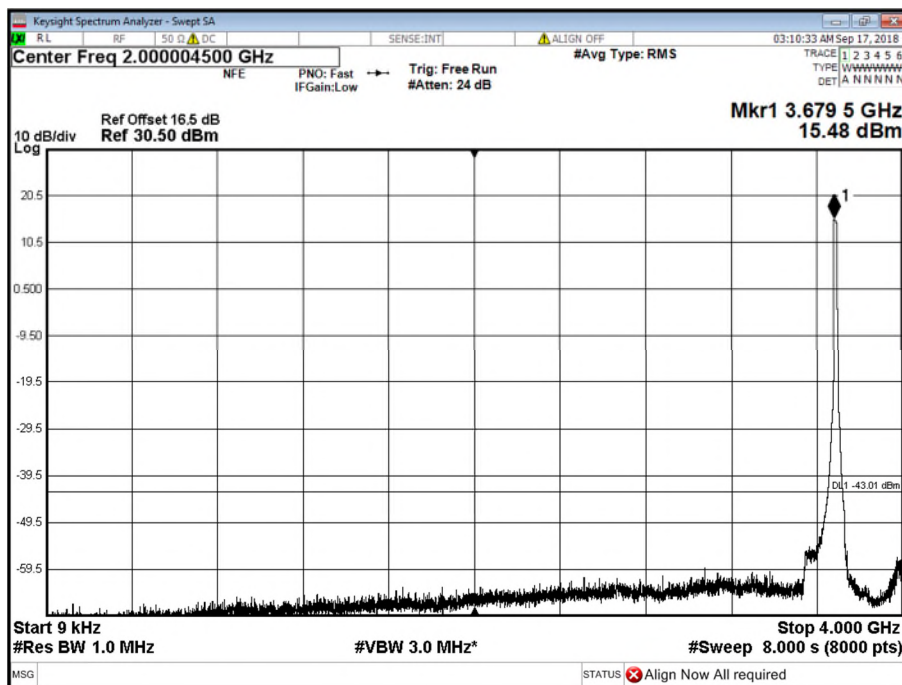
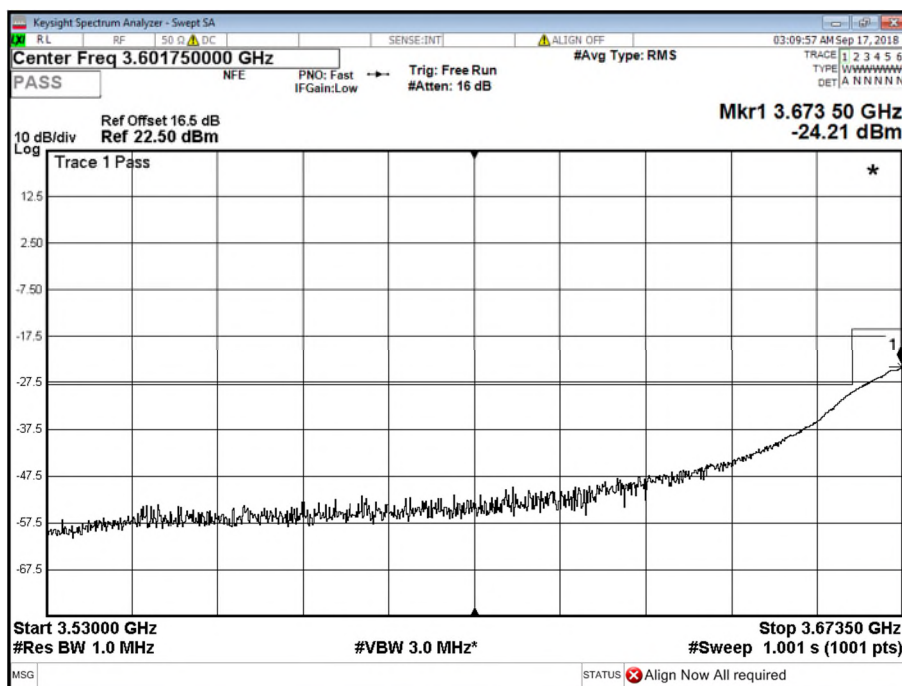


Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



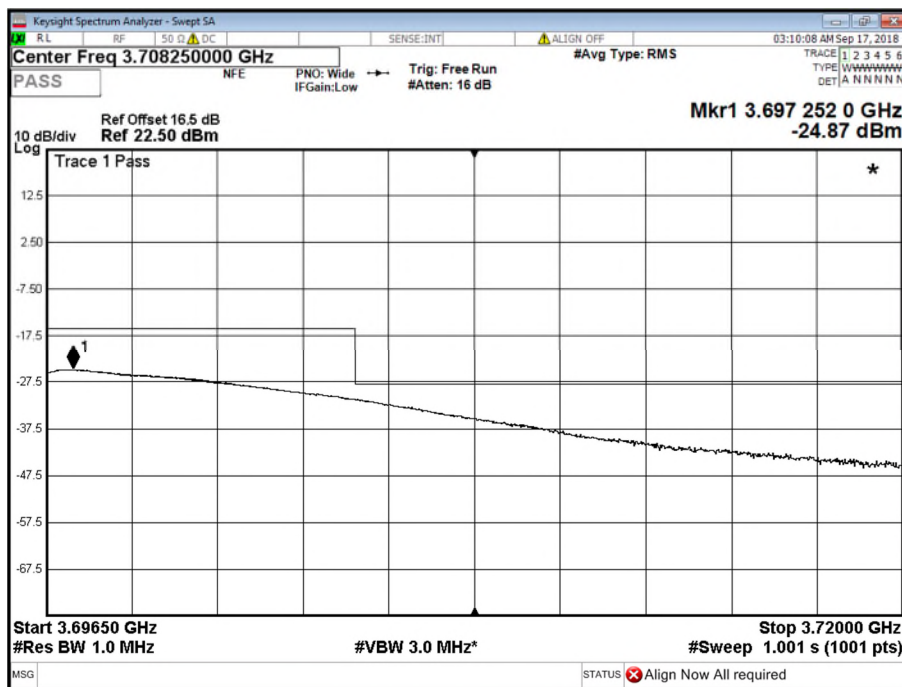
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask Low 1 - Range Mask Low 1



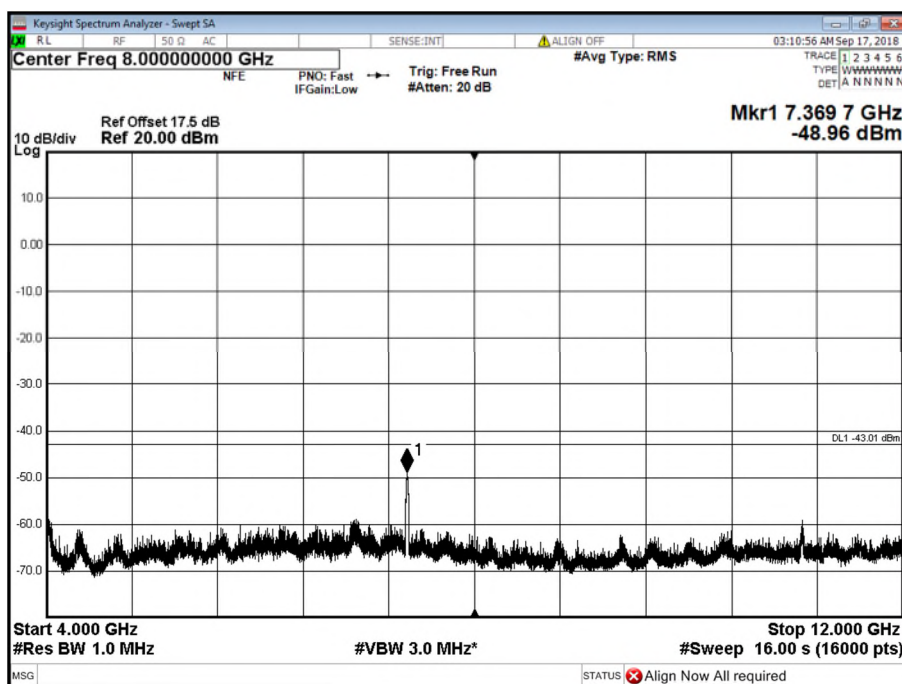


Product Service

Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask High 1 - Range Mask High 1



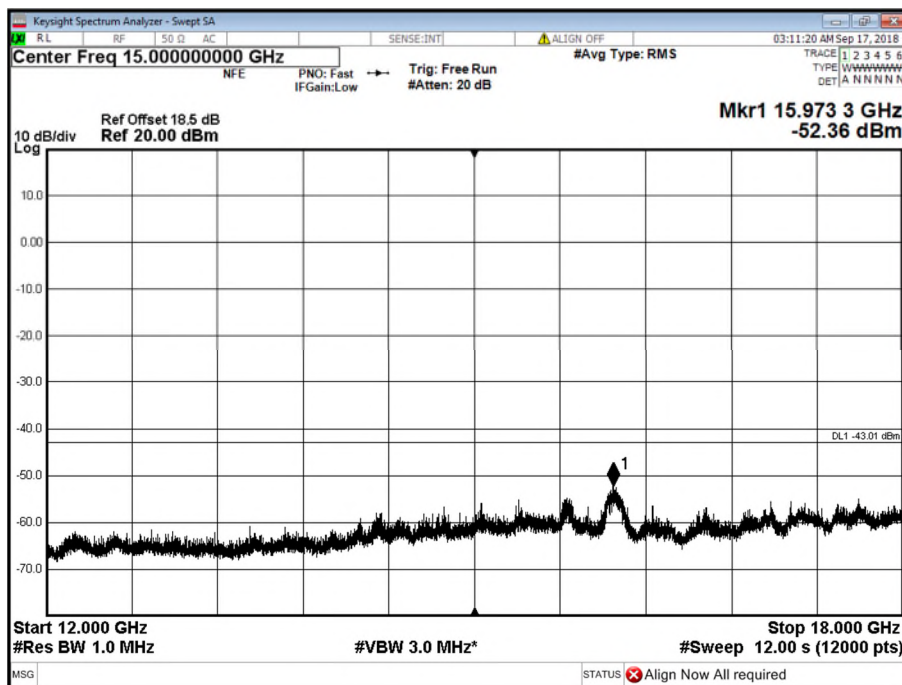
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz



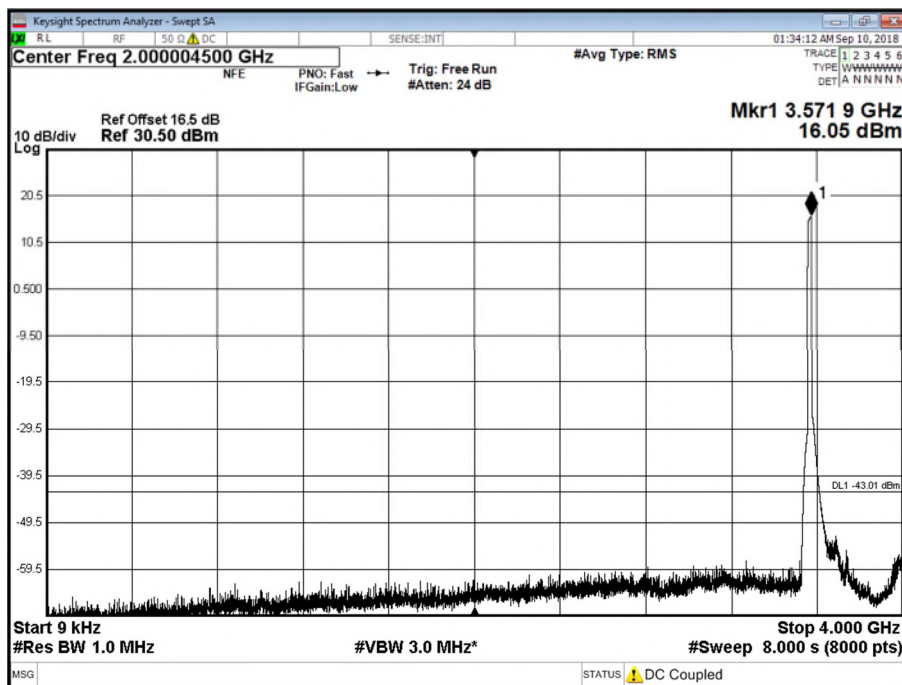


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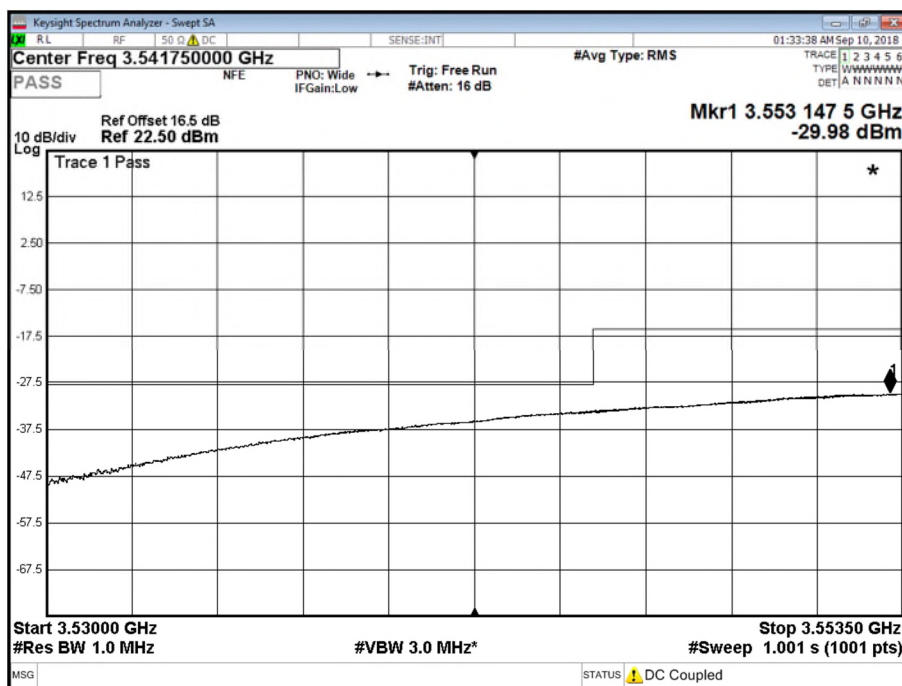
Antenna B - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 12000 to 18000 MHz



Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



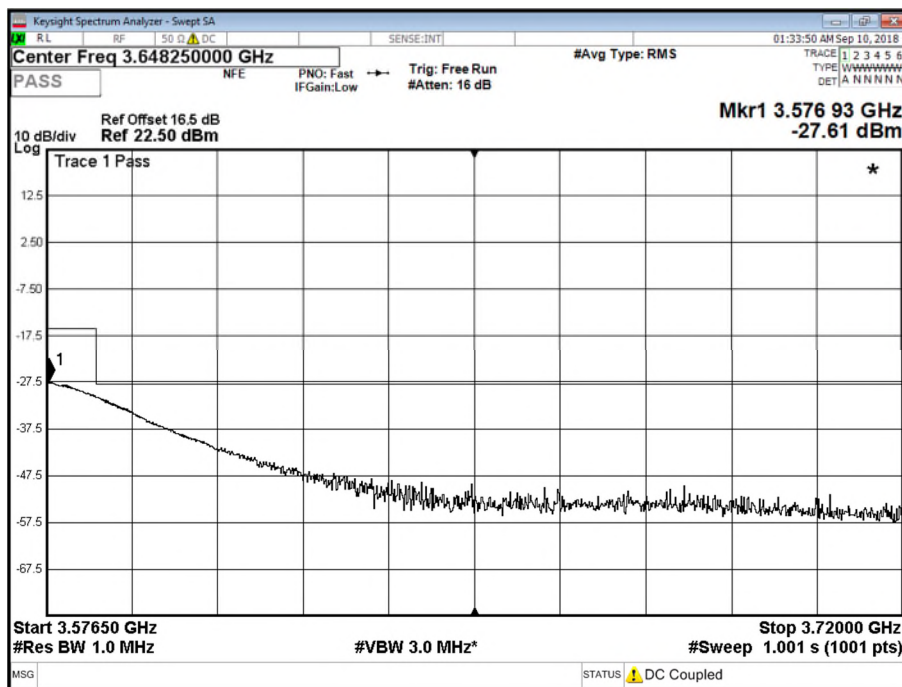
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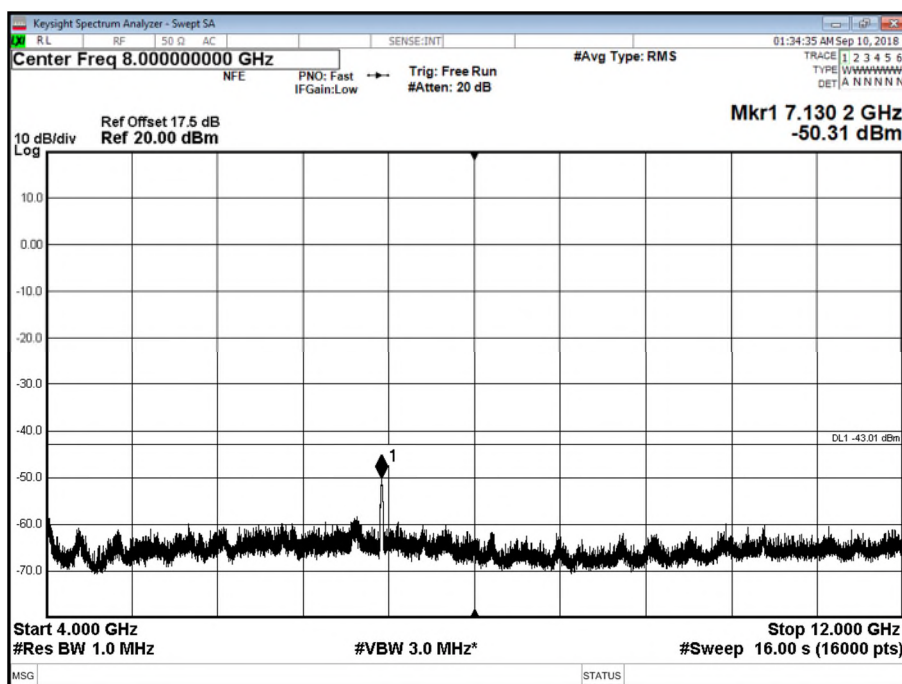


Product Service

Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -
Band Mask High 1 - Range Mask High 1



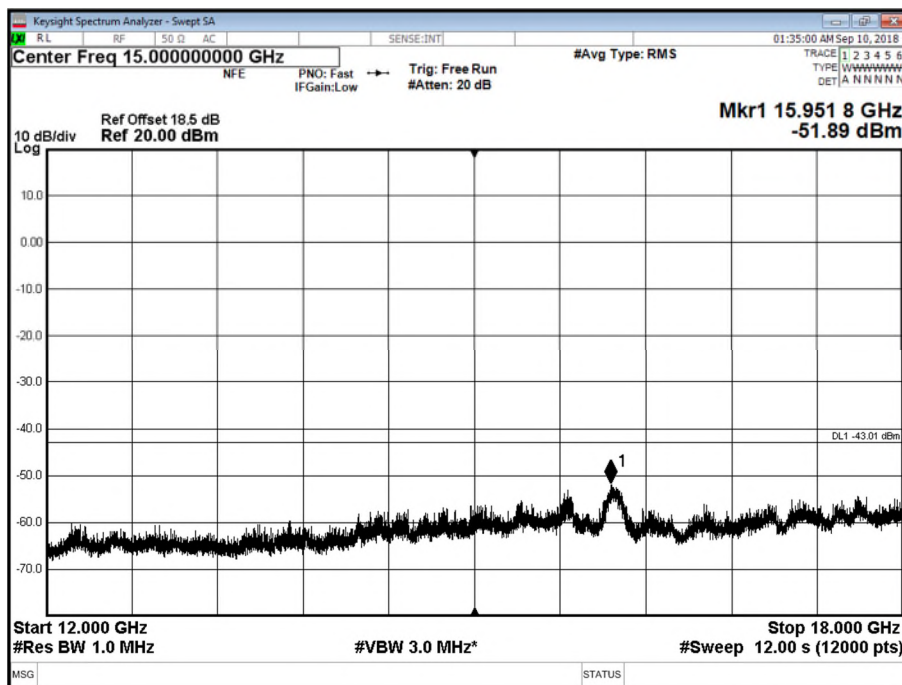
Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -
Band 2 - Range 4000 to 12000 MHz



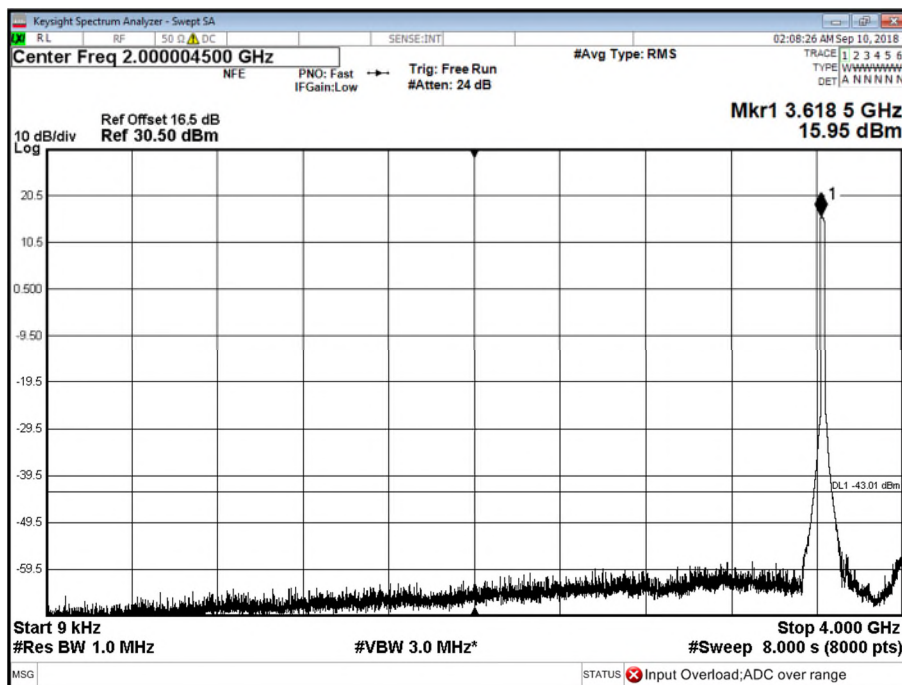


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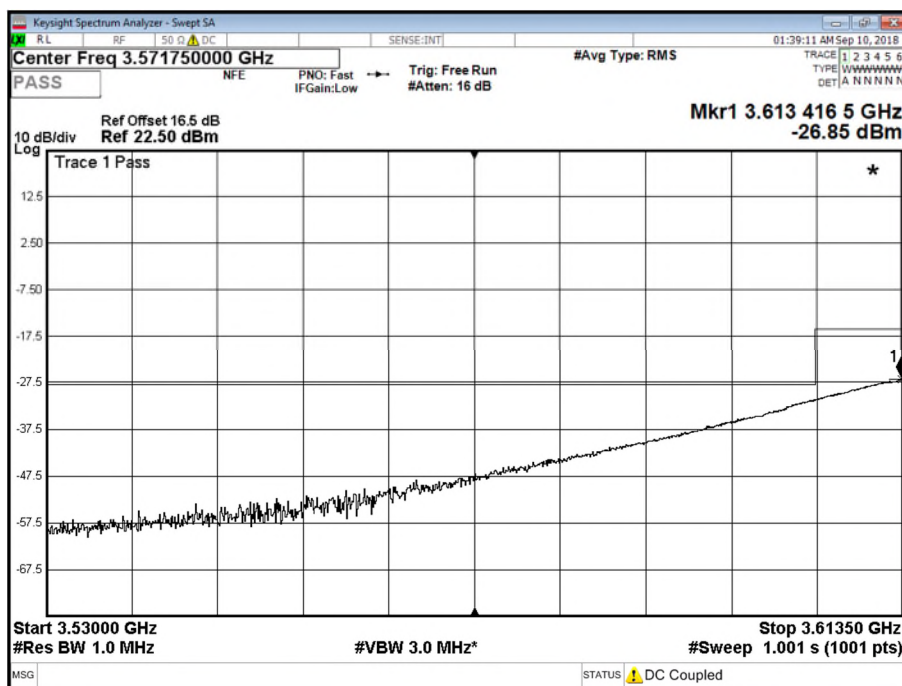
Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -
Band 3 - Range 12000 to 18000 MHz



Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



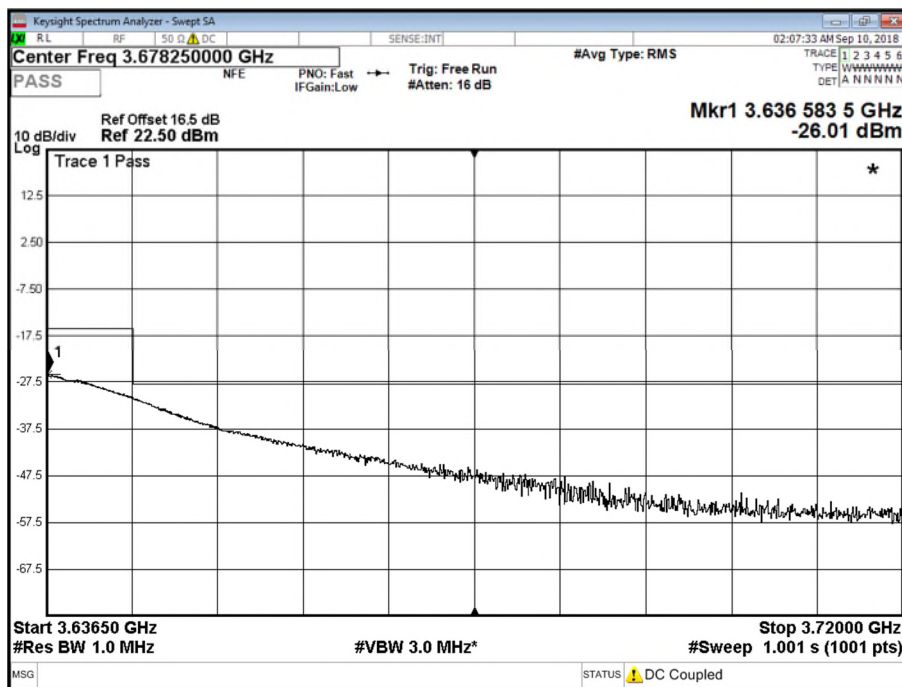
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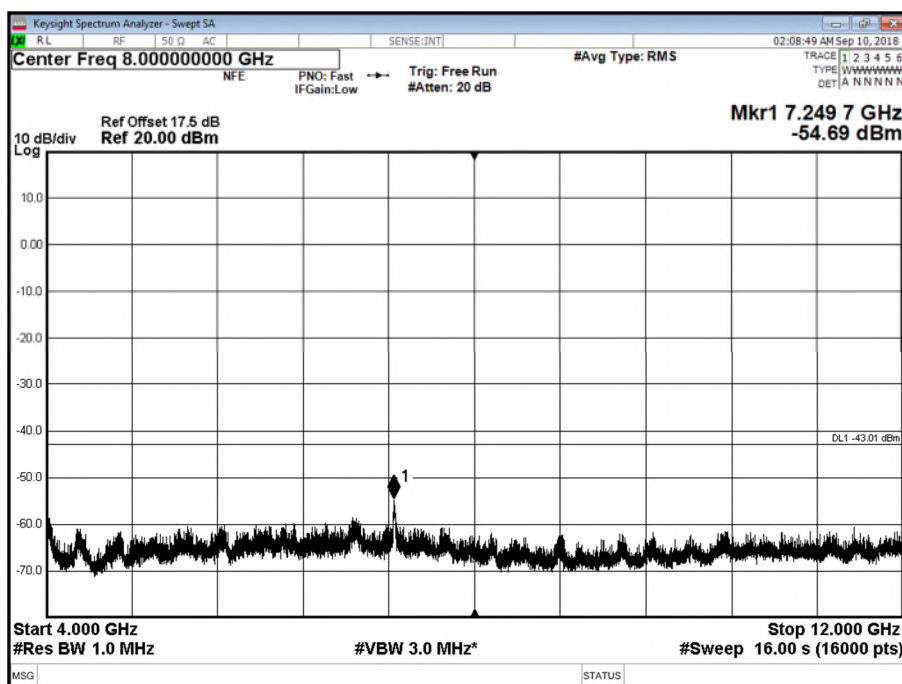


Product Service

Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M -
Band Mask High 1 - Range Mask High 1



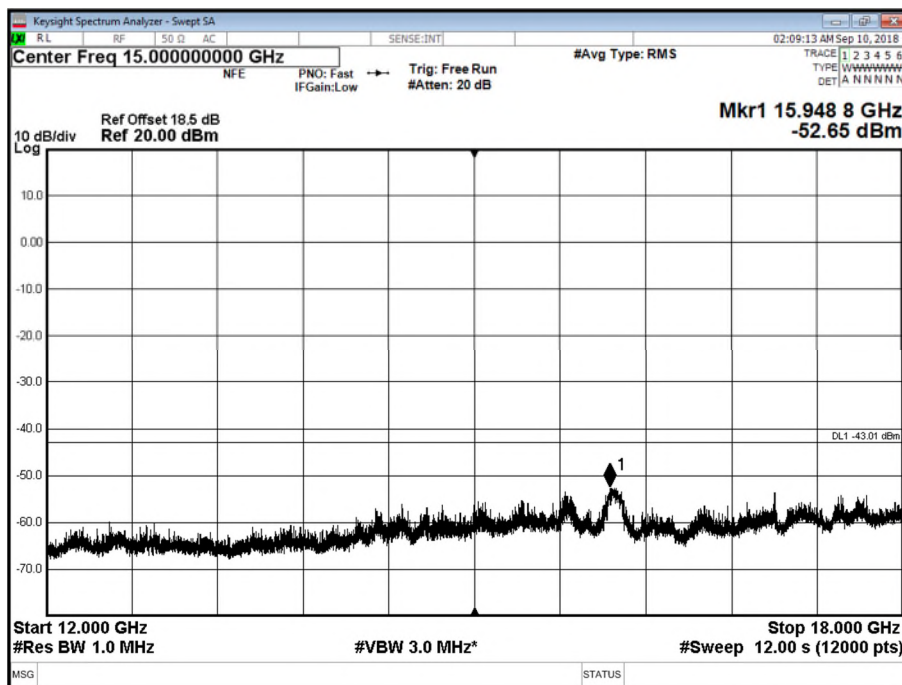
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Band 2 - Range 4000 to 12000 MHz



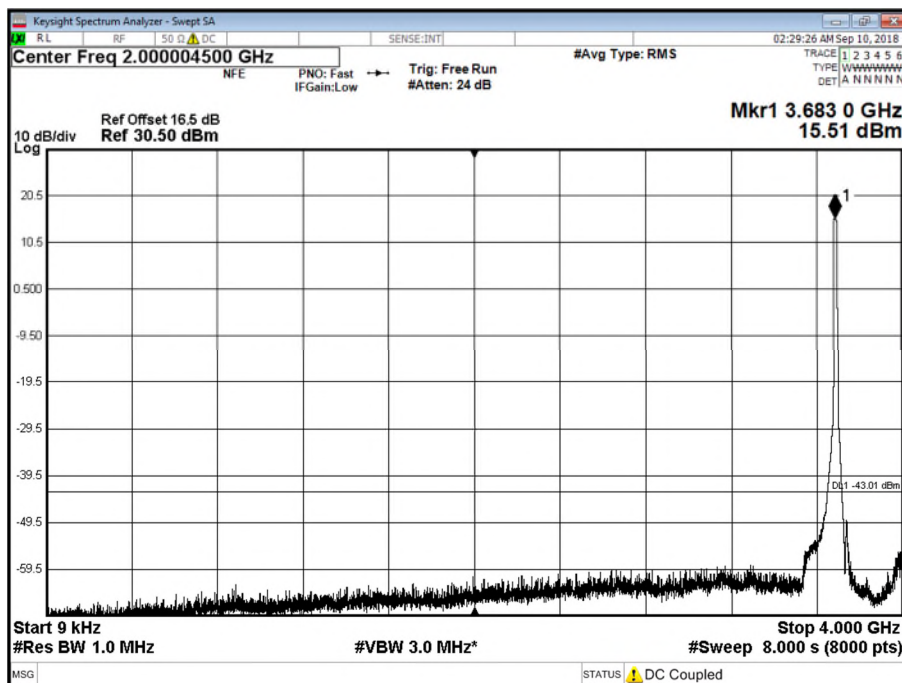


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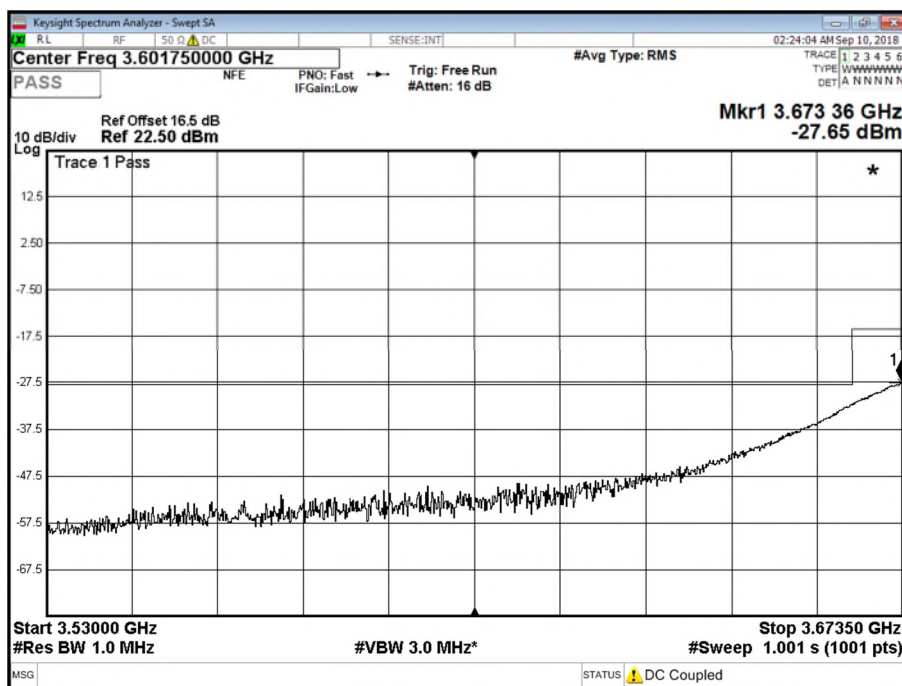
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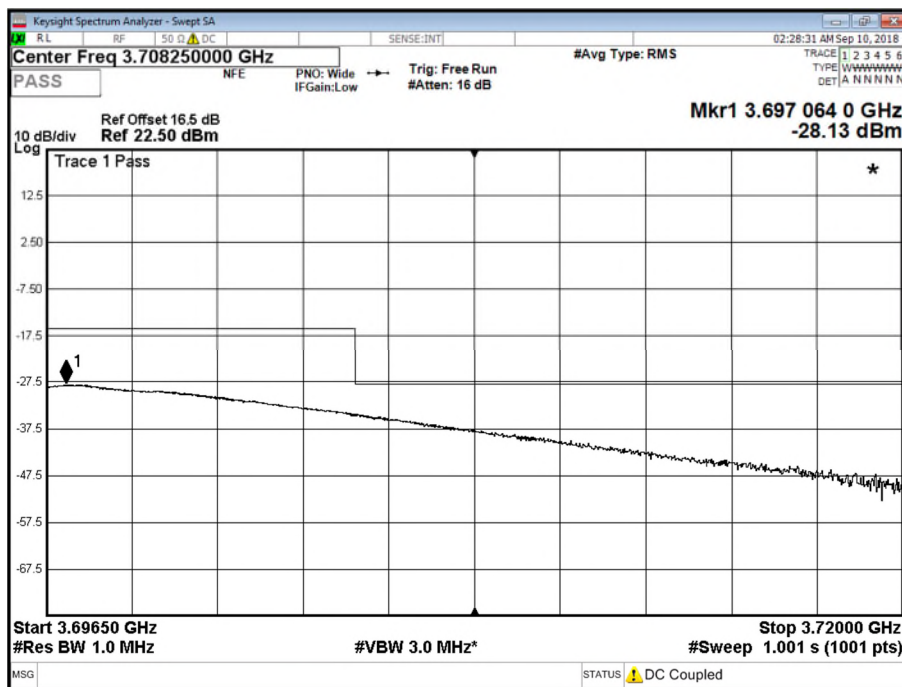
Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



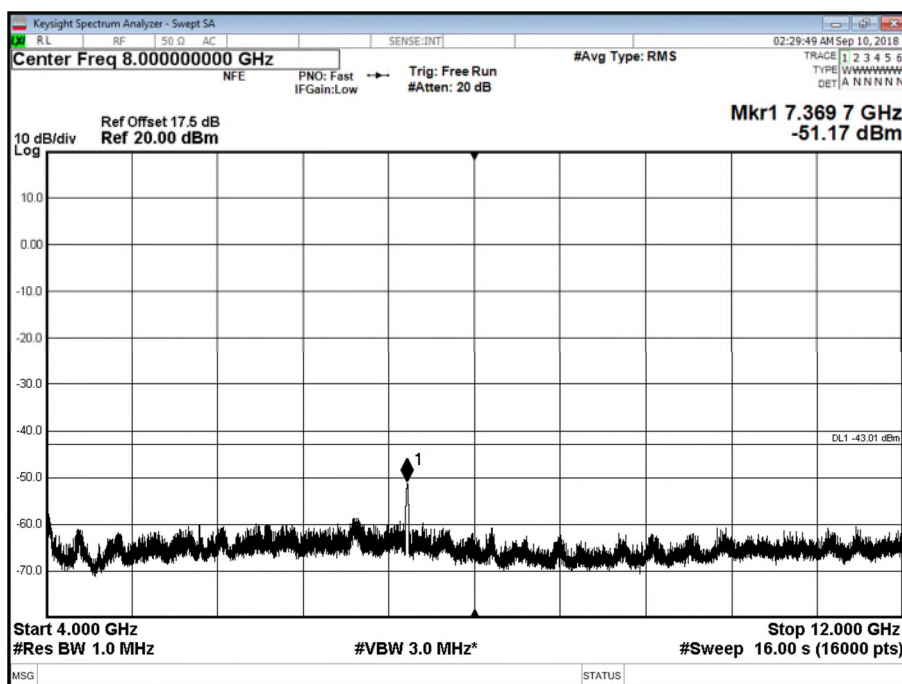
Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask Low 1 - Range Mask Low 1



Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask High 1 - Range Mask High 1



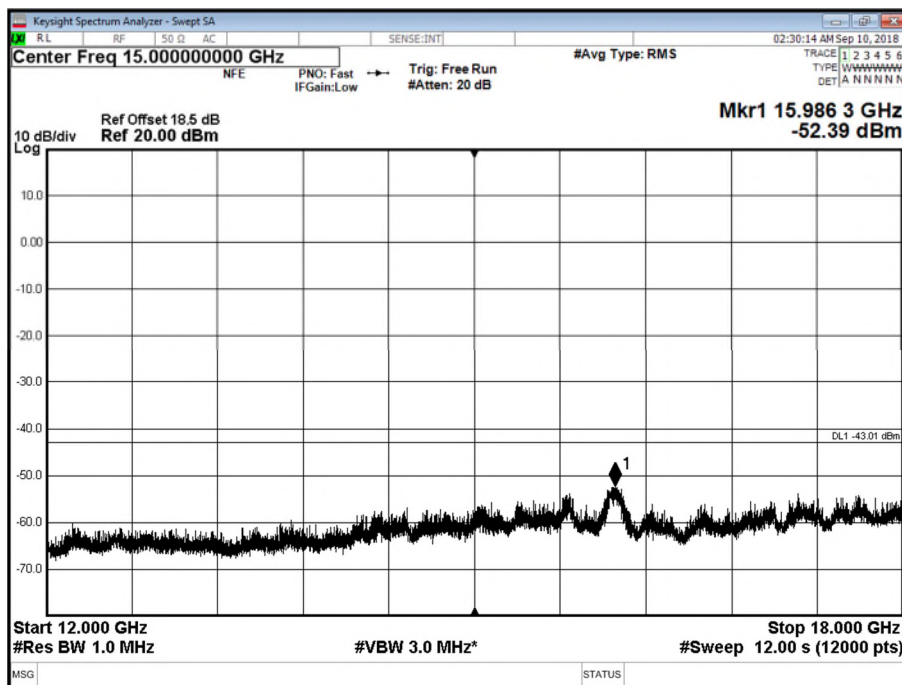
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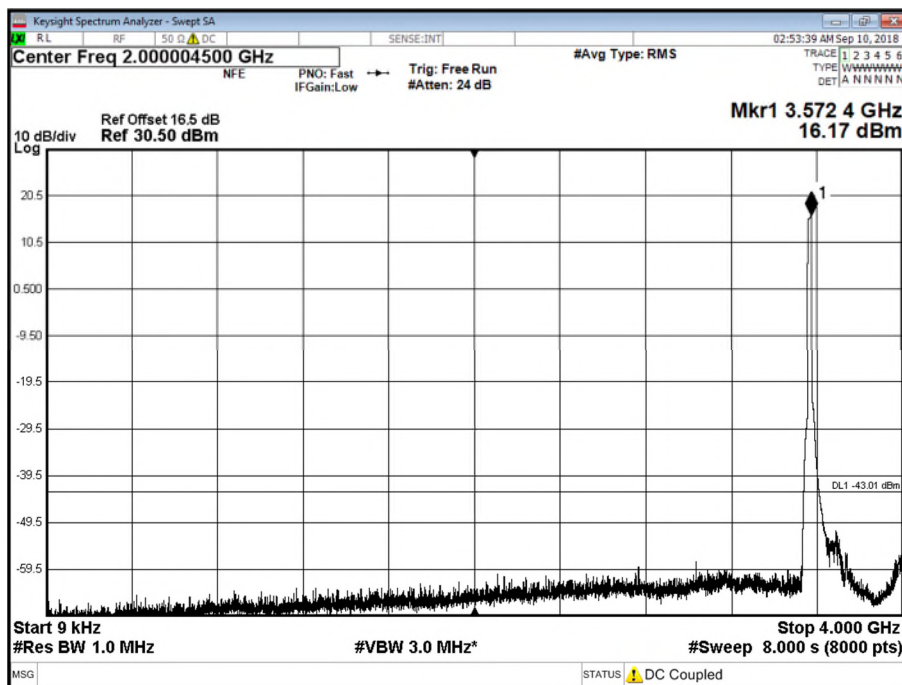


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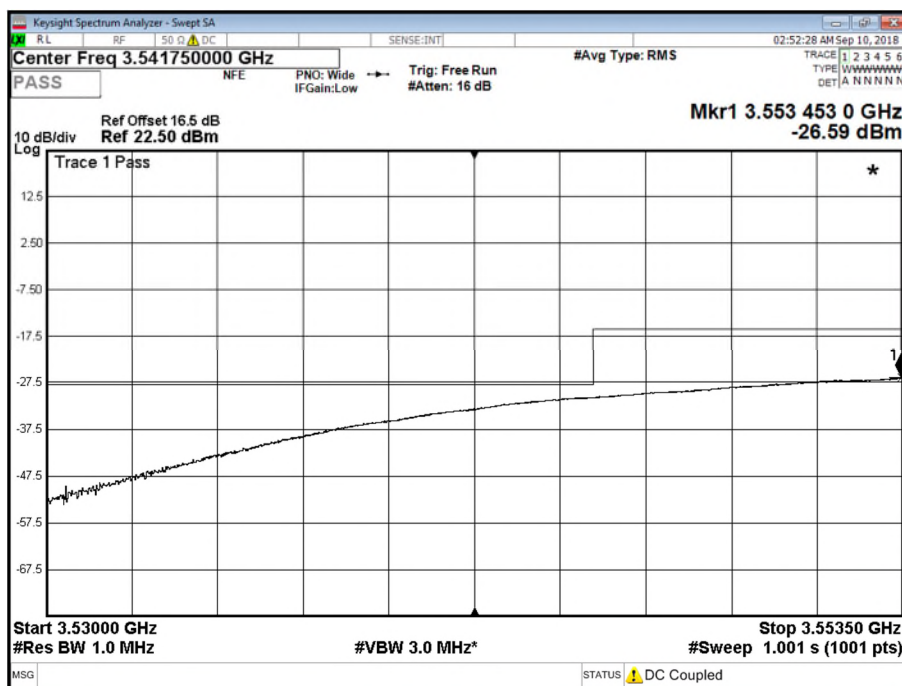
Antenna C - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 12000 to 18000 MHz



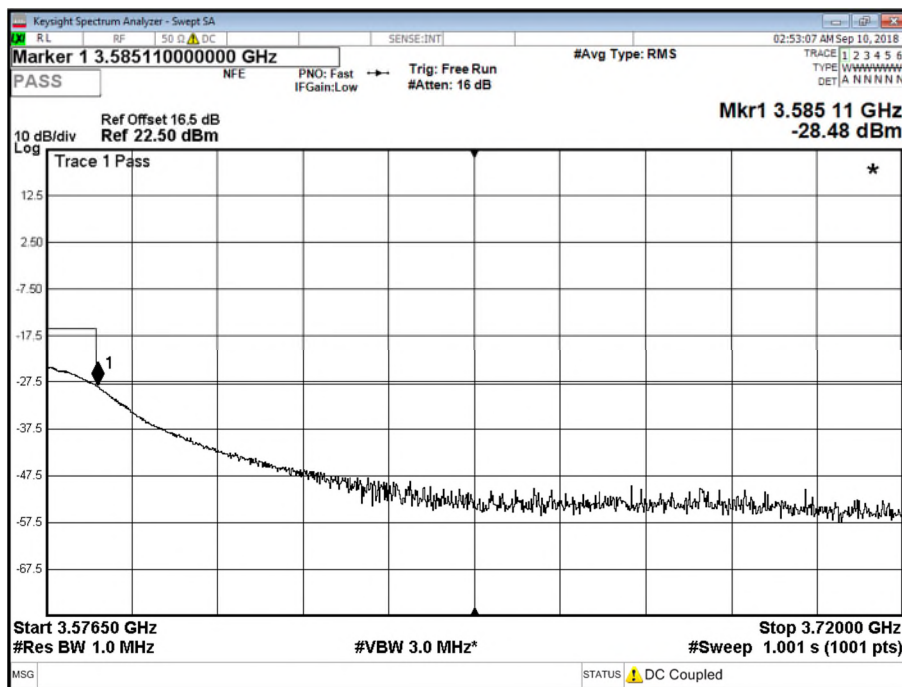
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



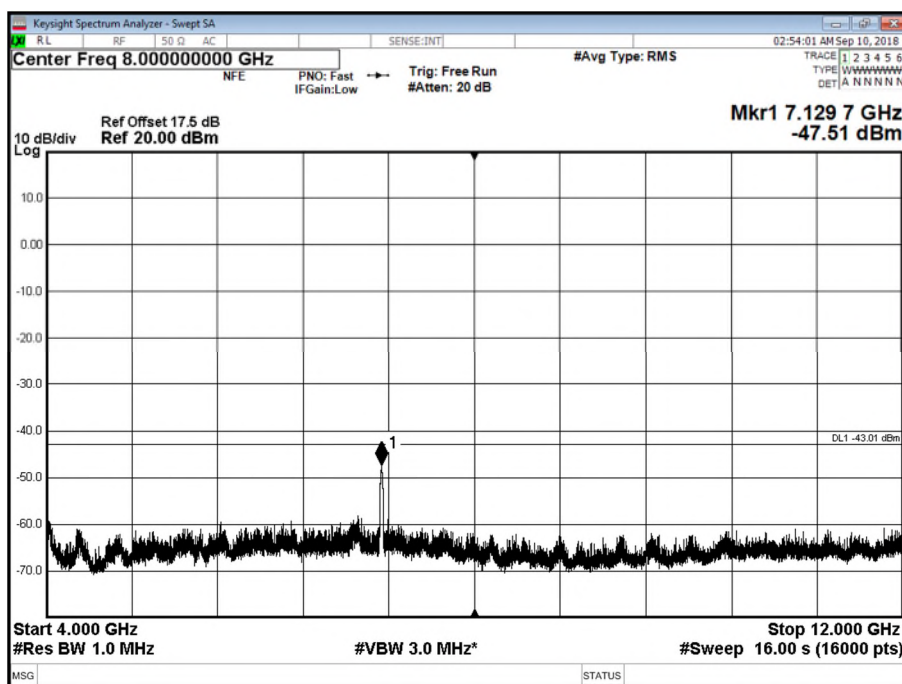
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band Mask Low 1 - Range Mask Low 1



Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band Mask High 1 - Range Mask High 1



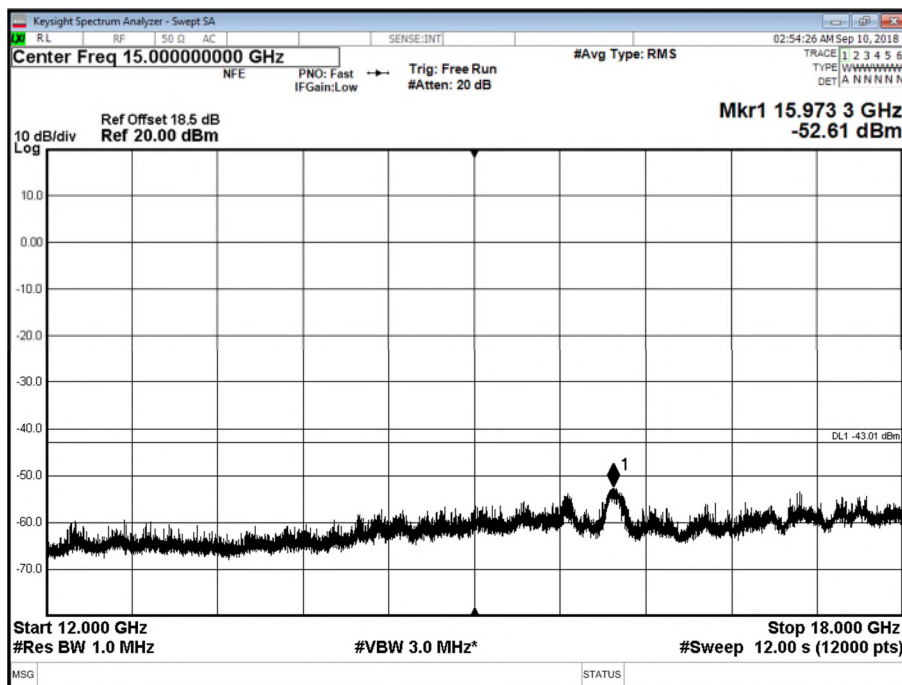
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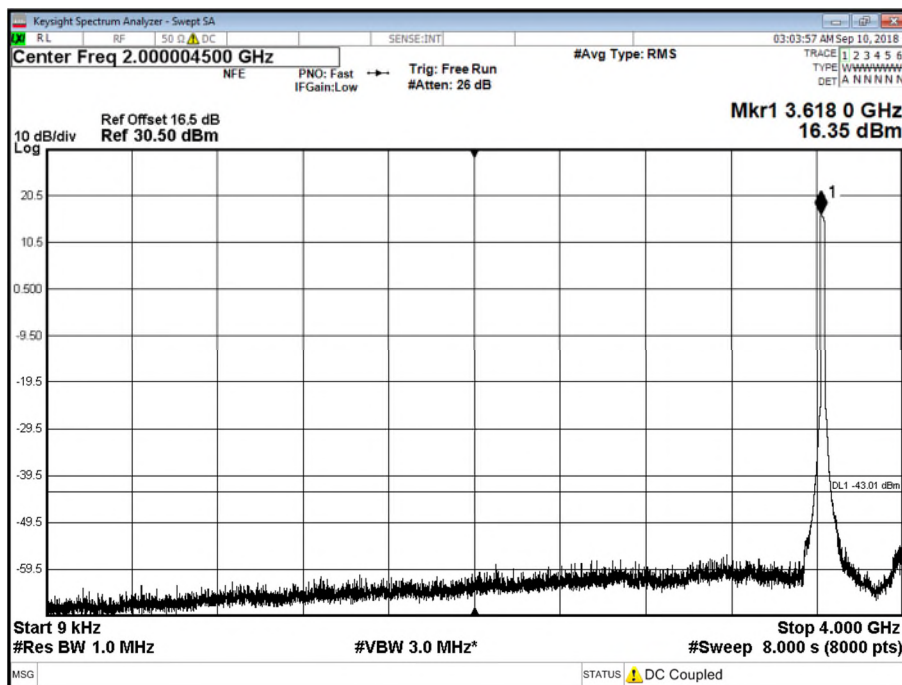


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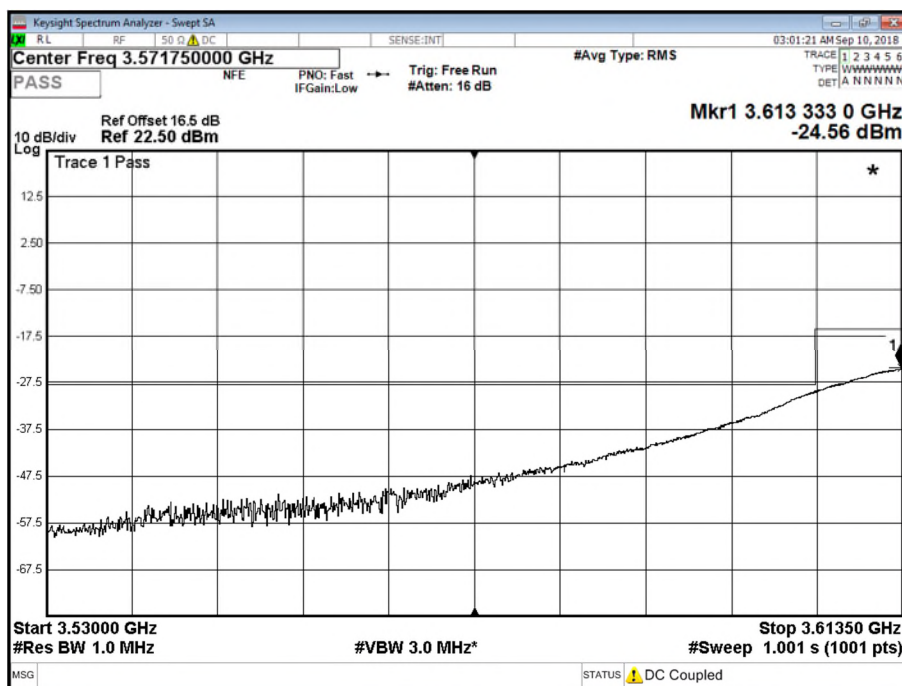
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -
Band 3 - Range 12000 to 18000 MHz



Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



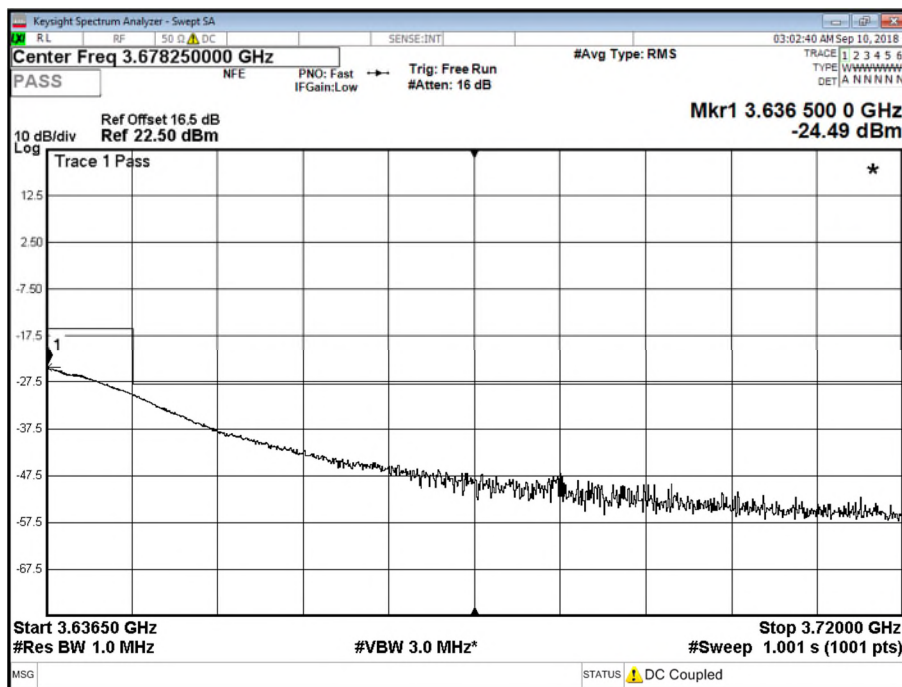
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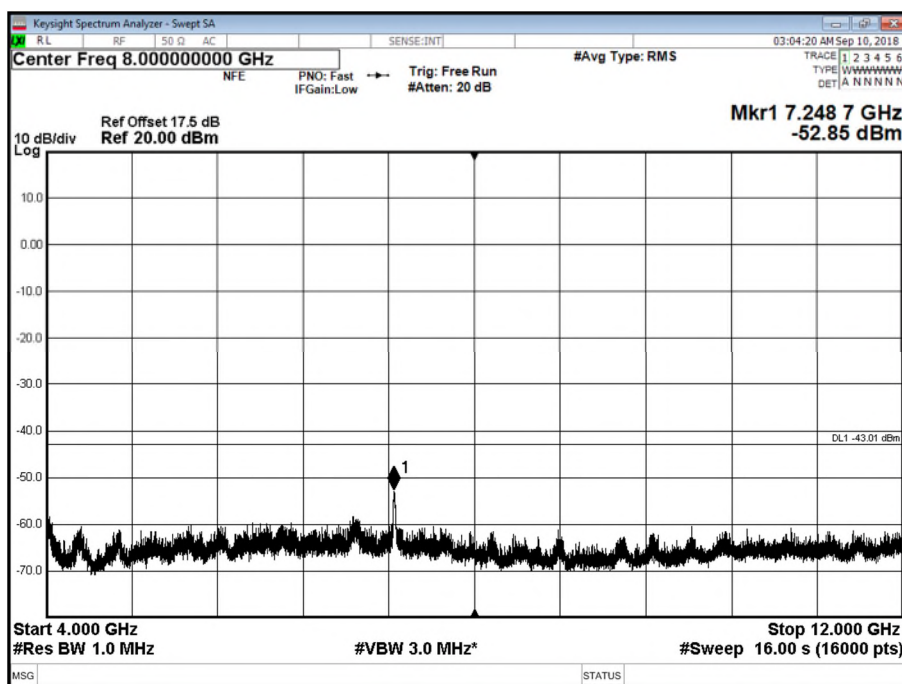


Product Service

Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band Mask High 1 - Range Mask High 1



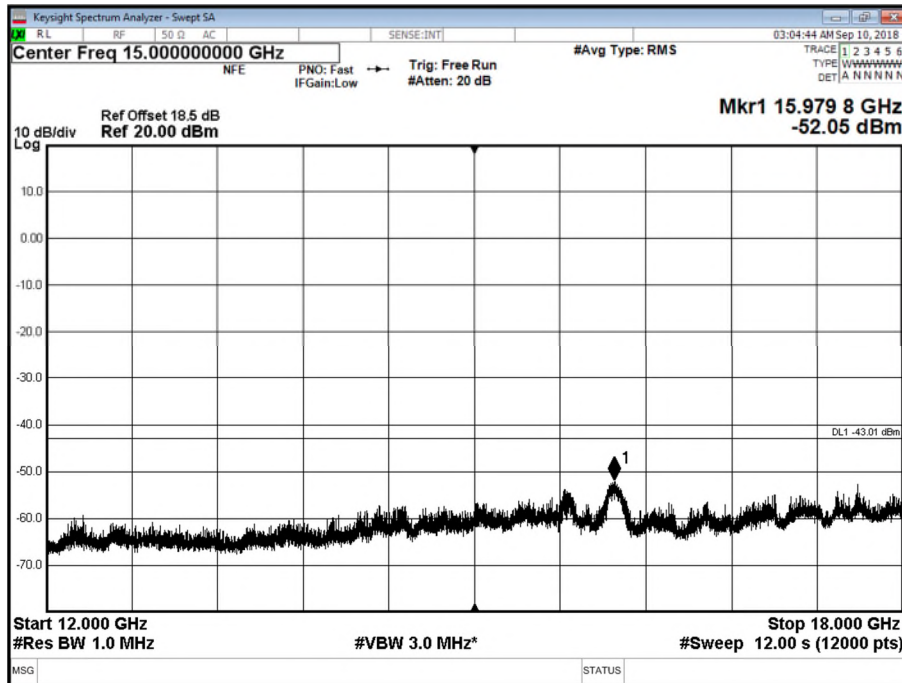
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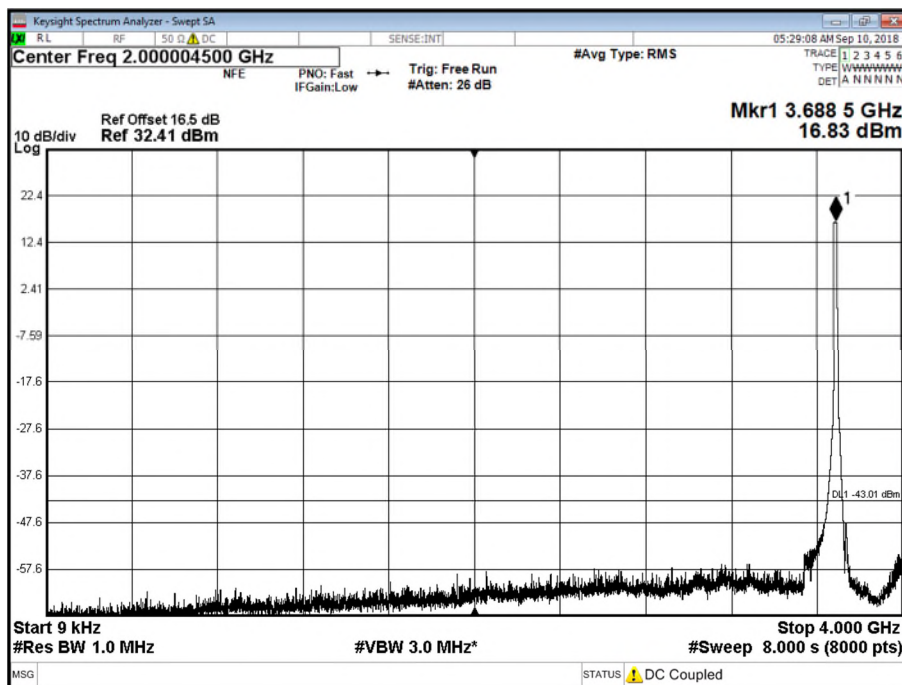


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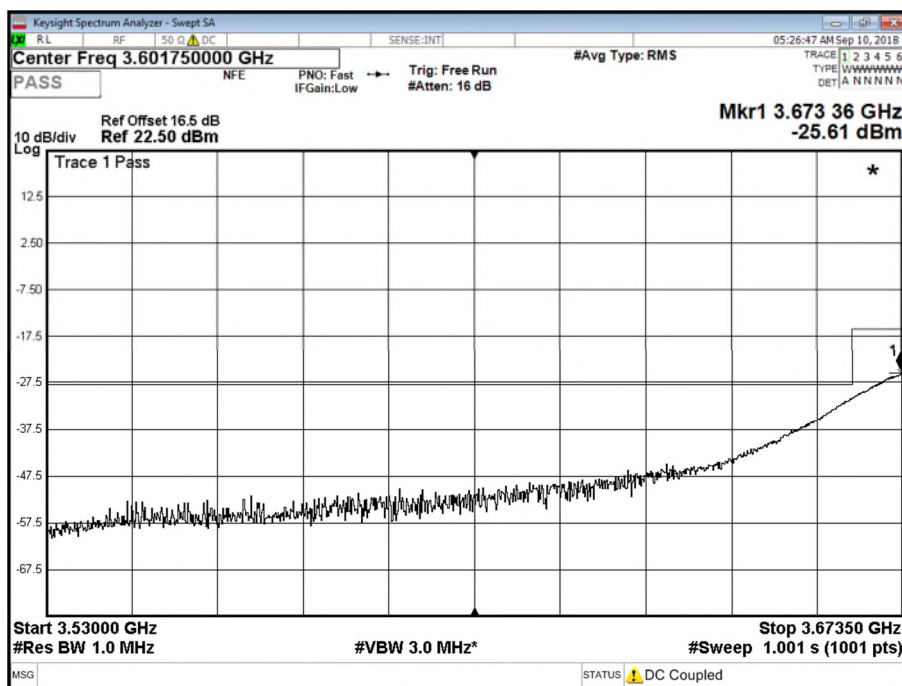
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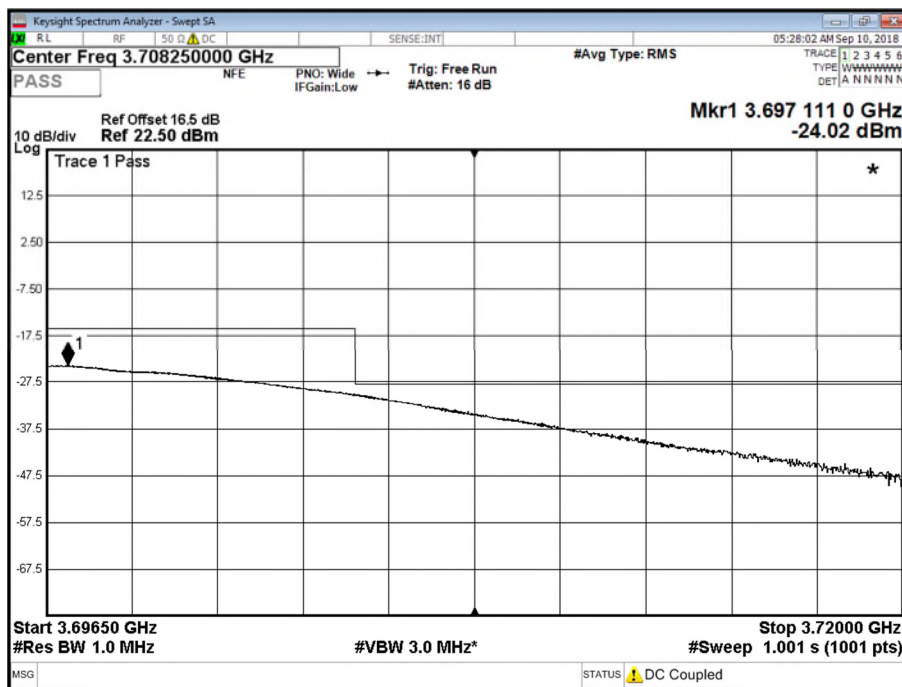
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



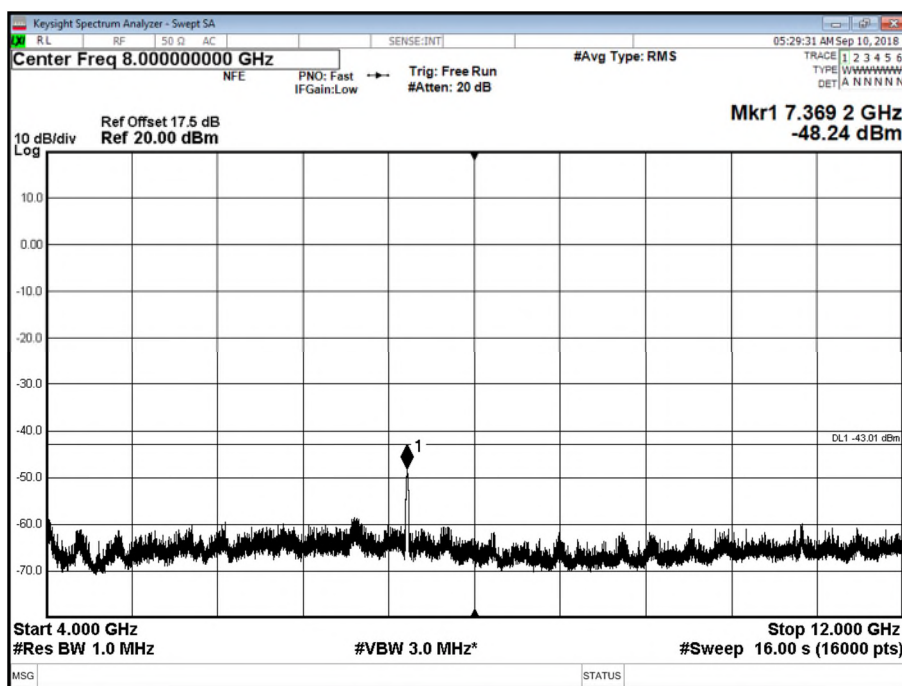
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask Low 1 - Range Mask Low 1



Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask High 1 - Range Mask High 1



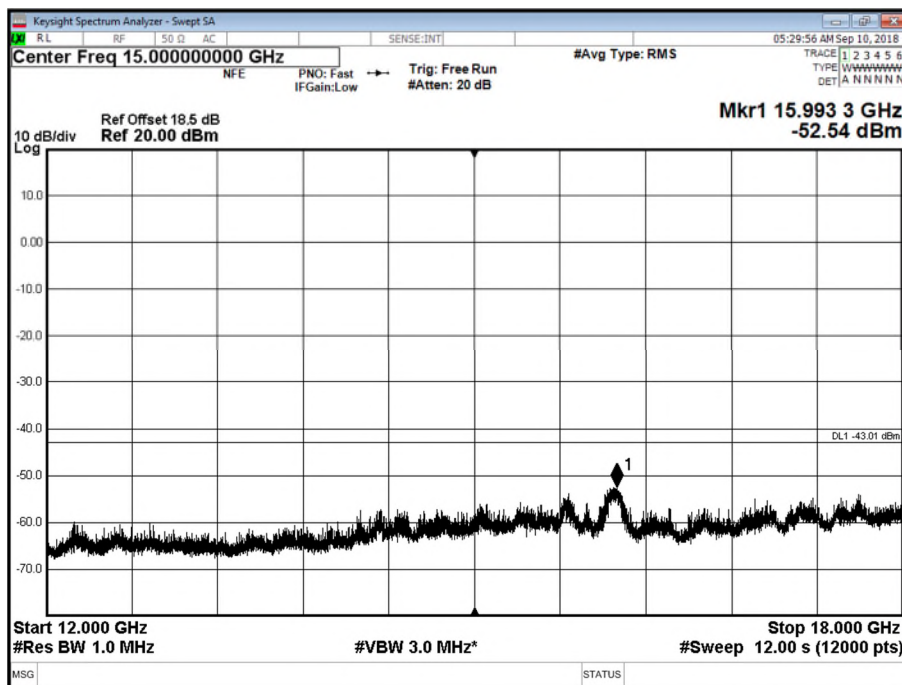
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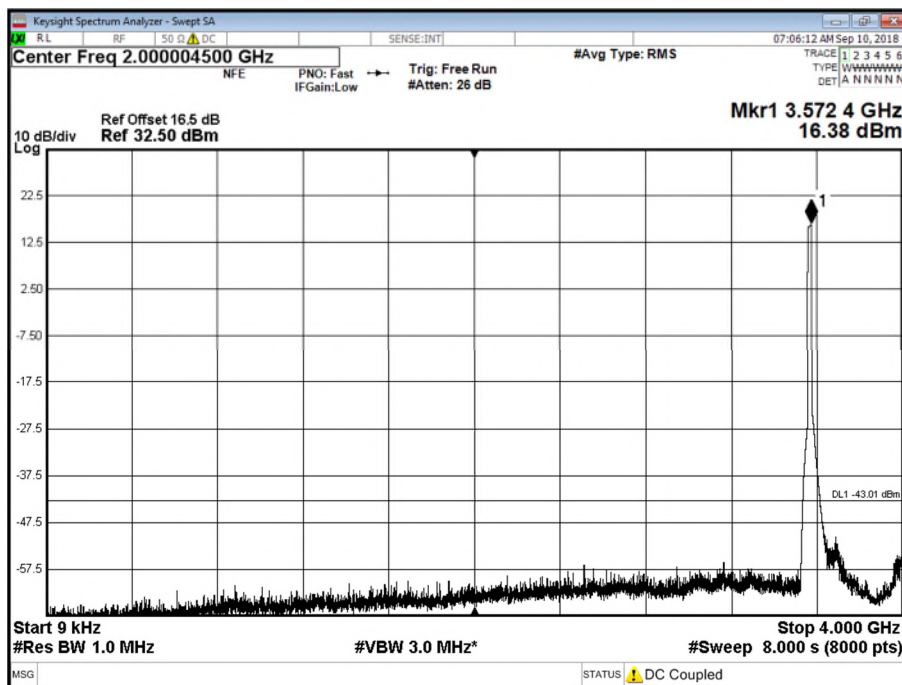


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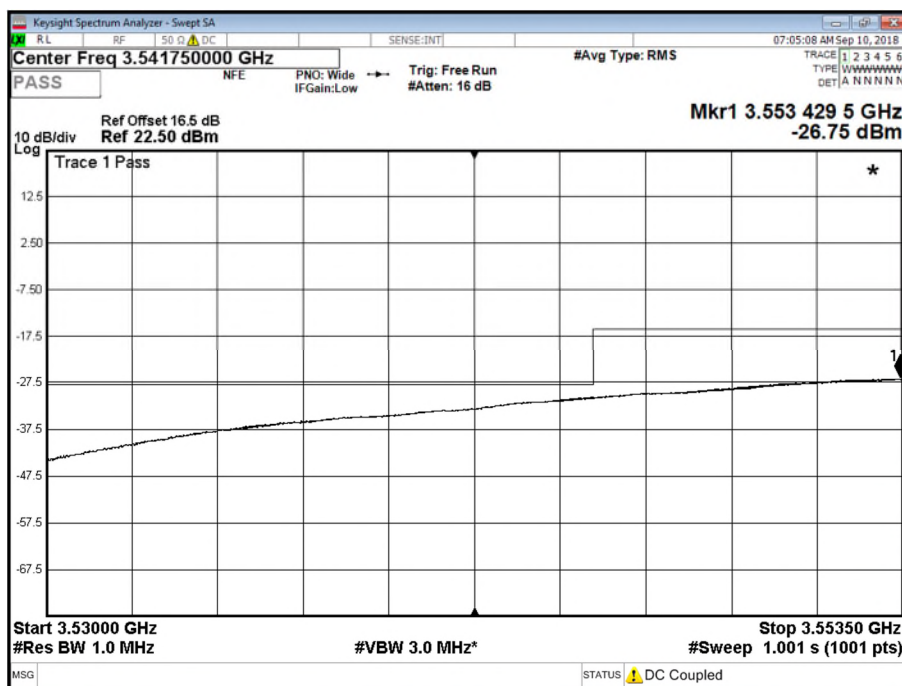
Antenna D - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T -
Band 3 - Range 12000 to 18000 MHz



Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



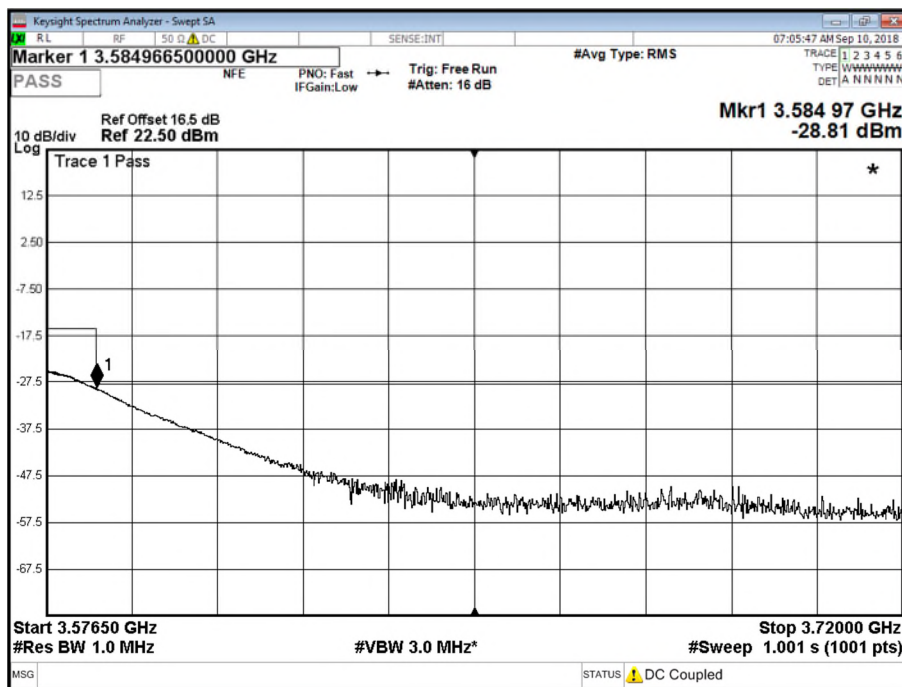
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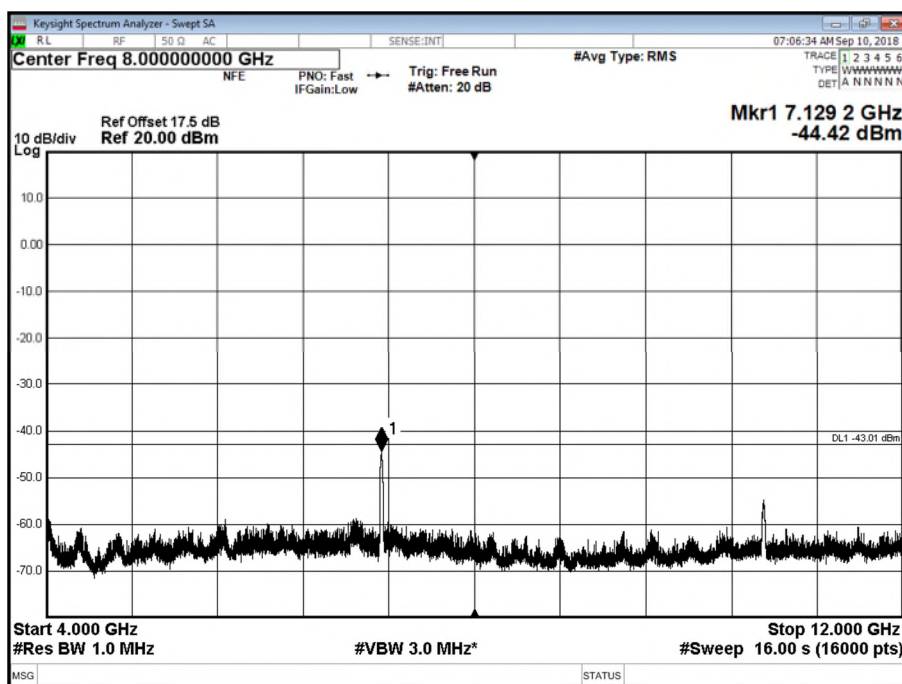


Product Service

Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band Mask High 1 - Range Mask High 1



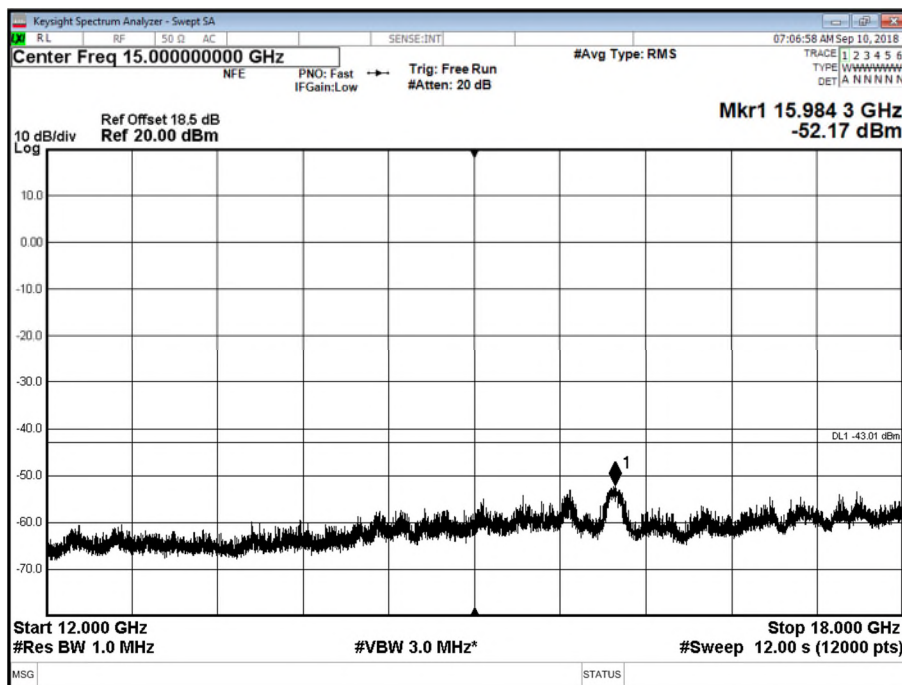
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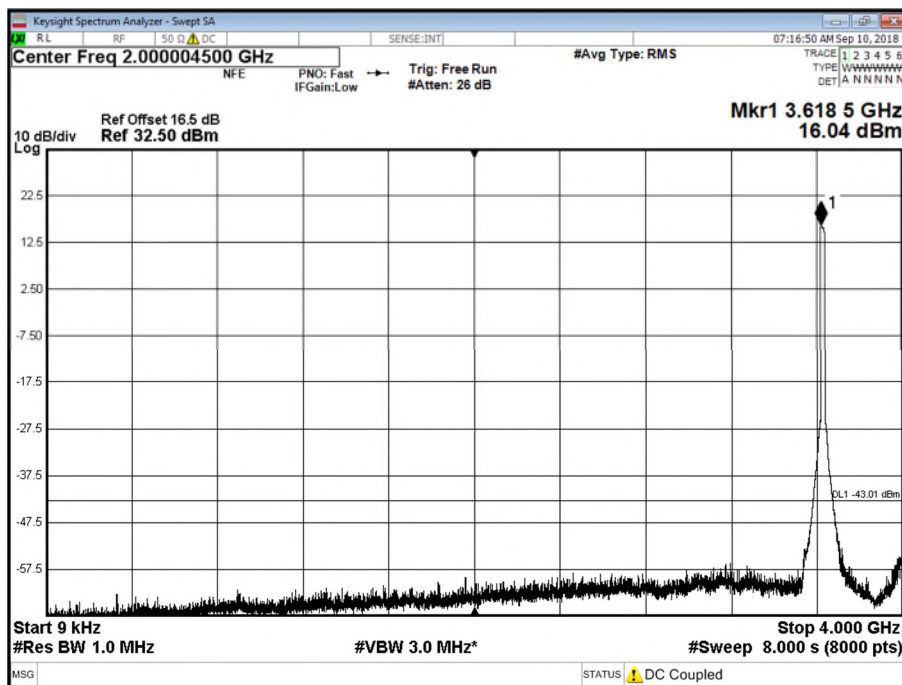


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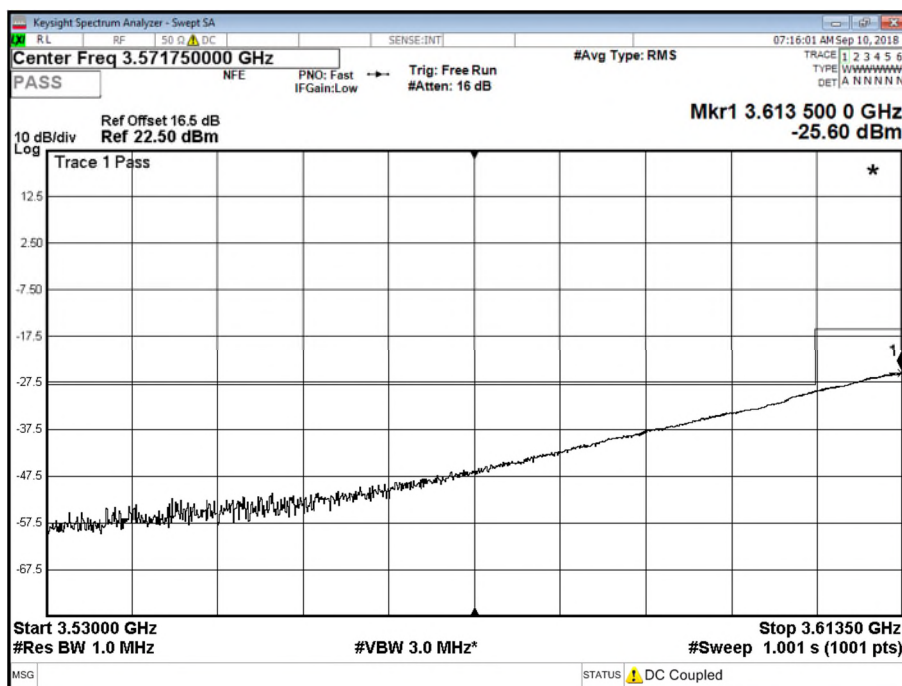
Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -
Band 3 - Range 12000 to 18000 MHz



Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



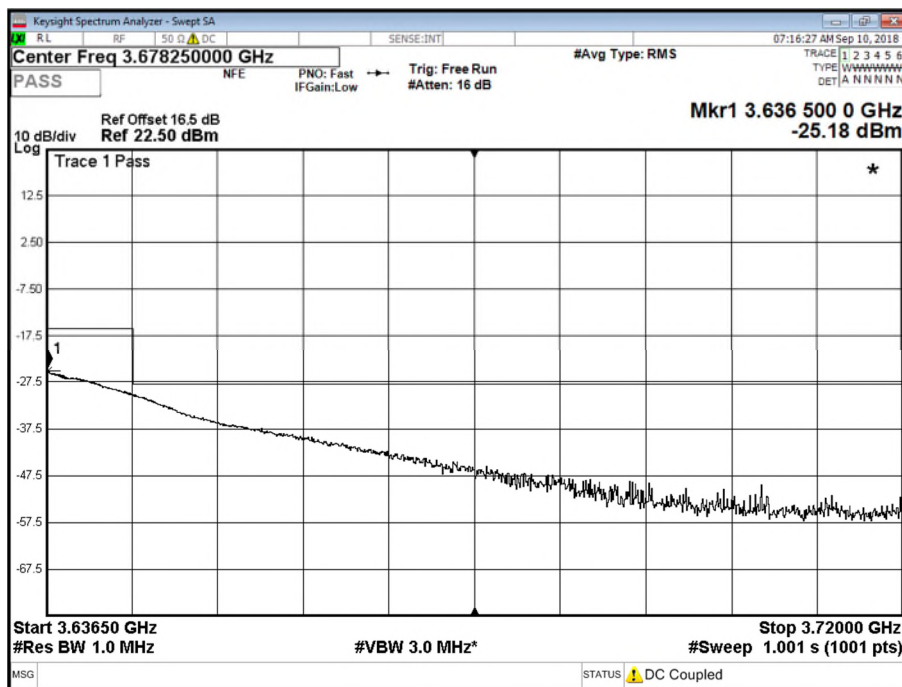
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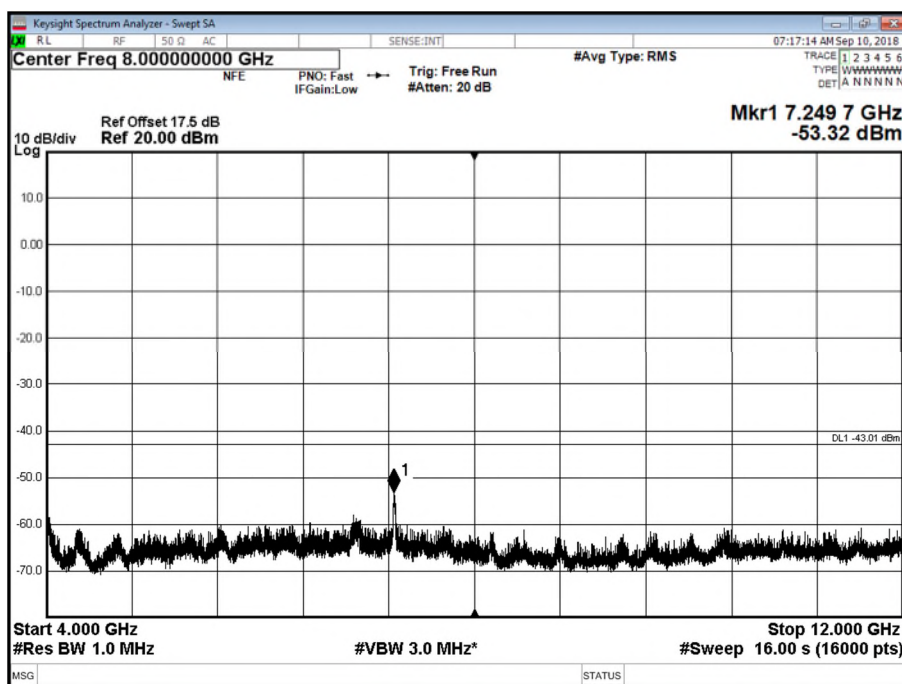


Product Service

Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band Mask High 1 - Range Mask High 1



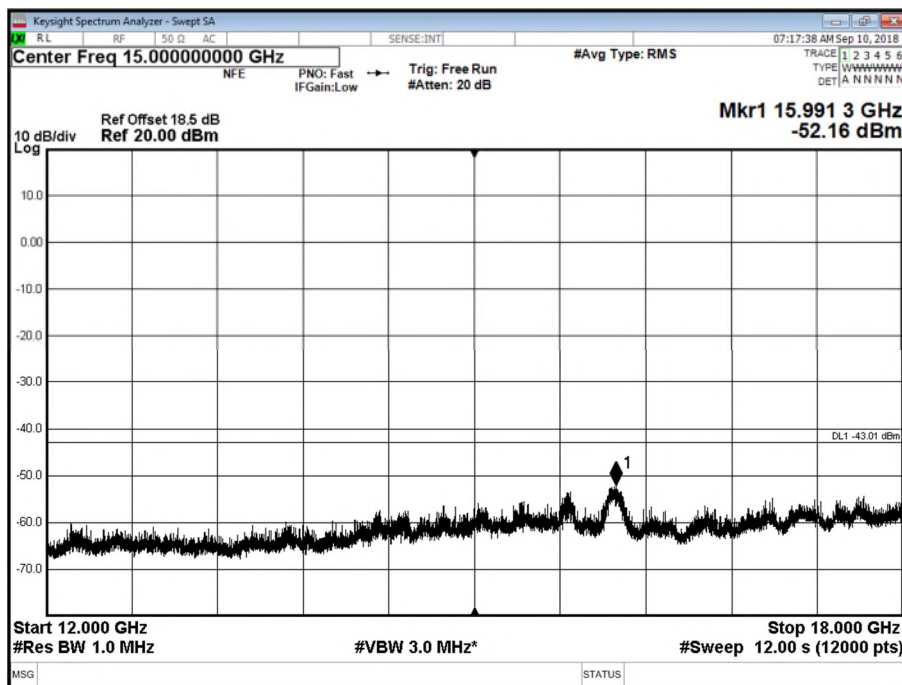
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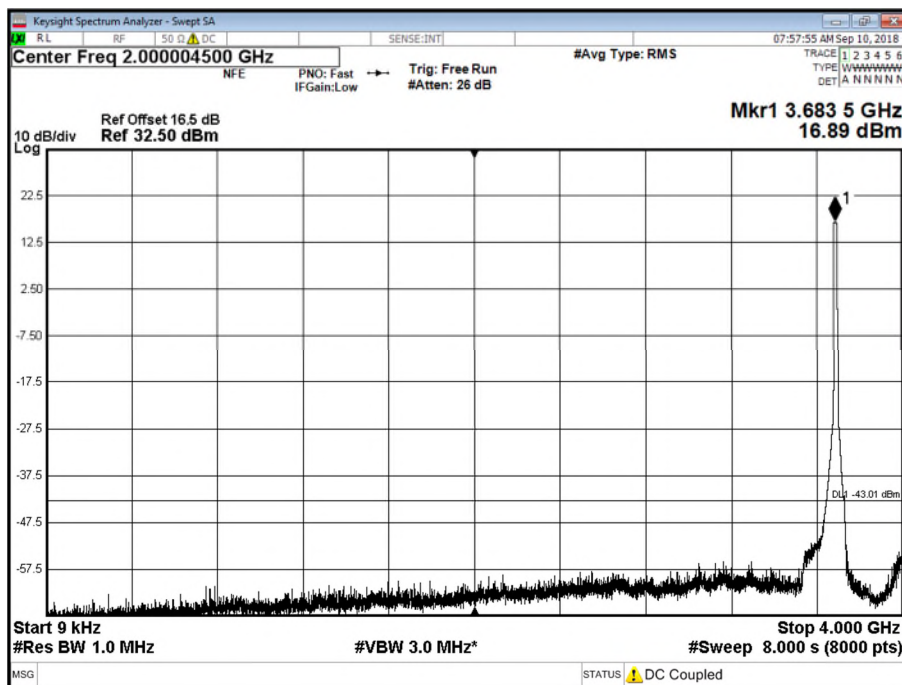


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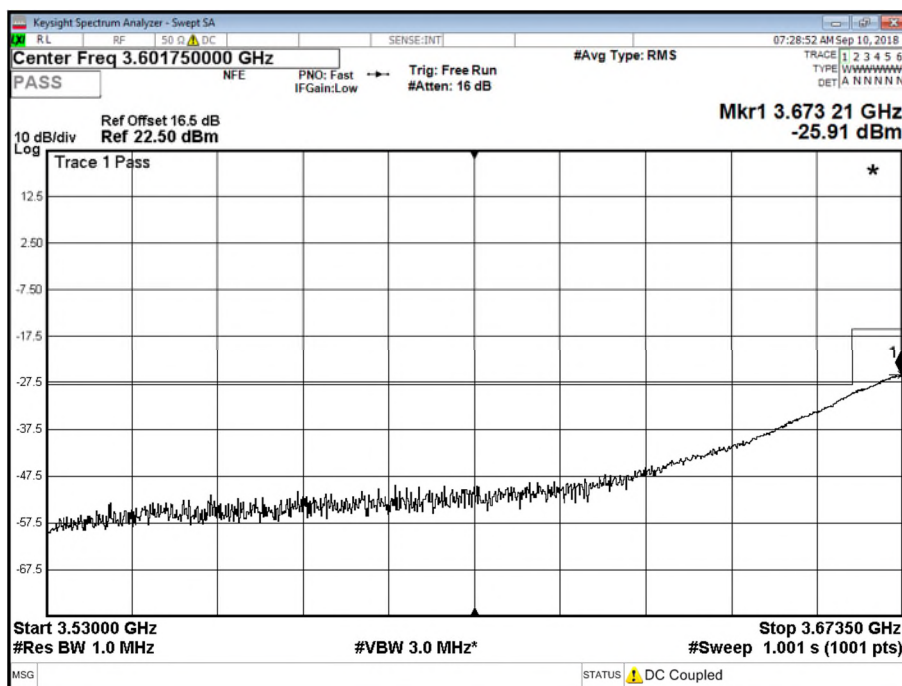
Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 3 - Range 12000 to 18000 MHz



Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



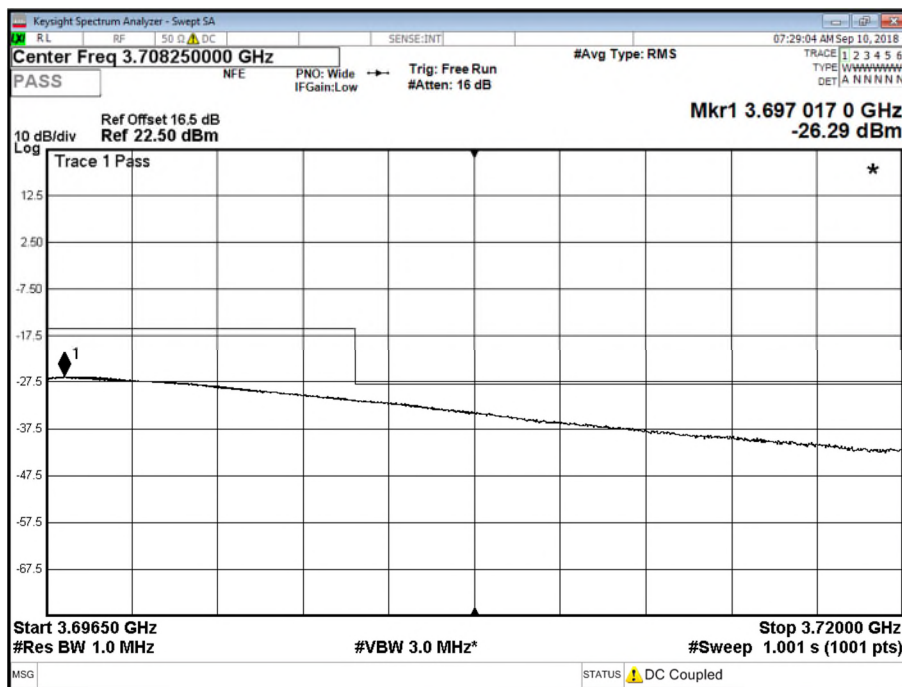
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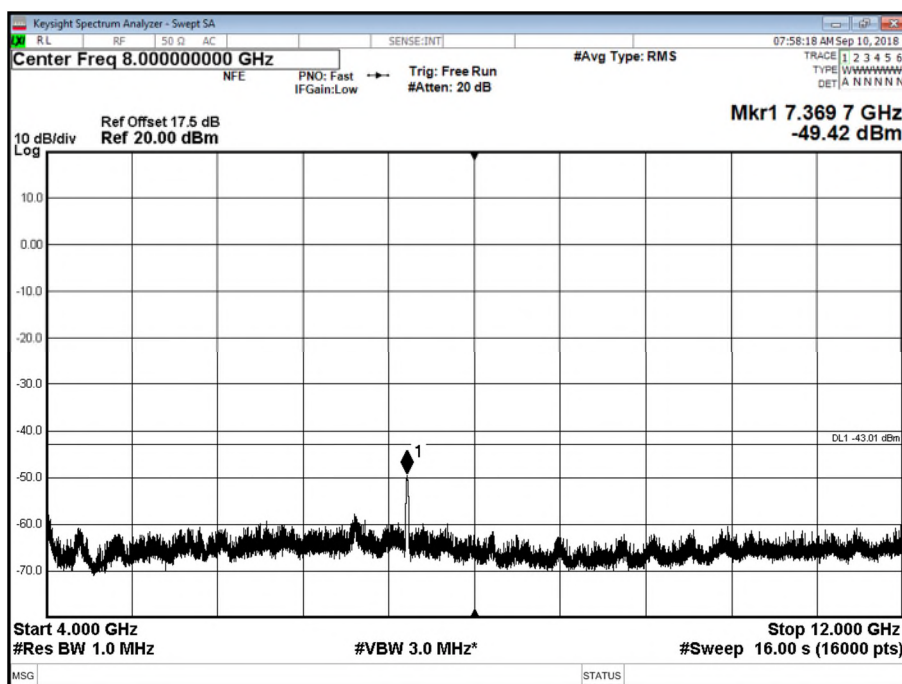


Product Service

Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask High 1 - Range Mask High 1



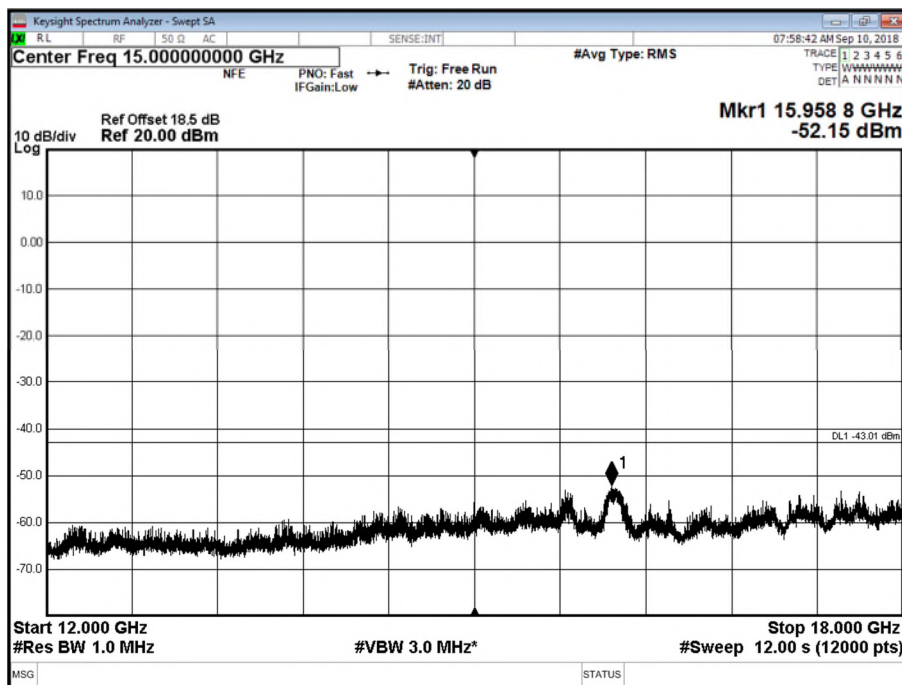
Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz



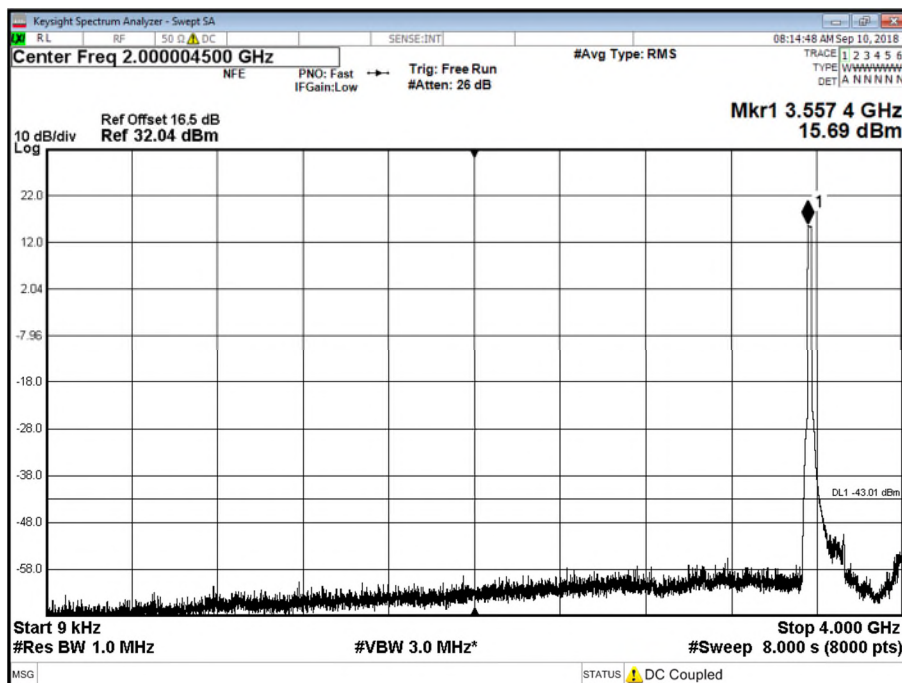


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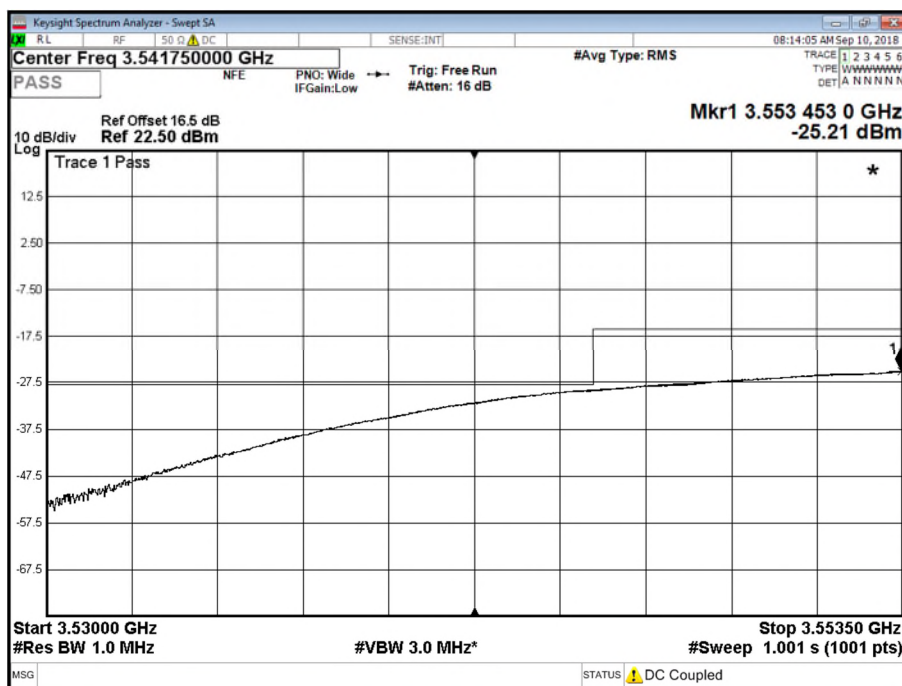
Antenna E - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 12000 to 18000 MHz



Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



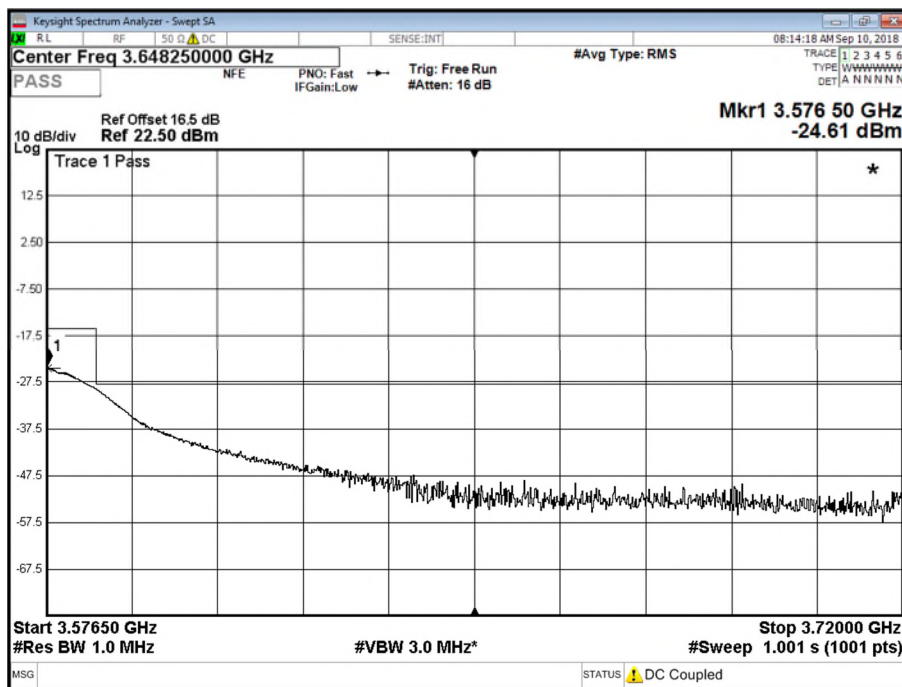
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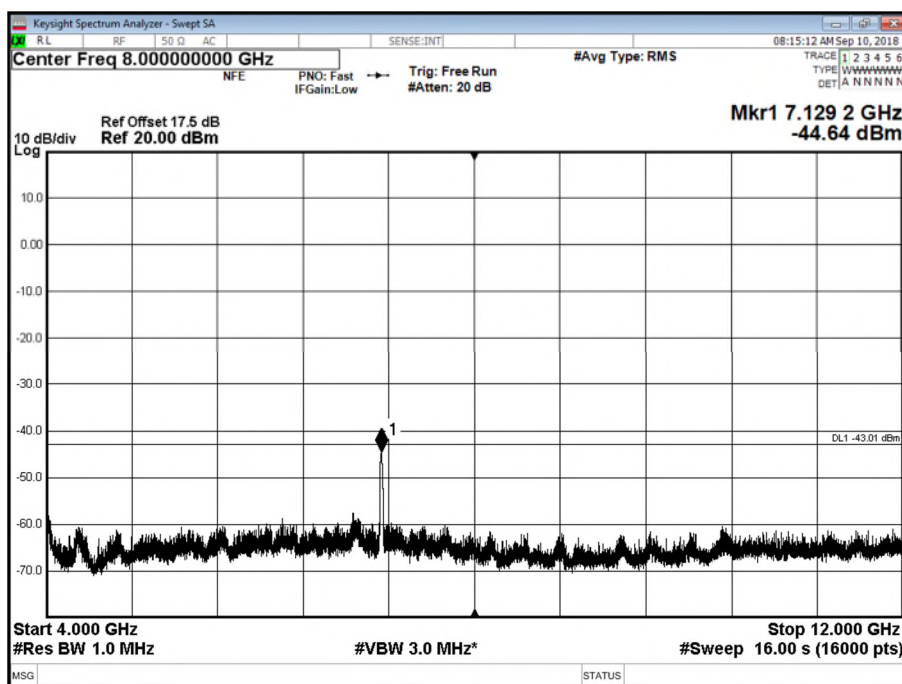


Product Service

Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B - Band Mask High 1 - Range Mask High 1



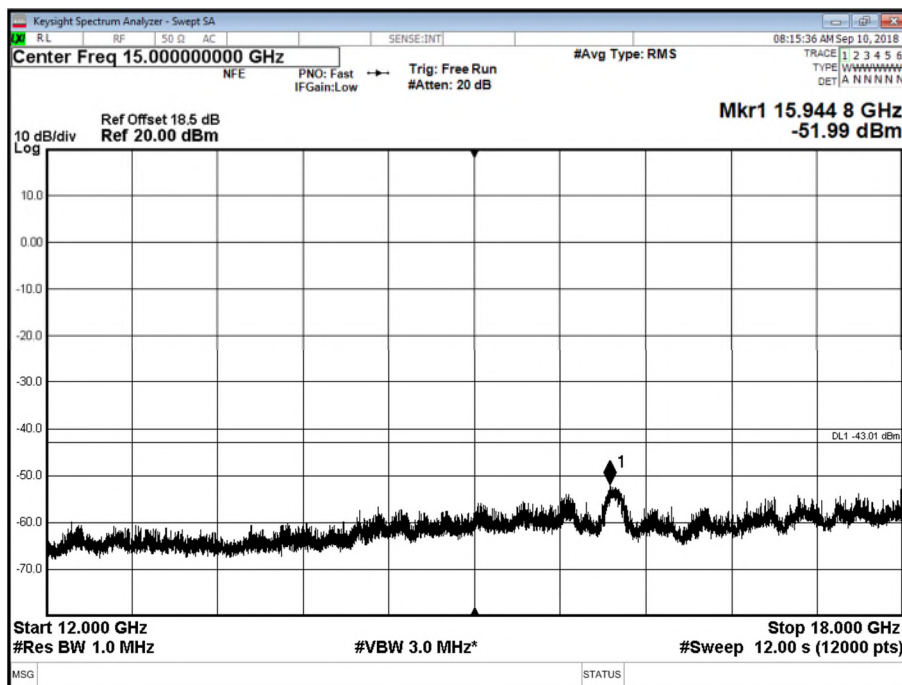
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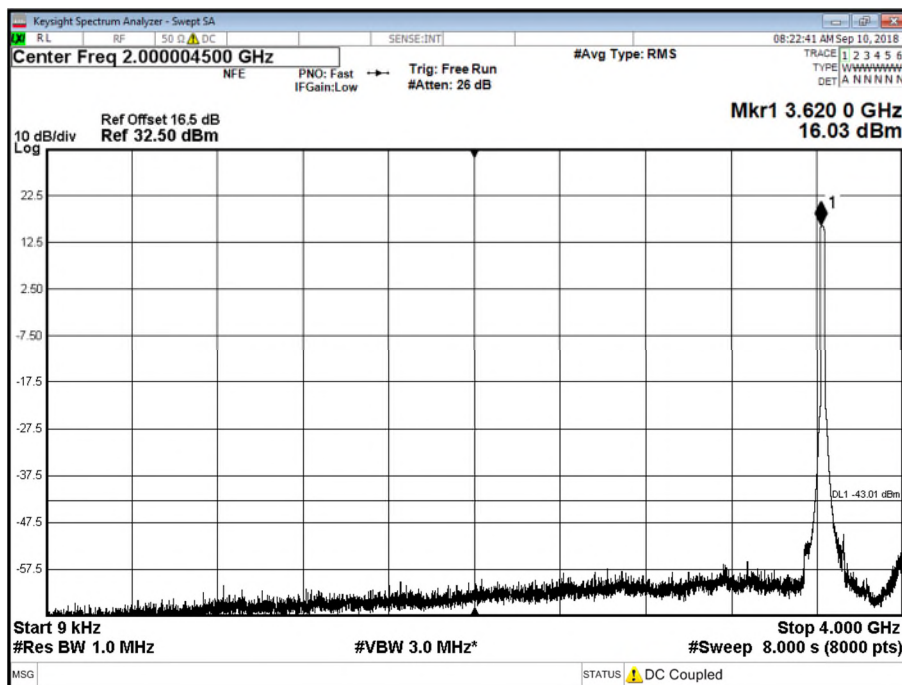


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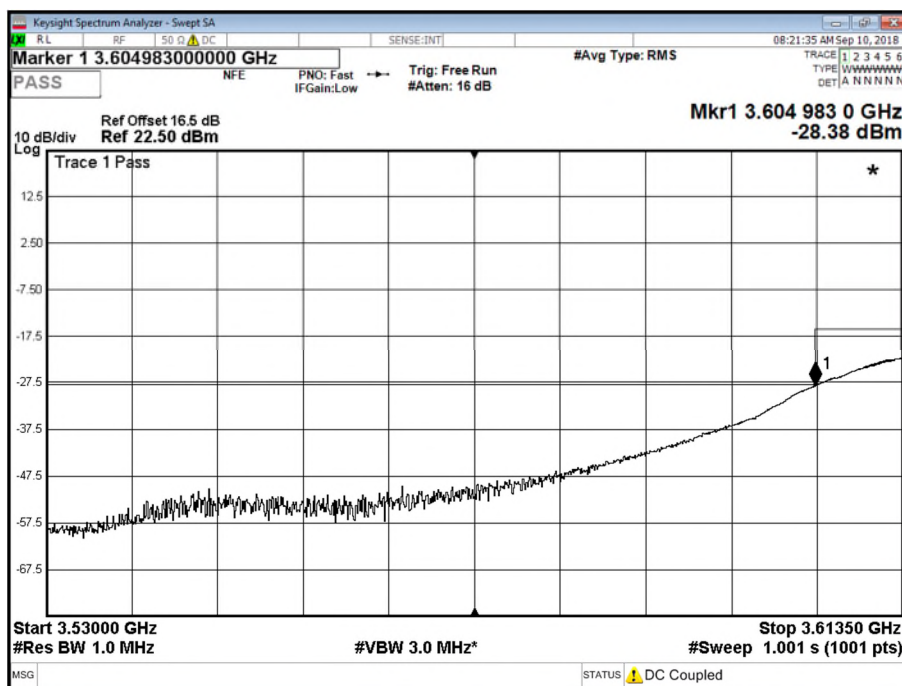
Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position B -
Band 3 - Range 12000 to 18000 MHz



Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 4000 MHz



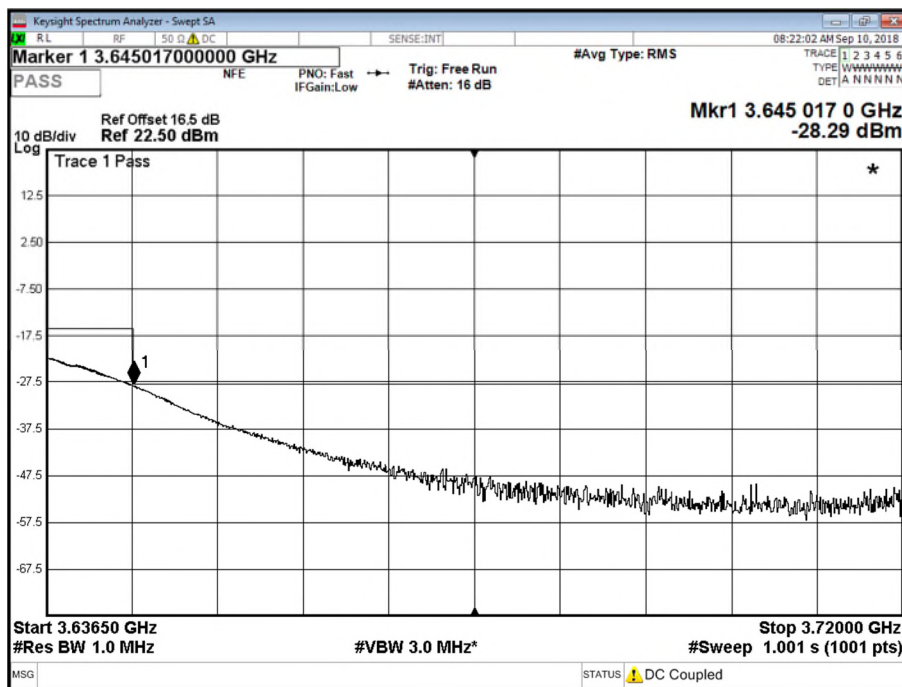
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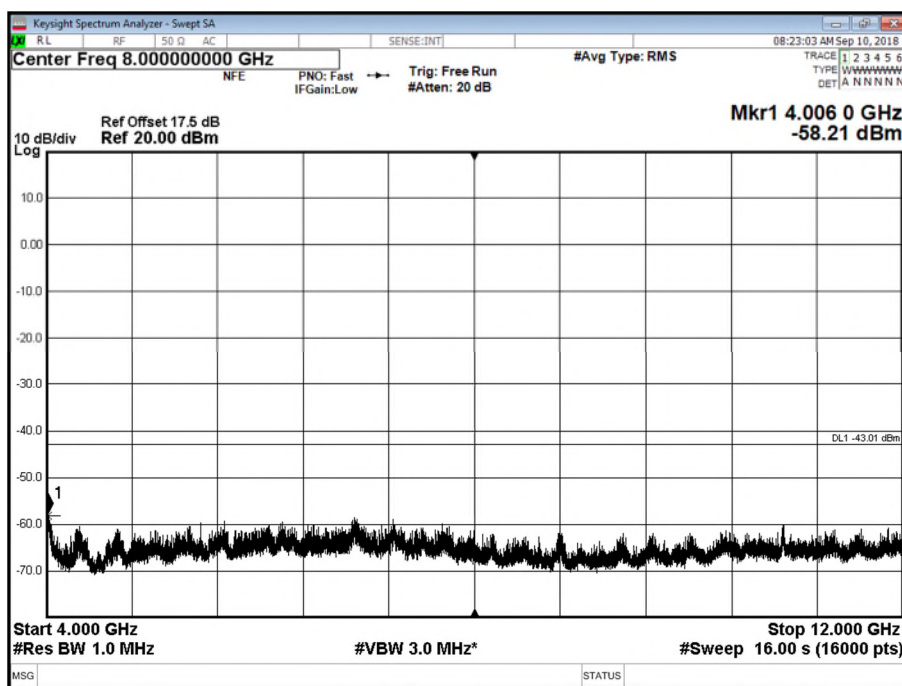


Product Service

Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band Mask High 1 - Range Mask High 1



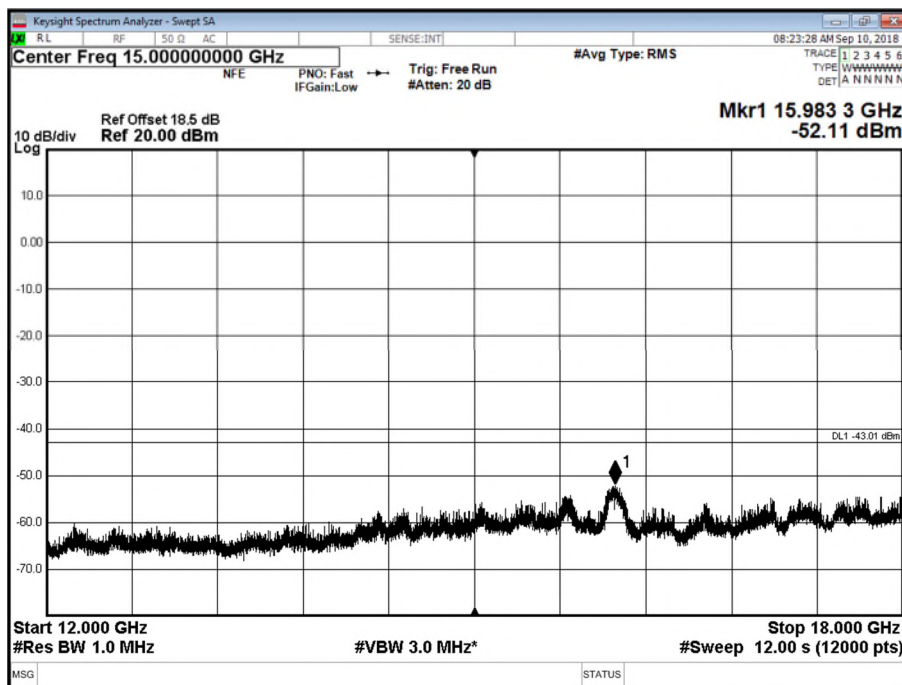
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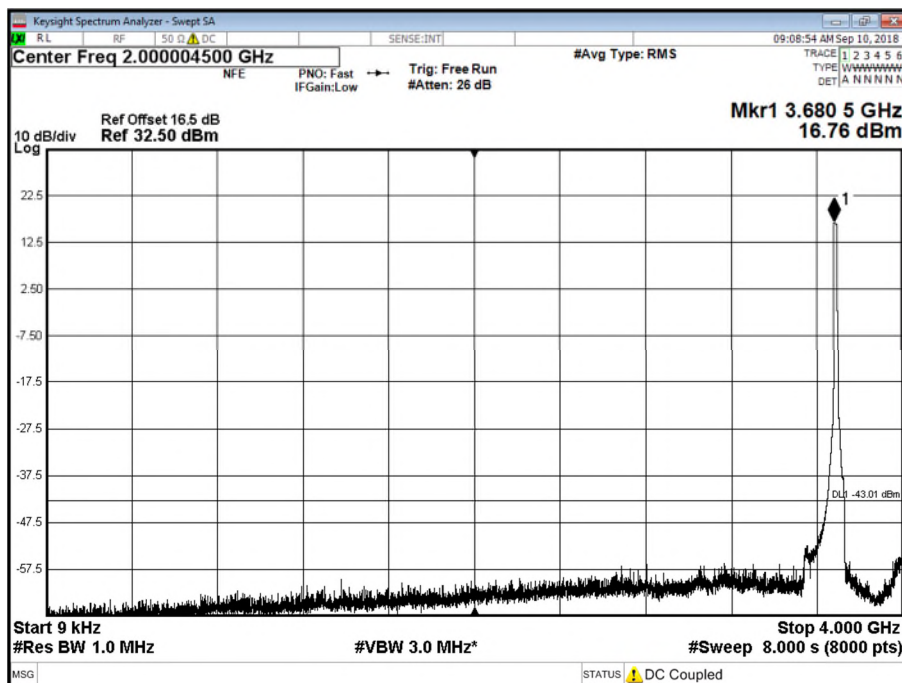


Product Service

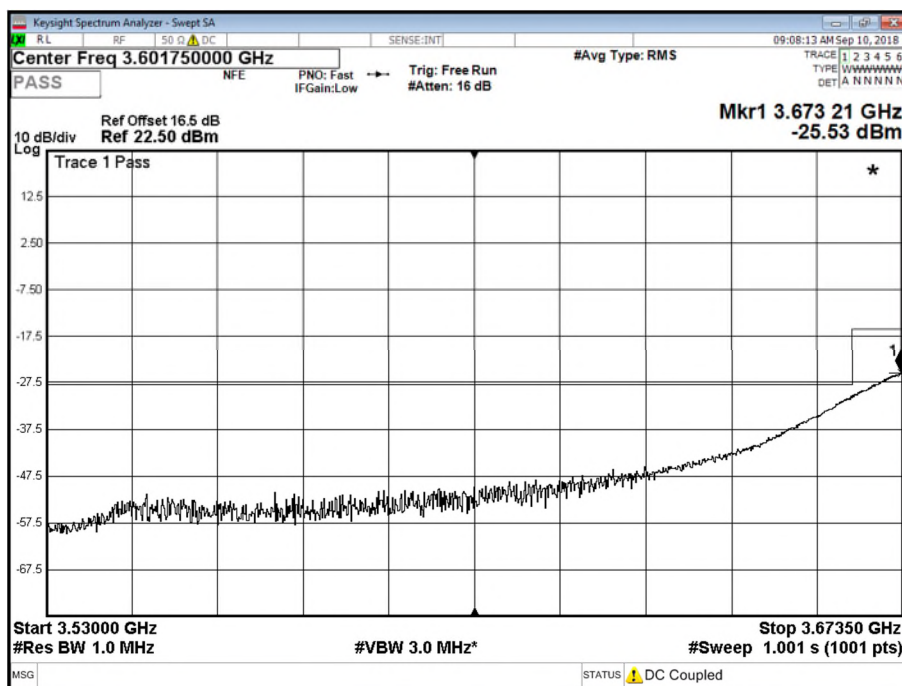
Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position M - Band 3 - Range 12000 to 18000 MHz



Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



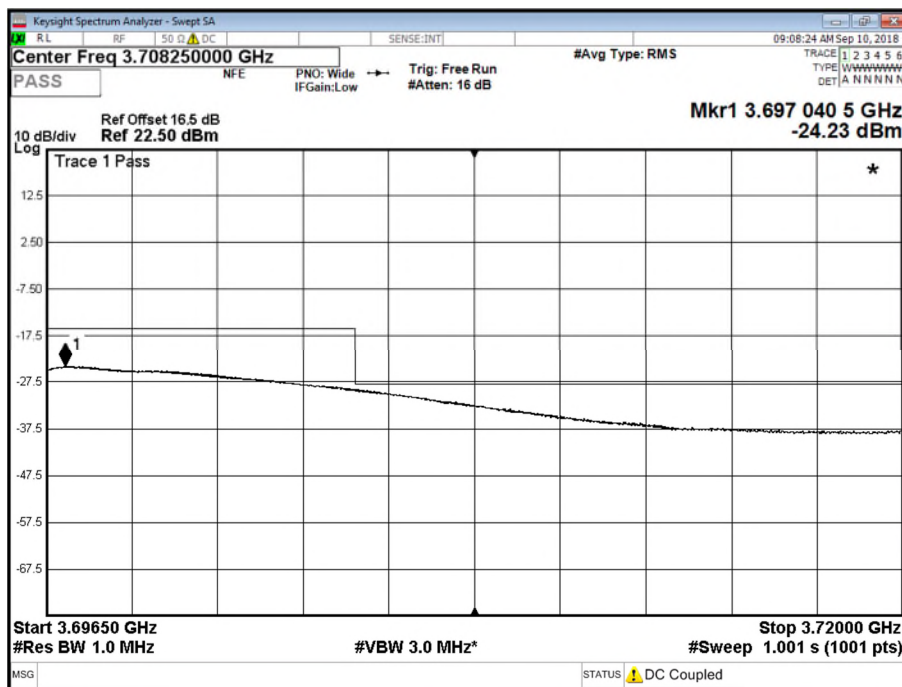
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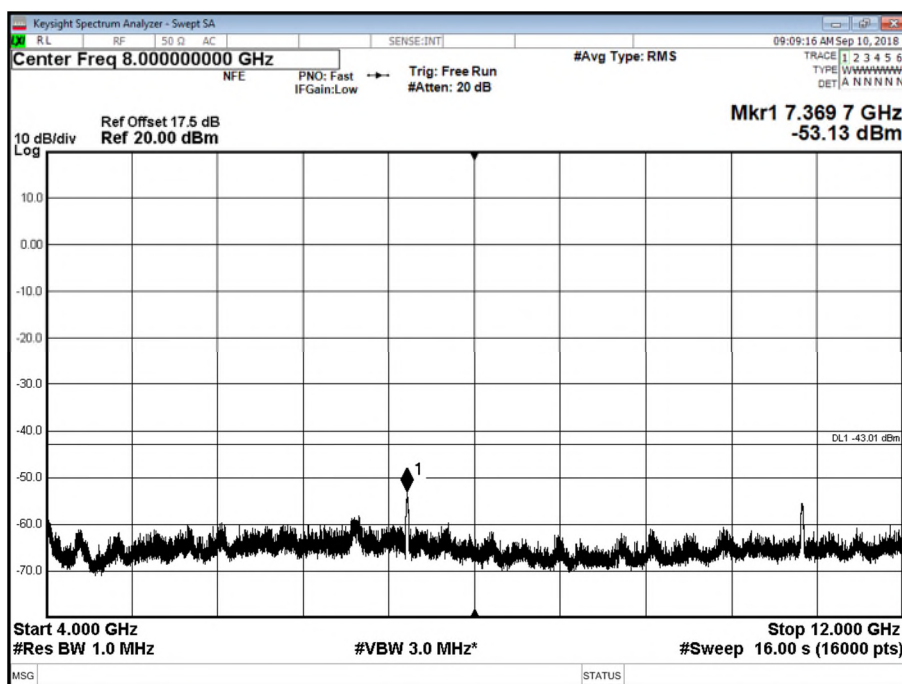


Product Service

Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band Mask High 1 - Range Mask High 1



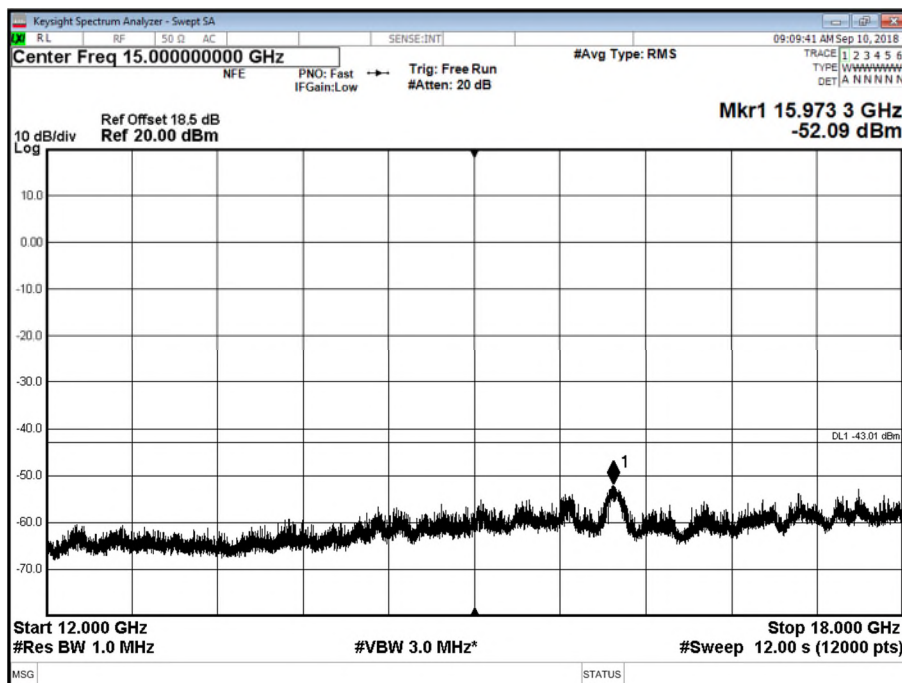
Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz





Product Service

Antenna F - LTE Modulation QPSK - LTE Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 12000 to 18000 MHz



Limit

<3530 MHz and >3720 MHz: -40 dBm/MHz
± 0 – 10 MHz Assigned Channel Edge: -13 dBm/MHz
3530 MHz to -10 MHz Assigned Channel Edge: -25 dBm/MHz
+10 MHz Assigned Channel Edge to 3720 MHz: -25 dBm/MHz
Note: Limits shown in the test plots have been reduced by $10\log(2)$ to account for 2 Port MIMO operation



Product Service

2.5 FREQUENCY STABILITY

2.5.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055
FCC CFR 47 Part 96, Clause 27.54

2.5.2 Date of Test and Modification State

September 11, 2018 - 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 23°C
Relative Humidity 40%

2.5.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01.

2.5.6 Test Results

Maximum Output Power 17 dBm

Temperature	Voltage	Frequency Error (Hz)
		Channel Position M
-30°C	115 Vac, 60 Hz	100
-20°C	115 Vac, 60 Hz	60
-10°C	115 Vac, 60 Hz	80
0°C	115 Vac, 60 Hz	399
+10°C	115 Vac, 60 Hz	419
+20°C	115 Vac, 60 Hz	0
+20°C	115 Vac, 60 Hz	0
+20°C	115 Vac, 60 Hz	0
+30°C	115 Vac, 60 Hz	20
+40°C	115 Vac, 60 Hz	220
+50°C	115 Vac, 60 Hz	299



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Limit	± 1.5 ppm or ± 1.322 kHz
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Product Service

SECTION 3

TEST EQUIPMENT USED



Product Service

3.1 TEST EQUIPMENT USED

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

Instrument	Manufacturer	Type No.	Serial No	Calibration Period (months)	Calibration Due
Maximum Peak Output Power and Peak to Average Ratio - Conducted					
THG	Fluke	77 IV	34770264	12	18-Apr-2019
DVM	VWR	61161-378	170120564	24	17-Feb-2019
Power Supply	Xantrex	XKW 60-50	E00109863	O/P Mon	-
Spectrum Analyser	Keysight	N9030A	MY55410202	12	26-Sep-2019
Attenuator	Pasternack	PE7004-10	N/S	O/P Mon	-
Switching Control Unit	Hewlett Packard	11713A	3748A060876	O/P Mon	-
RF Switch Unit	Burnsco	RARFSW 4x1	001	O/P Mon	-
Power Supply	Leader	730-3D	9801135	O/P Mon	-
Receiver	Rohde & Schwarz	ESU40	1001162	24	20-Apr-2019
Occupied Bandwidth					
THG	Fluke	77 IV	34770264	12	18-Apr-2019
DVM	VWR	61161-378	170120564	24	17-Feb-2019
Power Supply	Xantrex	XKW 60-50	E00109863	O/P Mon	-
Spectrum Analyser	Keysight	N9030A	MY55410202	12	26-Sep-2019
Attenuator	Pasternack	PE7004-10	N/S	O/P Mon	-
Switching Control Unit	Hewlett Packard	11713A	3748A060876	O/P Mon	-
RF Switch Unit	Ericsson	RARFSW 4x1	001	O/P Mon	-
Power Supply	Leader	730-3D	9801135	O/P Mon	-
Receiver	Rohde & Schwarz	ESU40	1001162	24	20-Apr-2019
Band Edge					
THG	Fluke	77 IV	34770264	12	18-Apr-2019
DVM	VWR	61161-378	170120564	24	17-Feb-2019
Power Supply	Xantrex	XKW 60-50	E00109863	O/P Mon	-
Spectrum Analyser	Keysight	N9030A	MY55410202	12	26-Sep-2019
Attenuator	Pasternack	PE7004-10	N/S	O/P Mon	-
Switching Control Unit	Hewlett Packard	11713A	3748A060876	O/P Mon	-
RF Switch Unit	Ericsson	RARFSW 4x1	001	O/P Mon	-
Power Supply	Leader	730-3D	9801135	O/P Mon	-
Receiver	Rohde & Schwarz	ESU40	1001162	24	20-Apr-2019
Transmitter Spurious Emissions					
THG	Fluke	77 IV	34770264	12	18-Apr-2019
DVM	VWR	61161-378	170120564	24	17-Feb-2019
Power Supply	Xantrex	XKW 60-50	E00109863	O/P Mon	-
Signal Generator	Agilent	E8257D	MY45140527	24	28 Sep 2019
Attenuator	Pasternack	PE7004-10	N/S	O/P Mon	-
Receiver	Rohde & Schwarz	ESU40	1001162	24	20-Apr-2019



Product Service

Instrument	Manufacturer	Type No.	Serial No	Calibration Period (months)	Calibration Due
Frequency Stability					
THG	Fluke	77 IV	34770264	12	18-Apr-2019
DVM	VWR	61161-378	170120564	24	17-Feb-2019
Power Supply	Xantrex	XKW 60-50	E00109863	O/P Mon	-
Spectrum Analyser	Keysight	N9030A	MY55410202	12	26-Sep-2019
Attenuator	Pasternack	PE7004-10	N/S	O/P Mon	-
Receiver	Rohde & Schwarz	ESU40	1001162	24	20-Apr-2019
Climatic Chamber	Burnsco	RTC-37P-3-3	07-07	O/P Mon	-

N/A – Not Applicable

O/P Mon – Output Monitored with Calibrated Equipment



Product Service

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



Product Service

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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

This report does not imply product endorsement by any government, accreditation agency, or TÜV SÜD Canada Inc.

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