability					
Hygrometer	Rotronic	HP21	4410	12	15-Apr-2017
Hygrometer	Rotronic	HP21	4410	12	15-Apr-2017
DMM	Fluke	179	4007	12	31-Jul-2016
Spectrum Analyser	Agilent	PXA N9030A	MY55410202	12	24-Dec-2016
Network Analyser	Agilent	8722ES	US39175387	12	15-Oct-2016
PSU (DC)	Xantrex	XKW60-50	1001425551	-	O/P Mon
Attenuator (30dB)	Weinschel	WA48-30-33-LIM	A1995	-	O/P Mon
Attenuator (30 dB)	Weinschel	WA48-30-33-LIM	A1998	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1991	-	O/P Mon
Attenuator (10 dB)	Weinschel	WA48-10-43-LIM	A1994	-	O/P Mon
RF Switch	Ericsson	RARFSW 4X1	001	-	O/P Mon
Switch Driver	Hewlett Packard	11713A	3748A06076	-	O/P Mon
PSU (DC)	Leader	730-3D	9801135	-	O/P Mon

N/A – Not Applicable
O/P Mon – Output Monitored with Calibrated Equipment

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Conducted Maximum Peak Output Power	30 MHz to 20 GHz Amplitude	± 0.1 dB
Conducted Emissions	30 MHz to 20 GHz Amplitude	± 2.3 dB
Frequency Stability	30 MHz to 2 GHz	± 5.0 Hz
Occupied Bandwidth	Up to 20 MHz Bandwidth	± 1.1 Hz
Band Edge	30 MHz to 20 GHz Amplitude	± 2.3 dB

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

ANNEX A

MODULE LIST

Configuration A			
Product	Product No	R-State	Serial No
RD 2217 B2	KRC 161 563/1	R1A	C82A451973
Software Version:	CXP9017316/2	Revision:	R62FB